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THE GARDENERS' CHRONICLE
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LILIUM AURATUM.
Strong Bulbs, 5s., 7s. 6d., 10s. 6d., and 15s. each.
B. S. Williams, Victoria and Paradise Nurseries, Upper Holloway, London, N.

New Double Italian Tuberoses.
SUTTON AND SONS have received their annual supply in good condition, which they can supply at 3s. 6d. per dozen.
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Tuberoses, Tuberoses, Tuberoses.
BUTLER, McCULLOCH, AND CO. have to offer extra strong ROOTS of the above, 3s. per dozen, 4d. each.
South Row, Covent Garden Market, W.C.

ROSES.—Extra fine Standards, at from 15s. to 18s. per dozen; 100s. per 100.
Do. Dwarf, extra fine, at from 9s. to 12s. per doz.; 63s. to 84s. per 100.
Do. New Sorts of 1866, at 24s. per dozen.
DESCRIPTIVE LIST on application.
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E. P. FRANCIS AND CO. offer several Thousands of the above cheap. Price on application.
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WM. PAUL'S PRICED DESCRIPTIVE CATALOGUE of ROSES is now ready, post free on application.
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Just published, the Second Edition of
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By John Cranston, King's Acre Nurseries, near Hereford.
Free by post from the Author for 20 stamps.

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BUTLER, McCULLOCH AND CO.'S SPRING CATALOGUE, containing descriptions of over 1600 species and varieties of FLOWER SEEDS, and a LIST of all the Novelties of the season, is now ready. Forwarded free.
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GLADIOLI. — Collections containing all the finest varieties in cultivation, many new, and offered for the first time, 105s., 63s., 42s., 30s., 25s., 20s., 15s., 12s. BRENCHLEYENSIS, the most showy of all, extra strong roots, 3s. per doz., 20s. per 100.
DESCRIPTIVE PRICED LISTS free on application.
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AUTUMN BEDDING for WINTER and SPRING DECORATIONS of FLOWER BEDS on LAWNS, &c.—A piece of Planting, showing what may be done in this way, can be seen any time at Thomas S. Ware's, Hale Farm Nurseries, Tottenham, Middlesex, adjoining the Railway Station.

WANTED, some good STANDARD OAKS, straight in the stem, well-rooted, from 6 to 8 feet in height. State quantity.—Address to G. H. Murrell, 5 Bank Street, Norwich.

The best Evergreen Fence or Screen,
Producing Immediate Effect.
JOHN CRANSTON can supply several Thousand AMERICAN ARBOR-VITÆ, 5, 6, to 8 feet in height, most desirable where an immediate Fence is required. Price on application.
Nurseries, King's Acre, near Hereford.

TREES and PLANTS of all sorts and sizes in very great quantity, of best quality and at moderate prices.
PRICED LISTS post-free on application.
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Hardy Ornamental Trees, Shrubs, Roses, &c.
NEW PLANT.
PAUL AND SON'S NEW DOUBLE SCARLET THORN. See former Advertisement. Standards, 10s. 6d. each.
DESCRIPTIVE LISTS of the above post free on application to
Paul & Son, Old Cheshunt Nurseries, N.

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JOSEPH MEREDITH has a beautiful Stock of VINES for Sale, propagated from Vines which have borne the fruit which has taken from time to time so many First Prizes.
The Vineyard, Garston, n ar Liverpool.

Late Grape Vines.
ALICANTE, LADY DOWNES', and MUSCAT of ALEXANDRIA.
J. MEREDITH has a splendid Stock of the above sorts for Planting.
The Vineyard, Garston, near Liverpool.

STRONG and EXTRA STRONG FRUITING VINES. —Upwards of 2000 from Eyes, including all the leading varieties, with stout close-jointed thoroughly ripened Canes, many of which, if fruited in pots, will produce from 8 to 16 bunches of Grapes next season. Prices, &c., upon application.
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CASTLE KENNEDY FIG.—Plants of the above may now be had at 10s. 6d. and 21s. each; the usual discount to the Trade. Peter Lawson & Son, Edinburgh and London.

FIGS for FORCING. — White Marseilles, Brown Turkey, Early Violet, Black Ischia, White Ischia, Dwarf Prolific, Angelique. Bearing Trees of the above, in pots, 3s. 6d. to 5s. each, carriage paid to London.
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PYRAMID APPLES, PEARS, PLUMS, CHERRIES. Beautiful Trees for Garden or Orchard Houses.
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Dwarf-trained Trees by the 1000, 100, or dozen.
APPLES, PEARS, PLUMS, CHERRIES, PEACHES, and NECTARINES. Fine, flat, well-trained, of best quality and true to name.
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Fifty Acres of Fruit Trees,
APPLES, PEARS, PLUMS, CHERRIES, PEACHES, NECTARINES, and APRICOTS in every form desired for Fruiting.
Richard Smith, Nurseryman and Seed Merchant, Worcester.

Orchard-house Trees Fruiting in Pots.
PEACHES, NECTARINES, APRICOTS, CHERRIES PLUMS, PEARS, APPLES, VINES, and FIGS.
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FRUIT TREES, for Walls and Espaliers.—Upwards of 50,000 to select from, carefully trained, and in the healthiest condition for planting.
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MAGNIFICENT TRAINED CHERRIES, PLUMS, PEARS, APPLES, PEACHES, NECTARINES, APRICOTS, &c. Special prices on application.
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Planting.
WM. PAUL begs to refer intending Planters of ROSES, FRUIT TREES, SHRUBS, &c., to his Advertisement of December 1.
PRICED DESCRIPTIVE CATALOGUES on application.
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FIVE MILLION Transplanted QUICKS, of superior growth. Samples and prices on application to
John Hemsley, High Fields, Melbourne, near Derby.

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H. AND F. SHARPE have for Sale a fine Lot of 3-yr. Transplanted QUICK, 3 to 4 feet high, and well-rooted. Price very moderate.
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TRANSPLANTED LARCH and other Nursery Stock offered cheap by
Wm. Urquhart & Sons, Dundee.

SPLENDID LARCH, 3 to 4 ft., at unprecedented prices; HAWTHORN QUICK, do. do.; AVENUE TREES; large EVERGREENS and CONIFERS; magnificent TRAINED PYRAMID and STANDARD FRUIT TREES. Special prices given.
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TWO HUNDRED THOUSAND YEWS.
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See CATALOGUES, Wholesale or Retail.
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TWENTY THOUSAND DWARF MAIDEN and TRAINED FRUIT TREES, APPLES, CHERRIES, PEACHES, and NECTARINES.
20,000 HOUGHTON CASTLE or VICTORIA CURRANTS.
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Just published, post free, 12 stamps,
GRATIS TO CUSTOMERS.




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VIOLA CORNUTA, MAUVE QUEEN, and PURPLE QUEEN.—New Seed of the above now ready, in packets 6*d.*, 1*s.*, 2*s.* 6*d.*, and 5*s.* Price to the Trade on application.
JAMES CARTER & Co., Seed Merchants and Nurserymen, 237 & 238, High Holborn, London, W.C.

VIOLA CORNUTA (TRUE).—The quickest and best way of getting into a large and true stock.—100 Plants of Mr. Bennet's variety of the above beautiful and hardy Bedding Plant sent on receipt of Post-office order for 12*s.* 6*d.*, package included. The Plants are nice and tufty; by separating them now and by cuttings the above quantity could be made into thousands by spring.
Apply to STUART & MAIN, Nurserymen and Seedsmen, Kelso, N.B.



SUTTON'S GUINEA HAMPER
OF
KITCHEN GARDEN SEEDS
For one whole year's supply is forwarded carriage free by rail on receipt of post-office order for 21*s.*
PRICED LISTS gratis and post free on application.
SUTTON & SONS,
Royal Berkshire Seed Establishment,
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Now Published.
ARCHIBALD HENDERSON'S DESCRIPTIVE and PRICED CATALOGUE of FRUIT TREES, VINES, ROSES, and GENERAL NURSERY STOCK, is now ready. Can be had Gratis and Post-free upon application.
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Vegetable, Agricultural, and Flower Seeds, Alpine Plants, &c.
ROBERT PARKER begs to announce that his CATALOGUE, containing select DESCRIPTIVE LISTS of the finest kinds in cultivation of the above-named is now published, and will be forwarded to applicants. The Stocks of Seeds have all been procured from the best possible sources, all are warranted genuine, and are offered at the lowest possible prices. Intending purchasers are requested to compare the prices with those of other houses. Exotic Nursery, Tooting, Surrey, S.

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J. KELWAY AND SON beg to call attention to their splendid Stock of GLADIOLI, which comprises all the sorts worth growing, and probably the largest in the Trade. As a proof of the luxuriance and excellence of their collection they have been awarded the First Prizes offered at the Crystal Palace and Royal Horticultural Exhibitions in 1864, 1865, and 1866.
PRICE CATALOGUES free to all applicants.
Selections left to J. K. & S., 3*s.*, 6*s.*, to 21*s.* per dozen; 10*s.*, 20*s.*, to 100*s.* per 100.
The Nurseries, Langport, Somerset.

Now Ready.
NEW and HARDY CLIMBING PLANTS, well adapted for Covering Verandahs, Trellis Work, Walls, Porticoes, Pillars, and Festoons; also a good Hardy and Permanent Bedding Plant—
CLEMATIS RUBELLA.—Very rich velvety claret, the deepest-coloured Clematis yet offered. First-class Certificate R.H.S.
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Messrs. GEORGE JACKMAN & SON have much pleasure in informing the Public that they may rely on the undermentioned Firms having the above New and Hardy Clematises true to name:—

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Strong Plants, with bine 1½ to 2½ feet, 21*s.* each. The usual allowance to the Trade.
Coloured Drawings, by Andrews, for 24 stamps.
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NEW GENERAL PRICED SEED CATALOGUE

WILL BE PUBLISHED NEXT WEEK,

AND FORWARDED POST FREE TO ALL PREVIOUS CUSTOMERS AND APPLICANTS.

It contains Lists of all New Flower Seeds of merit, choice strains of Florists' Flowers, imported Flower Seeds in collections, the most useful Annuals, Biennials, and Perennials for Spring and Summer Flowering; carefully selected Descriptive List of approved varieties of each kind of Vegetable Seed, with a few Practical Hints as to Culture; also an Appendix containing Gladioli and other Summer and Autumn-flowering Bulbs; Knives, Horticultural Implements, Horticultural Manures, Insect-destroying Composition, and every article likely to be required in the Garden.

A perusal is respectfully solicited; every article is priced, and purchasers may depend on the Seeds being true to name, and everything of the best quality. Exaggerated descriptions are carefully avoided.

A few NEW SEEDS, full descriptions of which will be found in the Catalogue.

	Per packet.—*s.* *d.*		Per packet.—*s.* *d.*
ORANGE-FIELD DWARF PROLIFIC TOMATO	2 0	NUNEHAM PARK ONION	2 6
WILLIAMS'S ALEXANDRA BROCCOLI	2 6	VIOLA CORNUTA, var. PURPLE QUEEN ..	1*s.* and 2 6
RAPHANUS CAUDATUS (the Wonderful Radish), 1*s.* and	2 6	,, var. MAUVE ,, ..	1*s.* and 2 6

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DESIRE TO DIRECT PARTICULAR ATTENTION TO THE

FOLLOWING NOVELTIES OF STERLING MERIT,

MANY OF WHICH ARE NOW OFFERED FOR THE FIRST TIME.

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Borecole, Veitch's Late Dwarf Curled.
This very excellent hardy variety should be generally cultivated. It is of dwarf habit, beautifully curled, and stands the coldest seasons uninjured. Per Packet, 1*s.*

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Perfectly distinct from the variety usually sold as Atkins' Matchless. It is dwarf, of very delicate flavour, turns in quickly, and hearts well. Per Ounce, 1*s.*

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A variety of excellent flavour, beautifully solid and crisp, of medium growth, and very hardy; withstanding the wet when other varieties have perished. Per Packet, 1*s.*

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As an exhibition variety unequalled, length from 2 ft. 8 in. to 3 ft., flesh of excellent quality, very shy seeding; has received many first prizes. Per Packet, 2*s.* 6*d.*

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Without doubt the finest Cucumber in cultivation, being equally suitable for summer or winter growing; very free bearing and of excellent quality. It is a cross from the Sion House, but much more prolific, and of a hardier constitution than that variety. The fruit, which averages from 12 to 15 inches in length, is very handsome, and the handle remarkably short. The flesh is of excellent quality, and we cannot too strongly recommend it.
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Raphanus caudatus, or Rat-tailed Radish.
The True variety. Per Packet, 1*s.*

Radish, Olive-shaped Scarlet with White Tip,
Known also as "The French Breakfast Variety."
A very handsome and quick-growing variety, fine flavour, and suitable for early forcing.
Per Pint, 2*s.* 6*d.*; per Ounce, 4*d.*

Melon, Heckfield Hybrid, Green-fleshed.
This fruit, which is remarkably handsome, averages from 2½ to 3 lb. in weight, and whether for flavour, free bearing, or good constitution, is unsurpassable. It has received many Prizes, including one at the International Fruit Show of the Royal Horticultural Society in October, 1862; a Medal at the Royal Botanic Summer Exhibition in 1861, &c., &c. Per Packet, 2*s.* 6*d.*

Melon, Queen Emma.
A very handsome fine flavoured variety, obtained from the Heckfield Hybrid Melon, crossed with Meredith's Cashmere. The flesh is almost white, exceedingly melting and juicy, and with a very thin rind. Its constitution is excellent, and it will be found a very desirable variety, whether for exhibition or for the dessert table.
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Pea, Taber's Early Perfection.
Said to be as early as any variety yet known, and a much greater bearer than any other first crop Pea; of very robust habit and fine flavour, pods large and well filled.
Per Quart, 2*s.* 6*d.*

Turnip, Veitch's Red Globe.
This excellent variety is of fine flavour, good shape, and should be grown in every garden.
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FLOWER SEEDS.

Arundo conspicua.
This splendid ornamental Grass resembles in style of growth and bloom the well-known Pampas Grass, but flowering nearly 3 months earlier than that variety, and lasting longer in beauty. When this variety is more known, the Pampas Grass will doubtless be but little cultivated. 1*s.* and 2*s.* 6*d.* per Packet.

Aubrietia græca.
In size of flower and depth of colour this variety is superior to any yet introduced, and is a very desirable plant for borders or beds in early spring. It received a First-class Certificate at the Spring Exhibition of the Royal Botanic Society, 1865.
1*s.* per Packet.

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Newly imported seed of guaranteed growth, and containing varieties of several shades of colour.
1*s.* and 2*s.* 6*d.* per Packet.

Victoria Aster.
The finest Aster of recent introduction, in collections of 6 colours separate. 3*s.* per Collection.

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Magnificent ornamental-foliage plant, growing 5 to 6 feet high; the foliage is beautifully and evenly ribboned with alternate stripes of green and white; often in its earlier stages of growth it is also striped with rose. 1*s.* per Packet.

Viola cornuta.
One of the most useful as well as most beautiful plants used for flower-garden decoration. The foliage is bright and striking, and contrasts most effectively with its lovely mauve-coloured blossoms, with which the plant is loaded. This Violet will prove a real acquisition. 1*s.* and 2*s.* 6*d.* per Packet.

Xeranthemum annuum caryophylloides flore pleno.
A really striking variety of this well-known and favourite Everlasting. The dense double flowers are of a reddish white colour, striped or marbled with rose, red, crimson, and purple. The plant is of a regular compact habit, and a profuse bloomer.
1*s.* per Packet.

Pentstemon Jaffrayanum.
A magnificent variety, with flowers of a brilliant azure blue.
1*s.* per Packet.

THE FOLLOWING NOVELTIES

Sent out by other Firms have been procured direct, and can be supplied at the Advertised Prices:—

BEET, DEWAR'S IMPROVED SHORT-TOP.
BROCCOLI, CATTELL'S ECLIPSE.
,, BACKHOUSE'S WINTER PROTECTING.
LETTUCE, ALL THE YEAR ROUND.
ONION, NUNEHAM PARK.
,, TREBON.
PEA, LAXTON'S PROLIFIC.
,, POYNTER'S EARLIEST.
,, THE PRINCE.
TOMATO, ORANGEFIELD.
AGROSTEMMA CŒLI ROSEA, dwarf fringed.
CHRYSANTHEMUM DUNNETTII, new double golden.
INVINCIBLE SCARLET SWEET PEAS.
LUPINUS HYBRIDUS ATRO-COCCINEUS.
PECTIS GRANDIFLORA.
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SANVITALIA PROCUMBENS FLORE PLENO.
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SILENE PENDULA RUBERRIMA.
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PATERSON'S NEW POTATOS. For descriptions see CATALOGUE.

DESCRIPTIVE CATALOGUES POST FREE ON APPLICATION.

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Genuine Seeds.

LUCOMBE, PINCE, AND CO., beg to inform their patrons that they have just received a splendid Stock of the above in excellent condition.

The Seeds have been obtained from the best Growers, both English and Continental, and can be recommended as being pure in quality and true to name. Many of them are new, and well deserving a trial.

CATALOGUES will be forwarded free by post on application to their Exeter Nursery, Exeter.

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WATERER AND GODFREY'S PRICED and DESCRIPTIVE CATALOGUE of RHODODENDRONS and other American Plants for this Autumn, will be sent on application. The Catalogue also gives a summary of their General Nursery Stock, probably the most extensive in the kingdom.

Knap Hill Nursery, Woking, Surrey.

New Verbenas of 1866.

PHILIP LADDS is now sending out, free by post 40 NEW VERBENAS, as above, for 7s.; 20 of ditto for 4s. Verbenas, with plenty of Cuttings, 3s. per dozen, package included.

Also SMITH'S LE GRAND GERANIUM, the finest Bedding Nosegay ever raised, in large 60-size pots, 12s. per dozen, or £4 per 100. Terms cash.

Nursery, Bexley Heath, Kent.

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WEBB'S GIANT POLYANTHUS and COWSLIP, with all the best varieties of Double and Single PRIMROSES, PANSIES, &c., with Seeds of single varieties. LIST of prices of different kinds on application to

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Genuine New Vegetable, Flower, and Agricultural Seeds of best quality only.

J. SCOTT'S Stock of the above is now ready for sending out. A CATALOGUE containing PRICED LISTS of NOVELTIES, and other choice SEEDS, BULBS, GARDEN REQUISITES, &c., post free on application, prices very low.

GLADIOLUS, from 2s. per dozen, named sorts.

J. SCOTT, The Seed Stores, Yeovil, Somerset.

To the Seed Trade.—Continental Flower Seeds, &c.

F. W. WENDEL, SEED GROWER, &c., Erfurt, Prussia, begs to announce that his WHOLESALE CATALOGUE of the above is now ready, and may be had free and post paid on application to his Agent,

GEO. MACINTOSH, Seedsman, &c., High Road, Hammersmith, W.

MESSRS. C. PLATZ AND SON, Erfurt, Prussia, SEEDSMEN to H. M. the King of Prussia, beg to inform their Friends and the Trade that their SEED CATALOGUE for 1867 is now ready, and may be had post free on application to

Messrs. JUNG & SCHNEIDER, Seedsmen, Cheltenham.

WELLINGTONIA GIGANTEA, new seed, per 1000 seeds, 6s.
PINUS NORDMANNIANA, new seed, per lb, 10s. 6d.

Tansley Nurseries, near Matlock, Derbyshire.

JOSEPH SMITH. SEN., invites Planters and the Trade to inspect his Nursery of 80 Acres of high land. The soil is of a fibrous nature, and the Plants take up with excellent roots, such as to ensure the best success in their removal.

The Nursery contains many Hundred Thousands of RHODODENDRONS, COMMON and PORTUGAL LAURELS, BOX, BROOMS, BERBERIS, HOLLIES, PRIVETS, YEWS, &c. The FOREST TREES are very extensive, of all the leading kinds; there are 15 Acres of LARCHES, of different sizes, and all others in proportion. Prices moderate, which can be had on application as above.

Rhododendrons.

JOHN WATERER'S DESCRIPTIVE CATALOGUE of HARDY SCARLET and other RHODODENDRONS is now published and will be forwarded on application. It faithfully describes the colours of the new varieties exhibited by him at the Royal Botanic Gardens, Regent's Park. An Abridged List of popular CONIFERS with heights and prices, is likewise combined.

The American Nursery, Bagshot, Surrey, near Sunningdale Station, South-Western Railway.

Viola cornuta.

H. CANNELL has got 500 Dozen in fine condition of both PURPLE QUEEN, direct from Mr. Bennett, and MAUVE QUEEN, which originally came direct from Mr Wills, therefore must be true. Six of each kind sent safe, fresh, and free per post for 50 stamps; £1 per 100.—Fuchsia Nursery, Woolwich.

RICHARD SMITH'S FRUIT LIST contains a Sketch of the various Forms of Trees, with Directions for Cultivation, Soil, Drainage, Manure, Pruning, Lifting, Cropping, Treatment under Glass; also their synonymes, quality, size, form, skin, colour, flesh, flavour, use, growth, duration, season, price, &c. Free by post for one stamp.

RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

WALL-TRAINED TREES of BEARING SIZE.—Our Wall-Trained Fruit Trees this season are very fine, and include PEACHES, NECTARINES, APRICOTS, and FIGS, suited for planting in houses for immediate Fruiting. An inspection is respectfully invited.

T. JACKSON & SON, Nurseries, Kingston, Surrey.

W. VIRGO AND SON have a large Stock of the undermentioned FRUIT, FOREST, and other TREES to offer this season, viz.:—

Apples	Alder	Withy
Cherries	Ash	Quick (strong transplanted)
Plums	Chestnut (Spanish)	Common and Portugal Laurels
Pears	Hornbeam	Privet
Peaches and Nectarines	Hazel	Roses, &c.
Forest Trees	Larch and Scotch Fir	
	Oak (English)	

Samples and Prices can be had on application at
The Nursery, Wonersh, near Guildford, Surrey.

To the Trade.

JAS. GARAWAY AND CO. offer

Alder, 1½ to 2 & 2 to 3 transplanted	Chestnut, Horse, 1 to 2 feet, transplanted
Ash, 1, 2, and 3-year Seedlings	Elm Wych, 1 to 2, 2 to 3, and 3 to 4 feet, transplanted
Ash, transplanted, 2 to 3 feet	Larch, extra fine, 1 to 1½, 1½ to 2, 2 to 3, and 3 to 4 ft., transplanted
Aucuba japonica, berried	
Beech, 1 and 2-year Seedlings	
Birch, 1 to 2 feet, transplanted	

FRUIT TREES.

Apples, very fine dwarf-trained	Peaches, very fine dwarf-trained and standard-trained
Apricots, do. and standard-trained	Pears, very fine dwarf-trained
Cherries, do., do.	Plums, do.
Nectarines, do., do.	

Prices on application.

JAS. GARAWAY & CO., Durdham Down Nurseries, Bristol.

SURPLUS STOCK.—TO BE SOLD CHEAP. SPRUCE, 3-yrs. Seedling, 2-yrs. Transplanted, very fine.
3-yrs. " 3-yrs. "
OAK, English, 3-yrs. Transplanted, 1½ to 3 feet, stout and fine.

For Samples and Prices of the above, delivered at the leading Railway Stations or Ports, apply to

DRUGHORN & AITKEN, Kilmarnock, N.B.

Planting Season

LARCH (Native and Tyrolese), SCOTCH FIR (True Native), SPRUCE, OAK, ASH, ALDER, BEECH, PRIVET, and all kinds of FOREST and ORNAMENTAL TREES and SHRUBS, ROSES, FRUIT TREES, fine specimen ARAUCARIAS and DEODARS, and large TREES for Park Planting, now in fine condition for removal.

CATALOGUES, with sizes and prices, sent free on application to DICKSONS & Co., Nurserymen, Seedsmen, and Florists, 1, Waterloo Place, Edinburgh.

LARCH, PEAR STOCKS, &c.

LARCH, 1½ to 2 feet, per 1000, 8s.; 2 to 3 feet, 10s.; 3 to 4 feet, 12s. 6d.
PEAR STOCKS, 2½ to 5 feet, 10s. to 30s. per 1000.
SCOTCH FIR, 2 years bedded, 6 to 12 inches, 5s. per 1000.

LIST of other TREES sent on application.

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Forest Trees and Cover.

JOSEPH SMITH, JUN., has to offer at very moderate prices TRANSPLANTED ASH, ALDER, BIRCH, HORSE CHESTNUT, ELM, broad and narrow-leaved; SILVER and SCOTCH FIRS, WHITE AMERICAN SPRUCE, HAZEL, OAK, POPLAR, PRIVET, WEYMOUTH and AUSTRIAN PINES, THORN QUICKS, HUNTINGDON and DUTCH WILLOWS, LARCH, good stout plants, 1½ to 2 feet, 12s.; 2 to 2½ feet, 15s.; 2 to 3 feet, 18s.; and 3 to 4 feet, 16s. per 1000. NORWAY SPRUCE FIR, 6 to 9 inches, 6s.; 9 to 12 inches, 9s.; 1 to 1½ feet, 14s.; 1½ to 2 feet, 21s.; and 2 to 2½ feet, 30s. per 1000. COTONEASTER MICROPHYLLA, 1 to 1½ feet 20s. per 1000; 1½ to 2 feet. RUBUS in sorts, 2 to 3 ft., 20s. per 1000. SNOWBERRY, 2 to 3 ft., 20s. per 1000. BROOM, White and Yellow, transplanted, 15s. per 1000. LAURELS, BERBERIS, ARBOR-VITÆ, &c., Seedling ASH, CRAB, SPANISH CHESTNUT, SPRUCE, 3 and 4 years; ELM, 2 years, £5 per 100,000. OAKS, 1 and 2 years; OAK, EVERGREEN, 1 year; PRIVET, 1 and 2 years; SYCAMORE. RHODODENDRON PONTICUM, 2 years, 6s.; 4 years, 8s. per 1000; 3 years, and 1 year transplanted, 18s.; 3 years, and 2 years transplanted, 25s.; 6 to 9 inches, 50s.; and 9 to 12 inches, 60s. per 1000. Twice-transplanted, and bushy, 4 to 8 inches, 70s.; 8 to 12 inches, 95s.; 9 to 15 inches, 140s.; 1 to 1½ feet, 180s.; and 1½ to 2 feet, 200s. per 100.

A PRICED LIST forwarded on application. Price to the Trade on application.

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THOMAS S. WARE has a large stock of the following to offer at low Prices:—

Standard Roses	Black Currants, strong
Half Standard do.	Weeping Willow, 3 to 6 feet
Common Moss Roses	Berberis of sorts
Cabbage Province do.	Spiræas do.
Climbing Roses, strong	Forsythia viridissima
Maiden Apples, fine	Yellow Spanish Broom, in pots, 4 to 5 feet
" Pears	White Portugal do., 3 to 4 feet
Poplar, Balsam, 4 to 6 feet	Lavender, strong
" Black Italian, 3 to 5 feet	Rosemary, do.
Ribes sanguineum, 3 to 4 feet	Southernwood, do.
Oaks, 2-yr. seedling, 1 to 2 feet	Asparagus, 2-yr.
Laburnum do., 2 to 3 feet	Privet
" do., transplanted, 2 to 4 ft	Cotoneaster microphylla, 1 to 2 ft
Crataegus of sorts, 3 to 4 feet	Weigelas, sorts
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Prices according to quantity taken.

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THOMAS S. WARE, having a large stock of FLOWER ROOTS (most of them on ground which must be cleared), is induced to offer them at the following very low rates:—
600, in not less than 25 varieties, for 25s.
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Aquilegia	Pansies
Arabis albida	Phalaris arundinacea picta
Asperula odorata	Pinks, sorts
Asters, in varieties	Polyanthus
Campanula media	Potentilla
Delphinium formosum	Sedum, in variety
Dianthus Dunnettii	Southernwood
Digitalis, mixed	Sweet William
Epilobium, variety	Tritoma Uvaria
Festuca glauca	Tussilago fragrans
Gnaphalium arenarium	Veronica, in variety
" margaritaceum	Vinca, do.
Iris germanica, in many varieties	Wallflower
Lavender	

For smaller quantities of these and other varieties see List, which can be had on application.

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JAMES VEITCH & SONS

BEG TO ANNOUNCE THAT THEIR

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WITH LIST OF IMPLEMENTS AND OTHER GARDEN REQUISITES,

Is now Published, and will be forwarded Free on application.

THE ROYAL EXOTIC NURSERY, KING'S ROAD, CHELSEA, LONDON, S.W.

A "WELCOME GUEST" AT THE GARDENER'S FIRESIDE.

RICHARD DEAN'S LIST OF SPECIALITIES

IS NOW READY,

AND CONTAINS ALSO SOME ORIGINAL PAPERS OF GREAT VALUE TO THE AMATEUR.

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NEW MELON DR. HOGG.—A most valuable acquisition, altogether A1. The fruit is of a good medium size, handsome oval shape, brownish yellow skin, and pale green flesh, very solid and luscious, rich aroma. A free setter and a good keeper, a fine and sure exhibition variety. Per packet of 4 seeds, 1s. 6d.; per packet of 8 seeds, 2s. 6d.

NEW CUCUMBER, GLORY of HANTS (DEAN).—A very first-rate black-spined variety, long, handsome, and very prolific; first-rate for either house or frame work; a thoroughly reliable variety, whether for table or exhibition. It has been very carefully selected and grown specially for R. DEAN. Seed very scarce. Per packet of 4 seeds, 2s. 6d.

NEW CUCUMBER, SANSPAREIL (FRASER).—A decided improvement on the variety known as the Coleshill. Rind smooth, fruit very handsome, short handle, very prolific. Average length, 18 ins. Excellent for house work; altogether extra fine. Per packet, 1s. 6d. and 2s. 6d.

NEW CUCUMBER, SENSATION.—This really fine variety is recommended with the utmost confidence. It has been grown under RICHARD DEAN'S personal inspection for two seasons, and he can guarantee its high worth. The fruit has a black spine, grows a great length, sets freely, and bears profusely, and will be found to be one of the best exhibition variety extant. Being a very shy seeder, the crop is very scarce. Per packet of 4 seeds, 2s. 6d.

BROCCOLI, DEAN'S PREMIER EARLY WHITE.—Unquestionably the largest and best of all the Early White Broccolis. Heads large, very fine and white; quite hardy. A variety that can be depended on, as it is entirely free from any impregnation of the character of the White Cape. Should be sown in March, and will flower in the March following. Per packet, 1s. 6d. and 2s. 6d.

BROCCOLI, EALING EARLY DWARF WHITE.—A capital succession variety to DEAN'S Premier. Is distinct, being the earliest early white grown; good pure heads, very firm and symmetrical. Sow in March, will be ready for use in April. Per packet, 1s.

BROCCOLI, IMPROVED KIDDERMINSTER.—A variety that has been very carefully selected by RICHARD DEAN. Dwarf growing, late, well protected white flower, symmetrical shape, good size and very hardy. Should be sown in March, and will be ready for use end of April and May. Per pkt., 1s.

CABBAGE, CHILTON EARLY SPRING DWARF.—RICHARD DEAN heartily recommends this very excellent sort as suitable alike for the garden of the hall and that of the cottager. Of medium size, close hearted, turns in quickly, and very tender. Selected specially for its hardihood of constitution. Per packet, 1s.

CABBAGE, DEAN'S ONWARDS.—A very greatly improved variety of the large Cabbages, as represented by the Enfield Market. Very early, compact grower, and deliciously tender. Per packet, 1s.

CABBAGE, PRESIDENT EARLY DWARF.—A very fine early Dwarf Cabbage, medium size, good close heart, excellent marrow flavour. A capital sort for winter work. Per packet, 1s.

LETTUCE, ACME WHITE COS.—A very large variety, superior in quality to the Paris White Cos, from which it also differs in colour and habit. Hearts well, does not require tying; very crisp and sweet, and as hardy as any Lettuce in cultivation. Invaluable for summer or winter growth. Per packet, 1s.

LETTUCE, GLOIRE DE PARIS.—A summer Cabbage Lettuce, in the way of the well-known Drumhead or Malta; much firmer and closer in growth. It is a fine white heart, the outer leaves tinged with brown. It stands a long time before running to seed; in fact, there is some difficulty in getting it to seed; the stock is therefore scarce. Per packet, 1s. and 2s. 6d.

LETTUCE, LEYDEN WHITE DUTCH.—A splendid Cabbage Lettuce, the very finest in cultivation. It produces large close heads, literally all heart; flavour excellent, and very hardy. Per packet, 1s. and 2s. 6d.

[These three varieties of Lettuce have been very carefully selected by RICHARD DEAN, and are sent out by him with the utmost confidence.]

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TURNIP, CESTRIAN GOLDEN STONE.—Forms a perfect golden ball, good yellow skin, without a particle of green top; very tender, and of fine flavour. Second Early. A capital succession variety to DEAN'S Improved Snowball. Per oz., 1s.; per packet, 6d.

TURNIP, DEAN'S IMPROVED SNOWBALL.—A very fine selection made by R. DEAN, because of its obvious excellent qualities. It has a very short top, fine mousetail, very white, sweet flavour, and in ordinary growing weather will produce fine Turnips six weeks from the day of sowing. Per oz., 1s.; per packet, 6d.

☞ *The above have been subjected to repeated trials, and can be confidently recommended.*

LIST OF SPECIALITIES (AN ALTOGETHER UNIQUE COMPILATION), POST FREE ON APPLICATION.

DEPOT FOR NEW AND CHOICE VEGETABLE AND FLOWER SEEDS, EALING, LONDON, W.

GOOD SEEDS.—CARRIAGE FREE.

SEEDSMEN BY APPOINTMENT Sutton AND Sons

SUTTON & SONS,

SEEDSMEN TO THE QUEEN,

ROYAL BERKSHIRE SEED ESTABLISHMENT, READING,

BEG TO ANNOUNCE THAT THEY ARE NOW SENDING OUT THEIR

COMPLETE COLLECTIONS OF SEEDS FOR ONE YEAR'S SUPPLY,

THE PRICES OF WHICH ARE AS FOLLOWS:—

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No. 1.	A COMPLETE COLLECTION for ONE YEAR'S SUPPLY, with Instructions on Cultivation, Carriage Free	£3	3	0
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No. 3.	A COMPLETE COLLECTION, ditto, Carriage Free	1	11	6
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No. 5.	A COMPLETE COLLECTION, ditto, Carriage Free	0	15	0

A COMPLETE COLLECTION, extra quantities for a large Garden, £5 5s., Carriage Free.

A SMALL and COMPLETE COLLECTION can be supplied, price 10s. 6d.

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No. 1.	A CHOICE ASSORTMENT of GERMAN and ENGLISH FLOWER SEEDS of all the most approved kinds, Free by Post or Rail	£2	2	0
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SMALLER COLLECTIONS of the above can be supplied, also of ORNAMENTAL GRASSES, GREENHOUSE PLANT SEEDS, ORNAMENTAL FOLIAGE PLANTS, &c., from 2s. 6d. upwards.

The sorts of Vegetables included in these Collections are those which have proved to be the most prolific, best flavoured, and most worthy of general cultivation, and of which sorts we have, therefore, grown large crops of Seed. We exclude from our Collections not only inferior old sorts, but also such new ones as we have been unable to test the merits of, and which are selling at high prices. By this means, and from the great convenience experienced in supplying every purchaser with the same sorts, we are enabled to furnish a Complete Collection at much less expense than when a Gentleman or his Gardener makes his own selection.

List of Contents of the above Collections may be had on application.

From Mr. JAMES MENZIES, *Gardener to* G. A. Prevost, Esq., *Lytchett House, Poole.*
"May 28.—Your £2 2s. Collection of Garden Seeds has given every satisfaction."

From Mr. F. W. GREEN, *Edington, Hungerford.*
"November 6.—I never had, previous to yours this year, such an excellent Collection of Seeds."

From Mr. JAMES B. BRYAN, *Inspecting Officer, Coast Guard, Marble Hill, Letterkenny, Ireland.*
"November 29.—One ounce of your Seed is worth 1lb. of any to be got near here, as I think my sending such a long distance must pretty well prove."

From the Rev. WILLIAM WILLIMOTT, *The Rectory, St. Michael, Caernays, St. Austell.*
"September 4.—I find I must return to you again for my Seeds, as I have never been so well satisfied with the articles I have had from this neighbourhood."

From W. PETTIT, Esq., *Stratton, Micheldever.*
"August 31.—I must add, the Garden Seeds were the best I ever sowed in my life."

From Mr. JOHN PARTRIDGE, Sen., *Bow, North Devon.*
"June 5.—The Garden Seeds you supplied me with have succeeded admirably, without exception."

THE VERY EARLIEST AND BEST PEA IN CULTIVATION IS "SUTTON'S RINGLEADER."

Price 2s. per quart. Trade price on application.

Extract from the Report on Peas grown at Stoke Newington in 1865 and 1866.

"'*Sutton's Ringleader.*'—There can be no doubt that this is a distinct and valuable variety, the earliest in cultivation, and as good for the table as any in the section to which it belongs. Height, 2 feet 9 inches. One of its distinguishing characters is, that it produces pods from top to bottom in a very uniform manner, whereas 'Dillistone's Early' produces them chiefly at the top.

"In 1865 and 1866 'Dillistone's Early' and 'Sutton's Ringleader' stood side by side, and these two Peas were as distinct as Oranges are from Lemons, or as 'Sangster's No. 1' is distinct from 'Bishop's Longpod.'"

From Mr. BAILEY WADDS, *Gardener, Rayvell, Brough, May* 29.
"I have this year sown your 'Ringleader' Pea against your Early Champion,' which I have hitherto found the earliest in cultivation, and I am glad to tell you that it came into bloom 10 days earlier. It has been covered with blossoms from top to bottom. I am sure it is a valuable addition to our early Peas."

From Mr. J. DANIELS, *Gardener to the* Rev. C. R. Keene, *Swy ncomb Gardens, Henley-on-Thames, June* 20.
"I might notice that your 'Ringleader' Pea, sown December 20, is first-rate, perfectly distinct, and much the earliest Pea I have ever grown. I have also another crop nearly ready, sown March 20, with 'Dillistone's,' but find them perfectly distinct."

From Mr. GEORGE SCRYMGER, *Home Park, Sonning, May* 29.
"I have great pleasure in reporting favourably of your new early Pea 'Ringleader.' They were sown the same day as five of the most popular early sorts. I gathered from it on the 26th of May, which is 14 days earlier than I shall off any of the other varieties. It is also very prolific."

From JOHN FORD, Esq., *Morton Hall, Warwick, May* 31.
"My gardener sowed on the 12th January, side by side, 'Sutton's Ringleader,' 'Sutton's Champion,' 'Essex Rival,' and 'Dillistone's Early Prolific' Peas. 'Sutton's Ringleader' was just coming in the 3d of May; the others a week or so later."

From Mr. JOHN RATTY, *Gardener to* Cotterill Scholefield, Esq., *Turville Park, Henley-on-Thames, Sept*, 6.
"I have twice this season grown 'Sutton's Ringleader' Pea side by side with 'Daniel O'Rourke' and 'Dillistone's Early,' and on each occasion found 'Sutton's Ringleader' 7 or 10 days earlier than either of the other two."

From Mr. JAMES DUCKETT, *Gardener to the* Rev. J. Wilder, *Sulham, August* 22.
"I have proved your 'Ringleader' Pea to be the earliest. I sowed 'Ringleader' side by side with 'Daniel O'Rourke,' and gathered the 'Ringleader' nine days earlier than 'Daniel O'Rourke.'"

From Mr. W. POVEY, *Gardener to* H. P. Best, Esq., *Donnington Grove, near Newbury, May* 24.
"I planted your 'Ringleader' Pea on the last day of February; on the same day I planted 'Daniel O'Rourke' and other early sorts. Your 'Ringleader' is uncommonly well podded, and the pods are filling fast. I have no doubt they will be cleared, and the ground planted, before I pick from any of the other early sorts."

NEW VEGETABLE AND FLOWER SEEDS FOR 1867.

Sutton's Matchless Brussels Sprouts.
Stems completely covered with fine sprouts. Price 1s. 6d. per packet.

Sutton's Superb Early White Broccoli.
Very superior white, for early spring cutting. Price 1s. 6d. per ounce.

Hamilton's British Volunteer Cucumber.
Very fine black spine, one of the largest in cultivation. Price 2s. 6d. per packet.

French Breakfast Radish.
Held in high estimation by the Parisians; round, deep scarlet, tipped with white. Price 8d. per oz.

Sulham Prize Celery.
An excellent new pink variety, large, crisp, and fine flavour. Price 1s. 6d. per packet.

Raphanus caudatus.
An interesting new vegetable from Java, introduced by Mr. Bull. It belongs to the Radish tribe, but unlike that esculent, its seed pods only are eaten. These attain to the length of from 20 to 30 ins. in a very short time, and are said to be of delicious flavour. It can be sown in the open air, or in pots, and transplanted. The pods should be eaten when about half grown. Our seed is from the true stock, and saved from pods of great length. Packets 1s., 2s. 6d., and 5s. each.

Chrysanthemum carinatum annulatum.
A fine and novel variety, having bright orange flowers, marked with a distinct scarlet ring. Price 1s. per packet.

Lupinus hybridus atrococcineus.
This is a new variety, with large handsome spikes of bloom; colour bright crimson scarlet, with white tip; certainly the most showy Lupin yet introduced. Price 1s. per packet.

Mimulus duplex.
This beautiful new double Mimulus is thus described in the *Gardeners' Chronicle*:—"Another perfectly new strain, with veritable duplex monkey flowers, thorough hose in hose, as though the calyx, justifying the name, had taken to mimicking the corolla. In these remarkable curiosities, this organ is converted into a coloured body almost exactly like the corolla in form, and, like it, brightly coloured and handsomely spotted." Price 1s. 6d. per packet.

New Double Sanvitalia procumbens.
This new and beautiful variety is rather more robust than the single kind; flowers large, bright golden yellow. As a bedding plant it is a most valuable acquisition. Price 1s. per packet.

Viola cornuta.
This splendid novelty is very valuable for bedding purposes; it is perfectly hardy, of vigorous habit, and profusely covered with blossoms of a light mauve colour. Price 1s. per packet.

Seeds under 24 oz. in weight may now be sent through the Post at 2d. for every 4 ozs., or fraction of 4 ozs.

SUTTON'S SPRING CATALOGUE AND AMATEUR'S GUIDE FOR 1867

IS NOW READY, PRICE ONE SHILLING, OR GRATIS TO CUSTOMERS.

CONTENTS.

PART I.—A Descriptive List of the best varieties of Vegetable Seeds, with Instructions on Cultivation, and other useful information.

PART II.—A complete List of the choicest kinds of German and English Flower Seeds, with Instructions on Cultivation; also the best varieties of Bulbous and other Flower Roots for Early Spring Planting.

PART III.—Contains the best varieties of Greenhouse, Stove, and other Plants, with Instructions on Cultivation.

PART IV.—Comprises a detailed List of the various kinds of Agricultural Seeds, and useful Hints on the Cultivation of the New Forage Plant, Bromus Schraderi, with illustrations of the same in its various stages of growth.

AND A COMPLETE CALENDAR OF OPERATIONS IN THE KITCHEN GARDEN FOR THE WHOLE YEAR.

SUTTON'S SHORT SELECT SEED LIST GRATIS AND POST FREE.

All Goods Carriage Free except very small parcels. Five per cent. discount allowed for prompt payment. A reference or remittance requested from unknown Correspondents.

SUTTON AND SONS, SEED GROWERS, READING, BERKS.

THE LONDON SEED COMPANY have now ready a New Edition of the GARDEN and SEED PRICE CURRENT. Copies can be obtained on application to the Manager, 68, Welbeck Street, Cavendish Square, W.

THE PRICE CURRENT and SEED DIRECTORY of the LONDON SEED COMPANY is now ready, and will be forwarded gratis on application to the Manager, 68, Welbeck Street, Cavendish Square, W.

COLLECTIONS of GARDEN SEEDS, suitable for Large or Small Gardens, can be obtained free at 60s., 40s., 20s., 15s., and 10s. 6d.
A reduction of 20 per cent. will be allowed on all Orders for Six and more Collections. Friends in a neighbourhood should therefore unite and obtain the Garden supplies on the lowest possible terms.
Twenty per cent. will be allowed to purchasers of Garden Seeds when Six or more Collections are obtained at the same time, by the London Seed Company, 68, Welbeck Street, Cavendish Square, W.C.

British Fern Catalogue.

ROBERT SIM can now send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his NEW and PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.
Foot's Cray Nursery, S.E., a mile from Sidcup Station of New North Kent Line of South Eastern Railway.

Wholesale Catalogue of Nursery Stock.

GEORGE JACKMAN AND SON'S PRICED and DESCRIPTIVE CATALOGUE for 1866 and Spring 1867, can be had free on application, comprising Fruit Trees, Roses, American Plants, Conifers, Clematises, Evergreen and Deciduous Trees and Shrubs, and transplanted Forest Trees, &c., &c.
Woking Nursery, Surrey.

Amaryllis.

JAMES GARAWAY AND CO., Durdham Down Nurseries, Bristol, offer Bulbs of the above, unnamed Seedlings that have bloomed with them during the past two seasons, and many of which are now showing flower, at 5s., 7s. 6d., and 10s. 6d. each, or 60s., 80s., and 105s. per dozen.
JAMES GARAWAY & Co., Durdham Down Nurseries, Bristol.

The Gardeners' Chronicle.

SATURDAY, JANUARY 5, 1867.

SOCIALLY and politically the PAST YEAR has been one of the most memorable of a memorable century. There have been grievous murrains, plague, pestilence, and famine, signs and wonders in the heavens, wars and rumours of wars, dynasties overthrown, Hyde Park railings laid low, a new electric cord deposited on the bed of the Atlantic, and, more marvellous still, an old one fished up for repairs. But with these and other matters of like kind we, in this place, have nothing to do. Leaving other journalists to sum up the general history of the year, let it be for us to allude to the main events of our own special microcosm.

Horticulturists, as such, have not had much to complain of in the way of plague and pestilence. Violent storms and prolonged rains no doubt affected their prospects, still, in comparison with the disasters sustained by the agriculturist, the troubles of the gardener have been light. Our conflicts, too, have been of a peaceful character, but the triumph has been none the less sweet, and the results, we believe, will be none the less secure and satisfactory. In our great war, strange to say, the combatants were all on one side. There was no array of host against host, but an amalgamation of active forces against a passive, routine-bound, *non possumus* kind of enemy. Of the results of such a contest there could be no doubt. The International Horticultural Exhibition, for to this we allude, is admitted on all sides to have been a great success, and that success was achieved, as we have said, not so much by the superiority of some over others, as by the resistless power of united efforts. Our Reform Bill was carried by the willing consent and ready co-operation of all classes of the horticultural community, and although for a season it may be well to "rest and be thankful," the vacation must be passed in consolidating our victories, and in the consideration of means whereby further progress and amendment may be made.

Meanwhile, we may fairly congratulate ourselves that a vicious routine has been broken down; that Horticulture, which always largely contributed to supply the necessities of mankind, and to furnish amusement and luxuries for a few, has now more than ever shown its power to supply exercise for the intellect, and demonstrated its capability to refine and elevate the faculties, not of a few only—and those the rich—but of all classes of the community.

Never, till the Exhibition alluded to, was the true position of Horticulture so clearly made known to the general public. Never till then was its importance as regards the results derived from skilled labour, scientific method and foresight, and æsthetic perception so fully shown. In so saying we have no intention to ignore or depreciate what has been done before. Efforts in the same direction have been made again and again, but still, looking to results, we repeat that the position of Horticulture as at once one of the arts of life, a science, and a branch of the Fine Arts, has never been recognised so fully as it has been in the year that has just closed.

We too have had our Atlantic Cable, represented in this case by the Botanical and Horticultural Congress. The Congress had this advantage over the cable, that friends and acquaintances were brought into personal contact; it was no mere Will-of-the-Wisp greeting, like that of the electric cable, but it was what one of our foreign friends, with more truth than grammatical propriety, expressed as "one large shake-hands." Despite the fears of the timorous, and the coldness and apathy of some who might have been expected to take a foremost part in such a gathering, the Congress in its way was as great a success as was the Exhibition, and no more perspicuous account of the relationships between physiological botany and horticulture has ever been given, than that which was penned by Professor ALPHONSE DE CANDOLLE. But on these points we need not tarry, as lengthy reports were given, in our columns, and we shall have in due time to supply a few deficiencies when the Report of the Congress, which we learn is now completed, shall have been issued.

Turning to other matters, it is pleasing to note the continued success of the Tuesday meetings of the Royal Horticultural Society, and the satisfactory progress of the Education scheme; while it is not so agreeable to have to state that the nomenclature of garden plants is daily becoming more confused, and that few or no efforts are made to amend it.

Of the new plants and other horticultural novelties introduced during 1866, mention will be found elsewhere; but we may here allude to the gaps made in our ranks by the hand of death. Our obituary list, though it is not marked by the presence of so many or so distinguished names as that of the year previous, is still a sad one. Among the botanists, BLACK, MONTAGNE, METTENIUS, GASPARINI, GREVILLE, and HARVEY have been summoned to their rest—the first indeed towards the end of 1865, though the sad news did not reach this country till the beginning of 1866 — while horticulturists will specially lament the loss of VON SIEBOLD and LENNÉ.

In the catalogue of our disasters we cannot omit reference to the destruction by fire of the tropical department of the Crystal Palace. Without reference to the sad wreck of beauties and treasures in Paxton's Palace, in which we had a common interest with others, we may specially deplore, not only the loss of "LODDIGES' Palms," fine in themselves, and interesting as a link to the past, but also the destruction of the Mammoth tree.

For our own share in the events of 1866 we may say that we have endeavoured to make our Journal what its name implies, a record of the varied incidents affecting Horticulture in its many phases. We have tried to cater for the interests of all classes of horticulturists; our sympathies have been and shall be catholic; we have tried to be useful to the "upper ten thousand" of the gardening world; we have, so to speak, assisted in the conservatories of the wealthy and the window gardens of the poor; we have helped to deck the banquet hall, and we have done our part towards the befitting care of the graveyard. In another point of view we have, thanks to our friends and correspondents, been enabled to give practical information to our readers, and to keep them posted up in those branches of science that have a bearing on Horticulture.

So much for 1866! As to the year upon which we have just entered, in addition to general matters of interest, two special circumstances engage attention—the Bury Show, and the Paris Exhibition. Both are experiments—experiments carried on at least in one case with vigour, and with excellent prospects of success. Believing it to be a movement of great importance both as regards British horticulture and the Royal Horticultural Society, we would press its claims to attention on the part of all those who can in any way help it on. In the case of the Paris International Exhibition of Horticulture we have great fears that the magnitude, and specially the complexity of the scheme, and the fact that after all it is but one item in a still more gigantic and complex plan, will, at least so far as British horticulturists are concerned, not be productive of results at all commensurate with the importance of the occasion.

The transition from the question of Great Exhibitions to that of the abolition of the duty on tobacco used for horticultural purposes, is not so violent a one as it might appear to any but a horticulturist, and hence we do not scruple to terminate our summary of last year's events, and this year's prospects, by an appeal to all concerned to lend their aid in furtherance of this desirable object.

THE commencement of a New Year affords us the usual opportunity of passing hastily under review the ADDITIONS made to English gardens during the year that has just closed. On the present occasion we shall take the ORCHIDS first, not merely because their star seems to be once more in the ascendant, but also because it is among the ranks of that popular family that by far the largest number of the new plants of the past season is to be found. And we have the less hesitation in assigning them so prominent a position because their cultivation, instead of being confined as of yore to the wealthier classes, is now—thanks to cool treatment—placed within the reach of any one who can spare the funds for the erection of a greenhouse of the most modest proportions. Nor need any young aspirant be deterred from embarking in this fascinating pursuit by what he may hear about 'Mexican' and 'Peruvian,' and we know not how many more 'cool houses,' as if such extensive and costly appurtenances were indispensably requisite, or as easily reared as fairy palaces in a Christmas pantomime! No doubt, where a complete collection is desired, it may be found necessary in 'cool' treatment—as well as in 'hot'—to have two or three gradations of temperature represented by as many different houses, but these large establishments are the exception rather than the rule, and it is not with such that we are now required to deal. In ordinary cases, and if a proper selection of plants be made, one cool or one hot Orchid-house ought to suffice a person of moderate ambition or moderate means.*

We think it probable that in no former year did so many really first-class Orchids 'come out' as in 1866. At the present time there are probably not more than 100 that could fairly lay claim to this highest distinction, and if these were distributed over the last 40 years—the 'Orchid era' of future historians — it would give us an annual average of about two-and-a half, a rate which, as we shall presently show, falls much below that of the last 12 months.

The first *débutantes* of the season at South Kensington were two lovely Dendrobia, D. McCarthiæ and D. thyrsiflorum, the former having been sent from Ceylon to the Kew Gardens; the latter perhaps the best of all Messrs. LOW's introductions from Moulmein. D. McCarthiæ may boast of every advantage—perfume alone excepted—that any Orchid can possibly possess; it has a neat habit, grows and flowers freely, retains its leaves, and produces racemes of rich rose-coloured flowers, as large and handsome as those of any Lælia, and lasting in perfection for two months. That this charming plant should have lain concealed in Ceylon long after all the Orchid-treasures of that island were supposed to have been discovered, ought to teach collectors never to despair of any country. D. thyrsiflorum has much the habit of D. densiflorum, and its lovely racemes of white and gold are produced in the same style, but are larger and handsomer. The next to appear was that "bright occidental star," Cattleya Dowiana, recently described in our columns, and excellently figured in the current number of the "Botanical Magazine." This splendid plant, so unique in its nankeen petals and puce-coloured lip, made its first appearance at Messrs. VEITCH'S establishment, which also furnished the glorious Saccolabium giganteum that was exhibited more than a month ago, but which, we believe, is flowering still in high beauty. This is said to come from Rangoon, together with a commendable Vanda, V. Bensoni, also exhibited by the same firm. All of these belong to the domain of hot—or at all events of tepid—Orchids, which may also claim a few other interesting species, *e. g.*, Oncidium Marshallianum, Lycomormium pallidum, Cœlogyne corrugata, Epidendrum Cooperi, &c.

Among "cool" Orchids, the principal novelty —Mesospinidium sanguineum—was exhibited by Messrs. BACKHOUSE, who imported it from Ecuador. It bears a short branching panicle of glossy rose-coloured flowers, issuing from the base of a prettily mottled pseudobulb. Odontoglossum Hallii, exhibited in November by Mr. ASPINALL TURNER, next claims attention; but this scarcely came up to expectation, since the wild specimens in our herbaria have generally borne much larger flowers. No doubt

* We hope shortly to lay before our readers, plans and descriptions of a few successful 'cool' Orchid houses, commencing with that of the Bishop of WINCHESTER.

there are in reality many varieties, and the finer ones will probably not be long in making their appearance. As to O. Alexandræ, though strictly speaking it belongs to 1865, still we could never have formed any idea of its real beauty until we had seen the specimens that Mr. PATERSON and Mr. ANDERSON sent during the past season from 'ayont the Tweed.' To this brigade also belong Oncidium obryzatum and O. serratum, to which we shall shortly revert.

We cannot now dwell upon the multitude of small fry exhibited at one or other of the South Kensington gatherings, but of these Mr. WILSON SAUNDERS will give a good account in his forthcoming work, in which all such will find a permanent "Refuge." In the meantime the more gorgeous varieties of established favourites are worthily represented in Mr. WARNER'S "Select Orchidaceous Plants," of which we are glad to see a new series has been commenced. Another useful work, a "Second Century of Orchidaceous Plants" (a republication by REEVE & Co., in a popular form, of the best species figured in the "Botanical Magazine") is making rapid progress. The same publishers announce another part of Mr. BATEMAN'S "Monograph of Odontoglossum." Thus much for England; and if we look abroad we find that in addition to his more catholic "Xenia Orchidacea," Professor REICHENBACH has in the press, 'just ready,' a most important work on the "Orchids of Central America." So that what with new plants and new books, there seems but little fear that the Orchid-fire will soon burn itself out for lack of fuel.

We shall resume next week our comments on sundry other new plants of various kinds introduced in 1866.

AMONG the Evergreens that are annually in great request at this season of the year, there are none more ancient than the MISTLETO, and none with which so many pleasing incidents are associated. It is in itself a remarkable example of a true vegetable parasite, as it never grows like other plants in earth, but entirely depends for its nutriment and support on one or other of the numerous kinds of trees on which it is found—such as the Apple, Hawthorn, Lime, Sycamore, Poplar, Willow, Scots Fir, and occasionally the Oak. So rarely, however, is it met with growing on the latter, that it was at one time considered doubtful whether it had ever been seen on the Oak at all; but of late years several instances of the fact have been recorded, sufficient to place the question beyond dispute. In the time of the Druids this parasite was regarded with extreme veneration. The Celtic priests are said to have collected it for charms, and cures, and religious ceremonies with solemn formalities, when it was found growing on their sacred tree—the Oak; and to this latter circumstance it owed all its supposed mystic influences. Many of the early converts to Christianity in Britain, we doubt not, looked upon the Mistleto with reverence while they knelt and offered up their prayers amidst Pagan altars and hideous images; for although it hung above the heads of the idols, they knew it was not the work of the image maker, but a natural production of their own forests, that had sprung from the grey Oaks under which the Roman legions had marched, and was, perhaps, the only remnant of their idolatry—the only link between Christianity and Heathenism.

Besides being an object of worship, the Mistleto has been from a very early period highly extolled for its medicinal properties; and even so late as 1719, Sir JOHN COLBATCH, a member of the College of Physicians, wrote a treatise on "The Mistletow of the Oak," in which he says, "the plant has been designed for further and more important purposes than to feed thrushes, or to be hung up surreptitiously in houses to drive away evil spirits;" and he further adds, that "he has found it efficacious against epilepsy, chorea sancti viti, and other diseases of the nervous system." But after all that has been said about its reputed virtues, they were more imaginary than real, and it is now discarded from the Pharmacopœias.

Although the Mistleto failed to produce the wonderful effects that superstition or charlatanism had ascribed to it, still it was always considered perfectly harmless, and no one ever suspected that its tiny berries were likely to be swallowed by a human creature so as to destroy life. We regret to say, however, that its fair fame has been greatly sullied by a lamentable case which lately occurred in Duke Street, Commercial Road, London, and of which the following particulars were given at the inquest. The victim was a child 15 months old, whom its mother placed in the care of its little sister, only six years old, to nurse. Whilst looking at a greengrocer's shop she picked up some Mistleto berries, fancying they were white Currants. Finding they tasted bitter, and not able to eat them herself, she unfortunately gave them to the baby until it became quite ill. As soon as the mother heard what had been done she sent for a doctor, who prescribed an emetic that caused the infant to throw up nearly a tea-cup full of the berries—but all efforts to save its life were of no avail, for after passing the night and part of the next day in extreme suffering, the little thing expired. The jury returned a verdict of "Accidentally poisoned by Mistleto berries."

This instance shows the great danger of committing an infant to the care of a young child who was not of an age to be intrusted with such a charge. *B.*

— Among ALMANACS specially useful to those taking an interest in garden matters, may be mentioned that of the Royal Horticultural Society just issued. It is of small size, but utility is not to be measured in this case by magnitude.

PLANT PORTRAITS.

[Under this head we propose to record the figures published from time to time in periodical or other works of such plants, flowers, or fruits as may be interesting to horticulturists.]

COMBRETUM MICROPETALUM.—*Bot. Mag.*, t. 5617. Combretaceæ. A magnificent stove climber, with opposite, oblong leaves, and axillary, spreading or refracted, unilateral racemes, 4 or 5 inches long, bearing crowded flowers having a green calyx, minute petals, and long yellow stamens with orange-coloured anthers. Native of Brazil. Flowered at Glasnevin, in a greenhouse.

CYPELLA CŒRULEA.—*Bot. Mag.*, t. 5612. Iridaceæ. A fine old stove herb, better known as Marica cœrulea. The fine handsomely-marked Iris-like flowers are supported on tall ensiform scapes, closely resembling the true leaves. Native of Brazil. Flowered at Kew.

CYPRIPEDIUM SCHLIMII.—*Bot. Mag.* t. 5614. Orchidaceæ. This is sometimes called Selenipedium Schlimii. It is a pretty stove herb, with ligulate coriaceous leaves, and a tall, often branching stem, bearing about half a dozen rather small flowers, which are white, the sepals and petals spotted, and the lip heavily blotched with deep crimson. Native of New Grenada. Flowered by Mr. Bull.

DELPHINIUM TRIOMPHE DE PONTOISE.—*Floral Mag.* t. 314. Ranunculaceæ. A fine hardy perennial, with palmatifid leaves, and double flowers, remarkable for their great regularity and button-like appearance, and of a pale azure blue with a good deal of white. Raised in the south of France. Flowered by Mr. Fraser.

HELICONIA HUMILIS.—*Bot. Mag.* t. 5613. Musaceæ. A beautiful stove herb with oblong lanceolate leaves on slender petioles, 2 to 3 feet long, and a shorter scape, bearing pale green flowers supported by large distichous scarlet spathes. Native of Guiana. Flowered at Kew.

HELIOTROPIUM CONVOLVULACEUM.—*Bot. Mag.*, t. 5615. Boraginaceæ. A free-blooming much branched annual, 1 to 2 feet high, with linear oblong leaves, and axillary flowers having a salver-shaped white corolla, an inch across, and nearly flat. Native of New Mexico, Arkansas, &c. The flowers are sweet-scented, and open towards the evening. Flowered by Mr. Thompson.

LOBELIA PROGRESS.—*Floral Mag.*, t. 316. Lobeliaceæ. A remarkably fine variety of the fulgens section, producing very large flowers of a rosy purple colour. Flowered by Mr. Bull.

LYCASTE GIGANTEA.—*Bot. Mag.*, t. 5616. Orchidaceæ. A stately sub-terrestrial Orchid, with very large pseudobulbs, plicated oblong-lanceolate leaves, and large solitary flowers terminating the radical scapes; the sepals and petals are long, warm yellowish-olive, the lip serrated, velvety maroon, bordered with orange. Native of Central America. "With the exception of L. Skinneri, L. gigantea is perhaps the best of its race," though the colours are not very brilliant. Flowered by Messrs. Veitch & Sons.

PASSIFLORA FULGENS.—*La Belg. Hort.* xvi., 193, t. 13. Passifloraceæ. A very handsome stove shrubby climber, with terete stems, oblong ovate lobato-dentate leaves, somewhat like those of an Oak, and axillary peduncles, bearing three ovate-lanceolate entire bracts, and supporting each a solitary flower of a rich scarlet, the linear oblong segments of which are at length reflexed; the filaments of the coronet are white, barred transversely with orange red; the fruit is large, egg-shaped. Native of Brazil, in the region of the Amazon. Flowered by M. Linden.

PELARGONIUM (*Nosegay*) DUCHESS OF SUTHERLAND.—*Floral Mag.*, t. 315. Geraniaceæ. A fine variety of bedding Pelargonium, belonging to the Nosegay section. The leaves are plain green, without zone, while the flowers are well formed, of a bright cerise rose, and grow in large showy trusses. Raised at Cliveden. Flowered by Mr. Turner.

SAPRANTHUS NICARAGUENSIS—*Seem. Journ. Bot.* iv. 369, t. 54. Anonaceæ. A middle-sized tree, with oval acuminate leaves, and large bell-shaped green flowers, 4 or 5 inches long; these gradually change to a dark bluish black, and then emit a powerful carrion-like odour. Native of Nicaragua. "It is strange that the carrion-like smell peculiar to Sapranthus, should always accompany a dark brown or dark blue colour, and it would be worth while to ascertain the chemical principle here at work." Not yet introduced, but worthy of being so.

SIPHOCAMPYLUS FULGENS—*Floral Mag.* t. 313. Lobeliaceæ. A free-flowering and handsome stove herb, with branching stems, ovate acuminate leaves, and axillary long-stalked tubular flowers of a rich orange scarlet with a yellow throat. Native of South America. Flowered by Mr. Bull.

CHERRY, LUDWIG'S BIGARREAU.—*Florist and Pomol.* v. 257. An Early Bigarreau ripening just after the Early Red Bigarreau at the end of June or the beginning of July. The fruit is long and acutely heart-shaped, deep red, and the flesh is pale yellow, very melting and juicy, and much more tender than Bigarreaus usually are. Fruited by Mr. Rivers.

PEAR, FONDANTE DU COMICE.—*La Belg. Hort.* xvi., 309, t. 17. A handsome-looking variety, said to be of the first quality, ripening in October and November, or in some seasons rather earlier. The fruit is pyramidal ovoid, with a long stalk somewhat laterally inserted, and a small sunk eye. The colour is greenish yellow dotted with brown, and having an orange shade on the sunny side; the flesh is white and firm, but melting and without grittiness, the juice abundant, sugary, and agreeable. Raised at Angers in the Garden of the Horticultural Society of that place. Fruited by M. Galopin.

INSULAR FLORAS.

THE following is the substance of a Lecture delivered before the British Association for the Advancement of Science, at Nottingham, on the 27th of August last. It is a mere fragment of the subject its title indicates, treating, and in outline only, of but a very few of those groups of oceanic islets, the Floras of which have long engaged my attention. The gratification which the favourable reception of this lecture afforded me, has something to do with my wish to extend a knowledge of it; I may, however, further plead other motives, as the wishes of many friends who did or did not hear it; and one unexceptionable one—a desire to see its statements and methods investigated by others, and more facts accumulated, which would much aid me in my project of treating the whole subject of Oceanic Floras comprehensively at a future time. *J. D. Hooker, Royal Gardens, Kew, Dec.* 9.

The subject which I bring before you to-night is that of Insular Floras, in their relations to one another and to the great continents from which they have or appear to have derived their plants. And as my treatment of the subject is partly descriptive and partly theoretical, I have cast it in the form of a written discourse.

I must warn you that the term 'Insular Floras' is a technical one, and, like so many technical terms, is apt to mislead till explained. In a botanical sense I have limited it to the Floras of those islets that rise as mere points of land from out the broad breasts of the great oceans. With few exceptions all are volcanic, all mountainous, and so small that no man has realised their smallness who has not sailed in search of them.

Our largest maps of the world give us no idea of the diminutive size of such islets as Madeira and St. Helena, any more than Bradshaw's map gives any notion of the size of the railway lines as compared with the counties they traverse. The only contrivance I know of that ever did give me an approximate idea, was Wyld's Great Globe in Leicester Square. This was owing partly to the great scale of that admirable contrivance, and partly to the omission of names—names which sprawl over more degrees in our maps, than the islets themselves occupy seconds.

The relationships between these oceanic island Floras are of two kinds, that must not be confounded: one a relationship of analogy between themselves, due to the physical conditions common to them all—to their climate, exposure, limited area, distance from continents, &c. Thus they are rich in Ferns, Mosses, and other flowerless plants; and they possess many evergreen, but comparatively few herbaceous plants, and fewer or no indigenous annuals. Plants which are herbs on continents, often either themselves become shrubby in islets, or are represented by allied species that are shrubby or arboreous. Species are few in proportion to genera, and genera in proportion to orders. The mountains, however lofty, present few alpine or sub-alpine species; and the total number of species is usually small compared with what a continental area of equal size and conditions would contain. The other is a relationship of affinity, a *bonâ fide* kinship, which the Floras of islands display in common with one another or with certain continents: as is shown by Madeira, the Azores, and Canaries containing many plants in common that are not found on any continent; by the Canarian Flora being in the main a Mediterranean one; the St. Helenan being an African, and so forth. It is with the consideration of these affinities that I shall occupy your attention to-night.

But before proceeding to abstract considerations, it may help you to a clearer insight into my subject if you will voyage in imagination with me over some of the great oceans, visit a few groups of their islands, and look with me upon the principal features of their Floras.

It was my good fortune to be attached, early in life, to one of those expeditions of discovery that have added so much to the naval renown of our country. This was the Antarctic Expedition of Sir James C. Ross, which originated with the British Association of 1838, held at Newcastle, and which circumnavigated the globe for the double purpose of making magnetic observations, and prosecuting geographical discovery in high southern latitudes. These objects required our visiting many oceanic islands, including some of the most remote and inac-

cessible, a circumstance which gave me a special interest in these Floras.

And for the purpose of better illustrating the subject, I have here hung before you Sir Henry James' new 10-foot projection of two-thirds of the sphere on a plane, which includes all the islets whose Floras I shall touch on to-night. This map is constructed so as to carry out the idea of looking at a globe from the inside. The eye is supposed to be directed towards central Africa, not from the centre of the sphere, but from a point so far in the opposite direction to central Africa that two-thirds of the sphere is embraced by the vision. By this arrangement you will see that the relative positions of the islands and continents in the Atlantic and Indian Oceans, with whose Floras I shall have to do this evening, are represented more truly in position than in a Mercator's or other projection; but on the other hand, that the bounding countries of the chart are much distorted. These islets are the Madeiran, Canarian, Azorean, and Cape de Verd groups; St. Helena, and Ascension — all in the Atlantic; and Kerguelen's Land in the South Indian Ocean.

Let us commence with the Atlantic Ocean and the Madeiran group, consisting of Madeira, Porto Santo, and the rocks called Dezertas.

On landing we are at once struck with the European character of the vegetation, and though exotic plants abound, as some Palms, the Orange, Banana, Sugar Cane, &c., it is wonderful with what ease we distinguish between the indigenous or naturalised European element, and the cultivated and semi-naturalised exotic.

But though the vegetation is European in the main, it is not so altogether, and even its European features soon arrange themselves in a botanist's eye under different categories, very much as follows:—The majority, including almost if not all the annuals, we find to be identical with European plants, and undistinguishable from them; others differ from European plants by slight but certain characters, as varieties we say; a third class are specifically different from European, and yet seem to hold a place corresponding to what their nearest allies occupy in Europe—these are representative species; and a fourth class comprises plants that are evidently allied to European, but belong to different genera—these constitute representative genera.

Now, it is a curious fact, that when we tabulate these classes, we find that to a great extent they form a graduated series, not only in systematic order and structure, but in point of numbers; in other words, the plants identical with those of Europe are both the most numerous in species, and the species are most numerous in individuals: then come the varieties — some are scarcely perceptibly different from European plants, others constantly, and these are less numerous and less common. Then come the distinct species: of these some would be called varieties by many botanists, and others good species by all; these are still less common. Lastly, of the different genera, some constitute what all botanists call a good genus, others would, with some botanists, take rank as slight modifications of European genera; these are both the fewest in number and most local in distribution, many indeed being confined to single spots, or even represented by single plants.

So much for the European element of the Flora.

Take now the separate islets of the group: Porto Santo is only 30 miles from Madeira itself, and the nearest of the Dezertas 15; yet we find that these islets not only differ materially in their Floras from the main island, but from one another, in species, varieties, and even in genera.

On penetrating to the rocky and precipitous interior, whether of the main island or the smaller, we find many indigenous trees and shrubs, that are not only foreign to Europe, but are allied to American, to African, and to Asiatic plants: thus we have trees of Clethra and Persea, genera found in no continent but America; of Apollonias and others found elsewhere on a continent only in the East Indies; and of Dracæna and Myrsine, that betray an African affinity. As these non-European plants inhabit the Canaries and Azores also, they have been called *Atlantic types*, under which name I shall speak of them.

Lastly, when we ascend the mountains of Madeira above 4000 feet and up to their summits (6000), we find little or none of that replacement of the species of a lower level by those of a higher northern latitude, with which we are so familiar in ascending any continental mountains of equal or less height. Plants become fewer and fewer as we ascend, and their places are not taken by boreal ones, or by but very few.

Here then are various botanical features, in respect of which Madeira and its satellite islands, Porto Santo and the Dezertas, differ very much from continental areas of equal extent and elevation, or from islands lying near the coasts of a continent, the Floras of which are therefore continental.

Let us take Great Britain as a standard of comparison. Great Britain contains twice as many flowering plants as the Madeiran group; but these are, with scarcely an exception, identical with continental European; it contains but few varieties differing from those of the neighbouring continent, and only one indigenous non-European genus, which is an American water plant. Morever, on ascending above 2000 feet, a rapid replacement of species succeeds.

And so it is with any other corresponding area in Europe: none present a similar assemblage of Asiatic and American plants, nor an equal number of peculiar varieties, species, and genera, as the Madeiran group does, nor so many peculiar plants represented by so very few specimens; and nowhere do we find the rocky islets on the coast of a continent to be tenanted by numerous singular genera, species, and varieties, which are to be found nowhere else on the surface of the globe. What should we say, for instance, if a plant so totally unlike anything British as the Monizia edulis (an Umbelliferous plant, with a stem like an inverted elephant's trunk, crowned with a huge tuft of Parsley-like foliage), were found on one rocky islet of the Scillys, or another Umbelliferous plant (Melanoselinum) with a slender trunk like a Palm, on one mountain of Wales; or if the Isle of Wight and Scilly Islands had varieties, species, and genera too, differing from anything in Britain, and found nowhere else in the world!

Of all the above peculiarities, it is those very rare and local plants that are isolated as genera, and in geographic distribution, that arrest the inquirer's attention and force him to speculate. We *must* ask ourselves, were these almost unique isolated individuals created as complete highly specialised organisms, or are they modifications of allied plants, owing their strange forms and special attributes to centrifugal variation operating through countless ages? and however they have originated, are we to regard these solitary representatives of such strange forms of vegetation as the first of their several races, destined, mayhap, to increase, and become in future as common as they are now rare; or the last of their races, which, but for the rapid advance of modern science, would have passed away, along with those countless forms of animal and vegetable life that once peopled the globe, but whose forms and structures will never be revealed to us?

Considerations which I cannot here enter into warrant our belief that such plants on oceanic islands are, like the savages which in many cases have been so long the sole witnesses of their existence, the last representatives of their several races; and the question involuntarily arises—How did this come about?

Excluding the direct agency of man, and of animals introduced by man, I believe that a principal cause of the rarity or extinction of old species on oceanic islands is the subsidences they have all experienced. This sinking of the island operates in various ways. 1. It reduces the number of spots suitable to the habits of the plant. 2. It accelerates that struggle for existence which must terminate in the more hardy or more prolific displacing the less hardy or less prolific. 3. It reduces both the numbers and kinds of insects to whose activity the fertilising process in plants, and hence their propagation, is so largely due; and not only does it reduce the numbers and kinds of insects, but the destruction falls heaviest on the winged kinds, which, as has lately been shown, are almost exclusively the agents in this process; for these, as the area becomes contracted, are blown out to sea and lost in greater proportion than the wingless. Nor is this mere conjecture. Mr. Wollaston's careful entomological researches in Madeira and the Canaries prove that winged insects exist in wonderfully smaller proportions to wingless, in these islands, than on the continents, and I can extend this observation to all the oceanic islands that I have visited.

But in Madeira the agency of man must not be overlooked. The natural history of that lovely island has undergone such a revolution within the last 400 years, as under the ordinary operations of Nature can only be measured by the geological chronometer. In the romantic story of its first discovery, it is stated to have been covered with wood, whence its Portuguese name of Madeira, and this is confirmed by the first settlers, who found the forests to be impenetrable, so that they set fire to them, and a conflagration ensued which lasted seven years. Cultivation and the introduction of European trees followed; and who now can form a conception of the number of peculiar plants that utterly perished in the flames, or that have since been elbowed out by the more vigorous introduced European vegetation? And with regard to Porto Santo, in about the year 1418 a mother rabbit and her brood were landed, and increased so rapidly, that they not only consumed the native vegetation, but the cultivated, and actually drove the settlers from the island.

Such catastrophes help us to account for the rarity of many of the species, but not of those that inhabit the tremendous scarped precipices of the coast and interior, which are equally inaccessible to man and fire; nor of those of the outlying islets. For such, and for the presence of the Laurels and other plants of the Atlantic island type, as contradistinguished from European, we must seek other and far different explanations, which we shall best understand after visiting other oceanic islands.

(To be Continued.)

Home Correspondence.

Oncidium macranthum.—The various articles which have appeared in the *Gardeners' Chronicle* under this heading seem to render confusion worse confounded, and Oncidium macranthum runs a risk of being considered a myth. With all due deference to Mr. Skinner, whose services to horticulture no one more fully appreciates than I do, the Oncidium macranthum has conical pseudobulbs 3 to 4 inches in length, sometimes separated one from the other it is true, but generally grouped together, and as these latter are more easily preserved, they are selected in preference by my collector. On the other hand, Odontoglossum coronarium has flat rounded bulbs of a brownish colour, separated often one from the other by rhizomes a foot in length, and of the thickness of a quill. As to the "noticeable fact" mentioned by the writer of the article at p. 1245, 1866, he might have seen, by consulting the two last catalogues of my sales, that Mr. Stevens copied in the second that which had been said in the first with reference to this Oncidium macranthum. Now it happened by chance that between the two sales a new consignment of the same Orchid arrived, and in better condition than the preceding one, and this explains how it was that the last sale was enriched by some ten lots (*une dizaine*), which were sold for a mere song in consequence of the doubts that arose among the amateurs present. In order to reassure purchasers, I consider it my duty to declare that the Oncidium macranthum sent by me to Stevens' are not only true, but that they belong to the most brilliant variety of that most noble species, a variety which I have called var. hastiferum. I declare moreover that I guarantee all the plants sold under that name, as also those under that of Odontoglossum coronarium, and that I am ready to indemnify liberally those who may have reason to complain. I cannot, any more than Mr. Skinner, prevent the errors that occasionally occur in the case of imported Orchids, but these errors can only occur in species having a great resemblance in their pseudobulbs, and which, collected in the same locality by the collector, and sent in good faith under the same name, turn out to belong to different species, and sometimes even to different genera. Between such an accident and wilful fraud there is a vast difference, and an imputation of the latter would be very culpable. It is, to say the least, strange that the writer of the article quoted upholds the authority of Mr. Skinner, while the sales took place under the responsibility of a name identified for the last thirty years with the Orchids of the Cordilleras and Andes, and who had discovered and published in the "Pescatorea," the Odontoglossum coronarium above referred to. This should not have been forgotten before entering upon a discussion so disagreeable for him on account of whom the plants were sold. I will add that a specimen of Oncidium macranthum is now in bud with me, and that those who are incredulous may soon be convinced *de visu*. Oncidium diadem[illegible] Phalænopsis, as well as Odontoglossum cristatum and cirrhosum, are flowering with me at this time, and they prove the accuracy of the drawings sent by my collector Wallis. *J. Linden, Brussels, December* 30. — There is an old saying that "the proof of a pudding is in the eating;" and on this authority we are justified in stating that, whatever some of the plants sold by Linden at Stevens' Rooms for Oncidium macranthum may be, all are not true. We bought one as O. macranthum, with a smooth conical bulb; it is now in bloom, and is not O. macranthum, but (apparently) O. serratum, a species nearly allied in habit, but with totally different flowers. Another plant sold as Odontoglossum cirrhosum, for which we paid 5*l.*, proves only a poor variety of Oncidium cucullatum. We do not infer that others, sold under these names, were also necessarily wrong, but we wish to show that names are not always to be trusted. We may add that none of the plants sent home to us by our collector from Ecuador, have the long rhizome (causing a space of many inches between the bulbs) which "J. H." regards as a character of the true O. macranthum, if we understand him correctly. On the contrary, they have compressed semi-pellucid bulbs, in one row certainly, but contiguous if not actually in contact. Along with these plants an excellent coloured drawing from Nature was sent, which was at once identified by Professor Reichenbach as O. macranthum. It is only fair to M. Linden to say that some of the plants sold by him as this species, appear exactly to resemble those sent by our own collector, so far as we are able to judge. As to Odontoglossum coronarium, we feel little fear in expressing a conviction that not one of the plants sold for that species is really so! We believe that they will all prove to be O. brevifolium, which we have also received from our collector, along with dried specimens and coloured drawings, accepted by Professor Reichenbach as being that species. These have a long space between the bulbs (4 to 6 inches). We have several other plants evidently belonging to the same group, but differing specifically one from another, which have the same kind of elongated rhizomes. It is, we think, unwise to speculate on these till they actually bloom and declare themselves; but we have seen enough to satisfy us that we are as yet only as it were on the threshold of knowledge, both with regard to the distinguishing characters of the species comprising the Cyrtochilian Oncids (in which group O. macranthum stands) and of the section of the genus Odontoglossum, which is so near akin to it in style of growth. Patience will reveal much, and we may briefly state that it will not (apparently) have to be severely strained in regard to the plant we have imported as Oncidium macranthum, as one of these already shows a flower stem. *Jas. Backhouse & Son, York.*

Downton Castle Early Dwarf Cabbage.—Knowing something of this Cabbage for some years back, I felt interested in the question put by "E. W." (see p. 1194, 1866), and was pleased to notice a reply at p. 1249 of the same volume. It is obvious that the gist of your correspondent "H. D. M.'s" remarks is to give the Cabbage a good character. I am glad of this, for it deserves it; though I believe in the case in question its earliness is a good deal over-rated. I confess to being puzzled at the description given of its comparative merits, and I must say even startled at the solution given of the vexed question—occasional rogues among Cabbage and Broccoli. I presume when "H. D. M." describes his Cabbage as having "pure white heads," he means hearts, else either he or others must have the wrong variety. Further, if it came in with "H. D. M." three weeks before Cattell's Dwarf Barnes' and Improved Nonpareil, I would expect it to be ready at least four weeks before the Enfield Market. I have not before heard of these three excellent varieties coming in together under the same treatment, but am I to understand that the existence of rogues—I hope not Kale and Late Broccoli such as "E. W." complains of—in our finest and most carefully selected varieties of Broccoli and Cabbage is attributable to "the high state of hybridisation and delicate constitution of many of our new varieties of vegetables?" A comfortable line of argument this for our seedsmen, who need not therefore in future be particular about the purity of their stocks. For my own part I would

much sooner ascribe such results to a very low or loose state of hybridisation than to high. Perhaps "H.D.M." would consent, for the benefit of tyros like myself, to explain what he means by "high hybridisation," and how it affects its productions, as in the case of this Cabbage, years after they are given to the world with fixed specific characters. *A Subscriber.*

Trees struck by Lightning.—The following sentences, extracted from page 143, vol. 3, of a leading work on Electricity, by Professor De la Rive, of Geneva, may perhaps interest your readers:—"With regard to the great mechanical effects that are produced by lightning, such as the overthrow of walls, the projection afar of very massive blocks of stone, and other things of the same kind, more or less remarkable by the singular circumstances which they sometimes present, they are the consequence of the species of explosion that the electric discharge brings about whenever it is obliged to traverse badly conducting bodies, through which it cannot be transmitted except by destroying their molecular structure, that is to say, by breaking them, splitting them, or causing them to burst. It sometimes happens when bodies, such as stones, are moist; then those effects are due to the expansive force of the steam engendered by the heat of the discharge; this in particular is what takes place when trees are struck. Most frequently their trunks and their branches are divided into thin laths, sometimes even into very fine filaments, in the direction of the fibres, without any trace of carbonisation; but all these fragments are perfectly dry, the filaments remain adherent to the base of the trunk, or are dispersed in a thousand different directions; all these effects are evidently due to the passage of the discharge through the moist portions of the tree, and to the vaporisation of the water that results from it." It must remain for some one more learned than I am in the phenomena of the growth of trees, to venture an opinion whether the splits produced by a slight discharge of lightning on a tree would, or would not, be closed again in time. In a large plantation like that mentioned by Mr. Scott (see p. 1246, 1866), might not some tall trees—Pines, for instance, be left to act as conductors, to protect, for a time at least, the smaller trees? *H. H. G., Enfield Chase.*

Fruiting of the Laurus nobilis (the Bay).—I beg to forward you examples of Sweet Bay, Laurus nobilis, in fruit. The male plant is growing about 500 yards from the female, and on ground considerably above the latter, to assist the fertilising of the female flowers. A branch of the male, while in full bloom, was placed in the branches of the female, also in bloom, a fair crop of berries is the result; had the two plants been nearer each other the crop of berries must have been greater. Do you not consider that the male plant answers to the known variety of old authors, as Laurus nobilis var. salicifolia, the female of the same authors being Laurus nobilis var. undulata? The female is growing about 50 feet above the sea level, and does well, being sheltered from strong sea gales. All the varieties of Myrtles do well near the sea, if sheltered a little. I have not been able to fertilise the Myrtles (Myrtus), and no doubt you will observe that some of the berries of the Bay are abortive. *Wm. Greenshields, The Gardens, Culzean Castle, Ayrshire.* [We do not remember to have seen the Bay in fruit in this country before; neither of the specimens forwarded correspond to the varieties mentioned.—EDS.]

Black Potato.—On taking up my Potatos this year, I found one plant that produced round tubers of good size perfectly black, both outside and in. These boil very mealy, but I am afraid to eat them in case they are unwholesome. Can you kindly inform me whether or not such is the case, and by what appellation they go? The set came to me among some that I obtained for seed of a white sort, but the person who supplied my seed can afford me no information about the black kind in question, not even where it came from. *Amateur.* [The black Potato (black both inside and outside), is an old and now somewhat scarce variety. It was grown in the Royal Horticultural Gardens at Chiswick as long back as the year 1822, prior to the appearance of the Potato disease; it used to be cultivated in several places in Aberdeenshire, where it was frequently sent to table and used as other Potatos are. It is quite wholesome, and indeed very good to eat, the colour being the only objection that can be urged against it. It is known under the names of Black Potato, Black Nigger or Negro, and Black Bob.]

Propagating Vines from Eyes.—1. For this purpose when should the eyes be cut from the Vines? 2. Should I cut a portion of the wood off along with the eyes? 3. In what soil and to what depths should they be plunged? 4. When should I commence forcing the eyes, and what sized pots should I place them in? *A Hampshire Amateur.* [1. The eyes may be cut from the Vines at any time after the wood is thoroughly ripened; the general practice is to secure them when the Vines are pruned, selecting the cuttings and laying them in by their ends in some damp soil until they are wanted; *i. e.* if the Vines are pruned before the middle of January, which is the best time for putting in the eyes. Eyes from the earliest ripened Vines are the best. 2. It is necessary to cut a small portion of wood off with the eye—say about an inch in length, leaving the eye or bud in the centre. 3. Use soil composed of about one-half turfy loam and one-half leafmould or peat in a rather fine condition, together with a liberal mixture of sand. Place the eyes in the pots at a depth just sufficient to enable them to be covered with soil. 4. The middle of January is the best time to start Vine eyes, and that should be done in a good brisk bottom-heat. Use small 3-inch or 60-sized pots to pot them in, and only place one eye in each pot.]

Unsound Apples.—My little orchard produced well last year. This year however the Apples, though perfectly sound outside, prove on removing the rind to be completely decayed. As I do not find that my neighbours are suffering the same disappointment, I conclude that the cause is a local one. My gardener attributes it to the slaking of lime, which has been going on all the summer, in consequence of some alterations which I am making in my dwelling-house. This idea is strengthened by the fact that the fruit of the two trees nearest the spot where the operation has been carried on have suffered most, while those at the other side of the orchard are comparatively sound. Hanwell's Souring, the Apple which exhibits the greatest decay, has been hitherto found to keep particularly well. Will you kindly give your opinion on the subject, for if it is proved that Apples suffer from the cause just mentioned, the fact ought to be known in order that precautions in like circumstances may be taken in time to prevent the mischief. *E. B.* [The specimens sent were, as stated, "sound outside," but on removing the rind they were found to be to some extent decayed. We scarcely think that the slaking of lime would cause the evil; which does not seem to us to differ from the "dry rot," which usually affects Apples when they are kept beyond their proper seasons, except that it is somewhat darker in colour. We have tried the effect of fumes of hot lime on Apples, by holding some over them, and they did not injure the fruit in the least. The waxy coating of the skin of the Apple seems to be sufficiently powerful to resist any outward influences, short of actual bruises. The scattered brown spots, which are so common in the flesh of Apples, are always indicated by a little discoloration in the cuticle, which is not the case here, and we therefore doubt whether the present affection is precisely the same. Many complain that Apples do not keep well this year. Our own Apples, however, never kept so well, which we attribute to letting them hang longer than usual, and to the dryness of our soil.]

Wellingtonias (see pp. 1192, 1222, 1866.)—Mr. Wilkie's (Phœnix Park) best specimen of Wellingtonia, planted in April, 1857, now measures in height 16 feet 7 inches, girth of trunk at base, 5 feet 6 inches; circumference of branches on ground, 40 feet. This is an exceedingly well-furnished handsome plant. One at Knockmaroon Lodge planted in 1856, then 9 inches, now measures 20 feet 9 inches high; girth of trunk at base, 5 feet 2 inches; ditto at 3 feet from the ground, 2 feet 10 inches; and circumference of branches, widest part, 40 feet. Those two are looked upon as the largest in the neighbourhood of Dublin. Another interesting Conifer in Mr. Wilkie's collection may be worth noting, viz., Thuja gigantea, planted by the late Lord Carlisle in 1858. It now measures in height 12 feet, diameter of branches, widest part, 5 feet 6 inches, supposed to be about the finest specimen in the kingdom. *D. P., Knockmaroon Lodge, near Dublin.*

Weather in Scotland.—The last month of the departed year was remarkable for mildness, high winds, and rainfall. There was, as is to be expected, biting cold winds during the month, which necessitated an amount of artificial heat, even beyond the corresponding fall of the thermometer out of doors. The fluctuations in this respect were so rapid—"cold winds" alternating with "genial breezes" and "heavy rains," that it required an unusual vigilance to maintain anything like a steady temperature in tropical houses "overnight." The most astute "weather prophets" were confounded at the unprecedented nature of the season, and might be pardoned if even harbouring the presentiment of a "perpetual spring." At the closing hours of the dying year snow fell with a thermometer standing at 33°, the cold increasing in rigour as it continued. At midday on the 31st, instead of the usual maximum to record, it was the minimum of 24°, the thermometer falling steadily as the year waned away. On "New Year's Day," at regular minimum reading time, 8 A.M., it had fallen to 12°, which was the lowest temperature the thermometer fell to in any month during the corresponding season of 1865-66. By the way, however, I see on reference that it had fallen once, and only once, on January 11 to 10°, but the weather speedily changed, and its mildness throughout was proverbial. The maximum of New Year's Day was 19°; the minimum and maximum of the following day was 10° and 18°; and this day (Thursday) we have a minimum of 4° in the morning, and at noon it has not yet reached 11°. We have now all the appearances of a "set in" storm, probably equalling in its severity the memorable season of 1860-61. Our thermometer at Meadow Bank is about 3 feet from the ground on the inside of a "north wall," a pretty accurate one, agreeing in the main with the "readings" at Bothwell Castle taken by Mr. Turnbull, who has been long a student in meteorological statistics. I have not been able to compare notes with him this season. Lying, as we both do, on the banks of freshwater Clyde at low level, we are likely to be as "rigorously" dealt with as any locality in Scotland—at least we were so during the severe season above noticed. *J. A.*

Societies.

NATURAL HISTORY OF DUBLIN: *Dec.* 6.—Wm. Andrews, Esq., M.R.I.A., V.P., in the chair.—Dr. E. Perceval Wright, F.L.S., read a paper entitled "Notes of a Botanical Tour to the Islands of Arran, County Galway." Dr. Wright first enumerated the list of species actually collected, for convenience of reference using the nomenclature of the "Cybele Hibernica" of Drs. Moore and A. G. More, the publication of which, though too late in the year to do much for Irish botany, would, he doubted not, mark a new era in the investigation of this subject. He next proceeded to mention those plants, which might be considered remarkable or rare, or which had not as yet been recorded, as found in the district marked VI., according to the scheme adapted in the Cybele. Among these he alluded to the Aquilegia vulgaris, found on the northern part of the large island; Helianthemum canum, Sedum Rhodiola, Gentiana verna, of which nothing but the leaves remained; Solanum Dulcamara, Marrubium vulgare, Allium Babingtonii, found on all the islands, and very widely scattered over the large islands; Adiantum Capillus-veneris, &c. Several common plants, such as Sisymbrium officinale, Cochlearia officinalis, Torilis nodosa, &c., were mentioned simply to supply the deficiency in this respect in the Cybele. On the exposed western side of the island many ordinarily met with plants were remarkable for their peculiar stunted growth. Thus the Samphire, which grew in the greatest abundance, was found in full flower, and yet hundreds of the plants were not more than 3 inches in height, and plants of Sedum Rhodiola were met with scarcely more than 2 inches in height. In all such cases the plants were growing in the chinks between the stones. A dwarfed condition of growth was not, however, by any manner of means the rule, for under favourable conditions fronds of the Maiden-hair Fern were found 20 inches in length. Specimens of Verbascum Thapsus were met with nearly 5 feet high, and in one instance a cluster of that fine Thistle, Silbyum marianum, was seen, three or four of the flowering stalks of which were 5 feet 4 inches in height. Dr. Wright next proceeded to contrast the Flora of the Arran Islands with that of the coast of Clare, referring to Mr. Foot's very interesting paper on the Burren Flora, in the "Transactions of the Royal Irish Academy," for this purpose, and suggested that the general affinity of the Flora was rather to the Clare than to the Galway coast. This would at first sight be expected, seeing that Arran is, geologically speaking, but an extension of Clare. Almost every plant met with on the islands is met with in the Burren district, and *vice versâ*, whereas many plants are met with in the Connemara district which are not found either in Clare or Arran.——Mr. Foot recorded the existence of Hymenophyllum Wilsoni and H. tunbridgense on Slieve Anierin Mountain, in the county of Leitrim, which lies at the east side of Lough Allen.——Dr. Moore showed specimens of Eriophorum alpinum, which had been found growing in considerable abundance on the north margin of Gurthavabra Lake, three miles west of Millstreet, county Cork, last October, by H. J. Ryder, Esq. The specimens were sent to Dr. Moore by Mr. Sullivan, of the Queen's College, Cork, who received them from the discoverer, Mr. Ryder. Dr. Moore considered this the most interesting plant which has been added to the Irish Flora for many years. Hitherto the only habitats known for it in the British Isles are two, both of which are in Scotland, one near Forfar, the other in Sutherlandshire. In the former it has disappeared, in consequence of the lakes being drained where it grew. The new Irish locality will, therefore, be looked on with much interest by British botanists. In Lapland and Norway it grows on low bogs and marshes, and in De Candolle's "Botanicum Gallicum," it is stated to grow in "paludosis vosgesorum jurassi Alpium," &c. The county Cork station is, therefore, intermediate, though the most westerly in Europe. It is also found in North America. Dr. Moore also stated that another plant of nearly equal interest had been discovered during the present year in the north of Ireland, the Sweet Flag, Acorus Calamus. The discovery of this plant is due to Mr. Stewart, of Belfast, who has of late years investigated the plants in his neighbourhood with much ability and diligence. Dr. Moore had seen the plant last September growing in great profusion in the Lurgan Canal, between Lisburn and Moira, where Mr. Stewart discovered it. Its principal habitats in the British Isles are the counties of Norfolk and Suffolk, but Mr. W. Wilson, the learned muscologist, had pointed it out to Dr. Moore in September of last year growing near Warrington, in Lancashire. It is one of the plants which has hitherto been supposed not to have crossed the Irish Channel in its geographical range of distribution.

Notices of Books.

Salices Europeæ, recensuit et descripsit Dr. Fredericus Wimmer. 8vo, pp. 228. Breslau. 1866. (Williams and Norgate.)

In this volume a description of the species of this most difficult and perplexing genus is given, the student being further assisted by analytical tables, as well as by detailed accounts of the morphology, biology, and geographical distribution of the species. Many of the so-called species our author considers to be hybrid forms. As the result of nearly 40 years' study this is a valuable contribution to our knowledge of the subject, though, as regards British species, the labours of Borrer and Leefe are wholly ignored. But if the author has not availed himself of the labours of our English writers, neither will he (or his publishers) allow our students to make use of his observations, at least in their own vernacular, as we learn from the announcement, that "versio in sermonem germanicum, gallicum, et anglicum non est permissa."

BOOKS RECEIVED.—*An Essay on Dew*, by William Charles Wells; edited by L. P. Casella, with an Appendix by R. Strachan. (Longmans.) Meteorologists will gladly welcome a new edition of this remarkable treatise, which in spite of certain modifications rendered necessary by the progress of science, remains a model of experimental reasoning. The present editors have done their best to supply the "certain modifications" above referred to, without interfering with the original text. The experiments of Professor Tyndall, and especially those that tend to prove the power of aqueous vapour, visible or invisible, to absorb radiant heat, receive due attention in the Appendix.——*Bulletin de la Fédération des Sociétés d'Horticulture de Belgique*, 1865. Gand, 1866. 8vo, pp. 510. The greater portion of this volume is taken up with business details, but the reader will find in the latter portion of the book a treatise on the forest trees of Belgium, wild or cultivated—a complete list is given of the trees and shrubs found in Belgian woods, accompanied by analytical tables, descriptive details, indications of the uses to which the trees in question may be put, and other serviceable information, among which we may specially mention a table, by the means of which the observer may determine the species during the winter season.——*Icones ad Floram Europæ novo fundamento instaurandum spectantes.* Auctoribus Alexi Jordan et Julio Fourreau. (Williams & Norgate.) The publication of a series of well executed and carefully-drawn plates must always command the thanks of botanists, though, as in the case before us, the gratitude must be qualified by regret that so much labour and talent should not have been bestowed in departments more urgently requiring their exercise than the critical plants of France. However trustworthy the cultural experiments of Mr. Jordan, however correct his inferences therefrom, the majority of botanists will demur to the purchase of so costly a work as the present, if it is to be devoted to the illus-

tration of forms so little different, if at all, from well-known species. The method followed by Mr. Jordan is to cultivate for a length of time the several "critical" plants under as nearly as possible similar conditions, and thus, by eliminating those features which are the effect of accidental causes or of individual variation, to establish what he considers the true specific forms. The plates are in large 4to, engraved on copper, and coloured by hand. —*The Naturalist's Note Book* (1, Racquet Court, Fleet Street). A first number of a new periodical has been issued under this name. It consists almost entirely of a series of extracts from scientific books and periodicals, among which latter our own columns have been laid under contribution. The compiler has evidently studied the interests of all classes, as his selection is very varied, and the publication, if carried out spiritedly, is likely to prove useful.

Florists' Flowers.

LOOKING back at the NEW FLOWERS of the past year, or rather to that section of them generally denominated FLORISTS' FLOWERS, one is struck with the number of the claimants for popular favour that have been produced. While it proves how much of skilful enterprise and application is being annually put forth among us in order to bring up to "higher levels" yet, the standard of perfection to which the florist has already attained, it also shows the great necessity there is for a competent tribunal like that of the Floral Committee of the Royal Horticultural Society to sit in judgment on new flowers, so as to give to the outer world of Floriculture some generally applicable rules by which they can select what is good, which is invariably the smallest part; and show what portion is not up to the present level of clearly ascertained excellence. It seems like "turning back the dial finger of Time" to advance a single position to show the need for such a tribunal, but there are such things as intensely stubborn prejudices, and Floriculture cannot yet be credited with having entirely thrown off this antagonistic face.

The task of the reviewer of a long list of "new flowers of the year" is a somewhat difficult one, because so much interested prejudice will naturally enough be evoked, but as the writer made notes of the flowers treated of at the time they were exhibited, and sought also what collateral information respecting the merits of the flowers could be obtained, he may lay claim to be heard with respect, and at least partial approbation.

New varieties of Auriculas are produced very infrequently; and this is natural enough in a slow-growing plant of this character that has already reached a very high stage of perfection. While the edged and self flowers are comparatively stationary, the Alpines are being improved with great success. Those produced in 1866 were of the Alpine class, and were productions of Mr. Turner. The two named below were both flowers of first-class properties, and received the highest awards that could be conferred. Defiance is a violet flower of a somewhat peculiar hue, having a rich dark shading, the pips large, very stout, and well formed; Victorious is of a kind of crimson chocolate, with a strong dash of brightness that makes it very attractive; the pips are large and well formed, and it has a conspicuous pale yellow centre. I presume these will not yet be offered to the public.

Of the new Azaleas I select three varieties that I think the cream of the whole: viz., Her Majesty, a very beautiful sport from Madame Miellez, the colour being pure rosy lilac, edged with white, the upper petals blotched and spotted with crimson; flower stout, and of very fine substance, apparently a good free-flowering variety. It was awarded a First-class Certificate. The stock of this is in the hands of Mr. Barnes, of Camberwell. The remainder of the trio are Charmer, a very pleasing shade of bright amaranth, quite novel in colour, flowers of fine form and substance, free blooming, and of good habit; and Vivid, a very rich scarlet, bright and striking, with well-formed flowers of good substance, and a variety that will make a telling exhibition kind.

Of Cinerarias I have seen nothing really first-rate exhibited as seedlings. Messrs. F. & A. Smith have catalogued a batch, but I have not seen any of them. Why this beautiful spring-flowering plant should appear to be retrograding in public favour, I do not know, unless it can be traced to its comparative absence from the exhibition tent.

Chrysanthemums and Dahlias will be treated of in due course by others: so I proceed to Hollyhocks, merely stating in passing that several new Fuchsias are promised, but they have not been exhibited as seedlings, and having only the growers' descriptions by which to judge of their merits, I cannot particularise them here. Both Mr. Chater and Messrs. Downie, Laird, & Laing, have a batch of new Hollyhocks. Some of Mr. Chater's flowers are very fine, although it takes a good Hollyhock to mark an advance on what we already possess. Speciosa, a kind of salmon-buff colour suffused with rose, is a fine variety: the flowers are large, and very close and compact. Fred. Chater is a pale yellow flower, tinted with buff, a very fine variety; flowers large and full. Edward Speed is an extremely novel flower, of a kind of pale purplish-grey colour, in fact of a colour difficult to define; flowers close and compact, and very free from an inclination to come pockety. First-class Certificates were awarded to the two first, and a Second-class Certificate to the last. Nonpareil I take to be one of the very best exhibition varieties that Mr. Chater has produced for a stand of cut flowers. It was not shown in such good condition at South Kensington as it will be seen in next season; the colour is a rich dark maroon crimson with a dash of purple in it, having a depth of colour of this particular shade not before reached. The flowers are full and high; there is plenty of substance and good quality combined. Attraction will produce a splendid spike for exhibition purposes, though the individual flowers are not so large as the foregoing. The colour is of a delicate rosy pink, suffused with a silvery hue that makes it a beautiful shade of colour. Lord Palmerston, a lively shade of rose, has large showy flowers, which look grand when combined in a spike, but wants more compactness in the individual flowers. The spike of this variety exhibited by Mr. Chater was a little too far advanced in bloom, or had been injured in travelling. Messrs. Downie, Laird & Laing's flowers I have not seen; but as James Anderson, bright rosy lilac; Mrs. Hastie, bright rosy peach; and William Thomson, glowing rosy scarlet, received First-class Certificates at one of the Edinburgh shows; and John Downie, bright rosy salmon, a Second-class Certificate at the same; and considering that our northern friends are by no means either bad growers or indifferent judges of the Hollyhock, we may feel sure these flowers possess more than ordinary merits.

The Hyacinth has received valuable accessions during the past year. Sir Henry Havelock is of a bright plum purple, darker than Haydn, but yet having more vividness about it; it also has a dark stripe on each segment of the flowers. When the flowers are fully developed, they acquire a bright gloss, and this, combined with the bells being very evenly reflexed, gives it a very handsome appearance. Vunxbaak is a splendid addition to that somewhat vague class the "single reds." The colour is a deep rosy crimson, but yet of a very bright and lively shade, and each segment of the bells has a lighter edge of colour. The spike is large and closely set with bells, and though the segments are long and pointed they reflex well, and when reflexed give the spike a very symmetrical appearance. Bird of Paradise is a good addition to the "single yellows." Opening somewhat pale in colour, it inverts the order of some of the common kinds and deepens in colour with age rather than diminishes; the bells are large, and form a good spike. These three received First-class Certificates, and Mr. Paul must be congratulated on three of his half dozen new flowers receiving this high award. Princess Mary of Cambridge has spike and bells both so large in size as to exhibit a want of a symmetrical finish. The colour is very pale blue with a streak of azure blue on each segment, the bells are well reflexed, and it forms an enormous spike. Mrs. James Cutbush is a magnificent addition to the "single whites." It is superior to Snowball, and has most undoubtedly a stronger constitution. The colour is pure waxy white, the bells are very large and of fine substance, and the spike is quite imposing; indeed I think it the very finest of the large-belled single white varieties. Orion, single blue, is of a deep violet purple, but having a glossy plum-coloured hue suffused over it. The bells are large and well-formed, and it may well be termed a novel and fine variety. Mary, single white, is a remarkably good variety in the way of Queen of the Netherlands, as regards colour, but the bells are not so large, or the petals so stout: it obtains a pleasing waxy whiteness, and it would rank high were there not so many of the single white flowers of its own style. I think that it may truly be said that the average quality of the new Hyacinths of 1866 was much beyond the average of those of 1864 or 1865. *R. D.*

(To be Continued.)

The Apiary.

VARIATION IN BREED OF BEES.—I commenced bee-keeping with one hive, that was procured from a farmer in the vicinity. I have had the stock for two years, during the whole of which time the bees have been so savage as to make it very difficult for me to approach their vicinity. Even without my attempting to disturb them they would at once attack and sting me without warning. I was informed that this breed of bees are noted for being good workers, but that they are always of an extremely irascible disposition. A gentleman living near told me that he had four stocks of them from the same man, but they were so very bad-tempered that he was obliged to get rid of them, and procure some bees from another quarter. These are of a totally different nature, and will allow of their being meddled with almost with impunity. Having had the opportunity of doing some little service for this gentleman, he presented me with a fine stock of these bees. I had two swarms from the hive this year, one of which I lost: but the parent stock and its swarm are still in my possession, and the bees are as different from the others as is possible. They never attack me at all, and I can do everything that is necessary with them without any fear. Can you tell me if there is any truth in the assertion that there is a great difference in the breeds of our British bees?

The district in which I reside is a very bleak one in the vicinity of an extensive strand of boggy ground, which is being reclaimed from the sea. The wind blows very hard up the valley and the sides of the hill on which my house stands. The hives are pitched about 30 feet in front of the house, with no protection from any walls or hedge except a low hedge at the back, which is no protection from the force of the prevailing wind. Ought I to remove them to a more sheltered spot, and what aspect would you recommend? I use common straw hives without windows, it is therefore difficult to determine the state of their interiors. How can I ascertain the quantity of stored food there may be for the winter; and with how much, and at what time should I supply them? What kind of simple hive, capable of easy management, and requiring but a small amount of attention, would you advise me to obtain? *Back Strand, Tramore.*

[There is no difference in the bees commonly found in Britain; but we have often noticed that a particular hive may be remarkable for irascibility for a considerable period. When bees are but little visited they are usually more ill-tempered, or they sometimes are affected by real or supposed injuries, and seem to retain the recollection for a considerable period. It is by no means unusual for cottagers to assert that their bees are of a peculiarly excellent breed. Sometimes it is that they are smaller and more active, and at other times exactly the reverse; but we have never been able to discover the slightest real difference.

The bleak character of your country may be a cause of your bees being ill-tempered, and you may find, after the lapse of another year, that your more peaceable hives may have become as bad as their neighbours.

With regard to the position of your apiary, it would be better if more sheltered by the dwelling-house. As to the aspect, you do not mention what is the direction of the prevailing wind, so we cannot inform you; but it is usually better to turn entrances away from it, from whatever quarter it may blow.

For ascertaining the quantity of stored food, you must weigh the hives, and after allowing five or six pounds for the weight of the hive and combs, feed up to about 20 lbs. at the end of October. For a simple kind of hive you may refer to some of our earlier articles on this subject.]

Removing Hives.—I find myself under the necessity of removing nearly the whole of my bees to another part of the garden, and I should feel obliged by your informing me whether (as they have not left the hive for some time) it would be safe to move them without first taking the precaution of sending them to a distance, which, of course, involves considerable trouble. *Arthur Maw.*

[We fear that if you move your bees in the way you propose, on the first fine day numbers will return to their old stands. For our own part, we should prefer sending them away to a distance until March; or you may move them a few feet at a time at short intervals. Still we would not assert that any very great damage would necessarily accrue from present removal, provided the bees remain quiescent for a considerable time.]

Garden Memoranda.

ROYAL GARDENS, FROGMORE.—By getting up very early in the morning, wading through clouds of fog to the Great Western Station, and breakfasting at Slough, I had the pleasure of seeing the Luculia in full beauty at Frogmore, one very dreary morning last week, before your usual Londoner could have ventured beyond the margin of his *Times*. A lovely plant is this Luculia gratissima, when grown as it is here, forming a large glossy bush, bearing scores of trusses, many of them six and seven inches across, of a delicate rose, and sweet as the breath of May. The wonder is, that it is not to be seen in perfection at Christmas wherever there is sufficient glass, for it is, on the whole, the loveliest of Christmas flowers, taking effect, fragrance, and beauty, into consideration. The sure way to grow it well is to plant it out in a nice bed of peat and loam, slightly enriched and free, of course, and to allow it the benefit of as much light as the house will admit of. Here it is planted in the rather high pit of the first house you enter in the long range; the top rises to quite near the glass, and it is almost covered with noble heads of flower, of which 100 or so are annually cut for in door decoration at Christmas. Doubtless many who fail to make a decent hand of this plant in pots, might succeed by planting it out thus, and nothing is more worthy of a trial than a thing which comes in so magnificently at this festive season, when floral beauties are so much appreciated because of their very scarcity.

The day is so miserably wet that it is impossible to enjoy anything out of doors, and therefore we will step with Mr. Murray through his excellent forcing departments, and first into the Cucumber houses, in which are capital crops. It is worth while to note that the plants are not in level, rich soil, as might be desirable in summer, but on pyramidal little mounds of lumpy turf, which would seem to be quite open to the influence of the warm genial air of the house, and not liable to become soddened or soured. Woodlice used to be a nuisance here; and though the toads fattened on them, yet they used to feed too vigorously off the Cucumbers. So, to defeat them, they place a ring pan around the plant, filling the hollow with water, and then, by packing the soil firm under the pan, the vermin are completely excluded. Of course this protection is easily slipped over the plant when young, and sits neatly on the top of each little mound till the plants are thrown away, and thus no woodlice ever get near them. The wire-worm is entrapped by thrusting a Carrot into each little mound, and pulling it out occasionally to destroy the pest, which is greedily fond of a Carrot. To pass by about a score of houses in various stages, some just started, others full of Kidney Beans, &c., it may be related that there is a very healthy young Royal George Peach in one of the houses, which was planted on the 13th of last May to fill a vacancy, was shaded for a fortnight or so, and not only succeeded well, but has made and ripened a capital growth.

The earliest crop of Seakale—a very large one—is packed densely into the space of two or three feet wide, between the back of a forcing-house and a low wall (2½ feet high or so), built about a yard away from it. There, covered with leaf-mould and a board placed over, at the level of the low wall, and that covered with about 18 inches of litter, it does freely enough; but the forcing of Seakale is so simple a matter, that perhaps this were better omitted. Some things are so easily done that it is ridiculous to expatiate on what is called their cultivation; but with all, it is astonishing how long it takes for good habits of culture and forcing to penetrate into remote country places; and

I have myself frequently seen, within the past few years, the old-fashioned muddle of dragging all the obtainable manure on to the Seakale plot, whereas by planting a little every year and taking up some and forcing them in the many ways in which it may be simply done, considerable trouble would be saved, and the garden freed from much untidiness. Asparagus is extensively forced here by having pigeon-holed trenches sunk between the beds, hot-water pipes in these, the trenches covered with slabs, and the beds with wooden frames when forcing is commenced, one or two beds being started at a time. But the earliest crop, which has been coming in abundantly for the past few weeks, is dug up and forced in a house for the purpose; and in the same Rhubarb is forwarded under benches. The Asparagus is placed on a bed of leaves, under which is a hot-water pipe, and the crowns of the plants are covered with six or seven inches of light finely sifted soil. Thus treated, there is now a capital crop. As you have lately discussed the subject of large Vines, it may not be amiss to state that I tasted some Grapes from the large Vine at Cumberland Lodge, and that they were excellent both as to bunch and berry. Of various seedling Apples of excellent promise tasted, the Frogmore Nonpareil, of convenient dessert size, and of a nice yellow colour, was very rich and distinct in flavour.

The Mushroom beds are studded with excellent Mushrooms, nearly all the beds in one house showing them freely in some stage, and it is interesting to note the simple way in which the beds are made, or rather the heating material prepared. In gardens generally the droppings for Mushroom beds are turned over almost as carefully as cakes now and then; here the droppings, mixed with a large portion of litter, are thrown together in a high heap in one of the yards, left there till they become "white with heat," then shaken out at convenience, moistened, and taken to the Mushroom house, where, mixed with a little turfy loam, which helps to solidify them, they are made into beds. *B.*

Miscellaneous.

Moles in Love.—About the middle of June, or commencement of July, the moles begin to fall in love, and are as furious in their attachments as in all other phases of their nature. At that time, two male moles cannot meet without a mortal jealousy, and they straightway begin to fight, scratching, tearing, and biting with such insane fury, that they seem to be unconscious of everything but the heat of battle. Not content with fighting in their burrows, they often emerge into the open air, and may then be caught without the least difficulty. A few days before writing this account, I heard that a pair of moles were thus taken in the fields near Erith, and one of my friends made a similar capture on Shooter's Hill. Indeed, the whole life of the mole is one of fury, and he eats like a starving tiger, tearing and rending his prey with claws and teeth, and crunching audibly the body of the worm between the sharp points. Some writers say that the mole eats snails and other molluscs, but I am disposed to doubt that assertion. I have kept several moles, and never saw them eat anything but worms. They even rejected the julus millipede, kicking it aside with utter contempt. *Homes without Hands.*

Garden Operations.

(*For the ensuing week.*)

IN giving a few seasonable hints to those who take a practical interest in horticultural pursuits, I may be allowed to remark that they are not intended so much for the practised gardener as for those who are able to give but a small amount of time and a divided attention to such matters. I hope, nevertheless, occasionally to refresh the memory of youthful aspirants or more accomplished practitioners, and this will be a sufficient excuse for the triteness which may sometimes be apparent—almost necessarily so, in a fresh effort to furnish practical hints adapted to the season.

PLANT HOUSES.

At this dull season some little discernment will be necessary in the treatment of individual occupants of the Stove and Orchid house. Except a few soft-wooded free-growing plants in flower or full growth, most things require but a very moderate supply of water. More plants are destroyed by over-watering than from any other cause. A thorough soaking, say once a week, will, in a general way, meet the requirements of most plants, except any which are greatly pot-bound, or which stand in a very warm situation. *Orchids* at rest, or those which are only just showing signs of starting into growth, will not need any at present. It is at all times advisable to water in the forenoon. The temperature should not exceed from 50° to 55°, just sufficient air being given at all times, when the outer thermometer is above 40°, at the back upper lights of the house, to allow free egress of the excessive internal moisture, without allowing the outer air perceptibly to blow down upon the inmates—say for an hour between 11 and 12 in the forenoon, except it be sunny, when it will be necessary to be guided by the temperature of the house. The system of giving air upon the safest principle is not used as it should be, viz., that of placing air bricks low in the wall at the front of the house, through which air is admitted directly upon and between the pipes or flues, becoming thus warmed before it communicates with the inner air of the house. Even in severe frosty weather a little of the outer air may be thus admitted—early in the morning. A very slight covering of canvas, or other material in severe weather, economises the fuel vastly, whilst a less amount of artificial heat is far more conducive to the health of the plants.

Some subjects, even at this season, such as *Gardenias, Poinsettias, Ferns*, and similar plants, will be benefited by a dash of tepid water from the syringe early on sunny mornings, when air is intended to be given.

In the Conservatory and other Cool structures the main enemy to be guarded against will be unnecessary moisture in any form, causing damp. Too frequently we underrate the real injury consequent upon allowing an atmosphere surcharged with damp to pervade cool structures at this season, independent of the readiness of such to hurry on decay. A damp stagnant air prevents the leaves from performing their necessary office, and thereby deranges the whole system of a plant. Here—added it may be to some other trifling derangement—may oftentimes be found the secret of *Camellia* buds falling off, abortive. At all times then when the air contains an equal or greater amount of moisture than that in the house, it will be better to get up a little heat in the pipes, so that by lightening the inner atmosphere, it may rush out the more readily at any opening near the apex. Upon such occasions give no air in positions where the outer current can enter the house at the sides. The warmth in the pipes should not exceed what will feel comfortable to the hand. At no time should the temperature exceed 45° by fire-heat.

Primulas, a mistaken notion has got abroad as to the moisture they require, for while it is strictly true that they succumb to damp, they like, nevertheless, sprinklings over head with a rose, when surrounded by an atmosphere such as described above; this previously to their flowering. Place them in a position away from drafts, and unlike *Cinerarias*, a warmer place for the pots suits them better. A great deal of the success of growing these lays in attending to the fact that they require rather a loose soil, and yet need to be firmly fixed at the base, without undue burying—in fact, every leaf requires to be well above ground; nicely pointed little sticks, pushed firmly down at the sides of the plant, will secure this.

FORCING HOUSES.

To *Pines* a very slight increase of moisture may be permitted at this season, though the less the drops which adhere to the rafters and glass the better. With a bottom heat of 75° to 80°, the minimum being nearer the temperature suited to fruiters, and the maximum to the younger stuff, only keep them sufficiently moist to ensure a gentle circulation of sap, for any growth made at this season cannot be over well matured; see that no drip falls upon any portion of the plants, and let them have a little air upon all favourable occasions. *Forced Vines*, after just sufficient warmth to fairly start them, must be pushed onwards very gradually, taking advantage of every rise in the outer air to admit a little within. When fairly going, regular internal moisture will be needed. The best way to furnish this is to place a sufficient body of fermenting material within the house, to form with assistance around, a nice body of heat; moisten these leaves freely in order to obtain a goodly degree of moisture; but by no means permit any water to be placed upon the hot pipes, or still worse upon flues, as steam, which is unnatural, is at once also most injurious to vegetation. Nothing conduces more to the welfare of all occupants of glass structures, and especially forcing ones, than does night air properly applied. Should the outer thermometer then upon any occasion reach 50°, judiciously admit all the air possible, to these Vines in particular, for a moderate period. *Cucumbers* will be much benefited by having some covering placed upon the roof of the house, independently of any superfluous heat that may be in hand; as few things feel the effects of heat retained as compared with that upheld by artificial means, more than do these. Use the knife very sparingly on the plants, as they have generally an aversion to it at this season, and especially the variety named Telegraph.

At this season many flowering plants might be introduced for forcing into any structure suited to them, raising the heat, and increasing the amount of moisture from that of the atmosphere to actual syringings, as they advance in growth. They cannot be too scrupulously clean when taken in for forcing. Do not water at the root, until they have received a slight impulse from the warmer surroundings. Pure, clear tepid water should alone be used until they become fairly started, and are able, with actual foliage, to turn any stimuli afforded them to practical account. Such remarks apply generally to *Hyacinths* and other *Bulbs, Lilacs, Syringas, Ghent Azaleas, Solomon's Seal* (an excellent forcing plant), and the like.

HARDY FRUIT GARDEN.

Fruit Trees, of every description, should be planted as the weather may permit. Every week now tells against them, as were they in the ground they would be forming rootlets, and establishing themselves for the forthcoming summer. Take care to tread the ground firmly down beneath and around where they are to be planted, forming a slight mound, upon the top of which the roots are to be spread out and covered over, thereby to insure the collar being well above ground—an essential requisite to all successful culture. Without exception shorten to one-half their length all shoots on trees received from the nursery, and carefully remove any misplaced shoot entirely; long coarse roots may also be materially shortened, much being made in planting of all the lesser ones. Do not allow the roots to go down into the subsoil too abruptly, but spread them out at an angle of 55° or 60°. *Peach* and *Nectarines* trees should always be unnailed and loosely festooned against the walls in November, to retard the flowers, harden the wood, and assist in destroying any insects which may have burrowed in the bark. In planting wall fruit trees a good yellow loam is to be preferred for their immediate surroundings. In this, good firm divisional rootlets are readily formed, differing greatly from those of others started in a more stimulating admixture. Besides the above-named advantages accruing to the trees by loosening them from the wall, by deferring the pruning to a later season, the wounds necessarily formed in the operation are enabled to heal over the more readily than when they are laid open to the frosts of winter. The same applies equally to the spurring back of *Apricots* and other wall trees, so that the operation be performed previous to any movement of the sap.

A slight fire in the *Fruit Room*, more especially if it be ill ventilated, once a week in moist or variable weather, will be very beneficial, especially at times when bodies of fruit are being removed, thinned out, &c. Whenever convenient place fresh sweet wheaten straw in lieu of that already under the fruit. Where no fire-place exists, any portable make-shift, with a little charcoal well burnt up, and then taken in for an hour or so, occasionally, will be of great service in driving away damp.

KITCHEN GARDEN.

In pushing forward digging, trenching, and similar operations, a great distinction is necessary between the treatment of heavy tenacious soils and those of a light, loose and friable texture. The former class of soils should have the necessary operations performed without delay, as the loss of the influence of every degree of frost is not readily to be estimated, so great is it—hence I advise deep digging and lightening of the ground, placing it up ridge-and-furrow fashion, or in any form in which the greatest amount of surface can be exposed. Use any light porous free material in admixture with soils of this kind, but avoid coal ashes, as they are positively injurious. Though exposure, in the case of lighter soils, is not of such decided importance, the necessary digging had better be performed as soon as possible when the frost breaks, in order to make the most of available resuscitating influences. Do not place light soils up in the way of heavy ones, simply give the ground a good rough digging, and let it lay until it is time for cropping, when it will be ready to receive the crops, a simple raking over only being necessary, as its very firmness caused by settling down, will be conducive to success. *W. E.*

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,

For the Week ending Jan. 2, 1867, as observed at the Horticultural Gardens.

Dec. and January.	Moon's Age.	Barometer.		Temperature.					Wind	Rain.
				Of the Air.			Of the Earth			
		Max.	Min.	Max.	Min.	Mean	1 foot deep.	2 feet deep.		
Thurs. 27	20	29 831	29 742	54	40	47.0	46	44	W.	.00
Friday 28	21	29 950	29 865	55	40	47.5	47	45	W.	.00
Satur. 29	22	29 788	29.404	51	30	40 5	47	45½	S.W.	04
Sunday 30	23	29.850	29.213	45	19	32.0	47	45	W.	.00
Mon. 31	24	29 370	29.247	35	19	27.0	44	44	S.W.	.00
Tues. 1	25	29.342	29.250	35	15	25.0	43	43½	N.E.	.00
Wed. 2	26	29.600	29.004	30	(—)4	13.0	43	43	N.E.	.00
Average .		29.661	29.389	43.5	22.7	33.1	45.3	44.3		0.04

Dec. 27—Boisterous; cloudy; starlight at night, but without frost.
— 28—Overcast; fine; warm for the season.
— 29—Fine; very fine; boisterous, with rain at night.
— 30—Clear; quite cloudless; very fine; frosty at night.
— 31—Frosty; partially overcast; fine; frosty; barometer very low.
Jan. 1—Clear and frosty; exceedingly fine; severe frost.
— 2—Heavy snow storm; drifting snow; intense frost; thermometer at night 4 deg. below zero—(36 deg. below freezing.)

Mean temperature of the week, 4 1-10th deg. below the average.

STATE OF THE WEATHER AT CHISWICK,

During the last 41 years, for the ensuing Week, ending Jan. 12, 1867.

January.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds.							
						N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday.. 6	41.1	28.0	34 5	14	0 33 in.	4	7	5	4	4	10	6	1
Mon. .. 7	41.0	28 0	34.5	16	0.35	3	6	5	3	2	10	7	5
Tues. .. 8	40.9	30 0	35.4	13	0.26	4	5	7	4	1	16	2	2
Wed. .. 9	41 0	30.8	35.9	14	0 71	1	7	4	4	5	13	6	1
Thurs. ..10	42.1	30.0	36.0	17	0.40	3	10	3	4	6	8	5	2
Friday ..11	41.0	32.5	35.7	21	0.00	4	6	5	2	6	11	3	2
Satur. ..12	42.2	30.2	36.2	18	0.79	2	7	4	4	7	10	4	3

The highest temperature during the above period occurred on the 7th, 1845, 9th, 1861; 12th, 1852—therm. 54 deg.; and the lowest on the 7th and 8th, 1841, and 8th, 1861—therm 6 deg.

Notices to Correspondents.

BOOKS: *J P*, There is no book which supplies all you ask for. The one you mention does so in some degree, and is cheap, which is its chief recommendation.—*W R P.* Make good use of Lindley's "Theory and Practice of Horticulture."

GARRYA ELLIPTICA: *J E G.* This very handsome shrub may be increased by layers or by cuttings planted in sand under a hand-glass. Seeds are not produced, as the male plant only exists in our gardens. Your description quite accords with the true plant. You will find it noted at p. 1276 of Loudon's "Encyclopædia of Plants," and figured on p. 1278. It belongs to the order Garryaceæ.

NAMES OF PLANTS: *W D.* Euonymus europæus, common Spindle tree.—*J T B.* We really cannot undertake to notice—much less to name—plants unless particulars of habit, supposed native country, &c., are sent along with the flowers. Your Orchid seems to be nothing but one of the innumerable varieties of Zygopetalum Mackaii, or Zygocrinitum. Even the two latter are probably mere varieties of each other.—*J Young.* Nos. 1 and 2, Hypolepis tenuifolia; 3, Polystichum, apparently flexum; 4, Asplenium axillare.—*W T.* Helipterum eximium, long since introduced.—*D P M.* 1, Bletia pallida; 2, next week.—*A W H.* Garrya elliptica.

PEACH TREES: *Old Correspondent.* The wood of No. 2 is perfectly matured, firm, with bark of a chestnut tinge next the sun. No. 1 is rather green. A very luxuriant shoot is apt not to be so well matured as one that is smaller and of slower growth. The size of the pith is determined at the time when the shoot first makes its herbaceous growth.

PHYSALIS: *T S.* The plant from Switzerland is Physalis Alkekengi, the common Winter Cherry, a hardy perennial of the easiest culture, and met with abundantly in many old gardens, growing in sheltered corners, in good soil.

STORING NUTS: *T T T.* For storing they should be perfectly mature, and quite dry. They may then be put away in dry jars, with alternate layers of salt, and kept in a dry cool place. Walnuts may be preserved in a similar manner. We prefer salt to sand.

VINEGAR PLANT: *W G Shaw.* It is the mycelium of Penicillium glaucum in an abnormal condition.

COMMUNICATIONS RECEIVED.—W. B. Booth.—W. Robinson.—T. T. T.—Salix.—J. Young.—T. Simpson.—Ubi mel ibi apes.—J. E. Jeffries.—J. E. Gray.—J. P.—A Subscriber for many Years (much obliged).

THE GENERAL LAND DRAINAGE and IMPROVEMENT COMPANY. Offices, 22, Whitehall Place.

Under this Company's Act Tenants for Life, Trustees, Mortgagees, Guardians, Committees of Incompetent Persons, Beneficial Lessees, Corporations (Ecclesiastical or Municipal), Incumbents, Charitable Trustees, &c., may effect the following Land Improvements, and charge the outlay and expenses on the estate improved, by way of rentcharge, to be paid by half-yearly instalments, viz.:—

1. All works of Drainage, Irrigation, Warping, and Embankment.
2. The Erection of Farmhouses, Cottages for Agricultural Labourers, and all kinds of Farm Buildings.
3. The Construction of Roads.
4. The Grubbing and Clearing of old Woodlands, Enclosing, Fencing, and Reclaiming Land.

The owners of Estates, not entailed, who may be desirous to avoid the expense or inconvenience of a Legal Mortgage, may also charge their Estates with an Outlay in Improvements under the simple and inexpensive process of the Company's Act.

The Term of Years for the Rentcharge is fixed by the Landowner, so as to adapt the amount of Annual Payment to the circumstances of the Tenants.

No Investigation of Title being required, and the Charge not being affected by Encumbrances, no Legal Expenses are incurred

The Arrangements for Effecting Improvements are threefold —

No. 1. The Works may be Designed and Executed entirely by the Landowner's Agent, and the Company employed only to supply the Loan and conduct the matter through all the official Forms for Charging the Outlay on the Estate.

No. 2. The Company will supply Plans, Specifications, and Estimates for any Improvements to be executed by the Landowner's Agent as under No. 1. In each of these cases the Landowner will be solely under the control of the Enclosure Commissioners.

No. 3. The Company will undertake the entire responsibility of the Improvements, prepare the Plans, execute the Works, and finally charge on the Estate the actual amount expended, with their Commission thereon, approved by the Enclosure Commissioners.

Landowners may thus obtain what assistance they require from the Company, and no more, in effecting the objects in view.

Works of Drainage and other Improvements are also executed on Commission for Landowners, who merely require the skill and experience of the Company's Officers and a Staff in constant practice.

Applications to be addressed to HORACE BROKE, the Secretary, at the Office of the Company, 22, Whitehall Place, London, S.W.

SOUTHERN COUNTIES ASSOCIATION.

President 1866-'67—HIS GRACE THE DUKE OF RICHMOND.

The ANNUAL EXHIBITION of STOCK, POULTRY, IMPLEMENTS, FLOWERS, WORKS of ART, &c., will be held at BRIGHTON in JUNE NEXT.

SUMMARY OF PRIZES OFFERED:—

CATTLE.—Short-horns, £125; Sussex, £125; other Breeds, £50.
SHEEP.—Southdowns, £90; Hants Downs, £90; Oxford Downs, £90; Kent Sheep, £90.
HORSES.—Agricultural, £110; Hunters, £95; Hacks, £15; Ponies, £10.
PIGS.—Berkshire, £32; other Breeds, £32.
POULTRY.—Various, £93.

The PRIZE LIST may be obtained of the Secretary.

By order of the Council,

Yately, Farnborough. G. B. H. SHUTE, Secretary.

The Agricultural Gazette.

SATURDAY, JANUARY 5, 1867.

IT has been said that every historian exaggerates the importance of the period he describes. Perhaps if he did not, he would never have been, might be unfit to be, its historian. Is it that cotemporary events seem greater simply because they are near the eye of the beholder; or is it that, in the march of human affairs, progress is nearly synonymous with expansion, and each century, each generation, each year almost, dwindles as well as antiquates its predecessors by the mere intensity of successive development?

The question comes, as with the pressure of a warning, over the mind of one who looking back over the agricultural annals of this country attempts to fix an impartial gaze, to form a fair comparative judgment, upon the year which has just closed. It is a year whose memory will live, whose name will be recalled and quoted, as a year of agrestial trial and affliction, confounding experience and defying skill and science, just at the time when men had begun to think that experience had little left to learn, and skill and science nothing to leave unconquered.

Perhaps to the very cause most calculated at first sight to foster the sense of pride at the extension of our agricultural commerce with the world may be due the intrusion of a pestilence whose irresistible fatality has been gathering power and venom in lands far from the subduing or ameliorating influences which follow on the track and grow with the growth of Civilisation: perhaps from the furthest steppes of central Asia the visitation may have come, slowly but surely following the movement of that drain which an active and long-continued importation creates up to the remotest limits of Supply. Whatever the origin, whatever the secret nature of the plague, it has cast a gloom over the annals, over everything connected with the year that is past, which will make its name an epoch long after we who now look back on it, and our whole generation, shall have passed away.

To those who look with the eye of analytical search upon phenomena of this kind, confident of a meaning and a lesson to be found, even in its most deplorable incidents, there is something very striking in the direction, the point of impact, so to speak, of this national infliction. It came not upon that branch of agriculture which we exercise most in common with other countries of the world, and in which though not behindhand, indeed in some mechanical points advanced, we have yet no claim to general superiority; but it fell upon that branch in which at once by the preferential genius of our productive power, and by the effective and rapidly increasing demand of our population, we hold almost a speciality. A speciality it is, not half seen, not half recognised, not half appreciated, by too many of the farmers of England, though it has been calling louder and louder, at one ear, while unpropitious harvests, or unremunerative prices have hammered in vain at the other, with the almost antiquated assurance that English Rents are not to be paid by growing Corn against all the climates, and all the poverty, and all the exporting necessities of all mankind.

The warning blow ever falls where it may be most felt. "*Seven million gallons of Milk* conveyed over a mileage varying from 10 to nearly 200 miles,"—such was the message of the Seven Great Railway Companies employed in this carrying trade, to the President of the Royal Agricultural Society! Well might he say that the Cattle-plague derived illustration from such a statement. 'If you will not accept the patent fact that the business of the shop is to furnish the goods that are in greatest and nearest demand, your perception must be stimulated by a stroke that shall exhibit, under the potent emphasis of pain and pressure, the value of that which you will only take note of by its loss.' Such is the monition that seems to flow, like the moral of a tale, out of the year's, and more than year's trouble we have seen. There are a thousand Farms in England where no lighter lesson was required, where perhaps a heavier, if that be possible, would still by the force of habit remain unheeded.

Why is this? Do we find in other pursuits that men are obtuse to their present interests, or hang behind the changes which not only characterise but in fact *constitute* the Present, as distinguished from the Past? Is it necessary to tell any of that great manufacturing or commercial class whose life and labour are given equally with the agriculturist to the supplying the wants of Mankind that they must adapt their mills, or their warehouses and shops, to the demand which IS, and not to that which WAS, we will not say ten or twenty years ago, but only last year?

The truth is that commercial action goes beyond even this, pressing forward ever to anticipate the future, so far as it can be gathered from existing circumstances and events.

But two things are necessary to produce this apparently spontaneous action; information on the one hand, and, on the other, a quick and general intelligence,—in other words statistical *Facts*, and Education, two things which the commercial world has the good fortune never to hear of as 'questions:' it would indeed amuse a Chamber of Commerce to have these brought forward as in this sense topics of debate.

Wherever there exist the power and elements of success there is commonly seen a spontaneity of action, better understood nowhere than in England, and by Englishmen, but which has not yet quite penetrated English Agriculture. The cause of this is not very far to seek; but is wearing, and nearly worn out. It found at once its last expression and its antidote in 'Agricultural Societies': it has probably received its final death blow in 'Chambers of Agriculture.' There may not be much intrinsic virtue in a name; but there is much of extrinsic indication; for names are the result of a foregone action in men's minds: and he who attentively balances those two titles will hardly fail to appreciate the significant difference between them; and there may be some who will go further and exclaim "At last then we are out of the swaddling-clothes, and have got to business"!

Time was, when English Agriculture was 'political' and nothing *but* political: then came the opposite phase, and the counter-cry was heard 'no politics'! a useful and necessary medicine for its season, and the disease is hard to cure. But this could not last: Englishmen are not accustomed to be gagged, upon this subject, or on that: and the third condition, the best and only true one, appears to have dawned at last; viz., when Agriculture is neither privileged nor patronised on the one hand, nor silenced and 'monitioned' on the other, but simply freed to work out its own business in its own way and for its own sake, by the machinery and means of its own 'Chambers.' The word may be borrowed, but it is from a good stock, and of good omen for future practical progress.

And truly there is work enough still to be done, aye, and a long arrear to bring up. The 'labour question,' involving that of cottage accommodation, and settlements, is one the importance of which can hardly be exaggerated,—for it lies at the base; and that not in an economic sense only, but in all which belongs to the common dignity of manhood,—as every enhancement of the labourer's position, and wage, and value, is rapidly beginning to testify:—the question of Leases, and agricultural Covenants; and the long-intercepted question of Statistics, which seems to have slipped out of the grasp of impediment and come up alive within the side-eddy of the *Board of Trade* full-fledged, and intelligent, like a spontaneous existence which by the inherent necessity of things could be suppressed no longer.

It is impossible to look over the tables which have been so lately published without being struck with two things, the extreme apparent dryness of the facts stated, and the abundant reflections to which they give rise. Like the letters of the alphabet, the figures they show are next to nothing in themselves, but by combination they are capable of supplying everything it is desirable to know. We have within the space of the British Islands a hygrometric variety of climate, and a geological difference of soil, which make the report of each district a separate tale replete with interest. But upon the result of the whole there arises a question of paramount importance.

Is our agricultural system doing its real duty? not in the amount of produce only, but in its relative proportion to the nature of the home demand? Is it right that one third of the whole produce of our tillage lands should be of corn crops, and one fifth only under green crops, Clover and Grasses included? Looking at the immense and increasing consumption and price of meat would not the converse figures show a more profitable destination of the soil; bearing in mind that forty per cent. is already in permanent pasture?

This is a large question: but it is just at a moment like the present when we have taken the step that leads from the death of the old to the birth of the new year that questions naturally take a wholesale form.

Our generation has been employed in sweeping away obstructions that stood in the way of a true insight into our relative agricultural position: what might have been the oldest and most threadbare subject in existence, has thus been and still is clothed with a kind of factitious garb of novelty and inexperience. No one could read or listen to the Address of the President of the Agricultural Society, without being struck with this reflection: and well it is perhaps both for speakers and journalists that it is so. It would be hard to say how much of each year's task is superadded by the errors as well as omissions of those which have gone before. Let our hope for that which now dawns upon us be that its work may be so accomplished as to transmit its name not as a debtor but a creditor to Time.

—— Mr. ALLNATT tells us, in his monthly letter to the *Times*, that the thermometer rose 20 degrees after the cold winds of the first few days of December. Christmas week was indeed as mild as May, and the song of the thrush helped to keep up the illusion. We have, however, since then been rudely enough disabused of the idea that our English climate had altogether lost its severity. The sharpest week of the past seven years has just befallen us, and the whole country is white, from Aberdeen to Cornwall. There is, fortunately, abundant food for stock in the country, thanks in some measure to a mild autumn, which has kept them later than usual upon Grass. The severity of the frost is a boon to tillage farmers, and the young Wheat plant, which alone it was likely to injure, is safely wrapped up in snow.

—— We publish the first instalment of the Statistical Tables (second series) which have just been issued by the Board of Trade. We shall next week call attention to these tables in detail; meanwhile, it must be borne in mind that of a considerable portion of the arable land we have no return whatever, and it is thus necessary to add an estimated portion to the several totals under different crops, as a correction to the areas here given.

—— Thanks mainly to Mr. STEVENSON of the *North British Agriculturist*, and to his urgent representations at the recent agricultural meetings, both in London and the North, some restrictions are to be placed upon the importation of hay from Holland, by which great risk of reimporting cattle plague has been incurred. Large quantities of fodder have lately been brought into Leith harbour from Rotterdam. This will no longer be done without a license, which will doubtless be altogether refused wherever any risk exists.

—— The Haddingtonshire Farmers' Club is most properly moving the agricultural world to contribute towards a substantial testimonial to the inventor of the Reaping Machine. The machine of the Rev.

PATRICK BELL has been in successful operation in his parish ever since the Highland Society approved of it between thirty and forty years ago; and it is no doubt the parent of all the other forms of reaper now in use. If ever a man deserved well of his country, it is he who has thus come to the rescue when half the returns of the farmer's year are in jeopardy, and has halved the period of risk: indeed, reduced it more than this, for harvest time would now have been fourfold what it is had it not been for the machine by which the hands no longer available are so efficiently supplemented.

—— Mr. H. R. EYRE, a Berkshire landowner, has issued an address to the tenant farmers and occupiers of land in his county upon the condition of the agricultural labourer, especially as to the deficiency of his cottage accommodation. Quoting the report on the general subject for 1864 of the Medical Officer of the Privy Council, he says, "For years the overcrowding of labourers' dwellings has been a matter of deep concern, not only to persons who care for sanitary good, but to persons who care for decent and moral life." To these remarks some persons are likely to answer, "Such is perhaps very generally the case, but it is part of the natural order of things which must necessarily attend upon a lowly condition. There may be a want of cottages and suitable houses for the people, but this want will in the ordinary progress of things be supplied, and it is not a want which is within the province of legislation to relieve." Mr. EYRE is astonished that any should think that this matter is better left to the operation of the principles of political economy, because this not only seems to ignore all moral and social duty in the matter, but it seems to ignore a fact which a little thought and a little inquiry would disclose, that the system of land tenure in this country, and the difficulties connected with the transfer of land, render the principles of political economy practically inoperative. Coming to the condition of his own county, which in its Faringdon district was the subject of public discussion some years ago, he finds that of 22,155 cottages in the rural district of the Newbury Union, only 622 are the property of the landowners; and as many of these (622) are occupied by gamekeepers, gardeners, and other servants of the landowners, the proportion of those occupied by the agricultural labourers is proportionately reduced. "It is seen, then, from this return, that the agricultural labouring population, by whose labour the land is cultivated, upon whose labour the profits of the farmer very much depend, and by whose labour, to a great extent, rents are realised, are not housed for the most part either at the cost or by the care of the landowner. And that these circumstances affect him adversely we must all see, as well as that they constitute a grievance to the tenant farmer, who is often unable to command good labour, and cannot exercise that control over his labourers which he ought to have. "We are likely to be told that the Union Chargeability Act will effect much, as it has removed the inducement to exclude the labouring classes from our estates and parishes, but it does not operate to require the landowners to build cottages, and until he is moved to do this the evil must remain." Moreover, "in speaking of the houses and dwellings of the agricultural working population, we must not overlook a numerous class to whom the previous remarks do not apply; namely, the staff of undercarters and boys, who are for the most part newly let loose from school, but who are very little subjected to that control which is irksome indeed to youth, but which is much needed at the time of life when temptation to evil is the strongest, and the power of resisting it the weakest. Things must be very much misrepresented, if the accommodation afforded, as a rule, to this class of lads, is what is supposed to be requisite for decency and comfort, and if the conditions under which they live are not altogether perilous to morals and good character." After urging upon his brother-landowners their duty and their interest in the provision of adequate accommodation for the labouring class, adding that he would not have treated this matter as he has done, were he not able to say that "one of the landowners of this county, of small estate and limited income, commenced this work of cottage building, when in his case the prospect of completing it seemed hopeless—(at this moment he has two cottages for every 100 acres of land, and he has undertaken to build more if his tenants should be of opinion that they are required)—Mr. EYRE suggests, as the only remedial agent within the power of those whom he addresses, that we petition Parliament to promote, by further public measures, the necessary work of providing additional habitations and homes for the people, and to find a national remedy for a national grievance. "This proposition," he adds, "may be considered by you at your clubs and meetings during the coming winter season, and if it shall approve itself to your judgment, the necessary steps for carrying it out can be taken before the meeting of Parliament."

THE FERTILITY OF THE SOIL.

[The following was the introduction to a lecture given some years ago before a Mechanics' Institute.]

IT is certainly a proof of the vitality and vigour of the —— Mechanics' Institution that, in the midst of lectures on the various attractive subjects, which your published syllabus announces, so many should have come through a dark January night to hear a dry professional discourse on Agriculture. For that I fear is your fate this evening. I do not mean, indeed, to try and pack within the hour all the details of the farmer's year, and weary you with descriptions of soil, and plant, and animal, and of the tillage operations, cultivation, and feeding, which, during 12 months, he directs and superintends, and which result from "the fertility of the soil" in the annual home supply of human food—but that which I have written might nevertheless very well be read before a Farmers' Club, and into such a club I, therefore, now propose that this Mechanics' Institute do, "for one night only," now resolve itself—not for the purpose of discussing those differences and novelties and particulars of agricultural practice connected with our subject on which only men of practical experience have any right to an independent opinion, but for the purpose of a general review of those natural laws affecting soil-fertility, on which successful practice must be based, and with which even practical and successful farmers should make themselves acquainted. Such an excursion is, I believe, a wholesome thing for any Mechanics' Institute to take. They will return from it—at least those of them who have not already the honour and the happiness of his acquaintance, with a higher estimation of the position and the character of the English farmer—with a deeper impression of the noble scope afforded by his occupation for the whole nature of the man—with a more cordial sympathy with him in the difficulties, and trials, and disappointments, to which, altogether independently of himself, he is subject, and with a firm conviction that of no profession or body in this country can it be more confidently said, that in his prosperity the general interest of the country is involved—of no one that we have more reason to weep with him when he weeps, and to rejoice with him when he rejoices.

The fertility of the soil on which we depend for our daily bread, and to the increase and the use of which the whole art of Agriculture is directed, is after all as much a natural as it is an artificial thing. Even a fertile country, and still more a plentiful season, is the direct gift of God. And it is to an illustration of the natural limits within which the efforts of the agriculturist are thus confined, and to a discussion of the laws of natural fertility, by studying which the efforts of the agriculturist may be guided, that I propose to devote this lecture.

That Fertility is natural may be learned by comparing the varying produce of one year with that of another, perhaps immediately following it; or of one district or county in the same year with another of similar soil at sufficient distance from it. That it is artificial may be learned by comparing the produce of a country, one year with another, centuries apart—or in the same year, one farm with another close adjoining it. Given a similar natural soil and climate, and the differences between two farms are artificial. Given the same country, whose natural covering of soil and of climate remain from century to century, and the differences in its fertility during two different centuries are artificial, and notwithstanding Nature. On the other hand, given the same kind of soil in two different latitudes, and the differences in its productiveness are of course natural, and in spite of Art.

We talk of the fertility of the SOIL, but after all it is its productiveness of plants that we mean, and they are the creatures even more of climate than they are of soil. Take the experience of any good harvest for example: the review of it will just bring out the point I am referring to.

The grain crops of the country were in all probability worth 20,000,000*l.* more in 1863 than they were in 1862. What occasioned this great increase of produce? Fertility is owing often to the perfect drainage of the land. Was it in this case owing to an extension of land drainage? That often repays its cost in a few years. But how many millions spent on land drainage would create an increased value of grain to the extent of 20,000,000*l.* in a single season? Could it then be attributed to improved tillage? Unfortunately for that idea the autumn which preceded the crop of 1862 was much better for tillage work than that which preceded 1863. There had rarely been a finer autumn than that of 1861 for tillage operations, but the crop of 1862 was generally inferior and below the average.

Could it then be set down to extra manuring? How many million pounds worth of guano put on the land in spring will produce 20,000,000*l.* of grain in autumn? It would need almost all the contents of the guano islands spread upon the land at once to produce an effect so great.

The fact is, that great increase in the year's fertility was not a work of Art at all. It arose out of causes altogether independent and outside of human effort, will, or science. And here accordingly is one great class of facts affecting fertility which are altogether outside of agriculture. The fitness of climate to the constitution of the plants we grow, neither of which are within our control, is one great cause of fertility. When the farmer has chosen the plants best adapted to the circumstances of his cultivation, the outer and maximum limits of their productiveness are fixed for him—they are independent of any power he can exercise. Up to those limits he can force his will upon the crops he grows; but beyond those limits he cannot urge them. All the subsequent causes he can bring to bear are in the nature of opportunities given to the plant—its power to use those opportunities is limited by the climate of the year, and by its own essential character and constitution.

There are indeed certain narrow limits within which both climate and plants can be improved by Art, and to these I shall by and by refer; but however obviously and definitely the power of the farmer as a manufacturer of food is limited by external nature, and however necessary it may be in the face of a contrast such as the harvests of 1862 and 1863 presented, to confess that his hands are tied, beyond all hope of release, by a higher law than any he can use or modify, yet Nature as well as Art will bear witness also to the liberty and scope there is in his profession for the effective and productive exercise of his will and his intelligence. He cannot indeed alter times and seasons, which will remain in spite of him, "in league with the very stones of the field," but it is nevertheless within his power to make even the desert blossom as the Rose. This he has, indeed, in many cases already done; and the natural laws which I have been referring to as the limit of his powers are the very engines he employs.

The difference between the wilderness and the cultivated field may be little more than one of guidance and degree, but it is a marvellous difference, nevertheless. The same living seed, the same porous soil, the same vegetable refuse as manure, the same rain-water, air, and sunshine, may be the causes everywhere of vegetable growth. But in the field the seed is chosen, placed, and covered; while on the waste it is scattered broadcast by the wind, and rests upon the surface; in the one the soil is broken, pulverised, manured; in the other it is softened only by the rain and thaw, and receives its annual dressing only of fallen leaf. In both, the natural agents may be the really efficient ones; the cultivator only choosing plants on which they shall be brought to bear, and so preparing the soil that their influence shall be most productive. But out of this choice and influence which he exercises—out of the differences between Art and Nature which he thus establishes, he gets a Nation's food!

Baron Liebig has foretold the exhaustion of English soil from what he calls our reckless agricultural mismanagement. Certainly, however, his predictions clash grotesquely enough with our actual agricultural history.

In illustration of this I will read to you the picture of English agriculture extracted from the annual report of the Wakefield Farmers' Club:—

"Barren lands," said the writer, "have been reclaimed—employment has, within a few years, been doubled. Just glance at the improvements in implements and machinery; at the introduction of cultivators and scarifiers; of seed drills, horse hoes, and other implements; of steam engines, which have superseded the old threshing machines; of reaping machines, which have helped the farmer to execute his work with despatch and comfort; of steam ploughs, which will yet do much. Compare present sales of cattle food and manure with 12 or 15 years back; almost incredible amounts of imports now take place; near 100,000 tons of oil-cake, and about 80,000 tons of bones have been imported; nitrate of soda, 50,000 tons, half of which is used for tillage; and within 10 years the importation of guano has doubled. Had it not been for increased produce, how could the wants of the increased population of this country have been met? There is no country on earth that has made the rapid strides in increased quantity and quality of human food that Great Britain has."

The writer, a practical farmer, known to me, then puts on the steam of extra enthusiasm, and, contrasting with this the inferior agriculture of the best cultivated continental countries, Belgium, Denmark, France, he flings up his arms and shouts, "England, bright, happy, blest, and free—England, with all thy faults, I love thee still!" "Let the slumbering portion of our countrymen," he exclaims—and here I suppose that he refers to Mechanics' Institutes—"awake to the high standing of Britain as a farming country. Let our young farmers use their hands, their heads, their money, their fathers' experience, and press forward. Let landlords do their duty in draining, improving farm buildings, giving security for tenants' capital (by equitable leases and valuations), and help their tenantry, and thus bless themselves, and it will be demonstrated to the world that England in farming is the glory of all lands—a land flowing with milk and honey."

This, be it observed, is in a sober Farmers' Club Annual Report to its members. And it was no mere individual utterance. The keynote so effectually struck was heard all through the speeches which succeeded. I remember that in one of them a tenant farmer declared that he had visited France, a country yielding much less food per acre than our own; a country for which it would be a happy day (he said) when her spears should be pruning hooks, her swords ploughshares, and her Emperor the President of a good Farmers' Club; and he finished by saying that he had seen paintings of many noble foreign landscapes by Salvator Rosa; but "never in the finest efforts of his genius has Salvator Rosa ventured to depict what I see every day in an English landscape from my window,—1000 sheep fattening on Turnip in the field, and 1000 cubic yards of farmyard manure in a single heap, ready for next year's crops." It is plain that no one can excel your practical farmer in his fits of enthusiasm when once he takes his pen in hand—and that no one, in a flight on Pegasus, can beat a good cross-country rider, as I have no doubt this speaker was.

This flock of sheep, however, and this field of Turnips with its cultivation, and this heap of manure, to which he thus ludicrously referred, just exactly and precisely represent the secret of the fertility of the soil so far as that (within the limits which I have referred to) is a work of Art. It is to these several aspects of fertility, as represented respectively by tillage and the dung-heap—by the cultivation of plants and by the growth of animals, that I shall now direct attention. But let me once more (as I *shall* again) point out to you how these several topics and the limiting influence of season and of climate which overrides them all in the experience of the farmer severally feed and try the whole intellectual and moral nature of the man. There is in the scope which soil and plant and animal afford him, field for intellectual research, for experiment, invention, and discovery such as I presume hardly any other profession offers.

The behaviour of mere *matter* under varying circumstances, of matter endowed with vegetable life, and of matter endowed with animal life, is the daily study of the agriculturist. In other words, the whole of the vast fields of chemistry and of vegetable and

animal physiology are his daily range. And while agriculture is thus, in fact, the Art of all the Sciences, how severely, on the other hand, are its circumstances a trial of temper and of patience. Those limits apparently fickle, certainly unforeseeable, and entirely inevitable which English climate puts to all his efforts, are a trial of the moral nature such as, I believe, hardly any other workman undergoes.

As Mr. Disraeli once eloquently said, "A breaking bank, a bad debt, a foolish friend, may be the fate of all, but it is not all who have to meet the barren harvest, the destructive storm, the mildew, the murrain, or the rot." And thus I claim, before an audience interested, I presume, more in manufactures than in agriculture, that in the latter there is the amplest opportunity afforded by daily professional experience, not only of the widest intellectual, but of the highest moral education.

We now turn to the three several aspects under which the fertility of the soil may be discussed. *J. C. M.*

ONE PECK OF WHEAT PER ACRE.

IT does seem odd that the sowing of half a peck of seed on half an acre of poor heavy land should cause such a stir and make certain people so very uncomfortable. One would have thought that moderate experiments, in order to arrive at the most favourable result, would be approved and appreciated, and no doubt they are approved by many reasonable and unprejudiced men who desire to arrive at a sound conclusion.

But there are certain persons who will neither try the experiment themselves, nor believe those who do try it, and who even will not believe what they see. It is made a charge against thin sowing that my crops are so thick and full of straw at harvest time that they cannot have been produced from so small a quantity of seed, and yet this is the very object sought for in thin sowing.

Fifty-eight bushels of fine Wheat, with 2¾ tons of straw from one peck of seed per acre (actual result in 1864), and nearly the same yield in 1865, may well astonish those whose over-seeded crops become, naturally, thin in harvest as compared with mine, just as an over-crowded plantation, or an insufficiently thinned crop of Turnips, never arrive at a matured perfection.

There is nothing more easy than to detect at or before harvest the quantity of seed that has vegetated; the thin plants have thrown out numerous stems rising with a curve from a single crown, strong, reedy, glassy, and with long and broad ears and large kernels. The opposite of all this takes place in a close growth of plants. The crowded stems rising vertically are thin, flabby near the ground, and easily beaten down by storms; the ears puny, and the kernels small. With a small quantity of seed the crop, however heavy, may be bent down like an arch, but is never laid flat to the ground and injured like the thick sown.

The peck per acre has come up well, and when the sun is out the tiny plants show themselves at regular intervals, and will (I should say from past experience) probably yield equally or better than the rest of the field (11 acres); still, to the uninitiated, it looks quite a failure when compared with the adjoining portions drilled with my usual quantity, one bushel per acre. I always drill nine rows on 7 feet 4, which is something over 9 inches from row to row, and as for many years I have never deviated from this arrangement, any bungler who denies this (forming his opinion from the thick crop) must not be believed. The distance from row to row has been frequently measured by numerous farmers, not for the purpose of finding fault, but for their own information or guidance. I have between 40 and 50 acres looking well, and amply planted from 1 bushel of seed. Our distances cannot be less than 9 inches, because we always horse-hoe between the rows with Garrett's horse-hoe, the hoes being 7 inches.

On heavy, drained, and well-farmed land in our eastern counties a bushel of Wheat is an ample sowing, and I am much inclined to believe that 2 to 3 pecks would be more remunerative. I am experimenting in order to satisfy my mind. I shall continue to endeavour to arrive at safe conclusions in spite of the sneers or jeers of persons whose motives are apparent, and whose mere opinions are not worthy of notice. In the opposite scale I will place the recorded approbation of hundreds of the most practical and estimable agriculturists, British and foreign, who have formed their conclusions from practical observations. An advocate of agricultural progress and amendment must naturally expect some hard blows from various quarters. Self-satisfied non-improvers, locked in agricultural prejudices and antiquated practice, will never forgive me for causing a disturbance.

Some bailiffs are very jealous when their employers desire them to go and see Mr. Mechi's farm; their self-esteem is offended. Then there are over-sanguine landlords who wish to see how they can increase their rentals without investment, and greedy tenants, who wish their landlords to do everything without receiving an interest for their outlay. But all this is natural, and I look upon it "more in sorrow than in anger," like Hamlet's ghost.

But these are the exceptions, and, as a rule, it is gratifying to me to know that my agricultural practice is watched and examined by worthy and intelligent agriculturists who rise above petty and unworthy considerations, and desire to benefit by any of my experiments that promise a favourable return.

As my farm has been thrown open for years to public inspection and has been visited by thousands of practical agriculturists, there is an open book in which those who run may read, and the peck an acre may be watched from the time of its puny birth to its ultimate ample development.

I maintain what I have often said—that it is a disgrace and an error and blunder that our annual produce should be only a quarter of an ear for each kernel. *J. J. Mechi, Tiptree, Dec. 24.*

P.S.—I have recently visited several retired parts of this county (Essex) and feel more than justified for what I have hitherto said about queer-shaped fields crowded with worthless Pollards—ill-arranged tumble-down buildings, absence of drainage, and a general unprofitability—for which the landowner is quite as much responsible as the tenant. It is a most uncommercial or unbusiness-like state of things.

AGRICULTURAL STATISTICS.

No. 1.—The following are Total Area, Population, and Number of Statute Acres under Crops, Bare Fallow, and Grass, and of Cattle and Sheep in each Division of the United Kingdom.

Divisions.	Total Population in 1861.	Total Area in Statute Acres.	Abstract of Acreage under Crops, Bare Fallow, and Grass.						Total of Estimated Ordinary Stock of Cattle.	Total Number of Sheep, as returned in 1866.
			Total of Acreage under all Kinds of Crops, Bare Fallow, and Grass.	Under Corn * Crops.	Under Green † Crops.	Under Bare Fallow.	Under Clover, and Artificial and other Grasses under Rotation.	Permanent Pasture, Meadow, or Grass not broken up in Rotation (exclusive of Hill Pastures).		
England	18,954,444	32,590,397	22,261,833	7,400,170	2,750,008	760,979	2,296,087	8,998,027	3,420,044	15,124,541
Wales	1,111,780	4,734,486	2,284,674	521,074	139,265	109,878	256,722	1,257,721	546,966	1,668,663
Scotland	3,062,294	19,639,377	4,158,360	1,366,540	663,257	94,080	1,141,415	893,066	968,637	5,255,077
Total for Great Britain ..	23,128,518	56,964,260	28,704,867	9,287,784	3,552,530	964,937	3,694,224	11,148,814	4,935,647	22,048,281
Ireland	5,798,967	20,322,641	15,549,796‡	2,173,433	1,482,091	28,060	1,600,495	10,002,058‡	3,742,932	4 270,027
Isle of Man	52,469	180,000	82,902	27,266	12,208	8,357	25,309	9,762	18,687	55,954
Channel Islands :—Jersey	55,613	28,717	20,357	3,142	5,253	2,552	3,205	6,205	12,037	517
Guernsey, &c.	35,365	17,967	11,999	2,041	2,938	372	886	5,762	6,976	1,214
Total for United Kingdom	29,070,932	77,513,585	—‡	11,493,666	5,055,020	1,004,278	5,324,119	—‡	8,716,279	26,375,993

* Under "Corn Crops" are included Wheat, Barley, Oats, Rye, Beans and Peas.

† Under "Green Crops" are included Potatos, Turnips and Swedes, Mangels, Carrots, Cabbage, Kohl Rabi, Rape, Vetches, Lucerne, and any other Crop, except Clover or Grass.

‡ The Returns of the Acreage under "Permanent Pasture" in Great Britain and in Ireland are not comparable, as Hill Pastures are excluded in Great Britain and included in Ireland. Totals omitted in places marked thus (‡) cannot, therefore, be given.

No. 2.—The Second Table gives the Total Number of Statute Acres under each Description of Crop, Bare Fallow, and Grass, in each Division of the United Kingdom.

Divisions.	Acreage under each Description of Corn Crop.						
	Wheat.	Barley or Bere.	Oats.	Rye.	Beans.	Peas.	Total of Corn Crops.
England	3,161,431	1,877,387	1,503,990	50,570	492,586	314,206	7,400,170
Wales	113,862	146,323	251,893	2,452	3,534	3,010	521,074
Scotland	110,101	213,619	1,004,040	7,055	28,537	3,188	1,366,540
Total for Great Britain ..	3,385,394	2,237,329	2,759,923	60,077	524,657	320,404	9,287,784
Ireland	300,474	152,777	1,697,648	7,753	12,175	2,606	2,173,433
Isle of Man	8,075	7,736	11,010	9	320	116	27,266
Channel Islands :—Jersey	2,702	111	288	13	15	13	3,142
Guernsey, &c.	990	532	428	27	43	21	2,041
Total for United Kingdom	3,697,635	2,398,485	4,469,297	67,879	537,210	323,160	11,493,666

Divisions.	Acreage under each Description of Green Crop.						
	Potatos.	Turnips and Swedes.	Mangels.	Carrots.	Cabbage, Kohl Rabi, and Rape.	Vetches, Lucerne, and any other Crop, except Clover or Grass.	Total of Green Crops.
England	311,151	1,600,706	254,081	15,598	159,539	408,933	2,750,008
Wales	44,266	62,442	3,864	295	1,329	27,069	139,265
Scotland	143,426	478,990	852	916	5,075	33,998	663,257
Total for Great Britain ..	498,843	2,142,138	258,797	16,809	165,943	470,000	3,552,530
Ireland	1,050,419	317,121	20,218	3,781	50,352	40,200	1,482,091
Isle of Man	4,302	7,246	55	226	69	310	12,203
Channel Islands :—Jersey	1,368	1,812	701	1,043	171	158	5,253
Guernsey, &c.	677	247	216	202	75	1,521	2,938
Total for United Kingdom	1,555,609	2,468,564	279,987	22,061	216,610	512,189	5,055,020

Divisions.	Acreage under Hops, Bare Fallow, and Grass.				
	Hops.	Bare Fallow, or Uncropped Arable Land.	Clover and Artificial and other Grasses under Rotation.	Permanent Pasture, Meadow or Grass, not Broken up in Retation (exclusive of Hill Pastures).	Total of Acreage under all Kinds of Crops, Bare Fallow, and Grass.
England	56,562	760,979	2,296,087	8,998,027	22,261,833
Wales	14	109,878	256,722	1,257,721	2,284,674
Scotland	2	94,080	1,141,415	893,066	4,158,360
Total for Great Britain ..	56,578	964,937	3,694,224	11,148,814	28,704,867
Ireland	..	28,060	1,600,495	10,002,058*	15,549,796*
Isle of Man	..	8,357	25,309	9,762	82,902
Channel Islands :—Jersey	..	2,552	3,205	6,205	20,357
Guernsey, &c.	..	372	886	5,762	11,999
Total for United Kingdom	56,578	1,004,278	5,324,119	—*	—*

* The Returns of the Acreage under "Permanent Pasture" in Great Britain and in Ireland are not comparable, as Hill Pastures are excluded in Great Britain and included in Ireland. Totals omitted in places marked thus (*) cannot, therefore, be given.

REAPING AND MOWING MACHINES.

IT will be no less necessary than prudent to begin our notice under this heading with a frank apology for all shortcomings. Quoting the "Gentleman's Magazine" of September, 1762, vol. xxxii., p. 444, we are informed that "an experiment was tried before several gentlemen in the neighbourhood of Edinburgh with a new invented engine for cutting down corn, when the inventor, in the space of an hour and 20 minutes, cut down a full quarter of an acre of Barley (an acre in Scotland is the French *arpine*, about a fifth more than an English acre)." Long, however, before the Christian era, Pliny informed his readers that the Gauls cut down their crops with a reaping machine, which was actuated by cattle yoked behind it, as in Bell's and the old Scotch disc-cutting machines, and there is reason to believe that machines of the kind in question were used by our breechless ancestors when the Romans first visited Britain. As a question of fact in the history of progress, it can hardly be said that this old Celtic reaper was wholly thrown aside, as it has come down to the present day in a modified form in the reaping of Clover. From the commencement of the Christian era to the middle of the last century it may be truly said that no progress was made; but from the latter period to the present time it may not inaptly be said that Art has fought a continuous pitched battle in the harvest field to gain her present victory.

The reapers and mowers which were shown at the recent Christmas exhibition of the Smithfield Club exemplify a high standard of improvement, both in principle and special mechanism, as compared with the old Celtic reaper, to which they must give precedence in point of priority of invention, and also in point of some of the principles of mechanism to which they must trace the parentage of some of their parts.

Thus the onward rectilineal progression and action of the teeth of the old Celt involves that of the modern finger-bar, more especially of those machines in which the lower half of the finger is armed with a shear-cutting angular blade; while the Celtic hand-rake or scraper, and its right and left mode of action in keeping the teeth clean, and in bringing the ears of corn up to the teeth, as also in raking them into the body of the machine, involve a combination of the reciprocating knife-bar and the hand-rake, with their respective functions. So far the elements of mechanism in the ancient and modern reapers are easily compared, and as it has been proposed during the past year, 1866, as an idea for future practice, to reap first the ears of corn, and then the straw, and to dry the former in kilns or in store-houses, we may here observe how closely this corresponds with the practice of the olden time, for the ears of corn reaped by the Celtic tribes of ancient Gaul and Britain were either parched immediately and then stored, or else sun-dried in fine weather, or kiln-dried in changeable seasons, and afterwards parched and stored, or stored without parching; and we may farther observe that the ancient Egyptians, Greeks, Romans, Gauls, and Britons reaped the ears of corn thus cut, being carried to the threshing floor or granary in baskets, &c.

With the exception of Bell's, the chief features of most of the machines shown are of American origin. True, the implement makers of the United States acknowledge having imported Ogle's knife, the reel, with some other parts, in their primitive rude state of mechanism; but when Hussey's and M'Cormack's machines were exhibited at the International gathering of 1851 in Hyde Park, the originals were so much improved as hardly to be recognised, save in principle. Since then a notice of the improvements which have been made by our own implement makers and those of America would fill a portly volume. But in a general notice of this kind they may be all passed in review under the knife, reel and rake, or modes of delivery.

Superficially examined, in passing round the avenues of the Agricultural Hall, there was a close similarity in the mechanism and mode of actuating the cutting apparatus, and this is, to a great extent, true, when different machines are thus examined at work in the harvest field. This is a most encouraging feature, as it manifestly proves that experience is being guided by certain sound but common principles of mechanism. But when we begin to take a mechanical analysis of the cutting apparatus of reapers and mowers, there is found no little diversity, or perhaps we may say, more popularly speaking, no little rivalry of mechanism, thus showing that original ideas have not yet been wholly reduced to a common practical conclusion. One thing, however, is manifest—that "a sharp good-going knife" is now the common motto of competitors in the harvest field, and further that considerable progress has recently been made in the attainment of this desideratum.

The hand rake performs the two-fold function of the reel and swathe-delivery apparatus of our old reapers; and in the Agricultural Hall there were no fewer than four different combinations of the reel and rake, so as to supplant the hand rake and the heavy labour in working it. These were Samuelson & Co.'s, Burgess & Key's McCormack, Brigham & Bickerston's, and Hornsby & Son's reapers. Now, without entering into the merits of this combination of reel and rake, the most superficial observer cannot fail to perceive that important advances have recently been made in the carrying into practice the proposition of combining the reel and rake, so as to perform the function of the hand rake.

In the reel and swathe-delivery machines, progress must also be reported. Were it not for the peculiar method of yoking the horses, Bell's reaper, for example, has been so improved that it now hardly bears any family likeness to the original. We need not individualise the others, as one common expression of progress applies to all. Improvements have likewise to be reported in the discharging apparatus of mowing machines. True, as formerly stated, there is much in all these improvements that must be traced to American origin, but we have recently been consulted on improvements of special mechanism in several of the above machines, which may turn the balance of progress in favour of England during the ensuing season. No doubt our go-a-head trans-Atlantic cousins are not idle, so that, after all, the prudent course is to leave the harvest field of 1867 an open question. *W. B.*

Home Correspondence.

Application of Manures.—I can corroborate many of the interesting statements made in the discussion on Manures which followed Dr. Voelcker's lecture at the Farmers' Club last week. "Manures, and particularly top dressings, should not be applied in frosty weather." I have applied a liquid solution of ammonia on a stubble during a hard frost without the slightest benefit to the aftercrop, although it was extremely productive when applied after the frost had ceased. Dr. Voelcker states "that dung spread in hot dry weather will not lose its properties to any extent, and will be more productive than if applied later, and ploughed in at once." This I can bear out, and I think the following is the reason. When dung is spread on a Clover lea, and at once ploughed in, it is deposited at some depth, and often beneath a compact turf which the rootlets of the Wheat have a difficulty in penetrating, and thus reaching the manure; while, if the dung is spread a month or more before ploughing, the soluble part of the manure is washed in several inches, and the soil being then reversed by ploughing, a valuable portion of the manure is at once brought within easy and immediate reach of the young plants. The remarks of Mr. Hudson, as to applying nitrate of soda in two light dressings instead, I can corroborate, and also that it pays better when applied to good land or in a good state of cultivation, than on poor or badly manured land. I can also state, that when applied either with the seed or as a top dressing to Barley, in conjunction with superphosphate, it improves the sample of Barley, as well as the quantity. I once for experiment applied to an acre of Clover and Grass a fair dressing of dung during the winter, and on the remainder of the field a similar dressing in the autumn. The Grass crop was slightly increased, but the Wheat was considerably better where the application of dung was in the autumn than on the acre dressed in the spring. The soil was a thin loam on a clay subsoil, and the crop required the ready assistance of all the ammonia the dung could spare. No crop is so ungrateful for a direct application of manure as the Clover crop; and as for manuring the subsoil, it is like the financial error of the day, investing capital in non-available securities. I think on strong or loamy lands that dung cannot be more profitably applied than just before the Wheat crop, when its inexhausted minerals are ready to assist the succeeding Turnip crop. On light land, too, nothing answers so well as a dressing of long dung on the seeds many weeks before ploughing, and a folding of sheep upon it. The dogma that dung should in all cases be applied to the root crop will not stand. *W. C. Spooner.*

River Banks.—Your correspondent "T. J." (p. 1232) asks advice how to prevent the washing away of a river's banks? My experience has been to some extent very successful, having had to contend against similar cases. I always found Willows the best and most secure preventive. Stick them in as thickly as possible; in fact form a complete bed of them several feet wide along the sides of the river, and as close to it as possible. My last operation in this way has been a great success. A large mill-stream runs at the bottom of my nursery, and was gradually washing away the bank, so that I lost annually from 2 to 3 feet of ground along the whole length of my field. I had recourse to a plan I had before practised upon a larger scale and upon a larger river; *i. e.* stubbing the bank full of Willow cuttings. It is now 3 years since I made my first row, and it was only last week I was admiring my success. I have regained over 3 feet of my lost ground, and formed an impenetrable barrier against the washing of the water, added to which I have one of the most splendid Willow beds it is possible to see. To your correspondent I would say try, but do not choose the over strong-growing kinds. Mine are all the best basket Willows. They should be cut annually close to the ground, and free ingress made for the wrack, rubbish, and mud, to lodge amongst them. I shall be happy to know the result a year or two hence through the *Agricultural Gazette. John Scott, Merriott, Somerset.*—I would gladly assist "T. J." about planting his river bank, and being "raised" (as the Yankees have it) on the banks of a large and rapid running river, I have had some experience of the holding properties of the roots of nearly all the trees and shrubs indigenous to these isles, and have found none so effectual in netting up sand and clay as Populus tremula (Aspen). As a proof of this assertion a small specimen of this tree grows within a few yards of where I write, and for 40 yards from its stem nothing of any use can exist, as all the surface is filled with roots and suckers, and I am quite persuaded that this bound-up surface would bid defiance to the action of any reasonable flow of water, so as to cause a washing away of either clay or sand. Strong cuttings of the roots or the suckers of this tree, firmly inserted in a bank of sand and clay, would be sure to grow, but of course are of no earthly use but for their holding properties, and perhaps "T. J." would like the banks to return some profit; in that case, let him plant the banks with the following Willows. Having an Osiery under my charge, I can recommend the following for baskets, namely:—Salix Forbyana (Basket Willow), S. triandra (Long-leaved), S. viminalis (common Osier), S. vitellina (Yellow Branch), S. mollissima (Smith's), S. rubra, &c. Now, I beg to observe from my own experience, that any head in shape of tree will be acted on by the wind in such a situation "T. J." mentions, so as to loosen and destroy the banks; and to avoid this leverage all must be headed down annually, and the produce, if marketable, sold; for it is astonishing to see what a small stem or stump in a run of water will cause an eddy to leeward, and work a hole. There should be no obstacle in the way of a pretty even run of water in banks such as "T. J." describes. The above is a truthful record of my experience, and if of any use it is at your service. *W. J.*

Atmospheric Churn.—I think it well to state how I have found it to churn thick cream. I bought a churn to churn four gallons, and have used it four times. Twice the cream was very thick, and the butter came in 30 minutes, and some shattered; the third time, water at the temperature of 98°, was added to thin the cream, and the butter came in 12 minutes, and no shattering; the fourth time, which answered the best in every respect, there was not so much water put to the cream, and the butter came in 20 minutes; 21 pints of cream gave 9 lb. of good butter. So far no churn could act better; frequently at this time of year it took an hour and a half to churn in a box American churn. If it continues to go on as well, I intend buying a larger churn in the spring. As to putting grated Carrot in the cream, if the cows are good and not too old, well fed all the year, and the pasture occasionally top-dressed with bone superphosphate, and one cow in eight a Guernsey cow, I find the butter has a good colour. *A Subscriber and a Small Farmer.*

Turnip Growing—Purity of Seed.—The writer of the following brief remarks claims neither the general wisdom of an Aristotle nor the legal acumen of a Solon; he is neither more nor less than a simple farmer, and would direct the attention of his agricultural brethren to one feature of farming which is in his estimation not unimportant. For some years a growing interest has been evinced by agriculturists in the cultivation of the Turnip crops, and this may have arisen from many causes. Among others the growing demand for beef and mutton, the unprofitableness in many instances of Potato and other crops, and the possibility in some instances of growing the Turnip where other crops have signally failed. That a bulb, then, so much used for feeding purposes should claim a large share of the farmer's attention is no wonder. The writer means not to enter upon the diseases which attack the bulb, nor the practical working of the crop itself, with which most farmers are tolerably acquainted, but would seek to throw out a few hints on the securing of seed, from which, other things being favourable, a good crop may be expected. Qualities in Turnip differ as much in regard to feeding value as do kinds. The first thing, then, to secure is a Turnip of good quality, with abundance of saccharine matter, and just that proportion of water and fibrous matter which give it nutritive and durable qualities. Next, to secure along with such qualities the Turnip which with these gives the largest yield, so that no longer should fields be wasted with what is at best an over-abundance of shaw and a dry non-nutritious bulb, but covered with well-shaped, solid, highly nutritive bulbs. To secure, then, the seed from which a Turnip or Turnips of this description might be raised is the writer's aim. That we have a very useless variety of Turnip is clear. How get rid of them? By experiment. Let farmers organise a society by which such experiments may be performed; let corrected returns of the yield of different seeds be made, let their qualities be analysed, and when the basis on which their operations rest is sufficiently extended, let the merely superfluous kinds be discarded. Next, let some seedsman of sufficient standing and skill be appointed to select from the improved kinds proper bulbs from which to grow seed, and let farmers pay a right and proper price for it, and no longer be penny wise and pound foolish in the matter of offering what never can pay the grower for land deterioration and the risks incident to a crop of Turnip seed. Some such simple plan as this would ensure farmers that the seed sown would at least grow Turnips, and this is almost more than can be said of some kinds of seed. And this would also secure the unfortunate seedsman from any danger of prosecution for the selling of a spurious article. On the writer's farm a series of such experiments have been tried for a number of years, and the result has been such as to justify experiments on a much more extended scale. Messrs. T. Kennedy & Co. have, out of 14 or 15 seeds experimented with, selected three or four, which from tested qualities will be found worthy the attention of all agriculturists interested in the cultivation of the Turnip; for this year might have been seen some of these selected seeds yielding a crop of upwards of 30 tons per acre, while alongside of them in the same field, manured in the same way, and sown on the same day, a seed that did not yield 20 tons per acre. *Agricola.*

Foreign Correspondence.

NEW JERSEY, U.S.—*Taxation of Agriculture.*—Your correspondent "G. S." (in your Number of Nov. 24), says it would be interesting to know the sums actually paid in direct taxation by a farmer in New York or Pennsylvania, holding a farm worth say 10,000 dollars. I reside in New Jersey, a State lying between these two, and can tell you exactly the taxes paid by us, as I have just paid them.

On 10,000 dollars, the

State tax is	7 dollars
Poor-rate is	5 ,,
For schools	2 ,,
Poll-tax	1 dollar.

In all, as you see, only 15 dollars.

The State tax, of course, varies in the different States; but where the amount of tax is at all considerable, it is in the case of the State laying itself under debt for some improvement greatly to the benefit of those who reside therein. *George Such, South Amboy, New Jersey, United States of America.*

Societies.

HEREFORDSHIRE CHAMBER OF AGRICULTURE.—At the annual meeting of this Society, Mr. Duckham, of Baysham Court, in the chair, the Chairman read the following Report of the Council:—

It is most gratifying to the Council to report that although only a few months have passed since the formation of the Chamber, the number of members is 97, and they feel that as the objects of the Chamber become more widely known, that that number will be greatly increased.

The importance of the subject of the present and future regulations for the sale of cattle was such that the Council felt it most desirable that a special meeting should be called to take the same into consideration. The result was an excellent discussion, a printed report of which has been forwarded to each member of this Chamber, and it is gratifying to find that it was copied into the London and Scotch agricultural papers, and also into many of the provincial papers.

The Council hopes ere long to be in the position of taking a room for the use of the members, and that by donations and other sources a library of a useful and instructive nature will be established.

It has been thought desirable to subscribe 5*l.* to the funds of the Central Chamber, being the amount requisite for the purpose of sending two deputed members to the Council and General Meetings of the Central Chamber; and, in conformity with those regulations, Mr. J. Jancey, and Mr. W. Tayler (Thingehill) were deputed to attend their meetings on the 11th and 12th instant.

At those meetings regulations very similar in their nature to those adopted at our discussional meeting were resolved to be submitted to the Privy Council, and a deputation appointed

to wait upon the Lord President to urge their adoption by the Government.

At the dinner there were about 50 present, and the chair was taken by J. Bosley, Esq. Mr. Duckham read a paper on "Land and its Occupation," from which the following is an extract:—That the real wealth of every nation consists in the fertility of the soil can scarcely be questioned, for although much mineral wealth may for a time be obtained, and by its lustre attract attention, yet exhaustion must be the result of the continued extraction of anything which in itself does not increase; and already has the warning cry been raised that that staple commodity, coal—which is the foundation of England's present greatness, is being exhausted at a rate that, if continued in a similar increasing ratio to that of the past half century for another century, it will be numbered amongst the things of the past. But with land such a state of things is impossible; every year, almost every day, adds some fresh discovery whereby its produce may be increased. That those discoveries render an increased investment of capital, increased skill, increased enterprise, and consequently increased security in its occupation requisite, is unquestionable, and those who know best how to cultivate the soil are most conversant with the fact of how little we all know of that science which man at his fall was doomed to pursue. The geological formation of this kingdom is very varied, and the staple of the soil is more varied than its surface. Common-place observation teaches us that the crops on the hill side inclining to the mid-day sun are much earlier, and usually much more abundant, than those upon the opposite side, and upon which the sun necessarily strikes at a much lower angle. We know, too, that the same plants are not to be found upon the hill top as in the vale—that great difference exists in the feeding properties of the herbage we see growing in our pastures, and a knowledge of botany discloses those plants which luxuriate on a good and fertile soil, but cannot live in one of an inferior kind until its fertility is increased by draining, by the application of manures, and by skilful cultivation. Here chemistry comes to our aid, and makes known the fertilisers required, and those best adapted to the varied soils, according to their geological formation, and teaches us the reason why one kind of food for animals favours the production of milk, another of flesh, and another of fat. The mechanical genius of the age has enabled the staple of the soil to be deepened, it has supplied more ready means of rendering it friable in its cultivation, it has reduced manual labour almost to a minimum by utilising as a motive power horse and steam as its substitute; and thus man, who from his reasoning faculties is calculated to discharge duties of a higher order than those arising from the mere exercise of physical strength, is elevated in his position. That these great changes have been brought about within a very brief period, it is only requisite to mention the fear and trembling with which the horse-power threshing machines were used some 30 years ago, and the immense sacrifice of property sustained by those who had temerity enough to continue their use after receiving the usual notice warning them against it under the anonymous signature, "Swing." At that period there was an over-abundance of labour in the agricultural districts and a rapidly increasing population, but this is no longer the case; the facility of communication and the prosperity of manufacturing and trading interests of the country have caused such a demand for labour of all kinds, that we now find the population in agricultural counties is actually on the decrease. For example, the census of 1821 for the county of Cambridge showed an increase of 21 per cent. during the 10 preceding years; of 1831, 18 per cent.; of 1841, 14 per cent.; of 1851, 13 per cent.; of 1861, a decrease of 5 per cent., whilst during the same periods the increase of population in the mining and manufacturing districts has been very great. For instance, in the county of Glamorgan, it was 20, 24, 35, 36, and 37 per cent. respectively at those dates, and for the whole of England and Wales, 18, 16, 14, 13, and 12 per cent. That the total increase should be 6 per cent. less in 1861 than in 1821 can be no matter of surprise, when we consider the enormous number of our youngest and most healthful population who have emigrated during the past 40 years. This emigation, combined with the rapid expansion of trade, and the rapidly increasing wealth of the nation, has caused a great scarcity of good labourers and a consequent increase of wages, for although machinery is called to our aid and much labour is thereby saved, yet that saving is turned into a different channel, and we find improved cultivation and its attendant result, increased production, render a greater amount of labour requisite. Notwithstanding the difficulties experienced in that channel, combined with the effect of free trade in live stock, corn, and other productions, the competition for land is such that rents continue to have an upward tendency; whether this is a legitimate state of things, or whether it is promoted by the present law of debtor and creditor creating a false competition for land by inducing the acceptance of offers under the feeling of the privilege the law provides, are questions which time alone can solve. For my part, I feel that the occupation of land should be made as much as possible a commercial transaction; every privilege or restriction on either side should be clearly stated, leaving nothing to that antiquated hoary-headed sinner, the custom of the country, with all its concomitant evils, to define; and the more closely that principle is adhered to, the more improvement shall we see springing up around us, and the more rapid will be the increased value of the fee simple of the land. Local taxation is a serious item, and, like rent, has a tendency to increase. In this county timber and game form the principal exemptions from its burthen, but in many other counties great hardships are experienced through the exemption of all kinds of mines, which in themselves are a most fruitful source of increasing the poor rates through accidents bringing to an early termination the working powers of the miner, whilst they enhance the cost of labour in their vicinity by the tempting wages their owners give to able-bodied men. Again, the very men employed in bringing food from abroad to compete on equal terms with our home productions, when incapacitated for the heavy labour attached to that trade, have no other chance than falling back upon the Union. Thus the occupiers of real property have to bear the whole burthen of supporting the poverty of the nation, and in many cases persons are compelled to pay to the support of others who themselves are but little, if any, better off than the recipients, whilst the fortunate possessors of immense incomes from other sources than land, pocket their incomes with no further deduction than 4*d.* in the pound property tax. I cannot help feeling the day is rapidly coming, if not come, when an alteration must be made in this respect, and that the wealth of the nation generally will be called upon to contribute to maintain the poor in an equitable manner. There are many charges with which the ratepayers have recently been most unjustly burthened, such as registration fees, vaccination fees, &c. &c., and it is very probable that before another year has passed away the turnpike gates will have ceased to exist, and unless some very strenuous exertions are made to frustrate it, the repairs of roads now maintained by tolls, will be placed entirely upon the parishes in which they are situated. The pressing importance of this subject was felt to be such at the meeting of the Council of the Central Chamber in London last week, that it was selected for the first discussion of the Chamber, at which it is hoped to obtain the opinion of the local Chambers through their deputed members. As the discussion of the subject by this Chamber is fixed to take place on Wednesday, the 16th of January, I will not enter upon that subject further than to express my conviction that one general law should provide for the whole of the roads, but whether that law should treat them as national works, as in France, or by local taxation as in England, is a matter for future consideration. The unsatisfactory manner in which our corn averages are taken is such that no other body of men, except the English farmers, would passively submit to, and the same may be said of the numerous weights and measures, and varied systems of selling our corn, differing as they do in nearly every market in the kingdom, so that when we look through the reports of our markets, unless we are in possession of an almost universal knowledge, we can form but a very vague idea of what is meant. Again, the retention of the Malt-tax, which is a heavy tax upon raw material, and that material one of the principal productions of the soil, whilst those who cultivate have to compete with all the world with its produce, and at the same time an unequal and oppressive burthen of local taxation, is in itself an injustice. Now, why is all this? Is it that the farmer of the present day lacks intelligence, or that he is less conversant with the fundamental principles of his business than his more astute neighbours who are engaged in commercial pursuits. From the numerous pieces of advice we daily see proffered to him, many who have no means of judging of his position, would, I have no doubt, be inclined to answer yes; but I say most emphatically it is not so, but it is, that from his isolated position, and daily occupation, he has no ready means of availing himself of an interchange of ideas with his fellow man, and thus he remains content to submit to things as they are, or as they may be imposed upon him, without its once entering into his head that, united, the farmers of England are, as a body, the largest employers of labour; that they have the greatest amount of capital at stake of any one body of men in the kingdom; that they have hitherto been like so many strong yet unconnected links, which, if united, would form a chain of almost indissoluble strength. The means to this end are now supplied by the Central Chamber of Agriculture and the co-operative chambers, which are being established throughout the kingdom; and as I feel that the real interests of this great and wealthy nation are most closely identified with its success, I sincerely pray that our Almighty ruler will bless our efforts. I cannot close my remarks without alluding to two very important movements, which I feel must ere long become the law of the land, by the obtaining of agricultural statistics, and a Minister and Board of Agriculture, each of which are rendered more than ever requisite by that awful visitation which so recently threatened to devastate our herds and flocks—"the cattle plague." As regards the statistics, I am well aware there are many who are greatly prejudiced against supplying the information sought, but I feel that it is simply prejudice; that we, as agriculturists, have nothing to fear from rendering them, but that we have possibly something to gain; and as regards a Minister and Board of Agriculture, the necessity for a duly qualified head, to whom the agriculturists can make their wants known, must have long since been apparent to all who are really interested in their country's welfare.

Mr. Duckham's paper was received with great applause.

Reviews.

The Remedy for the Bondager System. By T. Waugh Rutherford, 22, Forest Field, Kelso. (A. & W. Easton, 18, High Street, Jedburgh.)

This is a tract by a working man. The author knows by experience the evils he denounces, and having long taken an interest in the condition of his class, he has here collected the various letters on the subject which he has published during the past seven or eight years in our own Paper and in others. The following passage gives his experience in the matter of education.

"I acted in the capacity of cow-herd in the summer of my tenth year. I do not remember of being at school during the summer months. I acted as 'crawherd' (scarecrow from the Potatos) during the summer months of 1839, '40, and '41, and I worked for 4*d.* per day in the summer of 1842. It is the injudicious interference of would-be dictators to practical agriculturists that prompts me to address you thus. The most accomplished working man I am acquainted with was only six weeks at a day school. Of course he attended evening classes after he had reached manhood. It is a deplorable existence residing in a purely agricultural district, without a desire for reading or any intellectual pursuit. I sat looking at the fire during the winter evenings till my eyes were tired. To break the dreary monotony of such an existence, I took a lesson in the Bible, or some other book, or did a few exercises in arithmetic; but notwithstanding my father's entreaties, I plodded on without any fixedness of purpose, till coming in contact with others showed me my deficiencies. I trust I know myself better than to attempt to justify ignorance; nevertheless, remembering that my father could not have paid the school fees, had he been compelled to send me to school during the summer months, I beg to protest against would-be reformers finding fault with farmers employing boys and girls during the summer months. The being able to read and write, and a knowledge of arithmetic, are indispensable for keeping farm accounts, and scholastic accomplishments are very useful for certain purposes; but theorists must allow practical men to devise schemes for promoting their own interests as rational and responsible beings, and as practical agriculturists. The intellectual training at school ought to be regarded as the mere basis upon which young lads have opportunities for building a superstructure after they leave school. There not being any provision made by landowners, gentlemen farmers, and rural clergy for inducing young men to follow up their scholastic training during the winter evenings, and the majority of schoolmasters not being able to teach the elements of botany, are the principal defects in connection with scholastic education in rural districts. Were parish schoolmasters competent to teach the elements of botany, what an interesting and useful exercise it would be for boys and girls to gather specimens of the plants, grasses, and ferns they see growing on the road to school. I walked nearly three miles morning and evening to and from school. A rural parish school being a focus for the boys and girls scattered over an extensive area, were they to present their specimens at the morning class, and requested to state the name and order of each plant, boys and girls would thus acquire a 'knowledge of common things.' A library and reading room in a village would be a good medium for information for those who reside in villages; but the majority of Scotch ploughmen could not avail themselves of such auxiliaries. As a general rule, English ploughmen reside in villages; but Scotch ploughmen are grouped together at a convenient nearness to the farm steadings. Scotch ploughmen's hours of labour are from 6 a.m. to 6 p.m., barring an interval of two hours from 11 a.m. to 1 p.m. It is the general rule on a good many farms to yoke at 5 a.m., when busy with the fallow, to give the horses a rest from 10 till 1. The grooming the horses, the ten hours' work, and the time occupied in returning from work on extensive farms, will occupy eleven hours a day during the summer months, exclusive of the extra hours when harvesting the hay and corn crops. Men so circumstanced would require to have a fixedness of purpose to prompt them to walk to evening classes in a village after a hard day's work; and even during the winter months a good many ploughmen in Scotland are practically prohibited from attending evening classes one or two miles from the farm steadings. It is the general rule for each ploughman to attend the stable and be in it for nearly an hour, either from half-past 7 to half-past eight, or from 8 till 9: therefore a ploughman has not time to go before feeding and grooming the horses, and it is too late after 8 and 9 p.m. Therefore, unless each farm steading is treated as a village with regard to a reading-room, and the requisite books and other agencies, it is a mere waste of time and war of words expatiating about the better education of ploughmen."

Many will be interested in the opinions of an earnest-minded working man on the influences affecting the condition of his class, and they will find them here expressed in somewhat broken style, but with great energy and considerable ability.

Farm Memoranda.

FLAXTON GRANGE, YORK.—In the spring of 1864 I took a small farm of 53 acres on a seven years' lease, at a rent of 90*l.*, including tithes. I also took a six-acre Grass field, a mile distant, at a rent of 24*l.* My whole rental is 114*l.* On the 53 acres I laid out in draining 125*l.*, and in the house and farm buildings not less than 200*l.* more. I have used in hand tillage, manure, and cake more than 450*l.* up to this time, and I can truly say I have never over-tilled [over-manured] any crop. The last tenant informs me his outlay on the 53 acres was about 25*l.* per year in manure and cake, and that he got 5 qrs. of Wheat in 1863. The crop of Wheat which I took of him yielded 22 bushels from 2 bushels sown; and the first crop of Oats which I sowed (and gave 30*s.* per acre in tillage) only yielded 4 qrs. per acre. Last season I got 6 qrs., and this year I think I had fully 8 qrs. where I had the 4 qrs. of Oats in 1864. I worked and manured for Turnips last year, but I got none. I sowed it with Wheat that autumn, and I had 5 qrs. of Wheat on it this year.—I have given my Grass not less than 5*l.* 10*s.* per acre since I got it, and I intend to give my seeds and Grass 10*s.* per acre this coming spring.

The improvement in the quality of the Grass in the pasture and meadows has been very striking, as the

herbage, which was originally very poor, is replaced by White Clover, and the better Grasses, which contain so much more nutriment than the coarser ones of Bent, Carnation Grass, blue Scabious, trembling Grass, and Hardheads, which seemed to be the prevailing Grasses before.

I have a stock of over 10 beasts of different ages, and at present I have 40 sheep, 20 of which are breeding ewes. I have three horses and one foal, and the usual quantity of pigs and poultry. I sold off my farm 450*l.* worth of produce last year, and though this is, I understand, fully twice the amount that it used to yield, I cannot say I have got it into a paying state. I employ a capital of 1500*l.*, which is nearly half the value of the land, but I suppose there are few persons who can get a farm rather out of condition into a paying state in the time. I keep half my stock of sheep of good Southdowns, which I can get to weigh 20 lb. a quarter, at 16 to 17 months old. I have not any pedigree Short-horns, but I have a few very good animals and can get those I breed to the value of 10*l.* at 12 months old, as I begin to give them cake very early. My last calf, which is just one month old, began to eat a few crumbs of it at three weeks old. I use cake rather more freely than I should do if I had to buy it all, as being in the trade, I often have cake that is broken or damaged, and am sometimes surprised to find that animals which have always had cake do not refuse inferior qualities. I am particular to charge my farm with articles that I send there, at what I believe to be their correct value.

I certainly am surprised to find how much money it takes to farm well, and I do not wonder that those who are attempting to make a living are careful how they lay it out; but then again, seeing what crops some of them get, I wonder how they do live, and I believe the time is fast coming when land will not be let to men of insufficient capital, and that those who have it will require more security for its outlay than they now have by a yearly tenancy. *Henry Richardson.*

Miscellaneous.

An English Landowner.—If the yeomanry and the volunteers of the country were valuable—if the clergy, and the army and navy of the country, were valuable, as was expressed in the various toasts of the evening—he would tell them that he thought one of the most valuable things which any country neighbourhood could possess was an honest, conscientious, upright country gentleman—one who through a long life managed to retain the respect and affection of his neighbours, and even more than the respect and affection of his tenants—who goes down to the late years of his long life knowing in the faces he meets around him, and from the welcome they give to his name, the value he is to them and the affection they feel for him. He need hardly tell them he was proposing the health of him whose name appeared in the paper as the president of this Society, but better known to them as the "Good old 'Squire." In the 25, or coming on to 26, years he (the speaker) had lived in this neighbourhood, and often as he had been in this room, he had witnessed the exceeding popularity of Mr. Farquharson. It was a great point in a man's character, and one of the first ingredients to his being able to retain popularity and affection, always to be true to his word, doing his best to carry out the principles which ought to actuate him, properly rendering his services to the country as an impartial magistrate, offering any advice he can, and never refusing it when it is wanted. It was not for him to say how the 'squire had pleased them in other respects, for he (Lord Sydney) had had so much said about him, and he had gained such a bad character with regard to field sports, that they would be led to believe he was out hunting every day of his life. But he could not help mentioning the character of Mr. Farquharson as a sportsman, although perhaps he ought not to say anything about it. He desired to associate also with the toast the name of one of the vice presidents of the Society, Mr. Charles Hambro, and he trusted when he, as a young man, came into his father's property, he would endeavour to preserve that character which he had endeavoured to stamp as Mr. Farquharson's—strictly true and honest, setting a good example to his tenantry—and then he will have a right to ask for that support which he was entitled to at their hands. He hoped when his young friend's hairs were grey he would enjoy the same affection and respect and esteem as did the old squire Farquharson. He gave them the healths of Mr. Farquharson, president of the society, and Mr. Charles Hambro as representing the vice presidents. The toast was drunk with great applause. *Rev. Lord Sydney Godolphin Osborne, at the meeting of the Blandford Agricultural Society.*

A Vegetarian Festival.—A rather remarkable festival was held at Blennerhasset, Cumberland, on Christmas Day, upon the farm of Mr. William Lawson son of Sir Wilfred Lawson, of Brayton. The farm is conducted upon the co-operative principle, a tithe of the profits being divided among the workers, and Mr. William Lawson and his servants are vegetarians. All the people of the district who chose to write beforehand for free tickets or to pay 4*d.* on Christmas Day were invited. Musicians were requested to take their instruments with them, and it was added "those who like may bring their own spoons." About 1000 people attended. The farm buildings were decorated, and in the large rooms singing and dancing and lecturing on phrenology, co-operation, vegetarianism, and physiology, went forward at intervals during the day. At noon a meal of grain, fruit, and vegetables was given, which rather surprised some of the beef-eating peasantry who had assembled to take part in the festival. There were raw Turnips, boiled Cabbages, boiled Wheat, boiled Barley, shelled Peas (half a ton of each of these three last-named); Oatmeal gruel, with chopped Carrots, Turnips, and Cabbage in it; boiled horse Beans, boiled Potatos; salads, made of chopped Carrots, Turnips, Cabbages, Parsley, &c., over which was poured Linseed boiled to a jelly. As there were no condiments of any kind, either upon the extraordinary messes or the table, and all being cold except the Potatos, it may be imagined that the guests did not sit down with much relish to their vegetarian fare. Each one had an Apple and a biscuit presented on rising from the table. In the course of the afternoon Mr. Lawson's two steam engines, called by him "Cain" and "Abel," set off with steam up and whistles screaming to lead a procession over the farm, but they did not get very far, and the procession was rather a straggling one. Good order was maintained all day, the farm servants of the establishment acting as officers, and Mr. W. Lawson himself performing the duty of special constable—a fact which was announced by placards posted up on the farm buildings, bearing the words, "William Lawson, sworn constable."

Rinderpest in Holland.—It is a golden rule in Holland if they have a lot of cattle with the lung disease among them not to keep them at home, but to call in a dealer and send them to Rotterdam to be transferred to this country. No doubt at the present moment, were it not for our stringent rules, the Dutch would gladly and liberally send us any quantity of their murrained cattle, and that they had plenty at present he could prove by a Dutch newspaper. In the week ending Feb. 11 there were in Holland 2033 cases of rinderpest, but by means of preventive measures the weekly totals were very much reduced. The Dutch, however, were a very negligent people, and when they had got the disease down to 294 in one week in June they thought they had accomplished so much that they began to relax their restrictions and up the figures went again until, in the week ending Nov. 18, the losses sustained comprised 3257 head of cattle; in the last week of which he had received any record the losses had gone up to 7162. Now, after that he need scarcely say that we had some troublesome neighbours, and that it was necessary that we should be carefully protected from them. He did not know when Holland would be free from the disease, and he was afraid to say when we should be free from it in this country. At the present moment, however, it had been brought down so low that unquestionably it could be eradicated. *Professor Gamgee, at Framlingham.*

Calendar of Operations.

JANUARY: *Arable Farm.*—Carry tiles, stones, lime, grain, and manure as long as this frost lasts. The work of digging, quarrying, hauling, and of wheeling marl, clay, or chalk on to the lands appropriate may also go on. Threshing proceeds, the cattle and sheep requiring abundant litter. Prepare compost manures for use in spring. When the frost has gone, the contents of liquid-manure tanks may be emptied over heaps, under shelter, of turf ashes, burned clay, charcoal dust, charred peat, sawdust, spent bark from the tanyard, or any other substance capable either of acting as a sponge on the liquid or its volatile parts, or of rotting the more rapidly for its saturation by a substance in the act of fermentation.

Water Meadows.—In severe frost allow the water to flow rather than run any risk from exposure to its effects; but while mild, it will be desirable, where the whole surface cannot be irrigated at the same time, to change the courses twice a week, choosing a mild morning. The rule is to let the water flow till a scum appears on the Grass.

Notices to Correspondents.

AILING DUCKS: *Subscriber.* There is no medicine that can be given to ducks. Your birds get something that disagrees with them. Shut them up for a time—an old pigstye is a very good place; feed them on Oats or meal; put in a vessel of any kind, a milk pan for instance; place a sod of Grass on the bottom with some gravel, then put the Oats, and water enough to cover the whole; they will feed readily. Feed them in this way three times every day, and when they have well fed take the food away. We believe this will cure them.

BARREN FIELD: *Andrew Harmer.* If not poisoned you should be able to fertilise it by adding vegetable and mineral manures, and probably the best plan will be to try Buckwheat and plough it in. If you can get a compost made of lime and any vegetable refuse as a dressing, apply it liberally.

BOOKS: *A Subscriber.* Blackie's "Agriculturist's Calculator."

CABBAGE: *J H A.* Drill in May for a winter crop; in March for an August and September crop. The crop is best transplanted in the usual way.

CATTLE MELONS: *Sub.* Melons are given to stock in slices raw. It is not, however, a bad plan to boil them. They are often boiled down into a sort of thick paste in the United States, which is used instead of butter on country farms. *M J B.*

WORK IN THE DAIRY: *Cor.* During the early part of the year it is well to make preparations for the commencement of cheese-making and the management of the cheese, first by cleansing the dairy-lofts, &c., from any remains of the former year's operations. That is to say, all cheese which remains unsold should be removed from the rooms intended to receive that of this year's making, to allow of whitewashing, looking well to all encroachments made by mice, which a little mortar, having pounded glass mixed with it, has been found effectual in preventing. The shelves and floors should be thoroughly cleansed from mites, which are generally to be found after cheese has remained on them through the winter, however attentive the dairy-woman may have been in regularly wiping; and if they are not thoroughly destroyed they will do much injury to the appearance of the new cheese, by preventing blue coat from rising on it, which marks the richness of the cheese. Sometimes, if they have been allowed to increase, it may require more than one washing with hot water, soap, and soda to ensure the entire extirpation of these little insects; and, if any of the last year's cheese remains, and the mites require destroying, the best mode of doing so is by rubbing the cheeses well with sweet oil applied with a woollen cloth, and, if necessary, doing this repeatedly.

PAMPAS GRASS, extra strong plants, all from the best large silvery plumes. These plants are established in pots fit for making specimens on Lawns.
Price 1*s.* to 2*s.* each; or much cheaper by the 100 or 1000, for planting for game coverts, &c.
SUTTON & SONS, Royal Berks Nurseries and Seed Establishment, Reading.

Lettuce Seed.

DIXON'S CHAMPION GREEN COS LETTUCE, the largest and best Lettuce in cultivation. Weight 4 to 6 lb. each. Firm and fine flavoured. Packets of the above, 6*d.*, 1*s.*, and 2*s.* 6*d.* each. The usual discount to the Trade.
G. W. DIXON, Wholesale, Retail, and Export Seed Warehouse, 48A, Moorgate Street, City, London, E.C.

Seed Potatos.

H. AND F. SHARPE are now offering MYATT'S PROLIFIC KIDNEY, DAINTREE'S EARLIEST, WEBB'S IMPERIAL KIDNEY, FORTY-FOLD, FOX'S SEEDLING, EARLY OXFORD, and many other Early and Late varieties, fine in quality, free from disease, and at low prices.
Seed Growing Establishment, Wisbech, Cambridgeshire.

POYNTER'S EARLIEST and BEST PEA, the hardiest and earliest out, price only 1*s.* 3*d.* per quart. See Advertisement, p. 1180 of this week's *Gardeners' Chronicle.*
To be obtained Retail in London of Messrs. Jas. Veitch & Sons, Chelsea, S.W.; and Mr. B. S. Williams, Holloway, N.; and through any Seedsman, in one quart packages only, with Trade Mark, the Crown and Royal Oak, and blue label. None other genuine.
ROBERT H. POYNTER, Seedsman, &c., Taunton, Somerset.

Hill's June Broccoli.

E. P. FRANCIS AND CO. have great confidence in recommending the above Broccoli to the Gentry and Public generally. They have had the opportunity of seeing it grow during the last three seasons in the gardens of R. Hanbury, Esq., Poles, Ware, and they have no doubt but that its local reputation will soon become generally established.
Its special value is derived from the fact that its season extends from the last week in May to the end of June—thus supplying a want that has long been felt, by filling up the time between the ordinary Broccoli and Cauliflower seasons.
Its habit is strong—the heads of a medium size, and exceedingly close and white, and the flavour all that could be desired.
Numerous Testimonials have been received, but the following, from Mr. Merrick, Gardener to Russell Ellice, Esq., Brickendonbury, Herts, has been selected:—
"I have seen Hill's June Broccoli growing the last three seasons, and think it the very best yet brought out It is hardy and strong in growth, has close white heads of a medium size, and comes in the end of May and continues through June, so much wanted to join the Broccoli and Cauliflower season together. This year I saw it as late as the 16th of June in the open quarters, and have no doubt it could be kept till the end of June by moving it to a north border, by which time Cauliflowers are well in. It should be grown in every Garden. "WILLIAM MERRICK."
"Brickendonbury, Hertford."
Price in Sealed Packets, 2*s.* 6*d.* each, post free.
The Nurseries, Hertford.

Nuneham Park Onion.

WM. CUTBUSH AND SON have great gratification in announcing that this SUPERB NEW ONION has in every instance, where shown, obtained the first prizes, and numerous testimonials have been sent to them from various parts of the country, confirming the opinion that it is the largest and heaviest cropper of all Onions. It is also of exceedingly mild flavour, and keeps as long as any variety extant. In Sealed Packets 2*s.* 6*d.* each.
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" Chivas & Weaver, Chester	" Robertson & Son, Edinburgh
" Clarke & Sons, 39, King Street, Covent Garden, W.C.	" Rutley & Silverlock, 412, Strand, W.C.
" Cooper & Bolton, 152, Fleet Street, E.C.	" Sang & Sons, Kirkcaldy
" Dickson & Sons, F. & A., 106, Eastgate Street, Chester	" Slater & Sons, Malton
" Dickson & Co., Edinburgh	" Smith & Simons, Glasgow
" Dickson & Brown, Manchester	" Stewart & Sons, Dundee
" Downie, Laird, & Laing, Edinburgh and London	" Stuart & Mein, Kelso
" Drummond & Son, Stirling	" Sutton & Sons, Reading
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" Drummond Bros., Edinburgh	" Witty & Sons, Cottingham
" Farrell & Co., Dublin	" Yates, G. & W., Manchester
" Fisher Holmes & Co., Sheffield	Mr. Barrett, Bury St. Edmund's
" Flanagan & Sons, 98, Cheapside	" Brotherton, Chapel Allerton
" Garaway & Co., Bristol	" Brown, H., Liverpool
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" Hamilton & Wright, Croydon	" Cattell, J., Westerham
" Henderson & Son, E. G., St. John's Wood, N.W.	" Chater, J., Cambridge
" Hooper & Co., Covent Garden	" Cooling, E., Derby
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	" Quincey, Peterborough
	" Rowbottom, Milford, Derby
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	" Turner, C., Slough
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HENRY DEWAR AND SON beg respectfully to offer Seed of their very superior IMPROVED SHORT-TOP RED BEET, which was awarded Two First-class Certificates at the Gardens of the Royal Horticultural Society, South Kensington, on Nov. 7 and Dec. 9, 1865; also Seed of their solid crisp white NORTHUMBERLAND CHAMPION CELERY, which was awarded a First-class Certificate at the International Show, South Kensington, Dec. 9, 1865. In addition to the First-class Certificates, the Silver Banksian Medal of the Royal Horticultural Society was awarded for the above Beet and Celery.
In sealed packets only, stamped with our name in full, at 1*s.* per packet each. Price to the Trade on prepaid application.
Seed Establishment, 97, Grey Street, Newcastle-on-Tyne.

Extensive and well-grown Nursery Stock.

J. SCOTT, Merriott, Somerset, has to offer as under:—FOREST TREES:—Acacia, 5 to 6 feet, 10*s.* per 100; Alder, 3 feet, 25*s.* per 1000; Beech, 2 to 2½ feet, 30*s.* per 1000; do., 3 to 4 feet, 35*s.* per 1000; do., 4 to 5 feet, 80*s.* per 1000; Chestnut, Horse, 3 to 4 feet, 80*s.* per 1000; do., 4 to 5 feet, 10*s.* per 100; Chestnut, Spanish, 2 feet, 30*s.* per 1000; do., 3 feet, 35*s.* per 1000; Elm, English, 4 to 5 feet, 10*s.* per 100; do., 5 to 6 feet, 20*s.* per 100; Elm, Wych, 4 to 5 feet, 80*s.* per 1000; do., 5 to 6 feet, 10*s.* per 100; Firs, Larch, 2 feet, 20*s.* per 1000; do., 2½ to 3 feet, 25*s.* per 1000; do., 3 to 4 feet, 30*s.* per 1000; Scotch, 1½ to 2 feet, 18*s.* per 1000; do., 2 to 2½ feet, 20*s.* per 1000; do., 2½ to 3 feet, 25*s.* per 1000; Silver, 9 to 12 inches, 50*s.* per 1000; do., 12 to 18 inches, 80*s.* per 1000; Spruce, 1½ foot, 25*s.* per 1000; do., 2 feet, 30*s.* per 1000; do., 2½ feet, 35*s.* per 1000; do., 3 feet, 40*s.* per 1000; Hazel, 2 to 2½ feet, 25*s.* per 1000; do., 2½ to 3 feet, 30*s.* per 1000; do., 3 to 4 feet, 40*s.* per 1000; do., 4 to 5 feet, 45*s.* per 1000. The Hazel is especially fine. Oak, English, 2 to 2½ feet, 35*s.* per 1000; Willows, from 30*s.* to 50*s.* per 1000; Yews, 2 feet, fine, 7*s.* per 100; Holly, 2 feet, extra fine, 60*s.* per 100.
FRUIT TREES, the best Collection in England, are grown to a large extent, and free from every kind of disease. A 92-paged DESCRIPTIVE CATALOGUE, with cultural notes, free. Apples, 600 sorts in all manner of training, from 6*d.* to 3*s.* 6*d.* each; Apricots, Nectarines, and Peaches, Maiden and Dwarf-trained, from 6*d.* to 3*s.* 6*d.* each; Cherries, Standard and Pyramidal, 1*s.* to 2*s.* 6*d.* each; do. Dwarf-trained, 1*s.* 6*d.* to 2*s.* 6*d.* each, in 50 sorts. May Dukes and Morellos to the trade in quantity, cheap. Pears, 800 sorts, from 6*d.* to 2*s.* 6*d.* to 5*s.* each, according to size; Plums, Pyramidal and Dwarf-trained, 2*s.* 6*d.* to 3*s.* 6*d.* each. Deodar Cedar, 4 to 5 feet, 30*s.* per dozen; 5 to 6 feet, 36*s.* per dozen; 6 to 7 feet, 42*s.* per dozen. Magnificent trees with fine balls. A splendid collection of ORNAMENTAL TREES and SHRUBS equally cheap.

FIBROUS PEAT of first-class quality for Orchids, Heaths, American Plants, and all potting purposes, may be obtained by application to Mr. THOMAS JESSOP, Farningham Wood, Kent. It is despatched by the London, Chatham, and Dover Railway in trucks of 16 yards, at 5s. 8d. per yard, about 6 tons, to any station about London, and on the Great Northern, Midland, and Great Western Railways; or fetched in carts from the wood. It is extensively used and appreciated in the London Nurseries, and in the Royal Parks and Gardens.



COCOA-NUT REFUSE is becoming SCARCE, the old reserves will soon be gone. Now sold in bags, 1 for 2s., 10 for 16s., 2 for 30s., 50 for 68s., 100 for £6.

Fourpence allowed for each bag returned carriage-paid.

A Railway Truck-load (not in bags), 40s.

Postage Stamps or Post-office Order, payable to J. BARSHAM & Co., Kingston-on-Thames, S.W.

LAWES' MANURES.

The Manures manufactured by J. B. LAWES for the present season of 1866 are now ready for delivery at his Factories, at the following prices, per ton:—

	£	s.	d.
LAWES' PATENT TURNIP MANURE, and BONE SUPERPHOSPHATE of LIME	6	6	0
LAWES' SUPERPHOSPHATE of LIME from BURNT BONE or MINERAL PHOSPHATES	5	5	0
LAWES' WHEAT, BARLEY, GRASS, and MANGEL MANURES	8	0	0
CONCENTRATED CORN and GRASS MANURE.. ..	12	0	0

These Manures can be obtained of Mr. LAWES, or through the appointed Agents in all parts of the United Kingdom, at prices varying according to cost of carriage.

Genuine Peruvian Guano direct from the Importers. Nitrate of Soda, Sulphate of Ammonia, and other Chemical Manures.

American and other Cakes at market prices.

Address, JOHN BENNET LAWES, 1, Adelaide Place, London Bridge, E.C.; and 22, Eden Quay, Dublin.

THE LONDON MANURE COMPANY
(ESTABLISHED 1840),
Have now ready for delivery in dry fine condition,
CORN MANURE, for Spring Use
DISSOLVED BONES, for Dressing Pasture Lands
SUPERPHOSPHATES of LIME
PREPARED GUANO
MANGEL and POTATO MANURES

Also Genuine PERUVIAN GUANO, and NITRATE of SODA, ex Dock Warehouse; SULPHATE of AMMONIA, FISHERY SALT, &c. E. PURSER, Secretary.

Offices, 116, Fenchurch Street, E.C.

THOMSON'S STYPTIC prevents the Bleeding of Vines after Pruning or Grafting, the Damping of Geraniums and other Cuttings after they are potted; and it has been used successfully in Grafting Fruit Trees of all descriptions.

Manufactured and sold Wholesale by JOHN YOUNG & SON, Dalkeith, N.B., and may be had of all Nurserymen and Seedsmen in bottles at 3s. each, with directions for use. None is genuine without the signature of WM. THOMSON.

FUMIGATE your GREENHOUSE with TOBACCO TISSUE. Will destroy all the Insects, and not injure the Plants. Price 3s. 6d. per lb., carriage free.

To be had of Messrs. ROBERTS & SONS, Tobacco Manufacturers, 54, St. John Street, Clerkenwell, E.C., and of all Seedsmen and Nurserymen.

Winter Dress all Fruit Trees with
GISHURST COMPOUND.



Red Spider Magnified.

Copy of a Letter from Mr. RIVERS, *Nurseries, Sawbridgeworth, Herts, 22d Oct., 1861.*

"I must tell you what heard to-day from a very clever gentleman farmer, Anthony Bubb, Esq., of Witcombe Court, Gloucester. He has a wall to which Peach trees are trained. Well, last autumn they were in a wretched blighted state. As a desperate remedy he unnailed them all, early last February, and gave all but one a thorough painting with Gishurst Compound, 1 lb. to the gallon of water; his trees, all but the one, commenced to grow favourably in spring, and are now pictures of health. The tree not painted is in a half-dead blighted state. He used the same dressing to his Apple trees; it killed the woolly Aphis entirely, and has made his trees clean and vigorous in their growth. He intends to paint his wall trees annually, and tells all his friends to do the same. I shall certainly serve all my young Peach trees against my walls in the same manner. The Compound is, I believe, more efficacious than the usual offensive mixtures of clay, soot, sulphur, &c.; and it does not blacken the shoots on the walls."

For Orchard-house Trees, ozs. to the gallon will be found a good strength; when used stronger some buds on weakly trees may be injured.

GISHURST COMPOUND is sold Retail by Nurserymen and Seedsmen, in boxes, 1s., 3s., and 10s. 6d. each.

Wholesale by PRICE'S PATENT CANDLE COMPANY, LIMITED, Belmont, Vauxhall, London, S.

Gishurst Compound has more recent testimonials to its efficacy, but none more conclusive than the above, which has been published before.

FOWLER'S PATENT STEAM PLOUGH and CULTIVATOR may be SEEN at WORK in every Agricultural County in England.

For particulars apply to JOHN FOWLER & Co., 71, Cornhill, London, E.C.; and Steam Plough Works, Leeds.

TANNED GARDEN NETTING for preserving Seed Beds, Fruits, Strawberries, from Frost, Blight, Birds, &c., and as a Fence for Fowls, &c. 1 yard wide, 1½d.; 2 yards, 3d.; 3 yards, 4½d.; and 4 yards, 6d. per yard run in any quantity, may be had at CHAS. WRIGHT'S, 376, Strand, W.C.

VARNISHED FLOWER STICKS:—1 foot, 3d.; 1½, 4d.; 2, 6d.; 2½, 7d.; 3, 10d.; 4, 1s. 6d. per dozen. DAHLIA do., per dozen:—3 ft., 1s. 6d.; 4, 2s. 3d.; 5, 3s.; 6, 3s. 6d. An allowance to Nurserymen.

GALVANISED WIRE CABLE STRAND FENCING,
for FARMS, PARKS, and GARDENS.
The ORIGINAL INVENTORS and MANUFACTURERS.

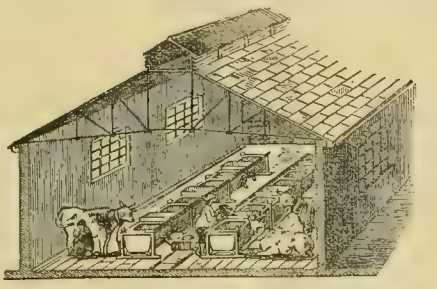


The CHEAPEST, STRONGEST, and NEATEST FENCING in USE
THOUSANDS of MILES of this FENCING have been SUPPLIED by us at home and abroad. It sustains no injury by being trespassed upon.

Price, with five lines of Strand and Iron-pronged Standards, and one straining post, stay and screw bolts to every 120 yards, 1s. per yard.

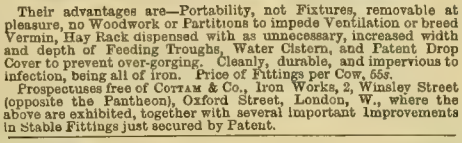
Five lines of Cable Strand and Staples for wooden posts, 6d. per yard
HURDLES, HURDLES, HURDLES, 1s. 9d. to 3s. 9d. per yard.
CONTINUOUS IRON FENCING, GATES of all kinds.
PATENT STRAINING PILLARS, &c.
GALVANISED WIRE NETTING for POULTRY, &c.
GALVANISED SWING WATER BARROWS.
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GALVANISED IRON PUMPS.
LAWN MOWERS, GARDEN ROLLERS.
ASPHALTE ROOFING FELT, 1d. per square foot.
MOTLEY & GREEN.
Illustrated Catalogues and Estimates free on application.
12, Great George Street, Leeds.

COTTAM'S PATENT PORTABLE UNITED COW FITTINGS.



Their advantages are—Portability, not Fixtures, removable at pleasure, no Woodwork or Partitions to impede Ventilation or breed Vermin, Hay Rack dispensed with as unnecessary, increased width and depth of Feeding Troughs, Water Cistern, and Patent Drop Cover to prevent over-gorging. Cleanly, durable, and impervious to infection, being all of iron. Price of Fittings per Cow, 55s.

Prospectuses free of COTTAM & Co., Iron Works, 2, Winsley Street (opposite the Pantheon), Oxford Street, London, W., where the above are exhibited, together with several important Improvements in Stable Fittings just secured by Patent.



GARDEN BORDER EDGING TILES, in great variety of patterns and material, the plainer sorts being especially suited for KITCHEN GARDENS, as they harbour no Slugs and Insects, take up little room, and once put down incur no further labour and expense, as do "grown" Edgings, consequently being much cheaper.



GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, of great durability, and in great variety of design.

F. & G. ROSHER, Manufacturers, Upper Ground Street, Blackfriars, S.; Queen's Road West, Chelsea, S.W.; Kingsland Road, Kingsland, N.E.

Sole London Agents for FOXLEY'S PATENT GARDEN WALL BRICKS. Illustrated Price Lists free by post. The Trade supplied

ORNAMENTAL PAVING TILES for Conservatories, Halls, Corridors, Balconies, &c., as cheap and durable as Stone, in blue, red, and buff colours, and capable of forming a variety of designs.

Also TESSELATED PAVEMENTS of more enriched designs than the above.

WHITE GLAZED TILES, for Lining Walls of Dairies, Larders, Kitchen Ranges, Baths, &c. Grooved and other Stable Paving Bricks of great durability, Dutch and Adamantine Clinkers, Wall Copings, Red and Stoneware Drain Pipes, Slates, Cements, &c.

To be obtained of F. & G. ROSHER, at their Premises as above.

SILVER SAND (REIGATE, best quality), at the above addresses—14s. per Ton, or 1s. 3d. per Bushel; 2s. per Ton extra for delivery within three miles, and to any London Railway or Wharf. Quantities of 4 Tons, 1s. per Ton less.

FLINTS, BRICK BURRS or CLINKERS, for Rockeries or Grotto Work. F. & G. ROSHER.—Addresses see above.

N.B. Orders promptly executed by Railway.

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For samples and prices apply to
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Seed Drawers Wanted.

WANTED, a CASE of GARDEN SEED DRAWERS, to suit a space 6 feet broad by 9 feet high, to contain about Eighty Drawers. Apply, stating particulars and price, to R. & C., *Gardeners' Chronicle* Office, W.C.

Caution to Gardeners.—When you ask for
SAYNOR AND COOKE'S WARRANTED PRIZE PRUNING and BUDDING KNIVES, see that you get them. Observe the mark SAYNOR, also the corporate mark OBTAIN WARRANTED, without which none are genuine.

S. & C. regret having to caution Gardeners and others, but are compelled to do so, in consequence of an imitation, of common quality, having been sold for the genuine one, and which has caused many complaints to be made to them of Knives which were not of their make, all of which are warranted both by Sellers and Makers.

S. & C.'s Pruning and Budding Knives are the best and the cheapest in the market.

Paxton Works, Sheffield. Established upwards of 125 years.

JAMES PHILLIPS AND CO.
beg to submit their prices as follows:—
GLASS for ORCHARD HOUSES,
As supplied by them to Mr. Rivers, to the Royal Horticultural Society, and to most of the Nobility, Clergy, and Gentlemen of the United Kingdom.

Each Box contains 100 feet. The prices only apply to the sizes stated.

Squares 20 by 12, 20 by 13, 20 by 14, 20 by 15.

	16 oz. to the foot.	21 oz.
Fourth quality	15s. 0d.	19s. 6d.
Third ditto	17s. 0d.	22s. 6d.
Seconds	18s. 0d.	26s. 0d.
English	20s. 0d.	27s. 0d.

The above prices include the boxes, which are not returnable.

Stock size, 15-oz., in 100 feet boxes, boxes included.

These prices only apply to the sizes stated.

				4ths.	3rds.	2nds.
				s. d.	s. d.	s. d.
11 by 9	12 by 9	13 by 9	14 by 9	13 6	15 6	17 0
12 „ 10	13 „ 10	14 „ 10	15 „ 10			
13 „ 11	14 „ 11	..	..			
14 „ 12	15 „ 12	15 „ 11	16 „ 11			
18 „ 12	19 „ 12	16 „ 12	17 „ 12			
16 „ 13	17 „ 13	20 „ 12	..	15 0	17 0	18 6
16 „ 14	20 „ 13	18 „ 13	..			
	17 „ 14	18 „ 14	..	16 to 17 oz. to the foot.		
	20 „ 14					

SMALL SHEET SQUARES.
In 100 feet Boxes.

6 by 4	6½ by 4½	7 by 5	7½ by 5½	.. 12s. 6d.
8 by 6	8½ by 6½	9 by 7	9½ by 7½	
		10 by 8	10½ by 8½	.. 13s. 6d.

London Agents for HARTLEY'S IMPROVED PATENT ROUGH PLATE.

LINSEED OIL, Genuine WHITE LEAD, CARSON'S PAINTS, PAINTS of various colours, ground ready for use.

SHEET and ROUGH PLATE GLASS, SLATES of all sizes, BRITISH PLATE, PATENT PLATE, ROLLED PLATE, CROWN, SHEET, HORTICULTURAL, ORNAMENTAL, COLOURED, and every description of GLASS, of the best Manufacture, at the lowest terms. Lists of prices and estimates forwarded on application to

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GREEN'S IMPROVED NEW PATENT GARDEN ROLLER.

The above Rollers possess many advantages over all others. They are made in two parts, and are free to revolve on the axis, affording greater facilities for turning, and the outer edges are rounded off or turned inwards, thus avoiding the unsightly marks left by other Rollers.

Diameter, 30 inches;	Length 32 inches,	£7	10	0
„	24 „	„	26 „	4	10	0
„	20 „	„	22 „	3	10	0
„	16 „	„	17 „	2	15	0

Prices for Rollers fitted with Shafts suitable for Pony or Horse Power, free on application.

Delivered carriage paid to all the principal Railway Stations and Shipping Ports in England.

THOMAS GREEN & SON, Smithfield Iron Works, Leeds; 54 and 55, Blackfriars Road, London, S.; and 19, Eden Quay, Dublin.

N.B. All Orders executed on the day they are received.

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The above Lawn Mowers have proved to be the best, and have carried off every Prize that has been given in all cases of Competition.

Sold by all respectable Ironmongers, Seedsmen, &c., in the Kingdom. Illustrated Price Lists free on application.



AGRICULTURAL and HORTICULTURAL IMPLEMENTS and MACHINES of every description.
IMPROVED IRON STABLE FITTINGS.
HURDLES and CONTINUOUS IRON and WIRE FENCING.
Palisading Entrance and Field Gates. Plain and Galvanised Wire Netting.
GREEN'S PATENT LAWN MOWERS and GARDEN ROLLERS.
Garden Engines, Syringes, Water Barrows, Ornamental Garden Seats, Chairs, Tables, Iron Fountains, Vases, &c.
IRON and BRASS BEDSTEADS, in great variety.
Washing, Wringing, and Mangling Machines.
IMPROVED SAUSAGE MACHINES and FILLERS.
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Show Rooms opposite the Smithfield Cattle Market, North Street, Leeds; 54 and 55, Blackfriars Road, London, S., and 19, Eden Quay, Dublin.

E. T. ARCHER'S "FRIGI DOMO."

Patronised by Her Majesty The Queen, the Duke of Northumberland for Syon House, His Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, &c.

PROTECTION from COLD WINDS and MORNING FROSTS.

"FRIGI DOMO," a Canvas made of Patent prepared Hair and Wool, a perfect Non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all Horticultural and Floricultural purposes, for Preserving Fruits and Flowers from the Scorching Rays of the Sun, from Wind, from Attacks of Insects, and from Morning Frosts. To be had in any required lengths.

Two yards wide	1s. 9d. per yard run.
Four yards wide	3s. 6d. per yard.
An improved make, 2 yards wide ..	1s. 9d. per yard.
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FRIGI DOMO" NETTING, 2 yards wide, 1s. 6d. per yard run.

ELISHA THOMAS ARCHER, Whole and Sole Manufacturer, 7, Great Trinity Lane, Cannon Street, City, E.C., and of all Nurserymen and Seedsmen throughout the Kingdom.

"It is much cheaper than Mats as a covering."

LOCK'S PATENT POTASH MANURES.

TRADE LOCK'S POTASH MANURE MARK.

This is the only "*perfect*" MANURE ever yet offered to the Agricultural Public, containing, as it does, that most *important element* of every cultivated plant—POTASH. It is far superior in efficiency to Peruvian or any other Guano, as it supplies EVERY *constituent requisite for each* SPECIAL *Crop.*

Each Manure is specially prepared for the Crop for which it is intended, and is sold in Bags containing the necessary Dressing for *One Acre.*

The WHEAT, BARLEY, and OAT MANURE will effectually PREVENT the LODGING of the Corn, so frequent on lands deficient in Silica.

The CLOVER MANURE is a CERTAIN CURE for CLOVER SICKNESS, so prevalent in some Counties.

The GRASS MANURE contains an abundance of SILICATE of POTASH, which is by far the *predominating element* in all GRASSES, and which has never before been offered for Sale by any Manufacturer.

For full particulars see Circulars, for which apply to the
SOUTH of ENGLAND MANURE COMPANY, LIMITED, REDBRIDGE, HAMPSHIRE,
who are the SOLE MANUFACTURERS.

*** AGENTS WANTED for the UNITED KINGDOM.

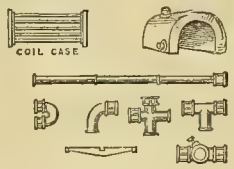
HOT-WATER APPARATUS, of every description, fixed complete in any part of the country, or the materials, viz., Boilers, Pipes, &c., delivered to any Station.
Estimates on application.
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Heating by Hot Water.

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HOT WATER PIPES, from Stock, per yard:—2-inch, 1*s.* 2*d.*; 3-inch, 1*s.* 10*d.*; and 4-inch, 2*s.* 4*d.* BENDS, from Stock, 1*s.* 6*d.*, 2*s.* 6*d.*, and 3*s.* each. THROTTLE VALVES, 10*s.*, 13*s.*, and 14*s.* each. Other Connexions at equally low prices, and all goods of first-class manufacture. Estimates given, and orders by post punctually attended to the same day.

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TWO HUNDRED CUCUMBER and MELON BOXES and LIGHTS, and from 400 to 500 LIGHTS for PITS of all SIZES kept in STOCK. Glazed and Painted complete, ready for immediate use. Packed and sent to all parts of the kingdom. Public and Private Buildings, Warehouses, &c., Heated on the most approved scientific and economical principles. References to the Nobility, Gentry, and Trade in most of the Counties in England.

COTTAM AND COMPANY,
CONSERVATORY and HOTHOUSE BUILDERS, &c.,
Iron Works, 2, Winsley Street, Oxford Street, London, W.
SADDLE BOILERS.
20 24 30 inches long.
45*s.* 65*s.* 92*s.* 6*d.* each.
HOT-WATER PIPES.
2 3 4 inch.
1*s.* 6*d.* 2*s.* 1*d.* 2*s.* 9*d.* per yard.
Materials supplied as above, or Estimates given fixed complete to Plan, on application to
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Iron Works,
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(opposite the Pantheon),
Oxford Street, London, W.



HOT WATER APPARATUS

CRANSTON'S PATENT BUILDINGS for HORTICULTURE.
"Dry Glazing without Putty."
"Glass without Laps."
"Ventilation without Moving Lights."
Highly Commended by the Royal Horticultural Society, South Kensington.



Plans and Estimates free on application. Descriptive Book fully illustrated, post free for 20 stamps, from the Author and Patentee, JAMES CRANSTON, Architect, Birmingham.
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GRAY'S OVAL TUBULAR BOILER.

INTERNATIONAL EXHIBITION, CLASS IX., No. 2119.

MR. GRAY begs to call the attention of the Nobility, Gentry, Nurserymen, Gardeners, &c., to his

NEW OVAL TUBULAR BOILER,

Acknowledged by practical judges to be a great improvement on every form of Tubular Boiler yet introduced. It has proved itself superior to all other Boilers for quickness of action and economy of Fuel, doing its work with one-third less the amount required by any other.

Extract from Report in GARDENERS' CHRONICLE *of International Exhibition, May* 24, 1862, *page* 476.

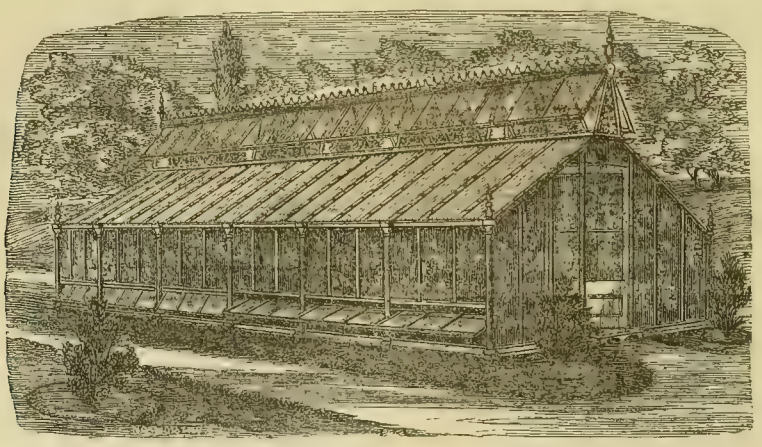
"The upright form of Boiler is usually made on a circular plan, but the oval form given to Mr. GRAY's variety of it is said to be preferable in consequence of its bringing the tubes in closer contact with the fire. The usual form of a furnace being a parallelogram rather than a square, it seems feasible that the Boilers on the ova plan should bring the tubes more completely within range of the burning fuel; and this being so, the change, though a slight one is no doubt an improvement."

☞ *They are made of all sizes, which, with prices, may be had on application.*

JAMES GRAY, HORTICULTURAL WORKS,
DANVERS STREET, PAULTON'S SQUARE, KING'S ROAD, CHELSEA, S.W.

BEARD'S PATENT.

GREAT INTERNATIONAL HORTICULTURAL EXHIBITION & BOTANICAL CONGRESS.



The FIRST and ONLY PRIZE given at the above EXHIBITION for the BEST METHOD of VENTILATION for PLANT STRUCTURES, was awarded to

MESSRS. SANDERS, FREWER, & CO.,

VICTORIA WORKS, BURY ST. EDMUNDS,

FOR THEIR MODEL OF

BEARD'S PATENT METALLIC NON-CONDUCTING GLASS HOUSES,

Showing the Patent System of perfect Ventilation and Patent Method of Glazing, whereby breakage from expansion and contraction is prevented, and facility given for immediate reparation by any ordinary labourer.

MESSRS. SANDERS, FREWER, AND CO. beg to call special attention to the high value of these great improvements in the VENTILATION, &c., of HORTICULTURAL ERECTIONS, which are also applicable to all WOODEN HOUSES, as well as to CHURCHES, RAILWAY STATIONS, PUBLIC BUILDINGS, MANUFACTORIES, &c.; and have received the highest recommendation from many of the first Horticulturists and practical men of the United Kingdom.

The system is invaluable also for AGRICULTURAL BUILDINGS, as by it abundant Light and Air can be obtained, and the Ventilation regulated to the utmost nicety in the Tops and Roofs of all Structures, where, as is well known, Impure Air constantly accumulates, and where the ordinary system of Ventilation is impracticable.

Full particulars and descriptions may be obtained on application to

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AGENT FOR LIVERPOOL: MR. W. BENNETT, JUN.

Vegetable and Flower Seeds, Carriage Free.

HOTHOUSES for the MILLION.—Medal, 1862.
INVENTED BY THE LATE SIR JOSEPH PAXTON.
Manufactured in London; Newton in Cartmel Lancashire; Gloucester; Coventry; Paisley, and Aberdeen.



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Also, a HANDBOOK of VINE and FRUIT TREE CULTIVATION, price 1*s.*; post free, 1*s.* 1*d.*

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ALEXANDER SHANKS AND SON would suggest to their numerous friends the desirability and importance of having their Lawn Mowers put into proper order before the commencement of the Mowing season. If attention be paid to this request some disappointment may be avoided, because in the early spring the necessary time for repairing Machines is to some extent denied them, on account of the press of business connected with the manufacture and despatch of new Machines.
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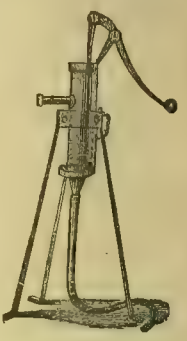


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4 in. long	3 ft. 6 in.	2	14	0
2½ in. short, with 15 feet of lead pipe attached, ready for fixing		2	0	0
2 in. long, do. do.		2	14	0

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Letter to The Times, *July* 23, 1866, *from* Earl ESSEX.
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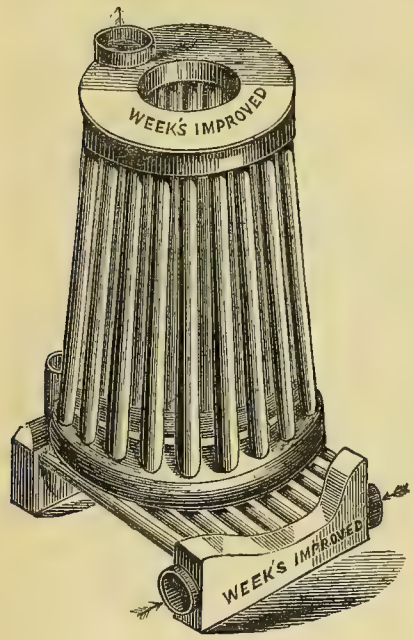
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THE GARDENERS' CHRONICLE
AND
AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.

No. 2.—1867.] SATURDAY, JANUARY 12. {Price Fivepence. {Stamped Edition, 6d.

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NATIONAL HORTICULTURAL EXHIBITION, 1867.—The above EXHIBITION will open at Manchester on JUNE 7, and continue till JUNE 15.
Schedules, &c., may be obtained on application to Mr. B. Findlay, Curator, Botanic Garden, Manchester; or from the undersigned,
Henry Whitworth, Secretary.
Carlton Buildings, Cooper Street, Manchester.

GARDENERS' ROYAL BENEVOLENT INSTITUTION.—The ANNUAL GENERAL MEETING of the Subscribers to this Institution will be HELD at the Bedford Hotel, Covent Garden, on TUESDAY, 15th January next, for the purpose of receiving the Accounts of the Society for the past year, and electing Officers for the ensuing year. The Chair will be taken at 7 o'clock precisely. Edwd. Roger Cutler, Secretary.
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,, do., transplanted, 2 to 4 ft	Privet
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GENERAL LIST of all the ANNUALS worth growing.	GENERAL LIST of ORNAMENTAL GRASSES.
,, ,, of BIENNIALS and PERENNIALS.	,, ,, of ORNAMENTAL GOURDS.

THE APPENDIX

CONTAINS

A LIST of choice French varieties of GLADIOLI.	HORTICULTURAL REQUISITES of every kind.
ENGLISH SEEDLING GLADIOLI.	KNIVES.
Other SUMMER and AUTUMN-FLOWERING BULBS.	HORTICULTURAL MANURES, &c. &c.

Everything is Priced. With each Catalogue a convenient Form of Order Sheet is enclosed.

B. S. WILLIAMS,
VICTORIA AND PARADISE NURSERIES, UPPER HOLLOWAY, LONDON, N.

KITCHEN GARDEN and FLOWER SEEDS.

OSBORN & SONS'

SELECT LIST OF THE ABOVE MAY NOW BE HAD

ON APPLICATION.

In it, among other articles of sterling merit, especial attention is directed to the following:—

*BEET, OSBORN'S SELECT RED.—This is preferred by many gardeners to any other kind, and for decorative purposes its foliage is unsurpassed. Per oz., 1*s.*

CELERY, FEAR NOT.—A most desirable pink variety, crisp and excellent in flavour. Per packet, 1*s.*

*MELON, QUEEN EMMA.—This was raised at Heckfield, and pronounced by the Viscount Eversley and other connoisseurs to be one of the best flavoured Melons ever produced. It has a good constitution, is a great bearer, well netted, thin skin, thick pale green flesh, and weighs from 2 to 3 lb. Per packet, 2*s.* 6*d.*

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LETTUCE, SCOTT'S WHITE COS.—A very superior variety of Paris Cos. Per packet, 1*s.* 6*d.*

LETTUCE, BOWDEN'S BROWN COS.—Less liable to run than any Lettuce we know. Per packet, 1*s.* 6*d.*

*LETTUCE, STANSTED CABBAGE.—The best hardy winter variety. Per packet, 1*s.*

LETTUCE, BELLE BONNE.—A very superior summer Cabbage Lettuce. Per packet, 1*s.*

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PAUL & SON'S ROSES, EVERGREENS, FRUIT TREES, &c.

Amongst EIGHTY PRIZES gained by their COLLECTIONS this year are the PREMIER PRIZES for CUT ROSES at the INTERNATIONAL, NATIONAL, BIRMINGHAM, ROYAL BOTANIC, and BRIGHTON SHOWS, AND EVERY PRIZE FOR NEW ROSES AT THE SUMMER SHOWS.

PAUL & SON,

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Beg to solicit orders for ROSES and other PLANTS now ready for delivery. That the Old Cheshunt Nurseries still stand unrivalled in the culture of the Rose, the numerous Awards of the year attest. General Prices as under.—

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Older kinds, Standards, 2 to 4 feet, 18*s.* per dozen; Dwarf Standards, ½ to 1 foot, 12*s.*; Dwarfs, 9*s.* to 12*s.*
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NEW ROSES of 1866, 36*s.* to 42*s.* per dozen; 3*s.* 6*d.* to 5*s.* each.
NOISETTE MARÉCHAL NIEL, Standards, 5*s.*; Dwarfs, 3*s.* 6*d.*

FRUITS, all healthy well-formed Trees.

APPLES.—Fine Standards, 18*s.* per dozen; Pyramids, 18*s.* to 24*s.* per dozen; Dwarf-trained, 30*s.* to 42*s.* per doz.
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PEACHES, NECTARINES, and APRICOTS.—Standard-trained, 7*s.* 6*d.* to 10*s.* 6*d.* each; Pyramids, in pots, 5*s.* each; Dwarf-trained, 60*s.* per dozen.
QUINCES, WALNUTS, MEDLARS, CRABS, SERVICE TREES.—Standards, 2*s.* to 2*s.* 6*d.* each.
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GOOSEBERRIES and CURRANTS, 4*s.* per dozen.
RASPBERRIES.—Summer, 16*s.* p. 100; Autumn, 30*s.* do.
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CONIFERÆ.—Our selection of 100 varieties, 1 to 3 feet, £10. PRICED LIST on application. For extent of our Collection see Catalogue of International Horticultural Exhibition.
DECIDUOUS and ORNAMENTAL FOLIAGED TREES and EVERGREENS, for Town and Country Planting.
RHODODENDRONS and AMERICAN PLANTS at PAUL'S American Nursery, High Beech, Loughton.

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LILIUM AURATUM.

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CAN SUPPLY

STRONG BULBS OF THE ABOVE MOST BEAUTIFUL LILY

At 7*s.* 6*d.* and 10*s.* 6*d.* each; Smaller, 5*s.* and 3*s.* 6*d.*

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Forwarded Postage Free on application, including amongst many others the following desirable articles:—

RAPHANUS CAUDATUS, or RAT'S-TAIL RADISH, 6*d.* and 1*s.*
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ONION, NUNEHAM PARK.
PEAS, LAXTON'S PROLIFIC } And all the best.
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SUTTON'S RINGLEADER.

SUTTON & SONS have again the pleasure of offering this unrivalled EARLY PEA, which still retains its position as *the forwardest and best early variety yet introduced.* The various trials made both in Public and Private Gardens fully confirm the confidence Messrs. SUTTON expressed of *its superiority over every other Early Pea.* One of its merits is that the haulm can be cleared away, and the ground planted with another Crop *nearly a fortnight before other Early Peas are ready.*

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☞ *Lowest Price to the Trade may be had on application.*

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TO THE TRADE.

Evergreen Oaks, 1-yr., extra fine | Asparagus, 1, 2, and 3-yr., do.
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Prices, per 1000 or 10,000, upon application.
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Price to the Trade on application.
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Alder, 3 to 5 feet, extra strong | Fir, Scotch, 1½ to 2 ft., extra fine
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Strong CATTLE CABBAGE PLANTS.
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Apples, Standards and Dwarfs, very strong
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KITCHEN GARDEN SEEDS

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Seeds, Seeds, Carriage Free.

WARRANTED OF THE PUREST AND FINEST QUALITY.

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WM. DILLISTONE'S HALF-GUINEA COLLECTION, the cheapest and best ever offered, containing half the

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SEEDS for the KITCHEN GARDEN.

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CARRIAGE PAID of all ORDERS over 20*s.*

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Dianthus barbatus auriculæ-
Erysimum arkansanum
Godetia The Bride
,, rubicunda splendens
Helichrysum bracteatum incurvum, splendid double Everlasting
Helichrysum bracteatum nanum atrosanguineum
Helichrysum macranthum
Larkspur, Dwarf Double Rocket, in 12 separate colours
Leptosiphon, French hybrids
Linum candidissimum [variety
Lobelia speciosa, Crystal Palace
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Lupinus subcarnosus, splendid Dwarf Blue variety
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Pea, Sweet, Invincible Scarlet
Phlox Drummondii, Brilliant Scarlet
,, ,, Black Warrior
,, ,, Radowitzkii
Physalis Alkekengi, Winter Cherry, true
Sanvitalia procumbens flore [pleno
Silene Saxifraga
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Viscaria oculata, New Scarlet
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Price of the above on application.

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WILLIAM PAUL,

(SON and SUCCESSOR to the late A. PAUL),

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BEGS TO ANNOUNCE THAT HIS

SELECT LIST OF VEGETABLE, FLOWER SEEDS, ETC.,

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COLLECTIONS of FLOWER SEEDS, 5*s.* and upwards.

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AND

AMATEUR'S GUIDE for 1867.

(78 PAGES.)

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PART II. gives a complete List of the choicest kinds of German and English Flower Seeds, with Instructions on Cultivation; and the best varieties of Bulbous and other Flower Roots for Early Spring Planting.

PART III. contains the best varieties of Greenhouse, Stove, and other Plants, with Descriptions.

PART IV. comprises a detailed List of the various kinds of Agricultural Seeds, and useful Hints on the Cultivation of the New Forage Plant, Bromus Schraderi, with illustrations of the same in various stages of growth. Also,

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Will produce a supply of the best Vegetables "All the Year Round," for large, medium, small, and very small families.

No. 4, 63s.; No. 3, 42s.; No. 2, 21s.; No. 1, 10s. 6d.

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American Plants, &c.

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Wholesale Catalogue of Nursery Stock.

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Genuine New Vegetable, Flower, and Agricultural Seeds of best quality only.

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GLADIOLUS, from 2s. per dozen, named sorts.

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Vegetable, Agricultural, and Flower Seeds, Alpine Plants, &c.

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The Gardeners' Chronicle.

SATURDAY, JANUARY 12, 1867.

MEETINGS FOR THE ENSUING WEEK.

TUESDAY, JAN. 15—{ Royal Horticultural (Fruit and Floral Committees), at South Kensington .. .. 11 A.M.
{ Ditto (Scientific Discussion) .. .. .. 3 P.M.
THURSDAY, — 17—Linnean .. .. 8 P.M.

DURING the past year our stores of NEW PLANTS have been well replenished. The year 1866 has been in fact productive of novelties, even beyond the average, and it were odd indeed, if amongst the many additions which have been made to our collections, there should not be a few that will prove to be valuable acquisitions. We think there are some that will do so, and having already, at p. 5, glanced over the group of Orchids, we now propose to take a hasty survey of a few of the more prominent plants associated with other departments of the garden.

What it has become fashionable to call Foliage plants have received the most important accessions as to number. Among them we find Anthurium regale, as M. LINDEN calls it, a plant which, with all the good qualities of A. magnificum, differs from it in the more tapered and acuminated form of its leaves. Cyanophyllum spectandum recalls to recollection the well-known C. magnificum, a noble species, which it emulates. Dichorisandra musaica gives us a new and elegant type of variegation, its deep green leaves being marked out with a pattern in mosaic of white transverse zig-zag lines, which render the plant one of striking beauty. Dieffenbachia Weirii, one of the introductions of the unfortunate and disabled WEIR, proves to be a very distinct and attractive plant in this class; its leaves appear to be smaller than in the other Dieffenbachias in cultivation, and they are finely variegated in the centre with motley markings of a yellowish green, bordered by the deeper green margin. Then in Pandanus distichus, we get the elegant Screw Pine no longer a screw, but spreading out its leaves like a monster fan; and in Acalypha tricolor, which seems to be a form of Caturus, we have another distinct and most characteristic type of variegation, and indeed a new colour amongst variegated plants, its blotches and patches of flame-colour or coppery red, distributed over the broad-surfaced foliage, being quite unlike anything previously known in our gardens, and affording a remarkable contrast when associated with other plants. In Fittonia argyroneura we gain a lovely companion for Fittonia (or Gymnostachyum) Verschaffeltii, the clear green colour, and clean white carefully-pencilled veins of its leaves, forming a pretty contrast with the red veins of its ally. Finally, we have added to the beautiful genus Maranta (or Calathea—for they may be taken as one in a horticultural point of view, and till they bloom cannot be discriminated), not only M. Lindeniana, which rivals the M. Veitchii we had to chronicle last year, but the scarcely less beautiful M. illustris and M. rosco-picta; while at the International, M. LINDEN made us acquainted with no fewer than 25 additional novelties of this family, several of which, though not equalling in beauty the species we have named, will be welcome additions to our stoves, and will give us in the Maranta family alone the means of forming a very choice and varied collection of plants of ornamental foliage.

Passing from these to the Ferns, we have gained two which are handsomely variegated, and these are all the more interesting, since before their appearance the honour of representing variegated Ferns in our gardens, seemed to have been appropriated by the Pteris family. One of the new acquisitions is Athyrium Goringianum pictum, a graceful half-hardy or perhaps hardy plant, with triangular pendent bipinnate fronds marked with red midribs, which have a grey band on either side. The other is Lastrea Sieboldii variegata, a stately and striking half-hardy Fern, in which the broad divisions of the frond are distinctly striated in a transverse direction with white bars. Passing from these, we have the tropical Adiantum velutinum, a vigorous and highly compound species, quite a major domo among the stove Maidenhairs. The temperate Pteris serrulata polydactyla may be welcomed as a many-fingered form of one of the commonest but most elegant and useful Ferns in cultivation. Lomaria ciliata, from New Caledonia, promises to be a charming dendroid species, remarkable for its fringed fronds; while another New Caledonian Fern, Lomaria gibba, itself one of the finest of cultivated species, has yielded a beautiful ramose and cristate variety called Bellii; and again (a third from the same island), Asplenium novæ caledoniæ comes before us as a species, which having its fronds cut up into a multiplicity of rachiform segments, must necessarily rank amongst the more elegant of its race. The three last are plants requiring a warm greenhouse.

Of flowering stove plants, the past year has made us acquainted with two beautiful Acanthaceous genera, quite new to our gardens, and both from tropical America. They are called respectively Ancylogyne longiflora, and Sanchezia nobilis. The first bears large nodding panicles of long tubular flowers, which, together with the calyces, pedicels, and branches of the panicle, are of a rich vinous purple colour; while the latter has erect panicles of long tubular yellow flowers, issuing from between broad ovate crimson bracts. In Dipladenia amabilis, a hybrid raised in this country, we have a charming stove plant, combining all the good qualities of its parents D. crassinoda and splendens, and thus proving to be a sterling acquisition. To these we may add the brilliant South American Passiflora fulgens, with rich scarlet-crimson blossoms. We hesitate to add to this list the Passion-flowers and other marvellous novelties of Mr. HULLETT'S until we know more about them.

The addition of Sparaxis pulcherrima and of Gladiolus Papilio to our collections of greenhouse bulbs will, it may be hoped, serve to invite the attention of cultivators once more to the beautiful South African genera, Ixia, Sparaxis, Homeria, Gladiolus, and their allies, and secure for them a share of the favour of modern gardeners, which they richly merit. The Sparaxis, with its large bell-shaped blood-red flowers in gracefully deflexed panicles, and the Gladiolus with its delicately-tinted and beautifully marked widely-expanded flowers, are well worth growing on their own account. Not a whit less interesting or beautiful, indeed still more gorgeous, is the Habranthus fulgens, a Chilian Amaryllid, yielding flowers of the richest scarlet. Among greenhouse plants, scarcely new indeed, but till this year scarcely known, we ought to mention the magnificent conservatory creeper, Tacsonia Van Volxemii, one of the finest of the whole race of Passion-flowers. The curious Sarracenia psittacina, an inhabitant of the Southern States of America, presents us with quite a novel feature in that family, its pitcher-like leaves, with an incurved limb like a parrot's-head, being spread out horizontally from the

crown, and being very prettily veined; this species may certainly take rank, on the score of curiosity, among the acquisitions of the year. The two plants last mentioned were figured in our columns. Finally, two neat trailing species of Nierembergia, named respectively N. Veitchii and N. rivularis, the first with obovate-oblong leaves and long-tubed lilac flowers, and the second with the leaves oblong spathulate, and the flowers of a creamy white, both half-hardy perennials, may afford some useful variety where it is always acceptable—namely, in our summer flower gardens; where also during the summer months the New Caledonian Coleus Gibsoni, chiefly remarkable for the dark-veined under-surface of its leaves, has been under trial, with, so far as we have seen, but partial success.

Passing over many herbaceous perennials and many garden varieties, of more or less interest, we fix upon Poa trivialis variegata as one of the best and most useful plants of its class, which have been made known; for being of a free-growing and accommodating habit, either in the flower garden or the plant house, and distinctly and elegantly variegated, this beautiful variety, at first named Cynosurus, may fairly claim to be regarded as the most charming of all small-growing variegated Grasses.

Among hardy trees we look upon the Golden Alder, Alnus glutinosa aurea, as the most striking of our acquisitions, and well adapted to impart effect to plantations and pleasure grounds, the materials for which are now both extensive and of a telling character, and moreover are apparently engaging some of the attention they deserve. The golden-variegated Wellingtonia gigantea (aureo-variegata) is a capital subject as a hardy variegated tree, the markings being such as to render it really handsome, while its growth is healthy. Then attention has been directed specially to a kind of Portugal Laurel, named Prunus lusitanica azorica, which appears to be very much superior both in foliage and blossom to the old Portugal Laurel, and must, therefore, be a most valuable addition to the catalogue of those most useful plants, the hardy evergreen shrubs. The French gardens put within our reach two new kinds of Philadelphus—P. Keteleerii and P. tomentosus, both said to be acquisitions, the first described as having semi-double or nearly double flowers, the last as having flowers two-and-a-half inches in diameter, both moreover being white-flowered and sweet-scented. Again, the Dutch gardens introduce to us Desmodium penduliflorum, in which we have what appears to be a perfectly novel and beautiful hardy flowering plant, producing free summer growth, with gracefully pendulous branches and abundant lengthy racemes of reddish purple blossoms in summer, and dying back in winter to the older persistent woody parts of the stem. Finally the Russian gardens make known a Japanese Daphne Genkwa, the branches of which are not unlike sprigs of Lilac, from the profuse fascicles of bluish-lilac flowers with which they are covered.

Some at least of the plants we have briefly indicated in the present and preceding articles, will, we cannot doubt, leave their mark on the year 1866.

NOTWITHSTANDING all that has been written respecting the pernicious effect of FUNGOUS SPAWN or MYCELIUM on the ROOTS OF TREES, we are still frequently asked for advice respecting the failure of trees which have suffered from this obvious cause. Conifers are no less exposed to the evil than other plants, and in our own case a Cupressus macrocarpa, which was the admiration of every passer by, fell a sacrifice, and we have been eye-witnesses of several similar instances. Indeed, it is well known that it is quite useless replanting Pine forests in Scotland till the ground has been well covered with Heath, by which time the roots have got into such a state that they are no longer capable of supporting the Fungi, which would otherwise be destructive to the young plantation. In the case of the large-fruited Cypress, we at least hoped that we should be able to ascertain the exact species of Fungus to which the evil was due. But these mycelia seem to have a peculiar propensity to evade any accurate knowledge of their parentage. Though the trunk was sawed off, so as to show what the perfect fungus was, should it be developed, and the whole of the alburnum was covered with a sheet of white mycelium, the perfect plant never made its appearance. It is probable that it belongs to some common Polyporus, and from what we have observed in the case of Spruce Firs cut off a foot or two above the soil, we believe that the spawn (in the case of Conifers at least) will ultimately be found to be that either of Polyporus versicolor or Polyporus deustus.

We have now before us the roots of a Deodara, which, with several others, has been destroyed by mycelium. The roots have evidently grown very rapidly. Two of those before us are two inches and three-quarters in diameter and are of five years' growth only. As the last ring but one is very large, it is clear that the evil is of very recent origin, though the bark and wood are deeply penetrated by the white filmy spawn, of which there is a thick sheet between the bark and wood. To such an extent has the wood been affected, that in a section made only a few days ago, the fungus is breaking out, in the form of little white specks, in every direction. In one of the roots, of less diameter, but of longer growth, in which the wood is still in great measure perfect, and the surface of the alburnum smooth and shining, there is a dense stratum of white fungous matter, just beginning to affect the subjacent structure. The evil has therefore clearly first affected the bark, and it is probable that if the soil was searched, the roots of old trees would be found which have caused the failure.

Our correspondent informs us that he has lost 10 Deodaras in this way, and that the individual from which these roots were taken, has assumed the same sickly hue which for two years characterised those which died previously. Most of the trees were planted on ground covered with trees, which were removed as the Deodaras increased in size, but without taking the precaution to grub up the roots. Two have, however, suffered on ground not previously planted, but it will probably be found that roots have penetrated there, unless, indeed, there was fungous matter about the trees when planted. The whole history is very instructive, and deserves careful consideration by every one interested in the healthy growth of new plantations. *M. J. B.*

— A SILVER CUP, value 20*l.*, will be offered to public competition, by the Proprietors of this Journal, at the ensuing Bury Show of the Royal Horticultural Society, for the best Collection of Fruits and Vegetables, to be made up as follows:—Of Fruits any Five of the following Eight kinds, one dish of each: Grapes, Melons (2 fruits), Strawberries, Gooseberries, Currants, Cherries, Raspberries, or Apples (of the crop of 1866). Of Vegetables, any Eight of the following Fourteen kinds, one basket or bundle of each: Peas, French Beans (or Scarlet Runners), Broad Beans, Cauliflowers, Cucumbers (brace), Summer Cabbages, Early Carrots, Turnips, Artichokes, Onions, Spinach, Rhubarb, Potatos, or Mixed Salading. The Cup will be open for competition amongst all comers, and we hope to see it well contested for.

— We are happy to give publicity to the following details respecting the EXAMINATIONS OF THE ROYAL HORTICULTURAL SOCIETY, to which we have already alluded. The Council of the Society have, we learn, on the report of the Examiners, elected Mr. R. C. KINGSTON, of the Royal Gardens, Kew, and Mr. GEORGE STANTON, of Berry Hall Gardens, Taplow, Maidenhead, to be Associate Members of the Society. The medal offered by the Council for the highest number of marks in practical gardening (*i.e.*, including flower, fruit, and vegetable culture) has been awarded to Mr. G. STANTON; and the following Certificates have been granted:—

	Floriculture.	Fruit and Vegetable Culture.
GEO. M. WOODROW, Royal Gardens, Kew, W.	1st Class Certificate	
ALEX. ROBINSON, Chiswick Student	2d Class Certificate	2d Class Certificate
WILLIAM SPINKS, Chiswick Student	1st Class Certificate	1st Class Certificate
BRIAN WYNNE, Chiswick Student	2d Class Certificate	
THOMAS WRIGHT, Chiswick Student	1st Class Certificate	2d Class Certificate
HENRY HANNAM, Chiswick Student	1st Class Certificate	2d Class Certificate
JOHN M. HENRY, Royal Gardens, Kew, W.	2d Class Certificate	2d Class Certificate
FRED. THOMPSON, Royal Gardens, Kew, W.	1st Class Certifeate	2d Class Certificate
A. JAMIESON, Royal Gardens, Kew, W.	1st Class Certificate	
JOHN STAPLEY, Ivoonden, Biddenden, Staplehurst	1st Class Certificate	2d Class Certificate
THOMAS WADDINGTON, Millfield House Gardens, Cobham	1st Class Certificate	2d Class Certificate

These results are very satisfactory as a commencement, and we trust that they may induce many other young gardeners to avail themselves of the opportunities thus to distinguish themselves, which will from time to time be afforded them. While it is true that common sense and tact in the application of knowledge are of great importance, the acquisition of that knowledge is at least of equal importance, and any stimulus which may favour such acquisition cannot be otherwise than beneficial. Next week we shall hope to record the results of last year's Examinations before the Society of Arts, in Botany, Horticulture, and Floriculture, and also to invite attention to the arrangements for the present year.

— In our volume for 1865 (pp. 123, 196, 1177), we cited the Report of Dr. ANDERSON on the condition of the famous CALCUTTA GARDEN, with special reference to the disastrous effects on the vegetation of the terrific Cyclone in October, 1864. In the Report for the year ending March 31, 1866, we find it stated by Dr. ANDERSON "that none of the Mahogany trees produced seed in 1865-66, although the trees blossomed in August and September, 1865." "I ascribe this," says the reporter, "to the exhaustion of the trees by the unnatural production of leaves after the Cyclone in October, 1864, and again at the natural period in the end of March, 1865."

— There appears to be every probability that the portion of the CRYSTAL PALACE which was destroyed by the calamitous fire on the 30th ult., will speedily be restored to its original perfection. The shareholders and season-ticket holders, will, it is understood, contribute largely to this object; and a movement has been originated by Mr. FRANCIS FULLER, one of the founders of the Crystal Palace, to promote a public subscription in aid of their exertions. He believes that 1500 persons can be readily found to subscribe or collect 100*l.* each, which would suffice to restore a building which may be said to be of national importance, and which has so greatly tended to the refinement and social progress of the people. An influential committee is being organised, and it cannot be doubted that all classes of society will cheerfully contribute, according to their means, to accomplish the desired object. It has also been suggested that many valuable plants might be contributed from private gardens, to replace, as far as possible, those which have been so unfortunately destroyed.

— We may again remind our readers, that among the more important Horticultural Exhibitions for the present year, is the NATIONAL HORTICULTURAL EXHIBITION, which is to take place at the Botanical Gardens, MANCHESTER, on the 7th of June next, and which is to continue for the seven following days. Prizes to the amount of nearly one thousand pounds are offered, and a guarantee fund of nearly two thousand pounds has been already established, thanks to the energy of Mr. BRUCE FINDLAY, the able Curator of the Botanical Gardens. The particulars relating to this Exhibition will be found at p. 1089 of our Volume for 1866.

New Plants.

SACCOLABIUM GIGANTEUM, *Wall.; Lindl. Gen. et Sp. Orch.* 221! Vanda densiflora, *Lindl. Paxt. Fl. G.* tab. 42! *Folia Orch., Vanda, No.* 22! *Gard. Chron.*, 1862, 1194!

Foliis latissimis coriaceis crassis apice inæquali obtuse bilobis, racemo densiforo subsecundo, sepalis cuneato ovatis obtuse acutis, petalis angustioribus, labelli lamina cum columna subparallela, ob calcaris limbos laterales præruptos liberos cuneato flabellata apice trifida, laciniis lateralibus semirhombeis, lacinia media ligulata crassa retusa haud producta, lineis barbellatis geminis in basi utrinque in latus calcaris compressis cylindracei conici transcendentibus ibi sphincterem efficientibus, columna brevi reclinata, anthera breve rostrata, polliniis sphæricis breve stipitatis.

"Which are the most valuable introductions?" Answers will be very different. "New plants with brilliant names," some will say. "Showy or interesting plants, be they new or old," is another opinion. Others, ourselves included, will add, "We do not care for the brilliancy of names, provided the plants are good." And, finally, those who have a general knowledge of what is known, will feel most delighted at the appearance of an old and well-known plant, admired and wished for by past generations of botanists, and appearing at last to their great delight. Thus we may regard the introductions of Selenipedium (Cypripedium) caudatum, Vanda cœrulea and gigantea, and Aëranthus sesquipedalis. We have to thank the Messrs. Veitch for their extraordinary successes; and we feel glad to have to refer again to their good fortune. The Saccolabium giganteum was for a long time a fabulous plant, very ill known from ugly shrivelled flowers collected in jungles in Burmah by the late Dr. Wallich, and only to be found in three herbaria. In 1862, indeed, it appeared in the excellent collection of the Lord Bishop of Winchester, at Farnham Castle in Surrey. Still the plant was out of the reach of amateurs. Now, at length, it is to be had in the Royal Exotic Nursery of Messrs. Veitch, from whence we have before us a glorious spike, and a large leaf, 3 inches broad, and 1 foot long. We had also the pleasure of seeing a vigorous young plant at Consul Schiller's, sent by Messrs. Veitch. The flowers are nearly of the same shape as those of Saccolabium violaceum, Rchb. (Vanda violacea, Lindl.), but larger. Both sepals and petals are cream coloured, the petals bearing a row of amethyst-coloured dots. The lip is of a very intense amethyst colour, enlivened by some darker amethyst-coloured streaks over the veins, the lateral ones radiating outwards. The short column is green, with some purplish spots. The anther case is leather-coloured, with some purplish streaks. The smell is so very powerful, that a nervous person would suffer from being exposed to the perfume of 20 such spikes—after all a danger not very likely to be incurred.

There are some very grave discrepancies between Dr. Lindley's description and our own. These arise from the totally different appearance of the fresh and of the dried flowers. We made the Veitchian flowers appear quite like the Wallichian ones when we exposed them to great heat, thus making them quite shrivelled.

No doubt the plant stands very near Saccolabium

violaceum (Rchb. f.), even as to most minute details, as the hairy lines at the base of the lip, descending in the spur so as to produce a sort of sphincter, for the pedicellate pollinia. The chief difference is to be found in the shape, and, in consequence, in the nervation of the lip. The lip of Saccolabium violaceum is panduriform, retuse at the apex, with a tooth in the end. All the nerves run nearly parallel. Here the lip is tapering to the base, much dilated at the apex, where it is trifid, but not truncate, with a projecting tooth. Both species have a projecting callosity beneath the lip. Let us add, that the colours of Saccolabium violaceum have a more bluish hue, and that that species, bearing more blotches both on the sepals and petals, has a totally different appearance. S. Harrisonianum we regard as a splendid white variety of the last. *Rchb. fil.*

INSULAR FLORAS.

(*Continued from p. 7*).

THE CANARY ISLANDS form a much larger and more important Archipelago than those of Madeira, are situated 300 miles further south, and are much nearer the African coast, and yet their Flora is not that of Africa, and indeed contains comparatively very few of the plants of that continent.

The Canary Islands contain upwards of 1000 native species, of which fully one-third are absolutely peculiar to the group, and these admit of almost precisely the same classification as the Madeiran plants. Thus, the mass of the plants are identical with Mediterranean species; then follow, in numerical importance, those that are representative, as slight or well marked varieties, or congeners or co-ordinates of the Mediterranean genera and species. After these come, and in great force, the Atlantic plants, including no less than 40 of the Madeiran shrubs and trees that are not found in Europe or Africa, and as many representatives of Madeiran genera, species, and varieties, together with a number of allied ones more nearly related to African, Indian, and American plants than to European. Lastly we have, as was to be expected, a sprinkling of African plants, belonging to that division of the African Flora, which, being different from the Mediterranean on the one hand and from the Equatorial African on the other, extends from Western Asia through Arabia and across the Sahara to Cape Blanco:—a Flora conterminous in longitude with the distribution of the domesticated camel, which is used as a beast of burthen even in the Canary Islands. This Flora I would call the Arabo-Saharan.

The lofty mountains of the Canaries, though upwards of 11,000 feet high, contain no alpine plants, and as in the case of the Madeiran group, many of the most peculiar forms are extremely rare and local. Lastly, the Floras of the several islets of the group differ much from one another. The two easternmost, Lancerote and Forteventura, especially, thus standing in the same relation to the others, that Porto Santo and the Dezertas do to the main island of Madeira.

It is not necessary to do more than thus broadly sketch the general features of the Flora of this group, to show you what a parallel it exhibits to the Madeiran, and how intimate their original botanical connection must have been.

And that this connection was something more than a botanical one is proved by the examination of some rocky islets that scarcely emerge 100 feet above the surface of the Atlantic, almost midway between Madeira and the Canaries; these are the rocks called SALVAGES, of which one, that is I believe scarcely a mile long, is covered with a scanty vegetation. It was natural to suppose that this isolated rock at least would have been peopled by migration from the African coast, but it is not so. My friend the Rev. Mr. Lowe, who has spent many years in botanising in the Madeiran and Canary Islands, is the only naturalist who has ever visited these storm-beaten rocks. This he did last year, and he informs me that they contain an Atlantic Flora, and one intermediate in character between that of Madeira and the Canaries, but most closely related to the latter. The Salvages hence appear to be the peaks of a submerged island that once occupied an important botanical as well as geographical position in the Atlantic Ocean, more or less closely linking the Canaries with Madeira. It is impossible otherwise to explain its colonisation by these insular oceanic types that are equally foreign to Europe and Africa.

The AZORES ISLANDS are the third great North Atlantic group, and demand more special notice, because of their remoteness from any continent. This archipelago is 740 miles distant from Portugal, 1035 from the nearest American land (Newfoundland), and almost double that distance from the American States in the same latitude as itself. They are 500 miles from Madeira.

Of flowering plants 350 species have been collected from the principal islands, a very small number considering their extent, but enough to give us a clear insight into the nature of the Azorean Flora. Of these some 30 are peculiar species or well-marked varieties, representatives for the most part of Madeiran or European plants. About 30 are Atlantic types, common to the Azores and Madeira, or to the Azores and the Canaries, or to all; the rest are Portuguese and Spanish plants. Thus, though the absolute number of plants foreign to Europe is even less than in the Canaries and Madeira, these hold a far more important position in the whole Flora, from including so many of those peculiar Atlantic trees and shrubs that link all these three groups into one well-marked though fragmentary Flora.

Though so much further north than Madeira, the Azores contain scarcely any more boreal plants than Madeira, or even than the Canaries; and such as it does possess are likewise found in the mountains of the Spanish Peninsula. The most notable are the common Ling or Heather (Calluna vulgaris), and the beautiful St. Dabeoc's Heath, which is elsewhere found only in the extreme west of Ireland, and in the Pyrenean region. A third is Littorella lacustris, a little water plant that inhabits a mountain lake, probably the crater of an extinct volcano, much frequented by migratory water-fowl.

As in the other groups, there is here a considerable difference between the Floras of the separate islets; and one of the most conspicuous and beautiful plants in the Azores, the Campanula Vidalii, is absolutely confined to a single sea-girt rock off the east coast of Flores. This plant was never gathered but once, by Captain Vidal, whose name it bears, during his survey of the island some 20 years ago. Captain Vidal's survey was most fortunately accompanied by a scientific botanist, Mr. H. C. Watson, who both named this remarkable plant, and sent seeds of it to Kew. From these seeds the plant has been propagated, and there are now probably a thousand-fold more plants of it in the greenhouses of England than exist in its native locality!

Considering how far removed the Azores are from Europe, and how much nearer they are to America than Madeira and the Canaries are to that continent, it might appear strange that the group contains scarcely any American plants not found in the other groups. But such is the case, and more than this; for even the Clothra of the Canaries and Madeira, a genus found nowhere else out of America, does not inhabit the Azores.

The only trace of American influence on the Azorean Flora that I can substantiate, is in a species of the Umbelliferous genus Sanicula. Of this genus a common European species is spread almost all over the globe, inclusive of Madeira and the Canaries, but exclusive of the Azores; whereas another species of this same genus takes its place in the Azores, and this species is most closely allied to an American one.

It is a significant fact, that the minute seed-vessels of Sanicula are provided with hooked bristles, suggesting the probability that these were originally transported by birds across the Atlantic.

I may add that the large Bean-like seeds of Entada, a West Indian plant, are thrown up abundantly on the islands by the Gulf Stream, but never grow into plants, if indeed they ever germinate on their shores. Some years ago a box of these seeds from the Azores was sent to Kew, where many germinated and grew to be fine plants, showing that their immersion during a voyage of nearly 3000 miles had not affected their vitality.

Another group of islands, far distant from the above, demand a passing notice, as they have been regarded by some botanists as members of this Atlantic Flora. These are the CAPE DE VERDS, situated far within the tropics, 800 miles south of the Canaries, and 300 distant from the African coast.

I visited this group in 1839, and found the Flora of the lowlands to be purely African and Arabo-Saharan in character, but on ascending the mountains, I met with a few plants very characteristic of the Canaries and Madeira. The Rev. Mr. Lowe has during the last two winters diligently botanised this group, with most interesting results. He finds, as I did, that the mass of the Flora is African, and that the mountains contain many Canarian types; but that all these are the types that have representatives in the Mediterranean region, whilst of those peculiar Canarian, Madeiran, and Azorean plants that have no near allies or representatives in Europe, not one is found in the Cape de Verds, with the single exception of the Dragon's-blood tree.

Also, ascending above this zone to 5000 feet and upwards, many of the same middle-European plants are found that appear at correspondingly lower elevations in Madeira, the Canaries, and Azores, and I may add that these are also found on the lofty mountains of Equatorial Africa and Abyssinia.

We have thus in the Cape de Verd Islands a certain relationship with the Canaries and Madeira almost to the exclusion of the Azores; but it is a feeble one, and so blended with that of the African continent, and especially of the Mediterranean region, as to suggest other considerations than what concern us here.

ST. HELENA.—The botanical history of this speck in the vast Atlantic Ocean is a most curious and instructive one. It lies in lat. 16° S., is 1200 miles from Africa, 1800 from America, and 600 from Ascension, its nearest land; it is only about 10 miles long, by seven broad, and rears itself out of the ocean, a black pyramidal volcanic mass, girdled with beetling sea-cliffs, that are cleft by narrow ravines. When discovered, about 360 years ago, it was entirely covered with forests, the trees drooping over the tremendous precipices that overhang the sea. Now all is changed, fully 5-6ths of the island are utterly barren, and by far the greater part of the vegetation that exists, whether herbs, shrubs, or trees, consists of introduced European, American, African, and Australian plants. The indigenous Flora is almost confined to a few patches towards the summit of Diana's Peak, the central ridge, 2700 feet above the sea.

The destruction of the Madeira forests you will remember was by fire. A much more insidious agency has operated with tenfold greater effect in St. Helena, viz., goats. These were introduced in 1513, and multiplied so rapidly, that in 1588, Captain Cavendish states that they existed in thousands; single flocks being almost a mile long.

In 1709, trees still abounded, and one, the native Ebony, in such quantities, that it was used to burn lime with. At this time, however, the Governor of the island reported to the Court of Directors of the East India Company, that the timber was rapidly disappearing, and that the goats should be destroyed for the preservation of the Ebony wood, and because the island was suffering from droughts. He received the laconic reply, "The goats are not to be destroyed, being more valuable than Ebony."

Another century elapsed, and in 1810 another Governor reports the total destruction of the great forests by the goats, which greedily devour the young plants, and kill the old by browsing on their leaves and bark, and that fuel was so scarce that the Government paid for coal (and this in a tropical islet), 2729*l.* 7*s.* 8*d.* annually. Still, even then, so great was the amount of seed annually shed, so rich the soil, and so rapid the growth of the native plants, that the Governor goes on to say, that if the goats were killed, and the island left to itself, it would in 20 years be again covered with indigenous vegetation.

About this time the goats *were* killed, but another enemy to the indigenous vegetation was at the same time introduced, and which has now rendered it in all probability impossible that the native plants will ever again resume their sway. Major-General Beatson, then Governor, an active and sagacious officer, proposed and carried out the introduction of exotic plants on a large scale, and from all parts of the world; these have propagated themselves with such rapidity, and grown with such vigour, that the native plants cannot compete with them. The struggle for existence had no sooner begun, than the issue was pronounced; English Broom, Brambles, Willows and Poplars, Scotch Pines and Gorse bushes, Cape of Good Hope bushes, Australian trees and American weeds, speedily overran the place; and wherever established, they have actually extinguished the indigenous Flora, which, as I said before, is now almost confined to the crest of the central ridge.

It is therefore now impossible to distinguish the introduced from the native plants of St. Helena; but most fortunately Herbaria exist, made at the beginning of this century, that to a great extent supply the deficiency. Of these, the most complete was formed by the late Dr. Burchell, the eminent South African and Brazilian traveller, who spent five years on St. Helena, from 1805 to 1810. Unfortunately for science, Dr. Burchell never published, and scarcely allowed any naturalist access to his Herbarium. On his death, last year, his magnificent botanical collections were presented to Kew by his sister, and amongst them I found his invaluable St. Helena Herbarium in a capital state of preservation.

It includes 169 flowering plants, but most unhappily Dr. Burchell has not indicated which are *bonâ fide* natives, and which have followed the track of men and animals introduced by him, and which have become quasi-indigenous or naturalised. Some years after Dr. Burchell's visit, however, an eminent Indian botanist, Dr. Roxburgh, visited St. Helena, and drew up a catalogue of the indigenous, naturalised and cultivated plants, then existing, carefully indicating the truly indigenous ones that were then surviving. Dr. Roxburgh's collection was much less complete than Burchell's, but by collating the two, and with my own observations made during two visits to the island, I have arrived at a fairly accurate estimate of the number and affinities of the native vegetation remaining.

According to these data, about 44 indigenous species then inhabited the island before Major-General Beatson destroyed the goats, and introduced the European, &c., plants, to which five dubious natives may possibly be added. All are shrubs, trees, or perennial plants, not one is an annual (though introduced annual plants abound, both tropical and temperate). Forty of them are absolutely peculiar, and five are tropical weeds or seaside plants of very wide distribution.

These forty are absolutely peculiar to St. Helena, and with scarcely an exception, cannot be regarded as close allies of any other plants at all. No less than 17 of them have been referred to peculiar genera, and of the others, all differ so markedly as species from their congeners, that not one comes under the category of being an insular form of a continental species. Many of them are excessively scarce, being now found in very small numbers, and on single rocks; not a few have never been gathered since Dr. Burchell's visit, some are certainly now extinct, as the beautiful Ebony tree, and probably nearly one-fifth have totally disappeared during the last half-century, or are now all but extinct.

From such fragmentary data it is difficult to form any exact conclusions as to the affinities of this Flora, but I think it may be safely regarded as an African one, and characteristic of Southern extra-tropical Africa. The genera Phylica, Pelargonium, Mesembryanthemum, Osteospermum, and Wahlenbergia are eminently characteristic of Southern extra-tropical Africa, and I find amongst the others scarce any indication of an American parentage, except a plant referred to Physalis. The Ferns tell the same tale; of 26 species, 10 are absolutely peculiar, all the rest are African, though some are also Indian and American.

The botany of St. Helena is thus most interesting; it resembles none other in the peculiarity of its indigenous vegetation, in the great variety of the plants of other countries, or in the number of species that have actually disappeared within the memory of living men. In 1839 and 1843 I in vain searched for forest trees and shrubs that flourished in tens of thousands not a century before my visit, and still existed as individuals 20 years before that date. Of these I saw in some cases no vestige, in others only blasted and lifeless trunks cresting the cliffs in inaccessible places. Probably 100 St. Helena plants have thus disappeared from the Systema Naturæ since the first introduction of goats on the island. Every one of these was a link in the chain of created beings, which contained within itself evidence of the affinities of other species, both living and extinct, but which evidence is now irrecoverably lost. If such be the fate of organisms that lived in our day, what folly it must be to found theories on the assumed perfection of a geological record which has witnessed revolutions in the vegetation of the globe, to which that of the Flora of St. Helena is as nothing.

(*To be Continued.*)

NOTES ON A FEW NEW OR RARE WINTER-FLOWERING ORCHIDS.

Oncidium serratum.—This has a very strange and fantastic appearance, the flowers, larger than those of O. crispum, and of a similar colour, but contorted and tossed about in a most extraordinary manner. It was flowering finely in the middle of December last in the Bishop of Winchester's collection at Farnham Castle, and will shortly be figured in the "Botanical Magazine." This is the plant of which several were disposed of at one of Mr. Linden's sales under the name—supposed to be given by Reichenbach—of O. diadema; but the Professor, to whom I sent a flower, disclaimed the name altogether, and at once identified the species as the O. serratum of Lindley. We have here, then, an instance of Mr. Linden's unwarrantable habit of giving names of his own (and which have not the slightest authority) to the plants that he offers for sale. Odontoglossum speciosissimum (!) whatever that may be, and Oncidium phalænopsis (my O. Denisonianum), furnish other examples of the same kind. This practice cannot be too strongly condemned. [The objection here raised might be, at least partially, met by the adoption of our suggestion to add the word *Hort.* after the name, the provisional character of which would be thus indicated. EDS.]

Odontoglossum Egertoni.—I confess to having once entertained doubts as to whether this were anything more than a mere variety of O. pulchellum, but a nice batch of plants that I had the pleasure of seeing in flower the other day, at Messrs. H. Low & Co.'s Nursery at Clapton, at once set these doubts at rest. The species is really both distinct and pretty, and the spikes have such an extraordinary resemblance to those of the Lily of the Valley, that the one might be readily mistaken for the other, if it were not that the Odontoglossum is unfortunately devoid of perfume. The species will be figured in the fifth part of the "Monograph of Odontoglossum."

Lælia furfuracea.—This too I saw in bloom at Messrs. Low's nursery. It is a very fine thing, with richer and better proportioned flowers than those of L. autumnalis, with which it has of late years been occasionally confounded. It is also a much more free bloomer. I do not believe that any genuine specimen of this Lælia has existed in England during the last 20 years. Like Epidendrum erubescens, L. albida, Barkeria Lindleyana, B. elegans, and a host of other fine Mexican things that came over with it a quarter of a century ago, it fell a victim to the hot treatment of the period in question, and has scarcely been heard of since. Happily we have now got all these lovely plants again, and I have little doubt that in these more enlightened days we shall be able to keep them. It should, however, be borne in mind that the Mexican climate is much drier than that of Peru, hence "the Mexican House" should represent the (comparatively) 'cool and dry' as against the 'cool and damp' treatment proper to what may be denominated the "Peruvian House." The latter will need to be of ample dimensions, for the cool Peruvian Orchids are already arriving in troops.

Oncidium obryzatum. — Messrs. Backhouse have recently flowered this plant, which is a native of Ecuador, whence they introduced it. It has a neat compact habit, and bears a branched spike of its pretty bright yellow sweet-scented flowers. The spathulate sepals and petals are peculiar, and so is the delicious fragrance, which is a rare quality among Oncidia, being met with only in O. Lanceanum, O. suave, and O. ornithorhynchum, among a genus that already musters more than 200 strong. I at first thought the plant was undescribed, but Professor Reichenbach's keener vision has identified it with the O. obryzatum of Lindley. It is very readily managed in a cool house.

Saccolabium giganteum.—This glorious plant has recently flowered in Messrs. Veitch's collection. It is the Vanda densiflora of Lindley's "Folia," but being evidently a Saccolabium must be transferred to the latter genus. In this, however, there happens to be already a species (quite distinct from the present) called S. densiflora; it is therefore necessary to fall back upon the designation of S. giganteum, which it received at the time of its original discovery, and than which a more appropriate one there could not be. A figure has been prepared for the "Botanical Magazine." [See *ante*, p. 26.]

Saccolabium violaceum var. *Harrisonianum.*—As there are white Blue-bells in England we must not wonder that a white violet Saccolabe should have been found in India! Such in fact is the above plant, which I now notice only for the purpose of making it the *amende* that is its due. When first sent to me two years ago the racemes were short, and the flowers of a dirty white, so that I set little value upon it; now however that the specimens are established, the racemes are a foot long, and the flowers of a pure ivory white. They likewise last as long and smell as sweet as those of the original species. Messrs. H. Low & Co. were fortunate in introducing so attractive a plant.

Dendrobium Johannis.—When first seen I thought even less of this plant than of the last, two or three copper-coloured flowers on a naked pseudobulb being all that it had to show. But after only one year's cultivation it has assumed a totally different aspect, the old pseudobulbs now flowering very freely, and the young growth—which is beautifully furnished with leaves—sending out many-flowered racemes a foot long! It is so entirely different from every other Dendrobe, the habit is so neat, the flowers so abundant, and the honey-like perfume so agreeable, that I have not the slightest doubt the plant will become a popular favourite. Moreover the blossoms have an almost indefinite duration, in which respect they resemble two other Dendrobes (*i.e.* D. Tattonianum and D. bigibum) from the same country and which like itself are now flowering freely at Knypersley, where they form a most interesting winter group. They are not "cool" Orchids as some people fancy because, like the old well-known D. speciosum, they happen to come from Australia. Mr. J. G. Veitch, who met with all the three on the north-eastern coast of that vast continent, tells a very different tale! The above species, as well as two other fine Australians, D. undulatum and D. Hillii, are intra-tropical, and must be treated accordingly. *J. B., Biddulph Grange, Jan.* 1, 1867.

BEDDING-OUT REMINISCENCES OF 1866.

THE past season has furnished some useful lessons to all those who are engaged in decorative gardening. The almost unprecedented rainfall, which, by the way, in many places was not so large in the aggregate as it was drizzling and continuous—a sort of compromise between a "Scotch mist" and a moderate "downpour," told unmistakeably to the disadvantage of modern flower gardening. Contrasted with an ordinary season, or with such an one as the weather prophets are ever ready to foretell and anticipate, it fell considerably under the estimate. Mother Earth and all her progeny were not only exposed to a continual bleaching, but were labouring under the simultaneous disadvantages of a minimised sunshine, and a corresponding decrease of heating power. Nor was this state of matters confined to any particular region of the United Kingdom. The South-western and Midland Counties of England, which ripen their cereal produce several weeks in advance of even the most favoured counties in Scotland, such as the Lothians in the centre, Bute, Arran, and some of the more favoured spots of Argyleshire in the west, and Morayshire in the far north, were by no means in such an enviable position. The all but universal harvesting on the north and south side of the Tweed was a matter of common observation and general comment. Every commercial traveller noted it, and every gardener if he did not know in reality, or trouble himself to look into published statistics, could easily have divined such a thing from the state of his own and his neighbours' flower garden. Such a state of matters damped the ardour and entrenched upon the enthusiasm of many of us who were ever ready to stand by and laud the merits of "bedding-out."

It seemed that an eight months' unremitting labour in connection with propagating, rearing, establishing, and moving from place to place, was so much labour all but lost. Many of the choicest Scarlet Pelargoniums, which used to be the pride and the glory of an effective combination in a parterre, refused to yield those traits of beauty which were their distinguishing characteristics. The glowing hue of scarlet was metamorphosed into a sort of whitey clouded pink, and many of the pips only partially expanded, some of them were "blind," and the usual complement was dwarfed down through the inclemency of the weather to about one-fourth. Verbenas stood with their "eyes" full of water, in a most deplorable dilemma, and the various hues of scarlet and purple, white and pink, rose and mauve, were so "wishy washy," ineffective and incongruous, that their best friends were compelled to look upon them with suspicion. Yellow, as represented by Calceolarias, was toned down with a vengeance, and although in ordinary seasons it is a "murdering" colour, and must be introduced sparingly, else the word "vulgarity" is at the tip end of the tongue of the critic; there was such a breadth of foliage as sufficiently to tone down all that wind and "weather" left on the flower stem. The splendid orange florets, with prominent black blotches at the base, which characterise Gazania splendens, were only seen to advantage in established plants in the early part of the season. No more effective or more artistic combination is possible than this with the charming blue of Lobelia Paxtoni with its prominent white eye, which softens the glare of the two vivid contrasting colours, and yet in the height of the season these combinations were dull, insipid blots, such as one could have torn out and cast upon the dunghill without the slightest compunction. Let it be known that the Scarlet Intermediate Stock stood the trying ordeal better than any of our vaunted bedding plants. Hollyhocks were washed to the poles to which they were staked, and the best of them rotted upon the stems after a few days' expansion—indeed; some of the principal florets looked as if they were gummed to the bare poles. Dahlias, to their credit be it said, flowered beautifully. The more it rained the stronger they grew; and their flowers, like so many little balls of colour, especially the purples and the crimsons, put to the blush all other subjects producing inflorescence in the flower garden. "There's a day in store for them," and it will be to the interest of all the flower-gardening *savans* to cultivate their acquaintance a great deal more than they have been in the habit of doing, if they wish to "provide against a rainy day." Gladioli were "conspicuous by their absence"; their flowers are unfortunately short-lived at the best, but this season they have been beggared in comparison even with Pentstemons, and many of them refused to grow. I have another fellow in my mind's eye which merits promotion. It is no less a popular one, familiar to everybody's ears, than "Bailie Nicol Jarvie's poker!"—Tritoma Uvaria. The glowing highly polished scarlet tinted with orange of each individual flower is considerably enhanced when we look to the gross number depending so gracefully from the dense pyramidal spike. Imagine a multitude of these, either in groups or long lines, flanked with golden and silver variegations, such as those who have a knowledge of combination of colour, form, and general contour can purposely arrange, and you have some idea of its general usefulness for decorative purposes.

It requires no stretch of the imagination to conceive the mixed-border partisan laughing at our credulity and "mocking at our calamity." The gloomy forebodings, and the mournful wail which greeted the initiation of bedding-out will be reiterated and made capital of at our expense after the drubbing ordeal which our favourite system has been subjected to. The critical may become hypercritical, and obsequious too for the moment, and patronisingly ask us, now that we have been "weltering in the mud," and had our favourite "drooket" or drenched to such a state of nudity and poverty as scarcely to be recognisable, to retire with the best grace possible, and resume our attachment to old associations and combinations. To this the greater number of us are ready to reply that while we have never been insensible to that style of beauty which our forefathers honoured and caressed, we must be excused for not considering ourselves tied hand and foot to any given system, and that the remedy lies more in the direction of accommodating and utilising such plants as are remarkable either for one thing or another, than in the revolutionising and upturning of a system. Most good gardeners are ready to hold "a brief" for all the systems together, *e. g.* winter gardening, spring gardening, bedding-out proper, subtropical gardening, and the mixed flower border. Why should it not be so? It is simply a question entailing or involving a little more expenditure in the garden establishment, which the proprietor, be he lord or squire, has very much in his own keeping. I could never see what object there was in wrangling or discussing the matter as some censorious people at first essayed to do. It was like a man with one eye, or one hand, or one leg, wishing to deprive his fellow men of either of these members because by some unfortunate mishap he himself was denuded of one or more of them. It is by striking out in new directions, and carrying schemes to a successful issue, that men show themselves the greatest benefactors of their country. No superficial or plausible theory will ever stand the test of public scrutiny. Even in horticultural matters the press is the grand crucible for testing pet theories. If they can be substantiated, good and well; if not, not.

I rejoice therefore that your humorous correspondent "S. R. H." has in some measure laid bare the fallacy levelled against this modern system. It was by no means inconclusive evidence to lead, that foliage in this fickle climate of ours should assume predominance in our parterres. It was only withdrawing a point or two of combinations as developed in the past. This meets with my approbation for two reasons; the one, that flower gardens in general have been overloaded with colours, and even the best dispositions of them were somewhat vulgar; and the other, that we should all be less at the mercy of either extremes of drought or moisture. Somehow or another we could see the whole fraternity were drifting into an adoption of this almost intuitively. Your correspondent has not been an unconcerned observer of flower-garden reformation, and evidently enthusiastically worships at the shrine of Flora, notwithstanding the assumption of somewhat modest pretensions. There is such a variety of colour, form, and contonr in the numerous foliage plants that are propagated by the thousand for parterre decoration, that we have a quieter form of beauty, and one which the eye can gaze at and rest upon with some degree of complacency. I have said before, and reiterate now with a strengthened force of conviction, that flower-gardening depends far more upon successful combinations than mere geometrical figures outlined with Box, and ofttimes turned into scrolls which the serpent, with all its power of contortion, could never imitate. There is nothing in this way at all to be compared to a simple "chain border," which increases in beauty and effectiveness as its length is prolonged.

In case I should moralise too much upon this point, allow me at once to proceed to name a few plants that ought to be propagated and cared for; and the very first that I would recommend, because it has escaped notice, is Veronica Andersonii variegata. It is as hardy as any of the shrubby Calceolarias, or Verbenas, and is therefore far hardier than any of the variegated Pelargoniums, and I may add, far more effective in a wet season. It is valuable, to boot, because it will do for a third or fourth-row plant, and it is of regular habit. It is not loose and sprawling like a Pelargonium, having more of a handsome bush form. By giving it the support of a single stake in the centre, every plant is a tiny specimen of itself, and after several years' trial I give it the warmest recommendation, it being easily propagated in spring, "patient under tribulation," and by far the most effective silver variegation in our gardens, the green and the silver keeping to due proportions under the heaviest downpour of the elements. The next plant demanding a "special certificate" is Polemonium cœruleum variegatum. I have seen this beautiful perennial meriting all Mr. D. Thomson's encomiums. He, however, has grown it largely, and is in a position to speak of it with confidence, and I do not know a more trustworthy authority, or one, let it be said, that has done more, if so much, for rendering the bedding-out system popular. The variegated Coltsfoot (Dactylis glomerata variegata) is about the cheapest edging plant possible, unless it be the beautiful grey Cerastium tomentosum, without which no flower garden is complete. Another most graceful subject, not quite so hardy as those we have been treating upon, is Bambusa Metake variegata. It is far more accommodating than Coleus Verschaffeltii or Amaranthus melancholicus, or even Iresine Herbstii. Its graceful habit wins golden opinions, and it is propagated without much trouble by division of the root. These black or crimson-leaved gentry are not at all suitable for a Scotch climate. Even Perilla succumbs to the slightest breath of frost, and might be ranked among the same class for hardiness as Heliotrope. I have now tried all these dark-leaved varieties, and have to fall back upon Perilla and Beet. The latter is by no means ineffective, and I hear very good accounts of a selected stock of Mr. Dell's, Stoke Rochford. Of

course we lie upon the banks of freshwater Clyde, and are consequently very subject to late spring frosts. Anything that successfully withstands our climatal region may be duly certificated. Of course Pelargoniums—bicolors, tricolors, and quadricolors—are invaluable. No one would think of making an assortment for "next year's display" without their aid. We are all, however, constantly on the *qui vive* for novelties: but let them be sufficiently distinct and striking before palming them upon the notice of those who are not in a position to see and judge for themselves. We all subscribe to the merits of Alyssum, Arabis of sorts, Centaurea ragusina and its allies, Cineraria maritima, and probably the variegated Japanese Saxifrage, if we could get plenty of it. By ransacking the mixed border a little while longer we shall exhaust all the subjects suitable for parterre work. The energies of the enterprising collector on the one hand, will be taxed in penetrating untrodden spots—Alpine regions for example—for marketable commodities wherewith to replenish our well-known "flock;" and gardeners, on the other, must ply their camel-hair brush to induce a set of hybrids sufficiently distinct and captivating; for the motto of Horticulture is "forwards and onwards," that the thirst for novelty may, in some measure, be appeased. *J. Anderson.*

Home Correspondence.

The late Winterly Weather.—The storm which has just passed away has been one of the most severe for the time it lasted in the remembrance of the oldest inhabitants in this neighbourhood. New Year's Day was clear, frosty, and fine throughout. As night came on the frost grew more intense, and between 11 and 12 o'clock the thermometer indicated 23° of frost. Between one and two o'clock on the morning of the 2d the sky became overcast and dull; snow began to fall a little before three o'clock, and continued till nine. The trees were heavily laden with it; in some places low shrubs were completely smothered up with snow, and larger ones were laid down flat with it. The average fall here in the open ground was from a foot to 18 inches in depth, but in some places it drifted to the depth of as much as 2 and 3 feet. The frost kept getting more severe the whole day, and by 12 o'clock at night the mercury stood at 4° below zero. On the night of the 3d there were only 23° of frost; but on the night of the 4th 5° below zero was registered; the wind was exceedingly cold and penetrating. On Friday and Saturday the forcing and plant houses here presented quite a fairy-like sight of no ordinary occurrence; double rows of icicles 3 feet and more in length hung from the eaves and sill of the front lights, shining like crystal. Trees also presented a glorious appearance, fringed as they were with the tapestry of hoar frost. A friend here who had lived for some years in Canada remarked that the aspect of the country during the frost put him in mind of a Canadian winter. It was fortunate that snow came on when it did, or the frost would have told sad tales on vegetation. I observe that several Hollies and common Laurels are cut up a great deal in exposed places. *A. Pettigrew, Richings Park, Colnbrook, Bucks.*——We had here on Friday night, January 4th, 40° of frost, or 8° below zero. My neighbour, Mr. Cantrell, of Datchet, had, I learn, the same amount. *Charles Turner, Royal Nurseries, Slough, Bucks.*—The frost has been more severe here than in 1860. On Wednesday night the thermometer registered (— 2), 34° of frost; Thursday, 26°; and on Friday, (— 6) 38°. Our large Bays and Laurustines are killed to the ground. Our thermometer is suspended 5 feet from the ground, just under the eaves of a shed, and is well protected by surrounding buildings. *W. T. C., Feltham, Middlesex.*——We have had the following amount of frost on the Cotswold Hills, which is greater than any we have ever experienced:—

January	1	18° of frost.
,,	2	17 ,,
,,	3	22 ,,
,,	4	41, or 9 below Zero.
,,	5	36, or 4 ,,
,,	6	12 of frost. ,,
,,	7	2 ,,

Since the 7th we have not had any frost. On the 2d snow lay on the ground about 9 inches deep; on the 5th it drifted, and the roads were blocked up in places; on the 6th, and two following days, it rained. From 10 o'clock on Monday, the 7th, to 10 o'clock on Tuesday, we had 2.01 inches of rain. During the last four months we have had at Cowley 26.49 inches of rain. Many Roses appear to be killed by the frost, and a great many shrubs are very much injured. *C. Hollingworth, Cowley Manor, near Cheltenham.*——The lowest temperatures occurred here on the night of the 2d, when we had 5°; on the 3d, when we had 0°.5; and on the 4th, when we had 0°.12 registered by Negretti & Zambra's registering thermometer fully exposed at 5 feet from the ground. I may add that the gardens here are only 6 feet above the level of the river Lodden, on a strong clay subsoil; consequently they are damp. In the kitchen garden I find Broccoli to be almost entirely killed, though heavily covered with snow. Among evergreens much injured, if not killed, are hybrid Rhododendrons, common Laurels, Berberis Darwinii, Cotoneasters, and a Magnolia grandiflora on a wall. *J. Bell, Gardens, Strathfieldsaye, Winchfield, Hants.*——The weather and temperature of the last few days have been remarkable on account of the sudden change from the condition of mild and genial to that of intense severity, and also for the equally sudden and unexpected return of mild weather. But what I wish to call the attention of observers of temperature to is the importance and desirability of uniformity in the placing of the thermometer, more particularly with regard to altitude, as at this place on the night of January 1st, three of Casella's registering garden thermometers, (previously ascertained to work exactly alike) placed as described indicated as follows:—First thermometer, suspended to a piece of board fixed to the wall of a dwelling-house, and facing the north, at an altitude of 5 feet, indicated 9°. Second thermometer, placed 15 yards from the former, and in an open space, suspended to a stake at 1 foot 6 inches from the ground, indicated 0° or zero. Third thermometer, placed horizontally upon the snow, which was about 2½ inches in depth, with back resting against the stake to which thermometer No. 2 was suspended, indicated 0°—7, or 7 °below zero. *P. Grieve, Culford, near Bury St. Edmund's, Suffolk.*——The thermometer fell to 5° below zero at 3 o'clock A.M. on Saturday, the 5th inst., and at 9 o'clock it was still 3° below zero. The greatest amount of frost we have ever had here before was on the 28th December, 1860, when the thermometer fell to 4° below zero at 10 o'clock P.M. *Charles Ross, The Gardens, Welford Park, Newbury.*——Mr. E. J. Lowe, at his Observatory in Nottinghamshire, records the thermometer 21 below freezing on Friday. A correspondent of the *Times* in Hampshire reports 28° of frost, and at Hornsey, on Friday morning, the thermometer, with a northern aspect, fell below zero.——Since the commencement of the year we have had a sharp touch of winterly weather, unusually severe for this locality. On the night of the 1st there was a gentle frost of a few degrees, dry and comfortable; heavy quiet snow fell in the evening, covering the ground from 6 to 8 inches deep, loading all trees and shrubs to the break-down point. We had to employ plenty of active hands early in the morning to unload all we could of the rare trees and shrubs first; we had about 8° of frost; the sun rose beautifully, and the sight of the snow-laden bushes was grand. We had sun the whole day and severe frost, the thermometer indicating 18° at 10 P.M., and at 5 A.M. on the 3d, 21°. I never saw it so low, except once in Devon, which was only for two or three hours, 26 years ago. On the morning of the 4th, the mercury indicated 19° evenly all night; that night the frost was only a few degrees. On the morning of the 5th there were only 2°, with the wind shifting to north-east, and the sun rising quite a crimson colour, the east looking all on fire. The wind after shifting to the east began to blow a complete hurricane, such as we have not experienced since the 11th of January, 1866. At sunset a smashing storm came on from south-east of hail, sleet, and rain, continuing all night. On Sunday morning, the 6th, immense floods were the consequence, with the snow all gone. The thermometer stood at 49° in the early morning, and 53° at midday, which was quite sultry and hot, with the wind full south. On Monday we had the glass at 50°, wind south-west, a very rough gale, still heightening, with tremendous storms of hail and rain all the evening. Notwithstanding the severity of the frost we have been favoured with so much sunny, dry, and favourable weather since September, that everything was dry, hardy, and well ripened; and owing to being covered with so much snow I cannot perceive as yet much damage done to plants, shrubs, or vegetation. *James Barnes, Bicton, Budleigh Salterton, Devon.*——"The minimum temperature in the air during the 24 hours ending at 9.30 this morning, January 4, was 4°.2 Fahr., and on referring to our abstract as far back as the year 1854, I observe that the nearest approach to so cold a night was on that of the 19th or morning of the 20th of December, 1859, when the temperature of the air equalled 9°.0, and in the Meteorological results published by J. Sharp, Esq., of this town, in 1862, for the 14 years ending 1861, the lowest temperature recorded by him is on the 25th of December, 1860, in which he states the temperature on that day was 11°.0. By the above results, it will be observed that no such cold has been registered in the town of Southampton for the past 20 years, and indeed, it may have been a much longer period than that just stated, but as our registry does not extend further back than 20 years, we can only state the results for that time. The minimum thermometer used is one of Casella's, and its index error carefully determined by the standard. *J. Downing, Colour-Sergeant, R.E., Observer.* P.S.—9.30 P.M., Friday, temperature of air—22.°0, last night at same hour—15.°0. *Meteorological Department, Ordnance Survey Office, Southampton.*"—28° of frost seems to be almost impossible in the south of England; but Sergeant Downing's record is not to be disputed. The Laurustinuses are dreadfully cut up, while in all directions complaints are being made of the mischief which has been done to Cinerarias and other tender plants in houses where the heating power was not equal to the emergency. *Alexander Dean, Maybush.*

Passiflora Hullettii.—Your article at p. 1192, 1866, respecting Mr. Hullett, has made me feel a little uncomfortable in regard to certain treasures for which—*not without a consideration*—I am indebted to that gentleman. For example I have a Mangosteen or two which have been pronounced by a competent authority to be no Mangosteens at all; and then I have a Passiflora Hullettii, which according to the description in Mr. Williams's catalogue (but for which Mr. W. says Mr. H. is responsible), produces a fruit more exquisite than the Pine-apple! All these things were, when I received them more than 12 months ago, "guaranteed to fruit next (*i. e.* last) year," but unfortunately they have not kept to the bargain. What am I to do with them? I dare say I could fruit the Passiflora in the course of another season if I gave it space and heat enough, but this I hesitate to do unless I could have some reliable testimony that it would repay me. Why does not Mr. Hullett tell us who has seen and eaten this delicious fruit? Surely he would not wish to keep it all to himself! *Aliquis.*

Milky White Potato.—After giving this Potato a trial along with other kinds, I feel it my duty to speak favourably of it. It is a Potato which you may depend upon both as regards quality and quantity, and has only a very moderate top or haulm. I do not say that it will take the first place as first early, but it will take a foremost rank as second early, and it will certainly take a first place for quality with those who prefer Potatos dry and mealy in preference to moist and waxy ones, or at least close tubers. It is an excellent cropper, with an even surface, having but very slight depression for eyes. Not one diseased tuber was found among mine this season. They were dug up early. *W. C. E., Gloucester.*——In regard to Milky White, the best of all Potatos, according to advertisement, allow me to say that I tried it last season here, and found it the worst of all that I grew as regards the disease. I had scarcely a sound tuber. I did not get the seed back. So much for Milky White: I'll have no more of it. *C. Hollingworth, Cowley Manor, near Cheltenham.*

Oncidium macranthum.—I learn with regret that the eminent firm of Messrs. Backhouse & Son have experienced some disappointment. As to Oncidium macranthum, it is probable they may have received plants of this species which were sold at Stevens's in 1865, procured from the slopes of Chimborazo, and belonging to the typical form of the species, the pseudobulbs of which differ from those of the variety hastiferum, and have some resemblance to those of an Oncidium allied to O. serratum, and derived from the same locality. But it is different with reference to Odontoglossum cirrhosum, as this plant does not resemble Oncidium cucullatum, and it is hardly possible to mistake one for the other. Messrs. Backhouse, however, may have purchased both kinds at the same sale, and there may have been a change of labels. As to the specimens of Odontoglossum coronarium, for which they say they received plants of O. brevifolium, a nearly allied species, I can only refer to my collector, who has with him the "Pescatorea," and who assures me that the species sent had precisely the same flowers as those figured in that work, As for myself I perceived the resemblance to the figure immediately the plants were unpacked; and I may add that hundreds of plants of O. coronarium had previously passed through my hands. It is well known that different Orchids so greatly resemble one another as to their pseudobulbs, and in their general appearance, that the most experienced connoisseur may be deceived, and as the truth can only be ascertained when the plants are in flower, it is necessary, in order to be quite sure, to wait till each plant produces its flowers before it is sent out. If inevitable errors occur with imported plants, the consequence of such errors may be as often prejudicial as advantageous to the interests of the vendor, and the purchaser as frequently experiences agreeable surprise as he does disappointment. In illustration of which I may cite the case of Phalænopsis Luddemanniana, or to keep to the point at issue, the Oncidium macranthum var. hastiferum of the last sale on which suspicions were cast, and which, in consequence, were sold at an average price of 23*s.* the lot, a price which did not even cover the cost of carriage. Nevertheless, the purchasers may be sure that they possess the true kind, and which is fairly worth four or five times the price paid. As to the deceptive appearances of plants, I know by experience how disagreeable they are. I gave an order not long since for several Tree Ferns (Balantium antarcticum), and some lots of Saccolabium guttatum, and I received instead Alsophila australis and Saccolabium retusum. I repeat that I will never refuse to fairly compensate any equitable claim. *J. Linden, Brussels, Jan.* 9, 1867. [We learn from Professor Reichenbach that (previous to this discussion) both M. Linden and Messrs. Backhouse submitted to his inspection specimens of the true O. macranthum. EDS.]

Fruiting of the Sweet Bay (*Laurus nobilis*) (see p. 8).—It may interest your readers to know that I have raised here some thousands of Sweet Bays from seed gathered at Stanmore, Herts, in the autumn of 1862. *Robert Parker, Tooting, Surrey.*——I send you an example of the Sweet Bay with fruit upon it, a rare occurrence I imagine, as I have never observed it before in that condition. There are a great many large Sweet Bay bushes here, some 18 feet in height, but only one has fruit on it, and it is in no way different from the others as far as appearance is concerned. The late frost, I think, has injured the fruit, as it was quite hard a week ago when I first observed it. Is the variety sent the same as that which you had from Culzean Castle in Scotland? *Wm. Armstrong, The Gardens, Glenville, Fermoy, Ireland.* [Your variety is the same as that furnished from Culzean. EDS.]——It is not at all uncommon to see this shrub in fruit in this county. I have often found self-sown seedlings near the old plants. The common Laurel also bears berries in some seasons. This is owing doubtless to the mildness of the county and the age of the plants. There are some here which measure 30 and 40 feet in height, with stems 4 feet in circumference. I have also seen a few abortive berries on the Portugal Laurel. These two last would, I imagine, repay in the shape of attractiveness any labour which might be expended in assisting to fertilise the flowers, to as to bring to perfection the clusters of fruit. I have also raised young Myrtles from berries gathered from a tree which received no artificial aid. While speaking of berries, and as anything in the way of living colour, whether in leaf or fruit, has a charm in it at this dead season of the year, permit me to say a word in favour of the Benthamia fragifera. Of all the hardy plants which bear berries at this season this stands foremost for beauty and size of fruit. The plant is truly handsome when loaded with berries. There are several here which have been literally so covered with large globular yellowish red fruit as to bend down the branches; these trees measure from 25 to 30 feet high. The Benthamia succeeds best in a well-drained situation, sheltered from the east wind.

If planted in a low damp place the roots will rot before the tree attains any size. Why is it that the Holly bearing yellow berries is not more extensively planted than it is? It is equal in point of hardiness and beauty to the common Holly. Much might be done to alleviate dulness in pleasure grounds by judiciously introducing into them plants which bear berries at this season of the year, together with variegated-leaved plants. Thanks to Mr. Fortune, we shall soon have an addition to our very limited stock of fruit-bearing plants in the beautiful Aucuba. *Henry Mills, Enys, Penryn, Cornwall.*——I have seen pecks of berries on Bay trees here. I have a fine lot of young standards which I raised from seed years ago. I believe I have seven or eight quarts of Bay berries by me at this time, comprising those of two or three varieties. *J. Barnes, Bicton, Budleigh Salterton, Devon.*

Passion-flowers.—I imagine that your correspondent (see p. 1194, 1866) is mistaken in the name of his hardy fruit-bearing Passiflora. It is most likely P. Newmani, raised many years ago by my predecessor, which fruits freely in this neighbourhood, while P. cœrulea, which he says this plant is, does not. *J. M'Ronald, Nurseryman, Chichester.*

Ruscus aculeatus.—Although your correspondent "Diss" has already received a direct answer to the question he put at p. 1222, 1866, yet he may be informed that the reason of his often finding plants without berries is, that the Ruscus is dicœcious, and that the males are, of course, barren. As far as my observation extends, the plant fruits best in shade, and under trees. *G. S.*

Asphalte Walks.—I cannot join in "E.'s" recommendation for making these (see p. 1222, 1866). In autumn the soil under the asphalte becomes saturated with moisture, and if a frost should occur sufficiently sharp to penetrate the asphalte covering and freeze the soil below, the latter expands and breaks up the asphalte. *G. S.*

Game Covert.—I see Berberis (Mahonia) Aquifolium often advertised as good cover for game. Will gentlemen kindly say what their experience is respecting it? I lately put down 40 young plants as an experiment, and within a month the rabbits had eaten every one of them. *D.*

The Manchester National Horticultural Exhibition and the Royal Horticultural Society.—I see, by advertisements in your Paper, that the two great flower fêtes are fixed to come off at the same time. For many reasons this is to be regretted. Manchester folk have been, and are, making a noble effort to secure a grand show in June next. About £2,000 (in £20 subscriptions) are already guaranteed to meet and cover the expenses of the Exhibition. If success attend "The Manchester National," doubtless some other provincial towns would be encouraged by it to make a like venture, and thus promote horticulture and a taste for it throughout the country. From all I can learn, the great plant growers and exhibitors of the south are friendly to the proposed Manchester Show, and intended to send their plants to it. The dates of the National have been before the public for months. Both the Royal Botanic Society and the committee of the York Floral Fête have evinced a friendly spirit in avoiding a clash with the Manchester Show, which will undoubtedly be one of the great shows of the season in this country. I hope, however, it is not too late for the Royal Horticultural Society to make other arrangements, and avoid a course that will lead to mutual disadvantage, if their present programme, as advertised, be carried out. I think that the Horticultural Society would do well to reconsider the matter, and alter the date of its June show. It would thus show a friendly spirit, and besides give the London exhibitors a chance and opportunity of carrying out of Lancashire some heavy prizes, by sending their plants down here. In Manchester and its neighbourhood the great bulk of the people, rich and poor, give themselves up to recreation and enjoyment during the whole of Whit week. Business is well-nigh suspended at that time. Hence the Manchester Botanical Society arranged long ago for their great fête to come off during the holiday time, knowing well that success would not be so certain here at an earlier or later date. *A. Pettigrew, Brighton Grove, Manchester.*

Winter Cucumbers.—Will you permit me to ask if any of your correspondents can recommend a black-spined Cucumber, of first-class quality—one of real sterling merit, that will succeed and crop well through the winter months? I have had several, and have been unsuccessful in meeting with one that is up to my standard as a winter bearer. I possess one of the smooth Syon House class that I think is unequalled, having tried it against most of the popular winter kinds—Masters' Prolific, Carter's Champion, Lord Kenyon, Kirklees Hall Defiance, and others—and I find these varieties in no way equal to the kind that I have grown for the past three seasons. It was tried against several of the best kinds that were proved by the Royal Horticultural Society, and found to be a better variety for summer work than any at Chiswick; and for winter use, I am confident that it is unequalled. My brother gardeners who, like myself, are expected to produce Cucumbers in quantity in the winter time, should get this kind, and when they have once grown it they will not want to grow any other sort of the smooth-skinned kinds. I find that there are several varieties of the same name, which are in no way equal to my pet Cucumber, Telegraph (Rollisson's variety). It produces two, three, four, or even six fruits at a joint, and it will grow from 18 to 26 inches in length. It requires a pretty good heat, and is best adapted for a house, though it will succeed well in a frame. *J. S.*

Adiantum farleyense.—I was recently at Burton Hill House, Malmesbury, and had an opportunity of seeing one of the first plants introduced into this country of this really beautiful Fern. The plant in question is a perfect specimen, the majority of the fronds measuring 4 feet in length, and the plant itself being as many feet through. It is certainly a great acquisition, and will doubtless be ere long in every collection. One peculiarity of this Fern is, that it cannot be reproduced from seed with any certainty. Mr. Green has raised several hundred seedlings, each of them differing from the parent plant, none of them having the margin of the pinnules so deeply lobed; the lobes also are not digitate as in the true Adiantum farleyense. *John Edwin Jefferies, Sheffield.*

Winter Flower Beds.—Your correspondent Mr. Melville (see p. 1194, 1866) seems to have experienced a failure with regard to the use of cut branches of evergreens for decorating beds or borders in winter. He could not have made his branches very secure, or he would not have been troubled with their being blown about all over his place after a gale. I have adopted the system during two years; I clear my beds in October, put in the evergreen branches, and I find them still at their post in March, looking but little the worse for being exposed to north and west winds. Your correspondent says that he thinks the system is too artificial. I see nothing artificial about it, as few could tell whether they had roots or not unless they were taken out of the ground. It was an account of Miss Hope's garden, which I saw in your columns two or three years ago, that induced me to try Variegated Kale for beds. I got seed two years previous to this, but could not get enough of colours to carry out the experiment to my wish. This year I again tried the system on a larger scale; I got Melvill's and two others, said to be the Improved treble-curled garnishing Kale, but I have failed to find any difference in them. I have two or three objections to Kales: 1st, they do not show their true colours early enough to enable us to plant them in October—if you want to plant beds or borders with Kale and arrange and blend their colours, I say wait until January, then you may see their true colours; 2d, they lose all the old foliage, which looks untidy. I have several hundred plants planted, ribbon fashion, but strange to say, the greens are becoming white, purple, or many shades of pink, so that they are all a mixture, while my evergreen border, which is 80 feet by 10, is showing its colours excellently. I sowed the seed on the 11th of March, thinking to have them forward. For edging I think green Ivy better suited for gravel than Grass. Cerastium or Stachys looks far better with a Grass verge, and again, if you mix variegated Pelargoniums with green Ivy, the effect is neither one thing nor the other. I may add that my Kale is laid down as recommended by Mr. Melville. *T. C., Warwick.*

Planting Churchyards.—While thanking "S. R. H." for his beautiful opening up of this subject, perhaps you will allow me to protest against the barbarous and disgusting mutilations which are now being perpetrated in London graveyards, not alone where the thing is done under the powerful influence of a railway company, but in some instances evidently for mere "ornament's sake" by those whose duty it ought to be to protect from the slightest violation "God's Acre." "Yes," says Longfellow,"—

> "That blessed name imparts
> Comfort to those who in the grave have sown
> The seed that they have garnered in their hearts,
> Their bread of life; alas, no more their own."

What must their feelings be who have their friends and ancestors buried in such places, where, without any serious reason, tombs and stones are pulled about and thrown goodness knows where, to plant, as they have recently done, the churchyard in Bishopsgate Street? This is the most conspicuous instance that I know of. It has been dug, levelled, and planted with young evergreen shrubs, which have no chance of doing any good in such a spot; and even if they did are utterly inappropriate compared to many things that might have been selected, even among deciduous trees—the only ones, with few exceptions, that should be planted in such an atmosphere. It is true that our cemeteries are too often embellished with sorry platitudes about the virtues of the dead; it is true, that if judged by their contents, our art or taste cannot be ranked very high; but the rudest board or ugliest stone tells of love and death "where human harvests grow," and to any but the most vulgar minds must be sacred and beautiful. It is not at all necessary, except in rare cases, to make any but the slight mutations of the ground in planting suitable trees in such places. From the nature of the ground deciduous things would not fail to do well; and would they look any the worse for standing amongst or drooping over such ruins as time may leave of the tokens of love and memorials of life? *R.*

Societies.

LINNEAN: *December* 20.—G. Bentham, Esq., President, in the chair. C. J. Hyde Allen, Esq., was elected a Fellow. The following papers were read:—1. *On some Points in the Morphology of the Malvales, together with a Description of a new Genus of Byttneriæ*, by Dr. Masters. This paper was devoted to the consideration of the floral structure, and especially to the andrœcium or staminal arrangement of the Malval alliance, including the Mallows proper, the Sterculiaceæ, Byttneriaceæ, and allied orders. The structure and disposition of the petals, stamens, and other organs of the various genera of this important group were treated at some length, the special points alluded to being the presence or absence of petaloid stamens or staminodes, the invariable position of the fertile stamens in front of or opposite to the petals, the very general cohesion of the stamens into one or more groups, whence the terms polyadelphous, monadelphous, columniferous, &c. These peculiarities, constituting the most important features of the group for classificatory purposes, were likewise shown to possess very great morphological interest, and had been explained in various ways by observers who had devoted their attention to the structure and to the development of the several organs in this group. The explanation given by the author, and considered by him to be the most satisfactory, was one according to which the staminal leaves (generally five) are supposed to be lobed and compounded in the same way as are digitate leaves, the central or terminal lobe forming the staminode, and which when present is invariably in front of or opposite to a sepal, that is to say, in the natural position of the stamen, though from its petal-like aspect its staminal nature is liable to be overlooked. In many genera, however, the staminode is either absent or undistinguishable from an ordinary stamen. The lateral lobes of the staminal leaf are for the most part antheriferous. In some genera certain of the lobes are suppressed or imperfectly developed, and hence the ordinary rules of floral construction are interfered with, as also by the obliquity of conformation and growth which is so marked a feature in most plants of this group. This explanation has been deduced from the examination of the structure of the flowers, not in Mallows only, but in the majority of the genera of the allied orders generally grouped together under the head of Malvales or Columniferæ, and was shown to be in conformity with the views advanced by Mr. Bentham and others. The new genus of Byttneriæ called Scaphopetalum was founded on three species collected by Mann in Western equatorial Africa, and is nearly allied to Theobroma and Herrania, and presents some remarkable features in the form of the petals, stamens, &c. The flowers are protruded from the old wood as in Theobroma, and in one species are borne on a long whip-like trailing inflorescence. The nearest allies of this genus are South American, there being no African genus known that has any very close affinity with it.——2. *Description of three new Genera from West Tropical Africa, belonging to the Natural Orders Guttiferæ, Olacineæ, and Celastraceæ*, by Prof. Oliver. The Guttiferous genus was named Allanblackia; the Olacinaceous, Alsodeiopsis; and the Celastraceous, Campylostemon.——3. *Notes on Introduced Plants occurring in the Neighbourhood of Sydney*, by W. Woolls, Esq. The author furnished a list of about 100 species of introduced plants which had established themselves in the neighbourhood of Sydney, chiefly in cultivated ground. Among them Cristaria coccinea, Erigeron canadense, and E. linifolium, Centaurea solstitialis (or melitensis), and Xanthium spinosum, were spoken of as troublesome weeds. The last mentioned is the Bathurst Bur, which does so much injury to the wool in some districts. Carduus marianus is regarded as a great pest in some places, but has been found useful for fodder where Grass is scarce, especially when it is cut down and allowed to become partially dry. Melilotus parviflora has become a great nuisance to the agriculturist, as it grows with the Wheat, and imparts a peculiar flavour to the flour; it is called Scented Trefoil, and some millers have so much objection to any Wheat affected by it, that they refuse to purchase grain from those districts where it is known to prevail. Cuscuta Epithymum, introduced from Europe, is sometimes very troublesome and destructive. Rosa rubiginosa springs up so rapidly in fields that it materially affects the growth of the Grass. Gomphocarpus fruticosus, called Wild Cotton, has spread very widely, and is regarded as a nuisance. Stachys arvensis is useful in the winter season as food for cows, though when the plants are old it imparts a flavour to the milk. The fruit of Physalis pubescens, or Cape Gooseberry, being available for jam, it is not to be regretted that the plant proves so well suited to the climate. Datura Stramonium, though useful in asthma, has occasioned the death of several children who have swallowed the seeds; while of Solanum nigrum the children eat the berries with impunity. Rumex Acetosella is a troublesome weed in orchards, but not so injurious as Cyperus Hydra, which is occasioning much inconvenience to gardeners. The late Mr. Macleay, it was stated, had tried every expedient to remove the weed, without success, and it was feared that unless some means of eradicating it could be found, many gardens would be completely ruined. The various ways (the writer observed) in which plants accidentally become acclimatised, afford much interest to observers. Among the causes to which it may be traced, he instanced the mixture of other seeds with those of Grass, Clover, and garden herbs; the use of different weeds either wholly or in part in packing cases; the tenacity with which the seed-vessels of some plants adhere to the manes and tails of horses; the presence of seeds in some imported manures; the migration of birds; and the influence of periodical winds and tides.

Notices of Books.

Manuel de l'Amateur des Jardins, Traité générale d'Horticulture. Tome 2, comprenant la culture des plantes d'agrément de plein air et d'appartements dans les différents Climats de la France. Par J. Decaisne et Ch. Naudin. 8vo, pp. 824 et viii.

[Second Notice.]

As the work before us professes to treat of the cultivation of ornamental plants in the different climates of France, it was of course imperative that it should commence with an exposition of the various climatic conditions which prevail in its several parts. To this and the very interesting details connected with it we have already called attention. The volume does not profess to treat of stove plants, but of those which are cultivated in the open air, and what we should in this country consider as window plants. It does not propose to enter into any details as to landscape gardening, which is an art of extreme difficulty, and requires a combination of taste and knowledge which is rarely possessed. The great difficulty is to conceal the art which has been brought into exercise, and success is only possible where the whole result accords with the old dictum of Longinus, that "Nature is then most pleasing when it conceals the assistance derived from Art."

The modern style of gardening, or the bedding-out system, is essentially artificial, and is most successful where a competent knowledge exists of the effect of contiguous colours upon each other. Useful details are given on this subject, and the old parterre system is not ignored, a system which may be carried out with much advantage where the moisture is sufficient to keep the Box constantly green. In arid situations it is a waste of force to attempt it. Some of the old designs are extremely clever and beautiful, and we should as a variety like to see some of the finer plans nicely executed. It requires however a first-rate workman to set them out, and very good cultivation to keep them in anything like perfection, and they should never be attempted except where there is not ample room, and where the necessary appliances are not available. As regards the bedding system, our authors rightly call attention to the necessity of a judicious choice as to the materials. It is of little use to attempt much in the way of novelty; habit, colour, and endurance are the great requisites, and but a few plants combine all, and without them the effect will never be satisfactory. There is, however, now such an abundance of first-rate varieties of bedding Pelargoniums, that there is no excuse, where economy is not an absolute requisite, for any want of brilliancy, or

nice contrast of colouring; and an admixture of some of the taller exotics, of graceful form or foliage, will often break the formality which is so disagreeable to the eye, and which renders so many gardens mere repetitions of one common type.

If the garden is anything more than a mere plot before a villa in the suburbs, attention should never be confined to the bedding alone; and here the details which follow as to the more useful plants in each natural order will prove very acceptable. Attention is first directed to those plants which are most attractive when the different forms are skilfully grouped together, according to their height, colour, habit, &c. Roses naturally occupy a considerable space, then Pinks, Picotees, and Carnations, Tulips, Hyacinths, Auriculas, and Indian Chrysanthemums. The varieties of Pyrethrum roseum, which are so valuable an acquisition in summer before the Chinese Asters blow, are only slightly indicated, which is the more surprising as the improved forms originated principally in France, though so much has been since done by Mr. Salter in this country. Indeed they are not included by the authors in the category of what they call collective plants.

The fourth chapter treats on various plants which may be regarded rather as fit to be scattered about the borders than to form distinct groups. This is a part of the garden without which in our estimation no large establishment has the slightest claim to perfection. We would not at all detract from the improvement which has taken place in our gardens from the bedding system where well carried out. It would be the merest affectation to despise it, but it should never be extended so far as to exclude, which it does in many instances, a good collection of the more remarkable and ornamental forms of vegetation, which do not admit of grouping. Where proper attention is paid to the different times of flowering, with a little judgment, every part of the garden may always wear a neat if not gay appearance, and contrast is far from displeasing, as the eye becomes wearied by a constant recurrence of masses of colour.

A separate chapter is devoted to climbing plants, of various sizes and character, whether annual, biennial, or perennial, whether herbaceous or otherwise. Few plants are more ornamental than these, and few are greater favourites, and in some parts of France the effect of such brilliant forms as Mutisia decurrens must be very striking. We have, however, abundance of material suited to our own climate in each especial division, and even some of our native plants, as Vicia sylvatica, might be introduced with great benefit. In the south of France, where Cucurbits flourish admirably, a wonderful effect may be produced by the different forms, which are very striking, either from the beauty of the fruit or the elegance of the foliage. Our own summers are in general too moist to permit of the healthy growth of many of the more elegant varieties.

The sixth chapter is devoted to larger plants, and perhaps in no country, if we exclude mere tropical or sub-tropical forms, do many of the nobler kinds succeed better than with ourselves. Multitudes of Conifers, Acers, Cytisi, &c., flourish amongst us with the utmost luxuriance, and form a perennial source of delight from their beautiful forms and the admirable groups which they compose when nicely disposed. The great point is to avoid too much sameness either of tint or form, and materials are so abundant and of such various kinds that there is no difficulty in producing a good effect by skilful management. Many of the plants which are recommended are of course inadmissible in our gardens in any general way in consequence of their tender character, but Battersea Park will show us how much may be done with effect even in this direction. The hardy Palms will prove a great acquisition, though we fear that exceptionally cold winters may prove destructive. Some of the large herbaceous plants, as Gunnera, Wigandia, Polymnia, &c., are already used with great effect, and the large and less common Umbelliferæ, as Ferula, should not be excluded, as they form an agreeable variety, though in themselves perhaps scarcely adapted for popular use.

A seventh chapter is devoted to aquatic plants. Some even of the more tender may succeed where there is waste warm water in our manufactories, but our more hardy species may be well introduced in some swampy corner or dripping pool which would otherwise be an eyesore.

The concluding chapter treats of the cultivation of plants in pots, especially for the ornament of windows, of alpine and rock plants, and finally of Ferns.

The nature of the work is such as not very well to admit of extract. We have confined ourselves therefore to such general remarks as are suggested in detailing the matters on which our authors treat. In almost every page something of interest will be found, and we can safely recommend the work to such of our readers as are familiar with French, who, we are sure, will find much pleasant matter. The illustrations are numerous and well executed, and in some cases are of peculiar excellence.

BOOKS RECEIVED.—*Iconum Botanicarum Index locupletissimus.* Pars altera. Auctore Dr. G. A. Pritzel. 4to, pp. 298. (Berlin: Nicolaische Verlagsbuchhandlungen; London: Williams & Norgate.) The publication of an alphabetical catalogue of the plates contained in the most important horticultural and botanical works of the 18th and 19th centuries was a boon which students daily acknowledge, and they will gladly welcome a second part, which brings the list down to the end of the year 1865. In spite of some deficiencies, this catalogue must still find a place on the shelves of all workers in horticultural or botanical literature.——*Neuer Schlüssel zu Rumph's Herbarium Amboinense.* Von Dr. J. K. Hasskarl. 4to, pp. 244. Halle, 1866. (Williams & Norgate.) The object of this work is sufficiently explained by its title—a New Key to Rumphius' Herbarium Amboynense. This Key was originally published in the Transactions of the Natural History Society of Halle, and has been re-issued, with numerous additions and emendations, by Dr. Hasskarl, whose practical knowledge of the botany of Java renders him well qualified for the laborious and troublesome task he has undertaken. Rumph's names are first cited, with the references to the pages and plates wherein the plants are described, and then the accepted modern names, with copious references, are given. Full indices of the Latin and vernacular names are added, so that the work is very convenient for reference by those interested in the botany of Amboyna and adjacent islands.

CATALOGUES RECEIVED.—*James Veitch & Son's* (Chelsea) *Garden and Flower Seeds:* an excellent and well-selected list, of moderate bulk.—*James Carter & Co.'s* (Holborn) *Gardeners' and Farmers' Vade Mecum:* the first part is devoted to flower seeds, &c.; and the second part to vegetable and farm seeds. As usual the lists are of an encyclopædic character; and several pages are this year devoted to a running commentary on the most interesting subjects, embracing hints for their cultivation.—*W. P. Laird & Sinclair's Gladioli* (Dundee): a descriptive list, with the varieties arranged in classes.—*R. Parker's* (Tooting) *Catalogue of Agricultural Flower and Vegetable Seeds:* a useful select list.—*J. M'Hattie's* (Chester) *Vegetable and Flower Seeds* offers a good selection, and is improved by descriptive remarks.

The Apiary.

NADIRS.—I wish to thank Mr. Thomson, of Blantyre, for his reply to my inquiries, and in particular for his remarks respecting his ingenious method of attaching empty combs of large size to bars—a method which, as far as I have hitherto read or heard, is peculiarly his own. This, the loosening of slides by the application of a hot iron, and the ventilation of the top of a bar-hive by the substitution of a covering of straw for the slides, are all admirable bridges over difficulties.

I have still one or two inquiries to make. When a nadir is taken from beneath a Stewarton hive, nearly full of comb, and with a considerable quantity of honey in the cells, can that box of combs be used as it is, that is without detaching the combs, for nadiring next season? The box which I took from beneath the 9-inch box, and which he alludes to in his answer at p. 1047, 1866, was, say three-quarters full of comb, and almost all the cells had some honey in them. In order to clear the honey from the combs, without which it would not have answered to lay them by, I cut out the combs and gave them in a feeding box, to be cleared, on the top of hives which wanted to be fed. This was the only method I could think of. Certainly they can be put back again by Mr. Thomson's method; but if one could manage to leave them as they are it would be desirable. Some of the combs had small portions too which were perfectly full and sealed.

The 9-inch box, which ought, Mr. Thomson says, to have moveable bars, and frames to the centre ones, has the latter to the four centre frames; but the bars at the side are not moveable. Knowing that if, in order to get some of the surplus store, one of the centre frames was taken, I could get a darkened comb with a quantity of pollen in it, I drove the bees out of the hive into a straw vat, which I placed on the stand; and taking the boxes into the house, cut out the two side combs, which were beautifully white and pure, leaving an abundant store for the winter.

The other inquiries I have to make are—about what month of the year is it usual in Scotland to give the first nadirs, which Mr. Thomson has in the number for 1st of September last year directed to be given in spring? As I understand him, they are to be given when the spring opens, say in the end of February or beginning of March, according to the season. Locality would, of course, make a difference; but still the time they are usually given in one place would, to a certain extent, be a guide in another, as allowance could be made for its being earlier or later in its seasons. Also, is the sign of the second nadir being required seeing through the windows that the combs are full of brood, just as the sign of a second super being required is seeing that the first is nearly full of honey?

I suppose that the existence of a queen, which Mr. Thomson says is to be determined, can be known by the bees carrying in pollen as usual, and her absence by the reverse. I should be glad to know whether that is the only way of judging, and also what Mr. Thomson is in the habit of doing when she is found to be absent. *A. B.*

Garden Memoranda.

AT KEW I found in bloom, a week or two since, two really good plants, to which I call attention not merely on account of their newness—for it is a waste of words to speak of new weeds or newly discovered ugliness in a garden periodical, but on account of their utility as December bloomers, Centropogon Lucyanum and Exacum zeylanicum being both likely to be first-rate. The first is a free Habrothamnus-looking shrub, bearing dark rose-coloured flowers profusely on every branch, and looking in every way likely to be a good thing for planting out in the stove, and to be most useful from coming in at Christmas. The Exacum I have seen elsewhere; but making, as it does, a comparatively dwarf December-flowering plant, and bearing flowers of such a pleasing blue, it is well worthy of the attention of cultivators. Mr. Smith thinks it a very useful thing, and intends to grow it more largely. It is very interesting to notice the result of a practice of the present Curator's with respect to Palm culture, and particularly with reference to Chamædoreas and their allies. It consisted and consists merely in putting a little damp Moss round the base of the stem, just as you would round that of a dwarf Tree Fern freshly imported, to encourage it to root. In the first instance it was practised with Chamædoreas in a poor state both as to head and root; but soon these began to put forth roots from the four or six inches of the base of the stem covered with the Moss, after the fashion of a Screw Pine, and soon descended into the pot to feed vigorously. Not a few of these are now set around with ring after ring of roots, piling up the plant as firm as a ship in dry dock, while the heads have much improved. Just as in the Pandanus, these outer roots seem to be the "life of the plant;" and it is probable that the sharp, clean line preserved between wind and water in cultivation may have discouraged the putting forth of such valuable aids, which would doubtless be carried out freely by accumulated half-decayed matter on their native sod.

Both at MESSRS. VEITCH'S, who introduced the exceedingly graceful and beautiful Urceolina aurea, and elsewhere, I saw this gem in full flower a few days before Christmas, and entertain no doubt that it will prove a lovely aid to those who wish for much floral beauty about the end of the year. True, its leaves were not to be seen then, but by surrounding a plant or a small group of it with bushy, close-spreading Ferns or such like, that defect may be obviated, and a most distinct charm added to the drawing-room or conservatory. At Messrs. Veitch's, too, the new Saccolabium (see *ante*, p. 26) is in full beauty, the flowers smelling, when closely examined, almost exactly like good Cinnamon. When this plant begins to feel at home and gets well established in England, it will prove one of the most valuable of choice Orchids; indeed it is that already, though the plants are but freshly imported, and the flowers very much weaker than they will prove when it is well grown. Here, too, one may see what capital things the various bright-leaved Dracænas are for stove or in-door decoration in winter—Cooperi, stricta, and terminalis being plants that no stove should be without. And here may also be seen in profusion plants that almost every stove in a private garden is without, though they are exceedingly interesting, and are so at all seasons—the Pitcher plants. This is the only place in which can be seen a noticeable collection of them, a large house being now quite full, though, from the luxuriant appearance which they here present, their culture should offer no difficulties where heat and moisture are obtainable. Maranta Veitchii is also particularly fine just now, and a magnificent plant it is for the fine-foliaged house, stove, or conservatory, and above all for in-door decoration, in consequence of the translucency and singular painting of the under side of the leaves. For placing on slightly elevated positions in halls or large rooms on festive occasions, there is probably nothing to equal it. The white Lapageria was also in flower, and so beautiful as to make one long for the time when both crimson and white kinds will flower in every greenhouse or conservatory. The old form, and the variety splendens, were both in fresh and profuse bloom in a low span-roofed house in the WELLINGTON NURSERY, and it was striking to see how thoroughly useful and showy this plant was even in winter. Here, also, is a specimen of Ipomœa Horsfalliæ in profuse flower, and a more lovely climber is not in existence for the stove at Christmas. It was adorned with many scores of fine flowers open, and a profusion of black polished buds. I really wonder this easily-cultivated plant is not oftener seen, instead of the dirty, flowerless climbers that too often hang about stoves. It is one of those few flowers that do not appear to be sorry for flowering at the end of December, looking as vivid in fact as if it flowered in June. *Viator.*

Miscellaneous.

The Sensitive Plant.—In a letter of Dr. Sigerson's to the *Athenæum* [which was also previously published in our own columns], he states that the folioles of the Sensitive Plant were touched by him with a non-conductor, and exhibited no movement. The Sensitive Plant is a common weed here, and is at present, as in his experiments, in flower. I touched it with glass, sealing-wax, iron, and the hand, and in all cases found the usual movement, which also took place when the plant was gently blown on with the breath. No such difference, as on any electrical hypothesis, we should expect, existed between the sensitiveness of the ends and middles of the folioles. Another fact about the Sensitive Plant, which the electrical theory does not explain, is the closing of the leaves at night. Perhaps the more hopeful question would be, not "why do they shut?" but "why do they open?" And I may be permitted to guess that the solar rays in the morning, or the solar diffused light, throws the molecules of the folioles into some new condition, the result of which is their opening, and that such a molecular condition is destroyed by the vibration caused by touch. What this molecular condition is, perhaps we shall never know, or, if ever, through microscopic analysis. Dr. Sigerson's observation, that children affect the Sensitive Plant more than adults, I confirmed by comparing the effects of my own touch with that of a child of seven years old, who affected the plant more powerfully than I could do. *W. E. Hamilton, Greytown, Nicaragua, Nov.* 15, 1866. (*Athenæum.*)

First Pine-apples in England.—When Oliver Cromwell ruled in these realms, a present of Pine-apples was one of the things which fell to his lot, and this was probably the first introduction of the fruit into England, although it was known on the Continent four years previously. Four years afterwards and Evelyn writes of its appearance on the royal table. But the fruit, however much it may have been extolled, is not the only good product of this plant. From the leaves thereof is procured a fibrous material known and appreciated by the barbarous hordes of Africa and

the semi-civilised Malays. The celebrated Pine-apple cloth of the Philippines, resembling the finest muslin, is woven with the delicate fibres of the uncultivated Pine-apple plant. This muslin is embroidered by the nuns of the convents of Manilla with excellent skill and taste, so that the "Pina" muslin of the Philippines has become a celebrated article of manufacture. Mr. Bennett has observed in his "Wanderings," that one of the coarser fibres may be subdivided into filaments of such fineness as to be barely perceptible, and yet sufficiently strong for textile purposes. *Hardwicke's Science-Gossip.*

Garden Operations.

(*For the ensuing week.*)

PLANT HOUSES.

MANY *Orchids*, such as *Cattleyas*, *Cœlogynes*, *Miltonias*, *Dendrobiums*, and similar plants which do not require so much heat as Vandas, Saccolabiums, &c., will now show the breaks at the base of the pseudobulbs somewhat prominently. Keep all such in as even and moderate a temperature as possible, in order to delay their starting into active growth for a week or two longer. Should any however commence pushing into leaf, remove them to the warmest corner in the house, and begin watering them slightly. Do this by placing a pail or other utensil containing water in a convenient position in the house, where at intervals of a week or 10 days you can readily dip in it the whole outer surface of the pot, up to the rim only, keeping it in a little longer at each successive dipping, in order to enable the water the more readily to penetrate amongst the crocks and lower stratum of soil, thereby gradually moistening the whole ball. Plants grown upon hanging blocks, such as *Sophronitis*, *Comparettia* and similar genera, showing signs of active growth, may now be frequently dipped in tepid water, in order to induce root action. Blocks so situated do not retain water like pots, consequently there is no risk of rotting the young growths, by a retention of too much moisture in their immediate neighbourhood. *Dendrobiums* generally, which have matured their growth, but not yet flowered, may be induced to do so by being placed in a warm situation, and frequently just surface-sprinkled upon the pseudobulbs; care should be taken not to moisten the roots, however, as this will induce a too early growth. Wipe away daily all moisture that can be found upon the inner surface of glasses covering *Anœctochili*. These suffer, and speedily rot away, if not carefully attended to at this season, owing to the excess of moisture which is necessarily retained around them in their habitually enclosed positions; besides, it should be understood that as we regularly wipe away the moisture from them, in like manner do we supply them daily with fresh air, without which they cannot prosper. If not already done, do not neglect to place portions of the best peat that can be had—the brown, fibrous, least gritty sort is the best—where it will readily dry; also, procure the necessary supply of Sphagnum, as many Orchids will shortly require potting.

Cinerarias will now be forming flower, and alternate waterings of manure water will be very beneficial to them. Keep the pots upon a cool bottom, and as far from anything in the form of artificial heat as is possible. Whether fly or other insects are discernible or not, they should be effectually smoked at this season, as too frequently at the date of flowering, insects not perceived before become suddenly numerous, and quickly destroy the result of many months of care. Remove from the plants all secondary flower-stalks, suckers and the like, which proceed from the base, as these, independently of being of no use in themselves, injure the flowering portion by robbing it of its proper strength. With respect to *Azaleas*, this is a very active season, especially if they are well laden with flower buds, which they are unobservedly perfecting for an early display; consequently great care will be necessary to see that they do not suffer from the want of water. If any are thrip-eaten, or otherwise overrun with insects, take the present opportunity of destroying these pests; this can be done by giving them two or three moderate smokings at intervals of two or three days, syringing them with a weak solution of clear tobacco-water each morning after, and dusting a little flowers of sulphur upon the undersides of the leaves immediately after the last syringing.

FORCING HOUSES.

As *Vineries* are being very generally started at this time, commence by keeping the house closed for the first week or ten days; then, for a similar period, let the thermometer average 50° all weathers, except any rise which may be occasioned by the direct influence of the sun, when air should be admitted, and the fires banked up, so as to have cool flues or pipes for the incoming fine warm day, and *vice versâ* should severe weather occur. Where not already done, and if the Vines are not too forward, the necessary operation of pruning having been performed, the whole of the outer bark should be well dressed over with a wash, to destroy any insects which may have wintered therein, and also to act as a preventive both of these and mildew upon the next season's growth. For this purpose mix 2 oz. of Gishurst Compound, 1 lb. flowers of sulphur, 1 lb. soft soap, and a little cow-dung, with a gallon of hot water. When sufficiently cooled apply this mixture at once with a painter's brush. When the house has been closed some three weeks, the centre bed or pit may be filled with fresh leaves, choosing, if possible, oak or other foliage of enduring texture for the purpose. Should these be dry, moisten them with clear water; they will furnish an excellent heat by the time the Vines indicate direct activity of growth. See that the pits, in early Vineries, retain their necessary warmth; if not, any plants upon them should be removed, and the materials turned over, placing the top leaves at the bottom, well stirring and separating the others, and thoroughly moistening any which may have become dry with clear water, adding a few fresh ones when required. When Vines break unevenly, or it is anticipated that they may do so, loosen the upper portion of the rods, and lay them carefully down in any position where they can rest at a declination greater than the height of the lowest buds that are likely to fail, occasionally wetting these latter by means of a dash from the syringe. Seedling *Cucumbers*, potted off and showing the rough leaf, should be permitted to have all the sun possible. In their treatment bear in mind that they require a heat ranging from 65° by night to 75° by day. In pits or frames exclude as much as possible all direct steam. Endeavour to allow every part of the plant to get thoroughly dry each day, and keep them near the glass, giving them all the air possible by night, as well as by day. Plants started now, and grown on in a temperature of 65°, with all the night air possible, are much superior to and more lasting than those grown under a maximum heat of 75° or 80°, without air.

Fermenting materials in preparation for the principal frames, should undergo the process of sweetening, allowing as little decomposition as possible. To prevent this some little care is necessary. Good wholesome stable litter requires to be turned, shaking it well up at each operation—three times only, barrowing it where necessary, the making the bed up at last being counted as a fourth turning. In turning a heap over the second time, do not, as is customary, begin at one side, and continue straight through, taking all as it comes; but first of all, take the whole outer layer of the heap off to a foot in depth, and lay it down as a bed for the remainder. When any part has become too dry, always moisten it with clean water carefully distributed with a rosed watering-can. It is not advisable to put all the shorter droppings with the manure, as these too readily hasten the decay of the whole. Where a mixture is made, half leaves and half stable litter, it is not judicious to mix up the leaves with the litter until the bed is being made up; the sweating which the leaves undergo in a heap by themselves amply prepares them, without further neutralising their best properties by admixture with the litter. By no means permit the litter from kennels, ferret hutches, or the like, to be mixed up with the other manure.

HARDY FRUIT GARDEN.

Even where it is not necessary in a general way to prune large standard *Apple* and *Pear* trees, they should each be searched throughout for any young shoots of the preceding summer's growth, as they periodically throw up young growths from the main stem or branches, which, besides being ill-placed, rob the more fruitful parts of the tree; and if not removed annually, are apt in a little time to so choke up the centre as to impede a proper circulation of air, encourage Moss to grow, insects to harbour therein, and perpetuate other unnecessary ills. This operation may be performed in frosty weather, when—the ground being hard—less injury will be done by trampling too firmly the surrounding soil. Cut away these growths as near the main stems as possible, with the view of thoroughly eradicating every symptom of an eye from their base, for these if left will prove a source of future trouble. Much good may at the same time be done to aged trees by scraping off all partially loosened outer bark, moss, &c., from the bole and main stems. To perform this operation quickly, I use a small implement made in the form of a T, a handle being placed upon the tail-end, and an edge wrought upon one of the outer sides of the cross-piece. When the scraping operation is over, a wash, consisting of one-part fresh lime and three-parts cow-dung, if with a little sulphur all the better, brushed over these parts, will not only, by reason of its sticky properties, deter insects from ascending, and prevent Moss and Lichens from growing, but by softening the bark will aid the bole in swelling—a great advantage. For, certain is it, that clean healthy-looking boles and main branches become the progenitors of fruitful luxuriance. Any trees having much moss growing upon the fruiting spray, will be benefited by having a mixture of wood-ashes and fresh-slacked lime freely dusted in amongst them. *W. E.*

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the Week ending Jan. 9, 1867, as observed at the Horticultural Gardens

January.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Of the Air. Min.	Of the Air. Mean	Of the Earth 1 foot deep.	Of the Earth 2 feet deep.	Wind	Rain.
Thurs. 3	27	29.810	29.650	33	2	17.5	40	40	N.E.	.00
Friday 4	28	29.960	29.888	30	–11	9.5	40	40	S.W.	.00
Satur. 5	29	29.974	29.902	30	16	23.0	40	40	N.E.	.54
Sunday 6	○	29.378	29.336	49	30	39.5	39½	40	S.E.	.00
Mon. 7	1	29.230	29.026	53	44	48.5	35	40	S.W.	.46
Tues. 8	2	29.114	28.760	52	36	44.0	35	40	S.W.	.01
Wed. 9	3	29.046	28.832	48	36	42.0	40	42	S.	.29
Average .		29.502	29.342	42.1	21.8	32.0	38.5	40.3		1.30

Jan. 3—Hazy; densely overcast; snowing, overcast; severe frost.
— 4—Intense frost continuing throughout the day; 11 deg. below zero at night.
— 5—Hazy; overcast; cold wind at night.
— 6—Hazy, with slight rain; fine and rather mild.
— 7—Rain; cloudy, with mild temperature; very boisterous at night.
— 8—Boisterous, with rain; very boisterous; fine at night.
— 9—Boisterous, with rain; fine at night.
Mean temperature of the week, 3·6-10th deg. below the average.

STATE OF THE WEATHER AT CHISWICK,
During the last 41 years, for the ensuing Week, ending Jan. 19, 1867

January.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday..13	40.3	30.2	35.2	19	0·62 in.	6	5	5	4	9	7	4	2
Mon. ..14	40.1	30.0	35.0	19	0·86	4	7	6	5	2	11	4	2
Tues. ..15	40.1	29.1	34.7	13	0·54	3	6	5	3	4	8	8	3
Wed. ..16	40.2	30.9	35.5	20	0·34	1	9	5	3	6	9	5	3
Thurs. ..17	40.3	31.1	35.7	14	0·48	3	8	3	4	4	10	5	4
Friday ..18	40.3	31.0	35.6	17	0·55	1	3	2	5	7	11	7	5
Satur. ..19	40.3	30.8	35.6	19	0·88	4	2	4	3	7	11	7	3

The highest temperature during the above period occurred on the 19th, 1828—therm. 68 deg.; and the lowest on the 19th, 1838—therm. 4½ deg below zero.

MONTHLY DEPTH OF RAIN, in inches and hundredth parts of an inch, which fell at Chiswick in the years 1841 to 1866 inclusive.

	1841.	1842.	1843.	1844.	1845.	1846.	1847.	1848.	1849.	1850.	1851.	1852.	1853.	1854.	1855.	1856.	1857.	1858.	1859.	1860.	1861.	1862.	1863.	1864.	1865.	1866.
	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.
January	2.60	1.06	1.33	2.25	2.97	2.85	1.31	1.16	1.73	1.43	3.07	2.72	2.14	1.92	0.10	1.76	2.09	0.41	0.61	2.18	0.82	1.53	2.19	0.57	3.50	3.72
February ..	0.76	1.22	2.35	2.27	0.93	1.47	1.34	3.12	2.52	0.95	0.90	0.25	1.48	0.42	1.35	0.62	0.31	1.48	1.31	1.20	1.41	0.33	0.26	0.76	1.63	3.80
March	1.32	1.81	0.47	2.44	1.25	1.09	0.41	3.05	0.85	0.13	3.57	0.25	0.58	0.43	1.75	0.97	0.73	0.88	2.01	1.63	1.89	3.74	0.68	2.53	0.95	1.65
April	1.58	0.15	1.62	0.33	0.95	3.93	0.92	3.06	2.21	1.79	1.05	0.52	2.58	0.30	0.96	1.97	1.77	2.13	2.01	0.95	1.44	2.29	0.54	0.77	0.35	1.98
May	2.16	1.73	5.26	0.25	2.89	1.35	1.59	0.28	3.53	1.84	0.74	1.74	1.60	4.03	1.94	4.38	0.87	2.05	1.80	3.04	1.31	3.54	1.46	1.95	3.10	1.17
June	2.45	1.58	1.62	0.97	1.36	0.80	1.31	3.20	0.31	1.40	1.33	4.69	2.54	1.53	1.48	0.88	1.91	0.78	3.10	5.15	2.85	2.33	4.46	1.70	1.84	3.60
July	3.56	1.52	1.67	2.10	2.31	1.78	0.79	2.21	2.82	2.08	3.90	2.28	4.17	2.40	0.30	1.43	1.22	2.55	2.18	2.72	1.90	2.09	0.80	0.50	2.37	1.30
August	2.60	2.81	3.28	1.84	2.79	4.50	1.50	4.70	1.60	0.97	2.03	2.71	1.87	1.77	1.45	3.50	2.80	1.46	2.49	4.16	0.50	2.40	1.96	1.59	3.64	2.69
September..	3.71	3.39	0.98	1.91	1.77	1.76	1.60	2.20	2.49	2.36	0.42	3.54	2.41	0.58	1.15	1.99	3.52	1.05	4.05	2.82	1.78	2.74	3.47	2.79	0.58	4.04
October	4.61	1.71	4.19	4.13	1.39	5.54	1.75	2.93	2.18	1.55	2.01	3.87	3.78	2.61	6.15	2.40	4.01	1.36	2.55	1.60	1.04	3.00	1.56	1.42	6.25	2.00
November ..	3.41	4.43	2.13	3.06	2.11	1.43	2.26	0.90	1.32	2.03	0.55	6.20	0.91	1.31	1.34	0.94	1.53	0.10	2.72	2.60	4.10	1.01	1.68	1.94	1.70	1.16
December ..	2.12	0.76	0.53	0.39	2.61	1.21	1.81	2.03	1.28	1.15	0.62	1.97	0.30	1.27	1.11	1.88	0.30	1.53	1.95	2.03	0.94	1.49	1.26	0.34	0.92	1.93
Annual amount }	30.97	22.27	25.48	21.84	23.23	27.71	16.65	28.34	22.84	19.28	20.79	32.55	24.37	18.92	24.38	22.72	21.06	15.78	25.54	30.05	19.48	26.54	20.32	16.86	28.92	29.04

The amount of rain which fell in 1866 was 29.04 inches, or 5 inches, 49 hundredths above the average of the preceding 40 years.

Notices to Correspondents.

DISEASED LEAVES: *G B.* Your Laurel leaves have probably suffered from the early frost and subsequent wet weather—at least we have seen the same effect produced by similar causes. The dead part, however, is curiously marked with concentric lines, though there is not the slightest trace of fungous growth. We should like to see specimens in the course of a few weeks, to see if there really is any parasitic growth.—*Anxious Inquirer.* Your first notion as to sunburn we think correct, as in some instances they ran transversely over the leaf. Sunburn may take place in winter as well as in summer. *M J B.*

JASSABUSHIT: *G.* You will find an article on this substance in the current number of the "Technologist," from which it appears that the material in question consists of the female catkins or strobiles of some Alder, supposed to be Alnus japonica. It is introduced from Japan as a dye stuff. We have not seen the catkins ourselves, and can offer no opinion as to their value.

NAMES OF PLANTS: *A B.* 1, Ilex Aquifolium senescens, a smooth-leaved form of the common Holly; 2, Ilex japonica. —*H M.* 1, Bossiæa heterophylla; 2, Blechnum occidentale; 3, Eupatorium nitidum.—*S Garland.* Your specimen has been mislaid; will you send us another? It is certainly neither of the sorts you mention.

OSIERS: *Salix.* The best sorts are S. viminalis, Forbyana, and triandra. They may be planted in rows 18 inches apart and a foot asunder in the row; but after five or six years every alternate plant should be grubbed out, leaving them 2 feet asunder in the row. What you call the Packthread Willow is probably the Golden Osier, S. vitellina, the slender rods of which are remarkably tough.

PRIMULAS: *D, Newark.* The flowers belong to a very choice strain, and very closely resemble the dark-coloured variety mentioned at p. 1241, 1866.

SEED COLLECTIONS: *A Practical Gardener.* Next week.

COMMUNICATIONS RECEIVED.—Captain Cockerell.—J. Barnes.—C. Turner.—R. Parker.—W. Robinson.—A. Dean.—M. Nesfield.—W. Heale.—H. Cannell.—Youell & Co.—Prof. Morren. —Prof. Reichenbach.—M. Linden.—W. E.—M. Fournier.—P. O.—Prof. Oudemanns.

LAND DRAINAGE, FARM BUILDINGS, and LABOURERS' COTTAGES.—These several works can be executed, and the cost borrowed and charged on landed property. Landowners can have Plans and Specifications of the best and cheapest character prepared to meet the specialities of each case, and in conformity with the Act of Parliament, so that they can, if desirable, execute the work by their own Agents.—Apply to Mr. BAILEY DENTON, 22, Whitehall Place, Westminster, S.W.

SOUTHERN COUNTIES ASSOCIATION.
President 1866-'67—HIS GRACE THE DUKE OF RICHMOND.

The ANNUAL EXHIBITION of STOCK, POULTRY, IMPLEMENTS, FLOWERS, WORKS of ART, &c., will be held at BRIGHTON in JUNE NEXT.

SUMMARY OF PRIZES OFFERED:—
CATTLE.—Short-horns, £125; Sussex, £125; other Breeds, £50.
SHEEP.—Southdowns, £90; Hants Downs, £90; Oxford Downs, £90; Kent Sheep, £90.
HORSES.—Agricultural, £110; Hunters, £95; Hacks, £15; Ponies, £10.
PIGS.—Berkshire, £32; other Breeds, £32.
POULTRY.—Various, £93.
The PRIZE LIST may be obtained of the Secretary.
By order of the Council,
Yately, Farnborough. G. B. H. SHUTE, Secretary.

The Agricultural Gazette.

SATURDAY, JANUARY 12, 1867.

BEFORE publishing the detailed returns of area and cropping in the several counties which the Board of Trade has issued, we give here as one of the results of the inquiry a comparison of the totals in each case this year with the year 1857. The returns from Ireland of the latter year are probably the most accurately comparable with those of nine years ago, because both have been obtained under the same system, and are thus liable to the same sources of error. Those of Scotland for 1857 were no doubt thoroughly trustworthy, having been sent in to the Highland Society with the cordial goodwill of the tenantry; and if the returns of the past year collected by the Board of Trade may be considered accurate and exhaustive, a comparison of these too may be scanned for trustworthy lessons. The returns of 1857 in England, on the other hand, were more of an estimate than an actual taking of stock—they were sent in by the occupiers, and not by all of them, in only 11 characteristic counties, and, from the totals thus obtained, the totals for all England were arrived at by "rule of three." Taking Scotland and Ireland, in the first place, then, as the most trustworthy of the three, the following Table gives the returns for each at an interval of nine years:—

COMPARATIVE TABLE OF PRODUCE, 1857 AND 1866.

Description of Crops, &c.	In Scotland.		In Ireland.	
	1857.*	1866.	1857.†	1866.
Corn Crops:—	Acres.	Acres.	Acres.	Acres.
Wheat	223,152	110,101	559,646	300,474
Barley or Bere ..	219,994	213,619	217,314	152,777
Oats	938,613	1,004 040	1,980,934	1,697,648
Rye	5,989	7,055	15,348	7,753
Beans	39,186	28,537	10,631	12,175
Peas	3,687	3,188	2,955	2,606
Total under Corn Crops	1,430,621	1,366,540	2,786,828	2,173,433
Green Crops:—				
Potatos	139,819	143,426	1,146,647	1,050,419
Turnips and Swedes	476,691	478,990	350,047	317,121
Mangels	2,803	852	21,449	20,218
Carrots	1,401	916	8,667	3,781
Cabbage, Kohl Rabi, and Rape	3,736	5,075	43,471	50,352
Vetches, Lucerne, and any other Crop (except Clover or Grass)	21,571	33,998	34,395	40,200
Total under Green Crops	646,021	663,257	1,604,676	1,482,091
Flax	1,534	..	97,721	263,659
Hops	..	2	..	..
Bare Fallow, or Uncropped Arable Land	18,582‡	94,080	313,817	28,060
Clover, and Artificial and Other Grasses, under Rotation ..	1,459,805‖	1,141,415‖	1,369,892	1,600,495
Permanent Pasture, Meadow or Grass, not broken up in Rotation:—				
In Scotland (exclusive of Hill Pasture)	Not ascertained.	893,066	..	..
In Ireland (inclusive of Hill Pasture) ..	..	..	9,316,118	10,002,058
Total of Acreage under all kinds of Crops, Bare Fallow and Grass	3,556,563§	4,158,360	15,489,052	15,549,796

It will be seen that in both countries there is a considerable decrease in the quantity of grain crops grown, which is partly made up in Scotland by an increase of green crop cultivation, and in Ireland by an increased area under Clover and "artificial" Grasses. The Wheat crop has fallen almost one half, both in Scotland and Ireland, which betokens a very material alteration in the whole system of crop rotations in both countries — the Barley crop, nearly stationary in Scotland, has fallen 30 per cent. below the area of 1857 in Ireland, and even the Oat crop, which is the especial corn crop of Ireland, has fallen 300,000 on a former total of nearly 2,000,000 acres. In Scotland, however, it has slightly increased. Looking now to the green crops, the Scottish returns of the two years are almost identical; rather more Potatos and rather more Vetches are now grown, and hence the total under this head is raised from 646,000 to 663,000 acres. In Ireland, however, it has fallen from 1,600,000 to 1,480,000 acres, chiefly owing to the diminished area in Potatos and Turnips. This, however, is more than made up by the greatly increased area now as compared with nine years ago returned as "Clovers and Grasses under rotation," which stands at 1,369,000 acres in 1857, against 1,600,000 acres in 1866. In Scotland the area under this head is represented as having largely diminished during the same period. Whether this is to be received as the truth we do not know.

Turning now to England and Wales we find that the area under Wheat is now 3,274,000 acres, having formerly been estimated at 3,800,000; that of Barley is 2,013,000 against 2,667,000; Oats, 1,754,000 against 1,300,000; Beans and Peas, about 813,000 against 698,000; total corn crop 7,920,000 in 1866 against 8,476,000 in 1857. Here we have the largest reduction in the area under corn crops in that section of the United Kingdom whose climate is the best adapted for them. It is, however, extremely doubtful whether the returns of 1857 are a trustworthy datum for comparison. The green crop again stands as follows:—Potatos are 355,000 acres—they were 192,000 acres; Turnips are 1,660,000 acres, and they were 2,267,000 acres; Mangel Wurzels are 257,000 acres—they were 177,000 acres. The total green crops nine years ago were estimated to cover 3,070,000 acres; they are now returned at 2,890,000; and the Clovers, which stood at 2,820,000, now stand at 2,550,000 acres. The area returned as permanent pasture, both dry and irrigated, which stood at 10,166,000 acres, now stands at 10,255,000.

It must suffice for the present to add that bare fallow figures for 94,000 acres last year in Scotland, against only 18,000 in 1857; whereas there were 870,000 acres in England and Wales, against 895,000 acres in 1857. Of these last returns, however, we repeat that they were only estimates.

* 1857 was the last of the years for which the Returns for Scotland were obtained through the agency of the Highland Society.

† The Returns for Ireland have been obtained annually since the year 1847.

‡ Returned as Bare or Summer Fallow.

‖ The difference between the Acreage of "Clover and Grass under Rotation" in the two Returns may be partly occasioned by the Returns not having been made upon quite the same system. "Permanent Pasture" not having been ascertained in 1857, more land was probably returned as "Grass under Rotation" in that year than in 1866.

§ Exclusive of Permanent Pasture.

THE usual harvest of agricultural shows and their attendant dinners having been gathered in, we cannot do wrong at the beginning of a new year, if we attempt to ascertain the probable value of the crop, in order that for the future we may endeavour to improve its value. That the improvement of farming, as an art and science, should be the chief end to be aimed at by agricultural societies, all must admit, and it becomes a question whether holding a show of stock in the morning and dining together in the afternoon can of themselves produce this effect.

First, as regards shows, we find that bulk and fat, which are properly among the desiderata of "fat stock," are excessively encouraged in "store" and breeding animals also, for unless they are fed to such a pitch as must injure them as sires, and endanger their lives as mothers, they have but little chance of prizes. And 2ndly, in respect of the dinners, we find that although it is the ordinary rule to exclude political discussion from them, yet they are usually presided over and attended by county members of Parliament, who are certain to introduce political matters, and those not so often of the kind affecting agricultural polity, as on party politics and the relative chances of Conservatives or Liberals in the coming session. Seldom do we hear of any serious discussion of the great social questions involved in farming; and equally rare is it to hear the results of experience or inquiry into any of the details of farm management. A few references are made by the member to his discharge of the trust committed to him, in which his usual endeavour is not to pledge himself to anything for the future; and then others of the company follow with a series of complimentary toasts to one another.

The result both in the show-yard and at the dinner table, is not a sufficient return for the money and labour bestowed upon these numberless small societies and local meetings; and it must be confessed that the constantly decreasing attendance at them is an evidence that the farmer is beginning to feel this.

Still, we think that local societies ought to do a great deal of good to agricultural progress; and this not only by periodical meetings for hearing papers, lectures, and discussions of different farm subjects, and for the encouragement of breeders and rearers of farm stock, and manufacturers of farm machinery, by holding an annual show, but also by interesting the members in the important social questions involved in their pursuit. And there is no reason, but rather the contrary, why they should not endeavour to carry out their conclusions on these subjects by striving to secure the proper advocacy of them in the Legislature.

We do not refer here to party politics, but to agricultural polity; and in connection with the greater interest which subjects of this class are now exciting, without at present going into detail on the several points brought under our notice by Chambers of Agriculture, we may at any rate congratulate agriculturists upon the fact that in these Chambers of Agriculture we have just the agency by which existing agricultural societies need to be supplemented.

It is all very well to say, that whatever the burdens upon the farmers, they are borne ultimately by the land, and go to diminish the rent which under them can be paid. Even if this were so in its immediate effect, as perhaps in the long run it may be, yet the landlord belongs to a class which is amply represented in both Houses of Parliament, and can well take care of himself, whereas the tenant farmer until recently has had no representation at all.

It has been justly said that the English gentleman is called upon to administer law without being a lawyer, and to legislate for farmers without being an agriculturist. With regard to the first, the business is really done by a lawyer, and the landlord's estate agent is often a lawyer too; but as a rule, we complain that withal the farmer is not represented by either. His thoughts and feelings are seldom known, even to his landlord, and few solicitors can at all understand them. We conclude then that agricultural societies should aim at something higher than a mere annual show of fat beeves and an after-dinner self-glorifying speechification. They should unite in concert with a Central Society to advance the education, both professional and political, of their class, and to act in unison upon the great questions affecting their interests. Already one representative has been sent by Norfolk, and he has done good service. Let us be prepared, if need be, to introduce others of a like kind—let it no longer be said that so large an interest as that of the tenant farmers is the only one almost wholly unrepresented in Parliament.

—IN another column is a report of the first meeting of the Food Committee of the Society of Arts, who are about to institute inquiries into the whole subject of English food—its supply, distribution, preparation, and adequacy. It seems a pity that such a subject should have been allowed to escape the investigation of the Royal Agricultural Society, to whom it more properly belongs. It is perhaps another illustration, and yet one of the same order, of the better insight which belongs to an extra professional body of what the needs of any particular occupation or profession are, that the same Society are, we believe, about to offer a prize for the best method of artificial drying agricultural produce which shall diminish the risk or shorten the period of harvest work in the field. A season like that of 1866 has quickened the apprehension of the Society of Arts, though it does not seem to have quickened the perceptions of the Agricultural Society as to a possibility, which in our climate would often be very advantageous to the farmer if the process could be conducted cheaply. Probably, however, the differences in the two Societies arise principally from differences in the relationship of the members to the governing body. The one issues an annual volume and holds an annual meeting, and that has hitherto been nearly all that it has done. Members joining it with the object of contributing to these annual performances, or of sharing in them, as the case may be, confine themselves accordingly. The other Society has a weekly Journal, which is a constant reminder to its members of all the multifarious aims and objects in which the Council are continually engaged. And it is not to an active central authority or secretary alone, nor even chiefly, that its activity is due, but rather to that constant habit of interest, inquiry, and suggestion on the part of the members, who are thus

continually in communication with their leaders, so that the Council are being continually stimulated to fresh inquiries and further effort. There cannot be a doubt that the English Agricultural Society suffers very materially from the almost entire want of any of this felt relationship amongst its members. And we hope that Mr. S. SIDNEY's suggestion that an inquiry into our existing agricultural status be organised throughout the country may be adopted, if only for the purpose of ensuring a co-operation, which would be serviceable both to the Society and the members whom it would thus set usefully to work.

—— The weekly returns of the Cattle Plague for the last 13 weeks of 1866 are in most satisfactory contrast to those of the corresponding period of the previous year. The number of new places where attacks took place amounted to 11 in the week ending October 6, but since then it has varied from 2 to 6, and has been 2, 2, 3, and 3 in the successive weeks of December. The number of animals attacked has been as high as 30 in a week, and as low as 1; it was 14, 7, 6, and 9 in the December weeks. Of these, occasionally one, more frequently none, were allowed to die; they are slaughtered by order of the inspectors, and the column for "recoveries" is altogether vacant. There is, however, another column which is seriously filled—the number of *healthy* animals slaughtered to prevent the spread of the disease, has been 35, 11, 32, and no fewer than 118 during the last four weeks of the year. This is enough to remind us that we have a deadly enemy still lurking in the midst of us, and enough also, we hope, to show that the same vigilant system of superintendence which has hitherto been maintained is still needed.

LARGE CROPS OF WHEAT.

THE discussion about the peck of Wheat per acre, the laughter and disbelief about 7 quarters of White Wheat, or 8 quarters of Revett Wheat per imperial acre, present to my mind a painful sense of our national agricultural humiliation; because, if those sneers and laughter are honest and genuine, it proves that small crops are the order of the day, and that crops such as I have described are very uncommon and produced at very great cost. I also come to be convinced that great corn crops cannot be grown by the ordinary thick sowing, and that this thick sowing is a national calamity, owing to its injuring and diminishing the crops. I know and expect that this statement of my honest conviction will raise a fresh storm of doubt and disbelief, but I will nevertheless calmly give my reasons for coming to such a conclusion; and, first, when I recommend high farming, I am very frequently told "that it is all very well for root and green crops, but that it won't do for corn, for we get our crops laid prematurely, and the quality and quantity both injured if we farm so high." But it seems never to have occurred to such persons that the real cause of disaster in such cases is not too much manure, but too much seed. The roots of the thickly sown plants, when the rootlets attempt to extend and ramify, meet with opponents having the same requirements; a grand battle ensues as to which shall have the greatest number of soil granules, and, as in all other battles, the weaker perish, and the victors are either crippled or injured. There can be no more mistake about this than about an over-thick or unthinned plantation, or a crop of unhoed and unsingled Turnips. Liebig justly says that the greatest enemy to a Wheat plant is another Wheat plant, for the very obvious reason that they both require identical elements of food. Small heads and kernels and weak flabby straw are the natural consequences of this competition.

I never heard one of my own labourers say that I farmed too high for Wheat. Well, then, I assert confidently that one main cause of small grown crops is thick sowing, and that however rich your soil, you can rarely obtain a great crop with the usual quantities of seed sown. There are several awkward attempts at correcting this evil; first, by sowing late, and secondly, by "flagging" the Wheat at certain periods of its growth. A money-making high farmer (an old friend of mine) who grows 400 acres of Wheat annually, employs a whole gang of men in flagging all his Wheat, and very often all his Oats and Barley. This is done when the broad or flag leaf is well-grown in June, care being taken to avoid cutting into the sheath that contains the ear. He knows quite well that unless this were done the crop would be prematurely laid and greatly injured. By this flagging the stem is relieved of weight, and stands more erect, the air and light are thus admitted to the lower portion of the stem, the overhanging canopy of flags no longer shuts in the damp, and no longer prevents evaporation or causes mildew. All this is rendered unnecessary by a more moderate quantity of seed. Let it be well understood that I lay down no fixed rule of quantity, but merely commend my brother farmers to try on a small scale comparative quantities, so as to arrive at conclusions suitable to their very various soils and climates. Now, when a man sneers or gibes at one peck of seed per acre on heavy land, or even at my general quantity of one bushel per imperial acre, I know at once that he has never tried it, and therefore knows nothing about it, having had or seen no experimental facts on which to form his opinion, and, therefore, instead of being angry, I can only pity or regret the absence of a more sound mode of arriving at a just and safe conclusion. I plead guilty to being an agricultural disturber in this matter of thin sowing, and so long as I live and have my faculties I will continue to deprecate erroneous agricultural practice, with the sole and earnest view to benefit and elevate my country. But, eschewing motives, let us see what there is extraordinary in growing 7 quarters of White Wheat, and then from 6 to 8 quarters of Revett, on the same ground in two successive years, the land being poor stiff heavy land, and the season suitable to such land, namely, plenty of sunshine and not too much moisture, such as 1864 and 1865. "Oh! but then you take Wheat after Wheat, Mr. Mechi, which we dare not do."

Let there be no misunderstanding about this. I know that many who make this remark and farm high, take Barley after Wheat, and get it of better quality as well, under their system of thick sowing, than taking it immediately after Turnips fed off with cake. The land has less "branching" force after the removal of the Wheat crop.

Now, although I take two Wheat crops, the kinds differ almost as much as Wheat and Barley. I never attempt to take two glassy Wheat crops in succession. I know that they would fail, because the silica is not dissolved in time for a second glassy crop; but, as a second crop I take the pithy-strawed non-glassy Bearded Revett, which gives, on our stiff soil, a larger return than Barley.

But then I am convinced by practical experiment that I should be unable to obtain 7 or 8 quarters from 2 or 3 bushels of seed, although I frequently do so from 4 pecks or even from 1 peck. These conclusions have been arrived at by careful experiment. For several years I tried 1 bushel of Wheat per acre, against 2 bushels of Wheat per acre—both drilled. The difference in favour of the 1 bushel was equal to a rent of 30*s.* per acre. This settled the question so far as my heavy land was concerned, but every man must judge for himself, not by imagination, but by experiment. Whenever we hear of very great yields, it is generally from a very thin plant that was almost condemned to be ploughed up in the spring—a branching crop is almost always a good one; but thick-sown cannot branch—there is no room or power for this. As to manuring, I keep plenty of live stock, and so make much manure.

I use 2 cwt. of Peruvian guano, mixed with 1 to 2 cwt. of salt, as manure for Wheat after Beans, or roots drawn off, and also for Revett Wheat after White Wheat. So much does a warm, dry summer, benefit our heavy land, that in 1865 my 40 acres of heavy-land Wheat averaged 7 quarters per acre—not farmers' acres, but really and correctly measured acres. After a crop of Mangel I got 7 quarters, and after Beans, 7 to 5 bushels of Red Wheat, and after 7 quarters of White Wheat 8 quarters of Revett.

In conclusion, it must not be supposed that I recommend a general seeding or sowing of 1 peck an acre of Wheat; but the success during three years of such a quantity proves that a great reduction in the absurd quantities usually sown may safely take place. A bushel an acre on my heavy land is more than is required, and leaves an ample margin for slug or other damage. The peck an acre has, however, in my case, surpassed the bushel in yield of corn and straw two years out of three.

My object is to induce agriculturists to try reasonable comparative experiments, which as men of business they are bound to do, and not rely upon antiquated quantities only suited to a state of things either long since passed away, or gradually changing. Broadcast quantities are not suited to modern drill culture.

That there is need for great amendment is clear when I am even now frequently told, "We always put in 7 bushels of Oats, 4 of Barley, and 3 of Wheat." Take heed to local measures, for at Carlisle some farmers told me, to my surprise, that they only put in a bushel of Wheat, but I soon found that a Carlisle bushel is equal to 3 imperial bushels.

On very light land, where Wheat does not usually branch freely, more seed is required, especially where subject to wireworm and frost. In this case plenty of salt, some Rape-cake, and compression are more beneficial than too much seed. Salt not only removes wireworm, but protects the roots against frost.

I hope that another year, instead of silly sneers and mis-statements, I may receive a list of carefully conducted experiments from various districts and differing soils. On poor miserably farmed undrained small fields, shut in by immense weed-growing hedges, and robbed by the roots of worthless pollards, a good crop can scarcely be expected, be the quantity of seed large or small. Unfortunately I know of too much such land. My usual quantity of seed on the heavy land is 2 bushels of Oats, 6 pecks of Barley, 4 pecks of Wheat per imperial acre. *J. J. Mechi, Tiptree, Jan.* 1.

I take this opportunity of wishing many happy and prosperous years to my brother agriculturists. In our county Wheats promise particularly well, and the land is altogether in a more fit condition than at the same period last year. Let us therefore hope for a good crop and a fair price.

VILLAGE LECTURE.

[The following are extracts from a winter evening's lecture given in a village schoolroom 13 years ago. Subject, "An Atom."]

You will all readily admit that although an atom must be a very little object, it may be a very large subject. I believe, indeed, there is a sense in which it may be said with truth that the smaller, *i.e.*, the more limited, the topic, the more there is to be said about it—in which, therefore, a single sort or tribe of things may thus be said to be a larger subject than the class or order which includes many such tribes—the species a larger subject of discourse than the genus it belongs to, and the individual the largest of them all. And though this sounds like saying that after all the whole is smaller than its part, you will see the sense in which it is true, if you consider that while an individual possesses all the features which characterise the whole order, and which alone would come under review if that order were our subject, it also possesses features peculiar to itself. If I were to take matter generally as the subject of my lecture—a word which indicates as wide a subject as can be imagined, for it includes everything we see, or hear, or taste, or feel, or smell—I should after all be confined in my remarks to those properties which are common to all matter, namely extension (length, breadth, thickness,) which it possesses in common with empty space, and substance, impenetrability, by which it is distinguished from empty space. If I limited myself to one of the three kingdoms—the animal, vegetable, and mineral kingdoms—under which all matter is arranged, it is plain that then, besides the general properties possessed by all, I should have to describe the features distinguishing the one kingdom from the other two. Now, suppose I had selected the animal kingdom, it is clear that if I had confined myself, as it is called, to a single individual in that kingdom, I should have far more liberty of speech than if my subject were the whole of it; for, besides the general qualities which that individual possesses in common with all animals, besides those qualities which mark it out as belonging to any particular order, class, or tribe of animals, and to which my remarks must have been confined had that order, class, or genus been the subject of them, I should in addition have to describe the individual peculiarities characteristic of itself.

Well, then! it is just so that an atom is an extensive subject. Let a man but know one single atom perfectly, with all the tendencies and forces animating and controlling it—and just as another who should know all the capacities and tendencies of a single human being might out of them construct the full idea of Society, so he, pursuing all these forces to their natural results, would range at will through the whole circle of the sciences. He would have the key to all the secrets of astronomy, for they depend upon the law of gravitation, or attraction between atoms at a distance. He would have the key to all the phenomena of solids, liquids, gases—strength of material, friction, elasticity, and a hundred other subjects, for these depend upon the various attracting and repelling forces existing between atoms near to one another. He would have the key to all the phenomena of growth, decay, and change of form and substance apparent, whether in living bodies or in inorganic substances, for these depend upon the chemical affinities and forces resident in atoms. He would have the key to all the phenomena even of electricity, I suppose, and magnetism, for these depend upon mysterious forces which can be studied only in connection with the atoms which they influence. And though he should not solve the question—What is life? he would approach the answer nearer than any other man, for, knowing the behaviour of a living atom, and knowing all the forces which affect a dead one, he could discern with clearness, and separate, eliminate with accuracy all that was distinctly due to life alone. What can be larger than an atom, then? What less appropriate as the subject of a single lecture?

I propose to refer to the different forces by which material atoms are actuated and controlled, giving such illustrations of their nature as may occur to me, or as I may have read in books, and selecting those especially which seem more expressly to indicate the forethought and benevolent design to which the results of these forces everywhere bear witness. The arrangement of the subject which I shall adopt is suggested by a passage in a late number of the "British Quarterly Review," in which the writer, taking a general review of the sciences relating to matter, speaks of it as presenting successive steps, as it were, of increasing complexity as its student advances. Thus, first we have astronomy and mechanics, which concern themselves with matter merely, *i. e.*, as possessing properties without which we can hardly conceive matter to exist; then we have chemistry, concerning itself with affinities and forces of an entirely different order existing between material atoms; then we have electricity, in connection with which matter behaves itself so strangely that we are forced to suspect the existence of some separate spirit, as it were, independent of the matter which it actuates, and this spirit we call electricity. Lastly, we come into the region of vegetation and of animal existence, and the new spirit here we call vitality, or life.

An atom of matter, then, may be, and every atom of a living body is, actuated by these four different classes of forces. In the first class is the force of attraction between atoms at a distance; the force of gravitation, which not only connects the earth with all its outside pieces, but with all the members of the solar system, and in fact with matter everywhere throughout all space; then there is the force of cohesion, by which the strength of material is produced, by which solidity is conferred, and by the absence, partial or entire, of which the liquid and the gaseous or aëriform state are conferred; then we have a mutually repellant force existing between particles in contact, so that when forced nearer one another they rebound—the force to which all the phenomena of elasticity are due. In the second class of forces actuating atoms we include those which are illustrated in all the facts of chemistry—unions and combinations of atoms which cannot be explained by the attractions of cohesion and of gravitation. In the third class we place all those forces which result in the phenomena of electricity and magnetism—and in the fourth is placed the unknown and mysterious force we call vitality, or life.

Of course I can do little more than merely glance at the general outline of the subject, but this will not prove a mere loss of time—even the professed student of such subjects, like the builder of a mansion, likes to have that general idea of the proportion and relations of the several parts which is afforded by the outline, plan, or elevation of the whole, notwithstanding that this general plan may be of little practical service to either in the work on which they are severally engaged.

[Then followed remarks upon the forces of attraction and affinity, with illustrations drawn from the sciences of astronomy, mechanics, and chemistry.]

LIFE.—I pass now from this short notice of the chemical forces resident in atoms, and omitting all reference to the electric forces and their extraordinary results, both in Nature and in Art, we come to the last division of our subject, and I have now to ask you for a very short time to take a look at the force which influences atoms when they are alive—the force we call vitality, or life. Every one admits almost instinctively that it is separate and distinct from all the other forces I have named; and thus, though proofs and illustrations of the subject could be easily selected, no one needs them. The idea, however, of it as a force resident in every little cell, every atom so to speak, of the living body, may not perhaps be so readily admitted. The popular idea of life is, I think, that of an active spirit occupying the otherwise inert body—a mysterious self-conscious individual being, as it were, occupying that outward tenement of which our senses take account. We all know that this is a true idea in the case of man, and probably we all believe it in a certain sense of other animals as well. I suppose, however, none of us extend it into the region of vegetable life. There, at all events, there is not this undividable oneness of the living principle; for we can cut a slip from off the plant, and it will grow and become itself a plant, and capable of producing others in a similar way. And this is also true of certain of the lower sorts of animals as well. Here, then, there is not that individuality of life, of this force or being of life, which we are accustomed to think of in a living being. The principle here seems to exist throughout the whole, animating every part, and even every particle. And I believe that these are not exceptions to a general rule the other way; they must be taken as illustrations of a general truth existing even in the life of man, so that besides the soul of man there is a mortal life as well in which every portion of the body shares—a life, by the way, which by no means corresponds in duration with that of the being upon earth—a vitality by the agency of which, as well as by its chemical and mechanical tendencies, the behaviour of every atom of the living body is enforced.

The little blood discs which, distributed throughout a colourless fluid, give its colour to the blood, are each of them alive. Their independent life is indeed not separable for any length of time from that of the individual body in whose veins they flow—but that it is independent, that it is separable, admits of proof, and you may believe it from the fact, of which you have heard, that this living blood has been separated from one man's life and given to another's; for there have been instances, you know, where the life blood of a healthy man has been poured into the veins of the exhausted body of an invalid. Though, therefore, we may not know at what point in the history of the inert food that is swallowed its atoms acquire this new and independent force of life, yet that they do so acquire it is a thing both demonstrable and credible. They no longer pursue the same course as they hitherto had done. Their own vitality, as well, I suppose, as the conscious life of the animal they sustain, now guides them differently. This new force both intensifies and modifies the other forces they possess. Take even the most material of them all, the attraction of cohesion—the weight which a living arm sustains would, were the body dead, pull it from its socket. Take also the chemical forces of these atoms—not only are the ordinary chemical affinities altered, but new sensitiveness is exhibited; a thousand finer and more delicate affinities are awakened, new compounds are formed; atoms join to atoms in a manner which, did life depart, they would not tolerate an hour. In the living tree the carbonic acid of the air is absorbed, and the sunshine and the vital force together cause its component parts to fly asunder, the carbon is retained and built up in the tree, and the healthful oxygen is sent back to purify the air. It is not the sunshine only that is active here—it is not the ordinary chemical affinities that are here in exercise. Let life but go, and the sun shall shine in vain, and the ordinary chemical affinities of the carbon and oxygen induce their union, not their separation, and the leaf when dead will wither and become resolved again into the water and carbonic acid gas which originally it was.

This vital force then, though it can do nothing except by means of the mechanical and chemical forces, is a thing apart from them. No doubt heat and moisture and chemical affinity, as well as life, are needed for the maintenance of the living body, but let the life once go and these very powers will then accelerate its decay: the very forces which life had enlisted in favour of the living body destroy the building they had raised. Hear Sir Edward Bulwer:—"Nearly 17 centuries," he says, "had rolled away when the city of Pompeii was disinterred from its silent tomb, all vivid with undimmed hues. Its walls" (which, remember, had stood in their original strength and beauty in virtue mainly of the mechanical and chemical forces resident in their atoms) "are fresh as if painted yesterday. Not a line has faded from the rich mosaic of its floors. In its forum are the half-finished columns as left by the workmen's hand; in its gardens the sacrificial tripod; in its halls the furniture and lamps." Mind! none of these had ever lived—the forces which alone had ever actuated their atoms had remained unshaken by the catastrophe, and had continued to preserve them. But what of the beings which had lived? What of the forms built up, not by chemistry alone, but by the force of life? Some of them indeed were moulded still upon the soon hardening mud and dirt in which that day enveloped them—but the vital force to which, and not mere chemistry, those forms were due, was that day stifled, and so it is that amid the crowd of still perfect objects of merely inert matter which still remain—only the bones and the skeletons of a few of those are found, "who once moved the springs of all that gorgeous machinery of luxury and life." Yes, life is a separate force from chemical affinity or any other of the forces we have named. The result of them alone remains unspoiled for centuries, for they too remain for centuries unaltered to preserve it. But the results of life pass away from our view with the force which had created them. This is the uniform experience, and so the universally expected thing—and so I think we wonder less even at the Pyramids themselves, than at those half-disintegrated tresses of a woman's hair, plaited with such elegant and patient skill, which though brought to the British Museum from some Egyptian tomb, where they had lain for 30 centuries, still here and there retain the lustre of the day which saw their burial. And so I think we wonder less at the fresh-cut characters upon the stony slabs lately disinterred by Mr. Layard, than at that incident he relates—the odour which he tells us he recognised one day from the fire of Cedar fragments gathered from the ruins—ancient wood that still retained the aroma as fresh as though it had been felled but yesterday, which was built up within the living tree 3000 years before. This wonder is an instinctive testimony to the entire separateness and distinctness of the vital force from all the other attributes of matter, and of this it is well to have a well founded, firm conviction as well as a mere instinctive impression—for there are those who would have us believe that it is by the original and inherent powers resident in atoms from the beginning that they have developed, grown up of themselves into all the forms of matter which we see around us—that they have developed, grown up uncared for, into living beings, even into man. Now, though this idea may be far enough from being atheistic, it is, as Hugh Miller has well illustrated, subversive of beliefs of as great importance to us as even that in the existence of a God—it is subversive of a belief in our own immortality, for we are thereby placed in the same class and category with all other animals, and even with dead matter itself. How rigid therefore and anxious an examination such a theory demands before it is accepted I need not say—and this it has received.

It has been carefully examined in all its different aspects by those, I need not say, most able to do it justice, and however plausible it be, the facts of Nature are against it. It is overthrown by the distinct steps, not the gradual development observable in what geology tells us of the beings which possessed the earth before the creation of man. And I think you will admit that the entire distinctness of the vital principle is a conclusive proof that it too could not have grown out of any of the other attributes of matter. The force of life acts, no doubt, consistently with all the other forces previously resident in atoms, but it is entirely separate and distinct from them. Inorganic chemistry—the chemistry of dead matter—cannot even make one of the products of a living body? No man, I believe, with all the appliances of the most skilful chemistry at command, ever yet has made of merely inorganic matter a lump of sugar or a piece of starch—all that he can do is to extract these things from where a living chemistry has placed them. Much less then can an undirected chemistry create a living body. Its powers cannot make a living body; they cannot even preserve it. It is not the force of cohesion merely that holds these limbs together—it is not the chemical forces which nourish and maintain them. Let life but leave the body, and as I have already said, they would destroy it; let life depart, and the very same forces which under its control had built the body up in strength and beauty, would conspire for its destruction, and the very atoms which they had collected from air, and earth, and plant, and united in harmonious discipline, are like a host without its head, disorganised and useless, which will scatter each to the place from which it came.

Let us not imagine then, that life can come of electricity, or chemistry, or any so-called natural force. Instinct will sometimes speak out plainly on a point like this when Reason—just because she is not asked—continues silent. The African traveller, we know, had traversed continents and seas of merely inert matter. He had passed through air, and over earth and ocean all at rest. He had also felt the hurricane and the storm at sea—had seen the rolling waters of the river Niger and the moving columns of the desert sand—every atom, whether moving or at rest, was to the ear of reason telling him of God; and yet, helpless and despairing amidst all, he was about to lay him down and die, but the sight of the little plant of Moss, its tiny life amid the overwhelming desert where it grew—no natural development be sure of the material forces acting thereon—spoke to his heart when all the rest had failed, and trusting in that Providence which had cared for it, his hopes and energies returned.

Let us not imagine then that life can come of electricity or chemistry or any so called natural force; it is no mere form of words, it is no mere intimation of our ignorance to say it comes direct from God. We know what want of care and supervision, even such as we can exercise, results in—it results in explosions and collisions, in accident and death—that is the direction in which matter naturally develops—and yet this carelessness is the very source out of which these dreamers fancy that this world of order, beauty, harmony, and life has risen. Let us imagine, if we will, that atoms of water and of iron did of themselves, and of the forces which we know reside within them, ever grow up uncared-for into the full-grown complicated locomotive engine, even though we know that being still uncared-for these same forces must very soon result in its explosion and destruction—but we cannot believe that by any process merely of development, by however many steps, this world could ever have become the scene of the altogether new force, Life. We cannot believe that by any process merely of development, through whatever ages, by whatever insensible gradations, man could ever have arisen, as its master, had not the Lord God formed him of the dust of the ground and breathed into his nostrils the breath of life.

I have tried then to give a few of those details which go to make up the natural history of an atom. We have seen how each of the myriads of which this world is built has had conferred upon it properties adapting it for the task it has to do—how the forces of cohesion and gravitation confer stability, while the force of repulsion between particles enables motion, and so enables life. We have seen how the various qualities and appearances of things are due to the varying chemical forces with which matter is endowed, and how all together have been guided and constructed so as to make this earth a fitting scene for the existence of the new force, life. It may be interesting to notice, in conclusion, as indeed was intimated in the extract from the "British Quarterly Review," which I referred to in the commencement, how with every fresh endowment matter increases in its power to impress the mind, rising its status, as it were, until from the merest inert presence it becomes able to excite our wonder, admiration, even sympathy. Suppose it in possession only of the ordinary material forces—that is, of the attractive forces of gravitation and cohesion, and the repellent power existing among its particles, and all in the uniform unalterable degree in which, were matter only of one kind, we might expect to find them; still this world might have been perfect astronomically—it would have revolved with perfect regularity in its orbit, and to the inhabitants of another world it might have shown as bright and beautiful a star as it does at present; but to an eye upon its surface it would not be recognisable. It would be a uniformly hardened, level, blank, and desert plain, and in spite of sun and stars, without a daylight and without a sky. But add the varying chemical forces to its atoms, so that they shall arrange themselves according to the various qualities they would then possess; we should have differences in hardness, form, and colour manifesting themselves; we should have an atmosphere, an ocean, and an earth; we should have in time the hardened mountain ridge and the soft alluvial plain, the river and the lake; we should have the air with its daylight and its azure sky, its glories of the sunset and the sunrise, its rainbow, clouds, and winds, and rain, and hail, and snow; add electricity, and among the more obvious of its manifestations, we then should have the grandeur of the thunder storm and lightning flash, and the calmer beauties of the aurora of the North. As yet, however, all is desert. There are already frigid, temperate, and torrid zones around the earth, but all are barren equally. Circumstances would be as various then as now—there would be glaciers here and rivers there—icebergs in the North, and warm and sunny islands in the South; alluvial deltas forming at the mouths of rivers, and soil disintegrating everywhere upon the surface of the rock, and over all would fall the dews and fertilising showers of heaven. But in spite of all no life appears—all is dead, and would continue so. The forces acting hitherto could not produce a living being. But the new force, life, appears at length at the command of its Creator, and immediately the framework of the world puts on its many-coloured coat of forest, field, and flower. Fields standing dressed in living green, were there but a higher kind of life, were there but an *eye*, would gladden it. Well, this higher kind of life is now created, and the air is filled with song, and earth becomes a scene to gladden every sense. And were there but intelligence in any of the living beings on its surface, it *would* live—

> Live in a *new* apocalypse of sense,
> With beauty and with music waving in the trees,
> And running in the rivers to make glad
> The soul!

There *is* intelligence—there is a *capability* of intelligence, and when it shall have become intelligence will it, think you, prate about the natural though wonderful growth and development of those original and inherent powers of material atoms resident in them from the beginning, which have at length grown up—resulted in—*itself?* Will it not exclaim of all these things, "Let them praise the name of the Lord, for he commanded, and they were created. Ye dragons and all deeps; fire, and hail, and snow, and vapour—stormy wind fulfilling his word—mountains and all hills—fruitful trees and all cedars—beasts and all cattle—creeping things and flying fowl—*Ye* kings of the earth:—praise ye the name of the Lord." It is His glory that is above the earth. *J. C. M.*

IRISH AGRICULTURE.

[The following is the conclusion of a paper by Mr. Davidson, recently read before the Ballymahon Farmers' Club.]

1. Of the farmer who holds light, poor tillage soils. The general way such soils are managed in this country is to let them lie in Grass, and for this they are not adapted; it is very difficult to fatten cattle, even with the aid of Turnips, on such a soil, as the Turnips are not of the same value, even should the crop be a large one. The quality of Turnips is often overlooked when discussing stall-feeding or sheep-folding, and the same rule holds good with all produce grown on this class of land. In comparison with that grown on good soils, the same quantity of bone, muscle, or wool can never be produced in stock fed on light soil, no matter how fed. The system of feeding suited to the farmer is storing all his stock and producing spring heifers, and selling to graziers and dairy farmers. The cows suitable for this purpose are a good class of Irish cows, crossed with a Short-horn bull. There is no use in getting large stock on such land, as they would soon get small; the calves should be reared as described before, but no artificial food is necessary for store feeding—Turnips, Straw, Vetches, and young Grass should be their feeding, as old Grass is of no value on this soil. The bullocks should be sold at two years old to the graziers, and the springing heifers at three years old, to the dairy farmers, and they will pay nearly as well as if they had been stall-fed. But only a small stock of cattle should be kept, as this land is more adapted for sheep folding. Pigs may be kept profitably on such a farm, though they are animals which require systematic management to get full value from them. There is also great difference of opinion as to the best way of managing pigs. Some years since I heard a very sharp discussion going on between two very clever stock feeders about the way pigs should be fed, one advocating the high feeding system and the other the cheap, green feeding system. Not having much experience at the time myself, I did not venture to express my ideas on the subject; but I resolved to settle the question to the satisfaction of myself, and to get a knowledge of how to feed pigs in future. I therefore put a large white Yorkshire sow to breed at the 1st of November, and kept an account of all she cost till the pigs were 10 weeks old. They then stood me in 15*s.* each; she reared 10 pigs, from which I selected four of equal value, and put two of them on the high feeding system, and the other two on the green feeding system. The former got as much Oat, Pea, and Bean meal stirabout, with sweet milk, as they would take; and when I killed them at six months old I found that I had put on 1 lb. of pork for every day they were old, or nearly so; and according to market value they were then worth 3*l.* 16*s.* 8*d.*, having up to that time cost me (valuing everything they ate at market price) 5*l.* 10*s.* 6*d.* each. This convinced me of the fallacy of feeding pigs entirely on good marketable produce. The other two got cut Vetches and pulped Mangels, with half a pound of bruised Oats per day, mixed with water, as a drink. When the Potato-digging time came on I gave them some damaged ones, and increased the meal to 1 lb. per day. I cooked none for them—the Potatos and some Turnips were pulped up together and the meal added. I killed them when nine months old, and they were then worth £2 14*s.*, and after deducting the value of the corn and Potatos, I found that they paid me at the rate of £15 per acre for the Vetches, and 15*s.* per ton for the Mangels, and that is a fine price for such crops consumed at home. Ever since this has been my system of feeding pigs. When the Vetches begin to pod, and the corn that should be sown amongst them ripens, the pigs flourish on them, and all weeds gathered about, and also bog stuff, should be put under them, all of which they will convert into valuable manure.

2. Next we have, or rather should have, the hill feeder, or the farmer who holds mountain pasture. This class of feeding is much neglected: it is not so in Scotland, where the hill farmers are amongst the wealthiest agriculturists in the country, producing their thousands of West Highland cattle and mountain sheep, with crosses to supply the Turnip feeding farmers. There are many hills in this country that would produce lots of good stock if they were improved and properly managed; the improvement of such land is not so difficult as many people think, the burning of the heath, surface drainage, and liming being the necessary steps to take towards their improvement, and lime is generally cheap and can be easily put on by means of asses and creels, which are also plentiful enough, and by breaking up the more level parts of the hills and sowing Rape, and feeding off by sheep, many thousands of acres along the sloping sides of hills could be made excellent sheep walks, even far up on the mountain sides. If proof of this is wanted, it is to be had at Jerpoint Hill, Co. Kilkenny, where Mr. Franks, by perseverance and skill, has made a splendid sheep farm of what was formerly a mountain, covered with whins and stones. Now it is all formed into large parks, and fenced by well-built stone-walls, and stocked with a flock of sheep that are a credit to the county they belong to. Another proof is to be found in the hills near Mountrath, which have been improved by Mr. Stewart Trench, a gentleman who has done much to improve the agriculture of Ireland, by setting a good example himself, and showing what can be done, even with a heath-clad hill; nor have the owners of hill land to go far to look for stock for improved hills, as no better class of cattle for the purpose than the Kerry could be had; and when crossed with the Short-horn bull, the stock would be excellent. The calves should be allowed to suckle their dam, and when weaned at November there should be a portion of the best of the hill kept for them, and some hay got to winter them, afterwards they would do well on the hill till three years old, when they would be readily purchased by the graziers on second-class land. Hill farmers would have to go to Scotland to get a class of sheep to stock with, as the mountain sheep in this country are only the large breed of the country degenerated by bad keep, not suitable to them; not like the symmetrical Cheviot and stately black-face bred for the purpose in Scotland. There is more risk and loss to be sustained by the hill than the lowland farmer; but in Scotland the loss of a few hundred sheep every winter amongst a hill stock is not considered much, nor should it frighten hill owners from embarking largely in hill feeding here. I will only make a few remarks on the sixth class of feeders, or small farmers under 10 acres. The stock of these farmers are often badly managed, the Grass about the ditches and often the public roads being their principal support through the winter; they never think of providing a supply of feeding for their stock nor for themselves, but spend their time betwixt the bed and the fire during the winter months; and if they do stir out, it is to the market or court-house to learn law they go, of which many of them know more about than feeding a cow. He would be a brainless fellow who could not make every day's labour on his little farm worth 3*s.*

per day to himself. The class of feeding adapted to him is the production of butter and pork. The cows kept should be a good half-bred Kerry, and his landlord should have a good Short-horn bull at his service, for which he should be charged nothing. The calves should be kept till six months old, then be sold to the large tillage farmer to rear and fatten. A breeding sow should be kept, and the pigs reared and fattened, which he can do more economically than a large farmer. He should produce yearly his plot of Cabbage, Potatos, and Turnips to feed his stock, &c., also some grain for himself; and all should be done through his own labour.

I have dwelt so much on the different systems that should be carried out because of the great loss the country sustains by farmers not suiting their system to the land they farm, and the stock to their system. Nothing proves the talent of an agriculturist so much as the proper selection of a system and stock suitable to his climate and his markets. And the ruinous system of laying all land under pasture has destroyed what ought to be, and will yet be, one of the finest countries of the nation. Her sons have been hunted from her shores to look for the labour she required; and where are the recruits to be got now to defend the British flag? It is the fault of the proprietors that they are gone. The Government offers landowners money at a very cheap rate to improve their estates — to give labour and enrich themselves. Another reason why tillage is so much done away with is the high price of labour, which is 20 per cent. dearer in Ireland than in Scotland; but that is improving every year by the use of machines and the education of young labourers. If we could get a spirit of independence amongst the men, instead of the sneaking, unprincipled, and untruthful habits that prevail amongst them, we would improve them much; but the country will never be right nor flourish until the government taxes all unimproved lands at the rate of 1*l.* per acre, after first sending a practical judge to see that such lands can be improved, and offering the proprietor money to do so, if he has it not himself. There is nothing will drive off laziness so soon as putting a tax on it; but they are too careless both of their own interests and of those who have been placed under them to enter on the task of improving their estates. They are the first to give up tillage and all improvements, and throw their demesnes into Grass; no wonder, then, their tenants follow their example, and tell the labourers if the gentlemen do not give employment, how can they be expected to do so? The reason gentlemen give for doing so is that the tillage would not pay — how could it pay when it is not properly managed? Some 15 years since, and even later than that, if a steward who had learned his business thoroughly in Scotland applied to a gentleman for a vacant situation, and asked a respectable salary, he would not be looked at unless he would take £40 or £50 a year for his services. How can a first-rate business man be expected to work for this salary? There are many men who would engage to manage property, buy, sell, and perform the duties of a land steward, who knew nothing about them, to whom £30 or £40 a-year was a godsend; and I am sorry to say that many clever agriculturists, who understood their business well and had good characters, were obliged to take nearly as low terms or turn to other business; but I am glad to see that gentlemen are now giving the man of character and ability better wages, which will bring better men into the field—men who know how to employ money to advantage, instead of boasting of how much they have laid out.

FOOD.

[A Committee presided over by the Right Hon. Henry Austin Bruce, M.P., has accepted from the Society of Arts a commission to inquire into various topics connected with the Food of the Country. The following address by Mr. Harry Chester on the occasion of the first meeting of this Committee, defines the purposes for which it has been constituted.]

THE subject of the food of the people had for some time past occupied the attention of the Council of the Society, and the circumstances of the present day made it more than usually expedient to take some more definite action upon it. They were all aware that the Privy Council and other public authorities had published statements showing that the people of this country were insufficiently fed; that there was a great want of sufficiently nutritive food. This was not merely a question of humanity and charity; it was a very grave national question, vitally affecting "arts, manufactures, and commerce," and the very sources of national strength. The first thing was to see clearly in what directions this committee could usefully act, and what it must necessarily avoid. Nothing must be done to interfere in any way with the operation of the laws of political economy, nor with the natural action of trade; but the Society of Arts might in this as in other matters do good service by ventilating the subject, by collecting and distributing information, by repeatedly calling attention to the principal needs and the best suggestions for supplying them, by offering medals and premiums for various inventions of improved processes, and generally by bringing the resources of science to bear on the wants and difficulties of those branches of arts, manufactures, and commerce, which are concerned in the production, importation, preservation, and preparation of articles suitable for food. His hope that this was a subject with which the Society of Arts might usefully deal had been greatly encouraged by the cordial manner in which those noblemen and gentlemen who had been invited to serve on the Committee had responded to the invitation. The most lively interest had been expressed; and the two or three who had declined to serve had given sufficient reasons for so doing. The Committee had been promised a great deal of very valuable assistance by many distinguished members of the medical profession. The subjects of inquiry might be said to be of almost unlimited extent, and it was desirable to indicate at the outset a few great divisions of the subject on which it might be most useful at first to enter. It would not be well to enter upon such branches of the subject as were calculated to excite popular prejudices, such, for example, as the introduction of horse-flesh as an article of food for the lower classes. The Committee were aware that this was a subject of great interest just now at Paris. It might or might not hereafter become popular in this country, but at present the mere mention of it would tend to excite an uncontrollable prejudice against the Committee. There were four great subjects with which he thought the Committee might advantageously begin to deal:—Meat, fish, milk, cooking. The first great principle, he had almost said, of Christianity as well as of political economy appeared to be that all the world should be kin, that each part of the world should contribute to supply the wants of the rest. The home supply of meat for the population of these islands was not nearly sufficient for the due sustenance of one-half of the population. The supply of live cattle from foreign parts could never be equal to the want. Fresh meat in the natural condition could only be procured from foreign countries to a limited extent, that is, from neighbouring countries, and in favourable weather. On the other hand, millions of tons of beef and mutton were wasting in distant quarters of the earth; and science was required to devise means for so dealing with that beef and mutton that commercial enterprise might be enabled to bring it to this country in a condition suitable for food. This was an object of enormous importance. It had long occupied the attention of the Society of Arts. In 1853, when delivering the centenary address, as Chairman of the Council, he (Mr. Chester) had alluded to it, and asked why Australia should export only the wool and tallow of the sheep, and not the mutton itself to the hungry masses in this country. Of late years, no session had passed without the Society's taking some measures to call public attention to this subject. Almost every patented and other invention for preserving meat had been described, and many of them had been exhibited in the Society's great room. In 1863 the Society had offered a medal and a prize of 70*l.*, provided by the liberality of Sir W. C. Trevelyan, a member of the Society.* Various claims had been submitted to the Council, but no award had hitherto been made; and he understood that the Council would be glad of the assistance of this Committee in making the award. To this important point, then, their attention would be turned at once. They saw daily advertised not fewer than three different kinds of *extractum carnis*, all claiming to be Liebig's *extractum*. He believed that there was not much doubt as to which of the three was the genuine article; but the Committee might cause them all to be analysed, and might give the results to the public. So much attention had lately been given to the importance of preserving and increasing the supplies of fish, that he need merely to indicate that subject as one which would abundantly reward inquiry. Mr. Ewart, and other members of the Committee who flourished in the ante-railway period, must remember the immense vans, with high wheels, that used to bring fish daily to London from the Kentish and Suffolk ports. They were thought to travel at a wonderful rate, and they were called into existence by the Society of Arts, which had offered medals and prizes, and otherwise excited a spirit of enterprise, "for the better supplying of the metropolis with fish." The better supply of milk was a vital question. He did not now allude to that fearful source of mortality among the infant poor, the deficiency of breast milk. He alluded to the fact that, as a general rule, the working classes of this country, even in dairy districts —and perhaps more there than elsewhere—were unable to procure the milk diet which was necessary to the growth of healthy bodies. In some districts there was an absolute insufficiency of milk; in others there was an abundance of it, but it was turned into butter and cheese, and the poor could get none to drink. He believed that the Ladies' Sanitary Association had published some useful suggestions for dealing with the latter case; and, if so, the Society of Arts might with advantage give additional publicity to those suggestions. There was plenty of kind feeling in England, but people did not always know "how to do it." It had struck him as somewhat unfortunate that, while the supply of milk, as milk, was insufficient for the wants of the people of England, such large quantities of English milk should be converted into cheese. Cheese, of course, was a valuable article of food, very nutritious to those who could digest it, but cheese might be brought from a distance, while milk could only be consumed, as milk, within a very limited area. Mr. J. C. Morton, in his paper on "London Milk," last session,† had stated that the quantity of milk consumed by the three millions of London people was less than half the amount that, according to a good standard of food, they ought to consume; also that this was true of a very wide extent of agricultural populations; that the transit of milk by railway was injurious to it; and that consequently country-raised milk was worth less per gallon in London than London-raised milk. He gave a table showing the milk-consuming rate of various populations, and it appeared that in Devonshire the quantity of milk consumed was considerably greater per head than in any other English county. Could this superiority be a result of the common Devonshire practice of preserving the milk by clotting it? He thought that the Society of Arts might usefully press on the railway companies and milk producers the great importance of improving the present very unsuitable milk vans in which that delicate and valuable commodity was now savagely transmitted to the metropolis. He thought also that the Society of Arts might offer its medal and a valuable premium for the best method of preserving milk, so that it might be sent from greater distances than at present. Much milk which was now necessarily converted into cheese, because it could not be kept from spoiling as milk, might then be more beneficially and profitably consumed as milk. Mr. Foster had told him of a French invention for the preservation of milk; and said that he had tasted some milk thus preserved for three years, which was perfectly sweet, and could not be distinguished from fresh milk. The Committee would do well to acquaint itself with that invention; and, if it were open to any serious objection, the Society might do good service by offering a medal and a valuable prize for a better method of preserving milk. He knew that, after all, the commercial principle, the hope of gain, was the best stimulus to invention: but all experience showed, the experience of the Society of Arts proved to demonstration, that these offers of medals and prizes had useful effects. To this day the medals granted at the Exhibition of 1851 were paraded in advertisements of all sorts of articles that were offered for sale; and this was done not merely by petty chapmen of no reputation, but by tradesmen and manufacturers of world-wide eminence. An article *medalled* by the Society of Arts was sure to command a market. On the subject of cooking he would not say many words. The Committee well knew how deplorable was the cooking among the lower, indeed among all but the highest, classes in this country. A valuable paper* had been read and well discussed before the Society of Arts, on the admirable system of "Cooking Depots" introduced at Glasgow by Mr. Corbett. That was one of the greatest boons that had been conferred on the working classes. The same system had been introduced successfully at Manchester. An attempt had been made in London, but unhappily without success. He believed that it had failed, so far as it had failed, from no inevitable causes, from no local peculiarities. There seemed to be no reason why the same system should not be carried out, on a very extended scale, in London as elsewhere; and the Committee might do a good work in collecting and collating experience on the subject, and in calling attention to it, until a second Mr. Corbett should arise with wisdom and energy enough to acclimatise the Glasgow product in the metropolis. The Committee might also represent to the Committee of Council on Education the great importance of providing instruction in cooking for the poorer classes. This surely was a subject well worthy of the notice of her Majesty's Inspectors of Schools. This was a matter which the Society of Arts had long regarded as important. In the Society's great scheme of educational examinations, designed to encourage the education of adults among the working classes of both sexes, domestic economy held a prominent place. In that subject the Dean of Hereford was examiner. In his outline of the examination for 1867 were included "the nutritious properties of food, animal and vegetable; modes of cooking, &c.;" and a benevolent member of the Council, Mr. T. Twining, had taken measures to supply a systematic course of lectures to the working classes in different parts of London. Having particularised these four great subjects of meat, fish, milk, and cooking, he would not longer detain the Committee, though he was aware that there was an almost infinite number of other useful subjects which might be specified. There were, for example, the great cereal class, vegetables of various kinds, as well as fruits, little known, but capable of being much used in this country; and that scandal of civilisation, the adulteration of food.

The following gentlemen were appointed a Sub-Committee to collect information and materials, and generally to prepare for the transaction of the business of the Committee when it shall meet in February, viz., the Rt. Hon. Hy. Austin Bruce, M.P., Chairman of the Committee; Mr. Childers, M.P., and Mr. Shaw, Vice-Chairmen; Professor Bentley, Mr. Harry Chester, Mr. Michael, Mr. Consul Parish, and Mr. Edward Wilson.

Abridged from the Journal of the Society of Arts.

* The terms of the offer are as follows:—"The sum of 70*l.* placed at the disposal of the Council by Sir W. C. Trevelyan, Bart., with the Society's medal, is offered for the discovery of a process for preserving fresh meat better than by any method hitherto employed, applicable to the preservation of meat in countries where it is now almost valueless, so as to render it an article of commerce and available for stores on ship board. Specimens, with detailed accounts of the process employed, must be sent to the Society."

† "Journal of the Society of Arts," vol. xiv., p. 65.

POTATO CULTURE.

THE ADVANTAGES OF PLANTING EARLY WHOLE POTATOS.—About 24 years ago I planted several rows of the same variety of Potatos, some with small cuts, some with large cuts, and others with small, large, and whole Potatos. When dug, it was ascertained that the largest whole sets yielded the weightiest crop, and the small cut sets the lightest. Since that time I have been in favour of planting large whole Potatos, notwithstanding the large proportion of unsaleable Potatos generally produced by planting them. Perhaps this is one of the reasons that cut sets are generally resorted to by the great majority of farmers and others. With the view of improving the quality and increasing the quantity of those raised from large whole sets, about seven years ago I caused all the stems except the best one to be pulled from each of the sets while the Potatos were being hoed, and in this I succeeded far beyond my expectations. From a series of trials I have found that it is most unwise and unprofitable to plant cut Potatos of any kind, and more especially those of the early sorts, which are frequently disbudded twice, and sometimes thrice before being planted, consequently the sets

* "Journal of the Society of Arts," vol. xi., p. 199.

are so much drained and weakened by the cutting and disbudding that many of them perish from exhaustion or dry rot, and those that grow are generally weak and unproductive. Besides, cut Potatos, although not destroyed by disbudding, are frequently damaged with dry rot, when planted in drills that have been much exposed to the sun, owing to the sap of the Potatos being absorbed by the dry material in which they are planted; hence, the propriety of planting whole Potatos to avoid the risk of being so damaged. Early Potatos would be much more productive than they usually are if proper means were taken to prevent them from sprouting before they are planted. This may be accomplished by storing them in cold cellars, or in dry ground sufficiently deep to exclude the heat of the sun from them, or in an out-house, where they must be frequently turned to prevent them from sprouting.

I have long been impressed with the idea that good results would follow from autumn planting, especially of early Potatos in dry ground, where the tubers would remain fresh and without budding until the soil becomes more or less heated. If they are planted 5 or 6 inches deep they will not be injured by frost, although they should be frozen, the frost would leave the Potatos undamaged at the same time that it leaves the ground, provided that they are excluded from the sun and air. They will, however, not be so early as those of the same variety taken carefully from a pit or other Potato store, with sprouts on them, and planted about the beginning of April. Some persons may doubt this, but they have only to make one fair trial to be convinced of the truth of this assertion.

On the 20th April of this year, I resolved to ascertain by a fair trial the difference of planting cut sets to those of whole sets. The Potatos used in the trial were Smith's Earliest, which had been left in the ground during the winter, having been missed by the digger, consequently they were fresh and in good condition, from which I selected 72 sets, 24 of them being cut sets weighing 1½ lb., 24 small whole sets weighing 2 lb., and 24 large whole sets weighing 5 lb. The whole were planted at the same time, and on the same ground, and grown with the same quantity and strength of liquid manure. The cut sets were planted in two drills, 10 feet long by two wide, and 10 inches apart. The small whole and large sets were planted respectively in two drills adjoining each other, of the same dimensions in every respect as those referred to; and, of course, the large whole sets, as well as the small whole sets, were set only 10 inches apart, the same distance as the cuts. It will thus be observed that 24 of either of the sets only occupied 40 square feet of ground. During the time of hoeing all the shaws were pulled away from each of the whole sets, except one, and that one had ample room to grow; indeed, I am convinced that if they had been planted two or three inches wider the crop would not have been so good either in quality or quantity.

There is little or no danger of damaging the crop in the removal of the superfluous shaws, and the cost will not exceed in any district of this country 6*s.* per imperial acre.

The Potatos were dug on the 6th of August last: the produce of the cut sets weighed 15 lb., of the small whole sets 23 lb., and of the large whole sets 31 lb.—each of the lots being raised on 40 square feet of ground. At the same rates an acre would produce from the cut sets 72 bags (or 1152 stones), from the small whole sets 111 bags, and from the large whole sets 150 bags. The proportion of cut seed required to plant an acre is 6 bags, of the small whole Potatos nearly 10 bags, and of the large whole Potatos 24 bags. The same variety of Potatos planted were sold this year by retail at 3*s.* per stone. At this rate the cost would be (per acre), for the cut seed, 14*l.* 8*s.*; of the small whole seed, 28*l.*; and of the large whole ditto., 57*l.* 12*s.*

Supposing the produce to be sold of the different sets at the same price per acre, they would realise respectively 172*l.* 16*s.*, 266*l.* 8*s.*, and 360*l.* It will thus be seen that after deducting the extra price of the seed, labour, and percentage thereon from the latter sums, a handsome balance will be left in favour of the whole sets.

It has been often asserted by persons who are looked upon as good authorities that the only way to avert the Potato disease is to plant none but those that are ready for storing in July. Upon this plan I have acted for the last 16 years, and during that time I have not lost one Potato by the disease until last year, when I met with a considerable loss, owing to having been too long in digging them.

The Potato best suited, in my opinion, to avert the disease and to remunerate the grower, is "Smith's Early," frequently called "Smith's Curly," probably from its producing long narrow curly leaves, similar to those of the Ashleaf Kidney. It resists spring frosts better than any other variety known to me, and produces a large quantity of peach-coloured blooms about the beginning of June, a thing not common to early Potatos. It is, however, the earliest Potato that I know of, being round in form and of a large size. It would appear from the following testimonials copied from the general seed catalogue of this year of Stuart & Mein, of Kelso, that it is known about London to be one of the best early round Potatos in cultivation:—

"We have grown Smith's Early Potato for the last two seasons; it proves to be quite distinct, and about the same in point of earliness as the Handsworth, but much more robust, more prolific, and of better quality than that variety. We consider it the best early round Potato that has come under our notice, and have been saving all the seed possible to grow for general use in the garden."—*From the Royal Horticultural Society, Chiswick.*

"With regard to the Potatos you sent me, I may say that we were so pleased with them, that I shall grow no other for second crop. Its quality, earliness, and productiveness, prove it a first-class variety."—*From Mr. Scrymger, Sonning, near Reading.*

"I planted Smith's Early Potato on the 24th of March, and dug some of them on the 1st of June, and found them to be quite ripe. There are a good many points in their favour—they are a beautiful shape, few eyes, and very white and floury; they are the earliest round Potato I know of."—*From Mr. Fairbairn, gardener to his Grace the Duke of Northumberland, Syon House, London.*

Some parties in this district, however, have not succeeded so well as could be desired in the growing of this Potato, having cut their sets after the sprouts had been once or twice broken off them; therefore nothing but a poor blankey crop could be expected. If growers treat them in the way recommended they will be amply rewarded. *James Dobbie, Renfrew.*

Home Correspondence.

Mr. Mechi and Mr. W. B. Spooner (a last Word from "T. B."—As Mr. Spooner, of Eling, Southampton, has made a rather furious onslaught upon me, attributing my letters to the influence of "the potency of the beverage" he concludes I had been drinking with labourers, I will state why, contrary to my custom and inclination, I took up my pen, and became a letter writer for public reading. But I will first say that I am a farmer, and the son of a farmer of no small extent—full five times greater than Mr. Mechi is; I am also, and always have been, an experimentalist; I therefore cannot object to Mr. Mechi being the same. I cannot find fault with Mr. Mechi for pursuing a system which I recommend and practise myself; nor have I ever done so. Still I have written letters which have stirred up the ire of Mr. Mechi's friend, Mr. W. B. Spooner. But I will give the history of those letters. I had attended two of Mr. Mechi's annual gatherings, and I saw his crops, which were fair ones, but not one of them such as I could have boasted of had they been my own. At the former of the gatherings I attended, a debate arose between three land agents, one of whom resided in Essex, as to the yields of Mr. Mechi's Wheat crops, and in which I myself joined, and not one of them estimated the average yields at 5½ quarters an acre; and the Essex gentleman's opinion was, that the average was not 5 quarters; and on my having occasion to meet him on a valuation question afterwards, he said he had ascertained that the Wheats did not average 5 quarters an acre. But having lately read in agricultural journals statements by Mr. Mechi that his crops for five years had averaged within a very minute fraction of 60 bushels an acre from certain quantities, I determined when next in London to run down and learn what they were thought of in his own neighbourhood, and I got as far as Chelmsford on a market day, and conversed with several farmers and others, and the same accounts I heard from them all. They spoke handsomely of Mr. Mechi himself, praised him much as a generous and kind-hearted man, but as for his farming they said it was such as no wise man would ever follow, and the accounts of his marvellous crops no one believed. I therefore went no farther, but returned to town and went home. But my neighbour, a member of the Royal Agricultural Society, also made inquiries, and having occasion to send into Essex for some breeding hogs, he took the opportunity to send his farming bailiff and a ploughman, with instructions to go to Tiptree and examine all they could on the farm, and learn what they could from labourers, if possible, who worked or had worked on the farm, and the result was what I stated in my last letter, obtained from the bailiff and ploughman, and as near as possible in their own words. It is sadly to be deplored that these published statements are not believed, as it throws discredit upon all, whether landlords or tenants, who try experiments and are convinced that great improvements may be made in every branch of farming operations, but shrink from publishing the results of experiments they make lest they should be represented as "enthusiastic and poetical," as a certain Mr. W. B. Spooner, of Eling, Southampton, represents Mr. Mechi to be when advocating important principles. And he also flies into a rage with me, and writes, I "may be a poet, but must lay no claim to be a philosopher," and attributes my want of faith in Mr. Mechi's reports of his "extraordinary crops" to my having indulged too freely in "the potency of the beverage" with which I treated my neighbour's two labourers, whom he had sent as spies into the land of Tiptree to spy out what was doing there, and to bring back a faithful report. Now, the potent beverage referred to was cider, which I confess I am very partial to, and should not grieve if I should never partake of anything beside, and it is certain the tastes of the men were the same, for they chose it in preference to ale, and of which they knew I had always very good. First year Mr. Mechi reports that he dibbled a peck of Wheat on an acre of land, and the yield from it was 7 quarters and 1 bushel. Second year he dibbled another peck on an acre, and the yield was 7 quarters and 2 bushels. Third year he drilled 4½ pecks on an acre, and the yield was 8 quarters an acre and no bushel. Fourth year he again drilled 4½ pecks an acre, and the yield was again 8 quarters an acre and no bushel. Fifth year he drilled on the same land as the year before 4½ pecks, and the yield was 7 quarters, making 15 quarters an acre on the same land in two years, and no bushel. Mr. Spooner is in a rage against me because I quoted from his letter in the *Agricultural Gazette* of Oct. 27, that he had written that these marvellous crops were "failures;" and he has the hardihood to deny that he had done so, and to attribute my having so quoted, to the potency of this beverage. But for those who may not have the *Agricultural Gazette* of October 27 to turn to, I copy his words, and be it observed they were written to refute my disbelief in Mr. Mechi's extraordinary crops.—"A man" (referring solely to Mr. Mechi) "must be unusually wise or a very great fool who after a long course of years has no failures to acknowledge." And again, "Mr. Mechi candidly gives the agricultural world an account of some of his principal failures." The question then here is not whether they were "failures" or not, but whether Mr. Spooner wrote what I quoted or not, or whether some malicious person forged his name or not. But in ending, I hope, this controversy, I state most emphatically that I have no personal unfriendly feeling towards Mr. Mechi, but, as a man, the reverse exactly; but as a farmer, and as having the superintendence of many estates besides my own farm, I have known instances wherein these extravagant publications of Mr. Mechi's have done much mischief, and of this I could give several instances, and I feel certain that every person of my profession would do the same. Mr. Mechi is an honour to his country, but sadly deficient is he in discretion, or he would not destroy his reputation, or the honourable name he has borne, by extravagant publications. Let him this coming year prove to a jury of land-agents and farmers that he will have within 10 bushels only of Wheat an acre of what he has published he had for five years, and he will find me and many more not only willing but able to be his friend. *T. B.*

Agricultural Desiderata for 1867.—A happy new year to you, Madam Ceres; and to our modern agriculturist this is no narrow one-sided greeting, but combines much that is hopeful. To make it a happy and prosperous year for our modern agriculture much has to be accomplished. The past year commenced in gloom and distress. Our cattle were dying by thousands, restrictions in business trying and annoying, and neither grain nor other agricultural produce realised remunerative prices. The year 1867 commences under far happier prospects: cattle plague nearly extinct, grain remunerative, stock realising profits, season one of the finest known, work of all kinds forward, cheerfulness and gratitude manifest everywhere. Let, then, joy and gratitude rule in each of us. *Agricultural Desiderata for* 1867! What more can be wanted? Why, we want to perpetuate this prosperity. What! govern the seasons! No, you cannot! Stop a bit. Let us await the Report of the Committee on Steam Cultivation. It is possible that it will show us how,—or if not, how to modify matters, and perhaps in a great measure overcome the difficulties of an untoward season. This is *one desideratum for* 1867—proof that cultivation by steam power is the salvation of heavy lands, and the greatest of modern improvements in practical agriculture. Upon this proof comes another, that such extra culture demands the full development of the powers of the soil by unrestricted and unlimited courses of cropping—*Desideratum No.* 2. The use of artificial aids both in manures to the soil, and food for the stock, we say is *Desideratum No.* 3. Practical chemistry has done much to aid us here; but its true achievements are very imperfectly known. Proofs are forthcoming to show that the full extent of their value is unknown. Judicious artificial manurings have wrought wonders in medium soils, and almost miracles on our best soils, and they are still extending their products. Food of good and correct manufacture knows no limit to its power of fatting, or its value as a digestive or condiment. Give it unlimited trial in accordance with the known constitution of animals at their respective ages, but supply every animal with other than natural food as best judgment dictates. *Desideratum No.* 4, we will say, is to supply proof of the extraordinary extent to which stockowners may profitably go in giving extraneous food to stock, *i. e.* corn-cake, manufactured foods, &c. &c., and the intermingling of succulent or other food of natural growth in daily rations—*i. e.* Cabbage and the like, with Grass or Clovers, hay with Turnips, or other similar applications and changes. *Desideratum No.* 5 shall refer to the means of safety for our flocks and herds against imported diseases through foreign stock—*i. e.* quarantine, slaughtering at port of debarkation, prohibitions from infected countries, regulation of traffic in foreign countries—*i. e.* no cattle or sheep to be received or landed except a clean bill of health is produced from the port of exportation. Quarantine grounds to be provided by Government at several convenient ports to which all foreign stock must come. *Desideratum No.* 6 is that we want strenuous efforts to be made to uphold the political status of the landed interest—*i. e.* that Chambers of Agriculture, Farmers' Clubs, Malt-tax Associations, and similar bodies shall all join as one united body upon all political questions affecting agriculture. *Desideratum No.* 7 is the return of the natural guardians and upholders of the agricultural interests to their pristine duties and position—*i. e.* the nobility and country gentlemen, which guardianship and duty they have too readily relinquished for popular and meaner considerations. *Desideratum No.* 8 is that counties and country towns shall cease to return the scions of nobility or gentry as members of Parliament unless they manifest high talents for business and general ability. *Desideratum No.* 9 is that as the great body of tenant-farmers are not fairly represented in Parliament, every means should be sought to return intelligent men of that class on behalf of the agricultural interest. *Desideratum No.* 10 is the formation of a Society which shall take an oversight of all matters connected with agriculture, and become a centre to which all classes interested may look for guidance and help, and through which all simultaneous movements throughout the country may be organised, so that the power and unity of the landed interest may be again felt in Parliament and be restored to its former healthy and constitutional state. *O. F.*

Poultry.—In your last week's number your correspondent "O. F." sends you a pleasing article on a

subject very interesting to very many of your readers. His remarks on the subject of poultry-breeding as an amusement will be indorsed by many. As a portion of farm stock there is no doubt that poultry has been neglected by us, and has not received at our hands the attention it deserves. We must now look for better things, and, with the commencement of the new year, begin with fresh hope and vigour to improve on our doings in the last. Poultry prospects for 1867 are cheerful. The various Agricultural Societies throughout the kingdom find that their poultry classes form a part of the annual exhibition which brings in a very fair share of revenue. It is believed that the Royal Agricultural Society this year intends to add poultry to its other classes. Should they do so, a great stimulus will be given to poultry-breeding among agriculturists, hitherto those who have paid least attention to it. The development of the principal characteristics of a breed of fowls has once or twice been a subject to which the attention of a practical and observant man being given, the result arrived at has been one of general utility; sometimes in the great increase of eggs produced, and at others in greater weight of meat, strength of constitution, or earlier maturity. The enormous importation of eggs into this country is a continued source of remark, both to those who do, and those who do not take any interest in poultry; it is in a manner like the periodical enormous Gooseberry, or the Apple tree that will bloom when it should be bare—one meets with a notice of it in the daily and other papers, and wonders where the hens are kept abroad that lay so well. Your correspondent mentions the Houdan fowl as deserving of notice, and his opinion will be fully endorsed by all those who have kept the breed, and who keep poultry for real utility. These birds are very hardy, of excellent quality as table fowls, and very prolific, and yet, strange to say, are probably scarcer in France, their native country, than any other of the recognised breeds. While we note with accuracy all the eggs received from abroad, we take no note of those of our own country, and we constantly lose sight of the fact that here great numbers are consumed on the spot, while abroad nearly all are sold. To those who wish a full yield from their birds and a fair return for the food, I would recommend a more generous diet than that mentioned by "O. F.," especially at this time of year. I do not think the weights mentioned in a recent Number of your *Gazette* as attained by Mr. Fowler's birds, would ever have been reached on such a diet. *B.*

Farmers' Clubs.

HADDINGTON: *Importation and Breeding of Cattle*—At the late monthly meeting of this Club, Mr. George Hope, Fenton Barns, presiding, Mr. Elder, East Bearford, read a paper on this subject, "How best to protect cattle against foreign disease, and how best to increase the number of home-bred cattle?" The cattle plague or rinderpest was, in his opinion, a foreign disease, introduced into this country by the importation of foreign cattle, and unless Government used every means to do so, it will be a difficult matter to prevent it coming upon them. Should they again introduce the cattle plague by any negligence, he thought farmers should not alone be responsible for the loss. There was no doubt that farming was a business in which there was considerable risk, perhaps as great risk as in any, but while they were prepared to run the risk of diseases common to their own cattle and country, they were not prepared to run the risk of foreign disease which Government, by carelessness or negligence, might allow to be introduced. Did they think it right that the whole cattle in this country, amounting to about five million head, should be at the mercy of the owner of a single shipload of foreign beasts, which might be dispersed all over the country, carrying with them disease wherever they went? It appeared to him there were two ways in which Government might protect them against the plague. The first is after it has made its appearance in the country, and the second is to keep it out of the country, which of course must always be the best way. He thought the best way to protect them against it after it had broken out in the country, was to stop the trade in live stock, and to kill it out, and give full compensation for the losses. He said they should have full compensation, for experience had shown in this country, and it was the experience also of Germany, that the pole-axe was the only cure for the disease. Some persons would rather run the risk of having the disease in their stock than kill the cattle, and had it not been for this, plague would have been more easily stopped in this country. Where full compensation was given, there would then be no inducement to conceal the disease, and in the end the country would be saved thousands of pounds. Then he thought the best way to get quit of the disease, when it had appeared in the country, was to nip it in the bud, kill it out, and give full compensation. But the best way for Government to protect them was to try and keep out the disease; he thought this could be done if the regulations on the exportation of foreign stock were continued as at present, which were that all foreign fat cattle should be slaughtered on landing, and at certain ports—those ports to have special accommodation for this purpose, and to be guarded and looked over by proper inspectors. He thought it would be well, too, if her Majesty's Consuls in those ports from which foreign cattle were imported were to inform Government when any outbreak of the cattle plague took place there, so that they might be able to stop the import of the diseased beasts. It might also be ordered that cattle coming here should, if possible, be conveyed in properly constructed vessels. The way in which cattle were conveyed from one place to another by sea and land was a disgrace to the present age. He had been told that the ships used for the importation of cattle were not fit to convey coals, let alone cattle. They needed only in passing to look at the railway stations to see the miserable condition in which some of them were provided with accommodation for cattle. It was common that cattle wanted food and water for four days on journeys of that kind, and if that was not an excessive amount of cruelty he did not know what cruelty meant. Railway companies and shipping companies ought to remember that cruelty to cattle was cruelty to pocket. By all means let them raise their charges and treat cattle better. Good treatment always paid itself; and farmers would not grudge a few shillings more if they were ensured that their cattle would be properly treated. With regard to foreign lean cattle, he thought they should undergo a quarantine, as he believed they did now. But he thought they might dispense with foreign lean cattle altogether; and this brought him to the second branch of the subject of discussion—viz., how they could increase the number of their home-bred cattle? He might be wrong, but he thought it was possible to raise as many cattle in this country as we were able to eat. At present most farmers killed calves when they were a month or six weeks old. Was not that a waste of animal life? Should not these calves be kept until they were two or three years old? In fact, was it not a mistake to kill cattle at all before they were two or three years old? The way he would suggest of increasing the number of home-bred cattle would be—not to kill the calves. On almost every farm in the county they had four cows which could be got to calve about the end of February, or the middle of March, and each of these cows might bring up two calves till May, when they could be speaned and they could get other three calves to each. In that way they would rear five calves in the season—or a score among the four kept on each farm. There might be a difficulty in getting a sufficient number of good calves, and, perhaps, a difficulty in getting pasture for such a number of cattle; but if they were to study the subject thoroughly, he thought these difficulties would disappear. The high prices which they were compelled to pay for their lean cattle now-a-days rendered it a matter of necessity that they should breed more. Two or three years ago they could get 2-year-old Short-horns for 12*l.*, for which they had now to pay 14*l.* or 15*l.*, or nearly as much per stone as they got for them after they were fed. (Mr. Durie—more.) Mr. Elder concluded by saying that if the cattle plague was to teach them anything, and doubtless it was calculated to teach them many a useful lesson, it was that Government should be more careful in regulating the importation of foreign cattle, and that the farmers of this country should trust more to themselves, and by rearing more cattle be more independent of foreigners than they had hitherto been, and he believed if these lessons were carefully applied, they would be found to be for the benefit of the farmers' pocket, and for the benefit of the country in general.

Mr. SMITH, Whittinghame, said: The more important part of the subject was perhaps the second part—that was, what they could do themselves. Now he did not know whether in such a dry climate as East-Lothian five calves could be reared by one cow—("Quite impossible")—but certainly he thought three might be reared, and the rearing of three would be a great advance on what had been done hitherto. There was no doubt but the high price of lean stock had led to this already, and the number of calves had much increased within the last year or two—those kept he meant, and not sent to be slaughtered when young. He thought, in fact, it was a sort of sacrilege to slaughter the calves when they were only a few months old. He believed that even in that county it would be found for the advantage of farmers that there should be more attention paid to the rearing of calves, and of course, as being a breeder in a small way, he would not lose the opportunity of reiterating what had been often said before, that if calves were to be reared they should be from the very best bulls. He thought it had been a grand mistake in that county as elsewhere, when people were breeding calves, that they paid almost no attention to the bulls. He believed if they were to rear one calf off a well-bred bull—though the cow might have been an indifferent or secondary one—it would produce a better return than one bred from a good cow off an ill-bred bull.

Mr. DURIE said he did not see where they were to get so many calves. He did not understand how this manufacture of calves was to go on at all. That every man in the country should bring up five calves upon one cow was what he could not understand at all. In regard to the importation of cattle, he agreed with Mr. Elder in thinking it was the duty of Government to prevent diseased animals being brought into the country at all. But with regard to the measures proposed by Mr. Elder after the disease came into the country, he could not agree. Instead of slaughtering diseased animals, they should draw a cordon round them and try if they could not cure them, which was no worse than killing them. Instead of killing the animals to stamp out the disease, would it not be better if they could discover a method of curing it? What would be thought if they attempted to stamp out cholera—if they killed all who were taken ill of it?

Mr. SMITH, Whittinghame, said: Since the question of where calves were to be obtained for rearing had been raised, he might say a word or two upon the subject. Upon nearly every farm in the county the hinds had a cow each, which they kept for dairy purposes, and whose calves they could not therefore rear. On nearly every farm also one or two cows were kept for dairy purposes, and their calves were not at present generally brought up, but were fattened and killed young. Another feasible way of getting calves was by keeping a few heifers or young queys, which, if well kept, were quite capable of producing calves advantageously when two years old. Thus they could get supplementary calves, and the heifers were all the better for feeding purposes afterwards. In other districts of the country, where dairies were kept for the supply of towns, many calves might be obtained, and he had himself obtained calves from dairies in Edinburgh and Newcastle, which had turned out exceedingly well. The difficulty in the case of calves brought from these large towns was in the transit, but if proper care were taken, that need not be serious.

The CHAIRMAN held in his hand a series of resolutions which were to be discussed at the next meeting of the Chamber of Agriculture, and a clause was to be added to one of these calling upon Government still to continue the slaughtering system. Notwithstanding what Mr. Durie had said, he regarded that as one of the wisest measures that had been adopted. When an animal was attacked with rinderpest, he believed it would prove in the end to be the best way to kill it; and he took great credit to himself for moving a resolution in the Highland Society which exercised an important influence on the Government of the country in adopting that regulation. He did not know that it was necessary that anything more should be said about the importation of foreign cattle, but in regard to markets, he thought that fat cattle markets should be licensed, and that lean stock should not be permitted to appear there. Some gentlemen objected to this, but he thought it would be a wise regulation that animals which had once been shown in a fat market should not be allowed to be shown in a store market. There were various diseases they had to guard against besides rinderpest; there was pleuro-pneumonia among cattle, and there was scab among sheep, for instance. Store stock, moreover, had nothing to do in these fat cattle markets. In regard to the rearing of calves at home, he had five cows, by means of which he had raised 18 calves, and he thought there was nothing to prevent the score being raised off that number of cows, but they would have to supplement the milk by Linseed, or Bean-meal, or something of that kind; he thought there was nothing better than Oatmeal porridge, with which they could rear very good calves indeed. He quite agreed with Mr. Smith in thinking that to rear animals from impure bulls was worse than useless, and often proved a great loss. In regard to purchasing these calves, they had an excellent practice in their own county of the hinds keeping cows, and by giving them a good price for their calves, provided they were from a good bull, they would get plenty of them. It was an excellent speculation to keep a good bull, as he had had proved by several years' experience, but they would be a great deal the better if they had more of them in the county. Indeed, the hinds often were away half a day with their cows when the farmer did not keep a bull, and if they had one on each farm it would be better for all parties.

Mr. DURIE moved—"That this Club is of opinion that every precaution ought to be taken by Government in the importation of cattle, and that farmers ought to rear as many young cattle as possible."

Mr. ELDER seconded the motion.

The CHAIRMAN then moved—"That this Society highly approve the measures taken by Government for regulating the importation of foreign stock, and preventing the spread of disease in this country, and trusts that these regulations will be made permanent; and is of opinion that, under present circumstances, the rearing of young cattle in this county will be found profitable."

Mr. SMITH seconded the Chairman's amendment.

The two resolutions having been put to the meeting, six voted for Mr. Durie's and seven for the Chairman's, and the latter was carried accordingly.

LAVENHAM, *Suffolk*.—At a recent meeting here, Mr. Greene, M.P. for Bury St. Edmund's, referred to a number of points of agricultural interest, saying that if he took the liberty of speaking upon the subject of practical agriculture, he hoped they would consider he had some right to do so, when he told them that he was himself a farmer of 600 acres of land.

1. *Arable Culture.*—First, he would say, "Grow no Grass." There was nothing so expensive as growing Grass on their arable land. They might rely also upon this—that they must make up for any deficiency in manure, and it would pay to use a portion of an artificial fertilizer in order that they might grow a full and proper crop, because there was very little more expense in harvesting five quarters of Wheat per acre than three or four. He was quite aware that steam cultivation was not practicable in small fields, and from what he had seen in that neighbourhood he thought the fields were too small. He had seen both systems of cultivating the soil by steam. The one employing two engines was, he thought, the best; but, of course, the objection to it was the large outlay of capital it involved; but still he was of opinion that that was the principle for heavy land. He would tell them what he was able to do with his engine, adopting the system of ropes and porters. This year, treacherous a season as they had had, he had been able to cultivate and plough more than 100 acres of land, which he could not have done with horses. Having the power to do it quickly, he did it when the weather was dry. Calculating the interest upon capital, the wear and tear, and all the expense, he could cultivate cheaper by steam than he could by horses, and he had the advantage of being able to do it when other work was going on. There need be no fear that ordinary labourers were unable to do it. He assured them that when he adopted it he made no alteration in the labourers on his farm, excepting that he had a man to drive the engine, for they could not expect a labourer to do that. If he gave the order to his men to cultivate 40 acres of land, and went out for three or four days, when he returned he found it was done, as they did 10 acres a day. The way to do it was to put the work out to the men, and if they did that he would promise them that no time was lost in going from one field to another. He had had the honour of a visit from a deputation from the Royal Agricultural Society, to look at his steam cultivation, and they asked every question they could think of, and told him they had not been on to a farm (fortunately for him they had not then been to Mr. Kersey Cooper's, whom he considered the chief of steam cultivators) where so much cultivation was done per day. He believed that arose from his giving his men an interest in the work.

2. *The Labourer.*—They had heard a great deal of talk about

the labouring man, but he contended that labour was a marketable article. They had got into a very different state of things to that which existed when the population was overburdened. The demand was now for labourers, and not for labour, and the man who had labour to sell could generally find a market for it. But he believed there was one thing of more importance than any other to a labouring man, and that was a proper cottage to live in. He said it was a burning shame that such wretched dwellings as they had in this county should be permitted to continue. It was true they might ask him how it was to be remedied, and it was a very difficult question, because the cottages hitherto had not been let upon a principle that would pay interest upon the cost of its erection; but he was sure that with improved wages men would gladly pay more money for a good cottage, and he was sure that if they were to have good men in the agricultural districts they must have more accommodation. It was a matter of necessity that there should be at least three bedrooms in a cottage occupied by a family. Depend upon it this was one of the subjects that required watching on the part of those who desired to see the land fairly treated in Parliament; for it was not so much that there were Acts of Parliament to help them in a direct manner as to see that burdens were not improperly thrown upon land, as he believed they would if some people had their way. Therefore it had come to this—that they must look to themselves; for they were to compete with the foreigner, and he believed it could be done, but it could only be done by the exercise of determined perseverance and care.

3. *Live Stock.*—He farmed because he was fond of it; but, although he did it on that ground, he made it his business to look into the minutiæ of it, and he could assure them there was no business that required more watching and good judgment, both with respect to the crops and the stock. It was to their stock that they must look; for what was a farmer unless a man was able to rear stock and breed sheep, so that he had not to go to the barn-doors for his rent? He very often saw gross mismanagement upon farms with regard to stock. He often saw young things brought up on a little skim-milk, and then turned out into a field, and at the end of 12 months they were about the same size, or perhaps a little smaller. Then he saw some of his friends go and buy a lot of ill-bred Irish bullocks. He learnt a very good practical lesson on this subject when he began farming. He bought a lot of bullocks, and though he gave them all they could eat he could not get them fat. It was, however, a cheap lesson in the end, for he never bought another lot like it. Then, again, if a man had a cow, he would send it to any wretched bull that happened to be in the neighbourhood; but, instead of this, they should desire to propagate a good breed of animal. Again, a farmer must have a horse to ride to market, or a mare to drive; and now and then he would breed from her, and for this purpose he would use any brute of a horse that came round, with neither action nor family to recommend him, and they availed themselves of him just because he passed their gate. He wanted them to remember that a good horse eats no more corn than a bad one. A good stable of horses ought to cost them no money: indeed, a farmer who hunted ought to make a hundred pounds a-year of his horses; and he might tell them that he had himself, in his younger days, had many a stable of horses that never cost him twopence.

HADLEIGH: *Uses of Farmers' Clubs.*—At a recent meeting of this Club Mr. Hawkins reminded the members that they had begun 20 years ago with the intention of carrying out the objects of a farmers' club. They had, however, fallen away from that idea, and, as such a club, they were now a sort of nonentity. He should like them to do either one thing or another—either resuscitate the "dead man," or sink the idea of a farmers' club altogether. He thought a farmers' club ought to start with the motto adopted by the Royal Agricultural Society—"Practice with Science," these being the tributary streams to feed that great Society. The first thing such a club should possess was a good library. When their forefathers died all their knowledge died with them, because they never recorded any facts; a man spent half a lifetime in acquiring knowledge, in the other half he used it for his own benefit, and when he died his knowledge all went with him. And that was the way they would still go on, unless they adopted the system of recording results. When we looked round and saw so many young men who wanted to look into the subjects that might come before them in their avocations, he thought there ought to be books to which they could refer. It was now more essential than ever. Suppose, instead of spending 50 guineas a year about a stock show, they were to spend 30 guineas for a set of botanical works, to make the farmers acquainted with what they saw in the fields. When they knew the habits of a plant, they knew how to destroy it; and when they knew the soil to which it was indigenous, they would know whether it would grow with their crop. He fancied that an agricultural library, giving the result of experiments, and a knowledge of what was going on, was of the utmost importance to a farmers' club. Many topics were brought before them in an erroneous point of view, which farmers' clubs ought to correct. If they had read the speeches at the agricultural meetings during the year, they would have found that the aristocracy had come to the universal conclusion that their lands were not half-tilled, and that it was owing to the ignorance and poverty of their tenants. There were a great many things that were called agricultural improvements that were not undertaken by tenants—things which their landlords thought they ought to do—because they did not know how to do them. It was the business of a farmers' club to show them. There was not a land-valuer or farmer who could get up and state the value of agricultural improvements. Suppose they took draining. Just look at the diversity of opinion that existed upon that subject. One said that a farmer who drained his land ought to have ten years' security for the improvement, and another said he ought to have 20 years'. If a gentleman took a Government loan to improve his estate, he had to pay 6½ per cent. for 21 years, *i. e.*, 3½ per cent. for interest, and 3 per cent. sinking fund; and if that principle were correct, surely a farmer's improvement must be worth 21 years to him. But he had never known any gentleman who was able to make interest on his money; he generally had to lose about 3 per cent., and the tenant paid it. Why was that? If they spent 100*l.* in improvement, about 35 per cent. went in engineering, and plans, and superintendence, that was of no earthly use to the farmer. In fact, half the people who came to drain land did not know half as much about it as the farmers themselves. These were things that ought to be taken up by a farmers' club, because, whatever they might say of the aristocracy, avarice was a thing they could not bring to bear upon them; he never saw a gentleman who wished to take advantage of an improvement if he was convinced it was wrong to do so. Suppose a farmer were to drain a 10-acre field, and leave one acre in the middle undrained, and the club paid him the loss, the advantage of the drainage would be made clear; but there was no man who could say what was the value of drainage. In very dry seasons the drain did not pay a farthing, and there was interest and compound interest to be added to the account for those years; and if a farmer had only a year's interest in the improvement, his security would be gone before he began to reap the advantage. Then again, there was chalking and draining the land; look at the diversity of opinion there was. They had seen in the *Economist* a paper on the late Mr. Pusey's tenant-right system, and this showed the ignorance of the land-valuers and land-agents examined before the House of Commons. Mr. Tollemache's steward was asked how long chalk would be of benefit to the land, and he said it would work out in about four or five years, but every farmer knew that it was just when it began to pay. When men who were supposed to know things made such assertions as that, and such ridiculous answers were given, it proved that they did not know anything about it. If they would read "Corbet's Digest of Tenant Right" they would find that hardly a land-agent that was examined knew what customs prevailed 25 miles away from his home. These people were not fit to take the management of estates, and that was how the country gentlemen got so misled about agricultural improvements. Therefore he thought it was the business and the duty of farmers' clubs to enter upon these inquiries. This would be far better than having their stock show, at which there was never anything worth looking at, except two or three horses that had much better be shown at the county meeting. There was one thing that must force itself upon landed proprietors, viz., the position of tenants and labourers. There had been long discussions about paying low wages, and Mr. Girdlestone wrote about the wages in Devonshire; but Mr. Brereton had taken up the subject, and based his arguments upon political economy, which was the only thing a man could do to estimate the value of labour. The farmer had no more control over the price of labour than the manufacturer, or anybody else. Now, they could not secure much labour on their farms except that of a migratory kind; they were men who lodged at beer-houses, and if they read one evening in a penny paper that good wages were given 15 miles off, the next morning they were off. Other men did the same thing, and so it happened that just at this focus there were four or five times as many men as were wanted. That could not be the case if they had sufficient cottage accommodation, because they would then be able to make their men comfortable and well off. But as long as they had that migratory class of labourers, the moment they heard that haymaking was begun by somebody who was a week earlier than themselves they were off, and they had to depend upon men who came up from more backward districts. That was a thing that must force itself upon the consideration of the agricultural classes of the country.

Reviews.

The Quarterly Journal of Science. No. XIII. January, 1867. John Churchill & Sons, New Burlington Street.

The body of the book is filled with papers of unusual interest, and the Chronicles of Science, including Agriculture, Archæology, Astronomy, Botany, Chemistry, Engineering, Entomology, Geography, Geology, Mining and Mineralogy, Physics and Zoology—are closely-packed records of every new fact or doctrine which under any of these heads has cropped up during the past quarter. It is a most interesting periodical, and ought to command a large circle of country readers, who have not those opportunities which are open to Londoners of acquainting themselves with the progress of enterprise and knowledge.

We transfer to our columns the short account of what has transpired in agriculture since October.

"The Cattle Plague has at length dwindled to altogether insignificant proportions. The number of cases reported weekly is rarely more than 10; and an occasional aggravation of the disease, or its reappearance now and then in old localities, raising the weekly total to 20 or 30, while it no doubt shows what a malignant disorder we still retain among us, may, we hope, be taken to be merely the occasional flare of an expiring flame. How much we owe to the policy of extermination, rather than attempted cure, may be seen by the result of the opposite system, as witnessed both in Holland and among ourselves. In the annual address, recently given by the President of the Royal Agricultural Society, it was pointed out that the number of cases reported in two weeks—the one in September, 1865, and the other in September, 1866, was exactly the same. Unrestricted cattle traffic during the two months following the former period had swelled the tale of cases up to thousands. Destruction of affected stock and absolute isolation of infected places during the two months following the corresponding week of 1866, had reduced the disease almost to extinction. In Holland, again, during the past summer, when here the disease was yielding to restrictive measures, it grew to lamentable proportions—rising from 200 or 300 cases weekly during June to nearly eight times as many in September. There is certainly sufficient guidance for us here as to the policy to be followed if the disease should reappear among us in anything like its original severity. Up to the present time about 5½ per cent. of the whole cattle stock of Great Britain have been attacked, while of the whole stock upon infected farms nearly 60 per cent. took the disease. Of the total number of attacks whose results were known, 35 per cent. were killed, 51½ per cent died, and 13¾ per cent. recovered.

"The Utilisation of Town Sewage was the subject of a conference at Leamington during October, which was attended by a number of gentlemen interested in the solution of the difficulties surrounding the subject. These difficulties are almost entirely the result of an extension of the water-closet system, by which the waste of houses, no longer received into cesspools and carted away to market-gardens, is washed into culverts, and thence pollutes our rivers. The remedy offered by one party to this discussion is the irrigation of Grass lands with the drainage water, which thus becomes clarified before reaching the river, and yields a valuable produce during the process. The other plan consists in the substitution of earth-closets for water-closets in our houses. It only needs that a storage of dry earth be provided for use in this way, and occasionally replenished; that the prejudices of servants be removed or overruled; and that frequent removals of the boxes be provided for. A well-arranged system of scavenging would then be easily carried out with perfect inoffensiveness, both in the house and out; and we should have a most valuable manure, which might be carried, load by load, to farms all round our towns, where loads of top soil for similar use would be readily obtained in exchange for it, the difference in value being paid. The difficulty of displacing the existing system, would, however, be very great; and, committed as we are by an enormous expenditure to the plan of keeping our towns clean by washing into drains, it is not at all likely that the earth-closet system will be adopted, except in detached houses or small villages. Meanwhile, at Croydon, at Barking, at Rugby, and elsewhere, evidence is accumulating that the irrigation of Grass land with filthy sewage water is both a perfectly inoffensive and a profitable process.

"A meeting of gentlemen interested in the Utilisation of Sewage was held in Liverpool in December, and owing probably to the presence of Lord Robert Montagu, who delivered an admirable address on the subject, the attendance was very numerous, and included the *élite* of the town and neighbourhood. There the advocates of the earth-closet were in a decided minority, for the reasons stated, *viz.*, that the system is not suitable for large towns, where the quantity of earth to be carted would be enormous, and because arrangements have already been entered into between the Liverpool Corporation and the Sewage Company, which promoted the meeting, for the utilisation of all the sewage of the town.

"Most of the statements made by Lord Robert Montagu were repetitions of what is already known to agriculturists, and has been announced from time to time in these pages, but it may be of interest to our readers to know that in Liverpool it is intended to intercept the sewage at the outfall of the sewers, and at first to experiment with it upon the sandy soil skirting the Lancashire and Yorkshire line from Liverpool to Southport. There is a large tract of country all about the north side of Liverpool, which is at present a mere sandy waste, but no doubt the application of sewage water will render it fertile and suitable for the growth of Rye-grass, and if the promoters of this sewage scheme can at the same time fertilise waste land, and render the most unhealthy town in England more healthy, they will confer a double favour upon society. They have our very best wishes for their success.

"Professor Voelcker has lately given a lecture on the application of manures before the London Farmers' Club, which is a remarkable illustration of the progress made towards a satisfactory relationship between scientific teaching and farm practice. Instead of treating vegetable growth as a purely chemical phenomenon, or supposing, as lecturers on agricultural chemistry seemed formerly to do, that it only needs the supply of elements in manure to ensure a corresponding assimilation of them by the growing plant, we now learn from the chemist what we already knew by experience, that luxuriance of growth and abundance of produce depend as much upon the mere question of even and uniform distribution of food for plants—as much, in fact, upon its accessibility as upon the increase of its supply. We are told, for example, that an inferior guano, well powdered and mingled with a sufficient quantity of diluent material, so as to ensure its even distribution through the land, may be a greater help to the fertility of the soil and a greater fertiliser of the current crop than a better guano imperfectly applied. It is a truth of the same kind, which Dr. Voelcker also told us, that no manure at all upon a stiff clay land well tilled will tend to its fertility rather than a heavy dressing of farm dung applied when the land is soft and liable to be poached by the horses and carts employed in putting it on.

"The application of farm manure as a top dressing in dry weather is now confidently advocated, even though a scorching sun and driving winds should cause the separation of all evaporable matter from it. There is no loss of ammonia during the putrefaction of farm dung. The loss which it suffers during that process is due to the washing of soluble salts out of it by rain. And if the dung be spread at once upon the land, all its valuable constituents will find their way into the soil.

"Among the other topics which have occupied the agricultural world during the past quarter is the growing organisation of tenant farmers into Chambers of Agriculture, through which their voice may be heard in public discussions, and through which their views may be influentially urged on Government. We must also refer to the attempt of the Royal Agricultural Society to promote agricultural education by the addition of

their prizes to the list of distinctions offered for competition before the University examiners of middle-class schools. And lastly, we may mention that, moved by the disasters of the past harvest season, the Society of Arts is about to offer a prize for any contrivance or machine which shall artificially accomplish or facilitate the drying process on which our hay and corn harvests depend for the quality of their produce."

Newcomb's Midland Counties Almanac and Pocket-book. W. R. Newcomb, Stamford.

These are two separate publications—the one a very good Almanac and repertory of maxims and instructions for the farmer throughout the year, and withal remarkably cheap—the other a compendious and substantial Pocket-book, containing ruled pages for diary, memoranda, and cash account; a well-arranged almanac, the Stock-breeder's Calendar, a complete list of fairs, and numerous agricultural and other tables. They are both praiseworthy publications.

Miscellaneous.

Royal Agricultural College.—At the termination of the Autumn Session last month, when the distribution of diplomas, prizes, and certificates to the students took place in the lecture theatre of the Institution, Earl Bathurst presiding, the Rev. John Constable testified to the general good conduct of the students during the past session. Professor Church reported that the work in his department, Chemistry, was, on the whole, satisfactory—that it was especially so in the third and second classes. The work done in the laboratory by the second class would have merited the highest praise even in an institution wholly devoted to the study of chemistry. Earl Bathurst, having distributed the rewards of merit, said it was very satisfactory to see as many as five diplomas awarded that day, and also to hear of the general good conduct of the students. When the College was first established, many said that it would be a cause of discomfort and annoyance to the neighbourhood; but such had not been the case. It had, on the contrary, been to him a source of unmingled satisfaction. Mr. Holland, M.P., said that as regarded their system of education, they must remember that practical agriculture was the principal point there. "Practice with Science" was their motto, as well as that of the Royal Agricultural Society. Whilst they paid particular attention to practical agriculture, they also blended with it the most useful departments of natural science. In this way they were following out the objects of the founders of the College, and acting up to the letter of their charter. Many who had left the College were now holding various positions connected with agriculture, both at home and in the colonies; and, from what they knew of their circumstances, they considered that the system of education here adopted was a correct and substantial one. Whilst, too, it bore fruit in their own immediate circle, it was also indirectly beneficial to the country at large. Mr. Holland then proposed a vote of thanks to the noble Chairman, which was enthusiastically given, accompanied by prolonged cheering. The *Gloucestershire Chronicle* says—"It is 20 years since the College at Cirencester was first opened. During that period it has experienced many changes, both with regard to its management and its position in the mind of the agricultural public. Whatever may have been its past character, it is quite certain that it now offers educational advantages to the agricultural student which he can find in no other place. At the same time there is placed upon the resident students that wholesome restraint, effective but not irksome, lenient but not lax, facile without feebleness, which is always found necessary in such establishments for the preservation of order and decorum."

The Cattle Plague.—An announcement has been made that the Government will give compensation for cattle slaughtered in 1865 by direction of inspectors at the early outbreak of the plague, and before the meeting of Parliament. If this is authentic, it will be acceptable news in many of the provinces, and, as we said last week, the measure will be only what is fair and just. During the debate on the Cattle Diseases Bill, certain statesmen of liberal and advanced views did oppose any "compensation," as it was called, and they did so on the ground that an infectious beast is a public danger and nuisance, and should be dealt with accordingly; destroy it at once, but never compensate the owner for ceasing to threaten and damage his neighbours. Our friends here fell into the mistake of confounding a nuisance created by mismanagement or culpable neglect with a nuisance originated by no fault attaching to anybody, unless it be the Government, that knew it could nip the disease in the bud, and yet never tried, in a reasonable way, to do so. Surely there is a wide difference between compensating a man for the removal of a pigstye which he himself erected under the noses of his neighbours, and compensating a man for a summary shooting and burying of his animals smitten, or only in danger of being smitten, by an inscrutable malady, and that might or might not have recovered from the attack. "Compensation" is not the right word to express the payment of only a part of the value of slaughtered animals. Such part payment was designed to prevent farmers from concealing cases of Rinderpest, not to recoup them for a providential infliction, or, as some people say, the infliction of an apathetic Executive. Similar partial reimbursement, however, is to be given by the expected Bill for cattle killed during the short interval in which inspectors were empowered to slay. After that time, and until the Act of February 20th came into force, many animals were promptly slaughtered and buried by the owners on the recommendation of inspectors, with the sole object of staying the progress of contagion, and at considerable loss, because a proportion of these would have recovered. These cases, we consider, should be included in the Bill, if one there is to be, seeing that otherwise we should be classing public-spirited and patriotic sufferers along with the great bulk of graziers who sought to serve their self-interest by trying medical treatment and nursing, or who, in other words, for the sake of saving a small percentage of their sick, allowed the subtle virus to generate for the ruin of their respective neighbourhoods before they would let a victim die. *Daily Telegraph.*

Award of Premiums for Swede Turnips and Mangel Wurzel grown with Proctor & Ryland's Manure only.—The gentlemen appointed to inspect and weigh the crops competing for these prizes, have made the following awards:—

	Quantity of Manure per Acre.	Distance between the Rows.	Weight per Statute Acre (average of 5 acres) without Tops and Roots.			
District Prizes for Swede Turnips.						
District, No. 1. — Comprising the Counties of Warwick, Worcester, Gloucester, Berkshire, Oxford, Buckingham, Hertford, Bedford, Northampton, Rutland, and Leicester.	cts.	ins.	ts.	ct.	qs.	lb.
1st prize, 20 guineas, to Mr. John Moore, Long Itchington, near Warwick	6	20	26	2	2	8
2d prize, 10 guineas, to Mr. Nathaniel Stilgoe, Manor Farm, Adderbury, Banbury	5	20	25	16	0	0
District, No. 2. — Comprising the Counties of Lincoln, Nottingham, Derby, Stafford, Salop, Hereford, Radnor, and Montgomery.						
1st prize, 20 guineas, to His Grace the Duke of Portland, Clipstone Park, Mansfield	7	27	27	10	2	8
2d prize, 10 guineas, to Mr. Josh. Beale, Borofields, Burton-upon-Trent ..	6	22	27	10	0	16
District, No. 3. — Comprising the Counties of Cumberland, Westmoreland, York, Lancaster, Chester, Flint, Denbigh, Carnarvon, and Merioneth.						
1st prize, 20 guineas, to Mr. Jas. Kerfoot, Faenol Bach, St. Asaph	5½	24	30	13	1	20
2d prize, 10 guineas, to Mr. Jno. Roberts, Saltney, Chester	7	28	30	7	1	20
Special Prizes for Swede Turnips. Any Farm in England or Wales.						
1st prize, 20 guineas, to Mr. Jno. Hughes, Llyslew, Anglesey	8	22	40	12	0	8
2d prize, 10 guineas, to Mr. Richard Parry, Carn, Anglesey	6	25	34	13	2	8
Mangel Wurzel Prizes. Any Farm in England or Wales.			Average of 2 acres.			
1st Prize, 10 guineas, to Mr. W. K. Bourne, Fisherwick Park, Lichfield ..	8	27	43	17	0	0
2d prize, 5 guineas, to Mr. Jno. Hughes, Llyslew, Anglesey	9	22	31	17	3	4

Judges:—Mr. Samuel Minor, of Mose, Bridgnorth, and Mr. Henry Osborne, of Weeford Park, Tamworth. These crops were weighed the first week in November, and were all in a very growing state.

A Prize Cow.—At a Cattle Show held Northampton, Mass., the cow which took the first premium had given 471 lb. of milk, yielding 26 lb. of butter, in two weeks. Her feed was hay and Grass. Two other cows produced 280½ lb. of butter in 136 days. Another cow had given 40 lb. of milk per day, and produced 14 lb. of butter in a week. *Canadian Farmer.*

Notices to Correspondents.

CHURNING: *M A R.* The night before churning, put the cream in a tin to stand in a furnace of warm water, which should gradually reach boiling heat, until the cream is scalding hot, stirring it occasionally while it is heating. Then take the tin out of the water, pour the cream into another vessel, and let as much as possible of the steam from it escape. Stir it also once or twice while cooling; keep it in a warmer temperature than in the dairy until churned next morning. This removes all disagreeable taste from any kind of food taken by the cows, and was never known to fail in making good butter come in 20 or 40 minutes churning.

GAS LIQUORS: *H P* says:—"An opportunity having offered of purchasing the gas liquor from the gas works of a small town, the writer would be much obliged if you or your correspondents would kindly answer a few questions as to its use. I see in 'Morton's Farmer's Almanac' the following advice. 'Apply 150 gallons, diluted to 400 or 500 with water, per acre; or make a compost with earth.' Query 1. Would the gas water be suitable to mix with the contents of the liquid manure tank, taking care, of course, that the proportion of gas liquor to tank liquid should always be less than that recommended above? I may add that the contents of the tank are intended to be distributed on Grass with water cart, and with roots by the water drill. Query 2. In case of an excess of supply of gas liquor, I have some large flat heaps of loam, obtained from the top of a limestone quarry. Would this earth retain the properties of the gas liquor mixed with it for an average period of say three months, until a convenient time for spreading? Query 3. Would there be danger of the ammonia escaping if the liquor were merely allowed to sink into the surface of the heap of loam, and would it therefore require to be thickly covered in?"—[(1) You may use gas liquor with liquid manure without harm or loss to either. (2) The loam will hold what is poured over it, so long as the liquid does not actually drain from it—and (3) there is no need of any covering.]

SECRETARIES OF STEAM PLOUGH COMPANIES: *R Brown.* R. Toepffer, North Lincolnshire Steam Plough Company, Kirton-in-Lindsey; R. T. Smith, Whitchurch Company, Whitchurch, Salop; H. E. Snashall, Penshurst and Chiddingstone Steam Plough Company, Penshurst; J. Nicholls, Queen Camell, Ilchester; C. Clay, West Riding Steam Plough Company, Wakefield; J. P. Smith, Herefordshire Company, Hereford.

THE ILLUSTRATED FARMERS' AND GARDENERS' ALMANAC.—A typographical error in the 4th line of the paragraph in p. 1256, week before last, which characterises this Almanac, has created an ambiguity. The word printed "quality" was written "quantity," the object of the writer being simply to intimate that it was a very large book for its price—it is also a very good book for its price.

Garden Seeds.

CHARLES TURNER'S CATALOGUE is now ready, and may be had on application.

THE Best Three WRINKLED MARROW PEAS, Little Gem, Early Advancer, Second Crop, Premier, Summer, and Late.

See full description in C. TURNER'S CATALOGUE, now ready.

SNOW'S BROCCOLI (true), HEDSOR WINTER CUCUMBER, BAILEY'S SUPERB CABBAGE, with the Novelties in Flower Seeds. All the established varieties from the first sources. The Royal Nurseries, Slough.

POYNTER'S EARLIEST and BEST PEA, the hardiest and earliest out, price only 1s. 3d. per quart. See Advertisement, p. 1180 of this week's *Gardeners' Chronicle.*

To be obtained Retail in London of Messrs. Jas. Veitch & Sons, Chelsea, S.W.; and Mr. B. S Williams, Holloway, N.; and through any Seedsman, in one quart packages only, with Trade Mark, the Crown and Royal Oak, and blue label. None other genuine.

ROBERT H. POYNTER, Seedsman, &c., Taunton, Somerset.

New Cucumber—Cassburn's Surprise.

WM. L. SKINNER, NURSERYMAN and SEEDSMAN, Silcoates, Wakefield, in offering the above splendid CUCUMBER, feels the utmost confidence that it will give entire satisfaction to the Nobleman as well as the Market Gardener.

The flavour has been pronounced by an eminent medical practitioner as splendid; the size 18 to 24 inches, little or no seed, and a most abundant cropper. In packets of 2s. 6d. each.

Early orders must be given, as the supply of Seed is only limited. A remittance must accompany all orders. May be procured from Messrs. HURST & SON, Seed Merchants, 6, Leadenhall Street, London, E.C.; and Messrs. J. BACKHOUSE & SON, Nurserymen and Seedsmen, York.

SEED CATALOGUE now ready, and may be had on application.

"All the Year Round" Lettuce, 1s. 6d. per packet.

DICKSONS AND BROWN, SEED MERCHANTS, Manchester, in reply to the inquiries of numerous Correspondents in the Trade, beg to say that the demand for the above having been so very great, they cannot execute further orders for the same.

List of Seed Merchants who have obtained supplies:—

Messrs. Hurst & Son, London
" James Veitch & Sons, Chelsea
" Francis & Arthur Dickson & Sons, Chester
" J. & C. Lee, Hammersmith
" Cooper & Bolton, London
" Stuart & Mein, Kelso, N.B.
" James Backhouse & Son, York
" Dickson & Co., Edinburgh
" E. G. Henderson & Son, London
" James Garaway & Co., Bristol
" Fisher, Holmes & Co., Sheffield
" P. S. Robertson & Co., Edinburgh
" F. Farrell & Sons, Dublin
" S. Finney & Co., Gateshead-on-Tyne
Messrs. Downie, Laird & Laing, Edinburgh [burgh
" Peter Lawson & Son, Edin-
" Lucombe, Pince, & Co., Exeter
" W. Maule & Sons, Bristol
" Barr & Sugden, Covent Garden
" Dreghorn & Aitken, Kilmarnock [Holborn
" Carter, Dunnett, & Beale, High
Mr. E. Cooling, Derby
" Charles Turner, Slough
" James Meldrum, Kendal
" W. J. Watson, Newcastle-on-Tyne
" Robert T. Veitch, Exeter
" Joseph B. Hartland, Cork
Mrs. L. M. Pontey, Plymouth

Hill's June Broccoli.

E. P. FRANCIS AND CO. have great confidence in recommending the above Broccoli to the Gentry and Public generally. They have had the opportunity of seeing it grow during the last three seasons in the gardens of R. Hanbury, Esq., Poles, Ware, and they have no doubt but that its local reputation will soon become generally established.

Its special value is derived from the fact that its season extends from the last week in May to the end of June—thus supplying a want that has long been felt, by filling up the time between the ordinary Broccoli and Cauliflower seasons.

Its habit is strong—the heads of a medium size, and exceedingly close and white, and the flavour all that could be desired.

Numerous Testimonials have been received, but the following, from Mr. Merrick, Gardener to Russell Ellice, Esq., Brickendonbury, Herts, has been selected:—

"I have seen Hill's June Broccoli growing the last three seasons, and think it the very best yet brought out It is hardy and strong in growth, has close white heads of a medium size, and comes in the end of May and continues through June, so much wanted to join the Broccoli and Cauliflower season together. This year I saw it as late as the 16th of June in the open quarters, and have no doubt it could be kept till the end of June by moving it to a north border, by which time Cauliflowers are well in. It should be grown in every Garden. "WILLIAM MERRICK."

"Brickendonbury, Hertford."

Price in Sealed Packets, 2s. 6d. each, post free.
The Nurseries, Hertford.

Nuneham Park Onion.

WM. CUTBUSH AND SON have great gratification in announcing that this SUPERB NEW ONION has in every instance, where shown, obtained the first prizes, and numerous testimonials have been sent to them from various parts of the country, confirming the opinion that it is the largest and heaviest cropper of all Onions. It is also of exceedingly mild flavour, and keeps as long as any variety extant. In Sealed Packets 2s. 6d. each.

Trade price on application.
Highgate Nurseries, London, N.

Seed Potatos.

H. AND F. SHARPE are now offering MYATT'S PROLIFIC KIDNEY, DAINTREE'S EARLIEST, WEBB'S IMPERIAL KIDNEY, FORTY-FOLD, FOX'S SEEDLING, EARLY OXFORD, and many other Early and Late varieties, fine in quality, free from disease, and at low prices.

Seed Growing Establishment, Wisbech, Cambridgeshire.

Seed Potatos.—Edgcote Second Early Kidney.

P. J. PERRY, NURSERYMAN and SEED MERCHANT, Banbury, has much pleasure in introducing the above valuable Potato, which may be described as the finest flavoured and most productive Second Early variety in cultivation.

It was raised by Mr. Neale, Gardener to Aubrey Cartwright, Esq., Edgcote House, near Banbury, by whom it was exhibited at the Royal Horticultural Society's Great Show of Fruit and Vegetables, Saturday, July 22, 1865, and was awarded First Prize in Class 7.

The *Gardeners' Chronicle*, July 29, 1865, in noticing the above Show, states:—"POTATOS: These were largely contributed, and many of them were unusually fine for the season of the year. Among Kidneys the most valuable was Edgcote Second Early, a very perfect Potato, which obtained the First Prize for a single dish."

Price per peck, including bag, 6s.

P. J. PERRY has also a limited stock of the following valuable varieties to offer:—

NE PLUS ULTRA.—The earliest Potato in cultivation.

ROYAL ALBERT.—One of the finest and most productive Early White Round Potatos known.

EARLY EMPEROR, or SOMERSET RED.—Of this Potato, Mr. Maybush writes, in *Gardeners' Chronicle*, October 6, 1866, p. 945:—"This may be described as one of the best Second Early Round Potatos known. It has a beautifully netted skin, boils perfectly white, and the flavour is all that can be desired," &c.

Price of the above three sorts, 5s. per peck.
The Nurseries, Banbury.

HENRY DEWAR AND SON beg respectfully to offer Seed of their very superior IMPROVED SHORT-TOP RED BEET, which was awarded Two First-class Certificates at the Gardens of the Royal Horticultural Society, South Kensington, on Nov. 7 and Dec. 9, 1865; also Seed of their solid crisp white NORTHUMBERLAND CHAMPION CELERY, which was awarded a First-class Certificate at the International Show, South Kensington, Dec. 9, 1865. In addition to the First-class Certificates, the Silver Banksian Medal of the Royal Horticultural Society was awarded for the above Beet and Celery.

In sealed packets only, stamped with our name in full, at 1s. per packet each. Price to the Trade on prepaid application.

Seed Establishment, 97, Grey Street, Newcastle-on-Tyne.

SELECTED SILVER SAND, PEAT, LOAM, ROCK, Sandstone, Garden Pots, Vases, Tazzas, Figures, Gravel, Garden Implements, and materials of all kinds for Sale in any quantity by Railway, Canal, and Ship to all parts of the United Kingdom.

W. SHORT, Horticultural Depot, Reigate, Surrey.

Extensive and well-grown Nursery Stock.

J. SCOTT, Merriott, Somerset, has to offer as under:—FOREST TREES:—Acacia, 5 to 6 feet, 10s. per 100; Alder, 3 feet, 25s. per 1000; Beech, 2 to 2½ feet, 30s. per 1000; do., 3 to 4 feet, 35s. per 1000; do., 4 to 5 feet, 80s. per 1000; Chestnut, Horse, 3 to 4 feet, 80s. per 1000; do., 4 to 5 feet, 10s. per 100; Chestnut, Spanish, 2 feet, 30s. per 1000; do., 3 feet, 35s. per 1000; Elm, English, 4 to 5 feet, 10s. per 100; do., 5 to 6 feet, 20s. per 100; Elm, Wych, 4 to 6 feet, 80s. per 1000; do., 5 to 6 feet, 10s. per 100; Firs, Larch, 2 feet, 20s. per 1000; do., 2½ to 3 feet, 25s. per 1000; do., 3 to 4 feet, 30s. per 1000; Scotch, 1½ to 2 feet, 18s. per 1000; do., 2 to 2½ feet, 20s. per 1000; do., 2½ to 3 feet, 25s. per 1000; Silver, 9 to 12 inches, 50s. per 1000; do., 12 to 18 inches, 80s. per 1000; Spruce, 1½ feet, 25s. per 1000, do., 2 feet, 30s. per 1000; do., 2½ feet, 35s. per 1000; do., 3 feet, 40s. per 1000; Hazel, 2 to 2½ feet, 15s. per 1000; do., 2½ to 3 feet, 30s. per 1000; do., 3 to 4 feet, 40s. per 1000; do., 4 to 5 feet, 45s. per 1000. The Hazel is especially fine. Oak, English, 2 to 2½ feet, 35s. per 1000; Willows, from 30s. to 50s. per 1000; Yews, 2 feet, fine, 75s. per 100; Holly, 2 feet, extra fine, 60s. per 100.

FRUIT TREES, the best Collection in England, are grown to a large extent, and free from every kind of disease. A 92-paged DESCRIPTIVE CATALOGUE, with cultural notes, free. Apples, 600 sorts in all manner of training, from 6d. to 3s. 6d. each; Apricots, Nectarines, and Peaches, Maiden and Dwarf-trained, from 6d. to 3s. 6d. each; Cherries, Standard and Pyramidal, 1s. to 2s. 6d. each; do. Dwarf-trained, 1s. 6d. to 2s. 6d. each, in 50 sorts. May Dukes and Morellos to the trade in quantity, cheap. Pears, 800 sorts, from 6d. to 2s. 6d. to 5s. each, according to size; Plums, Pyramidal and Dwarf-trained, 2s. 6d. to 3s. 6d. each. Deodar Cedar, 4 to 5 feet, 30s. per dozen; 5 to 6 feet, 36s. per dozen; 6 to 7 feet, 42s. per dozen. Magnificent trees with fine balls. A splendid collection of ORNAMENTAL TREES and SHRUBS equally cheap.

THE LONDON MANURE COMPANY
(ESTABLISHED 1840),
Have now ready for delivery in dry fine condition,
CORN MANURE, for Spring Use
DISSOLVED BONES, for Dressing Pasture Lands
SUPERPHOSPHATES of LIME
PREPARED GUANO
MANGEL and POTATO MANURES
Also Genuine PERUVIAN GUANO, and NITRATE of SODA, ex Dock Warehouse; SULPHATE of AMMONIA, FISHERY SALT, &c.
E. PURSER, Secretary.
Offices, 116, Fenchurch Street, E.C.

LAWES' MANURES.
The Manures manufactured by J. B. LAWES for the present season of 1866 are now ready for delivery at his Factories, at the following prices, per ton:—

	£	s.	d.
LAWES' PATENT TURNIP MANURE, and BONE SUPERPHOSPHATE of LIME	6	6	0
LAWES' SUPERPHOSPHATE of LIME from BURNT BONE or MINERAL PHOSPHATES	5	5	0
LAWES' WHEAT, BARLEY, GRASS, and MANGEL MANURES	8	0	0
CONCENTRATED CORN and GRASS MANURE	12	0	0

These Manures can be obtained of Mr. LAWES, or through the appointed Agents in all parts of the United Kingdom, at prices varying according to cost of carriage.
Genuine Peruvian Guano direct from the Importers. Nitrate of Soda, Sulphate of Ammonia, and other Chemical Manures.
American and other Cakes at market prices.
Address, JOHN BENNET LAWES, 1, Adelaide Place, London Bridge, E.C.; and 22, Eden Quay, Dublin.

AGENTS WANTED for a well-known MANURE, which commands a ready Sale. Is highly recommended by Customers for several years, and sold carriage free. Liberal terms given.—B. C., 5, Tavistock Row, Covent Garden, London, W.C.

By Royal Appointment

TO HER MAJESTY, By Special Warrant, dated December 27, 1865.
TO THE PRINCE OF WALES, By Special Warrant, dated February 10, 1866.

DAY, SON, AND HEWITT,
Original and Sole Proprietors of the STOCK-BREEDERS' MEDICINE CHEST, for DISORDERS in HORSES, CATTLE, CALVES, SHEEP, and LAMBS.
Patronised by upwards of Seventy Thousand of the principal Stock Breeders, Horse Proprietors, and Agriculturists of England, Ireland, Scotland, and Wales.
The only True and Original "DAY'S CHEMICAL COMPOUNDS" are prepared expressly by us. The Chest contains the following matchless preparations:—
Half a Dozen CHEMICAL EXTRACT, at 30s. per dozen.
One Dozen GASEOUS FLUID, at 20s. per dozen.
One Dozen RED DRENCHES, at 13s. per dozen.
One Dozen RED PASTE BALLS, at 7s. 6d. per dozen.
Adapted for all ailments among Stock during the present season. Price of Chest complete, with Shilling Book on Farriery, £2 16s. 6d., carriage paid. Either preparation may be had separately in boxes.
TESTIMONIALS.
The Lambing Season.—The "Chemical Extract" is unequalled for bad cases in drawing Lambs, and to stop heaving and straining. Mr. Woods, in his Lecture on the "Breeding and Management of Sheep," says—"My shepherd declares it to be worth a guinea a bottle."
The "Gaseous Fluid" is famous for debility and exhaustion in Ewes after Lambing; for diarrhœa in Calves and Sheep, and for colic and gripes in Horses and Cattle. Mr. Bowick, in his prize essay on the "Rearing of Calves," says—"The Gaseous Fluid is sufficient for all the ills that Calfhood is liable to. I have reared 26 calves this year, and by the use of the 'Gaseous Fluid,' I have not lost one." Mr. Thos. Rigby (Cheshire), in his Lecture on "Summer Grazing of Sheep," says—"Day, Son, & Hewitt's Gaseous Fluid is the best corrective of scour in Sheep I have ever tried. I can strongly recommend their 'Medicine Chest' as a most valuable auxiliary to stock-keepers of all kinds, but especially to shepherds. With the medicines they give plain directions for use, which any man may understand."
Orders sent by Post will be promptly attended to if addressed—DAY, SON, & HEWITT, Animal Medicine Factory, 22, Dorset Street, Baker Street, London, W.; or Wantage, Berks.
"Woods on Sheep," five stamps; "Bowick on Calves," three stamps, both free by post.



GARDEN BORDER EDGING TILES, in great variety of patterns and material, the plainer sorts being especially suited for KITCHEN GARDENS, as they harbour no Slugs and Insects, take up little room, and once put down incur no further labour and expense, as do "grown" Edgings, consequently being much cheaper.



GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, of great durability, and in great variety of design.
F. & G. ROSHER, Manufacturers, Upper Ground Street, Blackfriars, S.; Queen's Road West, Chelsea, S.W.; Kingsland Road, Kingsland, N.E.
Sole London Agents for FOXLEY'S PATENT GARDEN WALL BRICKS. Illustrated Price Lists free by post. The Trade supplied

ORNAMENTAL PAVING TILES for Conservatories, Halls, Corridors, Balconies, &c., as cheap and durable as Stone, in blue, red, and buff colours, and capable of forming a variety of designs.
Also TESSELATED PAVEMENTS of more enriched designs than the above.
WHITE GLAZED TILES, for Lining Walls of Dairies, Larders, Kitchen Ranges, Baths, &c. Grooved and other Stable Paving Bricks of great durability, Dutch and Adamantine Clinkers, Wall Copings, Red and Stoneware Drain Pipes, Slates, Cements, &c.
To be obtained of F. & G. ROSHER, at their Premises as above.

SILVER SAND (REIGATE, best quality), at the above addresses—14s. per Ton, or 1s. 3d. per Bushel; 2s. per Ton extra for delivery within three miles, and to any London Railway or Wharf. Quantities of 4 Tons, 1s. per Ton less.
FLINTS, BRICK BURRS or CLINKERS, for Rockeries or Grotto Work. F. & G. ROSHER.—Addresses see above.
N B. Orders promptly executed by Railway.



COCOA-NUT REFUSE is becoming SCARCE, the old reserves will soon be gone. Now sold in bags, 1 for 2s., 10 for 16s., 2 for 30s., 50 for 60s., 100 for £6.
Fourpence allowed for each bag returned carriage-paid.
A Railway Truck-load (not in bags), 40s.
Postage Stamps or Post-office Order, payable to J. BARSHAM & Co., Kingston-on-Thames, S.W.

Fumigate your Greenhouse with
TOBACCO TISSUE.
Will Destroy all the Insects and not Injure the Plants.
Price 3s. 6d. per lb., carriage free, to be had of Messrs. ROBERTS & SONS, Tobacco Manufacturers, 54, St. John Street, Clerkenwell E.C., and of all Seedsmen and Nurserymen.

Winter Dress all Fruit Trees with
GISHURST COMPOUND.

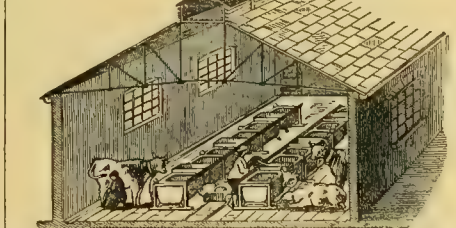


Red Spider Magnified.

Copy of a Letter from Mr. RIVERS, *Nurseries, Sawbridgeworth, Herts,* 22d *Oct.*, 1861.
"I must tell you what heard to-day from a very clever gentleman farmer, Anthony Bubb, Esq., of Witcombe Court, Gloucester. He has a wall to which Peach trees are trained. Well, last autumn they were in a wretched blighted state. As a desperate remedy he unnailed them all, early last February, and gave all but one a thorough painting with Gishurst Compound, 1 lb. to the gallon of water; his trees, all but the one, commenced to grow favourably in spring, and are now pictures of health. The tree not painted is in a half-dead blighted state. He used the same dressing to his Apple trees; it killed the woolly Aphis entirely, and has made his trees clean and vigorous in their growth. He intends to paint his wall trees annually, and tells all his friends to do the same. I shall certainly serve all my young Peach trees against my walls in the same manner. The Compound is, I believe, more efficacious than the usual offensive mixtures of clay, soot, sulphur, &c.; and it does not blacken the shoots on the walls."
For Orchard-house Trees, ozs. to the gallon will be found a good strength; when used stronger some buds on weakly trees may be injured.
GISHURST COMPOUND is sold Retail by Nurserymen and Seedsmen, in boxes, 1s., 3s., and 10s. 6d. each.
Wholesale by PRICE'S PATENT CANDLE COMPANY, LIMITED, Belmont, Vauxhall, London, S.
Gishurst Compound has more recent testimonials to its efficacy, but none more conclusive than the above, which has been published before.

Caution to Gardeners.—When you ask for
SAYNOR AND COOKE'S WARRANTED PRIZE PRUNING and BUDDING KNIVES, see that you get them. Observe the mark SAYNOR, also the corporate mark OBTAIN WARRANTED, without which none are genuine.
S. & C. regret having to caution Gardeners and others, but are compelled to do so, in consequence of an imitation, of common quality, having been sold for the genuine one, and which has caused many complaints to be made to them of Knives which were not of their make, all of which are warranted both by Sellers and Makers.
S. & C.'s Pruning and Budding Knives are the best and the cheapest in the market.
Paxton Works, Sheffield. Established upwards of 125 years.

COTTAM'S PATENT PORTABLE UNITED COW FITTINGS.



Their advantages are—Portability, not Fixtures, removable at pleasure, no Woodwork or Partitions to impede Ventilation or breed Vermin, Hay Rack dispensed with as unnecessary, increased width and depth of Feeding Troughs, Water Cistern, and Patent Drop Cover to prevent over-gorging. Cleanly, durable, and impervious to infection, being all of iron. Price of Fittings per Cow, 55s.
Prospectuses free of COTTAM & Co., Iron Works, 2, Winsley Street (opposite the Pantheon), Oxford Street, London, W., where the above are exhibited, together with several important Improvements in Stable Fittings just secured by Patent.

GALVANISED WIRE NETTING.



PRICES of NETTING, 24 INCHES HIGH.

Size of Mesh.	Proof against	Light, per Yard.	Medium, per Yard.	Strong, per Yard.	Extra strong per Yard.
2½ inch	Hares, Dogs, Poultry, &c.	3½d.	4½d.	5½d.	6½d.
2 inch	All kinds of Game ..	3½d.	4½d.	5½d.	7d.
1½ inch	Small Rabbits, Hares, &c.	4½d.	5½d.	6½d.	8d.
1½ inch	Ditto Ditto ..	5½d.	6½d.	8d.	10d.

100 Yards and upwards Carriage Free.
GALVANISED IRON WATER CISTERNS.
GALVANISED CABLE STRAND FENCING.
GALVANISED IRON PUMPS.
GALVANISED SWING WATER BARROWS.
GALVANISED IRON ROOFS and BUILDINGS.
LAWN MOWERS, GARDEN ROLLERS.
ASPHALTE ROOFING FELT, 1d. per square foot.
HURDLES, HURDLES, HURDLES, 1s. 9d. to 3s. 9d. per yard.
MOTLEY & GREEN.
Illustrated Catalogues and Estimates free on application, 12, Great George Street, Leeds.

Oil Paint no longer Necessary.



HILL AND SMITH'S PATENT BLACK VARNISH for preserving Iron Work, Wood, or Stone. This Varnish is an excellent substitute for oil paint on all out-door work, and is fully two-thirds cheaper. It may be applied by an ordinary labourer requires no mixing or thinning, and is used cold. It is used in the grounds at Windsor Castle, Kew Gardens, and at the seats of many hundreds of the nobility and gentry, from whom the most flattering testimonials have been received, which HILL & SMITH will forward on application.
From I. A. TAYLOR, Esq., *Stresham Court.*
"In answer to your inquries, I beg to inform you I find your Black Varnish an excellent substitute for oil paint upon iron and wood out of doors, and have found the iron Barrow with apparatus essential in applying the Varnish to lines of fencing. I can strongly recommend the Black Varnish for all out-door work as superior to anything I have yet used for the purpose, and it can be applied with great economy by careful labourers."
Sold in casks of about 30 gallons each, at 1s. 6d. per gallon, at the Manufactory, or 1s. 8d. per gallon paid to any Station in the kingdom.
Apply to HILL & SMITH, Brierly Hill Iron Works, near Dudley, and 22, Cannon Street West, E.C., from whom only it can be obtained

JOHN WARNER AND SONS,
8, Crescent, Cripplegate, London, E.C.,
BELL and BRASS FOUNDERS to HER MAJESTY.



No. 35.

PATENT CAST-IRON PUMP, fitted with J. W. & Sons' Metal Bucket and Valve, which cannot clog in action, for Wells not exceeding 25 feet.

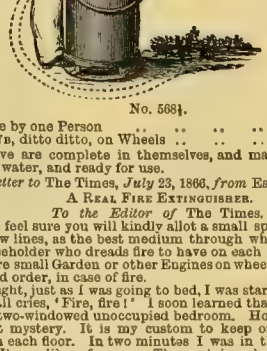
Diam.	Height.	£	s.	d.
2½ in. short	1 ft. 7 in.	1	1	0
2½ in. long	3 ft. 3 in.	1	8	6
3 in. long	3 ft. 6 in.	2	1	0
3½ in. long	3 ft. 6 in.	2	6	0
4 in. long	3 ft. 6 in.	2	14	0
2½ in. short, with 15 feet of lead pipe attached, ready for fixing		2	0	0
2 in. long, do. do.		2	14	0



No. 42.

IMPROVED LIQUID MANURE or GENERAL PORTABLE PUMP.—These Pumps are fitted with J. W. & Sons' Patent Bucket and Valve, and cannot clog in action. The Barrel is made of Galvanised Iron, not likely to corrode, and can be raised or lowered at pleasure on the stand, the legs of which fold together, and it may be carried with ease by one man to tank or pond.
Price of 4½-inch Liquid Manure Pump, with legs, £2 15s.; 2-inch Flexible Rubber and Canvas Suction Pipe, 2s. 5d. per foot. The Barrel is 27½ inches long, and the legs are 5 feet high.

WARNERS' PORTABLE FIRE or GARDEN ENGINE.



£2 2s.

No. 568½.
For use by one Person .. .. price £2 2s.
No. 547B, ditto ditto, on Wheels .. .. „ £2 10s.
The above are complete in themselves, and may be always kept filled with water, and ready for use.
Letter to The Times, *July* 23, 1866, *from* Earl ESSEX.
A REAL FIRE EXTINGUISHER.
To the Editor of The Times.
"SIR,—I feel sure you will kindly allot a small space in the *Times* to these few lines, as the best medium through which I would urge every householder who dreads fire to have on each floor of his house one or more small Garden or other Engines on wheels, always charged and in good order, in case of fire.
"Last night, just as I was going to bed, I was startled by that most fearful of all cries, 'Fire, fire!' I soon learned that a fire was raging in a large two-windowed unoccupied bedroom. How caused is to us all a great mystery. It is my custom to keep one of these small Engines on each floor. In two minutes I was in the room with one of them. It was like a furnace. The curtains, shutters, casements, and cornices of both windows were burning and cracking from floor to ceiling. I was quite alone at the moment, yet before assistance arrived (most of the servants having gone to bed), I had completely subdued the fire of one window without exhausting the Engine, and when assistance and more water did arrive, we very soon extinguished the other.
"So fierce was the fire that the lead of the casements was melted, and the casements themselves were burnt off their hinges.
"I will only add, that by God's mercy, the house was saved by this small Engine. Had it not been at hand and in order, most assuredly Cassiobury would be now a heap of ruins.—Yours faithfully,
"Cassiobury, Watford, July 20. "ESSEX.
"The Engine, even when full, runs so light on the floor, that any woman might draw it, and also work it."

SHAW'S TIFFANY.
For samples and prices apply to
J. SHAW & Co., 29, Oxford Street, Manchester.

Asphalte Roofing Felt,
ONE PENNY per Square Foot.
CROGGON AND CO., MANUFACTURERS,
{63, New Earl Street, / 34, Bread Street, } London, E.C.
59, GEORGE SQ., GLASGOW; 2, GOREE PIAZZAS, LIVERPOOL.

E. T. ARCHER'S "FRIGI DOMO." Patronised by Her Majesty The Queen, the Duke of Northumberland for Syon House, His Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, &c.
PROTECTION from COLD WINDS and MORNING FROSTS.
"FRIGI DOMO," a Canvas made of Patent prepared Hair and Wool, a perfect Non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all Horticultural and Floricultural purposes, for Preserving Fruits and Flowers from the Scorching Rays of the Sun, from Wind, from Attacks of Insects, and from Morning Frosts. To be had in any required lengths.

Two yards wide	1s. 9d. per yard run.
Four yards wide	3s. 6d. per yard.
An improved make, 2 yards wide ..	1s. 9d. per yard.
An improved make, 3 yards wide ..	2s. 8d. per yard run. Also

FRIGI DOMO" NETTING, 2 yards wide, 1s. 6d. per yard run.
ELISHA THOMAS ARCHER, Whole and Sole Manufacturer, 7, Great Trinity Lane, Cannon Street, City, E.C., and of all Nurserymen and Seedsmen throughout the Kingdom.
"It is much cheaper than Mats as a covering."

Lawn Mower Repairs.
ALEXANDER SHANKS AND SON would suggest to their numerous friends the desirability and importance of having their Lawn Mowers put into proper order before the commencement of the Mowing season. If attention be paid to this request some disappointment may be avoided, because in the early spring the necessary time for repairing Machines is to some extent denied them, on account of the press of business connected with the manufacture and despatch of new Machines.
Machines for Repair can be addressed, ALEX. SHANKS & SON, 27, Leadenhall Street, London, E.C. (where Repairs are executed); or to the Manufactory, Deus Iron Works, Arbroath, N.B.

FOWLER'S PATENT STEAM PLOUGH and CULTIVATOR may be SEEN at WORK in every Agricultural County in England.
For particulars apply to JOHN FOWLER & Co., 71, Cornhill, London, E.C.; and Steam Plough Works, Leeds.

THE IMPROVED TANNED LEATHER DRIVING STRAPS. PATENT EDGE-LAID LEATHER STRAPS, without lap or cross joints—superior to all others for Portable Engines. Prime STRAP and SOLE BUTTS.
Price Lists sent free by post.
THE TANNED LEATHER COMPANY, Tanners, Curriers, &c., Armit Works, Greenfield, near Manchester; Warehouse, 81, Mark Lane, London, E.C. Mr. H. FERRABEE, Agent.

Important Reduction in the Prices of Portable Engines for 1866.
CLAYTON, SHUTTLEWORTH AND CO., ENGINEERS, Manufacturers of Portable and Fixed Steam Engines; Machinery for Pumping, Hoisting, Grinding, Sawing, &c.; Engines for Steam Cultivation, Self-moving Engines for Common Roads and Agricultural Purposes generally.
Stamp End Works, Lincoln; and 78, Lombard Street, London; also at Lowengasse No. 44, Landstrasse, Vienna; and Gegenuber dem Bahnhof, Pesth.
Descriptive, Illustrated, and Priced Catalogues Free per Post. Special Drawings when required. The best Steam Threshing Machinery made.

Greenhouses of Improved and Portable Construction
MAY BE SEEN ERECTED AT
JOSEPH SMITH'S HORTICULTURAL WORKS, New Road, Hammersmith.

SPAN-ROOFS—21 ft. by 11 ft. 6 in., with Stage ..	£32	0s.
,, 24 ft. by 9 ft. 6 in. ,, ..	27	0
,, 23 ft. by 12 ft. 9 in. ,, ..	37	0
,, 30 ft. by 19 ft.	70	0
LEAN-TO.—17 ft. by 7 ft.	15	10
,, 20 ft. by 9 ft. 9 in.	21	0
,, 21 ft. by 12 ft. 9 in.	30	0
,, 21 ft. by 13 ft.	27	0

Fifty strong 21-in. Lights, 5 ft. 8 in. by 4 ft., Glazed 21-oz., and well painted, £40.
Twenty ditto, 5 ft. 8 in. by 3 ft. 7 in., ditto, £14 10s.
CONSERVATORIES, GREENHOUSES, or VINERIES made to order at 1s. 3d. per foot.
MELON FRAMES of an improved make, ready at low prices.
Estimates for Heating effectually by Hot-Water.
A VINERY or PEACH-HOUSE, 41 ft. by 9 ft., with 14 ft. Rafters, £49.

LOCK'S PATENT POTASH MANURES.

TRADE LOCK'S POTASH MANURE MARK.

This is the only "*perfect*" MANURE ever yet offered to the Agricultural Public, containing, as it does, that most *important element* of every cultivated plant—POTASH. It is far superior in efficiency to Peruvian or any other Guano, as it supplies EVERY *constituent requisite for each* SPECIAL *Crop.*
Each Manure is specially prepared for the Crop for which it is intended, and is sold in Bags containing the necessary Dressing for *One Acre.*
The WHEAT, BARLEY, and OAT MANURE will effectually PREVENT the LODGING of the Corn, so frequent on lands deficient in Silica.
The CLOVER MANURE is a CERTAIN CURE for CLOVER SICKNESS, so prevalent in some Counties.
The GRASS MANURE contains an abundance of SILICATE of POTASH, which is by far the *predominating element* in all GRASSES, and which has never before been offered for Sale by any Manufacturer.

For full particulars see Circulars, for which apply to the
SOUTH of ENGLAND MANURE COMPANY, LIMITED, REDBRIDGE, HAMPSHIRE,
who are the SOLE MANUFACTURERS.
*** AGENTS WANTED for the UNITED KINGDOM.

HOTHOUSES FOR THE MILLION.
AWARDED A PRIZE MEDAL, 1862.
INVENTED AND PATENTED BY THE LATE
SIR JOSEPH PAXTON.
MANUFACTORIES:—LONDON; NEWTON IN CARTMEL, LANCASHIRE; GLOUCESTER, COVENTRY, ABERDEEN, and PAISLEY.

1862 LONDINI HONORIS CAUSA

"Nothing can be more easy than to build them, nothing more simple than to remove them."—*Daily News*, May 22, 1862.

COMBINE SIMPLICITY, CHEAPNESS, AND DURABILITY.



FULFIL ALL THE REQUIREMENTS OF HORTICULTURE.

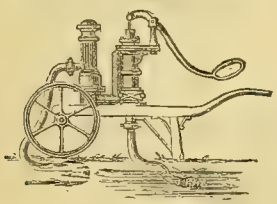
Illustrated Price Lists will be sent on prepaid application. Estimates given for Ornamental Conservatories, &c. to special sizes and designs; also for Heating Apparatus, fixed complete.

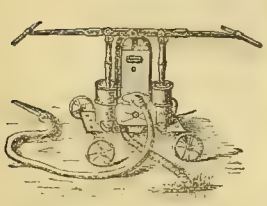
HEREMAN AND MORTON, 7, PALL MALL EAST, LONDON, S.W.

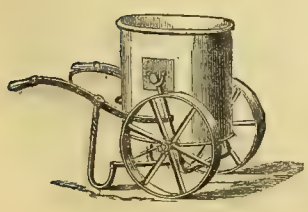
A HANDBOOK of VINE and FRUIT TREE CULTIVATION, as adapted to the above Patent Hothouses, may be had of Mr. HEREMAN. Second Edition, price 1s.; post free, 1s. 1d.

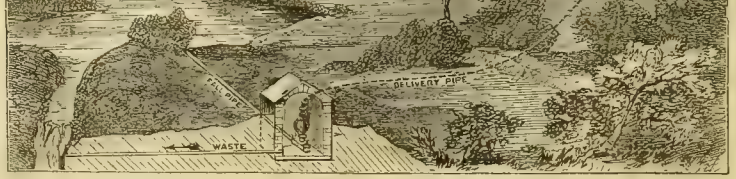
"The instructions given for the Cultivation of the Vine and other Crops are essentially practical, and are evidently written by one who has himself performed all the operations before he attempted to instruct others."—*Cottage Gardener*, Oct. 6, 1863.

S. OWENS & CO.,
(LATE CLINTON AND OWENS),
MANUFACTURERS OF
PUMPS AND HYDRAULIC MACHINERY,
WHITEFRIARS STREET, FLEET STREET, LONDON.


No. 46a.

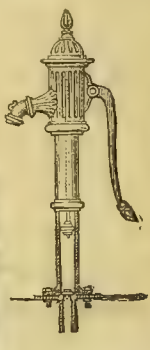

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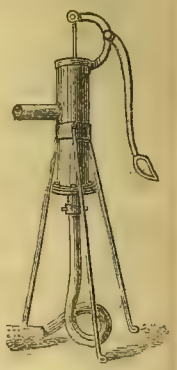

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No. 49c. INDIA RUBBER HOSE and FITTINGS for WATERING GARDENS.
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No. 49c.


No. 49.

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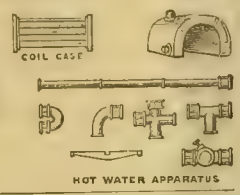
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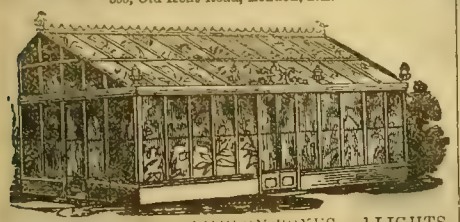
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Materials supplied as above, or Estimates given fixed complete to Plan, on application to COTTAM & Co., Iron Works, 2, Winsley Street, (opposite the Pantheon), Oxford Street, London, W.



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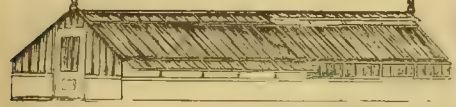
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4 " " ..	0	5½	14 " " ..	2	6	
5 " " ..	0	6½	15 " " ..	3	0	
6 " " ..	0	8	16 " " ..	3	6	
7 " " ..	0	10	17 " " ..	4	0	
8 " " ..	1	0	18 " " ..	5	0	
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10 " " ..	1	4	20 " " ..	7	0	
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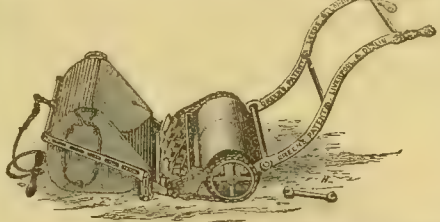
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BY HER MAJESTY'S ROYAL LETTERS PATENT.

ORMSON'S

NEW PATENT WROUGHT IRON MULTITUBULAR HOT-WATER BOILER.

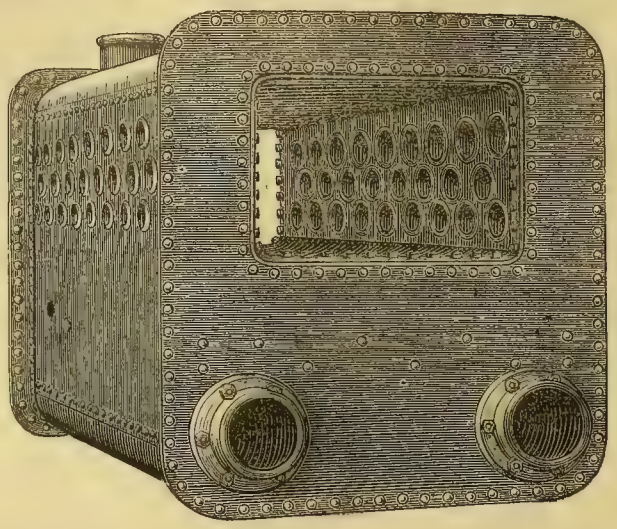
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1st. Being entirely of WROUGHT-IRON, its safety from leakage and cracks (from expansion or contraction), a danger to which all Cast-iron Boilers are more or less liable.

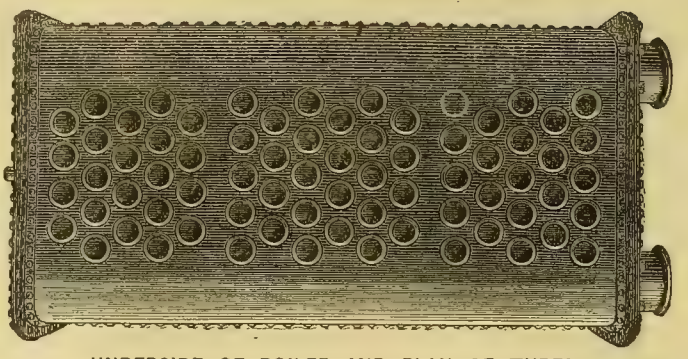
2d. An immensely increased surface exposed to the direct action of the fire, which passes through the tubes, thereby giving a wonderfully increased amount of power.

3d. A great saving in the consumption of fuel. Its facility for banking up the fire. Its peculiarly well-adapted construction for slow combustion, and burning many hours without attention, at a trifling expense.

4th. Its extraordinary power and safety for carrying out the One-Boiler System, and small space and depth for setting.



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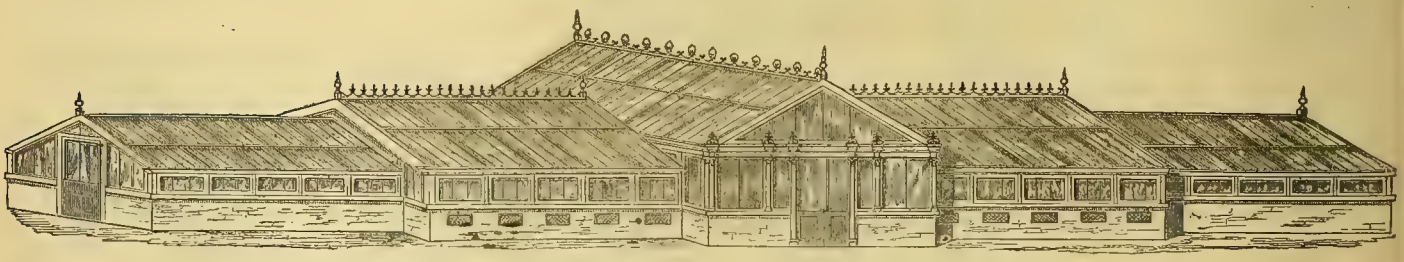


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THEY ARE MADE OF VARIOUS SIZES. PRICES ON APPLICATION.



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COMBINING STRENGTH AND DURABILITY,

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LOWEST PRICES AND BEST MATERIALS.

☞ *Plans, Specifications, and Estimates on application.*

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HORTICULTURAL BUILDER TO HER MAJESTY, AND HOT-WATER APPARATUS MANUFACTURER TO THE COMMISSIONERS OF HER MAJESTY'S ROYAL PALACES AND PUBLIC BUILDINGS, AND TO THE ROYAL HORTICULTURAL SOCIETY,

STANLEY BRIDGE, KING'S ROAD, CHELSEA, LONDON, S.W.

Editorial Communications should be addressed to "The Editor;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
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THE GARDENERS' CHRONICLE

AND

AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.

No. 3.—1867.] SATURDAY, JANUARY 19. {Price Fivepence. {Stamped Edition, 6d.

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Gardeners' Benevolent Institution	53 a	— colouring living	52 c
Garrya elliptica, female	52 c	Turnpike trusts	63 a
Hippophae rhamnoides	53 c	Walks, asphalte	53 b
Ireland, condition of	61 a	Water supply, London	57 c
— rents in	58 c	Weather of 1866	51 a
McArdell, late Mr.	56 a	— late severe	52 b–58 a
		— in Scotland	52 b

NATIONAL HORTICULTURAL EXHIBITION, 1867.—The above EXHIBITION will open at Manchester on JUNE 7, and continue till JUNE 15.
Schedules, &c., may be obtained on application to Mr. B. FINDLAY, Curator, Botanic Garden, Manchester; or from the undersigned,
HENRY WHITWORTH, Secretary.
Carlton Buildings, Cooper Street, Manchester.

Grape Vines.
JOSEPH MEREDITH has a beautiful Stock of VINES for Sale, propagated from Vines which have borne the fruit which has taken from time to time so many First Prizes.
The Vineyard, Garston, near Liverpool.

Late Grape Vines.
ALICANTE, LADY DOWNES', and MUSCAT of ALEXANDRIA. J. MEREDITH has a splendid Stock of the above sorts for Planting.
The Vineyard, Garston, near Liverpool.

VINES, VINES.—Strong Planting and Fruiting Canes of all the leading kinds. Prices on application.
B. S. WILLIAMS, Victoria and Paradise Nurseries, Upper Holloway, N.

BLACK and GOLDEN HAMBURGH GRAPE VINES. Strong well-ripened Fruiting Canes, 7s. 6d. each.
Price to the Trade on application.
C. FAIRNINGTON, 4, Elm Tree Road, St. John's Wood, London, N.W.

LADY DOWNES' SEEDLING, HAMPTON COURT, BLACK HAMBURGH, and MUSCAT of ALEXANDRIA GRAPES. Good Fruiting Canes, 7s. 6d. each; good Planting Canes, 3s. 6d. each.
T. JACKSON & SON, Nurseries, Kingston, S.W.

STRONG and EXTRA STRONG FRUITING VINES.—Upwards of 2000 from Eyes, including all the leading varieties, with stout close-jointed thoroughly ripened Canes, many of which, if fruited in pots, will produce from 8 to 16 bunches of Grapes next season. Prices, &c., upon application.
JAMES DICKSON & SONS, "Newton" Nurseries, Chester.

To the Trade.
J. C. WHEELER AND SON, NURSERYMEN, Gloucester, having more DWARF MAIDEN APRICOTS, PEACHES, NECTARINES, and PLUMS, than they require for their own planting, beg to offer them on very reasonable terms. They are strong, healthy, and true to name. Price on application.

CASTLE KENNEDY FIG.—Plants of the above may now be had at 10s. 6d. and 21s. each; the usual discount to the Trade. PETER LAWSON & SON, Edinburgh and London.

WEBB'S PRIZE COB, FILBERT and other PRIZE NUT TREES. LIST of varieties and prices to be had of Mr. WEBB, Calcot Gardens, Reading.

PYRAMID APPLES, PEARS, PLUMS, CHERRIES. Beautiful Trees for Garden or Orchard Houses.
RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

Dwarf-trained Trees by the 1000, 100, or dozen.
APPLES, PEARS, PLUMS, CHERRIES, PEACHES, and NECTARINES. Fine, flat, well-trained, of best quality and true to name.
RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

Fifty Acres of Fruit Trees,
APPLES, PEARS, PLUMS, CHERRIES, PEACHES, NECTARINES, and APRICOTS in every form desired for Fruiting.
RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

Orchard-house Trees Fruiting in Pots.
PEACHES, NECTARINES, APRICOTS, CHERRIES, PLUMS, PEARS, APPLES, VINES, and FIGS.
RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

FRUIT TREES, for Walls and Espaliers.—Upwards of 50,000 to select from, carefully trained, and in the healthiest condition for planting.
RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

Tuberoses, Tuberoses, Tuberoses.
BUTLER, McCULLOCH, AND CO. have to offer extra strong ROOTS of the above, 3s. per dozen, 4d. each.
South Row, Covent Garden Market, W.C.

New Double Italian Tuberoses.
SUTTON AND SONS have received their annual supply in good condition, which they can supply at 3s. 6d. per dozen.
Royal Berkshire Seed Establishment, Reading.

LILIUM AURATUM. Strong Bulbs, 5s., 7s. 6d., 10s. 6d., and 15s. each.
B. S. WILLIAMS, Victoria and Paradise Nurseries, Upper Holloway, London, N.

WANTED, in Full Bud, a few large CAMELLIAS of the old Double White. State size, price, &c., for Cash on delivery, to W. HEATH, College Nursery, Cheltenham.

SUTTON'S COLLECTIONS of SEEDS.
For the KITCHEN GARDEN, 10s. 6d. to £5 5s.
For the FLOWER GARDEN, 5s. to 42s.
Prices and particulars gratis and post free.
SUTTON & SONS, Seed Growers, Reading.

SUTTON'S SHORT SELECT SEED LIST may be had gratis on application.
Royal Berks Seed Establishment, Reading.

New Flower Seeds—Novelties for 1867,
WITH INSTRUCTIONS ON CULTIVATION.—See
SUTTON'S AMATEUR'S GUIDE, page 34. Price One Shilling post free, or gratis to Customers.
Royal Berkshire Seed Establishment, Reading.

CARTER'S NEW GARDEN SEEDS for 1867.—PRICE LISTS, containing all the NOVELTIES of the season, gratis and post free.
JAMES CARTER & Co., 237, High Holborn, London, W.C.

Genuine Garden Seeds.
WM. CUTBUSH AND SON'S CATALOGUE of VEGETABLE, FLOWER, and FARM SEEDS, post free on application. Highgate, London, N.

WHOLESALE CATALOGUE of GENERAL NURSERY STOCK, containing 66 pages, may be had post free on application to
THOMAS CRIPPS, The Nurseries, Tunbridge Wells.

New General Plant Catalogue.
B. S. WILLIAMS' NEW PLANT CATALOGUE, containing many really good Novelties, and carefully selected LISTS of STOVE, GREENHOUSE, and HARDY PLANTS, is now ready and will be forwarded post free to all applicants.
Victoria and Paradise Nurseries, Holloway, London, N.

Being Issued.—First Edition 25,000.
BARR AND SUGDEN'S GUIDE to the KITCHEN and FLOWER GARDEN. A copy will be presented to each customer, and also to intending purchasers on sending their address.
BARR & SUGDEN, 12, King Street, Covent Garden, W.C.

Flower and Vegetable Seed Catalogue.
BUTLER, McCULLOCH AND CO.'S SPRING CATALOGUE, containing descriptions of over 1600 species and varieties of FLOWER SEEDS, and a LIST of all the Novelties of the season, is now ready. Forwarded free.
South Row, Covent Garden Market, London, W.C.

PAUL AND SON'S SEED CATALOGUE will be sent with pleasure to any applicant. It contains, with usual matter, Descriptive Priced Lists of carefully selected Novelties in Seeds; Seeds of Ornamental Foliaged Plants for Subtropical Flower Gardening; Gladioli, with original Notes on their Culture.
The Old Cheshunt Nurseries and Seedshop, Cheshunt, N.

Garden and Farm Seeds direct from the Growers.
CHARLES SHARPE AND CO. beg to inform the Trade that their WHOLESALE SEED LIST is now ready, and will be forwarded post free on application.
Seed Warehouse, Sleaford.

AMBROISE VERSCHAFFELT'S (NURSERYMAN, Ghent, Belgium), GENERAL CATALOGUE of PLANTS may be obtained free on application.

Genuine Garden, Agricultural, and Flower Seeds.
PAUL TOLLARD, Seed Grower and Merchant, 20, Quai de la Mégisserie, Paris, France.
SPECIAL PRICED LIST of NEW SEEDS, in English weights and money, post free on application.

RICHARD DEAN'S LIST of NOVELTIES and SPECIALITIES in FLOWER and VEGETABLE SEEDS, and which contains also some Original Papers of great value to the Amateur, is now ready, and can be had post free on application.
Depot for New and Choice Vegetable and Flower Seeds, Ealing, London, W.

PARTIES wishing to have GENUINE CHOICE SEEDS of best quality only, at lowest prices, should obtain J. SCOTT'S PRICED CATALOGUE, sent free to purchasers, on application to J. SCOTT, The Seed Stores, Yeovil, Somerset.

Somersetshire Prize Seeds.
GENUINE GARDEN and FLOWER and FARM SEEDS of the finest stocks and quality; LISTS now ready.
ROBERT H. POYNTER, the County Seed Establishment, Taunton.

EVERY GARDEN REQUISITE kept in Stock at
CARTER'S New Seed Warehouse, 237 & 238, High Holborn, London.

Genuine Garden and Agricultural Seeds.
JAMES CARTER AND CO., SEED FARMERS, MERCHANTS, and NURSERYMEN, 237 & 238, High Holborn, London, W.C.

JAMES FAIRHEAD AND SON, SEED GROWERS and MERCHANTS, 7, Borough Market, London, S.E.
New and Genuine AGRICULTURAL, GARDEN, and FLOWER SEEDS. Special prices and advantageous offers on application.

AUTUMN BEDDING for WINTER and SPRING DECORATIONS of FLOWER BEDS on LAWNS, &c.—A piece of Planting, showing what may be done in this way, can be seen any time at THOMAS S. WARE'S, Hale Farm Nurseries, Tottenham, Middlesex, adjoining the Railway Station.

FOR SALE, 300 HYACINTHS in Pots, now coming into Bloom; also a few boxes of good TULIPS. No offer refused.—Apply to F. G. D., 19, Annis Road, South Hackney, E.

Roses.
WM. PAUL'S PRICED DESCRIPTIVE CATALOGUE of ROSES is now ready, post free on application.
PAUL'S Nurseries, Waltham Cross, N.

CULTURAL DIRECTIONS for the ROSE. Second Edition. By JOHN CRANSTON, King's Acre Nurseries, near Hereford. Free by post from the Author for 20 stamps.

DWARF MOSS ROSES.—Strong well-rooted Plants (2-yr. bedded) of the above, suitable for planting out or potting, 21s. per 100. A remittance or reference is respectfully requested from unknown Correspondents.
FIELD BROTHERS, Tarvin Road Nursery, Chester.

ROSES.—Extra fine Standards, at from 15s. to 18s. per dozen; 100s. per 100.
Do. Dwarf, extra fine, at from 9s. to 12s. per doz.; 63s. to 84s. per 100.
Do. New Sorts of 1866, at 24s. per dozen.
DESCRIPTIVE LIST on application.
RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

Planting.
WM. PAUL begs to refer intending Planters of ROSES, FRUIT TREES, SHRUBS, &c., to his Advertisement of December 1, 1866.
PRICED DESCRIPTIVE CATALOGUES on application.
PAUL'S Nurseries, Waltham Cross, N.

Railway Planting.
FIVE MILLION Transplanted QUICKS, of superior growth. Samples and prices on application to
JOHN HEMSLEY, High Fields, Melbourne, near Derby.

TREES and PLANTS of all sorts and sizes in very great quantity, of best quality and at moderate prices.
PRICED LISTS post-free on application.
JAMES DICKSON & SONS, ("*Old Established Nursery and Seed Business,*") The "Newton" Nurseries, Chester.

Spruce for Cover.
GEORGE CHIVAS, Chester, has a very large Stock of the above, from 1½ to 3½ feet. To induce large orders, the prices (which may be had on application), have been greatly reduced.

Strong Quick.
H. AND F. SHARPE have for Sale a fine Lot of 3-yr. Transplanted QUICK, 3 to 4 feet high, and well-rooted. Price very moderate.
Nursery and Seed Establishment, Wisbech.

To the Trade.
W. CROWDER, NURSERYMAN, Horncastle, has to offer SCOTCH FIR, 1 to 1½ and 2 to 3 feet; SPRUCE do., 2 to 3 feet; QUICKS, 1, 2, and 3-yr. transplanted; LARCH, 3 to 4 feet.

SPLENDID LARCH, 3 to 4 ft., at unprecedented prices; HAWTHORN QUICK, do. do.; AVENUE TREES; large EVERGREENS and CONIFERS; magnificent TRAINED PYRAMID and STANDARD FRUIT TREES. Special prices given.
GEORGE DAVISON, Hereford.

WANTED, COMMON JUNIPER.—Any one having good Plants to offer, may state height, price per Thousand (stating when last planted).
CHARLES NOBLE, Bagshot.

TWO HUNDRED THOUSAND YEWS.
40,000 AUCUBA JAPONICA.
See CATALOGUES, Wholesale or Retail.
THOMAS WARNER, Leicester Abbey Nurseries.

TWO HUNDRED THOUSAND TREE BOX.
10,000 STANDARD ELMS.
See CATALOGUES, Wholesale or Retail.
THOMAS WARNER, Leicester Abbey Nurseries.

THIRTY THOUSAND AMERICAN ARBOR-VITÆ.
10,000 PORTUGAL LAURELS.
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TEN THOUSAND SIBERIAN ARBOR-VITÆ
1000 ARBUTUS, in pots.
See CATALOGUES, Wholesale or Retail.
THOMAS WARNER, Leicester Abbey Nurseries.

TWENTY THOUSAND DWARF MAIDEN and TRAINED FRUIT TREES, APPLES, CHERRIES, PEACHES, and NECTARINES.
20,000 HOUGHTON CASTLE or VICTORIA CURRANTS.
See CATALOGUES, Wholesale or Retail.
THOMAS WARNER, Leicester Abbey Nurseries.

RIBBON BORDER (six Colours), German and French, COLLECTIONS, and all specialities worth growing. See POYNTER'S LIST. ROBERT H. POYNTER, Taunton.

To the Trade.
THE ESSEX RIVAL PEA, in any quantity.
For price, &c., apply to
THOS. ELEY, Sible Hedingham, Halstead, Essex.

The very Earliest and Best Pea in Cultivation.
SUTTON'S RINGLEADER.
Price 2s. per quart.

Potatos for Planting.
SUTTON'S DESCRIPTIVE LIST post free.
SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

PRINCE of WALES' KIDNEY POTATO.—A few Sacks of the above to be Disposed of. For price, &c., apply to G. R. SIMPSON, Colchester.

WHEELER'S MILKY WHITE is the BEST of all POTATOS.

Potatos for Seed.
W. HEATH has a quantity of FLUKE and GLOUCESTERSHIRE KIDNEY for Sale, clean and free from disease. Flukes, 5s. per bush.; Gloucestershire Kidney, 6s. do.
College Nursery, Cheltenham.

To the Trade.
BUTLER, McCULLOCH, AND CO. have to offer the undermentioned. Prices on application.
PRESIDENT POTATO (Webb). | TELEGRAPH POTATO (Webb)
SANGSTER'S NO. 1 PEAS, 56s. per quarter.
Covent Garden Market, London, W.C.

To Cucumber Growers.
G. WALKLING, SEEDSMAN, FLORIST, and CUCUMBER GROWER, North Row, Lewisham, S.E., begs to offer CUCUMBER SEED of two first-class sorts at 1s. 6d. and 2s. 6d. per Packet. WALKLING'S PROLIFIC and SOLID GREEN, likewise Plants of the two kinds in small or large quantities.

Extra fine Seakale for Forcing and Planting.
GEO. CLARKE has many Thousands of the finest quality to offer this season. Prices 5s., 7s. 6d., 10s., and 15s. p. 100.
Nurseries, Streatham Place, Brixton Hill, S.E.; & Mottingham, Kent.

Westmoreland-grown Italian Seed.
JOSEPH DIXON, SEEDSMAN, Kendal, offers ITALIAN SEED to the Trade. Samples and prices sent on application.

Yellow Globe Mangel Seed.
MR. S. A. DAINTREE, of Fen Drayton, St. Ives, Hunts, having a large stock of the above Seed, of his own growth (from large selected roots), can supply the Trade at a very low rate. Sample and price on application as above.

RAYNBIRD, CALDECOTT, BAWTREE, DOWLING, AND COMPANY, Limited,
CORN, SEED, MANURE, AND OILCAKE MERCHANTS,
Address, 89, Seed Market, Mark Lane, E.C.; or Basingstoke.
Samples and Prices post free on application. Prize Medals, 1851, for Wheat 1862, for "Excellent Seed Corn and Seeds."

Vegetable, Agricultural, and Flower Seeds, Alpine Plants, &c.

ROBERT PARKER begs to announce that his CATALOGUE, containing select DESCRIPTIVE LISTS of the finest kinds in cultivation of the above-named is now published, and will be forwarded to applicants. The Stocks of Seeds have all been procured from the best possible sources, all are warranted genuine, and are offered at the lowest possible prices. Intending purchasers are requested to compare the prices with those of other houses. Exotic Nursery, Tooting, Surrey, S.

New Descriptive Lists.

DOWNIE, LAIRD, AND LAING, NURSERYMEN, SEEDSMEN, FLORISTS, and NEW PLANT MERCHANTS, 17, South Frederick Street, Edinburgh; and Stanstead Park, Forest Hill, London, S.E., respectfully beg to intimate that their NEW DESCRIPTIVE PRICED CATALOGUES of FLORIST FLOWERS, GARDEN, FLOWER, and AGRICULTURAL SEEDS, GLADIOLI, ROSES, &c., are now ready, and may be had free on application.

ARTHUR HENDERSON AND CO. beg to announce that their CATALOGUE of KITCHEN GARDEN and FLOWER SEEDS for 1867 is now ready, and will be forwarded free on application.

NEW MELONS.

ERIDGE CASTLE PERFECTION.—This is a green-fleshed variety, of excellent flavour, thin skin, medium size, with a delicious melting sugary flesh. One of the best sorts ever raised. *2s. 6d.* per packet.

THE GUILDHALL PRIZE.—Scarlet flesh, a very quick grower and a great cropper, weight 3 to 5 lb. Early, excellent shape, richer and superior in flavour to Turner's Gem. Skin very thin. A seedling between the Scarlet Gem and Egyptian green-fleshed. *2s. 6d.* per packet.

HENDERSON'S COMPACT-TOPPED PINE-APPLE BEET.—True (our own saving),

Pine-apple Place, Edgeware Road, London, N.

CHOICE NEW PLANTS of 1866.
STOCK PLANTS.

Per dozen—*s. d.*		Per dozen—*s. d.*	
Antirrhinums	6 0	Fuchsias	6 0
Chrysanthemums	6 0	Geraniums (Bedding)	9 0

GERANIUMS, VARIEGATED:—2 Italia Unita, 2 Sunset, 2 Mrs. Longfield, 2 Luna, 2 Mrs. M. Hutton, 2 Stella Variegata—for One Guinea.

Per dozen—*s. d.*		Per dozen— *s. d.*	
Lobelias, new 1866	4 0	Phlox, new 1866	6 0
Mimulus, ditto	6 0	Tropæolums, ditto	6 0
Pentstemons, ditto	6 0	Verbenas, ditto	6 0

CATALOGUES for one stamp.

Post Office Orders on Castle Hedingham.

WM. DILLISTONE, Munro Nursery, Sible Hedingham, Essex.

TO BE DISPOSED OF, THREE very fine SPECIMEN PLANTS, comprising 1 PANDANUS JAVANICUS VARIEGATUS, 5 feet 6 inches through; 1 ARAUCARIA ELEGANS, 14 feet 6 inches high; 1 FICUS ELASTICA, Standard, 10 ft. through

Further particulars and price to be had of Mr. GIBBONS, Gardener, Burntwood Grange, Wandsworth Common, Surrey.

Planting Season

LARCH (Native and Tyrolese), SCOTCH FIR (True Native), SPRUCE, OAK, ASH, ALDER, BEECH, PRIVET, and all kinds of FOREST and ORNAMENTAL TREES and SHRUBS, ROSES, FRUIT TREES, fine specimen ARAUCARIAS and DEODARS, and large TREES for Park Planting, now in fine condition for removal.

CATALOGUES, with sizes and prices, sent free on application to DICKSONS & Co., Nurserymen, Seedsmen, and Florists, 1, Waterloo Place, Edinburgh.

Strong Larch, Native Scotch, English Oak, Thorns, &c., ALL TRANSPLANTED.

GEORGE CHIVAS, Chester, solicits the attention of Planters to his very great Stock of LARCH, 2 to 4½ feet; NATIVE SCOTCH, 1½ to 3 feet (a portion of which was Transplanted last spring for the second time); ENGLISH OAK, 2 to 4 feet, and THORNS of great strength, with an extensive and general assortment of other Trees and Plants. The quality is unexceptionable, and the prices much in favour of the buyer.

Tansley Nurseries, near Matlock, Derbyshire.

JOSEPH SMITH, SEN., invites Planters and the Trade to inspect his Nursery of 80 Acres of high land. The soil is of a fibrous nature, and the Plants take up with excellent roots, such as to ensure the best success in their removal.

The Nursery contains many Hundred Thousands of RHODODENDRONS, COMMON and PORTUGAL LAURELS, BOX, BROOMS, BERBERIS, HOLLIES, PRIVETS, YEWS, &c. The FOREST TREES are very extensive, of all the leading kinds; there are 15 Acres of LARCHES, of different sizes, and all others in proportion. Prices moderate, which can be had on application as above.

W. VIRGO AND SON having a large Stock of the following, can offer them at very low prices:—

FOREST TREES.

Alder, 3 to 5 feet, extra strong	Fir, Scotch, 1½ to 2 ft., extra fine
Ash, 18 inches to 2 feet	,, Spruce, 3 to 4 feet, extra fine
Beech, 2 to 3 feet, very good	,, Larch, 2, 3, & 4 ft., extra fine
Berberis dulcis, 2 to 3 feet	Hazel, 2½ to 3½ feet, extra fine
,, Aquifolium, 1 to 1½ foot.	Holly, Green, 1½ to 2 feet, bushy
Chestnut, Horse, 2 to 4 feet, and 5 to 6 feet	Laurel, Common, 2½ to 3 ft., bushy
,, Spanish, 2 to 3 feet	,, Portugal, 3 to 4 ft. ex. bushy
	Privet, 2 to 3 feet, extra bushy

Strong CATTLE CABBAGE PLANTS.
Strong MANETTI STOCKS.

FRUIT TREES.

Apples, Standards and Dwarfs, very strong
Cherries, Dwarfs and Dwarf-trained, extra fine
Peaches, Dwarfs and Dwarf-trained, extra fine
Pears, Standards and Dwarfs, extra fine
Plums, Standards and Dwarfs, extra fine
Nectarines, Dwarfs and Dwarf-trained, extra fine
Kentish Filberts, 4 to 5 feet, extra fine

PRICED LIST or samples on application at
The Nursery, Wonersh, near Guildford, Surrey.

To the Seed Trade.

F. K. BURRIDGE, SEED FARMER and NURSERYMAN, Lexden Road, Colchester, begs to offer the following LIST of SELECT FLOWER SEEDS, which he can recommend with every confidence:—

Bidens atrosanguinea	Maize, new Japanese Variegated
Candytuft, Burridge's Improved, dark crimson	Marigold, African, Double, two colours
Chrysanthemum carinatum atrococcineum [white	,, French, Dwarf Double Striped, selected
Clarkia integripetala, new double	,, French, Tall Double Striped, selected
Collinsia bicolor candidissima	Murvel of Peru, Variegated Foliage, Tricolor Striped
Convolvulus major tricolor, splendid striped variety	Nasturtium Tom Thumb, Scarlet, Bunyard's Improved, Colour equal to Tom Thumb Pelargonium
Dianthus barbatus superbus, dark crimson variety [florus	Nasturtium, King of Tom Thumbs
Dianthus barbatus auricula-	Nemophila maculata grandiflora
Erysimum arkansanum	,, ,, purpurea
Godetia The Bride	Pea, Sweet, Invincible Scarlet
,, rubicunda splendens	Phlox Drummondii, Brilliant Scarlet
Helichrysum bracteatum incurvum, splendid double Everlasting	,, ,, Black Warrior
Helichrysum bracteatum nanum atrosanguineum	,, ,, Radowitzkii
Helichrysum macranthum	Physalis Alkekengi, Winter Cherry, true
Larkspur, Dwarf Double Rocket, in 12 separate colours	Sanvitalia procumbens flore
Leptosiphon, French hybrids	Silene Saxifraga [pleno
Linum candidissimum [variety	Spraguea umbellata
Lobelia speciosa, Crystal Palace	Tagetes signata pumila
Lobelia speciosa Paxtoniana	Viscaria oculata, New Scarlet
Lupinus subcarnosus, splendid Dwarf Blue variety	Zinnia mexicana

Price of the above on application.

WALL-TRAINED TREES of BEARING SIZE.—Our Wall-Trained Fruit Trees this season are very fine, and include PEACHES, NECTARINES, APRICOTS, and FIGS, suited for planting in houses for immediate Fruiting. An inspection is respectfully invited.

T. JACKSON & SON, Nurseries, Kingston, Surrey.

RICHARD SMITH'S FRUIT LIST contains a Sketch of the various Forms of Trees, with Directions for Cultivation, Soil, Drainage, Manure, Pruning, Lifting, Cropping, Treatment under Glass; also their synonymes, quality, size, form, skin, colour, flesh, flavour, use, growth, duration, season, price, &c. Free by post for one stamp.

RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

LARCH, PEAR STOCKS, &c.

LARCH, 1½ to 2 feet, per 1000, *8s.*; 2 to 3 feet, 10*s.*; 3 to 4 feet, 12*s.* 6*d.*
PEAR STOCKS, 2½ to 5 feet, 10*s.* to 30*s.* per 1000.
SCOTCH FIR, 2 years bedded, 6 to 12 inches, 5*s.* per 1000.

LIST of other TREES sent on application.

Apply, with reference, to J. RIDDELL, Steward, Park Attwood, Bewdley, Worcestershire.

TO THE TRADE.

Evergreen Oaks, 1-yr., extra fine	Asparagus, 1, 2, and 3-yr., do.
English Oaks, 2-yr., do.	Pyracantha, 1 and 2-yr., do.
Portugal Laurel, 1-yr., do.	Quick, White Thorn

Prices, per 1000 or 10,000, upon application.

WM. DILLISTONE, Munro Nursery, Sible Hedingham, Essex.

Northampton Nurseries.

JOHN PERKINS, SEN., begs to call attention to his large STOCK of the following:—

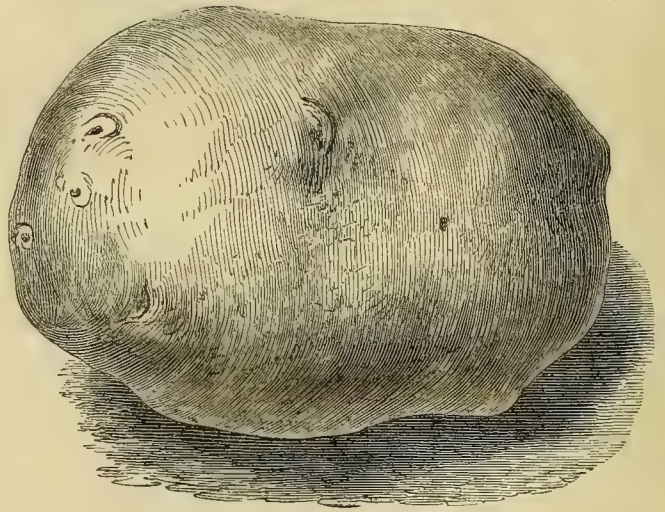
Larch Firs, 3 to 4, 4 to 6 feet	Oaks, Turkey, 5 to 6 feet.
Spruce Firs, 2 to 3, 3 to 4 feet	Elms, English, fine Standards, 6 to 8, 8 to 10 feet
Black Thorn, 2 to 3 feet	White Thorn Quick, 2 and 3-years transplanted
Hornbeam, 2 to 3, 3 to 4 feet	Dwarf-trained Peaches, Nectarines, Plums and Cherries
Green Box, 1 to 1½ foot	Standard Pears and Apples
Portugal Laurels, 1½ to 2 feet	
Beech, 3 to 4 feet	
Chestnut, Horse, 4 to 6, 6 to 8 ft.	

Cedrus Deodara, 6 to 8 feet.

The above will be sold at unusually low prices, Lists of which may be had on application to

52, Market Square, Northampton.

WHEELER'S "MILKY WHITE" POTATO.



Milky White, 5s. per peck.

We beg to call attention to the superlative merits of this fine Potato. It would be easy to fill pages with extracts from letters speaking in the very highest terms of its beautiful colour, excellent flavour, floury texture, great productiveness, and of its other admirable qualities. The following TESTIMONIALS (though few in number), are from well-known persons, and will be as convincing as if the good opinions therein expressed were repeated a thousand times.

First, we will see what Mr. SHIRLEY HIBBERD says about them:—

"Better than any Potato coming in at the mid-season is WHEELER'S Milky White. I had a splendid crop of this last year; not one of them was touched by the disease. The growth is very short and compact; tubers are nearly all one size, neither large nor small; it has as fine a flavour as any Potato grown, and is as white and mealy as Fluke or Flour Ball, and these two cannot be surpassed in colour and texture. I shall run no risk in dealing boldly with this fine Potato, and I shall therefore put it in an emphatic form that WHEELER'S Milky White is the best of all Potatos; and those who do not grow it may consider themselves rather behind the age."

Next we will lay before our readers D.'s (of Deal) opinion:—

"MILKY WHITE.—This I received from the well-known Firm of Messrs. WHEELER & SON, Gloucester. It is one of the handsomest Potatos grown, and well deserves its name, for it is most beautifully white, very floury, and as a second Early Potato, one that I do not hesitate to regard as first-rate. It is also a very free bearer."—*D., Deal, in Journal of Horticulture, Dec.* 18, 1866.

Mr. DEAN, of Bradford Nursery, Shipley, is a well-known authority. What does he say?—

"MILKY WHITE POTATO.—In my opinion this Potato will soon have a 'world-wide fame.' I have grown it this season, and I have seen it growing in other places in this cold part of Yorkshire; it crops well, and is white when cooked, and of capital flavour. It is a first-class second early kind, and should be in every garden."

Few gentlemen know more about Potatos than Mr. Hudson, of Pershore; Mr. Fryer, of Chatteris; and the Ex-Mayor of Kidderminster. What do these gentlemen say?—

"Your Milky White is everything that can be desired. It is purely white, a good cropper, and peculiarly free from disease, scarcely a tuber having been affected by the prevailing blight of this season."—HENRY HUDSON, *The Elms, Pershore.*

"When in London you asked me for a statement of the growth of your Milky White Potatos. I am unable to speak decidedly of its yielding properties, having received the seed from you very late in spring; but it was the handsomest and whitest Potato I grew out of 15 trial lots, and entirely free from disease."—JOHN FRYER, *Manor House, Chatteris.*

"Your Milky White Potato is excellent, a great cropper, very mealy, and delicately flavoured, early, and remarkably free from disease. It was about the only Potato in my garden that was entirely free from it. It appears likely to turn out a good keeper, as well as being fit for the table so early in the season."—WILLIAM RODEN, M.D., F.R.C.S., *Kidderminster.*

The next is from a Clergyman:—

"I have much pleasure in bearing testimony to the excellence of the Potatos with which you supplied me last season. The Milky White especially were unsurpassed by any Potato I ever had on my table."—EDWARD SEYMOUR STOCKER, *Titchwell Rectory, King's Lynn.*

Now comes a valuable one from a practical Gardener:—

"I found the Milky White to be of first-rate quality for a Gentleman's table, and a large cropper."—JOHN EDWARDS, *Gardener to* Sir F. C. Smythe, Bart., *Acton Burnell.*

If anything more favourable can possibly be said about a new variety of this valuable esculent, our imagination cannot picture it. The above good opinions are corroborated over and over again in our "Little Book for 1867."

The following leading Firms have ordered a supply this season. The retail price is *5s.* per peck (14 lb.)

Backhouse & Son, Messrs., York	Fraser, Goad, & Co., Messrs., London	Osborn & Sons, Messrs., Fulham
Barr & Sugden, Messrs., London	Garaway & Co., Messrs. James, Bristol	Palmer & Son, Messrs., Annan
Baylis, Mr. Thomas, Wolverhampton	Henderson & Co., Messrs. A., Pine-apple Place	Paul & Son, Messrs., Cheshunt
Bell, Mr. John, Norwich	Henderson & Son, Messrs. E. G., St. John's Wood	Poynter, Mr. R. H., Taunton
Brown, Mr. Stephen, Sudbury	Hogg & Robertson, Messrs., Dublin	Robertson & Co., Messrs. P. S., Edinburgh
Bunyard & Sons, Messrs., Maidstone	Hooper & Co., Messrs., Covent Garden	Rollisson & Sons, Messrs., Tooting
Butler, McCulloch, & Co., Messrs., London	Hurst & Son, Messrs., London	Smith, Mr. Richard, Worcester
Cant, Mr. B. R., Colchester	Ivery & Son, Messrs. James, Reigate	Soden, Mr. John, Oxford
Caparn, Mr. W. H., Newark	Ivery, Mr. William, Peckham	Toogood, Mr. W., Southampton
Carter, Mr. John, Keighley	Jackson & Son, Messrs. J., Kingston	Toole & Co., Messrs., Dublin
Carter & Co., Messrs. James, London	Jefferies & Son, Messrs., Cirencester	Turner, Mr. Charles, Slough
Cattell, Mr. John, Westerham	Ker, Mr. R. P., Liverpool	Waite, Burnell, & Co., Messrs., Holborn
Charlwood & Cummins, Messrs., Covent Garden	Laird & Sinclair, Messrs., Dundee	Waterer & Godfrey, Messrs., Knap Hill
Chivas & Weaver, Messrs., Chester	Lane & Son, Messrs., Berkhampstead	Whalley, Mr. Thomas, Liverpool
Cooling, Mr. Edwin, Derby	Lawson & Son, Messrs., Edinburgh	Wheeler, Mr. George, Warminster
Darby, Mr. R. F., Cirencester	Lowe & Co., Messrs., Wolverhampton	Williams, Mr. B. S., Holloway
Davies, Mr. Isaac, Liverpool	Lucombe, Pince, & Co., Messrs., Exeter	Winderbank & Kingsbury, Messrs., Southampton
Dean, Mr. William, Shipley	MacKenzie & Sons, Messrs., Dublin	Witty & Son, Messrs., Cottingham
Dickson & Co., Messrs., Edinburgh	Mallett, Mr. William, Barnstaple	Wood & Ingram, Messrs., Huntingdon
Dickson & Sons, Messrs. F. & A., Chester	Marsh & Perkins, Messrs., Northampton	Wood & Co., Messrs., Worcester
Dickson & Sons, Messrs. James, Chester	Milan, Mr. T., Doncaster	Veitch & Sons, Messrs. James, Chelsea
Dicksons & Brown, Messrs., Manchester	Mitchinson, Mr. John, Truro	Virgo & Son, Messrs. W., Guildford
Dreghorn & Aitken, Messrs., Kilmarnock	Niven, Mr. N., Dublin	Yates, Messrs. G. & W., Manchester
Drummond Brothers, Messrs., Edinburgh	Nutting & Sons, Messrs., 60, Barbican, E.C.	Young, Mr. Maurice, Guildford
Fraser, Mr. John, Lea Bridge	Oldroyd, Mr. H. J., Shrewsbury	

We anticipate a large demand this season. We regret to say we have but a limited supply; it will be therefore absolutely necessary to send orders at once.

WHEELER'S "LITTLE BOOK"

Has been described as the "Queen of Seed Lists." It is illustrated, and contains much descriptive matter. A Copy was posted to each of our Customers last week; there are a few remaining, which we will forward post free at Sixpence each.

J. C. WHEELER AND SON, SEED GROWERS, GLOUCESTER.

JAMES CARTER & CO.,

Seedsmen to Her Majesty's Chief Commissioner of Public Works and other Government Departments, the Royal Gardens, Kew, &c., &c., &c.

Seedsmen to H.I.M. the Emperor of the French, the Crystal Palace Company, the Agri-Horticultural Society of India, &c., &c., &c.

Just Published, Post Free, 12 stamps, Gratis to Customers.

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Contains a large amount of useful and original practical information for the Garden and Farm, together with the following Original Articles :—

On the Cultivation of Hardy Flowers from Seed.
How to Raise Hardy Flowers from Seed.
Ornamental Annuals.
Fine-foliaged Plants from Seed. And,
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Will produce a supply of the best Vegetables "All the Year Round," for large, medium, small, and very small families.

No. 4, 63s.; No. 3, 42s.; No. 2, 21s.; No. 1, 10s. 6d.

These Prices include box and packing.

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JAMES CARTER AND CO., 237 and 238, HIGH HOLBORN, LONDON, W.C.

SUTTON'S
GUINEA COLLECTION
OF
KITCHEN GARDEN SEEDS
FOR
ONE WHOLE YEAR'S SUPPLY
is forwarded Carriage Free by Rail on receipt of Post-office Order for 21s.
PRICED LISTS gratis and post free on application.

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SEEDS for the KITCHEN GARDEN.
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SEEDS, Best Quality, at Cheapest Rates.
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JAMES CARTER & Co., 237 and 238, High Holborn, London, W.C., and all Booksellers. Forwarded on receipt of six stamps.

UNDER THE PATRONAGE OF HER MOST GRACIOUS MAJESTY THE QUEEN,

AND MOST OF THE NOBILITY AND LANDED PROPRIETORS THROUGHOUT BRITAIN.

FRANCIS & ARTHUR DICKSON & SONS,

THE OLD ESTABLISHED SEED WAREHOUSE,

106, EASTGATE STREET, and the "**UPTON**" NURSERIES, CHESTER.

THE BEST EARLY PEA IN CULTIVATION—DICKSON'S "FIRST & BEST."

FRANCIS AND ARTHUR DICKSON AND SONS are gratified to find that this Pea has again this Season (1866) given universal satisfaction, and is pronounced by the most experienced Gardeners in Britain, and other competent Judges (confirmed also by their own *repeated* trials against all the Early Peas of the day), to be the very best *FIRST* EARLY PEA ever offered for general good *qualities*, viz., EARLINESS, PRODUCTIVENESS, and SUCCESSION of CROP. It will become as universally grown as their "DICKSON'S FAVOURITE," which they had the pleasure to introduce some years ago.

Retail Price, 1s. 6d. per Quart. Price to the Trade on application.

COMPLETE ASSORTMENTS OF CHOICE VEGETABLE SEEDS FOR ONE YEAR'S SUPPLY.

No. 1. A COMPLETE COLLECTION of SELECT VEGETABLE SEEDS for ONE YEAR'S SUPPLY £3 3 0
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No. 1. A COMPLETE COLLECTION of the best and most approved Continental and English varieties, £2 2*s*.

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The above Collections contain the very best varieties of VEGETABLE and FLOWER SEEDS of the respective kinds, and are recommended to Amateurs and others who do not keep a professed Gardener, and are themselves at a loss to select.

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Their Seeds are all of the *most select* character, each variety being saved from the *best* stock *known* of its kind.

All Seeds of £2 value delivered Carriage Free at any Railway Station. Flower Seeds sent Post Free, except heavy articles, such as Sweet Peas, Lupins, &c.

106, EASTGATE STREET, CHESTER.—Jan. 19, 1867.

British Fern Catalogue.

ROBERT SIM can now send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his NEW and PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.

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RICHARD SMITH'S SEED CATALOGUE contains a Calendar of Time for Sowing, particulars of Collections, with Prices, Directions for Cropping well and economically, Soil, Manure, Depth, Distance, Season, Hardiness, Duration, Form, Height, Colour, Storing, Use, Flavour, and other qualities, described.

This List Free by Post for one stamp. Seeds direct from the Growers the surest way to success.

RICHARD SMITH, Seed Merchant, Worcester.

Genuine New Vegetable, Flower, and Agricultural Seeds of best quality only.

J. SCOTT'S Stock of the above is now ready for sending out. A CATALOGUE containing PRICED LISTS of NOVELTIES, and other choice SEEDS, BULBS, GARDEN REQUISITES, &c., post free on application, prices very low.

GLADIOLUS, from 2s. per dozen, named sorts.

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POST PAID.

Viola cornuta, var. Purple Queen,

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F. W. WENDEL, SEED GROWER, &c., Erfurt, Prussia, begs to announce that his WHOLESALE CATALOGUE of the above is now ready, and may be had free and post paid on application to his Agent,

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GLADIOLI. — Collections containing all the finest varieties in cultivation, many new, and offered for the first time, 105s., 63s., 42s., 30s., 25s., 20s., 15s., 12s. BRENCHLEYENSIS, the most showy of all, extra strong roots, 3s. per doz., 20s. per 100.

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J. KELWAY AND SON beg to call attention to their splendid Stock of GLADIOLI, which comprises all the sorts worth growing, and probably the largest in the Trade. As a proof of the luxuriance and excellence of their collection they have been awarded the First Prizes offered at the Crystal Palace and Royal Horticultural Exhibitions in 1864, 1865, and 1866.

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WATERER AND GODFREY'S PRICED and DESCRIPTIVE CATALOGUE of RHODODENDRONS and other American Plants for this Autumn, will be sent on application. The Catalogue also gives a summary of their General Nursery Stock, probably the most extensive in the kingdom.

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Seeds, Seeds, Carriage Free.

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WM. DILLISTONE'S HALF-GUINEA COLLECTION, the cheapest and best ever offered, containing half the

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A Selection of 12 fine and Select Sorts for Succession, 1 quart of each				10	6
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" TELEGRAPH.
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MELON, WILLS' GREEN PINE-APPLE GEM
" WILLS' SCARLET PINE-APPLE GEM.
" WILLS' OULTON PARK HYBRID.
POTATOS, THE ASH-TOP FLUKE, 6s. per peck.
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GARDEN SEEDS.

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(SON and SUCCESSOR to the late A. PAUL),

PAUL'S NURSERIES and SEED WAREHOUSE, WALTHAM CROSS, LONDON, N.,

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The following Novelties recently introduced by him have already become standard varieties, and the Seeds now offered have been saved from pure original stocks:—

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PAUL'S IMPROVED TELEGRAPH CUCUMBER.—This is a prodigious bearer, frequently producing four or five fine fruit at a joint; very handsome, and excellent flavour; particularly recommended for a house or winter forcing. 1s. per packet.

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SUPERB DWARF HERTFORDSHIRE CAULIFLOWER.—Very large, pure white close heads, remaining fit for use much longer than most other sorts; very hardy, having frequently stood in winter under a south wall without any other protection. 1s. per packet.

BROCKETT HALL BROWN COS LETTUCE.—Very hardy, large, crisp, and excellent flavour; stands a long time after most other sorts without running to seed; good for sowing at any season; the finest Lettuce grown. 1s. per packet.

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NEW GENERAL PRICED SEED CATALOGUE for 1867

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CONTAINS

LISTS of the best varieties of each kind of VEGETABLE. Only those sorts are recommended that can be relied upon for producing sure and good crops.
LIST of ROOTS, such as Potatos, Asparagus, Seakale, &c.
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CONTAINS

Imported and English-grown FLOWER SEEDS in Collections.
Choice Strains of FLORISTS' FLOWERS.
The best of the New Introductions of 1866 in ANNUALS, BIENNIALS, and PERENNIALS.

GENERAL LIST of all the ANNUALS worth growing.
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" " of ORNAMENTAL GOURDS.

THE APPENDIX

CONTAINS

A LIST of choice French varieties of GLADIOLI.
ENGLISH SEEDLING GLADIOLI.
Other SUMMER and AUTUMN-FLOWERING BULBS.
HORTICULTURAL REQUISITES of every kind.
KNIVES.
HORTICULTURAL MANURES, &c. &c.

Everything is Priced. With each Catalogue a convenient Form of Order Sheet is enclosed.

B. S. WILLIAMS,

VICTORIA AND PARADISE NURSERIES, UPPER HOLLOWAY, LONDON, N.

THE LONDON SEED COMPANY,
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THE LONDON SEED COMPANY.—The General "PRICE CURRENT of GARDEN and FARM SEEDS" is now ready, and can be had on application, Gratis, as above.

THE LONDON SEED COMPANY'S COLLECTIONS of SEEDS.

No. 1.—Complete Collection, sufficient for a large Garden	£3	0	0
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No. 3.—Complete Collection in small quantities	1	0	0
No. 4.—Complete Collection for a small Garden	0	15	0
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LISTS can be had on application from the above address.

THE LONDON SEED COMPANY.
CARRIAGE ARRANGEMENTS.
The Directors have made arrangements with all the Railway and Steam Companies to deliver all Seeds, with the exception of heavy articles, such as Grain, Tares, &c.,
CARRIAGE FREE
for all Orders of the value of 20s., to any Railway Station in England and Wales, or to any Steam Port in England, Wales, Ireland, or Scotland, Guernsey, or Jersey.

IMPORTANT ANNOUNCEMENT.—A Discount of 10 per Cent. will be allowed by the London Seed Company on all Orders above £10; 15 per Cent. above £50; 20 per Cent. above £100. It will, therefore, be desirable for friends to unite together in a District or Neighbourhood, and so obtain these liberal Discounts.

TEN, FIFTEEN, and TWENTY PER CENT. DISCOUNT will be allowed on all Orders given to the "London Seed Company" above £10, £50, and £100 respectively.

Caution.

QUEEN EMMA MELON.—Having seen that a Firm in London are offering Seed of a MELON under the name QUEEN EMMA, "STUART," I think it right to inform the Public that the entire stock of the "HECKFIELD" QUEEN EMMA MELON (so much thought of) has been placed in the hands of Messrs. OSBORN & SONS, Fulham, and JAMES VEITCH & SONS, Chelsea.
THOS. K. SHORTT, Heckfield Gardens.

GENUINE GARDEN and FLOWER SEEDS of the best quality.
CATALOGUES post free on application.
JAMES VEITCH & SONS, Royal Exotic Nursery, Chelsea, S.W.

The Gardeners' Chronicle.

SATURDAY, JANUARY 19, 1867.

IN the December number of *La Belgique Horticole*, the *spirituel* and spirited conductor of that publication supports his views as to the non-compatibility of DOUBLE FLOWERS and VARIEGATED LEAVES by a reference to the Pelargonium Gloire de Nancy, a garden form of P. inquinans, with double flowers, and without even the horse-shoe marking characteristic of the Zonal Pelargoniums. We may hereafter revert to this subject; in the meantime we lay before our readers the views of Professor MORREN on the SPORT or SEEDLING question—a point which deservedly attracts so much attention. M. MORREN thinks that the cause that operates in the production of such varieties as Mrs. Pollock, Sunset, &c., is a multiple or complex one, and he draws attention not only to the apparent diversity in the origin of such plants, but to the simultaneous appearance of similar forms in different localities in England, in France, in Belgium, and elsewhere. Hence, says M. MORREN, these variations are not the results more or less direct of man's agency, nor of this or that operation of the cultivator, but they are the indirect but inevitable, natural and spontaneous consequences of the mode of development belonging to the species when grown under artificial circumstances, and thus furnish additional proofs of the truth of the opinions held by Mr. DARWIN. These varieties M. MORREN considers are "the inevitable result of the state or constitution in which the Pelargonium existed in our gardens in 1864 and 1865, comprising under the head of constitution the effects of cross fertilisations, hybridisations, &c."

If we rightly interpret M. MORREN'S views, such and such causes must produce in due time certain varieties, and when the time for their production comes, surely enough they appear, somewhat in a similar way to that in which the tunes on a barrel-organ are produced. Let the teeth of the barrel be arranged in a certain way, and, by turning long enough, a certain tune will be produced. Our metaphor is not strictly accurate, we know, but it may perhaps answer the purpose of making M. MORREN'S views intelligible, in spite of the fact that "comparisons are odious."

The gardener, therefore, does not directly produce the varieties, but he puts the plants under such circumstances that varieties must ensue. Horticulture, then, says the learned Professor, is not, and cannot be stationary. Species do not at first sight show all that is in them. They remain tolerably constant in a wild state, because the conditions remain nearly uniform, but let the conditions be changed, as they are by the operations of the horticulturist, and the heretofore latent qualities manifest themselves, the plant, no longer "static," becomes "dynamic," and the plastic mould, in which all living beings are formed, assumes forms heretofore undeveloped.

It will be thus seen that M. MORREN attaches greater importance to the agency of external conditions on the production of varieties, than is, or perhaps we should say was, admitted by our English botanists; but, without committing ourselves to details, we think, as far as general principles are concerned, the Belgian savant is right.

THE appalling accident in the Regent's Park might well invite from any quarter suggestions for the public safety; but for ourselves we may urge a special reason for touching on this distressing subject, inasmuch as the formation of ARTIFICIAL LAKES is but one among the multifarious duties which belong to the gardener's profession; and it is but a small step from the formation of an artificial lake as part of a landscape, to the formation of such a lake expressly for the accommodation of skaters.

The plan we are about to suggest has, we believe, already been adopted or at least provided for in some private demesnes, where the sunken level area of a bowling-green is flooded to form a sheet of ice during the winter frosts; but what is even still more suggestive is the plan adopted by the late Sir JOSEPH PAXTON for filling the ice-house at Chatsworth. Sufficiently near at hand to suit his purpose was a stream of water, and a wide level area of land. A portion of this space sufficiently large for the purpose was lowered, still being kept level; and into this hollow, which was so formed as to be scarcely apparent in summer, the water was led in time of frost. Thus abundance of clean ice was secured, and this was again floated onwards by the outlet to the ice-house, thus avoiding much of the heavy labour incidental to the filling of ice-houses under ordinary conditions.

The application of this idea to the security of the skaters about London, or any other large centre of population, is simple enough. How comparatively easy would it be to form in Hyde Park, or the Regent's Park, or in any other spot affording a sufficient and nearly level space, a shallow basin 8 or 10 inches or a foot deep, and then to form a sheet of ice by overflowing this from the water mains as soon as the surface was hardened by a sharp frost. In this way any number of acres of natural skating ground might be provided, which would be absolutely free from all the greater dangers attending the present practice of skating over deep waters. Of course skating on such waters as the Serpentine and the Regent's Park Lake should then be absolutely interdicted.

Such a basin as that suggested would be no eyesore at other seasons; for extended over a large area, with irregular margins, and with the retaining rim sloping gently both from within and without, it need present only the appearance of a natural undulation, and provided with a turf of suitable Grasses, or otherwise not kept too long submerged, no injury would be done to the surface. This plan, moreover, would have the advantage of being far more easily accomplished than the partial filling up of large areas of deep water.

We recommend this proposition to form artificial skating grounds, to the serious consideration of the authorities of both metropolitan and provincial parks and recreation grounds. Surely the time has come to put a stop to such terrible disasters as that which has so lately occurred on the Regent's Park Ornamental Water.

—— A correspondent has sent us some remarks, together with an abstract of the results obtained at the SOCIETY OF ARTS' EXAMINATIONS, so far as it affects subjects bearing on Horticulture. We think, with him, that this educational movement, as it becomes better known, will be more fully appreciated both by gardeners and employers; and with this view we append the programme for the examinations which are to take place in April next. In Floriculture questions may be put on any of the following subjects:—

"Improvement of Races in Plants, by what means it can be commenced and carried forward. Hybridisation, objects of. Conditions necessary to ensure fertility in Flowers.

"Warming and Ventilation of Houses for Plant Culture. Influence of Ventilation on Plants confined in forcing houses. Limits of Temperature endurable by Plants, and how to turn this to advantage in Practical Floriculture. Bottom-heat, value of in Plant Culture.

"Watering, the *rationale* of, in the culture of Pot Plants. Liquid Manures, special recommendations of. Food of Plants, how and whence derived, and in what form received.

"Propagation, the various modes of, and their special adaptations. Vitality of seeds, duration of, and how best preserved. Budding, Grafting, and Inarching, how performed, and to what subjects best adapted. Increase by cuttings and by layers. Leaf-cuttings, how is it that they can organise buds? Composts for various classes of Plants.

"Acclimatisation. Is it possible to increase the hardiness of any race of plants, and what are the most likely means?

"The leading Flowers of the different seasons, indicating those to be obtained naturally, and those by artificial means.

"Special Culture — Ferns, Orchids, Succulents, Heaths, Hardy Annuals, Bedding Plants

"Text Books:—'LINDLEY'S Theory and Practice of Horticulture' (Longmans). 'M'INTOSH'S Book of the Garden' (Blackwood & Sons). 'THOMPSON'S Gardener's Assistant' (Blackie & Son).

"The Examiner, in his remarks on the work done by the candidates on the last occasion, says they 'fail most especially, as a rule, in conveying clearly and concisely the purport of their own replies, and lose force of expression by multiplying words. They are strongly recommended, as a part of their studies, to practise the writing out of short pithy remarks on each of the subjects set down in the programme, comparing their own remarks with the statements in the text books, and repeating this from time to time, cutting out all superfluous words, so that they may get the essential particulars well impressed on the memory.'"

In Fruit and Vegetable Culture the questions may relate to—

"Kinds of Fruits adapted for various soils and exposures. The Propagation, Pruning, and Training of Fruit Trees. The Structure and Functions of the Organs of Trees, considered in their relation to growth and reproduction. The Forcing of Fruit Trees, and their cultivation under glass, both in and out of pots. The Theory of Ripening, and the principles that ought to regulate the preservation of fruits after they are ripe, or their subsequent maturation. The Packing of Fruit for transmission to great distances.

"The kinds and quantities of vegetable seeds and roots required for cropping gardens of given dimensions. The most approved mode of culture of the different kinds of vegetables and salads. The preparation of fermenting materials for artificial heating. The forcing of vegetables and salads.

"Soils, Water, Atmospheric Air, Light and Heat in their relation to the successful cultivation of Fruit and Vegetables. Manures, and their application. The Diseases and Insects to which Fruit Trees and Vegetables are subject, and their remedies. The erection, heating, and ventilation of garden structures.

"Text Books:—LINDLEY'S 'Theory and Practice of Horticulture' (Longmans). 'The Cottage Gardener's Dictionary' (Bell & Daldy). HOGG'S 'Fruit Manual,' Third Edition (171, Fleet Street). RIVERS' 'Miniature Fruit Garden' (Longmans). BRÉHAUT'S 'Modern Peach Pruner' (171, Fleet Street).

"The Examiner, in his remarks on the papers worked on the last occasion, says:—'I am pleased to see the rising generation of gardeners devoting themselves to a study of the theory of gardening—to a study of those principles which ought to regulate every gardening operation, and without a perfect knowledge of which there can be no perfect practice. Practice without a knowledge of the principles by which it is governed is an insecure and baseless foundation on which to rest when natural conditions are disturbed or unexpected difficulties arise. I therefore urge on gardeners most strongly the necessity of studying the principles which regulate vegetation; but at the same time I desire also to see the fruits of that study exemplified in the practice, for a knowledge of the theory without the practice is worthless.'"

We may also remind intending candidates that, besides the certificates, there are prizes offered by the Society of Arts in Botany, Floriculture, and Fruit and Vegetable Culture, further prizes being added in all these subjects by the Royal Horticultural Society, and in the two last by the Proprietors of this Journal, the latter prizes depending on a knowledge also of Book-keeping or Mensuration. The examinations take place this year from the 9th to the 12th of April, and all further particulars may be had on application to the Secretary of the Society of Arts, Adelphi, London, W.C.

—— We are informed that the schedule of the Paris International Horticultural Exhibition is out of print; but that arrangements are being made for the speedy issue of other copies. Application should be made to R. G. WYLDE, Esq., South Kensington Museum; with whom also intending exhibitors should communicate without delay.

PLANT PORTRAITS.

AQUILEGIA PYRENAICA. — *Floral Mag.*, t. 322. Ranunculaceæ. This beautiful dwarf herbaceous plant was cultivated some 50 years ago, but has probably been since lost. It resembles A. alpina, but is smaller, with fewer flowers, these being comparatively large, and of a pale lavender blue. A charming dwarf hardy perennial. Native of the Pyrenees. Flowered by Messrs. Backhouse & Son.

AUCUBA JAPONICA GRANDIDENTATA MACULATA.—*Neerl. Plant.* t. 28. Cornaceæ. A handsome variety of the Aucuba, with the leaves narrowish and deeply-toothed, and the surface very heavily blotched with creamy white. It is a berry-bearing form. Cultivated in the Dutch gardens.

AZALEA HER MAJESTY.—*Florist and Pomol.* vi. 257. Ericaceæ. A beautiful and entirely novel variety, originating in a sport from Madame Miellez. It is of fine shape, and full average size, soft lilac-tinted blush, passing into white at the margin, and variously striped with deep rosy purple. Flowered by Mr. W. Barnes.

CORYSANTHES PICTA.—*Neerl. Plant.*, t. 25. Orchidaceæ. A beautiful terrestrial stove Orchid, 3 or 4 inches high, with a solitary cordate ovate reticulated leaf, and a nearly sessile bilabiate flower of curious aspect, the upper and hinder portion fornicato-adscendent, richly stained with deep purple and yellow, the lower lip divided into four long subulate segments, and a similar body, described as a bract, seated at the base of the short ovary. It is the Calcearia picta, *Blume*. Native of Java. Flowered in the Leyden Garden.

DESMODIUM PENDULIFLORUM.—*Neerl. Plant.* 1866, t. 2. Leguminosæ. A hardy frutescent plant, growing 5 to 6 feet high, with long pendulous branches, furnished with trifoliate leaves having oblong or oblong-lanceolate leaflets, and producing from their axils, all over the plant, longish slender drooping racemes of small pendent purple flowers. It is remarkable for its gracefulness and abundant blossoming. Supposed to be a native of Japan, having been introduced by Siebold from Yedo. Flowered in the Dutch gardens.

FICUS SERINGARII. — *Neerl. Plant.* 1866, t. 3. Moraceæ. A handsome-leaved stove plant, of stout erect habit, with broadly cordate acuminate stalked membranaceous dentato-serrate leaves, the five main ribs of which are of a deep rosy red, the same colour also feathering out on each side into the primary veins, and forming a band around the stem at every node.

Native of Amboyna. Cultivated in the Leyden Garden.

PANSY (*Bedding*) IMPERIAL BLUE.—*Floral Mag.*, t. 324, fig. 3. Violaceæ. A fine bedding Pansy, in the style of the Cliveden Blue, and valuable from its distinct pale grey-blue colour, relieved by a yellow eye, and black adjoining spots. Being of free habit and an abundant bloomer, it is likely to prove very useful. Flowered by Messrs. Downie, Laird, & Laing.

PANSY (*Fancy*) HUGH ADAIR. — *Floral Mag.*, t. 324, fig. 4. A white-ground flower, remarkably fine in shape, with large vandyked dark mauve blotch on the lower petals, the upper ones magenta, with darker veins, and a pale edge. Raised by Messrs. Downie, Laird, & Laing.

PANSY (*Fancy*) THOMAS DOWNIE.—*Floral Mag.*, t. 324, fig. 1. A white-ground flower, with deep purple blotches fringed by purple pencillings, the upper petals veined at the base, with a light feathery-looking blotch. An attractive flower. Flowered by Messrs. Downie, Laird, and Laing.

PANSY (*Fancy*) MISS J. KAY.—*Floral Mag.*, t. 324, fig. 2. A yellow-ground flower, of fine shape, with large crimson maroon blotches, the upper petals magenta, with dark vandyked blotch and narrow yellow lacing. Flowered by Messrs. Downie, Laird & Laing.

PAVETTA HOOKERI.—*Neerl. Plant.* t. 28. Cinchonaceæ. This is the Ixora odorata of Sir W. Hooker (*Bot. Mag.*, t. 4191), and is considered by Prof. Oudemans as inadmissable to the genus Ixora.

PELARGONIUM (*Tricolor zoned*) METEOR.—*Floral Mag.*, t. 321. Geraniaceæ. A choice variety of this now popular section of Pelargoniums. The leaves have a broad golden margin, and greyish green centre, with an intermediate zone, of a bright reddish crimson where crossing the yellow, but becoming brownish red where the green runs outwards through the line of the zone, which it does much less than in Mrs. Pollock, so that the colours are clearer and better defined. Flowers crimson scarlet. Raised by Messrs. Saltmarsh, Chelmsford.

PLATYCODON AUTUMNALIS. — *Neerl. Plant.* 1866, t. 1. Campanulaceæ. Of this beautiful hardy perennial, called by Dr. Lindley P. sinensis and P. grandiflorus, Dr. Oudemans figures in the plate quoted, four distinct varieties, namely, the single and the double (hose-in-hose) form of each colour, blue and white. They are all equally worthy of cultivation in every garden.

ROSE (H. P.) NAPOLEON III.—*Floral Mag.*, t. 323. Rosaceæ. One of the crimson-scarlet class, and apparently a flower of considerable merit, which, indeed, it is said to possess. It is of the Jacqueminot class, but "shines out among a number of others of the same colour." Flowered by M. Eugène Verdier.

INSULAR FLORAS.

(*Continued from p. 27*).

ASCENSION.—The islet of Ascension claims a passing notice; it is much smaller than St. Helena, and 600 miles N.W. of it. St. Helena has been called a barren rock, but it is a paradise as compared with Ascension, which consists of a scorched mass of volcanic matter, in part resembling bottle glass, and in part coke and cinders. A small green peak, 800 feet above the sea, monopolises nearly all the vegetation, which consists of Purslane, a Grass, and Euphorbia in the lower parts of the island, whilst the green peak is clothed with a carpet of Ferns, and here and there a shrub, allied to but different from any St. Helena one. There are nine Ferns, of which no less than six differ from those of St. Helena, and three of them are entirely confined to the islet.

KERGUELEN'S LAND.—I shall now take you to an island with very different features from any of the above, and whose vegetation appears at first sight to be in discord with all we have yet seen of the relations of oceanic islands to continents; but which actually proves no exception to the rule, that the Floras of these islands are derivative.

Kerguelen's Land, the Isle of Desolation of Cook, is situated in the tempestuous South Indian Ocean, in the latitude of Cornwall, and within the northern limit of floating icebergs. It rears itself from the ocean as a black volcanic mass, girt with sea cliffs, and perennially swept by terrific storms. It is 2170 miles from the nearest continent, South Africa; 4130 from Cape Horn, and 3800 from the nearest of the New Zealand group, these being the southernmost masses of land inhabited by plants.

At a few miles distance it appears to be absolutely sterile, and on nearing the coast the scenery scarcely improves. A narrow belt of Grass skirts the deep harbours, and above this are brown pounded heaps of a very peculiar Umbelliferous plant (Azorella Selago) growing like tufts of a gigantic Moss or Saxifrage. These are succeeded by scattered tufts of Grass and herbs struggling for existence in a most barren soil.

In Cook's Voyage it is written, "Perhaps no place hitherto discovered, in either hemisphere under the same parallel of latitude, affords so scanty a field for the naturalist as this barren spot; for he might assuredly have added 10 degrees to its own latitude in the southern hemisphere, and upwards of 20 in the northern, as the limits upon which such a paucity of species exist." And even Cook's account falls far short of the truth, for Spitzbergen, 30° nearer the Pole, boasts of five times as many flowering plants as Desolation Island.

Captain Cook's naturalist (Dr. Anderson) during his summer stay at Kerguelen's Land, found only 18 plants in all, Phænogamic and Cryptogamic; during my winter's stay there I found about 150, including all those found by Cook—a most remarkable fact, showing how equable, though tempestuous and severe, the climate must be throughout the year. Of the flowering plants all are perennial, and one of them had a very remarkable appearance; it was a gigantic Cruciferous plant allied to the northern Scurvy Grass (Cochlearia), and which we christened the Kerguelen's Land Cabbage, both because of its appearance, and because we used it daily as a pot-herb. During 130 days we ate no other fresh vegetable than this, which was served out with the ship's salt junk and pork, and during that time there was not a case of illness of any consequence in a company of 120 officers and men. It hence well merits its Latin name of Pringlea antiscorbutica, the generic name being given in compliment to Sir John Pringle, an eminent writer on that scourge of seamen, the scurvy. This plant was abundant near the sea, and is a well-marked feature in the view of Christmas Harbour which is engraved in Capt. Cook's Third Voyage. It is allied to no other known plant in the southern hemisphere, and is as remarkable, whether for its curious habit of growth, or its botanical characters, as any of those singular plants which I have indicated as forming peculiar features in the sea cliffs of the Madeiran, Azorean, or Canarian Islands. Like these too, it tells no tale as to the origin or affinities of the Kerguelen's Land Flora.

It is not so with the other flowering plants; they almost without exception point to the land whence they were derived. The only other peculiar genus on the island (Lyallia) is decidedly an Andean form: of the remaining 16 flowering plants, four are regarded as distinct species peculiar to Kerguelen's Land, but three of them are so nearly allied to Tierra del Fuego congeners, that they may equally rank as varieties of these, and the fourth stands in the same relation to a New Zealand plant. Of the remaining 12, 10 are Fuegian, of which 4 are confined to Fuegia and Kerguelen's Land, including the remarkable Umbelliferous plant, which belongs to a group that is otherwise very characteristic of the South American Andes. Five are found in all south circumpolar regions, and one alone is confined to Kerguelen's Land and Lord Auckland's Group. Three are European, and all of these are common English and Antarctic fresh-water plants. They are Callitriche verna, Limosella aquatica, and Montia fontana.

The affinity of the Kerguelen's Land Flora is hence extremely close to the Fuegian; so close, indeed, that it cannot be doubted that it was for the most part derived from thence. And it is all the more remarkable that this relationship should be so strong and unmistakeable if you consider that the mother country of its Flora is not that which is nearest to it, as was the case with all the other islands we have discussed, but that which is the most distant from it; and indeed Kerguelen's Land is more distant from a continent than any other island in the Atlantic or Indian Oceans.

I have thus endeavoured to bring before you by conspicuous examples, the chief botanical features of certain oceanic islands, and the nature of the resemblances and differences that subsist between their vegetation and those of the continents nearest to them, or from which their plants appear to have been directly or indirectly derived.

Before proceeding to discuss the theories that have been propounded to account for the stocking of oceanic islands with plants, and for the peculiarities of Oceanic Island Floras, I will recapitulate these briefly. We have seen—

1. That the Flora of no oceanic island which we have considered is an independent one; that in all cases it is quite manifestly closely allied to some one continental Flora, and that however distant it may be from the mother continent, and however it by so much approximates to another continent, it never presents more than faint traces of the vegetation of such other continent. Thus the Azores, though 1000 miles nearer to America than Madeira is, has not even so many American types as Madeira has. St. Helena, though 1000 miles nearer to South America than is any part of the African coast, contains scarcely any plants that are even characteristic of America; and Kerguelen's Land, though far more distant from Tierra del Fuego than it is from Africa, Australia, or New Zealand, is almost purely Fuegian in its Flora.

2. The Floras of all these islands are of a more temperate character than those of the mother continents in the same latitude; thus, Madeira and the Canaries have a Mediterranean Flora, though they are respectively 5° and 10° south of the principal parallel of the Mediterranean region; the affinities of the St. Helena Flora are strongly South African; and the Flora of Kerguelen's Land, in lat. 48°, is what we might expect to meet with in Fuegia, were the American continent produced southward to lat. 60°.

3. All contain many and great peculiarities, distinguishing them from the continental Floras; and these admit of the following classification:—

α. Plants peculiar to the islands and betraying no affinity to those of the mother continent, as the Laurels, &c., of Madeira and the Canaries and Azores; the arborescent Compositæ of St. Helena, and the Kerguelen's Land Cabbage, and Lyallia.

β. They contain certain genera that are very different from those of the mother continent, but are evidently allied to them; and others but slightly different. They contain species that are very different from, but allied to those of the mother continent; and others that are but slightly different from continental; and they contain varieties in the same categories.

4. As a general rule, the species of the mother continent are proportionally the most abundant, and cover the greatest surface on the islands. The peculiar species are rarer, the peculiar genera rarer still; whilst the plants having no affinity with those of the mother continent are often the commonest of all, in the temperate islands especially—at least under the condition which the island vegetations now present.

5. Indigenous annual plants are extremely rare or absent; but recently introduced annuals are very abundant in those islets that have been frequented by man.

I now come to the most difficult part of my task, which is to discuss in a brief space of time the hypotheses that have been invented by naturalists to account for the presence of continental plants in oceanic islands, and for those various differences between insular and continental Floras that I have indicated.

These hypotheses are as yet unverified and insufficient; neither geological considerations, nor botanical affinity, nor natural selection, nor all these combined, have yet helped us to a complete solution of this problem, which is at present the *bête-noir* of botanists. Oceanic islands are, in fact, to the naturalist, what comets and meteorites are to the astronomer; and even that pregnant doctrine of the origin and succession of life which we owe to Darwin, and which is to us what the spectrum analysis is to the physicist, has not proved sufficient to unravel the tangled phenomena they present.

There are only two possible hypotheses to account for the stocking of an oceanic island with plants from a continent: either seeds were carried across the ocean by currents, or the winds, or birds, or similar agencies; or the islands once formed part of the continent, and the plants spread over intermediate land that has since disappeared.

To a superficial observer either of these causes may appear admissible, or feasible and sufficient; but the naturalist, who takes nothing for granted, finds insuperable obstacles to the ready acceptation of either. Upon one fundamental point most of the advocates of both hypotheses are agreed, namely, that those plants which are common to the islands and continents were not independently created in both localities, but that they did pass from one to the other; and another will probably gain ready credence, viz., that those peculiar insular plants, which have no affinity with continental ones, are relics of a far more ancient vegetation than now prevails on the mother continents. This latter is a most important point to be established. I have given you my reasons, derived from the conditions under which the Atlantic island plants are found in the Madeiran group, for assuming that they represent the wreck of a very ancient Flora; the proof of it lies in the fact that the same plants, or their congeners or close allies, are found abundantly fossil in the tertiary strata of many parts of Europe; it is an indisputable fact, that within the lifetime of these Atlantic Island species, which, from their foreign aspect, arrest our attention so forcibly in the forests of the Canaries, Madeira, and Azores, the vegetation of Europe has undergone a complete revolution, and that they are the living witnesses of [that period, when trees now characteristic of Asia and America, formed the forests of our own continent; and that they owe their preservation up to the present time to their insular position. They no doubt originally migrated from the continent of Europe* to the islands, and have since been driven out of Europe by the northern and eastern Floras that now replace them there; but this was at an immensely remote period, when the condition of both islands and continent may have been very different from what they now are.

The hypothesis which suggests that there was an old continental extension, which, by including the islands, thus enabled them to receive the continental plants without trans-oceanic migration, first found a scientific exposition in the ingenious essay of my friend the late Prof. E. Forbes "On the Geological Relations of the existing Fauna and Flora of the British Isles," read before the British Association at Cambridge in 1845. In this Prof. Forbes maintains, that the Flora of Britain was mainly derived from the continent of Europe, when our islands were an integral part of the latter, that is before the cutting out of the English Channel and German Ocean; an hypothesis that is very well supported, and I believe universally accepted by both naturalists and geologists. He further accounts for the peculiar colony of Pyrenean plants that is found in West Ireland by an ancient continental extension across the Bay of Biscay. And finally he revives the hypothesis of the Atlantis of the ancients, in the shape of a continental extension of the western shores of Europe and Asia, reaching nearly one-third across the Atlantic Ocean, so as to include in its wide embrace the Azores, Madeira, and Canary Islands. As the arguments in favour of this view have been all laid before the British Association by its author, I cannot enumerate them here; nor is this necessary, as I shall have to allude to them in discussing the counter hypothesis of trans-oceanic migration.

This, which was previously nothing more than a generally accepted guess, or assumed probability, first received a scientific exposition from Mr. Darwin, in his "Origin of Species," only seven years ago. And I would here beg you to understand clearly, that this inquiry is not a part and parcel of Mr. Darwin's theory of the origin of species;—variation and natural selection are not mechanical aids to the transport of plants from a continent to an island, though they may affect our views of the results of such transport, which is quite another question. I have to-night given you facts regarding Oceanic Floras that strongly support Mr. Darwin's derivative theory of species; and in like manner Mr. Darwin, believing in trans-oceanic migration on grounds altogether independent of his theory of species, uses the results flowing from such a view in support of this theory. Thus far he goes, and so far it is our business to go with him, and to scrutinise his method.

* It is not necessary here to dwell on the doctrine of Unger, Heer, and others, that these or most of these types were derived from the westward; a doctrine from which I totally differ, and which I consider refuted by Prof. Oliver's masterly review of the question (*Nat. Hist. Review*, ii., 149, 1862).

Mr. Darwin brings many powerful arguments in support of trans-oceanic migration; starting from the fact admitted by all, that some means of transport are always in operation, he reduces the matter to a question of extent, and amount of agencies, and of time during which they may have operated; he shows that birds do carry seeds in their feet and beaks and in their stomachs, and that such islands as the Canaries and Madeira are stocked with exclusively European species of land birds. That we have annually a trans-oceanic transport of American birds to Europe and of European birds to Greenland. That oceanic fish devour seeds, and that if these become the prey of birds, the contents of their stomachs may thus be deposited on distant islands. That dust is blown 1000 miles over the ocean, whilst the seeds of many plants are no larger or heavier than particles of dust.

Then, with regard to strictly marine agencies, whereas it was supposed that exposure to salt-water must be invariably fatal to seeds, he has shown by experiment, that many seeds will survive immersion in salt water for periods sufficient to permit their being transported several hundred miles by currents without losing their vitality:—and that they are thus transported I have given you a conspicuous instance in the Entada seeds (which, by the way, were sent me by Mr. Darwin), and which, after floating 3000 miles from the West Indies to the Azores, germinated at Kew; to which he adds, that all the Coral Islets, which no one supposes to have been ever connected with continents, are well stocked with plants by marine agency.

Of negative evidence in favour of this view, Mr. Darwin adduces the fact, that oceanic islands are poor in species, and that whole groups of continental plants are absent from them, which should not be the case had there been continental extension. That land mammals and Batrachians are absent from all oceanic islands, though winged mammals, as bats, birds, insects, and other transportable terrestrial creatures, are present in more or less abundance. That if we demand continental extension for some islands, it must be admitted for all, which is, according to his views of the permanence of the general outlines and dispositions of the continents and sea-beds, during the later geological epochs, quite inadmissible.

Lastly, the oceanic islands which I have to-night described, and almost all others known to us, are volcanic, which would imply that the submerged continents were volcanic too, a position we have no evidence in support of, and which is in itself extremely improbable.

(To be Continued.)

THE WEATHER OF 1866.

January.—This month was wet, and comparatively mild for the period of the season. Eleven nights were more or less frosty; the most severe frost occurred on the night of the 12th, when the thermometer fell to 9°; it fell to 17° on the 11th, but with these exceptions the frosts were but slight. The mean temperature was nearly 3° above the average. The amount of rain was fully 2 inches above the usual quantity for this month. There was a heavy fall of snow on the 11th.

February.—This, again, was a very wet month. The barometer averaged very low. The amount of rain was more than double the usual quantity. The mean maximum temperature was above the average, but the nights were somewhat colder than usual, so that the mean temperature was thus reduced almost to the average. The lowest occurred on the night of the 17th, thermometer 17°; much rain fell on the 9th; the 11th was very stormy and wet.

March.—The barometer stood much below the average, and the amount of rain was a little more than the usual quantity. The mean maximum temperature was about 2¾° below the average, whilst the mean minimum was more than 3° colder than usual, and the mean nearly 3° below the average. The lowest temperature indicated by the thermometer was 15° on the night of the 13th. From the 15th till the end of the month, rain, more or less, with one exception, fell every day; the total amount, however, but little exceeded the average. Winds from cold quarters, N. and N.E., were prevalent. The temperature was lower than in the preceding month, and even considerably lower than in January; this being the case, vegetation could not be said to have been rendered tender, or to have been prematurely excited. The weather was dry and cold in the first half of the month, clearing up to frost at nights.

April.—The amount of rain was very nearly half an inch above the average; nearly ¾ inch fell on the 27th. The mean temperature was about ¼° above the average. Frost more or less occurred on nine nights; but not so severe as often occurs in this month, the lowest being 26° on the 3d; none were preceded by a high temperature, as is often the case when spring frosts prove most destructive. From the 22d to the 26th inclusive, and in intervals of rain, the air was very dry.

May.—This was a cold month, and rather dry, the barometer standing fully at its average height. The quantity of rain was 1.17 inch, being $\frac{8}{10}$ inch below the average. Half an inch fell on the 26th, and with this exception, none fell after the 12th. The mean temperature was $4\frac{1}{10}$° below the average. The mean maximum was 1°.39 below the average; but the mean minimum was nearly 7° below. Frosts at night were more frequent than in the preceding month, they having occured on 13 nights; the lowest, 25°, occurred on the 4th; but with lower temperature than this we have often seen a very fair crop of fruit, unless preceded by hot days and warm nights. The prevalent winds were westerly in the first half of the month, and easterly in the second half. The air throughout the greater part of the month was generally very dry.

June.—This was a wet month, the amount being upwards of 3½ inches, or 1.58 inch above the average. Of this quantity more than an inch fell on the 4th, and nearly an inch on the 21st. The mean temperature was a little below the average; the mean maximum was fully $3\frac{6}{10}$° above, the mean minimum 4° below the average. Hence it appears the days were warmer than usual, but the nights much colder. On the night of the 19th, close upon midsummer, the thermometer fell to within 2° of freezing.

July.—This was a dry but cold month. The mean temperature was 2°.66 below the average. This lowness was chiefly owing to the coldness of the nights, for the maximum of the days' average was little below what is usual. Rain fell more or less on the first eight days, and on five days in the latter part of the month; in the rest, from the 8th to the 25th, there was no rain. The winds were chiefly from S. and S.W., from N.E. and E. 14 days. Cold, low, dusky white clouds were prevalent. The fruit crops failed very much, and disappeared without any obvious cause; they seemed to have a weakness in their formation which prevented their progressive growth. Doubtless the low night temperature experienced with easterly winds in the latter part of May had an injurious effect on the embryo fruits; and, arresting their growth, rendered them liable to drop, and to suffer from the attacks of insects. Peaches and Nectarines were in many cases a great failure, except where the trees were managed on very good principles. Apples were smaller than usual, and a very imperfect crop. Plums were almost a total failure, and so were Pears. Strawberries failed greatly; and on the whole an imperfect and deficient crop of out-door fruit has to be set down for the season.

August.—On the whole this month was wet and cold. Rain, more or less, fell on 19 days, and the total amount was above the usual quantity; not considerably so, but conjointly with the want of heat the process of ripening was in consequence much retarded, and rendered imperfect in general. The mean temperature was nearly 3° below the average. Want of sun, but cold white or dusky clouds instead, rendered this an ungenial month for producing full-flavoured fruits. The mean maximum, instead of progressing, fell back from that of the preceding month.

September.—The mean temperature was nearly 1° below the average. The mean minimum was about half a degree above the average; but the days the temperature of which more influences the maturing and ripening of grain and fruits had a mean temperature of 2½° below the average, from which it appears that there was a deficiency of solar heat and light. The amount of rain was somewhat above 4 inches, fully an inch and a half above the average quantity for the month. There were only two days on which rain did not fall. The prevalent winds were from S. and S.W. The temperature fell 2° below freezing point on the night of the 17th, and as low as freezing on the 24th.

October.—Very little rain fell in the first half of the month; and altogether the quantity was nearly three quarters of an inch less than usual. The mean temperature was about 1° below the average. Frosts occurred so early as the 12th, but on the 28th night the thermometer indicated as low as 24°. Cold easterly winds prevailed in the first half of the month.

November.—The usual mean temperature for the month was fully maintained. The weather was damp and hazy, but the quantity of rain which fell was little more than half the quantity which on the average falls in November. The night of the 13th was remarkable for an extraordinary quantity of shooting stars, proceeding in all directions from the north. This phenomenon was marked by no remarkable degree of frost, nor extra quantity of rain. The beauty of the Dahlias and such like herbaceous plants was spoiled by the frost on the 9th, thermometer 24°, and tender-foliaged plants were completely done for the season by that of the 20th, when the thermometer fell to 19°.

December.—There were no severe frosts in this month, in fact the thermometer did not fall lower than it did in the previous month, 19°. Up to the last two days of the month the frosts were but slight. In the last half of the month a considerable quantity of rain fell; the last half was generally fine. Several days of the last week, including the last two days of the year, were remarkably so.

The Year.—The mean temperature was below the average. The months of January and February were warmer than usual; March was colder than they were. April maintained its average temperature; but from that time till November the weather was colder than usual. The month of May was on the whole very cold. At the commencement of the year the quantity of rain was 6.97 inches in arrear. This has been reduced by 5.50 inches, the excess which has fallen above the average in the present year. The balance due to arrears is now reduced to 1.47 inch, or it may be said to very nearly an inch and a half. *R. T.*

TABLE SHOWING THE HEIGHT OF THE BAROMETER AND THERMOMETER, AND DEPTH OF RAIN AT CHISWICK, FOR EACH MONTH OF 1866, COMPARED WITH THE AVERAGE OF THIRTY-SIX YEARS.

1866.	Barometer. Mean.	Barometer. Extreme Highest.	Barometer. Extreme Lowest.	Temperature. Mean Max.	Temperature. Above (+) or below (—) the average.	Temperature. Mean Min.	Temperature. Above (+) or below (—) the average.	Temperature. Mean.	Temperature. Above (+) or below (—) the average.	Temperature. Extreme Highest.	Temperature. Extreme Lowest.	Rain. Amount.	Rain. Above (+) or below (—) the average of 40 years.
	Inches.	Inches.	Inches.	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	Degrees.	Inches.	Inches.
January	29.810	30.575	28.738	45.97	+3.16	33.61	+2.62	39.80	+2.89	54	9	3.72	+2.06
February	29.612	30.240	28.702	47.29	+1.57	30.57	—1.11	38.93	+0.23	55	17	3.80	+2.41
March	29.660	30.330	29.041	48.00	—2.78	30.19	—3.18	39.09	—2.98	64	15	1.65	+0.27
April	29.855	30.430	29.290	58.20	+0.76	35.93	—0.25	47.07	+0.26	79	26	1.98	+0.46
May	29.925	30.359	29.125	63.23	—1.39	35.19	—6.82	49.21	—4.10	75	25	1.17	—0.81
June	29.880	30.211	29.399	75.63	+3.65	44.67	—3.97	60.15	—1.16	87	34	3.60	+1.58
July	29.873	30.286	29.080	74.19	—0.42	46.42	—4.89	60.30	—2.66	89	37	1.30	—1.06
August	29.757	30.061	29.043	71.29	—2.15	46.94	—3.56	59.11	—2.85	79	36	2.69	+0.27
September	29.690	30.053	29.172	65.20	—2.47	46.43	+0.50	55.81	—0.99	71	30	4.04	+1.58
October	30.046	30.422	29.651	59.00	—0.23	39.35	—1.74	49.17	—0.99	71	24	2.00	—0.73
November	29.830	30.237	29.313	53.43	+3.75	31.97	—3.24	42.70	+0.26	61	19	1.16	—1.03
December	29.860	30.436	29.093	49.68	+4.33	32.65	—0.66	41.16	+1.83	57	19	1.93	+0.50
Mean	29.816	30.575	28.702	59.26	+0.65	37.83	—2.19	48.54	—0.77	89	9	29.04	+5.50

The Mean Pressure was 0.094 inch below the average.
The Mean Temperature 0.77 degree below the average.

The Mean Maximum Temperature 0.65 degree above the average.

The Mean Minimum Temperature 2.19 degrees below the average.

Amount of Rain, 5.50 inches above the average.

Home Correspondence.

The Late Frost.—There is something very interesting to gardeners in the records of English weather, and whenever it departs from its usual solemn path of clouds and fog and wind and rain, we are all as much alive as a Cockney on the Derby day. It is the strangely different degrees of temperature in places not far distant from each other that gives this lively interest—for the matter of distances we need not say much; in our little island we are all in a cluster—and the extraordinary different effects of a certain amount of frost on trees and shrubs in sites and soils closely resembling each other. White, in his "Selborne," in noticing the effects of a severe winter (1768), remarks with much interest that his neighbour living on a hill near him had not suffered in his garden, for that his Laurels and other evergreens were as green as ever after the winter had passed away, while his were killed to the ground. Those who have seen Selborne's green low moist pastures will at once see that it is not adapted for tender evergreens. Our severe frosts have generally succeeded wet autumns; still, the very severe winter of 1838 was preceded by a remarkably dry warm autumn, so much so that when travelling from Oxford to London, towards the end of October, 1837, by the stage coach, the dust was so abundant and the sun so hot, that my seat on the box was by no means agreeable. The first two or three days of January, 1838, the thermometer ranged from 50° to 55°, the thrushes sung, and we were anticipating a mild winter, when, on the 6th the frost commenced and continued till nearly the end of February. What destruction! The minimum register at Chiswick I find noted as 4½° below zero, which was not so low by 6½° as registered in the late frost; yet all our finer kinds of Roses were killed, all our common evergreens, and even the shoots of Peaches, Nectarines, and Apricots. The frost of December, 1860, was, if possible, still more destructive, for in low places in this county Apple trees of mature growth were much injured, and even the common Oak suffered to a great extent in valleys; in fact, many fruit and other trees seemed paralysed, and did not fully recover till the warm summers of 1863-64. In the late frost the minimum registered here was on the morning of the 5th inst. (in your "State of the Weather" the date is the 4th) 4°, or 28° of frost. I feared at the time that trees and shrubs would be much injured, owing to their shoots, as in 1860, not being well ripened. On examining to-day the shoots of many kinds of shrubs, I find but little or no injury seems to have been done to them. The leaves of Laurustinuses and Phillyreas are still green, but as their young

shoots are brown under the bark, they will most probably shed them. Common Laurels are perfectly green and uninjured, their leaves glistening in the bright sunshine as cheerily as in early autumn. The young shoots of Roses, such as those of Hybrid Perpetuals and the hardy kinds of Tea-scented Roses, such as Gloire de Dijon, are green and not in the least injured. This is very different to the effect of the frost in December, 1860, for then, within three or four days after the extreme cold of the 25th, the shoots of all kinds of Roses, even those of the hardiest sorts, and also those of all kinds of young fruit trees, were, on paring off the bark, found to be brown. Now, if our immunity from the effects of the late frost is experienced at Chiswick, under its very depressed temperature, and in the valley of the Thames generally, it will be a remarkable fact, but I fear it will not prove so, and that Roses and Laurels will not be very gay in the spring. This place is situated about 20 miles in a direct line N.E. of London, is 100 feet above the level of the river Stort, and is cold and dry; the maximum in summer is generally from 4° to 6° below that at Chiswick, and the minimum in winter about the same above; the difference however in the late frost, when the minimum at Chiswick was 15° below that of this place, is most remarkable. I ought to add that my thermometer, one of Negretti & Zambra's best minimums, lies on a transverse bar fastened to a stake, is 4 feet from the ground, and fully exposed. The fall of snow here was very slight, not more than from 2 to 3 inches in depth. *Thos. Rivers, Sawbridgeworth, Herts, Jan.* 12.

Registering Thermometers.—In connection with the records of very low temperatures, given in the last number of your Paper (see p. 29), I venture to ask a question. Have any of the parties sending the record in question personally tested their thermometers? If not I am not going to blame them, but just to state that they will do well so to do. It is well known that Negretti & Zambra, whose "Horticultural Thermometers" are very largely in use, distinctly state that, though sufficiently accurate for general purposes, they are not to be relied on for scientific record, or to that effect. A few days ago I placed six or seven of these thermometers side by side to test their evenness. When standing at from 35° to 40° the variation was so trifling that they might be said to be alike, the diversity scarcely amounting to a degree. But on subjecting one of these very thermometers shortly afterwards to the zero test (by the mixture of salt and snow in nearly equal proportions), the thermometer indicated —7° (that is, 7° below zero). I then placed a much more costly instrument in the same mixture, and the result was —1° (1° below zero.) Feeling anything but satisfied with the result, I purchased a professedly "standard thermometer," which had been tested at Kew, and on the accuracy of which I "might fully rely," and a few hours ago had it subjected to the same test, along with the one last referred to, and an ordinary 3*s.* 6*d.* Negretti & Zambra's thermometer: all three being buried in the same mixture. The result was, that the "standard thermometer" (costing 17*s.* 6*d.* for the one tube) fell to —8° (8° below zero!), while the others registered just as on the previous occasion—one of them 1° below zero, and the other 7° below zero! These temperatures all the three retained, and evidently would retain as long as we chose to maintain the process. Now, what are we to think? Is Fahrenheit's test for zero useless, or are the thermometers untruthful? If, when a thermometer registers 5° or 6° below zero, we ought to call it 2° or 1° above zero, it sadly spoils the sensational effect. If I am wrong in supposing that the temperature produced by the blending of equal parts (or any mixture approximating this) of salt and snow does indicate zero of Fahrenheit, will some of your more learned correspondents kindly put me right? *Jas. Backhouse, Jun., York.*

Registration of Cold.—In the *Times* of January 4, in a note dated Cobham, Surrey, January 3, and signed "F. M. S.," I read as follows:—"One of Casella's thermometers, 3 feet above the ground, registered this morning 4 9-10ths below zero." On referring to your "State of the Weather," this temperature is given as having occurred on the 2d. I believe that the meteorological day ends in the morning at some hour fixed by the higher powers, and not at midnight, in accordance with usage and common sense. Many of your readers are doubtless acquainted with the custom, and consequently do as I have done—give two dates to their registers, the Chiswick and home. I have done this for many years, but always with a protest. Would it not be quite as much to the interests of science if the meteorological day began and finished with our common day? It would then not seem odd to common people to read in the *Times* that the low temperature referred to above occurred on the 3d, and in your columns on the 2d; the latter must be incorrect according to common computation, for I can testify that the lowest temperature on the morning of the 2d was 18°, and just prior to midnight on the same day it was 20°. On the morning of the 3d my minimum thermometer (Negretti's) registered 10°, so that the extreme occurred in the morning of the 3d; but on the 2d, as in your statement, this is 14° higher than at Cobham; but such variations are common in these sudden cold storms. On the morning of the 4th my register stood at 5°, and on the 5th at 4°, the lowest yet experienced. On the morning of the 6th the register stood at 25°, at 9 A.M. at 32°; a slight thaw then commenced, with heavy rain. The question is—would it not be more in accordance with our every-day ideas to have the meteorological day to commence with our common day, so that instead of being always one day in advance of your "state of the weather" in registering extremes of cold, we should agree. *Observer.*

Meteorological Coincidence.—Your correspondent, Mr. J. Anderson, in his interesting notes upon the weather in Scotland (see p. 8), says: "At the closing hours of the new year snow fell upon the banks of the Clyde, with the temperature at 33°." Permit me to add that between 12 and 1 o'clock on New Year's morning snow fell here also, though not in any great quantity, the thermometer registering at the time 35°, or 2° only above that at Meadow Bank, a very near meteorological coincidence when the relative distances, north and south, are taken into consideration. *William Earley, South Herts.*

The Weather.—The minimum temperature at this place (Plymouth), for each day since January 1, has been as follows:—

January	1	..	..	26°	January	9	.. .. 37°
,,	2	..	..	16	,,	10	 29
,,	3	..	..	18	,,	11	 23
,,	4	..	..	26	,,	12	 12
,,	5	..	..	31	,,	13	 11
,,	6	..	..	42	,,	14	 16
,,	7	..	..	48	,,	15	 12
,,	8	..	..	42			

Thermometer 4 feet from ground, fully exposed. *Thos. Smith, Beaconfield.*——Jan 3d, 10°; 4th, zero; 5th, 4° below zero. Dixey's thermometer, corrected by Greenwich standard. Jan. 14th, —8°. Broccoli all killed. *Heckfield Gardens, Hants.*——The temperature on the surface of the snow has been 12° the past two nights; at 5 feet from the ground 22° (slightly overhung). Wind, none; sky clear. Severity more continuous than in 1859 and 1860. *Sam. Garland, Bishopstowe, Torquay.*

Weather in Scotland.—I find on testing the thermometer from which the readings were taken, notified at p. 8, that I overestimated its accuracy, and as it is of some importance for general reference to have meteorological statistics as nearly correct as possible, I reproduce them in a tabulated form. The thermometer is one of Negretti & Zambra's, which has stood out-of-doors here for upwards of two years, and up to the late pressure of extreme cold was a fair enough index of temperature. The minimum readings are the lowest during the 24 hours. Those of the maximum are taken each day at 1 o'clock:—

		Minimum.	Maximum.
December	28	37°	48°
,,	29	34	37
,,	30	37	39
,,	31	33	38
January	1	16	23
,,	2	14	22
,,	3	8	16
,,	4	7	13
,,	5	4	21
,,	6	24	32
,,	7	33	34

Our thermometer, as will be observed on comparison with the readings given at p. 8, indicated 4° too low. We, therefore, have not had the same extreme pressure of cold as in and around London. At Clapton Mr. Stuart Low writes me that their thermometer fell to 2° during the morning of the 5th, and I see by a contemporary that at Chiswick the thermometer there had registered 11° below zero! I wonder if its accuracy has been tested, since the best of the registering thermometers do go wrong, for the one which indicated at Meadow Bank on Christmas 1860, 13° below zero was totally worthless for correct readings ever after. It was a mercurial one; and those of Negretti & Zambra, whose fluid is spirits of wine, are open to the same objection, as I have proved in the case above referred to. It would be generally interesting matter to know if such occurrences are common, and the cause or causes thereof, so that makers might be on the *qui vive* for a remedy. The line of snow had evidently all but terminated on the "border line" dividing England from Scotland. Instead of having feet, and avalanches, as is recorded in some districts of Wales, we had not above the one-eighth part of an inch in the West of Scotland. *J. A., Meadow Bank, near Glasgow.*

The late Frosts, and Maréchal Niel Rose.—The frost here in the Valley of the Dove on the nights of the 2d and 14th equalled in intensity that of the memorable Christmas Eve of 1860, when the thermometer fell some 6° below zero, and at present it appears to have done its work nearly as effectively. The tender tribes of Noisette, Bourbon, and Tea Roses on the low grounds appear here to be all killed, especially unprotected Standards. We are, however, delighted to see our old and valued friend Gloire de Dijon entirely unscathed; and, better still, Maréchal Niel, the best of all the yellows, seems none the worse for the trying ordeal to which it has been subjected. If this important fact should be corroborated by other correspondents, it at once settles the question of its hardihood, of which I have now not a shadow of a doubt, and establishes the claim of this fine variety in a very important sense to universal favour. *A. Godwin, The Rosarium, Ashbourne.*

Game Covert.—In reply to "D." (see p. 30), I beg to state that I planted Berberis Aquifolium rather lavishly about 20 years ago in this neighbourhood. Hares and rabbits leave it alone. It comes up wild from seed self-sown in all sorts of places, and I have only to save these young plants and transfer them to nursery lines for a year or so, whenever I wish to increase my breadth of the plant. I know not one instance of its being eaten by rabbits. Did "D." see them at their work? *Diss.*——I have been for years, and am still, a planter of Berberis Aquifolium for winged game covert, and I can most conscientiously recommend it to gentlemen for that purpose; ground game (hares and rabbits) do not injure it after the first year's planting. Most foresters are aware that rabbits keenly observe and deadly punish a few newly-introduced plants in their lairs, which accounts for "D.'s" plants falling a sacrifice in so short a time. I am now preparing 60,000 of these plants to plant out on an estate, and if the rabbits are killed down pretty well by the time I commence planting, I do not think their after increase will injure me to the extent of 40 plants devoured. I advise "D." to plant this favourite extensively, and if he cannot reduce his stock of rabbits, to guard his plants with wire net for a season; when they shall have become sufficiently established, and the rabbits are accustomed to them, they will be as safe as Whin (Gorse) or Blackthorn bushes. I prefer planting the Berberis Aquifolium in large breadths, and situated in the preserves where there are but few trees, and those at a good distance apart. If the soil is such as will hold the moisture of a dry summer, so much the better. I trench 18 inches deep, and plant 2 feet apart, keeping the hoe going among them for two years after planting, by which time the plants meet and stifle all further growth of weeds; the plants now produce abundance of attractive fruit for birds: the covert is most effective for holding them, and what can be more agreeable in height for gentlemen to shoot over? *C. B., a Forester.*——In the "American Agriculturist" for January, 1867, the following recipe is given to prevent the ravages of rabbits:—Rabbits are easily kept off by anything that is distasteful to them. Blood is found to be as efficacious as anything else, and is easily obtained and applied. A small sprinkling only is necessary. *M.*

Colouring of the Wood of Living Trees.—In a report of the *Conversazione* held in December at the Agricultural College at Cirencester, I read as follows:—"And most interesting, perhaps, of all, were some beautiful examples of wood coloured by Mr. Hyett's process of introducing salts of metals into trees while growing, taking advantage of the ascending current of sap." I think I remember reading years ago, of the experiments of the old chemists in making young succulent plants imbibe coloured water to a small extent, but this colouring of wood seems new. We may now expect blue Roses and blue Apricots. Will you kindly throw some light on this curious subject? *Observer.*

Female Garrya elliptica.—You are in error in stating (see p. 10) that the male plant only of Garrya elliptica exists in gardens. Last October I saw a bush of this beautiful shrub covered with clusters of the dried-up berries, some of which contained seeds apparently perfect. The plant was also showing inflorescence for this present season. It stood in a garden in Somersetshire, near the sea. *Leo H. Grindon,* 85, *Rainford Street, Manchester.* [There was at one time, we believe, a female Garrya in the Chiswick Gardens, but it has been lost. EDS.]

Aucuba Berries Poisonous to Robins.—The following has just occurred during the late severe frost. I allowed two robins to live in my large greenhouse, where I have two Aucubas with ripe fruit on them. My attention the other day was turned to these beautiful berries, when I found that something had caten off the pulp from the seed; I wondered what it could be, and thought that perhaps a mouse had taken the brilliant morsel. On inquiry, however, it was found that one of the poor little robins lay stiff, cold, and prostrate in the path, and a *post-mortem* examination proved [?] that it had been poisoned from eating the berries of Aucuba japonica. It might be well therefore to take the greatest care to keep these most beautiful and brilliant berries from children, to whom they are so tempting, and as the plant is likely to become one of our most attractive and ornamental shrubs, it may be necessary to employ caution in order to prevent, if possible, any further unhappy results from the use of its berries. *Jabez J. Chater, Gonville Nurseries, Cambridge.* [What became of the other robin? Had the birds fought? EDS.]

Forthcoming Exhibitions.—It becomes the duty of all, as floral exhibitions are every year acquiring more and more importance, to discuss points of perfection as regards plants, fruits, and flowers, in order that in course of time there might be some general rule laid down for the guidance of both exhibitor and judge. The existence of such a rule would be of great service to everybody. Want of foliage might be improved by making it imperative that all collections above nine stove and greenhouse plants should contain two Palms of not less than 8 feet high, and that all collections of less magnitude should have one variety of colour; and variety of plants should likewise be taken into consideration in judging collections. If Mr. Fish was to give a cup to the best stove or greenhouse plant, or bunch of Grapes in the whole exhibition, independently of class, there is no doubt that some would merit consideration, which might help to place matters on a better footing than they have been. *T. F. Johnson.*

Pantomime Plants.—To expect consistency in a pantomime would seem as absurd as to suppose that your columns are open to criticisms on popular dramatic entertainments. Nevertheless, as the subject of "table decorations," in so far as they consist of flowers and their accompaniments, finds an occasional place in your Journal, it would not be altogether unreasonable if scenic decorations were to receive some casual attention, and one may ask whether the eyes of the general public would not be quite as well pleased if truth were a little more studied in these matters than it is. Take a case in point: some of your readers may have visited old Drury lately, and if so they can hardly fail to have been struck with the exceeding beauty of a scene wherein sundry Naiads are seen disporting themselves with Water-lily leaves. I wish to say nothing about the Naiads themselves, or you, Mr. Editor, might frown reprovingly, and "decline without thanks," but I would call attention to those Water-lily leaves, sufficiently accurate in all points but one, and that one to a wild flower lover almost enough to mar the general effect. The obnoxious point is that the artist has, to heighten the effect, placed two longitudinal stripes of silver or gilt tinsel on either side of the midrib of the leaf, leaving the latter unmarked, thus giving the impression of what botanists would call a multicostate leaf, a mistake of a very shocking character for susceptible botanical natures!

Granted that under the circumstances it is necessary to paint the Lily, would it not have been far more effective and certainly more consistent with Nature if the artist had followed the natural veining of the leaves. One may give ready assent to the appearance of fairies in almost any situation, and when they emerge from Lily cups it is easy to suppose that prolification has taken place, or when they spring from Palm leaves one may consider them in the light of so many "viviparous" buds, such as we are familiar with in many Ferns. But for multicostate Water-lily leaves there is no warranty in the opinion of *Luke Bedlam.*

Bedding-out (see p. 1218, 1866).—While agreeing with and admiring some of the suggestions of "A Practical Hand," I must say that I have been surprised at such a display as he makes of his want of knowledge of some of those laws of Art which are immutable and well recognised by every artist. Let me quote his own words. Speaking of the very moderate and just criticisms of "S. R. H." on bedding-out, he says—"Is his picture by Rubens the less valued because others by the same master adorn the picture galleries of every capital in Europe?" I answer, no; but if Rubens, or any other great artist, were to simply repeat himself, and give us the same thoughts, or incidents, or scenes with slight variations, his pictures would be of little or no value. One of the greatest writers on Art that this country, or probably any other, has ever produced, and who is also distinguished by his deep study and deep-seeing observation of Nature in almost every phase, writes thus:—"Let us, then, understand at once, that change or variety is as much a necessity to the human heart and brain in buildings as in books; that there is no merit, though there is some occasional use, in monotony; and that we must no more expect to derive either pleasure or profit from an architecture whose ornaments are of one pattern, and whose pillars are of one proportion, than we should out of an universe in which the clouds were all of one shape, and the trees all of one size." Does not this directly apply to the garden, in which one is surely entitled to look for more variety and perpetual interest than in any other thing made by man for his recreation? "A Practical Hand" politely tells your entertaining correspondent to "stay at home" if he does not like ribbon borders. Now, suppose "practical hands," generally say the same thing to educated people and employers, is it likely to do any good to our profession? I am disposed to think that the maker of ribbon borders will ere long have very little occasion to say "stay at home" to the man of taste, for I see such gardening estimated at its true value in more than one vein of our first-class literature. I have seen these barbarous patterns described by a popular novelist and genuine lover of the beautiful as worse than the most barbarous patterns on a bad Chinese shawl, and enough to "make Mr. Owen Jones howl with anguish." For my own part, I am very grateful that there are a few places where the real interest of a garden is to be found, and seldom waste a moment with the ribbon maker. He has exhausted Nature! Look in at the end of his garden, and all is over! It is indeed a great saving of time, no doubt, but does it lead employers to love their gardens? I fear not. *Vertumnus.*

Gardeners' Benevolent Institution.—I was glad to see "J. D.'s" letter, and your remarks thereon (see p. 1195, 1866). You say a large proportion of the funds have been subscribed by patrons who do not object to the present constitution of the Institution; but would they object to the rules being altered, so that no non-subscriber could be a pensioner, if the matter were fairly laid before them? I think not. I cannot believe that any of these kind patrons, who deserve our sincerest thanks, would like to encourage any man to be careless as to how he is to live in his old age; yet the rules, as they are at present constituted, most certainly do so. Then as to "J. D.'s" friends and gardeners in general subscribing, I have no doubt but that they all would do so as soon as they know that their money would go to help them that try to help themselves. And let gardeners remember how much better the pensions might be, if all could conscientiously subscribe. If all the funds of this Institution had been given by the rich, and I were in want, I would gladly accept a pension from it; but knowing as I do that a good quantity is subscribed by gardeners, who, it is admitted, are not over-well paid, I could not for the life of me, for shame, accept a pension from it. In other words, I could not live on another man's frugality and industry. I write this in no pompous spirit, or with a full purse. I have a wife and seven children, and I have not or ever had anything but what I have worked hard for; and this is my conclusion: *Ubi mel ibi apes.*

Chinese Bean-cake.—The Beans are first crushed by means of a huge granite wheel running on a circle or ring of granite stones, and drawn by animals, nearly all mules, but with a few horses. The crushed Beans, resembling irregularly-shaped wafers, are then steamed for about five minutes, after which they are made up into round packages of equal weight by being enveloped each in two Grass bundles laid in a peculiar manner, and held together by two iron hoops; five of these packages are then put into a press, from which they are taken as fine cakes, and the oil expressed from which has flowed down into a receiver below each press. The rim of each cake is then pared by hand, when it is ready for exportation. The pressing is effected by two wooden wedges in each press, driven in by two men with heavy stone hammers. When the factories are kept working night and day, which is quite usual, 13 men and about 22 mules or horses are required for each pair of crushing stones. There are now 102 pairs of crushing stones and 204 presses kept in operation by about 1330 men and 2250 mules and horses. They are making from 20,000 to 24,000 cakes in 24 hours. The factories are usually kept in full operation during the warm season. During the cold season there is generally a pause, owing to the fact that the frost prevents an equal quantity of oil being expressed from the Beans, and renders the steaming more expensive. It requires but a slight consideration to see that European machinery driven by steam might be brought with advantage to bear on this branch of industry. By a little ingenuity the same fuel that supersedes the mule and man-power in the crushing and pressing operations might, without additional cost, be made to supersede the steaming fuel; and by a suitable arrangement of the fires, boiler, and machinery in one and the same double-windowed building, the temperature might again, without additional cost, be maintained at a height suitable for expressing throughout the winter. Preparations are now being made by Messrs. Thos. Platt & Co., British merchants, for the establishment of a Bean-cake and oil steam factory in connection with an experienced practical engineer, who has inspected the existing manufactories, and who is now in England engaged with the new steam machinery. What plant furnishes these Beans it is not so easy to understand, as we have not seen them. It would appear, however, to lie between Lablab vulgaris and Soja hispida; probably the former, though the latter grows in large quantities, and is a very useful seed. *John R. Jackson.*

Education of Gardeners.—To the education of young gardeners we must look for an improved standard in the gardening profession. It is from among those young men who devote their evenings to study in the theory of horticulture, floriculture, and botany, and who in their daily labour can apply that knowledge to practice—that we must seek for young men fitted to take the responsible duties of foreman, and eventually of head gardener. I am confident that much good will result from the exertions made by the Royal Horticultural Society, assisted by the Council of the Society of Arts, in providing examinations and prizes for gardeners. I have before me a programme of the Society of Arts' examinations for 1867; also the results of 1865 and 1866, and with your permission I will extract the names of those gardeners who have proved successful in obtaining prizes and certificates. I wish to say to those who have obtained first-class certificates—select other subjects; to those who have taken second and third-class certificates—try again, until you gain the highest honour; and to those who have not been successful in obtaining certificates, or those who have not yet offered themselves for examination—study closely, and persevere till you succeed:—

CLASS OF CERTIFICATES.

Name.	Age.	Book-keeping.	Botany.	Flori-culture.	Fruit and Vegetable Culture.
R. Brown, Salford	25	..	3	..	..
A. Dean, Southampton ..	34	..	..	..	3
J. K. Dempster, Glasgow ..	27	..	2	..	..
J. Duncan,* London	22	..	2	2	..
J. Godseff, Chelmsford ..	19	..	3	..	..
J. C. Higgs, Southampton ..	25	..	..	..	3
R. C. Kingston,† Hull.. ..	19	3	3	3	2
W. Osborne, London	25	..	..	3	3
A. Parsons, Burton	22	..	3	..	..
W. P. Roberts,‡ Ipswich ..	26	..	..	2	1
G. Stanton,§ Slough	25	..	..	1	2
G. M. Woodrow,‖ Richmond (Surrey)	20	3	3	1	1
	—	2	7	6	7

I think the results of these examinations require to be better known. In conversing with some of my brother head gardeners on the subject, I often hear these expressions:—"What is it? Suppose it is all theory, book study, cramming;" while journeymen and apprentices say—"Should like to know something more about it; what the examinations are; who has been examined; should think they are all from Chiswick or Kew, or some of those great places—I should have no chance with such as those about London. I should like to see published in the *Gardeners' Chronicle* full particulars of the last Society of Arts' Examination Paper; why not give a copy of the questions?" I have no doubt this would gain many candidates for 1867. I should hope many readers of the *Gardeners' Chronicle* are interested in these gardeners' examinations. Many practical gardeners, like myself, interested in the welfare of our assistants, are looking forward anxiously for the result. *R. C., East York, Dec.* 21, 1866.

Fat Catalogues.—Now that the new year has commenced, those cumbrous nuisances, fat catalogues, swell the post bag, and come in useful as waste paper. One of these, I find, contains no less than 40 varieties of Cucumbers and 60 varieties of Melons, of which no less than 11 are new, originating with the Company, as the name of one of the firm is prefixed to each. Among the Melons, it appears, perfection is attained. Some have "transparent rinds, so thin that the flesh can be seen through." Some are "superbly netted," and other wonderful properties are mentioned. I am convinced that many of these swans are geese, and they will be geese indeed who trust to such bosh. *Ebor.*

Acclimatisation (see p. 1113, 1866).—I am glad to see you are taking up "acclimatisation" precisely in the light I have often wished to see it treated. There may be a gradual hardening of an exotic plant, though it never reaches the hardiness of a native. The test of destruction by frost is fallacious. The tops of Nettles are always destroyed by frost. Ulex europæa, in Scotland, is sometimes killed by frost; but surely both plants are acclimatised, if the latter is not a native. *J. S. E.*

Asphalte Walks.—I do not think "G. S." has read my remarks on asphalte walks (p. 30) carefully, or he would not have brought against them such an objection. The surface of the walk, if properly made, would be perfectly solid and impervious to moisture; consequently the frost would have but little, if any, effect upon it. Should the frost, however, penetrate the asphalte, it would still have in the centre of the walk three inches, and at the sides five inches, of hard material to get through before reaching the soil; and as at the bottom of this it was proposed to put in a drain, to take off the water, both from surface and subsoil, which, if only a drain-pipe three inches in diameter, would have its under side nine inches below the surface of the walk, there will be no fear of the soil within reach of the frost becoming saturated with moisture. *E.*

Californian Trees.—A friend of mine, writing from San José, California, says:—"I enclose seeds from an evergreen tree growing on the mountains. It is very beautiful, and covered with red berries like the Mountain Ash, and I have been told it is Photinia arbutifolia. It should be hardy, for it grows on the top of the mountain, when the wind blows very cold, and there is frost. I could send you any amount of seed. I am collecting acorns of all the different kinds of Oaks. I have also got some of the Buck-eyed Chestnut, some of the seeds of which are as big as a fair-sized Orange. This tree looks very pretty now, although it has not a leaf on. The tree has a pinkish white appearance, and when amongst evergreens it is very striking. Some acorns here are larger than a Walnut." Can any of your correspondents oblige with any information respecting these plants? *W. D.* [Photinia arbutifolia is a native of California. EDS.]

Hippophäe rhamnoides.—This is a most beautiful berry-bearing plant, although it is seldom seen in fruit. This fact no doubt arises from our ignorance of its being unisexual. Hence, wherever it is planted, it is generally alone, and therefore no berries can be produced; moreover, it is a straggling grower, and not by any means a general favourite with planters. I had the good fortune, however, a short time since, to pay a visit to the nursery of Messrs. Backhouse & Son, of York, where I saw a bush about 7 feet in height, and as much through, having its stems literally covered with berries, which are sessile. These spikes of berries, if I may be allowed the expression, were from 6 to 9 inches in length; the berries themselves are of a primrose colour underneath, and with a little rose colour next the sun, about the size of large Holly berries, and somewhat oval in shape. Mr. Backhouse informed me that he travelled a long way to procure the male plant many years ago, but the sight which this tree presented must have amply repaid him. The male and female were planted close together, and the only care bestowed for this rich harvest was to occasionally shake the male tree while in flower, thereby causing the pollen to fly off in clouds, and fall on the flowers of the female plant. As many persons are now seeking after berry-bearing plants, I have little doubt, that if you make this known, it will lead to Hippophäe rhamnoides being often included in collections. *E.*

Naming Plants.—In treating of the winter flowering of certain new Orchids (see p. 28), the writer denies me the right of giving names to the species introduced by me, and condemns severely what he calls my unwarrantable habit of giving names, &c. I protest against so arbitrary a declaration, and I affirm, on the other hand, that introducers have the right of attaching names to their new plants before any one else does so, provided that they only apply them to *bonâ fide* new plants, or to such as are not in cultivation, and the descriptions of which are so imperfect as to render them liable to be misunderstood. It is indispensable that, while waiting the determination of my plants (Orchids) by the only competent monographer that we possess, the plants should receive a provisional name, which cannot give umbrage to any one, and which cannot give rise to misunderstanding or confusion. Does "J. B." seriously believe that a few lines of diagnosis suffice to legitimatise a name, and to give it the authority which he denies to me? I am not of that opinion, and I believe that a simple provisional name, which may be put on one side when there is no longer necessity for its use, is better than one which is put into circulation with a defective diagnosis. Like other people I could indulge in the fancy of delivering a passport to my plants, legalised by three or four lines in Latin; for before my passion for introducing plants led me into the pursuit of commercial horticulture, I had pursued my studies at the University, and was engaged for several years exclusively with botany, but I preferred to become a diligent introducer of plants rather than a bad describer of them, of whom there are already, unfortunately, too many. "J. B." says that my Oncidium Phalænopsis is nothing else than his O. Denisonianum, but the learned monographer of Hamburgh has just discovered, after minute research, that my O. Phalænopsis is the true Oncidium nubigenum. It follows then, if O. Phalænopsis is really the same plant as O. Denisonianum of "J. B.," that both these names must pack up their baggage at the same time. As far as regards Oncidium diadema I may mention that Professor Reichenbach himself has experienced great difficulty in identifying my plant with the O. serratum of Lindley, so incomplete is the description of this last species. Where so learned a botanist has had so much trouble, I may be excused for having considered my plant as one undescribed. My Oncidium puts aside its diadem and disappears, its entry into the world having done no harm to any one. *J. Linden, Brussels.* [We should be the last persons in the world to question the right of M. Linden, or any other introducer of plants, to affix any name they may please to the plants introduced by them, provided always that the name be given to such plants only as there is good reason to suppose are really new, and provided also that such names are not merely

* Royal Horticultural Society's Prize of 5*l.* for Botany.
† Royal Horticultural Society's Prize of 1*l.* for Botany.
‡ Prize of 5*l.* for Fruit and Vegetable Culture.
§ Prize of 5*l.* for Floriculture.
‖ Prizes of 3*l.* for Floriculture, 3*l.* for Fruit and Vegetable Culture, and 3*l.* for Botany.

provisional, but are such as will not mislead, or tend to confusion. M. Linden's botanical knowledge must have made him aware that to draw up a diagnosis of four or five lines, it is necessary to spend hours, and sometimes days in the task, the difficulties of which, moreover, are enormously increased when the botanist has to deal with names and synonyms for which there is no other authority than a printed catalogue or a garden label. If M. Linden were to apply arbitrary names, such as florists give their plants, no confusion would arise, and it would be open to M. Linden himself, or to any other botanist, to affix a scientific name according to the customary practice of scientific men, at any time when the knowledge of the plant in question and its relationships to others, were sufficient to allow of this being done. EDS.]

Odontoglossum cirrhosum and Oncidium macranthum.—As Mr. Linden suggests that our having proved a plant to be Oncidium cucullatum which bore the label of Odontoglossum cirrhosum, resulted from our having bought both species at Stevens's sale, and accidentally changed the label, we may state in self justification that it was not so. We never (to our knowledge, or by record) bought a plant of O. cucullatum at any time, but we have, at different times, purchased three plants purporting to be Odont. cirrhosum, and are free to state that the old bulbs on the plant now in bloom (and which proves to be Oncid. cucullatum) are so like the old bulbs of the other two plants purporting to be Od. cirrhosum that we are not surprised at Mr. Linden's mistake, accepting his own statement that "the most experienced connoisseur may be deceived." We do not think that any one could adopt a more honourable course than Mr. Linden has done in offering to rectify such errors wherever they occur. Should we be placed under similar circumstances and publicly offer for sale Orchids sent by our collector, we should follow the same course: for it is obvious that an importer cannot prove every plant by blooming, which he offers for sale, whether privately or publicly. With the utmost care a collector may be deceived; he may find one plant in flower and make a drawing from it, and suppose that many other plants resembling it are precisely the same, when time may prove otherwise. As to Oncidium macranthum, we venture to ask upon what authority the variety hastiferum is so named? One of the very characters of the typical Oncidium macranthum is the hastate labellum (*labelli hastati* are Dr. Lindley's words). And our native specimens, and drawing from one of them, both show this feature conspicuously. May it not prove that the so-called "typical form of the species from the slopes of Chimborazo" belongs to another species altogether, as ours, now in bloom, certainly is? and that the var. hastiferum is the true (*i. e.*, typical) macranthum? As regards Odontoglossum coronarium, we would ask how it happens that, if so very well known, the figure in "Pescatorea" has a leaf nearly a foot long, while the plants sold for it had very short leaves? O. brevifolium, as its name implies, has short leaves. We have purchased some of the plants sold as O. coronarium, and they exactly resemble, both in leaf, bulb, and habit, the plants which we imported. Twice our collector has sent dried specimens, and these, together with a drawing, differ from O. coronarium in having a recurved spike, fewer flowers on the spike, and a shorter labellum in proportion to the length of the petals. Professor Reichenbach named these O. brevifolium. Whether or no O. coronarium and O. brevifolium will ultimately prove to be extreme forms of one species, we are not, of course, prepared to decide; but, if so, we think the plants recently sold will prove of "the form called brevifolium!" Time will prove this matter. *Jas. Backhouse & Son, York.*

Winter Cucumbers.—Allow me to inform "J. S.," who wants a free-bearing Black Spine Cucumber (see p. 30), that I have disposed of all I can spare of my favourite Black Spine. I shall however be most happy to forward him two or three Black Spines of middle size, which I think will answer his purpose, and I should be much obliged if "J. S." would send me by way of exchange two or three seeds of his winter favourite just to test its merits. *Joseph Hamilton, Wellington Place, near Carlisle.*

Gutta-percha Fountains.—There is one application of gutta-percha which I have never seen made, but which seems very easy, and that is, to make small fountains of it; it is easily moulded with warm water, can be readily forced into plaster moulds, and joined with equal facility by heat, and although the material is expensive, compared with cement, it will outlast 50 cement fountains, and not clog with vegetation as they do. The colour, a dull grey, is another objection to cement. *Somerset.*

Milky White Potato (see p. 29).—I had this Potato on my table on the Christmas Days of 1865 and 1866, in the finest possible condition; and having grown from 20 to 30 varieties, I am of opinion that this is the best we possess. The Milky White is sometimes spoken of as a second early, but with me it is in perfection at the present time; and will, I think, be equally good for months to come. The Milky White is a good cropper, while in appearance and flavour it is all that would be desired. I am one of those who believe that the best dinner would be spoiled by the appearance of a bad or indifferent dish of Potatos on the table, and, therefore, I take some pains in the selection of varieties, and in their proper cultivation. *W.*

Collections of Seeds.—I have to solicit the favour of a short space in your columns to complain of a practice among certain seedsmen, which has become so great a grievance to gardeners, that it is a matter of surprise it has not taken a more definite or decided shape before. The grievance which now forms the burden of my complaint is that in which the seedsman, trespassing out of the usual way of business, steps in with his "Collection" between the gardener and his employer, thus thrusting the former on one side, and usurping to himself a place which is undoubtedly the gardener's own legitimate sphere. This "collection"—I beg pardon, this complete collection, as per advertisements—purports to be a full and ample supply of seed for one year; the size of the garden however, and the question of supply and demand, singular to relate, being quite overlooked, or considered of secondary importance. Probably the compounders of these collections had the story of the enchanted basket, with its inexhaustible contents, before their eyes. The idea of a seedsman making up a uniform prescription of seeds ostensibly to meet the requirements of every gentleman's table in the kingdom, without reference to the peculiar tastes or requirements of the family, is absurd enough, but its absurdity is not all, and to denounce the system on this ground alone would not suffice, for although I am persuaded that it will eventually fall to the ground, yet in the meantime it is doing an incalculable amount of mischief, and on this ground it is difficult to find language strong enough to exhibit its unreasonableness. It is a system which aims at nothing short of the complete subordination of gardening talent and skill. It might be asked, and with considerable justice—by what right does the seedsman thrust himself between the gardener and his employer?—a question which the collectionist would find it difficult to answer. Certainly, it is not by right of either office or experience. I have no hesitation in saying that the object of this letter will be responsive to the feelings of a large majority of your readers, numbers of whom have felt themselves aggrieved by the collection system. One further remark just to illustrate the matter, and for the present I have done. A gentleman's gardener, not many years since, was rather surprised at the arrival of a package at his door, addressed to his employer, but directed to be left at the gardens; on opening it he found it to contain what is styled a No. 1 Collection of Garden Seeds. Now, if a successor had called upon this gardener that morning with full powers to demand his keys, he could not have felt more astounded, for he naturally felt that his skill and abilities as a gardener were despised, and that he no longer enjoyed the confidence of his master; with these feelings he sought an interview on the subject, and in answer to his question as to his master's reason for changing the seedsman, his employer testily replied that on seeing Messrs. —— advertisements in your Paper, he compared their charges with the ordinary seedsman's account, and finding such a wide difference between them, he thought it high time not only to change the seedsman, but to take the ordering of the garden seeds into his own hands. In answer to this the gardener told his employer that he was much mistaken in supposing that the amount paid to his seedsman last year was all for seed, for if he had examined the invoices that accompanied the settled account, he would have found that a considerable portion of that sum was for tools, mats, &c., and that, moreover, there was a charge of nearly 30s. for flower seeds; "and," continued the gardener, "if you add the charges paid for tools and flower seeds, and deduct it from the total of last year's bill, you will find that you are a considerable loser by the change, and not only that; although there is an excess of Peas and Beans in the collection received this morning, there are not near enough seeds of Onions, Carrots, Spinach, Mustard, &c., for the supply of your garden for this year, to say nothing of flower seeds." *A Practical Gardener.* [We print this letter for the purpose of adding that we believe "A Practical Gardener" is wrong when he calls in question the right of a tradesman to make up and offer for sale collections of the articles in which he deals. It is legitimate trade so to do. That his uniform collections do not meet the wants of all who purchase them, is not to be wondered at, since the tastes, conveniences, and circumstances of the buyers may vary indefinitely. That his collections may be ill-selected and ill-assorted may be equally true, but then the purchaser should know his wants, and not buy at random. Hence it will follow, we think, that few of those who have upright and trustworthy men for their gardeners, will commit the mistake of purchasing collections that do not meet the wants of their garden establishments. EDS.]

Societies.

ROYAL HORTICULTURAL: *Jan.* 15 (*Scientific Meeting*).—G. F. Wilson, Esq., F.R.S., in the chair. Sixteen new Fellows were elected, and one Society, the St. Ann's Amateur Floricultural and Horticultural of Nottingham, was affiliated. Owing to the inclemency of the weather, very few subjects were exhibited on this occasion. A highly promising Zonal Pelargonium, named Mimas, of a soft pleasing shade of rosy scarlet, was exhibited by Mr. Mann, Nurseryman, Brentwood. This was exhibited in September last, when it received a Second-class Certificate, and it was reproduced to show that very small plants of it flower freely, even in mid-winter. From Mr. Howes, Seven Sisters' Road, came a variegated-leaved variety of Chinese Primula. Messrs. E. G. Henderson furnished Sophronitis grandiflora, and a variety of it with rosy-crimson flowers, called S. g. Alexandrina. Cut spikes of Barkeria Skinneri and a Lælia came from Mr. Hodges, gr. to E. Wright, Esq., Gravelly Hill, Birmingham; and from Messrs. Backhouse, of York, came cut examples of Brassavola cuspidata, and of an Oncidium allied to O. serratum, with large brownish-green flowers of unusual construction, especially as regards the lip, which is small and unattractive, while in most Oncidia it is large and showy. From Messrs. Lucombe, Pince & Co. came a beautiful and well-preserved bunch of their new Grape, Mrs. Pince, which certainly merits all that has been said of it, both as regards its long keeping qualities and flavour, which closely approaches that of a Muscat. Apples came from Messrs. Slater, of Malton; Mr. Whiting, of the Deepdene, near Dorking; and Mr. Wentworth Buller, from whom came several dishes of that most excellent little dessert Apple, Court of Wick.

UNITED HORTICULTURAL: *Jan.* 14.—Mr. Wilson, gr. to W. Marshall, Esq., Enfield, exhibited a cut flower of the rare white variety of Lycaste Skinneri, a most lovely and chaste Orchid, the white being remarkably pure; the Orchid growers present pronounced it the best they had seen. Mr. Wilson also exhibited cut spikes of blooms of Oncidium crispum and O. Forbesii, the latter being very distinct in the column from O. crispum; a very fine variety of Lælia elegans, the lip of a most beautiful purple; and the interesting miniature Orchid Oncidium raniferum, so named from the centre of the flower resembling a frog crouching. A First-class Certificate was awarded to Lycaste Skinneri alba. Messrs. E. G. Henderson & Son, of St. John's Wood, exhibited a dwarf Pyrethrum, with beautiful feathery foliage. The colour at present was as nearly as possible that of Golden Fleece Geranium; Messrs. Henderson, however, having tried it for bedding purposes last season, state that it is a beautiful golden yellow later in the season, and always retains its dwarf habit even under cultivation in pots. As a bedding plant it promises to be most serviceable, being unique and distinct; it is, we understood, to be distributed this spring, and named "Golden Feather."

QUEKETT MICROSCOPICAL CLUB.—A very successful *soirée* was given by the President and Committee of this Club, on the 4th inst., in the Library of University College, when notwithstanding the inclemency of the weather, nearly 400 members and visitors attended. The walls and tables were amply supplied with objects of interest. Amongst the diagrams suspended on the walls were some beautifully executed drawings of botanical sections, which were lent for the occasion by the Commissioners of Inland Revenue; and some coloured drawings of fruit by native Indians, &c. About 120 microscopes, embracing all the latest improvements, were exhibited by the members, who include in their number the various makers, of whom Messrs. Powell and Lealand, Ross, and Smith and Beck, may be taken as worthy representatives. A less pretending instrument than any of modern construction, however, received the lion's share of attention; this was the microscope made by John Quekett when a young man, of various materials, formed for other and less scientific purposes, and constantly used by him in his investigations. Salmon-hatching, induction coils, graphotype engraving, and other matters of interest, entertained the visitors till a late hour.

Notices of Books.

The Journal of the Linnean Society (*Botany*), Vol. IX., No. 39. 8vo.

This Number contain several papers of interest, among which we may mention two by the Rev. George Henslow on certain Leguminosæ, the structure of whose flowers is apparently such as to afford facilities for intercrossing. The plants alluded to are species of Medicago, Indigofera, and Cytisus. The Rev. W. B. Tristram contributes a note on the existence of the true Cyperus Papyrus in Palestine. The species commonly grown under this name in this country is C. syriacus, according to Professor Babington. Dr. Masters describes some flowers of Bæckea diosmæfolia, wherein the ovaries were entirely destitute of ovules, but in which perfect stamens spring from the walls of the ovarian cavity. Dr. Masters also describes at some length the structure of a double-flowered Orchis mascula, communicated by Dr. Moore, of Glasnevin. The flowers in question were doubled by the substitution of petal-like organs for stamens and pistils, the several parts remaining separate and not becoming fused as they do under ordinary circumstances. Moreover the number of these organs was much greater than that of the parts of the flower as usually seen. In the axils of the petaloid organs secondary flower-buds were formed, these secondary buds producing in their turn tertiary and quarternary buds, so that the structure of the flower seemed at first sight very complicated. A plate and some diagrams accompany the description of these singular flowers. Mr. J. G. Baker describes and figures some new species of Trichomanes and Hymenophyllum, mostly of minute size and of tropical origin. Herr Fritz Müller gives a description and figure of some South Brazilian climbing plants, with special reference to a doubt expressed by Mr. Darwin as to the existence of tendrils formed from modified branches. Herr Müller, however, mentions several cases of the kind, and traces five stages in the development of branch climbers, thus:

1. Plants supporting themselves only by their branches stretched out at right angles, *e.g.*, Chiococca.
2. Plants clasping a support with their branches unmodified, *e. g.*, Securidaca, &c.
3. Plants climbing with the tendril-like ends of their branches, *e. g.*, Helinus.
4. Plants with highly modified tendrils, which may, however, be again transformed into branches, *e. g.*, some Papilionaceæ, of the tribe Dalbergiæ.
5. Plants with tendrils used exclusively for climbing.

Some other interesting details as to climbing plants are given, which our space will not allow us to extract.

The Transactions of the Linnean Society. Vol. XXV., Part 3. 4to.

The first paper in this Part is devoted to the description and illustration of a new genus of Begoniaceæ, named by Professor Oliver, Hillebrandia, after the discoverer, Dr. Hillebrand, who met with the plant upon which the genus is founded in the Sandwich Islands. Some of the structural features of this plant are remarkable, such as the half free ovary open at the top, as in the Mignonette, Datisca, &c., the presence of organs considered by Professor Oliver to be petals, &c. The gaping ovary and other points in the structure of this plant induce Professor Oliver to support the late Dr. Lindley's views as to the close affinity between Datiscads and Begoniads. Mr. Herbert Spencer's paper on the circulation of the sap and the formation of wood in plants is here given in detail. Having alluded on more than one occasion to Mr. Spencer's views, we need not do more than commend the paper to the careful consideration of all interested in such matters. Mr. Berkeley figures and describes two new British Fungi. One, Peziza lanuginosa, var. Sumneri, was exhibited last year at one of the Royal Horticultural Society's meetings. It is a large cup-shaped Fungus, the border of the cup being cut into deep oblong lobes. It has been found at Fetcham, in Surrey; at Chiswick by Mr. Edmonds; and near Reigate by Mr. Wilson Saunders. Mr. Miers has a paper on a new genus of Burmanniaceæ, called Myostoma. It is founded on a very singular little plant, with a small tuberous root-stock, from which springs a single slender stem, 2 to 3 inches long, bearing at its summit four minute leaves, and a single funnel-shaped flower, whose border is divided into six lobes, three erect and roundish, three comparatively much longer ones, reflexed and linear, like so many spurs. Mr. Miers describes the structure of the pollen and of the seed in some detail, and says that in this plant, as in Rhizogens in general, no embryo is discoverable in the seeds. Mr. Miers considers that the Burmanniaceæ, Balanophoreæ, Rafflesiaceæ, and Triuridaceæ, constitute a special alliance, and that the "Rhizogens as a class, stand pre-eminently distinct from all others, on account of the peculiar organisation of their seeds, the unusual mode of their germination, and perhaps not less abnormal manner of the fertilisation of their ovules." In the course of his observations, Mr. Miers takes occasion to express doubt as to the function of the pollen tube, being inclined to consider the contents or fovilla as the

important agent in fertilisation. Mr. Miers does not deny the existence of the pollen tube, but he refers to the rarity with which that organ can be seen actually within the ovary, deeming it probable that what has been considered as such, is really not a prolongation of the pollen tube at all, but a distinct and separate organ, "a mucous tube" belonging to the style or stigma, as described by Robert Brown and others. Mr. Miers also refers to the improbability of the pollen grain having the power of emitting a tube of such comparatively immense length, as it must have to reach the ovule in some cases. But this difficulty is met by the fact that the pollen tube is now known to grow of itself, and thus to elongate without any propulsion from the pollen grain. Most botanists have seen the pollen tubes on the stigma and style. Some have seen them, or what they took to be them, in contact with the ovules, but certainly very few observers have ever been lucky enough to convince themselves from actual observation of the whole course of passage of the pollen tube from stigma to ovule. Considering the number of observers, the still greater number of pollen tubes and ovules, and the perfection of the microscope, it is certainly remarkable that so few even among practised microscopists have ever seen pollen tubes in contact with the ovules, much less been able to trace them throughout their length.

The other papers in this part relate to subjects not within the scope of this Journal.

Florists' Flowers.

THE FUCHSIA is well known as one of the most interesting flowers that we possess, although it is devoid of all fragrance. Few others can claim to equal it in respect to the graceful elegance of its habit and its blossoms; and I know of no plant that is more continuously in the market, always commanding a ready sale. Fine plants, covered with bloom, were to be had in Covent Garden as early as the middle of March last year, and a succession was kept up till the month of November, suitable kinds being of course chosen for the purpose.

The changes that have been wrought in the Fuchsia since it was introduced into this country by the sailor at Poplar are quite surprising. I have had the original variety and the newly raised Enoch Arden, growing side by side, and the difference both as to size and shape is marvellous; the flowers of the latter weigh 18 times as much as those of the former. And yet how often we hear the remark, that we want something more decided and distinct! I see no reason, indeed, why this wish should not be realised, though it must be owned that our demands upon the future are often very great.

Let us glance for a moment at the changes which have already been wrought as to the colours of the flower. Surely no plant has undergone a greater transformation. The Fuchsia first introduced had a scarlet tube and sepals, and a very dark purple corolla. Now all this, either by the art and skill of the hybridizer, or by a freak of Nature, which I believe still remains a mystery, has been entirely changed. I believe Mr. Gulliver, gardener to the Rev. Smith Marriott, of Horsmonden, in Kent, gave us the first and the most decided change in a variety called Venus Victrix, sent out by Mr. Cripps in 1842. Then Mr. Story gave us Queen Victoria, Countess of Burlington, &c., again another unexpected change in colour, for what had formerly been almost black was now changed to a pearly white; and although the plants were rather slender in wood and straggling in habit, these defects have been gradually removed, so that they are now almost equal to other show kinds. Next, Mr. Edward Banks, of Deal, gave us Venus de Medici, another decided and beautiful change in colour; and the same might justly be said in the case of The Lord Warden, Sunshine, Catherine Parr, &c., which are perfectly distinct from the parent type.

Having attained so far, I see no reason why we should not expect other changes in colour, such as a perfectly white flower, or a purple, or one striped and mottled; indeed, we already possess such marking in the corollas. Some of the doubles, too, have attained an enormous size, being, in fact, more like small Roses than Fuchsias, particularly those that are to be introduced this season, viz., Monster, King of the Doubles, and Norfolk Giant. I have seen the blooms of these, and they are of extraordinary dimensions.

As I have been a most successful exhibitor of the Fuchsia, and had the honour of carrying off the 1st prize for a collection of six plants at the Great International Exhibition, I may presume to name a few of the best varieties, both for purposes of exhibition and decoration, and these, if well managed, will surprise even experienced growers.

Scarlet Fuchsias with single dark Corolla.

Light Heart.—This has a nearly black corolla, changing to a violet-plum colour when fully expanded; foliage medium size: habit short-jointed: the best in habit of all the black corolla varieties. A very good and distinct sort for exhibition.

War Eagle.—Large violet corolla shaded with crimson; a bold flower, of great substance, free flowerer; habit good; fine exhibition variety. One of the best.

Lord Elcho.—This is a beautiful telling dark variety: tube and sepals brilliant scarlet, properly reflexed, large rich dark purple corolla: good grower and fine habit. This is certainly one of the finest Fuchsias ever sent out.

Herra Georg Henderson.—This is a remarkable and very effective variety, with broad bright coral scarlet sepals, well reflexed, and very large round rich plum-violet red corolla; of great substance, and certainly one of the finest Fuchsias ever seen; good habit, and a strong grower.

Aurora.—The corolla beautifully expanded, well reflexed; good grower; fine for exhibition.

Charming.—A very fine flower; the corolla distinct from any other. A good grower; one of the best.

La Favorita.—The shape of this bloom comes very near to perfection, and the plant will no doubt become what its name denotes. One of the best.

Lord Elcho.—A very fine bold flower, and if well grown, one of the very best for exhibition.

In addition to these, which are fine sorts for exhibition, the following are valuable for purposes of decoration:—*Enoch Arden*, a free-blooming variety, with the largest corolla, and the most substance, of any Fuchsia at present in cultivation; *Conquest*, rather dwarf, a beautiful shaped flower, one of the best ever sent out; *Land of Plenty*, an elegant and effective variety, almost perfection in shape, requires good cultivation, but if well grown is a perfect model; *Victor Emmanuel*, the best, with yellow-tinted foliage, very attractive, distinct, and should be in every collection; *Fame*, good habit, one of the best; *The Lord Warden*, a very fine flower, the corolla perfectly distinct in colour from any other Fuchsia; *Bacchus*, a splendid little Fuchsia, one of the most graceful habited varieties, and one of the best for exhibition or small pots; *Exhibitor*, one of the finest reflexed Fuchsias, a strong grower, of good habit; *La Traviata*, a gem, and one of the best dwarf Fuchsias for small pots; *Lucrezia Borgia*, a fine large flower, much the best variety with striped corolla.

Scarlet Fuchsias with single rose or lavender-coloured Corolla.

Roderick Dhu.—Corolla blue, very large, opening out à-la-Crinoline; habit beautiful, and a free bloomer. The flowers being large, and of a fine colour, combined with a nice bushy habit, this is one of the finest varieties for exhibition purposes.

Father Ignatius.—Corolla beautifully cup-shaped, indigo blue, sometimes striped with rose, mostly on the first lot of blooms that open; foliage small, habit bushy, short jointed; very free bloomer. The corolla has the finest outline of any Fuchsia extant. From its free-blooming habit and fine form, it is one of the finest for exhibition.

Consolation.—Sepals light carmine, bluish lavender corolla, changing to a plum colour when fully open; habit good, very free bloomer, and one of the best for any purpose.

Northern Light.—This is a fine bold flower, the corolla is of a bluish purple colour; a good grower and habit, and fine for exhibition.

Sunshine.—This is a beautiful variety: good habit, and the colour of the bloom very attractive. One of the best.

Beauty.—A beautiful exhibition variety, with broad bright carmine-scarlet sepals, gracefully recurved; the corolla pure lavender colour, cup-shaped, of a model outline; growth free and vigorous, adapted for pyramid or bush specimens. This beautiful variety is one of the best.

For decoration the following sorts may be added:—*Constellation*, a remarkable variety, and very attractive for the decoration of the greenhouse; *Emblematic*, a fine kind, very large and attractive, and decidedly one of the best, good and free; *Don Giovanni*, close dwarf habit and beautiful corolla, one of the best for small pots; *Fensbury Volunteer*, a good showy kind; *Rifleman*, a little gem, dwarf, of good habit, and a most profuse bloomer, one of the best for small pots, or the decoration of the dinner table, young plants will bloom all the winter; *Ben-e-Gloe*, distinct and very dwarf, one of the prettiest little Fuchsias ever seen.

White Fuchsias with single Purple Corolla.

Prince Alfred.—This is a splendid Fuchsia, a most profuse bloomer, a strong grower, and one of the very best for any purpose. It must be well stopped when young.

Lady Haytesbury.—This is a first-class new Fuchsia, decidedly one of the best for decoration: blooms and foliage good; fine habit.

White Fuchsias with single Scarlet or Pink Corolla.

Rose of Denmark.—Corolla light pink, margined with rose; habit rather strong, but blooms very freely at the points; being distinct from the other light varieties, this should be in every collection, either for exhibition or conservatory.

Lucy Mills.—Corolla light pink edged with bright rose; after the style of Marginata in habit and bloom; the blooms being larger and brighter in colour it is an improvement on that variety. A good white for exhibition.

Catherine Parr.—White tube and sepals, the latter well reflexed, great substance, corolla cup-shaped, of a rich scarlet-tinted rose, a great improvement on Reine Blanche and all of that class; good grower and a fine habit. One of the best for exhibition; a model variety.

Arabella.—White tube and sepals, very large and long reflexed, corolla rich rosy-pink, very fine flower, good grower and habit; a most profuse bloomer. This is a magnificent variety; for decoration one of the best.

Agnes.—Strong grower, great substance in the flower, free bloomer. One of the best for exhibition.

Millie. Tietjens.—This is a very nice Fuchsia indeed, and certainly one of the best; it is of graceful habit, and an abundant bloomer; fine for exhibition.

Minnie Banks.—One of the best out; splendid corolla, quite distinct from any other, and one of the best for exhibition.

To these, for decorative use, may be added:—*Bianca Marginata*, one of the best of its class, large, the corolla very fine; *Il Trovatore*, large and of splendid shape, but the corolla is apt to become deficient; *Merry Maid*, a splendid Fuchsia, one of the prettiest out, fine for small pots, or the decoration of the dinner-table.

Scarlet Fuchsias with single White Corolla

Conspicua.—This is a first-class show kind, a good bloomer; the habit is very much improved when the plant is two or three years old. Best for exhibition.

Puritani.—This is by far the best habit of any of the white corollas out; one of the best for small pots, or for the decoration of the dinner table.

Mrs. Gladstone.—The habit, and its fine large bold flowers and perfect shape place this beyond all others in its class. Tube and sepals bright waxy scarlet, the latter very broad and reflexed, equal to the well-known Guiding Star; the corolla pure white, with a beautiful scarlet feather and bell-shaped; a most abundant bloomer; fine for exhibition.

Of decorative sorts *Blanet's Floribunda* will introduce a new race, being perfectly distinct from all others sent out; it will become as great a favourite as the well-known Tom Thumb Pelargonium, and will be seen in every garden and on every window sill; it is of very short stiff growth, requires no stakes, and will grow and bloom under almost any treatment. *Queen of the Whites* is a very dwarf, free blooming nice variety, the best for small plants.

Scarlet Fuchsias with Double White Corolla.

Emperor of Fuchsias.—This is a very fine large flower; the habit is bad when the plant is young, but when two or three years old it improves very much, and is a fine object in a conservatory.

Eva.—Bright waxy scarlet tube, and sepals well reflexed; good habit; a very nice and attractive kind.

La Vainqueur de Puebla.—This is the best double corolla out, and will be as much sought after as Madame Cornolissen was; fine bold reflexed sepals, with a very large corolla, and a splendid glossy green foliage, which is much required in this class. A fine acquisition for the open garden.

Scarlet Fuchsias, with Double dark Purple or Blue Corolla.

Grand Duke.—This has the largest and closest corolla of any Fuchsia I have seen; free flowering. The leaves are smaller than Universal, and an improvement on that well-known kind.

Rifleman.—Similar to Sir C. Campbell, but far superior in every way.

Blue Beauty.—This is a very fine flower: good grower, free bloomer, spreading corolla. One of the best.

Agamemnon.—A good grower, the freest bloomer of all the doubles, and a very showy variety, of good habit.

King of the Doubles.—This will make a grand plant for exhibition. Dark scarlet tube and sepals, the latter broad, and beautifully reflexed; the corolla very large and long, of a rich purple colour, and distinctly striped with red. In habit this is remarkably good.

Norfolk Giant (or Norfolk Hero).—This is a fine double variety, scarlet tube, and sepals very large; purple corolla; good habit and grower; small leaves, and superior to Universal. One of the best.

To those I would add for decoration:—*Grand Admiral*, a good Fuchsia, either for decoration or exhibition, fine for small pots; *Alberta*, a very pretty dwarf Fuchsia, a free bloomer, with small leaves, fine for the table; *Monster*, the largest ever sent out, the corolla measuring from 2 to 2½ inches over, as large as a small Rose, short stiff habit. The immense size and the abundance of its blooms, and its good habit, make this a desirable variety. *H. Cannell, Fuchsia Nursery, Woolwich.*

A record of the NEW FLOWERS of the past year must include that fine variety of Lilium auratum, named splendidum, which Messrs. W. Cutbush & Son, of Highgate, exhibited at South Kensington in August last. Instead of the usual orange-coloured band on each petal, this had a band of dullish crimson, which made the flower highly attractive. No attempt has yet been made to classify the varieties of L. auratum, on account of the comparative scarcity of the plant. There are varieties extant, not only noticeable from the difference of the "marking" of the flowers, but also in striking differences of foliage, though it does not appear to have been clearly demonstrated as yet, that a variation in the length or breadth of the leaves, or a difference in the hue of colour of the same, necessarily implies such a departure from the original type of the flower as will constitute a variety.

Beyond the well-known varieties of Lobelia Erinus speciosa and L. E. Paxtoni no established advance has yet been made. Messrs. Carter & Co. exhibited during the past year a variety called Attraction, evidently a selection from Paxtoni, having the white blotch larger than is generally observed. Indigo Blue is in the same way, but has more of dark purple in the blue edging. Torquoise Coronet, light blue with white centre, is singularly compact and regular in its growth, growing from the centre outwards, so as to form a coronet of bloom. The best of all the new bedding Lobelias of the year is unquestionably Beauty of Ravensbourne, exhibited by Messrs. Carter & Co. It is very dwarf and compact in habit, and flowers most profusely, having plenty of small lilac flowers with white centres, very novel and attractive. It is said to be capable of withstanding exposure without much loss of attractiveness. Messrs. E. G. Henderson & Son have a very dwarf-growing kind they call pumila elegans; it forms little compact tufts, and having bright blue flowers, will be a good companion for Messrs. Carter's dwarf variety. Messrs. Carter, Kinghorn, and others, have been busy with the improvement of the cardinalis section. The latter has produced during the past season some admirable variations of colours, combined with robust growth and a free-blooming habit. Some of the most marked have passed into the hands of Mr. Bull, such as Distinction, a pretty shade of rosy cerise; Ruby, a fine shade of ruby rose dashed with violet; Glitter, very bright scarlet, quite a gaudy shade of colour for such a hitherto sober-looking herbaceous plant; Peach Blossom, soft pinkish peach; Progress, bright crimson; Matchless, a very pleasing shade of purple; and Excellent, a lively shade of magenta, shaded with crimson.

Either there is a falling off in the production of new Pansies, or else the raising of them is confined to certain localities from which they not do emerge as candidates for public favour previous to being sent out. The varieties of the Fancy Pansy increase much more rapidly, seeing that Messrs. Downie, Laird & Laing, announce some 12 or more new varieties. A batch is also announced by Messrs. F. & A. Smith, apparently of continental origin, as the well-known name of Demay is attached to most of the varieties. There is no doubt but that, in point of quality of flower, the English raisers of the Fancy Pansy have outstripped the French raisers, judging from what have been seen of the French flowers during the past few years. Flowers that are fantastically, rather than harmoniously and regularly marked, seem to compose the bulk of the foreign introductions; they are also generally smaller in size, and not so stout in the build. Herein the English raisers excel; flowers of large size, combined with great substance and rapidly improving form, and having also combined with somewhat curious and eccentric marking, a certain harmony of colours that forms a distinguishing mark of their improvement. *R. D.*

(To be Continued.)

The Apiary.

I VENTURE to communicate the results of my BEE-KEEPING experience of the past year, and at the same time ask the favour of some information, which may be useful to others who, like myself, are apiarians of only a few years' standing.

I have endeavoured to bring to bear on this interesting subject what acquaintance I possess with mechanical and scientific subjects, and one of my first productions was a novel observatory hive, of which you gave an engraving in your Number for Jan. 27, 1866. Throughout the summer this hive has proved a most interesting object, and except in a few minor details is perfectly successful. Often have the living pages of my "Portfolio Hive" been opened to admiring spectators, and the way in which the bees have thriven in it has proved the advantage which I expected from the double comb over the unicomb system. The india-rubber "packing" upon which the sides of my hive worked, was occasionally fastened by the bees, but this inconvenience I propose to avoid by substituting list in its place, and allowing a little more space between the surfaces. The only other defect was caused by the bees building

the two rows of combs somewhat unevenly, and in some places attaching them to one another. This might have been prevented by allowing the frames to be filled with comb, whilst in their winter quarters (a thick wooden box, in which they are placed side by side, as in a "Woodbury" hive); but I was anxious to have my observatory hive in operation, and therefore hived a swarm directly into it, and although I furnished the frames with wax sheets, I failed in obtaining perfectly straight combs.

I cannot give so satisfactory a report of my "telescopic super," described in your Paper; although no difficulty was experienced in enlarging it on this plan to meet the requirements of the bees, yet they did not enlarge the combs downwards in perfect form, but attached them together, and they were much spoilt by brood. I intend, however, to give the plan another trial, with some modifications. My crop of honey was a good one on the whole, though not equal to last year, in proportion to the number of hives; I took about 130 lb., but none of my supers much exceeded 30 lb., and I was unfortunate in having several fine glasses spoilt by brood comb. Is there any way of preventing this? I have thought of trying to keep down the temperature (and so to discourage breeding) by keeping the glasses covered with wet rags. All attempts at ventilation are frustrated by the bees filling up the perforations with propolis. Practical suggestions on this point would, I am sure, be most valuable to bee-keepers. If the queen could by any means be kept out of the supers, the value of the honey harvest would often be doubled. I have experienced great difficulty in obtaining artificial swarms, through being unable to find the queen, and have, on some occasions, twice removed every frame from a very full hive, and been compelled to relinquish the attempt, on this account. The presence of the queen in a particular part of the hive is sometimes indicated by thick clusters of bees, but the difficulty has been in deciding which particular comb to select as the nucleus of my future stock.

Can you give any simple instructions for finding the queen? and, if not, will a comb containing brood answer the purpose without her? A few words of advice on the above points will greatly oblige. *Arthur Maw, Benthall Hall, Shropshire.*

[Next week we will give a more lengthy reply to the above than we have at present space for.]

Miscellaneous.

The late Mr. McArdell.—Of those who have lately passed away from among us, the memory of the abovementioned, as an efficient gardener, claims a record. Mr. Owen McArdell was a pupil of the well-known and eminent gardener, Mr. George Mills. Having become conversant with his profession to the satisfaction of Mr. Mills, he was engaged as gardener to the Hon. Mrs. Ponsonby, in the neighbourhood of London, and afterwards to the Rev. Mr. Henshaw, at Widdecombe House, Stockingham, near Kingsbridge, South Devon, where he remained some few years. He then engaged as gardener to the present Sir Bourchier Park Wrey, D.C.L., at Tawstock Court, near Barnstaple, North Devon, where he served in that capacity up to the time of his death—a period extending over 37 years. With great excellence in his profession, upright honesty, and sterling worth, and a wide general knowledge, he combined perfect contentment. His garden was his world, and from his duties he was never absent; and, in fact, seemed to be the verification of the apostolic advice, "That ye study to be quiet, and to do your own business, and to work with your own hands." He died at his residence, Chorley Cottage, Tawstock, on Sunday, the 6th inst., aged 73 years—a loss to the present, a link to the past; respected by all who knew him, and especially by those to whom he has proved so true, faithful, and able in the discharge of his duties. *Correspondent.*

Artificial Birds' Nests.—The Societies formed for the protection of insectivorous birds in Switzerland, are now setting up artificial nests. One of the members of a society of this description who inhabits Pevey, having observed that many species of that kind select for nests the holes they find in the branches of rotten trees, and that they consequently do not find it easy to settle in orchards, where all the trees are in good condition, began, 25 years ago, to set up rotten trunks in his grounds; and since then he has had no need to trouble himself in the least about clearing away caterpillars, that care being entirely left to the birds, who perform their duty admirably. His neighbours, on the contrary, who have not had this foresight, have had their orchards laid waste by insects. The Yverdun Society has gone the length of placing artificial nests even in the public walks and communal forests, on the borders of the lawns, &c. All these nests are now inhabited by hedge-sparrows, red-starts, creepers, and tomtits, all which may be found in Switzerland as high up as the perpetual snow-line. The same practice has found its way into Germany. *Popular Science Review.*

Garden Operations.

(*For the ensuing week.*)

PLANT HOUSES.

Gardenias generally, which commence their growth early, will now need potting, pruning back, and thoroughly cleansing preparatory to a healthy spring development. G. florida, a useful and very generally grown variety, does best in the shape of young plants of moderate size, which are quickly formed from cuttings. A fresh batch put in once every three years, will keep up a regular succession of nice young plants to succeed the old ones, which should be thrown away as their luxuriance diminishes. G. Fortunei, however, flowers best when old, and the blooms individually are better than those of young plants. G. radicans and citriodora, to do well, should be grown in the shape of quarter standards, having a clean stem of 3 or 4 inches in height before any branches are allowed to push. As these last only succeed thoroughly when the pots are well filled with roots, slight shifts only should be given, and the soil employed should be a compost consisting mainly of rough fibrous peat, intermixed with sand and leaf-mould. Cut away all the longest shoots, which will readily break afterwards, and flower more freely. A slight amount of bottom-heat, with occasional sprinklings of water overhead, in a temperature of from 55° to 60°, will suit them perfectly. *Gloxinias* should be looked to, as they will now commence growing. If not already potted, that operation should be performed at once; placing them in small, well-drained pots, firmly in an admixture of equal parts peat and leaf-mould, with a liberal dash of sand in it. The moisture contained in the fresh soil will be sufficient for them for some time after potting. One or two pots each of *Achimenes*, *Gesneras*, *Caladiums* and similar plants may be placed in a warm moist heat, to assist in making an early display. The *Achimenes* should be carefully taken out of their old pots, in order that the fragile shoots at the point of the tubers may receive no injury. A dozen or so of them should be placed evenly in a 32-sized pot in a soil similar to that recommended for Gloxinias, but having rather more leaf-mould in it. Do not press the soil too firmly about them, and only cover them over lightly with it. The same treatment will suit *Gesneras*. Pot the *Caladiums* off singly into comparatively small pots, pressing the compost firmly down. *Eucharis amazonica* if potted now into good-sized pots, into one part rich loam and two parts peat, with a liberal allowance of leaf-mould and sand, will probably flower towards the end of March. Plants of this cannot be treated too liberally, and are fond of surface sprinklings. *Camellias* should have occasional soakings with water in which sheep dung and soot have been previously well stirred, and allowed to become clear, through settling.

Bedding Plants, consisting of *Shrubby Calceolarias*, should, if not already done, have their tops taken off forthwith; much of the failure with these is caused by allowing the cuttings, which look so firm and healthy, to run up stalky at this season, necessitating their being pinched back at a later date into old wood, which never breaks successfully; hence, premature decrepitude, and they never thoroughly regain their original robustness. With me, Calceolarias form a main feature in the summer beds, and my treatment of them is simple in the extreme: I place the cuttings thickly in 32-size pots as late in the season as possible; they make root, and commence growing about the beginning of the year, when I pinch them down to within two pair of leaves of the root. They break freely, and make fine healthy plants, ready to pot off at a not very distant date. The same treatment is applicable to *Verbenas*. If they have made a good growth it is better to pinch them back, and trust to later breaks for cuttings, than to allow them to continue forming a lengthy leafless stem; more especially as they can readily be pushed forward in a little warmth, should it be seen that the cuttings will not be sufficiently advanced in consequence. If mildew attack them, dust them over with flowers of sulphur, distributing it amongst them in as small particles as possible, in order the better to destroy the Fungus.

FORCING HOUSES.

Pines expected to show flower early next month should have all necessary operations completed, in order to carry them successfully over their fruiting season. From the moment the flowers show themselves the plants require constant bottom-heat of from 85° to 90°, any check upon which will prove injurious to the crop. In anticipation of the flowering season, make up such a bed, adding fresh tan or otherwise as may be requisite, so as to safely carry them through their several stages of development until the fruit is nearly ripe. Do this, even if the bed at the present time be all that is needed. Should the weather set in bright and open, commence giving waterings of weak manure water, in accordance with a gradual advance of temperature. *Vines* about to flower may have a few degrees more heat, with less atmospheric moisture. Watch the flowers as they expand, in order to see when the pollen is in a proper state for fertilising, when by carefully jerking the plants with the hand, material assistance will be given in the right direction, by its being better distributed amongst the bunches. *French Beans* for forcing should be sown in large 60-pots—five in a pot will be enough; the Sion House variety is a good sort for early work. Do not water them too quickly, as, if too wet, they are apt to rot before they germinate. Keep them near the glass, in order to insure robustness of growth. *Strawberries*, to be forced successfully, must be brought forward very gradually. First place them in any cool structure, say a few degrees warmer than that in which they have been wintered. With a sharp knife carefully remove the bases of all decayed leaves, as pulling these off injures the crown. Scrub and clean the exterior of the pots thoroughly, which besides aiding evaporation gives a healthy tone to the roots. Do not water the plants when first taken in, and not until the soil, which will be rather dry, obviously needs it. Give them nothing but clear soft water, until they have started fairly into growth.

In collecting materials for a *Mushroom* bed it is not advisable to divide all loose litter from the shorter droppings as is too often done, a certain amount of litter being indispensable in the formation of a proper bed. Pure droppings, composed as they are of comparatively small particles, would too quickly become rotten. The straw formed into litter acts as a stay to the bed, and the Mushroom spawn ramifies in its loose texture. Besides, the two combined retain heat longer than droppings by themselves. For beds, therefore, employ two parts droppings, and one part of the already moistened litter swept out of the stables, and get sufficient for a bed together as quickly as possible. It should be protected from rains or wet of any sort, shaking it loosely into a heap in the process of drying. When the centre of the mass has become moderately dry inside, use your judgment in order to decide whether or not it is sufficiently dry to retain a moderate heat when formed into a bed without decomposing too quickly. Throw it where it is intended the bed should be, and allow it to settle down for a few days.

KITCHEN GARDEN.

Globe Artichokes, at fine dry intervals between severe frosty weather, and especially after heavy snows, will be much benefited by having the litter placed around them in the autumn for protection removed; all the dead decaying part should be taken away, and fresh dry litter placed around them. This should also be just drawn back off the crowns upon all favourable occasions, in order to keep as far as possible the rot caused by the past frosts from entering the ground further and thus destroying the stools. *Seakale* and *Rhubarb* stools forced in open borders should not be covered in any way until the ground is quite free from frost. They would each be benefited if for the first week pots were placed over the crowns, and only just sufficient leaves placed over them to moderate the severity of the outer air, more being added afterwards to engender a moderate warmth. Litter placed over *Celery* for its protection should be drawn back whenever thaw occurs after frosts, in order to give free egress to the damp engendered beneath it. Look to the removal of all frosted decaying vegetables; if left they induce disease. *W. E.*

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the Week ending Jan. 16, 1867, as observed at the Horticultural Gardens

January.	Moon's Age.	Barometer.		Temperature.					Wind	Rain.
				Of the Air.			Of the Earth			
		Max.	Min.	Max.	Min.	Mean	1 foot deep.	2 feet deep.		
Thurs. 10	4	29.426	29.070	43	26	34.5	40	40	W.	.00
Friday 11	5	29.681	29.584	38	16	27.0	40	42	N.E.	.00
Satur. 12	6	29.660	29.518	34	14	24.0	39	39	S.	.00
Sunday 13	)	29.700	29.460	35	3	19.0	39	40	N.	.00
Mon. ..14	8	29.788	29.700	33	7	20.0	39	39	W.	.00
Tues. 15	9	29.844	29.708	36	20	28.0	38	38	N.E.	.00
Wed. 16	10	29.840	29.640	38	25	31.5	39	39	N.E.	.00
Average .		29.706	29.535	36.7	15.8	26.3	39.1	39.5		0.00

Jan. 10—Very densely clouded; cloudy and damp; overcast.
— 11—Fine throughout; sharp frost at night.
— 12—Dry and frosty; snow falling thickly in broad flakes; overcast.
— 13—Clear and frosty; very fine; frosty, within 3 deg. of zero at night
— 14—Severe frost; clear and frosty; as low as 7 deg. at night.
— 15—Severe frost; uniformly overcast; cold frosty wind.
— 16—Clear and frosty; slight snow; overcast. Notwithstanding the low temperature of the air, that of the earth, it will be observed, has been, and still continues, unusually high for the season, and has been parting with heat from a source of about 40 deg. for nearly a fortnight, to act constantly night and day on the under surface of the rapidly formed ice, which from this cause must have been rendered fatally weak.

Mean temperature of the week, 9 1-5th deg. below the average.

STATE OF THE WEATHER AT CHISWICK,
During the last 41 years, for the ensuing Week, ending Jan. 26, 1867.

January.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds.								
						N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.	
Sunday..20	42.7	31.0	36.8	15	0.65 in.	4	7	4	2	8	11	2	3	
Mon. ..21	43.9	32.3	38.1	19	0.48	1	5	5	1	7	13	7	2	
Tues. ..22	44.2	32.7	38.4	17	0.57	3	5	1	5	4	16	6	1	
Wed. ..23	44.9	32.7	38.8	18	0.27	2	3	2	3	8	14	4	5	
Thurs. ..24	44.2	32.2	38.2	18	0.63	3	5	2	1	5	17	6	2	
Friday ..25	44.3	32.6	38.4	20	0.90	1	5	3	1	5	16	5	5	
Satur. ..26	45.3	32.4	38.9	19	0.50	1	6	3	4	3	15	4		

The highest temperature during the above period occurred on the 25th, 1846—therm. 56 deg.; and the lowest on the 25th, 1855—15 deg.

Notices to Correspondents.

CALCEOLARIAS: *Verdant*. The autumn is the proper season to propagate Calceolarias for bedding purposes. As you have failed in this, you may try again very shortly, but the plants will necessarily be less efficient at planting-out time. Use spongy peat, rubbed through a fine (¼-inch) sieve and well mixed with silver sand, with a surfacing of pure sand; and plunge the cutting pots in a frame, when they may have a very mild bottom-heat, and as much top ventilation as the cuttings will bear.

LIQUID MANURE: *G H I*. Tropæolums in flower now, should scarcely require liquid manure if the soil has been well prepared. If you must use it, try a little very weak and perfectly clear water prepared from guano. The same kind of liquid would also do for Pelargoniums, when they require it.

NAMES OF PLANTS: *A Subscriber, Dartmouth*. Fuchsia cordifolia.—*J W P*. Bad specimens, not fit to name. 1, Adiantum formosum; 2, Nephrodium molle; 3, Pteris argyræa; 4, Phlebodium, probably pulvinatum.—*J Smart*. 1, a Lycaste, perhaps Deppei; 2, Hippeastrum reticulatum striatifolium; 3, Pteris cretica albo-lineata; 4, Asplenium viviparum; 5, Gymnogramma tartarea.—*J F*. The Barbados Onion, Ornithogalum scilloides, commonly grown in windows.

NEW VEGETABLES AND FRUITS: *G H*. There may be, and probably are, other plants to be discovered and introduced that may prove deserving of cultivation in our gardens for the sake of their produce, along with the choicer kinds we already possess, but on the whole it must be admitted that we have now considerable variety, and the more recent acquisitions, Chinese Yams to wit, are not very encouraging. We imagine few opportunities of importing novelties that seem at all promising, and of giving them a fair trial, are really missed. We quite agree with you that could another vegetable be found as valuable as the Potato, it would be a grand acquisition; but judging from past experience, we look forward to a greater gain from the raising of improved varieties of the subjects we already cultivate, than from the introduction of subjects altogether novel. In either case time and patience are indispensable.

RAISING HOTHOUSE: *T S M*. To raise your lean-to house, bring the top end of the lights as much forward as you desire, and form a ridge at any distance you please from the wall, say 2 feet, closing in the space by a short slope towards the wall, which may consist either of boarding or glass, according to the uses to which the house is to be appropriated. If you want all the light you can get at the back of the house, the short slope must be glass, but for ordinary purposes wood would answer very well.

COMMUNICATIONS RECEIVED.—G. Eyles.—W. B. Booth.—J. Brooks.—S. Garland.—G. H. B. Macleod, M.D.—J. R.—R. T. Pince.—A. Berrington.—Earl of Shannon.—T. Laxton.—G. Yates.

ROYAL AGRICULTURAL COLLEGE, CIRENCESTER.

President—His Grace the DUKE of MARLBOROUGH, D.C.L., F.R.G.S.

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Natural History—Ramsay H. Traquair, M.D. (Edinburgh).
Anatomy, Physiology, and Hygiene—John A. M'Bride, M.R.C.V.S.
Mathematics and Surveying—The Principal.
Drawing—James Miller.

The College was incorporated by Charter, granted by her Majesty in Council, March 27, 1845, for the purpose of affording a practical and scientific Agricultural Education to students from all parts of the Kingdom.

DIPLOMA.—The College Diploma—which admits those holding it to the position of Graduate, under the title of Member—is obtained at the end of a two years' course by those who pass a satisfactory examination in Agriculture, Chemistry, and any other one subject selected by the candidate.

The examination in Agriculture is conducted *viva voce* on the farm by Agriculturists of note from various parts of Great Britain and Ireland, such as Mr. Russell, of Pilmuir; Mr. Algernon Clarke, of Long Sutton; Mr. Squarey, of Salisbury; Mr. Edward Smith, of Emmett's Grange; Mr. Baldwin, of Glasnevin; Mr. Charles Howard, of Biddenham; and Mr. Druce, of Eynsham.

Instruction in Agriculture is given by Lectures and daily Practical Classes on the Farm. The Agricultural Course of Instruction thus embraces not only a Scientific Discussion of Established Methods of cultivating different kinds of soil in different climates—of the Breeding, Rearing, and General Management of Stock, and of the use of Machinery—but also affords a good illustration of the cultivation of a Cotteswold Farm, to which, by an arrangement made with the tenant, the students have free access. Each student is expected to keep a Daily Journal of all the operations on the Farm, and to make himself thoroughly acquainted with the Accounts.

Charges per annum, to be paid half-yearly in advance, In-students, 92*l.*; Out-students, 44*l.*

For further information apply to the Principal.

ROYAL AGRICULTURAL COLLEGE, CIRENCESTER.

SIX SCHOLARSHIPS, each of the value of £30 per annum, are OPEN for COMPETITION to Students intending to follow Agriculture as a profession, who have obtained Certificates as Seniors in the Oxford or Cambridge Local Examinations.

For further particulars apply to the PRINCIPAL.

The Agricultural Gazette.

SATURDAY, JANUARY 19, 1867.

THOSE who are interested in the attempt to use town sewage on the land should pay a visit to Lodge Farm, about a mile and a half from the Barking Station of the Tilbury and Southend Railway from Fenchurch Street. The Metropolis Sewage Company have there taken 200 acres of land, and are pouring sewage from the northern outfall into a tank at the upper end of it by a pump which delivers at the rate of about 240 tons per hour. This tank commands nearly one-half of the farm, and about 60 acres are at present covered with Italian Rye-grass, the land having been first laid out in beds as in ordinary water-meadow, so that the water shall distribute itself evenly over the whole surface.

The plan at present is to deliver an average quantity of 4000 tons of sewage per acre per annum—amounting over 60 acres to about 240,000 tons in all, requiring therefore about 1000 hours in the year of actual pumping, or nearly two days of 10 hours each in every week. A portion of the land will receive an aliquot part of its year's supply each week, and thus represent the average circumstances in which the Company is placed, they being required to take the water night and day throughout the year. Another portion will receive the sewage delivered in quantity according to the power of the plant to use it—more therefore in the season of growth than during winter. Other portions will be allotted for dressings of various quantities, and the results being kept apart, we shall ascertain what dose gives the best return in proportion to the quantity given. The principal crop to which it will be applied is Italian Rye-grass, which has already proved itself to be especially adapted for sewage irrigation; but portions are already sown with Bromus and Lucerne, and planted with Cabbages; and no doubt experiments on a small scale with other market crops, as Leeks, Celery, Strawberries, &c., will be made, and thus the applicability of the sewage to the circumstances of suburban, as well as of ordinary farming, will be tested.

Meanwhile it is already so far a suburban experiment, inasmuch as it is intended to use all the Grass grown upon the farm in the feeding of cows and the production of milk for the London market. This plan has, indeed, already to some extent been carried out during the past autumn, and cow-houses are being erected and gradually filled—distillers' grains and hay and Mangel Wurzel being at present provided for the cows—so as to have a large stock ready before April and May, when an abundant supply of Grass may be expected.

The land is well adapted for the experiment—if such it is to be called—being light, and to a large extent on gravel. The slopes are for the most part naturally adapted for receiving the water; and the public generally, as many fortunate individual farmers do already, will, no doubt, learn in the course of a year or two what the value of town sewage to the farmer actually is. The urgent importance of accurate knowledge on such a subject appears from the announcement made, just as we go to press, that a sequestration has been granted against the property and effects of the Leamington Local Board of Health for breach of the VICE-CHANCELLOR'S injunction of last June, restraining the Board from discharging the sewage of the town into the river Leam, so as to occasion a nuisance—His Honour, Sir W. P. WOOD, declaring, that if the defendants were unable to discharge the sewage of the town into the river without creating a nuisance to the plaintiff, they had no more right to do that than they would have to discharge it into his drawing-room.

THE following account of the management of a farm of 222 acres, with which we have just become acquainted sufficiently to give the results of the last year's operations, may be of interest to our readers, as presenting them with an example of the general practice of tenant farmers, and as affording an opportunity of considering what alterations in management may be advisable in order to secure better crops or higher remuneration. The farm is held by two brothers; it contains 132 acres of arable land, and 90 acres in permanent Grass (net measurement), the greater part of good quality. In 1866 it was cropped as follows:—Wheat, 31½ acres; Barley, 18 acres; Oats, 15 acres; Swedes, 16 acres; Mangel and other roots, 11 acres; Beans, Peas, Tares, and Clover, 23 acres; leaving 9 acres as bare fallow, and a patch of Potatos. The Grass land is partly upland, and partly low meadow. Dairying is carried on in the summer, and feeding in yards in winter. The stock consists of 12 milch cows, with 8 or 9 of their calves, which are yearly weaned and fatted between two and three years old, together with about 10 more bought in at the autumn fairs. The sheep are about 80 ewes lambed down every year, and the produce sold under two years old. They also keep a few pigs; and 10 horses do the work of the farm.

This year's produce for sale has realised as follows:— 100 quarters Wheat at 60*s.* = 300*l.* One-half the Barley crop sold for malting, at 50*s.*, 50 quarters = 125*l.*; the other half was damaged and retained for pig-feeding. The whole of the other crops are consumed by the stock, and with the aid of a little oilcake are expected to bring in the following return in net cash: From the 12 dairy cows, 144*l.*; from the 18 beasts and heifers fatted (less cost of 10 bought in), 280*l.*; from 90 tegs and draft ewes (less 10 bought in), 240*l.*, and wool, 60*l.*; and from pigs about 100*l.*, making 824*l.* from stock and 425*l.* from corn. Total receipts, 1250*l.* for the year. The outgoings are reckoned as follows:—rent and tithe, 300*l.*; rates and taxes, 30*l.*; labour account, 440*l.*; bills for seed, 60*l.*; for cake, guano, and phosphate, 100*l.*; for blacksmith and repairs, 100*l.*; leaving a balance of 220*l.* to meet any unforeseen casualty and interest on the capital employed. At present prices this amounts to a profit of 1*l.* per acre. We have purposely left out of this summary several small sums, both on the debit and credit side of the account, which are too variable to be relied on as annual items, and would not affect the main result. They breed a few foals to keep up the stock of workers, and sometimes sell one at a good profit. There is, also, a great demand occasionally for old hay, which goes to reduce the bill for artificials, but on the other hand there are constant losses by deaths, breakages, and bad debts, which are a full equivalent; so that the above may be taken as a fair sample of a year's proceedings. And in looking over it, the first thing that must strike every one conversant with modern high farming is the smallness of the ultimate produce in comparison with the labour and expense incurred. These men are evidently not very bad farmers—they expend a good deal in labour and manure. We have never heard that they are bad judges of stock. Yet they can only grow 100 quarters of Wheat and the same of Barley off 130 acres of good arable land. It is evident that had prices remained as they were last year, at 40*s.* the quarter, there would have been no profit on the farm at all. The produce of the stock will be equally disappointing. From 90 acres Grass, and nearly the same acreage of fodder crops, the net return is only 825*l.* (besides what is consumed by the horses), being at the rate of 5*l.* per acre on the last, and 5*l.* 12*s.* upon the whole farm. What will the high farmers say, who tell us that every crop should be worth 10*l.* an acre?

That the above, however, is no fanciful account, but a true story of the farming of England, will be apparent to any one who will look at the returns just issued by the Board of Trade. These very returns we may cut down by striking off the five last figures, and thus form the above farm of 222 acres. This we may do both for the sake of simplifying the account and making it more intelligible to the general farmer, who can more easily comprehend a farm of 220 acres than one of 22 millions, and also because some of the calculated results being imperfect, any errors that may exist in the larger figures are thereby so reduced as to have little or no effect upon the reduced epitome. With this explanation let any one examine the figures we have quoted in the above summary. Of the 13,200,000 acres arable land nearly half are returned as under white corn, 3,160,000 being in Wheat. He may assume the produce of these in marketable corn to have been 25 bushels per acre, just because this is the generally received average, and secondly because the 10 million quarters thus arrived at, when supplemented by the importation of 9 million qrs., as estimated by the Messrs. HORNE in their annual circular, will about produce the quarter per head, which has been reckoned for many years as the annual consumption of the people of England. He may estimate that one half the Barley crop is sold for malting, because that tallies with the amount of duty. No notice need be taken of the large quantities of Barley, Oats, and Maize imported, because a very small proportion of these are consumed by farmers, but are mainly used by distillers, by horse-keepers in towns, and by small pig feeders, butchers, and others occupying less than 3 acres, and therefore excluded from this calculation. To the 1,200,000 cows, and 2,000,000 other stock, returned in March last as being then in England, another million may be added as the proportion probably imported from Ireland and the rest of the kingdom, to be finished off in the Midland and Eastern Counties. The total quantity of meat sold would thus amount, at 5*s.* per stone, to 252,000,000 stones, as the yearly produce of English farms (exclusive of imported meat, and of the pigs above alluded to, killed by very small holders). The addition of these latter items would probably realise the 120 lb. weight per head which has been calculated as the probable consumption of our population, and which the approximately known consumption of the metropolis tends to verify.

Of the other side of the yearly account—the outgoings—we cannot, however, give so satisfactory evidence. Schedule B of the Income Tax includes houses and small occupations, perhaps equal in annual value to our farms. For the amount of labour take the latest estimate by Professor LEONE LEVI, which allows about four families to every 100 acres of arable land, and half that amount to Grass. The bills for guano, &c., are large, but we have seen much larger estimates for the whole of the United Kingdom. Let every man put his own figures here, according to his own experience; we do not think he will be able much to vary the result. About 1*l.* per acre will come out as profit, representing the remuneration for a year's toil and anxiety, for interest on capital of nearly 10*l.* an acre, and this at the close of the most favourable year as regards prices that we have had for some time. There is little margin left for bad years; and should the above account of our little farm of 222 acres be accepted as true, or approximating to the truth, it will be a subject for serious consideration whether these two brother farmers, representing between 200 and 300 thousand occupiers who have made these returns, who are backed up by the great power of the landed aristocracy, who have a virtual monopoly of the production of meat for our enormous and increasing population, and who enjoy great advantages in the production of their flour, are doing their duty and conducting their business to the advantage either of their country or themselves.

J. B. M.

—— Mr. BAILEY DENTON has published a letter on the Water Supply of London, addressed by permission to the Earl of DERBY, in which he proposes to supply the metropolis with pure water from the higher sources of the Thames. The proposal of Mr. BATEMAN to bring water from Plinlimmon, and that of Mr. HEMANS to bring it from Ulleswater, at a cost

varying from 8 to 12 millions sterling, are here contrasted with a mere improvement of the present plan of water supply, which would utilise all the existing arrangements for distribution, and entail an outlay not exceeding 4½ millions. The plan is defended against the rival schemes just mentioned on the score of greater cheapness, and on the ground that hard water is as good for drinking as that from the Welsh and Cumberland lakes, and easy to make soft at home. It is defended against the plan of purifying Thames water by legislation against the delivery of town sewage into it—by arguments declaring the impossibility of entirely clarifying filthy water by irrigation, or any other known process. There is a large array of testimony from scientific men on this subject, and there is enough evidence of a detailed study of the subject by the author. We doubt, nevertheless, whether any proposal will be sanctioned by Parliament before the effect of the legislation, certainly imminent, which is here condemned as insufficient, has been tried.

—— Surely there never was a more striking illustration of our fickle climate than we have experienced in the Weather of the first few days of the new year. An abrupt and well-defined fragment of an Arctic season was dropped upon us in the very midst of the sunshine, showers, and storms of March or April. On either side of the first five days of 1867 we had the winds and rains of characteristic and sometimes even warm spring weather, and out of them, as well as into them again, we stepped in the course of only two or three hours. These sufficed to bring the frost and snow of a much higher latitude upon all England, which was one day charmed with the song of birds, and the next wrapped up in nearly a foot of snow—and these again sufficed to change the whole wintry scene back again to milder weather than before. Certainly an experience of this kind must tend to disabuse people of any intelligence of the idea either that the grand and regular movements and so-called changes of the planets can be the causes of our weather changes; or that weather-prophecy, on any grounds yet known to us, is at present good for anything whatever. In the midst of gathering floods, wind S.W., and thermometer at "temperate," we certainly do not venture to engage that it shall not be frost and snow again before our readers see these words. —So we wrote on Tuesday of last week, but the paragraph was pushed out of its place by other more important matter. Since then, as Mr. LOWE, of Highfield House, informs the readers of the *Times*, the thermometer has fallen lower than it was before; and from a minimum of 44° on January 8th, the day on which we wrote, it reached within 3° of zero on January 14th!

—— The half-yearly meeting of the Highland and Agricultural Society was held on Wednesday last, and we learn from the *North British Agriculturist* that 35 new members were elected; that a report on steam cultivation was handed in, declaring the depth of tillage, which had been carefully observed on a number of farms, to have varied from 9¾ to 12 inches; and among other particulars, that the Society are to sanction and promote the proposal to raise a substantial testimonial to the Rev. PATRICK BELL, the inventor of the Reaping Machine. Mr. SCOT SKIRVING gave an extremely interesting account of the progress of the invention, and Professor RANKIN, of Glasgow, than whom there could not be a better authority, declared that Mr. BELL occupies with reference to the reaping machine the very same position that JAMES WATT occupies with reference to the steam-engine. We have no doubt that the proposal will be received with the same unanimity on the south side of the Tweed that it is commanding on the north.

—— Messrs. HOWARD, of Bedford, exhibited pigs at Bingley Hall last December, which were disqualified by the veterinary referee, because their dentition indicated that they were not all of one litter. To this, of course, the rejoinder was—so much the worse for the value now set upon that test, for they *were* all of one litter, notwithstanding Professor GAMGEE'S reading of their tusks. We now learn that the mother of the Birmingham pen having brought another litter by the same boar, Professor GAMGEE has been asked to come or send some one to mark them, so that they can be identified when six months old. If the investigation is to be of any use to the public, there ought to be no room left for doubt. Messrs. HOWARD, accordingly, propose to pay the expenses of the journey needed for the required attestation.

—— On Tuesday last the CHANCELLOR of the EXCHEQUER received a deputation from the Anti-Malt Tax Association, and from the Central Chamber of Agriculture.—Mr. PUNNETT, the Chairman of the former Society, and Mr. PELL, the Chairman of the latter Society; Messrs. FOWLER, of Aylesbury; FIELDING, of Yorkshire; MAY, of Leicester; the Rev. H. BAYLEY, of Swindon, and others, urged upon him the unfairness and costliness of the tax, and its mischievous influence both on agriculturists and labourers. The artificial premium on the one side and restriction on the other thus applied to different qualities of Barley, was not only extremely unfair in its effect upon the occupants of different classes of soil, but tended to diminish farm profits generally by its mischievous effect on both cropping and stock feeding. And on artificially dear malt, by the hindrance which it puts to home or cottage brewing, must be laid the blame of very much of the evil done by public-houses. Mr. DISRAELI received the deputation with courtesy, and declared that the representations made would be carefully considered by the Government.

—— Mr. STRAFFORD is soon to dispose by auction of Mr. D. MACINTOSH'S Short-horn herd at Havering Park, Romford, which contains among its members some of the best strains known to Short-horn breeders. We shall, some time before the sale, give an account of the herd, and of its relationship to different families of Kirkleavington descent.

A LOST LETTER COME TO LIGHT.

DEAR M——,—I promised to send you a few notices of Continental Farming. A traveller finds few tempting opportunities of writing; but if all the thoughts and observations that occur to him as he looks even from the window of a Railway-carriage could photograph themselves in passing, they would make so large a book that—*nobody would read it.* One thought—the one that has come to me perhaps the oftenest of any, in relation to my promise, is this, that of all the classes left toiling at home, the one that most deserves to be written—ay, and written well—for, is the Farmer. Every one seems to get abroad for his holiday, now-o'-days. The tradesman leaves his counter; the agent, the secretary, the clerk, his desk; the lawyer, the merchant, the statesman—every one—finds time, *once* in the year, for a six weeks' run: and what a man may see, and feel, and mix with, and almost form a part of for the time, to the inexpressible relief and invigoration of mind and body, in a modern six weeks—I won't attempt to express! But there is one man whose work is never *done.* "Never ending, still beginning" is the motto of his life-task. It is for him I love to write. And though the Publishers all declare that no literature is so unprofitable, none that has so narrow a circulation, as that called agricultural, I shall not let that reflection hinder me. I am not sure whether, in the enormous multiplicity of modern books, a special circle to address may not have some attraction of its own, the seeming earnest of some sort of emancipation from the throng. There is only one condition I should like to make, and that is not to be *always* 'sticking to the shop.' Statesmen are not *always* talking politics, nor Lawyers law, nor Parsons divinity. There is only one set of men I know who never talk, write, or I suppose think of anything but their one *pursuit*, and I shall leave them to you to put the label on. I doubt if any subject in the world will bear to be always *taken 'neat.'* A book, or even periodical, all on farming tires me: while a page or two of good agricultural information or discussion 'lighted on unexpectedly in some other work delights me always and makes me think true, what *exactly isn't* true, that I could read on about it for ever.

I am writing this from Switzerland. It was from Piedmont—the other side of the Alps—that you will remember I chiefly promised to communicate. So far I hope I am better, earlier at any rate, than my word. But Switzerland is not easily *passed over;* in more senses than one. As for the long smoking, dusting, scorching line of rail through France, I can hardly think of anything that would sooner break an English farmer's heart to write, or read, about, than anything which that long and weary journey brings to mind. An interminable, and unintermittent, prospect—squint I ought to say—for the very word I used would shame its English meaning,—of hedgeless treeless hill-less FLAT, wearying to the eye, distressing to the mind, beseeching you to shut them both—*i. e.*, go to sleep, *if you can!* The most fanatical hedge-grubber in England would hardly care to have his farm treated like his fields, to be conscious of nothing between himself and the next three counties, that even a bird could mistake for a landmark. Fancy a flat, like a billiard-table, only *not* so *green*, stretching round your house a hundred miles or so; going to bed say in Somerset with the possibility of having to telegraph to Warwick in the morning to know if your cattle had been seen going *that way.* In mercy, let us pull down the blind, and shut it out, and think no more about it, at any rate for the present.

It is a cheery sensation to feel the train beginning to climb the Jura mountains, the ridge that does for this country what the ditch between Kent and Calais does for ours,—separates it from its active little neighbours the French, who certainly do give one the impression of a nation of boys, in a way that would, and well might, please them little to hear. But the reflection is inevitable to every open eye. Is it possible, as a Report seemingly authentic said some years ago, that the national *Stature* of that great-hearted people has been positively stunted by the long Napoleonic wars? What an ugly legacy of conscription, a nation "cut off" by six inches of man's proper stature: "Vive l'Empereur" from regiments of five foot three! But the Women did not go to battle: so it is to be hoped that Time and Peace will put it right again, and restore the race to its dimension.

I must confess it would be 'hard lines' to talk much about Farming in Switzerland, unless it be about the management of the *Mountain Pastures.* The way in which they are manured suggests to the eye a laborious minuteness and perseverance that is commendable, if it is not admirable. Liquid manures carried up hundreds and hundreds, I *might* say *thousands* of feet, and then poured over the scanty and stunted herbage, seem to bring to my mind the tasks of Sisyphus and the Daughters of Danaë all in one:—the weight is toiled at, up the hill, and the liquid is poured out upon a sadly porous and often ungrateful soil and herbage. But they never relax; and nothing disheartens them, hard dry manly race as they are, happily *non-olfactory*, at least in the active sense; passively they may truly be said to realise the "Hot Mutton Pies" of our old nursery rhyme—"You may follow them by the Smell." I was excessively amused at hearing of one lady, fond of travelling, but whom nothing on earth could induce to go to Switzerland, on account of the "everlasting liquid-manure abomination," as she described it. Certainly they don't mince matters: every Hotel is a Guano factory; and the unscrupulosity with which *everything* is sacrificed to the "obtaining a genuine article," would be amusing if it were not disgusting, to the poor English travellers.

The nature of the country is the excuse. "Give a man secure possession of a bleak rock, and he will turn it into a garden," said Arthur Young; he must certainly have penned the words in Switzerland. He wrote it in his 'Travelling Tour,' and I recognise the sentiment, and can date and localise it with moral certainty. And then to see the soft-eyed droves of cattle—a hundred at a time—contentedly climbing to the clouds morning after morning, and coming down again at night—with the Dew. Such patient and passive clock-work, and each with its bell strapped round its neck, for each has a different owner; and their pasturage is protected by the most stringent laws of every Canton,—slightly differing with the severity of the altitudes. I should like to know what you, my old Friend Greening! would say to the Cow-row of a hundred bells all chiming together over a procession half a mile in length, by way of morning and evening hymn—'daily Service'—Sundays included! However, Milk and Cream and Butter must be had for these wandering British, who are milked in their turn, and to *a tune* that beats this mountain-music all to nothing, and makes its harmony very *expressive. C. W. H.*

RENTS IN IRELAND.

IN a former communication I drew attention to the fitness of the climate of Ireland for Grass, and the ease and profit with which dairy farming is now carried on there in consequence, both by owners of land and tenants. I thus arrived at the question, whether rents in Ireland are high or not? upon which I wish to trouble you further. It is often said that rents in Ireland are unduly high, and can only be paid by tenants living in a poor and inferior manner.

1. A large majority of tenants, even at will, pay the same rents now that they paid 20 years ago. The English system of new valuations on estates where leases are not the custom, is unknown in Ireland. Some, like myself, only raise rents when a change of tenant occurs (which is very seldom), or at the tenant's death, *i. e.*, make his holding equivalent to a lease for his own life; on the view that the encouragement to exertion thus given is in the end as profitable to the landlord as a shorter term and more frequent rise would be; and as even the oldest seldom expects his own death soon, it prevents the land being run out at the end of the term, and has answered well with me. Others let their land below the rent they know they could get for it, in the view of securing better tenants, and so punctual payment of rent.

2. Then, there are many more leases, new and old, in existence than is usually represented. Further, no where that I have ever seen, is the true value of land so little understood as here, by either tenants or landlords. It all rests on a sort of vague, popular estimate. A farm is "counted" cheap or dear, because a tenant has done well or ill in it, without any reference to his industry or idleness. Any land over 20*s.* an acre is thought dear, even though intrinsically worth double other land at a smaller figure. The tenant of the cheapest farm in the parish never fails to declare that he is paying its full value. And as changes in occupation are much less frequent than in England, being, on the average, by late returns, only 1 in every 15,000 acres per annum, and thorough agricultural knowledge is so scarce, both among tenants and landlords, the true value of the land is very little known, and rents have been raised in only a limited number of cases. Whatever have been the motives for raising rents, until of late years the difficulties in getting rents paid at all have been such as to operate as a serious check on most landlords, and to make the payment of the former rent generally a practical limit to their wishes, especially of those who, having encumbrances to meet, cannot afford risk. Purchasers in the Estates Court, not having the same bond with the old tenants, have very generally raised the rents on their purchases, and there are a good many cases of purchases being made on speculation, and by well-to-do trades-people, who have raised the rents as much as they would bear, and very largely. They thus earned for themselves the name of land-sharks; but they have got their rents, and made a good thing of it, thereby giving as good evidence as could be wished of the moderation of the rents charged by the old owners.

2. The great rise in prices of almost everything the Irish farmer produces is such, as to make land cheap that was dear enough 20 years ago, and to enable the higher rents of Landed Estates Court purchases to be paid. In my own experience butter was 6*d.* per lb. It is now 1*s.* to 1*s.* 2*d.* I have bought fine stock lambs at 5*s.* each—8*s.* to 9*s.* was the price of the best; 20*s.* now will buy very middling lambs—anything good costs 25*s.* to 35*s.* Good yearling cattle were 40*s.* to 50*s.*; 5*l.* to 6*l.* would now have to be paid. Pigs were from 25*s.* to 35*s.* per cwt.; they are now from 40*s.* to 60*s.* Oats, too, in spite of repealed corn laws, are from 20 to 30 per cent. dearer. This great rise of prices is generally forgotten in speaking of Ireland.

3. Further, whenever land is now to be let, it freely brings a considerably higher rent than formerly, and from men of much better capital than could formerly be found. This is most markedly the case in the neighbourhood of small towns, where the land is hired by townspeople, who have other means of living by their shops and trades, and therefore have no motive for hiring it at rents that do not pay them. I have some land near such a town, and find the rise in the rent very large. I am very particular never to take a tenant of whose means and inclination I am not sure. The first few years they manure very highly, and the result is, it pays them better, even at higher rents, than it used to do, half-manured, at lower.

4. The resident owners of land to a man occupy land themselves considerably, some of them very

largely, and as a rule are steadily adding to the extent of their occupation. Yet there are few with whom capital in ready money abounds, or who have not heavy permanent charges on their estates to meet. It is clear, therefore, that their motive for occupying the land themselves, instead of letting it to tenants, is because it pays them better. I have reason to believe in my own county a very large number clear 50 per cent. above the rent ordinary tenants would pay them. When the Landlord and Tenant Bill of the late Government was brought in, it naturally caused much talk among land-owners, as to what course they should have to take in the event of its passing. I was surprised at the number of men I heard expressing the same views: that their only course would be to take as much more land as possible into their own occupation, at whatever inconvenience, because they were making 50 per cent. above the former rent by the land they already held. I am firmly convinced, had that Bill become law, it would have had a very different effect from that which its promoters intended.

5. The system of the large use of artificial manures and feeding stuffs (notably in fatting sheep), which has had so large a part in the improved farming and higher rents in England and Scotland, is almost unknown in Ireland. It is creeping in, but hitherto only partially, and as a supplement; very few have yet tried it in the thorough and systematic way which alone can show its full effects. Yet there is reason to think it will produce even greater effects in Ireland than elsewhere; the difference between Grass laid down with the land poor, and the same with the land in high condition after sheep eating plenty of corn and cake, is in this climate simply enormous, and no farmer need be told of the ease and cheapness with which such land can afterwards be kept in good condition. I am confident the effect of this system on Irish farming will be very great. But the ordinary Irish farmer does not even yet know by his own experience what the fattening of a beast or sheep on Turnips means, or the profit, direct and indirect, resulting therefrom.

I have been led on at greater length than I had intended. The importance of the point, whether rents in Ireland are high or not, in its bearing on the land question, must be my excuse.

My own experience in farming largely is distinct. For many years I have made far more than the former rents on land in my own occupation, and the returns are steadily and fast increasing. If I looked only to profit, I am convinced I should gain largely by occupying all the land that belongs to me—some thousands of acres. If rents in Ireland are low, compared with the intrinsic value of the land, I need not draw the inference.

But it will be said, if these statements are correct, Irish tenants at present must be very well off. And such is the case with all but the holders of very small farms, who have room for but little stock. The tenants of farms of any size are doing better than ever before, and where they are industrious and intelligent, are accumulating money largely.

The Irish tenant, even when thriving, lives in a poor and inferior way, compared with the English farmer of the same extent of land, because the habits and ideas of the country have not, in matters of personal comfort, improved in proportion to the improved circumstances of the people; but he spends money in other ways to an amount beyond that which an English tenant would spend out of the same farm. The habits of household good management and thrift of the small English farmer are quite wanting. Much is spent at public-houses, and the women of the family of Irish farmers spend often very largely. The system of subdividing farms among the children of the tenant has greatly diminished in the last twenty years, but the idea out of which it sprung, viz., that the father is to provide for the children out of the farm, is as strong as ever. The daughters on farms of such a size in England would all go to service, or be apprenticed to some trade, and all the sons but one, in the same way, would have to trust only to their own exertions; but in Ireland fortunes to enable the daughters to marry are always expected, and similar sums of money to start the sons. The sums of ready money that are produced for these fortunes of daughters are often simply surprising, considering the extent of the farm and apparent circumstances of the tenant. They range from 20*l.* to 500*l.*, and the match expected is exactly in proportion to the fortune. The amount of the fortune on one side, and size and goodness of the farm on the other, are the only points considered. No farmer's daughter can get married without a fortune, more or less, and the greatest exertions are made to provide it. It is even often charged by will on the farm, and many a tenant is crushed, or kept poor all his life, not by the rent, but by the fortunes of brothers and sisters charged on the farm by his father.

In these ways the amount of money made by an Irish tenant over and above his rent is, I believe, actually higher than the English tenant of a farm of like size spends on his more comfortable mode of living. I have one English tenant of a very poor farm, whom I had to get over because I could not find an Irish tenant who would give me the rent I asked, and which he pays. He lives thoroughly comfortably, and now, after six or seven years' good farming, is making money. *Valeat quantum.*

It must be remembered that many of the results I have mentioned above have only clearly appeared in the past seven years. Twenty years ago, or even 15, the best of us were only feeling our way in the dark, in doubt whether we could make land in our own occupation pay, under good farming.

Now we have learnt from experience, and proofs of the result are increasing every year; but good farming even does not show its results in a day. Time is needed, and the next seven years will doubtless show much greater results than the last. *An Irish Landlord.*

AGRICULTURAL STATISTICS.

The following Table, No. 4 of the Series just issued by the Board of Trade, gives Population, Area, Acreage of Crops and Grass, Per-centage of Corn Crops, and Total and Proportionate Number of Cattle and Sheep in each County in Great Britain:—

Counties Proper.	Population (1861).	Total Area in Statute Acres.	Abstract of Acreage (in Statute Acres) under Crops and Grass.						Cattle.		Sheep.	
			Total of Acreage under all Kinds of Crops, Bare Fallow, and Grass.	Under Corn Crops.*	Under Green Crops.*	Under Clover, and Artificial Grasses under Rotation.	Permanent Pasture, Meadow or Grass, not broken up in Rotation exclusive of Hill Pastures).*	Percentage of Corn Crops to Total Acreage under all Kinds of Crops, Bare Fallow, and Grass.	Total Number of Estimated Ordinary Stock of Cattle.	Proportionate Number to every 100 Acres under Crops, Bare Fallow, and Grass.	Total Number as Returned upon the 5th of March, 1866.	Proportionate Number to every 100 Acres under Crops, Bare Fallow, and Grass.
England.												
Bedford	135,287	295,582	242,290	113,123	31,880	18,702	67,874	46.7	25,916	10.7	180,250	74.4
Berks	176,256	451,210	345,206	146,844	56,595	37,420	96,264	42.2	30,653	8.9	327,316	94.8
Buckingham	167,993	466,932	377,178	132,691	36,810	28,711	171,192	35.2	52,679	14.0	263,015	69.7
Cambridge	176,016	525,182	463,140	262,597	72,344	39,311	70,703	56.7	37,101	8.6	255,036	55.1
Chester	505,428	707,078	481,853	97,231	33,276	43,603	302,739	20.2	129,493	26.9	96,989	20.1
Cornwall	369,390	873,600	436,071	136,502	55,645	77,175	95,490	31.3	134,455	30.8	300,049	68.8
Cumberland	205,276	1,001,273	503,031	108,898	51,456	99,284	229,439	21.6	112,446	22.4	396,021	78.7
Derby	339,327	658,803	463,920	81,433	26,287	33,082	311,926	17.6	113,582	24.5	176,122	38.0
Devon	584,373	1,657,180	919,336	271,254	131,017	121,930	310,872	29.5	184,222	20.0	769,126	83.7
Dorset	188,789	632,025	398,599	113,480	61,154	38,551	175,518	28.5	70,014	17.6	492,623	123.6
Durham	508,666	622,476	399,566	109,953	35,714	39,250	186,587	27.5	52,717	13.2	146,696	36.7
Essex	404,851	1,060,549	789,641	406,206	104,500	71,743	160,694	51.4	56,165	7.1	378,705	48.0
Gloucester	485,770	805,102	598,271	170,870	69,631	77,224	270,004	28.6	96,937	16.2	356,373	59.6
Hants	481,815	1,070,216	640,002	260,791	130,928	99,904	122,533	40.7	48,995	7.6	619,598	96.8
Hereford	123,712	534,823	394,947	105,970	39,386	34,764	200,594	26.8	65,773	16.7	257,196	65.1
Hertford	173,280	391,141	322,989	146,556	43,646	33,034	86,189	45.4	23,550	7.3	217,930	67.5
Huntingdon	64,250	229,544	192,417	94,431	20,751	11,775	52,057	49.1	19,812	10.3	117,821	61.2
Kent	733,887	1,039,419	711,826	244,494	83,940	53,265	279,823	34.3	56,443	7.9	731,243	102.7
Lancaster	2,429,440	1,219,221	708,827	108,001	57,967	57,559	474,453	15.2	205,303	29.0	217,615	30.7
Leicester	237,412	514,164	432,424	115,764	26,841	23,330	257,313	26.8	89,341	20.7	290,554	67.2
Lincoln	412,246	1,775,457	1,387,826	593,374	231,021	154,366	385,567	42.8	175,818	12.7	1,088,204	78.4
Middlesex	2,206,485	180,136	109,879	20,996	11,240	5,182	71,143	19.1	† 24,241	22.1	62,650	57.0
Monmouth	174,633	368,399	208,276	41,469	15,658	16,552	127,071	19.9	36,735	17.6	131,158	63.0
Norfolk	434,798	1,354,301	1,009,087	449,432	194,045	147,782	208,872	44.5	97,043	9.6	596,683	59.1
Northampton	227,704	630,358	522,736	182,350	42,079	31,233	251,790	34.9	76,456	14.6	435,837	83.4
Northumberland	343,025	1,249,299	656,989	153,716	65,145	86,966	320,824	23.4	79,370	12.1	635,487	96.6
Nottingham	293,867	526,076	417,502	157,858	54,889	49,922	140,434	37.8	68,452	16.4	245,532	58.8
Oxford	170,944	472,717	385,378	156,338	57,133	43,041	122,734	40.6	43,560	11.3	333,304	86.5
Rutland	21,861	93,805	74,905	24,725	7,645	5,803	35,005	33.0	11,666	15.6	75,735	101.1
Salop	240,959	826,055	621,616	171,177	59,782	65,356	310,973	27.5	110,426	17.8	327,612	52.7
Somerset	444,873	1,047,220	735,604	141,577	70,965	50,350	458,688	19.2	173,687	23.6	636,975	86.6
Stafford	746,943	728,468	548,662	125,350	44,287	47,123	319,935	22.8	109,919	20.0	231,936	42.3
Suffolk	337,076	947,681	775,404	405,834	123,703	77,274	143,411	52.3	57,397	7.4	407,929	52.6
Surrey	831,093	478,792	278,733	99,537	41,131	28,384	92,992	35.7	33,021	11.8	149,540	53.6
Sussex	363,735	936,911	576,927	207,793	68,775	52,792	209,531	36.0	75,778	13.1	485,056	84.1
Warwick	561,855	563,946	444,718	151,456	32,771	37,078	209,914	34.1	67,799	15.2	285,878	64.3
Westmoreland	60,817	485,432	213,876	22,130	11,191	18,519	159,931	10.3	55,328	25.9	224,664	105.0
Wilts	249,311	865,092	636,786	215,728	110,809	66,612	223,804	33.9	77,826	12.2	596,822	93.7
Worcester	307,397	472,165	368,381	120,480	34,017	31,631	167,648	32.7	45,923	12.5	204,154	55.4
York: East Riding, including City of York	280,660	771,139	612,084	259,673	106,463	81,716	141,020	42.4	71,501	11.7	416,853	68.1
York: N. Riding	245,154	1,350,121	760,775	220,723	83,822	68,238	351,626	29.0	125,750	16.5	462,038	60.7
York: W. Riding	1,507,796	1,709,307	1,094,152	251,365	113,669	90,641	613,850	23.0	196,751	18.0	500,196	45.7
Total for England	18,954,444	32,590,397	22,261,833	7,400,170	2,750,008	2,296,087	8,998,027	33.2	3,420,044	15.4	15,124,541	68.0
Wales.												
Anglesea	54,609	193,453	128,501	30,890	11,942	23,248	55,798	24.0	35,427	27.6	33,715	26.2
Brecon	61,627	460,158	182,482	33,465	8,184	15,743	119,053	18.3	29,604	16.2	212,515	116.5
Cardigan	72,245	443,387	202,488	61,101	12,875	27,503	89,952	30.2	47,384	23.4	108,546	53.6
Carmarthen	111,796	606,331	326,393	72,060	9,970	28,805	193,662	22.1	84,106	25.8	110,295	33.8
Carnarvon	95,694	370,273	170,414	24,052	12,104	25,483	98,168	14.1	44,072	25.9	139,317	81.8
Denbigh	100,778	386,052	221,927	68,114	18,115	30,594	96,682	30.7	49,727	22.4	150,565	67.8
Flint	69,737	184,905	116,095	37,569	10,028	14,703	49,280	32.4	21,916	18.9	35,106	30.2
Glamorgan	317,752	547,494	233,234	38,257	16,911	19,361	148,781	16.4	45,911	19.7	177,484	76.1
Merioneth	38,963	385,291	118,370	17,206	5,468	13,180	73,711	14.5	33,343	28.2	235,091	198.6
Montgomery	66,919	483,323	218,657	55,379	13,382	22,677	121,097	25.3	58,628	26.8	260,241	100.7
Pembroke	96,278	401,691	240,052	59,436	12,166	25,843	128,839	24.8	68,842	28.7	64,412	26.8
Radnor	25,382	272,128	126,061	23,545	8,120	9,582	82,698	18.7	28,006	22.2	181,376	143.9
Total for Wales	1,111,780	4,734,486	2,284,674	521,074	139,265	256,722	1,257,721	22.8	546,966	24.0	1,668,663	73.0
Scotland.												
Aberdeen	221,569	1,260,625	550,586	206,577	102,744	213,599	25,340	37.5	133,769	24.3	109,292	19.8
Argyle	79,724	2,083,126	111,356	22,916	11,495	14,321	52,994	20.6	57,831	51.9	700,621	629.2
Ayr	198,971	735,262	259,839	60,381	19,357	57,582	104,088	23.2	76,292	29.4	262,973	101.2
Banff	59,215	439,219	154,189	59,905	28,131	56,079	9,224	38.9	36,542	23.7	55,409	35.9
Berwick	36,613	302,951	177,280	61,705	34,244	55,549	24,865	34.8	15,427	8.7	193,288	109.0
Bute	16,331	109,375	18,267	5,711	2,708	4,709	3,561	31.3	8,252	45.2	34,318	187.9
Caithness	41,111	455,708	91,459	31,558	14,597	26,237	18,219	34.5	19,999	21.9	82,676	90.4
Clackmannan	21,450	29,440	14,114	5,939	1,810	2,901	3,056	42.1	2,360	16.7	9,468	67.1
Dumbarton	52,034	204,800	39,800	10,382	5,193	9,294	13,016	26.1	11,248	28.3	53,405	134.2
Dumfries	75,878	702,953	204,589	49,577	26,974	50,449	72,550	24.2	45,053	22.0	371,486	181.6
Edinburgh	273,997	234,925	114,269	40,373	22,367	26,907	23,039	35.3	14,078	12.3	113,479	99.3
Elgin or Moray	42,695	340,000	96,716	38,242	18,959	31,233	7,778	39.5	20,406	21.1	69,078	71.4
Fife	154,770	328,427	220,168	89,731	45,080	49,398	34,080	40.8	31,177	14.2	93,685	42.6
Forfar	204,425	568,750	228,195	92,784	47,294	69,779	17,457	40.7	37,007	16.3	156,653	68.6
Haddington	37,634	179,142	106,908	44,506	24,069	25,427	12,124	41.6	10,205	9.5	91,414	85.5
Inverness	88,888	2,723,501	118,461	36,922	16,923	20,265	39,291	31.2	45,335	38.4	522,006	440.7
Kincardine	34,466	252,250	111,956	44,938	22,157	36,816	7,581	40.1	22,789	20.4	41,073	36.7
Kinross	7,977	49,812	30,869	8,925	4,446	10,861	6,279	28.9	4,653	15.1	22,450	72.7
Kirkcudbright	42,495	610,343	152,618	32,548	17,372	34,806	61,877	21.3	34,692	22.7	271,467	177.9
Lanark	631,566	568,867	199,133	52,617	19,862	47,835	69,709	26.4	60,302	30.3	160,014	80.4
Linlithgow	88,645	81,113	54,674	19,084	7,816	11,519	15,538	34.9	8,697	15.9	23,070	42.2
Nairn	10,065	137,500	21,172	7,244	3,748	6,314	3,729	34.2	5,232	24.7	19,862	93.9
Orkney and Shetland	64,065	598,726	126,970	43,289	16,195	18,708	44,479	34.1	43,308	34.1	76,624	60.3
Peebles	11,408	227,869	36,907	10,283	6,330	11,170	8,506	27.9	5,980	16.2	125,831	340.9
Perth	133,560	1,814,068	316,766	105,340	49,723	86,475	69,834	33.3	70,023	22.1	494,635	156.2
Renfrew	177,561	158,268	77,160	18,213	8,047	13,562	32,493	23.6	22,001	28.5	26,503	34.3
Ross and Cromarty	81,406	2,016,375	105,473	39,423	22,116	27,645	13,050	38.1	36,109	34.9	293,754	283.9
Roxburgh	54,119	428,494	160,352	47,483	28,772	51,813	31,391	29.6	16,152	10.1	310,537	193.7
Selkirk	10,449	166,524	21,284	5,007	3,387	7,287	5,549	23.5	2,042	9.6	100,885	474.0
Stirling	91,826	295,875	95,479	32,298	10,122	19,132	29,855	33.8	24,621	23.8	86,392	90.5
Sutherland	25,246	1,207,188	15,663	5,367	2,624	4,802	2,669	34.3	11,262	71.9	164,060	1,047.4
Wigtown	42,095	327,906	127,683	37,342	18,595	38,941	29,845	29.2	35,703	27.9	118,669	92.9
Total for Scotland	3,062,294	19,639,377	4,158,360	1,366,540	663,257	1,141,415	893,066	32.9	968,637	23.3	5,255,077	126.4
Total for Great Britain	23,128,518	56,964,260	28,704,867	9,287,784	3,552,530	3,694,224	11,148,814	32.4	4,935,647	17.2	22,048,281	76.8

* Under Corn Crops are included Wheat, Barley, Oats, Rye, Beans, and Peas.—Under Green Crops are included Potatos, Turnips, and Swedes, Mangel, Carrots, Cabbage, Kohl Rabi, Rape, Vetches, Lucerne, and any other crop except Clover or Grass.—The returns of the Acreage under "Permanent Pasture" in Great Britain and in Ireland are not comparable, as Hill Pastures are excluded in Great Britain and included in Ireland. Totals and Percentages omitted in places marked thus (‖) cannot, therefore, be given.

† Including cattle died of plague up to 3d March in parts of Essex, Hertford, Kent, and Surrey.

ON LAYING LAND DOWN FOR PERMANENT PASTURE.

[We extract the following from the Farmer's "Vade-Mecum," just published by Messrs. Carter & Co., of 237, High Holborn, W.C.]

THE conditions of success in this are—(1) those of all successful cultivation, namely, that the soil to be sown be well tilled, and clean and dry; (2) that it be, although as deeply cultivated as may be, yet firm throughout, the result as much of the lapse of time enough since its last deep ploughing as of surface rolling; (3) that there be a sufficient quantity of fine mould to cover the seed raised on this firm soil by harrowing; (4) that good seed, clean, and of the right sorts and quantity, be sown and covered in at such a time as shall ensure the establishment of the young plants before any great trial, whether by drought or frost, comes on them; and (5) that in the subsequent treatment justice be done to the plants themselves whose permanent produce you desire, and to the soil which feeds them, through whose constant fertility that produce alone can be obtained.

Lessons for guidance in order to produce a good young pasture may be learned from the study of an old one. A Grass field may be a worthless weed-bed, or it may be full of most valuable agricultural plants in constant and luxuriant growth. If waterlogged, however sown, it will soon become full of sedge and rush, and the Grasses and Clovers will die out. If mown late every year, the plants thus allowed to seed will soon fill the land, which, perpetually robbed, can no longer feed or yield the finer Grasses. And Mr. Lawes' experiments have shown that even different styles of manuring, persistently continued for a course of years, will ultimately altogether alter the character of the pasture. Manures containing nitrogen, as ammoniacal salts and nitrates, tend to the promotion of true Grasses; while bones and lime, and other mineral or earthy fertilisers, tend rather to the growth of Clovers. And the farmer knows that the character of his Grass land is really in his own hands, without any help from the seedsman. His meadows mown every year get covered with a very different set of plants from his home pastures, constantly fed off with sheep and cattle foddered on them. The lesson of all this experience is that, having once sown down your land, or having received it, perhaps, sown down long years before, so that it has long been a permanent pasture, its condition depends upon its treatment by the cultivator. So long as that treatment and the consequent condition of the land as to richness, dryness, and cleanness remain unaltered, no use of "renovating" Grass seeds will avail one bit. So long as it is undrained, unlimed, unfed, it will remain a poor wet meadow, and you may harrow out the Moss and spread earthy compost and bush in a lot of good seed, but it will all ultimately be lost labour; the field will revert to the condition you complain of, unless the condition of its soil be first altered, and it be drained and manured according to the need of the plants you want to grow (after these conditions are fulfilled, you may bush in 10 to 12 lb. of our renovating mixture per acre with profitable results). Drain your poor wet pasture, apply composts containing lime and dung, add bone-dust either in quantity as they do in Cheshire, or in solution as superphosphate of lime, and feed the land with cake-fed cattle and sheep, and you will find that the small and worthless annual Meadow Grass (Poa annua), the Quaking Grass (Briza media), the soft Brome Grass or "Lop" (Bromus mollis), the surface Couch or Marsh Bent Grass (Agrostis stolonifera), Sedges and Rushes, &c., will disappear, and their places will be taken by better sorts of Poa, and by Fescues, Timothy, and other good nutritious Grasses. This has been found to be the case at Braydon, Wilts, by Mr. Ruck, whose experience is described in the second volume of the Journal of the English Agricultural Society; and it has been found in almost every change of the tenancy of Grass-land all over the country.

All this proves the need of getting the land on which it is desired to obtain a permanent pasture into satisfactory condition before you sow it. If wet it should be drained—if foul with weeds it should be fallowed—if poor it should go through a restorative course of cropping—if either upon sand or clay it should be limed. We can hardly imagine better preliminary treatment than a succession of two-year green crops, the last one fed off by cake-fed sheep. Suppose a foul stubble to be pared and burned in early autumn—scarified and harrowed, and the rootweeds again collected and burned, then ploughed deeply in land up and down the slope the width of the interval required between the drains. Drains should then be dug and laid about 4 feet deep, and the land left during winter. In the spring let it be cross-ploughed, and a heavy dressing of dung led on, and a Potato crop taken. After this, in the autumn, let the land be limed, the lime being covered with a shallow ploughing; and in the spring let deep and thorough cultivation with a heavy dressing of bone-dust or of guano secure a good Turnip crop, and let this be fed off with sheep receiving also hay and cake. A shallow ploughing immediately after the sheep-fold should be undisturbed for a month or so, and the land may then be harrowed down to receive the Grass seeds to be sown in March.

What these seeds should be may be very well determined by examining any good pastures on such land in the neighbourhood. The difficulty in the way of determining this lies in the fact that good pastures are always eaten well down; but if a portion be allowed to grow up to seed, it will be found that, along with a considerable quantity of Clovers, the Fescues, Lolium, or Rye-grass, one or two Poas, perhaps a little Timothy, Cocksfoot, and Foxtail, and one or two others, furnish the Grasses of the field; and accordingly 2 bushels of mixed Grass and 12 lb. mixed Clovers per acre of such seeds as these are recommended in our seed-list as proper for obtaining a good plant in order to permanent pasture. Ten or 12 lb. altogether of the larger-leaved Fescues, as much of Perennial Rye-grass, 1 or 2 lb. apiece of Timothy, Cocksfoot, Foxtail, the sweet-scented Vernal-grass, and of the Poas, making about 2 bushels in all; this and 12 lb. of Clover seeds, of the best perennial kinds, will make sufficient seeding for an acre. If the land be very stiff, it may be necessary to sow rather a larger quantity of the Grass seeds than is named above, and this is to be done by increasing the quantity of Foxtail, Cocksfoot, and Timothy, also of the Fescues (except F. rubra, which is a light-land plant). The land ploughed after the sheep-fold, a month before the seed-time, has probably received a shower or two since then, and has got firm together. It must be harrowed down level, and an inch or more of fine loam earth has thus been raised upon it. The roller should then go over it, and the seed-barrow following, first with the Grass seeds mixed and then with the Clover; scatter the whole evenly. It will be best covered lightly in by either the bush or chain-harrow, and may be again rolled lightly and left.

Almost all experience proves that Grass seeds are best sown without a grain crop taken in the midst of it during the first year. If sown in autumn (and if the green crop is late of being eaten off, it will be better to let the land lie over during the heat of summer and sow in the end of August or in September) then the plant will be established before winter, and there will be a good crop next year.

Although you have thus got the land covered with a good coat of so-called permanent and perennial plants, yet they will be neither permanent nor perennial unless treated according to their nature and needs. The seed may be alive and good and true, as evidenced by the coating of young plants which it has produced, but unless these plants find the circumstances which their nature requires, they will die. And it is here that so many disappointments happen. The reason why a good old pasture is firmly established (though even it may be ruined by mismanagement), while of the same plants one year old in a field close by it is so doubtful whether they will last above a year or two, is, no doubt, that Poa, Festuca, Dactylis, Lolium, and Trifolium there find the circumstances which they need; while here these circumstances have not been provided. One great difference between the young field and the old no doubt is the greater firmness and solidity of the soil about the roots, and another, arising out of the different age of the plants, depends on the way in which the whole mass of soil beneath the older pasture is permeated by roots, so that the whole of the inner surface of the soil is laid under requisition for the nourishment of the plants, whereas the younger pasture is fed only by the fewer mouths of a comparatively undeveloped system of roots.

The seedsman merely supplies good seed; and if the land is ordinarily prepared for it, he can guarantee a coating of young plants; but his offices very soon come to an end. The feeding of the young plants is what the farmer must attend to, or the plants will die, however good the seed has been. To this end he must first fill the land, as we have said, with the food it wants, and then he must do all in his power to develope the growth of the roots. To this end he should allow the leaf to feed them. It may be an injury to some of the less permanent sorts to allow them to come to seed, but it certainly injures them to continually crop them close by sheep. The best plan is, as Mr. Thompson has found in his experience, to let it stand for an early crop of hay, cutting it before the seed has formed in the earliest of the Grasses; then, after applying a coating of farmyard dung, and then for some years pasturing it with cattle, taking care during the first few years to let only young stock in, until the turf is close and strong enough to bear the treading of heavy cattle. If young stock be pastured for a year or two, and receive other food along with their Grass, and if the droppings be constantly spread, the land will be benefited by the treading, and the plants, gradually growing in strength below the surface, will throw up constantly an increasing produce of leaf and stem above the surface.

It is well to bear in mind what the chemist now makes a great point of, and what the farmer has long since known, that the fertility of the land, as seen in an abundant growth of plants, depends not more on the quantity than upon the accessibility of the food for plants which it contains. An old Grass-field has not been manured for years, but maintains its abundant annual produce, while a piece of plough-land, filled with dung and sown down with Grass seeds, fails in a year or two: and one reason no doubt is, that time, weather, worms, years of rain have so distributed and, as it were, digested the vegetable food the former holds, that every part of it contains ready-made nourishment for the roots of Grasses; whereas the latter, containing crude lumps of dung scattered amongst equally unbroken masses of impoverished earth, does not afford so uniform or so accessible a store of what the plants require, hence some die, and the Grass-field becomes patchy. No doubt time will remedy this, and so we find it does, and Grass-lands improve again after a few years' interval of poverty. But that interval might be abridged, or perhaps altogether hindered, if more care were taken to thoroughly incorporate the food of plants with the land before sowing. The two years' well-cultivated green crop we have recommended tends to this, and afterwards, in any dressings, let care be taken that they be presented in well-mixed compost, or actually dissolved in water, so that every portion of the land may be helped.

1. TABLE OF FACTS REGARDING GRASSES.

Botanical Name.	Soil preferred by it.	Weight per bushel.	Seeds per lb.	Proportion per acre sown in mixtures.	Time of flowering.
		lbs.	No.	lbs.	
Agrostis stolonifera	Moist places	13	8,000,000	1	May
Alopecurus pratensis	Stiff soils	5	1,200,000	1 to 2	,,
Aira cæspitosa	Moist moors	14	2,000,000	1	..
Anthoxanthum odoratum	Sands	8	1,100,000	2 to 3	April
Arrhenatherum avenaceum	Dry gravels	7	320,000	4 to 5 *	May
Cynosurus cristatus	Lawns	26	440,000	6 *	June
Dactylis glomerata	Deep rich soils	12	600,000	3 to 6	May
Elymus arenarius	Sea coasts	11	37,000	10 *	..
Festuca duriuscula	Dry pastures	12	640,000	2 to 3	June
F. elatior	Clays	14	320,000	2 to 4	,,
F. heterophylla	Adhesive soils	10	520,000	1 to 2	,,
F. ovina	Light do.	14	100,000	1 to 2	May
F. pratensis	Moist do.	20	42,000	2 to 6	June
F. rubra	Light dry soils	12	62,000	?	May
Holcus lanatus	Moory soils	7	1,500,000	1 *	July
H. mollis	Light sands	6	130,000	4 *	,,
Lolium perenne	All soils	18 to 30	240,000	10 to 12	June
L. italicum	All soils	15 to 20	400,000	6	,,
Phleum pratense	Warm clays	44	1,200,000	2 to 4	,,
Poa nemoralis	Shaded woody spots	15	2,700,000	2 to 3	..
P. pratensis	Light and dry	13	3,800,000	2 to 3	June
P. trivialis	..	15	3,400,000	2 to 3	,,
Psamma	Sea coast	15	160,000	8 to 10 *	..
Trisetum flavescens	Dry cool	5½	1,800,000	1	..
Achillea Millefolium	..	30	3,000,000	1	..
Cichorium intybus	Loam	32	336,000	1 to 2 *	..
Lotus corniculatus	Dry places	62	500,000	½ to 1	..
L. major	Moist places	64	800,000	½ to 1	..
Medicago lupulina	Inferior soils	63	250,000	1 to 2	..
M. sativa	Calcareous loam	60	200,000	..	..
Onobrychis sativa	Chalky soils	26	21,000	..	..
Plantago lanceolata	..	50	250,000	..	..
Poterium Sanguisorba	Chalks	25	53,000	2?	..
Trifolium hybridum	Loam	63	72,000	2 to 3	..
T. pratense	,,	64	250,000	3 to 4	..
T. repens	,,	65	512,000	2 to 4	..

The Grasses and other plants marked thus * are sown only under particular circumstances, or for special purposes.

2. *Management of Young Pastures.*—Mr. Thompson's experience of the management of young pastures is described by him as follows:—"... since making a rule rigidly to exclude sheep for some years from newly-laid Grass during the season of active growth, I have never had a failure, though I have twice had occasion, for local reasons, to lay down fields of which the soil was strong clay. The method which I have found to answer best has been to sow a liberal allowance of Grass seeds suited for the district, with a sprinkling of the best Clovers; to sow them with a crop of Wheat (one of the short-strawed varieties); to mow the first year, and as soon as the hay is removed to give a good dressing of farmyard-manure, and then for some years pasture it with cattle, beginning for the first year or two with young stock, until the turf is close and strong enough to bear the treading of heavy cattle. If farmyard-manure is not to be had, 3 cwt. of best Peruvian guano per acre will prove a tolerable substitute, though by no means equal to the former. For some years a newly-laid pasture will, unless the land be of very superior quality, require assistance from time to time to keep it in an improving state; an occasional dressing of farmyard-manure is, of course, the best, but as this is rarely obtainable in sufficient quantity, it must be eked out by other means. One of the cheapest and most effective plans is to employ an old man with a donkey-cart to go round the pastures collecting the droppings of the cattle and making them into a compost with road-scrapings, ditch-cleanings, &c.: when these sources fail, the droppings must be mixed with ordinary soil, avoiding sand, gravel, and lime. If a manure-collector be once appointed, numerous odds and ends of fertilising substances will be found available, which would individually be worth little, and which are now wasted because the regular staff of the farm are all engaged, and to take off one horse and man would often stop a plough or weaken a gang of labourers, so as materially to interfere with more important operations. But the collection of manure should be incessant. The droppings of horses and cattle, especially if collected fresh, form a very important source of compost, and the improvement to the pasture is twofold: first, in the saving of that which is otherwise to a great extent wasted; secondly, by the cleansing of the pasture and the much more uniform grazing of the cattle when the droppings are not allowed to remain and produce coarse tufts for some months after. In collecting materials for compost it should be borne in mind that all plants contain more or less of the elements required for the growth of the Grasses, and that Thistles and other succulent weeds, if mown and covered with soil whilst still fresh and sappy, materially assist in improving the heap, both by the fertilising elements which they contain, and also by the fermentation which they induce. This fermentation mellows and disintegrates the soil, and also fills its minute pores with gaseous matters, the result of the decomposition of the vegetable and animal compounds, of which the compost should be partially composed. All

compost should be turned and well mixed, once at least. The time that it should be left before and after turning will depend entirely on the materials of which it is composed. As a general rule, however, it may be assumed that the droppings of cattle, mixed with road-scrapings, will be ready for use during the winter after their collection; but if rougher materials be used, 12 months will probably be required to bring the heap into the friable state which is desirable. I attach particular importance to this collection of vegetable mould for top-dressing newly-laid Grass land."

CONDITION OF IRELAND.

AMONG the many topics which have gone to fill up our public journals or to form subjects for speeches at public meetings during the last year or two, the wants of Ireland have occupied a large share of attention. One day we hear that the Church is at fault, another that a Tenant-right Bill would put things straight and reconcile a disaffected population; some speak of emigration as beneficial, while others think the contrary; another says that landlord absenteeism is one of the first causes of all that is unsatisfactory, and so we may go on multiplying want upon want until we find a list fearful to contemplate.

In writing this letter I have not the slightest intention of setting my views or opinions before or in contradiction to any of those whose experience and knowledge of the wants of Ireland must be far greater than my own, for I have only spent the greater portion of the last two or three years in Ireland, and that principally in the west. I will give a statement of my views on matters, and speak of things as they have presented themselves to me, more as an observer than as one who professes to know or to teach.

To begin, then, with the vexed subject of Religion, I cannot but deplore that there is such rivalry and party spirit between Roman Catholics and Protestants; it must be a great drawback to the improvement or development of the resources of any country. I believe very many good and consistent characters are to be found in each body, and in both there are not wanting those who are a disgrace to any profession; the great want of truthfulness and straightforward dealing is not confined to either. One would like to see the Established Church doing her own work thoroughly, with more of Christian love and less of enmity towards those who differ from her, devoting the time and talents now too often given to religious controversy to visiting, comforting, and relieving, as far as in their power, the wants and necessities of those around them. In dealing with both parties in my capacity as a land agent I have pursued but one course, treating all alike, giving no preference or favour to one more than another, forming my own opinion of each by their truthfulness, honesty, and general consistency of character, irrespective of profession. Hitherto I have had no cause to regret the course I have pursued.

Before proceeding with the next question of Tenant-right I will stop to notice a great want that here presents itself, viz. some good public paper sufficiently independent to speak out, bringing public opinion to bear on all matters here as is done in England, and to show things as they really exist. I have great faith in the power which public opinion has in remedying public evils.

Tenant-right is a subject very difficult to treat practically, and more so to legislate upon without infringing too much upon the right of private property. A Bill that would give to the tenant compensation for any permanent improvement he might make during his tenancy, either in the erection of useful and necessary buildings, or effectual draining, reclaiming of land, and making good roads and fences, which should be certified and valued by a practical referee appointed by Government for that purpose (in case the landlord and tenant could not agree), would be no great hardship upon the landlord, particularly if the owners of entailed estates were empowered to borrow money for the purpose; but a Bill that would compensate the tenant for every outlay he may fancy to make, either in the erection of buildings, fences, injudicious draining or reclaiming of land, executed on no acknowledged system, and without regard to the geological features of the soil, would be positively unjust, compelling a landlord to pay for that which was no advantage to him, but in many instances an obstruction when a general improvement upon an extensive scale had to be carried out. If tenants as a general rule were possessed of ample capital, I believe they could and do in many cases make their own terms more satisfactorily than the Legislature could, but the great want of capital in the hands of tenants makes them too dependent to do this, and their case may be considered as an exception to the general rule.

That Landlord Absenteeism is one of the fruitful sources of much that is unsatisfactory no one who has spent the last two months in Ireland can doubt. One landlord at his post would have had more power to restore confidence to a fear-stricken tenantry than any military force. That the tenants and peasantry of Ireland as a class are disloyal or disaffected I do not believe; they are both timid and credulous, and with no advisers around them they are in too many instances an easy prey to those who would create disturbances. What would become of an English parish if deserted by the influential inhabitants for five months in the winter, and visited by some agent for mischief with plenty of money in his pocket to be spent at the public-house? Could not many of its inhabitants be turned into almost fiends? What wonder then, when whole districts are left to the mercy of such agents, that some should be found listening to words of sedition or treason, or joining the ranks of the disaffected; or if any disturbance took place that had the prospect of being successful, that whole masses should join (more from fear than choice), only too anxious to be on the strongest side? Hence the wisdom of Government in being prepared for an emergency and showing the strong arm.

I know there are some landlords to whom the foregoing remarks do not apply, and there are others who satisfy their consciences that they do their duty to their Irish property by spending a portion of each year on it. But when do they do it?—at a season when the weather and sporting are most inviting. A tenant, therefore, with any common sense, would not bore a landlord at such a time with his grievances on matters of business, more especially if he is surrounded by his sporting friends, as is generally the case. He, therefore, puts on his best behaviour, gives a polite bow and smile, and says, "Welcome, your honour, I hope your honour is well;" and the landlord, after exchanging a few civilities, passes on, and fancies all is well; and so he returns home, sometimes congratulating himself how satisfactorily everything is going on on his Irish estate, or, on the other hand, sometimes instructing his agent to give notice to all his tenants to quit because two or three unfortunate ones have burnt a portion of his mountain (in order to get more Grass for their stock), or have not preserved sufficient game to satisfy his desire for sport.

I do not find a residence in Ireland during the winter so unbearable as it was generally represented to me, but, on the other hand, very healthy and enjoyable; where I am writing from, near the sea on the west coast, the thermometer has only once been so low as 28° up to the 1st of January, while frequently during the last month it has stood at 59° for several hours in the day. The rainfall during the last five months has been: for August, 4.54 inches; September, 6.46; October, 3.30; November, 4.01; December, 4.85. We get many rough stormy days, but seldom one without a portion of sunshine; no fogs or intermediate weather, and when it does not rain, the evaporation is far greater than in any part of England known to me.

With regard to Emigration, I am at a loss to conceive how any practical man can say that it has been anything but beneficial, and must continue so as long as in any part of Ireland an able-bodied labourer can be found to work for 1*s.* per day; nor do I ever anticipate a very satisfactory state of things until it reaches double that sum; then the whole land question would be changed. I know numbers of small tenants who would be anxious to give up their occupations at once for constant employment at 12*s.* per week. Then would be the time that English capital (so much needed) would flow into the country. I have heard it said that the Irishman will not work. I believe he will, and better than the Englishman, if he feels he is paid fairly for it; but he, as well as myself, has yet to learn whether a man gains or loses most by sitting over a good fire all day with his few Potatos to eat, or exposing himself to all sorts of weather and working hard for 1*s.* per day. Perhaps this would be a fair question for some scientific Professor.

I fear I have exceeded the ordinary limits of such a letter as this, though I would gladly have enlarged upon each subject, or spoken of others more purely agricultural. *John B. Spearing, Seamount House, Newport, Mayo, Jan.* 3, 1867.

EARTH CLOSETS.

A PAPER on this subject was read at the Leamington Congress, October 26, on the Dry-earth experiment made at Lancaster, 1866, by Wm. J. Garnett, Esq., from which we make the following extracts:—

In the autumn of last year, the Mayor of Lancaster and the officers of the Board of Health, alarmed by the threatened approach of cholera, became strongly impressed with the necessity of removing, as far as in them lay, all nuisances within the limits of their jurisdiction, and a thorough inspection of the town was systematically undertaken. It was found, as might be expected, that though possessing a good supply of excellent water, which had been brought from a distance at very considerable cost some years ago, the inhabitants of most of the lower class of houses were still unprovided with water-closets, and that even in many cases where they had been introduced, they were not properly used, and were often liable to get out of order, whilst most of the old-fashioned privies and ash-pits were in a very filthy and offensive condition. About the same time that this investigation was going on in Lancaster, I had been called upon as one of a Committee of Visiting Justices of a large county lunatic asylum in the immediate neighbourhood of the town, to look into the sewage arrangements of that institution, and had made a report upon the subject, in which, besides suggesting certain other remedies for existing evils, I had referred to what I considered to be the valuable discovery of Mr. Moule respecting dry-earth as a deodoriser and absorbent of excrement and other offensive matter. The report was published in the local newspapers, and the authorities of Lancaster, influenced by the twin, but to a certain extent conflicting, motives of a desire to purify the town, and at the same time economise the supply of water placed at their disposal, applied to me for further information respecting the dry-earth system. I told them all I knew about it, which at that time amounted to very little, but I was so impressed with its importance, and had so long entertained strong views as to the waste of manure, and the pollution of our rivers, caused by our modern water system, that I offered to undertake at my own expense an experiment for 12 months with the dry earth on the simple conditions that they would allow me the use of one of their fields for the purpose of erecting a shed for storing and drying the earth, and that if it should become in any way a nuisance I should at once remove it.

After some little negotiation, the arrangement was concluded upon this basis, and by the 1st of January last, I had got all ready and in working order.

The shed I put up is of the simplest construction, 31 feet long by 31 feet wide, and covers an area of about 280 square yards; a few larch poles fixed upright on old stone railway sleepers support the roof, which is made of boards covered with felting, and gas tarred. About one-sixth of the floor, or 45 square yards, is occupied with a hot hearth on which the earth is dried. This hot hearth is simply a brick floor, laid over a series of small flues issuing at one end from the furnace or fire box, and terminating at the other in a large common flue and chimney. I have up to the present time employed one superintendent, two labourers, and one carter with a cart and horse, and we have now the system in operation in 39 common privies, which afford accommodation to about 290 families, and seven or eight small places for single families; in one cotton mill, where there are about 170 "hands" employed; in an iron foundry, where there are 180 men; in a large waggon works establishment, of about 350 men; in the Royal Grammar School, with its 180 boys; in St. Thomas's National Schools, where there are in average attendance 340 children; and in the Castle of Lancaster, where it has been tried for 12 cells occupied by male prisoners. In no case have we had any complaint,—on the contrary, the system, after having had a fair trial, is pronounced to be successful, public attention has been drawn to its value and importance, and confidence in its efficiency is daily increasing. I have letters from different parties confirmatory of the truth of these statements; and I can truly say that many places which were most filthy and pestilential, are now quite clean and free from bad smells, whilst the poor people who live around and make use of them, appreciate with thankfulness the comfort of the change.

As yet no pans have been used, only the ash-pits have been covered in from the rain-water, and the excrementitious deposit covered with earth once or twice a day by the scavenger who enters the pit with his spade for that purpose, and when there is a sufficient accumulation of earth and manure, it is all removed at any time of the day, without offensive smell or annoyance to any one. The ashes are not thrown into the pit, but put into a bin outside by themselves.

The cost up to the present time has been as follows:—Drying shed, with furnace and all complete, 140*l.* The current expenses from the 1st January to the 13th October, 1866, have been:—

In wages for three men with assistance when necessary, and including the superintendent's wages			£163	9 8
In soil, cost, and carting			27	13 6
In cotton waste, carting			1	12 0
In gypsum, carriage	£2	1 8	6	2 2
cost	4	0 6½		
In horse-keep			24	0 0
In coals			12	0 0
In repairs and sundries			1	16 11
			£236	14 3

The total quantity of earth manure delivered since 1st January has been 400 tons, which, at the moderate estimate of 10*s.* per ton, equals 200*l.* I have tried it with very good effect on Grass land, also with Turnips and Potatos, and one gentleman, who took some on trial for a crop of Turnips, gives me his opinion, that it is certainly worth 12*s.* 6*d.* a ton. I have seen his Turnips, and those which are grown with this manure are much superior to those grown with common farmyard manure. The quantity used was in both cases the same.

As yet, however, we cannot speak with any certainty on this point, but it will be easily understood that the cost in an experiment of this kind is the greatest at first, and that as the men learn to understand the business and become familiar with the routine course of proceeding, the same quantity of manure will be produced at less expenditure both of labour and of dried earth, than when all was new and untried. We commence with the practice of drying the earth after being once used, but so far our experience of this plan of re-drying is not encouraging. The process is more or less offensive, it costs fuel, and takes up room on the hot floor and in the shed, and after all is done, the deodorising and absorbent properties of the earth are so far from being restored that we do not think it worth the trouble and expense entailed.

The difficulties in the way of a general adoption of the system are no doubt manifold, but I do not think there are any which ought to prove insuperable. First and foremost come the prejudices of our people, and the reluctance, not an unnatural one, to admit that after all our legislation and expenditure of money, the water system is not only imperfect, but in some important respects a failure and a mistake. It does, however, offend against two old-fashioned and homely precepts which cannot be neglected with impunity. The one is, "Waste not, want not," and the other, "So use your own as not to hurt your neighbours." If we were not a very rich and, therefore, a very extravagant people, we should not have despised the first, and if human nature was not very selfish we should never have forgotten the second.

But prejudice must yield in the end to truth and sound principle. I felt, therefore, that it would be quite worth while to bring to the test of actual experiment on a large scale this use of dry earth, and that if it could be shown to be capable of dealing with and disposing of some of the sanitary problems of the day, there would be found some men amongst us who would condescend to look into the matter for themselves and treat it in a fair and dispassionate spirit.

The mechanical difficulties, as I may call them, do not, I think, amount to much, or need cause serious misgiving. The plan can only be introduced by degrees, and if on trial it should appear feasible and profitable and so become popular, experience and a readiness to co-operate, will soon dispose of objections and obstacles which have no solid foundation. The further development of the system in all its details must be a matter of time, actual experiment, and careful consideration.

It only remains for me to name some of the benefits

which would immediately follow its general adoption. An immense amount of valuable manure would no longer be lost to the country, but made available for the fertilising of our fields. Taking the moderate estimate of 6*s.* as the annual value per individual, it will be readily admitted that it is quite worth our while to put a stop, if possible, to the present waste; our wells would be no longer poisoned, and our brooks and rivers would be once more clear and well stocked with fish—in itself a valuable addition to our sources of food and national wealth. The sanitary condition and the moral tone of our population would be materially raised, and immense sums of money which it is now proposed to lay out in vast schemes of extended water-works might be saved for more profitable uses. Bala Lake would not be wanted to clean out the impurities of an improvident Liverpool, and the shade of Wordsworth might rest in peace, whilst Windermere would continue to flow on with clear and limpid stream to the neighbouring ocean, instead of being taken 250 miles to help to supply the ever increasing demands and wash away the dirt of our modern Babylon.

Home Correspondence.

Tithe Commutation: Septennial Averages.—As many of your readers may feel anxious to know the result of the corn averages for the seven years to Christmas, 1866, published in the *London Gazette* of this day, viz.:—

Wheat	.. ..	6*s.* 0¾*d.* per imperial bushel,
Barley	.. ..	4*s.* 3*d.* ditto,
Oats ..	.. ..	2*s.* 9¾*d.* ditto,

I beg to state for their information that each 100*l.* of tithe rent-charge will for the year 1867 amount to 98*l.* 13*s.* 3*d.*, or about 1¼ per cent. more than last year. The following statement from my Annual Tithe Commutation Tables will show the worth of 100*l.* of tithe rent-charge for each of the following years:—

	£	*s.*	*d.*		£	*s.*	*d.*
1861	112	3	4¼	1865	98	15	10½
1862	109	13	6	1866	97	7	9¼
1863	107	5	2				
1864	103	3	10¾	1867	98	13	3

If we include the whole period of 31 years elapsed since the passing of the Tithe Commutation Act, it will be found that the general average value of 100*l.* tithe rent-charge amounts to 100*l.* 16*s.* 2½*d.* *Charles M. Willich, late Actuary, University Life Assurance Society, 2, Montpelier Square, Rutland Gate, S.W., January* 8, 1867.

Taxes on Land.—I thank your American correspondent, Mr. Such, for his answer to my inquiry (p. 14), and I think that this answer ought, at once and for ever, to dispel the notion so prevalent in this country, that our landowners have the chief influence in making laws, and that they have used this influence exclusively to their own advantage. The farm worth 10,000 dollars would, I presume, be worth about 600 dollars a-year rent, or, to bring the figures into English money, as it is a mere question of proportion, we may say that a farm of 600*l.* a-year would in New Jersey pay direct taxes to the amount of 15*l.* Now it is quite clear that no land in England is let off so easily. I have myself a farm of 700*l.* a-year, but the taxation, instead of 18*l.*, somewhat exceeds 200*l.*, and, in addition to this, there is an income-tax both on the landlord and the farmer. It is true that the greater part of this farm, being within the limits of a borough, is taxed heavier than some others, but, on the other hand, the part so situated is free of land-tax, tithe, and church-rates, so that much need not be said on that score. Altogether we see that the public burdens on land are, in this landlord-ruled (?) country, infinitely greater than in America, although the latter country not only, like ourselves, pays the interest of their heavy debt, but, unlike ourselves, is rapidly paying it off. *G. S.*

Farmers' Clubs.

CENTRAL.—The following subjects for discussion have been announced for the coming session:—

	Proposed by
Feb. 4.—The Abolition of Turnpikes, and Provision for Payment of Trust Debts	Sir G. S. JENKINSON, Bart., Eastwood Park, Berkeley.
Mar. 4.—Emigration—What to do, and Where to go ..	Rev. E. SMITHIES, Hathern Rectory, Loughborough.
April 1.—The Desirability of a Board of Agriculture — As a Government Department	Mr. J. A. NOCKOLDS, Stort Lodge, Bishop's Stortford.
May 6.—The Best Means of Harvesting Crops	
Nov. 4.—The Management of Benefit Societies in Rural Districts	Mr. C. HOWARD, Biddenham, Bedford.
Dec. 9.—The Present Aspect of Steam Cultivation ..	Mr. J. A. CLARKE, Long Sutton, Wisbech.

*** The discussions will commence at half-past 5 o'clock P.M. There are no meetings in January, June, July, August, September or October.

CIRENCESTER: *Turnpike Trusts.*—At a recent meeting of this Club, Sir M. E. Hicks-Beach, Bart., M.P., read a paper on this subject, which we abridge as follows:—He said: You are all, of course, aware that many years since—I suppose more than a century ago—the roads of this country were little better than tracks. At about the time that coaches were first established, and traffic really began to be developed, larger roads were found necessary, and these were first formed between the principal towns. In many places, to make and maintain these roads, Government advanced large sums of money. The Holyhead road was an instance of that kind. In other cases, large sums of money were borrowed by mortgage of the tolls, and by erecting turnpike-gates on the roads, to oblige traffic that passed that way to pay; for it was felt reasonable and right that those who used the roads should pay for them. In this way many trusts were established in the country; and I think during that time, and for many years afterwards, Parliament seemed rather to have neglected to inquire whether it was advisable that any particular road should be managed by a trust or not. They simply allowed a trust to be established when applied for; so that at one time there existed as many 1100 different trusts in the country. On the establishment of a trust, the tolls were mortgaged for a certain number of years; and on this term coming to an end, it was re-allowed without any difficulty; but, of late years, all trusts whose original terms have expired are placed together under an Act passed yearly for that purpose, and are continued for one year and to the end of the next session of Parliament. So they go on from year to year until the debt of any one trust is paid off; and it is then put into the schedule of this Act, and ceases at the end of the year. Up to the present time, a good many debts have been arranged; but that has been done by reducing the rate of interest, and fixing a term of years in which the whole shall be paid off. There have been comparatively few cases in which the debts have been paid off, and the trusts have terminated altogether; but in an Act which was passed last July there are no less than 133 trusts named in the whole country which will cease—absolutely cease—by November, 1867, and the repairs of the roads fall on the parishes through which they pass, unless some alteration in the present law is made. This has, of course, led those who are more directly interested in these trusts to consider upon whom the burden of repairing roads will fall when gates are abolished. Under the present system, if these 133 trusts should cease, an injustice would be done to particular parishes; and it is well to consider it beforehand, and to try to guard against it.

You all doubtless know that there was a discussion on this subject at the last Gloucester quarter sessions; and Sir George Jenkinson brought forward a resolution urging the abolition of turnpike tolls, and the adoption of a county rate, adding that the debt which now exists should be paid by a loan from Government, on the security of the county rates. That was rather a sweeping proposal; and I do not think it quite met with the approbation of the court. We often hear it said that tolls are doomed, and must be abolished. We ought also to inquire why they are doomed, and why they should be abolished? I think that a few figures which I have put together with regard to the county of Gloucester will show you the reason for objecting to tolls. In this county, the sum actually paid to the trustees of the different roads is 40,000*l.* a-year. To that I think we may add at least 6 per cent. as the profit which the lessees get out of the tolls. That gives a sum of 2400*l.* per year. We must also add the livelihood of persons living at the different gates, which we cannot estimate at less than 700*l.* a-year. There are 285 toll-houses in the county, and it has been computed by the best authorities that they cannot return to the occupiers less than 25*l.* a year each. These sums, added to the 40,000*l.* paid to the trustees, makes a total of nearly 50,000*l.* a-year, besides which, 1000*l.* a-year is paid by the parishes towards the repair of the roads in the county, which increases the amount paid yearly to about 51,000*l.* Now, out of that 51,000*l.* paid annually for the maintenance of the turnpike-roads in this county, only 28,000*l.* goes in actual repairs. You see it is little more than half. Of that amount 2842*l.* is spent in "miscellanies," which mean, I imagine, improvements, repairs to bridges, and other matters which do not strictly come within the contract for repairs. Then the salaries of surveyors and clerks amount to 3242*l.* a-year. But the main point I wish to impress upon you is, that while 51,000*l.* is paid by the public for the repair of the roads, only 28,000*l.* is devoted to that object. On the other hand, it is only fair to consider a very strong argument in favour of tolls. There can be no doubt whatever that they catch people who ought to pay for the repair of the roads—those who use them. I will give you a strong instance of this:—Mr. Peach, who lives in Derbyshire, gave evidence before a Parliamentary Committee on this subject, and he stated that there was one colliery in his own district rated at 700*l.* a-year, and which returned a yearly produce of 20,000 tons. Now, 20,000 tons passing through the turnpike, at a toll of 4*d.* per ton, produced 330*l.*, which amount he contributed towards the repair of the roads over which his coal passed; but substitute for the present system of tolls a 4*d.* rate, and, taking the rateable value of that colliery at 700*l.*, you would get only 12*l.* a year. But, on the other hand, it may well be said that if you can prove that, although you raise a good deal more money from coal mines, and hauliers, and millers, and others of that class by tolls than by rates, yet if as much money as they pay can be saved by substituting a rate for tolls, and other classes will not be more burdened, surely it is worth while, even in a case like that I have quoted, to make the change. At a late meeting of the Gloucester Chamber of Agriculture the rateable value of several farms—as many as 20, I believe—was returned, together with the estimated amount of tolls which the occupiers now pay in a year. Now, I think we shall admit that the agricultural interest is one which, in such a case as this, we should be most anxious not to see over-burdened. One farmer at Hanley was returned as rated at 685*l.* per year, and the estimated amount of tolls which he paid in a year was 6*l.* 10*s.* At a rate of 4*d.* in the pound a farm assessed at 680*l.* would produce 11*l.*, so that the farmer in that case would be a loser by the substitution of a rate for tolls. On the other hand there is a farm at Lenton rated at 780*l.*, the occupier of which calculates that he pays 20*l.* a year in tolls, but if a rate was substituted, he would pay only 13*l.* a year, so that he would be a gainer by the change. The truth of the matter is this, in those parts of the country where there are many turnpike-roads—such as in the Vale—the substitution of a rate for tolls would probably in most cases be a gain to the farmer; whereas in parts of the country like this, where turnpike roads are few and far between, and where the traffic is mostly carried on highways, it would probably be a loss. There is another way in which the roads might be supported if tolls were abolished. I have seen it argued in one or two letters in the *Gloucestershire Chronicle* that it might be possible to place a sort of assessment upon everything which used the roads, such as carriages, horses, carts, sheep, oxen, and so on; but I think you will all agree with me that such a plan as that would be impracticable and oppressive and inquisitive to the last degree. There is another point which we must particularly bear in mind in considering this question. It is this: It would be impossible to take the turnpike trusts by themselves. When the question was first agitated, it never occurred to me that it would be impossible to put all roads under one system. If you take turnpike roads alone and put them on a county or district rate, the injustice would be enormous, for you would not only make parishes repair their present highways, but contribute also to the rate for the maintenance of turnpikes. The proper way to deal with the matter is to take the whole thing together, and put turnpike and highway roads on the same basis. If this plan was adopted and a rate was substituted, you would have to put the whole management of all the roads under one Board. And that brings me to another proposal made by Mr. Curtis Hayward, to consolidate the whole of the trusts in the county into one large trust, which should be managed in the same way as in Glamorganshire. Now, I will just compare the expenditure and rates of the two counties, which will show you, that the more you consolidate trusts the cheaper you can do them. In Glamorganshire there are 235 miles of roads, the repairs of which cost 8250*l.* a-year. These roads are repaired under the management of a general surveyor paid by Government, and two county surveyors, one of whom receives 260*l.* a-year and the other 210*l.* There is a clerk to each of the district boards, and the salaries of these four clerks and two surveyors amount to 710*l.* a-year. Thus the expenditure there amounts to this—for salaries, 710*l.*; for repairs, 8250*l.* In Gloucestershire there are 870 miles of roads, the repairs to which amount to 28,000*l.* a-year. The salaries of surveyors and clerks amount to 3242*l.* a-year; so that, in fact, although the Gloucestershire roads are about three and a half times as much in mileage, and cost about three and a half times as much to repair as the Glamorganshire roads, yet we pay four and a half times as much as they do to our own surveyors and clerks. That will show, I think, that a considerable reduction would be made by consolidating the roads in this county. Next comes the question, if you consolidate the roads, whether you would pay off the debts by tolls or by rate? I am inclined to think it would be better to consolidate them and keep on the tolls till the debt is paid off. After the debt was paid off there would be infinitely more reason for putting the repairs of the roads on the county rate, for no doubt the traffic upon them now is purely local. But supposing, on the other hand, that a rate was adopted as the best means of paying off the debt, no doubt it would be done by borrowing money from Government on security of the rates. Government could afford to lend money at a less rate than the trusts at present pay to their bondholders, and so far we should reduce the debt in a way which keeping on the tolls would not do. Sir George Jenkinson, so far as I can see, is about right in placing the county debt at 130,000*l.*, excluding the debt on the bridges. Then from that amount we have to deduct 20,000*l.* due to Government, which I don't think they ought to get, so that the actual money value of the debt is not more than 90,000*l.* Out of that 90,000*l.* we have to take say 15,000*l.* for toll houses and gates, and the *bonâ fide* debt of the county is thus reduced to 75,000*l.* Well, now, seeing that every year we collect by tolls and contributions from parishes 41,000*l.*, and only spend on actual repairs 28,000*l.*, I really think we might hope, in less than 10 years, to pay off that debt of 75,000*l.* There is another point which I have not yet mentioned, and, to which I ought to allude before I conclude. Under the present system of tolls, towns pay considerably towards the repairs of the turnpike roads; or if the townspeople don't pay, they are stopped by the turnpikes, and they cannot travel. Now, if you adopted a system of rates instead of tolls you would not catch the towns at all. I am aware that Cirencester and Cheltenham are both liable to the county rate, but I don't think we could in fairness ask towns to repair their streets, and to repair in addition, equally with the rural parishes, the country roads. That is a large instance; but there are other cases where the system of a county rate as at present levied would hardly apply. Take the cases which Sir J. Rolt gave at Gloucester. A haulier who was now estimated to pay 20*l.* a year tolls would under a rate pay 2*s.* A miller perhaps may pay now 40*l.* or 50*l.*, but he would not pay more than 2*l.* or 3*l.* under a rate. A gentleman living in a house in the country for purposes of hunting, without occupying any land, would pay now a very considerable sum in tolls; but if a rate was substituted he would pay a very small sum indeed, as his house would probably not be assessed at more than 100*l.* a-year. There is also the case of quarries, coal mines, and iron mines—the latter of which are not rated at all. All these cases tend to show that if you put the roads on a county rate, you must alter the present basis so far as highways are concerned. I don't think you can with any fairness repair highways by a rate levied under the present system. Why not rate each description of property in a different manner? Take the farmer as a unit to start from; put him at the same amount as he appears in the poor-rate; put the haulier and miller at several times the amount of their rateable

values for the poor-rate; and assess mines and manufactories in the same way in proportion to the wear-and-tear of the roads which they occasion. I don't see that such an arrangement as that is impossible, and I am sure it would be infinitely fairer than putting on the agricultural interest more than ought to be borne by it. In conclusion I have only to say that I am much obliged to you for the patience with which you have listened to me. I have endeavoured to go into the whole question, to explain to you the difficulties which beset every method of dealing with it, and to show you as far as I could the arguments for and against any particular mode. I shall only be too happy now or at any future time to hear anything that any gentleman has to say on the subject, and to endeavour with you all to consider what are the best means of dealing with this very difficult question.

Mr. T. C. BROWN thought he might say at the outset that if it would be possible to devise a scheme for the repair, not only of turnpike roads but of all roads, so as to do away with the toll taking system and make the traffic entirely free, it would be a very desirable arrangement. But looking at the present system, he thought they would be all equally agreed that it seemed to be based on most reasonable grounds—that was, of making those parties pay for the repairs who used the roads. That seemed a very just principle, and unless some scheme could be devised by which the burden should be so diffused as not to fall upon particular individuals or parishes, he thought they had better remain where they were. One part of their present position was that money had been borrowed to make these turnpike roads. Now, Englishmen, he believed, loved honesty, and any scheme that did not provide for the repayment of those borrowed moneys in proportion to their value—their value might be estimated by the amount of interest they bore—ought not to be adopted. He thought the basis of any alteration they proposed to make should be this—that justice must be done. It had been advocated that a county system should be adopted and tried in Gloucestershire. Now he saw the greatest difficulties in the way of a county system, and he would never be a party to any proposition to introduce a departmental scheme. Let the system be national. If it were national, they would all be bearers of the burdens in proportion to their property. He could not there enter into details; but he believed that any system that was not national would fail, and it was most undesirable that they should go to Parliament to suggest merely local alterations.

Mr. DAVID BOWLY said: Legislation for the last 20 years or more had all been with a view of abolishing turnpike trusts. It must be a very strong case indeed that would induce Parliament to renew a trust, and the object was to throw the cost of the roads upon land. As for a county system, he could not see how that was to work with any sort of fairness, for, as Sir Michael Beach had stated, it seemed a hard thing to put a heavy county rate upon towns which did not use the roads. Many shopkeepers did not go a mile in the year on the roads, and it did not seem fair that they should be called upon to contribute towards the repair of them. For himself, he should never support anything like going for a county rate.

The CHAIRMAN could not agree with his brother as to putting all the expense upon land. Why, shopkeepers used the roads more than farmers. Never a day passed—Sundays more especially—but what large numbers of vehicles of all kinds, driven by townspeople, passed his house, and why should they be exempt? As to their parish, they took little interest in the matter, as they had to make all their own roads, and they could not be worse off.

Mr. G. F. NEWMARCH remarked that the common law placed the liability to repair the roads upon the parishes. The present feeling of the public mind seemed to be that if these toll-gates were abolished they would revert to the original law. Then of necessity, each parish would have to maintain its own roads, which in some cases would be a very great hardship. Take for example two particular parishes in the Northleach district. Hampnett, which had a rateable value of 1592*l.* per year, would have to pay for the repairs of turnpike roads 58*l.* 10*s.* a-year, while Withington, whose rateable value was 5095*l.*, would only have to pay 12*l.* Again, Dowdeswell, with a rateable value of 3053*l.*, would have to pay 14*l.* 5*s.* a-year, while the two Shiptons, whose rateable value was 2553*l.*, would have to pay 74*l.* That arose from the fact that, in Hampnett for instance, the greater part of the roads were turnpike, while in the other parishes they were mostly common highways. This instance would show the difficulty of dealing with this question. He thought the debt question had been rather a bugbear, and when people flew off upon that they looked to the minor point and left the major. If, to start with, they reduced the debt to what it was worth, and then distributed it over 30 years, they would for about 3000*l.* a-year pay off the entire debt of the county. Therefore the debt question, if they went into it, would be but a small one. The great question was the question of repairs. If, as he said before, they came to the common law, and forced each parish to pay for its own roads, they would so shift taxation that in some cases it would be very grievous injustice. It was upon that ground that he made a suggestion some time since to the effect that the common law might be modified so that, through the medium of the Quarter Sessions, a sum should be raised in a parish which should vary as the Quarter Sessions felt that the justice required. Why could not this be done? They did it now with regard to the land tax, a certain sum of money being fixed upon a parish which it had to raise. Let some local body—say the Quarter Sessions, as their local parliament—assess the sum which each parish should pay to the common fund for the maintenance of the roads, and if they did this, he should not see so much objection to throwing the roads together. Another course was to throw the roads on the highway district, which would be a great improvement. There could be no question that that would get rid of a deal of inequality, but at the same time it would throw a very large extra burden on land. He was speaking then in an atmosphere of land, and to suggest the putting of any extra burdens on the land would not meet with approval there, nor was he going to suggest it. Whether that burden should be fairly distributed by extending the area, or unfairly imposed by leaving each particular parish to bear its own burden, was a matter which demanded their most careful consideration.

Mr. ILES said many parishes had not a single inch of turnpike-road, but had roads of their own to maintain; and if tolls were abolished, he thought it would be rather hard that parishes like these should have to repair their own roads and contribute towards the maintenance of turnpikes as well. It would also be hard to place the roads on the parishes through which they passed. The matter might be met by a tax upon vehicles, horses, &c.; but it seemed to him that the better plan would be to throw the roads on the parishes, each of which should receive some contribution from the county or other rate, thus making a compromise of it. The fact was that all were interested in the maintenance of good roads, and he thought that if in any way they could compromise the question, it would be the fairest way of dealing with it.

Mr. DAVID BOWLY said it should be borne in mind that towns maintained their streets and all the roads round them, for the benefit of the public, without any assistance whatever from any turnpike trust or anything else. That being so, was it fair to go two miles out of the town and compel a shopkeeper to pay for the repair of a road which he never used, when he had to keep the town in repair for farmers to hold their markets in, and country people to make their purchases? He was as much for the landed interest as any one present, but he did not wish to see an injustice done to towns. He believed that land was unfairly rated with regard to roads. Any man must be blind not to see that, most unfairly, the legislature had been endeavouring of late years to throw the roads on the land. Every Home Secretary for the last 40 years would say the same thing.

Mr. THOMAS ARKELL agreed with Mr. Brown that this could not be merely a Gloucestershire question—it must be national. How could they fix a county rate for a trust that went through three counties? After referring to the management of the trust with which he was connected, Mr. Arkell stated that in 1836 the debt on turnpike roads throughout the country was 7,000,000*l.*, but by 1864 it was reduced to 4,000,000*l.*, the estimated value of which, however, was not more than 3,000,000*l.* This sum might be liquidated in 25 years by an annual payment of 180,000*l.*, which seemed a very moderate sum if taken in hand by Government. But the question was how was this 180,000*l.* to be raised without putting it on their shoulders or going to the land to repair roads? He was of opinion that it would be very beneficial to do away with tolls, as they merely held out a premium to people to go roundabout for miles and wear out the roads in order to save sixpence. But if turnpike trusts were abolished, it was right to consider what would be the consequence to them? They were quite willing to pay their share; but he thought that when magistrates got to Quarter Sessions and talked about "only a penny county rate," they did not seem to think that a county rate was laid on the same thing as a poor rate, and that a penny county rate was equal to a twopenny income tax upon them. Now, he had turned this matter over in his mind for some years, and his impression was that they must come to assessed taxes, and that was the only point on which Sir Michael and he did not concur. Mr. Arkell quoted figures to show the amount that would be realised by assessed taxes, and compared with this the proposed rating system, under which certain persons using the roads would be comparatively exempt, and the land would have to make up the deficiency.

Mr. DEWE remarked that when they spoke of assessed taxes they were touching on rather ticklish ground. If they opened this question, it might be asked why should not farmers' carts, farm-horses, &c., which were now exempt, be assessed, and they might thus put themselves in a rather bad position.

Mr. GARNE said since the turnpike roads in his district had been thrown on the management of the highway board, he found that he contributed less money and the roads were better maintained than when he paid tolls. Let them have anything in the world but the roads thrown on the county, with a county surveyor, a county manager, a county clerk, and a county this thing and another. Rather than have that, they had better put up a few extra gates instead of abolishing the existing ones.

Mr. THOMAS BREWIN expressed approval of Mr. Newmarch's plan of throwing the roads on the highway district on the whole of which a rate would be charged, not in the exact ratio of the county-rate, but modified as the justice of the case might seem to require. For instance, Cirencester paved and lighted the streets, and it would be hardly fair to rate the whole of the property in the town the same as in the adjoining parish of Baunton, which did nothing of the kind. As to the present turnpike trusts, raising money by that system was a bad one. He thought they were pretty well agreed upon that. Then as to having a mere partial system of turnpike tolls, in his opinion that would be worse than a general one, because no sooner would gates be pulled down in one district than people would travel miles out of their road to avoid paying the tolls which remained, and looking at the loss of time and the wear and tear of roads and material which this would occasion, it would be found to amount in the year to a great national loss. With regard to the debt, it was a bad thing to be in debt, but worse to try and get out of it without paying. He thought the way in which turnpike bondholders had been treated was not just. It had been more like Yankee repudiation than anything else. It was not so entirely, but advantage had been taken of the bondholders, who had made fine roads for which they had never been really paid. He could not help saying that English legislation with regard to turnpike trusts had not been an honour to this country. If the tolls were insufficient, they would be content to go unpaid; if they were otherwise, then those who lent the money on the tolls were entitled to a priority of them.

The CHAIRMAN observed that he had not the same compassion for bondholders, who had of their own free will put their money out at interest, and they must accept the consequences. Looking at the importance of this subject to them at the present time, he suggested whether it would not be advisable to adjourn the further consideration of the question till next month, and at the same time appoint a committee to confer with the Chamber of Agriculture upon it. He hoped every farmers' club in England would do this. If they were to save themselves from further burdens, now was the time to act.

Sir MICHAEL BEACH said he would state that in his speech he was careful to guard himself against any such thing as suggesting repudiation. Mr. Brown had stated that what was done in this matter should be done in a national way. He (Sir Michael) hardly understood what that meant. If it had reference to something given out of the Consolidated Fund, he devoutly wished they might get it; but there was a large party in Parliament who were always glad to put any burden upon roads, for they knew it fell upon land. Mr. Bowly urged that towns ought to be excepted, because they made their own roads. He (the hon. baronet) would be willing to show them some consideration; but they should contribute something. Mr. Newmarch's proposal was that they should take the highway district in lieu of a county-rate. It was also objected that gentlemen here would strongly disapprove of being rated for turnpike roads in the same area and the same rates as the district round Bristol. That was the very point which he tried to press upon the meeting. If mines and manufactories were rated fairly and properly, according to the way in which they used the roads, no one could object to be classified with them. He could not agree with Mr. Arkell's suggestion as to increasing the assessed taxes. It would raise the whole question of taxing agricultural horses and carts, and other things which were now free. Oxen would also be taxed. Indeed, they could not raise the assessed taxes for the repair of roads without taxing every animal and cart which used them. Mr. Smith and Mr. Garne instanced the road at Bibury, and stated that the parishes through which that road ran did not object to bear the whole expense of its maintenance. He would like to know what that road cost a mile to repair. [Mr. Smith: "Under 12*l.*"] That was very little more, if anything, than was paid for the maintenance of any highway road in any parish. This was why Bibury and the other parishes did not object to take the burden upon themselves. It was a mere local parish road. In contrast to this, he might instance the case of a trust near Gloucester which cost 78*l.* a mile to repair it. In some cases it cost 250*l.* per mile; but 78*l.* was the average. He thought that if Bibury had to pay that, they would object to take the road wholly upon themselves. Having answered the more important points raised, he would state, in conclusion, that the question resolved itself into this—the great objection to tolls as at present collected was the enormous waste that was occasioned, and the inconvenience to those who passed over the roads. One point in favour of tolls was, that they caught the people who used the roads; but was it not possible to do this by a rate? If a rate could be so formed as to catch the people who used the roads in proper proportion to that use, then he thought no one could object to the substitution of a rate for tolls. It might possibly be done by rating mines and manufactories at three or four times their poor-rate value; but he certainly should not like to see roads put upon the county-rate without some alteration being made in the present rating system. On one point, he thought, they were all agreed, which was that land was sufficiently burdened already. They paid more in proportion for real landed property than personal property paid.

Mr. THOMAS ARKELL proposed a vote of thanks to Sir Michael for his kindness in coming to lay before them the important subject which he had so ably handled that day. He (the speaker) was now living in Wiltshire, but he was a Gloucestershire man; and he must say that his friends here ought to be proud of their member.

Mr. ILES seconded the proposition, which was carried with acclamation.

The hon. baronet expressed his acknowledgments, and a committee was appointed.

Reviews.

Journal of Agriculture. January, 1867. 150, Fleet Street, E.C.

A picture of Scottish agriculture a century ago—a continuation of the Papers on Cattle Management—a characteristic and amusing history of a "twelfth of August" on the moors, where "rainbows—not one, but multitudes, bright of hue and perfect in form, are arched over the hills in *every different direction*"!—another section of Mr. Ewart's good and substantial Essay on the Permanent Improvement of Landed Estates by Proprietors—a very interesting Chapter on Vipers—the "Veterinarian"—and the monthly agricultural history—these are the contents of a very interesting and satisfactory number. We extract a passage on cattle foods and feeding, as being especially serviceable at this time of the year.

"A mixture of Beans, as generally prepared for cattle, and Linseed-cake, in the proportions of 4 lb. of the former and 1½ lb. of the latter, will form as near as possible an equivalent to 50 lb. Swedish Turnip, with the difference in favour of the mixture by its containing about one-third more oil or fat, while it would also have the very important advantage of being much more easily assimilated, and thus likely to be wholly taken up, leading, consequently, to more progress being made by the animal, while the cost may be reckoned about the same.

"There appears to be an unaccountable backwardness amongst farmers to adopt any process for supplying their cattle with food in what we shall call a prepared state, so as to assist the animal functions in the process of assimilation; and this we humbly think is a very great mistake. We have not hesitated to recommend that Turnips should be given in much smaller quantities, being, of course, supplemented by other feeding substances, which generally cannot be obtained but in a concentrated state. Now, we are well aware that along with really nutritious food there must always be mixed a certain quantity of what we shall term ballast, that is, of some coarse and slightly nutritious food, so that the stomach and intestines may be sufficiently distended, and maintained in a thoroughly healthy tone, and that all the nutritive juices may be completely digested and assimilated. It may therefore reasonably be doubted whether there would be any propriety in supplying food in a cooked or comparatively concentrated state; but we think there can be none as to the propriety of having at least one-half of the allowance of Turnips pulped, and mixed with cut straw in sufficient quantity to absorb the juice of the Turnips. The supplementary compound, for which there is nothing better than Beans and good cake, might also be thoroughly mixed with the pulped Turnips before the chaff was added, and the whole mass allowed to ferment slightly before being supplied to the animals. Three to 4 ounces of salt for each animal ought to be given every day, and could most conveniently be added to the above mixture.

"In all quarters there exists a most shameful neglect to supply salt to both cattle and horses. Salt acts at once as a condiment for giving an agreeable sapidity to food, as a tonic for assisting the process of digestion, as an aliment for contributing certain important principles to the blood and some of the liquid secretions, and as a medicine, both to prevent some diseases in a healthy system, and to aid or effect the cure of others in a diseased one.

"We have hinted that those who undertake the rearing and feeding of cattle should understand their business better than to supply food indiscriminately to cattle of all ages, and in every condition of comfort as to warmth, &c. Calves, stirks, and all young growing cattle, ought to be supplied with a highly nitrogenous diet; fattening cattle less so, but of course more of the oleaginous and saccharine substances. Fatty matter requires for its formation an excess of carbon and hydrogen, but neither requires nor contains any nitrogen.

"The blood, the muscles, the bones, and all the growing structure of young animals, are highly nitrogenous, and the most nitrogenous plants supplied as food are most likely to promote the growth and healthy development of these parts of the body. All plants which abound in albumen, gluten, starch, gum, sugar, &c., are termed nitrogenous; those containing albumen and gluten particularly so. The Turnip contains nitrogen, but only in a comparatively small degree; it abounds more in sugar. There are few agricultural plants which abound more in gluten than the Cabbage. Rye-grass and Clover are highly nitrogenous, whether in a green state or as well-made hay; when as hay, its value depends much upon its being cut and cured in proper season and condition.

"Peas and Beans, whether in the straw, in a green state, or as grain, are the most nitrogenous of all our agricultural plants. The different sorts of cake prepared from oleaginous seeds are also nitrogenous;

Linseed-cake, although not more so than some of the others, is considered more valuable as cattle food; Oats contain more oil than any other grain, Indian Corn excepted, and are thus more valuable as an auxiliary in the food of fattening cattle than Beans, although greatly less so in the feeding of young and growing animals.

"Bean-meal is also preferable to cake as an auxiliary in the food of young cattle, especially if they are comfortably housed and allowed a fair quantity of Turnips. For calves on milk, Peas or Bean meal, with a small proportion of Linseed-meal properly cooked, is unquestionably the best preparation for supplementing their milk with, as the calf arrives at the age of eight to 10 weeks, and ought to be continued throughout the winter, given in a feed of pulped Turnips and cut hay, the Turnips and hay slightly fermented, and the gruel added when boiling hot, so as to heat the whole mass, which should be given while warm.

"Cake and Oats may be supplied to fattening stock and also to milch cows with much advantage, giving the latter fewer Turnips in winter than is generally the practice. Warm sloppy food supplied to cows after calving will increase the flow of milk greatly, but much at the cost of the condition of the animal, unless the food be enriched by a full allowance of cake and meal, which, besides keeping the animal in condition, will add much to the richness of the milk. The best methods of feeding cattle, however, both as to their own health and the profit of their owner, are so powerfully modified by circumstances that no precise rule can be admitted. But in all cases the importance of cleanliness, ventilation, and a proper and uniform degree of temperature, is paramount. The condition and general comfort of cattle require to be constantly watched, and that by an experienced eye; and at times treatment may have occasion to vary a little, as the bowels must be kept in a proper state, and the whole skin kept thoroughly clean, in order to promote that soft pliable touch so peculiar to a healthy thriving beast. During the winter season, it is of much importance that all stock should be early fed in the morning, not later than 5 A.M., again at 10 A.M., at 2 P.M., and at 7 at night, and on each occasion to be properly cleaned and done up expeditiously, so as to allow plenty of time for rest. Young stock and breeding cows ought to be turned out for a short time daily in dry weather, but on no account exposed to cold winds. It is nothing short of absolute cruelty, the way in which cattle are kept out in some districts, and a source of serious loss to their owners. All who undertake the management of stock ought to be aware that the heat of the body is maintained at the cost of a portion of a certain description of the food, and in cases of extreme exposure the whole of that description of food may be insufficient for the supply of heat, and the fat and condition of the animal will suffer in proportion."

Farm Memoranda.

MONYMUSK.—On the estate of Monymusk, hares and rabbits have for many years been accumulating to such an extent as to have become a pest to the farmer. For very many years the tenants have been suffering serious losses from this cause, and have quietly submitted, expecting that some effectual means would be adopted by the proprietor to remedy so great an evil; and feeling reluctant to resort to measures for this purpose which might tend to annoy him, they have, on various occasions, singly and collectively, requested him to take steps to lessen the number of hares and rabbits, so as to save their crops from destruction. These applications were for a time met with courtesy, but the vermin were not put down.

Lately, however, a deputation of tenants waited upon Sir Archibald Grant, pointed out to him the great damage which their crops were sustaining from these creatures, and urged upon him the necessity which existed of reducing their numbers. In reply, he told them that he was doing more than most proprietors did; that he had, during the last season, killed more than 30,000 rabbits, and 1400 hares; and that he would not comply with their request. He said also that he had a right to breed and feed rabbits as well as hares upon their farms, and that he would exercise this (so-called) right, and that those who were not satisfied ought to give up their leases, as he was determined that no one should be permitted to remain on his estate who killed either rabbits or hares.

Observe, now, the conditions of lease. The proprietor reserves to himself the right of following game, and binds and obliges the tenant not to kill game. Rabbits are not mentioned, nor are they referred to at all. He undertakes to allow the tenant 19 crops for 19 rents, and ties him down strictly to consume the whole produce by stock *bonâ fide* his own. Who can deny that there are duties belonging to the possession of property, as well as rights? We are not allowed to forget about the rights, but we never hear of the duties. Is it right to exact rent for the soil, and take the produce too? For at least 20 years there have been destroyed annually on this estate something like 30,000 rabbits, and yet as many were left behind as to cause a gradual increase in their numbers. Of late years these have been sent to market, where the sum of 9*d.* or 10*d.* can be got for each. For an equal period of time, no less a number of hares than 1400 has been annually killed; and of late they, too, have been sold. All this has been chiefly taken from the tenants over and above their value and rent of the land. They are destroyed only at such a season as renders them more valuable in the market. During the breeding season they are allowed to live unmolested, and so accumulate.

You will thus see that the steps which have lately been taken by the tenants to rid themselves of rabbits were forced upon them, unless they had been prepared to submit to ruin. Moreover, they were not at liberty to give the produce of their farms to feed rabbits, &c. The terms of lease forbid it; yet Sir Archibald has dragged a tenant into court with a view to have him interdicted from trapping rabbits, on the plea that he had acted in opposition to his agreement not to kill game, when a dead hare was found fixed by a leg in one of his traps.

Could such a state of things be long endured? Is it one of the vaunted rights of property that tenants should pay a high rent for the use of the soil, labour it, manure it, and seed it, and not be permitted to reap the crop, but give it to be eaten up by vermin, which are afterwards killed, and sold for the behoof of the owner of the property? This is as likely to be put up with in these days of progress and enlightenment, as would the advice of the obedient wife, when she recommended her husband 'to put his head in the neuk, and dinna anger the laird.' We never hear of these inculcating the maxim, 'Do as you would be done to.' Notwithstanding what has taken place on the estate of Monymusk, the tenants are not actuated by any unfriendly or unkindly feelings towards Sir Archibald Grant, but they have been compelled to act, or to lose their all. [*From a letter by "G. Stewart, of Auchravin," (respecting the Monymusk tenantry) to W. D. Fordyce, Esq., M.P., published in the Banffshire Journal.*]

Miscellaneous.

Town Sewage.—In order to learn something practically about this subject, I went to Croydon last week, in order to get some information. There I met with most courteous reception, and every opportunity was cheerfully given for a thorough inspection. I gleaned a few facts during my visit:—That sewage can be most profitably applied to meadow and Rye-grass. One acre will take the sewage of 100 persons; and the total amount per head per annum is estimated at 50 tons in a state of dilution. The sewage flows in drains; and, by intercepting the drains, the sewage is distributed on to the land: it passes over the land once or twice, and sometimes three times, and joins the river Wandle quite clear and pure. The Italian Rye-grass, after three years, dies away, and the earth wants ploughing up, and then an intermediate crop of Mangels may be taken. The first year's growth cut five times, the second four times, and the third three times. At Croydon 57 tons of Grass per acre were cut during the last 12 months. Previous to using the sewage for irrigation, several schemes for deodorising it were tried, and all turned out to be expensive failures. Now, the Board of Health made 300*l.* per annum for the sewage. The chief object to obtain a larger increase of products, and, at the same time, purify the river, is accomplished, as the results show:—

Analysis of Water from—	Drainage.	Sewage.	River Wandle.
Inorganic matter	23.40 ..	48.30 ..	20.16
Organic matter	2.40 ..	52.20 ..	2.08

At Edinburgh, larger amounts of sewage are applied than anywhere else, and it is for that reason that larger amounts of produce are obtained than anywhere else; but the absorbent powers of Mother Earth must not be too severely taxed, or she will not fulfil her duties faithfully, and sewage would not be purified. Generally from four to five crops of Grass are obtained per acre annually, amounting to 30, 40, 50, 60, or even more tons per acre, averaging, perhaps, 25*l.* These facts speak for themselves. Another advantage of the application of sewage to Grass lands would be an enormous increase in the quantity and quality of milk, butter, cheese, and meat; whilst, by the consumption of the Grass, a large amount of solid manure, applicable to arable land and to crops generally, would be produced. *Mr. Hickman, before the Newbury Farmers' Club.*

Notices to Correspondents.

DATA: *R.* The following, taken from Morton's "Handbook of Farm Labour" (Longmans), are the items of cost on which the expense of any agricultural operation should be calculated:—1. *Hand power.* The wages of an ordinary labouring man are assumed to be 2*s.* a day, except during about five weeks of harvest time, when they are put at 3*s.* 6*d.* to 4*s.* a day of 10 hours. Those of a woman working in the field are 10*d.* a day of 10 hours, except during harvest time, when they are 1*s.* 3*d.* to 1*s.* 6*d.* Those of a boy vary from 2*s.* a week, the wages of a "scare-crow," up to perhaps 1*s.* 6*d.* or more per day as he approaches manhood. 2. *Horse power.* The cost of a horse, as worked on the average, *i. e.*, under the varying circumstances of farm labour, with one man to a pair, or occasionally one to each animal, amounts to nearly 5*d.* per working hour throughout the year. The cost by horse power of 1 cwt. drawn (= lifted) 2½ miles in one hour is about 6*d.* The average cost of food, of extras, such as farriery, maintenance, saddlery, &c., of guidance and management, and of maintenance of implements, is 23*l.*, 5*l.*, 15*l.*, and 3*l.* respectively, or 46*l.* apiece; and this, if the working time be 2400 hours, amounts in all to nearly 5*d.* an hour, as has been said; if the time of labour be, as is estimated by some, 2700 hours per annum, whether 300 days of 9 hours each, or 270 days of 10 hours each, then the cost is less than 4½*d.* per hour. If the mean of these figures be taken as a guide, then a pair of horses at 9*d.* an hour, and 9 hours a day, will cost 6*s.* 9*d.* a day. And with this the figures of already published estimates sufficiently agree; thus Professor Low calculates the daily cost of a pair of horses (for 9 hours) at 4*s.* 8*d.*, which, with ordinary wages for the ploughman, is nearly the same as the above; when the day is 10 hours the cost is, of course, so much more, or 7*s.* 6*d.* a day. 3. *Steam power.* Its cost varies considerably, according to the size and quality of the engine; but it may be put down as the ordinary experience, that 1 cwt. of coals per horse power is consumed during a day of 10 hours; and that, in the case of 8 to 10 horse power moveable engines, the cost of coals, labour, water, oil, getting up steam, repairs, and moving from place to place, amounts to from less than 3*d.* per horse power in the larger engines, to 4*d.*, or even more, in the case of the smaller engines; varying, also, of course, between even wider extremes than these, according to the price of coals in the different localities compared.

GAME: *Another Victim.* A short leading paragraph, answering your question, is delayed till next week. The "agreement" limits both your duty and your rights.

SUTTON'S RINGLEADER PEA.

THE VERY EARLIEST AND BEST PEA

IN CULTIVATION IS

SUTTON'S RINGLEADER.

Price 2s. per quart.

The following are Extracts from a few of the numerous Testimonials recently received:—

Extract from the Report on Peas grown at Stoke Newington in 1865 and 1866.

"'*Sutton's Ringleader.*'—One of its distinguishing characters is, that it produces pods from top to bottom in a very uniform manner, whereas 'Dillistone's Early' produces them chiefly at the top.

"There can be no doubt that this is a distinct and valuable variety, the earliest in cultivation, and as good for the table as any in the section to which it belongs. Height, 2 feet 9 inches.

"In 1865 and 1866 'Dillistone's Early' and 'Sutton's Ringleader' stood side by side, and these two Peas are as distinct as Oranges are from Lemons, or as 'Sangster's No. 1' is distinct from 'Bishop's Longpod.'"

From Mr. JAMES DUCKETT, *Gardener to the* Rev. J. Wilder, *Sulham, August* 22.

"I have proved your 'Ringleader' Pea to be the earliest. I sowed 'Ringleader' side by side with 'Daniel O'Rourke,' and gathered the 'Ringleader' nine days earlier than 'Daniel O'Rourke.'"

From Mr. JOHN RATTY, *Gardener to* Cotterill Scholefield, Esq., *Turville Park, Henley-on-Thames, Sept.* 6.

"I have twice this season grown 'Sutton's Ringleader' Pea side by side with 'Daniel O'Rourke' and 'Dillistone's Early,' and on each occasion found 'Sutton's Ringleader' 7 or 10 days earlier than either of the other two."

From Mr. JOSEPH HINSON, *High Street, Sutton, near Ely, Sept.* 15.

"I have now grown your 'Ringleader' Pea 2 years, and have found them the earliest I have ever grown."

From Mr. GEORGE SCHTMGER, *Home Park, Sonning, May* 29.

"I have great pleasure in reporting favourably of your new early Pea 'Ringleader.' They were sown the same day as five of the most popular early sorts. I gathered from it on the 26th of May, which is 14 days earlier than I shall off any of the other varieties. It is also very prolific."

From JOHN FORD, Esq., *Morton Hall, Warwick, May* 31.

"My gardener sowed on the 12th January, side by side, 'Sutton's Ringleader,' 'Sutton's Champion,' 'Essex Rival,' and 'Dillistone's Early Prolific' Peas. 'Sutton's Ringleader' was just coming in the 3d of May; the others a week or so later."

From Messrs. DOBSON & SONS, *Woodlands Nursery, Isleworth, October* 21.

"We tried your 'Ringleader' Pea last season with 'Dillistone's,' and it was from a week to 10 days earlier. It is certainly the earliest Pea that has come under our notice."

From WM. THOMPSON, Esq., *Weymouth, January* 12.

"I tried your 'Ringleader' Pea last year against 'Sangster's No. 1:' they were each sown on the same day, but your 'Ringleader' was 10 days earlier in ripening than 'Sangster's No. 1.'"

From Mr. WILLIAM DOWELL, *Gardener to* Sir George Chetwynd, *Grendon Hall, Atherstone, May.*

"Your 'Ringleader' is earlier than any Pea I have ever grown. I shall gather a dish to-morrow morning, which is by far the earliest we have had."

From Mr. W. POVEY, *Gardener to* H. P. Best, Esq., *Donnington Grove, near Newbury, May* 24.

"I planted your 'Ringleader' Pea on the last day of February; on the same day I planted 'Daniel O'Rourke' and other early sorts. Your 'Ringleader' is uncommonly well podded, and the pods are filling fast. I have no doubt they will be cleared, and the ground planted, before I pick from any of the other early sorts."

From Mr. BAILEY WADDS, *Gardener, Rayvell, Brough, May* 29.

"I have this year sown your 'Ringleader' Pea against your 'Early Champion,' which I have hitherto found the earliest in cultivation, and I am glad to tell you that it came into bloom 10 days earlier. It has been covered with blossoms from top to bottom. I am sure it is a valuable addition to our early Peas."

From Mr. J. DANIELS, *Gardener to the* Rev. C. R. Keene, *Swyncombe Gardens, Henley-on-Thames, June* 20.

"I might notice that your 'Ringleader' Pea, sown December 20, is first-rate, perfectly distinct, and much the earliest Pea I have ever grown. I have also another crop nearly ready, sown March 20, with 'Dillistone's,' but find them perfectly distinct."

From Mr. JAMES PEARSON, *Gardener to* H. Bentley, Esq., *Woodlesford, Leeds, May* 25.

"Your 'Ringleader' Pea is 6 days earlier than 'Dillistone's,' and is the most promising Pea I have grown."

From Mr. H. HARRISON, *Dedham, May* 26.

"Your 'Ringleader' Pea has proved with me by far the earliest, and will be cleared off the ground before the others have done blossoming. I consider the 'Ringleader' the quickest Pea of any of the early sorts grown."

From the Rev. ROBERT TAYLOR, *North Hasledon Vicarage, May* 26.

"Your 'Ringleader' is most certainly the earliest Pea I have seen."

From Mr. M. MAYHEW, *Gardener to* Dr. Stephens, *Gothic Lodge, Twickenham, May* 26, 1865.

"Your 'Ringleader' is the earliest Pea I have ever met with, and a good cropper."

Price 2s. per quart.

Lowest price to the Trade on application.

SUTTON'S SPRING CATALOGUE

AND

AMATEUR'S GUIDE FOR 1867

IS NOW READY,

price 1*s.* Gratis to Customers.

SUTTON AND SONS,

Royal Berkshire Seed Establishment, Reading.

Garden Seeds.

CHARLES TURNER'S CATALOGUE is now ready, and may be had on application.
The Best three WRINKLED MARROW PEAS are—
LITTLE GEM, Early, 1 foot high.
ADVANCER, Second Crop.
PREMIER, Summer and Late.
See full descriptions in C. TURNER'S CATALOGUE, now ready.

SNOW'S BROCCOLI, True.
HEDSOR WINTER CUCUMBER.
BAILEY'S SUPERB CABBAGE.
All the established varieties of Vegetables from the best sources; also the Novelties in Flower Seeds.
The Royal Nurseries, Slough.

POYNTER'S EARLIEST and BEST PEA, the hardiest and earliest out, price only 1*s.* 3*d.* per quart. See Advertisement, p. 1180 of *Gardeners' Chronicle* for 1866
To be obtained Retail in London of Messrs. Jas. Veitch & Sons, Chelsea, S.W.; and Mr. B. S Williams, Holloway, N.; and through any Seedsman, in one quart packages only, with Trade Mark, the Crown and Royal Oak, and blue label. None other genuine.
ROBERT H. POYNTER, Seedsman, &c., Taunton, Somerset.

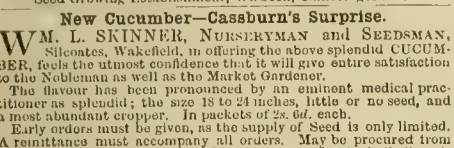
Seed Potatos.

H. AND F. SHARPE are now offering MYATT'S PROLIFIC KIDNEY, DAINTREE'S EARLIEST, WEBB'S IMPERIAL KIDNEY, FORTY-FOLD, FOX'S SEEDLING, EARLY OXFORD, and many other Early and Late varieties, fine in quality, free from disease, and at low prices.
Seed Growing Establishment, Wisbech, Cambridgeshire.

New Cucumber—Cassburn's Surprise.

WM. L. SKINNER, NURSERYMAN and SEEDSMAN, Silcottes, Wakefield, in offering the above splendid CUCUMBER, feels the utmost confidence that it will give entire satisfaction to the Nobleman as well as the Market Gardener.
The flavour has been pronounced by an eminent medical practitioner as splendid; the size 18 to 24 inches, little or no seed, and a most abundant cropper. In packets of 2*s.* 6*d.* each.
Early orders must be given, as the supply of Seed is only limited. A remittance must accompany all orders. May be procured from Messrs. HURST & SON, Seed Merchants, 6, Leadenhall Street, London, E.C.; and Messrs. J. BACKHOUSE & SON, Nurserymen and Seedsmen, York.
SEED CATALOGUE now ready, and may be had on application.

Sutton's Prize Cucumber Seeds,



SUTTON AND SONS can supply SEED of all the best kinds of CUCUMBERS, including Berkshire Challenge, Berkshire Champion, and many others. For List and prices of which see Messrs. SUTTON'S CATALOGUE for 1867, which will be forwarded gratis and post free on application.
SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

Nuneham Park Onion.

WM. CUTBUSH AND SON have great gratification in announcing that this SUPERB NEW ONION has in every instance, where shown, obtained the first prizes, and numerous testimonials have been sent to them from various parts of the country, confirming the opinion that it is the largest and heaviest cropper of all Onions. It is also of exceedingly mild flavour, and keeps as long as any variety extant. In Sealed Packets 2*s.* 6*d.* each.
Trade price on application.
Highgate Nurseries, London, N.

HENRY'S PRIZE HYBRID LEEK.—The Largest variety in cultivation; grows 16 inches in length of blanch, and 10½ inches in circumference. Has carried off the First Prizes at the leading Shows in England and Scotland.
Sold in Sealed Packets at 1*s.* each by
DOWNIE, LAIRD, & LAING, 17, Frederick Street, Edinburgh, and Stanstead Park, Forest Hill, London, S.E.

Now Published.

CROYDON. A. HENDERSON. EAST SURREY SEED WAREHOUSE. ESTABLISHED 1828.

ARCHIBALD HENDERSON'S DESCRIPTIVE and PRICED CATALOGUE of FRUIT TREES, VINES, ROSES, and GENERAL NURSERY STOCK, is now ready. Can be had Gratis and Post-free upon application.

Sion Nursery, Thornton Heath, Surrey; and at the East Surrey Seed Warehouse, College Grounds, North End, Croydon.

HENRY DEWAR AND SON beg respectfully to offer Seed of their very superior IMPROVED SHORT-TOP RED BEET, which was awarded Two First-class Certificates at the Gardens of the Royal Horticultural Society, South Kensington, on Nov. 7 and Dec. 9, 1865; also Seed of their solid crisp white NORTHUMBERLAND CHAMPION CELERY, which was awarded a First-class Certificate at the International Show, South Kensington, Dec. 9, 1865. In addition to the First-class Certificates, the Silver Banksian Medal of the Royal Horticultural Society was awarded for the above Beet and Celery.
In sealed packets only, stamped with our name in full, at 1*s.* per packet each. Price to the Trade on prepaid application.
Seed Establishment, 97, Grey Street, Newcastle-on-Tyne.

SELECTED SILVER SAND, PEAT, LOAM, ROCK, Sandstone, Garden Pots, Vases, Tazzas, Figures, Gravel, Garden Implements, and materials of all kinds for Sale in any quantity by Railway, Canal, and Ship to all parts of the United Kingdom.
W. SNOAD, Horticultural Depot, Reigate, Surrey.

FIBROUS PEAT of first-class quality for Orchids, Heaths, American Plants, and all potting purposes, may be obtained by application to Mr. THOMAS JESSOP, Farningham Wood, Kent. It is despatched by the London, Chatham, and Dover Railway in trucks of 16 yards, at 5*s.* 8*d.* per yard, about 6 tons, to any station about London, and on the Great Northern, Midland, and Great Western Railways; or fetched in carts from the wood. It is extensively used and appreciated in the London Nurseries, and in the Royal Parks and Gardens.



COCOA-NUT REFUSE is becoming SCARCE, the old reserves will soon be gone. Now sold in bags, 1 for 2*s.*, 10 for 16*s.*, 2 for 30*s.*, 50 for 66*s.*, 100 for £6.

Fourpence allowed for each bag returned carriage-paid.

A Railway Truck-load (not in bags), 40*s.*

Postage Stamps or Post-office Order, payable to J. BARSHAM & Co., Kingston-on-Thames, S.W

Forest Trees and Cover.

JOSEPH SMITH, JUN., has to offer at very moderate prices TRANSPLANTED ASH, ALDER, BIRCH, HORSE CHESTNUT, ELM, broad and narrow-leaved; SILVER and SCOTCH FIRS, WHITE AMERICAN SPRUCE, HAZEL, OAK, POPLAR, PRIVET, WEYMOUTH and AUSTRIAN PINES, THORN QUICKS, HUNTINGDON and DUTCH WILLOWS, LARCH, good stout plants, 1½ to 2 feet, 12*s.*; 2 to 2½ feet, 13*s.*; 2 to 3 feet, 14*s.*; and 3 to 4 feet, 16*s.* per 1000. NORWAY SPRUCE FIR, 6 to 9 inches, 6*s.*; 9 to 12 inches, 9*s.*; 1 to 1½ feet, 14*s.*; 1½ to 2 feet, 21*s.*; and 2 to 2½ feet, 30*s.* per 1000. COTONEASTER MICROPHYLLA, 1 to 1½ feet, 20*s.* per 1000; 1½ to 2 feet. RIBES in sorts, 2 to 3 ft., 20*s.* per 1000. SNOWBERRY, 2 to 3 ft., 20*s.* per 1000. BROOM, White and Yellow, transplanted, 15*s.* per 1000. LAURELS, BERBERIS, ARBOR-VITÆ, &c., Seedling ASH, CRAB, SPANISH CHESTNUT, SPRUCE, 3 and 4 years; ELM, 2 years, £5 per 100,000. OAKS, 1 and 2 years; OAK, EVERGREEN, 1 year; PRIVET, 1 and 2 years; SYCAMORE. RHODODENDRON PONTICUM, 2 years, 6*s.*; 4 years, 8*s.* per 1000; 3 years, and 1 year transplanted, 18*s.*; 3 years, and 2 years transplanted, 25*s.*; 6 to 9 inches, 50*s.*; and 9 to 12 inches, 60*s.* per 1000. Twice-transplanted, and bushy, 4 to 8 inches, 70*s.*; 5 to 12 inches, 95*s.*; 9 to 15 inches, 140*s.*; 1 to 1½ feet, 180*s.*; and 1½ to 2 feet, 260*s.* per 1000.
A PRICED LIST forwarded on application. Price to the Trade on application.
JOSEPH SMITH, Jun., Moor Edge Nursery, Tansley, near Matlock, Derbyshire.

Extensive and well-grown Nursery Stock.

J. SCOTT, Merriott, Somerset, has to offer as under:—FOREST TREES:—Acacia, 5 to 6 feet, 10*s.* per 100; Alder, 3 feet, 25*s* per 1000; Beech, 2 to 2½ feet, 30*s.* per 1000; do., 3 to 4 feet, 55*s* per 1000; do., 4 to 5 feet, 80*s.* per 1000; Chestnut, Horse, 3 to 4 feet, 80*s.* per 1000; do., 4 to 5 feet, 10*s.* per 100; Chestnut, Spanish, 2 feet, 30*s.* per 1000; do., 3 feet, 35*s.* per 1000; Elm, English, 4 to 5 feet, 80*s.* per 1000; do., 5 to 6 feet, 20*s.* per 100; Elm, Wych, 4 to 5 feet, 80*s.* per 1000; do., 5 to 6 feet, 10*s.* per 100; Firs, Larch, 2 feet, 20*s.* per 1000; do., 2½ to 3 feet, 25*s* per 1000; do., 3 to 4 feet, 30*s.* per 1000; Scotch, 1½ to 2 feet, 18*s.* per 1000; do., 2 to 2½ feet, 20*s.* per 1000; do., 2½ to 3 feet, 25*s.* per 1000; Silver, 9 to 12 inches, 50*s.* per 1000; do., 12 to 18 inches, 80*s.* per 1000; Spruce, 1½ feet, 25*s.* per 1000; do., 2 feet, 30*s.* per 1000; do., 2½ feet, 35*s.* per 1000; do., 3 feet, 40*s* per 1000; Hazel, 2 to 2½ feet, 26*s.* per 1000; do., 2½ to 3 feet, 30*s.* per 1000; do., 3 to 4 feet, 40*s.* per 1000; do., 4 to 5 feet, 45*s.* per 1000. The Hazel is especially fine. Oak, English, 2 to 2½ feet, 35*s.* per 1000; Willows, from 30*s.* to 50*s.* per 1000; Yews, 2 feet, fine, 75*s.* per 100; Holly, 2 feet, extra fine, 50*s.* per 100.
FRUIT TREES, the best Collection in England, are grown to a large extent, and free from every kind of disease. A 92-paged DESCRIPTIVE CATALOGUE, with cultural notes, free. Apples, 600 sorts in all manner of training, from 6*d.* to 3*s.* 6*d.* each; Apricots, Nectarines, and Peaches, Maiden and Dwarf-trained, from 6*d.* to 3*s.* 6*d.* each; Cherries, Standard and Pyramidal, 1*s.* to 2*s.* 6*d.* each; do. Dwarf-trained, 1*s.* 6*d.* to 2*s.* 6*d.* each, in 50 sorts. May Dukes and Morellos to the trade in quantity, cheap. Pears, 800 sorts, from 6*d.* to 2*s.* 6*d.* to 5*s.* each, according to size; Plums, Pyramidal and Dwarf-trained, 2*s.* 6*d.* to 3*s.* 6*d.* each. Deodar Cedar, 4 to 5 feet, 30*s.* per dozen; 5 to 6 feet, 36*s.* per dozen; 6 to 7 feet, 42*s.* per dozen. Magnificent trees with fine balls. A splendid collection of ORNAMENTAL TREES and SHRUBS equally cheap.

LAWES' MANURES.
The Manures manufactured by J. B. LAWES for the present season of 1866 are now ready for delivery at his Factories, at the following prices, per ton:—

	£	*s.*	*d.*
LAWES' PATENT TURNIP MANURE, and BONE SUPERPHOSPHATE of LIME	6	6	0
LAWES' SUPERPHOSPHATE of LIME from BURNT BONE or MINERAL PHOSPHATES	5	5	0
LAWES' WHEAT, BARLEY, GRASS, and MANGEL MANURES	8	0	0
CONCENTRATED CORN and GRASS MANURE	12	0	0

These Manures can be obtained of Mr. LAWES, or through the appointed Agents in all parts of the United Kingdom, at prices varying according to cost of carriage.
Genuine Peruvian Guano direct from the Importers. Nitrate of Soda, Sulphate of Ammonia, and other Chemical Manures.
American and other Cakes at market prices.
Address, JOHN BENNET LAWES, 1, Adelaide Place, London Bridge, E.C.; and 22, Eden Quay, Dublin.

THE LONDON MANURE COMPANY
(ESTABLISHED 1840),
Have now ready for delivery in dry fine condition,
CORN MANURE, for Spring Use
DISSOLVED BONES, for Dressing Pasture Lands
SUPERPHOSPHATES of LIME
PREPARED GUANO
MANGEL and POTATO MANURES
Also Genuine PERUVIAN GUANO, and NITRATE of SODA, ex Dock Warehouse; SULPHATE of AMMONIA, FISHERY SALT, &c. E. PURSER, Secretary.
Offices, 116, Fenchurch Street, E.C.

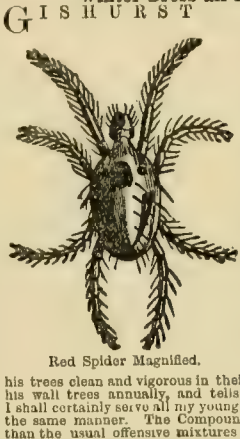
Fumigate your Greenhouse with

TOBACCO TISSUE.
Will Destroy all the Insects and not Injure the Plants.
Price 3*s.* 6*d.* per lb., carriage free, to be had of Messrs. ROBERTS & SONS, Tobacco Manufacturers, 54, St. John Street, Clerkenwell E.C., and of all Seedsmen and Nurserymen.

THOMSON'S STYPTIC prevents the Bleeding of Vines after Pruning or Grafting, the Damping of Geraniums and other Cuttings after they are potted; and it has been used successfully in Grafting Fruit Trees of all descriptions.
Manufactured and sold Wholesale by JOHN YOUNG & SON, Dalkeith, N.B., and may be had of all Nurserymen and Seedsmen in bottles at 3*s.* each, with directions for use. None is genuine without the signature of WM. THOMSON.

Winter Dress all Fruit Trees with

GISHURST COMPOUND.


Red Spider Magnified.

Copy of a Letter from Mr. RIVERS, *Nurseries, Sawbridgeworth, Herts, 22d Oct.*, 1861.

"I must tell you what heard to-day from a very clever gentleman farmer, Anthony Bubb, Esq., of Witcombe Court, Gloucester. He has a wall to which Peach trees are trained. Well, last autumn they were in a wretched blighted state. As a desperate remedy he unnailed them all, early last February, and gave all but one a thorough painting with Gishurst Compound, 1 lb. to the gallon of water; his trees, all but the one, commenced to grow favourably in spring, and are now pictures of health. The tree not painted is in a half-dead blighted state. He used the same dressing to his Apple trees; it killed the woolly Aphis entirely, and has made his trees clean and vigorous in their growth. He intends to paint his wall trees annually, and tells all his friends to do the same. I shall certainly serve all my young Peach trees against my walls in the same manner. The Compound is, I believe, more efficacious than the usual offensive mixtures of clay, soot, sulphur, &c.; and it does not blacken the shoots on the walls."
For Orchard-house Trees, ozs. to the gallon will be found a good strength; when used stronger some buds on weakly trees may be injured.
GISHURST COMPOUND is sold Retail by Nurserymen and Seedsmen, in boxes, 1*s.*, 3*s.*, and 10*s.* 6*d.* each.
Wholesale by PRICE'S PATENT CANDLE COMPANY, LIMITED, Belmont, Vauxhall, London, S.
Gishurst Compound has more recent testimonials to its efficacy, but none more conclusive than the above, which has been published before.

E. T. ARCHER'S "FRIGI DOMO."
Patronised by Her Majesty The Queen, the Duke of Northumberland for Syon House, His Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, &c.
PROTECTION from COLD WINDS and MORNING FROSTS.
"FRIGI DOMO," a Canvas made of Patent prepared Hair and Wool, a perfect Non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all Horticultural and Floricultural purposes, for Preserving Fruits and Flowers from the Scorching Rays of the Sun, from Wind, from Attacks of Insects, and from Morning Frosts. To be had in any required lengths.

Two yards wide	1*s.* 9*d.* per yard run.
Four yards wide	3*s.* 6*d.* per yard.
An improved make, 2 yards wide ..	1*s.* 9*d.* per yard.
An improved make, 3 yards wide ..	2*s.* 8*d.* per yard run. Also

FRIGI DOMO" NETTING, 2 yards wide, 1*s.* 6*d.* per yard run.
ELISHA THOMAS ARCHER, Whole and Sole Manufacturer, 7, Great Trinity Lane, Cannon Street, City, E.C., and of all Nurserymen and Seedsmen throughout the Kingdom.
"It is much cheaper than Mats as a covering."

Winter Ribbon Garden,

JOHN ROSS, Surbiton, Surrey, S.W., is prepared to LAY OUT every Description of PLEASURE GROUND, SCENERY. Photographs of Ribbon Planting may be had for inspection.

AGENTS WANTED for a well-known MANURE, which commands a ready Sale. Is highly recommended by Customers for several years, and sold carriage free. Liberal terms given.—B. C., 6, Tavistock Row, Covent Garden, London, W.C.

LOCK'S PATENT POTASH MANURES.

TRADE LOCK'S POTASH MANURE MARK.

This is the only "*perfect*" MANURE ever yet offered to the Agricultural Public, containing, as it does, that most *important element* of every cultivated plant—POTASH. It is far superior in efficiency to Peruvian or any other Guano, as it supplies EVERY *constituent requisite for each* SPECIAL *Crop*.

Each Manure is specially prepared for the Crop for which it is intended, and is sold in Bags containing the necessary Dressing for *One Acre*.

The WHEAT, BARLEY, and OAT MANURE will effectually PREVENT the LODGING of the Corn, so frequent on lands deficient in Silica.

The CLOVER MANURE is a CERTAIN CURE for CLOVER SICKNESS, so prevalent in some Counties.

The GRASS MANURE contains an abundance of SILICATE of POTASH, which is by far the *predominating element* in all GRASSES, and which has never before been offered for Sale by any Manufacturer.

For full particulars see Circulars, for which apply to the
SOUTH of ENGLAND MANURE COMPANY, LIMITED, REDBRIDGE, HAMPSHIRE,
who are the SOLE MANUFACTURERS.

*** AGENTS WANTED for the UNITED KINGDOM.

GRAY'S OVAL TUBULAR BOILER.

INTERNATIONAL EXHIBITION, CLASS IX., No. 2119.

MR. GRAY begs to call the attention of the Nobility, Gentry, Nurserymen, Gardeners, &c., to his
NEW OVAL TUBULAR BOILER,
Acknowledged by practical judges to be a great improvement on every form of Tubular Boiler yet introduced. It has proved itself superior to all other Boilers for quickness of action and economy of Fuel, doing its work with one-third less the amount required by any other.

Extract from Report in GARDENERS' CHRONICLE *of International Exhibition, May* 24, 1862, *page* 476.

"The upright form of Boiler is usually made on a circular plan, but the oval form given to Mr. Gray's variety of it is said to be preferable in consequence of its bringing the tubes in closer contact with the fire. The usual form of a furnace being a parallelogram rather than a square, it seems feasible that the Boilers on the oval plan should bring the tubes more completely within range of the burning fuel; and this being so, the change, though a slight one is no doubt an improvement."

☞ *They are made of all sizes, which, with prices, may be had on application.*

JAMES GRAY, HORTICULTURAL WORKS,
DANVERS STREET, PAULTON'S SQUARE, KING'S ROAD, CHELSEA, S.W.

JAMES PHILLIPS AND CO.
beg to submit their prices as follows:—
GLASS for ORCHARD HOUSES,
As supplied by them to Mr. Rivers, to the Royal Horticultural Society, and to most of the Nobility, Clergy, and Gentlemen of the United Kingdom.
Each Box contains 100 feet. The prices only apply to the sizes stated.
Squares 20 by 12, 20 by 13, 20 by 14, 20 by 15.

	16 oz. to the foot.	21 oz.
Fourth quality	15s. 0d.	19s. 6d.
Third ditto	17s. 0d.	22s. 6d.
Seconds	18s. 6d.	26s. 0d.
English	20s. 0d.	27s. 0d.

The above prices include the boxes, which are not returnable.
Stock size, 16-oz., in 100 feet boxes, boxes included.
These prices only apply to the sizes stated.

				4ths.	3rds.	2nds.
11 by 9	12 by 9	13 by 9	14 by 9	s. d.	s. d.	s. d.
12 „ 10	13 „ 10	14 „ 10	15 „ 10	13 6	15 6	17 0
13 „ 11	14 „ 11	..	..			
14 „ 12	15 „ 12	15 „ 11	16 „ 11			
18 „ 12	19 „ 12	16 „ 12	17 „ 12			
16 „ 13	17 „ 13	20 „ 12	..			
16 „ 14	20 „ 13	18 „ 13	..	15 0	17 0	18 6
	17 „ 14	18 „ 14	..	16 to 17 oz. to the foot.		
	20 „ 14					

SMALL SHEET SQUARES.
In 100 feet Boxes.

6 by 4	6½ by 4½	7 by 5	7½ by 5½
8 by 6	8½ by 6⅝	9 by 7	9½ by 7½
		10 by 8	10½ by 8½

.. 12s. 6d.
.. 13s. 6d.

London Agents for HARTLEY'S IMPROVED PATENT ROUGH PLATE.
LINSEED OIL, Genuine WHITE LEAD, CARSON'S PAINTS, PAINTS of various colours, ground ready for use.
SHEET and ROUGH PLATE GLASS, SLATES of all sizes, BRITISH PLATE, PATENT PLATE, ROLLED PLATE, CROWN, SHEET, HORTICULTURAL, ORNAMENTAL, COLOURED, and every description of GLASS, of the best Manufacture, at the lowest terms. Lists of prices and estimates forwarded on application to
JAMES PHILLIPS & Co., 180, Bishopsgate Street Without, E.C.

Great International Horticultural Exhibition 1866.



FIRST AND ONLY PRIZE AWARDED TO
BEARD'S PATENT METALLIC NON-CONDUCTING GLASS HOUSES.
Perfect System of Ventilation and Glazing.
Manufactured by Messrs. SANDERS, FREWER, & Co., Victoria Horticultural Works, Bury St. Edmund's.
See large Advertisement in *Gardeners' Chronicle* of JAN. 5, 1867.

THE IMPROVED TANNED LEATHER DRIVING STRAPS. PATENT EDGE-LAID LEATHER STRAPS, without lap or cross joints—superior to all others for Portable Engines. Prime STRAP and SOLE BUTTS.
Price Lists sent free by post.
THE TANNED LEATHER COMPANY, Tanners, Curriers, &c., Armit Works, Greenfield, near Manchester; Warehouse, 81, Mark Lane, London, E.C. Mr. H. FERRABEE, Agent.



GARDEN BORDER EDGING TILES, in great variety of patterns and material, the plainer sorts being especially suited for KITCHEN GARDENS, as they harbour no Slugs and Insects, take up little room, and once put down incur no further labour and expense, as do "grown" Edgings, consequently being much cheaper.

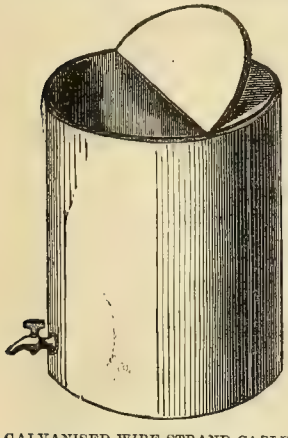


GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, of great durability, and in great variety of design.
F. & G. ROSHER, Manufacturers, Upper Ground Street, Blackfriars, S.; Queen's Road West, Chelsea, S.W.; Kingsland Road, Kingsland, N.E.
Sole London Agents for FOXLEY'S PATENT GARDEN WALL BRICKS. Illustrated Price Lists free by post. The Trade supplied

ORNAMENTAL PAVING TILES for Conservatories, Halls, Corridors, Balconies, &c., as cheap and durable as Stone, in blue, red, and buff colours, and capable of forming a variety of designs.
Also TESSELATED PAVEMENTS of more enriched designs than the above.
WHITE GLAZED TILES, for lining Walls of Dairies, Larders, Kitchen Ranges, Baths, &c. Grooved and other Stable Paving Bricks of great durability, Dutch and Adamantine Clinkers, Wall Copings, Red and Stoneware Drain Pipes, Slates, Cements, &c.
To be obtained of F. & G. ROSHER, at their Premises as above.

SILVER SAND (REIGATE, best quality), at the above addresses—14s. per Ton, or 1s. 3d. per Bushel; 2s. per Ton extra for delivery within three miles, and to any London Railway or Wharf. Quantities of 4 Tons, 1s. per Ton less.
FLINTS, BRICK BURRS or CLINKERS, for Rockeries or Grotto Work. F. & G. ROSHER.—Addresses see above.
N B. Orders promptly executed by Railway.

GALVANISED IRON WATER CISTERNS
Cheap, light, and durable, will not rust or corrode, and keep water perfectly sweet.



To hold	Each.
30 gallons,	20s. 0d.
50 gallons,	24s. 0d.
80 gallons,	32s. 0d.
100 gallons,	38s. 6d.
125 gallons,	45s. 0d.
150 gallons,	49s. 0d.
200 gallons,	65s. 0d.
250 gallons,	73s. 0d.
300 gallons,	84s. 0d.

With Lid and Brass Tap.

GALVANISED WIRE STRAND CABLE FENCING.
GALVANISED IRON ROOFING.
IMPROVED GALVANISED WIRE NETTING.
HURDLES, HURDLES, HURDLES, 1s. 9d. to 3s. 9d. per yard.
PATENT STRAINING PILLARS, &c.
GALVANISED IRON PUMPS.
GALVANISED SWING WATER BARROWS.
LAWN MOWERS, GARDEN ROLLERS.
ASPHALTE ROOFING FELT, 1d. per square foot.
MOTLEY & GREEN.
Illustrated Catalogues and Estimates free on application, 12, Great George Street, Leeds.

Vegetable and Flower Seeds, Carriage Free.

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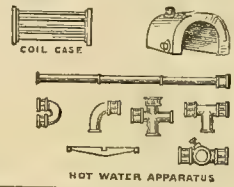
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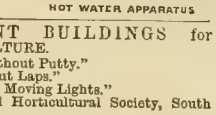
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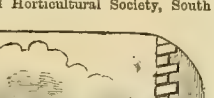
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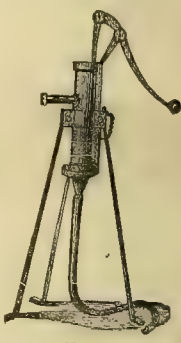


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3 in. long	3 ft. 6 in.	2	1	0
3½ in. long	3 ft. 6 in.	2	6	0
4 in. long	3 ft. 6 in.	2	14	0
2½ in. short, with 15 feet of lead pipe attached, ready for fixing		2	0	0
2 in. long, do. do.		2	14	0

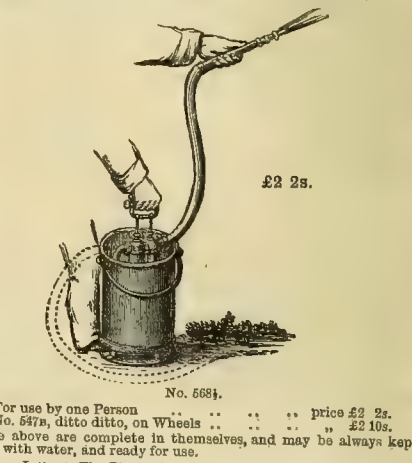
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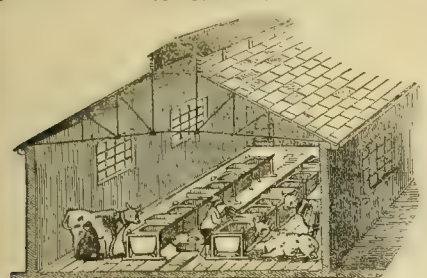
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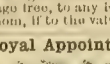
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One Dozen RED DRENCHES, at 13*s.* per dozen.
One Dozen RED PASTE BALLS, at 7*s.* 6*d.* per dozen.
Adapted for all ailments among Stock during the present season. Price of Chest complete, with Shilling Book on Farriery, £2 16*s.* 6*d.*, carriage paid. Either preparation may be had separately in boxes.
TESTIMONIALS.
The Lambing Season.—The "Chemical Extract" is unequalled for bad cases in drawing Lambs, and to stop heaving and straining. Mr. Woods, in his Lecture on the "Breeding and Management of Sheep," says—"My shepherd declares it to be worth a guinea a bottle."
The "Gaseous Fluid" is famous for debility and exhaustion in Ewes after Lambing; for diarrhœa in Calves and Sheep, and for colic and gripes in Horses and Cattle. Mr. Bowick, in his prize essay on the "Rearing of Calves," says—"The Gaseous Fluid is sufficient for all the ills that Calfhood is liable to. I have reared 26 calves this year, and by the use of the 'Gaseous Fluid,' I have not lost one." Mr. Thos. Rigby (Cheshire), in his Lecture on "Summer Grazing of Sheep," says—"Day, Son, & Hewitt's Gaseous Fluid is the best corrective of scour in Sheep I have ever tried. I can strongly recommend their 'Medicine Chest' as a most valuable auxiliary to stock-keepers of all kinds, but especially to shepherds. With the medicines they give plain directions for use, which any man may understand."
Orders sent by Post will be promptly attended to if addressed—DAY, SON, & HEWITT, Animal Medicine Factory, 22, Dorset Street, Baker Street, London, W.; or Wantage, Berks.
"Woods on Sheep," five stamps; "Bowick on Calves," three stamps, both free by post.

Farm Poultry.
GREY DORKING FOWLS, of purest breed, in any numbers.
Imported TOULOUSE GEESE, the largest and most productive breed known.
Improved NORFOLK TURKEYS, large, hardy, and good breeders.
AYLESBURY and ROUEN DUCKS.
Imported BELGIAN HARE RABBITS, for size and early maturity.
BRAHMA-POUTRA, CREVECŒUR, and LA FLECHE FOWLS, for constant layers.
Priced Lists and Estimates on application.
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Short-horn Bulls.
ON SALE, by Private Contract, EIGHT choice YOUNG BULLS, principally rich roan colours, from 10 to 22 months old. Also, FOUR BULL CALVES. They have all a large proportion of fine Bates' blood, derived through their sire, the well-known pure Bates Duchess bull, 7th Duke of York (17764), bred by Captain Gunter from dams chiefly descended from the late Earl Ducie's celebrated herd.
Pedigrees will be forwarded on application to the Breeder, Mr. S. RICH, Didmarton, Chippenham, Wilts; and every reasonable assistance as regards delivery, &c., will be rendered to purchasers.

To Nurserymen and Others.
TO BE LET, immediately contiguous to a first-class Railway Station in the Midland Counties, a compact and well-stocked NURSERY, with two extensive Vineries, together with the mature and well-bearing Vines, numbering about 150, which comprise White Muscat, Black Hamburgh, and other choice varieties; and also with the newly-erected Greenhouse, Potting Shed, Propagating House and Frames complete. There is a good family and market connection, and every convenient access to London and the principal towns of the neighbourhood. The incoming Valuation is estimated at about £250. For further particulars apply to A. R., 25, Bennett's Hill, Birmingham.

Sales by Auction.

Postponement of Sale.
MR. J. C. STEVENS begs to announce that the SALE of PLANTS advertised for This Day is POSTPONED until the weather is sufficiently mild to allow of its taking place.
38, King Street, Covent Garden, W.C.

Lilium auratum.
MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, January 24, at half-past 12 o'Clock precisely, without reserve, 10,000 SPLENDID BULBS of LILIUM AURATUM, just arrived per French mail steamer from Japan.
On view the Morning of Sale, and Catalogues had.

Californian Tree Seeds.
MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on MONDAY, January 28, at half-past 12 o'Clock precisely, 200 LOTS of Choice CALIFORNIAN SEEDS, just arrived from California.
On view the Morning of Sale, and Catalogues had.

Turnham Green.
CLEARANCE SALE OF VALUABLE FRUIT AND OTHER TREES FOR THE KENSINGTON AND RICHMOND RAILWAY.
MESSRS. PROTHEROE AND MORRIS are instructed by the London & South-Western Railway Company to SELL by AUCTION on the Premises, Chiswick Nurseries, Turnham Green, W., on THURSDAY, January 24, at 12 o'Clock, the whole of that portion of Messrs. GLENDINNING'S NURSERY STOCK taken by the aforesaid Railway Company, and which is to be cleared without reserve, comprising some thousands of Fruit and other Trees, including handsome Standard and Dwarf-trained Peaches, Nectarines, Apricots, ditto and pyramidal Pears, Cherries, Apples &c.; a quantity of Crab Stocks; upwards of 400 Cedrus Deodara, 3½ to 8 feet, including some very graceful specimens; 2000 Limes, Planes, worked Thorns, Chestnuts, Elms, Oaks, Acacias, Willows, &c.; Common Laurels, English Yews, Pinus excelsor, &c.
N.B. A reasonable time will be allowed to clear the lots after the frosty weather, should it continue.
May be viewed four days prior to the Sale. Catalogues may be had on the Premises; of Messrs. BIRCHAM & Co., 46, Parliament Street, Westminster, S.W.; and of the Auctioneers, American Nurseries, Leytonstone, Essex, N.E.

GREEN'S PATENT SILENS MESSOR,

OR

NOISELESS LAWN MOWING, ROLLING, and COLLECTING MACHINES.

PATRONIZED BY

HER MOST GRACIOUS MAJESTY THE QUEEN
ON TWENTY-NINE DIFFERENT OCCASIONS.
H.R.H. THE PRINCE OF WALES.

THE KING OF THE BELGIANS.
THE EMPEROR OF THE FRENCH.
THE EMPEROR OF RUSSIA.

AND MOST OF THE NOBILITY, CLERGY, AND GENTRY IN THE UNITED KINGDOM.

THOMAS GREEN AND SON in introducing their PATENT LAWN MOWERS for the present season, beg to state that they have no Novelties to report. The fact is, that after the severe tests their Machines have been subjected to since they added their latest improvements, they have been found to meet all the requirements for which they are intended, viz.:—the KEEPING of LAWNS in the HIGHEST STATE of PERFECTION.

They are the simplest in construction, least liable to get out of order, and can be worked with far greater ease than any other Lawn Mower extant; and in proof of their superiority, 36,000 have been sold since the year 1856.

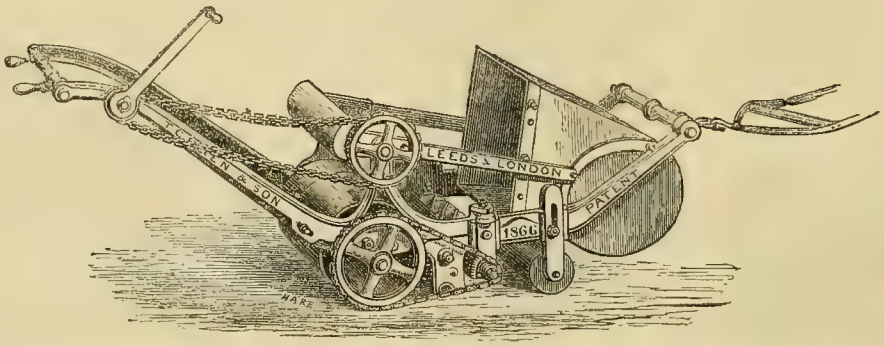
THEY ARE THE ONLY MACHINES IN CONSTANT USE AT

THE ROYAL HORTICULTURAL SOCIETY'S GARDENS, SOUTH KENSINGTON
THE ROYAL BOTANIC GARDENS, REGENT'S PARK
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MARLBOROUGH HOUSE
THE HYDE PARK GARDENS
THE WINTER PALACE GARDENS, DUBLIN
THE DUBLIN BOTANIC GARDENS
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THE SUNDERLAND PARK
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AND IN MOST OF THE PRINCIPAL PARKS, SQUARES, ETC., IN THE UNITED KINGDOM.

HORSE, PONY, AND DONKEY MACHINE.

GREEN'S
PATENT
LAWN MOWERS
have proved to be the best, and carried off every Prize that has been given in all cases of competition.



T. GREEN & SON
warrant every Machine to give entire satisfaction, and if not approved of can be returned unconditionally.

PRICES of HORSE, PONY, and DONKEY MACHINES, including Patent Self-delivery Box; Cross Stay complete; suitable for attaching to ordinary Chain Traces or Gig Harness.

PONY AND DONKEY MACHINES.

To Cut 26 inches	..	..	..	£13	0	0
„ 28 „	..	..	..	15	0	0
„ 30 „	..	..	..	17	0	0

Leather Boots for Donkey, 18*s*. *Leather Boots for Pony*, 22*s*.

HORSE MACHINES.

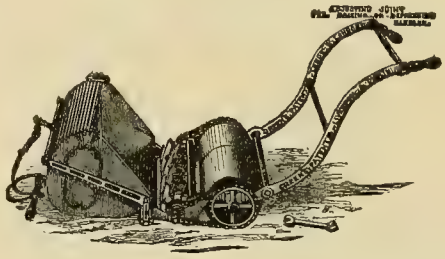
To Cut 30 inches	..	..	..	£21	0	0
„ 36 „	..	..	..	24	0	0
„ 42 „	..	..	..	27	0	0
„ 48 „	..	..	..	30	0	0

Leather Boots for Horse, 26*s*.

Both the Horse, Pony, Donkey, and Hand Machines possess (over all other Makers) the advantage of Self-sharpening. The cutters being steel on each side, when they become dull or blunt by running one way round the cylinder, can be reversed again and again, bringing the opposite edge of the cutter against the bottom blade, when the Machine will cut equal to new. Arrangements are made that the cylinder can be reversed, by any inexperienced person, in two or three minutes.

HAND MACHINES.

To Cut 10 inches	..	£3	10	0	*Suitable for a Lady*
„ 12 „	..	4	10	0	„ „
„ 14 „	..	5	10	0	*Suitable for One Person*
„ 16 „	..	6	10	0	„ „



To Cut 18 inches	..	£7	10	0	*Suitable for One Person.*
„ 20 „	..	8	0	0	*Suitable for Two Persons*
„ 22 „	..	8	10	0	„ „
„ 24 „	..	9	0	0	„ „

Packing Cases are charged at the following low rates, viz.:—for the 10 and 12-inch Machine, 3*s*.; 14 and 16-inch, 4*s*.; 18 and 20-inch, 5*s*.; 22 and 24-inch, 6*s*. Parties providing themselves with Lawn Mowers are recommended to purchase the cases in which to stow them away, when not in use, to prevent them from getting damaged; if returned, two-thirds will be allowed for them.

The above MACHINES are made from the best materials, and of superior workmanship; are delivered Carriage Free to all the principal Railway Stations and Shipping Ports in England.

Every Machine is warranted to give entire satisfaction, and if not approved of, can be returned unconditionally.

Having above 3000 Machines in stock at our Leeds and London Establishments, we are in a position to execute orders on the day they are received.

☞ *Illustrated Price Lists, and Sheet of Prize Medals awarded to* GREEN'S PATENT LAWN MOWERS, *free on application.*

T. G. AND SON having taken very extensive Premises in London, are now in a position to do all kinds of Repairs there, as well as at their Leeds Establishment.

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and 54 and 55, BLACKFRIARS ROAD, LONDON, S.

Editorial Communications should be addressed to "The Editor;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
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THE GARDENERS' CHRONICLE

AND

AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.

No. 4.—1867.] SATURDAY, JANUARY 26. {Price Fivepence. STAMPED EDITION, 6d.

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NATIONAL HORTICULTURAL EXHIBITION, 1867.—The above EXHIBITION will Open at Manchester on JUNE 7, and continue till JUNE 15.
Schedules, &c., may be obtained on application to Mr. B. FINDLAY, Curator, Botanic Garden, Manchester; or from the undersigned,
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PRICE LISTS gratis and post free on application to
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T. ANSELL begs to inform his Friends and the Trade that his usual large stock of DAHLIAS, both in pot and ground roots, are now in fine condition for exportation, comprising the best varieties in cultivation; also New varieties of 1866. A LIST of sorts, with prices, may be had on application to
T. ANSELL, Camden Nursery, Grafton Road, Kentish Town, N.W.

Roses.
WM. PAUL'S PRICED DESCRIPTIVE CATALOGUE of ROSES is now ready, post free on application.
PAUL'S Nurseries, Waltham Cross, N.

CULTURAL DIRECTIONS for the ROSE. Second Edition. By JOHN CRANSTON, King's Acre Nurseries, near Hereford. Free by post from the Author for 20 stamps.

ROSES.—Extra fine Standards, at from 15*s.* to 18*s.* per dozen; 100*s.* per 100.
Do. Dwarf, extra fine, at from 9*s.* to 12*s.* per doz.; 63*s.* to 84*s.* per 100.
Do. New Sorts of 1866, at 24*s.* per dozen.
DESCRIPTIVE LIST on application.
RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

WANTED, LOBELIA SPECIOSA SEED.
Apply, A. B., *Gardeners' Chronicle* Office, W.C.

DOBSON AND SONS can now supply VEGETABLE SEEDS of fine quality.
FLOWER SEEDS of fine quality.
CATALOGUES gratis and post free.
J. DOBSON & SONS, Seedsmen, Isleworth, London, W.

The very Earliest and Best Pea in Cultivation.
SUTTON'S RINGLEADER.
Price 2*s.* per quart.
As see Testimonials in last week's Paper.

To the Trade.
THE ESSEX RIVAL PEA, in any quantity.
For price, &c., apply to
THOS. ELEY, Sible Hedingham, Halstead, Essex.

CONQUEROR BROCCOLI.—The finest Broccoli in Cultivation is BARCHARD'S CONQUEROR. See large Advertisement in the *Gardeners' Chronicle*, December 8, 1866.
WITTY & SON, Seed Establishment, Cottingham, near Hull.

Westmoreland-grown Italian Seed.
JOSEPH DIXON, SEEDSMAN, Kendal, offers ITALIAN SEED to the Trade. Samples and prices sent on application.

GENUINE SCOTCH PERENNIAL RYE-GRASS.
Special offers of above with samples on application to
MUNRO BROTHERS, Seed Merchants, Inverness, N.B.

Extra fine Seakale for Forcing and Planting.
GEO. CLARKE has many Thousands of the finest quality to offer this season. Prices 5*s.*, 7*s.* 6*d.*, 10*s.*, and 15*s.* p. 100.
Nurseries, Streatham Place, Brixton Hill, S.E.; & Mottingham, Kent.

Yellow Globe Mangel Seed.
MR. S. A. DAINTREE, of Fen Drayton, St. Ives, Hunts, having a large stock of the above Seed, of his own growth (from large selected roots), can supply the Trade at a very low rate. Sample and price on application as above.

WHEELER'S MILKY WHITE is the BEST of all POTATOS.

PATERSON'S FAMED SEEDLING POTATOS.—The best Disease resisters, the heaviest croppers, the finest flavoured. Retail Agents in London, HOOPER & Co., Covent Garden Market, London, W.C.
PRICED LIST and Testimonials free on application.

THE "COLDSTREAM EARLY" POTATO, which received a First-class Certificate at the International Horticultural Exhibition at South Kensington, is the Earliest and Best round Potato in cultivation. See Large Advertisement. 5*s.* per peck, 18*s.* per bushel. Trade price on application.
Apply to HOGG & WOOD, Coldstream, N.B.

GARDEN SEEDS.

WILLIAM PAUL,

(SON and SUCCESSOR to the late A. PAUL),

PAUL'S NURSERIES and SEED WAREHOUSE, WALTHAM CROSS, LONDON, N.,

BEGS TO ANNOUNCE THAT HIS

SELECT LIST OF VEGETABLE, FLOWER SEEDS, ETC.,

IS NOW READY, AND WILL BE FORWARDED POST FREE ON APPLICATION.

The following Novelties recently introduced by him have already become standard varieties, and the Seeds now offered have been saved from pure original stocks:—

PAUL'S WALTHAM BRUSSELS SPROUTS.—This variety is quite distinct, the Sprouts possessing the valuable quality of being green to the centre, and retaining the same colour when cooked. 1*s.* per packet.

PAUL'S WALTHAM MARKET CABBAGE.—Large, very even growth, early and fine, mild flavour; pronounced by all who have seen it the finest sort in cultivation. 1*s.* per packet.

PAUL'S IMPROVED TELEGRAPH CUCUMBER.—This is a prodigious bearer, frequently producing four or five fine fruit at a joint; very handsome, and excellent flavour; particularly recommended for a house or winter forcing. 1*s.* per packet.

PAUL'S SELECTED EXTRA CURLED PARSLEY.—Large and very superior; pronounced by all who have grown it from my stock the best in cultivation. 6*d.* per packet.

SUPERB DWARF HERTFORDSHIRE CAULIFLOWER.—Very large, pure white close heads, remaining fit for use much longer than most other sorts; very hardy, having frequently stood in winter under a south wall without any other protection. 1*s.* per packet.

BROCKETT HALL BROWN COS LETTUCE.—Very hardy, large, crisp, and excellent flavour; stands a long time after most other sorts without running to seed; good for sowing at any season; the finest Lettuce grown. 1*s.* per packet.

PAUL'S SUPERB CRIMSON BEET.—This variety as improved by me is unsurpassed in colour and flavour. 1*s.* per oz.

PAUL'S IMPROVED LATE CURLED BORECOLE.—Unsurpassed as a "Curled Green," very hardy; very productive, and continues in fine condition for use till the end of April. 1*s.* per packet.

COLLECTIONS of KITCHEN GARDEN SEEDS, 10*s.* 6*d.*, and upwards.
COLLECTIONS of FLOWER SEEDS, 5*s.* and upwards.

*** *All Seeds Carriage Free.*

KITCHEN GARDEN and FLOWER SEEDS.

OSBORN & SONS'

SELECT LIST OF THE ABOVE MAY NOW BE HAD

ON APPLICATION.

In it, among other articles of sterling merit, especial attention is directed to the following:—

*BEET, OSBORN'S SELECT RED.—This is preferred by many gardeners to any other kind, and for decorative purposes its foliage is unsurpassed. Per oz., 1*s.*

CELERY, FEAR NOT.—A most desirable pink variety, crisp and excellent in flavour. Per packet, 1*s.*

*MELON, QUEEN EMMA.—This was raised at Heckfield, and pronounced by the Viscount Eversley and other connoisseurs to be one of the best flavoured Melons ever produced. It has a good constitution, is a great bearer, well netted, thin skin, thick pale green flesh, and weighs from 2 to 3 lb. Per packet, 2*s.* 6*d.*

*BROCCOLI, OSBORN'S WHITE WINTER.—Still pronounced by some gardeners to be the best. Per packet, 1*s.* 6*d.*

LETTUCE, SCOTT'S WHITE COS.—A very superior variety of Paris Cos. Per packet, 1*s.* 6*d.*

LETTUCE, BOWDEN'S BROWN COS.—Less liable to run than any Lettuce we know. Per packet, 1*s.* 6*d.*

*LETTUCE, STANSTED CABBAGE.—The best hardy winter variety. Per packet, 1*s.*

LETTUCE, BELLE BONNE.—A very superior summer Cabbage Lettuce. Per packet, 1*s.*

* *Special quotations to the Trade of these may be had on application.*

FULHAM NURSERY, LONDON, S.W.

British Fern Catalogue.

ROBERT SIM can now send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his NEW and PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.

Foot's Cray Nursery, S.E., a mile from Sidcup Station of New North Kent Line of South Eastern Railway.

Lilium auratum, Golden-rayed Lily of Japan.





JAMES CARTER AND CO. have just received splendid BULBS of the above, in finer condition than any imported for some time, and said to contain many highly-coloured varieties. This incomparable Lily has for some time been very scarce, but we can now offer fine flowering Bulbs, true to name, at the following prices:—1st size, 5*s.*; 2d, 3*s.* 6*d.*; extra strong large Bulbs, 1st size, 10*s.* 6*d.*; 2d, 7*s.* 6*d.*; a few of the finest, very large and strong, 15*s.* each.

JAMES CARTER & Co., Seed Merchants and Nurserymen, 237 and 238, High Holborn, London, W.C.

CHOICE SPRING-FLOWERING HARDY PLANTS.

AURICULAS, finest Alpine, per dozen, 6*s.*
CHRISTMAS ROSE, HELLEBORUS NIGER, per dozen, 9*s.*
HEPATICAS, Double Red, per dozen, 4*s.*
" Single White, per dozen, 9*s.*
" Single Blue, per dozen, 4*s.*
" Double Blue, 1*s.* 6*d.* each; single Mauve, new, each, 1*s.* 6*d.*
HELLEBORUS ATRORUBENS, Red, per dozen, 18*s.*
" OLYMPICUS, Pink, per dozen, 18*s.*
PRIMROSES, Double, in 3 fine sorts, per dozen, 6*s.*
POLYANTHUS, finest mixed, per dozen, 3*s.*
PAMPAS GRASS, extra fine, 40*s.* per 100; per dozen, 6*s.*
VIOLETS, Double Red, White, Blue, Lilac and Striped, two of each for 7*s.* 6*d.*
" Single varieties, White, Blue, Striped, THE CZAR and THE GIANT, two of each for 5*s.*
WALLFLOWERS, Double Golden Yellow and Dark, per dozen, 6*s.*
FORGET-ME-NOT, "true," Myosotis palustris, per dozen, 4*s.*
ŒNOTHERA MISSOURIENSIS (EVENING PRIMROSE), per dozen, 6*s.*
CAMPANULA PYRAMIDALIS, per dozen, 6*s.*
DAISIES in 6 choice kinds, per dozen, 4*s.*

N.B. The following additional Nurserymen have ordered the magnificent New Violet QUEEN of VIOLETS. For full description, &c., see *Gardeners' Chronicle* of December 1, 1866, p. 1134:—
Cattell, Mr. John, Westerham, Kent. | Miller, Mr. W., Andover, Hants.
Wright, Mr. W., Retford, Notts. | McHattie, J., Chester. Hannaford, W., Teignmouth.

Strong Plants for Spring Flowering, 1*s.* 6*d.* each, 18*s.* per dozen, £5 per 100. With usual allowance to Trade.

CATALOGUES for one Stamp. Post Office Orders on Castle Hedingham.

WM. DILLISTONE, Sible Hedingham, Essex.

Tansley Nurseries, near Matlock, Derbyshire.

JOSEPH SMITH, SEN., invites Planters and the Trade to inspect his Nursery of 80 Acres of high land. The soil is of a fibrous nature, and the Plants take up with excellent roots, such as to ensure the best success in their removal.

The Nursery contains many Hundred Thousands of RHODODENDRONS, COMMON and PORTUGAL LAURELS, BOX, BROOMS, BERBERIS, HOLLIES, PRIVETS, YEWS, &c. The FOREST TREES are very extensive, of all the leading kinds; there are 15 Acres of LARCHES, of different sizes, and all others in proportion. Prices moderate, which can be had on application as above.

GOOD SEEDS.—CARRIAGE FREE.







SUTTON & SONS,

SEEDSMEN TO THE QUEEN,

ROYAL BERKSHIRE SEED ESTABLISHMENT, READING,

BEG TO ANNOUNCE THAT THEY ARE NOW SENDING OUT THEIR

COMPLETE COLLECTIONS OF SEEDS FOR ONE YEAR'S SUPPLY,

THE PRICES OF WHICH ARE AS FOLLOWS:—

For the KITCHEN GARDEN.

No. 1.	A COMPLETE COLLECTION for ONE YEAR'S SUPPLY ..	£3 3 0
No. 2.	A COMPLETE COLLECTION of ditto, quantities proportionately reduced	2 2 0
No. 3.	A COMPLETE COLLECTION, ditto	1 11 6
No. 4.	A COMPLETE COLLECTION, ditto	1 1 0
No. 5.	A COMPLETE COLLECTION, ditto	0 15 0
No. 6.	A COMPLETE COLLECTION, ditto	0 10 6

Nos. 1, 2, 3, 4, 5, Free by Rail.

For the FLOWER GARDEN.

No. 1.	A COMPLETE COLLECTION of the Newest and most approved German and English Varieties	£2 2 0
No. 2.	A COMPLETE COLLECTION of ditto	1 11 6
No. 3.	A COMPLETE COLLECTION of ditto	1 1 0
No. 4.	A COMPLETE COLLECTION of ditto	0 15 0
No. 5.	A COMPLETE COLLECTION of ditto	0 10 6

Free by Post or Rail.

List of Contents of the above Collections may be had on application.

From Mr. JAMES MENZIES, *Gardener to* G. A. Prevost, Esq., *Lytchett House, Poole.*
"May 28.—Your £2 2*s.* Collection of Garden Seeds has given every satisfaction."

From Mr. F. W. GREEN, *Edington, Hungerford.*
"November 6.—I never had, previous to yours this year, such an excellent Collection of Seeds."

From Mr. JAMES B. BRYAN, *Inspecting Officer, Coast Guard, Marble Hill, Letterkenny, Ireland.*
"November 29.—One ounce of your Seed is worth 1lb. of any to be got near here, as I think my sending such a long distance must pretty well prove."

From the Rev. WILLIAM WILLIMOTT, *The Rectory, St. Michael, Caernays, St. Austell.*
"September 4.—I find I must return to you again for my Seeds, as I have never been so well satisfied with the articles I have had from this neighbourhood."

From W. PETTIT, Esq., *Stratton, Micheldever.*
"August 31.—I must add, the Garden Seeds were the best I ever sowed in my life."

From Mr. JOHN PARTRIDGE, Sen., *Bow, North Devon.*
"June 5.—The Garden Seeds you supplied me with have succeeded admirably, without exception."

THE VERY EARLIEST AND BEST PEA IN CULTIVATION IS "SUTTON'S RINGLEADER."

Price 2*s.* per quart. Trade price on application.

SUTTON'S SPRING CATALOGUE AND AMATEUR'S GUIDE FOR 1867

IS NOW READY, PRICE ONE SHILLING.—GRATIS TO CUSTOMERS.

SUTTON'S SHORT SELECT SEED LIST GRATIS AND POST FREE.

All Goods Carriage Free except very small parcels. Five per cent. discount allowed for prompt payment. A reference or remittance requested from unknown Correspondents.

SUTTON AND SONS, SEED GROWERS, READING, BERKS.

NOTICE.—NEW ROSES FOR 1867.

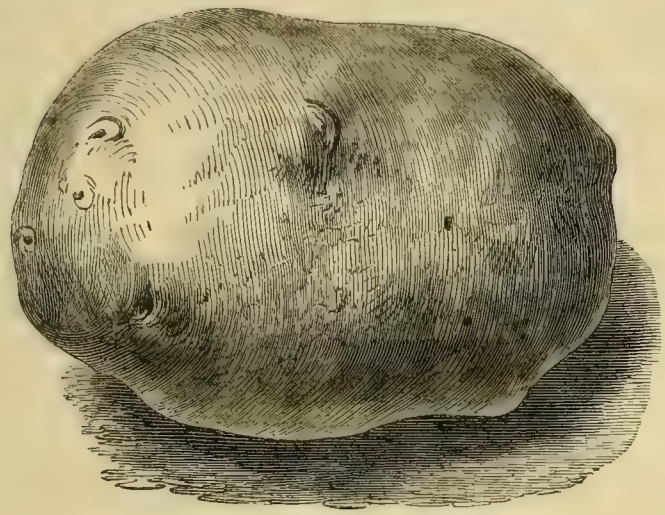
FORTY-SIX VARIETIES, being the cream only of the best new kinds known on the Continent, now ready in magnificent strong healthy Plants, which will be eligible for sending out as soon as the weather will permit.

DESCRIPTIVE CATALOGUES GRATIS on application to the SUBSCRIBERS.

WILLIAM WOOD AND SON,

WOODLANDS NURSERY, MARESFIELD, NEAR UCKFIELD, SUSSEX.—Jan. 26.

WHEELER'S "MILKY WHITE" POTATO.



Milky White, 5s. per peck.

We beg to call attention to the superlative merits of this fine Potato. It would be easy to fill pages with extracts from letters speaking in the very highest terms of its beautiful colour, excellent flavour, floury texture, great productiveness, and of its other admirable qualities. The following TESTIMONIALS (though few in number), are from well-known persons, and will be as convincing as if the good opinions therein expressed were repeated a thousand times.

First, we will see what Mr. SHIRLEY HIBBERD says about them:—

"Better than any Potato coming in at the mid-season is WHEELER'S Milky White. I had a splendid crop of this last year; not one of them was touched by the disease. The growth is very short and compact; tubers are nearly all one size, neither large nor small; it has as fine a flavour as any Potato grown, and is as white and mealy as Fluke or Flour Ball, and these two cannot be surpassed in colour and texture. I shall run no risk in dealing boldly with this fine Potato, and I shall therefore put it in an emphatic form that WHEELER'S Milky White is the best of all Potatos; and those who do not grow it may consider themselves rather behind the age."

Next we will lay before our readers D.'s (of Deal) opinion:—

"MILKY WHITE.—This I received from the well-known Firm of Messrs. WHEELER & SON, Gloucester. It is one of the handsomest Potatos grown, and well deserves its name, for it is most beautifully white, very floury, and as a second Early Potato, one that I do not hesitate to regard as first-rate. It is also a very free bearer."—*D., Deal, in Journal of Horticulture, Dec.* 18, 1866.

Mr. DEAN, of Bradford Nursery, Shipley, is a well-known authority. What does he say?—

"MILKY WHITE POTATO.—In my opinion this Potato will soon have a 'world-wide fame.' I have grown it this season, and I have seen it growing in other places in this cold part of Yorkshire; it crops well, and is white when cooked, and of capital flavour. It is a first-class second early kind, and should be in every garden."

Few gentlemen know more about Potatos than Mr. Hudson, of Pershore; Mr. Fryer, of Chatteris; and the Ex-Mayor of Kidderminster. What do these gentlemen say?—

"Your Milky White is everything that can be desired. It is purely white, a good cropper, and peculiarly free from disease, scarcely a tuber having been affected by the prevailing blight of this season."—HENRY HUDSON, *The Elms, Pershore.*

"When in London you asked me for a statement of the growth of your Milky White Potatos. I am unable to speak decidedly of its yielding properties, having received the seed from you very late in spring; but it was the handsomest and whitest Potato I grew out of 15 trial lots, and entirely free from disease."—JOHN FRYER, *Manor House, Chatteris.*

"Your Milky White Potato is excellent, a great cropper, very mealy, and delicately flavoured, early, and remarkably free from disease. It was about the only Potato in my garden that was entirely free from it. It appears likely to turn out a good keeper, as well as being fit for the table so early in the season."—WILLIAM RODEN, M.D., F.R.C.S., *Kiddermaster.*

The next is from a Clergyman:—

"I have much pleasure in bearing testimony to the excellence of the Potatos with which you supplied me last season. The Milky White especially were unsurpassed by any Potato I ever had on my table."—EDWARD SEYMOUR STOCKER, *Titchwell Rectory, King's Lynn.*

Now comes a valuable one from a practical Gardener:—

"I found the Milky White to be of first-rate quality for a Gentleman's table, and a large cropper."—JOHN EDWARDS, *Gardener to* Sir F. C. Smythe, Bart., *Acton Burnell.*

If anything more favourable can possibly be said about a new variety of this valuable esculent, our imagination cannot picture it. The above good opinions are corroborated over and over again in our "Little Book for 1867."

The following leading Firms have ordered a supply this season. The retail price is *5s.* per peck (14 lb.)

Backhouse & Son, Messrs., York
Barr & Sugden, Messrs., London
Baylis, Mr. Thomas, Wolverhampton
Bell, Mr. John, Norwich
Brown, Mr. Stephen, Sudbury
Bunyard & Sons, Messrs., Maidstone
Butler, McCulloch, & Co., Messrs., London
Cant, Mr. B. R., Colchester
Caparn, Mr. W. H., Newark
Carter, Mr. John, Keighley
Carter & Co., Messrs. James, London
Cattell, Mr. John, Westerham
Charlwood & Cummins, Messrs., Covent Garden
Chivas & Weaver, Messrs., Chester
Cooling, Mr. Edwin, Derby
Darby, Mr. R. F., Cirencester
Davies, Mr. Isaac, Liverpool
Dean, Mr. William, Shipley
Dickson & Co., Messrs., Edinburgh
Dickson & Sons, Messrs. F. & A., Chester
Dickson & Sons, Messrs. James, Chester
Dicksons & Brown, Messrs., Manchester
Dreghorn & Aitken, Messrs., Kilmarnock
Drummond Brothers, Messrs., Edinburgh
Fraser, Mr. John, Lea Bridge
Fraser, Goad, & Co., Messrs., London
Garaway & Co., Messrs. James, Bristol
Henderson & Co., Messrs. A., Pine-apple Place
Henderson & Son, Messrs. E. G., St. John's Wood
Hogg & Robertson, Messrs., Dublin
Hooper & Co., Messrs., Covent Garden
Hurst & Son, Messrs., London
Ivery & Son, Messrs. James, Reigate
Ivery, Mr. William, Peckham
Jackson & Son, Messrs. J., Kingston
Jefferies & Son, Messrs., Cirencester
Ker, Mr. R. P., Liverpool
Laird & Sinclair, Messrs., Dundee
Lane & Son, Messrs., Berkhampstead
Lawson & Son, Messrs., Edinburgh
Lowe & Co., Messrs., Wolverhampton
Lucombe, Pince, & Co., Messrs., Exeter
MacKenzie & Sons, Messrs., Dublin
Mallett, Mr. William, Barnstaple
Marsh & Perkins, Messrs., Northampton
Milan, Mr. T., Doncaster
Mitchinson, Mr. John, Truro
Niven, Mr. N., Dublin
Nutting & Sons, Messrs., 60, Barbican, E.C.
Oldroyd, Mr. H. J., Shrewsbury
Osborn & Sons, Messrs., Fulham
Palmer & Son, Messrs., Annan
Paul & Son, Messrs., Cheshunt
Poynter, Mr. R. H., Taunton
Robertson & Co., Messrs. P. S., Edinburgh
Rollisson & Sons, Messrs., Tooting
Smith, Mr. Richard, Worcester
Soden, Mr. John, Oxford
Toogood, Mr. W., Southampton
Toole & Co., Messrs., Dublin
Turner, Mr. Charles, Slough
Waite, Burnell, & Co., Messrs., Holborn
Waterer & Godfrey, Messrs., Knap Hill
Whalley, Mr. Thomas, Liverpool
Wheeler, Mr. George, Warminster
Williams, Mr. B. S., Holloway
Winderbank & Kingsbury, Messrs., Southampton
Witty & Son, Messrs., Cottingham
Wood & Ingram, Messrs., Huntingdon
Wood & Co., Messrs., Worcester
Veitch & Sons, Messrs. James, Chelsea
Virgo & Son, Messrs. W., Guildford
Yates, Messrs G. & W., Manchester
Young, Mr. Maurice, Guildford

We anticipate a large demand this season. We regret to say we have but a limited supply; it will be therefore absolutely necessary to send orders at once.

WHEELER'S "LITTLE BOOK"

Has been described as the "Queen of Seed Lists." It is illustrated, and contains much descriptive matter. A Copy was posted to each of our Customers last week; there are a few remaining, which we will forward post free at Sixpence each.

J. C. WHEELER AND SON, SEED GROWERS, GLOUCESTER.

Northampton Nurseries.

JOHN PERKINS, SEN., begs to call attention to his large STOCK of the following:—

Larch Firs, 3 to 4, 4 to 6 feet	Oaks, Turkey, 5 to 6 feet.
Spruce Firs, 2 to 3, 3 to 4 feet	Elms, English, fine Standards, 6 to 8, 8 to 10 feet
Black Thorn, 2 to 3 feet	White Thorn Quick, 2 and 3-years transplanted
Hornbeam, 2 to 3, 3 to 4 feet	Dwarf-trained Peaches, Nectarines, Plums and Cherries
Green Box, 1 to 1½ foot	Standard Pears and Apples
Portugal Laurels, 1½ to 2 feet	
Beech, 3 to 4 feet	
Chestnut, Horse, 4 to 6, 6 to 8 ft.	

Cedrus Deodara, 6 to 8 feet.

The above will be sold at unusually low prices, Lists of which may be had on application to

52, Market Square, Northampton.

LARCH, PEAR STOCKS, &c.

LARCH, 1½ to 2 feet, per 1000, 8*s.*; 2 to 3 feet, 10*s.*; 3 to 4 feet, 12*s.* 6*d.*
PEAR STOCKS, 2½ to 5 feet, 10*s.* to 30*s.* per 1000.
SCOTCH FIR, 2 years bedded, 6 to 12 inches, 5*s.* per 1000.

LIST of other TREES sent on application.

Apply, with reference, to J. RIDDELL, Steward, Park Attwood, Bewdley, Worcestershire.

Planting Season

LARCH (Native and Tyrolese), SCOTCH FIR (True Native), SPRUCE, OAK, ASH, ALDER, BEECH, PRIVET, and all kinds of FOREST and ORNAMENTAL TREES and SHRUBS, ROSES, FRUIT TREES, fine specimen ARAUCARIAS and DEODARS, and large TREES for Park Planting, now in fine condition for removal.

CATALOGUES, with sizes and prices, sent free on application to DICKSONS & Co., Nurserymen, Seedsmen, and Florists, 1, Waterloo Place, Edinburgh.

Strong Larch, Native Scotch, English Oak, Thorns, &c., ALL TRANSPLANTED.

GEORGE CHIVAS, Chester, solicits the attention of Planters to his very great Stock of LARCH, 2 to 4½ feet; NATIVE SCOTCH, 1½ to 3 feet (a portion of which was Transplanted last spring for the second time); ENGLISH OAK, 2 to 4 feet, and THORNS of great strength, with an extensive and general assortment of other Trees and Plants. The quality is unexceptionable, and the prices much in favour of the buyer.

Forres Nurseries, Scotland.

JOHN GRIGOR AND CO. have for SALE several Millions of very superior LARCH, one-year old Seedlings; also one-year transplanted plants, grown from seed extracted from healthy trees, which form the fourth or fifth generation of the Larch since its introduction into Scotland. Such plants being acclimatised, are found to be far hardier than those raised from imported seed.

According to Mr. Grigor's Report on "the Larch Forests of Scotland," for which the Highland and Agricultural Society of Scotland has recently awarded the Gold Medal, acclimatation forms the basis of all successful cultivation, and is the only means of averting the numerous casualties to which Larch plantations are subject.

NATIVE HIGHLAND SCOTCH PINE, 1-year seedling.
FOREST TREES in general.
Strong plants of AQUILEGIA GLANDULOSA.
Prices on application.

To the Trade—Contractors and Builders.

ONE HUNDRED THOUSAND COMMON LAURELS, fine bushy plants, from 3 to 7 feet high; good for Blinds, particularly for newly laid-out Grounds and Buildings. These Laurels are very fine, and have not suffered from the frost.

Also 5,000,000 of Two-year SEEDLING ASH and CHESTNUTS, ROSES, and other varieties of Shrubs.

ABEL FAIRALL, Nursery, Stanhope Nursery, Westerham Hill, Kent.

TRANSPLANTED FOREST TREES.

Alder, 3 to 4 feet and 4 to 6 feet	Hazel, 2 to 3 feet and 3 to 4 feet
Ash, 3 to 6 feet	Larch, 2 to 3 feet, 3 to 4 feet, and 4 to 6 feet
Birch, 2 to 3 feet, 3 to 4 feet, and 4 to 5 feet	Pinus austriaca, 1½ to 2 feet

The above are stout and well rooted. Samples, with prices, delivered free at the nearest Railway Stations, may be had on application to WATERER & GODFREY, Knap Hill Nursery, Woking, Surrey.

Improvement of Grass Lands.

SUTTON'S RENOVATING MIXTURE

SHOULD NOW BE SOWN.

8 to 12lb. per acre.

Price 10*d.* per lb. Cheaper by the cwt.

If these Seeds are sown early in the season, the improvement in the land will be very great, and at a small expense.

This Mixture should be bush-harrowed in, and rolled afterwards.

SUTTON & SONS,
Royal Berkshire Seed Establishment, Reading.

SUTTON'S GUINEA COLLECTION OF KITCHEN GARDEN SEEDS FOR ONE WHOLE YEAR'S SUPPLY

is forwarded Carriage Free by Rail on receipt of Post-office Order for 21*s.*

PRICED LISTS gratis and post free on application.

SUTTON & SONS,
Royal Berkshire Seed Establishment, Reading.

Seeds, Seeds, Carriage Free.

WARRANTED OF THE PUREST AND FINEST QUALITY.

VEGETABLE SEEDS.

WM. DILLISTONE'S HALF-GUINEA COLLECTION, the cheapest and best ever offered, containing half the

ONE-GUINEA COLLECTION,

which contains sufficient for one year's supply for a Garden, including eight quarts of the best kind of Peas, and all other kinds of Seeds in proportion, including some of the new varieties.

TWO-GUINEA COLLECTION

contains sufficient for one year's supply for a medium-sized Garden, including more than double the quantities in the above Collection. This, *i.e.* the £2 2*s.* Collection, is highly recommended.

THREE-GUINEA COLLECTION

contains sufficient for one year's supply for a large Garden, and some of all the new and choice varieties enumerated in his List.

PEAS.

				s.	*d.*
A Selection of 12 fine and Select Sorts for Succession, 1 quart of each				10	6
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A Selection of 6	ditto	ditto	1 qrt. of each	6	0
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*** This Catalogue is presented to Customers.

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Caution.

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All best Imported Roots.
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VIOLA CORNUTA, var. MAUVE QUEEN, 6d., 1s., and 2s. 6d. per Packet.
B. S. WILLIAMS, Victoria and Paradise Nurseries, Upper Holloway, N.

The Gardeners' Chronicle.

SATURDAY, JANUARY 26, 1867.

THE conditions under which plants grow, and the individual or constitutional differences between one plant and another, are so various that records of THERMOMETERS, even supposing them taken with all due accuracy, fail to give the precise knowledge of which the horticulturist stands in need. Mean temperatures, averages, maxima, minima, are all very necessary to be recorded, and every horticulturist will admit that little progress can be made without them. To cite one instance only—the value of the observations made for so long a time, and with such accuracy, by Mr. THOMPSON, of Chiswick, who fortunately combines a love of meteorological observation with a knowledge of the details and requirements of practical horticulture, such as are possessed by few, if any others. Mr. THOMPSON'S services in this way are so well known as to need no eulogium on our part, though we may express our surprise that the appreciation of his labours has not shown itself in some more tangible form. To revert to the records of the thermometer, it is clear that statistics of this kind, as in other cases, however valuable for general purposes, are not so applicable to individual cases. The knowledge that so many per cent. of cases of pneumonia get well under such and such a method of treatment does not justify a physician in practising that method upon every individual patient affected with inflamed lungs. The same reasoning applies to the effect of FROST ON PLANTS. A certain degree of cold, or, to speak more correctly, a certain diminution in the amount of heat, does not always entail the same results even on the same plant. So many disturbing influences affect the results that a record of the effects of cold, as shown by the living plant-thermometers themselves, is in the present state of horticulture fully as desirable as that of the fluctuations of the maximum or minimum thermometers. To this end we venture to ask our readers to record in our pages the effects of the recent severe weather on their plants, adding, so far as convenient, such details as to exposure, elevation, humidity, proximity to the sea, nature of the soil, &c., as may suggest themselves. Speaking generally, it seems to be pretty well established that the effects of frost vary not so much in reference to the absolute intensity of the cold as to the dryness or moisture of the atmosphere. Continuous frost, with a cloudy sky and a damp atmosphere, produces a different effect from that which is the result of radiation on a clear cloudless night. The thermometer may go down as low in the latter case as in the former, or perhaps many degrees lower, yet the effect will be very different. The cloudy sky, although it may check radiation and act as an absorbent of heat, nevertheless prevents the earth from receiving the full effect of the sun's rays in the day time, and hence tends to perpetuate the frost, and enables it to get into the ground, and perhaps injure the roots.

It has been shown by Professor MARTINS, of Montpellier, amongst others, that often on a clear night the coldest stratum of air is that which is nearest the ground; hence in such a case the lower branches of a shrub, were they not older and comparatively harder, would suffer even more than the upper ones. These are points of great importance to horticulturists and agriculturists, but there are others less directly connected with the daily operations of the cultivator, who should receive due attention on the part of those who have the requisite leisure to make a record of their observations, such as the effect of frost upon the wood of trees, and the rending and cracking that occasionally results from it. Is this or is it not one of the causes of "shaky timber?" asks very pertinently one of our correspondents. We may also call the attention of our readers to the elaborate investigation of Professor CASPARY on the movements exhibited by the branches of trees in frosty weather, presented to the Botanical Congress in May last, and a translation of which appeared last year in our columns, p. 513. This investigation took origin from a simple fact observed by Mr. ROGERS, of Sevenoaks, and recorded in our Journal many years since. We feel thus the more emboldened to ask the co-operation of our correspondents in recording the results of the recent severe weather.

—— THE Annual Meeting of the ROYAL HORTICULTURAL SOCIETY is fixed to take place on the 12th of February. The proposed changes in the constitution of the Council, to be submitted for approval at this meeting, are these:—the removal of W. W. SAUNDERS, Esq., Sir A. BULLER, and the Right Hon. W. COWPER; and the election in their room of Lieut.-General the Hon. C. GREY, WENTWORTH W. BULLER, Esq., and Major TREVOR CLARKE. No change is proposed in the offices of President, Secretary, and Treasurer.

—— The EXTRA PRIZE LIST for the BURY SHOW of the Royal Horticultural Society is now, we understand, completed, and the schedule will be immediately issued. We learn from our excellent correspondent, Mr. FISH, to whose untiring energy both the Show itself and the success of the Special Prize List are mainly due, that the amount of the latter has reached more than 280*l.*, and indeed, reckoning the services rendered by the *Bury Post* and *Free Press* as part of the amount, to over 300*l.* No small or measured thanks are due from the Society to Mr. FISH himself for thus devoting his whole leisure time, and more, to carrying out the work he had set before him, and which he has pushed forward to a successful issue. And now, in handing over the more active duties to the officials, and retiring to the less conspicuous post of a committee-man, he must feel that he carries with him the sympathies and goodwill of all who desire to see Horticulture, and with it, its National representative, flourish. In spite of its defects and its short-comings, and in spite, too, of bitter and implacable opposition from a section of the public, it is cheering to see that there is so much life in the old Society, and that amongst the gardeners of England she numbers such devoted and energetic sons.

—— We are requested to announce that the INTERNATIONAL HORTICULTURAL EXHIBITION which was to have been established in St. Petersburgh next year, is postponed until the middle of May, 1869. Great preparations are being made, and the co-operation of British horticulturists of all classes is specially requested. A programme will hereafter be issued, but in the meantime those interested in the matter should put themselves in communication with "Professor REGEL, Société Russe d'Horticulture, à St. Petersbourg."

—— Mr. J. E. MAPPLEBECK has been good enough to allow us to examine some curious FORMS of LOMARIA DISCOLOR, collected by himself in New Zealand, which present variations similar to many of those met with amongst our British species. In some the segments of the sterile fronds are aurite, and crenate, with a tendency to become bifid; sometimes being also more or less irregularly sinuate. Others have the segments pretty regularly and neatly bifid throughout the frond. In another form the segments are for a part of their length split down in a laciniate manner, and when this cutting occurs at the tip of the segment it assumes a more or less fingered or polydactylous outline; but as it commences below at the tip of the segment, and occurs regularly nearer their base as it ascends, it is probably the result of some accidental injury. Another variety has the fronds multifid and the segments bifid. These abnormal forms are quite analogous to many that are found amongst our native Ferns.

—— We regret to learn that the office of COLONIAL BOTANIST at the CAPE OF GOOD HOPE has been, or is about to be, abolished, and that the grants for the Botanic Garden at Cape Town, as well as those for educational

purposes and for agricultural societies, have all been largely reduced. To compensate for this unpleasant intelligence we may state, that in other districts of South Africa great energy in the cause of Botany is being manifested, and amongst other things a Botanical Exchange Society will probably be established at Graham's Town, under the management of Mr. MACOWAN. The main objects of the Society are stated to be the exchange among the members of specimens illustrating the Flora of the country, with special reference to the distribution, area, and altitude of the several plants. A catalogue of plants is about to be published, and an important nucleus for an herbarium is already secured. We may be allowed to suggest that the collection of seeds and bulbs for distribution in Europe would be very desirable, as many Cape plants formerly in cultivation in this country have been lost, and others equally or more beautiful or interesting have never been seen in this country. The establishment of such a Society as that just alluded to would be an incitement to the production of the remainder of the "Flora Capensis," with which little progress has been made since the death of the lamented Dr. HARVEY.

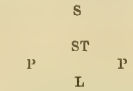
—— We have already on more than one occasion expressed a favourable opinion of the NEW GRAPE called MRS. PINCE'S BLACK MUSCAT. A further sample sent to us a few days since fully justifies us in endorsing all we have previously said in its favour, notwithstanding that the present sample is less perfectly coloured than the clusters previously submitted to us. The berries are oval, with stout foot-stalks not yet shrivelling, though the foliage is quite withered; the flesh firm and crackling, with a rich Muscat flavour, and a thickish skin. Altogether, it would seem as if it would rival, if not surpass, our present favourites in its late-hanging qualities, while it is superior to all late varieties in richness and aroma.

—— From Dr. ANDERSON'S Report on the Calcutta Garden we extract the following note on the VICTORIA: "During the past year great success has attended the cultivation of the large Water Lily, VICTORIA REGIA. Formerly the plant always died about the end of December, probably from the coldness of the water of the tank, the result of nocturnal radiation. In November last a screen of thin cloth was placed, which was drawn over the tank at night and removed during the day. The plant being protected in this way flowered profusely during the cold season, and yielded a large quantity of seed." This is a fact well worthy the attention of cultivators. We have however to learn what circumstances prevent nocturnal radiation from killing the plant in its native country. Can it be that the amount of radiation is less, owing to the greater moisture of the atmosphere in Guiana as compared with India?

—— M. ROUSSEAU, the gardener to M. DE MONTIGNY, residing at the Château de Guillebaudon, near Auxerre, France, lately exhibited at a meeting of the Imperial and Central Horticultural Society of France, some tubers of the CHINESE YAM, Dioscorea Batatas, obtained under the following circumstances. When the tubers had attained the requisite dimensions for use they were extracted, their tops cut off, and these tops, measuring 20 centimetres, or about 8 inches in length, were replaced in the ground. After an interval of 10 months an examination was made, when it was found that the tops had produced in 10 months tubers of the same size as those produced under ordinary circumstances in three years. The specimens exhibited weighed about 4 lb. Marshal VAILLANT, the President of the Imperial Society, who takes very great interest in this Yam, has contributed to its Journal an interesting article on its cultivation. The formation of supplementary tubers is no doubt analogous to that which occurs in the Potato, which may be made to produce several crops of tubers in the same year by the adoption of means similar to those made use of by M. ROUSSEAU, viz., by replacing the parent tuber in the ground after the Potatos have been dug. The *rationale* of this operation is merely this, that an opportunity is given for the development of all the "eyes" in a tuber, whereas under ordinary circumstances some only are developed, while the others remain "latent."

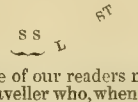
—— From some correspondence in the *Revue Horticole* we condense the following remarks relating to the production of VARIETIES OF PELARGONIUM. M. LEMOINE asserts that his variegated Pelargoniums were all produced from seed; on the other hand he says that this variegation of the leaves is not perpetuated by dividing the root; plants so produced having always green leaves, even if the original stock were variegated. In illustration, he cites the variegated Symphytum asperrimum, which when propagated by parting the root, produces green leaves only. A similar circumstance occurs in the case of striped or particoloured flowers, thus a Phlox, "Triomphe de Twickell," when propagated by root division, produced only seven or eight plants with striped flowers, out of more than 500 plants so obtained. M. CHAMARET and M. LEGRAND offer independent confirmation of the fact adduced by M. LEMOINE as to the production of variegated Pelargoniums (tri- and bi-coloured varieties) from seed. The former of these two gentlemen gives some details as to some seedlings produced from variegated plants, and which in their turn gave origin to seedlings, some with striped cotyledons, some with one cotyledon green and one white, others with two, and sometimes three, white seed-leaves; these latter lived but a short time. Out of some 400 plants, 97 only now exist; but among them are some new striped varieties, while others present no trace of a zone, but blotches of various colours. Others have yielded no less than six kinds of variegation, which, if fixed, would constitute so many varieties. In the plants which produced one green and one white cotyledon, the green colour often extended very much, sometimes so much so, that the whole plant became green. Others had half their stem green, the other half white or rose-coloured, in correspondence with the colour of the leaves. Sometimes the white side of the stem grew less vigorously, and interfered with the growth of the other side, thus causing the stem to become bent to an angle of 90°. In order to see the flowers, none of the specimens were cut down before flowering, and 10 new shades of colour (as far as variegated forms are concerned), with broad petals, strong trusses, and good habit, were developed; but what was most remarkable was the occasional appearance of two very distinct shades of colour on the same plant. This dichromism showed itself indifferently on the branches or on the sides of the stem, producing green or variegated leaves even in cases where the stem and leaves were entirely white. Sometimes even the separation of the tints manifested itself on the flower stalk and the half of the truss. Certain specimens which in the beginning had one cotyledon variegated soon lost all trace of variegation. They were however preserved and allowed to flower, and afterwards being cut back produced shoots with variegated foliage. In 1864 and 1865 the same observer collected a number of seeds of Mrs. Pollock. They all came up, but not one reproduced the parent form. The same thing occurred with all the golden-leaved varieties.

—— Some time since our excellent correspondent Mr. ANDERSON forwarded to us some interesting DEVIATIONS from the usual conformation of the FLOWERS OF ORCHIDS, interesting in themselves, and also as affording additional illustrations of the incorrectness of the notion that occurrences of this kind are rare among Orchids. How this notion originated we cannot tell, but it is one of old standing, and too general acceptance. So far as we have seen, Orchids seem very subject to these malformations, much more so than many orders of plants. Some of Mr. ANDERSON'S specimens of the flowers (of Odontoglossum Uro-Skinneri) had the sepals and petals, including the lip, reduced to small linear segments precisely like those of Oncidium abortivum. In another flower of the same species the two side petals were adherent to the side of the column. In some flowers of Oncidium cucullatum there was associated with an adhesion of one sepal to another, and probably dependent on the same cause, a displacement of the sepals and petals; both were dragged out of place. This dislocation may be better appreciated by the accompanying formula than even by a woodcut. Let the usual arrangement



be thus represented:—

S standing for sepal, P for petal, L for lip, ST for stamen, then the dislocated form may be represented thus:—



—— Some of our readers may remember the story of a certain traveller who, when relating his experiences in foreign lands, took occasion to speak of a gigantic Cabbage that he had met with upon one occasion, whereupon a bystander, also a traveller, described an enormous cauldron that he had seen in the course of his travels. On being asked by the discoverer of the Cabbage the purport of this huge cauldron, he replied, "Why, to boil your Cabbage in, to be sure." We may fairly ask, how large a copper will be required to cook the fruit mentioned in the subjoined letter, a fruit so large that it is said to contain "several seeds each as big as a child's head." An obliging correspondent has written to us in the following terms respecting this new addition to the MUSEUM HULLETTIANUM:—

"I beg to call your attention to a note which I have just received, and to express my surprise that neither yourself nor any member of your talented staff have given the subscribers to your usually observant Journal the slightest intimation of the existence of such an invaluable plant as is mentioned in the subjoined note. Only think of each seed being as big as a child's head [of what age?] and at the low price of one guinea, and each seed warranted to produce at least 20 fruits. What must the size of the plant be? I expect to hear a shout from Wellington Street of "Prodigious!" Pray keep your eyes open.—Yours, "F.R.H.S."

Here is the note referred to:—

"Clarence Lodge, Cosham, Hants, Jan. 19.

"Sir,—Having received from a friend at Siam, seeds of an *entirely* new and most *wonderful* annual fruit, I thought you might like one, as it is not only *entirely* new, but one of the most wonderful of all known plants. It is an annual, and produces many *immense* fruits, so big that *each seed*, of which there are many, is as big as a child's head [!] The fruit is very delicious when ripe, and can be cooked in many ways. I guarantee each one to produce at *least* 20 fruits, and will refund the money if it does not within eight months. Price of each seed, packed in a case, 21*s*. Should you want one, you must please write at once, or they will be all gone.—Believe me, dear Sir, yours very truly, "J. HULLETT."

New Plants.

DOMBEYA ANGULATA, *Cav.*

Foliis cordatis, subrotundis, supra angulatis, serrato-dentatis tomentosis; umbellis solitariis, numerosis, pedunculo communi petiolo breviori. *Cav. Diss.* 3, p. 123, tab. 39, fig. 1. *DC. Prod.* i. p. 498.

To the above species, though not without hesitation, we refer a plant now blooming in the Palm Stove of the Royal Gardens, Kew, and for the opportunity of examining and describing which we are indebted to Dr. Hooker. Our doubts arise from the imperfect description and figure of Cavanilles. Nevertheless, as the plant at Kew evidently approaches more nearly to the species he figures than to any other that is known to us, we think it preferable to consider it as the true D. angulata than to regard it as the type of a new species. We add a description of the more salient features of the plant in question, drawn up from a comparison of the living plant with a dried specimen from Bourbon in the Kew Herbarium, and which clearly belongs to the same species:—A shrub or small tree, with loosely spreading branches; young shoots, leaf-stalks, leaves, and outer surface of the calyx covered with long, soft, simple hairs (not stelliform as in most of the other species of the genus). Leaf-stalks 1—4 inches long; stipules deciduous subulato-lanceolate, scarcely an inch in length; leaves 2—5 inches long, 3—4 inches wide, cordate, roundish, palmately 5, 7 or 9-nerved, irregularly dentate, obscurely 3-lobed at the apex, lobules sharply pointed. Peduncles solitary terminal, 1—2 inches long, bearing a fascicle of 8 or 10 slender pedicels, about an inch in length, equalling or not exceeding the flowers. Epicalyx of three deciduous, oblong-lanceolate, slightly concave bracts nearly as long as the oblong, acute, concave, spreading sepals. Corolla about an inch in diameter, of five obliquely obovate, blunt-pointed, pure white petals, twice the length of the sepals. Stamens 20, slightly coherent below, 15 fertile, anthers extrorse, 5 barren (staminodes), linear, somewhat club-shaped, flattened at the points, longer than the fertile stamens; filaments pink at the base. Ovary villose; style filiform, as long as the staminodes, surmounted by five revolute stigmas.

From *D. tomentosa*, Cav., a nearly allied plant, the present species differs in its more angular leaves, its more simple inflorescence, and in the narrow bracts of the epicalyx.

The plant here described is similar in habit and general appearance to the old *Sparmannia africana*, and has been an inmate of the Royal Gardens for some years, though it has not previously produced flowers.

The dried specimen above referred to was collected in Bourbon, and that island, with Madagascar and the Mauritius, may be looked on as the head-quarters of the genus. A few species, however, are found on the continent of Africa.

The elegance of the trusses of pure white flowers and their agreeable perfume can hardly fail to attract the attention of the plant lover, more especially at this dull season, and hence it is to be hoped that cultivators may be able to overcome the straggling habit that the plant now possesses, and to induce it to flower at an earlier age, when it would become a valuable addition to the list of winter-flowering stove plants.

The stamens in this plant, as in all the Malvales, may be looked upon as compound, while the ordinary stamen corresponds to a simple leaf; the groups of stamens in the Mallows and allied orders may be regarded as the equivalents of compound leaves, united together at their bases. Some of the lobes or leaflets of these compound leaves bear anthers, while others are destitute of anthers, and constitute the barren stamens or staminodes. Some light is thrown on the uses of these barren stamens by an examination of the plant now under consideration. In the fully expanded flower, the inner surface of the upper angle or point of each petal is about on a level with the stigma and with the tip of the barren stamen, the outer flat surface of which latter, as well as the adjacent portion of the petal, are often dusted over with pollen, the true stamens nevertheless being at a considerable distance beneath these organs. In less fully developed flowers the barren stamens may be seen curving downwards and outwards so as to come in contact with the shorter fertile stamens, whose anthers open outwardly, and thus allow their contents to adhere to the barren stamens. These latter, provided with their freight of pollen, uncoil themselves, assume more or less of an erect position, and thus bring their points on a level with the stigma, whose curling lobes twist round them and receive the pollen from them. The use then of the long staminodes seems to be to convey pollen from the short fertile stamens the stigma, which, but for their intervention, could not be influenced by it. The presence of pollen on the upper and inner corner of the petals is readily explained by the fact that owing to their position and peculiar form they all come in contact with the ends of the staminodes and the stigmas, and hence they too get dusted with pollen.

These arrangements would therefore seem to favour self-fertilisation, and they show how an organ spoken of sometimes somewhat contemptuously, as barren, rudimentary, imperfect, or the like, may yet play an important part both in the architectural plan of the flower, and in its life history. *M. T. M.*

PLANT PORTRAITS.

ANTHURIUM REFLEXUM.—*Gartenflora*, t. 519. Orontiaceæ. A stemless stove perennial, with thick green, elongate, heart-shaped leaves, having semiterete petioles, and short recurved peduncles bearing ovate spathes about as long as the thick oblong spadix. The leaves are about a foot in length. Native of tropical America. Flowered in the St. Petersburgh Botanic Garden, where it was received from the Garden of the Paris Museum.

BOWIEA VOLUBILIS.—*Bot. Mag.*, t. 5619. Liliaceæ. A botanical curiosity of much interest, but of little beauty. It has a fleshy leafless bulb, and a climbing stem, the lower branches of which are dichotomously divided into numerous terete horn-like intertwisted branchlets, and the upper parts bear a few green Drimia-like flowers. Native of South Africa. Flowered at Kew.

CAMELLIA STELLA POLAIRE.—*L'Illustration Hort.*, t. 502. Ternstrœmiaceæ. A pretty imbricated variety, with double flowers, scarcely of the middle size, but very regular, full, and perfect in form; the colour a lively

rosy crimson, each petal with a bold central stripe of rosy white, equal in width throughout, thus forming, as it were, a star with many rays. Raised in Florence. Flowered by M. A. Verschaffelt.

CATTLEYA DOWIANA.—*Bot. Mag.*, t. 5618. Orchidaceæ. This magnificent plant, described at p. 922 of our volume for 1866, is perfectly distinct from all others, and at least equal in beauty to the most beautiful of its race hitherto known. It has the habit of C. labiata, and bears very large flowers, the plane lanceolate sepals and broader wavy petals being of a deep nankin-yellow, and the frilled lip wholly of a rich dark puce purple, traversed throughout by golden veins. Native of Costa Rica. Flowered by Messrs. Veitch & Sons, and Mr. Bateman.

CIRRHOPETALUM PAHUDII.—*Neerl. Plant.*, 1866, t. 4-5. Orchidaceæ. An odd-looking stove epiphyte, with a creeping rhizome, compressed cylindraceous pseudobulbs, solitary, elliptic-oblong leaves, and radical flower scapes supporting an umbel of from 8 to 12 large flowers, which are brownish-red, minutely dotted with red, and having an ovato-lanceolate purple lip; the dorsal sepal is 4 inches long, and the two petals, about half its length, are directed backwards parallel with it, all being prolonged into a filiform tail, while the two lateral sepals are directed forwards parallel with the lip, and are about as long as the petals. It is the Bolbophyllum Pahudii, *Reich. f.*, and Cirrhopetalum flagelliforme, *Teusmann & Binnendijk*. Native of Java Flowered in the Leyden Garden.

GRIAS CAULIFLORA.—*Bot. Mag.*, t. 5622. Myrtaceæ. A stately Palm-like tropical tree, forming a head of large lanceolate-acuminate leaves, 3 to 4 feet long, and producing pale yellow fragrant flowers 2 inches broad from the trunk, far below the leaves. Native of the Spanish Main. Flowered at Kew. It is the Anchovy Pear of the West Indies.

HIPPEASTRUM ALBERTI. — *L'Illustration Hort.*, t. 498. Amaryllidaceæ. This beautiful hothouse bulb has precisely the habit of H. equestre, but its orange-red flowers, yellowish towards the base of each petal, measure as much as 6 inches across, and are full double, the organs of fructification being replaced by from 30 to 40 petals, so that it altogether eclipses the double H. fulgidum, which has only two rows of petals. Found cultivated in Cuba by M. Albert Wagner, and sent by him to M. Wagner, of Leipsic, from whom the stock has been acquired by M. Laurentius.

HYDRANGEA JAPONICA MACROSEPALA.—*Gartenflora*, t. 520. Hydrangeaceæ. A variety somewhat resembling the var. rosalba of M. Van Houtte, but described as having the segments of the sterile flowers 1½ inch broad. They are white, becoming tinted with rose as they acquire age. Native of Japan, introduced by M. Maximowicz. Flowered in the St. Petersburg Botanic Garden.

HYDRANGEA STELLATA PROLIFERA.—*Gartenflora*, t. 521. We have here, observes M. Regel, a rival for the well-known H. Hortensia, namely a new Hydrangea with a full head of flowers. In habit and foliage it resembles the species we already possess, but the large terminal cyme is densely packed with sterile flowers, of which the sepals, from 10 to 15 in each flower, are elliptic in form, while from one to five similar but smaller flowers are developed in the centre of most of the primary ones; they open of a yellowish-green, and change to rose colour. Native of Japan, introduced by M. Maximowicz. Flowered in the St. Petersburg Botanic Garden.

IRIS KÆMPFERI VARS.—*Neerl. Plant.*, t. 33-34. Iridaceæ. Of this beautiful hardy Japanese perennial two fine varieties are figured in the plates before us. They are named PHILIP VON SIEBOLD, a very large deep purple with golden blotch near the base; and ALEXANDER VON HUMBOLDT, an immense flower, pure white with a golden feather at the base. According to the figure the flowers of the latter variety are more than 6 inches across. Flowered by M. Krelage.

MYOSOTIS IMPÉRATRICE ELISABETH.—*L'Illustration Hort.*, t. 500. Boraginaceæ. This is a hybrid, stated to have been raised between M. azorica and a variety of M. sylvatica, and, according to the figure, is one of great beauty, remarkable chiefly for the immense profusion of its small bright blue flowers, which have a yellow eye. It is, moreover, said to be almost a continual bloomer, to flower freely in winter, and to force well. It is quite hardy. It was raised by M. Doeller, of the gardens of Schönborn, near Vienna, and is cultivated by MM. Haage & Schmidt of Erfurt.

OPHIOPOGON JAPONICUS ARGENTEO-STRIATUS.—*Neerl. Plant.*, t. 31. Liliaceæ. A pretty dwarf hardy herbaceous perennial, having linear-lanceolate leaves striped with green and creamy-white, and bearing racemose spikes of deep blue berries about the size of Currants. The flowers are not described. It appears to be a striped form of the broad-leaved plant known in gardens as O. Jaburan. Native of Japan. Flowered by M. Von Siebold.

INSULAR FLORAS.

(*Concluded from p. 51.*)

THIS is but a brief outline of Mr. Darwin's arguments in favour of trans-oceanic migration; such as it is, it shows a power and skill of bringing facts to bear, and a fertility of invention in devising means of verifying these facts, that almost compel me to agree with him in regarding oceanic transport to be, in the present state of science, the principal and most probable means by which oceanic islands have been stocked with plants; I say most probable, for I should add, that Mr. Darwin does not put this view forward as more than an opinion to which he inclines; with that candour which characterises all his writings, he will not let even the corroborative evidence which his derivative theory affords him, weigh when estimating the value of the two hypotheses.

But though Mr. Darwin's explanations cover many of the requirements of our problem, and may eventually prove to satisfy all, there are great difficulties in the way of its full acceptation.

First, as regards transport by winds, ocean currents, &c., much that we know of the directions of these agencies in the North Atlantic, is in favour of their bringing American and not European plants to the Azores; and yet we find even fewer American types in this group than in Madeira and the Canaries. This objection is very partially met by the fact that the Azores are nearer Europe than America, and that American plants when brought into competition with European, are beaten in the contest, and that many of the American types were also European during a comparatively recent geological epoch. For the superior American currents of migration should at least keep up some supply.

Nor is it sufficient to quote the fact that the birds of these islands are (as Dr. Sclater assures me is the case), almost identical specifically with European ones, and are thus the living proofs of the migration being from Europe. No doubt they are proofs of bird transport being from Europe, but not necessarily of plant transport; for since the plants are considerably different specifically, and the birds not at all, it may be argued that the birds and plants do not come under the same category. Mr. Darwin answers this objection by the consideration that the migration of birds being continuous and frequent, and these all surviving, they keep up the specific type, and do not give origin to local varieties; whilst the transport of seeds being casual and rare, and very few surviving, these in the process of time give rise to varieties, &c., and do not perpetuate the continental races.

So, too, it is with St. Helena and Ascension—they have no land birds, but an African vegetation; and though nearly midway between Africa and America, they have scarcely a single American type of flowering plants: and Kerguelen's Land has a Flora of whose elements most have emigrated not from the nearest land but from the most distant.

Another difficulty is presented by the extreme rarity of some of the plants common to the North Atlantic Islands; take, for example, that remarkable Canarian tree, Bencomia caudata, of which only two individuals have been found in the mountains of Madeira, and these a male and a female. It is almost inconceivable that individuals of both sexes should have been transported within the same lifetime from the Canaries to so great a distance; and so with the other peculiar and rare plants common to these groups; intermediate masses of land, as the Salvages, on which such plants abounded, afford the only conceivable means of inter-insular transport; and if intermediate islands are granted (and Mr. Darwin freely grants these), why not continents?

It is admitted that certain large islands, which lie too near the continents to come under the technical definition of oceanic, and which do contain terrestrial Mammals, as Great Britain, Ceylon, Madagascar, Japan, the Falkland Islands, &c., were once united to the continents to which they are adjacent, and thus received their immigrants; and an examination of the Floras of most of these exceedingly complicates the question, for unlike oceanic islands, many of these do contain, besides the plants of the adjacent continents, many types of those peculiar to the opposite continent—Ceylon containing Malayan plants not found in the Indian Peninsula, Japan possessing N. American plants; and Madagascar, Bornean, and Javan. We should thus be forced to admit that whereas the great islands which are peopled by plants through direct communication with the adjacent continents, do receive immigrants from other most distant continents, the little islets that are much nearer the continent, and over whose course the currents of migration must have swept, have been exempted from its effects. Here, again, as it appears to me, the only answer is by an appeal to the very different rates in which the vegetation has changed in the islands and the continents during comparatively recent geological periods.

Then, too, we have conspicuous examples of islands not having profited by migration from the nearest continent, where it would be most expected they should. Take New Zealand: it does contain certain Australian species and types, but these are not the most common, or most likely to have arrived by trans-oceanic migration. The arboreous vegetation of Australia mainly consists of Gum trees and leguminous plants, which cover three-fourths of the wooded parts of that continent, but not one is found in New Zealand; yet the seeds of the Gum trees are very minute, are shed in inconceivable quantities, retain their vitality long, and both Gum trees and Acacias, when introduced by man into New Zealand, become naturalised at once, and actually displace the indigenous vegetation of the island.

Even if we grant, with Mr. Darwin, that the specific and sub-specific change between the Floras of oceanic islands and continents, is due to the new relations into which the continental plants are brought in the narrow areas that islands present, and the ensuing sharper struggle for existence, how does it come about that the plants of the Azores, which islands are 750 miles from Europe, are less changed than those of Madeira, which is only 300? This objection seems to me to be imperfectly met by the fact that the nearer island, receiving more immigrants, exhibits the sharper struggle; for this same cause should rather replenish the island with identical forms, and by cross-fertilisation tend to keep them more specifically true; as was assumed in the case of the European birds of the Madeiran group being unchanged, whilst the plants of the same group have changed.

With regard to the objection that oceanic islands are volcanic, and hence probably not the mountain-tops of sunk continents, and that they contain no fossil mammals, we have in the Malay Archipelago, vast areas of land which, if submerged (and they are exposed to constant subsidences and risings) would leave only isolated volcanic peaks, such as oceanic islands present. Were such an area to be submerged, leaving exposed the volcanic peaks of Java and the Moluccas, &c., &c., should we expect to find either recent or fossil terrestrial mammals upon them? Nor should it be overlooked, that as a general rule, islands diminish in size and numbers towards the centres of the great oceans, which, taken with the admission, that the great islands adjacent to the continents were previously united to them, would favour the hypothesis that all may have been so. Then, too, we have instances of continental distribution, presenting facts so analogous to oceanic, and hitherto so utterly inexplicable, on any hypothesis of migration that does not embrace immense geological changes, that we can scarcely avoid coupling the phenomena they present with those of oceanic islands.

On the other hand, to my mind, the great objection to the continental extension hypothesis is, that it may be said to account for everything, but to explain nothing; it proves too much: whilst the hypothesis of trans-oceanic migration, though it leaves a multitude of facts unexplained, offers a rational solution of many of the most puzzling phenomena that oceanic islands present: phenomena which, under the hypothesis of intermediate continents, are barren facts, literally of no scientific interest—are curiosities of science, no doubt, but are not scientific curiosities.

Thus, according to the hypothesis of trans-oceanic migration, and the theory of the derivative origin of species, we can understand why the ancient types, like ancient races of mankind, which have disappeared before the steady forward pressure of superior races on the continents, should have survived on the islands to which but few of the superior race had penetrated; we can understand how it comes about, that so many continental species and genera are represented on the island by similar but not identical species and genera, and also for the representation of genera and species in the separate islets of the group. We can understand why we find in the Atlantic island Floras such a graduated series of forms, ascending from variety to genus, without those sharp lines of specific distinction that continental plants exhibit; why whole tribes are absent in the Islands; why their Floras are limited, and species are few in proportion to genera; why so many of their peculiar genera tend to grotesque or picturesque arborescent forms—and many other minor facts which it would weary you to enumerate.

And if many of the phenomena of oceanic island Floras are thus well explained by the theory of the derivative origin of species, and not at all by any other theory, it surely is a strong corroboration of that theory. Depend upon it, the slow but steady struggle for existence is taking advantage of every change of form and every change of circumstance to which plants no less than animals are exposed; and, that variation and change of form are the rules in organic life, is as certain as that definite combinations and mathematical proportions are the rules in the inorganic.

By a wise ordinance it is ruled, that amongst living beings like shall never produce its exact like; that as no two circumstances in time or place are absolutely synchronous, or equal, or similar, so shall no two beings be born alike; that a variety in the environing conditions in which the progeny of a living being may be placed shall be met by variety in the progeny itself. A wise ordinance it is, that ensures the succession of beings, not by multiplying absolutely identical forms, but by varying these, so that the right form may fill its right place in Nature's ever varying economy.

The acceptation of general principles, whether in the physical or biological sciences, has always been a slow process, and I look for no exception in the case of this of the derivative origin of species. The physical sciences however, have the start of the biological, scientific progress in them having commenced several centuries ago, whereas it is hardly one century since Botany and Zoology first became the subjects of exact scientific study. Before that period not a system had been invented, and the principles of life, whether in their structural or functional aspects, have for the most part been discovered within the life-time of many of us here, and the knowledge of them is not yet recognised as a branch of a liberal education.

You have all read of uncivilised races of mankind that regard every month's moon as a new creation of their gods, who, they say, eat the old moons, not for their sustenance, but for their glory, and to prove to mortals that they can make new ones; and they regard your denial that their gods do monthly make a new moon as equivalent to denying that they could do so if they would.

It is not so long since it was held by most scientific men (and is so by some still) that species of plants and animals were, like the savages' moons, created in as many spots as we meet them in, and in as great numbers as they were found at the times and places of their discovery. To deny that species were thus created was, in the opinion of many persons, equivalent to denying that they could have been so created.

And I have twice been present at the annual gatherings of tribes, in such a state of advancement as this, but after they had come into contact with the missionaries of the most enlightened nations of mankind. These missionaries attempted to teach them, amongst other matters, the true theory of the moon's motions, and at the first of the gatherings the subject was discussed by them. The presiding Sachem shook his head and his spear. The priests first attacked the new doctrine, and with fury; their temples were ornamented with symbols of the old creed, and their religious chants and rites were worded and arranged in

accordance with it. The medicine men, however, being divided among themselves (as medicine men are apt to be in all countries), some of them sided with the missionaries—many from spite to the priests, but a few, I could see, from conviction—and putting my trust in the latter, I never doubted what the upshot would be.

Upwards of six years elapsed before I again was present at a similar gathering of their tribe; and I then found the presiding Sachem treating the missionaries' theory of the moon's motions as an accepted fact, and the people applauding the new creed!

Do you ask what tribes these were, and where their annual gatherings took place, and when? I will tell you. The first was in 1860, when the Derivative doctrine of species was first brought before the bar of a scientific assembly, and that the British Association at Oxford; and I need not tell those who heard *our* presiding Sachem's address last Wednesday evening that the last was at Nottingham. *J. D. Hooker.*

ARTIFICIAL HEAT.

(*Concluded from p.* 1244, 1866.)

OF all the examples of Vine-culture that I have seen, I do not recollect one instance in which I could say that the Vine was stall-fed, or had all it wanted. We run too much in the same rut with those who have gone before us. Now, if we were to take the primæval jungle for our Vine border, and the rambling Vine shooting through and over the tangled brake, hanging the bunches of Grapes upon the trees by means of its tendrils, then, whilst it bore fruit upwards, it must have taken root downwards, showing the use of the aërial roots issuing from the stems, and when these had reached the decay of ages of vegetable mould—ay, and of animal mould, what a rush of growth the Vine must have made under a tropical sun! Indeed, the character of the plant tells clearly how well it is calculated to "hide the ruin that it feeds upon;" it forms its tissue so rapidly that it could not luxuriate, unless it could appropriate plenty of rich food and moisture. There are Vines cultivated that yield a ton of Grapes annually. Now, if we put this into figures, we have 252 gallons, or, in round numbers, a thousand quart pitchers of wine on one plant, and unless the supplies of food and of drink to such a plant were unlimited, the end never could be attained. In the jungle it would issue new roots, which, travelling into fresh pastures, would tap new reservoirs of moisture.

The Vine is called a foul feeder, but it is more exact to call it a rapid feeder; its roots are more like the underground stolons of Couch-grass than ordinary feeders, and they travel rapidly. We read of the wild Vine with a stem as thick as a man's body, and judging from our own experience of stem and foliage, we can reckon the whole question—the extent and richness of the Vine border, the tons of moisture ascending through that stem, and the sun-heat necessary to pump up and elaborate so much rich juice. Tried by this standard a Vine in a pot is a toy. A Vine in a hothouse is only a Vine in a larger pot, and of a square form, and a Vine in a border 30 feet wide, and fat with the dung of animals, and well peppered with bone manure, would only be "a tub to the whale" after all. The earth where the Vine is planted should incline to the south, and thus give the roots artificial heat; and unless the earth is open in texture, the feeders could never follow up the chase for food in it, and as light and heat are combined in Nature, we must not separate them in Grape growing. Therefore a high temperature should go with the sun or "the greater light," and we may rest assured that the cool reaction of night is beneficial, for darkness can never do the work of light. I need not adduce chemical tests to prove this. I was at some pains to examine a collection of fossil Ferns, beautifully preserved to us in the coal formation, and from the rank luxuriance of the specimens "imprinted" in that ancient book, printed before the days of Caxton, I could not help conjuring up from the vasty deep of earth and time by which they had been overlaid, the very climate they enjoyed, and the jungle that made that climate calm and moist. O what a tale of other days these denizens of the deep unfold to us, as they now lie high and dry in our museum here, having been heavily pressed for ages to ornament a lump of coal; and when we see what beautiful Ferns are irretrievably lost, how we ought to rejoice that the Vine has held its ground, and come down to us improved.

Acres of excellent Vines might be secured to us by a little artificial heat in the form of bottled sunshine, for glass is not now what it has been. Cucumbers had gone afield long before my time; but Gourds have gone over to the farmer in my day, and the Vine is a far safer subject to work than either of these. I look upon the intelligence of our age to "wash our garments in wine;" for Grapes can certainly be grown in the sunny vales of England under glass at 3*d.* per lb., and good Grape wine made at the price of ale, 4*d.* a pint.

Should any one be tempted to make light of the subject of artificial heat, let him take a pocket lens and point the few sunny rays that fall thereon to its focus. He will find that it will burn dry wood, and would set a forest on fire, yet it has come down to us through regions where the snow thaws not, and it has been tugging light after it at no sluggish pace. Lord Byron joked this latter traveller, and spoke of light travelling at such speed "after it was packed up for its journey;" and well he might. The beautiful arrangement that Nature makes to close the flower at night by folding the corolla over the pollen like a penthouse, whilst the leaves are being saturated with the needful dew, is something bordering on the sublime. Most Orchids have a natural penthouse over the chief organs of their flower. The dense vapour that feeds their naked roots would make a paste of their farina. These are lessons not to be lost sight of, for there comes a time when dryness ought to be the order of the day, whether in Vine culture or any other culture; and then

> "The weary *gardener*, with wild surprise,
> Sees the *dank vapour* all around him rise,"
> And his ill-flavoured Grapes shank off before his eyes.

I knew a gardener who always carried a small planting trowel in one of his pockets, and an ordinary huck-a-back towel in the other, so that when he had to gather flowers or fruit, or see company, he could wash and dry his hands quickly. One of these towels would occasionally be hung in the hothouse all night, and the state of the towel in the morning indicated the dryness of the atmosphere. I mention this for the benefit of the elder brethren of the blue apron who may dislike decimal fractions in working the wet and dry bulbs of the thermometer to ascertain the moisture in the air. This vexed question of heat with and without moisture might be illustrated to some extent if we could conjure up the gigantic and coarse vegetation imprinted on the coal above alluded to—where amphibious reptiles crawled in the dreadful swamp; where marsh gas must have abounded at night; indeed Will-o'-the-Wisp must have felt quite at home, and no doubt entertained his friends there. Clouds of vapour by day, with all the ills that rise from fens—ague, &c., must have rioted when the coal was moist, and took the impress of the dry Fern which it has so beautifully retained. Nothing can be clearer however than the fact that side by side with the swamp grew flowerless plants, and looking at the Ferns represented, the temperature no doubt was high. Among the thirsty plants left to us, we admire the elegant Sundew, growing out of moist peat and Sphagnum doing as his betters did in other days; and as we go up the ladder a little we have the Pitcher plant, the small plants of which raised from seed have not true leaves but pitchers, or, as they would say in the North, each tiny plant

> "As gude as kept a sma' still."

The circumstances under which such plants grow now, help us to estimate the climate they grew in then. Notwithstanding the wonderful structure of the Nepenthes it is far surpassed by the Vine as a pitcher carrier, and during the growing season a moderately warm swamp would no doubt favour the rapid development of this wine carrier. The artificial heat of winter has a fixed character. That of spring seems associated with moisture, and all our successful cultivators seem lavish of vapour at that season. The summer seldom needs our aid in this way, the "one long summer day of indolence and ease" seems amply sufficient for horticulture while it lasts, but we frequently have to supplement by means of fire the want of autumn heat, for in dealing with exotics our summer is frequently too short at both ends. The experienced eye can tell by the sere leaf of the Vine, and the straw colour of the cane, whether autumn has honestly done its part. We see in our indigenous trees in autumn the hues we want, and if we want better models we need only go where the poets (those long-flight men) tell us,—

> "Everlasting Autumn lies
> 'Mid yellow woods and sunny skies,"

to learn the quantity as well as the quality of artificial heat we require. *A. Forsyth.*

THE LATE PHILIP FRANZ VON SIEBOLD.

[We have been favoured by Professor Oudemanns, of Amsterdam, with the following notice of the life and labours of the Chevalier Von Siebold, in which many of our readers, we are sure, will feel interested. EDS.]

THE Chevalier Philip Franz von Siebold died at Munich on the 18th of October last. This great scholar, who had made his name world-famous, and shed thereby a lustre on both his native and his adopted country, was born at Würzburg on the 17th February, 1796, of a family which has given several distinguished members to the medical and other kindred professions; in fact, his daughter (who has supplied the groundwork of this sketch) enjoys at this day the reputation of being a most able practitioner in Japan in the ailments of women.

Von Siebold received a first-class education at Würzburg, and obtained the degree of Doctor in 1820. Two years later he followed the example of so many of his countrymen, and went to Java as medical officer in the Netherlands service; and when that Government despatched a scientific expedition to Japan, Von Siebold was attached thereto as medical officer and naturalist.

Arrived there, he was compelled, like all foreigners, to confine his explorations to the immediate vicinity of "Desima." He soon, however, acquired greater freedom, mainly in consequence of the repute attaching to his name as a man of science. The Japanese naturalists, and even the physicians of the Royal Court, flocked to hear his teachings, and they in their turn gave him the best and most reliable information respecting the political, historical, and geological features of a country then comparatively unknown.

In 1826 Von Siebold had the good fortune to accompany the Dutch Ambassador to the Court of Jeddo.

Incited by his love for scientific inquiry, his pupils visited almost every province of the country, and the results of their investigations were carefully collected and digested by their master. In 1828, however, while he was on the point of returning to Java, his life was endangered by the excessive zeal of one of his friends, the Imperial astronomer and librarian. This gentleman had furnished him with a hitherto unpublished map of the empire, and for this cause Von Siebold, who risked his own life to save that of his friend, was thrown into prison at the moment that he was embarking for Europe, whither his companions had already preceded him. He returned home however on the 7th July, 1830, and although holding the rank of colonel in the general staff, he quitted the Netherlands service, and employed himself in the arrangement and classification of the rich store of scientific curiosities which he had recorded and collected in Japan, while his wonderful collection of ethnographic objects was purchased by the Government. The latter has been beautifully arranged in the State Ethnographic Museum at Leyden, and is now open to the inspection of the public.

We proceed to enumerate the series of interesting works which have been edited by Von Siebold alone, or in conjunction with other learned Professors.

In addition to the treatises included in the "Transactions of the Batavian Society of Arts," we find—Nippon Archiv, zur Beschreibung von Japan, etc. Leiden, 1832—1851. This work, which is not yet entirely completed, made at once a great sensation in the learned world, from the wonderful wealth of scientific matter contained in it. This was immediately followed by his "Fauna Japonica," Lugd. Bat. 1833—1851, in folio, in which he was assisted by C. J. Temminck and H. Schlegel, and also by his "Flora Japonica," illustrated by Zuccarini, and which have been published in part in the "Transactions of the Second Class of the Royal Academy of Sciences," iii. and iv., of Munich. Furthermore a collection of works, lithographed by the Chinese artist Ko Tsching Dscheng, at Leyden, chiefly relating to the literature of Japan.

About 1854 he fixed his residence on the banks of the Rhine, in the neighbourhood of Bonn. But when European nations became alive to the benefits likely to accrue from extended commerce with Japan, he was encouraged to take up his pen, to serve as pioneer and guide to the fleets of commerce. This he did by means of a work intituled "Urkundliche Darstellung des Bestrebungen von Niederland und Russland zur Eröffnung Japan's fur die Schiffahrt und den Seehandel aller Nationen" (Bonn, 1854, with map), and this work was the same year published in Dutch at Bommel.

Soon after he paid a second visit to Japan. So changed, however, was the condition of affairs that he very naturally failed to inspire the same romantic interest amongst the people that he did on his first visit. He returned to Europe with a new collection of objects bearing upon the physical and social peculiarities of Japan. On his arrival in Holland, having attempted in vain to induce the Government to annex the second to the first collection, he determined to travel and offer it to some other museum, whether at Würzburg or elsewhere. At last he succeeded; the King of Bavaria bought the whole collection for the Museum at Munich, and this purchase is now awaiting the confirmation of the Bavarian Chambers. He was engaged in classifying and arranging this Museum when death overtook him from poisoning of the blood (fever?).

In the previous year numerous articles from his pen on the subject of Japan were published in the Augsburg "Allgemeine Zeitung."

About the year 1850 Von Siebold made great efforts to improve the science of horticulture in Europe, and to import new plants, especially from Asia. His designs also for the laying out of gardens serve to show that mere science was not the sole incentive to exertion on the part of the Professor. It is probable however that this enterprise met with no great success; indeed everything that was not exclusively identified with science, was more or less a failure with him. One of the greatest services rendered by Von Siebold to horticulture was the laying-out of his nursery ground in the immediate vicinity of Leyden—at Leiderdorp—for the purpose of propagating and bringing into vogue plants and shrubs as they were imported direct from their native soil. This garden, better known as the "Jardin d'Acclimatation du Japon et de la Chine," contained about 5 acres of ground, and was laid out in the year 1843. Since that date the following plants and trees have been introduced, either by Von Siebold himself or by his intervention:—

25 kinds of Maple (Acer), of which only three were known in commerce.	12 kinds of Weigela.
4 kinds of Aralia.	15 kinds of Euonymus.
20 kinds of Aucuba (amongst them some with male blossoms).	12 kinds of Hydrangea (of which six are not yet known in commerce).
4 kinds of Bambusa.	6 kinds of Malus.
4 kinds of Cerasus (not yet in commerce).	6 kinds of Osmanthus.
4 kinds of Citrus (not yet in commerce).	4 kinds of Persica.
12 kinds of Clematis.	8 kinds of Pinus.
6 kinds of Deutzia.	12 kinds of Quercus (evergreen).
12 kinds of Diervilla.	2 kinds of Spiræa.
	6 kinds of Viburnum.
	4 kinds of Glycine sinensis.

Besides the above, there are in Von Siebold's garden select specimens of Japanese or Chinese Conifers, Pines, Lilies, Camellias, and a host of variegated plants. In regard to many of these, we refer to the "Catalogue raisonné et Prix Courant des Plantes et Graines du Japon et de la Chine" for the year 1863, now before us.

We are in a position to state that the Acclimatisation Garden of Von Siebold will be preserved, and the cultivation of it continued for the original purpose, and objects of its founder.

ORCHIDS AND THEIR CULTIVATION.

No. XV.

Oncidiums.—The family of Oncidium has a wide geographical distribution in the New as well as in the Old World. The only genus that bears comparison at all with it in this respect, is that of Epidendrum. There is scarcely a field of importance that has come under the investigation of our enterprising and intrepid collectors but has furnished some individual of interest or beauty, to our rich European stores. It may have been found in close proximity to the snow-capped ridges of the almost inaccessible mountains that dot the surface of Central America, which are within the icy grasp of a polar atmosphere, many of them remarkable, as is well known, for their tremendous

volcanic eruptions. That the family connection is a large one may be taken for granted when we know that one or other of them are found in Brazil, Mexico, Oaxaca, Guatemala, New Granada, Ocãna, Peru, Panama, Surinam, Jamaica, and Tropical America generally—a range which includes such a variety of climate, verging upon the line of both extremes of a polar and tropical temperature, as to demand something like a systematic arrangement in our endeavours to naturalise them. There is this difficulty—and it is one that is not easily bridged over—the want of complete data for cultural purposes. Any one possessing the slightest knowledge of the geography of the earth can well understand the dilemma of a cultivator, who is handed half a dozen species or varieties of Orchids, and simply told they were found in Mexico. He introduces them into a "convalescent home," and is expected, with the knowledge he may already possess of plants in general, to be able, by wise means, to recruit subjects exhausted to the last degree of physical energy, and restore them to their wonted health and vigour, so that they may increase in bulk and periodically produce flowers. The gardener may possibly succeed, but don't abuse him if he lamentably fails; for most of the climates of the earth are to be found on the surface of Mexico.

There is, then, for this simple reason, the less wonder at the want of success realized in cultivating and preserving the lives of many of the epiphytal plants that found their way to this country 30 years ago. After both reading and hearing of the many choice things that fell victims to improper treatment at the period above referred to, and looking to the character and kind of those which survived, and succeeded thereafter unexceptionably, the natural inference is that growers resolved that because certain Orchids appear to "do well" in tropical houses, *ergo* all, from whatever quarter, should be so treated. To take a familiar example, no one would have thought of separating Vanda cœrulea or V. teres, the one coming from the Khasya hills, and the other from Sylhet, from their co-allies Vanda suavis or V. tricolor, notwithstanding that their home was amid the sultry and unbearable heat of the forests of tropical Java. The former is a testy subject which seems to baffle most cultivators, but at all events the natural habitats must be nearly as opposite as the poles; and the rainfall on these hills, upon the authority of Dr. Hooker, must be somewhat startling. The latter, wintered in moderate heat, does not merit the stigma attached to its name, of being a shy-flowering plant, as witness the success of Mr. Bateman's plant, so treated, at Knypersley. The very same argument is applicable to Oncidiums. To treat all upon the same principle, giving the same food, the same amount of water, the same heat and cold, would be very bad treatment indeed—such in fact as would not be tolerated for a week in the best collections of Europe, for the supervisor is liable at any moment to be supervised by the searching eye of those whose treasure is so largely invested. This shows the reason why we are all so anxious to procure the minutest information as to local habitat, so as to gain in some measure, a guide for cultural routine.

To be precise upon the point, I may be allowed further to remark that it is not judicious, in many instances, doggedly to follow natural conditions, however nicely they have been copied and noted by discriminating observers. It is wisdom, albeit, to store up all trustworthy evidence and accept it as the groundwork or basis of a calendar of operations. More particularly is this desirable from a climatal point of view, for the variations that occur in Nature cannot be neglected in our glass houses with impunity. Some species are capable of resisting more fatigue, so to speak, through injudicious cultivation than others, and the majority of Oncidiums are very patient in undergoing such an ordeal; but I am not dreaming of the possibility of such a state of matters. I am concerned and interested in the full meaning of the word 'cultivation' as applied to the family and the race.

To illustrate this, I may state that it can be proved beyond question or doubt that great numbers of purely epiphytal plants that have never been seen or found in any other condition, in the countries where they are indigenous, are very much improved by the artificial aid of pots, baskets, or pans filled with Sphagnum, and charcoal, and potsherds. It would be folly and blindness, therefore, to persevere in treating plants to "bare block" culture that were capable of being advanced a step or more in the process of cultivation. Take Oncidium bifolium, for instance, a variety that was nearly lost to the country through impoverishing treatment, until the Messrs. Veitch introduced a beautiful lot from Monte Video, a picturesque tract of country with extensive ranges of gentle elevation scantily covered with soil. This plant is found in a purely epiphytal state in that region, and was scarcely ever experimented upon by cultivators, owing to the character for shyness or "miffiness" with which its name was mixed up. Give a plant a bad name, and it is scarcely in a better position for safety than the dog in the fable; and so with poor bifolium, which if at all presentable in the market, was chopped up, and subdivided into pieces so beautifully small, that it would require half a lifetime to grow them into "decent-sized plants." On one of my visits to London I was delighted to see a splendid stock of this rarity in the hands of the Messrs. Veitch, and at once purchased 12 blocks of them for my employer. Six of these I introduced into the "hanging Orchid pot," an engraving of which was given in these pages (1865, p. 1155). The rest were allowed to grow unmolested, and I am now enabled to report progress at the end of a twelvemonth's testing trial, to the decided advantage of the six growing in the pots, which are now worth a third more money than their comrades. Moreover, the pseudobulbs which they have matured are greatly superior to the corresponding ones made in the place of their nativity, which is the best certificate possible that this Orchid and many others which I could name and illustrate in the same way, are capable of being improved, like our Oats, our Wheat, or our Barley, under the beneficial influences of cultivation.

Considering the range of country which these Oncidiums more or less occupy, the reader need not be startled at the announcement that they ought to be marshalled under three different classes, and subjected to a range of three different temperatures, to ensure that amount of success which it is so desirable to attain. For all practical purposes, however, with due care and forethought two houses at different temperatures will suffice. More attention is requisite in the one case than the other, especially for a winter temperature. The variation between in-door and out-door temperature is at a much greater ratio than in summer, and the pressure of heat correspondingly so: hence the necessity for a range of temperature. Moreover, some sorts, which the practical experimentalist would introduce into the intermediate temperature of a third house, and rest with composure, relying on their safety, would require extra vigilance in the routine and details of practice, if placed in either of the extremes, and I will explain the reason why. O. leucochilum is a very gross-growing species, and it must have been found at a considerable elevation in Mexico. It is one of those which could be left with safety in an intermediate temperature at a minimum of 50°; but it can be grown to equal perfection in the cool-house with a minimum of 40°, only this must be observed as a rule: the amount of water given must be accurately measured by the eye, and be used of a temperature of not less than 60°, else the fine pseudobulbs will soon give index of discoloration, and will rot and die, and nothing can counteract the affection when once it is induced. I have kept plants of such precarious tendency as this, at a very low minimum temperature, solely by means of watering them at the root with tepid water, and always exercising due vigilance that both leaves and bulbs were allowed to get comparatively dry for an hour or two in the middle of the day.

It has always been recognised as one of the most important points in practice to cater for matured growth—for ripened wood, as the fruit growers enjoin. The Orchid grower must not only learn how to induce the formation of large pseudobulbs, and fine vigorous leaves bearing evidence of exuberance upon their outline and exterior, but he must be able to perfect the machinery, or rather the mechanism of the physiological structure by adopting a course which will conserve and consolidate the work against the sudden inroads of disease for example, which is a trying and ticklish thing to counteract. This is one of the masterstrokes of practice, and young enthusiasts would do well, if they would look it fairly in the face.

Before detailing the varieties worthy of a place in general collections, and separating them into groups, it will be well to state that the great majority of the tribe require to be grown on the common pot-culture system. A few, such as crispum, barbatum, sarcodes, triquetrum, and bifolium, succeed better suspended from the roof in the hanging pots formerly alluded to. They evidently luxuriate all the better if their roots are twining in and around these pots, in a somewhat circumscribed compass. The solitary occupant of the "block" is the tiny variegatum. It evidently cannot endure its roots being covered up with Sphagnum to any extent, and if this is persevered in, they often die off by inches. It is not one, so far as my experience goes, that ever can be induced to grow to any size. Most of those that come under the eye are only plants in name, producing small racemes of flowers, beautiful enough certainly, but like a finical person, "more bother," as the Scotch phrase goes, "than they're worth."

As to material for pot culture, good Sphagnum, which is common enough in all bogs and marshes, torn up and incorporated with the fibry material of half-decayed vegetable matter, such as the roots of Heaths on the wild moor, or the roots of Grasses in mossy plantations, are the things desirable. By all means it must be elastic and rid of the great proportion of earthy particles; and if it be so, I will engage the roots of any of the plants will permeate and encircle it in all directions. Charcoal, as a capital conductor of moisture, may be introduced with advantage, and so may broken potsherds, of sizes neither too large nor small, forming as they do in the compost excellent conductors, their surface, on that account, being greedily pounced upon by the rootlets in their process of growth. I would never counsel the large amount of drainage that I see often resorted to. It is quite unnecessary, put in particularly in the higgledy-piggledy way common enough to be discovered. It would be far more effective for promoting a healthy and vigorous constitution if a portion of the space were filled with the compost, for then there is a little uniform ball of plant food, ministering, in no partial degree, to the roots that go in search of it. If any of the sorts seem to be of surface-rooting propensity, then use shallow pans, which are more portable than the deeper sizes, and more in keeping with the proportions of many species that are grown.

One other remark in connection with this operation, I hold to be of the greatest importance. In the process of repotting, allow the plant which is to be manipulated upon, to be in a medium state of moisture. If it be too dry the roots cling to the sides in search of moisture with a tenacity that would thoroughly surprise the uninitiated in Orchid culture, and if forced out of their domicile would break in all directions, taking more than a twelvemonth's growth and coaxing to recover. If in the proper state, with a little care, they can be eased away successfully without incurring much damage, from pots especially of a smooth surface. The common London pot is far too porous and rough to allow of the succulent roots of Orchids being disengaged from its surface, and even with the breaking of them there is much risk entailed. Surely pots of smoother surface could be made out of the "London clay," and the gain in this small matter would, rest assured, not be inappreciable. *James Anderson, Meadow Bank.*

Home Correspondence.

Safe Skating Ponds.—No such accident as that which occurred in Regent's Park would have happened had the following plan of rendering water safe been adopted. I would suggest that all ponds on which there is likely to be skating should be furnished with a skeleton platform, to be sunk under the surface of the water about 4 feet. It should be made of green Elm, which stands longest under water. This plan might in some places be somewhat expensive, but it would keep people from being drowned. It would also obviate accidents in cases of upsetting of boats in the summer time. It would offer no obstacle to fishing, and, moreover, swimmers would, I think, experience little or no inconvenience from it. *T. J., Ealing.*

Ice Stacks.—Some years ago a discussion took place in your Paper as to the relative merits of keeping ice in structures wholly or partly underground, and in heaps or masses in the open air, covered up with straw or litter. Of this latter mode less has been said lately than formerly. Has it been found to be a failure, or has the trouble and expense attending it exceeded that of keeping ice in the ordinary way? As there may possibly be still time to attempt something of this kind, would some of your correspondents having had experience of the system, report the results of their trials of it? *H. R. T.*

The late Winterly Weather.—The late severe weather has caused sad havoc here in the kitchen garden. Broccoli is almost, if not entirely destroyed, and other things are very much cut up. Although the greatest amount of frost here has been only 27°, it has been as destructive to vegetation as it was at Ashstead in 1860, when the thermometer there registered 40° of frost. In this place Laurustinus, hardy Rhododendrons, Magnolia grandiflora, Cotoneaster, single red Camellia (the latter planted out in the shrubbery) are browned. Beyond this they do not appear to be seriously injured. Our pleasure grounds are some 50 or 60 feet above the level of the kitchen garden, and the destructive effects on vegetation on the lower ground is the most apparent. *Henry Chilman, Somerley Gardens, Ringwood, Hants.*——On the 22nd I had the thermometer 4° below freezing; to-day (23rd) the glass is at 50°. All the snow is gone, and the frost out of all soft ground, where the snow covered it. We shall have sad losses to record, at least I fear so, in many places. Ours is a favoured locality; the soil is a sandy loam, of great depth, which never gets too wet nor too dry. Our lowest degree was 25° below the freezing point. On looking round this morning I see several Pear trees split, and can push my knife an inch into the fissures. With the exception, however, of Pear trees I do not note much damage; we covered many things, thinly, with straw to keep the sun off, but old Sol has not been very outrageous, with the exception of one or two days, when he made our, till then, green fields of Swedes look yellow, except those on the northern slopes, which now look as well as ever. Cabbage plants in sunny places are destroyed. On the north sides of slopes all is right. This shows us how necessary it is to cover from the sun. *John Scott, Merriott, Somerset.*——The weather here (Tehidy Park) has been unusually severe during these past 8 days. The thermometer, in an eastern exposure, at 4 feet from the ground, has registered as follows:—Jan. 10th, 27°; 11th, 21°; 12th, 26°; 13th, 24°; 14th, 19°; 15th, 16°; 16th, 14°; 17th, 20°; 18th, 25°; 19th, 28°. On Sunday a thaw commenced, with the wind east-south-east, which continues at present. Broccoli, Cabbages, and other vegetables have suffered greatly; Sweet Bays and other shrubs are browned. The snow, which averages 6 inches, is from 2 to 3 feet deep on the lawns. Upon the whole the frost was more severe in the years 1859 and 1860, but it was not of so long duration. Thermometer standing at 9° and 10° for two nights. *Henry Beddard, Gardener to J. P. Basset, Esq., Tehidy Park, Cornwall.*——The following are low records for this locality in January. From Negretti & Zambra's registering minimum thermometer 4 feet from the ground in garden:—1st, 21°; 2d, 20½°; 3d, 17°; 4th, 12½°; 5th, 13°; 6th, 27°; 7th, 37°; 8th, 40°; 9th, 34°; 10th, 33°; 11th, 27°; 12th, 18°; 13th, 16°; 14th, 17°; 15th, 15°; 16th, 20°; 17th, 20°; 18th, 19½°; 19th, 22°; 20th, 21°; 21st, 23°; 22d, 20°. *S. M. O., Sedbury Park, Chepstow.*——I quite agree with "Observer" as regards the registering of thermometers. During the winter months I note the register at day-dawn and set it at dusk. The thermometer used here is a Negretti & Zambra's, the minimums rendered here agree very nearly with those of "Observer." During the last twenty days we have had:—Jan. 1st, 19°; 2d, 17°; 3d, 11°; 4th, 10°; 5th, 3°; 6th, 26°; 7th, 37°; 8th, 40°; 9th, 34°; 10th, 30°; 11th, 28°; 12th, 18°; 13th, 14°; 14th, 13°; 15th, 8°; 16th, 9°; 17th, 21°; 18th, 13°; 19th, 21°; 20th, 10° Fahr. On the 1st of Jan. about 6 inches of snow fell; between the 6th and 7th a sudden thaw commenced and cleared all away—everything was saturated. Black frost set in; more snow fell (5 inches); everything is in icy bonds, and I anticipate fearful loss. Broccolis are killed, and many shrubs are injured. *P. M., The Gardens, Wynnstay, Rhuabon, N. Wales.*——With a mercurial and spirit thermometer placed side by side 4 feet from the ground, in a sheltered situation, and both registering the same, the correct readings have been as follows:—Jan. 1st, 18°; 2d, 0°; 3d, 4° below zero; 4th, 5°; 5th, 5° below zero; 6th, 38°; 7th, 49°; 8th, 40°; 9th, 38°; 10th, 36°; 11th, 31°; 12th, 25°; 13th, 9°; 14th, 5°; 15th, 25°; 16th, 28°; 17th, 25°; 18th, 18°; 19th, 25°; 20th, 24°; 21st, 23°; 22d, 29°. Broccolis are killed, and Laurels and Laurustinuses are dead to the ground in some places. Coniferæ have suffered severely. *J. C. Mundell, Hooley House, Croydon.*——The effects of the late frost are more apparent on

the crops of winter vegetables than upon anything else. Nothing has suffered more than Broccoli. With scarcely an exception the whole of the crops about here of this useful and I may say indispensable vegetable are totally destroyed. We registered 6° below zero of frost here, and a great part of the Standard Roses and Sweet Bays are killed. *William Jackson, Blakedown Nursery, Kidderminster.*

The Year 1866 *at Weybridge Heath, Surrey,* 155 *feet above mean sea level:—*

Wind.		Weather.		Departure from Mean of last Eleven Years. +, *above.* —, *below.*
Prevailing Winds.	On Days.			
		Mean height of barometer	inches 29.8102	inches .0479—
		Mean height of thermometer:		
		Highest in the sun	65°.1572	0°.0770—
		Highest in the shade	59°.0640	0°.4866—
N.	29	Lowest	41°.3941	0°.9258+
N.E.	45			
E.	3			
S.E.	10	Mean daily amount of ozone	4.3331	0.8428+*
S.	15	Mean temperature	50°.2291	0°.2114+
S.W.	112	Rainfall	inches 27.9658	inches 3.7558+
W.	26	Number of wet days	42	days 6+
N.W.	21	Number of days on which rain, &c. fell	208	days 20+
		Driest month, July. Wettest ditto, February.		
		Range of barometer	inches 2.01	inches 0.1900+
Highest Winds.		Range of thermometer	73°.50	4°.6400—
		Range of ozonometer	12.50	0.7500+
January 11 (N.)		January 25. Barometer highest	inches 30.55	inches 0.0200—
February 4 (S.W.)		February 11. Barometer lowest	inches 28.54	inches 0.2100—
,, 11 (S.W.)				
March 23 (S.E.)		July 12. Thermometer highest:		
April 23 (N.E.)		In the sun	101°.00	1°.0400+
December 4, ,, 6, ,, 26 (S.W.)		In the shade	89°.50	1°.1800—
		January 11. Thermometer lowest (in the night of)	16°.00	3°.3600+
		December 6. Greatest amount of ozone	12.50	0.7000+*
		April 26, Oct. 11 & 16, Nov. 28 & 30, Dec. 23 } Least amount of ditto ..	0.00	0.0500—*

* The means of last five years.

W. F. Harrison, Bartropps, Weybridge Heath, January 8.

The Weather at Gonville Nursery, Cambridge.—

Date.	State of Thermometer, Fahr.	Time.	Wind.	Remarks.
1866.	°			
Dec.31	22	8 A.M.	S.W.	Freezing all day.
1867.				
Jan. 1	21	8 A.M.	..	Snow, 1½ inch fell about from 1 to 3 A.M.; freezing sharp all day, for the most part clear.
	16	4 P.M.		
	17	7 P.M.		
	9	10.30 P.M.	..	Clear starlight; calm.
Jan. 2	8	..	N.	Fine day, partially clouded; evening clear.
Jan. 3	9	..	N.N.W.	Fine.
	28	2.30 P.M.	..	Clear sky.
Jan. 4	8	8 A.M.	S.W.	Clear sky; misty horizon.
	16	12 M.	..	
	12	4 P.M.	..	
	10	7 P.M.	..	
	15	8 P.M.	S.S.W.	
Jan. 5	10	3 A.M.	N.E.	Very heavy "rime," therm. 15°, descending; 3.30 P.M., wind blowing rather strongly from E.S.E., over-clouded; in the open, therm. 32°; shade, 30°; very heavy and dull all round. Thaw; lowest point Sunday morning, 29°, at 8 A.M. Soft wind from S.S.W., therm. 36°, rose to 40° during the day. Ice broken up from river; quick and rapid thaw; evening, heavy rain.

J. J. C.

Weather at Eridge Castle, Tunbridge Wells, for 1866:—

Month.	Mean Day Temperature.	Mean Night Temperature.	Rain.
	Deg.	Deg.	Inches.
January	46	35	6.97
February	45	32	6.11
March	49	31	1.77
April	58	38	1.95
May	63	39	.80
June	74	53	3.32
July	74	53	2.51
August	71	50	2.81
September	61	47	6.80
October	59	44	1.35
November	47	35	2.61
December	44	34	2.50
The year	57	41	39.50

The hottest day temperature was on July 12th, when thermometer indicated 90°. The coldest night was that of the 11th of January, when thermometer registered 13°. *J. Rust.*

Vines.—As I intend to plant two Vine-borders in the course of two months, one principally with Muscats, inside; the other, outside, with late sorts, and having a strong vine of Black Barbarossa, six years old, planted outside, but which has never borne fruit, I feel rather reluctant to discard it, as I had the pleasure of visiting Gunnersbury Park two years ago last autumn, and there saw the same variety bearing a heavy crop of beautiful fruit—the branches and berries being of enormous size. I therefore consider it a great acquisition to our late Black Grapes; but where you see it do well in one place you will invariably find it in ten others to be a shy bearer. Any of your correspondents who are successful in fruiting it, would therefore confer a favour by giving us their mode of managing it, and whether it should be planted outside and treated as the Black Hamburgh, or inside with the Muscats? Is Mrs. Pince's Black Muscat worth planting? *A Young Gardener.*

[The Barbarossa, as it is erroneously called (Gros Guillaume being the proper name), is without doubt a noble and excellent Grape; but it is somewhat capricious as regards showing fruit, and on that account is not so much cultivated as it otherwise would be. It is generally observed, as respects this variety, that it produces only a few monster bunches at or near the top of the Vine, on the youngest and strongest shoots. Some cultivators succeed in fruiting it well by a modified adoption of the long-rod system, securing a portion of young wood every year, on which it generally seems to bear best. We have always found the Gros Guillaume to succeed best when grown in an inside or heated border, allowing it plenty of room in which to develop itself. In the great conservatory of the Royal Horticultural Society at Chiswick the Gros Guillaume succeeds admirably; the Vine there is large, and every year it shows fruit as freely as a Black Hamburgh; it is planted in an outside border, on a raised terrace, immediately on the top of the flue containing the hot-water pipes as they enter the house; there the roots must certainly at times get a good warming, yet the Vine thrives amazingly, and, as just stated, is exceedingly fertile. It is treated on the spur system, and is allowed a somewhat greater space in which to develop itself than is usual, a point of great importance, conducing, as it does, much to success. The Gros Guillaume being naturally a strong and rampant-growing variety, does not succeed well when confined to a small and limited space. Beautiful as the Gros Guillaume is when well grown on its own roots, it is much superior when grafted on the Black Hamburgh, a stock which seems to suit it exceedingly well. The finest examples of it we have ever seen exhibited were from a plant which was grafted in this manner. We would therefore say to all about to cultivate this Vine, and who wish to have Grapes in perfection from it, plant Hamburghs and graft them with it. Of Mrs. Pince's Black Muscat a favourable account will be found in another column; it is a very excellent late Grape and well worth planting; the bunches are large and well shouldered; the berries are of medium size, oval, and black; the stalk is stout and robust, showing that it will keep well; the flavour is rich, with a distinct trace of Muscat in it. Examples of it were exhibited in capital condition at a meeting of the Fruit Committee of the Royal Horticultural Society on the 15th inst., and pronounced by that tribunal to be excellent. *B.*]

Root Fungi.—I have read with much interest your articles on the deaths of coniferous trees, by growth of Fungus on the roots. I have within the past 30 years planted large tracts of land, much of which had been previously occupied by trees. In all varieties of soil, whether on limestone, or red sandstone, or clay, or dry or wet land, I find the same tendency. But what is mysterious to me, is that the disease seems to attack only particular varieties. I find the Scotch Firs, the Cedars, and occasionally, but very rarely, the Silver Fir, suffer. I have never yet succeeded in detecting a death of the Spruce Fir, nor of any of the hard-wood trees, such as Oak, Ash, Elm, and so forth. Shrubs also appear to escape entirely. It seems to be wholly confined to the Pinus tribe (as I find Pinus insignis to suffer severely), and to the Cedars of all sorts, and Larch. I cannot assign any reason why the Fungus should attach more to these kinds than to others. The result of my own observation is, that the mischief invariably arises from the roots of former trees being decayed, and I find that it is always worst where the previous plantations have been old and decaying, than where the trees were young and vigorous. I rarely see it on land not previously planted, and where it does exist, I suspect it to have come on the roots of the newly-planted trees. I remark, too, that I seldom or never observe it to arise from the roots of a growing tree, cut down to make room for younger plants. *Shannon, Castle Martyr, Cork.*—

At p. 26 "M. J. B." says, "Our correspondent informs us that he has lost 10 Deodars from root Fungi. Most of the trees were planted on ground covered with trees, which were removed as the Deodars increased in size, but without taking the precaution to grub up the roots. Two trees, however, suffered on ground not previously planted, but it will probably be found that roots have penetrated there, unless, indeed, there was fungous matter about the trees when planted." Do not the two trees that died on the ground not previously planted cause a doubt as to whether Fungus had anything at all to do with their death or not? Is it not just as likely that the trees when young may have suffered from pot culture? The roots may never have been uncoiled, but left to grow and cut into one another, until either suddenly or gradually death ensued from the impeded circulation of the sap. As for those that were planted among large trees which covered the ground, and which were only removed as the Deodars increased in size, their death is not to be wondered at; because they would have not only the want of light and air to contend with, but also the roots of surrounding trees, which would rob them of nourishment. Instead of a few doubtful cases of trees dying from the supposed effects of root Fungi, spreading from decayed roots to living ones, I think I can furnish "M. J. B." with conclusive evidence to the contrary; and that I can show him that there is no necessity for trenching the ground and grubbing out old roots. About 50 acres of plantations, principally composed of Elm trees, have been cut down here within the last 30 years. The trees when cut were from 35 to 50 years old, and stood rather closely on the ground. The whole of this acreage has been at intervals replanted, and several times from 1 to 10 acres have been cleared and the ground planted the same season. The young trees are chiefly Oak, with Firs for nurses; but we have even some of the more choice Coniferæ planted in a portion of the ground referred to, and they are also doing well. Now these plantations are not only as healthy but healthier than some that were planted at the same time on fresh land. There are Oaks and Firs from 40 to 50 feet in height, and from 2⅔ to 3½ feet in circumference of stem, 2 feet from the ground. There were many decayed roots in the ground at the time the trees were planted, many pieces being flung out with the spade in the act of making pits for the young trees. Will "M. J. B." be so kind as tell me how the young trees happened not to be destroyed by root Fungi when the ground was full of decayed and decaying roots, when planted before the trees got established in the soil; or in the case of the older planted ones, has there not been a chance for Fungus to destroy some of the trees within 30 years? *J. Marshall, Lambton Castle, Fence Houses, Durham.*

Striped Apple.—Allow me to furnish you with a remarkable specimen of a Pearmain Apple, which has been sent to me. You will perceive that it has a clearly defined ribbon of bright carmine, about ⅜ of an inch wide, running down one side from apex to stalk, on a ground colour shading off from pale yellow to pink. As the stripe seems so unusual and clearly defined, there being no other distinct markings on the fruit, it may be worth notice. The carmine ribbon gives the Apple the appearance of one of the artificial fruits of stone, made in Derbyshire, which frequently exhibit a bold and artistic touch of the painter's brush. I have removed the pips for the purpose of ascertaining the result in the colour of the fruit of the offspring. *Thomas Laxton, Stamford.* [Were any other Apples on the same tree thus marked? EDS.]

Fearnought Cabbage and Dalmeny Sprouts.—I have just seen a piece of the former, and am growing a batch of the latter, so have an opportunity to bear testimony to their great value as hardy winter vegetables. The recent severe weather has committed sad havoc among the occupants of the kitchen garden; one communication that I have received gives a deplorable picture of the results of the intense frost, as far as the kitchen garden is concerned. "Broccolis all gone, even where protected by the snow; Kales, including the hitherto redoubtable Cottagers', are severely cut up; Brussels Sprouts are burnt as with a firebrand; Cabbages and Savoys have all the outer leaves withered up, and the centre leaves much injured." This record is from a western locality, on a heavy soil retentive of moisture. I fear many such a return will be made from almost every county in England. In the same garden as the piece of Fearnought Cabbage, alluded to above, all the varieties of the Brassica tribe have suffered severely, with this one exception, which has come through the trying ordeal comparatively uninjured. It has proved an invaluable winter vegetable, not only from its hardihood but from its being also very tender, and highly esteemed when cooked. It is a dwarf-growing plant, with the foliage both blistered and curled, and of a purplish hue, like the Cottagers' Kale. It commences to heart about Christmas, and where a sufficient quantity is grown it will be found very useful indeed throughout the winter months. The Dalmeny Sprouts occupy a very exposed postion on a strong clay soil. Being very vigorous plants, when planted out in August they grew rapidly, and were above the bed of snow that covered their dwarfer-growing neighbours. They were thus fully exposed to all the fury of the frost, but with the exception of here and there a slight brownish tinge, they show no effects of injury. Those from which the heads have not been cut, and those having only sprouts up the stalks, are alike uninjured. It is indeed an excellent vegetable, and is evidently a cross between a Brussels Sprout and a Savoy. It grows freely, and produces an abundance of well-hearted sprouts, which are deliciously tender, and larger than the ordinary Brussels Sprouts. It forms a kind of elongated head, close, and excellent eating when cooked. Here, at least, are two winter vegetables that for the future should be employed by gardeners as a kind of mainstay in the event of succeeding winters

presenting the "old-fashioned" characteristics of the present one. *Richard Dean, Ealing, W.*

Hotwater Apparatus.—These have undergone a trying ordeal during the late severe weather, and in cases such as that of churches, in which the hot-water apparatus sometimes remains unheated from one week to another, the water has not unfrequently become frozen in the pipes and has burst them. On this account it is always necessary to keep the water in the apparatus from freezing, a hint which people having the care of heating media of that kind should bear in mind. The "one-boiler system" is now very generally in use for warming horticultural buildings, but in weather like that which we have recently experienced it is unsafe to trust to one boiler alone. In cases where valuable collections of plants are concerned, there should always be two—one to take the place of the other should it happen to fail from any cause, not a very common, but still a possible occurrence. *John Weeks & Co.*

Gutta Percha Fountains.—Permit me to inform your correspondent "Somerset" (see p. 54), that the two ornamental fountains in the large basin in the tropical department of the Crystal Palace, at Sydenham, were originally almost wholly made of gutta percha, and that therefore its application for that purpose is not new. *W. D., Coventry.*

Shaky Timber.—Your correspondent "J. S." (see p. 1221, 1866), says, how do you account for shaky timber? In seasons such as this, in which there has been much rain, is not frost likely to rend the wood? Not more than 100 yards from where I live, a large Plane-tree was split from top to bottom on the 4th of this month, and a friend who had travelled in America assured me that it was frost which made many of the American trees shaky, and that in severe weather he had heard them rending and cracking, even at a great distance. *William Thomson, Blantyre.*

Wellingtonias.—Mr. John Cox, the gardener at Redleaf, near Penshurst, Kent, sends me the following dimensions of his largest Wellingtonia gigantea. Height, 28 feet 6 inches; circumference of stem at base, 6 feet 10 inches; circumference at 3 feet from ground, 4 feet 4 inches. Age, 11 years from seed. This tree must have grown very fast since the height mentioned in your vol. for 1866, p. 1192, was taken. Mr. Cox also states that several Wellingtonias, struck from cuttings of the above-named specimen, are now splendid trees of more than 15 feet in height. He moreover tells me that the trees of Cunninghamia lanceolata are looking well, and do not appear to have suffered from the severity of the frost last week, when the lowest temperature, in rather a sheltered situation, was a degree below the zero of Fahrenheit. *C. Palmer, Manchester, Jan.* 11.

Cottagers' Kale.—It is some consolation to those who have a garden to know that there is a Green which defies the most severe weather. After the great frost which we have just experienced, Cottagers' Kale is entirely uninjured. This is without doubt the hardiest, most productive, and best flavoured winter Green in cultivation. All who have not given it a trial should therefore do so forthwith. *Thos. Bailey, Shardeloes.* [This favourable verdict must be balanced by what is said in another column. EDS.]

Dendrobium McCarthiæ.—This is stated in your volume for 1866 (see p. 1167) to be a new plant of that year, having been exhibited by Mr. Bateman at one of the Royal Horticultural Society's meetings; but it was flowered, and cut flowers of it were exhibited on August 22, 1865, at the R. H. Society's meeting, by Dr. Ainsworth, of Manchester, and a First-class Certificate was awarded to it. The flowers sent had been open 12 weeks the day they were cut. *E. Mitchell.* [Having sent the above to Mr. Bateman, he has returned it to us with the following note:—"I was not present at the meeting to which Mr. Mitchell refers, nor was I aware that D. McCarthiæ had been then and there shown. I am, however, very glad to have this opportunity of correcting an unintentional oversight, and of ceding to Dr. Ainsworth the honour—to which he is fully entitled—of having been the first to exhibit so truly beautiful a plant." EDS.]

Seed Collections.—I was much interested in the letter on "Seed Collections" at p. 54. I have no doubt but that numbers of your readers will coincide with much that has been said on the subject. I have good grounds for believing that the system is quite distasteful to our principal seedsmen, who would discontinue it at once, but for the fact that others are pushing it, and they are thus compelled to keep pace with the fashion. *J. J. S., Derby.* [We have omitted a great portion of this letter, because we cannot permit "J. J. S." to attribute to us words which we did not use, and to found an adverse argument thereupon. We said, having referred to the unsuitableness of uniform collections for varying circumstances, that knowing this, comparatively few employers who had trustworthy gardeners would commit the mistake of buying their seeds in this way. This was, and still is, our opinion; indeed, we are sure that if they are wise, employers will not do so. But we cannot permit "J. J. S." to pervert our words, and make us say that "these collections are intended for the use of those gardeners who are not competent to order their own seeds." We neither said nor implied any such thing. EDS.]

Societies.

BOTANICAL OF EDINBURGH: *Dec.* 13.—Mr. William Gorrie, Vice-President, in the chair. Communications read:—I. *Notes of an Excursion with Pupils to Braemar in August* 1866. By Prof. Balfour.—II. *On the Reproductive Organs of Mosses.* By Mr. Wm. Bell, Saharunpore; communicated by Mr. Sadler.—III. *On Taxus baccata variegata Seedlings.* By Alex. J. Adie, Esq.; communicated by Mr. M'Nab. Mr. M'Nab stated that, on 15th November, Mr. Adie of Rockville, Linlithgow, sent to the Botanic Garden some seedling variegated Yews raised from berries taken from a plant of the Golden Yew. Many of the larger plants of Golden Yew in cultivation being male, he wrote to Mr. Adie for information, and received from him the following notes:—"The parent plant is now 7 feet high, and does not appear to be either the Taxus aurea or elegantissima. The colour is intermediate between these two varieties of Yew, but it is a better grower than either, although it has all the appearance of a plant raised from a cutting. I found it growing behind a shed in Messrs. Eagle & Henderson's nursery in Leith Walk, and being struck with its good habit, I bought it for a trifle, as it appeared to be little thought of, although, from the place it was in, I think it must have had a pedigree of note when it came there. The plant was about 3 feet high, and it has been here for 9 or 10 years. My attention was first drawn to the berries by finding a self sown golden seedling which is now 6 inches high, and about 5 years old. It has a good golden colour. Since then other self sown golden seedlings have been found here. As I have a very favourable opinion of the Golden Yew as a highly ornamental plant among evergreens of the same class, and in places where the Golden Holly cannot be successfully employed, I made a search for berries among my plants, and found them only on the one in question, but on none of my numerous plants of aurea or elegantissima were berries seen. My first attempts to sow were not successful, the missel thrushes having stript the plant of its fruit. At a subsequent period I saved some, and sowed them in the Camellia house border, but the field mice dug them up, and carried them off. I had therefore to sow again. In the spring of 1865 nearly three dozen seeds grew, and of these two-thirds were variegated. I sowed some more this spring; of the seeds that grew the golden variety were the most numerous, although the proportion in favour of the golden is not large. I find the variegated seedlings do not lift so well as their brethren in green, nor do they grow so fast; but I fear I have not managed them so well as might be, and hope to succeed better in future. Last autumn I got no berries, but this year they are plentiful. Notwithstanding my losses, I have still about 26 Golden seedlings. The parent plant grows within 10 yards of a handsome variety of the common Yew, which sheds clouds of pollen, and it is also near plants of the common Golden variety and the Irish Yew." —IV. *Extracts from Botanical Correspondence.* By Mr Sadler. Mr. Sadler read extracts from various letters which, in the course of correspondence, he had lately received:—1. From Mr. R. G. Ramsay, Bridgend, Perth, intimating that last summer he had collected Polypodium calcareum in considerable quantity about 2 miles west from Aberfeldy. This is the first time that this Fern has been met with in Scotland in an apparently wild state. Specimens from Mr. Ramsay were exhibited and presented to the Herbarium. 2. From Mr. John Sim, Perth, noticing the occurrence of Anacharis Alsinastrum, Silene Armeria, and Petasites fragrans, near Perth.——V. *On Abnormal Flowers in Tropæolum majus.* By Dr. Alexander Dickson. Dr. Dickson exhibited four abnormal flowers of the common Indian Cress (Tropæolum majus), each presenting a supernumerary spur. On these he remarked that, in Tropæolum, the posterior part of the receptacle between the insertion of the petals and that of the stamens is dilated so as to form the spur which is so characteristic in the genus. The position of the spur in a line with the posterior sepal has led many botanists to consider it as a process of that sepal, but the fact of its being situated within the insertion of the petals is conclusive as to its receptacular origin. In the flowers exhibited the supernumerary spur (as if to show its want of connection with any sepal) is placed exactly between a lateral sepal and one of the anterior sepals, sometimes on the one side of the flower and sometimes on the other. These additional spurs are precisely similar to the normal ones, except that they are a little shorter. This abnormality, although at first sight seeming to indicate a pelorian tendency, is no approximation to regularity, from the fact of the extra spur being differently placed, with regard to the sepals, from the normal one.—— Dr. Balfour made some remarks on the Granadilla, and exhibited Jacquin's drawing of Passiflora quadrangularis. In the characters referred to by Jacquin, he alludes to the fact that the inner lining is easily detached from the inside of the fruit, along with the pulp and seeds. The fruit is said to be the size of a goose egg, while a variety called sulcata, with a transverse groove in the fruit, produces fruit the size of a child's head. There seems to be a good deal of confusion as to the plant called Passiflora macrocarpa. —— Mr. M'Nab exhibited a plant of the new dwarf Arbor vitæ, described and figured in the "Illustrated Farmer's and Gardener's Almanack for 1867," pp. 102, 103, and made the following remarks regarding it:—"Lately passing through the extensive nursery grounds of Messrs. P. Lawson & Son, my attention was directed to a large quantity of a peculiar looking dwarf shrub growing in one of their enclosures. On inquiry I found that they had been recently received from Messrs. Ellisanger & Barry, of Rochester, N. Y., under the name of the Tom Thumb Arbor-vitæ. The parent plant, of which the above are cuttings, is supposed to be an accidental seedling from the American Arbor-vitæ, Thuja occidentalis. Although most of the leaves are of a Heath-like appearance, still several small shoots are here and there seen which unmistakeably refer it to the American Arbor-vitæ. It is a curious fact that the Heath-like leaves have a slight smell of the Juniper, while the smell of the typical leaves is identical with the American Arbor-vitæ. This horticultural curiosity has a compact, rounded habit. It is to be sent out next autumn by the Messrs. Lawson under the name of Thuja occidentalis ericoides." [According to *Hovey's Magazine* the parent plant of this dwarf Arbor-vitæ, five years old, is only 15 inches high, and 18 broad. EDS.]——Professor Balfour stated that it had been resolved to form a Botanic Garden of hardy plants at Inverness.

Fuel for East Indian Railways.—Dr. Cleghorn sent a memorandum on the supply of wood-fuel to the Punjaub and Delhi railways. The possible sources of supply are—1. Coal in the Salt Range and Central Provinces (Nerbudda). 2. Rukhs or Fuel Reserves. 3. Canal Plantations. 4. Outer Himalayan Forests. (1). *Coal and Wood.*—The employment of coal in any shape (lignite or anthracite) would produce a great reduction in the demand for firewood, and would be attended with much advantage to the country in the preservation of the existing woods. *Coal of Salt Range.*—It is feared, however, from the reports of Dr. Oldham, Director of the Geological Survey, Dr. Jameson, and other competent authorities who have visited the Salt Range, that the coal near Pind Dadun Khan and other localities is not workable to any great extent, and it appears that only 3415 maunds of this coal were consumed by the Punjaub Railway during 9 months of 1865. By others it is maintained that this apparently small deposit should be reserved for the proposed line to Peshawur, which passes close to the Salt Range, where the coal would be delivered at much less cost. *Coal of the Nerbudda.*—It seems more probable that economy in the consumption of fuel may be promoted by the introduction of coal from the Nerbudda (700 miles), which might perhaps be specially arranged between the two companies when the Central India line is completed. On the other hand the East Indian Railway Company might carry coal at a low rate of freight, seeing that the opening of the Delhi line will feed their traffic and enhance their receipts. *Comparative Cost.*—Coal is now used on the East Indian Railway up to Delhi—the transport being over its own rails. Whether it can be used on the Delhi line depends entirely upon the rate at which the East Indian Railway will consent to carry it for a foreign line. If the agent is correct in anticipating that the average price of wood will rise to 40 rupees per 100 maunds, or 33 rupees 8 annas for 84 maunds of wood (the working equivalent of 1 ton of coal), then coal delivered at Ghazeabad for 26 rupees 12 annas would certainly displace wood for a long distance of the Delhi line, perhaps up to Lahore. Before deciding on the extent to which planting is required, the possible substitution of coal for wood must be fully considered, and, from the foregoing calculations, it seems to be possible, if compelled to give up all idea of coal, we must then utilize existing jungles, and develop new sources of supply. Under any circumstances, and considering the requirements of the population, it is desirable to control the monopoly which coal must otherwise have in a few years. (2). *Rukhs or Fuel Reserves.*—The great and increasing importance of these fuel reserves, the need of husbanding their resources and of turning them to the best account, are admitted by all. The Punjaub Government have ordered that Rukhs are not to be sold or alienated without special report and permission—the object being to retain a sufficient area as State property, and to bring all the best portions into the highest state of production. They, indeed, form a basis for future action in the present difficulty, and must be systematically cropped or judiciously thinned and replanted. As to treatment, selected tracts should be ploughed or trenched, and seedlings planted at 4 or 6 feet apart from tree to tree, and the plot surrounded with a proper fence or ditch, so as entirely to exclude cattle. The kinds of trees most profitable to grow are those indigenous species which are known to produce good fuel, and to possess the reproductive power in the highest degree. These are enumerated and fully discussed in Dr. Stewart's report on Rukhs, dated September 1864, viz.:—1. Prosopis spicigera, Jhand. 2. Acacia modesta, Phulai. 3. Butea frondosa, Dhak. 4. Capparis aphylla, Karil. 5. Salvadora oleoides, Wán, Jál, Pilu. 6. S. indica, Kuna Van. 7. Tamarix indica, Pilchi, Jhan. 8. T. orientalis, Furwa, Farás. In addition to these, are—Acacia arabica, Kikkár; Dalbergia Sissoo, Táli; Zizyphus Jujuba, Ber—probably the three best woods; but they are doubtfully native, and do not occur spontaneously in sufficient quantity to affect greatly the supply of fuel. *Australian Trees.*—As a rule, indigenous trees furnish a larger weight in a given time than exotics; but various species of the extensive genus Eucalyptus, called in Australia "Gum Trees," are strongly recommended, on account of celerity of growth, by the secretary of the Agricultural and Horticultural Society, Punjaub, particularly E. gigantea, and E. globulus, the "Stringy Bark" and "Blue Gum;" some thousand trees have been reared from seed both in the Government Gardens at Lahore and at Madhopore, and have grown with great rapidity. Consequently, Dr. Henderson has, with commendable zeal endeavoured to introduce those trees into the districts in masses. As it will be some years before they bear fruit, an annual importation of seed from Australia and Southern India will be necessary. The seedlings now in the nurseries should be carefully planted out in the fuel plantations, and a few of them periodically measured. It is an encouraging fact that several Australian plants now naturalized in southern India have been found to grow well in the arid plains of the Punjaub. Some trees of that continent possess, in a remarkable degree, the power to resist the drought of the Punjaub hot season, and *vice versâ*, Punjaub plants are found to thrive in Queensland, Moreton Bay, and other parts of Australia. Several species of Acacia and Casuarina which flourish in the desert districts of the interior of Australia, and have been planted extensively upon the hills of the Madras Presidency, might be tried with advantage. These have been successfully introduced into southern India, and private plantations are now undertaken for profit. If the young seedlings are sheltered the first season from the frost and protected from camels, they will probably thrive and be valuable acquisitions. The pubescent Silver-wattle tree of Victoria (Acacia mollissima) seems particularly suited for the Punjaub. It is a quick grower, and spreads so rapidly by underground suckers that it would be impossible to eradicate the copse again, which would yield a constant succession of crops of useful fuel. The Sissoo, Babool, Siriss, and other Acacias grow well upon canal banks. Sissoo appears to thrive better within, and Babool without the reach of infiltration. The former naturally affects islands in river channels, and the latter is found in arid wastes. The Eucalypti and other Australian trees would grow well on the spoil bank not irrigated, or with little water, and doubtless all of these would spread to some extent over the plains in a few years. The Mulberry is easily propagated by cuttings, and furnishes excellent fuel.

ENTOMOLOGICAL: *January* 7.—Sir John Lubbock, F.R.S., President, in the chair. A communication was read from Captain Hutton, of Mussooree, on a Japanese variety of the common silkworm, which had been greatly extolled as being free from disease, and a great producer of silk, but which Captain Hutton denounced as nothing more than a hybrid between a sickly and degenerate race of Bombyx Mori and the little monthly B. sinensis, which would eventually and even quickly revert to its original state, and he repeated his conviction that to renew the European stock no other course was open than to depute experienced entomologists to visit different parts of China with a view to the re-discovery of the common silkworm in its natural state. Professor Westwood exhibited a portion of the Burchellian collections recently presented to the University of Oxford, consisting of the butterflies of the families Heliconiidæ and Pieridæ, showing the great value of the collection in reference to the geographical and modificational range of the various species, every specimen being labelled with the precise date of its capture, where its locality was determined. With reference to the existence of mimetic species inhabiting different countries, Professor Westwood referred to the humming-bird hawk moths of the Old World resembling the humming birds of the New. Mr. McLachlan alluded to the peculiarity in the habits of the last-named insect, namely, that of flying in considerable numbers up and down stone walls, banks or cliffs, exposed to the hottest sunshine, and especially stone walls, near the sea, but no explanation was offered. Mr. F. Smith stated that in consequence of such habit a clay insect's nest from a wall had been brought to the British Museum as that of the humming-bird moth, but which he had immediately recognised as that of a mason wasp. Mr. Eaton stated that during the last season he had found a hornet's nest in a very unusual position, namely, on a sand bank where no wood was near. The following memoirs were read:—Descriptions of the Choreutidæ and Crambidæ collected in Egypt in 1864, and of the Crambidæ, Alucitidæ, and Pterophoridæ, collected in Palestine by the Rev. O. P. Cambridge, by Prof. Zeller, translated into English by H. T. Stainton; and a Monograph of the genus Hestia, with a tabular view of the Danaidæ, and remarks on their natural affinities, by A. G. Butler. The author's summary contained 90 species of Euplœa, 70 of Danais, and 10 of Hestia.

LITERARY AND PHILOSOPHICAL OF MANCHESTER: *Dec.* 11.—Among the papers read on this occasion was one entitled *Notes on Varieties of Sarothamnus scoparius, Koch, and Stachys Betonica, Benth., from the Lizard, Cornwall*, by Mr. Charles Bailey. The Lizard district has long been known to be singularly prolific in critical and rare British plants; and the purpose of this communication was to draw the attention of botanists to what appear to be two undescribed but well-marked forms of the plants whose names are placed at the head of this notice, and which are found in that district.

I. *Sarothamnus scoparius*, Koch., var.—It is only in recent years that this plant has been admitted a Cornish species, Mr. H. C. Watson, in vol. i. of his "Cybele Britannica," p. 274, giving Devon, Isle of Wight, and Kent as its most southern limit; but in the additions included in vol. iii. of the same work, Mr. Watson states (p. 404) that "the south limit extend to Cornwall, according to Mr Gibson and Mr. Pascoe;" no details, however, being given as to the precise

part of the county in which it occurs. The specimen exhibited was found growing in small patches on the cliffs of serpentine rock about Vellan Head, situate about four miles north-west of the Lizard Lights, and it differs from the normal form here named var. *α*, in the following characters :—

Var. *α*, *erecta*.—Stems erect, bushy; leaves stalked, the petioles as long as, or longer than, the leaflets; leaflets elliptical-obovate, bluntish.

Var. *β*, *prostrata*.—Stems prostrate, spreading; leaves shortly stalked or sessile; leaflets ovate-acute, acuminate.

The Cornish form, here named *β*, *prostrata*, differs from the normal plant chiefly in its habit of growth, which, instead of being erect and bushy, is remarkably prostrate, the branches spreading out in fan-shaped patches, and growing flat upon the ground; the branches, particularly in the upper half, are densely clothed with short spreading hairs; the leaves have shorter stalks, with a greater tendency to suppress the two lateral leaflets, the majority of the leaves, in fact, being unifoliate; the pods are less numerous, have their dorsal and ventral sutures covered with long silky hairs, and are black rather than brown, shorter, and have fewer seeds.

The Cornish form is very plentiful on the cliffs of "Killas" rock, lying between Caerthilian and the Lizard Lights, growing with *Genista tinctoria*, L., var. *humifusa*, Dicks., which it much resembles in habit. The same form is also met with in several other parts of South-Western Cornwall, as at Cuddan Point and the Mount's Bay district generally.

II. *Stachys Betonica*, Bentham.—Of this plant three well-marked forms have been described: *α*, *Betonica hirta*, Reich.; *β*, *B. serotina*, Host.; and *γ*, *B. stricta*, Ait.; and in many respects the form about to be described agrees with the first of these forms. In Mr. Babington's Manual it is stated that "the English plant has the round crenate, not emarginate, lower lip of *B. hirta* (R);" but Professor Boreau is of opinion that, while the three forms just named preserve their remarkable differences of aspect when cultivated together, the distinctive characters furnished by the divisions of the corolla are but slightly constant.

Stems decumbent, numerous, radiating from the root-stock, square above, rounded below, clothed with many short hairs, which are closely appressed in the upper part and pointing downwards, those in the lower part more spreading, but still much reflexed; spikes slightly inclined, just raised above the ground, compressed-globose, the verticils many-flowered, never distant; calyx covered with straight hairs, the sepals ending in stiff points; corolla three times longer than the calyx, the exterior covered with scattered shaggy hairs, which are long and silky at the base of the tube, but becoming shorter and more scattered as they approach the lip; opening of the mouth very wide, lower lip crenate, wavy; lower leaves on long stalks, cordate at the base, oblong, regularly crenate, glandular on the under surface, with short scattered hairs, upper leaves lanceolate on short stalks.

Specimens of *B. hirta*, Reich., have not come under my notice, nor have I been able to meet with Reichenbach's diagnosis; but the form described above seems to agree very nearly with Professor Boreau's description of that plant, which is here appended for the sake of comparison :—"Stem clothed with many short stiff hairs; leaves with soft long hairs, very distinctly crenate; spike short, interrupted; calyx softly hairy at the summit; lower lip of the corolla rounded crenate."

The above communication was preceded by a few remarks on certain plants of South-Western Cornwall, specimens of which were exhibited at the meeting,

Notices of Books.

Ueber die Geographischen Verhältnisse der Lorbeergewächse. (*On the Geographical Distribution of the Lauraceæ.*) Von C. F. Meissner. Munchen: 1866. 4to, pp. 34.

The natural order Lauraceæ, taking the flora of the whole world into account, falls about midway amongst the natural orders in number of species. We are indebted to it for wreaths for our poets and spices for our puddings, the addition to our vocabulary of the words 'bachelor' and 'laureate,' for 'sassafras' and for 'camphor,' a large number of beautiful shrubs for our hothouses; and one, the most famous and not the least beautiful member of the family, is just so far northern in its climatic requirements that the line within which it can be cultivated so as to establish itself runs across our island.

When Linnæus 102 years ago published the "Species Plantarum," only 13 species were known; Lamarck raised them to 24, Willdenow to 40, Persoon to 54, and Sprengel to 98. In 1836 Nees von Esenbeck wrote an excellent monograph upon them, dividing the old genus Laurus into a great many, and enumerating 404 species. Now 30 years more have passed, and their homes in the tropics of Asia and America have been ransacked by our botanical travellers to such effect that when Dr. Meissner worked up the order for De Candolle's "Prodromus" he was able to describe 957 species, to which 15 have since been added, so that we have very nearly reached the even thousand. The present pamphlet is a sort of supplement to the monograph in the "Prodromus," written for the purpose of classifying the facts that relate to the geography of the natural order. Taking the continents we find the 972 species distributed amongst them as follows, and we give also in each case the number of species which grow upon the actual continent and the neighbouring slands separately :—

	Total.	Continental.	Insular.
America	447	425	41
Asia	445	135	310
Australia	56	51	10
Africa	26	9	17
Europe	1	—	—

Altogether, 620 species are continental, and 378 insular.

To bring out their climatic adaptability more clearly, Dr. Meissner has traced them through zones of temperature, dividing the globe as follows :—

1st. An equatorial zone. In America he regards this as extending from 5° S. to 18° N. latitude. This reaches from the Amazon valley and north of Peru to the south of Mexico, including Columbia and Guiana. The number of species is 232. In Asia he includes from 18° N. to 11° S. latitude, embracing the southern portion of Peninsular India, Ceylon, the Malayan peninsula and islands, New Guinea, and the Philippines. Here the number of species is 306. In Africa within the same range we have 4 species.

2d. A north tropical zone, embracing in America the south of Mexico and the West Indies (105 species), and in Asia the north of Peninsular India, westward to South China (89 species).

3d. A south tropical zone, in America from 5° to 20° south latitude, including Peru and the whole of Central Brazil (134 species); in Africa, as far south as Angola and Madagascar (12 species); and in Australia, as far south as Queensland (25 species).

4th. A southern outer tropical zone, yielding 47 species in America, 5 in Africa, 33 in Australia.

5th. A northern outer tropical zone, yielding 8 species in America, 80 in Asia, 4 in Africa.

This gives us a total of 907 for the three tropical, and 177 for the two outer tropical zones.

The species are nearly all endemic in the sense that they are absolutely confined to one of these zones, and the same may be said of 40 out of the 55 genera.

The analogy between the Laurels and Myrtles is noteworthy. Though far removed in systematic botany, both orders agree in consisting almost entireiy of aromatic shrubs, and they agree remarkably in geographical distribution. In both there is the same concentration in the tropical regions of America and Asia, the same almost complete absence from Europe, and total absence from high latitudes. In both cases, although the area of land is so very much smaller, there are more species in the southern than in the northern outer tropical zone. In both the species and genera are similarly restricted in their geographical range. We see by the table above given, and by adding up the second column, that, taking the continental areas, not a single species is common to two of them, and that even if we include the islands, the first column adds up only to 974, which leaves two species which occur in more than one of the districts thus obtained. In the animal kingdom we have instances of a similar geographical restriction in the parrots and monkeys. In Australia the Myrtaceous element in the flora is far greater than the Lauraceous, owing to predominance both in individuals and number of species of the characteristic genus Eucalyptus.

BOOKS RECEIVED.—The concluding part of the 1st volume of the *Journal of the Royal Horticultural Society* (published by the Society) has just been issued. It contains a most interesting account by the Rev. R. T. Lowe of the fruits and vegetables of Madeira, and several other valuable and suggestive papers, amongst which we may specially mention the remarks of Mr. Hadwen on Temperature, those of Dr. Masters on Double-flowered Primulas, and those of the Editor, the Rev. M. J. Berkeley, on a Fungus inducing disease in Orchids. The new Dieffenbachia Weirii, introduced by the Society from Brazil, through its collector Weir, is described. A glance at the table of contents shows that the volume just completed contains a good deal of information especially useful to those who are engaged or interested in Horticulture.——The *Gardener* (Blackwood & Sons), of which the first number has just appeared, is the old Scottish Gardener, issued under new colours, and better printed. It is still edited by our friend Mr. Thomson, of Dalkeith, and is a good sixpenny worth of practical gardening information—sound for the most part, though to maintain our credit as critics we must remark that "a Bewdley Forester" in treating on Drainage, has got a little out of his depth. We are glad to see the Editor calling attention to the beautiful but neglected Lisianthus Russellianus.

CATALOGUES RECEIVED.—We have the following *Seed Lists* now before us :—*Wheeler & Sons'* (Gloucester) *Little Book*; *J. W. Mackey's* (Dublin) *Catalogue*; *Barr & Sugden's* (Covent Garden) *Choice Seeds*; *William Paul's* (Waltham Cross) *Select List*; *John Scott's* (Crewkerne) *Catalogue*; *J. Dickson & Sons'* (Chester) *Vegetable and Flower Seeds*; *Downie, Laird, & Laing's* (Forest Hill) *Catalogue*; *W. Wood & Son's* (Maresfield) *Catalogue*; *London Seed Company's General Price Current*; *Hamilton & Wright's* (Thornton Heath) *Catalogue*; *Poynter's* (Taunton) *Retail List*; *John Jefferies & Son's* (Cirencester) *Catalogue*; *Hooper & Co.'s* (Covent Garden) *General Spring Catalogue*; *W. Drummond & Sons'* (Stirling) *Descriptive Catalogue*; also *Abridged Selection of Flower Seeds, with Directions for Culture*, and *Directions for Sowing and Cultivating Vegetables*; *William Cutbush & Son's* (Highgate) *Catalogue*; *B. S. Williams'* (Holloway) *Descriptive Catalogue*; *Huber & Cie.* (Hyères) *Catalogue*; *C. Turner's* (Slough) *Catalogue*; *T. Kennedy & Co.'s* (Dumfries) *Catalogue*; *T. Sampson's* (Yeovil) *Catalogue*; and *R. Dean's* (Ealing) *Catalogue*; they are all full of subjects, and contain a variety of useful information. The last named is more select and chiefly confined to novelties; with several interesting original articles added. *H. Cannell's* (Woolwich) *Floral Guide* contains much useful information concerning Fuchsias, Verbenas, &c. Mr. Cannell also has a hint for Grape growers, of which we should like to have some further explanation. *Downie, Laird, & Laing* (Forest Hill), and *J. Stewart & Sons'* (Dundee), issue *Descriptive Catalogues of Roses* and *Lists of Gladioli*; the latter have also *Lists of Rhododendrons*, and *Forest and Ornamental Trees*. *Messrs. Lucombe, Pince, & Co.* (Exeter) send out a useful select list of *New and Rare Plants*. *T. Kennedy & Co's.* (Dumfries) list of *Forest and Ornamental Trees, &c.*, includes descriptive lists of fruit trees and Rhododendrons.

Florists' Flowers.

HYACINTHS IN WATER.—There is no mistake in what I have said as to the difficulty in managing highly-coloured Hyacinths in glasses in water. There is no weakness of constitution in the bulbs; the small flower spikes got by "Quo" being due, as I suppose, to the fact that too young bulbs were used. These young bulbs naturally do not yield as fine spikes as the full-grown bulbs, but their constitution is not necessarily weaker. It would appear that "Quo's" bulbs, which he describes as a mass of corruption, were unhealthy ones. This does not depend on the sort grown, but may result from various causes independent of management or the bulb merchant, such as bad weather, too much or not enough rain, frost or undue warmth during the growth of the bulb, and other calamities known to all bulb growers. The hardiest Hyacinths are exposed to it, and it cannot always be seen on the dry bulb before sending out. There may also be other reasons for it, and particularly bad management of the bulbs before they are planted or placed in the water, by keeping them in too moist an atmosphere, by giving them too warm a place, or by keeping them too long a time packed up. I know by experience that the two sorts named Argus (single blue) and L'Etincellante (single red) are both excellent growers, propagating easily and rapidly, their scarcity being only occasioned by the great demand that exists for them. Both are comparatively new, being only in general cultivation since 1858 and 1852. Considering that Hyacinths remain in cultivation after their multiplication from four to seven years before they attain full growth, both have now had but two and three full generations.

I have not spoken before of Hyacinths with small bulbs for ordinary purposes. I recommended them only as miniature Hyacinths in glasses in water, in the place of the half-grown bulbs which are now used for ordinary single sorts.

Hyacinths with good large bulbs are certainly preferable in a commercial point of view, and on that account are taken more care of, especially if new. That more double-flowered Hyacinths are not catalogued is a question of fashion, which now leans towards single-flowering varieties, as it did to the double-flowered kinds for half a century and longer. I have before me a catalogue of Maddock & Sons, of Walworth, near London, of 1788, which has a list of 304 double-flowered varieties and but one single sort (a yellow one). The greater part of the named varieties still exist in some gardens. That they are not offered in English catalogues is natural. Why should they be, when they are never asked for?

It will not be difficult for "Quo" to discover marvellously fine things in all colours of double-flowering Hyacinths, with small bulbs, some of which are scarcely larger than a filbert, and which bear large spikes of beautiful flowers. Every experienced Hyacinth grower knows these, and every Dutch florist can furnish them, and Messrs. Paul and Cutbush, named by "Quo," will have, I imagine, much pleasure in supplying them next season. As an example of what I have asserted, I can name: black Bouquet Pourpre and Pourpre Superbe, with bulbs of the size of a Hazelnut, or of a medium-sized Scilla sibirica; Gloria Mundi, blue, not larger than a small walnut; Prins Hendrik von Preussen, clear blue; Louis XVI., dark blue, and vanilla-scented; Henri IV., pink; Belvedere, Rouge Eblouissante, and Hecla, dark red, the last with bells 1½ inch across; Gloria florum suprema, white with rose; Venus, white; Noble par mérite, red; l'Enfant de France, violet; Gloria florum and l'Or du Pérou, yellow—all with bulbs scarcely larger than a walnut. This list could be extended to 50 and more, all falling in the category of marvellously fine things—provided always that they be used for miniature Hyacinths, for which I recommend them. They are not novelties, for with few exceptions they are productions of the foregoing century; and King of Great Britain, white with red centre, not named with the above, because it is somewhat larger than a nut, was in cultivation before 1700, and is the oldest of all the double-flowered Hyacinths in cultivation.

As to the remark of the Editors that "there are nuts and nuts," Walnuts and Cocoa-nuts, I think that I have sufficiently proved that there are also Hazel-nuts; the case of the Cocoa-nut is not hopeless for the future, for there are also great and small Cocoa-nuts, and with hybridisers there is nothing impossible. As a beginning, there is the Scilla maritima, of the Hyacinth family, with a bulb as large as a child's head. I prefer, however, my miniature protégés, as being less embarrassing to manage in glasses.

As to the single Tulips named by "Quo," I agree that they are certainly better than the Duc van Thol for spring-flowering in pots, but the latter can be had in flower before December; and with the exception of Vermillon Brillant (not named by "Quo"), and the different Pottebakkers, and a few others of less quality, the others cannot be had flowering in fine condition before February. Earliness is for bulbous flowers of this category one of the best qualities, and, flowering at the end of the year, they come in at a time when there are but few flowers of the same brilliancy of colour and facility of management. *G. W. F. H., Haarlem.*

GLADIOLUS BOWIENSIS.—Having read two paragraphs in the *Gardeners' Chronicle* of December 15 and 29, 1866, on the above subject, we cannot allow them to pass over without some comment, in justice to good old brenchleyensis. We quite agree with "Bowiensis" as to planting in succession for a succession of bloom, but we must differ with him as to Bowiensis being the better sort for such a purpose. We grow them both very extensively, and have above three acres annually in bloom, and we have proved brenchleyensis to be far superior to any other sort for either early or late planting, for the latter produces a magnificent fully expanded spike of bloom at one time, while the former very rarely produces more than four expanded blooms at once, and before it has finished blooming becomes unsightly. With respect to colour there is a great difference, brenchleyensis being a bright vermilion scarlet, and Bowiensis a rosy-carmine with dark throat,

With regard to Mr. Windebank's remarks, permit us to state that we annually cut spikes of brenchleyensis from the middle of June till the latter end of December. Our average supply of cut blooms per week throughout the season is from 4000 to 5000, and these we obtain by planting in succession. Mr. W. is under a mistake in supposing that Bowiensis is the only variety which produces spikes of bloom from such small bulbs as those he mentions. We annually obtain magnificent flowers from bulbs of brenchleyensis not larger than a Pea! Moreover, we cannot agree with his method of planting various-sized bulbs in order to obtain a succession of bloom. The only successful way we find to attain this desirable object is to plant at intervals of about a month, commencing in February and continuing till July, the soil being previously well broken up and prepared by forking in a liberal supply of decayed manure. The excellence of our growth, and the superiority of brenchleyensis, have frequently been recorded in your columns. *Youell & Co., Royal Nurseries, Great Yarmouth.*

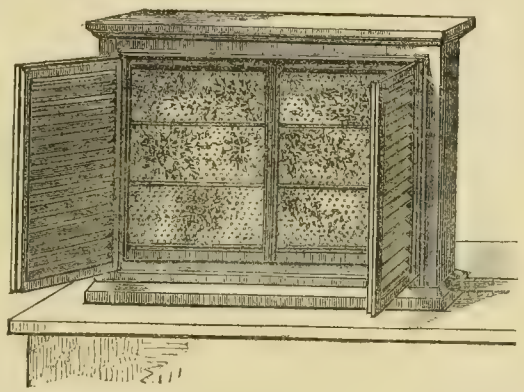
Garden Memoranda.

IN MR. TURNER'S NURSERY at Slough there is always much to be seen, and the winter condition of the great Azaleas and far-famed Pelargoniums is as interesting to the plantsman as their summer aspect. There is one error very prevalent among a large class of gardeners, and, of course, there are numbers who have never happened to live in a "good plant place," and that is concerning the necessity of keeping plants dry in winter. A good deal of ill-thought nonsense was circulated about this 12 or 15 years ago, and the result is, that in many gardens you see intelligent men keeping plants "dry" in winter that were never intended by Nature for such treatment, and which either suffer or perish under it. I have seen young men well abused for over-watering Heaths, which had absolutely died from thirst. The fact and the truth is, that a great number of plants to which the doctrine was applied, require to be kept as moist at the root in winter as in summer, the difference lying in the fact that one tenth or twentieth part of the water required in the summer suffices to keep them right in winter. A visit to this Nursery, or any good plant place, should open the eyes of those who are continually harping about keeping things dry, that no more require such treatment than the exotic Fern does. Here the Pelargoniums and Azaleas, in splendid condition, preparing for next year's shows, are not dry, but moist to the crocks, and such is the practice of every great plant grower. There is a large stock of the beautiful and striking Aquilegia glandulosa here, among the alpines and herbaceous plants. It is a scarce plant, and perhaps some of your readers may wish to know where it may be obtained; and also of the fine Lilium Brownii. The central flower borders are in winter embellished nicely with neat berry-bearing and graceful shrubs, and thereby a pleasant feature is produced, instead of the usual aspect of dug borders. Conspicuous among the occupants of such were the several neat, trim, and graceful Retinosporas, the brightly-fruiting Cotoneaster nepalensis, the universally useful, because easily grown and distinct, Yucca recurva, fastigiate Junipers, Variegated Hollies, &c. Now this kind of thing has been recommended for extensive practice in the flower garden, &c., and not over wisely, because troublesome and artificial, and indeed superfluous, wherever there is a decent collection of evergreens; but without doubt it is desirable to adopt it on a small scale in very many gardens where it is not now carried out. It is particularly adapted for smallish gardens, where beds approach within close view of the windows, or any much frequented spot, especially if the garden be in the country, where these charming evergreens preserve their polished gloss. Such beds might be made more interesting and effective than those borders in which the plants are kept in pots ready for sale and transport at any moment, and where gaps are often made. It is with a sigh that I draw attention to the splendid collections of Pinks, Picotees, and Carnations that are here grown, because it is a fact, and a lamentable one that the culture of these beautiful, hardy, fragrant, and exquisitely-coloured flowers is almost totally neglected. And yet they have been very much improved upon of late years, and many kinds are now offered cheaply by Mr. Turner, which would have gladdened the hearts of the old florists at any price. The truth is, that this is one of the most benighted times that have ever fallen upon the real interest and beauty of our gardens—a time in which much that is glaring and absurdly monotonous, is substituted for the perpetual interest and divine loveliness of plants; and the only pleasant thought connected with it is, that it has arrived at, and is almost past, its climax. Every garden should be beautified with Pinks, Carnations, and Picotees, for they possess fragrance and beauty such as very few flowers of any clime comprise; and I am astonished, considering how highly useful all such plants are for cutting, that gardeners do not, for mere convenience sake, take to them extensively. I am quite sure that if they do not, many years will not elapse before they must; for it is impossible that the employers of gardeners, and educated people generally, can fail to see, when it is put before them, the ambitious and unsound principle which animates those gardeners who pay all attention to the tender and fleeting, and comparatively little to the hardy, and, in many cases, permanent ornaments of our gardens.

There is no nursery in which you may better see the excellent qualities that the various kinds of Calanthes possess than in MESSRS. LOW'S, at Clapton, where you might positively have cut basketfuls of their variously-tinted flowers about Christmas Day. I find that these Calanthes hold their beauty for a considerable time when cut and placed in water in a sitting-room, a thing which many hardy and greenhouse flowers fail to do; and it is most likely that many of these cool Orchids will yet furnish the best and most lasting of all winter flowers for in-door embellishment. Among the Orchids in flower that are most abundant here—and there are many hundred plants of some species—are Oncidium pulchellum, flowering freely, and looking like Lily of the Valley, Lælia albida, Odontoglossum Cervantesii, and others: but it is useless to try to enumerate where the collection is so large. But it is not only on these that one's eyes are opened here, for such piles of Orchids were never seen as are here displayed in the very long houses devoted to their culture—thousands of single kinds in many instances to be seen in one house, and 'marvellous' is the only word that will give an idea of the collection. Never before were there such successful importations made as those by Mr. Stuart Low, who certainly deserves all the success he has attained by his spirited exertions in this way. Doubtless his efforts will very much tend to popularise the culture of Orchids in this country; and we may, I hope, live to see nice "cool Orchids" in every greenhouse, or even grown in a pit and introduced to the conservatory when in flower. Here, too, the stock of Tree Ferns is as full as ever, placed almost as thick as they can stand in a cool house; and they are becoming very cheap, so that the luxury of a Tree Fern will not much longer be denied to any but the wealthiest of our plant growers. *R.*

The Apiary.

A BEE-KEEPER'S EXPERIENCE.—We are always glad to receive the results of the experience of observing apiarians, particularly when given so impartially as is evidently the case in the letter of Mr. Arthur Maw which appeared last week (see p. 55). We are pleased to hear that he has, on the whole, found his "Portfolio



Observatory Hive" to be successful. We confess that on reading his description of this hive about a year ago, we were not altogether favourably impressed with it, nor do we even now feel inclined to substitute the invention in the place of our own well-tried single-combed hive, which, on the plan long adopted by us, has proved a most useful and successful auxiliary for observatory purposes. We have, however, no desire to detract from Mr. Maw's invention, which undoubtedly possesses considerable merits.

For many years the unicomb hives, slightly modified from the description given by Dr. Bevan, satisfied all our requirements. We were resigned to the idea that the stock or swarm hived in it must necessarily perish during the winter, to be succeeded by a fresh swarm the following season. But at length we adopted the principle of using loose bars, which were capable of being most easily transferred from a box, or *vice versâ*. Thus, the swarm when first hived is placed in a box fitted with six bars, furnished with straight guide-combs. After being allowed to work peaceably for a few days or a week, the bars with combs and clustering bees are lifted out and gently inserted into their places in the unicomb hive, which of course must occupy the exact position which the swarm has occupied hitherto. As the queen will most probably be on one of the combs among her subjects, the doors may be closed as soon as the bars and combs are in their proper positions, and stragglers will soon find the way to join their companions. When shifting the combs, the opportunity may be taken of regulating any little tendency to irregularity in their construction; or, as we prefer, this may be done a day or two previously, giving the bees time to repair damages, prior to the transference. The bees will, if strong in population, and if the season be favourable, rapidly fill up the vacant spaces, making the whole surface look like one comb, with perhaps a few apertures for passages from one side to the other.

In the autumn, when the hive is no longer required, by the aid of a thin knife the combs are easily separated from any attachments that may have been made to the sides of the hive or to adjoining bars, and can then be most easily removed and slipped into their places in the hiving box. Here, if supplied with sufficient food, they will stand a good chance of living through the winter, and, in the spring, of being available for restocking the Observatory Hive.

We like the whole surface of each side of the hive to be capable of being opened to inspection at once. We have found that bees can thrive admirably in such hives during the summer months. We have frequently had them completely filled with bees, and combs with brood and sealed honey, and have even taken off good-sized supers of pure sealed honey, worked on the outside, at top of all.

We here give a drawing of an Observatory Hive as improved by Mr. Woodbury, and exhibited by Messrs. Neighbour at the Great Exhibition of 1862.

The bars are six in number, and are of exactly the same dimensions in every respect as those used by Mr. Woodbury in all his hives. The depth of the box in which the bees are first placed, is the same as that of his other hives; the distance between the rests in the unicomb hive may be about half an inch less, so as to induce the bees to attach the bottom of each upper and centre comb to the top of the bar of its lower neighbour; and to prevent them elongating them, so as to render them too deep for the box when retransferred to their winter quarters.

In the foregoing hive, the sides are made of four sheets of glass, with a small space between each pane, to each shutter. This is done for the purpose of providing non-conducting surfaces, capable of protecting the bees from changes or extremes of temperature. The outside shutters are made in the form of Venetian blinds, which when closed allow of a somewhat shaded and subdued light to enter; this is with the object of rendering the bees less restless and disturbed when the shutters are opened for the purpose of inspection. It has been found to answer remarkably well, and the bees do not appear to be unfavourably influenced by the admission of the light. The hives used by us have been constructed with the single pane of glass to each inside shutter, and with solid outside doors for the total exclusion of light and protection from the atmosphere.

For preventing brood in supers we know of no certain method of manipulation. We totally disapprove of any plan which has for its object the keeping down of the temperature in supers. Our large supers are usually unprovided with any means for ventilation, and are warmly wrapped up. We believe that any mechanical method by which the queen can be excluded from them will, if applied, be at the risk of a greatly diminished honey-harvest.

The finding of queens is occasionally a very difficult task, but the faculty may be greatly improved by practise. If after much inspection we fail in discovering the queen, we restore the combs to their places, shut up the hive, and renew the search an hour or two after, or on the following day. On being disturbed she will frequently leave the combs and run about on the sides or floors of the hive, and will then be very difficult of discovery.

For making artificial swarms, one of the plans described and recommended by us in a previous number is that of the removal of a brood-comb with suitable brood, leaving the queen in her own hive. We intend before the swarming season to give, even at the risk of repetition, some hints and directions on the subject of artificial swarms, therefore we will not now enlarge on that head. We trust Mr. Maw will continue his experimental bee-culture, and favour us from time to time with the results of his observations.

Miscellaneous.

Diseases of Plants.—If we now examine the first deviations from normal phenomena which are exhibited in the occurrence of internal diseases, as for instance in smut (Uredo segetum), in decay, as in the stems of Cacti, juicy fruits, &c., or in the Potato murrain, we find in every case that the nitrogenous lining of the cells first becomes discoloured, assumes a darker tint, a firmer consistence, a more evident granulation, and that it begins at the same time to percolate and saturate the cell-wall, so that it ceases to exhibit its pure reaction on the cellulose. These phenomena are so general that we may well suppose that all inward diseases of plants actually derive their origin from an abnormal condition of this coat, and inasmuch as the peculiar power of the chemical process in the cells is apparently concentrated there, its deprivation first calls into existence the symptoms of disease which are perceptible at a later period in the other portions of the cells. The comparative luxuriance of plants depends upon the inorganic matters presented to them in the soil. The proportional rarity of phosphates in most geological formations, and also in the soils which are wholly or principally formed from them, is well known; on the contrary, they are accumulated in soils principally formed of decomposed vegetable matter after being slowly collected by the plants. Animal excrements are very rich in these salts, and therefore manured fields, and especially gardens, contain a greater proportion than is normally present in plants, or can be consumed by them. But the influence which inorganic substances in the soil exercise on vegetation depends upon their being generally present. For since plants have not the power of choosing their own nutriment, and since the proportions in which soluble substances present themselves for absorption can be altered by endosmose within very narrow limits, it is equally important that the substances which are requisite for plants should be contained in the soil in something like the proper proportions, since the plants are otherwise compelled to receive matters in greater quantities than is agreeable to their normal structure, and in consequence inevitable anomalies take place in their vital action. The sum of what has been said may be stated thus:—The more phosphates are relatively increased in any soil in consequence of its mode of formation or cultivation, the more will the plants which it sustains have a tendency to deviate from their original type, to form sub-species

and varieties, and finally to be attacked and destroyed by internal disease. *Journal of Agriculture for Nova Scotia.*

Herefordshire Orchards.—The planting, cultivation, and general management of orchards has long been well understood. As early as 1656, Dr. Beale, in a very valuable treatise, entitled "Herefordshire Orchards a Pattern for all England," entered into full particulars respecting it and other matters of local agricultural interest. From this source we learn that the favourite system of forming young orchards was then, as it is now, to plant them in pasture-land intended to be broken up and cultivated as Hop-yards. The trees are thus well-protected during their early growth, which is much promoted by the manuring and cultivation of the soil; and as soon as they become of a size to injure the Hops, the land is usually again laid down to pasture. Thus an orchard is established at a comparatively small outlay. Both Apple and Pear-trees occasionally grow to a great size. I have an Apple-tree from which, according to the evidence of the late proprietor of the estate, as many as 94 bushels, of 10 gallons per bushel, were once gathered by him; and near the Vicarage at Holme Lacey, and within a short distance of the railway station, there is a remarkable Pear-tree, now extending over nearly half an acre of land, from the fruit of which it is stated, on good authority, that in one year 1600 gallons of perry was made, while tradition speaks of the extraordinary produce of 2500 gallons at the time of its full vigour. On this, however, it is only right to observe, that what is called "a tree" consists of a succession of trees, caused by the lower boughs having fallen to the ground and taken root: thus the parent-tree, which died long ago, became surrounded by a group of trees, each one in itself of considerable size, and forming in the aggregate apparently one tree only of great lateral dimensions. I have measured one of these scions, and its girth at 4 feet from the ground was 10 feet 10 inches. The best old kinds of Cider fruits are the Red Streak, Moyle, Foxwhelp, Skyrme's Kernel, Hagloe Crab, Royal Wilding, red and yellow Styre, Cowarne, Red and Kingstone Black; but they are so difficult to propagate, and such uncertain bearers, that latterly several new sorts have been imported from Normandy and have grown into favour, not only on account of their kindly growth, but their prolific yield. The sorts principally grown are the Strawberry, Huntsham, and Comey Norman; and the yellow, red, white, and black Norman: but the preference should most probably be awarded to the Strawberry, the yellow, and the Huntsham varieties. *Duckham on the Farming of Herefordshire.*

Garden Operations.

(*For the ensuing week.*)

PLANT HOUSES.

As most kinds of *Orchids* will commence growing shortly, pot any which are starting, should they require it, forthwith. By potting each sort when it shows signs of activity from this date onward, and before the roots have made a start, all injury to the latter is avoided. Besides, as the sun increases in power, and the days lengthen, they quickly establish themselves in the fresh materials which surround them. In potting Orchids it will be necessary to make some difference between those grown in a proper Orchid-house and such as are sheltered, so to speak, in the warmest corner of, what is to them, a less suitable structure, whether the latter be an ordinary stove or other house, amongst a variety of plants of other descriptions. The former should be placed in pots properly prepared for them, perforated at the sides, &c., in order to readily admit the outer air and moisture to the roots within. The material in which they should be grown should consist of the best brown fibrous peat that can be had, from which, when well dried, every particle of non-fibry substance should be thoroughly beaten. This done, let it be cut into squares, varying in size according, in some measure, to the dimensions of the pots which are to be filled with them, bearing in mind, however, the fact that each square should not be so large as to obviate an equitable amalgamation of the other materials that may be used. When cut into squares, shaking them to and fro in a sack will clear them of much small matter which they may contain. To two parts of peat prepared in the manner just recorded add one part of broken potsherds (well washed), and another of Sphagnum, together with a few pieces of charcoal. Pot loosely, and as open as possible; but fix the plant sufficiently firm, that it cannot possibly be moved. This may be effected by selecting some of the firmer squares of peat, and starting with these and with alternate layers of Sphagnum from four equal distances around the pot rim, proceeding to the centre, where the main stem is and where the materials will meet in the form of a cross; to fill in the intervening spaces less firmly will then be all that is required. Miscellaneous Orchids grown amongst other plants in an atmosphere less congenial to them than that of an Orchid house, and containing less moisture, will do best in ordinary pots, choosing new ones for them at all times when at hand, and thoroughly scrubbing all old ones whether they appear dirty or not, with the view of insuring perfect porosity —soft pots, so to speak, for this reason are preferable to too hard burnt ones. In potting Orchids to be placed amongst mixed plants use smaller crocks more evenly laid at the bottom of the pot than in the former case, and immediately upon them place a thin layer of Sphagnum, which will exclude to some extent the outer more uncongenial air of the house. Upon the Sphagnum lay small thumb pots upon their sides, one or more, according to space, and as potting proceeds fill in all intervening spaces except these small pots, and these by being left perfectly empty form a vacuity which, by retaining moisture, compensates the roots which collect therein in some measure for the otherwise unfavourable conditions which surround them during hot summer weather. The pots should at all times be slightly elevated, in order that air may be admitted through the crocks at the bottom. When ordinary pots are used for Orchids it is advisable to slightly enlarge the hole at the bottom, as the air admitted from the damp bed on which they stand is more or less surcharged with moisture, and keeps in healthy tone the more active roots at the base. Most *Terrestrial Orchids*, such as some species of *Cymbidium*, *Cypripedium*, *Goodyera*, *Phaius*, and similar genera, require to be potted more firmly throughout than those to which I have just adverted. For these use peat in a similar state, but broken smaller than that alluded to above; potsherds less in size and quantity, charcoal, and a little Sphagnum pulled well to pieces, all being well mixed up together. Elevate the base of all Orchids well above the rim of the pot, fixing these latter sorts well up, and pressing the soil firmly about them. Ordinary pots suit terrestrial Orchids best. Do not water for a week or two after potting, and then very cautiously, as fresh materials absorb and retain a far greater amount of moisture than old worn-out ones. As the sun gains strength, and the days lengthen, syringe the inmates of all stove and intermediate houses once each day—say about 2 or 3 o'clock P.M., or just after closing.

FORCING HOUSES.

Forced Vines showing fruit should have the latter thinned without delay, even if the berries are very small, in order that no strength should be expended in vain at this season. With a quick eye survey the outline of each bunch, form some estimate of its future divisions, neatly cut away all misplaced berries, and where needed loop up the shoulders, in order that all the berries in the bunch may have an equal opportunity of swelling to their proper size. When the berries are fairly set upon early Vines in general, give them more copious syringings than formerly. Use good manure-water by way of a stimulus to the roots pretty freely at this stage, and as we may expect more sun soon, admit air freely upon all favourable occasions. In syringing, endeavour at all times to moisten well the upper surface of the leaves which are in more immediate contact with the roof, and to do this effectively it may be necessary to squirt the water down upon them from an elevation. *Figs*, which require starting very gradually when in active growth, require a very even temperature. Give more heat gradually, combined with both moisture and air, but be careful when once a given maximum has been reached to allow no retrograde movement in any direction. Do not syringe too freely for another fortnight or so, keeping the air on dull days as dry and buoyant as possible, and especially when the Figs are in flower. These remarks will, for the present, apply equally well to *Peach and Nectarine Houses*, except that these latter may be allowed some 5° or so less heat. A temperature of 60° by day, with a fall of about 8° at night, will suit these last well for the present. *Cucumbers* and *Melons* potted off, and now showing one or more rough leaves, should be pinched back to one or two eyes, which, by causing a multiplicity of breaks to shoot from the base, will materially enhance their future prolificacy.

Pits and *Frames* in preparation for early *Potatos*, *Carrots*, *Radishes*, and similar crops, should be allowed to have their fermenting materials well settled down previous to putting the soil on them; shake the upper layer evenly over the bed, and tread the whole firmly down, especially round the outside. Put a layer of well-decomposed manure immediately under the soil, treading it lightly over, and let the whole lay a few days, in order that it may settle down firmly before sowing. Give no water for a week or so after the seed is put in, but keep the lights closed for a few days. This will cause the seed to germinate more readily, and the surface of the soil to become more or less dry, and not so liable to cake as when it is watered in a wet state; moreover, tepid water given to the embryo growths as they become disengaged from their seed cases will prove most acceptable to them.

The *Mushroom bed*, which was left to settle down last week, preparatory to spawning, will now be fit for the performance of that operation if the heat does not exceed 100° while the materials lay loosely. Get upon them, should there be space sufficient, and with a substantial rammer beat all down as solid as possible, by which means the heat will be reduced sufficiently to allow the spawn to be introduced. With a blunt stick or dibber make holes in the surface 2 inches in diameter and 3 inches deep, but not deeper. The spawn, broken into pieces about the size of a hen's egg, should be placed firmly in these holes, first just dipping each piece in tepid water. Press the upper sides of the hole firmly round the spawn, so as to cover it completely over; give another firm patting with the back of a spade, and leave it thus for about 12 hours, pushing a small test-stick down through the centre of the bed to the bottom. At the same time store in some convenient place in the house, to get slightly warmed, sufficient good yellow loam of rather a tenacious texture to cover the bed. Should the latter be a little warmer than the hand after it has lain the time stated, spread the soil evenly upon it an inch and three quarters in thickness. Mushrooms show quicker with less thickness of covering, but the bed is neither so prolific nor so durable. Beat the soil down as firmly as possible, and by wetting induce it to set firmly into one even whole, an operation which may be effected readily by having water near and frequently dipping the spade, with which the surface is beaten, therein.

HARDY FRUIT GARDEN.

Outdoor *Vines* may be pruned whenever the weather is sufficiently favourable for that purpose. To fill vacancies, choose strong young rods of the late season's growth, and nail them in where necessary, not less than a foot apart; let their length be regulated according to size and ripeness, the longer ones should not exceed 3 feet; spur back all side shoots emanating from the main rods to within two eyes of their base, cutting out entirely any smaller growths which may issue from the base or main stem. Give the roots a good manuring where necessary, as the Vine is at all times a gross feeder, and with good drainage it cannot easily be overdone with rich food.

KITCHEN GARDEN.

In anticipation of the injury done to autumn-sown crops by the excessively severe frosts which we have lately experienced, it is advisable to sow a panful of *Cauliflowers*, *Lettuce* (Brown Cos), *Cabbage*, *Onions*, &c., as it may be some weeks yet before a correct estimate can be formed of the amount of real mischief done us. Where *Tarragon*, *Mint*, *Fennel*, &c., are required early, pot some of these up as soon as the weather breaks. Do not, however, place them in heat too quickly after removal. Where *Peas* have not been sown upon light soils, get some in as soon as possible, in order that they may establish themselves should mild weather set in. *W. E.*

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,

For the Week ending Jan. 23, 1867, as observed at the Horticultural Gardens.

Jan.		Moon's Age.	Barometer.		Temperature.					Wind	Rain.
					Of the Air.			Of the Earth			
			Max.	Min.	Max.	Min.	Mean	1 foot deep.	2 feet deep.		
Thurs.	17	11	29.536	29.430	34	20	27.0	38	38	N.	.00
Friday	18	12	29.636	29.447	34	11	22.5	38	38	N.	.00
Satur.	19	13	29.810	29.636	35	16	25.5	37	38	N.E	.00
Sunday	20	O	29.865	29.832	32	25	28.5	37	38	N.E.	.00
Mon.	21	15	29.860	29.815	30	20	25 0	37	37	N.E.	.00
Tues.	22	16	30.000	29.810	45	21	33 0	37	37	E.	.12
Wed.	23	17	29.650	29.525	52	34	43.0	37	37	S.	.01
Average			29.765	29.642	37.4	21.0	29.0	37.3	37.5		0.13

Jan. 17—Partially overcast; frosty; snow flakes falling; fine.
— 18—Hazy, with small granular snow; slight haze; very fine.
— 19—Hazy and frosty; hazy; fine at night.
— 20—Frosty; overcast; frosty wind; overcast throughout.
— 21—Frosty and stormy; boisterous; overcast at night.
— 22—Overcast; frosty, densely overcast; with drops of rain at night.
— 23—Densely overcast; hazy; fine; slight rain.
Mean temperature of the week 7 9-10th deg below the average.

STATE OF THE WEATHER AT CHISWICK,

During the last 41 years, for the ensuing Week, ending Feb. 2, 1867.

January and Feb.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain	Prevailing Winds.							
						N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday..27	44 3	30 9	37.6	18	0.71 in.	3	5	4	1	5	16	5	2
Mon. ..28	45.6	30.0	37.8	21	0.17	2	5	4	1	2	16	7	5
Tues. ..29	45.4	31.1	38 3	18	0.23	5	5	2	2	3	3	7	7
Wed. ..30	44.4	32.2	38.3	21	0.39	2	3	4	4	4	13	9	3
Thurs. ..31	44.7	30.5	37 6	19	0.38	5	6	1	2	11	10	3	3
Friday .. 1	43.9	31.0	37.5	13	0.52	5	6	1	2	4	12	5	6
Satur. .. 2	44.3	31 0	37 6	15	6.75	3	6	5	1	2	12	7	3

The highest temperature during the above period occurred on the 29th, 1863; 1st, 1852; and 3d, 1850—therm 57 deg.; and the lowest on the 28th, 1865, and 31st, 1857—therm. 8 deg.

Notices to Correspondents.

AMERICA: *Wanderer.* We cannot advise you in such a matter. Apply to Mr. Meehan, German's Town, Philadelphia.

AUCUBAS: *Reader.* The male plants always flower early. If you have no females in bloom, gather the pollen when dry and perfect, and wrap it in tinfoil till the female flowers expand; then apply it with a camel's-hair pencil.

AUCUBA BERRIES: *R W.* Sow as soon as the berries begin to drop and they are no longer ornamental. It is best to sow at once, a single seed to be planted in a small pot, and the pots to be placed in a cold frame. They will take some months to germinate.

KIDNEY BEANS AND WHITE DUTCH RUNNERS: *Holker Bothy.* The question is asked, What is the difference between Haricot Beans, Kidney Beans, and White Dutch Runners? What we call French Beans, or Kidney Beans, both dwarf and tall varieties, which are very numerous, are all termed Haricots by the French. They belong to the species Phaseolus vulgaris. The White Dutch Runner, as well as the Scarlet Runner, belong to the Phaseolus coccineus of botanists, which is a perennial, a native of South America. The P. vulgaris is a native of the East Indies and China. ‖

NAMES OF FRUITS: *F W.* Your Grape is most probably the White Tokay; but it is almost impossible to name Grapes from single berries.—*J F.* 2, Bézi de Quessoi; and 3, Bon Chrétien Turc Pears.—*W. Bryant, Chippenham Nursery.* Your seedling Apple, which in appearance somewhat resembles Dumelow's Seedling, is excellent. Its flesh is tender, full of juice, with a brisk acidity; skin pale yellow, rosy crimson on the side next the sun, and very beautiful. We consider it well worthy of cultivation.

NAMES OF PLANTS: *J Smart.* Your Lycaste comes very near to the L. plana of Lindley, and is probably nothing but a large variety of it.

PERPETUAL CARNATIONS: *N & H.* The blooms are small and thin, but being very sweet and of a pure white, they will be useful for bouquets; and as you state that the plants bloom very freely, having commenced flowering early in December without forcing, and given a succession ever since, they will be valuable for supplying cut flowers. No. 1 seems the best of the two. Both, however, are deficient in size.

RAIN: *H D, Epping.* The table of fall for the year is correct. ‖

ROOT FUNGI: *T H.* Examine the roots of your Vines carefully; prune off every one that is affected with fungus; remove the old bark, and cut away any dead wood. We do not like to recommend anything to kill the fungus, as the most effective remedies might at the same time destroy the Vines. You cannot be wrong, however, in applying to the affected part a dressing of sulphur. *M J B.*

SEEDS: *S N J.* If the seeds are well packed and dry, they are not likely to be injured.

TRAINING FRUIT TREES: *C J Robinson.* Trees, chiefly Pears, have been trained in various instances—as at Sutton, in Surrey, which you mention—from the north side of the wall, over the top, and perpendicularly downward on the south side; and such generally bear very well. At Sir Joseph Banks's place at Spring Grove, near Hounslow, Pear-trees were so trained, facing Smallbury Green, exposed to the public, and very tempting, as the fruits showed themselves on the glassy surface of a moat which ran along the base of the wall, and formed a protection to the fruit trees, trained over it downwards till the extremities of the branches nearly touched the water. The wall by this mode of training was rendered both useful and ornamental. ‖

COMMUNICATIONS RECEIVED.—Prof. Oudemanns.—Prof. Regel.—Prof. Daubeny.—Prof. Balfour.—M. Chatin.—A. Dean.—Dr. Smith.—J. Anderson.—R. Dean.—A. Pettigrew (next week).—J. Rust.—James Silver (with thanks).—N. (next week).

LAND DRAINAGE.—This work, in any quantity, from 20 Acres upwards, UNDERTAKEN on a commission of 5s. per Acre. A large Staff is maintained for the purpose by
Mr. BAILEY DENTON, 22, Whitehall Place, London.

ROYAL AGRICULTURAL COLLEGE, CIRENCESTER.
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Resident Professors.
Agriculture—John Wrightson, F.C.S., M.R.A.C.
Chemistry—Arthur H. Church, M.A., Lincoln College, Oxon, F.C.S.
Assistant to Chemical Professor—R Warington, Jun., F.C.S
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Mathematics and Surveying—The Principal.
Drawing—James Miller.

The College was incorporated by Charter, granted by her Majesty in Council, March 27, 1845, for the purpose of affording a practical and scientific Agricultural Education to students from all parts of the Kingdom.

DIPLOMA.—The College Diploma—which admits those holding it to the position of Graduate, under the title of Member—is obtained at the end of a two years' course by those who pass a satisfactory examination in Agriculture, Chemistry, and any other one subject selected by the candidate.

The examination in Agriculture is conducted *viva voce* on the farm by Agriculturists of note from various parts of Great Britain and Ireland, such as Mr. Russell, of Pilmuir; Mr. Algernon Clarke, of Long Sutton; Mr. Squarey, of Salisbury; Mr. Edward Smith, of Emmott's Grange; Mr. Baldwin, of Glasnevin; Mr. Charles Howard, of Biddenham; and Mr. Druce, of Eynsham.

Instruction in Agriculture is given by Lectures and daily Practical Classes on the Farm. The Agricultural Course of Instruction thus embraces not only a Scientific Discussion of Established Methods of cultivating different kinds of soil in different climates—of the Breeding, Rearing, and General Management of Stock, and of the use of Machinery—but also affords a good illustration of the cultivation of a Cotteswold Farm, to which, by an arrangement made with the tenant, the students have free access. Each student is expected to keep a Daily Journal of all the operations on the Farm, and to make himself thoroughly acquainted with the Accounts.

Charges per annum, to be paid half-yearly in advance, In-students, 92*l.*; Out-students, 44*l.*

For further information apply to the Principal.

ROYAL AGRICULTURAL COLLEGE, CIRENCESTER.
SIX SCHOLARSHIPS, each of the value of £30 per annum, are OPEN for COMPETITION to Students intending to follow Agriculture as a profession, who have obtained Certificates as Seniors in the Oxford or Cambridge Local Examinations.
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The Agricultural Gazette.

SATURDAY, JANUARY 26, 1867.

THE fifth Table of the series giving the Agricultural Statistics of the past year, which has recently been issued by the Board of Trade, appears in another page. It gives the details, county by county, out of which the results already published have been built; and it, therefore, ought to have appeared first, instead of nearly last, upon the list. It is curious to note how nearly the totals which have thus been collected approach the estimates which had previously been published. In particular, some of the figures given by Mr. CAIRD, as *Times'* Commissioner, read in the light of recent changes in farm practice, are strikingly justified. The totals of the Wheat and Barley crops in England —3,161,431 and 1,877,387 acres respectively last year—have no doubt been considerably altered during the past 16 years, owing to the prevalent high prices of the latter grain, and the generally unsatisfactory prices of the former. They were estimated in 1861 by Mr. CAIRD at 3,416,750 and 1,416,750 acres each. Suppose some 300,000 acres less Wheat, and a corresponding increase of Barley to have since been sown, owing to the causes just named, and it is probable that the estimate of 16 years ago was then correct. The extent in Clover and seeds estimated by the same authority at 2,277,750 acres then, is declared to be 2,296,087 acres now.

Probably one of the most striking facts brought out by the recent inquiry is the enormous area still lying every year in bare fallow—not uncultivated indeed, but unproductive. It cannot be said that English agriculture has anything like approached the utmost of its powers when so large an extent as 1200 square miles still every year lies fallow.

THE Sale at Havering Park, near Romford, which is announced by Mr. STRAFFORD for the coming May, deserves particular notice here, as being one of the comparatively few now possible where the very best families known to Shorthorn breeders can be represented. Mr. MCINTOSH, the owner of what used to be the old Crown property here, is about to dispose of a herd which has descended mainly from Kirkleavington and Fawsley, through purchases from Messrs. THORNE, BOLDEN, HEGAN, HARVEY COMBE, and LANGSTON. Charmed with Mr. BATES' stock, so long ago as the days of CLEVELAND LAD, and a purchaser at that time for the highest prices then known to breeders, he has since acquired and gradually formed a herd in which the 'Oxford' and 'Waterloo' strains of the Kirkleavington blood occupy a leading place, and in which all the other stock, whether of Fawsley or Wolviston, or other descent, have received several crosses of the best BATES' bulls.

The 'Oxford' family in the Havering herd dates from *Lady Oxford 4th*, since dead, the first cow purchased from America by an English breeder. She was bought for 300 guineas from Mr. THORNE, by whom she was bred at Thorndale, U.S., from *Oxford 13th*, purchased for America at the Kirkleavington sale. She was got by the SECOND GRAND DUKE (12,961)—a bull sold to Mr. THORNE for 1000 guineas by Mr. BOLDEN. She and the 3D DUKE OF THORNDALE (17,749) were sent across the Atlantic to Mr. STRAFFORD, with four others, for sale in England, and Mr. MCINTOSH had enterprise and energy enough to become the purchaser of two out of the six. She has two daughters—*Lady Oxfords 5th* and *6th*; and there is a noble young bull, BARON OXFORD, and a bull calf from the former of these cows, the one by the DUKE OF GENEVA (19,614), and the other by GRAND DUKE 4TH. Of those bulls the former, the best of the Duchess bulls imported from America, is the property of Lord PENRHYN; and the latter is the son of one of Mr. HEGAN'S wonderful cows sold at Willis's Rooms in 1865. Nothing, therefore, can be of purer Kirkleavington descent than this small stock of 'Oxfords,' and their style and quality amply justify the old reputation of their pedigree. In particular, BARON OXFORD, whose dam *Lady Oxford 5th* took the first prize in her class at the Worcester Show of the English Agricultural Society, is no doubt one of the most valuable young bulls in the country, exhibiting in his form, quality, and carriage, all the characters to be expected from his illustrious ancestry.

The 'Waterloos' and 'Wellingtonias,' another pure Kirkleavington family, are descended from *Waterloos 16th*, *23d*, and *24th*, bought at Mr. BOLDEN'S sale; of these the two former are dead. There are nine descendants from them—young cows and heifer calves—by the 3D DUKE OF THORNDALE and the 4TH GRAND DUKE, in the forthcoming sale, whence they may form a capital foundation for the herd of any Kirkleavington partizan. Twenty of the family at Mr. BOLDEN'S sale fetched 92*l.* apiece.

It is in *Coquelicot* and *Fawsley Garland* and their descendants that we have the strain of Fawsley blood in Mr. MCINTOSH'S herd. The former was bought with her daughter, *Archduchess*, at the late Mr. LANGSTON'S sale, and the latter was purchased from Mr. TORR. *Coquelicot* had been bought by Mr. LANGSTON from Sir C. KNIGHTLEY in 1856, and she and her daughter, secured at Sarsden, have bred heifer calves ever since, so that they now number seven of all ages—a very valuable section of the herd, and a very happy combination of the Fawsley and Kirkleavington blood.

Besides these we have six of the 'Barrington' or 'Lady Bates' family, descended from a cow of that name bought by Mr. MCINTOSH at the Cobham sale, containing repeated crosses by BATES' bulls DUKE OF GLOSTER (11,382), 4TH DUKE OF YORK (10,167), 2D DUKE OF OXFORD (9046), 4TH DUKE OF NORTHUMBERLAND (3649) —a sufficiently satisfactory succession of sires, and since then DUKE OF GENEVA and GRAND DUKE 4TH have been employed. They are a wonderfully fine family for frame, quality, and hair.

The 'Clevelands,' descended from *Duchess of Cleveland*, bought at a high price some years ago from Mr. HARRISON, of Mortham, are another strain owing the family likeness of the younger branches to recent crosses by the same bulls.

Mr. MCINTOSH was the purchaser at the Milcote sale of *Sunset*, a descendant of *Graceful*, a cow formerly belonging to him, and a daughter of *Sylph* by *Sir Walter*, from which Mr. ADKINS' 'Charmer' tribe descended; and there are three 'Charmers' accordingly to be offered at the sale. There are also four 'Princesses,' descendants of *Lady Sale*, bought for 105*l.* from Mr. TOWNSEND, of Stony Stanton, and one of the very earliest of the purchases for the present Havering herd. They are descendants of the celebrated cow *Princess* by FAVOURITE, from which sprang the two celebrated bulls BELVIDERE and WATERLOO. *Mildred*, a neat and compact but sleepy-looking cow, is the only pure BOOTH animal in the herd. She is characterised by all that symmetry and beauty of form for which the herd of that breeder is distinguished, but lacks the life-like appearance of vigour which one sees in the stock of this great rival. The bulls of the herd are two Oxfords, two Barringtons, two Waterloos, and three Fawsleys.

A large company of Short-horn breeders will doubtless assemble next May to witness the dispersion of a herd numbering so many among the best-bred animals in the country; and we cannot doubt that Mr. STRAFFORD will add one more to the list of high-priced sales which have taken place under his direction during the past 20 years. We learn from him that he is at present engaged upon a new volume of the Herd Book, and that the returns which he receives indicate more activity and energy than he expected among the breeders of pure Short-horns. It is satisfactory to know that but little loss has been incurred among them by the cattle plague. That constant and anxious care, persisted in for many generations, to which the present quality of pure-bred Short-horns is owing, has proved sufficient for their safety. At the outset of the plague it attacked cattle within a mile of Havering, and the celebrated 'Duchess" herd of Captain GUNTER, near Wetherby, was surrounded by it. In neither case did it appear among the pure-bred stock. A carefully observed seclusion was sufficient safeguard, and now that the disease may be said to have left us, the sales by auction, by which the wants of breeders are best met, will no doubt be again resumed as vigorously and confidently as ever.

As soon as the Sale Catalogue is issued we shall again refer to the Havering herd, and to the agricultural career of its present proprietor.

—— A CORRESPONDENT asks:—"What would be considered a fair average of game per hundred acres on a farm where it is strictly preserved, and whether any law exists to limit the quantity kept?" The shooting is let separately over the estate on which he is a tenant, and his lease compels him to protect the game; but he thinks there must be some limit to the wholesale poultry yard which the land is rapidly becoming, as, in company with the other farmers, he sees every prospect of having his crops devoured.—To this the answer, we presume, must be that the law will require him to carry out his agreement, which we imagine to have been to protect the game on the land as at the date when he signed it. Any increase beyond that quantity can, we suppose, be resisted; and damages in excess of the extent formerly destroyed can therefore, we imagine, be recovered.

—— M. COMMAILLE has addressed a letter to the Academy giving the result of his observations on the comparative value of hens and ducks as layers, and of the comparative value of hens' eggs and ducks' eggs as food. The experiments were carried on with three hens and three ducks of good breeds, hatched at the same time in the month of February. During the autumn which followed their hatching the ducks laid 225 eggs. They recommenced laying in February, and continued without ceasing till the middle of August; they showed no inclination to sit. They became excessively lean, but soon recovered their plumpness. The three hens did not lay in the autumn, they began in January and also stopped in August. M. COMMAILLE gives month by month the details of the laying of the six fowls. The result is that the three hens laid from January to August 257 eggs, whilst the three ducks, beginning a month later laid 392 eggs, to which should be added the 225 laid during the preceding autumn—in all, 617 eggs. The average number for each hen is 85.6., for each duck 205.6. In regard to comparative value, according to very exact analyses made by M. COMMAILLE, it appears that the duck's egg, in a nourishing point of view, is much richer than that of the hen, and the author concludes in these terms:—"The duck has the advantage of greater fertility, a greater amount of nourishment, and in many culinary preparations the duck's egg may advantageously take the place of the hen's." *F.* [Certainly the hens were a very poor set—a hen will lay 10 dozen eggs per annum, as a general rule. The ducks of M. COMMAILLE were as extraordinary as the hens.]

—— Mr. SCOTT BURN, of Highfield Lodge, Heaton Mersey, near Manchester, a gentleman to whom English agriculture is indebted for a number of useful publications, is urgent in the columns of the *Mark Lane Express* on the need of establishing a "Farmers' Orphan Home." He declares as a matter within his personal knowledge that there exists great distress in rural districts, not the less painful because it is quietly borne, through children having lost both parents—or what in many cases is as bad, their fathers, the breadwinners of their families. He adds:—"The season is not an unfitting one to commence such a work; and if you will consent to receive subscriptions for it, and to publish the list of these from time to time, and in due time aid in forming a committee to give practical embodiment to it, I believe the work will soon be an accomplished fact. As a small beginning, my subscription of 5, and if necessary 10, guineas awaits your acceptance. I am bold to believe that I shall at once enlist your sympathies and help in endeavouring to carry out this scheme, which I think promises to do some good." In giving circulation to this praiseworthy proposal, "The Farmer" very properly urges upon the serious attention of farmers the propriety of making provision

for their families by life assurance. "It may, perhaps, be said that this is now so well understood, and so generally practised, that it is unnecessary to bring it forward in this manner; but there is reason to believe that life assurance is not so general among farmers as it ought to be, or even so general as it is among the mercantile classes. Now, if life assurance be desirable for a man whose business or profession may, in a great measure, die with him, surely it is not less so in the case of farmers, when it is well known that the death of the father is often sufficient to bring the affairs of his family to a crisis, through inability to contend with the difficulties he had struggled against, and also because in some instances the lease terminates with the death of the father. But, under any circumstances, life assurance is a prudent precaution, and to those of our readers who have not already taken the step, we would say, do not lose a day in effecting an assurance on your lives for the benefit of those you will leave behind you. The payments are not difficult to meet, and whatever happens there is the consolation that the widow and orphans will not be left altogether unprovided for to fight their way in the world. Mr. BURN'S proposal is an excellent one; but by the system of life assurance provision is made that a man's family is not left on the charity of the world."

—— The several topics to which Chambers of Agriculture may usefully direct their attention were well enumerated in the course of Mr. CLARE SEWELL READ'S speech at the Leicestershire meeting the other day. Among these topics are (1) the representation of the Tenant Farmers' class in Parliament, (2) the Game Laws, (3) the Malt Tax, (4) the Labour Question, and they were thus referred to:—

(1) His idea was that the gentry of this country, from their education, position, and leisure, were the proper persons to represent the agricultural interest, but if from any cause they would not represent their interests, then he hoped he should not be the only tenant farmer in the House of Commons, for although he had been received with the greatest possible courtesy and civility by every member of the House he would rather figure in a trio or quartette, than have always to sing a solo.—(2) He liked the sport of their country better than his, for though in Norfolk they had fox-hunting, in Leicestershire they had that sport carried out to perfection. Fox-hunting was very beneficial to the agriculturist, but the preservation of a large quantity of running game was detrimental alike to all classes in the neighbourhood. He congratulated them upon the way in which the gentry and aristocracy of this county had taken up their Chamber of Agriculture, and he thought that some farmers were not quite fair in their remarks when they said that they did not care for too much of that support, as they dared not open their mouths in the presence of their landlords. He did not think that any tenant who spoke respectfully on any subject or grievance ever fared the worse for it, and if any personal merit had helped to place him in the proud position which he occupied, it was that upon all occasions he had spoken out fearlessly, but he hoped respectfully, on all questions connected with the agricultural interest.—(3) He did not wish to detain them very long upon his favourite hobby—the Malt Tax. In this county they did not think so much upon it as they did in Norfolk. The Norfolk farmers were told that they were the people who were protected by the Malt Tax, but if protection was tying a man's leg when he was running a race, why he would rather be without it. He believed that they should reap considerable advantage from the repeal of the Malt Tax; it was but just to advocate free agriculture as well as free trade. He could not see that if they had a 50 per cent. tax upon flour, it would benefit growers of the best White Wheats. He contended that the brewers and maltsters were most benefited by the tax, and not the farmers, and he only wished that those gentlemen who had been so anxious to denounce the farmers and the gentry for standing up for protection, would do as much to untax the poor man's beer as they said they had done to cheapen his bread.—(4) There was one other question which he would refer to, the question of labour. He contended that all great and sensible burdens which were placed upon the land must eventually be felt by the landlords. If a police rate was increased ½*d.* and the county rate 1*d.*, it fell upon the tenant entirely—and it should be remembered that 1½*d.* on a rate was equal to a 3*d.* income tax—but when they came to an important question like labour, if it was an increase of 25 or 50 per cent., it was impossible for the tenant to bear the whole brunt of it, and the landlord must share it with him, and when the question was propounded of co-operative labour, he believed there could be no real co-operative labour unless the landlord was a party to it. If they were to have co-operation, let the landlord take three-fourths of his rent; let the tenant have three-fourths of 10 per cent., namely, 7½ per cent. interest, and let all above that be equally divided between the landlord and the tenant and the labourer. He should be very glad if the law of settlement was entirely abolished, and when the labourer was set free he would feel the full benefit of recent legislation. Farmers were in a different position to manufacturers, who knew but little of the people they employed, but the farmers knew every hand that was engaged on their land, and they had many means of helping a poor man and his family, which he knew they carried out. It was not by actual money payment that they could only do the labourer service. They could often call the attention of the landlord to the condition of his cottage, they could give him garden ground, cart his coals and his wood, and he was sure the sick comforts of a farm kitchen were much enhanced by a just distribution of the surplus of the dairies to those who needed it. So deeply did he feel his responsibility as a tenant farmer, that he considered that if at the close of each day he did not feel the happy conviction that he had done something to make those about him happier, he had not been doing his duty in that state of life in which it had pleased God to place him.

—— Among the important topics referred to at the late half-yearly meeting of the Highland and Agricultural Society, were the need of adding to the endowment of the Agricultural Chair in the University of Edinburgh, and the propriety of presenting a testimonial to the Rev. P. BELL, the inventor of the Reaping Machine. On the first point it appears that the existing endowment is the mere interest of a sum of 1000*l.*, and that barring the fees of students of what has always been a small class, this is the whole stipend for which Professor WILSON has now for many years successfully and laboriously performed the duties of the Professorship. We are glad to find that the Society is to memorialize Government on this subject; and that hopes are entertained, now that the Country Party are in power, that the importance of adequately endowing our only University Agricultural Chair may be recognised.—It is also satisfactory to learn that the Highland Society are cordially to support the proposal to present a substantial testimonial to the Rev. P. BELL, as the originator of the Reaping Machine. We hope that Mr. SCOT SKIRVING'S speech on this subject in another column will be read and acted on in England, as it is certain to be in the North.

COPSE-WOOD.

IN the *Times* of Saturday last there is a report of proceedings before the Court of Queen's Bench, in which the overseers of the parish of Wootton-under-Edge, Gloucestershire, sought to enforce a rate upon land in underwood, belonging to the Earl of Fitzhardinge. The case raised a question as to what is to be considered "saleable underwood." The plaintiff, Lord Fitzhardinge, disputed the validity of the rate on the ground that the woods rated were not "saleable underwood." The case stated that Lord Fitzhardinge is the owner and occupier of the woods in question, which cover some hundreds of acres, and in the parish of Wootton alone cover 170 acres. The woods are composed almost entirely of Beech, having a little Ash and Hazel intermixed, and consisted chiefly of what are called "stools;" but have a large number of "maiden" trees in them. A maiden tree is a tree springing from seed, and which has never been cut down to form a "stool." A stool is formed thus:—In a maiden tree near to the roots a number of shoots spring from the stump; these shoots, after a period, are cut off and fresh shoots again spring out, and this process is continued as long as the vitality of the stool continues. By the continuation of this process the stool gradually increases in size, presenting when cut the aspect of the head of a Pollard tree standing above the ground, and, in case of the very ancient ones, the appearance of several such heads fixed to and forming part of a spreading mass of wood, partly above and partly below the ground, and supported from roots throughout. The treatment of the woods is as follows:—They are cut in patches of several acres in extent, in such a manner that each patch is cut on an average once in 30 years. There is a cutting every year of some portion of these woods, but as the woods extend into the adjoining parish, the cuttings are not always at the same time. In cutting some of the maiden trees are cut down near the ground, some left standing, some of the stools are cleared entirely of all stems or shoots, and some have stems or shoots left on them called "leaders," the object of the cutter being to have the uncut maiden trees and leaders scattered with tolerable regularity over the ground, and so as to favour their full growth. The maiden trees and leaders thus left are about 10 years old, and vary from 7 feet to 20 feet or 25 feet high, the latter being in general the case. The number of leaders in a stool varies; sometimes, as already stated, the stools are clear, and there are none left, but generally one, two, or three leaders are left, in some cases even six or seven. During the period of 30 years which elapse before the next cutting, the uncut maiden trees and leaders do not increase so much in height as in bulk; and inasmuch as the woods are on a hill and the soil and situation at the bottom are more favourable to them than at the top, they increase more rapidly the lower they are on the slope. At the end of that period they are generally from 25 to 30 feet high, even at the top of the woods; some attain, and some nearly attain, what is called timber size in the timber trade, *i. e.* 6 inches quarter girth halfway up, which roughly approximates to 32 inches round at the bottom, or not quite 4 inches quarter girth half-way up, and at the bottom of the woods the growth is finer. During the same period the stools also produce a large number of other fresh shoots, which, when the time for cutting comes round, are of various sizes, but not fit for the purpose of what is called pit wood, or coal-pit timber, which ought to be at least 2½ or 3 inches quarter girth. When the woods are cut, those stems which are large enough for pit wood or coal-pit timber are trimmed of their branches, and their tops cut off at the proper heights, so as to form stems or trunks to be sold for use in the coal mines; as much of their branches and tops, and as much of the inferior stems as are large enough, are cut into cord-wood, and the remainder of the material is sold as brush-wood or faggots. The object of this peculiar treatment in this kind of wood is to obtain pit wood or coal-pit timber, and the obtaining of the cord wood and faggots is subsidiary to, and only an inevitable and natural adjunct to this treatment. The woods are bought standing from Lord Fitzhardinge, at from 8*l.* to 10*l.* per acre. The pit wood or coal-pit timber is cut for the buyer by the woodcutters by the ton, and then sold by him by the ton or foot, and the brushwood and faggots are sold by him, the buyer, by the acre. It was admitted that by the custom of the county of Gloucester Beech is timber, in the same sense as Ash and Oak are timber at common law: but it was contended on the part of the parish that shoots, sticks, stems, or germs growing from old stools, although of the growth described, and treated in the manner in which the produce of the stools in these woods has been treated, are not timber, and are liable to be rated to the poor as saleable underwood. In the county of Gloucester there are woods, consisting of large trees growing from their own roots, with underwood beneath them, in which the trees are cut down once for all, and are clearly "timber trees." Beech woods of this kind exist in the district round the woods in question. Then there are Beech woods such as those now in question, and treated as above described. There are also woods consisting of Oak and Ash coppice, or underwood, growing partly from stools, partly as maiden trees, some of which woods are cut at intervals of 13 or 14 years, and some at intervals of 21 years, according to the nature of the soil; and proportions of Oak, which is of slower growth than the Ash. The Ash is cut clean to the ground, but there is left a stock of Oak stems called "stores," growing partly as maiden trees, partly from stools, and of these "stores" at the next cutting about three-fourths are cut down and about one-fourth left, and called "double stores," which are cut down at the next cutting. Such of the wood as is large enough is used for fencing and similar purposes, but the main object is to obtain Oak barks, which is most valuable when grown on young wood; where the coppice is purely Oak, it is cut down clean, at about 21 years' growth. This third class of woods exists on the opposite or western side of the county. Then there is another class of woods, consisting of Hazel and Ash underwood, on which the stems are completely cleared away every 14 or 15 years, and are greatly inferior in size to those in the wood in question, and are used for hoops and bundles, and are generally, though not universally, cut by the acre, but sometimes are cut by the ton. Woods of this class exist in the neighbourhood of the woods now in question. The woodcutters of the district call these Beech woods now in question "timber," because they are not completely cleared, because they are not grown for coal-pit timber, because they are cut by the ton (timber being generally cut by the ton, foot, or pole), because there is so great an interval between the cuttings, and because of the size which the stems attain, as distinguished from woods of Hazel and Ash, in the district, which they call underwood, and which are treated as above described. With respect to timber merchants, surveyors, and land agents, some call the woods "timber," because of their incomplete clearance, their fitness for coal-pit timber, their being cut by the ton and not the acre, and because of the interval between the cuttings so far exceeding 14 or 15 years; while others call them underwood, because they are treated with the object of and so as to effect a long-continued series of reproductions from "stools," and because of the size of the stems being so generally under what is called timber size in the timber trade. No succession duty has been paid on the woods in question, and they are subject to a tithe rent-charge; but no poor-rates were ever paid in respect thereof until 1864, when the 170 acres in the parish of Wootton were rated as "saleable underwood" at the sum of 1*l.* 14*s.* 10*d.* This was disputed by Lord Fitzhardinge as an invalid rate, and hence the present case, in which the question for the Court was, whether the woods in question are "saleable underwoods," and as such rateable.

Mr. J. J. POWELL argued that the woods in question were not "saleable underwoods" in a legal sense. He insisted that it was a mere question of fact, depending on the custom of the country, and that it had been always decided that such woods were not "saleable underwoods." Oak and Elm were "timber" at common law. Beech was timber by the custom of the country; and ever since the time of Lord Mansfield it had been held that trees which were timber could not be deemed underwood. Looking to the long period of time which intervened between the cuttings of these woods (no less than 30 years), it surely was not possible to call them underwood. Again, underwood was never thinned as these woods were; nor had Beech trees ever been held underwood; so that, if now so held, it would be held for the first time in the history of our law.

Mr. Justice MELLOR observed that in "Nolan's Poor Laws" (the best book upon the subject) it was laid down that, whether the wood came within the term "timber" either at common law or by custom, or whether, like Hazel-wood, it was valuable only as underwood, was immaterial as to the question of rateability, which turned, not upon the nature or quality of the wood, but whether, in its cultivation or mode of management, it was treated as underwood yielding annual profit.

Mr. GRAY argued in support of the rate, and said that this extract well embodied the view he submitted. The argument on the other side, he said, rested on a fallacy, which had misled Lord Mansfield, that wood which was timber could not be underwood. This was a complete mistake. Oak or Elm might be underwood, and so managed as to produce an annual growth or fruit and profit. The old Act for the Preservation of Woods (35 Henry VIII.) recited that there were coppice woods or underwoods, in which the wood was cut at periods of 25 or 30 years, showing that it was not because trees were cut at such distant periods that therefore they were not underwood. Lord Ellenborough had laid down the right test—is it intended or destined for sale? So in a case in this court in Lord Denman's time, it was said by Mr. Justice Littledale, "Small wood, never likely to be used for timber, may be called underwood," and so may plantations not intended for permanent growth, but to be cut at stated intervals for use—as Hop poles or other similar purposes.

Mr. J. J. POWELL, being called upon to reply on the part of Lord Fitzhardinge, insisted that the test was, timber or not timber.

Mr. Justice MELLOR then proceeded to pronounce judgment against Lord Fitzhardinge, and in favour of the validity of the rate. The test urged upon the Court by the learned counsel for Lord Fitzhardinge was, he considered, fallacious. The true test, as established by the later and better decisions, was the object with which the woods were treated. Here the woods were treated with a view to the raising of successive crops of shoots, which were sold for a profit. This was saleable underwood, and was not the less so because it was sold at long intervals, and if saleable underwood anywhere, it must be equally so in Gloucestershire. The principle was well expressed in the extract he had read from "Nolan." He came to the clear conclusion that these woods were to be deemed underwood, and rateable as such.

Judgment for the defendants.

AGRICULTURAL STATISTICS.

THE following Table, No. 5 of the recently published series issued by the Board of Trade, gives the Number of Statute Acres under each Description of Crop, and under Bare Fallow and Grass, in each County in Great Britain.

COUNTIES PROPER.	Acreage under each Description of Corn Crop.							Acreage under each Description of Green Crop.							Acreage under				Total of Acreage under all kinds of Crops, Bare Fallow, and Grass.
	Wheat.	Barley or Bere.	Oats.	Rye.	Beans.	Peas.	Total under Corn Crops.	Potatos.	Turnips and Swedes.	Mangel.	Carrots.	Cabbage, Kohl Rabi, and Rape.	Vetches, Lucerne, and any other Crop (except Clover or Grass).	Total under Green Crops.	Hops.	Bare Fallow, or un-cropped Arable land.	Clover and Artificial and other Grasses under Rotation.	Permanent Pasture, Meadow or Grass, not broken up in Rotation, (exclusive of Hill Pastures).	
ENGLAND.																			
Bedford	48,306	29,089	10,526	319	18,682	5,301	113,123	3,583	14,678	3,394	560	2,117	7,548	31,880	3	10,708	18,702	67,874	242,290
Berks	61,103	39,911	25,259	802	14,114	5,655	146,844	1,020	38,301	4,265	149	2,392	10,468	56,595	36	8,047	37,420	96,264	345,206
Buckingham	53,661	31,220	23,842	299	17,727	5,942	132,691	1,147	22,663	3,064	148	939	8,849	36,810	2	7,772	28,711	171,192	377,178
Cambridge	131,217	54,918	42,605	1222	24,646	7,989	262,597	7,929	20,583	12,008	1,503	15,131	15,190	72,344	4	18,181	39,311	70,703	463,140
Chester	33,368	6,164	46,260	1064	8,752	1,623	97,231	21,854	6,721	1,063	96	317	3,225	33,276	6	4,998	43,603	302,736	481,853
Cornwall	16,815	46,535	42,975	40	103	34	136,502	3,773	30,919	7,778	192	7,853	3,130	55,645	—	71,259	77,175	95,490	436,071
Cumberland	23,979	11,372	71,870	582	447	648	108,898	12,137	33,263	381	55	2,291	8,329	51,456	—	13,954	99,284	229,439	503,031
Derby	32,572	14,497	29,369	118	1,701	3,176	81,433	3,154	13,720	1,014	34	2,536	5,809	26,287	25	11,167	33,082	311,926	463,920
Devon	111,768	75,312	82,023	214	893	1,044	271,254	14,994	75,757	17,509	484	13,084	9,189	131,017	9	84,245	121,939	310,872	919,336
Dorset	46,037	38,257	22,781	613	3,337	2,455	113,480	2,504	41,803	4,965	165	2,989	8,730	61,154	—	9,896	38,551	175,518	398,599
Durham	42,800	12,990	45,942	35	3,775	4,411	109,953	7,178	22,622	126	29	664	5,095	35,714	3	28,059	39,250	186,587	399,566
Essex	181,062	109,636	45,504	1342	43,778	24,884	406,206	10,808	32,487	27,295	1,092	4,540	28,278	104,500	137	46,361	71,743	160,694	789,641
Gloucester	88,241	41,614	17,030	356	16,620	7,009	170,870	5,034	47,262	3,661	174	1,118	12,382	69,631	29	10,518	77,224	270,004	598,271
Hants	110,824	68,033	65,651	2850	6,193	7,240	260,791	4,436	90,800	7,061	421	6,208	22,002	130,928	2,119	23,727	99,904	122,533	640,002
Hereford	59,490	21,192	12,205	296	6,770	6,017	105,970	2,809	28,104	1,310	98	311	6,754	39,386	4,763	9,470	34,764	200,594	394,947
Hertford	58,868	46,480	24,977	323	9,232	6,676	146,556	1,189	27,570	3,914	124	1,674	9,175	43,646	2	13,562	33,034	86,189	322,989
Huntingdon	43,406	21,083	10,889	635	13,483	4,935	94,431	2,517	3,445	3,746	558	4,885	5,600	20,751	—	13,403	11,775	52,057	192,417
Kent	104,173	41,422	56,080	730	23,888	18,201	244,494	12,052	33,609	8,039	466	5,440	24,394	83,940	36,367	13,937	53,265	279,823	711,826
Lancaster	38,043	7,448	55,617	946	5,598	349	108,001	38,090	11,832	1,259	627	1,329	4,830	57,967	1	10,846	57,559	474,453	708,827
Leicester	43,679	32,004	20,663	87	12,121	7,210	115,764	2,041	15,418	4,097	232	849	4,204	26,841	—	9,176	23,330	257,313	432,424
Lincoln	204,014	141,001	101,399	2128	27,667	27,165	503,374	35,583	135,044	13,589	1,922	21,669	23,214	231,021	24	23,474	154,366	385,567	1,387,826
Middlesex	9,654	2,222	5,745	440	1,466	1,469	20,996	2,737	2,302	1,473	79	719	3,930	11,240	4	1,314	5,182	71,143	109,879
Monmouth	19,796	12,150	7,904	68	408	1,143	41,469	2,443	9,666	677	74	199	2,599	15,658	—	7,526	16,552	127,071	208,276
Norfolk	189,398	186,925	34,227	8647	13,364	16,871	449,432	5,640	134,489	34,370	1,072	5,271	13,203	194,045	—	8,956	147,782	208,872	1,009,087
Northampton	70,726	54,469	19,824	2430	25,551	9,350	182,350	1,933	27,109	4,436	365	1,471	6,765	42,079	1	15,283	31,233	251,790	522,736
Northumberland	36,814	32,159	72,636	260	6,419	5,428	153,716	50,55	52,026	236	22	1,682	6,124	65,145	—	21,338	86,966	329,824	656,989
Nottingham	67,628	49,134	17,603	1940	12,148	9,405	157,858	6,164	36,569	3,524	235	1,423	6,974	54,889	76	14,323	49,922	140,434	417,502
Oxford	57,357	53,339	21,248	274	16,986	7,134	156,338	1,686	42,135	3,497	254	1,871	8,340	57,133	9	6,123	43,041	122,734	385,378
Rutland	8,870	9,414	3,246	10	1,849	1,336	24,725	266	5,991	267	16	125	1,040	7,645	—	1,727	5,803	35,005	74,905
Salop	80,326	52,197	24,816	1070	3,550	9,218	171,177	5,865	47,723	2,074	232	105	3,783	59,782	61	14,267	65,356	310,973	621,616
Somerset	69,012	33,358	23,643	205	13,471	1,888	141,577	8,727	39,048	9,191	332	4,031	9,636	70,965	6	14,018	50,350	458,688	735,604
Stafford	52,922	30,058	30,325	1242	4,113	6,690	125,350	8,342	26,359	2,534	223	1,070	5,759	44,287	1	11,966	47,123	319,935	548,662
Suffolk	178,021	138,496	19,030	7379	37,405	25,508	405,834	1,842	66,022	33,153	1,108	2,431	19,147	123,703	127	25,055	77,274	143,411	775,404
Surrey	42,082	18,865	26,925	1875	2,966	6,823	99,537	3,112	20,299	6,179	683	2,285	8,573	41,131	1,881	14,808	28,384	92,992	278,733
Sussex	97,874	24,946	68,325	797	8,548	12,303	207,793	2,498	33,271	7,579	410	9,713	15,304	68,775	8,488	29,548	52,792	209,531	576,927
Warwick	72,956	29,834	13,621	215	22,503	12,927	151,456	2,544	20,429	3,686	192	583	5,337	32,771	7	13,492	37,078	209,914	444,718
Westmoreland	2,194	2,628	17,042	84	68	114	22,130	1,767	8,292	84	102	308	638	11,191	—	2,105	18,519	159,931	213,876
Wilts	96,800	64,868	33,214	2351	12,309	6,186	215,728	2,896	71,690	4,581	423	8,759	22,460	110,809	8	19,825	66,612	223,804	636,786
Worcester	64,781	20,696	7,293	935	18,496	8,279	120,480	4,777	16,944	3,071	206	587	8,432	34,017	2,321	12,284	31,631	167,648	368,381
York: East Riding, including City of York	116,115	44,472	75,061	2384	10,940	10,701	259,673	10,222	71,101	1,662	208	10,898	12,372	106,463	20	23,192	81,716	141,020	612,084
York: N. Riding	71,683	56,911	73,989	1221	10,860	6,059	220,723	10,663	60,245	640	168	4,208	7,898	83,822	16	36,453	68,138	351,626	760,778
York: W. Riding	102,985	69,168	59,806	1742	9,639	8,015	251,365	26,850	62,395	1,629	127	3,444	19,224	113,669	6	24,621	90,641	613,850	1,094,152
Total for England	3,161,431	1,877,387	1,503,990	50,570	492,586	314,206	7,400,170	311,151	1,600,706	254,081	15,598	159,539	408,933	2,750,008	56,562	760,979	2,296,087	8,998,027	22,261,833
WALES.																			
Anglesea	1,858	5,468	23,365	152	27	20	30,890	4,606	4,684	186	27	9	2,430	11,942	—	6,623	23,248	55,798	128,501
Brecon	9,347	8,674	15,177	20	14	233	33,465	1,813	5,030	64	5	200	1,072	8,184	—	6,037	15,743	119,053	182,482
Cardigan	7,500	21,344	31,544	283	28	402	61,101	6,724	3,829	284	32	61	1,946	12,875	—	11,057	27,503	89,952	202,488
Carmarthen	11,163	19,347	41,275	142	54	79	72,060	4,080	3,101	397	27	80	2,285	9,970	—	21,896	28,805	193,662	326,393
Carnarvon	1,943	8,075	13,591	245	99	99	24,052	5,138	2,349	312	57	33	4,215	12,104	1	10,606	25,483	98,168	170,414
Denbigh	17,218	19,116	29,529	877	885	489	68,114	5,030	7,886	263	71	117	4,748	18,115	—	8,422	30,594	96,682	221,927
Flint	14,437	7,481	12,868	127	2,113	543	37,569	3,842	4,102	323	13	62	1,686	10,028	8	4,507	14,703	49,280	116,095
Glamorgan	13,705	11,656	12,620	140	85	51	38,257	2,849	10,010	901	20	182	2,949	16,911	5	9,919	19,361	148,781	233,234
Merioneth	1,675	4,649	10,654	156	50	22	17,206	2,305	1,127	59	20	22	1,935	5,468	—	8,805	13,180	73,711	118,370
Montgomery	20,087	12,012	22,151	125	109	895	55,379	2,890	8,298	103	6	288	1,797	13,382	—	6,122	22,677	121,097	218,657
Pembroke	8,043	23,731	27,458	103	50	51	59,436	3,484	6,031	938	15	209	1,489	12,166	—	13,768	25,843	128,839	240,052
Radnor	6,886	4,770	11,661	82	20	126	23,545	1,505	5,995	35	2	66	517	8,120	—	2,116	9,582	82,698	126,061
Total for Wales	113,862	146,323	251,893	2,452	3,534	3,010	521,074	44,266	62,442	3,864	295	1,329	27,069	139,265	14	109,878	256,722	1,257,721	2,284,674
SCOTLAND.																			
Aberdeen	598	10,046	194,915	435	267	316	206,577	7,468	91,675	18	46	224	3,313	102,744	—	2,326	213,599	25,340	550,586
Argyle	99	2,135	19,537	557	579	18	22,916	5,473	5,553	23	32	139	275	11,495	—	9,630	14,321	52,994	111,356
Ayr	6,164	1,081	50,948	326	1,841	21	60,381	7,151	10,083	211	207	254	1,451	19,357	—	18,431	57,582	104,088	259,839
Banff	381	4,108	55,000	49	222	145	59,905	2,862	24,208	—	3	25	1,033	28,131	—	850	56,079	9,224	154,189
Berwick	5,601	18,828	35,077	18	1,587	594	61,705	2,414	28,818	38	4	270	2,700	34,244	—	917	55,549	24,865	177,280
Bute	293	250	4,931	72	145	30	5,711	1,034	1,483	21	4	10	156	2,708	—	1,578	4,709	3,561	18,267
Caithness	26	1,513	29,912	75	6	26	31,558	1,974	11,888	1	2	133	599	14,597	—	848	26,237	18,219	91,459
Clackmannan	1,184	1,003	3,003	—	749	—	5,939	381	1,256	9	1	115	48	1,810	—	408	2,901	3,056	14,114
Dumbarton	1,128	393	8,564	—	295	2	10,382	2,636	1,989	8	10	46	504	5,193	—	1,915	9,294	13,016	39,800
Dumfries	962	1,031	47,338	58	164	24	49,577	5,173	20,300	34	21	474	972	26,974	1	5,039	50,449	72,550	204,589
Edinburgh	6,241	10,362	22,866	58	802	44	40,373	6,358	13,629	20	30	498	1,832	22,367	—	1,583	26,907	23,039	114,269
Elgin or Moray	4,718	10,714	21,603	951	114	142	38,242	2,778	14,933	50	2	82	1,114	18,959	1	503	31,233	7,778	96,716
Fife	18,529	25,819	40,863	686	3,541	293	89,731	15,907	26,889	16	15	134	2,119	45,080	—	1,879	49,398	34,080	220,168
Forfar	11,112	26,777	52,821	129	1,769	156	92,784	18,715	31,333	27	27	205	1,987	47,294	—	881	69,779	17,457	228,195
Haddington	12,307	13,348	16,011	15	2,639	186	44,506	6,707	15,707	32	206	179	1,238	24,069	—	782	25,427	12,124	106,908
Inverness	1,031	7,287	27,635	857	13	99	36,922	6,356	9,954	16	3	24	570	16,923	—	5,060	20,265	39,291	118,461
Kincardine	780	9,261	33,810	64	942	81	44,938	2,617	18,174	—	24	39	1,303	22,157	—	464	36,816	7,581	111,956
Kinross	296	1,738	6,870	—	20	1	8,925	793	3,503	1	3	13	133	4,446	—	358	10,861	6,279	30,869
Kirkcudbright	734	411	31,108	19	275	1	32,548	2,319	14,440	18	37	189	369	17,372	—	6,015	34,806	61,877	152,618
Lanark	4,486	911	44,904	99	2,096	151	52,647	6,646	10,608	21	13	318	2,256	19,862	—	9,080	47,835	69,769	199,133
Linlithgow	2,582	4,205	11,224	35	1,029	9	19,084	2,076	5,226	2	2	24	486	7,816	—	717	11,519	15,588	54,674
Nairn	222	1,859	4,901	232	20	10	7,244	501	3,112	38	—	3	94	3,748	—	137	6,314	3,729	21,172
Orkney and Shetland	79	8,270	33,409	1516	—	15	43,289	5,770	9,445	3	4	355	618	16,195	—	4,299	18,708	44,479	126,970
Peebles	5	1,454	8,728	—	5	91	10,283	310	5,312	7	—	270	231	6,330	—	618	11,170	8,506	36,907
Perth	13,741	20,498	66,546	107	4,256	192	105,340	14,546	32,045	76	20	234	2,802	49,723	—	5,394	36,475	69,834	316,766
Renfrew	2,973	234	14,229	42	722	13	18,213	4,528	2,468	19	5	52	975	8,047	—	4,845	13,562	32,493	77,160
Ross and Cromarty	4,684	8,285	25,602	437	78	337	39,423	5,273	15,260	5	—	64	1,514	22,116	1	1,238	27,645	13,050	103,473
Roxburgh	2,147	13,898	30,811	124	402	101	47,483	1,694	25,207	35	6	350	1,480	28,772	—	89	51,813	31,391	160,352
Selkirk	40	670	4,272	14	—	11	5,007	187	3,005	—	—	172	23	3,387	—	54	7,287	5,549	21,284
Stirling	3,580	4,992	20,190	3	3,475	58	32,298	3,820	4,985	11	3	65	1,238	10,122	—	4,072	19,132	29,855	95,479
Sutherland	60	1,305	3,950	36	—	16	5,367	683	1,894	—	—	3	41	2,624	—	201	4,802	2,669	15,663
Wigton	3,327	933	32,462	41	464	15	37,242	3,076	14,608	92	186	112	521	18,595	—	3,065	38,941	29,845	127,688
Total for Scotland	110,101	213,619	1,004,040	7,055	28,537	3,188	1,366,540	143,426	478,990	852	916	5,075	33,998	663,257	2	94,080	1,141,415	893,066	4,158,360
Total for Great Britain	3,385,394	2,237,329	2,759,923	60,077	524,657	320,404	9,287,784	498,843	2,142,138	258,797	16,809	165,943	470,000	3,552,530	56,578	964,937	3,694,224	11,148,814	28,704,867
Isle of Man	8,075	7,736	11,010	9	320	116	27,266	4,302	7,246	55	226	69	310	12,208	—	8,357	25,309	9,762	82,902
Channel Islands:—																			
Jersey	2,702	111	288	13	15	13	3,142	1,368	1,812	701	1,043	171	158	5,253	—	2,552	3,205	6,205	20,357
Guernsey, &c.	990	532	428	27	43	21	2,041	677	247	216	202	75	1,521	2,938	—	372	886	5,762	11,999

* Returns made by Occupiers of and above 5 Acres, † Returns made by Occupiers of and above 2 Acres, ‡ Returns made by Occupiers of and above 1 Acre,

PROGRESS OF THE STEAM PLOUGH.

THE recent exhibition of implements held in the Agricultural Hall, by the Smithfield Club, may not inaptly be taken as an exemplified summary of our progress in agricultural mechanics up to the close of the current year 1866. Although limited in extent as compared with the summer meetings of the Royal Agricultural Society, the annual Christmas gatherings of the Smithfield Club are highly select, the past one bespeaking its own popularity and usefulness in the estimation of the public. In point of fact the limited space at the command of implement makers brings into view more conspicuously the pioneering footsteps of Discovery, novelty in the different classes of implements standing out more prominently—thereby attracting with greater force the observation and attention of visitors, than were they spread over a large area of land amongst numerous duplicates. And besides this—the season of the year, and the place (the British capital) are both favourable to the exhibition of new things. Hence it is that our Metropolitan Christmas shows of implements and machinery can boast of perhaps as much novelty as our provincial summer ones, although far behind as to numbers.

During the Christmas show of the closing year two things—the steam plough and the reaping machine—call for special notice, owing to the peculiar position which they each occupied; the former from the unusual lightness and apparent subdued modesty of its appearance, so to speak, as if the stronger had been on trial in the field (so, it is said, is the case figuratively speaking), and the latter from the strong force in which they mustered, as if English reapers and mowers had purposely come to do battle with their American rivals.

The steam implements of tillage shown were a light land four-furrow balance plough with a seven tine balance cultivator, by John Fowler & Co., and a double-action cultivator and ridge-plough by J. and F. Howard. The latter firm also exhibited a drawing of the twin-engine and twin-plough system. Neither of those two firms showed their heavy land turn-furrow ploughs, doubtless for a very good reason—the want of space; but their absence gave the greater prominence to those for which there was room, and of these the light-land steam plough and the double twin-system were the most attractive, as it was clearly seen that they embodied substantial progress in steam culture.

Taking them in the above order as they appeared on the stands in the Agricultural Hall, a light-land steam plough was much needed, not only for land naturally light and easily worked at all times and seasons, but also for the second and subsequent cross ploughings of autumn, spring, and summer fallowing heavy land; in short for the ploughing of all sorts of land requiring a light furrow and implement. And besides light work of this kind, heavy soils, under peculiar or exceptional circumstances, require to be ploughed shallow; and in such cases the four-furrow light-land plough is much better adapted for such work than the heavy-land three-furrow plough, and a six-furrow light-land plough than the four-furrow heavy-land one now commonly used. The improvement therefore is one which commends itself to the requirements of most farmers.

And this is not all that requires to be said on the present occasion in favour of the light-land steam plough, while tillage by steam is on its trial; for besides better quality of work done, to which the above remarks chiefly apply, there are two other special advantages gained—the one a reduction in the strain, and hence tear and wear, upon the hauling rope, and the other a decrease in the consolidation of the subsoil by the heel or soleing of the ploughs and rotation of the wheels. At first sight, neither of these advantages may be estimated at a very high rate, the practical conclusion being that the increase in the number of ploughs counterbalances the decrease of weight; such, however, is, in point of fact not the case, for two reasons—first, because the light-land four-furrow balance plough is actually not so heavy as the heavy land three-furrow balance plough; and second, because the light furrow plough covers more ground than the heavy-land one, and hence does less harm per acre.

The twin-plough and single-engine system, and the twin-engine and twin-plough system are old propositions, the former having been first patented by Major Pratt, A.D. 1810, and subsequently by Heathcoat, 1832. Heathcoat's project, as most of our readers are aware, was reduced to practice under Mr. Raikes, being successfully used by him in the reclaiming of various mosses, the last public exhibition being before the Highland Society at Dumfries in September, 1838, the field trial being in Lochen Moss. The latter, the twin-engine and twin-plough system, was first patented by Osborn in July, 1846. In February of the same year (1846), Clarke, Freeman, and Varley patented a twin-engine and single-plough system, in which they evidently contemplate two implements; only one implement, however, is specified and shown in the drawing. In 1848 Mr. Osborn had his proposition reduced to practice on the farm of Mr. Tyler, Stratford, Essex, his two engines and tackle being manufactured by Mr. Wm. Curwood, Engineer, Whitechapel, London (see report of trial in the *Mining Journal* of Oct. 14, 1848, with a woodcut of one engine). In his patent Osborn specifies and illustrates two winding drums on each engine, but he used two large vertical friction wheels or pulleys, and two small horizontal ones, the wire-rope going round the former two in the form of the figure 8, being led on and taken off by the latter two horizontal pulleys, placed sufficiently far apart to permit of the working of two implements to and fro between the engines, both implements being always at work. Immediately on being completed the system was taken out to British Guiana to be used by the patentee on his own plantation, also in hauling barges on canals, and in working sugar-cane mills, &c. The twin-furrow ploughs were made purposely for ridge and open furrow ploughing, hence they were hauled to and fro from end to end of the field, or rather from engine to engine, but the other implements ("smashers up") were constructed for one-way work, and were, we believe, turned in mid-land. We have also been informed, or have seen it in some of the West Indian newspapers (we forget which), that Osborn's twin engines worked two one-way turn-furrow ploughs either under McRae's patent, or under an improvement of his own, and that these were turned mid-land. But on the present occasion we have been unable to find the authority to which our notes refer, so that we must leave this an open link in the chain of progress. Both Pratt and Heathcoat used one-way turn-furrow ploughs, turning mid-land, but they leave a headland in the middle of the field unploughed, while they only use one engine; hence the difference in favour of modern improvements.

We now come to notice the pioneering labours of the late John Fowler, of London and Leeds, who did so much for steam culture, and who was familiar with all the preceding examples. The Messrs. Howard, at the recent Smithfield Club Christmas meeting, very disinterestedly disclaim being the inventors of the twin-engine and twin-plough system they exhibit by drawings—conferring this merit on Mr. Edington. But with all due regard to what Mr. Edington has done, and also to what Coleman & Sons did under the patent of Yarrow & Hilditch, we have always understood that Mr. Fowler, who was intimate as above stated with the twin system, was the first to reduce it to practice in its modern improved special mechanism. The question is not one of opinion, but one of fact in the progress of steam culture, and although we have personally discussed the subject with him, we do not recollect of ever hearing him say he had performed an experiment on the twin system; at the same time we must add, an impression rests upon our mind that we have heard that several experiments were made by him. We cannot, however, trust to fleeting impressions of memory, and therefore must leave the question an open one for future solution.

With regard to merit, the twin system (two engines and two implements), sometimes termed the direct haulage system, may safely be left to speak for itself. It is perhaps better adapted for winding-drums than friction-drums or clip-drums, but without raising a single opinion on any question of this kind, it is a system which, generally speaking, obviously makes the most of the motive power, steam, at the least expense of tear and wear, on engine, hauling tackle, and implements. The improvements made belong to those technically termed special mechanism, so that as our different implement-makers have each their own peculiarities of special mechanism, we purposely, as above enunciated, leave these to speak for themselves, under the experience of future field practice. What falls to our duty on the present occasion is a very simple and pleasant task, viz., to report very great progress in each and all of the different systems thus contemplated. To the wire rope this is virtually a much needed godsend, and as the weak point under our present auxiliary-anchor practice lies here, the adoption of the twin-engine and twin-plough system may give the needed stimulus to steam culture which it now requires. *W. B.*

THE TURNIP CROP.

[At the Annual Meeting of the Kincardineshire Farmers' Club, a discussion on the cultivation of this crop took place. The following is the opening paper, read by Mr. Greig:—]

THE system of cropping generally adopted in this country is the fifth course shift—two grain crops, two Grasses, and one Turnip. Many gentlemen are of opinion that this gives too short a period between the Turnip crops, and is of itself sufficient to account for the failures arising from the diseases known as cancer and finger-and-toe. This conclusion they arrive at from a consideration of the fact that Turnips on land worked on a longer rotation are less liable to those diseases than those on land managed on the short rotation. There is, no doubt, some truth in this; but if we wish to remedy the evil we must discover its primary cause, which lies in the want or unequal action of the necessary constituents in the soil combined with those taken by the plant from the atmosphere. The Turnip plant depends for its subsistence upon two sources—the atmosphere and the soil. From the atmosphere it derives most of its combustible or organic matter, while it is dependent entirely upon the soil for those mineral constituents so essential for the development of healthy fibre.

According to Mr. Barclay, in his admirable essay on "Finger and Toe on Turnips," analyses of Turnips show that their ashes are invariably composed of the same minerals in nearly the same proportions. An acre of Turnips—say 20 tons—is estimated to contain 450 lb. of mineral constituents, composed of 50 lb. of phosphoric acid, 57 lb. of sulphuric acid, 50 lb. of salt, 38 lb. of silica, 91 lb. of lime and magnesia, and 164 lb. of soda and potash. It will be seen at once that without these substances being present in the soil it is impossible to expect a healthy growth, as this must cease when the mineral supply is exhausted, and a diseased fibre is the result. As to the combustible food of the plant, it depends chiefly on the atmosphere; but although it may be able to draw a sufficient quantity of organic food from this source to keep up a healthy action, yet I think it is necessary that it should get a certain amount supplied through the soil for the early stages of its growth. This, however, would need to be carefully adjusted, as an overabundance of this stimulating substance is one of the greatest evils existing in the application of manures, and one of the most fruitful causes of disease. It forces the plant to an unhealthy and premature maturity—especially in a dry time, when there is a want of moisture by which the Turnips can assimilate and make available the mineral constituents essential to the formation of a sound fibre. Mr. Barclay, in his essay, thinks the cause of the disease is in the want of some one or more of these mineral constituents, or from a superfluity of the combustible as compared with the incombustible elements assimilated by the plant. I am not disposed, however, to think that the disease in many cases is caused by an absolute want of mineral constituents in the soil, but rather from the absence of deep and thorough cultivation, which promotes the extension of roots and rootlets, with which the plant gathers moisture and mineral substances. In many cases the want of moisture alone is sufficient to cause the disease, as the mineral substances require it as a solvent in order to be assimilated; but independent of that, the plant requires a large quantity of water direct. To supply this, again, I advocate deep cultivation. Perhaps, however, it may be argued that large fields of Turnips have been carried off even when they had a regular and sufficient supply of moisture. In that case I hold that there is a want of minerals in the soil—a want which must be supplied by the application of the necessary manures. Many farmers are of opinion that finger-and-toe is caused by an insect at the root of the plant. It is quite true insects are generally found where disease exists; but I believe these insects are not the cause, but the effect of the disease. We know that in the animal kingdom the presence of insects is a sure indication of the decay of vital energy and the product of disease in the animal. The real cause of the finger-and-toe is, as I have stated, in the insufficient preparation of the soil, the want of moisture, or an absence of the due amount of the mineral and other substances which go to form a healthy plant.

What are the best means to be employed in order to produce the largest crop of the most valuable roots at the smallest cost, with the least permanent injury to the soil? The first thing to be considered is proper drainage; and the next, thorough deep cultivation, and as early in autumn as is practicable. The advantages of deep cultivation are many and important; indeed, it is absolutely essential for the proper development of the roots and rootlets of the plant, without which, especially in the time of drought, it has no security for a supply of the mineral constituents and moisture so necessary to prevent disease. Again, it is absolutely necessary, in my opinion, that the roots extend as far in the soil as the leaves spread above it; and this extension can only be secured by deep cultivation and the proper incorporation of the manures with the land. Another advantage of deep cultivation is the breaking up of the barrier formed between the soil and the subsoil by the treading of the horses' feet, and thus allowing the escape of gas and water and a better and more perfect ventilation of the soil. The next thing to be considered is the most economical manure to be applied. Before scientifically deciding on that point, it would be necessary to have before you an analysis of the soil, so as to ascertain its component parts. But as few farmers are in possession of this information, we will consider what would be the most judicious course to pursue without it. I have said that there are two sources from which the plant derives its nourishment—the soil and the atmosphere. It is to the first of these that I wish now to draw attention.

The first application of manure I would recommend for medium and light soils is a moderate quantity of unfermented farm-yard dung, say 15 tons per imperial acre. In my experience I have always found this quantity, with the necessary artificials, amply sufficient—indeed, possibly safer in all respects—than a much larger quantity, which I have sometimes applied with no other result than the loss of manure. In deciding upon the nature of artificial manures to be used, I would consider, first, whether or not the farm-yard manure applied would be sufficient as organic or ammoniacal substances to carry through—with the mineral manures which I should also apply—the plant to that stage in its development when it would be able to draw its combustible food from the air. If I thought this manure was not sufficiently rich in ammonia for that purpose, I would supply a small portion of Peruvian guano, which would ensure a quick and stimulating action for the growth of braird. We have next to consider the best form in which to apply mineral manures. I need say nothing more to impress you with the fact that this requires very careful attention, than that the plant depends entirely upon the soil for these, and that through the whole period of its growth the principal object to be attained is to supply them in such a form as that they will steadily and equally afford the nourishment essential to bring the plant to maturity. With this view I would recommend the following dressing of manures:—Superphosphate or dissolved bones; bone powder and drilled bones (powder and drill to be fermented) in equal proportions—say, at least, one cwt. of each to the acre. I wish it to be understood, however, that my remarks apply only to the light and medium soil. I am aware that clay soils, of which I have not much experience, would require different applications and proportions of the various manures.

DISCUSSION.

Mr. SCOTT, of Brotherton, differed with Mr. Greig as to the quantity of farm-yard dung to be applied to Turnips, stating that instead of 15 loads, he had hitherto applied 24 loads of farm-yard manure, mixed with town's dung, with 2 cwt. guano, and a smaller, merely trifling, amount of dissolved bones.

Mr. GARLAND said: When he commenced to farm, some 50 years ago, they could grow as many and as good Turnips from farm-yard dung alone as from the many stimulants they now applied. As regarded deep ploughing, he thoroughly believed in what Mr. Greig had stated; and he might add that, in his belief, there was nothing to beat the steam plough.

Mr. JOHNSTON corroborated what Mr. Garland had said, that as good crops of Turnips were raised twenty or thirty years

ago without the aid of artificial manures; and he could only account for this by some change having taken place in the mineral substances of the soil, as they could not do so now; and the same reason might also account for the diseases of the root with which they had to contend. He, therefore, cordially agreed in the recommendations of Mr. Greig and Mr. Barclay, that they should increase and develop these mineral substances, which were evidently required in the manner suggested.

Mr. ALEXANDER preferred to apply his farm-yard dung in a green state; and his experience had proved that it was best to do so, as they would allow that although he had failed in getting a prize this year, he had as good Turnips as any of them in the past. He, therefore, saw no reason why he should change from the practice he had hitherto followed in applying his farm-yard dung.

Provost MITCHELL said—I am pleased to hear from Mr. Alexander, of Bent of Haulkerton, that the system of rotting down the farmyard manure before having it applied to the soil for the Turnip crop is now being discontinued. I believe this is, and will be, to the advantage of the farmer, as by rotting down such manure a most valuable ingredient is lost to the soil—an ingredient that we manufacturers cannot supply, viz., carbon. There is one point in Mr. Greig's paper that I would take the liberty of remarking upon. It is now a well ascertained and generally accepted fact that nitrogen or ammonia is only a stimulant to the plant; that the phosphate only is the feeding or fibre-producing power. Now, a very important subject for consideration at such a meeting as this is the quality or kind of phosphate that can be most advantageously applied to the soil. Phosphates may be considered of two kinds—animal and mineral. The animal, or bones of all kinds; the two mineral phosphates most largely in use, and known to us, are coprolites and apatites. Bones treated with sulphuric acid make dissolved bones; and if pure and dried with bone-meal, are a most excellent manure. Bone ash (or calcined bones), coprolites, and apatites, when treated with sulphuric acid, make superphosphate; and the question I wish to raise for consideration is, which superphosphate is best for the farmer? Now, I have no hesitation in giving you my opinion that of all superphosphates known to us, that made from bone ash or calcined bones is the best. It is, no doubt, more expensive; still, I think to the farmer it is of most value; for although it may be true that soluble phosphate is the same from whatever source it is produced, yet the insoluble phosphates of bone ash are in a state readily available for the plant; this the mineral are not; and, further, in the mineral superphosphates there are, or may be, ingredients not only of no value, but some positively injurious to the plant. For example, sugar is sugar, from whatever source produced; but the little child putting forth its tender hand to take sugar from a heated vessel may burn its fingers; and in like manner the tender fibre rootlet stretching itself out to take hold of the soluble phosphate may come in contact with some deleterious ingredient, injuring it in like manner. Besides, we are, at least to a certain extent, ignorant of the effect produced upon soluble phosphates by the soil before being absorbed by the plant; and there may be in some soils an effect produced something like that which results from the action of carbonate, and this would simply be restoring the coprolite or apatite to their original or stone state: while bones or bone ash, in whatever state or however affected, are readily available to the plant. Still, the true test is the actual result, and this can only be ascertained by experiment; and I hope this discussion may lead some of our practical farmers to favour us with the result of their experiments, and, perhaps, also induce others to make farther experiments for themselves.

Mr. JOHNSTON, while generally agreeing with the Provost, differed with him as to the value of coprolites on some soils; and gave instance of experiments made in Morayshire.

LAND AGENCY—ITS NATURE AND DUTIES.

AT the annual dinner of the Hexham Farmers' Club, which took place on the 8th inst., the President, C. G. Grey, Esq., read the following paper:—

In former times money rents were received by the stewards of manors, who were generally lawyers, having to look after the manorial rights of the lord. Some rents were paid in kind, or by service at the manor house, or in following the lord to the wars. The altered position of landlords and tenants in modern times rendered it necessary for landowners, who being occupied in politics, war, pleasure, or other pursuits, had not time to attend to the business of their estates, to appoint substitutes to receive their rents and look after their interests; and more recently the increased importance of improvements on estates, consequent on the progress of agriculture, has led to the appointment, as land agents, of persons specially trained for the duty; in fact, land agency has become a regular profession, and the sooner all landowners acknowledge this fact and adopt it the better will it be for themselves and the country. A land agent has to look after all the interests and exercise much of the power of the landowner, and he should be a connecting link between him and the tenants. It is, therefore, of great importance to the well-being of tenant farmers and others that he should be a man suited to the post, and capable of exercising a beneficial influence in the country. Land agency may be considered first with regard to the position of the landowner, and second with regard to the position of the agent. With regard to the owner, the agency may be that of an estate on which—1st, the owner never resides, being an absentee, a minor, trustees, a corporation, or public body; 2d, the owner may visit his estates or occasionally reside on them; and 3d, he may be a resident. In the first case, the agent may be allowed great freedom of action, merely reporting his management to the owner or his auditor, and sending statements of his cash transactions, or he may be required to consult the owner or auditor, and obtain his authority before acting. In this case, if he has not the entire confidence of the auditor, or the auditor thinks himself qualified to interfere with the management, the agent is much impeded in carrying out his plans. In the second case, where the owner visits his estates, the agent points out and explains to him all that is going on, hears the owner's views and takes his orders, and is thus able to carry out those views from time to time. In the third case, where the owner is resident, the agent can have access to him on all occasions, and must carry out his views, himself advising when he sees occasion. But as we must take landowners as we find them, let us consider land agency with regard to the position of the agent. He may be—1st, a resident agent on one estate, devoting all or most of his time to managing that estate, constantly visiting the different parts of it; 2nd, an agent over several estates, but all within reach, and which he frequently visits; or 3rd, an absentee agent, who does the work of the estate through under-agents or bailiffs, and seldom or never visits it. This last kind of agency is unqualifiedly bad, and I shall not discuss it. The first is the best on large estates, but the second is good on small estates; for it is better for several small estates near together to be managed by one good agent than for each to be managed by a resident agent of such a class as can be found for the salary such an estate can afford. Even if the owner is resident, his estate may be better managed under the second kind of agency, unless he is fully qualified himself to do the business of his estate, with the assistance of a clerk or bailiff. I shall now point out some of the duties of a land agent, and when I use the word owner, it will be understood to mean also the auditor or person with whom the agent corresponds in place of the owner, or the board, or secretary of trustees, or public bodies who are owners. A very important duty, and one which many people seem to think is almost the only duty of a land-agent, is to receive and account for the rents of an estate. It is important, because it should be done correctly, and accounts promptly and carefully sent to the owner; otherwise, it is one of the least and easiest duties of an agent on a well-managed estate. A duty involving much greater responsibility, thought, judgment, and anxiety is the letting of farms. It may be easy enough to advertise a farm to let, and accept the highest offer, but even if a farm is advertised, care and judgment should be exercised in seeing that the highest bidder is a man of capital, skill, and good character, and in framing proper conditions for his observance; but an agent should not resort to this mode of letting a farm when he can avoid it. If he has a good tenant, whose farm is running out of lease, he should be able to form a correct opinion of the value of such farm, and try to let it to the same tenant again; but if he cannot agree with him, then to some other farmer whose character is known. The agent being thoroughly conversant with the systems of farming best suited to different localities, soils, climates, and with the law of landlord and tenant, should frame the covenants for a lease or agreement so as to leave as much freedom of action as possible to a good tenant, while they restrain a bad tenant from injuring the farm. If such leases have to go through the hands of an attorney, all he should do is to see that the language is sufficiently legal to make it binding without rendering it unintelligible to an ordinary farmer. The farms being let the agent should visit them occasionally, not only to see that the tenants are observing their covenants, but to make himself acquainted with their mode of farming—their personal qualifications with regard to industry—judgment in tillage and stock, and, if desirable, to advise them or inform them of improvements that may be introduced in other places. The agent has to decide where new or additional buildings are most needed, and advise the owner which applications for such to comply with, and which to refuse. He has then to arrange and plan those that are to be made, so as to be most useful to the occupation of the farm, keeping carefully in view the future prospects of the farm, as much as the requests of the tenant; for the latter are sometimes fancies, and sometimes peculiarities of the man, or his mode of farming. It is not enough that the tenant should say, "I am willing to pay 5 per cent. on the cost." The agent must satisfy himself that the ultimate benefit to the estate will represent that interest or more. This applies to many improvements besides buildings. The agent should lay out the draining, or at least he must decide what land is to be drained, and the manner of draining it, and have a competent drainer to lay out the drains, himself visiting the work during its progress, so as to see that the outlets are good, that the drains are properly laid out, and that the work is being properly executed. The agent should himself decide on all alterations to fields, by new fences or otherwise, considering the quality of the land for growing Turnips, corn, or Grass, and with regard to water, shelter, and access; and, when farms are out of lease or opportunities offer, making such alteration of boundaries as will improve the occupation of the farms and facilitate the keeping of good fences. In like manner with regard to new roads, reclamation of land, enclosing commons, and all manner of improvements of which landed property is capable; the carrying out of them with due regard to the means at his disposal, and to economical execution, should be his constant care; laying out general schemes of improvement probably years before he has the chance of realising them, so that every improvement may be part of a comprehensive plan, and not an isolated act. He should also see that repairs are made where needed, whether such should be done by the landlord or the tenant. The agent must also himself transact all the business of letting mines, collieries, quarries, &c., though he may with advantage call in the aid of a professional mine agent to report on workings, and advise him as to terms and conditions. He should also, as far as possible, judge for himself of the state of these works, so as not to be entirely dependent on reports. The agent should know the condition of all the woodlands, and himself decide what is to be thinned or cut away and replanted, considering whether the wood is for ornament, profit, or shelter. He should also take a general interest in all matters, local or public, that concern the welfare of the tenants. He should see that no encroachments are made on the rights or property of the owner. He must keep correct cash accounts, and have proper vouchers for all payments, also a record of all letters written and received, with minutes of all verbal transactions, so that nothing may be trusted to memory or to hearsay, in case of his removal; also a record of all maps, deeds, leases, agreements, contracts, and the like, whether they are in his office or have been sent by him to others; and all this information should be easily accessible to his employer or successor by means of indices to the subjects. The agent's knowledge of the value of land, and its capabilities of improvement, will enable him to advise his employer in the purchase and sale of land, which may be desirable for the interests or improvement of his estates. The duties of a land agent being so varied you will naturally expect that the qualifications for performing those duties should be many, and that a man cannot be expected to possess those qualifications without a special training. The basis of this training is undoubtedly a good general education, and a practical knowledge of agriculture. It may be a question which part of such education should come first. A boy who is brought up on a farm, returning to it from school, has a considerable advantage over boys in other classes of society when he goes to an agricultural college, for with him the learning is not all theoretical; though he may have done nothing but play at home, he knows the meaning of agricultural terms and the names of objects. A practical knowledge of farming being an absolute requisite for a land-agent in any case, he should go from school to work for a year or two on a good farm before he goes to the agricultural college. At school, the best foundation for an education is a considerable knowledge of classics; it gives a facility for acquiring learning, a refinement of mind, and an aptitude for correct speaking and writing, which is most useful in after-life to a man who is to be brought much in contact with others. A knowledge of mathematics is also necessary in training the mind to reason soundly—to distinguish between cause and effect—and to arrive at proper conclusions from evidence, as well as to attain that knowledge of mechanical principles and aptitude for understanding machinery, which a land agent should possess. Having been thus grounded at school, the intended land agent should make himself master of the every day work of the farm, and then go to an agricultural college, where he can apply himself to acquiring the more special knowledge required for his calling. There he must study chemistry, mineralogy, geology, botany, natural history, surveying, planning, measuring, and calculating work, book-keeping, and as much of law as may be applicable to his profession. Without some acquaintance with all these subjects he will find himself at some time or other entirely dependent on a subordinate for guidance. From college, he should go at once to the office of a good land agent, where he can learn the duties of the office, and at the same time be able to watch the operation of farming, and gain practical experience in valuing lands. This he must do as a pupil, assistant, or under agent, as circumstances permit. Having spent two or three years in this way, if he is steady and intelligent, he should be qualified to undertake an ordinary agency. Supposing the agent to have acquired the necessary knowledge, he should also have other qualifications. He should exercise a calm judgment, never coming to hasty decisions. He must be strictly impartial and upright, as well as courteous in manner to all. He will thus gain the esteem of the tenants and the confidence of his employer, and be able to do good to both. He would do well to have applications made to him in writing, though he may fully discuss the subjects orally, and ultimately give his answer in writing, with reasons for his decision. This not only prevents disputes, but makes known the principles which guide his conduct. He should listen patiently to applications, and reasons in support of them; something may often be gained, and nothing is lost, by civility and attention. He should treat every tenant and workman as an honest and truthful man till he knows that he is not one. Nothing destroys an agent's influence or a landlord's popularity more than treating every application from tenants as if it were an attempt to over-reach the agent and impose upon the landlord. In dealing with his employer the agent should always be respectful, but firm when he is sure his opinion is right, though he should be very careful that he has arrived at a wise opinion before he urges it, especially if it should be contrary to that of his employer. If he is obliged to yield his opinion to the wishes of his employer, he should always do it with a good grace; with cheerfulness in minor points and matters of taste; with a respectful expression of difference or remonstrance in matters of more importance, and he should refuse to obey his employer's orders only in cases which involve principles of truth and honesty. Besides possessing a varied education, an agent should keep up a knowledge of the progress of the world, by reading and travelling when he has time; he can thus bring home to tenants who are tied down to their farms an experience which will be useful to them, and will also enlarge his own mind, freeing it from prejudices.

The disqualifications for the office of land agent are many. I shall endeavour to point out a few of these, which constant observation has forced on my attention. Generally the absence of the several qualifications I have enumerated will unfit a man for this profession. Again, special training in many other professions and pursuits is a disqualification. Retired soldiers and sailors do not generally make good agents, though they have some qualities which are useful, such as punctuality and carefulness. Retired butlers and house stewards may be estimable men, but they are not such as should be set over tenant farmers. Poor relations, for whom some provision is desirable, would generally cost an owner less if he were to make them an allowance to live at Bath or Cheltenham. Mercantile men are too apt to look at everything in a purely mercantile spirit, not seeing distant or contingent advantages. Farmers who have failed in farming have the disadvantage of undertaking to manage another

man's affairs when they could not manage their own; nevertheless when their failure has been owing to want of capital or unavoidable calamity, and when they are educated and upright men, they frequently make good agents. Head clerks, promoted from the office, are very apt to find themselves in a position for which they are unfit, having been too much bound to routine and detail, to take large views of management. They are also apt to be too much the servants of the landowners and not enough mediators between them and the tenants. Lawyers, attorneys, and writers, though frequently entrusted with the management of estates, are about the most disqualified. Their education, bent of mind, legal way of reasoning and treating all questions, are a positive bar to success in the management of estates, and I consider it an absolute misfortune to the country that so many estates are under their care. From their special training they look narrowly into legal obligations and the rights of property, and from want of experience in country affairs, they are incapable of judging of the propriety of modifying obligations which may be obsolete or inexpedient. Landowners in Scotland and Ireland, I believe, more so than in England, commit the mistake of making such appointments. To this rule I must confess I know some distinguished exceptions, in men who, having a taste for country pursuits, spend more of their time in the country than in their offices. A town residence, though not an absolute disqualification, is a great disadvantage to a land agent, for though he may be within an easy reach of the estates, as a country agent his business is apt to degenerate into office work, and his visits to the estates and intercourse with the tenants to become more formal than those of an agent residing on an estate, and moving about constantly in the country; and generally such agents depend much more on reports from subordinates, and interviews with tenants at their town offices, than agents who meet a tenant in his own field or homestead and judge from their own observation. Having discussed the agent in his relation to the landowner and to the tenants, I shall make a few observations on his relation to his subordinates, whether they are employed by the owner of each estate under his care, or are his own servants. The office-clerk should be a first-rate accountant; he should be strictly honest and trustworthy, keeping the agent's counsel, as he must generally be in his confidence, and is frequently trusted to receive and pay money. The under agent or bailiff should be a man of much practical experience, active, honest, impartial, capable of superintending building, draining, and other works, and of making out bills and accounts; he should carry out the agent's directions and keep him informed of all that is going on; he should seldom act on his own responsibility, for even going through the form of taking the agent's instructions prevents confusion and mistakes. The wood bailiff should be thoroughly acquainted with all the details of woodcraft, superintending all the operations in the woods and making valuations of lots marked for sale. Where such a person is not employed, his duty may be done by the bailiff or head gardener. The mining agent or viewer must be specially trained for his work, but should not be independent of the agent. He should keep the agent well informed on mining affairs, so that the latter may be able to conduct negociations about mines as he does about farms. The architect, or clerk of works, need not generally be a professional architect, as these have not generally the special experience to enable them to plan and erect farm buildings economically, and suitably to the circumstances of different farms. This office may, however, be combined with that of the bailiff. The solicitor, though not included in the term subordinate, should be accessible to the agent to advise him when necessary; and besides conducting legal proceedings his duty should be confined to holding courts, making conveyances, and seeing that leases, agreements, contracts, &c., prepared by the agent, are put into legal form and properly executed. The agent's knowledge of law should be such as will enable him to avoid litigation but not to conduct lawsuits. The agent should treat all his subordinates with consideration and courtesy, receiving their opinion with respect, and if he has to find fault with them doing it in a kind manner and in private. "Snubbing" before a third person engenders bitterness and resentment, while private correction often produces kindly feeling. By such treatment he will find them ready to oblige him, and probably more anxious to work cordially amongst themselves. Before concluding, I would point to a most vicious system common in Ireland, and also under the courts in this country—that of paying agents by a per-centage on their receipts. It has a bad tendency, and it bears no relation to the work of the agent. An agent's services are, like all others, to be measured by the value of the work done. He should be liberally paid by a fixed salary, and have no perquisites; he has thus no temptation or inducement to act except for the interest of the estate. You may think the duties I have enumerated too many and arduous, and the qualifications too high. At all events it should be the endeavour of landowners to find men properly qualified, and it should be the constant labour and study of land agents to approach this standard. If this were so more than it is, the spread of improved agriculture would be more rapid, and an understanding of the community of their interests would be more common among landlords and tenants.

Home Correspondence.

Mr. Mechi and "T. B." (a last Word from Mr. Spooner).—My only reason for troubling your readers with my second communication on "T. B." and his animadversions on Mr. Mechi was to correct his erroneous statement that I had characterised Mr. Mechi's extraordinary crops as failures, and as this statement is again repeated and supported by another misquotation, I am obliged, in justice to myself, to trouble you with another last word. I am glad, however, to see that "T. B." writes in a better spirit, bears witness to Mr. Mechi's many good qualities, and abandons the allegation, perhaps never seriously intended, that Mr. Mechi claimed to have grown 15 qrs. per acre; and whilst he confesses a partiality to the beverage which I had playfully charged with having inspired his pen, denies altogether its having influenced his amusing and random remarks, which must therefore be ascribed to his own natural poetic fancy, which will sometimes run riot, particularly under an anonymous signature, like sober people in disguise figuring at a masquerade. I must, however, beg to assure him I was never less in a rage than when I wrote the remarks on which he animadverts, as well as in my first communication in your Paper of Oct. 27th, in which I rather joined issue with Mr. Mechi on the subject of rainfall, but took the opportunity to protest against what I considered the unfair criticism he had lately received. "T. B.," in your last Paper, professes to give my exact words as follows:—"Mr. Mechi candidly gives the agricultural world an account of some of his principal failures," to support his assertion, "that I have the hardihood to deny that I characterised Mr. Mechi's extraordinary crops as failures." The Paper of Oct. 27th is now before me, from which, at the risk of being tedious, I quote, after a general remark, "We know from experience that the majority of experiments in agriculture or otherwise end in failures, but these failures are redeemed by the fact that they are often as suggestive and useful as successes. And we doubt not if Mr. Mechi were candidly to give the agricultural world the benefit of an account of his principal failures in agricultural experiments, &c., he would not only extract the poison from the fang of criticism, but would hand down some important facts as true metal free from the dross of error." I will only add "Look first upon this picture, then on that." *W. C. Spooner.*

Moles and Mole-catching.—Upon all mild soils these little animals (where they abound) commit great nuisances, and often much damage in uprooting growing crops, and injuring Grass fields by raising innumerable "mole-heaps." Their object, of course, is to search for food, and in doing this they burrow near to the surface, and at irregular intervals throw out those unsightly little heaps generally called "mole-hills." It is not so much from these "mole-hills" that damage is sustained as from the loosening of the earth, whereby the roots of the corn or root crops are deprived of nutriment for their minute fibres; consequently the plants droop, and either grow badly or die off entirely. It is marvellous what a succession of these hills a few moles will speedily make, and notwithstanding all that can be said in their favour, they have by general consent been voted a great nuisance, and many plans and schemes have been devised and practised for their extirpation. It is said they effect great good by their underground burrowings, and that the immense number of earthworms, grubs, wireworms, and the like, destroyed by them should constitute them benefactors to the cultivator rather than enemies. This, so far as my reading and experience goes, has not been satisfactorily proved. That they consume a large number of earthworms I fully believe, but I know that wireworms and grubs are frequently thrown out upon their nills as of no worth to the burrower. Now, as they are known to possess an extraordinary sense of smelling, and an unusually acute manner of capturing their prey, it would appear that earthworms are chiefly, if not wholly, their food. It is certain they do not consume roots, but feed upon flesh, such as it is. It is supposed by many that the mole does consume roots, and Buffon even accuses it of eating acorns planted for Oaks. This is a mistake, as these would no doubt die from the many burrowings rendering the soil hollow, and dry, &c. A practical and intelligent mole-catcher, of great experience, reports to me that he never found a mole eating other than earthworms, and says it is marvellous how fast an earthworm will travel out of "his honour's way." That he has frequently seen them throw out wireworms, and take no notice of them, but that they will hurry underground after an earthworm, determinedly, and the earthworm will strive exceedingly to get up on to the surface out of their way. These doings he has often watched with great interest, and it has led him to believe that earthworms are alone their natural food. If this is the fact, the idea that they are benefactors to the soil is worthless. Earthworms are benefactors, inasmuch as they act as subsoil drainers by their boring operations; these had rather be retained than eaten up. The mole, at all events, must be considered as a doubtful character by all who know him and his doings. I counsel his destruction as far as possible. This is found to be of no easy accomplishment: he is so subtle and cautious, he will discover your tread, however gentle, and although you perceive him at work casting out earth, yet the moment you strike into the soil his quick backward movement avoids your thrust. I have often been so deceived, though thinking my prey caught. The rapidity with which they will burrow into a somewhat stiff loam is astonishing. They increase very fast, the female having several litters in a season, averaging from four to five each time, and they grow up quickly. The males are very pugnacious, and occasionally drive each other to the surface. They are with great difficulty caught; none but a well-practised professional can readily entrap them. This is owing to their sensitive nature. Their sense of smell is very remarkable; so much so that they will burrow around the trap rather than enter, if the mole-catcher leaves the scent of his fingers behind, or has set it improperly, and if the foot too much disturbs their runs, they will go elsewhere. To catch them effectively, the trap must be placed in the best run. It must be so covered and so bedaubed with fresh earth as to prevent the mole scenting the wood, the wire, or the iron of which it may be composed. The little animal (shall we call him vermin?) must be thoroughly deceived, or there is but little chance of entrapping him. The small wood traps, with loop bars, are very commendable. *O. F.*

Earth Closets.—"Prejudice must yield, in the end, to truth and sound principle." I take this quotation from the very common-sense and matter-of-fact paper by Wm. J. Garnett, Esq., read at the Leamington Congress some time ago, and reproduced in the *Agricultural Gazette* of last Saturday, as my text for a few remarks I would make on the subject. From letters that I receive, I am very pleased to see that the subject is occupying the attention of thinking men in different parts of the kingdom. I am not aware that the use of water, applied as in our day for the removal of fæcal matters, was known to the ancients. An esteemed correspondent in Norfolk drew my attention, some time ago, to the original idea for the application of earth for the purpose as found in one of the Books of Moses (vide Deut. xxiii. 13). We may well say with Solomon—"The thing that hath been it is that which shall be, and that which is done is that which shall be done: and there is no new thing under the sun. Is there anything whereof it may be said, See, this is new? it hath been of old time which was before us." It is then in defence of this very ancient Mosaic injunction that the advocates of the earth system now-a-days have to do battle. Custom is very potent, and prejudice is very hard to overcome; but, to revert to my text, it must, in the end, yield to truth. The water system being unsound in principle, must fall to the ground. Mr. Garnett touches very happily upon the moral aspect of the question, when he says—"that it, however, (the water system) does offend against two old-fashioned and homely precepts, which cannot be neglected with impunity. The one is, 'Waste not, want not;' and the other, 'So use your own as not to hurt your neighbour.' If we were not a very rich, and therefore a very extravagant people, we should not have despised the first; and if human nature were not very selfish, we should never have forgotten the second." No one who has experienced the perfect deodorizing power of dry earth, but must have had the conviction brought home to him that here was the true panacea for the evils of the disgusting old privy plan, and the still worse odours of the water-closet system; for water is utterly impotent to carry away everything offensive to the nasal organs. Fæculent matters will hang about the pipes and sides of drains and sewers, the stench of which is thoroughly emetic. The dry earth system, pure and simple, efficiently carried out, I conceive to be the only perfectly innoxious plan of dealing with fæcal matters. Public men seem to be getting alive to the importance of the subject, thanks more especially to the poisoning of our rivers. I would throw out a hint as to a very useful adjunct to the earth-closet, and that is a cheap and efficient cottage filter, to receive the contents of the slop-pail, supplied with a stratum of earth to retain the grosser matters, held in suspension by the slops thrown in, which, when enriched by repeated use, might be emptied to swell the aggregate of accumulated manurial matters from the earth-closet, and be supplied with fresh, hungry material to go through the same process of enrichment, the comparatively clean water to pass off by the ordinary and heretofore polluted drain. *Wm. Hudson, Chase Cliffe, Derby, Jan.* 22, 1867.

Foreign Correspondence.

OTTERNDORF, HANOVER.—At my home, in Otterndorf, the northern part of Hanover, my father's farm and others are overrun with what are called ground mice, and they are so numerous as to have eaten all the last season's crop and the autumn-sown Wheat and Rape. Can you, and if so, will you, obligingly give me any information you may possess as to the best mode of destroying them? I make this request on behalf of the Agricultural Society at Otterndorf, who have already tried to destroy them by poison, but cannot succeed. Some of the members of the Society are under the impression that at one time these mice were very numerous in England, and destroyed by some other means. *H. v. Sekt.* [We can only recommend you to encourage all the natural correctives—owls, hawks, &c.]

Societies.

HIGHLAND AND AGRICULTURAL: *January* 16.—At the half-yearly General Meeting of the members of the Society held to-day, His Grace the Duke of Buccleuch and Queensberry, K.G., President of the Society, in the chair, the first business was the election of office-bearers for the year.—We quote the constitution of the Council on Education:—

Members of Council named by Charter.—The Duke of Buccleuch, President; the Lord Justice-General, Vice-President; the Lord Advocate; the Dean of Faculty; the Professor of Agriculture; the Professor of Anatomy; the Professor of Botany; the Professor of Chemistry; the Professor of Natural History.

Members of Council named by Society.—Sir George Clerk, Bart.; Sir W. Gibson-Craig, Bart.; Sir Alexander C. R. Gibson-Maitland, Bart.; George Hope, Fenton Barns; Robert Russell, Pilmuir; Henry Stephens, Redbrae Cottage; John Wilson, Edington Mains.

Board of Examiners.—Science and Practice of Agriculture—Mechanics and Construction—Professor Wilson; George Hope, Fenton Barns; Robert Russell, Pilmuir; and John Wilson, Edington Mains. Botany—Professor Balfour. Chemistry—Professor Anderson. Natural History—Professor Allman. Veterinary Surgery—Professor Hallen. Field Engineering and Surveying—Professor Macquorn Rankine; David Stevenson, C.E. Book-keeping and Accounts—Kenneth Mackenzie, C.A., and Archibald Paterson, Meadowfield.

The Secretary then read a resolution of the Directors of the Highland and Agricultural Society of Scotland, September 3, 1866, expressive of the deep and sincere regret with which they had received the information of the death of their late Secretary, Mr.

John Hall Maxwell, C.B. Thirty-five members were then elected.

Steam Cultivation.—The Secretary said that it was the intention of the Marquis of Tweeddale to be here to-day, to present the report of the Committee on Steam Ploughing, appointed in July last. But he had been unable to attend, and neither was Mr. Gibson, of Woolmet, present. In their absence he would simply read the report of the committee's proceedings, so far as they had gone. The report was as follows:—

"On the 19th March, 1866, the committee made their first inspection, visiting the farms of Messrs. Sadler, Ferrygate; Tod, Castlemains; Begbie, Queenston Bank; Hope, Fentonbarns; and Reid, Drem, with the view of examining the work which had been done on these farms after the reaping of the previous year's crop. They found that Messrs. Sadler, Tod, and Begbie had worked Fowler's machines; Mr. Hope, Howard's; and Mr. Reid, Coleman's.

"The inspection occupied 2 days; about 40 fields, extending to nearly 900 acres, were each carefully gone over, and the depths at which each field had been ploughed, smashed, or cultivated, were taken. These measurements were made from the level of the pulverised surface to the solid at the bottom of the furrow, above 150 measurements were taken, and, where necessary, were checked by dipping with the spade; 295 acres had been steam ploughed to an average depth of 10¼ inches; 470 acres had been grubbed or cultivated to an average depth of 9¾ inches; and 118 acres had been dug or smashed to an average depth of 11½ inches.

"On the 4th May, the committee visited Markle Farm, possessed by Mr. Henderson, and saw Mr. Fowler's latest improved machine, worked by two engines, which had arrived shortly before from the manufactory. It was harrowing land which had been ploughed in autumn with the common plough, 8 inches deep. Although the soil was clay, and the surface of the furrow very hard, the harrow penetrated and pulverized it well to the depth of 3½ to 4 inches, covering a breadth of 14 feet; it was afterwards set to grub or cultivate in the same field to the depth of 10½ and 12 inches, and did the work well. The committee were shown other two fields where it had done the work most satisfactorily and with no breakages.

"With the object of arranging to have a comparative test of the produce from land worked by the common plough, and that which had been steam cultivated, the committee visited the farms of Messrs. Sadler, Tod, Begbie, and Hope, on the 4th September. All these were much pleased with the appearance of their crops, after steam cultivation, but Mr. Sadler alone could favour the committee with a comparative trial of the produce from land cultivated with the common plough and that by steam, and being able to do this with a crop of Wheat after Potatos on a field of equal soil, he kindly consented to stack equal portions, and acquaint the committee of the result. This they have not yet received. None of the other parties had crops to which such a comparative test could be applied.

"The committee not having as yet had an opportunity of inspecting the different machines at autumn work, are now arranging for this to take place on an early day.

"Nov. 7, 1866." (Signed) "JOHN GIBSON."

The Secretary added that, since the dates referred to in this Report, two inspections had taken place, one on the 19th November, at Dirleton, where several farms had been visited, and another at Yester, on the 4th December, to examine Lord Tweeddale's horse-ploughing.

The Glasgow and Aberdeen Shows.—Mr. KINLOCH, Yr., of Gilmerton, reported, in regard to the Glasgow Show, that the county of Bute would be represented, and that there was reason to believe that they would not be behind with their contributions. It was expected that the Glasgow Town Council would give the use of the Green, and a contribution of 200*l.* The directors had seen their way to make such alterations and additions to the prize-list as would be more satisfactory to the Glasgow Agricultural Association, with whom the directors had been in communication. It had been arranged to offer 90*l.* additional as prizes for saddle and harness horses, raising the total value of the prizes for the Glasgow Show to 1503*l.*, against 1500*l.* at the last Glasgow Show, and 1244*l.* at the last Show at Inverness. With regard to the Aberdeen Show, upon a strong representation from gentlemen in the district, the Directors had consented to give prizes for bull and heifer calves in the Short-horn and Polled Aberdeen breeds. The prize they had asked for a thorough-bred horse to serve in the district was also under consideration. He might mention that Mr. Hamilton, Sir James Fergusson, and Mr. M'Lagan had agreed to co-operate with the Committee of the Royal Agricultural Society of England to allot the space reserved for agricultural implements at the Paris Exhibition. The Scotch exhibitors would find themselves classed with the English and Irish, as all belonging to the United Kingdom.

District Shows, &c.—Mr. STIRLING, of Kippendavie, moved that the sum of 634*l.* be granted for premiums to district shows during 1867. In the absence of the convener of the Committee on Cottage Competitions, he had also been requested to move that the sum of 88*l.* be granted for the encouragement of cottage competitions during 1867. These competitions have become very popular within the past few years, and he was sure they would all be glad to do everything in their power to improve the condition of the cottagers in Scotland.

Chair of Agriculture.—Sir WALTER ELLIOT, of Wolfelee, said he had to bring before them the subject of the better endowment of the Chair of Agriculture in the University of Edinburgh. Much had been done recently by the Commissioners for the Improvement of the Universities in Scotland, and the changes they had proposed had all been agreed to with one exception, and that was regarding the Chair of Agriculture. He observed that a grant had been agreed to, and supplemented by a legacy from a private individual, for the endowment of the Chair of Sanscrit, raising the salary to 400*l.* a-year. Having been a long time in India, he could not help feeling that the Chair of Agriculture would have been far more worthy of it. The case stood thus—That the Senatus of the University had addressed the Government with the object of securing the better endowment of the Chair of Agriculture. It was stated that the grant would be supplemented by one individual with a grant of 50*l.* a-year. The average emoluments of the Professor would amount to no more than 100*l.* a-year, or much less than that of every other Chair. Besides this, the Chancellor had no control over the classes, yet, notwithstanding, under Professor Wilson's control and management the class had been very successful, and excellent students had been turned out from it, Professor Wilson having persevered in carrying on the class with great success. The Highland Society had offered to give a certain sum towards the endowment of the Chair on the ground that Government would give a sum, but that had been declined, and that had been the only instance in which it had been done. The Senatus having renewed their offer to Government, the subject was now before the Treasury, and as the matter was pressing, the directors had taken it upon themselves to address the Secretary of State on behalf of the chair. The resolution he had to submit was to confirm that proceeding. It was:—"That the Highland and Agricultural Society learns with pleasure that an effort is being made by the University of Edinburgh to obtain an efficient endowment for the Professor of Agriculture, by an application to the Lords of the Treasury to place this important chair in the same position as the other chairs in the University. The members of the Society are glad to find that the Directors have already addressed the Treasury in support of the memorial, which meets with the entire and cordial approbation of this general meeting, and direct that a copy of this resolution be transmitted to the Lords of her Majesty's Treasury."

The CHAIRMAN said he thought there could be no doubt but the Society would approve of what had been done for the endowment of this most important chair in the University.

The motion was agreed to.

Veterinary Charter.—Professor BALFOUR said—It will be in the recollection of those present that, at the general meeting of the Society, held on the 6th of June last, it was agreed to petition against Mr. Holland's V S. Bill, which excluded any one holding the certificate of the Highland Society only from calling himself a veterinary surgeon, that title being reserved exclusively for members of the Royal Veterinary College, and to remit to the Directors to consider the subject of a charter for a Veterinary College for Scotland. With reference to the first matter, Mr. Holland withdrew his Bill. As to the veterinary charter, a memorial had been forwarded to the principal Secretary of State for the Home Department, praying for the creation and establishment of a Royal Veterinary College in Scotland.

The petition is as follows:—

Unto the Queen's Most Excellent Majesty, in Privy Council assembled, the Memorial of the Highland and Agricultural Society of Scotland, Incorporated by Royal Charter. Humbly Sheweth,—

That the Society are the patrons of the Veterinary School in Edinburgh, which was established by them in the year 1823.

That the science of Veterinary Medicine and Surgery has been taught and practised in Scotland for upwards of 40 years with ardour and success.

That hitherto, in the absence of a regularly chartered College of Veterinary Surgeons in Scotland, having authority to appoint Examiners and to grant Diplomas in Veterinary Science and Art, the certificate of your Memorialists, granted after due examination, has served to confer a certain status on Veterinary Students.

That this certificate has been recognised since 1838 by your Majesty's Government, and by the Honourable the East India Company, and is the only license granted in Scotland as qualifying for civil practice in Great Britain and the colonies.

That your Memorialists are of opinion that the past history and present condition of the Veterinary Schools in Scotland entitle them to the highest consideration of your Majesty, and that the independence and usefulness of these schools would be secured, and the advancement of Veterinary Science promoted, by the creation and establishment of a Royal Veterinary College in Scotland.

That the object of the institution of such a College would be to confer degrees in Veterinary Medicine and Surgery on students who produce evidence of having been duly educated in Veterinary Medicine and Surgery, and prove themselves by examination competent to practise as Veterinary Surgeons.

That your Memorialists humbly but earnestly crave your Majesty's gracious consideration of the above premises; and in the event of this Memorial being favourably entertained, your Memorialists will be prepared, in concert with other public bodies in Scotland, to submit heads of a proposed Charter, and your Memorialists will ever pray.

Signed, in the name and authority of the Highland and Agricultural Society of Scotland,

BUCCLEUCH AND QUEENSBERRY, President.

Edinburgh, 27th June, 1866.

Chemical Department.—Dr. ANDERSON reported that the work of the Chemical Department during the past year had been increased by the establishment of a system of field experiments. A proper system of carrying out these experiments had to be devised; the advice and opinion of many persons conversant with the best methods of experimenting had to be obtained, and many preliminary arrangements had to be made which will either not occur in future years, or which can be carried out much more rapidly. These experiments had been completed with success, not unchequered, however, with disappointment. A report of these experiments would appear in the "Transactions."

Premiums Awarded for Essays and Reports, &c.—Mr. IRVINE, of Drum, reported that since the general meeting in June last the following premiums had been awarded for papers lodged in competition for premiums:

1. 20*l.* to Robert Hutchison, of Carlowrie, Kirkliston, for a Report on the Dietaries of Scotch Agricultural Labourers.
2. The Gold Medal or 10*l.* to John Morrison, Coney Park Nursery, Stirling, for a Report on the best Mode of Cultivating Turnips, with a view to saving Seed.
3. The Gold Medal or 10*l.* to John Grigor, Forres Nurseries, Forres, for a Report on the Larch Forests in Scotland.
4. The Gold Medal or 10*l.* to Christopher Young Michie, Forester, Cullen House, Cullen, Banffshire, for a Report on Planting on Exposed or on Barren Tracts.
5. The Medium Gold Medal or 5*l.* to Christopher Young Michie, Forester, Cullen House, for a Report on the Varieties of Poplar best suited to the Climate of Scotland.
6. The Medium Gold Medal or 5*l.* to Russell Swanwick, Whittington, Chesterfield, for a Report of Experiments on the comparative effect of different special Manures on Wheat by Topdressing (crop 1865), conducted on the farm of Fenton-barns, East-Lothian.
7. The Medium Gold Medal or 5*l.* to William Walker, Ardhuncart, Mossat, Aberdeenshire, for a Report of Experiments with different special Manures on Oats by Topdressing (crop 1865).
8. The Silver Medal to Robert Hutchison, of Carlowrie, Kirkliston, for a Report on the Varieties of Poplar best suited to the climate of Scotland.
9. The Silver Medal to Thomas Clark, Craibstone, Auchmill, Aberdeen, for Dressing Fanners, exhibited at the Inverness Show, 1865, and since reported on.

Premiums Offered for Essays and Reports.—I. On Subjects connected with the Science and Practice of Agriculture:—

1. Agriculture of Aberdeenshire and Banffshire	£20	
2. Agriculture of Dumfriesshire	30	
3. Manures produced by different kinds of feeding	20	
4. Manures made with and without cover	20	
5. Autumn manuring	20	
6. Improved varieties of agricultural plants	10	
7. Comparative productiveness, &c., of Potatos	10	
8. Comparative productiveness, &c., of Turnips	10	
9. Cabbage	10	
10. Vegetable productions of India, China, America, &c.	10	
11. Best modes of housing fattening cattle	20	
12. Different descriptions of food	20	
13. Sanitary arrangements for stock	10	
14. Transit of Stock	10	
15. Dipping and smearing Sheep	20	
16. Rural economy abroad	10	
		260
II. Woods and Plantations—		
1. Extensive planting	10	
2. Formation and management of young plantations	10	
3. General management of Plantations	10	
4. Planting on exposed or on barren tracts	10	
5. Corsican Fir	5	
6. American and Canadian Trees	5	
7. Forest trees of recent introduction	5	
8. Roots of Coniferæ	5	
9. Larch Forests	20	
10. Trees which resist rabbits	10	
		90
III. Land Improvements—		
1. General improvement of Estates	10	
2. Reclamation of waste land by tillage, 10*l.*, 5*l.*, and Silver Medal	15	
3. Improvement of natural pasture without tillage, 10*l.*, and Silver Medal	10	
		35
IV. Agricultural Machinery—		
Invention or improvement of implements of Husbandry	50	
		50
		£435

Proposed Testimonial to the Rev. Patrick Bell.—Mr. SCOT SKIRVING said he had great pleasure, not unmingled with some anxiety, in making the proposition he had now to lay before them. He had great pleasure because he was sure what their opinion would be, he had some anxiety lest the success should not be adequate, or that this meeting should not cordially take it up. A number of farmers principally had been thinking for some years that the obligation under which Scottish agriculture lay to the Rev. Patrick Bell was very great indeed. Many of them would have wished to give him some pecuniary testimonial in proof of their feeling on the subject; but, as his Grace was aware, it was difficult for farmers to act in a body except through some Society. The proposal he (Mr. Skirving) was now about to make was, that the Highland Society should give them, not a grant of money, but what they valued much more—their countenance and support, and the valuable assistance of the secretary in carrying out the plan. It would be necessary to say a few words on the claims of the Rev. Patrick Bell to this honour which he now proposed. The honour of inventing the reaping-machine had been claimed by America, it had been claimed by England, and it had also been claimed by several individuals in Scotland, but a few facts would place the matter before them in its true light. The Rev. Patrick Bell, whom he had not the pleasure of knowing, was far too modest, far too sensible a man to claim to be the originator of the reaping machine. On the contrary, they all knew that reaping machines of some kind were used centuries ago; but it was not so old a machine that the records of the world did not let them see beyond. In the very perfect hieroglyphs of Egypt he had seen no trace of a reaping machine. They had a description given by Homer of reaping which exactly represented a field of Aberdeenshire mowers. But there was no mention of a reaping machine till Pliny described the fields of Gaul. Pliny stated that the reaper was a large box on wheels, which was pushed into the field by oxen. It was armed with teeth, and these cut off the ears, which fell into the box—exactly what the *Times*, in its magnificent way, told the English farmers to do last wet season. Now, these ancient machines were not entirely forgotten, because he found the eminent agricultural writer, Mr. Arthur Young, in 1785, alluding to them, and proposing that premiums should be given for reaping machines. Immediately after two reapers appeared in England, one coming out in 1785, and the other in 1786. Mr. Scot Skirving then gave an account of the various machines which had been produced between that date and 1826, when Mr. Bell's machine was first worked. Mr. Bell was just 19 when he began to experiment with his machine. He and his brother worked together, and, as they thought they might be considered lunatics, they did not like anybody to see what they were doing. They wheeled a lot of earth into a shed, and set up straws in it, and worked the machine by stealth. When they got it completed, they took it out first in the moonlight. Their experiments cost a great deal of expense, and the only money they received was 50*l.* which did not nearly cover their outlay. In proposing this he did not ignore the merits of a great many people who had improved upon it; but he claimed for Mr. Bell that he was the first man who constructed a machine which kept the field for a whole season. He showed the great expense which

had been saved to the farmers by this machine, and proceeded to say that he did not wish the Society to give a money testimonial, although the Society had often done so as the reward of accomplished success. Mr. Bell was not in a position to attract attention. He was a minister of the Church of Scotland in one of the poorest parishes, and he believed a pecuniary reward would be more agreeable than if he were a richer man, although rich and poor alike deserved reward for their good deeds. All he asked was that they should empower the Secretary to work the machinery so far as sending out circulars and receiving the contributions was concerned. With that courtesy and kindness which he was sure the members generally experienced at the hands of their new Secretary, he had intimated that he was perfectly willing to undertake the duty, provided the Society would allow the small expenditure that would be necessary in employing for a few weeks an additional clerk to direct the letters, &c. He (Mr. Skirving) therefore proposed that the Society should take up the matter, so far as to allow the Secretary to send out the circulars and receive the subscriptions.

Professor RANKINE, Glasgow, in supporting the proposal, said that Mr. Bell occupied the same position in relation to the reaping machine as Watt did in relation to the steam-engine. All the reaping machines that were invented before the days of Bell turned out to be failures, and it was his invention that had rendered them successful, just as Watt did with the steam-engine; and all improvements that had since been made on the reaping machine were merely following up the ideas of Bell, as the improvements on the steam-engine were following up those of Watt.

The Duke of BUCCLEUCH then put the motion to the meeting as follows:—"The meeting approve of the proposal to raise a testimonial to the Rev. Patrick Bell by public subscription, and authorise the Secretary to give his assistance to the gentlemen who are promoting it." The noble Duke said the first time he attended an exhibition in connection with the Highland Society, he recollected perfectly well seeing a model of Mr. Bell's reaping machine on the ground. He was very young indeed at the time, but he remembered hearing many people say of the machine that it might work well enough as a model, but would not be capable of performing the work of the field, because it would be impossible to get horses to push the implement before them. He thought the country was under a deep debt of gratitude to Mr. Bell for having worked out his idea in such a way as to have rendered the reaping machine a great success; and the Highland Society ought to do what they could in order to express their feelings of gratitude to one who stands, as had been well remarked, in much the same position in regard to reaping machines as Watt did to the steam-engine.

The motion was then put to the meeting and carried with acclamation; and, with a vote of thanks to the Duke of Buccleuch for presiding, the proceedings terminated.

Farmers' Clubs.

SWINDON: *The Malt Tax.*—At the late monthly meeting of this Club, Mr. Thomas Arkell said:—In the first place I must say a few words on the evils and pressure of this tax, as it now affects us. What is the case at the present time in consequence of the late wet harvest? There is great difference in the price of Barley; it varies more than half, for I see in the Cirencester market, where the highest and lowest are quoted, it is quoted from 26*s.* to 54*s.* Now is it possible to support by argument or countenance in any way the same amount of tax on an article worth 26*s.* as one worth 54*s.*? Ought any Chancellor of the Exchequer worthy the character of a financier to continue such injustice for one year, even though we may call this an exceptional year, as no doubt it is; and not only exceptional, but I am afraid to say a ruinous year, having such a wet harvest following so closely upon the cattle plague? Yet perhaps even this disastrous and exceptional year may be sent for some wise purpose, and if it helps to open the eyes of the public and our legislators to the monstrous injustice and impolicy of levying a tax of 21*s.* 8*d.* on a quarter of Barley worth only 26*s.*, and the same duty of 21*s.* 8*d.* on a quarter of Barley worth 54*s.*—I say again, if it will open the eyes of the public to this gross injustice, I will hope this disastrous year (to many) may not be an unmitigated evil, especially if we can date the repeal of the malt-tax from the Session of Parliament following the year 1866. As I said before, I do not intend taking up your time in bringing before you the many sound reasons that have at various times been met by saying, "it is inexpedient to repeal it: money must be raised for the use of the State, and you must put up with it." Just such a reason might have been given for the continuance of any tax that has been repealed. As I hope several of you present will enter into a discussion on the merits, or rather the demerits of this tax, I will at once lay before you, as clearly as possible, the more important part of the paper—the present state of agitation for its repeal. The Central Anti-Malt-tax Association has been in existence four years, being formed by the delegates from several farmers' clubs and agricultural associations, meeting in London and supporting it by their subscriptions; and it is a fair question to ask, "What has it done? and what is it doing?" In the first place, in speaking of the financial state of the Association, there has been received about 2500*l.*, and the expenditure is nearly the same, leaving in hand a balance of only 100*l.* at the present time. Now, considering the very moderate sum received to agitate the country for the repeal of a tax producing over 6,000,000*l.*, I consider that we (for I have been one of the acting members) have done a good deal. In the first place an anti-malt-tax circular has been started for the purpose of circulating letters and articles on the subject, including the debates in Parliament, amongst the people. A large number of essays have been printed and distributed gratis, and two very important meetings have been held at the Freemasons' Tavern, in London, on the eve of the last Session of Parliament, at which a considerable number of M.P.'s attended. Lectures have been given in several large towns by the author of the prize essay; and the celebrated lecturer, Mr. Dawson, who, I believe, is now under engagements to deliver some more in the large manufacturing towns of the north, has commenced in Birmingham, and I was told by a person who heard him that it was a capital lecture, and made a great impression and many converts to our cause; and last, though not least, there have been three deputations to wait on the late Chancellor of the Exchequer. Now, what are the fruits of the agitation? A most important question, I admit, and though I cannot say that I feel certain of gaining our object next Session, I think we have made impressions which, if followed up, must ere long be followed with success. With regard to Mr. Gladstone, I consider we have made a strong impression on him on the three several occasions we visited him. After the first he gave us the Cattle Malt Bill, which we all know has been of no use, in consequence of the many restrictions imposed; the next time he gave us the Malting by Weight Bill, another alteration without improvement; and last, he talked to us about the difficulties (though he said probably they were not insurmountable) of altering the malt tax for a beer tax, plainly showing that he had some scheme for relieving us after his two previous failures. Now I think you must all admit that to drive such a hard, clear-headed financier as Mr. Gladstone is considered to be, from post to pillar and pillar to post, is no slight achievement, and must be considered that we in a great measure, if not altogether, convinced him that the pressure of the tax was injurious to the agricultural interest. At the last meeting of the Council, held the 6th November last, the question of a beer tax instead of a malt tax was discussed at considerable length, and I will, as briefly as possible, state a few of the arguments, *pro* and *con.*, made by those present. In the first place it was stated that a tax levied on the manufactured article must raise the price much less than when imposed at the commencement of the business, as is the case with the malt tax, because it requires more capital to carry on the business, and there must naturally be a profit on extra capital, and it would be made in accordance with the acknowledged principle of taxation, of imposing a duty on the manufactured article instead of the raw material. In the next place it was agreed that a beer duty would necessarily place the farmers and agricultural interest upon the same footing as other classes, viz., as consumers, only we should then have no special grievance; the malt tax would be repealed without necessarily diminishing the revenue, the Central Anti-Malt-Tax Association might then be dissolved, we should only be affected as consumers, and, no doubt, when the labouring classes (the great consumers of beer) were ready to agitate for the repeal of the beer duty, we should be ready to join them. It was stated that 2*d.* per gallon on brewers, and a licence for private brewing, according to the number of a man's household, would bring in a revenue equal to the present malt-tax, and save the great expense of the excisemen surveying any of the malt-houses in the country. It was stated also in the war times, when there was a duty on both malt and beer, the revenue derived was 3,834,480*l.* on malt, and 3,110,570*l.* on beer, being a total of 6,945,050*l.*, and the spirit duty at that time amounted to 4,850,178*l.* Now, the revenue from malt in 1864-5 was 6,394,553*l.*, and from spirits, 13,479,426*l.*, showing, if figures can show anything, the clog the present malt-tax is to the consumption of beer, which is, or at least ought to be, the beverage of the country. These, though not all, were some of the strongest arguments used in favour of advocating beer duty in lieu of the malt duty; but luckily, perhaps, for consistency's sake, there were a few wise heads amongst us. Mr. Cobbett, Mr. Fielden, and others, said, however preferable the one may be to the other, it would be very much out of place for the council of the Anti-Malt-tax Association to give up the ground we had gained, and advocate the imposition of a tax, or as the phrase goes, change our tactics in the face of the enemy; therefore we shall continue, and mean to be the advocates for the repeal of the malt tax.

Mr. J. A. WILLIAMS said that ever since there had been an agitation he had taken a part in it, and he intended to until they got some alteration. But he had lived to alter his opinion upon the mode in which relief ought to be given. Mr. Arkell had referred to the late harvest and the Barley crop. In Swindon market that day there stood two sacks of Barley side by side—one had only made 26*s.*, the other going for 53*s.* He had got a sack of perfectly sound Barley, weighing 10 score, dry, which no maltster would take under any circumstances, and he was compelled to sell it to Mr. Brind at 32*s.* 6*d.* That sack was equal in quality to Mr. Wallis's, who had sold for 42*s.* What caused this difference in prices? He maintained that it was nothing else but the abominable duty upon malt. His Barley, though it might not have yielded so large a quantity of saccharine matter as his neighbour's, would have given a large per centage of profit to the maltster, if he had not got to pay duty. That duty was the means of putting bright Barley at a premium, and discoloured Barley at a discount. He had taken a little pains to ascertain the effect of the duty upon the agricultural interest in another shape. His Barley made 32*s.* 6*d.*, and he was told he got a good price for it. What was the amount of tithe to pay on the same black Barley by this unjust system of taxation? He had looked into the *Gazette* for the last three weeks, and there were the average prices of Barley for the kingdom, upon which they paid tithe, and for which every farmer who rented upon a corn rent depended. November 3rd, 43*s.* 10*d.*; November 10th, 44*s.* 9*d.*; November 17th, 45*s.* 3*d.*; average, 44*s.* 7¾*d.* He would ask any farmer what was the average price of black Barley in Swindon that day? For they would have to pay on 44*s.* 7¾*d.* Was it worth while to agitate the question or not? Let them look at it in another sense. This duty put a veto on their using malt. There was no duty on cider, and a simple illustration could be given for that. Suppose the Chancellor of the Exchequer said to himself that he would tax it. If he acted in the same way as with the malt, he would go into the orchards and have the Apples estimated before they were ripe. Presently, when one had a pudding, they would have the satisfaction of knowing that they paid duty upon that. It was wrong upon the very face of it. The duty, if there was one at all, should be put upon the manufactured article. Mr. Arkell had referred to the result of the tax in augmenting the consumption of spirits. The Chancellor of the Exchequer had to ask himself, "If we take the duty off, what will the distillers say?" The Chancellor knew that the beer duty was a monster to grapple with—it was not less than 20,000,000*l.* This he was certain of, that he should go into his grave before the duty was taken off malt, unless a substitute was found. The Hop-growers had gained their point by a substitute being found. Why should not the malt-tax be paid in the same way—upon the manufactured article? If the duty were taken altogether off malt, the consumption would be as much again. If they were united and stuck to their point, they should get the duty off the raw material and put upon the manufactured article. Mr. Wentworth, of Andover, some time ago, having a flock of 200 lambs suffering from foot-and-mouth disease, had given them malt—they recovered, and sold nine months old at 69*s.* That person paid 5*l.* duty on the malt he gave those lambs. He thought they should go at once to the Government, and ask for the transfer of the duty from the raw material to the manufactured article. He did not believe they could keep it from them. It did not follow that they were to stop there—that was another question, but it then became a question for the consumer at large. Those were his views.

Mr. J. REYNOLDS, of Gloucester, while admitting the hardness of a duty on the raw material, unhesitatingly asserted that if the duty on malt was to be removed, it must be by economising the expenditure of the country; and if they approached the matter in any other way, they would find that it would be so much time wasted. He urged all who were in favour of economising the expenditure of the country to join heart and hand in endeavouring to meet the deficiency which an abolition of the malt tax would occasion by a re-adjustment of the general system of taxation.

Mr. THOMAS ARKELL could not see how, as Mr. Reynolds stated, this question involved taxation amounting to 20,000,000*l.* They wished to confine their attention to the sum raised by the malt-tax, which was 6,000,000*l.* It had been said that if the duty was taken off beer its consumption would be increased at the expense of spirits; but it should be borne in mind that they, the malt-growers, had been suffering to an enormous extent for past years. As a previous speaker had stated, the taxes upon beer had driven people to spirits and as a result of that, less Barley had been required and in many instances lower prices realised. Years ago, when the malt and beer duty raised 6,000,000*l.*, spirits raised little over 4,000,000*l.*; now the latter realised about 13,000,000*l.*, while the former remained about the same. This would show that they had been suffering to the extent of nearly two-thirds.

Farm Memoranda.

CHATTERIS, ISLE OF ELY, CAMBRIDGESHIRE *January* 17.—We are now in the midst of winter, and with real winter weather. Up to the end of the year the weather had been generally moist and growing, and the late-sown Wheats had sprung up rapidly, and vegetation generally was vigorous and unchecked; but during the very last hour of the old year snow-clouds gathered, and snow-flakes, fast and thick, fell all around; and whilst we were thoughtfully and solemnly watching and waiting to witness the last vibration of the pendulum for 1866, and were preparing to bid a for ever farewell to an old friend, until at length our voices in song proclaimed—"The arrow is flown, the moment is gone," and we gave a hearty welcome to a new friend, and with right good will and joyous heart greeted those around us, wishing them "a happy new year;"—whilst all this was transpiring, we say, all Nature was being mantled in a garb of fleecy white—emblem of purity and virtue. With the new year, then, began our winter. All our predictions of another open winter like the last were falsified. Since 1860-61 we have not had such rough storms or such intense frosts. We have had 20° of frost, and with the exception of four or five days the month has been severe. During the first week of the year, although the frost was intense, vegetation did not appear to suffer, it being protected by 2 or 3 inches of snow. But the present severe weather commenced and continued some few days ere the snow came and we shall not unlikely find its effects upon our Fen Wheats may be somewhat serious, but at present we can form no correct estimate. It is now snowing, and during the last two days we have had storms; these may possibly afford timely protection, and prevent further mischief. As a rule, frost, especially naked frost, accompanied by keen northerly winds, does much mischief to crops growing on fen lands. Our Fen Wheats were looking very well, and promised a full crop up to the change of weather except 15 acres of Clover lea, which the slugs had much damaged, not only thinning the plant, but making it look sickly and unhealthy. We purpose, after a while, giving it a dressing of nitrate of soda, mixed probably with a little superphosphate. It is a very unusual circumstance to have Fen Wheats injured by slugs whereas on the high lands and stiff soils it is of common occurrence. We quite expected, after the long wet summer, our Bean stubbles would suffer largely. Our usual practice is to break these up for Wheat with the steam cultivator, but this year the season was so unfavourable, and the land so water-logged and unkind that there seemed no prospect of doing any good whatever, and we abandoned all hope of steam cultivation, and instead ploughed up the Bean stubbles with horses, and got the Wheat sown as well as we could under such unfavourable circumstances. The previous winter having been free from frost, and the spring, summer, and autumn almost continuously wet made these tenacious soils work very unkindly, and we were prepared to see a failing plant of Wheat, but we must say have been agreeably disappointed. Our only failure, therefore, is the slug-eaten Wheat on black fen land.

The frost has come very opportunely for carting manure on Barley stubbles for Beans and Peas. We have in this way manured 66 acres, and between the frosts managed to get part of the land ploughed, and

very tough and unkind it was, but this weather will mellow and pulverise it, and make it a good seed-bed.

Our Colesceds and Kohl Rabi have been good, but the Mangels are considerably smaller than last year. We are pursuing our usual course of making our straw into manure by sheep in yards. A long experience only convinces us that on lands like our own, and circumstanced as we are, it is by far the best means of getting manure made. It is impossible for sheep to be more healthy, or get fat more rapidly than they do in yards. We have 140 breeding ewes, 150 lambs, and 290 feeding sheep, all of which are employed in treading down straw, and, we may add, most successfully, both as regards the manure and themselves. Our roots are all stored, and we consequently experienced no difficulty in keeping them well and regularly fed this inclement weather. The breeding ewes are allowed 4 bushels of cut Kohl Rabi per day, 1 quarter of Oats per week, and straw *ad libitum*. The lambs get all the Kohl Rabi they can eat, and straw to pick over for amusement; and very fond of it they are, with Peas, Pea-bran, Cotton and Linseed-cake, to the value of ½*d*. per head per week. The fat sheep also get Kohl Rabi and straw in the same way, with Peas, Cotton and Linseed-cake, to the value of from 8*d*. to 9*d*. per head per week. Roots grown on Fen lands possess so little feeding property that sheep cannot be made fat without a liberal allowance of artificial and more costly food. But the more liberal feeding improves the quality and value of the manure, and we get an indirect advantage in that way.

It may not be out of place perhaps to give one illustration of the healthiness of ewes and their progeny where the yard system was adopted, especially as the system is so little known and is less practised. Last year we wintered our in-lamb ewes in yards, just as we are doing this year. We had 131; they lambed with very slight loss, and when the season was over we found ourselves in April with 121 ewes suckling 152 lambs. To-day—nine months after, 151 of those lambs are living, and in good health. We leave this fact to speak for itself, believing it must carry conviction with it. *A. S. R.*

UPTON AND THE LONG-HORNS.—Of Mr. Chapman's 300 acres nearly one-half is old Grass, and the rest is generally farmed on the six-course system. He breaks up for Oats, and sometimes dispenses with second seeds. There is a good marl subsoil, a little too strong for Turnips and Barley, and not admitting generally of eating off the Turnips on the land. In 1856 Mr. Chapman won the 30*l*. prize given by Mr. Packe, M.P., for the best-managed Leicestershire farm above 200 acres. The prize was only given for five years, and Mr. John Burbery, of Ibstock, Mr. Breedon Everard, of Groby Lodge, Mr. J. Toone, of High Cross, and Mr. Simpkin, of Hoby, were the other winners. It has been laid down by professors that the perpetual dairying of pasture land exhausts the phosphates. Mr. Chapman's father was of a very different opinion, and considered that the pastures which he had known for more than 60 years were doubled in value at the end of that period; but that "the burdens on the land more than kept pace with its improvement." The dairy herds in the neighbourhood are principally composed of Short-horns and "Half-horns," the latter of which are, for the most part, a combination of Short-horn on Long-horn. They come to good beef weights if not taken beyond a first cross; but of late years very little Long-horn element has been introduced among them. These herds generally number from 25 to 35, and a cow is expected to make from three to four cwt. (the long hundred of 120 lb.) of cheese during the season, which may generally be taken to begin in April and last for seven months. Cheese has been as low as 50*s*., but 95*s*. per cwt. for a whole dairy was made by two or three dairymen this year.

Mr. Chapman considers that for cheese purposes the Long-horns are superior to the Short-horns. His experiments with a Short-horn friend, who selected his six best against the six Upton cracks in the height of the Grass in June, showed that while the majority of pounds of milk was 152 lb. to 135 lb. in favour of the Short-horn, the cheese curd from the larger quantity was only 14½ lb. as against 19½ lb. The trial was made again on September 20 with 36 Short-horns against 32 Long-horns, and the 605 lb. of milk (10 lb. to a gallon) from the former made only 66½ lb. of curd, when the 553 lb. from the latter made 69 lb. Of the Shorthorns 23 were well bred and 13 were guiltless of the Herd Book. . . . .

Mr. Chapman is pretty regular in his attendance at the two great Christmas shows, and he occasionally has a turn at the Leicestershire and the Warwickshire for the glory of the old breed. Nine firsts at London and six or seven at Birmingham have fallen to his lot, as well as firsts at the Exeter, Windsor, Battersea, and Plymouth Royals, but Long-horn men are shy showers, and some of these victories were walks-over. Old Sparkenhoe has departed to the Coventry butcher for 4*l*. 10*s*. at five off, and his skin alone fetched 2*l*. 8*s*. 4*d*. Had it been a bullock's it would have fetched even more. The thick skin is the very glory of the face; it weighs well to the currier, and it saves the beast much torture from the gadflies. When Arthur Young walked the earth, and found Bakewell among his cow teams, with his Long-horn bullocks "as fat as bears," and the boast on his lips that they had three-fifths of roast to two-fifths of boil, he estimated their hide as worth 15*s*. more to the tanner than the Short-horn of that day. . . . The leading points are of course identical with that of all other four-legged beef producers; but as regards colour, a white back, with a mottled thigh and shoulder, and cherry red, spotty, brindled, or claret sides, are most liked. The coat should be as curly as possible, and a face with a darker shade intermixed is preferred to a white or "bald." A light-coloured or black nose is not liked, and its shade if possible should be in keeping with the sides. Mr. Gibbs, of Blackford Mill, had several whole-coloured red-brindles, and there have been some whites; but too much white is always thought to betoken delicacy, and the darker colours are preferred.

The plainest cows are often the best milkers, and the milk of a seven or eight-year-old one is thought the richest. Some of the best "fillpails" have given their 19 quarts at two meals, and the dairy farmers have in rare instances been able to calculate 4½ cwt. of cheese from one cow. They are kept in winter on Barley-straw and pulped Turnips, with hay in addition near calving time, and nurse well when called on during the first month or six weeks.

Unless it be some bull-elect, Mr. Chapman's calves never suck the cow. They have new milk from the first, which is lessened when the cheese season begins, and gradually they come to oilcake and Linseed boiled in whey, or the overnight's milk. As a rule they are dropped from the middle of March to the end of April, just in time for the cheese season. They are remarkably good-tempered, and easy to do with, and the only fault which the butchers have against the bullocks is that there is not enough of the steel-yard inside them. Very few are exported: but Mr. Chapman has exported a couple of bulls to Montserrat in the West Indies, to cross with the native black cattle, and also sent several to Ireland. The Upton herd at present numbers between 70 and 80, and sometimes three dozen cows and heifers are in milk. The heifers are put to in their third summer, and their constitution, which is as tough as their skins, enables them often to work on till they are 14 or 15 years old. Of course they are being perpetually replaced by younger ones, long before they are worked out, and go off to different herds for a change of blood; and during the last few years several Uptonian matrons have found their way to Spondon and Calke Abbey.

On entering the first shed we found old Lady Cheesepan under condemnation for losing a teat, which six calves had sucked during her nine years' pilgrimage; and there, too, was a good specimen of a bullock of Sparkenhoe's get, in equally steady and successful preparation for those Christmas boxes which the Smithfield Club dispenses with no niggard hand. These "prize-fighters" generally require a year-and-a-half of it, with oilcake and a little meal as their flesh stimulants. Then we pass through the calf meadow, which contained 17 Lord Curzons, over the sward which no plough-share has violated within legal memory; and threading divers hedges, where 20 generations of Long-horns have shaded themselves under the wide-spreading "Crab Apples," we reach the Big Meadow. About two miles away is the well, which alone is left to mark the spot on Bosworth Field where King Richard lost his life and his crown. The Wars of the Roses still linger in one sense round the spot, but Mr. Michael Taverner's garden is the head-quarters of the many-coloured army, and the Sparkenhoe tent is their field of battle.

Two steers by old Sparkenhoe, and one of them half-brother to the 53*l*. 10*s*. steer at Mr. Cox's sale, stood at the gate, guarding this Long-horned harem. The lengthy Earl of Derby was in the very centre of the field, with a steer at his side, and his 32 spouses were grouped about him. There are some sights in wandering from herd to herd and flock to flock that you never forget again. John Quartly's Devon cows, as they filed down the meadow after the sale, one of them, "the cow called Brown," in-calf with Sobieski, a future Royal winner, and the Cranes' Shropshire ewes swelling into still grander proportions as we looked at them in the gloamin', were pleasant and incisive visions, and there is something very quaint and grand in a field full of Long-horns. Old Rose's fine bold eye had not been subdued by the weight of 13 summers and the labour and sorrow of 11 calves. Well may Mr. Chapman say "That old lady owes me nothing." Countess, her daughter, by Warner's Sir Richard, has rather more size; and from her we pass on to Spot, with her horn curled right into her face, and her nine and ten quarts at a meal. The grey-faced Broadhorns is the dam of the feeding steer, and Lady Sparkenhoe, a deep, nice cow. The big "Cumberland cow," with the hind legs so neatly set on; and Duchess, the dam of Ivanhoe, and first at Sparkenhoe, are all high in the ranks. There too, are Woodbine, by Warner's bull, lying, as usual, right away from the rest; Wroxhall, a sister of Earl of Derby's, and of rather a lighter brindle; old Crump, dam of the best of the two young steers; the light-coloured Strawberry, fellow-heifer with Ivanhoe in the show-yard; the dark old brindle Pailfiller, with her failing udder; and Bald-face, the marrow to Brindled Beauty, which went to Sir John Crewe's. They are generally out in the winter for four or five hours a-day. In the house they live principally on straw and Turnips, which are cut, and then mixed by a combined machine, whose lift can be so managed as either to fill the store or load the carts outside, through an aperture in the barn wall. [*Extracted and abridged from a graphic report in the Mark Lane Express of Jan. 7—being Chapter 57 of the Herds of Great Britain, by H. H. D.*]

Miscellaneous.

A Land Steward's Claims.—The Lord Chancellor gave judgment on Friday in the case of Waters *v.* the Earl of Shaftesbury. This was an appeal from a decision of Vice-Chancellor Stuart. The plaintiff was head-steward to the defendant from the year 1851 to July, 1863, at a salary of 430*l*. a-year. In May, 1857, the defendant entered into a contract with the General Land Drainage and Improvement Company, by which the Company, under the powers and authorities of their Act of Parliament, were to advance a certain sum of money to the defendant, and to execute some extensive drainage works on his settled estates, the amount of which was to be a charge upon the inheritance of the land. By an indenture of the same date, made between the Company of the one part, and the defendant of the other part, the Company agreed to execute the drainage works for 15,600*l*., in consideration of a rent-charge for 30 years at 6*l*. per cent. on the amount of contract. By another indenture between the Company and the plaintiff, Mr. R. S. Waters, and made at the same time, the Company engaged the plaintiff as contractor to complete the drainage works, the Earl of Shaftesbury to advance the necessary money for materials, &c., from time to time. In 1862 other contracts between the same parties were executed for further works, for 11,270*l*. In 1863 the plaintiff left the defendant's service, and he now claimed to be paid the whole amount advanced by the Company to the defendant in respect of the works completed under his (the plaintiff's) contracts. The amount stated to have been received by the defendant was 21,008*l*. 13*s*., whereas he had only paid the plaintiff 17,181*l*. 1*s*., and this bill was filed by Mr. Waters to recover the balance of 3827*l*. 12*s*. The defendant resisted the claim on the ground that the plaintiff, being in his employ at a fixed salary, was only his agent in the matter, and therefore only entitled to charge the actual amount expended in the construction of the works, which amount had been paid. Moreover, it never could have been contemplated by the Legislature that a steward to a landowner, to whom all his services were due, should be allowed to make a profit out of the drainage works on the estate at the expense of the persons entitled to reversion. The case for the plaintiff was, that he was merely a contractor for the Company for the construction of the works, that this contract was entered into with the full knowledge and sanction of the defendant, and had nothing whatever to do with his duties as steward to the defendant, and therefore he was entitled to the whole benefit of the contract. The Vice-Chancellor held that there was nothing in the position held by the plaintiff as steward to the defendant to prevent his entering into the contracts in question provided he had taken no advantage of that position. No such case had been made out against him, and therefore the plaintiff was entitled to the balance of the contract-money after making deduction for all such sums as had been paid by the defendant for materials supplied during the execution of the works. From this decision the defendant appealed. The Lord Chancellor on Friday held that Mr. Waters had entirely failed to establish his case, and reversed the Vice-Chancellor's decision, with costs.

Irish Statistics.—A comparison of the agricultural statistics of Scotland and Ireland appears to me to be a fair way of arriving at some important conclusions regarding the agricultural prosperity of the respective countries. Scotland has an area of 19,639,377 statute acres; Ireland has 20,322,641 acres. The population of Scotland in 1861 was 3,062,294; of Ireland, 5,798,967. It is necessary to bear these figures in mind rightly to appreciate the following important facts:—Scotland had last year actually under corn and green crops 2,029,797 acres; Ireland had under corn and green crops 3,655,534 acres. Of the estimated ordinary stock of cattle, Scotland had 968,637; of sheep, 5,255,077; Ireland had 3,742,932 cattle; sheep, 4,270,027. These are the Board of Trade returns. Now, assuming these figures to be correct, Ireland had in proportion to the area of the two countries, 1,555,120 of acres more than Scotland under tillage. Again, Ireland, according to area, had 2,740,591 more cattle than Scotland. On the other hand, according to the same standard of comparison, Scotland had something like a million more sheep than Ireland. These figures tell favourably for Ireland. But the fact to which I wish to call special attention is the number of agricultural labourers in the two countries. According to the census of 1861, Scotland then had 378,609 labourers; Ireland had at the same period 988,929. Now, if the 2,029,797 acres under tillage in Scotland can be sufficiently cultivated with 378,609 labourers, the 3,655,534 acres in Ireland ought to be cultivated with 681,839 labourers. But here is a surplus of 307,090 people, male and female, absolutely not required for the cultivation of the soil. Is it any wonder, then, that the tide of emigration should continue to flow? It will continue to flow until there is a natural balance between the acres to be cultivated and the hands to cultivate them. There is no fear of the day ever coming when there will not be sufficient men to till the land. In some districts the natural balance of supply and demand is becoming apparent in the increased wages and consequent increased comfort of the people; but there are districts still overcrowded with a starving agricultural population. It has never been my fortune to witness a scarcity of hands. I could always get more than I wanted. But it has been my fortune to live in districts more amply supplied than others where I have also lived, and I have always seen the best wages paid where the hands were fewest. *An Irish Land Steward, in the Times.*

"Oh, the Roast Beef of Old England!"—The sad twinges borne by that "undercut" before we eat the sirloin in London—the Slesvig thumps to drive it to a pen on the Weser, the German whacks to force it up a gangway on board, the hauling and shoves, the wrenching of horns and screwing of tails to pack it in the hold of the steamer, the hot thirsty days and cold hungry nights of the passage, the filth, the odour, the feverish bellowing, and the low dying moan at each lurch of the sea—who can sum up these for one bullock's miseries? and there are thousands every day. Who dare tell them, or ought to tell them, unless these cruelties can be stopped and these sufferings put an end to? But they can and they will be relieved, for good and wise men have taken this subject in hand. Our captain, and, indeed, the crew and the drovers, did not appear to be heartless in the matter. It is the system and plan of shipping cattle at all which must be amended. To put suffering, dying bullocks in the same steamer with passengers is utterly a mistake. The vessel cannot be used for both purposes without

being unfit for either, since the two are quite incompatible. If a poor bullock becomes at all sea-sick he speedily dies. If he is even weaker than his unhappy companions, and lies down after two days and nights of balancing on sloppy, slippery boards, he is trampled under the others' hoofs, and squeezed by their huge bodies, and suffocated by the pressure and foulness. Through the livelong night, while we Christians on board are sleeping in our berths, these horrid scenes are enacted, and no one to see them. Morning comes, and the dead must be taken from the living. A great boom is rigged up, and as we lean over the rail to look on there is a chain let down, and the steam-winch winds, and winds it tight and straining with some strong weight below, far, far down, in the lowest of the three tiers of 'filet de bœuf,' where no light enters, and whence a Stygian reeking comes. Slowly there comes up first the black, frowning, murdered head and horns, and dull blue eyes and ghastly grinning face of a poor dead bullock, then his pendent legs and his huge long carcase. To see the owner's mark on his back they scrape away the slush and grime, then he is swung over the sea, and a stroke of the axe cuts the rope round his horns. Down with a splash falls the vast heavy carcase, and 20*l.* worth of meat floats on a wave or two, then it is engulfed. Another and another, and 22 are thus hauled up and cast into the sea, and this, too, on the first day of a very calm passage. What must it be in a storm? Oh, the roast beef of old England! "*The Rob Roy in the Baltic*," *by J. Macgregor, M.A.*

Cattle Plague.—When the year [1866] began, and for some months before and after, we were losing thousands of animals a week from cattle plague, which nobody now doubts was imported into this country from Russia. It may well seem that the cattle plague has been one of the great calamities of the year. It has destroyed 253,791 animals, and 52,496 cattle have been slaughtered to prevent the spread of the disease. In Cheshire, as many as 52 per cent of the cattle have been destroyed. The pecuniary loss arising from the plague is estimated at 3,500,000*l.* The price of meat has been accordingly very high. But there is another side to the question. Indirectly, it has been the cause of a large amount of good. The investigation into the origin and nature of the disease, as embodied in the three Reports of the Commissioners, and especially in the Third Report, will take its place among the most valuable works in the history of scientific medicine. This investigation was, in truth, a model of what all investigations into the nature of disease should be. The very errors of the Commissioners were scientifically conceived, as they were scientifically disproved. The successive adoption and abandonment of theories which in turn compared the cattle plague to various human diseases will serve at once as a caution and a guide to medical practitioners. When, for example, Dr. Murchison pointed out the close analogy which cattle plague bore to smallpox, members of our own profession and those of the veterinary art vied with each other in the great crucial experiment of vaccination. For three or four weeks the intensest interest was felt in the results, and the whole country underwent an education on the nature of medical investigations which has left it more intelligent and more respectful ever since. At the beginning of the plague false theories of its nature and origin were rife. It was said by many to have originated spontaneously in England; to have no contagious property; and to be curable by remedies the most diverse and unlikely. At the end of the plague all these theories were disproved. On the question of the cause or the contagium of the disease, the investigations of the Commissioners rendered it probable that it is of the nature of organic particles of epithelium thrown off mainly from the lungs of animals already affected. In nature the disease was shown to be a fever *sui generis* intensely contagious, but incapable of communication to other animals than those of the ruminant order. The eruption on the mucous surfaces was shown to be epithelial, and not pustular, in character. The curious observation was made that, at the beginning of the disease, in animals which to all appearance were well, the temperature rose. Various other points of great practical and scientific interest were made out by the Commissioners—interesting not only in reference to the cattle plague, but as tending to indicate the nature of other contagious diseases. Among these we should mention the fact, ascertained by Dr. Sanderson, that the blood is so charged with the poison of the disease that this can be produced by inoculating with the serum. We should specify the valuable researches of Dr. Angus Smith and Mr. Crookes in reference to the disinfection of the poison of cattle plague. Passing from these valuable investigations, we have only to say that the delay which occurred in legislating upon this subject was an instance of the harm which accrues from ignorance on the part of statesmen and other public men of the nature of disease, and imperfect respect for the teachings of medical science. But, after all that the nation has suffered for not doing what those best acquainted with the disease from the beginning recommended should be done, and after the complete success which has attended late legislation on the subject, it would be unhandsome to dwell upon this point. It would be unjust to Professor Gamgee not to allude to his valuable contributions on this subject. Though received at first with something like ridicule, it must be acknowledged that, to some extent at least, "he held his own." *Lancet.*

Notices to Correspondents.

OATS AND BARLEY: *A.* If 8 quarters of Oats and 5 of Barley be equally good crops, then if the Barley is well harvested it will generally be worth more money than the Oats. Barley-straw generally has some dried Clover among it. By itself, however, Oat-straw is sweeter and better food than Barley.

Sutton's Potatos for Planting.

MESSRS. SUTTON'S DESCRIPTIVE LIST is now ready, and may be had gratis and post-free. Their stock of Potatos has been selected with great care, and can be relied on as perfectly true to name. Lowest price per cwt., sack, or ton, forwarded on application.

SUTTON & SONS, Seed Growers, Reading.

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GEO. SIBBALD, Drumgeith, by Dundee, N.B., has for Sale about 100 Tons of the following kinds, of his own growing. Prices on application:—EARLY DALMAHOY, DAINTREE'S EARLY, CHISWICK CLUSTER, EARLY OXFORD, EARLY RED EYES, WALKER'S REGENT, ENGLISH EMPEROR, FLUKE KIDNEY, MYATT'S PROLIFIC, and PATERSON'S EARLY RED KIDNEY.

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H. AND F. SHARPE are now offering MYATT'S PROLIFIC KIDNEY, DAINTREE'S EARLIEST, WEBB'S IMPERIAL KIDNEY, FORTY-FOLD, FOX'S SEEDLING, EARLY OXFORD, and many other Early and Late varieties, fine in quality, free from disease, and at low prices.

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To be obtained Retail in London of Messrs. Jas. Veitch & Sons, Chelsea, S.W.; and Mr. B. S. Williams, Holloway, N.; and through any Seedsman, in one quart packages only, with Trade Mark, the Crown and Royal Oak, and blue label. None other genuine.

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The Best three WRINKLED MARROW PEAS are—
LITTLE GEM, Early, 1 foot high.
ADVANCER, Second Crop.
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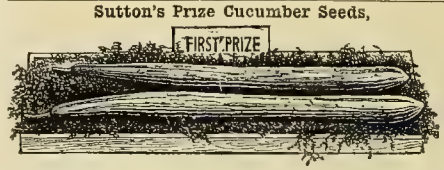
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The flavour has been pronounced by an eminent medical practitioner as splendid; the size 18 to 24 inches, little or no seed, and a most abundant cropper. In packets of 2*s.* 6*d.* each.

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ENFIELD MARKET (cash price), 2*s.* 6*d.* per 1000
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HENRY'S PRIZE HYBRID LEEK.—The Largest variety in cultivation; grows 16 inches in length of blanch, and 10½ inches in circumference. Has carried off the First Prizes at the leading Shows in England and Scotland.

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JAMES SMITH offers the following:—The RHODODENDRONS are fine bushy well-rooted Plants, fit either for Woods or Pleasure Grounds; the LARCH are fine stout Plants, better cannot be grown; also PRIVETS, LAURELS, BERBERIS (in sorts), SCOTCH, SPRUCE, and SILVER FIRS, ASH, OAKS, BEECH, BIRCH, PINUS AUSTRIACA, &c., all strong well-rooted plants, a PRICED CATALOGUE of which will be forwarded on application.

LARCH, good stout plants, per 1000:—1½ to 2 feet, 14*s.*; 2 to 3 feet, 16*s.*; 2½ to 3½ feet, 18*s.*; 3 to 4 feet, 20*s.*

RHODODENDRON PONTICUM, bushy, well-rooted plants, 6 to 12 inches, 105*s.* per 1000.

Do. do., 9 to 15 inches, 18*s.* per 100; 160*s.* per 1000; per 10,000, £79.
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Do. do., 1½ to 2 feet, 30*s.* per 100; 290*s.* per 1000.
Do. HYBRIDUM, 6 to 12 ins., 30*s.* per 100; 290*s.* per 1000.

Price to the Trade on application.

JAMES SMITH, Darley Dale Nurseries, near Matlock.

W. VIRGO AND SON having a large Stock of the following, can offer them at very low prices:—

FOREST TREES.

Alder, 3 to 5 feet, extra strong	Fir, Scotch, 1½ to 2 ft., extra fine
Ash, 18 inches to 2 feet	,, Spruce, 3 to 4 feet, extra fine
,, 2 to 3 feet, very good	,, Larch, 2, 3, & 4 ft., extra fine
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Chestnut, Horse, 2 to 4 feet, and 5 to 6 feet	Laurel, Common, 2½ to 3 ft., bushy
,, Spanish, 2 to 3 feet	,, Portugal, 3 to 4 ft. ex. bushy
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Strong CATTLE CABBAGE PLANTS.

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Apples, Standards and Dwarfs, very strong
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JOSEPH SMITH, JUN., has to offer at very moderate prices TRANSPLANTED ASH, ALDER, BIRCH, HORSE CHESTNUT, ELM, broad and narrow-leaved; SILVER and SCOTCH FIRS, WHITE AMERICAN SPRUCE, HAZEL, OAK, POPLAR, PRIVET, WEYMOUTH and AUSTRIAN PINES, THORN QUICKS, HUNTINGDON and DUTCH WILLOWS, LARCH, good stout plants, 1½ to 2 feet, 12*s.*; 2 to 2½ feet, 13*s.*; 2 to 3 feet, 14*s.*; and 3 to 4 feet, 16*s.* per 1000. NORWAY SPRUCE FIR, 6 to 9 inches, 6*s.*; 9 to 12 inches, 9*s.*; 1 to 1½ feet, 14*s.*; 1½ to 2 feet, 21*s.*; and 2 to 2½ feet, 30*s.* per 1000. COTONEASTER MICROPHYLLA, 1 to 1½ feet, 20*s.* per 1000; 1½ to 2 feet. RIBES in sorts, 2 to 3 ft., 20*s.* per 1000. SNOWBERRY, 2 to 3 ft., 20*s.* per 1000. BROOM, White and Yellow, transplanted, 15*s.* per 1000. LAURELS, BERBERIS, ARBOR-VITÆ, &c., Seedling ASH, CRAB, SPANISH CHESTNUT, SPRUCE, 3 and 4 years; ELM, 2 years, £5 per 100,000. OAKS, 1 and 2 years; OAK, EVERGREEN, 1 year; PRIVET, 1 and 2 years; SYCAMORE. RHODODENDRON PONTICUM, 2 years, 6*s.*; 4 years, 8*s.* per 1000; 3 years, and 1 year transplanted, 18*s.*; 3 years, and 2 years transplanted, 25*s.*; 6 to 9 inches, 50*s.*; and 9 to 12 inches, 60*s.* per 1000. Twice-transplanted, and bushy, 4 to 8 inches, 70*s.*; 8 to 12 inches, 95*s.*; 9 to 15 inches, 140*s.*; 1 to 1½ feet, 180*s.*; and 1½ to 2 feet, 260*s.* per 1000..

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FRUIT TREES, the best Collection in England, are grown to a large extent, and free from every kind of disease. A 92-paged DESCRIPTIVE CATALOGUE, with cultural notes, free. Apples, 600 sorts in all manner of training, from 6*d.* to 3*s.* 6*d.* each; Apricots, Nectarines, and Peaches, Maiden and Dwarf-trained, from 6*d.* to 3*s.* 6*d.* each; Cherries, Standard and Pyramidal, 1*s.* to 2*s.* 6*d.* each; do. Dwarf-trained, 1*s.* 6*d.* to 2*s.* 6*d.* each, in 50 sorts. May Dukes and Morellos to the trade in quantity, cheap. Pears, 800 sorts, from 6*d.* to 2*s.* 6*d.* to 5*s.* each, according to size; Plums, Pyramidal and Dwarf-trained, 2*s.* 6*d.* to 3*s.* 6*d.* each. Deodar Cedar, 4 to 5 feet, 30*s.* per dozen; 5 to 6 feet, 36*s.* per dozen; 6 to 7 feet, 42*s.* per dozen. Magnificent trees with fine balls. A splendid collection of ORNAMENTAL TREES and SHRUBS equally cheap.

SELECTED SILVER SAND, PEAT, LOAM, ROCK, Sandstone, Garden Pots, Vases, Tazzas, Figures, Gravel, Garden Implements, and materials of all kinds for Sale in any quantity by Railway, Canal, and Ship to all parts of the United Kingdom.

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LAWES' SUPERPHOSPHATE of LIME from BURNT BONE or MINERAL PHOSPHATES	5	5	0
LAWES' WHEAT, BARLEY, GRASS, and MANGEL MANURES	8	0	0
CONCENTRATED CORN and GRASS MANURE	12	0	0

These Manures can be obtained of Mr. LAWES, or through the Appointed Agents in all parts of the United Kingdom, at prices varying according to cost of carriage.
Genuine Peruvian Guano direct from the Importers. Nitrate of Soda, Sulphate of Ammonia, and other Chemical Manures.
American and other Cakes at market prices.
Address, JOHN BENNET LAWES, 1, Adelaide Place, London Bridge, E.C.; and 22, Eden Quay, Dublin.

To those who have a Garden.
THE BOUTIN MANURE will be found most invaluable for Kitchen and Flower Gardens, Conservatories, &c. It stimulates the healthy action and rapid growth of plants, and increases their products. It also destroys American blight, and root and leaf insects of every description. Sold in bottles, 1s. 6d., 2s. 9d., and 4s. 6d. each, with full instructions.
Agents in London:—
Messrs. Hurst & Son, Seedsmen, &c., 6, Leadenhall Street, E.C.
" Carter & Co., Seedsmen, &c., 237, 238, and 261, High Holborn, W.C.
" Flannagan & Son, Seedsmen, &c., 98, Cheapside, E.C.
" Barclay & Son, 95, Farringdon Street, E.C.
" Smith & Co., Seedsmen, &c., Floral Hall, Kingsland, N.E.
" Dixon & Son, Seedsmen, 2, Moorgate Street, E.C.
Mr. J. Brigden, Seedsman, &c., London Bridge Station, and King William Street, E.C.
" B. S. Williams, Paradise Nursery, Highgate Hill, N.
" R. Wood, Nurseryman, Haverstock Hill, N.W.
" F. Box, Corn and Seed Merchant, Bishopsgate Street Without, E.C.
" J. Musket, Seedsman, &c., 90, High Street, Clapham, S.

MANURE (SUGAR SCUM).—About 500 Tons of this excellent Manure for Sale. Price 10s. a Ton. Delivered free into trucks at any of the London Railway Stations. Apply to D. MARTINEAU & SONS, Sugar Refiners, Christian Street, London, E.



COCOA-NUT REFUSE is becoming SCARCE, the old reserves will soon be gone. Now sold in bags, 1 for 2s., 10 for 16s., 2 for 30s., 50 for 68s., 100 for £6.
Fourpence allowed for each bag returned carriage-paid.
A Railway Truck-load (not in bags), 40s.
Postage Stamps or Post-office Order, payable to J. BARSHAM & Co., Kingston-on-Thames, S.W

APPLEBY'S GENUINE TOBACCO PAPER, in 2 lb. and 4 lb. packets.
For Testimonials see *Gardeners' Chronicle*, Dec. 15, 1866, p. 1187.
Price on application to HENRY APPLEBY, Foreman to Messrs. Ivery & Son, Dorking, Surrey.

Fumigate your Greenhouse with
TOBACCO TISSUE.—Will Destroy all the Insects and not Injure the Plants; is entirely free from paper or rag, and will burn without blowing.
Price 3s. 6d. per lb., carriage free. To be had of Messrs. ROBERTS & SONS, Tobacco Manufacturers, 54, St. John Street, Clerkenwell, E.C., and of all Seedsmen and Nurserymen.

APHIS WASH in VINERIES and ORCHARD HOUSES.
"At the first opportunity paint the trees with a solution of 'Aphis Wash,' prepared at the City Soap Works; it not only destroys the brown aphis which infests Peach trees, but also scale, and every other pest capable of lodging in the bark."—Extract from *Gardeners' Magazine*, January 5, 1867.
"For strengthening the growth and effectually destroying all forms of blight, the 'Aphis Wash' supersedes every other preparation."—See *Gardeners' Chronicle*, August 19, 1865; and *Gardeners' Magazine*, July 1, 1865.
Sold by Chemists and others, in 1s. bottles, and 2s. 6d. a gallon, with full directions for use.
Wholesale at the City Soap Works, Milton Street, London, E.C.

Winter Dress all Fruit Trees with
GISHURST COMPOUND.



Red Spider Magnified.

Copy of a Letter from Mr. RIVERS, *Nurseries, Sawbridgeworth, Herts, 22d Oct., 1861.*
"I must tell you what heard to-day from a very clever gentleman farmer, Anthony Bubb, Esq., of Witcombe Court, Gloucester. He has a wall to which Peach trees are trained. Well, last autumn they were in a wretched blighted state. As a desperate remedy he unnailed them all, early last February, and gave all but one a thorough painting with Gishurst Compound, 1 lb. to the gallon of water; his trees, all but the one, commenced to grow favourably in spring, and are now pictures of health. The tree not painted is in a half-dead blighted state. He used the same dressing to his Apple trees; it killed the woolly Aphis entirely, and has made his trees clean and vigorous in their growth. He intends to paint his wall trees annually, and tells all his friends to do the same. I shall certainly serve all my young Peach trees against my walls in the same manner. The Compound is, I believe, more efficacious than the usual offensive mixtures of clay, soot, sulphur, &c.; and it does not blacken the shoots on the walls."
For Orchard-house Trees, ozs. to the gallon will be found a good strength; when used stronger some buds on weakly trees may be injured.
GISHURST COMPOUND is sold Retail by Nurserymen and Seedsmen, in boxes, 1s., 3s., and 10s. 6d. each.
Wholesale by PRICE'S PATENT CANDLE COMPANY, LIMITED, Belmont, Vauxhall, London, S.
Gishurst Compound has more recent testimonials to its efficacy, but none more conclusive than the above, which has been published before.

Asphalte Roofing Felt,
ONE PENNY per Square Foot.
CROGGON AND CO., MANUFACTURERS, {63, New Earl Street, / 34, Bread Street, } London, E.C.
69, GEORGE SQ., GLASGOW; 2, GOREE PIAZZAS, LIVERPOOL.

Lawn Mower Repairs.
ALEXANDER SHANKS AND SON would suggest to their numerous friends the desirability and importance of having their Lawn Mowers put into proper order before the commencement of the Mowing season. If attention be paid to this request some disappointment may be avoided, because in the early spring the necessary time for repairing Machines is to some extent denied them, on account of the press of business connected with the manufacture and despatch of new Machines.
Machines for Repair can be addressed, ALEX. SHANKS & SON, 27, Leadenhall Street, London, E.C. (where Repairs are executed); or to the Manufactory, Dens Iron Works, Arbroath, N.B.

TREE and PLANT LABELS.—10,000 Cloth Punched Labels, 3 inches long, for 15s.; 6 inches long, 25s. Delivered free in London. Samples sent on receipt of 1d. stamp.
JOHN FISHER & Co., West Row Works, Boston, Lincolnshire.

GALVANISED WIRE CABLE STRAND FENCING,
for FARMS, PARKS, and GARDENS.
The ORIGINAL INVENTORS and MANUFACTURERS.

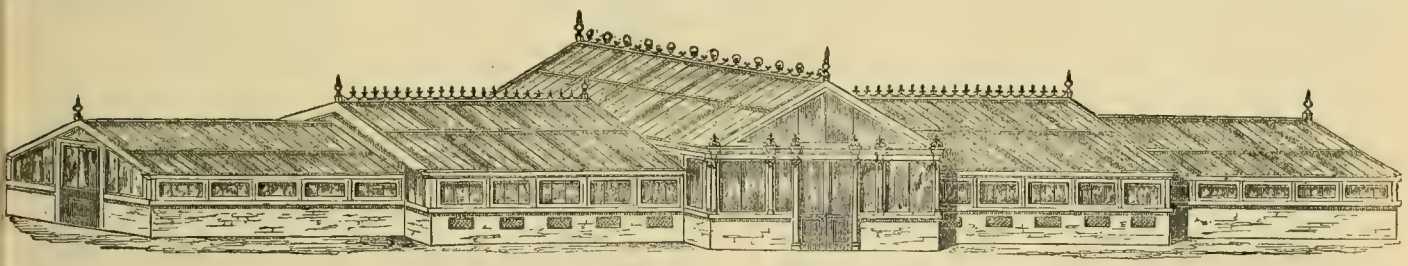


The CHEAPEST, STRONGEST, and NEATEST FENCING in USE
THOUSANDS of MILES of this FENCING have been SUPPLIED by us at home and abroad. It sustains no injury by being trespassed upon.
Price, with five lines of Strand and Iron-pronged Standards, and one straining post, stay and screw bolts to every 120 yards, 1s. per yard.
Five lines of Cable Strand and Staples for wooden posts, 6d. per yard
HURDLES, HURDLES, HURDLES, 1s. 9d. to 3s. 9d. per yard.
CONTINUOUS IRON FENCING, GATES of all kinds.
PATENT STRAINING PILLARS, &c.
GALVANISED WIRE NETTING for POULTRY, &c.
GALVANISED SWING WATER BARROWS.
GALVANISED IRON WATER CISTERNS.
GALVANISED IRON PUMPS.
LAWN MOWERS, GARDEN ROLLERS.
ASPHALTE ROOFING FELT, 1d. per square foot.
MOTLEY & GREEN.
Illustrated Catalogues and Estimates free on application.
12, Great George Street, Leeds.

Oil Paint no longer Necessary.



HILL AND SMITH'S PATENT BLACK VARNISH for preserving Iron Work, Wood, or Stone. This Varnish is an excellent substitute for oil paint on all out-door work, and is fully two-thirds cheaper. It may be applied by an ordinary labourer requires no mixing or thinning, and is used cold. It is used in the grounds at Windsor Castle, Kew Gardens, and at the seats of many hundreds of the nobility and gentry, from whom the most flattering testimonials have been received, which HILL & SMITH will forward on application.
From RICHARD HEMMING, Esq., *Bordesley Park, Worcestershire.*
"Gentlemen,—I have great pleasure in stating that I highly approve of your Black Varnish, as a substitute for paint for farm buildings, barn doors, gates, and especially when the wood has been previously painted in the usual way a few years before; in this particular case it leaves a very nice glazed surface, than which nothing could be better. The same observation also applies to ironwork of every description, such as iron hurdles, &c. The Wrought-iron Barrow with apparatus for heating gas tar has been found most useful, and so great a convenience do I consider it that I shall beg you to send me another, as well as a cask of the Black Varnish, for the use of the property which I have in Warwickshire. Please to send the whole by the same conveyance as before."
Sold in casks of about 30 gallons each, at 1s. 6d. per gallon, at the Manufactory, or 1s. 8d. per gallon paid to any Station in the kingdom.
Apply to HILL & SMITH, Brierly Hill Iron Works, near Dudley, and 22, Cannon Street West, E.C., from whom only it can be obtained.



HORTICULTURAL BUILDINGS,
COMBINING STRENGTH AND DURABILITY,
MANUFACTURED BY STEAM-POWER MACHINERY.
LOWEST PRICES AND BEST MATERIALS.

ORMSON'S
PATENT WROUGHT-IRON MULTITUBULAR BOILERS.
PRICES ON APPLICATION.

IRON AND WOOD CONSERVATORIES OF THE MOST CHASTE AND ELABORATE DESIGN.
VINERIES, PINERIES, PEACH HOUSES, FORCING HOUSES, GLASS CASES FOR WALL TREES, PITS, &c,
Designed and Built, combining all the latest Improvements, so as to answer their intended purposes without risk of disappointment.
☞ *Plans, Specifications, and Estimates on application.*

HENRY ORMSON, F.S.A.,
HORTICULTURAL BUILDER TO HER MAJESTY, AND HOT-WATER APPARATUS MANUFACTURER TO THE COMMISSIONERS OF HER MAJESTY'S ROYAL PALACES AND PUBLIC BUILDINGS, AND TO THE ROYAL HORTICULTURAL SOCIETY,
STANLEY BRIDGE, KING'S ROAD, CHELSEA, LONDON, S.W.

RIDDELL'S

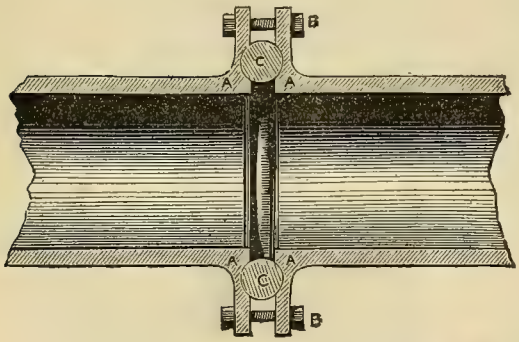
PATENT PORTABLE ELASTIC PIPE-JOINTS,

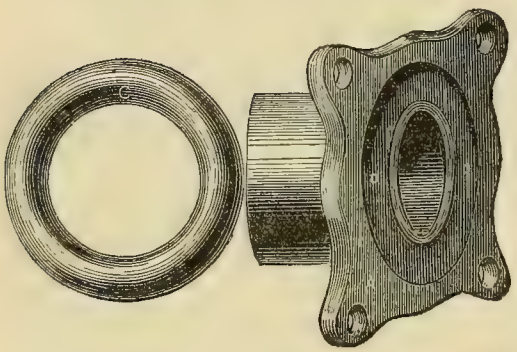
ESPECIALLY ADAPTED FOR

HOT-WATER PIPES FOR HEATING CHURCHES, PUBLIC BUILDINGS, SCHOOLS, ENTRANCE HALLS, CONSERVATORIES, HOTHOUSES, OFFICES, PRIVATE RESIDENCES, &c.,

BY THE CIRCULATION OF HOT WATER;

AND ALSO FOR COLD WATER AND GAS MAINS, STEAM PIPES, CONDUIT PIPES FOR DISTRIBUTING ARTIFICIAL MANURE, AND FOR OTHER PURPOSES.





THIS JOINT is formed by a single ring of Vulcanized India Rubber, or other suitable substance. This ring fits into a circular groove on the face of the flanged ends of the pipes, and the Joint is completed by four bolts, which can be tightened up to any desired degree.

From the elastic character of the Joint, it admits of expansion without leakage, and from its extreme simplicity it is rapidly put together. Nothing, in fact, has to be done but to place the ring in the groove, bring the flanges together, and screw the four bolts which go through the flanges at each Joint to the degree required to make a water or steam-tight joint.

The PATENT JOINT, without increasing the first cost of the Pipe, saves nearly all the labour of fixing.

It will recommend itself to Horticulturists and to Country Gentlemen, from the fact that a complete Hot-water Apparatus, consisting of Patent Slow Combustion Boiler, Connections, and Hot-water Pipes, with all the necessary appendages, can be fitted together in the Patentee's Manufactory, and be erected at the purchaser's residence by any ordinary labourer in two or three hours after it is received, it being only necessary for this purpose to supply, with the order, a drawing of the ground plan of the house to scale—say of half-an-inch to a foot—showing the position of the doors, the proposed situation of the Boiler, and the most convenient course for the Pipes.

Another very important object accomplished by the PATENT PIPES must be mentioned, viz., that the whole Apparatus can be removed and re-erected without trouble or risk of injury to the Pipe or Joints.

PROSPECTUS, with PRICE LIST and full particulars, on application to the

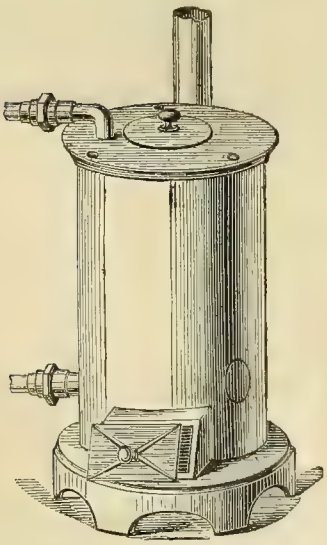
PATENTEE'S WAREHOUSE, 155, CHEAPSIDE, LONDON, E.C.

RIDDELL'S PATENT SLOW COMBUSTION BOILERS

FOR WARMING CHURCHES, PUBLIC BUILDINGS, SCHOOLS, OFFICES, ENTRANCE HALLS, CONSERVATORIES, HOTHOUSES, FACTORIES, &c.,

BY THE CIRCULATION OF HOT WATER.

It may safely be affirmed that this Boiler is the most perfect in principle and performance of any yet offered to the Public:—



1. It is extremely simple in construction, and is not liable to get out of repair.

2. It is portable and complete within itself, and requires no brickwork setting.

3. It is powerful, effective, and economical; the maximum of heat eliminated by the burning fuel is utilised, and no part of the heat generated is uselessly conducted away by a mass of brickwork.

4. It neither requires attention nor gives trouble. After the fire is kindled, it will keep in full action from 8 to 20 hours (according to the size of the Boiler), without the slightest attention, a peculiarity which cannot be too highly valued by all who possess Conservatories, Hothouses, &c., as it dispenses altogether with watching and nightwork.

5. It is not attended with any danger from fire, the burning fuel being completely enclosed.

6. It does not necessarily require any additional building for its accommodation, but it may be safely placed in an Entrance Hall, Conservatory, or any Apartment where access can be obtained to a Chimney.

7. It can be fitted in an Ornamental Case, and forms a striking contrast to the heavy mass of brickwork usually required for setting an old-fashioned Boiler.

THE PATENT SLOW COMBUSTION BOILERS, AND A COMPLETE SYSTEM OF HEATING BY HOT WATER, MAY BE SEEN IN OPERATION DAILY AT THE PATENTEE'S WAREHOUSE, 155, CHEAPSIDE, LONDON,

where every information relative to Heating by Hot Water can be obtained.

ESTIMATES PREPARED FOR ERECTING HOT-WATER APPARATUS ON THE MOST IMPROVED PRINCIPLES AND AT THE LOWEST POSSIBLE COST.

☞ *Orders executed in any part of the Kingdom by skilled London Workmen.*

J. HADLEY RIDDELL, PATENTEE, 155, CHEAPSIDE, LONDON, E.C.

HOTHOUSES for the MILLION.—Medal, 1862.
INVENTED BY THE LATE SIR JOSEPH PAXTON.
Manufactured in London; Newton in Cartmel, Lancashire; Gloucester; Coventry; Paisley, and Aberdeen.

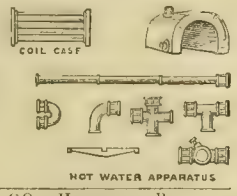


ILLUSTRATED PRICE LISTS will be sent on application to Messrs. HERRMAN & MORTON, 7, Pall Mall East, London, S.W.
Also, a HANDBOOK of VINE and FRUIT TREE CULTIVATION, price 1s.; post free, 1s. 1d.

HOT-WATER APPARATUS, of every description, fixed complete in any part of the country, or the materials, viz., Boilers, Pipes, &c., delivered to any Station.
Estimates on application.
J. JONES & SONS, 6, Banksside, Southwark, London, S.E.

Heating by Hot Water.
W. J. HOLLANDS, IRON MERCHANT, 31, Banl side, London, S.E.
HOT WATER PIPES, from Stock, per yard:—2-inch, 1s. 2d; inch, 1s. 10d.; and 4-inch, 2s. 4d. BENDS, from Stock, 1s. 6d., 2s. 6d., nd 3s. each. THROTTLE VALVES, 10s., 13s., and 14s. each. Other onnexions at equally low prices, and all goods of first-class manucture. Estimates given, and orders by post punctually attended to he same day.

COTTAM AND COMPANY,
CONSERVATORY and HOTHOUSE BUILDERS, &c.,
Iron Works, 2, Winsley Street, Oxford Street, London, W.
SADDLE BOILERS.
20 24 30 inches long.
45s. 65s. 92s. 6d. each.
HOT-WATER PIPES.
2 3 4 inch.
s. 6d. 2s. 1d. 2s. 9d. per yard.
Materials supplied as above.
Estimates given fixed complete to Plan, on application to COTTAM & Co., Iron Works, 2, Winsley Street, (opposite the Pantheon), Oxford Street, London, W.



JAMES WATTS AND CO., HOTHOUSE BUILDERS and HOT-WATER APPARATUS MANUFACTURERS, 353, Old Kent Road, London, S.E.



200 CUCUMBER and MELON BOXES and LIGHTS, all sizes, Glazed and Painted complete, ready for immediate use, packed and sent to all parts of the Kingdom.
Strong ZINC HAND GLASSES, all sizes.
References to the Nobility, Gentry, and Trade in most of the counties in England.

CRANSTON'S PATENT BUILDINGS for HORTICULTURE.
"Dry Glazing without Putty."
"Glass without Laps."
"Ventilation without Moving Lights."
Highly Commended by the Royal Horticultural Society, South Kensington.



Plans and Estimates free on application. Descriptive Book fully illustrated, post free for 20 stamps, from the Author and Patentee, JAMES CRANSTON, Architect, Birmingham.
Works: Highgate Street, Burmingham.
HENRY J. GROWTAGE, Manager, 1, Temple Row West, Birmingham.

GREENHOUSES, 42 feet by 13 feet wide, £50; 21 feet by 13 feet wide, £28; 12½ feet by 10 feet wide, £15, glazed ready for fixing. ORCHARD-HOUSES, 10 per cent. cheaper. A handsome CONSERVATORY, 36 feet by 19 feet, £120. Estimates for any branch in Iron or Wood.
H. FREEMAN'S Works, Triangle, Hackney, N.E.
Established 25 years.

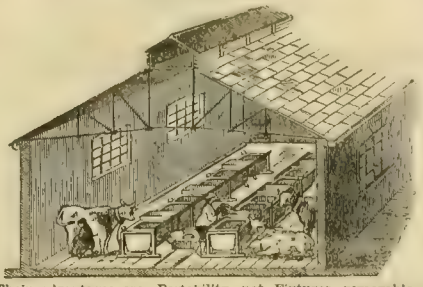
Greenhouses of Improved and Portable Construction
MAY BE SEEN ERECTED AT
JOSEPH SMITH'S HORTICULTURAL WORKS, New Road, Hammersmith.

SPAN-ROOFS—21 ft. by 11 ft. 6 in., with Stage	..	£32	0s.
,, 24 ft. by 9 ft. 6 in.	,, ..	27	0
,, 23 ft by 12 ft. 9 in.	,, ..	37	0
,, 30 ft. by 19 ft.		70	0
LEAN-TO.—17 ft. by 7 ft.		15	10
,, 20 ft. by 9 ft. 9 in.		21	0
,, 21 ft. by 12 ft. 9 in.		30	0
,, 21 ft. by 13 ft.		27	0

Fifty strong 2-in. Lights, 5 ft. 8 in. by 4 ft., Glazed 21-oz., and well painted, £40.
Twenty ditto, 5 ft. 8 in. by 3 ft. 7 in., ditto, £14 10s.
CONSERVATORIES, GREENHOUSES, or VINERIES made to order at 1s. 3d. per foot.
MELON FRAMES of an improved make, ready at low prices.
Estimates for Heating effectually by Hot-Water.
A VINERY or 1 EACH-HOUSE, 41 ft. by 9 ft., with 14 ft. rafters, £40.

FOWLER'S PATENT STEAM PLOUGH and CULTIVATOR may be SEEN at WORK in every Agricultural County in England.
For particulars apply to JOHN FOWLER & Co., 71, Cornhill, London, E.C.; and Steam Plough Works, Leeds.

COTTAM'S PATENT PORTABLE UNITED COW FITTINGS.



Their advantages are—Portability, not Fixtures, removable at pleasure, no Woodwork or Partitions to impede Ventilation or breed Vermin, Hay Rack dispensed with as unnecessary, increased width and depth of Feeding Troughs, Water Cistern, and Patent Drop Cover to prevent over-gorging. Cleanly, durable, and impervious to infection, being all of Iron. Price of Fittings per Cow, 55s.
Prospectuses free of COTTAM & Co., Iron Works, 2, Winsley Street (opposite the Pantheon), Oxford Street, London, W., where the above are exhibited, together with several important Improvements in Stable Fittings just secured by Patent.

JOHN WARNER AND SONS,
8, Crescent, Cripplegate, London, E.C.,
BELL and BRASS FOUNDERS to HER MAJESTY.

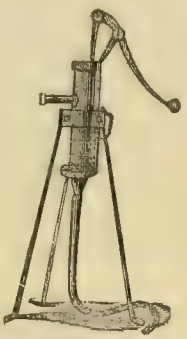


No. 35.

PATENT CAST-IRON PUMP, fitted with J. W. & SONS' Metal Bucket and Valve, which cannot clog in action, for Wells not exceeding 25 feet.

Diam.	Height.	£	s.	d.
2½ in. short	.. 1 ft. 7 in. ..	1	1	0
2½ in. long	.. 3 ft. 3 in. ..	1	8	6
3 in. long	.. 3 ft. 6 in. ..	2	1	0
3½ in. long	.. 3 ft. 6 in. ..	2	6	0
4 in. long	.. 3 ft. 6 in. ..	2	14	0
2½ in. short, with 15 feet of lead pipe attached, ready for fixing	..	2	0	0
2 in. long, do. do.	..	2	14	0

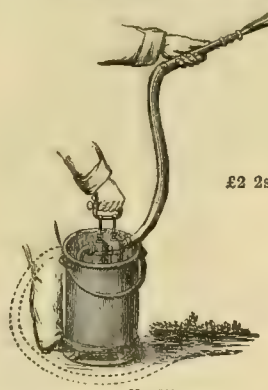
Price of 4½-inch Liquid Manure Pump, with legs, £2 15s.; 2-inch Flexible Rubber and Canvas Suction Pipe, 2s. 6d. per foot. The Barrel is 27½ inches long, and the legs are 5 feet high.



No. 42.

IMPROVED LIQUID MANURE or GENERAL PORTABLE PUMP.—These Pumps are fitted with J. W. & SONS' Patent Bucket and Valve and cannot clog in action. The Barrel is made of Galvanised Iron, not likely to corrode, and can be raised or lowered at pleasure on the stand, the legs of which fold together, and it may be carried with ease by one man to tank or pond.

WARNERS' PORTABLE FIRE or GARDEN ENGINE.



No. 568½.

For use by one Person .. .. price £2 2s.
No. 647B, ditto ditto, on Wheels .. .. .. ,, £2 10s.
The above are complete in themselves, and may be always kept filled with water, and ready for use.

Letter to The Times, *July* 23, 1866, *from* Earl ESSEX.
A REAL FIRE EXTINGUISHER.
To the Editor of The Times.
"SIR,—I feel sure you will kindly allot a small space in the *Times* to these few lines, as the best medium through which I would urge every householder who dreads fire to have on each floor of his house one or more small Garden or other Engines on wheels, always charged and in good order, in case of fire.
"Last night, just as I was going to bed, I was startled by that most fearful of all cries, 'Fire, fire!' I soon learned that a fire was raging in a large two-windowed unoccupied bedroom. How caused is to us all a great mystery. It is my custom to keep one of these small Engines on each floor. In two minutes I was in the room with one of them. It was like a furnace. The curtains, shutters, casements, and cornices of both windows were burning and cracking from floor to ceiling. I was quite alone at the moment, yet before assistance arrived (most of the servants having gone to bed), I had completely subdued the fire of one window without exhausting the Engine, and when assistance and more water did arrive, we very soon extinguished the other.
"So fierce was the fire that the lead of the casements was melted, and the casements themselves were burnt off their hinges.
"I will only add, that by God's mercy, the house was saved by this small Engine. Had it not been at hand and in order, most assuredly Cassiobury would be now a heap of ruins.—Yours faithfully,
"Cassiobury, Watford, July 20. "ESSEX.
"The Engine, even when full, runs so light on the floor, that any woman might draw it, and also work it."

Caution to Gardeners.—When you ask for SAYNOR AND COOKE'S WARRANTED PRIZE PRUNING and BUDDING KNIVES, see that you get them. Observe the mark SAYNOR, also the corporate mark OBTAIN WARRANTED, without which none are genuine.
S. & C. regret having to caution Gardeners and others, but are compelled to do so, in consequence of an imitation, of common quality, having been sold for the genuine one, and which has caused many complaints to be made to them of Knives which were not of their make, all of which are warranted both by Sellers and Makers.
S. & C.'s Pruning and Budding Knives are the best and the cheapest in the market.
Paxton Works, Sheffield. Established upwards of 125 years.

CHEAP PAVING TILES.—A Manufacturing Firm has a considerable Stock of PLAIN and ENCAUSTIC TILES, more or less damaged in the process of manufacturing, that they they would be willing to DISPOSE OF at prices below those of the commonest description of paving materials. To Landed Proprietors they would be invaluable for the Floors of Cottages, Farm-houses, &c., and would be supplied at a very low rate
D., Post Office, Broseley.



GARDEN BORDER EDGING TILES, in great variety of patterns and material, the plainer sorts being especially suited for KITCHEN GARDENS, as they harbour no Slugs and Insects, take up little room, and once put down incur no further labour and expense, as do "grown" Edgings, consequently being much cheaper.



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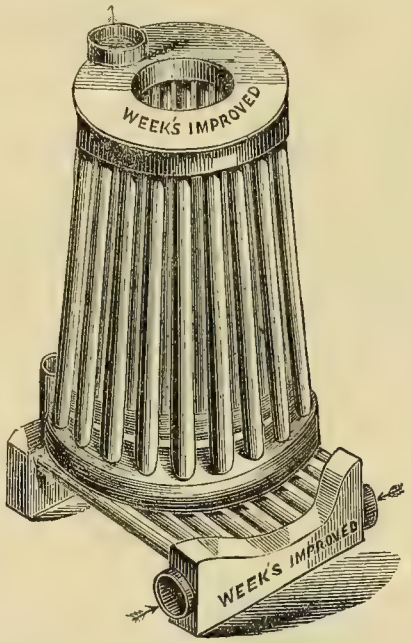
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THE GARDENERS' CHRONICLE

AND

AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.

No. 5.—1867.] SATURDAY, FEBRUARY 2. {Price Fivepence. {Stamped Edition, 6d.

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ROYAL BOTANIC GARDENS, Regent's Park.—EXHIBITIONS of SPRING FLOWERS, SATURDAYS, March 23, April 13, and April 27. GENERAL EXHIBITIONS, WEDNESDAYS, May 29, June 19, and July 3. The number of Specimens required in the Collections having been REDUCED, will enable a larger number of Exhibitors to compete. Schedules of Prizes, &c., may be had by post on application.

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Alder, 3 to 4 feet and 4 to 6 feet	Hazel, 2 to 3 feet and 3 to 4 feet
Ash, 3 to 5 feet	Larch, 2 to 3 feet, 3 to 4 feet, and 4 to 5 feet
Birch, 2 to 3 feet, 3 to 4 feet, and 4 to 5 feet	Pinus austriaca, 1½ to 2 feet

The above are stout and well rooted. Samples, with prices, delivered free at the nearest Railway Stations, may be had on application to WATERER & GODFREY, Knap Hill Nursery, Woking, Surrey.

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Alder, 3 to 5 feet, extra strong	Fir, Scotch, 1½ to 2 ft., extra fine
Ash, 18 inches to 2 feet	„ Spruce, 3 to 4 feet, extra fine
Beech, 2 to 3 feet, very good	„ Larch, 2, 3, & 4 ft., extra fine
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Chestnut, Horse, 2 to 4 feet, and 5 to 6 feet	Laurel, Common, 2½ to 3 ft., bushy
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Strong MANETTI STOCKS.
FRUIT TREES.
Apples, Standards and Dwarfs, very strong
Cherries, Dwarfs and Dwarf-trained, extra fine
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Black Thorn, 2 to 3 feet	White Thorn Quick, 2 and 3-years transplanted
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Green Box, 1 to 1½ foot	Standard Pears and Apples
Portugal Laurels, 1½ to 2 feet	Cedrus Deodara, 6 to 8 feet.
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52, Market Square, Northampton.

Forres Nurseries, Scotland.

JOHN GRIGOR AND CO. have for SALE several Millions of very superior LARCH, one-year old Seedlings; also one-year transplanted plants, grown from seed extracted from healthy trees, which form the fourth or fifth generation of the Larch since its introduction into Scotland. Such plants being acclimatised, are found to be far hardier than those raised from imported seed.
According to Mr. Grigor's Report on "the Larch Forests of Scotland," for which the Highland and Agricultural Society of Scotland has recently awarded the Gold Medal, acclimatation forms the basis of all successful cultivation, and is the only means of averting the numerous casualties to which Larch plantations are subject.
NATIVE HIGHLAND SCOTCH PINE, 1-year seedling.
FOREST TREES in general.
Strong plants of AQUILEGIA GLANDULOSA.
Prices on application.

HARDY PLANES.—Platanus pubinata, P. acerifolia, P. acerifolia grandifolia, and P. pyramidalis. The above are all perfectly hardy and beautiful varieties. Average height, 6 feet. Price 25s. per 100. A few of the two first named can be supplied 10 to 12 feet in height. Carriage paid to London.
THOS. RIVERS & SON, Nurseries, Sawbridgeworth.

EVERGREENS, for immediate effect, perfectly uninjured by the late severe weather, consisting of 50,000 LAURELS, 2 to 5 feet; 20,000 LAURUSTINUS, 1 to 3 feet; 10,000 BAYS, 1 to 5 feet; 10,000 TREE BOX, 1 to 3 feet; and several Thousands of EVERGREEN OAK; also a fine lot of SPRUCE FIR, 3 to 5 feet. The whole of the above in fine stout, good-rooted plants.
Purchasers of large quantities for Cash will be most liberally treated with. Price, with samples, may be had on application to
R. GADD & SON, Salvington Nurseries, near Worthing.

H. AND R. STIRZAKER can supply in very large quantities as follows, quality good, and prices very low:—ALDER, ASH, BIRCH, BEECH, ELM, CHESTNUT (Horse and Spanish), HAZEL, LARCH, OAK (English and Turkey), POPLAR (Ontario and Black Italian), PRIVET (Evergreen, 1½ to 3 feet), SPRUCE FIR, SILVER FIR, SYCAMORE, WILLOWS, THORNS, YEW (English), splendid stuff, in sizes of 1, 2, 3, 4 feet, and upwards. Special quotations for free delivery on application.
Skerton Nurseries, Lancaster.

Fruit Trees.

WOOD AND INGRAM wish to call the attention of Planters and the Trade to their large stock of the following, which they are prepared to supply at very moderate rates, according to the quantity taken:—
APPLES, Standards, Half Standards, and Dwarfs.
APRICOTS, Dwarf Maiden, cut back, and trained.
CURRANTS, fine bushy plants, all the best kinds.
GOOSEBERRIES „ „
GRAPE VINES, from Eyes, Planting and Fruiting Canes.
„ „ Layers, well-rooted, Canes 1 inch round.
NUTS and FILBERTS, all sizes up to 4 to 5 feet.
PEACHES, Dwarf Maiden, cut back and trained.
PEARS, Standards, Dwarfs, and Pyramids.
PLUMS, Standards, Half Standards, and Dwarfs.
CATALOGUES and Prices on application.
The Nurseries, Huntingdon.

JOHN WATERER has to offer a quantity of very handsome AUCUBA JAPONICA, the whole of which are profusely covered with Berries.
1st Size are Plants 2 feet high, bearing 150 to 200 Berries.
2d Size, 1 foot 6 inches, with 100 to 125 Berries.
3d Size, 1 foot, with 40 to 50 Berries.
Price from 10s. 6d. each and upwards.
The American Nursery, Bagshot, Surrey.

Extensive and well-grown Nursery Stock.

J. SCOTT, Merriott, Somerset, has to offer as under:—FOREST TREES:—Acacia, 5 to 6 feet, 10s. per 100; Alder, 3 feet, 25s. per 1000; Beech, 2 to 2½ feet, 30s. per 1000; do., 3 to 4 feet, 35s. per 1000; do., 4 to 5 feet, 80s. per 1000; Chestnut, Horse, 3 to 4 feet, 80s. per 1000; do., 4 to 5 feet, 10s. per 100; Chestnut, Spanish, 2 feet, 30s. per 1000; do., 3 feet, 35s. per 1000; Elm, English, 4 to 5 feet, 10s. per 100; do., 5 to 6 feet, 20s. per 100; Elm, Wych, 4 to 5 feet, 80s. per 1000; do., 5 to 6 feet, 10s. per 100; Fir, Larch, 2 feet, 20s. per 1000; do., 2½ to 3 feet, 25s. per 1000; do., 3 to 4 feet, 30s. per 1000; Scotch, 1½ to 2 feet, 18s. per 1000; do., 2 to 2½ feet, 20s. per 1000; do., 2½ to 3 feet, 25s. per 1000; Silver, 9 to 12 inches, 50s. per 1000; do., 12 to 18 inches, 80s. per 1000; Spruce, 1½ foot, 25s. per 1000; do., 2 feet, 30s. per 1000; do., 2½ feet, 35s. per 1000; do., 3 feet, 40s per 1000; Hazel, 2 to 2½ feet, 25s. per 1000; do., 2½ to 3 feet, 30s. per 1000; do., 3 to 4 feet, 40s per 1000; do., 4 to 5 feet, 45s. per 1000. The Hazel is especially fine. Oak, English, 2 to 2½ feet, 35s. per 1000; Willows, from 30s. to 50s per 1000; Yews, 2 feet, fine, 75s. per 100; Holly, 2 feet, extra fine, 50s. per 100.
FRUIT TREES, the best Collection in England, are grown to a large extent, and free from every kind of disease. A 92-paged DESCRIPTIVE CATALOGUE, with cultural notes, free. Apples, 600 sorts in all manner of training, from 6d. to 2s. 6d. each; Apricots, Nectarines, and Peaches, Maiden and Dwarf-trained, from 6d. to 3s. 6d. each; Cherries, Standard and Pyramidal, 1s. to 2s. 6d. each; do. Dwarf-trained, 1s. 6d. to 2s. 6d. each, in 30 sorts. May Dukes and Morellos to the trade in quantity, cheap. Pears, 800 sorts, from 6d. to 2s. 6d. to 4s. each, according to size; Plums, Pyramidal and Dwarf-trained, 2s. 6d. to 3s. 6d. each. Deodar cedar, 4 to 5 feet, 30s. per dozen; 5 to 6 feet, 42s. per dozen; 6 to 7 feet, 42s per dozen. Magnificent trees with fine balls. A splendid collection of ORNAMENTAL TREES and SHRUBS equally cheap.

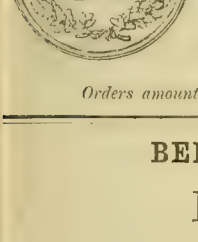
ESTABLISHED UPWARDS OF A CENTURY.

BUTLER, McCULLOCH, & CO.,

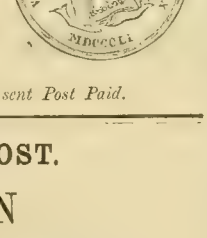
SOUTH ROW, COVENT GARDEN MARKET, W.C.

SEEDSMEN TO HER MAJESTY'S COMMISSIONERS OF WOODS AND FORESTS, TO THE COMMISSIONERS FOR THE COLONIES, TO THE HORTICULTURAL SOCIETIES OF THE PUNJAUB, BOMBAY, ETC., ETC.

Holders of Prize Medals from International Exhibitions of both 1851 and 1862.



NEW GARDEN SEEDS (Crop 1866)
IN COMPLETE COLLECTIONS FOR ONE YEAR'S SUPPLY.
No. 1, £3 3s.; No. 2, £2 2s.; No. 3, £1 10s.; No. 4, £1 1s.; No. 5, 10s. 6d.



PRICED CATALOGUE, containing details of above Collections, also full descriptions of all Vegetable and Flower Seed Novelties of this season, Post Free.

Orders amounting to 21s. sent Carriage Paid. All Packets of Flower Seeds sent Post Paid.

BEDDING PLANTS KILLED BY FROST.

E. G. HENDERSON & SON

CAN SUPPLY

STRONG STOCK PLANTS OF THE LEADING SECTIONS.

FOR LISTS SEE

THE NEW SEED CATALOGUE FOR 1867,

Including amongst others, with full descriptions, the following desirable Novelties in Seeds:—

ASTER (snow-white) VICTORIA, fine for bedding
ARUNDO CONSPICUA, 6d.
ACTÆA FŒTIDA (bug destroyer), 6d.
AUCUBA JAPONICA, new Japanese mixed varieties, 1s. 6d.
AUBRIETIA GRÆCA, 6d. and 1s.
BEGONIA PEARCEI, 2s. 6d.
CANNA BIHORELLI, 1s.
CANTERBURY BELLS, rose colour, 6d. and 1s.
CELOSIA RAMOSA ELEGANS, 1s. and 1s. 6d.
CHAMÆPEUCE DIACANTHA, 1s.
CLIANTHUS DAMPIERI)
„ „ ALBA } 1s. and 2s. 6d. separate, or mixed 2s. 6d.
„ „ CINNABARINA, 2s. 6d.
CYCLAMEN PERSICUM, from 30 fine varieties, 1s. and 2s.
HELENIUM HOOPESII, 1s.
DIANTHUS DENTATUS HYBRIDUS, 1s.
„ IMPERIALIS PICTUS FLORE PLENO, 6d. and 1s.
EUPHORBIA VARIEGATA MARGINATA, 6d.
HELIANTHUS TEXANUS HYBRIDUS, 6d.
IRIS PUMILA HYBRIDA, 1s.
LILIUM AURATUM, 1s. and 2s. 6d.
LINARIA ALPINA, 6d.
„ TRISTE, 6d. and 1s.
LINUM MACRAYI, 1s. 6d. and 2s. 6d.
LOBELIA PRINCE ALBERT, 6d. and 1s.
LOPHOSPERMUM SCANDENS GRANDIFLORUM, 1s.
LUPINUS CRUIKSHANKII HYBRIDUS, 6d.
MIMULUS, double flowers, 1s.
NEMOPHILA MACULATA GRANDIFLORA, 6d. and 1s.
NIEREMBERGIA FRUTESCENS, 2s. 6d.
PÆONIA ELIZABETH, brilliant Tree Peony, 2s. 6d.
PENTSTEMON JEFFREYANUM, blue, 1s.
„ LOBBII, yellow, 1s.
POTENTILLA, new double, 1s
PELARGONIUM, IVY-LEAVED, fine varieties, mixed, 1s. 6d.
SCABIOSA NANA FLORE PLENO, beautiful, 6d. and 1s.
STOCK, blood red, splendid, 1s.
TROPÆOLUM COMPACTUM SUPERBUM, 1s.
VIOLA CORNUTA, 6d. and 1s.
„ „ MAUVE QUEEN, 1s.
„ „ PURPLE QUEEN, 1s.
„ THE CZAR, 6d and 1s.
„ THE GIANT, 6d.
WAITZIA STEETZIANA, 1s.
XERANTHEMUM CARYOPHYLLOIDES FLORE PLENO, 6d.
ZEA JAPONICA, fol. var., 6d. and 1s. [and 1s.

WELLINGTON NURSERY, ST. JOHN'S WOOD, LONDON, N.W.

THE LONDON SEED COMPANY,
68, Welbeck Street,
Cavendish Square, W.

THE LONDON SEED COMPANY.—The General "PRICE CURRENT of GARDEN and FARM SEEDS" is now ready, and can be had on application, Gratis, as above.

THE LONDON SEED COMPANY'S COLLECTIONS of SEEDS.

No. 1.—Complete Collection, sufficient for a large Garden	£3	0	0
No. 2.—Complete Collection for a moderate size Garden ..	2	0	0
No. 3.—Complete Collection in small quantities	1	0	0
No. 4.—Complete Collection for a small Garden	0	15	0
No. 5.—Complete Collection for a small Garden	0	10	6

LISTS can be had on application from the above address.

THE LONDON SEED COMPANY.
CARRIAGE ARRANGEMENTS.
The Directors have made arrangements with all the Railway and Steam Companies to deliver all Seeds, with the exception of heavy articles, such as Grain, Tares, &c.,
CARRIAGE FREE
for all Orders of the value of 20s., to any Railway Station in England and Wales, or to any Steam Port in England, Wales, Ireland, or Scotland, Guernsey, or Jersey.

IMPORTANT ANNOUNCEMENT.—A Discount of 10 per Cent. will be allowed by the London Seed Company on all Orders above £10; 15 per Cent. above £50; 20 per Cent above £100. It will, therefore, be desirable for friends to unite together in a District or Neighbourhood, and so obtain these liberal Discounts.

TEN, FIFTEEN, and TWENTY PER CENT. DISCOUNT will be allowed on all Orders given to the "London Seed Company" above £10, £50, and £100 respectively.

JAS. GARAWAY AND CO.,
NURSERYMEN and SEEDSMEN,
Durdham Down Nurseries, Bristol.

SEEDS for the KITCHEN GARDEN.

JAS. GARAWAY AND CO.

SEEDS for the FLOWER GARDEN.

JAS. GARAWAY AND CO.

SEEDS for the FARM.

SEEDS, Best Quality, at Cheapest Rates.

JAS. GARAWAY AND CO.

PRICED CATALOGUES, Post Free.

JAS. GARAWAY AND CO.

CARRIAGE PAID of all ORDERS over 20s.

JAS. GARAWAY AND CO.,
NURSERYMEN and SEEDSMEN,
Durdham Down Nurseries, Bristol.

A Practical Gardener for Sixpence.

CARTER'S FLORAL ALMANAC and CALENDAR of OPERATIONS for 1867 contains full Directions for the Successful Management of the Flower Garden, Kitchen Garden, and the Farm for each Month in the Year. Forwarded on receipt of six stamps.
JAMES CARTER & Co., 237 and 238, High Holborn, London, W.C.; W. H. SMITH & SON, Strand, and all their Railway Book Stalls.

Lilium auratum, Golden-rayed Lily of Japan.





JAMES CARTER AND CO. have just received splendid BULBS of the above, in finer condition than any imported for some time, and said to contain many highly-coloured varieties. This incomparable Lily has for some time been very scarce, but we can now offer fine flowering Bulbs, true to name, at the following prices:—1st size, 5s.; 2d, 3s. 6d.; extra strong large Bulbs, 1st size, 10s. 6d.; 2d, 7s. 6d.; a few of the finest, very large and strong, 15s. each.
JAMES CARTER & Co., Seed Merchants and Nurserymen, 237 and 238, High Holborn, London, W.C.

Exhibition Plants.

FOR SALE, a quantity of first-rate SPECIMEN PLANTS, grown for Exhibition, including Allamanda Schottii, A. cathartica, Stephanotis floribunda, Clerodendron Thomsonii, Combretum Pincaanum, Ixora coccinea, Mandevilla suaveolens, and others, all very large specimens, in first-class order. For size and price apply to GEORGE BATLEY, The Rugby Nursery.



New Garden Seeds.

ARCHIBALD HENDERSON'S DESCRIPTIVE PRICED CATALOGUE and useful GARDEN ALMANACK is now Published, containing much useful information. Can be had gratis and post free on application.

Sion Nursery, Thornton Heath, Surrey; and at the East Surrey Seed Warehouse, College Grounds, North End, Croydon.

ARTHUR HENDERSON AND CO. beg to announce that their CATALOGUE of KITCHEN GARDEN and FLOWER SEEDS for 1867 is now ready, and will be forwarded free on application.

NEW MELONS.
ERIDGE CASTLE PERFECTION.—This is a green-fleshed variety, of excellent flavour, thin skin, medium size, with a delicious melting sugary flesh. One of the best sorts ever raised. 2s. 6d. per packet.
THE GUILDHALL PRIZE.—Scarlet flesh, a very quick grower and a great cropper, weight 3 to 5 lb. Early, excellent shape, richer and superior in flavour to Turner's Gem. Skin very thin. A seedling between the Scarlet Gem and Egyptian green-fleshed. 2s. 6d. per packet.
HENDERSON'S COMPACT-TOPPED PINE-APPLE BEET.—True (our own saving).
Pine-apple Place, Edgeware Road, London, N.

NEW ROSES FOR 1867.

JOHN FRASER,

OF THE LEA BRIDGE ROAD NURSERIES, N.E.,

HAS MUCH PLEASURE IN ANNOUNCING THAT HIS

DESCRIPTIVE LIST OF CAREFULLY SELECTED NEW ROSES FOR 1867

IS NOW READY, AND WILL BE FORWARDED ON APPLICATION.

☞ *The Plants are this Season unusually strong and healthy.*

NOTICE.—NEW ROSES FOR 1867.

FORTY-SIX VARIETIES, being the cream only of the best new kinds known on the Continent, now ready in magnificent strong healthy Plants, which will be eligible for sending out as soon as the weather will permit.
DESCRIPTIVE CATALOGUES GRATIS on application to the SUBSCRIBERS.

WILLIAM WOOD AND SON,
WOODLANDS NURSERY, MARESFIELD, NEAR UCKFIELD, SUSSEX.—Feb. 2.

GARDEN SEEDS.

WILLIAM PAUL,

(SON and SUCCESSOR to the late A. PAUL),

PAUL'S NURSERIES and SEED WAREHOUSE, WALTHAM CROSS, LONDON, N.,

BEGS TO ANNOUNCE THAT HIS

SELECT LIST OF VEGETABLE, FLOWER SEEDS, ETC.,

IS NOW READY, AND WILL BE FORWARDED POST FREE ON APPLICATION.

The following Novelties recently introduced by him have already become standard varieties, and the Seeds now offered have been saved from pure original stocks:—

PAUL'S WALTHAM BRUSSELS SPROUTS.—This variety is quite distinct, the Sprouts possessing the valuable quality of being green to the centre, and retaining the same colour when cooked. 1s. per packet.

PAUL'S WALTHAM MARKET CABBAGE.—Large, very even growth, early and fine, mild flavour; pronounced by all who have seen it the finest sort in cultivation. 1s. per packet.

PAUL'S IMPROVED TELEGRAPH CUCUMBER.—This is a prodigious bearer, frequently producing four or five fine fruit at a joint; very handsome, and excellent flavour; particularly recommended for a house or winter forcing. 1s. per packet.

PAUL'S SELECTED EXTRA CURLED PARSLEY.—Large and very superior; pronounced by all who have grown it from my stock the best in cultivation. 6d. per packet.

SUPERB DWARF HERTFORDSHIRE CAULIFLOWER.—Very large, pure white close heads, remaining fit for use much longer than most other sorts; very hardy, having frequently stood in winter under a south wall without any other protection. 1s. per packet.

BROCKETT HALL BROWN COS LETTUCE.—Very hardy, large, crisp, and excellent flavour; stands a long time after most other sorts without running to seed; good for sowing at any season; the finest Lettuce grown. 1s. per packet.

PAUL'S SUPERB CRIMSON BEET.—This variety as improved by me is unsurpassed in colour and flavour. 1s. per oz.

PAUL'S IMPROVED LATE CURLED BORECOLE.—Unsurpassed as a "Curled Green," very hardy; very productive, and continues in fine condition for use till the end of April. 1s. per packet.

COLLECTIONS of KITCHEN GARDEN SEEDS, 10s. 6d., and upwards.
COLLECTIONS of FLOWER SEEDS, 5s. and upwards.

*** *All Seeds Carriage Free.*

GENUINE SEEDS, CARRIAGE FREE.

B. S. WILLIAMS'

NEW GENERAL PRICED AND DESCRIPTIVE SEED CATALOGUE FOR 1867

CAN BE HAD FREE ON APPLICATION.

THE VEGETABLE SEED PART

CONTAINS

LISTS of the best varieties of each kind of VEGETABLE. Only those sorts are recommended that can be relied upon for producing sure and good crops. Especial attention is directed to the following NEW and CHOICE KINDS, full descriptions of which will be found in the Catalogue.

WILLIAMS' ALEXANDRA BROCCOLI, 2s. 6d. per packet
WILLIAMS' MATCHLESS RED CELERY, 1s. per packet
ORANGEFIELD DWARF TOMATO, 2s. per packet
NUNEHAM PARK ONION, 2s. 6d. per packet
MALVERN HALL MELON, 1s. 6d. per packet
DIGSWELL PRIZE ENDIVE, 1s. per packet
RAPHANUS CAUDATUS (The Wonderful Radish), 1s., 2s., and 5s. per packet.

COMPLETE COLLECTIONS of KITCHEN GARDEN SEEDS, to suit Gardens of various sizes, for Contents of which see page 44 in Catalogue:—

10s. 6d., 21s., 42s., 63s., 84s. each.

THE FLOWER SEED PART

CONTAINS

Imported and English-grown FLOWER SEEDS, in Collections.
The Best of the New Introductions, 1866, in ANNUALS, BIENNIALS, and PERENNIALS.
Choice Strains of FLORISTS' FLOWERS.

The following are unequalled:—

PRIMULA (WILLIAMS' superb strain, the finest in cultivation).—Red, White, or Mixed Seed, 2s. 6d., 3s. 6d., and 5s. per packet.

CALCEOLARIA (JAMES's strain, the best variety for exhibition).—Colours are exceedingly rich, profusely spotted and veined. 2s. 6d., 3s. 6d., and 5s. per packet.

BALSAM (WILLIAMS' finest strain).—A stand of flowers, the production of this strain, was exhibited at the July Show of the Royal Botanic Society, and was the admiration of all. 1s. and 2s. 6d. per packet.

CINERARIA (WEATHERILL's extra choice strain).—This is the most popular strain in Covent Garden Market. 3s. 6d. and 5s. per pkt.

LILIUM AURATUM (a large importation of this beautiful Lily just received).—Strong Bulbs, 3s. 6d., 5s., 7s. 6d., and 10s. 6d. each.

VICTORIA and PARADISE NURSERIES, UPPER HOLLOWAY, LONDON, N.

PAUL AND SON'S SEED CATALOGUE will be sent with pleasure to any applicant. It contains, with usual matter, Descriptive Priced Lists of carefully selected Novelties in Seeds; Seeds of Ornamental Foliaged Plants for Subtropical Flower Gardening; Gladioli, with original Notes on their Culture.
The Old Cheshunt Nurseries and Seedshop, Cheshunt, N.

New and Genuine Seeds.

THOMAS SAMPSON, The Preston Road Nurseries, Yeovil, Somerset, begs to intimate that his CATALOGUE of SEEDS for the GARDEN and FARM is now ready, and can be obtained free on application. It contains a Select and Choice Stock, everything being of the best quality, and are offered at unequalled low prices.

Wholesale Catalogue of Nursery Stock.

GEORGE JACKMAN AND SON'S PRICED and DESCRIPTIVE CATALOGUE for 1866 and Spring 1867, can be had free on application, comprising Fruit Trees, Roses, American Plants, Conifers, Clematises, Evergreen and Deciduous Trees and Shrubs, and transplanted Forest Trees, &c., &c.
Woking Nursery, Surrey.

General Plant Catalogue.

B. S. WILLIAMS' PRICED CATALOGUE, containing Select Lists of Choice Exotic Orchids, Ferns, Stove and Greenhouse Plants, Indian Azaleas, Variegated and Ornamental Foliaged Plants, Fuchsias, Pelargoniums, Rhododendrons, Verbenas, Petunias, Phloxes, Cinerarias, Chrysanthemums, Hardy Variegated Plants, Roses, Fruit Trees, Vines, &c.; also a Descriptive List of New and Rare Plants.
Can be had post free on application
Victoria and Paradise Nurseries, Upper Holloway, London, N.

RICHARD SMITH'S SEED CATALOGUE contains a Calendar of Time for Sowing, particulars of Collections, with Prices, Directions for Cropping well and economically, Soil, Manure, Depth, Distance, Season, Hardiness, Duration, Form, Height, Colour, Storing, Use, Flavour, and other qualities, described.
This List Free by Post for one stamp. Seeds direct from the Growers the surest way to success.
RICHARD SMITH, Seed Merchant, Worcester.

New Descriptive Lists.

DOWNIE, LAIRD, AND LAING, NURSERYMEN, SEEDSMEN, FLORISTS, and NEW PLANT MERCHANTS, 17, South Frederick Street, Edinburgh; and Stanstead Park, Forest Hill, London, S.E., respectfully beg to intimate that their NEW DESCRIPTIVE PRICED CATALOGUES of FLORIST FLOWERS, GARDEN, FLOWER, and AGRICULTURAL SEEDS, GLADIOLI, ROSES, &c., are now ready, and may be had free on application.

Genuine New Vegetable, Flower, and Agricultural Seeds of best quality only.

J. SCOTT'S Stock of the above is now ready for sending out. A CATALOGUE containing PRICED LISTS of NOVELTIES, and other choice SEEDS, BULBS, GARDEN REQUISITES, &c., post free on application, prices very low.
GLADIOLUS, from 2s. per dozen, named sorts.
J. SCOTT, The Seed Stores, Yeovil, Somerset.

Vegetable, Agricultural, and Flower Seeds, Alpine Plants, &c.

ROBERT PARKER begs to announce that his CATALOGUE, containing select DESCRIPTIVE LISTS of the finest kinds in cultivation of the above-named is now published, and will be forwarded to applicants. The Stocks of Seeds have all been procured from the best possible sources, all are warranted genuine, and are offered at the lowest possible prices. Intending purchasers are requested to compare the prices with those of other houses. Exotic Nursery, Tooting, Surrey, S.

British Fern Catalogue.

ROBERT SIM can now send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his NEW and PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.
Foot's Cray Nursery, S.E., a mile from Sidcup Station of New North Kent Line of South Eastern Railway.

American Plants, &c.

WATERER AND GODFREY'S PRICED and DESCRIPTIVE CATALOGUE of RHODODENDRONS and other American Plants for this Autumn, will be sent on application. The Catalogue also gives a summary of their General Nursery Stock, probably the most extensive in the kingdom.
Knap Hill Nursery, Woking, Surrey.

Rhododendrons.

JOHN WATERER'S DESCRIPTIVE CATALOGUE of HARDY SCARLET and other RHODODENDRONS is now published, and will be forwarded on application. It faithfully describes the colours of the new varieties exhibited by him at the Royal Botanic Gardens, Regent's Park. An Abridged List of popular CONIFERS, with heights and prices, is likewise combined.
The American Nursery, Bagshot, Surrey, near Sunningdale Station, South-Western Railway.

Genuine Garden, Agricultural, and Flower Seeds.

PAUL TOLLARD, SEED GROWER and MERCHANT, 20, Quai de la Mégisserie, Paris, France.
SPECIAL PRICED LIST of NEW SEEDS, in English weights and money, post free on application.

To the Seed Trade.—Continental Flower Seeds, &c.

F. W. WENDEL, SEED GROWER, &c., Erfurt, Prussia, begs to announce that his WHOLESALE CATALOGUE of the above is now ready, and may be had free and post paid on application to his Agent,
GEO. MACINTOSH, Seedsman, &c., High Road, Hammersmith, W.

The New Forage Grass (Bromus Schraderi).

SUTTON AND SONS have imported a large supply of True Seed of the above, and offer it at 2s. 6d. per lb., or cheaper in large quantities. Quantity required per acre, 30lb. Lowest price per cwt. and instructions on cultivation may be had on application.
SUTTON & SONS, Seed Merchants, Reading.

WALL-TRAINED TREES of BEARING SIZE.—Our Wall-Trained Fruit Trees this season are very fine, and include PEACHES, NECTARINES, APRICOTS, and FIGS, suited for planting in houses for immediate Fruiting. An inspection is respectfully invited.
T. JACKSON & SON, Nurseries, Kingston, Surrey.

POST PAID.
Viola cornuta, var. Purple Queen,
1s. and 2s. 6d. per Packet.
B. S. WILLIAMS has purchased Mr. Bennett's entire Stock of the above. None genuine unless in Packets bearing B. S. W.'s name and address.
VIOLA CORNUTA, var. MAUVE QUEEN, 6d., 1s., and 2s. 6d. per Packet.
B. S. WILLIAMS, Victoria and Paradise Nurseries, Upper Holloway, N.

Caution.

QUEEN EMMA MELON.—Having seen that a Firm in London are offering Seed of a MELON under the name QUEEN EMMA, "STUART," I think it right to inform the Public that the entire stock of the "HECKFIELD" QUEEN EMMA MELON (so much thought of) has been placed in the hands of Messrs. OSBORN & SONS, Fulham, and JAMES VEITCH & SONS, Chelsea.
THOS. K. SHORT, Heckfield Gardens.

DOBSON AND SONS' UNEQUALLED SEEDS.
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The Gardeners' Chronicle.
SATURDAY, FEBRUARY 2, 1867.

MEETING FOR THE ENSUING WEEK.
THURSDAY, Feb 7—Linnean .. .. 8 P.M.

AT p. 655 of our last year's volume we took occasion to mention a remarkable specimen of a flattened or FASCIATED LETTUCE which had been sent us by a correspondent at Canterbury.



Thanks to another correspondent at Grantham we are enabled to give a figure of a somewhat similar condition in the stem of the ASPARAGUS. Fasciation, or the confluence of several stems, is by no means of unusual occurrence in Asparagus; not a year passes but several specimens of the kind come under notice; but the one from which our figure was taken far exceeds in size any that we have seen before. When fresh the specimen measured 6½ feet in length, and 6 inches in breadth at the widest part. At the lower end the stem is twisted corkscrew fashion, the spiral growth being in this case probably due to the resistance offered to upward growth by the union of the stems.

The tendency to grow in a spiral direction is one of the most striking attributes of the plant, and instances of it may be found throughout the whole vegetable kingdom. It is well marked in the bark and wood of some trees, and equally distinct in some Algæ and Fungi; it regulates the arrangement of the leaves, and often exists in the embryo plant while still within the leaves. It is not always easy to see the "reason why," but doubtless among other circumstances that influence spiral growth in some way or another, are the presence of some obstacle impeding growth in a certain direction, the necessity for placing a succession of leaves and other organs in such a position that they may not impede one another's growth or impair one another's actions, and the acquirement of strength and rigidity for slender feeble growths without increase of substance or weight.

Viewed as an abnormal occurrence, that is to say, when it exists to an exaggerated degree, in plants that usually exhibit it but only to a limited extent, it is said to be more frequent in plants growing in wet or damp places; but this is an assertion not sufficiently borne out by facts.

THE subject of GRAPE-GROWING is introduced in Mr. CANNELL'S recent Catalogue under the startling heading "For Grape-growers, a hint worth 100*l*.," and in the following terms:—

"Doctors have done away with the knife as much as possible—so must gardeners. Do not trim your Vine-rods up every year, as if they were rafters. If you do, prune the roots likewise; if not, they will be sure to rot, and create all kinds of disease, and then you will wonder what is the cause of it. Cut the top of an Oak tree after it has been planted 10 years, and keep it so for another 10 years, and see if you can make it young and vigorous again.

"Plant one main Vine in the middle of the house. Let it have a fresh rafter to fill after the third year every season; and if any more are planted, pull them up as this main one extends, and you will soon have a Hampton Court or a Cumberland Lodge Grape Vine, and plenty of Grapes without much trouble. You need not then make your border so rich and expensive.

"Let all Grape-growers think of this, and they will profit by it."

In noticing last week the issue of this Catalogue, we expressed a wish to have some further explanation of Mr. CANNELL'S ideas on Vine culture; and knowing him to be an excellent plant-grower, as indeed our exhibitions bear witness, we expected to find them both practical and sound. He has obligingly sent us in reply the following remarks, which, as our readers will perceive, show him to be a thorough disciple of that school which objects to the "restrictive system" of cultivation as applied to Grape growing; indeed, he himself calls his method the "extending system." We may therefore regard the observations which follow as a continuation of the discussion on the question, "restriction" or "extension," already commenced in our pages by "A. F. B.," and Mr. MILLER (pp. 1169, 1219, 1863). Mr. CANNELL'S explanation is as follows:—

"In seeking to prove what I have said about Grape growing, I must observe that necessity is the mother of invention, and that when a person begins to lose, he is sure to begin to learn.

"The explanation how I first got hold of my ideas on this subject, is to be found in the following circumstances. In 1860, I took charge of the gardens at Portnall Park, Virginia Water. There were five Vineries, and about 20 years before the time in question, four of these had been fresh planted in the best possible manner, everything having been done, I believe, to make the Vines produce the very best of fruit. Under the management of one of the most practical Grape-growers in England, the Vines did, in fact, produce fruit of this character, namely Black Hamburghs, that carried off two first prizes at Chiswick. This was about the third and fourth years after they were planted.

"Of course, the Vines were planted in the usual way, one to a rafter, and by the fourth year they had attained the full length of the rafters. Then they were trimmed up very smoothly, and painted, and securely fastened in their position, season after season, in the usual way. The roots had every encouragement to extend themselves, and had one of the under-gardeners dared to have put a spade into the border, or in any way to have shortened the roots, he would have been discharged—with which indeed I agree so far as this, that it is essential not to injure the roots. With this root-treatment, the Vines were not allowed for sixteen years to extend one inch at the top. Can any one imagine such contrary treatment of top and bottom to be good cultivation? The poor Vines of course, like thousands of others, gradually declined in health and vigour; and unfortunately it fell to my lot to take the management of them, when they were on their last legs, and when it was beyond cultural skill to produce anything like good Grapes—which was the case for some six or eight years before they died in 1862. Let me here mention a few of the symptoms which this unnatural and barbarous treatment produced, be it remembered, after the plants had yielded magnificent prize fruit:—

For the next three years the bunches gradually became smaller.
For the next two years they became of a bad colour.
For the next two years the red spider attacked them.
The next year there was a failure in the crop.
For the next two years there was shanking in good earnest.
The next year the mildew attacked them.
For the next two years they became of a bad flavour.
For the next two years they almost refused to break.
The next year they died altogether

"Such was the fate of these Vines, that had begun and promised so well.

"Now, had one of the Vines in each house been allowed to have extended itself, say 6 feet of fresh rod every season, and had the other Vines been removed accordingly, there is no doubt they would have continued in a good fruitful condition as long as an Oak tree. And I will give a good reason for believing so. In these same gardens there was formerly but one greenhouse, and in this, one Vine was planted at the corner, the same as at Hampton Court. When the garden underwent some very extensive alterations, it was determined that this house should only be used for bedding plants in winter and for Grapes in summer and the Vine was accordingly trained along the front, a shoot being carried up each rafter. The house is about 40 feet by 18 feet, and span-roofed, and is entirely covered by this one Vine, which although it had not had the slightest assistance in the way of border-making, and had been growing there for 50 years, was never known to fail in producing a good crop of Grapes. On this account the house had been twice extended—which was the whole secret of success. It was frequently remarked by the proprietor that this old Vine, which had scarcely cost him anything, had produced more Grapes than all the others put together.

"I believe the largest and the finest Grape Vine in England is in the garden of Mr. Hargrave, at Sunninghill, near Windsor, and that its well-doing is entirely to be attributed to the fact that the house (and with it of course the Vine) has been several times extended. The same might justly be said of the beautiful Vines at Cumberland Lodge and at Hampton Court, although it never appears to have entered the minds of those who have had the management of them.

"There can be no doubt—there is none on my mind—that wherever there is a Vine failing in vigour, if the top is allowed to extend in the same ratio as the roots, it will quickly recover, if not too much crippled by the unnatural wholesale system of pruning I have alluded to.

"I fear I am occupying too much of your space, but to make the matter plainer for some of the old school, I should like to ask one or two questions. Did any one ever see the fruit shank on a Vine that was planted at the gable end of a house, and that had unlimited space to occupy? Did any one ever see six Cucumber plants in a two-light box produce as much fruit as two?

"If this system of extending and pruning were fully understood, we should soon have better Grapes at much less expense."

—— The following account of SKATING RINKS in Canada, which appeared a few days since in the *Times*, is quite confirmatory of our recommendation at p. 49. The writer, a Canadian, observes, "A few years ago a breach was made in the eastern part of the peninsula forming the Bay of Toronto, causing the ice suddenly to break up, and several lives were consequently lost. This led the lovers of skating to form themselves into clubs for constructing what are called skating rinks. These rinks are formed by making an embankment of earth from 1 to 2 feet high round vacant level ground near water, which is run or pumped into them to a few inches in depth. Being shallow, the water soon freezes, and after the ice becomes rough a little more water is run over it during the night, so that it once more gets a smooth surface. In this way skating can be enjoyed many weeks longer during the season than in the ordinary way. Most of these rinks are enclosed by a high board fence, and have connected with them a small house with a fire and refreshments. Some are lighted by gas at night. A small fee is charged for admission. They have had the effect of keeping nearly all persons off dangerous ice, and I think might be adopted with advantage in this country."

LILIUM AURATUM.

THE success we have had in blooming this beautiful and now well-known plant so freely, and the great size of the flowers grown here during the past two seasons, have led many persons to apply for particulars as to our mode of treating it. Instead of furnishing these privately, I propose, in order that the information may be of more general utility, to supply it through the pages of the *Gardeners' Chronicle*.

It will be necessary to treat of newly imported bulbs separately, as they now arrive annually in considerable numbers, and of necessity, from becoming somewhat dried up during the voyage, require different treatment. The same soil should, however, be used both for these and for the established bulbs, namely, rich fibrous peat, with a liberal mixture of silver sand; the peat should be chopped only, using the coarser parts on the crocks at the bottom of the pots, which latter should be well drained.

For the first year's growth after importation, the pots used should be smaller than for established bulbs, namely, 4-inch pots for the smaller, and 5 to 6-inch pots for the larger bulbs. These imported bulbs should be cleaned by removing all rotten and bruised parts before potting. They should then be planted in soil which is neither wet nor dry, and no water must be used for sometime,—not, indeed, until they have put forth roots. In potting, the bulb should be only just covered with the soil.

The best position for them to stand in after potting is beneath the stage of an intermediate house—not near the pipes, but where they may get a continuous gentle heat. To prevent their drying, plunge the pots in Cocoa-nut refuse, or in fine old potting-bench mould, placing a little also just over the crown of the bulb. This will keep them moist enough without water being used, until they have fairly started.

By this treatment the first imported bulbs of this season were plumped or swollen to at least a fourth part larger size than when received, within three weeks from the time of potting, and as no water was used, there was little fear of their rotting, while the gentle warmth started them into growth in much less time than they would otherwise have taken. When fairly through the soil they should be removed to a greenhouse, pit, or frame. A little warmth will hasten their bloom, and the plants will bear a considerable amount of heat without becoming drawn, after they have attained about a foot in height. The blossoms also always open much finer in a gentle moist heat. Generally, however, they should be grown in a cool place, but by getting some early into bloom the season is prolonged.

Large established roots will require more pot-room than that indicated above, but care should be taken to avoid over-potting. Our finest bulbs were little better than a failure last year, for through over anxiety to have them extra fine for the "International," we gave them too much pot room, but fortunately the second size roots, in pots only half the size of the others, did all we required, with precisely the same treatment in other respects. The flowers also come better marked when the roots are able to "feel the pot."

Established bulbs, or those that have been grown in England before, should be dried off in autumn, in the same way as the other Japan Lilies; and, when repotted, care should be taken not to destroy or disturb more than is necessary any of the thick fleshy roots, as these will be at work immediately after repotting, and become the foundation of a vigorous plant the following season. They should be grown in plenty of light, to prevent their becoming drawn up. When the blooming time is approaching, and until the blossoms have opened, an occasional watering with liquid manure will increase their size, but this treatment must not be commenced at too early a stage of their growth.

There is great variety among the forms of this charming Lily—what a Tulip-grower would call "different strains," from very light flowers to those which are heavily marked. I have selected half a dozen which are most rich and dissimilar. One may be called a self-crimson, so heavy is the marking, having a white margin only, the centre of each division of the flower being of the darkest tint, and shading off towards the margin. It will become a question if some of the more distinct will not deserve different names. I hope to bloom these at a time when they can be exhibited to the public. Mr. Cutbush, of Highgate, has also flowered a finely-marked variety.

The greatest number of blooms produced from one root appears to have been 43, which was the number on three stems from one bulb, as given in your columns in June last. This plant was grown by Mr. Dodds, of Ashton Court. *Charles Turner, The Royal Nurseries, Slough.*

NOTES ON CONIFERS.—No. XIV.

TAXODIUM DISTICHA (THE DECIDUOUS CYPRESS).

TAXODIUM disticha or Taxodium distichum, which should it be? As many authors call it the one as the other, so that custom permits either; but as in trees in general, botanists have adopted the rule of supposing the gender governed by the implied word *arbor*, we think if we adopt that rule for one genus we should do it for all. Pinus is not feminine, and yet all the specific adjective names are put in the feminine gender. So with Quercus, and so with all trees. Therefore, with the reader's good permission, we shall follow the same rule here, and regard Taxodium distichum as a solecism.

We take the Deciduous Cypress after the Sequoias because we think they are allied. So thought Richard, and Lambert, and Loudon, who placed the Red-wood of California in the same genus as the Deciduous Cypress. Endlicher, perhaps a more scientific botanist, but not one possessing a more instinctive appreciation of affinities, removed it (the Redwood) from the Cypresses altogether, and placed it among the Pines and Firs, chiefly on account of its cone having a certain outward greater resemblance to those of the Abietinæ; but he was wrong in his affinity. Every one must now be satisfied that the Sequoia is a Cypress, and not a Fir; and despite their imbricated-looking cones, that their foliage, their bark, their male flowers, their female flowers, and their seeds, in number, form, and attachment, all are Cupressinæ.

The reader may think that we are taking very unnecessary trouble in expounding this, but it is not altogether so. Messrs. Henkel and Hochstetter, who have recently published a book on Conifers (Synopsis der Nadelholzer) in which they rather dogmatically attempt to put everybody right, suppress the genus Sequoia altogether, place Sequoia sempervirens in the same genus as Taxodium, and carry Wellingtonia away from Sequoia and the Cypresses altogether, and place it where Endlicher did Sequoia, beside Cunninghamia among the Abietineæ. It is only proper, therefore, that believing all that to be wrong, we should direct the reader's attention to what we consider the right appreciation of these disputed points, and then leave him to judge for himself.

This being our view, of course we bring back Sequoia to the Cypresses, and although there is too much difference between them and Taxodium to allow us to consider them as of the same genus (according to modern notions of generic distinctions), there is so much in common between them that we place them next each other. A comparative glance at the points in which they agree will show that the correspondence extends to more than what are strictly called the mere botanical characters.

There are only three Cypresses which have the leaves really distichously placed, that is, placed as we see them in the Yew and Silver Firs. These are the Sequoias, Taxodiums, and Glyptostrobus—we say Sequoias in the plural, because, although it is only in the Sequoia sempervirens that this distichous disposition of the leaves is well marked, there is a slight tendency to it in one of the forms of leaf in Wellingtonia too; and we use Taxodium in the plural, because, notwithstanding the weight of Humboldt's authority, and that of those who have followed him, we consider the Mexican form of the deciduous Cypress to be a distinct species, thus making two species of each genus. Glyptostrobus, found in China and Japan (of which there are also two species) has the distichous disposition of leaves not quite so decided as the others, but still present.

Moreover, it is to be observed that these three forms of Cypress—Sequoia, Taxodium, and Glyptostrobus—are all of a very ancient date, and appear to have all three already assumed their present generic aspect so far back as the Miocene epoch (Sequoia seems to have actually received its present specific form then, the others only the generic or family appearance). We have already mentioned some of the facts regarding the Sequoias at that ancient period. Remains of a Glyptostrobus (G. europæa) have been found in the same beds as those of the Sequoia, and so have remains of a genus named Taxodites, supposed to be the old form of Taxodium. We have, however, more doubt about Taxodites being the parent of Taxodium than about the other two; and we think there is a great deal to be said in favour of the idea of Taxodium disticha being an off-shoot from Sequoia either at the beginning or end of the Glacial Epoch—an idea which receives confirmation from their present geographical distribution.

Both Taxodium and Sequoia are North American. Sequoia is confined to a band along the western side of North America, not penetrating further than 150 miles or so from the sea-shore. Taxodium also does not penetrate inland beyond a certain distance, but as it is a semi-aquatic tree, and follows the banks of the rivers, it is reasonable to expect that it should be more independent of the sea-board.

Their limit in point of latitude is more important. Their northern limit is almost identical, about 38° N. lat. We have seen that the range of Sequoia Wellingtonia is from 36° to 38° of N. lat., and that of the Red-wood seems to be about the same. Dr. Bigelow says that "it is found along the coast mountains of California, from near the region of Monterey to Russian River above the Bay of Bodega; but whether these are its extreme limits I am unable to learn"—(Pacific Railroad Report, vol. iv., p. 23)—and Dr. Torrey gives as its locality, "Woods in the coast range of mountains east of Monterey, south of which it is very rare" (United States and Mexican Boundary Survey, vol. ii., p. 210)—and the latitude of the mouth of the Russian River is 38° 15′, and of Monterey about 36° 15′. Of Taxodium disticha, on the other hand, Michaux gives the banks of Indian River, Delaware, in lat. 38° 50′, as its northern boundary, and Nuttall says—"Dr. G. Engelman informs me that the most northern station in the west for this tree is at the mouth of the Ohio, and between Carmel and Vincennes on the Wabash." The lat. of the mouth of the Ohio is 37° N. lat., and that between Carmel and Vincennes, 38° 30′ N. lat. The northern limit, therefore, may be taken as identical in both genera. The southern limit, however, is very different. Instead of being, like the Sequoias, confined within the brief compass of 120 miles, the Taxodiums go 1500 miles southwards, at least as far as Oaxaca in 17° N. lat. Whether this difference between the Sequoias and Taxodiums may not be partly due to there being suitable habitats for the latter all along the eastern coast, which there is not for the former on the western, we cannot say; but one remarkable circumstance is, that at Oaxaca the Taxodium has penetrated far into the interior, if not actually crossed over the mountains to the western side of the dividing ridge.

The next point of resemblance is the size of the two trees, and here, as in the last point, we have a resemblance combined with a difference. Great as the Sequoias are in girth, the Taxodiums equal them in that, especially at the base, but do not approach them at all in height. We have seen that 30 feet in diameter is not uncommon with the large Sequoias. Of the Taxodium, Michaux mentions that stems are met with in Florida and in Southern Louisiana 40 feet in circumference above the enlarged base, which is three or four times that size. The well-known tree in the Garden of Chapultepec, called Montezuma's tree, is 41 feet in circumference. Lyell, in his "Second Visit to the United States," speaks of Mr. Hamilton Cooper, a geological friend, coming down the river Alatahama to meet him in a long canoe hollowed out of the trunk of a single Cypress, and rowed by six negroes. M. Bossu, in his "Travels in Louisiana" (1781), says, there are hereabouts (25 leagues above Mobile) Cedar trees (he means Cypresses) of so prodigious a size, that 10 men can scarcely clasp them; but such individuals dwindle to nothing before the gigantic trunk of the tree in Oaxaca above alluded to, near Santa Maria del Tule, which was first mentioned by Exter, who found its circumference to be 117.10 French feet. De Candolle doubted this, and thought there must be some mistake in the measurement, such as including in it the dilated base; but Zuccarini removed his doubts, and satisfied him that the measurement was taken above the dilated base, for that if that had been included, the girth would have been no less than 200 feet. In height there is no comparison between the two genera. Instead of reaching 300 or 400 feet in height, the Taxodium does not exceed 120 feet.

In the form of the base of the trunk Taxodium has an exaggerated resemblance to Wellingtonia. The old trees of both have large buttresses; but in Taxodium this is carried to an excessive extent, the base in them being generally three times the circumference of any other part of the trunk. This base is also usually hollow for about three quarters of its bulk, a character

caught by Moore in his ballad of the "Lake of the Dismal Swamp,"—"and I'll hide the maid in a Cypress tree, when the footstep of death is near."

One of the most remarkable peculiarities connected with this point is the growth of conical protuberances or excrescences, called Cypress knees, from the root, rising up to the surface from a depth of 8 or 10 feet when the tree is growing in a submerged soil. They are part of the root, being of the same soft wood, and covered with the same reddish bark. Michaux says that they are always hollow, and that the negroes used them for bee hives. They are very much of the shape of a sugar-loaf, but broader; but sometimes are of considerable size. According to Michaux, no cause can be assigned for their existence; but Lyell ("Second Visit to United States," ii. 180) says they are supposed to supply the roots with air, as he says they are never found when the Cypress grows on dry ground. This is a mistake; they are very generally absent when the trees grow on dry ground—but not always. We remember seeing them around some of the deciduous Cypresses in the Palace Garden at Fontainebleau, where a friend cautioned us against tripping over them; and where a workman employed in mowing the Grass around them complained of the interruption they gave to the scythe; and as is mentioned by Loudon, the trees at Syon and Whitton produce them abundantly "where they rise a foot above the surface of the soil, and more than double that height from roots under water in the case of trees growing by the sides of lakes at these places." Michaux says they do not begin to appear until the tree has reached 20 to 25 feet high.

The top boughs at the other end of the trees have a kindred peculiarity of their own too, viz., remarkable angular bends, which are characteristic of the tree when not in leaf. It is in the swamps along the banks of the river in the Southern States of North America that the Deciduous Cypress especially flourishes.

To quote Michaux:—"The Mississippi, from its mouth to the river Arkansas, a distance in following its windings of more than 600 miles, is bordered with marshes, which at the annual overflowing of this mighty stream form a vast expanse of water. In Louisiana those parts of the marshes where the Cypress grows almost alone, are called Cyprières (Cypress swamps), and they sometimes occupy thousands of acres. As in the Floridas, the swamps are contiguous to immeasurable plains covered with Pines, or oftener with tall Grass or Canes mingled with other plants. In the midst of these Pine forests and savannas is seen here and there a bog or a plash of water filled with Cypresses, whose squalid appearance when they exceed 18 or 20 feet in height, proves how much they are affected by the barrenness of a soil which differs from the surrounding waste only by a layer of vegetable mould a little thicker upon the quartzy sand. From these particulars a sufficiently just idea may be formed of the geographical situations, and of the soil in which the Cypress is found, over an extent of more than 1500 miles, from its first appearance towards the north to the Mississippi. Towards the south-west my information does not reach beyond Louisiana, though I have some reason to believe that it is seen as far as the mouth of the river Del Norte, lat. 26°, which, if we measure the circuit of the Gulf of Mexico, makes a distance of more than 3000 miles."

We can supply the information as to its presence in the Rio del Norte from the "United States and Mexican Boundary Report" (Geological Reports by Dr. Parry, i., p. 43). Dr. Parry there says:—"The appearance of the Cypress (Taxodium), Sabina of the Mexicans, makes quite a striking change in the physiognomy of the country" (the lower Rio Bravo del Norte or Rio Grande). "This water and rock-loving tree often appears right in the middle of the swiftest currents of the river, where, having taken hold of some rocks on the bottom, it boldly defies the force and action of the water. These Cypresses on the Rio Bravo, commencing at the mouth of the Salado, extend as far down as Beavor Islands, just below Roma, where they make their last appearance in the channel on the Mexican side, footing in water from 14 to 15 feet in depth. *A. M.*

(To be Continued.)

HARDY PICTORIAL TREES.—No. II.

FROM the "Form" of the tree, as treated on at p. 1139 of your last year's volume, I proceed to "Colour" of foliage, under which head will be included light green, dark green, purple, gold, silver, and the tints of autumn, reserving flowering trees and shrubs to be treated on hereafter.

TREES AND SHRUBS WITH LEAVES LIGHT GREEN.

Abies orientalis.—Evergreen. Height, 60 feet. A beautiful medium-sized tree of dense formal growth; leaves very glossy.

Aucuba japonica vera (male and female).—Evergreen. Height, 6 feet. Leaves dark green, a splendid evergreen, the female bearing scarlet berries in the winter. Of the numerous varieties of green-leaved Aucubas, A. himalaica, and A. japonica macrophylla, longifolia, and viridis, are the most desirable that we have yet seen.

Berberis fascicularis hybrida.—Evergreen. Height, 6 feet. This is perhaps the handsomest of the Mahonia section of Berberries. The leaves are of a lighter green, and longer and narrower than those of B. Aquifolium; the flower-spikes are also much longer. An indispensable low evergreen.

Cedrus Deodara.—Evergreen. Height, 100 feet. One of the grandest and most beautiful of Conifers, suitable for specimens, groups, or avenues, varying much in form and colour, embracing the erect, spreading, and pendulous, the light green, dark green, and glaucous. There are also selected varieties in commerce under the names of C. D. crassifolia, viridis, and robusta.

Juniperus chinensis (the Chinese Juniper.)—Evergreen. Height, 20 feet. A graceful medium-sized tree of free growth, usually covered with flowers in winter and early spring. J. oblonga pendula, and J. thurifera have also light green leaves, and are beautiful kinds, quite distinct in character.

Pinus pyrenaica.—Evergreen. Height, 60 feet. Perhaps the handsomest of this section of two-leaved Pines. The foliage is of a most beautiful light green, the bark cinnamon colour.

Thuja orientalis (the Chinese Arbor-vitæ).—Evergreen. Height, 15 feet. A very beautiful evergreen, hardy generally in the neighbourhood of London, where it appears to thrive well, and is not particular as to soil. A very available plant on account of its cheapness.

Wellingtonia gigantea.—Evergreen. Height, 100 feet. A beautiful and gigantic tree of rapid growth. Good for specimens, groups, and avenues.

Acer platanoides (the Norway Maple).—Deciduous. Height, 40 feet. A handsome hardy tree of rapid growth, and not particular as to soil. Young and dying leaves yellow.

Catalpa syringæfolia.—Deciduous. Height, 25 feet. A medium-sized formal tree, with large flat leaves, producing purplish-white Bignonia-like flowers.

Coriaria myrtifolia.—Deciduous. Height, 3 feet. A dwarf shrub, with frond-like branches. Distinct and graceful.

Gleditschia triacanthos.—Deciduous. Height, 40 feet. A picturesque tree, with distinct and elegant pinnated foliage; the leaves dying bright yellow in autumn.

Negundo fraxinifolium.—Deciduous. Height, 30 feet. An umbrageous tree, hardy, and of rapid growth.

Rhus Cotinus (the Venice Sumach).—Deciduous. Height, 5 feet. A pretty dwarf shrub, covered in summer with pink feather-like pedicels and flowers. Decaying leaves reddish yellow.

Taxodium distichum (the Deciduous Cypress).—Height, 60 feet. A beautiful feathery tree, varying much in character from seed, and delighting most in damp soils. When the tree becomes of some age, the roots often obtrude in large knobs above the ground.

Tilia europæa (the Lime tree).—Deciduous. Height, 70 feet. A hardy tree, of rapid growth; not particular as to soil, and well suited to the vicinity of large towns; flowers sweet-scented, decaying leaves yellow.

TREES AND SHRUBS WITH LEAVES DARK GREEN.

Araucaria imbricata.—Evergreen. Height, 60 feet. This tree is unique among evergreens, nothing approaching it in boldness and rigidity of form and darkness of foliage. Good as specimens, groups, and avenues.

Berberis Aquifolium.—Evergreen. Height, 5 feet. A hardy, free-growing flowering evergreen, of great beauty, which can scarcely be misplaced, and which is generally available on account of the lowness of price. For clumps, the front of shrubberies, and underwood for game it is equally valuable, producing masses of yellow flowers in spring, and berries in autumn, the latter proving valuable food for game.

Berberis Darwinii.—Evergreen. Height, 5 feet. The handsomest of the Berberries; of free growth, covered with a profusion of orange-coloured blossom in summer, often repeated late in autumn.

Cerasus lusitanica (the Portugal Laurel).—Evergreen. Height, 20 feet. A hardy handsome evergreen, of free growth, producing spikes of white flowers in June, followed by purple fruit in autumn. Good for shrubberies; forms also a handsome round-headed standard tree, much used in formal gardening.

Cupressus Lambertiana.—Evergreen. Height, 50 feet. The hardiest of the Cypress tribe; of free rapid growth, and very handsome.

Garrya elliptica.—Evergreen. Height, 10 feet. One of the most striking and beautiful of evergreens, covered with numerous pendulous green catkins throughout the winter months; the pollen is so plentiful in spring that if the tree is shaken the air is filled with a cloud of yellow dust.

Ilex Aquifolium (the Holly).—Evergreen. Height, 10 to 20 feet. The varieties of this plant with dark green leaves are so numerous that I cannot include even all those worthy of notice; Shepherdii, nigrescens, ovata scurtica, donningtoniensis, Fisheri, laurifolia, serratifolia, latispina, and ferox are distinct and very select. This, when we combine leaves and berries, is certainly the first of evergreens, and should abound in every garden and plantation.

Ligustrum japonicum (the Japan Privet).—Evergreen. Height, 5 feet. A handsome evergreen shrub, producing spikes of white flowers.

Picea Nordmanniana.—Evergreen. Height, 80 feet. Very hardy, free, and of incomparable beauty. Suitable for specimens on lawns, groups in parks, and avenues. Of other Piceas—amabilis, grandis, Lowii, nobilis, magnifica, and Pinsapo are of a high order of merit.

Pinus insignis.—Evergreen. Height, 60 feet. A magnificent Pine, of the loveliest and richest dark green, but unfortunately not very hardy, and therefore suitable only for high situations or dry subsoils.

Pinus austriaca.—Evergreen. Height, 60 feet. A noble Pine, very hardy, and not particular as to soil. As the plants vary much from seed they should be selected, if wanted for avenues or single specimens; the variety is not usually so great as to produce incongruity in groups.

Quercus Ilex (the Evergreen Oak).—Height, 40 feet. The various kinds of this tree are invaluable in winter, almost rivalling the Holly in regard to foliage and outline. Unless removed almost yearly in the nurseries the plants are apt to die when transplanted; it is therefore safest to plant them small and from pots.

Phillyrea latifolia.—Evergreen. Height, 12 feet. A medium-sized evergreen, excellent for shrubberies.

Alnus cordifolia.—Sub-evergreen. Height, 20 feet. A handsome dark-looking tree.

Fraxinus monophylla.—Deciduous. Height, 30 feet. A bold rigid-looking Ash, with broad simple leaves.

Ornus europæa (the Flowering Ash).—Deciduous. Height, 25 feet. A handsome small tree, producing clusters of white flowers freely in June.

Sophora japonica.—Deciduous. Height, 30 feet. Very distinct and ornamental; the leaves pinnate, bluish green, the bark dark green. *William Paul, Waltham Cross.*

Erratum.—Page 1139, 1866, for Glyptostrobus pendulus, read Biota pendula.

Home Correspondence.

The late Severe Weather.—Now that there has been a complete thaw, the effects of the late frost are wofully evident in the destruction of the fruit buds of Pears on walls, espaliers, and standards. On walls with a south aspect more especially, the buds are black to their centres, and the same may be said of portions of the young wood. On a west aspect and on espaliers, though they have been severely punished, the destruction does not appear so complete as where the sun shone most direct and powerfully after the 23° of frost which we had on January 2. Hybrid Perpetual, Bourbon, Tea and China Roses are very considerably injured. I am not surprised at these results, for since the end of July the weather was damp, and characterised by an absence of sunshine, even more striking than the autumn of 1860. As a consequence, the wood of fruit and other trees was very imperfectly ripened. Vegetables have suffered very little, owing to the very heavy fall of snow which protected them. The garden here is situated 1¾ mile from the sea-shore, in the midst of a sandy plain about 20 feet above the level of the sea. *D. Thomson, Archerfield, East Lothian.*—The following are particulars of plant injuries sustained in the Coventry Cemetery during the late severe frosts. The cemetery lies just outside the city on the south-east side, is about 280 feet above the mean level of the sea, and nearly central between the four great English ports, London, Bristol, Liverpool, and Hull. It is bounded on the east, north, and north-west, by quantities of noble Elm trees, and thus is much screened from the wind from those quarters; but to the south and south-west it is comparatively open, and to the latter points the plants named below are principally exposed:—Garrya elliptica has nearly all its foliage killed, and in some cases the greater part of the young wood as well. Of common Laurel the young shoots are killed, and also a few of the old leaves. Large plants of Portugal Laurel have escaped uninjured, but about half the leaves of young plants are destroyed to within about half an inch of the petiole, while the remaining portion or base is quite green. The foliage of the common Privet is mostly browned, and that of the broad-leaved or Japan Privet is wholly destroyed. Phillyreas of various kinds have their young shoots killed; and the leaves of Laurus nobilis, Viburnum Tinus, Cotoneaster microphylla, and several variegated Hollies are slightly injured. Abies Smithiana and Cedrus Deodara (one tree of each), about 20 feet high, are very much browned, and some of their foliage is killed, while others of the same species have escaped untouched, as have also a fine plant each of Araucaria imbricata, 20 feet high; Sequoia sempervirens, about 18 feet high; and Sequoia (Wellingtonia) gigantea, 12 feet high. Among vegetables, Broccolis and Savoys are nearly all killed, and Brussels Sprouts and Cabbages are slightly injured. The soil is rich loam, with either clay or red sandstone below. *W. D.*—Mr. Jackson (see p. 78) says, that in his quarter they have registered 6° below zero; that was on the 5th. I should presume on that day we registered 30° of frost or down to 2°, which was the lowest we registered at all. Our thermometer is a Negretti & Zambra's three-and-sixpenny iron one, and was placed at 4 feet from the ground in a northerly exposure. Our soil is very sandy. With us crops do well in a damp season, but they suffer much in a dry one. Roses have here stood well. As to Bays we have but one that is much sheltered; common Laurels have the young shoots injured. We have three nice plants of Pampas Grass much cut; I fear some standard plants of Robinia inermis have got their young shoots withered; also a few hybrid Rhododendrons, good plants, have every leaf blackened by the sun. Coniferæ look as green as they did in October. Of vegetables, Brussels Sprouts have suffered much, as have also Broccoli, of which we had the following kinds, viz., Osborn's Winter White, Snow's ditto, all killed; Carter's Champion and Elletson's Mammoth, quite half killed. We have one variety growing side by side with the last, not one of which is killed; it is named Ambler's Late White, a variety which should be in every garden. This neighbourhood is noted for growing good Broccoli. My father has this season 5 acres, 1½ mile from here, half of which is quite killed. Market gardeners plant Broccoli largely round Kidderminster, and great is the slaughter among their crops this season. *John Gough, gr. to J. P. Brown Westhead, Esq., Lea Castle, Kidderminster.*—To-day (Jan. 23) the snow has disappeared most suddenly, succeeded by a warm rain, and the difference of temperature within doors and without appears like stepping from an icehouse into a hothouse. I find Cyclamen Coum in full flower in the open ground this morning, having had no other protection whatever than the natural one—a good covering of snow for nearly one month past. So much for North Wales winters! *W. P., North Wales Central Botanic Gardens, Llanderfel, Merionethshire.*

Weather in the North of Scotland.—The snow storm which began with the new year, and has been felt generally over Britain and the western part of Europe, has been much worse here, especially about the coast line, than in any winter since 1838. The average

fall of snow has been about 16 or 17 inches, but in many places it has drifted into wreaths of great depth, and has caused considerable interruption to both railway and highway traffic. The snow, from its great depth, including an additional fall of about 6 inches without drift, has so completely concealed everything that forms the natural food of field and forest birds that most of them appear to be in a state of starvation. Wood pigeons have been compelled to seek their food in gardens, and so little is there above the snow that they can reach, that they have been even eating the leaves of Portugal Laurels, which is the first instance in which I have ever seen them do anything of the kind, and I should suppose it to be a very uncommon occurrence in this country. We have fortunately now got a favourable change, which I hope may continue. The following is a statement of the minimum thermometer since the 1st January, taken at 8.30 A.M. :—

1867	Deg.	1867	Deg.
Jan. 1	27, 1½ inch snow	Jan. 13	25
,, 2	16, 3 inches snow	,, 14	24, fall of snow
,, 3	21, 4 inches snow	,, 15	25, 1 foot deep
,, 4	25	,, 16	19
,, 5	14, 5 inches snow	,, 17	22
,, 6	30	,, 18	13
,, 7	32, thaw, dense fog	,, 19	25
,, 8	33, thaw, dense fog	,, 20	18, in the snow
,, 9	36	,, 21	12
,, 10	32, hail showers	,, 22	18
,, 11	39	,, 23	32, thaw
,, 12	23		

J. Webster, Gordon Castle, Fochabers. Jan. 23.

Weather at Belvoir Castle, from January 1st to 24th, 1867 :—

	Max.	Min.	
1	32°.0	21°.5	Frosty. About 1 inch of snow on ground.
2	29°.0	11°.0	Severe frost.
3	32°.5	12°.5	Severe frost.
4	31°.5	12°.0	Severe frost.
5	30°.5	12°.0	Hoar frost.
6	49°.0	22°.0	Slightly thawing. Snow fell.
7	54°.5	33°.0	Rainy.
8	51°.5	45°.0	Rainy.
9	47°.5	36°.0	Windy.
10	40°.0	36.0	Cloudy. Showery.
11	34.0	30°.5	Slight frost. Light snow.
12	30°.0	22°.5	Sharp frost. Snow fell.
13	30°.0	19°.0	Sharp frost.
14	30°.0	9°.0	Very frosty.
15	30°.5	18°.0	Frosty.
16	42.0	21°.0	Frosty. Snow fell.
17	30°.0	24.5	Overcast. Windy.
18	31.0	27.0	Snow fell. Frosty.
19	33°.5	26°.0	Frosty. Snow fell.
20	32°.0	21.0	Frosty.
21	31°.0	27°.0	Frosty.
22	37.0	19°.0	Frosty. Hail and snow in the evening.
23	49°.5	22°.0	Overcast. Thawing.
24	53°.5	37°.0	Very mild. Snow disappeared.

The instruments from which the above readings were taken are Negretti & Zambra's patent maximum and a spirit minimum thermometer. Both instruments have been certified as correct by Mr. Glaisher. They are placed on a properly-constructed stand in an open place, and are 4 feet from the ground. No injury, either to shrubs or vegetables, has been inflicted by the frost above recorded. I am very much inclined to question the accuracy of the thermometers which have furnished your correspondents with such alarmingly low readings. We are only a few miles south of the Trent, and on clay; the altitude of the spot from which observations were taken is 237 feet above the sea. *William Ingram, Belvoir.*

The late Frost at Scaresbrick Hall Gardens, Ormskirk :—

	Deg.		Deg.
January 1	11	January 16	14
,, 2	14	,, 17	8
,, 3	12	,, 18	16
,, 4	17	,, 19	4
,, 5	7	,, 20	10
,, 12	8	,, 21	3
,, 13	17	,, 22	8
,, 14	21	,, 23	5
,, 15	17		

We had not more than from 4 to 5 inches in depth of snow. The above temperatures were taken at dawn of day by one of Casella's thermometers, 4 feet from the ground, facing due north. *Henry Hepburn, Gardener, Scaresbrick Hall, Ormskirk, Jan.* 29.

Registration of Cold.—Since registering thermometers have been invented, the highest and lowest temperature reached in the 24 hours are easily ascertained, but not the particular hours when these occur. From the mean of these the mean temperature of the day, or period of 24 hours, is usually deduced. The maximum temperature occurs generally between 12 and 4 P.M.; the minimum is more variable as to time; it may be before 12 P.M. of the same day, or after midnight, but generally before the sun, which made the previous day, makes his appearance next morning. The light period of the 24 hours is termed the day, and the dark period night, by observers and people generally. "The day, in civil life, is the time that elapses between the rising and setting of the sun, and the night the time between his setting and rising." I agree with your correspondent in what he says at p. 52, that it would be desirable to date from midnight, or even to state the exact hour when the lowest temperature occurs—whether it be, say 11 P.M. of this day or 1 A.M. tomorrow morning. I would, however, submit to "Observer's" consideration whether that could be done except at observatories, where a staff of men are on duty. Unless by such means the exact hour could not be given, for it would entail a task which few could undertake. To watch till the clock strikes 12, under a temperature approaching zero, in successive nights, would probably be soon given up. To let sunrise mark the commencement of the day, and to let all the occurrences that take place, especially as regards horticulture, be referred to that day, till sunrise marks a new day and a new date, would, it appears to me, not be at all contrary to common sense. *R. T.*

Thermometers.—Mr. E. J. Lowe, of the Highfield House Observatory, has made some observations on correct readings of thermometers, in the *Nottinghamshire Guardian*, of which it may be useful to give an abstract:—"When observations are accurately made with correct instruments, it is found that with a cloudy sky the thermometer readings on the ground and at all elevations are alike, but with a cloudless sky a thermometer on the Grass is *always* the lowest, the temperature becoming warmer and warmer up to four feet above the ground, and beyond this height colder and colder to five miles, as proved by actual observation. The warmest point is therefore four feet above the ground, and the difference between this temperature and that on the Grass is the amount of terrestrial radiation—hence the adoption of four feet by all meteorologists. Again, a thermometer must be placed on a "Glaisher stand," or a "Lawson stand," quite removed from the influences of trees, houses, &c., and the thermometer hung so as to face the north. A proper stand will have currents of air passing freely across the thermometer in all directions, and provided with a projecting board to keep off rain. Even in sunshine certain precautions are requisite, for with two thermometers—the one on the Grass, the other four feet high—facing the south, the temperature will be higher on the Grass, between March and September, and lower between September and March. Let us take a few readings at Highfield House from instruments variously placed on the two coldest nights this winter, viz., January the 4th and 14th:—

Thermometer.	January 4th.	January 14th.	Thermometer.	January 4th.	January 14th.
On the Grass ..	6°.4	2°.7	4 feet above the observatory (29 feet high)..	10°.3	9°.1
On a Grass sod, height 25 feet .	6°.5	2°.7	On Grass under small shrub ..	9°.8	6°.4
On snow, height 27 feet	6°.4	2°.8	On Grass under Cedar tree ..	15°.8	11°.6
On Grass (instrument in wooden frame)	7°.4	4°.2	On Grass covered ½-inch with snow	21°.6	19°4
1 foot high ..	8°.1	5°.4	On ground of Fern-house (no fire)	28°.4	27°.9
2 feet high ..	9°.0	7°.9			
4 feet high ..	10°.2	9°.0			
4 feet high (exposed above) ..	9°.8	8°.7			

The above shows that the record depends upon position and height. Thus the boughs of a Cedar kept the ground 9° warmer than at 20 feet from this tree. As regards the thermometers themselves, it is next to impossible to obtain a correct instrument, for in the hundreds examined I never found but one that did not require a correction in a portion of the scale; some of the finest instruments have an index error of one or two-tenths of a degree, and thermometers not made for observatory work are frequently several degrees too high in one portion of the tube, and as much too low in another portion. To take for granted that a thermometer is correct, we must either assume that every degree has been found by actual test and marked separately, or that the bore of the tube is equal throughout, and the boiling and freezing points carefully found. It would be unwise to do either unless the instrument has been bought at a high price from an acknowledged maker. Again, spirit thermometers (used for registering the greatest cold) require an examination every few days, as the spirit condenses along the sides of the tube, eventually collecting at the upper end, and if left for a year, as much as from 2° to 6° might be taken from the column, and the instrument made to read this amount too low. A rapid shaking now and then, with the bulb downwards, and the instrument kept in this position for an hour, would correct this error (often passed over because difficult to detect). Without further knowledge an amount of distrust must hang over the records from gardeners and others in the *Gardeners' Chronicle*, for the following reasons:—No gardener, I believe (Mr. Ingram, of Belvoir Castle, perhaps the solitary exception) uses a thermometer stand; and quoting from instruments of doubtful accuracy, hung against a wall, or on a Gooseberry bush, without any idea that height and position will make a difference in the result—what can we say of the registrations? Twenty years ago I assisted in the examination of a great number of these instruments, quoted in gardening periodicals, with a view of making these records useful to science, but this examination ended in the rejection of the whole as perfectly useless. There is every reason to believe that the loss of trees and shrubs from the late frost has been *nil* in this neighbourhood; all the newly introduced Japanese plants were here fully exposed, and to all appearance without any injury."

Roses and the late Frosts.—I am happy to be able to confirm your correspondent's statement (see p. 52), as to the hardiness of Maréchal Niel. I have plants of it fully exposed as standards, and a large plant on an east wall, and all seem to be comparatively uninjured. That splendid Rose Gloire de Dijon is another of the few varieties which appear to have gone through the late ordeal unscathed. There will be a long list of martyrs to recount, but the truth must be told; such stout varieties as Jules Margottin and William Griffiths have suffered much, and, strange to say, the young wood seems externally unhurt, but the bark of the old wood has turned quite black and soft from the effects of the frost on the nights of January 1st and 2d, when the thermometer here was down to 9°. I fear the results will be quite as bad as those arising from cold on the night of the 14th December, 1860, and that a large majority of the newly introduced varieties of Roses will be necessarily self-condemned and discarded. I shall note and report, in due course, on the good qualities of the few that have escaped. I believe that injuries have arisen principally from the snow partly thawing and again freezing on the branches. *T. Laxton, Stamford.*

Effects of the late severe Frost on Roses in Westmoreland.—Now that the thaw has set in, one is enabled to look about and estimate the destructive effects on plants of the unusually severe and long-continued visitation of frost which we have experienced. On the 3d January the thermometer in this garden indicated zero, or 32° of frost; and on the 14th it stood at 29½° below freezing point. Although these indications show a less degree of intensity to have prevailed here, than in many districts much farther south, it has probably been quite as severe in proportion to the average temperature of the respective places during the winter months. This will be understood when I explain that the gardens here nestle pleasantly in the Vale of the Kent, about 200 yards distant from the margin of the Kent, two miles or so from the seaside at Morecombe Bay, and are surrounded on all sides, except the west, by rising ground. Their level is only 6 or 8 feet higher than that of the river bed, and the soil is a deep hazel loam, retaining moisture very much. The last-mentioned circumstance accounts, no doubt, to a great extent for the mischief to Roses which I have to record. Be that as it may, the frost has been deadly enough to take the cream off the garden for the coming summer. I am unable to speak of the endurance of the new Roses of 1865 and 1866, having very fortunately had most of these housed. The following, of older date, are the principal Roses in my collection that have succumbed to the frost:—*Hybrid Perpetuals:* Alfred de Rougemont, Anna de Diesbach, Anna Alexieff, Baronne Prevost, Beauty of Waltham, Charles Lefebvre, Comtesse de Chabrillant, Duc de Rohan, Deuil de Prince Albert, Duchess of Norfolk, General Jacqueminot, Géant des Batailles, Jean Goujon, Louis Peyronney, La Reine, La Ville de St. Denis, Lord Clyde, Lord Macaulay, Lord Raglan, Louis XIV., Madame Boll, Madame William Paul, Madame Rivers, Madame Vidot, Madame Victor Verdier, Madame Valembourg, Madame Knorr, Mdlle. Thérèse Appert, Prince Camille de Rohan, Prince Leon, Professor Koch, Prince of Wales, Senateur Vaisse, Souvenir de la Reine d'Angleterre, Souvenir de Charles Montault, Souvenir de Leveson Gower, Triomphe de Villecresnes, William Griffith, William Paul. *Bourbons:* Pierre de St. Cyr, Sir J. Paxton, Souvenir de la Malmaison. *Noisettes:* Aimée Vibert, Cloth of Gold, Lamarque, Ophiric, Solfaterre, Triomphe de Rennes. *Tea-scented:* Devoniensis, Rubens. Gloire de Dijon has stood the frost well, but many of the standards and dwarfs of it have suffered. I might enlarge this list, but prefer to confine it to Roses of recent date. The collection here is a very fine one; it has been especially so during the last summer or two, but I fear the ravages of the present month will not soon be remedied. All my Roses were well mulched to the depth of 2 inches with the best manure, well decomposed, having litter on the top. I am in hopes that some of the Roses on their own roots may shoot from the bottom again. Many will rejoice to hear that one charming Rose, Maréchal Niel, has stood the trial well with little protection. *Robert Craig, Gardener, Levens Hall, Westmoreland, Jan.* 30.

Snowdrops.—The present season reminds us of these, and in a few more days we shall hope to see them again. I wish to ascertain from some of your bulb-loving readers whether anything is known in our gardens of the plant which Besser refers to in his "Enumeratio Plantarum Volhyniæ Podoliæ," &c., page 55, in these words—"Galanthus nivalis Podoliæ australis, major est, foliaque fert latiora." Kunth classes this plant of Besser's with the larger variety described by Roemer (Amaryll., p. 21), adding, however, a mark of doubt. Both Besser and Marschall Bieberstein were excellent observers, and it would be very desirable to ascertain what the Snowdrop alluded to by the former author really is. So far as I know we have only in British gardens—1, Galanthus nivalis, with the double variety; and 2, G. plicatus. But books tell us of two more, viz., 3, G. Imperati, and 4, G. reflexus. One would like to know something more about this universally favourite genus. *W. P., North Wales Central Botanic Gardens, Llanderfel.*

Robins and Aucuba Berries (see p. 52).—Mr. Chater's robin, I imagine, must have met its death from some other cause than poisoning by Aucuba berries, as I find these birds so excessively fond of the fruit of the Aucuba that they make their way into a house where I have never before been troubled by birds, and take away the berries in defiance of all ordinary means of alarm, returning on every available opportunity for more. I am afraid it will be found that birds generally have an especial taste for these berries, and that this relish will be a considerable drawback from the beauty of berried plants in the open air. *T. Laxton, Stamford.*

Sports or Seedlings.—Permit me to occupy a small space in your columns to notice the views of Professor Morren on the question of "Sports or Seedlings," in the December number of "La Belgique Horticole," as quoted in your Paper (see p. 94). I do not wish for a moment to attempt to combat the idea that external conditions may doubtless have great influence in the production of varieties; but in alluding to the origin of two varieties of the genus Pelargonium, viz., Sunset and Mrs. Pollock, the learned Professor says, "These are not the results more or less direct of man's agency, nor of this or that operation of the cultivator, but they are the indirect but inevitable natural and spontaneous consequences of the mode of development belonging to the species, when grown under artificial circumstances," &c. On the contrary, allow me most respectfully to say that the variations in question were the realisations of an anticipated result progressively developed, which, without the direct agency of man, certainly might, but most likely never would have been in existence. The learned Professor is also, I think, in error in supposing that similar forms originated simultaneously in different localities in England, France, Belgium, and elsewhere. I believe that I may state, with confidence, that there is not a variety of the so-called Golden tricolor Pelargonium in existence, which does not owe its origin directly or indirectly to one or other of the two varieties named,

or possibly, but less likely, to one of their immediate ancestors. If I am wrong in making this seemingly bold assertion, I am open to correction. I have also something to say with regard to the supposed non-compatability of double flowers and variegated foliage, but I will refrain from doing so until the maturation of some experiments which I have in hand. *P. Grieve, Culford.*

Napoleon's Willow. — Having been frequently asked the history and age of the tree called Napoleon's Willow, which grows in the Royal Botanic Garden at Kew, I send you the following account of it, which may not be without interest. Soon after the death of Napoleon I. in 1821, Thomas Fraser, then a young gardener at Kew, was engaged to proceed to St. Helena, for the purpose of growing vegetables to supply the East India Company's homeward-bound ships that touched at that island. He returned in 1825, bringing with him Tree Ferns and other interesting plants of the island, and amongst them a twig of the Willow tree which grew over the tomb of Napoleon. This twig on arrival was found to have become decayed at the lower part, but the upper portion, which was only a few inches in length, being green and fresh, I placed it under a bell-glass as a cutting, where it soon rooted and became an established plant. A paragraph having appeared in the newspapers announcing the fact that a plant had been received at Kew from Napoleon's tomb, and the far-famed names Bonaparte and Waterloo being still fresh in the public mind, many visitors came to see it, "especially on Sundays," and on one Sunday, before the hour for opening the Gardens, the crowd was so great, that by its pressure the bolts of the gate gave way, and those who were foremost fell, others falling over them, so great was the eagerness evinced to get a sight of this Willow. In 1827 the tree was planted where it now stands, near the walk, which was a continuation from the then public entrance, the Willow in question being the first conspicuous object seen on entering the garden. For the first 20 years of its growth it had the advantage of being sheltered by a high trellis fence and shrubbery, which passed near it. It is now 40 years old, and although it grows in dry light soil, it has attained the height of 40 feet, the spread of its branches being 44 feet, the circumference of the trunk near the ground 8½ feet, and its height 5 feet, at which point it divides into three main stems. Coming from St. Helena, it was at first thought to be a distinct species, but it soon became evident that it was the common Salix babylonica. *J. Smith, ex-Curator, Royal Botanic Gardens, Kew.*

Berberis Aquifolium as Game Covert.—I planted about 10,000 fine strong plants of this Berberis some two years ago, and during the first year they were very much eaten by rabbits; but we were not very careful in keeping down herbage among them, and I was of opinion that by carefully cleaning them they would overcome the mischief that had been done them the previous year. I am sorry, however, to say that we have been disappointed, as we have scarcely a living plant left, and my opinion is that the Berberis Aquifolium is of no earthly use for game covert where any quantity of rabbits is preserved. *James Stewart, Nuneham Park, Oxon.*

Seeds Destroyed by Cockroaches.—Having purchased last month a quantity of garden seeds, they were put into a basket and stowed away in a dark closet until a fit time had occurred for sowing them. Two days ago, upon my taking them out, I was surprised to find many of them entirely eaten up, and others so much damaged as to be rendered useless. The delinquents that caused the mischief were then unknown to me. They could not be mice, as our cats take care that none of these shall appear in our seed-stores; nor could they be spiders, because there were no cobwebs. The question as to what the delinquents were, was, however, fully solved the other day, upon my reading the following account in "Chambers' Journal" of an insect that is "not particular." "While," says a correspondent of that periodical, "cockroaches partake largely of the common articles of diet in a ship's stores, they also rather like books, clothes, boots, soap, and corks. They are also partial to lucifer-matches, and consider the edges of razors and amputating-knives delicate eating. As to drink, these animals exhibit the same impartiality. Probably they do prefer wine and spirits, but they can nevertheless drink beer with relish, and even suit themselves to circumstances, and imbibe water, either pure or mixed with soap; and if they cannot obtain wine, they find in ink a very good substitute. Cockroaches have also an extreme partiality for medicine; pills and draughts they are fond of; as to powders, they roll themselves in them; and tinctures they sip all day long. Blistering plaster seems a patent nostrum, which they take internally, for they managed to use up two ounces of mine in as many weeks, and I have no doubt it warmed their insides. I one night left a dozen blue pills carelessly exposed on my little table. Soon after I had turned in, I observed the box surrounded by them, and being too lazy to get up, I had to submit to see my pills walked off, within a very few minutes, by a dozen roaches, each one carrying a pill. Next morning the deck of my little cabin was strewed with the dead and dying." On being furnished with this information, I mixed some strychnia sent me by a chemist, with butter, on a plate, and substituted it for the seeds in the same place. This morning I found that these gluttonous gentry possessed as great a relish for strychnine as they had shown for mercury in the instance above referred to, nearly a dozen of them having been put *hors de combat*, and others felt so queer as to be unable to avail themselves of the recommendation, *sauve qui peut*. Here, then, is a first-rate recipe for those of your readers who happen to be troubled with these pests, and who wish to get rid of them. At the same time, let it be borne in mind that this substance is a deadly poison to man, beast, and fowl, and therefore it must be used with great caution in order to avoid accidents. *Old Subscriber.* [A safer remedy is to be found among the beetle poisons compounded in part of phosphorus. EDS.]

Root Fungi.—There seems now to be a little animation in reference to this subject, and I hope that some facts will be adduced which will compliment your correspondent "M. J. B." for his patient and persevering studies in that direction. I trust that those who still continue sceptical as regards parasitical influence on vegetation will suspend their judgment until they can clearly prove that no such influence exists. A beautiful truism was published in the agricultural department of your Paper of Jan. 19, 1861:—"In agriculture," says the writer, "it was once the practice to take ancient customs as an infallible guide; nothing was then doubted, nothing was investigated, and little improved. Now it is the principle to do nothing without a reason. Everything is investigated, and everything is improved." Let us, therefore, not cast aside lightly scientific conclusions, although they may possess apparent contradictions; let us rather examine them in accordance with circumstances. Fungi nurtured by decaying vegetable matter, beyond doubt exert a baneful influence on the living vegetable, both in the forest and in the garden. One class of Fungi has more affinity for certain species of trees than another; just as, for instance, the fly that kills sheep in a few days will not attack a horse. The roots of young trees, when cut down, contain properties which maintain a more healthy action during their disintegration than old trees, which have exhausted the juices that the roots contained. Soil, too, has a great deal to do with the extension or localization of Fungi. Some ground forms a ready vehicle for their growth, while other soils assimilate the decay and prevent the existence of the parasites. Last summer I had occasion to examine a border of a conservatory here, the sickly appearance of the vegetation planted in it indicating something wrong at the root. I found the soil from 2 inches to a foot in depth below the surface like a mass of snow with fungous spawn. I traced its existence from some staves of a wooden tub that had been left in the border. The roots of Oranges, Camellias, Acacias, Clethras, and Neriums, literally crumbled to pieces on being touched. I would, therefore, strongly advise all woody matters that have been dried naturally or artificially, to be avoided in soils employed for the growth of plants. *P. Middleton, Wynnstay, Rhuabon.*

Rainfall at Belvoir Castle, Leicestershire, 1866.—

January	1.050	August	4.073
February	2.009	September	4.054
March	1.064	October	2.044
April	1.040	November	2.000
May	1.024	December	1.048
June	3.012		
July	3.021	Total ..	29.039

Rain fell on 203 days.

William Ingram.

Begonia digswelliensis.—This I consider to be one of the best and most useful plants which we possess for yielding a constant supply of cut flowers throughout the autumn and winter months, and these with me being in constant demand, I am able, by keeping some eight or nine plants of it in a temperature of from 60° to 65°, to cut a nice quantity of flowers from them two or three times a week, and they last well in water. So vigorous is this variety of Begonia that the more one cuts it, the thicker it breaks and flowers. In addition to the gaiety of the blossoms, the foliage is beautifully green, so that when once this variety has become fairly known it cannot fail to be appreciated. *J. Ford, Braintfield, near Welwyn.*

Late Peas.—What is the general yield of the best late Peas? A few years ago I was living in Dorsetshire, at a village in which several market-gardeners resided. Some of them being together one evening, the subject of conversation turned upon the qualities of the Peas then in cultivation. One of them remarked that they ought to grow his variety of Pea, a peck of which, on being shelled, would yield half that quantity, a statement which created some little astonishment, and on the part of one of the company at least, indignation, which soon found vent in words. "I'll bet any man in England £5 to 5*s.* he never does that," said the gentleman in question. The other accepted the wager, reducing the conditions, however, to half a peck to yield a quarter, and shortly afterwards he produced his Peas. The matter became public, and the village inn was crowded with the acquaintances of both parties who came to witness the result. A supper was ordered, at which the qualities of the Peas were to be tested. The challenger measured the Peas as gathered, and the company shelled them. The wager was won by the grower, who had half a pint over. The Peas on coming to table were acknowledged to have sustained their character throughout; and I found on inquiry that they consisted of a sport from Ne Plus Ultra. *A. P., Dalkeith.*

Dark-foliaged Bedding Plants.—The Beet alluded to by your correspondent Mr. J. Anderson (see p. 28) is by far the best dark-foliaged plant that I have ever seen for flower-garden decoration. I first saw it bedded out at Stoke Rochford, where it was very effective. I have also used it in our flower garden here during these last two years, and I have been very well pleased with it. It is hardier and much more striking than Perilla, or any other dark-foliaged plant with which I am acquainted. It grows from 9 inches to 12 inches in height, and has fine, stout, dark glazed-looking foliage. *John Ingram, Belton House, Grantham.*

Wellingtonias.—While visiting Combe Abbey the other day I noticed a beautiful tree of Wellingtonia, which in January, 1862, measured 8 feet in height, and 12 inches in girth round the base of the trunk; it now measures 17 feet high, and 27 inches at the base of the trunk. Here may also be seen, what in time will be a noble avenue of Wellingtonias, with a front line (planted in the angles) of Abies Pinsapo, having ample room in which to develop their proportions. *P. M.*

The Gardeners' Royal Benevolent Institution.—As a subscriber taking a deep interest in the welfare of this institution, I am pleased to see how readily all communications which are likely to forward the ends it has in view are admitted into your pages, though one cannot fail to observe how false a position, if subscribers, some of your correspondents occupy in their relation thereto. "J. D." was, some time since, fully informed what were the proper and legitimate steps to be taken for the alteration of any rules which a majority of the members might consider non-beneficial to the Institution. Yet we have another correspondent beating up the same old track, with no new facts, save the enunciation of a belief that subscribers generally are possessed of views kindred to his own. Honest indignation surely has need of no such a *nom de plume* as "*Ubi mel ibi apes.*" I assert that it is false friendship thus to rush into print upon matters appertaining to, and fitting only to, the adjusting powers of members themselves. Rule 6 meets all the wishes expressed by your correspondents, and that it has been strictly administered in all late elections none can deny. Moreover, let it be understood once for all, that to alter this rule from one giving strict precedence to subscribers, to one pensioning subscribers only, would alter the whole tone and tenor of the Institution, from that of a benevolent institution to a benefit society. Would this be doing justice to honorary subscribers, who are a majority? Certainly not, without the expression of their distinct wish to that effect. I have just had the pleasure of adding another such, as a life-subscriber—on the basis of the rules as they stand, however. Thus, and thus only, does this Institution prosper. I have heard it asserted that the officers should see to the alteration of these rules; but even allowing that it is legitimate for them to suggest to subscribers any slight alterations in minor ones, few officers would, I think, usurp the power vested in them thus harshly to destroy a rule which, so far as honorary subscribers go, is in all probability the mainstay of the Institution. *W. E.*

Ice Pits.—For the information of your correspondent "H. R. T." (see page 77), I beg to remark that we put together every winter, when opportunity offers, between 200 and 300 small one-horse cartloads of ice in a stone pit 12 feet in depth and 36 feet square, filling it up a little higher than the surrounding ground level. We break the ice into small pieces during the process of filling. When enough has been put together we cover it over with a thin layer of straw (Fern would do), and then put on it from 1 foot to 18 inches in thickness of sawdust, the heap being fully exposed to both sun and rain, as we have no cover for it. By this plan we have plenty of ice all the year round, and often have also some for our neighbours, who have ice-houses. The great quantity put together doubtless tends to its long keeping. Our pit being within 20 yards of a large sheet of water we have a comparatively short distance to cart the ice. The late Sir Joseph Paxton's plan of floating it into the pit must, I apprehend, be considered to be a step in the right direction. Our consumption, for all purposes, amounts to about a small cart-load every ten days during the season. We have done away with our ice-house, as we find this plan of storing it to answer our purpose much better. I may add that it is requisite that the situation of the pit should be such as to enable it to be provided with an air-tight drain to carry off any stagnant water. *W. Brown, Merivale Hall, Atherstone.*——I have for some time publicly advocated the keeping of ice above ground, and I find that the practice, which has many adherents, has neither failed, nor been found to have more expense attending it than the old way of storing in wells in houses built for the purpose. I have for some years ceased to use an ice-house built upon the premises, and have employed the stack system, from which, by storing away some 65 loads of ice each winter, I am able to obtain from five to six teeming wheelbarrows full per week during eight or nine of the warmer months. I have this season already formed three separate stacks, one containing 80 loads, for use partly in 1868, in case next winter should be a mild one with little ice to be had. The other two contain respectively 30 and 12 good large loads. The principles upon which my stacks are formed, are at follows:—I consider that damp in any form destroys the keeping properties of ice more than anything else. Hence, I am opposed to placing ice in a well or any other place where the most perfect ventilation is not always attainable. The bricks, of which wells are invariably formed, are so porous, that they hold a good deal of moisture, they are therefore the worst of all materials for the purpose—cemented sides, from which the water condensed would readily run down into a drain beneath, are preferable to them. Better than all, however, is good straw, elevated above ground and protected from superficial rains; this acts as an evaporating medium, and is a moderator of all external influences. With a sufficient quantity of this placed around ice properly stored, you may bid defiance to all weathers. As a non-conductor of heat it is excellent, and a given thickness of it, aided by the coldness of the mass of ice itself, keeps all at a uniform minimum temperature upon the hottest day in summer, whilst the action of the dry outer air attracts the inner moisture, and thus, by evaporation, keeps all dry in the immediate neighbourhood of the ice. I form my stacks, taking the one containing 30 loads of ice as my model, by first placing rough posts in the ground, so as to form a square of 6 ft. in the side and 9 feet deep; over this a roof is fixed to throw off rain. As to situation, I choose a gravel pit, or any position at the base of an abrupt fall in the ground, and where a good natural drainage is to be found; otherwise an artificial drain should be made, by placing two or three loads of moderately large stones at the bottom, upon which the ice is to rest. Supported more or less by the posts just named, hurdles are put

in such a position that straw can be placed between them, so as to form a wall 2 feet through upon all sides, except upon that where the bank exists. I place straw perpendicularly against the inside all round. The ice is shot in from the upper ground direct from the cart. It is broken small with wooden mallets; and when the stack is finished, where possible, it should assume the form of a cone, and be covered with another 2 feet of loose straw—Barley straw will do. The whole operation is thus completed so easily that the wonder is, that even our large dairy farmers do not annually store sufficient for the use of their dairy in the hotter months, especially those who send loads of fresh butter to provincial markets. As to the material, it costs little; the straw used does well for litter when the ice is all gone, and the few rough sticks for posts, and a quantity of partly-broken hurdles, are equally inexpensive. *William Earley.*

Gas Tar and Hot-water Pipes.—I have a nice warm or intermediate plant-house, with Vines up the rafters, heated with four hot-water pipes round the front. My Vines are just breaking. I have many fine Camellias, Azaleas, Cinerarias, Pelargoniums, Roses in pots, and French Beans, &c., in my house. I keep one man to do my work, and to keep himself employed in the hard weather he painted the hot-water pipes in this house with gas tar, and, fearful to say, it has stripped every leaf off all my plants and trees. Pray what can I do? We cannot scrape it off in any way. We have painted it twice over with oil paint, and it smells as bad as before; when the pipes are made warm it is worse. Will some of your correspondents kindly advise me what to do to save my plants, and get this dreadful gas tar off the pipes? *An Old Subscriber in Trouble.*

Foreign Correspondence.

MEASUREMENTS OF AUSTRALIAN TREES. — We have received, says the *Australasian*, the following memorandum from Dr. Mueller:—

"Whether the coniferous trees of California or the myrtaceous trees of Australia rank as the most colossal of the globe, is yet a question open for discussion. Lately a tree of Eucalyptus amygdalina (the Peppermint, and also the Drooping Gum tree of Tasmania) was measured in the deep recesses of Dandenong by Mr. D. Boyle, of Nunawading, who found the length, from the base of the stem to where the upper part of the branches had broken, to be 392 feet. Comparing trees uninjured, he assumes that about 30 feet have to be added as a fair estimate to the length of the tree before it dropped, giving thus the stupendous height of about 420 feet for this colossal species, while 450 feet is the greatest and exceptional height on record of the Californian Wellingtonia. It may be remembered that the spire of the cathedral of Strasbourg, the highest in the globe, reaches 466 feet. It would be interesting if measurements were made by residents in various parts of Australia of the particular kinds of trees of their neighbourhood, of whatever kinds such trees may be, in order that they may be recorded before the trees themselves sink under the axe of the woodcutter, and finally become annihilated. Where the trees, as in most parts of Victoria, are gregarious, no fear of their annihilation exists, but where, as throughout nearly the whole of the littoral tract of East Australia, the forest consists of a miscellaneous mass of trees, the rarer kinds are certain to be obliterated in time from the face of the globe, and the most stately individuals of each kind are generally certain to sink first. It needs no remark that all such measurements should be *actual* ones. A request to this effect was made long since, but it remained almost totally unresponded to; nor has the wish expressed simultaneously received much attention, that residents throughout Australia might aid the laborious task of elucidating the vegetation of Australia by forming local collections of dry plants of any kind, but more particularly of the Eucalypti, in order that in the work under progress the range of the species and the sum of their characters might be more fully recorded. This is, as regards the Eucalypti, all the more needed now, as they have been found to yield remuneratively so many highly valuable articles for industry, such as fibre for paper, tar, spirit, acetic and tannic acid, dye material, oil (both from leaves and bark), and other substances calculated to add to the riches of the country, and especially to the prosperity of the working classes, for lengthened periods."

Notices of Books.

Flora Australiensis. A Description of the Plants of the Australian Territory. By George Bentham, F.R.S., P.L.S., assisted by Ferdinand Mueller, M.D., F.R.S., &c. Vol. III. London: 1866. Reeve. 8vo, pp. 704.

Botanists will hail with great satisfaction the advent of the present volume, comprising, as it does, the accurate description of the plants belonging to some 15 natural orders, among which are two of the largest, and, in every sense, the most important of Australian natural families, the Myrtaceæ and the Compositæ. From this statement it will at once be seen that the work in question is almost as valuable to horticulturists as to botanists. Lovers of New Holland plants will recall the splendour of the Melaleucas, the Callistemons, the Beaufortias, the Leptospermums, the Bæckeas, and numbers of other greenhouse treasures described in this volume. Herein also are catalogued the Eucalypti or Gum trees, with their towering stems almost rivalling in stature the giant Conifers of California, and remarkable for their foliage and their fruit, to say nothing of their timber and their resinous products. These exist in great abundance in Australia, and indeed are almost entirely confined to that continent. Dr. Ferdinand Mueller some time since proposed a classification of these valuable trees, founded on the nature and appearance of the bark; but however convenient such an arrangement may be for local purposes, it does not appear to be satisfactory when more generally applied. Altogether 45 genera of Myrtaceæ are described, among the more numerous in point of species being Eucalyptus with 134 species, Melaleuca with 97, Bæckea with 42, Verticordia with 37, Calythrix with 34, and Calothamnus with 20.

Many genera, established upon insufficient foundation, are reduced in this volume to their proper places. Thus we may mention in illustration the beautiful-flowered Genetyllis or Hedaroma, which now finds a place in Darwinia. Babingtonia, too, is referred to Bæckea, under which genus, indeed, Mr. Bentham includes no less than eleven genera that have been proposed by other persons on insufficient or imperfect evidence. In reference to Babingtonia, Mr. Bentham destroys an illusion as to the style, which was stated by Lindley to be a direct prolongation from the placenta of this plant, and thus was considered to offer an exception to the usual rule of floral structure; but the learned President of the Linnean Society shows that the style in these plants is merely basilar, as it is in Labiatæ, and hence the fallacious appearance.

The Australian Composites, according to the census given in this volume, number some 500 species, distributed through 88 genera, albeit some 80 or more genera have been suppressed as having been founded on slight modifications of the pappus, or other characters of comparatively little importance. The characters of the genera in some cases run one into another, to so great an extent as to render a satisfactory delimitation almost impossible, hence an arbitrary line has to be drawn for expediency's sake. This is the case, amongst others, with the large and beautiful genus Helichrysum. Mr. Bentham prefers the arrangement of Lessing and De Candolle for the separation of the tribes of this vast order, an arrangement founded in great measure on the characters afforded by the styles; but he adds a caution, which we have felt the need of before now, viz., to look to the style of the hermaphrodite florets for the distinguishing characteristics, and not to the style of the female flowers. Many of the Australian Composites are well known in our gardens, *e. g.*, various species of Helichrysum, of Waitzia, of Helipterum, &c. Humea also is an Australian representative of this family, although its general appearance is not very like that of most Composites.

The volume before us is a descriptive work solely, and hence we find in it few indications of economic uses, scant mention of ornamental plants, and little notice of the highly curious morphological features presented by many of the species, beyond such as is necessary for the determination and description of the various plants. Viewed as a descriptive work, it is hardly possible to over-estimate its value to working botanists. Not the least among the advantages possessed by Mr. Bentham, is the assistance rendered by the indefatigable Dr. Mueller, who in addition to other aid transmits regularly from Melbourne his large collections of dried specimens for examination. Mr. Bentham's immense experience and practical sagacity are thus well supported by the abundant opportunities and unrivalled facilities for study that he possesses. Hence it is that in this and in the other similar volumes from his pen the student finds the plants he desires, described in language the clearness and accuracy of which have never been excelled. In no works of similar character can the name of a plant be so readily discovered, in none can the reader find so satisfactory descriptive portraits of the plants he seeks. With this, the third volume, about one half of the task is accomplished, and we trust that the publication of the remaining volumes of this valuable work may not long be delayed, but that Mr. Bentham will add to the other obligations under which he has laid botanists, a completed Australian Flora.

Florists' Flowers.

THERE are many Pompon CHRYSANTHEMUMS (see p. 1223, 1866) that are admirably adapted for the purpose of filling up the vacancies in the summer beds which with all a gardener's skill cannot sometimes be avoided. On referring to Mr. Salter's catalogue, I find he enumerates 16 early-flowering varieties. The Continental growers have also furnished us with a few varieties this season, which have been figured in *L'Illustration Horticole.* One of the most beautiful yellows, and a fine companion to White Trevenna, flowering profusely in September and October, was called Orion. I am afraid, however, this variety is lost. With a little care the beauties of the flower garden may be prolonged considerably, as the Chrysanthemums might be planted out in beds and lifted with balls of earth when in bloom, well watering them at the time of removal. Thus treated they would scarcely show that they had been interfered with.

Mr. Forsyth pays especial attention to standard Pompons, and any one who saw his splendid specimens of Bob, Andromeda, Cedo Nulli, Mr. Murray, Duruflet, &c., could not fail to be impressed with the many situations in which they would show to advantage. Nothing could be more striking than a few of them arranged in the centre of a dining-table, with foliage plants and Ferns, or for the decoration of entrance halls, &c. at fêtes, also in large Conservatories—in fact, their adaptability would be so great that they could scarcely be put out of place. Mr. F. intends to give in his new Catalogue a few practical hints on their cultivation: his experience in such matters will be valuable, as it will be purely practical, embracing the observations of many years.

Specimens of large-flowered and Pompon varieties were numerous as "bushes" in his collection; this form is the favourite with the Chrysanthemum grower who, like his brother florist the Pelargonium cultivator, considers the bush form to show the foliage and flowers to the greatest advantage.

The finest specimen (not the largest) of any Chrysanthemums I ever saw exhibited was a plant of Lady Harding staged at the Agricultural Hall some few years since by Mr. Howe, Secretary to the Stoke Newington Chrysanthemum Society. This had the appearance of having grown naturally, although trained, and the flowers were so nicely arranged that turn it which way you would, it was well furnished, and nearly every bloom was fit for a stand of cut flowers. This was the *beau ideal* of what a well-trained specimen should be, and Mr. Andrews must, I think, have had this plant in his remembrance when he sketched the plate for Mr. Salter's recent work on the Chrysanthemum, for there it is faithfully pourtrayed. Little Harry has been admirably exhibited by Mr. George, of Stamford Hill, the last three seasons, the same plant being grown from year to year. This is one of the most beautiful of plants, but somewhat delicate in habit; it is, however, a gem, and an incurved flower, and is worth all the trouble one can possibly take with it. As a rule, most of the incurved flowers do not make good specimens; they grow more straggling than the reflexed varieties, the two named above excepted. I have, however, seen Queen of England and Lady St. Clair well done. Prince of Wales, sent out in 1865, will most likely make a good plant, although the flowers this season were somewhat thin; and Venus may also be serviceable; but growers rely mostly upon reflexed varieties, such as Christine, Golden Christine, Chevalier Domage, Julie Lagravère, Prince Albert, Alma, Annie Salter, and Triomphe du Nord, for their best plants. Crimson Velvet will be a nice addition as regards colour, and Virgin Queen is promising, the white being very pure. Of all the above-named, Mr. Forsyth had fine well-bloomed plants in abundance. I also noticed a very creditable plant of General Bainbrigge.

The pyramid form of training is a modern introduction, and where skilfully carried out, assists to break the formal appearance that bushes alone would have at exhibitions. These, with the standards, are of great service, coming in admirably to furnish the centre of tables devoted to cut blooms. Pompon varieties seem best adapted for this system of training, as the large-flowered varieties would be too heavy, and appear unsightly. Any of the free-growing Pompons, such as Bob, Salomon, the forms of Cedo Nulli, Hélène, White Trevenna, &c., will do for the purpose. Among new large-flowering varieties sent out this spring, Countess of Granville and Crimson Velvet appear most suitable for growing into specimens.

The Pompons are numerous and good, especially Fairy Nymph, a very pure white; Rose d'Amour, clear rose, very beautiful; Prince Victor, dark red maroon. Marie Stuart and Sidonie are two great acquisitions to Anemone Pompons, the last especially being one of the very best. Prince Kenna, rosy pink; and Little Beauty, white edged with delicate rosy pink, are both late flowering kinds. All the above-named new varieties are decided acquisitions, and Mr. Forsyth had very nice little specimens of each and well flowered, although being only sent out this last spring by Mr. Salter, the plants were not so large as the older varieties. Whilst writing of specimens, a variety purchased by Mr. Forsyth and named Mr. Sharp, the colour as near magenta as possible, will be one of the best of the season, and exhibitors will do well to secure plants as early as possible, as the colour is much wanted, being very brilliant; it appears moreover to be a good grower, breaking freely.

The plants cultivated for cut flowers for exhibition could be numbered by hundreds, and from every corner appeared an old favourite, many of them almost forgotten; however we only require the most perfect, and such as will under ordinary cultivation produce good blooms. Of those, among new varieties, Gloria Mundi, John Salter, Iona, Mr. Gladstone, Empress Eugénie, Golden Beverley, Golden Dr. Brock, and Victor Hugo, are evidently the best, and of these the two most beautiful are John Salter and Golden Beverley. Older varieties, such as Jardin des Plantes, Prince Alfred, Beverley, Empress of India, Alfred Salter, Queen of England, Her Majesty, Aimée Ferrière and Oliver Cromwell, both small flowers, but beautiful in form and colour; Lady Harding, Cherub, Dr. Brock; Eve, most lovely; Hercules, a monster; Yellow Perfection; Lady Carey, magnificent, only late; Lady Slade, fine delicate pink; Mrs. Haliburton, one of the best kinds ever sent out, when well grown a perfect model; Nonpareil, improved; Beauty, Novelty, Nil Desperandum; Pio Nono, fine colour; General Hardinge, fine petal; Princess of Wales, and Rev. J. Dix, were in good condition. Any one cultivating these will have a unique but small collection. There are scores of other varieties which it would take too much space to enumerate, and numbers of them well deserving of cultivation. These will be found described in the catalogues, and those who require large collections will find all they need in Mr. Salter's and Mr. Forsyth's lists. Colours I have not given to many varieties, as in the catalogues they are arranged alphabetically and can easily be referred to; and as I purpose at an early period giving a detailed account of the mode of cultivation both for specimens and also for cut flowers, I shall in those articles add the colours in giving lists of the best kinds under their respective heads.

I have recently heard that one of the most promising large-flowering varieties yet raised from seed and exhibited by Mr. Morgan, of Plymouth, at Stoke Newington, and by him named Mrs. George Rundle, has been purchased by Mr. Forsyth; the colour is as nearly as possible that of Vesta, with a splendid

petal, and in shape two-thirds of a ball. Mr. Salter has also several very fine varieties coming out in the spring; the names and colours of these shall be given hereafter. *William Heale, Upper Clapton.*

The Apiary.

THE EFFECTS OF THE LATE COLD ON BEES in various districts is an interesting subject for inquiry. Has the mortality among bees been influenced by the dampness or otherwise of climate, or situation of apiaries? I have an idea that hives located in high, dry, and very cold positions will be found to have suffered less—ample food-supply being equal—than those in low-lying, damp situations which may have experienced a somewhat higher temperature.

I have two apiaries, one in a back garden, much shut in by houses, walls, and high trees, which render it very damp during the winter months; the other in an open garden, having a light, dry soil. The degree of cold reached was considerably lower in the latter locality than in the former; yet on visiting my hives when the frost broke up, I found no dead bees at the entrance of any of its hives, while in the apiary described as occupying a damper situation, every hive had its hundreds or thousands of dead bees, and in some cases the entrances were so choked up that the destruction of the entire populations must have ensued had I not lent a helping hand to remove the dead bodies of the fallen. The hives used in both places are of the same character, and with similar means of protection from the weather. The entrances of the hives in the apiary in which the greatest mortality has taken place are rather more contracted than in those of the other; in fact, those having the narrowest entrances as a rule seemed to suffer most.

It may be right to state that the majority of the depopulated hives were most liberally fed on artificial food and honey in the autumn, while those of the other apiary were not fed at all. At one time it occurred to me that this feeding might be a probable cause of the mortality, from the boiled food conducing to dampness in the interior of the hives; or from its being deficient in sustaining and cold-repelling qualities compared with honey secreted by the bees in the usual way. But I find on inquiry of an experienced bee-keeping friend, whose bees were almost entirely provisioned by boiled sugar, that many of his hives have lost but very few bees, so that it would seem to negative the presumption that the quality of the stored provision had any influence on the mortality. I therefore fall back on the theory of greater dampness of the locality, as the cause of the numerous deaths that occurred in the one apiary as compared with the other.

In some former years I have had a hive suspended to a Salter's Balance, and have taken accurate notes of the actual monthly consumption of food during the winter. I am sorry that this year I should have had no such appliance for registering the weight of a colony fitted up. I suspect that the amount of food consumed during the two frosts would have been found to be something enormous as compared with the rest of the winter, past and to come. During the seasons of great cold, bees require to consume a large amount of fuel for combustion, to enable them to create a heat sufficient to defy the insidious and searching approaches of their arch-enemy. There may, perhaps, be some among our apiarian friends who have been able to take the necessary observations; if so, the results of their experience would be very acceptable. *S. Bevan Fox.*

The Egyptian Bees and the Weather.—On the day of the thaw which succeeded the last of the two great frosts, I visited the three hives of Egyptians, finding the bees of one only to be on the wing. This is the hive of which I have the most doubts as to the presence of the queen. Both the others were ominously still. The entrances, as in the case of some other stocks, though in a greater degree, were choked completely up with a dense mass of dead bodies. These I cleared away, but still there appeared no living inmate either to resent the poking and disturbance, or to enjoy her first flight after so prolonged a period of compulsory confinement. At length I left them, under the melancholy belief that my beautiful Egyptians had succumbed to the cold of a less genial climate than their own. But great was my pleasure on the following day to see them flying in and out from these hives in considerable numbers, and also busily engaged in clearing away their dead. I have, therefore, no reason now to fear for their safety, or to doubt their capability of sustaining any degree of cold we are likely to be favoured with in Great Britain. *S. Bevan Fox.*

Garden Memoranda.

OAK LODGE, ADDISON ROAD, KENSINGTON, THE RESIDENCE OF J. MCHENRY, ESQ.—Reader, have you ever seen within the smoke, and barely removed from the circular whirlpool or maelstrom of London—

> "a garden clad
> In all the robes that Eden had?"

If not, by visiting this charming garden you may enjoy such a sight. It affords the best London example that I know of to illustrate Mr. Marnock's style of laying out grounds, and yet is distinct from much of his work, because it is breadth combined of course with many of the best charms of the picturesque style that is aimed at, rather than the involved and space or extent-increasing style of which we have examples in many of his works. This style of laying out grounds, even when practised by inferior or tasteless artists, holds its own against the geometrical. I venture to remark, that if the public eye were as much familiarised with good examples of such gardens as this, as they have of late been with the geometrical and formal styles, very few of the latter would be made, except where the position suited no other. There is nothing in the Addison Road to lead one to suppose that it bordered such a gem of landscape gardening, and the surprise is all the greater when the visitor catches a glimpse of the open, rolling lawn and pleasure ground behind, diversified with water and very natural-looking strata of artificial rock cropping out, half covered with shrubs and trees.

Let us first look into the conservatory against the house. It is not a very large one, but most tastefully designed and constructed, the walls being to a considerable extent opaque and massive, unlike ordinary conservatories, and this removes that flimsiness of character, and makes a conservatory more worthy of association with the dwelling-house, and more suited for displaying many kinds of plants. Flowers all look better in a subdued light, and though the plants would not grow in such a structure as in a well lighted one, yet, as they are not often kept in the conservatory proper more than a few weeks at a time, it does not do them the least injury, but helps to prolong the flowering. Then, again, Tree Ferns are becoming fashionable conservatory ornaments, and a more permanent style of building than is common suits their wants much better. In this house there are two tall specimens, throwing their fronds with a majestic grace nearly up to the roof, gracefully veiling, as it were, the specimen plants underneath; and small but exquisite marbles, baskets of trailing plants, and walls well covered with climbers, make the scene complete with grace—more like a charming Fernery than a conservatory. The variegated Cobœa is highly appreciated here, not only for its regular and distinct markings, but for the peculiarly glistening effect it affords at night when the conservatory is brilliantly lighted. Then there is the specimen house in the garden, or conservatory it might be called, finely built, and admirable for large collections of specimen greenhouse plants, but more remarkable from the way in which it is connected with the fruit and minor plant houses. These run in two rows at right angles from its rear, and communicate with it so that you pass readily into either the forcing-houses in one row or the plant houses in the other, and through the pleasant airy conservatory without encountering a shower at any time. There is a walk bordered with flowers between the two rows of houses, and against the low walls places for dwarf shrubs. Thus the great convenience of having houses close together is attained without running them out in a straight line, which would never do in a contracted garden where good taste prevails. They are most tastefully shut out from the general scene by judicious planting. Every modern improvement and convenience is to be seen therein.

But agreeable as such arrangements are to all of us, the exquisite taste displayed in the outdoor department soon takes one there, and we walk round the very picturesque ornamental water, with its inner side a mass of artificial stratified rock (very naturally done, by the way), and every crevice creeping with Ivy, Fern, and such like, while the ground rises and displays a noble American shrub plantation, diversified with large specimen shrubs and goodly sized trees brought at great expense and from considerable distances to give effect to the scene at once. In fact it was only made about two years since, and yet looks like a venerable country place, owing to being closely planted with goodly sized specimens—an expensive process no doubt. The boathouse is run in behind a ruined old painted bridge, very neatly concealed and conveniently arranged. One might fancy one's self 20 miles from the "nation of London," standing in the middle of the lawn, so gracefully does it intertwine with the surroundings. I noticed a ribbon border of shrubs, planted on the inner side of a bank thrown up to cut off the view of the forcing houses from the garden—the pleasure ground side of the bank being irregularly planted of course, but the inner coming rather close to the house, and being somewhat precipitous and moreover straight, was planted with a line of rather tall pyramidal Yews at top. Then a band of the common Aucuba, followed by a belt of Berberis Aquifolium, and edged with Hypericum calycinum, a mass of flower. Nothing can exceed the artistic grace with which the surrounding shrubberies are planted, and the old specimen shrubs and trees made to give the place an air of maturity. Such specimens of choice laying out should, I think, be better known. Doubtless many of your readers may have an opportunity of seeing this, and therefore I will say no more about it. Mr. Wilkie is the gardener, and his nice cottage is quite an example of what a gardener's house ought to be. *Viator.*

Miscellaneous.

Death of Ex-Provost Kennedy.—Dumfries has lost one of her landmarks by the death at his residence, Nithbank, of Thomas Kennedy, Esq., who was well and widely known both in the burgh of which he was once chief magistrate, and in all the country round. Genial, kind-hearted, and benevolent, he was at the same time shrewd, earnest, and enterprising in business, and as a horticulturist he gradually extended the acres under his cultivation until he had belted Dumfries with a series of nurseries, diffusing a great amount of employment, and giving his native town a high name as a producer of seeds and plants. To the firm which he founded, Dumfries is indebted for the floral ornamentation of its railway station, which delights the eye of every visitor or passer by, whether from north or south. Although devoted to business the late Mr. Kennedy took a deep interest in public and municipal affairs, and he evinced this by a lengthened discharge of public duties, which were closed by his filling the Provost's chair for three years. When age and its infirmities began to tell upon him he handed his extensive business as a nurseryman to his son-in-law, Baillie Newbigging, and his partner Mr. Cowan; but his habits were too active to allow him to take entirely his well-earned repose, and up to his last illness, which was of brief duration, he beguiled his leisure with the pursuits of the farm. The late Mr. Kennedy was one of those men who are not spoiled by prosperity; though he had attained all that his ambition ever aimed at, he was throughout his later, as in his early life, mild and unobtrusive, and he was as highly esteemed as he was widely known. *Dumfries and Galloway Courier.*

The "Vegetable World."—[The following correspondence appeared in the last number of the *Athenæum*. Our own opinion of the work in question has been before given (p. 1167), but we can fully endorse what is said in the subjoined letters as to the misuse of the "Vegetable Kingdom." EDS.]:—

25, Old Square, Lincoln's Inn, Jan. 21, 1867.

A notice that appeared in the *Athenæum* a short time ago on the English edition of "The Vegetable World," induced me to compare it with the French original, and with "The Vegetable Kingdom," written by my father, the late Dr. Lindley. The result was extremely painful to me, for I found that passages had been taken from "The Vegetable Kingdom" and reproduced in "The Vegetable World" in a shape so mutilated as to render them utterly worthless for all purposes of study or use. Under these circumstances, I wrote a letter, of which I inclose a copy, to Messrs. Chapman & Hall. They have not condescended to notice it. I therefore appeal from their sense of justice to that of the *Athenæum*, as representing the public; and I shall be much obliged if you will take some notice of the matter sufficient to show that the rubbish contained in "The Vegetable World" is not also in "The Vegetable Kingdom." NATHL. LINDLEY.

[COPY.]

"25, Old Square, Lincoln's Inn, Jan. 7, 1867.

"GENTLEMEN,—My attention has been lately called to the English translation of M. Figuier's 'Vegetable World,' and I have been comparing parts of it with the French original and with 'The Vegetable Kingdom,' written by my father, the late Dr. Lindley. The result is most painful to me. I have no interest in the copyright in 'The Vegetable Kingdom,' and I do not therefore address you in respect of what I nevertheless think is the unfair use which has been made of that work. What I complain of is, that the editor of the English edition of the 'Vegetable World' has presented to the public a quantity of rubbish in the shape of mutilated extracts and blundering abridgments from 'The Vegetable Kingdom,' which the reader of his own book would naturally attribute to my father. That I am not overstating the matter will be perfectly manifest to any one who will take the trouble to compare the characters in small type on pp. 221, 222, 225, 234, 270, 284, 286, in 'The Vegetable World,' with the corresponding portions of 'The Vegetable Kingdom.' I am quite aware that having no interest in the copyright in 'The Vegetable Kingdom,' I can obtain no redress by legal proceedings in respect of the matters of which I complain. I, moreover, entirely exonerate you personally from blame; that rests with your editor; but I put it to you as gentlemen of honour that what I complain of ought not to have occurred, and ought not to pass without notice. As Dr. Lindley's only son, I think I am fully entitled to vindicate his character, and to require that something should be done to prevent the readers of 'The Vegetable World' from supposing that the errors contained in it occur also in 'The Vegetable Kingdom,' and are attributable to ignorance and carelessness on the part of my father. I am advised to send a copy of this letter to M. Figuier and to my late father's botanical friends, and also to the editors of the various scientific journals in the United Kingdom; but before doing so, I shall be glad to hear whether you can suggest any other method of doing justice to my father's memory. I am your obdt. servant,

"NATHL. LINDLEY."

"Messrs. Chapman & Hall, Publishers, 193, Piccadilly."

While this sheet is passing through the press, a letter has been published in the *Athenæum*, signed by "Mr. Henry Orr, editor and translator of the 'Vegetable World,'" which letter seems only to add increased confusion to the subject, as the preface to the "Vegetable World" is signed "W. S. O." If Mr. Henry Orr's views are to be acted on by others in transcribing passages from standard works, it follows that correctness is by no means necessary, and that an editor may with impunity father any nonsense upon an original author—at least by implication. From our examination of the "Vegetable World," we should have had no hesitation in stating that a very large proportion of what we took to be extracts from the "Vegetable Kingdom," were grossly perverted in the transcription, but possibly they too "have a source altogether different." If so, what a pity the source is not mentioned. Having given insertion to Mr. Lindley's letters, we must, in fairness to Mr. Henry Orr or to "W. S. O.," one or both, subjoin the letter of Mr. Henry Orr above alluded to:—

"Notting Hill, Jan. 29, 1867.

"In reference to Mr. Lindley's letter, I beg to state that my reply would have reached him through Messrs. Chapman & Hall had he been a little less precipitate. Mr. Lindley's object is to vindicate his father's reputation. I can assure him that no one would sympathise with him in such an object more sincerely than myself had there been occasion for it. But I venture to say there is not a passage in 'The Vegetable World' which could by inference affect Dr. Lindley's reputation injuriously or render him responsible for its contents. Moreover, the particular passages to which exception is taken have a source altogether different, nor can I find passages at all resembling them in 'The Vegetable Kingdom.' In conclusion, I venture to think that the use that has been made of Dr. Lindley's great work is stated fairly enough at

p. 220 of 'The Vegetable World,' and however I may regret the feeling which has been roused, I cannot admit that I have done anything to justify it.

"HENRY ORR."

"Editor and Translator of 'The Vegetable World.'"

Wellingtonias at Home.—The following, from a Californian paper, is worth quoting as a sample of the curiosities of the subject:—Dr. C. T. Jackson not long since visited the Mammoth Tree Grove, and estimated the height of the principal trees. Dr. Jackson also seems to have usurped the liberty of bestowing names upon these monarchs of the forest, after having ascertained their altitude. The following is an extract from his note-book, which was recently read before the California Academy of Natural Sciences.

Names of the Trees.	Height in feet.	Circumference 6 feet above the roots.
T. Starr King	366	50
General Scott	327	45
General Jackson	320	42
Two Sentinels	315	..
Salem Witch	310	..
Trinity	308	48
Mother of the Forest	305	63
Wm. C. Bryant	305	40
Henry W. Beecher	291	45
Granite State	286	50
General Washington	284	52
Abraham Lincoln	281	44
Bay State	280	48
Old Kentucky	277	45
Empire State	275	50
Andrew Johnson	273	32
Daniel Webster	270	49
Mother and Son	269	64
Edward Everett	265	40
Pride of the Forest	260	50
Vermont	259	41
John Torrey	259	35
Arbor-vitæ Queen	258	31
Beauty of the Forest	258	..
Henry Clay	241	44

Asa Gray, nearly as high as the John Torrey.

Cool, very cool! Years after the discovery of a great natural curiosity, a pensioned peripatetic visits this wonder of Nature and bestows names right and left to suit his own notions of propriety. Himself a fanatic, he endeavours to transmit to posterity, by a durable memorial, the names of some of his fellow-fanatics. And this he attempts at the expense, not only of the truth, but the decency of history. The loftiest of these children of the woods he names T. Starr King. Whatever may have been the virtues of this distinguished deceased, the great majority of the American people have not yet been "educated up" to the belief that he was a greater man than George Washington; yet Dr. Jackson tilts him up to the head of the heap, and tries to fasten his name upon a tree 366 feet high, while he lets *Mr.* Washington down to only 284 feet in altitude. Now we think Washington was a better and a greater man than T. Starr King. There are many other men in America, and elsewhere, who think likewise. The former was a patriot in our opinion—the latter was a sectionalist, a fanatic, and nothing else. Our wonder is, that *Mister* Jackson did not degrade General Scott and General Jackson to a lower level in his expressed opinion, than that of Wm. C. Bryant and Henry Ward Beecher.

Garden Operations.

(*For the ensuing week.*)

PLANT HOUSES.

Stove Climbers generally should now receive their final pruning and tying out. Allamandas, Dipladenias, Cissus discolor, and Ipomœa Learii, require pruning back to wood of the preceding summer's growth, except in instances where it may be necessary for any particular plant to occupy a large space quickly, when two or three of the strongest of the young growths may be trained onward, shortening them as much as is consistent with the object in view. Others, such as Combretum purpureum, Clerodendrons, Stephanotis, and Stigmaphyllon ciliatum (a beautiful climber), may be pruned back to within two or three eyes of the base of the current season's growth, except in cases in which any of them may have become much overgrown, when a free use of the knife will be of future benefit to them. Passifloras should at all times be liberally pruned back to good firm wood. A judicious use of the knife causes these to flower more freely, and to make less wood than an opposite course of treatment. Where mealy bug is allowed to exist, it will be found on Combretum purpureum, Passiflora edulis, Clerodendrons, and Ipomœas. When the plants are pruned, therefore, endeavour to destroy it by crushing it between the finger and thumb, hunting well for it in all nooks and crevices, especially amongst the irregular bark and branches of the Combretum. Afterwards well wash with a strong solution of tobacco-water and Gishurst Compound, rubbing it well in with a stiff-bristled brush. Cissus discolor, I may add, propagates most freely from old prunings at this season. As it is such a general summer favourite, a quantity of it should be propagated for indoor and other decorative purposes in small pots for the ensuing summer. Every bit that is firm and which has two eyes will root and grow freely in a soil consisting of abundance of sand and peat in any ordinary stove; partial shading from too powerful sunshine is all the nursing that will be required.

Stove Plants, such as Rogieras, Rondeletias, Aphelandras, Euphorbias, Justicias, and the above-named climbers in pots requiring larger ones, should be shifted without delay. A good compost, consisting of two parts loam, three parts peat, and one part silver sand, will suit them, provided the fibre is well beaten up and mixed with it; none of the fibrous part should be abstracted. This compost will suit all the plants just alluded to, except Dipladenias and Cissus discolor, which prefer all peat and sand, and if a little charcoal is placed below it in the pot, all the better. Insure good drainage by placing one or two large slightly hollow potsherds over the hole at the bottom, filling in all larger openings which then remain with smaller ones; upon these put a handful of any rough siftings. Before the proper compost is used, press the first layer down firmly with the hand, forming either a mound or hollow, as best suits the form of the ball, and placing the soil evenly in width all round between the ball and the pot. In taking the soil up from the bench, always extend the arm and hand, pushing them under the heap as if a shovel were employed for the purpose. You thus take all as it comes, fibre and the lesser particles together. Endeavour to press this fresh soil down so that it may equal in firmness that of the old ball; water will then penetrate all alike, without which success is impossible. Finish the surface off very evenly, leaving no part higher than another, and allow sufficient space for water, which, to give a good soaking, should be permitted to stand and percolate gradually and evenly into and throughout the ball.

Late-pruned *Pelargoniums* should receive their last shift if necessary. They like a compost of rich light hazel loam, amongst which the herbage which grew thereon has become decomposed by laying in a heap for a season. Should only ordinary loam be at hand, a little leaf-mould and sand should be added. Pot moderately firm, and do not give too large shifts. Pinch the tops off all thriving young plants, tying them out neatly and evenly, in order that each shoot may have as much air and light as possible. Older plants, which generally come earlier into bloom than young ones, should have all small weak shoots cut clean away, affording at the same time all possible encouragement to the remaining ones. Fumigate these, whether green fly is observable or not, giving them abundance of air, and a temperature in dull weather of about 50°.

FORCING HOUSES.

As the days lengthen, continue to increase atmospheric moisture in all forcing houses, bearing in mind, that the more frequently we are able to give air, the oftener does the internal moisture obtain a free egress from them; hence the need of frequent moistening of the floors, side walls, and other internal surfaces, to keep up a corresponding supply to meet so increasing a demand. Besides this, actual syringings may become more frequent now; moistening the whole surface of all healthy thriving plants twice a day, if fine and sunny, and air can be given. *Pines* showing flower should have a slight advance of temperature, shutting up early. Compost should be prepared for succession plants; therefore procure and chop up good loam, of moderate consistency, keeping it under cover, and occasionally turning it over, to allow air to readily penetrate it. Growing *Vines* showing flower should have the point of each shoot pinched off immediately in advance of the second leaf beyond the flower-stalk, excepting when it may be necessary to add to the length of the main rod, in which case the leading shoot should be encouraged to grow, the flower-buds pinched off, and the shoot itself properly secured. *Peaches* and *Nectarines* in flower will be materially assisted if, when passing through the houses upon fine days, you gently jerk the trellises to which they are trained; this will help to distribute the pollen, and thereby aid the process of fertilisation. *Strawberries* showing flower will now require alternate waterings with manure water. Do not omit soot in it, as Strawberries thrive under its use. If these latter are placed in pans it is advisable after each supply of manure water to empty what drains into the pans away; the soil as it passes through the ball will retain sufficient of its nutritive properties, without the roots being submerged. Introduce *Roses*, *Bulbous Plants*, and *Flowering Shrubs* freely into any convenient structures. They will prosper as the days lengthen.

HARDY FRUIT GARDEN.

Young *Fruit trees* should receive a moderate top-dressing, which should be carefully forked in around the boles, about 3 yards in diameter, for the double purpose of keeping them moist, should a dry summer ensue, and of encouraging surface rooting. The pruning and training of *Pear* trees may be proceeded with. Upon walls they are most easily trained horizontally; each shoot so trained being 8 inches apart throughout. Cut away all wood buds near the base, except those upon the extreme ends of the several shoots, severing the upright centre one in two, at such a distance as best to ensure a triple break from the eyes already formed upon it, viz., an upright one in continuation of the centre, and a pair evenly balanced upon either side, neatly to fill up the next horizontal vacancy. The flower buds are easily detected, being upon smaller more evenly grown spray than that upon which wood buds are formed. The flower buds, moreover, are generally more conical in shape than wood buds. Should the inexperienced not readily distinguish the one sort from the other, upon such varieties as Beurré Rance, for instance, where the difference between flower and wood buds is but trifling, it will be sufficient to remove all the coarser growths, and leave the others until they show more prominently, when the wood buds as they push, may be broken abruptly off, with the finger. *Strawberry beds*, if not done in the autumn, should now receive a dressing of good rotten manure. Do not, however, bury the crowns, or any leaves that may be attached to them. A slight forking over may be advantageous in heavy soils, though I never perform that operation upon light ground. I rather encourage the production of surface roots.

KITCHEN GARDEN.

Where *Peas* will not thrive at this season, the soil being heavy, sow in boxes or otherwise, thickly, slightly covering them over upon frosty nights. *Broad Beans* might be sown in the open ground; choose the Early Long-pod, for though Early Mazagan is in general recommended, I question if it can be got true. Plant a few *Early Potatos* in any sheltered corner; the larger the tubers planted at this season the better, provided the whole of the smaller eyes likely to sprout are destroyed previously to planting. Plant deeply, forming a hollow trench some 2 inches in depth immediately over them, so that when they show at the bottom, the ridges upon either side may be drawn over them, to protect them from frosts, and to ensure as great an amount of robustness as is possible. As *Tomatos* become more fruitful through being starved when young, sow a few in a 32-sized pot; they require a little heat to induce them to germinate. The Orangefield is a prolific variety, and useful where room is scarce. Forced *Seakale Stools*, having portions of old crowns remaining above ground, should have these cut off close down in the soil, scattering litter over the wounds; this saves them from frost, and afterwards induces the formation of more compact crowns. *W. E.*

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the Week ending Jan. 30, 1867, as observed at the Horticultural Gardens.

Jan.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Of the Air. Min.	Of the Air. Mean	Of the Earth. 1 foot deep.	Of the Earth. 2 feet deep.	Wind	Rain.
Thurs. 24	18	29.442	29.437	54	34	41.0	37	37	S.W.	.00
Friday 25	19	29.766	29.398	52	44	48.0	36	37	S.W.	.00
Satur. 26	20	29.993	29.840	53	38	45.5	37	38	S.W.	.14
Sunday 27	☾	29.955	29.845	56	47	51.5	38	39	W.	.02
Mon. 28	22	29.962	29.797	53	34	43.5	40	42	S.W.	.00
Tues. 29	23	29.793	29.789	52	45	48.5	42	42	S.W.	.00
Wed. 30	24	29.959	29.851	51	34	42.5	46	42	S.W.	.47
Average.		29.838	29.708	53.0	39.4	45.8	39.4	39.5		.63

Jan. 24—Densely overcast; fine, with clouds; fine.
— 25—Foggy; hazy clouds; very fine.
— 26—Hazy; uniformly overcast, rain at night.
— 27—Densely overcast; cloudy; overcast; slight rain.
— 28—Clouds in strata; cloudy and rather boisterous; fine.
— 29—Fine; densely clouded; boisterous and overcast.
— 30—Fine; showery; heavy rain in afternoon.
Mean temperature of the week 7.6 10th deg. above the average.

STATE OF THE WEATHER AT CHISWICK,
During the last 41 years, for the ensuing Week, ending Feb. 9, 1867.

Feb.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday .. 3	44.8	30.9	37.6	20	0.42 in.	4	8	4	2	3	12	3	2
Mon. .. 4	44.6	30.4	37.5	19	0.35	3	5	4	1	7	13	3	3
Tues. .. 5	45.5	33.2	39.4	19	0.39	3	3	3	2	3	15	7	5
Wed. .. 6	46.3	32.8	39.5	20	0.23	3	3	4	3	5	10	7	5
Thurs. .. 7	46.7	32.7	39.7	22	0.29	2	4	4	1	5	14	8	3
Friday .. 8	45.4	32.1	38.8	21	0.67	2	5	4	2	5	14	6	3
Satur. .. 9	45.0	31.5	38.3	16	0.48	1	7	4	2	3	15	5	4

The highest temperature occurred on the 3d, 1850—therm. 57 deg.; and the lowest on the 5th, 1830—therm. 10 deg.

Notices to Correspondents.

BOOKS: *C J.* You will find Glenny's "Properties of Flowers and Plants" just what you require for such subjects. A similar book, by the same author, called "The Properties of Fruits and Vegetables," may also furnish you some useful hints, but it is not of equal merit with that treating on flowers.

CAPE GOOSEBERRY: *A P.* Your plant is the true Cape Gooseberry, or Physalis pubescens.

COCKROACHES: *W H A.* See a paragraph in our Home Correspondence of to-day (p. 105). Chase's Beetle Poison, also Forbes' Beetle Poison, are effectual in destroying them.

CYANOPHYLLUM MAGNIFICUM: *W J* writes—"I have not seen or heard any report of this plant having flowered in this country yet; allow me to inquire if any of your readers have any knowledge of its having done so."

DEFORMED VIOLET: *J S.* Your plant is rendered "gouty," and the flowers deformed by a parasitic Fungus or Puccinia.

DISEASES: *J D.* Are the brown spots really diseased tissue? The subjacent structures do not seem to be affected, as far as we can judge from the minute scrap sent, and the spots appear to be of the same nature as the corky masses in the Dutch Elm. We speak, however, with some hesitation, in the absence of fuller information. *M J B.*

HEATHS: *F H.* All free-growing winter-blooming sorts, such as hiemalis and the others you name, should be cut down when the flowering is over, and as soon as they break should have a shift, and be encouraged to make free growth for flowering next season.

KEEPING GARDEN: *Q C.* All depends on the style of keeping, and the return required. The ordinary rule for average results is one man to an acre, a moderate quantity of glass included, the more tedious work being balanced by that which is more readily accomplished, and the busy periods by those which are less so.

NAMES OF PLANTS: *John Ellis.* Sorghum vulgare.—*D P M.* Croton, or Excœcaria discolor.—*Coryanthes.* Your Coryanthes is not C. macrantha, but C. speciosa.

PINE-APPLES: *B M S.* Some varieties of Pine-apple, as, for instance, the Prickly Cayenne, are stated to be apt to become black hearted in winter; but the true Smooth-leaved Cayenne is said to be free from that fault. Drip would not be likely to cause blackness in the heart of your fruit, which you say is sound and of good colour outside. The cause of the evil must rather be looked for in the shape of too low and moist a temperature, and too much moisture in the soil about the roots.

PRIMULAS: *R Dean.* An excellent strain of flowers, large, full, and finely-fringed. The striped flowers, both those with purple and those with lilac flakes, the flesh-coloured, and the deep purple rose, are all well-marked kinds which it would be desirable to fix if possible. We look forward to the acquisition of much greater variety amongst these beautiful flowers, than is seen in the plants generally cultivated.

ROOT FUNGI: *S E.* The roots of the three plants which you have sent, Clematis montana, Virginian Creeper, and Chimonanthus fragrans, are all equally infested in every part with fungous spawn, to which their death is undoubtedly attributable. Do not plant anything in their place till you have ascertained that every particle of root, and especially of the old Rose roots, has been removed. *M J B.*

SEEDLING PRIMULAS: *F H.* To seed the plants, set them on a dryish greenhouse shelf, close to the glass, and where they get plenty of air. Nothing else is necessary in an ordinary way. For any special object it might be useful to fertilise the blossoms, as for instance, to save any particular shade of colour, fertilise with flowers of the same colour. Do not shift them unless they are very much in want of it, and have plenty more flowers coming on; rather keep them growing on by careful watering.

POYNTER'S EARLIEST and BEST PEA, the hardiest and earliest out, price only 1s. 3d. per quart. See Advertisement, p. 1151 of *Gardeners' Chronicle* for 1866

To be obtained Retail in London of Messrs. Jas. Veitch & Sons, Chelsea, S.W.; and Mr. B. S Williams, Holloway, N.; and through any Seedsman, in one quart packages only, with Trade Mark, the Crown and Royal Oak, and blue label. None other genuine.

ROBERT H. POYNTER, Seedsman, &c., Taunton, Somerset.

Garden Seeds.

CHARLES TURNER'S CATALOGUE is now ready, and may be had on application.

The Best three WRINKLED MARROW PEAS are—
LITTLE GEM, Early, 1 foot high.
ADVANCER, Second Crop.
PREMIER, Summer and Late.

See full descriptions in C. TURNER'S CATALOGUE, now ready.

SNOW'S BROCCOLI, True.
HEDSOR WINTER CUCUMBER.
BAILEY'S SUPERB CABBAGE.

All the established varieties of Vegetables from the best sources; also the Novelties in Flower Seeds.

The Royal Nurseries, Slough.

NEW SPROUTING DWARF ULM SAVOY (MELVILLE).—We have much pleasure in sending out this valuable acquisition for the first time. It resembles a very Dwarf Brussels Sprout, with the Ulm Savoy head. The Heads can be cut for early use, and the Sproutings are invaluable further on in Spring, when Vegetables are scarce. The following description and opinion of this New Vegetable is that of the Horticultural Editor of *The Farmer*, extracted from that Journal of January 23, 1867:—

"It is of very dwarf growth, and its stems are thickly set round with large firmly Cabbaged Sprouts, which, judging from the specimens received, surpass in delicacy of flavour any of its kindred Brassicæ." An opinion which is confirmed by a Friend to whom we sent a portion of them, who writes:—"Its flavour is certainly far more delicate than that of the Brussels Sprouts, and it is to be preferred for this quality if for nothing else. Its Sprouts are much larger, and if they remain longer in the Spring, without running to flower, they will be a further decided advantage" for delicacy, excellence, and usefulness. None of Mr. Melville's previous Vegetable productions equal, in our opinion, the subject of the present notice.

Price 1s. 6d. per packet.

The following Firms have received supplies from S. & M.:—

Messrs. Barr & Sugden, 12, King Street, Covent Garden, London
,, Bunyard & Son, Maidstone
,, Butler & McCulloch, Covent Garden, London
,, Carter & Co., 237, High Holborn, London
,, Cooper & Bolton, 152, Fleet Street, London
,, Dicksons & Brown, Manchester
,, Edmondson Brothers, 10, Dame Street, Dublin
Messrs. Peter Lawson & Sons, Edinburgh
,, J. & C. Lee, Hammersmith, London
,, Maule & Son, Bristol
,, Nutting & Sons, Barbican, London
,, Reid & Co., Aberdeen
,, Rollisson & Son, Tooting, London
Mr. Stephen Brown, Sudbury
,, Cattell, Westerham, Kent
,, P. Pierpoint, Warrington
,, Troughton, Preston

STUART & MEIN, Seedsmen and Nurserymen, Kelso, N.B.

To Farmers, Gardeners, and Others.

EXCELLENT CABBAGE PLANTS (Stocks not to be surpassed), may be had in any quantities as follows:—
ENFIELD MARKET (cash price), 2s. 6d. per 1000
THOUSAND-HEADED (cash price), 3s. per 1000
ROBINSON'S CHAMPION, true (cash price), 2s. 6d. per 1000
DRUMHEAD (cash price), 2s. 6d. per 1000
RED DUTCH, for Pickling (cash price), 6s. per 1000
(Special offers made to large purchasers).

A CATALOGUE of GENUINE NEW SEEDS, on application. A remittance or reference is requested from unknown correspondents.
FREDK. GEE, Seed Merchant and Grower, Biggleswade, Bedfordshire

FEARNOUGHT CABBAGE, DALMENY SPROUTS, and COTTAGERS' KALE are the hardiest and best Winter Greens. Sow in March.

SUTTON & SONS can supply the above (True), in packets at 6d. and 1s. each, Post Free.

Royal Berkshire Seed Establishment, Reading.

Sutton's Potatos for Planting.

MESSRS. SUTTON'S DESCRIPTIVE LIST is now ready, and may be had gratis and post-free. Their stock of Potatos has been selected with great care, and can be relied on as perfectly true to name. Lowest price per cwt., sack, or ton, forwarded on application.

SUTTON & SONS, Seed Growers, Reading.

Seed Potatos.

H. AND F. SHARPE are now offering MYATT'S PROLIFIC KIDNEY, DAINTREE'S EARLIEST, WEBB'S IMPERIAL KIDNEY, FORTY-FOLD, FOX'S SEEDLING, EARLY OXFORD, and many other Early and Late varieties, fine in quality, free from disease, and at low prices.

Seed Growing Establishment, Wisbech, Cambridgeshire.

Seed Potatos.

GEO. SIBBALD, Drumgeith, by Dundee, N.B., has for Sale about 100 Tons of the following kinds, of his own growing. Prices on application:—EARLY DALMAHOY, DAINTREE'S EARLY, CHISWICK CLUSTER, EARLY OXFORD, EARLY RED EYES, WALKER'S REGENT, ENGLISH EMPEROR, FLUKE KIDNEY, MYATT'S PROLIFIC, and PATERSON'S EARLY RED KIDNEY.

Seed Potatos.—Early Reliance.

H. MINCHIN can recommend the above POTATO as being very productive and of first-rate quality, 3s. 6d. per peck of 14 lb.

The following Testimonials are from well-known persons, who have grown it and are prepared to supply it.

"The Royal Nurseries, Slough, Oct. 12, 1866.

"DEAR SIR,—The Potato we found a very good one as a cropper; it is very good in flavour, &c.; it is a very capital variety.—Yours very truly, "CHARLES TURNER."

"I have grown your Early Reliance Potato, and I find it very prolific and of good quality.—Yours respectfully,
"JOHN JENNINGS, Nurseryman, Shipston-on-Stour."

Myatt's Prolific, Royal Ash-leaf, Gloucestershire Kidney, King of Potatos, Webb's Imperial, Fluke Kidney, Paterson's Victoria, Early Red, Regent, and Blue, and several other varieties.

PRICE LISTS on application to
H. MINCHIN, The Nurseries, Hook Norton, Oxon.

Seed Potatos.—Edgcote Second Early Kidney.

P. J. PERRY, NURSERYMAN and SEED MERCHANT, Banbury, has much pleasure in introducing the above valuable Potato, which may be described as the finest flavoured and most productive Second Early variety in cultivation.

It was raised by Mr. Neale, Gardener to Aubrey Cartwright, Esq., Edgcote House, near Banbury, by whom it was exhibited at the Royal Horticultural Society's Great Show of Fruit and Vegetables, Saturday, July 22, 1865, and was awarded First Prize in Class 7.

The *Gardeners' Chronicle*, July 29, 1865, in noticing the above Show, states:—"POTATOS: These were largely contributed, and many of them were unusually fine for the season of the year. Among Kidneys the most valuable was Edgcote Second Early, a very perfect Potato, which obtained the First Prize for a single dish."

Price per peck, including bag, 6s.

P. J. PERRY has also a limited stock of the following valuable varieties to offer:—

NE PLUS ULTRA.—The earliest Potato in cultivation.

ROYAL ALBERT.—One of the finest and most productive Early White Round Potatos known.

EARLY EMPEROR, or SOMERSET RED.—Of this Potato, Mr. Dean, of Maybush, writes, in *Gardeners' Chronicle*, October 6, 1866, p. 946:—"This may be described as one of the best Second Early Round Potatos known. It has a beautifully netted skin, boils perfectly white, and the flavour is all that can be desired," &c.

Price of the above three sorts, 5s. per peck.

The Nurseries, Banbury.

SUTTON'S GRASS SEEDS for ALL SOILS, CARRIAGE FREE.



SUTTON & SONS having received their supply of NEW GRASS SEEDS in fine condition, are now prepared to quote prices for the same, which will depend on the nature of soil to be laid down, and the quantity of seed required.

Prices and full particulars gratis and post free.

SUTTON & SONS, Seed Growers, Reading, Berks.



Improvement of Grass Lands.

SUTTON'S RENOVATING MIXTURE

SHOULD NOW BE SOWN.

8 to 12lb. per acre.

Price 10d. per lb. Cheaper by the cwt.'

If these Seeds are sown early in the season, the improvement in the land will be very great, and at a small expense.

This Mixture should be bush-harrowed in, and rolled afterwards.

SUTTON & SONS,
Royal Berkshire Seed Establishment, Reading.

The Agricultural Gazette.

SATURDAY, FEBRUARY 2, 1867.

MEETINGS FOR THE ENSUING WEEK.

MONDAY,	Feb.	4	Central Farmers' Club (Sir. G. JENKINSON, Bart., on the Turnpike System), at the Salisbury Hotel—6 P.M.
TUESDAY,	—	5	Farmingdon (Mr. MECHI on Agricultural Progress.)
THURSDAY,	—	7	Midland Farmers' Club (Mr. J. K. FOWLER on Green Crops), at Birmingham.

THE keeper of a living thing must be its most humble servant, if it is to prosper in his hands. The nature of the creature, not the arbitrary will of the master, must determine the treatment it receives. If animals, or even plants, were mere machines, a man would only need to pass a double quantity of raw material through them in order to obtain a double quantity of the manufactured article from each. But they are not mere machines—and therefore we do not get a double quantity of meat by consuming a double quantity or a double quality of food—nor do we always get a double quantity of vegetable produce by applying a double quantity of manure to the land. Both plant and animal will waste whatever supplies exceed their natural powers of growth in the other circumstances in which they are placed; and no useful end is served by any generosity towards them beyond the natural ability of either to assimilate its food. The difference between high and ordinary farming principally consists in selecting animals and plants for cultivation which have great natural powers of assimilating food, and in treating them fully up to this their precocious nature. But HIGH FARMING, as all enterprising, energetic, farm management is called, will fail if it exceeds the limits thus imposed on plants and animals alike, by which the efforts of the farmer are everywhere surrounded. *Everywhere*—because, although the soil *is* a mere machine and may be improved and worked, so to speak, indefinitely, yet it is only through the living plant and animal that its manufactured article can be turned to account in agriculture. And thus, however sanguine any man may be, he finds himself upon a farm at once hedged around, in the condition of a mere servant, who will inevitably fail if he thinks he can do what he likes, apart from the all-powerful laws by which he is surrounded.

Successful farming, then, consists in an energetic cultivation of the field, thus hedged, which remains open to the efforts of the agriculturist. And seeing that the scope thus left open to him really is much wider than ordinary farm practice indicates, many who have endeavoured to extend and intensify that practice have succeeded—and seeing that this scope though wide is really limited, others who have attempted too much have failed; and thus High Farming is praised or blamed according to the point of view from which it is discussed.

There are two authorities who have written on the subject to whom we may point as representing fairly these two views. Some few years ago Mr. SUSSEX MILBANK read before a Yorkshire Farmers' Club, a paper on the advantages of high farming, the exuberant and suggestive style of which reminded one of Mr. MECHI. He may be taken to represent one view of the subject. And Mr. W. H. HEYWOOD, of Dunham Massey, Cheshire, who has for many years awarded premiums for good crops to the tenantry of Lord EGERTON of Tatton, has lately published a little book,* which may be taken to represent the other view.

Mr. MILBANK says it is clearly to the advantage of the farmer that he should produce double the yield of his crops on the same acreage as he did in days not far remote: practically he thus doubles the extent of his farm, whilst he pays only the same rent, tithes, and rates. It is true that the high farmer employs more labour, and calls in expensive aids; but these are in themselves no small advantages. He thus circulates the honest penny of labour among the industrious poor, and diffuses increased intelligence and increased comforts amongst that class. The principal results of high farming are: an increase of crops, both cereal, Grass, and roots; deep drainage and amelioration of soil; more shelter and better stock; a satisfactory balance-sheet; and a happier and more contented class, from the feeling of having successfully carried out and applied the same sound commercial principles in farming as in any other industrial pursuit. So writes Mr. MILBANK, but let us quote some of the detailed instructions and maxims to which he gives utterance:—

"I think it quite necessary for every farmer to keep accounts. I am quite sure for larger profits he must cultivate highly both his pastures and roots. I think pastures are generally too much neglected, not sufficiently drained, and most inefficiently limed. As to Mangels or Swedes, I am sure greater results would follow a more liberal management. I am quite in favour of autumnal cultivation for roots. I think we should plough in, from 12 to 14 inches deep, 20 loads of best farm-yard manure per acre in autumn, and add in the spring, as a refresher, 10 loads per acre of the same in the rows, with an addition of 2 cwt. of bones or superphosphate as a top-dressing. Such is my invariable custom, and I can assure you it pays. I have top-dressed Barley with a mixture of nitrate of soda and common salt, 2 cwt. half and half, with a surprising result. I am aware that I may be met with the observation of the difficulty of having a fine bank of farmyard manure in the autumn on which to draw our future riches. I will tell you how that may be done. Fill your pastures with fattening heifers, and tie them up at night under sheds. Give them their suppers and breakfasts of Bean-meal and cake when you take them in and before they go out in the morning. It is wonderful how quickly they improve from warmth and absence of chill night dews, besides a good residue from their tails. You may laugh; but, depend upon it, it is as necessary to attend to the tails as to the mouths of fattening stock. It is an undisputed fact that warmth is part nourishment—that the food goes further to fatten when there is less waste of the tissues by exercise; for less food is required or rather consumed by the flame of life to support animal warmth. Cooking food for cattle is also excellent, especially for milch cows. I like keeping as many Turnips on my land as I can, upon which to fold my sheep. It saves cartage, and I think it more profitable. Sheep fed off Turnips, well corned and caked on the land, in my opinion prepare the land in a very satisfactory manner for large yields of cereals. I am a great advocate for oilcake. This last year, on 120 acres of land, I have consumed 43 tons of cake, besides having sold to my stock all the corn produce of my farm. I thought it the best and most efficacious way to get my land into prime order. I think turning our cart-horses to Grass in summer a most pernicious plan, both as regards the land and the horses. By cutting Grass it is surprising what a number of stock may be maintained in summer. I find in this plan a true economy, by a saving of pasture and also of manure, which would be otherwise partly carried off by this and evaporation. These are some of the advantages of high farming. I am utterly opposed to making meadow-land hay. There is an enormous and positive loss thereby. That of ammonia itself is immense. I cannot conceive why juicy Grass should not be considered more nutritious than when dried and sun-burnt, and often in the north of England badly secured."

And so he runs the round of all the suggestions which occur to any one who takes a cursory view either of our best farms or most advanced

* "High Farming: How far is it Expedient? Let Nature Answer." Ridgway, Piccadilly.

schools. And in the true spirit of an optimist he declares it to be matter of congratulation that high farming is conducive not only to the intellectual progress of the agricultural world, but also to the health and morals of the community. Where intelligent and improving landlords erect new and capacious buildings, arranged on the best and most approved plan, they will command superior tenants, who will consider the comforts and well-being of their farm dependants. A more Christian and God-fearing community, by the force of superior example, set by reflective and educated men, will work a great and beneficial change in rural society. When large, well-squared fields, hedgerows free from timber, well-drained land, spacious and commodious buildings, slate-roofed, and the tall chimney of the locomotive engine are seen —there he perceives some of the advantages of high farming, and he hopes the day will come when all our lands will be ploughed by steam.

We are sure that Mr. MECHI will feel, as our readers must, that he has had an apt and like-minded pupil in the reader of this address to the Staindrop Farmers' Club.

Turn now to Mr. HEYWOOD'S very instructive pamphlet. It is written by a man who has long been resident in the midst of the field which he describes. Mr. MILBANK has not himself been a writer in that field, but looks down upon all agriculture apart, and, as it were, from the hill-top of his own loftier position. Mr. HEYWOOD has been all his life a worker in the midst of it; and having travelled diligently to and fro within its limits, he has acquired a more intimate knowledge of his subject; and thus, although his remarks have a local colouring, they are trustworthy. He has hold of the right guide when, in connection with the question—Will High Farming pay? he says, "let Nature answer." Although with a difference, we may even go all the way that he would take us, for Nature is but another word for experience, and under her guidance, therefore, we are safe. The natural powers of plant and animal are but little under artificial influence, and as already said, and as Mr. HEYWOOD teaches, they must limit all our treatment of them. The natural powers of soil are, however, quite under our control, and we do not, therefore, acquiesce in what Mr. HEYWOOD tells us here. Moreover, the point of view from which he regards high farming is that of a land-owner rather than that of a farmer, and it is evidently that of a Cheshire man, whose soil and climate are especially adapted to Grass-land cultivation. Accordingly he points out how high farming leads to excess of tillage, and to undue reliance on skill and art as compared with the "elements of Nature." Finger-and-toe among Turnips, Clover failure, even Potato rot, and many plant diseases, deteriorated stock, and exhausted soils, are all, according to him, a consequence of this. Gratuitous and premature interference with stock at the time of parturition is very justly condemned by him. Here, as in many other cases, "the artificial interference of man is not only superfluous but often injurious;" and this is but another illustration of the habit of mind with which Mr. HEYWOOD regards the whole scheme of agriculture. His last sentence may indeed be quoted as the keynote on which the whole of his performance rests :—

"Seeing therefore, the important part that Nature performs in all the departments of agriculture, and that we are obliged after all our efforts to acknowledge that the returns are but her gifts, I think we are also bound both logically and morally to confess that the recognition of Nature, as the chief and all-important agent that we are dependent upon, is the first and highest principle of good farming, by whatever name it may be called."

He is no doubt perfectly correct; but it is well that we should know what large room for energetic cultivation lies within the limits he enjoins. He does indeed sum up his teaching by declaring that a person embarking in farming should aim at such an amount of crops, and those of such a nature, as will not only maintain but increase the productiveness of the land, which, however true in the abstract it may be, never will be the motive of a tenant; for his business is to increase his own income by all lawful means; but it is fortunate that the interests of all parties are best served in this way, and that the actual advice which Mr. HEYWOOD gives to a tenant, although thus limited by his regard for the interests of the owner of the land, is very good advice notwithstanding. The following accordingly are his recommendations :—

Thus	To
He should clear and rid the land of all superfluous hedges, timber, &c.,	Admit more freely her action in the form of air, light, warmth, and free ventilation.
He should drain thoroughly and deeply,	To allow rain and the warmth of the sun to penetrate to a greater depth with their fructifying influences.
He should plough deep and pulverise well,	To afford more latitude for the growth of roots and the exposure of a greater amount of soil to the benign influences of the atmosphere.
He should clean, is crops well,	That none of her bounty be wasted in the support of worthless weeds.
And in doing this	
He should scarify well and deep amongst his green crops while young,	To help, by the shaking, fracturing action upon the soil, the extension of the fibrous roots of the plant, which office Nature herself will perform by the action of the wind when they are in a more advanced stage.
He should from time to time change his seed from various soils,	As he sees Nature by the agency of the wind, floods, birds, &c., perform the same function.
He should eat off his seeds with sheep or other stock as much as possible, and confine the scythe to water meadows or other strong land more capable of bearing it.	Thereby availing himself of the beneficial effect of Nature's scissors, which are enriching, whereas the scythe is pernicious and exhausting.
He should allow his land to rest occasionally from its labour of producing tillage crops,	That it may recover and replenish its resources that have been drawn upon, and again acquire that freshness that will fit it for the yield of another course of strong and inexpensive crops.

"" "" "" "

has a positive gain on the animals he has prepared for the show-yard. Some discussion having arisen as to the profits connected with the ox that carried the prize at the last Smithfield Show, his exhibitor, Mr. HARRIS, writes that the feeding and exhibiting of that ox (which, it will be recollected, was bred at Crombly Bank, Ellon) were really a source of profit to him. The following are his figures, showing the debtor and creditor sides of the account, and indicating that, on his animal, Mr. HARRIS has a profit of 40*l.*:—

SMITHFIELD OX—1866.

Dr.	£	*s.*	*Cr.*	£	*s.*
Price of ox	57	0	Prizes at Forres, 1864 and 1865	9	10
Expenses at Inverness and London	10	0	Prize in Inverness, 1865	8	0
Keep, from Sept., 1865, to Dec., 1866 (118 weeks, at 7*s.* 6*d.*) ..	44	5	Smithfield Cup, 1866 ..	40	0
			Smithfield Prize, 1866	25	0
			Price of ox	70	0
	£111	5		£152	10
			Deduct outlay ..	111	5
			Profit	£41	5

Mr. HARRIS says he might add the value of the Highland Society's medal, gained at Forres in 1865, and a silver cup to be given by Mr. BLACK, cattle food manufacturer, as the best animal fed on his food shown at Smithfield, but he is willing to let these go to make up the difference between the nominal and the intrinsic value of the Smithfield Cup, though he says silversmiths tell him it is well worth the money named. As to the sum allowed per week for the keep of the ox, 7*s.* 6*d.*, he says if anybody thinks that too little for the keep of a show ox, 'he is ready to keep any number on any description of food the owner may desire for that money,' provided the animals are not less than 30 months old to begin with."

—— Mr. ALLNUTT, of the *Estates Gazette* and 'Agricultural Library," 200, Fleet Street, has published his annual diagram, showing the fluctuation in the imperial average prices of Wheat during the year 1866. The yearly average is close on 50*s.* a quarter—the result of prices during its 52 successive weeks, whose irregularity can nohow be so satisfactorily exhibited and realised as in a diagram of this kind thus annually published. We recommend our readers to procure it.

—— At the recent meeting of a local agricultural Society in Ireland, the Chairman took occasion to refer to the natural conditions of land cultivation in that country, and recommended that farmers should not depend on cereal crops so much, but grow Grass and green crops adapted to the wetness of their climate. "There is, however," he declared, "another remedy for the extraordinary wetness of the Irish climate—that is, thorough drainage." And thereupon he proceeded to praise "as the wisest and most politic enactment which ever passed through Parliament, the Landed Improvements Act, by which a million of money was placed at the disposal of proprietors and certain occupiers in Ireland for the drainage of their lands on most advantageous terms. He had himself applied for a portion of that grant; and ten acres of land, which had been incapable of feeding a beast for a week, in six months after the drains were closed produced a most abundant crop of meadowing; and in twelvemonths afterwards the meadowing on the same land was so luxuriant that it was in many parts laid by the July rains." He concluded first by expressing the hope "that Irish representatives in Parliament might be able to procure from Government an extension of the term of repayment, under that Act, from 22 years to 34 years; and secondly, by declaring "a deep and an abiding faith in the beneficence and the fatherhood of the Creator," adding "I believe in the future prosperity of our country, and I look anxiously and hopefully for the dawn of a brighter and happier day for Ireland." The applause was "loud and long continued;" but no sooner had it ceased, than up rose Mr. HANLON, and uttered these few words—"I beg to say, Mr. Chairman, that I drained land at my own expense, and I must leave it behind me, as I am obliged to give up my lease next year." We believe in Mr. HANLON'S scanty speech a great deal more than we do in Mr. CHAIRMAN'S peroration. The contrast between the two is that of fact and rhetoric. Mere words of recommendation on climate, drainage, green crops, or even on well-grounded faith in GOD, go for very little by themselves. The "Fatherhood of the Creator" has been shown in the endowment of mankind with common sense; and all the argument in the world, whether couched in agricultural or religious phraseology, necessarily goes for nothing in the face of an experience such as was here abruptly uttered. Mr. HANLON'S speech is not reported to have occasioned any discussion. The Chairman called on another gentleman to propose a toast, and a good deal more of eloquence and good advice was uttered; but wherever Mr. HANLON'S experience is a common one, advice and eloquence are simply worthless. Unless a man, having drained his land at his own expense, has the certainty that he is himself to reap the fruits of his investment, whether in England or in Ireland, landlords may argue in vain about the means of agricultural improvement.

LOST LETTERS COME TO LIGHT.—No. II.

I SHALL not complain of any criticism you may pronounce on my short notice of Swiss Agriculture. It would be difficult to speak of it with much enthusiasm. A traveller in search of farming would hardly stay long in Switzerland. But I must not forget that it is for those who always stay at home that I am writing; and they know as well as I do that there are plenty of things which *are not* agriculture, that an agriculturist is as much benefited by seeing as if the lesson they conveyed was professional in the utmost degree. The very fact of a country being so precipitous as to be *non-agricultural* (in the strict sense of the word) is for instance a matter of observation so interesting to no one as to an agriculturist himself. And, literally, this is so here. There isn't *plough-room*. The one farming feature of the country is Mountain-pasturage: except indeed in those districts where THE VINE is a success. There all is different! Even the most enthusiastic Hop-grower of Kent, or Herefordshire, who empties his whole muck-yard between the Binds, can form little idea of the labour and skill bestowed on the soil, that grows the plant, that ripens the fruit, that makes the liquor, that gives the condition, that enables the mind, to dismiss the care that makes human life disagreeable. I suppose that is the meaning of it: at any rate that is the 'House-that-Jack-built' way in which the reflection seemed to present itself to me, in watching the Vineyard work at Neufchatel, and Vévey and every other Vine-district here, as formerly on the Moselle, and the Rhine, and at Oporto, and at Seville, and in Madeira.

For it is the same everywhere: when you contrast the labour, both in quantity and style, of the shabbiest Vine-bearing rock, with that of the richest corn field you ever saw worked; you see, typically as it were, how much more men will pay for an hour's pleasure than a day's health, or a week's strength. And verily and indeed if that may be seen in Switzerland, it is a truth absolute! for a drier animal (metaphorically speaking) exists not on the face of the earth than your honest Swiss. That he should live on one side of the Alps, and the Italian on the other, is one of Nature's freaks—*dry jokes* I should say—not to be surpassed; and when I have said that against the "merry Swiss boy," I have said the worst of him. A more honest laborious creature does not exist, in the family of man: he would fairly earn, and rigidly *take*, the last penny you had got: but unlike trans-alpine experience, your fleecing shall be strictly legal. Attempt to correct an hotel-bill, and you shall see how a Swiss loves money: try to see a waterfall, or a glacier, or even a mountain-top, *in private*, at any hour of day or night, and you shall see how Nature has been laid under contribution; framed and glazed and sold *at per* square or cubic yard, and in what sense Switzerland belongs to the Swiss.

"William Tell's chapel, Sir! The point where he leapt from Gessler's boat, and shot the Tyrant to the heart!—a franc a-piece, if you please, gentlemen."—"A real live Chamois fresh from the Jungfrau! Observe its beautiful eyes:—half a franc, Sir, if you please." Yes, I cannot deny that this *is* rather a drawback for travellers in Switzerland. I remember a remark of a certain theological writer, by no means as orthodox in other respects as he should have been, that it was a striking mark of liberality in the Author of Nature to have given its grandeur and its beauties to the eye of man, without the nuisance of *a Showman*.

How should you like, my dear Greening, when a friend comes to look at your Wheats, or you come slily over before the dawn to inspect my Mangolds put in with a single furrow after the Autumn 'smashing-up,' to find a sort of human *genius loci* (if you know what that means, as I don't believe you do,) squatted 'in possession' of each field, and turning up, the very instant you appear, with "Beautiful Mangolds Sir! Grown at a single Spring-furrow! Splendid instance of the advantage of Autumn cultivation! Please to observe the mellow condition of the soil, not robbed of its moisture by too much Spring ploughing: a shilling if you please Sir! hagri*cul*tural stoodents sixpence."

Tell me, my old friend of many years, how would you like *that?* Well, that is what you will find in Switzerland: everywhere, everywhere: you cannot escape it: it will meet you before the dawn, and after the sunset, and in the central heat of the day. But this is 'business'; you cannot deny it, you know. Other nations have each their great 'speciality' to shew: the Englishman his Ships, his Docks, his Railroads; the Frenchman has his 'la belle Paris': he wants, he cares for nothing else: the Italian his works of art, his Statues, his Pictures, his Architecture; above all his ancient civilization which has penetrated and leavened the whole mass of his population, leaving many poor and more ignorant, but *none* vulgar: well! the Swiss has his 'country'—his Lakes, his Mountains, his Waterfalls, and he 'tickets' them, and charges for them *at per head*. Scold if you will: apostrophise Mrs. Greening about the infamy of making a Show-room of Nature's sublimities, *et cætera*: but so it is:—nearly twenty centuries have passed since one Julius Cæsar characterised the Helvetii to the Roman Senate as 'brave, hardy, faithful—*mercenaries*.' As they were then, so they are to this day. None are more nationally jealous, or carry about more patriotism—*for hire*. "I always," said a brother traveller on the Lucerne and Fluelen Steam-boat—"I always, when in Switzerland, for 'politics' read 'pockets;' and know when I hear of William Tell that I shall have to pay William *Toll*." But despite these petty exactions, which are more provoking than serious, Switzerland is not by any means a dear country to live, or even to travel, in. The Swiss have a reputation over Europe for good 'organisation.' The Hotels are not only well-appointed, but owing to the jealous spirit of gain, they are run up, larger and larger, every year, for the accommodation of the increasing army of Autumn Travellers, who come either to pass a short holiday among the Lakes and Mountains; or, like myself, to pass over the Alps and get to the sunny side of the world as soon as may be.

It certainly would astonish the eye of a farmer, accustomed to the delicate grasses of English meadows, to see the kind of herbage which, under a system of infinite care and cost, sends down milk and butter and cheese from the Alps, or mountain-pasturages (for that is the meaning of the word in Switzerland and the Tyrol) by means of the daily droves I have before spoken of. The extreme coarseness of the bite reminds me of the kind of Dock-and-Nettle growth one sees in England near old dung-heaps or the outlying corners which the scythe never reaches. But the sharp mountain appetite makes the cattle eat it with avidity, and turn it to good account. No sooner does the snow begin to disappear and the young grass to sprout in the Spring, than the herds begin their annual ascent, which gets higher and higher to "fresh fields and pastures new" as the Summer advances. Those which are intended for a summer campaign in the highest Alps, remain in the middle pastures till the beginning of July, and about the 4th of that month begin the serious ascent; and after spending a couple of months amidst the crags and clouds, more than a couple of thousand feet above the level of the plains, descend again to crop the aftermath of the middle and lower pastures. No one who has not experienced it can imagine the pleasure on coming down from one or two long days' mountain-climbing, far above the highest cattle range, to hear on turning some sharp capricious angle of rock, or as a gust of wind sweeps by, the sudden music of the tinkling bells of the cattle. The ear, grown accustomed to the intense and lonely silence of the high altitudes, is startled with a pleasure that is almost like a new-found sense, at the unexpected and home-like sound. Nothing probably is so teaching to *all* animals as Privation: it quickens the sensation of the very faculty that has been temporarily starved; and supplies a zest as keen and sweet as that momentary reminiscence of childhood which the scent of a spring flower will sometimes bring.

The best cheeses are made upon pastures 3000 feet above the sea-level: and in the Simmenthal and the Emmenthal, and the high Valley of Saanen (celebrated for its Gruyère), the usual yield of the best cows is above 30 lb. of milk daily during the summer, and each cow produces by the end of the season a couple of cwt. of cheese on an average. The number of Châlets he sees on the mountains would lead a stranger to suppose them very thickly inhabited; but they really are only *log-huts*, made to furnish a temporary sleeping-place and hay-barn to the cowherd. Their architecture is curious, consisting simply of poles laid log-hut fashion on one another, and tied at the quoins by means of a notch near the end, which keeps them in place, generally enclosing three or four good-sized rooms. The construction, simple as it is, is worth notice, because it is the first step, or type, of timber-architecture. The difference, as you rise above this in quality, is rather in degree than kind: the immense hotels built in favourite mountain elevations, like those on the Rigi and Pilatus, making up from one to two hundred beds, are only châlets *multiplied into themselves*.

The abundance of the Mountain Pine, with the facility of sawing it up into plank and quartering, by the water-power of the mountain-streams, naturally gives the character to their mode of building, making timber take the prominent part. The toy-houses seen in the shops are exact models of these, and show a genius in their petty structure that is not so readily apprehended in the full-sized originals. I wish our English cottages followed the Swiss example rather more in the picturesque (and far better than picturesque) feature of the *projecting roof*; our rainy climate requires it, and it gives a look of finish and comfort which the most costly dwelling is cold and bald-looking without. A stranger is puzzled at first to account for the enormous stones seen lying at random upon all the roofs, as if an avalanche had passed by and sprinkled every dwelling with its fatal side-granite-shower; but without these architectural *paper-weights* the shingle roofs would soon be the plaything of the mountain winds.

I should not like to hazard an estimate of the cost of erection of one of these simple yet really ingenious mountain châlets; but of this I am sure, that the owner of a Scotch or English Larch-plantation might out of his annual thinnings, with the help of a Swiss carpenter, erect some dwellings on his estate, so cheap, and pretty, and commodious, that 'all the world' would come to see them, and, of course, 'want to do the same.'

Heaven defend us from mere make-shifts: but I do wish we had in England a little of that rough-and-ready constructive genius which can 'put this and that together,' without the Mason calling helplessly to the Carpenter, and the Carpenter bleating piteously for the Plumber, and the Plumber wasting half a-day, ready to tear his hair, because 'the Bricklayer did not come;' each as profoundly ignorant of the work and even tools of the other as if the trades belonged to different planets. The Builder, of course, as best he can, reduces all this Babel to a common denominator, so as to bring out 'a House' as the quotient: but about his polyglot task there appears to me to hang a feeble sort of mystery which makes all building calculation a standing reproach to human experience, and keeps a third of England's labourers without home or hearth, because the national genius does not admit of any *Master of Arts*—except in the Oxford or Cambridge—which is, in fact, the Pickwickian—sense. But we must pass by these châlets planted in dung heaps, and get on over the mountains. *C. W. H.*

IRISH AGRICULTURE.

MY attention has been attracted by the concluding part of an Essay by a Mr. Davidson, which recently appeared in your pages. As the writer in his great zeal has written several things which neither the practices of the best land cultivators nor the theories of the most scientific men in Ireland at least can bear him out in, permit me to undeceive those of your readers who may have been misled by them. Treating of light soils, the writer says:—"The general way that

such soils are managed in this country is to let them lie in Grass, and for this they are not adapted." So far he is to some extent right. He goes on:—"It is very difficult to fatten cattle, even with the aid of Turnips, on such soils, as the Turnips are not of the same value, even should the crop be a large one." I deny that. "The quality of the Turnips is often overlooked when discussing stall-feeding or sheep-folding, and the same rule holds good with all produce grown on this class of land." I deny that too. "In comparison with that grown on good soils, the same quantity of bone, muscle, or wool can never be produced in stock fed on light soil, no matter how fed." I deny that *in toto cœlo*. But even admitting it to be so, the very argument used in stating it, if relied upon, should defeat the expressed object of the lecturer; and as what I am writing may meet the eye of the lecturer, I call on him for proofs in sustentation of his views.

But indeed he has to a great extent contradicted himself by the example he has given of profitable light land farming at Jerpoint, in the county of Kilkenny, "where Mr. Franks, by perseverance and skill, has made a splendid sheep farm of what was formerly a mountain covered with whins and stones." May I ask, was all this done without Turnip culture and sheep-feeding with some crop on the same land? May I ask, further, are the sheep fed by any artificial means on the same land; and if so, with what, if Turnips be no part of such feeding? If such pastures are capable of sustaining sheep in a profitable manner without auxiliary food, then the Grass on light lands must be of higher value than the writer estimates it; and if it be not so aided, then I half suspect the whins will one day or other claim the prerogative in their native habitat. If Turnips are used on this mountain farm, and must be carted to it from the rich low land, than which the writer insinuates none else is fit to grow them to perfection, I am half induced to think Mr. Franks pays rather dearly for that whistle.

The lecturer says: "There is a great difference of opinion as to the best way of feeding pigs," and then goes on to cite as proofs his practice on one Yorkshire sow and her progeny of one litter of "10 pigs, from which he selected four of equal value, and put them to feed on the high-feeding system, and the other *two* on the green-feeding system." What other two does he mean? for after selecting *four* he had *six* remaining. Were those "other two" what Paddy or Paddy's mother would call "the rutlings" of the litter? To prove the policy of feeding high from infancy, and to the end of life, pigs designed for slaughter, and all other animals so designed, would be, to say the least of it, a work of supererogation, and I will pass it over, and will simply enter my protest, as an old pig breeder and feeder, against the trusting of pigs to the kind of green feeding and manner of applying it as stated by the lecturer; knowing, as I do, that many of the immense losses sustained in Ireland of late years by the deaths of pigs were caused by confining them to hard, crude, and, to pigs, indigestible food, such as "cut Vetches," even when mixed with "pulped Mangels and half-a-pound of bruised Oats per day," and when "mixed with water as a drink." He says, "I found that they paid me at the rate of 15*l.* per acre for the Vetches, and 15*s.* a ton for the Mangels," but omits to say how much an acre they paid for the Potatos, or how much a barrel for the Oats used. He goes on, "Ever since, this has been my system of feeding pigs. When the Vetches begin to pod, and the corn that should be (?) sown amongst them begins to ripen, the pigs flourish on them, and all weeds gathered about, and also bog stuff, should be put under them, all of which they will convert into valuable manure."

Mr. Davidson adds (of poor Irishmen), "But they never think of providing a supply of feeding for their stock nor for themselves, but spend their time between the bed and the fire during the winter months, and if they do stir out it is to the market or court-house, to learn law they go, of which many of them know more about than feeding a cow."

Now, sir, I will go even further than that in condemning Irishmen's bad habits, which are the results of other causes than those I have cursorily glanced at; but before doing so I can certify that although they do not feed their cows as they ought to do, 99 out of every 100 of these fellows are better pig feeders than Mr. Davidson, judging by his essay.

Of the Irishman, Mr. D. says, "he would be a brainless fellow who could not make every day's labour on his little farm worth 3*s*." Poor Paddy! verily you can with much justice ask, as the eunuch did of Philip, "how can I unless some man show me?" Now if the lecturer can, under existing circumstances, show "the small farmers under 10 acres" how that can be done, neither he nor I will have cause to complain of how "Ireland's sons have been hunted from her shores to look for the labour she required," and ask then, "where are the recruits to be got now to defend the British flag?" If in what I have written I have done that which I never intended, personally to offend Mr. D., he may excuse my offering a simple suggestion, which is to get a 10-acre farm, such as he alludes to, and prove to the tenant of such a holding that his labour will be worth 3*s*. a day to him. He will enable the Government to withdraw 25,000 troops from Ireland.

One or two words more on a very delicate and touchy subject, rather roughly, but I am far from saying untruthfully, handled by our friend Mr. Davidson. It has reference to the salaries of stewards in Ireland. Mr. D. is quite right in the censure cast on those who would offer 40*l.* or 50*l.* as an annual salary to a steward worthy of being called such, whether of Scotch, English, or Irish descent or education. Still he does not in my mind paint the picture heavy enough. It is a fact that we see advertisements not only for men capable of acting as stewards, but in the double, triple, quadruple, or quintuple capacity of gardener, steward, forester, land drainage engineer, landscape gardener, and practical instructor to tenantry; and when a person applies for the appointment, he is referred, perhaps, to some petty sessions attorney, who will put as many questions to him on various matters, of a scientific nature more especially, as would take a Liebig, or a Sullivan, or a Voelcker to answer.

The 30*l.* or 40*l.* salary is then named, with or without some other trifling matters, and the appointment confirmed, and the appointee attempts to withdraw, when the great man calls him back with an apparently suddenly inspired thought, "Oh, by the bye, I forgot to ask you what is your religion?" Then comes "the tug of war" in the poor steward's mind as to what answer he may give, if he be a waverer in those wavering times on that subject which of all others is of the greatest importance to the man himself, but of no importance to any other man. If he be a high minded man, as I am proud to believe the majority of land stewards are, he will at once announce his religious creed, which may or may not be the desirable one. If it be not, he is let to stand aside and another called in who may be of "the right sort," or whose conscience may be somewhat of an India-rubber cast. If the former, he is at once engaged. If the latter, then comes the "diamond cut diamond" dodge. He may go to the situation, having sacrificed his conscience to expediency for 30*l.* a year, and we may be sure that he will thereafter on every possible occasion, whilst continuing to act the hypocrite, sacrifice not only his employer's interest, but every other interest through which he can make a penny for himself. And whilst the employer fancies he has been saving by the smallness of the salary, he is virtually paying indirectly an enormously high one. This is a sad but a true picture of the case. Still, to use the concluding words of Mr. Davidson, "I am glad to see that gentlemen are now giving the men of character and ability better wages, which will bring better men into the field—men who know how to employ money to advantage instead of boasting of how much they have laid out," to which I will add, in the words of Sir Robert Kane, "I do not hesitate to assert that the existing generation in this country is half a century in advance of that which is dying off, and that the generation now at school will be a century in advance of us." *E. C., Dublin, Jan.* 17.

AGRICULTURAL STATISTICS.

The following Table—7th of the Board of Trade Returns—gives the Population, Area, and Acreage under Crops and Grass in the United Kingdom and in Various Foreign Countries.

Countries.	Date of Acreage Returns.	Population according to the latest Returns.	Total Area in English Statute Acres.	Total Acreage returned as under Crops and Grass (exclusive of Vineyards and Olive Grounds).	Acreage (in English Statute Acres) under Corn Crops.								
					Wheat (including Spelt).	Barley or Bere.	Oats.	Rye.	Beans, and Peas.	Mixed Grain.	Buck-Wheat.	Other Kinds of Grain.	Total under Corn Crops.
Great Britain	1866	23,128,000	56,964,000	28,704,867	3,385,394	2,237,329	2,759,923	60,077	845,061	—	—	—	9,287,784
Ireland	1866	5,799,000	20,323,000	15,549,796*	300,474	152,777	1,097,648	7,753	14,781	—	—	—	2,173,433
Total for United Kingdom (including I. of Man and Channel Islands)	1866	29,071,000	77,513,000	—*	3,697,635	2,398,485	4,469,297	67,879	860,370	—	—	—	11,493,666
Sweden	1866	4,022,000	107,547,000	10,998,000	115,000	615,000	942,000	877,000	124,000	241,000	—	—	2,914,000
Denmark Proper	1861	1,663,000	9,354,000	5,545,720	140,448	687,179	811,580	473,591	94,885	—	61,431	76,359	2,345,273
Wurtemberg	1865	1,748,000	4,757,000	3,010,833	544,284	237,904	317,982	102,162	18,543	—	52	14,781	1,235,708
Bavaria	1863	4,807,000	18,967,000	11,138,387	1,043,534	838,779	1,120,704	1,460,789	123,223	—	4,456	9,790	4,601,275
Holland	1864	3,668,000	8,617,000	5,024,240	194,730	104,315	263,613	476,984	129,080	—	162,323	—	1,331,045
Belgium	1856	4,782,000	7,211,000	4,521,377	804,758	110,130	541,347	721,492	143,964	102,285	60,517	—	2,484,493
France	Latest Returns	37,547,000	132,787,000	97,506,251	17,252,386	2,570,853	8,058,634	5,417,278	1 127,832	1,415,273	1,751,546	1,486,933	39,080,735
Austria, exclusive of Galicia (except Cracow) Bukowina, the Tyrol, and the Military Frontier	,,	34,070,000	145,310,000	58,407,589	3,662,164	2,755,415	6,573,921	6,978,008	182,927	1,749,691	514,722	3,967,260	26,384,108
Italy (including Venetia)	,,	24,681,000	68,747,000	43,524,589	26,980,309							357,493†	27,337,802
Switzerland	1855	2,534,000	0,945,000	4,962,987	1,435,555								1,435,555

Countries.	Date of Acreage Returns.	Acreage (in English Statute Acres) under Green Crops.				Bare Fallow or Uncropped Arable Land.	Clover, and Artificial and other Grasses under Rotation.	Permanent Pastures, Meadows, &c.
		Potatos.	Turnips, Carrots, Parsnips, Mangels, and Beet Root.	Other Green Crops, as Rape, Colza, &c.	Total under Green Crops.			
Great Britain	1866	498,843	2,417,744	635,943	3,552,530	964,937	3,694,224	11,148,814
Ireland	1866	1,050,419	341,120	90,552	1,482,091	28,060	1,600,495	10,002,058*
Total for United Kingdom (including I. of Man and Channel Islands)	1866	1,555,609	2,770,612	728,799	5,055,020	1,004,278	5,324,119	—*
Sweden	1866	334,000	2,850,000					4,900,000
Denmark Proper	1861	69,176	5,635	32,445	107,256	405,064	1,760,403	927,525
Wurtemburg	1865	167,948	60,210	229,587	457,745	253,845	194,906	868,629‡
Bavaria	1863	649,735	162,468	206,422	1,018,625	1,172,133	720,800	3,625,554
Holland	1864	265,987	79,618	184,734	530,339	61,256	66,957	3,034,642
Belgium	1856	369,850	81,947	267,327	709,124	159,112	396,787	771,870
France	Latest Returns	2,048,364	890,195	1,379,823	4,318,382	14,091,392	6,331,820	33,683,922
Austria, exclusive of Galicia (except Cracow), Bukowina, the Tyrol, and the Military Frontier	,,	1,308,148	46,817	454,512	1,809,477	Not stated.	1,302,434	28,911,570
Italy (including Venetia)	,,	Not ascertained. (Included with Acreage under Corn Crops.)				Not stated.	16,186,787	
Switzerland	1855					—	3,527,431	

* The Returns of the Acreage under "Permanent Pasture" in Great Britain and in Ireland are not comparable, as Hill Pastures are excluded in Great Britain and included in Ireland.

† Ricefields. ‡ Including Hill Pastures.

Note.—In addition to the land under the above-mentioned Crops: in Bavaria, 54,655 acres were under Vineyards; in France 5,411,545 acres were under Vineyards, and 2,445,492 acres of cultivated trees; in Italy 1,370,279 acres were under Olive Grounds; in Austria 1,395,371 were under Vineyards; and in Switzerland 68,444 were under Vineyards.

For the United States of America there are no recent Returns of the Acreage under the several Crops in the whole of the Union.

Home Correspondence.

Early Planting of Early Potatos.—I can fully endorse the opinion expressed by Mr. Dobbie in your Number of the 12th ult. with respect to the advantage of early planting, or rather the planting of Potatos before they have made a premature growth out of the ground. During the last three years I have conducted on rather an extensive scale, a series of experiments on the Potato crop, and incidentally have been much struck with the condition of the set as influencing the future crop. I have generally planted early Potatos in February, but have experienced the greatest difficulty in preserving the sets so as to prevent a premature growth, which, as far as my experience goes, invariably tends to a diminution of the crop. I have not much definite information to give on this point except to note that I have been able to trace many apparent irregularities in the result of experiments to this cause—a premature growth out of the ground invariably causing a diminution of the crop. In 1865 some fine strong sets of a very early variety—the Early Prolific—that were much advanced before planting, failed to reproduce their own weight. Taking advantage of my past experience, I have this year planted my early Potatos before the sets made any considerable growth. Most of my crop was in the ground the first week in the year, and although they are now frozen hard under the soil, I feel sure that the crop will exceed that from sets planted later that have been enervated by a premature growth. Some of the sets may be destroyed, and the crop come up a little irregularly, but I feel sure that the extra produce of the bulk of the crop will more than counterbalance the loss of a few sets. However sensitive the Potato may be to cold when exposed, no gardener can have failed to observe its power of resisting frost in the ground. The smallest Potato, or even fragment of Potato, accidentally left in the ground, grows with vigour in the returning spring, and this should give us a hint as to the proper treatment of the crop; everything tending to a premature growth should be checked, or the sets got under the soil before the growth commences. With respect to the relative advantages of cut and whole sets, my experience suggests that the weight per acre of sets planted has a greater influence on the crop than their condition, whether cut or uncut; a certain weight per acre of cut sets having produced as nearly as possible the same crop as a similar weight of whole sets—this I tested in various ways with similar results. During the years 1864, '65, and '66 I have conducted an extensive series of experiments with respect to the relative advantage of large and small sets. I recorded the results obtained in 1864 in your pages of that year, which pointed to the very decided advantage of large sets, a greatly increased weight of crop being produced over and above the extra weight of sets planted. The experiments of 1865 and 1866 fully confirm these results, but as they will be published in detail in the next number of the Royal Agricultural Society's Journal I will not now do more than state that each advance in the weight of the sets from 1 oz. up to 8 oz. produced in the crop a great excess of produce over and above the extra weight of the crop planted—the crop produced by 8 oz. sets being considerably more than double that from 1 oz. sets; and after deducting the weight of the sets in each case, the net balance of crop produced by 8 oz. sets was little short of double that produced by the 1 oz. (a size frequently employed). In fact, with precisely the same expenses of tillage, you may, by merely increasing the weight of the set, nearly double its net value, in addition to covering the extra cost of sets planted. Each step in advance from 1 oz. to 2 oz. sets, 2 to 4 oz., 4 to 6 oz., and 6 to 8 oz., showed similar results. Each additional ounce in the weight of the sets (occupying two square feet of ground) produced a gross increase of crop of about one and a-half ton per acre, and a net profit of nearly a ton per acre, in addition to the extra weight of the sets. I would strongly urge those who are about carrying out the trials of experimental manures on Potatos, proposed by Dr. Voelcker, and referred to in the Circular of the Royal Agricultural College Club of January 1st, to fully recognise this fact, and employ weighed sets of exactly the same size in the various comparative experiments. As the usual weight of sets planted for the general crop rarely exceeds 2 oz., I believe the influence of the size of the set on the crop is well worth greater consideration by horticulturists and agriculturists than it has hitherto received. *George Maw, F.L.S., Benthall Hall, near Broseley.*

Land Agency and the Management of Woods.—I had much pleasure in reading the able lecture on land agency by Mr. Gray, of Dilston, and the lecture, I have no doubt, is calculated to do much good. There is however one part of it which, in my opinion, is not what it ought to be. In describing the different departments of landed property and their management, Mr. Gray says, in reference to woods, "that where a forester is not kept, the farm bailiff or gardener will answer the purpose in looking after the woods and plantations." Now I beg to state that there is no department in connection with landed estates which requires greater forethought, study, and ability than that of the management of woods and plantations. I am aware that on nine-tenths of the estates between Land's End and John-o'-Groat's, woods and plantations are thought very little of, and supposed to be quite well enough looked after if they are placed in the hands of a farm bailiff, gardener, carpenter, or coachman. Trees are the largest and most noble of the vegetable production. Every one admires trees when they have been allowed to show their natural habitat. Timber is a very considerable item in our British trade in these days; trees are a great means of shelter to our farms, and they are the great ornament of the country; why then, I ask, should our woods and plantations be put to one side, as it were, and left in the hands of men who know not one kind of tree from another? It may be said that woods do not pay, and that is the reason why they do not receive that attention which either farming or gardening does. I am sorry to think that on a great many estates the woods and plantations do not pay; but this is easily accounted for. If a mechanic was put to manage a farm, would it be at all surprising if that farm did not pay? If a gentleman put his garden in the hands of a ploughman, would he expect to see that garden thriving, and everything up to the mark in horticulture? How can it then be expected that woods and plantations can pay when they are put under the management of men who perhaps can find out the contents, in feet, of a timber tree, and can cut one down when it is required, but who know nothing of the true and proper system of planting, draining, or thinning of plantations. The thinning of woods and plantations is a science by itself. It takes a man of experience to know how, when, and where to thin a plantation properly. A proper system of thinning, carried out under the management of a proper forester, results in the future welfare of the plantation, both as regards general appearance, and as a matter of pounds, shillings, and pence. But on the other side, where the work is carried out by a person who has not been trained to it, the result most certainly will be the ruin of the plantations in every respect. It would be well for landed proprietors if they would pay more attention to their woods and plantations, and if it were a rule with them that none but really qualified men filled the post of forester. A forester requires to have a better education for his work than either a farm bailiff or gardener. The blunders and mismanagement of a farm bailiff or gardener can be remedied and got over in one or two seasons; but the mismanagement of woods and plantations cannot be got over for a number of years, and sometimes not for a lifetime. A forester should be a fair botanist, to be able to know and describe plants and trees correctly. He should be a geologist, to be able to know the different qualities of soils, so that he may know what is best suited for one kind of tree and what for another. He should have a knowledge of chemistry, to enable him to judge correctly as to the nature of soils. Vegetable physiology is what no one should be without who has the management of woods and plantations. A forester should have been trained to his work in the woods of some gentleman who has had the common sense to keep a proper wood manager. I could name several estates in both England and Scotland, where for the last 20 years the woods have been under the management of highly qualified men, and the result has been a good annual income, and a large increase in the value of the existing woods and plantations at the present time. From experience during the last 15 years, I can confidently assert that if woods and plantations are kept under the management of a properly qualified forester they will, on an average of years, pay a larger net income per acre than the land they occupy would pay if kept as part of a farm. *Robert Brown, Agent to Major Stapylton, Wass, Yorkshire.*

Ground Mice.—I have the pleasure to state that your Foreign Correspondent may in a few months get rid of the mice, if he will just follow my plan. I recommend the old figure-four trap, which is the very best trap for mice, whether indoor or out, but I do not recommend the old style of having a brick, but get slates about 1 foot long, not longer, as large heavy slates or bricks will not go off so easy. Now, first of all, let H. v. Seht get these slates and place them at the hedge sides, as these mice sleep in holes generally in the fences, and often from 20 or more in one hole. I always use two slates, one for the fall, and the other under, as if only one slate is used the mice will sometimes creep from under. The bait I recommend is to get about equal parts of cheese, oatmeal, lard or fat, also chopped tow. Mix these up together into a paste, so when finished this bait is so handy that it can be spread on the end of a stick without string; and if held for a time before the fire, so much the better, as it sets fast when becoming cold. This bait can be carried in the pocket when the trapper takes his rounds; but I find that one bait will last sometimes for 20 mice. I am sure if he will set 12 to 18 traps to an acre he will clear his farm in two months. I have caught 170 mice with six traps in six days, and I warrant if he will visit his traps three times after sunset he will soon thin their numbers. There is nothing like traps for mice, it beats owls, hawks, or cats. Cats are not of much use to clear a country; they do not catch them quick enough. Now is the best time to commence, as they begin to breed in March and April. *R. H. D.*

Societies.

WEST HERTS: *Jan.* 29.—At the second annual meeting of this Society, the Earl of Clarendon, the President for the year, took the chair, and after explaining that illness had prevented him from being present at previous meetings, congratulated his hearers on the success of the Society, and dwelt on the numerous benefits of such associations. They brought people of all classes together, and made them feel when engaged on an object of common interest that they are equal. After referring to various subjects connected with the management of the Society, Lord Clarendon said:—The Committee are particularly anxious to call the attention of the tenant-farmers to the prizes given for the best cultivated farms. Prizes of 50*l.* and 25*l.* are worth competing for; they open a wide field for competition. The obtaining of such prizes is most honourable, and I cannot conceive anything more beneficial to a district than a number of men pitted against each other, and bringing their knowledge to bear on the increase of the produce of the land. There is one class of prizes which I hope will never be eliminated from our list, and which I hope to see extended in number and value—I mean the prizes for labourers. I allude to this because these prizes have often been made the subject of ridicule, and attempts, although happily unsuccessful, have been made to discourage the donors, and to deprive the recipients of these prizes. It has been said that it is degrading to a man to receive a prize of 2*l.* or 3*l.* for a long course of good conduct under circumstances the most trying. But I think these critics do not understand the mainspring of human action; for in all of us Nature has implanted a natural ambition. There is no one who is worth anything who does not aim at distinction, at raising himself in the estimation of others. The Victoria Cross is given as the reward for daring acts of valour. Admirals, generals, successful diplomatists, adventurers—those noble men who have made geographical discoveries, who have laid down the Atlantic cable, receive the decoration of the Order of the Bath. It would be absurd to measure these distinctions by their mere money value. The same remark applies to the labourer. He cannot win battles, or sign treaties, or explore distant countries, but he can so conduct himself as to be an example to all those around him and confer a great benefit on his locality. The man who lives for many years in the same place—the man who brings up many children without relying upon the parish for relief—the man who in provident societies or savings-banks lays by for a day of trouble, the man who gives proofs of intelligence, sobriety, and industry, and of having according to the best of his ability performed the duties that devolve upon him, deserves the greatest encouragement. It is incumbent on a Society like this to seek out such men, to publish their characters, to reward their merits; and I think when the prizes are given they should be accompanied by a diploma recording the causes of the gift, which would be to the man's family his Order of the Bath or his Victoria Cross. But this matter needs no argument. The fact is that the labourers value these prizes—that they compete for them most willingly—that they are proud of them—and that is quite sufficient for us. I wish now to say a word on a matter to which I attach considerable importance, and that is the subject of agricultural statistics, in which hitherto England has been most lamentably behindhand. I think there is no one who reflects on this matter who can deny that a correct collection of facts showing the actual state of agriculture and its improved condition from one year to another must be of the greatest importance to the nation at large, and most especially to the owners and occupiers of land. Upon most matters that affect the highest interests of the country we are in the habit of collecting the most valuable returns and information, and drawing from them the most useful and interesting lessons. Upon our trade and commerce, our exports and imports, our currency, our population, our criminal jurisprudence, and, in short, upon everything that can throw light on the moral and social condition of the country, we have for years past been in the habit of collecting and acting upon the most reliable information we could obtain. But it is upon the produce of our soil; upon the relation between production and population; upon that knowledge which will impart to us the amount of the production of our own soil, and how far we must rely upon foreigners for our food; what are the regulating causes of price—upon everything which it is most important for the producer to know, the agricultural interest have refused to be informed, and have preferred to remain in ignorance and darkness. This is a strong thing to say, but I am justified in saying it, and I will tell you why. Having laboured much abroad, and having been aware of the enormous benefit which foreign countries derive from this accurate collection of facts—particularly France,—I was anxious, when I was in a position to carry out my intentions, that my own country should be similarly benefited; and when I was President of the Board of Trade in 1847 I caused a Bill to be prepared and laid on the table of the House of Commons, authorising the collection of agricultural statistics. But it met with such bitter opposition, and the prejudice was so strong, and the measure was considered so odious and inquisitorial, that we had to give it up. But when I was appointed Lord-Lieutenant of Ireland, I determined to try the experiment in that country, and a system was organised which worked most admirably, and there are not in Europe agricultural statistics so complete and reliable as those obtained in Ireland. The quickness and penetration of the Irish people saw what the value of such information would be to an agricultural country, and the readiness with which they lent themselves to procure this information called forth general thanks. These admirable statistics have for many years been a standing reproach to Great Britain. But at length prejudice seems to have given way to common sense, and the Board of Trade has been able to organise a system which is beginning to work tolerably well, and a return for 1866 shows the total population, area, abstract of acreage under crops, bare fallow, and Grass, and the total number of cattle and sheep in each division of the United Kingdom, in each county, and in various foreign countries. So that we shall not only know what we are doing, but shall be able to compare our progress or decline with that of most foreign countries, and shall be able to judge what will be the prices at home and abroad. The answers to the inquiries in Scotland have, I believe, been most satisfactory. But in England there is a great deal to desire, and my reason for venturing to call attention to the subject is that I believe it to be the duty of everybody connected with land to aid by voluntary returns and other means the very useful work in which the Board of Trade is now engaged.

STAFFORDSHIRE: *Chambers of Agriculture.*—The following is an abridgment of an address by Lord Lichfield, recently spoken before an agricultural meeting in Staffordshire, on the uses of a Chamber of Agriculture:—The subject had been so much ventilated that

it was unnecessary to go at any length into the reasons in favour of the establishment of such an association, the principal object in view being to create an organisation by means of which the agricultural interest could bring its views to bear with greater weight upon Parliament and upon the Government of the country.

(1). *Cattle Plague Legislation.*—He could scarcely better illustrate the want of such an organisation than by calling their attention to what had occurred recently in connection with the cattle plague. As they were all aware, various rules and regulations as to the movement of cattle from one district to another had, during the last twelve months, been from time to time adopted, rescinded, re-enacted, &c., &c., so that owing to the frequent alteration, and, in many instances, the conflicting nature of those regulations, very great difficulty and inconvenience had been caused to farmers and others throughout the country from being unable to ascertain clearly what the regulations were. But, although he had expressed himself strongly as to the unsatisfactory manner in which both the late and the present Government had dealt with this matter, he did not think the Government were wholly to blame; he was rather inclined to believe that the real cause of the unsatisfactory legislation which had taken place on the subject was to be found in the fact that neither Government nor Parliament had the opportunity of properly ascertaining what the views of the farmers throughout the country were; and it stood to reason that it was so, because if a question of this kind was to be dealt with by Parliament, and if they received suggestions and advice from one county in one sense, and from another county in another sense, it was impossible to know which was right, and thus Government found itself in many cases obliged to adopt the alternative course of doing nothing, or at least they had the excuse of not knowing what the real opinion of the country was upon a subject for not doing anything. This had been the case, he had no doubt, more than once during the past twelve months.

(2). *The Question of the Malt Tax.*—He had often heard it remarked that the subject was frequently far better handled by a meeting of farmers, at one of their agricultural dinners, than in the House of Commons. The reason for this was that even the farmers themselves were not agreed on the subject, and had never yet brought to bear any organised weight on the Government, with a view to its being dealt with by legislation. He did not see how the agricultural interest throughout the country could better bring their opinions to bear upon the Government than through such organisations as these suggested Chambers of Agriculture.

(3). *The Central Chamber of Agriculture.* — It appeared to him that the members of such a Central Chamber should represent whole districts, whether of counties or parts of counties. That was a most important point to consider at the very outset of the question, and one he thought which had not been as yet sufficiently considered, because, when he asked himself whether the Central Chamber of Agriculture, as at present constituted, had the weight it was desirable such a body should have, he was very much inclined to ask, "Whom do you represent?" The answer to that was not perfectly clear, and without going into details it was sufficient to say that there was no organised system on which it professed to represent the different districts of the country.

(4). *Local Chambers of Agriculture.*—It might be asked, Why did they want a Chamber of that description at all? His answer to such a question would be that at present there was no machinery of any kind in existence, such as other interests in the country had, by which the agricultural interests could give expression to their opinions and requirements, and bring them to bear with real weight upon the Government of this country in the consideration of all questions affecting them. Certainly they had their agricultural societies; but, as they well knew, it was a rule with them to exclude, at their meetings, what at the present day was most important to them, questions of a political character, and by so doing they excluded the consideration of many subjects bearing directly upon their interests. Now, he was sure they would all agree with him that it was most important that farmers should have some means of fairly and temperately discussing those political questions—he did not mean party politics—but those questions which threatened, or were likely in any way to affect their interests. He thought that on such matters the broadest distinction possible might always be drawn between the discussion of political subjects affecting their own peculiar interests, and party political discussions. For himself he could not see the slightest reason why any one of the different subjects affecting their interests, which were likely to become the subject of legislation, should not be discussed by Chambers of Agriculture. Let them take one of the most important questions affecting the interests of all connected with land, which was likely shortly to be entertained.

(5). *Turnpikes.*—A strong endeavour was being made on the part of some persons to get rid of the turnpikes throughout the country. He did not think there was any question more likely to affect the agricultural interest, and one which it was more necessary to keep a strict watch upon, than this. If the roads were to be kept in repair by a rate on the adjoining properties, it must in any case throw a heavy burden both upon the owners and occupiers of that property to keep the turnpike roads in repair for the benefit of other people. He wished to offer no opinion on the subject, but simply to impress upon them the importance as tenant-farmers and owners of land, to keep a close watch on such questions, and also how desirable it was for them to be in a position to bring their views practically before Government.

(6). *Game Laws.*—The system of excluding the discussion of politics from their agricultural meetings had created too much shyness between tenant-farmers and their landlords. Let them take the question of the Game Laws, which excited differences of opinion between tenants and land-owners. Why that question could not be discussed in a proper and rational spirit he could not conceive. He had often heard the expression of very strong feeling with regard to the question, but he had never heard anyone go to the root of it, and show, for instance, what they would propose in their place, to prevent the infringement of the rights of property which the simple repeal of the game laws would bring about. He had no doubt, however, that if the subject was discussed between owners and occupiers they would come to some rational conclusion.

(7). *Education.*—Then with regard to the education of the working classes and the rural population, his opinion was that the time had now arrived when there was a strong necessity for Parliament to legislate on this subject for the country generally, and to apply some uniform system, by which they might secure the education of all classes, in all employments throughout the country.

(8). *Cattle Insurance.*—Amongst the subjects which might profitably engage the attention of a Chamber was that of insurance against losses of cattle from disease, a subject as to which he acknowledged that he was utterly in the dark as to the real feeling of the farmers, for he could not make out whether they felt it important or not. An association for this object was established for the county, and when the cattle plague was at the door there was a general rush into it, and it was enabled to afford a considerable amount of protection against loss; but the moment the cattle plague declined, all interest in it ceased. He did not give any opinion; he only said he was utterly at a loss to understand what the feelings of the farmers really were on the subject, whether they thought it desirable to have such a county insurance association or not. As a society, its principles were as sound, and its rules as good as those of any society could be; but the fact was that only 18 members joined it in five or six months. He merely mentioned this to show the difficulty of ascertaining what were really the views of the farmers on this and other subjects.

Lord HARROWBY, in proposing the first resolution, observed that the question was not without its difficulties, and Lord Lichfield had pointed out some, more especially in relation to the central board in London, and before a Chamber representing the county of Stafford would connect itself with a central body it would be necessary to inquire the conditions of representation—whether the delegate of a small club, paying some 5*l.* a year, would have the same weight as the representative of the county of Stafford. If such a chamber were limited to discussion it would not so much matter; but if its conclusions were to be determined by a majority, it was important to know if large bodies of farmers were to have only the same voice as smaller sections. But the question for them to determine was whether it was desirable for them to have for their own county such an association as his lordship had indicated, and he had to propose—"That it is desirable to establish a Chamber of Agriculture for the county of Stafford for the discussion of subjects bearing upon agriculture, and to watch over all measures affecting agricultural interests, whether in or out of Parliament." There could be no doubt, as Lord Lichfield had stated, that the exclusion of all topics which formed the subject of conversation in Parliament from our existing Agricultural societies materially enfeebled the influence of the agricultural interest upon the public mind and upon Parliament. That rule was no doubt sometimes infringed. The force of Nature would have its way, and a man who had thought a good deal on an agricultural subject upon which Government was taking action, would speak about it, notwithstanding rules to the contrary. The result was a kind of awkward scramble. One man transgressed; another rebuked him, and in doing so committed the same violation of rule; so that discussion was not carried on with that freedom and openness which gave it the value it ought to possess. It was, therefore, very desirable that there should be some means by which the agricultural interest of the country might fairly speak its mind on subjects bearing upon it, even though they formed the subject of the action of the Parliament or the Government. There were many questions to which those remarks would apply. For instance, there was a growing tendency in the present day to throw the weight of taxation on that kind of property which was visible and tangible; and this system had its conveniences, because it was easier to deal with what could be seen and handled than with what might be in a man's pocket or in his portfolio. At the same time it was very unfair, and it was an increasing unfairness, because the increase in the value of personal property was much greater than in the value of real property, and it required the same amount of protection, and the same conveniences as real property, and it was therefore most desirable that those connected with that kind of property should have an opportunity of forming and expressing their opinion on such questions. The proposed local association offered, no doubt, very considerable facilities for such a purpose; the difficulty was to maintain the interest in the absence of exciting topics: as they had heard in the case of the Insurance Association, the interest ceased when the pressing danger had passed away, and he feared similar experience would attend the proposed Chambers. It was difficult to get people to sacrifice their time when there was no subject of pressing interest, and that applied especially to the agricultural interest. In a town a man had only to put on his hat and walk across the street; but when a man had to drive ten, twenty, or thirty miles to attend a meeting, it was a much more serious matter. It was, however, important to consider that the very fact that the agricultural interest was so scattered and dispersed should be a reason for adopting some means of bringing them together for the purposes of discussion and common action.

Mr. PELL was very glad he had had an opportunity of being present at that meeting to hear the suggestions that had been thrown out. He had no doubt that when the next general meeting of the Central Chamber was held, the rules as they now stood would be altered so as to meet the difficulty pointed out. With regard to the connection of local Chambers with the central body, and the advantages to be derived therefrom, of course they did not expect that the same representatives would always come to their meetings.

Farmers' Clubs.

BALLYMAHON: *The Improvement of the Condition of the Labouring Classes* was the subject of a paper read at a recent meeting of the Ballymahon Farmers' Club. The writer had collected a number of passages from various publications, of which we give abridgments.

Mr. ALDERMAN MECHI: "A nation is in peril when its willing labourers (the sinews of its strength) are looked upon and got rid of as incumbrances; when their cottages are considered nuisances, and placed as such in nooks and corners away from public view; when their gardens are curtailed and coveted by their wealthier neighbours. What would be said of a workman who, having to do a certain piece of work, casts away, despises, and is ashamed of the means by which he is to accomplish it? A nation having abundance of capital and labour, and sending abroad or refusing to employ either, can only be compared to the able but idle workman, preferring poverty and danger to abundance and security."

Lord FERMOY: "When I speak of the resources of this country, I do not overlook the great resource—the labouring population. How do men in commercial life succeed in business? Why, by making use of every improvement they can lay hands on. And we should do the same for our labouring classes; for remember that, as I said, the sheet-anchor of the country is the labouring population. I have no doubt that we will and can do so, for by aiding the agricultural works of the country, extending them, making new ones, you will raise the wages of the labourer, and by raising his wages, raise the man himself, and at the same time make him send back the money you give him to you in purchasing your meat and bread. Who are the great consumers of the prime quality of meat and flour in England? Not the aristocracy, who are few in number: no, but the vast numbers of men of the country's mining districts. I happen to know for a fact that it is almost impossible to sell anything in the neighbourhood of these mining districts but the primest Wheat, flour, and meat. They will not eat anything but the very best meat and bread, and it is these men who are encouraging the development of the agriculture of England—not the aristocrats. In the same way, if you raise the labourers' position in this country, you will have a market here for everything you can purchase or provide."

Lord PALMERSTON: "A farmer ought to know the fundamental principles of political economy, and to be aware that he does not prosper by grinding down those who labour on his farm—that it is no real saving to give inadequate wages to those who work for him—that he gains nothing by avoiding to employ labour in the winter months, and that, in fact, there is no more advantageous and profitable investment in the cultivation of the land than labour. . . . I am sure that I am now addressing an enlightened audience, who must have discovered that . . . the labour cannot be useful unless the labourer is well looked to, well housed, well fed, and well cared for. When the employers of labour bestow proper attention upon their labourers, they engender a feeling of reciprocal regard, and it is in human nature that a man will work better for an employer he loves, and who treats him well, than for a man who is niggardly and churlish—who just pays him as much as will keep body and soul together, and neglects him in other respects. Cottages should not be built for a profit, but regarded as additions to the value of the farm."

Lord TALBOT: "I have long been convinced that nothing is more required in this country than for landlords generally to undertake the duty of providing comfortable dwellings for their tenants, as is generally done in England and Scotland, and our social state will never be in a satisfactory condition until this change is effected. Scotland, a century ago, was a miserable country, and never attained its agricultural prosperity until it adopted the English system; and I am aware that so many gentlemen are beginning to act on this principle here that I am sanguine of seeing Ireland in the same state, if I am spared a few years longer."

HON. L. H. KING HARMAN: "Ought not self interest alone, in the absence of more ennobling motives, induce landlords to bestir themselves, and bestow more care and attention on their labourers, providing them with comfortable, dry cottages, with at least three bedrooms, so securing the proper and decent separation of the sexes, and a kitchen, with about two roods of good land for a garden, and charging for the same a 'live and let live' rent? Were the soil of Ireland cultivated as it ought to be, drained, subsoiled, ploughed deeply, well manured, subdivided into regular fields by straight and well-made thorn-quick hedges (so avoiding much loss of time and waste land in ploughing), it would support in peace and comfort every member of its present population. A cared-for, contented, and happy peasantry will most generally be both loyal and peaceful. I have for many years had this subject deeply at heart, and many and fierce have been the battles which I have waged with farmers, and some of the middle classes, who cling with pertinacious tenacity to

the idea that by bettering the condition of the labourers they would render them independent of them as employers. This is in a great degree what I would desire, and so enable the labourer to employ himself in the best market. As at present, how do matters generally stand in by far the greater part of the country? A farmer engages labourers; these he usually permits to erect the mud-walled cots so well described in your article in some out-of-the-way, out-of-sight corner. To these are added a few perches of the worst land on the farm, the rent charged for these hovels and gardens being generally some double or treble what the farmer pays the head landlord. It may be objected that no rent is paid. True, I am aware that actual money frequently does not pass between them; but instead there is a sort of debtor and credit account kept between the parties, as so many weeks free labour, so many stones of often second or third quality—Potatos, charged at the highest market price, some meal or article of clothing supplied; and with this sort of truck system the poor labourer is very generally brought in as debtor. . . . Peasants so treated should be incapable of neatness, order, or decency, and become reckless and a prey to designing Ribbon demagogues."

Reviews.

The Water Question: a Letter addressed (by permission) to the Right Hon. the Earl of Derby, K.G., &c. By J. Bailey Denton. E. Stanford, 6, Charing Cross, S.W.

We referred to this pamphlet last week. It explains a proposal for the supply of the metropolis from the higher sources of the Thames. None of the river below the chief towns is to be used. Clarified sewage, as Mr. Denton calls all water, however treated by irrigation or otherwise, which has once been through a town, is, according to him, irremediably pernicious. The rivulets collecting in the Thames channel at some point below Lechlade are to pour their waters into an artificial culvert or canal, which is to be replenished by all other streams it may cut off on their way to the Thames; and is, moreover, to supply Oxford, Abingdon, Reading, and other towns upon its course, and at length to deliver 80,000,000 gallons a day to the metropolis.

We extract a passage from the argument against irrigation being able to make foul water fit to drink.

"The only way by which the rivers can be maintained in their aboriginal purity, and in a condition fit to drink, is to exclude from them, wholly and completely, contaminating fluids; but, inasmuch as all fluids flow to the lowest place, and rivers occupy the lowest place in all water sheds, with the sea as their ultimate destination, it is obviously impossible to 'prevent the use of rivers' for carrying off, in some shape or other, the refuse liquid of the towns and lands within their water sheds. The Rivers Commission, seeing this insurmountable difficulty, adopted the views of a previous Commission 'for inquiring into the best mode of distributing the sewage of towns,' and recommended that irrigation should be employed, as the best mode of lessening the obnoxious character of refuse fluids before they arrive at their natural destination. They state in their very admirable report, that 'all expedients for disposal of town sewage other than by application to land, seem to us, on one ground or another, objectionable. They declare that 'sewage water, if *passed over a sufficient area of Grass land, passes off* "*bright, tasteless, and without smell*"'; and add, 'that irrigation will be found to be the mode of dealing with sewage which results in the largest amount of good to the land, and the smallest amount of harm to flowing water.'

"On these conclusions the country is now called upon to act.

"*Irrigation as a means of purifying rivers.*—There is no doubt that of all processes of filtration, that by irrigation is the most effective. It is, however, far from a perfect process; though it has advantages which commend it to the attention of the country. All persons admit that, whatever ingredients are extracted from sewage in its passage over or through the soil, they serve to increase the produce of the land, and thereby to enrich the country. Moreover, it is as generally allowed that towns so disposing of the sewage may fairly expect a return for this enriching refuse. But the desire to turn our waste sewage to profit should not lead us into the fallacy of believing that irrigation will render sewage pure enough to drink. It is on this point we make the greatest mistake. If it be admitted that rivers must continue to receive the drainage of lands irrigated with sewage, we must admit that they will continue polluted, though in a mitigated form—*i. e.*, with clarified sewage instead of simple sewage. It would appear to be acknowledged by the best chemists, that when once the soluble organic matters and gases of sewage become diffused through a volume of water, it is practically as difficult to extract them as it would be to recover the fumes of a dung heap as they rise and pervade the air above our heads. Irrigation certainly fails to do it, and can only be regarded as a better means of clarifying sewage than filtration through an artificial porous bed in which vegetation takes no part. If this be true, the compact entered into between the Committee of the House of Commons last Session, on the one part, and the Water Companies of the metropolis on the other, can only serve to perpetuate a mitigated evil, so long as Oxford, Abingdon, Reading, Windsor, and other river-side towns discharge their sewage, or the drainage of their irrigated lands, into the Thames. To excuse the mixture of sewage, after it has done service in irrigation, with river water, and the supply of such diluted sewage as water for domestic purposes, we are obliged to rest upon the theory of oxydation, which is very far from satisfactory."

To prove this, Sir B. Brodie, Dr. Voelcker, Dr. Letheby, Dr. Odling, and Dr. Fuller are quoted. And, with the exception of Dr. Letheby, they are perfectly clear as to the impossibility of getting rid of the organic matters with which sewage fouls water by any process of irrigation. Dr. Letheby says, indeed, "that ordinary sewage can be so dealt with as to be rendered perfectly inert, that the flow of such defecated sewage into rivers is altogether harmless," and "that when it is mixed with not less than 20 times its volume of good water in a river, and has had a run of eight or ten miles, it is not merely harmless, but is actually destroyed, and the water is fit for domestic use."

Mr. Denton, however, declares that his opinion does but "serve to give even greater force to the main conclusion—that no process can render sewage available for drinking purposes—for if it be granted that by very copious dilution sewage may be rendered harmless, it must be implied that, failing the requisite amount of dilution, the reverse is the case."

We imagine that the difference between Dr. Letheby and, for example, Dr. Odling, is that of two men, one of whom is speaking of practically sufficient, and the other of absolute and abstract truth. We imagine that the whole thing must be taken as one of degree, and that pure water is unknown except in the laboratory of the chemist. Those very rills which are to be collected under Mr. Denton's plan, will wash out many a village before they reach Mr. Denton's great upland reservoir for London, and clarified sewage will, we fear, come into London in any case, except when the water comes direct from the clouds—except also, shall we say, when it comes direct from the hill top, as it so nearly will from Plinlimmon or Helvellyn, as Mr. Bateman and Mr. Hemans respectively recommend.

Farm Memoranda.

Bradford Abbas, Sherborne.—Professor Buckman's farm, at Bradford Abbas, is for the most part situate on a geological formation, upon which there has been considerable discussion amongst some of the leading geologists. At the top of the upper lias, and having superimposed the freestones of the inferior oolite, is a bed of sand in Gloucestershire, about 60 feet in thickness, in Dorset more than double that. This, it is contended by some, should be considered as part of the upper lias, while others place it as part of the inferior oolite rock. The Professor, then, can occupy himself in cultivating even more intimate acquaintance with this thick deposit while he is cultivating his crops. The farm, as we have said, is mostly situate on these sand deposits, on which the soil is a sandy loam. There are, however, occasional patches of inferior oolite, and here the land is a stonebrash—"stonerash" of the district. The whole land, though not visited by the flint drift, is strewn with flint cores, chippings of flints (flint flakes), flint implements—such as celts, arrowheads, scraping implements—*gratoir* of the French—and knives and tools of various kinds, of which the Professor in his farming has gradually collected a most interesting series, which he has laid before the members of the Archæological Institute. This earlier occupation has been succeeded by that of the Roman conqueror, as remains of that date have likewise been obtained from different places on the farm, and inquiries upon these matters are still progressing. In reference to the farming, we would say that it has been marvellously altered for so short a time as three years; Couch, Thistles, and weeds of all descriptions—which, certainly, when the Professor entered on the farm, seemed daily to rise up, as if in revenge for his having written so much about them—are rapidly diminishing. Each year about 50 acres are cultivated by steam a foot deep, and the so-called Clover-sick soil yields fine Clover crops. The Barleys are remarkable for quality, and in the late awkward season were all harvested before the bad weather, a result obtained by thinner seeding, and sowing as early as possible. It would appear that on this farm every crop becomes, as it were, the subject of experiment, inasmuch as each field is cultivated according to its condition and circumstances. The time of sowing, the quantity of the seed sown, and the results are all noted in a book; and so, in 1865, the different fields cropped with Barley were ascertained to give the following results, the observation of which was of signal service in arranging the crops for the following year:—

Results of Barley Crop for 1865.

No. of Field.	When Sown.	No. of Acres.	When Harvested.	Yield per Acre in Bushels.	Value per Quarter.	Remarks.
No. 1	March 10	31	August 1	40	£0 6 0	After Wheat.
,,	,,	5	,, 12	40	0 6 0	After Swedes and Mangels.
,, 1	April 5	12	,, 27	32	0 1 0	After Turnips.
Sec. 1	,, 2	16	,, 26	28	0 2 0	After Swedes.
,, 3	,, 4	15	Sept. 12	24	0 2 0	After ditto.
,, 4	May 2	4	Oct. 12	32	0 0 0	After ditto.

Now, these experiments seem to show that the crops were good in quality and quantity, and consequently fetched a better price in proportion to their early sowing; and it should be here observed that as the Mangels and Swedes in No. 5 were sown in alternate ridges of eight rows each, and the Mangel taken off the soil, the Barley was not so good on the Mangel ridges, nor was the Clover which followed, but from all having been well treated with farm-yard dung and Proctor's root manure, both Barley and Clover were good crops. The results of the Barley crops for this year are expected to tell a like tale, only that they are better in quality and quantity, and none was sown as late as May. As regards roots, some notion may be formed of their cultivation when the crop of Mangels for 1865 was estimated as just under 56 tons per acre; and a handsome silver cup was awarded, the following inscription upon which will tell its own tale—"Presented to Professor James Buckman by Messrs. H. & T. Proctor, of Bristol, as a prize for the best crop of Swedes grown in the district by the use of their artificial manure. Sherborne Agricultural Society, 1855. The crop of many acres was estimated at 41½ tons per acre." The cup is of novel design, having been modelled from a well-grown Swede, the leaves of which form a handsome lid. We are informed that two of these were made, one for the Duke of Beaufort, who gained the prize for Swedes on a farm in his own hands, and the one just mentioned. During the present year, 1866, in addition to a continuance of such observations on ordinary crops, the Professor has made trials of as many as 20 sorts of Potatos, consisting chiefly of varieties from Paterson of Dundee, and the Messrs. Sutton of Reading. Specimens of the whole of these were exhibited at the Cottage Garden Show which the Professor has established in his village, at which were exhibited as many as 100 dishes of this esculent, and fine vegetables, flowers, and fruits, principally from the gardens of the smaller tradesmen and the farm labourers, solely of the parish of Bradford. The Table of the yield, quality, and other matters connected with these has not yet been fully made out, but when it is we may look for some interesting details. The only other crop of 1866 that we can stop to particularise is that of a few acres of Cabbages. These consisted of the following:—1. Drumhead Cabbages; 2. Ox-heart Cabbages; 3. Buckman's Purple Winter Greens; 4. Thousand-headed Cabbage. These were all drilled in land prepared as for Swedes on the 20th April, and afterwards hoed and thinned as for Swedes, and subsequently earthed up with the double mould-board plough; they have thus yielded an enormous quantity of keep, and we think more nutrition than an equal breadth of Mangels, Swedes, or Rape, and have been in use ever since August. Buckman's Purple Winter Green is remarkable for being one of the many sorts of Cabbage, Green, Broccoli, and the like, obtained by cultivation from the seed of the Wild Cabbage, gathered some years since by this experimenter from the rocks at Llandudno in North Wales. We are told it will bear any kind of weather; but we must look to the completion of this experiment for further information. Its yield is greater than that of the Thousand-headed Cabbage, which so long was a favourite of the Ven. Archdeacon Huxtable. It would be impossible to review all the work done on a farm like this, but it may easily be understood that where every step is dictated by scientific reasoning, under the constant supervision of one who religiously obeys Captain Cuttle's injunction—"When found, make a note of"—advance can hardly fail to be made. *W. W. F., in The Farmer.*

Miscellaneous.

How to Forecast the Weather.—The following were among the maxims of the Meteorological Department in determining their forecasts. They are selected and rearranged from the digest made by the committee and appended to their report. It is to be hoped that meteorologists will both amend and add to this imperfect list, on which the committee remark:—"Some of these maxims rank among the long-established truths of meteorological science, while others are clearly open to considerable doubt." I. Atmospheric or air currents.—In the latitude of the British Isles, and of North Western Europe generally, there are two, and only two essentially different atmospheric currents—one S.W., running from the equator towards the pole, and the other N.E.; running from the pole to the equator. The characteristics of the S.W. current lie not only in its general direction, but in its quality; for it is light, warm, and moist. In other words, its presence is shown by a low barometer, by a high thermometer, and by a small difference between the wet and dry bulb thermometers. The characteristics of the N.E. current, in a similar way, lie not only in its general direction, but also in its quality, for it is heavy, cold, and dry. In other words, its presence is shown by a high barometer, by a low thermometer, and by a large difference between the wet and dry bulb thermometers. The weather in this country depends almost wholly on the conflict, combination, alternate preponderance, or alternate succession, of portions of these opposite currents. Not only is the actual presence of either current shown by its corresponding instrumental tests, but an approaching change from one current to the other is foretold by the instruments beginning to change their indications. (Hence, as changes of weather must necessarily commence at some places earlier than at others, there is great advantage in receiving by telegraph information of the state of the weather, and of the instruments at many stations.) When S.W. and N.E. currents alternately prevail, the wind blowing over any station has a strong tendency to "veer," and not to "back." That is to say, the general order of the changes is N.E.S.W.N., and not N.W.S.E.N. II. Weather Changes—Gradual changes of weather are shown by a gradual rise or fall of the barometer; for instance, at the rate of one-hundredth of an inch in an hour. Great differences of

"The terms here used would imply that it is only necessary to run sewage over land, and that the Commissioners do not consider natural or artificial under-drainage essential. This appears to be erroneous, and likely to defeat the object in view, for surface vegetation, though it acts as an nutrient crush to arrest a large part of the solid, with power to appropriate a part of the soluble matter, is not so effective as a bed of drained soil with a growth of vegetation upon it, through which the sewage can percolate. In such case the whole of the solid and a larger proportion of the soluble matter will be taken up and retained. Indeed, without under-drainage, natural or artificial, irrigation cannot be fully successful."

temperature at the same, or adjacent places, are followed by changes of weather. Rapid changes of all kinds commonly presage violent atmospheric commotion. The result of all rapid changes in the weather, or in any of the instrumental indications, is brief in duration; whilst that of a gradual change is more durable. III. Direction and Force of Wind. The wind usually blows from a region where the barometer is high to one where the barometer is low. The force of the wind is usually proportionate to the differences of barometric pressure at adjacent places. In other words, the greater the barometric tension the stronger the wind. Strong winds are far more steady in duration than light or moderate winds. IV. Gales or Storms.—Great storms are frequently preceded by excessive meteorological disturbance, as by heavy falls of rain or snow, by much lightning, by unusual cold, or excessive heat. Sea disturbance often precedes gales. Great storms are usually shown by a fall of the barometer exceeding one inch in 24 hours, or by a fall of nearly one-tenth of an inch in an hour. The barometer frequently continues high during a N.E. storm, but there is a fall of the thermometer. Most of our violent storms travel bodily in a N.E. direction. V. Calms.—Calms may be due to either of three different states of weather—1, the appulse of winds coming together from opposite quarters; 2, the divergence of winds going towards opposite quarters; 3, the centre of cyclonic storms. The barometer rises in 1, and sinks in 2. It is extremely low in 3. When the S.W. and N.E. currents intermingle, water is precipitated in the form of cloud, rain, or snow.

Madder.—Cultivated in the north of France in the beginning of the first dynasty, introduced into Alsace under Charles XV., imported a century since into Comtat-Venaissen by the Armenian, Althen, Madder has become rapidly an article of very extensive cultivation in the department of Vaucluse. Beyond these two principal centres of French production, scattered fields of madder which are found in other departments are only of an experimental character, excepting in Auvergne. The production of Madder in France already exceeds the wants of consumption. The principal use is for dyeing cloth for trousers for the army. The annual produce of the department of Vaucluse in Madder-root is not less than 20 millions of kilogrammes, which, powdered, and reckoned at 31 fr. to 32 fr. the 50 kilogrammes, amounts to 12 millions of francs for the total production. In the hands of small proprietors the plant gives astonishing returns. *Notre Pays.*

Calendar of Operations.

FEBRUARY.—*Spring Wheat* should be sown this month.

Beans are to be sown early in February. Manure either in drills or broadcast, if not done in autumn. The land is to receive either a light ploughing, if manured broadcast, or a scarifying if it has to be drilled up to receive the manure; and the seed, from 8 to 10 pecks per acre, may be placed in the ground, either on the manure in the furrows, and covered by splitting the intervening drills, or by sowing in every third furrow of the plough; or by the Suffolk drill in rows 18 to 24 inches apart; or by hand cultivation, and then it may either be hoed in or dibbled. Dibbling is common in the south of England, and costs from 6*s.* to 8*s.* per acre. A very good method is to drill thinly in "double rows"—*i. e.*, at alternate distances of 8 and 24 inches—which allows room for horse-hoeing, the double rows being cleaned by the hand-hoe.

Peas may be sown on the lighter soils. Use the common Suffolk drill, the coulter levers being well weighted, in order that the seed shall be deposited at a sufficient depth. Sow in rows 12 to 18 inches apart—3 bushels per acre. After sowing, the water furrows are to be cleared out.

Oats may be sown in rows 9 inches apart—10 to 12 pecks per acre on ploughed Clover stubbles of the past year (which, however, in England, are more generally sown with Wheat), or on land that has borne any other green crop, that was ploughed in autumn, and has been well harrowed since winter. In exposed situations the sowing of Oats should be deferred till the end of March; and in Scotland generally they recommend upwards of 4 bushels to be sown per acre broadcast. You may sow a bushel farther south by drilling.

Clover, Grass, Carrot seeds, Mangel Wurzel, and Turnip seeds of all the required kinds, must now be procured. Purchase 12 lb. per acre of Clover seeds, and 1 bushel per acre of Grass seed for use with the Clover; 3 bushels per acre of Italian Rye-grass, if for use alone; 5, 7, and 3 lb. per acre respectively of Carrot, Mangel Wurzel, and Turnip seed, for the extent of land on which you grow each.

Manures should be purchased: guano and other imported fertilisers, superphosphate and other manufactured manures which it may be intended to try.

Notices to Correspondents.

GRASSES FOR AUSTRALIA: *H.* We are unable to answer your question. Some returned colonist may, however, see this and inform you through our columns what the proper sorts of Grasses are for permanent pastures in Australia. But it is most likely that Colonial seedsmen are awake to the wants of their customers. And it is generally better policy to trust to local tradesmen in the case of old established colonies than to take with you what you think you shall want.

HERD-BOOK: *R. Brown.* Apply to Mr. H. Strafford, the editor of the "Herd-Book," 13, Euston Square

TARES: *E. C.* They are, we believe, generally found too heating for use, except as a small admixture with other food. Perhaps some of our correspondents will tell you how they have found them answer as food for fattening stock.

ERRATUM: For "this," on p. 83, col. *c*, line 2 from the top, read "his."

THE PRINCE PEA
(STUART & MEIN'S).

IT is with much pleasure that S. & M. again offer this NEW PEA, being confident it will prove the best Wrinkled Marrow in cultivation. It gave general satisfaction last season. The Pea was sent to the Gardens of the Royal Horticultural Society, Chiswick, for trial, under the name of the "Prince of Wales"; but as there is another variety in cultivation under this designation, they have thought it better to change the name to THE PRINCE. Height, 3½ feet.

COPIES OF A FEW TESTIMONIALS.

From THE ROYAL HORTICULTURAL SOCIETY, *Chiswick.*

"Your Prince of Wales Pea has been grown here for the last two seasons, alongside of nearly all the existing varieties. We believe the Prince of Wales to be distinct and an acquisition, likewise being dwarf, very productive, of good colour, sweet, and, notwithstanding the summer drought, better than most varieties. We also grew another Prince of Wales, received from one of the London houses, different from yours—the height, colour, and general appearance precisely the same, but several days later, not so prolific, and altogether an inferior variety."

From Report on Varieties of Garden Peas Grown at Stoke Newington, by SHIRLEY HIBBERD, Esq.,—*see* "Gardeners' Magazine" (*where the Pea is figured*), 1*st Sept.*, 1866.

"A remarkably fine Pea. It is of robust though dwarf habit, much branching. The pods are produced mostly in pairs; they are long and narrow, contracting suddenly at the neck, with a high shoulder, the back wrinkled, the beak small and straight. Though the Pea made no second growth, it carried many immature pods on the date it was destroyed, so that, in a more rainy summer than 1866, it would probably last in bearing a considerable time. Height, 3½ feet. Sown, March 28; in bloom, June 26; first gathering, July 30; period, 115 days; destroyed, August 25; in bearing, 26 days."

From an ARTICLE ON VEGETABLES *in the "Florist and Pomologist.'*

"To Mr. Tillery's list of Peas let me add The Prince, a variety sent out by Messrs. STUART & MEIN, of Kelso. It is a very robust-growing variety with a good branching habit, grows about 3½ feet high, is a prolific bearer, and has very fine pods well filled with Peas of a rich flavour. It can well be termed a Marrow Pea for the main crop, as the pods hang well, and do not age so quickly as in the case of some sorts. It is a more prolific bearer than Veitch's Perfection."

From Mr. THOMPSON, *Gardener, Preston Tower.*

"I have this season grown your new Pea alongside of other leading varieties. I find The Prince a very superior sort, and a real acquisition both as regards quantity and quality. It is very prolific, and continues to give really green Peas for many successive gatherings. The quality is at least equal to Veitch's Perfection, and I think I got twice the quantity from the same space. I shall want a good supply of The Prince for next season, as I shall sow it for my principal crops. It is quite a relief to meet with a really good Pea now, when we are flooded with so many comparatively worthless varieties. Princess Royal, and others of that stamp, I do not intend to grow again, as their produce might be gathered nearly all at once."

From Mr GEORGE SCRYMGER, *Sonning, near Reading.*

"I beg to inform you that I tried The Prince Pea you sent me alongside of Veitch's Perfection and M'Lean's Princess Royal, and found it in every respect equal to Veitch's Perfection in quality and in time, and more productive than that first-class variety. The Princess Royal I found an earlier variety. I may state that the trial was a fair one in every respect—sowing the same quantity of seed in the same length of drill, and measuring the crop exactly, your variety proving the heaviest cropper."

From Mr. STEVENSON, *Gardener to the* Right Hon. the Earl o Durham, *Lambton Castle.*

"Your Pea, The Prince, I consider very much superior to Veitch's Perfection, having a more robust habit, a better produce, giving a longer succession of pods, and the dry weather we have had seems to have very little effect on it. They were sown side by side, and on the same day. The Prince has pods from six inches off the ground, and abundance of blossoms on the top. Veitch's Perfection has ceased to grow or blossom."

From Mr. WILLIAMSON, *Gardener to the* Right Hon. Lord Minto, *Minto Castle.*

"I have much pleasure in giving my testimony in favour of your New Pea, The Prince. I sowed it on the same day, and on the break of ground with several other sorts, for comparison with it. It is more like Veitch's Perfection in its general character than any of the others I tried with it, but it has several points in its favour over that excellent variety, being more productive, better flavoured, equally large, but continues longer in a condition fit for the table, and better colour when cooked. I esteem it a first-class Pea in all respects."

From Mr. BOWIE, *Gardener to the* Right Hon. the Earl of Tankerville, *Chillingham Castle.*

"In order to test, as far and as fairly as I possibly could, the properties of The Prince Pea, I sowed at the same time (April 6th), and on the same piece of ground, ten other varieties: those that came nearest to The Prince were Maclean's Prolific, Yorkshire Hero, and Veitch's Perfection. It is, however, with me quite distinct from any of these, being fourteen days later in coming into bearing; and now that the others are over, it is still blooming, and appears as if it would continue to bearing for some time to come. I consider that, as a late Pea, it is a great acquisition."

From Mr. DAVIDSON, *Gardener, Haggerstone Castle.*

"I consider your New Pea, The Prince, distinct from any other sort I have grown, and a first-class dwarf Pea. I sowed it and Veitch's Perfection on the 12th March; they were fit to gather at the same time, and about the same quantity on each. Again on the 8th May I sowed both sorts. From that date till the 28th July we had no rain that would reach the roots of the Peas. In this case your Pea produced a heavier crop than Veitch's Perfection did, and at this time [1st September, 1866] it is now in full blossom, and has every appearance of producing a good second crop should the weather prove favourable."

From H. MARSHALL, Esq., *Sands House, Durham.*

"I grew three rows of Peas this season—viz., The Prince, Veitch's Perfection, and Yorkshire Hero—on the same square. Although all of them did well, yet The Prince nearly doubled the others in quantity of produce. It strikes me that The Prince resisted the drought better than either of the others, as the row continued producing long after haulms of the others were in the decadence."

From Messrs. MORRISON & SON, *Elgin.*

"We decidedly think it is the best Pea out of its kind."

Price 3s. 6d. per quart.

The following Firms have received supplies from S. & M.

Messrs. James Veitch & Sons, Chelsea, London
" Peter Robertson & Co., Edinburgh
" Fraser, Goad, & Co., Bishopsgate Street, London
" Backhouse & Son, York
" Dickson & Brown, Manchester
" Garaway & Co., Bristol
" Nutting & Sons, London
" Butler & McCulloch, London
" J. & C. Lee, Hammersmith, London
" Cooper & Bolton, London
" Barr & Sugden, London
" Bunyard & Son, Maidstone, Kent
" Fisher, Holmes, & Co., Sheffield
Messrs. Rollisson & Son, Tooting, London
" Lucombe, Pince, & Co., Exeter
" Morrison & Son, Elgin, N.B.
" Paul & Son, Cheshunt
" Hamilton & Wright, Thornton Heath, London
" Law, Sumner, & Co., Melbourne
Mr. Fred. A. Haage, Jun., Erfurt, Prussia
" Paul, Waltham Cross, N.
" Cattell, Westerham, Kent
" W. Dullistone, Munro Nursery, Sible Hedingham
" B. Crossland, Sheffield
" C. H. Dickson, Manchester
" T. Sibbald, Bishop Auckland
" T. Methven, Edinburgh
" Chater, Saffron Walden

STUART AND MEIN, NURSERYMEN and SEEDSMEN, Kelso, N.B.

SEEDSMEN BY APPOINTMENT. Sutton AND Sons

SUTTON'S
GUINEA COLLECTION
OF
KITCHEN GARDEN SEEDS
FOR
ONE WHOLE YEAR'S SUPPLY
is forwarded Carriage Free by Rail on receipt of Post-office Order for 21*s.*

PRICED LISTS gratis and post free on application.

SUTTON & SONS,
Royal Berkshire Seed Establishment, Reading.

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CAREFULLY PACKED AND DELIVERED FREE TO SHIP'S SIDE.

SUTTON AND SONS beg to inform those who may be about to send or take Seeds to the Colonies, that their NEW GRASSES and other kinds of FARM and GARDEN SEEDS are now ready for delivery, prices and particulars of which will be forwarded on application. The following are among Testimonials recently received as to the Superior Quality of their Seeds to those usually exported from this country, as well as to the very efficient manner in which their export packing is effected:—

From J. W. SHEPPARD, Esq., *Secretary Azimgurh Public Gardens, Azimgurh, N.W.P. India, March* 28, 1866.

"The Vegetable Seeds which you supplied last year turned out well; the quality of the vegetables was very good."

From Major J. MICHAEL, *Hon. Sec. Government Farm, Madras, April* 14, 1866.

"You sent out some Seeds to my predecessor, Major Shaw Stewart, which have given great satisfaction."

From HUGH ROMSAY, Esq., *Shanghae, China, May* 5, 1866.

"The box of Seeds and Roots has arrived, and nothing has given me greater pleasure for a long time than the excellence of these seeds."

From Mr. JAS. DALE, *Orange, New South Wales, September* 20, 1866.

"I have the pleasure to inform you that your Seeds have given great satisfaction, and I now send you a larger order."

From Capt. M'NAIR, *Executive Engineer, Singapore, India, April* 9, 1866.

"I duly received the case of Seeds, and am much pleased with your selection; many of them I planted at once, and they have all come up well."

From J. RICHARDSON, Esq., *Otago, Dunedin, New Zealand, November* 15, 1865.

"The Grass Seeds which you sent me some time since have answered most fully."

Prices and full particulars gratis and post free.
SUTTON & SONS, Seed Growers, Reading.

Sutton's Prize Cucumber Seeds,



SUTTON AND SONS can supply SEED of all the best kinds of CUCUMBERS, including Berkshire Challenge, Berkshire Champion, and many others. For List and prices of which see Messrs. SUTTON'S CATALOGUE for 1867, which will be forwarded gratis and post free on application.
SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

Cucumber, Telegraph.

ROLLISSON'S VARIETY has been proved the best Cucumber in cultivation for Winter or Spring use, especially for growing in houses; an immense cropper, producing six at a joint, length 18 to 26 inches. In sealed packets, 2*s.* 6*d.* each. See merits of "Winter Cucumbers," in *Gardeners' Chronicle* for Jan. 12, 1867.
WILLIAM ROLLISSON & SONS, The Nurseries, Tooting, London, S.

HENRY'S PRIZE HYBRID LEEK.—The Largest variety in cultivation; grows 16 inches in length of blanch, and 10½ inches in circumference. Has carried off the First Prizes at the leading Shows in England and Scotland.
Sold in Sealed Packets at 1*s.* each by
DOWNIE, LAIRD, & LAING, 17, Frederick Street, Edinburgh, and Stanstead Park, Forest Hill, London, S.E.

Nuneham Park Onion.

WM. CUTBUSH AND SON have great gratification in announcing that this SUPERB NEW ONION has in every instance, where shown, obtained the first prizes, and numerous testimonials have been sent to them from various parts of the country, confirming the opinion that it is the largest and heaviest cropper of all Onions. It is also of exceedingly mild flavour, and keeps as long as any variety extant. In Sealed Packets 2*s.* 6*d.* each.
Trade price on application.
Highgate Nurseries, London, N.

CATTELL'S ECLIPSE BROCCOLI, per ½ oz. Packet, 1*s.* 6*d.*, post free.—The hardiest and latest White Broccoli in Cultivation. Obtained the 1st Prize at the International Horticultural Exhibition, South Kensington, May, 1866. The following notice of the above is taken from the *Gardeners' Chronicle*, June 3, 1865:—"The specimens of your Eclipse Broccoli were very fine; the heads large and compact, the texture delicate, and the flavour excellent; these qualities, together with the late season at which it comes into use between the ordinary late Broccoli and Cauliflower, and its extreme hardiness, combine to make it a very useful variety." See also *Gardeners' Chronicle*, June 9, 1866, page 540:—"The heads in question were good in colour, tender, and excellent." This refers to some fine heads sent to the Editor as late as the 5th of June.
Trade prices on application.
The following Firms have already had a supply:—

Messrs. J. & C. Lee, Hammersmith
" Fisher Holmes & Co., Sheffield
" J. Veitch & Sons, Chelsea
" J. Backhouse & Son, York
" T. Kennedy & Co., Dumfries
" Barr & Sugden, 12, King Street, Covent Garden
" T. Bunyard & Sons, Maidstone
" T. Bunyard & Sons, Ashford
" W. Drummond & Son, Stirling
" Lucombe, Pince & Co., Exeter
" E. G. Henderson & Son, St. John's Wood
" T. Jackson & Son, Kingston
" Hurst & Son, 6, Leadenhall Street, London
" J. Dickson & Sons, Chester
" Stuart & Mein, Kelso
" Cooper & Bolton, 162, Fleet Street, London
" Sutton & Sons, Reading
Messrs. Hogg & Robertson, 22, Mary Street, Dublin
" Fraser, Goad, & Ratford, 82, Bishopsgate St., London
" G. Gibbs & Co., 26, Down Street, Piccadilly
" Hamilton & Wright, Croydon
" J. Garaway & Co., Bristol
Mr. Chas. Turner, Slough
" R. Parker, Tooting
" Wm. Paul, Waltham Cross
" Wm. Barnes, Camberwell
" Stephen Brown, Sudbury
" James Ricketts, Deal
" William Dullistone, Sible Hedingham [Thames
" H. McMullan, Kingston-on-
" Thos Cripps, Tonbridge Wells
" John Farquharson, Duncalk, Ireland
" F. Darby, R. Cirencester
" John Scott, Yeovil
" J. W. Mackay, Dublin

JOHN CATTELL'S CATALOGUE of SEEDS for the KITCHEN GARDEN, FLOWER GARDEN, and FARM, may be had on application.
Address, JOHN CATTELL, Seed Grower, Westerham, Kent.

To the Trade—Contractors and Builders.

ONE HUNDRED THOUSAND COMMON LAURELS, fine bushy plants, from 3 to 7 feet high; good for Blinds, particularly for newly laid-out Grounds and Buildings. These Laurels are very fine, and have not suffered from the frost.
Also 5,000,000 of Two-year SEEDLING ASH and CHESTNUTS, ROSES, and other varieties of Shrubs.
ABEL FAIRALL, Nursery, Stanhope Nursery, Westerham Hill, Kent.

MELONS, Six of the Finest in Cultivation.

EARLY MAY.—Scarlet flesh; quick in bearing, and very productive.
MEREDITH'S HYBRID CASHMERE.—One of the very best.
HECKFIELD HYBRID.—First-class; green flesh.
SUPERB.—Green flesh. This was raised from a cross between the Hybrid Cashmere and Beechwood.
GOLDEN PERFECTION.—Handsome, and very productive.
PRINCE of WALES.—From the Hybrid Cashmere and Incomparable. A splendid Melon; flesh pink, beautifully netted, and can be grown from four to eight pounds in weight; skin thin; flavour, none to excel it.

The first five sorts will be sold at 1s. per Packet of 12 seeds; the latter at 2s. 6d., seed scarce.

CHARLES SHILLING, Hill Nursery, Winchfield, Hants.

TO the TRADE.—A quantity of fine STOOLS and LAYERS of MULBERRIES, LIMES, MAGNOLIAS, LILACS, &c.; also quantities of various-sized Limes, Mulberries, Poplars, Laburnums, Scarlet Thorns, Lilacs, Aucubas, Euonymus, Magnolias, White Rhododendrons, Ivies, Althæas, Grape Vines, fine standard and trained Victoria and other Plums, &c., at

J. FRYER'S, Clarendon Nurseries, Camberwell New Road, S.

Prices of Forest Trees at the Nurseries of

JOSEPH ROBSON AND SON, Bank Foot, Hexham, Northumberland.

Twice transplanted LARCH, 15 to 18 inches, 7s. per 1000
Two-years' transplanted LARCH, 1½ to 2 feet, 8s. per 1000
Four-years-old and twice transplanted LARCH, 2 to 2½ feet, 9s. per 1000
Three years transplanted LARCH, 3 to 4 feet, 10s. per 1000
200,000 two years native SCOTCH SEEDLING FIRS, at 2s. per 1000

Terms Cash. Samples on application.

Guaranteed of the Finest Quality.

CHARLES NOBLE offers the following HALF-MILLION PLANTS to the notice of purchasers. They must be cleared by April to make room for other stocks. Prices, on application, will be found lower than ever before offered for the same quality.

200,000 1-yr. SPANISH CHESTNUTS, fine.
20,000 1-yr. TURKEY OAKS, fine.
150,000 1-yr. THORNS, fine.
5,000 2-yr. BERBERIS JAPONICA.
50,000 MANETTI STOCKS, very fine.
20,000 DEUTZIA CRENATA FLORE PLENO.
15,000 ERICA HERBACEA.
10,000 SPRUCE FIRS, 1½ to 3 feet.
3,000 ARUNDO CONSPICUA.
3,000 PICEA NORDMANNIANA, 1½ to 3 feet.
10,000 RHODODENDRON PONTICUM, 15 to 20 inches, and as far through.
20,000 finest named RHODODENDRONS.
10,000 HYBRID PERPETUAL ROSES, the finest kinds known, and supposed to be the finest plants in the trade.
1,500 DWARF MAIDEN PEACHES and NECTARINES, particularly fine and well-grown.
500 GRAPE VINES, Hamburgh and other kinds, from Eyes, ripe, close-jointed wood; very fine indeed.

Special quotations for large quantities.

TRADE and RETAIL CATALOGUES free on application.

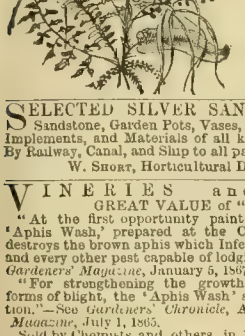
Bagshot, February 2.

Huntingdon Nurseries.

WOOD AND INGRAM offer the following at extremely moderate rates, according to the quantity taken:—

ASH, 2-yr. Seedling, and in Drills, 1½ to 2 feet
BLACKTHORN, 1-yr., fine
CHESTNUT, HORSE, 1-yr., and 6 to 8 feet, transplanted
ELMS, NARROW-LEAVED ENGLISH, 2 and 3-yr. Seedling and transplanted, 1½ to 2 feet
FIR, SPRUCE, 1 to 1½, 1½ to 2, 2 to 3, and 3 to 4 feet
FIR, WHITE and BLACK AMERICAN, 2 to 3, 3 to 4, 4 to 5, and 5 to 6 feet
FIR, BALM of GILEAD, 1½ to 2, and 2 to 3 feet
FIR, WEYMOUTH PINE, 2 to 2½, 4 to 5, and 5 to 6 feet
HAZEL, 1½ to 2, and 2 to 2½ feet
GORSE, 1-yr. Seedling
HOLLY, 3-yr. bedded, transplanted, 6 to 9 inches, 9 to 12 inches, 1 to 1½, 1½ to 2, and 2 to 2½ feet
HOLLY, VARIEGATED, 6 to 9, and 9 to 12 inches
MAPLE, COMMON, 1½ to 2 and 2 to 2½ feet
MAPLE, COMMON, 1-yr. Seedling, extra fine
JUNIPERS, 2½ to 3, 3 to 3½, 3½ to 4, & 4 to 5 ft.; extra fine, and bushy
OAKS, 2-yr. Seedling, and drills, 2 to 3 and 3 to 4 feet
OAKS, TURKEY, 2-yr. Seedling, fine
POPLAR, BLACK ITALIAN, 2 to 3, 3 to 4, 5 to 6, 6 to 7, & 8 to 10 ft.
POPLAR, ONTARIO or AMERICAN, 2 to 3 and 12 to 16 feet
WHITE THORN QUICK, 3-yr. Seedling
ARBORVITÆ, AMERICAN, 1½ to 3½ feet
ARBORVITÆ LOBBII, extra fine specimens, 3 to 7 feet
ARBORVITÆ, SIBERIAN, 1 to 1½, 1½ to 2, 2 to 2½, and 3 feet
AUCUBA JAPONICA, extra fine hardy specimens, 1 to 1½, 1½ to 2, 2 to 2½ and 3 feet
BEECH, PURPLE and COPPER, 5 to 6, and 6 to 8 feet
BERBERIS DULCIS, 1 to 2, and 3 to 4 feet
BERBERIS AQUIFOLIUM, 1 to 1½, 1½ to 2, and 2 to 2½ feet
CUPRESSUS LAWSONIANA, very fine, 3 to 4, and 4 to 5 feet
CUPRESSUS MACROCARPA, potted, 2 to 3, and 3 to 4 feet
LAUREL, COMMON, 1 to 1½ and 2 feet
LAUREL, PORTUGAL, very fine, 1 to 4 feet
PLANE, ORIENTAL, 2 to 3, 4, and 5 feet; extra, 9 to 10 feet
PLANE, OCCIDENTAL, 3 to 4, 5 to 6, 6 to 7, and 8 to 9 feet
YUCCA RECURVA, fine specimens, 1½ to 2½ feet
ROBINIA INERMIS, fine Standards, 6 to 7 feet stems
WILLOW, WEEPING, 6 to 7 feet, and fine Standards.

N.B. CATALOGUES sent free on application.



COCOA-NUT REFUSE is becoming SCARCE, the old reserves will soon be gone. Now sold in bags, 1 for 2s., 10 for 16s., 2 for 30s., 50 for 66s., 100 for £6.

Fourpence allowed for each bag returned carriage-paid.

A Railway Truck-load (not in bags), 40s.

Postage Stamps or Post-office Order, payable to J. BARSHAM & Co., Kingston-on-Thames, S.W

SELECTED SILVER SAND, PEAT SOIL, LOAM, Sandstone, Garden Pots, Vases, Tazzas, Figures, Gravel, Garden Implements, and Materials of all kinds for Sale in any quantities. By Railway, Canal, and Ship to all parts of the United Kingdom.

W. SHORT, Horticultural Depôt, Reigate, Surrey.

VINERIES and ORCHARDS.

GREAT VALUE of "APHIS WASH."

"At the first opportunity paint the trees with a solution of 'Aphis Wash,' prepared at the City Soap Works; it not only destroys the brown aphis which infests Peach trees, but also scale, and every other pest capable of lodging in the bark."—Extract from *Gardeners' Magazine*, January 5, 1867.

"For strengthening the growth and effectually destroying all forms of blight, the 'Aphis Wash' supersedes every other preparation."—See *Gardeners' Chronicle*, August 13, 1865; and *Gardeners' Magazine*, July 1, 1865.

Sold by Chemists and others, in 1s. bottles, and 2s. 6d. a gallon, with full directions for use.

Wholesale at the City Soap Works, Milton Street, London, E.C.

THOMSON'S STYPTIC prevents the Bleeding of Vines after Pruning or Grafting, the Damping of Geraniums and other Cuttings after they are potted; and it has been used successfully in Grafting Fruit Trees of all descriptions.

Manufactured and sold Wholesale by JOHN YOUNG & SON, Dalkeith, N.B., and may be had of all Nurserymen and Seedsmen in bottles at 3s. each, with directions for use. None is genuine without the signature of WM. THOMSON.



Red Spider — Magnified.

GISHURST COMPOUND, whether used against Insects and Mildew, on Growing Plants, or as Winter Dressing on Trees at rest, should be dissolved 48 hours before use. This gets rid of smell, and if the Solution be decanted, prevents any staining of foliage. A strength of from 1 to 2 oz. to the gallon of water is recommended for growing Plants; one from 4 to 16 oz. for Trees at rest.

Sold Retail by Nurserymen and Seedsmen, in boxes, 1s., 3s., and 10s. 6d. each.

Wholesale by
PRICE'S PATENT CANDLE COMPANY
(LIMITED).

APPLEBY'S GENUINE TOBACCO PAPER, in 2 lb and 4 lb packets

For Testimonials see *Gardeners' Chronicle*, Dec. 15, 1866, p. 1187.

Price on application to HENRY APPLEBY, Foreman to Messrs. Ivery & Son, Dorking, Surrey.

Fumigate your Greenhouse with

TOBACCO TISSUE.—Will Destroy all the Insects and not Injure the Plants; is entirely free from paper or rag, and will burn without blowing.

Price 3s. 6d. per lb, carriage free. To be had of Messrs. ROBERTS & SONS, Tobacco Manufacturers, 54, St. John Street, Clerkenwell, E.C., and of all Seedsmen and Nurserymen

LAWES' MANURES.

The Manures manufactured by J. B. LAWES for the present season of 1866 are now ready for delivery at his Factories, at the following prices, per ton:—

	£	s.	d.
LAWES' PATENT TURNIP MANURE, and BONE SUPERPHOSPHATE of LIME	6	0	0
LAWES' SUPERPHOSPHATE of LIME from BURNT BONE or MINERAL PHOSPHATES	5	5	0
LAWES' WHEAT, BARLEY, GRASS, and MANGEL MANURES	8	0	0
CONCENTRATED CORN and GRASS MANURE	12	0	0

These Manures can be obtained of Mr. LAWES, or through the appointed Agents in all parts of the United Kingdom, at prices varying according to cost of carriage.

Genuine Peruvian Guano direct from the Importers. Nitrate of Soda, Sulphate of Ammonia, and other Chemical Manures.

American and other Cakes at market prices.

Address, JOHN BENNET LAWES, 1, Adelaide Place, London Bridge, E.C.; and 22, Eden Quay, Dublin.

THE LONDON MANURE COMPANY
(ESTABLISHED 1810),

Have now ready for delivery in dry fine condition,
CORN MANURE, for Spring Use
DISSOLVED BONES, for Dressing Pasture Lands
SUPERPHOSPHATES of LIME
PREPARED GUANO
MANGEL and POTATO MANURES

Also Genuine PERUVIAN GUANO, and NITRATE of SODA, ex Dock Warehouse; SULPHATE of AMMONIA, FISHERY SALT, &c. E. PURSER, Secretary.

Offices, 116, Fenchurch Street. E.C.

To those who have a Garden.

THE BOUTIN MANURE will be found most invaluable for Kitchen and Flower Gardens, Conservatories, &c. It stimulates the healthy action and rapid growth of Plants, and increases their products. It also destroys American Blight, and Root and Leaf Insects of every description. It has no offensive odour. Sold in bottles, 1s. 6d., 2s. 9d., and 4s. 6d. each, with full instructions.

Sold Wholesale in Casks by the Company, 117 & 118, Leadenhall Street, E.C.

Agents in London:—
Messrs. Hurst & Son, Seedsmen, &c., 6, Leadenhall Street, E.C.
" Carter & Co., Seedsmen, &c., 237, 238, and 261, High Holborn, W.C.
" Flannagan & Son, Seedsmen, &c., 98, Cheapside, E.C.
" Barclay & Son, 95, Farringdon Street, E.C.
" Smith & Co., Seedsmen, &c., Floral Hall, Kingsland, N.E.
" Dixon & Co., Seedsmen, 48, Moorgate Street, E.C.
Mr. J. Brigden, Seedsman, &c., London Bridge Station, and King William Street, E.C.
" B. S. Williams, Paradise Nursery, Highgate Hill, N.
" R. Wood, Nurseryman, Haverstock Hill, N.W.
" F. Bax, Corn and Seed Merchant, Bishopsgate Street Without, E.C.
" J. Musket, Seedsman, &c., 90, High Street, Clapham, S.

To Farmers, Hop Growers, Manure Merchants, and Others.

TO BE DISPOSED OF, about 200 Tons of REFUSE ANIMAL MATTER, suitable for Hops, Grain, Grass, &c., in one or more lots, at a low price for cash. Full particulars to be had of Mr. NICKERSON, Auctioneer, &c., 4, Copthall Buildings, Bank, E.C.

SHAW'S TIFFANY.

For samples and prices apply to
J. SHAW & Co., 29, Oxford Street, Manchester.

Caution to Gardeners.—When you ask for

SAYNOR AND COOKE'S WARRANTED PRIZE PRUNING and BUDDING KNIVES, see that you get them. Observe the mark SAYNOR, also the corporate mark OBTAIN WARRANTED, without which none are genuine.

S. & C. regret having to caution Gardeners and others, but are compelled to do so, in consequence of an imitation, of common quality, having been sold for the genuine one, and which has caused many complaints to be made to them of Knives which were not of their make, all of which are warranted both by Sellers and Makers.

S. & C.'s Pruning and Budding Knives are the best and the cheapest in the market.

Paxton Works, Sheffield. Established upwards of 125 years.

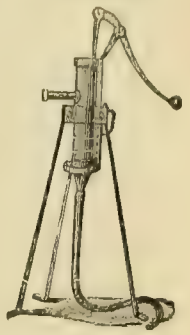
TANNED GARDEN NETTING for preserving Seed Beds, Fruits, Strawberries, from Frost, Blight, Birds, &c., and as a Fence for Fowls, &c. 1 yard wide, 1½d.; 2 yards, 3d.; 3 yards, 4½d.; and 4 yards, 6d. per yard run in any quantity, may be had at CHAS. WRIGHT'S, 376, Strand, W.C.

VARNISHED FLOWER STICKS. 1 to 1, 3d.; 1½, 4d.; 2, 5d.; 2½, 7d.; 3, 10d.; 4, 1s. 6d. per dozen. DAHLIA do, per dozen: 3 ft., 1s. 6d.; 4, 2s. 3d.; 5, 3s.; 6, 3s. 6d. An allowance to Nurserymen.

JOHN WARNER AND SONS,
8, Crescent, Cripplegate, London, E.C.,
BELL and BRASS FOUNDERS to HER MAJESTY.



No. 35.



No. 42.

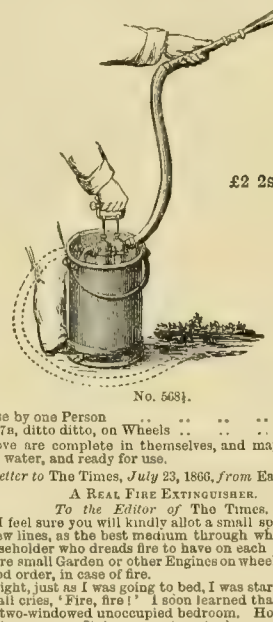
PATENT CAST-IRON PUMP, fitted with J. W. & SONS' Metal Bucket and Valve, which cannot clog in action, for Wells not exceeding 25 feet.

Diam.	Height.	£	s.	d.
2½ in. short	1 ft. 7 in.	1	1	0
2½ in. long	3 ft. 3 in.	1	8	6
3 in. long	3 ft. 6 in.	2	1	0
3½ in. long	3 ft. 6 in.	2	6	0
4 in. long	3 ft. 6 in.	2	14	0
2½ in. short, with 15 feet of lead pipe attached, ready for fixing		2	0	0
2 in. long, do.		2	14	0

Price of 4½-inch Liquid Manure Pump, with legs, £2 15s.; 2-inch Flexible Rubber and Canvas Suction Pipe, 2s. 5d. per foot. The Barrel is 27½ inches long, and the legs are 5 feet high.

IMPROVED LIQUID MANURE or GENERAL PORTABLE PUMP.—These Pumps are fitted with J. W. & Sons' Patent Bucket and Valve and cannot clog in action. The Barrel is made of Galvanised Iron, not likely to corrode, and can be raised or lowered at pleasure on the stand, the legs of which fold together, and it may be carried with ease by one man to tank or pond.

WARNERS' PORTABLE FIRE or GARDEN ENGINE.



£2 2s.

No. 563½.

For use by one Person .. .. price £2 2s.
No. 547B, ditto ditto, on Wheels .. .. " £2 10s.

The above are complete in themselves, and may be always kept filled with water, and ready for use.

Letter to The Times, *July* 23, 1866, *from* Earl ESSEX.

A REAL FIRE EXTINGUISHER.

To the Editor of The Times.

"SIR,—I feel sure you will kindly allot a small space in the *Times* to these few lines, as the best medium through which I would urge every householder who dreads fire to have on each floor of his house one or more small Garden or other Engines on wheels, always charged and in good order, in case of fire.

"Last night, just as I was going to bed, I was startled by that most fearful of all cries, 'Fire, fire!' I soon learned that a fire was raging in a large two-windowed unoccupied bedroom. How caused is to us all a great mystery. It is my custom to keep one of these small Engines on each floor. In two minutes I was in the room with one of them. It was like a furnace. The curtains, shutters, casements, and cornices of both windows were burning and cracking from floor to ceiling. I was quite alone at the moment, yet before assistance arrived (most of the servants having gone to bed), I had completely subdued the fire of one window without exhausting the Engine, and when assistance and more water did arrive, we very soon extinguished the other.

"So fierce was the fire that the lead of the casements was melted, and the casements themselves were burnt off their hinges.

"I will only add, that by God's mercy, the house was saved by this small Engine. Had it not been at hand and in order, most assuredly Cassiobury would be now a heap of ruins.—Yours faithfully,

"Cassiobury, Watford, July 20. "ESSEX.

"The Engine, even when full, runs so light on the floor, that any woman might draw it, and also work it."

LOCK'S PATENT POTASH MANURES.

TRADE LOCK'S POTASH MANURE MARK.

This is the only "*perfect*" MANURE ever yet offered to the Agricultural Public, containing, as it does, that most *important element* of every cultivated plant—POTASH. It is far superior in efficiency to Peruvian or any other Guano, as it supplies EVERY *constituent requisite for each* SPECIAL *Crop*.

Each Manure is specially prepared for the Crop for which it is intended, and is sold in Bags containing the necessary Dressing for *One Acre*.

The WHEAT, BARLEY, and OAT MANURE will effectually PREVENT the LODGING of the Corn, so frequent on lands deficient in Silica.

The CLOVER MANURE is a CERTAIN CURE for CLOVER SICKNESS, so prevalent in some Counties.

The GRASS MANURE contains an abundance of SILICATE of POTASH, which is by far the *predominating element* in all GRASSES, and which has never before been offered for Sale by any Manufacturer.

For full particulars see Circulars, for which apply to the

SOUTH of ENGLAND MANURE COMPANY, LIMITED, REDBRIDGE, HAMPSHIRE,

who are the SOLE MANUFACTURERS.

*** AGENTS WANTED for the UNITED KINGDOM.

Lawn Mower Repairs.

ALEXANDER SHANKS AND SON would suggest to their numerous friends the desirability and importance of having their Lawn Mowers put into proper order before the commencement of the Mowing season. If attention be paid to this request some disappointment may be avoided, because in the early spring the necessary time for repairing Machines is to some extent denied them, on account of the press of business connected with the manufacture and despatch of new Machines.

Machines for Repair can be addressed, ALEX. SHANKS & SON, 27, Leadenhall Street, London, E.C. (where Repairs are executed); or to the Manufactory, Dens Iron Works, Arbroath, N.B.

E. T. ARCHER'S "FRIGI DOMO." Patronised by Her Majesty The Queen, the Duke of Northumberland for Syon House, His Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, &c.

PROTECTION from COLD WINDS and MORNING FROSTS.

"FRIGI DOMO," a Canvas made of Patent prepared Hair and Wool, a perfect Non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all Horticultural and Floricultural purposes, for Preserving Fruits and Flowers from the Scorching Rays of the Sun, from Wind, from Attacks of Insects, and from Morning Frosts. To be had in any required lengths.

Two yards wide .. .. 1*s.* 9*d.* per yard run.
Four yards wide .. .. 3*s.* 6*d.* per yard.
An improved make, 2 yards wide .. 1*s.* 9*d.* per yard.
An improved make, 3 yards wide .. 2*s.* 8*d.* per yard run. Also
FRIGI DOMO" NETTING, 2 yards wide, 1*s.* 6*d.* per yard run.

ELISHA THOMAS ARCHER, Whole and Sole Manufacturer, 7, Great Trinity Lane, Cannon Street, City, E.C., and of all Nurserymen and Seedsmen throughout the Kingdom.

"It is much cheaper than Mats as a covering.'

GRAY'S OVAL TUBULAR BOILER.

INTERNATIONAL EXHIBITION, CLASS IX., No. 2119.

MR. GRAY begs to call the attention of the Nobility, Gentry, Nurserymen, Gardeners, &c., to his

NEW OVAL TUBULAR BOILER,

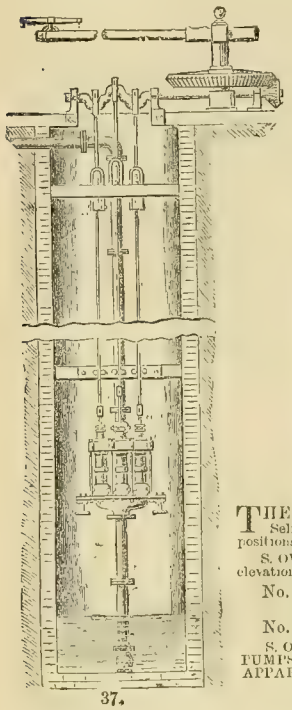
Acknowledged by practical judges to be a great improvement on every form of Tubular Boiler yet introduced. It has proved itself superior to all other Boilers for quickness of action and economy of Fuel, doing its work with one-third less the amount required by any other.

Extract from Report in GARDENERS' CHRONICLE *of International Exhibition, May* 24, 1862, *page* 476.

"The upright form of Boiler is usually made on a circular plan, but the oval form given to Mr. GRAY'S variety of it is said to be preferable in consequence of its bringing the tubes in closer contact with the fire. The usual form of a furnace being a parallelogram rather than a square, it seems feasible that the Boilers on the oval plan should bring the tubes more completely within range of the burning fuel; and this being so, the change, though a slight one, is no doubt an improvement."

☞ *They are made of all sizes, which, with prices, may be had on application.*

JAMES GRAY, HORTICULTURAL WORKS,
DANVERS STREET, PAULTON'S SQUARE, KING'S ROAD, CHELSEA, S.W.



37.

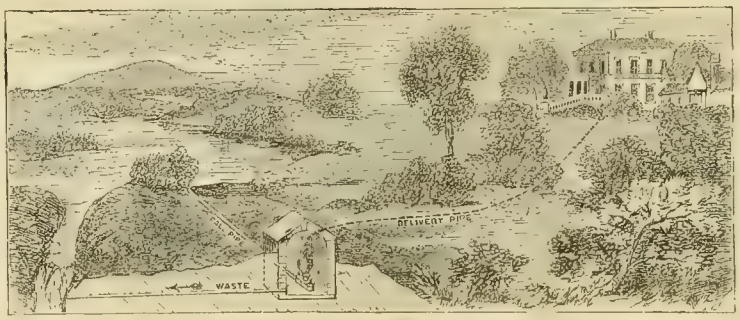
S. OWENS & CO.

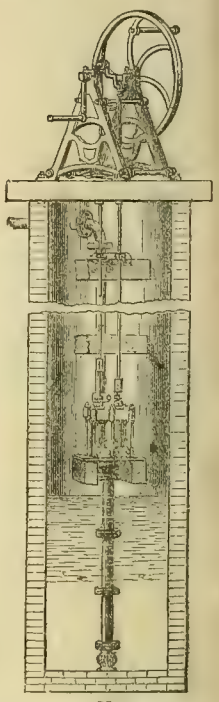
(LATE CLINTON AND OWENS),

MANUFACTURERS OF

PUMPS and HYDRAULIC MACHINERY,

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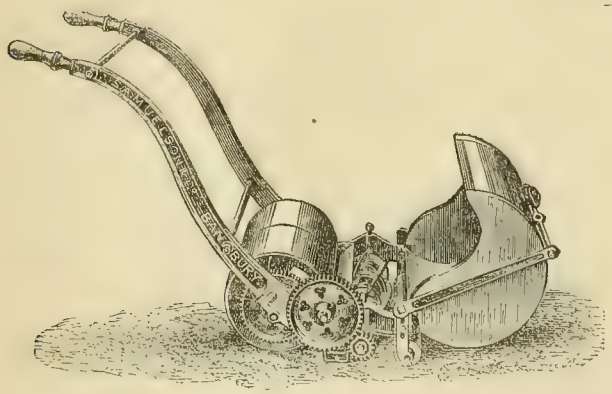
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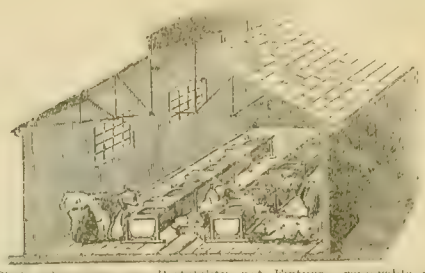
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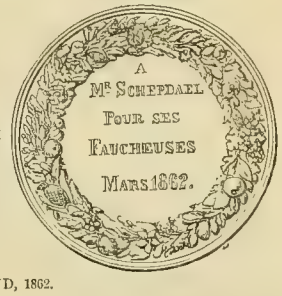
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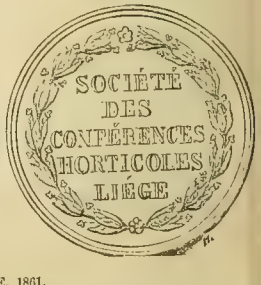




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DUBLIN, 1865.

Editorial Communications should be addressed to "The Editor;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
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THE GARDENERS' CHRONICLE
AND
AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.

No. 6.—1867.] SATURDAY, FEBRUARY 9. {Price Fivepence. {Stamped Edition, 6d.

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ZOOLOGICAL GARDENS, CLIFTON.
HORTICULTURAL MEETINGS, 1867.
SPRING SHOW, MAY 23. ROSE SHOW, JUNE 25.
AUTUMN SHOW, AUGUST 29.
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WANTED, True ASHLEAF, MYATT'S ASHLEAF, ROUND FRAME, and other EARLY POTATOS. State prices and quantities to
John Cattell, Westerham, Kent.

SHALLOTS, SHALLOTS, &c.—2s. 6d. per stone of 14 lb. JERUSALEM ARTICHOKES on offer, at
Frank Warwick's Seed Warehouse, Sleaford.

WHEELER'S TOM THUMB LETTUCE, 1s. per packet, post free.
J. C. Wheeler & Son, Seed Growers, Gloucester.

Wood's Frame Radish.
WOOD AND INGRAM beg to offer the Trade their pure and original stock of the above. Price on application.
Nurseries, Huntingdon.

Cattell's Eclipse Broccoli.—To the Trade.
W. HORLEY has a few pounds of Seed of this fine LATE BROCCOLI to offer. Price and particulars free by post on application. Toddington, Beds.

CONQUEROR BROCCOLI.—The finest Broccoli in Cultivation is BARCHARD'S CONQUEROR. See large Advertisement in the *Gardeners' Chronicle*, December 8, 1866.
Witty & Son, Seed Establishment, Cottingham, near Hull.

Yellow Globe Mangel Seed.
MR. S. A. DAINTREE, of Fen Drayton, St. Ives, Hunts, having a large stock of the above Seed, of his own growth (from large selected roots), can supply the Trade at a very low rate. Sample and price on application as above.

GENUINE SCOTCH PERENNIAL RYE-GRASS.
Special offers of above with samples on application to
Munro Brothers, Seed Merchants, Inverness, N.B.

Good Clover Seeds at Market Prices.
SUTTON AND SONS can supply the above, of best quality. Samples and prices may be had gratis and post free on application.
Sutton & Sons, Seed Growers, Reading.

TO BE SOLD, about 14,000 of the best Soft-wooded ERICAS, strong healthy plants, in store pots.
Apply to Messrs. Breffit, Barnes Terrace, Surrey, S.W.

RIBBON BORDER (six Colours), German and French, COLLECTIONS, and all specialties worth growing. See Poynter's LIST. Robert H. Poynter, Taunton.

LILIUM AURATUM.—Strong flowering Bulbs of this magnificent Lily, 4s. to 10s. 6d. each.
Charles Turner, The Royal Nursery, Slough.

To the Trade only.
CUPRESSUS LAWSONIANA SEED (True), 5s. per oz.; 32s. per 8 oz.; 60s. per lb.
Thomas Cripps, The Nurseries, Tunbridge Wells, Kent.

VERBENAS, Scarlet, White, and Purple, Autumn-Struck, for Spring Propagation, from 2s. per dozen.
H. Childs, Rye Lane, Peckham S. Opposite the Railway Station.

Verbenas, Verbenas.
PHILIP LADDS is now sending out a good supply of the above, strong plants, in thumb pots, including 40 varieties of 1866, at 2s. per dozen, package included. Terms cash.
Nursery, Bexley Heath, Kent.

PELARGONIUMS.—Show, Fancy, French, and Zonal in great variety, fine Plants, at moderate prices. DESCRIPTIVE CATALOGUE now ready.
Charles Turner, The Royal Nursery, Slough.

CHOICE CINERARIAS, in 4 and 6-inch pots. Very fine Plants just coming into bloom.
Also CALCEOLARIAS and CHINESE PRIMULAS. Prices per dozen or per 100 on application to
James Dickson & Sons, "Newton" Nurseries, Chester.

Hyacinths and Tulips.—To the Trade.
G. WELLS has a large quantity of the above NOW in FULL BLOOM. To induce large orders the prices, which may be had on application, have been greatly reduced.
Grove Nursery, Coleman Street, Camberwell, S.

WHITE PRIMULAS.—Several dozen of the WHITE and BLUSH PRIMULAS for sale. They are of a first-class strain, in Flower, and grown in small 48's and large 60-size pots. Price 4s. per dozen.
Charles Shilling, Hill Nursery, Winchfield, Hants.

THE LONDON SEED COMPANY,
68, Welbeck Street,
Cavendish Square, W.

THE LONDON SEED COMPANY.—The General "PRICE CURRENT of GARDEN and FARM SEEDS" is now ready, and can be had on application, Gratis, as above.

THE LONDON SEED COMPANY'S COLLECTIONS of SEEDS.

No. 1.—Complete Collection, sufficient for a large Garden	£3	0	0
No. 2.—Complete Collection for a moderate size Garden ..	2	0	0
No. 3.—Complete Collection in small quantities	1	0	0
No. 4.—Complete Collection for a small Garden	0	15	0
No. 5.—Complete Collection for a small Garden	0	10	6

LISTS can be had on application from the above address.

THE LONDON SEED COMPANY.
CARRIAGE ARRANGEMENTS.
The Directors have made arrangements with all the Railway and Steam Companies to deliver all Seeds, with the exception of heavy articles, such as Grain, Tares, &c,
CARRIAGE FREE
for all Orders of the value of 20s., to any Railway Station in England and Wales, or to any Steam Port in England, Wales, Ireland, or Scotland, Guernsey, or Jersey.

IMPORTANT ANNOUNCEMENT.—A Discount of 10 per Cent. will be allowed by the London Seed Company on all Orders above £10; 15 per Cent. above £50; 20 per Cent. above £100. It will, therefore, be desirable for friends to unite together in a District or Neighbourhood, and so obtain these liberal Discounts.

TEN, FIFTEEN, and TWENTY PER CENT. DISCOUNT will be allowed on all Orders given to the "London Seed Company" above £10, £50, and £100 respectively.

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THOMAS SAMPSON, The Preston Road Nurseries, Yeovil, Somerset, begs to intimate that his CATALOGUE of SEEDS for the GARDEN and FARM is now ready, and can be obtained free on application. It contains a Select and Choice Stock, everything being of the best quality, and are offered at unequalled low prices.

RAYNBIRD, CALDECOTT, BAWTREE, DOWLING, AND COMPANY, Limited,
CORN, SEED, MANURE, AND OILCAKE MERCHANTS,
Address, 89, Seed Market, Mark Lane, E.C.; or Basingstoke.
Samples and Prices post free on application. Prize Medals, 1851, for Wheat 1862, for "Excellent Seed Corn and Seeds."

Genuine Garden, Agricultural, and Flower Seeds.

PAUL TOLLARD, SEED GROWER and MERCHANT,
20, Quai de la Mégisserie, Paris, France.
SPECIAL PRICED LIST of NEW SEEDS, in English weights and money, post free on application.

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F. W. WENDEL, SEED GROWER, &c., Erfurt, Prussia, begs to announce that his WHOLESALE CATALOGUE of the above is now ready, and may be had free and post paid on application to his Agent,
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J. SCOTT, The Seed Stores, Yeovil, Somerset.

General Plant Catalogue.

B. S. WILLIAMS' PRICED CATALOGUE, containing Select Lists of Choice Exotic Orchids, Ferns, Stove and Greenhouse Plants, Indian Azaleas, Variegated and Ornamental Foliaged Plants, Fuchsias, Pelargoniums, Rhododendrons, Verbenas, Petunias, Phloxes, Cinerarias, Chrysanthemums, Hardy Variegated Plants, Roses, Fruit Trees, Vines, &c.; also a Descriptive List of New and Rare Plants.
Can be had post free on application.
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RICHARD SMITH'S SEED CATALOGUE contains a Calendar of Time for Sowing, particulars of Collections, with Prices, Directions for Cropping well and economically, Soil, Manure, Depth, Distance, Season, Hardiness, Duration, Form, Height, Colour, Storing, Use, Flavour, and other qualities, described.
This List Free by Post for one stamp. Seeds direct from the Growers the surest way to success.
RICHARD SMITH, Seed Merchant, Worcester.

New Descriptive Lists.

DOWNIE, LAIRD, AND LAING, NURSERYMEN, SEEDSMEN, FLORISTS, and NEW PLANT MERCHANTS, 17, South Frederick Street, Edinburgh; and Stanstead Park, Forest Hill, London, S.E., respectfully beg to intimate that their NEW DESCRIPTIVE PRICED CATALOGUES of FLORIST FLOWERS, GARDEN, FLOWER, and AGRICULTURAL SEEDS, GLADIOLI, ROSES, &c., are now ready, and may be had free on application.

Genuine New Vegetable, Flower, and Agricultural Seeds of best quality only.

J. SCOTT'S Stock of the above is now ready for sending out. A CATALOGUE containing PRICED LISTS of NOVELTIES, and other choice SEEDS, BULBS, GARDEN REQUISITES, &c., post free on application, prices very low.
GLADIOLUS, from 2s. per dozen, named sorts.
J. SCOTT, The Seed Stores, Yeovil, Somerset.

Vegetable, Agricultural, and Flower Seeds, Alpine Plants, &c.

ROBERT PARKER begs to announce that his CATALOGUE, containing select DESCRIPTIVE LISTS of the finest kinds in cultivation of the above-named is now published, and will be forwarded to applicants. The Stocks of Seeds have all been procured from the best possible sources, all are warranted genuine, and are offered at the lowest possible prices. Intending purchasers are requested to compare the prices with those of other houses. Exotic Nursery, Tooting, Surrey, S.

HOOPER AND CO.'S SPRING CATALOGUE, New Edition for 1867, is now publishing, and can be obtained free by post for Six Stamps. It comprises—
PART I. KITCHEN GARDEN SEEDS.
PART II. FLOWER and ORNAMENTAL PLANT SEEDS.
PART III. BULBOUS and other FLOWER ROOTS, and ORNAMENTAL FOLIAGED PLANTS, &c.
It is illustrated, interestingly arranged, voluminous, and correct.
The several Lists also are full, descriptive, and exclusive of unworthy species.
Seed Merchants, Covent Garden Market, London, W.C.
*** This Catalogue is presented to Customers.

Nursery and Seed Establishment, Dumfries.

THOMAS KENNEDY AND CO. will be glad to send the following CATALOGUES to any address on application:—
No. II. CATALOGUE of FOREST, FRUIT, and ORNAMENTAL TREES, &c. [&c.
No. III. CATALOGUE of VEGETABLE and FLOWER SEEDS,
No. IV. CATALOGUE of AGRICULTURAL SEEDS, &c. (published end of February).
"The fulness, expansiveness, and selectness of the Catalogues of Messrs. Thomas Kennedy & Co. proclaim in loud language, their honour and respectability, and also the wide-spread nature of their dealings. We can only reiterate our former favourable commendations, and say to all who may be disposed to deal with the firm that they will, under all circumstances, be treated in all integrity and uprightness."—*The Field.*
*** As the season for executing Garden Seed Orders is so very limited, T. K. & Co. would feel particularly obliged to those friends who intend favouring them with their Orders to let them have them at their earliest convenience.
FREE DELIVERY.—Garden and Farm Seeds, under certain limitations, are delivered Free of Carriage at all the Railway Stations as formerly.

ESTABLISHED UPWARDS OF A CENTURY.

BUTLER, McCULLOCH, & CO.,

SOUTH ROW, COVENT GARDEN MARKET, W.C.

SEEDSMEN TO HER MAJESTY'S COMMISSIONERS OF WOODS AND FORESTS, TO THE COMMISSIONERS FOR THE COLONIES, TO THE HORTICULTURAL SOCIETIES OF THE PUNJAUB, BOMBAY, ETC., ETC.

Holders of Prize Medals from International Exhibitions of both 1851 and 1862.



NEW GARDEN SEEDS (Crop 1866)
IN COMPLETE COLLECTIONS FOR ONE YEAR'S SUPPLY.
No. 1, £3 3s.; No. 2, £2 2s.; No. 3, £1 10s.; No. 4, £1 1s.; No. 5, 10s. 6d.



PRICED CATALOGUE, containing details of above Collections, also full descriptions of all Vegetable and Flower Seed Novelties of this season, Post Free.

Orders amounting to 21s. sent Carriage Paid. All Packets of Flower Seeds sent Post Paid.

NEW DECORATIVE PLANTS.

E. G. HENDERSON & SON,

WELLINGTON NURSERY, ST. JOHN'S WOOD, LONDON, N.W.

LILIUM AURATUM.—Flowering-sized Bulbs, 5s. and 7s. 6d. each; less per dozen or hundred. Trade supplied.

POA TRIVIALIS ARGENTEA ELEGANS (Three First-class Certificates).—This exquisite plant is a permanent variety of the dwarf Meadow-Grass, with pure white leaf-margins; by its progressive growth through the winter months it forms the most beautiful object in its tribe for Conservatory decoration in baskets or vases, and by its invariable and constant variegation it is admirably adapted for flower garden belts, plots, &c., to any extent. 2s. 6d. each.

GOLDEN FEATHER PYRETHRUM.—A charming plant for low front or second-row riband lines, by its rich and uniform self gold-tinted leaves, and dwarf, compact, level growth.

TRICOLOR GERANIUM LADY CULLUM (First-class Certificate).—The finest coloured variety, with a free and vigorously compact growth.

GERANIUM CHRISTINE NOSEGAY (First-class Certificate).—Dwarf, free, and compact; Christine coloured, with clusters similar to Stella Nosegay.

GERANIUM MAID of KENT.—Colour of the preceding one, suffused with a rich carmine tint.

VERBENA KING of BEDDERS.—Certified, and proved two seasons as a first-class crimson bedder.

VERBENA WHITE QUEEN.—Dwarf and compact in growth, effective and pure in colour; superior to Henriette and Mrs. Holford.

The two first-named Plants are for present Sale; the remaining ones will be sent out in April, at which date a COLOURED LEAF FIGURE of GERANIUM LADY CULLUM (with the New Descriptive Catalogue), will be forwarded on receipt of three postage stamps. Orders or stamps received earlier will be booked and forwarded at the period above stated.

NEW SEED CATALOGUE NOW PUBLISHED,

CONTAINING THE LEADING NOVELTIES OF THE SEASON.

GENUINE SEEDS, CARRIAGE FREE.

B. S. WILLIAMS'

NEW GENERAL PRICED AND DESCRIPTIVE SEED CATALOGUE FOR 1867

CAN BE HAD FREE ON APPLICATION.

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CONTAINS

LISTS of the best varieties of each kind of VEGETABLE. Only those sorts are recommended that can be relied upon for producing sure and good crops. Especial attention is directed to the following NEW and CHOICE KINDS, full descriptions of which will be found in the Catalogue.

WILLIAMS' ALEXANDRA BROCCOLI, 2s. 6d. per packet
WILLIAMS' MATCHLESS RED CELERY, 1s. per packet
ORANGEFIELD DWARF TOMATO, 2s. per packet
NUNEHAM PARK ONION, 2s. 6d. per packet
MALVERN HALL MELON, 1s. 6d. per packet
DIGSWELL PRIZE ENDIVE, 1s. per packet
RAPHANUS CAUDATUS (The Wonderful Radish), 1s., 2s., and 5s. per packet.

COMPLETE COLLECTIONS of KITCHEN GARDEN SEEDS, to suit Gardens of various sizes, for Contents of which see page 44 in Catalogue:—
10s. 6d., 21s., 42s., 63s., 84s. each.

THE FLOWER SEED PART

CONTAINS

Imported and English-grown FLOWER SEEDS, in Collections.
The Best of the New Introductions, 1866, in ANNUALS, BIENNIALS, and PERENNIALS.
Choice Strains of FLORISTS' FLOWERS.

The following are unequalled:—

PRIMULA (WILLIAMS' superb strain, the finest in cultivation).—Red, White, or Mixed Seed, 2s. 6d., 3s. 6d., and 5s. per packet.
CALCEOLARIA (JAMES's strain, the best variety for exhibition).—Colours are exceedingly rich, profusely spotted and veined. 2s. 6d., 3s. 6d., and 5s. per packet.
BALSAM (WILLIAMS' finest strain).—A stand of flowers, the production of this strain, was exhibited at the July Show of the Royal Botanic Society, and was the admiration of all. 1s. and 2s. 6d. per packet.
CINERARIA (WEATHERILL's extra choice strain).—This is the most popular strain in Covent Garden Market. 3s. 6d. and 5s. per pkt.

LILIUM AURATUM (a large importation of this beautiful Lily just received).—Strong Bulbs, 3s. 6d., 5s., 7s. 6d., and 10s. 6d. each.

VICTORIA and PARADISE NURSERIES, UPPER HOLLOWAY, LONDON, N.

GLADIOLUS BOWIENSIS, the finest variety for Grouping (see *Gardeners' Chronicle*, pp. 1196-7, 1866). Good blooming roots, 6s., 8s., and 10s. per 100. The latter extra large. February is the best month for planting.
WINDEBANK & KINGSBURY, Bevois Valley Nursery, Southampton.

GLADIOLI. — Collections containing all the finest varieties in cultivation, many new, and offered for the first time, 105s., 63s., 42s., 30s., 25s., 20s., 15s., 12s. BRENCHLEYENSIS, the most showy of all, extra strong roots, 3s. per doz ; 20s. per 100.
DESCRIPTIVE PRICED LISTS free on application.
BUTLER, McCULLOCH & Co., South Row, Covent Garden, W.C.

Gladioli.

J. KELWAY AND SON beg to call attention to their splendid Stock of GLADIOLI, which comprises all the sorts worth growing, and probably the largest in the Trade. As a proof of the luxuriance and excellence of their collection they have been awarded the First Prizes offered at the Crystal Palace and Royal Horticultural Exhibitions in 1864, 1865, and 1866.
PRICE CATALOGUES free to all applicants.
Selections left to J. K. & S., 3s., 6s., to 21s. per dozen; 10s., 20s., to 100s. per 100.
The Nurseries, Langport, Somerset.

NEW HARDY CLEMATISES.

CLEMATIS RUBELLA.—Very rich velvety claret ; the deepest coloured Clematis yet offered. Very distinct, and having the advantage of flowering 60 to 70 per cent. of blooms, with five and six sepals. First Certificate, Royal Horticultural Society.
CLEMATIS PRINCE of WALES.—Large flowers, of a rich deep violet purple, with red bars down the centre of each sepal ; a decided improvement on C. rubro-violacea. First Certificates, Royal Horticultural Society.
MESSRS. GEORGE JACKMAN AND SON have much pleasure in announcing that they are sending out the above Clematises, and can with confidence recommend them "amongst the best of hardy Climbers." Strong Plants, with bine, 1½ to 2½ feet, 21s. each.
The usual allowance to the Trade.
Coloured Drawings, by Andrews, for 24 stamps.
Woking Nursery, Surrey.

MELONS, Six of the Finest in Cultivation.

EARLY MAY.—Scarlet flesh ; quick in bearing, and very productive.
MEREDITH'S HYBRID CASHMERE.—One of the very best.
HECKFIELD HYBRID.—First-class ; green flesh.
SUPERB.—Green flesh. This was raised from a cross between the Hybrid Cashmere and Beechwood.
GOLDEN PERFECTION.—Handsome, and very productive.
PRINCE of WALES.—From the Hybrid Cashmere and Incomparable. A splendid Melon ; flesh pink, beautifully netted, and can be grown from four to eight pounds in weight ; skin thin ; flavour, none to excel it.
The first five sorts will be sold at 1s. per Packet of 12 seeds ; the latter at 2s. 6d., seed scarce.
CHARLES SHILLING, Hill Nursery, Winchfield, Hants.

Lilium auratum, Golden-rayed Lily of Japan.



JAMES CARTER AND CO. have just received splendid BULBS of the above, in finer condition than any imported for some time, and said to contain many highly-coloured varieties. This incomparable Lily has for some time been very scarce, but we can now offer fine flowering Bulbs, true to name, at the following prices : —1st size, 6s. ; 2d, 3s. 6d. ; extra strong large Bulbs, 1st size, 10s. 6d. ; 2d, 7s. 6d. ; a few of the finest, very large and strong, 15s. each.
JAMES CARTER & Co., Seed Merchants and Nurserymen, 237 and 238, High Holborn, London, W.C.

THE CZAR VIOLET is still finely in BLOOM, uninjured by the late Frosts below zero. The flowers are nearly twice as large as the old Russian, on very long stout foot-stalks. Awarded First-class Certificates and Prizes wherever exhibited. Strong plants in Bloom, 10s. per dozen, prepaid, may be had of Mr. JOHN GRAHAM, Cranford, Hounslow. The usual allowance to the Trade.
Also fine RASPBERRY CANES, of sorts, 4s. per 100.

Ranunculuses, Flower Seeds, &c.

C. TYSO, FLORIST, Wallingford, Berks, offers, from unrivalled Collections :—
* RANUNCULUSES, 60 fine sorts, named, £1.
* 25 splendid Seedlings, £1 5s.
* DOUBLE ANEMONES, 25 fine varieties, 6s. 6d.
* IMPORTED GERMAN SEEDS — Asters, Balsams, Stocks, Poppies, Phloxes, Larkspurs, Wallflowers, Zinnias, &c., in named assortments, from 1s. to 5s. each.
* CHOICE ANNUAL SEEDS, 25 varieties, 5s.
CATALOGUES gratis, or post free for one stamp.
* These articles can be forwarded by post.

British Fern Catalogue.

ROBERT SIM can now send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his NEW and PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.
Foot's Cray Nursery, S.E., a mile from Sidcup Station of New North Kent Line of South Eastern Railway.

GENUINE SEEDS, OF SUPERIOR STOCKS.

FRANCIS & ARTHUR DICKSON & SONS,

THE OLD ESTABLISHED SEED WAREHOUSE, 106, EASTGATE STREET, CHESTER.

THE BEST EARLY PEA IN CULTIVATION,

DICKSON'S "FIRST & BEST."

Retail Price, 1s. 6d. per Quart. Price to the Trade on application.

See Large Advertisement, January 19.

CATALOGUE OF VEGETABLE & FLOWER SEEDS, &c., FOR 1867,

with Practical Cultural Directions, will be sent Post Free on application.

Their Seeds are of the most select character, each being saved from the BEST Stock *known* of its kind.
☞ *All Seeds of £2 value delivered Carriage Free.*
Flower Seeds sent Post Free, except heavy articles, such as Sweet Peas, Lupins, &c.

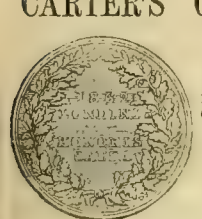
JAMES CARTER & CO.,

Seedsmen to Her Majesty's Chief Commissioner of Public Works and other Government Departments, the Royal Gardens, Kew, &c., &c., &c.

Seedsmen to H.I.M. the Emperor of the French, the Crystal Palace Company, the Agri-Horticultural Society of India, &c., &c., &c.

Just Published, Post Free, 12 stamps, Gratis to Customers.

CARTER'S GARDENER'S AND FARMER'S VADE MECUM FOR 1867



Contains a large amount of useful and original practical information for the Garden and Farm, together with the following Original Articles :—

On the Cultivation of Hardy Flowers from Seed.
How to Raise Hardy Flowers from Seed.
Ornamental Annuals.
Fine-foliaged Plants from Seed. And,
On Laying down Grass Seed for Permanent Pasture.
&c. &c. &c.



CARTER'S COLLECTIONS of GARDEN SEEDS for 1867

Will produce a supply of the best Vegetables "All the Year Round," for large, medium, small, and very small families.

No. 4, 63s. ; No. 3, 42s. ; No. 2, 21s. ; No. 1, 10s. 6d.

These Prices include box and packing.

*** *Any of the above forwarded without delay on receipt of Post-office Order.*

JAMES CARTER AND CO., 237 and 238, HIGH HOLBORN, LONDON, W.C.

Early Spring Flowers.

WEBB'S GIANT POLYANTHUS and COWSLIP, with all the best varieties of Double and Single PRIMROSES, PANSIES, &c., with Seeds of single varieties. LIST of prices of different kinds on application to
Mr. WEBB, Culcot Gardens, Reading.

ARTHUR HENDERSON AND CO. beg to announce that their CATALOGUE of KITCHEN GARDEN and FLOWER SEEDS for 1867 is now ready, and will be forwarded free on application.

NEW MELONS.
ERIDGE CASTLE PERFECTION.—This is a green-fleshed variety, of excellent flavour, thin skin, medium size, with a delicious melting sugary flesh. One of the best sorts ever raised. 2s. 6d. per packet.
THE GUILDHALL PRIZE.—Scarlet flesh, a very quick grower and a great cropper, weight 3 to 5 lb. Early, excellent shape, richer and superior in flavour to Turner's Gem. Skin very thin. A seedling between the Scarlet Gem and Egyptian green-fleshed. 2s. 6d. per packet.
HENDERSON'S COMPACT-TOPPED PINE-APPLE BEET.—True (our own saving).
Pine-apple Place, Edgeware Road, London, N.

Lilium speciosum var. vestalis.

GEORGE WHEELER respectfully announces he is now prepared to send out the above very desirable new LILY. It is early, blooms profusely, and is of a more dwarf and compact habit than others of the lancifolium tribe to which it belongs. It is very sweet, of a pure white, and the petals being regularly reflexed, makes the form of the flower unexceptionable. Strong Flowering Roots may now be had in a dry state, if ordered immediately, price 10s. 6d. each. Remittance must accompany the Order from unknown correspondents.
Warminster Nurseries.

FOR SALE, 50 dozen fine named HYACINTHS (good sound bulbs), or any part thereof at 4s. per dozen, sent free, package included.
Choice ANNUAL FLOWER SEEDS, free by post, 100 packets for 7s. 6d. ; 50, 3s. 6d. ; 25, 2s. 6d. ; or 12 for 1s. 6d.
Choice GERMAN STOCKS, ASTERS, and Double BALSAMS, at 6d. per packet.
JAS. BATES, White Horse Road, Croydon, S.

First Prize at the International.

H. CANNELL'S SELECT and DESCRIPTIVE CATALOGUE and AMATEUR'S and GARDENER'S FLORAL GUIDE for 1867, is now ready, free for four stamps, with every particular how to Grow, Show, and get the First Prizes for Fuchsias and Verbenas, &c. A full and correct description of all Bedding Gems for the Season.
Fuchsia Nursery, Woolwich, S.E.

CHOICE SPRING-FLOWERING HARDY PLANTS.

AURICULAS, finest Alpine, per dozen, 6s.
CHRISTMAS ROSE, HELLEBORUS NIGER, per dozen, 9s.
HEPATICAS, Double Red, per dozen, 4s.
" Single White, per dozen, 9s.
" Single Blue, per dozen, 4s.
" Double Blue, 1s. 6d. each ; single Mauve, new, each, 1s. 6d.
HELLEBORUS ATRORUBENS, Red, per dozen, 18s.
" OLYMPICUS, Pink, per dozen, 18s.
PRIMROSES, Double, in 3 fine sorts, per dozen, 6s.
POLYANTHUS, finest mixed, per dozen, 3s.
PAMPAS GRASS, extra fine, 40s. per 100 ; per dozen, 6s.
VIOLETS, Double Red, White, Blue, Lilac and Striped, two of each for 7s. 6d.
" Single varieties, White, Blue, Striped, THE CZAR and THE GIANT, two of each for 5s.
WALLFLOWERS, Double Golden Yellow and Dark, per dozen, 6s.
FORGET-ME-NOT, "true," Myosotis palustris, per dozen, 4s.
ŒNOTHERA MISSOURIENSIS (EVENING PRIMROSE), per dozen, 6s.
CAMPANULA PYRAMIDALIS, per dozen, 6s.
DAISIES in 6 choice kinds, per dozen, 4s.
N.B. The following additional Nurserymen have ordered the magnificent New Violet QUEEN of VIOLETS. For full description, &c., see *Gardeners' Chronicle* of December 1, 1866, p. 1134 :—

Cattell, Mr. John, Westerham, Kent.	Miller, Mr. W., Andover, Hants.
	McHattie, J., Chester.
Wright, Mr. W., Retford, Notts.	Hannaford, W., Teignmouth.

Strong Plants for Spring Flowering, 1s. 6d. each, 18s. per dozen, £5 per 100. With usual allowance to Trade.
CATALOGUES for one Stamp. Post Office Orders on Castle Hedingham.
WM. DILLISTONE, Sible Hedingham, Essex.

JOHN WATERER has to offer a quantity of very handsome AUCUBA JAPONICA, the whole of which are profusely covered with Berries.
1st Size are Plants 2 feet high, bearing 150 to 200 Berries.
2d Size, 1 foot 6 inches, with 100 to 125 Berries.
3d Size, 1 foot, with 40 to 60 Berries.
Price from 10s. 6d. each and upwards.
The American Nursery, Bagshot, Surrey.

HARDY PLANES.—Platanus palmata, P. acerifolia, P. acerifolia grandifolia, and P. pyramidalis. The above are all perfectly hardy and beautiful varieties. Average height, 6 feet. Price 25s. per 100. A few of the two first named can be supplied 10 to 12 feet in height. Carriage paid to London.
THOS. RIVERS & SON, Nurseries, Sawbridgeworth.

TO BE SOLD unusually cheap, 200,000 strong LARCH, 3 and 4 years old, splendid stuff. No reasonable offer will be refused.
BLACK ITALIAN POPLAR, 3 to 5 feet, 15s. per 1000.
SEEDLING ILEX OAK, 12s. per 1000.
MANETTI STOCKS, 25s. per 1000.
For samples apply to W. TRESEDER, Nurseryman, Cardiff.

TO BE SOLD CHEAP.
A large quantity of 1-year SEEDLING LARCH and SCOTCH FIR.

3-yr. Transplanted ELM.	4-yr. Transplanted LARCH.
4-yr. Transplanted SCOTCH FIR.	30 Bushels of HOLLY BERRIES.

5 cwt. LONG RED MANGEL WURZEL SEED.
5 cwt. YELLOW GLOBE MANGEL WURZEL SEED.
For samples, with prices, apply to
D. H. HIGGINS, The Nurseries, Clonmel, Ireland.
Put free on board at Waterford.

LARCH and THORN QUICKS.—Splendid 2-yr. Transplanted Larch, 3 to 4 feet, clean, stout, and well rooted, cannot be surpassed ; Ditto 2 to 2½ feet Thorn Quicks, 5-yr. old, Transplanted, free and very fine. Prices very low.
FIELD BROTHERS, Tarvin Road Nursery, Chester.

LARCH, SILVER FIR, &c.
LARCH, 1½ to 2 feet, 8s. per 1000 ; 2 to 3 feet, 10s. ; 3 to 4 feet, 12s. 6d.
SILVER FIR, 6 to 12 inches, 4s. per 1000.
SCOTCH FIR, native, 6 to 12 inches, 5s. per 1000.
LIST of other TREES sent on application.
Apply, with reference, to J. RIDDELL, Park Attwood, Bewdley, Worcestershire.

Planting Season

LARCH (Native and Tyrolese), SCOTCH FIR (True Native), SPRUCE, OAK, ASH, ALDER, BEECH, PRIVET, and all kinds of FOREST and ORNAMENTAL TREES and SHRUBS, ROSES, FRUIT TREES, fine specimen ARAUCARIAS and DEODARS, and large TREES for Park Planting, now in fine condition for removal.
CATALOGUES, with sizes and prices, sent free on application to DICKSONS & Co., Nurserymen, Seedsmen, and Florists, 1, Waterloo Place, Edinburgh.

Strong Larch, Native Scotch, English Oak, Thorns, &c., ALL TRANSPLANTED.

GEORGE CHIVAS, Chester, solicits the attention of Planters to his very great Stock of LARCH, 2 to 4½ feet ; NATIVE SCOTCH, 1½ to 3 feet (a portion of which was Transplanted last spring for the second time) ; ENGLISH OAK, 2 to 4 feet, and THORNS of great strength, with an extensive and general assortment of other Trees and Plants. The quality is unexceptionable, and the prices much in favour of the buyer.

PYRAMID APPLES, PEARS, PLUMS, CHERRIES.
Beautiful Trees for Garden or Orchard Houses.
RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

Dwarf-trained Trees by the 1000, 100, or dozen.
APPLES, PEARS, PLUMS, CHERRIES, PEACHES, and NECTARINES. Fine, flat, well-trained, of best quality and true to name.
RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

Fifty Acres of Fruit Trees.
APPLES, PEARS, PLUMS, CHERRIES, PEACHES, NECTARINES, and APRICOTS in every form desired for Fruiting.
RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

Orchard-house Trees Fruiting in Pots.
PEACHES, NECTARINES, APRICOTS, CHERRIES, PLUMS, PEARS, APPLES, VINES, and FIGS.
RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

FRUIT TREES, for Walls and Espaliers.—Upwards of 50,000 to select from, carefully trained, and in the healthiest condition for planting.
RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

WALL-TRAINED TREES of BEARING SIZE.—Our Wall-Trained Fruit Trees this season are very fine, and include PEACHES, NECTARINES, APRICOTS, and FIGS, suited for planting in houses for immediate Fruiting. An inspection is respectfully invited.
T. JACKSON & SON, Nurseries, Kingston, Surrey.

Large Fruiting Morello Cherries.
GEO. CLARKE has to offer a few very handsome TREES, now growing on a wall and in the best possible state for removal. They measure 12 to 18 feet through, are young, well formed, and in fruitful condition. Any person requiring such Trees for immediate effect has an opportunity seldom to be met with.
Price on application.
GEO. CLARKE, Nursery, Streatham Place, Brixton Hill, London, S.

Fruit Trees.
WOOD AND INGRAM wish to call the attention of Planters and the Trade to their large stock of the following, which they are prepared to supply at very moderate rates, according to the quantity taken:—
APPLES, Standards, Half Standards, and Dwarfs.
APRICOTS, Dwarf Maiden, cut back, and trained.
CURRANTS, fine bushy plants, all the best kinds.
GOOSEBERRIES " "
GRAPE VINES, from Eyes, Planting and Fruiting Canes.
" Layers, well-rooted, Canes 1 inch round.
NUTS and FILBERTS, all sizes up to 4 to 5 feet.
PEACHES, Dwarf Maiden, cut back and trained.
PEARS, Standards, Dwarfs, and Pyramids.
PLUMS, Standards, Half Standards, and Dwarfs.
CATALOGUES and Prices on application.
The Nurseries, Huntingdon.

Chrysanthemums, Chrysanthemums, Chrysanthemums.
ADAM FORSYTH'S CATALOGUE is now ready, containing a Descriptive List of all the best varieties; also a Practical Treatise on the Cultivation of the Chrysanthemum. Forwarded to all applicants for one stamp.
Brunswick Nursery, Stoke Newington, London, N.

French Asters.
TRUFFAUT'S REINE MARGUERITE, direct from the Continent. Reine Marguerite is the most beautiful Aster grown; it contains Fleur Perfection, Bombée, and Pivoiné varieties, 500 seeds, 1s. Also the Dwarf BOUQUET ASTER, in 6 colours, 600 seeds, 1s. Free by post.
Mr. HAMMOND, Bedwin Street, Salisbury.

A Practical Gardener for Sixpence.
CARTER'S FLORAL ALMANAC and CALENDAR of OPERATIONS for 1867 contains full Directions for the Successful Management of the Flower Garden, Kitchen Garden, and the Farm for each Month in the Year. Forwarded on receipt of six stamps.
JAMES CARTER & Co., 237 and 238, High Holborn, London, W.C.; W. H. SMITH & SON, Strand, and all their Railway Book Stalls.

FLOWER SEEDS.

Collection of 20 Choice Varieties—	1 oz. Mignonette
" French Asters	1 oz. Nemophila insignis
" Crown Asters	½ pint Sweet Peas
" German Stocks	

The above selection, of the choicest varieties and the finest quality, sent on receipt of Post-office order for 13s.
J. C. WHEELER & SON, Seed Growers, Gloucester.

Hardy Scarlet and other Rhododendrons.
W. H. ROGERS, Red Lodge Nursery, Southampton, can offer splendid named varieties of the above, strong bushy Plants, well set with blooming buds, at £10 per 100, or selected, 30s. per dozen; also a general NURSERY STOCK of FRUIT, FOREST, and ORNAMENTAL TREES and SHRUBS, extending over 60 Acres. Detailed CATALOGUES and every information may be had on application.

Rhododendrons.
JOHN WATERER'S DESCRIPTIVE CATALOGUE of HARDY SCARLET and other RHODODENDRONS is now published, and will be forwarded on application. It faithfully describes the colours of the new varieties exhibited by him at the Royal Botanic Gardens, Regent's Park. An Abridged List of popular CONIFERS with heights and prices, is likewise combined.
The American Nursery, Bagshot, Surrey, near Sunningdale Station, South-Western Railway.

American Plants, &c.
WATERER AND GODFREY'S PRICED and DESCRIPTIVE CATALOGUE of RHODODENDRONS and other American Plants for this Autumn, will be sent on application. The Catalogue also gives a summary of their General Nursery Stock, probably the most extensive in the kingdom.
Knap Hill Nursery, Woking, Surrey.

POST PAID.
Viola cornuta, var. Purple Queen,
1s. and 2s. 6d. per Packet.
B. S. WILLIAMS has purchased Mr. Bennett's entire Stock of the above. None genuine unless in Packets bearing B. S. W.'s name and address.
VIOLA CORNUTA, var. MAUVE QUEEN, 6d., 1s., and 2s. 6d. per Packet.
B. S. WILLIAMS, Victoria and Paradise Nurseries, Upper Holloway, N.

TRICOLOR PELARGONIUMS.

Mrs. Pollock, 7s. and 9s. per doz.	Sunset, 21s. per doz.
Italia Unita, 21s. per doz.	Mrs. Benyon, 24s. per doz.

In strong plants at the above prices for Cash, package included.
Remittance required from unknown Correspondents.
Address, ALFRED FRYER, Nurseries, Chatteris, Cambridgeshire.

Geraniums for Sale.
MRS. POLLOCK, good strong Plants, at 30s. per 100; larger size, at 40s. per 100.
WM. POTTEN has a large Stock of VARIEGATED and ZONAL GERANIUMS—SCARLET, ROSE, PINK, and WHITE, all strong plants, in pots, at 20s. per 100. The above Plants will be sent out in April and May. Price to the Trade on application.
WM. POTTEN, Sissinghurst, Staplehurst, Kent.

Geraniums, Geraniums, Geraniums.
J. C. PADMAN, NURSERYMAN, SEEDSMAN, FLORIST, &c., Boston Spa, Tadcaster, Yorkshire, begs to offer the following 12 varieties of ZONAL and other GERANIUMS for 12s., package included:—Sunset, Mrs. Pollock, Rose Rouantier, Pink Stella Variegated Stella, Amy Hogg, Glory, Wiltshire Lass, Le Grand, Virgo Marie, Miss Parfitt, and Mr. Wm. Paul.
J. C. P. has a large stock of Pink, Scarlet, White Zonal, and other Geraniums, including many of the best varieties with variegated foliage, all good strong plants.
Cash or reference from unknown correspondents.
Post-office Orders payable at Boston Spa.

NOTICE.—NEW ROSES FOR 1867.

FORTY-SIX VARIETIES, being the cream only of the best new kinds known on the Continent, now ready in magnificent strong healthy Plants, which will be eligible for sending out as soon as the weather will permit.
DESCRIPTIVE CATALOGUES GRATIS on application to the SUBSCRIBERS.

WILLIAM WOOD AND SON,
WOODLANDS NURSERY, MARESFIELD, NEAR UCKFIELD, SUSSEX.—Feb. 9.

NEW ROSES FOR 1867.

JOHN FRASER,

OF THE LEA BRIDGE ROAD NURSERIES, N.E.,

HAS MUCH PLEASURE IN ANNOUNCING THAT HIS

DESCRIPTIVE LIST OF CAREFULLY SELECTED NEW ROSES FOR 1867

IS NOW READY, AND WILL BE FORWARDED ON APPLICATION.

☞ *The Plants are this Season unusually strong and healthy.*

KITCHEN GARDEN and FLOWER SEEDS.

OSBORN & SONS'

SELECT LIST OF THE ABOVE MAY NOW BE HAD

ON APPLICATION.

In it, among other articles of sterling merit, especial attention is directed to the following:—

*BEET, OSBORN'S SELECT RED.—This is preferred by many gardeners to any other kind, and for decorative purposes its foliage is unsurpassed. Per oz., 1s.

CELERY, FEAR NOT.—A most desirable pink variety, crisp and excellent in flavour. Per packet, 1s.

*MELON, QUEEN EMMA.—This was raised at Heckfield, and pronounced by the Viscount Eversley and other connoisseurs to be one of the best flavoured Melons ever produced. It has a good constitution, is a great bearer, well netted, thin skin, thick pale green flesh, and weighs from 2 to 3 lb. Per packet, 2s. 6d.

*BROCCOLI, OSBORN'S WHITE WINTER.—Still pronounced by some gardeners to be the best. Per packet, 1s. 6d.

LETTUCE, SCOTT'S WHITE COS.—A very superior variety of Paris Cos. Per packet, 1s. 6d.

LETTUCE, BOWDEN'S BROWN COS.—Less liable to run than any Lettuce we know. Per packet, 1s. 6d.

*LETTUCE, STANSTED CABBAGE.—The best hardy winter variety. Per packet, 1s.

LETTUCE, BELLE BONNE.—A very superior summer Cabbage Lettuce. Per packet, 1s.

* *Special quotations to the Trade of these may be had on application.*

FULHAM NURSERY, LONDON, S.W.

PLANTING.

PAUL & SON,

OLD CHESHUNT NURSERIES, CHESHUNT, N.,

INVITE ATTENTION TO THEIR

LARGE STOCK OF THE FOLLOWING PLANTS,

Many of which are well adapted for filling up Vacancies caused by the late Frosts. Their stock is comparatively uninjured.

Evergreens.
LAURELS, 4 to 7 feet.
PORTUGAL LAURELS, 2 to 4 feet.
RED CEDARS, in variety, 4 to 6 feet.
HOLLIES, 3 to 4 feet.
CONIFERÆ, in great variety and size.

Deciduous Trees.
LIMES, 8 feet.
PLANES, 8 to 10 feet.
MAPLES, 10 to 12 feet.
ELMS, 10 to 12 feet.
POPLARS of sorts, 10 to 12 feet.
THORNS of sorts, 8 to 10 feet.

Standard and Pyramid APPLES, PEARS, and PLUMS, for Orchard Planting. Special prices for quantities.
PAUL & SON have several Thousand STANDARD HYBRID PERPETUAL ROSES.
Dwarfs in pots of the leading TEA and NOISETTE ROSES.

PRICED LISTS ON APPLICATION.

GARDEN SEEDS.

WILLIAM PAUL,

(SON and SUCCESSOR to the late A. PAUL),

PAUL'S NURSERIES and SEED WAREHOUSE, WALTHAM CROSS, LONDON, N.,

BEGS TO ANNOUNCE THAT HIS

SELECT LIST OF VEGETABLE, FLOWER SEEDS, ETC.,

IS NOW READY, AND WILL BE FORWARDED POST FREE ON APPLICATION.

The following Novelties recently introduced by him have already become standard varieties, and the Seeds now offered have been saved from pure original stocks:—

PAUL'S WALTHAM BRUSSELS SPROUTS.—This variety is quite distinct, the Sprouts possessing the valuable quality of being green to the centre, and retaining the same colour when cooked. 1s. per packet.

PAUL'S WALTHAM MARKET CABBAGE.—Large, very even growth, early and fine, mild flavour; pronounced by all who have seen it the finest sort in cultivation. 1s. per packet.

PAUL'S IMPROVED TELEGRAPH CUCUMBER.—This is a prodigious bearer, frequently producing four or five fine fruit at a joint; very handsome, and excellent flavour; particularly recommended for a house or winter forcing. 1s. per packet.

PAUL'S SELECTED EXTRA CURLED PARSLEY.—Large and very superior; pronounced by all who have grown it from my stock the best in cultivation. 6d. per packet.

SUPERB DWARF HERTFORDSHIRE CAULIFLOWER.—Very large, pure white close heads, remaining fit for use much longer than most other sorts; very hardy, having frequently stood in winter under a south wall without any other protection. 1s. per packet.

BROCKETT HALL BROWN COS LETTUCE.—Very hardy, large, crisp, and excellent flavour; stands a long time after most other sorts without running to seed; good for sowing at any season; the finest Lettuce grown. 1s. per packet.

PAUL'S SUPERB CRIMSON BEET.—This variety as improved by me is unsurpassed in colour and flavour. 1s. per oz.

PAUL'S IMPROVED LATE CURLED BORECOLE.—Unsurpassed as a "Curled Green," very hardy; very productive, and continues in fine condition for use till the end of April. 1s. per packet.

COLLECTIONS of KITCHEN GARDEN SEEDS, 10s. 6d., and upwards.
COLLECTIONS of FLOWER SEEDS, 5s. and upwards.

*** *All Seeds Carriage Free.*

New and Choice Flower Seeds.

FREE BY POST OR RAIL.

SUTTON'S COMPLETE COLLECTIONS of FLOWER SEEDS are sent free by Post or Rail. Prices as under:—

No. 1 Collection of the best English and German varieties, with instructions on cultivation	..	..	..	£2 2 0
No. 2 Collection of	ditto	ditto	.. ..	1 11 6
No. 3 Collection of	ditto	ditto	.. ..	1 1 0
No. 4 Collection of	ditto	ditto	.. ..	0 15 0
No. 5 Collection of	ditto	ditto	.. ..	0 10 6

Small and useful Collections can also be had from 2s. to 7s. 6d., free by post.

For particulars of the above, see SUTTON'S DESCRIPTIVE CATALOGUE, gratis and post free on application.

SUTTON & SONS, Seed Growers, Reading.

Good Seeds **Carriage Free.**

SUTTON'S COMPLETE COLLECTIONS of SEEDS for ONE YEAR'S SUPPLY.

FOR THE KITCHEN GARDEN.

No. 1 Collection, carriage free	..	..	.. ..	£3 3 0
No. 2 Collection, carriage free	..	..	.. ..	2 2 0
No. 3 Collection, carriage free	..	..	.. ..	1 11 6
No. 4 Collection, carriage free	..	..	.. ..	1 1 0
No. 5 Collection, carriage free	..	..	.. ..	0 15 0
No. 6 Collection ..	..	..	.. ..	0 10 6

FOR THE FLOWER GARDEN.

No. 1 Collection, free by post or rail	..	..	.. ..	£2 2 0
No. 2 Collection, free by post or rail	..	..	.. ..	1 11 6
No. 3 Collection, free by post or rail	..	..	.. ..	1 1 0
No. 4 Collection, free by post or rail	..	..	.. ..	0 15 0
No. 5 Collection, free by post or rail	..	..	.. ..	0 10 6

PRICED CATALOGUES gratis and post free. Five per Cent. Discount allowed for Cash payment.

SUTTON & SONS, Seed Growers, Reading.

Sub-tropical and Ornamental Foliaged Plants from Seed.

WILLIAM ROLLISSON AND SONS' NEW and GENERAL SEED CATALOGUE, containing a List of the above, can be had on application to

The Nurseries, Tooting, London.

GENUINE GARDEN and FLOWER SEEDS of the best quality.

CATALOGUES post free on application.

JAMES VEITCH & SONS, Royal Exotic Nursery, Chelsea, S.W.

The Gardeners' Chronicle.

SATURDAY, FEBRUARY 9, 1867.

MEETING FOR THE ENSUING WEEK.

TUESDAY, Feb. 12 { Royal Horticultural (Anniversary Meeting), at South Kensington .. .. 3 P.M.

THE RECIPROCAL ACTION of ROOT AND BRANCH is a fact so fully recognised by physiologists that to enter more than cursorily on its discussion would be a waste of words; but as some may not fully understand what is meant by this reciprocal action, it may be necessary to give a little explanation. Taking an Oak, Elm, Ash, or any other kind of forest tree, it has been ascertained by experiment, and is now an admitted fact, that however far the branches of a fully exposed tree may extend laterally, however great the diameter or circumference of the branches may be, the superficial area covered by the roots, impediments apart, will be the same, if not more. The roots of some trees, as for example the Elm, Ash, Poplar, &c., will travel a considerable distance in search of nutriment; indeed these might, as compared with the Oak, be called predatory plants, ever ready to plunder the soil which surrounds them. In recently making some alterations we found that the roots of an Elm and an Acacia, forming part of a neatly clipped hedge close by, had extended through some Asparagus beds more than 90 feet. But taking a plant in good soil, and fully exposed on all sides, the roots rarely extend beyond the circumference of or area of the branches, and if they do it will almost invariably be on the windward side, so as to act as a counter strain against the leverage of the branches when pressed by severe storms of wind. Such is the provision which Nature uncontrolled provides for plants left to her control; but when her journeyman, the gardener, steps in, he too frequently thinks to improve upon Nature's teachings, and sometimes sets about it in a very singular manner.

Hence, in the management of the VINE, what do we do? We provide a border of considerable area and rich material, draining it thoroughly—sometimes paving, concreting, and even warming the bottom, and generally making the border from 18 inches to 3 feet deep, and occasionally more. Thus we provide a rich pabulum for the plants to feed upon, and what do we do next? Why, so soon as the plants get into free luxuriant growth we commence pinching and 'thumb-screwing' the young branches—the laterals, as we call them in Vine management—some cultivators in fact pinching them out altogether. Now, if the action of the root and branch is reciprocal, and there can be no doubt of it, this pinching or removal of the branches is a direct and constant check upon the progress of the roots, and hence while we invite growth at the root, we prevent it by the injudicious management of the branches. Of course under artificial treatment it would be wrong to retain more branches than could be exposed to the full action of light, and thus enabled to perform their proper functions; but in the case of a young Vine trained for the first season on the single-rod system and growing vigorously, it is exceedingly questionable if, so long as the leading shoot was not checked, it would not be better to train the lateral shoots out 18 inches on each side than to follow the present denuding system. If there is any truth in physiology it is quite certain that by such a system more roots would be formed, and as the first object of the Vine planter should be to secure healthy and extended root action, this appears to be the only natural means of doing so.

Some years back we were consulted by a gentleman who had built Vineries extensively. His largest house was 190 feet long by 30 feet wide, with a span-roof of Hartley's plate glass. At right angles at each end, thus forming three sides of a square or parallelogram, were two other Vineries, each 100 feet by 30 feet, and hence, as the borders were all outside, there was 30 feet of space at each end of the longest house where no border could be formed, and where consequently no Vines had been planted. We were asked to suggest a remedy for this empty space, and we did so by carrying the two end Vines horizontally along the wall plate, taking up from each, at intervals of about 3 feet, shoots perpendicularly to the top of the house. At the same time the fellow Vines, then two years planted, and very nice rods, were cut back to about 8 feet, and each was allowed to carry six or eight bunches of Grapes. Now it would perhaps be expected by many, that the two Vines trained horizontally, and from each of which nine shoots or rods were trained across the house, would not make such wood as those which carried a few bunches of Grapes and had only one shoot to make. But such was not the case; the nine rods from the single Vine were quite as good as the single rod from the Vines that had borne fruit—a result scarcely anticipated, and much more gratifying than had been expected. The kinds were Royal Muscadine and Black Hamburgh, and of each variety the growth was about equal.

The growth of these two Vines we regard as supplying two exceedingly strong facts. If a Vine of a certain age and strength will carry nine shoots, just as well as another Vine of the same age carries one shoot and a few bunches of Grapes—certainly not equivalent to the work of the other Vine, it only shows how accommodating plants are, and how much more work they would do, under artificial treatment, if they were only allowed to do it. We regret that after the time specified, the end of the season when the growth before alluded to was made, we had not an opportunity of seeing the progress the plants made, but we can scarcely imagine a growth so well begun could have had anything but a good ending.

The Vine, it should be observed, when allowed full freedom of action is not a profuse root producer; that is, in the open border it does not produce that multiplicity of roots so characteristic of it under pot or artificial treatment. Such being the fact, it is essential in planting a Vinery to make a narrow border at the commencement say 6 feet wide, and then, as soon as that space is filled with roots, to extend the border 4 or 6 feet wider. In this way it is fair to infer a much larger quantity of roots will be formed at home, that is near to the house, and once formed there, they are sure to spread and ramify through the border as it is provided for them.

That a properly planted and developed Vine will do much more work, and carry a very much heavier crop than hitherto has been considered right, is no longer a matter of speculation. The success of the Vine at Finchley is positive evidence of the fact; and Mr. NORMAN, in his testimony (p. 1116, 1866) respecting the Muscat Vine at Bromley Common, supplies another very gratifying fact, viz., that *the berries of former days were much smaller than those of the present*, so that now a Vine, say 100 years old, not only continues in perfect health, but has been improved, the berries not being so small as in former days. What evidence do the Vines of modern planting supply? As a rule, splendid bunches and berries for the first five or seven years after planting, and then they sink gradually but certainly into comparative mediocrity. This is the history of all the Vines from which the splendid Grapes for the London exhibitions have been cut for the last 20 years. Vines in robust youth produce fine bunches for a few years under the restrictive system of development, but left to themselves comparatively, and allowed to send their roots and branches far and wide, they not only continue to produce fine branches and berries, but, according to Mr. NORMAN'S experience, after 100 years the berries may be had larger than they were when the Vine was younger. These are facts which should make us pause; and if we look philosophically into the matter we shall perhaps find that we have for years been working in the wrong groove, and that to bring the Grape to the greatest perfection, we must allow the Vine more room to develop itself both by root and branch. If any proof of this be wanting, select two common trees of any kind, and as nearly alike as possible. Next spring, as soon as they start into growth, stop the shoots of one weekly, just as the shoots of the Vines are stopped in our hothouses, and if, by the end of the season, it is not evident how effectually the growth of the plant operated upon has been dwarfed as compared with that left to Nature, we shall be much mistaken. All evidence is in favour of allowing Vines to take a much wider range of growth than has been customary for many years past, and by doing so, and inducing constitutional vigour, we not only reduce the chances of the plant suffering from a temporary check, but we also place it, in a great measure, beyond a check of any kind. With a large growth of branches there must be an equally large development of roots, and hence the plant, by the number and activity of its feeders, is placed beyond the power of seasonal changes or slight accidents.

Nor is this evidence confined to the sunny south or the range of the Grampian Hills. There are Vines quite as large and fruitful as those which have lately been alluded to. It is therefore worth while for gardeners to consider how they will read this lesson of Nature's teaching, and utilise it for the improvement of their Grape crop. Practically, especially in early forcing, we have always looked upon a strong main stem as a reservoir or store of nutriment upon which the young branches could feed until the roots got into active growth, and without this store, especially in the case of cold borders, we should have more failures than we have had hitherto. What is the cause of the incipient bunches of Grapes going blind? Let the young gardener study what we have written, and if he cannot find the answer to this question, we will try to find it for him.

—— THE arrangements for the Spring and Summer Exhibitions of the ROYAL HORTICULTURAL SOCIETY are now issued, and we find that in addition to the Bury Show, which takes place in July, the Society will hold, at South Kensington, two Spring Exhibitions, one on the 19th of March, the other on the 16th of April, these of course being minor shows. A Special Prize Show is to be held on May 7th, in which we observe that New Plants are to be a leading feature, and Major CLARKE invites the very interesting class of "Fragrant-blossomed Plants" as a novel feature. With these subjects certain showy plants are to be associated in sufficient quantities to make up a good minor show. The Great Show of the season is to commence on June 4th, and to last five days, the last of which, by one of those fatalities which make it necessary that the London great shows should not be held on either of the weeks taken up by the fashionable races, unfortunately clashes with the opening of the Manchester National Show. As regards the visitors this is perhaps of little consequence, for comparatively few persons would attend both shows, at least on that day, but it may prove a source of considerable inconvenience to exhibitors, and it is therefore to be hoped that some mutual arrangement may be come to between the two interested Societies, which will enable exhibitors to attend both with their productions, if they desire to do so. The postponing of the judging at Manchester until the Monday morning, and the early removal of the plants from Kensington on the Saturday, would probably admit of the difficulty being bridged over. The prizes offered are liberal, and the selection of subjects seems to be judicious, affording a considerable increase of variety as compared with former summer shows. Among other things of which we quite approve, we find that Zonal Pelargoniums are for the first time placed on an equality with other Pelargoniums as regards the amount of prize-money, a position to which their merits fully entitle them, and a necessary step towards the attainment of perfection in their cultivation, which as yet is not equal to that of the other show kinds. A class is introduced for the Tricolor-zoned Pelargoniums with their beautiful foliage, and Hardy Trees and Shrubs are also brought in with advantage. The National Rose Show of the 2d of July, a show which is always held in high favour by visitors, closes the London exhibition season, so far as the Royal Horticultural Society is concerned. The Saturday Shows have, we observe, been given up,

excepting during the months of May and June. Lifeless meetings from the first, they have been kept on for two seasons as an experiment, but have so thoroughly failed in affording any feature of interest, that they are now wisely abandoned during the less busy portion of the year. The Tuesday meetings, combining the scientific meetings with those of the Fruit and Floral Committees, which have become the most interesting and useful of the assemblies held under the auspices of the Society, are to be continued on the first and third Tuesdays of each month from March to October, one meeting only being held during the months of February, November, and December. Next week we shall have before us the Report of the Council on the general state of the Society's affairs, and we have reason to believe it will be a more favourable one than has been given for the last two or three years, thanks to the energy and good management of Colonel SCOTT.

—— The ROYAL TUSCAN SOCIETY OF HORTICULTURE has resolved to organise, in the month of September next, a General and Grand Exhibition of Flowers, Fruits, and everything connected with gardening and horticulture, at Florence. Foreign horticulturists are invited to join in it, and notice of when it will open will be given at a future time. It will take place in the Society's gardens, near the Porte de San Gallo. No special programme will be issued, and the competition will be free. There will be 1st, 2nd, and 3rd class prizes consisting of medals, besides money prizes, which will be awarded by a committee, named for the occasion by the governing body of the Society.

—— Mr. HULLETT shows a desire to extend his connexion, and, as it appears, no longer trusts to circulars addressed to private individuals for the announcement of his curiosities, but invokes the aid of the "Thunderer," by a letter to the *Times*. The curiosity thus publicly advertised is a so-called "Sorghum tartaricum," seeds of which are to be had from Mr. HULLETT at the low cost of a stamped envelope. We may add, that we have received, as this sheet is passing through the press, three packets of seeds of Sorghums direct from Mr. HULLETT, and which shall be forwarded to the gardens of the Royal Horticultural Society, at Chiswick.

—— Horticulturists will feel very great regret to learn of the sudden death of Mr. GEORGE URE SKINNER. He left England last December by the West India Mail Packet to go to Guatemala, in Central America, where he was a partner in the house of KLEE, SKINNER & Co., he being about to retire from business and settle in England. He had only got as far as Panama when he was seized with yellow fever, and after a very short illness, died on the 9th Jan. at Aspinwall. It is as a devoted lover of plants (especially Orchids) and Natural History generally that Mr. SKINNER has been so remarkable. He was of a most genial, kindly disposition, ever liberal and charitable, so that his loss will be felt most keenly by his friends. His old and attached friend, Mr. BATEMAN, has kindly promised to supply a biographical notice, and hence for the present we do no more than announce the sad news and give expression to that feeling of sorrow which will be felt by all with whom Mr. SKINNER was in any way associated.

PLANT PORTRAITS.

ANGRÆCUM CITRATUM.—*Bot. Mag.*, t. 5624. Orchidaceæ. A pretty little stove epiphyte, consisting of a few oblong lanceolate leaves, forming a flattened tuft, and a slender pendulous radical scape, bearing a many-flowered raceme 4 or 5 inches long, on which the small cream-coloured flowers all facing one way, are set in two rows, one on each side the rachis; they have a spur twice as long as the lip. Native of Madagascar. Flowered by Messrs. Veitch & Sons.

BARLERIA GIBSONI.—*Bot. Mag.*, t. 5628. Acanthaceæ. A glabrous stove shrub, of branched habit, with neat ovate or oblong lanceolate leaves, and subterminal flowers of rather large size, nearly regular outline, and of a pale purple colour. It is described as being useful for winter flowering. Native of India. Flowered at Kew.

CLAVIJA FULGENS.—*Bot. Mag.*, t. 5626. Myrsinaceæ. A beautiful stove shrub, of erect habit, the single stem bearing a crown of obcuneately spathulate leaves, a foot or more in length; from their axils, and growing so as to be hidden by them, issue short racemes of very handsome deep orange-red flowers. Supposed to be of Peruvian origin. Flowered at Kew.

CURCUMA AUSTRALASICA.—*Bot. Mag.*, t. 5620. Zingiberaceæ. A rather ornamental stove herb, closely allied to the common Turmeric. It has oblong lanceolate leaves, and many-flowered spikes of yellow blossoms, the lower bracts subtending which are shorter, green, and recurved, and the upper ones longer, more acute, and rose-coloured, forming a pretty crown to the inflorescence. Native of Cape York, North-east Australia. Flowered by Messrs. Veitch & Sons.

HELIANTHEMUM OCYMOIDES.—*Bot. Mag.*, t. 5621. Cistaceæ.—A beautiful hardy sub-shrub of dwarf habit, with linear oblong leaves, and large bright yellow flowers with a dark eye. Native of Spain and Portugal. Flowered at Kew. "The beautiful genus to which this belongs," observes Dr. Hooker, "was once a favourite in cultivation, but has of late given way before the rage for 'bedding-out plants,' which now monopolize the once varied borders of English gardens. No less than 70 species of Helianthemum, besides varieties, are figured in Sweet's valuable book on the cultivated plants of the order, published in 1830, and of these a great number are now no longer to be found in England. It is to be believed that the time will yet come when the taste for really beautiful and interesting plants will reign again, and replace the present passion for a blaze of gaudy colours along our garden walks."

IMPATIENS LATIFOLIA.—*Bot. Mag.*, t. 5628. Balsaminaceæ. A free-flowering and free-growing stove plant, of erect branched habit, 2 to 4 feet high, with fleshy stems, ovate lanceolate serrated leaves, and large flat pale purple flowers, somewhat resembling those of I. platypetala. Native of India and Ceylon. Flowered at Kew.

LAMPROCOCCUS WEILBACHII.—*Neerl. Plant.*, t. 26. Bromeliaceæ. Also called L. Laurentianus and Æchmea Weilbachii. It is a pseudepiphytal stove herb, with ligulate leaves, and an erect scape bearing crimson spathes and purple flowers, of a not very showy character. Native of Brazil. Flowered in the Copenhagen Garden.

MESOSPINIDIUM SANGUINEUM.—*Bot. Mag.*, t. 5627. Orchidaceæ. A pretty cool stove epiphyte, with oval compressed pseudobulbs, cuneate ligulate leaves, and secund, pendulous racemes, branched at the base, bearing pretty, moderate-sized, waxy, warm rosy-tinted flowers. Native of the Peruvian and Quitensian Andes. Introduced from Ecuador, and flowered by Messrs. Veitch.

RHAPHIA TÆDIGERA.—*L'Illustration Hort.*, t. 499. Palmeæ. A graceful Palm, with a tall erect cylindrical stem, and a crown of stout arching pinnate fronds, having many pinnæ, the fructification consisting of large cluster-shaped spadices hanging from between the bases of the fronds. Native of Brazil. Grown by M. A. Verschaffelt.

TAPEINOTES CAROLINÆ.—*Bot. Mag.*, t. 5623. Gesneraceæ. A pretty succulent-stemmed stove plant, with oblong lanceolate serrated leaves, of a shining bluish-green above and bright red-purple beneath; the flowers are axillary Gloxinia-like, white, with the tube much inflated and curved upwards. Native of Brazil. Flowered at Kew.

VRIESIA BRACHYSTACHYS. — *Gartenflora*, t. 518. Bromeliaceæ. A stove perennial, with ligulate green leaves, and a short distichous spike of yellow flowers issuing from spreading carinate bracts, which are red at the base and tipped with green. The scape also is coloured red. Native country not stated. Flowered in the St. Petersburg Botanic Garden.

STRAWBERRY ANANAS PERPÉTUEL.—*L'Illustration Hort.*, t. 501. A French variety of the Pine race, said to be one of great excellence. The plant is dwarf, vigorous, and hardy. The fruit is of moderate size, roundish or oval, sometimes lobed, of a lively vermilion red with projecting seeds, and with a very white flesh, which is juicy, sweet, and highly perfumed. It was raised by M. Gloedo.

STRAWBERRY REUS VAN QUIDWIJK.—*Neerl. Plant.*, t. 36. A large coarse-looking Strawberry, with fruit of oblong outline, but irregular and furrowed on the surface, sometimes cockscomb-shaped. It is of a palish red colour, and is represented as having solid flesh, white, with a central dash of red. Raised by Mr. Van de Water.

THE FRUIT TRADE OF THE BAHAMAS.

GROVES of Orange trees and Cocoa-nut Palms have been planted in New Providence, Eleuthera, and other of the northern islands. Fruit trees of various kinds are crowded round the dwellings of the cottagers, growing luxuriantly, but planted without order, unselected, unpruned, and unimproved, often finding a place and nourishment for their roots in crannies and fissures of the rocks, into which it would appear impossible for them to penetrate. With the exception of the Pine-apple, which has since the last century been grown in fields of large size, and to a considerable extent, in Eleuthera, St. Salvador, and others of the Windward Islands, and of Cotton, the cultivation of which has been resumed to a limited extent in Long Island and some of the neighbouring islands, it cannot be said that any production of the soil is cultivated in the Bahamas.

The soil and climate of the Bahamas are admirably adapted for all tropical and semi-tropical fruits. The following species are indigenous:—The Sapodilla (Sapota Achras), Cashew (Anacardium occidentale), Pine-apple, Sour and Sweet Sop (Anona squamosa and muricata), Papaw (Carica Papaya), Sour Orange (Citrus vulgaris), Lemon, Star-apple (Chrysophyllum Cainito), Cocoa-plum (Chrysobalanus Icaco), Cocoa-nut, Sea-side Grape (Coccoloba uvifera), Water Melon, Mammee (Mammea americana), Plantain and Banana, Love-in-a-Mist (Passiflora fœtida), Guava, Spanish Hog Plum, Hog Plum, and Scarlet Hog Plum (Spondias lutea, Mombin, and Myrobalanus), Tamarind, and Wild Grape.

The following have been introduced at different periods:—The Jamaica Custard-apple (Anona reticulata), the Ground-nut, the Bread-fruit, the Akee (Blighia sapida), Citron, Common and Mandarin Orange, Shaddock, Lime, Fig, Mango, Rose-apple (Jambosa vulgaris), Avocado Pear (Persea gratissima), the Pomegranate, Date, Mulberry, Balsam-apple (Momordica Balsamina), and Jujube. Of the above species Oranges, Grapes, and Shaddocks have been cultivated for exportation, chiefly to the United States.

The extent of the shipments of enumerated fruit, other than Pine-apples, in the years 1855 and 1864 is given below:—

		1855.	1864.
Oranges	millions	1,368	1,765
Grapes		95,203	9,400
Shaddocks		2,758	none
Lemons and Limes ..	barrels	252	57
Cocoa-nuts		3,000	59,900
Sapodillas		10,000	3,000
Melons		6,700	950
Bananas	bunches	7,148	8,370
Tamarinds	barrels	10	1

The aggregate value in each year was nearly about the same—3000*l*. The great bulk of the fruit goes to the United States. In some years the fruit shipped has exceeded 4000*l*. in value, but at least two-thirds consists of Oranges, which fetch from 30*s*. to 32*s*. per thousand. The demand for Lemons and Limes is so small that their value does not exceed 10*s*. to 5*s*. per thousand respectively. New York offers a steady market for Oranges. The southern ports, as Charleston and Savannah, used to take a certain quantity, from 80,000 to 100,000 at a time, before the late civil war.

Pine-apples must be ranked next to fruit trees. They have long been an article of production and exportation to the United States, and they are now shipped in considerable quantities to London. The cultivation was commenced about 100 years ago at Governor's Harbour, Tarpum Bay, and Rock Sound in Eleuthera, and in 20 years it had become very general in that island. The first cargo to England was shipped in 1842. It appears uncertain whether this plant is a native of these islands, or was introduced from the Windward Islands or Cuba. Three varieties are grown: 1, The Bird's-eye, which is the original or indigenous variety; 2, the Sugar-loaf; 3, the Cuba or Scarlet, which was introduced about 1850 or 1852, and the cultivation of which has been rapidly extending during the last five years. The Sugar-loaf, which is a juicy luscious fruit and keeps better on a long voyage, is preferred in the United States, where it arrives in good condition after the shorter voyage, and fetches a higher price by 20 per cent. than the Bird's-eye. It is found that it will thrive in soil which was considered unfit for the other kinds. The cultivation of the Bird's-eye kind is going out. This variety is found to be more liable to the depredations of rats than the others. An instance of the loss by these animals may be cited. In one field of 40 acres of Sugar-loaf Pine, the reduction in the yield of a recent year was estimated at 6000 dozen, or one-third of the crop of the preceding year.

Land-crabs are also very destructive to Pines in some places, as at the east end of the Bight of Eleuthera. Like locusts elsewhere, they invade a field, march straight through it, and consume every fruit in their course. Destructive droughts occur at intervals of six or seven years.

The cultivation of the Pine is chiefly carried on in Eleuthera, but it is also grown in other of the islands to windward, and St. Salvador has lately enjoyed a high reputation for the quality of its fruit, and several vessels have loaded there for the London market. It is not grown to any extent in New Providence. The principal ports of shipment to England in Eleuthera are the three already mentioned, and Savannah Sound. The largest shipments to the United States are from Harbour Island.

The following statement shows the quantities cleared from the Bahamas in the years 1855 and 1864:—

	1855.		1864.	
	Dozens.	Value.	Dozens.	Value.
To Great Britain ..	16,469	£3,415	61,500	£8,516
To United States ..	58,560	9,533	229,226	21,299

The fruit is usually carried down to the boats in baskets, on the heads of the labourers. It is a great advantage when, as at Tarpum Bay, it can be put on board the ship without transhipment. Much handling injures the fruit. At Rock Sound the produce of one estate is carried about two miles in spring waggons. This is the only road used for the purpose in the island. One-fourth of the land under cultivation is usually in full bearing. An acre of land will contain on an average 2000 dozen slips of the Sugar-loaf variety, and 1600 of the Cuba variety. The first crops gathered in the second year of growth will yield 1500 dozen Pines, the second and third 1000 dozen. The fields are or ought to be cleaned, six times in the year. The labourers are obliged to wear canvas leggings to protect them from the spines. The yield of the Sugar-loaf kind is one-third of the quantity planted; of the Cuba kind, one-half. But the plants of the former last longer, say five years, while those of the latter last only three years. The average weight of a Sugar-loaf Pine is 3 lb.; of a Cuba Pine, 3½ lb. An idea of the extent and increase of the production of this fruit may be formed from the following statement of the quantities and value of the exportations during ten years:—

	Quantities. Doz.	Total Value. £
1855	75,119	12,948
1856	134,237	12,394
1857	163,163	19,303
1858	195,099	19,748
1859	160,060	9,169
1860	153,500	17,346
1861	185,098	16,469
1862	172,000	23,174
1863	213,000	21,842
1864	277,000	29,380
Average	172,827	18,176

The average price per dozen has ranged from 3*s*. 5*d*. in 1855, to 1*s*. 1*d*. in 1859; 2*s*. 1*d*. was the general average for the 10 years. The ports of New York and London alone afford a steady market for Pines. Other ports in the United States, such as Boston and Philadelphia, take from six to eight cargoes in a season, and those in the British North American provinces seldom take a single cargo, or even half a one. No shipments are made to any other European port than London. The price is too high for the Liverpool and Lancashire markets. The competition of native fruits excludes this from France. Epidemics in the States spoil the market for a while.

To the United States the fruit is shipped like Turnips, stripped of everything but its head, and packed loosely and as closely as possible in the hold. It occupies only two days to gather and ship a cargo for the United States. To England the whole plant, or tree as it is called, was formerly shipped, leaves and shoots together, the former wrapped round the fruit, which they were supposed to keep fresh; but since the year 1858 the shoots have been left on the stalk. The gathering and loading for the English market occupy four or five days. The fruit is arranged in tiers, and great attention is paid to ventilation. The hatches are left open day and night throughout the

voyage. Cargoes to England average 3000 to 3500 dozen, and to the United States 4000 to 5000 dozen.

The difference in the mode of shipment causes a difference in the price. The grower who, by parting with the shoots, loses the means of continuing or extending his cultivation, except by procuring shoots from other sources, must charge a higher price, and during the last two years there has been a great demand for shoots or slips. Accordingly there is a fixed difference of prices between the Pines bought for the English and American markets. The average price of the former may be stated at 3*s.* a dozen, of the latter at 2*s.* The actual average valuation of shipments in 1864 to England was 2*s.* 9*d.*, and to the United States 1*s.* 10*d.* per dozen. There is not much fluctuation in the price; purchasers generally offer the prices of the preceding year, unless some extraordinary circumstances affecting the supply or demand should occur. They do not offer a higher price for larger or better fruit. The grower, therefore, has no inducement to improve the size or quality of his produce; he looks to quantity alone.

The expense of cultivation and shipment may be stated at 1*s.* to 1*s.* 6*d.* per dozen; the selling price being 2*s.* to 3*s.* per dozen. The net proceeds of an acre in ordinary years are consequently—

In the first year	..	..	..	£93 15*s.*
,, second year	..	..	..	62 10
,, third year	..	..	..	62 10

Another informant states the average net yield at 60*l.* a year. The obstacles to the extension of the cultivation have been the limited quantity of land supposed to be suitable, and the scarcity of labour. There are usually two cuttings in a year. The Cuba Pine is earlier than the Sugar-loaf, and the two cuttings are early in May and late in June. The first cutting of the Sugar-loaf variety is from the 1st to the 28th June; the second in July and August. The fruit of the first cutting is generally the best, and keeps best. In the United States it fetches double the price of the second, viz., 6*d.* apiece, instead of 3*d.*

In England the average price realised is about 1*s.* apiece. The finest, of which the number is small, have sold of late years as high as 3*s.* 6*d.* apiece. Quantities sell at that price per dozen, or as low as 3½*d.* each.

The limited period of cutting and shipment leads to hurry and waste, to a necessity for proceeding in spite of bad weather or other unfavourable circumstances, and to an excessive competition in the foreign market. The losses on shipment are often great. Many vessels go out in ballast from England; these usually clear at Nassau, and call at the ports of shipment to take in their cargoes. The cost of a voyage to and from England is from 350*l.* to 400*l.* or 500*l.*, and to and from the United States 600 to 800 dollars. Vessels chartered in the Bahamas to take a cargo to the United States may be engaged at 400 to 500 dollars.

The loss by decay, &c., on the voyage is very uncertain, and is often large. The causes which influence the amount are unknown, but it is generally supposed that shipments made in rainy seasons will not keep, owing probably to the excessive juiciness of the fruit. If the loss does not exceed 30 per cent. the transaction will yield a profit, but it often amounts to 75 per cent., and sometimes the whole cargo is destroyed. The average length of a voyage to England is 28 or 29 days; voyages have been made in 21 or 22 days, and have also extended to 40 days. The mode of sale differs in England and the United States. In England the fruit is sorted, parcelled, and catalogued, and sold in a fixed place on a certain day; there is therefore sometimes the delay of some days before it can be sold. In New York it is sold in any quantities from the ship according to the demand, and is taken away at once by the purchasers. *P. L. S.*

NEW VEGETABLE AND FLOWER SEEDS.

It may be to the advantage of seed-growers and seedsmen to know that for all the novelties they can produce in the above line, the subscriber will for a small consideration give testimonials, of which he begs to submit the following examples!

New Early Pea.—I beg to state that I have given your new early Pea (the Racer) a fair trial with some of the earliest Peas known, and found it to come in 2 days 5 hours 46 minutes and a few seconds before any of them. It is likewise a stronger grower and better bearer than Precocious (alias First Pod). I shall want two pecks of it this year if you can supply me with them.

New Late Broccoli.—As a late variety of this esteemed vegetable is a great desideratum for gardeners, I find your new late sort is likely to prove so. The seeds of it were sown in the usual time, in June, and the plants transplanted in the of July. The plants do not attempt yet to show heads, although nearly a year has elapsed—this I therefore think will prove that your late sort (Hybernator) is the latest known.

Cauliflower Seed.—The Cauliflower being reckoned by epicures as the finest flower grown in the garden, your plan of raising the seed in Norway on purpose to make the plants hardier in the winter months in this country is a step in the right direction. I have lately been cutting some fine heads raised from your seed, and that in the time of severe frost and snow; you may therefore judge of my triumph in supplying my employer's table in such a season. Send me as many packets of seed as you can, for many of the gardeners round who have seen mine want a supply of seed.

New Early Cabbage.—Your new early Cabbage (Tender-heart), I find, is a first-rate early sort. On trying it with Little Pixie, Nonsuch, Reliance, and other dwarf early varieties, I found it comes in a few days earlier than any of them, and is of the most delicious flavour. Send me 2 lb. more of the seed.

New Kidney Potato.—Your Emperor of the Kidneys is, I find on trial, an excellent variety for withstanding the disease, and for productiveness. I tried it against Prince of Wales, Barsetshire Kidney, and the Creamy Yellow, and found it produce a far heavier crop, and of better quality. Send me 10 or 12 pecks, if you have such a stock to dispose of.

New Cucumber.—Your new Cucumber (Breech-loader) I have grown this year, and find it is a Black Spine of great length and beauty. From its fine shape and length it will be there, or thereabouts, in making a "bull's eye" at the exhibition tables. Send me a packet of three more seeds.

Pink, Carnation, and Picotee Seed.—The Pink, Carnation, and Picotee Seeds grown by your "Timbuctoo" correspondent, of which you furnished me with packets in the spring, have grown satisfactorily. The plants are now coming into bloom, and showing some extraordinary double show-flowers. Send me another supply of packets of all the sorts.

New Dahlia.—Your new dark maroon Dahlia (Lucy Neal)—if I had raised one half so good, how happy I should feel! Be sure and secure me a plant in the spring.

The above testimonials are samples, in different styles, and only apply to a few of the novelties in new seeds, &c., which swell the "Fat Catalogues" now yearly published. Applications from seed growers, seedsmen, and nurserymen, will receive prompt attention by addressing a line to "Investigator," at the Post Office, Hookem-cum-Grabem, Barsetshire. *W. T.*

Home Correspondence.

Hardy Fern-like Plants for the Flower Garden.—I have more than once drawn attention to several good things in this way, and particularly to Thalictrum minus, which, while growing freely in ordinary soil in the full sun, and being perfectly hardy and permanent, I have proved affords us a beauty almost identical with that of Adiantum cuneatum, and which may be made the nicest use of by the flower gardener. In consequence of recommending it so strongly through various channels, there have been many demands for the plant which nurserymen are not at present able to comply with, though I learn that somebody has lately got a stock. The plant is to be had in abundance in some parts of Britain, particularly in the north and north-west. It is also freely found in Ireland, and, is abundant in the Lake District, growing high up amongst T. alpinum, and a taller and coarser species. Once established, the only thing that need be done is to pinch off the growing flower stems, and thus keep the poor little flowers out of sight. The Italian Isopyrum thalictroides is dwarfer in growth and with a similar aspect, though the leaflets are larger. It is grown in most botanic gardens, and may doubtless be had in profusion in its native country. It would form a graceful dwarf Fern-like fringe, but is not equal to my favourite T. minus when once firmly established in nice cushiony tufts. I doubt if we shall ever surpass or equal that as a nice Fern-like plant for the flower-garden. The Isopyrum must also have its young flower shoots pinched carefully off. But I now write to particularly recommend another Fern-like plant for the flower-garden, quite distinct in aspect from either of the foregoing, but likely to furnish a most useful Fern-like effect. It is Spiræa Filipendula, the Dropwort—either the single or the double kind will do—and the plant is rather frequent wild in England. The leaves are cut into deeply toothed segments, will of course stand any amount of exposure, are pleasing in outline, lasting in character, and certain to produce a capital Fern-like effect of the pinnated type. Pinch off the stems and you will then have no further trouble in producing a dense green margin with this plant. The leaves will grow from 5 to 8 inches long according to the soil. The flower gardener who is at all inclined towards variety and interest, can of course make a tasteful use of these plants. I may add that I have used the leaflets of T. minus among flowers with good effect; they are of a more lasting character than those of the Fern. *E.*

Literary Plagiarisms.—I was glad to see that Mr. Lindley had called the editor and translator of the "Vegetable World" to account for what he calls the "unfair use" of his father's work, the "Vegetable Kingdom." Plagiarism in horticultural literature is too common and too flagrant. Original writers in this branch of literature are mostly practical, rather than literary men, and as such hardly competent to bring these offenders to book. Hence the effrontery with which some would-be *savans* steal other men's thoughts, scarcely troubling themselves to clothe them afresh, which under different circumstances they would for decency's sake be compelled to do. If horticultural writers had a little more literary skill, and a professional knowledge of literature, these gentlemen would have to "steal and hide" instead of "steal and wear" their crowns. Not very long ago an article was brought under my notice in which the writer commenced by obliquely pooh-poohing the very author whose thoughts he was about to steal, and was afterwards too lazy or too greedy of gain to master and re-arrange them. The pooh-poohing was no doubt a clever contrivance in his estimation to put his readers off the scent. Writers on horticulture may be divided into two classes:—1, producers; 2, cooks; the one just mentioned was of course a mere cook. Take another case. A clever practical horticulturist, but no writer, once said to me, "A. is a very clever fellow, he can write on any subject. He comes and talks to you for an hour or so, and a week afterwards you see not only your ideas but your very words in print." Well, this is clever, and I will not say this is plagiarism; the writer here deserves well of his fellow men, because he gets into print valuable thoughts which might not otherwise have seen the light; still he is only a "cook." Mr. Lindley has done an essential service to working horticulturists and botanists by the bold stand he has taken, at once vindicating his father's reputation, and asserting the rights of producers or original writers. Such should take courage from his example. The "cook" is valuable in his way, and even the producer will appreciate his services if he but cook honestly and well. If he does not this, let the aggrieved parties enter his sanctum, say I, and give him a turn on his own gridiron. *Jack Frost.*

Downton Castle Cabbage.—On April 17, 1866, I made a sowing of the following kinds of Cabbages, viz., London Colewort, Battersea, Downton Castle, and Hill's Incomparable, all being side by side, and afterwards transplanted under similar circumstances, no difference being made in their treatment. The last named is now decidedly the best, having nice firm heads, while Downton Castle is but turning in. I have to-day (Jan. 9th) examined the above sorts, and I find that they have all (except Hill's) suffered slightly from the sharp frost (20°) of last week. Hill's appears as hardy as a Holly bush, and it is nearly as dark a green; while the others are a yellowish green. Downton Castle is, no doubt, a good Cabbage; but it stands very little chance (here at least) as regards earliness or hardiness with Hill's Incomparable.—This, as will be seen, was written on the 9th ult. I have again examined the Cabbages in question, and I see no reason to alter my opinion just expressed regarding them. *H. W. Cordle, Coollattin Park, Wicklow.*

A Query for Philosophers.—I was in a large garden the other day taking notes of the doings of John Frost, where he had been using his cold lance tempered to the destructive thrust of 5° below zero. All buds of Portugal Laurels within 1 foot of the ground were killed; all standards above 5 feet were alive and well. Now, where did John's thrust come from—above or below? and what force baffled him at that particular height. I observe that one of your correspondents states that at 6 feet terrestrial radiation ceases. What does that mean? and what stops the loss of heat at 6 feet distance from the ground that does not also operate on the surface? I cannot see my way to any cessation of terrestrial radiation at any particular height, unless there be some intercepting substance. What is that substance, and why should it operate at 5 or 6 feet more powerfully than at 1 or 2? I hope some of your readers will be able to answer these questions, as it is impossible to over-rate their importance to practical horticulture. I trust to return to the subject, but at present an extensive survey of the doings of the late frosts establishes beyond controversy the fact that it wielded its most destructive force within a foot of the surface of the ground, wherever that surface was not protected by snow. The reason why, is the question asked, and to which an answer is wanted. *Quercus.*

Datura ceratocaula.—The noblest half-hardy annual in cultivation is, in my opinion, Datura ceratocaula; and it may not be amiss to draw some of your readers' attention to it just now, at the seed-ordering period. Not suited for bedding, or anything of the kind, it yet has charms which entitle it to a place in every garden where any interest and variety is sought. These are, in form and odour, of the highest type. If well grown in some rather warm spot with a rich soil, it will give forth a fragrance as valuable for the open-air garden as the Indian Daphne is for the greenhouse; and the beautiful satiny pink flowers open in the evening almost as large as to cover the crown of one's hat. Sow on a gentle hotbed in April, and prick out into some quiet nook, or into the border, in May. It might be most advantageously associated with a few other hardy or half-hardy sweet-smelling plants, especially if proprietor or cultivator were fond of such. *Viator.*

Conifers.—The following are the measurements of some Conifers planted in my garden within these last 18 years, viz.:—Pinus insignis, 45 feet; Abies Morinda, 30½ feet: Pinus Lindleyana, 24½ feet; Cupressus macrocarpa, 46½ feet; Cryptomeria, 32½ feet. None of them have apparently suffered from the late severe frosts. I have also a Chamærops which has stood out on an east terrace without shelter. *W. P., Efford, near Lymington.*

Age of Wellingtonias.—Dr. Torrey has had the kindness to send me the following memoranda relating to the size of the Wellingtonia, and the number of the rings in the tree which he measured. In my last paper upon it (see *Gardeners' Chronicle*, Nov. 24), I had quoted the outer 100 rings as making only 1 inch in a century. Dr. Torrey says, "I have lost or mislaid my original notes. Bigelow, in one of the Botanical Reports of P. R. R., says that I gave him the number of annual rings as between 1100 and 1200. There is evidently a mistake in the *Gardeners' Chronicle* about the 12th hundred. After the 11th there was not a full hundred, and what there was, found when the tree was felled, occupied about 1 inch." On looking at the quotation, it is plain that it must have been so, for it is to the last degree improbable that the tree should just have had 1200 rings, neither more nor less. In my argument as to the age of the tree I fortunately left the rate of growth of the whole of the 12th hundred out of view (because it seemed so unnaturally small), but I am not the less obliged to Dr. Torrey for the information in his note. *A. M.*

Milky White Potato.—One of your correspondents' remarks on this Potato are quite at variance with the opinion of others. For instance, Mr. Clarke, gr. to Colonel Long, procured six of the principal kinds from one of our leading London nurserymen, and planted a peck of each under equal circumstances. The produce of Milky White was 3 bushels, which was considerably more than any of the others; and it claimed superiority as regards its keeping qualities. I have not had an opportunity myself of proving it, but I mean to step into the trial field with it this season, just to fill the vacancy from which your correspondent has retired. The past year has been very disastrous to Potatos, and those who got theirs up before the heavy rains which we experienced, would be gainers. A

diseased Potato amongst those got up here before the rain set in was a rare thing, but after that I should say the third part proved more or less affected with disease. *W. P. R.*

Horticulture in the South and West.—The standard of gardening adopted in the neighbourhood of London and in the midland and northern counties, in fact, in those parts of the country where horticulture is most fully developed, should not be that adopted by those who reside in the south and west, at least not in its entirety, because they have good opportunities of cultivating things which may not be ventured out without danger, say about London. The more of this difference of capability that exists in the country the better, and the more we take advantage of it the more we enrich our horticultural stores. Instead, then, of regretting that we cannot grow things well or at all in one part of the island, which flourish with vigour in another, we should accept the fact thankfully, and set to work to fully develop those classes to which our soil and climate are particularly suited. These remarks especially apply to tree and shrub culture. How many occupy themselves with a vain attempt to develop a few miserable Conifers or Rhododendrons in unsuitable soils, who might find an abundant reward by paying full attention to subjects to which the soil and situation would be acceptable! These remarks are the more particularly educed just now from having seen the great beauty of some shrubs at Bicton last Christmas, which we rarely enjoy elsewhere—particularly the Colletia named after that place, and of which a large standard bush was literally covered with its small waxy and fragrant flowers, and Benthamia fragifera, which was a mass of its handsome, strawberry-like fruit, not to mention other shrubs and trees which do luxuriantly at that place, and doubtless in many other gardens in the same direction. But do gardeners in such favourable positions really take advantage of the mild and genial climate they enjoy? It is to be feared not. There are numbers of plants which we can only enjoy in-doors about London, which might be tried out with advantage in genial spots in the south. The hardier Dracænas or Cordylines, for instance, might prove worth a trial; and there is many a choice half-hardy subject in the perennial way, just tender enough to get cut off, about London, which would feel quite at home in the south and west. Apropos of Dracænas, by the way, a handsome plant, a conservatory kind—I think it is D. indivisa—has stood out perfectly uninjured in a vase in Mr. M'Kenzie's garden at Muswell Hill, ever since the first exhibition at Alexandra Park, and has made good and well-developed annual growth in that position, though I cannot say if it has withstood the late severe frost. *Viator.*

Flock from the Bulrush (*Typha latifolia*).—I think it would be useful for many poor people to know that the common Bulrush is excellent for stuffing beds, pillows, &c. My attention was called to this by our upholsterer, Mr. Read, who has been using it through the winter himself upon trial, and who speaks highly of its usefulness. I send a portion, and I think it will surprise you to find the quantity that one head produces. I should not think it required anything beyond gathering when fully ready in the autumn, and well drying, when it will come easily from the stem—at least this is all that has been done with the sample I send. When we consider how plentiful this plant is in our lakes and rivers, in all the three kingdoms, there cannot be any doubt it would prove a great boon to many poor people, if used for purposes of this sort. *J. F., Cliveden.*

Aucuba Berries.—Whilst some of your correspondents are troubled with the depredations of birds on these berries, others have to experience the unpleasant sight of seeing them robbed of their beauty by frost, if not entirely destroyed. Mr. Clarke, gr. to Colonel Long, at Bromley Hill, fertilised in the open ground a plant which was really beautiful before the frost, being studded with 300 berries, a fact which was proved by actual counting. Others of your correspondents may have seen more on one plant, but I have not, which makes me mention the exact number. The whole of these berries are now nearly black, and no ornament whatever. I consider this plant with its berries, to be an acquisition for dinner table decoration to those who have not the convenience to grow the beautiful foliage plants of our stoves. *W. P. R.*

Birds and Gooseberry Bushes.—In consequence of the failure of my crops of Gooseberries year after year, for many years past, I have tried all sorts of expedients. I have shifted the trees from a low, damp situation to a high and dry one, thinking thereby to get fruit instead of luxuriant wood and leaves. At length I became convinced that birds, and nothing else, were the cause of my Gooseberry famine. Then I tried winding threads amongst the branches, &c. And one of my neighbours fixed stuffed rabbit skins on his trees to represent cats; but all to no purpose. In the early part of this winter I was told of a person who, after having been victimised for years, had, three years ago, and ever since, tried, with perfect success, whether scarlet rags would prove as disturbing to bullfinches, tits, finches, sparrows, and the rest of the fraternity of disbudders, as to turkeys. By displaying three or four strips of scarlet woollen rag, or scarlet flannel, on each tree at the commencement of the winter, I feel sure I have not lost a single bud, and have promise of an abundant crop of berries. *J. H. Maw, Broseley, Shropshire.*

Management of Woods, and Mr. Brown's Comments thereon.—In your columns of last week (see p. 113), Mr. Brown, of Wass, Yorkshire, in an article commenting on Mr. Gray's lecture on land agency, takes exception to the opinion expressed by that gentleman in reference to woods, "that where a forester is not kept, the farm bailiff or gardener will answer the purpose." Mr. Brown attributes gross errors in forestry to nine-tenths of the owners of land in England, and argues that this is due to the common error of employing the gardener, carpenter, or coachman. Mr. Brown's knowledge of the acquirements of gardeners must be derived from singularly incompetent examples of the class, or, what is more likely, from utter unacquaintance with any respectable or educated gardeners, or he would not place them in the category of men whose business is with horses and carriages, or with carpenters principally amongst seasoned foreign woods. It seems obvious enough that even a garden labourer who is necessarily acquainted with the works of sowing and planting, the use of the spade and the axe, has qualifications for the manual practice of forestry superior to the men whose business is entirely unconnected with the management of land. But that a regularly qualified gardener, who in addition to an intimate knowledge of hardy trees and shrubs, has the ability requisite to produce rare exotic fruits, and to cultivate successfully plants from every country under the sun, giving each the soil, temperature, and treatment it requires, should be incapable of managing a few acres of woodland, is an assertion that as a gardener I cannot permit to pass unquestioned. I venture to assert that the training a gardener receives qualifies him to undertake the cultivation of hardy trees, and I happen to know that some of the best woodmen in our country received their early training in gardens, and at this moment the woods of many well-managed estates are under the superintendence of gardeners. I wonder where Mr. Brown could find a forester to excel Mr. Barron, the late gardener at Elvaston, either in knowledge of trees or in the management of woods; and where will he find a woodman who has done as much as Mr. Frost, of Dropmore, to prove the capabilities of the new and beautiful Coniferæ introduced into England within the last half century? Mr. Brown's style of writing is on a par with his style of argument. He says—"Trees are the largest and most noble of the vegetable productions." And again: "Every one admires trees when they have been allowed to show their natural habitat." Are we to infer that if a tree does not show its 'natural habitat,' whatever that means, we may withhold our admiration? Again: "Trees are a great means of shelter to our farms." Mr. Mechi has given expression to the feeling entertained by most good farmers respecting hedgerow timber and trees about farms; the protection they afford is in very many cases like that given by the Austrians to the Venetians. Instead of attributing the errors of planting and management, found so generally by Mr. Brown in our English woods, to gardeners, the fault may be more readily referred to the parsimony and want of intelligence of land agents incapable of appreciating and unwilling to receive and be governed by the advice of the competent and experienced men to be found in the noble and highly cultivated gardens throughout the country. In enumerating the qualifications of a forester, Mr. Brown says that he should be a botanist. Does Mr. B. think that botany is to be learnt like the multiplication table? "A geologist to be able to know the different qualities of soils, so that he may know what is best suited for one kind of tree, and what another;" as if a woodman on an estate had a choice of all soils. "He should be acquainted with chemistry: vegetable physiology is what he should not be without." Mr. B., by his way of expressing it, seems to think it something that a man may carry about with him—in his pocket, perhaps? Mr. Brown knows little, I should imagine, of the sciences he writes so flippantly about, or he would be aware that a good botanist, geologist, or chemist would find something better to do than to thin plantations, even under the eye of so powerful an exponent of the art of woodcraft as himself. *Walter Irvine, Birchwood.*

Cyanophyllum magnificum.—For the information of "W. J." permit me to say that we had this noble plant finely in flower last autumn, and that it is now ripening a large quantity of seed. The flowers are a dull white or stone colour, and are produced on spikes as large as those of the common Horse Chestnut (Æsculus Hippocastanum). Those on our plant now measure from 8 to 10 inches across, and they are about the same in height. They remained in perfection about eight days, and were much admired by all who saw them. Our specimen would have been exhibited at one of the fortnightly meetings of the Royal Horticultural Society, had it not faded during the interval. *Edward Robinson, Englefield Gardens, Reading.*

Napoleon's Willow.—As there are reminiscences belonging to this particular Willow which must in ages yet to come prove of interest to the nation, I beg to mention that in the grounds of my late lamented employer (W. J. Lancaster, Esq.), at Stamford Hill, is growing a tree of this same Willow, which was rooted by myself from a cutting of a few inches in length, which was cut from the original tree during Miss Lancaster's brief sojourn in the island of St. Helena, while on a homeward-bound voyage from the East Indies in 1849. After being reared in a pot, it was planted by me in the memorable year of the first Industrial Exhibition in Hyde Park. I think it is quite equal to the famous tree at Kew as regards rapidity of growth—that is, if we take into consideration the respective number of years each has been planted. Not being in the neighbourhood, I am not in a position to ascertain its exact dimensions; but should any person desire that necessary information, I have no doubt that it could be obtained. During the past summer many ladies and gentlemen had an opportunity of seeing this tree in full beauty, and it elicited general admiration. I hope that it will be preserved from the destruction that evidently awaits many of our metropolitan objects of interest:—

> Builder, spare that tree—
> Touch not a single bough:

and why? Because a sight of it will, for years to come, bring a train of reflection to every thinking individual. *Jno. McElroy.*—By some inadvertence the circumference of the stem of Napoleon's Willow at Kew was stated to be 8½ feet, instead of which it should be 7½ feet. *J. Smith, Park House, Kew.*

Roses in Dorsetshire.—I have had disastrous communications from rosarians, or I should rather say from the possessors of Roses, for there are but few who really deserve the name of Rosarian. A Rosarian is one who looks forward to all possible contingencies, and provides accordingly. His "eyes are in his head;" that is, one eye looks back on past experience, and the other is directed to present and future circumstances; in a word, he is circumspect. How few are there who have lost their Roses that did not deserve it; and how many who have suffered through their own negligence take comfort from the fact that other neglecters are in the same mess! If I do all that science and labour can do to protect my Roses against an hyperborean winter (and very little will do it), and it pleases the wise Ruler of events to destroy my Roses, I am quite satisfied; but I must protest against a charge being made against Providence by those who never provide. A small quantity of straw, fern, litter, or leaves will, especially with the help of a little snow, defy zero, so far as the roots are concerned. Standards have three points of attack—the roots, the stem, and the head. They as often suffer from violation on their stem, not at once perceptible, as from the other two. An injury to one solid inch of the stem will in due time settle the fate of the tree. This is sometimes discovered in the heat of summer, succeeding a severe winter, or shortly afterwards. The plant goes out like the snuff of a candle. It is fair to say, that with proper care, what few standards I have here have wintered admirably. My Roses are chiefly on the Manetti stock, or on their own roots, and they have come out of the ordeal to which they have been subjected with triumph. I do not think that there are one dozen, including Yellows and Teas, dead. I have just finished cutting out wounded wood, and trenching deeply between the ranks to let the water run from the roots, and to let in the quickener of the natural world! The sap is fast rising, and I do not expect to lose, at all hazards, including small weak novelties, more than two dozen out of about 1200 Roses. They are all good sorts, and justify, with fair treatment, my previous recommendation of them. The following suffered most in their wood, being tender in their skins, viz., M. de Montigny, Cecile Chabrillant, Duchesse d'Orleans, and Sœur des Anges. The yellow ones, splendid trees, were wholly tied up with straw after the first frost, and out of 56 only two are dead. Gloire de Dijon, Maréchal Niel, and Céline Forestier, have stood the frost best. The others, such as Triomphe de Rennes, La Boule d'Or—a very hardy Tea Rose—though cut up, will spring again from the litter and snow line. The H. P.'s have stood it nobly; to specify is invidious; but the following in large quantities per sort have specially signalised themselves, viz., J. Hopper, W. Griffiths, C. Lefebvre, Jules Margottin, S. Vaisse, Acidalie, Sombreuil (Tea), B. Prevost, Reine d'Angleterre, C. de Sansal, Duc de Cazes, Duc de Rohan, Maurice Bernardin, Malmaison, and Madame V. Verdier, besides many others in smaller numbers. Among the newer Roses the following have wintered nobly, viz., King's Acre, the Rev. H. Dombrain, Dr. Lindley, Dr. Jamin, Madame C. Verdier, Souvenir de W. Wood, Duchesse de Medina Cœli, Duke of Wellington, Rushton Radclyffe, Marguerite Bonnet, Duchesse de Caylus, Marguérite de St. Amand, Achille Gonod, W. Prince, W. Bull, Black Prince, Lady Suffield, and Globosa. Some of the above are not yet proven fully, but they are certainly all of them frost-proven. The north wind sweeps for miles without an impediment beyond a 7-foot wall, and the land is strong, deep, sandy loam, and very retentive of moisture. The above new, or newest Roses, therefore, have proven themselves to be very hardy—the first point where continuance is expected: "A living dog is better than a dead lion." King's Acre is the hardiest and healthiest of all the novelties that have been here since J. Hopper came out. Finally, I advise possessors of Roses to cut out *débris* at once, and to shorten back branches behind stained skin to the first sound eye, and also to stir the ground sufficiently to promote root-action. After such a winter standards cannot be cut too hard. *W. F. Radclyffe, Okeford Fitzpaine.*

Gas Tar and Hot Water Pipes.—If your correspondent (see p. 106) had simply rubbed his pipes with oil, or any old grease, instead of painting them, he would have removed the tar at once. It will now be necessary to rub them well with a hot solution of caustic soda, to remove the paint, after which the oil or grease-rubbing just named will do all he requires. The solution of soda is made by boiling in a set pot equal quantities of common soda and new-slacked lime, pour off the clear portion, and use it as hot as is convenient. After the grease-rubbing, the soda water may be used again, if required, to remove the grease still adhering to the pipes. This process will leave the pipe as clean as when new. Another way, if convenient, consists in taking the pipes down, laying them on the ground, and making a good fire of straw or shavings about them, which will burn them clean. *R. Dea, Aderley Park Road, Birmingham.*—There is but one immediate and effectual cure, and that is getting the pipes out of the house and setting fire to them. This would, however, be expensive and exceedingly inconvenient at this season. Hot lime, or lime wash, the thickness of ordinary paint, well rubbed into the pipes with a painter's brush, when there is a good brisk heat in them, has often a good effect, as it absorbs both the tar and its poisonous fumes. Every part of the pipes should be well covered with the wash, and will for some time require frequent dressings, as the lime, as it gets charged through with tar, will blister and fall off. Thus treated, it may be for a year or two, all may be scraped or washed off, and the pipes may have one thick or two thin coats of oil paint

which will effectually prevent any further mischief. I fear, however, that nothing but firing will get your correspondent fully out of trouble. *R. W.*——I would advise your correspondent to wash his pipes with turps, using an old rough scouring-brush for the purpose. If the pipes were painted before the gas tar was applied, so much the better. Ammonia water is also quite as efficient for the purpose. After the tar is cleared off, paint over the pipes with two coats of fresh lime-wash. *Thomas East, Wolverton House, Dorchester.*——Gas tar can be removed by dressing the pipes with a thick coat of limewash made with fresh-slacked lime, limewashing the pipes one day and washing it off the next for several days together, until the pipes become sweet. I am not certain, however, that this treatment will answer in this instance, as your correspondent has put two coats of paint upon the tar, and he may have to use fire to burn it off, either where the pipes are, or by taking them to a more convenient place for the performance of the operation. *John Stevens, Solihull.*

Effects of the Winter at Carshalton in Surrey.—Laurels, Sweet Bays, Laurustinus, and most other shrubs seem to be quite killed. I have also some fine old trees of Evergreen Oaks which seem to be quite dead; Deodars of 20 feet or more in height are apparently killed three-parts down, while Wellingtonias are not injured in the least. Of vegetables, Broccoli is for the most part dead, with the exception of Sprouting Broccoli, which, together with Cottagers' Kale, stands well, although my neighbours have suffered much loss. Of Celery, my employer prefers White, but I have always planted about 300 or so of Red, considering the last to be the hardiest. I now find, however, that it is not; my best Celery is Turner's Incomparable. I have grown it for eight years, and I never had a sort which has given me so much satisfaction. My Reds are all rotten down the heart, although there was a quantity of litter put on them on the 31st of last December. *M., Wallington.*

Weather Records.—Mr. E. J. Lowe has, in my opinion, shown considerable temerity in making the following allegation: "Without further knowledge, an amount of distrust must hang over the records from gardeners and others, in the *Gardeners Chronicle*," assigning the following reasons:—"No gardener, I believe (Mr. Ingram, of Belvoir Castle, perhaps the solitary exception), uses a thermometer stand, and quoting from instruments of doubtful accuracy, hung against a wall or on a Gooseberry bush, without any idea that height and position will make a difference in the result—what can we say of the registrations? Twenty years ago I assisted in the examination of a great number of these instruments, quoted in gardening periodicals, with a view of making these records useful to science, but this examination ended in the rejection of the whole as perfectly useless." I always supposed that scientific deductions were never made on baseless authority. What was the case "twenty years ago" proves nothing, either for or against the accuracy of the readings of the present day. Mr. Lowe should have shown a little more discretion before committing himself to such a sweeping denunciation of thermometrical indications as registered in these columns from various stations. Personally, I know several stations where records are kept with the greatest accuracy, and where not only the best instruments are in use, but almost every other condition as to height, position, &c., fulfilled that Mr. Lowe himself demands. Surely that gentleman's experience of gardeners throughout the country must be limited, or he must imagine them to be purblind, else he would never for a moment have supposed that numbers of them have not both seen and found out the mode of correcting the "spirit condensing along the sides of the tube and collecting at the upper end," long before his utterances on the subject. Doubtless it must afford Mr. Lowe much pleasure to know that gardeners generally, and their employers, are now evincing very much more interest in this branch of science which he has so long been wedded to, and that in addition to first-rate instruments, the greatest vigilance is exercised to secure a correct registration of the temperature, be it maxima or minima, as it occurs. Without standing sponsor for all that has appeared in this way in the *Gardeners' Chronicle*, I have some confidence in the general fairness of the registrations, and as the *onus probandi* rests with Mr. Lowe, it is for him to vindicate or withdraw from the position he has assumed as speedily as possible. *J. Anderson.*

The late Winterly Weather at Torbay.—The following is a list of shrubs, &c., which have stood the late severe frosts uninjured here without any protection whatever, viz.:—

Pittosporum Tobira
,, Mayii
Benthamia fragifera
Azara dentata
Ligustrum sinense
,, japonicum
Erica carnea, in bloom
,, codonoides, in bloom
,, mediterranea
Sweet Bay
Laurustinus
Camellia japonica
Ficus species (?)
Ceanothus azureus
,, dentatus
,, rigidus
,, divaricatus
Euonymus fimbriatus
,, japonicus
,, ,, variegatus
Elæagnus japonica
Cistus
Daphne hybrida
,, collina, &c.
Azalea indica alba
,, phœnicea
Fabiana imbricata
Eugenia apiculata
Ozothamnus thyrsoides, partly injured
Hartogea capensis
Photinia serrulata
Mespilus japonicus (Eriobotrya)
Arbutus photinifolius
Escallonia macrantha
,, rubra
Garrya elliptica, in bloom
Magnolia grandiflora (Exmouth)

Veronicas are all injured a little, and some are killed to the ground. Coronilla glauca is much cut up. Our grounds are situated a quarter of a mile from the sea, and are open to the east and south-east. Ten degrees of frost is the lowest temperature registered. *Joseph Morgan, jun., Torbay Nursery, Torquay.*

State of the Weather at Wilton House Gardens, Wilts, during the Month of January, 1867.—I beg to send you a table of temperatures carefully made here during the month of January. The instruments from which they were taken are Negretti & Zambra's patent ones, and have all, with the exception of the earth thermometer, been certified correct by Mr. Glaisher. The air thermometers are suspended on a properly constructed Glaisher stand, placed in an open part of the garden. The solar and terrestrial radiation thermometers rest on small forks of wood on Grass; the former has a blackened bulb enclosed in a glass tube, from which the air is exhausted to prevent loss of heat. The rain-gauge is placed on the ground. I have been thus particular in describing the instruments and their situation because of the dissatisfaction which has been expressed in your pages as to the usual method of placing thermometers. I may also state that Mr. Ingram, of Belvoir, recommended me to adopt the stand I now use. It is home-made, constructed from a model to be found in Messrs. Negretti & Zambra's "Descriptive Catalogue of Standard Instruments," which also contains the necessary instructions for placing the instruments, &c.:—

Day.	Temperature. Of the Air. Max.	Min.	Mean.	Max. in Rays of Sun.	Min. on Grass.	Of the Earth 1 foot Deep.	Wind.	Rain or Snow.	
	°	°	°	°	°	°		In.	
Tuesday, 1 ..	32.0	24.0	28.0	61.0	21.0	37.0	N.E.	.415	Severe frost; clear sky,; snow fell at night.
Wednesday, 2 ..	30.0	20.0	25.0	37.0	16.0	36.0	N.W.	.240	Heavy fall of snow, accompanied with rough wind.
Thursday, 3 ..	36.0	14.0	25.0	70.0	9.0	34.0	N.	.000	Overcast; severe frost, misty atmosphere.
Friday, 4 ..	27.0	5.0	16.0	66.0	4.0	34.0	N.	.000	Intense frost, with much rime.
Saturday, 5 ..	37.0	3.5	25.2	42.5	2.0	33.0	S.E.	.740	Overcast; brisk wind from S.E.; hail and rain.
Sunday, 6 ..	54.0	18.0	36.0	74.0	18.0	34.0	S.	.475	Heavy storms of rain; dense fog.
Monday, 7 ..	56.0	38.0	47.0	65.0	32.0	34.0	S.	1.050	Very heavy fall of rain; wind south; mild.
Tuesday, 8 ..	53.0	48.5	50.7	79.5	48.5	40.0	S.	.130	Very stormy and boisterous; mild air.
Wednesday, 9 ..	48.0	38.0	43.0	54.0	34.0	40.0	S.W.	.125	Stormy.
Thursday, 10 .	45.0	39.0	42.0	79.0	39.0	40.0	N.W.	.000	Fine; clear sky.
Friday, 11 ..	38.0	25.5	31.7	72.0	23.0	38.0	N.	.000	Frost; cold wind from north.
Saturday, 12 ..	34.0	20.0	27.0	38.0	17.5	35.0	N.	.118	Clear and frosty; slight fall of snow.
Sunday, 13 ..	32.0	12.0	22.0	72.0	5.0	32.0	N.	.000	Frost very severe; clear sky; keen air.
Monday, 14 ..	33.0	8.0	20.5	68.0	5.0	31.0	N.	.000	Intense frost, with clear blue sky; stars very bright.
Tuesday, 15 ..	30.0	8.0	19.0	64.0	4.5	31.0	N.	.000	Very severe; intense blue sky.
Wednesday, 16 ..	32.0	15.0	23.5	58.0	13.0	31.0	N.	.000	A few flakes of snow fell; cold cutting wind from the north.
Thursday, 17 ..	35.0	20.0	27.5	70.0	17.0	31.0	N.	.000	Frosty; bright sunshine.
Friday, 18 ..	34.0	20.0	27.0	65.0	18.0	31.0	N.	.000	Overcast.
Saturday, 19 ..	36.0	19.0	27.5	68.0	13.0	31.0	E.	.000	Densely overcast; cold east wind.
Sunday, 20 ..	32.0	21.8	26.9	58.0	19.0	32.0	N.E.	.000	Brisk wind; clear and frosty.
Monday, 21 .	31.5	21.8	26.6	68.0	19.0	32.0	E.	.000	Dense dark clouds from east; cold wind.
Tuesday, 22 ..	35.0	21.0	28.0	38.0	23.5	32.0	E.	.250	Densely overcast; rain with frost.
Wednesday, 23 ..	51.0	22.0	36.5	60.0	25.0	33.0	S.W.	.240	Foggy; mild; showery.
Thursday, 24 ..	56.0	44.0	50.0	86.0	42.0	33.5	S.W.	.250	Rain; very warm.
Friday, 25 ..	50.0	43.0	46.5	83.0	41.0	36.0	S.W.	.000	Cloudy; mild air.
Saturday, 26 ..	50.0	32.0	41.0	63.0	30.0	37.5	S.	.250	Slight frost on ground; rain.
Sunday, 27 ..	55.0	33.0	44.0	64.0	33.0	40.0	S.W.	.020	Slight fall of rain; very mild.
Monday, 28 ..	53.5	48.5	51.0	56.0	48.5	42 0	W.	.030	Showery.
Tuesday, 29 ..	51.5	35.0	43.2	64.0	32.0	42.0	S.W.	.020	Brisk wind; light rain.
Wednesday, 30 ..	52.0	44.0	48.0	61.0	44.0	42.0	S.W.	.445	Heavy fall of rain; very boisterous
Thursday, 31 ..	51.5	35.0	43.2	92.0	33.5	42.0	S.	.150	Clear sky; exceedingly fine and spring like.
Means	41.6	25.7	33.6	64.4	23.5	35.4		4.948	

The destruction of trees and shrubs is very great, although, to judge from present appearances, not so great as in the winter of 1860. Some of those already dead are Cedrus Deodara, Pinus insignis, Cupressus sempervirens, torulosa, and Lambertiana, Laurustinus, Evergreen Oaks, Sweet Bay, Rhododendrons, Hybrid Perpetual and Tea Roses, and even common Laurels in unfavourable positions. Many other valuable trees and shrubs which now appear slightly injured, will, I fear, die off as the spring approaches. In the kitchen garden the destruction to fruit trees and green crops is also great, in some cases the fruit-buds being quite withered, and the young shoots killed back; but in those trees which were transplanted and mulched early in the autumn, I have failed to detect the least injury. Broccoli, Cabbage, and the hardier winter Greens are nearly all destroyed. Wilton is situated in a valley nearly 100 miles S.W. of London, and 3 miles west of Salisbury. Two rivers flow through the valley. The subsoil is composed of chalk and gravel, and the elevation above the sea is 150 feet. *Thomas Challis.*

The late Severe Weather in Yorkshire.—The lowest temperature registered here during the whole period of the late frost was at 10 o'clock on the night of the 1st January, when the thermometer indicated 22° below the freezing point of Fahrenheit. As the night in question brought forcibly to my mind the night of the 24th December, 1860, I had another thermometer placed beside the one out-doors, so as to be somewhat certain as to the extreme low degree of frost, but to my surprise both thermometers had risen to 15° or 17° below freezing at 12 o'clock the same night. At 6 o'clock next morning (January 2d) they had risen to 18°. On the night of the 3d or morning of the 4th January they registered 13°, or 19° of frost. On no subsequent night did the thermometers register a lower temperature than 15°, or 17° of frost. I have been rather surprised at the low temperatures recorded in various parts of the country, more especially in the south. This place is somewhat elevated above the immediately surrounding country; it is on the red sandstone, and the park and grounds are very much undulated. It is moreover one of the driest places in this part of the country—that is, the rainfall is less—though we have had more than we required since August last. I have purposely abstained from reporting as to the effects of the frost up to the present time, in order that I may be able to speak positively on the subject, and I have great pleasure in stating that the loss of trees and shrubs here has been *nil*. Of the several thousand Conifers which we have, with the exception of a few Cedars, the whole look as well as they did in November. The late growth on some young plants of Cedars of Lebanon in rather confined places has been browned, and in some cases killed; also the young growth of some C. atlantica. Cedrus Deodara has escaped uninjured. There is a fine collection of Berberises here, and all have escaped uninjured except B. Fortunei, which is very much browned in the foliage. I see also some plants of B. Wallichii in exposed places a little touched. The common Laurels never looked better, the late growth being uninjured. Portugal Laurels are also uninjured. Plants of Laurustinus which were killed to the ground in 1860 are very little injured. A Bay plant which was killed to the ground in 1860 is also very little the worse from the frost. Tritomas have been cut up a good deal. Roses are uninjured. In the kitchen garden, too, I have little to report in the way of injury to crops. Brussels Sprouts and Borecole are as green as they were in October. Broccolis which have been laid to the north are very little injured; the sorts are Dilcock's Bride, Knight's Protecting, Emperor, Mammoth, and Chappel's Cream. Carter's Champion and some others not laid have suffered a good deal. Cabbages have suffered very little. Wheeler's Imperial and Nonpareil, planted out the 15th of September last, are the only ones that have suffered, and these only slightly. Shilling's Queen, Enfield Market, and Early Barnes, planted out the 25th September, are untouched. Spinach is uninjured. Strawberry plants are looking very well and promising. Plants of Neapolitan Violet on a south border are much injured, while plants of it on a north border are untouched. Fruit trees of all kinds are uninjured. Gooseberry bushes are already beginning to bud, as are also Jargonelle Pears and Apricots. Winter Aconites and Snowdrops are everywhere here in full flower, and a stray bloom of Primrose may be seen here and there. On the farms the tops of Turnips have been much cut up; but the young Wheat crop everywhere looks well and promising. On the whole, everything in this district indicates an early and forward season, if not retarded by late spring frosts and unfavourable weather. *M. Saul, Stourton, Feb. 4.*

Societies.

LINNEAN: *Jan.* 17.—G. Bentham, Esq., President, in the chair. Morton Allport, Esq., Rev. J. C. Brown, LL.D., J. Fischer, Esq., J. Murphy, Esq., and A. Thozet, Esq., were elected Fellows. The following communications were read:—1, *Remarks on Distoma clavatum from a Sword-fish.* By Dr. Cobbold.——2. *Experiments with Trichina spiralis.* By the same. The experiments made with birds were negative, and this so far agrees with the experience of continental observers, Professors Pagenstecker and Fuchs, who, though they found that the ingested muscle Trichines acquired sexual maturity within the intestinal canal of their avian hosts, yet never found young Trichinæ in the muscles of the birds, nor any evidence of an attempt on the part of the escaped embryos to effect a wandering or active migration on their own account. Carnivorous mammals, and especially those which subsist on a mixed diet, appear to be the most liable to entertain Trichinæ. It is, however, possible to rear flesh-worms in herbivora; though on account of the expense comparatively few experiments have been made in this direction. "It is quite clear that in their natural state herbivorous animals can seldom have an opportunity of infesting themselves, whilst the reverse is the case with swine, carnivorous mammals, and ourselves." Looking at the subject in relation to the public health, the author observed, that he had no hesitation in saying that a great deal of unnecessary fear had been created in this country. English swine are almost entirely, if not absolutely, free from this so-called disease, and not a single case of trichiniosis in the living human subject has been diagnosed in the United Kingdom. Some 20 or 30 cases have been discovered *post mortem*, and it is highly probable that most, if not all of these individuals, have contracted the disease during life, by eating German pork sausages or other preparations of foreign meat.

BOTANICAL OF EDINBURGH: *Jan.* 10.—W. Gorrie, Esq., Vice-President, in the chair. Communications read:—I. *On the Glumaceæ of Otago, New Zealand.* By Dr W. Lauder Lindsay. In this paper the author included the natural orders Juncaceæ, Restiaceæ, Cyperaceæ, and Graminеæ, and enumerated the different genera and species he met with, and recorded the localities in which they occur. Buchanan is of opinion that some of the more filiform Grasses (species of Triticum, Agrostis, Arundo, Danthonia) which abound on the lower hill ranges, at elevations over 1000 feet, might be used as

a source of supply of paper material. But there are various strong reasons why it is extremely unlikely these native Grasses should be able successfully to compete with other paper materials which are both much more abundant and cheaper. Several Grasses are recorded as indigenous by Dr. Hooker, which are also British: not a few British Grasses have, undoubtedly, been introduced, and are now, more or less, extensively naturalised; while some are probably both indigenous and introduced. The problem here offers itself for solution to the local botanist—viz., whether, or how, it is possible to distinguish the native from the naturalised condition of the same species? for, on one hand, Grasses regarded by Dr. Hooker as introduced occur under circumstances in which it is, to say the least, extremely difficult to conceive of their diffusing from remote stations; while, on the other, those recorded as indigenous are found in localities which give rise to the legitimate conjecture that they have been introduced. For instance, two British species of Festuca occur in Otago (F. duriuscula, and F. bromoides). The former is recorded by Dr. Hooker as native; the latter as "certainly introduced and nowhere native." I found them growing in the same habitats, and intermixed; it was impossible to determine that the one was native and the other introduced. So far as regards their botanical characters, they appear identical with British specimens, and from their occurrence on the sheep and cattle runs of settlers were probably introduced rather than indigenous. Again, Kœleria cristata is recorded in the Hand-book Fl. No. 3 (p. 335), as native, though Dr. Hooker adds, it is "probably introduced only." But in a letter [Jan. 31, 1865] he says of it, "I have increasing reasons for considering it introduced." Nevertheless the plant occurs high on the Alps (4000 feet) of Canterbury and Otago, most remote from cultivation or settlements. Poa annua is regarded as introduced, but it was the most extensively distributed Grass I met with in Otago, growing in a great variety of habitats, and in a corresponding multiplicity of conditions. Phalaris canariensis was gathered by Foster in 1772, being before the colonisation of New Zealand (Otago was colonised so recently as 1847), but three years subsequent to Cook's first voyage (1769). It is difficult in such a case to understand how it came to be introduced, and yet it is included in Dr. Hooker's list of naturalised Grasses. I found it growing in Otago apparently as wild as those British Grasses to be hereafter mentioned, which are considered truly indigenous. Anthoxanthum odoratum has been gathered at elevations of 3000 to 4000 feet on the glacier Mount Cook (13,000 feet high). It is extensively distributed throughout New Zealand, and it is one of the Grasses I found growing in great profusion and luxuriance in several parts of Otago. Specimens indistinguishable as to size and general aspect from my Otago plant were collected by myself in 1850 on the meadows bordering the Elbe, Holstein. It is included, however, in Dr. Hooker's category of naturalised Grasses, as is also Bromus mollis, which has been found on the Canterbury Alps at 4000 feet. On the other hand, the following are recorded by Dr. Hooker as native:—Agrostis canina, Alopecurus geniculatus, and Deschampsia cæspitosa. I do not think the problem is now capable of satisfactory solution in all cases. In certain cases there may be a strong probability that the plants were introduced, such as Lolium perenne, Anthoxanthum odoratum, or Poa annua, but I do not admit the conclusiveness of the evidence according to which certain British species of Festuca, Agrostis, Alopecurus, and Deschampsia are determined to be native, and those of Kœleria, Phalaris, Bromus, and Festuca to be merely naturalised. It is equally impossible to assert that the former are not native, or the latter also native; all that I hold is that in the present stage of colonisation—in the present state of our knowledge of the botany of New Zealand—proof of a sufficient or satisfactory kind to establish either one set of propositions or the other, is probably impossible of attainment. The New Zealand Graminæ illustrate well that continuity of variation, so characteristic of New Zealand plants in general, which so frequently sets at defiance all the efforts of the systematist to classify particular plants or forms, whether as variety, species, or even genus. It seems to me a fruitless and absurd effort to name separately the infinite and inconstant variation-forms of the supposed species or type, while the supposed book-species, and even in certain cases genera themselves, are much too numerous for the proper purposes of science or the student.——II. *Notice of a species of Trichoscypha, and of a species of Sarcocephalus from Old Calabar, sent by the Rev. A. Robb.* By Prof. Balfour.——III. *Notes on Vellozia elegans, from the Cape of Good Hope.* By H. Fox Talbot, Esq; communicated by Prof. Balfour. Mr. H. Fox Talbot transmitted to Dr. Balfour some time ago a flower and leaf of a plant which had been sent to him. There was some difficulty in determining the genus and species at the time. Mr. T., however, at his suggestion, had taken a living specimen to Professor Oliver at Kew, who was enabled to decide that it was a Vellozia, and Mr. T. proposed to have it ere long figured in the "Botanical Magazine" under the name Vellozia elegans. Mr. T. has presented a living plant to the Edinburgh Royal Botanic Garden.——IV. *Remarks on a Substance called Puttoo Mangu, found in the White Ant Nests in Travancore.*——V. *On the Varieties of Variegated Greens, &c., as Ornamental Plants.* By Mr. M'Nab.—Mr. M'Nab exhibited a beautiful series of specimens from Mr. P. S. Robertson, Trinity Nursery, of the variegated, triple-curled, laciniated, and proliferous Kale plants, in colours varying from almost pure white and green to beautiful rose-pink, purple, and red. For bringing into more general notice the cultivation of these new favourites, the country is particularly indebted to the energetic labours of Miss Frances Hope, of Wardie Lodge, whose garden at this season is a perfect marvel of beauty, and has been so during the winter months for several years. Mr. Melville, the gardener at Dalmeny Park, has also done much to improve the breed of this now useful race of winter decoration plants. For a long time the tall cut-leaved varieties were very generally grown in gardens and shrubberies, but now we have four distinct races, classified by Mr. Gorrie under the following heads:—Laciniated, plumose, ramose, and proliferous or composite. The latter is certainly very peculiar, the proliferous growths proceeding, as they do, in compact clusters from the primary and secondary ribs of all the leaves. The colours in most of the above classes are also very rich, and when artistically arranged—more particularly as the cold season advances—a very pleasing effect is given to the flower garden. In the selection of plants to be seed-producers, very great care is required to see that all possess good qualities either in colour or style of leaf; as one with bad properties, if allowed to get into a flowering state, will have a tendency to destroy a whole breed. But what will be found much more destructive to the successful saving of pure seed is the seeding of a field of any of the Brassica tribe in the neighbourhood, more particularly if they happen to be the common German Greens, or any of the Savoy tribe. If such should happen to be the case, the progeny of the new varieties, which have been obtained with care, will very soon become degenerated and worthless. Any very choice variety (after it has done its duty in the flower garden) should be planted at the base of a wall to seed, and separated from all other kinds; but even this caution will not always produce a satisfactory result. The only method to preserve a favourite variety is to take the leaves and tops off, which will cause them to make numerous side shoots, which, when removed, are rooted as cuttings. All the ordinary good varieties intended for seed-bearing plants should also be placed against a wall, covering them with a net, but just before the seed-vessels ripen, to prevent them becoming a prey to birds. It is not absolutely necessary that the plants be protected while in bloom. If good kinds are selected and placed side by side to flower, a slight intermixture will have a tendency to produce novelties much more than by isolating them. While planting the young seedlings in rows for the purpose of bringing them forward, previous to taking their place in the flower garden, any that appear inferior should be thrown aside. The young seedlings generally succeed best in an open, airy field, where they are less liable to become leggy or drawn up, as happens in a close walled garden. On the return of autumn, selections can be made suitable for the various clumps, agreeable to the taste of the party in charge of the arrangement. After running through a course of gaiety, and the season over, the duplicate plants (not required for seed) may be boiled, and economically employed for feeding pigs.——VI. *Notice of the State of Open-Air Vegetation in the Royal Botanic Garden.* By Mr. M'Nab. Since the last meeting of the Botanic Society (December 13, 1866) the weather up to the end of the month was unusually mild, as indicated by the following observations;—The thermometer on the night of the 18th of December stood as high as 54°, on the 21st of December at 50°, and all other nights to the end of December it varied from 36° to 47°, except on the 31st Dec., when the night temperature fell to 31°. Owing to this very mild state of the weather, attended with a succession of heavy rains, the leaf-buds of many plants swelled much more than is usually seen at this period of the year. Up to the 31st Dec., Scarlet Pelargoniums were standing almost untouched, and with flowers seen here and there on them. Verbenas and other summer decoration plants were in the same state, as well as Chrysanthemums, Stocks, Wallflowers, Gentianella, Purple Aubrietia, Primroses, Oxlips, Hellebores or Christmas Roses, Garrya elliptica, Jasminum revolutum, Polygala Chamæbuxus, and many autumn-flowering Roses. Since the 1st of January a very great change has taken place. Heavy snow fell on the 2d, which was followed by intense frosts, thus putting a stop to all the early symptoms of vegetation. The following will show the minimum temperatures during each successive night since the commencement of the year: January 1st, 25°; 2d, 16°; 3d, 19°; 4th, 19°; 5th, 11°; 6th, 26°; 7th, 31°; 8th, 33°; 9th, 32°; 10th, 30°.

Notices of Books.

A Journey to Ashango-Land, &c. By Paul B. Du Chaillu. With Maps and Illustrations. 8vo. pp. 501. London: Murray.

In a modestly written preface the author of the above work sets forth the objects that induced him a second time to undertake the fatigues and perils of a journey to Western Equatorial Africa. Insufficiently prepared in his first journey as a scientific observer, with imperfect appreciation of the importance of rigid accuracy in all matters pertaining to science, it is hardly to be wondered at that many statements in his former book were received with incredulity, and that the author was criticised with some severity. Being desirous of freeing himself from the aspersions cast upon him, he resolved, before undertaking a second journey, to make himself familiar with the use of scientific instruments, and thus to be enabled to record his observations in a manner less open to hostile criticism.

Unfortunately the whole of the photographs taken by M. Du Chaillu during this second journey, as well as many of his observations, were lost during a retreat that he was compelled to make from the territories of an infuriated and savage tribe. Enough remain not only to show the author's good faith and diligence, but to be of service in fixing the latitude and position of more than one locality in this all but unknown region. To some of his observations on temperature we shall allude after we have attempted to give the reader a general idea of the contents of the book before us. The record of the journey itself bears a somewhat wearisome likeness to the details given us by other travellers; the same low cunning, the same bad faith, the same lying propensities, the same inordinate love of other people's goods, seem to characterise the tribes with whom M. Du Chaillu came into contact, as were met with, with some exceptions, in the natives of whom Barth, Livingstone, Speke, and other African travellers, tell us. These qualities, unfortunately, are not wholly unknown among ourselves, and the reader will find mentioned in M. Du Chaillu's book, more than one point in which these outer barbarians not a little resemble ourselves; for instance, in the matter of chignons, now so generally worn by ladies, and which M. Du Chaillu found to be quite as general among the belles of the Ishogo tribe. Another custom, not wholly unlike one prevalent amongst ourselves, is mentioned in the following terms:—"The tree is a kind of Ficus, with large thick and glossy leaves. It is planted as a sapling when the village is first built, and is considered to bring good luck to the inhabitants as a talisman—if the sapling lives, the villagers consider the omen a good one; but if it dies, they all abandon the place and found a new place elsewhere. This tree grows rapidly, and soon forms a conspicuous object, with its broad crown yielding a pleasant shade in the middle of the street."

The glimpses of animal life which our author affords us, are such as to show that in a natural history point of view, there is abundant novelty. M. Du Chaillu has much to tell of the Pangolins, or African ant-eaters, —toothless quadrupeds, provided with long extensile tongues covered with viscid mucus, by means of which the animals catch their prey. Unlike the South American ant-eaters, which are hairy, the Pangolins have an armour of overlapping scales, so loosely packed that the animal can readily coil itself into a ball, and thus escape annoyance from an enemy.

Of chimpanzees, gorillas, and similar man-like apes, this district of Africa is the head-quarters, and the reader will find much information concerning these creatures in the present work. One of the chimpanzees sent home by M. Du Chaillu formed, till destroyed in the recent lamentable fire, one of the many attractions of the tropical department of the Crystal Palace. An otter-like animal, Potamogale velox, met with by M. Du Chaillu on his first journey, formed the subject of some unfavourable comments till the author succeeded in this second voyage in obtaining more perfect specimens, which suffice to confirm his original statements. The entomological reader too will find an interesting chapter on the habits of various ants, specimens of which it is to be regretted were lost in the *melée* above referred to. Some interesting ethnological notices are given towards the close of the book, and Professor Owen has contributed an appendix on the conformation of the skulls brought home by M. Du Chaillu.

Of more interest to horticulturists are the details given concerning the climate of this district. Western Equatorial Africa, so far as M. Du Chaillu describes it, appears to be a vast forest, interspersed here and there with prairies, and with ranges of high ground in the interior. Such a district would naturally be not only hot, but wet; indeed, the amount of rain seems to be enormous; while in some parts the year may be divided into two seasons—a rainy season extending from September till May, a dry season lasting from June to August—in others it may be almost said that there is a continuous rainy season all the year round. The temperature M. Du Chaillu considers as not so high as that of other tropical regions, probably from the humidity and cloudiness of the atmosphere. The lowest degree of cold noted by the author was 64° F.; the maximum temperature 92° F.; but at the same time that the temperature of the air was registered at 92° F., that of the sun when unclouded amounted to 146°, some 40° higher than has been noticed in this country. M. Du Chaillu more than once remarks upon the effects of a clouded sky in lowering the thermometer, and the similar abatement in the temperature in the forests, as compared with that of the open country. While in a village the thermometer registered 92° F., the temperature in the forest, at the same time, was 10° less. "The great humidity of these dense shades," says M. Du Chaillu, "causes an agreeable coolness, and I have noticed that when rain has fallen during the night, there often remains some moisture on the surface of the leaves at 2 P.M., showing how slow, comparatively speaking, is the evaporation in these shady places."

M. Du Chaillu does not gives us many details concerning the vegetation of these regions, which we the more regret, as the researches of Mann, a little to the northward of the district traversed by Du Chaillu, have been exceedingly productive of rare and interesting forms of vegetation. Some of the Sterculiaceous plants collected by Mann would form most desirable additions to the list of stove foliage plants, from the grandeur of their leaves, which are often of silvery whiteness on the under surface.

Orchids, says M. Du Chaillu, abound near the sea; no doubt among them are many novelties and beauties worthy the search of an experienced collector. One of these latter has been recently figured in the "Botanical Magazine," under the name of Angræcum Chailluanum.

We have said enough to show that there is in this confessedly fragmentary record, much to amuse and instruct the reader, and to stimulate naturalists to further investigations in these remarkable regions.

BOOKS RECEIVED.—*How to Use the Barometer* (Bemrose). A useful guide to the novice in meteorological investigations, and as such we have had in former years to mention its predecessors.——*Colenso's Shilling Arithmetic* (Longmans) is rather more attractive than such books usually are, as the examples are more amusing and more like "normal occurrences" than those which are given in other books. Of the practical value of the work it is needless to say anything, such is the repute of the author; we may, however, express our regret that there is not a section devoted to the metrical system.——*First Steps in Reading and Learning*, by A. K. Isbister (Longmans). A great improvement on the old-fashioned spelling-books, and calculated to diminish much of the drudgery of the pupil and of the teacher.

CATALOGUES RECEIVED.—*Seed Lists* continue to pour in upon us; the following, which we can only briefly mention, though many of them deserve comment, are now before us:—*W. Thompson's* (Ipswich) *Descriptive Catalogue of Flower Seeds* (good, and arranged botanically); *Fowler & Co.'s* (Glasgow) *Select Catalogue; Charlwood & Cummins'* (Covent Garden) *List* (the specialty here is tree and shrub seeds); *E. G. Henderson & Sons'* (St. John's Wood) *Catalogue* (full of information); *A. Henderson's* (Thornton Heath) *Catalogue; J. Cattell's* (Westerham) *Catalogue; T. Pierpoint's* (Warrington) *Spring Catalogue; Butler, McCulloch & Co.'s* (Covent Garden) *Spring Catalogue* (full of information); *Toole & Co.'s* (Dublin) *Spring Catalogue* (ample, and very neatly got up); *P. S. Robertson & Co.'s* (Edinburgh) *Catalogue; L. Van Houtte's* (Ghent) *Prix Courant de Graines* (includes bulbs and tubers). *Vick's* (Rochester, N. York) *Illustrated Guide* (a seed list). *F. A. Haage's* (Erfurt) *Seed List* and *C. Huber & Cie.'s* (Hyères) *Catalogue de Graines*, are the lists of extensive seed-growers. *J. Fraser's* (Lea Bridge Road) *General Descriptive Catalogue* is a most complete list of indoor and outdoor subjects. *L. Van Houtte's Catalogue d'Arbres, &c.*, contains Conifers, Rhododendrons, Roses, &c. *P. S. Robertson's Catalogue of Forest Trees*, &c.

Florists' Flowers.

THE already extended and rapidly extending class of PELARGONIUMS presents such a wide field for the critic, that one is ready to ask "Who is sufficient for these things?" There are many new flowers of 1867, of that division commonly termed show, or large-flowering Pelargoniums, and yet of these only the flowers raised by Messrs. Foster and Hoyle have been subjected to the judgment of the Floral Committee at South Kensington. This season, show Pelargoniums were not exhibited to so large an extent as usual. It would appear that they bloomed somewhat earlier than

in ordinary seasons, and therefore their flowering period, from some cause or other, was circumscribed. From 1853 to 1865 the improvement made in the form of the Pelargonium has been of a very marked character; and with this there has also been a great advance in the production of colour, though colour and form have not been always associated in the same flower. The late Mr. Foster evidently centred his attention on the production of colour; and from Phaeton on to Lord Clyde, the work was persistently and most successfully developed. Mr. Hoyle's forte was the production of size and form, generally in flowers of a lighter colour. A skilful and very successful combination of these qualities resulted in such splendid flowers as Mary Hoyle, William Hoyle, and Charles Turner. The productions of the present Mr. Foster partake of this character. They are flowers of large size, excellent in form and substance; but deep colours do not predominate, as in the case of his late father's breeding. His three flowers of 1866, to which First-class Certificates have been awarded, were Archbishop—soft rosy pink, with dark crimson blotch on the upper petals, large white centre; flowers very large, of excellent substance, and forming together what may be truly termed "a noble exhibition flower." The habit appeared to be all that could be desired, and the variety seemed also to be a free-blooming kind. Perfection lacks a kind of regality that belongs to the foregoing; it is however a very beautiful flower, and promises to become a standard exhibition variety. The lower petals are rosy pink with a slight admixture of violet, and are pencilled with bright crimson; the top petals have a dark blotch with a fiery edging, and a margin of pale pink. Its beauty is of a delicate type, and it is an abundant bloomer. Milton is a large and stout well-formed flower; the lower petals warm purplish rose pencilled and blotched with crimson; top petals black with a narrow edging or margin of rosy purple, and large white throat. It is a flower of excellent properties, and promises to become an established favourite. Beauty of Windsor, also one of Mr. Foster's flowers, received a Second-class Certificate. The colour of the flower is carmine-rose suffused with orange, and pencilled with crimson; dark maroon top petals shaded off to the margin with orange-rose; white throat, and of full size. It was very smooth and fine. Negress was commended for its singularly dark colour, but though of good size it lacked substance and smoothness; combined with a conspicuous white throat, the intense depth of dark colour made it a very novel looking flower. The raiser's name did not appear, and as Mr. Turner does not catalogue this variety, it would seem that it is withheld from distribution at present. Shakespeare (Foster) is one of those curious looking stained or veined flowers as they are usually termed, presenting the appearance of a veined eruption. The ground colour is lilac purple, veined and blotched with crimson, white throat, and dark top petals. It can certainly claim novelty of colour, and it is also the best stained flower yet sent out. King of Flowers (Foster) is of a bright carmine scarlet shade, faintly suffused with crimson, and has a white throat surrounded with a purple glow. It is a medium-sized flower, of good form and very free. Betrothed (Foster) is a large, stout, and well-formed flower, of a pleasing shade of rose, with dark maroon top petals, very free-blooming. Congress (Hoyle) is of a very unique shade of colour, bright carmine maroon, with dark top petals margined with fiery crimson; white throat, very fine, and quite novel in appearance. Gold Button (Hoyle) has the lower petals of a beautiful shade of colour, viz., bright rich orange, tinted with carmine; glossy dark top petals margined with bright orange crimson. It is a smooth and well-formed flower, very free; and, I think, should have been recognised by the Floral Committee, although the care they evidently betray not to give certificates to large-flowering Pelargoniums, except for special merits, is highly commendable. In the present stage of Pelargonium-raising, when almost every flower has even something more than "ordinary" merits, a very nice discrimination is required in the selection of flowers for certificates. Mongini (Hoyle) is a very free-blooming variety, the lower petals are bright rose, pencilled with reddish crimson; top petals dark maroon margined with rose. Peri (Foster) has warm-rose lower petals, mottled with purplish crimson; dark maroon top, with a margin of pink around the whole flower—altogether a striking and handsome variety. Turban (Hoyle) is a commanding flower, with pale bright rose lower petals, dark reddish rose and dark crimson tip, petals margined with fiery orange, white centre, good form, and very smooth. Favourite (Hoyle) is a fine and striking flower of a similar build; full warm rose lower petals, streaked and dashed with deep red; top dark maroon, with a bright carmine crimson margin, free-blooming, and a very promising variety for purposes of exhibition. Alfred (Hoyle) has lower petals of a rosy-lilac shade, tinted with a dullish vermilion; rich dark maroon top petals, with a well-defined margin of rosy-carmine. Having fine substance, and large size, and being very smooth, it promises to be a flower of no mean pretensions.

Of the flowers to be sent out by Messrs. F. & A. Smith and Mr. Bull I am unable to speak, not having seen them. The former growers catalogue a great many, apparently of their own raising. Nor am I aware of what Mr. Beck may have produced last season, as no list of his flowers has been announced as yet, as far as my observation has gone, nor have they appeared at the exhibitions or meetings of the past year. *R. D.*

Gladiolus Bowiensis v. *brenchleyensis*.—I am glad to see Messrs. Youell writing in behalf of their favourite brenchleyensis (pp. 80, 81); none have better reason to do so, for probably nowhere is this variety grown better, or in larger quantities, than at Yarmouth. As in most other cases there are doubtless two sides to this question. In the same Number of your Paper in which Messrs. Youell's communication appears, the well-known Cottagers' Kale is pronounced by one authority to be the hardiest of all winter Greens, and by another, to be virtually just the contrary; both may be right in their respective localities. Messrs. Youell assert that there is a great difference in the colour of these two varieties of Gladiolus; here a casual observer would pronounce the sorts identical, so slight is the difference in colour. Again: Messrs. Youell recommend decayed manure; I obtain satisfactory results from strong raw manure. I get late blooms by planting in February; Messrs. Youell obtain the same result by planting in July. My spawn (size of Peas) of brenchleyensis did not give me 5 per cent. of blooming plants which were fit to take up in October; while Bowiensis, in the same quarter, was in full bloom in November. I have no intention, generally, of pitting these two varieties against each other; but I must endorse all I have already said in favour of Bowiensis. Has no one else anything to say on the subject? I believe Mr. Barnes, of Camberwell, grows Bowiensis extensively; what is his opinion of it? *Wm. Windebank, jun., Bevois Mount Nursery, Southampton.*

The Apiary.

NADIRS.—In answer to your correspondent "A. B." regarding nadirs (see p. 31), in his case, with 9-inch boxes, and the bottom one having considerable honey in it, I should have been inclined to take the top box, preserving all the empty combs that were of a fair colour (providing it was heavy in proportion to the nadir); but in cases where the nadir is to be removed, it ought not to be taken away until the bees have carried up all the unsealed honey. Empty combs are better than full ones for nadiring in spring. I would in no case detach combs from the bars or top of the hive, where they can possibly be kept fixed; nevertheless, where frames are used, there is no harm in cutting them out, as they can be so easily fixed again. I am certain that "A. B." would be more satisfied if he would adopt the shallow Stewarton boxes, as the deep ones throw by far too much honey to the body of the hive, consequently preventing the super being filled; besides, with shallow boxes, depriving can be carried to a far greater extent than with deep ones. I may here remark that where hives are not in houses, exposing them to a hot sun causes the slides to run easy.

In regard to the time of year when nadirs should be given, in some cases we may give nadirs with combs about the beginning of April; but it is useless to nadir at that time with empty nadirs. About the end of April or beginning of May is a common time; but the fact is there is no use in nadiring until the bees require it, that is, when the stock hive is about full.

The sign of the proper time for giving the second nadir is the same; that is, when the first given is nearly full. Of course the windows will be of some help to ascertain this; but I may venture a word of advice here; to take care not to be keeping on nadiring and omitting supering. As a rule, after supering, nadiring is only resorted to for the purpose of inducing the bees to carry on their breeding below and prevent their clustering.

To the skilled apiarian there is not much difficulty in ascertaining the presence of the queen; ocular demonstration is doubtless the best; still there are other signs, viz., the well-known hum of the bees, their alacrity in clearing out their hive, and carrying pollen abundantly, and their proneness to gather water for breeding purposes, particularly when in cold weather unfavourable to their going abroad, they may be seen licking it from the floor-board.

The absence of a queen is sometimes more difficult to ascertain when, in consequence of the want of frames, the interior cannot be inspected (although I may say I am not aware of ever being myself deceived, there being a peculiarity observable about them, particularly in the movement of their antennæ, which I am not able to describe); for although the description given above answers to the bees having a queen, they sometimes, when queenless, pursue almost the same course; still their humming is quite different, sometimes bursting out into high irregular notes—it may be termed a wailing rather than a hum. Queenless stocks frequently carry as much pollen, and can then scarcely be detected from those having a queen. Again, in a queenless stock the bees have a more careless manner in leaving their hive, and they may be noticed trying to enter other hives.

In the early spring, when I detect the absence of a queen in a hive, I join the bees to another; if the spring is well advanced, and there be no brood in the doubled stock, I give a small piece of brood comb. I may here remark, that often at the time of the loss of their queen, a very great commotion takes place, particularly at dusk. It is very seldom that I am troubled with queenless stocks. *William Thomson, Blantyre.*

Garden Memoranda.

WOOLVERSTONE PARK, THE SEAT OF JOHN BERNERS, ESQ.—Proceeding along the road by the Orwell River from Ipswich, we enter through very handsome gates at a new stone lodge of great beauty, and at once seem to plunge into the park. The first thing observed is a number of young Conifers dotted about here and there, with space sufficient to allow them to grow to perfection. The fine new carriage road, which runs along by the river pretty closely, pierces through a well wooded cliff. Here and there large breadths of Rhododendrons and other shrubs, young specimen Conifers, and other trees appear; in fact it seems that the common plantation is everywhere receiving the polish which a rarer and choicer vegetation can hardly fail to impart to old woods. The scenery all along is superb. On the left, within a few yards, is the broad noble Orwell, with the trees on each side bending down as if to taste the salt water; and on the right a bold, well-wooded cliff, rising to a height of from 100 to 200 feet. Presently a green knoll appears, surmounted by a very high house or tower six stories high. This is the famous Feston Tower. It is a very antique building, probably erected for a watch tower. It seems almost impossible it could ever have been used for a dwelling house; for each story consists of a single room, 10 feet by 12; and there is no fire-place, except on the ground floor, and that seems a modern innovation. The best room is on the fifth story. The whole is finished off with a turret at each angle, terminating in pinnacles. The winding staircase on the eastern side proceeds right to the top, and terminates in a lantern. It has an antique, almost weird appearance from the carriage road, and in the gloamin might readily be peopled with the busy sprites of bygone ages. Proceeding around or past this tower through scenery of a woodland character, another more rustic-looking lodge is reached; the road sweeps boldly round to the right, the river is left behind, and the park proper is entered. Great skill has been used in choosing the right line here. The bend at this point up the side of a beautiful valley is worthy of the genius of Nesfield, by whom it was formed. Proceeding with a bold curve the road reaches to the highest level of the ground by turning to the left, and flowing—that is the best name for its graceful lines—onwards through nearly the centre of the park, it proceeds towards the mansion. On the top of the rising knoll four things claim attention all at once. These are the exquisite undulations of the surface, the magnificent round-headed Oaks, the beautiful spotted deer, and the long-tailed Welsh sheep. Leaving this medley of beauty to make its own impression, we proceed onwards towards the house. On the right the kitchen garden is observed embedded on the park side in evergreens. A clear space is however reserved for a beautiful cottage, embowered with flowers, and, as we were told, replete with comfort for the gardener.

A few yards further a pretty church and churchyard appear nearer to the carriage road, and entirely surrounded by the park. It is a very pretty feature here. Some 80 years ago a north aisle was built, and quite recently a new chancel and memorial window have been added, at the cost of Mrs. Berners. Bearing still to the left, the carriage road joins another that proceeds straight to the house. A little further on capacious, entirely detached stables are observed peeping through almost a perfect screen of trees. The house with its projecting wings is close at hand. Here a fine massive iron fence has recently been put up, enclosing all the space between the two wings. The carriage passes through an ornamental gate and sweeps round well-kept turf to the front door.

Returning to finish the park before entering the gardens, another fine carriage road, about a mile in length, is seen to wind away to Holbrook, and the park itself proceeds onwards in much the same style of undulating finely wooded beauty towards Pin Mill by the side of the river. Looking from the carriage front, the straight line of road by which we enter seems too short. It stops short abruptly, and diverges to the right and left without any obvious reason. Were it to proceed right across and lose itself in a small belt of wood at the extremity of the park adjoining the public road it would have a nobler and grander effect. The Ipswich carriage-road by which we entered is one of the finest approaches we have ever seen; it is nearly 2 miles long, and of course the scenery is unique for its beauty and grandeur, but much skill is also apparent in its graceful lines of beauty. The straight extension that I have ventured to recommend would be more for ornament than use. It might, however, be useful in winter as forming a straight short cut to the public road. It would leave the two grand entrances—those from Ipswich and Holbrook—exactly as they are at present.

At some distance from the house, on one of the highest parts of the park, a fine obelisk of freestone, about 100 feet high, is erected, and was built in 1793 by Charles Berners, Esq., in memory of his father, Wm. Berners, Esq., who died in 1783. The top is surmounted with a globe encircled with rays, which often sparkle like burnished gold in the setting sun. Returning to the house, with its thriving shrubberies at each end, it is impossible not to be impressed with the extraordinary improvements effected here within a comparatively short period. Woolverstone Park could never be aught but beautiful. The form of the ground and its position impart extraordinary charms. It has long been well-wooded. But a few years ago the house stood in the middle of the park without a shred of Evergreens or a single flower to light up its dead weight. An immense mass of white, and therefore cold-looking brick seemed to crush the fine round-headed and other short Oaks into the very earth. The whole thing was heavy, bleak-looking, and cold. Notwithstanding the exquisite arrangements of the rooms the exterior looked emphatically comfortless. The ruminants in the park grazed up to and poked their heads into the windows—not the most welcome nor safe visitants, one would suppose. The garden was nearly a quarter of a mile distant, and could only be reached by crossing the open, unprotected park. Even the view of the river was nearly shut out. Under the then existing circumstances perhaps this was wise. Some thousands of feet of white brick, dressed with white stone-facing, was cold enough, without adding a band of silver a mile broad and two or three miles long. Either on this principle, or by mere accident, one of the finest views in England was almost lost. Such was Woolverstone a few years ago. It is just the opposite of all this now. Passing through the fine thriving shrubberies at one end of the house we pass on to the garden front. The sight thrills one like a burst of genuine eloquence, or a

picture by a great master. One of the very best and largest of Nesfield's gardens is spread down at our feet. Of this garden I hope to give some account next week. The distant prospect is indescribably grand. *F.*

Miscellaneous.

Garden Productions of Natal.—Most of the European vegetables can be grown in the uplands of Natal. The Beetroot and Turnip thrive in many districts. Beans, Peas, Onions, Cucumber, Cauliflower, Cabbage, and Lettuce in every variety are common in the gardens. The Pumpkin flourishes like a weed, and yields the most astonishing crops. The Tomato and Capsicum ripen in luxuriance. The Capsicum is grown for commercial purposes, 18 cwt. of Cayenne Pepper, worth 86*l.*, was exported from Natal last year, in addition to the quantity consumed in the colony. The Pine-apple, Papaw, and Banana are common everywhere on the coast. The Orange is found in great plenty in certain districts; there are individual trees in the colony that yield 45 bushels of fruit. The gardens of Maritzburg furnish Peaches, Apricots, Nectarines, Apples, Mulberries, Medlars, Grapes, Raspberries, Figs, Guavas, the Granadilla, Loquat, and St. Helena Peach. Ginger and Turmeric are common productions in many gardens. The Tea plant grows readily in the lands that are suitable to the Coffee. It has not hitherto been planted in any quantity, and a gentleman near Durban is now making arrangements to see what may be done with it on a somewhat large scale. Indigo grows everywhere. Arrowroot has long been manufactured in some quantity in the coast district, and would be very largely produced but for the limited and uncertain market that it commands. Natal Arrowroot is now known in the English markets as being of unexceptionable quality. *Natal Land Settlement Pamphlet.*

Storing of Seeds.—Seeds of the Brassicas will keep for a very long time. Atkin's Matchless Cabbage that had been properly dried, bottled, and kept in a cupboard of uniform temperature in a dry room, grew perfectly when 14 years old. It was a few days longer in starting, but scarcely a seed failed. In fen drains, railway cuttings, and even well and coal-pit sinkings, the common Charlock springs from soil which has not seen the light since the Deluge; and near to Bishop Stortford we knew a field which for 10 years to our knowledge produced every time it was ploughed a crop of White Turnip. The fact was, a crop had been allowed to run to seed, and shedding in the field, it got so intermixed with the soil that every time the seed came sufficiently near the surface, it vegetated and produced a crop. The crop we saw was in the eighth year, and we heard years afterwards that the field still continued to produce some Turnips every time it was ploughed. So much for the vegetative powers of the Turnip, and the preservative influence of the soil. *Nottinghamshire Guardian.*

Garden Operations.

(*For the ensuing week.*)

PLANT HOUSES.

Anæctochili should now undergo the preliminaries necessary to their intended propagation. Carefully turn each pot or pan upon its side, and with the handle of a budding knife or other smooth implement clear away from the surface of the soil, around the plants, any Moss or fungoid growth likely to hold moisture, returning the plants to their original positions, where they should remain without further watering until the soil has become moderately dry, when it will be safe to proceed. With a keen-edged knife sever in two the older or back portions of any rhizomes which will admit of it. Endeavour to have a root attached to each piece, being careful not to operate upon the rhizome too near the growing shoot. Cut a portion off one of the two ends formed by each wound, and in order further to aid the process of healing, keep them as dry as possible for a week, after which the ordinary treatment may be continued for a short time. These remarks will apply equally well to *Goodyeras* and similar plants. A few other *Orchids*, such as Oncidiums, Cattleyas, &c., may be induced to push latent buds by a similar severing of older growth from the young. It will not always be safe however to cut in two the main stems nearer than two leaves from the younger growth. Many Orchids which may not have needed potting this season will be benefited by having a little fresh peat and sphagnum placed around the younger portions of them; but care will be needed to see that no tender buds at the base of these are buried too deeply. Any portions of the old soil which may be loose should be removed. *Poinsettias*, the flowers upon which are getting shabby, may for convenience have some of the longer shoots reduced to one-half their length, laying the pots upon their sides in a position where the balls will become moderately dry, when they can be placed in any dry temperate corner—if constantly dark it matters not—to undergo a season of rest.

Bulbs in Pots, such as Hyacinths, Tulips, and Narcissi, having formed roots and established themselves under coal ashes or other light material, should be instantly removed to a cool airy situation. These are ofttimes wrongly treated, even by professional men. They are placed under coal ashes or other open material for the purpose of keeping the bulbs firmly in their proper position whilst they are forming roots, otherwise the latter, which emanate in great numbers simultaneously from the base of the bulb, would certainly force it up out of the soil, and thus derange the whole matter; and to leave them under these materials beyond the time necessary for this purpose, with the idea that it draws the spike up to a more advantageous height, and thus to lose the far greater and more beneficial influences of light and air, is an evident fallacy. Add to this too the unnatural growth, blanched throughout, and the shock received by simultaneous contact with both light and air when exposed, independently of the incapacity of the blanched leaves to turn to account the rich soil in which the roots are growing. Give to all such when fairly growing, alternate waterings of manure water.

FORCING HOUSES.

As the berries hanging upon late-fruited *Vines* are likely to become more or less shrivelled, through the large amount of artificial heat required to keep the late severe frost out, so also in all probability the sap in the parent Vines has advanced a stage beyond what is customary at this season. No delay should therefore take place in the pruning the moment they are free of their crop. *Pines* when in flower must not be syringed, and see that no drip or other moisture approaches them at that time, as wet in any form causes the flowers to become abortive; alternate waterings of weak clear manure-water might be given them. *Early Figs* advancing in growth should have the points of the shoots pinched out beyond the fifth leaf, except where it is necessary to furnish unoccupied spaces. *Peaches* and *Nectarines* having fruit set and growing, may be frequently copiously syringed. Should green fly appear, fumigate.

French Beans which were sown in 60-sized pots will require potting into those called 16's. A good stiff loam, with leaf-mould, firmly placed around them, will suit them. Do not water too freely at first. Where pits in *Cucumber houses* are heated with pipes or flues, the bottom of the soil may have become too dry, in consequence of the late excessive fires. See therefore that the plants do not suffer from this cause. In making beds up for *Cucumbers* and *Melons* to be grown in frames, let them be from 4 to 5 feet high, and just sufficiently large for the frame to stand firmly on them, putting a good layer of leaves upon the upper portion of the bed. Tilt the lights day and night to allow all excess of steam and moisture free egress, and for the same reason turn the surface over every other day in fine drying weather.

HARDY FRUIT GARDEN.

Raspberries may be safely pruned and trained now, as it will be easily seen whether any are injured or not by the frost. In training them I do not advise retaining the whole length of the canes; on the contrary, I prefer cutting them down to within 4 feet of the ground, as thereby the riper buds upon the firmer lower portions of the cane are forced to grow and fruit, in lieu of those on the upper less ripened portions. Besides, high stakes or trellis work are thus not required. Where the stool has become very large, and is likely to throw up many suckers in the ensuing summer, it is better to remove some portion of it with a spade. These portions removed will be found useful for filling up vacancies occurring in other parts, or to extend the plantations. Cut away all the lesser canes from a stool, choosing four of the strongest to tie to individual stakes. They might be five inches apart when trained to trellis work. I never dig between rows of Raspberries; on the contrary, I rather encourage surface rooting, by giving them a slight mulching annually. *Espalier Pears* require all young growths to be cut away, save the extremities. Young shoots should be trained horizontally, as advised for walls last week. Any espaliers deficient in fruiting-wood should have some of the stronger shoots upon the upper horizontal growths brought abruptly down across the lower branches perpendicularly, at about a foot apart. The retrograde motion of the sap thus induced gives productiveness to the tree. Prune and nail *Cherries*. These require little knife work, except it be cutting back the points of long shoots, removing unhealthy portions, or here and there a branch, as the eye may suggest, for the purpose of duly balancing the tree. In young trees, Morellos, &c., there may be a portion of the apex of last year's shoots to remove in instances where the young growths started farther back than was intended. Remove all such with a sharp-edged knife close to the base of the younger growths, and cut away any parts which fruited last year, and that show little signs of vigour this.

KITCHEN GARDEN.

Ground may be prepared for renovating or enlarging an *Asparagus bed*. I do not advise making the old formal beds; I rather prefer planting in rows, across a chosen quarter, in number according to the quantity required. This system is especially adaptable to small gardens, and where room is scarce. Trench a space at least 2 feet deep, by 5 feet wide, for a single row, or 9 feet for two rows, and so on, planting each one 3 feet apart. Where plants are not in hand, seed sown down the row instead, will often make a better plantation. It is not yet time to employ either, however. Add abundance of manure to the soil in process of trenching. The sad ravages made by late frosts with *Green Crops*, such as Broccoli, Cabbages, &c., enable us the more readily to form our plans for the in-coming summer's crops; and as much is due to a studied system of successional cropping, any details thereon are worthy of note. *Onions* succeed well after Celery, being very deep rooters; the lower the ground is dug, or trenched, the better, bringing the old manure up out of the Celery trench, and spreading it over the surface, as a top dressing to aid the young plants in their earlier stages of growth. Do not sow early in March, a too common practice; the future crop gains nothing by having its embryo growth stunted by March frosts, and harsh, dry winds. Ground previously occupied by the sprouting remains of last spring's Cabbages, should be well manured. This will then do for Peas in succession to the earlier crop. Place any fresh manure intended for plots to be occupied by Carrots, at a good depth, as well-grown roots need assistance where the fibrous roots are to be found, whilst manure in any form, in absolute contact with their upper surface, entails disease. *W. E.*

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the Week ending Feb. 6, 1867, as observed at the Horticultural Gardens.

Jan. and Feb.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Of the Air. Min.	Of the Air. Mean	Of the Earth. 1 foot deep.	Of the Earth. 2 feet deep.	Wind	Rain.
Thurs.	31	30.122	29.985	45	32	38.5	46	43	W.	.10
Friday	1	30.062	30.031	48	40	44.0	45	43	S.W.	.00
Satur.	2	30.413	30.176	48	25	36.5	46	43	W.	.09
Sunday	3	30.457	30.195	50	29	39.5	45	43	S.	.01
Mon.	4	29.700	29.482	51	32	41.5	45	43	S.W.	.08
Tues.	5	29.417	29.014	50	33	41.5	45	43	S.	.14
Wed.	6	29.056	28.808	51	31	41.0	45	43	N.W.	.04
Average		29.991	29.676	49.0	31.7	40.3	45.3	43.0		.37

Jan. 31—Fine; very clear; overcast; rain at night.
Feb. 1—Hazy; drizzly and foggy; overcast.
— 2—Fine; exceedingly fine throughout.
— 3—Clear and frosty; very fine; overcast.
— 4—Densely clouded; very boisterous and wet; fine at night.
— 5—Fine; rain; boisterous; hurricane in the night.
— 6—Boisterous and wet; clear, cold, and boisterous; fine.
Mean temperature of the week 2 1-5th deg. above the average.

STATE OF THE WEATHER AT CHISWICK,
During the last 41 years, for the ensuing Week, ending Feb. 16, 1867.

Feb.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday ..10	44.4	29.6	37.0	15	0.52 in.	7	8	3	2	5	11	3	2
Mon. ..11	44.1	29.7	36.4	18	0.50	9	7	2	1	5	10	2	5
Tues. ..12	44.8	29.4	37.0	16	0.26	4	8	1	1	4	12	9	3
Wed. ..13	44.0	29.3	36.6	14	0.37	3	5	6	2	5	11	7	2
Thurs. ..14	45.3	30.5	37.9	15	0.50	1	5	5	3	4	13	8	2
Friday ..15	46.3	31.2	38.8	15	0.35	4	5	5	1	5	11	8	3
Satur. ..16	46.3	30.4	38.4	10	0.24	6	6	5	3	1	10	7	3

The highest temperature during the above period occurred on the 10th, 1831—therm. 65 deg.; and the lowest on the 13th, 1855—therm. at zero.

Notices to Correspondents.

BOOKS: *F F S.* We know of no book which will give you the information desired; you must select it from various sources. Thompson's "Gardeners' Assistant" will give you a good deal of help. We do not reply privately.—*Young Gardener.* Such aid as books can give, you will find in Kemp's "How to Lay Out a Garden" and Repton's or Downing's works on Landscape Gardening, all of which are of tolerably easy access.—*Mary.* Moore's "Handbook of British Ferns."

BURY HORTICULTURAL SHOW.—We should have stated that the gross sum collected for special prizes was 260*l.*, and not 280*l.*, as misprinted at p. 72, though the expenses, which were not charged against the fund, but were liberally thrown in by Mr. Fish, together with the gratuitous services of the Bury papers, would have brought the total up to the amount stated, namely, over 300*l.*

EMIGRATION: *Emigrant.* We must decline the responsibility of advising you in such a case. To your four questions we answer—1, no; 2, no; 3, no; 4, probably America.

GRAFTING VINES: *Amateur.* You can graft an old Vine growing on a S.W. aspect; but the grafts will sooner efficiently cover the space if you cut back the stock, and work say half a dozen of the strongest and most eligible branches, which graft by the mode of whip-grafting; and this should be done just after the buds have pushed a little, not before, or the Vine will bleed, and the grafts will prove a failure. The sort you name, or the Royal Muscadine, or Frankenthal will be suitable. You may work both the last two, which you may obtain anywhere. ‖

HARDY TREES: *Cui Bono* seems to overlook the object of the papers on this subject, which is to give a selection of the best materials for planting, arranged under certain distinct heads of classification. Subjects that do not fall under these heads would not therefore be apposite.

LEGAL QUESTIONS: *Constant Reader.* We cannot offer legal advise on particular cases. We do not object to give information on legal topics of general interest to our readers, but to all such specific questions as yours, our answer always is you must consult a solicitor.

METEOROLOGICAL INSTRUMENTS: *Asa Kingsbury, Mt. Auburn, Mass., U.S.* Your request has been attended to. ‖

NAMES OF FRUITS: *J P, Chepstow.* Your Pear resembles a small specimen of the Bergamotte d'Esperen, and, like many of the new Pears, is of little account in this very exceptionable season. ‖

NAMES OF PLANTS: *Constant Reader.* Some Canna, but which of them it is impossible to say from a leaf alone.—*M D.* Thyrsacanthus rutilans.—*C L.* Your Orchid is a Saccolabium, probably new, but certainly not worth growing.—*B S Z.* Libonia floribunda.—*P C.* Probably Cupressus fragrans of Kelog, but we must again protest against the expectation that we can name Cypresses with any certainty from a mere morsel of twig, without a word of information as to the locality or history of the plant. In common fairness our correspondents should give us every information they themselves possess.

PET'IOLE, PETIOLATE: *S O.* The first *e*, the *i*, and the *o* in these words are all short, the words should therefore be pronounced as above marked. The words are derived from the Latin petiolus, a stalk.

ROMAN HYACINTH: *J C.* The pretty little bulb now so much grown under the name of Roman Hyacinth is not, as you seem to suppose, the Hyacinthus romanus. That is a very different thing, and is now usually referred to the genus Bellevalia. The plant in question is rather a miniature variety of the Hyacinthus orientalis, and we venture the supposition that it has been obtained by "selection," in the same way as the Pompon Dahlias—indeed, it would have been better called Pompon Hyacinth.

SAUNDERSONIA AURANTIACA: *Amateur.* This pretty tuberous-rooted greenhouse perennial, introduced from Natal in 1853, is still cultivated at Kew, but we do not know whether it is to be found in the nurseries. Should any one have plants to dispose of, he will perhaps advertise them. It is not an evergreen, but a deciduous plant, and at this season is at rest.

SORGHUM TARTARICUM: *J O Bosham.* There is no such recognised species. What is meant is probably the Sorghum saccharatum. It is a very good fodder plant in favourable seasons, but in this country of no use whatever as a bread corn. Our own columns will show what reliance is to be placed on Mr. Hullett's statements.

TREES AND SHRUBS: *R D S.* The following ought to succeed tolerably well in such a situation as you describe:—Acer Lobelii and others, Tilia argentea, Æsculus rubicunda, Gleditschia triacanthos, Amygdalus communis, Cytisus Laburnum, Cerasus Padus, Thorns of various kinds, Cotoneaster affinis, Pyrus salicifolia, Viburnum Opulus, Populus argentea and tremula, Lilacs of sorts, Berberis Aquifolium; and of Willows, Salix pentandra, S. alba, S. vitellina, and S. americana pendula.

COMMUNICATIONS RECEIVED.—W. F. R.—J. V.—Prof. Morren.—J. B.—J. Webster.—C. Turner.—W. E.—W. Robinson.—J. Fraser.—H. Cannell.—W. P. Ayres.—D. T. Fish (plans).—A. Forsyth.—J. Anderson.—W. Paul.—J. Fleming.—Reseda (we will endeavour to get the information desired).—W. Miller (next week).—D. Lumsden.—W. Smith.—A. Macfarlane.—W. Dawson.—E. Welch.—G. Telfer.

HIGHLAND and AGRICULTURAL SOCIETY.
AGRICULTURAL EDUCATION.

The EXAMINATION of CANDIDATES for the SOCIETY'S AGRICULTURAL CERTIFICATE and DIPLOMA will take place in the Hall, No. 3, George IV. Bridge, Edinburgh, on WEDNESDAY, 13th March.

Candidates must lodge intimation, on or before 1st March, with the Secretary, from whom further information may be obtained.

F. N. MENZIES, Secretary.

3, George IV. Bridge, Edinburgh, 1st February, 1867.

LAND DRAINAGE.—This work, in any quantity, from 20 Acres upwards, UNDERTAKEN on a commission of 5s. per Acre. A large Staff is maintained for the purpose by Mr. BAILEY DENTON, 22, Whitehall Place, London.

THE LANDS IMPROVEMENT COMPANY.
Incorporated by Special Act of Parliament in 1853.

TO LANDOWNERS, THE CLERGY, ESTATE AGENTS, SURVEYORS, &c., IN ENGLAND AND WALES, AND IN SCOTLAND.

The Company advances money, unlimited in amount, for the following works of Agricultural Improvement, the whole outlay and expenses in all cases being liquidated by a rent-charge for 25 years.

1. Drainage, Irrigation, and Warping, Embanking, Inclosing, Clearing, Reclamation, Planting, for any beneficial purpose, Engines or Machinery for Drainage or Irrigation.
2. Farm Roads, Tramways and Railroads for agricultural or farming purposes.
3. Jetties or Landing places on the sea-coast or on the banks of navigable rivers or lakes.
4. The Erection of Farm Houses, Labourers' Cottages, and other Buildings required for Farm purposes, and the improvement of and additions to Farm Houses and other buildings for Farm purposes.

Landowners assessed under the provisions of any Act of Parliament, Royal Charter, or Commission in respect of any public or general works of Drainage or other improvements, may borrow their proportionate share of the cost, and charge the same with the expenses on the lands improved.

The Company will also negotiate the Rent-charges obtained by Landowners under the Improvement of Land Act, 1864, in respect of their Subscription of Shares in a Railway or Canal Company.

No investigation of title is required, and the Company being of a strictly financial character, do not interfere with the plans and execution of the Works, which are controlled only by the Government Enclosure Commissioners.

Apply to GRANVILLE R. RYDER, Esq., Managing Director, 3, Parliament Street, London, S.W.



COCOA-NUT REFUSE is becoming SCARCE, the old reserves will soon be gone. Now sold in bags, 1 for 2s., 10 for 16s., 2 for 30s., 50 for 66s., 100 for £6.

Fourpence allowed for each bag returned carriage-paid.

A Railway Truck-load (not in bags), 40s.

Postage Stamps or Post-office Order, payable to J. BARSHAM & Co., Kingston-on-Thames, S.W

Sutton's Grass Seeds for All Soils, Carriage Free.



SUTTON AND SONS having received their supply of NEW GRASS SEEDS in fine condition, are now prepared to quote prices for the same, which will depend on the nature of soil to be laid down, and the quantity of Seed required.

Prices and full particulars gratis and post free.

SUTTON & SONS, Seed Growers, Reading, Berks.

Sutton's Home-grown Seeds for Export
CAREFULLY PACKED AND DELIVERED FREE TO SHIP'S SIDE.

SUTTON AND SONS beg to inform those who may be about to send or take Seeds to the Colonies, that their NEW GRASSES and other kinds of FARM and GARDEN SEEDS are now ready for delivery, prices and particulars of which will be forwarded on application. The following are among Testimonials recently received as to the Superior Quality of their Seeds to those usually exported from this country, as well as to the very efficient manner in which their export packing is effected:—

From J. W. SHEPPARD, Esq., *Secretary Azimgurh Public Gardens, Azimgurh, N.W.P. India, March* 28, 1866.
"The Vegetable Seeds which you supplied last year turned out well; the quality of the vegetables was very good."

From Major J. MICHAEL, *Hon. Sec. Government Farm, Madras, April* 14, 1866.
"You sent out some Seeds to my predecessor, Major Shaw Stewart, which have given great satisfaction."

From HUGH ROMSAY, Esq., *Shanghae, China, May* 5, 1866.
The box of Seeds and Roots has arrived, and nothing has given me greater pleasure for a long time than the excellence of these seeds."

From Mr. JAS. DALE, *Orange, New South Wales, September* 20, 1866.
"I have the pleasure to inform you that your Seeds have given great satisfaction, and I now send you a larger order."

From Capt. M'NAIR, *Executive Engineer, Singapore, India, April* 9, 1866.
"I duly received the case of Seeds, and am much pleased with your selection; many of them I planted at once, and they have all come up well."

From J. RICHARDSON, Esq., *Otago, Dunedin, New Zealand, November* 15, 1865.
"The Grass Seeds which you sent me some time since have answered most fully."

Prices and full particulars gratis and post free.

SUTTON & SONS, Seed Growers, Reading.

The New Forage Grass (Bromus Schraderi).

SUTTON AND SONS have imported a large supply of True Seed of the above, and offer it at 2s. 6d. per lb., or cheaper in large quantities. Quantity required per acre, 30lb. Lowest price per cwt. and instructions on cultivation may be had on application.

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Improvement of Grass Lands,
at from 5s. to 10s. per acre.

SUTTON'S RENOVATING MIXTURE

SHOULD NOW BE SOWN.

6 to 12lb. per acre.

Price 10d. per lb. Cheaper by the cwt.

If these Seeds are sown early in the season, the improvement in the land will be very great, and at a small expense.

This Mixture should be bush-harrowed in, and rolled afterwards.

SUTTON & SONS,
Royal Berkshire Seed Establishment,
Reading.

The Agricultural Gazette.

SATURDAY, FEBRUARY 9, 1867.

NEARLY two years ago, in the latter part of June 1865, the Cattle Plague appeared in the Metropolis, and it is now a matter of public notoriety that the first attacks occurred among Mrs. NICHOLLS' cows at Islington. In what way the infection was communicated there is no absolutely direct evidence to show; but certain foreign cattle which about that time were being imported from the home of the pest are not unreasonably charged with the introduction of the plague. We do not care to select the particular cargo in which the infected beasts might have been; nor is it important to determine the exact date of their arrival. A few cases of Cattle Plague may have happened, and the victims have been consigned to the knacker or the butcher, before even a suspicion of the nature of the disease existed, and it may be therefore that the first cases are not on record. It is, however, beyond question that cattle from an infected country came into England about the middle of June, 1865, and that during the last week of the same month Cattle Plague appeared in the vicinity of the market to which some of those cattle were sent. Over the whole of the metropolis, and from thence in radiating lines which reached to the extreme limits of our island, the disease spread with extraordinary rapidity, and in a few months the losses among the cattle were so severe as to produce a complete panic in the agricultural world.

After a long period of worse than inaction, during which every experiment that either science or ignorance could suggest was tried, we adopted the system which had always succeeded on the Continent, and with some blundering and a good deal of hesitation the disease was "stamped out," or so nearly that it ceased to be any longer a serious or even generally engrossing question. The metropolis, which was the centre of the infection, suffered severely; to the extent, indeed, of something like two-thirds of the dairy stock. For some months past no trace of the pest has existed in the neighbourhood of London, and dairymen have been actively engaged in refilling their empty cow-houses, in the belief that Cattle Plague was a thing of the past. The newly restored confidence has been rudely shaken by the events of the past week. Cattle Plague has again appeared in the metropolis, and in the exact locality in which it was detected in June, 1865.

On Sunday, Jan. 27, one of the cows in Mrs. NICHOLLS' dairy was observed to be ill, and on the following day the indications of plague were well defined. A cow that had been suffering from lung disease for a long time, by a singular coincidence died on that day, and considerable confusion has arisen in consequence, the popular imagination having indulged in much speculation in regard to the exact position which the said cow occupied in reference to the outbreak of plague. It may therefore be necessary to state, that the cow that had been affected some time previously with disease of the lungs was not the one which was found to be the subject of plague on Monday, Jan. 28, and which up to the previous day had not been suspected to be diseased.

The cow affected with plague had been herded with over 40 others, and it was not therefore remarkable that several animals in the shed gave evidence of being infected, and, as we have frequently observed, those beasts which had been in closest contact with the diseased one were not the first to be attacked; on the contrary, some of those which were nearest were apparently healthy, and others on the opposite side or at the further end of the shed were affected. Day by day fresh cases were detected, and by the end of the week, out of 46 animals, 27 had succumbed to the disease. Early in the week the process of digging a pit was commenced, in order to be ready for the reception of the condemned cattle, and during last Saturday night the whole 27 cows which had been attacked with plague were securely covered over with the prescribed quicklime and so many feet of earth.

The cows which were fit for the butcher had been slaughtered during the week; and the outbreak, so far as Mrs. NICHOLLS' own premises and property are concerned, was at an end. All that science can do for the purpose of preventing any further extension of the disease we may premise has been done, and all the protection that disinfection can give we will assume has been secured; but there is something yet to be considered in which cattle-owners are interested—the outbreak had an origin, and it concerns us to discover it, if possible, in order that it may be guarded against in the future.

It appears from the inquiry we have made that there had been no new purchases of cows later than the last week of December, and the animals then bought were not the first to be attacked. Taking this fact in connection with the period that elapsed after their introduction into the shed before any disease manifested itself, we may fairly exonerate those animals from the charge of having been in any way connected with the outbreak, except being among its victims, and, leaving them out of the question, there is nothing upon which the attention can be fixed beyond the circumstance that foreign cattle, and indeed cattle of all sorts, are constantly, to the extent of eight or nine hundred a week, put into Mrs. NICHOLLS' lairs both before and after they have been in the Metropolitan Market. We know that Cattle Plague prevails over a considerable part of the Continent; we hear of it in Rhenish Prussia—in Hasselt some hundreds of cattle have been slaughtered; in Holland it has existed for months; and in Belgium all fairs and markets have been stopped by a recent order. It is not, therefore, difficult to imagine that some infected animals may have been landed in our country, and found their way to the lairs in the Liverpool Road, which are in the somewhat anomalous position of being on the premises where dairy cows are kept. Supposing that the law relating to foreign animals landed in England has been obeyed, all the cattle which were in the lairs at the time of the outbreak, and previous to it, have been slaughtered, and by this time consumed, and we may hope that the energetic measures which have been adopted will prevent the extension of the disease; but on the other hand, should it be the case, that in the anxiety to obtain a forbidden thing, some of the very cattle which introduced the disease have been taken into any of the cow-sheds in the metropolis, or have been "smuggled" out of the district, we may yet have to record more disasters.

It seems strange that men will incur unnecessary risks, but so it is, and neither respect for the law nor the fear of penalties will deter them, when what they may consider a favourable opportunity for replenishing their stock presents itself.

Whatever shape legislation upon the subject of cattle traffic may take during the present session, it is too much to hope that any efficient protection can be secured unless those who are most directly interested, will take some care to protect themselves.

We have yet something to say upon the subject of importation of cattle during the existence of plague in those countries from which we chiefly draw our weekly supplies.

—— The need of Road Reform seems more than ever urgent. Chambers of Agriculture and local Farmers' Clubs have lately been discussing rather the hardship which is looming in the distance, in connection with the toll-bar system, than the great evil which it at present does; but both on the score of that absolute injustice which is always inflicted on the expiry of any local trust, and on the ground of that check which turnpikes put upon the free intercommunication, which is the very purpose of the road, they are all agreed on the need of some other plan than at present exists for dealing with the subject. As soon as a trust expires, and it depends simply on the will of Parliament whether the time Acts, on which they depend, shall from time to time be renewed, the maintenance of the road falls upon the parishes. And one of Sir G. JENKINSON's chief objects, in his very full and exhaustive lecture on Monday evening before the London

Farmers' Club, was to urge that the Acts relating to all turnpike trusts should be made to lapse together. For as soon as any single trust is dissolved, not only is the charge of the roads to which it refers at once laid upon the parishes, but traffic, not properly belonging to that district, is attracted through it, or rather driven into it by the tolls maintained elsewhere, and thus the district has to bear a double and improper charge.—The discussion following the lecture did not add much either in the way of suggestion or of history to existing knowledge. Mr. HOWARD said that a Royal Commission had long ago reported on Scottish highways and turnpike-roads, and a similar Commission ought to issue for England before any legislation was attempted. Mr. CROSSKILL, referring to the proposal to charge the roads upon a county rate, declared that that must not be allowed until ratepayers had some control over the expenditure of county rates, and he did not believe that Parliament could ever allow any charge connected with local roads to rest upon the consolidated fund. Mr. READ, M.P., asked why should not Government liquidate the existing debts, and said the answer simply is—"They won't." Ever since he could think, charges had increasingly been put upon the land, and every year witnessed the process still continuing. If a Commission were to issue, let the inquiry be immediate, and action on it be taken at once. Mr. PELL stated that the costs of management are at present so great that trusts ought to be amalgamated; and he urged that boroughs should be rated as well as county districts for their future maintenance. The general impression was that considering Government had always claimed free use of turnpike roads for mails, and soldiers, and her Majesty's servants in general, there was now a fair claim on them in return to take the burden of existing debt upon themselves: and as regards future maintenance the mode of raising funds, it was insisted, should immediately be made the subject of Parliamentary inquiry.—On the following day (Tuesday) a meeting of the Central Chamber of Agriculture was held, to consider the same question, and a large number of members of both Houses of Parliament and others representing local Chambers, assembled under the chairmanship of Mr. ALBERT PELL. After a long discussion the following resolutions were carried:—1. "That, as two committees of the House of Commons, one in 1836 and another in 1864—have, after full inquiry, reported that the turnpike system is vexatious and expensive, and that under certain conditions the abolition of turnpike trusts as at present existing would be beneficial and expedient; and as some trusts are in course of abolition, thereby inflicting serious hardship and injustice on certain parishes; it is the opinion of this Chamber that turnpike trusts should be abolished simultaneously, and that provision for the future maintenance of all public roads should be settled by legislation on a fair and equitable basis." 2. "That, as much of the expenditure in the formation of turnpike roads was incurred for imperial purposes, it is the opinion of the Chamber that the Consolidated Fund should aid in the liquidation of the remaining debt, when that debt has been fairly appraised and valued by competent authority." A deputation was appointed to lay these resolutions before the Home Secretary.

—— We have the mournful task of recording this week the death of the Reverend SAMUEL SMITH, M.A., Vicar of Lois-Weedon in Northamptonshire. Amongst the names of those to whom the science of Agriculture has been in our own day indebted for illustration and advancement, it would be difficult to find one more deserving of note, more entitled to lasting honor and appreciation. Those only who have read his brief but most remarkable little work on "Lois-Weedon Husbandry" can form any judgment of the valuable qualities of mind and powers of observation which he gave to the task he undertook, viz., of vindicating and practically exhibiting the Truth that lay partially developed in TULL'S theory of the nutrition of plants; and those only who have enjoyed the privilege and pleasure of visiting the scene of his admirably-conducted and successful course of experiment, can form an idea of the deeply penetrative mind and the impressive sweetness of disposition of the ripe Scholar, and Christian gentleman. It is not possible in the few brief lines with which we are just able to make this sad announcement, to do more than allude to the fact of the loss we have sustained. The words which record death are short; but those which should adequately recount the years of devoted and persevering care given to the labours of his sacred calling, and the inestimable value of a leisure so spent as his in the cause of humanity and science, admit of no epitome. During the later years of his useful life, Mr. SMITH performed a tour, accompanied by his devoted wife, through the Holy Land and to Rome; following, and tracing, the steps of the Great Master whom he served so faithfully, and of His Apostles. His published works give an interesting narrative of his travels, originally addressed in the form of Sunday lectures to the Parishioners whom he never forgot during these enforced pilgrimages, and who will long remember with deep gratitude their gifted instructor and friend.

DO POULTRY PAY?

IN these few remarks I do not intend giving an account of each of the different breeds, but simply to describe the "manners and customs of ye farm poultry." All the remarks I shall make are from close observation of their habits for some years. The much disputed subject and often times repeated question is—Do poultry pay? This is what I want to explain: by paying, of course I mean, that over and above what is given to them in the shape of food, rent of house, repairs to house, coops, &c., something remains to the credit of the poultry-keeper. My idea and opinion on the subject is that with moderate care and attention they may be well worth keeping, not taking into account the infinite pleasure they give to people in general and young people in particular. As I have observed, it is my intention to lay before you my accounts for the past year and the manner in which I rear my poultry, hoping by these means to convince your readers that mixed poultry kept on a farm will pay.

My stock of birds is 56 in number, 50 hens and pullets, and 6 cocks of different breeds. During the year I rear over 100 chickens for the table. I keep Golden and Silver Hamburghs, Black Spanish (not pure), Dorkings, &c. If it is wished to keep the breeds distinct, it will be better to have separate houses for each breed. And then again comes that awkward question—does it pay? No, most decidedly not, except when prizes are obtained at poultry shows for them, and then the profits, if any, first in getting a pure breed, then in keeping them in good condition, and lastly sending them to these shows, will be very greatly diminished. No; if you wish poultry to pay, have mixed breeds, with full liberty to roam over the whole farm. By this I do not mean to say that confined poultry do not pay—far from it, but still I maintain that when poultry are at large they require less looking after, less feeding, they lay better, and keep themselves in as good, if not better, condition.

My intention is to follow a hen and her offspring through the whole year, beginning at the sitting and hatching. This time is generally rather late in February in our part of the country (St. Asaph, North Wales). After laying well the latter half of January and the whole of February, those hens that intend to sit will now show signs of so doing. The surest sign is when the hen about to sit, makes the same clucking noise as if she had young ones and was calling them; she should then be watched, after meal times especially, to discover where her nest is, for hens at this season of the year are very subject to lay and sit out of their houses, under trees, bushes, in hay and straw lofts, &c. Having found the nest with a certain number of eggs in, say 13, which is the most common number, it would be better, if it is wished to bring out a good brood, that all the eggs should be changed for eggs laid that very day, or better still, new-laid eggs from a little distance, as those in the nest may be at least a fortnight old. Having put fresh eggs under the hen, it is now with anxious excitement that the 21 days of incubation is looked forward to to be accomplished e'er you may expect your brood. This period may be more or less, but the hen should not be disturbed till she has hatched all her eggs, and the little chicks are perfectly dry, for if taken out of the nest before quite dry they are almost sure not to live. During the time of incubation the hen should be left to herself, and it will be found that she will come off her nest pretty regularly once a day to eat, drink, and clean herself in a dust bath, which, judging from appearances, she enjoys very much.

When the chicks are quite dry the hen should be gently lifted off the nest, by taking hold of her wings, and removed to the hen pen, shelter, or coop, and afterwards her chicks should be put very carefully into a basket, and conveyed like this to the mother. Before proceeding any further I will describe the kind of shelter used, which I think is a very good one, and not generally known, or else it would be more universally used. This kind of pen was fully described in the *Agricultural Gazette* of last year, but for the benefit of my readers I will try my best to give a description of it.

The shelter which I use as a substitute for the common coop consists of a small house 2 feet by 2 feet 2 inches, with a roof sloping from front to back, 2 feet 4 inches in the highest part, and 1 foot 2 inches in the lowest; to this is attached a wooden yard covered with wire netting, 3 feet by 2 feet 2 inches; there is an opening from the house to the yard large enough for the hen, followed by her brood, to walk in and out at pleasure; also another opening leading out into the open air.

The advantages of this shelter over the coop generally in use are many; amongst them, that of having the mother and young ones always together. I made two last year, each costing about 6*s*.

To return to the subject. I will now suppose that the hen and chickens are in the sleeping apartment or house of the shelter, with some nice clean short straw, not hay, to rest on; the yard outside must be thickly strewed over with sand or ashes (I prefer the former); having placed it in the sunniest part of the poultry yard, and administered to their small wants, they must then be left to regain their strength.

One word about the food. I have heard and read about all sorts of messes being given to newly hatched chickens, but of all the numerous concoctions given and recommended, I find they thrive on nothing better than bread crumbs, cold boiled rice, and water. After having attained the age of three weeks, during which time they ought to be fed regularly three times a-day, they will begin to eat the corn that is given to the mother, and may have meat bones to pick, which they like very much. On fine warm days they may be let out for a few hours in the middle of the day, and it would be advisable if, for the first time or two, they could be watched; when the sun is near setting they should be gently driven back into their shelter, which will at first be found rather a difficult task, but they soon get accustomed to it, and are then driven very easily.

The best times for feeding are as soon as it is light in the morning, at noon, and after turning them in at night. In another month they may be let out directly after their morning meal, if the weather is not wet, and their noon meal may then be discontinued. It will be found that at dusk they will all return to their shelter without any driving.

During this period other hens will have sat and hatched, so as to keep up a succession. At the age of three months they are old enough to go about by themselves, and it is then that the mother leaves them, and begins to lay again, and, if a good hen, will again sit, and perhaps a third time. In July those hatched in March will be ready for the table, but if economy be studied the young cocks should be killed, and reserve the pullets to lay when most of the adult hens have left off. The time varies with different breeds, but on an average it may be reckoned that chickens hatched in March will lay in November, and continue laying every other day through the winter; but this is not always the case—for instance, during the hard frost in January last a whole week elapsed without one egg being gathered. Having brought my chickens to this state, I shall leave them and proceed to the accounts. These are my accounts for 1866, which was an average poultry year. But before I begin I will make a few remarks on the food given to the hens, also the number of eggs gathered, and the number of young ones reared.

Barley is the principal food I have given them, which cost me from 8*s*. to 10*s*. a hobbit (North Wales measure), or 24*s*. to 30*s*. a quarter. They also have the scraps from the kitchen, and full liberty of the farm. The number of eggs laid in 1866 was 3862, which were sold on an average of rather more than ¾*d*. each. Eighty-one cocks and pullets were killed for the table, yielding 6*l*. 2*s*. 6*d*. The payments include food, mending of pens, &c., rent. I shall put nothing down for the poultry-keeper, for the pleasure it gives me pays me well for the trouble I have with them.

	Receipts.	Payments.
January	£1 8 9	£0 0 0½
February	1 11 5	0 0 0
March	2 16 5½	2 18 5½
April	2 1 9½	0 5 7
May	1 13 6	0 7 8½
June	2 4 3½	1 0 6
July	2 3 0	0 5 6
August	1 4 4½	0 7 0
September	0 12 5	0 10 0
October	1 6 7½	0 0 0
November	0 17 7	0 0 6
December	1 5 11	1 18 2
	£19 6 3½	£7 3 6½

Profit, 12*l*. 2*s*. 9*d*.

Frederick T. Tyndall, Hafod-y-Coed, St. Asaph.

MR. J. J. MECHI'S ADDRESS

ON THE CONDITION OF BRITISH AGRICULTURE AS REGARDS ITS PRACTICE AND ITS GENERAL POSITION IN RELATION TO OUR OTHER INDUSTRIAL OCCUPATIONS.

[Given at the request of the Faringdon Farmers' Club, at their Library, in Faringdon, Berks, Feb. 5, 1867.]

THE subject upon which I propose remarking to-night is so large a one that I must confine myself to a consideration of a few of its most important parts, with a view to stimulate experiment, discussion, inquiry, and comparison. An unprejudiced inquirer, taking a general view of British agriculture as a whole, would naturally compare its condition with that of our other industrial occupations to see whether a due and proportionate amount of skill, capital, enterprise, and general intelligence characterises its operations. Let us test this by comparative results. By the extensive use of costly steam engines, complicated machinery, and scientific inventions and discoveries, and, by enormous investments of capital, every necessary of life (excepting food) has been increased in abundance, and greatly cheapened in cost. No such result has taken place in agricultural home production, for agriculture languishes in the trammels of antiquated customs and strong depressing influences.

AGRICULTURAL STATISTICS.

So far as our imperfect statistics of agricultural produce can be relied on, the evidence is that our produce has very slightly, or not at all, increased, and that, instead of having become cheaper, our meat, butter, cheese, and milk, have all greatly advanced in price. In spite of extensive areas of old pasture having been broken up and worked out with corn crops, we are dependent on foreigners for an average annual importation of 6,500,000 quarters of Wheat alone (that quantity being increased this bad harvest to 8,000,000 quarters), while our average annual home-growth of Wheat is only 12,000,000 quarters — 12,000,000 of quarters over an area of nearly 60,000,000 of acres! Can anything that I may say add to the disgrace and humiliation of such a statistical fact, seeing that we are so overdone with surplus capital that our loans to foreign nations, independent of other foreign investments, may be probably 200 millions sterling, and that in home railways alone we have an investment of 500,000,000*l*. Our natural production of Wheat, at the average of 56*s*. per quarter, presents the ridiculously comparative sum of 34,000,000*l*.! This for the daily bread and annual feeding of 30 millions of people! On my poor farm of 170 acres the annual production of Wheat is more than 250 quarters, and other grain in proportion; so that if the rest of the kingdom did its duty equally with my poor soil, our annual produce of Wheat, instead of 12,000,000 of quarters, might be 88,000,000 of quarters. This is no comparative exaggeration, for of my 170 acres (landlords' measure), only 50 are annually in Wheat.

Of course from the area of 60 millions of acres must be deducted the space occupied by our urban population in their towns and cities, and a large space for climate unsuitable to the growth of Wheat, but, with the most liberal deduction, there is the evidence of my farm that profitably we could enormously increase the food of man

and beast, were we inclined so to do, and call to our aid for this purpose an immense increase of capital and intelligence.

If I had any doubt as to the slow general progress of British agriculture it would be removed by the census fact that our agricultural labour population is either stationary or decreasing. My experience has taught me that increased produce cannot be obtained without increased labour; for, leaving out of consideration the immense amount of labour expended upon drainage and landlords' improvements, the current labour of my farm is doubled as compared with that used before the improvements, and this too in the face of steam power, reapers, horse hoes, &c.

Taking our production of Wheat at 12 millions of quarters, it goes a trifle over 1½ bushel per acre over our 60 millions of acres. On my farm, over the whole area, 170 acres landlords' measure, we have nearly 12 bushels per acre, and a proportionate increase of meat. I speak of my own farm reluctantly, and with no view to boasting, but am bound to quote it as an illustration, to show our national agricultural shortcomings.

Now, without any desire to find fault, I am bound in honesty to say that our general agriculture presents a most uncommercial and unbusiness-like appearance, both as regards landlords and tenants. I hope that no one will take this remark as applying individually or personally, for I know plenty of agriculturists who are a credit and honour to their country, and it is because I know this that I am, on public grounds, anxious that what is now the exception should hereafter become the rule. Many reasonable excuses may be found for our general backward agricultural condition. We are, as it were, only just emerging from feudalism—the days when the lord or landowner and his tenants and dependants had to fight together in mutual self-defence, and when each estate was a little kingdom, where the lord was somewhat of a Paterfamilias to his tenantry and their labourers, having and exercising an undeniable control over them. Under such circumstances, without roads, railroads, or canals, such a primitive and uncommercial condition could hardly surprise us; but all that is changed now; and although the natural good-will and respect as between landlord and tenant should still exist, and, I believe, does so, still agriculture should now become a business, and requires to be treated on true commercial principles, if both landlord and tenant are to attain to a good pecuniary and social position. For see what is taking place elsewhere than in agriculture — merchants, traders, and manufacturers, freed from antiquated prejudices, availing themselves largely of modern improvements and scientific discoveries, have thus realised princely fortunes, and by these means and this acquiescence in change and progress, are gradually becoming owners of some of the finest estates in the kingdom. As a natural consequence, they acquire very increased political influence. So long as our estate owners, actuated by a most kindly but mistaken feeling, entrust their farms to retired superannuated gamekeepers, or other menial dependants, and are content with an unimproved rental in lieu of seeking for men of capital and practical intelligent knowledge, so long will their estates present, as they do in too many instances, a melancholy evidence of neglect and non-progression as compared with others where a different system has not only provided more ample food for the people, but has, concurrently, greatly increased the rental and value of the estate.

My brother agriculturists must forgive me if I say that they, too, have a good deal to answer for. They have not yet quite shaken off the mantle of old customs and prejudices, and they are a good deal inclined to "snub" myself and many like me who sincerely desire to see them in a more intelligent and (as a natural consequence) a more profitable position. I know of so many cases where landlords, being willing to invest capital in the improvement of their land, provided the tenants will pay a fair and proper interest for such investments, have met with doubt, disbelief, and in fact discouragement, and non-acquiescence. In my own county, for instance, it is only after 20 years of hard fighting and discussion that some of my agricultural friends are beginning to believe that it is advantageous to drain those extensive stiff, collapsing, unctuous tile earths which suffer so much from wet seasons. In fact it was only a few days ago that a wealthy landowner told me that his principal tenant declined to have his land of that quality drained, for the water went off quickly by the stetch furrows and water furrows. Yet that landlord had gained a considerable sum by selling an estate in another county after he had enlarged the fields, drained them, cleared away the timber, and erected proper buildings. I really ought to apologise for insisting here so strongly on agricultural progress, seeing that in this very neighbourhood is one of the most bold and grand instances of change and progress that has ever graced an English estate—and I will venture to hope that if that estate were to be sold to-morrow it would realize a sum commensurate with the improvement which has come over it since its reclamation from a neglected condition. I feel that I am in Berkshire, where the necessity for improvement is cheerfully accepted and acted upon. In confirmation of my opinion of the advanced condition of Berkshire agriculture, I have only to refer to the following comparative statistical Tables:—

Poor Law Board Return, 1854.		*Cattle Census*, 1866.
Cattle,	14,024	30,149
Sheep,	144,259	827,316
Pigs,	24,888	41,265

The increase of live stock is a certain test of agricultural progress.

In this respect Berkshire stands pre-eminent; infinitely beyond many other counties. Can we forget that the good and lamented Prince Consort gave, by his example and patronage, an immense impetus to agricultural progress? I remember seeing, at Windsor, farm buildings and machinery that, for utility and economy, might be safely adopted by many a landlord and practical farmer. The late Mr. Pusey, Sir John Conroy, the present Earl Radnor, and many others in this county, have done much to increase the food of the people. There is a growing faith in drainage, deeper cultivation by steam power, covered yards, less timber, enlarged fields, better roads, more manure and less seed, reaping and mowing machines and better implements. All this is encouraging, and gives us hope of a better future.

Agriculturists begin to feel ashamed that they have for so long a time opposed statistical information, much to their own disadvantage. Public opinion, acting through our Legislature, has given to us a Government Registration Office for Land, so that a title once well proved will be no more endangered by the loss by fire or otherwise of some one or two old musty parchments, deeds, or wills. In that new but wonderful country, America, our intelligent cousins, who have still one thousand millions of acres of maiden land to dispose of, have had them all carefully surveyed, measured, mapped, and registered in a proper Government Office (what an extent of country as compared with the 77 millions of acres of our United Kingdom!)

The cost of transferring land is in this country outrageously great, and the delay proportionate. I will illustrate it by a recent case that came under my observation. A farm, nearly all freehold, worth about 6000*l.*, which had been occupied by the owner for more than 20 years, was mortgaged. The costs were 200*l.*, and the time occupied nearly three months. The same farm was transferred about two years later, and, although the former investigation of title had been most rigorous, again the process was gone through at an expense of more than 200*l.*, and another delay of three months. Who would buy landed property? said a friend of mine, used to commercial and prompt transactions.

I am told, on reliable authority, that in any portion of the United States a property may be transferred or interchanged in a few hours at the local office, after proper notice has been given, at a mere nominal cost. It will take us a long time in this country to arrive at such a sensible mode of dealing with landed property. It is generally acknowledged that facility of transfer or exchange would enhance the value of land 10 per cent., and, no doubt, from changing hands occasionally, it would be more likely to undergo improvement.

Agricultural Education.

We are also beginning to believe that it is as much to our advantage to well house our agricultural labourers as it is to well stable our farm horses. I believe statistics would show that more than three-fourths of all the miserable huts or tenements occupied by our agricultural labourers, are owned not by the landowner but by itinerant individuals, who only look to their rent, and have neither the inducement nor the inclination to initiate an amended shelter. Health, physical and moral, are thus alike sacrificed at the shrine of a neglect, which is the parent of large poor rates and a demoralised and deteriorated population. If all the evils and sorrows arising from bad water, damp undrained houses, and indecent propinquity, could be accurately ascertained and valued, a frightful sum total would be placed to the debit and cost of landholder and tenant.

It is not in labourers' cottages alone that reform is required, for many of our ancient farmhouses are fatally unhealthy. Built upon the bare, wet, undrained clay, the water rises by capillarity up the walls (as it does in many of our churches); the result is a musty, clammy atmosphere in "the best room," and rheumatics or consumption among its inmates. I have seen the papering of the walls detached by the damp. Again, too often a moat of stagnant water surrounds the house, or it is shut in by dense foliage of trees, most injuriously to the occupants.

The interesting fact that I am now, for the first time in my life, speaking upon agriculture in a Farmers' Public Library, in a country town, naturally suggests to me the question of our general education. Can any one present tell me how many Farmers' Public Libraries there are in the United Kingdom? I fear they might be counted on one's fingers; if so; honour and merit are due to the farmers of Faringdon for being foremost in the rank of intellectual progress. Here let me thank an intelligent Berkshire farmer, Mr. Spearing, for his able report on the "Farming of Berkshire," in the 21st volume of the Royal Agricultural Society's Journal.

Education for our labourers will dispel the clumsy and costly ignorance which too often obstructs agricultural progress, and the rising race of farmers will have educational opportunities, which were denied to their forefathers. Thanks to my dear departed friend Richard Garrett, and many other good and wise men, the Suffolk Middle Class College will do wonders for the farmers of Suffolk; 300 boys, well fed, lodged, and educated for 25*l.* per annum, is, indeed, a boon, socially and nationally, for that example will soon be followed.

But education has no value if it is not used. I too often see youths return to their farm from a good school, and find at home nothing to read, except perhaps the local weekly paper. Their learning becomes rusty for want of use, for it is painfully true that an agricultural library is rarely to be found in the house of the British farmer. A 30*l.* note invested in Morton, Stephens, Caird, Rham, Liebig, Johnston, or, by annual subscription, the Journal of the English, Scotch, and Irish Societies, the "Farmers' Magazine," and other publications, would pay a large though indirect profit. For my own part, I am always a learner. Ignorance is not bliss, even in agriculture; and I am pleased to see that the old cuckoo cry against "book" farming is gradually, though slowly, dying out. What can be more advantageous to agriculturists' progress than that they should meet "on paper," and there detail to each other the profitable or unprofitable results of their various experiments? The great secret of American progress is the general or rather universal use of education by the people. They have 120,000 public schools and colleges, where every person can be educated at free cost in a manner suited to his position. The Americans have always freely taxed themselves for these noble and useful institutions; and whenever a new district is populated, the first thing done is to provide ample lands and funds for the erection and endowment of the schools. Our good friend Mr. Howard told us on his return from America, that because the people are all educated they are all great readers. Long before ours their cheap untaxed newspapers circulated to such an extent in proportion to the population, that although comparisons may be deemed odious, I am bound to say we are, in comparison, a most unreading set, especially in agriculture; and yet, from the nature of the farmer's occupation, he must have much more time to read than the townsman, whose late hours at the desk or counter militate against his opportunities for study.

The mere reading of what is going on in other countries would enlighten our minds, stimulate our progress, and in some respects correct any over-estimate we may have formed of ourselves and of our doings. There is evidently great room for amendment in British agriculture if it be true (which I believe it is) that our gross produce per acre is only 3*l.* 15*s.*, and our capital only 4*l.* My own capital is quite 15*l.* per acre, and I must increase it with a view to enlarge my profits. Besides, a great deal of money is lost annually in farming. I will speak of amateur farmers by and by, but I now allude to what are called practical farmers. On poor stiff clays and inferior soils, badly farmed, I see their capital wasting away under the influence of non-drainage, deficiency of capital, and the short-comings of both landlord and tenant, and still they come, one after another, to be, as it were, swallowed up in the insatiable vortex of non-improvement. All this is very painful, and it is owing to my seeing these disasters that I feel impelled to endeavour to stimulate to a better state of things.

As to amateur farmers (what a sentiment of glee I fancy must be felt at these words by some of my practical friends present!), I am constantly hearing of their going into farming with high spirits, and coming out with melancholy pockets, and I will tell you why it is so. They do not consider that farming is an art—a business, in fact, that demands great practical knowledge, some of which can only be got by long observation and experience. Their expectations are often too sanguine, and when I tell them that 1*l.* to 30*s.* an acre, or 10 to 13 per cent. for their farming capital, is all they have a right to expect, even with good management, they seem surprised. They often begin by paying too high a rent, and are "let in" by an over-valuation; and, unless they understand their business, or have an honest bailiff who does, they buy live stock and everything else probably 10 per cent. too dear, and sell their produce another 10 per cent. too cheap. In the order and management of labourers and other things there may again be a heavy percentage of loss. All this soon brings amateur farming to a collapse.

It is all very well for gentlemen to buy "pedigree" stock at fancy prices, but they must also sell their progeny at fancy prices too, or their "live stock balance-sheet" will show an unpleasant result. They have to contend with men who have a rare eye for every point in an animal, and who will, by their superior judgment, almost create a pedigree stock. Instead of making 20*s.* an acre, they often lose 30*s.* or 40*s.* They should also learn most particularly to distinguish, in their investments, between permanent improvements and current farm expenditure. The former should be compensated by an increased charge for rental, the latter by annual profit. Nevertheless, I know many intelligent shrewd gentlemen, who, as amateur farmers, have not only made it pay, but have, by their good example, raised the standard of farming of the district around them. In fact we know that in farming, as in other arts, many of the greatest improvements have been introduced by non-practical men. No greater difficulty attends the amateur farmer than that of getting an honest as well as able bailiff; one who can neither be corrupted by buyer nor seller, and who will devote himself entirely to his master's interests. Bad book-keeping, or too often no book-keeping at all, is, in agriculture as in many other trades, a great failing.

Farm Accounts.

I annex, as it may be useful, a copy of my accounts for the last two years, 1865 being a good crop and low price, and 1866 a middling crop and a better price.

Although these years are by no means so good as many I have had previously, they will tend to dispel the too prevalent notion that Mr. Mechi's farming does not pay, and that it is the business in town that supports the farm. Without stock taking, a knowledge of how much is owing to me, how much I owe, and how much cash is in hand at the end of every year, I should be "all at sea," and equally necessary is it that I should know how the live stock account stands, for that is the key of the position as regards the well-being and well doing of the farm.

A reference to my accounts will show that my farm capital is about 15*l.* per acre; that the rent I have to pay myself as landlord of my 128 acres before I can claim any farm profit is 40*s.* per acre; and that while I pay 20*s.* per acre for 45 acres of land adjoining mine, which I have since improved, my own land has been assessed by three eminent valuers at 40*s.* per acre

rental, being 36*s.* for the land and buildings, and 4*s.* for the use of steam engine and irrigating apparatus.

My farm profit is therefore 10½ per cent., about 1*l.* 11*s.* 6*d.* per acre, on my farm capital during these two years (they have been frequently much larger). A house, rent free, and some other conveniences, may be taken as another 2 per cent.

I was a good deal amused when reading a recent paper on Book-keeping (Croydon Farmers' Club). A farmer said he had lost 250*l.* last year. "How about the living?" asked another. His reply intimated that he lived out of the farm, but did not reckon that as profit. What would bankers, merchants, manufacturers, and traders say to this? They would not endorse that theory, for too many of them know that "a living" is all that they can get, and sometimes a very hard matter to do that. My farm accounts show the actual produce, and the money received for it. What I buy off the farm for my own use I pay for at the price it would bring in the ordinary market.

I would advise amateur farmers who have improved their land by drainage, &c., to have the improvements, when completed, valued, and the rent set upon the farm by competent valuers, just as if it was to pass into the hands of an ordinary tenant. This rent they would be bound to pay to themselves before they claimed any farm profit. This was my plan; indeed, it was imperative, because I was so frequently told that my improvements were no improvements at all—a statement rebutted by the valuation. I should also recommend gentlemen farmers to have a proper valuation of stock, crop, implements, tillages, &c., made every year by a competent public valuer, and if they found the farm did not pay, such a person might be fairly asked to give a report upon the causes of such non-profit. The cost of all this would be trifling compared with its advantages. The live stock account should always be kept separate, as in my case, for it is too often there that mischief arises.

I hope that my statement of accounts may prove useful. The question of Capital in proportion to land is an important one. I have satisfied myself that less than 15*l.* per acre would in my case be unsatisfactory. Imagine my having to farm three times the extent of my present holding with the same gross amount of capital, which would then be only 5*l.* per acre—where would be my live stock—the very soul of the farm?

As an average my live stock represents a capital of 6*l.* per acre. I am afraid that the live stock capital of the kingdom has only a value of 1*l.* 10*s.* per acre, or equal to one sheep or lamb per acre on arable land. As an easy example of accounts, every transaction for cash should be entered in the cash book in detail, from which it would find its way to the ledger. I need hardly mention the necessity for a labour book, field book, and general journal of everyday transactions, not entered in the cash book at the time.

Mr. Elliott, in his book, "Credit the Life of Commerce" (quoted by John Stuart Mill), says—"It is not too much to say that one-half of all the persons engaged in trade, even in London, never take stock at all; they go on year after year without knowing how their affairs stand, and at last, like the child at school, they find to their surprise but one halfpenny left in their pocket. I will venture to say, that not one-fourth of all the persons in the provinces, either manufacturers, tradesmen, or farmers, ever take stock, nor in fact do one-half of them ever keep account-books deserving any other name than memorandum books."

MEMORANDA.

I attribute the small amount of our national annual produce to a want of sufficient live stock, for, if our recent statistics are dependable, our cattle, sheep, and pigs (reduced to sheep), would only give one full-grown sheep to each arable acre. This is evidently very insufficient as a manurial agent, and not more than a third of the quantity on my own farm, although I have so little permanent pasture. I have, therefore, three times as much annual manure as the average of the country, and my corn crops are benefited accordingly.

In searching for agricultural knowledge I have been struck with the difficulty of obtaining satisfactory replies. For instance, if I ask "How many pounds weight of meat per acre do you produce over your whole farm, landlords' measure?" I can rarely obtain the information I desire.

Labourers' Wages.—I make a point of not paying more per piece or per day than my neighbours do; but I almost invariably employ my men piece-work. The consequence is advantageous to me—it enconomizes time, diminishes the number of men, increases their means, and thus improves their physical and moral condition. I think there must be some exaggeration in the statements about agricultural labour. I find that each of my men earn 35*l.* per annum, independent of the earnings of their wives and children, harvest gleanings and beer. Farmers suffer materially by day-work, lose many opportunities, and keep their men in a low physical condition. Manufacturers have no such weakness. My men have free access to small beer (1 bushel of malt to the hogshead) and an occasional pint of stronger. At harvest they have 6 pints of best beer (4 bushels to the hogshead). My farm beer costs about 20*l.* annually, or 2*s.* 4*d.* per acre, or about 1*s.* per week for each labourer.

One of the most important causes of success in agriculture is to *adapt your crops and animals to the climate and soil.* An infringement of this natural law is sure to be attended with loss. I remember that a main part of the loss in my famous balance-sheet (1851) arose from having a large breadth of Potatos (27½ acres), tempted thereto by the success of a similar cropping on the Auchness farm. Potatos love a humid climate and a friable and calcareous soil. In our stiff, cold, non-calcareous, ferruginous, collapsing clays we are safe with Beans, Mangels, Cabbage, Clover, Wheat, and Oats, but we must leave Barley and Turnips to lighter, warmer, and more calcareous soils, and permanent pasture to a more humid climate, or to the borders of streams.

The recent agricultural census is instructive in this respect. We there see that humid and mild Ireland has of her corn and root crops—

Per cent.	Per cent.
78.1 Oats	70.9 Potatos
13.8 Wheat	21.0 Turnips
7.0 Barley	91.9
98.9	

Scotland:—

Per cent.	Per cent.
73.5 Oats	72.2 Turnips and Swedes
15.6 Barley and Bere	21.6 Potatos
8.1 Wheat	93.8
97.7	

Wales:—

Per cent.	Per cent.
48.3 Oats	44.8 Turnips and Swedes
28.1 Barley	31.8 Potatos
21.8 Wheat	76.6
98.2	

England:—

Per cent.	Per cent.
42.7 Wheat	58 2 Turnips and Swedes
25.4 Barley	11.3 Potatos
20.3 Oats	9.2 Mangels
6.7 Beans	78.7
4.2 Peas	
99.3	

Many sanguine persons, who bring over to this country seeds of luxuriant foreign plants, do not consider the difference in climate and soil. Cobbett tried in vain to acclimatise Maize, which requires a high temperature and abundant moisture. One can easily comprehend that hair-covered animals are better suited to a wet mild climate like Ireland than woolly animals. Hence, we find by the census that Ireland has 3,742,932 cattle and only 4,270,027 sheep; while England has only 3,420,044 cattle, but 15,124,541 sheep. For the same reason Ireland is superlative in pigs.

Agricultural Statistics.—The difference between landlord's measure and the actual available space is so considerable, that I hope, in future statistical returns, we shall get a statement of the space occupied by fences, by homesteads, by roads and waste—all this is charged with rent, although no return is derived from most of it, I think it adds quite 10 per cent. to the rental. In my own case, after removing nearly all internal fences, the loss of space is quite 5 per cent. If the area of the United Kingdom is 77½ millions of acres, and the recent returns only account for 44 millions, can it be that nearly one-half our land is unavailable for production? Ought we not to know how these extra 33 millions of acres are appropriated?

It has been stated on good authority that one-half the land of England is owned by only about 150 individuals, while one-half Scotland belongs to only 12 owners. If these estates are all entailed it must certainly somewhat restrict a great investment in improvements, although a recent Act of Parliament enables owners to charge their entailed property with a certain amount annually for improvements. Some great estates are very admirably farmed.

Long Fallow.—The recent agricultural statistics show that we have still in Great Britain (leaving out Ireland) 964,937 acres, or 1200 square miles of land cultivated but uncropped. Is this necessary? I reply, certainly not, provided there is a sufficiency of live stock or manure. When I take two heavy Wheat crops in succession, or Wheat, Beans, and Wheat, I am asked "Ah! but what do you do after that?" I reply, "Rest the land by taking 30 tons of Mangel per acre." This is the fact, and it is simply a question of plenty of manure, deep cultivation, and ample horse-hoeing. I speak of my own poor heavy land. The land may be kept clean by proper cultivation without a long, unproductive, and costly fallow.

Chambers of Agriculture and a Minister of Agriculture are now strongly advocated. On the first there can scarcely be a doubt as to its necessity and utility. The latter, I think, must be given up, for, if carried, we must also have a Minister for Commerce, another for Manufactures, Trade, Shipping, &c. A department of the Board of Trade and *Agriculture* would do all that is required.

Leases.—While many absurd restrictions in leases might be dispensed with, we rarely see one most important duty enforced, namely, that the mouths of the drains and ditches into which they discharge themselves should be kept constantly free and open. I have witnessed such culpable and suicidal neglect in this particular that I am induced to allude to it.

Whenever a spring drain gets choked by a water-plant or roots of a tree or shrub, it should at once be attended to, or an extensive area may be damaged, for water will head back in the land for miles by such a stoppage and neglect.

Arable or Grass Land?—This question, which is much discussed when Wheat is cheap and meat dear, must be determined by soil and climate. On our stiff Essex clays, under a dry, hot, cereal climate, pasture should be the exception, arable the rule. Out of 170 acres that I farm, I have only 14 acres of permanent pasture as a run for my breeding stock. So much of our heavy tile earth contains iron and no lime, that the Grasses produced on it have no fattening quality, while the quantity is small. This is what makes me somewhat doubtful about the Buscot pastures. Irrigation, natural or artificial, very much alters the case. It is better, therefore, on such soils to grow Clovers, Tares, Mangel, and Beans, the latter making excellent summer green food. On such soils I have this year realised 21*l.* per acre in Wheat and its straw, and 14*l.* per acre in Beans, and 12*l.* in Oats (besides the straw), where we should only have obtained 5*l.* to 7*l.* in Grass or hay.

Ireland, with its mild and humid climate and limestone formation, is essentially a Grass and Potato country. Its cereals should be Oats. Cornwall, Devonshire, Somersetshire, and all the western side of our island, whose hills arrest and condense the warm Atlantic clouds, are much better adapted for grazing than our eastern coast. It could scarcely be believed in our eastern counties, where the rainfall is under 20 inches annually, or 2000 tons per acre, that as much as 180 inches (18,000 tons per acre) have fallen in one year at Seathwaite in Cumberland, where the average is 127 inches.

The general mismanagement of our Grass lands is notorious; they are starved and robbed instead of being well manured, and in that state are best broken up for corn growing. Grass land is easily improved by ample cake and corn feeding, artificial manures, and by hoeing and spudding out bad Grasses and weeds, and sowing annually or occasionally good Grass seeds and white Clover. There is nothing, however, so remunerative or nutritious as Italian Rye-grass, provided it is irrigated with sewage. After two years of such treatment the land is in first-rate order for pulse and then grain crops.

In the management of our farm we have often considered the question of laying down to Grass, and have satisfied ourselves that our present mode of management is by far the most profitable. Plenty of well-fed stock, some purchased manure, and maximum crops of corn and straw, as well as of roots, Pulse, Clover, and Tares, are best suited to our soil and climate.

Town Sewage.—Twenty-four years ago, when I first insisted on the propriety and profit of a national economy of our voidances, I almost despaired of its being carried out in my time; but great changes have come over the public mind, and false delicacy has succumbed to common sense—witness the Sewage Congress held lately at the fashionable town of Leamington.

The profit of such an economy is now no longer denied. Our towns and cities will require, and no doubt obtain, Parliamentary powers for the purchase of lands for the purpose of sewage irrigation, and then let them at improved rents. I hope that the great company forming to apply the sewage of the northern side of the metropolis to agricultural purposes may meet with success. Already they have made a beginning, on rather a large scale, so that the farmers through whose lands their great tunnel will pass (being practically convinced) may tap its contents and turn them to profitable account. Had they my practical experience of 18 years in this matter, they would hasten eagerly to apply for such a boon. I am glad to know several large farmers who are looking forward to use it extensively. Our country ought to be constantly improving in fertility, for we not only consume all we grow, but also devour untold millions of foreign produce, solid and liquid—I believe to the worth of 70,000,000*l.* annually. Surely the life-blood of the nation will no longer be permitted to rush in wasteful streams through our sewers to poison our rivers and ourselves.

Scotch Farming.—I was very much struck when in Scotland by the enterprise of Scotch farmers. It is no uncommon thing to see a tenant at the commencement of a lease of 19 years, investing some 10*l.* to 15*l.* per acre on drainage, liming, and other improvements. No doubt it is the lease that gives him and those who aid him with capital confidence of a profitable return; but beyond this, there is the intelligence resulting from a better education than is customary further south, and an appreciation and exercise of this education. This remark will apply also to the farm servants, labourers, and shepherds, who can all read and write. A southerner wonders how the Scotch can pay such high rents; but they waste no land in hedge rows and ditches, small fields, and timber. Scotch farmers, used to a moister climate than ours, do not always succeed so well south and east. They complain, justly, of the want of intelligence in our labourers, and of insufficient house-room and accommodation for both man and beast. My Scotch friends are appreciating more and more oil cakes as feeding substances, and no longer scold me for recommending plenty of cake-feeding as a sure means of growing plenty of corn.

Before I come to the conclusion of this long paper, let me entreat you to consider the unfortunate position of those unhappy farmers whose 3,000,000*l.* worth of cattle have been swept away by dire disease. The Royal Agricultural Benevolent Institution presents a medium for some alleviation of the misery resulting from such a dreadful calamity.

Conclusion.—The Results of Agricultural Improvement are cheering, individually and nationally. They increase the landlord's rent, the farmer's profit, and the food of the people. They elevate us in influence and position. The whole neighbourhood is benefited, machine and implement makers thrive, the shop-keepers and tradesmen find their receipts and profits enlarged, but, above all, there is a great increase in the employment of labour. Not only does this take place in the drainage, building, &c., but the permanent labour on my farm is doubled, although I use steam power and machinery. Other evidences of progression and improvement are exhibited in a new and newly-endowed church, a rectory, and school. A small dissenting chapel has been rebuilt on an enlarged scale, new cottages have been built, and the physical, moral and religious condition of the population considerably improved.

I am now 65 years of age—my time is getting short. When it pleases God to call me, I shall, on my last

pillow, be comforted with the conviction that my efforts to benefit my fellow-creatures, as well as myself, have not been entirely in vain.

TIPTREE ACCOUNTS.

	Paid. 1865.	Paid. 1866.
Jan. 1—Valuation :—		
Live stock	£827 12 0	£1144 10 0
231 fowls	20 0 0	20 0 0
7 horses, 1 donkey	124 0 0	154 0 0
Tillages, manure, &c.	472 10 9	501 18 4
Hay, corn, &c. (unsold)	286 4 0	252 18 0
Implements	435 11 6	430 0 0
Fixed steam-engine and irrigation pumps, &c., valued in estate.		
Corn and hay for live stock, produce of farm, charged at market prices	301 2 0	188 14 0
Corn, cake, malt-combs, bran, &c., purchased for live stock	369 7 0	418 3 7
Grinding corn for live stock by our own engine at the usual prices charged to others	25 15 10	16 0 0
Sundries for live stock	7 19 0	4 4 0
Veterinary	1 12 6	
Medicals	2 16 0	1 15 0
Live stock purchased	281 0 0	185 15 11
Plough horse purchased	47 12 6	15 15 0
Horse food purchased from farm	114 0 0	105 16 0
Ditto purchased elsewhere	15 0 0	42 1 0
Farm labour, including engine-driver and working bailiff	386 16 11	353 12 5
Rent of chapel land, 45 acres	45 0 0	45 0 0
Tithes, taxes, poor, highway, church, and county rates	82 4 5	84 2 7
Allowed for wear and tear and depreciation of machinery and implements	25 0 0	25 0 0
Coals for steam-engine	51 10 0	31 7 11
Tradesmen's Bills :—Wheelwright, blacksmith, founder, harness-maker, bricklayer, carpenter, painter, basket-maker, cooper	57 8 0	41 8 11
Malt and hops for beer for labourers	22 0 0	21 9 6
Purchased seeds and plants	33 1 4	28 15 9
Do. of our own growth	29 7 0	42 19 0
Purchased manures	110 17 10	78 0 0
Do. straw	16 8 0	6 0 0
Miscellaneous petty expenses :—Mole and rat catching, mending sacks, postage stamps, stationery and farm account books, oil, candles, cart-grease, tallow, packing for engine	8 1 10	5 10 0
Thatching	7 15 0	5 9 0
Thatching stuff	1 2 0	1 0 0
Corn-blowing machine		1 1 0
Sheep troughs		2 10 0
	£4208 15 5	£4255 16 11
	Received. 1865.	Received. 1866.
December 31.—Valuation :—		
Live stock	1144 10 0	854 6 0
Poultry	20 0 0	30 0 0
Horses and donkey	154 0 0	130 0 0
Tillages, manure, &c.	501 18 4	489 7 8
Corn and hay, &c., unsold	252 18 0	636 12 6
Implements	450 0 0	425 11 6
Corn sold for money	601 5 10	478 19 9
Corn and hay sold to live stock as per contra	301 0 0	188 16 0
Peas (for picking) sold	44 0 0	2 0 0
Home-grown corn used as seed and charged per contra	27 2 0	42 19 0
Oats, Beans, and hay, home-grown, sold to our horses, and charged per contra	114 0	105 16 0
Hay sold	72 17 0	10 2 6
Mangel roots and seeds sold	39 17 6	91 10 3
Meat sold	813 1 0	1123 7 11
Wool sold	19 10 0	54 1 1
Poultry and eggs sold	44 10 9	43 15 0
Grinding for hire	73 15 4	32 5 3
Grinding for our own stock	25 15 0	16 4 0
Milk and butter	11 5 0	12 0 0
Rent of cottages	15 17 0	15 17 0
Dead horse		0 15 0
	4707 2 9	4784 8 5
Paid	4208 15 5	4255 16 11
	£498 7 4	£528 11 6

Balance for rent of 128 acres and profit on 2500*l.* farm capital.

LIVE STOCK.	Paid. 1865.	Paid. 1866.
Jan. 1.—To valuation of bullocks, sheep, pigs, and poultry now in hand	£847 12 0	1164 10 0
Hay and corn purchased from our own farm at market prices	301 2 0	188 14 0
Corn, cake, malt combs, bran, &c., purchased elsewhere	369 7 0	418 3 7
Grinding corn by our own engine	25 15 0	15 0 0
Veterinary medicine and sundries	12 7 6	
Live stock purchased	281 0 0	185 15 11
	£1837 3 6	1972 3 6
LIVE STOCK.	Received. 1865.	Received. 1866.
December 31—		
Meat sold	£813 1 0	£1092 9 11
Wool sold	19 10 0	54 1 1
Poultry, eggs, &c., sold	44 10 9	55 15 0
Valuation of bullocks :—		
Sheep, pigs, and poultry in hand	1164 10 0	884 6 0
	£2941 11 9	£2086 12 0

CAPITAL ACCOUNT.	*Dr.*
Dec. 31.—Sundry unpaid accounts owing by the farm	
Farm Capital :—	*Cr.*
Valuation on the 31st Dec.	2561 17 6
Cash in hand or at banker's	
Outstanding unpaid accounts owing to the farm	

APPORTIONMENT OF FARM CAPITAL.

Live stock	£6 0 0
Horses	1 0 0
Tillages	2 10 0
Implements and machinery	2 10 0
Hay, corn, &c., unsold	3 0 0
	£15 0 0

MY ANNUAL COURSE OF CROPPING :—

	1865. Acres.	1866. Acres.	1867. Acres.
Wheat	42	55½	56½
Barley	12	12¼	11
Oats	14½	12	7½
Beans	17½	6½	13½
Peas	8	8½	17
Clover	13½	20½	12½
Permanent pasture	14½	14½	14½
Sewaged Italian Rye-grass	12½	12	12
Mangel Wurzel	16½	10½	9
Cabbage	3	1	1
Winter Tares for feed	6	6	4
Carrots	—	1	½
Swedes	—	—	1
Available acres	160	160	160
Cabbage after Tares, second crop, same year	6	3	5
White Turnips and Rape after Peas, second crop	8	8	6
Swedes after Tares, second crop	—	3	—

Available acres	160
Fences, ditches, and road	5
Ditto on my own farm	7
Buildings, stackyard, &c.	2
Private house, garden, and shrubberies	3
Total landlord's measure	177

Where White Turnips are taken after, the Peas are removed directly they are cut and made on another field. This gives more time for Turnips.

In 1865 the live stock left about 6*l.* 10*s.* per acre for the root and green crops consumed, after paying for all purchased food. In 1866 they only paid 5*l.* per acre, because corn cake, &c., were all dearer than in 1865, although meat was, if anything, rather cheaper. The labour attendant on stock is charged in the general labour account. If it and the engine coals, &c., were charged to the live stock account, very little would be left for the green and root crops; and yet I consider it is this great consumption of purchased food and consequent manure that makes the farm pay—without it, it would not pay.

The tillages comprise the cultivation, seeding, and manuring. Our preparation for the Mangel crop, including rent, &c., costs about 12*l.* per acre. Beans are also well manured; so are Cabbages. The land for Mangel and Cabbage is always deeply trench ploughed after being manured. The preparation for Mangel is always before Christmas. Wheat is manured for with 2 cwt. of guano and some salt when taken after Beans, Roots drawn off, or Wheat. Peas are taken after two years Italian Rye-grass. White Turnips on the light land are fed off early, and followed by either Wheat or Barley. 1400 loads of good rich manure were produced on the farm last year and applied to the soil. At present we see no mode of farming this land likely to be more remunerative than our present system Much straw is used as food cut into fine chaff and mixed with pulped roots, ground corn, Rape, Linseed or Cotton-cake, malt combs, and bran. Our farm horses have all their food prepared and comminuted. They are rarely turned out, except sometimes at night during harvest.

The practice on my farm is based upon the theory that the growth of corn and other agricultural products is made to depend upon the making of meat. There is a great advantage in this system, for when corn is at a low average price I sell it to my live stock, and thus increase my store of manure, and, *pro tanto*, prevent overstocking the corn market. Last year, when Revett Wheat was only 36*s.* per qr., or 1*s.* per stone of 14 lb., I ground it up for my bullocks, mixed with other substances. This year, with the same Wheat selling at 55*s.* per qr., I sell it to the miller or factor, because, meat being rather cheaper than last year, it would not answer at such an improved price to consume it. The same remark holds good for Barley. We invariably consume all our Beans and Oats—sell them, in fact, to our stock. This high system of farming keeps the land always ready for a good breadth of Wheat when it is dear, and forces maximum crops at all times. I entirely dissent from the modern theory that we must make meat only and depend on foreigners for our Wheat. On the contrary, I grow more Wheat and make more meat concurrently. This I have proved to be a sound and profitable practice.

The foregoing live stock balance-sheets confirm, in a remarkable degree, my celebrated live stock balance-sheet that created such a furor in 1851 (see p. 188 of my book); they prove that if you charge the live stock account with the cost of green and root crops, attendance, labour, interest of capital, rent for shelter, in addition to the purchased food (as was all done in the 1851 balance-sheet), the live stock accounts will show a considerable loss. In the present balance-sheet these expenses are charged in the general farm account. That live stock account was almost as favourable as my recent ones, taking into account the enormous quantity of purchased food. The wisdom of those large investments in purchased food is confirmed by the very much greater consequent yield of every crop.

SOLAR RADIATION IN RELATION TO CROPS.

[The following address was given the other day by the Marquis of Tweeddale, before the Scottish Meteorological Society.]

THIS subject has at different times, and in all countries, engaged the most serious consideration of philosophers, who have all treated it in a purely scientific and theoretical manner. They do not seem to have been possessed of any series of observations such as I should wish to see recorded, and I have been unable to find that much practical benefit has been derived from their researches. In the "Encyclopædia Metropolitana" it is said "that to accomplish an analysis of all the complicated phenomena of the atmosphere into simple and original principles ought to be the aim and object of the philosopher; but to proceed with success, it is necessary to have certain facts before we begin to reason, and to avoid generalising in every instance until we have completely secured the ground we have gained." It is on this account, and because it appears to me that this Society is possessed of the best means for developing the subject, that I have introduced it, and hope that it may become an interesting branch of our proceedings. The only practical result which has hitherto attended the investigations on this subject is the discovery that the rays of the sun, transmitted through glasses of different colours, produce very marked differences in the vegetation of seeds and the subsequent growth of the plants. Thus it was found by Mr. Hunt, an acknowledged authority on this subject, that blue, indigo, and violet rays are the most active in producing the germination of seeds and assisting the young plant up to the perfect development of its first leaves. After that period these rays become too exciting, producing the same effects on plants as pure oxygen gas would on animals. They induce rapid growth, and the leaves of the plant assume a healthful colour, but the perfect development of its parts is prevented, and the flowering and fruit-bearing processes are checked—in many cases destroyed—the plant perishing rapidly after a certain period of its growth. Mr. Hunt also found that with orange and yellow rays, seeds would not germinate, and that for the proper ripening of grain and fruits red rays were necessary. This discovery has been of great use to horticulturists and to seed merchants, as they are enabled in a rapid and satisfactory manner to test the vitality of their seeds and to ascertain their commercial value. Another result of Mr. Hunt's discovery was the glazing of the Palm-house at Kew with glass of a green tint, which prevents the sun's rays scorching the leaves of the plants, without interfering with their growth. I made similar experiments myself in 1852, and to the same effect. It is a fact well known to all practical men that the seed of plants will vegetate in the dark, provided the necessary heat and moisture are supplied, and that the plants will continue to grow in the dark for a short time, though in a sickly state. Plants placed in a spot shaded from the sun's rays will grow luxuriantly under the influence of light, heat, and moisture up to a certain stage, but unless they are exposed to the direct rays of the sun they will not produce ripened seed. If these rays are temporarily obstructed in any way, so will the seed produced by the plants be deteriorated in quantity and quality. Light alone, without sunshine, will not cause a plant to produce ripened seed. The period when sunshine is absolutely necessary is at the time of flowering—if at this stage the weather is dull and cloudy, an inferior yield of grain is certain to follow. During the development of the seed, although sunshine is preferred, still it does not seem to be so essential, but immediately preceding harvest, sunshine is again required for the proper maturing of the grain. Wheat is found to require more sunshine for its proper development than any other grain; Barley next, and Oats least of all. Experience has taught farmers that grain grown under the shade of trees, or on steep land having a northern exposure, is always of inferior quality, and never fully ripened, from want of the direct action of the sun's rays. The greater amount of rain and cloud in Ayrshire than in East Lothian (obstructing the sun and absorbing its heat) is supposed to be the cause of the superiority of the grain grown in the latter county. The thermometric observations published by the Society show that the mean temperature of Ayrshire is at least equal to that of East Lothian, the effects of the Gulf Stream keeping up the temperature on the west coast of Scotland. Grasses and all other succulent plants on pasture lands, which are not required to produce seed, and which do not, therefore, require so much sunshine, grow more luxuriantly on the west coast than on the east. In some seasons the excess of sunshine and want of moisture on the east coast causes these plants to ripen and produce seed prematurely. In the county of Fife it is found that grain grown at equal elevations with East Lothian will not ripen properly, nor be of such good quality, and this is attributed to the want of sunshine, it being observed that very frequently when the sun is shining in East Lothian, it is obscured by clouds in Fife. I think Mr. Russell, Pilmuir, will corroborate me in this. The thermometric observations recorded by this Society are taken from instruments placed in the shade, and therefore in a light in which it is known that plants will not produce and ripen their seed. It therefore appears to me to be well worthy the serious consideration of this Society whether we should not extend our observations to thermometers placed in the open air and fully exposed to the sun's rays, as well as to take note of the exact duration of sunshine and cloud. Such information seems to me to be essentially necessary before any exact conclusions can be formed on the subject or any practical benefit derived from its discussion. We have between 70 and 80 observers in various parts of Scotland, men of ability and experience in the duties they have to perform, and who will willingly carry out any instructions they may receive from the men of science of whom this Society is composed. In the absence of facts, I can only venture to offer a few suggestions for carrying out the object under discussion. 1st, It is necessary to ascertain whether, while Wheat can be grown on the east coast of Scotland of good quality, it can be grown on the west coast of the same quality, or what is the real difference between them. 2d. Having ascertained this, we ought to ascertain the daily average temperature of the two localities and the average temperature of the soil, on drained or undrained land,

at a depth where the roots of the plants lodge, in both cases below the surface, and at certain selected points in each locality, the average temperature shown by thermometers exposed to the direct rays of the sun. On both coasts the soil on which the Wheat is planted must be as nearly as possible of the same quality and culture. The results of these observations must be tested, not by the return of grain alone, the amount and quality of the farina and gluten in the flour must be taken into account, as well as the quality and chemical composition of the straw. 3d. The same experiments should be made, on a small scale, in those parts of a field that are shaded by a plantation with those that are not. In this case it will be essential to find out, in the first place, whether there is any difference in the temperature of the atmosphere in the shaded or in that of the exposed part of the field, and to make allowance (if it exists) in calculating the effect produced by the direct rays of the sun either on the quantity or quality of the grain. From the time the Wheat is sown (say in spring) till it is cut, an observation should be made, at least twice each day, of the difference between the exposed and the shaded thermometers, and the result tested in the same way as the first observation. An experiment on a small scale would be of little value to establish the point, and any such arrangement as would shut out, from a mere patch of growing corn, the direct rays of the sun, would otherwise so hamper and interfere with it as to make it no true experiment. But under the head of experiments something might be done to determine—1st, What portion of the value of the sun's direct rays is due to heat, and what to light; and 2d, Whether the heat is of value as applied to the roots in the soil, or to its stimulating effects on the plant above ground. Perhaps the first object could only be gained by growing Wheat under glass, one house freely to transmit the light, the other to have the glass to some extent obscured. The second object could be gained by comparing the product of two patches in a field, one of which should be exposed to the sun's rays, and the other in a shaded part, but to which latter heat should be artificially given to the roots. I think you will agree with me that the details of this subject, from its novelty, had better be left to the Council ultimately to deal with. I have endeavoured to show that there are no facts to guide us, the result of experience—that instruments in new forms and in new positions in relation to the standing crops, are necessary for making correct observations; and that it will require the united experience and scientific attainments of the members of the Meteorological Society to lay down a definite plan for attaining our object. Besides the observations of the temperature of the atmosphere as affected by the sun's rays, it appears to me that it would be of great consequence to know the effect of the sun's rays on the temperature of the soil at different depths, and to have these observations taken in soil under crops of corn, Turnips, and Grass, note being taken of the nature of the soil, whether drained or undrained, and the depth to which it has been cultivated for the reception of the roots of the plants, as well as the kind of manure employed. Perhaps it may be considered that I have introduced points of inquiry which are scarcely within the province of a Meteorological Society, but to some extent they undoubtedly are so; and I have no doubt that the co-operation of the Highland and Agricultural Society of Scotland could be obtained to assist us, if necessary.

Dr. KEITH JOHNSTON moved a vote of thanks to the noble Chairman for his address. He remarked that the Marquis of Tweeddale had introduced a question of great importance to the Society, and through the Society to the country; that he had opened up a subject hitherto obscured by darkness, and paved the way to what might lead to a great increase of our agricultural produce.

Professor BALFOUR seconded the motion, and pointed out, as an inducement to follow up this branch of science, the results of late discoveries of the action of the sun upon plant life. He hoped the Society would take the matter up and prosecute it to a successful issue.

Professor WILSON said that if the experiments theoretically made were carried to a practical test, the agriculturists of Great Britain would be greatly indebted to the Society.

Mr. RUSSELL likewise was convinced that useful results might be attained if the inquiry was carried out.

Mr. HOPE said he would not like to say much on the subject, as he was a stranger to its scientific bearings; but in practice he knew they required the rays of the sun in order to have a good crop of grain. He had always found that sunshine before harvest was of the utmost consequence, for if they had cloudy weather they had always an inferior crop. At the same time, a considerable degree depended on the state of the atmosphere, for in a very dry season the grain was often inferior.

Mr. HOME thought that vapour had a great deal to do with the matter. In cold northern countries, where there was less vapour to absorb the sun's rays, Wheat and other plants ripened more quickly than in warmer latitudes.

Home Correspondence.

Steam Cultivation by Companies.—In your replies to correspondents on Jan. 12, I find you have honoured me with the title of secretary to a Steam Plough Company, a title which however I have never been in a position to claim, not having been able ever to get a company to back me up, for when I purchased my two double-engine sets of tackle three years and a half ago, it was quite enough to do to find people in this neighbourhood with sufficient faith in steam cultivation to employ them, to say nothing of investing money in their purchase. I don't know however that I have much cause to regret this, for according to the published accounts of the different companies, by the time all the working expenses are paid, and the 10 per cent. put by for wear and tear, there does not appear to be very much to divide between the secretary, directors, and shareholders; and having now had some considerable experience in letting out steam ploughs, I am come to the conclusion that it is a business which never ought to be in the hands of a company at all, though a private individual might do very well at it, and for this reason, that from the very nature of the investment the shares are taken up by large farmers living perhaps 20 or 30 miles apart—and these are the directors, who must be served first—and probably these all want serving at once, just after harvest, when the tackle is occupied in travelling from one director to another full half its time, and must leave a quantity of profitable work on its road. This is one of the great reasons why companies don't pay; another is, that "what is everybody's business is nobody's;" therefore the tackle often goes to places where it never ought to go, hindering a great deal of valuable time, and causing many expensive breakages. Whereas a private individual like myself has no one to consider but his own interest; and my tackle never goes past work, nor moves two miles when there is work to be had within one. Nevertheless I don't wish it to be understood that I consider mine the best managed set of tackle in the country, for having a good deal of business to attend to that takes me much away from home, besides occupying two farms 25 miles apart, I have never been able to give that strict personal superintendence that is absolutely required to ensure perfect success; but still I am very well satisfied that any private energetic individual who would devote his time and capital entirely to letting out steam tackle, might show a dividend treble in amount to what any of the companies have done yet; and notwithstanding that your constant correspondent, Mr. W. Smith, of Woolston, considerately warned me in one of your Papers in the autumn of 1865, "to take care of my halfpence, as letting out steam ploughs had done up the contractor before now." I have not found it necessary to squeak yet, and in conclusion, if your correspondent has any idea of starting a Steam Plough Company, my advice to him would be to be his own company, and he will find that there might be many worse investments than buying a set of Fowler's double-engine tackle to let out for hire. *Joseph Nicholls, Drainage Engineer and Contractor, Queen Camel, Somerset.*

Rats and Mice.—These little animals are often most destructive pests upon our farms, and very little is either said or written about them. If more interest was excited, either by the pen, or otherwise, more care would be taken to keep these vermin under or rid the farm entirely of them. The rat-tribe is much more easily got rid of than the mouse colonies. Their habits are very peculiar. They occasionally come and go, no one knows how. I have experienced this upon my own farm. By care and perseverance they have been destroyed or banished altogether, and their runs and burrows have been broken up and rendered desolate and unattractive. After the lapse of a few years, some two or three fresh comers have been noticed, and as these were only occasionally seen, they were not molested for a short time. Within a few months the premises have been overrun with them, and it has taken years to be wholly rid again. When once they succeed in gaining a footing under stacks, barn-floors, or permanent buildings, they are dislodged with great trouble and difficulty. The rat-catcher is the best remedy; poison is both dangerous and uncertain. To be constantly harassing and destroying them is the only sure way of a full riddance. Those not destroyed become disturbed and alarmed, and before long will take their departure to some more comfortable quarters. They should be constantly hunted by ferrets, their runs in the ground should be saturated with tar or lime-water, or be made otherwise uncomfortable; their runs about the buildings should be smeared with tar or other noxious ingredients. They are cleanly creatures and cannot abide such a persevering system of annoyance, and therefore quit their usurped homes. Everything should be done that good judgment dictates to make their return as miserable and uncomfortable as possible. My own barn has a deep coating of rubble, mixed with glass around the foundation, which has for more than 20 years prevented any burrowing there, and as soon as any of these audacious gentry make their appearance we take good care they shall not have much rest; believing this, that if left awhile in quiet they soon attract plenty of their fellows. With great care and persevering annoyance no farm need be pestered with rats. *Mice.*—These are such pretty little animals it seems a pity to destroy them so recklessly, but really they are so numerous and destructive that all pity for them has long died away, and few animals have fewer friends. Dogs, cats, poultry, birds, weazels, rats, &c., are all enemies to the poor little mouse, and far more destructive to them than the farmer's wife with her numerous traps. The increase of these little things is astonishing. If only a pair or two succeed in getting into a Wheat stack built upon safety hovels, they will often do great injury by their extensive breeds and feeding; but in stacks built upon the ground, with free access, their numbers and destruction they make is often deplorable. I have seen stacks so thoroughly eaten through that the workmen at threshing day has sunk deep in amongst what should have been sheaves, but were all eaten to a kind of powder and chaff. They are far more injurious to corn stacks than rats, and no ferret hunting or ordinary means can be used to destroy them—hence the chief resort has been to poison. This mode of destroying mice has become a business; numbers of men travel the country with mice poison to dress stacks with it, or place it dexterously and subtilely in poor mouse's way, so temptingly that his destruction is sure; strychnine, phosphorus, and arsenic being the chief ingredients. If the stack-dresser is clever at his business, it is marvellous what havoc his poison makes with the little creatures. Frequently upon threshing none are to be found alive, but vast numbers dead. Great care of the poultry is required for a short time after the stacks are dressed. Many mice either fall from the stacks dead or creep out to die. Poultry are very fond of them, and often eat them to their own destruction. *O. F.*

Bread without Yeast.—To every half-quartern of flour add one teaspoonful of carbonate of soda and half a teaspoonful of salt; mix all together; then, to the water sufficient to make a dough, add half a teaspoonful of tartaric acid; put into the oven at once. This makes beautiful sweet bread, but the question is—is it wholesome? *Laura.* [Perfectly.]

Societies.

ROYAL AGRICULTURAL OF ENGLAND.

MONTHLY COUNCIL: *Wednesday, February* 6.—Present, Mr. Thompson, President, in the Chair, Earl Cathcart, the Earl of Powis, the Earl of Shrewsbury and Talbot, Lord Berners, Lord Chesham, Lord Tredegar, Major-General the Hon. A. N. Hood, Sir Massey Lopes, Bart., M.P.; Sir A. K. Macdonald, Bart.; Sir T. Western, Bart., M.P.; Mr. Bowly, Mr. Cantrell, Colonel Challoner, Mr. Davies, Mr. Druce, Mr. Brandreth Gibbs, Mr. Holland, M.P.; Mr. Hornsby, Colonel Kingscote, M.P.; Mr. Milward, Mr. Pain, Mr. Randell, Mr. Read, M.P.; Mr. Rigden, Mr. Sanday, Mr. Shuttleworth, Mr. R. Smith, Mr. Torr, Major Wilson, Mr. Jacob Wilson, Mr. Frere, and Dr. Voelcker.

The following New Members were elected:—

Clarke, John, The Roos, Saffron Walden
Hall-Dare, Robert Westley, Newtonbarry House, Ireland
Harrison, Daniel, Kendal
Kingsbury, E. W., 38, Bryanston Street, London, W.
Leamon, Robert, Whitwell, Reepham, Norfolk
Marshall, William Francis, Branston, Lincoln
Martin, James, Wainfleet, Lincolnshire
Miles, Joseph Trueman, Husband's Bosworth, Rugby
Nixey, Wm. George, Upton Court Farm, Slough
Oldfield, Edward, Fouldon, Northwold, Brandon
Rammell, Wm. Lake, Sturry Court, Canterbury
Raynbird, William, Hengrave, Bury St. Edmund's
Rivington, Harry, College Farm, Cirencester
Rust, Edward, Cleveden College, Northampton
Willson, Thomas, Knaptoft Hall, Rugby

On the motion of the President, seconded by Major-General the Hon. A. N. Hood, his Grace the Duke of Devonshire was unanimously elected a Member of Council, in the room of Sir Edward Kerrison, elected a Vice President.

FINANCES.—Major-General the Hon. A. N. Hood, Chairman of the Finance Committee, presented the Report, from which it appeared that the Secretary's receipts during the past two months had been examined by the Committee and by Messrs. Quilter, Ball, & Co., the Society's accountants, and were found correct. The balance in the hands of the bankers on January 31 was 1,446*l.* 3*s.* 10*d.* The balance-sheet for the quarter ended December 31, 1866, and the statement of subscriptions and arrears, were laid upon the table; the amount of arrears then due being 1293*l.* Two hundred and three members have given notice during the past year of their withdrawal from the Society.

JOURNAL.—Mr. Thompson, Chairman, reported that in consequence of the unfavourable character of the autumn and winter, the inspection of Steam Cultivation has been so much delayed that it will not be possible to have the reports ready for insertion in the next Journal if published in February. The Committee recommended that the Weekly Councils before Easter, at which there shall be discussions or lectures, shall be Wednesday, the 27th February; Wednesday, 20th March; and Wednesday, 10th April; and that Professor Simonds be requested to open the discussion on the 27th February, by reading a paper "On some of the Causes which produce Disarrangement of the Digestive Organs in young Sheep." This report was adopted.

BURY ST. EDMUND'S MEETING.—The Earl of Powis stated that Mr. Randell and Mr. Torr had been requested to correspond with the local secretary as to details of forage and straw required; also respecting corn for threshing. The Committee recommended that the President be requested to write to the Chairman of the Great Eastern Railway Company, to urge the immediate formation of the siding on to the ground, as otherwise the contractor will be much inconvenienced. The Secretary had been directed to write to the bandmasters of the Coldstream Guards and of the Royal Artillery, to inquire as to the probable cost of a military band for the showyard. Mr. Clay, the local secretary, had reported that Mr. W. N. King, East Barton, Bury St. Edmund's, had been appointed Steward of Forage. The plan of boxes for ponies, by subdividing the ordinary sheds, was approved. This report was adopted.

SHOW YARD CONTRACT.—In consequence of the illness of Mr. Pollard, the Committee recommend that the contract entered into with him both for show-yard works and portable buildings be transferred to Mr. Penny, and an agreement has been accordingly prepared for the due fulfilment by Mr. Penny of those contracts, with security to the amount of 1000*l.* The only changes being a provision that a portion of the work shall be completed by the 30th April instead of 31st May, and that the payments on account be also brought forward.

That the horse ring have a post and single rail fence round it.

That in order to indicate the several classes of horses and the number of the animals to which premiums have been awarded, as was done at the Show of the Yorkshire Agricultural Society, Mr. Parrington, the secretary of that Society, be requested to procure a set of numbers for the Royal Society similar to those in use at York last August.

That the Secretary apply to Mr. Edgington for a royal standard, to be fixed over the main entrances.

That the seal of the Society be this day affixed to the agreement above referred to.

This report was adopted, and the common seal of the

Society was then affixed to the agreement by the Secretary.

STEAM CULTIVATION.—Mr. Thompson stated that the Committee have to report that notwithstanding the unfavourable weather the inspection of steam cultivation is nearly completed.

Mr. Howard Reed and his coadjutors, Mr. Hemsley and Mr. Hicken, have inspected 28 farms, at a cost of 225*l.* 3*s.* 5*d.*, and this report is now in the printer's hands.

Mr. J. A. Clarke and his colleagues, Mr. Leeds and Mr. Nicholson, have visited 50 farms, for the sum of 277*l.* 10*s.*, and Mr. Coleman, with Mr. Thompson (Badminton), and Mr. Turnbull, have completed one short round of visits, and hope to complete their final one next week.

It is expected that all the reports will be in the Society's hands by the end of this month, and that the cost of this inquiry will not materially exceed 600*l.* irrespective of the reports, which will probably not fall far short of 200*l.* more, against which will have to be placed the ordinary charge for providing an equal number of sheets of matter for the Journal, which would cost fully that sum.

This report was adopted.

POULTRY SHOW.—Major-General the Hon. A. N. Hood reported the recommendation of the Committee that a sum of 209*l.* be devoted to this portion of the prize sheet, which has been prepared by W. W. Baily, of Mount Street, and adopted with some few alterations. The pens should consist of one cock and one hen, one drake and one duck, or one gander and one goose. The rules should remain the same as on the Chester prize sheet. If birds be intended for sale, the price to be stated on the certificate of entry. A charge of 10 per cent. will be made for all birds sold. The Committee recommended that the pens of the Ipswich Poultry Society be hired if they would adapt a fastening to them. This report was adopted.

Announcement of the decease of the Marquis of Exeter, K.G., a vice-president of the Society, and of Sir John Villiers Shelley, Bart., a trustee, having been made, notice was given that elections of Governors to fill these vacancies would take place at the Monthly Council in March.

MEETING OF 1868.—The district comprising the counties of Derby, Leicester, Lincoln, Nottingham, and Rutland having been selected, it was resolved that copies of the Country Meeting Queries be sent to the authorities of Derby, Leicester, Lincoln, Nottingham, and of any other town in the district that might apply to the Secretary.

COUNTRY MEETING QUERIES.—Mr. Brandreth Gibbs stated that the Committee recommended that the queries be adapted to the year 1868, and to add "as to making roads up to the entrances, &c., if required." To omit the queries "as to rooms for meeting, &c., these not being required." To add a query, "asking if authorities will provide horses and drivers for the trials of implements, the Society paying the men's wages and the keep of the horses;" and to ask for 20 acres of light land instead of 25. To omit all the queries for medium land, and to ask for heavy land to the extent of 100 acres instead of 15, one-half of this to be in Clover lea. To insert a query as to the supply of water for the steam cultivators. This report was adopted.

The Council having resolved itself into a Committee on the Cattle Plague, it was resolved that a letter be written to the Privy Council, requesting that the prohibition to import Dutch hay may be made absolute so long as the Cattle Plague exists in Holland.

CENTRAL: *Feb.* 4.—*Road Reform.*—At the first meeting of the season, Mr. Little, of Chippenham, President for the year, in the chair, Sir G. Jenkinson, Bart., of Eastwood Park, Gloucester, read a paper on this subject, from which we make the following extracts: He said:—It appears that two committees of the House of Commons, one in 1836, and the other in 1864, have inquired into the subject of the abolition of turnpikes all over England; and they seem to have reported that in their opinion it would be greatly for the advantage of the community if turnpikes were abolished throughout the country. The next phase of the subject was connected with a circular issued by the late Government in the month of February, 1866, just a year ago. That circular was to the effect that it was proposed to discontinue the Acts of all those trusts which were free from debt, and that information was required from the trustees in such cases, tending to show whether or not there were any special circumstances which should induce the Government to maintain the Acts instead of discontinuing them. Now, that circular was the first thing that set me to work on this question. It appeared to me, from circumstances which came to my knowledge, that a very great injustice was about to be done to certain parishes, which would still have the expense of maintaining roads, by the abolition of the turnpikes, and by the maintenance of turnpikes in adjacent trusts. As all of you who are familiar with the practical working of the roads must be aware, it is the practice of hauliers and carters to go miles round, in order to avoid a turnpike; and therefore, though to persons living in London, and having no local knowledge of the working of the system, it might seem a simple matter of justice that when a trust debt has ceased the Act should cease also, in point of fact there are many parishes in which the result of discontinuing the tolls would be to inflict great injustice on many parishes. Take, for example, the case of a parish which abounds in limestone or marl. If the tolls be removed in such parishes the traffic will be taken off the roads of the adjacent parishes where tolls still exist. Persons will poach, as it were, on the roads of parishes which are free from tolls, thereby not only inflicting great damage on those roads, but diminishing the amount received for tolls in the adjacent parishes, and proportionately diminishing the power of those parishes to pay off their trust debt. That is an evil which struck me very forcibly when I was first led to apply my mind to this subject a year ago. It occurred to me, therefore, to give a notice of motion on the subject for the Quarter Sessions of the county in which I reside, namely, Gloucestershire. Twelve months since I gave notice to this effect, that I would at the Quarter Sessions in the succeeding April call the attention of the court to the proposed abolition of tolls in certain parishes, and that I would ask the magistrates of the county of Gloucester to express their opinion by a memorial to the Secretary of State for the Home Department, that looking to the probability of turnpike trusts being partially abolished in some parishes, the fairest and most equitable mode of maintaining the public roads of the country would be by a general county rate in every county. Now, that proposal of mine that the roads should be maintained by a general county rate has not exactly met with general approval; and I feel bound to say that the arguments which have been used in opposition to it have so far affected the opinion which I first held as to have modified it, but only to this extent, that whereas I see a strong opinion very generally prevailing that the Consolidated Fund should take upon itself a portion of the debt—that was, in the first instance, very much my own opinion, though I did not venture to express it publicly. Ultimately the result was the unanimous adoption, by the Court of Quarter Sessions of Gloucestershire, of a memorial to this effect, to the Principal Secretary of State for the Home Department: "It was moved by the Right Hon. the Earl of Ellenborough, seconded by the Right Hon. the Earl of Ducie (Lord-Lieutenant), and unanimously agreed, that the following memorial be presented to Her Majesty's Principal Secretary of State for the Home Department: That the Court, taking into consideration the grievances arising out of the present management of the roads throughout England, and the expenses about to be thrown upon certain parishes by the immediate and partial abolition of tolls in particular districts, earnestly presses upon the Government the expediency of taking into their early consideration the whole subject, with the view of submitting to Parliament a system which, without injustice to existing rights, may provide for general relief from tolls." That was the result of my motion before the court of Quarter Sessions for Gloucestershire. I am happy to think, gentlemen, that from that time to this, the ball which I humbly set rolling has not been allowed to remain stationary. The question has been taken up by many Chambers of Agriculture, Farmers' Clubs, and Unions. I will now, for the purpose of discussion this evening, divide the matter into different heads. The first point which seems to me to claim your attention is the origin and purpose of turnpike-roads. Secondly, we shall have to consider the advantages derived from the creation of turnpike-roads by the various interests of this kingdom; thirdly, the expense of maintaining turnpike-roads in repair, and of the extra money required to pay for the establishments for that purpose under the existing system, and also for the payment of the trust boards and debts; fourthly, the necessity for the total abolition of tolls and the reasons for such necessity in view of the altered state of traffic; fifthly—and this is the keystone of the subject to be considered,—the payment of the remaining portion of the debt; and, sixthly and lastly, the best plan that can be adopted for the maintenance of the roads in an equitable and efficient manner after the tolls shall have been abolished. [Of these we refer this week to the 2d, 3d, and 6th.]

2. The Advantages derived from the Creation of Turnpike Roads by the various interests of the Kingdom.—

I think that the interests benefited by the creation of these roads may be divided into three classes—imperial and national interests, the interests of towns, and the interests of the land. As to the imperial and national view of the question, I would ask, first of all, what has the imperial or national interest ever contributed towards the expenses of maintaining the great arterial roads of the kingdom? In olden times the royal journeys were all performed upon these roads; everything appertaining to royalty always passed toll-free. Whether it was his Majesty's coach of state, or whether it was his Majesty's mail, whether conveyed by four horses or by one, everything connected with royalty passed free. There can be no doubt that without these main roads royalty could not have travelled from one end of the kingdom to the other in the way that it did travel, and in a way that all loyal subjects must have wished that it should travel. With regard also to the transmission of the mails along the roads, we all know that they were always transmitted toll-free. We all know, too, that one of the principal objects of the creation of turnpike roads was the transmission of mails, this being an object in which all the subjects of the realm were interested; and it may fairly be argued that the interests, imperial and national, which were served by the creation of these turnpike roads were such as fairly to demand that a portion of the expense should be borne by the national exchequer. I think, therefore, it is only reasonable to say that the imperial and national interests promoted ought to be taken into account in any future consideration of the payment of the remainder of the debt. There is one other very important item connected with national and imperial interests; I refer to the movement of troops. Now, on this point I speak as one who has used these roads very much as a soldier. I have marched almost from one end of England to the other several times, both on foot and horseback. We all know that without turnpike roads the movement of troops in this country would be absolutely impossible; we also know that for various imperial purposes the movement of troops has always been a necessity, and that it might become a great and pressing necessity. And consequently the point which I wish to press upon your attention, is that the interests of the kingdom, in a national and imperial point of view, are very largely concerned in these roads, and we have a fair claim upon them for a contribution towards the payment of the remaining portion of the debt. All the objects that I have just mentioned—the royal journeys, the transmission of mails, the movement of troops—all these national purposes were accomplished over roads free of tolls; and there would not have been this travelling for royal and national purposes from one point of the kingdom to another, but for the existence of roads which were originally made by the landowners. I therefore ask why the imperial treasury did not now contribute something towards the payment of a debt which has arisen from imperial interests? The second class of interests served is that of towns. I should like to know what town can deny that it has derived benefit from the turnpike roads in its vicinity; and how can any town repudiate the obligation to contribute towards the liquidation of a debt incurred in olden times, as much for the benefit of towns as for that of any other portion of the country? Let us imagine towns without roads to them. Why, they would become perfectly useless for want of feeders. No further argument can be required to show that towns have at all times been immensely benefited by roads; and therefore it is not from any town that we should expect to find dissent from a doctrine which I have laid down, that the imperial exchequer ought to bear its share of the expense of those roads by which towns so largely benefit. The next interest to which I shall allude is that of the land. Now I need not say to those present that the land will never shirk any duty that fairly devolves upon it. The land is that interest which cannot run away; and when there is nobody else to pay for anything, it is generally put upon land. In this case land is made to pay for the whole—for the past, present, and future maintenance of the roads. By the common law, the general charge of repairing all highways lies on the occupiers of land in the parish wherein the highways are. And not forgetting this, let me ask you also to bear in mind that turnpike roads are highways, and the parishes in which they are situate are liable to be indicted for their non-repair. The principle of the common law by which, whenever a highway was out of repair, the inhabitants of the parish were bound to reinstate it in good order, has always been, and still is, applicable to turnpike roads; and hence it will be seen that turnpike trusts, and the moneys which they raise and expend in keeping turnpike roads in good condition, were in fact established "in case and relief of parishes, and not as an absolute discharge of their liability." You will perceive then that the land is at this moment liable for the repairs of all turnpike roads, as well as of the parish highways, and that in the event of the tolls being found insufficient, it is bound to provide the money required for that purpose. Let me give an instance. The Gloucestershire Chamber of Agriculture sent a certain number of questions on this subject to individual occupiers of parishes. Among the answers received there is one from Mr. John Wells, of Hampnet, near Northleach. Besides being asked, What is the rateable value of his farm? he is asked, "What is about the average amount of tolls you pay per annum?" Answer: "25*l.* per annum, besides a contribution"—mark this, gentlemen—"besides a contribution to the turnpike-trust of 36*l.* per annum." Here we have a striking illustration of what I said just now about the land not being able to shirk its obligation in this respect. This case clearly shows that the land is primarily responsible for the repair of the turnpike roads, in addition to the highway roads. I have here (holding up a book) some very valuable statistics relating to this subject, all tending to show the liability of the land. We first got information from 20 farms in Gloucestershire; but it having been objected when I first introduced the subject at the Quarter Sessions that 20 farms afforded no criterion, we sent out the questions to no less than 253 farms, extending over 120 parishes. The total rateable value of all those farms is 84,580*l.* 4*s.* 2*d.*; the total amount of tolls paid by them is 1065*l.* 6*s.* 2*d.* The total rateable value divided by the total amount of tolls paid gives a rate of about 3¼*d.* Citing those figures, I remarked at the Quarter Sessions when the subject was last discussed that I estimated the entire amount of tolls at 50,000*l.*, adding that I thought what was paid on the average by the whole county for the roads was equal to a 7*d.* rate. At the same time I proved by figures that the whole expenditure on the roads in Gloucestershire was under 30,000*l.* per annum, showing a difference of 20,000*l.* between the amount raised and the amount expended on the roads. It showed that a 4*d.* rate, which would raise £30,000*l.* a year on the rateable value, would amply pay not only the whole expenditure for the maintenance of the turnpike roads, but also the interest on the trust debt of the county; so that the ratepayers might be benefited by the saving of at least 3*d.* in the pound. What I have thus mentioned may be taken as a fair criterion of the waste of public money in Gloucestershire; and, from information which I have received, I infer that there is almost an equal amount of waste going on in almost every other county in England. The expenses of the toll-gates, the profits of lessees, and incidental charges must be much the same in all counties; and I think, therefore, great national benefit must arise from the abolition of tolls and the adoption of a fair mode of levying the cost of roads. I think that the future maintenance of turnpike roads ought to be arranged so as to be in conjunction with that of the highway roads. I think the Consolidated Fund ought to liquidate, by annuity or otherwise, the small remaining debt.

3. The Expense of Maintaining the Turnpike Roads in Repair—

As to this, and the money required to pay the establishments kept up for that purpose under the existing system, and also for the payment of the trust bonds and the trust debts, I have shown, with regard to the county of Gloucester, the difference between the amount raised annually, which is 50,000*l.*, and the amount required, which is something like 28,000*l.*; I have before assumed it to be 30,000*l.* The amount of the revenue from tolls in England was, according to the last official return, which was made in 1862, 1,429,000*l.* The number of turnpike trusts in England is about 1000. The total amount of the bonded or mortgage debt is 4,137,876*l.* But it has been stated that the amount of the debt may, in fact, be fairly reckoned at something like 3,000,000*l.*‖ For it is an obvious truth, that it is not every debt that can be reckoned at par. Now, supposing the Government were to take the burden of that 3,000,000*l.* upon itself, in the shape of an annuity of 3 per cent. for 20 years; and, remembering that these turnpike bonds were originally granted to individuals who lent their money at a high rate of interest, that they were renewed from time to time as they ran out, and that the persons who advanced money did it for a large rate of interest, and with their eyes open, well knowing that the trust was only for a limited period; I think they might well consider this a fortunate settlement of their claims. Reckoning the total debt, I say, at 3,000,000*l.*, an annuity of 3 per cent. would be something like 90,000*l.* a year. Now, I do not think 90,000*l.* a year would be a very large sum for the nation to pay for the remaining debt of these turnpike trusts, considering how very much, as I have already pointed out, imperial interests have benefited by these turnpike trusts, and that they have never contributed towards their maintenance. I think a contribution of 90,000*l.* a year for 20 years to expunge the debt, leaving the roads possibly to be maintained by the counties through which they pass, would be a fair and proper settlement; and I do not think any one could grumble at such a small boon being awarded to the landed interest throughout the country.

6. The Future Management of Turnpike Roads—

This brings me to the subject of highway boards. If my plan were adopted, it would be necessary that highway boards should be made general throughout the country; and I believe that if the management of all roads were thrown upon the

highway boards, and if their powers were so extended as to embrace all the roads in the kingdom, using the existing staff of the highway board in every county, you would save all the expenses of the turnpike-gates, the present district road surveyors—in short, all the expenses of turnpike-road machinery, amounting, in my own county, to 20,000*l.* a-year. I believed that the roads would in that case be better looked after under such a system than they were at present—that the supervision would be far more effectual. In order to carry out my suggestion there would be required an extended Highway Act following upon the entire abolition of the existing Turnpike Acts. I think that the whole county should pay for the roads of the whole county; I do not think that a certain number of parishes should pay the whole expense, while other parishes pay nothing at all. I should wish a county-rate to provide for the repair of all the roads in the county, the existing Acts being all merged in an enlarged Highway Act. With regard to the question of a county-rate being levied for the payment of all the expenses of roads within the county, the present turnpike-roads as well as the highways, some persons have thought that it would be better to impose a special tax upon hauliers and other people of that kind, who keep horses and carts for the carriage of coal, limestone, and other heavy substances. That is a proper matter for discussion; and the whole question of the best mode of maintaining roads might be safely left, I think, for the decision of a committee of the House of Commons. The resolutions which I would submit are (1) "That the abolition of turnpike-tolls would be a benefit to the community; that, being as they are, costly in collection and unequal in their pressure, they ought to be abolished; and that the abolition should be simultaneous, and not partial." (2) "That all the remaining debts should be made a charge on the Consolidated Fund, because imperial and national interests have so largely benefited by turnpike-roads, without having contributed to the cost of making them, or the annual expense of their maintenance." (3) "That the future maintenance of turnpike roads would be best effected by amalgamating them under one enlarged Highway Act, to be carried out by the existing Highway Boards, or by similar Boards to be established where necessary throughout the country; and the mode of raising the necessary funds for the extra expense thus incurred should be settled upon an equitable basis, by a Committee of the House of Commons appointed to investigate and consider the matter." These resolutions embody the substance of the changes which I have suggested; and I think that, if something of this kind were adopted by the Legislature, it would be very likely to lead to beneficial results.

Reviews.

Journal of Agriculture. Feb., 1867. 150, Fleet Street.

The agricultural character of the periodical is maintained by Mr. Ewart's article on the Permanent Improvement of Estates, and an anonymous paper on Storing of Turnips. There are besides these very interesting papers on social life a century ago in Scotland, on Shetland, on Talpicide, &c. We extract a passage from the article on Moles:—

"Hogg, the Ettrick Shepherd, was also opposed to talpicide, having observed that in lands tenanted by the moles the foot-rot in sheep was much less prevalent than where they had been extirpated. Moreover, a wealthy proprietor in our neighbourhood assured us that so convinced was he of the utility of moles that he never permitted them to be injured. All this induced us to cease following the common usage of the district. When the mole-catcher came to repeat his operations, and claim his annual allowance for the same, we astonished him not a little by offering to buy live moles, and announcing that for the future we were carefully to preserve them. The evident gain is this: for 15 years we have not paid a certain number of shillings to our itinerant trap-bearing acquaintance; we have saved the lives of we know not how many moles, which have been the death of an unknown multitude of earthworms, voracious insects and their larvæ, as well as birds, mice, snails, &c., on all of which they gluttonously feed, according to the testimony of the best writers on natural history.

"Well, mole-murder being put an end to, and the 'brutes being permitted to spread over the land,' we are bound honestly to declare that we are not aware of any damage thence ensuing. As to the common assertion of farmers, that moles frequently throw out large numbers of young Turnips by carrying their run right along the top of a drill, we can only say that we have never observed that occurrence. Our moles are not addicted to work in the line of the drill; and when they happen to take that direction, plants enough are left to insure a crop; in fact, believing that the plants are more apt to suffer from overcrowding than from being too sparse, we are disposed to maintain that a mole working along the drill would do very little harm, perhaps none at all; and assuredly none which would not be far more than compensated by the destruction of injurious insects."

Farm Memoranda.

[The following notes of a visit to a large establishment in the Seed trade may interest agricultural readers.]

MESSRS. SUTTON'S ROYAL BERKSHIRE SEED ESTABLISHMENT, READING.—The entire establishment is divided and subdivided into numerous departments, over each of which skilled foremen preside. The number of warehousemen, clerks, and others employed during the busy season is upwards of 100, and it will be seen, by referring to page 1222 of last year's volume, that the comforts of these are not overlooked. Among other advantages (which in this "pushing" age are too often forgotten), they have their Saturday half-holidays and short hours in the summer, and what is by no means unimportant, commodious and well-ventilated offices. There is also a large reading room, which is open during meal times, and after business hours, supplied with the daily papers and other periodicals, to which is attached a well-furnished library. Passing on to the executive department, it was evident that the old seed rooms had been exchanged for lofty, large, and airy new ones, since our last visit. The principal "order room," which is nearly 100 feet in length and more than 30 feet in width, is conveniently fitted up with long rows of counters and thousands of drawers, bins, and pigeon holes, labelled, and furnished with every convenience that experience could suggest. This department is exclusively devoted to the execution of garden seed orders, and from its extent and commodious arrangement we were not surprised to hear how large a number of orders are safely executed and packed in it during a single day. The system of labelling and checking every article greatly facilitates despatch. Proceeding through an extensive paper room, we come to the packing sheds and agricultural seed order department, and here we found the same precautions as we had noticed elsewhere. There was a separate division for every article, with a large ticket at the head of each sub-division; the sacks also had a label affixed to each. A memorandum showing the particular parcel of seed sent to each customer is duly entered in the warehouse book for future reference. We next came to an extensive block of buildings in the King's Road, which proved to be the warehouses for Grass seeds, Mangel Wurzel, and Turnip seeds. If at the Market Place premises we were struck with the minutiæ of detail, the magnitude of the operations here is not less remarkable. Entering a three-storied warehouse, we find it possessing the advantage of one of a five or six-storied building, without its concomitant drawbacks. For instance, after passing along what may be termed long aisles, between an avenue of sacks or bales of Grass seeds, stacked high above the head on each side, and coming, as we supposed, to the end of that particular class of seeds, it was only to find ourselves entering another compartment on the same level, but with a current of air passing directly through that portion of the building, and where might be seen the same kinds of seeds undergoing the process of cleansing, by means of the various sorts of machinery found by experience to be most adapted to the particular form of seeds requiring to be put through the process. In this way we have one floor in its two compartments, occupied chiefly with Grass seeds of both home and foreign growth; in another Turnip seeds; and in a third Mangel Wurzel; and those in stack after stack in such quantities, that we are led to inquire where they were all harvested, and upon what thousands of acres they are to find a seed-bed before many months have elapsed. In this part of the establishment the more extensive export orders are executed, and here we found a large quantity of Grass seeds packed in stout hogsheads and zinc-lined cases ready for exportation to New Zealand.

In the plant nursery is an additional house recently erected and heated with hot-water expressly for the purpose of testing the germinating powers of new seeds received from growers employed by Messrs. Sutton. We were informed that upwards of 8000 acres are in this way occupied every year with seeds for the great Reading firm; their practice being to select roots perfectly true to their kinds, from which they save seed, which choice seed is subsequently distributed among the different persons employed by them to grow the required quantities.

At the time of our visit we noticed numerous kinds of Broccoli, Cabbage, Brussels Sprouts, Winter Greens, &c., planted for trial at the sample grounds in the Kendrick Road, but perhaps the most interesting to an agriculturist was a collection of about 200 species of Grasses for permanent pasture and other purposes.

At the Manor Farm, Whitley, we also found many acres of Mangel Wurzel, Swedes, Turnips, Kohl Rabi, Drumhead Cabbage, &c., all growing in one large field, one "land" or portion of "land" being devoted to each variety of Turnip, Mangel, &c., all having been sown under similar circumstances of soil, manure, and treatment, by which means their respective merits are subsequently determined, and any improvement or any deviation from the normal form is at once detected. Here we particularly noticed Sutton's selected Yellow Globe Mangel, a variety beautiful in shape, and of extraordinary size; also, their new Yellow Intermediate Mangel, a kind remarkably free from coarse roots. Sutton's Champion Swede, an excellent and hardy sort, was also here, together with Purple-top Mammoth Turnip, a very large kind, producing a great weight per acre, and apparently a selection from the Greystone.

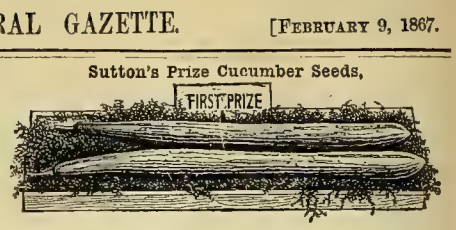
Elsewhere trial-grounds are occupied immediately the new seed is ripe for the purpose of thoroughly testing the correctness of the various sorts before sending them out to the public. The early Pea Ringleader was first tested here in conjunction with its several competitors. Here also the choice dark-red Beet known as Sutton's, the Student Parsnip, and other new and distinct vegetables and flowers, have from time to time been raised. Near this sample ground is a piece of Italian Rye-grass and Alsike Clover, sown six years ago, and occasionally renovated; together with several plots of Bromus Schraderi, sown at different times during the past 12 months. This latter plant grows here vigorously on very poor gravelly soil, and Messrs. Sutton have discovered that the great secret of success in its cultivation is constant cutting or grazing. If allowed to stand more than three or four weeks it runs to seed, and then ceases to grow; but on being cut, it immediately sprouts again, and continues growing almost throughout the winter, a great advantage in a forage plant.

Nearer the town, at Portland Place, is a considerable piece of nursery ground, on which is grown a good stock of Fruit trees, Roses, Conifers, &c., furnishing sufficient supply for a good local business, which is all that is encouraged, the chief trade of the Firm being seeds, of which enormous quantities are annually distributed throughout all parts of the world.

Notices to Correspondents.

WHEATS: *M A S.* It is a coarse brown white chaff Wheat, and may be Hallett's, but we cannot certainly say.

Sutton's Prize Cucumber Seeds,



SUTTON AND SONS can supply SEED of all the best kinds of CUCUMBERS, including Berkshire Challenge, Berkshire Champion, and many others. For List and prices of which see MESSRS. SUTTON'S CATALOGUE for 1867, which will be forwarded gratis and post free on application.
SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

Cucumber, Telegraph.

ROLLISSON'S VARIETY has been proved the best Cucumber in cultivation for Winter or Spring use, especially for growing in houses; an immense cropper, producing six at a joint, length 18 to 26 inches. In sealed packets, 2*s.* 6*d.* each. See merits of "Winter Cucumbers," in *Gardeners' Chronicle* for Jan. 12, 1867.
WILLIAM ROLLISSON & SONS, The Nurseries, Tooting, London, S.

FEARNOUGHT CABBAGE, DALMENY SPROUTS, and COTTAGERS' KALE are the hardiest and best Winter Greens. Sow in March.
SUTTON & SONS can supply the above (True), in packets at 6*d.* and 1*s.* each, Post Free.
Royal Berkshire Seed Establishment, Reading.

To Farmers, Gardeners, and Others.

EXCELLENT CABBAGE PLANTS (Stocks not to be surpassed), may be had in any quantities as follows:—
ENFIELD MARKET (cash price), 2*s.* 6*d* per 1000
THOUSAND-HEADED (cash price), 3*s.* per 1000
ROBINSON'S CHAMPION, true (cash price), 2*s.* 6*d.* per 1000
DRUMHEAD (cash price), 2*s.* 6*d.* per 1000
RED DUTCH, for Pickling (cash price), 5*s.* per 1000
(Special offers made to large purchasers).
A CATALOGUE of GENUINE NEW SEEDS, on application. A remittance or reference is requested from unknown correspondents.
FREDK. GEE, Seed Merchant and Grower, Biggleswade, Bedfordshire

To Market Gardeners and Others.

CABBAGE PLANTS.—EAST HAM, ENFIELD MARKET, ROBINSON'S DRUMHEAD. 2*s.* per 1000; RED CABBAGE PLANTS, extra fine, 4*s.* per 1000. Stock true and can be warranted, and all grown by
RICHARD WALKER, Market Gardener and Seed Grower, Biggleswade, Beds. I will challenge England with Plants. Terms cash.

THREE-YEAR ASPARAGUS PLANTS, 15*s.* per 1000, 2*s.* per 100; fine double Hollyhocks, a splendid strain, 30*s.* per 100; Box Edging, 3*s.* per doz. yards; Box Trees, 18 or 24 in., 16*s.* per 100; Kohl Rabi Seed, green, 1*s.* per lb.; White Spanish Onion Seed, 1*s.* 6*d.* per lb. Terms cash. All genuine.
R. W. can supply any Orders for Seeds at lowest possible prices.
RICHARD WALKER, Market Gardener and Seed Grower, Biggleswade, Beds.

Nuneham Park Onion.

WM. CUTBUSH AND SON have great gratification in announcing that this SUPERB NEW ONION has in every instance, where shown, obtained the first prizes, and numerous testimonials have been sent to them from various parts of the country, confirming the opinion that it is the largest and heaviest cropper of all Onions. It is also of exceedingly mild flavour, and keeps as long as any variety extant. In Sealed Packets 2*s.* 6*d.* each.
Trade price on application.
Highgate Nurseries, London, N.

HENRY'S PRIZE HYBRID LEEK.—The Largest variety in cultivation; grows 10 inches in length of blanch, and 10½ inches in circumference. Has carried off the First Prizes at the leading Shows in England and Scotland.
Sold in Sealed Packets at 1*s.* each by
DOWNIE, LAIRD, & LAING, 17, Frederick Street, Edinburgh, and Stanstead Park, Forest Hill, London, S.E.

POYNTER'S EARLIEST and BEST PEA, the hardiest and earliest out, price only 1*s.* 3*d.* per quart. See Advertisement, p. 1180 of *Gardeners' Chronicle* for 1866
To be obtained Retail in London of Messrs. Jas. Veitch & Sons, Chelsea, S.W.; and Mr. B. S. Williams, Holloway, N.; and through any Seedsman, in one quart packages only, with Trade Mark, the Crown and Royal Oak, and blue label. None other genuine.
ROBERT H. POYNTER, Seedsman, &c., Taunton, Somerset.

Garden Seeds.

CHARLES TURNER'S CATALOGUE is now ready, and may be had on application.
The Best three WRINKLED MARROW PEAS are—
LITTLE GEM, Early, 1 foot high.
ADVANCER, Second Crop.
PREMIER, Summer and Late.
See full descriptions in C. TURNER'S CATALOGUE, now ready.

SNOW'S BROCCOLI, True.
HEDSOR WINTER CUCUMBER.
BAILEY'S SUPERB CABBAGE.
All the established varieties of Vegetables from the best sources; also the Novelties in Flower Seeds.
The Royal Nurseries, Slough.

CATTELL'S ECLIPSE BROCCOLI, per ½ oz. Packet, 1*s.* 6*d.*, post free.—The hardiest and latest White Broccoli in Cultivation. Obtained the 1st Prize at the International Horticultural Exhibition, South Kensington, May, 1866. The following notice of the above is taken from the *Gardeners' Chronicle*, June 3, 1865:—"The specimens of your Eclipse Broccoli were very fine; the heads large and compact, the texture delicate, and the flavour excellent; these qualities, together with the late season at which it comes into use between the ordinary late Broccoli and Cauliflower, and its extreme hardiness, combine to make it a very useful variety." See also *Gardeners' Chronicle*, June 9, 1866, page 540:—"The heads in question were good in colour, tender, and excellent." This refers to some fine heads sent to the Editor as late as the 5th of June.
Trade prices on application.
The following Firms have already had a supply:—

Messrs. J. & C. Lee, Hammersmith
" Fisher Holmes & Co., Sheffield
" J. Veitch & Sons, Chelsea
" J. Backhouse & Son, York
" T. Kennedy & Co., Dumfries
" Barr & Sugden, 12, King Street, Covent Garden
" T. Bunyard & Sons, Maidstone
" T. Bunyard & Sons, Ashford
" W. Drummond & Son, Stirling
" Lucombe, Pince & Co., Exeter
" E. G. Henderson & Son, St. John's Wood
" T. Jackson & Son, Kingston
" Hurst & Son, 6, Leadenhall Street, London
" J. Dickson & Sons, Chester
" Stuart & Mein, Kelso
" Cooper & Bolton, 162, Fleet Street, London
" Sutton & Sons, Reading
Messrs. Hogg & Robertson, 22, Mary Street, Dublin
" Fraser, Goad, & Ratford, 82, Bishopsgate St., London
" G. Gibbs & Co., 26, Down Street, Piccadilly
" Hamilton & Wright, Croydon
" J. Garaway & Co., Bristol
Mr. Chas. Turner, Slough
" R. Parker, Tooting
" Wm. Paul, Waltham Cross
" Wm. Barnes, Camberwell
" Stephen Brown, Sudbury
" James Ricketts, Deal
" William Dillistone, Sible Hedingham [Thames
" H. McMillan, Kingston-on-
" Thos. Cripps, Tonbridge Wells
" John Farquharson, Dundalk, Ireland
" F. Darby, R. Cirencester
" John Scott, Yeovil
" J. W. Mackay, Dublin

JOHN CATTELL'S CATALOGUE of SEEDS for the KITCHEN GARDEN, FLOWER GARDEN, and FARM, may be had on application.
Address, JOHN CATTELL, Seed Grower, Westerham, Kent.

PRIZE MEDAL VEGETABLE SEEDS.

FOR ONE YEAR'S SUPPLY.—Nos. 1, 2, and 3, Carriage Free—see Terms.

No. 1 COLLECTION	£3	3	0	No. 4 COLLECTION	£1	1	0
No. 2 ,, ...	2	2	0	No. 5 ,, ...	0	15	0
No. 3 ,, ...	1	11	6	No. 6 ,, ...	0	10	6

Proportionate Collections for Larger Gardens, from £4 4s. and upwards.

I have the pleasure to state that these Collections continue to give satisfaction, as only really good productive sorts for succession are included. (For time of Sowing, Testimonials, Terms, &c., see body of Priced Descriptive Catalogue, post free on application). Should any of the following varieties not be required, others of equal value may be substituted. I would, however, advise, where a professional gardener is employed, that he should make his own selection, being better able to judge, from the nature of the soil and the wants of the family, what seeds are required to crop the garden.

For that purpose a printed Order Sheet may be had on application, by which much labour is saved in writing, and the correct execution of orders facilitated.

(For COLLECTIONS of FLOWER SEEDS, &c., *see* CATALOGUE).

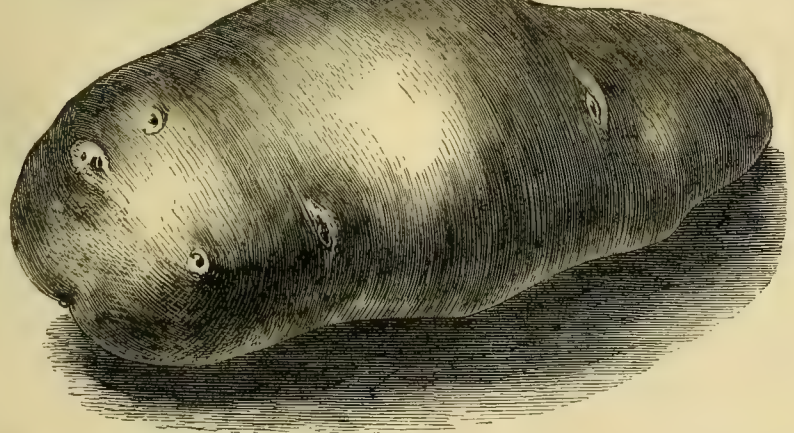
	No. 1.	No. 2.	No. 3.	No. 4.	No. 5.	No. 6.
BEANS, the best selected for succession	10 qts.	6 qts.	4 qts.	3 qts.	2 qts.	2 pts.
BEANS, KIDNEY, Dwarf and Runners	6 pts.	4 pts.	3 pts.	2 pts.	1½ pt.	1 pt.
BEET, choicest varieties	3 pkts.	2 pkts.	2 pkts.	1 pkt.	1 pkt.	1 pkt.
BORECOLE and Sprouting KALE	5 pkts.	4 pkts.	3 pkts.	2 pkts.	2 pkts.	2 pkts.
BRUSSELS SPROUTS, Imported, &c.	1 pkt.	1 pkt.	1 pkt.	1 pkt.	1 pkt.	1 pkt.
BROCCOLI, carefully selected	8 pkts.	6 pkts.	4 pkts.	3 pkts.	3 pkts.	2 pkts.
CABBAGE	8 pkts.	6 pkts.	5 pkts.	4 pkts.	3 pkts.	1 pkt.
CAPSICUM	2 pkts.	1 pkt.	1 pkt.	..	..	..
CARROT, for early use and storing	16 oz.	9 oz.	6 oz.	2½ oz.	1½ oz.	1 oz.
CAULIFLOWER, Walcheren, &c.	2 pkts.	2 pkts.	1 pkt.	1 pkt.	1 pkt.	..
CELERY, Brown's Paragon, &c.	2 pkts.	2 pkts.	2 pkts.	1 pkt.	1 pkt.	1 pkt.
COUVE TRONCHUDA, &c.	1 pkt.	1 pkt.	1 pkt.	1 pkt.	..	..
CRESS, Plain and Curled, &c.	1½ pt.	8 oz.	6 oz.	4 oz.	3 oz.	3 oz.
CORN SALAD	2 pkts.	2 pkts.	1 pkt.	1 pkt.	1 pkt.	..
CUCUMBERS, for Frame, Ridge, &c.	4 pkts.	3 pkts.	3 pkts.	2 pkts.	2 pkts.	1 pkt.
ENDIVE	2 pkts.	2 pkts.	1 pkt.	1 pkt.	1 pkt.	..
GOURD, Mixed	1 pkt.	1 pkt.	1 pkt.	1 pkt.	..	..
HERBS	8 pkts.	6 pkts.	4 pkts.	3 pkts.	2 pkts.	2 pkts.
LEEK, Sorts	2 pkts.	2 pkts.	1 pkt.	1 pkt.	1 pkt.	1 pkt.
LETTUCE, Brown's Monstrous Cos, &c.	5 pkts.	4 pkts.	3 pkts.	2 pkts.	2 pkts.	2 pkts.
MUSTARD	1 quart	1 pint	½ pint	4 oz.	2 pkts.	1 pkt.
MELON, choice varieties	3 pkts.	2 pkts.	1 pkt.	1 pkt.	..	..
ONION, for Spring and Autumn	14 oz.	8 oz.	6 oz.	3 oz.	2 oz.	1½ oz.
PARSLEY, Brown's Prize, &c.	3 oz.	2 oz.	1 oz.	1 pkt.	1 pkt.	1 pkt.
PARSNIP, Student, &c.	6 oz.	5 oz.	4 oz.	3 oz.	2 oz.	1 oz.
PEAS, the most approved for succession	21 qts.	13 qts.	10 qts.	7 qts.	4 qts.	4 pts.
RADISH, in Sorts	1½ lb.	1 lb.	8 oz.	6 oz.	4 oz.	3 oz.
RAMPION	1 pkt.	1 pkt.	1 pkt.	..	..	..
SAVOY, Sorts	3 pkts.	3 pkts.	2 pkts.	1 pkt.	1 pkt.	1 pkt.
SPINACH, for summer and winter	3 pts.	1½ pt.	6 oz.	4 oz.	3 oz.	2 oz.
SALSAFY	1 pkt.	1 pkt.	1 pkt.	..	..	..
SCORZONERA	1 pkt.	1 pkt.	1 pkt.	..	..	..
TOMATO	1 pkt.	1 pkt.	1 pkt.	1 pkt.	..	..
TURNIP, for succession crops	1 pt.	½ pt.	6 oz.	4 oz.	3 oz.	2 oz.
VEGETABLE MARROW	1 pkt.	1 pkt.	1 pkt.	1 pkt.	1 pkt.	1 pkt.

The Liverpool Horticultural Society's First Prize, for the BEST COLLECTION of VEGETABLES, has been awarded several years in succession to the produce of Seed supplied by H. B. Also, numerous First and Extra Prizes from other Societies.

H. BROWN, NURSERYMAN and SEEDSMAN, 4, COMMUTATION ROW, LIVERPOOL.

J. C. WHEELER & SON, GLOUCESTER,

HAVE MUCH PLEASURE IN CALLING ATTENTION TO THE



GLOUCESTERSHIRE KIDNEY POTATO.

A few seasons since we had the pleasure of sending out this very Early Potato—it has gained a high character as being one of the earliest Potatos in cultivation, as well as a most excellent cropper. It is so far superior to the Ashleaf Kidney that persons who have tried it greatly prefer it for a first crop. The tubers are a good size and the flavour excellent.

Price 3s. per peck.

The following are a few from the vast number of Testimonials we have received in its favour :—

"I much prefer the Gloucestershire Kidney to the Ashleaf, for although I planted the former some two or three weeks after the latter, they were fit for the table quite as soon, with at least *double the crop*; and I may add, that the Flukes were superior to any I have ever seen, both for *quantity* and *quality*."—HENRY ALLEN, *Neath Abbey*.

"I am much pleased with the Potatos. The Gloucestershire Kidney I consider to be one of the best, being early, a heavy cropper, and of first-rate quality."—THOMAS TURNER.

"The Gloucestershire Kidney I had from you was a handsome specimen; it produced a most excellent crop. They eat now as well as any late Potato grown."—T. C. ARMSTRONG, *Pinged House*.

"The Gloucestershire Kidneys I had from you were not only excellent in flavour but were also abundant croppers, and my Gardener considers they are the best early variety grown."—CHAS. ANTHONY, *Mansion House, Hereford*.

"The Gloucestershire Kidneys were excellent, and produced a large crop."—Rev. E. VAUGHAN, *Lantwit Major Vicarage*.

"The Gloucestershire Kidney gave me great satisfaction, being both early and a large cropper, entirely free from disease, and as an early Potato everything that can be desired. The Milky White is a good variety and first-class Potato; it only requires to be known to be properly appreciated."—JOHN CREED, *Whiddon*.

"I can with pleasure speak in high terms of the Gloucestershire Kidney. It is very early, a good cropper, very short in the haulm, and also very dry and mealy. I had very few diseased."—E. M. ROWLAND, *Homestay*.

"Your Gloucestershire Kidney turned out remarkably fine, large and well flavoured."—H. RICE, *Rectory, Great Rissington*.

"I have much pleasure in telling you I had an excellent crop of your Gloucestershire Kidneys. They are remarkably fine, and very good on the table."—WILLIAM SPEARING, *Kennett*.

J. C. WHEELER AND SON, SEED GROWERS, GLOUCESTER.

Potatos for Planting.

MESSRS. SUTTON'S DESCRIPTIVE LIST is now ready, and may be had gratis and post-free. Their stock of Potatos has been selected with great care, and can be relied on as perfectly true to name. Lowest price per cwt., sack, or ton, forwarded on application.

SUTTON & SONS, Seed Growers, Reading.

Seed Potatos.

H. AND F. SHARPE are now offering MYATT'S PROLIFIC KIDNEY, DAINTREE'S EARLIEST, WEBB'S IMPERIAL KIDNEY, FORTY-FOLD, FOX'S SEEDLING, EARLY OXFORD, and many other Early and Late varieties, fine in quality, free from disease, and at low prices.

Seed Growing Establishment, Wisbech, Cambridgeshire.

Seed Potatos.

GEO. SIBBALD, Drumgeith, by Dundee, N.B., has for Sale about 100 Tons of the following kinds, of his own growing. Prices on application :—EARLY DALMAHOY, DAINTREE'S EARLY, CHISWICK CLUSTER, EARLY OXFORD, EARLY RED EYES, WALKER'S REGENT, ENGLISH EMPEROR, FLUKE KIDNEY, MYATT'S PROLIFIC, and PATERSON'S EARLY RED KIDNEY.

PATERSON'S FAMED SEEDLING POTATOS.

We again offer our Seedling Potatos to the public.

PATERSON'S VICTORIA.—The demand for this Potato for seed is now so great that early applications will be necessary. It is one of the best in cultivation as a resister of disease and for its quality, and has realised in London last year 40s. per ton more than Flukes for table use. Price Lists and Testimonials to be had at

1, Union Street, Dundee, and from our Agents.

RIVERS' ASHLEAF POTATOS, 20s. per sack of 16 stone; Webb's Imperial, 17s. do.; Prince of Wales Kidney, 21s. do.; Altringham Carrot Seed, 1s. per lb.; James's Intermediate do., 1s. per lb.; Yellow Globe Mangel Seed, 6d. per lb.; Green Kohl Rabi, 1s. per lb., per cwt. 100s.; very strong 2 years Asparagus Plants, 1s. 6d. per 100, 10s. per 1000. New 4 lb. 4 bushel Sacks 1s. 6d. each. Retail Price Lists on application. Remittances to accompany orders.

CHRISTMAS QUINCEY, Seed Grower, Peterborough.

Seed Potatos.—Early Reliance.

H. MINCHIN can recommend the above POTATO as being very productive and of first-rate quality, 3s. 6d. per peck of 14 lb.

The following Testimonials are from well-known persons, who have grown it and are prepared to supply it.

"The Royal Nurseries, Slough, Oct. 12, 1866.

"DEAR SIR,—The Potato we found a very good one; as a cropper it is very good; in flavour, &c., it is a very capital variety.—Yours very truly, "CHARLES TURNER."

"I have grown your Early Reliance Potato, and I find it very prolific and of good quality.—Yours respectfully,

"JOHN JENNINGS, Nurseryman, Shipston-on-Stour."

Myatt's Prolific, Royal Ash-leaf, Gloucestershire Kidney, King of Potatos, Webb's Imperial, Fluke Kidney, Paterson's Victoria, Early Red, Regent, and Blue, and several other varieties.

PRICE LISTS on application to

H. MINCHIN, The Nurseries, Hook Norton, Oxon.

Seed Potatos.—Edgcote Second Early Kidney.

P. J. PERRY, NURSERYMAN and SEED MERCHANT, Banbury, has much pleasure in introducing the above valuable Potato, which may be described as the finest flavoured and most productive Second Early variety in cultivation.

It was raised by Mr. Neale, Gardener to Aubrey Cartwright, Esq., Edgcote House, near Banbury, by whom it was exhibited at the Royal Horticultural Society's Great Show of Fruit and Vegetables, Saturday, July 22, 1865, and was awarded First Prize in Class 7.

The *Gardeners' Chronicle*, July 29, 1865, in noticing the above Show, states:—"POTATOS: These were largely contributed, and many of them were unusually fine for the season of the year. Among Kidneys the most valuable was Edgcote Second Early, a very perfect Potato, which obtained the First Prize for a single dish."

Price per peck, including bag, 6s.

P. J. PERRY has also a limited stock of the following valuable varieties to offer :—

NE PLUS ULTRA.—The earliest Potato in cultivation.

ROYAL ALBERT.—One of the finest and most productive Early White Round Potatos known.

EARLY EMPEROR, or SOMERSET RED.—Of this Potato, Mr. Dean, of Maybush, writes, in *Gardeners' Chronicle*, October 6, 1866, p. 945:—"This may be described as one of the best Second Early Round Potatos known. It has a beautifully netted skin, boils perfectly white, and the flavour is all that can be desired," &c.

Price of the above three sorts, 5s. per peck.

The Nurseries, Banbury.

H. AND R. STIRZAKER can supply in very large quantities as follows, quality good, and prices very low :—ALDER, ASH, BIRCH, BEECH, ELM, CHESTNUT (Horse and Spanish), HAZEL, LARCH, OAK (English and Turkey), POPLAR (Ontario and Black Italian), PRIVET (Evergreen, 1½ to 3 feet), SPRUCE FIR, SILVER FIR, SYCAMORE, WILLOWS, THORNS, YEW (English), splendid stuff, in sizes of 1, 2, 3, 4 feet, and upwards. Special quotations for free delivery on application.

Skerton Nurseries, Lancaster.

TRANSPLANTED FOREST TREES.

Alder, 3 to 4 feet and 4 to 6 feet	Hazel, 2 to 3 feet and 3 to 4 feet
Ash, 3 to 5 feet	Larch, 2 to 3 feet, 3 to 4 feet, and 4 to 5 feet
Birch, 2 to 3 feet, 3 to 4 feet, and 4 to 5 feet	Pinus austriaca, 1½ to 2 feet

The above are stout and well rooted. Samples, with prices, delivered free at the nearest Railway Stations, may be had on application to WATERER & GODFREY, Knap Hill Nursery, Woking, Surrey.

Huntingdon Nurseries.

WOOD AND INGRAM offer the following at extremely moderate rates, according to the quantity taken :—

ASH, 2-yr. Seedling, and in Drills, 1½ to 2 feet
BLACKTHORN, 1-yr., fine
CHESTNUT, HORSE, 1-yr., and 6 to 8 feet, transplanted
ELMS, NARROW-LEAVED ENGLISH, 2 and 3-yr. Seedling and transplanted, 1½ to 2 feet
FIR, SPRUCE, 1 to 1½, 1½ to 2, 2 to 3, and 3 to 4 feet
FIR, WHITE and BLACK AMERICAN, 2 to 3, 3 to 4, 4 to 5, and 5 to 6 feet
FIR, BALM of GILEAD, 1½ to 2, and 2 to 3 feet
FIR, WEYMOUTH PINE, 2 to 2½, 4 to 5, and 5 to 6 feet
HAZEL, 1½ to 2, and 2 to 2½ feet
GORSE, 1-yr. Seedling
HOLLY, 3-yr. bedded, transplanted, 6 to 9 inches, 9 to 12 inches, 1 to 1½, 1½ to 2, and 2 to 2½ feet
HOLLY, VARIEGATED, 6 to 9, and 9 to 12 inches
MAPLE, COMMON, 1½ to 2 and 2 to 2½ feet
MAPLE, COMMON, 1-yr. Seedling, extra fine
JUNIPERS, 2½ to 3, 3 to 3½, 3½ to 4, & 4 to 5 ft.; extra fine, and bushy
OAKS, 2-yr. Seedling, and drills, 2 to 3 and 3 to 4 feet
OAKS, TURKEY, 2-yr. Seedling, fine
POPLAR, BLACK ITALIAN, 2 to 3, 3 to 4, 5 to 6, 6 to 7, & 8 to 10 ft.
POPLAR, ONTARIO or AMERICAN, 2 to 3 and 12 to 16 feet
WHITE THORN QUICK, 3-yr. Seedling
ARBORVITÆ, AMERICAN, 1½ to 3½ feet
ARBORVITÆ LOBBII, extra fine specimens, 3 to 7 feet
ARBORVITÆ, SIBERIAN, 1 to 1½, 1½ to 2, 2 to 2½, and 3 feet
AUCUBA JAPONICA, extra fine hardy specimens, 1 to 1½, 1½ to 2, 2 to 2½ and 3 feet
BEECH, PURPLE and COPPER, 5 to 6, and 6 to 8 feet
BERBERIS DULCIS, 1 to 2, and 3 to 4 feet
BERBERIS AQUIFOLIUM, 1 to 1½, 1½ to 2, and 2 to 2½ feet
CUPRESSUS LAWSONIANA, very fine, 3 to 4, and 4 to 6 feet
CUPRESSUS MACROCARPA, potted, 2 to 3, and 3 to 4 feet
LAUREL, COMMON, 1 to 1½ and 2 feet
LAUREL, PORTUGAL, very fine, 1 to 4 feet
PLANE, ORIENTAL, 2 to 3, 4, and 5 feet; extra, 9 to 10 feet
PLANE, OCCIDENTAL, 3 to 4, 5 to 6, 6 to 7, and 8 to 9 feet
YUCCA RECURVA, fine specimens, 1½ to 2½ feet
ROBINIA INERMIS, fine Standards, 6 to 7 feet stems
WILLOW, WEEPING, 6 to 7 feet, and fine Standards.

N.B. CATALOGUES sent free on application.

True English Elms,

SUITABLE FOR AVENUE AND HEDGE ROW PLANTING.

P. J. PERRY, NURSERYMAN, Banbury, having a large Stock of the above, will be pleased to furnish size and price per 100 or 1000 on application.

The Nurseries, Banbury.

EVERGREENS, for immediate effect, perfectly uninjured by the late severe weather, consisting of 50,000 LAURELS, 2 to 5 feet; 20,000 LAURUSTINUS, 1 to 3 feet; 10,000 BAYS, 1 to 5 feet; 10,000 TREE BOX, 1 to 3 feet; and several Thousands of EVERGREEN OAK; also a fine lot of SPRUCE FIR, 3 to 5 feet. The whole of the above in fine stout, good-rooted plants.

Purchasers of large quantities for Cash will be most liberally treated with. Price, with samples, may be had on application to R. GADD & SON, Salvington Nurseries, near Worthing.

FIVE HUNDRED THOUSAND SPRUCE FIR, 1½ to 2 feet, and 2 to 3 feet, twice and thrice Transplanted, for Coverts and Plantations.

500,000 LARCH, 2 to 3 feet, and 3 to 4 feet (some are twice Transplanted), very strong, with good leads.

500,000 very strong QUICKWOOD, 3, 4, and 5-yr. Transplanted.

WM. JACKSON & Co., Nurserymen, Bedale, Yorks, have the above, of excellent quality, to offer at very moderate prices, which will be sent on application. The Larches escaped the Spring frosts of last year, and are very fine.

300,000 Hazel, Transplanted.

J. SCOTT, Merriott, Somerset, has the above to offer, in fine condition, 2 to 2½ ft., 25s.; 2½ to 3 ft., 27s. 6d.; 3 to 3½ ft., 30s.; 3½ to 4 ft., 35s.; 4 to 5 ft., 40s. per 1000.

FOREST TREES, twice and thrice Transplanted, in all sizes. Catalogues gratis.

CEDRUS DEODARA, 3 to 4 ft., 4 to 5 ft., 5 to 6 ft., and 6 to 7 ft., from 30s. to 60s. per dozen.

GREEN HOLLIES, 20,000 well-rooted, from 2 to 3 ft., and from 30s. to 40s. per 100.

FRUIT TREES, in 2000 sorts, and in all manner of training. The most complete collection in England.

A 92-page CATALOGUE, with large Supplement full of Fruit Tree information.

Tansley Nurseries, near Matlock, Derbyshire.

JOSEPH SMITH, SEN., invites Planters and the Trade to inspect his Nursery of 80 Acres of high land. The soil is of a fibrous nature, and the Plants take up with excellent roots, such as to ensure the best success in their removal.

The Nursery contains many Hundred Thousands of RHODODENDRONS, COMMON and PORTUGAL LAURELS, BOX, BROOMS, BERBERIS, HOLLIES, PRIVETS, YEWS, &c. The FOREST TREES are very extensive, of all the leading kinds; there are 15 Acres of LARCHES, of different sizes, and all others in proportion. Prices moderate, which can be had on application as above.

Game Covert, Forest Planting, &c.

JAMES SMITH offers the following:—The RHODODENDRONS are fine bushy well-rooted Plants, fit either for Woods or Pleasure Grounds; the LARCH are fine stout Plants, better cannot be grown; also PRIVETS, LAURELS, BERBERIS (in sorts), SCOTCH, SPRUCE, and SILVER FIRS, ASH, OAKS, BEECH, BIRCH, PINUS AUSTRIACA, &c., all strong well-rooted plants, a PRICED CATALOGUE of which will be forwarded on application.

LARCH, good stout plants, per 1000:—1½ to 2 feet, 14s.; 2 to 3 feet, 16s.; 2½ to 3½ feet, 18s.; 3 to 4 feet, 20s.

RHODODENDRON PONTICUM, bushy, well-rooted plants, 6 to 12 inches, 105s. per 1000.

Do. do., 9 to 15 inches, 18s. per 100; 160s. per 1000; per 10,000, £79.
Do. do., 1 to 1½ foot, 23s. per 100; 220s. per 1000; per 10,000, £105.
Do. do., 1½ to 2 feet, 30s. per 100; 290s. per 1000.
Do. HYBRIDUM, 6 to 12 ins., 30s. per 100; 290s. per 100.

Price to the Trade on application.

JAMES SMITH, Darley Dale Nurseries, near Matlock.

W. VIRGO AND SON having a large Stock of the following, can offer them at very low prices:—

FOREST TREES.

Alder, 3 to 5 feet, extra strong	Fir, Scotch, 1½ to 2 ft., extra fine
Ash, 18 inches to 2 feet	,, Spruce, 3 to 4 feet, extra fine
Beech, 2 to 3 feet, very good	,, Larch, 2, 3, & 4 ft., extra fine
Berberis dulcis, 2 to 3 feet	Hazel, 2½ to 3½ feet, extra fine
,, Aquifolium, 1 to 1½ foot	Holly, Green, 1½ to 2 feet, bushy
Chestnut, Horse, 2 to 4 feet, and 5 to 6 feet	Laurel, Common, 2½ to 3 ft., bushy
,, Spanish, 2 to 3 feet	,, Portugal, 3 to 4 ft. ex. bushy
	Privet, 2 to 3 feet, extra bushy

Strong CATTLE CABBAGE PLANTS.
Strong MANETTI STOCKS.

FRUIT TREES.

Apples, Standards and Dwarfs, very strong
Cherries, Dwarfs and Dwarf-trained, extra fine
Peaches, Dwarfs and Dwarf-trained, extra fine
Pears, Standards and Dwarfs, extra fine
Plums, Standards and Dwarfs, extra fine
Nectarines, Dwarfs and Dwarf-trained, extra fine
Kentish Filberts, 4 to 5 feet, extra fine
Crab Stocks, 2 years Seedlings

PRICED LIST or samples on application at The Nursery, Woneish, near Guildford, Surrey.

Guaranteed of the Finest Quality.

CHARLES NOBLE offers the following HALF-MILLION PLANTS to the notice of purchasers. They must be cleared by April to make room for other stocks. Prices, on application, will be found lower than ever before offered for the same quality.

200,000 1-yr. SPANISH CHESTNUTS, fine.
20,000 1-yr. TURKEY OAKS, fine.
150,000 1-yr. THORNS, fine.
5,000 2-yr. BERBERIS JAPONICA.
50,000 MANETTI STOCKS, very fine.
20,000 DEUTZIA CRENATA FLORE PLENO.
15,000 ERICA HERBACEA.
10,000 SPRUCE FIRS, 1½ to 3 feet.
3,000 ARUNDO CONSPICUA.
3,000 PICEA NORDMANNIANA, 1½ to 3 feet.
10,000 RHODODENDRON PONTICUM, 15 to 20 inches, and as far through.
20,000 finest named RHODODENDRONS.
10,000 HYBRID PERPETUAL ROSES, the finest kinds known, and supposed to be the finest plants in the trade.
1,500 DWARF MAIDEN PEACHES and NECTARINES, particularly fine and well-grown.
500 GRAPE VINES, Hamburgh and other kinds, from Eyes, ripe, close-jointed wood; very fine indeed.

Special quotations for large quantities.

TRADE and RETAIL CATALOGUES free on application.

Bagshot, February 9.

Forest Trees and Cover.

JOSEPH SMITH, JUN., has to offer at very moderate prices TRANSPLANTED ASH, ALDER, BIRCH, HORSE CHESTNUT, ELM, broad and narrow-leaved; SILVER and SCOTCH FIRS, WHITE AMERICAN SPRUCE, HAZEL, OAK, POPLAR, PRIVET, WEYMOUTH and AUSTRIAN PINES, THORN QUICKS, HUNTINGDON and DUTCH WILLOWS, LARCH, good stout plants, 1½ to 2 feet, 12s.; 2 to 2½ feet, 13s.; 2 to 3 feet, 14s.; and 3 to 4 feet, 16s. per 1000. NORWAY SPRUCE FIR, 6 to 9 inches, 6s.; 9 to 12 inches, 9s.; 1 to 1½ feet, 14s.; 1½ to 2 feet, 21s.; and 2 to 2½ feet, 30s. per 1000. COTONEASTER MICROPHYLLA, 1 to 1½ feet, 20s. per 1000; 1½ to 2 feet. RIBES in sorts, 2 to 3 ft., 20s. per 1000. SNOWBERRY, 2 to 3 ft., 20s. per 1000. BROOM, White and Yellow, transplanted, 15s. per 1000. LAURELS, BERBERIS, ARBOR-VITÆ, &c., Seedling ASH, CRAB, SPANISH CHESTNUT, SPRUCE, 3 and 4 years; ELM, 2 years, £5 per 100,000. OAKS, 1 and 2 years; OAK, EVERGREEN, 1 year; PRIVET, 1 and 2 years; SYCAMORE. RHODODENDRON PONTICUM, 2 years, 6s.; 4 years, 8s. per 1000; 3 years, and 1 year transplanted, 18s.; 3 years, and 2 years transplanted, 25s.; 6 to 9 inches, 50s.; and 9 to 12 inches, 60s. per 1000. Twice-transplanted, and bushy, 4 to 8 inches, 70s.; 8 to 12 inches, 95s.; 9 to 15 inches, 140s.; 1 to 1½ feet, 180s.; and 1½ to 2 feet, 260s. per 1000.

A PRICED LIST forwarded on application. Price to the Trade on application.

JOSEPH SMITH, Jun., Moor Edge Nursery, Tansley, near Matlock, Derbyshire.

To the Trade—Contractors and Builders.

ONE HUNDRED THOUSAND COMMON LAURELS, fine bushy plants, from 3 to 7 feet high; good for Blinds, particularly for newly laid-out Grounds and Buildings. These Laurels are very fine, and have not suffered from the frost.

Also 5,000,000 of Two-year SEEDLING ASH and CHESTNUTS, ROSES, and other varieties of Shrubs.

ABEL FAIRALL, Stanhope Nursery, Westerham Hill, Kent.

Very Early Sheep Feed.

SUTTON'S IMPROVED ITALIAN RYE-GRASS.—This "Improved" Italian Rye-grass is recommended in preference to every other variety, producing three or four heavy crops in one summer, and being almost if not strictly perennial.

At a Meeting of the Royal Agricultural Society, on March 16, in a Lecture delivered by Alfred Hughes, Esq., late of Thorness, Isle of Wight, Mr. Hughes said:—

"I always reserve a portion of Oat land to lay down with SUTTON'S Improved Italian Rye-grass, the most reliable plant I have come across for some years for Ewes and Lambs in the Spring. When I tell you that I put it in in the spring, and dressed it after harvest with guano, and that in the autumn, when my Sheep fed it off, it was up to their knees, and that I fed it off again this spring with Ewes and Lambs, I think you will agree that this is a crop of very great value. The Italian Rye-grass which is sold by SUTTON, of Reading, is a most astonishing vigorous plant; indeed, I never saw anything to equal it in the course of all my experience."

SUTTON & SONS have a fine stock of their Improved Italian Rye-grass, which is a very different and superior article to much that is sold as Italian Rye-grass.

Present price 6s. 6d. per bushel, cheaper in quantities over 5 qrs. Carriage-free in quantities of 8 bushels and upwards.

Quantity required per acre, if sown alone, 3 bushels.

Royal Berkshire Seed Establishment, Reading.

SELECTED SILVER SAND, PEAT SOIL, LOAM, Sandstone, Garden Pots, Vases, Tazzas, Figures, Gravel, Garden Implements, and Materials of all kinds for Sale in any quantities. By Railway, Canal, and Ship to all parts of the United Kingdom.

W. SHORT, Horticultural Depôt, Reigate, Surrey.

Vineries and Orchards.

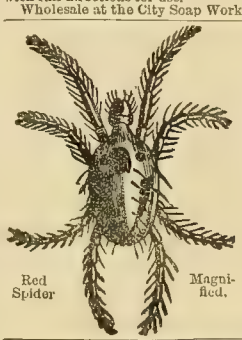
GREAT VALUE of "APHIS WASH."

"AT the first opportunity Paint the Trees with a solution of 'APHIS WASH,' prepared at the City Soap Works; it not only destroys the Brown Aphis which infests Peach Trees, but also Scale, and every other pest capable of lodging in the bark."—Extract from *Gardeners' Magazine*, January 5, 1867.

"For strengthening the growth and effectually destroying all forms of blight, the 'Aphis Wash' supersedes every other preparation."—See *Gardeners' Chronicle*, August 19, 1865; and *Gardeners' Magazine*, July 1, 1865.

Sold by Chemists and others, in 1s. bottles, and 2s. 6d. a gallon, with full directions for use.

Wholesale at the City Soap Works, Milton Street, London, E.C.



Red Spider — Magnified.

GISHURST COMPOUND, whether used against Insects and Mildew, on Growing Plants, or as Winter Dressing on Trees at rest, should be dissolved 48 hours before use. This gets rid of smell, and if the Solution be decanted, prevents any staining of foliage. A strength of from 1 to 2 oz. to the gallon of water is recommended for growing Plants; one from 4 to 16 oz. for Trees at rest.

Sold Retail by Nurserymen and Seedsmen, in boxes, 1s., 3s., and 10s. 6d. each.

Wholesale by PRICE'S PATENT CANDLE COMPANY (LIMITED).

By Royal Appointment

TO HER MAJESTY, By Special Warrant, dated December 27, 1865.

TO THE PRINCE OF WALES, By Special Warrant, dated February 10, 1866.

DAY, SON, AND HEWITT, Original and Sole Proprietors of the STOCK-BREEDERS' MEDICINE CHEST, for DISORDERS in HORSES, CATTLE, CALVES, SHEEP, and LAMBS.

Patronised by upwards of Seventy Thousand of the principal Stock Breeders, Horse Proprietors, and Agriculturists of England, Ireland, Scotland, and Wales.

The only True and Original "DAY'S CHEMICAL COMPOUNDS" are prepared expressly by us. The Chest contains the following matchless preparations:—

Half a Dozen CHEMICAL EXTRACT, at 30s. per dozen.
One Dozen GASEOUS FLUID, at 20s. per dozen.
One Dozen RED DRENCHES, at 13s. per dozen.
One Dozen RED PASTE BALLS, at 7s. 6d. per dozen.

Adapted for all ailments among Stock during the present season. Price of Chest complete, with Shilling Book on Farriery, £2 16s. 6d., carriage paid. Either preparation may be had separately in boxes.

TESTIMONIALS.

The Lambing Season.—The "Chemical Extract" is unequalled for bad cases in drawing Lambs, and to stop heaving and straining. Mr. Woods, in his Lecture on the "Breeding and Management of Sheep," says—"My shepherd declares it to be worth a guinea a bottle."

The "Gaseous Fluid" is famous for debility and exhaustion in Ewes after Lambing; for diarrhœa in Calves and Sheep, and for colic and gripes in Horses and Cattle. Mr. Bowick, in his prize essay on the "Rearing of Calves," says—"The Gaseous Fluid is sufficient for all the ills that Calfhood is liable to. I have reared 26 calves this year, and by the use of the 'Gaseous Fluid,' I have not lost one." Mr. Thos. Rigby (Cheshire), in his Lecture on "Summer Grazing of Sheep," says—"Day, Son, & Hewitt's Gaseous Fluid is the best corrective of scour in Sheep I have ever tried. I can strongly recommend their 'Medicine Chest' as a most valuable auxiliary to stock-keepers of all kinds, but especially to shepherds. With the medicines they give plain directions for use, which any man may understand."

Orders sent by Post will be promptly attended to if addressed—DAY, SON, & HEWITT, Animal Medicine Factory, 22, Dorset Street, Baker Street, London, W.; or Wantage, Berks.

"Woods on Sheep," five stamps; "Bowick on Calves," three tamps, both free by post.

Fumigate your Greenhouse with TOBACCO TISSUE.

—Will Destroy all the Insects and not Injure the Plants; is entirely free from paper or rag, and will burn without blowing.

Price 3s. 6d. per lb., carriage free. To be had of Messrs. ROBERTS & SONS, Tobacco Manufacturers, 54, St. John Street, Clerkenwell, E.C., and of all Seedsmen and Nurserymen

JOHN WARNER AND SONS, 8, Crescent, Cripplegate, London, E.C., BELL and BRASS FOUNDERS to HER MAJESTY.



No. 35.

PATENT CAST-IRON PUMP, fitted with J. W. & Sons' Metal Bucket and Valve, which cannot clog in action, for Wells not exceeding 25 feet.

Diam.	Height.	£	s.	d.
2½ in. short	1 ft. 7 in.	1	1	0
2½ in. long	3 ft. 3 in.	1	8	6
3 in. long	3 ft. 6 in.	2	1	0
3½ in. long	3 ft. 6 in.	2	6	0
4 in. long	3 ft. 6 in.	2	14	0
2½ in. short, with 15 feet of lead pipe attached, ready for fixing		2	0	0
2 in. long, do. do.		2	14	0

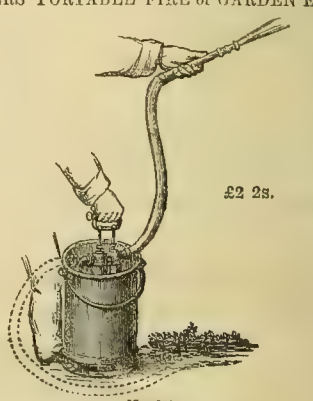
Price of 4½-inch Liquid Manure Pump, with legs, £2 15s.; 2-inch Flexible Rubber and Canvas Suction Pipe, 2s. 6d. per foot. The Barrel is 27½ inches long, and the legs are 3 feet high.



No. 42.

IMPROVED LIQUID MANURE or GENERAL PORTABLE PUMP.—These Pumps are fitted with J. W. & Sons' Patent Bucket and Valve and cannot clog in action. The Barrel is made of Galvanised Iron, not likely to corrode, and can be raised or lowered at pleasure on the stand, the legs of which fold together, and it may be carried with ease by one man to tank or pond.

WARNERS' PORTABLE FIRE or GARDEN ENGINE.



£2 2s.

No. 568½.

For use by one Person .. .. price £2 2s.
No. 547B, ditto ditto, on Wheels .. .. „ £2 10s.

The above are complete in themselves, and may be always kept filled with water, and ready for use.

Letter to The Times, *July* 23, 1866, *from* Earl ESSEX.

A REAL FIRE EXTINGUISHER.

To the Editor of The Times.

"SIR,—I feel sure you will kindly allot a small space in the *Times* to these few lines, as the best medium through which I would urge every householder who dreads fire to have on each floor of his house one or more small Garden or other Engines on wheels, always charged and in good order, in case of fire.

"Last night, just as I was going to bed, I was startled by that most fearful of all cries, 'Fire, fire!' I soon learned that a fire was raging in a large two-windowed unoccupied bedroom. How caused is to us all a great mystery. It is my custom to keep one of these small Engines on each floor. In two minutes I was in the room with one of them. It was like a furnace. The curtains, shutters, casements, and cornices of both windows were burning and cracking from floor to ceiling. I was quite alone at the moment, yet before assistance arrived (most of the servants having gone to bed), I had completely subdued the fire of one window without exhausting the Engine, and when assistance and more water did arrive, we very soon extinguished the other.

"So fierce was the fire that the lead of the casements was melted, and the casements themselves were burnt off their hinges.

"I will only add, that by God's mercy, the house was saved by this small Engine. Had it not been at hand and in order, most assuredly Cassiobury would be now a heap of ruins.—Yours faithfully,

"Cassiobury, Watford, July 20. "ESSEX.

"The Engine, even when full, runs so light on the floor, that any woman might draw it, and also work it."

LOCK'S PATENT POTASH MANURES.

TRADE LOCK'S POTASH MANURE MARK.

This is the only "*perfect*" MANURE ever yet offered to the Agricultural Public, containing, as it does, that most *important element* of every cultivated plant—POTASH. It is far superior in efficiency to Peruvian or any other Guano, as it supplies EVERY *constituent requisite for each* SPECIAL *Crop.*

Each Manure is specially prepared for the Crop for which it is intended, and is sold in Bags containing the necessary Dressing for *One Acre.*

The WHEAT, BARLEY, and OAT MANURE will effectually PREVENT the LODGING of the Corn, so frequent on lands deficient in Silica.

The CLOVER MANURE is a CERTAIN CURE for CLOVER SICKNESS, so prevalent in some Counties.

The GRASS MANURE contains an abundance of SILICATE of POTASH, which is by far the *predominating element* in all GRASSES, and which has never before been offered for Sale by any Manufacturer.

For full particulars see Circulars, for which apply to the

SOUTH of ENGLAND MANURE COMPANY, LIMITED, REDBRIDGE, HAMPSHIRE,

who are the SOLE MANUFACTURERS.

*** AGENTS WANTED for the UNITED KINGDOM.

HOT-WATER APPARATUS, of every description, fixed complete in any part of the country, or the materials, viz., Boilers, Pipes, &c., delivered to any Station.
Estimates on application.
J. JONES & SONS, 6, Bankside, Southwark, London, S.E.

Heating by Hot Water.

W. J. HOLLANDS, IRON MERCHANT, 31, Bankside, London, S.E.
HOT WATER PIPES, from Stock, per yard:—2-inch, 1s. 2d.; 3-inch, 1s. 10d.; and 4-inch, 2s. 4d. BENDS, from Stock, 1s. 6d., 2s. 6d., and 3s. each. THROTTLE VALVES, 10s., 13s., and 14s. each. Other Connexions at equally low prices, and all goods of first-class manufacture. Estimates given, and orders by post punctually attended to the same day.

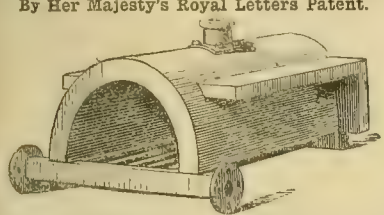
JAMES WATTS AND CO., HOTHOUSE BUILDERS and HOT-WATER APPARATUS MANUFACTURERS, 353, Old Kent Road, S.E.
TWO HUNDRED CUCUMBER and MELON BOXES and LIGHTS, and from 400 to 500 LIGHTS for PITS of all SIZES kept in STOCK. Glazed and Painted complete, ready for immediate use. Packed and sent to all parts of the Kingdom. Public and Private Buildings, Warehouses, &c., Heated on the most approved scientific and economical principles. References to the Nobility, Gentry, and Trade in most of the Counties in England.

COTTAM AND COMPANY,
CONSERVATORY and HOTHOUSE BUILDERS, &c.,
Iron Works, 2, Winsley Street, Oxford Street, London, W.
SADDLE BOILERS.
20 24 30 inches long.
45s. 65s. 92s. 6d. each.
HOT-WATER PIPES.
2 3 4 inch.
1s. 6d. 2s. 1d. 2s. 9d. per yard.
Materials supplied as above, or Estimates given fixed complete to Plan, on application to
COTTAM & Co.,
Iron Works,
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COIL CASE

HOT WATER APPARATUS

By Her Majesty's Royal Letters Patent.



THE TERMINAL SADDLE BOILER proves itself to be equal to any form now in use for economy and power; while the simplicity of its construction gives it the advantage over all others. See testimonials.
J. IRELAND, Edward Street, Broughton Lane, Manchester.
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CRANSTON'S PATENT BUILDINGS for HORTICULTURE.
"Dry Glazing without Putty."
"Glass without Laps."
"Ventilation without Moving Lights."
Highly Commended by the Royal Horticultural Society, South Kensington.



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GREENHOUSES, 42 feet by 13 feet wide, £30; 21 feet by 13 feet wide, £28; 12½ feet by 10 feet wide, £15, glazed ready for fixing. ORCHARD-HOUSES, 10 per cent. cheaper. A handsome CONSERVATORY, 36 feet by 19 feet, £120. Estimates for any branch in Iron or Wood.
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GREENHOUSES, Span or Lean-to, Ornamental or Plain, always in Stock, Glazed with 21-oz., and Painted ready for Fixing. To be seen erected.

Span-roof, plain, 20 feet 9 inches long, by 13 feet wide..	£31	0	0
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Also a Lean-to, 23 ft. long by 12 ft. 6 in. wide, plain ..	34	0	0
A ditto, same size, ornamental	39	0	0
Also, a Lean-to 19 feet long by 10 feet 9 inches wide ..	22	0	0
A ditto 28 feet long by 10 feet 9 inches wide	32	0	0

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CLAYTON, SHUTTLEWORTH AND CO., ENGINEERS, Manufacturers of Portable and Fixed Steam Engines, Machinery for Pumping, Hoisting, Grinding, Sawing, &c.; Engines for Steam Cultivation, Self-moving Engines for Common Roads and Agricultural Purposes generally.
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Caution to Gardeners.—When you ask for SAYNOR AND COOKE'S WARRANTED PRIZE PRUNING and BUDDING KNIVES, see that you get them. Observe the mark SAYNOR, also the corporate mark OBTAIN WARRANTED, without which none are genuine.
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The Best English Watches.

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TO H.R.H. THE PRINCESS OF WALES.

GLENFIELD STARCH,
EXCLUSIVELY USED IN THE ROYAL LAUNDRY,
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It is made simply by pouring boiling water or milk on the Preparation as sold. ¼ lb., ½ lb., and 1 lb. Packets.

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STRONG BLACK TEAS, 1s 6d., 2s., 2s. 4d.
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PHILLIPS & Co., Tea Merchants, 8, King William Street, City, London, E.C.
Rare choice genuine COFFEE, 1s. 4d. per lb.
A Price Current post free. Sugars at Market prices.
PHILLIPS & Co. have no Agents.
PHILLIPS & C[o] and all Goods carriage free by their own Vans, within eight m[iles] [No.] 8, King William Street, City; and send Teas, Coffees, and [Sugars] carriage free, to any Railway Station or Market Town in the [Kingdom], if to the value of 40s. or upwards.

TO P[arents] and GUARDIANS.—The return of You[ng Ladies] spective Boarding Schools induces a solicitude for thei[r] comfort and attraction, and ROWLANDS' MACAS[SAR] or accelerating the growth and improving and beautif[y] ROWLANDS' KALYDOR, for improving the skin a[nd] and removing cutaneous eruptions, and ROWLAN[DS'] or Pearl Dentifrice, for rendering the Teeth beaut[iful] d preserving the gums, are considered indispe[nsable] ents.
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GREY DORKING FOWLS, of purest breed, in any numbers.
Imported TOULOUSE GEESE, the largest and most productive breed known.
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TO BE SOLD, the Entire STOCK in TRADE and GOODWILL of an old Established Provincial Concern. Average Sales for the last few years about £8000 per annum. A first-rate opportunity for two or three practical Young Men.
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Sales by Auction.

SALE THIS DAY, AT HALF-PAST TWELVE O'CLOCK.

Consignment of Roses and Fruit Trees from France.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., THIS DAY, SATURDAY, at half-past 12 o'Clock precisely, 2500 DWARF and STANDARD ROSES, 1500 PYRAMID and DWARF FRUIT TREES, RASPBERRY CANES, CURRANTS, HARDY SHRUBS, DUTCH BULBS for Spring Planting, RUSTIC SEATS and VASES, ORNAMENTAL WIRE-WORK, &c.
On view the Morning of Sale, and Catalogues had.

Orchids and Seeds.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on TUESDAY, February 12, at half-past 12 o'Clock precisely, a quantity of choice imported ORCHIDS from New Granada and other parts, and about 100 lots of HARDY CONIFEROUS SEEDS.
On view the Morning of Sale, and Catalogues had.

Hardy Plants and Bulbs.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, February 13, at half-past 12 o'Clock precisely, a fine lot of Dwarf-trained FRUIT TREES, Dwarf ROSES, LAURELS, RHODODENDRONS, HOLLIES, VINCAS, FILBERTS, RUSTIC SEATS, VASES and STOOLS, WIRE BASKETS, and a quantity of BULBS for spring planting.
On view the Morning of Sale, and Catalogues had.

Consignment of Plants from Ghent.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on SATURDAY, February 16, at half-past 12 o'Clock precisely, a consignment of choice CAMELLIAS, AZALEAS, RHODODENDRONS, LILIUMS, ROSES, and a variety of other Plants from one of the first Nurseries in Ghent.
On view the Morning of Sale, and Catalogues had.

Lilium auratum—Several Thousand Imported Bulbs.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, February 21, an immense number of fine BULBS of LILIUM AURATUM.
On view the Morning of Sale, and Catalogues had.

Sale of very handsome English-grown Camellias, &c.

MESSRS. PROTHEROE and MORRIS will SELL by AUCTION, at 38 & 39, Gracechurch Street, City, E.C., on THURSDAY, Feb. 28, at 1 o'Clock precisely, about 200 Choice DOUBLE CAMELLIAS, beautiful compact plants, 1 to 5 feet, abundantly furnished with bloom buds; fine AZALEA INDICA; a superb assortment of about 300 very handsome STANDARD and DWARF ROSES, including the best varieties in cultivation; choice hardy AMERICAN PLANTS, comprising Ghent and other Azaleas, Hybrid Rhododendrons, Kalmias, Andromedas, &c.; some fine Bulbs of LILIUM AURATUM, LANCIFOLIUM RUBRUM, ALBUM and PUNCTATUM; ERICAS, EPACRIS, &c.
May be viewed the Morning of Sale. Catalogues may be had at the City Auction Rooms, as above; or of the Auctioneers and Valuers, American Nurseries, Leytonstone, Essex, N.E.

Ramsgate.

PRELIMINARY NOTICE OF A VERY IMPORTANT AND EXTENSIVE SALE OF VALUABLE NURSERY STOCK.

MESSRS. PROTHEROE AND MORRIS have received instructions from Mr. James Turrell to SELL by AUCTION on the Premises, Providence Nursery, High Street, Ramsgate, close to the Railway Station, on MONDAY, March 4, and following days, at 11 o'Clock each day, without the least reserve, the ground being immediately required for Building purposes, the whole of the Valuable NURSERY STOCK, including thousands of fine Evergreen Conifers and Deciduous Shrubs, Standard and Dwarf Roses, Ornamental Fruit and Forest Trees, a quantity of Box edging. Full particulars of this extensive stock will be given in future Advertisements. Lots will be arranged to suit private Buyers as well as the Trade.
May be viewed any day prior to the Sale. Catalogues may be had, 6d. each, returnable to purchasers, on the premises; of the principal Seedsmen in London; and of the Auctioneers and Valuers, American Nurseries, Leytonstone, Essex.

Wavertree, near Liverpool.

CLEARANCE SALE OF NURSERY STOCK, CHOICE GREENHOUSE PLANTS, GREENHOUSES, &c.

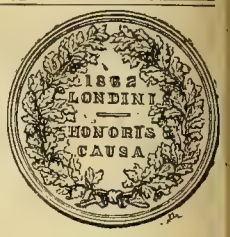
MESSRS. PROTHEROE AND MORRIS are directed by Mr. Isaac Davies to SELL by AUCTION, on the Premises, Larkfield Nursery, Wavertree, near Liverpool, on TUESDAY, March 12, and following day, at 11 o'Clock each day, without reserve, the Lease having expired, necessitating an immediate clearance, the whole of the Valuable NURSERY STOCK, comprising about 5000 best worked Hollies, 10,000 Rhododendron, including 1200 R. præcox (so highly and justly esteemed for its profuse flowering habit) and other leading kinds, 1500 Hardy and Ghent Azaleas, a large variety of Evergreen Coniferæ and Deciduous Shrubs, Ornamental Forest and Fruit Trees, Climbers in Pots; also a choice Collection of Greenhouse Plants, comprising 1500 Azalea indica, 400 Ericas, Acacias, Cyclamen, Cytisus, &c., together with Three newly-erected GREENHOUSES, Pits, Boxes, Seed Drawers, Seeds, and numerous other items, which will be more fully detailed in future advertisements.
May be viewed, and Catalogues, when ready, may be had on the Premises, and of the Auctioneers and Valuers, Leytonstone, Essex.



HOTHOUSES FOR THE MILLION,

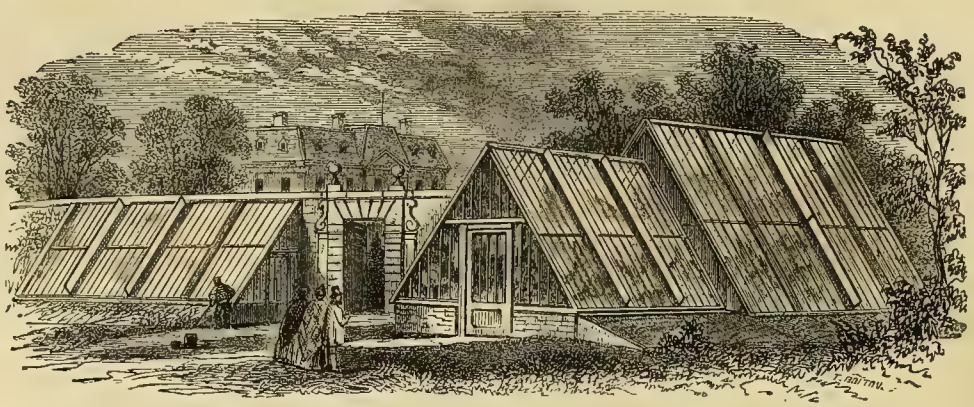
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"Without any pretence to high finish or elaborate workmanship, which in such structures represent a mere waste of money, they are perfectly well made. Their arrangement is as simple as ingenuity can render them. No rafters obscure the light and make them cumbrous. No sashes have to be pushed up or let down by ever-breaking lines and weights, or by expensive mechanical contrivances; and yet all the ventilation requisite in such buildings is as perfectly secured."—*Dr. Lindley in* "THE GARDENERS' CHRONICLE," *July 28th*, 1860.

"Nothing can be more easy than to build them, nothing more simple than to remove them."—*Daily News, May* 22, 1862.

RECENT TESTIMONIALS.

"Newton Nurseries, Chester, January 20, 1865.

"Sirs,—The 'Span-roofed House' you sent us is ALL WE COULD WISH, and suits us very well. We do not grow Grapes, and therefore cannot speak as to its efficiency in fruit growing, though we see nothing in the formation of the house to lead us to fear it would not grow anything as well as a 'Lean-to Roof.' * * * The House came to us in perfect order, and not a pane broken, and was at once put up and at work.—Yours, &c.,

"MESSRS. S. HEREMAN & Co." "JAMES DICKSON & SONS."

"Kingfield House, Carlisle, January 27, 1866.

"Gentlemen,—I am glad to say the Vinery gives great satisfaction, has been very successful, and gave extraordinary good crops for the last three seasons, and *each* of the last two crops I am sure would pay for the house. I must also add that the quality of wood and workmanship was far above my expectations.—I am, &c.,

"MESSRS. HEREMAN & Co." "MARTIN SUTHERLAND [Gardener to J. Ewart, Esq.]."

"Killarney Gardens, February 1, 1866.

"Gentlemen,—I have pleasure in giving you my report in favour of your excellent Hothouses.

"In the range erected January, 1865, I had fine Peaches and Nectarines last August, and my trees have every appearance of an abundant crop this year. With the new sashes you lately supplied, the range is now 232 feet in length, and I consider it a most useful addition to these gardens. Your Houses have many advantages; they are light in appearance, and effectually exclude wet with the small slips; the ventilation is excellent, and readily opened with the machinery. They are easily erected and very cheap, and have given perfect satisfaction. I shall feel a pleasure in recommending them.—I am, &c.,

"MESSRS. HEREMAN & MORTON." "GEORGE BREEZE [Gardener to Viscount Castlerosse]."

"Wickham Court, Bromley, Kent, June 30, 1866.

"Colonel FARNABY LENNARD begs to inform MESSRS. HEREMAN & MORTON that the Lean-to Houses put up by them, answer very well,—they are used as Vineries and Peach Houses."

"2, Old Palace Yard, S.W., July 2, 1866.

"Sirs,—In reply to your enquiry I have great pleasure in stating that the Glass House you erected for me about three years ago, answers its purpose admirably. It is nearly 90 feet long—divided in half by a glass partition—one end is warmed and used as a Vinery, the other end is used as an Orchard House. The apparatus for opening the ventilators acts very well in every respect, and saves the time of the gardeners.—Yours faithfully,

"MESSRS. HEREMAN & MORTON." "W. H. BARLOW."

"Brewery, Spitalfields, July 5, 1866.

"Gentlemen,—I am directed by Sir Fowell Buxton to say that he has much pleasure in bearing testimony to the excellence of the Lean-to Glass Roof, which you put up for him at Warlies.

"MESSRS. HEREMAN & MORTON." "Your obedient servant, W. STOKES."

"Clapham Park, July 14, 1866.

"Gentlemen,—In reply to your note, I am well pleased with the work you did, it has thoroughly answered the purpose and has stood the weather well.—Yours faithfully, "F. W. COSENS."

"Faversham, July 17, 1866.

"Gentlemen,—I have much pleasure in reporting that the patent Glass Roof which you supplied me some four years since has given *perfect* satisfaction.—Very truly, yours,

"MESSRS. HEREMAN & Co." "FRED. W. MONK."

"Sydenham, Lew Down, Devon, July 18, 1866.

"In reply to your letter of the 16th, I beg to say that I am much pleased with the Span-roofed House which you sent me for this place, and which I use as a Greenhouse for keeping bedding plants in winter. The Lean-to Houses which you sent to me in Cornwall are used as Vineries. * * * There is no doubt that your system of Greenhouses combines great lightness and cheapness of construction, and they possess moreover the great merit that tenants are able to remove them at the expiration of their tenure of hired houses.—Yours faithfully,

"MESSRS. HEREMAN & MORTON." "JOHN TREMAYNE."

"Bideford, July 18, 1866.

"Sirs,—I have great pleasure in answer to your request in saying that the two houses I have had from you [at Ringwood, Hants] have answered their purpose in every respect.—Your obedient servant,

"HENRY HAMLYN FANE," [M.P.]

"Pickhurst Manor, July 24, 1866.

"Sirs,—The Patent Glass Roofs for Vineries and Cucumber Houses, with which you furnished me, have fully answered my expectations, and I can recommend them with perfect confidence.

"MESSRS. HEREMAN & MORTON." "Yours very faithfully, [The Hon.] A. KINNAIRD," [M.P.]

"St. Wolstans, Celbridge, County Dublin, August 17, 1866.

"Mr. Cane is perfectly satisfied with the House erected for him three years ago, which is now full of fruit, and very much admired. The small Forcing Pits also answer very well. * * * He will be very happy to bear testimony to the merits of their work when required."

"Onslow, Shrewsbury, October 11, 1866.

"Sirs, I have great pleasure in adding my testimony to the practical utility of the 72 feet of Glass Roof, and two Span-roofed Forcing Houses which have been supplied to me by you. They are light and and the ventilation is good.—Your obedient servant,

"C. WINGFIELD."

ILLUSTRATED CIRCULARS with LISTS of PRICES of the H OOFS can be had on application.

ESTIMATES given for HEATING APPARATUS, ORNAMENTAL CONSE S, GREENHOUSES, &c., to Special Designs.

☞ *Plans prepared to suit different styles of Mans particular dimensions.*

HEREMAN AND MORTON, 7, PALL M T, LONDON, S.W.

The SECOND EDITION of A HANDBOOK of VINE and FRUIT TREE CULTIVATI the above Patent Hothouses, containing Illustrations, Hints for Heating Houses, and General Directions for Cultivation, &c., r HEREMAN, price 1*s.*; post free, 1*s.* 1*d.*

"The portion of the Book devoted especially to the Cultivation of Fruits will be found par Amateurs, and there are few Gardeners, however practical they may be, but may gain some hints from it which may be of infinite service."—*Floral Worl*

Editorial Communications should be addressed to "The Editor;" Advertisements and Business Letters to "The Publ
Printed by JAMES MATTHEWS, at the Office of Messrs. BRADBURY, EVANS, & Co., Lombard Street, Precinct of Whit
Office, No. 41, Wellington Street, Parish of St. Paul's, Covent Garden, in the said County.—SATURDAY, February 9, 1867

gton Street, Covent Garden, London, W.C.
Co. of Middlesex, and Published by the said JAMES MATTHEWS, at the

THE GARDENERS' CHRONICLE

AND

AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.

No. 7.—1867.] SATURDAY, FEBRUARY 16. {Price Fivepence. {STAMPED EDITION, 6*d*.

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ROYAL BOTANIC SOCIETY'S GARDENS, Regent's Park.—EXHIBITIONS of SPRING FLOWERS, SATURDAYS, March 23, April 13, and April 27. Tickets, 2*s*. 6*d*. each. GENERAL EXHIBITIONS, WEDNESDAYS, May 29, June 19, and July 3. Tickets, 4*s*. each. Tickets are now being issued, and can be obtained at the Gardens by Orders from Fellows of the Society.

ZOOLOGICAL GARDENS, CLIFTON.
HORTICULTURAL MEETINGS, 1867.
SPRING SHOW, MAY 23. | ROSE SHOW, JUNE 25.
AUTUMN SHOW, AUGUST 29.
Schedule of Prizes may be obtained on application to the Secretary, Mr. J. T. JACKSON, Zoological Gardens, Clifton.

NATIONAL HORTICULTURAL EXHIBITION, 1867.—The above EXHIBITION will Open at Manchester on JUNE 7, and continue till JUNE 15.
Schedules, &c., may be obtained on application to Mr. B. FINDLAY, Curator, Botanic Garden, Manchester; or from the undersigned,
HENRY WHITWORTH, Secretary.
Carlton Buildings, Cooper Street, Manchester.

WEST of ENGLAND ROSE SHOW.—The FIRST ANNUAL SHOW will be held at HEREFORD, in the Shire Hall, on TUESDAY, July 9th. Honorary Secretary, Rev. C. H. BULMER, Credenhill, Hereford.

Grape Vines.

JOSEPH MEREDITH has a beautiful Stock of VINES for Sale, propagated from Vines which have borne the fruit which has taken from time to time so many First Prizes.
The Vineyard, Garston, near Liverpool.

Late Grape Vines.

ALICANTE, LADY DOWNES', and MUSCAT of ALEXANDRIA.
J. MEREDITH has a splendid Stock of the above sorts for Planting.
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GRAPE VINES.—Strong, well-ripened, short-jointed Canes of all the leading sorts for planting out or fruiting in pots. Price on application.
JOHN BUTCHER, Nurseries, Stratford-on-Avon.

VINES, VINES.—Strong Planting and Fruiting Canes of all the leading kinds. Prices on application.
B. S. WILLIAMS, Victoria and Paradise Nurseries, Upper Holloway, N.

NEW STRAWBERRY, THE LADY (UNDERHILL'S).—Plants of the above for general crop, also a few strong plants which will bring good fruit in the coming season, can be had on application to
JAMES MYATT, Offenham, Evesham.

To Forcers of Early Strawberries.

WANTED, 6 lb. of STRAWBERRIES for the 28th day of February, 1867. Address, stating particulars, to
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CRAB and PLUM STOCKS, extra strong. ASPARAGUS ROOTS, 2 yr., &c., &c.
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CASTLE KENNEDY FIG.—Plants of the above may now be had at 10*s*. 6*d*. and 21*s*. each; the usual discount to the Trade. PETER LAWSON & SON, Edinburgh and London.

DESSERT ORANGE TREES.—Including the TANGIERINE, MALTESE, SAINT MICHAEL'S, and other fine varieties. A CATALOGUE on application.
Carriage paid to London.
THOS. RIVERS & SON, Nurseries, Sawbridgeworth.

FRUIT TREES.—100 Acres devoted to their culture. A DESCRIPTIVE CATALOGUE on application.
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ORCHARD-HOUSE TREES, including VINES from Eyes, and FIGS in pots. 40,000 feet of Glass devoted to their culture. A CATALOGUE on application.
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Apply, by letter, to Mr. GEORGE ROBERTS, 9, Rood Lane, E.C.

GLADIOLUS, NEWEST and BEST FRENCH VARIETIES.
PRICE LISTS gratis and post free on application to
JAMES CARTER & Co., Seed Merchants and Nurserymen, 237, High Holborn, London, W.C.

To the Trade, &c.

GLADIOLUS BRENCHLEYENSIS.
GLADIOLUS GANDAVENSIS.
Surplus Stock Cheap.
Apply to THOS. SHERMAN, Seedsman, &c., 59, Newington Butts, S.

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Price One Shilling. Gratis to Customers.

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LILIUM AURATUM (a large importation of this beautiful Lily just received).—Strong Bulbs, 3s. 6d., 5s., 7s. 6d., and 10s. 6d. each.

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THE LONDON SEED COMPANY,
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THE LONDON SEED COMPANY.—The General "PRICE CURRENT of GARDEN and FARM SEEDS" is now ready, and can be had on application, Gratis, as above.

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No. 1.—Complete Collection, sufficient for a large Garden £3 0 0
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LISTS can be had on application from the above address.

THE LONDON SEED COMPANY.
CARRIAGE ARRANGEMENTS.

The Directors have made arrangements with all the Railway and Steam Companies to deliver all Seeds, with the exception of heavy articles, such as Grain, Tares, &c.,

CARRIAGE FREE

for all Orders of the value of 20s., to any Railway Station in England and Wales, or to any Steam Port in England, Wales, Ireland, or Scotland, Guernsey, or Jersey.

IMPORTANT ANNOUNCEMENT.—A Discount of 10 per Cent. will be allowed by the London Seed Company on all Orders above £10; 15 per Cent. above £50; 20 per Cent above £100. It will, therefore, be desirable for friends to unite together in a District or Neighbourhood, and so obtain these liberal Discounts.

TEN, FIFTEEN, and TWENTY PER CENT. DISCOUNT will be allowed on all Orders given to the "London Seed Company" above £10, £50, and £100 respectively.

British Fern Catalogue.

ROBERT SIM can now send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his NEW and PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.

Foot's Cray Nursery, S.E., a mile from Sidcup Station of New North Kent Line of South Eastern Railway.

Lilium speciosum var. vestalis.

GEORGE WHEELER respectfully announces he is now prepared to send out the above very desirable New LILY. It is early, blooms profusely, and is of a more dwarf and compact habit than others of the lancifolium tribe to which it belongs. It is very sweet, of a pure white, and the petals being regularly reflexed, makes the form of the flower unexceptionable. Strong Flowering Roots may now be had in a dry state, if ordered immediately, price 10s. 6d. each. Remittance must accompany the Order from unknown correspondents.

Warminster Nurseries.

Ranunculuses, Flower Seeds, &c.

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* CHOICE ANNUAL SEEDS, 25 varieties, 5s.

CATALOGUES gratis, or post free for one stamp.

These articles can be forwarded by post.

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WATERER AND GODFREY'S PRICED and DESCRIPTIVE CATALOGUE of RHODODENDRONS and other American Plants for this Autumn, will be sent on application. The Catalogue also gives a summary of their General Nursery Stock, probably the most extensive in the kingdom.

Knap Hill Nursery, Woking, Surrey.

Rhododendrons.

JOHN WATERER'S DESCRIPTIVE CATALOGUE of HARDY SCARLET and other RHODODENDRONS is now published, and will be forwarded on application. It faithfully describes the colours of the new varieties exhibited by him at the Royal Botanic Gardens, Regent's Park. An Abridged List of popular CONIFERS, with heights and prices, is likewise combined.

The American Nursery, Bagshot, Surrey, near Sunningdale Station, South-Western Railway.

Hardy Scarlet and other Rhododendrons.

W. H. ROGERS, Red Lodge Nursery, Southampton, can offer splendid named varieties of the above, strong bushy Plants, well set with blooming buds, at £10 per 100, or selected, 30s. per dozen; also a general NURSERY STOCK of FRUIT, FOREST, and ORNAMENTAL TREES and SHRUBS, extending over 60 Acres. Detailed CATALOGUES and every information may be had on application.

Nursery and Seed Establishment, Dumfries.

THOMAS KENNEDY AND CO. will be glad to send the following CATALOGUES to any address on application:—

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No. III. CATALOGUE of VEGETABLE and FLOWER SEEDS,
No. IV. CATALOGUE of AGRICULTURAL SEEDS, &c. (published end of February).

"The fulness, expansiveness, and selectness of the Catalogues of Messrs. Thomas Kennedy & Co. proclaim in loud language, their honour and respectability, and also the wide-spread nature of their dealings. We can only reiterate our former favourable commendations, and say to all who may be disposed to deal with the firm that they will, under all circumstances, be treated in all integrity and uprightness."—*The Field.*

*** As the season for executing Garden Seed Orders is so very limited, T. K. & Co. would feel particularly obliged to those friends who intend favouring them with their Orders to let them have them at their earliest convenience.

FREE DELIVERY.—Garden and Farm Seeds, under certain limitations, are delivered Free of Carriage at all the Railway Stations as formerly.

CHOICE SPRING-FLOWERING HARDY PLANTS.

AURICULAS, finest Alpine, per dozen, 6s.
CHRISTMAS ROSE, HELLEBORUS NIGER, per dozen, 9s.
HEPATICAS, Double Red, per dozen, 4s.
" Single White, per dozen, 9s.
" Single Blue, per dozen, 4s.
" Double Blue, 1s. 6d. each; single Mauve, new, each, 1s. 6d.
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PRIMROSES, Double, in 3 fine sorts, per dozen, 6s.
POLYANTHUS, finest mixed, per dozen, 3s.
PAMPAS GRASS, extra fine, 40s. per 100; per dozen, 6s.
VIOLETS, Double Red, White, Blue, Lilac and Striped, two of each for 7s. 6d.
" Single varieties, White, Blue, Striped, THE CZAR and THE GIANT, two of each for 5s.
WALLFLOWERS, Double Golden Yellow and Dark, per dozen, 6s.
FORGET-ME-NOT, "true," Myosotis palustris, per dozen, 4s.
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CAMPANULA PYRAMIDALIS, per dozen, 6s.
DAISIES in 6 choice kinds, per dozen, 4s.

N.B. The following additional Nurserymen have ordered the magnificent New Violet QUEEN of VIOLETS. For full description, &c., see *Gardeners' Chronicle* of December 1, 1866, p. 1134:—

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Miller, Mr. W., Andover, Hants.
Wright, Mr. W., Retford, Notts.
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Strong Plants for Spring Flowering, 1s. 6d. each, 18s. per dozen, £5 per 100. With usual allowance to Trade.

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Carter's Genuine Seeds.



Just Published, post free, 12 stamps (gratis to customers).

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In consequence of the increasing interest taken in Subtropical Plants and in the finer Border Flowers, JAMES CARTER & Co. have devoted special attention to those subjects in their new issue of the above work, and the following original and practical articles plainly indicate the readiest way to get up a stock of these subjects in the most economical way:—

On the Cultivation of Hardy Flowers from Seed.
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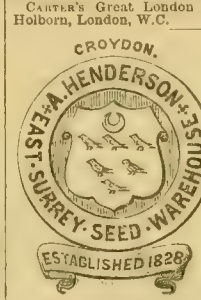
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CARTER'S COLLECTIONS of GARDEN SEEDS for 1867 will produce a supply of the best Vegetables "all the year round" for large, medium, small, and very small families.

No. 4, 63s.; No. 3, 42s.; No. 2, 21s.; No. 1, 10s. 6d.
(These prices include box and packing.)

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New Garden Seeds.

ARCHIBALD HENDERSON'S DESCRIPTIVE PRICED CATALOGUE and useful GARDEN ALMANACK is now Published, containing much useful information. Can be had gratis and post free on application.

Sion Nursery, Thornton Heath, Surrey; and at the East Surrey Seed Warehouse, College Grounds, North End, Croydon.

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JAMES CRAWFORD has many fine Plants to dispose of, some of them in full Bloom; one has 30 Bunches now open, and was in Flower at Christmas. He is also gay with other Flowers, such as HYACINTHS, DEUTZIAS, HEATHS, EPACRIS, POLYGALAS, AZALEA INDICA, TROPÆOLUMS, PRIMULAS, CROCUS, &c. He most respectfully solicits inspection.

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NURSERYMEN and SEEDSMEN,
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SEEDS, Best Quality, at Cheapest Rates.

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COLLECTIONS of VEGETABLE SEEDS for ONE YEAR'S SUPPLY, at Moderate Prices. Nos. 1, 2, 3, and 4, Carriage Free. For particulars and quantities contained in each, see large Advertisement in the *Gardeners' Chronicle* of February 9th, or PRICED DESCRIPTIVE CATALOGUE, which will be sent free by post on application.

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"TOBACCO PAPER," per lb. 9d
TOBACCO CORD, extra strong, per lb. 1s. 6d.
TOBACCO JUICE, per Gallon, 2s. 9d.
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PAUL AND SON'S SEED CATALOGUE will be sent with pleasure to any applicant. It contains, with usual matter, Descriptive Priced Lists of carefully selected Novelties in Seeds; Seeds of Ornamental Foliaged Plants for Subtropical Flower Gardening; Gladioli, with original Notes on their Culture.

The Old Cheshunt Nurseries and Seedshop, Cheshunt, N.

FLOWER SEEDS.

Collection of 20 Choice Varieties—	1 oz. Mignonette
" French Asters	1 oz. Nemophila insignis
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" German Stocks	

20 choice varieties of Flower Seeds for 13s.

The above selection, of the choicest varieties and the finest quality, sent on receipt of Post-office order for 10s.

J. C. WHEELER & SON, Seed Growers, Gloucester.

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Can be had post free on application.

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RICHARD SMITH'S SEED CATALOGUE contains a Calendar of Time for Sowing, particulars of Collections, with Prices, Directions for Cropping well and economically, Soil, Manure, Depth, Distance, Season, Hardiness, Duration, Form, Height, Colour, Storing, Use, Flavour, and other qualities, described.

This List Free by Post for one stamp. Seeds direct from the Growers the surest way to success.

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New Descriptive Lists.

DOWNIE, LAIRD, AND LAING, NURSERYMEN, SEEDSMEN, FLORISTS, and NEW PLANT MERCHANTS, 17, South Frederick Street, Edinburgh; and Stanstead Park, Forest Hill, London, S.E., respectfully beg to intimate that their NEW DESCRIPTIVE PRICED CATALOGUES of FLORIST FLOWERS, GARDEN, FLOWER, and AGRICULTURAL SEEDS, GLADIOLI, ROSES, &c., are now ready, and may be had free on application.

New and Genuine Seeds.

THOMAS SAMPSON, The Preston Road Nurseries, Yeovil, Somerset, begs to intimate that his CATALOGUE of SEEDS for the GARDEN and FARM is now ready, and can be obtained free on application. It contains a Select and Choice Stock, everything being of the best quality, and are offered at unequalled low prices.

RAYNBIRD, CALDECOTT, BAWTREE, DOWLING, AND COMPANY, Limited,
CORN, SEED, MANURE, AND OILCAKE MERCHANTS,
Address, 89, Seed Market, Mark Lane, E.C.; or Basingstoke.

Samples and Prices post free on application. Prize Medals, 1851, for Wheat 1862, for "Excellent Seed Corn and Seeds."

300,000 Hazel, Transplanted.

J. SCOTT, Merriott, Somerset, has the above to offer, in fine condition, 2 to 2½ ft., 25s.; 2½ to 3 ft., 27s. 6d.; 3 to 3½ ft., 30s.; 3½ to 4 ft., 35s.; 4 to 5 ft., 40s. per 1000.

FOREST TREES, twice and thrice Transplanted, in all sizes. Catalogues gratis.

CEDRUS DEODARA, 3 to 4 ft., 4 to 5 ft., 5 to 6 ft., and 6 to 7 ft., from 30s. to 60s. per dozen.

GREEN HOLLIES, 20,000 well-rooted, from 2 to 3 ft., and from 30s. to 40s. per 100.

FRUIT TREES, in 2000 sorts, and in all manner of training. The most complete collection in England.

A 92-page CATALOGUE, with large Supplement full of Fruit Tree information.

Guaranteed of the Finest Quality.

CHARLES NOBLE offers the following HALF-MILLION PLANTS to the notice of purchasers. They must be cleared by April to make room for other stocks. Prices, on application, will be found lower than ever before offered for the same quality

200,000 1-yr. SPANISH CHESTNUTS, fine.
20,000 1-yr. TURKEY OAKS, fine.
150,000 1-yr. THORNS, fine.
5,000 2-yr. BERBERIS JAPONICA.
50,000 MANETTI STOCKS, very fine.
20,000 DEUTZIA CRENATA FLORE PLENO.
15,000 ERICA HERBACEA.
10,000 SPRUCE FIRS, 1½ to 3 feet.
3,000 ARUNDO CONSPICUA.
3,000 PICEA NORDMANNIANA, 1½ to 3 feet.
10,000 RHODODENDRON PONTICUM, 15 to 20 inches, and as far through.
20,000 finest named RHODODENDRONS.
10,000 HYBRID PERPETUAL ROSES, the finest kinds known, and supposed to be the finest plants in the trade.
1,500 DWARF MAIDEN PEACHES and NECTARINES, particularly fine and well-grown.
500 GRAPE VINES, Hamburgh and other kinds, from Eyes, ripe, close-jointed wood; very fine indeed.

Special quotations for large quantities.

TRADE and RETAIL CATALOGUES free on application.

Bagshot, February 16.

W. VIRGO AND SON having a large Stock of the following, can offer them at very low prices:—

FOREST TREES.

Alder, 3 to 5 feet, extra strong	Fir, Scotch, 1½ to 2 ft., extra fine
Ash, 18 inches to 2 feet	" Spruce, 3 to 4 feet, extra fine
Beech, 2 to 3 feet, very good	" Larch, 2, 3, & 4 ft., extra fine
Berberis dulcis, 2 to 3 feet	Hazel, 2½ to 3½ feet, extra fine
" Aquifolium, 1 to 1½ foot	Holly, Green, 1½ to 2 feet, bushy
Chestnut, Horse, 2 to 4 feet, and 5 to 6 feet	Laurel, Common, 2½ to 3 ft., bushy
" Spanish, 2 to 3 feet	" Portugal, 3 to 4 ft. ex. bushy
	Privet, 2 to 3 feet, extra bushy

Strong CATTLE CABBAGE PLANTS.
Strong MANETTI STOCKS.

FRUIT TREES.

Apples, Standards and Dwarfs, very strong
Cherries, Dwarfs and Dwarf-trained, extra fine
Peaches, Dwarfs and Dwarf-trained, extra fine
Pears, Standards and Dwarfs, extra fine
Plums, Standards and Dwarfs, extra fine
Nectarines, Dwarfs and Dwarf-trained, extra fine
Kentish Filberts, 4 to 6 feet, extra fine
Crab Stocks, 2 years Seedlings

PRICED LIST or samples on application at
The Nursery, Wonersh, near Guildford, Surrey.

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JOSEPH SMITH, JUN., has to offer at very moderate prices TRANSPLANTED ASH, ALDER, BIRCH, HORSE CHESTNUT, ELM, broad and narrow-leaved; SILVER and SCOTCH FIRS, WHITE AMERICAN SPRUCE, HAZEL, OAK, POPLAR, PRIVET, WEYMOUTH and AUSTRIAN PINES, THORN QUICKS, HUNTINGDON and DUTCH WILLOWS, LARCH, good stout plants, 1½ to 2 feet, 12s.; 2 to 2½ feet, 13s.; 2 to 3feet, 14s.; and 3 to 4 feet, 16s. per 1000. NORWAY SPRUCE FIR, 6 to 9 inches, 6s.; 9 to 12 inches, 9s.; 1 to 1½ feet, 14s.; 1½ to 2 feet, 21s.; and 2 to 2½ feet, 30s. per 1000. COTONEASTER MICROPHYLLA, 1 to 1½ feet, 20s. per 1000; 1½ to 2 feet. RIBES in sorts, 2to 3ft., 20s. per1000. SNOWBERRY, 2to 3ft., 20s. per1000. BROOM White and Yellow, transplanted, 16s. per 1000. LAURELS, BERBERIS, ARBOR-VITÆ, &c., Seedling ASH, CRAB, SPANISH CHESTNUT, SPRUCE, 3 and 4 years; ELM, 2 years, £5 per 1000,000. OAKS, 1 and 2 years; OAK, EVERGREEN, 1 year; PRIVET, 1 and 2 years; SYCAMORE. RHODODENDRON PONTICUM, 2 years, 6s.; 4 years, 8s. per 1000; 3 years, and 1 year transplanted, 18s; 3 years, and 2 years transplanted, 25s.; 6 to 9 inches, 50s.; and 9 to 12 inches, 80s. per 1000. Twice-transplanted, and bushy, 4 to 8 inches, 70s.; 8 to 12 inches, 95s.; 9 to 15 inches, 140s.; 1 to 1½ feet, 180s.; and 1½ to 2 feet, 260s. per 1000..

A PRICED LIST forwarded on application. Price to the Trade on application.

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STRONG and EXTRA STRONG FRUITING VINES. —Upwards of 2000 from Eyes, including all the leading varieties, with stout close-jointed thoroughly ripened Canes, many of which, if fruited in pots, will produce from 8 to 16 bunches of Grapes next season. Prices, &c., upon application.
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PYRAMID APPLES, PEARS, PLUMS, CHERRIES. Beautiful Trees for Garden or Orchard Houses.
RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

Dwarf-trained Trees by the 1000, 100, or dozen.

APPLES, PEARS, PLUMS, CHERRIES, PEACHES, and NECTARINES. Fine, flat, well-trained, of best quality and true to name.
RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

Fifty Acres of Fruit Trees,

APPLES, PEARS, PLUMS, CHERRIES, PEACHES, NECTARINES, and APRICOTS in every form desired for Fruiting.
RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

Orchard-house Trees Fruiting in Pots.

PEACHES, NECTARINES, APRICOTS, CHERRIES, PLUMS, PEARS, APPLES, VINES, and FIGS.
RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

FRUIT TREES, for Walls and Espaliers.—Upwards of 50,000 to select from, carefully trained, and in the healthiest condition for planting.
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WALL-TRAINED TREES of BEARING SIZE.—Our Wall-Trained Fruit Trees this season are very fine, and include PEACHES, NECTARINES, APRICOTS, and FIGS, suited for planting in houses for immediate Fruiting. An inspection is respectfully invited.
T. JACKSON & SON, Nurseries, Kingston, Surrey.

Large Fruiting Morello Cherries.

GEO. CLARKE has to offer a few very handsome TREES, now growing on a wall and in the best possible state for removal. They measure 12 to 18 feet through, are young, well formed, and in fruitful condition. Any person requiring such Trees for immediate effect has an opportunity seldom to be met with. Price on application.
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Fruit Trees, &c.

APPLE, PEAR, PLUM and CHERRY TREES, best kinds, strong Standards, 5 feet stem, per dozen, 12*s.*
CURRANT and GOOSEBERRY TREES, all the best, strong good plants, per 100, 12*s.* 6*d.*
GIANT ASPARAGUS, strong: 3 years, 3*s.*; 4 years, 4*s.*; 5 years, 5*s.*
SEA KALE, strong, 3 years, 5*s.*; 4 years, 7*s.*; 5 years, 10*s.* per 100.
The above are of excellent quality, and will give every satisfaction.
W. JACKSON & Co., Nurseries, Bedale, Yorks.

Fruit Trees.

WOOD AND INGRAM wish to call the attention of Planters and the Trade to their large stock of the following, which they are prepared to supply at very moderate rates, according to the quantity taken:—
APPLES, Standards, Half Standards, and Dwarfs.
APRICOTS, Dwarf Maiden, cut back, and trained.
CURRANTS, fine bushy plants, all the best kinds.
GOOSEBERRIES " "
GRAPE VINES, from Eyes, Planting and Fruiting Canes.
" Layers, well-rooted, Canes 1 inch round.
NUTS and FILBERTS, all sizes up to 4 to 5 feet.
PEACHES, Dwarf Maiden, cut back and trained.
PEARS, Standards, Dwarfs, and Pyramids.
PLUMS, Standards, Half Standards, and Dwarfs.
CATALOGUES and Prices on application.
The Nurseries, Huntingdon.

Maiden Fruit Trees.

TRUE TO NAME, AND OF EXCELLENT QUALITY.

J. C. WHEELER AND SON offer to the Trade fine Maidens of the following leading sorts:—

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Breda	Moorpark
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PEACHES.

Avant Red	Red Nutmeg
Bellegarde	Padley's Seedling
Chancellor	Red Magdalen
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Smith's Newington	Vanguard

NECTARINES.

Duc de Teliers	Grosse Violette
Temples	Rivers' Victoria

Price and quantities will be forwarded on application.
J. C. WHEELER & SON, Nurserymen, Gloucester.

TO THE TRADE.

ALDERS, 1½ to 2 feet, and 2 to 3 feet.
ELM, WYCH, 1½ to 2 feet, 2 to 3 feet, and 3 to 4 feet.
PRIVET, Box-leaved, 1½ to 2 feet, and 2 to 3 feet.
THORNS, BLACK, 1½ to 3 feet.
QUICKS, 1½ to 2½ feet.
HUNTINGDON WILLOWS, 3 to 4 feet.
PEARS, STANDARD and PYRAMIDAL; strong ditto, Dwarf-trained.
LILACS, SYRINGA, GUELDER ROSE, and other deciduous Shrubs.
Price on application to JOHN CARTER, Nurseryman, Heighley, Yorkshire.

Huntingdon Nurseries.

WOOD AND INGRAM offer the following at extremely moderate rates, according to the quantity taken:—
ASH, 2-yr. Seedling, and in Drills, 1½ to 2 feet
BLACKTHORN, 1-yr., fine
CHESTNUT, HORSE, 1-yr., and 6 to 8 feet, transplanted
ELMS, NARROW-LEAVED ENGLISH, 2 and 3-yr. Seedling and transplanted, 1½ to 2 feet
FIR, SPRUCE, 1 to 1½, 1½ to 2, 2 to 3, and 3 to 4 feet
FIR, WHITE and BLACK AMERICAN, 2 to 3, 3 to 4, 4 to 5, and 5 to 6 feet
FIR, BALM of GILEAD, 1½ to 2, and 2 to 3 feet
FIR, WEYMOUTH PINE, 2 to 2½, 4 to 5, and 5 to 6 feet
HAZEL, 1½ to 2, and 2 to 2½ feet
GORSE, 1-yr. Seedling
HOLLY, 3-yr. bedded, transplanted, 6 to 9 inches, 9 to 12 inches, 1 to 1½, 1½ to 2, and 2 to 2½ feet
HOLLY, VARIEGATED, 6 to 9, and 9 to 12 inches
MAPLE, COMMON, 1½ to 2 and 2 to 2½ feet
MAPLE, COMMON, 1-yr. Seedling, extra fine
JUNIPERS, 2½ to 3, 3 to 3½, 3½ to 4, & 4 to 5 ft.; extra fine, and bushy
OAKS, 2-yr. Seedling, and drills, 2 to 3 and 3 to 4 feet
OAKS, TURKEY, 2-yr. Seedling, fine
POPLAR, BLACK ITALIAN, 2 to 3, 3 to 4, 5 to 6, 6 to 7, & 8 to 10 ft.
POPLAR, ONTARIO or AMERICAN, 2 to 3 and 12 to 16 feet
WHITE THORN QUICK, 3-yr. Seedling
ARBORVITÆ, AMERICAN, 1½ to 3½ feet
ARBORVITÆ LOBBII, extra fine specimens, 3 to 7 feet
ARBORVITÆ, SIBERIAN, 1 to 1½, 1½ to 2, 2 to 2½, and 3 feet
AUCUBA JAPONICA, extra fine hardy specimens, 1 to 1½, 1½ to 2, 2 to 2½ and 3 feet
BEECH, PURPLE and COPPER, 5 to 6, and 6 to 8 feet
BERBERIS DULCIS, 1 to 2, and 3 to 4 feet
BERBERIS AQUIFOLIUM, 1 to 1½, 1½ to 2, and 2 to 2½ feet
CUPRESSUS LAWSONIANA, very fine, 3 to 4, and 4 to 5 feet
CUPRESSUS MACROCARPA, potted, 2 to 3, and 3 to 4 feet
LAUREL, COMMON, 1 to 1½ and 2 feet
LAUREL, PORTUGAL, very fine, 1 to 4 feet
PLANE, ORIENTAL, 2 to 3, 4, and 5 feet; extra, 9 to 10 feet
PLANE, OCCIDENTAL, 3 to 4, 5 to 6, 6 to 7, and 8 to 9 feet
YUCCA RECURVA, fine specimens, 1½ to 2½ feet
ROBINIA INERMIS, fine Standards, 6 to 7 feet stems
WILLOW, WEEPING, 6 to 7 feet, and fine Standards.
N.B. CATALOGUES sent free on application

Sub-tropical and Ornamental Foliaged Plants from Seed.

WILLIAM ROLLISSON AND SONS' NEW and GENERAL SEED CATALOGUE, containing a List of the above, can be had on application to
The Nurseries, Tooting, London.

THIRTY THOUSAND 2-yr. SEEDLING THUJA LOBBII. 3 to 4 inches high, fine, distinct, and perfectly hardy Arborvitæ. Foliage deep grass green, rapid growth, well adapted for hedges, &c., and will bear pruning. Price (on application) by 100, 1000, or 5000.
GEO. JACKMAN & SON, Woking Nursery, Surrey.

JOHN WATERER has to offer a quantity of very handsome AUCUBA JAPONICA, the whole of which are profusely covered with Berries.
1st Size are Plants 2 feet high, bearing 150 to 200 Berries.
2d Size, 1 foot 6 inches, with 100 to 125 Berries.
3d Size, 1 foot, with 40 to 60 Berries.
Price from 10*s.* 6*d.* each and upwards.
The American Nursery, Bagshot, Surrey.

True English Elms,

SUITABLE FOR AVENUE AND HEDGE ROW PLANTING.

P. J. PERRY, NURSERYMAN, Banbury, having a large Stock of the above, will be pleased to furnish size and price per 100 or 1000 on application.
The Nurseries, Banbury.

COMMON LAURELS, well furnished plants, 3 to 4 feet, 20*s.* per 100, 190*s.* per 1000; 2 to 3 feet, 14*s.* per 100, 130*s.* per 1000.
LAURUSTINUS, bushy plants, 18 inches to 30 inches, 28*s.* per 100.
Cash or reference from unknown correspondents.
R. HAYNES, Henwick Nursery, Worcester.

To the Trade—Contractors and Builders.

ONE HUNDRED THOUSAND COMMON LAURELS, fine bushy plants, from 3 to 7 feet high; good for Blinds, particularly for newly laid-out Grounds and Buildings. These Laurels are very fine, and have not suffered from the frost.
Also 5,000,000 of Two-year SEEDLING ASH and CHESTNUTS, ROSES, and other varieties of Shrubs.
ABEL FAIRALL, Stanhope Nursery, Westerham Hill, Kent.

SAMUEL FINNEY AND CO. have a surplus stock of the following, which they can offer to the Trade at very low prices:—
ASH, Transplanted, from 3 to 5 feet
ELM, WYCH, Transplanted, from 2 to 3 feet and 3 to 4 feet
FIR, SCOTCH, Transplanted, from 15 to 24 inches
HOLLY, COMMON GREEN, Transplanted, from 1 to 1½ foot and
OAKS, ENGLISH, Transplanted, from 2 to 2½ feet [1½ to 2 feet
PINUS AUSTRIACA, Transplanted, from 1 foot and 1½ foot
LARCH, 1-yr. Seedling, fine
Prices on application at
The Nurseries, Gateshead, Newcastle-on-Tyne.

LARCH and SPRUCE FIRS.—Extra strong stout transplanted LARCH FIR, 3 to 4 feet, 21*s.* per 1000.
SPRUCE FIR, stout and bushy, 3 to 4 feet, 20*s.* per 100; 2 to 3 feet, 12*s.* per 100.
HENRY MINCHIN, The Nurseries, Hook Norton, Oxon.

To Planters.

LARCH, SPRUCE FIR, and all the leading FOREST TREES; BERBERIS AQUIFOLIUM, and all the leading Covert Plants, in very great quantity and in excellent health and condition for removal. Special Prices for large lots on application.
JAMES DICKSON & SONS, "Newton" Nurseries, Chester.

LARCH and THORN QUICKS.—Splendid 2-yr. Transplanted LARCH, 3 to 4 feet, clean, stout, and well rooted, cannot be surpassed; Ditto 2 to 2½ feet THORN QUICKS, 5-yr. old, Transplanted, free and very fine. Prices very low.
FIELD BROTHERS, Tarvin Road Nursery, Chester.

LARCH, SILVER FIR, &c.
LARCH, 1½ to 2 feet, 8*s.* per 1000; 2 to 3 feet, 10*s.*; 3 to 4 feet, 12*s.* 6*d.*
SILVER FIR, 6 to 12 inches, 4*s.* per 1000.
SCOTCH FIR, native, 6 to 12 inches, 5*s.* per 1000.
LIST of other TREES sent on application.
Apply, with reference, to J. RIDDELL, Park Attwood, Bewdley, Worcestershire.

Planting Season

LARCH (Native and Tyrolese), SCOTCH FIR (True Native), SPRUCE, OAK, ASH, ALDER, BEECH, PRIVET, and all kinds of FOREST and ORNAMENTAL TREES and SHRUBS, ROSES, FRUIT TREES, fine specimen ARAUCARIAS and DEODARS, and large TREES for Park Planting, now in fine condition for removal.
CATALOGUES, with sizes and prices, sent free on application to DICKSONS & Co., Nurserymen, Seedsmen, and Florists, 1, Waterloo Place, Edinburgh.

Strong Larch, Native Scotch, English Oak, Thorns, &c., ALL TRANSPLANTED.

GEORGE CHIVAS, Chester, solicits the attention of Planters to his very great Stock of LARCH, 2 to 4½ feet; NATIVE SCOTCH, 1½ to 3 feet (a portion of which was Transplanted last spring for the second time); ENGLISH OAK, 2 to 4 feet, and THORNS of great strength, with an extensive and general assortment of other Trees and Plants. The quality is unexceptionable, and the prices much in favour of the buyer.

EVERGREENS, for immediate effect, perfectly uninjured by the late severe weather, consisting of 50,000 LAURELS, 2 to 5 feet; 20,000 LAURUSTINUS, 1 to 3 feet; 10,000 BAYS, 1 to 5 feet; 10,000 TREE BOX, 1 to 3 feet; and several Thousands of EVERGREEN OAK; also a fine lot of SPRUCE FIR, 3 to 5 feet. The whole of the above in fine stout, good-rooted plants.
Purchasers of large quantities for Cash will be most liberally treated with. Price, with samples, may be had on application to
R. GADD & SON, Salvington Nurseries, near Worthing.

TO BE SOLD unusually cheap, 200,000 strong LARCH, 3 and 4 years old, splendid stuff. No reasonable offer will be refused.
BLACK ITALIAN POPLAR, 3 to 5 feet, 15*s.* per 1000.
SEEDLING ILEX OAK, 12*s.* per 1000.
MANETTI STOCKS, 25*s.* per 1000.
For samples apply to W. TRESEDER, Nurseryman, Cardiff.

TO BE SOLD CHEAP.
A large quantity of 1-year SEEDLING LARCH and SCOTCH FIR.
3-yr. Transplanted ELM. | 4-yr. Transplanted LARCH.
4-yr. Transplanted SCOTCH FIR. | 30 Bushels of HOLLY BERRIES.
5 cwt. LONG RED MANGEL WURZEL SEED.
5 cwt. YELLOW GLOBE MANGEL WURZEL SEED.
For samples, with prices, apply to
D. H. HIGGINS, The Nurseries, Clonmel, Ireland.
Put free on board at Waterford.

SEEDLING and TRANSPLANTED FOREST TREES.
SEEDLINGS.—Ash, 1 yr., 1*s.*; Beech, 2 yr., 3*s.* 6*d.*; Elm, 3 yrs., 2*s.*; Norway Maple, 2 yr., 7*s.* 6*d.*; Oak, English, 1 yr., 1*s.* 6*d.*; 2 yr., fine, 4*s.*; Silver Fir, 4 yr., 6 to 12 inches, 4*s.*; Norway Spruce, 4 yr., 2*s.* 6*d.*; Crab, 2 yr., 2*s.* 6*d.*; Pears, 2 yr., 3*s.* 6*d.*; Sycamore, 2 yr., 2*s.* 6*d.* per 1000.
TRANSPLANTED.—Alder, 1 to 2 ft., 7*s.* 6*d.*; 2 to 3 ft. 10*s.*; 3 to 4½ ft., 15*s.*; 4 to 6 ft., 20*s.*; Beech, 6 to 12 in., 7*s.* 6*d.*; Chesnut, Spanish, 1 to 2 ft., 17*s.* 6*d.*; Elm, 12 to 21 in., 5*s.*; Hazel, 1½ to 3 ft., 17*s.* 6*d.*; Oak, English, 6 to 12 in., 7*s.* 6*d.*; Balm of Gilead, 4 to 8 in., 7*s.* 6*d.*; Cembra, 6 to 12 in., 100*s.*; Larch, 1 to 1½ ft., 6*s.*; 1½ to 2 ft., 8*s.*; 2 to 3 ft., 10*s.*; 3 to 4 ft., 14*s.*; Scotch Fir, 2 yr. bedded, 6 to 12 in., 5*s.*; Silver Fir, 9 to 15 in., 12*s.* 6*d.*; Spruce, Norway, 6 in., 5*s.*; 1 to 1½ ft., 10*s.*; Thorn, Quick, 9 to 18 in., 6*s.*; Sycamore, 1 to 1½ ft., 7*s.* 6*d.*; Walnuts, 6 to 15 in., 20*s.* per 1000.
RHODODENDRON PONTICUM, 4 to 6 in., 6*s.* per 100.
Apply, with reference, to J. RIDDELL, Steward, Park Attwood, Bewdley, Worcestershire.

Tansley Nurseries, near Matlock, Derbyshire.

JOSEPH SMITH, SEN., invites Planters and the Trade to inspect his Nursery of 80 Acres of high land. The soil is of a fibrous nature, and the Plants take up with excellent roots, such as to ensure the best success in their removal.
The Nursery contains many Hundred Thousands of RHODODENDRONS, COMMON and PORTUGAL LAURELS, BOX, BROOMS, BERBERIS, HOLLIES, PRIVETS, YEWS, &c. The FOREST TREES are very extensive, of all the leading kinds; there are 15 Acres of LARCHES, of different sizes, and all others in proportion. Prices moderate, which can be had on application as above.

CHARLES CLARKE, Windmill Hill Nursery, Gravesend, Kent, can supply, on cheap terms, Large EVERGREENS, as Laurels, Box, Arbutus, Yews, Hollies, Phillyreas, Portugal Laurels, Aucubas, Ivies, &c., all very handsome, and move well. Also, Ornamental specimen Forest Trees, Scarlet Chestnuts, &c.; Gooseberries and Currants, best sorts; large Quick, Standard Apples, Pears, and Plums; Dwarf-trained trees, all sorts, very fine; large Asparagus for Forcing, Box Edging, &c. Evergreens uninjured by the frost. Parties treated liberally with, taking a quantity in variety.

L. T. DAVIS offers the following, prices of which can be had on application:—
2-yr. Bedded HIGHLAND SCOTCH FIR, very fine.
DOUBLE WHITE and DOUBLE LILAC PRIMROSES (hardy).
HEPATICAS, in 4 sorts.
WANTED, DOUBLE YELLOW PRIMROSES and SINGLE WHITE HEPATICAS.
Ogle's Grove Nursery, Hillsborough, Co. Devon.

CEDRUS DEODARA.—100, 6 to 8 feet; also 150, 4 to 6 feet. The above are in perfect health, well furnished, and lift with good balls; every plant a perfect specimen.
The Advertiser also offers from 6000 to 8000 splendid LARCH, well grown; height, from 4 to 6 feet.
In order to clear the ground the above will be sold cheap on application to
WILLIAM HENDERSON, Oxton Hill Nursery, Birkenhead, Cheshire.

H. AND R. STIRZAKER can supply in very large quantities as follows, quality good, and prices very low:—ALDER, ASH, BIRCH, BEECH, ELM, CHESTNUT (Horse and Spanish), HAZEL, LARCH, OAK (English and Turkey), POPLAR (Ontario and Black Italian), PRIVET (Evergreen, 1½ to 3 feet), SPRUCE FIR, SILVER FIR, SYCAMORE, WILLOWS, THORNS, YEW (English), splendid stuff, in sizes of 1, 2, 3, 4 feet, and upwards. Special quotations for free delivery on application.
Skerton Nurseries, Lancaster.

Carter's Grass Seeds for the International Exhibition at Paris, 1867.



JAMES CARTER AND CO. have the satisfaction to announce that the Imperial Commissioners of the Paris International Exhibition of 1867 have granted to them the concession of supplying the GRASS SEEDS for the purpose of forming the Sward of the Park round the Exhibition Building in the Champ de Mars. The honour conferred on their House will be more readily appreciated when they state the gratifying fact, that they are THE ONLY ENGLISH HOUSE ENTRUSTED WITH THE IMPERIAL COMMISSIONERS' COMMANDS FOR THIS PURPOSE.
JAMES CARTER & Co. are prepared to supply Mixtures for Permanent Pasture, Park Lawns, &c., of the most nutritious and valuable Grasses, specially mixed to suit the variations of climate and soil. Price according to quality, from 28*s.* to 36*s.* per acre. PRICED LISTS gratis and post-free on application to
CARTER'S Great London Seed Warehouse, 237 & 238, High Holborn, London, W.C.
Grass Seed packed for Exportation.



GRASS SEEDS for PERMANENT PASTURE, of the finest quality, at moderate prices, carefully selected on a new, natural, and scientific system.
See "WHEELER'S BOOK on GRASSES," which contains Illustrations and Descriptions of the most suitable Grasses for Permanent Pasture.

J. C. WHEELER & SON,
Gloucester,
Seedsmen to the Gloucestershire Agricultural Society.



Croquet Grounds.

For the Improvement of Croquet Grounds and Lawns,

J. C. WHEELER AND SON, SEED GROWERS, Gloucester, can recommend a Mixture of the finest LAWN GRASS SEEDS, which should now be sown at the rate of about 10 lb. per acre, with a top-dressing of soot, guano, or superphosphate. The Lawn or Croquet Ground should then be thoroughly well rolled.
The price of the Seed is 1*s.* 3*d.* per lb.
J. C. WHEELER & SON,
Seed Growers, Gloucester.

Very Early Sheep Feed.

SUTTON'S IMPROVED ITALIAN RYE-GRASS.—This "Improved" Italian Rye-grass is recommended in preference to every other variety, producing three or four heavy crops in one summer, and being almost if not strictly perennial.
At a Meeting of the Royal Agricultural Society, on March 16, in a Lecture delivered by Alfred Hughes, Esq., late of Thorness, Isle of Wight, Mr. Hughes said:—
"I always reserve a portion of Oat land to lay down with SUTTON'S Improved Italian Rye-grass, the most reliable plant I have come across for some years for Ewes and Lambs in the Spring. When I tell you that I put it in in the spring, and dressed it after harvest with guano, and that in the autumn, when my Sheep fed it off, it was up to their knees, and that I fed it off again this spring with Ewes and Lambs, I think you will agree that this is a crop of very great value. The Italian Rye-grass which is sold by SUTTON, of Reading, is a most astonishing vigorous plant; indeed, I never saw anything to equal it in the course of all my experience."
SUTTON & SONS have a fine stock of their Improved Italian Rye-grass, which is a very different and superior article to much that is sold as Italian Rye-grass.
Present price 6*s.* 6*d.* per bushel, cheaper in quantities over 5 qrs. Carriage-free in quantities of 5 bushels and upwards.
Quantity required per acre, if sown alone, 3 bushels.
Royal Berkshire Seed Establishment, Reading.

To Farmers, Gardeners, and Others.

EXCELLENT CABBAGE PLANTS (Stocks not to be surpassed), may be had in any quantities as follows:—
ENFIELD MARKET (cash price), *2s. 6d* per 1000
THOUSAND-HEADED (cash price), *3s.* per 1000
ROBINSON'S CHAMPION, true (cash price), *2s. 6d.* per 1000
DRUMHEAD (cash price), *2s. 6d.* per 1000
RED DUTCH, for Pickling (cash price), *5s.* per 1000
(Special offers made to large purchasers).
A CATALOGUE of GENUINE NEW SEEDS, on application. A remittance or reference is requested from unknown correspondents.
FREDK. GEE, Seed Merchant and Grower, Biggleswade, Bedfordshire

Nuneham Park Onion.

WM. CUTBUSH AND SON have great gratification in announcing that this SUPERB NEW ONION has in every instance, where shown, obtained the first prizes, and numerous testimonials have been sent to them from various parts of the country, confirming the opinion that it is the largest and heaviest cropper of all Onions. It is also of exceedingly mild flavour, and keeps as long as any variety extant. In Sealed Packets *2s. 6d.* each.

*** Owing to the great demand, no more can be supplied to the Trade this season.

Highgate Nurseries, London, N.

NEW ROSES FOR 1867.

JOHN FRASER,

OF THE LEA BRIDGE ROAD NURSERIES, N.E.,

HAS MUCH PLEASURE IN ANNOUNCING THAT HIS

DESCRIPTIVE LIST OF CAREFULLY SELECTED NEW ROSES FOR 1867

IS NOW READY, AND WILL BE FORWARDED ON APPLICATION.

☞ *The Plants are this Season unusually strong and healthy.*

PETER LAWSON & SON,



THE QUEEN'S SEEDSMEN,

LONDON and EDINBURGH.

FARM, VEGETABLE, and FLOWER SEEDS.

FOREST TREES AND SHRUBS OF ALL KINDS.

CATALOGUES sent free on application.

28, KING STREET, CHEAPSIDE, LONDON, E.C.

GENUINE SEEDS, OF SUPERIOR STOCKS.

FRANCIS & ARTHUR DICKSON & SONS,

THE OLD ESTABLISHED SEED WAREHOUSE, 106, EASTGATE STREET, CHESTER.

THE BEST EARLY PEA IN CULTIVATION,

DICKSON'S "FIRST & BEST."

Retail Price, 1s. 6d. per Quart. Price to the Trade on application.

See Large Advertisement, January 19.

CATALOGUE OF VEGETABLE & FLOWER SEEDS, &c., FOR 1867,

with Practical Cultural Directions, will be sent Post Free on application.

Their Seeds are of the most select character, each being saved from the BEST Stock *known* of its kind.

☞ *All Seeds of £2 value delivered Carriage Free.*

Flower Seeds sent Post Free, except heavy articles, such as Sweet Peas, Lupins, &c.



Improvement of Grass Lands,

at from *5s.* to *10s.* per acre.

SUTTON'S RENOVATING MIXTURE

SHOULD NOW BE SOWN,

6 to 12lb. per acre.

Price *10d.* per lb. Cheaper by the cwt.

If these Seeds are sown early in the season, the improvement in the land will be very great, and at a small expense.

This Mixture should be bush-harrowed in, and rolled afterwards.

SUTTON & SONS,
Royal Berkshire Seed Establishment,
Reading.

Potatos for Planting.

MESSRS. SUTTON'S DESCRIPTIVE LIST is now ready, and may be had gratis and post free. Their stock of Potatos has been selected with great care, and can be relied on as perfectly true to name. Lowest price per cwt., sack, or ton, forwarded on application.

SUTTON & SONS, Seed Growers, Reading.

PATERSON'S FAMED SEEDLING POTATOS.

We again offer our Seedling Potatos to the public.

PATERSON'S VICTORIA.—The demand for this Potato for Seed is now so great that early applications will be necessary. It is one of the best in cultivation as a resister of disease and for its quality, and realised in London last season 40*s.* per ton more than Flukes for table use. Price Lists and Testimonials to be had at 1, Union Street, Dundee; and from our Agents.

HOOPER AND CO. are the LONDON AGENTS for PATERSON'S SEEDLING POTATOS, and deliver them free to any Railway Station in London. Lists may be had.
Seed Merchants, Covent Garden, London, W.C.

Seed Potatos.

H. AND F. SHARPE are now offering MYATT'S PROLIFIC KIDNEY, DAINTREE'S EARLIEST, WEBB'S IMPERIAL KIDNEY, FORTY-FOLD, FOX'S SEEDLING, EARLY OXFORD, and many other Early and Late varieties, fine in quality, free from disease, and at low prices.
Seed Growing Establishment, Wisbech, Cambridgeshire.



WHEELER'S GLOUCESTERSHIRE KIDNEY

Is one of the very Earliest, most Productive, and best flavoured Potatos in cultivation.

Price *3s.* per peck, *10s. 6d.* per bushel.

J. C. WHEELER & SON,
Seed Growers, Gloucester.

Seed Potatos.—Edgcote Second Early Kidney.

P. J. PERRY, NURSERYMAN and SEED MERCHANT, Banbury, has much pleasure in introducing the above valuable Potato, which may be described as the finest flavoured and most productive Second Early variety in cultivation.

It was raised by Mr. Neale, Gardener to Aubrey Cartwright, Esq., Edgcote House, near Banbury, by whom it was exhibited at the Royal Horticultural Society's Great Show of Fruit and Vegetables, Saturday, July 22, 1865, and was awarded First Prize in Class 7.

The *Gardeners' Chronicle*, July 29, 1865, in noticing the above Show, states:—"POTATOS: These were largely contributed, and many of them were unusually fine for the season of the year. Among Kidneys the most valuable was Edgcote Second Early, a very perfect Potato, which obtained the First Prize for a single dish."

Price per peck, including bag, 6*s.*

P. J. PERRY has also a limited stock of the following valuable varieties to offer:—

NE PLUS ULTRA.—The earliest Potato in cultivation.

ROYAL ALBERT.—One of the finest and most productive Early White Round Potatos known.

EARLY EMPEROR, or SOMERSET RED.—Of this Potato, Mr. Dean, of Maybush, writes, in *Gardeners' Chronicle*, October 6, 1866, p. 945:—"This may be described as one of the best Second Early Round Potatos known. It has a beautifully netted skin, boils perfectly white, and the flavour is all that can be desired," &c.

Price of the above three sorts, *5s* per peck.
The Nurseries, Banbury.

To Market Gardeners and Others.

CABBAGE PLANTS.—EAST HAM, ENFIELD MARKET, ROBINSON'S DRUMHEAD, *2s.* per 1000; RED CABBAGE PLANTS, extra fine, *4s.* per 1000. Stock true and can be warranted, and all grown by
RICHARD WALKER, Market Gardener and Seed Grower, Biggleswade, Beds. I will challenge England with Plants. Terms cash.

TABER'S EARLY PERFECTION PEA.

CAUTION.

IT HAVING COME TO MY KNOWLEDGE THAT SOME PARTIES HAVE BEEN SUPPLYING

A PEA PROFESSING TO BE MY NEW EARLY PERFECTION

WHO HAVE NOT PURCHASED ANY OF ME,

I find it necessary for the protection of those who have received it from me to reprint a List of Names, I having supplied it to the Following Firms only:—

Messrs. Barr & Sugden, Covent Garden, London
" J. Backhouse & Son, York
" Chivas & Weaver, Chester
" Cutbush & Son, Highgate, London
" Cooper & Bolton, 152, Fleet Street, London
" Drummond & Son, Dublin
" James Dickson & Sons, Chester
" Drummond & Son, Stirling
" E. P. Dixon & Son, Hull
" Francis & Son, Hertford
" Freer & Son, 28, Digbeth, Birmingham
" Fisher Holmes & Co., Handsworth, Sheffield
" Fraser, Goad, & Ratford, Bishopsgate Street, London
" Farrell & Co., Dublin
" Geo. Gibbs & Co., Down Street, Piccadilly, London
" Harrison & Sons, Leicester
" E. G. Henderson & Son, St. John's Wood, London
" A. Henderson & Co., Pine Apple Nursery, Edgware Road, London

Messrs. Hamilton & Wright, Thornton Heath
" Hogg & Robertson, Dublin
" Peter Lawson & Son, London
" Lowe & Co., Wolverhampton
" J. & C. Lee, Hammersmith, London
" Minier, Nash, & Co., 60, Strand, London
" Osborn & Sons, Fulham, London
" Sutton & Sons, Reading
" Saltmarsh & Son, Chelmsford
" Smithers & Critchton, Finsbury Square, London
" J. Shepherd & Co., Bolton
" Toole & Co., Dublin
" Tremble & Sons, Penrith
" James Veitch & Sons, Royal Exotic Nursery, Chelsea, London
Mrs. G. W. Dixon, 48*a*, Moorgate Street, London
Mr. James Bird, Downham Market
" S. Brown, Sudbury
" T. A. Baker, Grosvenor Street, Chester

Mr. T. Brigden, King William Street, London
" S. H. Clarke, Edgware Road, London
" W. Coker, Taunton
" B. R. Cant, Colchester
" A. Dancer, Fulham, London
" F. Gee, Biggleswade
" R. W. Ker, Basnett Street, Liverpool
" J. McHattie, Chester
" J. W. Mackey, Dublin
" Oakley, Southampton
" C. Quincey, Peterborough
" W. Skirving, Liverpool
" Smale, Torquay
" I. Thompson, 20, High Street, Birmingham
" C. Turner, Royal Nursery, Slough
" E. Taylor, Malton
" R. T. Veitch, 54, High Street, Exeter
" T. Whalley, Liverpool
" T. Warner, The Abbey, Leicester

I beg to say, in answer to numerous applications, that I do not Retail the above Pea, I supply it to the Trade only.

GEORGE TABER, RIVENHALL, WITHAM, ESSEX.

SUTTON'S GRASS SEEDS FOR ALL SOILS.

MESSRS. SUTTON

PREPARE MIXTURES FOR THE FOLLOWING DESCRIPTIONS OF SOILS, BEING THOSE GENERALLY KNOWN, THE NATURES OF WHICH ANY ONE ACQUAINTED WITH FARMING OR GARDENING IS CAPABLE OF FORMING A CERTAIN AND READY CONCLUSION.

1. STIFF CLAYS.
2. STIFF or HEAVY LOAM.
3. GOOD MEDIUM LOAM.
4. LIGHT SANDS.
5. SHARP GRAVELS.
6. CHALKY SOILS.
7. SHEEP DOWNS.
8. RIVER FLATS or WATER MEADOWS.

SUTTON'S BEST MIXTURE OF PERMANENT PASTURE GRASS AND CLOVER SEEDS

(Two Bushels of Grasses and 12 lb. of Clovers per acre).

Prices for Nos. 1, 2, 3, 4, 5, 6, and 7, 36s. per Acre. For No. 8, 30s. per Acre (Carriage Free).

☞ **CHEAPER MIXTURES can be Supplied at from 26s. to 30s. per Acre (Carriage Free).**

SUTTON'S RENOVATING MIXTURE for the above-named soils, price 10*d.* per lb., or cheaper by the cwt. By sowing this Mixture in February and March and after Hay-cart, at the rate of 6 to 12 lb. per acre, a great improvement will be made in the Pasture, and at small expense.

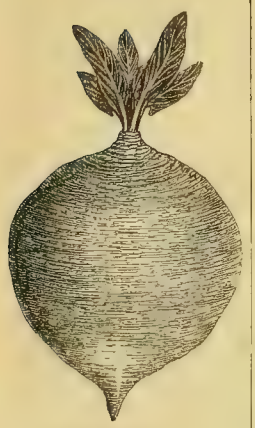
SUTTON'S BEST MIXTURE of CLOVERS and GRASSES for 3 or 4 years, for the above soils. 24*s.* per acre. Carriage free.

SUTTON'S BEST MIXTURE of CLOVERS and GRASSES for 2 years, for the above soils. 18*s.* 6*d.* per acre. Carriage free.

SUTTON'S BEST MIXTURE of CLOVERS and GRASSES for 1 year, for the above soils. 14*s.* 6*d.* per acre. Carriage free.

GRASS SEEDS for Cultivation with Sewage and other Liquid Manure. (Sow 3 bushels per acre). Price 8*s.* per Bushel. Cheaper by the quarter.

SUTTON'S SELECTED FARM SEEDS.—PRESENT PRICES.



SUTTON'S SELECTED YELLOW GLOBE MANGEL.

Price 1*s.* per lb.

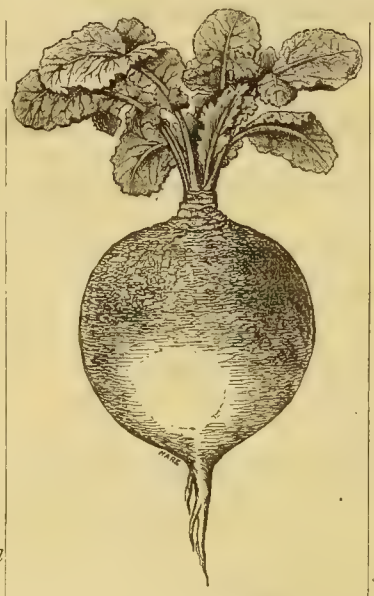
Saved from large roots, a heavy cropper, thrives in all soils.

Good Seeds carriage free.

SUTTON'S PERMANENT **GRASSES** AND **CLOVERS** For all soils.

SUTTON'S SELECTED **MANGEL WURZEL** AND **TURNIP SEEDS.**

5 per cent. discount allowed for cash payment.



SUTTON'S CHAMPION SWEDE.

Good Seeds carriage free.

GOOD **CLOVER SEEDS** At Market Prices.

ALSO FINE CLEAN ENGLISH AND SCOTCH **RYE GRASSES.**

SUTTON'S CHOICE **VEGETABLE** AND **FLOWER SEEDS.**

5 per cent. discount allowed for cash payment.



SUTTON'S LARGE KOHL RABI.

Price 2*s.* 6*d.* per lb.

Sow in March to transplant, or in April and May in drills.

Cheaper by the Cwt., Bushel, and Quarter. Special Contracts made for large quantities.

Mangel Wurzel.

	Per lb.—*s.*	*d.*
GOOD YELLOW GLOBE	0	9
,, ORANGE GLOBE	0	9
,, RED GLOBE	0	9
,, LONG RED	0	9
SUTTON'S SELECTED YELLOW GLOBE	1	0
,, YELLOW INTERMEDIATE	1	0
,, MAMMOTH LONG RED	1	6
,, MAMMOTH LONG YELLOW	1	6
,, SELECTED ORANGE GLOBE	1	0
BERKSHIRE PRIZE (in 8 lb. bags only)	2	6
FISHER HOBBS' ORANGE GLOBE	1	0
YELLOW OVAL, or OLIVE SHAPED	1	0
ELVETHAM LONG RED	1	0
STRATTON'S RED GLOBE	1	3
RED INTERMEDIATE	1	0
LONG YELLOW 9*d.* and	1	0

Kohl Rabi.

LARGE GREEN	2	6
LARGE PURPLE	2	6
NEW LARGE GERMAN (fresh imported)	4	0

Field Carrot.

WHITE BELGIAN	1	3
YELLOW BELGIAN	1	3
LARGE GREEN-TOP ORANGE BELGIAN	1	9
NEW WHITE INTERMEDIATE	3	6
RED INTERMEDIATE	2	0
ALTRINGHAM	2	0
LONG RED CATTLE	1	6

Cow Cabbage.

LARGE DRUMHEAD	2	6
ROBINSON'S CHAMPION DRUMHEAD	3	6
OXHEART, NEW EARLY	3	6
DRUMHEAD SAVOY	3	6
THOUSAND HEADED	2	6
LONDON MARKET, and others	3	6

Turnip Seeds.

SWEDISH TURNIPS.

	Per lb.—*s.*	*d.*
SUTTON'S CHAMPION (very hardy; has gained numerous Prizes again this season)	1	0
NEW GIANT TANKARD	1	6
HARDY PURPLE-TOP	0	9
SKIRVING'S	0	9
HARDY WHITE	1	3
KING OF SWEDES	1	0
HALL'S WESTBURY	1	0
GOLDEN MELON	0	10

YELLOW-FLESHED TURNIPS.

SUTTON'S GREEN-TOP YELLOW HYBRID	1	0
WAITE'S ECLIPSE	1	0
YELLOW SCOTCH PURPLE-TOP	0	10
,, ,, GREEN-TOP	0	10
,, TANKARD	1	0
ORANGE JELLY	1	0

WHITE-FLESHED TURNIPS.

SUTTON'S RED PARAGON, or IMPROVED LINCOLNSHIRE RED GLOBE	0	10
SUTTON'S IMPERIAL GREEN GLOBE	0	10
OLD GREEN ROUND	0	10
SUTTON'S NEW PURPLE-TOP MAMMOTH	1	0
POMERANIAN WHITE GLOBE	1	
NORFOLK WHITE GLOBE	0	10
RED TANKARD	1	0
WHITE TANKARD	1	0
GREEN TANKARD	1	0
GREY STONE, or MOTTLED GLOBE	0	10
WHITE STONE, or STUBBLE	0	10
SUTTON'S EARLY SIX WEEKS	1	0

Clover Seeds.

Samples and lowest price per cwt. on application.

	Per lb.—*s.*	*d.*
COMMON RED, or BROAD, finest quality, 10*d.* to	1	0
YELLOW TREFOIL, or HOP, finest quality, 8*d.* to	0	6
WHITE, or DUTCH, finest quality, 1*s.* 2*d.* to	1	4
ALSIKE, or HYBRID, finest quality, 2*s.* 0*d.* to	2	6
COW GRASS (True Perennial) 1*s.* 2*d.* to	1	6
COW GRASS CLOVER	1	0
PERENNIAL WHITE (or White Suckling)	1	6
MIXED PERENNIAL, for Permanent Pasture	1	6
,, CLOVERS, for Alternate Husbandry	1	0
,, ,, for Lawns	1	6
ITALIAN CRIMSON (Trifolium incarnatum) 4*d.* to	0	6
YELLOW SUCKLING (Trifolium minus)	1	6
LOTUS CORNICULATUS (Birdsfoot Trefoil)	3	6
RIB GRASS, or PLANTAIN 5*d.* to	0	7
BOKHARA CLOVER	2	6
MALDEN'S NEW WONDER CLOVER, 2*s.* to	2	3

English and Scotch Rye-grasses.

Samples and lowest price per qr. on application.

	Per bushel.—*s.*	*d.*
PERENNIAL RYE-GRASS, heavy seed	7	0
,, ,, lighter seed, 5*s.* to	6	0
PACEY'S PERENNIAL RYE-GRASS, 6*s.* 6*d.* to	7	0
EVERGREEN RYE-GRASS	7	6
SUTTON'S DWARF PERENNIAL RYE-GRASS:—		
ANNUAL or COMMON, best quality	6	6
,, ,, lighter seed, 5*s.* to	6	0

Italian Rye-grasses.

Samples and lowest price per qr. on application.

	Per bushel.—*s.*	*d.*
ITALIAN RYE-GRASS, good English seed 5*s.* to	6	0
SUTTON'S IMPROVED ITALIAN RYE-GRASS	6	6
FRESH IMPORTED SEED, cleaned	7	0

Fine Lawn Grass Seeds,

For making New or Improving Old Garden Lawns (3 bushels or 60 lb. required per acre), 1*s.* 3*d.* per lb.; 24*s.* per bushel.

BROMUS SCHRADERI (the New Forage Grass), 2*s.* 6*d.* per lb.; cheaper by the cwt.

Potatos, for Field Culture.

The best kinds at moderate prices, which may be had on application.

Miscellaneous.

	Per lb.—*s.*	*d.*		Per lb.—*s.*	*d.*
New Purple Beet	3	6	Melon (Blundell's White Sugar ditto	1	0
Broom	1	0	Cattle	17	6
Buckwheat, 9*s.* per bushel	0	5	Maize		
Chicory	2	6	Mustard	0	5
Fenugreek	1	0	Parsnip, Common	1	3
Furze, or Gorse	1	9	,, Large Guernsey	1	6
Holcus saccharatus	1	0	,, The Student	5	0
Lettuce	10	0	Rape, or Cole	0	4
Linseed			Serradella	1	0
Lucerne, 1*s.* 3*d.* to	1	6	Sheep's Parsley	1	0
			Sunflower	5	0
			Yarrow	3	6

EARLY RACEHORSE PEA, 12*s.* per bushel.

LUPINS, YELLOW, 17*s.* 6*d.* per bushel.
,, BLUE, 12*s.* 6*d.* per bushel.

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DUNDEE HORTICULTURAL SOCIETY.—GRAND FLORAL FETE, in honour of the visit to Dundee of the British Association, to be held in the Baxter Park, on WEDNESDAY, THURSDAY, FRIDAY, and SATURDAY, 4th, 5th, 6th, and 7th September, 1867. £300 sterling offered as Prize money.

Schedules and Terms of Subscriptions to be had of Mr. JAMES HARDIE, Treasurer, 98, Nethergate; or Mr. W. R. MCKELVIE, Secretary, 40, Reform Street.

GRAND HORTICULTURAL EXHIBITION at BURY ST. EDMUND'S, in connection with the SHOW of the ROYAL AGRICULTURAL SOCIETY, JULY 15, 1867, and four following Days.

Amongst various Special Prizes, amounting in value to nearly £300, and exclusive of the ordinary Prize Schedule,

A SILVER CUP, VALUE £20,

will be offered by the Proprietors of the GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE for the best COLLECTION of FRUITS and VEGETABLES, to be made up as follows:—

Of FRUITS, any Five of the following Eight kinds, one Dish of each:—Grapes, Melons (2 fruits), Strawberries, Gooseberries, Currants, Cherries, Raspberries, or Apples (of the crop of 1866).

Of VEGETABLES, any Eight of the following Fourteen kinds, one basket or bundle of each:—Peas, French Beans (or Scarlet Runners), Broad Beans, Cauliflowers, Cucumbers (brace), Summer Cabbages, Early Carrots, Turnips, Artichokes, Onions, Spinach, Rhubarb, Potatos, or Mixed Salading.

This Cup will be open to Competition amongst Amateur or Professional Gardeners, of all grades, with Fruit and Vegetables of *their own growing*, but any article otherwise obtained will disqualify the exhibitor.

The Gardeners' Chronicle.

SATURDAY, FEBRUARY 16, 1867.

MEETINGS FOR THE ENSUING WEEK.

MONDAY,	Feb 18—	Entomological	7 P.M.
TUESDAY,	— 19	Royal Horticultural (Fruit and Floral Committees), at South Kensington	11 A.M.
		Ditto (Scientific Discussion)	3 P.M.
THURSDAY,	— 21—	Linnean	8 P.M.

To those interested in the PROCEEDINGS of the ROYAL HORTICULTURAL SOCIETY—we might almost have said, to those interested in the advancement of Horticulture, the ANNUAL REPORT of the Society is looked forward to with as much interest as is the QUEEN'S Speech by politicians. In either case it is rare that every one should be satisfied. Too much or too little, it is averred, is said; this or that topic, it is alleged, is not fairly dealt with. In either case the words are addressed, not to an individual, but to a community. On the other hand, the criticisms that are evoked are of a far more personal and individual character. This state of things is perfectly legitimate, and few would wish it otherwise; nevertheless, the true state of the case is too often overlooked, and undue stress is laid on the faults of centralisation on the one hand, and the partial criticisms of individuals on the other. Our present purpose is not to attempt the difficult, if possible, task of holding the balance evenly between the two parties, but to congratulate the Fellows on the brighter prospects and improved position of the Society. The financial condition, it is true, is still far from satisfactory, but it is better than it has been; while on the whole the work of the Society has been satisfactorily carried on. The Tuesday meetings especially deserve mention as a most important and valuable feature, advancing the interests of Horticulture, and with them the interests of the Society, in a very marked degree at comparatively very little cost.

Those, too, who so bitterly grieved over the loss of the Library and the Herbarium which the Society once possessed, will learn with pleasure the good prospects there are that a good Library, of which the Lindley collection will form the nucleus, will be secured for the free use, if not the absolute possession of the Society. Bearing in mind the fate of the former Library, it will be at once seen that a precautionary measure against any future contingency of a similar character will be, to say the least, an act of prudence.

The successful inauguration of the Examinations for young gardeners is also a matter for congratulation, as there is no doubt that as time goes on, more experience will be gained as to the best methods of carrying out this most desirable object, of which the Society will not be slow to avail itself.

The arrangements for the coming season having been alluded to in our columns on previous occasions need no further comment at present, but we venture to throw out as a mere suggestion for consideration, the desirability of exercising very great care in carrying out measures of retrenchment and economy, however desirable, lest the result prove an example of false economy. Placed as the Society is, in a peculiar position, having many distinct yet mutually related interests to consider, it must be very difficult to secure due attention to one without impairing, or appearing to impair, the efficiency of others. Still the Horticultural Society is not the only body that has to meet the demands at once of the dilettante or the lounger, and the urgent claims of practical and scientific men. The Zoological Society, it must be owned, does as much for the pleasure and amusement of the people, fashionable or unfashionable, as the Horticultural, while its services to science are far greater than those rendered under existing circumstances by the Horticultural Society. Sooner or later we are convinced that the question will arise as to whether the latter Society has not much higher functions to fulfil than to provide an agreeable lounge for its Fellows, desirable though this be, or to give costly rewards to the wealthier classes of horticulturists for the successful prosecution of their own personal interests, commercial or otherwise, which is, to say the least, less desirable.

We may also express our regret that the noble and learned President does not follow the example set by the Presidents of kindred societies, in giving an annual address, containing a summary of horticultural progress during the year, or one devoted to some general questions relating to the interests of scientific and practical horticulture.

—— WE learn that at a meeting of the Executive Committee of the INTERNATIONAL HORTICULTURAL EXHIBITION and BOTANICAL CONGRESS, which took place on the 14th inst., the question of the disposal of the surplus funds, which had already occupied attention, again underwent discussion; and the following resolution, which had been placed on the minutes at the meeting held on the 20th of November last, and stood over for further consideration, was unanimously adopted:—"That a communication be made to the Commissioners of the Exhibition of 1851, informing them that the Committee of the International Horticultural Exhibition have now remaining a balance of eighteen hundred pounds (1800*l.*), which sum they are willing to invest in the purchase of the LINDLEY Library and other books, to form the foundation of a Botanical and Horticultural Library, to be attached to the Royal Horticultural Society, provided Her Majesty's Commissioners, who are interested in the advancement of the South Kensington Estate, are willing to provide a suitable Reading Room, with glass cases, for the reception of such Library. The Room and Books to be for the use of Fellows of the Royal Horticultural Society, Members of other Societies, and Gardeners generally, under such Rules as may be agreed on. The Horticultural Society to nominate one of its officers or a clerk to look after the same. The Room and Library to be invested in the names of seven Trustees—two appointed by the Commissioners, two by the Royal Horticultural Society, two by the International Committee, and one by the six abovenamed."

—— We are requested to state that the REPORT of the late INTERNATIONAL HORTICULTURAL EXHIBITION and BOTANICAL CONGRESS, mention of which is made in another column, is now in course of distribution to those entitled by the decision of the Executive Committee to receive it. Among these are the various officials, the jurors, and the foreign visitors, while a certain number are to be presented to the libraries of various horticultural and scientific bodies of this country and on the Continent. In the selection of recipients the precedent set in the distribution of the bulletins of the Congresses of Brussels and Amsterdam has been followed.

—— We are informed that several interesting NEW ORCHIDS will be sent from the Meadow Bank collection to the meeting of the Royal Horticultural Society on Tuesday next, the 19th inst. Amongst them are to be included a spike of the Oncidium Dennisonianum, *Batem.*, alias O. Phalænopsis, *Linden*, alias O. nubigenum, *Lindl.*; also a spike of a new caulescent Epidendrum, with lilac flowers smelling as sweet as Jasmine; a new Warscewiczella from New Grenada, and several others.

—— It is stated that Professor DE BARY will succeed the late Dr. SCHLECHTENDAL in the chair of Botany at Halle, as also in the editorship of the *Botanische Zeitung*.

—— So far as we have been able to ascertain from the specimens forwarded to us, the seeds of the SORGHUM TARTARICUM, so called, belong to three distinct varieties, horticulturally, if not botanically, of the genus Sorghum. Whatever use may be made of the leaves and stems of these plants as food for cattle, there can be no doubt that in this country they will be worthless as substitutes for grain crops. Mr. HULLETT'S statements in our contemporaries as to this point are as little trustworthy as those made by him with reference to the Mangosteens and the wonderful Siamese "annual fruit," with numerous seeds, each as large as a child's head.

THE RIVAL SYSTEMS OF VINE CULTURE.

HURRICANES come upon us unawares, and with them often waste and desolation. I have sometimes succeeded in moving a fly by blowing upon it suddenly, but on again trying, it was not so easily done. When the fly was on the move, it might be more readily disturbed; but then I found it got so wary that it was prepared for the blast even when on the hop. It is absolutely necessary in these stormy times, that we should, like the fly, firmly establish one foot before moving the other, as there are in these days horticultural blasts so strong that had they come from some quarters, and been pitched at a proper elevation, they could not have failed to take our breath away, as well as take us off our legs. The last blast of 100*l.* from the trumpet of Mr. Cannell (see p. 101) is aimed at a host of practical men of great and lengthened experience in this country, but I fear that for want of shot his powder has been lost, and that the report will but echo over our heads with as little harm "as the receding wave after having burst upon the seashore.

It is a sad tale for Mr. Cannell to tell of himself, that he allowed the Vines at Portnall Park to die when under his own immediate care, at the green age of 24 years. I have not yet lived long enough here to prove whether the Vines which I have planted, will die when they arrive at that premature age or not, but according to the theory of Mr. Cannell, they must be dying now. Their decay must however be very slow, for on the 16th of January last, I carried upon a pole into Berkshire, for the wedding breakfast of my noble employer, 6 bunches of Black Grapes, weighing collectively 30 lb.; and two years ago I carried to the Royal Horticultural Society of London, also suspended from a pole, 6 bunches of Black Grapes, weighing collectively 36 lb., and which afterwards ornamented the wedding breakfast of the Earl of Coventry. These results were obtained under the so-called restrictive system.

In the old houses which I pulled down here, the Vines were from 60 to 80 years old. One Vine was planted to each rafter, and treated on the restrictive system. The Vines were in tolerably good condition, and my predecessor, Mr. Oliver, often took local prizes with them. There is a very old Vinery in the old garden at Hamilton Palace, which Mr. Mitchell showed me when there the other day, in which the Vines are yet healthy, and in a very fruitful condition. If Mr. Mitchell anticipated their death, I should think he would soon make short work with them, so as not to have it said that they died under his fingers. I have lived at places where the Vines were considered old, but I never happened to be at a place where they died out, or were even allowed to approach such a condition.

The finest black Grapes that have ever been grown in this, or in any other country (since the days of the children of Israel, when the spies "at the brook Eshcol cut down a branch with a cluster of Grapes, and they bare it between two on a staff), were grown in Mr. Meredith's Vineyard, at Garston, near Liverpool. I have been through that Vineyard, and I did not see any other but the restrictive system throughout the establishment. It seems strange that so shrewd a man as Mr. Meredith should not have adopted ere now the extending system, but, judging from the thriving condition of both Mr. Meredith and his establishment, the restrictive system of Vine growing appears to have answered his purpose remarkably well. If, moreover, fortunes are to be made more easily by adopting the extending system, it is a pity Mr. Meredith had taken so much pains in arriving at the position he has now obtained. Notwithstanding the successes of Mr. Meredith and the failures of Mr. Cannell, we are, according to the latter, to consider Mr. Meredith a man of the old school! Mr. Thomson has already given us an able treatise on the management of the Grape Vine, and I wish that Mr. Meredith would sit down and do likewise; for were he to do so, his acknowledged experience, success, and celebrity in Vine culture would be sufficient to guarantee a sale for his work, not far short of that of "Mugby Junction."

That all the old large Vines in the country are a grand sight I admit, and I am as pleased to see them as any one can be; but I certainly admire them more for their extent of branch, than for their size of bunch or general weight of fruit. In September 1864, when I saw the Hampton Court Vine, it was carrying 1250 bunches, and from previous years' calculation, the aggregate weight was computed to be 8 cwt., or 896 lb., which makes the average of each bunch to be a little over 11 oz.: not very prodigious this! But according to the advocates of the extending system, and the age of the Vine (99 years), the bunches by this time ought to weigh as many pounds. If I could not have put upon the table, *à la Russe*, Grapes better than those produced by the Vine at Hampton Court, I should not have had paid me the many compliments which I had from my late and much-lamented employer, the Earl of Craven.

Will Mr. Cannell tell us how many of the large old Vines to which he alludes are forced, and their fruit ripened, say even in June, much less in March or April, when some of our houses are brought in with hard forcing, and much artificial management; also, whether he thinks that the fact of their not being forced, contributes anything towards their health or longevity? Vines coming away naturally with the season require no great amount of sagacity from the

hands of the horticulturist. But Vines with hard forcing require some considerable amount of skill to produce fruit in March or April, besides having in view the keeping them healthy to carry crops for many successive years yet to come—and this necessary management does not appear to have been forthcoming at Portnall Park. No wonder the proprietor of that establishment thought much of his big Vine, and with such mishaps it is less to be wondered at, to find Mr. Cannell advocating so strongly the large Vine system, as being more simple and less expensive than any other.

The nine stages of decay as given by Mr. Cannell I cannot accept as resulting from the "unnatural and barbarous" system of close pruning; nor shall I, without further explanation, believe those symptoms to have arisen from other than great mismanagement. Mr. Cannell reasons somewhat illogically when he writes "Do not trim your Vine rods up every year like rafters. If you do, prune the roots also; if not they will be sure to rot and create all kinds of disease, and then you will wonder what is the cause of it;" and then again goes on to say, "plant one main Vine in the middle of the house; let it have a fresh rafter to fill after the third year every season; and if any more are planted, pull them up as this main one extends, and you will soon have a Hampton Court or a Cumberland Lodge Grape Vine." We are not told positively what are the diseases he apprehends from the rotting of the roots, resulting from the Vines being trimmed up every year like rafters. Probably he regards parasitical Fungi as one source of alarm. If this be what he is in dread of, he must have a better method than I have of pulling out the roots of temporary Vines to make room for permanent ones, if he can ensure that every rootlet is got out. Further on, and while still treating of the close pruning system, he agrees that it is "essential not to injure the roots;" but how Mr. Cannell can say prune the roots, and in a sentence immediately following add, it is essential not to prune the roots, is to me incomprehensible.

If Mr. Cannell gave his opinion from practice directly under his own management, and had himself achieved that which he holds forth to others, then I should be inclined to believe that he practises what he teaches, and himself trusts in that which he attempts to make others believe, but I fear he has little faith in his statements. I fear, too, that the advocates of the parasitical Fungi theory have as little faith in their doctrine. Let the advocates of the one-Vine system first reduce their theory to practice, and give to the gardening world conclusive proof of its adaptability as well for forcing as summer culture; and in the event of their succeeding they will have but little difficulty in disposing of the present system. They will, of course, before going further with the subject, choose a better base for operations than the swampy quagmire on which Mr. Cannell placed his redoubt. *Wm. Miller, Combe Abbey Gardens.*

[Mr. Miller's arguments are, as is well known, backed up by results showing no ordinary amount of success. We trust that other correspondents will state their views, so that the question may be thoroughly investigated. EDS.]

DR. HOOKER ON INSULAR FLORAS.

As I have paid a good deal of attention to the geographical distribution of animals and plants, I hope you will allow me to make a few remarks upon Dr. Hooker's Lecture on Oceanic Floras, in compliance with the desire expressed by him to see his statements investigated by others, and more facts accumulated, so as to aid him in treating the whole subject of Oceanic Floras comprehensively at some future time.

In regard to the details, I am especially pleased to find him more favourably disposed than I had anticipated to the conclusion that the facts observed in oceanic islands are inconsistent with the possibility of their having been peopled by accidental introductions. I had taken up the notion, partly perhaps from his general adoption of Mr. Darwin's views, and partly from what appeared to me the undue weight which, in his previous writings, he seemed disposed to give to these introductions, that when he did pronounce, he would be found in the ranks of those who believed that oceanic islands were peopled by them. It is with satisfaction that I find my anticipations so far disappointed, and that, although somewhat grudgingly, still in point of fact he does refer the origin of the Floras of these islands to former union with other countries, which has since been interrupted by the sinking of the land between them.

At the same time I cannot but see, and see with regret, that Dr. Hooker is anything but a voluntary convert, for while practically accepting the theory with the one hand, he throws cold water upon it with the other by such expressions as "The naturalist who takes nothing for granted finds insuperable objections to the ready acceptance of either;" "It proves too much;" "It may be said to account for everything, but to explain nothing," &c.

Now, as a friend of that theory, I object to its character being thus damaged by a side wind; facts or arguments against it may be met, but what possible reply can be made to an objection that "it accounts for everything, but explains nothing." The vagueness of the charge alone makes it formidable. The expression is a contradiction in terms. The accounting for a thing includes the explaining it, as the greater does the less. If the expression has any kernel at all, it probably is that Dr. Hooker has still some lingering doubts on the subject, but he is too truthful and honest to maintain his objections in the face of facts which he cannot deny, and whose bearing he is too able not to perceive; hence perhaps his mingled phase of wholesale doubt and retail belief.

Dr. Hooker is by no means the only naturalist o eminence who evinces this hesitation. There is a similar hanging back on the part of Sir Charles Lyell and Mr. Darwin, whom one would not, *a priori*, expect to be startled at any large or wide-reaching hypotheses. I cannot understand their reluctance to admit the recent submergence of Atlantic or Pacific continents, for the former and comparatively recent existence of such continents presents itself to my mind not as a possibility or probability, but as an absolute physical necessity. It seems to me, that although not a single fact in distribution had ever been observed, tending that way, an Atlantic continent must have existed, and we should then have had to exercise our ingenuity in explaining why no facts in distribution indicated it, instead of showing how the facts correspond with it. These gentlemen know that, since the Miocene epoch, the greater part of South America, a portion of North America, the most of North Africa, including the Sahara, the greater part of Europe, and the greater part of Northern Asia have all been raised from the bosom of the deep. It is part of their creed too, that for every band of elevation of land a corresponding depression takes place alongside of it, and yet they hesitate to apply their own principles simply on account of the grandeur of the scale on which the operation has been conducted. If I take an inflated India-rubber ball and make a dimple in it with my finger, the parts around my finger rise up in compensation of the pressure; so, if the North Atlantic is depressed, up must rise Europe and America; or if, reversing the illustration, Europe and Asia rise, down must go the Arctic Sea, the North Atlantic, the North Pacific, and the Indian Ocean. It may be said that a general depression may take place from the shrinking of the earth under the process of cooling; but as the total amount of sea remains the same, this would only add to the ground under water instead of diminishing it, and consequently make the submergence of continents the more likely. Both Lyell and Darwin ground their hesitation on the enormous depth and width of the Atlantic as too great to be depressed in the time allowed, but if there has been time to raise the corresponding quantity of dry land there must have been time for the submergence of that now under water, the one being the counterpart of the other, and consequently the action must have been simultaneous.

Next to his reluctance to accept the theory of former union of the islands to main lands, the least satisfactory point to me in Dr. Hooker's lecture is the limited extent to which he has availed himself of the collateral information drawn from the Faunas of the islands of which he has spoken. No doubt that was, strictly speaking, beyond his province (Floras). It is true that he has done all he promised; but it is not the less true that any one reasoning as to the geographical affinities of oceanic islands may find their conclusions, although sound as regards the Floras, by no means sound as regards general results. The character of the Flora of a place may differ from that of its Fauna, and one portion of the Fauna may differ from another, and a combined view of both may lead to a different conclusion from what an isolated view of either would give. This I consider a very important point to be kept in view by all students of geographical distribution, and as Dr. Hooker does not touch upon it, and there is a very general impression that the Floras and Faunas always harmonise with each other, perhaps you will allow me to give one or two illustrations of differences between them, which I shall select as much as possible for the bearing they have upon the islands specially treated of by Dr. Hooker.

The geographical distribution of plants and animals in Greenland, although not within his scope, is a case too pertinent to be omitted. In treating of it I have shown that while the plants and the insects of that country are of European types, the birds and mammals are of American, indicating, as I think, that Greenland after its denudation by the glacial epoch was first united to Europe, but afterwards severed from it before birds and beasts had made their way to it.

Japan furnishes another instance. There, for example, the larger proportion of the butterflies and moths is of the Northern Europeo-Asiatic facies. So are the beetles. With the exception of a small proportion of species either actually Chinese or of a Chinese facies, the English entomologist would find nothing but species either identical with English ones or obviously closely allied to them. But when we come to the Hymenoptera (the bees, wasps, and ants) the case is wholly changed; they are all Chinese. So far as we yet know, not a single Hymenopterous insect of a boreal or European facies occurs in Japan. Mr. Fred. Smith, the first hymenopterist of the day, informs me that none have ever reached the British Museum. I can only see one way of accounting for this most remarkable difference, and if my explanation is the true one, it speaks trumpet-tongued against the whole theory of islands, whether oceanic or near the land, being ever peopled by colonisation or accidental introductions.

My idea is that prior to the glacial epoch and the alterations of level which then took place, Japan was united to Northern Asia. The whole of the country which was above water from Ireland to Japan had, both before and after the glacial epoch, one Fauna and one Flora; although they might be different after from what they were before, still at both periods they were one in themselves. Dr. Hooker can bear evidence to the identity of the substratum of the Floras of these lands. Dr. Sclater has spoken to that of birds. I may be allowed to refer to my "Geographical Distribution of Mammals," as showing the same thing in that class, and here I shall only refer to one other class, the Coleoptera, regarding whose geographical distribution we have some numerical details. In them one facies extends over the whole of Northern Europe and Asia, and many of the species are identical the whole way, the most distant points having of course the fewest in common. So strong is this unity of Fauna, that out of 320 species collected by Schrenck in Amourland (the extreme eastern coast of Asia, directly opposite the northern half of Japan) there are actually 96 species identical with British species, 126 identical with those found in Germany, and 140 identical with those from the districts lying next to the east of the Ural Mountains. Similar statistics have not yet been worked out for Japan, but that a similar facies and many identical species exist is undoubted. This European facies of the Japanese beetles is a mere continuation of what occurs on the mainland, indicating union (according to my view) at the time that Japan received the insects of that facies. *Andrew Murray.*

(To be Continued.)

SALADS, AND HOW TO GROW THEM.—No. I.

UNDER this head I purpose to give, from time to time, a few hints which may be serviceable to instruct the uninitiated, and if I judge rightly, may also improve the cultivation of Salads in the hands of those who are only partially acquainted with their proper treatment. There are, I apprehend, very few persons but can enjoy what is commonly called a good salad; I mean by this a dressed salad—such combinations as are recommended in the various cookery books, the good quality of which must, of course, chiefly depend upon the superiority of their component parts. The separate ingredients are, as we all know, also highly appreciated. My province, however, in these papers will be, not so much to speak of their uses as of their cultivation, though I believe there are few things more conducive to health during the summer months than the moderate use of these cooling vegetables. Their refreshing properties seem to invigorate the animal spirits and to give an extra tone to the system, more easily felt than described. Our labouring population takes full advantage of them during the time of their greatest plenty, judging from the demand and sale in London, and the large manufacturing towns.

The quantity supplied to the London markets alone would surprise any one not cognisant of the fact. There are hundreds of waggon loads consumed weekly in London during the months of May, June, and July, the quantity gradually decreasing until October, after which, as a matter of course, salads become more scarce, and are considered greater delicacies. The supply is generally well kept up, if the weather be mild, until Christmas, after which we get some kinds imported, in addition to those of home-growth. The French then partially supply the London markets with Radishes, both Long and Turnip, with Cos and Cabbage Lettuces, and with Endive. Radishes are also sent to London from Cornwall at the same season. During the first two months of the year we are actually supplied from the remote region of Algeria with Lettuces, beautiful in quality, indeed almost equal to our own summer growth.

I purpose in these articles to write on the cultivation of those salads which are generally used, or are more generally known, and trust therefore to be excused if I seem to omit some that are appreciated only in certain localities, though it will be my endeavour to speak of all those which are of any note. I may promise, moreover, that if the general instructions which will be given, are carried out, a good salad will not be wanting, or at least will be obtainable, nearly all the year round. *James M. Mason.*

Home Correspondence.

The late Winterly Weather.—This has caused sad havoc here, both in the kitchen garden and pleasure-grounds. Broccolis of all sorts, Albert Sprouts, Dalmeny Sprouts, and Brussels Sprouts, are very much cut up. I am glad to state that Cottagers' Kale has withstood the storm, and that it is quite fresh. Buda Kale, also, is unhurt. Too much cannot be said in favour of this useful vegetable: it comes in season when nearly all other Greens are over, sending up sprouts in April and May, which are most delicious. Melville's Variegated Kale has also stood the severe weather both in the kitchen and flower garden. Of the Albert Sprout I cannot speak highly, although it shows its parentage. I do not see one plant with hearting sprouts. They are all open like an inferior Brussels Sprout, and I can only say the same of the Dalmeny Sprouts. Osborn's Winter White Broccoli came out last year as a very fine new hardy sort. With us it is not hardy, being as tender as a Cauliflower; every plant was killed by 5° of frost on the 1st December, 1866. The thermometer used here is one of Negretti and Zambra's, placed at 4 feet from the ground; the reading being taken every morning at 7 A.M. We have not had so much frost as in the neighbourhood of London, but as our situation is low and wet we suffer more. First storm, January 1st, 12° of frost; 2d, 20°; 3d, 17°; 4th, 22°; 5th, 15°; 6th, 8°; 7th, heavy rain. Second storm, January 12th, 17°; 13th, 18°; 14th, 20°; 15th, 17°; 16th, 12°; 17th, 8°; 18th, 9°; 19th, 12°; 20th, 17°; 21st, 7°; 22d, 17°; 23d, 7°; 24th, showery and mild, snow going fast. *D. Lumsden, Bloxholm Hall, Sleaford, Lincolnshire.*——The following have been killed to the ground in our garden, viz., Euonymus europæus, Laurustinus, Bays, two fine large trees of Cedrus Deodara (others much injured), Araucaria imbricata, Phillyreas, all the Double Furzes, of which we had many large plants; all Tea Roses, with the important exception of Gloire de Dijon; Cupressus sempervirens, and Berberis Darwinii. The following have been damaged, viz., Common Laurels, many Hollies, Portugal Laurels, and hybrid Rhododendrons. Arbutuses have escaped uninjured. Scotch Kale, Broccoli, and all Greens are quite dead, with the exception of Cattell's Eclipse Broccoli and autumn-planted Cabbage. The soil is a stiff brown loam with bright yellow clay beneath: it is drained 3 to 4 feet deep,—too deep, I think, as the surface water never reaches the drain, and

it is always very wet in winter. The lowest point reached by the thermometer was 3° below zero. Some of our neighbours on Wimbledon Common have escaped damage altogether. There the soil is sand with a gravelly subsoil. *Charles Woodhams, gr. to J. Gurney, Esq., West Hill, Putney.*

Root Fungi.—I was much interested in the communication of "Shannon" on Root Fungus, which appeared in your number for Jan. 26, but would be glad of an explanation of his last sentence,—"I remark, too, that I seldom or never observe it to arise from the roots of a growing tree, cut down to make room for younger plants." Does he mean by this that he does not observe it when healthy trees have been cut down, and young plantations made immediately, or almost immediately, in their place? One would suppose so but for the latter part of a previous sentence, "the mischief invariably arises from the roots of former trees being decayed, and I find that it is always worse where the previous plantations have been old and decaying, than where the trees were young and vigorous." It appears, then, that he does observe it to arise, though in a lesser degree, from the roots of a young and vigorous previous plantation. As "Shannon's" experience in the matter has been so extensive and prolonged, a more exact explanation of his meaning would oblige. *A. B.*

Management of Woods.—Allow me to thank Mr. Irvine (see p. 113) for the trouble he has saved me by replying to Mr. Brown's remarks on this subject. I have spent upwards of 50 years in woods and gardens, and I have seen something of what is required in some of our best places, but I never met with a place in which the gardener was not competent to manage woods. We must not be too hard, however, on Mr. Brown, as perhaps, after all, he is only acquainted with such gardeners as we see occasionally advertised for in your pages—for instance, there is one wanted this week, "A first-class Gardener, who must understand Roses and bedding-out perfectly. He will also have to mind, and milk a cow." If these are the kind of gardeners of whom Mr. Brown speaks, we must allow his remarks to pass without further notice. I hope, however, that he will not speak so disrespectfully of us as a class in future, for I am happy to say that I know many who do not deserve it, and who are better able to stand up in their own defence than your old correspondent, *Jasper Standstill.*

Tricoloured Pelargoniums.—Mr. Grieve says (see p. 104), "that he believes that there is not a golden tricolor-leaved Pelargonium in cultivation, that has not, directly or indirectly, sprang from Mrs. Pollock or Sunset. As I have raised some of the brightest yet in that class, and as the aggregate of science is made up bit by bit, allow me to add my mite thereto, for the information of Mr. Grieve and Professor Morren also. In the first place I never possessed either of the Pelargoniums just named, neither have I ever used their pollen; but they may be made out of the most common material, and with as much certainty as that 2 and 2 make 4, and equally as simple, because like begets like. Now then, *Tricolors for the Million.* Ladies and gentlemen, professors and tyros, may all try in the coming spring—ripen seed, sow the same, and prove it before the autumn. Now for the way to go about it. Take the pollen of Golden Chain, and with it fertilise any zonal you think proper; the result will be a tri-coloured seedling. It may not be up to your wishes, but having taken the first step in the right direction, if you understand what is meant by breeding in-and-in, the way is plain before you to make it exactly as you would like to have it, and if that end is not attained, it is entirely the fault of the operator. *Scio.*

Vine Growing.—How are we, if we cut out all our Vines, save one in each house, to put up collections of Grapes for exhibition? Or are such exhibitions to be disfavoured in the future, and our prize Grapes to be limited to one kind? *H. D.* [This is supposing an extreme case. It is by no means likely that even the most strenuous advocate of the extending system, would adopt it throughout the whole of a large establishment, although perhaps, in pushing his *ex cathedra* arguments in its favour, he might omit to make such an admission. For variety's sake alone, mixed houses will ever be desirable. We may remind our correspondents generally that there is a mean between the two extremes—not only as regards the application of the system to a whole establishment, but also as regards carrying it out in a single house. Suppose a Vine had three or four rafters to cover instead of one; might not that be advantageous? Even then, so far as we understand the issue raised, there is no doubt as to how the finest samples may be produced; the question turns upon the point of continuity, that is, continuity combined with sufficient excellence, and this is the question which we particularly desire to see thoroughly discussed by our most experienced growers. What says Mr. Meredith on this point? EDS.]

Berberis Aquifolium as Game Covert.—Your correspondent (see p. 105) is slightly incorrect in his remarks in reference to this Berberis as a plant for coverts at Nuneham Park. It was I who planted, or at least superintended the planting of it on a rough piece of woodland, where it could not be expected to make much growth. After the dry autumn of 1865 all the plants of it were mostly alive, but rather sickly. No rabbits had touched them then, although plenty were at hand. When fox-hunting began, the fence got broken down, and unfortunately a flock of over 200 sheep got in and laid upon the plants all night, and being only small twigs, they ate them nearly all within a few inches of the ground. I am therefore not surprised to hear that no amount of cleaning has failed to recover them. *G. Telfer, late of Nuneham Park.*

Gas Tar and Hot Water Pipes.—Allow me to tell your correspondent (see p. 128) to butter or grease his pipes thoroughly, and the vile tar will at once relax its grasp, and can readily be scraped, or even rubbed off. While it continues in its soft, buttery mood, take water, as near boiling as it can be used, with plenty of soft soap, and scrub off every atom of it. If the pipes are milk-warm, the grease will operate all the better; but they must not be made hot, or it will run off without softening the tar. The washing must also be well done, or the smell will continue for years, although the tar would probably cease to be dangerous after the scraping or rubbing. *Quercus.*

Radiation of Heat.—Upon this subject "Quercus" (see p. 127) invites an explanation of certain effects of the late frost upon Laurels and other trees. If his observations have been correctly made, they are certainly very singular. He finds that within one foot of the ground the buds [branches were meant] of Laurels are all killed, while at the height of six feet the trees are alive and well. He connects these observations with an idea that at the distance of six feet "terrestrial radiation ceases,"—an idea which I recommend him to dismiss. I may also venture to recommend him to extend his observations before assuming as "beyond controversy," that the frost "wielded its most destructive force within a foot of the ground," the facts he has observed being the reverse of everything seen elsewhere, and being inconsistent with well-ascertained thermal laws. That the late frost was the result of radiation is proved by the fact that the leaves and branches of trees were much colder than the surrounding atmosphere, which fact is proved by their condensing from the atmosphere a beautiful crop of hoar-frost crystals. That the radiation was greatest, and the damage done to plants was greatest, not near the ground, but at their highest and most exposed parts, is proved by the blighted and withered condition of the upper parts of Laurustinus, Laurus nobilis and Deodars; the two last being, in most cases, entirely denuded of leaves for several feet, from the top downwards, while their lower portion, near the ground, is comparatively green and unhurt. It is possible that in open situations completely exposed to the sky, the air in contact with a grassy soil may become colder than the air a few feet above it, but not colder than the Grass, nor colder than the top of a tree, equally free as the Grass to radiate or emit its heat. *An Amateur, Clapham Park.*

Rainfall.—The following is the monthly depth of rain which fell at Bloxholm Hall, near Sleaford, in the year 1866:—

	Inches.		Inches.
January	3.50	August	3.50
February	2.00	September	4.62
March	1.20	October	2.05
April	1.10	November	2.22
May	1.50	December	1.70
June	3.00		
July	3.10	Total	29.49

Taken by Casella's 6-inch rain-gauge. *D. Lumsden, Bloxholm Hall, Sleaford.*

Societies.

ROYAL HORTICULTURAL: *Feb.* 12 (Anniversary).—The Duke of Buccleuch, K.G., in the Chair.

The minutes of the last meeting having been read and confirmed, Mr. Fortune and Mr. Booth were appointed scrutineers, and the ballot for members of Council and officers was proceeded with, and resulted in the election of the Duke of Buccleuch as President; Mr. G. F. Wilson, F.R.S., Treasurer; Lt.-Col. Scott, R.E., Secretary; Mr. Wilson, Col. Scott, and Mr. Henry Cole, C.B., Expenses Committee men; and Mr. Jas. Nicholson, Mr. John Gibson, and Mr. Robert Hudson, Auditors. Lt.-Gen. Hon. C. Grey, Major Trevor Clarke, and Mr. Wentworth W. Buller, were elected Members of Council in the place of the following vacating members, viz., Mr. W. Wilson Saunders, F.R.S.; Sir A. Buller, and the Rt. Hon. W. Cowper, M.P.

The Assistant Secretary then read the Annual Report as follows:—

1. Notwithstanding the monetary distress of the past year, the Council are able to report to the Fellows an increase in the amount of annual subscriptions. The sums paid by Fellows as subscriptions in 1865 amounted to 7975*l.* 1*s.* 1*d.*, and, as will be seen by the statement of receipt and expenditure, their annual subscriptions rose to 8176*l.*, 9*s.* 6*d.* in 1866.

2. The rents for the Arcade lettings to Horticultural implement makers have also increased more than 80 per cent. since the year 1865, and during the last 12 months 320*l.* have been paid to the Society under this head, in addition to the sum of 149*l.* 17*s.* received for her Majesty's Commissioners of 1851 for the stalls in the South-Eastern Arcade.

3. The sales of Garden produce from Chiswick for 1866 have likewise exceeded those of the previous year. In 1865 these sales brought in 650*l.* 3*s.* 8*d.*; in 1866 they amounted to 717*l.* 15*s.* 5*d.* But for the failure of a considerable portion of the Fruit crops—a failure under which all gardens in and about London suffered—the receipts from this source would have been considerably greater.

4. It will be seen, therefore, that in the sources of income least liable to fluctuation, the Society has made decided progress, and although the receipts from exhibitions and for daily admissions have fallen considerably below the average, the Council are of opinion that the affairs of the Society, though requiring strict economy, are in an encouraging position, for these deficiencies are traceable to causes which have affected every undertaking, whilst the progress made can only be attributable to the increasing popularity of the Society, and to the daily increasing number of wealthy residents in the neighbourhood of the Gardens.

5. The falling off in the receipts for exhibitions and admissions to the Gardens is in part also attributable to another cause which will not probably be of frequent recurrence. Although a payment was made to the Society from the funds of the International Horticultural Exhibition—and this payment was equivalent to that which is generally cleared by the First Great Show of the Society, the place of which it took—it by no means represented the whole diminution which it occasioned, directly and indirectly, to the receipts of the Society. It was proposed, when this arrangement was made, that the International Exhibition should be open for four days only, but at the end of the four days its receipts fell so far short of the anticipations of its promoters that they found it necessary to apply to the Council for an extension of the time for which the Gardens were granted.*

* [This is not strictly accurate. The International Executive decided on the second day of the Show to extend the duration of the Exhibition, and decided also that the arrangement with the Council, in the desire of saving from heavy loss those who had so liberally given their names as the guarantors of an undertaking devoted to the interests of Horticulture, at once acceded to the request, and, from the serious financial failure which it threatened to become, the undertaking was converted into a brilliant success.

6. A further deficiency in the receipts, as compared with those of 1865, was occasioned by the abolition of the cheap admissions, in compliance with the wish expressed by the Fellows at the last annual general meeting, and unfortunately the free admissions which were granted to the public in lieu of them were not so successful as to induce the Council to repeat them. They were taken advantage of less by the classes for whom the boon was intended, than by those whose presence in the Gardens the Council had no desire to encourage.

7. It may be remembered by the Fellows that the Library of the late Dr. Lindley was last year announced for sale, and a proposition was made that the Fellows of the Society should be invited to subscribe for its purchase. The Council, however, having been given to understand that its purchase was contemplated by the Committee of the International Exhibition, thought it needless to bring it before the Fellows. Pending a decision concerning the mode in which so desirable an object was to be attained, the Council decided to advance the money for it, and they have now reason to believe that a portion of the surplus from the International Exhibition will be applied to the formation of a Horticultural Library at South Kensington, commencing with the purchase of the Lindley Collection.

8. In carrying out the scheme for the year's arrangements, the Council have reduced the expenditure wherever it could be done without impeding the effective working of the Society, and an analysis of the accounts put into the hands of the Fellows will show that the strictest economy has been exercised. The expenditure for the maintenance and improvement of Chiswick, and for assistance given by the scientific staff, will hereafter yield its due return in increased produce in the garden and in reputation to the Society, whilst to have stopped the work which is being so ably carried on would have been very injurious to it. For full information on this head Fellows are referred to the annexed Report of the Chiswick Board. In speaking of Chiswick Gardens, the Council think it right to call the attention of the Fellows to the fact that Mr. Thompson has now for a period of 45 years rendered very valuable services to the Society, the greater part of the time as the Superintendent of the fruit and vegetable department. His great age requires that he should now have some rest from his labours, and, pending the adoption of any ulterior measures that may be taken for his advantage, the Council propose to continue to pay him the full amount of his present salary, leaving it to himself to determine what he can best do to assist the Society.

9. The Education scheme for gardeners is working with success. The examinations held this year have resulted in 13 young men receiving certificates either for floriculture or fruit and vegetable culture. Five of these gardeners are employed at Chiswick, five at the Royal Gardens at Kew, and three were from private establishments. Of those who presented themselves for examination, three had previously obtained certificates or prizes from the Society of Arts, examining on behalf of the Royal Horticultural Society. Two also showed themselves worthy of election as Associates.

10. In their arrangements for the present year the Council have been induced to try the experiment of extending the duration of the First Great Show to four days, and the principal exhibitors have promised their support in making the experiment a success. It is proposed to hold the greater part of the Exhibition in the Great Tent, and in some additional canvas-covered spaces. The more delicate plants will be shown in the Conservatory.

11. Relations have been entered into with the Royal Agricultural Society for holding an Autumnal Fruit and Flower Show in the provinces in connection with their annual Agricultural Show, and arrangements have been made with them for a conjoint Exhibition at Bury St. Edmunds in July next. The horticulturists of that place and of the adjoining counties have entered into the scheme with a degree of spirit which indicates that the guarantee from loss stipulated for by the Council as a condition of holding the Show, is not likely to be called into requisition. In a very few weeks from the announcement of the Council's intention, the contributions to the guarantee fund amounted to double the sum named as necessary; and, in addition to the prizes offered by this Society, cups, &c., to the value of no less than 226*l.* [?] have been offered by Towns, Counties, Flower Societies, and private gentlemen. The Council confidently expect, therefore, that the Show at Bury will not only exercise a beneficial influence on Horticulture, but that it will conduce also to the reputation of the Royal Horticultural Society.

12. It was originally the intention of the Council to publish four numbers of the Journal annually, to be paid for by subscriptions from such Fellows as might wish to receive a copy of the work. The additional subscription did not, however, find sufficient favour with the Fellows to enable the Council to publish the Journal on this footing; and the Council, unwilling to give up a plan which appeared to them to be so important an aid to the objects of the Horticultural Society, have determined to do what is possible towards it by bringing out the numbers of the work at longer intervals, and supplying them at the expense of the Society to the whole of its members.

13. These and other proposed alterations and reductions in the expenses of management will, it is hoped, effect all that is necessary in the way of saving, without trenching on the privileges and the pleasures of the Fellows; but the Council desire to impress upon every subscriber the advantage to the cause of Horticulture of inducing his friends to take a warmer interest in the work of the Society, and to enrol themselves amongst its Fellows. No better way of effecting this offers itself than that of bringing them to visit the Tuesday Fruit and Floral Exhibitions of the Society. Under this belief the Council have given to the Fellows the fullest privileges for these Shows, and they have also raised the payment for admission to the Gardens on these occasions, to enhance the advantages which the Fellows' privilege of admitting friends enable them to confer.

14. The Council are taking steps to get the tax removed from tobacco purchased for horticultural purposes, and the Chancellor of the Exchequer has signified to the Council that he is very willing to receive a deputation of the Society on this subject. He will fix an early day for the purpose, and the deputation will be headed by the President of the Society, His Grace the Duke of Buccleuch. It is the intention of the Council to invite the leading Horticulturists of the country to join in it.

REPORT OF THE CHISWICK BOARD.

The attention of the Chiswick Board of Directors has, during the past year, been more especially directed towards restoring

respect to the use of the Garden by themselves should cease with the original bargain, but they suggested to the officials of the Royal Horticultural Society whether an arrangement beneficial to both parties might not be made, by which the Society would make a charge to those who might desire to pass from the Tent into the Garden during the time of such extension. This the Council did not approve of, and instead thereof made the Committee the further offer which was the basis of the arrangement ultimately adopted. The Executive Committee did not therefore "apply to the Council for an extension of the time for which the Gardens were granted," and the transaction did not take place "at the end of the four days." EDS.]

the Gardens to their former state of efficiency, so that little, comparatively, has been done of a strictly scientific nature. Some successful [*sic*] attempts at Hybridising however, have been effected, the success of most of which is at present uncertain; one, however, a cross between the Ivy-leaved Pelargonium and some of the best zoned varieties, has been happily accomplished, and it is hoped that out of the numerous seedlings some striking novelties may be produced.

Attempts have also been made towards the cultivation of Truffles and different kinds of Mushrooms. The Truffle bed has not yet been disturbed, but a better result than has attended other attempts is scarcely to be hoped for. It was, however, thought right that it should be tried on the best principles; and should it not succeed, they will not be deterred from further attempts. So little at present is known of the growth of Truffles in the infant state, that we must be content to work a good deal in the dark. As regards the Mushrooms, it cannot be known till next autumn whether any success has been obtained.

A valuable series of observations on Radiation, and other cognate matters, has been made at the suggestion of Mr. Hadwen, which will shortly be published in the Journal.

Great pains have been taken in verifying some of the doubtful plants in the collection.

The Directors feel great pleasure in reporting the great success which has been achieved, as regards making the Gardens a school of Horticulture, by the employment of students in the work of the Garden. The results of the late examination are also very encouraging, and they think it may be advantageous, both to the Society, and to young men entering on the profession of gardening, if the number were extended as opportunities permit.

POMOLOGICAL SECTION.

Fruit Department.—With the view of continuing the experiments in the comparison of the numerous varieties of fruits now in the collection at the garden, and especially in the vast number of Vines, the glazed wall was converted a few years ago into an experimental Vinery, where all the varieties are trained against the wall on the "single-rod" system, by which means no less than 128 varieties have been planted. The last was the first season in which any great number of these Vines produced fruit, and many important observations were made which, however, it would be premature at present to announce, until they have been confirmed by the experience of another season. It is believed, from what the Board have seen, that many of these so-called new varieties will prove to be old kinds under new names, some will be found to be entirely worthless, while not a few must become useful and permanent additions to those already in cultivation.

Great confusion exists among the large section of Grapes included under the name of Chasselas; and for the purpose of throwing as much light as possible on the subject, plants of all the varieties known to belong to that section have been propagated and grown in pots, and in the ensuing year the whole collection will be fruited, and many points on which much doubt has hitherto prevailed will be cleared up, and this important section of the Grapes will be reduced into proper order.

Another very important subject which has engaged the attention of the Board is the collection of Figs, of which there are now 74 varieties in the garden. Since the last report was made, the house in which the Figs were usually grown has been entirely re-glazed; every alternate sash-bar has been removed from the lights, and the small squares of dirty glass with their numerous overlaps have been supplanted by squares of large dimensions, thereby introducing a flood of light, which is essential to the successful perfecting of the fruit of the Fig. Considerable progress has also been made in the identification of old varieties under new names, and in the fruiting of others that have not hitherto been introduced to this country; but, as in the case of all new fruits, great caution is required in coming to any conclusions on the subject, and, therefore, before any report is made, the Board consider it judicious to repeat their observations another season, when, judging from the promising appearance of the trees, they expect to derive greater facilities for coming to a satisfactory conclusion than have hitherto been afforded.

For the last few seasons repeated attempts have been made to investigate the collection of Strawberries, but without effect; the plantation which existed in the garden having, in common with others throughout the country, suffered from the successive effects of late spring frost and summer droughts, it became necessary to form an entirely new collection, including in it all the varieties that were known to exist either in this country or the continent. Through the liberality which always characterises the nursery trade in its relation to the Society, the Directors have the pleasure to report that the new plantation, which has been formed on a newly-prepared piece of ground, now includes no less than 286 varieties; and it is hoped that in the year 1868, should no untoward event arise, a rare opportunity will be afforded to the Fellows of the Society and those interested in the subject to study this extensive collection.

It has been found that the old collection of Apples on Paradise stocks which occupies the borders of the orchard and kitchen garden, and which is coeval with the existence of the garden, is rapidly falling into decay, and although by certain treatment the trees might be renovated and rendered healthy and fruitful, the expense and labour that would be incurred in arriving at this result are so great, that steps are being taken to gradually remove these old trees and to form a new collection with others of a younger and more healthy growth. Another and perhaps the greatest objection to the continuance of these trees is the fact that most of them are grafted with several distinct varieties, which in many instances have been double worked, and the evil results that arise from this circumstance, where so many applications for grafts are furnished to the Fellows from these trees, are in themselves sufficient to justify the course which the Board propose to carry out. Every care has been taken to preserve the full collection, and, in anticipation of the destruction of the old trees, scions have been taken from them and worked upon stocks which have now grown into handsome young trees ready to take the place of their predecessors.

During the past season the Plum and Cherry crops have been an entire failure, and for all practical purposes have been productive of no useful result. The great uncertainty there is in securing a crop of Cherries, whether from the damage done to the bloom by late spring frosts, or by birds when a crop has been obtained, has induced the Board to institute a course of experimental examinations, by growing the trees in pots, and cultivating them under protection. This appears to be the only alternative where a large collection has to be dealt with, and where it is impossible to protect every individual tree when out of doors. The Board, therefore, propose in future to grow all new varieties that may be received in pots, and to add to them when young trees can be obtained all the old varieties in the garden, so that future experiments may be carried out with some reasonable prospect of success.

Every opportunity is taken of securing the novelties which are announced, and it is the object of the Directors to render the collection of fruits in the Chiswick Garden as complete as it is possible to be, so that it may become a centre of reference upon all subjects relating to fruits and to fruit tree culture. It is with much pleasure that they have to record the great liberality of the Rev. John Huyshe, of Clysthydon, near Exeter, who has been the successful originator of several valuable varieties of Pear bearing his name. Among these varieties was one of unusual size and excellence, which has been named Huyshe's Prince Consort, and the entire stock of that variety Mr. Huyshe has placed at the disposal of the Society. Upwards of 100 young trees have been propagated of it in the garden, and these, along with 200 or 300 scions sent by Mr. Huyshe, have been distributed in the first ballot of this year.

It is gratifying to see the unabated interest which the nursery trade and others connected with the pursuit of horticulture in the country manifest in the maintenance and success of the operations at the garden, as exemplified in the liberal donations of any novelties they may possess, and the desire that the Society should have an opportunity of comparing, examining, and proving the various subjects of horticultural interest. It is also an encouraging sign, and an evidence of the important services the Society can render to horticulture, to find so many applications from so many of the professional as well as amateur Fellows of the Society for scions and seeds of fruit and ornamental trees, either for the augmentation of their collections or for the careful preservation of the nomenclature of the subjects of which these collections are composed.

Vegetable Department.—In the vegetable department the experiments in proving the varieties of new vegetables and comparing them with the old have been continued. In the past season the Board resolved to investigate the varieties of garden Peas, and with this view obtained, through the liberality of the nursery and seed trade, the seeds of considerably upwards of 100 sorts, all of which were sown on ground skilfully and carefully prepared. Unfortunately, however, the ravages of slugs and of other predatory insects, which resisted every means adopted to exterminate them, were such as to entirely destroy the whole crop, and this having occurred a second time with a crop sown after the destruction of the first, the desired result was not obtained. The attempt will be made again this season, when it is hoped that better fortune will attend our labours.

The crops of which successful examinations have been made are Onions, Beet, and Celery, and of these the reports will be published in the Journal of the Society in due course.

FLORAL SECTION.

As regards the Floral Department, while the supply of Bedding plants for South Kensington, as well as of Flowering and other Ornamental plants for the decoration of the conservatory, has been maintained, other plants of interest have from time to time, so far as the glass accommodation has permitted, been sent from Chiswick to the Tuesday Meetings and Saturday Promenades. A new lean-to house has now been erected, and a second house is in course of removal from Kensington, for the purpose of more fully carrying out this latter object. These additions, and some modifications with respect to the older erections, will not only much facilitate the keeping up of these several supplies, but will also give, to some extent, the increased facilities that were necessary for experimental cultivation, and for supplying plants for the ballot distributions.

The cultivation of New Flowers for examination by the Floral Committee has been carried on as usual. In the course of the season, the trial beds have not only proved attractive to those who visited the Garden, but have afforded valuable information, to many persons who sought it, as to the habits, qualities, and colours of the different plants. To the trial beds of former years was added, during the past year, a series of beds for the growth of examples of the now fashionable group of Sub-tropical Plants so much used for summer garden decoration, and a very interesting collection of these was brought together, The thanks of the Fellows are due to those gentlemen who were good enough to contribute these various subjects, intended either for experimental culture or for purposes of public reference.

A considerable space of ground, which had been previously prepared for the purpose, was during the past season planted with a choice collection of Conifers presented to the Society by Messrs. Veitch & Sons, Messrs. Waterer & Godfrey, Messrs. Lee, Messrs. Osborn & Sons, Mr. Dancer, Mr. Standish, and Mr. W. Paul. When established, these will afford useful information to those gentlemen who may wish to make selections for ornamental planting. A collection of Roses was also contributed by Mr. W. Paul, Mr. C. Turner, Messrs. Rivers & Son, and Messrs. Wood & Son.

It is yet too early to ascertain the amount of damage occasioned by the excessive cold to which the Chiswick Garden was exposed during the frosts of January, 1867, but it is to be feared that half-hardy subjects will have suffered severely.

The Rev. GEORGE CHEERE then moved that the Report of the Council be received and adopted.

Mr. HARRY CHESTER said there were two points in the Report of great interest. As regarded one of them he was himself concerned, having been the first to bring the matter before the Society, and that was the education of gardeners. The scheme had been well received by the Council, and he had the pleasure of serving on the Committee who investigated that and other matters. There were some who had doubts as to the possibility of the Council carrying out the scheme recommended by that Committee, but the majority were in favour of it. A very considerable portion of the scheme had been carried out, and it was satisfactory to find that it had been attended with excellent results. That was one point; the other was the relations that existed between the Royal Horticultural Society and the late great International Horticultural Exhibition. As regards the surplus arising from that exhibition, he said there was no doubt the money had been given by a great many people, and it was difficult to say what the Committee were to do with it. They had thought proper to make a grant of 1000*l.* to the Gardeners' Royal Benevolent Institution; of that he did not complain, but what he wished to inquire was, whether the Committee of the International intended to give the Society any of the surplus they had in hand? It seemed to him that according to the undertaking that had been entered into, the Society ought to have some. It was said that it was proposed to invest a portion of that surplus in the purchase of the Lindley Library. No doubt it might be desirable that should be bought, but it seemed to him that it would be only right that the surplus, or, at all events, some of it, should be handed over to the Society, and then by an arrangement it might be agreed between the Society and the Committee of the International Exhibition that the Lindley Library might be purchased out of that surplus, and become the property of the Society. There was another body who treated the International Exhibition Committee with great liberality. He (Mr. Chester) referred to her Majesty's Commissioners of the Exhibition of 1851, who gave the use of the ground without any charge, * but they were not in a position to ask the Committee of the International Exhibition to give them any portion of the surplus, nor, indeed, did he suppose that they would do so; and, in fact, if they did the Commissioners would not take it, but the Society was indebted to the Commissioners, and if the Society could get any of that surplus, it would in their present financial position be of great use, as it could be handed over in part payment of the amount in which the Society was indebted to the Commissioners of 1851.

Mr. EDGAR BOWRING said the Council submitted to the Expenses Committee their estimates of the receipts of the year 1866, and on that statement the Expenses Committee based their corresponding expenditure. They have no legal control over the application of their receipts, but they have over their expenditure. In the anticipated receipts there were three matters which they took into account—the exhibitions, the promenades, and the special fêtes. Now the total estimate under these heads for the year 1865 was 2630*l.*, and for 1866 only 2180*l.*, or 450*l.* less than in 1865, and it seemed that if the Society took a sum of 300*l.* in return for the large sacrifice they would sustain in not holding their Summer Show, and allowed this in the estimate, that would meet the case. Therefore the estimate was passed by the Expenses Committee with only the difference of 150*l.*, that being the absolute amount of difference between the two years. He (Mr. Bowring) would not deny that bad weather affected the receipts of the promenades, though not to such an extent as might have been expected, because the class of persons upon whom the Society chiefly relied for that source of income, had left town when the very bad weather set in. The Expenses Committee knew very well that as far as the special fêtes were concerned the funds must suffer seriously, and it could not be denied that the monetary panic which had prevailed had made a great difference in the receipts. All those matters had been detrimental, and it was now found that the receipts had been 930*l.* less than the estimate, and that being added to the amount short already indicated of 150*l.*, showed a deficit of 1080*l.* as contrasted with the previous year. The International Horticultural Exhibition Committee had given the sum of 1000*l.* to the Gardeners' Royal Benevolent Institution. No one had any right to find fault with this, as every subscriber had had his *quid pro quo*. With regard to the Lindley Library, it was very important to the interests of the Society if it could be secured. If the Society obtained the Library, it would be better that it should not be held as the property of the Society, for fear of what might by any mischance occur, and they would do better to act in the position of trustees, so that if by any accident the Society should be broken up, it would still be a property available for the purposes and benefit of horticulture. With regard to the International Horticultural Exhibition Committee, they had, he believed, a surplus of 3000*l.* They had already given away 1000*l.*, leaving 2000*l.* in hand. Now, if the sum of 600*l.* was paid for the Lindley Library, there would then be about 1400*l.* left. No doubt there were some outstanding debts, which probably would amount to a few hundreds, so that there would still be a sum of about 1000*l.* left, perfectly nett; and it certainly did appear to him that if the Committee of the International Exhibition considered how much their receipts had been affected by what the Society had done, some of the surplus in question should be given to the Society. There was another matter in which he thought there should be a more liberal concession by the Society towards those who had done so much for them. He spoke of the debenture-holders. There had been 50,000*l.* raised, and they pay 4 per cent. Originally they paid 5 per cent., and there were free admissions to the amount of 2*l.* 2*s.* per annum; that made in reality 7 per cent. Subsequently it was agreed to take 4 per cent., receiving the same Garden benefits, or 6 per cent. instead of the 7 per cent. He (Mr. Bowring) thought there might be some arrangement by which the debenture-holders could be further recognised, and if they could have further admission—say to 4*l.* 4*s.* per annum, with 3*l.* in cash, it would benefit the Society, and the debenture-holders would not be displeased. He begged to recommend that to the consideration of the Council.

After several letters relating to the agreement subsisting between the Society and the Committee of the International Exhibition of 1866 had been read—from which it appeared that there had been a misunderstanding between the two bodies, owing, as it seemed, to the fact that the one party considered as official some statements that were merely of a private or conversational character—

Colonel CHALLONER said he could not but congratulate the Society on the improvement which was visible in the financial statement, which, however, he could not help observing was still simply a cash account. He wanted a statement of the liabilities which the Society was now under, in order that the Fellows might know how much they were in debt.

Mr. WHEBLE desired to suggest that there should be some alteration in the rules with regard to the Gardens at Chiswick, so that Fellows, if they asked for anything, might more easily obtain it.

Mr. WILSON SAUNDERS said that the Council were most desirous that members should be supplied with what they wanted from the Garden.

The PRESIDENT said that application must be made to Mr. Barron, the head gardener, and that none of the under gardeners had power or authority to give anything away. His Grace felt quite sure that members of the Society would see how important it was that the sole power of giving away buds or cuttings to Fellows should be vested in one responsible person; but if there was any difficulty about it the Council would see into the matter, and put it on a proper footing. It having been moved that the Report be received, he asked some gentleman to second that proposition.

Colonel CHALLONER said he had much pleasure in seconding the motion that the Report be received and adopted.

Major TREVOR CLARKE, before the Report was adopted, wished to say a few words as to the Lindley Library. There was no doubt that it was very valuable, not only from its own intrinsic merit, but from old associations. The Fellows would remember it was not the first time the Society had been in possession of a fine library. They had now a second chance, a chance of obtaining a most valuable one, and he heard with pain that the Society could not afford to buy it. He would suggest that the Lindley Library be not sold, but that the Society become the guarantors, and surely they might arrange to pay for it by the end of next year if they could not do so now. For his own part he should be glad to give a 10*l.* note, and he had no doubt there would be many who would come forward and preserve so very valuable a possession for the Society.

The PRESIDENT observed that the question was whether the Society was in a pecuniary state to enable them to keep the Library. Had they in the present condition of the funds power to lay out 600*l.*? If they were able to do so, every one must feel it was very desirable that it should be preserved for the Society. The Council would be most willing as well as himself (the President) to do anything that should be deemed advisable to assist in the important object suggested. His Grace then put the question before the meeting, which was carried unanimously.

Colonel CHALLONER proposed a vote of thanks to the Chairman, which was seconded by Mr. HARRY CHESTER.

His GRACE expressed his thanks for the compliment, and the Meeting ended.

* [The use of the ground was granted by the Government, to whom it belongs. EDS.]

Notices of Books.

Report of the Proceedings of the International Horticultural Exhibition and Botanical Congress held in London, May 1866. Royal 8vo, pp. 424, tab. 13.

In conformity with the precedent set at the two preceding Congresses at Brussels and Amsterdam, the Committee of the "London International" has just issued a volume of Proceedings, which we believe will be found in no degree inferior to its predecessors.

Those who took part in the Exhibition and Congress, either as willing labourers or merely as spectators, will not soon forget the sensations of astonishment and delight which they experienced on a first walk through Mr. Gibson's "three acres of Eden;" still less, if possible, are they likely to forget the hearty good will, the thorough cordiality and enthusiasm that prevailed amongst all classes of plant lovers, British and foreign, who were drawn together on this memorable occasion. It was felt among Englishmen that English horticulture was called on to fulfil two imperative duties—to manifest its resources and its powers in friendly rivalry with foreign competitors, and to discharge a debt of courtesy and hospitality to the horticulturists of the Low Countries. How these duties were fulfilled can be far better appreciated by the memory of those who took part, in any way or degree, in their fulfilment, than by the bare record afforded us in the pages of the volume before us. Minutes and *précis* are exceedingly useful, no doubt, but even when duly "read and confirmed" they merely supply a spiritless outline which must be completed by the recollections or the imagination of the reader. The Report, then, to which we now allude, opens with a Summary of General Proceedings condensed from the minute book. This summary gives in brief the history of the scheme, from its original conception to its brilliant consummation. It gives details of the necessary arrangements that had to be made; and it supplies a brief record of the proceedings at the Guildhall Banquet, the Conversazione, and at the meetings of the Congress. From these details we gather that the area covered by canvas was no less than 3 acres, 2 roods, and 38 poles, to fill which space some 361 exhibitors contributed. The Exhibition embraced 238 classes, distributed in 10 sections, the aggregate number of entries having been 1751, though from various causes the actual number of completed entries only amounted to 1157. The revenue derived from all sources amounted to upwards of 16,000*l*., while the expenses, up to the date of publication of the Report, amounted to over 12,500*l*. In another column it may be seen how it is proposed to appropriate the outstanding surplus.

To the Summary of General Proceedings follows a similar abstract of the operations of the Congress, with a full list of the various subjects proposed for discussion, and of the papers presented. A selection from these papers was in the first instance made by the Congress Committee, so as to pick out those that appeared to be the most desirable to be brought forward at the two meetings of the Congress, a selection rendered the more necessary from the limited time at the disposal of the assembly. At the close of the meeting, a Committee of Reference, consisting of M. De Candolle, the President of the Congress, Sir C. W. Dilke, the Chairman of the Executive Committee, Messrs. J. J. Bennett, J. Miers, T. Rivers, W. Paul, and the three Secretaries, was appointed to consider which of the papers should be published in the Report. It is to these gentlemen, then, that we owe the selection of papers and memoirs in the present volume. It will be seen that all the papers are mentioned, of some, abstracts are given, while in other cases the entire paper is printed in the language in which it was written. Of these French and German papers, a condensed abstract in English is also supplied. The memoirs that are printed in full are appropriately headed by the luminous and philosophical discourse of M. De Candolle, and this is followed by the various horticultural and botanical papers, abstracts and translations of many of which have already been given in our own columns, and from which we shall probably make further selections; hence it is not at present necessary to do more than to mention among others the names of Anderson, Rivers, Caspary, Reichenbach, Moore, Koch, Howard, Morren, and Schultz Schultzenstein, as sufficient guarantees for the value of the communications published in this Report. Lists of the Foreign Visitors, of the Exhibitors and Jurors, as well as of the Subscribers and Guarantors, will be found in the volume before us, as well as a revised and completed Catalogue of the Exhibition; so that the Report will not only be valuable as a memorial, and for the intrinsic value of its scientific portions, but it will also serve as a valuable guide to those who may be engaged in the organisation of similar Exhibitions hereafter.

We have only to add that the book is illustrated by 13 lithographs, and that its size and general aspect are in conformity with the similar records of the meetings at Brussels and Amsterdam.

Catalogus Plantarum Cubensium, exhibens Collectionem Wrightianum aliasque minores ex Insula Cuba missas: quas recensuit A. Grisebach, Professor Gottingensis. Lipsiæ: Engelmann. 8vo. pp. 301. (Williams and Norgate).

This useful little book for students of West Indian botany, consists of an enumeration of the plants collected in Cuba by Wright and others, with characters and descriptions of the new species, a considerable proportion of the space being occupied by the latter. The numbers of the plants in the collections enumerated (chiefly those of Wright) are very carefully quoted, so that the book will be a most useful key to those who are working with these materials at hand, at the subject which it embraces.

Florists' Flowers.

WE borrow the following interesting reminiscences of the PINK, written by our intelligent correspondent "Quo," from a recent Number of the *Florist and Pomologist*:—The "old florist," just such a one as you would picture to yourself as you perused a volume of the *Floricultural Cabinet*, or one of the earlier numbers of the *Florist*, has not yet quite died out, although the species is rapidly becoming extinct. Here and there one can be met with, scarcely known without the boundaries of his immediate sphere, and yet a great man within it, a "man of mark" at the floricultural tournaments at which he occasionally figures, and among the florists of the district in which he resides. If he excels in the cultivation of any one particular flower, what an oracle he instantly becomes!—a veritable autocrat in matters of opinion respecting his "own" flower. And when a seedling is produced for the first time at a local show, how eagerly and anxiously is his opinion sought and waited for, and this, when once announced, is generally regarded as final. A "Floral Committee" in himself, his approval is tantamount to a First-class Certificate in the judgment of the exhibitor, and a flower thus distinguished by him is pretty certain to become a "hot favourite" in contests for the coveted honour of "first prize."

During a country ramble I lighted on one of these worthies in a locality, somewhat unexpectedly (to me) prolific of them. He was one of Nature's gentlemen—rough in his exterior, but at the core a kindly, generous, and true man; manly, out-spoken, and sincere; loving Nature with an unselfish regard, and his immediate floral pets with a steady enthusiasm no calamity seemed to weaken. Sitting down with him and some of his brother amateurs to spend an hour or two, I was forcibly reminded of an illustration that appeared in one of the early volumes of the *Florist*, entitled "Florists in the Olden Time." We were just such a cosy, comfortable-looking set, but with more of younger blood infused into our circle than appears in the illustration just referred to. Each one had some reminiscences of his floral career to detail, and very instructive and ofttimes amusing they were. My host had been a grower of the PINK for nearly half a century, and he discoursed of flowers and events that have long passed away. No conservative was he, though; for he marched with the times, read with avidity anything bearing on the cultivation of his favourite flower, eagerly seized on any hint that he could translate into his cultivable process, and had in his collection all the leading flowers of the day. He could speak of the ancient distinctions of "purple-laced," "red-laced," "black and white," "roseleaf," and "large-leaved flowers;" of such varieties as Davy's Eclipse, of Lady Wharncliffe, of Davy's Duchess of Devonshire, Venus, and Countess of Bridgewater, Salter's Lord Nelson, Dakin's Burdett, of George the Fourth, Humphrey Cheetham, Beauty of Flora, Claudius, and other flowers that in their day and generation were the best varieties in cultivation of what old Thomas Hogg once termed "that pleasing little flower, the Pink."

Perhaps in no flower have the conditions of successful cultivation so little varied during the last 50 years as in the case of the Pink. The season for planting-out into the blooming-beds—September or October; the raised beds of 6 or 8 inches above the alleys—"to enable the heavy rains to pass off during the winter;" the compost—yellow garden loam, sand, and well-rotted manure; the top-dressing—early in May; the time for piping—the end of June;—these I learned were the rules observed at the commencement of the present century, and they are acted on now.

Much of our conversation on this, to me, important occasion, had reference to the men who in their day had made Pink-growing famous, and gained a place of renown in their local annals, who are now passed away from amid their floricultural colleagues. How tenderly, and even lovingly, was the memory of that father of Pink-growing—old Thomas Hogg—touched on by these worthies! His "Treatise on the Growth and Culture of the Pink, Carnation, &c.," was prized by them as a very floricultural evangel; dear to them for the sake of its acceptable contents; dearer still as a memorial of the hero, as it were, who wrote it. Other names had their meed of praise, and sometimes a very little blame. Gratefully were Mr. Turner's great services recognised, and the patience and enterprise of Dr. Maclean, the raisers of so many of the very best modern flowers.

I asked for a list of the best twelve varieties for exhibition purposes, and was furnished with the following, being informed, however, that a very few newer flowers would be subjected to a further trial ere their merits or demerits were finally stated:—Beauty (Maclean), Clara (Maclean), Dr. Maclean (Turner), Exquisite (Turner), Invincible (Kirtland), James Hogg (Bragg), John Ball (Maclean), Marion (Turner), Mrs. Maclean (Turner), Rev. George Jeans (Turner), The Pride of Colchester (Maclean), and Tietjens (Kirtland).

The general hints that will assist in the successful cultivation of this flower were of the nature of the following:—The bed should be made in a part of the garden that is tolerably dry. The ground should be well trenched, and a soil, somewhat after the character of that already mentioned, should be prepared for the reception of the plants. Planting-out for blooming purposes should be done late in September or early in October, as later planting will often affect the proper "lacing" of the flowers at the blooming season; and a liberal top-dressing of some well-rotted manure that has been passed through a sieve, should be given at the end of April. When blooms are required for exhibition, three or four flower-stems only should be allowed to each plant, and the buds should be thinned out to about the same number on each plant. Water freely should dry weather set in; and tie the buds with a piece of matting, to prevent them from bursting on plants that show a tendency to do this. The piping-bed should be made about 2 feet from the ground, and the pipings should be covered by hand-glasses, and when rooted and capable of being removed, they should be planted out into store-beds preparatory to being placed in their blooming quarters.

Coming away from the society of these veterans and from the hearing of their pleasant recollections, I could not help thinking of the wonderful charm a simple flower had for these men, and how powerful an influence it exerted on them.

The Apiary.

ARTIFICIAL SWARMS.—Wishing to prepare early for the coming campaign, I write to know if I may commence forming artificial swarms by driving straw hives, say a set of three, as soon as drones are perceived on the wing with an abundant population, in one only of the hives, taking it for granted that there is "an abundance of brood, in all stages of development," when the two first-mentioned signs are apparent. Sometimes this may happen with one hive before another is in the same state, that is, before the second, which is to be displaced for the first driven one, has drones appearing from it; does this make any difference?

I suppose that by this method of working a triplet of hives one can not only save himself the trouble and risk of watching for swarms, but also get swarms earlier than they come off naturally. If so, will you give an instance of this? How much time might one calculate on saving?

When directing, at p. 368 of 1865, how to go through the process, you say "there need now be no difficulty in the procuring of spare royal cells, or young queens, for the purpose of fixing in B." These are, of course, to be got from A, the first driven hive. You would oblige by giving particular directions where to look for both of these, and what to do with them in each case when found. Is there no danger of depriving A of what it wants, if more than one royal cell be taken? The getting of "young queens" appears a formidable job. And directions, at all events, for fixing in even a royal cell are much wanted.

Having only two straw hives, I must bring the hive of a neighbour about a mile off into the rank. I suppose this can be done, carrying the driven hive on a hand-barrow, and stopping up the entrance to keep the brood warm. *A. B.*

[If we desired to make the most of our three hives, that is to obtain the greater number of really strong and prosperous artificial swarms, we should not recommend proceedings to be commenced by driving out the bees of either, until drones had made their appearance from the others also, or at least from one of them. You certainly could obtain one good swarm from the hive that was most forward, but the less populous stock, from which the driven hive may have been supplied with a sufficient number of bees to hatch out the brood, would be so injured by depopulation, and the deposit and maturation of brood be so retarded, that it would be many weeks before the stock would sufficiently regain its strength to allow of further operations being effected with it. In all probability the laying of drone eggs would be discontinued until there might be a more abundant population. Too early, or too severe a weakening of a hive, will materially affect the fecundity of the queen, and the amount of brood which may be brought to perfection. It is better therefore to have two at least out of the three hives, sufficiently forward and strong before beginning to force artificial swarms.

The gain in time by adopting this principle of forming artificial swarms may average about a fortnight; so at least we have found it in our own practice.

You will see, if you refer to the article on the formation of artificial swarms at p. 368 of the year 1865, to which you allude, that it is recommended to commence by previously raising a few royal cells in a nucleus box with a diminutive artificial swarm. If you follow this plan there need be no difficulty in having at your command either royal cells, or fully developed queens. We recommend this course of procedure to your consideration. By adopting it you may probably gain another fortnight in the time of your young queens becoming fertile mothers.

There is no difficulty in the insertion of a royal cell. It must be carefully cut out from its original position, attached to a wedge-shaped piece of comb. An aperture of a similar form is cut out from the comb, to which it is desired to attach the cell, which cell is then gently pushed into its intended place. The bees themselves will complete the fixing. Of course the proper position of the cell must be retained.

In all cases of removal of hives, be sure that ample means of ventilation are afforded. At this season of the year but little precaution need be taken other than this.]

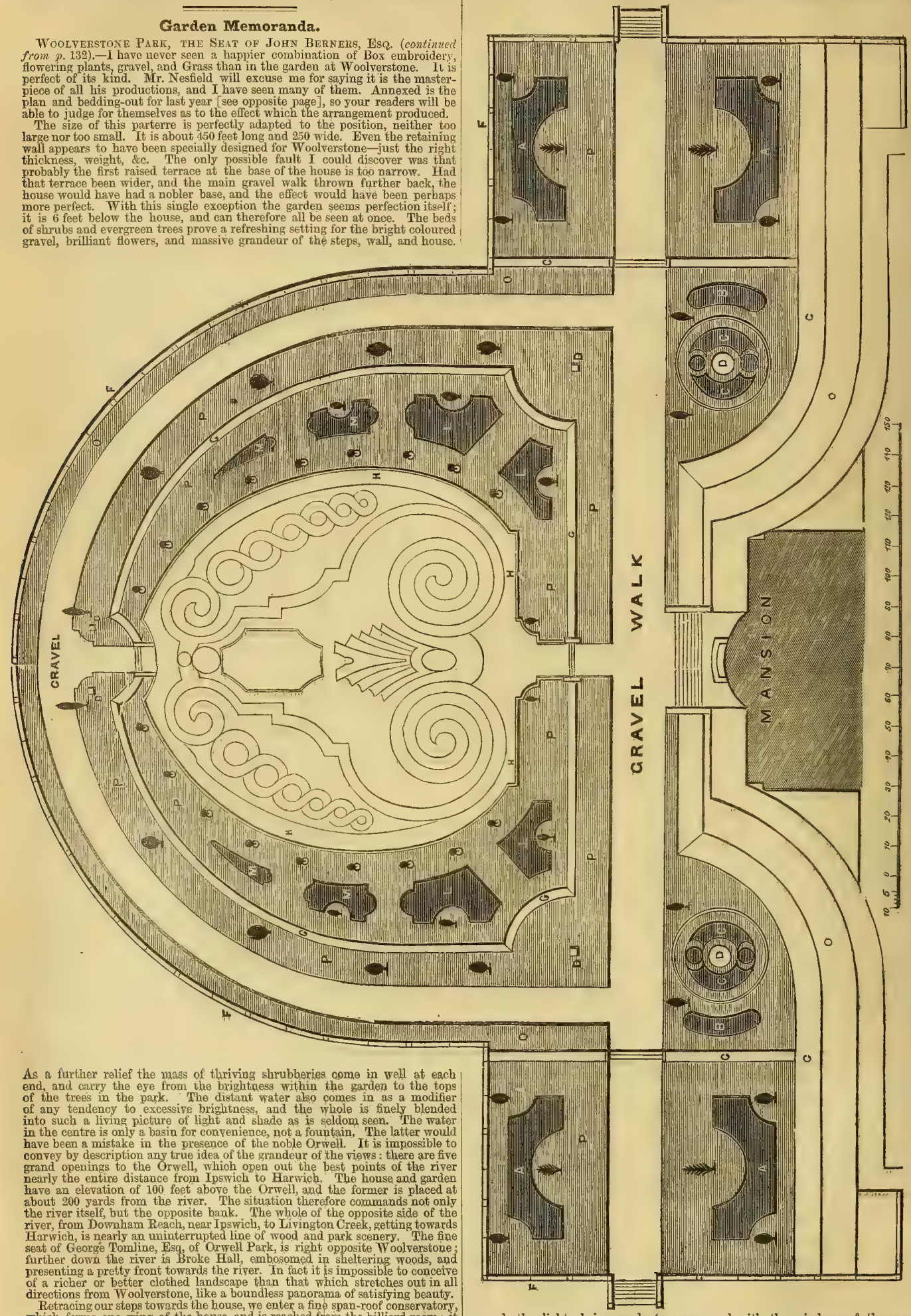
Feeding Bees.—I find that owing to the long-continued cold and unfavourable weather, bees generally have consumed an unusually large quantity of their food, so as in many cases to be reduced to the verge of starvation. Unless judiciously supplied with artificial food in moderate quantities for the next month or two, I fear that a large number of hives must perish. I would therefore advise all apiarians who value the safety of their colonies to pay them a timely visit, and having ascertained the state of their stores, supply any that may require assistance. The quantity of sugar syrup administered to each hive may be small, not more than two or three ounces, about twice a week. This is the best proportion for spring feeding, as at this season of the year the bees cannot well store and seal a large amount given quickly. A little care now may be amply repaid by the greatly increased strength of the hives, when the time may arrive for reaping the full benefit of the honey harvest. A hive, weakened by starvation now, although it may survive, will, in all probability, be unable to raise up a sufficient population to take advantage of the earliest abundant secretion of honey. Although such a hive may become very strong before the end of the summer, yet it will prove almost, if not

quite, unremunerative to the owner, storing but little surplus honey, and giving either no swarm at all, or only a very late one, which may or may not be able to collect sufficient for the succeeding winter. *Apis.*

Garden Memoranda.

WOOLVERSTONE PARK, THE SEAT OF JOHN BERNERS, ESQ. (*continued from p.* 132).—I have never seen a happier combination of Box embroidery, flowering plants, gravel, and Grass than in the garden at Woolverstone. It is perfect of its kind. Mr. Nesfield will excuse me for saying it is the masterpiece of all his productions, and I have seen many of them. Annexed is the plan and bedding-out for last year [see opposite page], so your readers will be able to judge for themselves as to the effect which the arrangement produced.

The size of this parterre is perfectly adapted to the position, neither too large nor too small. It is about 450 feet long and 250 wide. Even the retaining wall appears to have been specially designed for Woolverstone—just the right thickness, weight, &c. The only possible fault I could discover was that probably the first raised terrace at the base of the house is too narrow. Had that terrace been wider, and the main gravel walk thrown further back, the house would have had a nobler base, and the effect would have been perhaps more perfect. With this single exception the garden seems perfection itself; it is 6 feet below the house, and can therefore all be seen at once. The beds of shrubs and evergreen trees prove a refreshing setting for the bright coloured gravel, brilliant flowers, and massive grandeur of the steps, wall, and house.



As a further relief the mass of thriving shrubberies come in well at each end, and carry the eye from the brightness within the garden to the tops of the trees in the park. The distant water also comes in as a modifier of any tendency to excessive brightness, and the whole is finely blended into such a living picture of light and shade as is seldom seen. The water in the centre is only a basin for convenience, not a fountain. The latter would have been a mistake in the presence of the noble Orwell. It is impossible to convey by description any true idea of the grandeur of the views: there are five grand openings to the Orwell, which open out the best points of the river nearly the entire distance from Ipswich to Harwich. The house and garden have an elevation of 100 feet above the Orwell, and the former is placed at about 200 yards from the river. The situation therefore commands not only the river itself, but the opposite bank. The whole of the opposite side of the river, from Downham Reach, near Ipswich, to Livington Creek, getting towards Harwich, is nearly an uninterrupted line of wood and park scenery. The fine seat of George Tomline, Esq. of Orwell Park, is right opposite Woolverstone; further down the river is Broke Hall, embosomed in sheltering woods, and presenting a pretty front towards the river. In fact it is impossible to conceive of a richer or better clothed landscape than that which stretches out in all directions from Woolverstone, like a boundless panorama of satisfying beauty.

Retracing our steps towards the house, we enter a fine span-roof conservatory, which forms one wing of the house, and is reached from the billiard room; it is 70 feet long, 22 feet wide, and 18 feet high. The roof is supported by ornamental girders, resting on light iron pillars. The back is an opaque distempered wall, the wall thrown into panels, each panel being planted with a distinct kind of creeper. The front is glazed with British plate-glass to the ground, the lights being made to correspond with the windows of the mansion. The conservatory is slightly curved from the billiard-room to the other extremity,

which gives it an additional charm. A path, 4 ft. 6 in. wide, of tesselated pavement, edged with a 9-in. edging of blue lias, runs down through the centre. The floor itself is formed of polished stone, edged in the same manner. On the right of the pathway is a row of noble stone vases, 2 feet 6 inches high, and 4 feet 6 inches in diameter. These are filled with very fine pyramidal Camellias, in the most luxuriant health, and laden with flower buds. They are from 6 to 7 feet high, and nearly as much through, and are magnificent examples of good cultivation. Between the Camellias are placed some of Minton's Oak and Ivy-patterned vases for specimen plants. On the left of the pathway there is a row of handsome jardiniers, for the grouping of flowering plants, and between these terra cotta and china vases are placed, for single plants, or filling as masses. No common earthenware pots are admitted, as they would be altogether out of place in this elegant floral promenade. Nothing could be more effective than some of these jardinettes, filled with Begonia Saundersiana, Linum trigynum, Salvia splendens, small Chrysanthemums, Euphorbia jacquiniflora, or small Fuchsias and Pelargoniums. Others were filled with Begonias and Caladiums mixed with Ferns, and nothing could be more beautiful. Achimenes are also lovely in such positions. Some fine hanging baskets of Achimenes or Ferns are generally suspended from the roof. I noticed two large baskets of Nephrolepis tuberosa at the time of my visit. The roof is further furnished with climbers, which are, however, kept thin, to show the architecture and reveal the structural beauty. The following creepers are grown either on the back wall or on the roof of this fine conservatory: — Tecoma jasminoides, Bignonia capreolata and venusta; Tacsonia manicata, mollissima, and Van Volxemii; Passiflora racemosa, Colvillii, and others; Jasminum gracile, Rhynchospermum jasminoides, Kennedya Marryattæ and coccinea, Stigmaphyllon ciliatum, Chorozema Henchmanni, Cantua dependens, and Vaccinum rotundifolium. The finest climber here, however, is the Lapageria rosea. Planted against one of the panels of the back wall, it has completely covered it with its dark foliage and brilliant large blossoms. Long branches have also found their way across the roof. Few things can equal in effect the fine dependent racemes of bloom of this charming plant, some of them producing as many as 20 or 25 single flowers. It is also admirable for decorative purposes in vases, as the consistence of the flowers renders them durable. We learned from Mr. Sheppard, the clever gardener, that it is planted in rough lumps of fibrous peat, and liberally watered during the growing and flowering periods. An opening at the far end of the conservatory leads into a most effective and beautiful Fernery. It is formed of foundry refuse and other materials put together in a highly artistic manner in the form of arches, stalactites, and natural rocks. At the entrance there is a rocky recess, with water trickling down at pleasure, and some bold arches lead in a winding direction through a delightful Fern passage out to the shrubbery at the end of the flower garden. In the artificial rock large chasms are left for the introduction of Ferns, and some fine specimens of the following varieties furnish these rocks with a covering, and adorn them with beauty:—Woodwardia radicans, Cibotium princeps, Lomaria magellanica and chilensis, Onychium lucidum, Asplenium flaccidum and cananense, Phlebodium areolatum, Lygodium palmatum and scandens, and Cyrtomium falcatum, the latter very striking and distinct. Altogether this is a most successful creation, and forms a charming link between the highly dressed polished conservatory and the garden outside.

From the inside Fernery we proceed across the Park, about a quarter of a mile, to the outside Fernery on the cliff. Nature has formed the ground here, with apparently an express reference to the growth of Ferns. Thick shady woods, rich black boggy soil, trickling streamlets from springs that never cease flowing—all these invite the companionship of Ferns. It is the highest praise to state that art here has kept pace and taken counsel with the grandeur of Nature. By the formation of winding walks on the side of the cliff, the diversion of streamlets to leap down where they are most effective, the formation of artificial rocks to resemble natural ones, and most of all by a skilful selection and disposition of suitable plants, a scene of rich rural beauty has been formed, which can scarcely be equalled, and probably has never been excelled. Mr. Sheppard has lately built near the extremity of the Fernery a very fine example of what might be termed castellated rock, which with its rich clothing of Ferns and constant soft music of falling water seems to bathe one's spirit in cool satisfying pleasure and delightful repose. Another fine point is the summer house. I noticed some extraordinary specimens here of the small-leaved Bamboo, Bambusa gracilis, 30 feet high and 20 feet through, the finest in England I believe. They have a grace and beauty all their own, and could scarcely grow faster nor look healthier in any climate. One fine group of foliage was formed thus: near a Tulip tree a fine mass of Osmunda regalis was growing; close at hand was the Abutilon vitifolium, Hydrangea japonica, and Skimmia japonica. Near the summer house there were splendid groups of Athyrium Filix-fœmina and Lastrea Filix-mas, backed up with Castor-oil plants, Pampas Grass, and New Zealand Flax. There was also growing in great luxuriance the Gunnera scabra, with its great rough leaves and its extraordinary spikes of flower, which resemble a bullock's heart richly embellished with succulent downy red Fern fronds. There are also large groups of fine Rhododendrons, and I noticed two nice specimens of the fine Pinuses Sabiniana and macrocarpa. Carex paniculata, Cannas of sorts, and Polygonum Sieboldii also do well on the cliff. A fine plant of Dicksonia antarctica has stood out for several years. It is protected during the winter, and makes very fine leaves every summer. The Woodwardia radicans succeeds well under the same treatment. I have never seen finer foliage than this lovely Fern produces out of doors at Woolverstone. The crested varieties of the Lastrea were fine on the cliff, and I also observed good specimens of Onoclea sensibilis, Polystichum setosum, and Struthiopteris germanica.

Leaving the cliff Fernery, we proceed across the park to the kitchen garden. It is in the form of a parallelogram, and is divided by walls into several compartments. A green Grass walk runs right through the centre of the long square, from one extremity to the other. A herbaceous border, that used to constitute the sole flower garden at Woolverstone, bounds each side of the green path. Most of the herbaceous plants still remain, and it has also been thinly ribboned among these with bedding plants during the summer months.

The kitchen garden is about 4 acres in extent. It is a light loam, resting on a subsoil of sandy gravel. Within a few years it has all been deeply trenched, new soil and liberal dressings added where necessary, and the whole tilth very much improved. The excellence, abundance, and healthfulness of the crops show that they appreciate and pay for deep cultivation.

The walls are well furnished with Pear, Plum, Peach, Apricot, and other trees. The fruit-tree borders are formed of sound loam. Mr. Sheppard has no nostrums for fruit trees, neither out nor in. Loam, pure and simple, is his one and simple basis of success in fruit culture. The Woolverstone loam is of a yellowish, friable, and somewhat unctuous character. A gardener has only to handle and smell it to be satisfied. For Peaches, Apricots, and all other trees, this is used without any addition whatever; for Vines a few broken bones are sometimes added, but these are not considered essential to success. The borders soon become pretty firm; they are well drained, either naturally or artificially. As soon as stone fruit is set they are freely watered with both clear and manure water until they begin to ripen; water is then entirely withheld. A similar course is adopted with Vines. These have all been fresh planted in new borders within the last eight years; they are now in the highest health and luxuriance; they have also a top-dressing annually of night-soil treated with dry soil on the mode so strongly advocated of late in connection with earth closets. This, after being kept in a dry shed for about a year, forms an admirable top-dressing for Grape Vines. The Grapes were very fine in bunch, berry, colour, and quality, and they will doubtless put in an appearance at the Great Show at Bury next July.

The Peach trees under glass, and especially in a new Paxtonian Peach house, gave abundant evidence of satisfaction with their treatment. They are trained up a neat wire trellis, and some of them had made from 3 to 5 feet of good bearing wood this season. Mr. Sheppard prefers planted-out trees to those in pots, and roof trellises to any other form or mode of training.

We noticed the following houses in different parts of the garden:— An Early Peach house, 27 feet long by 6 wide; a Paxtonian ditto, 64 ft. by 11½; a Fig-house, 27 feet by 10; three Vineries, one a very long narrow house, 70 feet by 6 wide for late Grapes, the other two are 20 feet each by 14 feet 6 wide. They look remarkably well in this narrow house, as it has a steep pitch, and there is no damp, for the small amount of air is easily kept dry. There is also a large span-roofed house, 60 feet by 18 feet, chiefly used for Azaleas and other hard-wooded plants; a large greenhouse, 40 feet by 14 feet, and replete with flowering stuff for supplying the conservatory and for cut flowers; a stove 48 feet long by 11 feet 6 inches, in three divisions, for winter Cucumbers and stove plants; and a longer hot-house 48 feet by 11 feet 6 inches, for Ferns and fine-foliage plants. In this house there were some handsome specimens of Gymnogramma pulchella, peruviana, chrysophylla and Laucheana, Goniophlebium subpetiolatum and subauriculatum, Davallia polyantha, and some fine Blechnums. A large portion of the roof was covered with Bougainvillæa speciosa and B. glabra, two of the most beautiful and useful plants for ornamenting a house or for vases or bouquets. The front wall of this house is furnished in a very effective manner with outjutting rocky pockets for Ferns. I called at Woolverstone some years ago and found Mr. Sheppard engaged in roughing the brickwork, and attaching artificial rock-work, in the form of projecting rustic pots, or baskets, all over the wall with the aid of nails and cement. Of course the nails are entirely covered, and the whole of the wall is now a rough, *real*-looking rock, covered from end to end, and from top to bottom, with Ferns of great rarity and beauty. There is also the accessories of pits, for bedding and other plants. I also



1, Coleus Verschaffeltii
2, Bijou Pelargonium
3, Purple King Verbena
4, Indian Yellow Pelargonium
5, André Verbena
Circle of Aurea floribunda Calceolaria
6, Lady Middleton Pelargonium [gonium
7, Orange Nosegay Pelar-
8, Flower of the Day Pelargonium
9, Tropæolum elegans
10, Stella Pelargonium
11, Amaranthus melancholicus
12, Mrs. Pollock Pelargonium
13, Purple King Verbena
14, Centaurea candidissima
15, Christine Pelargonium
16, Ariosto Verbena, edged with Golden Chain Pelargonium
18, Calceolaria aurea floribunda
19, Seedling Verbena
20, Countess of Warwick Pelargonium
21, Coleus Verschaffeltii
22, Golden Chain Pelargonium
23, Lobelia speciosa

noticed two pits about 50 feet long, heated with hot water, for growing Melons, French Beans, &c. One of these pits was filled with Linum trigynum, Justicia flavicoma, Salvia splendens, and other winter or spring-flowering plants for the conservatory. Even the stove plants grown are used mostly for conservatory purposes. Hence large quantities of Poinsettia pulcherrima, Scutellaria macrantha, Sericographis Ghiesbreghtii, Cyrtanthera magnifica, Euphorbia jacquiniflora, Caladiums, Dracænas, Achimenes, Gloxinias, Begonias, Ferns, and Lycopodiums, are provided for these objects. I noticed in the conservatory two of the finest pyramids of Lycopodium formosum that I have ever seen. Mr. Sheppard also grows Achimenes remarkably well in large wire baskets for suspension in the conservatory. In one of the stoves I noticed an extraordinary seedling Gloxinia, with one side of the midrib green and the other variegated.

I cannot conclude this hurried notice without acknowledging the skill and courtesy of Mr. Sheppard, the gardener, and the taste and munificence of the proprietor. Within these few years Woolverstone has been re-formed, the Ipswich and Holbrook carriage-drives made, new flower-gardens designed and executed, the noble conservatory and several other new glass-houses built, both Ferneries formed, extensive farm buildings renewed, lodges erected, much planting done, and last, but by no means least, several model cottages —models of inward comfort as well as of outward form, provided for the labourers on the estate. *F.*

Miscellaneous.

Vitality of Seeds.—In a paper addressed to the Academy of Sciences, M. Pouchet, the celebrated physiologist of Rouen, gives an account of some experiments of his on the vitality of the seeds of the Medicago americana. A vast quantity of wool is received at Elbœuf, from Brazil; but it is in a very dirty state, and contains, amongst other impurities, the seeds of various plants. M. Pouchet was told by several credible witnesses that the seeds mixed up with this wool would strike root and grow up into plants even after undergoing a few hours' ebullition during the various operations of dyeing. This was a startling assertion, it being admitted on all hands by physiologists, from Spallanzani downwards, that the vitality of seeds is utterly destroyed in boiling water. M. Pouchet resolved to verify the truth of this alleged fact, and accordingly boiled some of these seeds for exactly four hours without any interruption. After this operation the seeds of the Medicago were found to be enormously swollen; the water had become mucilaginous, and it was with no great faith in the success of his experiment that our author put these disorganised seeds into flower-pots containing earth utterly free from any seeds of the same kind. Nevertheless, in the course of from 10 to 20 days, several plants sprang up; and this experiment was repeated more than 20 times with equal success. After minutely examining all the circumstances, M. Pouchet at length found that among a large number of seeds in a state of utter disorganisation, there were yet a few that had successfully resisted the action of boiling water. They had, indeed, borne the temperature of 100° Centigr. for the space of four hours, but the outer tegument had proved watertight by some unexplained circumstance. Our author immediately concluded that such must also be the case with other seeds, and he accordingly tried with Wheat, Barley, Millet, &c., but without success; for the present the seeds of the Medicago are the only instance of this wonderful vitality. *Galignani.*

Seed Saving.—As the season is now at hand when seed growers will be selecting their stocks for planting or sowing, to grow seed for another season, we should counsel great care in the selection, and also in planting kinds that are likely to cross with each other, at sufficient distances apart to prevent the bees and other winged honey-gathering insects from having free access to them. It is quite certain that the Brassica family—Cauliflower, Broccoli, Cabbage, Savoys, Brussels-sprouts, Kale, &c., &c., cannot be properly saved in the same garden, yet in Essex, Bedfordshire, or Romney-marsh, it is no uncommon thing to see acres of each, all in bloom at the same time, the ingenious theory of the growers being, that where there is such a quantity, insects are comparatively powerless to do material injury. This to some extent may be true, but still we find "rogues" in plenty among our plants, and they would not be there if more care were taken in saving the seed. What we want is first a careful selection of plants, to see that none but the true kind are left for seed, and secondly, careful protection from the access of insects. This is more particularly necessary with Cauliflower and Broccoli, and if eight or ten gardeners who are favourably situated for seed-saving, would each seed a score or hundred plants of a distinct kind, and nothing more that season, pure stocks would be secured and perpetuated. For many years past we have scarcely had an autumn or Early Winter Broccoli that we could depend upon, except the Walcheren, and Snow's Winter White, but we had for two seasons consecutively from one of the most respectable houses seed of the Winter White, which did not come into use until May, instead of from November to March. Mr. Snow sells all he can possibly raise, and old as the variety is, the leading houses in the trade do not hesitate to give him 30*s.* to 40*s.* per pound for it, while the variety so called is offered by the wholesale trade at 8*s.* to 12*s.* per pound. *Notts Guardian.*

The Tallow-tree.—This tree, which is the source of a great trade in the northern parts of the empire of China, has been introduced into India, where it grows with great exuberance in the north-western provinces, and also in the Punjab, where there already exists in the Government plantations, more than 10,000 of these trees, which yield tons of seeds. Dr. Jameson has prepared a quantity of tallow from this seed, and he has sent a portion of it to the Punjab Railway, in order that its lubricating properties may be tried in the machinery employed on the railway. The tallow is excellent to burn, giving a clear brilliant flame, and being inodorous and without smoke. *Les Mondes.*

Garden Operations.

(*For the ensuing week.*)

PLANT HOUSES.

Liliums should be potted into fresh soil without delay. The varieties of L. lancifolium are all worthy of more care and attention than they generally receive. Canker is one of the greatest enemies we have to contend against in reference to Lily culture; this is often caused by excess of moisture, though other circumstances tend to produce it, such as placing decomposing materials, dung, &c., in absolute contact with the bulbs. To this they have a decided aversion, consequently it must at all times be avoided. Carefully remove all old soil from living roots which may be attached to the bulbs, and cut away all symptoms of canker, if any should exist. Lilies thrive more or less luxuriantly in different kinds of soils; good loam suits them, though I have come to the conclusion that peat soils are best. To good rough peat, well chopped up, add a fifth of silver sand, and a liberal allowance of potsherds broken rather small. When well mixed together, divide this into two parts, adding a third part of well-decomposed leaf-mould to one, and a little more sand to the other. Choose 16-size pots, in which put good drainage, at the same time keeping it as shallow as possible; over the drainage place a thin layer of leaf-mould, then half fill the pot with the richer soil, placing a layer of the crude peat and sand above all, in which the bulbs should be firmly fixed. The number of bulbs placed in one pot must be regulated according to the shoots individual bulbs are likely to form; five or six such shoots will be ample in each pot. Let the apex of each bulb be an inch below the rim of the pot, covering each bulb over in such a manner, as will enable one just to see it, and no deeper. When potted, place them for a time in any cool, airy situation, giving them no water for at least a fortnight, or until the surface of the soil has become dry. Lilium auratum does best under treatment like that just recorded, though a quantity imported direct from Japan lately, appeared to have been grown wholly in an adhesive loam, having a quantity of soft, floury yellow sand intermixed with it. *Cyclamen persicum, and varieties*, showing a few flower-buds above the leaves, will be much improved if placed in an intermediate temperature—say from 50° to 55°—until the flowers are expanded, when they may be returned to the greenhouse. Should any of them be doing indifferently, it will be better at once to examine the balls, and if few roots only appear, shake the old soil away very carefully so as not to injure the roots that are present, repotting them into pots a size smaller, containing equal parts of fibrous peat and leaf-mould, with a little sand. Cyclamens never succeed well if the pots are not well filled with healthy roots. Where it is necessary to increase the stock of *Fuchsias*—cuttings not having been struck in the autumn—a plant of each variety should now be placed into moderate warmth to be pushed forward gradually. They will produce cuttings shortly, which, if struck quickly and grown on, make the best of plants. Encourage any young shoots that *Tritonia aurea* may have formed, to make a good growth, by potting when necessary, and watering freely. If any pots are too full, carefully remove some of their young growths with roots attached, and pot them into half peat and loam, not too thickly; six growths will suffice for a 32-sized pot, and so on, in proportion. All *Bedding Plants*, except any which it is desirous to propagate from, should be kept cool so as not to excite them to grow yet. A pot each or more of those from which cuttings are required, should be placed in a little warmth.

FORCING HOUSES.

Pines, the flowers having set, will require an abundance of atmospheric moisture; this should be regulated, however, according to the state of the weather, and the ability at command to give air. Upon bright, sunny days, syringe the plants well at shutting-up time, and carefully test the roots, to see that none are suffering from the want of water. *Peaches* and *Nectarines*, set, and with the fruit swelling, will be much benefited by frequent and copious syringings with water not below 45°. Commence thinning the fruit, stopping, disbudding, &c., by slow degrees, doing a little upon each tree at intervals. Pinch all well-placed and desirable shoots back to two or three eyes, severing others which may not be required close to the main branches, and so treating the whole as to insure an evenness of growth over the tree. Carefully guard all such against draughts; this is best done by giving air in one position only, in the earlier part of the day, at the back, closing these ventilators should the sun show about 11 A.M., and throwing the lights well open in front. Observe scrupulous cleanliness as a preventive of future ills, such as red spider, &c., aided by abundance of moisture at this stage. Habituate the inmates of the orchard house to a free circulation of air. Water and syringe freely as they grow, giving all the night air possible. Sow *French Beans* as often as more advanced ones show first symptoms of flowering. *Strawberries* for succession must be brought in, so soon as others are in bloom. Syringe freely each of these as soon as the bloom is set; dash the water forcibly against them, to assist in freeing them from decayed florets.

HARDY FRUIT GARDEN.

Apricots should have the process of pruning and nailing performed with as little delay as possible. Avoid by every means the too free use of the knife. Never sever any large limbs, however badly placed they may be, from the parent stem, as they invariably sooner or later cause the decay of all other parts. Apricots require but little pruning generally, which should be at all times performed with a well-tempered knife, having a keen edge. Cut away all ill-placed woody foreshoots evenly, shortening the more prominent points of flowering spurs, and small shoots of the late season's growth, having flowers at their base, back to within an inch and a half of the main stems. Any decayed parts observable upon older spurs should be cut clean away down into living parts; it is better to arrest decay by making a clean wound, in the hope that it may heal over, than permit its certain further progress. It may be difficult to give the distance each shoot should be apart in a tree of such branching habit, but permit none to be nearer than an inch asunder, however small the growth; a good uniformity of foliage and of fruit is attainable when the standard of separation is about three inches. With these remarks as a guide, remove carefully all lesser shoots likely to overcrowd any portion of a tree. Encourage all young growths which may start from the bottom. *Black Currants*, though they require little use of the knife, are much benefited by having a little of the oldest growth removed annually. Cut away down at the base the whole of two or three shoots upon each tree, selecting such as are ill-placed or overcrowded, removing or tying up any branches which are likely to brush the ground when laden with fruit in the ensuing summer.

KITCHEN GARDEN.

Trenches may now be prepared for a fresh plantation of *Horse-radish*—these should be 18 inches deep and a spade's width across. Make them as close together as possible, and loosen the soil at the bottom to a good depth. *Rhubarb* should be planted shortly where needed. Prepare a piece of ground (if rows are preferred) three feet wide; where more than one row is needed, each row should be three feet apart also. Trench this two feet deep, adding abundance of manure. Should this latter cause the soil to lay higher than that surrounding it, do not remove any, as it will aid in draining off excessive rains of future winters; too much wet, combined with the attacks of ground insects, often cause the stools to rot at that season. Divisions from old stools should be planted at the above distances apart. The best plantations, however, are often formed by sowing seed in drills a like distance apart. This should be done as soon as convenient. Sow the seed along the whole length of the row, thinning the plants out to proper distances when sufficiently large to determine their qualities of individual robustness, as they often vary much in that respect. The Victoria is the most desirable variety. Another sowing of *Early Peas* should be made now. They will furnish a more substantial supply than earlier sown ones. Choose a dry day for sowing upon heavy soils, and do not trample the ground beyond what is really necessary. *W. E.*

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the Week ending Feb. 13, 1867, as observed at the Horticultural Gardens

Feb.		Moon's Age.	Barometer.		Temperature.					Wind	Rain.
					Of the Air.			Of the Earth			
			Max.	Min.	Max.	Min.	Mean	1 foot deep.	2 feet deep.		
Thurs.	7	3	29.406	29.026	54	36	45.0	44	43	W.	.22
Friday	8	4	29.981	29.328	53	40	46.5	45	43	W.	.02
Satur.	9	5	29.971	29.768	55	42	48.5	46	44	S.W.	.06
Sunday	10	6	30.161	29.943	55	35	45.0	46	43	S.	.21
Mon.	11	7	30.166	29.911	53	40	46.5	46	44	W.	.02
Tues.	12	☽	30.168	30.152	55	42	48.5	46	45	W.	.00
Wed.	13	9	30.324	30.164	52	43	47.5	47	44	S.W.	.00
Average			30.025	29.733	53.8	39.7	46.7	45.7	43.7		0.53

Feb. 7—Clear, with scattered white clouds; rain at night.
— 8—Very boisterous and showery; fine; lightning at night.
— 9—Fine; very fine; densely overcast.
— 10—Cloudy; overcast, boisterous, with rain at night,
— 11—Quite clear; fine, with clouds; slight rain.
— 12—Overcast; uniformly overcast; cloudy.
— 13—Slight drizzle, hazy; densely overcast.
Mean temperature of the week 8 9 10th deg. above the average.

STATE OF THE WEATHER AT CHISWICK,
During the last 41 years, for the ensuing Week, ending Feb. 23, 1867.

Feb.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain	Prevailing Winds.							
						N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday ..17	43.9	30.6	37.2	17	0.44 in.	4	5	4	3	5	7	10	3
Mon. ..18	45.0	30.6	37.8	17	0.39	6	4	4	2	5	9	7	4
Tues. ..19	46.6	30.7	38.6	15	0.50	6	3	5	6	1	10	5	5
Wed. ..20	45.1	30.2	37.6	20	0.51	2	6	3	5	4	9	7	5
Thurs. ..21	46.2	31 9	39.1	19	0.20	3	9	4	6	1	10	6	2
Friday ..22	46.5	31.7	39.1	19	0.29	4	3	7	3	1	14	6	3
Satur. ..23	47.1	31 5	39.3	14	0.44	4	5	7	2	1	12	7	3

The highest temperature during the above period occurred on the 21st, 1859, and 21st, 1846—therm. 58 deg.; and the lowest on the 17th, 1855—therm. 2 deg.

Notices to Correspondents.

BEGONIA DIGSWELLIENSIS: *J F.* Your letter is an advertisement.

METEOROLOGICAL OBSERVATIONS: *J S J S.* Those at Chiswick relating to the barometer are taken three times a day, viz., morning, noon, and night, about 8 A.M., 1 P.M., and 9 P.M.; the highest and lowest of these three are taken for the maximum and minimum, and each observation is corrected for temperature, capillary action, and capacity of cistern. The instrument is one of Newman's construction. The registering thermometers are by Negretti & Zambra, and by Casella, on Rutherford's principle. They are situated on a level open space; the maximum about 3 feet from the ground, sheltered from the sun's rays; the minimum quite exposed, about a foot from the ground. These instruments are away from the radiation of heat from walls or other objects. Besides the above, a registering maximum thermometer on Professor Philips' principle is used. It answers well, and is not liable to get out of order. *R T.*

NAMES OF PLANTS: *W R.* Imantophyllum miniatum.—*A Rough.* 1, a Gymnogramma, but which it would be impossible to say without a more complete specimen; 2, Blechnum cognatum; 3, Adiantum Capillus-veneris; 4, Pteris tremula.

TRANSPLANTED SHRUBS: *J K L.* We cannot form an opinion from the facts before us.

ERRATA.—P. 131, col. *c*, for "Feston" Tower, read "Freston." In "A Query for Philosophers," p. 127, col. *c*, for Portugal Laurel "buds," read "branches."

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TO THE PRINCE OF WALES, By Special Warrant, dated February 10, 1866.

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The Arrangements for Effecting Improvements are threefold —
No. 1. The Works may be Designed and Executed entirely by the Landowner's Agent, and the Company employed only to supply the Loan and conduct the matter through all the official Forms for Charging the Outlay on the Estate.
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The Agricultural Gazette.
SATURDAY, FEBRUARY 16, 1867.

IT is poor work criticising after-dinner Speeches: as a general rule they are allowed to have their little hour; and except when Her Majesty's Ministers visit the Mansion House, or the occasion is such that public notice is expected, and prepared for, they are better left to their own evaporation with that of the "applause' and 'Loud Cheers' which on such occasions are sure to follow the most exaggerated declamation. But when the hours of relaxation and conviviality are made use of to pander to prejudices instead of correcting them, to propagate error by making it the yoke-fellow of truth and patriotic sentiment, it becomes a duty—too late perhaps, for the antidote can never overtake all the poison, still it is a duty to correct it.

At the Dinner of the Goudhurst Agricultural Association, Mr. BERESFORD HOPE, the President, in a kind of third-personal reply to an unnamed foe, Mr. BRIGHT, undertook the defence of the Land laws of England, especially the system known under the name of 'Entails.' After first informing his hearers that there were no entails, except in such cases as those of Blenheim, Strathfieldsaye, and a few other National Grants of similar kind, he went on to say (as reported) that "the rest we hear spoken of are not a bit of entail. It is simply a business transaction by which a person may *secure the succession of his property for two or three generations by a Deed.*"

A mere trifle this, no doubt, and in the speaker's eyes, and phraseology, "not a bit of entail." One should have imagined that if not an entail, in the full sense of his own point of view, "*a bit* of entail" was exactly what it is. But *de minimis non curat Lex*: three generations, (commonly estimated at 90 years,) do not lock up the ownership of land *a bit!*

Nevertheless this is what most people do understand, and rightly understand, as an Entail. It is what America never would suffer, and what our Colonies have persistently refused. It is what has caused us inexpressible trouble in India and in Ireland, and wherever we have endeavoured to inflict our Land laws upon subject races: and it is what emasculates the proprietorship of land at home, cutting it up into 'estates for life,' powerless for improvement, and inexpansive to the demands of modern agriculture; until the various Land-improvement Companies came to the rescue, under the authority of special Acts of Parliament, enabling them to do for land what the nominal owner was debarred from the power of doing, viz., making the soil the Security for its own improvement.

But on this matter opinions may and do differ. Money may be tied up as well as land; though with much less interference with public convenience, and the rights of posterity. Yet Mr. BRIGHT may be justified in thinking that a less aristocratic House of Commons might have little sympathy with a law which forbids each generation in succession from calling the earth its own, and keeps the parents' interest in perpetual bondage and postponement to that of the offspring, even to *a generation unborn*.

"Any number of lives *in being* that you please," says the American law, "but no meddling with unborn generations." "Any number of lives in being," says the English law of entail, "*and twenty-one years afterwards.*" Nations have a right to their opinion as well as individuals: probably the question with Mr. BRIGHT is whether *this*, or *that*, is really the opinion of the English nation.

"I do not hold up America as an example," says Mr. BERESFORD HOPE, "but in America though in many of the States they are afraid to make an eldest son, they are not absolutely obliged to cut up their property as they are in France. * * * Calling it an 'estate' is a joke, I should say that *patch* which *not their father but the law gives them over their father's head*, and which they take without gratitude to him from whom it came. * * * Marriages become a mere matter of bargain; sons' sons go on making these sorts of marriages, and thus you see how this villainous system poisons the very birth-springs of human life."

Some of this is singular language from an advocate of the English system of Entails; and most of it might have been almost borrowed direct from the phraseology of the opponents of entail and primogeniture, including names no less distinguished than those of ADAM SMITH, and JOHN STUART MILL.

Nor is this so wonderful as it seems. Those who, like Mr. BERESFORD HOPE, raise up the French law of *Morcellement*, as the bugbear to frighten people into favour with the English land laws, are simply making use of what WHATELY describes as 'the vulgar Fallacy of Contraries,' each erring in its own extreme, while the true principle may be lying quietly somewhere between them: nearer a good deal we hope and believe to our own side, yet still leaving it possible for each extreme to be deprecated by its opponents with the same formulas of speech. "Shall the son be a beggar because the parent is a fool?" says the advocate of Entails: "Shall all the other children be beggars in order that one may be made rich?" says their opponent.

And thus men go on, in a sort of artillery duel, pounding away in long shots at extreme quarters, as though it was quite out of conception or possibility that land could exist without either a Napoleonic law, on one side, or English Entails on the other to substitute its natural distribution and succession. Land is one of the forms of capital and nothing more; one of the many modes, perhaps the safest of any, in which wealth, the offspring of labour, may be invested and represented. Its antiquity, as the original *only* form of capital has handed it down to our day loaded with many curious old laws, customs, and prejudices: and those who cling to old laws customs and prejudices will not be convinced, though a Manchester millowner should buy out a Peer or a Squire, every day before their eyes, and the Millowner's son be swallowed up by the Squire's, in turn,—that land can take care of itself as well as any other 'property,' without either the mincing-knife of a French 'Morcellement' or the family Go-cart of an English Entail.

SINCE the slaughter of the cows at Islington no reports have reached us of the presence of Cattle Plague in the Metropolis. In reference

to the cause of the outbreak no further evidence of any importance has been obtained. The medical officer of the district, in a letter to the *Times* of February 9, attributes the disease to the use of some bricks which had been taken from a shed in which cows sick of the plague had been kept and treated during the outbreak in 1865. At first the suggestion did not seem to be very unreasonable, but after investigating the circumstances, we were compelled to admit that the idea of the contagion having been communicated by the bricks from the hospital shed was opposed to the facts. In the first place a period of nearly 18 months has elapsed since diseased animals stood upon those bricks, and setting all other considerations aside, there is no proof that infectious matter will retain its vitality for so long a time, particularly when no attempt is made to preserve it. Secondly, diseased animals stood in the other sheds at the same time, and when all the stock, or nearly all of it, was removed, and the plague had run its course, the usual system of disinfection was adopted: the floors we are told were washed, and then sprinkled with chloride of lime, and afterwards covered with quick lime; the bricks in both sheds were taken up, cleaned, and stacked ready for use; in fact, we cannot discover that there was any difference in the method used in preparing the bricks, excepting that those from the principal shed were stacked in the open yard, while those in the hospital were piled up in the shed, which has doors at either end, and is well ventilated. Whether the chloride of lime and quicklime are the best agents to employ in the disinfection of premises may be an open question. We can state, however, from our own observation, that there are numerous sheds in various parts of the country in which cattle died, or were killed, in consequence of being affected with plague, where this process has been used, and in our judgment not in the most careful manner, but where nevertheless healthy cattle have been introduced after a dangerously short interval, often no more than five or six weeks, and have remained free from disease. But the crowning point in the argument is, that since last June cows have been put at different times in all the sheds on the premises at Islington, and yet no outbreak of plague happened until Jan. 27 last, about which time it was *known* to exist in countries from which we receive large numbers of cattle. On Jan. 28 we received telegraphic information from Belgium indicating that the Cattle Plague had appeared in Hassalt. On Jan 30, another telegram asserts its existence in Rhenish Prussia. How the pestilence originated in these countries can only be a matter of conjecture, but it is not an unusual event for the disease to follow in the line of marching armies.

In Holland Cattle Plague has raged for a long time past, the number of cases in the first week of December last amounting to nearly 8000; since then it has gradually declined, but still prevails to a serious extent: the last returns which we have seen give the numbers nearly 4000. It is quite true that some preventive measures are adopted in reference to the importation of cattle from the infected districts, but we have reason to believe that the restrictions may be evaded abroad as well as at home, and it would hardly excite any surprise if it were proved that infected animals from Prussia or Belgium have reached our shores, and been placed in the lairs adjoining the dairy at Islington. Indeed all the regulations which are in force in reference to foreign stock are based upon a tacit admission of the probability of such an event as the introduction of infected beasts happening—else why the necessity for the slaughter of imported animals within the four days from the time of their being landed, and the prevention of their removal alive from the town into which they are brought by sea?

Carcases of animals which are slaughtered in infected counties and even from the districts where the disease exists, are regularly sent to England. A writer in the *Times* of February 8 quotes from the *Etoile Belge*, to the effect that all the 364 animals which were slaughtered at Hassalt were infected, 149 had to be buried, and the remainder *having only the germs of the disease*, were in the opinions of all the veterinary surgeons present fit for consumption, and accordingly the greater part of the meat was nicely packed, and sent with all convenient speed to London *viâ* Antwerp. We have thus the gratification of knowing that the meat of animals admittedly diseased to a certain extent, is considered fit for our consumption.

Experiments have proved that so soon as 36 hours after inoculation the blood of an infected ox will carry the disease to a healthy animal, and it therefore follows that the risk of the infection being conveyed by means of the flesh of diseased animals is in exact proportion to the probability which exists of any portion of such meat, or of the blood which flows from it, coming in contact with healthy cattle during its transit or after its arrival in our country. No steps on our part have been taken to prevent the importation of cattle from Prussia or Belgium, nor is it likely that any restrictions will be put upon the trade with these countries unless a very urgent necessity shall arise. We can ill afford to diminish our present supply of meat, and if the regulations affecting the importation and subsequent treatment of animals intended for slaughter be properly carried out, we incur no great amount of danger, even if cattle come to us from other countries where cattle plague is rife. It is beyond dispute that we must obtain from foreign sources large supplies of meat for our population, and with this understanding we must accept the risk and provide against it. Fat stock, or at least what passes as fat stock, viz., animals not intended for store purposes, we can deal with easily. The grand difficulty lies in the question of store stock; how and where are we to obtain the proper beasts, and under what restrictions? These questions are now undergoing anxious consideration, and unite, with the subject of quarantine, to form a problem the solution of which must be left to time.

—— THE plan of the Agricultural department of the Great International Exhibition at Paris has been already issued. Daily trials of the implements exhibited will take place in the Isles of Billancourt and Seguin, and each class will moreover be specially tested once every fortnight. The live stock exhibition takes place at Billancourt fortnightly throughout the period, according to the following programme; and as fortnightly sales will be permitted, the whole affair will no doubt be a great periodical market. The following is the scheme under which the different exhibitions will be classed:—

April: 1st fortnight—Sheep especially adapted for mutton; breeding stock. 2nd fortnight—Fattened stock.

May: 1st fortnight Dairy stock. 2nd fortnight—Sheep for wool.

June: 1st fortnight — Draught horses. 2nd fortnight—Poultry.

July: 1st fortnight—Draught cattle; breeding stock. 2nd fortnight—Hunters, saddle and carriage horses, ponies.

August: 1st fortnight — Dogs. 2nd fortnight — Working oxen, exhibited in pairs harnessed, as they will be tested by work.

September: 1st fortnight—Pigs: breeding stock. 2nd fortnight—Asses, mules, and mule-breeding stock.

October: 1st fortnight — Fat animals. 2nd fortnight — Animals that have been or are susceptible of being acclimatised.

The animals exhibited during the first fortnight of each month must be sent so as to arrive on the 1st or 2d, and removed on the 12th; those shown in the second fortnight should arrive on the 16th or 17th, and be taken away on the 27th. But exception to this rule will be made in favour of animals competing at Poissy and other local exhibitions.

The following rewards, among others, are announced:—

A great prize (a work of art of the value of 10,000f.) to the exhibitor whose articles prove him to have rendered the greatest service to agriculture.

For methods and specimens of culture, and for agricultural instruments, seven Gold Medals of the value of 1000f., 50 Silver and 50 Bronze Medals.

For the animals exhibited, 20 Gold Medals (1000f.), 150 Silver, and an equal number of Bronze Medals, in addition to honourable mentions and valuable objects of art, which will be given as additions to 40 of the Medals.

—— The Scientific Association of France will this year award several important prizes. Two prizes of the value of 500 francs will be given for the two best papers on the APPLICATION OF METEOROLOGY TO AGRICULTURE. Gold Medals, from 100 to 300 francs in value, will be awarded to the best series of meteorological observations made on the sea, or in places whose climatology is little known. Last year 28 gold medals were given for works of this kind. Papers and observations will be received at the Imperial Observatory of Paris by the Secretary of the Scientific Association, but not later than the 28th of February, 1867.

—— Mr. H. ROAKE, jun., of New Haw Farm, Chertsey, advertises that some miscreant on the 11th of December entered one of his cowhouses and broke the leg of one of his cows; and again that on the 20th of January the same shed was again entered, and the leg of another cow broken! What may be the legal punishment allotted for this miserable barbarism we do not know; but it is hard to conceive any crime which more deserves severity, whether on the score of its malignity or its reckless cruelty; and we hope that the reward of 100 guineas which is offered may lead to the conviction of the wretched perpetrator.

—— We sincerely regret to announce the death after a very short illness of Lord FEVERSHAM, which took place last Monday, at his residence in Great Cumberland Street. Constant in his attendance at meetings of the Council of the Royal Agricultural Society of England, and one of the most active and useful of its leading members, he will be greatly missed not only by his colleagues in the management of the Society but all who annually visit its Show-yard, where he was himself a constant attendant and almost universally a successful exhibitor. Lord FEVERSHAM was a trustee of the Royal Agricultural Society, and its President in 1863-4.

LOST LETTERS.—No. III.

I MUST not leave Switzerland without saying a few words about the Vintage. I mean the actual process—the conversion of Vine into *Wine*; though this is more properly an Italian theme, on which there will be more to say hereafter. But looking at those districts in England where Cider, and Perry, are an important local manufacture, and the practice there persisted in by the many, and deprecated by the few, of giving *Fermentation* its full fling, I should like to record that I have found just the same scrupulous anxiety, in the Neufchatel and Yvorne districts, in watching, moderating, and even checking this capricious process, as formerly at Funchâl, where, to the prince-merchant of Madeira it seemed a matter if not of life and death, at least of "death's counterfeit," sleep—and waking. For, the watching of the casks and vats went on day and night, long after the Vintage, until the exact medium was arrived at, the *Vinous* medium, between the saccharine and the alcoholic conditions. In Devonshire and in Herefordshire, and even in Somerset's fair Vale of Taunton where the best Cider I ever tasted in England was made, I have almost felt sometimes as if the chemical process was *catching*, and my own mind approaching the *acetous* state—to witness the stolid indifference with which Fermentation is allowed to drive its headlong course. I need hardly say that there is no specific difference between the two fruits—the Apple and the Grape—to justify this variety of treatment; except indeed that the apple can less afford to part with what little 'body' it possesses, and lies nearer to the fatal brink of—Vinegar. Why then is it not thought worthy of more care—during the mystic transmigration which first promotes Sugar to Alcohol, and then degrades Alcohol to Vinegar—to "seize the moment as it flies" when the Vinous—I should perhaps say *Pomaceous*—point is reached, and not allow another step to be taken in the downward course that leads first to throat-flaying acidity, and ends in a '*mortuum caput*'? I wish we could have a 'Cider Conference' in England, as they do now and then in Normandy, to discuss this ill-used manufacture, and import a little common sense into it; now that, thanks to the Locomotive, the counties that make the Cider are not the only ones punished by drinking it. Formerly, it was simple Nemesis; and no one had a right to complain—except perhaps the Haymakers, whose throats however are mostly Vitriol-proof by the end of the season.

But all this need not be: and what an aggravation it is to think that, after all, that diabolic sourness is nothing but sugar that has run mad, and *literally*

"Wasted its sweetness on the desert air."

The Vineyards of the Coté d'Or, and indeed of all Burgundy and Switzerland, from Dijon to Geneva, are, Gibbon tells us, as old as the time of the Antonines.* *Seventeen hundred years* is time enough to teach Fermentation. We need not surely be ashamed to take a lesson.

A late Autumn keeps people still lingering on the north side the Alps; and then the first break in the weather sends them helter-skelter over the Passes. And thus it happened that the lovely and protracted season kept me too long in sight of Titlis and the Jungfrau, and when I moved down at last towards the foot of the Simplon, I found myself detained near the walls of Chillon's dungeon, an outside 'prisoner,' land-weather-bound, waiting for a 'clear bill' of the Pass, which had become snow-stopped. Instead of better, it grew worse and worse; and at last, to my mortification, judgment was given in full conclave for going by Mont Cenis. So it was necessary to cross the Lake to Geneva.

Even this was denied. The day before starting, there was such a 'storm in the teapot' that the Boat from Geneva was actually put back into port! Will it be believed of placid Lake Leman?

This gave the opportunity of what I had never seen, and had longed to see, a Lake in a passion: and what I saw surpassed all expectation. The West-Bay at Portland, which receives the mighty throb of the Atlantic, might not be ashamed of the 'white-horses' that toppled over each other along the shore from Montreux to Villeneuve. The sight of Chillon with the white spray dashing up nearly to the top of its crenellated walls as if the old Tower was doing duty for a modern Lake Lighthouse, was a sight not often to be seen, nor readily forgotten.——But I did not expect to find myself indulging travelling exclamations before I was across the Alps.

Well; as the bold mariners of Leman declined the voyage from Geneva to Villeneuve on Monday, it followed that there was no boat to navigate its appeased waters on the return passage to Geneva on Tuesday: an extra journey by Rail was the consequence: and though the Line goes round the outer semicircle of the crescent Lake, and the Boat across its blue waters, still "the longest way round"—kept up its ancient charter

To a climber fresh from the Oberland, poor Mont Cenis, which is usually snubbed by being passed over by night, does not certainly offer any special attraction or novelty. As however I wished to make my first a daylight acquaintance with it, I passed the night at Modane in preference to that noisy dirty town of Diligences and Vetturini, St. Michel. There is another reason for this. Between the two places you fall in with what is likely to become 'the greatest bore on the face of the earth,' called the Mont Cenis Tunnel,—because it does not pass through Mont Cenis. The works can be visited by the public only once a month, by an

* Decline and Fall, Vol. 1, 2 (p. 62). The district from which we get the justly celebrated *Beaune* wine, is said by M. D'Anville, the well-known Geographer, to be the *Pagus Arebriguus* of the Romans.

order from Turin. They are almost worth a journey from England, for the express purpose. The clever way in which the water-power has been employed, for ventilation, and the bold ingenuity of the hopeless-looking but by no means hopeless task, are almost unique, even in this wonder-working age. The system by which the rock is pierced, is the same which you put in practice—or rather, envoy the result of—every time you divide your postage stamps. "Shade of Hannibal!" Sydney Smith would surely have said, "Shall the Alps be transpierced by *acupuncturation!*"

Yet so it is: the tunnel arch is patterned out by drilling gimlet-holes into the solid Quartz rock, and then the pieces chiselled, or blasted, out, according to their nature. Slow work, of course: *e pur si muove!* it gets on: for the candle burns at both the ends, French, and Italian; each prudently working *up-hill*, so that the water, and 'spoil' run themselves out; and in five years hence,—for the 'Ten-years' siege' is now half over,—North and South will meet. What a day it will be, or night—(what matter, *there*, which?)—when France shall hear the "knocking at the South entry," and Italy "finds the Gaul is at her gate," and two nations come face to face in the bowels of the earth, as two historic foes have never met before, since it came from the hand of its Creator.

On the 1st of January, 1866, the Tunnel had been opened to a distance of 2222 metres from Modane, and 3087 from Bardonnèche, altogether 5309 metres out of 12,220 the total length. By a convention concluded at Paris, the French Government is to pay half a million of francs for every year after completion *short of twenty-five* from January, 1862: and for every year *short of fifteen* a hundred thousand francs more. The (engineering) Directors are to have half this conditional premium. Not a bad pattern of a mainspring!—by which, at the latest estimate, the Tunnel is expected to be opened by October, 1871.

Further up the Pass, beyond Lanslebourg, the new line of triple Rail had been laid for a considerable distance, along the (outer) edge of the road. It looked rather in an abandoned state, and at Turin was actually announced to me to be so, on account of the great difficulty presented by the zig-zags, especially on the Susa, or Italian, side; but this it seems has been surmounted, and it is now under contract, and progressing. The insertion of the centre rail has been spoken of with the applause of an Invention. It is simply a contrivance,—the common 'dumb-bell' rail laid sideways, instead of on edge, presenting what would be its upper and under surfaces to a pair of horizontal wheels adjusted for the purpose under the Locomotive, which climbs the hill by biting its way, very much as you see a parrot do up the side of its cage, using its beak as a third leg, a 'double-third' rather, if such a thing may exist—out of Oxford.

The 'Pass' proper begins at Lanslebourg. As I performed it, magnified by a large party of friends who had joined mine for escort, nothing short of a Pindaric poem could do it justice. Sing then, O Goddess, the praises—but you must begin by setting the multiplication-table to music—the praises of *Twelve Mules!* which, on emerging from our hotel in the rain, we discovered to have taken the place of our leaders, with a driver half German-Swiss half Italian, whose vigour and activity, and whip most crepitant, were equal to all the responsibilities of the post, and something over. Former experience of the tractive powers of twelve horses, in an agricultural Trial (Horse-power *versus* Steam-power), had made me distrustful of the 'pull all together' to be got out of such a team. But to live is to learn: especially if you travel with Mules.

Most people would describe the driving-box of a carriage as a place to sit upon, and drive from: to our energetic Jehu it was simply a post of occasional observation: he was up, and down, in rapid alternation, his eye, voice, and every feature in personal *rapport* with every mule in his extended team. Each had his proper name, and seemed to know it, too, together with the most astonishing vocabulary of epithets, German, French, and Italian, affix prefix and suffix, as occasion might require to be coupled with it. Did one mistaken wretch try a moment's experiment of slack trace,—with a prompt Italian salutation as an 'accursed hog of the body of Bacchus,' bang went a whip-cord thunderbolt into his side that sent him, dragging all his neighbours, right across the road in bewildered consternation: another, "trying with false surmise to interpose a little ease," had his "frail mind" electrified by the German title of a 'black-hearted *Teufel*-begotten Thunder-Sou,' followed by a heavy quartz pebble on his ham, sent with the force of a Catapult. These private attentions would be succeeded by a general shower of polyglot execration discharged like a bouquet of fire-works, that appeared to sting the ears of the whole team with the liveliest excitement, very much as if a nest of hornets had suddenly alighted on them.

At length the tiresome ascent, and the long zigzags ended. The level is gained; and the mules parted with: and a long dead level it is, shewing first a dark Lake that wears its great-coat of ice for seven months out of the twelve; then an enormous barrack-like Monastery with one fat monk at the door who came out, eating. Was it an invitation? on the principle of that kilted Highland gentleman whom we remember, somewhat wooden of complexion, cheerfully taking a large pinch, out of a roomy-looking powder-horn, at the door-post of our friend the tobacconist.

But even two-horse-and-twelve-mule-power straining up zigzags, with a heavy carriage behind, is no match for one pair of farm-legs fresh from the Aletschorn, cutting across them: so I early released myself from the rather sickening spectacle of Mules'-Purgatory, and was soon watching the weary struggle going on far below me; and then, making my way through the clouds that had been frowning and weeping upon our whole morning's journey, came out, all at once into the bright laughing Sunshine, reflected by the dazzling snow that now lay, and rose around, in thicker and thicker masses.—*What* a change!

Ah! if all our dark thick clouds could be surmounted thus!—how men's limbs would strive, and hearts would strain, to reach that blessed land of Sunshine, above and far beyond the frowns and the pitiless storms, and the sharp, and ever sharpening angles of *that one* great Zigzag which life presents to some!

Tell me, you unapproachable mountain-Summits—eternal snow-crowned Vestals, whose spotless thrones towering higher and higher, seem to present the one great Temple, to which all men, once at least in life, hasten from the surrounding flats and plains of Europe, to bring the tribute of their worship to the lofty shrine of nature's Sublimities—tell me, are there indeed *some*—perhaps long-loved—and lost—whose gentle eyes look down with sympathising glance, with the touch of tenderest pity, upon the toiling brotherhood of Man, struggling up—struggling on—with blind and weary hearts, below?

Silvery Vapour! floating like an earth-meteor far above me—wandering capricious, a mere thin scarf of fleecy light, cutting the deep Blue, from crag to pinnacle! Tell me, are these bright altitudes the type of weary Man's release, and Rest, from the toil, the heart-sore conflict of the life beneath?

No answer!—Nature is silent. *Such* a silence it is,—where *nothing* but the echo of the distant Avalanche, dying away—fainter, and fainter—is *ever* heard! No half-hour's sermon *here*, no fifty-minutes' lecture, no glib homily to 'expound' the mysteries which force themselves direct upon the mind from the awful grandeur, that lies around,——from this impressive, speechless, crushing Vastness.

Nature is silent. There is no answer: but—— 'Man must Toil, and TRUST'! and the latter is the harder lesson! for how often has the hand that plants the grain a task far easier than the eye that must watch its ripening, and count the sheaves, and garner in the Crop, and look far on, ahead; with anxious reckoning, lest after *all* is done, and toiled, and struggled, and surmounted, and the laborious Mind that planned and directed all, asks for *its* wages, its bare requital at the hand of Nature, there be found—'No Answer.' *C. W. H.*

CHESHIRE.

CHESHIRE, although a small county (extending to 707,078 acres), has suffered so heavily by the cattle plague, that more than an ordinary interest is felt in regard to it, and the question very naturally arises. What state can a county be in that has lost within a year about 59,000 head of cattle, or upwards of half its entire stock, besides many hundreds (of which we have no statistics) that were sold at one-half, one-fourth, or one-fifth of their ordinary value, and killed—many of them being heavy in calf—upon the near approach of the fatal disease? Before we answer this query, we may observe that another question is often put, Why did Cheshire suffer more than other counties? There are more reasons than one that may be given as probably contributing to this result. The principal one I believe to have been the state of public opinion at the time the visitation broke out in Cheshire—the local newspaper press being taken as the exponent of public opinion. The whole county may be said to have risen up against the plan recommended by all veterinarians who had had an opportunity of forming an opinion on the probability of treating it. The inhumanity of the poleaxe was a fruitful theme for paragraphs during the dull season. The common-sense teachings of experience took root only in the far north. Your Aberdeenshire friends laid good hold of them, and acquitted themselves to the admiration of all, and greatly to their own advantage.

The largest and most influential landlords in Cheshire took the popular view, and generally made their tenants to understand that no compensation whatever would be allowed for any animal killed, in anticipation of the disease. The diseased animals were, therefore, allowed every chance to live and propagate the disease. Every nobleman and gentleman turned enthusiastic quack doctor, and had some unfailing specific to recommend. From their position their prescriptions were tried by all their tenants; and after one great remedial bubble recommended by a lord had burst, there was always another ready from some high quarter. The enormous amount of money that was spent in supposed cures it is impossible to tell. The homœopathists reaped a particularly rich harvest. Their never-failing assinicum was largely advertised, and used as a never-failing preventive and cure. But what has all this to do with the losses? Much, very much. The disease was spreading, and being spread, while men were encouraging each other to find a cure, and not only killing, for many animals would have lived if left to nature that were killed by outrageous doses, or worried to death by the incessant repetition of infinitesimal doses.

So much for the past: now as to the present, Cheshire is a pastoral county, the greater part of the land being in permanent Grass. The farmers do not think they could pay their rents by cropping, and the reason they give is that the land is too stiff and wet. Much of the land is strong clay and undrained, and the country generally being very level, it is not so susceptible of being drained as where the surface is of a more undulating character. Certain it is, that if the north of Scotland were as wet, it would be of very little value; but the higher temperature of the climate seems to prevent the souring tendency that is so prejudicial to vegetation on undrained land in Scotland. Proprietors are even more averse to ploughing than the farmers, and give no encouragement to break up the old fields, as they seem afraid of the land being sooner exhausted. There is, however, more land ploughed than there used to be. Fields that have been under Grass for 200 years were last year growing Beans, Wheat, or Potatos; but this is by no means so common as one might have expected, sheep and hay-making being resorted to as a temporary substitute for cows. Of sheep, the great majority of dairy farmers knew nothing, and many of them bought sheep at a very high price in May, and after keeping them all summer on the best of their land, have had to sell them for less money than they cost them, the fall in the market value of wool, and the Privy Council regulation that prevented sheep being taken out of an infected county, having helped to produce such a result. Hay was not a heavy crop in the county, the month of May being too dry for it. Much of it, however, was harvested in very excellent condition, and there is a steady market for it, delivered at any railway station for Liverpool, Manchester, Birmingham, or London, &c., at prices that are not high, but are better than, under circumstances, could have been looked for, viz., 2*l.* 15*s.* to 3*l.* 10*s.*, according to quality per ton; old hay 4*l.* per ton.

A voluntary subscription was raised among wealthy sympathisers on behalf of those who lost their cattle previous to the 20th February, and 27,000*l.* or upwards was collected. This fund, however, only amounted to 18*s.* per cow: 10*s.* per rising two-year-old-heifer, and 5*s.* per rising year-old. The relief from this source was rather homœopathic. After the 20th February, those cattle killed by the inspector were paid for half value (that is if 8*l.*, to which the local authorities restricted it, could be called half value) for all cows, some of them worth in ordinary times 20*l.* or 24*l.*, with 3*s.* 6*d.* a-head for burials. To meet these half-price payments, the Government lent the county 270,000*l.*, or, if I mistake not, 300,000*l.*, if it is required, for which the county assessment stands good, and it requires to be paid up within the next 30 years—interest, however, not being asked for the first year or two. Those who lost their cattle previous to this arrangement coming in force will pay their increased rates with very ill-will. They cannot see the justice of helping to pay their neighbours' cattle while they lost their own, and get nothing.

Some spirited individuals bought cattle in some of the counties in Wales where plague did not reach shortly after the scourge passed over them, and have fortunately escaped; but others, less lucky, had a renewal of the plague, and lost their new stock. This was a great damper for some months, and purchases have been made very cautiously—one or two at a time. The plague has now entirely left the county, and stocks would be rapidly filled up, were it not that the new stock that are mostly from Ireland are, in many instances, proving to be infected with pleuro-pneumonia, and not only die themselves, but cause the loss, by contagion, of the scanty remnant left by the plague.

The Cheshire farmers are at present in anything but a happy position. Turn themselves as they may, only loss seems to meet them. Still, upon the whole, they do not complain or grumble. If it is any consolation, they are pretty nearly all alike in their losses, and losses they are accustomed to, for many farmers, not very old men, have lost, two and three times over, their cattle by pleuro, and have managed to renew them, and they reasonably hope that what they have done before they may do again. The landlords have generally shared with the tenants in meeting their losses, some returning on rent day 4*l.* for every cow lost, others deducting a fourth or some proportion of rent due, also intimating that future favours may be looked for if there is any necessity for them. The common opinion is that it must be a few years ere the county recover its former position. *Banffshire Journal.*

THE CHEMISTRY OF STOCK-FEEDING.

[The following paper was read last Thursday, before the Newbury Farmers' Club, by Mr. Warington, of the Royal Agricultural College, Cirencester.]

ANIMALS are fed on a farm for two purposes—either with a view to increase the animal frame, or to obtain from the animal a certain amount of mechanical work; increase or work is the result the farmer looks for as the return for food consumed. The subject being a very large one, only the first division, the chemistry of building up the carcase, can be now discussed.

The point to be first understood is the nature of the structure we have to build. Ten years ago it would have been impossible to state with any accuracy the proportion of the various materials which make up the body of an animal; but now, thanks to the laborious investigations at Rothamsted, we can do so with considerable exactness. The animal frame contains a great number of substances; they may be arranged, however, under three heads:—

	Store Sheep.	Fat Sheep.	Very fat Sheep.
Nitrogenous substances .. .	15.7	13.0	11.5
Fat	19.9	37.9	48.3
Mineral substances	3.4	3.0	3.1
Water	61.0	46.1	37.1
	100.0	100.0	100.0

The nitrogenous substances (those containing nitrogen) include the constituents of muscle, sinew, skin, wool, horn, and some other parts: the mineral matter consists principally of bone; the salts of the blood and flesh forming but a small proportion of it. The simplest view of the Table is to take the figures as representing the proportions of muscle, fat, and bone: this, though not quite exact, is sufficiently so for the present purpose.

When an animal is fattened the amount of muscle increases, but the fat increases at the same time so much more rapidly that the proportion of muscle is much smaller in a fat animal than in a lean one.

From the figures before us it is easy to calculate the proportion of muscle to fat in the increase of a sheep while fattening. Suppose the sheep weighs 100 lb., and after fattening weighs 150 lb., what is the composition of the 50 lb. put on? The mean of extensive calculations gives the following:—

Increase of a Sheep while Fattening.

Nitrogenous substances	7.5
Fat	63.0
Mineral substances	2.0
Water	27.5
	100.0

The increase of other animals while fattening is very similar. The greater part of the increase is seen to be pure fat; the nitrogenous substance (muscle) is only 7½ per cent. of the whole; by bulk, however, it will amount to a much larger quantity, the water being associated with the muscle of the carcase and not with the fat.

We have now some idea of the structure to be built. What then are the materials out of which it can be raised? What, chemically speaking, is the food of animals?

We spoke some time ago of the food of plants, and saw that out of two simple gases, water and a few salts, vegetation was capable of producing forests and Wheat harvests, and all the glories of a tropical Flora. A plant was constructive: from simple food it built up complex products. The nutrition of animals was the reverse of this. When an animal forms muscle it is simply transferring the albumen of the vegetable frame-work to its own frame-work. The albumen in the food is dissolved, passes into the blood, is deposited as tissue; but the albumen of the tissue is chemically identical with the albumen of vegetable food. It is true there are a great number of new substances formed by the animal from its food, but these are all simpler in constitution than the materials they are made from. The animal forms its new substances by taking from, not by building together. The animal economy is, in fact, destructive, not constructive.

It is clear then, that the food of animals must contain the substances which compose muscle, fat, and bone, or at least materials that can be very readily turned into these. The following Table shows the composition of some of the commonest foods. The constituents of these foods are the constituents of all food.

	Swedes.	Meadow hay.	Barley.	Beans.
Water	89.0	16.0	16.0	16.0
Nitrogenous substances	1.4	9.6	10.6	25.3
Fatty matter	.3	2.5	2.0	1.5
Sugar, starch, cellulose, &c.	7.8	41.7	64.7	49.6
Woody fibre	.9	24.2	4.5	4.5
Mineral matter	.6	6.0	2.2	3.1
	100.0	100.0	100.0	100.0

The Table shows that food contains nitrogenous, fatty, and mineral substances in various proportions. Each of these the animal will of course put to immediate use. The bulk however of vegetable food is made up of such substances as starch, sugar, and cellulose (woody fibre was comparatively insoluble cellulose), and these are bodies quite absent in the animal structure. To what use, then, can these be put by the animal?

To understand the use of the different ingredients of food we must go a little further. We must recollect that besides increasing its weight of carcase the animal has to support life. Take an animal not increasing in weight, what purposes does its food serve? Principally three:—1, renovation of tissue; 2, production of muscular force; 3, production of heat.

The structures of the body undergo a slow but continual waste; the old matter is dissolved by the blood, burnt, and removed from the system; new matter is deposited in its place.

Our idea of muscular work must not be limited to mere external exertions, as the raising of heavy weights; a vast deal of muscular work is done within the body. It has been calculated that the work of the human heart in one day would suffice to raise its own weight 90 miles. In the same way the muscles of the chest perform a great deal of work. Other muscles are in constant use merely to keep the body erect. A great deal of light has been thrown of late years on the origin of muscular force; it now appears that muscular force is produced by the combustion of food in the system—that, in short, the animal machinery derives its power in the same manner as a steam-engine.

Heat is necessary for the performance of all the vital processes; it makes life possible in various seasons and climates.

With an animal not increasing in weight, the whole of the food will be consumed in supplying these three requisites; where the amount of food exceeds that required for these purposes, the excess may be stored up. In what manner do each of the various ingredients of food minister to the wants of the animal? The nitrogenous substances supply waste of tissue—if given in excess to a fattening animal a portion will be stored up and the rest burnt, thus producing heat and muscular force; the nitrogen, however, is not burnt, but leaves the system in the form of urea: it is important to remember that all the nitrogen of the food not stored up passes into the manure. The fat contained in the food is burnt in the blood; the excess, if any, is stored up. The fat is as truly burnt in the blood as in a lamp or candle—the products of combustion are chemically the same in both cases. Sugar, starch, and digestible cellulose, are burnt in the blood; this is one important use of these substances; they largely contribute to the formation of heat, and muscular force.

The combustion in the blood is a most wonderful operation. If the chemist cannot imitate the constructive powers of a plant, neither can he imitate the destructive powers of an animal; he can only observe and admire.

If the food supplies an excess of starch and sugar, what will the animal do?—it cannot store them up. They are converted into fat. The formation of fat by animals is perhaps best illustrated by one of the experiments made at Rothamsted. Two pigs from the same litter, and of almost equal weights, were taken; one was killed, and found to contain 22 lb. of fat: the other was fed for ten weeks longer, and then killed; it yielded 78 lb. of fat: 56 lb. of fat had thus been stored up in the ten weeks; the food of the pig during this time had, however, contained only 14 lb. of fat; 42 lb. had thus been actually formed by the animal. Reasoning we need not enter on has proved that fat is formed from starch and sugar, but it is also possible that the nitrogenous part of food when burnt in the blood might contribute to form fat. Chemical calculations have likewise shown that 2½ parts of starch are about the smallest quantity from which 1 part of fat could be produced; 2½ is thus said to be the "starch equivalent" of fat.

The mineral substances in food being incombustible are of no use in the production of heat; they serve to build up bone, and assist in many of the vital processes.

What have we now learnt about food? It appears that, excepting the mineral matter, *all* the constituents of food are capable of furnishing heat and muscular force, those two primary necessaries of animal life. That, where an excess of nitrogenous food is supplied, a portion is stored up as muscle, wool, &c., while the excess of sugar and starch is converted into fat.

It is important to remember that it is only the *excess* of food which is stored up as increase. To have as large a proportion of the food stored up as is possible, it is necessary to limit, as far as can be, the consumption of food for the mere production of heat or muscular energy; this is accomplished by keeping the animals warm and quiet. In liberal feeding a larger proportion of the food is excess; liberal feeding is thus true economy. Fattening is most economical when done in the shortest time. An ox weighing 1000 lb. or more, has through its whole life to be kept at a temperature of about 98° Fahr. by the combustion of food, which costs the farmer a good deal, but as thus consumed makes no return; the sooner the animal can be made prime the smaller is this expense. Experiments at Rothamsted have taught us, that even when an animal is fattening under favouring circumstances, one half its food is consumed to supply heat, &c., and does not minister at all to the formation of increase.

The manure obtained by feeding stock was employed as food for plants; its value would therefore depend on the amount of nitrogen, phosphoric acid, and potash, which it contained; the value was practically dependent upon the amount of nitrogen present. With fattening animals about 90 per cent. of the nitrogen in the food appeared in the manure: the more nitrogenous was the food, the more valuable was the manure. The manure obtained from different foods is thus of unequal value, and the value of the manure must be taken into account in determining the worth of any food. For a farmer to know what is really the cheapest food in different states of the market, he must know the chemical composition of foods, and thus be able to take into account the worth of the manure obtainable from each.

[At the close of the lecture a vote of thanks was moved to Mr. Warington, and a short discussion followed on the subject of the lecture, after which the meeting adjourned.]

LIVERPOOL SEWAGE.

[We reproduce here the address of Lord Robert Montagu on this subject, at a meeting held in Liverpool some weeks ago.]

His lordship stated that 15 years ago he himself tried the utilisation of sewage upon land, and so astonished was he with the results that he then determined that if ever an opportunity offered he would do all in his power to urge the general utilisation of sewage throughout the country. He spoke therefore from experience. They remembered that in the year 1864, when the House of Commons gave him a Committee to investigate the whole subject, and on that Committee some of the most able members of Parliament consented to serve, they were unanimous in the decision to which they came. The result of it was that in the succeeding year, 1865, he introduced two Bills to the House. One received the assent of the Government, and passed without opposition—he alluded to the present Sewage Utilisation Act. The other Bill was of too large a scope. It was for erecting Boards for the management of the whole of the watersheds throughout the kingdom. That Bill had been put aside, but it had been since used with respect to the Thames watersheds. He proposed to show, first, the absolute necessity of utilising the sewage of towns; secondly, the enormous gain that might be expected to accrue from such a practice.

If they went back to ancient times it would be found that before there was any written law every man had, by common law, a right to pure water and pure air. The first statute which applied to the subject was as early as the 12th Richard II.—a statute enjoining all mayors of towns to forbid the throwing of any filth, offal, or noxious matters into the sewers, water-courses, rivers, or ponds of water. Until the year 1847 the plan was for scavengers to take the excretions out of the town in carts. What was the result of that system? Why, those tremendous zymotic diseases which spread all over the country, and carried off tens of thousands of people. There were various visitations of cholera before the year 1840, and the Government were induced to turn their attention to the subject of the health of towns. Boards of health were appointed, commissioners were engaged in investigating the subject, scientific men turned their attention to it, and the result was the elaborate report of the sanitary board of 1842. In consequence of this it was resolved that the cesspits of houses should be done away with. The plan first used was to put water into the cesspits and then pump them out into the sewers. In the year 1847 the Board of Health advocated an efficient water supply, and a complete sewerage for every town in the kingdom. Then, instead of separate cesspits for each house, the houses were connected by means of drains with the sewers. Thence sprang a very great evil. As the houses were purified, as the air was rendered pure, the rivers became impure.

They had before them the choice of two evils or two benefits. The two evils were poisoned rivers and a loss of valuable manure, and the two benefits fine rivers and great agricultural prosperity. From poisoned rivers they got infected air and infected water, the consequence of which was disease and the concomitant evils, drunkenness and crime. The conclusion he drew was, that the excreta must be removed from the houses as speedily as possible, and he maintained that the excreta must be removed by means of water. Then arose the first point of discussion with the advocates of earth closets. It was merely the old question between sewers and cesspits—whether these excreta should be removed by the hands of man or by the agency of water. The earth closets had been tried at Aldershott, and had failed, besides entailing a cost upon the War Office of 600*l.* a-year. The earth closet was the invention of the Rev. Mr. Moule; and he had stated that 3,000,000 tons of dried earth would be required annually for the 3,000,000 inhabitants of London. The meaning of that was, that they would have every year to dig a hole 1 foot deep over an area of 1516 acres. Dr. Hawkesley had advocated the same system at Liverpool; but his figures only went to the extent of showing what an enormous obstruction to the traffic of the streets, and how enormously costly such a system would be. The other proposition was the removal of the excreta by means of water. He maintained that such a means would be not only easier than removing it in carts, but much cheaper. The reservoir of the West Middlesex Waterworks had become silted up to the extent of 4 feet. Estimates were sent in for removing this by hand, in a period of four weeks, at a cost of 400*l.* A young engineer, however, bethought himself that, as the water had carried in the sediment, it might carry it out; so he set a few Irishmen to puddle it, and let the water carry it out. The consequence was that it was got out in four days at a cost of 40*l.* The conclusion of this and other experiments was, that it would be cheaper and better to remove the excreta by means of water.

They then came to the alternative, what was to be done with the sewage when it was in the sewers? Engineers who were called upon to purify the town of its sewage naturally looked to the river, which would necessarily be in the lowest part of the town, to extricate them from their difficulty, and into the river the sewage went. What did they find was the result of the pollution of the rivers? The same as that arising from the pollution of the air. Dr. Acland, the Regius Professor of Physic at Oxford, had stated that if disease was not actively propagated by the rivers, the population inhabiting their banks got into a low state of health, and constantly required stimulants. Dr. Simon, the medical officer of the Privy Council, had stated that the diarrhœal or choleraic state of towns was attributable to the quality of the drinking water used in those towns. Dr. Simon had been the first to show that the presence of cholera in London was due to impure water. The statements of these gentlemen had been fully borne out by the Registrar-General's returns with respect to cholera in London. Where the impure water of the East London Company was drunk, there cholera prevailed; where the East London water mixed with that of other companies had been used, the disease prevailed in a less degree. The same evidence had been supplied at North Shields, in the case of the water from the Preston Pits. "Cholera and diarrhœa never destroy people where water is pure," says the Registrar-General in his report. Dr. Acland has stated that the Thames was a disgrace to the nation. The people of London were compelled to drink the sewage of between 800,000 to 1,000,000 persons—a thing which no amount of filtration could prevent. It was the same thing with respect to the Tame at Birmingham. Mr. Rawlinson, the Government engineer, had stated that no words could describe the abominable state of the rivers of Lancashire. The evil of this was one which touched their pocket. The municipalities who used to resort to the rivers for water supply had been obliged to spend enormous sums in waterworks. Since the year 1848 a sum of over 22 millions had been spent in this way. Further expenditure was considered necessary. Stupendous schemes, such as that for supplying Liverpool from Bala Lake, and London from some place at the back of Plinlimmon, at the expense of 10,000,000*l.*, had been propounded. That was the fine they had to pay for polluting their rivers.

It might be said that the sewage could be deodorised or disinfected. That had been tried at several places and had failed signally. They came then to this conclusion, that the sewage must not be poured into rivers, and to the alternative that it must be put on land. That was the conclusion to which the nation had come, which was proved by recent legislation, such as the Thames Navigation Bill and other measures. He would proceed to show how such a proposal would be a means of enormous gain. Irrigation by pure water, without the advantage of the manurial elements, was practised with the greatest benefit in Mexico, Ceylon, and China. Millions of acres of Grass land were irrigated every year in the plains of Lombardy, and it was found that every acre of Grass land so irrigated produced a corresponding profit. If that was the case

with respect to irrigation by pure water without sewage, the sewage irrigation should *à fortiori* be much more beneficial in its effects. They took away from the land every year the elements of fertility, and unless these were restored to the ground in some shape, the ground of necessity grew poorer. The most natural course, therefore, was to return the natural elements to the land, instead of pouring them into the river. They were paying away 4,000,000*l.* yearly for guano, and 1,400,000*l.* for artificial manure. When they added to this the 16,000,000*l.* which they paid away for corn to America and the Danubian Principalities, and which sum ought to go into the pockets of the English farmer, they had a waste of nearly 22,000,000*l.* a-year, besides which we had to import cattle from abroad. In Belgium, where the sewage was utilised, the land supported 40 people more per square mile than in England. Besides, on the English system, as the population increased, the expenditure for artificial manure and the rest increased, but, if they utilised their sewage, as the population increased, their fertilising agencies would increase with it.

The results of the experiments made in England might, perhaps, be received with incredulity. But so were the statements of Mr. Stephenson; so were the announcements on the introduction of gas. But these statements were made upon the testimony of some men, among others, who at all events would not be prejudiced in favour of the sewage scheme. He read from the report of the Commissioners of last year. The amount of Grass obtained from an acre of unsewaged land in the year 1861 was 9 tons 5 cwt. 3 qrs.; from an acre on which 6000 tons of sewage had been spread, 27 tons 1 cwt.; and from an acre on which 9000 tons had been spread, 32 tons 16 cwt. 3 qrs. Similar results had followed in 1862 and 1863, with the difference that the productiveness of the sewage land increased, while that of the unsewaged land diminished. With respect to milk the results were the same. In 1862, after the system had been in operation for two years, the production of milk from an unsewered acre during twelve weeks was 431 gallons, and from a sewered acre 1145 gallons. He would next go to the actual experiment which had been made in other towns. At Edinburgh the result of the experiment had been that the land which came under the sewage let at an enormously increased rental, and the same thing had occurred at Croydon, where, after many difficulties, they had been compelled by injunction so to utilise their sewage. Land at Croydon, which formerly let for 30*s.* an acre, was now being let for 5*l.* and upwards. Experiments had been made at Worthing with a similar result. Let them reflect that if they only put the value of the sewage at 6*s.* for each inhabitant in Liverpool, it would be worth 150,000*l.* a year, which would accrue as profit to the town if the sewage were utilised. He besought them to turn that which was a source of nuisance throughout the country into a source of wealth, to remove the infection of the air, the poison from the water, and by so doing to obviate evils which had already grown to be unbearable. They infected the air, and the air revenged itself upon them; they polluted the water, and the water punished them. The land was crying out to be enriched; and if they poured upon it that sewage which was now being worse than wasted, he promised them that unbounded wealth would be their reward.

Mr. J. F. BATEMAN, C.E., said the experiments made showed that where sewage had been utilised the result had been a considerable improvement in the value of land. The work proposed to be tried in Liverpool was extremely simple. It was not proposed to carry out the whole scheme, but merely a portion of it, so as to enable the public to realise the fact that sewage could be utilised. The company formed in Liverpool intended to try two or three hundred acres, or more if necessary, at the north end of the town; to place the pumping-station at Sandhills; and to put down sufficient pumping power to raise a million gallons of sewage; and the ground, so far as his information enabled him to judge, was very suitable for the experiment.

Mr. R. NEILSON thought it might not be generally known what was the actual weight of water distributed over an area of land during a heavy shower of rain. An inch of water over an acre represented the weight of 100 tons; notwithstanding we had had such heavy floods during the last month, on no one day had one inch of rain fallen. Any gentleman acquainted with land knew the value of water; and considering the matter merely as a question of water, it would be highly beneficial to the agriculturist to pay even a very large premium upon the cost incurred by the proposed company in distributing the sewage on the land. As to the land on which the experiment was to be made, Major Blundell had promised to support the experiment in the most liberal manner. He (Mr. Neilson) had, as a farmer, tried irrigation in a small way, and Mr. Harold Littledale had tried it to a still greater extent, and in both cases the result had been most beneficial. After the very lucid, clear, and exhaustive statement of Lord Montagu, they ought to thank his lordship for the very kind manner in which he had come forward with the view of giving them important information.

Mr. THOMAS WELD-BLUNDELL seconded the motion, which was carried by acclamation.

THE STEAM ENGINE.

[We take from the *North British Daily Mail* the following extracts from a lecture on this subject given on Monday, January 21, by Mr. John Scott Russell, before the Greenock Philosophical Society.]

JAMES WATT discovered the great principle of isolated condensation—I may say of isolated instantaneous condensation, for if there be anything more surprising than the perfection of his isolated condensation it is its instantaneity, which even at the present day, and after my personal long familiarity with it, I find to be still astonishing, even if not inexplicable. Watt made this great discovery, which was enough to have made him celebrated as a philosopher, even if he had been ignorant as an inventor, and incapable as a mechanic. Had he not added invention to discovery, it is probable that other people among the multitude of ingenious mechanics and adroit inventors would have invented, patented, and profited by the application of his principles to the construction of mechanical engines. Fortunately for himself, for us also, perhaps, he was a well educated man, a skilled craftsman, and a cunning mechanician, and he was able to add to the merit of original discovery the claims of a mechanical inventor, and to reap the fortune of a successful patentee.

THE STEAM ENGINE BEFORE WATT.

Fortunately for the world there survives a monument of the state of mechanism and steam machinery at the precise date at which James Watt had to fight out his own battle of invention and discovery. In the immediate vicinity of that beautiful marble monument by Chantrey which decorates the museum of that University within whose walls the young Watt found shelter from the jealous antipathy and crafty persecution of rival mechanics, there still stands, preserved by the proud care of that *alma mater* which has sent out into Scotland so many well-educated merchants, mechanics, engineers, and statesmen, a perfect model, showing what the steam engine was before it came into the hands of James Watt. I remember when I had the good fortune to be a student in that University, with what pride our professor of natural philosophy laid his hand on that model, and said to us—"This is the model which the University placed in the hands of James Watt." It was a model of the steam engine of Newcomen, as then employed in pumping some of the mines of England. It was a model of one of those huge, ugly, ill-formed machines of which some survived even in my youth, and my contemporaries here may remember with what amazement, as boys, they used to stand in front of a big engine-house to see how the pumps of the collieries near Parkhead were made to draw the water from those (even then) extensive coal mines. Do you remember how out of a round arch, in the end of an ugly brick tower, there used to project a gigantic deformed elephant's head, black and clumsy; how it used first to stoop its head very slowly, gradually down, reaching with its long trunk as far as it could stretch in to the well of the mine; once down it took a long rest, and then, with a painful, slow, creaking, complaining, jerky motion, gradually and fitfully got up its head again to its original position, bringing with it the pump rods and the water of the mine; how we used to watch it a long time, standing at the top of its stroke, wondering to ourselves if ever it could or would recover strength to make one effort more, and how at last it began to show symptoms of life, and creak, and jerk, and groan its way down again to take once more its long rest and recover strength for a new effort? Do you remember also how when the engine once more got to the bottom and rested there was a huge roar from the safety valve of the adjacent boiler, which had held its breath so long and so hard in the previous effort that it seemed to puff it out breathless from sheer exhaustion? But it was not the boiler which was exhausted, but the engine; the steam had to roar off until the engine could get once more ready to take in steam, then the expansion cylinder once more swallowed the steam and prepared for another huge effort. All this the Professor explained the meaning and the purpose of in the wonderful model I have already named to you, which he placed before us in the hall of the University.

WHAT WATT DID.

Dr. Black discovered the latent heat of steam, Dr. Cullen and Professor Robison its ebullition in vacuo at low temperature. The elastic powers of steam were known to Hero of Alexandria. Steam engines were invented by the Marquis of Worcester, Savary, Papin, and Newcomen. Boilers, cocks, regulators, and pumps, were things generally known; an air pump, with a piston rod moving through a collar, was in existence; a cylinder and a moveable piston, with working beam and working gear for opening and shutting, were parts of Newcomen's engine; and a jet of cold water inside vessels, and the application of cold water on the outside of vessels, and, in short, cold bodies of any kind, were known before the time of Watt, and with the modesty of true genius, he himself disclaims his title to any of those inventions. What he claims to have discovered is the true nature of steam. This he learnt by a series of long and painstaking experiments; by this knowledge he was able to detect the errors of the existing mode of its application; and from it he was able to deduce laws for the further economical application of it in all time to come. For the purpose of condensation, said he, everything in and about the condensing vessel must be kept always cold, just as everything in and about the boiler must be kept hot. The condenser must be, therefore, a separate vessel closed in on all sides, just as the boiler must be a separate vessel closed in on all sides. "To heat the boiler as effectually as possible I put a furnace in the inside, and carry the hot air and flame all round it; to keep the condenser as cold as possible, I put a jet of cold water on the inside, and I put cold water continually changed all round the outside. Thus, on one side where everything is kept hot, water is boiled into steam, and a steam chest or reservoir of steam is kept continually full, ready for its superabundance to rush into the cylinder and fill it up with hot steam. In like manner on the other side, in my cold-water cistern or condenser, I have a reservoir of cold vacuum where steam is no sooner introduced than it is annihilated, that is to say, steam which fills this condenser is instantly shrivelled up into a few drops of water, whence it came, and the whole space it occupied is left empty. This becomes then a reservoir of vacuum, for immediately after it had been filled with steam and that steam has been annihilated, it is ready to be filled with steam again, which in its turn is again shrivelled up into a few drops of water, and this process, as you see, can go on for ever." This great discovery of the annihilation of steam in a separate vessel, so as to make it a never-failing, never-ending reservoir of vacuum, was James Watt's achievement.

APPLICATIONS OF HIS DISCOVERY.

I will now proceed to go over with you what has since been done in the applications of James Watt's inventions to the subject of steam navigation, and we shall see how far in the various steps of our progress we have fulfilled the duty of applying the discoveries of Watt in the best manner, and from that consideration we may draw conclusions as to what still remains for us to do in the future. 1st. In the boiler: I think James Watt was himself one of the first to make the great improvement of putting the fire into the middle of the boiler, instead of merely setting the boiler on the fire. Henry Bell built brick walls about his fire, and set the boiler on the bricks. Watt very clearly saw that to prevent waste he should set the fire so that whether the heat went up or down, or right or left, or end on, it should every way find water round about it, and so every way give its heat out usefully into heating water for turning into steam. To this day a marine boiler has an inside furnace, and for the most part is surrounded on the bottom also with water. In like manner I think it was James Watt who introduced the practice of passing the flame and smoke and hot air in its way from the furnace to the chimneys, so as to travel in long metal tubes or flues through among the water of the boiler—the object of this being that nothing should be lost, and all the heat going out of the fire should be thrown into the water, so that the air and smoke on reaching the chimney should have the least store of heat to carry off. We have retained this invention. We have carried it out to the greatest useful extent. I do not see much room for hope to improve steam navigation by changes on the construction, forms, or proportions of boilers. I do not expect a new James Watt to do much for us here. I think we have done all he could have hoped or desired, as far as boilers are concerned. I next ask the question whether and what we have done to make the marine steam engine worthy of the legacy Watt has left us? I must begin by admitting that we have been very slow and reluctant in turning James Watt's legacy of knowledge to best account. He taught us the great benefit of keeping our cylinders jacketed and hot; how slow we have been to use it! He said, surround your cylinder by a jacket of steam. He said, work steam expansively. He showed how you could double your power from the same fuel and the same steam. He showed that by high pressing the steam you could double it again; how slowly we have done it! Thirty years ago, the power got out of a marine engine was only two real horse for one nominal. We slowly took his advice and cut off. We got three horse-power out of the same fuel. Later, we took his advice further, raising slowly the pressure and working more expansively, and we got four horse-power per nominal horse-power. We went a little further and reaped the benefit of five horse-power, and now, only a century after his discovery, we have at least begun to get six indicator horse-power out of one nominal. It has taken us a century to realise in steam navigation the benefits predicted by James Watt from the proper and full employment of steam, without waste in the cylinder. . . . I now come to the last great member of the steam engine—the condenser. I think I may say that from the earliest trials of steam navigation on the Clyde—and the Clyde is the cradle of steam navigation in Europe, as well as the birthplace of the modern steam engine: I say that Watt's isolated condenser was from the beginning a characteristic feature of Scotch and English steam navigation. But although we have adopted Watt's isolated condenser with consummate success, it is wonderful how much we have tried to improve its application and how little we have succeeded. Watt himself kept his vacuum at 100° of temperature, and he tried to gain good by getting it much lower, as we have tried after him, and he soon found, as we have found, that small good was to be had that way. He too tried to get rid of the large air pump which clears the condenser of air and water, and he found like us how little good came of that. He too tried to make a tubular condenser, without cold water jet, and soon found out how difficult that was. I think that for the last forty years, during which I have known steam navigation here on the Clyde, we have been always trying to better condensation from where Watt left it, and have been very unsuccessful. Let it be our comfort that James Watt tried most of these plans himself, before he gave us that which we now retain. A good sized condenser, a good sized air pump, a good sized rose and jet, and a temperature not much below 100°, that is what we started with, and what we for the most part now retain.

Home Correspondence.

Mr. Hanlon's Drainage.—It is very desirable that your informant in your Paper (see page 111) as to the case of Mr. Hanlon, who at a local agricultural meeting in Ireland complained that he had to give up a field he had drained at his own cost as tenant, should tell us how many years Mr. H. had held the field since he drained it, and how far it had repaid him for his outlay. Nothing can be more right than that a tenant should be well repaid for any outlay; but there is an opinion in Ireland, that however well he may have been repaid, even twice over, he has still a claim as good as ever. Every drainer knows that some land will repay all the cost in three years, and it is a very exceptional case in which from seven to ten years will not repay it. It is a safe rule everywhere, that all the facts of a case should be known, but in no part of the known earth is it so important as in Ireland. I observe that this point is especially kept out of sight in the statement in question. I remember a case where a tenant under ejectment

swore he had spent 400*l.* on the land. As the land was only eight acres, near a town in which he was a wealthy shopkeeper, and was sound upland of good quality, paying 35*s.* per acre rent, with no buildings on it, and no place for permanent improvements, except in remaking the fence by a road that ran along one side, and which might have cost perhaps 5*l.*, the statement caused much surprise till it was found out that he included in the 400*l.* all rent, taxes, and expenses of cultivation, and of all sorts, since he hired the land 12 years before, and gave no credit whatever for its produce during that time. As this produce, at only 4*l.* per acre for the 12 years, came to 396*l.*, it gave a very different colour to the story. *An Irish Landlord.*

Grasses for Australia.—In your issue of the 2d inst. I observe in "Notices to Correspondents," a reply to "H.," concerning Grasses for Australia, and being recently returned from that country, where I have been for 15 years, the greater part of which I have been engaged in the seed trade, I will endeavour to throw some light on the subject of your correspondent. It is quite true, as you observe, that "colonial seedsmen are awake to the wants of their customers," and if your correspondent will put himself in their hands he will find himself better suited than were he to purchase in England. Imported Grass seeds generally arrive in bad condition and don't grow more than from 10 to 20 per cent., which makes the price rather high when you add the cost of freight and labour of preparing the land for no crop. I shall now proceed to advise your correspondent which I consider the Grasses most suitable for the colonies, and will be glad to furnish him with any further information in my power. Prairie Grass (Bromus unioloides) stands heat well, yields abundantly, and should form a prominent part of all mixtures for permanent pasture. Perennial Rye-grass (Lolium perenne) is much used, stands well on any ordinary soil, either to graze or cut. Italian Rye-grass (Lolium italicum) is used both to cut and graze, but does not stand drought so well as the perennial Rye-grass; it is however a valuable Grass in moist situations. Cocksfoot (Dactylis glomerata) stands well through severe droughts, but stock are not fond of it where other Grasses are obtainable. Soft Grass (Holcus lanatus) is a very desirable variety; it stands well, and stock will eat it greedily. Couch, or Indian Doob Grass (Cynodon Dactylon) is getting into favour of late years; it is a creeping Grass, and of much value on dry sandy soils. Timothy, Fescues, Poas, Dog's-tail, Fox-tail, Sweet Vernal, and Rib Grass all stand tolerably well, but as they do not yield so heavy as the Grasses first mentioned, they are but lightly used. Of Clovers the White, Cow-grass, Alsike, and Trefoil stand well, and are used more or less in all pastures, except where White is naturally in the land. All the above seeds can be had of colonial growth at prices only slightly in advance of English seedsmen, and one bushel of the colonial article may fairly be estimated as worth 4 or 5 bushels of imported seed. Machinery has been imported from this country for cleaning all sorts of seeds, and samples that would bear comparison with anything in this market are to be found in any respectable seed warehouse in the Antipodes. Hoping my remarks may be of some use to your correspondent. *W. Somner, Kelso, N.B.: of Law, Somner, & Co., Seedsmen, Melbourne, Sydney, and Dunedin.* [Many thanks.]

Hinds' Wages.—Owing to my not seeing several of last autumn's impressions of the *Agricultural Gazette*, I have only just seen that a "Merse Farmer" attempted (*Agricultural Gazette*, Sept. 22) to correct me on this subject. "Merse of Berwickshire" states that "he must notice one item in Mr. R.'s account, involving, as it does, a manifest *reductio ad absurdum*. The bondager's board, lodging, and washing, he puts at 6*s.* a week." I cannot recite all I have previously written upon this subject, but I will refer my opponent to my letter in the *Agricultural Gazette* of July 7, 1866, where he will find that I anticipated his objections, by stating in the second sentence following the tabular account:—"Aware that 6*s.* a week is too high an estimate of the cost to a hind of a bondager's board, lodging, and washing, I put that sum against the former to meet the losses to the hind through his bondager not working full time; *e. g.*, it requires the bondager to earn 16*l.* 2*s.* to make the aggregate gross total equal to 42*l.* 10*s.* 10$d\frac{3}{4}$*d.*, and the perquisites named." The "Merse Farmer" concludes with the statement that "I can have his name if I think it worth while." I pledge myself to act with good faith towards him if he will give me his address. I would send him a copy of my "Remedy for the Bondager System;" and would enter into details which it would be injudicious to submit to the public. The following is the postscript to my letter of July 7, which was republished in the *Kelso Chronicle.*

"There is an article on Berwickshire and the Lothians in the *Agricultural Gazette* of August 25, by one of the Professors of the Royal Agricultural College, at Cirencester, who gives an account of the Berwickshire hind's wages in a tabular form, where he states that a hind's wages for the twelvemonth are equal to 40*l.* 4*s.* 6*d.* Hence my reasons for asking you to republish the above article. Although I have stated repeatedly that a good cow well fed and a good crop of Potatos make each of a good many hind's incomes equal to more than 40*l.* a-year, it does not necessarily follow that 40*l.* is the market value to farmers of what they pay each of their hinds for a twelvemonth's service. It cannot be denied that a hind's wages support a family much more comfortably than the money wages paid to the ordinary run of operative tradesmen in Kelso; but the farmers are not entitled to much credit for that. The hind receives his wages in a crude, undeveloped state, which require the efforts of a healthy, industrious wife to convert them into cash.—*T. W. R.*"

The "Merse Farmer" tries to make out that my calculations imply that the aggregate gross total is equal to 62*l.* 8*s.* per annum. I state in my letter of July 7 that a farm steward showed me a list of the yearly earnings of the bondagers for 12 years, the highest of which did not amount to 13*l.* per annum. If the "Merse Farmer" will refer to my letter of October 27, he will observe at p. 1027 that the market value of a Roxburghshire hind's wages was only 24*l.* 13*s.* 10$\frac{3}{4}$*d.*, and a house and garden free, the cartage of coals, and the liberty to feed a pig or pigs. Mark, each of too many hinds had to pay the half of the retail price of 5 tons of coals at the railway stations, say 1*l.* 12*s.* 6*d.* out of the 24*l.* odd in my tabular account referred to. I beg the "Merse Farmer" to inform me how he can make less than 23*l.* for the hind's wages, and less than 13*l.* for the bondager's earnings, equal to an aggregate gross total of 62*l.* 8*s.*? I need not say more on a subject I regarded as threadbare several years ago. *T. W. Rutherford, 22, Forest Field, Kelso, N. B.*

Steam Plough Companies.—"Mr. Joseph Nicholls, draining engineer and contractor, Queen Camel, Somerset," has done me the honour of calling my attention to some information that he has forwarded to you for the use of the agricultural world. The summary of it is that he is not a secretary of a steam-plough company, but a private worker, who hears that company work does not pay the shareholders, and that steam tackle "never ought to be in the hands of a company at all." This is evidence on my side, and well supports these words of Mr. Savidge: "those who wish to benefit by steam must not depend upon steam ploughing companies." Mr. Nicholls now finds that shifting tackle a long distance is not only costly, but wasteful of valuable time "just after harvest." Why! sir, he is one of my best witnesses. The 15 months' practice he has had since his letter of Nov. 25, 1865, has done him no end of good. In it he spoke of my "complimenting" steam ploughing companies. Here is my "compliment" to which he then referred. "Money vested upon such slippery tackle is very slippery stuff itself. The Gloucester and Durham Companies have found it so; the Wakefield Company is now getting into the same boat; and if we wait but a little we shall see the Shropshire men all rowing with them together. I hope Mr. Nicholls will take care of his halfpence. . . . Nov. 11, 1865." Well, when he says that tackle never ought to be in the hands of companies at all, I think he pays it quite as high a "compliment" as I did. I am glad to find that he has taken care of his "halfpence." He has not told us what he has done, giving us all particulars proving that high-priced tackle is the most suitable for private workers. That's what we want to know about. He lets us know of the value of steam power just after harvest, but he gives us no information as to whether high or low-priced tackle is the best by which to procure it. I see that the Royal Commission has very nearly completed its work; no doubt that will tell us all about this very knotty point, if Mr. Nicholls can't. *William Smith, Woolston, Bletchley Station, Bucks, Feb.* 11.

Societies.

GOUDHURST, *February* 1: *The Land Laws of England, France, and America.*—At the annual dinner of this Agricultural Association, the President, Mr. Beresford Hope, M.P., said:—The great thing that has made England so great has been the perfect freedom of rich and poor to dispose of their own as they like; the power of buying and selling and making wills as they like. When the gentry and nobility of France stuck to privilege, and brought about the French Revolution, that power of making wills, which is the true freedom of man, and the right of disposing of his own, was abolished; the law came in and decided it for him, that his property was to be cut up among the dutiful and undutiful—that they were all to share alike, not because there was any good in them, but because the law saw no means of setting up liberty other than by trampling down independence and making a dead level of equality; and all this because they could not brook there should be any distinction of good or bad in the land. Again, I ask, what are the land laws of England? We hear a great deal about tyranny and oppression by the landed gentry, and all because they have been content to be groping up to the true laws of economic science. The protected classes were some time before they saw that protection did more harm than good; but everybody was alike, for the farmer stuck to protection, and so did the manufacturer. The science of free trade is like the science of gunnery, or anything of that sort which has made great development in our times; but the man who stands up and always accuses the agricultural classes of malignity and hatred because they were slow in learning the laws of free trade is as foul-mouthed a misrepresenter of things as the man who would get up and say that the Duke of Wellington was a traitor to England because he saw the merits of "Brown Bess," and could not understand what a rifled breech-loader could do. What are these land laws? They are the laws which established perfect free trade in the land, and which allow a man who has money to buy land, and allows him who is hard up to sell his land. They are those laws which allow the farmer and landlord to deal with each other in the position of the man who lets and the man who takes a tenancy at will, and the man who lets or takes land on lease, as the case may be. This system, I say, is the most perfect and elastic system in the world, and one existing in different countries under different tenures. Then people talk of entails, but what is entail? A great deal of nonsense has been talked about entails; but the fact is, as all people ought to know, there are in all England only about one dozen entails. "Entail" means land that must go from one successor to the other. Among the few entails in England, there are those of the Duke of Marlborough, the Duke of Wellington, Lord Nelson (given for magnificent public services), Lord Shrewsbury, Lord Abergavenny, Lord Pembroke, and a few others; but the rest we hear spoken of as entails are not a bit of entail. It is simply a business transaction, by which a person may secure the succession of his property for two or three generations by a deed, which deed those who come after him, under most circumstances, may break, if they like. What is commonly called an entail is as much a business transaction as a time-bargain or any other thing which cannot be settled on the nail this very afternoon, but must take some little time to run out. Then, again, we hear a great deal about the accumulation of land in private hands; and no doubt this does take place here and there, but it is generally in the case of those persons who have made their money in trade—and quite right too, for having made their money honestly, why should they not invest it in the purchase of land? But those people who talk of the great accumulation of land don't say anything about the many old estates which are broken up. Perhaps there is an old place some five or six miles from London or Birmingham which is broken up, and then, perhaps, built up again, and then pulled down and turned into villas, just as population fluctuates. And that is just as it should be, and is a means of making money cheaply. But people say, "Just alter the law a bit, and let a man's land be cut up if he chooses without a will." But what would follow? Why, you set up a prejudice against a man leaving his land as he likes. Perhaps a minor dies—the last heir of a grand old property, which he cannot leave by will, because he is not of age, and thus, in spite of himself, the property has to be cut up to gratify a few people who wish to level the system of England to that of France. I assure you, gentlemen, if it were only to have led the House of Commons to a successful resistance in the last Session to a Bill for making that change in the law, I should have been glad that I came into Parliament at the last general election, for I am satisfied it would be the beginning of the end. And what is that end? It is the French system. I don't hold up America as an example, but in America, though in many of the States they are afraid to make an eldest son, they are not absolutely obliged to cut up their property, as they are in France. America being such an enormous country, and so thinly populated, a man who wants land can go and buy it; in fact, he can have it almost for the asking; so that a system which would be very troublesome here would not have the same effect in America, England being an old country, with a teeming population and a limited acreage. According to our system, they say that every man cannot get his piece of land. That may be, and it may be a hardship in some cases, but in many cases it is a useful hardship, because it drives men to emigrate to Australia, Canada, or New Zealand. It may drive a man to the United States, and I don't blame him for going there, but I should rather wish that he went to some place over which the good old Union Jack still waves. There he becomes a thriving citizen and the owner of hundreds of acres of land. Whereas, if it were the law to divide the land, we should have lazy fellows hanging on for the third of a Cabbage garden which might come to them by their father's decease. That system of the division of the land has utterly reduced the peasantry of France, morally and intellectually. They have a craving hankering after the land which they have no capital and no enterprise to cultivate. There is a sort of feeling on their part that they must have their land, and that they must use their land, and so, accordingly, instead of going out, as they might do, and gaining an honest livelihood, they eke out a miserable subsistence on a small estate; but calling it an "estate" is a joke; I should say that "patch" which not their father but the law gives them over their father's head, and which they take without gratitude to him from whom it came. The effect this system has in demoralising the country is dreadful to reflect upon. It is a thing almost too dreadful to say, but I believe that the diminution of the population of France is a great deal owing to the fact that the parents don't like to see their land cut up into nothing, and accordingly we have families of three and four children only. Why only three or four? It is a dark mystery. Certainly human nature is human nature; but the maternal nature and the paternal nature are steeled in France to the desire of seeing many rosy infantile faces round their hearths. That is a known fact, and there are things which cannot be spoken of except very guardedly, and only in meetings of men, and I believe a great deal of it is attributable to that infamous system of the necessary division and subdivision of land and property among all the offspring. Marriages become a mere matter of bargain; the man has a third of his father's property, and the woman he takes to wife has a third or a quarter of a half of her father's property; and so it is simply a union of two misbroken halves put together. Sons' sons go on making these sorts of marriages, and thus you see how this villanous system poisons the very birth-springs of human life and human morality in every shape; and it is what we are to come to—equal division of land and universal suffrage. France got an equal division of land 70 years ago, and universal suffrage 19 years ago; and then the third thing came—Napoleon's heel on the neck of the people. Napoleon there, and universal suffrage and a universal division of property not abolished, not altered, but maintained, because they were the right arm and the left arm with which a tyrant and a despot maintained his power. This, too, is what you are promised if "the million" are allowed to seize the sceptre which you have had for 200 years. This is against the system of free England, against the mutual dependence of classes—mutual favours from one class without insolence, and gratitude without servility from the other. Freedom to make your money, freedom to spend your money, freedom to buy land, freedom to sell land, freedom to marry, freedom to make your will, freedom to travel, freedom to breathe, freedom to worship your God as you like, freedom in all things, with order and due subordination every-

where—that is the English system which this man is to rise from the dead and say shall be abolished; this is that system which the House of Commons, which is "paralysed for good," has ever kept up. I call on you, I say, not as Conservatives, not as Liberals, not as Whigs, not as Tories, but as Englishmen who love old England, to stand together and see that that man, the national enemy, does not lead his hordes on to tear us down and establish the grievous tyranny of a democratic equality in its place.

LINCOLNSHIRE CHAMBER OF AGRICULTURE: *Feb.* 1.—At a meeting held in the Guildhall, Lincoln, to consider the desirability of forming a Chamber of Agriculture for the county, in connection with the Central Chamber of Agriculture in London (one of the largest and most influential gatherings of agriculturists which have taken place for many years in this city)—

Mr. JOHN CLARKE, of Long Sutton, said: He was a member of the Central Chamber of Agriculture, and, as far as he understood, the main cause of the formation of such bodies all over the country was the fact that farmers were so isolated and so separated in their different localities that they had never yet had the means of associating together so as to bring political power to bear upon the Senate. The tenant farmers were a very important class. Their property, according to the last agricultural statistics, amounted to something like 400,000,000*l.*, and he did not think they had been properly represented in Parliament for the last few years. They had entrusted their interests to the nobility and country gentlemen, who, because they had not been supported as they ought to have been by the tenant-farmers, had not upheld their interests as they ought to have been. The consequence was that the farmers had lost most of the privileges they formerly possessed, and still retained all their burdens. Now, the object of Chambers of Agriculture was to take care, at least, of what was left. Chambers of Commerce looked after everything connected with the interests of commerce. They not only looked out for new fabrics and new means of manufacturing their goods, but they sought out new markets; and the Chambers of Agriculture would do the same. For instance, they would make inquiries about any new discoveries of guano deposits. They would open up a correspondence with all parts of the world, and disseminate the information they obtained among the members of all the Chambers throughout the kingdom. Other classes of the community had long ago adopted the principle of combination. The Trades' Unions numbered 250,000 members. The agriculturists, or those who got their living by farming, numbered some 800,000, and they employed something like 3,000,000 of labourers, and paid something like 75,000,000*l.* a year in manual labour, and yet they had no combination or means of united action. He would mention some of the matters which Chambers of Agriculture would take action upon, at home or abroad. The first thing the Central Chamber had taken up was the means of guarding the farmers against the importation of cattle diseases. That in itself, he considered an object important enough to induce them to combine, in order that they might procure information from every quarter, and furnish it to the Central Chamber, which would be always on the watch, and which would then be in a position to advise the Government what action to take, and to press it to act promptly. Another subject he—speaking for himself—believed the Chamber would probably take up was the equalisation of poor-rates. It was his opinion—in expressing which he did not wish to commit the Central Chamber at all—that farmers were unfairly dealt with in the assessment of poor-rates, and that they ought to press Parliament for redress in that matter. Everything was formerly laid upon the land, and everything seemed to be kept there. Take this city of Lincoln, where thousands of hands were employed in the foundries. When any of those became incapacitated for work, or when work became very scarce, they were thrown upon the rates, and the chief of the burthen fell upon the occupiers of land. He did not say that he advocated an assessment of the profits of trade to the poor-rate, but he did say that what he had referred to was an evil which the farmer ought to get rid of it if they could, and there was no hope of their doing so unless they combined so as to make their influence felt by the legislature. Then there was the matter of corn averages. The railway system had altered the cost of the carriage of corn. The railways charged so much per quarter, whether the corn weighed 30 stone a quarter or 36. Now, the farmer sold his corn at so much weight to the quarter, and rather above the natural weight. Wheat would not average more than 60 lb. the bushel, and if they sold it at 18 stone the sack, the corn average was 1-18th higher than it ought to be, and the clergyman got 1-18th more than he was really entitled to. Turnpikes were another matter. In his district they had got rid of turnpikes, and the maintenance of the roads was thrown upon the parishes. He did not think any of them liked that system. There was another question which he presumed the Chamber of Agriculture would take up—that precious Malt Tax. There could be no doubt it was a tax upon the land. He knew that on the arable land he occupied it cost him from 3*s.* to 5*s.* an acre in beer, and he should like to have his beer cheaper. In every department of labour, beer was taken into consideration as part of the working expenses. He had been very much surprised at one thing he had heard of since he had been in the room, and that was that there was an apprehension in the minds of some that these Chambers of Agriculture intended to interfere between landlord and tenant. He wished to dispel that notion at once. There was not the slightest intention of the sort. Their object was simply to get all the information they could, and to diffuse it among the tenant-farmers, and by that means promote improvements in the culture of the soil. In his neighbourhood there were two or three really astonishing instances of what could be accomplished by a liberal outlay of money. A landlord had a right to prescribe the conditions on which he let his land, and the way in which the tenant should manage it, but the tenant might say to him, "If you will allow me to do so-and-so, I will give you so much more rent." That was merely a matter of arrangement between the two. The Chamber of Agriculture did not intend to go any further than to take up everything which was for the improvement of agriculture, and consequently for the mutual benefit both of landlord and tenant. It was impossible to enumerate all the subjects with which Chambers of Agriculture would have to deal; they would watch everything as it came up; and if the Lincoln Chamber or any other provincial Chamber suggested any subject, its deputies would bring it before the Council of the Central Chamber. He had himself put down as questions likely to engage their attention, agricultural statistics, local education, arterial drainage, laws of distraint, the highway boards, union rating, the beer tax, &c. Some said they ought to take up the game laws. It depended, however, on themselves what questions should be taken up. The Central Board were only their servants and assistants, ready to take action in any matter the provincial Chambers wished to have discussed. For instance, in Kent there was some discussion about the sale of Hops, and they had meeting after meeting. The Central Chamber intimated that it was willing to become the focus of the movement, and the farmers of Kent at once formed themselves into two Chambers of Agriculture, and entered into communion with the Central Chamber. There were now, he believed, 25 Chambers of Agriculture in different counties in connection with the Central Chamber. The subscription to the Central Chamber was only 3*l.* or 5*l.* a year, and the deputies from the local Chambers were on an equal footing with the members of the Council, which consisted of 24 gentlemen, of whom 8 had to retire every year, and to make room for 8 fresh members. He thought that in Lincolnshire they ought to have local committees in connection with their Chamber in Boston, Grantham, Stamford, Grimsby, Louth, Brigg, Gainsborough, Market Rasen, Horncastle, Spilsby, Spalding, Sleaford, and Long Sutton, each with a corresponding secretary. By that means, and through their deputies who would represent them on the council of the Central Chamber, they could at any time deluge Parliament with petitions when a question arose on which it was desirable for them to make their wishes and opinions emphatically known. Mr. Clarke concluded by moving "That a Chamber of Agriculture be established for the county of Lincoln."

The CHAIRMAN thought the matter was brought before them in a rather crude form, and suggested a postponement of the meeting until they were in possession of more information.

Mr. TORR said that though they were not without information on the subject, they had not had time to ripen their knowledge. He did not think united action was so easy a thing as some people imagined, even if they got a Chamber of Agriculture in every county, for what would suit Devonshire would not do for Lancashire, and what would be right for Westmorcland would not be fit for Norfolk. He was rather jealous, too, of any meddling between landlord and tenant. He thought the farmer was intelligent enough to be able to make his own bargain with the landlord, and that any legislative interference would be a bad thing. It would, however, be a decided advantage if they could have an association where they could discuss subjects which could not be discussed at the meetings of their agricultural societies, where anything in the shape of politics ought never to be allowed. But he doubted whether these Chambers of Agriculture would have much practical utility unless they could induce the Government to appoint a Minister of Agriculture. Foreign Governments had such a Minister, and he did not see why there should not be one in our own country.

Col. AMCOTTS, in taking the chair, said he certainly thought that as there was so large a number of very influential gentlemen present, it would be a pity if they did not come to some decision as to whether a Chamber of Agriculture should be formed at once,—or whether the proposition should be postponed for future consideration. It seemed to him that it would read rather absurd in the newspapers that a large meeting like this stultified itself by coming there and then going away without doing anything.

Mr. J. SHARPLEY (Torrington) said he had great pleasure in seconding Mr. Clarke's motion. He was glad that the farmers of this very important county had begun to feel the necessity of taking action. It had long been proverbial that they were a race of grumblers—grumbling over their taxation and other grievances at their markets, their ordinaries, and over their firesides; and he was glad that the time was come when they were going to awake from the torpid state they had been in so long, and show to the world that they could do something as well as grumble, and that farmers united could exercise such an influence as had never been felt before. The farmers were a vast and enormously wealthy community, and there could be no doubt that if united they could bring to bear on the public such an influence as had never been dreamt of.

The CHAIRMAN (Col. Amcotts, who had succeeded Mr. Melville) wished to say one or two words before he put the motion. He came to the meeting entirely ignorant of the matter in hand, but he had heard enough to convince him that any Chamber of Agriculture established in this county would never come to good unless they all—landlords, tenant farmers, freeholders—all the various classes of which their agricultural commonwealth was made up, pulled heartily and well together without any jealousy of each other, but acting on the honest belief that they were all rowing in the same boat and all interested in the success of agriculture. He was sorry, then, to hear a remark fall from Mr. Clarke—which he (the Chairman) perhaps misheard or perhaps misrecollected—to the effect that the tenant farmers had committed their interests in Parliament to the nobility and the gentry of England, and that the latter had failed to look after those interests. [Mr. CLARKE: Because they were not supported by the tenant farmers.] He thought there was enough in those few words, unless Mr. Clarke qualified them in some way or other, to sow dissension at once in any Chamber of Agriculture which might be established.

Mr. TORR quite agreed in the remarks made by the Chairman with respect to landlords and tenants. Lincolnshire was the last county out of the 52 in England where a tenant farmer had any reason to say anything against a landlord.

Mr. CLARKE, in explanation, said he regretted that, being but an indifferent speaker, he should have expressed himself in such a way as to lead Colonel Amcotts to misunderstand his meaning. He did not intend what he said at all in the sense in which Colonel Amcotts had taken it. What he meant was that the tenant farmers had not been upheld in the House of Commons in the way they would have been had they acted in combination as they were now going to do. He did not blame the nobility and gentry; he blamed the farmers themselves for not sufficiently supporting those who held the power and the inclination to advance their interests in Parliament. They all knew what Mr. Disraeli said the other day to the anti-malt tax deputation—that if the agriculturists had supported him some years ago in the way they ought to have done, half the malt tax would have been taken off then, and by this time it would have all gone. He should be very sorry indeed if anything went abroad tending to create jealousy or dissension between the landlords of Lincolnshire and their tenants.

Colonel AMCOTTS expressed himself thoroughly satisfied with the explanation made by Mr. Clarke, whom he had evidently misunderstood.

The motion for establishing a Chamber of Agriculture was then put and carried with acclamation.

Farmers' Clubs.

WINFRITH: "*Live Hedges*" *and* "*Dead Fences.*" Mr. BATES said: Live hedges are those which we all naturally, and from experience, best like to see, and I think I shall be borne out by the meeting in saying that one of the things that first strikes the eye of the practical man in looking over a farm or tract of country is the appearance of the hedges. Well-grown and well-kept hedges not only improve the appearance of the landscape, and indicate fertility of soil and climate, but, beyond being useful as barriers or boundaries, are of great value for purposes of shade and shelter to stock and crops, particularly in the more exposed situations, to which many of us are not strangers. These are some of the reasons why it is of importance to the farmer to know the best mode of planting and rearing young fences, and of improving those he finds in existence where he is in business, and, generally speaking, the latter is the most difficult case to deal with in practice. There are many different plans adopted by different persons, and possibly each has some peculiar advantage; and I think we may now discuss the subject, and get possession of all the advantages, and try to avoid the disadvantages. In the first place I will assume a good Thorn hedge is the most desirable. When plants are put in they must be protected until they are out of the way of weeds and other enemies: consequently the faster they can be made to grow the sooner they will be out of the way, and this expense got rid of. I have, in my experience, found the autumn, as soon as the leaves turn colour, the time best suited for planting Red or Black Thorns, and, if upon a new bank, after it is partly settled. Many persons advocate cutting the plant down to within 6 or 8 inches from the roots before planting, but I do not consider this advisable. Where it is necessary to have a bank and ditches on one or both sides, it is very important that the bank should be made wide enough at the top, and have time to settle before the plants are put in, or it will be so light and open in the summer that the plants will die for want of moisture. The top of the bank where the Thorns are planted should be hollow, rather than rounded, as they too commonly are made, and thereby the rain runs off instead of running into the bank for the support of the plant. Keeping down the growth of weeds and Grass from the roots of the plants is of importance, and a good coat of short dung placed on the surface round the plants will to a great extent keep the weeds down and the ground moist in summer, besides materially helping the growth of the fence, for Thorn plants will pay for manure as well as any other plant that is grown. The plants should be cut off, and the ground carefully forked early in the second spring after they are planted in the autumn, turning the manure under as much as practicable, and it will be found to thicken the plant and strengthen the growth. I prefer but one line or rank of plants from 4 to 6 inches apart, and in moderately good situations this mode of treatment will bring up a fair fence in four years, so as to do without guards, unless at weak or defective spots. Great care should at all times be taken to keep sheep from feeding upon young hedges, for I have frequently known well-grown and good young Thorn hedges spoiled from folding sheep against them. The Blackberry Briar is a common and fatal enemy to Thorn hedges, and should be carefully kept under, which may be done by cutting them off near the surface of the ground in the spring. With reference to Blackthorn fences, I think they may be grown with advantage in some of the more exposed situations in Dorsetshire, if planted in the autumn, and treated in the same manner as I have described for Red Thorns. They are of much slower growth, but make a good fence. They are much used in Shropshire, and I have seen some very strong useful fences of them where the Red Thorn would not grow. I hope to hear from this meeting what their views are in reference to their being suitable for hedges on the high down-land of this district. So far it appears easy enough for any one to raise good hedges, and the want of them is a frequent source of annoyance to neighbours and injury to ourselves. But it is an unfortunate fact that most of us have to contend with fences which we find upon the ground, many of which are either all or partly dead, and if alive are composed of different sorts of plants, not over suitable, and frequently entirely unsuitable, to make a good fence against stock, with numerous gaps of dead hedge or banks filled with weeds and laid out in all sorts of unreasonable forms, anything but straight or decently curved, and these I conceive are the most difficult of all fences to convert into live hedges with any satisfaction or benefit to a tenant; the banks being defective, dry, and overrun with weeds, utterly prevent the growth of Thorn plants in such cases, and I believe the best thing an improving tenant

can do in such cases is to look out for a better line and plant a new fence wholly, or such parts as can be done with advantage, for nothing can be more unsatisfactory than the constant attention, expense, and damage to adjoining crops, injury to stock, &c., than this class of fence entails on the farmer. Then comes the question of laying and trimming hedges, which to a great extent must depend upon the situation and other local circumstances. For instance, where shelter is required most, the hedge as a rule will least bear topping; but side trimming will in all cases keep the fence thick in the bottom, and prevent its covering too much ground. On the other hand, where circumstances permit, the appearance of a laid and neatly-trimmed hedge, with occasional standards left growing, is very pleasing, and it is to a certain extent shade and shelter; and, when the standards become sufficiently grown, they add greatly to the appearance of the landscape, with this advantage over timber trees planted in hedge-rows, that they are improved by occasional judicious lopping, and do not encourage the practice of shard making, but provide material for repairs when required. The Elder is a very injurious thing in hedges, and will extend itself at the expense of nearly every other hedge-row plant. Briars and weeds allowed to grow on the banks and hedges, and round the ditches, prevent the growth of the hedge, and encourage rats and rabbits, which work and breed in the banks, hollowing them out, and stopping up the ditches so as frequently to prevent their carrying away the water they collect, and for which they should form carriers or open drains for the land. On the subject of dead fences I will not say much, but simply introduce the question with the hope of gaining some valuable information. One kind of dead fence, or semi-dead I may call it, is the high clot bank, with sides too upright for the turf to grow and too dry for any available hedge to live on, and looking like a thick mud wall, with here and there a tuft of furze growing on the top. These are frequently made at an expense of 1*s.* or 1*s.* 3*d.* per perch, and, taking up a width of some 10 or 12 feet of land at the base, are, I may say, the worst of dead fences. Again, we have a bank of a somewhat smaller description, with a post-and-rail fence on the top. Next we have a post-and-rail fence; or, as I have frequently found in this district, piles and hoop iron, with little or no bank; and of all the forms in which iron is used for fencing, I think that of ribbons or hoops is the worst. You have the minimum of strength or resistance with the maximum of surface exposed to the wind and the oxidising influences of the atmosphere acting upon it. They are also weakened by the perforations for nails, and all of the above are so many elements of destruction constantly in force. If dead fences we must have, and I fear that is a necessity we cannot at present escape, I think the most economical and useful fence we can fix is a strained wire fence of five or six wires fixed with loops to Oak or Larch piles at 7 to 8 feet spaces, the whole coated with black varnish, many descriptions of which are valuable protectors of both wood and iron.

Mr. T. H. SAUNDERS objected to cutting a new fence too close to the ground; but he had found it do much good to cut off the tops of the plants at the height of a foot or 18 inches, when they came to "lay" in about half the time of the others. One thing he certainly objected to, and that was forking them during the early stages of their growth, for he believed it injured the little fibres of the roots; whereas, by merely pulling out the weeds and manuring, the plants would grow much better. In planting, he found that they could not tread the soil too hard; the harder they were trodden, the better they took. He also considered that a middling high bank was better than a low one—say two "clots" and a "turn-clot." He always put his hedges on a bank; but once he put a portion of a fence on just a turn of the furrow, perhaps about a clot high; but, in the other parts where it was put on a bank, the difference could easily be seen, the former never coming to half a fence. As Mr. Bates had said, where they wanted shelter the hedges should not be topped, and trimming them on each side was the best way to make them grow well. In this district they wanted shelter, and he had found that they could not get so good a fence from east to west as they could from north to south. He liked a double plant for this locality; but in a good strong country, where the hedges were not cut by the wind, a single row would do, and it could be kept much cleaner than a double row. With regard to Blackthorns and Whitethorns (or red, as Mr. Bates called the latter), he had sometimes put a few of the former here and there in his Whitethorn fences, and when these died off the Blackthorns filled up their places. Wherever he had what was called "a weather bush" (that is, a bush standing out from the fence), he could never get his fence to grow, although he had found that not a single root went into the bank. Where they had a bad old fence they had better get a little way off and plant a new one; and, if the landlord would find Thorns and "writhes" for the first fence, he would rather undertake the labour than be plagued with it. Wherever the sheep could get they could not grow a fence, for the sheep's grease seemed as if it poisoned the plant. In answer to Mr. Udall, the Vice-President said that in this country he should always recommend them to have their hedges up to "plash," and in six years they could get a hedge plashed well. As to dead fences, where they were a necessity on some of these hills, he liked the strained wire with holes bored through the piles, which would do very well; but wherever they could get a live fence to grow it was much the best. On an old bank he could never get the new plants to grow without first digging down about 2½ feet deep.

Mr. READER, the hon. secretary, said he had had a little experience in planting fences. When he first entered upon his farm there was not a single fence on the place, except round the boundary. He had planted some miles, and he preferred the Whitethorns, for the Blackthorns would not bear plashing. Perhaps, however, the latter would do on the hills, where they had a difficulty in getting fences. He should plant there very differently than on the low lands. In some directions it was very difficult to get a hedge to grow at all on the hills. He had tried the French fashion by planting on the north-east side of the bank, and thus had got one or two tolerably good fences, much better than where they were planted on the top; but, to show how the south-west wind affected the hedges, they never wanted trimming on that side. From south to north they might get a hedge to grow pretty well. On the hills he had planted in a ditch, and the lower the better; and they would earth-up afterwards. He must agree with Mr. Saunders that manuring plants did better than forking them; and in certain places chalk was better than manure for one year—in fact, if the land wanted chalking for roots or corn, it would do more good to the fences in one season than all the manure they could put. As to dead fences, they had been in the habit of making dead "writh" fences at a great expense; but the best was strained wire with oak or larch piles; and he preferred going to a little extra expense for a stouter wire than was generally used in this neighbourhood. A weak wire would give, and the sheep soon learnt to get through. He should also put a little bank to the wire fence.

Mr. MARKE gave a few particulars of some extraordinary fences he had seen in Sussex. On the farms he alluded to they were single-row plants, but it was on a "stone brash" soil, and great attention was paid to the laying out and planting. The fences were never plashed; but by cutting and trimming they were so close and compact that nothing could get through, and would shake for some distance when touched, so closely had the plants grown into each other. He did not, however, say it would do for this locality. He considered fences were a landlords' and tenants' question; and they must work together, or good fences could not be got, unless they had long leases. On the hills there was nothing in the end so cheap and durable as strained wire; and if, after the fence was made, they threw up a little soil from each side, it would make a rough stony place to keep the sheep off. If they put in a little Furze here and there it would grow up and create shelter, as well as protecting the wires from the stock. He would not have it too wide, so as to be a harbour for rats and rabbits.

The CHAIRMAN proposed a vote of thanks to Mr. Bates. He thought it was the unanimous opinion that if they had a half live and half dead fence it was better to put up a new one at once. Mr. Saunders had given an instance to show that it was much better to put a fence on a bank rather than to plant on the surface; and it was reasonable, because they had double or treble the quantity of soil for the plants to feed upon in their early stages. He, however, differed on one point, and that was in reference to cutting the plants. His impression was that if they cut at a height of two or three eyes above the surface, the shoots were stronger, and the fence was ready to plash two or three years sooner than if they did not cut at all.

Mr. BATES returned thanks. Mr. Saunders had had a great many years' experience—much more than he had, especially in this district, and there were no doubt peculiarities in different localities. As to planting young Thorns, he was quite satisfied that in this case, as well as in that of Pollards or Firs, the first year's wood was very little and sickly. If planted early in the autumn the sap descended from the branches, and roots were thus made, so that to cut the plants when they were put in was to deprive the roots of much of their sustenance. For the first year, therefore, he did not believe they could do better than leave nature to take its own course. As Mr. Saunders had said, too much forking did injury; but it was, perhaps, desirable to loosen the soil so that it might take in more moisture. He had found one row of plants better than two, because they had a better chance of keeping the fence clean; and by cutting it was always thick enough. He had tried this plan on a poor soil at Lulworth, and the fence was going on very well. He was glad to hear what Mr. Saunders had said about the Blackthorn; and he believed that on the hill-land they would do better than the Whitethorns. They did not require plashing like the Whitethorn; and where properly attended to he was not quite sure they would not make a better fence. Where new fences were required, the best way was for the landlord to meet the tenant, and the latter to take care of the fences when done, for everything depended upon the attention which was afterwards bestowed upon them.

TEVIOTDALE: *Whether is it more profitable on a purely arable farm to breed and rear cattle for fattening purposes, or to buy them ready to put into the curtains to fatten.*—After some preliminary observations, Mr. Haddon, of Honeyburn, stated the following case:—

Say a calf is purchased in the beginning of March at	£2	0	0
And it gets 13 weeks' milk at 5*s.* 3*d.* (three times a-day at 3*d.*)	3	8	3
Four months' Grass, with 10*s.* cotton and Rape cake	1	12	6
Seven months' keep, from 1st October to 1st May, including straw and Turnips, one feed, and 2 lb. cotton and Rape daily	3	0	0
Five months' Grass on farm	3	0	0
Total	£13	0	0

These figures will, no doubt, undergo considerable criticism. But there is one very important item which I have not included in this estimate, viz., that of disease and death, the mortality among calves being often very great, as many can testify. Yet from my own experience I am satisfied that, by proper attention to cleanliness and ventilation, by regulating the supply of milk and giving it always newly drawn from the cow, and, if scour should appear among the calves, immediately removing the healthy to another place, and treating those having scour with the proper remedies, that much of the mortality might be avoided. I have, you will observe, put down 10*s.* for cotton and Rape-cake, to be given on the Grass after the calves are deprived of milk, as I consider this a most critical period; and by this practice I have been amply repaid for the small outlay. I have not put down anything for extra food given during the 13 weeks the calf is on milk, nor for interest of money; so that I think 13*l.* is a very moderate estimate of the cost. On the other hand, I am satisfied that stirks of the same age as those stated, of very good quality, can be purchased for 11*l.*, and in many instances, by taking advantage of markets, at a much lower figure. It must also be quite evident that there are districts of this country much more suitable to the rearing of cattle than arable farms, where a regular shift husbandry is carried on. By purchasing cattle and not rearing, the arable farmer can feed a much larger number; and there is no doubt that a short and good keep is by far the most profitable. Having, however, had some experience in breeding, I would strongly urge upon the members of this Club who prefer to breed and rear cattle, the importance of having calves from good bulls, as if it will not pay to rear good animals, it must be a great loss to rear such miserable specimens of the bovine race as we see exhibited at many of our markets. It may be said that it will pay much better now than formerly to rear cattle; but if lean stock has risen in value, so has the fat animal in like, if not in larger proportion.

Mr. TURNBULL, Spittal, said: Neither the farmer nor the butcher wants the coarse-boned cattle Ireland sends us. Neither does the country want the imported herds of grazing cattle from the Continent, carrying pestilence and infection wherever they go. Our home supply consists of cattle reared in a few grazing counties in England, or on those farms which have both wintering and grazing qualities. But this is obviously a very limited and uncertain source, and the only remedy lies in the arable farmer providing grazing accommodation, and breeding as many of his feeding cattle as he possibly can. This I believe to be the safest and most profitable way of obtaining our feeding cattle.

Mr. SCOTT, Burnhead, thought when stirks could be had at 6*l.* 10*s.* to 7*l.*, it was most profitable to buy them, but when they cost 10*l.* 10*s.* to 11*l.*, it would pay the farmer to rear as many as he could accommodate.

Mr. AMOS, Earlside, said Mr. Haddon had estimated the cost of a stirk reared on the farm at 13*l.* and if this was correct, there could be no question that it would be very much cheaper to buy lean stock for feeding than to rear it. But he knew many got no more than 11*l.* for their six-quarter old beasts, and considered themselves very well paid at that. There was this in favour of rearing cattle in his experience, that those reared on the farm did much better than those which were bought. Strange beasts were sometimes long in getting accustomed to the place, and made very little progress for some time. He had had them for three or four months, and they did very little good. When it was possible to breed and rear, it would be found advantageous, as the beasts reared came soonest to maturity.

Reviews.

Fowls; a Plain and Familiar Treatise on the Principal Breeds, &c. By John Baily, 113, Mount Street, Grosvenor Square.

According to a cottage authority some time since quoted in these columns, fowls begin seriously to the work of egg-laying on Valentine's Day, and it is therefore now the season when poultry-keeping becomes interesting, and when the annual sale of Mr. Baily's book recommences. We have no hesitation in pronouncing it one of the simplest, most practical, and best of its class. And though only a small octavo of 120 pages, it contains all on houses, food, diseases, rearing and breeding, sorts, and preparation for exhibition that any ordinary poultry keeper is likely to require. We quote a passage from the chapter on food.

"It is difficult to assign any portion of food as a sufficient quantity for a given number of fowls, because so much depends on the nature of their run, and the quantity and quality of food to be found. For instance, in a farm-yard where the barn-door is always open, and threshing continually going on, adult birds require little or no feeding, but if this supply be stopped, then they must be fed by hand; again, if they have free access to stubbles, they will get a good portion of their food there. I had some fowls a few years since turned out in some stubbles I rented for the purpose—they roosted in the hedge-rows, and were only fed a little night and morning for the sake of getting them together to count them. I never had any do so well, but this will only last till the beginning of November; by that time they have picked the stubble clean, and indeed from the middle of October the quantity of food given had to be increased daily. A good healthy growing fowl will consume weekly two-thirds of a gallon of corn, Wheat or Barley; and if the bird come from a walk where it has been badly kept, it will for a time eat more than this; but after it has got up in flesh and condition, it gradually eats less, and two-thirds, or even half the quantity, will keep it in good condition. Again, the weather must be consulted; in mild damp weather they prowl about and pick up many things, as insects, worms, young herbage—these all assist; but in frost, and above all in snow, they require generous feeding. To use a very homely poultry wife's expression, there is then 'no scratch' for them."

"No plan is so extravagant or so injurious as to throw down heaps once or twice per day. They should have it scattered as far and wide as possible, that the birds may be long and healthily employed in finding it, and may not accomplish in a few minutes that which should occupy them for hours. For this reason every sort of feeder or hopper is bad."

"The advantage of scattering the food is, that all then get their share; while if it is thrown only on a small space the master birds get the greater part, while the others wait around. Indian Corn has been much used of late; the result of all my experiments has been, that it is useful for a change, but it is not a good food by itself. Fowls are very fond of it, and once or twice per week it may be advantageously given. The best argument for its use is that the small birds cannot eat it. Many have been discouraged, and some deterred from keeping fowls by the expense of feeding. If they will themselves attend to the consumption for a week, and follow the method I have pointed out, they may arrive at a fair average, and they will be surprised to find how much greater the cost has been than was necessary. It is most essential not to invent or to supply imaginary wants in fowls—they do not require coaxing to eat, and wherever food can be seen lying on the ground in a yard, there is waste and mismanagement."

The Angler's Diary. By J. E. B. C. "Field" Office, 346, Strand, W.C.

There is a sheet folded into 16 pages full of details useful to any one desirous of selecting a fishing station in any quarter of the globe; and there is another sheet of ruled paper, blank, with columns presenting in as many pages an opportunity of recording the fortunes of the fisherman day by day after he has reached the station he may have selected. These are stitched together and placed within a stiff cover. They seem very fairly to justify the title under which "J. E. B. C." offers them to the reader.

Farm Memoranda.

WESTER ROSS: *Feb.* 11.—In the north of Scotland we have not had a winter so severe for many years. During the months of November and December, as if to make up for the deficiency in summer, it rained almost continuously, and kept the soil so thoroughly saturated, that Wheat-sowing was almost a hopeless operation. January brought us a severe snow-storm, with intense frost, which continued for some three weeks. Since then we have had repeated alternations from frost to thaw, and from snow to rain; and even now the weather is as unsettled as ever. The Wheat sown in October brairded closely and regularly, and although it has made little progress, and is much withered by the severity of the weather, is yet in a hopeful condition. Wheat, however, sown after the beginning of November has now lain three months in the ground, and, except in dry land, and favourably situated, is not yet fairly brairded; and there is abundant reason to fear that much of our Wheat that has lain for months in pools of water, save when these pools were frozen over, will, when fairly above ground, exhibit a braird as thin as if the seed sown had been only 1 peck per acre. We will thus for once apparently have an undesiderated experience of thin brairding in the worst circumstances. Far more desirable would it be to have a field early and well laid down, although very thinly seeded, than to have it more thickly sown at a later season, and in a condition so deplorably bad, that a large proportion of the seed must perish. In the former there would be far more hope than in the latter of tillering in spring, and an abundant crop in harvest. Although there was a considerable breadth of Wheat sown in autumn, the usual winter sowings after Turnips have been prevented, consequently the breadth now sown is considerably smaller than it would have been had the winter been milder. Our last year's Wheat crop, as we anticipated, threshes out well, and is of excellent quality, much of it sufficiently fine to top any market in the south. Our Barley was not of first-rate quality, but, being neighbour-like, it fetched a good price. Oats are threshing out very ill, are of poor quality, and yield little meal; and as this, too, is the staple crop with crofters, they will reap little benefit from the high prices that are going. As the last was the third consecutive dry season we have had, our stock of hay and straw is reduced to a minimum, and both are selling at exorbitant prices. Fortunately our Turnip crop was a first-rate one, and has stood a large amount of eating. At one time it was supposed that they would scarcely be all consumed, but the severity of the winter has assisted in rectifying the matter, first by necessitating the down-bringing to the low country of a larger number of sheep than was at first intended, and, secondly, by a considerable proportion of the Turnips yet a-field rotting with the intensity of the frost. After the long-continued severity of the weather, we anticipate a spring so fine as to admit of the speedy accomplishment of out-door labour, of which there is so much to do, and of our labourers making up somewhat for their winter deprivations.

Miscellaneous.

The Michigan Agricultural College.—The College went into operation May 13, 1857. The College Farm is three miles from Lansing, the capital of the state, and contains 676 acres, 275 of which are under cultivation. The buildings consist of a college building, 50 by 100 feet, a boarding hall 43 by 82 feet, each three stories with basement, four houses for professors, all of brick, a house for the foreman of the farm, and the needful barns and stables. The faculty of instruction consists of the president, secretary, five professors, an assistant professor, and a foreman of the farm. The number of students in 1866 was 108. Tuition is free to all students from Michigan, and 820 per year to all others. A visitor is at once impressed with the fact that very much has been done in a short time. Ten years ago nearly all of the farm was covered with heavy timber; now 275 acres will compare favourably with any farm in Central Michigan in all the appearances of general good culture—the arrangement of the fields, the condition of fences, &c. The grounds under the charge of the superintendent of the garden comprise about 80 acres, and show a high state of cultivation. A large number of interesting and instructive experiments as to manures, modes of culture, characteristics of varieties, &c., are each year made. These entire grounds present a very pleasing appearance. The houses of the professors are neat and tasteful in their design, are surrounded by very pretty grounds, and, without being more costly than the houses of well-to-do farmers often are, add much to the appearance of the grounds. The college building, of plain but pleasing appearance, is well arranged. It contains a suitable number of lecture and class rooms, a chapel, the laboratory, and library and reading-room, which contains some very useful works, and is supplied with most of the agricultural and horticultural periodicals. The chemical laboratory is the best in the State, except that of the State University, and in some respects equals that. The basement of this building is used as a tool-house, in which implements used in the horticultural department are kept very neatly stored away, each in its appropriate place. The boarding hall is a very respectable building, to which but one serious objection exists—that of being too small for the number of students in attendance, all of whom are required to board there, except by special permission. The barns, stables, &c., are large, substantial, well-arranged buildings—the sheep barn being one of the best in the West. The students, generally, seemed well fitted for their supposed future—that of educated farmers. They were mostly between the ages of 18 and 22, and seemed possessed of, certainly, fair mental abilities, and were the happy possessors of healthful bodies and a fair degree of physical strength and development. Each student is required to labour at least three hours daily in the garden or on the farm. It is, perhaps, a question whether such a course is not advisable, simply from its effect on the health of the students, without reference to its efficacy as a means of acquiring or applying knowledge. The course of study extends through five years, one preparatory, and four in the regular college course. No language, save the English, is taught, and special attention is given to the study of the physical sciences. It is no part of the design of this article to discuss the merits of the instructors in the College. It may be said, however, that some of them are well and favourably known, not only in Michigan, but other States. Thus far the College has not been self-sustaining. Its revenue from tuition fees is almost nothing, the students are boarded at cost, giving no revenue, and the lands belonging to the College have not been put in market. Its friends, however, believe that the sale of these lands will soon relieve the institution from dependence on legislative aid. *Western Rural.*

Blood has numerous uses in the arts and in domestic economy. It is a very important alimentary substance, especially that from the pig. A very nutritive bread is prepared in Sweden for the lower classes with the blood of animals and the ordinary dough made of flour. In Italy, and in central France, it is used in a coagulated state fried in grease. Laplanders often drink the blood of reindeers, and they also frequently preserve it in the bladder of the animal, exposing it to cold, and letting it become solid; when they want to make soup they cut off what they require, and boil it with fish. Black puddings are made of pigs'-blood. The blood of bullocks, when dried, constitutes a very powerful manure, and when fresh is a very valuable clarifying agent to the sugar-refiners, because of the great proportion of albumen it contains. The Paris refiners employ annually the enormous quantity of 1,100,000 kilogrammes of it, which costs 5 fr. 50 centimes the 100 kilogrammes; 30 grammes of dried blood is sufficient to clarify a hogshead of wine. In England it is not so much used, probably because of the little certainty there can be of its being exempt from adulteration, owing to the absence of public abattoirs, and of the great number of private slaughter-houses which are under no supervision. Blood is also employed in dyeing cotton goods, and it produces that magnificent dye called Turkey red. A large quantity of blood is consumed in the manufacture of the prussiate of potash, and for making Prussian blue. *La Science pour Tous.*

Cream in Cold Weather.—A mistake very often made is that of putting too much milk in the pans. Experiment has proved that if we take two equal quantities of milk and place one in pans to the depth of 6 in., and the other to the depth of only 2½ in., the latter will yield from 7 to 8 per cent. more cream than the former. This is the case more particularly in cold and damp weather, and at this time the mistake is most commonly committed. The temperature of the surrounding air has also a great effect upon the time required for the rising of the cream; experiment has demonstrated that the process is more rapid in warm than in cold weather. With the thermometer at

80 degrees, all the cream will rise in 10 hours.				
77	,,	,,	,,	12 ,,
68	,,	,,	,,	18 ,,
55	,,	,,	,,	24 ,,
50	,,	,,	,,	36 ,,
45	,,	,,	,,	43 ,,

Sprengel found that if milk was kept at a temperature as low as 37°, but little cream would rise in three weeks. In order to avoid the trouble of keeping the cream at the proper temperature, it is customary in some dairies to churn the whole milk. The advantages claimed by those who follow this plan may be briefly stated thus: the proper temperature can be readily obtained both in summer and in winter; five per cent. more butter can be obtained from the same milk; the butter is not only of the same quality while fresh, but if properly managed will keep much better. This plan would not work so well in the neighbourhood of a good market for skim milk, but when cheese is an object, there would be little or no difference, for the buttermilk will make as good cheese as skim milk. In summer it is difficult to reduce the state of the temperature of the cream as low as 55°, but the whole milk need only be reduced to 65°, to which most cellars, without any difficulty, reduce it. In Brittany, the milk of the previous evening is mixed with the morning's milk, and after standing a few hours, the whole is churned, and is said to produce a large amount of butter, of a better quality, and will keep longer. *Germantown Telegraph.*

To Preserve Fruit or Potatos.—Apples, Pears, or Potatos may be easily preserved in the following manner:—A dry and well-ventilated place should be chosen, if possible on the ground-floor; on this a layer, about four inches thick, of Rye straw is spread, then a layer of fruit or Potatos of the same thickness, and this is sprinkled with powdered plaster of Paris; on this another layer of straw, then fruit sprinkled with plaster, and so on, till five or six successive layers of straw, fruit, and plaster have been formed. In this manner, Potatos may be kept fresh for some time, and the growth of the long white shoots, so detrimental to their nourishing qualities, and which render them unfit for planting, is prevented. *Journal of Society of Arts.*

Notices to Correspondents.

COWHOUSES: *W. C., Efford.* Apply to Mr. Avis, at Lodge Farm, near Barking, who has erected several capital cowsheds within the past three months.

LIMEKILNS: *Young Farmer.* We do not suppose that the neighbourhood of Limekilns will have an injurious effect on a field of Potatos.

TURNER'S COTTAGERS' KALE.
TURNER'S INCOMPARABLE WHITE CELERY.
TURNER'S SCARLET GEM MELON.
FROGMORE PROTECTING BROCCOLI.
(In Shilling Packets.)
The above have proved to be the best of their respective classes. Seed of the true Stock may be had of
CHARLES TURNER, The Royal Nurseries, Slough.

IVERY'S NONSUCH LETTUCE, the best Summer Variety in cultivation; will stand a month longer than any other kind without running to seed; 1s. per packet, sealed with initials W. I.
Also IVERY'S NONSUCH CELERY, acknowledged to be the finest flavour known, 6d. per packet.
Price to the Trade on application.
A DESCRIPTIVE CATALOGUE of CHOICE SEEDS may be had post free.
WILLIAM IVERY, Hanover Nursery, Peckham, S.E.

THREE-YEAR ASPARAGUS PLANTS, 15s. per 1000, 2s. per 100; fine double Hollyhocks, a splendid strain, 3os. per 100; Box Edging, 3s. per doz. yards; Box Trees, 18 or 24 in., 16s. per 100; Kohl Rabi Seed, green, 1s. per lb.; White Spanish Onion Seed, 1s. 8d. per lb. Terms cash. All genuine
R. W. can supply any Orders for Seeds at lowest possible prices.
RICHARD WALKER, Market Gardener and Seed Grower, Biggleswade, Beds.

Cucumber, Telegraph.
ROLLISSON'S VARIETY has been proved the best Cucumber in cultivation for Winter or Spring use, especially for growing in houses; an immense cropper, producing six at a joint, length 18 to 26 inches. In sealed packets, 2s. 6d. each. See merits of "Winter Cucumbers," in *Gardeners' Chronicle* for Jan. 12, 1867.
WILLIAM ROLLISSON & SONS, The Nurseries, Tooting, London, S.

HENRY'S PRIZE HYBRID LEEK.—The Largest variety in cultivation; grows 16 inches in length of blanch, and 10½ inches in circumference. Has carried off the First Prizes at the leading Shows in England and Scotland.
Sold in Sealed Packets at 1s. each by
DOWNIE, LAIRD, & LAING, 17, Frederick Street, Edinburgh, and Stanstead Park, Forest Hill, London, S.E.

ARTHUR HENDERSON AND CO. beg to announce that their CATALOGUE of KITCHEN GARDEN and FLOWER SEEDS for 1867 is now ready, and will be forwarded free on application.
NEW MELONS.
EDRIDGE CASTLE PERFECTION.—This is a green-fleshed variety, of excellent flavour, thin skin, medium size, with a delicious melting sugary flesh. One of the best sorts ever raised. 2s. 6d. per packet.
THE GUILDHALL PRIZE.—Scarlet flesh, a very quick grower and a great cropper, weight 3 to 5 lb. Early, excellent shape, richer and superior in flavour to Turner's Gem. Skin very thin. A seedling between the Scarlet Gem and Egyptian green-fleshed. 2s. 6d. per packet.
HENDERSON'S COMPACT-TOPPED PINE-APPLE BEET.—True (our own saving).
Pine-apple Place, Edgeware Road, London, N.

SCOTT'S NEW VEGETABLE and FLOWER SEEDS.
COLLECTIONS of VEGETABLE SEEDS, carriage paid.

No. 1. Complete	£3	0	0	No. 3. Complete	£1	0	0
No. 2. ,,	2	0	0	No. 4. ,,	0	15	0

No. 5. Complete, 10s. 6d.

COLLECTIONS of CHOICE FLOWER SEEDS, free by post or rail.

No. 1. Complete	£2	0	0	No. 4. Complete	£0	10	6
No. 2. ,,	1	1	0	No. 5. ,,	0	7	6
No. 3. ,,	0	15	0	No. 6. ,,	0	5	0

No. 7. Complete, 2s. 6d.

HARDY ANNUAL FLOWER SEEDS.

No. 8. 12 Varieties	£0	1	6	No. 11. 50 Varieties	£0	5	0
No. 9. 24 ,,	0	2	6	No. 12. 75 ,,	0	7	6
No. 10. 36 ,,	0	3	6	No. 13. 100 ,,	0	10	6

Collections of Half-hardy Annuals, &c., at equally low prices, see Catalogue free on application to
J. SCOTT, The Seed Stores, Yeovil, Somerset.

ROBINSON'S CHAMPION DRUMHEAD OX CABBAGE SEED.
The following Seedsmen are the purchasers from Mr. S. ROBINSON of this fine Stock of Ox Cabbage Seed, the growth of 1866.
London:—T. Gibbs & Co., Half Moon Street, Piccadilly.
,, G. Gibbs & Co., Down Street, Piccadilly.
,, Beck, Henderson & Child, Upper Thames Street.
,, Cooper & Bolton, Fleet Street.
,, Lawson & Son, King Street, Cheapside.
Chester:—James Dickson & Sons, Eastgate Street.
Nottingham:—Hutchinson & Armitage.
Newark:—Caparn, Kirk-gate.
Birmingham:—Thompson, High Street.
Aberdeen:—W. Smith & Son.
Three to Four cwt. of this Seed left, price to the Trade £7 per cwt.
MR. ROBINSON has also a fine Stock of LARCH to Dispose of, 2½ to 5 feet. Price 12s. 6d. to £1 per 1000, according to size.
Three years Bedding and Transplanted QUICK, from 5s. 6d. to 7s. 6d. per 1000.
Bushy SPRUCE, for cover planting, 18 in. to 3 feet.
Fine HOLLIES, for cover planting, 2 to 5 feet.
Shaw House, Melbourne, Derby.



COCOA-NUT REFUSE is becoming scarce, the old reserves will soon be gone. Now sold in bags, 1 for 2s., 10 for 16s., 2 for 30s., 50 for 66s., 100 for £6.
Fourpence allowed for each bag returned carriage-paid.
A Railway Truck-load (not in bags), 40s.
Postage Stamps or Post-office Order, payable to J. BARSHAM & Co., Kingston-on-Thames, S.W.

THOMSON'S STYPTIC prevents the Bleeding of Vines after Pruning or Grafting, the Damping of Geraniums and other Cuttings after they are potted; and it has been used successfully in Grafting Fruit Trees of all descriptions.
Manufactured and sold Wholesale by JOHN YOUNG & SON, Dalkeith, N.B., and may be had of all Nurserymen and Seedsmen in bottles at 3s. each, with directions for use. None is genuine without the signature of WM. THOMSON.



GISHURST COMPOUND, whether used against Insects and Mildew, on Growing Plants, or as Winter Dressing on Trees at rest, should be dissolved 48 hours before use. This gets rid of smell, and if the Solution be decanted, prevents any staining of foliage. A strength of from 1 to 2 oz. to the gallon of water is recommended for growing Plants; one from 4 to 16 oz. for Trees at rest.
Sold Retail by Nurserymen and Seedsmen, in boxes, 1s., 3s., and 10s. 6d. each.
Wholesale by
PRICE'S PATENT CANDLE COMPANY
(LIMITED).

Fumigate your Greenhouse with

TOBACCO TISSUE—Will Destroy all the Insects and not Injure the Plants; is entirely free from paper or rag, and will burn without blowing.

Price 3*s.* 6*d.* per lb., carriage free. To be had of Messrs. ROBERTS & SONS, Tobacco Manufacturers, 54, St. John Street, Clerkenwell, E.C., and of all Seedsmen and Nurserymen

Vineries and Orchards.



GREAT VALUE of "APHIS WASH."

"AT the first opportunity Paint the Trees with a solution of 'APHIS WASH,' prepared at the City Soap Works; it not only destroys the Brown Aphis which Infests Peach Trees, but also Scale, and every other pest capable of lodging in the bark."—Extract from *Gardeners' Magazine*, January 5, 1867.

"For strengthening the growth and effectually destroying all forms of blight, the 'Aphis Wash' supersedes every other preparation."—See *Gardeners' Chronicle*, August 19, 1865; and *Gardeners' Magazine*, July 1, 1865.

Sold by Chemists and others, in 1*s.* bottles, and 2*s.* 6*d.* a gallon, with full directions for use.

Wholesale at the City Soap Works, Milton Street, London, E.C.

TYE'S HYACINTH SUPPORTS and GLASSES, BULB VASES, &c., in great variety.

CLAUDET, HOUGHTON, & SON, 89, High Holborn, W.C.

Price List free on application.

Caution to Gardeners.—When you ask for

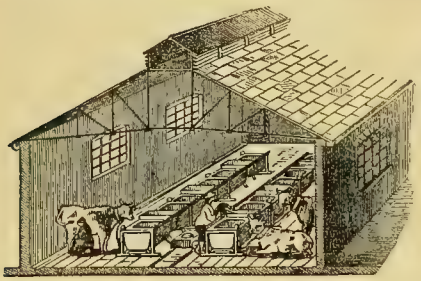
SAYNOR AND COOKE'S WARRANTED PRIZE PRUNING and BUDDING KNIVES, see that you get them. Observe the mark SAYNOR, also the corporate mark OBTAIN WARRANTED, without which none are genuine.

S. & C. regret having to caution Gardeners and others, but are compelled to do so, in consequence of an imitation, of common quality, having been sold for the genuine, and which has caused many complaints to be made to them of Knives which were not of their make, all of which are warranted both by Sellers and Makers.

S. & C.'s Pruning and Budding Knives are the best and the cheapest in the market.

Paxton Works Sheffield. Established upwards of 125 years.

COTTAM'S PATENT PORTABLE UNITED COW FITTINGS.



Their advantages are—Portability, not Fixtures, removable at pleasure, no Woodwork or Partitions to impede Ventilation or breed Vermin, Hay Rack dispensed with as unnecessary, increased width and depth of Feeding Troughs, Water Cistern, and Patent Drop Cover to prevent over-gorging. Cleanly, durable, and impervious to infection, being all of iron. Price of Fittings per Cow, 55*s.*

Prospectuses free of COTTAM & Co., Iron Works, 2, Winsley Street (opposite the Pantheon), Oxford Street, London, W., where the above are exhibited, together with several important Improvements in Stable Fittings just secured by Patent.

GALVANISED WIRE CABLE STRAND FENCING, for FARMS, PARKS, and GARDENS.

The ORIGINAL INVENTORS and MANUFACTURERS.



The CHEAPEST, STRONGEST, and NEATEST FENCING in USE

THOUSANDS of MILES of this FENCING have been SUPPLIED by us at home and abroad. It sustains no injury by being trespassed upon.

Price, with five lines of Strand and Iron-pronged Standards, and one straining post, stay and screw bolts to every 120 yards, 1*s.* per yard.

Five lines of Cable Strand and Staples for wooden posts, 6*d.* per yard

HURDLES, HURDLES, HURDLES, 1*s.* 0*d.* to 3*s.* 0*d.* per yard.

CONTINUOUS IRON FENCING. GATES of all kinds.

PATENT STRAINING PILLARS, &c.

GALVANISED WIRE NETTING for POULTRY, &c.

GALVANISED SWING WATER BARROWS.

GALVANISED IRON WATER CISTERNS.

GALVANISED IRON PUMPS.

LAWN MOWERS, GARDEN ROLLERS.

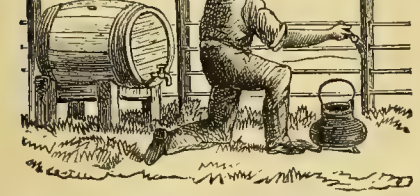
ASPHALTE ROOFING FELT, 1*d.* per square foot.

MOTLEY & GREEN.

Illustrated Catalogues and Estimates free on application.

12, Great George Street, Leeds.

Oil Paint no longer Necessary.



HILL AND SMITH'S PATENT BLACK VARNISH for preserving Iron Work, Wood, or Stone. This Varnish is an excellent substiture for oil paint on all out-door work, and is fully two-thirds cheaper. It may be applied by an ordinary labourer requires no mixing or thinning, and is used cold. It is used in the grounds at Windsor Castle, Kew Gardens, and at the seats of many hundreds of the nobility and gentry, from whom the most flattering testimonials have been received, which HILL & SMITH will forward on application.

From the Right Hon. Lord GREENOCK, *Wood End, Thirsk.*

"Lord Greenock has seen the Patent Black Varnish made by Messrs. HILL & SMITH, applied with success, and has heard it highly recommended by friends who have tested it extensively."

Sold in casks of about 30 gallons each, at 1*s.* 6*d.* per gallon, at the Manufactory, or 1*s.* 8*d.* per gallon paid to any Station in the kingdom.

Apply to HILL & SMITH, Brierly Hill Iron Works, near Dudley, and 22, Cannon Street West, E.C., from whom only it can be obtained.

TRADE LOCK'S POTASH MANURE MARK.

LOCK'S PATENT POTASH MANURES.

This is the only "*perfect*" MANURE ever yet offered to the Agricultural Public, containing, as it does, that most *important element* of every cultivated plant—POTASH. It is far superior in efficiency to Peruvian or any other Guano, as it supplies EVERY *constituent requisite for each* SPECIAL *Crop.*

Each Manure is specially prepared for the Crop for which it is intended, and is sold in Bags containing the necessary Dressing for *One Acre.*

The WHEAT, BARLEY, and OAT MANURE will effectually PREVENT the LODGING of the Corn, so frequent on lands deficient in Silica.

The CLOVER MANURE is a CERTAIN CURE for CLOVER SICKNESS, so prevalent in some Counties.

The GRASS MANURE contains an abundance of SILICATE of POTASH, which is by far the *predominating element* in all GRASSES, and which has never before been offered for Sale by any Manufacturer.

For full particulars see Circulars, for which apply to the

SOUTH of ENGLAND MANURE COMPANY, LIMITED, REDBRIDGE, HAMPSHIRE,

who are the SOLE MANUFACTURERS.

*** AGENTS WANTED for the UNITED KINGDOM.

GRAY'S OVAL TUBULAR BOILER.

INTERNATIONAL EXHIBITION, CLASS IX., No. 2119.

MR. GRAY begs to call the attention of the Nobility, Gentry, Nurserymen, Gardeners, &c., to his

NEW OVAL TUBULAR BOILER,

Acknowledged by practical judges to be a great improvement on every form of Tubular Boiler yet introduced. It has proved itself superior to all other Boilers for quickness of action and economy of Fuel, doing its work with one-third less the amount required by any other.

Extract from Report in GARDENERS' CHRONICLE *of International Exhibition, May* 24, 1862, *page* 476.

"The upright form of Boiler is usually made on a circular plan, but the oval form given to Mr. GRAY'S variety of it is said to be preferable in consequence of its bringing the tubes in closer contact with the fire. The usual form of a furnace being a parallelogram rather than a square, it seems feasible that the Boilers on the oval plan should bring the tubes more completely within range of the burning fuel; and this being so, the change, though a slight one, is no doubt an improvement."

☞ *They are made of all sizes, which, with prices, may be had on application.*

JAMES GRAY, HORTICULTURAL WORKS,

DANVERS STREET, PAULTON'S SQUARE, KING'S ROAD, CHELSEA, S.W.

HOWARDS'

STEAM CULTIVATING APPARATUS.

REPORTS RECEIVED THIS YEAR.

Scotland.

"Barrogill Castle, Wick, N.B., January 7, 1867.

"GENTLEMEN,—Having now had good, and certainly trying experience of your Steam Cultivating Machinery, sent me in 1864, I must send you a few lines to say how much I admire and like it.

"I have used it under circumstances of no ordinary kind, in taking in new land, and ploughing where no horse could put a foot, on moss 14 feet deep. It has made land and taken in a large farm for me, in, I am told, three years' less time, than if I had used horses, if they could have gone over the land.

"Your Steam Harrows are wonderful, and make land that looks impracticable fit for work in a very short time, as I had proof of last year.

"I have had no trouble with any part of the machinery, and my men learned to work it all in a few days.

"I like the whole thing so much that I think it but fair to send you this letter, and you may make what use of it you see best.—Believe me, yours sincerely, "CAITHNESS."

"Messrs. J. & F. HOWARD."

Warwickshire.

"Morton Hall, Warwick, January 8, 1867.

"GENTLEMEN.—After an experience of four years, it is very gratifying to me to be still enabled to report most favourably of the Steam Cultivating Apparatus with which you supplied me.

"Every part of it has stood remarkably well, and my rope, even now, is in capital condition; and although I never fail to use the Apparatus whenever I possibly can, my breakages have been very trifling.

"I told you before I had materially reduced the number of my horses, and yet I am always forward with my work; the land being so much benefited by the thorough cultivation I am able to give it, and by the longer exposure to the weather which it necessarily receives.

"There are so many sets of your Tackle in this neighbourhood, that you may suppose it is very generally approved of; and I am very pleased on my own account, as well as yours, to assure you of my perfect and continued approbation.—I am, Gentlemen, yours faithfully, "JOHN FORD.

"Messrs. J. & F. HOWARD."

"Dunchurch, Rugby, February 2, 1867.

"GENTLEMEN,—I am more than ever convinced that yours is the best principle of applying steam power to the cultivation of land, especially when it is laid out in small and irregularly-shaped enclosures.

"I have had excellent work done with the Cultivator, so deep and so thoroughly pulverized that I have no fear of the fields on hunting days, as no good horseman would attempt to ride across any heavy land that has been deeply steam cultivated and thoroughly saturated with snow and rain.

"I have thoroughly cleaned some very heavy blue lias clay land, which I never could possibly do with horse power, as it always became too fine on the surface before I could get it dry deep enough to destroy the twitch. Last autumn, owing to the wet, I preferred turning over the land, and made some very good work with the 3-Furrow Plough, and such that very few people who know the land think could possibly be done; and what is better, in walking over the land ploughed by steam, and the same kind of land ploughed by horses, the difference is at once perceptible, even to a blind man, as in the latter every time a step is taken the water can be heard moving in the soil, whereas this is not the case once in a hundred yards on land ploughed by steam. This is on land ploughed at the same time and equally well drained; in fact, in every particular the same, except that steam instead of horses had been used in the ploughing.

"The wire rope I had from you in May, 1864, has not been broken, neither is it likely; it appears now nearly as good as new, though it has been put to very heavy strains, generally working up to 80 lb. of steam with a 12-H.P. Engine.—I remain, yours very truly,

"Messrs. J. & F. HOWARD, Bedford." "JOHN HICKEN."

Scotland.

"Fenton Barns, Drem, January 8, 1867.

"DEAR SIRS,—I have great pleasure in stating that your Steam Cultivator continues to give me entire satisfaction.

"We have had no difficulties whatever in working it; and we have gone over upwards of 1200 acres since first starting with it in September, 1863.

"I may mention that the quantity of boulder stones which have been struck is immense, and several hundred cartloads of them have been removed from the ground; still we have had almost literally no breakages.

"The wire rope is beginning to wear, and may soon require to be renewed; but the engine, windlass, and other chief parts of the Apparatus seem to be as good as ever.

"We are now enabled to get all our crops sown in good time; and I frequently wonder how we should get on, if again restricted simply to horse power.—I am, dear Sirs, yours faithfully,

"Messrs. J. & F. HOWARD." "GEORGE HOPE."

Wiltshire

"Little Langford, Heytesbury, January 10, 1867.

"GENTLEMEN,—I purchased one of your Steam Cultivators, Michaelmas, 1861, since which time we have cultivated the following area:—

1861	108	Acres.
1862	446	,,
1863	395	,,
1864	180	,,
1865	303	,,
1866	140	,,
Total	1572	

"The quantity of work done last year would have been more than doubled had the autumn been favourable.

"The more I use the Apparatus the better I like it; and it appears to me that I could not farm advantageously without it. From using it the land is in a much better state, and more fully cropped.

"The machinery has proved to have been well manufactured, as the breakages have been few, and the blacksmith's bills light.—I remain, Gentlemen, yours very truly, "T. P. GALPIN."

"Messrs. J. & F. HOWARD."

Surrey.

"Tolworth Dairy Farm, Kingston-on-Thames, Jan. 18, 1867.

"DEAR SIRS,—I was induced to purchase a Set of your Steam-Cultivating Apparatus in consequence of my brother-in-law, Mr. Pike, of Stevington, having succeeded so well with the Set you made him.

"Having now had two years' experience with it, I am pleased to inform you that I have derived considerable advantages from its use, and would not now be without it.

"I cannot, owing to the high price of labour and coal in my district, work so cheaply as some of the reports in your Catalogue; but I am quite satisfied in my case it is a great saving, both in the subsequent work as well as in expense, when compared with my old system of horse work.

"It enables me to obtain crops of roots which, under the old system, I failed to do; and this crop to me as a dairy farmer is of the greatest importance.

"I may just observe that I have had neither breakage, loss, nor trouble with Engine or Tackle since I commenced to work them.—I am, dear Sirs, yours truly, "WILLIAM HIPWELL."

"Messrs. J. & F. HOWARD, Bedford."

SHANKS' PATENT LAWN MOWERS FOR 1867.

PATRONIZED FREQUENTLY DURING THE PAST THREE SEASONS BY

HER MAJESTY THE QUEEN,

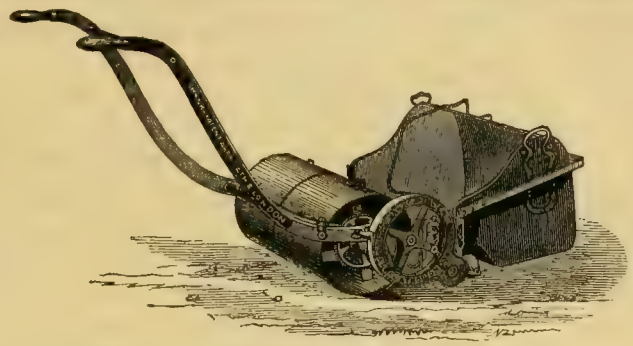
HIS MAJESTY THE KING OF SAXONY, | HIS MAJESTY THE KING OF HOLLAND,

HIS MAJESTY THE KING OF PRUSSIA,

AND AMONGST THE DISTINGUISHED FOREIGN NOBILITY,

THE DUCHESS DE CAMBACÉRÈS, THE MARQUIS DE BOISSY, MARSHAL CANROBERT, &c., &c.

Every minute point in the way of improvement has been carefully considered and adopted, and as A. S. & SON have for more than a quarter of a century devoted their attention to this particular branch of their business, the Nobility, Gentry, and Gardeners may rely on the MACHINES they may order, to be such as to ensure lasting satisfaction, and to stand the wear and tear of many years.



PATENT HAND MACHINE.

SHANKS' PATENT LAWN MOWERS

ARE IN DAILY USE IN

ALL THE ROYAL GARDENS; IN THE HORTICULTURAL SOCIETY'S GARDENS AT KENSINGTON; CRYSTAL PALACE COMPANY'S GROUNDS; IN VICTORIA PARK; HYDE PARK;

And in almost all the principal Public Parks and Gardens in the Kingdom.

These are the only Machines that can be depended on to give lasting satisfaction.

THESE ARE THE ONLY MACHINES THAT WILL MOW PROPERLY WHEN THE GRASS IS WET.

THESE ARE THE ONLY MACHINES THAT DELIVER THE GRASS WITHOUT STOPPING, THUS SAVING AN IMMENSE AMOUNT OF LABOUR.

SHANKS' PATENT LAWN MOWERS are the only Machines that have been in operation in Her Majesty's Gardens for a quarter of a century.

Shanks' Patent Lawn Mower will Mow on uneven as well as on level Lawns.

ALEXANDER SHANKS AND SON, in referring to their IMPROVED LAWN MOWERS for 1867, doubt not but that the preference which in past years has invariably been given to their Machines will still be awarded them. The principles which guide A. S. AND SON in effecting improvements compel their Machine ever to stand the first in point of general efficiency, simplicity of construction, and durability.

A. S. AND SON have particularly aimed at substituting Wrought for Cast Iron to as great an extent as possible in the construction of their Machines. None but skilled Workmen and the most improved Machinery are employed in manufacturing the various parts, and this applies not only to the Horse and Pony, but also to the Hand Machines.

A. S. AND SON have now ready for delivery a large stock of their celebrated LAWN MOWERS, which will enable them to execute orders on the day they are received.

PRICES, INCLUDING CARRIAGE TO ANY RAILWAY STATION OR SHIPPING PORT IN THE KINGDOM.

SHANKS' NEW PATENT HAND MACHINE.

Width of Cutter.		Easily Worked	Silent Movement.
10-inch Machine	£3 10 0	*By a Lady*	4*s.* extra.
12-inch Machine	4 10 0		
14-inch Machine	5 10 0	*By a Boy*	

Width of Cutter.		Easily Worked	Silent Movement.
16-inch Machine	£6 10 0	*By a Man or Two Boys*	4*s.* extra.
19-inch Machine	7 12 6	*By a Man and Boy*	
22-inch Machine	8 7 6	*By Two Men* ..	7*s.* 6*d.* extra.
24-inch Machine	8 17 6		

SHANKS' NEW PATENT PONY and DONKEY MACHINE.

Width of Cutter.		If with Patent Delivering Apparatus.
25-inch Machine	£12 10 0	25*s.* extra.
28-inch Machine	14 10 0	30*s.* ,,
30-inch Machine	15 15 0	30*s.* ,,

Silent Movement, 12*s.* 6*d.* extra; Boots for Pony, 22*s.* per set
Ditto for Donkey, 18*s.* per set.

SHANKS' NEW PATENT HORSE MACHINE.

Width of Cutter.		If with Patent Delivering Apparatus.
30-inch Machine	£19 0 0	30*s.* extra.
36-inch Machine	22 0 0	30*s.* ,,
42-inch Machine	26 0 0	40*s.* ,,
48-inch Machine	28 0 0	40*s.* ,,

Silent Movement, 20*s.* extra; Boots for Horse's Feet, 26*s.* per set.

The Machines are warranted to give ample satisfaction, and, if not approved of, may be at once returned.

N.B.—*A. S. & Son specially announce to their numerous Patrons that they have a staff of experienced Workmen at their London Warehouse, thoroughly acquainted with all the details of their Machines, so that they are enabled to repair Lawn Mowers in London as well as at the Manufactory.*

PATENTEES AND SOLE MANUFACTURERS:

ALEXANDER SHANKS AND SON, DENS IRON WORKS, ARBROATH, N.B.

LONDON OFFICE and SHOW ROOMS, 27, LEADENHALL STREET, E.C.

☞ 27, *Leadenhall Street is the only place in London where intending purchasers of Lawn Mowers can choose from a Stock of from* 150 *to* 200 *Machines. All sizes kept there, whether for Horse, Pony or Hand Power.*

HOTHOUSES for the MILLION, invented by the late SIR JOSEPH PAXTON.



Manufactories: London, Newton in Cartmel (Lancashire), Gloucester, Coventry, Aberdeen, and Paisley only.

Illustrated Circulars, with revised List of Prices, will be sent on prepaid application to Messrs. HEREMAN & MORTON, Head Office, 7, Pall Mall East, London, S.W.

HOT-WATER APPARATUS, of every description, fixed complete in any part of the country, or the materials, viz., Boilers, Pipes, &c., delivered to any Station.
Estimates on application.
J. JONES & SONS, 6, Bankside, Southwark, London, S.E.

Heating by Hot Water.

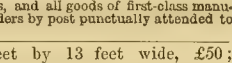
W. J. HOLLANDS, IRON MERCHANT, 31, Bankside, London, S.E.

HOT WATER PIPES, from Stock, per yard:—2-inch, 1s. 2d; 3-inch, 1s. 10d.; and 4-inch, 2s. 4d. BENDS, from Stock, 1s. 6d., 2s. 6d., and 3s. each. THROTTLE VALVES, 10s., 13s., and 14s. each. Other Connexions at equally low prices, and all goods of first-class manufacture. Estimates given, and orders by post punctually attended to the same day.

GREENHOUSES, 42 feet by 13 feet wide, £50; 21 feet by 13 feet wide, £28; 12½ feet by 10 feet wide, £15, glazed ready for fixing. ORCHARD-HOUSES, 10 per cent. cheaper. A handsome CONSERVATORY, 36 feet by 19 feet, £120. Estimates for any branch in Iron or Wood.
H. FREEMAN'S Works, Triangle, Hackney, N.E.
Established 25 years.

COTTAM AND COMPANY,
CONSERVATORY and HOTHOUSE BUILDERS, &c.,
Iron Works, 2, Winsley Street, Oxford Street, London, W.

SADDLE BOILERS.
20 24 30 inches long.
45s. 65s. 92s. 6d. each.



HOT-WATER PIPES.*
2 3 4 inch.
1s. 6d. 2s. 1d. 2s. 9d. per yard.
Materials supplied as above, or Estimates given fixed complete to Plan, on application to
COTTAM & Co.,
Iron Works,
2, Winsley Street,
opposite the Pantheon),
Oxford Street, London, W.



CRANSTON'S PATENT BUILDINGS for HORTICULTURE.
"Dry Glazing without Putty."
"Glass without Laps."
"Ventilation without Moving Lights."
Highly Commended by the Royal Horticultural Society, South Kensington.



Plans and Estimates free on application. Descriptive Book fully illustrated, post free for 20 stamps, from the Author and Patentee, JAMES CRANSTON, Architect, Birmingham.
Works: Highgate Street, Birmingham.
HENRY J. GROWTAGE, Manager, 1, Temple Row West, Birmingham.

GREENHOUSES, Span or Lean-to, Ornamental or Plain, always in Stock, Glazed with 21-oz., and Painted ready for Fixing. To be seen erected.

Span-roof, plain, 20 feet 9 inches long, by 13 feet wide	£31	0	0
A ditto of same size, ornamental	35	0	0
A ditto 33 feet long by 13 feet wide, plain	47	0	0
A ditto same size, ornamental	54	0	0
Also a Lean-to, 23 ft. long by 12 ft. 6 in. wide, plain	34	0	0
A ditto, same size, ornamental	39	0	0
Also, a Lean-to 19 feet long by 10 feet 9 inches wide	22	0	0
A ditto 28 feet long by 10 feet 9 inches wide	32	0	0

Also a large Stock of various shapes and sizes, of 1, 2, 3, and 4-Light Garden Frames, some made portable, ready for use, and a large Stock of Greenhouse and Pit Lights.
Greenhouses made to order, Glazed with 21-oz., painted three times, at 1s. 3d. per square foot. Two-inch Lights made and Glazed with 21-oz., painted three times, at 9d. per square foot.
W. S. uses only the best Yellow Deal for Horticultural Work.
Estimates given for effectually Heating by Hot Water.
Address WM. SMITH, Hothouse Builder, Turnham Green, W.

Important Notice.

FOR SALE, a Great Bargain, One GREENHOUSE, 60 feet long: one ditto, 30 feet, with Boiler-house, Boiler and Hot-water Apparatus, Iron Tanks, Ornamental Paving, Gratings, &c., all complete. Also 14 of the Choicest VINES, planted last year, and about 40 LOADS of good rich SOIL. The Greenhouses were erected last year. The above to be Sold for £110.
Apply to J. B. LOOKER, Esq., Solicitor, Banbury, Oxon.

Preserve your Trees from Frost.

BENJAMIN EDGINGTON, of 2, Duke Street, Southwark, has a large Stock of NEW and REPAIRED TANNED NETTING, COTTON BUNTING, HALL'S COTTON NETTING, FRIGI DOMO, &c. Samples free by post. Marquees, Tents, and Temporary Rooms on Hire, lined, boarded, lighted and comfortably warmed.
Address, BENJAMIN EDGINGTON (only), 2, Duke Street, London Bridge, S.E. No other establishment.

PRIZE MOWING MACHINES, FIELD and GARDEN ROLLERS; CHAFF CUTTERS, from 4£s. Lawn Mowers, Garden Engines, 'Parkes' Cast Steel Digging Forks and Garden Tools, Improved Wire Netting, Wheelbarrows, Corn Bins, Churns, Sausage and Mincing Machines. PRICE LISTS per post.
BURGESS & KEY'S Agricultural Implement and Machinery Warehouse, 95, Newgate Street, London, E.C.
Works: Brentwood, Essex.

Lawn Mower Repairs.

ALEXANDER SHANKS AND SON would suggest to their numerous friends the desirability and importance of having their Lawn Mowers put into proper order before the commencement of the Mowing season. If attention be paid to this request some disappointment may be avoided, because in the early spring the necessary time for repairing Machines is to some extent denied them, on account of the press of business connected with the manufacture and despatch of new Machines.
Machines for Repair can be addressed, ALEX. SHANKS & SON, 27, Leadenhall Street, London, E.C. (where Repairs are executed); or to the Manufactory, Dens Iron Works, Arbroath, N.B.

SHAW'S TIFFANY.
For samples and prices apply to
J. SHAW & Co., 29, Oxford Street, Manchester.

SHAW'S TIFFANY. — Reduced Prices, 7s.; Mineralized, 8s.; Double Strength, 9s.; Treble ditto, 10s. per piece. An excellent substitute for Mats in protecting the Bloom of Wall Trees.
The Garden Repository, 32, James Street, Covent Garden, W.C.
Price Lists for all Garden Requisites may be had on application.

BROWN'S FLORAL SHADING, for Shading Plants under Glass and protecting Wall Trees from frost.—Sold by all Nurserymen and Seedsmen. No. 1 at 6s. 8d.; No. 2 at 7s. per piece, 20 yards long, 38 inches wide; No. 3 at 9s. 3d. per piece, 18 yards long, 39 inches wide.
Samples on application to CHARLES BROWN, Greenheys, Manchester.

New Archangel Mats.

STUART AND MEIN, Kelso, N.B., have received a fresh importation of the above, of first-class quality. Price on application.

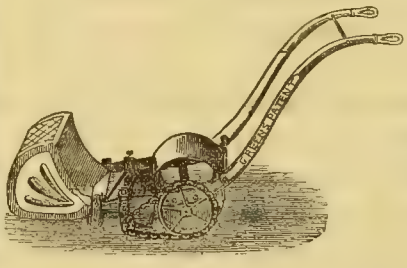
Asphalte Roofing Felt,
ONE PENNY per Square Foot.
CROGGON AND CO., MANUFACTURERS, {63, New Earl Street, / 34, Bread Street,} London, E.C.
69, GEORGE SQ., GLASGOW; 2, GOREE PIAZZAS, LIVERPOOL.

TANNED GARDEN NETTING for preserving Seed Beds, Fruits, Strawberries, from Frost, Blight, Birds, &c., and as a Fence for Fowls, &c. 1 yard wide, 1½d.; 2 yards, 3d.: 3 yards, 4½d.; and 4 yards, 6d. per yard run in any quantity, may be had at CHAS. WRIGHT'S, 376, Strand, W.C.
VARNISHED FLOWER STICKS:—1 foot, 3d.; 1½, 4d.; 2, 5d.; 2½, 7d.; 3, 10d.; 4, 1s. 6d. per dozen. DAHLIA do., per dozen:—3 ft., 1s. 6d.; 4, 2s. 3d.; 5, 3s.; 6, 3s. 6d. An allowance to Nurserymen.

E. T. ARCHER'S "FRIGI DOMO."
Patronised by Her Majesty The Queen, the Duke of Northumberland for Syon House, His Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, &c.
PROTECTION from COLD WINDS and MORNING FROSTS.
"FRIGI DOMO," a Canvas made of Patent prepared Hair and Wool, a perfect Non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all Horticultural and Floricultural purposes, for Preserving Fruits and Flowers from the Scorching Rays of the Sun, from Wind, from Attacks of Insects, and from Morning Frosts. To be had in any required lengths.

Two yards wide	1s. 9d. per yard run.
Four yards wide	3s. 6d. per yard.
An improved make, 2 yards wide	1s. 9d. per yard.
An improved make, 3 yards wide	2s. 8d. per yard run. Also

FRIGI DOMO" NETTING, 2 yards wide, 1s. 6d. per yard run.
ELISHA THOMAS ARCHER, Whole and Sole Manufacturer, 7, Great Trinity Lane, Cannon Street, City, E.C., and of all Nurserymen and Seedsmen throughout the Kingdom.
"It is much cheaper than Mats as a covering.'

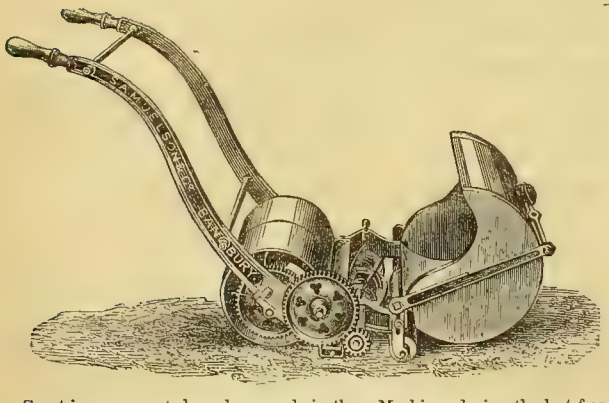


Lawn Mowers.
GREEN'S PATENT. | SAMUELSON'S PATENT.
SHANKS' PATENT. | BARNARD'S PATENT.

DEANE & CO.,
46, KING WILLIAM ST., LONDON BRIDGE.

Horticultural Tools, &c.
LAWN MOWING MACHINES, 50s., 70s., 90s., 140s.
GARDEN BARROWS, Iron and Wood, from 21s.
GARDEN ENGINES, Galvanised Iron. Prices 55s., 65s., 78s., 90s., 100s., 110s.
GARDEN ROLLERS, £1 10s., £1 14s., £2, £2 7s. 6d., £2 12s. 6d., £3 2s. 6d.
STEEL DIGGING FORKS, SPADES, SCYTHES, &c.
GREENHOUSE SYRINGES and GARDEN PUMPS.
WIRE NETTING and ORNAMENTAL WIRE WORK.
GARDEN SEATS and CHAIRS.
FLOWER STANDS, Cast-iron and Wire.
STRAINED WIRE FENCING and IRON HURDLES.
HOT-WATER FITTINGS for GREENHOUSES, CONSERVATORIES, FORCING PITS, &c.
Deane's New Illustrated Horticultural Catalogue post free on application.
ESTABLISHED A.D. 1700.
DEANE AND CO., 46, KING WILLIAM STREET, LONDON BRIDGE, E.C.

SAMUELSON & CO.'S
IMPROVED LAWN MOWING MACHINES.
EVERY MACHINE WARRANTED.



PRICES.
Delivered Free to any Railway Station in Great Britain.

Cutting 12 inches wide	£4 10 0
Cutting 14 inches wide	5 5 0
Cutting 16 inches wide	6 0 0
Cutting 19 inches wide	6 10 0
Cutting 22 inches wide	7 10 0
Cutting 25 inches wide	12 0 0
Cutting 30 inches wide	15 0 0
Cutting 36 inches wide	18 0 0

Great improvements have been made in these Machines during the last few years, in regard to all those small but important points of superiority which the practical working of a Lawn Mower suggests; while for elegance of appearance, lightness of draft, and efficiency in working they cannot be excelled. They possess the following advantages:—
1st, Motion is given to the Cutting Apparatus by toothed gearing, which experience has proved to be by far the best method of driving.
2d, The whole of the Driving Wheels are on one side of the Machine, a point of great importance in preventing damage to Shrubs and Flowers, when mowing round the edges of beds.
3d, All the smaller working parts of the Machine are made of Malleable Iron, and are not liable to break.

☞ *Illustrated Price Lists, with selections from several Thousand Testimonials, Free by Post on application.*

SAMUELSON AND CO., BRITANNIA WORKS, BANBURY.
LONDON WAREHOUSE: 10, LAURENCE POUNTNEY LANE, E.C.
AGENTS:—Messrs. TANGYE BROTHERS AND HOLMAN, 10, LAURENCE POUNTNEY LANE; Messrs. DEANE AND CO., London Bridge; Messrs. DRAY TAYLOR AND CO., London Bridge; Mr. THOMAS BRADFORD, 63, Fleet Street, E.C.; and all respectable Seedsmen and Ironmongers throughout the Kingdom.

JOHN WARNER AND SONS,
8, Crescent, Cripplegate, London, E.C.,
BELL and BRASS FOUNDERS to HER MAJESTY.



No. 35.



No. 42.

PATENT CAST-IRON PUMP, fitted with J. W. & Sons' Metal Bucket and Valve, which cannot clog in action, for Wells not exceeding 25 feet.

Diam.	Height.	£	s.	d.
¾ in. short	1 ft. 7 in.	1	1	0
¾ in. long	3 ft. 3 in.	1	8	6
in. long	3 ft. 6 in.	2	1	0
¼ in. long	3 ft. 6 in.	2	6	0
in. long	3 ft. 6 in.	2	14	0
¼ in. short, with 15 feet of lead pipe attached, ready for fixing		2	0	0
in. long, do. do.		2	14	0

Price of 4¼-inch Liquid Manure Pump, with legs, £2 15s.; 2-inch Flexible Rubber and Canvas Suction Pipe, 2s. 6d. per foot. The Barrel is 27½ inches long, and the legs are 5 feet high.

WARNERS' PORTABLE FIRE or GARDEN ENGINE.



£2 2s.

No. 568½.

For use by one Person .. .. price £2 2s.
No. 547B, ditto ditto, on Wheels .. .. £2 10s.

The above are complete in themselves, and may be always kept filled with water, and ready for use.

Letter to The Times, *July* 23, 1866, *from* Earl ESSEX.

A REAL FIRE EXTINGUISHER.

To the Editor of The Times.

"SIR,—I feel sure you will kindly allot a small space in the *Times* to these few lines, as the best medium through which I would urge every householder who dreads fire to have on each floor of his house one or more small Garden or other Engines on wheels, always charged and in good order, in case of fire.

"Last night, just as I was going to bed, I was startled by that most fearful of all cries, 'Fire, fire!' I soon learned that a fire was raging in a large two-windowed unoccupied bedroom. How caused is to us all a great mystery. It is my custom to keep one of these small Engines on each floor. In two minutes I was in the room with one of them. It was like a furnace. The curtains, shutters, casements, and cornices of both windows were burning and cracking from floor to ceiling. I was quite alone at the moment, yet before assistance arrived (most of the servants having gone to bed), I had completely subdued the fire of one window without exhausting the Engine, and when assistance and more water did arrive, we very soon extinguished the other.

"So fierce was the fire that the lead of the casements was melted, and the casements themselves were burnt off their hinges.

"I will only add, that by God's mercy, the house was saved by this small Engine. Had it not been at hand and in order, most assuredly Cassiobury would be now a heap of ruins.—Yours faithfully,

"Cassiobury, Watford, July 20. "ESSEX.

"The Engine, even when full, runs so light on the floor, that any woman might draw it, and also work it."

BEDSTEADS, BATHS, and LAMPS.—WILLIAM S. BURTON has Six Large Show Rooms devoted exclusively to the separate display of Lamps, Baths, and Metallic Bedsteads. The stock of each is at once the largest, newest, and most varied ever submitted to the public, and marked at prices proportionate with those that have tended to make his Establishment the most distinguished in this country.

Bedsteads, from .. .. .. 12s. 6d. to £20 0s. each.
Shower Baths, from .. .. .. 8s. 0d. to £6 0s. each.
Lamps (Moderateur), from .. 6s. 0d. to £8 10s. each.
(All other kinds at the same rate).
Pure Colza Oil .. .. 4s. 0d. per gallon.

WILLIAM S. BURTON, GENERAL FURNISHING IRONMONGER, by appointment to H.R.H. the Prince of Wales, sends a Catalogue gratis and post paid. It contains upwards of 600 Illustrations of his unrivalled Stock of Sterling Silver and Electro Plate, Nickel Silver, and Britannia Metal Goods, Dish Covers, Hot Water Dishes, Stoves, Fenders, Marble Chimney-pieces, Kitchen Ranges, Lamps, Gaseliers, Tea-trays, Urns, and Kettles, Clocks, Table Cutlery, Baths, Toilet-ware, Turnery, Iron and Brass Bedsteads, Bedding, Bed-room Cabinet Furniture, &c., with Lists of Prices and Plans of the Twenty Large Show-rooms, at 39, Oxford Street, W.; 1, 1A, 2, 3, and 4, Newman Street; 4, 5, and 6, Perry's Place, and 1, Newman Yard, London.

THE SMOKER'S BONBON effectually REMOVES the TASTE and SMELL of TOBACCO from the MOUTH and BREATH, and renders Smoking agreeable and safe. It is very pleasant and wholesome. Prepared by a patent process from the recipe of an eminent physician by SCHOOLING & Co., Wholesale Confectioners, Bethnal Green, London, N.E., in Sixpenny and Shilling Boxes; post free, 7 and 14 stamps.

Sold by Chemists, Tobacconists, &c.]

DINNEFORD'S FLUID MAGNESIA.—The best remedy for Acidity of the Stomach, Heartburn, Headache, Gout, and Indigestion: and the best mild aperient for delicate constitutions, especially adapted for Ladies, Children, and Infants.

DINNEFORD & Co., 172, New Bond Street, London, and of all Chemists

Tea Cheaper than Ever.

PHILLIPS AND COMPANY'S TEAS ARE BEST AND CHEAPEST.

STRONG BLACK TEAS, 1s. 6d., 2s., 2s. 4d.

Very Excellent BLACK TEA is now only 2s. 6d. per lb.

PHILLIPS & Co., Tea Merchants, 8, King William Street, City, London, E.C.

Rare choice genuine COFFEE, 1s. 4d. per lb.

A Price Current post free. Sugars at Market prices.

PHILLIPS & Co. have no Agents.

PHILLIPS & Co. send all Goods carriage free by their own Vans, within eight miles of No. 8, King William Street, City; and send Teas, Coffees, and Spices, carriage free, to any Railway Station or Market Town in the United Kingdom, if to the value of 40s. or upwards.

Breakfast.

EPPS'S COCOA (also called EPPS'S HOMŒOPATHIC COCOA).—The very agreeable character of this preparation has rendered it a general favourite. Invigorating and sustaining, with a refined and grateful flavour, developed by the special mode of preparation applied, this Cocoa is used as their habitual beverage for breakfast by thousands who never used Cocoa before. "Cocoa stands very much higher than Tea or Coffee," Dr. Hassall says, "and contains every ingredient necessary to the growth and sustenance of the body."

It is made simply by pouring boiling water or milk on the Preparation as sold. ¼ lb., ½ lb., and 1 lb. Packets.

Sauce.—Lea & Perrins'

WORCESTERSHIRE SAUCE.—This delicious Condiment, pronounced by Connoisseurs "THE ONLY GOOD SAUCE," is prepared solely by LEA & PERRINS.

The public are respectfully cautioned against worthless imitations, and should see that LEA & PERRINS' Names are on Wrapper, Label, Bottle, and Stopper. ASK FOR LEA & PERRINS' SAUCE.

*** Sold Wholesale and for Export, by the Proprietors, Worcester; Messrs. CROSSE & BLACKWELL; Messrs. BARCLAY & SONS, London, &c., and by Grocers and Oilmen universally.

Starch Manufacturers

TO H.R.H. THE PRINCESS OF WALES.

GLENFIELD STARCH,

EXCLUSIVELY USED IN THE ROYAL LAUNDRY,

and Awarded Prize Medal, 1862.

Sold by all Grocers, Chandlers, &c.

WHITE and SOUND TEETH are indispensable to personal attraction, and to health and longevity, by the proper mastication of food. ROWLAND'S ODONTO, or Pearl Dentifrice, preserves and imparts a pearl-like whiteness to the Teeth, eradicates Tartar and spots of incipient decay, strengthens the Gums, and gives a pleasing fragrance to the Breath. Its truly efficient and fragrant aromatic properties have obtained its selection by her Majesty the Queen, and the Sovereigns and Nobility throughout Europe. Price 2s. 9d. per box. Sold by Chemists and Perfumers.

*** Ask for "ROWLANDS' ODONTO."

NO MEDICINE for the CURE of ASTHMA, CONSUMPTION, and COUGHS, was ever attended with such speedy and unfailing success as DR. LOCOCK'S PULMONIC WAFERS. In every newspaper and periodical in the kingdom may be seen Testimonials of their wonderful efficacy. To Singers and Public Speakers they are invaluable for clearing and strengthening the voice. Sold by all Medicine Venders. Price 1s. 1½d. per box.

The Best Remedy for Indigestion.

NORTON'S CAMOMILE PILLS are confidently recommended as a simple but certain remedy for Indigestion. They act as a powerful tonic and gentle aperient; are mild in their operation; safe under any circumstances; and thousands of persons can now bear testimony to the benefits to be derived from their use. Sold in Bottles at 1s. 1½d., 2s. 9d., and 11s. each, in every town in the kingdom. CAUTION.—Be sure to ask for "NORTON'S PILLS," and do not be persuaded to purchase the various imitations.

JOHN GIBSON, JUN., begs to announce that he is prepared to Furnish PLANS and ESTIMATES for LAYING OUT GROUND attached to Mansions and Villa or other Residences, or for the FORMATION of PUBLIC PARKS or GARDENS, and to carry out the same by Contract or otherwise.

Address Mr. JOHN GIBSON, jun., Surrey Lane, Battersea, S.W.

MR. GLENNY, Author of "The Properties of Flowers," "The Manual of Practical Gardening," "The Gardener's Every Day Book," "The Handy Book on Gardening," and other popular standard works, continues to give ADVICE on the Improvement of Estates, and to Purchase and Sell on Commission Nurseries, Gardens, Private Residences, and Land, and to value all Properties connected therewith, and will attend as Judge or otherwise at Horticultural Meetings. A List of the best 60 Sorts of FLOWER SEEDS for Amateurs to choose from, selected from the thousands catalogued by the Trade, sent free on receipt of a directed envelope at his Office, Dungannon House, Fulham.

Farm Poultry.

GREY DORKING FOWLS, of purest breed, in any numbers.

Imported TOULOUSE GEESE, the largest and most productive breed known.

Improved NORFOLK TURKEYS, large, hardy, and good breeders.

AYLESBURY and ROUEN DUCKS.

Imported BELGIAN HARE RABBITS, for size and early maturity.

BRAHMA-POUTRA, CREVECŒUR, and LA FLÈCHE FOWLS, for constant layers.

Priced Lists and Estimates on application.

JOHN BAILY & SON, 113, Mount Street, London, W.

TO BE LET or SOLD, an Excellent NURSERY (owing to the death of the Proprietor, and winding up of the Estate), well situated, not far from London, and well stocked with 40,000 Fruit Trees, Evergreens, Shrubs, &c. 150*l.* will buy Stock, Lease, &c.

For particulars apply to Messrs. HY. CLARKE & SONS, 39, King Street, Covent Garden, W.C.; or to S. CHANDLER, Esq., Solicitor, Basingstoke.

TO BE LET, the HOME FARM of MILNE GRADEN, near Coldstream, Berwickshire, containing about 134 Acres of Tillage, to which about 130 Acres of old Grass Parks can be added if wished.

The Dwelling House is built in a superior style, containing three Public Rooms and four good Bedrooms. A garden well stocked with Fruit Trees adjoins.

The Offices contain capacious Cattle Byres, Sheds, and Curtains:—Threshing-mill, Saw-mill, Turnip-pulper, Straw-cutter, Cake-bruiser, Mill Stones, Manure Tanks and Pumps, with Pipes for irrigating about 70 acres. This machinery is driven either by a Steam-engine or by a Water-wheel.

Persons wishing to see the Farm must apply to Mr. HUTTON, Factor, on the Estate, or in his absence to the Farm Steward. Heads of a Lease will be shown to intending offerers by JAMES BOWHILL, Banker, Ayton. Offers must be lodged with him on 9th March.—Paxton House, Berwick-on-Tweed, Feb. 5.

Sales by Auction.

Hammersmith.

THE STOCK OF A GREENHOUSE AND HORTICULTURAL BUILDER.

MESSRS. R. T. SWAIN AND SON have received instructions from the OWNER, Mr. Joseph Smith, to SELL by AUCTION on the Premises, Pine Cottage, Hammersmith, W. (close to the 'Queen of England'), on WEDNESDAY, February 27, at 1 o'Clock, the whole of his well-seasoned STOCK of GREENHOUSES, consisting of Span and Lean-to Roof, with Ends, Doors, Sides, and Stages, 40 feet by 12 feet, 33 feet by 10 feet, 30 feet by 10 feet, 23 feet by 12 feet 9 inches, 24 feet by 9 feet 6 inches, and others of smaller dimensions: 1, 2, and 3-Light Frames; a large quantity of Lights and Effects.

May be viewed the Day prior and Morning of Sale. Catalogues had on the Premises, and of the Auctioneers, The Lodge, Notting Hill, London, W.

Kennington.

CLEARANCE SALE OF NURSERY STOCK.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, on the Premises, Sewell's Nursery, Manley Place, Kennington Park, S., on WEDNESDAY, Feb. 27, at 11 o'Clock, without the least reserve, the ground being immediately required for Building. The Stock comprises a Variety of EVERGREENS, amongst which may be mentioned 2000 lovely Aucuba japonica, from 1 to 6 feet; Euonymus, Lilacs, &c., Standard and Dwarf Roses, Box Edging, &c.; also 2-Light Boxes, quantity of Bricks, Sashes, two Iron Rollers, sundry Wood, Garden Tools, and sundry effects.

On view, and Catalogues had on the Premises; the Horns, Kennington; and of the Auctioneers, American Nurseries, Leytonstone, Essex.

Annual Sale of very handsome English-grown Camellias, &c.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at 38 & 39, Gracechurch Street, City, E.C., on THURSDAY, Feb. 28, at 1 o'Clock precisely, about 200 Choice DOUBLE CAMELLIAS, beautiful compact plants, 1 to 5 feet, abundantly furnished with bloom buds; fine AZALEA INDICA; a superb assortment of about 300 very handsome STANDARD and DWARF ROSES, including the best varieties in cultivation; choice hardy AMERICAN PLANTS, comprising Ghent and other Azaleas, Hybrid Rhododendrons, Kalmias, Andromedas, &c.; some fine Bulbs of LILIUM AURATUM, LANCIFOLIUM, RUBRUM, ALBUM and PUNCTATUM; ERICAS, EPACRIS, &c.

May be viewed the Morning of Sale. Catalogues may be had at the City Auction Rooms, as above; or of the Auctioneers and Valuers, American Nurseries, Leytonstone, Essex, N.E.

Ramsgate.

PRELIMINARY NOTICE OF A VERY IMPORTANT AND EXTENSIVE SALE OF VALUABLE NURSERY STOCK.

MESSRS. PROTHEROE AND MORRIS have received instructions from Mr. James Turrell to SELL by AUCTION on the Premises, Providence Nursery, High Street, Ramsgate, close to the Railway Station, on MONDAY, March 4, and following days, at 11 o'Clock each day, without the least reserve, the ground being immediately required for Building purposes, the whole of the Valuable NURSERY STOCK, including thousands of fine Evergreen Conifers and Deciduous Shrubs, Standard and Dwarf Roses, Ornamental Fruit and Forest Trees, a quantity of Box edging. Full particulars of this extensive stock will be given in future Advertisements. Lots will be arranged to suit private Buyers as well as the Trade.

May be viewed any day prior to the Sale. Catalogues may be had, 6*d.* each, returnable to purchasers, on the premises; of the principal Seedsmen in London; and of the Auctioneers and Valuers, American Nurseries, Leytonstone, Essex.

Wavertree, near Liverpool.

CLEARANCE SALE OF NURSERY STOCK, CHOICE GREENHOUSE PLANTS, GREENHOUSES, &c.

MESSRS. PROTHEROE AND MORRIS are directed by Mr. Isaac Davies to SELL by AUCTION, on the Premises, Larkfield Nursery, Wavertree, near Liverpool, on TUESDAY, March 12, and following day, at 11 o'Clock each day, without reserve, the Lease having expired, necessitating an immediate clearance, the whole of the Valuable NURSERY STOCK, comprising about 5000 best worked Hollies, 10,000 Rhododendron, including 1200 R. præcox (so highly and justly esteemed for its profuse flowering habit) and other leading kinds, 1500 Hardy and Ghent Azaleas, a large variety of Evergreen Coniferæ and Deciduous Shrubs, Ornamental Forest and Fruit Trees, Climbers in Pots; also a choice Collection of Greenhouse Plants, comprising 1500 Azalea indica, 400 Ericas, Acacias, Cyclamen, Cytisus, &c., together with Three newly-erected GREENHOUSES, Pits, Boxes, Seed Drawers, Seeds, and numerous other items, which will be more fully detailed in future advertisements.

May be viewed, and Catalogues, when ready, may be had on the Premises, and of the Auctioneers and Valuers, Leytonstone, Essex.

SALE THIS DAY, AT HALF-PAST TWELVE O'CLOCK.

Consignment of Plants and Bulbs from Belgium, Holland, and France.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on SATURDAY, February 16, at half-past 12 o'Clock precisely, 300 CAMELLIAS, fine plants, with buds; 250 INDIAN AZALEAS, 200 Hardy RHODODENDRONS, 200 PYRAMID PEARS, 200 DWARF PLUMS, 200 LILIUMS, Hardy AZALEAS, DRACÆNAS, PIMELEAS, ORANGE TREES, CONIFERS, DWARF ROSES, 12,000 choice GLADIOLI, named varieties; RUSTIC SEATS, STOOLS, VASES, &c.

On view the Morning of Sale, and Catalogues had.

Dwarf Roses, Fruit Trees, and other Plants from France.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, February 20, at half-past 12 o'Clock precisely, 2000 splendid DWARF ROSES from France, including most of the new varieties; Specimen CONIFERS; STANDARD, PYRAMID, and DWARF-TRAINED FRUIT TREES, choice named GLADIOLI, HARDY SHRUBS, RUSTIC SEATS, STOOLS, VASES, &c.

On view the Morning of Sale, and Catalogues had.

Lilium auratum.

15,000 FINE BULBS JUST ARRIVED PER OVERLAND MAIL.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, February 21, at half-past 12 o'Clock precisely, without reserve, 15,000 splendid BULBS of LILIUM AURATUM, being probably the last Consignment that will arrive Overland this season.

On view the Morning of Sale, and Catalogues had.

Important Sale of Plants and Bulbs for Spring Planting.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on FRIDAY, February 22, at half-past 12 o'Clock precisely, 500 LOTS of CHOICE HARDY PLANTS and BULBS, consisting of specimen Conifers, Laurels, Berberis, Phloxes, Fuchsias, Hollies, Cotoneasters, Ribes, Tree Violets, Pentstemons, Carnations, Picotees and Pinks, Geraniums, Aucubas, Laburnums, Roses, Fruit Trees, Gladioli, &c.

On view the Morning of Sale; and Catalogues had.

Trained Fruit Trees, Gladioli, Roses, Shrubs, &c.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on SATURDAY, February 23, at half-past 12 o'Clock precisely, a quantity of HARDY TREES and SHRUBS, Dwarf-trained FRUIT TREES, Choice GLADIOLI, RANUNCULUS, and other BULBS, Dwarf ROSES, RUSTIC SEATS, &c.

On view the Morning of Sale, and Catalogues had.

Coniferous Seeds.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on MONDAY, February 25, at half-past 12 o'Clock precisely, an Importation of CALIFORNIAN and other CONIFEROUS SEEDS, consisting of Wellingtonia gigantea, Cupressus Lawsoniana, Abies Mertensiana, Pinus Benthamiana, P. insignis, Picea Nordmanniana, Abies orientalis, A. cærulea, A. Douglasii, Picea Pinsapo, and a great variety of other seeds.

On view the Morning of Sale, and Catalogues had.

Preliminary Notice,

IMPORTANT SALE OF ORCHIDS, STOVE AND GREENHOUSE PLANTS, AT HIGHGROVE, READING, BERKS.

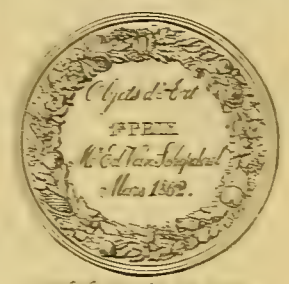
MR. J. C. STEVENS will SELL by AUCTION, at the Gardens, Highgrove, Reading, Berks, early in April, the valuable Collection of ORCHIDS, STOVE and GREENHOUSE PLANTS, formed by the late J. J. Blandy, Esq., Vice-President of the Royal Horticultural Society of London, comprising a great variety of fine Plants, many of which have been exhibited and carried off prizes at the various Metropolitan and Provincial Shows. Also several Greenhouses, Exhibition Van, &c. Catalogues are preparing and will be ready 14 days before (price 6*d.* each, to admit parties to the Sale), which may be had at the Gardens; also of Messrs. COOPER & GOULDING, Auctioneers, Market Place, Reading; and of Mr. J. C. STEVENS, Horticultural Auctioneer and Valuer 38, King Street, Covent Garden, London, W.C.

PRIZE MEDALS AWARDED TO
GREEN'S PATENT LAWN MOWERS AND GARDEN ROLLERS.



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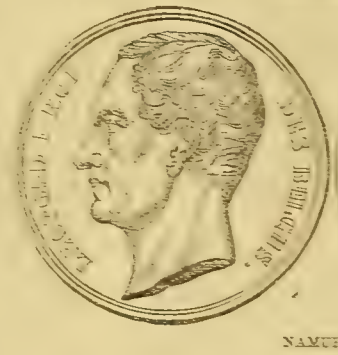
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LONDON, 1862.



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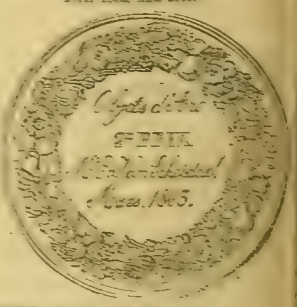


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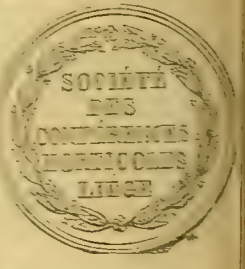


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DUBLIN, 1865.

Editorial Communications should be addressed to "The Editor." Advertisements and Business Letters to "The Publisher," at the Office 41, Wellington Street, Covent Garden, London, W.C.
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THE GARDENERS' CHRONICLE
AND
AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.

No. 8.—1867.] SATURDAY, FEBRUARY 23. {Price Fivepence. Stamped Edition, 6d.

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ROYAL BOTANIC SOCIETY'S GARDENS, Regent's Park.—EXHIBITIONS of SPRING FLOWERS, SATURDAYS, March 23, April 13, and April 27. Tickets, 2s. 6d. each. GENERAL EXHIBITIONS, WEDNESDAYS, May 29, June 19, and July 3. Tickets, 4s. each. Tickets are now being issued, and can be obtained at the Gardens by Orders from Fellows of the Society. The number of Specimens required in the Collections having been reduced, will enable a larger number of Exhibitors to compete. Schedules of Prizes, &c., may be had on application.

NATIONAL HORTICULTURAL EXHIBITION, 1867.—The above EXHIBITION will Open at Manchester on JUNE 7, and continue till JUNE 15. Schedules, &c., may be obtained on application to Mr. B. Findlay, Curator, Botanic Garden, Manchester; or from the undersigned, Henry Whitworth, Secretary. Carlton Buildings, Cooper Street, Manchester.

WEST of ENGLAND ROSE SHOW.—The FIRST ANNUAL SHOW will be held at HEREFORD, in the Shire Hall, on TUESDAY, July 9th. Honorary Secretary, Rev. C. H. Bulmer, Credenhill, Hereford.

B. S. WILLIAMS' NEW PRICED GENERAL SEED CATALOGUE now ready, forwarded free to any address. Victoria and Paradise Nurseries, Upper Holloway, London, N.

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1867.

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SPLENDID LARCH, 3 to 4 ft., at unprecedented prices; HAWTHORN QUICK, do. do.; AVENUE TREES; large EVERGREENS and CONIFERS; magnificent TRAINED PYRAMID and STANDARD FRUIT TREES. Special prices given.
GEORGE DAVISON, Hereford.

To Planters.

LARCH, SPRUCE FIR, and all the leading FOREST TREES; BERBERIS AQUIFOLIUM, and all the leading Covert Plants, in very great quantity and in excellent health and condition for removal. Special Prices for large lots on application.
JAMES DICKSON & SONS, "Newton" Nurseries, Chester.

COMMON LAURELS, well furnished plants, 3 to 4 feet, 20s. per 100, 190s. per 1000; 2 to 3 feet, 14s. per 100, 130s. per 1000.
LAURUSTINUS, bushy plants, 18 inches to 30 inches, 28s. per 100.
Cash or reference from unknown correspondents.
R. HAYNES, Henwick Nursery, Worcester.

LARCH, SILVER FIR, &c.
LARCH, 1½ to 2 feet, 8s. per 1000; 2 to 3 feet, 10s.; 3 to 4 feet, 12s. 6d.
SILVER FIR, 6 to 12 inches, 4s. per 1000.
SCOTCH FIR, native, 6 to 12 inches, 5s. per 1000.
LIST of other TREES sent on application.
Apply, with reference, to J. RIDDELL, Park Attwood, Bewdley, Worcestershire.

Planting Season

LARCH (Native and Tyrolese), SCOTCH FIR (True Native), SPRUCE, OAK, ASH, ALDER, BEECH, PRIVET, and all kinds of FOREST and ORNAMENTAL TREES and SHRUBS, ROSES, FRUIT TREES, fine specimen ARAUCARIAS and DEODARS, and large TREES for Park Planting, now in fine condition for removal.
CATALOGUES, with sizes and prices, sent free on application to DICKSONS & Co., Nurserymen, Seedsmen, and Florists, 1, Waterloo Place, Edinburgh.

Strong Larch, Native Scotch, English Oak, Thorns, &c., ALL TRANSPLANTED.

GEORGE CHIVAS, Chester, solicits the attention of Planters to his very great Stock of LARCH, 2 to 4½ feet; NATIVE SCOTCH, 1½ to 3 feet (a portion of which was Transplanted last spring for the second time); ENGLISH OAK, 2 to 4 feet, and THORNS of great strength, with an extensive and general assortment of other Trees and Plants. The quality is unexceptionable, and the prices much in favour of the buyer.

TO BE SOLD CHEAP.
A large quantity of 1-year SEEDLING LARCH and SCOTCH FIR.
3-yr. Transplanted ELM. | 4-yr. Transplanted LARCH.
4-yr. Transplanted SCOTCH FIR. | 30 Bushels of HOLLY BERRIES.
5 cwt. LONG RED MANGEL WURZEL SEED.
5 cwt. YELLOW GLOBE MANGEL WURZEL SEED.
For samples, with prices, apply to
D. H. HIGGINS, The Nurseries, Clonmel, Ireland.
Put free on board at Waterford.

H. LANE AND SON having a SURPLUS STOCK of the following, beg to offer to the Trade:—
ARAUCARIA IMBRICATA, very fine, 2 feet to 14 feet
CUPRESSUS LAMBERTIANA, 2 feet to 5 feet
" LAWSONIANA, very fine, 2 feet to 6 feet
JUNIPERUS CANADENSIS, compact and good, 2 feet to 5 feet
" CRACOVIA, compact and good, 2 feet to 5 feet
" HIBERNICA, compact and good, 2 feet to 5 feet
" PENDULA, compact and good, 2 feet to 5 feet
" SWEDISH, compact and good, 2 feet to 5 feet
PICEA NOBILIS, 2 feet to 7 feet
" NORDMANNIANA, fine specimens, 1 foot to 6 feet
ABIES MORINDA, 4 feet to 12 feet
THUJA AUREA, 1 foot to 2 feet
" GIGANTEA, fine, 1 foot to 5 feet
" LOBBII, 1 foot to 5 feet
" OCCIDENTALIS VARIEGATA, 3 feet to 6 feet
" SIBERIAN, 2 feet to 6 feet
THUJOPSIS BOREALIS, bushy and fine, 2 feet to 6 feet
WELLINGTONIA GIGANTEA, 2 feet to 5 feet
" " fine, in baskets, 3 feet to 5 feet
WHITE CEDAR, good, 2 feet to 5 feet
YEW, GOLD STRIPED, bushy and fine, 1 foot to 3 feet
" IRISH, 3 feet to 8 feet
" SILVER STRIPED, bushy and handsome, 1 foot to 3 feet
" GOLDEN and SILVER, grafted upon Irish, 4 feet to 5 feet
ACACIA, COMMON, 6 feet to 12 feet
ALMOND, Single, Standards
BIRCH, COMMON, 8 feet to 12 feet
CHESTNUT, HORSE, 6 feet to 14 feet
HAWTHORNS, Standard, in variety
LAUREL, COMMON, bushy and fine, 2 feet to 5 feet
MAHONIA AQUIFOLIUM
POPLARS, of sorts, fine, 6 feet to 15 feet
IVY, IRISH
RHODODENDRONS, named varieties and Seedlings
PORTUGAL LAURELS, Standards
CHESTNUT, SPANISH, 4 feet to 7 feet
ELM, ENGLISH and HUNTINGDON, 8 feet to 15 feet
FIR, SCOTCH, 4 feet to 6 feet
" SPRUCE, 1 foot to 3 feet
" LARCH, 2 feet to 5 feet
HAZEL, 2 feet to 3 feet
HORNBEAM, 2 feet to 4 feet
APPLES, Dwarf-trained, Pyramids, and Standards, extra fine
" Pyramids, upon the Mahaleb stock, very fine
CHERRIES, Dwarf-trained, Pyramids, and Standards
" Pyramids, upon the Mahaleb stock, very fine
PEARS, Dwarf-trained, Pyramids, and Standards
PLUMS, Dwarf-trained, Pyramids, and Standards
ORCHARD-HOUSE TREES, in pots, viz.:—Apples, Cherries, Figs, Nectarines, Peaches, Pears, and Plums, extra fine, in a bearing state
FILBERTS, extra strong
PLUM STOCKS, PEAR STOCKS, and QUINCE STOCKS
MAIDEN APPLES, CHERRIES, PEARS, and PLUMS of the leading sorts
VINES, all the best kinds, strong
INDIAN AZALEAS, in variety, all sizes
ROSES, Standards and Dwarfs
TEA ROSES, MARÉCHAL NIEL, extra strong, in pots, worked and upon own roots
The following CATALOGUES may be had post free upon application, viz., Rose, Tree and Shrub, Fruit, and Azalea.
The Nurseries, Great Berkhamstead, Herts.

Fruit Trees.

WOOD AND INGRAM wish to call the attention of Planters and the Trade to their large stock of the following, which they are prepared to supply at very moderate rates, according to the quantity taken:—
APPLES, Standards, Half Standards, and Dwarfs.
APRICOTS, Dwarf Maiden, cut back, and trained.
CURRANTS, fine bushy plants, all the best kinds.
GOOSEBERRIES " "
GRAPE VINES, from Eyes, Planting and Fruiting Canes.
" Layers, well-rooted, Canes 1 inch round.
NUTS and FILBERTS, all sizes up to 4 to 5 feet.
PEACHES, Dwarf Maiden, cut back and trained.
PEARS, Standards, Dwarfs, and Pyramids.
PLUMS, Standards, Half Standards, and Dwarfs.
CATALOGUES and Prices on application.
The Nurseries, Huntingdon.

TO BE SOLD, in quantities to suit purchasers,
500 extra-sized Dwarf-trained PEAR TREES.
500 " " CHERRY TREES.
500 " " PLUM TREES.
500 " " APPLE TREES.
The above are all beautifully trained bearing Trees, and are offered at remarkably low prices.
Also Dwarf-trained PEACHES, NECTARINES, and APRICOTS, Standard and Pyramid PEAR, PLUM, and CHERRY TREES, &c.
JOHN CRANSTON, King's Acre Nurseries, near Hereford.

W. VIRGO AND SON having a large Stock of the following, can offer them at very low prices:—
FOREST TREES.
Alder, 3 to 5 feet, extra strong
Ash, 18 inches to 2 feet
Beech, 2 to 3 feet, very good
Berberis dulcis, 2 to 3 feet
" Aquifolium, 1 to 1½ foot
Chestnut, Horse, 2 to 4 feet, and 5 to 6 feet
" Spanish, 2 to 3 feet
Fir, Scotch, 1½ to 2 ft., extra fine
" Spruce, 3 to 4 feet, extra fine
" Larch, 2, 3, & 4 ft., extra fine
Hazel, 2½ to 3½ feet, extra fine
Holly, Green, 1½ to 2 feet, bushy
Laurel, Common, 2½ to 3 ft., bushy
" Portugal, 3 to 4 ft. ex. bushy
Privet, 2 to 3 feet, extra bushy
Strong CATTLE CABBAGE PLANTS.
Strong MANETTI STOCKS.
FRUIT TREES.
Apples, Standards and Dwarfs, very strong
Cherries, Dwarfs and Dwarf-trained, extra fine
Peaches, Dwarfs and Dwarf-trained, extra fine
Pears, Standards and Dwarfs, extra fine
Plums, Standards and Dwarfs, extra fine
Nectarines, Dwarfs and Dwarf-trained, extra fine
Kentish Filberts, 4 to 5 feet, extra fine
Crab Stocks, 2 years Seedlings
PRICED LIST or samples on application at
The Nursery, Wonersh, near Guildford, Surrey.

To the Trade—Contractors and Builders.

ONE HUNDRED THOUSAND COMMON LAURELS, fine bushy plants, from 3 to 7 feet high; good for Blinds, particularly for newly laid-out Grounds and Buildings. These Laurels are very fine, and have not suffered from the frost.
Also 5,000,000 of Two-year SEEDLING ASH and CHESTNUTS, ROSES, and other varieties of Shrubs.
ABEL FAIRALL, Stanhope Nursery, Westerham Hill, Kent.

L. T. DAVIS offers the following, prices of which can be had on application:—
2-yr. Bedded HIGHLAND SCOTCH FIR, very fine.
DOUBLE WHITE and DOUBLE LILAC PRIMROSES (hardy).
HEPATICAS, in 4 sorts.
WANTED, DOUBLE YELLOW PRIMROSES and SINGLE WHITE HEPATICAS.
Ogle's Grove Nursery, Hillsborough, Co. Down.

To Nurserymen.

SEEDLINGS.—1 and 2-yr. Larch, 2-yr. Scotch Fir, 2-yr. Hazel, 2-yr. Plane, 2-yr. Holly, &c.
TRANSPLANTED.—Larch, all sizes; Norway Spruce, 9 to 15 in.; Silver Fir, 9 to 15 inches and 15 to 24 inches; Irish Junipers, all sizes; Irish Yews, of sizes; Cedrus atlantica, Thuja Wareana, &c.
ROYAL ASH-LEAF KIDNEY POTATOS.
Above all of excellent quality, and will be quoted cheap.
W. P. LAIRD & SINCLAIR, Nurserymen, Dundee, N.B.

EVERGREENS, for immediate effect, perfectly uninjured by the late severe weather, consisting of 50,000 LAURELS, 2 to 5 feet; 20,000 LAURUSTINUS, 1 to 3 feet; 10,000 BAYS, 1 to 5 feet; 10,000 TREE BOX, 1 to 3 feet; and several Thousands of EVERGREEN OAK; also a fine lot of SPRUCE FIR, 3 to 5 feet. The whole of the above in fine stout, good-rooted plants.
Purchasers of large quantities for Cash will be most liberally treated with. Price, with samples, may be had on application to
R. GADD & SON, Salvington Nurseries, near Worthing.

CHARLES CLARKE, Windmill Hill Nursery, Gravesend, Kent, can supply, on cheap terms, Large EVERGREENS, as Laurels, Box, Arbutus, Yews, Hollies, Phillyreas, Portugal Laurels, Aucubas, Ivies, &c., all very handsome, and move well. Also Ornamental specimen Forest Trees, Scarlet Chestnuts, &c.; Gooseberries and Currants, best sorts; large Quick, Standard Apples, Pears, and Plums; Dwarf-trained trees, all sorts, very fine; large Asparagus for Forcing, Box Edging, &c. Evergreens uninjured by the frost. Parties treated liberally with, taking a quantity in variety.

Guaranteed of the Finest Quality.

CHARLES NOBLE offers the following HALF-MILLION PLANTS to the notice of purchasers. They must be cleared by April to make room for other stocks. Prices, on application, will be found lower than ever before offered for the same quality.
200,000 1-yr. SPANISH CHESTNUTS, fine.
20,000 1-yr. TURKEY OAKS, fine.
150,000 1-yr. THORNS, fine.
5,000 2-yr. BERBERIS JAPONICA.
50,000 MANETTI STOCKS, very fine.
20,000 DEUTZIA CRENATA FLORE PLENO.
15,000 ERICA HERBACEA.
10,000 SPRUCE FIRS, 1½ to 3 feet.
3,000 ARUNDO CONSPICUA.
3,000 PICEA NORDMANNIANA, 1½ to 3 feet.
10,000 RHODODENDRON PONTICUM, 15 to 20 inches, and as far through.
20,000 finest named RHODODENDRONS.
10,000 HYBRID PERPETUAL ROSES, the finest kinds known, and supposed to be the finest plants in the trade.
1,500 DWARF MAIDEN PEACHES and NECTARINES, particularly fine and well-grown.
500 GRAPE VINES, Hamburgh and other kinds, from Eyes, ripe, close-jointed wood; very fine indeed.
Special quotations for large quantities.
TRADE and RETAIL CATALOGUES free on application.
Bagshot, February 16.

Forest Trees and Cover.

JOSEPH SMITH, JUN., has to offer at very moderate prices TRANSPLANTED ASH, ALDER, BIRCH, HORSE CHESTNUT, ELM, broad and narrow-leaved; SILVER and SCOTCH FIRS, WHITE AMERICAN SPRUCE, HAZEL, OAK, POPLAR, PRIVET, WEYMOUTH and AUSTRIAN PINES, THORN QUICKS, HUNTINGDON and DUTCH WILLOWS, LARCH, good stout plants, 1½ to 2 feet, 12s.; 2 to 2½ feet, 13s.; 2 to 3feet, 14s.; and 3 to 4 feet, 16s. per 1000. NORWAY SPRUCE FIR 6 to 9 inches, 6s.; 9 to 12 inches, 9s.; 1 to 1½ feet, 14s.; 1½ to 2 feet, 21s.; and 2 to 2½ feet, 30s. per 1000. COTONEASTER MICROPHYLLA, 1 to 1½ feet, 20s. per 1000; 1½ to 2 feet. RIBES in sorts 2to 3 ft., 20s. per1000. SNOWBERRY, 2to 3 ft., 20s. per1000. BROOM White and Yellow,transplanted,18s. per1000. LAURELS, BERBERIS, ARBOR-VITÆ, &c., Seedling ASH, CRAB, SPANISH CHESTNUT, SPRUCE, 3 and 4 years; ELM, 2 years, £5 per 100,000. OAKS, 1 and 2 years; OAK, EVERGREEN, 1 year; PRIVET, 1 and 2 years; SYCAMORE. RHODODENDRON PONTICUM, 2 years, 6s.; 4 years, 8s. per 1000; 3 years, and 1 year transplanted, 18s.; 3 years, and 2 years transplanted, 25s.; 6 to 9 inches, 50s.; and 9 to 12 inches, 60s. per 1000. Twice-transplanted, and bushy, 4 to 8 inches, 70s.; 8 to 12 inches, 95s.; 9 to 15 inches, 140s.; 1 to 1½ feet, 180s.; and 1½ to 2 feet, 260s. per 1000..
A PRICED LIST forwarded on application. Price to the Trade on application.
JOSEPH SMITH, Jun., Moor Edge Nursery, Tansley, near Matlock, Derbyshire.

Planting.

WM. PAUL begs to refer intending Planters of ROSES, FRUIT TREES, SHRUBS, &c., to his Advertisement of December 1, 1866.
PRICED DESCRIPTIVE CATALOGUES on application.
PAUL's Nurseries, Waltham Cross, N.

To the Trade.

STRONG 2-yr. SEEDLING OAK, and fine 2-yr. SEEDLING SCOTCH FIR, also TRANSPLANTED LARCH, at very moderate prices.
EDWARD SANG & SONS, Nurserymen, Kirkcaldy.

OBSERVE.—LAURELS, LAURELS, LAURELS, the finest Lot of Plants in England, not cut with the frost, are now being sent to all parts of the country in any quantity, to the Trade or otherwise, from 3 to 7 and 8 feet, fine bushy plants. Can be seen any time, and be delivered to the Railway Stations at Bromley, Croydon, and Edenbridge, to go to all parts Particulars apply to
ABEL FAIRALL, Nurseryman, Westerham Hill, Kent.

Tansley Nurseries, near Matlock, Derbyshire.

JOSEPH SMITH, SEN., invites Planters and the Trade to inspect his Nursery of 80 Acres of high land. The soil is of a fibrous nature, and the Plants take up with excellent roots, such as to ensure the best success in their removal.
The Nursery contains many Hundred Thousands of RHODODENDRONS, COMMON and PORTUGAL LAURELS, BOX, BROOMS, BERBERIS, HOLLIES, PRIVETS, YEWS, &c. The FOREST TREES are very extensive, of all the leading kinds; there are 15 Acres of LARCHES, of different sizes, and all others in proportion. Prices moderate, which can be had on application as above.

SAMUEL FINNEY AND CO. have a surplus stock of the following, which they can offer to the Trade at very low prices:—
ASH, Transplanted, from 3 to 5 feet
ELM, WYCH, Transplanted, from 2 to 3 feet and 3 to 4 feet
FIR, SCOTCH, Transplanted, from 15 to 24 inches
HOLLY, COMMON GREEN, Transplanted, from 1 to 1½ foot and
OAKS, ENGLISH, Transplanted, from 2 to 2½ feet [1½ to 2 feet
PINUS AUSTRIACA, Transplanted, from 1 foot and 1½ foot
LARCH, 1-yr. Seedling, fine
Prices on application at
The Nurseries, Gateshead, Newcastle-on-Tyne.

GREAT REDUCTION in PRICE of NURSERY STOCK.
LARCH, Transplanted, fine, 3 to 4 feet, 8s. per 1000.
SPRUCE, ditto, 1 to 1½ foot, 9s. per 1000.
LAUREL BAYS, ditto, 1½ foot, 40s. per 1000.
SCOTCH FIR, Native, 2-yr. Seedlings, fine, 180s. per 100,000.
LARCH, ditto ditto, 1-yr. Seedlings, &c., 90s. per 100,000.
Samples sent. Terms, Cash.
JOSEPH ROBSON & SON, Bank Foot Nurseries, Hexham, Northumberland.

300,000 Hazel, Transplanted.

J. SCOTT, Merriott, Somerset, has the above to offer, in fine condition, 2 to 2½ ft., 25s.; 2½ to 3 ft., 27s. 6d.; 3 to 3½ ft., 30s.; 3½ to 4 ft., 35s.; 4 to 5 ft., 40s. per 1000.
FOREST TREES, twice and thrice Transplanted, in all sizes. Catalogues gratis.
CEDRUS DEODARA, 3 to 4 ft., 4 to 5 ft., 5 to 6 ft., and 6 to 7 ft., from 30s. to 60s per dozen.
GREEN HOLLIES, 20,000 well-rooted, from 2 to 3 ft., and from 30s. to 40s. per 100.
FRUIT TREES, in 2000 sorts, and in all manner of training. The most complete collection in England.
A 92-page CATALOGUE, with large Supplement full of Fruit Tree information.

FOREST TREES.

400,000 ALDER, 1½ to 2, 2 to 3, and 4 to 5 feet.
100,000 ELM, WYCH, 1½ to 2, and 2 to 3 feet.
100,000 HAZEL, 1½ to 2, and 2 to 3 feet.
50,000 OAK, E., 1½ to 2, 2 to 3, and 4 to 5 feet.
100 000 PRIVET, Evergreen, 1½ to 2, and 2 to 3 feet.
100,000 SYCAMORE, 1½ to 2, 2 to 3, and 3 to 4 feet.
1,000,000 LARCH, fine, 2 to 3, 3 to 4, and 4 to 5 feet.
100,000 DO., extra fine, moved last season, 2 to 3, and 3 to 4 feet,
200,000 SPRUCE FIR, 1 to 1½, 1½ to 2, and 2 to 2½ feet.
20,000 WILLOW, Huntingdon, 2 to 3, and 3 to 4 feet.
20,000 POPLAR, B. Italian, 1½ to 2, and 2 to 3 feet.
50,000 ASH, 1½ to 2, 2 to 3, and 3 to 4 feet.

The above will be offered at such prices as will induce to order, all being of excellent quality. Apply for terms to
H. & R. STIRZAKER, Skerton Nurseries, Lancaster.

Huntingdon Nurseries.

WOOD AND INGRAM offer the following at extremely moderate rates, according to the quantity taken:—
ASH, 2-yr. Seedling, and in Drills, 1½ to 2 feet
BLACKTHORN, 1-yr., fine
CHESTNUT, HORSE, 1-yr., and 6 to 8 feet, transplanted
ELMS, NARROW-LEAVED ENGLISH, 2 and 3-yr. Seedling and transplanted, 1½ to 2 feet
FIR, SPRUCE, 1 to 1½, 1½ to 2, 2 to 3, and 3 to 4 feet
FIR, WHITE and BLACK AMERICAN, 2 to 3, 3 to 4, 4 to 5, and 5 to 6 feet
FIR, BALM of GILEAD, 1½ to 2, and 2 to 3 feet
FIR, WEYMOUTH PINE, 2 to 2½, 4 to 5, and 5 to 6 feet
HAZEL, 1½ to 2, and 2 to 2½ feet
GORSE, 1-yr. Seedling
HOLLY, 3-yr. bedded, transplanted, 6 to 9 inches, 9 to 12 inches, 1 to 1½, 1½ to 2, and 2 to 2½ feet
HOLLY, VARIEGATED, 6 to 9, and 9 to 12 inches
MAPLE, COMMON, 1½ to 2 and 2 to 2½ feet
MAPLE, COMMON, 1-yr. Seedling, extra fine
JUNIPERS, 2½ to 3, 3 to 3½, 3½ to 4, & 4 to 5 ft.; extra fine, and bushy
OAKS, 2-yr. Seedling, and drills, 2 to 3 and 3 to 4 feet
OAKS, TURKEY, 2-yr. Seedling, fine
POPLAR, BLACK ITALIAN, 2 to 3, 3 to 4, 5 to 6, 6 to 7, & 8 to 10 ft.
POPLAR, ONTARIO or AMERICAN, 2 to 3 and 12 to 16 feet
WHITE THORN QUICK, 3-yr. Seedling
ARBORVITÆ, AMERICAN, 1½ to 3½ feet
ARBORVITÆ LOBBII, extra fine specimens, 3 to 7 feet
ARBORVITÆ, SIBERIAN, 1 to 1½, 1½ to 2, 2 to 2½, and 3 feet
AUCUBA JAPONICA, extra fine hardy specimens, 1 to 1½, 1½ to 2, 2 to 2½ and 3 feet
BEECH, PURPLE and COPPER, 5 to 6, and 6 to 8 feet
BERBERIS DULCIS, 1 to 2, and 3 to 4 feet
BERBERIS AQUIFOLIUM, 1 to 1½, 1½ to 2, and 2 to 2½ feet
CUPRESSUS LAWSONIANA, very fine, 3 to 4, and 4 to 5 feet
CUPRESSUS MACROCARPA, potted, 2 to 3, and 3 to 4 feet
LAUREL, COMMON, 1 to 1½ and 2 feet
LAUREL, PORTUGAL, very fine, 1 to 4 feet
PLANE, ORIENTAL, 2 to 3, 4, and 5 feet; extra, 9 to 10 feet
PLANE, OCCIDENTAL, 3 to 4, 5 to 6, 6 to 7, and 8 to 9 feet
YUCCA RECURVA, fine specimens, 1½ to 2½ feet
ROBINIA INERMIS, fine Standards, 6 to 7 feet stems
WILLOW, WEEPING, 6 to 7 feet, and fine Standards.
N.B. CATALOGUES sent free on application.

Prize Medal Seeds.

COLLECTIONS of VEGETABLE SEEDS for ONE YEAR'S SUPPLY, at Moderate Prices. Nos. 1, 2, 3, and 4, Carriage Free. For particulars and quantities contained in each, see large Advertisement in the *Gardeners' Chronicle* of February 9th, or PRICED DESCRIPTIVE CATALOGUE, which will be sent free by post on application.

No.									
1.	For One Year's supply	..	..	..	..	..	..	£3	3 0
2.	,, proportionately reduced	..	..	..	..	..	..	2	2 0
3.	,,	,,	,,	..	..	..	..	1	11 6
4.	,,	,,	,,	..	..	..	..	1	1 0
5.	,,	,,	,,	..	..	..	..	0	15 0
6.	,,	,,	,,	..	..	..	..	0	10 6

"TOBACCO PAPER," per lb. 9d.
TOBACCO CORD, extra strong, per lb. 1s. 6d.
TOBACCO JUICE, per Gallon, 2s. 9d.
TOBACCO WATER, per Gallon, 1s.
HENRY BROWN, Nurseryman and Seedsman, 4, Commutation Row, Liverpool.

Sutton's Early Racehorse Potato.

MESSRS. SUTTON regret exceedingly that they cannot execute any more Orders for this very early Potato, the demand having proved far greater than the supply. A few sacks are reserved for planting to ensure a stock for the execution of all orders received in good time next season.
Royal Berkshire Seed Establishment, Reading.

THE "COLDSTREAM EARLY" POTATO, which received a First-class Certificate at the International Horticultural Exhibition at South Kensington, is the Earliest and Best round Potato in cultivation. See Large Advertisement. 5s. per peck, 18s. per bushel. Trade price on application.
Apply to HOGG & WOOD, Coldstream, N.B.

Seed Potatos.

H. AND F. SHARPE are now offering MYATT'S PROLIFIC KIDNEY, DAINTREE'S EARLIEST, WEBB'S IMPERIAL KIDNEY, FORTY-FOLD, FOX'S SEEDLING, EARLY OXFORD, and many other Early and Late varieties, fine in quality, free from disease, and at low prices.
Seed Growing Establishment, Wisbech, Cambridgeshire.

Seed Potatos.

GEO. SIBBALD, Drumgeith, by Dundee, N.B., has for Sale about 100 Tons of the following kinds, of his own growing. Prices on application:—EARLY DALMAHOY, DAINTREE'S EARLY, CHISWICK CLUSTER, EARLY OXFORD, EARLY RED EYES, WALKER'S REGENT, ENGLISH EMPEROR, FLUKE KIDNEY, MYATT'S PROLIFIC, and PATERSON'S EARLY RED KIDNEY.

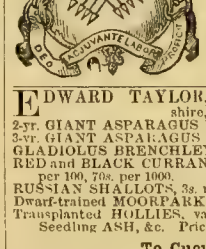


WHEELER'S
GLOUCESTERSHIRE KIDNEY
Is one of the very Earliest, most Productive, and best flavoured Potatos in cultivation.
Price 3s. per peck, 10s. 6d. per bushel.
J. C. WHEELER & SON,
Seed Growers, Gloucester.

Seed Potatos.—Edgcote Second Early Kidney.

P. J. PERRY, NURSERYMAN and SEED MERCHANT, Banbury, has much pleasure in introducing the above valuable Potato, which may be described as the finest flavoured and most productive Second Early variety in cultivation.
It was raised by Mr. Neale, Gardener to Aubrey Cartwright, Esq., Edgcote House, near Banbury, by whom it was exhibited at the Royal Horticultural Society's Great Show of Fruit and Vegetables, Saturday, July 22, 1865, and was awarded First Prize in Class 7.
The *Gardeners' Chronicle*, July 29, 1865, in noticing the above Show, states:—"POTATOS: These were largely contributed, and many of them were unusually fine for the season of the year. Among Kidneys the most valuable was Edgcote Second Early, a very perfect Potato, which obtained the First Prize for a single dish."
Price per peck, including bag, 6s.
P. J. PERRY has also a limited stock of the following valuable varieties to offer:—
NE PLUS ULTRA.—The earliest Potato in cultivation.
ROYAL ALBERT.—One of the finest and most productive Early White Round Potatos known.
EARLY EMPEROR, or SOMERSET RED.—Of this Potato, Mr. Dean, of Maybush, writes, in *Gardeners' Chronicle*, October 6, 1866, p. 945:—"This may be described as one of the best Second Early Round Potatos known. It has a beautifully netted skin, boils perfectly white, and the flavour is all that can be desired," &c.
Price of the above three sorts, 5s per peck.
The Nurseries, Banbury.

THREE-YEAR ASPARAGUS PLANTS, 15s. per 1000, 2s. per 100; fine double Hollyhocks, a splendid strain, 30s. per 100; Box Edging, 3s. per doz. yards; Box Trees, 18 or 24 in., 16s. per 100; Kohl Rabi Seed, green, 1s. per lb; White Spanish Onion Seed, 1s. 8d. per lb. Terms cash. All genuine.
R. W. can supply any Orders for Seeds at lowest possible prices.
RICHARD WALKER, Market Gardener and Seed Grower, Biggleswade, Beds.



ASPARAGUS PLANTS.
Strong 3-yr. ASPARAGUS PLANTS, 15s. per 1000.
Small quantities, 2s. per 100.
F. G. GODWIN,
3 and 4, Norfolk Market Hall, Sheffield.

EDWARD TAYLOR, NURSERYMAN, Malton, Yorkshire, offers as under:—
2-yr. GIANT ASPARAGUS ROOTS, 1s. 3d. per 100, 10s. per 1000.
3-yr. GIANT ASPARAGUS ROOTS, 2s. per 100, 15s. per 1000.
GLADIOLUS BRENCHLEYENSIS, 10s. per 100, 84s. per 1000.
RED and BLACK CURRANTS, in varieties, fine strong plants, 8s per 100, 70s. per 1000.
RUSSIAN SHALLOTS, 3s. per stone of 14 lb.
Dwarf-trained MOORPARK APRICOTS, 18s. per dozen, £7 per 100.
Transplanted HOLLIES, various sizes; CRAB STOCKS; 2-yrs. Seedling ASH, &c. Prices on application.

To Cucumber Growers.

G. WALKLING, SEEDSMAN, FLORIST, and CUCUMBER GROWER, begs to offer CUCUMBER SEED of two first-class sorts at 1s. 6d. and 2s. 6d. per packet. WALKLING'S PROLIFIC, and WALKLING'S SOLID GREEN. Likewise Plants of the two kinds, in large or small quantities.
North Row, Lewisham, S.E.

Cucumber, Telegraph

ROLLISSON'S VARIETY has been proved the best Cucumber in cultivation for Winter or Spring use, especially for growing in houses; an immense cropper, producing six at a joint, length 18 to 26 inches. In sealed packets, 2s. 6d. each. See merits of "Winter Cucumbers," in *Gardeners' Chronicle* for Jan. 12, 1867.
WILLIAM ROLLISSON & SONS, The Nurseries, Tooting, London, S.

SPLENDID FRAME CUCUMBERS.
COOLING'S DERBYSHIRE HERO.—One of the handsomest and best in cultivation. It grows from 20 to 30 inches in length, very straight, and is covered with a beautiful bloom. In flavour it is unsurpassed, and is remarkably free and prolific. 1s. 6d. per pkt.
COOLING'S FEARNOUGHT.—Colour bright green, smooth and well formed, perhaps the longest Cucumber grown, many of the fruit cut last summer measured 30 to 34 inches in length. 1s. 6d. per packet.
COOLING'S PROLIFIC.—This is the most abundant cropper in cultivation, often producing from three to six fine fruits at a joint; length 18 to 24 inches, flavour crisp and good. A very hardy, free, and thoroughly useful kind. 1s. per packet.

INTERNATIONAL PRIZE CALCEOLARIA. 2s. 6d. per packet.
COCKSCOMB (COOLING'S).—Dwarf crimson; the finest in cultivation. 1s. per packet.
PRIMULA SINENSIS FIMBRIATA.—Extra fine strain. 2s. 6d. per packet.
CINERARIAS from named Flowers, 2s. 6d. per packet.
All free by post.
N.B.—The Trade supplied by Messrs. Hurst & Son, London, who are the only Wholesale Agents.
EDWIN COOLING, Seed Merchant, Derby

SCOTT'S NEW VEGETABLE and FLOWER SEEDS.

COLLECTIONS of VEGETABLE SEEDS, carriage paid.

No. 1. Complete	..	£3	0	0	No. 3. Complete	..	£1 0 0
No. 2. ,,	..	2	0	0	No. 4. ,,	..	0 15 0
No. 5. Complete, 10s. 6d.							

COLLECTIONS of CHOICE FLOWER SEEDS, free by post or rail.

No. 1. Complete	..	£2	0	0	No. 4. Complete	..	£0 10 6
No. 2. ,,	..	1	1	0	No. 5. ,,	..	0 7 6
No. 3. ,,	..	0	15	0	No. 6. ,,	..	0 5 0
No. 7. Complete, 2s. 6d.							

HARDY ANNUAL FLOWER SEEDS.

No. 8. 12 Varieties	..	£0	1	6	No. 11. 50 Varieties	..	£0 5 0
No. 9. 24 ,,	..	0	2	6	No. 12. 75 ,,	..	0 7 6
No. 10. 36 ,,	..	0	3	6	No. 13. 100 ,,	..	0 10 6

Collections of Half-hardy Annuals, &c., at equally low prices, see Catalogue free on application to
J. SCOTT, The Seed Stores, Yeovil, Somerset.

Garden Seeds.

CHARLES TURNER'S CATALOGUE is now ready, and may be had on application.
The Best three WRINKLED MARROW PEAS are—
LITTLE GEM, Early, 1 foot high.
ADVANCER, Second Crop.
PREMIER, Summer and Late.
See full descriptions in C. TURNER'S CATALOGUE, now ready.

SNOW'S BROCCOLI, True.
HEDSOR WINTER CUCUMBER.
BAILEY'S SUPERB CABBAGE.
All the established varieties of Vegetables from the best sources also the Novelties in Flower Seeds.
The Royal Nurseries, Slough.

TURNER'S COTTAGERS' KALE.
TURNER'S INCOMPARABLE WHITE CELERY.
TURNER'S SCARLET GEM MELON.
FROGMORE PROTECTING BROCCOLI.
(In Shilling Packets.)
The above have proved to be the best of their respective classes. Seed of the true Stock may be had of
CHARLES TURNER, The Royal Nurseries, Slough.

IVERY'S NONSUCH LETTUCE, the best Summer Variety in cultivation; will stand a month longer than any other kind without running to seed; 1s. per packet, sealed with initials W. I.
Also IVERY'S NONSUCH CELERY, acknowledged to be the finest flavour known, 6d. per packet.
Price to the Trade on application.
A DESCRIPTIVE CATALOGUE of CHOICE SEEDS may be had post free.
WILLIAM IVERY, Hanover Nursery, Peckham, S.E.

HENRY'S PRIZE HYBRID LEEK.—The Largest variety in cultivation; grows 16 inches in length of blanch, and 10½ inches in circumference. Has carried off the First Prizes at the leading Shows in England and Scotland.
Sold in Sealed Packets at 1s. each by
DOWNIE, LAIRD, & LAING, 17, Frederick Street, Edinburgh; and Stanstead Park, Forest Hill, London, S.E.

Nuneham Park Onion.

WM. CUTBUSH AND SON have great gratification in announcing that this SUPERB NEW ONION has in every instance, where shown, obtained the first prizes, and numerous testimonials have been sent to them from various parts of the country, confirming the opinion that it is the largest and heaviest cropper of all Onions. It is also of exceedingly mild flavour, and keeps as long as any variety extant. In Sealed Packets 2s. 6d. each.
*** Owing to the great demand, no more can be supplied to the Trade this season.
Highgate Nurseries, London, N.

To Market Gardeners and Others.

CABBAGE PLANTS.—EAST HAM, ROBINSON'S DRUMHEAD, 2s. per 1000; RED CABBAGE PLANTS, extra fine, 4s. per 1000. Stock true and can be warranted, and all grown by
RICHARD WALKER, Market Gardener and Seed Grower, Biggleswade, Beds. I will challenge England with Plants. Terms cash.

To Farmers, Gardeners, and Others.

EXCELLENT CABBAGE PLANTS (Stocks not to be surpassed), may be had in any quantities as follows:—
ENFIELD MARKET (cash price), 2s. 6d per 1000
THOUSAND-HEADED (cash price), 3s. per 1000
ROBINSON'S CHAMPION, true (cash price), 2s. 6d. per 1000
DRUMHEAD (cash price), 2s. 6d. per 1000
RED DUTCH, for Pickling (cash price), 5s. per 1000
(Special offers made to large purchasers).
A CATALOGUE of GENUINE NEW SEEDS, on application. A remittance or reference is requested from unknown correspondents.
FREDK. GEE, Seed Merchant and Grower, Biggleswade, Bedfordshire

ARTHUR HENDERSON AND CO. beg to announce that their CATALOGUE of KITCHEN GARDEN and FLOWER SEEDS for 1867 is now ready, and will be forwarded free on application.

NEW MELONS.
ERIDGE CASTLE PERFECTION.—This is a green-fleshed variety, of excellent flavour, thin skin, medium size, with a delicious melting sugary flesh. One of the best sorts ever raised. 2s. 6d. per packet.
THE GUILDHALL PRIZE.—Scarlet flesh, a very quick grower and a great cropper, weight 3 to 5 lb. Early, excellent shape, richer and superior in flavour to Turner's Gem. Skin very thin. A seedling between the Scarlet Gem and Egyptian green-fleshed. 2s. 6d. per packet.
HENDERSON'S COMPACT-TOPPED PINE-APPLE BEET.—True (our own saving).
Pine-apple Place, Edgeware Road London, N.

ROBINSON'S CHAMPION DRUMHEAD OX CABBAGE SEED.
The following Seed-men are the purchasers from Mr. S. ROBINSON of this fine Stock of Ox Cabbage Seed, the growth of 1866.
London:—T. Gibbs & Co., Half Moon Street, Piccadilly.
,, G. Gibbs & Co., Down Street, Piccadilly.
,, Beck, Henderson & Child, Upper Thames Street.
,, Cooper & Bolton, Fleet Street.
,, Lawson & Son, King Street, Cheapside.
Chester:—James Dickson & Sons, Eastgate Street.
Nottingham:—Hutchinson & Armitage.
Newark:—Caparn, Kirk-gate.
Birmingham:—Thompson, High Street.
,, Proctor & Ryland.
Reading:—Sutton & Sons.
Aberdeen:—W. Smith & Son.
Three to Four cwt. of this Seed left, price to the Trade £7 per cwt. Mr. ROBINSON has also a fine Stock of LARCH to Dispose of, 2½ to 5 feet. Price 12s. 6d. to £1 per 1000, according to size.
Three years Bedding and Transplanted QUICK, from 5s. 6d. to 7s. 6d. per 1000.
Bushy SPRUCE, for cover planting, 18 in. to 3 feet.
Fine HOLLIES, for ornamental planting, 2 to 5 feet.
Show House, Melbourne, Derby.



Croquet Grounds.

For the Improvement of Croquet Grounds and Lawns,
J. C. WHEELER AND SON, SEED GROWERS, Gloucester, can recommend a Mixture of the finest LAWN GRASS SEEDS, which should now be sown at the rate of about 10 lb. per acre, with a top-dressing of soot, guano, or superphosphate. The Lawn or Croquet Ground should then be thoroughly well rolled.
The price of the Seed is 1s. 3d. per lb.
J. C. WHEELER & SON,
Seed Growers, Gloucester.

GLADIOLI. — Collections containing all the finest varieties in cultivation, many new, and offered for the first time, 105s., 63s., 42s., 30s., 25s., 20s., 15s., 12s. BRENCHLEYENSIS, the most showy of all, extra strong roots, 3s. per doz., 20s. per 100.
DESCRIPTIVE PRICED LISTS free on application.
BUTLER, McCULLOCH & Co., South Row, Covent Garden, W.C.

Early Spring Flowers.

WEBB'S GIANT POLYANTHUS and COWSLIP, with all the best varieties of Double and Single PRIMROSES, PANSIES, &c., with Seeds of single varieties. LIST of prices of different kinds on application to
Mr. WEBB, Calcot Gardens, Reading.

To the Trade.

CALCEOLARIAS. — AUREA FLORIBUNDA, PRINCE of ORANGE, and KAYI, well rooted, ready for potting, 35s. per 1000.
THOMAS S. WARE, Hale Farm Nursery, Tottenham, Middlesex, N.

CALCEOLARIA, Herbaceous, of choicest strains, established plants in small pots, 20s. per 100. Also stronger plants in 4-inch pots, 30s. per 100.
MONOCHÆTUM SERICEUM MULTIFLORUM, blooming plants, 9s. per doz.
MONOCHÆTUM ENSIFERUM, 6s. to 9s. per doz.
H. & R. STIRZAKER, Skerton Nurseries, Lancaster.

Carnations and Picotees.

GEORGE EDWARDS is now offering his surplus stock of the above, with which he gained the 1st Prizes at all the leading Shows last year.
12 Varieties of CARNATIONS, 18s. | 12 Varieties of PICOTEES, 18s.
A remittance is respectfully solicited from unknown Correspondents.
Clarence Nurseries, York.

FRENCH ASTERS. — Truffaut's Reine Marguerite, direct from the Continent, the most beautiful Aster grown, 500 Seeds, 1s. Truffaut's Dwarf Pæony-flowering, mixed, colours 500 seeds, 1s. Crown Globe Aster, new, purple and crimson, with white centres, 500 seeds, 1s. Also Dwarf Ten-week Stocks, extra double, 18 colours, mixed, 500 seeds. 6d. All genuine imported seeds. Free by post. Mr. HAMMOND, Bedwin Street, Salisbury.

British Fern Catalogue.

ROBERT SIM can now send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his NEW and PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.
Foot's Cray Nursery, S.E., a mile from Sidcup Station of New North Kent Line of South Eastern Railway.

To the Seed Trade.—Continental Flower Seeds, &c.

F. W. WENDEL, SEED GROWER, &c., Erfurt, Prussia, begs to announce that his WHOLESALE CATALOGUE of the above is now ready, and may be had free and post paid on application to his Agent,
GEO. MACINTOSH, Seedsman, &c., High Road, Hammersmith, W.

PAUL AND SON'S SEED CATALOGUE will be sent with pleasure to any applicant. It contains, with usual matter, Descriptive Priced Lists of carefully selected Novelties in Seeds; Seeds of Ornamental Foliaged Plants for Subtropical Flower Gardening; Gladioli, with original Notes on their Culture.
The Old Cheshunt Nurseries and Seedshop, Cheshunt, N.

POST PAID.

Viola cornuta, var. Purple Queen,

1s. and 2s. 6d. per Packet.

B. S. WILLIAMS has purchased Mr. Bennett's entire Stock of the above. None genuine unless in Packets bearing B. S. W.'s name and address.
VIOLA CORNUTA, var. MAUVE QUEEN, 6d., 1s., and 2s. 6d. per Packet.
B. S. WILLIAMS, Victoria and Paradise Nurseries, Upper Holloway, N.

VIOLA CORNUTA (True), the quickest and best way of getting into a large and true Stock.—One Hundred Plants of Mr. Bennett's variety of the above beautiful and hardy Bedding Plant sent on receipt of Post office Order for 12s. 6d., package included. The plants are nice and tufty. By separating them now, and by Cuttings, the above quantity could be made into thousands.
Apply to STUART & MEIN, Nurserymen and Seedsmen, Kelso, N. B.

American Plants, &c.

WATERER AND GODFREY'S PRICED and DESCRIPTIVE CATALOGUE of RHODODENDRONS and other American Plants for this Autumn, will be sent on application. The Catalogue also gives a summary of their General Nursery Stock, probably the most extensive in the kingdom.
Knap Hill Nursery, Woking, Surrey.

Rhododendrons.

JOHN WATERER'S DESCRIPTIVE CATALOGUE of HARDY SCARLET and other RHODODENDRONS is now published, and will be forwarded on application. It faithfully describes the colours of the new varieties exhibited by him at the Royal Botanic Gardens, Regent's Park. An Abridged List of popular CONIFERS, with heights and prices, is likewise combined.
The American Nursery, Bagshot, Surrey, near Sunningdale Station, South-Western Railway.

Hardy Scarlet and other Rhododendrons.

W. H. ROGERS, Red Lodge Nursery, Southampton, can offer splendid named varieties of the above, strong bushy Plants, well set with blooming buds, at £10 per 100, or selected, 30s. per dozen; also a general NURSERY STOCK of FRUIT, FOREST, and ORNAMENTAL TREES and SHRUBS, extending over 60 Acres. Detailed CATALOGUES and every information may be had on application.

High Beech, Essex.

CHOICE RHODODENDRONS AND AZALEAS, HARDY.

JAMES CRAWFORD has many fine Plants to dispose of, some of them in full Bloom; one has 30 Bunches now open, and was in Flower at Christmas. He is also gay with other Flowers, such as HYACINTHS, DEUTZIAS, HEATHS, EPACRIS, POLYGALAS, AZALEA INDICA, TROPÆOLUMS, PRIMULAS, CROCUS, &c. He most respectfully solicits inspection.

PYRAMID APPLES, PEARS, PLUMS, CHERRIES.
Beautiful Trees for Garden or Orchard Houses.
RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

Dwarf-trained Trees by the 1000, 100, or dozen.

APPLES, PEARS, PLUMS, CHERRIES, PEACHES, and NECTARINES. Fine, flat, well-trained, of best quality and true to name.
RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

Fifty Acres of Fruit Trees,

APPLES, PEARS, PLUMS, CHERRIES, PEACHES, NECTARINES, and APRICOTS in every form desired for Fruiting.
RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

Orchard-house Trees Fruiting in Pots.

PEACHES, NECTARINES, APRICOTS, CHERRIES, PLUMS, PEARS, APPLES, VINES, and FIGS.
RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

FRUIT TREES, for Walls and Espaliers.—Upwards of 60,000 to select from, carefully trained, and in the healthiest condition for planting.
RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

CHERRY TREES, in 60 sorts.
FINE DWARF-TRAINED, 5 to 10 branches, 4 to 5 ft. long, 2s. each.
FINE PYRAMIDS, full of flower buds, 5 to 6 ft. high, 2s. each.
FINE STANDARDS, 5 feet stems, young and healthy, 1s. 6d. each.
Upwards of 2000 MAYDUKES and MORELLOS, cheap to the Trade.
92-page CATALOGUE on application to
J. SCOTT, Merriott, Somerset.

Orchard-house Trees, in Large Pots.

FOR SALE, the property of a Gentleman, 32 TREES, grown by Mr. Rivers, consisting of PEACHES, NECTARINES, CHERRIES, &c. Price £8 the lot. Apply to
Mr. LAWRENCE, Head Gardener, Hunsdon Bury, near Ware.

Arborvitæs, Aucubas, Box, Yews, &c.

THOMAS WARNER begs to remind intending planters and the Trade, that he has a very extensive stock of the above, all in fine health and vigour. See CATALOGUES, Wholesale or Retail. Leicester Abbey Nurseries.

Scarlet Chestnuts, Standard Elms and Thorns, &c.

THOMAS WARNER begs to refer purchasers of the above to the extremely low prices at which they are quoted for the present season. See CATALOGUES, Wholesale or Retail.
Leicester Abbey Nurseries.

Maiden and Dwarf-trained Fruit Trees, &c.

THOMAS WARNER begs to state that he has still an extensive stock of the above, more particularly of APPLES, CHERRIES, PEACHES, and NECTARINES. Also of HOUGHTON CASTLE CURRANTS.
See CATALOGUES, Wholesale or Retail.
Leicester Abbey Nurseries.

CATTLEYA DOWIANA.

HUGH LOW & CO.

HAVE RECEIVED BY ROYAL MAIL STEAM SHIP *ATRATO*, FROM THEIR

COLLECTOR IN COSTA RICA, A QUANTITY OF CATTLEYAS,

WHICH, JUDGING FROM HIS DESCRIPTION AND THE APPEARANCE OF THE PLANTS, ARE THE

MAGNIFICENT SPECIES RECENTLY NAMED CATTLEYA DOWIANA.

INDEED THEY HAVE BEEN IDENTIFIED AS THIS SPECIES BY THE MOST EMINENT AUTHORITIES.

H. L. & Co. offer them simply as Cattleyas from Costa Rica, at 63s. per Plant.

☞ *If taken by the Dozen or Hundred special quotations will be made, and in the Importation are included a limited number of extra large Specimens, which are on Sale at reasonable prices.*

Also to hand by same opportunity, CHOICE TRICHOPILIAS in quantity.

CLAPTON NURSERY, LONDON, N.E.

THE SEED ESTABLISHMENT, STIRLING, N.B.

WILLIAM DRUMMOND & SONS.

GENTLEMEN IN WANT OF REALLY GENUINE

FARM SEEDS of the VERY FINEST QUALITIES that can be PRODUCED,

AND AT REASONABLE PRICES, ARE INVITED TO

APPLY FOR OUR DETAILED CATALOGUE,

WHICH WILL BE FORWARDED FREE.

Permanent Grasses.

Throughout a period of 40 years we have devoted special attention to the Grasses and other forage plants best adapted for laying down land to permanent pasture or meadow, and have during that time supplied many noblemen and gentlemen throughout the kingdom. Our Assortments this season will cost from 20s. to 29s. 6d. per statute acre, according to the nature of the land. These for quantity, quality, and selection, cannot be surpassed at any price.

Black Tartarian Oats.

An unusually fine sample is offered for immediate orders. Samples and price on application.

Drummond's Extra Improved Swede.

Large handsome oval-shaped bulb, with a clear purple skin, and may be confidently relied on as the most robust grower and heaviest cropper in cultivation. This Swede has again, and for the third time, won the Fifty Guinea Cup for the best 10 acres, open to all Ireland, for which there were many competitors. It has also taken numerous First Prizes throughout the kingdom.

1s. per lb.

Green Top or Aberdeen Yellow Improved.

A large handsome solid bulb—very nutritious, and an excellent keeper, and is, as now improved, decidedly the best Yellow for winter and spring use in cultivation. This is same as supplied to Mr. McCombie of Tillyfour, and other stock breeders in Aberdeenshire.

10d. per lb.

WILLIAM DRUMMOND AND SONS, SEEDSMEN and NURSERYMEN, STIRLING,
(And 58, DAWSON STREET, DUBLIN).

*** Stirling is most favourably situated in point of Railway accommodation, there being direct and constant communication to all the principal Stations in England.

All Seeds (Grain and Tares excepted) are delivered Carriage Paid.

Carter's Grass Seeds for the International Exhibition at Paris, 1867.



JAMES CARTER AND CO. have the satisfaction to announce that the Imperial Commissioners of the Paris International Exhibition of 1867 have granted to them the concession of supplying the GRASS SEEDS for the purpose of forming the Sward of the Park round the Exhibition Building in the Champ de Mars. The honour conferred on their House will be more readily appreciated when they state the gratifying fact, that they are THE ONLY ENGLISH HOUSE ENTRUSTED WITH THE IMPERIAL COMMISSIONERS' COMMANDS FOR THIS PURPOSE.

JAMES CARTER & Co. are prepared to supply Mixtures for Permanent Pasture, Park Lawns, &c., of the most nutritious and valuable Grasses, specially mixed to suit the variations of climate and soil. Price according to quality, from 26s. to 36s. per acre. PRICED LISTS gratis and post-free on application to

CARTER'S Great London Seed Warehouse, 237 & 238, High Holborn, London, W.C.

Grass Seed packed for Exportation.

GRAND FLORAL FETE (NINTH YEAR) YORK, JUNE 19 and 20, 1867.—Schedules now ready. In addition to the usual Liberal Prizes the following EXTRA PRIZES are offered:

For 10 ORCHIDS, distinct varieties, a First Prize of £10, given by Mr. B. S. Williams, Nurseryman, Holloway, London; and Second and Third Prizes of £6 and £4, given by the Society.

For COLLECTION of FRUITS, in eight varieties, open to all, First Prize, £10 10s.; Second, £6 6s. This Prize is given by the following Nurserymen and Seedsmen:—

Messrs. J. Veitch & Son, Chelsea, London	£5	5	0
Messrs. P. Lawson & Sons, Edinburgh and London ..	2	2	0
Messrs. R. Low & Co., Clapton, London	2	2	0
Messrs. Hurst & Son, Leadenhall Street, London ..	2	2	0
Mr. B. S. Williams, Holloway, London	2	2	0
Mr. C. Turner, Slough, Windsor	1	1	0
Mr. J. Wright, Pontefract	1	1	0
Mr. W. Dean, Shipley, Bradford	1	1	0

13, New Street, York. JNO. WILSON, Secretary.

DUNDEE HORTICULTURAL SOCIETY.—GRAND FLORAL FETE, in honour of the visit to Dundee of the British Association, to be held in the Baxter Park, on WEDNESDAY, THURSDAY, FRIDAY, and SATURDAY, 4th, 5th, 6th, and 7th September, 1867. £300 sterling offered as Prize money.

Schedules and Terms of Subscriptions to be had of Mr. JAMES HARDIE, Treasurer, 98, Nethergate; or Mr. W. R. MCKELVIE, Secretary, 46, Reform Street.

GRAND HORTICULTURAL EXHIBITION at BURY ST. EDMUND'S, in connection with the SHOW of the ROYAL AGRICULTURAL SOCIETY, JULY 15, 1867, and four following Days.

Amongst various Special Prizes, amounting in value to nearly £300, and exclusive of the ordinary Prize Schedule,

A SILVER CUP, VALUE £20,

will be offered by the Proprietors of the GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE for the best COLLECTION of FRUITS and VEGETABLES, to be made up as follows:—

Of FRUITS, any Five of the following Eight kinds, one Dish of each:—Grapes, Melons (2 fruits), Strawberries, Gooseberries, Currants, Cherries, Raspberries, or Apples (of the crop of 1866).

Of VEGETABLES, any Eight of the following Fourteen kinds, one basket or bundle of each:—Peas, French Beans (or Scarlet Runners), Broad Beans, Cauliflowers, Cucumbers (brace), Summer Cabbages, Early Carrots, Turnips, Artichokes, Onions, Spinach, Rhubarb, Potatos, or Mixed Salading.

This Cup will be open to Competition amongst Amateur or Professional Gardeners, of all grades, with Fruit and Vegetables of *their own growing*, but any article otherwise obtained will disqualify the exhibitor.

ROYAL HORTICULTURAL SOCIETY.—The EXHIBITIONS for 1867 will be HELD in the SOCIETY'S GARDENS, SOUTH KENSINGTON, on the following TUESDAYS:—

SPRING SHOWS:—CAMELLIAS, HYACINTHS, and other SPRING FLOWERS, March 19. AZALEAS, ROSES, and other SPRING FLOWERS, April 16. SPECIAL PRIZE SHOW, May 7.
GREAT SUMMER SHOW, June 4, 5, 6, 7, and 8.
ROSE SHOW, July 2.
GREAT SHOW at BURY ST. EDMUND'S, July 15th to the 19th.

☞ Schedules are now ready, and can be had on application.

The Gardeners' Chronicle.

SATURDAY, FEBRUARY 23, 1867.

AN ecclesiastical dignitary of our acquaintance, and who, in the course of his duties as incumbent of a large London parish, as well as of the less onerous functions of a provincial canonry, was necessarily called on to take an active part in the working of many societies, charitable or otherwise, and in the proper application of their funds, once made the remark that charities were never so flourishing as when in debt. We believe that the managers of the late INTERNATIONAL HORTICULTURAL EXHIBITION could to some extent endorse this statement; at least we suspect they would have found less difficulty in discharging a debt, than they have done in the disposal of their SURPLUS. It needs no great powers of imagination to conceive the nature and the number of the applications that have been made to participate in the proceeds—some of them, no doubt, reasonable; others, we may be sure, without any claim to that appellation.

Before the disposal took place, the question was indeed mooted as to whether the Committee had the right to appropriate the profits or any portion of them. Ought not the money to have been returned to the subscribers? The answer to this is obvious, that each and every subscriber had his equivalent—had, that is to say, the privileges in full, on the faith of receiving which he had paid his subscription; while as to the guarantors, fortunately they were never called on to redeem their promise to become guarantors, still less to fulfil any obligations that might have presented themselves. So that as to the legality of the acts of the committee, there is no room for question, except it be in the minds of those who share the confused opinions of a speaker at a recent meeting of the Horticultural Society, who setting out by impugning the lawfulness of the committee bestowing in any quarter any of the funds in its hands, followed up the exordium by gravely stating his opinion that it should hand over the money to the Society, or to the Commissioners of 1851, by whom, he said, the use of the show-ground had been granted free! As regards the Royal Horticultural Society, we are certainly of opinion that any obligation, expressed or implied, should be liberally met on the part of the International Committee, and this we consider has been done by the resolution put upon the minutes of the Committee several months since, and recently adopted and acted on.

Granting this, however, and holding no unfriendly feeling towards the Society, in whose prosperity, indeed, none can feel more interested than ourselves, we may be allowed to express some surprise at the terms in which the International Exhibition and its Executive are mentioned in the Annual Report of the Society, and from which an outsider might imagine that the Society had not been liberally dealt with by the International Committee. We do not here refer to the different interpretation put upon certain memoranda by the two parties—which interpretation is the correct one, is really a matter of no moment, since it had been laid down as an admitted principle by both that "something should be done for the old Society," and as we are informed long and reiterated discussions have been going on for months past as to what that "something" should be; but we allude to that paragraph wherein the falling off of the Society's receipts is attributed to the International Exhibition. The payment of the stipulated 300*l.* is indeed alluded to in that paragraph, but there is no mention made of 300*l.* more paid in hard cash for music, and of the very liberal privileges as to admission that were accorded to the 5000 tickets of fellows and debenture holders of the Society, both on a half-guinea and a half-crown day, not a word said as to the lavish way in which those privileges were used, and which, if they could be expressed in £ *s. d.*, must have amounted to several hundreds more—at a rough computation to a sum not less than 3500*l.* Hence we can but think that the framers of the Society's Report, and specially those gentlemen who in the discussion that ensued upon it, took upon themselves, evidently without sufficient knowledge of the facts of the case, to comment upon the relation between the two bodies, were very ill advised, and that their course of action was far more likely to repel than to encourage the friendly intentions of the International Committee.

Be this as it may, it will, we think, be admitted that the resolution at which the Committee have ultimately arrived, is one which, if it can be carried out, will serve both the interests of the Horticultural Society, and those of the horticultural world in general, in no ordinary degree. A first-class library, open to the gardening community generally—for this is made a stipulation—will of itself be no small boon, but we shall hope in the future to see springing up, in connection with it (and something of the kind is, we know, in contemplation), some such institutions as these:—Scholarships for deserving young aspirants, and Prizes or Medals for the encouragement of those who may advance horticultural practice or horticultural science in any of their branches, such as by the introduction of valuable new plants, or improved methods of culture; by the production of scientific monographs on groups of plants having special horticultural interest, such as Orchids, Ferns, &c.; or by experiments on acclimatisation or the adaptability of certain plants for profitable culture in our climate, or on other points of vegetable physiology. These are the kind of things that we should like in the future to see grow up along with the Library, and in connection with, or under the auspices of the Horticultural Society. And if even a fragment of these schemes can be successfully carried out, it will form an appropriate memorial of that "International" which we venture to say has been as a first Reform Bill towards the improvement of similar Exhibitions, has advanced the interests of horticulture to no slight degree, afforded delight and instruction to thousands, cemented friendships and alliances between scores of British and foreign devotees of Horticulture and Botany, amply fulfilled the obligations of hospitality and of charity, and now shows itself still mindful of the principles upon which it was established by endeavouring to secure in perpetuity some tangible benefits for the horticulturists of the future. But in the meantime we await the result of the application to the Commissioners of the Exhibition of 1851. Those gentlemen having been in a similar difficulty themselves, ought to lend a helping hand to others, and as their own interests will be served by so doing, we can scarcely doubt that their reply will be favourable.

—— WE have just received from M. BARILLET the following important communication, relating to the HORTICULTURAL DEPARTMENT OF THE UNIVERSAL EXHIBITION OF PARIS, from which it appears that, owing to the dissatisfaction expressed by many Exhibitors, the Imperial Commission, desirous of promoting, as far as possible, the interests of horticulture, has left to the Jury the power of awarding recompenses to all the products considered by them to be worthy of such distinctions. The following letter has accordingly been addressed by M. LE PLAY, Councillor of State and "Commissaire Général" of the Imperial Commission, to the President of the Horticultural Department:—

"Sir,—I have laid before the Imperial Commission the observations contained in the letter you did me the honour to address to me on the 30th of November last, in the name of the 'Commission Consultative" of the Exhibition of Horticulture. You point out that the amount of awards appropriated to Exhibitors is insufficient when the large number of 'concours' (competitions), which are to take place every fortnight during the period of the Exhibition is considered; and you call my attention to the difference existing between the Large Gold Medal of the value of 1000 francs, the highest class of reward, and the Silver Medal, which comes next in order. You transmit to me a proposition in accordance with your own opinion, from the Commission of Advice (Commission Consultative), to the effect that there should be specially devoted to Horticulture a Gold Medal of the Second Class, and that the number of Silver and Bronze Medals should be largely increased, appropriating for this purpose the portion of the sums in money, which will be devoted to the Horticultural department.

"Lastly, M. le President, you ask me that, without prejudice to the course which the Jury will follow, it should be well understood that the Medals shall not be exclusively awarded with reference to the sum of prizes obtained in each special competition, but also in reference to the importance of the competition, and the degree of superiority that the Exhibitors shall manifest therein.

"The Imperial Commission fears that the Horticulturists, of which the Commission is the organ, have not exactly appreciated the importance of the competition open to them, and the proportionate value of the awards. Horticulturists render indisputable services, which I do not wish in any way to underrate; nevertheless they are far from occupying the first rank in importance among the Exhibitors. They ought, therefore, to feel honoured to receive the awards accorded to the most important industrial establishments in the world: and it appears that the general importance of the competitions would be decreased if a special set of awards were exclusively made for Horticulture. The general regulations of the Imperial Commission are opposed to the desire you express, a fact I am desired to communicate to you.

"It is to the interests of the Horticulturists, as well as that of the other industrial groups, that the number of the Medals should not be increased. To do so would obviously be to diminish their relative value and importance. Horticulturists should not lose sight of the fact that a Bronze Medal, or even a mere mention in the immense competition of all branches of human intelligence and human activity, surpasses all the Gold Medals of ordinary Horticultural Exhibitions.

"The value of the Gold Medal should, moreover, be well appreciated, as that is the great prize, equivalent to the Medals of Honour (*medailles d'honneur*) in the other departments of the Exhibition.

"I am desirous that the exhibition of Horticulture should be so remarkable in its character as to determine the augmentation of the Medals of this nature that may be devoted to it, and I am disposed to promise you my influence with the Imperial Commission, and with the Jury, if the Jury shall demand a larger number of these Medals for the Horticultural department.

"But it is desirable that Horticulturists should know that the true recompense for industry of every description, that which the representatives of the greatest industries of the world will be happy to obtain, is the Silver Medal. The number of these latter will be sufficient to give satisfaction to the legitimate ambition of Horticulturists; and I am moreover inclined to do for these Silver Medals as I have promised to do for the Gold ones.

"As to the classification of the Jury, it is well understood that the number of prizes obtained in each competition will not be the only way of obtaining Medals, and that the Jury will bear in mind the relative importance of the concours.

"I add, moreover, that the Imperial Commission is disposed, in the case of Horticulture and of Agriculture, to add to the number of Medals in accordance with what has been done under analogous exceptional exhibitions in the 'Grand Concours' of Agriculture.

"I beg you, Sir, to make these explanations known to horticulturists in any way you think fit, and I hope that they will find in them evidence of the interest which the Imperial Commission feels in a branch of industry interesting in so many ways. Receive, &c.,

"Le Conseiller d'Etat, Commissaire Général,
(Signed) "F. LE PLAY."

We shall probably have occasion to speak of these modifications at a future time, meanwhile it is to some extent satisfactory to know that the arrangements which are so distasteful to foreign, and, as it appears also, to French Exhibitors, are not attributable either to the French Horticulturists or to the British Executive, but that it is the Imperial Commission itself which is responsible for them. We do not see at a first glance that the objections raised by us on behalf

* M. LE PLAY does not state that the Competitors in other departments of the Exhibition are to be "honoured" by having the trouble and expense of making a new display once a fortnight, as long as the Exhibition lasts, if they would stand well for gaining the Medal of Honour. EDS.

of foreign (other than French) exhibitors are fairly met in the letter we publish above. *Nous verrons.*

—— Some time since we announced that the BOTANICAL SOCIETY OF FRANCE intended to organise a BOTANICAL Congress during the time of the Great Exhibition, which will soon be inaugurated. We have now the pleasure, thanks to the kindness of Dr. EUGÈNE FOURNIER, of announcing that the Society will establish an INTERNATIONAL BOTANICAL CONGRESS, to which botanists of all nations will be invited. The Congress will open on the 26th of July next, and will last for a month. Meetings will be held every Friday evening at the Society's rooms, 84, Rue Grenelle St. Germain. On other days during the period, visits will be made to the Exhibition, to the Museum of the Jardin des Plantes, to private collections; and excursions will be made in the neighbourhood of Paris, especially during the latter part of August. It is probable that the several French Railway Companies will, as usual, allow excursionists to travel at half-fares.

—— The following CAUTION appeared in the *Times* of the 16th instant. It is hardly to be wondered at that delay should occur in responding to the communications addressed to him, as, according to *Bell's Messenger*, Mr. HULLETT has received no less than 20,000 applications!—

A CAUTION.

To the Editor of the Times.

Sir,—Some days ago a letter appeared in your journal from a person signing himself "J. Hullett, Clarence Lodge, Cosham, Hants," stating that he would forward to any one who sent to him a stamped directed envelope a few seeds of "Chinese Sugar-grass."

I immediately sent an envelope as directed, but have had no reply. Upon mentioning the matter to some of my friends I find that they have all been treated in a like manner.

I understand that a similar letter appeared last autumn in one of your contemporaries, and that those of my friends who replied to, it received no answer to their applications.

Your most obedient servant,

Feb. 14. CAUGHT.

*** We have received at least a hundred letters telling the same tale.

A day or two subsequently, appeared the following letter:—

CHINESE SUGAR GRASS.

To the Editor of the Times.

Sir,—With reference to a note headed "Caution," in the *Times* of the 16th inst., in justice to Mr. J. HULLETT, of Clarence Lodge, Cosham, Hants, I beg to say he forwarded to me 25 seeds within ten days of my sending him the stamped envelope. Accompanying the seeds was a short note—"Sow in March. The number of applicants exceed 9,000. I can't reply to all at once." I have not the pleasure of the gentleman's acquaintance, but a sense of fair play prompts me to ask you to publish this statement.

Your obedient servant,

J. D. SHAKESPEAR, J.P., Lieutenant-Colonel.

Witham, Essex, Feb. 16.

"Save me from my friends," though a trite quotation, is sometimes very appropriate, and we imagine that Mr. HULLETT will not fail to adopt it, on reading the above. Colonel SHAKESPEAR, with true gentlemanly and kind feeling, gives a well-intentioned certificate in favour of Mr. H. which "amounts to just this and nothing more," that by means of a short note to the *Times*, the gentleman at Cosham has contrived to nett, according to his own showing, just thirty-seven pounds, ten shillings (37*l.* 10*s.*) which he doubtless considers by no means a bad investment. We do hope that the numerous exposures that have been made of Mr. HULLETT'S peculiar ways of doing business will induce the British public to heed the above caution.

—— In our last volume (p. 1091) will be found some particulars respecting some NEW GRAPES raised by Mr. STANDISH. Several of these have turned out to be worth proving, and one of them, to which the name of ROYAL BLACK has been given, possesses so many good points, that Mr. STANDISH is growing a whole house of it this year, with the view of affording every facility for its being seen and thoroughly tested during the coming season, by all who are interested in fruit culture. A few days ago, on the occasion of a visit to the Ascot Nursery, we had an opportunity of examining this variety in the early stages of its development, and for prolificacy, we are bound to admit that we have never seen any early Grape that at all approaches it. Very commonly throughout the house the young shoots each show four strong bunches; on one 2-feet length of last year's cane we counted 20 such, and on one 6-feet cane we were told there had been originally 40; the bunches themselves too being remarkable for size, sturdiness, and vigour, although the Vines are not yet over strong, having had but one year's growth since planting. With such qualities as these, and provided its fruit proves as good as it was last year (which there will be abundant opportunities of ascertaining, should all go well), this will be a most valuable acquisition for early forcing, on account of its bearing heat so well, and yielding such abundant and vigorous promise of an ample crop. Singularly enough, though itself an early Grape, and perfectly adapted for forcing, as the above facts testify, its parents were both late varieties; while perhaps more singular still, though itself a jet-black Grape, both its parents are white sorts. The last year's fruit, which we did not see, was described as being in size and character very much resembling the Muscat of Alexandria, but of an intense black colour, and possessing an excellent flavour, in which a slight musky dash is present. The parents were the Bowood Muscat and the Trovéren.

—— We have to record two striking instances of success in PROPAGATION by CUTTINGS. The first example is that of the Chimonanthus fragrans, as referred to in our report of the Horticultural Society's meeting (p. 184). Here Mr. BAUSE, the foreman of the floral department at Chiswick, succeeded with cuttings of the just matured young wood, put in about July, and kept on a bed of ashes, without bottom heat, under hand-lights in a temperate propagating house. In November the cuttings, when examined, were found to be callused but not rooted; but since that time they have made strong branching roots of six or eight inches in length. The other example is that of the Eukyanthus quinqueflorus, of which Mr. STANDISH'S propagator succeeded in rooting four out of five cuttings formed of young wood when it had just acquired firmness.

—— We are informed that the West of England Rose Show is postponed from the 2d of July to the 9th, owing to the Grand National Rose Show at South Kensington taking place on the former date.

—— We understand that Mr. BARRON has, or shortly will have, one or two vacancies to fill up amongst the student gardeners employed at Chiswick. Those young men who may be desirous of securing the advantages which this position affords, should obtain at once the necessary forms for application.

New Plants.

VANDA BENSONI, *Veitch & Rchb fil.*; (an *Bateman, Bot. Mag.* t. 5611).

Foliis lorato-ligulatis apice attenuatis, obliquis, altero latere obtusilobis, dente medio, altero latere oblique excisis; racemis plurifloris, sepalis petalisque cuneato oblongis obtuse acutis undulatis, petalis subhastatis, labelli auriculis triangulis acutis, calcari compresso conico, ovario pedicellato multo breviori, lamina subpandurata, antice dilatata reniformi biloba, callo bilobo in basi, carinis obliteratis quinis radiantibus, lateralibus minoribus.

This is a very interesting novelty, since it affords us quite a new type amongst Vandas. We have not seen the growing plant, but we believe it to be in the way



of Vanda concolor, Bl. The flowers are comparable to those of a well-developed Vanda Roxburghii, R. Br., white outside, yellow inside, spotted and streaked with brown. The lip is ruby, with some purple and yellow spots. The flowers smell like sliced Cucumbers. No doubt the next neighbour of this species is Vanda furva, Bl., a rare plant, of which we obtained a garden specimen from Messrs. Thibaut & Keteleer, of Paris, six years since. The novelty in the shape of the flowers alluded to consists in two features, the combination of hastate petals, with a most peculiar lip, dilated at the end like a mallet, or the tail of a heath-cock.

The introduction of a new Vanda marks a red-letter day in the annals of Orchidology, and we feel happy to congratulate Messrs. Veitch on having introduced this interesting novelty. These gentlemen have proposed the dedication of the species to Major Benson, of H.M. Indian Army, who, we believe, was the happy discoverer of it in India. *Rchb. f.*

THE LATE MR. G. URE SKINNER.

[Substance of an address delivered before the Royal Horticultural Society at South Kensington, on Tuesday, Feb. 19, 1867, by James Bateman, Esq., F.R.S.]

GEORGE URE SKINNER, F.L.S., second son of the Very Rev. John Skinner, M.A., Dean of Dunkeld and Dunblane, was born March 18th, 1804. His grandfather was the Primus of Scotland (Scotch Episcopal Church) and Bishop of Aberdeen. His great grandfather, the Rev. John Skinner, the well-known ecclesiastical historian of Scotland, was one of the best Hebrew and Latin scholars of his day. In early youth George was bent on entering the Navy, but gave up the idea in deference to his father's wishes, and became a clerk in the banking house of Barclay, Bevan, & Co., of London. Subsequently he removed to Leeds, where he embarked in the general business of a merchant. Leeds however did not retain him long, for there happening in the year 1831 to be a prospect of opening up a trade with the Republic of Guatemala he at once set sail for that little-known country, destined as it was to be the scene of the chief events and labours of his life. Here he entered into partnership with Mr. McKlee, for many years *chargé d'affaires* for Hanover and Prussia—and thus arose the well-known mercantile house of Klee, Skinner, & Co., of Guatemala.

Mr. Skinner had not resided long in his adopted country when he became deeply impressed with its vast resources, nearly all of which in its then unsettled state, were allowed to run to waste. He it was who first set on foot the extensive cultivation of Indigo and Cochineal, which are now among the staple exports of the Republic. Other projects followed, but these were continually thwarted by the incursions of savage Indian hordes, under their famous chief Carrera, who kept the peaceable inhabitants in a state of chronic terror. They fought—Mr. Skinner among the rest—bravely and well under President Morazan, but despite all their efforts victory at length declared for Carrera, who took possession of the capital, and having once secured the reins of power, never relaxed his grasp of them till the day of his death. Under the new *régime* Mr. Skinner was treated with marked respect by this extraordinary man, who never failed to consult him in all matters of difficulty or delicacy throughout the whole of his long tenure of power. These however are passages in my friend's career on which I must not now dwell, the object of the present memoir being simply to record some of the many important services that he rendered to natural history, especially to botany, during 35 years of his active and eventful life.

From a child he was an ardent lover of Nature, but this feature of his character had small chance of developing itself in a City bank or a Leeds warehouse, and it was not until he landed in the New World that it showed itself in all its strength. Guatemala was at that time an unwrought mine in natural history—its Fauna and Flora being alike unknown; whatever, therefore, was sent to Europe was almost sure to be new. Mr. Skinner took to shooting the birds and catching the insects of his adopted country before he meddled with the plants, and it was in connection with some treasures of the former kind which he had sent to the Museum of Natural History at Machester, that I first heard his name. The Orchidomania was now rapidly spreading, and, as one of its earliest subjects, I was of course ready enough to seize the first opportunity of getting acquainted with the vegetation of a new country, especially when, as in the case of Guatemala, the climatal and other conditions were such as seemed to promise a rich harvest of my favourite tribe. So I wrote to Mr. Skinner, explaining to him by means of description and of a few rude sketches the sort of plants in which I sought to interest him. My letter, dated March 17, 1834, reached him in due course, and, as he was never tired of telling me, the day of its arrival was as it were a new birthday, for it gave a fresh interest to his life, which never left him even to its very latest hour! By a sort of instinct—though no botanist—he at once recognised the Orchids, of which he was now told for the first time, and in which Guatemala proved to be unusually rich. He set about collecting at once, and sent me by the first opportunity a box of plants most carefully packed, and which came to hand in the best possible condition. Never shall I forget my intense delight in the opening of that box! Though gathered at random, every plant was new! Here were strange-looking masses of the now well-known Barkeria Skinneri, which as it was the first to flower I gladly called, or rather asked Dr. Lindley to call, after its discoverer. Then there were divers Epidendra (E. aromaticum, E. aurantiacum, &c.), Oncidium Cavendishianum and O. leucochilum, and though last not least, Odontoglossum bictoniense, the first member of that now popular genus that ever reached England alive. When Mr. Skinner heard of the brilliant success of his first essay, his ardour knew no bounds, and it very rarely happened that a mail left Guatemala without a letter, announcing some fresh discovery, from my enthusiastic friend, while it was my own delightful task to keep him constantly informed of all the Orchid news on our side of the Atlantic, particularly what pertained to the plants introduced by himself. I cannot now attempt to enumerate all these—the list was a long and glorious one—but I may specially mention a few of the most remarkable. Besides the species already referred to, Mr. Skinner was the first to find Odontoglossum grande (his own particular pet), O. Uro-Skinneri, O. rubescens, and O. pulchellum, with its small though lovely and deliciously-scented white flowers. The Cow's-horn Orchis (Schomburgkia tibicinis), Epidendrum Stamfordianum, and E. alatum, were all detected in the Gulf of Dolce, while not far from the same coast the charming Cattleya Skinneri was discovered. Here, likewise, he met with various Stanhopeas, of which S. saccata was not the least remarkable. To the genus Cycnoches he added C. ventricosum and C. Egertonianum, the latter notorious even among Orchids for its extraordinary metamorphoses. The noble Lælia superbiens, and the stately Epidendrum cnemidophorum (his latest discovery), were met with at much greater elevations, as was likewise the invaluable Lycaste Skinneri, which now enjoys, and, indeed, richly merits, an amount of popularity—a popularity that is ever on the increase—such as has not been accorded to any other Orchid with which I am acquainted. Besides the above he added to our catalogues about 50 species of lesser note. He was also the first to introduce, if not strictly to discover—for Humboldt and Karwinski had here anticipated him—Oncidium ornithorhynchum and Sobralia macrantha. But though Orchids were his favourite plants, he did not neglect other tribes, as is attested by such names as Aquilegia Skinneri and Uro-Skinnera speciosa, given by Dr. Lindley to some of his introductions. Such are a portion of the obligations that Botany owes to Mr. Skinner. Ornithology also owes him much, for, as Mr. Gould assures me, certainly not less than 20 species of birds—many

of them most remarkable—were first sent over by him.* Among these I need only particularise the mountain Curassow, Oreophasis Derbeianus, so called after the father of our present noble Premier, who entertained the highest regard for Mr. Skinner, and kept up a regular correspondence with him. The Honduras Turkey, and the marvellous Quesal, Trogon refulgens of Gould (giving its name to the province of Quesaltenango, where alone it is found), and many other striking species, were scarcely known in this country till Mr. Skinner sent them over the seas in abundance.

It must however be borne in mind that the list—extensive as it is—of his actual contributions to natural history gives but a very inadequate notion of his services to science generally, for he was always ready to lend a helping hand to any naturalist or traveller who might come in his way, rejoicing no less heartily at the successes of others than if they had been his own. Thus he was ready to assist Mr. O. Salvin—now one of our most eminent ornithologists—in his earliest Guatemala wanderings, and equally ready was he to assist him in equipping the collector Arcé for that expedition to Veragua in which the latter is still engaged. It was through him that Captain Dow, of the American Packet Service, and many many more, were first led to love and study nature. Nor can I forget his kindness in 1860 to my eldest son who being bent on seeing the New World, gladly placed himself under the care of Mr. Skinner, when the latter was returning to Guatemala after a lengthened visit to this country.

This memoir would be incomplete if I were to make no allusion to those useful Orchid sales in Stevens's Rooms, which have now become quite an institution, and of which Mr. Skinner was the originator. There, if in England, he might always be seen. Few persons have any idea of the amount of labour required in the sorting, arranging, and cataloguing a cargo of imported Orchids; but the labour was a labour of love to him, and he was quite as ready to undertake it in behalf of a stranger as for himself,—always, however, claiming a few specimens as perquisites, wherewith he might make presents to his friends. He had the entire disposal of the extensive collections made by Warscewicz in Peru, Veragua, and New Grenada, but as these were all "cool" Orchids, and therefore then looked upon as unmanageable, they were almost given away. All this occurred about a dozen years ago, and from that time until the system of cool treatment came to be understood, the Orchid mania sensibly declined. It has now, I need scarcely remark, revived in more than its former intensity, a fact which had not escaped Mr. Skinner's notice, and which gave him the keenest delight. When in town he would often be found at the Exotic Nursery, King's Road, where a house for the accommodation of his own importations had been generously placed at his disposal, but his sympathies seemed to embrace the whole body of Orchids in that vast establishment. There indeed he had become thoroughly domesticated, and beyond the circle of his immediate relatives, by none will his loss be more deeply felt than by the Messrs. Veitch. With a nature so gentle and so unselfish, and so ready—as I myself have often found—to assist in every pious or charitable work, go where he would he could not fail to make friends;—that he ever made an enemy I have yet to learn! To me indeed his loss is quite irreparable; but we shall all miss his honest cheerful countenance, as he sat in his accustomed place at the Tuesday meetings at South Kensington, taking the liveliest interest in all our proceedings, and quite brightening up whenever Orchids were the subject of discussion.

I now approach the last chapter in his blameless life, which was brought to an unexpected close, far away from home and in a foreign land. He was now past 60, and having worked hard all his life began at length to desire repose; he therefore had resolved to retire from business, and to settle for the residue of his years in his native land. With this purpose in view he sailed on the 2d December last for Guatemala, with the intention of winding up his affairs, and then returning to England in the autumn of the present year. Had he been permitted to carry out these plans, he would have crossed the Atlantic forty times: but this was not to be! He reached Colon, or Aspinwall, in excellent health, the first week in January—thence he crossed by rail to Panama, but finding that the first ship leaving that port for the Pacific was over-crowded, he decided to wait—it would only be a week—for the next, and in the meantime set about collecting plants and birds with all his wonted enthusiasm. He returned, however, to Aspinwall—where there was a Church service—to spend his Sunday, and dined on the evening of that day on board the ill-fated Danube. Here he is supposed to have caught the seeds of yellow fever, for on Monday he felt uncomfortable, was very ill on Tuesday, and died on Wednesday, the 9th of January. His last letter—written in the highest spirits and full of plant-gossip—was addressed to his old friend Mr. Veitch; it was written on the 4th, with a postscript added on the morning of the 6th, but the mail that bore it home was also destined, alas! to carry across the melancholy main the sad and unexpected tidings of his death!

Mr. Skinner had been a widower for many years. Two daughters, the only issue of his marriage, are left to bewail his loss; so likewise is his aged mother. They have all for some time resided with the Rev. Jas. Skinner at Newland, near Malvern, and our dear departed friend had looked forward to joining the family circle on his final return from America, and to spending in their loved society, and in peace and serenity, the evening of his well spent life, but *Deo aliter visum*: His will be done!

* Mr. Salvin tells me that 20 is much below the mark, and as he was always a particular friend of Mr. Skinner's, he had peculiar opportunities of judging.

VINE GROWING.

In reference to Mr. Cannell's system of cultivating the Vine, I beg to say that the experience we are gathering year by year instructs us that no system of fruit culture, however successfully practised in one favoured locality, can be safely recommended for general adoption until fairly tried in various parts of the country.

There are few countries that present within the same limited area so many marked and diverse geological features as our own, and with considerable irregularity of surface and much disturbance and displacement of the earlier deposits, by drift and other causes, we have, as a consequence, greater variety in the character and quality of soils than generally falls to the lot of cultivators. As the circumstances of soil and subsoil materially affect the cultivation of the Vine, it may readily be inferred that greater natural difficulties exist in some places than in others. We can secure all the essentials of climate for a Vine by the erection of a vinery, and by an arrangement for supplying heat. Surely Mr. Cannell does not pretend to maintain that Vines trained on the extending system will succeed in all positions, irrespective of the natural suitability of soil and subsoil? Borders proportionate to the presumed extension of the roots would have to be provided in most places; and if a second Hampton Court Vine were coveted, the preparation of a suitable border, where the circumstances demanded it, would be a very serious business indeed. It will be instructive, and it will illustrate my argument, if we note, as Mr. Glaisher might do in one of his aërial flights, the successive changes that are presented to us in a line of country, say from Sussex to Nottinghamshire. We may first notice the chalk downs, representing the Cretaceous system, largely developed in the south-western counties; next succeeding this we find wide tracts overspread with gravel and sand and scar, making what is called the Bagshot Sand formation; next succeeding this, we may remark a washed and intractable clay, concealed here and there by drifts of gravel, loam and sand, without London clay, and this extends into Hertfordshire. Before leaving Hertfordshire we meet the swelling chalk hills again, and then in parts of Bedfordshire we find great accumulations of drift sand, loam and gravel. In Huntingdon extensive tracts of level, low-lying, water-logged lands are met with, and reaching Lincolnshire bog land again occurs; and as the land rises, lias, clay, and oolitic limestone give a new character to the scenery, and form the base of the cultivated soil of a large district. In Nottinghamshire, the gypseous marls appear in the valleys, and the light sandy loams characterise the uplands where the new red sandstone exists; and further on, the magnesian limestone gives an altered character to the soil. Mixed up with the various formations I have named are innumerable varieties of land—sandy, gravelly, tenacious, dry and wet, which take their character in some degree from the hills and subsoils of the neighbourhood in which they occur. On how many of the soils thus lightly indicated will the Vine grow as it does at Cumberland Lodge or Sunningdale, without the assistance the gardener gives in the preparation of a border? It is important to inquire what natural circumstances are found, for example, at Cumberland Lodge—a dry slope formed of compact beds of calcareous gravel and sand, on which rests a shallow siliceous soil enriched by cultivation. Under such a favourable combination of advantages a Vine requires but little artificial assistance in the construction of a border. The roots of a Vine so situated may without restriction be allowed to spread through a great extent of the shallow surface soil, and the more the roots spread, the greater the extension of branches. It thus seems the most natural thing in the world to let a Vine expand itself, when planted in a spot so favourable to its natural habit of growth, and it would be injudicious, as it was at Sunning Hill, to attempt to grow Vines on the rod-and-spur system. But try the extension system, without preparation, on the London clay, or the shallow loams with wet gravel beds beneath, or on the peat beds of the fens, or the oolitic limestone, or lias clay, or marls of the red sandstone, and unripe wood, shanked Grapes and mildew, will be the result.

I am very willing to concede thus much to Mr. Cannell. Wherever the natural circumstances are favourable the extension system may be practised, but wherever quick cropping, variety in the quality of Grapes, and a tolerable certainty of a crop are considerations, the rod-and-spur system may with propriety be preferred. The extension system is that which preceded the plan of rods and spurs, and the very fact of its displacement by the more modern system is the best confirmation of the correctness of my position.

To sum up the arguments on each side, Mr. Cannell contends that because the large Vines at Cumberland Lodge, Sunning Hill, and Hampton Court thrive best on the extension system of management, that system is the best, and should be generally adopted. I maintain that the fact of the exceeding vigour of the great Vines he instances is due to the accidental occurrence of soil and position naturally congenial to the Vine, and that the system has not the same recommendations as that called the restrictive, because similar circumstances of soil, position, and climate occur but in few places in England; and to pursue the extension plan successfully such must exist and be employed.

William Ingram, Belvoir, Grantham.

DR. HOOKER ON INSULAR FLORAS.

(*Concluded from p.* 152).

My belief is that at the time referred to (see p. 152) the Hymenoptera of Japan had the Europeo-Asiatic facies too. The changes of level of the glacial epoch next separated Japan from Northern Asia. The cold came, and I imagine dealt differently with the Hymenoptera than with other classes of insects. I have not space here to go into details to prove this, but any one that knows the habits of the Hymenoptera and their dependence on flowering plants for subsistence, will be able to see that cold might be fatal to the one class of insects and not to others. A single season wholly without flowers would kill all the bees for example, whereas wood and bark-feeding insects would be none the worse. Not only the perfect insect but the larvæ of bees are dependent on flowers for subsistence, which is the case with no other class of insects that I remember. At the close of that period, therefore, the insect Fauna of Japan would be of the same type as before, except those which were killed off; and one portion of what was killed off would appear to have been the Hymenoptera.

It would only be on the return of heat that it received the Chinese element; and the advocates of peopling by introduction may say, what so natural as that all the Hymenoptera having been killed off, the new ones and the Chinese beetles have flown over from China. But if so, how comes it that no Hymenoptera have flown over from the northern part of Asia, which lies as much opposite the northern half of Japan as China does opposite the southern half. The explanation is obviously insufficient. No! Japan must have been united to the land from which these introductions have come; and the total absence of northern Hymenoptera is a significant example of how futile all attempts at explaining colonisation in any other way than by actual continuity must be.

Recent investigations into the marine Fauna of the Pacific, west of Central America, furnish another remarkable instance to the same effect. A large proportion of the fishes lately collected by Mr. Salvin there (no less than 48 out of 158) have been found by Dr. Gunther (contrary to all anticipation) to be identical with species in the Caribbean Sea, while scarcely a single shell is the same in two seas. Naturalists have been trying to find an explanation of this in supposed error of determination by the conchologists who have described the Pacific species of shells, but without success. The fact is as stated, and the explanation is to be found in the difference of the character of the coast on each side of Central America, the east coast being shoal and the west abrupt and perpendicular; so that an elevation of the land there would destroy the living and breeding ground of the molluscs on the one side and not on the other, while such an event would be less fatal to fishes from their greater facility of locomotion.

St. Helena is another instance in point. The affinities of that island are by no means so plain-sailing as one might suppose from the statement of them given by Dr. Hooker. In truth there is a regular conflict of affinities in it; one pointing to Europe, one to Africa, and one to South America, and all very faint and indistinct. Dr. Hooker awards the Flora a South African relationship. I do not dispute that he is correct in this, and when he says so I believe it; but in a case of contradictory testimony on the part of the Faunas and Floras themselves, it is not wholly irrelevant as bearing on the weight to be given—even by Dr. Hooker himself to his own determination—that an equally great authority, Dr. Robert Brown, acknowledged that he was in the dark on the subject—"Neither a single indigenous species, nor any of the principal genera characterising the vegetation of that island, have been found either on the banks of the Congo, or any other part of the coast of Africa." That Dr. Hooker is able to settle now what puzzled Robert Brown in 1818 is of course due to the greater material and better knowledge which botanists in these days have of the Flora of different countries, as well probably as their better understanding of botanical affinities. But the difficulty is worth noting—*valeat quantum*.

Dr. Hooker, however, gives his proofs by naming the African genera on which he rests his opinion; and it is beyond dispute that the genera Pelargonium, Mesembryanthemum, Osteospermum, and Wahlenbergia are as decidedly South African as any one could wish to name. But while I object to the colonising theory by flotsam and jetsam as wholly inadequate to account for the peopling of these or any other islands, I have never disputed that exceptional cases of the establishment of species by chance introduction, especially among plants, do occur; and it may be that we should look to that as the source of some of these South African types in St. Helena.

When we come to the Faunas, however, we find that the land shells, which like the plants are all peculiar, belong to the genera Bulimus, Helix, and Succinea, which are scarce in Africa; and although found in Europe and other countries, occur in greatest numbers in North and South America, and four or five of the species found in St. Helena have actually a perceptible affinity to the character of South American species; and it is to be remembered that, as is admitted by Dr. Hooker, there is also evidence of an unaccounted-for South American element among plants too.

Then again, among the Coleoptera, we find a peculiar, fine large Carabus, Aplothorax Burchellii, a member of a genus of the northern temperate world, not found in Africa at all—that is, Africa proper, viz., south of the Sahara. Now this is not a matter of questionable affinity that can be explained away by chance introduction—it is an insect which cannot have been transported by flotsam and jetsam. It belongs to the Geodephaga, a family of which Mr. Wollaston, in his list of Madeiran Coleoptera, remarks that it is the only one which does not make a single contribution towards the list of naturalised forms in Madeira, and as he justly says, their habits and constitution (insects of prey, hunting on the ground) sufficiently show why.

It is right here to tell the non-entomological reader that although the genus Carabus is a northern temperate species (chiefly found in Europe, North Asia,

and North America) it does run down the Andes, and two or three species occur in Chili, which have something of the peculiarities of form of this St. Helena species. I do not however dispute the conclusion arrived at by Professor Lacordaire, (perhaps the first of living Coleopterists), that its nearest affinities are with species now found in Switzerland and Asia Minor. I own that I should be more disposed to do so were it not for the occurrence of boreal species of plants on the Cameroon Mountains, which indicate a connection between Europe and the coast of Africa which may have extended to St. Helena.

We have thus apparently three lines of affinity in St. Helena—Africa, South America, and Europe—and there is no impossibility in this island having at some time or other been connected successively with all three. The possibility of such successive connections with different independent countries is, I think, not sufficiently contemplated by naturalists. But it is to it that we must look for the explanation of such complicated affinities as those of St. Helena.

If oceanic islands are remnants of submerged lands, they are the peaks of their mountains, and we may give a good guess at the line of the range by connecting them together. By doing so here we bring Madeira, the Canaries, Cape Verd Islands, and Ascension Island, St. Helena, and Tristan d'Acunha into a line having a curve not unlike, and not much greater than, that of the Cordilleras in South America; and although they may not have all been present from the commencement (Cape Verd Islands, for instance), they all occur in the line of their range or band of elevation. By such a range of mountains, modified European forms might have reached St. Helena before the chain was severed. We see that colonists from South Africa have in this way penetrated into Egypt by the Abyssinian mountains. So have South American forms penetrated into North America by the Isthmus of Panama, which has more than once served as a bridge to cross, or a ditch to stop, all passage. If such an Atlantic range ever existed and came to be severed, there is little doubt that it would be so north of the Cape Verds, the affinities of which are African, and south of the Canaries, the affinities of which and of Madeira are Mediterranean and European. This gap must thus have been in the line of a depression which seems to extend, with few interruptions, almost all round the globe about the 20th degree of north latitude. In it lie the Sahara, the desert of Rhoba el Kali in Arabia, the desert of the Indus, and the sandy plains of the Ganges; and whether any transverse depression exists in the same line in the bed of the Pacific between China and Mexico, we do not know, but there is every reason to believe that such a one does occur in the Atlantic. In that line no rocks or *vigies* occur, while to the south of it various do, not to speak of soundings of no very great depth which are said to occur in some parts to the south-west, and we see the same depression prolonged into the American continent in the shape of the Caribbean Sea and Gulf of Mexico. The interruptions of these depressions are the Abyssinian Mountains, Birma and China, and Central America; and a sunken Atlantic chain may possibly have been another. When the Atlantic began to sink, and a gap similar to what once existed at the Isthmus of Panama had taken place, St. Helena would be cut off from Europe, but might be connected alternately with Africa and South America.

I do not offer these speculations as a deliberate and settled hypothesis. I reserve the right to discard them to-morrow. They are merely crude hints, indicating one way in which it is possible to account for some of the facts which puzzle us, and offered more with the view of illustrating the bearing of these and similar facts than anything else.

Turning to Madeira and the Canaries, we have another instance of incongruity between Fauna and Flora, although less marked. If we look to the beetles of the Azores alone we find no Miocene or American element. The type is wholly European and Mediterranean, and the Mediterranean element where present is chiefly of the North African type. The plants, on the other hand, in addition to the mass of European types, have among them a very few American forms. But a few plants and insects of a similar nature, *i. e.*, of Miocene and American type, have been preserved in the Mediterranean district, and Madeira when united to it may have drawn from thence the few which it possesses, although they may have since become extinct in Europe. In the Canaries on the other hand there are traces of the American element among the insects, for example the genus Temnochila is truly American, about 20 species being known, all from America, except one, T. cœrulea (Oliv.) from Europe, and another, T. Pini (Brull.) from the Canaries.

But I must not forget that my purpose in taking up my pen was not to write a paper on Oceanic Islands myself, but only to make a remark or two upon Dr. Hooker's lecture, and more especially to express the gratification which I have received from its perusal. *Andrew Murray.*

Home Correspondence.

Management of Woods.—In your Paper (see p. 128) Mr. Walter Irvine, of Birchwood, makes some comments on my article on this subject, published in your columns on Feb. 2d. I presume that Mr. Irvine is a gardener, and I think that it does him credit to speak for his class when he considers it to be ill-used. I did not mean to put gardeners, carpenters, and coachmen on a par with each other, when I stated in my former letter that it was an error to give either a gardener, carpenter, or coachman the management of woods. I stated it as a fact, that I know estates at the present time where the woods are under the management of such men, and I know from experience, that it is very injudicious as a rule to give gardeners the management of plantations where they have the management of the garden at the same time. I know several highly qualified men as foresters now, who were gardeners at one time; and I believe that if a gardener gives up the gardening profession and takes to that of arboriculture he makes a very good forester; and this just bears out my own assertion that foresters ought to have a knowledge of botany, for it is the knowledge of botany which enables a gardener to make a good forester. I repeat that what I mean to state is, that it is a great error to allow a gardener to have the management of woods while at the same time he has the management of the garden; he is almost sure to do well to the one, and neglect the other. Mr. Irvine states that "it seems obvious enough that even a garden labourer, who is necessarily acquainted with the works of sowing and planting, the use of the spade and axe (?), has qualifications for the manual practice of forestry superior to the men whose business is entirely unconnected with the management of land." When I write the word "forester" I do not mean men who are mere day labourers in the woods, but men who occupy a good position on an estate, and who have to do the work of the mind more than that of the body, although there are labouring men on estates who have a good knowledge of wood management, and I dare say I could turn out a few on this estate who would be more than a match for Mr. Irvine in tree management. Mr. I. seems to think that because a gardener has the ability requisite to produce rare exotic fruits, he should, from that knowledge alone, be able to manage woods. Does Mr. Irvine know anything at all of either "exotic fruits or timber trees?" If he does, he ought to know that they are very different from each other, and that they require very different treatment. For his information I may state that the former in this country are usually grown under glass with a heated temperature, and that the others are grown in the open air on our own hills and dales. Further, Mr. Irvine thinks that Mr. Frost, of Dropmore, must be a good wood manager, because he has done much to prove the capabilities of the newer Coniferæ. It may be well to state, in reply to this, that a man may be a first-rate manager of British woodlands and still know little of new Coniferæ; and on the other hand, any one may have a fair knowledge of the capabilities of the Coniferæ, but know nothing at all of the proper management of British woodlands. Although Mr. Irvine and Mr. Mechi may think that trees are not a shelter to our farms, that does not necessarily prove that they are not. I could point out districts of country which have been ruined by an excessive clearing of timber upon them, and I could also tell Mr. Irvine of districts where the farming land has increased one third in value from the sole cause of young plantations rising up and sheltering the farms. Hedgerow timber I do not refer to, but plantations. In conclusion, he states that a person with the necessary amount of education which I state a thorough good arboriculturist should have, would find something better to do than to thin plantations. If Mr. Irvine will come forward and prove himself to have the necessary education referred to, combined with a thorough practical knowledge of wood management, I am quite confident that I can find him a situation as wood-manager, quite equal to many in other professions, and who have got the same amount of education. *Robert E. Brown, Wass, Yorkshire.* [Mr. Irvine needs no eulogium from us either as a forester or as a gardener; in both departments he excels. EDS.]——I beg to heartily thank Mr. Irvine for the able and practical reply he has given to Mr. Brown's remarks on the management of woods by gardeners. I have at present the management of all the woods, roads, hedges, and ditches on four different estates; three in the County Wexford and one in the County Waterford; also the regulating of trees and screens on some thousands of acres of tenants' holdings. The plantations are on a very large scale; their thinnings yield some 600*l.* or 700*l.* annually; still, I can find time to have the thinnings cut into 6½ feet lengths, and have them conveyed to different seaports for shipment to Wales as pit wood. I can also find time in the proper season to strip and save Oak bark, and my noble employer has never once found fault with any thinning, pruning, planting, or selling; yet I am gardener where both forcing, flower gardening, &c., are carried on to a great exteut, and where some 14 hands are constantly employed in the gardens. Of course I have a qualified foreman in the gardens capable of executing my orders, consequently I am able to spend three-quarters of a day in the woods. With regard to Mr. Brown's statement that a forester ought to be a botanist—why, the very first act of a young gardener beginning life is studying botany. And with respect to his being a geologist and a chemist, Mr. Brown must be aware that large plantations are generally put on the worst land—such as a hill-side or brow, and very often in planting, a forester has hardly time to try whether the soil is composed of peat or fuller's earth. With regard to lawn trees, Coniferæ, however, I dare say Mr. B. is also aware that no man ought to be better qualified to know the soil best adapted for growing them to advantage than a gardener. *A. R., one of the Unfortunates.*

The Rival Systems of Vine Culture.—As Mr. Miller (see p. 151) asks for proof as to what has been done by the extending system of cultivating the Vine, I would direct his attention to the success of Mr. Henderson, of Cole Orton Hall, who, I believe, has taken more prizes for Black Hamburgh Grapes than any other man in the kingdom; and Mr. Henderson has not a single Vine under his charge cultivated upon the restricted or spur system; on the contrary, a strong Vine is gradually allowed to take the place of the weaker ones, thereby keeping that fine balance of power between root and branch which is so essential to success. I believe that great judgment is required in pruning on the extending system, and Mr. Henderson would do much good if he would give us a treatise on the subject. I have seen some of the fine Grapes that have been grown by Mr. Meredith, and I have no doubt that Mr. Miller has been very successful; but upon what system of cultivation has this success been obtained?—certainly not by means of restrictive treatment, for both Mr. Meredith and Mr. Miller have been taking their fine Grapes from young Vines that have been gradually extending themselves. What therefore will be the result when no more room can be found for young wood, and when the Vines shall have to be trimmed up like whip handles every year; large well-coloured bunches will then cease to be seen, and too often the Vines are destroyed before they are even out of their teens. *E. Sage, Gopsall Hall, Atherstone.*——Mr. Miller's counterblast seems, to me at least, to be as rash as Mr. Cannell's "hurricane," and not quite so philosophical. The horticultural skill of this great gardening community has been for many years past expended upon the small-rod system of Vine-growing, which is practised by hundreds of intelligent cultivators in every county in England, with every advantage of soil, good advice, and experience. The extending system is only seen in very few places—generally without any good preparation having been made. Mr. M. makes a very common mistake with those who oppose meritorious innovations—he contrasts the best results of the established system, with those obtained by perhaps one or two specimens of the new one, and not only does that, but compares the best known example of the common mode, with what is far from being the best of the large Vines in this country—for the Hampton Court Vine is quite inferior to that at Cumberland Lodge, and both, though much larger, are insignificant in respect of size of bunch and berry, compared to that in Kay's Nursery at Finchley. Now, perhaps there never was an establishment where more skill or attention was paid to the Vine, than in the Vineyard at Garston; economically applied, it is true, and with a splendid result. But our object should be simplicity of culture, and we are bound to compare the expense and attention given to these, with what are applied to a good example of a large Vine. The best I know of is at Finchley. Its border, made in a simple way, receives no attention except being covered with manure in the winter, in the old-fashioned way; the nursery is not specially devoted to Vine-growing; the border is not raised above the level ground, and therefore the roots are in a more "uncongenial" medium than in most good Vineries on the small-rod system. At Garston the borders are elevated above the level in most cases, and every precaution taken that enthusiasm, great skill, and great practice can give. The borders of some of the more important houses, and particularly that from which some of the largest bunches of Black Hamburghs that Mr. Meredith has shown, were cut, are protected with glass coverings. There is one Vinery at Finchley—there are a host at Garston. Is there any one Vinery at Garston, seen in its best dress, so strikingly fine, as regards bunch and crop, as that at Finchley? Certainly not. What about all the miserable failures of the one-rod system that may be seen all over the country? Roots of dwarfed restricted plants may do very well where they receive the attention of first-rate gardeners like Mr. Meredith and Mr. Miller, whereas if planted in an ordinary way, and exposed to vicissitude or cold, they may perish or cause some of the ills that Vines are heir to. Before now we have had the good results produced by a complicated system at least equalled by one much more simple and economical. May it not be so with the Vine? I am fully aware of the excellent results produced by our first-rate Grape growers, but it is certain that, so far as we have evidence of the large development plan, it tends to assure us of the great desirability of giving it a fair trial, and I am confident that if Mr. Meredith or Mr. Miller gave it the same attention they do to the usual system, they would produce a grand result. Mr. M. thinks but little of the Hampton Court bunches. Are there not thousands of Vines on the one-rod system infinitely inferior to that? The largest crop of large bunches I have ever seen was at Finchley during the past season. This, and the few other striking results obtained from large Vines, with which your readers have been made familiar during the past year or two, will, I am confident, encourage them to allow an old Vine to assume what may be called a natural development. Time will tell the rest. *Stet.*——The article (see p. 125) on the evil effects of limiting the extension of Vines approves itself to common sense. It has occurred to me that the same argument might apply also to the modern system of closely pinching the Peach, at least when the tree is planted in a border; where the roots are confined to a pot, there will not be the same want of reciprocity between the roots and the foliage, yet one can hardly expect from such an unnatural system a long-lived tree. *S. B.*

Berberis Aquifolium as Game Cover.—I was pleased to see Mr. Telfer's remarks upon this subject. I love this Berberis. It is one of the most delightful shrubs we have. The foliage displays every hue, from the darkest green to the brightest crimson; while the flowers sport their soft yellow colour, and sweet honeyed perfume, and the clusters of berries their bluish tints, so rare and striking, themselves so refreshingly acid on a hot day. And it will grow almost anywhere, in the densest shade and the brightest sun, in peat, leaf-mould, and all kinds of loam, and will even live in clay. No frost ever seriously injures, no drought withers, no water can wash out its beauty, and until your correspondent told a different tale, I should have declared that no game would touch it. I have seen it often in woods, with rabbits as thick as Blackberries, where Hollies, Portugal and common Laurels, and bitter Cypresses were cut down like mown Grass, and not a leaf nor a branch injured. So I hope your first corres-

pondent was mistaken," and that the game will continue to have good taste enough to allow their woodland dwellings to be carpeted with the green verdure, enriched with the gay blossoms, and perfumed with the sweet odours of this most charming of all undergrowths, the Berberis Aquifolium. It should be either sown where it is to remain, or transplanted when very young. It is a curious thing to move when once the plants are established, and if brought large out of a shady place into the sun, it will probably die. I find it does splendidly when planted thickly—say a foot or 18 inches apart, and allowed to form masses of from 1 to 20, or any number of yards square. Those who have only seen it as isolated plants can hardly imagine its striking beauty and grandeur when planted thus in good soil, and freely exposed to the sun. It also does exceedingly well beneath the shade of trees in woods. In such positions, however, it seldom shows any crimson tints in the leaves, and neither flowers nor fruit are so abundant. I have said that water cannot wash out its beauty. The Berberis never looks so beautiful as after heavy rains. It must not, however, be supposed that it likes stagnant water. It may exist for a time, but does not thrive in such positions; and if it is desired to grow it in low dampsituations, the stagnant water must first be drained off. One word about the common Berberry. Have any of your readers ever seen a single plant of this, say 3 yards high and as much through, as a "starer" on a lawn, laden with fruit? If not, let them set to work forthwith to manufacture one; and I will warrant them, if they succeed, more pleasure from the sight than it is possible to derive from any other single plant whatever, while the berries will prove valuable as a preserve, and give a colour, richness, and elegance of garnish to a dessert such as nothing else can impart. *D. T. F.*——I beg to say from experience and close observation that Berberis Aquifolium answers admirably for this purpose, being a low, spreading plant, and bearing an abundance of berries which are highly relished by pheasants. I can recommend it as one of the best shrubs for coverts where rabbits are very numerous; though when they are pushed by extreme hunger, from the effects of a long storm of frost and snow, they will undoubtedly nibble and bark its young shoots. Nevertheless I consider it to be one of the shrubs they dislike most, and unless under the circumstances I have mentioned, the injury done to it by those vermin will be very slight. I may add, that I have found Rhododendron ponticum and Daphne Laureola (Spurge Laurel) to withstand the nibbling and barking propensities of rabbits better than any other shrubs. *G. Berry, Wass, Yorkshire.*——Although in one instance Berberis Aquifolium (see p. 153) was destroyed by sheep, that does not prove that rabbits will not eat it; for there are plants in the wood here from 5 to 6 feet in height barked round by rabbits, and small plants cleared off quite as effectually as they could have been by sheep. This Berberis, as well as other plants, may escape where rabbits are not numerous, but I consider it to be quite useless to plant Berberis, under the impression that rabbits will not eat it. *James Taplin, Chatsworth.*

Roses and the Frost.—It is only after the effects of such frosts as we experienced during the first week of the present year that amateur Rose-growers have the means of discriminating between the consumptive and robust occupants of their Roseries, and nurserymen the opportunity (and I trust they will take a lesson) of disencumbering their catalogues of many third-rate varieties; and although the frost brings its trials for us both, "as out of good there cometh evil," it must be somewhat of a satisfaction to all to have the invalids and rubbish so speedily selected and disposed of by such an impartial test. During the nights of the 1st, 2d, 3d, and 4th of January my thermometer registered here, in a walled garden at 5 feet from the ground, and in the open, 23°, 21°, 22°, and 22° of frost respectively. My soil consists of a light, well-drained, highly-manured old town-garden humus overlying the oolite rubble. The garden is surrounded E., N., and W. by high walls and buildings, but open to and sloping towards the south, within a few hundred yards in which direction is an overflowed meadow, at about 12 feet lower elevation. The snow here froze on the branches, and was 3 inches deep on the ground Below this line a good many dwarf Roses on the Manetti and their own roots are uninjured. I see my lists below do not in every instance correspond with those already published in your Paper; but I know that we have suffered here very severely, probably from the situation and the nature of the soil. We are about three or four miles from the fen district, which continues open thence to the North Sea. My list of uninjured (No. 1), may therefore be relied upon as containing only thoroughly hardy sorts. The varieties that are only partially injured are contained in list No. 2; and list No. 3 includes all those that are either killed *in toto*, are irrecoverable, or are destroyed down to the snow-line. I am sorry to include in the latter list Comtesse de Chabrillant, Senateur Vaisse, Prince Camille de Rohan, Le Rhone, Rushton Radclyffe, and Madame Charles Verdier, which must be placed here amongst the most delicate. I lost plants of the two latter varieties also from frost during the winter of 1865-6, although they were then protected by a slight covering of Brakes. This year my plants were entirely exposed, and all were on the Manetti (I hope yet to see the Rev. W. F. Radclyffe Rose-father to a better Rose, English bred and with a better name). Céline Forestier, which has been so beautiful with me during the past two seasons, has suffered much, the wood being even blacker than that of Cloth of Gold. Nearly every unprotected plant of Devoniensis is killed; on the other hand, John Hopper is A 1, and Madame Rivers, Madame Vidot, Prince Leon, and Madame Furtado, four Roses which I have hitherto looked upon as amongst the most tender, have stood the cold fairly without any protection. My observations have been taken (except as to the varieties of the past year) in most cases from several plants of each variety, and in many instances I am confirmed by results in another garden somewhat differently situated. I find that, as a rule, the old wood and old plants especially have suffered most, and that dormant buds have weathered best. Those of the race of General Jacqueminot appear particularly impatient of frost. The lists are long, but a perusal may save some trouble and inconvenience to amateurs, and perhaps some annoyance to growers for sale, if they will discontinue (as I intend to do) to plant and propagate even those varieties only in lists Nos. 2 and 3, the flowers of which are not beyond mediocrity, and those that are worthy of propagation on account of their beauty can in future receive some slight protection, a course which cannot be resorted to in many gardens with respect to all sorts indiscriminately.

List No. I.—Roses Uninjured.

Hybrid Perpetuals.	*Hybrid Perpetuals.*
John Hopper	Charles Wood
La Ville de St. Denis	King's Acre
Madame Knorr	Deuil de Prince Albert
Caroline de Sansal	Dr. Andry
Victor Verdier	Souvenir d'un Môre
Jean Goujon	Maréchal Souchet
Charles Lefebvre	Princess of Wales
Madame Rivers	Belle de Printemps
Rev. H. Dombrain	President Lincoln
Madame Victor Verdier	Beauté Française
Triomphe de Paris	Duc d'Anjou
Alpaide de Rotalier	La Globuleuse
Madame André Leroy	Catherine Guillot
Princess Mary of Cambridge	Marguérite Appert
Duchesse de Medina Coeli	La Tour de Crouy
Bertha Levêque	La Tour d'Auvergne
Prudence Besson	Alphonse Karr
Marguérite de St. Amand	Maréchal Forey
Comtesse de Paris	Reine de Castillo
Semiramis	Madame Domage
Jean Cherpin	Triomphe de l'Exposition
Auguste Rivière	
Baron de Rothschild	*Other Varieties.*
Madame Fillion	Maréchal Niel
Hippolyte Flandrin	Gloire de Dijon
Madame Elise Vilmorin	Charles Lawson

List No. 2.*—Roses Partially Injured.

Hybrid Perpetuals.	*Hybrid Perpetuals.*
Wm. Griffiths	Madame Furtado
Baron Prevost	Prince Leon
Madame Vidot	Madame Julie Daran
Madame Boll	Vicomte Vigier
Baron de Noirmont	Triomphe des Beaux Arts
Madame Bontin	Louise Darzens
Madame Cillot	Charles Margottin
General Pellissier	Mademoiselle Marguérite Dombrain
Mathurin Regnier	Duc de Wellington
Comte de Nanteuil	General d'Hautpoult
Alexander Fontaine	Duchesse de Caylus
Baron A. de Rothschild	Souvenir de Wm. Wood
Louise Odier	Exposition de Brie
Baron Gonella	Alfred Colomb
Virginal	Fisher Holmes
Géant des Batailles	Chevalier Nigra
Sœur des Anges	Chas. Rouillard
Duc de Rohan	Souvenir de Dr. Jamin
André Leroy	Dr. Lindley
Lord Clyde	

List No. 3.—Very Tender Roses.

Hybrid Perpetuals.	*Hybrid Perpetuals.*
Prince Camille de Rohan	La Esmeralda
Lælia and Louise Peyronney	Laurent Descourt
Comtesse de Chabrillant	George Paul
Sénateur Vaisse	Souvenir de M. Rousseau
Le Rhone	Madame Derroux Donville
Anna de Diesbach	Claude Million
Mademoiselle Bonnaire	Princess Alice
Louis XIV.	Maréchal Canrobert
Beauty of Waltham	Madame Freeman
Madame Masson	Pavillon de Pregny
Duc de Cazes	Madame Souppert
Madame C. Crapelot	Gloire de Sacré Cœur
Duchess of Sutherland	Eugène Verdier
Pierre Notting	Mrs. Dombrain
Madame Charles Verdier	Souvenir de Chas. Montault
Rushton Radclyffe	Alfred de Rougemont
Lord Palmerston	Madame Eugène Appert
Souvenir de Leveson Gower	William Paul
General Jacqueminot	George Prince
Professor Roche	Leopold I.
François Lacharme	Madame Herman Stenger
Maréchal Vaillant	Jean Touvais
Olivier Delhomme	Murillo
Souvenir de Comte Cavour	Bernard Pallissy
Evêque de Nimes	Souvenir de Bernardin St. Pierre
François I.	Achille Gonod
Monsieur Ravel	Madlle. Amélie Halphen
Empereur de Maroc	Lord Herbert
François Arago	Lord Macaulay
Eugène Appert	Xavier Olibo
Lord Raglan	Madame Moreau
Gloire de Santenay	Belle Rose
Jean Bart	Monsieur Boncenne
Anna Alexieff	Elizabeth Vigneron
La Reine	Le Phocéene
Souvenir de la Reine d'Angleterre	Marguérite Bonnet
Gustave Rosseau	Josephine de Beauharnais
Sénateur Favre	President Mas
Duchesse d'Orleans	
Léon des Combats	*Other tender varieties.*†
Queen Victoria	Devoniensis
Madame Vigneron	Rubens
Adolphe Bossange	Madame Willermoz
Madame Charles Wood	Safranot
François Louvat	Maréchal Bugeaud
Madame Clemence Joigneaux	Triomphe de Guillot Fils
Belle de Bourg la Reine	President
Clement Marot	Souvenir d'un Ami
Maurice Bernardin	Triomphe de Rennes
Baron d'Heckeren	Céline Forestier
Madame Guinoisseau	Modèle de Perfection
Turenne	Louise Margottin
Princesse Mathilde	Acidalie
Alphonse Damaizin	Malmaison
Madame William Paul	Paul Ricaut
Triomphe d'Angers	Victor Emmanuel
	La Quintinie

Thomas Laxton, Stamford.

* In the above list are included some of the newer varieties, the powers of endurance of which I cannot thoroughly testify to, having only one plant of each.

† I have not had the means of testing any other Tea-scented varieties, as they were mostly protected.

Altitudinal Ratios of Moisture in the Atmosphere.—Have these any existence on a small scale? Does the quantity of aqueous vapour vary, for instance, with each measurement of 1 foot from the surface to 60 feet? Also, what is the influence of various temperatures ranging from 30° above to 30° below the freezing point on the aqueous vapour of the atmosphere within such low altitudes as 50 or 60 feet of the surface of the earth? Have any experiments been made on these subjects: by whom and where are they recorded? Would Professor Tyndall, Mr. Glaisher, Mr. Robert Thompson, J. S. Secundus, or any of your readers, oblige by answering these questions? The experiments would be more useful if the first foot from the surface could be divided into inches, and the first 6 feet into half feet. The possession of such an index of the aqueous vapour of the atmosphere reaching over that range of temperature would be invaluable, and explain many facts upon the seemingly capricious effects of cold, that are, without such knowledge, altogether inexplicable. *Quercus.*

Tricoloured Pelargoniums.—What a pity it is that "Scio" (see p. 153) has not practised what he teaches. He might easily have made a fortune. Mrs. Pollock and others of this class still keep up their price. Lucy Grieve came out last season at two and three guineas respectively per plant. Lady Cullum will come forth this year at probably a little less, as her ladyship is a splendid grower, as well as the most beautiful that has yet come out. But what is "Scio" about all this time, that he does not stock the market and bring down prices? He has been trying for several years, and there has been much cry and little wool. I have the pleasure of knowing Mr. Grieve; he deserves all the credit he has claimed. He originated the Tricolor Pelargoniums, and more, he still keeps the lead in them. I have never seen any of "Scio's," and but few of any one else's, fit to stand beside Mr. Grieve's, although he parts with his best annually. I believe he will beat "Scio" for the ten-guinea prize at Bury next July. At all events, I hope "Scio" will come, and teach by example. At present I am thoroughly sceptical of his powers, and know by experience that to obtain fine varieties is not quite so easy. However, we are willing to be convinced by actual results. Even Mr. Grieve, although an enthusiastic hybridiser, is no monopolist, and I believe few things would give him more pleasure than to see such plants by the million, adorning every cottage window. Even then, however, "honour to whom honour, &c."—and Mr. Grieve will for ever have the honour of raising the first tricoloured Pelargonium, and showing others—probably "Scio" among the rest—the way to do it. *D. T. F.*

Woolverstone.—By some unaccountable oversight, No. 17 bed in Woolverstone Flower Garden was overlooked in the list of bedding plants. It was filled with Tom Thumb Scarlet Pelargonium. The enlarged centre on page 157, is given to exhibit the Box embroidery. and the bedding out. Of course the two sides of the garden were filled exactly alike. *F.*

Fearnought Cabbage.—The specimens of the above hardy vegetable, which I send, are from a garden where Broccolis and Borecoles were almost all destroyed while the Fearnought Cabbage stood comparatively unscathed. It is of a very dwarf and compact habit, and occupies but little room in the garden. When cooked it is very tender and delicious. If sown in March it commences to turn in in January, and as soon as the heads are removed, it sprouts freely from the stalk. From a packet of seed sown in 1864, there sprang a motley crew; only a very few plants were true, and these having been carefully selected from, and seeded each year, there has resulted Cabbages of the character of those sent, and the plant now appears to be permanently fixed. The heart of the Cabbage comes much whiter than in the form produced in 1864, but this may be its true character, as I have not seen any form of it other than my own selection. The specimens shown at the meeting of the Fruit Committee, on the 19th inst., at South Kensington, were thought by many to have been blanched, so white were they at the heart. *Richard Dean, Ealing, W.* [A useful Cabbage with somewhat curly, purplish-tinted leaves, and small open yellowish hearts; when cooked they were tender, and the flavour was agreeable. Eds.]

Conifers.—At Tew Park, Oxfordshire, one Wellingtonia gigantea measures 22 feet in height; the circumference of the trunk at the base is 4 feet 5 inches, and it was planted in 1854. One Cupressus macrocarpa is 33 feet in height, and the circumference of the trunk at the base is 3 feet. One Sequoia sempervirens is 38 feet in height, and the circumference at base of the trunk is 3 feet 5 inches; in February, 1861, the wind broke about 5 feet off the top of this plant. Another Sequoia sempervirens is 33 feet in height, circumference of base 4 feet; this is a most beautifully furnished plant, which has been removed four times during the past 12 years. Cryptomeria japonica is 28 feet in height, and the circumference at the base is 3 feet. *A. Macfarlane.*

Clubbing of Cabbage.—For several seasons past I, in common with many neighbours, have suffered great loss, not only in the shape of Cabbage, but also in that of the Brassica family generally, from this pest. After trying many things, it occurred to my mind that when living in the chalky localities of Sussex I never remembered to have seen a case of clubbing. I therefore resolved to try chalk, which, I am happy to say, proves to be a perfect cure for the evil. The chalk is broken up in small pieces, and a good top dressing is put on when the ground is being dug. *R. G., Wandsworth.*

Gentiana Fortunei.—Will some one of your readers kindly oblige me with his experience in regard to the culture of this? Some years ago I obtained a very small, leafless plant of it from Mr. Noble, of Bagshot, at the rather large cost of 10*s.* 6*d.*, as it had then only recently been introduced, but I could not get it to grow. At a subsequent period I again applied to Mr.

Noble for another plant; he informed me that he had also lost the whole of his, and I learnt from a friend lately that no better success had attended one which he had got. My plant was received in March, and potted in a mixture of loam, sand, and thoroughly decomposed dung, from an old hotbed, placed in a cold frame, and planted out from the pot early in May, when it had only just begun to show signs of vegetation, which did not afterwards increase, and on examining the roots, I found that they were rotten. As I understood it to be a perfectly hardy perennial from the north of China, I confess I was surprised that such treatment should not have answered. Would peat earth be more suitable, and from whom can I now procure a plant, because, if to be had, I should like to try it again, the bloom being, I am told, exceedingly beautiful. *Amateur.*

Cucumbers. — There is now so great a variety of Cucumbers in existence that it is difficult for amateurs, and even some gardeners who are not well acquainted with them, to know what to select, when they have a catalogue before them with some 50 or 60 sorts, unless they have any old favourite which they know to be good; for some of them vary in length from 9 inches to a yard; and I see by an advertisement that you can have them to weigh 5 or 6 lb. Now, I do not profess to know the tastes of people who like Cucumbers, but I certainly should not think one of 5 or 6 lb. weight a very desirable sort to grow. I saw Cucumbers at a neighbour's place last summer, that were over a yard in length, and as large as a man's arm; they were the largest I ever saw, but as to flavour they were worthless; in fact, I know of no large Cucumber that is good except to look at, or to make a show on an exhibition table. To think of sending them to a gentleman's table would be absurd. Another reason why I do not like them is, that one gets so few from a plant of the large sorts; where my neighbour cuts one I cut a dozen from a sort called Glory of Hants (Dean). This is the best medium-sized Cucumber with which I am acquainted. I might also add that I grew last season the following sorts, viz., Hedsor Winter Prolific, Turner's Champion, Syon House, Hamilton's Invincible, Berkshire Champion, Star of the West, Cuthill's Black Spine, Taylor's Favourite, and Empress, and my employers said that Glory of Hants was the best of the lot. It is a good bearer, with a strong constitution, a free setter, and fine in flavour. Another I should recommend is the variety called Empress, which is similar to the other, except that it is not quite so dark in colour, and it is rather smoother. It will be found excellent for winter cultivation. *J. C. Higgs, Crabwood, near Southampton.*

Weather Records.—I was glad to see that your correspondent, Mr. Anderson, has called Mr. E. J. Lowe to account for his sweeping assertion that gardeners' records of the weather are not to be depended upon. There is no doubt that in some cases these records are fallacious on account of the inaccuracy of the instruments used, from their not being properly tested, or from the situations in which they are placed. The generality of gardeners, however, in large places are now beginning to see the advantages of gaining a correct knowledge of the temperature of the seasons, as well as of ascertaining the monthly falls of rain, as guides to practice. They are, therefore, turning their attention to having correct thermometers and rain gauges made, and to registering lengthened meteorological records in their different localities, of which your columns have lately given proof. I know of some gardeners who from daily practice, both in forcing-houses and in the open, can tell within a few degrees the amount of heat or cold without consulting thermometers at all; what class is, therefore, so able to give correct accounts of the temperature in severe winters? Can any of the learned savans show more interesting or accurate records of the weather than those which are given weekly and yearly from the Royal Horticultural Society's Garden at Chiswick by Mr. Thompson, who is a thoroughly practical gardener? With all their correct instruments fixed in thermometer stands, anemometers, hygrometers, and ozone test papers, did any of our great meteorologists predict the late severe weather in January? or have they advanced any correct data as yet in ascertaining the probable state of the weather for more than a few hours in advance? Mr. Lowe states in his communication to a gardening newspaper that he had 21 instruments at work on the 4th and 14th of January, but many gardeners had considerably more to attend to on these evenings, as they have also in all times of severe weather. All through January I myself had 29 thermometers to attend to in different positions, and ought therefore to be able to know pretty nearly the correct temperature, both in the open air, and in heated or unheated houses. *A Gardener.*

Thermometers.—Mr. Ingram says (see p. 104), "I am inclined to question the accuracy of the thermometers which have furnished your correspondents with such alarmingly low readings as have been recorded;" but if from height of situation, or other cause, Mr. Ingram has been favoured more than many of us, he should not condemn all other instruments, because they have truly recorded more frost than he has had. Facts speak for themselves. Mr. Ingram says neither shrubs nor vegetables have suffered with him, which is proof that the frost has not been so severe as with others. Here the thermometer fell to four degrees below zero, and at Scruton Hall, a distance of five miles off, Mr. Cox, an old Chiswick student, saw one of Negretti & Zambra's spirit thermometers, marking six degrees below zero at 12 o'clock on the night of the 3rd of January. Scruton Hall is situated near the river Swale. Very few vegetables have escaped here. Whole pieces of Broccoli have been completely destroyed; half the Brussels Sprouts are killed, and even Borecole has suffered severely. Laurustinus, Sweet Bays, and Arbutuses are killed to the ground. Berberis Fortuni and a fine plant of Pinus insignis have shared the same fate. Laurels are much browned, and all late-grown shoots are quite killed. Many other shrubs are much cut up, especially Taxodium sempervirens. This place is situated 170 feet above the level of the sea. It may be worth knowing that Sciadopitys verticillata has stood without protection unharmed. Retinospora obtusa and R. pisifera also stood at the back of a north wall, with the pots plunged in leaves, without injury. *William Culverwell, Thorpe Perrow, North Yorkshire.*

Societies.

ROYAL HORTICULTURAL: *Feb.* 19 (*Scientific Meeting*).—W. Wilson Saunders, Esq. (who had been re-elected into the Council in the room of Lord Grosvenor, who had resigned), in the chair. After the election of 24 new members, and the affiliation of 6 Societies, the awards of the Floral and Fruit Committees were announced, and the Rev. M. J. Berkeley offered a few remarks on the different subjects exhibited. He first alluded to a variety of Weeping Ash, which possessed the peculiarity of producing polleniferous flowers only, and therefore never bore seed. Reference was then made to the fine specimen of Saccolabium giganteum which was shown by Messrs. Veitch at one of the Society's meetings in December last. This he had carefully compared with S. violaceum, with which it had been said to agree; but he (Mr. Berkeley) had found it to be very different from that species, not only in the shape of the lip, but also in other important particulars. Mr. Berkeley had been applied to by Lord Powerscourt for the correct name of the Thuja cultivated in gardens under the name of T. Lobbii. In answering this question Gordon's Pinetum had been appealed to, but there the genus Thuja seemed to be in inextricable confusion; on consulting the Kew Herbarium, however, he found that T. Menziesii, T. Lobbii, and T. gigantea were all identical, while what is called T. gigantea in gardens was identical with Libocedrus decurrens, the latter a plant which obstinately refuses to be propagated by means of cuttings, and of which seeds cannot always be had. Some years ago it was thought to be impossible to strike cuttings of Chimonanthus fragrans, and a reward had been offered by the late Dr. Lindley to any person at Chiswick who could accomplish the operation. Last year, however, Mr. Bause, a skilful propagator in the Society's Garden, managed to strike the Chimonanthus, and he (Mr. Berkeley) hoped that he might also be equally successful in the case of Libocedrus decurrens. After adverting to some fine Amaryllids that were shown by Messrs. Garaway & Co., of Bristol, and to a small plant of Griffinia Blumenavia, to which a Second-class Certificate was awarded, some plants from Mr. Wilson Saunders, singularly suitable for table ornaments, came under notice. Among these were Sonchus arboreus, from Teneriffe, in the form of a graceful standard, with a beautiful head of finely-divided leaves; S. laciniatus and S. pinnatus; the little Sundew called Drosera dichotoma, and a species of Nidularium. To a stove climber in the form of a species of Bryonia, from Mr. Earley, bearing fringed snow-white flowers, attention was next directed. Of this it was stated that it produced as many as a dozen fresh blossoms every day for weeks together, and that they were very useful for bouquets. It was remarked that they closely resembled those of the Snake Cucumber. Allusion was next made to a most beautiful collection of Cyclamens from Messrs. E. G. Henderson & Son, and also to the sweet-smelling Gardenia citriodora; and then a dish of Mushrooms, shown by Mr. Earley, came under notice. Mushroom-eaters are perhaps aware, said Mr. Berkeley, that the only Fungi admitted into the Paris markets are Truffles, Morels, and Mushrooms, the finest of the latter coming from the Catacombs. In this country a notion prevails that our safest Mushrooms are got from beds spawned artificially, but the examples now shown were Mushrooms raised under these circumstances, and nothing could be more hard or indigestible than they were. The sort alluded to, he said, belonged to Agaricus arvensis (not campestris), and had a yellow tinge, while in shape they were as regularly formed as if they had been turned in a lathe. In order to obviate having mixed spawn, and thus to avoid injurious effects from bad Mushrooms, growers were recommended to prepare their own spawn, which might be got in the first instance from the fields in the autumn, and afterwards kept true to its kind. By that means an improved strain might be obtained. Mr. Berkeley then made a few statements in reference to the effects of the late frost in the valley of the Thames. At Chiswick, he said, the thermometer fell 11° below zero, and at Kew 4°. At the former establishment a fine tree of Cupressus macrocarpa has been killed, and Pinus insignis and Deodars are much injured, while a variety of the Deodar called robusta, similarly circumstanced, has almost wholly escaped, a fact worthy of remembrance. Allusion was made to the amount of protection afforded by snow to vegetation, and it was said that plants which survive harder winters than those of England in their native countries, not unfrequently perish here for want of a snow covering, or at least from having only imperfect protection in that way. He then asked for information as to the effects of the late frosts on the trunks of hardy timber trees, as it was a fact that even Oaks suffered in that respect in the severe winter of 1860-61.

Mr. Wilson Saunders produced illustrations of the effects of frost on Deodars, Garryas, and other shrubs, and he agreed with Mr. Berkeley that snow formed a great protection to vegetation. He added that variegated plants were not so able to resist the effects of a hard winter as the green types from which they sprung. Certain individuals of the same species, as for instance the Deodar, were also, even under the same circumstances, less hardy than others. He therefore urged the necessity of propagating only from such kinds as were found to possess a thoroughly hardy constitution.

Mr. Berkeley said the frost in the valley of the Thames seized upon vegetation full of sap, and therefore when it was least able to resist its evil effects. In its native country the Deodar was prepared, by means of cold rains, for any severe weather which might follow them.

Major Trevor Clarke remarked that the African Disa grandiflora had stood out of doors with him three winters, and that therefore it must be considered a useful addition to our hardy plants.

Mr. Bateman stated that on this occasion there was quite an inundation of Orchids, and among Cattleyas especially a smart competition, but that among the latter the palm must be awarded to a variety from Mr. Barnet, of Blackheath. Next came some extremely interesting examples of Orchids from Mr. Anderson, gr. to T. Dawson, Esq., of Meadow Bank, near Glasgow, some of which were shown for the first time. "This little flower," he said, "which I hold in my hand, comparatively insignificant though it be, is nevertheless highly interesting, inasmuch as it lives at a higher altitude than that of any other Orchid, viz., 14,000 feet above the level of the sea. It was therefore well named by Dr. Lindley Oncidium nubigenum. Another Orchid to which I wish to direct attention is Batemania Beaumontii, the second species of the genus yet introduced. In compliment to myself the late Dr. Lindley founded the genus Batemania and named the first species Colleyi, in honour of my collector, but having been only furnished with dried flowers, he was not then aware that it possessed so unsavoury an odour as to banish it from the society of all respectable Orchids. The advent of a second species was therefore hailed by me with delight, but my disappointment was correspondingly great when I found that it smelt even worse than the first." To Epidendrum Cooperianum, with lilac flowers, a figure of which will shortly be given in the "Botanical Magazine," attention was next directed, as well as to Vanda gigantea, a plant of striking beauty. Warrea discolor was much commended. Of Lælia superbiens Mr. Anderson furnished a fine spike, and it was stated that this plant was one of the grandest discoveries of the late lamented Mr. Skinner, who, when he saw it, was struck with amazement at its wondrous beauty, which in the clear atmosphere of Guatemala was conspicuous at an almost incredible distance. Of this Mr. Rucker also furnished an illustration in the shape of a cut spike. A good specimen of Dendrobium speciosum was shown by Mr. Wentworth Buller, who had also an interesting new Dendrobium, which had been named, in compliment to Mr. Buller, D. Bullerianum. From Mr. Penny, gr. to H. Gibbs, Esq., Regent's Park, came the finest examples of Lycaste Skinneri perhaps ever seen. Messrs. Low sent Lælia furfuracea in great beauty; and among divers Oncidia, one from Mr. Day in the way of O. pelicanum was new. From the same firm also came the rare Odontoglossum maculatum, a yellow-flowered kind, spotted and stained with reddish brown. Mr. Day furnished a new and pretty white Odontoglossum, allied to O. nebulosum. From Mr. Wilson, gardener to W. Marshall, Esq., of Enfield, came one of the finest series of Cattleyas ever seen, and it served to prove the truth of a suspicion which Mr. Bateman had entertained, viz., that C. pallida, Trianæi, quadricolor, Wagneri, and Warscewiczii were all one and the same kind, a fact which should not be forgotten by purchasers of Orchids. Dr. Pattison and Messrs. Veitch sent beautifully-flowered plants of Lycaste Skinneri, of which, as a posthumous compliment to Mr. Skinner, there was quite an unprecedented display. Fruit of the Kum-quat (Citrus japonica), from Mr. Bateman's garden at Knypersley, next occupied attention. The tree which produced it was stated to be trained over the back wall of a stove, or rather warm greenhouse, and when covered with its golden fruit it had a most lovely appearance. It was first exhibited from the Society's Garden at Chiswick in 1854, and was then described by the late Mr. Beaton as the smallest Orange in cultivation, in shape not unlike an Ashleaf Kidney Potato, and having a fragrant rind. Dried fruits of it, from Messrs Fortnum & Mason, were also shown to the meeting. Mr. Fortune states that this Orange is largely cultivated in China, especially in the more central and northern parts, and that he is of opinion that it is more hardy than the common Orange. He adds that the rind is sweet, but that the interior is very acid. It has this peculiarity, that it refuses to strike by means of cuttings, and that it can only be increased by grafting it on Limonia trifoliata. Mr. Bateman next referred to Mr. Hullett's offer in the *Times* to supply two or three seeds of what he had been pleased to call a new food, *i.e.*, the Chinese Sugar Grass, which was to be five times more productive than Wheat, to all who might favour him with a stamped and directed envelope. Of these Mr. H. declared (in *Bell's Messenger* of the 11th inst.) that he had received over 20,000 in one week, which he pleaded as his apology for not answering all at once. As a gauge of the measure of Mr. Hullett's liberality, Mr. Bateman stated that he had ascertained that Messrs. Clarke, of King Street, Covent Garden, were now selling the same thing at a rate that would give all Mr. Hullett's 20,000 applicants their 2 or 3 seeds a-piece, at the moderate sum of *one shilling!* The whole thing was, to say the least, a gross absurdity. The plant had been tried a dozen years ago at Chiswick, at Messrs. Sutton's at Reading, and elsewhere, and had always failed except on rare occasions to ripen its seeds in this country, through want of sufficient summer heat. Mr. Hullett's real motive in seeking extensive notoriety appeared clearly enough in a small printed memorandum that accompanied the seeds when sent out, and which contained an offer of further packages at 1*s.* and 5*s.* each! No doubt—thanks to the ignorance of the public—Mr. Hullett's "new food" will bring plenty of grist to his own mill. Mr. Bateman hoped that before the next meeting at South Kensington, further information would be had from Fellows and others on the subject.

Mr. Bateman then gave a highly interesting account of the life and discoveries of his friend Mr. Skinner, of whom a memoir will be found in another column.

Mr. Wilson Saunders proposed a vote of thanks to Mr. Bateman, which was unanimously accorded by one of the most crowded Tuesday meetings which have ever been held.

Among the visitors in the early part of the afternoon were their Royal Highnesses the Duchess of Cambridge and the Princess Mary.

Feb. 19 (*Floral Committee*).— Of a group of Cut Orchids, from Mr. Anderson, of Meadow Bank, mention has already been made, as well as of a spike of Lælia superbiens from Mr. Rucker. To the Cut Blooms of Lycaste Skinneri, shown by Mr. Penny, a Special Certificate was awarded. Messrs. Veitch also received a Special Certificate for their large and beautiful collection of Lycaste Skinneri. To Mr. Wilson, gr. to W. Marshall, Esq., a Special Certificate was also awarded for his group of Cattleyas. The same award was likewise made to Messrs. Low for collections of Lycaste Skinneri and of Oncidiums. Dr. Pattison, of St. John's Wood, received a Special Certificate for a collection of Orchids, among which was a small plant of a variety of Odontoglossum Warnerianum. The same award was made to Messrs. E. G. Henderson & Son for their Cyclamens. First-class Certificates were awarded to an Oncidium shown by Messrs. Low, and to the same for Odontoglossum maculatum superbum, a selected variety; and to Messrs. Garaway & Co., Durdham Down, Bristol, for the following varieties of Amaryllis, viz.:—Olivia, rich scarlet and crimson shaded, pure light throat; Cleopatra, bright orange scarlet, shaded and veined with glossy crimson, the colour reaching to the base of the segments; H. Gibbs, carmine crimson, with white stripe and margin; and Helena, orange-scarlet, with slight shading of crimson. A Second-class Certificate was awarded for Juliet, bright orange-scarlet, shaded with purplish crimson; and a Special Certificate to six plants of A. Ackermanni pulcherrima. Second-class Certificates were awarded to a variety of Asplenium difforme, from New Holland, shown by Messrs. Veitch—it was considered by the Committee to be a good basket Fern for a hardy greenhouse; and to Griffinia Blumenavia from Messrs. E. G. Henderson & Son. A similar award was made to Mr. Earley, of Digswell, for his Bryonia, having fragrant white blossoms with a curious thread-like fringe. Also to Oncidium species, from New Granada, in the way of O. sphacelatum, from Messrs. Low.

Special Certificates were awarded to Mr. Sherratt, gr. to James Bateman, Esq., for fruit of Citrus japonica, or Kum-quat, which it was thought might be cultivated out of doors in the warmer portions of the south and west of England. To a magnificent truss of Rhododendron argenteum, from Mr. Squibbs, gr. to Mrs. Turner, Rook's Nest, Godstone. To Dendrobium speciosum, from Mr. Buller, and to Messrs. Veitch for a handsome standard Aucuba japonica vera, in a tub, covered with its brilliantly-coloured berries.

Among other subjects of interest were Begonia digswelliensis from Mr. Earley; a large plant of Camellia Mathotiana, from Messrs. Veitch; cut flowers of the old Canarina Campanula, from Mr. Davis, gr. to W. Stride, Esq., Redbridge, Southampton; some plants of Fuchsia Cloth of Silver, a sport of a yellowish-green colour, but too young to judge of its merits; Iresine Herbstii splendida, a well-coloured specimen of I. Herbstii, not distinct enough to be classed as a variety; and

I. Herbstii aureo-reticulata with pale-green leaves veined with creamy yellow, the three latter from Messrs. E. G. Henderson and Son.

Feb. 19: (*Fruit Committee*).—Several collections of Apples were exhibited, among which one from Mr. Whiting, of the Deepdene, Dorking, obtained a Special Certificate; it comprised fine examples of Adams' Pearmain, Blenheim Pippin, and Alfriston. Mr. Parsons, gr. to W. J. Blake, Esq., Danesbury, had a similar award for numerous dishes in excellent condition, and among them Blenheim Pippin was especially fine, both in size and colour. Mr. Earley contributed Sam Young, Cockle Pippin, Fearn's Pippin, and Dredge's Fame, as well as a very good dish of Ashmead's Kernel from Gloucestershire. T. Laxton, Esq., of Stamford, sent two seedling Apples, named respectively Stamford Pippin and Welland Pippin, neither of which, however, was considered of such merit as to deserve a Certificate; and from Mr. T Shortt, gr. to Viscount Eversley, Heckfield, came Melon Apple, a showy American variety of excellent quality, ripened on a half standard in an orchard.

Among Vegetables, Mr. Earley exhibited excellent Shallots, and a collection of Potatos, the best of which appeared to be Hard Cash, Queen's Own, Mona's Pride, Royal Ashleaf, and Myatt's Ashleaf Kidneys; and of Round Varieties, Giant King, Soden's Early Oxford, and Victoria. From Mr. Dean, Ealing, came Fearnought Cabbage, from a garden in the south of Hampshire, where Broccoli and Kales were much injured by the severity of the late frost, whilst the Fearnought was scarcely touched. It is described as being the result of a cross between the Dwarf and the Hearting Kales. M. Ernst Benary, of Erfurt, contributed large examples of Celeriac, which is much used in Germany; but they were pithy, and not good either raw, in salads, or boiled.

Notices of Books.

The Miniature Fruit Garden, &c. By Thomas Rivers. Longmans. 14th edition. Small 8vo, pp. 142, fig. 20.

A book in its fourteenth edition needs no formal introduction; it is an old and valued friend, always ready to communicate any additional information that time and experience may have suggested. Among the additions to the present issue is a section on "diagonal single cordons," a method of training which Mr. Rivers recommends specially in the case of the Apricot, as obviating the disappointment often felt in summer by large and apparently healthy branches dying off suddenly. "Above all," says the author, "it does away with the tiresome annual necessity of 'laying in' shoots and pruning and nailing in winter. The single diagonal tree merely requires three or four stout shreds, or what would be a decided improvement, the same number of bands of india-rubber, to fasten the stem to the wall." The system is so simple that it may be recommended to amateurs, as the apparent disadvantage of having to purchase several trees instead of one is outweighed by the considerations which we have mentioned. Mr. Rivers speaks favourably of the German plan of lifting Fig trees at the end of October, placing them in dry cellars with earth over their roots, and replanting them in May, when they are subjected to the same routine of culture. This frequent removal induces great sturdiness of growth, and the formation of a large mass of fibrous roots.

Mr. Rivers' observations have the more value as having been made without reference to this or that theory of plant life. Untrammelled by scientific bias, Mr. Rivers, in carrying out his experiments, and in recording his observations, has always had a practical aim in view, and an excellent illustration of his sagacity is afforded by the fact, that while the value of his labours is admitted on all hands by practical gardeners, however they may differ from him in minor details, the methods he has pursued in his investigations, and the importance of his contributions to the history of plant-life, are equally recognised by physiologists.

Select Orchidaceous Plants. By Robert Warner. Second Series. London: Reeve & Co. Folio.

The First Series of Mr. Warner's handsome illustrated work on Orchids, comprised forty plates, representing some of the more choice and beautiful of these eminently beautiful plants. The Parts heretofore published were from time to time, noticed in our columns, and we have had frequent occasion to remark on the admirable execution of most of the plates, while the practical nature of the cultural notes especially recommended them to the attention of Orchid growers.

We find that in this Second Series, the general character of the former series is preserved. Both the size and the style of the work are the same. Mr. Fitch's facile and faithful pencil still furnishes the illustrations; Mr. Williams still supplies the practical information; while the ample stores in the Broomfield and other collections furnish appropriate subjects. In the two parts which are already issued are charming pictures of Cypripedium caudatum, Phalænopsis intermedia Portei, Dendrobium lituiflorum, Vanda Lowii, Oncidium chrysothyrsus, and Lælia crispilabia. We quote the following from the account of Oncidium chrysothyrsus, a really handsome and entirely new Brazilian species, so named, we observe, by Professor Reichenbach.

"The Oncidium family forms a very large group of Orchids, some of the species of which are extremely showy and free-flowering, and, we may add, among the most useful of Epiphytes. The species we now figure, which is a genuine representative of this charming genus, ranks as one of the most beautiful of the whole family. One of its good qualities is, that it is a compact grower; for it must be admitted that many of the Oncids are of straggling habit, and at the same time not so free-blooming as the one before us. This plant comes from S. Pedro, the most southern district of Brazil, and may be found a short distance from Port Alegre on Lake Patos. It is to be hoped that some collector may find it, and send a good supply.

"Oncidium chrysothyrsus, although now a very rare plant, should find a place in every collection as soon as a plentiful supply can be introduced. It is much to be regretted that the species of Oncidium are at present so little generally cultivated, for they undoubtedly include some of the most showy of Orchids; their bright-yellow flowers form an excellent and striking contrast with the colours presented by other genera, while their gracefully drooping spikes render them, in many instances, most useful for grouping. Some of them have flower-stems as much as 10 feet in length; and such as these, when introduced amongst the foliage of Ferns, or of other Orchids not in bloom, produce a charming effect. Their blossoms, moreover, last a long time in perfection, both on the plant, and when cut and placed in water. A few years since fine specimens were frequently seen at our exhibitions, but now they are seldom shown, cultivators appearing to think more of the smaller kinds of rare Orchids, of which, however, few are really fit subjects for our large exhibitions. These large massive Oncidiums ought to be encouraged in order to make up a grand display, for their flowers are generally showy and effective; moreover, when they are grown into such large masses, they form a good background to other plants, and yellow, which predominates amongst them, is a colour always welcome in a collection of these flowers, which it serves to enliven.

"We have already mentioned that the species now before us is of compact growth. The mass of bulbs and leaves grows nearly a foot in height, the leaves being of a light green colour; and the flower-spike is branching, and 3 feet in length, proceeding from the side of the pseudobulb. As to the colour of the flower, the sepals and petals are of a light green, bordered with red, and the lip is of a clear bright yellow. The plant continues in bloom for several weeks."

Florists' Flowers.

THE introduction from Mexico of the beautiful PENTSTEMON properly named Hartwegii, but to which in error is sometimes applied the name of gentianoides, which belongs to a kindred species—the introduction of this free-blooming and showy plant indicates the starting-point in the production of the present race of florists' Pentstemons, which already show a very great advance on the original form, and still go on improving. The bushy free-flowering habit of this original, and the size of its flowers, left little to be desired on these heads, and in respect to variations of colour, changes were soon brought about under the hands of the florist. By following these up, and by intercrossing with other species, not only has very great variety of form and colour been secured, but the size of the flower has gone on increasing, and latterly a very great advance has been made by the expansion of the limb segments, which gives to the flowers a bolder and more imposing character.

Among the novelties of last season improvements of the character of those just indicated were very strongly marked. The new sorts possess large Foxglove-like flowers, and leave the varieties of former years very far behind them as regards the size and form of the individual flowers, while they also show a manifest improvement in regard to the style of their foliage and their habit of growth. These recent acquisitions, moreover, possess what is very desirable in the case of flower-garden plants—a vigorous habit, and hardy constitution.

We have been kindly favoured by Mr. John Fraser, of Lea Bridge Road, who grows an extensive collection, with the names of the following varieties, which he regards as the cream of the novelties in question, and all first-class flowers:—

Alfred De Musset.—Reddish-crimson, with beautifully pencilled throat.

Edmond About.—Scarlet, with large white throat.

Georges Sand.—Bright purplish-lilac, with large white pencilled throat.

Indispensable.—Tinted rosy white; throat veined with rich crimson.

John Booth.—Rich crimson carmine, with beautiful pure white throat.

L'Africaine.—White, tinged with lilac violet, handsome throat.

Mélanie Lalauette.—Fine delicate rose, fringed with carmine; white pencilled throat; dwarf habit, extra.

Pauline Dumont.—Light rosy crimson, with white pencilled throat.

Souvenir de Matthieu Pernet.—Amaranth purple; throat white, veined with crimson.

Souvenir de St. Paul.—Rich purplish crimson, with white pencilled throat.

Surpasse Victor Hugo.—Fine reddish scarlet, with pure white throat, extra.

A correspondent asks for information how to grow the PANSY successfully, by which, we presume, he means for exhibition purposes. We have now the pleasure of supplying him with the following instructions, from one of our best authorities:—Healthy cuttings should be selected and planted in a cool place in July, and another set in October. A north border is the best situation for them, and they should be put under glass, in order to keep heavy rains from rotting them, but this covering should not be a close frame or pit; hand-glasses do exceedingly well if they are removed for a short time night and morning. Light soil must be used, and both the cuttings and the young plants after they have rooted are to be kept clean of all dead foliage.

If required for very early bloom, or to be exhibited in pots, the strongest young plants are to be selected and potted into 4-inch pots; they are to be placed in a cold frame, for the purpose of keeping off any excess of rain, but must have all the air possible. In December they are to be repotted into 7-inch pots, using rich soil. The plants generally make several leading shoots, but four or five are sufficient, and from these the small branches or side shoots should be removed as they grow, in order to throw strength into the principal shoots, and by this means to ensure large blooms.

Similar treatment will be successful for out of door culture. A cool but airy place is one of the principal requisites, and with this must be combined abundance of light, so that crowding must be avoided, or vigorous growth and large blooms will not be obtained.

The Apiary.

BEE CULTURE: HIVES (*continued from p.* 615, 1866).—Your apiarian readers may remember that during the early half of last year, I gave a series of descriptions of various hives which I had myself proved, or which from the experience of others I knew to be good in the hands of practical working bee keepers. These papers were discontinued when the summer became too far advanced to allow of any description of fresh hives to be made available for that season. It appeared to me more likely to be useful to intending constructors if I deferred the remaining papers on this subject until the present spring. Absence from home during several weeks prevented me from earlier carrying out my intention.

To Mr. George Fox, of Kingsbridge, Devon, is due the credit of having invented a principle with regard to the adjustment or gradual enlargement of supers, and of having adopted an admirable arrangement for this purpose, which he named "The Adjuster Hive," the merits of which have not, I think, been sufficiently appreciated by apiarians. The hive consists of a stock box in which the bees are originally domiciled, and a super made so much larger as to fit as nearly as possible outside it, and be capable of being moved up or down as may be desired. I have made some small alterations in the dimensions and the details of the hive to suit my own requirements. As I have found these to be improvements, the hive about to be described is according to the plan now adopted by me, and in use in my own apiary. The stock box is made of ⅞-inch wood, well dovetailed together, and secured at the corners with long iron pins, in the manner previously described: it is 13 inches square by 8⅝ inches in depth. It is fitted with nine bars, the same in every respect as those which fit my compound frames, similar, but of slightly different dimensions, to those described at p. 615 in the volume for last year. These bars are sunk in grooves, cut down into a rabbet ⅜ of an inch below the top of the box, so that there will be ⅜ of an inch space between the tops of the bars and the cover or adapter. This adapter is of half-inch wood, properly clamped at the sides to prevent warping. It is made of the exact outside dimensions of the box. Two slits for communication, about 9 inches long by ½ inch wide, are cut out near the two sides parallel with the direction of the bars. When not in use these may be covered by a second solid top, or by loose strips of wood. The floor-board is made of stout material, also well strengthened underneath by stout cross pieces. It is about 2 inches wider than the box on three sides, but at the front projects 6 inches, for the purpose of forming an alighting place. It will be found most convenient to fasten this board to the box with four screws. The entrance in the stock box may be from 4 to 7 inches wide by ⅜ inch high. At the back is a window, 7½ inches wide by 5 inches high. A shutter of very stout zinc is so fitted as to slide up and down in grooves nearly flush with the outside, passing through a narrow slit in the floor-board. When in position it is secured by a button underneath the floor-board. The outer box, or adjustable super, is made from 13 to 15 inches deep, by 14½ inches square, inside measure. These dimensions will permit of its being slipped down outside the stock-box with the smallest possible waste of space between the two. This box may be furnished with nine or ten bars, 15 inches in length, fitted exactly like the others in the stock hive, that is to allow of a space of ⅜ of an inch between the top of the bars and the cover. A window of the same width as that in the stock-box, but some inches deeper, is cut in the back. When the zinc slide belonging to the inner box is drawn down, the interior of both stock and super can be seen. Any ordinary kind of shutter can be adapted for the outer box or adjuster.

Instead of the adjuster being constructed of wood, I have them made also of a carefully constructed mahogany frame, glazed on sides and top. It is quite necessary that the glass is fixed as closely to the inner surface as possible. A super such as this when being nicely worked in, or when filled, is a most beautiful object. The stock box is peopled with a strong swarm in the usual way, the bars having previously been furnished with suitable worker-celled guide combs. When sufficiently filled, either the same season or in a subsequent one, the cover over the adapter (which adapter is usually kept screwed down) is removed, and the adjuster is slipped down over the hive until it rests on the floor-board. The bars in this box also are furnished with clean small-celled honey comb. There will thus be a space of about 4 or 5 inches for the bees to commence operations. As they progress the super is gradually raised, usually about 1 inch at a time, and may be retained in position by blocks of wood, or by pins let into holes made in the stock box. As the weight may become very great I prefer four blocks of wood, varying in length according as the super is raised.

As the honey season draws near its close, considerable judgment will be necessary to determine the room to be afforded by raising the super. If too much is given, the bees may work in wax, but will be unable to fill and seal the combs. It is better to stop short, giving rather too little than too much space. The amount of space given, and the time for increasing it, must depend on both season and district.

From my adjuster-hives I have taken large quantities of honey in supers more or less filled, according to the seasons, of 35 lb., 40 lb., 56 lb., and 63 lb. nett weight, all perfectly sealed, and of first-rate colour and quality.

Mr. George Fox has taken supers weighing, exclusive of boxes, 69 lb., 109 lb., and 112 lb., from some of his own hives, worked on this principle. I think, therefore, these facts justify me in describing this form of hive as one worthy of notice by the majority of scientific apiarians.

Of course some kind of outer case is necessary for protection from the weather. This may be made of a somewhat similar plan to those already described in these papers, which will be found more convenient than a single fixed case or shed, with immoveable roof attached.

If I have not sufficiently explained all the various details of this admirable hive, I shall be happy to afford further information, but space compels me to draw this paper to a conclusion. *S. Bevan Fox.*

Miscellaneous.

A New Poison.—In a paper addressed to the Academy of Sciences, Drs. Pecholier and Saint Pierre give an account of a poisonous plant called Boondoo by the natives of Gaboon, and which belongs to the Apocyneæ, like the Rosebay (Nerium Oleander), a shrub which few people know to be poisonous when taken internally. It is a curious fact that "judgments of God," so common in Europe during the middle ages, exist, and, for aught we know to the contrary, may have existed for thousands of years in Africa. Boondoo is the poison used for the purpose in Gaboon. The prisoner is made to swallow a dose of it; if he dies, he is deemed guilty, and if he recovers, innocent. Of course this sort of trial is subject to countless frauds, and we doubt not that the black gentleman entrusted with the administering of the drug makes a good thing of it. However that may be, our authors having succeeded in obtaining a few roots of this shrub, have instituted experiments with a view to ascertain the nature of the poison. They had not substance enough to enable them to separate the active principle by chemical treatment, but were obliged to limit their experiments to the aqueous and alcoholic extracts, the poisonous effects of which they tried on rabbits, dogs, and frogs. The results obtained are as follows:—1. The Boondoo plant contains a poisonous principle, which is soluble both in water and alcohol; 2. This poison operates much in the same way as Nux Vomica; that is, it chiefly acts on the sensory nervous system; 3. Administered either by the stomach, or by subcutaneous injection, it at first increases the frequency of respiration and pulsation of the heart, and then causes a diminution of both these functions; 4. This poison at the same time increases sensitiveness considerably, then causes tetanic convulsions, insensibility, paralysis and death; 5. It only acts secondarily on the motor system of nerves, does not act on the contractility of the muscular system, and it is not a poison of the heart, that organ continuing, on the contrary, to beat for some time after death; 6. In many cases in which very serious symptoms had been produced, and even sudden apparent death, and animal was observed to recover slowly, but definitively. And this is most probably the reason why this poison has been selected for judicial purposes. *Galignani.*

Lichens and Mosses.—Meek creatures! the first mercy of the earth, veiling with hushed softness its dentless rocks; creatures full of pity, covering with strange and tender honour the scarred disgrace of ruin, laying quiet finger on the trembling stones to teach them rest. No words that I know of will say what these Mosses are; none are delicate enough, none perfect enough, none rich enough. How is one to tell of the rounded bosses of furred and beaming green, the starred division of rubied bloom, fine-filmed, as if the rock spirits could spin porphyry as we do glass; the traceries of intricate silver, and fringes of amber, lustrous arborescent, burnished through every fibre into fitful brightness, and glossy traverses of silken change, yet all subdued and pensive, and framed for simplest, sweetest offices of grace. They will not be gathered, like the flowers, for chaplet or love-token; but of these the wild bird will make its nest, and the wearied child its pillow; and as the earth's first mercy, so they are its last gift to us. When all other service is vain from plant and tree, the soft Mosses and grey Lichens take up their watch by the headstone. The woods, the blossoms, the gift-bearing Grasses, have done their parts for a time, but these do service for ever. Trees for the builder's yard, flowers for the bride's chamber, corn for the granary, Moss for the grave. Yet, as in one sense the humblest, in another they are the most honoured of the earth-children. Unfading as motionless, the worm frets them not, and the autumn wastes not. Strong in lowliness, they neither blanch in heat nor pine in frost. To them, slow-fingered, constant-hearted, is intrusted the weaving of the dark, eternal tapestries of the hills; to them, slow-pencilled, iris-dyed, the tender framing of their endless imagery. Sharing the stillness of the unimpassioned rock, they share also its endurance, and while the winds of departing spring scatter the white Hawthorn blossom like drifted snow, and summer duns in the parched meadow the drooping of its cowslip-gold, far above, among the mountains, the silver Lichen-spots rest, star-like on the stone, and the gathering orange-stain upon the edge of yonder western peak reflects the sunsets of a thousand years. *Ruskin's Modern Painters.*

Garden Operations.

(*For the ensuing week.*)

PLANT HOUSES.

SOME *Orchids* and other *Stove Plants*, not previously referred to, and which in order to grow them successfully require rather more care and attention than others, may now be potted with safety. Among the former are included Phalænopsids, Burlingtonias, Sacco-labiums, Sobralias, Vandas, and similar genera. Of these the Phalænopsids succeed best firmly fixed on the end of a piece of cork sufficiently large to rise from the bottom of the pot to some 4 or 5 inches above the rim, securing this firmly in the centre by means of pieces of half-burnt charcoal, filling in all intervening spaces with clean dry sphagnum, and finishing all off, as if a cone of pure sphagnum was all the plant rested upon. Use water very sparingly until active growth has commenced. Sobralias, Burlingtonias, and others of similar habit require fibre and sphagnum, with pieces of broken pots all well intermixed, potting them as firmly as the material will permit. Saccolabiums and Vandas require similar treatment to that previously recommended for Aerides, using however rather more sphagnum. Amongst stove plants I may instance Alocasias, Bertolonias, Dieffenbachias, Sarracenias, Sonerilas, Brunsfelsias, Ixoras, and similar genera, which require all our skill to treat successfully. Any of these quickly succumb to anything in the way of unwholesome moisture, whether caused through want of proper drainage, a too tenacious soil, or other mismanagement. Endeavour, therefore, to form a compost, so free and open as to drain away every particle of water given to the ball, except what is wanted to keep up the necessary amount of moisture to maintain the roots in a healthy thriving state. This, however, must be borne in mind, that a compost, formed of four parts good peat and one of silver sand, is well adapted to the purpose. *Selaginellas* will also require potting into fresh materials, and to this class of plants the above remarks apply with even greater force; as, provided you have an efficient open compost, and good drainage, these cannot be watered too copiously during the height of their growing season. S. lævigata (cæsia arborea), with lengthened main stems, should have these latter twisted round inside the pot, and pegged down, so as to bring the growing portion into more immediate contact with the soil, carefully burying all roots therein. S. uncinata (cæsia) should have all the older growth of the previous season removed, when it is desirable to divide into two or more separate portions, the multiplicity of young shoots at the base. Such kinds as delicatissima, varia, lepidophylla, &c., do best elevated upon a mixed compost containing rather more silver sand than has been named, and they should be placed in shallow pans. S. pubescens (Wildenovii), however, likes a deeper, firmer soil than these.

FORCING HOUSES.

Pines in small pots, rooted suckers, &c., will now require potting. Even a few of larger growth will be benefited by a shift, should any showing unhealthy symptoms be found to be in an unprogressive state at the root. The proper soil, prepared as previously advised, should have a sixth of small pieces of charcoal and well-decomposed manure added thereto. Crock the pots moderately, yet efficiently, placing over them a handful of the coarser lumps, upon which the ball is to be firmly fixed, ramming the soil well down around it. Syringe the tops of all freshly potted plants occasionally, but withhold water from the roots for at least a couple of days. *Early Vineries* will now require constant attention. Rub off all superfluous shoots as they appear, stopping all divisional ones upon the younger growths just beyond the first leaf; keep all internal surfaces, except pipes or flues, constantly moistened. Where any Vines are planted inside the house, or where roots are likely to exist in the borders beneath, these should have a good soaking of weakly diluted manure-water about once a week. Avoid draughts or too sudden changes of temperature, especially at this season, when keen easterly winds often prevail. Increase the heat a few degrees by closing the house early upon sunny afternoons, and allow the proportionate advance of moisture. *Figs* planted out in early houses where a good drainage exists may also be well soaked at the root. Avoid, however, making the lower soil too wet in inefficiently constructed borders, which had better be over-dry than too wet. Soap-suds are excellent things for Figs when they can be given to them freely.

HARDY FLOWER GARDEN.

Roses will now require pruning. Hybrid Perpetuals may be freely cut-in to from 3 to 6 buds, according to the need of duly balancing one shoot with another upon each plant. All well placed shoots of robust growth should be permitted to retain one or two more eyes than less vigorous ones, which are too weak to carry so many successfully. Remove all ill-placed shoots, by severing them in two as close to the base as possible. Above all things, in all such operations, try to duly balance the upper growth with the strength of the roots: according to the amount of space occupied by the one, so should be the comparative surface of the other. Prune rather closely, Tea-scented and China Roses, except where strong, well-ripened shoots exist; reduce these a third, making them when convenient a basis for an extension of surface. Noisettes and Bourbons, which are generally robust growers, need not be pruned so closely. Cut them back to seven or eight eyes. Some varieties, such as Blairii, may have well-developed shoots laid in almost entire, as they flower profusely along such wood. Austrians need only have the small spray removed, just shortening the points of longer shoots, whilst Ayrshire and similar climbing varieties do best managed upon the spur system. Lay all young shoots in where needed, and so treat divisional growths, that when headed back they will constitute permanent flowering spurs. Cut back all young shoots upon Jasminums to within two or three eyes of the older wood, except where it is necessary to fill more room than is at present occupied.

HARDY FRUIT GARDEN.

Finish pruning all wall fruit trees as quickly as possible, especially *Peaches* and *Nectarines*, the buds upon which are becoming rather prominent in consequence of the late favourable change in the weather. Thin out all small spray, and cut away any ill-matured wood bodily. The points of shoots which are to remain will also in most instances require cutting down to well-ripened growth, which will be easily discovered by its colour and general appearance. Do not overcrowd the branches; on the contrary, give to each a uniform space to grow in throughout—a mode of treatment which greatly enhances the appearance of the trees. Where it may not be possible to give proper attention to these during their more active season of growth, apply to the wood now an admixture of flowers of sulphur, soft soap, soot, and a little clay, formed into a paint, with a large soft painter's brush painting the branches upwards from the base. *Gooseberries*, which we delay pruning to so late, on the defensive system as regards birds, which destroy the buds, should now have that operation performed. It will only be necessary to thin each bush out so that light and air may be admitted into all its parts. Let no shoot cross another, but cut away all ill-placed ones within an eye or so of the parent stem, and shorten all that are likely to sweep the ground when laden with fruit. It will be understood that as the young shoots of last year's growth are those which bear fruit, these should not be shortened, but should be allowed to remain as they are, when the bush is properly thinned out.

KITCHEN GARDEN.

Peas sown in boxes may be planted out in favourable situations should the weather prove fine, dividing them with the utmost care, in order that no roots may be broken. Earth them well up as soon as planted, giving them a good watering to settle the soil around them; and where convenient put sticks to them at once, so as to form a kind of protection should harsh weather ensue. Earth up all Peas well above ground, drawing the soil lightly up to them on any favourable occasion when the ground is moderately dry. Chance sowings should now be made of *Radishes*, Early Horn *Carrots*, and *Turnips*, especially the latter, which are in constant request. They should all be sown upon a south border, or in some other sunny aspect. If a few branches are placed lightly over the seed beds, they will, by breaking the harsher winds, aid the plants in their earlier stages of growth. Among Turnips, the *Red American* is one of the best for early work. Place any spare hand-lights, or similar protections, over beds of *Mint*; these, by forwarding early growth, will give a more permanent supply than is attainable from forced plants. *W. E.*

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON, For the Week ending Feb. 20, 1867, as observed at the Horticultural Gardens.

Feb.	Moon's Age	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Of the Air. Min.	Of the Air. Mean	Of the Earth. 1 foot deep.	Of the Earth. 2 feet deep.	Wind	Rain.
Thurs. 14	10	30.281	30 194	54	34	44.0	48	44	E.	.00
Friday 15	11	29 998	29 710	58	45	51.5	47	44	S.E.	.10
Satur. 16	12	29.774	29.719	59	40	49.5	49	46	S.W.	.38
Sunday 17	13	30.138	29 879	53	36	44.5	50	46	E.	.00
Mon. 18	●	30.412	30 061	48	42	45 0	49	46	E.	.00
Tues. 19	15	30 368	30.289	54	45	49 5	49	46	S.E.	.00
Wed. 20	16	30.179	30.407	58	41	49.5	49	46	W.	.00
Average.		30 207	30.037	54.8	40 4	47 6	48.7	45 1		0 48

Feb. 14—Foggy; hazy; very fine at night.
— 15—Fine, very fine, cloudy; rain.
— 16—Rain, fine, heavy rain at night.
— 17—Foggy and mild; fine, cloudy.
— 18—Dense fog, hazy, overcast at night.
— 19—Hazy and damp; fine, overcast and mild.
— 20—Hazy, fine; slightly overcast and fine at night; barometer very high.

Mean temperature of the week 9½ deg. below the average.

STATE OF THE WEATHER AT CHISWICK,
During the last 41 years, for the ensuing Week, ending March 2, 1867.

Feb. and March.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday ..24	46 7	32 5	39 6	20	0 60 in.	1	6	6	3	7	6	5	7
Mon. ..25	47.3	32.4	39.8	21	0 92	2	6	7	—	6	11	5	4
Tues. ..26	47.0	33.2	40.1	22	0 48	4	7	5	1	5	8	8	3
Wed. ..27	47.7	33 4	40 5	20	0 40	3	7	5	2	7	8	6	3
Thurs. ..28	49.0	33 0	41 0	15	0.81	1	9	5	—	2	11	5	8
Friday .. 1	47 6	33 5	40.6	15	0.45	2	7	6	1	3	13	■	3
Satur. .. 2	48 8	31 8	41.8	16	0 22	3	8	6	2	3	9	7	3

The highest temperature during the above period occurred on the 28th, 1846—therm. 64 deg.; and the lowest on the 28th, 1866—therm. 17 deg.

Notices to Correspondents.

BOOKS: *S J.* Apply to the Author, Denmark Hill, Camberwell, S.

FIGS, GRAFTING OF: *Constant Reader.* The Fig may be either grafted or budded; but it strikes so readily from cuttings or suckers that other modes of propagation are seldom resorted to. But more directly to your question: white sorts will take on black, and *vice versâ*. Mrs. Loudon saw in Italy above a dozen different sorts on one tree. Graft as you would Vines, immediately after the buds have burst into leaf—before this is the case you need not attempt it. ‖

GAS: *A B.* The presence in any quantity of sulphuretted hydrogen from an escape of gas into a room where Camellias and Pelargoniums are kept will certainly throw off the buds of the one, and injure, if not destroy, the leaves of the other. We cannot say how much, or rather how little, would be hurtful; it will be best to exclude it altogether.

NAMES OF FRUITS: *T Davies.* Apparently Adams' Pearmain.

NAMES OF PLANTS: *T B, Alton.* The Abies of which a twig has been sent is quite unknown to us. We should be glad if you would give us some details regarding your plant and where it came from; 2 is apparently Eugenia australis.—*D S.* 1, Cheilanthes elegans; 2, Cyrtomium caryotideum; 3, Pteris hastata.

PELARGONIUM: *Austin & McAslan.* The leaves of the variety, Castlemilk, were a good deal bruised, but enough remained to show that the white edging is broad and very pure. If a good grower, it will be an undoubted acquisition. You should send it to Chiswick for trial and exhibition there.

SWEET POTATO: *C C.* Pot the tubers, and start them in heat. Grow on in a warm genial atmosphere, and harden off to plant on a warm sheltered border, heated by some means—pipes or fermenting material—in June, when the weather sets in warm.

THEOBROMA: *J B, Ryde.* We much fear from the sample of Cocoa beans that you forwarded that none of them will germinate. The best means of transmitting them to India is in a properly-constructed Ward's case, placed under the charge of some careful and experienced person. The seeds may be sent also in slightly damped Moss, or in powdered charcoal.

GOOD SEEDS, CARRIAGE FREE.

SUTTON'S GRASS SEEDS
FOR ALL SOILS.

MESSRS. SUTTON

Specially prepare MIXTURES for every description of soil; therefore in ordering it is only necessary to state the nature of soil, and suitable Seeds will be supplied. The following are the popular classifications of soils :—

1. STIFF CLAY
2. STIFF or HEAVY LOAM
3. GOOD MEDIUM LOAM
4. LIGHT SANDS
5. SHARP GRAVELS
6. CHALKY SOILS
7. SHEEP DOWNS
8. RIVER FLATS, or WATER MEADOWS

SUTTON'S BEST MIXTURE of PERMANENT GRASSES and CLOVERS.—Prices for Nos. 1, 2, 3, 4, 5, 6, and 7 (2 bushels of Grasses, and 12 lb. Clovers per acre), 36*s.* per acre, carriage free.

CHEAPER MIXTURES, 26*s.* to 30*s.* p. acre, carriage free.

For No. 8, 30*s.* per acre, carriage free.

From many Letters before us we present one only for each description of Seeds.

From Mr. JOHN TOWLE, *Weirs and Hinckley Mills, near Oxford.*

April 9, 1866.—"Some five or six years back I had from you Permanent Grass Seeds for 40 acres, and the same quantity from another party; while yours has now a good sward upon it, the other is worn almost to nothing."

SUTTON'S RENOVATING MIXTURE for the above SOILS, price 10*d.* per lb., cheaper by the cwt.—If these Seeds are sown early in the season, the improvement in the Pasture will be very great, and at small expense. (5*s.* to 10*s.* per acre.)

From W. G. GOULBOURN, Esq., *North Mimms, Hatfield.*

March 15, 1866.—"The Renovating Mixture I had last year has already made an important improvement both in quality and quantity of crop."

SUTTON'S BEST MIXTURE for PARK LAWNS, BOWLING GREENS, CRICKET GROUNDS, for the above Soils, price 18*s.* per bushel. Sow 2 or 2½ bushels per acre.

SUTTON'S BEST MIXTURE of GRASSES and CLOVERS for Four Years' Lay, 24*s.* per acre, carriage free. Second Quality cheaper.

From JOSEPH KERRHAM, Esq., Jun., *Terrington.*

March 28, 1866.—"The Four Years' Lay Seeds I had from you have answered well; and although I had a heavy crop of Oats, there has been more feed than I ever saw before. I have had 100 ewes and lambs on the 10 acres for a long time, but it appears to grow almost as fast as they eat it."

SUTTON'S BEST MIXTURE of GRASSES and CLOVERS for Two Years' Lay, 18*s.* 6*d.* per acre, carriage free. Second Quality cheaper.

From Mr. WILLIAM JONES, *Agent to* E. P. Monkton, Esq., *Fineshade Abbey, Wansford.*

May 5, 1866.—"The Clovers and Grass Seeds supplied by you during my residence here (1864 and 1865), have given every satisfaction; indeed, in 1865, when all seeds around me were a failure, I had such an abundant crop of your 'Two Years' Lay Seeds,' that out of 60 acres I mowed 20 acres twice in that season, and the mowings together averaged quite three tons per acre."

SUTTON'S BEST MIXTURE of GRASSES and CLOVERS for One Year's Lay, 15*s.* per acre, carriage free.

From R. BIRD THOMPSON, Esq., *Free Chase, Stanyham, Crawley.*

Jan. 19, 1867.—"The seeds for one year's lay had from Messrs. SUTTON turned out wonderfully. The mowers stated they had not seen such a crop for years, and that it was like cutting into a wall. They said it was 4 feet high. Certainly it was the finest crop Mr. Bird Thompson ever saw."

SUTTON'S MIXTURES of CLOVERS and RYE-GRASS for One Year, 12*s.* to 14*s.* per acre, carriage free.

From Mr. E. NEAL, *Steward to the* Hon. J. K. HOWARD, *Hazelby.*

June 27, 1866.—"I have harvested 3 acres of Clovers and Italian Rye-grass from seed you sent me last year, which has been the admiration of the neighbourhood."

GOOD CLOVER SEEDS at market prices. Samples and lowest price per cwt. on application.

SUTTON'S SELECTED MANGEL WURZEL, TURNIP, and other FARM SEEDS, as see

SUTTON'S NEW FARM SEED LIST,
Gratis and Post Free on application.

☞ *All Goods Carriage Free, except very small parcels.*

Five per cent. discount allowed for Cash Payments.

SUTTON AND SONS,
ROYAL BERKSHIRE SEED ESTABLISHMENT,
READING.

Carter's Genuine Seeds.





CARTER'S SELECT LIST of GENUINE FARM SEEDS, at moderate prices, is now ready, and may be had post free on application to
CARTER'S Great London Seed Warehouse, 237 and 238, High Holborn, London, W.C.

GRASS SEEDS for PERMANENT PASTURE, of the finest quality, at moderate prices carefully selected on a new, natural, and scientific system.

See "WHEELER'S BOOK on GRASSES," which contains Illustrations and Descriptions of the most suitable Grasses for Permanent Pasture.

J. C. WHEELER & SON,
Gloucester,
Seedsmen to the Gloucestershire Agricultural Society.

Improvement of Grass Lands,
at from 5*s.* to 10*s.* per acre.

SUTTON'S RENOVATING MIXTURE
SHOULD NOW BE SOWN.
6 to 12 lb. per acre.

Price 10*d.* per lb. Cheaper by the cwt.

If these Seeds are sown early in the season, the improvement in the land will be very great, and at a small expense.

This Mixture should be bush-harrowed in, and rolled afterwards.

SUTTON & SONS,
Royal Berkshire Seed Establishment, Reading.

Sutton's Prize Mangel Wurzel,
TURNIP, IMPROVED KOHL RABI, &c., &c.

For PRICES, see
SUTTON'S NEW FARM SEED LIST, which may be had gratis and post free on application to
SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

ROYAL AGRICULTURAL SOCIETY of ENGLAND.
BURY ST. EDMUND'S MEETING, 1867.
STOCK, POULTRY and IMPLEMENT PRIZE SHEETS are now ready, and will be forwarded on application to
12, Hanover Square, London, W. H. HALL DARE, Sec.

The Agricultural Gazette.

SATURDAY, FEBRUARY 23, 1867.

MEETING FOR THE ENSUING WEEK.

WEDNESDAY, Feb. 27 { Lecture by Professor SIMONDS before the Royal Agricultural Society of England, at 12, Hanover Square—Noon.

AT a time when so many Potatos have been frosted, and bread is rising, and the more common garden esculents have been spoiled, it becomes a matter of importance to inquire into the nature and properties of the commoner articles of diet, with a view, if possible, to point out the principles which should guide us in finding a substitute for any crop that may have failed us.

If we inquire into the nature of vegetable food substances we shall find that they contain the following proximate principles :—

1. Nitrogenous or flesh-forming constituents; those which aid in the formation and restoration of muscle.

2. Substances not containing nitrogen, as starch, sugar, vegetable fibre. These are fitted to support respiration or to lay on fat.

3. Ashes. The earthy materials which are left after burning.

4. Water.

Now, these principles exist in very varied proportions in different kinds of plants and their products, and it will be found that such products are more or less valuable for different purposes, according as one or other of the desired ingredients prevails :—thus, Barley-meal will be found to contain 69½ per cent. of fat-forming elements, and Potatos only 21½ per cent. of the same. Barley-meal, then, compared weight for weight with Potatos, will be found to afford more than three times the fattening materials of the fresh Potato. Again, Peas contain nearly 23½ per cent. of flesh-forming matter, while Barley affords but 13, Wheat 14, and Potatos only 2½ per cent.—figures which enable us to estimate the differences which prevail in this respect; whilst in the matter of water we find that Potatos contain nearly 75, Oats 12, and Peas a little over 14 per cent. of this fluid. Now, as the keeping up of the muscle of an animal on the one hand, and duly balancing the fat-forming and respiratory functions on the other, are important to the development and well-being of all animals, including the highest, it follows that if chemical principles and analyses are to be depended upon, these will give us at least an approximate method of estimating the relative value of different food materials.

Experience soon teaches us the value of this guide in purchasing and selecting food for the growth and fattening of inferior animals, and we cannot help thinking that with regard to man himself it is no unimportant matter for his consideration—what is food?

In order then to this inquiry, we shall lay before our readers a table of the proximate analyses of different substances, mostly compiled from BOUSSINGAULT, and then inquire into their value as food.

Table of the General Composition of some Cereals, &c.

Constituents.	Potatos, fresh.	Oats, air dry.	Barley, air dry.	Wheat flour.	Peas, air dry.
1, Nitrogenised or flesh-forming	2.49	13.6	13.0	14.6	23.4
2. Fat-forming ..	21.66	70.3	69.5	69.8	66.0
3. Ashes	0.90	3.3	3.5	1.6	2.5
4. Water	74.95	12.8	14.0	14.0	14.1
	100.00	100.0	100.0	100.0	100.0

It would appear then from this Table, that Potatos can only be considered as food in a highly diluted state, whilst, compared with Peas, the latter can only be viewed as concentrated food. If then we inquire into the relative feeding value of meats, and find pork to be the lowest of all, it will at once acquaint us with the cogency of marrying Peas-pudding to boiled pork. On the other hand, we are enabled to trace how it is that Potatos have become popular at the tables of the rich, as, mixed with a generous meat diet, they are of importance to aid in its dilution. Peas again have almost disappeared from the tables of the poor as well as the rich. From the latter advisably so, as they induce flatulency or indigestion, but for the poor man to discard them is altogether unwise, as his object is too frequently not how to obtain luxuries, but how to live.

To make this reasoning appear more clearly, it will be necessary to point to the ascertained fact, that 5 ounces of flesh-formers are required to restore the daily waste of the body; if, then, these be forthcoming in meat rations, to get them in addition in Peas must create indigestion, and the inconvenience of this would be felt most by those who have done growing and the idler.

If any one will examine the tables in the Food Department of the Kensington Museum he will find amongst them the following, which they tell us has been arranged upon certain assumptions.

Table of Cost of Five Ounces of Flesh-formers.

	lb. oz.	Average cost.
Wheat flour	2 1	0*s.* 4½*d.*
Barley meal	2 6	0 4½
Oatmeal	1 13	0 4½
Maize	2 9	0 7½
Rice	4 13	1 2
Peas	1 5	0 2¾
Potatos	20 13	0 7

The assumptions alluded to are the following :—In nutrition, the tissues of the body can only be produced by the agency of FLESH-FORMERS, already the same in composition as the flesh to be formed. Different kinds of food vary much in their amount of flesh-formers, some, as Legumes (Peas, Beans, &c.) being rich in them, while others, as Potatos and Carrots, are poor. An adult labouring man must have five ounces of flesh-formers supplied daily in food to restore the waste of five ounces of the organic parts of his body. It becomes important to know what quantities of each kind of food he must consume to supply the normal waste of five ounces, and what would be the cost to him of restoring the waste by the several kinds of food in common use. The different quantities of food shown in the Table all contain the same amount (five ounces) of flesh-formers; and they must be eaten as the day's supply to enable the labourer to do a day's work; their relative cost for restoring the daily waste of tissues is the money paid in purchasing the amount exhibited. Experience, however, has taught man that he should mix food so as to ensure a proper balance between the heat-givers and flesh-formers, and not to depend upon one kind of food for the exclusive supply of either.

It follows then from the above Table that Rice, which is so much resorted to in times of scarcity, is the dearest of all food, and next to it, if they

have to be bought, rank Maize and Potatos, and Potatos are now dear to the Londoner, and they are by disease and frost nearly lost to the cottager, so that of necessity he must find some substitute. Bread of course will be had recourse to, to make up this deficit, but it follows from our argument that at the present price of Peas, 7*s.* per bushel, (and we can spare them to our labourers for 6*s.*,) they will be a substitute for Potatos and a food for the poor man which should not be overlooked. The farmer, again, will find them, when compared with other feeding stuffs, particularly valuable and highly profitable, more especially for working animals on the one hand and growing creatures on the other.*

—— THE 26th legislative attempt to regulate the relations of Landlord and Tenant in Ireland is made in a new Tenant Right Bill, which was introduced last week by Lord NAAS, and is thus described by the *Times*. "The chief feature of the measure is, that it enables a tenant to obtain compensation for drainage works, the reclamation of waste land, and the removal of stones or other useless materials from the soil, without consulting his landlord, but subject to the approval of a Government official. For this purpose the functions of the present Board of Works in Ireland are extended by appointing a special commissioner, with power to make advances to tenants on the same general terms as to landlords under the Land Improvement Acts. A tenant desiring to borrow money for any improvements of the kinds already specified would present a memorial to the Commissioner, who would thereupon give notice to the landlord, and institute proper inquiries into the expediency of the intended outlay. Having satisfied himself on this point, he would give his sanction to the improvement, and grant the required loan at his own discretion, with or without the landlord's concurrence. The tenant would receive a certificate, in a simple form, binding him to repay the principal by instalments within thirty-five years, and making the repayment a charge on the land. Nor is this all, for, by another provision of the bill, a tenant who happens to have capital enough to execute improvements for himself has only to obtain authority from the Commissioner, under the conditions, and thenceforth becomes entitled, on eviction or voluntary departure, 'to go and receive back from the Commissioner the money charged upon the land in a lump sum, *minus* only those instalments which he should have paid had he borrowed the money in the ordinary way.' The Bill, however, distinguishes for purposes of exception another class of improvements for which the landlord's consent shall in all cases be required. This class includes 'the erection of farm buildings and dwellings, the making of fences, and the construction of farm roads.' Of all so-called improvements the erection of farm buildings is that which is of the most doubtful utility to the landlord, and which is most likely to create a claim for compensation. It is generally the landlord's object to favour the gradual absorption of small into large holdings. Now, it is obvious that if homesteads, barns, and sheds are built on every little farm of 10 or 20 acres, the process of conversion will entail a considerable sacrifice upon some one. The value of a house, or even of a stone wall, is not exhausted in a generation. The landlord, therefore, will frequently be called upon to pay for what does not increase the letting value of his property, if it be not a positive encumbrance upon it. There is, then, sufficient justification in equity for the line drawn by Lord NAAS between improvements in the land and improvements on the land. Whether in practice the arbitration of Government, if invoked at all, can be kept within moderate and safe limits, is a subject which deserves consideration."

—— On Monday it was stated, in answer to a question by Mr. M'LAGAN, that it is the intention of the Government during the ensuing session to adopt the same means for the collection of Agricultural Statistics in England and Scotland as last year.

—— On Tuesday Mr. FAWCETT gave notice that on going into Committee of Supply next Friday he would call the attention of the House to the importance of extending the Education clauses of the Factory Acts to children employed in agriculture.

—— The following particulars relating to Cattle Plague compensation have been elicited by questions addressed to the Government during the past week. Arrangements have been made for compensation for diseased animals slaughtered under the authority of the Orders in Council between the 26th August, 1865, and the 23d of the following November, on which occasion the slaughtering power was revoked on the recommendation of the Commissioners. From the 23d November to the passing of the Act at the beginning of last session the inspectors had no power to order the slaughter of diseased animals, and consequently the Government did not propose to grant compensation for that period. The rate at which the compensation will be made from August to November, 1865, will be the same as that fixed by the Act of last session—that is to say, one-half the value of the animal, less any amount received from insurance, local rates, or the sale of the carcase. The special claims of Cheshire for compensation in respect of carcases which had been buried under Orders of Council, to the loss of any possible profit which might have been made from them between the Order of the 23d of November and the passing of the Act of last Session, had been stated to the Government by an influential deputation from that county; and it was shown that the inhabitants of Cheshire had suffered a very severe calamity, which had fallen upon them particularly during this period; but it has been found impossible to make any exception in favour of Cheshire to the rule above stated.

—— The *Times* correspondent at Paris quotes an address by the Prefect of the Lozère to the Agricultural Society of the department, in which the injury done to that country by the wholesale Destruction of Forests is well illustrated:—From the nook where the Lot has its source along to Barjac the traveller sees nothing but rock, with here and there a few stumps of trees, as if to show that in former times there was vegetable soil, fair woods, and great forests. From Mende to Florac, more than 22 miles, there is the same desolation. In former times those steeps were shaded by Fir trees, Beeches, and Oaks, and now, nothing but rocks. When the storm rushes down, the roads are covered with their fragments, the circulation is interrupted, and year after year the State is called upon to spend immense sums to re-open it, which would be more advantageously employed in improving the highways. The communications remain interrupted for weeks, and the farmer is ruined because he cannot reach the towns to dispose of his produce. The Prefect quoted one instance of recent occurrence:—

"I visited during the last summer the south-east of this department. An elevation attracted my attention. Its northern slope was covered with rich Grass and trees, while the other was a shapeless mass of rock. The soil had disappeared. Low walls had served as the boundary between both. Alas! there was no longer any need of them; the boundary was sufficiently marked by this contrast of a rich vegetation with a stony surface. I inquired the cause, and learnt that the northern side belonged to an intelligent man, who had carefully preserved the Grass and the trees, the inheritance of his fathers. The southern part belonged to the commune. The inhabitants of the commune had divided it, cut down the trees, ploughed up the turf, and sowed corn in it. Snow and rain came on in due course. The soil by little and little melted away, and was carried off into the valley, and in ten years there was nothing left but rock. The commune is now completely unproductive; on the contrary, the rest of the hill has greatly increased in value. The intelligent proprietor is grown rich, and the commune poor. The inhabitants had, indeed, for a few years the pleasure of getting in a trifle of Rye. Now they get nothing whatever, and they are in a state of destitution."

A hundred and fifty years ago the Gevaudan, a subdivision of the Lozère, was covered with forests, and had a population of 150,000 souls. The Lozère has a more extensive superficies, and its population, according to the last census, was only 135,000. The result of the present census is not known, but what is known is that from 1850 to 1860 the department has lost 1,000 each year. If the increase of the population of France, which in the 18th century was only 18 millions, and is now more than 36, be taken into account, the Lozère should now have more than 300,000. The soil is impoverished, the crops and the cattle are every year more scanty, the soil no longer suffices to feed the inhabitants, who are leaving the country. The population is so reduced that there are not enough for tillage; the land is left waste; and if some remedy be not applied to the department of Lozère in the course of the century, it will have to be partitioned among the neighbouring departments and blotted out as a distinct division from the map of France. The Prefect says:—

"God made of your department a country of timber, of pasture land, and of earth. To each country He has traced its way; that was yours. You have changed it. You have uprooted the trees; you have ploughed up the soil; and on these precipitous heights you wanted to grow Rye and Wheat. You have acted against the decrees of Providence as well as against the laws of common sense, and you are now cruelly punished for it. . . The turf and the trees which you thus recklessly destroyed kept in by means of their roots the rain water. That water, a portion of which was thus absorbed, could only flow off slowly. The rivers did not swell with the rapidity and the violence which now make of them formidable torrents. The soil kept on our mountains was not swept away into the valleys; it did not raise the beds of our rivers; it did not make them overflow. Not only did the trees retain the water and absorb a great part of it, but they made it penetrate to a certain depth in the soil, and their roots opened the rock placed under it and formed small reservoirs in which the water was lost. Now the torrential rains at once cover the 20 or 30 centimetres of vegetable soil. Below it they find the rock, flow over it, and carry off the earth. Do you want the proof of it? Go over these devastated cantons, and you shall everywhere see the freshly-sown fields cut up into ravines, while the neighbouring fields, which their herbage covers, do not appear to have been even touched by the storms. All that was timber, all that was Grass, has been preserved; all that was sown is cut up, and it is this earth detached from the mountains—it is these masses of water which there is nothing to retain that have made our brooks overflow, and have left the department of the Lozère a ruin.'

The Prefect concluded by strongly recommending his hearers, if they could not repair the mischief already done, at all events to provide against the future by sowing Grass and planting.

PROF. WRIGHTSON'S INTRODUCTORY LECTURE TO AGRICULTURAL STUDENTS.

[The Royal Agricultural College at Cirencester opened for the Spring Session on Monday, the 11th inst. On Tuesday Professor Wrightson addressed the following remarks to the Students, who had just commenced their studies:—]

IN commencing a course of lectures on Agriculture, it is well to state at the outset that the object of the course is to give you such an insight into the nature of farming, that when you begin business for yourselves your minds may be free from prejudices, that you may be able to sift the false from the true, to stimulate you to observation, to give you a systematic method of investigating contending opinions, and to induce you to take a keen interest in farming matters, whether in books or on the farm. You will also have such statistics placed before you regarding labour, stock feeding, and crop growing, as will serve as bases for numerous calculations.

Let us, however, remember one important fact in connection with our subject, viz., that although these lectures will be made as practical as possible, yet it is not from advice alone that a man becomes a good farmer. The above-named qualities may be developed by a course of study, but the student still requires a personal experience before he is to be considered as fully understanding his business.

Here, no doubt, lies the mistake which many people make regarding the agricultural education as conducted here and in similar institutions. They want to see men turned off from such colleges thorough long-headed, shrewd farmers. Now this is impossible.

You may see, and I have frequently met with, shrewd bargain-making young fellows, who were well up in selling and buying, and also in the routine work of a farm, but I contend that to attain this skill at a very early age requires too frequently a great sacrifice of noble qualities, and a degradation of the man into a mere bargain driver. It is always melancholy to see a man with a greater amount of capital than of education—a condition more common among farmers than other classes. The object sought after in this College is both general and individual improvement; while the private advantage of each student is considered, the public duty of advancing agriculture must not be lost sight of. Now, if the private interest of individual farmers is the only object of the instruction given here, I think I am right in saying that so high a scientific education is hardly necessary. Any man who will take the trouble to read agricultural periodicals will have all the new and scientific appliances regarding agriculture placed before him; and by advising with those who have already tried them, he may adopt those which seem most suitable to his exigencies. In this way a man of judgment and practical knowledge of farming may reap the advantages of scientific discoveries without understanding the principles upon which they are founded. This is a good result as far as it goes, but it does not need many words to prove that such imitation is not the true spirit of advancement which undoubtedly characterises modern agriculture.

Men holding the Diploma of this College should be among the leaders of scientific agriculture, and the knowledge of principles attained here will enable them to do their part in advancing this, the most important art which men have cultivated.

AGRICULTURAL EDUCATION.

Although you will have the opportunity of much practical instruction, both in the lecture room and on the farm, yet it is elsewhere, and especially, I say, when you begin business for yourselves, that you will attain that knowledge which will make you pass among men as shrewd, intelligent, and successful farmers—and for this reason, that it requires frequent contact with men and the knowledge and tact requisite to make a bargain—ay thousands of bargains, before a man can farm profitably. A young gentleman commencing farming is too apt in buying cattle to think it is hardly worth while to haggle with the dealer for the 5*s.* a head which prevents the consummation of the bargain; and again, 5*s.* or 10*s.* a head is hardly and perhaps successfully fought for by the butcher, who buys the same cattle fat. The profits of farming are not so large that they can thus afford to be trifled away. It is not only in selling and buying that the peculiar tact only arrived at by experience is required. It is in contriving work and managing workmen, in watching markets and in constant attention to little things—little losses, little wastes, that the successful differs from the unsuccessful farmer.

Now no system of scholastic education will give these qualities, but an institution of this kind has, even here, an immense advantage over any system of farm pupilage, because by encouraging industry, regularity, and a systematic mode of portioning time, a foundation of good habits is laid which will contribute largely to the after success of our students.

It is highly probable that when many of you begin to farm you will find your neighbours, and even your best workmen, better versed in the minutiæ of daily work than yourselves, and you will then have to give your utmost attention to the mastering of details. And no wonder; much more surprising would it be if the two years spent here, and perhaps other two years with a farmer, could give you an advantage in such matters over men who for perhaps 20 or 30 years have been fighting their way in the world, working for the subsistence of their families, and reasoning by the logic of the pocket. Those who make the comparison between an experienced old-fashioned agriculturist and our young scientific farmer just beginning business, to the disparagement of the latter, are not acting fairly—they are looking for too much from our system of education—they are looking for more than is expected from any other professional education. Who expects that a young engineer from King's College, London, is capable of at once taking charge of work where practical difficulties are constantly to be met with? Who would rely entirely upon the opinion of a young physician fresh from the schools, however high he had passed in examinations? The opinion of an old hospital nurse might perhaps be as valuable. I have heard a young doctor say that when he commenced practice, he felt as if he knew nothing! I have been told by an attorney that it was only when he sat down to his own desk in his own office that he began truly to learn his business!

But will any one dare to say that the long course of previous study which those men had gone through is fruitless—that they might as well have bought a practice or opened an office without it? No: it only proves that however extensive the knowledge, experience is still requisite before full use can be made of it.

So it is with farming—we want knowledge and experience; the former you can get here, the latter you must seek elsewhere. We have then to do with the attainment of knowledge. Those of you who have

* Read Mr. Cox's paper on Food for Labourers, in another column.

just entered on your studies, have two years, in which you will have placed before you a most extensive view of the field of knowledge requisite to you as agriculturists. In the recent progress of agriculture much has been contributed by land-owners and farmers, but, besides what they have done, numerous discoveries have been made by men of various occupations, insomuch that the knowledge which they have brought to bear upon the subject, has become agricultural knowledge. Surely Fowler, Howard, Ransome, Garrett, Clayton, are to be considered as among the great reformers of agriculture, and insensibly an engineering element is introduced, so that in judging of the merits of the implements brought out by these and other eminent firms, considerable engineering skill is requisite. A man farming on a large scale is often thus called upon to decide upon the most fitting machinery for this purpose; and not only this, but to find out the most economical modes of applying force and fuel, and hence the importance of a knowledge of mechanics and physics, in order to use machinery to the best advantage. In these days of steam-threshing and steam-ploughing it is needless further to insist on the importance of a knowledge of engineering to the farmer.

As agriculturists we must pay attention to the study of the soil, but here also we find others besides agriculturists engaged. Physicists and chemists have shown the properties and composition of the soil in a way which would have been quite impossible without their assistance, so that whether we study the soil as a nourisher and supporter of plants, or in its relations to various manuring agencies, we find chemistry taking the lead in the investigation. The questions of the ultimate exhaustion of the soil, of mineral *versus* ammoniacal and organic manures, of the beneficial or prejudicial effects of certain manures sometimes called stimulating, cannot be answered without chemistry.

Influence of Science.

The solution of the above queries shows the important function which this science has yet to exercise upon agriculture, while the numerous portable manures now in use, and the valuable key to their composition furnished by analysis, rank amongst the most important benefits which agriculture has already derived from its study. Passing from the region of dead matter we enter into that of living matter, both animal and vegetable, and here we find forces more complex and requiring more patient and elaborate investigation than before. Here we find the chemist unable to proceed but by the help of another science—physiology. The study of the roots, and the modes of absorbing nutriment of different plants, can only be prosecuted by an intimate knowledge of these sister sciences. The investigation on the right proportions of nitrogenous and non-nitrogenous constituents in the food of different animals, in order to produce the largest production of fat; the clearing up of the difficult question regarding the feeding value of the three analogous hydro-carbons—fat, sugar, and starch; all are of vital importance to the stock-feeder, and are among the most important questions which science has answered or has yet to answer.

It is in the study of plants that physiological botany plays an important part. This is well shown in Liebig's "Laws of Husbandry," where great importance is attached to the amount of root surface presented by each plant to the soil, the direction in which the roots grow, and the length of time each season during which they remain active.

You will, during your Course, have the opportunity of studying veterinary medicine, a science which has made most rapid progress lately, and which must be important to all owners of stock, teaching them not only the treatment of disease but the conditions of health.

These are by no means all the branches of science which have, during late years, been brought to bear upon agriculture; my object in bringing them before you now is not to exhaust the subject, but to show you the harmony which subsists between the various departments of this College, and that they must all be viewed as bearing upon our intention, namely, to give you a sound practical and scientific agricultural education. The time is short, the knowledge is extensive, and the most industrious can only hope to get an extended view of the bearings of science upon agriculture, but such a view, we hope, as may stimulate him to pursue some one branch thoroughly, and finally to leave behind him something added to the stock of knowledge which already exists.

Lectures, Books, Observation.

Regarding the lectures on agriculture, I would here observe that my wish is to induce observation and study, rather than a slavish adherence to the notes which you may take at the lecture hour. From time to time you will be directed to peruse the works of our standard agricultural writers, and it is upon such works as well as from notes taken during lectures that your opinions must be based. Note-taking is an art which requires considerable experience before a man can attain a great proficiency in it, and it is important in an opening lecture to make a few remarks upon the best mode of taking a note.

I have seen some men writing as it were against time during the whole lecture, apparently struggling to take down, word for word, all that was said by the lecturer, and it is really astonishing what voluminous notes they obtain. Now this system of note-taking, although very praiseworthy, indicating to say the least an industrious man, yet is very faulty.

No man can give all his energy to two things at once, and if so much physical and mental force is spent over a sort of high pressure dictation exercise, you will have all the less to give towards following the lecturer in his subject. Everything is not worth noting down, and even striking facts need not, provided some book is known which contains the same information. In such a case, however, it is well to mention the book, and what subject you wish to refer to. For instance, in a lecture on Clover, Liebig's views would most probably be given as to the nature of Clover sickness. The only note here necessary would be, "Clover sickness, Liebig's views, 'Laws of Husbandry,' to be read." In taking a note first hear what is stated, and then make your note as concisely as possible, leaving nothing to memory. You will find it very serviceable to keep a book by you when you are reading, in which you may condense into a few words what has taken up many pages of the work you are studying; thus the conclusion come to after a long investigation or argument may be put down, and supported by the name of your authority.

While reading agriculture, I would impress upon you the importance of observation on the farm. It is of no use to be able to describe an operation or an implement and yet be unacquainted with the practical working of what you describe; and yet this is quite possible. Those of you who have studied chemistry must know the importance of work in the laboratory in order to fix the chemical relations of bodies in the memory. It would require great power of language on the part of the teacher, as well as attention on the part of the student, to obtain even a distant idea of the difference between the precipitate known as chloride of silver, on the one hand, and oxalate of lime on the other; and yet by seeing the two precipitates but once, I am sure that no student would be in danger of mistaking the one for the other. So it is with farm work; the teacher may talk, and the pupil may listen as well as read; but senses as well as reason must be exercised before he obtains a just appreciation of what he wishes to master. He may be thoroughly acquainted with the fact that the great secret of managing clay soils is to keep off them when they are wet—that cattle are most remunerative when sold at such a stage of fatness that they just command the highest price per stone—that corn or hay should be carted home in such and such a state; but unless he has paid attention to the state of land while walking over it, handled fat and lean oxen until he has learnt to know at once whether an animal is prime fat, and felt until he is familiar with it the characteristic warmness and fitness which shows hay or corn to be in a suitable condition for carrying, his knowledge of the above facts will be of little avail. Observe further, that a man with such knowledge would be able to write a good examination paper, and to talk well about farming, but he runs the risk of failure, and of being looked upon as a mere theorist when he begins to farm on his own account. There is a difficulty here, gentlemen, which must be grappled with by each, and it is this—that sedentary study tends to diminish the powers of observation, while, on the other hand, keen observation does not accord well with abstract study. The practice of farming principally requires observation, but your presence here shows a wish on your part to attain a knowledge of the sciences and their relations to agriculture, and this requires a considerable amount of abstract study. While you study principles do not forget daily observation of farm work—criticise it, find fault with it (if you like), argue about it—in fact, keep up a lively interest in the progress of work, and in the development of both stock and crop. Let the study of principles and observation of facts go hand in hand, for as surely as your knowledge of principles is worthless without the power of application, so is observation utterly futile unless exercised with a view to the establishment of some principle. In this way the intelligent student cannot but proceed rapidly in his attainments, and although, as we before said, experience, and the great secret of success, how to make a bargain, can hardly be attained here, yet he will learn something valuable and interesting every day, and be well prepared to take up any other branch of knowledge which his after position may require.

The subject of agriculture is so large that when the boundaries of its empire are pointed out, those who have hitherto regarded it as a somewhat humble sphere of employment are astonished at its vastness. Commerce itself may be considered as the handmaid of agriculture, whose office it is to transport the agricultural produce of one country where there is a superabundance, to another where there is a deficiency. Agriculture in this country embraces the cultivation of certain plants and animals too well known to be mentioned here. The wine we prize so highly—the tea, coffee, sugar, rice, tobacco, cotton, oil, &c., which add so much to our comforts as well as to the livelihood of the many thousands, nay millions of those who are employed in their cultivation and in their preparation, all show the vast importance of the culture of the field. Look round a well-furnished room—it is full of the monuments of what once was agricultural produce—the carpet, the paper on the wall, the carved furniture, and many of the most beautiful ornaments, are all of agricultural origin, and still further the decoration which adds so much to the charm, are no less than imitations of fruits, flowers, and animals. Agriculture is the art of turning the bounty of Nature into channels where it may be most conducive to the well-being of men. We cannot here consider agriculture in its widest limits, but must confine ourselves to that of this country; and you will do well if you master this small department of our subject.

Agriculture an Art.

Agriculture is both an art and a science, and to say so seems to be only expressing a truism with which every one is familiar. It is equally true that to gain a real knowledge of agriculture, attention must be given to both these sections. Now the real meaning of this is, that while practice, imitation, and observation form one part of agriculture, the other consists of seeking for the reason of what is done by investigation. "Practice is synonymous with performance, seeks for no causes, and is content to do what it is told, or what it has seen. It is opposed to speculation. Science has been beautifully defined by many able writers." Donaldson incidentally does so in his new Cratylus (page 6), when he says "that a methodical comprehension of general laws and principles is science." Webster's definition of science is in a general sense—certain knowledge; philosophically "a collection of the general principles or leading truths relating to any subject arranged in systematic order."

Johnson says, "In general an art is that which depends on performance or practice, and science that which depends on abstract or speculative principles." Music is an art as well as a science. The theory of music is a science—the practice of it is an art. So with agriculture. Looking back to what has been done, the art follows the best known methods and adopts the most famous recipes—works well in the path already trod, but is unable to strike out any new one. The science of agriculture is shown in that element of inquiry which is constantly asking the question "Why?" Practice may tell you that stiff soils must be worked dry, that light soils may be worked wet, that autumn tillage is excellent, or that trenching and subsoiling are followed by great results; this is all that practice can tell you. Suppose now the question be started,—"Mr. A. has found trench-ploughing answer on his farm—what guarantee have I that I shall find it equally beneficial on mine?" The first step to the solution of the question is to find the reason why the operation was so beneficial to Mr. A.'s farm. On examining Mr. A.'s farm it is found to consist of deep soil of uniform quality for 2 feet deep; it is an alluvial deposit, and contains an abundant store of plant food to the depth above stated. Up to Mr. A.'s occupation the soil had never been stirred deeper than 6 inches, but by the use of the trench plough the depth of tilled land and plant-feeding ground has been trebled. On turning to the farm on which a similar operation is contemplated, we find a light-topped soil, resting on a hungry gravel. The upper soil is 6 or 8 inches deep, and to the present time no tillage implement has pierced more than 5 inches. What will be the consequence of trench-ploughing? Without hesitation I should answer that the effect would be injurious. If you open up still further the already too open subsoil, the result may be very pernicious, from allowing manure to wash too quickly through the soil, while from the barren nature of the subsoil no good can possibly follow. This is a scientific view of the case—not deeply so, but nevertheless it is scientific. It is a methodical comprehension of laws and principles. Having found the reason why the operation had proved useful on the first farm, we proceed to apply the same reasoning to the second, and finding the conditions to be different, we conclude that on no known principle can a similar course of action give similar results.

Agriculture a Science.

Let me give you an example as to how Science goes to work in order to find out the cause of phenomena. Practical knowledge finds that Red Clover should only be sown once in eight years on the same land, because if sown oftener, it is apt to fail. Science or scientific men immediately ask "Why?" and not only ask as an idle inquiry, but instantly set to work to discover and to bring together every fact bearing on the subject. In the first place they ask whether Clover sickness is an universal sequence of its too frequent culture. If they find a piece of land which is free from the evil, they take every condition into account, and seize on those which are peculiar. The next question asked is whether this peculiarity is the cause of the immunity enjoyed in this single instance, and if such is thought to be the case, whether the same conditions will give similar results in other cases.

If a similar result is obtained by so doing, it may be assumed that the explanation is found, and an hypothesis may be built on these facts, though it still requires further confirmation. If subsequent facts disprove the former conclusions, the hypothesis is deserted, and a new explanation sought for, and when propounded a similar sifting takes place, and ends either in the hypothesis being proved true, or by a second abandonment and a fresh search after truth. Now, this method of procedure is unknown to unscientific men. They have frequently mistaken these hypotheses for settled truths, and, building expensive practice upon them, have often been disgusted at their possible failure, and have laid all the evil consequences of their own precipitancy at the door of Science. Nor are scientific men totally free from blame—the very love of their pet idea—their new explanation, causes them frequently to have too much confidence in its truth, and while using every argument to prove their hypothesis true, they succeed in making more disciples than they otherwise would have done had their readers been more deeply versed in scientific reading. As this is, I believe, the chief reason why Science has fallen into disrepute among a large class of practical farmers, I shall further enlarge upon it by giving an example. Fully imbued with a certainty of the truth of what certain agricultural teachers have enforced, a farmer builds a malting-house, takes out a licence for brewing, and at great expense proceeds to convert his Barley into malt, for the purpose of increasing its nutriment as a cattle food, and of supplying himself and his neighbours with a means of fattening animals superior to oil-cakes or any other food.

Our farmer derives great credit for this bold outlay of capital, and is looked upon as one of those advanced agriculturists who are making use of the discoveries of modern science.

It would give me little surprise, however, to hear that after a protracted trial, first his neighbours, and finally our scientific agriculturist himself, had given up the expensive process of malting, and reverted to the simpler mode of grinding their Barley into meal or selling it to maltsters. The effect in the neighbourhood

where this grand experiment was conducted would be that considerable condolence would be expressed for the projector of the scheme, while the deserted malting house would be pointed out as a monument of the danger of attending to what book-men teach. And so far the impression would be correct. Much discrimination is required, and some knowledge of the state of a scientific question, before a man is fit to adopt the suggestions which abound in agricultural literature. Most good chemists and physiologists would have looked with suspicion on the somewhat rash expenditure of capital above-named, knowing full well that there was not any certainty as to the feeding value of sugar being greater than that of starch, while a decided loss of weight accompanied the change. Do not understand me to state that such failure would inevitably follow a scheme for the malting of Barley for feeding purposes—the increased feeding value of sugar over starch is looked upon by many men as incontrovertible, but I merely use the above as an illustration of how an unscientific man may "burn his fingers" by dabbling in scientific questions. Agricultural science is not by any means to be ranked among the exact sciences; above all others it requires rigid experiment, extending over many years and numerous localities, before anything like precision is attained. Science has done much for agriculture, and is destined to do incalculably more.

Those who shake their heads at the application of the natural sciences to agriculture do so because they do not understand the tendencies of the age in which they live. Agriculture is no exception to the grand rule which is observed in all occupations at the present day. Increased knowledge enables, and competition compels men to be rigidly economical in the prosecution of their businesses. The calculation is made and the cost counted, and if any saving can be effected or an increased per centage obtained upon outlay, old machinery is superseded by new, old processes consigned to oblivion, waste products analysed for valuable constituents, and such a system of books is kept that the profit or loss in any department is readily ascertained. Now the same restless spirit is gradually creeping into the cultivators of the soil; the increased competition from foreign markets, the same element at home keeping up and increasing rent, the increasing wants of a higher social position, are compelling our farmers to the same system of economics in the prosecution of their business. They want data to found their calculations upon, and this is what Science, the great systematiser, is doing for them. It is no impertinent interference of scientific men with a business whose details they are ignorant of, but a co-working of practical and scientific men for one great end—economy.

That agriculture requires the infusion of such a spirit few will deny. It is indeed lamentable to see the want of exact knowledge in this branch of industry. Most farmers are guided by loose notions rather than by weighty reasons; and although we can give them great credit for shrewdness, and the possession of a certain incommunicable knowledge relating to the management of land and stock, yet an intelligent and exact knowledge is possessed by only a small minority. It is to this minority we look for light and improvement. Never yet in the history of the world did the masses of a people rise spontaneously to a higher level of social importance or knowledge. But the history of mankind is the history of its leaders. So it is with any class of men. We cannot look for the mass of farmers throughout this country to at once change their habits, and the principles upon which up to this time they have conducted their businesses. But there are men whose names we shall have to refer to throughout this course who have acted, and are acting, as pioneers and reformers, and whose writings cannot fail to be of inestimable value to agriculture.

Among the most important of the elements destined to improve the cultivation of the soil, education must take a high place, and hence we find that, accompanying the great improvements which have lately been made in agricultural appliances, is an increased attention to the subject of agricultural education. The purely scientific man does not enough appreciate practical difficulties. The practical farmer does not understand the essentials of a good experiment. We want men combining both qualities, who while they understand farming, are also able to investigate and make allowances for altered condition. It is the forming of minds upon this model that is the aim of this Institution.

There is another point to be attended to in the application of principles to farming, namely, the different conditions resulting from the variations in climate and relative position. Every neighbourhood has its peculiar prejudices, and in learning farming you are almost sure to contract some of those peculiar to the district where the farm is situated. Nothing tends so much to dispel these as travel. I have been frequently astonished to find a practice which was considered essential in one neighbourhood totally neglected in another, or even an opposite course of conduct in vogue. Such changes in practice and opinion are sometimes the result of a mere empiricism, but more frequently are caused by real differences, either in the nature of the soil, the climate, or the stock peculiar to the district.

No doubt a too close attachment to the peculiar views of a certain district is the cause of a farmer losing money when he begins farming in a different county to the one in which he was brought up. Hence it is a matter of common observation that a man must be careful before he transgresses the customs prevalent in a certain district, however slovenly or unnecessary he may think them. Let me warn you not to contract any of these prejudices. The best safeguard against them is found in travel, good reading, and experiments to prove the truth or falsehood of any such dubious custom. It is one of the objects of the instruction given at this College to give such an extensive knowledge of farming that you may be released from the thrall of such prejudices.

Home Correspondence.

The Rook and his Doings.—Although I by no means class "old John Crow" in the same category with the mole or rats and mice, yet he is often convicted of doing much damage on our farms. He is a most audacious fellow; he cares very little for the "scarecrow," but pursues his depredations with great courage and impunity upon the newly-sown grain, and in spite of the "crow boy" and his "Yalloway! yalloway! birds and crows, come no more till Barley grows," &c. Indeed his impudence is astonishing, almost amounting to intelligence. If you are unarmed, he will permit you to come within a very short distance of him, but if you display a gun or a stout walking-stick he is off in a twinkling. Whole flights of these rooks will quickly take their departure from the scene of their spoils upon observing any one creeping or bending low, as if secretly approaching them. This is one of the best ways of alarming a flock of rooks from a distance, and is often resorted to, to their no small discomfiture. It is supposed by many, including some of our best writers upon natural history, that the rook does not feed upon grain, but only pulls up the plant—the Wheat and other corn plants—in order to get at the destroying grub beneath. Every farmer can contradict this supposition, and can also bear testimony to the usefulness of the rook as a consumer of every kind of grub. The small bronze-coloured grub of the Daddy-long-legs is an especial favourite. I have frequently seen fields and parts of fields denuded of Grass by the double attack of rook and grub. It is marvellous how soon the rook will discover his prey in the Grass field, and presently large plots are "billed up," the finer Grasses to be extirpated, and give place to the coarse and stronger rooted, to the permanent injury of the pasture. Their attacks upon wire-worms are also very persistent, and it is no uncommon thing to see the plants of whole fields of corn torn up by the roots in search of these hardy little fellows. In this way they do great damage to the growing crop, whatever subsequent benefit may accrue. The greatest damage done by them to our Turnip and Mangel crop within my memory was experienced in 1864. The large drab-coloured grubs of the harvest-bug tribe appeared amongst our Turnip and Mangel crops in such numbers as to bid defiance to any means adopted for their destruction or prevention. The rook undertook the business, and truly he and his fellows did their work effectually by destroying the crops in the first place, and subsequently, by their continuous perseverance, the fields were cleared of the grub. I had clear evidence and experience of this on my own farm. One field of 24 acres was sown with Mangels, and a few Swedes and Cabbages. A beautiful full plant was the result, and I deemed myself fortunate. They grew prosperously, and were hoed out. Presently I discovered these large grubs at work in amazing quantity. Mr. Rook was not unobservant; in fact, he had already preceded me in the discovery, for it was owing to his movements that I became aware of something being wrong. In two or three weeks every plant of Mangel and Swedes was pulled up, and the field appeared as a dead fallow. A field of 22 acres nearly adjoining was also sown with nearly equal breadths of Mangels and Swedes; these were left to run almost wild before setting out with the hoe, &c. The rooks, however, aided us, for they were continually at them in large flocks, and we rarely disturbed them. The consequence was that we did save a partial crop of inferior roots, which, however, proved very useful, as no green food was to be had elsewhere. The rooks kept up their attacks throughout the winter, and when the fields were under the spring cropping a grub could scarcely be found. The soil of both fields was rendered light and open, so that the rooks could "bill" down to the requisite depth to find the grubs. The rook thus proves himself a helper to mankind, notwithstanding his thievish propensities. *O. F.*

In Memoriam.—Having observed in your Journal a notice of the recent decease of the Rev. Samuel Smith, the vicar of Lois-Weedon, I beg leave to add a few lines respecting his worth, so far as I could judge during a sojourn of some duration which occurred a few years since at a house in Beyrout, which place Mrs. S. and himself visited for the sake of his health. He gave me an account of the Lois-Weedon husbandry, and he was a social and well-informed companion, from whom I parted with reluctance. His management of the services at Beyrout, which he conducted on Sundays for the English residents, especially deserved praise. In addition to works upon agriculture and divinity, he published, in the form of lectures, which he had previously delivered in the church of Lois-Weedon, an interesting account of the tour undertaken by Mrs. Smith and himself during the year 1863, in Palestine, which merits perusal, especially with respect to his description of Jerusalem. Later still, he published a work on Naples and Pompeii, which places he visited with Mrs. S. in 1864, and he delivered pulpit lectures upon this visit also, to his parishioners. *Chr. Cooke.*

Aërated Bread.—I cannot endorse your answer to "Laura" (p. 138). The bread will contain tartrate of soda, which I admit is not poisonous, but it is medicinal, slightly purgative, and no medicinal substance ought to be employed in food, except in cases where its use is indicated. Muriatic acid neutralises soda as well as tartaric, and the resulting compound is only common salt. I have made such bread, and where yeast cannot be got this mode of making it is valuable. *S. B.*

Mice.—While perusing a little work (published by Routledge) entitled "Common Objects of the Country," at page 14 I found the following, which I think might be useful to your Hanoverian correspondent. Referring to the mice which infested Dean Forest, it says:—"Various modes of destroying the marauders were put in practice, such as traps, poison, &c., but the most effectual was, as effectual things generally are, the most simple. A great number of holes were dug in the ground, about 2 feet long, 18 inches wide, and 18 inches deep. This is the measurement at the bottom of the hole; but at the top the hole was only 18 inches long and 9 wide, so that when the mice fell into it, they were unable to escape. In these holes upwards of 40,000 mice were taken in less than three months, irrespective of those that were removed from the holes by the stoats, weasels, crows, magpies, owls, and other creatures." *J. D.*

Berwickshire Wages.—In your Paper of Saturday Mr. Rutherford professes to answer a statement of facts as to Berwickshire wages, and in his reply he travels out of the record. My statement is yet untouched, and it would be well if he would carefully read it over. Perhaps I ought to repeat the substance of what I then, from personal knowledge, stated to be the facts of the case. Referring to Professor Wrightson's statement of wages in 1866, the value assigned to cow's keep and Potatos is that which is actually paid in cash (when the hind so desires it) in commutation of the same. The prices affixed to the corn portion of the "gains" are those actually obtained for a portion of the same, sold in public market at the time. In discussing the wages of 1866 it is out of the question to adduce tables founded on the prices of 1863. And besides, Fiars (or average) prices are no rule for the hind's "gains," when he gets the best corn grown on the farm. The *reductio ad absurdum* in the matter of charging 6*s.* a week for bondager's keep is as plain as ever; for Mr. R. had, in his tabular statement of day's work, already discounted any "losses to the hind through his bondager not working full time." Mr. R. attributes to me certain intentions which are news to me, and I need not attempt to follow that part of his letter. As for bondage, it is abolished; and when a hind wishes his young people to work (as who doesn't?) their wages are specially bargained for, and paid entirely in money. *James Thomson, Mungo's Walls, Dunse, Feb.* 18.

Societies.

WEST HOATHLY, SUSSEX.—At the late annual ploughing-match of this Association, Mr. George Head, in proposing "Prosperity to the West Hoathly, Ardingly, East Grinstead, Worth, and Horsted Keynes Agricultural Association," said: He took a great interest in agriculture, and he was glad to say that there was a movement now going on in favour of establishing a Board of Agriculture, upon the same principle as the Board of Trade. He thought there would be no difficulty in showing the necessity for it. Looking back some twenty or thirty years, when he first attended agricultural meetings, they had a protective duty on imported corn, and it was generally considered that Wheat was the article of produce on which the farmers depended to pay their rent and wages, and maintain themselves and families. At that time corn and Wheat bore a very different proportion to each other to what they do now. Wheat was sold at about 15*l.* a load, and beef and mutton about 4*s.* a stone: but great changes had taken place, and, taking the average, Wheat now fetched about 10*l.* or 11*l.* a load, and beef about 5*s.* 6*d.*, and mutton 6*s.* a stone. This change had rendered an alteration in the system of farming desirable, becausse arrangements which were suitable for the production of Wheat—the most valuable crop 30 years ago—were not at all suitable to the rearing and fattening of stock, the most profitable produce at the present time. They knew perfectly well that valuations in Sussex were principally based upon the Wheat crops. Therefore, if a man took a farm, and wished—as who would not?—should he leave it, to realise the same valuation as he paid when he went in, he must keep up the rotation of Wheat and other crops as they did 20 years ago, notwithstanding that that system would prevent him from rearing any large quantity of stock. This he thought was a great drawback to farmers, because in the present day they must not go on placing any great dependence on corn crops as a source of profit. Under the present system of valuations in Sussex and some other counties, if a man laid down a large portion of his farm for Grass, and got into a condition to enable him to produce beef and mutton in larger quantities than had before been attempted, and was to leave it, he would lose the greater portion of his valuation, notwithstanding that he had rendered it more profitable than it was before he took it. Now, he considered that a man was as much entitled to a valuation upon a meat-producing farm as he was to a valuation upon a farm producing Wheat. This was a question which required attention and might advantageously be brought before a Board of Agriculture, should such a body be established. Another matter which demanded attention was the custom which prevailed upon several extensive estates, especially in this neighbourhood, of preventing the tenants from selling hay and straw. That he thought was a very objectionable plan, and founded upon wrong principles. From his own observations and from the observation of others better informed than himself, he had ascertained that if a man was allowed to sell a portion of his hay and straw he would, from the money it sold for, be enabled to purchase three times as much manure as he would have obtained had he converted that hay and straw into manure upon his own farm. He had information that it took 20 trusses of straw to make a cartload of manure. Twenty trusses of Wheat straw weighed

about 7 cwt. or 8 cwt., therefore it was not extraordinary that they would only produce a cartload. Now, a farmer might go to London and purchase manure at 3*s.* a ton, and he might get it delivered on to his farm for 3*s.* a ton more, making 6*s.* altogether—a very small cost compared to that of making straw into manure upon the farm. Of course he did not advocate that a man should sell all his hay and straw; a large portion was required for his own stock, but what he maintained was this, that the hay and straw thrown down, trodden under foot, and wasted in consequence of the present system of not allowing the sale of hay and straw, was like casting money on the dirt to be trodden in. This custom of the country was worn out; it required amendment, and he was of opinion if they could get a committee of the House of Commons, or a Board of Agriculture, to go into the whole question of valuations, and the prohibited sale from certain farms of hay and straw, much good to the agricultural interest would result. The Chairman then pointed out that in Surrey if a man left his farm in a condition to produce meat he was allowed a fair valuation, but in Sussex he got nothing; he thought the Surrey plan was much the best, and hoped ere long it would come into general practice. Another question which claimed serious attention was the maintenance of the roads. If they lived ten or twelve years longer, a toll-gate would be almost unknown, and turnpikes would be totally abolished; they were disappearing very rapidly at the present time, and the cost of maintaining the roads was thrown upon the rates. It was, he considered, very unfair that the land should be called upon to bear such heavy taxes, and he would for one moment ask them to look at the difference in proportion of rates paid by the farmers as compared with those borne by tradesmen. To take the case of a tradesman living in the town, he might have a family to support, and he hired a house at 20*l.* a year, which was rated at 15*l.* Even at this low rental the tradesman had a better chance of supporting himself and family, and bringing up his children respectably, and leaving something to them after his death, than a farmer occupying a hundred acres of land, and contributing to the public rates upon a net rental of 60*l.* a year. A farmer was no more interested in keeping up the roads than a tradesman, and yet the former had to pay four times as much as the latter for that purpose. Again, why a farmer should pay heavier police rates than a tradesman he was at a loss to understand. No doubt they were entitled to ask for redress in these matters, but he did not know where they could get it. If they went to Mr. Dodson or Lord Edward Cavendish, the members for East Sussex, they would probably tell them, and he (the Chairman) feared with some justice, "Your complaints are all very well, and it may be as you say, but there is a town called Brighton in this district, which goes very far towards returning us to Parliament, and we are obliged to look to the interests of those who were principally instrumental in returning us." Brighton had the privilege of returning two members to Parliament, with the election of whom the county had nothing whatever to do, and, therefore, he thought they had no right to come out of their district to vote for the county members. They were on the eve of a Reform Bill, and he fervently hoped some measure of reform that would do justice to the landed interest. They were told that protection was put on corn to benefit the farmers and landowners, but this he denied; they were all free traders now, but nevertheless he would maintain that protection was imposed for the benefit of the country. In this opinion he was borne out by some of the most learned, deep-thinking, and far-sighted men of the present day, who told them that nothing could compensate a country for depending upon other countries for the food consumed by its people. Therefore it could not be said that the corn laws were put on with the view solely of benefiting the farmers. He had taken up more of their time than he ought perhaps to have occupied—but he considered that all were interested in the matters to which he had referred. If 50,000 people were gathered together, they could make a much greater noise than 50,000 people distributed over a wide area, and unless they took advantage of such occasions as the present for ventilating their grievances, they would not get redress. Agriculture was of great importance to this country, and they had reason to expect that they should have a Board of Agriculture as well as a Board of Trade. The Chairman then gave the toast he had mentioned at the commencement of his speech; it was drunk with great cordiality.

The VICE-CHAIRMAN (Mr. Lilley) then referred to the position Sussex occupied compared with other counties as a meat-producing district, and adduced figures to show that it was below the average. He found from statistics recently issued, that last year on every hundred acres in Sussex there were 13 bullocks and 34 sheep, whereas the average throughout the counties was 18 bullocks and 68 sheep. Cornwall stood very high; upon every hundred acres there were no less than 30 bullocks. Now, he would ask, why cannot Sussex produce more meat? It should be considered that the greater the number of beasts in a county the greater will be the wealth of that county; because, it is not only the owners of the stock that experience the advantage—the benefit is spread over the whole district. Why should not Sussex do as much as other counties? In conclusion, he proposed "The health of Mr. Read."

The CHAIRMAN acknowledged the compliment, and read a letter he had received from Mr. Dudgeon (who had great experience in Scotland, and, no doubt, in many other parts of the kingdom), who referred to a very important subject:—

"Piercelands, West Hoathly, Jan. 29.

"Dear Sir,—I am sorry I am unable to do myself the pleasure of dining with the members of the association this afternoon, and I regret this the more, as (venturing on my position of ex-president) I had proposed, if present, to recommend to the members a little extension of their proceedings; to embrace occasional meetings for the discussion of practical subjects in agriculture, and more especially I felt desirous to have directed the attention of the Society now to a matter here which it has struck me sadly interferes with the progress of agricultural improvements as involving the comfort and amelioration of that class on whose efficiency the success of the farmer so much depends—I allude to the unsuitable nature of the engagement of master and servant, caused in great measure by the want of sufficient accommodation and conveniently situated dwellings for those directly employed in the cultivation of the land. From the increasing demand for labour and competition from other quarters, the time seems come when, in self-defence, the proprietors of land are called upon no longer to delay undertaking a duty which it is evident cannot fail, under any circumstances, to redound to their advantage. It is an important and rather wide subject, and, I fear, could not have been entered upon so fully as it deserves at a convivial meeting. But if the association should think it worthy special attention, I will endeavour to be prepared to read to the members a paper on the matter to which I have now generally alluded, in the course of the spring, when and where it may best suit their convenience.—I am, &c., "JOHN DUDGEON."

"To the Chairman," &c.

The Chairman continued that no doubt the labourers would be much better situated if they lived upon the land they assisted in cultivating, and a better understanding would exist between master and man. He was glad to say that the authorities had placed the Court House at their service gratis, and he would suggest that Mr. Dudgeon be asked to read his paper to the members of the association on some Thursday evening after the market, when a considerable attendance of farmers might be secured.

Farmers' Clubs.

KINGSCOTE, GLOUCESTERSHIRE: *Feb.* 13.—*The Physical Condition of the Agricultural Labourer.*—Mr. Henry Cox read the following paper on this subject:—

It has been the fashion of late at many public meetings to discuss the well-doing of the agricultural labourer, and various have been the panaceas recommended for the evils which attend him. Education, commodious residences, teetotalism, strikes and unions, and co-operative societies have all been advised. I do not deny that any of them, excepting strikes and unions, are good in their way, yet I cannot help thinking there is one thing which has been omitted—one in which the farmer is particularly interested, being the actual material used in the building up of that most noble of all the works of the Creation, an upright honest man. The agriculturist is especially interested in this aspect of the subject, for he is engaged in producing material for the building up not only of his own labourers, but of every labourer in every class, from the Queen on her throne to the sweeper on the crossing. We find men continually aiming and striving to make the farmer appear as the oppressor of the labouring class generally, and selecting some cases of low wages and small or inconvenient cottages and crowded rooms, as samples of the whole. I will not set up in comparison the frequent and horrible cases we hear so much of in towns, because I know there is much room for improvement amongst ourselves, but let the statistics of the country be studied honestly, and it will be found that the health and longevity of the rural labourer are much in advance of most other classes of the population, while for real solid strength and endurance every other class is immeasurably behind them. Somehow, however, it begins to be a question whether we shall continue to enjoy this supremacy. Everywhere, when a few employers of labour meet together, you hear it asserted that their labourers cannot do the same amount of work in a given time as was formerly the case, and I have thought the material for building-up those bulwarks of our snug little island, the labouring population, has much to do with the question.

PAYMENT IN KIND.

If we inquire why the labourer of the present day lacks the strength, energy and endurance of his predecessor, we shall find that just in the same ratio that payment in kind has given way to payment in money, so has the stamina of the labourer degenerated, and the reason is obvious enough—because the money goes partly to the ale-house and partly to the tea-chandler's, and instead of the good wholesome loaf of home-made bread from home-grown corn, they get an admixture of flour, alum, plaster of Paris, and nobody knows what besides; and this, supplemented with Potatos, has formed the chief food of many of our labouring population. Now, we all know that white-washed bread is not so nutritious as a good brown loaf, or as any of the grain used for food, and that Potatos are of very little value as an article for supplying the sinews and muscle of those required to perform laborious exercise. Cobbett many years ago called the Potato a nasty weed, the curse of Ireland, and a curse to England, and Dr. Lyon Playfair says a man must eat 14 lb. of Potatos to get a sufficient quantity of nitrogenous matter from it to sustain the wear and tear of the muscular system for one day. No wonder, then, that the *Daily Telegraph* should designate us as thin-legged and big-bellied, with empty brain-pans. I shall not easily forget the outburst of indignation uttered by an old gentleman upon seeing some farmers' men clad in what he called long-sleeved breeches; he declared their only use was to hide the deformity of calfless pedestals. I ventured to assert then, as I do now, that it was not the fault of the owner that those pedestals were calfless, because the right materials had not been used, or, at all events, not in the right proportion, in the building up of the structure. I am not about to go so far as Cobbett in denouncing Potatos, because, as an article of diet used with other things rich in nitrogenous compounds, they are very valuable, supplying carbon for respiration, as well as some of the most important mineral salts required in the building. It is the over use, or rather abuse of them I condemn; it is like building a mud wall and expecting it to stand the rude blasts of the elements as though it had been built with granite. It is facts such as I have witnessed in very many cases that has rendered such food dangerous to our well-doing; they contain just enough nitrogenous matter to keep life going to form the slim walls of the cells of the body, but supply much more than is necessary of those elements which may be termed fuel, and which if not used in respiration or perspiration or for the purpose of keeping up the animal heat, take the place that should be occupied by muscular or nitrogenous compounds. I have sometimes put the matter something in this way: "John, I have often wondered how you manage to find so much money for the ale-house, with your large family of small children."—"Oh gie 'um a good belly vull a' taters, and zum fat over 'um and thaie'ul do very well—just zee how well the' do look wi 't!" Yes, there is the danger: "how well they look with it." Parents are satisfied with the well-doing of their children, if their faces look fat and chubby; they are doing well enough; and they are satisfied to partake largely of the same dangerous fare themselves in order to pander to their wish for luxuries in the shape of stingo, stout, and tea. It has been written "that time was, 'ere England's woes began, when every rood of ground maintained its man." It seems very evident that the time here alluded to was when more animal food was consumed by the labouring classes than at present, and at a time when the food of those animals was not taken into account as regards the rood of land. But at a still later period, and even in the recollection of some of our old men now living, the practice of fatting animals was not of so much consideration as at the present day. One of my men told me the other day that when he was a boy his father used to buy an old cow for a very trifling sum, which was killed, and cured, and dried something in the same way we now serve bacon; this served the family in various ways for many months in winter, and he recollected the time when in spring you might buy many a good calf for 5*s.* or 6*s.* Tea and Potatos were then only used as luxuries, and white bread was unknown amongst the poor. Well, we see men in those days had no need to study the properties of food, because it would appear there was ('barring accidents, such as wars and famine') a plentiful supply of the right sort within easy reach. The times, however, are altered now; the immense increase of population, coupled with the increase of riches and high living in towns, has rendered it quite impossible for the labouring community to obtain a full supply of animal food. The luxurious habits of the town epicures have compelled the farmer to lay on his animals immense quantities of fat; "they like the lean of fatted animals;" and if the labourer get a portion of meat from a healthy animal at all, it is this refuse fat, which, for purposes of strength, is nearly useless; and does it not seem absurd and ridiculous that in this time of science and nicety of knowledge, when even the very air we breathe is analysed to the minutest atom — does it not seem ridiculous that the masses of our rural labourers should be so much in ignorance of the material required to give health and strength to his body, and to the bodies of his offspring, as to fancy he can lay a good foundation with Potatos and fat, or with whitewashed bread, tea, and strong beer?

But I fancy some one saying, "How is the farmer to remedy all this?" Gentlemen, that is the very thing I hope to learn from the discussion to follow these few remarks so loosely and imperfectly brought before you. I will, however, not shirk my own feeble ideas in the matter. Although I am well aware a very great diversity of opinion exists on this subject, I said just now that the strength and endurance of the labourer had receded as payment in kind had given way to payment in money, but I by no means recommend or hold that we should return to that system of payment in kind, though the experience of the last few years has convinced us that if we would keep our best men on the land we shall have in some way to pay higher wages, in order to make it worth their while to retain their present employment, and I think we might advance the cause I now advocate by supplementing the present money payment by a portion of such material as we know to be most required in filling up the void caused by the drain of animal food into other channels.

EDUCATION.

I know it is very hard to alter a system so firmly established as the beer and tea drinking of a community, and I never expect to see the day when people will study their health and strength sufficiently to vanquish their greatest enemy, a luxurious appetite. The first and great point I would suggest, is that every child, in every village school, should be taught the principles and the chemistry of food. I would not make them all chemists in the sense of manipulation, such as the nicely folding of a filter paper, or the knowledge of finding out all those things for themselves, by mere chemical tests, but they should know intimately the great truths that have been taught and handed down to us by distinguished men of science, who have made this question the especial study of their lives. They should know that on the same principle as you cannot have a coat from the back of a naked man, so they cannot get the right sort of nutriment from those bodies that do not contain this nutriment; they should know that strong drinks and tea (though perhaps more pleasant) act in the same way as the whip, that is as stimulants, and contain a very small portion, if any, real nutritious matter. They should know that Potatos and fat meat, though very good for fuel, or to keep up the animal heat, and give food for the respiratory organs, give little or nothing to the muscular system,

consequently cannot support strength. They know too well already that animal food in sufficient quantities to support the muscular system is out of their reach, but they should know where to find the cheapest and best substitutes for this substance—that all the component parts of our bodies are originally derived from the earth by plants, and are rendered by plants in a fit state for the nutrition of our animal frame. Some of those plants give a large proportion of carbon, or fat-forming matter, while others give a large portion of nitrogen, or flesh-forming matter. Dr. Buckland has shown that Peas formerly constituted an important part of the diet of the people of this country, at a time, too, when our forefathers were more hardy than ourselves. Those legumes are undoubtedly the cheapest and best means of supplying nutritious matter. Their value has been known from the very earliest times, and before the introduction of the Potato they formed the staple article of food of our soldiers and labourers, and were not then banished from the tables of the rich. Peas and other legumes, if eaten by themselves, will produce flatulence; but if eaten, as they should be, with Potatos, fat meat, or other carbonaceous substances, such is not the case. An adult labourer in full work is estimated to consume about 4 ounces of muscular tissue and about 23 ounces of carbonaceous matter in the various offices of respiration, perspiration, oil for the joints, &c., so that you see the system require about six times as much carbon as nitrogen; but the legumes containing more than half as much nitrogenous matter as carbonaceous show that this flatulence arises merely from its over richness in flesh-formers, and not from any injurious substance in their component parts. And here again we see why the fat of animals should be consumed with Peas or Beans and not with Potatos or white bread. Now I think it will be conceded as a national question that if we would have our labourers strong and muscular and fit to perform a good day's work, we should endeavour to supply them in some way with material to assist in this object; and I would suggest whether in supplementing their pay we could give them a sack or two of white Peas or Pea-meal, stipulating that it should be consumed in their own families, and not exchanged for luxuries. Somebody said to me one day, "Bless you, it would be no good to have Peas at our house, because the children would eat them all raw if they could get at them, and we have no place to lock them up, and so they would be all wasted." Now there could be no greater mistake; the very craving of children for these things would seem to show their need of them. And I do not stand alone in the opinion that children should have more free access to food in its raw state. Dr. Lankester says to preserve health there should be a certain quantity of raw food eaten every day, because most of the mineral substances so necessary to our existence are washed out or otherwise destroyed by the cook; for besides the four elements of which all nature is composed—and there can be no life, either animal or vegetable, without them—the human body contains the following inorganic substances, and the absence of either one of them endangers health and engenders disease. Taking the human body to weigh 11 stones, it would contain:—

	lb.	oz.	gr.
Phosphate of lime, forming the principal ingredient of bone	5	13	0
Carbonate of do. also in do.	1	0	0
Fluoride of calcium do.	0	3	0
Chloride of sodium	0	5	376
Sulphate of soda	0	1	170
Carbonate of do.	0	1	72
Phosphate of do.	0	0	400
Sulphate of potash	0	0	400
Peroxide of iron	0	0	150
Chloride of potassium	0	0	12
Phosphate of potash	0	0	100
,, of magnesia	0	0	75
Silica	0	0	3

And we must obtain these salts by our daily bread, as presented to us through the medium of plants. The art of the chemist has not yet arrived at sufficient perfection to present them to us in proper quantities, or in the right shape, in any other way. The Scotch bothy system will never be imitated in this part of the country; yet every one knows that the system of feeding on Oatmeal and milk has produced some of the finest specimens of humanity. One of our old Generals (I think Mackenzie) used to be very fond of relating how he became acquainted with the finest man in the Guards. He saw him stone-breaking by the side of the road, and struck with his symmetry and application questioned him as to his manner of living, and he answered—"Porridge for breakfast, porridge for dinner, and porridge for supper:" the wonderful endurance of the Scotch Highland regiments when on foreign service, who we are told take a little raw oatmeal from their meal-bag, and stir up with water from the brook or pond, is another proof of the value of this grain. Indeed I believe there is no other food to be found so capable of sustaining health and strength as oatmeal and milk, the latter containing all that is required, even to the water and salts, and the former being so nicely balanced as regards its carbonaceous and nitrogenous matter as to require very little addition, being 102 flesh formers, and 68 fat and heat-formers, being very near what science has taught us is wanted for wear and tear, leaving a very small portion of fat to be deposited for emergencies of heat and cold. Some one will say we shall never get the Englishman to eat porridge or oatmeal cake; neither do I recommend them to *try*. What I want is that we so arrange our food as to get the right proportions for flesh (as a model) and fuel, and the Oat gives them—both in practice and theory, and I know of no other way of adding the proper amount of flesh-formers to our already superabundant fat-formers, except through the legumes; seeing that it is impossible to obtain a sufficient quantity of lean meat or good cheese for the purpose. The great demand for butter has rendered the chief substance on which the hard-working labourer for the most part depended very dear, or all but indigestible. Not but what skim cheese is as rich in nitrogen as the best, perhaps more so: but then the loss of oily particles, which render it both palatable and digestible, have left it so hard that it has been said of it if drought overtake it before the knife, dogs bark at it and pigs grunt at it, but neither can eat it, and of course I need not tell you an indigestible article cannot afford nutriment to the body, and this brings us to the consideration whether we should give our labourers a portion of this skim milk. While its nitrogen is digestible there are many ways it would benefit them, and in the end we should be no losers.

I will not detain you longer than just to remind you that I do not set up this theory of food in opposition to education and better homes, and work by piece, &c., but as one link in the chain of improvement, for depend upon it the subject of food is one deserving our most serious consideration and attention.

I quote the words of Dr. Lankester, when I say the question of food lies at the foundation of all other questions. There is no mind, no work, no health, no life, without food; and just as we are fed defectively or improperly, so are our frames developed in a way unfitted to secure that greatest of all earthly blessings—a sound mind in a sound body.

MIDLAND: *Cultivation of Green Crops.*—At the late monthly meeting of the Midland Farmers' Club, Mr. J. K. Fowler, of Aylesbury, read a paper on the "Cultivation of Green Crops." He commenced with an allusion to the wide scope and interest of the subject, to the importance of keeping up the supply of animal food; and to the remuneration attendant upon the breeding and rearing of live stock, which had caused agriculturists to devote much of their energies and skill to raising crops which might be either fed off or carted away for consumption in the fold-yard. There was but little difficulty on Grass farms in procuring the necessary food, but his attention would be chiefly directed to the consideration of the supply from arable or mixed farms. He believed that more stock and meat might be produced, acre for acre, on arable than on Grass land. There were two distinct heads to which he proposed to direct his remarks—first, the production of green food for the summer and early autumn months; and secondly, that for winter and early spring. In the first list he classed winter and spring Vetches, Rye, winter Oats, Trifolium incarnatum, Lucerne, Rape, White Mustard, and some few others; in the last, the various sorts of Turnips, Swedes, Kohl Rabi, Cabbage, and Mangel Wurzel. They would, therefore, see how great was the range, how difficult the task, of going through the culture of the whole of these plants, and in addition to that, what time he should consume were he to go into detail of feeding them off and their chemical constituents. His plan, therefore, was to state the results of his own experience, and give a few gleanings from observations he had made in various parts of the country. As soon as harvest was completed he drew on to his land from 15 to 20 loads of good yard dung to the acre, and then with Smith's steam tackle smashed the land up; this on an average of seasons killed what Couch-grass, Thistles, Docks, and other noxious weeds were found in the stubbles. On a certain portion intended for green crops, which in his neighbourhood for mixed farms of strong land, arable and Grass, was about one-sixth—say 16 acres out of 100—he sowed 2 acres broadcast with 2 bushels of Rye to the acre, 6 acres of winter Vetches, drilled with 2½ bushels to the acre, 6 acres being left for spring Vetches, and about 2 acres for Mangels. With regard to the Rye and Vetches, about the middle of April, or even earlier—as soon as there is a bite—the sheep are folded, and half a pint of Oats and a little Clover or hay chaff daily. The Rye grows rapidly, and by the time it is finished the Vetches are ready. The sheep continue on these, and the first piece of Rye is ploughed up, and sown with white Turnips. The piece of winter Vetches is also broken up, and the strings of Couch-grass which are found carefully picked out, and then sown broadcast with Rape. Both are again fed off by sheep, and by that time the spring Vetches are ready, and will carry the sheep on into August. That he found was the best plan for his strong clay lands. If there is not dung enough for the spring Vetches in the autumn, a dressing is put on in the spring before it is prepared for seed. The advantage of this plan was that it involved no carting of roots off the land except the Mangels, and little expense of hand culture. He was convinced that growing roots on strong tenacious clay, except a few acres of Mangels, which should be as near home as possible, was a mistake. He had seen extraordinary effects from rolling down Vetches and ploughing them into the land green; one of the finest pieces of Wheat he ever saw following such a proceeding. With regard to winter Oats, he had sometimes grown them on land prepared as for Vetches, and drilled about 2½ bushels to the acre, and had had a month's excellent feed for ewes and lambs in the early spring, and then had 8 quarters of very heavy corn to the acre afterwards. They are also excellent as horse corn. The simplicity of the culture of Trifolium incarnatum commended itself to their attention. He merely sowed broadcast on the Wheat stubble 20 lb. of seed to the acre, and had never failed to have an excellent spring crop for early cutting for horses in the yard and for sheep till June. The seed should only be slightly scratched in the ground with a light harrow or horse-rake. This is an excellent plan for filling up deficiencies in Clover plant. Lucerne should be sown in May after a fine seed bed has been prepared. It may be cut three times a year and will last eight years. White Mustard may follow Vetches and be eaten off in autumn; or it may be sown when the first stubbles are broken up after a fair dressing of stable dung, and fed off by sheep. In treating the second part of his subject—the general root crops—he must go back to autumn cultivation, as he felt convinced that, with scarcely an exception, most of the land in England should be broken up in autumn. He recommended every occupier of 200 acres to sell a third of his horses and get a set of steam tackle, and in two years he would wonder how he ever got on without steam. In ordinary years he had broken up and cross cultivated 300 acres of land, and packed up his steam apparatus by the middle or end of October, so as to have his horses in use for drawing out the dung, breaking up the Clover, and sowing his Wheat. As to root culture, his remarks would be addressed more particularly to those who hold light and less tenacious lands than to strong clay farmers, and who for the purposes of the meat market and for manure depend greatly on a winter supply of food. He commenced for Swedes by first drawing on the land from 15 to 20 cart loads (one-horse carts) of dung, which average about 15 cwt. each, and spread it at once on the stubble, the corn having been "fagged," *i. e.* cut close to the ground by hand labour, and then with steam tackle smashed up the land at once, generally about 9 to 10 inches in depth. It breaks up in large pieces, the manure is partially drawn in to the land, and it lies in a good rough state to receive the winter frosts. For all his root crops, as well as Vetches, that was his first preparation. Things remained thus until the end of February or beginning of March, and then he put a cultivator worked by horse-power over the soil, and he found it wanted but little doing to it. What weeds are found are picked out, and after that 2 cwt. of best Peruvian guano to the acre, or 4 cwt. of Proctor and Ryland's or Griffin and Morris's Turnip manure are added. Nothing suited his land so well as Peruvian guano. This is sown broadcast and harrowed in, and in some instances, after a light ploughing, the roots are drilled in on the flat, but he oftener used a double mould-board plough, and threw the land up in ridges, 27 inches apart. If on the flat, he drilled Swedes 24 inches apart, about the first week in May, using as much as 5 lb. or 6 lb. of seed to the acre. This was on account of the fly, for since he adopted the plan of thick sowing he had never lost a crop. There were some disadvantages attending this, such as making the plants spindly if you did not put the hoe in soon enough, and the great difficulty of singling them; but he had often adopted a plan first practised by Mr. Pusey many years ago, and which was so good that he must mention it. When the land was fine, and the rows straight and even, he sent the horse-hoe across them, and cut the plants out about 15 or 16 inches apart, and left them in bunches, which were easily thinned by boys. They then grew rapidly, and after one or two more horse-hoeings, and perhaps a turn twice with the hand, the crop was fairly on its way to maturity. He was as much in favour of the ridge system as the flat, and was guided by circumstances as to which he preferred. Should he be unable to manure the land in autumn he preferred the ridge, as he was enabled to put in the dung and cover it up better by that means, but he was convinced that if took at least six loads per acre more manure for the ridge than the flat. He had not time to go into the various diseases which affect the Turnip, but he might state that once he was in danger of losing his crop—about 10 acres, the best he ever grew—by the black caterpillar, when he turned in about 100 young ducks and about 150 chickens, with a boy to keep them moving, and in a few days they had destroyed every caterpillar in the field, the crop being thereby entirely saved.

Mr. Fowler then proceeded to state his plan of pulling, carting, and storing the crop. He calculated his expenses for a crop of Swedes and Mangels at 13*l.* 7*s.* 6*d.* He considered 25 tons per acre a large crop. He had often heard of larger, but as a rule this was a great quantity to get off an acre of land. He was of opinion that it was not an advantage to grow immense roots. They were difficult to consume, *i. e.*, to cut up either in a cutter or pulpers, and were not generally so nutritious. On the other hand, a small Swede was the worst root almost they could give to cattle, as it was all outside and as hard as a stick, and no real value in it. A good Swede of from 3 lb. to 4 lb., if they got an average, was the best of all, but how few crops ever attained that weight.—He then gave a short statement of the best mode of feeding off a crop of Swedes, which varied in different districts, and was much guided by the purposes for which the land was intended for the next crop, and also the sheep which were on it. He thought Skirving's King of the Swedes gave the heaviest roots, Sutton's Champion the most even crop, and Dickson's (of Chester) Purple-top the handsomest. With regard to what he considered, for good deep land, the king of roots—the Mangel Wurzel—he need not go again over the ground about preparation, as it was essentially the same as for Swedes, and the same observations might be made as to the advantages of the ridge or flat systems. He generally endeavoured to get his land ready by the end of March, or early in April, drilling in about 6 lb. to the acre. This was again a large quantity, but of late years so many new insects had attacked the young plant that he had adopted this plan for safety: as soon as the rows appeared they were horse-hoed, and when fit were singled and set out about 16 inches apart, the drills being 27 inches. Besides the horse-hoeing nothing need be done to them till harvest, except perhaps once or twice being hoed over by hand. Should there be an occasional string of Couch-grass found, he sent a man over with a fork just before pulling them when the leaves are withered, to pull it out. After the roots had been stored and the store ewes run over the land, when they ate a great portion of the leaves and small roots which are left in the ground, the land was immediately ploughed up and sown with white Chidham Wheat. With regard to the Kohl Rabi, a most excellent root,

which was rapidly making its way in this country, he liked it better every year he grew it. The same preparation as was described for Swedes and Mangels must be followed. In conclusion he asserted that the basis of all good farming was the successful cultivation of a first-rate root or green crop, and his general course of cropping, by which they would see he drove his land very hard, was first green or root crop heavily manured; Wheat; Barley, dressed with 1½ cwt. of guano: Beans, twelve loads of dung to the acre; Wheat; Clover mown twice and carted home; and lastly Wheat; and instead of his land going back each year it was in better cultivation and the produce greater.

Mr. BALDWIN was in favour of growing Swedes and Turnips in ridges 3 ft. apart and 1 ft. between the roots, by which means he could grow 30 tons to the acre, the average of the roots 5 lb. each. For 24 years he had never grown less than 20 tons to the acre. He did not mean this was an average, but the lowest he had grown during that period. He contended that upon the ridge system the manure was concentrated under the roots, and that the larger the amount of soil and manure round the roots, the better they would grow. While the soil was sinking it was pressing the food to the plant, and the space they were set at allowed the sun to get to the bulb as well as the top. It also allowed space for the dropping of leaves to collect the dew, which, by the action of their rising in the morning was run down to the root and fed it. By this plan he also avoided exposing the whole of the manure to the action of the sun. But early planting was essential, and you would not do any good unless the bulbs weighed 1 lb. each on the 1st of August.

Mr. BRAWN moved a vote of thanks to Mr. Fowler for his able paper, which conveyed to them a great deal of information on a most important subject. He was glad to hear from him that he thought the growth of green crops the foundation of British farming, because many of their friends were disposed to place that foundation upon the plan of consuming a vast amount of corn by their cattle. This was like commencing to build a house with the chimney-pot. If by the purchase of 4*s*. worth of super-phosphate of lime, Peruvian guano, artificial or any well-known special manure, they produced one ton of roots, which he held they could, and that ton was worth 9*s*. for consumption by their stock, then the raising of their green crops must ever be the foundation of agricultural progress and improvement. Mr. Fowler said that immediately after harvest he took an early opportunity of manuring and breaking up his land. He should be sorry to make the objection, but would explain his own plan. After harvest he attended to the cleaning of such stubbles as might need them, but afterwards he devoted his attention to the sowing of Wheat. Then he spread the manure on the stubble land which was thoroughly clean, and turned it in about 4½ inches with a pair of horses, which was very light work. He followed that up by a subsoil ploughing, which distributed the manure in equal quantities, giving a broken soil of nine inches. Mr. Fowler would tell them he would complete that operation at much less expense, but he held his system was in one way an advantage, as his manure was placed midway in the soil. He was not one of those who yet thoroughly conformed to the opinion that it was safe to spread manure on the surface, leaving it uncovered by soil. The quantity he applied was about 12 tons per acre, but he did not restrict it to that quantity if more was to be had. As the time for sowing Turnips arrived, he had them sown broadcast, with some 5 cwt. of specially prepared Turnip manure on the surface, and ridged up that with a double mouldboard plough. He had sown the seed in less quantity than recommended by Mr. Fowler, and he must say his experience as regarded broadcast sowing was not satisfactory. He did not agree with Mr. Baldwin as to wide ridging. He generally found that land which was ridged two inches under two feet brought a greater weight of Swedes per acre than that which was two inches over the two feet.

Mr. MASFEN, in seconding the proposition, said the seed Mr. Fowler applied per acre was in excess of what he used. However, very much depended upon whether the seed was home-grown or obtained from a seed merchant, for he could assert that 2 lbs. of home-grown seed was equal to 5 lbs. of purchased seed. With regard to the distance between the ridges, that depended on the cultivation of the land. If the land was in good condition it was not necessary to have the ridges too wide. On strong land the ridges should be wider than on light. He had the testimony of a friend that in nine cases out of ten, ridges 22 inches apart and 12 inches between the bulbs, was almost always successful. The paper was of a thoroughly practical character, and he thought the club were greatly indebted to Mr. Fowler for it.

Mr. LYTHALL would like to have heard from some gentleman present a few remarks on the growth of root crops under circumstances of rather more difficulty than those stated in Mr. Fowler's paper, which described the cases of farms close to towns, where an unlimited supply of manure was attainable. Perhaps a few words would not be out of place in regard to the method pursued in growing a crop of Swedes, successfully pursued for many years some ten or twelve miles from any important town in the hilly district, about three miles from Northleach, where there was very little straw indeed, and on a large out-lying farm where carting manure was expensive. The quantity of seed sown rarely exceeded 1 lb. or 1¼ lb. per acre, and he understood the crops had always been good. He believed if they could distribute the seed equally, and that of a proper description, two ounces per acre would be ample. Of course he was not calculating for the fly, to combat which they used a water drill which gave the plants such a start as soon placed them out of reach of the insect. With regard to the distance that the ridges should be apart, he thought the discussion tended to show it varied according to the tenacity and quality of the soil. About two feet and an inch or two appeared to be the average.

Lord SANDON said they must all agree that Mr. Fowler's was quite a model paper—full of facts. His lordship, in resigning the chair, gave a *resumé* of the questions which had been raised by the papers, and discussions which had taken place during the past year. The proceedings shortly after terminated.

Reviews.

The Economy of Waste Manures. By John Hannam. Longmans, &c.

The best agricultural writers are those who declare a personal experience; and, failing these, we must place next upon the scale of merit those whose teachings have been subsequently realised in a successful career. Thus it is that many of our best books are written by men who now rarely take the pen in hand for the publisher. Their hands now wield a more profitable tool; but their gain is certainly our loss. We may judge thus, because the works published 20 years ago are many of them more deserving of reprint for agricultural readers than those of the current years. The little book, for example, named above, published 23 years ago by a gentleman who is now, we believe, in active business as a land agent in Yorkshire, and was then, and for many years afterwards, Secretary of the Yorkshire Agricultural Society, is as deserving the attentive study of the young farmer now as it was then; and he will find that no better on its subject has appeared during the long interval which has elapsed since its first appearance. Whether it be still in print we do not know, but we cannot doubt that good service would be done by the issue of another edition. Its pages were written, we are informed in its Preface, "at the request of the Yorkshire Agricultural Society,—a request made in pursuance of 'a principle to which they attach great importance, namely, the circulation of information amongst the members of the Society,'—the 'especial object' contemplated by the Council being 'to afford assistance to those who are least capable of assisting themselves,'—to point out to the farmer 'a remedy for some of his difficulties—a remedy within reach of his means—a remedy which consists mainly in a better economy of those fertilisers which he already possesses.'"

Keeping this end in view, the author did not confine himself to the circumstances of the farmer, farm by farm, but he called attention to sources of fertilising matter open to British agriculture generally which were, at the date of his publication, generally neglected, And many of his urgent representations, both as regards farm and town mismanagement, are as much deserved and required in 1867 as they were in 1843. We recommend Mr. Hannam's little book to the attention of agricultural readers as strongly now as we did nearly a quarter of a century ago.

McLean & Hope's Descriptive Catalogue and Price List of Feeding Stuffs and Manures. Timber Bush, Leith.

This annual trade list contains a great deal of valuable agricultural information besides that which guides the dealings of customers, and we may hereafter from time to time extract some of the useful material here collected for agricultural readers. To-day we extract a list of varieties of Beans and Peas whose seed time is already upon us:—

"*Granton Large Bean.*—This Bean, now well known throughout Scotland and part of England, was introduced from Poland seven years ago by Mr. M'Dougal, of Granton Mains. The Bean is large and plump; straw strong, 4 and 5, and sometimes even 6 feet long. It does not tiller much, nor pod low on the stalk, ripens early, and has invariably produced from eight to twelve bushels more per imperial acre than the small or Scotch Bean, besides being a higher price.

"*Pilton Bean* (or, as it has been called by Mr. Hope, of Fenton Barns, *Granton* or *Pilton Bean*) is merely a selected description of the old Scotch Bean; it is rather small and plump in appearance, the straw from 2 to 4 feet in length, tillers well, pods very near the ground, and requires rich early soil.

"*Common Scotch, or Horse Bean.*—This sort is most cultivated in Scotland. Straw 4 to 5 feet in length; pretty prolific. The Bean is large and flattish, rather irregularly compressed and wrinkled on the sides, of a whitish colour, and black eye. Average weight, 62 to 65 lb. per bushel.

"*English, or Small Bean.*—This variety is grown to a considerable extent in East Lothian, is shorter in straw than the common Scotch, but more prolific. The Bean is plumper and better filled, and weighs from 63 to 67 lb. per bushel. It is not, however, quite so early.

"*Common Tick Bean.*—This sort is seldom cultivated in Scotland. It differs from the common Scotch Bean in shortness of straw, and in being more prolific. The Bean is smaller, and weighs from 64 to 68 lb. per bushel.

"*Pea—Common Gray Field Pea.*—This is a late description of Pea, generally sown in the earlier districts, mixed with Beans, for which it is well adapted, ripening about the same time as the Bean. The straw is highly esteemed for horse fodder, and is considered superior to any of the other varieties. The Pea is large and well filled, spotted with a bluish-green colour. Weight, 62 to 64 lb. per bushel.

"*Early Tweeddale Gray Peas.*—This variety is still cultivated to a considerable extent along Tweedside. The straw attains a height of from 2 to 3 feet. It ripens early, and is rather prolific. The Peas are small, round, and gray spotted, and are still in request in the south of Scotland for human food.

"*Partridge, or Gray Maple Peas.*—This variety grows more straw than the preceding, and is about a week later. It is most extensively cultivated in the earlier districts. Pea largish, round, and of a lightish yellow colour, with gray spots.

"*Gray Giant, or Dutch Pea.*—This variety is little known in Scotland; it is the tallest-strawed, latest, and largest of our field Peas; length of straw 6 to 8 feet. Pea flat, wrinkled, and of a dunnish gray colour, with dark eye. This being a late variety, can only be cultivated in the earlier parts of Scotland.

"*Hog, or Tare Pea.*—This variety we imported last season from Prussia, and were substituted for Tares, being suitable for green cutting, owing to their producing propensities. The Pea is about the size of a Tweeddale Pea, beautifully marked with purple and black spots."

Farm Memoranda.

AN IDEAL SEWAGED FARM.—Let us imagine the case of a 200-acre farm near the town, one half of which, or nearly, is commanded by the outfall sewer, so as to receive the town drainage by gravitation in the ordinary water-meadow fashion. We will suppose that about 90 acres are thus capable of being watered, and that there is a paddock or two of old meadow besides 100 acres of arable land. As Italian Rye-grass, which is the crop best adapted for sewage, will not last over a third year, one-third of the sewaged land will every year be ploughed up for a summer crop of roots and resown; and thus 60 acres in first and second year's growth of Italian Rye-grass will be the extent over which every year's sewage will be poured. If it may be fairly assumed that every 100 tons of sewage properly applied will produce a ton of Grass beyond the natural growth of the climate and the soil, then 4000 tons of sewage per acre should add 40 tons of Grass per acre to the natural growth of, say 10 tons; and there will be 50 tons per acre, or 3000 tons of Grass in all from 60 acres, obtained by the use of 4000 tons per acre, or 240,000 tons of sewage. The principal question to be determined by the experience of this farm, and to be discussed in the following estimate, is, whether in order to the produce of these 60 acres of Italian Rye-grass we can profitably spend 1000*l*. (16*l*. 13*s*. 4*d*. per acre!) in manure, for that is what 240,000 tons at 1*d*. per ton amount to. It seems an outrageous expenditure, and any attempt to show that it is likely to be repaid will necessarily be received with great doubt by any one acquainted with the experience of only ordinary agriculture; and therefore in the following remarks we must state the circumstances and be guided by the facts already to some extent realised upon a farm on which sewaged Grass is being grown by these dressings and consumed in cow houses on the land—the milk produced being sold on the premises for 10*d*. an imperial gallon.

The cows receive daily during winter about 7 lb. of hay apiece as hay, and as much as chaff mixed with about 60 lb. of pulped Mangel Wurzel—and they have about ¾ of a bushel of distillery grains daily. During summer they will consume about ¾ of a bushel of grains and 120 to 130 lb. of Grass, or other green food. Those cows which are gradually drying off their milk receive, in those cases where they are to be sold fat, 3 or 4 lb. of meal or cake along with their food; and probably one-third of the number, the best milkers, will be kept over and calved on the premises. Two-thirds will be sold at a loss of probably 3*l*. a head upon their purchased price after, say nine months milking, and during that period they will have consumed about 200 bushels of grains, at a cost of 11*l*. on the premises, and 50*s*. worth of meal; and, taking summer and winter together, 10 cwt. of hay, costing 2*l*. on the premises. During that period they will have yielded on an average probably 3 gallons a-day during the first 7 months, 2½ gallons a-day during the next month, and probably 1½ gallon a-day during the last month, or 760 gallons in all, worth 7600*d*. or 31*l*. 13*s*. 4*d*.

In order to ascertain the costs and produce *per stall* per annum, we must add one-third to these items, which represent the cost and produce of 9 months of the cow that is sold fat. The food consumed per stall thus amounts to,—

Hay	£2	13	4
Meal	3	6	8
Grain	14	16	8
Litter, say	1	3	4
Loss on sales	4	0	0
	£26	0	0

and the produce is about 42*l*. 10*s*. The difference, 16*l*. 10*s*., is the price obtained to pay for costs of attendance, risks of losses, and for about 3½ tons of Mangel Wurzels and 12¼ tons of Grass. Deduct 2*l*., or 10 per cent. on the value of the cow, to represent risk of loss by disease or death, and 2*l*. 10*s*. for attendance, and there will remain 12*l*. for the net annual produce of each stall, in which 3½ tons of Mangels and 12½ tons of Grass have been consumed; and if 30*s*. be put down as the consuming value of the roots, we shall have 10*l*. 10*s*., or about 16*s*. 6*d*. a ton for the Grass, together with the manure that is made.

Take now the case of those stalls which retain their cows from year to year. These are the selected cows of the herd, and we may assume, therefore, that they will yield as much milk per diem as the others, notwithstanding that they receive no meal. The annual deterioration in their value may be nothing at all during the two or three years they are kept, or at all events the calf will pay for any amount of diminished value they undergo. We put the milk down for a longer period, or say about 300 days at 11 quarts = 3300 quarts = 825 gallons, which, at 10*d*. a gallon, are worth about 34*l*. 10*s*.

The annual cost will be less by about 40 bushels of grains, or 1*l*. during the time they are dry, by say 3*l*. for meal, and 4*l*. for loss, or 8*l*. altogether; so that the annual expenditure beyond Mangel Wurzel and Grass in their case is 18*l*., leaving nearly 16*l*. 10*s*., about the same as the other, to set against losses and attendance and food produced upon the farm. The cost of attendance, however, will be rather less, as during the time they are dry they will be kept in the paddock instead of being fed in the stalls. Upon the whole, therefore, there is no great difference in the two cases, and we may assume that for the farm produce consumed in each stall, there will be an annual return of 12*l*. together with the manure, and that is equal to 9*s*. a ton for the Mangel Wurzels, which is their value in ordinary farm experience, and about 16*s*. or 17*s*. a ton for the Grass.

We have now to inquire how many cows can be kept upon this farm of 200 acres, of which 60 acres are in sewaged Grass, hay and grains and meal being purchased.

Beginning to cut the Grass about the middle of March we shall find under ordinary circumstances that there will be a weight of 6 or 7 tons per acre on the land then, and it might well answer the purpose to apply sewage continuously, or at very short *intervals* during winter, in order to get the earliest possible growth over a sufficient extent for the earliest possible spring use. We will suppose that 15 acres thus treated yield 7 tons an acre in March, and that other three equal portions come into use during April in succession, so as to yield 8, 10, and 12 tons per acre respectively during that

month. The probable periods of the subsequent cuttings, with the probable crop per acre at these cuttings, may be represented as follows:—

PLOTS OF 15 ACRES EACH.

Month.	Week of Month, and Tons per Acre.								Total Produce. Tons.
	A.		B.		C.		D.		
March ..	4	7	—	—	—	—	—	—	105
April ..	—	—	1	8	2	10	3	12	450
May ..	1	12	3	12	4	10	—	—	510
June ..	3	12	4	10	—	—	1	12	510
July ..	4	10	—	—	1	9	2	9	450
August ..	—	—	2	8	3	7	4	7	330
September..	2	7	3	7	4	6	—	—	300
October ..	3	5	4	5	—	—	2	6	240
November..	—	—	—	—	—	5	—	—	75
Total ..	—	53	—	50	—	47	—	46	2970

Let us now compare this yield with the quantity of green food needed to keep 300 cows during the summer months.

The green and succulent food consumed by 300 cows may be estimated as follows:—in Grass, during March till November, and Mangel Wurzels during December to March, both being helped by Cabbages from July till December. The monthly allowance for a cow is put at 16 cwt. of Mangels, or 33 cwt. of Grass, or 28 cwt. of Grass and Cabbages together.

	Mangels.	Grass.	Cabbage.
	Tons.	Tons.	Tons.
January	250	—	—
February	250	—	—
March	200	100	—
April	—	500	—
May	—	500	—
June	—	500	—
July	—	450	50
August	—	300	150
September	—	300	150
October	—	200	220
November	100	150	150
December	200	—	—
Total	1000	3000	720

To provide this quantity of food will require at least 60 acres of sewaged Grass, as above estimated, 40 acres of Mangel Wurzel, and nearly 30 acres of Cabbages. This is 130 acres in all, leaving 70 out of the farm for grain crops, and for Potatos and Cabbages for market.

It is probable that the portion of Italian Rye-grass which will every autumn be ploughed up to be made ready after a fallow for a fresh sowing of the same crop again, will be best used after a heavy dressing of dung by taking a crop of early Potatos. These will be cleared in July and August, in ample time for the best possible seed time for Italian Rye-grass, and in time to yield a full crop in May and June of the following year. And Potatos will be as valuable a crop as can be taken in the time. But there are many other crops which would be suitable. Flax, for example, might very well be grown, and it is probable that it would prosper under sewage dressings; or Cabbages, Winter Broccoli, and Greens of all kinds might be taken, and they generally bear a high value near towns.

The returns from the farm will be—(1) from 300 cow stalls; (2) from 30 acres of fallow and other crops on the sewaged land; and (3) from 40 acres of grain crops.

The returns from the stalls were estimated at 12*l.* apiece	£3600	0 0
The straw and grain of 40 acres of grain crops may produce, after deducting seed	500	0 0
The crop off 30 acres of Potatos and other market crops, after deducting sets or seed	500	0 0
The whole farm produce	£4600	0 0

This sum has to bear the cost of—

Rent and rates		£600
Sewage, 240,000 tons at 1*d.*		1000
Seed—		
30 acres of Italian Rye-grass	£30	
40 acres Mangel Wurzel	15	
30 acres Cabbage	5	
		60
Labour—		
Of 60 acres of sewaged land—		
Watering	£100	
Cut and carried five times	200	
	£300	
Of 40 acres of Mangel Wurzel, at 4*l.* an acre	160	
Of 30 acres of Cabbage, at 3*l.* 6*s.* 8*d.* ..	40	
Of 40 acres of grain crops	120	
Of 30 acres of Potatos	120	
Extra for many sundries	160	
		£900
Tradesmen's bills, probably		140
Portion of horse labour		100
Farm Bailiff		100
		£2900

Only a partial charge is made for horse keep, for most of this is included in the labour cost of the crops, or in the charged cost of bought food for cattle. Nothing is charged for manure; this is abundantly supplied from the cowhouse. The total charge is thus 2900*l.*

And there remains about 1700*l.* of the farm receipts after these sums are deducted.

The FARM CAPITAL may be—

For six pairs of horses and harness	£500	0 0
For implements	300	0 0
For six months' labour, say	450	0 0
For seed, say	80	0 0
For cost of draining and laying out 90 acres of land for irrigation	900	0 0
For cow shedding, if that be provided by tenant, say	1000	0 0
For 300 cows	6000	0 0
Total farm capital	£9230	0 0

Nothing is charged under this head for rent or sewage, or tradesmen's bills, or for more than six months' labour, because the receipts from the cows come in at once, or month by month, and at once begin to supply the means out of which these and a good deal even of the other items of expenditure can be met.

The result of the calculation leaves the tenant with an income of about 1700*l.* for the use of a capital of something like 9000*l.* The maintenance of so much of his capital as is invested in cows is provided for out of the return from the cows before the net profit per stall is estimated; but there are other items in the capital account—as for horses, and implements, and cowsheds, and irrigation works—amounting to 2700*l.*, the annual depreciation and discharge of which must be put at 15 per cent. on the value, and this takes 400*l.* from the net income just stated, and leaves only 1300*l.* as the net annual return for the use of 9000*l.* This is certainly a good deal more than would generally be obtained in ordinary farming for the use of that sum of money. And it will, we think, be admitted by those who are acquainted with town dairy management that the produce of the cows is put if anything below the average experience. And if in place of 42*l.* per stall the produce should be what in Colonel Talbot's cow-houses it was declared to be, in the paper read before the Society of Arts on London milk, it is plain that a much larger return would be realised. From 80 stalls at Sudbury 4090*l.* were realised, the produce per stall having been nearly 1100 imperial gallons per stall per annum, which, at 10*d.* per gallon, the price we assume, would yield close upon 46*l.* a stall, instead of 42*l.*, at which we have put it. And this over 300 stalls would considerably increase the net return to be derived from the undertaking.

BLUEBELL FARM, COLENSO.—Captain Hamilton says, "I farm 5000 acres of land, about 30 of which are under cultivation. I came here in 1861, and commenced to grow Wheat, Oat-forage, mealies, Tobacco, and Potatos.

"In 1861 I sowed 10 acres of land with 5 muids of 'klein corn,' or Leydenburg Wheat. The crop yielded 60 muids. The following year I ploughed it extra, manured well, and tilled as in Scotland. From the same extent, and equal quantity of seed, I reaped 100 muids of beautiful Wheat, which fetched 32*s.* per muid. The average quantity of Wheat grown per acre during the last three years is 9 muids. The crop just reaped will, I think, give 11 muids per acre, and will make the quantity of Wheat raised in four years amount to 500 muids.

"I sow Wheat and forage in May, and reap about the end of October. For a summer crop, the best time for sowing cereals is in January and early in February; mealies (Indian Corn) ought to go in in October, and Tobacco early in January. To explain my mode of cultivation—I have an artificial dam for irrigation in dry seasons, 250 yards long, 40 wide at the top, 60 in the middle, and 80 at the lower end, where a solid stone wall, 15 yards broad, and 18 feet high, forms the embankment; and the depth of water is 14 feet in the middle, 6 to 8 feet in other places, constantly fed by a small stream of water. There is sufficient water to irrigate 30 acres four times over during the dry season. Although it is my belief you could take seven crops in succession off the land without manure—in fact, they improve after the third—yet I find you cannot manure too highly for Wheat, provided you cultivate deeply, and work up the subsoil. A little judgment and experience is necessary in irrigation, to allow the water to settle evenly and regularly over the land before night, in case of frost. I begin at the lower end, and work upwards each day, taking care to preserve the whole of the soluble elements upon the land. I have grown Wheat upon 20 acres of land only, and the only alternate crop used has been mealies and Pumpkins. The mealie stalks I leave until thoroughly dry, then burn in heaps, and spread. After the Pumpkins are removed (I use them for feeding sheep in the winter months, shred like Turnips, which they relish much), I plough in the vegetable matter as green manure. I put about 4 tons of manure per acre for Wheat every second year, and, in addition, when I irrigate the second time (about three weeks after the first), the braird being some 3 inches high, by throwing manure into the course as the water passes the kraals. I put on liquid manure about an inch deep over all. I have also folded sheep, at the rate of 300 to the acre, for six nights on the Wheat land with great advantage, and find that three good crops of Wheat in succession, without further manuring, can be raised by this process. I once grew Wheat on an acre of ground after Potatos; I found the result was all straw—very little head.

"As I find lime exists in the soil some 12 inches from the surface, I use a heavy plough, with eight oxen, for subsoiling, and go as deep as I can the first ploughing; a light plough and six oxen are used for the second ploughing.

"I conclude, from the chemical analysis of the component parts of Wheat straw, that one of the most useful constituents of Wheat soils—silica—exists in the ash of the straw to the extent of 81 per cent. To obtain this, therefore, and utilise the straw, which, from my primitive mode of threshing—treading out by horses—is so cut as to be useless for fodder, I cart the straw in heaps to the field, and burn it, along with the long stubble purposely left, spreading the ashes evenly over the surface. I also consider the absence of silica in the soil a predisposing cause of rust. As a precaution against rust in Wheat and forage, I dissolve about 20 ounces of bluestone (sulphate of copper) in 24 gallons of water, made warm, steep the seed in this solution for half an hour, removing the floating seeds, drain in a basket, and sow almost immediately. I find the above produces short straw and a heavy head, also a crop at least one-third heavier than that grown from unsteeped seed. Birds, vermin, and insects won't touch it. In 1863 I steeped my Wheat and Oats in a pickle of salt strong enough to float an egg, allowed it to remain for 24 hours, strained through a basket, and dried on a floor by riddling quicklime over it. From this process I got 10 muids of Wheat and 3500 lbs. of Oat forage, sold at 7*s.* per 100 lb., off the acre, 16 bundles to the 100 lb. I have grown Wheat and forage without the slightest drawback, and never had the least rust in either.

"It is quite evident that on the tillering or branching of Wheat all depends as to a good or bad crop; and this results from the vigour of the plant, procured by frequent deep and clean cultivation, a total absence of weeds, and an occasional top-dressing of manure (sheep's, if possible).

"In regard to Oats, I have grown off 10 acres of land during the last four years 370 muids, sold at 22*s.* and 25*s.* per muid. The cultivation of Oats does not require such attention as Wheat. I allow half of my Wheat land to rest every three years. High manuring requires much less seed per acre. I find my average produce of Oats per acre is about 12 muids.

"Barley grows very well, but there being no demand for it, I only grew a little for my own use.

"Mealies (Indian Corn)—no return of crop.

"Tobacco yielded me 1600 lb. to the acre, sold at 8*d.* per lb.

"Potatos yield per acre quite as much as at home. In 1862 I dug 60 cwt. Potatos of a blue variety off an acre.

"Turnips and Beet do very well, but I have not grown them to any extent. Vegetables of all sorts do well, put down in September or January.

"My stock, which run on my farm winter and summer, and which I do not consider half stocked, consists at the present time of 121 head of cattle, 500 sheep, and 2 horses.

"I commenced with 50 milch cows. In three years my increase was 120 head; in fact, I only lost three calves during the whole time. I have made and sold during that time 2500 lb. of butter, sold at 10*d.* and 1*s.* per lb., from these cows, besides supplying my establishment; and I have drafted out 20 head of old cows, so many a year, from the herd. I milk at present 30 cows, and expect to sell this year 1000 lb. of butter, besides rearing calves, feeding pigs, and keeping the house. I inoculated my whole troop of 130 head in 1864, only losing nine head previously, and six head from the effects of inoculation.

"My mode of management of young stock I have found by experience. I always keep the calves in a covered place from the sun until they are two months old, giving them butter-milk in the middle of the day; then let them run out four hours in the morning, house during the heat of the day, and out again in the cool of the afternoon. They have a constant supply of salt in their kraals. I inoculate every year when the calves are a year old Having heard considerable discussion in the colony as to the best method of butter-making—churning only the cream, or churning the milk altogether—and the majority preferring the former method, I give you the result of an experiment made: No. 1—I put 104 quarts of milk into pans, and when the cream had risen it was churned in the regular way, yielding 9 lb. of butter. No. 2—I strained 104 quarts of milk into churns or vessels, which, as soon as it became sour I churned, and the result was 11 lb. of butter, showing a large per centage in favour of the entire milk; and I think that, as a whole, its quality is better, its flavour more delicate, and that it will keep longer fresh than that produced from the cream alone. I consider my cows pay me 60 per cent. per annum.

"Sheep did very well up to the commencement of the present year, when I lost, like my neighbours, from bluetongue. Up to 1865, the few I had paid me 75 per cent. at least. On the 1st January, 1865, I had 739 head, all told. During the three months, January, February, and March, I lost 280 head from what they call here bluetongue, or inflammation of the monyplus of the stomach. After three months I got through it.

"I do not breed horses.

"I would double my stock and cultivation departments on the same acreage, were it not for want of capital; so must get on by degrees. I knock 500*l.* a-year out of them together." *From the Natal Agriculturist, quoted by the Natal Land Company.*

Miscellaneous.

Sugar for Brewers.—The great scarcity of both English and foreign Barley fit for malting purposes has compelled some of the brewers to purchase low sugars for brewing purposes. That really fine Barley will be a scarce commodity for several months is evident from the damp condition in which the bulk of the crop has been secured. The result of an inferior crop of Barley is that the best parcels are worth 54*s.*, and even 56*s.*, and the best pale malt, so much required by the pale ale brewers, 80*s.* per quarter. With the exception of about 20,000 quarters of fine Barley imported year by year from the Danish islands, the whole of our vast supplies, from the Continent and elsewhere, are composed of qualities only fit for grinding and distilling purposes. Continental countries do not produce a quality of Barley which can be converted into good saleable malt. *Journal of Society of Arts.*

Steam Cultivation.—The Royal Agricultural Society undertook a task of some magnitude when it sent forth its inspection committees over steam-ploughed farms in all parts of England. Such a mass of detail has been collected from the counties already visited that, in order to get it moulded into readable "reports," in time for the next issue of the "Journal," a further division of labour has been found necessary, and a third committee is now starting upon a final tour of eight or ten days. Its members are Mr. John Thompson, of Badminton, Gloucestershire (the Duke of Beaufort's agent), and Mr. George Turnbull, of Belford, Northumberland; with Mr. John Coleman, of Escrick,

York (late Professor of Agriculture at the Royal Agricultural College), as secretary and reporter; and the inspection will extend over between twenty and thirty farms in the counties of Leicester, Nottingham, Stafford, Salop, Wilts, Somerset, Dorset, Durham, Cumberland, Lancashire, and Wales. Of necessity, the half-yearly "Journal" cannot appear on February 1, its usual date of publication; but at the close of the month, or whenever it does come out, it will be a "thickish number" if it contains much besides the three "steam reports." The value of the third committee consists in the cumulation of independent testimony which it will afford, so that "the present aspect" of steam-power husbandry will appear in print guaranteed by the signatures of no fewer than 10 agriculturists chosen from light-land and heavy-land occupations in widely separated quarters of the kingdom. The steam-plough committee of the Highland and Agricultural Society of Scotland, appointed twelve months ago, have not yet presented their full report. The circular of questions sent out by them must have elicited a great deal of very minute information; their personal inspection of farms, we believe, has been limited to a few localities on their own side of the Border. *Daily Telegraph.*

Calendar of Operations.

MARCH.—The young Wheats may be hoed when the land is dry, either by hand or by horse-hoe; and this may be preceded or followed by the roller.

Oats should be sown this month.

Barley may be sown, 3 bushels per acre, during the month, on the gravelly and sandy classes of soils, when the land is dry.

Grass and Clover seeds should be sown towards the end of this month, with either Wheat, Oats, or Barley. The broadcast sowing machine will sow any quantity from 8 to 18 lb. of the mixed Clover seed, and at a second going over from 2 to 4 pecks of Grass-seed per acre. The land is then to be harrowed, or bush-harrowed, across the drills of corn, if these are up, and rolled.

Potatos should be planted either on manure in the drills, in rows 24 to 30 inches apart, or they may be dibbled by a foot dibble where the land is very soft, which will cost about 4*s.* per acre; or they may be planted by spade, at a cost of 9*s.* to 12*s.* per acre. In this case the land is manured, the first trench made by the spade across the ridge, the sets then planted by a child, the second trench then made, the earth taken out of it being used to fill the first, the manure, however, lying on the surface between the two, being first cleaned off it on to the top of the first row of sets. In light shallow soils, it is a good plan to plough-in the sets and the manure every third furrow. The dung is laid in heaps, 5 or 6 yards apart, in parallel rows, at about the same interval, in the direction in which the field is to be ploughed. When the ploughs are started, four people have an equal portion of the field allotted to them, and plant the sets in every third furrow; an equal number of people carry the manure from the heaps, and spread it above the seed, finishing 3 acres a day.

Carrots.—The land for this crop having been deeply ploughed and manured in the autumn, may receive a scarifying and harrowing towards the end of this month. On light soils a good preparation for Carrots is a clean crop of Turnips fed off on the land.

Parsnips may be sown in the beginning of this month, on deeply and cleanly tilled and well-manured land, of the stiffer class of soils. Sow 5 lb. per acre, in shallow drills, 18 inches apart.

Spring Tares may be sown this month.

Peas should be sown during March.

Sow *Cabbage* for transplanting in the field in May.

Flax.—Land may be scarified and well cleaned now for this crop—should be of a loamy character, rather adhesive than otherwise. It may be manured with well-rotted dung now, but should have been manured in autumn. Rape-cake is a good manure for it; sown broadcast now.

Clover Fields should be cleared of all large stones and rolled.

Land intended for *Mangel Wurzel* may receive a ploughing, which, if on dry land and in dry weather, may be deep, across the autumn ridges; but if the ground be clayey or wet, the ploughing should be confined to the splitting of the ridges, taking care to keep open furrows. Dig out patches of root-weeds from those fields which are to bear fallow crops. The flowers of the Coltsfoot must be pulled.

Manure heaps in the fields must be turned for use on the Mangel Wurzel crop. The whole mass may be well broken for from ¾*d.* to 1*d.* per cubic yard.

Notices to Correspondents.

PERUVIAN GUANO: *Scipio.* Apply 3 cwt. per acre, broadcast, previously mixed in a cartload of earth, over every acre of Grass-land in wet weather next month. Or 1 cwt. each of Peruvian guano, superphosphate, and nitrate of soda, would probably be more efficient.

SPLENIC APOPLEXY: *Enquirer* asks: Can any of your readers throw any light, or make any suggestion, as to the above insidious disease? Having to manage a small grazing farm in South Northamptonshire, and having suffered from the above, I should feel obliged to any one to give their experience, or make any practical suggestion, having unfortunately lost two beasts this year—one last week and another in January. (On one occasion two years ago we lost two splayed Welsh heifers in one week). I have consulted the best veterinary surgeon of the district, and he is unable to give any clue as to the cause or prevention. I may add our land is high lying and rather wet, particularly this winter. Our first attack occurred four years ago next August, in the dry, hot weather, so it does not seem to be owing to the wetness of the land. The water rising on it supplies the fields below, which are stocked with horned stock, and they have hitherto escaped. In each case the beasts have only lived a few hours after they have been noticed amiss.

The New Forage Grass (Bromus Schradert).

SUTTON AND SONS have imported a large supply of True Seed of the above, and offer it at 2*s.* 6*d.* per lb., or cheaper in large quantities. Quantity required per acre, 30 lb. Lowest price per cwt. and instructions on cultivation may be had on application.
SUTTON & SONS, Seed Merchants, Reading.

SUTTON'S FINE LAWN GRASS for Making New or Improving old Garden Lawns, Croquet Grounds, &c. Price 1*s.* 3*d.* per pound, 2*s.* per bushel, carriage free. For forming New Lawns or Croquet Grounds three bushels, or 60 lb., are required per Acre, or 1 gallon to Six Rods of Ground.

From the Rev. E. J. GOSLING, M.A., *Chaplain to the County Gaol, New Dublin Road, Monmouth.*

Nov. 8, 1866.—"The Lawn Seeds I had from you in the spring have fully testified to the truth of all that has been said in praise of them."

From H. E. TUCK, Esq., 32, *Bartholomew Road North, Kentish Town, London.*

August 8, 1866.—"The Lawn Grass Seed is excellent; grows very quickly indeed, and produces beautiful fine Grass, such as we never had before."

From ROBT. J. STEDMAN, Esq., *Shambrook, Bedford.*

Jan. 13, 1866.—"The lawn I laid down last spring with your Grass Seeds answered wonderfully. It looks now as if it had been done with old Turf. Persons who see it scarcely believe it was obtained by sowing."

From MARTIN COUCHER, Esq., M.D., *Bayton Villa, Clifton-on-Teme, Worcester.*

Oct. 6, 1866.—"On the 10th or 12th of June I sowed the Lawn Grass Seed, and though the planting was so late, the Lawn now presents a uniform luxuriant appearance of a beautiful tint, and looks as though it had been planted two years. Of course, attention has been paid to mowing and rolling."

PRICED LISTS gratis and post free.
SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

Very Early Sheep Feed.

SUTTON'S IMPROVED ITALIAN RYE-GRASS.—This "Improved" Italian Rye-grass is recommended in preference to every other variety, producing three or four heavy crops in one summer, and being almost if not strictly perennial.

At a Meeting of the Royal Agricultural Society, on March 16, in a Lecture delivered by Alfred Hughes, Esq., late of Thorness, Isle of Wight, Mr. Hughes said:—

"I always reserve a portion of Oat land to lay down with SUTTON'S Improved Italian Rye-grass, the most reliable plant I have come across for some years for Ewes and Lambs in the Spring. When I tell you that I put it in in the spring, and dressed it after harvest with guano, and that in the autumn, when my Sheep fed it off, it was up to their knees, and that I fed it off again this spring with Ewes and Lambs, I think you will agree that this is a crop of very great value. The Italian Rye-grass which is sold by SUTTON, of Reading, is a most astonishing vigorous plant; indeed, I never saw anything to equal it in the course of all my experience."

SUTTON & SONS have a fine stock of their Improved Italian Rye-grass, which is a very different and superior article to much that is sold as Italian Rye-grass.

Present price 6*s.* 6*d.* per bushel, cheaper in quantities over 5 qrs. Carriage-free in quantities of 8 bushels and upwards.

Quantity required per acre, if sown alone, 3 bushels.
Royal Berkshire Seed Establishment, Reading.

Seed Corn from the Chalk.

ALL THE MOST APPROVED VARIETIES SUPPLIED BY
RAYNBIRD, CALDECOTT, BAWTREE, DOWLING, AND COMPANY, LIMITED.
Address, Basingstoke; or 89, Seed Market, Mark Lane, London, E.C.
*** Samples and prices on application.

SOMBRERO GUANO.—This article has proved itself superior to Peruvian Guano, and is 25 per cent. cheaper. For Grass Land this Guano should be used during February and March.
Sole Agent, W. PICKFORD, 148, Fenchurch Street, London, E.C.

ODAMS'S NITRO-PHOSPHATE for CORN
ODAMS'S NITRO-PHOSPHATE for ROOTS.
ODAMS'S DISSOLVED BONES.
ODAMS'S SUPERPHOSPHATE of LIME.
ODAMS'S PREPARED PERUVIAN GUANO.

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This Company was originally formed by, and is under the direction of agriculturists, circumstances that have justly earned for it another title, viz.—"The Tenant Farmers' Manure Company."

Its members are cultivators of upwards of 50,000 acres of land which has been for years under management with Manures of their own manufacture. The consumer, therefore, has the best guarantee for the genuineness and efficacy of the Manures manufactured by this Company.

Particulars will be forwarded on application to the Secretary, or may be had of the Local Agents. C. T. MACADAM, Secretary.
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ORNAMENTAL RUSTIC TREE STUBS. 40 remarkably handsome Rustic Tree Stubs, suitable for mixing with ROCK WORKS, FERNERIES, &c., for SALE. Some of the Stubs are of a large size, with Moss growing on them.
W. SHORT, Horticultural Depot, Reigate, Surrey.

THE LONDON MANURE COMPANY (ESTABLISHED 1840),
Have now ready for delivery in dry fine condition,
CORN MANURE, for Spring Use
DISSOLVED BONES, for Dressing Pasture Lands
SUPERPHOSPHATES of LIME
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MANGEL and POTATO MANURES
Also Genuine PERUVIAN GUANO, and NITRATE of SODA, ex Dock Warehouse; SULPHATE of AMMONIA, FISHERY SALT, &c.
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LAWES' MANURES.—The Manures manufactured by J. B. LAWES for the present season of 1867 are now ready for delivery at his Factories, at the following prices, per ton:—

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LAWES' PATENT TURNIP MANURE and BONE SUPERPHOSPHATE of LIME	6	6	0
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These Manures can be obtained of Mr. LAWES, or through the appointed Agents in all parts of the United Kingdom, at prices varying according to cost of carriage.

Genuine Peruvian Guano direct from the Importers. Nitrate of Soda, Sulphate of Ammonia, and other Chemical Manures.

American and other Cakes at market prices.

Address, JOHN BENNET LAWES, 1, Adelaide Place, London Bridge, E.C.; 22, Eden Quay, Dublin; and Market Square, Shrewsbury.

SELECTED SILVER SAND, PEAT SOIL, LOAM, Sandstone, Garden Pots, Vases, Tazzas, Figures, Gravel, Garden Implements, and Materials of all kinds for Sale in any quantities. By Railway, Canal, and Ship to all parts of the United Kingdom.
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FIBROUS PEAT of first-class quality for Orchids, Heaths, American Plants, and all potting purposes, may be obtained by application to Mr. THOMAS JESSOP, Farningham Wood, Kent. It is despatched by the London, Chatham, and Dover Railway in trucks of 16 yards, about 6 tons, to any Station about London, and on the Great Northern, Midland, and Great Western Railways; or fetched in carts from the wood. It is extensively used and appreciated in the London Nurseries, and in the Royal Parks and Gardens. Price 5*s.* per cubic yard, at Farningham Station.



COCOA-NUT REFUSE is becoming SCARCE, the old reserves will soon be gone. Now sold in bags, 1 for 2*s.*, 10 for 16*s.*, 2 for 30*s.*, 50 for 66*s.*, 100 for £6.

Fourpence allowed for each bag returned carriage-paid.

A Railway Truck-load (not in bags), 40*s.*

Postage Stamps or Post-office Order, payable to J. BARSHAM & Co., Kingston-on-Thames, S.W.

GISHURST COMPOUND.—Used by many of the leading Gardeners since 1859, against Red Spider, Mildew, Thrips, Green Fly, and other Blight, in solutions of from 1 to 2 ounces to the gallon of soft water, and of from 4 to 16 ounces as a Winter Dressing for Vines and Fruit Trees. Has outlived many preparations intended to supersede it.

Sold Retail by Seedsmen, in boxes, 1*s.*, 3*s.*, and 10*s.* 6*d.*
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Fumigate your Greenhouse with

TOBACCO TISSUE.—Will Destroy all the Insects and not Injure the Plants; is entirely free from paper or rag, and will burn without blowing.

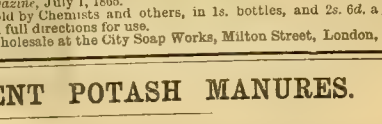
Price 3*s.* 6*d.* per lb., carriage free. To be had of Messrs. ROBERTS & SONS, Tobacco Manufacturers, 54, St. John Street, Clerkenwell, E.C., and of all Seedsmen and Nurserymen

BOSTON'S NE PLUS ULTRA, for the Destruction of Mealy Bug, Scale, American Blight, &c., on Stove and Greenhouse Plants, Fruit Trees, Vines, &c. In bottles, with full instructions for application, price 3*s.* 6*d.*, 5*s.*, and 10*s.* 6*d.*

JAMES CARTER & Co. beg leave to state that the present time is most suitable for applying the above genuine Specific before the commencement of the growing season, thereby preventing the rapid increase of the above pests which would otherwise take place. The infallible properties of BOSTON'S NE PLUS ULTRA are rapidly becoming fully recognised, J. C. & Co. having already sold nearly 2000 bottles since its first introduction in the spring of 1866. Numerous testimonials have been received, and not a single complaint of its inefficiency.

Sole Agents, JAMES CARTER & Co., 237 and 238, High Holborn, W.C.
*** The Trade supplied on liberal terms.

Vineries and Orchards.



GREAT VALUE of "APHIS WASH."

"AT the first opportunity Paint the Trees with a solution of 'APHIS WASH,' prepared at the City Soap Works; it not only destroys the Brown Aphis which Infests Peach Trees, but also Scale, and every other pest capable of lodging in the bark."—Extract from *Gardeners' Magazine*, January 5, 1867.

"For strengthening the growth and effectually destroying all forms of blight, the 'Aphis Wash' supersedes every other preparation."—See *Gardeners' Chronicle*, August 19, 1865; and *Gardeners' Magazine*, July 1, 1865.

Sold by Chemists and others, in 1*s.* bottles, and 2*s.* 6*d.* a gallon, with full directions for use.

Wholesale at the City Soap Works, Milton Street, London, E.C.

LOCK'S PATENT POTASH MANURES.

TRADE LOCK'S POTASH MANURE MARK

This is the only "*perfect*" MANURE ever yet offered to the Agricultural Public, containing, as it does, that most *important element* of every cultivated plant—POTASH. It is far superior in efficiency to Peruvian or any other Guano, as it supplies EVERY *constituent requisite for each* SPECIAL *Crop.*

Each Manure is specially prepared for the Crop for which it is intended, and is sold in Bags containing the necessary Dressing for *One Acre.*

The WHEAT, BARLEY, and OAT MANURE will effectually PREVENT the LODGING of the Corn, so frequent on lands deficient in Silica.

The CLOVER MANURE is a CERTAIN CURE for CLOVER SICKNESS, so prevalent in some Counties.

The GRASS MANURE contains an abundance of SILICATE of POTASH, which is by far the *predominating element* in all GRASSES, and which has never before been offered for Sale by any Manufacturer.

For full particulars see Circulars, for which apply to the

SOUTH of ENGLAND MANURE COMPANY, LIMITED, REDBRIDGE, HAMPSHIRE,

who are the SOLE MANUFACTURERS.

*** AGENTS WANTED for the UNITED KINGDOM.

BY HER MAJESTY'S ROYAL LETTERS PATENT.

ORMSON'S

NEW PATENT WROUGHT IRON MULTITUBULAR HOT-WATER BOILER.

SAFETY, EFFICIENCY, POWER, AND ECONOMY.

MANY OF THESE BOILERS HAVE NOW BEEN FIXED,

AND HAVE IN ALL INSTANCES GIVEN THE

GREATEST SATISFACTION DURING THE LATE SEVERE WINTER.

NOT A SINGLE INSTANCE OF FAILURE IN ANY RESPECT.

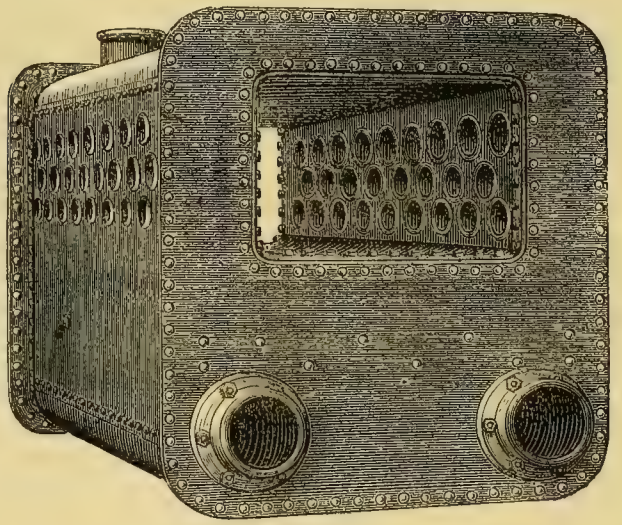
THE GREAT ADVANTAGES OF THIS BOILER ARE:—

1st. Being entirely of WROUGHT-IRON, its safety from leakage and cracks (from expansion or contraction), a danger to which all Cast-iron Boilers are more or less liable.

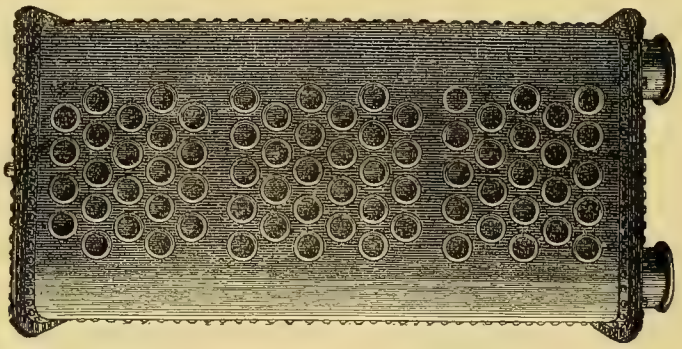
2d. An immensely increased surface exposed to the direct action of the fire, which passes through the tubes, thereby giving a wonderfully increased amount of power.

3d. A great saving in the consumption of fuel. Its facility for banking up the fire. Its peculiarly well-adapted construction for slow combustion, and burning many hours without attention, at a trifling expense.

4th. Its extraordinary power and safety for carrying out the One-Boiler System, and small space and depth for setting.



ELEVATION.



UNDERSIDE OF BOILER AND PLAN OF TUBES.

One of these BOILERS Heated the GREAT ORCHID TENT, 560 feet long, and 40 feet wide, at the INTERNATIONAL HORTICULTURAL EXHIBITION, with a remarkably small quantity of fuel, and gave the greatest satisfaction. Was highly approved of by many Scientific Men and Practical Horticulturists.

The great Power, Economy, and Safe Working of these BOILERS has been thoroughly tested for the last 18 months at the Horticultural Gardens, Chiswick, where they may be seen in action, and also at other places in various parts of the country.

THEY ARE MADE OF VARIOUS SIZES. PRICES ON APPLICATION.

☞ *Plans, Specifications, and Estimates on application.*

HENRY ORMSON, F.S.A.,

HORTICULTURAL BUILDER TO HER MAJESTY, AND HOT-WATER APPARATUS MANUFACTURER TO THE COMMISSIONERS OF HER MAJESTY'S ROYAL PALACES AND PUBLIC BUILDINGS, AND TO THE ROYAL HORTICULTURAL SOCIETY,
STANLEY BRIDGE, KING'S ROAD, CHELSEA, LONDON, S.W.

SHANKS' PATENT LAWN MOWERS FOR 1867.

PATRONIZED FREQUENTLY DURING THE PAST THREE SEASONS BY

HER MAJESTY THE QUEEN,

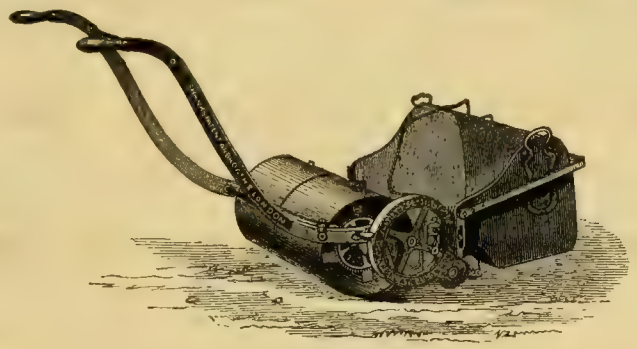
HIS MAJESTY THE KING OF SAXONY, | HIS MAJESTY THE KING OF HOLLAND,

HIS MAJESTY THE KING OF PRUSSIA,

AND AMONGST THE DISTINGUISHED FOREIGN NOBILITY,

THE DUCHESS DE CAMBACÉRÈS, THE MARQUIS DE BOISSY, MARSHAL CANROBERT, &c., &c.

Every minute point in the way of improvement has been carefully considered and adopted, and as A. S. & SON have for more than a quarter of a century devoted their attention to this particular branch of their business, the Nobility, Gentry, and Gardeners may rely on the MACHINES they may order, to be such as to ensure lasting satisfaction, and to stand the wear and tear of many years.



PATENT HAND MACHINE.

SHANKS' PATENT LAWN MOWERS

ARE IN DAILY USE IN

ALL THE ROYAL GARDENS; IN THE HORTICULTURAL SOCIETY'S GARDENS AT KENSINGTON; CRYSTAL PALACE COMPANY'S GROUNDS; IN VICTORIA PARK; HYDE PARK;

And in almost all the principal Public Parks and Gardens in the Kingdom.

These are the only Machines that can be depended on to give lasting satisfaction.

THESE ARE THE ONLY MACHINES THAT WILL MOW PROPERLY WHEN THE GRASS IS WET.

THESE ARE THE ONLY MACHINES THAT DELIVER THE GRASS WITHOUT STOPPING, THUS SAVING AN IMMENSE AMOUNT OF LABOUR.

SHANKS' PATENT LAWN MOWERS are the only Machines that have been in operation in Her Majesty's Gardens for a quarter of a century.

Shanks' Patent Lawn Mower will Mow on uneven as well as on level Lawns.

ALEXANDER SHANKS AND SON, in referring to their IMPROVED LAWN MOWERS for 1867, doubt not but that the preference which in past years has invariably been given to their Machines will still be awarded them. The principles which guide A. S. AND SON in effecting improvements compel their Machine ever to stand the first in point of general efficiency, simplicity of construction, and durability.

A. S. AND SON have particularly aimed at substituting Wrought for Cast Iron to as great an extent as possible in the construction of their Machines. None but skilled Workmen and the most improved Machinery are employed in manufacturing the various parts, and this applies not only to the Horse and Pony, but also to the Hand Machines.

A. S. AND SON have now ready for delivery a large stock of their celebrated LAWN MOWERS, which will enable them to execute orders on the day they are received.

PRICES, INCLUDING CARRIAGE TO ANY RAILWAY STATION OR SHIPPING PORT IN THE KINGDOM.

SHANKS' NEW PATENT HAND MACHINE.

Width of Cutter.		Easily Worked	Silent Movement.
10-inch Machine	£3 10 0	*By a Lady*	4*s.* extra.
12-inch Machine	4 10 0		
14-inch Machine	5 10 0	*By a Boy*	

Width of Cutter.		Easily Worked	Silent Movement.
16-inch Machine	£6 10 0	*By a Man or Two Boys*	4*s.* extra.
19-inch Machine	7 12 6	*By a Man and Boy*	
22-inch Machine	8 7 6	*By Two Men*	7*s.* 6*d.* extra.
24-inch Machine	8 17 6		

SHANKS' NEW PATENT PONY and DONKEY MACHINE.

Width of Cutter.		If with Patent Delivering Apparatus.
25-inch Machine	£12 10 0	25*s.* extra.
28-inch Machine	14 10 0	30*s.* ,,
30-inch Machine	15 15 0	30*s.* ,,

Silent Movement, 12*s.* 6*d.* extra; Boots for Pony, 22*s.* per set
Ditto for Donkey, 18*s.* per set.

SHANKS' NEW PATENT HORSE MACHINE.

Width of Cutter.		If with Patent Delivering Apparatus
30-inch Machine	£19 0 0	30*s.* extra.
36-inch Machine	22 0 0	30*s.* ,,
42-inch Machine	26 0 0	40*s.* ,,
48-inch Machine	28 0 0	40*s.* ,,

Silent Movement, 20*s.* extra; Boots for Horse's Feet, 26*s.* per set.

The Machines are warranted to give ample satisfaction, and, if not approved of, may be at once returned.

N.B.—*A. S. & Son specially announce to their numerous Patrons that they have a staff of experienced Workmen at their London Warehouse, thoroughly acquainted with all the details of their Machines, so that they are enabled to repair Lawn Mowers in London as well as at the Manufactory.*

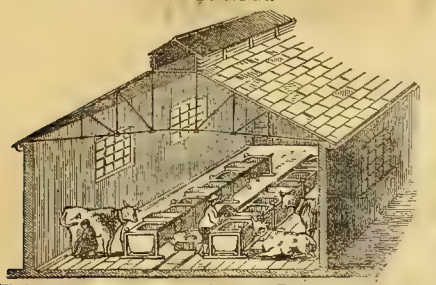
PATENTEES AND SOLE MANUFACTURERS:

ALEXANDER SHANKS AND SON, DENS IRON WORKS, ARBROATH, N.B.

LONDON OFFICE and SHOW ROOMS, 27, LEADENHALL STREET, E.C.

☞ 27, *Leadenhall Street is the only place in London where intending purchasers of Lawn Mowers can choose from a Stock of from* 150 *to* 200 *Machines. All sizes kept there, whether for Horse, Pony or Hand Power.*

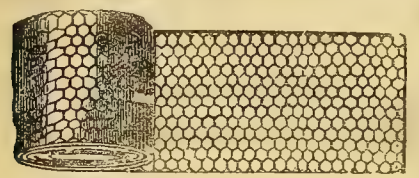
COTTAM'S PATENT PORTABLE UNITED COW FITTINGS.



Their advantages are—Portability, not Fixtures, removable at pleasure, no Woodwork or Partitions to impede Ventilation or breed Vermin, Hay Rack dispensed with as unnecessary, increased width and depth of Feeding Troughs, Water Cistern, and Patent Drop Cover to prevent over-gorging. Cleanly, durable, and impervious to infection, being all of iron. Price of Fittings per Cow, 55*s.*

Prospectuses free of COTTAM & Co., Iron Works, 2, Winsley Street (opposite the Pantheon), Oxford Street, London, W., where the above are exhibited, together with several important Improvements in Stable Fittings just secured by Patent.

GALVANISED WIRE NETTING.



PRICES of NETTING, 24 INCHES HIGH.

Size of Mesh.	Proof against	Light, per Yard.	Medium, per Yard.	Strong, per Yard.	Extra strong per Yard.
2½ inch	Hares, Dogs, Poultry, &c.	3½*d.*	4½*d.*	5½*d.*	6½*d.*
2 inch	All kinds of Game ..	3½*d.*	4½*d.*	5½*d.*	7*d.*
1⅝ inch	Small Rabbits, Hares, &c.	4½*d.*	5½*d.*	6½*d.*	8*d.*
1½ inch	Ditto Ditto ..	5½*d.*	6½*d.*	8*d.*	10*d.*

100 Yards and upwards Carriage Free.
GALVANISED IRON WATER CISTERNS.
GALVANISED CABLE STRAND FENCING.
GALVANISED IRON PUMPS.
GALVANISED SWING WATER BARROWS.
GALVANISED IRON ROOFS and BUILDINGS.
LAWN MOWERS, GARDEN ROLLERS.
ASPHALTE ROOFING FELT, 1*d.* per square foot.
HURDLES, HURDLES, HURDLES, 1*s.* 9*d.* to 3*s.* 9*d.* per yard.
MOTLEY & GREEN.
Illustrated Catalogues and Estimates free on application.
12, Great George Street, Leeds.

Glass for Garden Purposes.

JAMES PHILLIPS AND CO. beg to submit their REDUCED PRICES as follows:—

PROPAGATING GLASSES.



	Each.—*s.*	*d.*		Each.—*s.*	*d.*
2 inches in diameter ..	0	3½	12 inches in diameter ..	1	9
3 „ „ ..	0	4½	13 „ „ ..	2	0
4 „ „ ..	0	5½	14 „ „ ..	2	6
5 „ „ ..	0	6½	15 „ „ ..	3	0
6 „ „ ..	0	8	16 „ „ ..	3	6
7 „ „ ..	0	10	17 „ „ ..	4	0
8 „ „ ..	1	0	18 „ „ ..	5	0
9 „ „ ..	1	2	19 „ „ ..	6	0
10 „ „ ..	1	4	20 „ „ ..	7	0
11 „ „ ..	1	6			

HYACINTH and FLOWER DISHES.
6 inches diameter .. .. 1*s.* 0*d.* | 9 inches diameter 1 0
12 inches diameter .. .. 2*s.* 6*d.*
Hyacinth Dishes are intended to contain a number of Roots Bedded in and covered with Moss, instead of the common Hyacinth Glass.
LACTOMETERS, for Testing the Quality of Milk.
Four Tubes .. .. 4*s.* 6*d.* | Six Tubes .. .. 6*s.* 6*d.*
With Stands complete.

HAND GLASSES, WITH OPEN TOPS.



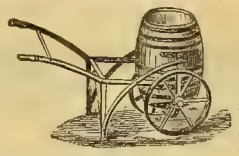
	Each.—*s.*	*d.*		Each.—*s.*	*d.*
12 inches	6	6	18 inches	9	6
14 „	7	6	20 „	10	6
16 „	8	6	22 „	11	6
			24 „	12	6

Boxes 2*s.* each, returnable at full price.
Painted and Glazed with 16-oz. Sheet Glass.
London Agents for HARTLEY'S IMPROVED PATENT ROUGH PLATE.
LINSEED OIL, Genuine WHITE LEAD, CARSON'S PAINTS, PAINTS of various colours, ground ready for use.
SHEET and ROUGH PLATE GLASS, SLATES of all sizes, BRITISH PLATE, PATENT PLATE, ROLLED PLATE, CROWN, SHEET, HORTICULTURAL, ORNAMENTAL, COLOURED, and every description of GLASS, of the best Manufacture, at the lowest terms. Lists of prices and estimates forwarded on application to
JAMES PHILLIPS & Co., 180, Bishopsgate Street Without, E.C.

Caution to Gardeners.—When you ask for SAYNOR AND COOKE'S WARRANTED PRIZE PRUNING and BUDDING KNIVES, see that you get them. Observe the mark SAYNOR, also the corporate mark OBTAIN WARRANTED, without which none are genuine.
S. & C. regret having to caution Gardeners and others, but are compelled to do so, in consequence of an imitation, of common quality, having been sold for the genuine one, and which has caused many complaints to be made to them of Knives which were not of their make, all of which are warranted both by Sellers and Makers.
S. & C.'s Pruning and Budding Knives are the best and the cheapest in the market.
Paxton Works, Sheffield. Established upwards of 125 years.

BEST LAWN MOWING MACHINE for 1867 is the PATENT FLEXIBLE LAWN MOWING MACHINE with WROUGHT-IRON SIDES. ILLUSTRATED PRICE LIST, with Testimonials and full particulars, free by post on application to
Messrs. B. HIRST & SONS, Britannia Works, Halifax.
A Drawing of the above will be inserted in this Paper Next Week.

SWING WATER BARROW, price 45*s.*
Carriage paid to any Station in England.



The above is very cheap, and invaluable for carrying Liquids of all kinds. No Garden, Farm, Stable, or Kitchen Yard should be without one. A Lad can easily work it; but if required to travel long distances over rough ground, a Pony can be attached. The wheels and carriage are wrought iron, and the tub oak. The water may be dipped out, or the tub tilted and poured out, or by raising the handle it can be placed on the ground and the frame detached.
Powerful GARDEN ENGINE, suitable for the above, price 45*s.*, carriage paid. WATER and LIQUID MANURE CARTS.
Illustrated Catalogues of above, also of WIRE NETTING, FENCING, &c., sent free on application.
W. S. BOULTON, Rose Lane Iron and Wire Works, Norwich.



GARDEN BORDER EDGING TILES, in great variety of patterns and material, the plainer sorts being especially suited for KITCHEN GARDENS, as they harbour no Slugs and Insects, take up little room, and once put down incur no further labour and expense, as do "grown" Edgings, consequently being much cheaper.



GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, of great durability, and in great variety of design.
F. & G. ROSHER, Manufacturers, Upper Ground Street, Blackfriars, S.; Queen's Road West, Chelsea, S.W.; Kingsland Road, Kingsland, N.E.
Sole London Agents for FOXLEY'S PATENT GARDEN WALL BRICKS. Illustrated Price Lists free by post. The Trade supplied.

ORNAMENTAL PAVING TILES for Conservatories, Halls, Corridors, Balconies, &c., as cheap and durable as Stone, in blue, red, and buff colours, and capable of forming a variety of designs.
Also TESSELATED PAVEMENTS of more enriched designs than the above.
WHITE GLAZED TILES, for Lining Walls of Dairies, Larders, Kitchen Ranges, Baths, &c. Grooved and other Stable Paving Bricks of great durability, Dutch and Adamantine Clinkers, Wall Copings, Red and Stoneware Drain Pipes, Slates, Cements, &c.
To be obtained of F. & G. ROSHER, at their Premises as above.

SILVER SAND (REIGATE, best quality), at the above addresses—14*s.* per Ton, or 1*s.* 3*d.* per Bushel; 2*s.* per Ton extra for delivery within three miles, and to any London Railway or Wharf. Quantities of 4 Tons, 1*s.* per Ton less.
FLINTS, BRICK BURRS or CLINKERS, for Rockeries or Grotto Work. F. & G. ROSHER.—Addresses see above.
N.B. Orders promptly executed by Railway.

SAMUELSON & CO.'S

PATENT LAWN MOWING and ROLLING MACHINES.

EVERY MACHINE WARRANTED.

TO BE OBTAINED OF

SAMUELSON AND CO., BRITANNIA WORKS, BANBURY.

LONDON WAREHOUSE: 10, LAURENCE POUNTNEY LANE, E.C.

AGENTS:—Messrs. TANGYE BROTHERS AND HOLMAN, 10, LAURENCE POUNTNEY LANE; Messrs. DEANE AND CO., London Bridge; Messrs. DRAY, TAYLOR AND CO., London Bridge; Mr. THOMAS BRADFORD, 63, Fleet Street, E.C.; and all respectable Seedsmen and Ironmongers throughout the Kingdom.

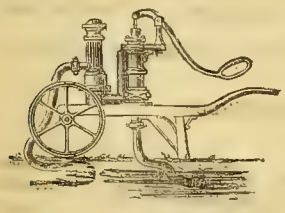
S. OWENS & CO.,

(LATE CLINTON AND OWENS),

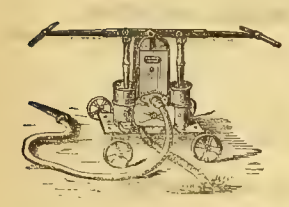
MANUFACTURERS OF

PUMPS AND HYDRAULIC MACHINERY,

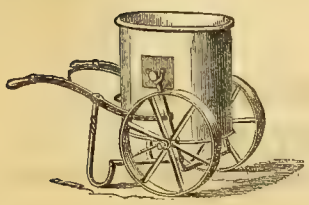
WHITEFRIARS STREET, FLEET STREET, LONDON.



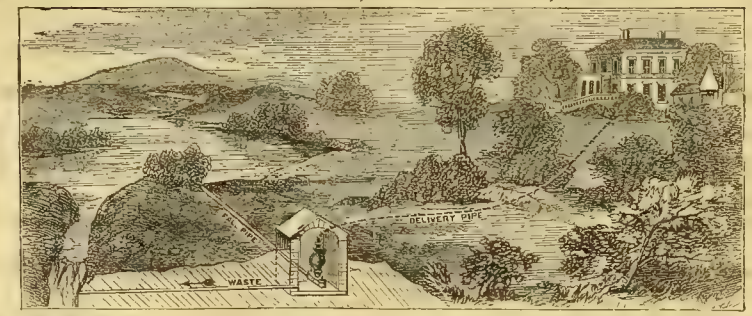
No. 46*a*.



No. 50.



No. 49*a*.



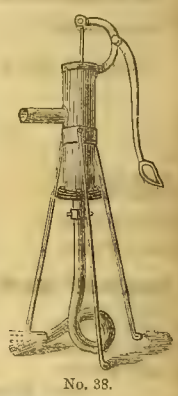
THE LANDSCAPE SKETCH shows an adaptation of THE IMPROVED HYDRAULIC RAM for Forcing Water to considerable Heights and Distances to supply Mansions, Farms, &c., where a few feet fall can be obtained. Full particulars of this useful Self-acting Machine can be had on application.

No. 4. Useful YARD, GARDEN, and COTTAGE PUMPS, from £1 5*s.* each.
No. 38. PORTABLE LIQUID MANURE PUMPS, with Flexible Suction Pipe.
No. 46*a*. DOUBLE-ACTION PORTABLE FORCE PUMPS and FIRE ENGINES for WATER or LIQUID MANURE.
No. 50. IMPROVED (HOLMAN'S PATENT) DOUBLE-BARREL FARM FIRE ENGINES and IRRIGATING PUMPS.
No. 49. GARDEN ENGINES of all sizes.
No. 49*a*. IMPROVED SWING WATER CARRIERS, holding 24 and 35 Gallons, for GARDEN USE.
No. 49*c*. INDIA RUBBER HOSE and FITTINGS for WATERING GARDENS.

☞ *Further particulars, Estimates, and Illustrated Price Lists on application.*



No. 4.



No. 38.



No. 49*c*.



No. 49.

Oil Paint no longer Necessary.



HILL AND SMITH'S PATENT BLACK VARNISH for preserving Iron Work, Wood, or Stone. This Varnish is an excellent substitute for oil paint on all out-door work, and is fully two-thirds cheaper. It may be applied by an ordinary labourer requires no mixing or thinning, and is used cold. It is used in the grounds at Windsor Castle, Kew Gardens, and at the seats of many hundreds of the nobility and gentry, from whom the most flattering testimonials have been received, which HILL & SMITH will forward on application.

From I. A. TAYLOR, Esq., *Strensham Court.*

"In answer to your inquiries, I beg to inform you I find your Black Varnish an excellent substitute for oil paint upon iron and wood out of doors, and have found the iron Barrow with apparatus essential in applying the Varnish to lines of fencing. I can strongly recommend the Black Varnish for all out-door work as superior to anything I have yet used for the purpose, and it can be applied with great economy by careful labourers."

Sold in casks of about 30 gallons each, at 1*s.* 6*d.* per gallon, at the Manufactory, or 1*s.* 8*d.* per gallon paid to any Station in the kingdom.

Apply to HILL & SMITH, Brierly Hill Iron Works, near Dudley, and 22, Cannon Street West, E.C., from whom only it can be obtained

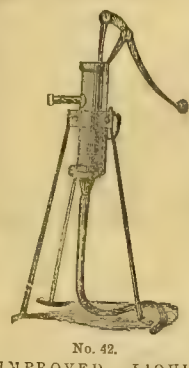
JOHN WARNER AND SONS,
8, Crescent, Cripplegate, London, E.C.,
BELL and BRASS FOUNDERS to HER MAJESTY.



No. 35.

PATENT CAST-IRON PUMP, fitted with J. W. & Sons' Metal Bucket and Valve, which cannot clog in action, for Wells not exceeding 25 feet.

Diam.	Height.	£	s.	d.
2½ in. short	1 ft. 7 in.	1	1	0
2½ in. long	3 ft. 3 in.	1	8	6
3 in. long	3 ft. 6 in.	2	1	0
3½ in. long	3 ft. 6 in.	2	6	0
4 in. long	3 ft. 6 in.	2	14	0
2½ in. short, with 15 feet of lead pipe attached, ready for fixing		2	0	0
2 in. long, do. do.		2	14	0



No. 42.

IMPROVED LIQUID MANURE or GENERAL PORTABLE PUMP.—These Pumps are fitted with J. W. & Sons' Patent Bucket and Valve and cannot clog in action. The Barrel is made of Galvanised Iron, not likely to corrode, and can be raised or lowered at pleasure on the stand, the legs of which fold together, and it may be carried with ease by one man to tank or pond.

Price of 4½-inch Liquid Manure Pump, with legs, £2 15*s.*; 2-inch Flexible Rubber and Canvas Suction Pipe, 2*s.* 5*d.* per foot. The Barrel is 27½ inches long, and the legs are 5 feet high.

WARNERS' PORTABLE FIRE or GARDEN ENGINE.



£2 2*s.*

No. 5684.

For use by one Person .. .. price £2 2*s.*
No. 5478, ditto ditto, on Wheels .. .. „ £2 10*s.*

The above are complete in themselves, and may be always kept filled with water, and ready for use.

Letter to The Times, *July* 23, 1866, *from* Earl Essex.

A REAL FIRE EXTINGUISHER.

To the Editor of The Times.

"SIR,—I feel sure you will kindly allot a small space in the *Times* to these few lines, as the best medium through which I would urge every householder who dreads fire to have on each floor of his house one or more small Garden or other Engines on wheels, always charged and in good order, in case of fire.

"Last night, just as I was going to bed, I was startled by that most fearful of all cries, 'Fire, fire!' I soon learned that a fire was raging in a large two-windowed unoccupied bedroom. How caused is to us all a great mystery. It is my custom to keep one of these small Engines on each floor. In two minutes I was in the room with one of them. It was like a furnace. The curtains, shutters, casements, and cornices of both windows were burning and cracking from floor to ceiling. I was quite alone at the moment, yet before assistance arrived (most of the servants having gone to bed), I had completely subdued the fire of one window without exhausting the Engine, and when assistance and more water did arrive, we very soon extinguished the other.

"So fierce was the fire that the lead of the casements was melted, and the casements themselves were burnt off their hinges.

"I will only add, that by God's mercy, the house was saved by this small Engine. Had it not been at hand and in order, most assuredly Cassiobury would be now a heap of ruins.—Yours faithfully,

"Cassiobury, Watford, July 20. "ESSEX.

"The Engine, even when full, runs so light on the floor, that any woman might draw it, and also work it."

JOHN GIBSON, JUN., begs to announce that he is prepared to Furnish PLANS and ESTIMATES for LAYING OUT GROUND attached to Mansions and Villas or other Residences, or for the FORMATION of PUBLIC PARKS or GARDENS, and to carry out the same by Contract or otherwise.
Address Mr. JOHN GIBSON, jun., Surrey Lane, Battersea, S.W.

MR. GLENNY, Author of "The Properties of Flowers," "The Manual of Practical Gardening," "The Gardener's Every Day Book," "The Handy Book on Gardening," and other popular standard works, continues to give ADVICE on the Improvement of Estates, and to Purchase and Sell on Commission Nurseries, Gardens, Private Residences, and Land, and to value all Properties connected therewith, and will attend as Judge or otherwise at Horticultural Meetings. A List of the best 60 Sorts of FLOWER SEEDS for Amateurs to choose from, selected from the thousands catalogued by the Trade, sent free on receipt of a directed envelope at his Office, Dungannon House, Fulham.

Farm Poultry.

GREY DORKING FOWLS, of purest breed, in any numbers.
Imported TOULOUSE GEESE, the largest and most productive breed known.
Improved NORFOLK TURKEYS, large, hardy, and good breeders.
AYLESBURY and ROUEN DUCKS.
Imported BELGIAN HARE RABBITS, for size and early maturity.
BRAHMA-POUTRA, CREVECŒUR, and LA FLECHE FOWLS, for constant layers.
Priced Lists and Estimates on application.
JOHN BAILY & SON, 113, Mount Street, London, W.

West End Nursery and Florist's Business.

FOR IMMEDIATE TRANSFER (by Direction of the Executrix), the GOODWILL, STOCK, &c., of an Established and Lucrative CONCERN—position first in all London. Premises are spacious, Glass Erections of good class, Lease at low rent, Returns considerable. Price moderate.
F. W. SEARLE, Horticultural Agent, Marsh House, Tottenham, N.E.

Kent.

TO be SOLD, a capital and secure FREEHOLD INVESTMENT, situated near GRAVESEND, consisting of about 5½ Acres of productive Garden Land, stocked with superior Fruit Trees and Bushes of best marketable sorts. Standing on above ground, well-built Twelve-roomed House, Four good Cottages, Stable, and Coach-house, and other Buildings. All let.
Apply by letter to D. W., Post Office, Ealing Common, Middlesex.

TO BE LET or SOLD, an Excellent NURSERY (owing to the death of the Proprietor, and winding up of the Estate), well situated, not far from London, and well stocked with 40,000 Fruit Trees, Evergreens, Shrubs, &c. 150*l.* will buy Stock, Lease, &c.
For particulars apply to Messrs. HY. CLARKE & Sons, 39, King Street, Covent Garden, W.C.; or to S. CHANDLER, Esq., Solicitor, Basingstoke.

TO BE DISPOSED OF, a SMALL FLORIST'S BUSINESS, 10 miles from London.—The Premises consist of Cottage and Garden (no Glass), with good Frontage on Main Road, Rent £14 per annum. The above would be an excellent opening for an industrious Man, who is anxious for a good Jobbing connection, the situation being in the midst of a highly respectable and improving neighbourhood, no other business of the same kind being at hand. Price for Stock, Lease, &c., £75.
Apply to A., Post Office, Roxeth, Harrow-on-the-Hill, N.W.

TO BE LET, the HOME FARM of MILNE GRADEN, near Coldstream, Berwickshire, containing about 134 Acres of Tillage, to which about 130 Acres of old Grass Parks can be added if wished.
The Dwelling House is built in a superior style, containing three Public Rooms and four good Bedrooms. A garden well stocked with Fruit Trees adjoins.
The Offices contain capacious Cattle Byres, Sheds, and Curtains:—Threshing-mill, Saw-mill, Turnip-pulper, Straw-cutter, Cake-bruiser, Mill Stones, Manure Tanks and Pumps, with Pipes for irrigating about 70 acres. This machinery is driven either by a Steam-engine or by a Water-wheel.
Persons wishing to see the Farm must apply to Mr. HUTTON, Factor, on the Estate, or in his absence to the Farm Steward. Heads of a lease will be shown to intending offerers by JAMES BOWHILL, Banker, Ayton. Offers must be lodged with him on 9th March.—Paxton House, Berwick-on-Tweed, Feb. 5.

Re William Hunter, Nurseryman, Barnard Castle.

SALE OF NURSERY STOCK.

TO BE SOLD, at the Nurseries, Barnard Castle, on WEDNESDAY, March 13, unless previously disposed of by Private Contract, the whole STOCK of TREES and SHRUBS belonging to the Bankrupt Estate of WILLIAM HUNTER, Nurseryman. To any one wishing to commence the Nursery Business this would be an eligible opening, as the Stock will be disposed of on very reasonable terms.
For further particulars, apply to Messrs. W. W. & G. WATSON, Barnard Castle; Messrs. J. & R. S. WATSON, Solicitors, Newcastle-on-Tyne; J. W. SAMUEL SIMPSON, Solicitor, South King Street, Manchester; Mr. RALPH ROBSON, Hexham; or Mr. M. BROWN, of DICKSONS & BROWN, Seed Merchants, Manchester.

Sales by Auction.

Hammersmith.

THE STOCK OF A GREENHOUSE AND HORTICULTURAL BUILDER.

MESSRS. R. T. SWAIN AND SON have received instructions from the owner, Mr. Joseph Smith, to SELL by AUCTION on the Premises, Pine Cottage, New Road (close to the 'Queen of England'), on WEDNESDAY, February 27, at 1 o'Clock, the whole of his well-seasoned STOCK of SPAN and LEAN-TO GREENHOUSES, fitted with Ends, Sides, and Stages; 1, 2, and 3-light Garden Frames; Vineries; a large quantity of Lights, Horticultural Appliances, and Effects.
May be viewed the Day prior and Morning of Sale. Catalogues had on the Premises; and of the Auctioneers, The Lodge, Notting Hill, W.

Burghley Park, near Stamford.

IMPORTANT SALE OF SHORT-HORNED CATTLE.

MR. STRAFFORD is favoured with instructions from the Executors of the late Most Hon. the Marquis of Exeter, K.G., to offer for SALE by AUCTION, without reserve, on THURSDAY, March 14th next, at the Dairy Farm, Burghley Park, the entire Herd of PURE-BRED SHORT-HORNS, consisting of nearly 60 head of Bulls, Cows, and Heifers; many of them are descended from animals of long standing in this valuable and old-established Herd, which has been bred with great care for nearly 50 years; the most fashionable Bulls have been used during this period, and latterly the far-famed Fourth Duke of Thorndale (17,750), who is included among the Bulls, and is likewise the sire of several of the Young Stock, which are very promising.
Catalogues, with Pedigrees and other particulars, may be had on application to Mr. STRAFFORD, 13, Euston Square, London, N.W.; or of Mr. WALTON, the Bailiff, at Burghley Park, Stamford.

Maindee House, Newport, Monmouthshire.

IMPORTANT SALE OF SHORT-HORNED CATTLE.

MR. STRAFFORD begs to announce that he has received instructions from John Logan, Esq., to SELL by AUCTION, without any reserve, at Maindee House, Newport, Monmouthshire, on WEDNESDAY, the 20th March next, his entire Herd of FIRST-CLASS SHORT-HORNS, consisting of about 50 head of BULLS, COWS, and HEIFERS, that have been selected and bred from some of the most fashionable blood of the day, the far-famed Killerby and Warlaby sorts being the prominent feature in the breeding of the herd; the Young Stock are chiefly by Prince of the Empire (20,678), which Bull is now in service.
Catalogues, with Pedigrees and other particulars, may be had on application to Mr. STRAFFORD, 13, Euston Square, London, N.W.; or of Mr. SKINNER, the Bailiff, at Maindee House, near Newport, Monmouthshire.

SALE THIS DAY, AT HALF-PAST TWELVE O'CLOCK.

Trained Fruit Trees, Gladioli, Roses, Shrubs, &c.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on SATURDAY, February 23, at half-past 12 o'Clock precisely, a quantity of HARDY TREES and SHRUBS, Dwarf-trained FRUIT TREES, Choice GLADIOLI, RANUNCULUS, and other BULBS, Dwarf ROSES, RUSTIC SEATS, &c.
On view the Morning of Sale, and Catalogues had.

Coniferous Seeds.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on MONDAY, February 25, at half-past 12 o'Clock precisely, an Importation of CALIFORNIAN and other CONIFEROUS SEEDS, consisting of Wellingtonia gigantea, Cupressus Lawsoniana, Abies Mertensiana, Pinus Benthamiana, P. insignis, Picea Nordmanniana, Abies orientalis, A. cærulea, A. Douglasii, Picea Pinsapo, and a great variety of other seeds.
On view the Morning of Sale, and Catalogues had.

Consignment of Plants from Holland.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, February 27, at half-past 12 o'Clock precisely, a fine assortment of SPECIMEN CONIFERS and HARDY SHRUBS, STANDARD and DWARF ROSES, RHODODENDRONS, and other Plants from Holland; a quantity of HARDY TREES and SHRUBS from Middlesex; DWARF-TRAINED and PYRAMID FRUIT-TREES, Choice GLADIOLI for Spring Planting, RUSTIC SEATS, STOOLS, VASES, &c.
On view the Morning of Sale, and Catalogues had.

Important Sale of Cattleya Dowiana, Vanda cœrulea, and other fine Orchids.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, February 28, at half-past 12 o'Clock precisely, a consignment of magnificent Plants of the true CATTLEYA DOWIANA, received direct from Costa Rica, in the finest possible condition. These Plants are from the same locality as those bloomed last year by Mr. Bateman, and may therefore be relied on as being quite true. Also some imported Plants of VANDA CŒRULEA, and some splendid specimens of ONCIDIUM CRISPUM and other choice Orchids from Brazil.
On view the Morning of Sale; and Catalogues had.

Preliminary Notice,

IMPORTANT SALE OF ORCHIDS, STOVE AND GREENHOUSE PLANTS, AT HIGHGROVE, READING, BERKS.

MR. J. C. STEVENS will SELL by AUCTION, at the Gardens, Highgrove, Reading, Berks, early in April the valuable Collection of ORCHIDS, STOVE and GREENHOUSE PLANTS, formed by the late J. J. Blandy, Esq., Vice-President of the Royal Horticultural Society of London, comprising a great variety of fine Plants, many of which have been exhibited and carried off prizes at the various Metropolitan and Provincial Shows. Also several Greenhouses, Exhibition Van, &c. Catalogues are preparing and will be ready 14 days before (price 6*d.* each, to admit parties to the Sale), which may be had at the Gardens; also of Messrs. COOPER & GOULDING, Auctioneers, Market Place, Reading; and of Mr. J. C. STEVENS, Horticultural Auctioneer and Valuer, 38, King Street, Covent Garden, London, W.C.

Kennington.

CLEARANCE SALE OF NURSERY STOCK.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, on the Premises, Sewell's Nursery, Manley Place, Kennington Park, S., on WEDNESDAY, Feb. 27, at 11 o'Clock, without the least reserve, the ground being immediately required for Building. The Stock comprises a Variety of EVERGREENS, amongst which may be mentioned 2000 bushy Aucuba japonica, from 1 to 6 feet; Euonymus, Lilacs, &c., Standard and Dwarf Roses, Box Edging, &c.; also 2-Light Boxes, quantity of Bricks, Sashes, two Iron Rollers, sundry Wood, Garden Tools, and sundry effects.
On view, and Catalogues had on the Premises; the Horns, Kennington; and of the Auctioneers, American Nurseries, Leytonstone, Essex.

Annual Sale of very handsome English-grown Camellias, &c.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at 38 & 39, Gracechurch Street, City, E.C., on THURSDAY, Feb. 28, at 1 o'Clock precisely, about 200 Choice DOUBLE CAMELLIAS, beautiful compact plants, 1 to 5 feet, abundantly furnished with bloom buds; fine AZALEA INDICA; a superb assortment of about 300 very handsome STANDARD and DWARF ROSES, including the best varieties in cultivation; choice hardy AMERICAN PLANTS, comprising Ghent and other Azaleas, Hybrid Rhododendrons, Kalmias, Andromedas, &c.; some fine Bulbs of LILIUM AURATUM, LANCIFOLIUM RUBRUM, ALBUM and PUNCTATUM; ERICAS, EPACRIS, &c.
May be viewed the Morning of Sale. Catalogues may be had at the City Auction Rooms, as above; or of the Auctioneers and Valuers, American Nurseries, Leytonstone, Essex, N.E.

Ramsgate.

VERY IMPORTANT AND EXTENSIVE SALE OF VALUABLE NURSERY STOCK.

MESSRS. PROTHEROE AND MORRIS have received instructions from Mr. James Turrell to SELL by AUCTION on the Premises, Providence Nursery, High Street, Ramsgate, close to the Railway Station, on MONDAY, March 4, and following day, at 11 o'Clock each day, without the least reserve, the ground being immediately required for Building purposes, the whole of the Valuable NURSERY STOCK, comprising Evergreens and Deciduous Shrubs of various sizes (including specimens admirably adapted for effective purposes), viz.:—3000 bushy Laurustinus, beautifully in flower, from 2 to 3 feet; 2500 Green and Variegated Euonymus; 1500 Sweet Bays, 1 to 2 feet; 1500 Box; Hollies; Yews, 4 to 6 feet; Laurels; Thuja, sorts; Spruce and Scotch Firs, &c., 2000 Privet; 500 Lilacs; very fine Standard and Dwarf Roses; Ornamental, Forest, and Fruit Trees; Beds of Asparagus; 1500 yards Box Edging, &c.
May be viewed prior to the Sale. Catalogues may be had on the Premises; of the principal Seedsmen in London; and of the Auctioneers and Valuers, American Nurseries, Leytonstone, Essex.
N.B.—The whole of the Choice Collection of GREENHOUSE PLANTS will be offered the latter end of April.

Kilburn Nursery.

PRELIMINARY NOTICE OF AN IMPORTANT SALE.

MESSRS. PROTHEROE AND MORRIS are instructed to offer for UNRESERVED SALE, on the Premises, Kilburn Nursery, Kilburn, Middlesex, about the middle of March, the whole of the Valuable Collection of EVERGREEN, CONIFERÆ, and other SHRUBS; ORNAMENTAL, FOREST, and FRUIT TREES, some GREENHOUSE PLANTS, quantity of LOAM, MANURE, and Sundry Effects, particulars of which will shortly appear.
American Nurseries, Leytonstone.

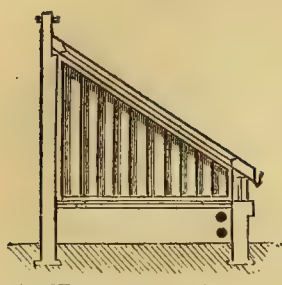
Wavertree, near Liverpool.

CLEARANCE SALE OF NURSERY STOCK, CHOICE GREENHOUSE PLANTS, GREENHOUSES, &c.

MESSRS. PROTHEROE AND MORRIS are directed by Mr. Isaac Davies to SELL by AUCTION, on the Premises, Larkfield Nursery, Wavertree, near Liverpool, on TUESDAY, March 12, WEDNESDAY, March 13, and THURSDAY, March 14, at 11 o'Clock each day, without reserve, the Lease having expired, necessitating an immediate clearance, the whole of the Valuable NURSERY STOCK, comprising about 5000 best worked Hollys, 10,000 Rhododendrons, including 1200 R. præcox (so highly and justly esteemed for its profuse flowering habit), and other leading kinds, 1500 Hardy and Ghent Azaleas, a large variety of Evergreen Conifers and Deciduous Shrubs, Ornamental Forest and Fruit Trees, Climbers in Pots; also a choice Collection of Greenhouse Plants, comprising 1500 Azalea indica, 400 Ericas, Acacias, Cyclamen, Cytisus, &c., together with Three newly-erected GREENHOUSES, Pits, Boxes, Seed Drawers, Seeds, and numerous other items, which will be more fully detailed in future advertisements.
May be viewed, and Catalogues, when ready, may be had on the Premises, and of the Auctioneers and Valuers, Leytonstone, Essex.

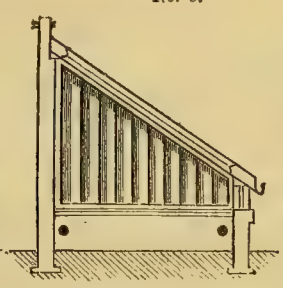
J. JONES & SONS' HOT-WATER APPARATUS.

No. 7.



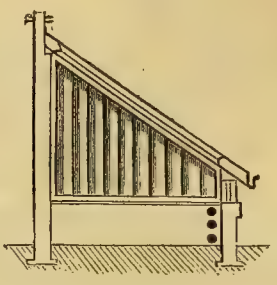
Size of House.	Price.
20 by 10 feet	£9 0 0
30 ,, 12 ,,	12 0 0
40 ,, 15 ,,	15 0 0
50 ,, 15 ,,	18 0 0
60 ,, 15 ,,	20 0 0
70 ,, 15 ,,	22 0 0
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100 ,, 15 ,,	26 0 0

No. 8.



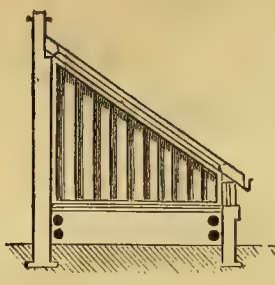
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No. 9.



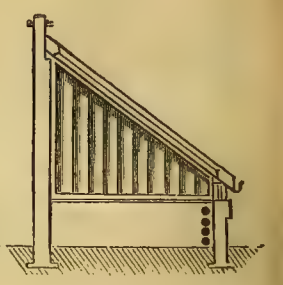
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No. 10.



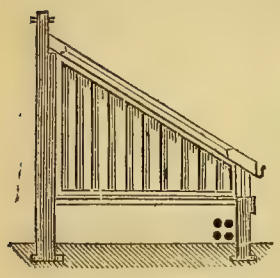
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No. 11.



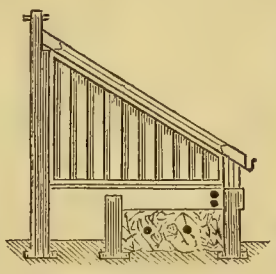
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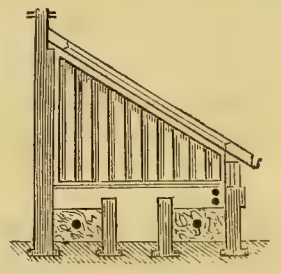
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No. 13.



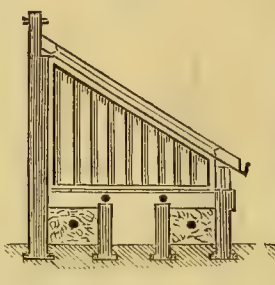
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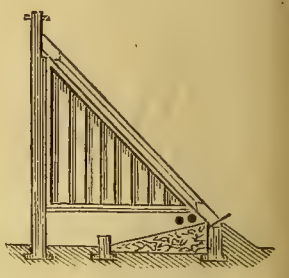
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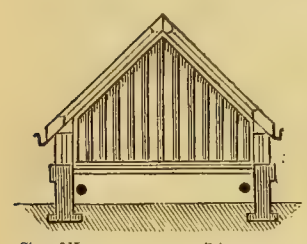
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No. 16.



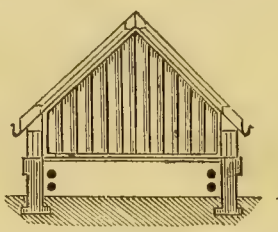
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No. 17.



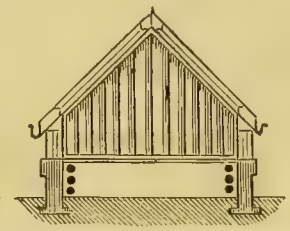
Size of House.	Price.
20 by 10 feet	£9 0 0
30 ,, 12 ,,	12 0 0
40 ,, 15 ,,	15 0 0
50 ,, 15 ,,	18 0 0
60 ,, 15 ,,	20 0 0
70 ,, 15 ,,	22 0 0
80 ,, 15 ,,	24 0 0
100 ,, 15 ,,	26 0 0

No. 18.



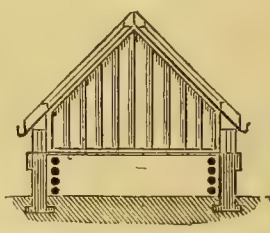
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No. 19.



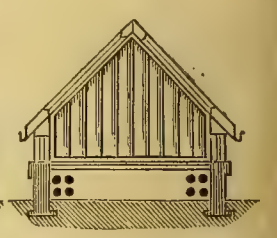
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No. 20.



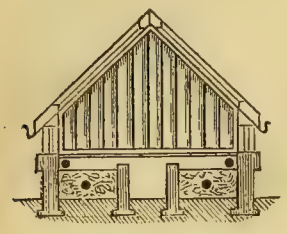
Price.
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30 0 0
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42 10 0
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70 0 0

No. 21.



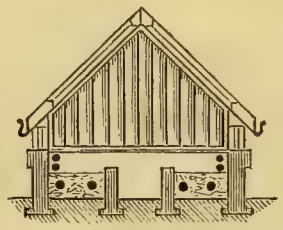
Price.
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30 0 0
36 10 0
42 10 0
49 0 0
56 0 0
63 0 0
70 0 0

No. 22.



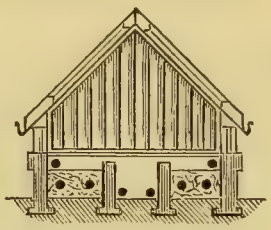
Size of House.	Price.
20 by 10 feet	£15 0 0
30 ,, 12 ,,	21 0 0
40 ,, 15 ,,	25 0 0
50 ,, 15 ,,	29 0 0
60 ,, 15 ,,	33 0 0
70 ,, 15 ,,	37 0 0
80 ,, 15 ,,	41 0 0
100 ,, 15 ,,	45 0 0

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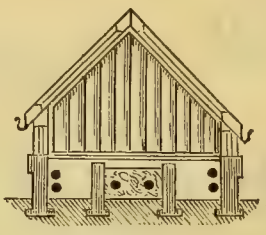
Price.
£25 0 0
32 0 0
38 10 0
44 10 0
51 10 0
58 0 0
65 0 0
72 0 0

No. 24.



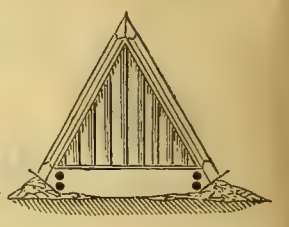
Price.
£25 0 0
32 0 0
38 10 0
44 10 0
51 10 0
58 0 0
65 0 0
72 0 0

No. 25.



Price.
£18 10 0
25 0 0
30 0 0
35 0 0
40 0 0
45 0 0
50 0 0
55 0 0

No. 26.



Price.
£14 0 0
19 0 0
24 0 0
28 0 0
32 0 0
36 0 0
40 0 0
44 0 0

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☞ *The Black Circles on Sections of Houses show the arrangement of Pipes.*

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Editorial Communications should be addressed to "The Editor;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
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THE GARDENERS' CHRONICLE

AND

AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.

No. 9.—1867.] SATURDAY, MARCH 2. {Price Fivepence. {Stamped Edition, 6d.

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ROYAL HORTICULTURAL SOCIETY, SOUTH KENSINGTON.
NOTICE.—A MEETING of the FRUIT and FLORAL COMMITTEES will be held on TUESDAY NEXT, March 5, at 11 o'Clock; LECTURE at 3 o'Clock.

ROYAL BOTANIC SOCIETY'S GARDENS, Regent's Park.—EXHIBITIONS of SPRING FLOWERS, SATURDAYS, March 23, April 13, and April 27. Tickets, 2s. 6d. each. GENERAL EXHIBITIONS, WEDNESDAYS, May 29, June 19, and July 3. Tickets, 4s. each. Tickets are now being issued, and can be obtained at the Gardens by Orders from Fellows of the Society.

CRYSTAL PALACE.—The DATES FIXED for the FLOWER SHOWS this Season are as follows:—
GREAT FLOWER SHOW, SATURDAY, May 25.
GREAT ROSE SHOW, SATURDAY, June 29.
By Order.

HORTICULTURAL SOCIETY of LIVERPOOL.—The FIFTH GREAT EXHIBITION of HYACINTHS and SPRING FLOWERS will be held in St. George's Hall, on WEDNESDAY, March 13. Entries close March 11. For Schedules, apply to R. W. Kerr, Hon. Sec., 6, Basnett Street, Liverpool.

NATIONAL HORTICULTURAL EXHIBITION, 1867.—The above EXHIBITION will Open at Manchester on JUNE 7, and continue till JUNE 15.
Schedules, &c., may be obtained on application to Mr. B. Findlay, Curator, Botanic Garden, Manchester; or from the undersigned,
Henry Whitworth, Secretary.
Carlton Buildings, Cooper Street, Manchester.

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B. S. Williams, Victoria and Paradise Nurseries, Upper Holloway, N.

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JOSEPH MEREDITH has a beautiful Stock of VINES for Sale, propagated from Vines which have borne the fruit which has taken from time to time so many First Prizes.
The Vineyard, Garston, near Liverpool.

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ALICANTE, LADY DOWNES', and MUSCAT of ALEXANDRIA.
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G. F. has to offer 1-yr. QUICK, 1 and 2-yr. ENGLISH OAK, 1-yr. EVERGREEN OAK, 1-yr. GORSE, and Transplanted SYCAMORE, 2 to 3 feet.

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All the most approved varieties supplied by
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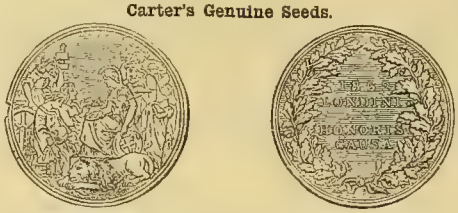
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FRUIT TREES, for Walls and Espaliers.—Upwards of 50,000 to select from, carefully trained, and in the healthiest condition for planting.
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HLANE AND SON, who have taken several First Prizes for Vines in pots at the following Exhibitions, viz.:—Royal Botanic, Royal Horticultural, Crystal Palace, London International, Edinburgh International, United Horticultural, Manchester, Leeds, Clay Cross, &c., &c., beg to offer well ripened CANES of the leading varieties of GRAPES for fruiting in pots or planting out, at moderate prices.
CATALOGUES free by post on application.
The Nurseries, Great Berkhampstead, Herts.

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LUCOMBE, PINCE AND CO. beg leave to call the attention of the Public to this exceedingly fine and highly-valuable GRAPE, which may now be seen in great perfection at their Nursery.
It has been awarded a First-class Certificate by the Royal Horticultural Society of London, and elicited the praises of numerous eminent Horticulturists.
It is essentially a late Grape, possessing high Muscat flavour. It will keep in perfection until April.
Undoubtedly the very best late Grape, with true Muscat flavour.
Vines will be ready to send out in August 1867, at the following prices:—
STRONG CANES .. .. ..£1 1 0 each
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Extra STRONG FRUITING CANES 3 3 0 ,,
Orders will be executed in strict rotation as received.
Copies of the numerous Testimonials now in their possession will be forwarded upon application.
Exeter Nursery, Exeter.

EXTRACTS FROM TESTIMONIALS.

Mr. T. RIVERS, *Sawbridgeworth, Jan.* 12, 1867.
"It is settled that no late Grape of equal quality exists. Please send me five good Vines."

Mr. J. MEREDITH, *Garston, Jan.* 7, 1867.
"Many thanks for the berries. I have no doubt that it will keep as a rule, and will be a great acquisition. Please set me down six good Vines."

Mr. J. KEYNES, *Salisbury, Oct.* 29, 1866.
"It seems to me that it must prove one of the most valuable Grapes we have. I have seen no late Grape to equal it. Please send me six Vines, and don't delay sending them out."

Messrs. GARAWAY & Co., *Bristol, Nov.* 23, 1866.
"We have no hesitation in saying that it far surpasses in quality any Grape at present in cultivation. Please send us seven Vines instead of three."

The JOURNAL OF HORTICULTURE AND COTTAGE GARDENER, *Jan* 1, 1867.
"Mrs. Pince's Black Muscat is one of the most valuable acquisitions in the way of Grapes which has been introduced for many years."

Mr. A. MACGREGOR, *Gardener to* Sir L. Palk, Bart., *Haldon House, near Exeter.*
"It is decidedly a good Grape, and the best that has been sent out for many years."

Mr. T. PILLER, *Gardener, Llanattock Park, Crickhowell, Dec.* 22, 1866.
"I consider it the best late Grape yet introduced."

Mr. D. D. DAVIES, *Gardener to* Lord Bridport, *Cricket Gardens, Chard, Dec.* 10, 1866.
"I believe it will prove a very valuable addition to our late Grapes."

Mr. C. TURNER, *Slough, Dec.* 3, 1866.
"It fully maintains its character as one of our best late Grapes."

The GARDENERS' CHRONICLE, *Nov.* 25, 1865.
"The first-class certificate given to it was well deserved."

The JOURNAL OF HORTICULTURE, *Nov.* 28, 1865.
"It is a true Black Muscat, producing berries and bunches as large as those of the Muscat Hamburgh."

Mr. R. PARKER, *Tooting, July* 7, 1866.
"I believe it to be a valuable acquisition to our late hanging Grapes."

Mr. R. SNOWDEN, *Gardener to* A. H. Campbell, Esq., *Werrington Park, Launceston, Dec.* 13, 1866.
"It is the best late Grape I ever tasted."

Mr. S. BRAY, *Gardener to* T. Daniel, Esq., *Stoodleigh, Tiverton, Dec.* 14, 1866.
"It is a very excellent variety."

Mr. P. FROST, *Gardener to* Hon. G. M. Fortescue, *Dropmore, Dec.* 24, 1866.
"It is one of the best flavoured Grapes I ever tasted."

Royal Horticultural Society, Chiswick Gardens, W., Jan. 26, 1867.
"Mrs. Pince's Black Muscat Grape, which the Committee is of opinion deserves commendation on account of its keeping qualities and rich flavour. It had previously obtained a first-class certificate, otherwise it would have been awarded one on this occasion."

Royal Exotic Nursery, King's Road, Chelsea, Feb. 6, 1867.
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FINE DWARF-TRAINED, 5 to 10 branches, 4 to 5 ft. long, 2s. each.
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Chestnut, Horse, 2 to 4 feet, and 5 to 6 feet	Laurel, Common, 2½ to 3 ft., bushy
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Strong CATTLE CABBAGE PLANTS.
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Peaches, Dwarfs and Dwarf-trained, extra fine
Pears, Standards and Dwarfs, extra fine
Plums, Standards and Dwarfs, extra fine
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LAURUSTINUS, bushy plants, 18 inches to 30 inches, 28s. per 100.
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400,000 ALDER, 1½ to 2, 2 to 3, and 4 to 5 feet.
100,000 ELM, WYCH, 1½ to 2, and 2 to 3 feet.
100,000 HAZEL, 1½ to 2, and 2 to 3 feet.
50,000 OAK, E., 1½ to 2, 2 to 3, and 4 to 5 feet.
100,000 PRIVET, Evergreen, 1½ to 2, and 2 to 3 feet.
100,000 SYCAMORE, 1½ to 2, 2 to 3, and 3 to 4 feet.
1,000,000 LARCH, fine, 2 to 3, 3 to 4, and 4 to 5 feet.
100,000 DO., extra fine, moved last season, 2 to 3, and 3 to 4 feet.
200,000 SPRUCE FIR, 1 to 1½, 1½ to 2, and 2 to 2½ feet.
20,000 WILLOW, Huntingdon, 2 to 3, and 3 to 4 feet.
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The above will be offered at such prices as will induce to order, all being of excellent quality. Apply for terms to
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2-yr. Bedded HIGHLAND SCOTCH FIR, very fine.
DOUBLE WHITE and DOUBLE LILAC PRIMROSES (hardy).
HEPATICAS, in 4 sorts.

WANTED, DOUBLE YELLOW PRIMROSES and SINGLE WHITE HEPATICAS.
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NATIVE HIGHLAND SCOTCH PINE, 1-year seedling.
FOREST TREES in general.
Strong plants of AQUILEGIA GLANDULOSA.
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1st Size, above Plants 2 feet high, bearing 150 to 200 Berries.
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Price from 10s. 6d. each and upwards.
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30,000 2-yr. SEEDLING THUJA LOBBII,

3 to 4 inches high, fine, distinct, and perfectly hardy Arborvitæ. Foliage deep grass green, rapid growth, well adapted for hedges, &c., and will bear pruning. Price (on application) by 100, 1000, or 5000.
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Also 5,000,000 of Two-year SEEDLING ASH and CHESTNUTS, ROSES, and other varieties of Shrubs.
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To Nurserymen.

SEEDLINGS.—1 and 2-yr. Larch, 2-yr. Scotch Fir, 2-yr. Hazel, 2-yr. Plane, 2-yr. Holly, &c.
TRANSPLANTED.—Larch, all sizes; Norway Spruce, 9 to 15 in.; Silver Fir, 9 to 15 inches and 15 to 24 inches; Irish Junipers, all sizes; Irish Yews, of sizes; Cedrus atlantica, Thuja Wareana, &c.
ROYAL ASH-LEAF KIDNEY POTATOS.
Above all of excellent quality, and will be quoted cheap.
W. P. LAIRD & SINCLAIR, Nurserymen, Dundee, N.B.

SAMUEL FINNEY AND CO. have a surplus stock of the following, which they can offer to the Trade at very low prices:—
ASH, Transplanted, from 3 to 5 feet
ELM, WYCH, Transplanted, from 2 to 3 feet and 3 to 4 feet
FIR, SCOTCH, Transplanted, from 15 to 24 inches
HOLLY, COMMON GREEN, Transplanted, from 1 to 1½ foot and
OAKS, ENGLISH, Transplanted, from 2 to 2½ feet [1½ to 2 feet
PINUS AUSTRIACA, Transplanted, from 1 foot and 1½ foot
LARCH, 1-yr. Seedling, fine
Prices on application at
The Nurseries, Gateshead, Newcastle-on-Tyne.

Forest Trees and Cover.

JOSEPH SMITH, JUN., has to offer at very moderate prices TRANSPLANTED ASH, ALDER, BIRCH, HORSE CHESTNUT, ELM, broad and narrow-leaved; SILVER and SCOTCH FIRS, WHITE AMERICAN SPRUCE, HAZEL, OAK, POPLAR, PRIVET, WEYMOUTH and AUSTRIAN PINES THORN QUICKS, HUNTINGDON and DUTCH WILLOWS LARCH, good stout plants, 1½ to 2 feet, 12s.; 2 to 2½ feet, 13s.; 2 to 3 feet, 14s.; and 3 to 4 feet, 16s. per 1000. NORWAY SPRUCE FIR 6 to 9 inches, 6s.; 9 to 12 inches, 9s.; 1 to 1½ feet, 14s.; 1½ to 2 feet, 21s.; and 2 to 2½ feet, 30s. per 1000. COTONEASTER MICROPHYLLA, 1 to 1½ feet, 20s. per 1000; 1½ to 2 feet. RIBES in sorts 2 to 3 ft., 20s. per 1000. SNOWBERRY, 2 to 3 ft., 20s. per 1000. BROOM, White and Yellow, transplanted, 15s. per 1000. LAURELS, BERBERIS, ARBOR-VITÆ, &c., Seedling ASH, CRAB, SPANISH CHESTNUT, SPRUCE, 3 and 4 years; ELM, 2 years, £5 per 100,000. OAKS, 1 and 2 years; OAK, EVERGREEN, 1 year; PRIVET, 1 and 2 years; SYCAMORE. RHODODENDRON PONTICUM, 2 years, 6s.; 4 years, 8s. per 1000; 3 years, and 1 year transplanted, 18s; 3 years, and 2 years transplanted, 25s.; 6 to 9 inches, 50s.; and 9 to 12 inches, 60s. per 1000. Twice-transplanted, and bushy, 4 to 8 inches, 70s.; 8 to 12 inches, 95s.; 9 to 15 inches, 140s.; 2 to 1½ feet, 180s.; and 1½ to 2 feet, 260s. per 1000..
A PRICED LIST forwarded on application. Price to the Trade on application.
JOSEPH SMITH, Jun., Moor Edge Nursery, Tansley, near Matlock, Derbyshire.

New and Genuine Seeds.

THOMAS SAMPSON, The Preston Road Nurseries, Yeovil, Somerset, begs to intimate that his CATALOGUE of SEEDS for the GARDEN and FARM is now ready, and can be obtained free on application. It contains a Select and Choice Stock, everything being of the best quality, and are offered at unequalled low prices.

New Descriptive Lists.

DOWNIE, LAIRD, AND LAING, NURSERYMEN, SEEDSMEN, FLORISTS, and NEW PLANT MERCHANTS, 17, South Frederick Street, Edinburgh; and Stanstead Park, Forest Hill, London, S.E., respectfully beg to intimate that their NEW DESCRIPTIVE PRICED CATALOGUES of FLORIST FLOWERS, GARDEN, FLOWER, and AGRICULTURAL SEEDS, GLADIOLI, ROSES, &c., are now ready, and may be had free on application.

RAYNBIRD, CALDECOTT, BAWTREE, DOWLING, AND COMPANY, Limited,
CORN, SEED, MANURE, AND OILCAKE MERCHANTS,
Address, 89, Seed Market, Mark Lane, E.C.; or Basingstoke.
Samples and Prices post free on application. Prize Medals, 1851, for Wheat; 1862, for "Excellent Seed Corn and Seeds."

Vegetable, Agricultural, and Flower Seeds, Alpine Plants, &c.

ROBERT PARKER begs to announce that his CATALOGUE, containing select DESCRIPTIVE LISTS of the finest kinds in cultivation of the above-named is now published, and will be forwarded to applicants. The Stocks of Seeds have all been procured from the best possible sources, all are warranted genuine, and are offered at the lowest possible prices. Intending purchasers are requested to compare the prices with those of other houses. Exotic Nursery, Tooting, Surrey, S.

To Market Gardeners and Others.

CABBAGE PLANTS.—EAST HAM, ROBINSON'S DRUMHEAD, 2s. per 1000; RED CABBAGE PLANTS, extra fine, 4s. per 1000. Stock true and can be warranted, and all grown by
RICHARD WALKER, Market Gardener and Seed Grower, Biggleswade, Beds. I will challenge England with Plants. Terms cash.

ROBINSON'S CHAMPION DRUMHEAD OX CABBAGE SEED.
The following Seedsmen are the purchasers from Mr. S. ROBINSON of this fine Stock of Ox Cabbage Seed, the growth of 1866.
London:—T. Gibbs & Co., Half Moon Street, Piccadilly.
,, G. Gibbs & Co., Dowa Street, Piccadilly.
,, Beck, Henderson & Child, Upper Thames Street.
,, Cooper & Bolton, Fleet Street.
,, Lawson & Son, King Street, Cheapside.
Chester:—James Dickson & Sons, Eastgate Street.
Nottingham:—Hutchinson & Armitage.
Newark:—Caparn, Kirk-gate.
Birmingham:—Thompson, High Street.
,, Proctor & Ryland.
Reading:—Sutton & Sons.
Aberdeen:—W. Smith & Son.
Three to Four cwt. of this Seed left, price to the Trade £7 per cwt.
Mr. ROBINSON has also a fine Stock of LARCH to Dispose of, 2½ to 5 feet. Price 12s. 6d. to £1 per 1000, according to size.
Three years Bedding and Transplanted QUICK, from 5s. 6d. to 7s. 6d. per 1000.
Bushy SPRUCE, for cover planting, 18 in. to 3 feet.
Fine HOLLIES, for ornamental planting, 2 to 5 feet.
Show House, Melbourne, Derby.

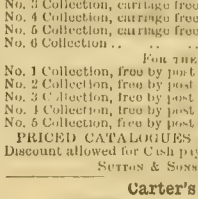
Good Seeds — Carriage Free.

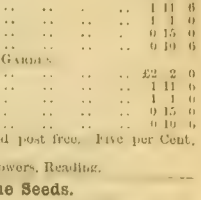
SUTTON'S COMPLETE COLLECTIONS of SEEDS for ONE YEAR'S SUPPLY.

FOR THE KITCHEN GARDEN.			
No. 1 Collection, carriage free	£1	3	0
No. 2 Collection, carriage free	2	2	0
No. 3 Collection, carriage free	1	11	6
No. 4 Collection, carriage free	1	1	0
No. 5 Collection, carriage free	0	15	0
No. 6 Collection	0	10	6
FOR THE FLOWER GARDEN.			
No. 1 Collection, free by post or rail	£2	2	0
No. 2 Collection, free by post or rail	1	11	6
No. 3 Collection, free by post or rail	1	1	0
No. 4 Collection, free by post or rail	0	15	0
No. 5 Collection, free by post or rail	0	10	6

PRICED CATALOGUES gratis and post free. Five per Cent. Discount allowed for Cash payment.
SUTTON & SONS, Seed Growers, Reading.

Carter's Genuine Seeds.





CARTER'S COLLECTIONS of GARDEN SEEDS for 1867 will produce a supply of the best Vegetables "all the year round" for large, medium, small, and very small families.
No. 4, 63s.; No. 3, 42s.; No. 2, 21s.; No. 1, 10s. 6d.
(These prices include box and packing.)
*** Any of the above forwarded without delay on receipt of Post office Order. PRICE LISTS gratis and post free on application to
CARTER'S Great London Seed Warehouse, 237 and 238, High Holborn, London, W.C.

Prize Medal Seeds.

COLLECTIONS of VEGETABLE SEEDS for ONE YEAR'S SUPPLY, at Moderate Prices. Nos. 1, 2, 3, and 4, Carriage Free. For particulars and quantities contained in each, see large Advertisement in the *Gardeners' Chronicle* of February 9th, or PRICED DESCRIPTIVE CATALOGUE, which will be sent free by post on application.

No.				
1.	For One Year's supply	£3	3	0
2.	,, proportionately reduced	2	2	0
3.	,, ,, ,,	1	11	6
4.	,, ,, ,,	1	1	0
5.	,, ,, ,,	0	15	0
6.	,, ,,	0	10	6

TOBACCO PAPER, per lb. 9d.
TOBACCO CORD, extra strong, per lb. 1s. 6d.
TOBACCO JUICE, per Gallon, 2s. 6d.
TOBACCO WATER, per Gallon, 1s.
HENRY BROWN, Nurseryman and Seedsman, 1, Commutation Row, Liverpool.

JAS. GARAWAY AND CO.
NURSERYMEN and SEEDSMEN,
Durdham Down Nurseries, Bristol.

SEEDS for the KITCHEN GARDEN.

JAS. GARAWAY AND CO.

SEEDS for the FLOWER GARDEN.

JAS. GARAWAY AND CO.

SEEDS for the FARM.

SEEDS, Best Quality, at Cheapest Rates.

JAS. GARAWAY AND CO.

PRICED CATALOGUES, Post Free.

JAS. GARAWAY AND CO.

CARRIAGE PAID of all ORDERS over 20s.

JAS. GARAWAY AND CO.,
NURSERYMEN and SEEDSMEN,
Durdham Down Nurseries, Bristol.

ARTHUR HENDERSON AND CO. beg to announce that their CATALOGUE of KITCHEN GARDEN and FLOWER SEEDS for 1867 is now ready, and will be forwarded free on application.

NEW MELONS.
ERIDGE CASTLE PERFECTION.—This is a green-fleshed variety, of excellent flavour, thin skin, medium size, with a delicious melting sugary flesh. One of the best sorts ever raised. 2s. 6d. per packet.
THE GUILDHALL PRIZE.—Scarlet flesh, a very quick grower and a great cropper, weight 3 to 6 lb. Early, excellent shape, richer and superior in flavour to Turner's Gem. Skin very thin. A seedling between the Scarlet Gem and Egyptian green-fleshed. 2s. 6d. per packet.
Fine FRUITING VINES, in pots, well ripened Canes of the leading and best varieties.
Pine-apple Place, Edgware Road, London, N.

Cucumber, Telegraph.

ROLLISSON'S VARIETY has been proved the best Cucumber in cultivation for Winter or Spring use, especially for growing in houses; an immense cropper, producing sixty a joint, length 18 to 26 inches. In sealed packets, 2s. 6d. each. See Merits of "Winter Cucumbers," in *Gardeners' Chronicle* for Jan. 12, 1867.
WILLIAM ROLLISSON & SONS, The Nurseries, Tooting, London, S.

SPLENDID FRAME CUCUMBERS.

COOLING'S DERBYSHIRE HERO.—One of the handsomest and best in cultivation. It grows from 20 to 30 inches in length, very straight, and is covered with a beautiful bloom. In flavour it is unsurpassed, and is remarkably free and prolific. 1s. 6d. per pkt.
COOLING'S FEARNOUGHT.—Colour bright green, smooth and well formed, perhaps the longest Cucumber grown, many of the fruit cut last summer measured 30 to 34 inches in length. 1s. 6d. per packet.
COOLING'S PROLIFIC.—This is the most abundant cropper in cultivation, often producing from three to six fine fruits at a joint; length 18 to 24 inches, flavour crisp and good. A very hardy, free, and thoroughly useful kind. 1s. per packet.
INTERNATIONAL PRIZE CALCEOLARIA. 2s. 6d. per packet.
COCKSCOMB (Cooling's).—Dwarf crimson; the finest in cultivation. 1s. per packet.
PRIMULA SINENSIS FIMBRIATA.—Extra fine strain. 2s. 6d. per packet.
CINERARIAS from named Flowers, 2s. 6d. per packet.
All free by post.
N.B.—The Trade supplied by Messrs. Hurst & Son, London, who are the only Wholesale Agents.
EDWIN COOLING, Seed Merchant, Derby.

TURNER'S COTTAGERS' KALE.
TURNER'S INCOMPARABLE WHITE CELERY.
TURNER'S SCARLET GEM MELON.
FROGMORE PROTECTING BROCCOLI.
(In Shilling Packets.)
The above have proved to be the best of their respective classes. Seed of the true Stock may be had of
CHARLES TURNER, The Royal Nurseries, Slough.

Garden Seeds.

CHARLES TURNER'S CATALOGUE is now ready, and may be had on application.
The Best three WRINKLED MARROW PEAS are—
LITTLE GEM, Early, 1 foot high.
ADVANCER, Second Crop.
PREMIER, Summer and Late.
See full descriptions in C. TURNER'S CATALOGUE, now ready.

SNOW'S BROCCOLI, True.
HEDSOR WINTER CUCUMBER.
BAILEY'S SUPERB CABBAGE.
All the established varieties of Vegetables from the best sources also the Novelties in Flower Seeds.
The Royal Nurseries, Slough.

To the Trade.

RAPHANUS CAUDATUS.—Price per 100 or 1000 Seeds, on application. Fine large sample, saved in the open border, and warranted true.
STUART & MEIN, Kelso, N.B.

JERUSALEM ARTICHOKES.
A quantity to offer at a moderate price.
STUART & MEIN, Kelso, N.B.

FEARNOUGHT CABBAGE, DALMENY SPROUTS, THE ALBERT SPROUT, have withstood the late severe frosts without injury. From the Original Stocks as sent out by us. Per Packet, 6d. each.
STUART & MEIN, Seedsmen, Kelso, N. B.

BROCCOLI, The HORTICULTURAL SUPERB LATE.—It is satisfactory to know that this variety, sent out by us, has withstood the late severe frosts without the slightest injury. In use April and May. Per Packet, 1s.
STUART & MEIN, Seedsmen, Kelso, N. B.

THREE-YEAR ASPARAGUS PLANTS, 15s. per 1000, 2s. per 100; fine double Hollyhocks, a splendid strain, 30s. per 100; Box Edging, 3s. per doz. yards; Box Trees, 18 or 24 in., 16s. per 100; Kohl Rabi Seed, green, 1s. per lb.; White Spanish Onion Seed, 1s. 8d. per lb. Terms cash. All genuine.
R. W. can supply any Orders for Seeds at lowest possible prices.
RICHARD WALKER, Market Gardener and Seed Grower, Biggleswade, Beds.



ASPARAGUS PLANTS.

Strong 3-yr. ASPARAGUS PLANTS, 15s. per 1000.
Small quantities, 2s. per 100.

F. G. GODWIN,
3 and 4, Norfolk Market Hall, Sheffield.

EDWARD TAYLOR, NURSERYMAN, Malton, Yorkshire, offers as under:—
2-yr. GIANT ASPARAGUS ROOTS, 1s. 3d. per 100, 10s. per 1000.
3-yr. GIANT ASPARAGUS ROOTS, 2s. per 100, 15s. per 1000.
GLADIOLUS BRENCHLEYENSIS, 10s. per 100, 84s. per 1000.
RED and BLACK CURRANTS, in varieties, fine strong plants, 8s. per 100, 70s. per 1000.
RUSSIAN SHALLOTS, 3s. per stone of 14 lb.
Dwarf-trained MOORPARK APRICOTS, 18s. per dozen, £7 per 100.
Transplanted HOLLIES, various sizes; CRAB STOCKS; 2-yr. Seedling ASH, &c. Prices on application.

THE "COLDSTREAM EARLY" POTATO, which received a First-class Certificate at the International Horticultural Exhibition at South Kensington, is the Earliest and Best round Potato in cultivation. 5s. 6d. per peck; 18s. per bushel, including bags. Trade price on application.
Apply to HOGG & WOOD, Coldstream, N.B.

Potatos for Planting.

MESSRS. SUTTON'S DESCRIPTIVE LIST is now ready, and may be had gratis and post-free. Their stock of Potatos has been selected with great care, and can be relied on as perfectly true to name. Lowest price per cwt., sack, or ton, forwarded on application.
SUTTON & SONS, Seed Growers, Reading.

Seed Potatos.

H. AND F. SHARPE are now offering MYATT'S PROLIFIC KIDNEY, DAINTREE'S EARLIEST, WEBB'S IMPERIAL KIDNEY, FORTY-FOLD, FOX'S SEEDLING, EARLY OXFORD, and many other Early and Late varieties, fine in quality, free from disease, and at low prices.
Seed Growing Establishment, Wisbech, Cambridgeshire.

Seed Potatos.

GEO. SIBBALD, Drumgeith, by Dundee, N.B., has for Sale about 100 Tons of the following kinds, of his own growing. Prices on application:—EARLY DALMAHOY, DAINTREE'S EARLY, CHISWICK CLUSTER, EARLY OXFORD, EARLY RED EYES, WALKER'S REGENT, ENGLISH EMPEROR, FLUKE KIDNEY, MYATT'S PROLIFIC, and PATERSON'S EARLY RED KIDNEY.



WHEELER'S
GLOUCESTERSHIRE KIDNEY
Is one of the very Earliest, most Productive, and best flavoured Potatos in cultivation.

Price 3s. per peck, 10s. 6d. per bushel.

J. C. WHEELER & SON,
Seed Growers, Gloucester.

Turnip Seed.

H. AND F. SHARPE are prepared to make special offers of all the principal sorts, SWEDISH and other varieties, of TURNIP SEEDS of 1866 growth, grown from finest picked bulbs, at low prices.
Seed Growing Establishment, Wisbech.

HENRY'S PRIZE HYBRID LEEK.—The Largest variety in cultivation; grows 10 inches in length of blanch, and 10½ inches in circumference. Has carried off the First Prizes at the leading Shows in England and Scotland.
Sold in Sealed Packets at 1s. each by
DOWNIE, LAIRD, & LAING, 17, Frederick Street, Edinburgh; and Stanstead Park, Forest Hill, London, S.E.

Nuneham Park Onion.

WM. CUTBUSH AND SON have great gratification in announcing that this SUPERB NEW ONION has in every instance, where shown, obtained the first prizes, and numerous testimonials have been sent to them from various parts of the country, confirming the opinion that it is the largest and heaviest cropper of all Onions. It is also of exceedingly mild flavour, and keeps as long as any variety extant. In Sealed Packets 2s. 6d. each.
*** Owing to the great demand, no more can be supplied to the Trade this season.
Highgate Nurseries, London, N.

ESTABLISHED UPWARDS OF A CENTURY.

HOLDERS OF PRIZE MEDALS FROM EXHIBITIONS OF BOTH 1851 AND 1862.



BUTLER, McCULLOCH, & CO.'S



CHOICE

COLLECTIONS OF FLOWER SEEDS.

		s.	d.			s.	d.
15	Varieties, Selected Hardy Annuals	2	6	6	Varieties, extra selected New Annuals 1867 ..	5	0
30	" " " " "	5	0	12	" " " " " " " ..	10	6
50	" " " " "	10	0	15	Varieties, selected Hardy Perennials	3	6
100	" " " " "	20	0	25	" " " " "	6	6
12	Varieties, Selected Half-hardy Annuals ..	4	0	50	" " " " "	12	6
25	" " " " " ..	7	6	100	" " " " "	25	0
15	" " " " " ..	15	0	12	Varieties, selected Half-hardy Perennials ..	4	0
100	" " " " " ..	30	0	25	" " " " " ..	7	6

COMPLETE COLLECTION of VEGETABLE SEEDS for ONE YEAR'S SUPPLY, 63s., 42s., 30s., 21s., & 10s. 6d.
Orders amounting to 21s. and upwards sent Carriage Paid.

CATALOGUE containing details of above Collections, Post Free.

COVENT GARDEN MARKET, LONDON, W.C.

GARDEN SEEDS.

WILLIAM PAUL,

(SON and SUCCESSOR to the late A. PAUL),

PAUL'S NURSERIES and SEED WAREHOUSE, WALTHAM CROSS, LONDON, N.,

BEGS TO ANNOUNCE THAT HIS

SELECT LIST OF VEGETABLE, FLOWER SEEDS, ETC.,

IS NOW READY, AND WILL BE FORWARDED POST FREE ON APPLICATION.

The following Novelties recently introduced by him have already become standard varieties, and the Seeds now offered have been saved from pure original stocks:—

PAUL'S WALTHAM BRUSSELS SPROUTS.—This variety is quite distinct, the Sprouts possessing the valuable quality of being green to the centre, and retaining the same colour when cooked. 1s. per packet.

PAUL'S WALTHAM MARKET CABBAGE.—Large, very even growth, early and fine, mild flavour; pronounced by all who have seen it the finest sort in cultivation. 1s. per packet.

PAUL'S IMPROVED TELEGRAPH CUCUMBER.—This is a prodigious bearer, frequently producing four or five fine fruit at a joint; very handsome, and excellent flavour; particularly recommended for a house or winter forcing. 1s. per packet.

PAUL'S SELECTED EXTRA CURLED PARSLEY.—Large and very superior; pronounced by all who have grown it from my stock the best in cultivation. 6d. per packet.

SUPERB DWARF HERTFORDSHIRE CAULIFLOWER.—Very large, pure white close heads, remaining fit for use much longer than most other sorts; very hardy, having frequently stood in winter under a south wall without any other protection. 1s. per packet.

BROCKETT HALL BROWN COS LETTUCE.—Very hardy, large, crisp, and excellent flavour; stands a long time after most other sorts without running to seed; good for sowing at any season; the finest Lettuce grown. 1s. per packet.

PAUL'S SUPERB CRIMSON BEET.—This variety as improved by me is unsurpassed in colour and flavour. 1s. per oz.

PAUL'S IMPROVED LATE CURLED BORECOLE.—Unsurpassed as a "Curled Green," very hardy; very productive, and continues in fine condition for use till the end of April. 1s. per packet.

LILIUM AURATUM.—Flowering Bulbs, 2s. 6d., 3s. 6d., and 5s. each; 24s., 36s., and 48s. per dozen. Very large Bulbs, 7s. 6d. to 10s. 6d. each; £2 to £3 per half dozen.

COLLECTIONS of KITCHEN GARDEN SEEDS, 10s. 6d., and upwards.
COLLECTIONS of FLOWER SEEDS, 5s. and upwards.

*** *All Seeds Carriage Free.*

GENUINE SEEDS, CARRIAGE FREE.

B. S. WILLIAMS'

NEW GENERAL PRICED AND DESCRIPTIVE SEED CATALOGUE FOR 1867

CAN BE HAD FREE ON APPLICATION.

THE VEGETABLE SEED PART

CONTAINS

LISTS of the best varieties of each kind of VEGETABLE. Only those sorts are recommended that can be relied upon for producing sure and good crops. Especial attention is directed to the following NEW and CHOICE KINDS, full descriptions of which will be found in the Catalogue.

WILLIAMS' ALEXANDRA BROCCOLI, 2s. 6d. per packet
WILLIAMS' MATCHLESS RED CELERY, 1s. per packet
ORANGEFIELD DWARF TOMATO, 2s. per packet
NUNEHAM PARK ONION, 2s. 6d. per packet
MALVERN HALL MELON, 1s. 6d. per packet
DIGSWELL PRIZE ENDIVE, 1s. per packet
RAPHANUS CAUDATUS (The Wonderful Radish), 1s., 2s., and 5s. per packet.

COMPLETE COLLECTIONS of KITCHEN GARDEN SEEDS, to suit Gardens of various sizes, for Contents of which see page 44 in Catalogue:—

10s. 6d., 21s., 42s., 63s., 84s. each.

THE FLOWER SEED PART

CONTAINS

Imported and English-grown FLOWER SEEDS, in Collections.
The Best of the New Introductions, 1866, in ANNUALS, BIENNIALS, and PERENNIALS.
Choice Strains of FLORISTS' FLOWERS.

The following are unequalled:—

PRIMULA (WILLIAMS' superb strain, the finest in cultivation).—Red, White, or Mixed Seed, 2s. 6d., 3s. 6d., and 5s. per packet.
CALCEOLARIA (JAMES's strain, the best variety for exhibition).—Colours are exceedingly rich, profusely spotted and veined. 2s. 6d., 3s. 6d., and 5s. per packet.
BALSAM (WILLIAMS' finest strain).—A stand of flowers, the production of this strain, was exhibited at the July Show of the Royal Botanic Society, and was the admiration of all. 1s. and 2s. 6d. per packet.
CINERARIA (WEATHERILL's extra choice strain).—This is the most popular strain in Covent Garden Market. 3s. 6d. and 5s. per pkt.

LILIUM AURATUM (a large importation of this beautiful Lily just received).—Strong Bulbs, 3s. 6d., 5s., 7s. 6d., and 10s. 6d. each.

VICTORIA and PARADISE NURSERIES, UPPER HOLLOWAY, LONDON, N.

Carter's Grass Seeds for the International Exhibition at Paris, 1867.



JAMES CARTER AND CO. have the satisfaction to announce that the Imperial Commissioners of the Paris International Exhibition of 1867 have granted to them the concession of supplying the GRASS SEEDS for the purpose of forming the Sward of the Park round the Exhibition Building in the Champ de Mars. The honour conferred on their House will be more readily appreciated when they state the gratifying fact, that they are THE ONLY ENGLISH HOUSE ENTRUSTED WITH THE IMPERIAL COMMISSIONERS' COMMANDS FOR THIS PURPOSE.

JAMES CARTER & Co. are prepared to supply Mixtures for Permanent Pasture, Park Lawns, &c., of the most nutritious and valuable Grasses, specially mixed to suit the variations of climate and soil. Price according to quality, from 20s. to 36s. per acre. PRICED LISTS gratis and post-free on application to

CARTER'S Great London Seed Warehouse, 237 & 238, High Holborn, London, W.C.

Grass Seed packed for Exportation.

SUTTON'S FINE LAWN GRASS for Making New or Improving old Garden Lawns, Croquet Grounds, &c. Price 1s. 3d. per pound, 24s. per bushel, carriage free. For forming New Lawns or Croquet Grounds three bushels, or 60 lb., are required per Acre, or 1 gallon to Six Rods of Ground.

From the Rev. E. J. GOSLING, M.A., *Chaplain to the County Gaol, New Disdin Road, Monmouth.*

Nov. 8, 1866.—"The Lawn Seeds I had from you in the spring have fully testified to the truth of all that has been said in praise of them."

From H. E. TUCK, Esq., 32, *Bartholomew Road North, Kentish Town, London.*

August 8, 1866.—"The Lawn Grass Seed is excellent; grows very quickly indeed, and produces beautiful fine Grass, such as we never had before."

From ROBT. J. STEDMAN, Esq., *Sharnbrook, Bedford.*

Jan. 13, 1866.—"The lawn I laid down last spring with your Grass Seeds answered wonderfully. It looks now as if it had been done with old Turf. Persons who see it scarcely believe it was obtained by sowing."

From MARTIN COUCHER, Esq., M.D., *Bayton Villa, Clifton-on-Teme, Worcester.*

Oct. 6, 1866.—"On the 10th or 12th of June I sowed the Lawn Grass Seed, and though the planting was so late, the Lawn now presents a uniform luxuriant appearance of a beautiful tint, and looks as though it had been planted two years. Of course, attention has been paid to mowing and rolling."

PRICED LISTS gratis and post free.

SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

Croquet Grounds.

For the Improvement of Croquet Grounds and Lawns,

J. C. WHEELER AND SON,

SEED GROWERS, Gloucester, can recommend a Mixture of the finest LAWN GRASS SEEDS, which should now be sown at the rate of about 10 lb. per acre, with a top-dressing of soot, guano, or superphosphate. The Lawn or Croquet Ground should then be thoroughly well rolled.

The price of the Seed is 1s. 3d. per lb.

J. C. WHEELER & SON,
Seed Growers, Gloucester.

Improvement of Grass Lands,

at from 5s. to 10s. per acre.

SUTTON'S RENOVATING MIXTURE

SHOULD NOW BE SOWN.

6 to 12 lb. per acre.

Price 10d. per lb. Cheaper by the cwt.

If these Seeds are sown early in the season, the improvement in the land will be very great, and at a small expense.

This MIXTURE should be bush-harrowed in, and rolled afterwards.

SUTTON & SONS,
Royal Berkshire Seed Establishment, Reading.

Very Early Sheep Feed.

SUTTON'S IMPROVED ITALIAN RYE-GRASS.—This "Improved" Italian Rye-grass is recommended in preference to every other variety, producing three or four heavy crops in one summer, and being almost if not strictly perennial.

At a Meeting of the Royal Agricultural Society, on March 16, in a Lecture delivered by Alfred Hughes, Esq., late of Thorness, Isle of Wight, Mr. Hughes said:—

"I always reserve a portion of Oat land to lay down with SUTTON'S Improved Italian Rye-grass, the most reliable plant I have come across for some years for Ewes and Lambs in the Spring. When I tell you that I put it in in the spring, and dressed it after harvest with guano, and that in the autumn, when my Sheep fed it off, it was up to their knees, and that I fed it off again this spring with Ewes and Lambs, I think you will agree that this is a crop of very great value. The Italian Rye-grass which is sold by SUTTON, of Reading, is a most astonishing vigorous plant; indeed, I never saw anything to equal it in the course of all my experience."

SUTTON & SONS have a fine stock of their Improved Italian Rye-grass, which is a very different and superior article to much that is sold as Italian Rye-grass.

Present price 6s. 6d. per bushel, cheaper in quantities over 5 qrs. Carriage-free in quantities of 8 bushels and upwards.

Quantity required per acre, if sown alone, 3 bushels.

Royal Berkshire Seed Establishment, Reading.

Genuine Garden, Agricultural, and Flower Seeds.

PAUL TOLLARD, SEED GROWER and MERCHANT,
20, Quai de la Mégisserie, Paris, France.

SPECIAL PRICED LIST of NEW SEEDS, in English weights and money, post free on application.

The New Forage Grass (Bromus Schraderi).

SUTTON AND SONS have imported a large supply of True Seed of the above, and offer it at 2s. 6d. per lb., or cheaper in large quantities. Quantity required per acre, 30 lb. Lowest price per cwt. and instructions on cultivation may be had on application.

SUTTON & SONS, Seed Merchants, Reading.

SUPERIOR NEW VARIETIES of OAT.

EARLYFELLOW.—The Grain of this variety is short and plump, resembling the Potato Oat, with a broader leaf, stouter and longer Straw, and ripening earlier than any Oat cultivated in Scotland, with the exception of the Georgian, now called Canadian Oat. Price 40s. per quarter, cash.

LONGFELLOW.—Length of Straw characterises this variety, being from 6 to 12 INCHES TALLER than any variety in cultivation. On all dry soils, and wherever Straw is an object, Longfellow is truly valuable. The grain is long, full of kernel, suitable for milling, and especially so for horse feed. Although too late for the highest lands, it ripens well at all medium elevations. In 1865 this Oat was the best quality in a collection of thirty named varieties, but the grain of last year's crop is smaller than usual, from the ravages of wireworm. Price 44s. per quarter cash. Samples transmitted by post to intending purchasers. PATRICK SHIRREFF

Haddington, Feb. 25, 1867.

N.B.—EARLY ANGUS, raised from one plant, 35s. per qr.



COCOA-NUT REFUSE is becoming scarce, the old reserves will soon be gone. Now sold in bags, 1 for 2s., 10 for 16s., 2 for 30s., 50 for 65s., 100 for £6.

Fourpence allowed for each bag returned carriage-paid.

A Railway Truck-load (not less than 6 bags), 40s.

Postage Stamps or Post-office Order, payable to J. BARSHAM & Co., Kingston-on-Thames, S.W.

LAWES' MANURES.—The Manures manufactured by J. B. LAWES for the present season of 1867 are now ready for delivery at his Factories, at the following prices, per ton:—

	£	s.	d.
LAWES' PATENT TURNIP MANURE and BONE SUPERPHOSPHATE of LIME	6	6	0
LAWES' SUPERPHOSPHATE of LIME from BURNT BONE or MINERAL PHOSPHATES	5	5	0
LAWES' WHEAT, BARLEY, GRASS, and MANGEL MANURES	8	0	0
CONCENTRATED CORN and GRASS MANURES	12	0	0

These Manures can be obtained of Mr. LAWES, or through the appointed Agents in all parts of the United Kingdom, at prices varying according to cost of carriage.

Genuine Peruvian Guano direct from the Importers. Nitrate of Soda, Sulphate of Ammonia, and other Chemical Manures.

American and other Cakes at market prices.

Address, JOHN BENNET LAWES, 1, Adelaide Place, London Bridge, E.C.; 22, Eden Quay, Dublin; and Market Square, Shrewsbury.

THE LONDON MANURE COMPANY (ESTABLISHED 1840).

Have now ready for delivery in dry fine condition,

CORN MANURE, for Spring Use
DISSOLVED BONES, for Dressing Pasture Lands
SUPERPHOSPHATES of LIME
PREPARED GUANO
MANGEL and POTATO MANURES

Also Genuine PERUVIAN GUANO, and NITRATE of SODA, ex Dock Warehouse; SULPHATE of AMMONIA, FISHERY SALT, &c. E. PURSER, Secretary.

Offices, 116, Fenchurch Street, E.C.

ODAMS'S NITRO-PHOSPHATE for CORN.
ODAMS'S NITRO-PHOSPHATE for ROOTS.
ODAMS'S DISSOLVED BONES.
ODAMS'S SUPERPHOSPHATE of LIME.
ODAMS'S PREPARED PERUVIAN GUANO.

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This Company was originally formed by, and is under the direction of agriculturists, circumstances that have justly earned for it another title, viz.—"The Tenant Farmers' Manure Company."

Its members are cultivators of upwards of 50,000 acres of land which has been for years under management with Manures of their own manufacture. The consumer, therefore, has the best guarantee for the genuineness and efficacy of the Manures manufactured by this Company.

Particulars will be forwarded on application to the Secretary, or may be had of the Local Agents. C. T. MACADAM, Secretary.

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SOMBRERO GUANO.—This article has proved itself superior to Peruvian Guano, and is 25 per cent. cheaper. For Grass Land this Guano should be used during February and March.

Sole Agent, W. PICKFORD, 148, Fenchurch Street, London, E.C.

THE PAXTON GARDEN MANURE will be found a most valuable and economical preparation to all who wish to have Fruit, Flowers, or Vegetables in perfection—inodorous and specially suited for Amateur Gardeners.

Sold by all the principal Seedsmen in town and country, in packets, at 1s. and 2s. 6d., or wholesale by A. ALEXANDER & Co., 22, James Street, Old Street, E.C.

Vineries and Orchards.



GREAT VALUE of "APHIS WASH."

"AT the first opportunity Paint the Trees with a solution of 'APHIS WASH,' prepared at the City Soap Works; it not only destroys the Brown Aphis which Infests Peach Trees, but also Scale, and every other pest capable of lodging in the bark."—Extract from *Gardeners' Magazine*, January 5, 1867.

"For strengthening the growth and effectually destroying all forms of blight, the 'Aphis Wash' supersedes every other preparation."—See *Gardeners' Chronicle*, August 19, 1865; and *Gardeners' Maaazine*, July 1, 1865.

Sold by Chemists and others, in 1s. bottles, and 2s. 6d. a gallon, with full directions for use.

Wholesale at the City Soap Works, Milton Street, London, E.C.

PETER LAWSON & SON,



THE QUEEN'S SEEDSMEN,

LONDON and EDINBURGH.

FARM, VEGETABLE, and FLOWER SEEDS.

FOREST TREES AND SHRUBS OF ALL KINDS.

CATALOGUES sent free on application.

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RICHARD DEAN'S

LIST OF SPECIALITIES IS NOW READY,

AND CONTAINS ALSO SOME ORIGINAL PAPERS OF GREAT VALUE TO THE AMATEUR GARDENER.

RICHARD DEAN'S NOVELTIES IN VEGETABLE SEEDS COMPRISE—

NEW MELON, DR HOGG.—A most valuable acquisition, altogether A 1. The fruit is of a good medium size, handsome oval shape, brownish yellow skin, and pale green flesh, very solid and luscious, rich aroma. A free setter and a good keeper, a fine and sure exhibition variety. Per packet, 1s. 6d. and 2s. 6d.

NEW CUCUMBER, GLORY of HANTS (DEAN).—A very first-rate black-spined variety, long, handsome, and very prolific; first-rate for either house or framework; a thoroughly reliable variety, whether for table or exhibition. It has been very carefully selected and grown specially for R. DEAN. Seed very scarce. Per packet, 2s. 6d.

BROCCOLI, DEAN'S PREMIER EARLY WHITE.—Unquestionably the largest and best of all the Early White Broccolis. Heads large, very fine and white; quite hardy. A variety that can be depended on, as it is entirely free from any impregnation of the character of the White Cape. Should be sown in March, and will flower in the March following. Per packet, 1s. 6d. and 2s. 6d.

BROCCOLI, IMPROVED KIDDERMINSTER.—A variety that has been very carefully selected by RICHARD DEAN. Dwarf growing, late, well protected white flower, symmetrical shape, good size, and very hardy. Should be sown in March, and will be ready for use end of April and May. Per packet, 1s.

CABBAGE, DEAN'S ONWARDS.—A very greatly improved variety of the large Cabbages, as represented by the Enfield Market. Very early, compact grower, and deliciously tender. Per packet, 1s.

CABBAGE, PRESIDENT EARLY DWARF.—A very early Dwarf Cabbage, medium size, good close heart, excellent marrow flavour. A capital sort for winter work. Per packet, 1s.

LETTUCE, ACME WHITE COS.—A very large variety, superior in quality to the Paris White Cos, from which it also differs in colour and habit. Hearts well, does not require tying; very crisp and sweet, and as hardy as any Lettuce in cultivation. Invaluable for summer or winter growth. Per packet, 1s.

LETTUCE, LEYDEN WHITE DUTCH.—A splendid Cabbage Lettuce, the very finest in cultivation. It produces large close heads, literally all heart; flavour excellent and very hardy. Per packet, 1s. and 2s. 6d.

The following fine Selections are confidently offered:—

	Per packet.—s.	d.
BROCCOLI, DANCER'S IMPROVED PINK CAPE	1	0
" DILCOCK'S BRIDE, true selected stock	1	0
" EALING EARLY, DWARF WHITE	1	0
CABBAGE, CHILTON EARLY SPRING, DWARF	1	0
CAULIFLOWER, NEW EARLY DWARF MONMOUTH	1	6
ENDIVE, DIGWELL PRIZE, GREEN CURLED	1	0
ONION, DANVER'S YELLOW	0	6
" NEW VENETIAN GIANT, TRIPOLI	1	0
TOMATO, POWELL'S EARLY DWARF RED	0	6
TURNIP, CESTRIAN GOLDEN STONE	0	6
" DEAN'S IMPROVED SNOWBALL	0	6
VEGETABLE MARROW, PRINCE ALBERT	0	6

☞ *For full descriptions, see* LIST of SPECIALITIES, *Post Free on application.*

DEPOT FOR NEW AND CHOICE VEGETABLE AND FLOWER SEEDS,
EALING, LONDON, W.

New and Choice Flower Seeds.

FREE BY POST OR RAIL.

SUTTON'S COMPLETE COLLECTIONS of FLOWER SEEDS are sent free by Post or Rail. Prices as under:—

No. 1 Collection of the best English and German varieties, with instructions on cultivation	..	..	..	£2 2 0
No. 2 Collection of	ditto	ditto	.. ..	1 11 6
No. 3 Collection of	ditto	ditto	.. ..	1 1 0
No. 4 Collection of	ditto	ditto	.. ..	0 15 0
No. 5 Collection of	ditto	ditto	.. ..	0 10 6

Small and useful Collections can also be had from 2s. to 7s. 6d., free by post.

For particulars of the above, see SUTTON'S DESCRIPTIVE CATALOGUE, gratis and post free on application.

SUTTON & SONS, Seed Growers, Reading.

FLOWER SEEDS.

Collection of 20 Choice Varieties—	1 oz. Mignonette
,, French Asters	1 oz. Nemophila insignis
,, Crown Asters	½ pint Sweet Peas
,, German Stocks	

20 choice varieties of Flower Seeds for 13s.

The above selection, of the choicest varieties and the finest quality, sent on receipt of Post-office order for 13s.

J. C. WHEELER & SON, Seed Growers, Gloucester.

NEW SEEDS.—For a "well-arranged, comprehensive, and trustworthy" CATALOGUE of FLOWER, VEGETABLE, AGRICULTURAL SEEDS, and GARDEN REQUISITES, see J. SCOTT'S PRICED CATALOGUE, sent free on application to

J. SCOTT, The Seed Stores, Yeovil, Somerset.

CHEAP HARDY FLOWER ROOTS, for Rock Work, Shrubbery Walks, &c., 8s. per 100, 30s. for 500, 60s. for 1000, in from 20 to 30 varieties. My selection from Printed List, which can be had on application to

THOMAS S. WARE, Hale Farm Nursery, Tottenham, Middlesex, N.

Early Spring Flowers.

WEBB'S GIANT POLYANTHUS and COWSLIP, with all the best varieties of Double and Single PRIMROSES, PANSIES, &c., with Seeds of single varieties. LIST of prices of different kinds on application to

Mr. WEBB, Calcot Gardens, Reading.

1867.

WILLIAM BARRON'S PRICED CATALOGUE of CONIFERÆ and other ORNAMENTAL PLANTS, ROSES, RHODODENDRONS, FRUIT TREES, &c., &c., for Spring 1867, is now ready, and may be had post free upon application.

Elvaston Nurseries, Borrowash, near Derby.

Wholesale Catalogue of Nursery Stock.

GEORGE JACKMAN AND SON'S PRICED and DESCRIPTIVE CATALOGUE for 1866 and Spring 1867, can be had free on application, comprising Fruit Trees, Roses, American Plants, Conifers, Clematises, Evergreen and Deciduous Trees and Shrubs, and transplanted Forest Trees, &c., &c.

Woking Nursery, Surrey.

General Plant Catalogue.

B. S. WILLIAMS' PRICED CATALOGUE, containing Select Lists of Choice Exotic Orchids, Ferns, Stove and Greenhouse Plants, Indian Azaleas, Variegated and Ornamental Foliaged Plants, Fuchsias, Pelargoniums, Rhododendrons, Verbenas, Petunias, Phloxes, Cinerarias, Chrysanthemums, Hardy Variegated Plants, Roses, Fruit Trees, Vines, &c.; also a Descriptive List of New and Rare Plants.

Can be had post free on application.

Victoria and Paradise Nurseries, Upper Holloway, London, N.

CHARLES TURNER has a large healthy stock of the following, of finest named varieties:—

CARNATIONS, 18s. to 24s. per doz. pairs.
PICOTEES, 18s. to 24s. per doz. pairs.
PINKS, 8s. to 12s. per doz. pairs.
TREE CARNATIONS, 1s. 6d. each, or 15s. per doz.

The Royal Nurseries, Slough.

Chrysanthemums, Chrysanthemums, Chrysanthemums.

ADAM FORSYTH'S CATALOGUE is now ready, containing a Descriptive List of all the best varieties; also a Practical Treatise on the Cultivation of the Chrysanthemum. Forwarded to all applicants for one stamp.

Brunswick Nursery, Stoke Newington, London, N.

THE CZAR VIOLET is still finely in BLOOM, uninjured by the late Frosts below zero. The flowers are nearly twice as large as the old Russian, on very long stout footstalks. Awarded First-class Certificates and Prizes wherever exhibited. Strong plants in Bloom, 10s. per dozen, prepaid, may be had of Mr. JOHN GRAHAM, Cranford, Hounslow. The usual allowance to the Trade.

Also fine RASPBERRY CANES, of sorts, 4s. per 100.

Hardy Scarlet and other Rhododendrons.

W. H. ROGERS, Red Lodge Nursery, Southampton, can offer splendid named varieties of the above, strong bushy Plants, well set with blooming buds, at £10 per 100, or selected, 30s. per dozen; also a general NURSERY STOCK of FRUIT, FOREST, and ORNAMENTAL TREES and SHRUBS, extending over 60 Acres. Detailed CATALOGUES and every information may be had on application.

Rhododendrons.

JOHN WATERER'S DESCRIPTIVE CATALOGUE of HARDY SCARLET and other RHODODENDRONS is now published, and will be forwarded on application. It faithfully describes the colours of the new varieties exhibited by him at the Royal Botanic Gardens, Regent's Park. An Abridged List of popular CONIFERS with heights and prices, is likewise combined.

The American Nursery, Bagshot, Surrey, near Sunningdale Station, South-Western Railway.

American Plants, &c.

WATERER AND GODFREY'S PRICED and DESCRIPTIVE CATALOGUE of RHODODENDRONS and other American Plants for this Autumn, will be sent on application. The Catalogue also gives a summary of their General Nursery Stock, probably the most extensive in the kingdom.

Knap Hill Nursery, Woking, Surrey.

VIOLA CORNUTA (True), the quickest and best way of getting into a large and true Stock.—One Hundred Plants of Mr. Bennett's variety of the above beautiful and hardy Bedding Plant sent on receipt of Post office Order for 12s. 6d., package included. The plants are nice and tufty. By separating them now, and by Cuttings, the above quantity could be made into thousands.

Apply to STUART & MEIN, Nurserymen and Seedsmen, Kelso, N. B.

POST PAID.

Viola cornuta, var. Purple Queen,

1s. and 2s. 6d. per Packet.

B. S. WILLIAMS has purchased Mr. Bennett's entire Stock of the above. None genuine unless in Packets bearing B. S. W.'s name and address.

VIOLA CORNUTA, var. MAUVE QUEEN, 6d., 1s., and 2s. 6d. per Packet.

B. S. WILLIAMS, Victoria and Paradise Nurseries, Upper Holloway, N.

British Fern Catalogue.

ROBERT SIM can now send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his NEW and PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.

Foot's Cray Nursery, S.E., a mile from Sidcup Station of New North Kent Line of South Eastern Railway.

MRS. POLLOCK.—Specimens 3 feet in circumference, and a quantity smaller from 7s. per dozen; also Gold and Silver ZONALS.

FUCHSIAS, in 12 free-blooming good habited varieties.
VERBENAS, in Scarlet, Purple, and White.

Strongly rooted plants of both delivered free to any post town, at 1s. 6d. per dozen, larger at 2s. per dozen.

J. POUNCE, Church Lane, Hendon, Middlesex, N.W.

NOTICE.—NEW ROSES FOR 1867.

FORTY-TWO VARIETIES, being the CREAM ONLY of the BEST NEW KINDS KNOWN on the CONTINENT,

NOW READY IN MAGNIFICENT STRONG HEALTHY PLANTS,

WHICH WILL BE ELIGIBLE FOR SENDING OUT AS SOON AS THE WEATHER WILL PERMIT.

DESCRIPTIVE CATALOGUES GRATIS on application to

WILLIAM WOOD AND SON,

WOODLANDS NURSERY, MARESFIELD, NEAR UCKFIELD, SUSSEX.

PAUL & SON,

OLD CHESHUNT NURSERIES, CHESHUNT, N.,

BEG SPECIALLY TO OFFER

DWARF STANDARD HYBRID PERPETUAL ROSES,

On 1 to 1½ feet stems, their selection, £5 per 100.

DWARF ROSES on own roots and otherwise in any quantity.

THEY ALSO VENTURE TO CALL ATTENTION TO THEIR LARGE COLLECTIONS OF

HOLLYHOCKS AND HARDY HERBACEOUS BORDER FLOWERS.

Prices of HOLLYHOCKS, 9s. to 24s. per doz.

LAURELS and other large EVERGREENS uninjured by frost.

Prices on application.

NEW ROSES FOR 1867.

PLANTS ALL HARDENED AND FIT TO SEND OUT.—ORDERS EXECUTED THE DAY RECEIVED.

BENJAMIN R. CANT,

ST. JOHN'S STREET NURSERY, COLCHESTER,

Has much pleasure in announcing that he has VERY STRONG PLANTS (BETTER THAN USUAL) of the following Sorts now ready, at 36s. per dozen:—

Tea.
MADAME MARGOTTIN

Hybrid Perpetual.
ADRIEN MARX
ALBA CARNEA
ANTOINE DUCHER
CHARLES VERDIER
COMTE LITTA
GLOIRE DE MONTPLAISIR
HORACE VERNET

Hybrid Perpetual.
MADAME MARTIN DE BESSE
,, FULLIAT
,, RIVAL
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,, JEANNE MARIX
PAUL VERDIER
PRESIDENT PORCHER
SOUVENIR DE MONSIEUR BOLL
THORIN

The usual Discount to the Trade.

VINES.—SURPLUS STOCK

OF THE FOLLOWING SELECTED VARIETIES, TRUE TO NAME, EXTRA STRONG,

WHICH WERE GROWN FOR FRUITING IN POTS,

Can now be supplied at the Planting rate of Prices, viz., 5s. to 7s. 6d. each.

Special Prices given where 25 or more are required. A fine opportunity for Gentlemen wishing to Plant largely.

BLACK HAMBURGH
,, MUSCAT
,, ALICANTE
,, BARBAROSSA
BUCKLAND'S SWEETWATER
BIDWELL'S SEEDLING
CHASSELAS MUSQUÉ
FRANKENTHAL
FOSTER'S WHITE SEEDLING
FRONTIGNAN, WHITE
,, GRIZZLY
,, VIOLET
GOLDEN HAMBURGH
GRAHAM'S MUSCAT MUSCADINE
LADY DOWNES
MUSCAT OF ALEXANDRIA
WHITE TOKAY
WEST'S ST. PETER'S

JAMES CARTER AND CO., SEED MERCHANTS AND NURSERYMEN,

237, HIGH HOLBORN, W.C.

GENUINE SEEDS, OF SUPERIOR STOCKS.

FRANCIS & ARTHUR DICKSON & SONS,

THE OLD ESTABLISHED SEED WAREHOUSE, 106, EASTGATE STREET, CHESTER.

THE BEST EARLY PEA IN CULTIVATION,

DICKSON'S "FIRST & BEST."

Retail Price, 1s. 6d. per Quart. Price to the Trade on application.

CATALOGUES OF NEW & SELECT AGRICULTURAL, VEGETABLE, & FLOWER SEEDS, &c., FOR 1867,

will be sent Post Free on application.

Their Seeds are of the most select character, each being saved from the BEST Stock *known* of its kind.

All orders of £2 value (Grain, &c., excepted), will be delivered Free at the principal Railway Stations in the Kingdom. Flower Seeds sent Post Free, except heavy articles, such as Sweet Peas, Lupins, &c.

GLADIOLUS, NEWEST and BEST FRENCH VARIETIES.
PRICE LISTS gratis and post free on application to
JAMES CARTER & Co., Seed Merchants and Nurserymen, 237, High Holborn, London, W.C.

GLADIOLI. — Collections containing all the finest varieties in cultivation, many new, and offered for the first time, 105s., 63s., 42s., 30s., 26s., 20s., 16s., 12s. BRENCHLEYENSIS, the most showy of all, extra strong roots, 3s. per doz., 20s. per 100.
DESCRIPTIVE PRICED LISTS free on application.
BUTLER, MCCULLOCH & Co., South Row, Covent Garden, W.C.

Gladioli.
JOHN STANDISH, Royal Nursery, Ascot, can supply fine FLOWERING BULBS of his unrivalled collection in splendid condition. CATALOGUES of these and of his GENERAL NURSERY STOCK on application.

GLADIOLI BULBS,
for Summer, Autumn, and Winter Flowering,
2s. 6d., 3s. 6d., 5s. 6d., 7s. 6d., 9s., and 12s. per dozen.
10s. 6d., 15s., 21s., 25s. to 100s per 100.
BARR & SUGDEN, Seed, Bulb, and Plant Merchants, 12, King Street, Covent Garden, W.C.

LILIUM AURATUM. — Large Consignment just received, 2s. 6d., 3s. 6d., 5s. 6d., and 7s. 6d. per Root. Extra large selected Bulbs, 10s. 6d., 12s. 6d., 16s., and 21s.
BARR & SUGDEN, Seed, Bulb, and Plant Merchants, 12, King Street, Covent Garden, W.C.

Sub-tropical and Ornamental Foliaged Plants from Seed.

WILLIAM ROLLISSON AND SONS' NEW and GENERAL SEED CATALOGUE, containing a List of the above, can be had on application to
The Nurseries, Tooting, London.

GRAND HORTICULTURAL EXHIBITION at BURY ST. EDMUND'S, in connection with the SHOW of the ROYAL AGRICULTURAL SOCIETY, JULY 15, 1867, and four following Days.
Amongst various Special Prizes, amounting in value to nearly £300, and exclusive of the ordinary Prize Schedule,
A SILVER CUP, VALUE £20,
will be offered by the Proprietors of the
GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE
for the best COLLECTION of FRUITS and VEGETABLES, to be made up as follows:—
Of FRUITS, any Five of the following Eight kinds, one Dish of each:—Grapes, Melons (2 fruits), Strawberries, Gooseberries, Currants, Cherries, Raspberries, or Apples (of the crop of 1866).
Of VEGETABLES, any Eight of the following Fourteen kinds, one basket or bundle of each:—Peas, French Beans (or Scarlet Runners), Broad Beans, Cauliflowers, Cucumbers (brace), Summer Cabbages, Early Carrots, Turnips, Artichokes, Onions, Spinach, Rhubarb, Potatos, or Mixed Salading.
This Cup will be open to Competition amongst Amateur or Professional Gardeners, of all grades, with Fruit and Vegetables of *their own growing*; any article otherwise obtained will disqualify the exhibitor.

The Gardeners' Chronicle.

SATURDAY, MARCH 2, 1867.

MEETINGS FOR THE ENSUING WEEK.

MONDAY,	March 4	Entomological	7 P.M.
TUESDAY,	— 5	Royal Horticultural (Fruit and Floral Committees), at South Kensington	11 A.M.
		Ditto. Scientific Discussion)	3 P.M.
THURSDAY,	— 7	Linnean	8 P.M.

MORE than 30 years since, in a paper contributed to the "Philosophical Transactions," Professor DAUBENY demonstrated the general correctness of the opinions held by PRIESTLEY that PLANTS tended to PURIFY the ATMOSPHERE vitiated by animal contaminations, by means of the oxygen gas which they emit so freely from their tissues, under the influence of solar light. Though often contested, this statement has now taken its place as a generally accepted fact in our text books. It is made use of to point many a moral; it serves to illustrate many a theory. Amongst other things it is made to account, at least indirectly, for the warmth of polar bears, and the luxuriance of equatorial forests. Bruin and his fellow denizens of the Arctic circle require a large supply of oxygen to keep them warm. How are they to get it from the scanty vegetation of those all but herbless regions? Theory says they get it from the tropical forests, which yield abundance of oxygen, and this, borne by the heated currents of the atmosphere, finds its way to the poles, while a counter current moves to the tropics to be warmed and decarbonised. In this way, in part, meteorologists account for the wind, which now a-days can hardly be said to blow where it listeth. Be this as it may, and setting aside all the more or less plausible theories that have been built on it, the fact remains that plants do give off from their herbaceous organs, and in the sunlight, oxygen gas, either pure, or, as BOUSSINGAULT has recently shown, mixed with carbonic oxide and carburetted hydrogen gases. Assuming the correctness of these observations of the eminent French chemist, plants would seem to emit at the same time the pure and the impure, the wholesome and the noxious gas, "a mingled yarn, good and ill together;" and our theorists have to show whether, and, if so, how, the poisonous gases are lost on their road, or whether the quantity is too small to hurt our polar friends—assuredly even a walrus would not be uninfluenced by a full dose of carbonic oxide.

But there is another point connected with the emission of oxygen, and concerning which enough is known to afford a basis for abundant experiment and still more extensive speculation, and that is OZONE. It can hardly be said to be proved that any such substance as ozone really exists, as the indications and manifestations supposed to denote the existence of this supposed modified form of oxygen are considered by many to be the result of some other agency. But if this be so, this agency, call it what you please, has powerful oxygenising properties, and therefore serves to remove and destroy noxious organic matters. Moreover, it is provable that this agent, whatever it is, is generated whenever oxygen gas is liberated from combination with a base, and hence it occurred to Professor DAUBENY that as the green parts of plants do, when exposed to sunlight, give off oxygen gas, so they might also yield ozone. To test the correctness of this surmise, Professor DAUBENY has instituted a series of experiments, the record of which may be found in a recent number of the Journal of the Chemical Society, and the results of which seem to show that when proper precautions are taken to exclude direct solar rays, and to make allowances for the effects of diffused sunlight (light of itself producing similar effects on the test paper to those produced by ozone), the green parts of plants do give off ozone. This emission of ozone by plants was shown even more conclusively when means were taken to prevent any ozone reaching the test paper, except from the plant. Supposing these experiments to be unvitiated by any fallacy, the inferences to be drawn from them cannot be better given than in the Professor's own words, who hopes that his recent researches may serve as an appropriate supplement to those earlier ones to which we have above alluded, "by showing that vegetable life acts as the appointed instrument for counteracting the injurious effects of the animal creation upon the air we breathe, not merely by restoring to it the oxygen which the latter had consumed, but also by removing, through the agency of the ozone it generates, those noxious effluvia which are engendered by the various processes of putrefaction and decay."

WOODY PLANTS of moveable size, which are liable to suffer injury from frost in severe winters, should as a safeguard be TRANSPLANTED in autumn. This we believe may be laid down as an axiom in modern horticulture, for various independent facts may be referred to in direct support of it. Let us quote a few of those which have come within our own knowledge.

Beginning with the severe winter of 1860, when Roses generally were severely punished, Mr. A., having just then transferred his plants to new ground—having consequently transplanted them, in the autumn, just before the severe frosts of that year occurred—scarcely lost one, while other Rose-growers suffered very heavy losses. The same thing occurred with tender fruit-trees, as Peaches, &c. The experience of the present winter tells the same tale. Mr. B., whose garden is in a low-lying station, finds his Rose trees, which have been standing undisturbed, most severely punished, but a batch which had been taken up and laid in by the roots, escaped uninjured. Mr. C., away down in the Midland Counties, had bought in a considerable number of the best new Roses, which had been received in November, and had been laid in by the roots, and these too escaped without damage, in a locality where it is reported the Rose loss will, under ordinary conditions, be great. Mr. D., in a bleak exposed district, where Araucarias are sadly disfigured, if not destroyed—too commonly the case, we fear—yet finds amongst a considerable number which were lifted in autumn, a few which are quite unharmed, and many which are but very slightly damaged. Such instances might be multiplied indefinitely.

The reason why transplanted trees of the character referred to, should escape injury from excessive cold, while the same kinds remaining undisturbed suffer more or less severely, is not difficult of explanation. In brief it may be thus stated. The untransplanted trees not having received any check at the root are still full of sap, if not in active growth, while the transplanted trees, having had their supplies cut off, are brought into a state of rest. The difference is similar to that which occurs in the case of ripened and unripened wood; the flow of sap having been arrested, the wood of the tree has been rendered comparatively inactive, by having been brought into a condition almost exactly resembling that of wood which has been thoroughly ripened by favourable conditions of soil and climate, and hence made more capable of bearing extreme cold with impunity.

— WE regret to have to announce the DEATH of the well-known botanical traveller and collector "JOSEF RITTER VON RAWICZ WARSCEWICZ" at Cracow, where he held the post of Inspector of the Imperial Botanical Garden. He died after a short illness on the 29th of December last, in the 54th year of his age. To Orchid growers he will long be held in grateful recollection for the many fine things introduced by him, and distributed in this country mainly through the agency of the late Mr. SKINNER. Several Orchids, including the well-known Cattleya Warscewiczii, a fine Canna, and other plants, will perpetuate his name among plant lovers.

— A practical gardener, unversed in the mysteries of that department of Botany corresponding to what in the sister science of Zoology is called Transcendental Anatomy (!) would either feel himself insulted, or would have doubts as to the sanity of the questioner, if he were asked whether or no he knew what the tendril of a Melon or Cucumber was. And yet, in the whole range of debated matters in Vegetable Morphology, there is scarcely any one thing concerning which so many diverse opinions have been, and still are, held, as the TENDRIL of the CUCURBITACEÆ. We do not intend to raise the question here, but we may in brief say that the tendril of the Gourd family has been considered as a root, as a branch, as a flower-stalk, as a leaf, as a stipule, as a bud, as a terminal shoot displaced so as to become lateral, as a mixed or composite organ consisting of a fusion of shoot and leaf, or by those desirous of cutting the Gordian Knot, as an organ *sui generis*, wholly distinct from any other. Latterly, M. CHATIN, re-entering an arena in which he was an actor many years since, has been led to the conclusion, from the internal anatomical structure of the organ in question in several of the genera of this important family, that the tendril in the Cucurbitaceæ is a modification of the flower-stalk, its branches, when present, being either repetitions of the main branch, or the homologues of bracts, or floral leaves. The facts and arguments adduced by M. CHATIN in support of his opinions are very cogent, and, assuming them to be correct, it is clear that the matter is not merely one of purely scientific interest, but that it concerns all thoughtful growers of Melons or Cucumbers, and suggests the question whether or no it be possible to convert a rudimentary and imperfect fruit branch into a productive one by means analogous to those employed by the pruner of fruit trees.

— M. BOSSIN, in a recent number of the *Revue Horticole*, speaks very positively of the advantages to be derived from planting EARLY POTATOS as contrasted with late ones. By planting in February, or as soon as the frost will allow, varieties which may be dug in July and August before the Potato disease manifests itself, M. BOSSIN asserts that he is enabled to secure an abundant crop; while those who depend on the later varieties lose, in some seasons, half or two-thirds of their crops.

— We not unfrequently have to make comments on the terms in which *bonâ fide* ADVERTISEMENTS are couched, and which, to say the least, are injudicious, as leading to hostile criticism. Our American cousins, however, "whip us" in the matter of advertisements, and we question whether any respectable English firm would have the bad taste to issue such an advertisement as that we subjoin, and which is taken from a trans-Atlantic seed catalogue. We suppress the correct names of the individuals referred to:—

"WORDS FROM THE DEPARTED.

"With great pain we receive every year, information from loving friends of the departure of some of our best customers—names familiar and ever dear. They are cherished in our memory. It is a pleasure to be remembered by them in their last moments, and to know that though gone where flowers will ever bloom, they yet speak for us - a joy to feel that we have done something to afford them pleasure during their sojourn here.

"*From A. B., Esq., Halberton, N. Y., April* 9, 1866.

"My father-in-law, and your patron and friend, ABIJAH WRIGHT, departed this life on Monday, April 2d, aged 84 years and 17 days. His love for flowers and all that was beautiful on earth, made him a great admirer of Nature and Nature's works. He often referred to his satisfactory dealings with you, and the unfolding of many a rare seed to beauty and fragrance would cause the remark, 'Mr. —— never deceives me.' His departure from earth is but another addition to the world above, where all is sweetness and praise.

"*From C. D. E., Catlin, Ill., May* 1, 1866.

"I write to thank you most sincerely for filling duplicates for flower seeds, the original order, accompanied by the money, having gone astray through the mails and never reached you. My wife has been ordering flower seeds of you for the past four years. The seeds obtained from you always gave entire satisfaction, proved as good, if not better, than recommended, and afforded much pleasure to us and our visitors; many came on purpose to see and admire our fine display of choice flowers. My dear companion was a great lover of flowers, and displayed great ability and fine taste in their cultivation. But she has now gone home to that brighter and better land where flowers bloom for ever. She died of consumption, ere the earliest wild flowers had bloomed along the hill sides. Always a great admirer of you as the Prince of Caterers to the best taste and adornment of rural life, she enjoined me to continue to patronise you, and teach our darling infant boy a love of flowers and the beautiful in Nature, that he may grow up with refined sentiments and noble aspirations. From this on I will cultivate flowers, sacred to the memory of the dear departed, because they were her favourites and pets, and for the sake of our darling Jesse, whose infantile mind now goes into ecstacies at the sight of Nature's beauties."

— From a "Report of an analysis of a fifth remittance of BARK from INDIA," by Mr. HOWARD, we quote the following with much satisfaction:—"On the whole, the present remittance of barks is unques-

tionably the most encouraging that I have had the opportunity of examining from India."

— We are informed that among other rare Orchids and new plants, Mr. Bull will, on Tuesday next, exhibit at South Kensington the rare Cypripedium Dayanum in flower.

— With the view of more thoroughly marking the origin of the New Grape mentioned by us last week, Mr. Standish has determined to name it the Royal Ascot, instead of the Royal Black.

STRAWBERRY FORCING.

In packing Strawberries I have this season been using the leaves of French Beans. They are much softer than those of the Strawberry itself, and less liable to injure the fruit, which, when well developed and perfectly ripe, is very susceptible of injury.

In forcing Strawberries I have had far better success since I adopted a plunging bed of leaves for the purpose of starting them. Thus situated they soon push, and throw up their leaves and flowers with such vigour and kindness, that they seem to say, "What a delightful situation we are in!" Having set their fruit in the leaf bed, they are next moved on to an airy shelf in a warmer house, where they are allowed to remain until swollen and coloured, nearly to maturation. They are at this stage moved on to a light cool airy shelf, for the purpose of finishing them off, both as regards colour and flavour.

I have tried an arrangement of wooden shelves fixed near to the glass; also placed them on shelves with turf under the pots, and in saucers filled with water standing on inverted saucers, all which plans I have given up in favour of the old bed of leaves. The leaves in the bed are occasionally turned, and a few fresh ones added, mixing at the same time with them a little soot and lime for the purpose of destroying slugs, which are brought in amongst them, and in consequence of the genial warmth afforded them, soon become very troublesome and destructive.

Part of my success in Strawberry culture consists in my having a commodious house, in which the plants are housed in autumn, and where they get sufficient heat only to keep out frost; they also get plenty of air, and require but little water. From this place they are introduced to the leaf bed, and onwards in regular succession. *Wm. Miller, Combe Abbey Gardens.*

LETTERS FROM PARIS.—No. I.

Le Jardin Fleuriste de la Ville de Paris.

Though hybernating here for a month past, with a view of awaiting the opening of the Exhibition, and studying French horticulture generally, I have not yet seen much of it, the weather having been fully as disagreeable here as in England, but the Lilac buds are now beginning to swell; there are a few spring flowers to be seen in the Jardin des Plantes; the Wallflowers and various other spring-blooming things, considerably used in Parisian squares, &c., are assuming a deeper green preparatory to blooming; the birds are singing merrily in the Tuileries Gardens; the Parisians beginning to crowd the Avenue des Champs Elysées on fine days; in short, one is pleasantly reminded that

> "To mute and to material things,
> New life returning Summer brings;"

and the bright blue sky and gladdening sun of this morning reminded me that it was a capital one on which to see the establishment from which many of the gardens, parks, avenues, and squares in and around Paris, are supplied with plants.

Many English horticulturists have an idea that French gardening is "behind the age." A single visit to this establishment would leave a very different impression. I understood it to be a large propagating establishment, but was surprised to find in it, in addition to the plants used for bedding, a magnificent collection of exotics, which would do credit to any national botanic garden. In fact so extensive is the establishment, and so full the collections, that I can hope to give your readers no idea of plants of peculiar merit or novelty, or do any more than take a rapid survey of the establishment. In summer I hope to meet all the plants used for open-air decoration in their allotted places, and there to judge of their merit, as well as to frequently visit this fine establishment to examine its vast interest more minutely.

Imagine yourself prepared to visit a "propagating establishment," and then ushered into a magnificent span-roofed curvilinear Camellia house—quite a grand conservatory of Camellias, and in connection with it on one side a great conservatory filled with Aralias, Yuccas, Beaucarneas, Tree Ferns, Nicotianas, Dasylirions, Dracænas, and a host of such plants all in fine condition, and arranged as closely and well as possible, everything being clean and orderly. Then, on the other side, another very fine span-roofed structure for Palms. And such a noble collection of healthy Palms in a fresh green state!

They were arranged in three longitudinal beds, while all round the house ran a belt of the smaller and younger kinds, plunged in tan to give them a little encouragement. To look along the pathway between each of these rows was like glancing into a fresh young tropical Palm grove, in such perfect health were the plants. When it is considered that many other great houses were in sight, and a large field of pits and frames, the reader will agree that examining or relating the particular interest of the subject was out of the question on a single morning, though that it is worthy of study will be conceded when I state that there are nearly 400 kinds of Palms and closely-allied plants in this establishment. Though it is essentially a business garden, and one in which an almost innumerable host of plants have to be annually developed, no slovenliness of arrangement or culture was apparent in these fine houses, and the same is true of the whole. Its contents are clean, well-grown, and well-arranged. I don't think I have ever observed such efficient economy of space in an English garden as in these houses. Under the benches are packed quantities of Caladiums, Fuchsias, Cannas, and hosts of things that may be efficiently preserved in such places in winter, and even after the great Arums, &c., receive their first pot of the season they are thickly stood underneath for a short time—every available inch being taken advantage of. Some of the houses are large lean-tos, and instead of the back wall of such being left naked, or with one shelf placed against it at the top, there are a series of shelves one above another—six altogether, and on these a multitude of plants are accommodated—Coleuses, &c., in the warm houses, Lantanas, and the like, in the cool; they keep readily enough on such during the winter, and if drawn a little or discoloured, a few weeks of bright sun in spring in the frames before putting out in the open air, soon puts that to rights. In the large span-roofed curvilinear houses, with a narrow passage through the centre, there are a series of shelves affixed to erect irons on each side, and on these a great number of plants are stored, so that every space is taken advantage of without in the slightest degree interfering with the health of the stuff, which is indeed admirable. But doubtless it is necessary thus to economise space, for the enormous number of nearly three million of plants is annually required from and furnished by this establishment for the embellishment of Paris and its environs. These are raised at the average rate of two centimes a plant—a cost which to your least French and non-decimal readers I may describe as about equivalent to the ghost of a farthing. And observe that many of the plants are such as would be fit to embellish any exhibition, numbers of them being Palms and fine-leaved plants, while of course the least valuable are simply bedding plants, from Nierembergias to Pelargoniums, of which last there are annually sent out from hence 400,000 plants!

Without seeing the houses or plants the potting-shed would tell of extraordinary horticultural operations, for in the centre there is a great wide bench, around which 60 men can work. Ordinary bedding plants seem to me to be kept here at an extraordinarily cheap rate—I think more economically than I have observed them in English gardens. A very large space of ground is covered by parallel lines of rough and rather shallow small wooden frames, very simply and cheaply made. They are rather closely placed, and the pathways between, and, in fact, all the spaces around them, filled up with leaves and mossy rakings from the adjacent Bois de Boulogne. These are nearly or quite filled up to the edge of the frames, and of course keep them warm and snug through the winter. In winter the interior of the frames is low, in spring their bottoms are raised so as to bring the foliage of the plants right up to the glass; and they are now engaged in doing this by putting in a quantity of the now pretty well consolidated leafy stuff before named. When this gets decomposed around the rough and simple frames it is taken away and preserved for potting purposes, making, of course, excellent leaf-mould. Among its other remarkable and excellent features, this great nursery garden possesses a colossal and tempting heap of leaf-mould, which would be appreciated in the most leafy parks of England. With the frames thus plunged in a comforting mass of genially warm leaves, and the plants lowered inside in winter, protection is a matter of easy accomplishment. They were crammed with healthy bedding plants—the most precious of the variegated Pelargoniums, &c., being of course in the houses; but the great mass of bedding stuff is grown in this way in miles of cheap framing. There is no means of heating these otherwise than by the leaves; and as it would in any case be very desirable to accumulate a goodly store of leaf-mould, that means is anything but expensive.

But though the ordinary dwarf bedding plants are preserved in vast quantities in this way, it is not the cheapest way in which they do things here, as we shall presently see. You have heard of the grand and graceful use made of the Cannas in Parisian gardening. These are preserved in a most efficient way, in caves or catacombs under the garden. After the stone is taken out of the ground for building purposes, they leave an odd rough propping column here and there, and thus wide and "equably heated" stores are left underground. These are in this case about 7 feet high, and used as a great store for plants that may be well preserved without light in the winter. You descend by a sloping tan-covered passage, and ten to one but you imagine yourself in a large Potato store immediately you get down, even if you are acquainted with horticulture. I did, and was it any wonder, when heaps of different kinds of Canna, and those by no means common kinds with us, were spread upon the floor a yard or more deep, and 20 ft. long? The "tubers" of some of the large kinds were from 5 to 8 inches long, and the men were turning them over just as they would the contents of a series of Potato-pits. Here, too, in wide masses against the wall are arrayed quantities of Aralia papyrifera, the handsome and full-grown kind so useful for "sub-tropical gardening." It seems in perfectly firm and safe condition, growing in this dark, or rather gas-lighted climate, and sends out long blanched leaves of a delicate lemon colour, which will of course soon acquire a healthy green when the plants are placed in the open air. Thus they preserve Aralia papyrifera in all sizes, and this fine thing is turned out for garden embellishment almost as cheap as Wallflowers. Of course analogous protection could be given to such things in many English gardens where space may be limited, and much expense out of the question. In these caves were also preserved Brugmansias, American and other Agaves, Dahlias, Fuchsias, &c., *ad lib.*, and it seemed to me about the best place I had ever seen for storing such plants.

It is astonishing the quantities in which you see good things, and new bedding plants here. Houses, 80 and 100 feet long, are filled with new Alternantheras; houses equally long, devoted to the raising of seedling Palms, &c., in quantity. If a plant be considered worthy of attention at all it is propagated by the thousand; 50,000 being the opening quantity for a new thing of any promise. Dracænas are grown here more abundantly than variegated Pelargoniums in many a good English bedding garden, and they have, I believe, the finest collection of such in existence. In one house a specimen of each kind has been recently planted out in the central pit, and among them some handsome and noticeable kinds to which I cannot now allude.

About the slightly embellished Avenue d'Eylau entrance there is not a little hardy plant interest—among others, a collection of Bamboos put out to test their hardiness; and that out of door matters are not forgotten will be apparent when I state that there is a frame-light over one collection of Tulips as big as a large conservatory, and every sign of a most extensive Tulip collection, which, of course, I shall have a quiet look at by and by, and then also attend to any other out-door matters of interest. It is a favourite plan here to devote a house to a special subject. Thus there is a large and fine span-roofed stove for Ficuses; a house for the collection of bedding Musas, with a line of thirty healthy plants of Musa Ensete, forming its backbone, so to speak; a very large and high curvilinear stove for the great collection of Solanums; special houses for Arums, Caladiums, &c., and a winter garden about 120 feet long by 40 wide, well stored with a healthy stock of usual conservatory plants, with here and there fine-leaved things like Phormium tenax, a very effective plant when well grown in pots and tubs, and of which they have here more than 2000 plants of various sizes. Of course all this vast collection cannot be and is not used for summer decoration. It is employed for the decoration of the Hôtel de Ville, where 10,000 plants are sometimes required upon a single occasion. I met one of the vans returning from town with plants. It was fortified with a neat little stove at one end, flat hot-water pipes passing round the interior of the van, and thus, while space was not curtailed, the van was most efficiently heated, and tender plants could be conveyed by it in safety in the depth of winter. However, I hope to see l'Hotel de Ville in full dress ere long.

Entering from the Avenue d'Eylau, one of the first things you meet with is a magnificent block of curvilinear span-roofed houses—ten in a mass, divided only by a narrow covered way which you enter, and through which only you communicate with the houses which it divides—five on each side. These contain a vast amount of interest and a great number of rare and new plants. One is the largest and most perfect propagating house I have ever seen, being more than 80 feet long and 24 wide, or thereabouts. From this house 80,000 plants are turned out in the course of a year, and observe that numbers of these are large-leaved Ficuses and plants difficult to strike, as well as Begonias, bedding plants, and free-rooting stuff. It contains three central and two side beds, the central pits well elevated, every space in active work, and the whole presenting a most imposing array of large bell-glasses.

The propagating seemed most successful. They do not do it as we do. No pans were used in this house, but very minute pots, a shade larger than a thimble, and into each a cutting is placed, the little pots placed on the tan, and covered with large circular bell-glasses. The greater part of the house is occupied with these, all of a size, but there are some special arrangements for propagating the more difficult subjects, and among these I noticed what appeared to be an improvement—bell-glasses, somewhat of the ordinary type, with an aperture in the top about two inches in diameter, into which a moisture-absorbing bit of sponge was squeezed. Nothing could be more business-like than the arrangements for propagating in this house. Great quantities of Hibiscuses are grown here, treated somewhat like Fuchsias—they exist without leaves or any trouble in winter. They are now being started gently in warm houses, and prepared for planting out. The bedding-out in and around Paris is something enormous. It is not confined to grand avenues or parks, or great centres, as with us, but is dotted about wherever there is an open space; every small square has its garden, each distinct in design, I believe; and a round open "Place," its large circular beds now filled with spring flowers, and by-and-by to be prepared for subtropical plants I presume. But I shall see all these things in due time. Already I see a great deal to admire in the way they bring healthy trees into the heart of Paris, and plant them by hundreds of thousands along the Boulevards, go where you will. I have never before seen such pains and successful efforts made to induce trees to make perfect specimens, and to keep them free from danger. Each tree is protected by a neatly made cage, either of sticks or thin strips of iron. Each is staked when young, and cut so as to induce it to make a straight lead, and thus they have the Planes with trunks as straight as a gun-barrel, and heads with as healthy and vigorous-looking growth as you could desire in a fertile quiet glade. Each tree is protected at the root with a wide circular grating, and to supply these alone must have caused vast expense. This grating efficiently preserves the ground round each young tree from being trampled on, and gives full facilities for watering or any other attention that the young tree may require. In one high house devoted to tall Palms and other effective-leaved plants I noticed a good specimen of Musa superba; they cultivate 16 or 17 species of this genus. In fact, the place offers you more facilities for ascertaining the most valuable members of some

important genera than any I am acquainted with. The boilers of some of the smaller propagating and other houses are heated by gas, and in this way a very equable temperature is preserved. It may give your readers some idea of the collection, when I state that there are in cultivation here between 30 and 40 kinds of Aralia, 13 of Oreopanax, 36 of Anthurium, 15 of Pothos, 30 of Philodendron, nearly 120 of Canna, 18 of Zamia, and 10 of Ficus! That among such a collection I shall hereafter find much of interest to English gardeners, there can be no manner of doubt, while of course the summer is the season to judge of the best of those used for out-door decoration.

I cannot conclude this notice without an acknowledgment of the courtesy and assistance I have received from all French horticulturists I have met, and in this instance the more particularly to M. Barillet and M. André. In others, and generally, M. Henri Vilmorin has been extremely kind in rendering me every assistance in his power towards seeing efficiently the horticultural interest of Paris and its environs. Nor would it be just to conclude without testifying to the distinguishing ability and energy manifest in everything under M. Barillet's control, from the grounds and gardens in and around the Exposition, to the remotest gardens of the environs. I was surprised at the sums spent in gardening by La Ville de Paris, but not when I found how well and judiciously they were disposed, and how excellent is the result produced by M. Barillet. *W. R., Feb.* 16.

SALADS, AND HOW TO GROW THEM.

Cos Lettuces.—These rank among the chief of salad materials, both at home and on the continent, *i.e.* if we may judge by the large quantities of them which are imported from Algeria for the Paris markets. They also find their way from Algeria to the London markets, and from them to nearly all the principal towns in England. Our object at present is, however, more particularly to speak of their culture in England than to advert to their uses; though, by the way, we may just mention a fact which is overlooked by many of our English cooks, viz. their great value for stews, for which they are admirably adapted.

Lettuces, with proper care and attention, may be obtained nearly, if not quite, all the year round from our own gardens. To do this we must begin with the year, and follow up the months in succession. Let me, therefore, commence with January; though, perhaps, I should more properly begin with those sown in the autumn, as the latter are, of course, the first to come in for table. I will, however, start with the year. Cos Lettuces, then, should be sown about the second week in January, after the following manner:—Let a slight hotbed be made of say one foot and a half of well-worked stable manure. I mean by well-worked, that which has been several times turned over, so that the rank steam has had opportunity to pass off. The ground for this bed should be thrown out, which is better than making it on the surface, as the winds in March are often so drying that the young plants suffer very much at the roots if the bed be made above ground. The bed having been made of the requisite depth, place your frame upon it, and cover the dung with six or eight inches of light mould, pass your spade over this in order to make the surface even, then sow the seed, sift over it lightly fine mould about half an inch in depth, put on the glass, and cover with straw or some other litter. It will require watching, for, if the weather should be mild, the young Lettuces are likely to come up very quickly. As soon as they show themselves let them have all the air you can. When not frosty pull the lights quite off, in order that they may have the full benefit of both sun and air. If the weather be such that you cannot give them this treatment (for, mind, they must not be allowed to get wet from rain or other causes, otherwise they will, what we term "canker," and be useless), they will get long in the leg. To overcome this, sift very carefully with a fine sieve, some dry sand or other light mould over them as often as they require it, taking care, however, not to choke their hearts. Let the young plants be well thinned as soon as they have grown out of their seed-leaf. They should stand at least two inches apart each way in the seed-bed, as it is next to impossible to get good Lettuces if the plants are not strong and healthy when planted out. When they have grown sufficiently to have made three or four leaves, if the weather be mild let them have the benefit of showers, but not so much as to saturate them. Other beds should be sown in the same manner as before stated about a fortnight after each other until the middle of March, in order to keep up a good succession. A sowing may also be made in the open ground about the latter end of February where they are to stand, but these are not to be depended upon, as the rough weather may kill them. After the middle of March sow every fortnight until the third week in July, in good open ground. They should be sown very thinly. As soon as the young plants have made four good leaves, in addition to the seed ones, they should be planted out, as a great deal depends upon getting that done before they have grown too large; indeed, if the weather be propitious, they cannot well be planted too small. Plant them in rows, 15 inches apart every way, on a good open piece of ground which has been well dunged and trenched the preceding autumn or winter. It should have been thrown up in ridges roughly. It must now be lightly forked down level. If the ground be very light previous to planting it should be rolled rather firmly, or perhaps a better way is to tread the lines.

The seed beds in the open ground may be thinned out to the same distance from plant to plant as those that have been planted; sometimes these will do better than the latter if the summer be very dry, as their tap root is not so easily affected by the hot weather. I may just remark here that if the frequent sowings before mentioned be not made, it will be impossible to keep up a good succession, as Lettuces will run to seed in the summer months almost as soon as they have arrived at the proper state for table. During these months it will be advisable to give them some good waterings. It is a good system to plant among other things, as they are a very quick crop, such as every alternate row among Leeks, young planted Mint, Cauliflowers, Sea Kale, Parsnips, &c. As soon as the Lettuces are sufficiently grown, which, if the foregoing instructions have been attended to, the first sown will have become by the beginning of June, they should be tied with bast in dry weather for a few days or a week; they will then be ready for use. If the weather be hot and humid they must not be tied too long a time, or they will rot.

Those sown in July will be ready for use in October. These should be planted in some sheltered ground where they may be protected from the early autumn frosts, or they may be taken up from where they have grown, and placed in a pit or other place (not too damp) where they can be secured from frost; they will bear the moving well, although they may be fully grown. If kept moderately dry these will be fit for table until Christmas.

Having advanced this much respecting spring and summer-sown Lettuces, I will now proceed to say a little about autumn-sown ones. The sort grown for the London market is called Hardy White, but there are other kinds of winter Lettuce; the old Brown Cos is a good sort for winter, and more hardy than the first-named, quite as good eating, but not so sightly; there are also many other varieties of winter Lettuce, but these are the two best.

Sow them in the open ground the first and second week in August; plant out as soon as ready on warm, dry land, in rows at the distance of a foot, and let each plant stand 6 inches apart. This is much too thick for them to stand for a crop, but it is best to put them in thus thickly, as the winter usually makes sad havoc among them. They should be thinned out in the early spring to a foot apart; these will be ready for table in the latter end of April, and beginning of May.

Let me now speak of the main crop of Lettuces for summer consumption. Three sowings of these should be made, namely in the second, third and last week in October. Let some good loam be provided (it will be better if it has been turned over a few times); put your frame in some sheltered spot facing south or south-east, and raise the back of it so that it stands at an angle of about 40°; then throw in about 10 inches of loam, rake and smooth the surface as before directed; then sow the seed, and sift with rather dry, sharp sand, to keep down worms, which are often very troublesome during winter. As soon as the plants show their heads, give them the full benefit of the air, but keep them dry; if the plants become long, sift with the same kind of sand as before; the lights must be kept open on all occasions when it is not rainy or frosty; they will require a good covering of straw over the glass to keep out the latter. These plants should be very carefully thinned in the seed bed, so that the air may have free circulation among them, or they will damp off during the winter months; if the weather be suitable, these will be ready to plant in the following February; treat them according to former instructions; they will in most seasons be ready for use from the end of May until Midsummer. The best sort to sow from October to July, is the London White Cos; Paris White and Paris Green are also good varieties; these last two grow best if sown in the open ground about Midsummer. There are also some very coarse varieties, such as Mammoth, Monstrous, and others, but their flavour is not so good: I think they are not worth growing, except for the sake of variety. In my next I shall have something to say about Cabbage Lettuces. *J. M. M.*

THE AMERICAN AGAVE.

"The following is the mode adopted for the extraction of the juice of the Maguey plant, and for the manufacturing from it of pulque, which denomination dates from the time of the Spanish occupation of Mexico, the derivation of the word appearing to be totally unknown, the beverage being known under the denomination of 'neutli' 'in the time of the Aztecs' So soon as the leaves begin to turn yellow, a small concave aperture is scooped out by means of a keen-edged knife in the core of the plant, which is usually about 18 to 20 centimetres in diameter, and this aperture is gently scraped round, care being taken that no incision be made in the leaves or fibres around it, for fear of imparting a bad taste to the juice. This operation produces a sediment, through which the juice, generally known under the technical name of 'aqua-miel,' or honey-water, exudes from the grooves of the plant, which juice is extracted by the Maguey labourer by means of an elongated gourd formed into a tube, the air in which is exhausted by suction, and which he thrusts into the incision in the core of the plant, stopping the aperture at one end with his finger, and emptying its contents into his 'zurron,' a sort of impervious sheepskin bag inserted in a net and strapped to his back. Each labourer has usually the care of from 50 to 60 plants, from which he extracts from about 110 to 120 arrobas of honey-water per week. As soon as his 'zurron' is full, he carries it to the 'tinical' or pulque manufactory, very commonly returning to each plant and performing the same operation of scooping round the incision and exhausting the juice it contains twice in the day, taking particular care to cover up the aperture with leaves and stones, lest the cattle, dogs, or 'caygottes,' a small species of jackal which infests the country in large numbers, should get at the juice.

"As we have before seen, the honey-water varies in quantity, colour, and quality, according to the species (variety) of the plant, the producing time of which may be said to extend on an average to about three months, although some sorts only yield juice during a period of 20 days, and other sorts are so exuberant that they yield it during six months, and that in large quantities. The average quantity yielded by each plant, one with another, may be roughly estimated at about 100 arrobas.

"The pulque manufactories of the different Maguey plantations consist of a long covered-in gallery, well-ventilated, and containing rows of vats made of bullocks' hides stretched over a modern framework, and smeared over with lime on the outside, into which the honey-water is emptied so soon as it is brought in from the plantations, and which, in about 36 hours begins to ferment, casting up large bubbles of froth, losing its pristine transparent colour, and assuming a milky whitish tint which it permanently retains. It was formerly the habit to throw lime, or a plant called 'Ocgractli' into the honey-water, in order to produce a greater degree of fermentation; but now, a small quantity of 'maduc del pulque,' or pulque already manufactured, is poured into the empty vats, which quickly deposits a thick and whitish coloured sediment, upon which the new juice or honey-water is thrown in. The mixture after fermentation being ready for use, is then sent off to the city of Mexico, Puebla, or the nearest market, the pulque very commonly undergoing a considerable dilution of water by the way at the hands of the carriers, who convey it in sheepskin bags upon mules or donkeys. The quantity of it which thus annually enters the city of Mexico alone may be estimated on the average to be about 2,000,000 arrobas, and that which enters Puebla to be about 500,000 arrobas, and the cost of transport alone has been calculated, taking the approximate average of 1 real as that of each arroba, to represent the sum of 312,000 dollars; not less than 20,000 mules and donkeys laden with the beverage entering the city every month by the gate leading to the Maguey districts. To the quantity paying duty must also be added a considerable quantity which is smuggled in, and including this it may be calculated that about 50,000,000 bottles are now annually introduced into the city of Mexico, Humboldt having fixed the number at 44,000,000; and the amount of money annually expended in the drink, at the average rate of about a quarter of a real per bottle, to be about 1,600,000 dollars annually. The number of pulque stores within the capital (which in the year 1771, when the increasing popularity of the beverage compelled the Spanish Viceroy to issue special regulations respecting licences to sell it, &c., amounted to 34, afterwards increasing to 80) now amounts to 513. These stores are usually painted in gay colours outside, the wall behind the counter almost invariably exhibiting to view a rudely-executed allegorical fresco setting forth the 'Power of Love' under the stimulating effects of the Maguey plant, Venus, Bacchus, and the nymphs occupying prominent positions in the background, whilst a little image of the Virgin with a lamp burning before it sometimes occupies a retired corner of the establishment.

"From a chemical analysis of pulque it is found to contain, in different proportions according to its quality, alcohol, mucilaginous fecula, sugar, water, and potash. It has been observed that the drunkenness produced by it, under its different varieties, is of a less violent description than that produced by another common beverage of the country—brandy made from the Sugar-cane; and that delirium tremens is rarely produced by the immoderate use of the former, though often by that of the latter. It is also affirmed that the pulque drinker is commonly long-lived, whilst the reverse is the case with regard to those addicted to the Sugar-cane brandy, and that the former beverage, notwithstanding its somewhat acid taste, is, probably on account of the fecula contained in it, peculiarly beneficial to women suckling their infants, and to those people whose constitution requires a wholesome stimulant.

"The excesses committed by the lower orders during a riot occasioned by the high price of Maize in the city of Mexico in the year 1692, being attributed to pulque drinking, the Count de Galvez consulted the Royal University, as well as the College of Jesuits, as to the expediency of prohibiting the use of it altogether, especially among the Indian population, and the Report upon the subject, which was issued by each of these learned bodies, is a most curious specimen of scholastic pedantry and monkish logic, the prohibition being finally determined upon. It was removed, however, within a short time afterwards, and the Crown of Spain allowed the sale of the popular beverage again under certain restrictions, incorporating the tax upon it with the other colonial imposts, in which in course of time it became a highly important item, producing in some years a sum of more than 1,000,000 dollars to the Treasury. From that time to the present it has continued to fall until it has now reached the comparatively low average of about 200,000 dollars annually; the cause of so sensible a diminution being attributable to the extensive system of smuggling carried on, and to the increasing neglect and indifference prevailing amongst public functionaries during a long lapse of years of anarchy. It is true that it would be at once inexpedient, as well as encouraging to the smuggler, to levy an onerous tax upon so important an article of consumption as to produce so high an amount to the Treasury as that of former times; but it is affirmed by competent judges, that were it honestly and properly carried out under the present system of imposts, the pulque tax might easily be made to produce an annual amount of 600,000 dollars.

"The collecting of the pulque tax in Mexico, before it was incorporated in the budget of all other colonial taxes by the Spaniards, occupied a staff of *employés*,

upon whom no other duty was imposed, there being a Superintendent, an Administrator, with a salary of 1000 dollars each, with minor officials in all the towns where the beverage was drunk; the whole number of *employés* amounting to 64, and their united salaries amounting to about 20,000 dollars." *J.*

NOTES ON CONIFERS.—No. XV.

TAXODIUM DISTICHA (THE DECIDUOUS CYPRESS).

(*Continued from p.* 103.)

ALL trees have an individual character of their own. Some have it so marked that they impart a character to the whole scenery in which they occur, but few have it in such a degree or of such an impressive nature as the Deciduous Cypress. The gloomy brakes in which it stands up to the "knees" in water combine with it to make a scene of desolation and awe overpowering to the human mind. We remember a collector who went out to Brazil, and was exceptionally unsuccessful. The forests which yielded so much to others seemed to yield nothing to him. It was a puzzle at the time, but long afterwards (long after the poor man was in his grave) we learned the cause from one who had met him in Brazil. He could not stand the Brazilian forests. There was nothing in them to harm him, and he knew it, but they frightened him; their awful silence, dim obscurity, and impressive height took possession of his soul, and filled it with fear and trembling. With a companion he did well enough, but alone they scared him. If that is the impression left by the Brazilian forests, we may guess how much more the gloomy Cyprières, with their alligators, and countless creeping and slimy accessories (imaginary or not), must weigh upon the spirits. To form an idea of these regions we are told we must visit the spot itself; we may imagine but we cannot realise their oppressive silence, their awful lonesomeness, and their dreary aspect. Animated Nature is banished, life itself seems dead, until the sullen splash of the alligator wakens the echoes through the long canals, arched over like lofty aisles by the gloomy canopy of thick boughs of the Cypress. Not that natural beauty is wholly wanting: "The varied windings and intricate bendings of the lakes," says Darby, "relieve the sameness, whilst the rich green of the luxuriant growth of forest trees, the long line of woods melting into the distant sky, the multifarious tints of the Willow, Cotton, and other fluviatic trees, rendered venerable by the long train of waving moss, amaze the fancy."—Darby's "Louisiana," p. 69.

One not unfrequent incident in the life of the Swamp Cypress is its growing on floating islands in the creeks connected with the Mississippi, and by its long roots anchoring them and converting them in time into stationary land. "One of my fellow passengers," says Sir C. Lyell (Second Visit, ii., p. 186), "urged me to visit Lake Solitude, 'because,' said he, 'there is a floating island in it, well wooded, on which a friend of mine once landed from a canoe, when to his surprise it began to sink with his weight. In great alarm he climbed a Cypress tree, which also began immediately to go down with him as fast as he ascended. He mounted higher and higher into its boughs, until at length it ceased to subside, and looking round he saw in every direction, for a distance of 50 yards, the whole wood in motion.' On inquiry Sir Charles learned the explanation of this marvellous tale. It appears that there is always a bayou or channel connecting during floods each deserted bend or lake with the main river, through which large floating logs may pass. These often form rafts and become covered with soil supporting shrubs and trees. At first such green islands are blown from one part of the lake to another by the winds; but the deciduous Cypress, if it springs up in such a soil, sends down strong roots, many feet or yards long, so as to cast anchor in the muddy bottom, rendering the island stationary."

It is to such a locality as this that M. Bossu refers when one day he had the misfortune to see his boat hemmed in by the branches of a tree that was set under water; he was benighted in this disagreeable situation, and obliged to wait for the break of day. But as this river rises and falls by the floods, he found himself quite in the air in his boat. They were 25 leagues from the mouth of the river, but the Mobilian savages that accompanied him comforted him by the hope that the next tide would set him afloat again, and really the tide mounting up the river from Mobile Bay delivered him from his disagreeable situation (Bossu's "Travels through Louisiana," p. 227, 1781).

Mr. Darby's description of the great raft, 10 miles in length, which choked the Atchafalaya, gives us a more pleasing idea of such an island than we should have expected:—"In the fall season," says he, "when the waters are low, the surface of the raft is perfectly covered by the most beautiful flora, whose varied dyes, and the hum of the honey bee, seen in thousands, compensate to the traveller for the deep silence and lonely appearance of Nature at this remote spot. The smooth surface of that part of the river unoccupied by the raft, many species of papilionaceous flowers, and the recent growth of Willow and Cotton trees, relieves the sameness of the picture. Even the alligator, otherwise the most loathsome and disgusting of animated beings, serves to increase the impressive solemnity of the scene."

But it must not be supposed that in all these Cyprières the ground is perpetually a swamp; some are, but many are so only for a portion of the year. Darby tells us that "the lands that are inundated by the spring freshes in the low lands of the Atchafalaya remain almost entirely devoid of water on the retiring of the floods. No portion of wood-land in America is more completely without water in the fall season than this. Miles in succession of those regions that we have in former times consigned to eternal submersion, are in fact, eight months of the year, almost totally deprived of water for the ordinary necessities of animal existence. This observation will be found circumstantially correct in all the range that divides the delta from the prairies, or heights, to eight or ten miles distant from either." At the other season all is changed, and one universal inundation covers everything. From the mouth of the Courtableau to the head of the Cow Island, the breadth of the overflow between the Atchafalaya, Opelousas, and Allacapas is about eight miles wide. This space is an immense lake for many months; the currents of the smaller bayous are lost in the maze, and only remain distinguishable by the openings of their channels. The many lakes that mingle with the outlets of the river, and with each other, render this region most inconceivably intricate. It is with the utmost difficulty that the real channel of even the river can be distinguished from the number of outlets and inlets that wind in every direction. *A. M.*

Home Correspondence.

Weather Records.—Permit me to explain to Mr. Culverwell (who finds fault with me for having said that I was inclined to question the accuracy of some of the alarmingly low weather records published in your columns), that my remarks had reference to the reports sent from the south-western and home counties. Let me also say that the expression "being inclined to question the accuracy of an assertion" is not condemning it. I am not sure that it can be stated as a rule, but I do not think that I am wide of the mark in assuming a depression of 1° of temperature for each degree of N. latitude (inland). As this station is about 2° N. of Greenwich it was fair to infer that we should have suffered during the severe weather in January a greater degree of cold by 2° than was felt at Greenwich. Comparing the mean temperature of the air at the Royal Observatory for October, November, and December, 1866, with the mean at Belvoir for the same months, I find the difference a little less than 2°:—

Royal Observatory.	Mean.	Belvoir.	Mean.
October	51.3	October	50.0
November..	44.3	November..	43.3
December..	42.9	December..	41.8
	46.5		45.1

When .08°, or 40° below the freezing point, was reported as occurring near London, and when my instruments only recorded 9°, or 23° of frost, I think it was not a very unreasonable thing to express an inclination to question the accuracy of such reports. By the same rule of reasoning I should expect to find that a greater degree of cold had been experienced in the northern counties, and I am not in the least disposed to doubt Mr. Culverwell's account of the destructive action of the frost in the locality from which he writes. The excellent and clearly stated weather report furnished by Mr. Challis, of Wilton House, and various other correspondents, satisfy me that the frost in January was unusually and exceptionally severe in the south-western and home counties. The destruction of shrubs and Coniferæ which have hitherto withstood our climate tell the tale of its severity but too truly. The injury to trees was greater owing to the succulent and immature character of the growth they made during the wet and cold season of 1866. The Valley of the Thames has supplied some instances of very low temperature; the greatest cold appears to have been coincident with the presence of water. Some interesting facts regarding the influence of soil, altitude, and position on local climate would be revealed if records were simultaneously made on cold low-lying spots, and others more elevated, and free from the presence of water. Gardeners are more interested in observing variations of temperature in different altitudes and positions than any other class of men, and I am glad to hear that the importance of making careful weather records is appreciated by so many intelligent members of the profession. I wish some one would undertake the task of writing the history of the late frost, giving a full account of its varying severity in different localities, and its effects on vegetation throughout the kingdom. Such a history would be instructive to gardeners, and valuable to gentlemen about to buy land, or choose sites for houses or gardens. While on the subject of the weather allow me to say that it is time that the valuable services of Mr. Thompson, of Chiswick, in horticulture and meteorology, should receive the public acknowledgment of a testimonial from his fellow labourers in those sciences, and from the public he has benefited by his quiet, unobtrusive, but not the less efficient labours. I have expected each week to see the announcement that a definite arrangement had been made and a committee formed for the purpose. I shall be glad to offer my mite, and I shall consider it a privilege to be allowed to do anything in furtherance of so good an object as the presentation of a testimonial to Mr. Robert Thompson. *W. Ingram, Belvoir.*——"A Gardener" (see p. 184), after expressing his satisfaction with Mr. Anderson's comments on Mr. Lowe's article on the inaccuracy of common thermometers and the carelessness of observers, sarcastically alludes to "learned savans," provided with thermometer stands, correct instruments, hygrometers, ozone test papers, &c., and asks how it is that they have not been successful in predicting weather. Let me tell "A Gardener" that before laws can be promulgated they must be made. Before the very difficult science of the weather can be mastered, every fact relating to the laws which direct air currents and govern storms, to the influence of electrical action, to temperature, to the influence of seas, mountain ranges, and a multitude of other causes which control or modify local climate, must be carefully noted, recorded, and studied. With the view of obtaining facts bearing on these subjects, which are of the utmost importance in the prosecution of the study of meteorology, upwards of 50 gentlemen residing in different parts of the kingdom make careful daily records, which are sent every month to Mr. Glaisher, of the Royal Observatory. Observatories are also stationed in every habitable country, and many captains of ships are enlisted in the labour of investigating weather during their voyages to distant countries. Should the labours of such men, who give their services ungrudgingly and gratuitously, and whose object is solely to obtain facts which may benefit their fellow men in future generations, be depreciated? —Certainly not! and least of all by "A Gardener." *Another Gardener, but not a Spirit Minimum.*

Roses and the Frost.—I have not the pleasure of knowing Mr. Laxton, of Stamford, but I presume from the tone of his article (see p. 183) that he is a young amateur, full of amiable enthusiasm, and "ever anxious" to save his brother rosarians from frost-wreck. If his lists of condemned and half-condemned Roses had been confined to the columns of his county paper, so that amateurs living in his neighbourhood under the same circumstances of site and soil might have gathered the knowledge useful to them as Rose cultivators, all would have been well; but to give his experience of the late frost as of value to the Rose lovers of England is altogether a mistake, and his lists of "uninjured, partially injured, and very tender" Roses are likely to needlessly alarm the Rose-loving public. It seems that at Stamford, as at Belvoir, the weather was not of extreme severity; from 22° to 23° of frost seem to have been the average at both places, yet at the former ruin to Roses followed, while at the latter no injurious consequences to vegetation seem to have done so. Here our minimum was 4°, or 28° of frost; severe enough, if we follow Mr. Laxton, to kill all the Hybrid Perpetual Roses known; yet I have to look most diligently to find one dead tree among some thousands. All those "partially injured" and "very tender Roses," that long and frightful (to the Roseist) list of wounded and cripples in p. 183, are here budding most vigorously, and give promise of a healthy growth; in fact I have never seen the buds of Hybrid Perpetuals look more promising. One of the most remarkable facts I have observed is, that strong trees of the Tea-scented Roses, Climbing Devoniensis, and Gloire de Dijon, standing where they were budded, and with stout shoots from 4 to 6 feet in length, are unharmed, as are trees of Céline Forestier, Acidalie, Ophirie, Souvenir de la Malmaison, Madame Willermoz, and many others. On looking at trees, dwarfs and standards, of many of those very beautiful Roses classed as "very tender" by Mr. Laxton, I cannot find one injured. Ought I not, then, to proclaim to the Rose world, and to tell the nurserymen—"I trust they will take a lesson"—that all the "very tender Roses" in List No. 3, p. 183, are as hardy as those in List No. 1, and have stood 28° of frost? I think it is my duty to do so. I feel it to be a duty I owe to many charming old friends such as Sénateur Vaisse, François Lacharme, the dear old "General Jac.," Beauty of Waltham, and a score or two of other fine old fellows, to protest against their being trampled upon by one who is so strongly inclined to put dear living friends "down among the dead men." Now then for the reason why Mr. Laxton's Roses have suffered so much from the frost early in last January. In January, 1838, after a long series of mild weather, the temperature from Christmas, 1837, to January 4, 1838, ranging from 50° to 55°, the birds singing and trees budding, there commenced on the 6th a frost of great severity, which lasted to the end of February, the thermometer registering from 4° to 5° below zero. I remember observing at the advent of this terrible visitation, that all the climbing Roses, such as varieties of Ayrshires and Rosa semperflorens, Hybrid China Roses, Noisettes, and even Damask Roses, were all budding, some of the buds the length of one's nail—scarce a Rose or Rose bud escaped. January 1855 the weather was mild, with southerly and south-westerly winds up to the 17th; a severe frost then commenced, lasting till far into February. Roses of all kinds suffered to a great extent—the mild weather had excited them so that the buds had burst, hence their inability to resist frost. Mr. Laxton's garden, as described by him, has a loose warm soil, is perfectly sheltered by walls from cold winds, and has a northern exposure; his Roses were consequently excited into premature growth by the mild weather of last December. They of course suffered much more from 23° of frost than they have here from 28°; the reason why is soon told. My Roses are cultivated in a rich clayey loam; the surface was quite solid from the effect of the heavy rains of last autumn, consequently they were dormant and not a bud had moved. It would, however, be very impolitic if I told all my friends that the Tea-scented and other tender Roses named above are perfectly hardy, and will stand 28° of frost, because from the peculiar circumstances of soil and free exposure, they have borne it this season—the assertion would be as unwise as the recommendation of Mr. Laxton to expunge from our collections many of the most robust-growing and beautiful Roses we possess, for in 1868, 20° of frost in February after mild and exciting weather in January may destroy them all. The truth is, all our fine hybrid Roses are excitable, from their partaking largely of the ever-growing nature of the China Rose, and the only true method of protection is to cover them with some non-conducting material early in December, so as to keep them as nearly as possible in a dormant state; dry straw tied tightly round the heads of Roses, so as to exclude wet (after bringing their shoots together), is perhaps the best of all protectors. I have been induced to trouble you with my experience in Rose growing, feeling that Mr. Laxton's article would create needless alarm among amateur Rose

growers. The only Roses that deserve to be expunged from our collections are: (1), those that are weakly in their habit; (2), those older varieties that are now surpassed by newer kinds of the same colour. No robust-growing Hybrid Perpetual Rose should be thrown out because it is supposed to be less hardy than others. They differ but very little in that respect, for I know from long experience that some kinds of Roses in say two consecutive seasons will survive most severe frosts, yet perhaps the third season, with frost of only moderate severity, they will succumb. In most cases much depends upon the state the individual plant is in; if in a warm garden and in an incipient state of growth, a hardy variety becomes tender. There is something also in the kind of stock used, some apparently being more excitable than others. Owing to this, I have seen Roses of the same kind growing in the same row suffer most unequally, some being entirely killed by frost, while others escape. This I have attributed, and I think justly, to the different state the trees were in—one budding, the other dormant. *Thos. Rivers, Sawbridgeworth.* [This is doubtless the real secret of life or death so mysteriously resulting to different plants from the same severe frost. Eds.]

Achyranthes aureo-reticulata.—I enclose a piece of the new gold-veined Achyranthes, which, except in colour, is a counterpart of the well-known A. Verschaffeltii (Iresine Herbstii), and will doubtless prove a most valuable plant for decorative and flower garden purposes. The contrast of the stem of the plant with the foliage is very striking and attractive. I also enclose a piece of a variegated Euonymus (nearly hardy). This is another plant that cannot be too highly spoken of for bedding purposes; it is certainly the most beautiful plant of its colour, resembling Graptophyllum pictum in the markings of its foliage. I also enclose the Coleus Gibsonii, a plant I shall extensively use during the present season. All the above will prove acquisitions. *Edwd. Bennett, gr. to G. S. Foljambe, Esq., Osberton Hall, Worksop.* [All no doubt useful in their way. Eds.]

The Frost and its Effects.—Nothing can be more interesting to the practical horticulturist than to mark the variation of temperature, and the results of this variation in different districts. I can now remember three "hard" winters—1837-38, 1860-61, and 1866-67. I will confine my remarks at present to the two latter. In the winter of 1860-61 the minimum temperature registered here was 5° below zero; in the present winter the minimum was 1° below zero. In the winter of 1860-61 vegetation in this valley of the Lea, which is north-east of London, appeared to suffer more than in any other part of England. I remember seeing, soon after the frost had gone, a huge Oak, the bole of which was so riven that you might place the arm in it, and many fruit trees were killed. Trees and shrubs which had been removed prior to the frost escaped, owing, doubtless, to the drying up of the sap as a natural consequence of removal. But in that winter (I speak from actual observation) vegetation south and west of London suffered less than here; in this winter the reverse seems to be the case. In the winter of 1860-61 the only H. P. Roses in my nursery that escaped was a collection on their own roots which I had planted out in the previous summer; this winter only a few tender varieties of Roses are injured, and out of 650 plants on their own roots, comprising some 200 or 300 sorts, there about 30 destroyed, or not quite 5 per cent. The Roses in bud (except those removed prior to the frost) killed in 1860-61, are now safe. Araucarias, Euonymus, Laurustinus, and a few of the Mexican Pines, are the only things that have suffered seriously here this year. Cryptomerias, Cedrus Deodara (in part), and Laurels are uninjured. Rose amateurs should have one plant of each of their chief favourites at least on its own roots as a safeguard against winters such as this. *Wm. Paul, Waltham Cross, N.*——Having been laid up for some time, I could not go out to see the effect of the frost upon my Rose trees. I had several hundreds of the best sorts doing well, and the frost has killed all the early buds; but those done in August, whose buds had not burst, are safe. This is worth recording. But I have thought, could we not, with rough flax tow, which is of little value, protect them? But then we must keep it in some manner dry, else it would be worse or as bad as exposure. Pear buds and grafts are safe. *T. Beale Browne, Salperton Park, Andoversford.*——The late frost has done little or no harm here, beyond browning the foliage of some plants, such as Veronicas, Dracæna indivisa, and Phormium tenax, which will all recover. On one night the thermometer was as low as 10°, or 22° below freezing. The following is a list of trees and plants which were injured in 1860, but are not injured now, viz.:—

Picea religiosa, a very fine tree, over 30 feet in height; leader injured in 1860—not in 1867	Aralia Sieboldii
Cupressus lusitanica (Cedar of Goa)	Olea capensis
Ilex edulis	New Zealand Pittosporum (a very beautiful shrub)
Magnolia grandiflora (Exmouth variety)	Escallonia macrantha
Camellia japonica, of many sorts, and very large bushes.	Arundinaria falcata
Metrosideros	White Arum, planted out in the water (the large tufts of this beautiful Water Lily were shut in by 5 inches of ice; the foliage was killed to the level of the water, but fresh foliage has already grown up vigorously).
Tea tree	
Edwardsia, a large standard tree, over 30 feet through	

Shannon, Castle Martyr, Cork.——Jack Frost has committed sad havoc here; and great numbers of shrubs are killed. I fear also that the greater number of our standard Roses are gone. Broccoli and Borecole are completely destroyed; but it is rather singular that a crop of Peas sown in November, and three inches above ground at the time of the frost, escaped comparatively unhurt. This I attribute to two causes—they were sown in the bottom of trenches about 6 inches deep, and were covered with snow at the time of the greatest frost. The heaviest frost here occurred on the morning of the 17th January. Our thermometer indicated on that morning 12° below zero. It is an instrument I purchased about a year ago, made by Yeates, of Dublin, and appears to be perfectly trustworthy; it is fixed on the north wall of the garden, at 5 feet from the ground. Farmers are complaining sadly here about their Swedes. From what I have seen, I should say that at least one-half of the Swede crop is completely ruined by the frost. *J. Douglas, Kilkea Castle, Kildare.*——The following is a list of evergreens (Conifers and others), with the proportion of injury which they have relatively suffered from the January frost. My thermometer indicated —2° on the 3d. If no mark is appended, the plant has been entirely uninjured. The proportional amount of mischief is indicated by asterisks:—

Cephalotaxus Fortunei	Abies cephalonica (cones last year)
Thujopsis borealis	Picea nobilis
Cupressus macrocarpa*** (one dead)	Pinus insignis, killed in 1860 and this year also
Araucaria imbricata*, every tip browned	All other Pinuses uninjured
Cedrus Deodara***	Laurels****
Cryptomeria japonica	Laurustinus****
Wellingtonia gigantea	Berberis Darwinii****
Biota orientalis*	Berberis Bealii
Juniperus recurva*	Quercus Ilex**
Abies Douglasii	Ilex latifolia****

T. Bell, The Wakes, Selborne, Alton, Hants.

The Effects of the Late Frosts at Different Heights.—I am obliged to "An Amateur" for endeavouring to answer my questions (see p. 127). The worst of it is, however, that he has not answered them; neither can I understand how the facts I recorded—and I have seen many similar since—viz., that the frost exerts its greatest power within a foot of the surface, are inconsistent with well-ascertained thermal laws. May I venture to ask what laws? Certainly not the following, established by direct experiment by Mr. Glaisher. The result of exposing glass thermometers at different heights above the surface of a Grass field were as follows:—

On long Grass the radiating power was	1000
Above the points of the Grass 1 inch	671
" " " 2 inches	570
" " " 3 inches	477
" " " 6 inches	282
" " " 1 foot	129
" " " 2 feet	86
" " " 4 feet	69
" " " 6 feet	52
" " " 8 feet	17

Dr. Wells also found by direct experiment the surface of the ground often much colder—once 15° colder—than that of the air 4 feet from the surface. These facts would certainly point to my observations being correct, and would also go a long way to explain the destructive energy of frost on or near the surface. They will also show to "An Amateur" and others that the surface of the ground is much colder than the top of a tree, although the latter is equally free to radiate heat. But I do not care to enter into these matters. What I really wish to know is what intercepts radiation at any particular height, and why the interception is weakest at the surface, where it might be presumed aqueous vapour is most copious. *Quercus.*

Barkeria Skinneri.—This is one of the best of all Orchids for lovers of that class of plants to grow; it is indeed a gem that can be had in bloom for three months in succession in the dead of winter, when flowers are scarce, and it is also a worthy living monument to the memory of the late lamented Mr. Skinner. I had upwards of twenty of its beautiful flower spikes in bloom in our Orchid house for more than two months; but not wishing to impoverish the plants, I cut them off, and they have remained fresh in my employer's dining-room for six weeks. It will be seen, too, by the spikes enclosed, that they would have lasted still longer had they been allowed, and their beautiful colour, when mixed among flowers of other kinds, gives quite a charm to indoor floral decorations. *James Hodges, Gardener to Edwin Wright, Esq., Gravelly Hill, Birmingham.*

Tricoloured Pelargoniums.—I cannot agree with your correspondent "Scio" (see p. 153), as to his mode of breeding Tricolor Pelargoniums for the million, as he terms it. I admit that ladies and gentlemen, professors and tyros, may all try, but what will be the result? I am sure that out of every 50 seedlings raised between Golden Chain and any zonal, not more than three or four decent tricolors will be obtained, if so many. If "Scio" does understand the art of breeding in-and-in, as he terms it, I am certain that he cannot always make sure of tricolors — no, nor yet zonals. He will have plenty of plain, green-leaved seedlings, and some variegated, together with some zonals, but, I fear, few tricolors worth having. I have seen the pollen of Mrs. Pollock applied to Burning Bush, Quadricolor, Sunset, Madame Vaucher, and many others having variegated and zonal leaves, and some of the seedlings have never had a spark of variegation about them. I have likewise seen the pollen of many of the best zonals applied to Mrs. Pollock, Sunset, Golden Chain, and others, and what has been the result? Why, all sorts of colours, viz., green-leaved, white-leaved, yellow-leaved, striped-leaved, &c. And I have seen seed saved from Mrs. Pollock just as it ripened, without any artificial hybridising whatever, produce plants even more beautiful than the parent, but still I know that by careful hybridization with the best sorts now in cultivation you may expect to have something good. No one, however, can tell whether the result will be zonals, tricolors, plain leaves or not, until they see the plants, and then we have often variegated kinds from zonals, and zonals from variegated sorts. What says our most successful hybridist, Mr. P. Grieve, in regard to this point? He has been the raiser of all the best tricolors yet in cultivation, and I think he ought to have credit for the success which has attended his operations. *Blue Apron, Cambridge.*——I can assure your correspondent "D. T. F." that the conclusions at which I have arrived were obtained through a regular set of experiments, costing much care, as they extended over a great length of time. Perhaps he may some day have ocular demonstration of my labours, but not at the coming show at Bury St. Edmund's, as he suggests (for I am not allowed the privilege of showing my productions); and as I am not able to maintain my interest in them, I give the result of them freely to the public. I give "D. T. F." credit for more general knowledge than I possess, but the wisest of us are liable to err, and very often on the point on which we think there is the least cause for fear. I can easily understand your correspondent's failure; I had a great many myself; but I have now reduced the operation of raising tricolors to a simple but positive fact, and I ask him and the public also to try it, for the sake of verifying my statements. "D. T. F." is wrong in terming it hybridising; it is only cross-breeding. Neither can I think for a moment that the first tricolor Pelargonium was anticipated, or that Mr. Grieve had the slightest idea of what it would be until he saw it gradually develop its beauties. *Scio.*——I have much pleasure in endorsing all that your correspondent "D. T. F." (see p. 183) has stated respecting the honour due to that enthusiastic and successful raiser of new plants, Mr. Grieve, to whom we are indebted for the first tricolor Pelargonium ever raised, and for the many beautiful varieties which he has since originated, viz., Lucy Grieve, Italia Unita, Lady Cullum, &c., among which are the brightest and most distinct tricolors yet in cultivation, not even excluding those of "Scio," who, by-the-by, has, I think, somewhat exaggerated facts when he states (see p. 153) that "they may be raised for the million," and that with comparative ease; for, says he, "if this is not attained it is entirely the fault of the operator." This is a bold statement; for to secure such brilliant varieties as those raised by Mr. Grieve requires no small amount of patience, skill, and perseverance. *Vindicator, Cambridge.*

Canarina Campanula.—The flowers of this old greenhouse herbaceous perennial, which were exhibited at the meeting of the Floral Committee at South Kensington on the 19th inst., having aroused some interest in this heretofore almost forgotten plant, I may be allowed to state that the blooming sprigs were given to me when at Southampton a few days before, by Mr. Davis, gr. to W. Stride, Esq., of Redbridge, Southampton, in whose conservatory a large specimen of it was freely blooming. As it would appear that the specimens evidenced a much more successful mode of cultivation than has usually been attempted, I may say that I was informed by Mr. Davis that the only amount of heat applied is that necessary to keep out the frost from the conservatory. Here, somewhat crowded, it was growing freely, and blooming well. The plant dies down in May, when it is placed out of doors under a west wall for rest. In August it commences to grow, and, if removed to a greenhouse, flowers at Christmas. It will not stand frost, but, as stated before, only requires warmth sufficient to keep the frost from the house. It should be propagated by cuttings from the root in the manner of Dahlias. *Richard Dean, Ealing, W.*

Singular deviation from Normal Structure in a Bloom of Phalænopsis Schilleriana.—I have now a spike of Phalænopsis Schilleriana in bloom, in which the terminal flower differs entirely from all the others; instead of the peculiar labellum there are three petals *all exactly alike*, and three sepals also exactly alike; the petals resemble those of the other flowers of the spike, and the upper sepal also; but the two lower sepals have no spots, and are not reflexed as in the ordinary way: thus, these six parts of the flower are all in one plane, and being close together at their edges, make almost a full round flower; the column is the same as usual, and pollen-glands likewise; there is no deformity about this flower, and no spots whatever, not even on the petal which is substituted for the labellum. *J. T. B., Spondon, Derby.* [This peloriated condition is not unusual in Orchids, but it is none the less interesting. Eds.]

Euphorbia fulgens (jacquiniæflora).—I have often felt surprised, while visiting good garden establishments, at not seeing this old favourite plant more universally grown than it is. The plants we cultivate here, have continued to produce a succession of blooms from November to the present time, thereby giving our stove a gay appearance during the three dullest months of the year. The season and duration of blooming alike contribute to make this Euphorbia very desirable, especially to gardeners, who have to aim at supplying a large quantity of winter flowers. *John Braddick, Eastwood Gardens, Berkeley.*

Root Fungi.—In your Number of the 16th ult. I perceive (see p. 153) a query from "A. B.," as to what I intended to express by "remarking that I seldom or never observed loss by root Fungus to arise from the roots of a growing tree, cut down to make room for younger plants." I wished to express, that when a plantation is thinned, I never see the remaining trees to be affected by the roots of those cut down. I generally plant Larch or other Firs as nurses to Coniferous trees of the rarer kinds, and when cutting down the nurses, never see any ill effects on the plants left standing. *Shannon.*

Management of Woods.—I am glad to find from Mr. Brown's explanation (see p. 182) that he did not mean to put gardeners, carpenters, and coachmen on a par with each other as regards ability and qualifications to manage woods. Mr. Brown now admits that gardeners are capable of managing woods, and that they do their work, when so employed, efficiently; this is what I endeavoured to maintain. Mr. Brown further explains that he meant to say that gardeners ought not to be allowed to have the management of both woods and gardens: as that is a question very

much dependent on the ability of a man, and the relative size and importance of gardens and woods, and conveys no reflection on the character of gardeners, I need not more particularly refer to it. Mr. Brown wishes to give me a lesson, and informs me that there is a difference between exotic plants and hardy, as if it were a question of cultivation that I adverted to. I presume he means to argue that the laws which govern vegetable growth are partial and variable, and that the great principles of cultivation cannot be applied equally to English and exotic trees. Mr. Brown's experience of woods and their influence I presume applies particularly to certain elevated districts in the North Riding of Yorkshire. I can well understand that the stock-rearing farmers of the Yorkshire hills, appreciate the shelter afforded by plantations. I wonder what the farmers in the corn-growing districts of Bedford, Lincoln, and the Lothians, would say to an agent who would propose to raise woods and rents for their benefit. I am reminded of an anecdote of the North Riding—"How many sheep do you consider fair stock to the acre?" asked Sir John Sinclair during one of his visits to the hills. "Eh, mun, ye begin at wrang end," was the answer; "ye should ax how many acres till a sheep?" Of such land as this, the North Riding contains 400,000 acres. *Walter Irving.*

Clubbing of Cabbages.—A strong dressing of quick lime dug into the ground will invariably keep off this disease. *Ebor.*

Mushroom Insects.—We have been very much pestered with a small insect in the Mushroom house here during the last fortnight; it has destroyed the young Mushrooms by wholesale, before many of them have attained the size of Peas. I have enclosed some of those running over the beds, and also of other smaller ones secreted inside the Mushrooms, and feeding upon them. They make complete skeletons of the smallest Mushrooms, and, as you will detect upon closely examining the sample, the smell is most offensive. I have used chloride of lime, and have fumigated the house with tobacco paper twice, but all to no purpose. *W. C.* [The small Mushrooms sent were much infested with vast numbers of a minute Podurideous insect, which we believe to be the Achorutes Agaricorum. They were of a dirty flesh-colour, but were all dead. One of the Mushrooms also contained the small white footless grub of a gnat. In the box were also contained several specimens of two different species of Molobrus, two-winged midges, of which the larvæ live in decaying vegetable matter; also two or three specimens of a species of Borborus, and of a small black-winged Anthomyia, which also reside in the preparatory states, in rotting vegetable manure and dung. We presume the chief mischief has been done by the Podura, in which case we know no other remedy than to destroy the present bed, and make another with new soil and droppings. *W.*]

Pear Tree Insects.—I have sent you a branch of a Pear tree, in the inside of which you will find an insect; it had found its way fully a metre up the branch from which this was cut. I do not know if it occurs in England; at all events it is uncommon here. We have moreover, a grub, which bores the bark in a zigzag way, but it is not the same as that sent. *H. Knight, Château de Pontchartrain, Seine et Oise, Feb.* 18. [The Pear shoot was infested by a nearly full-grown larva of the destructive wood leopard moth, Zeuzera Æsculi. *W.*]

Forced Strawberries.—It may interest some of your readers to know, that on the 2d January this year Mr. Chapman, gardener to his Grace the Duke of Buckingham, at Wotton House, near Aylesbury, supplied his employer's dessert table with a dish of good forced Strawberries. Is not this very early? *An Old Subscriber.*

Chimonanthus fragrans.—This will strike from cuttings as easily and as quickly as Fuchsias do. Take just now into a propagating house a small seedling or a young plant of it, propagated from a layer, and when it has pushed young shoots, remove them from the plants and strike them, just as you would cuttings of Fuchsias. In a few days they will emit roots. *Joseph Baumann, Ghent.*

Gentiana Fortunei.—This grows freely in rich deep peat, and it should be slightly protected with a little fern in winter. It may be styled the queen of the genus. Nurserymen possessing it should advertise it. *Heckfield.*

Dyckia rariflora.—Will you kindly correct a reporter's error in your account of the Royal Horticultural Society's meeting at South Kensington, on Tuesday, the 19th ult. It was Dyckia rariflora which I mentioned as having stood several winters, and not Disa grandiflora. *R. T. Clarke.*

Societies.

Botanical of Edinburgh: *Feb.* 21.—W. Gorrie, Esq., V.P., in the chair. The following communications were read:—I. *Obituary Notices of James Smith, Esq., of Jordanhill; of Dr. G. A. Martin, Isle of Wight; and of George Ure Skinner, Esq., of Guatemala.* By Prof. Balfour.——II. *Notice of some Diatomaceæ from Iceland.* By Dr. W. R. M'Nab.——III. *Some Account of Botanical Travels in Oregon.* By Mr. Robert Brown. Communicated by Mr. J. Sadler. In this communication, dated Victoria, Vancouver's Island, 9th Feb., 1866. Mr. Brown gave an account of his botanical travels in Oregon between 2d Sept. and 9th Oct., 1865. The part of the country travelled embraced from Rogue River Valley over the mountains to Crescent City in California, and from thence by San Francisco to Victoria. He noted the various features of the country and manners of the people, and recorded the more interesting plants he met with. He concluded by giving the measurements of the sizes of the principal Wellingtonia trees in the famed Calfornian grove, as taken by Dr. Chas. J. Jackson and Mr. Joseph B. Meader in August 1865.——IV. *Notes regarding Polypodium calcareum as a Scottish Plant.* By Mr. Sadler. Mr. Sadler stated that the discovery of Polypodium calcareum near Aberdeen in 1861, by Mr. John Sim, and near Aberfeldy in 1866, by Mr. Ramsay, and recorded in the Transactions of the Society, had given rise to doubts in the minds of some as to the plant being indigenous in these localities. He had investigated the subject as far as possible, but could find no traces of its having been introduced in either instance. The Aberdeen plants were found growing in an old limestone quarry on Scotston Moor, and the Aberfeldy plants abundantly on decomposed micaceous stone. Professor Dickie was inclined to believe that the Aberdeen Fern had been planted, and Mr. Taylor, of Allan Vale, says that a gentleman's gardener planted Asplenium Trichomanes on the wall at Scotston Gate, where it now grows plentifully. Mr. Sadler exhibited specimens of the plant from both localities, and concluded by reading extracts from letters on the subject which he had lately received from Mr. Ramsay, Mr. Sim, and Mr. Taylor.——V. *Report on the State of Open Air Vegetation in the Royal Botanic Garden.* By Mr. M'Nab. Mr. M'Nab remarked:—My last report to the Botanical Society was on the 16th January, 1867. The ground at the time, and for nearly two weeks afterwards, was covered with snow, and a succession of frosts of different degrees of intensity prevailed, but on no occasion did the thermometer fall so low as on the night of the 4th of January, when it indicated 11°, being 21° below the freezing point. The lowest thermometer markings since the 16th of January are as follows:—On the 17th, 20th, 21st, 22d, and 23d of January, falling respectively to 24°, 23°, 20°, 15°, and 25°; the lowest since the beginning of February being on the 11th, when the morning temperature marked 32°. The highest morning temperatures since the January meeting were on the 24th, 25th, 28th, and 29th, indicating respectively 37°, 36°, 43° and 41°; while the highest since February commenced were on the 1st, 2d, 3d, 4th, 9th, and 13th, marking 39°, 37°, 36°, 47°, 37°, and 47°. As much discussion has recently taken place about the time the thermometer was at its lowest during the month of January, the following readings of the thermometer in the Edinburgh Botanic Garden may be worthy of notice, and tend in some districts to settle this point. During the early part of the night of the 4th of January the thermometer was observed to be gradually falling, and had every appearance of reaching a very low point. It fell to 11° at 9.30, and remained the same till 11.30; at 12 o'clock it rose to 14°, at 3 A.M. to 20°, and at 7 A.M. to 27°. Readings on register thermometers are generally taken at daylight during the winter months, as the lowest points are generally about that time. If it had not been for a constant watch over the thermometer during the above night we would not have known the time it was at the lowest point, and marked it as if on the morning of the 5th. During the time the second snow-storm came on, the ground was hard with frost, which greatly retarded the progress of our spring herbaceous vegetation. The first Snowdrop seen in bloom was on the 31st day of January, and that only on a south exposed Grass-bank, where the frost got speedily out, but in all other situations throughout the garden it was the 5th day of February before they began to show flowers profusely. The first flower of Eranthis hyemalis and Hepatica triloba appeared on the 2d of February: Sisyrinchium grandiflorum on the 4th of February; Leucojum vernum and Galanthus plicatus on the 5th of February; Helleborus purpurascens and Arabis albida on the 6th of February, and Crocus susianus on the 11th of February. It appears that the temperature of the 4th of January was much lower in many parts of England than what we experienced, even below what was observed on the morning of the 24th of December, 1860, when—6° was the lowest point indicated. In some parts of England the thermometer during the January frost fell from 4° to 10° below zero, and the damage to vegetation, as notified in the leading horticultural journals, has been very considerable. The extent of mischief done by frost does not show to its fullest extent for days and often weeks after, the injury depending much on the state of the weather. If followed by a few warm sunny days, the mischief done will show itself at once: but if dull, cloudy, and cold weather should follow, weeks often pass before the full extent of the losses can be ascertained. As far as we can yet judge of the amount of damage done at Edinburgh, it may be considered as trifling. Amongst herbaceous or suffruticose plants, Stocks and Wallflowers which stood above the level of the snow have suffered severely. The various species of Tritomas have been much cut up. Veronica Andersonii, lobelioides, and salicifolia are also much injured, as well as Pentstemons and perennial Lupines. Amongst shrubby plants none of the Conifers show any symptoms of injury. The leaves of the common Laurustinus in some localities are more or less blackened, as well as the leaves of some of the delicate hybrid Rhododendrons. The young and tender leaves of variegated Hollies are likewise much browned. The plants which as yet show the greatest amount of injury are the Cork trees and evergreen Oaks; the leaves appear very white and much twisted, particularly the leaves of those trees partially injured but not cut down after the frost of 1860. The cut down specimens soon became covered on the surface of the ground with a dense growth of healthy vigorous shoots, none of these in the meantime show signs of injury. The Garrya elliptica, which was in full flower on the 4th January, looks very bad in some places, all the flowers destroyed, and the leaves on many of the plants look very sickly. Some of the soft growths on Roses are a little injured, but the ordinary spring pruning will put them right again.——*Miscellaneous Papers and Communications.* Michael Connel, Esq., Glasgow, presented raw and refined specimens of Beetroot Sugar, and remarked that the demand for this article at present in the market was very great. In 1866 there was imported into the Clyde alone 25,285 tons. This principally came from France, but a proportion of it also from Belgium, Germany, and Austria. The approximate sum paid to the continental growers for this quantity is 610,000*l*. The probable import into the United Kingdom during 1866 was about 35,000 tons in all. Mr. F. O. Licht, of Magdeburg, estimates as follows the continental Beetroot crop, as compared with the ascertained production of former seasons, showing a diminution in the probable supply of about 60,000 tons.

Estimated Ascertained Productions.

	1866-67.	1865-66.	1864-65.	1863-64.
	Tons.	Tons.	Tons.	Tons.
Zollverein ..	200,000	185,695	170,660	155,180
France	200,000	274,000	149,014	108,467
Austria	65,000	70,000	84,564	60,916
Russia	65,000	50,000	42,500	35,000
Belgium	27,500	41,550	21,864	20,031
Poland and Sweden ..	15,000	15,000	11,595	10,000
Holland	4,000	3,500	2,500	2,500
Total tons ..	576,500	639,745	482,697	388,094

Professor Balfour stated that so extensive had the trade in Beet-sugar become, that there was now a French magazine on that one subject published every month. — Mr. Alex. Craig Christie explained a new mode of preparing museum specimens of wood. The specimens which he exhibited showed the wood in transverse and longitudinal section, rough, polished, and turned by the lathe. 3. Mr. D. W. Roberts exhibited a series of nature-printed leaves and flowers, which he had prepared according to the process patented by Dr. Dresser and Dr. Lyon Playfair. Oil paint, according to the colour of the impression wished, is placed over a sheet of paper, and the leaf or flower is then pressed on this paper until every part of its surface comes in contact with the paint.—It is then carefully transferred to a sheet of smooth soft cartridge paper, on which it is rubbed with the painted surface next the paper. By this means a pretty accurate impression of the leaf or flower is obtained.—Thomas Patton, Esq., presented two cones of Pinus monticola, ripened at Glenalmond, Perthshire. One cone was of a red colour, while the other was of a yellowish brown. They were taken from different trees, the cones of which are invariably the same every year as the two exhibited.

Florists' Flowers.

Having glanced at novelties amongst the Show or Large-flowered Pelargoniums, as they are termed, of 1866, it may be stated in continuation, that the spotted class furnish no new aspirants for honours, save a hybrid variety, named grande odoratum, which was so deserving of merit as to be awarded a First-class Certificate. The flowers are not unlike those of Guillaume Severeyns, being of a deep rosy lilac colour, shaded with dark crimson, though somewhat wanting both as to size and substance compared with this showy spotted kind. The character of the foliage is what is generally denominated "oak-leaved," the leaves being broad, stout, and fragrant. It is a highly desirable hybrid, and will make an admirable conservatory plant. It is in the hands of Messrs. E. G. Henderson & Son.

The Fancy kinds still show the march of improvement, Mr. Turner having obtained two or three "good things," the result of his own raising. Before passing to a notice of them, it may be stated that Mr. Bull, of Chelsea, announces a set of four new fancy Pelargoniums, but they have not been publicly exhibited. Three of Mr. Turner's new varieties are very fine, viz., Duchess of Buccleuch, a finely-formed flower of a delicate lilac shade, with throat and margin of white, free blooming, and the habit correspondingly good; Liberty, rich bright rosy crimson, with conspicuous white throat owing to the vividness of the surrounding hue, dwarf bushy habit, and a very free-blooming variety; and Sylvia, delicate rose or pink, a beautiful shade of colour; also margined with white, the throat of the same colour, habit good. The first and last of this trio received First-class Certificates. Mr. Turner has also Andromeda, upper petals veined rose, the lower a kind of mottled lilac, white throat, and narrow edging of the same; Beatrice, pale flesh colour, with blotches and spots of purplish crimson; Imperator, a blush ground flower, with bright lake upper petals, lower petals mottled with crimson, a large bold flower; Memnon, bright crimson, with blush centre, the lower petals dashed with carmine; Mirella, glowing rosy lilac, light throat and edges, very free blooming; and Princess Helena, upper petals violet rose, white under petals, varied with rosy purple, a very pretty variety.

The huge mass of what are usually termed Bedding Pelargoniums, comprising as it does so many differences under a general denomination, is extremely difficult to dissect. The very large number of new varieties proves at least how intent raisers are on the improvement of this class, and how generally good the qualities are is apparent to all who are in the habit of seeing them when shown for Certificates. From such a cursory inspection the difficulty of selecting is indeed great, as no evidence can be gleaned of their adaptability and relative value as bedding kinds. Under the very general heading of Variegated Pelargoniums, I purpose to instance a few varieties that appear to possess good qualities, subject to qualification hereafter, when they are subjected to a trial out of doors.

Messrs. E. G. Henderson & Son offer the following:—Caroline Longfield, considered by them to be an improvement on Italia Unita, the ground-colour of the leaf pure white, with olive brown zone, margined with lively carmine rose, reputed to be a very effective bedder; Edward George Henderson, a variety in the way of Beauty of Oulton, but superior to it, ground-colour of leaf golden yellow, with rich broad dark zone, close and yet vigorous habit, and having a very striking appearance, awarded a First-class Certificate; Glen Eyre Beauty, ground-colour white, with bold zone of olive brown, margined and lobed with bright carmine rose; Lady Cullum, a comparatively well-known (though being only now sent out) and very handsome variety, olive brown zone, with rays of a deeper shade and bordered with a brilliant flame colour, a robust free-growing kind, which has proved highly effective as a bedder, awarded a First-class Certificate; Mrs. Eyre Crabbe, glowing brimstone-yellow ground margin to leaf, distinct olive brown zone, richly bordered and streaked with carmine; Princess of Wales, an improved form of Circlet, ground-colour of leaf pale green, tinted with gold, very narrow but pure and distinct red zone, pencilled with a dark shade; and Velvet Cushion, creamy-white ground colour, and striking zone of olive-brown, with margin of bright rosy carmine. Messrs. F. & A. Smith's large group of tricolor-leaved Pelargoniums at the International Horticultural Exhibition of 1866 will long be remembered by those who are interested in this division. They have been very successful in the production of fine free-growing kinds, and this season they send out a large batch of new varieties. Some of the best looking, at least, are comprised in the following:—Alpha, deep yellow margin, with broad zone of rich glossy-brownish red and black, strong and vigorous grower, leaves very large, and large trusses of bright scarlet flowers; Amulet, broad margin of deep yellow to leaves that are very large and unusually thick, striking zone of deep black edged with bright red, habit free, a very showy and striking variety; Aureum, creamy gold-leaved, having a broad bronzy zone, dwarf and very neat habit, promising to be a very effective bedder; Beauty of Surrey, a very striking and beautiful variety, leaf-margin rich yellow with strongly-marked zone of brownish black, and deep carmine red, excellent habit; Defiance, leaf border pale yellow, with broad rich zone of carmine red and black, with glossy deep crimson

tinting, very handsome and showy, and free grower; Eclipse, conspicuous for its vivid zone of glowing vermilion red, and its large indented leaves margined with yellow, a most striking variety, good habit; Glory of Dulwich, leaf-margin clear yellow, with distinct broad zone of crimson red, changing to a deep rosy carmine red and intense black, very handsome and showy; Jason, another of the "golden-leaved" varieties, having a striking zone of fiery red and pale bronze, with a leaf-margin of pale green changing to yellow; Jetty Lacy, one of the very finest of the batch, leaves margined with bright golden yellow, having a zone of glowing chestnut red and deep black, habit free, and yet very compact, awarded a First-class Certificate; King of Tricolors, broad clear leaf-margin of bright yellow, bright red zone overlaid with black, free and compact habit, very showy and striking appearance; Louisa Smith, a beautiful and distinct variety, leaf-margin clear yellow, with striking bright red zone, leaves large and bold, and habit remarkably good; Mrs. Charles Barry, a splendid variety of the "gold-leaved" class, colour light yellow, with rich broad reddish brown zone, and very light margin, habit free and compact, yielding plenty of trusses of rich scarlet flowers; Murillo, leaf medium size, neatly margined with light yellow, pale cerise red and black zone, changing to magenta, close neat habit; and Queen of the Fairies, leaf-margin white, changing to creamy blush, deep rosy lake and black zone, habit free, yielding an abundance of lateral shoots which form a compact blooming bush, very showy and effective. Silver Cloud, a "Silver-variegated Pelargonium" as it has been termed, produced by Messrs. Windebank & Kingsbury, of Southampton, but now in the hands of Messrs. F. & A. Smith, is a very handsomely variegated form of the old Sheen Rival, the leaves deep green, with a broad margin of creamy white; the flowers cerise scarlet, produced in good-sized trusses; it is said to be a first-class kind both for pots and beds. They have also Souvenir de Sir Joseph Paxton, which has a bright yellow leaf-margin, with conspicuous zone of glowing crimson red and intense black, the red softening with age to a magenta shade; a very handsome decorative plant, having such a peculiarly distinct marking to the leaves; Triumphant, another very showy variety, leaf margin of deep yellow, intensely marked broad zone of rich deep carmine red and black, the margin and zone occupying a more than usual space on the leaves; Vandyke, a fine golden-leaved variety, ground colour light gold, with neat broad zone of rich deep brown, colours well-defined, growth compact, a free bloomer, flowers rosy-salmon, awarded a Second-class Certificate; and Wonderful, a very rich-looking and striking plant, leaf-margin very bright yellow, with broad zone of glowing magenta-red, flaked and overlaid with intense black, foliage large and bold, habit exceedingly good.

Messrs. Saltmarsh & Son, of Chelmsford, have a very handsome variety named Meteor, with a clear gold leaf-margin, and zone of very dark bronze and fiery red, and blotched with pale green; the colours are very distinct, which makes the plant showy and attractive; awarded a First-class Certificate. Messrs. J. Garaway & Co., of Bristol, have a "golden-leaved" variety raised from Cloth of Gold, named Bronze Queen, having a distinctly marked dark bronze zone, dwarf habit, free grower—has been tried and found a good bedder, and yields plenty of trusses of showy scarlet cerise flowers; and Queen of Tricolors, said to be a marked improvement on Mrs. Pollock, from which it is a seedling, the colours being much more vividly expressed, blooms more freely, and the flowers of a deeper shade. Mr. George Smith, of Islington, has Princess Alexandra, a "silver-variegated" variety, having bright green foliage, with broad margin of pure white, excellent habit, and very effective as a bedder; and Mr. Smith also offers Mr. Cunningham's excellent variegated Ivy-leaved variety L'Elégante, foliage bright green, with broad edge of creamy white, an abundant producer of trusses of flowers similar in colour to those of the white Ivy-leaved Pelargonium, of which this is evidently a sport—awarded a First-class Certificate.

Silver Gem is another variegated "Ivy-leaf," having bright green leaves, heavily margined with white, and slightly zoned with pink, which disappears with age; the flowers rosy lilac, with crimson purple blotches in the upper petals; the flowers larger and stouter than are generally seen on the Ivy-leaved kinds.

Mr. Chater's Senior Wrangler is an exceedingly fine variety, with bold leaves and well-defined strongly marked colours of the golden tricolor character; both this and Mr. Groom's Miss Turner won First-class Certificates at the Great International Show.

Messrs. Carter & Co. are also moving on in the way of producing strongly marked varieties of the tricolor section, as well as of the golden-leaved. At the June Show of the Royal Botanic Society they produced a batch of one-year seedlings, some of which were plants of great promise, but the colours could scarcely be said to be permanently fixed. An opportunity of inspecting their new plants will be offered shortly, and their leading kinds shall be noticed as a supplement to the foregoing list. *R. D.*

The Apiary.

Bee-culture: Hives.—In addition to the description of the Adjuster Hive given last week, I have a few remarks to make. The wood used in the formation of the inner or stock box being of what is called three-quarter stuff, is, as is well known, when planed, only about ⅝-inch thick. This will allow of 1-16th of an inch on all sides, between this box and the outer one, supposing such outer box to be made, as recommended, 14½ inches square inside measure. This will be found to work properly. If by any mischance there should, when completed, be more space between the boxes, I have found a narrow strip of list tacked on all four sides, near the top of the stock box, to answer the purpose of preventing either the bees descending, or of too free admission of air. In the case of a framed glass super being used, there is more difficulty in having the four panes of glass sufficiently close to the sides of the stock box. Bees will, under such circumstances, force themselves down between, and, unable to escape one way or the other, there they will die; dirt and waxen particles will find their way there, so that the appearance of the super will be greatly spoiled. With glass adjusting boxes greater care, therefore, will be necessary in applying the list. Finding this somewhat troublesome, and to interfere with easy shifting, I have lately adopted another plan. When the stock is sufficiently forward to require additional room, I remove the cover and all the bars from the super; then, having taken off the cover or covers of the adapter of the stock box, I slip the super down over the latter until in its proper place. I then fasten with fine tacks four slips of thick cardboard about 2 inches in width, cut mitred at the corners, on the top of the adapter, so as to approach the glass in all parts to within 1-16th of an inch. It is best to avoid actual contact, as the bees will attempt to unite with propolis the edges of the cardboard to the glass, which will materially spoil its appearance. While this operation is being performed, narrow moveable slips of wood may be kept over the openings for communication, to prevent annoyance by the bees. The cardboard slips being in position, the bars are inserted, and the cover screwed down. Timid operators, in addition to wearing a bee dress, may adopt the following plan of giving the adjuster super. The cover of the stock box being of no larger dimensions than the adapter, can be easily removed through the super when in position. Having first loosened the screws by which the cover of the stock box is secured, the super, without bars or cover, is slipped down to its proper place. The top of the inner box is quickly but gently drawn up through the inside of the super, the bars and cover of which are to be properly adjusted; the object being accomplished, probably, without annoyance from a single bee. If the season should prove to be propitious, it is desirable to watch the hive, and observe almost daily the progress which may be made in comb-building. If the bees show much disposition to bring down their combs and attach them to the upper surface of the adapter, it will be necessary to raise the super a little, in order as much as possible to prevent their doing so. An addition of half an inch will often be sufficient.

If such attachment take place to a considerable extent, it may be found impossible to raise the super without considerable fracture of the combs. Nevertheless, as previously stated, it is advisable not to err on the side of affording space to an undue extent, or too rapidly. Some apiarians in districts which are not considered very favourable for bees, may imagine it to be advisable to adopt a smaller-sized hive and super. Though still thinking the larger-sized hive to be the best even under such circumstances, the following may suit the ideas of such individuals, having also the merit of being a really efficient hive. The former may be 12 inches square by 8¾ inches deep, fitted with eight bars; the latter, 13½ inches square by 13⅜ inches deep, carrying eight or nine bars, accordingly as thicker or thinner combs are desired. The dimensions given are all inside measure, and the hive is constructed exactly as previously described. The depth of the super may be increased, if thought desirable, to 15 inches, such being the depth of my own. If a glass-sided super is used, it will be necessary that it should be well protected both from light and changes of temperature. For this purpose I usually have a thick woollen hood, cut and sown together in a square form. This can readily be slipped on or off as may be required. The outer, or weather case, must be made of sufficient internal dimensions to allow of this hood being used, and with at least another inch of space to spare; or the hive may be located in a shed, bee-house, or room of a dwelling-house, when the simple woollen hood will be sufficient. *S. Bevan Fox.*

Garden Memoranda.

Hay Lodge, Trinity, the Residence of Isaac Anderson Henry, Esq. — This charming villa residence is situated within a couple of miles of Edinburgh, in the midst of that salubrious suburban district called Trinity, which overlies the shores of the Frith of Forth. As a villa residence, with suitable accessories in the shape of a little of all kinds of gardening, it is quite a model in its way—just the sort of thing that any one might expect who knows by reputation or experience the horticultural tendencies of its indefatigable proprietor. As a cross-breeder of Rhododendrons, particularly of the Himalayan breed, and a careful hybridiser of most subjects that captivate his fancy, he has been well known for many years, both to scientific botanists, and to horticulturists of every grade. Gentlemen of his position generally rest contented with giving instructions as to the carrying out of their several plans and projects; but Mr. Isaac Anderson (a name by which he is best known) is so wedded to this branch of natural science, that he prefers acting as his own head gardener. Naturally endowed with a plodding, practical, and industrious turn of mind, he has persevered and succeeded, in some instances, where others have failed in effecting somewhat difficult crosses. Horticulture is, therefore, under a debt of obligation to him, and on that account your readers will be all the more anxious to make his acquaintance, and to have some idea of the field on which he labours.

A square block of ground, judging by the eye scarcely an acre in extent, with a handsome residence planted in the centre, forms the groundwork of the property. A neat wall surrounds it, the formality of which is screened from observation by irregular beltings of suffruticose plants, comprising both evergreen and deciduous shrubs. The propriety of judicious selection in a small holding is fitly recognised. To have planted forest trees that attain gigantic stature would have been injudicious, and however unobjectionable they might have been for "immediate effect," in time they would have been totally out of place, dwarfing instead of improving the appearance of the grounds which it was intended they should decorate. Much judgment and considerable experience in the selection of subjects is of the utmost importance in dealing properly with villa residences. Lawn forms the principal groundwork of the "dress" portion of the grounds. Flower plots, as it were, are inserted into it at intervals round the margin, being sunk like panels, which has a twofold advantage—affording protection, and yielding an enhanced effect. Coniferæ of various sorts are dotted in salient spots, comprising some of the more rare, as well as examples of the more common and beautiful. The true Thuja Craigiana was here, and it is a most elegant plant, quite distinct from its congener and companion, T. Lobbii, and really the more beautiful of the two. Even the best of the Lycopods, in point of grace and form, could not vie with this. Another subject in this way I cannot help alluding to is Cupressus fragrans, which here has reached the height of 6 feet. Its fragrance is unquestionable, although it is evidently a subform of Lawsoniana, of a pale green texture. It was sent home from British Columbia to the proprietor by Mr. Thomas Thomson.

The walls of the house are utilised for climbers, which are planted in a narrow border in which some choice things grow. Foremost among the objects of interest is Rubus leucodermis, or the biflorus of Mr. Bateman. This plant was presented to Mr. Henry by Dr. Hooker. The most wonderful feature about it is, that the stems are coated as if with a thick crust of whitewash, and to those who have never seen the plant before, they would imagine it had been so dealt with—a delusion excusable in this instance because the gable on which it is growing had been washed with lime and water. It seems a capital ground-work on which to carve monograms, which, according to Mr. H.'s experience, it takes years to obliterate. The fruit of it, we were told, forms a most excellent jam; its propagation, therefore, might be turned to good account, not only as regards supplying our large gardens, but for the benefit of the humble classes of the country. To give some idea of its reproductive yield, a plant, covering about 12 square feet, produced fruit sufficient to fill eight large pots of jam of excellent quality. Ceanothus Veitchiana is one of the more handsome of the Rhamnads, and was full set with bud, standing out, so far, unprotected. The Holly-looking Desfontainea spinosa, trained as a wall plant, was vigorous. A very promising seedling Veronica of the lobelioides (Hort.) type, a cross between speciosa and the Falkland Island one, decussata *vel* elliptica, was growing into form and size. It was the more remarkable from the shortness of the internodes and the peculiar whorl-like character of the leaves, set so densely and assuming so rigid a character. If the inflorescence be at all decorative, it will be a valuable addition.

Turning our attention to the indoor department, we find several houses devoted to plants which are seldom found in any private collections, and among these are a host the seeds of which have been sent from the State of Ecuador, and raised under the eye of Mr. Henry. Many of these possess considerable interest generally; others again are only of botanical value. One very interesting type of a Melastomaceous plant, evidently a Lasiandra, from Cuenca, with an ovate acuminate leaf, and a dense hairy surface, like Bentham's Pleroma, is growing into a handsome plant, and gives promise of being a useful acquisition. Himmerus [?] Mutisii, so called in honour of the Spanish botanist of that name, has a fine handsome pale green ovate serrated leaf, producing fine white flowers with a pink eye, and is apt to be confounded with another one from the same quarter, of more pigmy habit, with a very tiny leaf. Both are good plants, and worthy of extended cultivation. Coriaria thymifolia is rather diminutive-looking in point of foliage, but it is remarkable in this respect, that it produces berries the juice of which, we were informed, had been used for writing Spanish records, and it was found on comparison to be far more indelible than the ink generally in use. A species of Gaultheria from the same quarter, of graceful habit, with pale claret-coloured stems, was an object of attraction. One could not fail to be struck with a species of Solanum, the fruit of which is oblong, like a Cucurbit, and might turn out to be far more serviceable and palatable than the over-estimated Raphanus caudatus. It is regularly sold in the market of Quito, and the fruit is eaten by the natives in an unripe state. Whether it undergoes any process of cooking, I am not in a position to say. The plant has a blackish stem and trifoliate leaf, and like the other members of the family, is easily recognised. Another species of Solanum has tendrils, and would cling to the crevices of a wall like Ivy. Several Fuchsias of distinct species, of vigorous shrubby habit, are growing from seed found in the Andes of the Ecuador, and might with advantage be crossed with some of those that are all but worn out with in-and-in breeding. They generally produce the crimson tube common to many, with green points. In point of habit and foliage they will bear comparison with the best in existence, and it might be advantageous largely to infuse new blood in a race that has been much trafficked upon. Melaleuca purpurea is growing away nicely, and presents itself conspicuous among not a few as a good example of the Myrtaceous order. A very striking form of Gentiana captivates the senses, having pale lilac flowers, like a handsome Dianthus, and flowering at the wintry period of the middle of January, it ought not to be lost sight of.

In Clematises, for which Mr. Henry has done so much and so well in hybridising, there are many examples. Regina, of course, is one of his own hybrids. C. sericea, from Ecuador, and the only variety known in that district, has never flowered in this collection. Mr. H. has endeavoured to cross many of the sorts, both original and garden varieties, and has done so with much success; but he finds the old Viticella, which is the best in point of colour, to be a most difficult subject to manipulate upon. As was observed, a cross effected with this and Fortunei or Regina would most likely yield some marked progeny. All the Sikkim Rhododendrons you can mention, and many hybrids, occupy not only one house, but are here and there for different ends—some in the seed-pan, others pricked off and growing away, and the established plants for flowering purposes. A variety of eximium, of the argenteum type, is a noble-looking plant, and showing well for a yield of trusses. Another very good hybrid in the way of Princess Alice, but considered to be finer than that choice variety, stands prominently out. The beauty of most of the hybrids is in the great freeness of their inflorescence, which is, after all, the most important point to be gained. A very marked instance of the success of the careful hybridizer is shown in a hybrid a double remove from Edgworthii, between it and virgatum. The progeny has not yet flowered, but plants are uncommonly promising. What a lovely thing jasminiflorum is, blooming early, and as sweet as a Jasmine, with flowers six times the size. But I might go on discoursing *ad infinitum* upon batches of interesting hybrids, did not space forbid.

Among other things of interest in the half-dozen houses devoted to plant cultivation is Eugenia hybrida. It is a smaller leaved variety than Ugni, but the fruit is larger and the flavour decidedly better. It is a fine ruby crimson, and when eaten reminds one of the brisk aroma of the Queen Strawberry, very juicy indeed, and palatable. Veronica Hulkeana is a handsome bush form, with ovate denticulate leaves. Hoya bella was better grown here than I have seen it for many years; indeed I question if specimens of this difficult plant were ever so well cultivated by any one as by Mr. Dymont, who exhibited them periodically at Leeds 10 or 12 years ago. Mr. H. had his growing in good fibry peat, with good lumps of white sandstone incorporated, and it was really a vigorous plant. Calceolaria hyssopifolia is figured in the "Botanical Magazine," I think, and is undoubtedly worth trying in bedding out, as it is of shrubby habit, and likely to stand well out all weathers. The foliage, of itself, is a recommendation. What a remarkable plant is Gaultheria furens! If ever there was anything real that looked artificial, which is the inverse estimate of things generally, this is the plant. It flowers in abundance at the axils of the leaves, which are stiff and dry, and not at all like any other foliation. It is comparatively hardy, requiring slight protection in winter. Here is also a species of an improved Osteomeles, a spiny fellow of the self-protecting order; but it is beggared in comparison with Colletia cruciata in that respect, a berry-bearing plant, but a Rhamnad instead of an Apple-wort. The foliation, in this instance, which is of cruciate form, is furnished with spines, like the points of tiny spears, in all directions. A very handsome indoor decorative plant, of comparative hardiness, presents itself, called Beschorneria yuccoides. Its Aloe-like leaves are soft but not spongy, of a pale yellowish green hue.

Many of the recent Japan novelties are dotted here and there about, some out of doors, for permanent decorative purposes, as Mr. Henry himself said, like the cloth of gold in heraldry; others are nursed on in the houses. A very large form of Ilex from Japan was observable growing indoors, the leaves four times the size of the normal species, and quite as virescent. Nor was the Himalayan Aucuba less notable for the gigantic proportions of its foliage, and its glossy finished appearance. As will have been observed by the careful reader, a great number of the more choice things that have been enumerated have been raised from seed, necessitating more than the "ordinary run" of care and vigilance, which none but an enthusiast, with an innate love for plants, could have successfully carried through. *A.*

Miscellaneous.

Lilium auratum.—We are informed that at three recent sales at Stevens', of bulbs of this beautiful Lily, imported direct from Japan, no less a sum than 3686*l.* 19*s.* 6*d.* was obtained, the total number of bulbs sold having been 34,000. Each bulb therefore fetched as nearly as possible 2*s.* 2*d.*, or 26*s.* a dozen.

Garden Operations.

(*For the ensuing week.*)

PLANT HOUSES.

As most *Glass Structures* will now be more or less gay, too much cannot be said as to the desirability of tastefully contrasting one plant with another, with the view of setting each off to the best advantage, and at the same time endeavouring to realise a harmonious whole. Let the best plants always stand well out as prominent objects. Let plants of stiff erect habit contrast favourably with others of more graceful outline, but allow none to rise higher than the rest, except it be some specimen of graceful outline, placed prominently in a position pleasing to the eye. Let all gradations towards the front be uniform throughout. The care necessary to produce plants in good condition at this season certainly demands all our attention as regards tasteful arrangements. *Camellias* with long ill-placed shoots should have them cut down to a height somewhat in conformity with others, as soon as they have done flowering. Even shoots not particularly ill-placed, breaking only at the upper bud or so, should have these buds removed, which will induce the plants to break further back, and cause them to become more bushy. From large plants of bad form, old branches may now be removed, as they break freely if kept rather dry at the root, and slightly moistened overhead for a time. Choose also occasionally a fine drying day upon which to give all such plants a good syringing, which will, by well washing them, give them a more healthy tone at the commencement of their active season of growth. *Daphnes* should receive similar treatment, except that old wood must not be cut too freely; remove the young shoots, which it will be seen surround the flowers, and should the plants be getting too thinly furnished, cut the later growths back a few inches. Do not place them in warmth, but let them break, and grow gently in a cool house. *Indian Azaleas* should now be pushed forward in a uniformly moist temperate atmosphere, syringing them overhead occasionally. Thus treated the flowers will be finer than when they are left to develop themselves in a cooler situation. *Primulas*, having the pots well filled with roots, if not past their best, will be benefited by an occasional watering with weak manure-water. *Tricoloured Pelargoniums*, such as Mrs. Pollock, may now be safely propagated in a dry position over a flue, or pipes, in a temperature of 55° or 60°; procure at all times, where possible, strong firm-wooded cuttings which when cut off close below a joint and made in the usual way should be laid in a dry situation until the wounds have become perfectly dry. Two cuttings may then be placed upon opposite sides of large 60-sized pots in a free open sandy soil. Place them at once in a dry place, such as that just named, and do not water them until the soil has become pretty well dry in the pots. Do not shade them; on the contrary, let the sunshine fall upon them where possible. *Cinerarias* should now receive abundant waterings with liquid manure not too strong. Keep the surface soil in pots containing *Auriculas* freely stirred, giving occasional waterings of sheep manure, perfectly settled and clear. Keep the lights off in dry weather, tilting them both at back and front if frosty or wet weather prevail, *i. e.*, provided the former is not too severe.

Roses, when once fairly started in heat, should be freely syringed, and grown in an atmosphere highly charged with moisture. Minutely search all young growths frequently for grubs, which may be in process of formation thereon; these generally firmly envelop themselves in the young leaves, and if left, quickly destroy the flower buds as they appear. Shorten all flowerless shoots back to two or three leaves; and tie out neatly all others needing separation or support. *Lily of the Valley* will now force freely. Where not previously potted, clumps of it may be taken up in sizes sufficiently large to fill any pans or boxes that may be at hand. Or these may be divided, choosing the larger crowns only, which when placed thickly in 32-sized pots and brought on quickly make a good display. *Bouvardias*, *Salvias*, and similar plants which have not started into growth should be placed in a little heat. *Dahlias* should also be brought to light and potted or placed in any position where warmth and moisture can be applied in order to induce them to break freely. The different varieties of *Celosia* should be sown, especially *C. plumosa*, which is not generally grown successfully. Our best growers sow them early, and the success which attends their treatment is doubtless greatly owing to this fact. Those who may not have autumn-formed plants of *Lobelias* (speciosa, &c.) should sow seed forthwith in finely-sifted surface soil, placing it in a slight amount of heat only.

FORCING HOUSES.

Mushroom beds in a bearing state should be frequently just surface-sprinkled with tepid water. In gathering, take hold of each Mushroom, and by giving it a quick twist free it from the bed, at the base. Always gather Mushrooms as soon as they begin to expand; as if left beyond that stage they exhaust the spawn more quickly. Any beds which are becoming shy in bearing will be benefited by a good soaking of weak manure-water; that strained from sheep-droppings is best. Give air upon all favourable occasions, and a certain amount of light daily, at all times where convenient. *Capsicum* or *Chili* seed might now be sown, and placed in a little heat. It is better to defer these, and many similar sowings, however, for a week or two, if you will not be able to do them justice when ready for potting off from want of room, or other circumstances. *Cucumbers* and *Melons* might be ridged out in pits or frames previously prepared for them. Bear in mind, however, that it will be too early to ridge these out, where it may not be possible, by means of a constant supply of fresh sweet fermenting materials, to add to the linings, and thereby keep up a brisk uniform heat. Place soil, half leaf-mould and half good turfy loam, well mixed together, on the bed under the centre of each light, so as to form a conical mound. Into this firmly press the ball of the plant. Should these mounds become too hot, or exceed a maximum of from 85° to 90°, their temperatures in the immediate neighbourhood of the roots may be reduced by slight excavations in one or more places, so as to leave a clear opening through which the heat may escape. Give all the night air possible in mild weather, and maintain an average temperature of 65°. A little *Celery* should also be sown where an early demand for it exists.

HARDY FLOWER GARDEN AND SHRUBBERIES.

Any shrubs which have been killed by frost should be replaced by fresh ones at once. Complete all planting operations, pruning, &c. Cut away all small spray, old flower stalks, &c., upon *Wistarias*, removing all lengthy young growths of last summer, by severing them in two at the base. Thin out and tie up *Clematises*, *Honeysuckles*, and similar plants. Common and Portugal *Laurels* should be cut back and thinned out; they will then break and grow away freely, but take care always to leave an opening in the centre of large specimens, to admit light and air, which assist in hardening the wood.

HARDY FRUIT GARDEN.

Prune *Red* and *White Currants*; this should be done by cutting away all young growths, except the foreshoot, within an inch of the main stems; and even the foreshoot might be cut back to within 4 or 5 inches of the latter. Should any tree be ill formed, owing to the decay of a portion of it or otherwise, choose a young shoot to fill up the deficiency. A well-trained bush should have about 6 inches of clear main stem, from which it should divide into from 6 to 10 branches of uniform distance apart, and all of one height, with a clear opening in the centre, where no shoot should exist. These main branches or ribs should be spurred in annually, and thus become the fruiting parts. Eradicate all shoots, should any appear, which grow up directly from the roots.

KITCHEN GARDEN.

Trenches prepared for *Horse Radish* should now be planted with sets, made from cuttings of the crowns of established plants, from 2 to 3 inches long; these may be dibbled 16 inches apart in the bottom of the trenches; press the soil firmly round them, leaving the tip of the shoot in such a position that it will readily rise when growth commences. Do not fill in the trenches, but let all remain as it is for the present. *Cauliflower* plants not in a position to stand and flower, or any which need thinning, should now be planted into the richest quarter at about 26 inches asunder—well watering them in after the soil has been pressed firmly around them. Any crowns of *Seakale* which it is intended to force, and which are fully exposed to the outer air, should have some covering placed around them immediately, which will keep the air from them; place every spare pot or pan procurable over them, and upon these leaves or other litter should again be put. The least growth made by Seakale, under full exposure, is sure to be badly coloured, and to taste strong when cooked. Finish off all arrears of work, without delay; for as the days lengthen, so will demands upon time increase, and if left to accumulate, will become hereafter an obvious cause of want of success. *W. E.*

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the Week ending Feb. 27, 1867, as observed at the Horticultural Gardens.

Feb.		Moon's Age.	Barometer.		Temperature.					Wind	Rain.
					Of the Air.			Of the Earth			
			Max.	Min.	Max.	Min.	Mean	1 foot deep.	2 feet deep.		
Thurs.	21	17	30.485	30.428	57	37	47	49	46	S.W.	.00
Friday	22	18	30.412	30.328	52	36	44	49	46	S.W.	.00
Satur.	23	19	30.456	30.406	56	30	43	49	46	N.W.	.00
Sunday	24	20	30.216	30.133	54	35	44.5	48	46	S.W.	.00
Mon.	25	21	30.146	29.965	50	38	44	48	45	W.	.01
Tues.	26	(	29.990	29.960	45	35	40	47	45	W.	.01
Wed.	27	23	30.017	29.990	44	32	38	47	45	N.E.	.00
Average			30 245	30.168	51.1	34 7	43	48.1	45.5		.05

Feb. 21—Uniformly overcast, overcast throughout.
— 22—Overcast; densely overcast at night.
— 23—Fine throughout; mild at night.
— 24—Densely overcast, fine throughout.
— 25—Fine; very fine, densely overcast; rain.
— 26—Drizzly; fine, overcast.
— 27—Hazy clouds; dry haze; overcast at night.
Mean temperature of the week 1½ deg. above the average.

STATE OF THE WEATHER AT CHISWICK,
During the last 41 years, for the ensuing Week, ending March 9, 1867.

March.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain	Prevailing Winds.							
						N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday .. 3	49 7	31.9	40.8	12	0.48 in.	4	9	3	4	3	8	6	4
Mon. .. 4	49.6	31.0	40.3	11	0 40	2	7	4	4	5	10	6	3
Tues. .. 5	48.7	31.6	40.1	16	0 47	4	6	6	3	4	9	5	4
Wed. .. 6	48 7	30.0	39 3	18	0.26	4	6	4	3	4	11	5	4
Thurs. .. 7	49 3	32 4	40.9	17	0.22	4	6	4	1	6	12	5	3
Friday .. 8	49 4	31.7	40.5	17	0.18	4	7	3	3	5	7	4	7
Satur. .. 9	49 3	30 9	40.1	11	0.47	4	6	3	2	6	9	6	5

The highest temperature during the above period occurred on the 4th, 1860—therm. 70 deg.; and the lowest on the 3d, 1862—therm. 14 deg.

Notices to Correspondents.

FUCHSIA GOLDEN FLEECE.—We are requested to state that the variety mentioned in our report of the Royal Horticultural Society at p. 184, under the name of Cloth of Silver, and said to be a sport, is a seedling raised between Cloth of Silver and Enoch Arden, and is named Golden Fleece. It was shown by Messrs. E. G. Henderson & Son.

GLASS: *W.* The best gardeners are, we believe, quite agreed that though corrugated glass may be suitable for the growth of foliage plants, and even for certain kinds of flowers, yet that clear glass is preferable where the ripening of fruit is concerned. We advise you, therefore, to select clear glass for your Vinery. The difference between close modern glazing and the open laps of former days must not be overlooked in the management of the Vines.

HYACINTHS: *Old Subscriber.* The bulbs will not bloom so finely the next year as when newly imported, but sometimes they will bloom fairly as outdoor flowers. So far as treatment can help them, it should go to aid the full development and perfect maturation of the leaves. Consequently, when out of flower they must not be thrust aside into a dark corner, nor too suddenly exposed; while those flowered in glasses must be potted or planted in a favourable situation. Imported bulbs are now, however, to be had at so reasonable a price that it is seldom worth the trouble to preserve the old ones.

NAME OF FRUIT: *Irish Subscriber.* Name unknown.

NAMES OF PLANTS: *H I C.* 1, Callitris quadrivalvis, from Barbary.—*T B.* We believe this to be nothing but a stunted variety of Abies excelsa—*G S.* Steriphoma cleomoides.

ROSES: *J P.* Bud on the young wood of the present year, when it has become firm, the stock being cut close down now. You would find them more convenient to handle if they were grown in pots.

COMMUNICATIONS RECEIVED.—W. Miller.—R. D.—W. Dean.—W. R. (thanks; shall be attended to).—D. T. Fish.—W. Bull.—E. M.—Karl Koch.—E. M. C.—W. Earley.—W. Tillery.—E. G. Henderson & Son.—A. Pettigrew.—H. M.—A. Godwin.—J. M. M.

SUTTON'S GRASS SEEDS

FOR ALL SOILS,

Carriage Free.



MESSRS. SUTTON

Specially prepare MIXTURES for every description of soil; therefore in ordering it is only necessary to state the nature of soil, and suitable Seeds will be supplied. The following are the popular classifications of soils:—

1. STIFF CLAY
2. STIFF or HEAVY LOAM
3. GOOD MEDIUM LOAM
4. LIGHT SANDS
5. SHARP GRAVELS
6. CHALKY SOILS
7. SHEEP DOWNS
8. RIVER FLATS, or WATER MEADOWS

SUTTON'S BEST MIXTURE of PERMANENT GRASSES and CLOVERS.—Prices for Nos. 1, 2, 3, 4, 5, 6, and 7 (2 bushels of Grasses, and 12 lb. Clovers per acre), 36*s.* per acre, carriage free.

CHEAPER MIXTURES, 26*s.* to 30*s.* p. acre, carriage free.

For No. 8, 30*s.* per acre, carriage free.

From many Letters before us we present one only for each description of Seeds.

From Mr. JOHN TOWLE, *Weirs and Hincksey Mills, near Oxford.*
April 9, 1866.—"Some five or six years back I had from you Permanent Grass Seeds for 40 acres, and the same quantity from another party; while yours has now a good sward upon it, the other is worn almost to nothing."

SUTTON'S RENOVATING MIXTURE for the above SOILS, price 10*d.* per lb., cheaper by the cwt.—If these Seeds are sown early in the season, the improvement in the Pasture will be very great, and at small expense. (5*s.* to 10*s.* per acre.)

From W. G. GOULBOURN, Esq., *North Mimms, Hatfield.*
March 15, 1866.—"The Renovating Mixture I had last year has already made an important improvement both in quality and quantity of crop."

SUTTON'S BEST MIXTURE for PARK LAWNS, BOWLING GREENS, CRICKET GROUNDS, for the above Soils, price 18*s.* per bushel. Sow 2 or 2½ bushels per acre.

SUTTON'S BEST MIXTURE of GRASSES and CLOVERS for Four Years' Lay, 24*s.* per acre, carriage free. Second Quality cheaper.

From JOSEPH KERSHAM, Esq., Jun., *Terrington.*
March 28, 1866.—"The Four Years' Lay Seeds I had from you have answered well; and although I had a heavy crop of Oats, there has been more feed than I ever saw before. I have had 100 ewes and lambs on the 10 acres for a long time, but it appears to grow almost as fast as they eat it."

SUTTON'S BEST MIXTURE of GRASSES and CLOVERS for Two Years' Lay, 18*s.* 6*d.* per acre, carriage free. Second Quality cheaper.

From Mr. WILLIAM JONES, *Agent to* E. P. Monkton, Esq., *Fineshade Abbey, Wansford.*
May 5, 1866.—"The Clovers and Grass Seeds supplied by you during my residence here (1864 and 1865), have given every satisfaction; indeed, in 1865, when all seeds around me were a failure, I had such an abundant crop of your 'Two Years' Lay Seeds,' that out of 60 acres I mowed 20 acres twice in that season, and the mowings together averaged quite three tons per acre."

SUTTON'S BEST MIXTURE of GRASSES and CLOVERS for One Year's Lay, 15*s.* per acre, carriage free.

From R. BIRD THOMPSON, Esq., *Free Chase, Slangham, Crawley.*
Jan. 19, 1867.—"The seeds for one year's lay had from Messrs. SUTTON turned out wonderfully. The mowers stated they had not seen such a crop for years, and that it was like cutting into a wall. They said it was 4 feet high. Certainly it was the finest crop Mr. Bird Thompson ever saw."

SUTTON'S MIXTURES of CLOVERS and RYE-GRASS for One Year, 12*s.* to 14*s.* per acre, carriage free.

From Mr. E. NEAL, *Steward to the* Hon. J. K. HOWARD, *Hazelby.*
June 27, 1866.—"I have harvested 3 acres of Clovers and Italian Rye-grass from seed you sent me last year, which has been the admiration of the neighbourhood."

GOOD CLOVER SEEDS at market prices. Samples and lowest price per cwt. on application.

SUTTON'S SELECTED MANGEL WURZEL, TURNIP, and other FARM SEEDS, as see

SUTTON'S NEW FARM SEED LIST,

Gratis and Post Free on application.

☞ *All Goods Carriage Free, except very small parcels.*
Five per cent. discount allowed for Cash Payments.

SUTTON AND SONS,
ROYAL BERKSHIRE SEED ESTABLISHMENT,
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GRASS SEEDS for PERMANENT PASTURE, of the finest quality, at moderate prices, carefully selected on a new, natural, and scientific system.

See "WHEELER'S BOOK on GRASSES," which contains Illustrations and Descriptions of the most suitable Grasses for Permanent Pasture.

J. C. WHEELER & SON,
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Seedsmen to the Gloucestershire Agricultural Society.

Carter's Genuine Seeds.





CARTER'S SELECT LIST of GENUINE FARM SEEDS, at moderate prices, is now ready, and may be had post free on application to
CARTER'S Great London Seed Warehouse, 237 and 238, High Holborn, London, W.C.

Sutton's Prize Mangel Wurzel,
TURNIP, IMPROVED KOHL RABI, &c., &c.



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SUTTON'S NEW FARM SEED LIST, which may be had gratis and post free on application to
SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

ROYAL AGRICULTURAL SOCIETY of ENGLAND.
BURY ST. EDMUND'S MEETING, 1867.
STOCK, POULTRY and IMPLEMENT PRIZE SHEETS are now ready, and will be forwarded on application to
12, Hanover Square, London, W. H. HALL DARE, Sec.

The Agricultural Gazette.

SATURDAY, MARCH 2, 1867.

MEETINGS FOR THE ENSUING WEEK.

MONDAY, March 4 { Central Farmers' Club (Rev. G. Smythies on Emigration), at Salisbury Hotel—6 P.M.
WEDNESDAY,— 6—Royal Agri. Society of England—Noon.

ON Wednesday, at the Rooms of the Royal Agricultural Society, in Hanover Square, Professor SIMONDS gave an address which had been duly announced in the monthly report of the Council, and subsequently advertised in all the agricultural papers. The diseases of lambs and of young sheep, from which thousands of stock-owners annually suffer immense losses, formed his very important subject: and it was treated with that fluency of speech and that fulness of practical and of scientific knowledge for which the lecturer is so highly distinguished. The lecture was delivered before exactly five ordinary members of the Society!—one of whom, Mr. RAMSAY of Newcastle, occupied the chair. Neither President nor Vice-President nor any member of the Council did the Veterinary Professor the honour of attendance. There were, however, two gentlemen seated at the table, who represented probably 20,000 readers, and to them accordingly were addressed the remarks, which might, however, with almost equal utility have been spoken to either of them alone seated at his desk at home. Is it a hopeless task to attempt to get an agricultural audience together at midday in London? There was no lack on the part of the office-bearers of the Society. The Secretary, the Editor, and the Professor of Chemistry were all present to listen to their colleague, and Dr. VOELCKER gave us some very valuable information bearing on Professor SIMONDS' subject. But it is hardly likely that the ordinary members of the Society will assemble in any number on these occasions, if those whose proper business it seems more especially to be to make a House, are unanimously absent.

The following is the substance of the address which they would have heard had they been present on Wednesday last:—(1.) The earliest disease to which lambs are liable is indigestion, arising from too rich a condition of the mother's milk. When ewes are richly fed, the colostrum present in unusual quantity in the first milk, induces fermentation and the formation of lactic acid, giving rise when the milk reaches the stomach of the lamb, to a curd so hard that the gastric juice is unable to deal with it, and the consequent indigestion may result in inflammation of the mucous lining of the intestine. The remedy is to alter the food of the mother, putting her on poorer food, and while the milk is altering in quality taking away the lamb and giving it well boiled Oatmeal gruel as food, and as a medicine antacids, to check the excessive action of the lactic acid, with a gentle aperient and mild carminative; 1 scruple of bicarbonate of potash, 10 grains of Rhubarb, and 5 to 10 grains of Nutmeg, in a little Peppermint water, are a dose for a lamb.

(2). Before weaning, while ewe and lamb are still on Turnips, the latter getting through the hurdle to crop the Turnip shoots, it is again liable to diarrhœa. This is the result of immature food. If the Turnip is beginning to blossom it is not so likely to cause this diarrhœa as if it is still in rapidly growing succulent shoots. The remedy is to alter the food, to take the flock off the Turnips, and give cake and corn to both ewe and lamb.

(3). Lambs suffer sometimes from collections of the vegetable hairy matter of Clover leaf which rolls together in the form of a ball, obstructs the action of the stomach, and may sometimes choke the animal in the attempt to pass it with the other contents of the first stomach back to the mouth for rumination. There is no remedy for this risk, nor any indication by which the existence of the mischief can with any certainty be known.

(4). Diarrhœa is frequently a mere symptom of otherwise deranged health. It is, for instance, often symptomatic of lung disease, as when the bronchial tubes being infested with the worm called Filaria Bronchii, the lung is no longer able fully to discharge its functions, and general ill-health ensues. Treatment for diarrhœa would here be a mistake—the disease exists not in the stomach or intestines but in the lung. And there the evil may possibly be dealt with by the use of anthelmintic medicines, of which turpentine is the principal; for it, when taken internally, seems very soon to permeate the whole system, revealing itself by its smell almost immediately in the breath, the urine, and the milk. This, and inhalation every day or every other day of medicated air, as the fumes of burning tar on which sulphur is thrown, will tend to expel the young worm, and to give notice to the older ones to quit. Treatment of this kind, united with good food and good nursing to strengthen the constitution, may cure the lung disease, and so the diarrhœa.

(5). The natural history of many of the entozoa, to which, as they exist in the stomach and intestines, diarrhœa is sometimes directly due, was described to us, and the mystery which still surrounds the subject of their growth from the egg stage to that mature and in many cases enormous development in which alone they are known, was dwelt upon. When the sheep, while suffering from diarrhœa, otherwise retains its health, and in marked degree its appetite, the disease may be put down to worms. Salt was recommended as a preventive, and balls made of turpentine, sulphate of iron, and gentian, were recommended as a remedy.

After Professor SIMONDS' lecture, which entered into great detail on all the points just named, and especially described those internal parasites whose natural history had been the subject of his own elaborate research, Dr. VOELCKER referred to the laxative effect of certain succulent and immature food, He told us that during the process of growth one form after another of vegetable acid rapidly succeed each other; the oxalic acid of the young shoot becomes altered, often in a few weeks, into citric or malic acid, then into some non-acid substance of less definite character and composition, and lastly into sugar or starch; and the mischievous effects which sometimes attend excessive succulence of food may be attributed, not to the general washy character of it, but to the directly poisonous, or at any rate medicinal effect of that special chemical compound, the product of vegetable growth, which is characteristic of the particular stage of growth to which the plant may at the time have attained.

As the season for sowing of Lent Corn has again come round, we purpose offering a few remarks upon our crops of 1866, as we did on those of the previous year; for as circumstances in the two years differed so widely, it may be well to see, if, after all, we have arrived at any fixed principles.

The result of our several fields of 1865 seemed favourable both as to quality and quantity, in proportion to the earliness of our sowing; for while the field sown on the 16th of March yielded

40 bushels per acre, fetching 39*s.* per quarter, that sown on the 2d of May yielded only 22 bushels per acre, sold at 30*s.* per quarter. In the Barley crop of 1866 prices have been altogether exceptional; at the same time, the following Table of the results of our crops will be found on the whole, when rightly understood, to tally pretty nearly with those of the previous year, in so far as general principles are concerned:—

RESULTS OF BARLEY CROP FOR 1866.

Number of Field.	When Sown.	Acres.	When Harvested.	Crop in Bushels.	Price per Quarter.	Remarks.
					s. d.	
No. 3	Mar. 17	7	Aug. 14	48	46 0	After Turnips.
,, 11	April 4	9	,, 29	36	51 0	After Wheat.
,, 8 Section 1	Mar. 23	8	,, 23	37	54 0	After Mangel Wurzel.
,, 2	,, 27	8	,, 24	37	54 0	After Swedes.
,, 3	April 6	8	,, 7	35	51 0	After Winter Barley; sheep folded on the shed Barley ploughed in.
,, 4	,, 16	9	,, 24	37	54 0	After Swedes.
,, 5	,, 19	7	,, 24	35	54 0	Ditto.
,, 6	,, 28	3	,, 31	33	54 0	Ditto.

Our first field was sown on the 17th March on what our neighbours term "brine sand," and for being first here we got tolerably well quizzed. It was said to be too poor and too cold to be sown early, but as we could not find that early sowing had ever been tried, whilst we had seen a sowing in May by our predecessor almost a failure, we determined to try it, upon the principle that poor land in cold situations can hardly be expected to ripen a grain crop in three months. Here our crop, which was the astonishment of all, was the largest in the parish. As regards its price it was the first threshed out, or its price would have been higher; but with all it should be remarked we were fortunate to secure the crops without the slightest injury from wet.

The other crops after roots were unusually good in quality, but the yield was less in sections of the same field according to the lateness of sowing, and as a rule we are quite sure that later sown crops are thinner and poorer in the grain.

There is another matter connected with early sowing, and it is that Barley sown in May requires nearly double the seed for the crop, the theory being that if shortness of time be allowed the plants cannot tiller, but will send up one, two, or three heads only, and this on poor lands is only aggravated; it has hence followed that garden experiments with thin seeding, where you can command your soil, its state of cultivation, and the time for putting in the seed, have shown that crops can be secured with a minimum of seed, but where you are dependent upon entirely different conditions, it is found that liberal seeding is necessary. Now in our largest yield of 48 bushels per acre, sown in March, we only used eight pecks or two bushels of seed per acre; later we used ten pecks, and still later twelve pecks. But one of the largest crops in the district was that of a neighbour who sowed a sack per acre at the end of April.

As experiments, then, of what *may* be done with a little seed, we are thorough converts to thin-seeding, but we cannot from this conclude that anything like the thin-seeding that is practicable in some circumstances is advisable where you cannot always do as you would, but must accomplish what you can.

Still the motto, "Try again," is never out of place on the farm. Farmers should ever look to principles. We are constantly being told this, that, and the other, is wrong to be done, but on asking if it has ever been tried, we usually find that it has not, so strong has prejudice been against any departure from a preconceived notion.

The truth is, a neighbouring fair, or the progress of some tree, have ever been held as better guides as to the sowing of seed than are the facts connected with the cultivation of the land. Thus in Gloucester and Worcester we are told—

> When the Elmen leaf is as big as a mouse's ear,
> Then to sow Barley never fear;

and little anxiety is felt upon the matter; but,

> When the Elmen leaf is as big as an ox's eye,
> Then says I, hi boys hi!

Yes, seldom do people hurry in the matter until the leaves begin not merely to shoot but to grow; but it should be remembered that if we can get corn in the position to make head when the genial rains of April are bringing out the leaves, its leaves too will grow, and its fruition be all the better from its having had in our changable climate the requisite amount of time. *B.*

—— MR. STRAFFORD has his hands full:—On the 14th of March he will sell by auction at Burghley Park, the entire herd of pure-bred Shorthorns belonging to the executors of the late Marquis of EXETER, which not only traces back to the early part of the century, but claims relationship with the most fashionable blood of more recent date. On the 20th he will sell the herd of Mr. LOGAN, of Maindee House, Newport, Monmouthshire, which has long been successful in the show yards of the West of England. On the 1st of May the herd belonging to Mr. E. L. BETTS will be sold at Preston Hall, near Aylesford, Kent; and on the following day the Havering Park herd, belonging to Mr. MCINTOSH, to which we have already referred, is to be disposed of. Mr. BETTS' herd includes all the celebrated Grand Duchesses bought at such enormous prices at Willis's Rooms two years ago. It also includes splendid specimens of the "Cambridge" and "Red Rose," and other Kirkleavington sorts, some of the choicest animals of the TOWNLEY herd, and many other remarkable animals. We shall next week give a more detailed account.

—— The reports just published of last year's harvest, being the returns from upwards of 500 correspondents of the *Mark Lane Express* in all parts of the country, fully confirm the general impression which has obtained of the character of the crops. Of 574 reports of the Wheat crop only 20 state it to be over average, and 328 declare it to be below an average. In like manner, 73 and 191 reports out of 533 of Barley declare that crop to have been over and under average respectively. And 54 and 183 reports out of 513 of Oats were over and under average. The following gives the whole return in a tabular form:—

	Wheat.	Barley.	Oats.	Beans.	Peas.
Under average ..	328	171	183	101	63
Average	226	289	276	240	239
Over average ..	20	73	54	56	123
Total ..	574	533	513	397	425

Our own reports, published in August last, were as follows:—

	Wheat.	Barley.	Oats.	Beans.	Peas.
Under average ..	63	22	60	29	3
Average	96	102	84	65	59
Over average ..	21	45	29	19	47
Total ..	180	169	173	113	109

It appears from this that the threshing out of the crop has generally shown a poorer yield than was anticipated at harvest time.

—— The story of Mr. HOWARD'S pigs is at length completed by the publication of a correspondence, giving the result of examinations by Professors LAW and SIMONDS. Mr. ALLENDER, who has himself suffered from the decision of the veterinary referee at Birmingham, thus sums up the affair in a letter, which appeared in the *Mark Lane Express* of this week:

"I was present when Professor GAMGEE explained to Mr. JAMES HOWARD the reason why the disqualification had been made. Professor GAMGEE distinctly stated that he had disqualified the pen of pigs on account of the irregular development of the premolars, asserting most positively that he had never known an exception to the rule that, when a pig shall have arrived at the age of just half-a-year, certain little teeth, called 'premolars,' immediately make their appearance. Are we, then, to understand that the rules obtaining in the dentition of pigs are, according to Professor GAMGEE, so clear, and so undoubtedly and unexceptionably correct, that the various changes take place to the day? If so, how would the case stand where the sow has a protracted accouchement, and the event comes off about midnight, just six months prior to the Birmingham Show? Some of the litter might have to rank over six months old, while their brothers and sisters would pass muster. This is a ridiculous supposition, it will be said. Very good: then we are to be allowed a *little* grace, and the change does not take place instantaneously. Once admit an exception, and allow a few days, most practical men will contend that, the exception once admitted, the extent will be influenced by breed and feed.

"Pigs compete under different conditions to any other animal usually exhibited at our shows; that is, in classes differing only by a few months, or at so many months old—four, six, eight, as the case may be—whilst other animals have at least a year between class and class. Once, therefore, admit that there is any exception to a positive rule—and he must be a bold man to deny it—then undoubtedly other evidence than the *ipse dixit* of any one 'professor' or 'expert' should be required before exposing honourable men to the vexation, annoyance, and loss of having their animals unjustly disqualified upon a point which after all is only a question of degree and a matter of opinion.

"If the present accepted rules of dentition are to be considered unalterable in the face of any amount of evidence, then in common justice let the prize sheets be revised, and instead of showing in classes of ages, let exhibitors show in classes of teeth—a premolar and a non-premolar class, a corner incisor and a non-corner incisor class. This could be understood.

"Let us see how this case of Messrs. HOWARD stands.

"Professor GAMGEE, of Birmingham, disqualifies Messrs. HOWARD'S pigs, exhibited as under six months old, because some of them have put up their premolars, asserting that this rule is positive.

"Professor LAW goes to Bedford, and unfortunately discovers that the mother of the said pigs *has not* got the said premolars. Upon this, we are informed by Professor GAMGEE that Professor LAW was not aware that these animals shed these said premolars when they arrive at the age of 20 months. Pig dentition was perhaps not Professor LAW'S department; therefore that little difficulty is removed.

Unfortunately Mr. HOWARD, being a persevering man, communicates with Professor SIMONDS, who goes down, and finds *two* and *three*-year-old pigs whose premolars have not dropped out. Professor SIMONDS also finds that Alexandra, the mother of the disqualified Birmingham pigs, whose mouth Professor LAW pronounced *clear* of premolars, is furnished with *one* of those teeth. Upon rules based upon such uncertain knowledge, one of the very best pen of pigs I ever saw in my life were disqualified at the last Birmingham Show. I will not again allude to my own case of the year before, more than to say that nothing would induce me to again exhibit subject to a similar ordeal. If from circumstances such as the proved unjust disqualification of the Messrs. HOWARDS' pigs last year, and of mine the year before, the authorities may be induced to amend their regulations, so that exhibitors should no longer be at the mercy of a single inspector, who may or may not know what he is doing, then I shall feel some consolation for the vexation I felt at being so unjustly treated, and I am sure the Messrs. HOWARD will look at the matter in the same light."

LOST LETTERS—FROM ITALY.—No. IV.

IF a man may judge from personal experience, I think it not a bad thing for a traveller, whether journeying for health, or holiday, to have a special subject of observation mainly present to his mind. It does not, to my thinking, interfere with other points of interest of a more general kind; on the contrary it rather forms a solid nucleus round which ordinary observation gathers and arranges itself, in a healthy kind of way; and rescues the thinker (and it may be the *writer*,) from that sort of 'bald disjointed chat' that I have sometimes felt almost indignant at having even to *turn over*, in the Journals of tourists who realise the *l'état c'est moi* in every land they go through, themselves the foreground of every landscape, and hero of every tale. I must say an agricultural eye goes far to save one from this form of idleness; and indeed I hardly know any point of view from which, if you choose, you may see so much of a country as the agricultural; physically of course——that may verge on truism—but I mean generally. All national employment, all wealth, habits and manners, artistic skill, even genius, arise directly, or secondarily, from the soil,——what it produces, suggests, or compels. You laugh at my including *genius?* Well, wait a bit: let us keep that for discussion hereafter: Italy is the very ground to settle that quarrel upon.

Meantime, having left the high Alps behind, and bowling along the level for many a mile before you begin to descend the other side, it is impossible not to be struck by the cruel change in the character of our road. Since the cession of Savoy, the Emperor of the French and Victor Emmanuel share the Pass between them, not as 'joint-tenants,' or even 'tenants in common,' I am sorry to say, but as half and half Coparceners. In fact the place where we dropped our mules was I think the halfway house, where 'Imperial' ends and 'Royal' begins, in everything; Road, alas, not inclusive. From chattering over a hard well-formed elliptic arch, at least such an ellipse as a perfect road should be, you drop or droop into a slushy grinding hollow, mocked and sometimes half intercepted by great stone-heaps of excellent metal, *partly broken*,—and left,——pink-veined sienite and marble. Yes! left there, half broken, and half over the road, and half everything it ought to be, and ought not to be; a sound sleeper, inside, would not need to be told that we had passed the French barrier. The voice of the wheels would be quite enough. *We are in Italy!* What a portraiture of a country, or even of any district, lies in its roads! it almost seems to convey too much: the observation of the eye is so rapid, and so unsparing, and so unable of course to allow for accidental causes.

Well; such in truth must be done here. The incessant pressure of the traffic day and night, in every description of weather,——for this is the only *certain* pass from North to South for this part of Europe—makes it exceedingly difficult to keep the road what it should be: and I must add that in no country in the world are there finer roads *to be found* than Italy. The fine old Roman model is not lost. The Simplon road, from Arona to Duomo d'Ossola, is a perfect work of art. Turned to a nicety in point of bow-shaped form, with granite metal, granite posts about every 10 yards, and tall granite telegraph-columns of an elegant tapering form, not merely stuck in the ground, but each like a well stepped mast set in a square socket of four stout granite posts, that seem framed for eternity, were it but a little broader, it is indeed a road for a nation to be proud of. It is not difficult to see in poor Mont Cenis the hard-worked carthorse, and in the Simplon the well groomed but after all not so handy or sure-footed hunter.

And now we begin to descend: zigzags again! and as, to obviate their extreme sharpness, the horses take as wide a sweep of each turn as they possibly can, and the pace is tremendous, you instinctively 'hold on' and 'hold hard,' scarcely confessing to yourself what *that* means, viz. that you are contemplating a header down a thousand fathoms as an immediate *possibility*.

For there, below you, actually under your gaze, as if you could pitch a cricket-ball deftly into it, lies the town of Susa glistening in a sort of air-bath of pink and yellow colouring that is new to the northern eye. It is all you can say, that you see into Italy; for the prospect to the south is shut out by the dark mountain-spur of the Roccia Melone, the very brow from which the Carthaginian after leading his troops that wonderful journey through Spain and over the Pyrenees, is said to have feasted their eyes with the promised spoil of Italy lying at their feet. But the modern invader must wait a bit: and be content for the present to look down into a sort of lighted up cul-de-sac, the illuminating point of which is concealed from him. It is not much but it is Italy: and we are going *to*, not from it.—'Rest and be thankful'!

But this will hardly be, if by any accident, as in my own case, you have to pass your first night on Italian ground, at Susa: for in that case your report of an Italian Inn would I think find vent in an expression that I saw used in the freedom of a private letter written thence, the night I dropped into it, as, to one who sees it for the first time 'incredible.' Description can only convey details: nothing but the *senses*, can convey to the mind the general effect. And I

pointedly include them all; for all are appealed to simultaneously. But it is always dangerous to generalise too fast: it is the traveller's bane and stumbling block; always, everywhere. Yet here it is irresistible. In five minutes you seem to read off a people. It may be very unphilosophical, very wrong. You soon learn to be more patient, and discriminating: but at the first experience everything seems to give way before the crushing novelty of sight and sensation. A lady's maid going out of the door of her mistress' bedroom, and finding herself opening plump upon the stable-yard,——her look, her attitude, the way she rolls her English eyes around, in appalled inquiry and dismay, is the nearest approach to a *figure* that I can bring to mind to picture briefly the impression made. And what I name by way of instance as a figure, is not the less a *fact*. Within the hour of our arrival, I saw it. Whether this made more impression than a bedroom not only uncarpeted but paved with naked bricks, it would be hard to say: but the English abigail is puzzled, almost past her wits, by being compelled to acknowledge that this out-o'-door looking apartment is furnished with one grandeur, in the shape of a bed that might have been furnished for royalty itself. Such was my first *Inn*-experience of a land that has the finest hotels in Europe!

It has taken a good many centuries to grow Susa out of '*Segusio*,' the ancient name of this once important little Ligurian town, the key of the Alpine road to Gaul. But I think I may venture to say that there is one thing which has undergone *no* change there whatever during all that time, and that is *the Plough*. In the course of an early morning walk in search of a rather celebrated marble arch that stands outside the town, I came upon a man ploughing. At first it was too like certain pictures we have all been bored with, in certain ancient books—to believe it *solid*. But when I was compelled to do this,—then, by the force of contraries I suppose, I longed for a Photograph! I should have liked exceedingly to send it to decorate—or desecrate—your pages. It was the identical article! the very thing an archæologist or antiquary would give his little finger for,—a genuine specimen—the short-beamed, wooden-coultered, no mould-boarded, curled up, crooked impracticable-looking thing with *one* stilt, that your eyes are familiar with under the august name of a—Roman plough.

It was in a little square patch of ground of rather stiff soil. As "there's Husbandry in Heaven," why not 'Masonry' on earth, at least among those of the same craft? and so thinking, I was soon over the narrow ditch, the only separation it had from the road, and pacing alongside of the Susan husbandman. It was curious to see the furrow-slice rise as well as it did to such an instrument, while it took all the man's strength and attention, apparently, to keep *in* the ground by pressing with all his weight upon his single stilt, which in spite of all his efforts jumped and danced up under him, with all the violence that two stout oxen could impart to it. This effect was increased by the excessive shortness, and sharp curve, of the part meant for a mouldboard, the action of which in turning off the slice, struck me as the best illustration possible of 'transition' in things agricultural. If you take a spade, pass a chain round, just above the blade, and gear on a yoke of oxen, then let them pull at the blade, curved a little outward, you holding on like grim death, at the handle,—you get the first step to which the Roman plough (Susa pattern) forms the second, at no great interval.

Nevertheless I am afraid I have seen in certain higher latitudes, a less clean-laid furrow-slice; and it was as straight as an arrow; in a word my Susan acquaintance was not *delirious*, and did not *prevaricate*.* On my venturing a word of commendation—adding that the English plough differed something from *that* pattern,—the answer I got was, "Ah, you've plenty of Ships in England, but little enough cultivation, I take it."

Here was a challenge! Yet, bearing in mind a certain 'Report' that had been made by the First Lord of the Admiralty as to the state of our Reserved Fleet, coupled with the last quotations of the Corn-market, I could not help half wishing it was half true. But how to answer it? Here was an Italian peasant's notion of Great Britain. Ships and Commerce in plenty, but little enough cultivation! "How absolute the knave is," too! He *gives* the information, does not ask for any! His ignorance is no negation, it takes a *positive* tone!

Is it not always so? Did you ever try to gauge an ignorant mind, and find it empty? Does not the Spirit of Ignorance *always* take unto himself the Seven spirits of Prejudice, and fill—from garret to cellar, the abode where Knowledge has not taken up its abode? Does it not terribly aggravate the responsibility of having an ignorant class, to know that the mind is just as greedy as the body—for food of *some* sort,—and that there is no such thing as ignorance in the commonly accepted sense of—Emptiness; but that if wholesome food be not swallowed, garbage will be? that every acre, every square yard, not sown with Truth, becomes a natural Seed-bed of error, and falsehood. How many of my fellow-countrymen of the same class with this simple Susan, would speak of France or any other 'foreign parts' more wisely than he of England? Not many weeks before, in conversation with an Englishman of higher status than this poor peasant, I had ventured (for my sins) into a little comparison of the merits of French and English cookery, "Can't know much o' *Cooking*, sir, 'should think, where they're forced to heat the Frogs!"

Well! well! we must live in Hope, and patience. Perhaps my Englishman may yet dine at the 'Trois Frères,' or the Café Richelieu! Perhaps—who can tell?—a Piedmontese peasant may some day visit *your Farm*, my Friend!

Pondering such things I turned towards the town; not without an idea of Breakfast; for my walk had been long, and the scent of the fresh turned earth had somehow wrought a sensation under my waistcoat that even the Swiss mountains had not so awakened: when suddenly turning a sharp curve between high vineyard walls, I stumbled on—the Gem of Susa! a once white marble arch, of the time of Augustus, now the colour and almost transparency of amber. There it stood before me like a vision—a lovely and unexpected vision. It is impossible to describe the effect upon the mind of a work of high art encountered thus in a spot where there was nothing to lead to or in the least prepare one for it. In form, in colour, in exquisite proportion, it stands in such utter contrast to everything near or in sight of it, that I stood transfixed for a moment with an inward burst of admiration. On closer inspection it shews some coarseness of detail; the figures of the Frieze reminding one of the carving on a Norman doorway or tympanum,—awkward men hunting awkward beasts: but this rather accords with its history; having been erected by Cotius, a barbaric chief, in honour of the conquering Emperor to whom he had yielded without dishonour; and ever from that time (B.C. 9) was the entrance to the Alpine road traversed by the Roman legions on their way to Gaul, —*and to Britain*. What Englishman could look at it without deep thought and interest!

I fear I was very late for breakfast. It was my first sight of classic Roman workmanship *in situ*: and I am free to confess that, after all the glories of "The Tribune," and the Sculpture-Gallery of the Vatican, I recall with the sense of intense enjoyment, the first sight that convinced me of classic ground — the charming symmetry and skill of that noble arch, standing all alone, in the now wild and deserted environs of Susa. *C. W. H.*

* The words in Italics are both derived from crooked ploughing. The classic reader will forgive the explanation.

SHORT TIME IN THE FIELDS.

[The following is an abstract of the debate in the House of Commons on Wednesday last on Mr. Fawcett's motion, "That it is expedient to extend the educational clauses of the Factory Acts to children who are employed in agriculture:—]

Mr. Fawcett said: The report of the Children's Employment Commission disclosed the frightful fact that the lives of thousands of children were being sacrificed, and the bodies and minds of tens of thousands were being ruined by premature employment when young. When the Factory Acts were first introduced they were met by two objections. In the first place it was said that such an interference with particular trades would jeopardize their prosperity, and, secondly, that special and exceptional legislation with regard to certain trades was exceedingly unjust. The first objection had been refuted and silenced by the progressive prosperity of the textile manufactories of the country to which those Acts had been experimentally applied, but the second objection remained in full and increasing force. The right hon. gentleman, in proposing his own Act, would find that the trades touched by it would ask why he sought to bring them alone under its operation, and why he did not introduce a measure which should embrace all trades throughout the country, modified so as to meet the different circumstances of each trade, and based upon the one general and important principle that no child under 13 years of age should be permitted to work unless it attended school a certain number of days in the week. He wished to point out what appeared to him weighty and conclusive reasons why, at any rate, the half-time system should be applied to agriculture. The agricultural population were in a state of deplorable ignorance, and there was this melancholy fact besides, that many of those agencies at work to improve the condition of the people did not provide a guarantee for their improvement. There were many circumstances that tended to cast a meretricious gloss over the ignorance of the rural districts. We had a State educational department, we had increasing Government grants, there was great zeal on the part of ministers of religion, and there were many admirable schools; but, with all our schools and all our zeal to educate the young, he knew villages in the West of England where there were admirable schools and plenty of money for educational purposes, and yet there was scarcely a youth in those villages who could read sufficiently well to understand what he read. If a child was taken away from school at eight or nine years of age he was certain to forget the little he had learned, and grow up in a state of ignorance. All the agencies that might be applied to correct the mischief had little effect, for it was found that the first rudiments of learning became difficult to acquire in after life. But it was said there were practical difficulties in the way of applying the half-time system to agriculture that could not be surmounted. Yet, if they were earnest in the cause, they would not be dismayed by those difficulties. At a meeting recently held upon this subject at Wolverhampton, Lord Lichfield made a most admirable speech. That nobleman knew something of agriculture, and he pressed most forcibly that the Act should be immediately extended to the rural districts. But the case was stronger than this. Mr. Paget had tried the half-time system on his own farm for many years, and he found it worked with the most signal success. But it was said that the Factory Acts applied only where labour was concentrated, while in the case of agriculture the school-house was often two or three miles from the boy's home, and perhaps his work two or three miles farther off. This difficulty might be overcome by adopting the plan of Mr. Paget, who introduced the alternate day system, letting the boys be at school one day and at work the next. Or if the alternate day system was not liked, the alternate week system might be adopted. It might be said that in dealing with the agricultural population they were dealing with a class so poor that they could not afford to do without their children's work. The loss, however, which would be inflicted on the parent by depriving him of a portion of his child's labour would not be so great as might in the first instance appear; for if this legislation were made general, they would diminish the supply of juvenile labour, and increase its efficiency, thereby at the same time increasing its value; so that the child would receive greater remuneration. It might be said that some of the labourers in the worst-paid agricultural districts were in such a state of poverty that they could not spare even the slightest reduction in their wages. It might be said with truth, that if they took 1*s.* or 2*s.* a week from the Wiltshire or Dorsetshire labourer who was dragging out a miserable existence on 9*s.* or 10*s.* a week, he would positively starve; but from this fact, melancholy as it was, the greatest consolation might be drawn. Why were wages in Dorsetshire and Wiltshire exceptionally low? Because the labourers were so ignorant, and consequently so devoid of enterprise, that they were almost as completely isolated from the rest of England as if they lived in a distant country; and therefore their wages were not affected by the general labour market of the country. In those counties wages were always at the *minimum*. They were not determined by competition, but by considering on what the family could live; and in these calculations the wages of the boys were not omitted. He knew those labourers well, and he affirmed that it was impossible for them to be in a worse condition. It might be said that the result of this legislation would be to increase the price of labour and throw a new burden on the landlord and the tenant. But this would be compensated by other great advantages. No branch of industry suffered more than agriculture from the ignorance and consequent inefficiency of labour. If they increased the intelligence of the labourer they would increase his efficiency, make his labour more productive, and there would be more to be distributed as rent to the landlord, profit to the tenant, and wages to the labourer. Agriculture was becoming each year more and more a skilled industry, through the employment in it of expensive machinery, which could not be safely trusted to the hands of ignorant workmen. Foreign competition could be met only by improving the education of the people; abuses of trade combinations were due to ignorance; and if the country had been shocked by outrages at Sheffield, the Children's Employment Commission disclosed horrors with regard to the town that made it matter of surprise that outrages were not more frequent. Sometimes it was said, "Compel landlords to improve cottages;" but educate the people and raise their tastes, and they would not live in miserable two-roomed hovels. The philanthropy of a nation was sometimes appealed to on behalf of a wretched peasant who was starving with his family on 8*s.* a week; but he would not do so if he could read the papers and learn of the demand for labour in other parts of the country. How much wiser would it be boldly to strike at that ignorance which was the root of pauperism and crime than to struggle under the burden of these evils! It was chiefly by the Conservative party that the first Factory Act was carried; their policy in this respect had conferred inestimable blessings on the nation. Let them continue the good work and prove their sincerity to the nation by conferring the same blessings upon the industry with which they were more intimately connected. Personally, he was pledged to do what he could to improve the condition of the agricultural poor, among whom he had lived all his life, and he was confident that if he could do anything to promote their education he should be assisting effectually to lighten the burden of poverty which oppressed them, and to make their condition more worthy of the nation, and to the wealth and greatness of which their class had contributed so much, and from whose advancing civilisation and increasing prosperity they had derived so slender a share of augmented happiness.

Colonel Akroyd, in seconding the motion, said that his experience might possibly have some weight with those who had not the same opportunities of witnessing the beneficial results of factory legislation. The first step towards national education was taken 30 years ago, when the Factory Bill was opposed by the mill-owners, with certain exceptions. He joined in opposition, not from any unwillingness to shorten the hours of labour, but from a conviction that legislation for a particular class of employers was one-sided and unjust. Having at first opposed the Act, he wished joyfully to offer his testimony to its beneficial results. In his own neighbourhood a squalid population had been succeeded by a healthy one, and the whole aspect of the district had been changed by the operation of the Act. Now, we seemed to have arrived at the half-way house of national education, and if the measure of the hon. member for Brighton received the assent of the agricultural gentlemen, we should have solved the problem of national education, and little more would remain to be done. What objections could be raised by the country gentlemen? Was there anything in the condition of children employed in agriculture which forbade the application of this Act to them? From his own observation he would say that there were many reasons why this Act was more imperatively called for in agricultural than in manufacturing districts. The children of farm labourers were taken from school early, left the parental roof, and were hired by farmers from year to year; and he could confirm what had been said by the hon. member for Brighton as to the ignorance of children in agricultural populations compared with that of children in manufacturing populations. Farming, however, was now a very different thing from what it had been; clod-hoppers could not be trusted to deal with costly instruments, and farmers must of necessity have skilled labour; and on these and other grounds a good case was made out for the extension of the Factory Act to the children employed in agriculture.

Mr. Goldney said that the country gentlemen did not fear the extension of education among their labourers, for no class of men had endeavoured to do so much in their position towards establishing schools and encouraging education as the country gentlemen. Speaking for the county of Wilts, at all events for the northern portion of it, in which he had lived all his life, he could say that in no part of it had the education of the agricultural population been neglected; on the contrary, it had been provided for in the most ample manner. The great difficulty that was experienced was in getting the children to school. In some cases, no doubt, the parents were desirous of adding to the comforts of their families by the earnings of the children, but in most instances the children stopped away because they preferred to go bird-nesting, or rabbiting, or something of that sort, and the country gentlemen had even offered premiums for getting them to school. It was a trying time for a child to be taken from school at 11. He believed it was Dr. Johnson who said that no one learnt anything before 12. What he wished to point out in the first place was that there was no objection on the part of the landed interest to have the children well educated. But the mere fact of preventing farmers from retaining the labour of those children for more than half a day or half a week would not meet the evil; there must be some compulsory power, as in Prussia and other parts of Germany, to keep the children at school, or all other efforts would be vain. The extension of the Factory Acts to the agricultural population would not give the results they desired. And now a word with regard to payment for labour. In the northern portion of Wilts they had a large railway, they had quarries and factories; labour there was in great demand, and men were employed at very high rates. But what did they find to be the practical result? Why, that labourers, after having been employed on the railway, in the quarries or factories, at high wages, come back to the farmers and say that they prefer agricultural work, even though with lower wages. Agricultural labourers did not expend such an extraordinary amount of strength as was required in other employments. It was not from ignorance, therefore, but from choice that these men, having tried other occupations, went back to farm labour. In the northern portion of Wilts agricultural labourers were, he believed, as happy, as well educated, and as well disposed as in any other part of England, and both landed gentry and farmers were ready to do everything in their power for the purpose of encouraging education.

Mr. Trevelyan said it had been stated that country gentlemen as a class were favourable to education. They had shown, when the Factory Acts were under discussion, a disposition in favour of the education of factory children; let them now extend the benefit of those Acts to their own

labourers. The hon. gentleman cited the authority of Dr. Johnson to the effect that a child learned nothing before 12. There was a good deal of truth in the remark with respect to the higher species of education, but the Education Commission, over which the Duke of Newcastle presided, found that though after the age of 10 a child was more capable of understanding the higher branches of learning, it was quite possible that before that age he might learn to write a letter and add up a sum. The resolution of his hon. friend had given satisfaction to all who hoped for the removal of ignorance from the land. When the right hon. gentleman brought on his Bill for the improvement of the Factory Acts they would hear a good deal about the Manchester and Salford Education Society. That Society divided Manchester and Salford into 144 squares, and made a diligent house canvass, and the result of their inquiries might be summed up in this—that half the children between the ages of three and 10 were running about the streets, no more educated than Caffres. If that was the state of the case in cities whose names were synonymous with English progress, how must it be in agricultural districts—not in such districts as that where the hon. member for Chippenham (Mr. Goldney) resided, but in others? In 1859 an examination, instituted by the military authorities, showed that out of 10,000 soldiers, taken at random, 2675 were unable to write, and 2080 unable to read. A large proportion of the recruits came from the rural districts, and the cause of this ignorance was that poor parents, in order to augment their small earnings, removed their children from school, and set them to perform agricultural operations suited to their tender years. The only hope for the extension of education rested in an educational rate, for schools only existed at present in a small majority of the country districts, and for the support of these the clergy in many cases taxed themselves to the extent of 20 per cent. of their stipends, while the landowners contributed much less liberally. Indeed, in one district in the centre of England 169 clergymen subscribed on an average ten guineas each per annum, while 400 landowners, whose united incomes amounted to 650,000*l.*, gave only 200*l.*, or 10*s.* each. Education in the rural districts depended so materially on the clergy that he could not find it in his heart to enforce the conscience clause so long as such a burden rested upon them. An educational rate would oblige all classes to bear their fair share of the expense, and would, moreover, act as an indirect compulsion on parents to send their children to school, for the experience of Canada and Australia showed that when people were taxed for the support of any institution, they were almost certain to avail themselves of its benefits. In Prussia, out of 100 recruits only two were unable to read and write, and we, who had abundance of money and possessed the spirit of local self-government, advantages which foreign nations lacked, ought to be able to keep up with them in the race. He hoped that in the next or following Session, or at the first opportunity after the flood of Reform had subsided, the advocates of a comprehensive scheme of national education would unite in passing a measure which would show that our ancient and time-honoured institutions were compatible equally with those of Germany, Switzerland, Holland, and America, with the universal diffusion of morality and religion.

Mr. READ thought the number of children under nine years of age employed in agricultural pursuits had been exaggerated, for children so young would generally be of no use. It was only exceptionally that they were engaged in bird-keeping, hop-picking, and minor operations in the harvest field, and then it was generally at a time when the schoolmaster was taking his holiday. In factory work seasons, weather, and daylight were of little consequence, whereas on the farm everything depended upon them. Moreover, a child taken out of a factory had to go but a very short distance to school, whereas in the rural districts a child on an average would be obliged to walk considerably more than a mile. It was impossible, therefore, to give half a day to school and the other half to work on the farm, and the best plan seemed to be to devote half the week to the former and half to the latter. Great benefit had accrued to the rural districts from night schools, not merely in keeping up the slight elementary education which farm boys received, but in preserving them from bad company and employing their winter evenings. Too often, however, few persons besides the clergyman and a few irregular volunteers took an interest in them. He thought the Government would do well to grant a little pecuniary assistance to the best of these schools.

Sir F. CROSSLEY said the Factory Act had operated very beneficially, and the principle of that Act had been applied to many other trades, and he was not aware of a single failure. Beneficial results had invariably followed. He himself had a farm at Somerleyton, in Suffolk, but, though a day-school was established there, he found there was a great difficulty in getting the children to attend it, because their parents persisted in sending them to work in the fields at too early an age. He once suggested to his manager that the children should labour and go to school on alternate days, but the reply was, "Well, sir, if I do that, I shall not be able to make the farm pay." If boys and girls in agricultural districts were better educated, they would have chances of rising in life which they had not under the present system, and for his part he did not believe that a man would be dissatisfied with labour because he had received a good education. He hoped this subject would be well pondered over. He felt satisfied that if the principle were adopted that children under 13 years of age should not be employed in agricultural pursuits, unless they had a certificate showing that they attended school, the most beneficial results would follow.

Mr. M'LAGAN, as one who was more connected with agriculture than with any other profession, tendered his thanks to the hon. member for Brighton for having introduced this subject. It was evident some measures, compulsory or otherwise, must be adopted to enable the agricultural labourer to keep pace in education and intelligence with other labourers, and this was the more necessary now that the model system of farming had been introduced, and machinery was being so extensively employed in agricultural operations. But before a man was compelled to educate his children it ought to be ascertained whether there were means sufficient for the purpose. In some districts there was a woful deficiency in the means of education, though in other districts where the means were abundant there existed great apathy on the part of the parents in sending their children to school, and this was the more perceptible where there was a great demand for children's labour. He did not see how the plan proposed by the hon. member for Brighton could be applied to agriculture. Taking labourers away on alternate days would interfere with the working of the farm, while the education would not be what it ought to be, because teaching to be effectual should be continuous. Altogether he thought the plan of the hon. member who last spoke much more feasible than that of the hon. member for Brighton.

Mr. BRUCE: Agricultural labourers are of very different classes. Labourers in the neighbourhood of populous cities are comparatively well off. In my part of the country, for instance, few labourers receive less than 3*s.* a day, and in many parts of Yorkshire agricultural labourers are well off. They may want, and I believe they do want, improved education, but all that you need do with respect to them is to see that further means are taken for the education of their children. My hon. friend the member for Chippenham has stated that in the north of Wiltshire the condition of the agricultural labourers is very different from that described by the hon. member for Brighton, but I think the hon. gentlemen may have had in their minds two different classes of labourers. During the winter months it is usual to give steady employment to the married labourers, while a large portion of the unmarried labourers are thrown upon the poor-rates. It is so elsewhere. I offered to find employment for 100 labourers in one part of the country, who I was told had to subsist upon 8*s.* a week wages. That showed something radically wrong. It arose from the same cause which has created that miserable state of society in Spitalfields and other parts of the country—the improper distribution of manufacturing labour; and this arises from ignorance. I believe that the emigration which has done so much for Ireland may be traced far more to the increased knowledge of the people in regard to the resources of other countries than even to the misery which has been experienced. I agree with the hon. member for Halifax that much of the success which has attended our factory legislation is owing to the fact that we have proceeded gradually and cautiously. At the same time, I think that the amount of experience we have gained justifies a much bolder application of the principle. No doubt we shall hear from the right hon. gentleman at the Home Office that it will be his happiness and privilege to introduce a measure which will affect millions of our working population. It will probably have a wide scope, and embrace all but the agricultural population, and when that is done it will be impossible to keep out the agricultural population.

Mr. WALPOLE: I will not disguise from the House that I do think that the general question of education must come, and at no distant period, under the immediate consideration of the House, for the purpose of extending the benefits of education, especially in those poorer districts, where the means of education are less generally provided. But I wish to ask the hon. member for Brighton whether there are not conditions and circumstances connected with trades in large towns which make it difficult to extend the operation of those Acts to rural districts, even in regard to compelling the children to receive education. I will not say that those Acts may not be extended to the rural districts in some of their provisions, but taking the words of his motion, I would suggest that the condition and circumstances of the rural districts are such that the provisions of the Factory Acts, even in regard to education, are not so applicable to agricultural districts as to the larger towns. Just consider what the principles of the Factory Act are with regard to education. They are that the children engaged in factories shall be compulsorily required to attend school—that they may attend those schools either on alternate days for not less than 5½ hours, or on every day in the week for three hours at a time at one part of the year and two hours at another. These provisions are enforced partly by penalties on the parents, partly by certificates; and the means by which these penalties are enforced is by a general inspection. This can be done in your larger towns where the houses of the parents of the children are not far removed from the place of work, where the schools are known, and the means of inspection either insure proper attendance of the children, or prevent them from working in the factory. But when you apply these conditions to the rural districts the reverse is the case. The houses of the parents are removed from the fields in which they are employed. The schools will also often be distant, and if you adopt the system of morning and evening attendance there is a danger of their not being enforced unless there is a danger of their not being enforced unless there is some one to see them carried into execution. I have some apprehension, recollecting an observation made at this side of the House, that it is essential for the early education of the young that instruction must be as continuous as you can make it. If there be any interruption or break in the instruction it must impede the progress of the child in his educational studies. Let not my hon. friend the member for Brighton suppose that in making that observation I wish to thwart him in the object of obtaining a better education for the children in agricultural districts. I rather think the suggestion of the hon. member for the West Riding would probably meet the difficulties better than any other I have heard made—namely, that when a child is required to work at agricultural labour, as children are in the factories, there should be a certificate given to state that the education of that child is going on at the same time. I will frankly add that, having gone carefully through the reports which have been made, I have arrived at the conclusion that some of the principles of the Factory Acts you will have to extend to the agricultural districts. Whether it will be necessary to extend the power of the Commissioners, so that they may inquire not only into cases in which children are employed in gangs, but also into cases in which they are employed not collectively, is a question on which I should rather the House would not expect me to give any opinion now. I mention these matters now to show my hon. friend that none of the topics which are material for a consideration of the subject have escaped the attention of her Majesty's Government; but, looking at the terms of the proposal, and having made the declaration I have made, I trust my hon. friend won't think it necessary by an abstract motion to press his proposition to a division.

Mr. FAWCETT, in replying, said it had been far from his intention to ignore the zeal shown on behalf of education by many country gentlemen and ministers of religion; and, indeed, the very persons among these classes who had bestowed most time and attention upon that cause were precisely those who in all parts of the country had most emphatically implored him to stir in the matter. He had been greatly pleased with the whole tone of the discussion, and felt particularly gratified by the speech of the Home Secretary, not only because it was very kind and courteous towards him personally, but also because the right hon. gentleman had evidently considered the practical difficulties of the subject. There were, however, none of those practical difficulties which had not been carefully considered by himself, and therefore he was the more confirmed in the opinion that the educational clauses of the Factory Acts might, with modifications, be applied to agriculture. He should be sorry to impede the passing of the measure for the extension of the Factory Acts which the right hon. gentleman had promised to bring in. He believed the measure would be most valuable, and he thanked the right hon. gentleman for undertaking to introduce it. But after that discussion it was his present intention, with the assistance of his friends, to frame some clauses affecting agriculture which he desired to add to the right hon. gentleman's Bill. But although he thought those clauses might be adopted, yet, if he found when the Bill was discussed that they would in the least degree jeopardise the passing of the Government measure, he pledged himself at once to withdraw them.

FARM LEASES.

(1). It must be remembered that a tenant has generally the greater part of his capital invested in the live and dead stock of his farm; and it is not only from the crops which he grows from year to year that he expects to get a return for his capital, but it is the investment of that capital in the particular sort of stock most suitable for the requirements of the farm the tenant has to consider; and how is he to do this to the best advantage if he has no security of tenure? It is, I believe, too often forgotten that the investment of a tenant's capital is not altogether in the land, but also in the stock which he feeds, and a farmer does not realise a return for his capital—more particularly in the case of breeding flocks and herds—for some years after its investment. It is for this reason I consider a tenant should have security of tenure: and I do not know how this is to be accomplished so well as by long leases.

(2). Assuming, then, that leases are preferable to a yearly tenure, the first question which arises is, which is the best time of entry? I believe the sooner the outgoing tenant is out, and the incoming is in, the better for all parties concerned. A Michaelmas entry facilitates this as well as any, especially if the outgoing tenant sows the Turnips which the incoming tenant takes off at Michaelmas, so that all the outgoing tenant has to do after that time is to thresh out his corn, and the incoming tenant enters upon the whole of the land at once. The tenant having entered on the farm, the question arises, under what restrictions ought he to be with regard to its cultivation? and the landlord has to take care—first, that his rent is punctually paid; and, secondly, that his farm is managed in such a manner that it shall not deteriorate in value. With regard to the question of repairs I do not enter into it, as that must be a question between the individual parties. However, I think that in the case of a short lease, or of a yearly tenancy, the repairs ought to fall more upon the landlord than in the case of a long lease, as it would be very foolish for a tenant to enter a farm where repairs are much needed, and to pay a good share of those repairs, unless he had a certainty of reaping a benefit from them.

(3). How is the farm to be cultivated? I suppose neither landlord nor tenant will deny that the farm should be kept as clean as it is possible under ordinary circumstances to do, for in some seasons it is almost impossible to do as one could wish. What I say is, allow the tenant to pursue what course of cropping he likes, only restricting him as to the number of acres of exhausting crops which he shall grow. I shall assume that, as a general rule, only these crops are exhaustive which are sold off the farm; and supposing the tenant is allowed to sell only the produce of white-straw crops, I would say that in no one year shall the tenant grow on more than one-half of the arable land white-straw crops; that is, supposing the farm to be 400 acres of arable land, only 200 acres should be in corn; but I would not restrict him as to what particular fields shall be sown in each year. Circumstances may arise in which a tenant may find it advisable to repeat a crop or to leave one out, and the tenant ought to be the best judge how the land should be cropped. Of course, in the last year of the tenancy, provision should be made that the land should be left in its regular course.

(4). Then, as to the remaining half of the arable land, we assume it to be in some green or forage crop, to be consumed on the farm, believing as I do that the successful cultivation of a farm, and the providing food for the greatest number of stock on that farm, depends on the growth of the greatest quantity of feeding stuffs which this part of the cropping is capable of producing, and this great quantity of feeding substance is not to be obtained without a corresponding outlay in manure to promote the growth of the same. And, further, I believe that the true *rationale* of successful manuring, so as to keep up the continued fertility of a farm, depends—notwithstanding what has been said to the contrary—on the mineral ingredients we supply in manure. It is true, that by the application to the soil of nitrogenised and other organic substances we can increase our crops; but we must remember that it is at the expense of the other constituents of the soil; for instance, supposing the normal yield of the soil to be eight sacks per acre, this quantity takes from the soil say 200 lb. of its mineral constituents, and by the application of ammoniacal manures only we can increase the produce to 10 sacks per acre, carrying off 250 lb. of mineral constituents of the soil. It is evident the soil must be proportionately exhausted by the difference between 200 lb. and 250 lb. In fact, if any one wants to exhaust a soil indefinitely, let him manure that soil with organic manure free from mineral ingredients, and he will do it quicker and more effectually than by a system of starving crops without manure at all. But what has this to do with the production of forage crops? Simply this, I would say, assuming that the tenant is at liberty to crop what part of the farm he likes with corn, so that he does not grow more than the allotted quantity, I would oblige him to manure the remaining part of it with manure which shall permanently increase the fertility of the soil. Thus, assuming the remaining 200 acres to be in some green crop, we suppose one-half of this, that is 100 acres, in Turnips; these Turnips should be manured with two sacks of bones to the acre, or their equivalent in phosphates; that is, the farm shall be manured annually with 200 sacks of bones, or their equivalent in superphosphate, or some other phosphatic manure, irrespective of the farmyard manure which may be made on the farm; and if these Turnips are fed on the farm, the land must become richer in these mineral ingredients, Now, with regard to the hay. On many farms there are restrictions as to selling the hay, and I am not prepared to say this is not wise, except under certain conditions. But then the question arises whether it would not be advantageous to the tenant, and, at the same time, not detrimental to the farm, if the tenant were allowed to sell a certain portion of the hay or straw, on condition of bringing back to the farm its equivalent in cake, or some other feeding stuff. Again, if any Peas or Beans are grown on the remaining one-fourth of the land, these should be fed on the farm and not sold off. Circumstances may arise, such as the failure of the Clover plant, in which it would pay the tenant

better to plant with some Pulse crop; still, these crops should be reckoned as forage crops, and as such be consumed on the farm.

(5). With regard to the question of tenant-right, it has been said that a well-devised tenant-right would do away with any necessity for leases; but I cannot see that this is the case, as what a tenant requires is not altogether to be paid for what he has done for his own advantage, but the great thing he requires is security of holding. True it is that, under some of our large landlords, especially in this county, tenants have held, or from generation to generation, without leases and without changes, and where a tenant gets under such landlords he is generally safe; but this is no argument against the granting of leases in general, and my object has been briefly to state my opinion that, whether by the granting of long leases, or a well-digested system of tenant-right, the great thing which a tenant has to look to is security of tenure, in order that he may freely invest his capital. But does the granting of leases do away with the necessity of tenant-right? I think not. If the argument holds good that the farmer in the last years of his lease is apt to take out of the farm what before he had been putting into it—make it worth his while to continue his good management whether he leaves it or not, and if there are any permanent improvements made by the tenant during the latter years of the tenancy, he should be partly reimbursed for his outlay.

(6). With regard to game, I look upon this as really a question between landlord and tenant, which ought to be settled when the bargain is first made. If tenants will take game farms, knowing them to be such, whom have they to blame but themselves if they do not take them at proportionate rents? It is absurd to think, as some people do, that the Legislature should step in and restrict the quantity of game. Cannot a man do what he likes with his own? If Lord —— chooses to stock his estate with rabbits instead of with sheep, let him do so; but at the same time let him farm it himself, and not let his land to a tenant and then stock it himself. The great cause of disagreement between landland and tenant with respect to the over-preservation of game is this:—A farmer goes to look at a farm; the farm pleases him, but he sees there is game. He mentions this to the landlord. The landlord says, "Well, I know there is game; but as to the rabbits, I will do my best to keep them down, so as not to do you any harm." On this understanding the farm is taken: but the rabbits are not killed until they have done the damage. After the corn and Grass are eaten the rabbits are destroyed. "After the horse is stolen, the stable door is locked." There is nothing more annoying to a tenant than to go round his farm day by day and see the destruction occasioned by rabbits and hares and be powerless to prevent it.

[The above is a paper read by Mr. Galpin, of Brockhampton, before the Dorchester Farmers' Club.]

A PAPER ON PARASITES.

[The following is an abridgment of a paper on Parasites and Parasitic Diseases as they affect our Domesticated Animals, read at last week's meeting of the Royal and Central Bucks Agricultural Association, by Mr. George A. Lepper, of Aylesbury.]

Parasites that are located on the body, are called epizoa; those that are internally placed, entozoa; and those that are sometimes in, and at other times out of the body, ectozoa. As a matter of course those that are internally placed will occupy the greater part of our attention this evening, because we, as agriculturists, suffer most from their ravages.

Epizoa.

The flea is the most active of these. There are about 25 varieties of this insect, and we are all aware of the extraordinary agility with which it is endowed. It is said that a flea can jump 200 times its own length, and raise a weight equal to five or six times its own. The female lays eight or ten eggs, which hatch in about 12 days, and give birth to a larva, which is somewhat of a very small caterpillar shape, thin, tapering, and divided into segments; it has neither legs nor eyes, but crawls like a worm; at its caudal extremity or tail two hooklets are placed to enable it to retain its position and prevent its falling from the animal while moving about. The larvæ pass on to the third stage called pupa or chrysalis, and they, by changing their skins two or three times, lose the form of chrysalis and assume that of the flea in active life. The irritation produced by these insects on the skins of some animals is very great, so much so that I have seen dogs brought almost to death's door by its effects. I would recommend those of you who keep fancy dogs to make them frequently sleep on fresh yellow deal shavings; they will then have no fleas to annoy them. When it is necessary to use any application to the skin, dissolve 2 ounces of sulphide of potassium in a pint of cold water, and apply two or three times a-day.

The Louse attacks all animals; birds also suffer very much from its ravages. There is a great variety in this class, depending on the animal on which they are located, and at times there are two or three different species to be found on the same animal, but there is a peculiar characteristic appearance about the whole family, with their round heads, flat bodies, and short legs, that after having once been seen they cannot be mistaken. They multiply to an astonishing degree, laying eggs, which are commonly called nits, from which the parasite comes direct, and merely changes its skin two or three times. There are two distinct kinds occasionally met with on the horse, which some of you may have noticed. The larger ones of the two are darker in colour, and are supplied with a rostrum or sucking organ, which, when introduced into the skin, produces a great amount of irritation. The smaller ones have no sucking organs, but are what are called masticators, feeding upon the exudations from the skin, produced by their own irritation. They lie close to the body, and when they are numerous at times are difficult to detect, but if your suspicions are aroused place the animal in the sun, and the parasites will then quickly come to the surface. Innutritious and insufficient quantity of food, inclement weather, dirty skins—in fact, anything which tends to poverty, predisposes all animals to attacks of these parasites. I have frequently seen animals that were supposed to be labouring under some serious disease, accompanied with so much debility and prostration that they could scarcely get up when down, which was attributable solely to the attacks of these parasites. Animals frequently require to be dressed two or three times before these parasites are got rid of, for unless the ova is destroyed a fresh batch of young ones will be produced. Infusions of tobacco and mercurial applications are best to destroy these parasites, but in the use of the latter care must be taken, or serious mischief will frequently result.

The Tick is another blood-sucking insect that infests most of our domesticated animals, but principally the dog and sheep; there are many varieties, which are to be met with in all localities, but principally in light warm sandy districts, where plantations and woods abound. The peculiarity of the dog-tick is its rostrum or sucking proboscis, which it inserts into the skin, and being barbed or roughed, it retains its hold of the animal without any exertion on its part; its body consists of a large oval sac, in which it can retain large quantities of blood for its future sustenance. The sheep tick, commonly so called, is a different insect from the foregoing, and passes through a variety of metamorphoses. Eggs are laid, larvæ are produced, and they pass on to the pupa or third stage of reproduction before leaving the parent. This insect, although looked upon in this neighbourhood as comparatively harmless, is in some districts very troublesome, and it is of paramount importance that they be got rid of both as regards the comfort of the sheep and the pocket of the owner. Sheep dipping is universally admitted to be the most effectual as well as the most economical mode of getting rid of these and all other epizoa that attack sheep, not forgetting the acari, which cause the disease known as scab in sheep, the itch in man, and the mange in horses and other animals. Various formularies have been advocated for dipping compounds; they may be divided into two classes—vegetable decoction and mineral solutions; there is much less danger to be apprehended from the use of the former than that of the latter; for some short time since we were constantly hearing of deaths occurring either to men, horses, cattle, sheep, and pigs, through the carelessness of those who had the care of the dipping apparatus, or by inadvertently throwing the solution, after being used, into a ditch, to which the animals had access; but I am pleased to say that these matters are better arranged now than formerly. The vegetable decoctions are principally derived from Tobacco, Henbane, Hellebore, and Digitalis or Foxglove, and the active agent in most of the mineral solutions is arsenious acid. There are also compounds in which carbolic acid takes a leading part, but not having used it myself, I am unable to form an opinion of its value, but whatever the formulary may be, the compounds of sulphur ought always to enter largely into it.

Entozoa.

The Liver Fluke, with which I am fearful that many of you will shortly be too familiar, having had a few cases of rot brought to me already. This disease is less frequent in its attacks than formerly, consequent on the improved state of agriculture, deep draining, &c. About 100 years ago the sheep in this Vale were visited with a very severe attack of rot, and there have been many outbreaks since, but at that time some farmers lost the whole of their flocks, and it is said of others that they lost two flocks during 12 months, and many persons were entirely ruined by it. At Stewkley, or as it was then called, Stutely, a farmer drove the whole of his flock, consisting of 100 sheep, to Leighton Buzzard market, and sold them at 6*d.* per head rather than have them back again and see them die. I venture to say that at that time store ewes, if sound, would not have made their 3*l.* and 4*l.* a head, as in the present day. Flukes, I need scarcely say, are generally found in the biliary ducts of the liver, but they have been discovered in nearly every part of the animal tissue; both sexes being combined in one insect. When matured they lay large quantities of eggs, and these pass from the liver into the alimentary canal, and are eventually cast out with the egesta, and it is away from the parent, if I may so term it, that the great metamorphosis of these parasites takes place. During their transformations they are to be met with in most stagnant waters, ponds, and in all low wet situations. There are supposed to be 400 kinds of fluke, and they are wonderfully distributed, being found in birds, fishes, reptiles, and in all animals, more abundantly in those that ruminate. The egg of the distoma or fluke gives birth to an embryo, in the interior of which is developed an organism called a germ sac, and at its first separation from the embryo no distinct form can be traced, but very quickly after the head, body and tail can be distinguished, and in a short time another organisation may be seen within the cavity of this body in an advanced state of development. These very quickly after they leave the germ sac attain their full development. As soon as this is completed they locate themselves within the body of some aquatic insect, where they remain dormant. This constitutes the pupa or third stage of the fluke, and it is at this stage of its development, and by this means, it is conveyed into the body of some higher order of animals, there to be fully matured into the adult fluke. I have thus shown you its life cycle, and being so diffused on the face of the earth you may naturally ask how it is that other animals are less liable to its attack than the sheep. It may be presumed it is because the sheep bites its food close to the ground, where the penultimate form of the fluke abounds in wet, warm seasons, and, being a ruminating animal, these encysted germs may remain in the rumen, or first stomach, for a long time, and are not there subject to the action of the gastric juice, which, I believe, destroys a vast number when taken into the stomachs of non-ruminating animals, and this will account for horses grazing without risk in pastures that are certain to rot sheep. To produce rot we must have a great amount of moisture with an elevated temperature, and then millions of these germs come to perfection which would otherwise remain dormant or decay. It is stated that sheep fed upon the salt marshes never take rot; and this I believe to be true. And why is it? Because the penultimate form of the fluke cannot live there. No eggs, no embryos, no sporocyst, or germ sacs, no cercariæ are to be found here. The earth, and consequently the herbage, contains so much saline matter that if placed here they do not come to perfection, but die. Now this precept from nature teaches us a most important lesson—how, in a great measure, we may prevent sheep from being affected with this disease. If any of you hold lands that are likely to produce this disease, have your sheep located on the highest and driest parts of your farm; have them folded every night, and feed them with dry succulent food, with which mix a moderate quantity of common salt. This will in a great measure prevent the formation of flukes by destroying them in their early stage of development. I have no hesitation in saying that by allowing sheep to feed for one hour on some situations, sufficient amount of mischief may be done to produce "the rot." Take care of your sheep, and prevent them as much as you possibly can from taking this disease; for remember this, that when once it is generated there is no cure. Palliative measures may be adopted in the early stages with considerable benefit; but when once a rotten sheep, always a rotten sheep.

The Tape-worms are easily distinguished by their elongated flat bodies being divided into several joints or segments. The head is furnished with suckers, so that it can hold to the intestines of the animal in which it may be placed. This parasite is very widely diffused, and has been found uniformly distributed throughout the animal kingdom; it may be said to form a colony in itself, for every joint or segment is supplied with reproductive organs. These segments are called zooids, in which eggs are formed and embryos are developed. Before it leaves the body of the worm, these zooids pass out of the animal with the egesta, and then have an independent existence; but it is of short duration. By the growth of the large number of embryos it contains it soon bursts, and the embryos are thus scattered in all directions. After a time pigs, dogs, or some other animals get them, being mixed with their food, into their stomachs, where some remain, but others bore their way through the animal tissues, and locate themselves in the fatty parts of the body. Should it be in that of a pig, we get what is usually called "measly pork." This meat, being eaten by man or some other animal in an imperfectly cooked state, replaces them in their natural home, where they again become fully developed into the tape-worm. Many of you have noticed those little bladders of water, as they are called, situated in different parts of the body, more particularly on the liver and lungs. They are "hydatids," and are also products of the tape-worm, and if taken into the body or intestines of other animals again assume their primitive form. In some localities these parasites are a great annoyance to flock-masters on account of the injury they cause to his young flock; and knowing how subject the dog is to these insects, consequently a great distributor, I would suggest that he be allowed to remain near the flock as little as possible, and his food ought always to be well cooked. Various medicinal agents have been recommended for the destruction of these parasites, such as the root of Shield Fern, the seeds of the Pumpkin, the oxide of silver, &c., but I know of nothing more effectual than the various preparations of turpentine, in conjunction with mineral tonics; and I prefer those of iron, because it enters very readily in the composition of the blood, thus giving additional tone to the system.

Round Worms, like the tape-worm, deposit eggs, and the migratory system, as it is called, takes place. They leave the parent stock, become attached to water insects, &c., and are again returned to their ultimate destination. They are to be met with abundantly in the intestines of all carnivorous animals, also in the horse, cattle, sheep, and poultry. It is stated that there are 800 species of these parasites, but Cobbold reduces them to 550. Each species is generally met with in its own peculiar situation. Thus we have the ascaris lumbricoides in the small intestines of horses; ascaris vermicularis in the large intestines and blood vessels; strongylus filariæ in the bronchi and air passages; also in the eyes of many animals, and thus we might go on *ad infinitum*. We will select

The Filariæ Bronchialis, or Worms in the Air Passages.

These parasites are met with in most animals, and are a source of great annoyance and loss to farmers. They, "like the tape worm," are introduced into the system principally with the food and water; by some helminthologists they are supposed to get to their destination through the circulation of the blood; by others during respiration. We find that young animals are more subject to their attacks than older ones; and that generally during the first year of their existence. Ruminants are most susceptible, but we do find them

in other subjects, for instance, in poultry they are very destructive, producing in them that disease known as "the gapes." During the winter of 1865 and the spring of 1866 many thousand tegs were lost in Romney Marsh alone, through these parasites, and many other places were equally unfortunate. The great question is—how are these attacks to be avoided? I believe that calves weaned early, liberally fed, comfortably housed during the winter, and not early depastured in the spring, so as to check that gradual improvement and development of the system which has been going on, will so fortify the animal against these attacks, that they will often pass over unnoticed; but should they make their appearance, they will be more subject to remedial measures, and the great losses which are sometimes sustained will be avoided. Various have been the suggestions for the destruction of these parasites, such as the inhalation of gases, tarring the animal's nose, physic and bleeding, large doses of sulphur, &c.; but we must have recourse to those powerful anthelmintics, the compounds of turpentine and mineral tonics, not forgetting a liberal diet, and these should be resorted to in the early stage of the attack, before the parasite becomes fully developed; it is then more easily destroyed, and there is not that great debility produced in the patient which often requires weeks or months to counteract.

The Gad Flies have the appearance of ordinary large flies, but their bodies are frequently ornamented with various colours, and many of them are covered with hair. They deposit their eggs on the bodies of animals, and each species attacks its own peculiar quadruped. Thus we have the æstrus ovis, or sheep fly; æstrus bovis, or cattle fly; and æstrus equis, or horse fly. The changes which these parasites undergo are peculiar.

Most of you have noticed the little yellow deposits on the hair of horses when at Grass during the summer, placed more particularly about the fore legs and shoulders. These are the eggs of these insects; after remaining there a few days the larva is hatched, which by its motion produces an itching sensation, which causes the horse to nab or bite himself; by this means it is taken into the horse's mouth, and passed on into the stomach, where it becomes attached by means of two hooklets, between which its mouth is placed, and there it remains until the following summer, when it releases its hold, and passes out of the body with the egesta, in which it continues a few weeks, and assumes the pupa or chrysalis form, the outer covering being hardened by exposure. The fly bursts from its confinement, in a few hours takes wing, seeks its mate, eggs are again deposited, and thus the perpetual circle is kept up.

Æstrus Bovis.—This follows the same metamorphosis, but is not taken into the alimentary canal. Eggs are deposited in the skin, on the backs of cattle, which accounts for the great excitement the gadfly produces among them. The larva is produced and remains until spring, suppurative action is set up, the hole by which it entered enlarges, it falls out, assumes the form of chrysalis, this bursts, and another fly is the result.

Æstrus Ovis.—This insect deposits its eggs within the nostrils of sheep, which causes them during the summer to congregate and hide their heads under each other, so as to resist the attack of these insects. Embryos are produced, which find their way into the frontal sinuses, where they remain their appointed time, become removed, and eventually form flies again. The larva of this insect was at one time supposed to penetrate the central cavities and cause gid, sturdy, or turnsick, as it is called, but we now look to the systicercus or hydatid state of the tape-worm to produce this disease.

DISCUSSION.

Mr. E. FREEMAN said: In the course of seven or eight years he had lost two or three flocks of sheep from rot. On one occasion he happened to have his cull ewes put on some Swede ploughing land, in November, and they were as sound as they could be; his store ewes ran over the Grass fields after November, and kept on them all the winter, and proved rotten. Now, these ewes must have rotted after November. In his opinion it did not matter what the season of the year was, provided there was wet land. He had not an acre of flooded land on his farm, but only wet clay land where the water stagnated in the furrows and was covered with a green scum, and the Grass grew through it. Those were the circumstances under which sheep would rot, no matter what season of the year it might be. He had lost nearly one half of his lambs one year from tape-worm, and no remedies that he applied were of any avail. He had seen a tape-worm at least six yards in length brought out of a lamb, all in one piece. When they got these parasites in almost endless numbers inside of a sheep, they knew what the consequences must be. In his opinion nothing would prevent their doing mischief more effectually than a generous diet given to them in the younger period of their growth. With regard to parasites in the lungs of animals, he might say the same. Calves were more subject to the disease than other animals, but he would say, keep them on dry food from August until October, and you will not have very much husk. He believed a generous diet was the main preventive of these diseases. There was no doubt that draining was the principal cure of the land.

Mr. J. K. FOWLER, having been a serious sufferer from sheep rot, could say that it was a matter of the deepest importance to them not only individually, but to the whole public at large. They had had recently a remarkable season. Indeed, they had had two seasons of excessive rain—from about last October twelvemonth to the present time, there had scarcely been a dry fortnight, and it behoved them all to watch with the greatest care their flocks. When the rot in sheep was very prevalent some time ago—in 1853—he unfortunately lost a whole flock of 100 ewes. He sold 70 otherwise valuable tegs for 40*l*. He used to go into his sheepfold in a morning and see, out of 120 of them penned on Swedes, six, or eight, or ten of them dead. This went on daily. The disease was so insidious in its advances that young farmers could not count its effects until the whole flock was destroyed. He mentioned this to show that Mr. Lepper was right when he said that when sheep once had the rot it was impossible to eradicate it. It would have its course and destroy the animal. That year he lost from 300*l*. to 400*l*. worth of sheep. It behoved them to look carefully to the methods by which they meant to tend their flocks next year. He firmly believed that the basis of prevention of the disease was deep drainage — a thorough drawing off of the water from the land. Mr. Freeman had said that the green Grass grew through the green film which lay in the furrows; and he—Mr. Fowler—believed that was one cause which generated parasites. The damp situation had something to do with it. He thought there was much justice in Mr. Lepper's remark as to the impoverished state of cattle. This was the case with the production of the louse. So it was with the human frame; the poorer the person or the poorer the district, the more general they would find the state of the inhabitants usually called "lousy." Then, as he had had some experience in poultry rearing, he would say it was of equal importance to look at the poultry yards. Mr. Lepper had mentioned parasites in fowls. They all knew how fowls loved to get to a bit of dust and would dust their feathers, and if they could find lime or ashes, how they would dust themselves! But they understood what ashes meant, and that they were perfect preventives of the flea and the louse. As to gapes, thousands of chickens and turkeys were lost from that cause. It was a small worm: and it was thought that by passing a small feather dipped in turpentine down the throat it would draw up the worm. But the worm did not exist there; it was to be found in the air tubes, where it was generated. Mr. Lepper had alluded to the use of salt. He (Mr. Fowler) thought it was of advantage to lay salt in the fields, in the feeding houses, &c., for their animals. They scarcely knew how fond they were of it, and how they licked it up. They knew, in fact, better than their owners what they wanted. As a practical turn to the paper he would ask them to see what they could do by putting rock salt especially about their fields.

Home Correspondence.

Choked Drains.—I have just opened a drain made about six years since, 3 feet deep, and was much surprised to find it quite choked with roots. I had no idea that the usual herbage of a pasture field could penetrate to such a depth; but it is a matter of much importance, for one would hesitate much before one laid out much money in draining pasture land if aware that the drains would become so choked in five or six years as to require renewal. I inclose a specimen of the root. *Cor.*

Societies.

ROYAL AND CENTRAL BUCKS: *Water Supply.*—At the last monthly meeting of this Society the Rev. J. C. Clutterbuck, of Long Wittenham, Oxfordshire, read a paper on "The Water Supply of the Vale of Aylesbury," from which we make such extracts as bear upon the general subject of water supply. He said:—All water supply is naturally divided into flood and perennial; the flood thrown from or stagnating on the surface so soon as the impervious or clay soil is saturated to repletion; the perennial by a simple natural process of inversion sinking into and accumulating in the permeable or porous soil, when that soil can take up and retain no more water in suspension. Taking the total yearly rainfall at 24 inches in this locality, or 2 feet in depth over the whole surface, the proportion either thrown from the surface in flood, or sinking through and retained in the soil, will probably vary from 5 to 7, or an average of 6 inches per annum, though the quantities and variations will in some seasons far exceed those figures.

The River Thame, by which the Vale is drained, runs south-west, with a tortuous course — a common characteristic of rivers which find their bed, as this does, almost entirely on clay, with a slight fall, shown by the small number of mills on the main stream. It joins the Thames near Dorchester, in Oxfordshire. It receives the greater part of its perennial water from several small affluents which issue from the lower chalk or upper green sand. There are seven of these streams of sufficient power and fall to supply mills within a short distance of their several sources; whereas it does not appear that the water of any of the numerous streams or water-courses supplies such power from the north and north-east. Thus the chalk, with its underlying green sand, is shown to be the great water-bearing stratum, taken as supplying perennial water to the Thame, or as a supply to the southern limb of the Vale, which but for this would be sorely short of water in seasons of drought. Doubtless in many places the water accumulates in drifts of gravel overlying the clay, which, where they are found, retain water sufficient for ordinary domestic and other purposes. The main drainage of the chalk is in the same natural direction as the dip of the strata, to south and south-east. Hence the waters of the Misbourn, Chess and Bulbourn, affluents of the Colne, which, with the Wycombe stream, are affluents of the Thames. The surface of the water which accumulates in the chalk would be described by an inclined line rising from the outfalls which constitute the sources of these streams, and culminating, say, halfway between these sources and those which deliver their water under the escarpment of the chalk overhanging the Vale, towards which this line dips. There is no reason to enter into the engineering question of a scheme for supplying Aylesbury; the amount of water to be raised need not be great for the wants of the population of Aylesbury, not more than that consumed at a first-class railway station; and, moreover, any waste is guarded against by the expense of lifting the water a considerable height, though in this, as in all cases, any unnecessary waste is much to be deprecated. There are many points under the escarpment of the chalk and upper green sand where the water, issuing from the numerous sources, might be profitably utilised. At Addwell House, near Tetsworth, the mansion is supplied at high service from sources immediately above the Gault clay, in which no water is found, and from which the soakage is impregnated with many chemical impurities. On the property of the Earl of Macclesfield the chalk or green sand water has been profitably utilised in the vale below, a process which might be extended in other places, care being taken to allow all the overflow to find its way to feed the river below. The Gault clay, which underlies the upper green sand, here as in other localities, presents a flat surface, covered in some places with drift or gravel which, when of sufficient depth, will hold water. With this exception, the only perennial supply is that which issues from the chalk and green sand, and flows into streamlets across the Gault, which occupies one-fourth of the whole surface of the Vale. To the south-west portions of the lower green sand outcrop under the Gault, in other places patches of this previous stratum overlie the Portland or Aylesbury oolite, which immediately overlies the impervious Kimmeridge clay; where this occurs certain quantities of perennial water will be found, though seldom more than sufficient to supply the wants of the inhabitants, who, evidently attracted by these sources of water, are found in the greatest number on either of the outlying portions, as Brill, Thame, Chilton, Long Credon, Bierton, or on the outcropping portions, as Cuddesdon, Haddenham, Dinton, Little and Great Milton, Cuddington, Garsington; whereas on the Kimmeridge clay the villages are few and far between, except where on the banks of the main river or its affluents.

It is probable that a town was built on this spot, because the knoll of oolitic rock retained the water percolating its surface in sufficient quantities for its first inhabitants, supplemented by the small stream that conducts the water from the chalk. The former is utterly inadequate to the present wants of the town, and the latter, turned partly to other purposes at its source, is, like streams of the present day, made the carriers of various impurities. As another instance, it will be remembered that about 13 years ago an attempt was made to supply the Stone Lunatic Asylum with water by boring through the Kimmeridge clay, which is the great feature of the Vale, and which, excepting where covered with drift or gravel, yields no perennial water. It was thought that water might be obtained from the coral rag beneath the clay. Unfortunately the geological condition of the locality did not warrant this supposition; it was found that the middle oolitic rock did not intervene betweeen the Kimmeridge and Oxford clays, and though the lower oolitic rock was reached at about 550 feet, no available water was found. It may be well to remark that in no case, however, has water been obtained by boring through the clays which form so large a portion of the surface of the Vale, either in quality or quantity which would justify the recommendation of experiments being made with a view to obtaining a supply. To return to the case of the Lunatic Asylum. Fortunately it was found that other and higher sources were available. On examination it was discovered that from the peculiar geological condition of the hillock to the north of the Asylum it contained two distinct and well defined beds of water, which issued by springs at different levels from the lower greensand, Purbeck, and oolitic beds which here overlie the Kimmeridge clay. A section made at the time shows that a bed of fine white sand, quarried for commercial purposes, is separated by a clay bed, probably of the Purbeck, from the underlying oolitic rock; this upholds the water in the sand, as the Kimmeridge clay upholds the water in the oolite; this singular geological condition is a very interesting illustration of the character of the water supply from detached portions of porous strata overlying impervious clays. The middle oolite forms a considerable portion of the surface of the district to the south-west, included within the limits assigned to the Vale of Aylesbury, and is marked by the same water-bearing properties as the upper or Aylesbury series; it is underlied by the Oxford clay, which forms a small part of the surface of the district to the north-east, and as a general rule forms its northern boundary.

The subject of water supply has been treated, perhaps, too much as a geological question. But the expensive failures and mistakes which have come under the notice of the writer in an experience of a quarter of a century have convinced him that the greater part of these are due to an imperfect knowledge of the geological condition of the locality where water is sought to be obtained; hence it has been made a leading feature in trying to treat of the water supply in a district wherein a very complicated geological condition exists, as all difficulty is removed when this condition is taken into account. A good supply of water is all-essential to the inhabitants of any district. As we cannot increase the supply derived from the rainfall, to which all water, flood or perennial, is due, our duty is to regulate and economise its use. The supply of water in London, and very many of the great towns, is one of the problems of the day. The water springing in any district only so far belongs to its inhabitants as their necessities and comforts and interests require; as they receive it in its purity, so should it be transmitted to others, and though this has become the subject of legislative enactment, the moral obligation founded on the great Christian axiom is in no wise set aside—to do to others as we wish they should do to us. Whether hereafter the necessities of the Metropolis will claim the storage of the water of the Thames with a view to their economy it were hard to tell. That improvements in the carrying capabilities of the river are needed in some places is a self-evident fact, and it is equally plain that this cannot be accomplished without the united action of the owners and occupiers of the soil. Land drainage as an artificial process does not come within the scope of this paper, but natural carriers must be adapted to artificial necessities. In conclusion, looking at the natural phenomena of the rainfall, the way in which it is received, the ground on which it falls, either flowing directly from the surface or sinking whither it is stored in the earth and delivered again as regulated by the laws of geological hydraulics, by the action of which our streams are made practically perennial—all these phenomena present a subject of exceeding interest to the philosopher or moralist, and

bear the plainest marks of that wisdom and love by which the laws of Nature are ruled by Nature's God.

In amplification of the remarks in the paper, the lecturer went in considerable detail into the circumstances of the boring the Artesian well at the Stone Lunatic Asylum, where, after boring through the Kimmeridge clay in the expectation of finding water in the coral rag underneath, it was found that that stratum was entirely wanting, and they came upon the Oxford clay, also an impervious stratum. The chemical character of the water which comes when you get through the first clay into the Oxford is such, having a strong irony taste, that it is utterly impossible for any one to use it except for medicine. It happened that when Dr. Buckland, the great geological authority at Oxford, was in a state of health in which it was impossible to take his opinion, Mr. Tower, an old friend of mine, asked me if I would give an opinion on the boring which had already been begun. I name this because I have spoken about "expensive failures." I said, "I have no objection," and I came. When I saw how much they had bored, I was asked, "What had we better do?" I said, "Since you have gone so deep and spent so much money, it would perhaps be worth while to go on and see if you can get water." I made a calculation, judging from the levels of the railroads and from other sources of information, that the oolite would be reached at 520 feet. I think it was reached at 530, which was tolerably near. They did reach the oolitic rock at last, but it was found that no water came. Mr. Miller, who was then at the Asylum, was a very intelligent man, and I observe that they gave him the credit of having discovered the water with which the Asylum is now supplied. But I cannot say that is the case. I have found a little diagram and section which I made in 1854, and when they talked of it in 1856 they had forgotten this little section, giving the whole thing. However, people do forget, particularly when other men's brains are concerned. I had given my opinion very strongly that there was another supply of water to be had, and Mr. Simpson, the great water engineer, and Professor Phillips, now at Oxford, (then at York) had given their opinion. I remember seeing Mr. Simpson and saying "What do you think of it now?" He said, "Well, if they had asked you to look at it before, they would have saved 2000*l*." So that there are such things as expensive failures. It was thought that London could be supplied from underground, from the chalk which lies under London. Now I have always combated the notion that there is such a thing as an inexhaustible supply of water. I have said, "Give me steam power enough, and I will demonstrate the fallacy." The supply of London at this moment is some 100,000,000 gallons daily. Reduce that to cubic feet, and see what space that would occupy. And that must be pumped into London every day. The Thames cannot supply it. The water which passes down the Thames, in its low time, is not more than is pumped up at Kingston to supply London. With reference to the chalk, I will only say in general terms, that if anybody says the chalk can yield any quantity of water you like to take from it, that is not true.

Mr. HOMERSHAM said, as to London being in want of water, he would state that there was not the slightest difficulty in getting any quantity of water, nor as regarded the quality. No town in the world was so well situated as to getting a sufficient supply of good wholesome water for all its requirements as London. The Kent Water Company, until within the last 6 or 7 years, took their supply from the river Ravensbourne,—water of very bad quality, contaminated by sewage, such as ought not to be supplied to any house. The parishes of Plumstead, Woolwich, and Charlton decided not to put up with the quality of the water; they got together a company to sink a well into the chalk, and supply the district with pure water. Luckily, in the parish of Plumstead, they found a landowner who was willing to let them have the land they required without the necessity of going to Parliament. If they had been under that necessity, in all probability they would have spent 7000*l*. or 8000*l*., and their Bill would have been thrown out. They obtained permission from the local authorities of Woolwich, Plumstead, and Charlton to lay their pipes in the ground. They proceeded to construct their works, the water being taken from the chalk, and softened by Dr. Clark's process. In the course of 3 or 4 years, 90 out of every 100 houses in the three parishes took the new company's water, and gave up taking that drawn from the Ravensbourne. The Kent Company, seeing how fast they were losing customers, sank a deep well into the chalk, which cropped out on their own land, and set up a powerful engine, with the idea that they would drain the well of the newly-established company. The works of the new company were then under his (Mr. Homersham's) direction, and he was frequently meeting Mr. Morris, the engineer of the Kent Water Company, who said "As soon as you have 1000 customers we shall begin our wells, and drain yours." They put up an expensive engine, and pumped a million and a half or two million gallons of water per day, but it did not affect the new company's well in the slightest degree. Under advice they put up another powerful engine, and pumped from four to five million gallons per day, sinking two wells within 150 yards of each other. These wells were kept at work not at first for the purpose of supplying the consumers, for the water ran back into the Ravensbourne, but to drain the wells of the competing company. But the latter never felt the effect of their operations at all. Then the Kent Company began to try experiments on their own two wells, 150 yards apart, and to their utter amazement when they pumped from one it did not affect the water in the other, and they became certain that they could not affect the water of the new company's works. Eventually they bought the Plumstead Company's Works, giving up the supply from the Ravensbourne, and the whole of this district is now supplied from these wells, sunk in the chalk, including some 31,706 houses, according to a recent return published by the House of Commons. The company now supply some 8 or 9 million gallons per day, and only on the previous evening, at the meeting of the Institute of Civil Engineers, he met Mr. Morris, who told him that they had sunk two or three additional wells, and could, if required, supply 15 million gallons per day. As to the supply of water to London from the chalk, he might state further that the New River Company, as fast as they required more water, sank more wells, the water from which was thrown into their open cut—a very bad way of bringing it to London, by the way. They found no difficulty in getting any quantity they required.

The Rev. J. C. CLUTTERBUCK said he had come to read a paper on the water supply of the Vale of Aylesbury, and he did not intend, except so far as the Vale might be called upon to supply water for London, to touch on the question of the London supply. Some objection had been made to what he said on "inexhaustible supply" of water. He did not hesitate to say, in the face of all the engineers in England, that, unless from the ocean, there was no such thing. Of course (referring to some of the springs from the Chiltern Hills never being dry), he spoke of exhaustion not by natural but by artificial means. Mr. Homersham had told them a good deal about Kent, and he remembered having remarked, in a discussion at the Institute of Civil Engineers, that if there was one district with which he was acquainted, in which the pumping from wells would less affect the district than another, it was the Kent district. But they must recollect that the sources which flowed from the chalk were but the surplus of a subterranean body of water, and if in the neighbourhood of any river they pumped up a sufficient body of water they would drain the river. It was a fact that at one time the water level in the neighbourhood of London was at Trinity high water mark. Now it was 60 feet below that. The reason was that the breweries and other great establishments had pumped down the level to that extent. About 1840 he had access to the records of the well sunk by the New River Company in Tottenham Court Road, and he could tell at what periods pumping was going on at Reid's brewery in Liquorpond Street. Christmas, Easter, and Whitsuntide were all marked as distinctly as possible. He was bold to say that if Mr. Homersham would pump eight million gallons daily from any single chalk well, he would undertake to drink it. With reference to the Water Company for Aylesbury, they took an insignificant quantity, and they would do no mischief, but as to pumping anything like eight million gallons, they could not do it. As to the supply in Essex, which had been mentioned, that had never been tested, but he thought that if it were possible to take eight million gallons from that source, the East London Water Companies would not be going to Parliament for power to take ten million gallons from the Thames. He wished they could have kept to the water supply of the Vale of Aylesbury, but he protested against the idea that such a quantity as 8,000,000 gallons could be taken from any well in the world. *Aylesbury Paper.*

Farmers' Clubs.

DORCHESTER: *Agricultural Statistics.*—At a recent meeting of this Club Mr. G. Homer read a paper on this subject, from which we make the following extracts:—

1. *Political Uses of Statistics.*—Statistics have been described as that department of political science which is concerned in collecting and arranging facts illustrative of the condition and resources of a State. In order to legislate wisely it is necessary for a Government to obtain correct information on all those subjects upon which they are required to legislate. Sound statistical information is therefore indispensable to sound legislation, whether the subject relate to agriculture, manufacture, or commerce. Partial or limited statistics can never impart sound information. They can only lead to injustice and deception. The bulk of multifarious quality can never fairly be represented by sample; it is necessary to have full and complete returns where the qualities are so various. McCulloch says: "Observations are scarcely ever made or particulars noted for their own sakes. It is not until they begin to be in request, as furnishing the only test by which to ascertain the truth or falsehood of some popular theory, that they are made in sufficient numbers and with sufficient accuracy." And for the collection of them in sufficient numbers, and with sufficient accuracy, nothing less than the authority of Government is required. It is equally evident that, upon all subjects on which they are called to legislate, requiring such extensive information, it is their bounden duty to obtain it, care being taken that all unnecessary exposure of private circumstances should, as far as possible, be avoided. The observance of such rules as these will go far to do away with the objections which have been urged against the collection of statistics; indeed, it may be asked, why should exposure be feared in this case more than in those of the adjustment of poor rate or income tax? Until lately very little importance has been attached to statistical inquiry; but recently the more careful study of political economy has brought out its importance, and almost every civilised nation addresses itself to the subject. Indeed it has been said that the civilisation of a country may be measured by the completeness of its statistical returns. There is in this country a statistical department in connection with the Board of Trade, the province of which is to arrange the collection of statistical evidence on all subjects required by the Government. The most ancient statistical record in this country is the Domesday Book, completed in 1086, and this work, as might be expected at a time when manufacture and commerce were in their earliest infancy, has special reference to agriculture. It contains a complete record of a survey of the whole country, giving the names of the owners of all lands, the number of tenants and others of various ranks and callings, the quantity and value of lands, and whether in forest, pasture, arable, or waste. In some counties the numbers of cattle, sheep, swine, and working horses, are given. Surely it is somewhat strange that, although nearly 800 years have passed, this continues the most complete survey of the whole country yet made. This fact alone speaks volumes as to the fertility of our resources, the industry of our farmers, and the bounties of Providence towards us. Had periods of scarcity and famine been frequent, this important subject would not so long have remained in abeyance.

2. *Unpopularity of an Agricultural Statistical Inquiry.*—It is useless to attempt to disguise the fact that this question has been a most unpopular one with the agricultural body. The principal causes which have led to this feeling are, I believe, the following:—Firstly, the injudicious way in which it has been proposed that agricultural statistics should be collected. Secondly, because those at present collected are, either wilfully or from apathy and ignorance, most deceptive, and calculated only to mislead and to injure. Thirdly, the little confidence felt by agriculturists in that department of the Government to which their interests are confided—I refer to the Board of Trade. The schemes proposed for obtaining agricultural returns have been very numerous, and all that I have seen contain some objectionable feature. In a Bill brought into the House of Commons by Mr. Caird it was proposed "that in case the occupier did not make the return, any person duly authorised by the Board of Trade might, after three days' notice, take the necessary steps for obtaining the required information by other means, and for that purpose enter upon the land without being liable to an action for trespass!" In a Bill which passed the House of Lords the compulsory clauses were still more objectionable. Again, it has been proposed that the county police force should be employed in this work, the plain inference being that whilst these country gentry are looking after rogues and vagabonds on the one hand, and estimating the derelict crops of husbandmen on the other, they are engaged in employments very nearly akin. Surely it can be no impossibility to frame some practicable measure free from such objectionable features as these.

3. *The Corn Averages.*—I have said that the statistics of agriculture at present collected are false and deceptive, and in saying this I specially refer to the system at present adopted of arriving at the corn averages. I need not further insist upon the necessity of correct returns, since on these are founded the varying annual amount of tithe rent-charge, the corn rentals of farms, and the valuations of outgoing and incoming tenants. This question was so ably brought before you about two years ago by a gentleman whom I now see amongst us, that only the great importance of the subject justifies me in reviving it. It was then clearly shown that not one-half of the Wheat grown in this country found its way into these returns, less than one-fourth of the Barley, and even far less than that proportion of Oats; that the corn which got returned was nearly all of superior quality, and consequently that the average of prices was far above what they ought to be. The arguments and facts brought before you were so unanswerable and so convincing, that this Club, in common with others, presented a memorial to the Board of Trade upon the subject; and with what result? At that time the returns were professedly made from 290 towns, which number was rather more than half of the corn markets of England; but of that number some were shown to have dwindled to comparatively small dimensions, and others were obsolete. Our memorial to the Board of Trade, asking for more complete returns, was answered (and I would call particular attention to the fact) by the reduction of the number of 290 towns to that of 150. Upon what principle, I would ask, can the smaller number of market towns carry the more complete returns? If this be the reply of the Board of Trade, how can we interpret it but by calling it mere mockery? Let us examine how this system works in the adjoining county of Wiltshire. In that county there are but two or three towns where these returns are made, and in these markets (perhaps on account of convenient railway accommodation) higher prices are generally obtained than in other and smaller markets. In consequence of this, and from the important fact of none of the secondary qualities finding their way into the markets, the corn averages in ordinary seasons stand at several shillings per qr. more than the average prices actually obtained or obtainable by corn growers. This is the case in ordinary seasons; but this year, from special causes, the injustice is of peculiar magnitude. You are aware that but a small proportion of the Barley grown this year in Wiltshire was harvested in a fit state for malting purposes, by far the greater proportion of it being deteriorated in value by the weather to the extent of about 20*s*. per qr. In order to obtain correct averages it would be necessary that the various qualities of Barley should be returned in the same proportions as they were grown. But what is the real state of the case? The returns are made up partly upon the Barley grown in that neighbourhood, which was harvested with but little or no injury from weather; but in a large proportion upon the choicest samples of Dorsetshire Barley taken to these markets for sale by growers and dealers. There can be no doubt that the corn averages for the county of Wilts will, for Barley, stand at from 10*s*. to 15*s*. per qr. higher than the actual market value of Wiltshire Barley. You know that it is customary for an incoming tenant, upon taking off a crop, to pay for it by the averages of a neighbouring market. Thus a tenant, entering upon a farm, say in the neighbourhood of Warminster, would now, by the averages of that market, have to pay for the Barley crop which he takes off from 10*s*. to 15*s*. per quarter more than the average value of the Barley grown in the county of Wilts. Can we imagine a merchant, a manufacturer, or even a tithe rent-charge proprietor, remaining passive under a grievance so patent and so painful? And surely if the patient endurance of the bucolic mind can suffer such injustice without demand for reparation, it is worthy of all the ignominy which it ever and anon receives. In order that the most reliable information may be obtained, and also that it may be rendered in the most practical form, it is needful that the authority engaged in the work should have a competent knowledge of the subject itself, as well as of the object it is intended to secure. Now, if we are to judge by the treatment which farmers have received from the Board of Trade, we can come to no other conclusion than that they possess neither the one nor the other. As an illustration of the judgment that they have not understood the subject itself, I would simply refer to the returns called for by them in the spring of this year, in which they required the number of neat cattle, calves, sheep, and lambs kept on each farm. Now this return, be it observed, was to be made at that particular time of the year, viz., the calving and lambing season, when a farmer might possess 10, or even 20, per cent. more live stock in the evening than he did in the morning. Is is wonderful that the agricultural body should have so little confidence in that department of Government which manages these affairs?

4. *Need of a Board of Agriculture.*—The beneficial offices of a Board of Trade no one would attempt to deny; but we may well question its utility when transformed into a Board of Agriculture. The latter is needed as much as the other: but they cannot be blended into one department without the suffering of either the one or the other. Now we think we have good reason to complain that in recent legislation the interests of agriculture have been too much disregarded, while those of commerce and manufacture have been treated with favour. The Board of Trade may be in truth and in efficiency what its name imports; as a Board of Agriculture also, we deny its qualifications. It has been said that it was rather the province of a

Farmers' Club to point out a grievance than to suggest a remedy; but in this case the course is so plain that it would be mere affectation if we did not state at once what we require, viz., that a Board of Agriculture should be formed, separate and distinct from the Board of Trade, with its President taking part in the Councils of Parliament, as well as in the Councils of her Majesty. To such a Board we might unhesitatingly confide our interests.

5. *Plan of Collecting Agricultural Statistics.*—My purpose now, gentlemen, is to shadow forth to you what I conceive to be the proper plan of collecting agricultural statistics. For my purpose I will take it for granted that a Board of Agriculture is formed, possessed of the necessary qualifications for its office. Local knowledge and authority are requisite also for the completion of the scheme. Perhaps we could not find more competent bodies for this purpose than Boards of Guardians, since they are generally selected as men of business, and represent every parish in the kingdom. Their imperative duty would be to collect from every farmer in the union the acreage of his corn sown. Let the Boards of Guardians select an appraiser of qualities, who should proceed to estimate the per-acreage growth from a general survey of crops. The farmers' returns he would have to make up and send to the Board of Agriculture a week before the harvest. Be it observed, that under the proposed arrangement, private affairs would not be exposed to individual members of the Boards of Guardians—they would be known only to the appraiser, who might be sworn to secrecy. As it regards live stock, each farmer should be requested to fill out a return of all that is on his farm at Michaelmas in each year, and send it to the Board of Guardians, and with regard to these returns it should be the duty of the appraiser to sort and arrange them so that they may be presentable to the Board of Agriculture. We now come to the question of the corn actually grown in the country, and its actual market value. I propose that every farmer should keep an accurate account of all corn he has disposed of throughout the year, and at a specific time make a return thereof to the appraiser. It may possibly be thought that the farmer would consider this duty too onerous; but it must be remembered on the other hand that he would scarcely neglect it when he considers that his interest is so deeply involved in the correctness of his account. Then as to the corn consumed at home, which is generally of the inferior quality, a mixed sample might be furnished to the appraiser, that it might appear at his valuation in the returns to the Government. I would now endeavour to concisely sum up the advantages which would accrue if Agricultural Statistics could be collected in an accurate and popular manner. First of all then, it would tend to ensure correct legislative action on the chief questions of the day affecting the farming interests, such as the malt-tax, the basis on which our rates are collected, and the rules and precautions to be adopted with regard to the importation of live stock. It would tend to equalise prices, and prevent excessive importation or exportation of grain. It would afford most valuable information on what is becoming a most important question—the demand for and supply of agricultural labour, and would open the eyes of landowners as to the imperative necessity of providing more and better habitations for the labourers. It would assist in arriving at correct conclusions as to how far machinery may be profitably exchanged for muscular labour, and one rotation of crops substituted for another. It would afford correct data on which rent charges might be assessed, corn rents paid, and crops be taken by valuation. Lastly, and above all in a political point of view, it would furnish Government with the means of estimating and supplying the wants of the people, and thus go far to secure plenty, peace, and prosperity to the nation at large.

The CHAIRMAN supported the three resolutions proposed: First, as to the desirability of establishing a Board of Agriculture; secondly, as to corn averages; and, thirdly, on the mode of getting a good system of agricultural statistics. He proposed: "That it is desirable that a Board of Agriculture be established by the Government, which should take the management of all matters relating to that branch of the national industry."

Mr. GALPIN seconded the resolution. He agreed with Mr. Homer, that the Board of Trade was hardly the body to which farmers should look for the redress of grievances, and for considering subjects relating to their interest; but he had hopes from the Chambers of Agriculture which are being formed, that through them they might get such a Board of Agriculture as exists in several foreign countries. He was surprised that in England, a country which depends so much upon agriculture, the subject had not been long before this time brought before the Legislature.

The resolution was carried unanimously.

Mr. DAMEN proposed the second resolution with respect to the corn returns. Only about 75,000 quarters per week are returned as sold in 140 towns, or about 3,750,000 a year, whereas the Wheat grown must be something like 12,000,000 quarters, because they know the consumption of 30,000,000 people would be about 20,000,000 a year, for a person will consume a pound of Wheat per day, giving about 6 bushels a year, and, as a sack of flour produces 90 loaves, the consumption must be at least 20,000,000 quarters a year, making allowance for Indian Corn used in some parts and Oatmeal in Scotland. The importations for the last 10 years had been, in round numbers, 7,500,000 quarters a year, therefore about 8,000,000 quarters could not have been returned at all, and the present statistics could not be relied on. Many might contend that these facts are not useful; but it would be monstrous for the Englishman to be kept in the dark as to how he is fed. In foreign countries, as in France, they have the most perfect returns, and so they know immediately if there is enough food for the people, or how much it is deficient; and they had even come into England, and bought large quantities, while we have had afterwards to purchase to make up our deficiency at much higher prices. It was much better to have a fair price, and no class were injured more than agriculturists themselves; for every now and then a feeling would go abroad that we want Wheat, and more is imported than we require, then that must be sold at any sacrifice, and this keeps prices down. Agriculturists would therefore be benefited more than any other class of the community by reliable statistics. As to the possibility of obtaining such, he thought Mr. G. Homer had shown that nothing is more easy, and what could be better than that Boards of Guardians should meet and fix the returns? They might not be exactly right; but if done every year, they would be near enough. He had a great objection for the police to be so employed, and wished there were no necessity for any policeman. In other countries, where there is not that great middle-class that exists in England, everything must be done by the police; but as a freeman and an Englishman he wished they could be done without. In Scotland returns had been collected for many years by the Highland Society of Scotland, and until the Government interfered there was no reason for questioning them. In Ireland, also, although, he admitted, by the police, it had been successfully done. And why could not some satisfactory plan be adopted in England? Memorializing the Board of Trade would be, he believed, of no use, if they could not get their agricultural members to interfere, and it seemed a proper preliminary to get an agricultural board, because now, except the county members, they seemed to have no one to whom to appeal. Mr. Damen then moved "That the present system of obtaining corn averages is altogether objectionable and most irregular." He knew that it was so, because he had known millers who had boasted that they never made a return in their life. There was, it is true, a 10*l.* penalty for not doing so; but he never knew of but one person who was summoned for it. Of Barley they knew something from the consumption. 75,000 quarters per week are returned in six months. Yet 5,000,000 quarters are malted in this country, and everyone knew that double the quantity is ground. In conclusion, he expressed his opinion that it was only a question of time before the present prejudices would be worn away.

Mr. CHAPMAN SAUNDERS briefly seconded the resolution, which was unanimously carried.

Mr. H. LOCK did not approve of a person being appointed valuer. The farmer should make a return at the end of the year of what he actually got for the corn sold. (No, no). It was not fair to the community that the corn consumed by pigs should be brought into the average. If the Wheat was so inferior that it could not be made into bread it ought not to go into the returns. Corn sold to the labourers who consume it for bread should be brought into the return at the end of the year.

Mr. J. HOMER said the first question was, Will this collection of agricultural statistics be a benefit to the community at large? Supposing that Parliament carried a measure that the corn statistics of this country should be taken, could they be obtained in such a manner as to make good ground for Parliament and corn speculators to act on? If they had a better harvest than usual, and grew 14,000,000 quarters, it was doubtful whether 8,000,000 would be brought into the market that year, because, whenever low prices prevailed and the quality was good, it was customary to hold it over on speculation. Next year there might be a bad crop, and statistics would not be taken till about a week or so before harvest; but long before that the farmers would know whether they had a good crop, and the corn-factor would discover what the prospect was; and is it not likely that the whole Continent of Europe would know before the statistics were taken? He believed it would be known before the statistics were in possession of the Government. Therefore he doubted whether the community would gain the expected advantage from statistics. Mr. Damen had quoted France. The French Government, knowing nearly what quantity of corn is required, obtained sufficient for the food of the country. But France is not a free-trade country, and while England goes to the cheapest market, and sells in the dearest, in France he believed they had sometimes prohibited the exportation of corn, so that he believed we should not be in a better position unless we could get fairly at the whole consumption, and that the produce were to be consumed the same year. But who could make the farmer bring his corn to market in the same year? Supply and demand would govern him at all times. But he would be the last, if it were for the benefit of the country, to say that statistics should not be taken. They would most likely differ on the mode in which it should be done, but he would give them his own thoughts. That district surveyors should make returns to Government was very objectionable, he thought, and nothing would be so correct as to take the estimates locally. If two men were appointed to look over a union, would they know the quality of the land, and what it would produce, as well as a man who lived there all his life? He would propose that a vestry should be held a fortnight before harvest, and one or two men be appointed to look over the parish, and send in their estimate of its produce in gross, stating the number of acres of Wheat, Barley, Oats, pulse, &c., which return should be sent to the clerk of the Union, who should add up the returns for the whole union, and make a gross return to the Board of Trade, or the proposed Board of Agriculture, so that no names or particulars but the gross totals should reach the Board. For a wet harvest, of course, there must be an allowance made. This would do away with anything inquisitorial, to which there was so much objection, for only the parish officer would know who had the best corn. Mr. Homer then proposed the third resolution, "That a well-considered and accurate system of collecting agricultural statistics would materially further the cause of agriculture, and be beneficial to the country at large."

Dr. ALDRIDGE seconded the resolution, thanking and complimenting Mr. G. Homer for his manner of introducing one of the most interesting subjects that could be brought before the Club.

Mr. DAMEN, in reply to Mr. J. Homer, thought that, except in a few favoured counties, very little corn could be kept in the farmers' hands. They were either too poor or too prudent to do so, and it was a fact that, after two or three harvests with low prices, scarcely enough was ever left for three months' consumption, and the usual fault, if any, was to sell much too early. It showed the necessity of statistics that the price of corn varies more here than in any country in the world. It is true that corn-factors do get information of short supplies; but if they had proper facts to go upon, they would not import at a loss. He disagreed with the plan of the farmers valuing their own produce; when he was a young farmer he found he often estimated his crops at two-thirds more than they produced, and there was amongst others a tendency to estimate the crop less than his. As to two persons valuing the parish, he had heard that there could not be two great men in one parish; but if there should be, he considered great numbers of the growers quite incapable of valuing their own crops, and it was better to leave it to people quite above suspicion. The estimates should also be taken twice, before and after harvest.

A discussion followed on the propriety of memorialising the Government to establish a Board of Agriculture, and it was agreed that the secretary communicate with other farmers' clubs known to them, and with the Central Farmers' Club, in order to obtain their co-operation.

UPTON: *Cultivation of Grass Land.*—Mr. STENTON endorsed the statement of the Chairman that it was a most extraordinary thing that the leading men of the county never showed at the meeting of those institutions, and one particular class of those men were always conspicuous by their absence. With the exception of Mr. Barrow, who had uniformly supported the Society since its establishment, and had, he believed, attended pretty nearly every meeting, they never saw a member of Parliament at their annual gatherings. Nottinghamshire was a fine agricultural county; but he did not think they would find any other where the members of Parliament kept away from the meetings of the farmers so studiously as in that. Of course it was their own affair, and their own look out; but he could not help thinking that some day they might wish they had shown their faces among their constituents rather more than they had done. He then mentioned that owing to some remarks which he made at the last two meetings, in responding to the toast, he got into "lumber" with a certain class of individuals. Two years ago he ventured to make a few observations on the subject of education; but for that down came a dignitary of the Church upon him with what he supposed would be called a "bull" in Roman Catholic times. All the papers, he believed, in the county set this wonderful "bull" at him; but the only harm it did was to give him a little notoriety for the time being, and to convince him that what he said on that occasion was pretty well endorsed by every farmer. Again, last year he got into "lumber" with some brother-farmers, because he ventured to say that with the high price of Wheat, and the relatively high price of Barley, they might cultivate Wheat upon some strong lands at a comparatively low rate. He got desperately rated for that. One gentleman much amused him by taking him to task the next morning, and saying that it was perfect madness to talk of cultivating Wheat at the price mentioned. He (the speaker) asked him how much his land would grow, and he replied from three sacks up to three quarters. He retorted that it was perfect madness to cultivate such land at all, and he would not do so if it were given to him. He knew what such men as the Duke of Portland would do with that man's farm. He would take it into his own hand, efficiently drain it, and lay it down upon a dead fallow as permanent Grass; and with a little lime or bone put upon it, it would no doubt ultimately become of some use. He was convinced that there were many acres of land in their own district which ought to be laid down as permanent Grass. The speaker concluded by relating the results of two successful experiments he had made for the improvement of some land of his own, and upon which he had produced capital crops of Clover and Trefoil at a nominal cost.

The CHAIRMAN said: Whether Mr. Stenton was right in respect to what he had said about the improvement of Grass land he did not pretend to be sufficiently a judge to say; but he could only say that in a solitary case which had happened to himself he found that land could be much improved and made to produce a greater quantity than before. He was quite satisfied that there was nothing in which they made so great a mistake as in neglecting the cultivation of their Grass land. With the present price of meat, he thought it would be useless to suggest to any gentleman that it would be more remunerative to feed cattle than to grow corn; but at the same time he was satisfied that if they took more pains in dressing their Grass lands with composts of some kind or another it would be much better for them. It was a great pity that they threw into their rivers, and through them into the sea, a large portion of that sewage which would form a valuable manure for their land. That morning he was engaged in a discussion as to a mode of utilising a part of that sewage which now tormented their cities and towns, destroyed the fish in the rivers, and then ran to waste in the sea. The discussion was as to whether they should introduce earth closets into the prison, and thereby produce some equivalent for the food which the people confined there got. He had a strong suspicion if those closets were introduced, the manure, if pulverised and reduced to that state that it could be run through a drill when they sowed their Turnips, would prove as valuable as guano. At Dorchester, he believed, they sold the manure collected in the earth closets for a considerable sum. He confessed that he expected to see greater pains taken for the utilisation of the sewage which at present flowed into the Trent and other rivers; and if at first it did not result in a saving of money, the manure would at all events be extremely useful in improving their Grass land.

Farm Memoranda.

A STAFFORDSHIRE DAIRY FARM.—I can best explain my views by describing somewhat in detail the system of management with which I am most familiar, taking the case of a farm of cold strong land, situated in the Midland Counties, containing 300 acres, let for about 30*s.* per acre, of which two-thirds are pasture and meadow, and the remainder arable. The land is not well adapted to sheep, and the pastures are not sufficiently rich to fatten cows or bullocks, without the aid of a considerable quantity of artificial food. I think I can show that by far the most profitable mode of occupying such a farm (provided that the ordinary requirements are supplied) will be by keeping a large dairy of cows, and endeavouring to make whole-milk cheese of first-rate quality. If the arable land be thoroughly drained, it will provide straw and roots for the winter's keep of the dairy cattle, and Clover, Italian Rye-grass, Vetches, and Cabbage, for their use in summer and autumn. Without such drainage cold clay land cannot be cultivated in an efficient manner.

The 200 acres of turf land may be divided as follows:—120 acres, in convenient enclosures, and well supplied with good water, shade, and shelter, as the regular summer pasture for the dairy cows; 30 acres as permanent meadow, to be manured every year, and mown for hay; the remaining 50 acres, least conveniently situated, and least adapted for dairying, will provide a summer's run for the yearling and two-year-old heifers, and farm-horses, and for a moderate quantity of sheep. By the use of cake and crushed corn to the value of, say 100*l.*, 50 dairy cows would be well kept, besides rearing from 12 to 20 heifer-calves every year.

I lay particular stress upon this point in consequence of the serious losses to which dairymen have been of late years subject from infectious disease—a consideration which has acquired additional force since the outbreak of the cattle murrain. The foot and mouth complaint, which is very prevalent amongst drift cattle every spring, and highly contagious, is a very serious complaint when it attacks cows in full milk; and should the owner be so fortunate as to escape the loss of any of the animals affected, it still entails a great diminution in the yield of milk, even if the animals are not lost. Again, from pleuro-pneumonia the dairy-farmer has much more to fear than the grazier, because his cattle are necessarily congregated together, and they cannot be so readily disposed of to the butcher. When this disease attacks a dairyman's herd, it is not uncommon for him at once to send all the apparently healthy animals for sale to a distant market, and thus the disease is spread.

My father and myself have for many years had upwards of 100 dairy cows, but by adopting the plan of rearing a sufficient number of heifer-calves, and scarcely ever buying stock in the market, we have been most fortunate in escaping infectious disease. One or two partial attacks of the foot and mouth complaint have occasioned us slight losses, but from more serious disease we have altogether escaped. The spread of contagious disease is greatly due to the filthy state of the trucks used in the conveyance of cattle by railway. I regret that the Cattle Diseases Bill, introduced last session of Parliament, was not allowed to become law.

The greater portion of the cows calve in March and April. The best and earliest of the heifer calves are reared; they will require their mothers' milk for two or three weeks at least, and may then be fed either with skim-milk and oatmeal, or sweet whey and wheaten or rice flour, with what hay and oilcake they will eat. Care should be taken to keep the calf houses clean and well ventilated. As soon as the weather becomes warm, the calves should be allowed to run in a sheltered paddock; at three months old the suckling may be discontinued, but they should still have an allowance of ½ lb. to 1 lb. of Linseed-cake per day. If they are kept healthy and growing from birth, as they may be by a judicious use of Linseed-cake, the best of them will be big enough to come into the dairy at 2 years and 2 months old. If kept uniformly well, they will then be as good as those a year older in ordinary condition, and will prove more profitable to the dairyman. A few of the calves, at the commencement of the season, which are not wanted for rearing, may be fattened; but, when cheese-making is in full operation, all the remainder of the calves will be sold as soon as dropped, at about 1*l.* each.

The cows, after they have calved, should have a daily allowance of 4 lb. or 5 lb. of crushed corn or cake, with hay and roots or grains, until there is an abundant supply of Grass for them. They will then have the run of the 120 acres of pasture, but they should be divided into at least two herds. Dairy cows do much better in not very large herds; they tread the ground less, and the weaker ones are not so much knocked about. Should they require it, they will be supplied with mown Clover, Rape, and Vetches, or other green food, in the summer and autumn, until the middle of September, when the Cabbage will be ready for use.* This is a most valuable food for dairy cows, and by its aid a large quantity of cheese may be made in the last three months of the year, when otherwise the cows would be almost dry. The Cabbage grown from autumn-sown plants will generally be best for early consumption in the months of September and October, after that time it will be over-ripe, and its quality will be deteriorated. Autumn-sown plants should be planted nearly a yard apart every way. Where Cabbage is spring-sown, those kinds should be selected which are of early maturity. The Swedenburgh Cabbage I consider the best for this purpose. The seed should be sown on a warm border early in March: 1 lb. of seed will produce plants enough to set out 2 acres. The plants should be planted, about 2 feet apart, in the latter end of May or beginning of June, damp weather being chosen for this purpose. If the winter be mild, Cabbage will keep till February or March, but exposure to severe frost damages its quality very much. Cabbage is a gross feeder, and will repay a dressing of 4 cwt. per acre of Peruvian guano, in addition to a fair coat of farm manure. Where the land is perfectly sound, I prefer planting on the flat, the crop is less liable to suffer from drought.

Six shifts of 16 acres each, distributed as follows, will meet these requirements:—

	Acres	
(1.)	16	Wheat
(2.)	6	Cabbage
	10	Turnips, Swedes and Mangel
(3.)	16	Oats or Wheat, with seeds
(4.)	8	Italian Rye-grass, mown or fed
	8	Red Clover, &c., twice mown
(5.)	16	Oats
(6.)	8	Oats and Vetches, for green fodder in July and August
	8	Rape and Vetches, for green fodder in August and September

The cows are allowed to go dry soon after Christmas, a rest from milking of two or three months being indispensable. They will then be fed principally on straw, with roots. Should the supply of roots be scanty, the deficiency may be supplied by the use of brewers' grains, cake, or corn, in addition if required. I do not recommend cooked food for store cattle, it is unnatural, and weakens the digestive powers, so that the stock do not thrive so well afterwards when turned out to Grass. Where the supply of good straw and roots is abundant, the extra expense entailed in the chopping straw for dairy stock is not always repaid. If besides whole roots twice a day, plenty of straw be given them in the racks, they will pick out the best of the straw, and the stumps will be available for litter. In exceptional seasons, like that of 1864, when the utmost economy had to be exercised in the use of fodder, the benefit of chopping was undoubted.

The extra expense entailed by milking dairy cattle must not be overlooked. Five or six effective milkers will be required for 50 cows; and it is important that all should milk quickly and thoroughly well, otherwise the cows become dry much sooner, and great loss is occasioned. The master's superintendence is necessary to see that this is properly carried out. This expense cannot be put at less than 30*l.*, or 5*l.* for each effective milker. It is an operation that must be performed with regularity, and every other farm-work must give place to it. The milking-machines yet brought out, however ingenious, have at present, I regret to say, entirely failed to achieve the desirable result of lessening the labour of this process. When an equable temperature of from 60° to 70° is required in the dairy and store-room, this can best be maintained by the use of warm-water pipes placed round the walls, communicating with a boiler at the back of the kitchen fire. When this cannot be conveniently arranged, a separate boiler may be set up for the purpose of heating the water. The first cost of the pipes is somewhat heavy; but when, as in many cases, the water can be heated without extra fires, the advantage is very great, the dust, trouble, and expenditure of fuel from a stove being avoided. These remarks, however, apply rather to making butter than cheese.

Skilled dairy servants readily and deservedly obtain high wages; their cost, including board, &c., on the farm in question, would not be less than 50*l.* per annum. This, with a charge of 30*l.* for milking, of 20*l.* for wear and tear of dairy utensils, heating apparatus, &c., would bring the extra expense attendant upon dairying on this farm to 100*l.* per year, or 2*l.* per cow. I have taken the average yield on such a farm at 4½ cwt. per cow, or 16*l.* per head per annum, although where a very superior quality of cheese is made, an increased return would be obtained, with some aid furnished by the arable land, &c. The amount realised from cow-stock alone on this farm would therefore be—

Produce of 50 cows, at 16*l.* each	£800
Sale of 35 young calves, at 1*l.* each	35
15 cows sold every year, at 11*l.* each	165
	£1000
Deduct extra expenses of dairying	100
Or 18*l.* per cow.	£900

Mr. Carrington in Journal of English Agricultural Society.

Miscellaneous.

Moles.—Here we have to do with a creature whose activity and strongly-developed propensity for the flesh of numerous pests of the forest, the field, and the garden, fit him for becoming a valuable ally of man. Has it any power of doing mischief more than sufficient to counterbalance the benefits which it is capable of rendering? Our experience and observation induce us decidedly to answer in the negative. Moles, for 15 years, have been permitted to do as Nature prompted them in our garden and in our fields. In the former, their tunnels, carried under beds of Carrots and Onions, as well as of Carnations and Mignonette, have certainly done no more harm than to occasion a slight unseemliness. But looking on each little mound as a monument raised over slaughtered foes, such as wireworms, we were not discomposed, but placidly content, notwithstanding the wrath of the gardener, and the annoyance of our better-half, who, for the time, could not be styled '*placens uxor*.' The evil of a house divided against itself was happily avoided by her conversion to our opinion, notwithstanding the seductive influence of the gardener. That worthy one day, in our absence, being caught in the act of culpable talpicide, was rebuked by his mistress for disobeying his master's orders. Brooding over our incomprehensible folly, and hoping for the sympathy of our spouse, he one day, some time afterwards, thus solemnly addressed her: 'Mem, I want to speak to you. Could *you* make ony-thing o' him? What's to come ow'r's if thae brutes are allowed to spread ow'r the land?' The poor man's despair was ludicrous when his mistress informed him of her conversion to our views. 'Oh!' exclaimed he, 'sin' that's the way o't, I maun gie't up.' *Journal of Agriculture.*

Notices to Correspondents.

Cheese: *William Hinton.* The following are receipts for cream cheese and Bath cheese, the one a rich and the other an ordinary curd:—*Cream cheese:* take a quart of cream, or if not desired very rich, add thereto one pint of new milk; warm it in hot water till it is about the heat of milk from the cow, add rennet (a table-spoonful), let it stand till thick, then break it slightly with a spoon, and place it in the frame in which you have previously put a fine canvas cloth, press it slightly with a weight, let it stand a few hours, then put a finer cloth in the frame; a little powdered salt may be put over the cloth. It will be fit for use in a day or two. *Bath cheese:* to one gallon of new milk add two quarts of cold spring water, rennet sufficient to turn it (not hard); take it gently out with the skimming dish and lay it in the vat until full: put a weight upon it, and apply dry cloths for a day or two when turned out on a plate with another over it, and turned occasionally. They are ready in about a fortnight.

Guano: *X. Y.* Guano, if genuine, should not weigh more than 70 to 72 lb. per bushel. By drying and burning Peruvian guano should lose from 55 to 60 per cent. of its weight. Its ash should be white, and should dissolve readily, and without effervescence, in dilute muriatic acid, leaving insoluble residue, which should not amount to more than 2 per cent of the weight of the guano. Mixed with quick-lime it should give a strong ammoniacal odour.

* The danger of "hoove" from grazing Clover with dairy cows is so great, that it should be mown either for hay or for immediate consumption. It may be grazed by young stock if it stands for a second year; the Alsike is especially adapted to this purpose.

Fumigate your Greenhouse with TOBACCO TISSUE.

—Will Destroy all the Insects and not Injure the Plants; is entirely free from paper or rag, and will burn without blowing.

Price 3*s.* 6*d.* per lb., carriage free. To be had of Messrs. Roberts & Sons, Tobacco Manufacturers, 54, St. John Street, Clerkenwell, E.C., and of all Seedsmen and Nurserymen.

GISHURST COMPOUND.—Used by many of the leading Gardeners since 1859, against Red Spider, Mildew, Thrips, Green Fly, and other Blight, in solutions of from 1 to 2 ounces to the gallon of soft water, and of from 4 to 16 ounces as a Winter Dressing for Vines and Fruit Trees. Has outlived many preparations intended to supersede it.

Sold Retail by Seedsmen, in boxes, 1*s.*, 3*s.*, and 10*s.* 6*d.*

Wholesale by Price's Patent Candle Company (Limited), London.

BOSTON'S NE PLUS ULTRA, for the Destruction of Mealy Bug, Scale, American Blight, &c., on Stove and Greenhouse Plants, Fruit Trees, Vines, &c. In bottles, with full instructions for application, price 3*s.* 6*d.*, 5*s.*, and 10*s.* 6*d.*

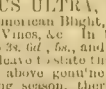
James Carter & Co. beg leave to state that the present time is most suitable for applying the above genuine Specific before the commencement of the growing season, thereby preventing the rapid increase of the above pests which would otherwise take place. The infallible properties of BOSTON'S NE PLUS ULTRA are rapidly becoming fully recognised, J. C. & Co. having already sold nearly 2000 bottles since its first introduction in the spring of 1866. Numerous testimonials have been received, and not a single complaint of its inefficiency.

Sole Agents, James Carter & Co., 237 and 238, High Holborn, W.C.

*** The Trade supplied on liberal terms.

By Royal Appointment

To her Majesty, By Special Warrant, dated December 27, 1865.



To the Prince of Wales, By Special Warrant, dated February 10, 1866.

DAY, SON, AND HEWITT, Original and Sole Proprietors of the STOCK-BREEDERS' MEDICINE CHEST, for DISORDERS in HORSES, CATTLE, CALVES, SHEEP, and LAMBS.

Patronised by upwards of Seventy Thousand of the principal Stock Breeders, Horse Proprietors, and Agriculturists of England, Ireland, Scotland, and Wales.

The only True and Original "DAY'S CHEMICAL COMPOUNDS" are prepared expressly by us. The Chest contains the following matchless preparations:—

Half a Dozen CHEMICAL EXTRACT, at 30*s.* per dozen.
One Dozen GASEOUS FLUID, at 20*s.* per dozen.
One Dozen RED DRENCHES, at 13*s.* per dozen.
One Dozen RED PASTE BALLS, at 7*s.* 6*d.* per dozen.

Adapted for all ailments among Stock during the present season. Price of Chest complete, with Shilling Book on Farriery, £2 16*s.* 6*d.*, carriage paid. Either preparation may be had separately in boxes.

Testimonials.

The Lambing Season.—The "Chemical Extract" is unequalled for bad cases in drawing Lambs, and to stop heaving and straining. Mr. Woods, in his Lecture on the "Breeding and Management of Sheep," says—"My shepherd declares it to be worth a guinea a bottle."

The "Gaseous Fluid" is famous for debility and exhaustion in Ewes after Lambing; for diarrhœa in Calves and Sheep, and for colic and gripes in Horses and Cattle. Mr. Bowick, in his prize essay on the "Rearing of Calves," says—"The Gaseous Fluid is sufficient for all the ills that Calfhood is liable to. I have reared 26 calves this year, and by the use of the 'Gaseous Fluid,' I have not lost one." Mr. Thos. Rigby (Cheshire), in his Lecture on "Summer Grazing of Sheep," says—"Day, Son, & Hewitt's Gaseous Fluid is the best corrective of scour in Sheep I have ever tried. I can strongly recommend their 'Medicine Chest' as a most valuable auxiliary to stock-keepers of all kinds, but especially to shepherds. With the medicines they give plain directions for use, which any man may understand."

Orders sent by Post will be promptly attended to if addressed—Day, Son, & Hewitt, Animal Medicine Factory, 22, Dorset Street, Baker Street, London, W.; or Wantage, Berks.

"Woods on Sheep," five stamps; "Bowick on Calves," three stamps, both free by post.

Asphalte Roofing Felt,

ONE PENNY per Square Foot.

CROGGON AND CO., MANUFACTURERS, { 63, New Earl Street, / 34, Bread Street, } London, E.C.

59, GEORGE SQ., GLASGOW; 2, GOREE PIAZZAS, LIVERPOOL.

SWING WATER BARROW, price 45*s.*

Carriage paid to any Station in England.



The above is very cheap, and invaluable for carrying Liquids of all kinds. No Garden, Farm, Stable, or Kitchen Yard should be without one. A Lad can easily work it; but if required to travel long distances over rough ground, a Pony can be attached. The wheels and carriage are wrought iron, and the tub oak. The water may be dipped out, or the tub tilted and poured out, or by raising the handle it can be placed on the ground and the frame detached.

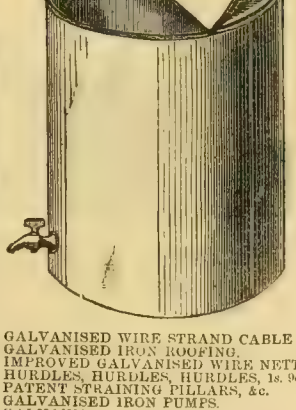
Powerful GARDEN ENGINE, suitable for the above, price 45*s.*, carriage paid. WATER and LIQUID MANURE CARTS.

Illustrated Catalogues of above, also of WIRE NETTING, FENCING, &c., sent free on application.

W. S. Boulton, Rose Lane Iron and Wire Works, Norwich.

GALVANISED IRON WATER CISTERNS.

Cheap, light, and durable, will not rust or corrode, and keep water perfectly sweet.



To hold	Each.
30 gallons,	20*s.* 0*d.*
50 gallons,	24*s.* 0*d.*
80 gallons,	32*s.* 0*d.*
100 gallons,	38*s.* 6*d.*
125 gallons,	45*s.* 0*d.*
150 gallons,	49*s.* 0*d.*
200 gallons,	65*s.* 0*d.*
250 gallons,	73*s.* 0*d.*
300 gallons,	84*s.* 0*d.*

With Lid and Brass Tap.

GALVANISED WIRE STRAND CABLE FENCING.
GALVANISED IRON ROOFING.
IMPROVED GALVANISED WIRE NETTING.
HURDLES, HURDLES, HURDLES, 1*s.* 9*d.* to 3*s.* 9*d.* per yard.
PATENT STRAINING PILLARS, &c.
GALVANISED IRON PUMPS.
GALVANISED SWING WATER BARROWS.
LAWN MOWERS, GARDEN ROLLERS.
ASPHALTE ROOFING FELT, 1*d.* per square foot.

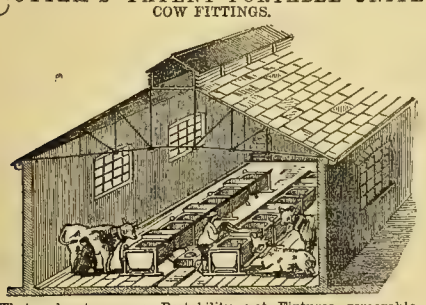
Motley & Green.

Illustrated Catalogues and Estimates free on application.
12, Great George Street, Leeds.

TREE and PLANT LABELS.—10,000 Cloth Punched Labels, 3 inches long, for 15*s.*; 6 inches long, 25*s.* Delivered free in London. Samples sent on receipt of 1*d.* stamp.
JOHN FISHER & Co., West Road Works, Boston, Lincolnshire.

Caution to Gardeners.—When you ask for SAYNOR AND COOKE'S WARRANTED PRIZE PRUNING and BUDDING KNIVES, see that you get them. Observe the mark SAYNOR, also the corporate mark OBTAIN WARRANTED, without which none are genuine.
S. & C. regret having to caution Gardeners and others, but are compelled to do so, in consequence of an imitation, of common quality, having been sold for the genuine one, and which has caused many complaints to be made to them of Knives which were not of their make, all of which are warranted both by Sellers and Makers.
S. & C.'s Pruning and Budding Knives are the best and the cheapest in the market.
Paxton Works, Sheffield. Established upwards of 125 years.

COTTAM'S PATENT PORTABLE UNITED COW FITTINGS.



Their advantages are—Portability, not Fixtures, removable at pleasure, no Woodwork or Partitions to impede Ventilation or breed Vermin, Hay Rack dispensed with as unnecessary, increased width and depth of Feeding Troughs, Water Cistern, and Patent Drop Cover to prevent over-gorging. Cleanly, durable, and impervious to infection, being all of iron. Price of Fittings per Cow, 55*s.*
Prospectuses free of COTTAM & Co., Iron Works, 2, Winsley Street (opposite the Pantheon), Oxford Street, London, W., where the above are exhibited, together with several important Improvements in Stable Fittings just secured by Patent.

Oil Paint no longer Necessary.



HILL AND SMITH'S PATENT BLACK VARNISH for preserving Iron Work, Wood, or Stone. This Varnish is an excellent substitute for oil paint on all out-door work, and is fully two-thirds cheaper. It may be applied by an ordinary labourer requires no mixing or thinning, and is used cold. It is used in the grounds at Windsor Castle, Kew Gardens, and at the seats of many hundreds of the nobility and gentry, from whom the most flattering testimonials have been received, which HILL & SMITH will forward on application.

From CHAS. E. B. SMEDLEY, Esq., *The Grange, near Boston.*
"I have much pleasure in giving you a reply to your inquiries about the Black Varnish I have had from you for the last two years. It has answered my expectations fully, and as far as I am able to judge, it is the best material for preserving iron fencing, gates, and other wood work exposed to theair; and I can with safety recommend it as the best and cheapest article that is yet out. Wishing you every success."
Sold in casks of about 30 gallons each, at 1*s.* 6*d.* per gallon, at the Manufactory, or 1*s.* 8*d.* per gallon paid to any Station in the kingdom.
Apply to HILL & SMITH, Brierly Hill Iron Works, near Dudley, and 22, Cannon Street West, E.C., from whom only it can be obtained.

TRADE LOCK'S POTASH MANURE MARK.

LOCK'S PATENT POTASH MANURES.

This is the only "*perfect*" MANURE ever yet offered to the Agricultural Public, containing, as it does, that most *important element* of every cultivated plant—POTASH. It is far superior in efficiency to Peruvian or any other Guano, as it supplies EVERY *constituent requisite for each* SPECIAL *Crop.*

Each Manure is specially prepared for the Crop for which it is intended, and is sold in Bags containing the necessary Dressing for *One Acre.*

The WHEAT, BARLEY, and OAT MANURE will effectually PREVENT the LODGING of the Corn, so frequent on lands deficient in Silica.

The CLOVER MANURE is a CERTAIN CURE for CLOVER SICKNESS, so prevalent in some Counties.

The GRASS MANURE contains an abundance of SILICATE of POTASH, which is by far the *predominating element* in all GRASSES, and which has never before been offered for Sale by any Manufacturer.

For full particulars see Circulars, for which apply to the

SOUTH of ENGLAND MANURE COMPANY, LIMITED, REDBRIDGE, HAMPSHIRE,

who are the SOLE MANUFACTURERS.

*** AGENTS WANTED for the UNITED KINGDOM.

GRAY'S OVAL TUBULAR BOILER.

INTERNATIONAL EXHIBITION, CLASS IX., No. 2119.

MR. GRAY begs to call the attention of the Nobility, Gentry, Nurserymen, Gardeners, &c., to his

NEW OVAL TUBULAR BOILER,

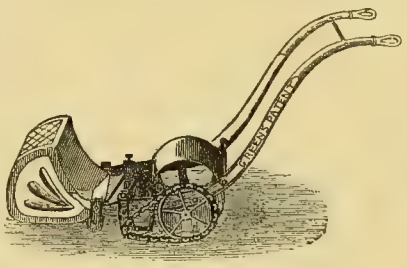
Acknowledged by practical judges to be a great improvement on every form of Tubular Boiler yet introduced. It has proved itself superior to all other Boilers for quickness of action and economy of Fuel, doing its work with one-third less the amount required by any other.

Extract from Report in GARDENERS' CHRONICLE *of International Exhibition, May* 24, 1862, *page* 476.

"The upright form of Boiler is usually made on a circular plan, but the oval form given to Mr. GRAY'S variety of it is said to be preferable in consequence of its bringing the tubes in closer contact with the fire. The usual form of a furnace being a parallelogram rather than a square, it seems feasible that the Boilers on the oval plan should bring the tubes more completely within range of the burning fuel; and this being so, the change, though a slight one, is no doubt an improvement."

☞ *They are made of all sizes, which, with prices, may be had on application.*

JAMES GRAY, HORTICULTURAL WORKS,
DANVERS STREET, PAULTON'S SQUARE, KING'S ROAD, CHELSEA, S.W.



Lawn Mowers.
GREEN'S PATENT. | SAMUELSON'S PATENT.
SHANKS' PATENT. | BARNARD'S PATENT.

DEANE & CO.,

46, KING WILLIAM ST., LONDON BRIDGE.

Horticultural Tools, &c.

LAWN MOWING MACHINES, 50*s.*, 70*s.*, 90*s.*, 140*s.*
GARDEN BARROWS, Wood and Iron, 21*s.* and 26*s.*
GARDEN ENGINES, Galvanised Iron. Prices 55*s.*, 65*s.*, 78*s.*, 90*s.*, 100*s.*, 110*s.*
GARDEN ROLLERS, £1 10*s.*, £1 14*s.*, £2, £2 7*s.* 6*d.*, £2 12*s.* 6*d.*, £3 2*s.* 6*d.*
STEEL DIGGING FORKS, SPADES, SCYTHES, &c.
GREENHOUSE SYRINGES and GARDEN PUMPS.
WIRE NETTING and ORNAMENTAL WIRE WORK.
GARDEN SEATS and CHAIRS.
FLOWER STANDS, Cast-iron and Wire.
STRAINED WIRE FENCING and IRON HURDLES.

HOT-WATER FITTINGS for GREENHOUSES, CONSERVATORIES, FORCING PITS, &c.

Deane's New Illustrated Horticultural Catalogue post free on application.

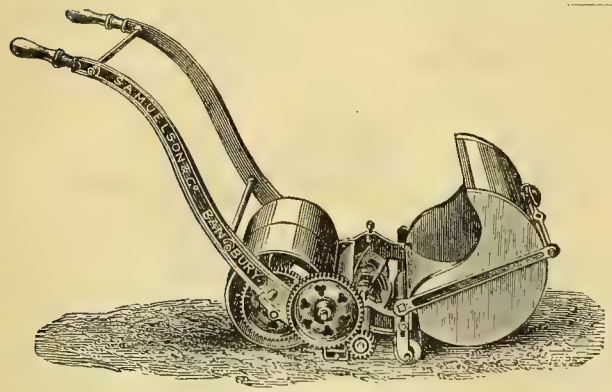
ESTABLISHED A.D. 1700.

DEANE AND CO., 46, KING WILLIAM STREET, LONDON BRIDGE, E.C.

SAMUELSON & CO.'S

IMPROVED LAWN MOWING MACHINES.

EVERY MACHINE WARRANTED.



PRICES.

Delivered Free to any Railway Station in Great Britain.

Cutting 12 inches wide	£4 10 0
Cutting 14 inches wide	5 5 0
Cutting 16 inches wide	6 0 0
Cutting 19 inches wide	6 10 0
Cutting 22 inches wide	7 10 0
Cutting 25 inches wide	12 0 0
Cutting 30 inches wide	15 0 0
Cutting 36 inches wide	18 0 0

Great improvements have been made in these Machines during the last few years, in regard to all those small but important points of superiority which the practical working of a Lawn Mower suggests; while for elegance of appearance, lightness of draft, and efficiency in working they cannot be excelled. They possess the following advantages:—

1st. Motion is given to the Cutting Apparatus by toothed gearing, which experience has proved to be by far the best method of driving.

2d, The whole of the Driving Wheels are on one side of the Machine, a point of great importance in preventing damage to Shrubs and Flowers, when mowing round the edges of beds.

3d, All the smaller working parts of the Machine are made of Malleable Iron, and are not liable to break.

☞ *Illustrated Price Lists, with selections from several Thousand Testimonials, Free by Post on application.*

SAMUELSON AND CO., BRITANNIA WORKS, BANBURY.

LONDON WAREHOUSE: 10, LAURENCE POUNTNEY LANE, E.C.

AGENTS:—Messrs. TANGYE BROTHERS AND HOLMAN, 10, LAURENCE POUNTNEY LANE; Messrs. DEANE AND CO., London Bridge; Messrs. DRAY, TAYLOR AND CO., London Bridge; Mr. THOMAS BRADFORD, 63, Fleet Street, E.C.; and all respectable Seedsmen and Ironmongers throughout the Kingdom.

SHANKS' PATENT LAWN MOWERS FOR 1867.

PATRONIZED FREQUENTLY DURING THE PAST THREE SEASONS BY

HER MAJESTY THE QUEEN,

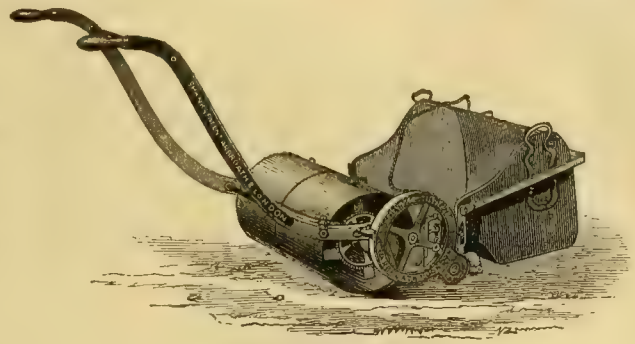
HIS MAJESTY THE KING OF SAXONY, | HIS MAJESTY THE KING OF HOLLAND,

HIS MAJESTY THE KING OF PRUSSIA,

AND AMONGST THE DISTINGUISHED FOREIGN NOBILITY,

THE DUCHESS DE CAMBACÉRÈS, THE MARQUIS DE BOISSY, MARSHAL CANROBERT, &c., &c.

Every minute point in the way of improvement has been carefully considered and adopted, and as A. S. & SON have for more than a quarter of a century devoted their attention to this particular branch of their business, the Nobility, Gentry, and Gardeners may rely on the MACHINES they may order, to be such as to ensure lasting satisfaction, and to stand the wear and tear of many years.



PATENT HAND MACHINE.

SHANKS' PATENT LAWN MOWERS

ARE IN DAILY USE IN

ALL THE ROYAL GARDENS; IN THE HORTICULTURAL SOCIETY'S GARDENS AT KENSINGTON; CRYSTAL PALACE COMPANY'S GROUNDS; IN VICTORIA PARK; HYDE PARK;

And in almost all the principal Public Parks and Gardens in the Kingdom.

These are the only Machines that can be depended on to give lasting satisfaction.

THESE ARE THE ONLY MACHINES THAT WILL MOW PROPERLY WHEN THE GRASS IS WET.

THESE ARE THE ONLY MACHINES THAT DELIVER THE GRASS WITHOUT STOPPING, THUS SAVING AN IMMENSE AMOUNT OF LABOUR.

SHANKS' PATENT LAWN MOWERS are the only Machines that have been in operation in Her Majesty's Gardens for a quarter of a century.

Shanks' Patent Lawn Mower will Mow on uneven as well as on level Lawns.

ALEXANDER SHANKS AND SON, in referring to their IMPROVED LAWN MOWERS for 1867, doubt not but that the preference which in past years has invariably been given to their Machines will still be awarded them. The principles which guide A. S. AND SON in effecting improvements compel their Machine ever to stand the first in point of general efficiency, simplicity of construction, and durability.

A. S. AND SON have particularly aimed at substituting Wrought for Cast Iron to as great an extent as possible in the construction of their Machines. None but skilled Workmen and the most improved Machinery are employed in manufacturing the various parts, and this applies not only to the Horse and Pony, but also to the Hand Machines.

A. S. AND SON have now ready for delivery a large stock of their celebrated LAWN MOWERS, which will enable them to execute orders on the day they are received.

PRICES, INCLUDING CARRIAGE TO ANY RAILWAY STATION OR SHIPPING PORT IN THE KINGDOM.

SHANKS' NEW PATENT HAND MACHINE.

Width of Cutter.		Easily Worked	Silent Movement.
10-inch Machine	£3 10 0	*By a Lady*	4*s.* extra.
12-inch Machine	4 10 0		
14-inch Machine	5 10 0	*By a Boy*	

Width of Cutter.		Easily Worked	Silent Movement
16-inch Machine	£6 10 0	*By a Man or Two Boys*	4*s.* extra.
19-inch Machine	7 12 6	*By a Man and Boy*	
22-inch Machine	8 7 6	*By Two Men* ..	7*s.* 6*d.*
24-inch Machine	8 17 6		extra.

SHANKS' NEW PATENT PONY and DONKEY MACHINE.

Width of Cutter.		If with Patent Delivering Apparatus.
25-inch Machine	£12 10 0	.. .. 25*s.* extra.
28-inch Machine	14 10 0	.. .. 30*s.* ,,
30-inch Machine	15 15 0	.. .. 30*s.* ,,

Silent Movement, 12*s.* 6*d.* extra; Boots for Pony, 22*s.* per set
Ditto for Donkey, 18*s.* per set.

SHANKS' NEW PATENT HORSE MACHINE.

Width of Cutter.		If with Patent Delivering Apparatu
30-inch Machine	£19 0 0	.. .. 30*s.* extra.
36-inch Machine	22 0 0	.. .. 30*s.* ,,
42-inch Machine	26 0 0	.. .. 40*s.* ,,
48-inch Machine	28 0 0	.. .. 40*s.* ,,

Silent Movement, 20*s.* extra; Boots for Horse's Feet, 26*s.* per set.

The Machines are warranted to give ample satisfaction, and, if not approved of, may be at once returned.

N.B.—*A. S. & Son specially announce to their numerous Patrons that they have a staff of experienced Workmen at their London Warehouse, thoroughly acquainted with all the details of their Machines, so that they are enabled to repair Lawn Mowers in London as well as at the Manufactory.*

PATENTEES AND SOLE MANUFACTURERS:

ALEXANDER SHANKS AND SON, DENS IRON WORKS, ARBROATH, N.B.

LONDON OFFICE and SHOW ROOMS, 27, LEADENHALL STREET, E.C.

☞ 27, *Leadenhall Street is the only place in London where intending purchasers of Lawn Mowers can choose from a Stock of from* 150 *to* 200 *Machines. All sizes kept there, whether for Horse, Pony or Hand Power.*



GARDEN BORDER EDGING TILES, in great variety of patterns and material, the plainer sorts being especially suited for KITCHEN GARDENS, as they harbour no Slugs and Insects, take up little room, and once put down incur no further labour and expense, as do "grown" Edgings, consequently being much cheaper.



GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, of great durability, and in great variety of design.

F. & G. ROSHER, Manufacturers, Upper Ground Street, Blackfriars, S.; Queen's Road West, Chelsea, S.W.; Kingsland Road, Kingsland, N.E.

Sole London Agents for FOXLEY'S PATENT GARDEN WALL BRICKS. Illustrated Price Lists free by post. The Trade supplied.

ORNAMENTAL PAVING TILES for Conservatories, Halls, Corridors, Balconies, &c., as cheap and durable as Stone, in blue, red, and buff colours, and capable of forming a variety of designs.

Also TESSELATED PAVEMENTS of more enriched designs than the above.

WHITE GLAZED TILES, for Lining Walls of Dairies, Larders, Kitchen Ranges, Baths, &c. Grooved and other Stable Paving Bricks of great durability, Dutch and Adamantine Clinkers, Wall Copings, Red and Stoneware Drain Pipes, Slates, Cements, &c.

To be obtained of F. & G. ROSHER, at their Premises as above.

SILVER SAND (REIGATE, best quality), at the above addresses—14s. per Ton, or 1s. 3d. per Bushel; 2s. per Ton extra for delivery within three miles, and to any London Railway or Wharf. Quantities of 4 Tons, 1s. per Ton less.

FLINTS, BRICK BURRS or CLINKERS, for Rockeries or Grotto Work. F. & G. ROSHER.—Addresses see above.

N.B. Orders promptly executed by Railway.

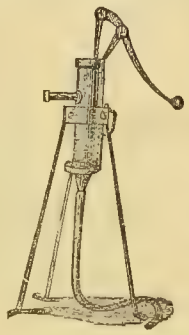
JOHN WARNER AND SONS,
8, Crescent, Cripplegate, London, E.C.,
BELL and BRASS FOUNDERS to HER MAJESTY.



No. 35.

PATENT CAST-IRON PUMP, fitted with J. W. & SONS' Metal Bucket and Valve, which cannot clog in action, for Wells not exceeding 25 feet.

Diam.	Height.	£	s.	d.
2½ in. short	1 ft. 7 in.	1	1	0
2½ in. long	3 ft. 3 in.	1	8	6
3 in. long	3 ft. 6 in.	2	1	0
3½ in. long	3 ft. 6 in.	2	6	0
4 in. long	3 ft. 6 in.	2	14	0
2½ in. short, with 16 feet of lead pipe attached, ready for fixing		2	0	0
2 in. long, do. do.		2	14	0

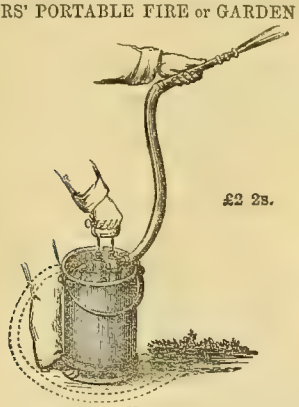


No. 42.

IMPROVED LIQUID MANURE or GENERAL PORTABLE PUMP.—These Pumps are fitted with J. W. & SONS' Patent Bucket and Valve and cannot clog in action. The Barrel is made of Galvanised Iron, not likely to corrode, and can be raised or lowered at pleasure on the stand, the legs of which fold together, and it may be carried with ease by one man to tank or pond.

Price of 4½-inch Liquid Manure Pump, with legs, £2 15s.; 2-inch Flexible Rubber and Canvas Suction Pipe, 2s. 6d. per foot. The Barrel is 27½ inches long, and the legs are 5 feet high.

WARNERS' PORTABLE FIRE or GARDEN ENGINE.



£2 2s.

No. 568½.

For use by one Person .. .. price £2 2s.
No. 547B, ditto ditto, on Wheels .. .. .. „ £2 10s.

The above are complete in themselves, and may be always kept filled with water, and ready for use.

Letter to The Times, *July* 23, 1866, *from* Earl ESSEX.
A REAL FIRE EXTINGUISHER.
To the Editor of The Times.

"SIR,—I feel sure you will kindly allot a small space in the *Times* to these few lines, as the best medium through which I would urge every householder who dreads fire to have on each floor of his house one or more small Garden or other Engines on wheels, always charged and in good order, in case of fire.

"Last night, just as I was going to bed, I was startled by that most fearful of all cries, 'Fire, fire!' I soon learned that a fire was raging in a large two-windowed unoccupied bedroom. How caused is to us all a great mystery. It is my custom to keep one of these small Engines on each floor. In two minutes I was in the room with one of them. It was like a furnace. The curtains, shutters, casements, and cornices of both windows were burning and cracking from floor to ceiling. I was quite alone at the moment, yet before assistance arrived (most of the servants having gone to bed), I had completely subdued the fire of one window without exhausting the Engine, and when assistance and more water did arrive, we very soon extinguished the other.

"So fierce was the fire that the lead of the casements was melted, and the casements themselves were burnt off their hinges.

"I will only add, that by God's mercy, the house was saved by this small Engine. Had it not been at hand and in order, most assuredly Cassiobury would be now a heap of ruins.—Yours faithfully,

"Cassiobury, Watford, July 20. "ESSEX.

"The Engine, even when full, runs so light on the floor, that any woman might draw it, and also work it."

PATRONIZED BY HER MOST GRACIOUS MAJESTY AND HIS ROYAL HIGHNESS THE LATE PRINCE CONSORT.

GREENING & COMPANY'S

PATENT MACHINE-WOVEN

WIRE HARE AND RABBIT-PROOF FENCES

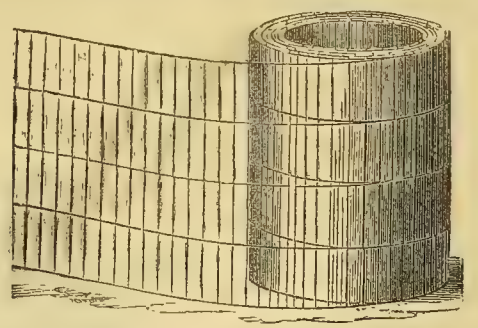
ARE SIX TIMES AS STRONG AS THE VERY BEST WIRE NETTING.

Only 1¼ inch apart in the Meshes, and therefore proof against the smallest Rabbits.

PERFECTLY REGULAR IN PATTERN.

Of a neat and very pleasing appearance, and most moderate in price.

NO. 4 VARIETY.



Copy of Testimonial from the HEAD GARDENER *to* His Grace the Duke of Rutland, *Belvoir Castle, Grantham.*

"I find it extremely convenient, elegant in appearance, and perfectly efficient as a Rabbit Fence. I shall certainly employ it in preference to the usual wire netting, whenever I require anything of the kind. I will forward you the amount of your bill immediately. If you have not already sent a book of patterns to Her Majesty's gardens at Windsor, perhaps you will be good enough to do so; my father, Mr. Ingram, has frequent occasion for such fences.

"I am, Gentlemen, yours most respectfully, WILLIAM INGRAM."

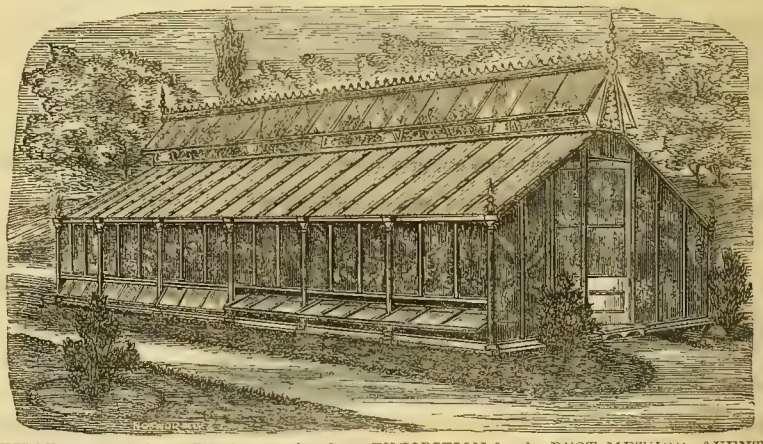
GREENING AND CO., LIMITED, Manufacturers of IRON GATES, FENCES, PALISADES, ESPALIERS, HURDLES, TREE GUARDS, GARDEN SEATS, VERANDAHS, VASES, FOUNTAINS, TOMB RAILINGS, STABLE FITTINGS, GARDEN ROLLERS, POULTRY HOUSES, EMIGRANTS' HOUSES, BRIDGES, CORN RICK STANDS, &c.; also of Wire Strained Fences, Rope Fences, and Patent Moveable Fences for Railways, Parks, Farms, Gardens, Game Preserves, Poultry Courts, Sheep Walks, &c.; also of Wire Netting, Plant Guards and Protectors, Garden Bordering, Garden Archways, Aviaries, Pea and Plant Trainers, Pheasantries, Hen Coops, and Garden Lounges.

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BEARD'S PATENT.

GREAT INTERNATIONAL HORTICULTURAL EXHIBITION & BOTANICAL CONGRESS.



The FIRST and ONLY PRIZE given at the above EXHIBITION for the BEST METHOD of VENTILATION for PLANT STRUCTURES, was awarded to

MESSRS. SANDERS, FREWER, & CO.,

VICTORIA WORKS, BURY ST. EDMUNDS,

FOR THEIR MODEL OF

BEARD'S PATENT METALLIC NON-CONDUCTING GLASS HOUSES,

Showing the Patent System of perfect Ventilation and Patent Method of Glazing, whereby breakage from expansion and contraction is prevented, and facility given for immediate reparation by any ordinary labourer.

MESSRS. SANDERS, FREWER, AND CO. beg to call special attention to the high value of these great improvements in the VENTILATION, &c., of HORTICULTURAL ERECTIONS, which are also applicable to all WOODEN HOUSES, as well as to CHURCHES, RAILWAY STATIONS, PUBLIC BUILDINGS, MANUFACTORIES, &c.; and have received the highest recommendation from many of the first Horticulturists and practical men of the United Kingdom.

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AGENT FOR LIVERPOOL: MR. W. BENNETT, JUN.

HOTHOUSES for the MILLION,
Invented by the late
SIR JOSEPH PAXTON.



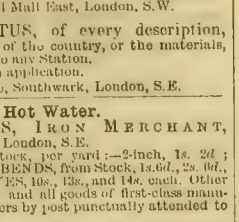
Manufactories: London, Newton in Cartmel (Lancashire), Gloucester, Coventry, Aberdeen, and Paisley only.
Illustrated Circulars, with revised List of Prices, will be sent on prepaid application to Messrs. HERWAN & MORTON, Head Office, 7, Pall Mall East, London, S.W.

HOT-WATER APPARATUS, of every description, fixed complete in any part of the country, or the materials, viz., Boilers, Pipes, &c., delivered to any Station.
Estimates on application.
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Heating by Hot Water.

W. J. HOLLANDS, IRON MERCHANT, 31, Bank side, London, S.E.
HOT WATER PIPES, from Stock, per yard:—2-inch, 1s. 2d.; 3-in h, 1s. 10d.; and 4-inch, 2s. 4d. BENDS, from Stock, 1s.6d., 2s. 6d., and 3s. each. THROTTLE VALVES, 10s., 13s., and 14s. each. Other Connexions at equally low prices, and all goods of first-class manufacture. Estimates given, and orders by post punctually attended to the same day.

COTTAM AND COMPANY,
CONSERVATORY AND HOTHOUSE BUILDERS, &c.,
Iron Works, 2, Winsley Street, Oxford Street, London, W.
SADDLE BOILERS.
20 24 30 inches long.
45s. 65s. 92s. 6d. each.
HOT-WATER PIPES.
2 3 4 inch.
1s. 6d. 2s. 1d. 2s. 9d. per yard.
Materials supplied as above, or Estimates given fixed complete to Plan, on application to
COTTAM & Co.,
Iron Works,
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opposite the Pantheon),
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CRANSTON'S PATENT BUILDINGS for HORTICULTURE.
"Dry Glazing without Putty."
"Glass without Laps."
"Ventilation without Moving Lights."
Highly Commended by the Royal Horticultural Society, South Kensington.



Plans and Estimates free on application. Descriptive Book fully illustrated, post free for 20 stamps, from the Author and Patentee, JAMES CRANSTON, Architect, Birmingham.
Works: Highgate Street, Birmingham.
HENRY J. GROWTAGE, Manager, 1, Temple Row West, Birmingham.

GREENHOUSES, Span or Lean-to, Ornamental or Plain, always in Stock, Glazed with 21-oz., and Painted ready for Fixing. To be seen erected.

Span-roof, plain, 20 feet 9 inches long, by 13 feet wide..	£31	0	0
A ditto of same size, ornamental	35	0	0
A ditto 33 feet long by 13 feet wide, plain	47	0	0
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Also a Lean-to, 23 ft. long by 12 ft. 6 in. wide, plain ..	34	0	0
A ditto, same size, ornamental	39	0	0
Also, a Lean-to 19 feet long by 10 feet 9 inches wide ..	22	0	0
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Also a large Stock of various shapes and sizes, of 1, 2, 3, and 4-Light Garden Frames, some made portable, ready for use, and a large Stock of Greenhouse and Pit Lights.
Greenhouses made to order, Glazed with 21-oz., painted three times, at 1s. 3d. per square foot. Two-inch Lights made and Glazed with 21-oz., painted three times, at 9d. per square foot.
W. S uses only the best Yellow Deal for Horticultural Work.
Estimates given for effectually Heating by Hot Water.
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PRIZE MOWING MACHINES, FIELD and GARDEN ROLLERS; CHAFF CUTTERS, from 45s. Lawn Mowers, Garden Engines, Parkes' Cast Steel Digging Forks and Garden Tools, Improved Wire Netting, Wheelbarrows, Corn Bins, Churns, Sausage and Mincing Machines. PRICE LISTS per post.
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THE IMPROVED TANNED LEATHER DRIVING STRAPS. PATENT EDGE-LAID LEATHER STRAPS, without lap or cross joints—superior to all others for Portable Engines. Prime STRAP and SOLE BUTTS.
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Horticultural Improvements.

READ'S NEW PATENT HYDRAULIC SUCTION PUMP.—This Pump is highly approved by the Nobility, Gentry, and by the principal Horticulturists, &c., throughout the Kingdom; also by Shirley Hibberd, Esq., F.R.H.S., the late Professor Lindley, and many others connected with Horticulture, &c.
Mr. READ has also a large assortment of GARDEN ENGINES, MACHINES and SYRINGES, upon the most approved principle.
Manufactured by the Patentee,
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E. T. ARCHER'S "FRIGI DOMO."
Patronised by Her Majesty The Queen, the Duke of Northumberland for Syon House, His Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, &c.
PROTECTION from COLD WINDS and MORNING FROSTS.
"FRIGI DOMO," a Canvas made of Patent prepared Hair and Wool, a perfect Non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all Horticultural and Floricultural purposes, for Preserving Fruits and Flowers from the Scorching Rays of the Sun, from Wind, from Attacks of Insects, and from Morning Frosts. To be had in any required lengths.

Two yards wide	1s.	9d.	per yard run.
Four yards wide	3s.	6d.	per yard.
An improved make, 2 yards wide ..	1s.	9d.	per yard.
An improved make, 3 yards wide ..	2s.	3d.	per yard run. Also

'FRIGI DOMO" NETTING, 2 yards wide, 1s. 6d. per yard run.
ELISHA THOMAS ARCHER, Whole and Sole Manufacturer, 7, Great Trinity Lane, Cannon Street, City, E.C., and of all Nurserymen and Seedsmen throughout the Kingdom.
"It is much cheaper than Mats as a covering."

JAMES PHILLIPS AND CO.
beg to submit their prices as follows:—
GLASS for ORCHARD HOUSES,
As supplied by them to Mr. Rivers, to the Royal Horticultural Society, and to most of the Nobility, Clergy, and Gentlemen of the United Kingdom.
Each Box contains 100 feet. The prices only apply to the sizes stated.
Squares 20 by 12, 20 by 13, 20 by 14, 20 by 15.

	16 oz. to the foot.	21 oz.
Fourth quality	16s. 0d.	19s. 6d.
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The above prices include the boxes, which are not returnable.
HORTICULTURAL GLASS.
Stock sizes, 16-oz., in 100 feet boxes, boxes included.
These prices only apply to the sizes stated.

				4ths.	3rds.	2nds.
				s. d.	s. d.	s. d.
11 by 9	12 by 9	13 by 9	14 by 9	13 6	15 6	17 0
12 ,, 10	13 ,, 10	14 ,, 10	15 ,, 10			
13 ,, 11	14 ,, 11	..	..			
11 ,, 12	15 ,, 12	15 ,, 11	16 ,, 11			
18 ,, 12	19 ,, 12	16 ,, 12	17 ,, 12			
16 ,, 13	17 ,, 13	20 ,, 12	..			
16 ,, 14	20 ,, 13	18 ,, 13	..	15 0	17 0	18 6
	17 ,, 14	18 ,, 14	..	16 to 17 oz. to the foot.		
	20 ,, 14					

SMALL SHEET SQUARES.
In 100 feet Boxes.

6 by 4	6½ by 4½	7 by 5	7½ by 5½ .. 12s. 6d.
8 by 6	8½ by 6½	9 by 7	9½ by 7½ .. 13s. 6d.
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Boxes 2s. each, returnable at full price.
London Agents for HARTLEY'S IMPROVED PATENT ROUGH PLATE.
LINSEED OIL, Genuine WHITE LEAD, CARSON'S PAINTS, PAINTS of various colours, ground ready for use.
SHEET and ROUGH PLATE GLASS, SLATES of all sizes, BRITISH PLATE, PATENT PLATE, ROLLED PLATE, CROWN, SHEET, HORTICULTURAL, ORNAMENTAL, COLOURED, and every description of GLASS, of the best Manufacture, at the lowest terms. Lists of prices and estimates forwarded on application to
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ROLLERS.
ROLLERS FOR THE FARM.
ROLLERS FOR THE GARDEN.
ROLLERS FOR THE LAWN.
ROLLERS FOR CRICKET GROUNDS.
ROLLERS FOR PARKS.
ROLLERS FOR RACECOURSES.
ROLLERS FOR ROAD MAKING.
The best and cheapest are the Patent Adjustable WATER BALLAST ROLLERS, made only by
AMOS, BARFORD, & Co., Agricultural Engineers, Peterborough, who will forward Price Lists and all particulars on application.

JOHN GIBSON, JUN., begs to announce that he is prepared to Furnish PLANS and ESTIMATES for LAYING OUT GROUND attached to Mansions and Villa or other Residences, or for the FORMATION of PUBLIC PARKS or GARDENS, and to carry out the same by Contract or otherwise.
Address Mr. JOHN GIBSON, jun., Surrey Lane, Battersea, S.W.

Farm Poultry.

GREY DORKING FOWLS, of purest breed, in any numbers.
Imported TOULOUSE GEESE, the largest and most productive breed known.
Improved NORFOLK TURKEYS, large, hardy, and good breeders.
AYLESBURY and ROUEN DUCKS.
Imported BELGIAN HARE RABBITS, for size and early maturity.
BRAHMA-POUTRA, CREVECŒUR, and LA FLECHE FOWLS, for constant layers.
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GOLD and SILVER PHEASANTS (Seven Hens of the former, one year old; Two Hens and one Cock of the latter, two years old), to be Disposed of; all warranted very strong and healthy. Gold, 1½ guinea per bird; Silver, five guineas for the three birds.
Inquire of A. INGRAM, Gardener, Highgrove, Reading, Berks.

FOR SALE, or TO BE LET, a HOUSE and GARDEN, with Stable, Coach House, and Premises, and about 5 Acres of Grass Land, situate in a village about 3 miles from Cirencester, Gloucestershire. The House consists of Drawing-room, Dining-room, and Servants' Offices, four Bed-rooms, and four Servants' Bed rooms Rent £50 a year. For further particulars apply to
Messrs. BRAVENDER & SON, Land Agents and Surveyors, Cirencester.

TO BE LET, the HOME FARM of MILNE GRADEN, near Coldstream, Berwickshire, containing about 134 Acres of Tillage, to which about 130 Acres of old Grass Parks can be added if wished.
The Dwelling House is built in a superior style, containing three Public Rooms and four good Bedrooms. A garden well stocked with Fruit Trees adjoins.
The Offices contain capacious Cattle Byres, Sheds, and Curtains:—Threshing-mill, Saw-mill, Turnip-pulper, Straw-cutter, Cake-bruiser, Mill Stones, Manure Tanks and Pumps, with Pipes for irrigating about 70 acres. This machinery is driven either by a Steam-engine or by a Water-wheel.
Persons wishing to see the Farm must apply to Mr. HUTTON, Factor, on the Estate, or in his absence to the Farm Steward. Heads of a Lease will be shown to intending offerers by JAMES BOWHILL, Banker, Ayton. Offers must be lodged with him on 9th March.—Paxton House, Berwick-on-Tweed, Feb. 5.

Re William Hunter, Nurseryman, Barnard Castle.
SALE OF NURSERY STOCK.

TO BE SOLD, at the Nurseries, Barnard Castle, on WEDNESDAY, March 13, unless previously disposed of by Private Contract, the whole STOCK of TREES and SHRUBS belonging to the Bankrupt Estate of WILLIAM HUNTER, Nurseryman. To any one wishing to commence the Nursery Business this would be an eligible opening, as the Stock will be disposed of on very reasonable terms.
For further particulars, apply to Messrs. W. W. & G. WATSON, Barnard Castle; Messrs. J. & R. S. WATSON, Solicitors, Newcastle-on-Tyne; J. W. SAMUEL SIMPSON, Solicitor, South King Street, Manchester; Mr. RALPH ROBSON, Hexham; or Mr. M. BROWN, of DICKSONS & BROWN, Seed Merchants, Manchester.

Sales by Auction.

Peremptory Sale.
To NURSERYMEN, FLORISTS, AND OTHERS.

MR. REYNOLDS will SELL by AUCTION, on the Premises, Prospect House, Enfield Highway, near the Ordnance Factory Station, on THURSDAY, March 7, at 12 o'Clock precisely, the STOCK of a NURSERYMAN, comprising about 1700 Aucuba japonica, 400 Tree Box, 300 Hollies, 1000 Rhododendrons of the choicest sorts, 600 Arbor-vitæ, 2200 Spruce Firs, 300 Trained and 350 Standard Fruit Trees, 800 Limes, Poplars, and Laburnums, 1000 Standard Rose Trees, 350 ditto in Pots, 300 Dwarf Roses, Camellias, Rose Briars, Araucarias, Irish Yews, Pyrus japonica, White and Yellow Jasmines, Laurels, Arbutus, Hollyhocks, Wellingtonia gigantea, Red Cedars, Ivies, Weeping Ash, Black Willows, Ash, Beech, and Thorns, Chestnuts, Vinca variegata, Wistaria sinensis, Honeysuckles, Box Edging, British Ferns, Primroses, Hydrangeas, &c.; a capital Bay Mare, rising five years, two excellent Van Horses, Spring Van, Cart Bruiser, Handlights and Frames, 200 cast of Pots, Meadow Hay, Garden Tools, Iron Roller, and few Lots of Furniture.
Viewed Day before and Morning of Sale. Catalogues of the Auctioneer, 142, Bishopsgate Street Without, E.C.

Ramsgate.
VERY IMPORTANT AND EXTENSIVE SALE OF VALUABLE NURSERY STOCK.

MESSRS. PROTHEROE AND MORRIS have received instructions from Mr. James Turrell to SELL by AUCTION on the Premises, Providence Nursery, High Street, Ramsgate, close to the Railway Station, on MONDAY, March 4, and following day, at 11 o'Clock each day, without the least reserve, the ground being immediately required for Building purposes, the whole of the Valuable NURSERY STOCK, comprising Evergreens and Deciduous Shrubs of various sizes (including specimens admirably adapted for effective purposes), viz.:—3000 bushy Laurustinus, beautifully in flower, from 2 to 3 feet; 2500 Green and Variegated Euonymus; 1500 Sweet Bays, 1 to 2 feet; 1500 Box; Hollies; Yews, 4 to 6 feet; Laurels; Thujas, sorts; Spruce and Scotch Firs, &c.; 2000 Privet; 500 Lilacs; very fine Standard and Dwarf Roses; Ornamental, Forest, and Fruit Trees; Beds of Asparagus; 1500 yards Box Edging, &c.
May be viewed prior to the Sale. Catalogues may be had on the Premises; of the principal Seedsmen in London; and of the Auctioneers and Valuers, American Nurseries, Leytonstone, Essex.
N.B.—The whole of the Choice Collection of GREENHOUSE PLANTS will be offered the latter end of April.

Sale of very handsome English-grown Camellias, Fruit Trees, &c.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at 38 & 39, Gracechurch Street, City, E.C., on FRIDAY, March 8, at 1 o'Clock precisely, Choice DOUBLE CAMELLIAS, beautiful compact plants, 1 to 5 feet, abundantly furnished with bloom buds; fine AZALEA INDICA; a superb assortment of about 300 very handsome STANDARD and DWARF ROSES, including the best varieties in cultivation; choice hardy AMERICAN PLANTS, comprising Ghent and other Azaleas, selected Fruit Trees, Hybrid Rhododendrons, Kalmias, Andromedas, &c.; some fine Bulbs of LILIUM AURATUM, LANCIFOLIUM RUBRUM, ALBUM and PUNCTATUM; ERICAS, EPACRIS, &c.
May be viewed the Morning of Sale. Catalogues may be had at the City Auction Rooms, as above; or of the Auctioneers and Valuers, American Nurseries, Leytonstone, Essex, N.E.

Wavertree, near Liverpool.
CLEARANCE SALE OF NURSERY STOCK, CHOICE GREENHOUSE PLANTS, GREENHOUSES, &c.

MESSRS. PROTHEROE AND MORRIS are directed by Mr. Isaac Davies to SELL by AUCTION, on the Premises, Larkfield Nursery, Wavertree, near Liverpool, on TUESDAY, March 12, and three following days, at 11 o'Clock each day, without reserve, the Lease having expired, necessitating an immediate clearance, the whole of the Valuable NURSERY STOCK, comprising about 3500 Variegated and other choice Green Hollies; about 10,000 Rhododendrons, including 1000 Hybrid Catawbiense, 1 to 6 feet; 1000 R. ponticum, 300 R. ciliatum, 300 R. dauricum, 300 R. dauricum hybridum, 400 Crimson and White Seedlings, 2000 other choice named varieties, and 1200 R. præcox, one of the many highly esteemed varieties raised by Mr. Davies; 500 Portugal and Common Laurels, 1 to 4 ft; 1500 Azaleas; 1000 Golden, American, Siberian, and other Arbor-vitæ, 1 to 7 ft.; 1200 English and Irish Yews, 2 to 6 ft.; 600 Pinus excelsa, Cembra, and others, 2 to 9 ft.; 500 Cedrus atlantica and Deodara, 2 to 7 ft.; 500 Cupressus Lawsoniana, 2 ft.; Araucaria imbricata, Thujopsis borealis, Junipers excelsa, Arbutus Croomii, scarlet and common, in pots; Lilacs, Weigelas, Standard and Dwarf Roses, Skimmia japonica, Kalmias, Ledums, Hardy Heaths, Pernettyas, &c.; Forest, Fruit, and Ornamental Trees, consisting of worked Thorns, Scarlet Chesnut, Purple Beech, Tulip Trees, Ailantus glandulosa, Double-flowering Cherries, Laburnums, Willows, large Weeping Elms and Ash; Standard, Dwarf-trained and untrained Pears, Plums, and Cherries; Gooseberries and Currants. Wistaria sinensis, Lonicera, variegated Ivies, and other Hardy Climbers; also a choice collection of Greenhouse Plants, including 1500 fine Azalea indica, 400 Ericas of sorts, a quantity of Acacias, Cyclamen, Cytisus, Geraniums, &c.; together with three Greenhouses in excellent condition; one 10-light Pit, ten 2-light Frames, five 1-light Frames, a Vest of 124 Seed Drawers, with Bins, Counters, Seeds, Garden Pots, Implements, and other effects.
May be viewed any day prior to the Sale. Catalogues may be had, 6d. each (returnable to purchasers), on the Premises; and of the Auctioneers and Valuers, Leytonstone, Essex.

Waterloo Nursery, Kilburn.
IMPORTANT SALE OF NURSERY STOCK, GREENHOUSE PLANTS, GREENHOUSES, PITS, &c.

MESSRS. PROTHEROE AND MORRIS are instructed to offer for UNRESERVED SALE by AUCTION, on the Premises, Waterloo Nursery, Kilburn, Middlesex, close to the Edgeware Road Railway Station on the North London Railway, on MONDAY, March 18, and following day, at 11 o'Clock each day, without reserve, the LEASE having been disposed of with reversion, necessitating an immediate clearance, the whole of the valuable NURSERY STOCK, Evergreen, Coniferæ and Deciduous Shrubs, including large quantities of fine bushy Green and Variegated Box; Thuja sorts; splendid Irish and English Yews, 2 to 6 ft.; Spruce Firs, 2 to 5 ft.; Aucuba; Common and Portugal Laurels; Berberis; Green and Variegated Hollies; Cotoneaster, Phillyrea, Cupressus Thuopsis, Cedrus, Lilacs, Weigela, Althæa frutex, Syringa, Forsythia, Sweet Briar, &c.; fine standard and dwarf-trained and untrained Pears; Apples, Plums, Walnuts, Fruit Trees in pots for orchard houses, &c.; Ornamental and Forest Trees, viz., Limes, Planes, Elms, Thorns, Acacias, Poplars, Birch, Sycamore, Maples, Chestnuts, Oaks, Ash, &c.; a choice collection of modern Strawberries, Gooseberries, Currants, Rhubarb; a rich assortment of American Plants, embracing named and Hybrid Rhododendrons, Azaleas, Kalmias, &c.; quantities of Ivies, Virginian Creepers, Clematis, Pyrus japonica, and other hardy Climbers; Yuccas; Climbing and other Roses; thousands of yards of Box-edging, &c.; also about 1000 choice Greenhouse and Stove Plants, viz., Camellias from 3 to 8 ft.; 200 Azalea indica, well set with bloom buds, including many specimens; Rhododendron Nuttalli, jasminiflorum, and Edgworthii; Araucaria, Epacris, Daphne, Gardenia, Begonias, Ixora, Hoya, Eucharis, and Cape Bulbs; together with the erection of 4 Greenhouses, of which one span roof is nearly new. Pits, Boxes, Hot-water Piping, Bricks, and sundry effects.
May be viewed prior to the Sale. Catalogues may be had, 6d. each (returnable to purchasers), on the Premises; of the principal Seedsmen in London; and of the Auctioneers and Valuers, American Nurseries, Leytonstone, Essex, N.E.

Standard and Dwarf Roses from France,
HARDY SHRUBS, FRUIT TREES, BULBS, &c.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on MONDAY, March 4, at half-past 12 o'Clock precisely, 600 STANDARD and DWARF ROSES from France, Primulas and Dwarf Fruit Trees, specimen Conifers and Hardy Shrubs, Carnations, Picotees, and Pinks, choice named Gladioli, and a variety of other Bulbs and Plants for Spring planting.
On view the Morning of Sale; and Catalogues had.

Californian Tree Seeds.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, March 7, at half-past 12 o'Clock precisely, a variety of valuable CONIFER SEEDS, just arrived, in good condition.
On view the Morning of Sale, and Catalogues had.

Preliminary Notice,
IMPORTANT SALE OF ORCHIDS, STOVE AND GREENHOUSE PLANTS, AT HIGHGROVE, READING, BERKS.

MR. J. C. STEVENS will SELL by AUCTION, at the Gardens, Highgrove, Reading, Berks, early in April the valuable Collection of ORCHIDS, STOVE and GREENHOUSE PLANTS, formed by the late J. J. Blandy, Esq., Vice-President of the Royal Horticultural Society of London, comprising a great variety of fine Plants, many of which have been exhibited and carried off prizes at the various Metropolitan and Provincial Shows. Also several Greenhouses, Exhibition Van, &c. Catalogues are preparing and will be ready 14 days before (price 6d. each, to admit parties to the Sale), which may be had at the Gardens; also of Messrs. COOPER & GOULDING, Auctioneers, Market Place, Reading; and of Mr. J. C. STEVENS, Horticultural Auctioneer and Valuer, 38, King Street, Covent Garden, London, W.C.

PRIZE MEDALS AWARDED TO
GREEN'S PATENT LAWN MOWERS AND GARDEN ROLLERS.



LONDON, 1862.



SOCIÉTÉ ROYALE DE FLORE, BRUSSELS, 1862.



LONDON, 1862.



SOCIÉTÉ ROYALE LINNÉENNE, 1861, 1862, and 1863.





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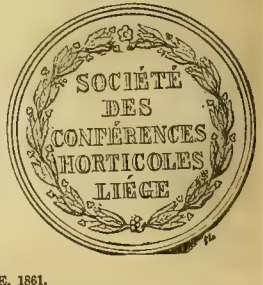




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HAMBURG GRANDE EXPOSITION UNIVERSELLE D'AGRICULTURE ET D'HORTICULTURE.



DUBLIN, 1865.

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THE GARDENERS' CHRONICLE
AND
AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.

No. 10.—1867.] SATURDAY, MARCH 9. {Price Fivepence. {Stamped Edition, 6d.

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ROYAL HORTICULTURAL SOCIETY.—FIRST SPRING SHOW, CAMELLIAS, HYACINTHS, &c., on TUESDAY, March 19, doors open at 2; Band, 3 to 6.30. Admission by Privileged Tickets, 2s. 6d.; Public, 3s. 6d. (to be bought prior to the day), or by payment at the Gates, 5s.

ROYAL BOTANIC SOCIETY'S GARDENS, Regent's Park.—EXHIBITIONS of SPRING FLOWERS, SATURDAYS, March 23, April 13, and April 27. Tickets, 2s. 6d. each. GENERAL EXHIBITIONS, WEDNESDAYS, May 29, June 19, and July 3. Tickets, 4s. each; to be obtained at the Gardens by Orders from Fellows of the Society. The NEXT MEETING of FELLOWS for the Election of New Candidates, SATURDAY NEXT, March 16.

CRYSTAL PALACE.—The DATES FIXED for the FLOWER SHOWS this Season are as follows:—
GREAT FLOWER SHOW, SATURDAY, May 25.
GREAT ROSE SHOW, SATURDAY, June 29.
By Order.

HORTICULTURAL SOCIETY of LIVERPOOL.—The FIFTH GREAT EXHIBITION of HYACINTHS and SPRING FLOWERS will be held in St. George's Hall, on WEDNESDAY, March 13. Entries close March 11. For Schedules, apply to R. W. Ker, Hon. Sec., 6, Basnett Street, Liverpool.

NATIONAL HORTICULTURAL EXHIBITION, 1867.—The above EXHIBITION will Open at Manchester on JUNE 7, and continue till JUNE 15.
Schedules, &c., may be obtained on application to Mr. B. Findlay, Curator, Botanic Garden, Manchester; or from the undersigned,
Henry Whitworth, Secretary.
Carlton Buildings, Cooper Street, Manchester.

ALL the BEST NEW ROSES of 1867.
Extra strong well-grown Plants.
DESCRIPTIVE CATALOGUES on application to
Wm. Wood & Son, The Nurseries, Maresfield, near Uckfield, Sussex.

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HALF SPECIMEN TEA-SCENTED ROSES, in 6-inch pots, now ready to send out.
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CULTURAL DIRECTIONS for the ROSE. Second Edition. By John Cranston, King's Acre Nurseries, near Hereford. Free by post from the Author for 20 stamps.

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PELARGONIUMS.—Show, Fancy, French, and Zonal in great variety, fine Plants, at moderate prices.
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MESSRS. BREFFIT have for Sale a quantity of Soft-wooded ERICAS in Store Pots. Price from £5 to £8 per 1000.
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JOHN STANDISH, Royal Nursery, Ascot, can supply fine FLOWERING BULBS of his unrivalled collection in splendid condition. CATALOGUES of these and of his GENERAL NURSERY STOCK on application.

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PYRAMID APPLES, PEARS, PLUMS, CHERRIES.
Beautiful Trees for Garden or Orchard Houses.
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Plants are now ready to be sent out (in lots not less than 20).
All applications must be accompanied by a Post Office Order, on Birmingham, Postage Stamps, or Cash, to receive attention.
PRICES OF THE LADY STRAWBERRY PLANTS, from July, 1866, to August, 1867:—

ONE HUNDRED	£3 7 6	SIXTY	£2 6 0
EIGHTY	2 15 0	FORTY	1 12 6
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Plants in Pots (not less than 10) at 1s. 6d. each. Packages of all the above included.
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500 extra-sized Dwarf-trained PEAR TREES.
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500 " " PLUM TREES.
500 " " APPLE TREES.
The above are all beautifully trained bearing Trees, and are offered at remarkably low prices.
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FINE DWARF-TRAINED, 5 to 10 branches, 4 to 5 ft. long, 2s. each.
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Alder, 3 to 5 feet, extra strong	Fir, Scotch, 1½ to 2 ft., extra fine
Ash, 18 inches to 2 feet	" Spruce, 3 to 4 feet, extra fine
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Berberis dulcis, 2 to 3 feet	Hazel, 2½ to 3½ feet, extra fine
" Aquifolium, 1 to 1½ foot	Holly, Green, 1½ to 2 feet, bushy
Chestnut, Horse, 2 to 4 feet, and 5 to 6 feet	Laurel, Common, 2½ to 3 ft., bushy
" Spanish, 2 to 3 feet	" Portugal, 3 to 4 ft. ex. bushy
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Strong CATTLE CABBAGE PLANTS.
Strong MANETTI STOCKS.
FRUIT TREES.
Apples, Standards and Dwarfs, very strong
Cherries, Dwarfs and Dwarf-trained, extra fine
Peaches, Dwarfs and Dwarf-trained, extra fine
Pears, Standards and Dwarfs, extra fine
Plums, Standards and Dwarfs, extra fine
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ABIES DOUGLASII, 2 to 3 feet, 90s. per 100.
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Both fine for lawn and cover planting; bearing a profusion of orange-coloured flowers and purple berries, of which pheasants are remarkably fond.
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FOREST TREES, twice and thrice Transplanted, in all sizes. Catalogues gratis.
CEDRUS DEODARA, 3 to 4 ft., 4 to 5 ft., 5 to 6 ft., and 6 to 7 ft., from 30s. to 60s. per dozen.
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FRUIT TREES, in 2000 sorts, and in all manner of training. The most complete collection in England.
A 92-page CATALOGUE, with large Supplement full of Fruit Tree information.

FOREST TREES.

400,000 ALDER, 1½ to 2, 2 to 3, and 4 to 5 feet.
100,000 ELM, WYCH, 1½ to 2, and 2 to 3 feet.
100,000 HAZEL, 1½ to 2, and 2 to 3 feet.
50,000 OAK, E., 1½ to 2, 2 to 3, and 4 to 5 feet.
100,000 PRIVET, Evergreen, 1½ to 2, and 2 to 3 feet.
100,000 SYCAMORE, 1½ to 2, 2 to 3, and 3 to 4 feet.
1,000,000 LARCH, fine, 2 to 3, 3 to 4, and 4 to 5 feet.
100,000 DO., extra fine, moved last season, 2 to 3, and 3 to 4 feet,
200,000 SPRUCE FIR, 1 to 1½, 1½ to 2, and 2 to 2½ feet.
20,000 WILLOW, Huntingdon, 2 to 3, and 3 to 4 feet.
20,000 POPLAR, B. Italian, 1½ to 2, and 2 to 3 feet.
50,000 ASH, 1½ to 2, 2 to 3, and 3 to 4 feet.
The above will be offered at such prices as will induce to order, all being of excellent quality. Apply for terms to
H. & R. STIRZAKER, Skerton Nurseries, Lancaster.

Game Covert, Forest Planting, &c.

JAMES SMITH offers the following:—
The RHODODENDRONS are fine bushy well-rooted Plants, fit either for Woods or Pleasure Grounds; the LARCH are fine stout Plants, better cannot be grown; also PRIVETS, LAURELS, BERBERIS (in sorts), SCOTCH, SPRUCE, and SILVER FIRS, ASH, OAKS, BEECH, BIRCH, PINUS AUSTRIACA, &c., all strong well-rooted plants, a PRICED CATALOGUE of which will be forwarded on application.
LARCH, good stout plants, per 1000:—1½ to 2 feet, 14s.; 2 to 3 feet, 16s.; 2½ to 3½ feet, 18s.; 3 to 4 feet, 20s.
RHODODENDRON PONTICUM, bushy, well-rooted plants, 6 to 12 inches, 10s. per 1000.
Do. do., 9 to 15 inches, 18s. per 100; 160s. per 1000; per 10,000, £79.
Do. do., 1 to 1½ foot, 23s. per 100; 220s. per 1000; per 10,000, £105.
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Do. HYBRIDUM, 6 to 12 ins., 30s. per 100; 290s. per 1000.
Price to the Trade on application.
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VINES.—SURPLUS STOCK

OF THE FOLLOWING SELECTED VARIETIES, TRUE TO NAME, EXTRA STRONG,
WHICH WERE GROWN FOR FRUITING IN POTS,

Can now be supplied at the Planting rate of Prices, viz., 5s. to 7s. 6d. each.

☞ *Special Prices given where 25 or more are required. A fine opportunity for Gentlemen wishing to Plant largely.*

BLACK HAMBURGH
" MUSCAT
" ALICANTE
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BUCKLAND'S SWEETWATER
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CARTER'S GENUINE SEEDS.

THE NEW CEREAL (SORGHUM TARTARICUM?),

A SUBSTITUTE FOR WHEAT.



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Are in a position to supply a moderate quantity of the above important NOVELTY. They have not as yet proved its qualities, but if the following description (which they have received from a most reliable source) is correct, they have no hesitation in stating that it will become one of the most important additions to Agriculture which has been introduced in the present century:—

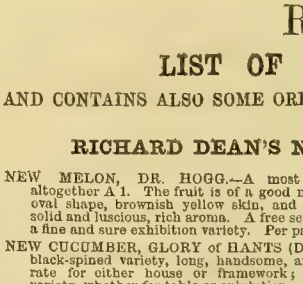
"I received a packet of the Seed from China (where it is used largely as an article of food), and grew about 100 square feet of it last season; and notwithstanding the cold wet Summer and Autumn, the results were wonderful. It is quite hardy, and wet does not hurt it. The Seed should be sown the end of March or in April, on stiff land; it is ready for harvest in September. The average produce will be 60 bushels (of 39 lb.) per acre. As an article of food the Bread is more palatable than Wheaten Bread, and it contains more nourishment than any other Cereal whatever. A small Loaf went four times as far as an equal one made of Wheaten Flour.

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THE QUEEN'S SEEDSMEN,

LONDON and EDINBURGH.

FARM, VEGETABLE, and FLOWER SEEDS.

FOREST TREES AND SHRUBS OF ALL KINDS.

CATALOGUES sent free on application.

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RICHARD DEAN'S

LIST OF SPECIALITIES IS NOW READY,

AND CONTAINS ALSO SOME ORIGINAL PAPERS OF GREAT VALUE TO THE AMATEUR GARDENER.

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NEW MELON, DR. HOGG.—A most valuable acquisition, altogether A 1. The fruit is of a good medium size, handsome oval shape, brownish yellow skin, and pale green flesh, very solid and luscious, rich aroma. A free setter and a good keeper, a fine and sure exhibition variety. Per packet, 1s. 6d. and 2s. 6d.

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BROCCOLI, DEAN'S PREMIER EARLY WHITE.—Unquestionably the largest and best of all the Early White Broccolis. Heads large, very fine and white; quite hardy. A variety that can be depended on, as it is entirely free from any impregnation of the character of the White Cape. Should be sown in March, and will flower in the March following. Per packet, 1s. 6d. and 2s. 6d.

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CABBAGE, DEAN'S ONWARDS.—A very greatly improved variety of the large Cabbages, as represented by the Enfield Market. Very early, compact grower, and deliciously tender. Per packet, 1s.

CABBAGE, PRESIDENT EARLY DWARF.—A very early Dwarf Cabbage, medium size, good close heart, excellent marrow flavour. A capital sort for winter work. Per packet, 1s.

LETTUCE, ACME WHITE COS.—A very large variety, superior in quality to the Paris White Cos, from which it also differs in colour and habit. Hearts well, does not require tying; very crisp and sweet, and as hardy as any Lettuce in cultivation. Invaluable for summer or winter growth. Per packet, 1s.

LETTUCE, LEYDEN WHITE DUTCH.—A splendid Cabbage Lettuce, the very finest in cultivation. It produces large close heads, literally all heart; flavour excellent and very hardy. Per packet, 1s. and 2s. 6d.

The following fine Selections are confidently offered:—

	Per packet.—s. d.
BROCCOLI, DANCER'S IMPROVED PINK CAPE	1 0
" DILCOCK'S BRIDE, true selected stock	1 0
" EALING EARLY, DWARF WHITE	1 0
CABBAGE, CHILTON EARLY SPRING, DWARF	1 0
CAULIFLOWER, NEW EARLY DWARF MONMOUTH	1 6
ENDIVE, DIGWELL PRIZE, GREEN CURLED	1 0
ONION, DANVER'S YELLOW	0 6
" NEW VENETIAN GIANT, TRIPOLI	1 0
TOMATO, POWELL'S EARLY DWARF RED	0 6
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☞ *For full descriptions, see* LIST of SPECIALITIES, *Post Free on application.*

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GENUINE SEEDS, OF SUPERIOR STOCKS.

FRANCIS & ARTHUR DICKSON & SONS,

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THE BEST EARLY PEA IN CULTIVATION,

DICKSON'S "FIRST & BEST."

Retail Price, 1s. 6d. per Quart. Price to the Trade on application.

CATALOGUES OF NEW & SELECT AGRICULTURAL, VEGETABLE, & FLOWER SEEDS, &c., FOR 1867,

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Their Seeds are of the most select character, each being saved from the BEST Stock *known* of its kind.

☞ *All orders of £2 value (Grain, &c., excepted), will be delivered Free at the principal Railway Stations in the Kingdom. Flower Seeds sent Post Free, except heavy articles, such as Sweet Peas, Lupins, &c.*

GLADIOLUS BRENCHLEYENSIS.

YOUELL & CO.'S

ROYAL NURSERIES, GREAT YARMOUTH,

STILL STANDS UNRIVALLED

FOR THE CULTURE OF GLADIOLUS BRENCHLEYENSIS.

Some idea may be formed how highly this variety is esteemed, when they state that this Season they have supplied upwards of 150,000 BULBS of the above, which is the finest and handsomest of this magnificent class. It is the MOST BRILLIANT and showy variety suited for SUMMER and AUTUMN DISPLAY, as the following Report from the *Gardeners' Chronicle* of September 8, 1866, will testify:—

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YOUELL AND CO. beg to intimate that they are in a position to supply the most choice kinds of this beautiful tribe, in strong Flowering Bulbs, as follows:—

No. 1 Collection contains 100 Bulbs, in 50 of the most choice and handsome kinds, with names	..	£5	0 0
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Half No. 3 Collection „ 50 Bulbs, in 12 ditto ditto	..	1	5 0

Fine Selections left to us, 9s., 12s., 18s., and 30s. per dozen.

CATALOGUES POST FREE ON APPLICATION.

ROYAL NURSERIES, GREAT YARMOUTH.

GENUINE SEEDS, CARRIAGE FREE.

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VICTORIA AND PARADISE NURSERIES, UPPER HOLLOWAY, LONDON, N.

GENERAL PRICED CATALOGUE of FLOWER and VEGETABLE SEEDS

FORWARDED FREE TO ANY ADDRESS.

It contains, in addition to the best of the established and indispensable varieties of VEGETABLE SEEDS, the following NEW KINDS:—

THE ORANGEFIELD DWARF PROLIFIC TOMATO, 2s. per pkt.
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Also the following NOVELTIES in FLOWER SEEDS:—

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VIOLA CORNUTA, PURPLE QUEEN, 1s. & 2s. 6d. per packet.
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Also the following well-known STRAINS of FLORISTS' FLOWERS:—

WILLIAMS' superb strain of PRIMULA, Red, White, or Mixed, 2s. 6d., 3s. 6d., and 5s. per packet
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GLADIOLI, English-grown Seedlings, splendid assortment, 8s. per dozen; 50s. per 100.
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1st Size are Plants 2 feet high, bearing 150 to 200 Berries.
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Price from 10s. 6d. each and upwards
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THOMAS WARNER begs to remind intending planters and the Trade, that he has a very extensive stock of the above, all in fine health and vigour. See CATALOGUES, Wholesale or Retail. Leicester Abbey Nurseries.

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COMMON LAURELS, well furnished plants, 3 to 4 feet, 20s. per 100, 190s. per 1000; 2 to 3 feet, 14s. per 100, 130s. per 1000.
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ONE HUNDRED THOUSAND COMMON LAURELS, fine bushy plants, from 3 to 7 feet high; good for Blinds, particularly for newly laid-out Grounds and Buildings. These Laurels are very fine, and have not suffered from the frost.
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SURPLUS STOCK.

LARCH.—Well-rooted, extra strong, 2½ to 3½ ft. high, at 12s. per 1000.
AUSTRIAN PINES.—Fine strong well-rooted plants, three times transplanted, from 9 to 12 in., 12 to 18 in., 18 in. to 2 ft. high.
Price on application to B. WHITHAM, Reddish Nurseries, near Stockport.

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LARCH, 1½ to 2 feet, 8s. per 1000; 2 to 3 feet, 10s.; 3 to 4 feet, 12s. 6d.
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SCOTCH FIR, native, 6 to 12 inches, 5s. per 1000.
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Apply, with reference, to J. RIDDELL, Park Attwood, Bewdley, Worcestershire.

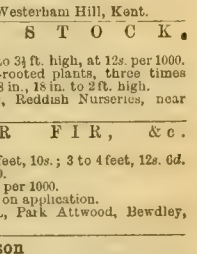
Planting Season

LARCH (Native and Tyrolese), SCOTCH FIR (True Native), SPRUCE, OAK, ASH, ALDER, BEECH, PRIVET, and all kinds of FOREST and ORNAMENTAL TREES and SHRUBS, ROSES, FRUIT TREES, fine specimen ARAUCARIAS and DEODARS, and large TREES for Park Planting, now in fine condition for removal.
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Choice Californian Seed—To Gentlemen Planting.

JAMES CARTER AND CO. have just received fresh SEEDS of the undermentioned hardy CALIFORNIAN CONIFERS in fine condition. This is a fine opportunity to procure the Seeds of choice Conifers at reasonable rates. Prices on application:—WELLINGTONIA GIGANTEA, fine seed; PINUS BENTHAMIANA, CUPRESSUS LAWSONIANA, PINUS INSIGNIS, and PICEA GRANDIS.
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237 and 238, High Holborn, London, W.C.

Finest New Hardy Plant of the year.

PAUL'S NEW DOUBLE CRIMSON THORN. COLOUR, BRIGHT CRIMSON, BRIGHT AND DOUBLE.

Awards: First-class Certificates International Exhibition and Royal Botanic Societies.

PAUL AND SON beg to invite orders ere close of planting season for this unique novelty. The following Nurserymen have already ordered it, as well as many of our leading Amateurs:—

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JOHN GRIGOR AND CO. have for SALE several Millions of very superior LARCH, one-year old Seedlings; also one-year transplanted plants, grown from seed extracted from healthy trees, which form the fourth or fifth generation of the Larch since its introduction into Scotland. Such plants being acclimatised, are found to be far hardier than those raised from imported seed.
According to Mr. Grigor's Report on "the Larch Forests of Scotland," for which the Highland and Agricultural Society of Scotland has recently awarded the Gold Medal, acclimatation forms the basis of all successful cultivation, and is the only means of averting the numerous casualties to which Larch plantations are subject.
NATIVE HIGHLAND SCOTCH PINE, 1-year seedling.
FOREST TREES in general.
Strong plants of AQUILEGIA GLANDULOSA.
Prices on application.

SEEDLING and TRANSPLANTED FOREST TREES.

SEEDLINGS.—Ash, 1 yr., 1s.; Beech, 2 yr., 3s. 6d.; Elm, 3 yrs., 2s.; Norway Maple, 2 yr., 7s. 6d.; Oak, English, 1 yr., 1s. 6d.; 2 yr., fine, 4s.; Silver Fir, 4 yr., 6 to 12 inches, 4s.; Norway Spruce, 4 yr., 2s. 6d.; Crab, 2 yr., 2s. 6d.; Pears, 2 yr., 3s. 6d.; Sycamore, 2 yr., 2s. 6d. per 1000.

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RHODODENDRON PONTICUM, 4 to 6 in., 6s. per 100.

Apply, with reference, to J. RIDDELL, Steward, Park Attwood, Bewdley, Worcestershire.

WANTED, a DOZEN well-grown, bushy Common YEWS, for a screen, 7 feet high. Also a few well-ripened CANES of VINES, for Planting, and for Pot Culture. Estimates of the price of each delivered free at Sunningdale Station, South Western Railway, to be addressed to

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TURNER'S COTTAGERS' KALE.
TURNER'S INCOMPARABLE WHITE CELERY.
TURNER'S SCARLET GEM MELON.
FROGMORE PROTECTING BROCCOLI.
(In Shilling Packets.)

The above have proved to be the best of their respective classes. Seed of the true Stock may be had of

CHARLES TURNER, The Royal Nurseries, Slough.

Garden Seeds.

CHARLES TURNER'S CATALOGUE is now ready, and may be had on application.

The Best three WRINKLED MARROW PEAS are—
LITTLE GEM, Early, 1 foot high.
ADVANCER, Second Crop.
PREMIER, Summer and Late.

See full descriptions in C. TURNER'S CATALOGUE, now ready.

SNOW'S BROCCOLI, True.
HEDSOR WINTER CUCUMBER.
BAILEY'S SUPERB CABBAGE.

All the established varieties of Vegetables from the best sources; also the Novelties in Flower Seeds.

The Royal Nurseries, Slough.

NEW FRAME CUCUMBER, GLORY of HANTS (DEAN).—See *Gardeners' Chronicle* of February 23.

The stock of this fine Cucumber is entirely in the hands of RICHARD DEAN. Price per packet, 2s. 6d.

Depot for New and Choice Vegetable and Flower Seeds, Esling, London, W.

YOUELL'S NORFOLK HERO CUCUMBER.—Without exception the very best Cucumber for open ground cultivation that has yet been offered, and they have much pleasure in submitting the following report:—

"Alburgh Rectory, Feb. 27, 1867.

"GENTLEMEN,—I have now grown your Norfolk Hero Cucumber for four years, and have found it far the best ridge Cucumber I ever met with.—Yours faithfully, "(Signed) J. A COOMBE.

"Messrs. YOUELL & Co., Royal Nurseries, Great Yarmouth."

It is a most prolific bearer, as handsome as any frame variety, and is as delicate in point of texture, the fruit measuring 16 to 20 inches.

Packets containing 12 Seeds, 1s.; 30 Seeds, 2s.

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LAING'S MAMMOTH RED CELERY.—This is considered the largest yet grown, attaining the extraordinary weight of from 10 to 12 lb., and is at the same time perfectly solid. It is nearly perennial in its habit, as it will not under any circumstances run to seed the first season, and it is difficult sometimes the second, when planted out for that purpose. In colour it is a bright red. In flavour unsurpassed, if equalled. It has been seen growing by many practical Gardeners, who deem it a new feature in the garden, from the fact that you may have it nearly all the year.—In packets, 1s. each.

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Post Free.

	Per pkt.—s. d.		Per pkt.—s. d.
Broccoli, Snow's Imperial Winter	1 0	Moore's Vegetable Cream	0 6
Albert Sprouts	0 6	Beet, Perpetual Spinach	0 6
Cauliflower, Early Erfurt	1 0	,, Nutting's Superb Red	0 6
Celery, Manchester Champion Red	0 6	Lettuce, Wheeler's Tom Thumb	0 6
Cucumber, Smith's Fine Frame	1 0	Radish, French Breakfast	0 6
Cucumber, Telegraph	1 0	Aster, Truffaut's Superb French, 12 vars. mixed	1 0
Leek, Henry's Prize	0 6	Aster, Victoria, 6 vars. mixed	1 0
Endive, Digswell Prize	0 6	Stock, improved large-flowering, 12 vars. mixed.	1 0
Onion, Nuneham Park	2 6	Balsam, Camellia-flowered, 6 var. mixed	1 0
Parsley, extra fine curled	0 6	Balsam, Rose-flowered, 8 vars. mixed	1 0
Raphanus caudatus (new long-podded Radish)	2 6	Phlox Drummondii, 12 splendid varieties	1 0
Custard Marrow	0 6		
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is now Published, and will be forwarded Free on application.

Special attention is devoted to the preparation of GRASS SEED MIXTURES to suit all Soils and situations. These Mixtures cannot be surpassed in quality.

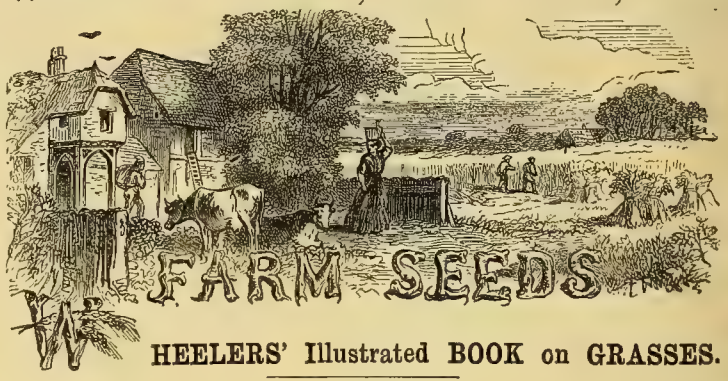
TURNIP, MANGEL WURZEL, and other SEEDS from the most carefully grown and best selected stocks.

☞ *Where large quantities are required,* J. V. AND SONS *will have much pleasure in quoting special prices.*

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J. C. WHEELER & SON, SEED GROWERS, GLOUCESTER.

RYE GRASS,
CLOVERS,
TREFOIL,
COW GRASS,
ALSIKE,
LAWN
GRASS.



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CARROT.

HEELERS' Illustrated BOOK on GRASSES.

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TABLES AND PRICES OF GRASSES, CLOVERS, ETC., NATURALLY ADAPTED FOR LAYING DOWN TO PERMANENT PASTURE LAND ON THE FOLLOWING GEOLOGICAL FORMATIONS:—

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I. CHALK—UPPER CRETACEOUS.—York, Norfolk, Suffolk, Herts, Sussex, Berks, Wilts, Hants, Dorset. Per acre, medium soil	36	7
II. CHALK — UPPER AND LOWER GREEN SAND. — York, Norfolk, Cambridge, Beds, Bucks, Berks, Wilts, Dorset, Surrey, Kent, Sussex. Per acre, medium soil	35	4
III. LONDON CLAY.—Sussex, Essex, Surrey, Herks, Hants, Dorset, Kent. Per acre, medium soil	35	9
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VI. UPPER and LOWER LIAS and MARLSTONE.—Gloucester, Leicester, Lincoln, Northampton, Oxford, Rutland, Somerset, Warwick, Worcester, York. Per acre, medium soil	36	0
VII. NEW RED SANDSTONE and KEUPER MARL.—York, Notts, Stafford, Leicester. Derby, Warwick. Worcester, Cheshire, Flint, Gloucester, Devon, Somerset. Per acre, medium soil	36	10
VIII. CARBONIFEROUS LIMESTONE. — York, Northumberland, Westmoreland, Monmouth, Derby, Somerset, Cornwall, Gloucester. Per acre, medium soil	31	4
IX. OLD RED SANDSTONE.—Devon, Cornwall, Hereford, Monmouth, Brecon, Carmarthen, Pembroke. Somerset, Salop. Per acre, medium soil	36	0
X. UPPER SILURIAN. — Hereford, Lancaster, Radnor, Denbigh, Salop, Carmarthen. Per acre, medium soil	37	0
XI. LOWER SILURIAN.—Pembroke, Carmarthen, Cardigan, Montgomery, Merioneth, Denbigh, Worcester. Per acre, medium soil	34	8
XII. POST TERTIARY. — ALLUVIAL DEPOSITS. — Sides of Rivers, Rich Loams, Light Sands, Poor Soil on Clay, &c., &c.		

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FARM SEEDS of the VERY FINEST QUALITIES that can be PRODUCED,

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Large handsome oval-shaped bulb, with a clear purple skin, and may be confidently relied on as the most robust grower and heaviest cropper in cultivation. This Swede has again, and for the third time, won the Fifty Guinea Cup for the best 10 acres, open to all Ireland, for which there were many competitors. It has also taken numerous First Prizes throughout the kingdom.

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A large handsome solid bulb—very nutritious, and an excellent keeper, and is, as now improved, decidedly the best Yellow for winter and spring use in cultivation. This is same as supplied to Mr. McCombie of Tillyfour, and other stock breeders in Aberdeenshire.

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Essex Wonder do do	General Havelock do.
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LAWES' PATENT TURNIP MANURE and BONE SUPERPHOSPHATE of LIME	6	6	0
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CORN MANURE, for Spring Use
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Also Genuine PERUVIAN GUANO, and NITRATE of SODA, ex Dock Warehouse; SULPHATE of AMMONIA, FISHERY SALT, &c. E. PURSER, Secretary.

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Fumigate your Greenhouse with TOBACCO TISSUE.

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BOSTON'S NE PLUS ULTRA, for the Destruction of Mealy Bug, Scale, American Blight, &c., on Stove and Greenhouse Plants, Fruit Trees, Vines, &c. In bottles, with full instructions for application, price *3s. 6d*, *5s.*, and *10s. 6d.*

JAMES CARTER & Co. beg leave to state that the present time is most suitable for applying the above genuine Specific before the commencement of the growing season, thereby preventing the rapid increase of the above pests which would otherwise take place. The infallible properties of BOSTON'S NE PLUS ULTRA are rapidly becoming fully recognised. J. C. & Co. having already sold nearly 2000 bottles since its first introduction in the spring of 1866. Numerous testimonials have been received, and not a single complaint of its inefficiency.

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"AT the first opportunity Paint the Trees with a solution of 'APHIS WASH,' prepared at the City Soap Works; it not only destroys the Brown Aphis which Infests Peach Trees, but also Scale, and every other pest capable of lodging in the bark."—Extract from *Gardeners' Magazine*, January 5, 1867.

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Used by many of the leading Gardeners since 1859, against Red Spider, Mildew, Thrips, Green Fly, and other Blight, in solutions of from 1 to 2 ounces to the gallon of soft water, and of from 4 to 16 ounces as a Winter Dressing for Vines and Fruit Trees. Has outlived many preparations intended to supersede it.

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Each Manure is specially prepared for the Crop for which it is intended, and is sold in Bags containing the necessary Dressing for *One Acre*.

The WHEAT, BARLEY, and OAT MANURE will effectually PREVENT the LODGING of the Corn, so frequent on lands deficient in Silica.

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CLEMATIS RUBELLA.—Very rich velvety claret; the deepest coloured Clematis yet offered. Very distinct, and having the advantage of flowering 60 to 70 per cent. of blooms, with five and six sepals. First Certificate, Royal Horticultural Society.

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MESSRS. GEORGE JACKMAN AND SON have much pleasure in announcing that they are sending out the above Clematises, and can with confidence recommend them "amongst the best of hardy Climbers." Strong Plants, with bine, 1½ to 2½ feet, 21s. each.

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Coloured Drawings, by Andrews, for 24 stamps.

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GERANIUMS, GERANIUMS, GERANIUMS. — Amy Hogg, Black Dwarf, Chancellor, Cloth of Gold, Donald Beaton, Indian Yellow, Le Grand, Miss Parfitt, Mrs. Milford, Mrs. Wm. Paul, Mrs. Pollock, Paul l'Abbé, Roi d'Italie, Rose Randatler, Triomphe de Gergoviat, double, Victor Emmanuel, Virgo Maria, Wiltshire Lass—in all 18 good plants for 12s., hamper and package included. May be had at

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1000 DAHLIAS in Pot Roots, cheap.

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The above, one of each, good plants, for 10s.

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New White-flowered Ivy-leaved Pelargonium, L'Elegante.

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It was Exhibited at the Birmingham Rose Show, July 5 and 6, where it obtained a First-class Certificate. (See *Gardeners' Chronicle*, page 660, July 14.) Likewise at the Floral Committee of the Royal Horticultural Society, September 4, where it again received a First-class Certificate. (See *Gardeners' Chronicle*, page 854, September 8; also "Journal of Horticulture," page 198, September 11.)

It will prove a great acquisition as a decorative plant, either for Hanging Baskets, Pots, Ribbon Borders, Vases, Blocks, or as a specimen plant for Exhibition.

Retail price, 10s. 6d. each; Six Plants for 60s.

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DERBYSHIRE HERO (ZONALE).—Bright cerise with clear white eye in the way of Roi d'Italie; of great substance and fine form; very smooth in texture: habit free, dwarf, and compact.

STAFFORD GEM (ZONALE).—Same habit as above, and equally free in blooming; flowers bright orange-scarlet, with clear white eye; very distinct.

SCARLET CHRISTINE (PLAIN-LEAVED).—Flowers bright cerise, shaded with purple; abundant bloomer; habit and foliage same as Christine—when not in flower one cannot be distinguished from the other: it will make a fine companion for the well-known pink variety.

ROSE MAGENTA (NOSEGAY).—Colour as name implies, producing abundance of large trusses; habit of Stella. A first-class bedder, and very distinct.

Retail price, 5s. each; the set of four for 15s.

Post-office Orders payable at Burton-on-Trent. Cash or reference from unknown Correspondents.

W. CUNNINGHAM, The Forge Nurseries, Burton-on-Trent.

M. GUENOT, SEEDSMAN, 6, Quai Lepelletier, Paris. (Established 1780.)

SPECIAL FRENCH COLLECTIONS.

CHINA ASTERS, Truffaut's varieties, 20 splendid varieties, 10 francs; 10 splendid varieties, 5 francs.

ŒILLETS DE FANTASIE (PICOTEES, &c.), 3 varieties, 3 francs.

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Extra Double CAMELLIA BALSAMS, collection of 20 varieties, 5 francs; 10 varieties, 2½ francs.

Speciality for GLADIOLUS. The General and Descriptive Catalogue of Gladioli, as well as that of Seeds, Plants, and Bulbs, will be forwarded on application.

ARGENTEUIL ASPARAGUS, true and improved variety, very large and very early, 2-yr. old plants, extra fine, 5 francs per 100.

CHINESE YAMS, very fine roots, 3 francs per kilogramme.

Mixed Collection of GRASS SEEDS for Lawns and Meadows, 1½ franc per kilogramme (2½ lb. nearly); or 100 kilogrammes (220½ lb.), 140 francs.

Now Ready, in Strong Plants.

THE MAGNIFICENT NEW VIOLET, QUEEN of VIOLETS.

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Messrs. Saltmarsh & Son, Chelmsford
Messrs. Chalice & Son, Plympton
Messrs. Transon Frères, Orleans, France.
Mr. J. Elcombe, Southampton
Mr. W. Church, Mulbarton.

Strong Plants, 1s. 6d. each; 18s. per dozen. Usual allowance to the Trade.

VIOLETS, NEW DOUBLE RED, 1s. 6d. each; 12s. per dozen.
" SINGLE CALIFORNIAN Species, 1s. each; 9s. per dozen.
" DOUBLE NEAPOLITAN, 9d. each; 6s. per dozen.
" DOUBLE BLUE, 6d. each; 4s. per dozen.
" DOUBLE WHITE, 6d. each; 4s. per dozen.
" SINGLE DEVONIENSIS, extra fine, 9d each; 6s. per dozen.
" THE GIANT, extra fine, 9d each; 6s. per dozen.

HEPATICAS, DOUBLE and SINGLE RED, 4s. per dozen.
" DOUBLE BLUE, 1s. 6d. each
" SINGLE BLUE, 4s per dozen.
" SINGLE WHITE, 9s. per dozen.
" MAUVE, NEW, 1s. 6d. each.

CHRISTMAS ROSE (HELLEBORUS), WHITE, 9s. per dozen.
" " RED, 18s. per dozen.

PRIMROSES, DOUBLE LILAC and WHITE, 6s. per dozen.

POLYANTHUS, finest mixed, 3s. per dozen.

PAMPAS GRASS, extra fine, 6s. per dozen.

WALLFLOWER, DOUBLE GOLDEN, YELLOW and DARK, 6s. per dozen.

FORGET-ME-NOT (MYOSOTIS PALUSTRIS), 4s. per dozen.

DIELYTRA SPECTABILIS, strong, 6s. per dozen.

ROCKETS, DOUBLE WHITE and YELLOW, 6s. per dozen.

NEW PINKS, ANNE BOLEYN, improved, and EXCELSIOR, 1s. per pair.

100 HARDY HERBACEOUS and ALPINE PLANTS, in 50 varieties, 25s.

CATALOGUES for one Stamp. Post Office Orders on Castle Hedingham.

WM. DILLISTONE, Sible Hedingham, Essex.

Carter's Grass Seeds for the International Exhibition at Paris, 1867.



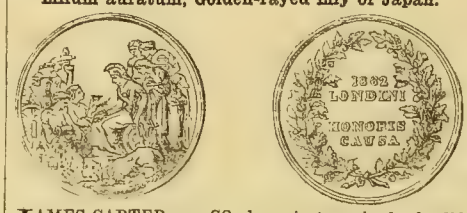
JAMES CARTER AND CO. have the satisfaction to announce that the Imperial Commissioners of the Paris International Exhibition of 1867 have granted to them the concession of supplying the GRASS SEEDS for the purpose of forming the Sward of the Park round the Exhibition Building in the Champ de Mars. The honour conferred on their House will be more readily appreciated when they state the gratifying fact, that they are THE ONLY ENGLISH HOUSE ENTRUSTED WITH THE IMPERIAL COMMISSIONERS' COMMANDS FOR THIS PURPOSE.

JAMES CARTER & Co. are prepared to supply Mixtures for Permanent Pasture, Park Lawns, &c., of the most nutritious and valuable Grasses, specially mixed to suit the variations of climate and soil. Price according to quality, from 26s. to 36s. per acre. PRICED LISTS gratis and post-free on application to

CARTER'S Great London Seed Warehouse, 237 & 238, High Holborn, London, W.C.

Grass Seed packed for Exportation.

Lilium auratum, Golden-rayed Lily of Japan.



JAMES CARTER AND CO. have just received splendid BULBS of the above, in finer condition than any imported for some time, and said to contain many highly-coloured varieties. This incomparable Lily has for some time been very scarce, but we can now offer fine Flowering Bulbs, true to name, at the following prices:—1st size, 3s. 6d.; 2d, 2s. 6d.; extra strong large Bulbs, 1st size, 7s. 6d.; 2d, 5s.; a few of the finest, very large and strong, 10s. 6d. each.

Price to the Trade on application.

JAMES CARTER & Co., Seed Merchants and Nurserymen, 237 and 238, High Holborn, London, W.C.

Azaleas, Epacris and Ericas.—To the Trade.

YOUELL AND CO. beg to inform the Trade that they abound in many Thousands of the above, all of which are well-grown, healthy and bushy stuff. They beg to offer them at the following low prices:—

AZALEAS, of sorts, fine bushy plants, in 32-sized pots, 24s. per doz.; 48-sized pots, 18s. per doz.

EPACRIS, in 48-sized pots, consisting of hyacinthæflora, hyacinthæflora candidissima, and all the leading kinds to name, well set for bloom, 6s. per doz, 40s. per 100.

ERICA HYEMALIS, in 48-sized pots, in and coming into bloom, 6s. per doz., 40s. per 100; 60-sized pots, 4s. per doz., 30s. per 100; of sorts, in 48-sized pots, 7s. per doz., 45s. per 100; of sorts, in 60-sized pots, 4s. per doz., 30s. per 100.

A very extensive and Choice Collection of GREENHOUSE PLANTS to name, 9s. per doz., 70s. per 100.

The above are well deserving the attention of the Trade.

Royal Nurseries, Great Yarmouth.

Choice Seeds.

WM. CUTBUSH AND SON strongly recommend the following:—

PRIMULA SINENSIS FIMBRIATA, of the finest possible strain, Red, White, or Mixed, 2s. 6d., 3s., and 5s. per packet.

CALCEOLARIA, saved from James' choice strain, very fine, 2s. 6d., 3s. 6d., and 5s. per packet.

CINERARIA, from named flowers, 2s. 6d., 3s. 6d., and 5s. per packet.

SNOW'S WINTER WHITE BROCCOLI (True), Wm. C. & Son's own saving, 2s. 6d. per packet.

NUNEHAM PARK ONION, 2s. 6d. per packet.

For other Choice Seeds see CATALOGUE, post free.

Highgate Nurseries, London, N.

First Prize at the International.

H. CANNELL'S SELECT and DESCRIPTIVE CATALOGUE and AMATEUR'S and GARDENER'S FLORAL GUIDE for 1867, is now ready, free for four stamps, with every particular how to Grow, Show, and get the First Prizes for Fuchsias and Verbenas, &c. A full and correct description of all Bedding Gems for the Season.

Fuchsia Nursery, Woolwich, S.E.

RAYNBIRD, CALDECOTT, BAWTREE, DOWLING, AND COMPANY, Limited,

CORN, SEED, MANURE, AND OILCAKE MERCHANTS,

Address, 89, Seed Market, Mark Lane, E.C.; or Basingstoke.

Samples and Prices post free on application. Prize Medals, 1851, for Wheat; 1862, for "Excellent Seed Corn and Seeds."

New Descriptive Lists.

DOWNIE, LAIRD, AND LAING, NURSERYMEN, SEEDSMEN, FLORISTS, AND NEW PLANT MERCHANTS, 17, South Frederick Street, Edinburgh; and Stanstead Park, Forest Hill, London, S.E., respectfully beg to intimate that their NEW DESCRIPTIVE PRICED CATALOGUES of FLORIST FLOWERS, GARDEN, FLOWER, and AGRICULTURAL SEEDS, GLADIOLI, ROSES, &c., are now ready, and may be had free on application.

To Nurserymen.

SEEDLINGS.—1 and 2-yr. Larch, 2-yr. Scotch Fir, 2-yr. Hazel, 2-yr. Plane, 2-yr. Holly, &c.

TRANSPLANTED.—Larch, all sizes; Norway Spruce, 9 to 15 in.; Silver Fir, 9 to 15 inches and 15 to 24 inches; Irish Junipers, all sizes; Irish Yews, of sizes; Cedrus atlantica, Thuja Wareana, &c.

ROYAL ASH-LEAF KIDNEY POTATOS.

Above all of excellent quality, and will be quoted cheap.

W. P. LAIRD & SINCLAIR, Nurserymen, Dundee, N.B.

Forest Trees and Cover.

JOSEPH SMITH, JUN., has to offer at very moderate prices TRANSPLANTED ASH, ALDER, BIRCH, HORSE CHESTNUT, ELM, broad and narrow-leaved; SILVER and SCOTCH FIRS, WHITE AMERICAN SPRUCE, HAZEL, OAK, POPLAR, PRIVET, WEYMOUTH and AUSTRIAN PINES, THORN QUICKS, HUNTINGDON and DUTCH WILLOWS, LARCH, good stout plants, 1½ to 2 feet, 12s.; 2 to 2½ feet, 13s.; 2 to 3 feet, 14s.; and 3 to 4 feet, 16s. per 1000. NORWAY SPRUCE FIR, 6 to 9 inches, 6s.; 9 to 12 inches, 9s.; 1 to 1½ feet, 14s.; 1½ to 2 feet, 21s.; and 2 to 2½ feet, 30s. per 1000. COTONEASTER MICROPHYLLA, 1 to 1½ feet, 20s. per 1000; 1½ to 2 feet. RIBES in sorts, 2to 3ft., 20s. per1000. SNOWBERRY, 2to 3ft., 20s. per1000. BROOM, White and Yellow, transplanted, 15s. per 1000. LAURELS, BERBERIS, ARBOR-VITÆ, &c., Seedling ASH, CRAB, SPANISH CHESTNUT, SPRUCE, 3 and 4 years: ELM, 2 years, £5 per 100,000. OAKS, 1 and 2 years; OAK, EVERGREEN, 1 year; PRIVET, 1 and 2 years; SYCAMORE. RHODODENDRON PONTICUM, 2 years, 6s.; 4 years, 8s. per 1000; 3 years, and 1 year transplanted, 18s.; 3 years, and 2 years transplanted, 25s.; 6 to 9 inches, 50s.; and 9 to 12 inches, 80s. per 1000. Twice-transplanted, and bushy, 4 to 8 inches, 70s.; 8 to 12 inches, 95s.; 9 to 15 inches, 140s.; 1 to 1½ feet, 180s.; and 1½ to 2 feet, 260s. per 1000.

A PRICED LIST forwarded on application. Price to the Trade on application.

JOSEPH SMITH, Jun., Moor Edge Nursery, Tansley, near Matlock, Derbyshire.

Good Seeds — Carriage Free.

SUTTON'S COMPLETE COLLECTIONS of SEEDS for ONE YEAR'S SUPPLY.

FOR THE KITCHEN GARDEN.

No. 1 Collection, carriage free	£3 3 0
No. 2 Collection, carriage free	2 2 0
No. 3 Collection, carriage free	1 11 6
No. 4 Collection, carriage free	1 1 0
No. 5 Collection, carriage free	0 15 0
No. 6 Collection	0 10 6

FOR THE FLOWER GARDEN.

No. 1 Collection, free by post or rail	£2 2 0
No. 2 Collection, free by post or rail	1 11 6
No. 3 Collection, free by post or rail	1 1 0
No. 4 Collection, free by post or rail	0 15 0
No. 5 Collection, free by post or rail	0 10 6

PRICED CATALOGUES gratis and post free. Five per Cent. Discount allowed for Cash payment.

SUTTON & SONS, Seed Growers, Reading.

Carter's Genuine Seeds.



CARTER'S COLLECTIONS of GARDEN SEEDS for 1867 will produce a supply of the best Vegetables "all the year round" for large, medium, small, and very small families.

No. 4, 63s.; No. 3, 42s.; No. 2, 21s.; No. 1, 10s. 6d.

(These prices include box and packing.)

*** Any of the above forwarded without delay on receipt of Post office Order. PRICE LISTS gratis and post free on application to CARTER'S Great London Seed Warehouse, 237 and 238, High Holborn, London, W.C.

SCOTT'S NEW VEGETABLE and FLOWER SEEDS.

COLLECTIONS of VEGETABLE SEEDS, carriage paid.

No. 1. Complete	£3 0 0	No. 3. Complete	£1 0 0
No. 2. "	2 0 0	No. 4. "	0 15 0

No. 5. Complete, 10s. 6d.

COLLECTIONS of CHOICE FLOWER SEEDS, free by post or rail.

No. 1. Complete	£2 0 0	No. 4. Complete	£0 10 6
No. 2. "	1 1 0	No. 5. "	0 7 6
No. 3. "	0 15 0	No. 6. "	0 5 0

No. 7. Complete, 2s. 6d.

HARDY ANNUAL FLOWER SEEDS.

No. 8. 12 Varieties	£0 1 6	No. 11. 50 Varieties	£0 5 0
No. 9. 24 "	0 2 6	No. 12. 75 "	0 7 6
No. 10. 36 "	0 3 6	No. 13. 100 "	0 10 6

Collections of Half-hardy Annuals, &c., at equally low prices, see Catalogue free on application to

J. SCOTT, The Seed Stores, Yeovil, Somerset.

Prize Medal Seeds.

COLLECTIONS of VEGETABLE SEEDS for ONE YEAR'S SUPPLY, at Moderate Prices. Nos. 1, 2, 3, and 4, Carriage Free. For particulars and quantities contained in each, see large Advertisement in the *Gardeners' Chronicle* of February 9th, or PRICED DESCRIPTIVE CATALOGUE, which will be sent free by post on application.

No.		
1.	For One Year's supply	£3 3 0
2.	" proportionately reduced	2 2 0
3.	" " "	1 11 6
4.	" " "	1 1 0
5.	" " "	0 15 0
6.	" " "	0 10 6

TOBACCO PAPER, per lb. 9d

TOBACCO CORD, extra strong, per lb. 1s. 6d.

TOBACCO JUICE, per Gallon, 2s. 9d.

TOBACCO WATER, per Gallon, 1s.

HENRY BROWN, Nurseryman and Seedsman, 4, Commutation Row, Liverpool.

Established Upwards of a Century.

HOLDERS OF PRIZE MEDALS FROM EXHIBITIONS OF BOTH 1851 AND 1862.



BUTLER, McCULLOCH, AND CO.'S CHOICE COLLECTIONS of FLOWER SEEDS.

15	Varieties, Selected Hardy Annuals	2s. 6d.
30	" " " "	5 0
50	" " " "	10 0
100	" " " "	20 0
12	Varieties, Selected Half-hardy Annuals	4 0
25	" " " "	7 6
15	" " " "	15 0
100	" " " "	30 0
6	Varieties, extra selected New Annuals 1867	5 0
12	" " " "	10 6
15	Varieties, selected Hardy Perennials	3 6
25	" " " "	6 6
50	" " " "	12 6
100	" " " "	25 0
12	Varieties, selected Half-hardy Perennials	4 0
25	" " " "	7 6

COMPLETE COLLECTION of VEGETABLE SEEDS for One Year's Supply, 63s., 42s., 30s., 21s., and 10s. 6d.

Orders amounting to 21s. and upwards sent Carriage Paid.

CATALOGUE containing details of above Collections, Post Free.

Covent Garden Market, London, W.C.

New and Genuine Seeds.

THOMAS SAMPSON, The Preston Road Nurseries, Yeovil, Somerset, begs to intimate that his CATALOGUE of SEEDS for the GARDEN and FARM is now ready, and can be obtained free on application. It contains a Select and Choice Stock, everything being of the best quality, and are offered at unequalled low prices.

ARTHUR HENDERSON AND CO. beg to announce that their CATALOGUE of KITCHEN GARDEN and FLOWER SEEDS for 1867 is now ready, and will be forwarded free on application.

NEW MELONS.

ERIDGE CASTLE PERFECTION.—This is a green-fleshed variety, of excellent flavour, thin skin, medium size, with a delicious melting sugary flesh. One of the best sorts ever raised. 2s. 6d. per packet.

THE GUILDHALL PRIZE.—Scarlet flesh, a very quick grower and a great cropper, weight 3 to 5 lb. Early, excellent shape, richer and superior in flavour to Turner's Gem. Skin very thin. A seedling between the Scarlet Gem and Egyptian green-fleshed. 2s. 6d. per packet.

Fine FRUITING VINES, in pots, well ripened Canes of the leading and best varieties.

Pine-apple Place, Edgware Road, London, N.

GLADIOLUS, NEWEST and BEST FRENCH VARIETIES.
PRICE LISTS gratis and post free on application to
JAMES CARTER & Co., Seed Merchants and Nurserymen, 237, High Holborn, London, W.C.

GLADIOLI. — Collections containing all the finest varieties in cultivation, many new, and offered for the first time, 105s., 63s., 42s., 30s., 25s., 20s., 15s., 12s. BRENCHLEYENSIS, the most showy of all, extra strong roots, 3s. per doz., 20s. per 100.
DESCRIPTIVE PRICED LISTS free on application.
BUTLER, MCCULLOCH & Co., South Row, Covent Garden, W.C.

GLADIOLI BULBS,
for Summer, Autumn, and Winter Flowering,
2s. 6d., 3s. 6d., 5s. 6d., 7s. 6d., 9s., and 12s. per dozen.
10s. 6d., 15s., 21s., 25s. to 100s. per 100.
BARR & SUGDEN, Seed, Bulb, and Plant Merchants, 12, King Street, Covent Garden, W.C.

LILIUM AURATUM.—
Large Consignment just received, 2s. 6d., 3s. 6d., 5s. 6d., and 7s. 6d. per Root. Extra large selected Bulbs, 10s. 6d., 12s. 6d., 15s., and 21s.
BARR & SUGDEN, Seed, Bulb, and Plant Merchants, 12, King Street, Covent Garden, W.C.

Early Spring Flowers.
WEBB'S GIANT POLYANTHUS and COWSLIP, with all the best varieties of Double and Single PRIMROSES, PANSIES, &c., with Seeds of single varieties. LIST of prices of different kinds on application to
Mr. WEBB, Calcot Gardens, Reading.

100,000 Camellias without Flower Buds.
JOSEPH BAUMANN, NURSERYMAN, Ghent, Belgium, begs to offer for Sale—
100 CAMELLIAS, best sorts, £4 | 100 CAMELLIAS, best sorts, £5
100 CAMELLIAS, best sorts, £6.
They will have flower buds in August.

MATHIOLA BICORNIS, hardy night-scented STOCK, of free growth, flowering abundantly, delightfully fragrant. Continues through the summer. 6d. per packet.
JAS. BACKHOUSE & SON, York.

VERONICA GLAUCA.—Lovely deep blue. Hardy, early, and very free flowering. 6d. per packet.
JAS. BACKHOUSE & SON, York.

INVINCIBLE SCARLET SWEET PEA,
6d. per packet, 1s. 6d. per ounce.
JAS. BACKHOUSE & SON, York.

ANNUALS, Choice Hardy and Half-hardy,
3d. per packet, 2s. 6d. per dozen.
Choice Tender, 6d. per packet, 5s. per dozen.
Choice Biennials, 4d. to 6d. per packet, 4s. per dozen.
JAS. BACKHOUSE & SON, York.

CHARLES TURNER has a large healthy stock of the following, of finest named varieties :—
CARNATIONS, 18s. to 24s. per doz. pairs.
PICOTEES, 18s. to 24s. per doz. pairs.
PINKS, 8s. to 12s. per doz. pairs.
TREE CARNATIONS, 1s. 6d. each, or 15s. per doz.
The Royal Nurseries, Slough.

DWARF BEDDING DAHLIAS.
ALBA FLORIBUNDA NANA, 2½ feet
LITTLE NAJADE, white cherry tips, 2½ feet
PURPLE ZELINDA, 2 feet
Strong Ground Roots, 10s., 8s., and 6s. per dozen.
The above have proved to be first-class for large beds or ribbon borders.
CHARLES SHILLING, Hill Nursery, Winchfield, Hants.

TRICOLOR PELARGONIUMS.
Mrs. Pollock, 7s. and 9s. per doz. | Sunset, 21s. per doz.
Italia Unita, 21s. per doz. | Mrs. Benyon, 24s. per doz.
In strong plants at the above prices for Cash, package included.
Remittance required from unknown Correspondents.
Address, ALFRED FRYER, Nurseries, Chatteris, Cambridgeshire.

CALCEOLARIA, Herbaceous, of choicest strains, established plants in small pots, 20s. per 100. Also stronger plants in 4-inch pots, 30s. per 100.
MONOCHÆTUM SERICEUM MULTIFLORUM, blooming plants, 9s. per doz.
MONOCHÆTUM ENSIFERUM, 6s. to 9s. per doz.
H. & R. STIRZAKER, Skerton Nurseries, Lancaster.

SURPLUS STOCK.
ROSES.—Strong plants of Hybrid Perpetuals on their own roots, of the leading varieties, at 50s. per 100.
CARNATIONS and PICOTEES. — The very finest varieties, at 6s. per dozen pairs.
Allowance to the Trade.
B. WHITHAM, The Nurseries, Reddish, near Stockport.

Carnations, Picotees, and Pinks.
YOUELL AND CO. beg to offer strong healthy Plants of the above at the undermentioned prices :—
CARNATIONS.—Finest first-class varieties, by name, 18s. and 24s. per doz. pairs. [per doz. pairs.
PICOTEES.—Finest first-class varieties, by name, 18s. and 24s.
PERPETUAL-FLOWERING or TREE CARNATIONS.—Flowering summer and winter; the choicest and leading kinds to name, 12s. and 18s. per doz. plants. [doz. pairs.
Also a Choice and extensive Collection of PINKS, 9s. and 12s. per
Royal Nurseries, Great Yarmouth.

1867.
WILLIAM BARRON'S PRICED CATALOGUE of CONIFERÆ and other ORNAMENTAL PLANTS, ROSES, RHODODENDRONS, FRUIT TREES, &c., &c., for Spring 1867, is now ready, and may be had post free upon application.
Elvaston Nurseries, Borrowash, near Derby.

Chrysanthemums, Chrysanthemums, Chrysanthemums.
ADAM FORSYTH'S CATALOGUE is now ready, containing a Descriptive List of all the best varieties; also a Practical Treatise on the Cultivation of the Chrysanthemum. Forwarded to all applicants for one stamp.
Brunswick Nursery, Stoke Newington, London, N.

THE CZAR VIOLET is still finely in BLOOM, uninjured by the late Frosts below zero. The flowers are nearly twice as large as the old Russian, on very long stout footstalks. Awarded First-class Certificates and Prizes wherever exhibited. Strong plants in Bloom, 10s. per dozen, prepaid, may be had of Mr. JOHN GRAHAM, Cranford, Hounslow. The usual allowance to the Trade.
Also fine RASPBERRY CANES, of sorts, 4s. per 100.

Rhododendrons.
JOHN WATERER'S DESCRIPTIVE CATALOGUE of HARDY SCARLET and other RHODODENDRONS is now published, and will be forwarded on application. It faithfully describes the colours of the new varieties exhibited by him at the Royal Botanic Gardens, Regent's Park. An Abridged List of popular CONIFERS with heights and prices, is likewise combined.
The American Nursery, Bagshot, Surrey, near Sunningdale Station, South-Western Railway.

American Plants, &c.
WATERER AND GODFREY'S PRICED and DESCRIPTIVE CATALOGUE of RHODODENDRONS and other American Plants for this Autumn, will be sent on application. The Catalogue also gives a summary of their General Nursery Stock, probably the most extensive in the kingdom.
Knap Hill Nursery, Woking, Surrey.

British Fern Catalogue.
ROBERT SIM can now send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his NEW and PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.
Foot's Cray Nursery, S.E., a mile from Sidcup Station of New North Kent Line of South Eastern Railway.

PAUL AND SON'S SEED CATALOGUE will be sent with pleasure to any applicant. It contains, with usual matter, Descriptive Priced Lists of carefully selected Novelties in Seeds; Seeds of Ornamental Foliaged Plants for Subtropical Flower Gardening; Gladioli, with original Notes on their Culture.
The Old Cheshunt Nurseries and Seedshop, Cheshunt, N.

RICHARD SMITH'S SEED CATALOGUE contains a Calendar of Time for Sowing, particulars of Collections, with Prices, Directions for Cropping well and economically, Soil, Manure, Depth, Distance, Season, Hardiness, Duration, Form, Height, Colour, Storing, Use, Flavour, and other qualities, described.
This List Free by Post for one stamp. Seeds direct from the Growers the surest way to success.
RICHARD SMITH, Seed Merchant, Worcester.

FLOWER SEEDS.
Collection of 20 Choice Varieties—
" French Asters
" Crown Asters
" German Stocks
1 oz. Mignonette
1 oz. Nemophila insignis
¼ pint Sweet Peas
20 choice varieties of Flower Seeds for 13s.
The above selection, of the choicest varieties and the finest quality, sent on receipt of Post-office order for 13s
J. C. WHEELER & SON, Seed Growers, Gloucester.

New and Choice Flower Seeds.
FREE BY POST OR RAIL.
SUTTON'S COMPLETE COLLECTIONS of FLOWER SEEDS are sent free by Post or Rail. Prices as under :—

No. 1 Collection of the best English and German varieties, with instructions on cultivation	..	..	..	£2	2 0
No. 2 Collection of	ditto	ditto	..	1	11 6
No. 3 Collection of	ditto	ditto	..	1	1 0
No. 4 Collection of	ditto	ditto	..	0	15 0
No. 5 Collection of	ditto	ditto	..	0	10 6

Small and useful Collections can also be had from 2s. to 7s. 6d., free by post.
For particulars of the above, see SUTTON'S DESCRIPTIVE CATALOGUE, gratis and post free on application.
SUTTON & SONS, Seed Growers, Reading.

GRAND HORTICULTURAL EXHIBITION at BURY ST. EDMUND'S, in connection with the SHOW of the ROYAL AGRICULTURAL SOCIETY, JULY 15, 1867, and four following Days.
Amongst various Special Prizes, amounting in value to nearly £300, and exclusive of the ordinary Prize Schedule,
A SILVER CUP, VALUE £20,
will be offered by the Proprietors of the
GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE for the best COLLECTION of FRUITS and VEGETABLES, to be made up as follows :—
Of FRUITS, any Five of the following Eight kinds, one Dish of each :—Grapes, Melons (2 fruits), Strawberries, Gooseberries, Currants, Cherries, Raspberries, or Apples (of the crop of 1866).
Of VEGETABLES, any Eight of the following Fourteen kinds, one basket or bundle of each :—Peas, French Beans (or Scarlet Runners), Broad Beans, Cauliflowers, Cucumbers (brace), Summer Cabbages, Early Carrots, Turnips, Artichokes, Onions, Spinach, Rhubarb, Potatoes, or Mixed Salading.
This Cup will be open to Competition amongst Amateur or Professional Gardeners, of all grades, with Fruit and Vegetables of *their own growing*; any article otherwise obtained will disqualify the exhibitor.

The Gardeners' Chronicle.

SATURDAY, MARCH 9, 1867.

As may be seen from our report in another column, the TUESDAY MEETINGS of the ROYAL HORTICULTURAL SOCIETY amply keep up their interest. On the last occasion the show of Orchids was not, it is true, so large as on the preceding gathering, still there was an abundance of Orchids, as well as of other plants of great beauty and interest—some not only beautiful but novel; others, such as Mr. CHEERE'S Mignonette, of remarkable excellence in a cultural point of view. We may also note with satisfaction the increasing number of objects sent for the purpose of eliciting discussion. The value of such illustrations, bearing as they do, on cardinal points in cultural physiology and botanical science, can hardly be over-estimated. Thus, Mr. LEE'S russet Apple produced on the Orange Pearmain, opens up the question of graft-hybrids. Is it or is it not true that an intermediate form, a sport, or a reversion to the characteristics of either stock or scion, may be produced by grafting; and if so, under what conditions? Professor CASPARY, in a paper published in our columns (see p. 849, 1866), inclines to the view that graft hybrids are possible, and attributes the peculiar appearance of the well-known Cytisus Adami to this cause. Others have assigned the phenomenon to that separation of elements which, as NAUDIN and others have shown us, takes place frequently in hybrids and cross-breds. The Cyclamen shown at the meeting is a case in point; from the same stock proceeded white and pink flowers, the one with the form of the persicum strain, the other with that of the Coum. Similar sports are well-known to our Chrysanthemum growers and indeed to gardeners generally, but we know far too little of the why and wherefore, and for this reason illustrations of this kind should be brought forward whenever possible. A short time since Mr. STANDISH exhibited an hermaphrodite Aucuba, and on Tuesday the same able horticulturist laid before the meeting completely unisexual plants, some male, others female, raised from seedlings of an hermaphrodite Skimmia oblata. In certain groups of plants such changes are far from uncommon, but they are nevertheless of very great physiological interest. Major CLARKE'S observations on the culture of certain Bromeliads in the open air will afford a new sensation to people fond of their gardens, and will lead, we should hope, to many other trials and experiments in this direction.

We allude to these matters in this cursory manner, at present, merely for the sake of showing how much real, practical and scientific good may be got out of the Tuesday meetings when well conducted. That they will benefit Horticulture is obvious; that they will further the interests of scientific Botany is scarcely less certain; and they will also teach the general public that, contrary to the opinions of a recent writer in the *Pall Mall Gazette*, Botany comprises something more than tacking "new and hard names to familiar things," something beyond the identification "of unknown weeds by their descriptions in a barbarous tongue." That the writer in question should have mistaken the means for the end is not surprising, and to a certain extent our English botanists are answerable for the prevalent error.

AFTER the LATE SEVERE WINTER, though confined to some particular parts of England, it is a matter of some interest to ascertain what has been the ultimate effect in those districts which suffered most in the winter of 1860-61. We say the ultimate effect, so far at least as is manifest up to the present time, because it is far from being the case that all the mischief appears at once. We know, for example, that herbaceous plants, if not of a very susceptible constitution, appear for a time likely to recover, but ultimately fail from the effects even of moderately sharp frosts. Much more is this the case with trees, the wood of which is partially affected, and the taint of whose dead tissues is gradually communicated to those which were still healthy, so that ultimately the tree either wholly or partially decays.

The subject has been more forcibly brought before our notice in consequence of a communication last December from Professor BABINGTON, who reported to us that some Beech trees in Derbyshire had died, as he believed, from the effect of frost, the dead parts being occupied by Fungi, which had probably completed the mischief.

We have now before us specimens of the bark and wood, together with some valuable notes as to the trees. Our correspondent remarks—"the winter of 1860 was very severe indeed in this region. On Christmas Eve the thermometer in my garden (in Derbyshire) was at —2°, and in several places, especially in Needwood Forest, Hollies and Oaks, many hundred years old, were killed in quantities. My trees, however, generally escaped very well, I suppose because I live in a high situation; some trees were more or less cracked by the frost, and have since recovered. In particular I have noticed several Beeches, the bark of which was marked by long vertical cracks. These were of no great width, and as you say there was an attempt to heal over. Two or three Oaks in a low situation, near the River Derwent, were not actually killed, but so seriously injured as entirely to stop their growth."

As regards the Beeches, when cut down it was found that they were apparently healthy quite close to the ground, and no white spawn was found upon the roots, a circumstance which occurred in the case of Beeches that have died in other parts of the country. The death of the trees is not, therefore, to be attributed to mycelium. Is it then certain that they have perished from frost? We should have been inclined to think that this was undoubtedly the case had not all the portions which have been sent to us been infested by a little coccus which produces a quantity of white smooth hyaline threads which are often mistaken for a Fungus, and were described as such under the name of Psilonia nivea by Professor FRIES. The cocci are not visible at first even under a lens, but if the flame of a lamp is applied for a second to the bark, so as to destroy the white mould-like substance, the cocci appear in numbers. It becomes then a question whether the cocci or the frost were really the cause of death. It is not very likely that they should take up their abode on dead bark. There are some of them on the living rind of the pieces of root, and it is a matter of interest to ascertain whether these cocci are capable of destroying the bark so as to affect the subjacent wood, for if that be the case, they should be exterminated as soon as they make their appearance. It is a point to which our attention will be drawn. It is, however, possible that they had established themselves on the bark before it was affected by frost, and that they have lived and died upon it since. The wood, it should be observed, was in

some cases dead under the patches of decayed bark to the extent of half the thickness of the trunk.

Whether frost or insect has been the real cause of evil, Fungi have not been slow in aggravating it. We find the mycelium known under the name of Rhizomorpha subcorticalis on the under side of the dead bark, and from that running down to the still healthy roots, and establishing itself upon them, doubtless to their speedy destruction, had not the tree from which the specimen was taken been felled.

The whole subject is full of interest, and it is to be hoped that our correspondents will keep their eyes upon it, noticing first whether they have seen instances of Beeches being destroyed by the little coccus, and secondly, what effect the late frost has had on the partial or complete destruction of forest trees. *M. J. B.*

—— We are requested to state that the Duke of BUCCLEUCH, President of the ROYAL HORTICULTURAL SOCIETY, has nominated the following gentlemen Vice-Presidents for this year, viz.:—Lord HENRY GORDON LENNOX, M.P.; Mr. JAMES BATEMAN, F.R.S.; Mr. HENRY COLE, C.B.; and Mr. W. WILSON SAUNDERS, F.R.S.

—— We learn that Dr. MASTERS has consented to give a few short lectures on "PLANT ARCHITECTURE" at the Royal Horticultural Society's Rooms on Saturdays at 3 P.M., commencing on the last Saturday in March.

New Plants.

DALECHAMPIA ROEZLIANA, var. ROSEA, *Müll. Arg.; D. C. Prod.*, vol. XV., sect. posterior., fasc. 2, p. 1233.

Caule erecto; foliis brevissime petiolatis, obovato spathulatis, membranaceis; stipulis oblongato-triangulari-ovatis; ovario dense sericeo pubescente, stylorum columna gracillima, apice haud crassiore obtusa, tenuiter puberula.

α rosea foliis superne grosse inciso dentatis; involucri foliolis argute denticulatis, pulchre roseis, calycis fœminei roseo viridis, laciniis acutissimis, basi, et versus medium vel supra medium, utrinque subulato-glanduligeris, glandulis superioribus subinde membranaceis et lacinulam simulantibus.

Numerous specimens of the very pretty plant, of which the above is the technical description, were exhibited by Mr. Bull, of the King's Road, Chelsea, at the last Tuesday meeting of the Horticultural Society, where they deservedly attracted great attention. The plant was, we believe, in the first instance detected by Roezl in the province of Vera Cruz, Mexico, and living specimens of the rosy variety, as well as of the green-bracted kind, were sent to M. Ortgies, and by him communicated to M. Van Houtte and other continental horticulturists. Mr. Bull is, if we mistake not, the first among our British exhibitors to show the plant.

Before giving a description of this novelty, it may be as well to say a few words relating to its botanical history, as it is one which would be very likely to perplex a student into whose hands it fell. The vast order Euphorbiaceæ, according to the most recent revision of M. Müller in the "Prodromus," is first of all divided into two series, the one in which the cotyledons or seed-leaves are narrow, the other in which those organs are broad. This latter series, to which our present plant belongs, is subdivided into nine tribes, according to the number of ovules in each compartment of the ovary, the way in which the parts of the flower are folded, and other minor points. Thus the tribe Dalechampiæ may be easily recognised by the presence of a single ovule in each compartment, by the anthers being erect in the bud, by the segments of the calyx in the male flowers touching by their margins (valvate), and by the two-leaved involucre enclosing flowers of both sexes. As there happens to be only one genus in the tribe, the characters of the tribe serve also for the genus.

Most of the species have palmate leaves, which, together with the large leafy bracts, produce a great resemblance to the Mallows, so that, on a first glance, were it not for the climbing habit which most of them have, they might be mistaken for some Gossypium. Of course the slightest examination would suffice to dissipate this superficial impression, though there are points of resemblance also in the flower. The species before us differs from the great majority of its congeners in its erect, not climbing stem, and in its undivided leaves. It is an erect low-growing perennial or under-shrub, with broad, leafy, egg-shaped stipules. The leaves are 5 to 9 inches long, 1 to 3 inches wide at the widest portion, are very shortly stalked, subcordate, obovate or spoon-shaped, tapering towards the base, acuminate at the apex, and smooth or nearly so on both surfaces. The peduncles are slender, thread-like, angular, slightly downy stalks, 2 to 3 inches long; they bear at the top, two small ovate bracts placed at the base of two large, broadly egg-shaped, acuminate, denticulate, rosy-pink floral leaves Within these two latter are other smaller bracts placed around and among the male and female flowers, some of them thick and club-shaped, and bearing at the top a fringe of short, yellow, waxy-looking threads, which give a singular appearance to the blossoms. These filaments have been regarded as abortive flowers or anthers by Müller, while Baillon considers them to be modified bracts. The male flowers have a 4—5-leaved calyx, inclosing a number of stamens united into a column, as in Mallows. The female flowers have a similar calyx, and a 3—4-celled ovary surmounted by an equal number of confluent styles.

The large rosy bracts recall those of Bougainvillea, and will render the plant acceptable in our stoves, and specially in bouquets and for purposes of table decoration.

We are informed by Mr. Bull that the Dalechampia blooms so freely that plants a few inches in height are now full of flower. Moreover, it seems to produce its flowers throughout the year, while the individual blossoms retain their beauty for several weeks, owing to the persistent nature of the coloured bracts. *M.T. M.*

THE WARDIE LODGE VARIEGATED BORECOLES.

NOTICES of Miss Hope's bijou garden at Wardie Lodge, Edinburgh, have frequently appeared in the gardening periodicals, chiefly in reference to the surprisingly beautiful variegated forms of Kale originated and grown there. We are quite familiar with the ordinary forms of the Variegated Borecole, but the Wardie Lodge strains are far ahead of all others, and judging from some beautifully selected new varieties I saw in pots for seeding from, we know as yet very little about their beauty and utility. The white variegated form is the most plentiful at present, but there are numerous shades of colour in the variegation which may be perpetuated by cuttings and careful seeding; and I am persuaded that if by and by, when seed can be had of Miss Hope's stock, and their culture is understood, gardeners do not use them for winter decoration, they will make a great mistake. At present seed of the Wardie Lodge strain is not to be obtained, but I hope by next season the gardening portion of the public may have a supply.

There seem to me, so far as I can judge, and glean from a chat with Mr. Thomson, of Dalkeith, two methods of managing this plant to avoid coarseness in growth, preserve the colours, and obtain a low compact habit of growth. First by sowing and planting in very poor soil and avoiding manure, and secondly, to obtain a low squat plant, by planting as much of the stem as possible in the soil. I saw in Mr. Peter Robertson's Nursery, a little design on a sloping bank, worked out with these Kales, and I was very much struck with the beautiful appearance it had. The flower beds at Wardie Lodge have been very gay with these beautiful Crucifers, and the great variety of other variegated and coloured-leaved plants which Miss Hope uses for the winter display. Aucubas are used, and some of the forms of variegated Ivies have a very striking appearance. Some of the large beds have broad borders of Snowdrops now in full beauty, and they alone were worth a trip from our smoke-bound district to see, so pure was the colour, and so bright the display. These are never disturbed, but in a month or two away go all the Kales and many other plants to their summer quarters, to make room for the usual bedding stuff. To my mind, however, the garden can never have so pleasing an effect as it has just now, for the repose and quiet beauty of a mid-winter garden, such as that at Wardie, is seldom to be met with.

Whilst on this subject pardon me for saying that I think as a class we ought to be ashamed of ourselves for neglecting the decoration of our flower gardens in winter. Ever since I first became acquainted with Cliveden and Cooper's Hill, some 12 or 13 years ago, both places in the neighbourhood of Windsor where winter and spring gardening was then and still is I believe, carried out on a large scale (everybody knows, at all events, that it is at Cliveden), I have been an advocate for winter and spring gardening, and often urge friends to go into it more, but the prejudice against the extra trouble and expense, and the fact that many people do not see examples of it, prevent its being more universally adopted.

When I was in Messrs. Lawson & Son's nursery last winter or early in spring I was struck with a beautiful gold-tipped variety of the common Stonecrop, which gave so bright an appearance in a mass, that I at once secured and took home a batch, and in about 50 years' time I shall bring it out as another of the horticultural wonders of the day, and get my friend Mr. Bull to give me a large sum of money for it—if I can. By that time we shall know its value, and I think it will be more appreciated than some of the novelties we have lately had, and are still getting. No one need fear losing it after they get it, for, like the common Stonecrop, its less brilliant brother, or father, or mother, or any thing you like to consider it, you cannot lose it. I have a mass of it now, which even in the midst of our smoky district sparkles amongst the dingy green which surrounds it. It will have to be advertised at a guinea a plant, however, before the public will believe in it!

Of course no one will expect me to say a word about spring-blooming plants without bringing in the Pansy. I am supposed by some to spend the chief part of my time in Pansy beds, though I really see less individually of these plants than of anything I have; but if any one doubts the utility of Pansies as spring decorative plants, let them drop in at Shipley in April and May. Not only do they make a brilliant display in spring, but with the variable climate of the northern counties, few bedding plants are more to be depended upon for a summer display. In this district I know where there are huge beds of the lovely Scilla verna, which form a mass of cœrulean blue (and what more beautiful?); and when taking a passing glimpse in Messrs. Lawson's nursery the other day of a batch of the glorious Leucojum vernum, I wished I had a large bed of it in front of my bed-room window just now—an oasis in our smoky desert. There are the Saxifragas, the procumbent Phloxes, such as Nelsoni, fruticosa, procumbens, verna—all little gems lost sight of by many, owing chiefly to the prevalent rage for those masses of red and yellow for a summer month or two. Well, I lived in the time when these little pets were not so unheeded, and of which the majority of our young gardeners are profoundly ignorant; and this ignorance of their value and great beauty, and their culture, tends to their being so little met with. I keep a collection of these things for pleasure—for no nurseryman finds them pay, so little is the demand, but I hope some day to find all these treasures of our gardens more generally appreciated. *W. Dean, Shipley, Yorkshire.*

NEGLECTED PLANTS.

THE LUCULIA.

IN the garden of her Majesty at Frogmore there has been blooming during the past winter a large specimen of this truly magnificent plant, and as the notices which have appeared are creating quite a sensation about it, perhaps a few remarks respecting its management may not be without interest to many of your readers. A quarter of a century ago, or more, when some of the great London cultivators—the late John Green, Falconer, the Barneses (James and William), Upright, Bruce, &c., used to vie with each other in the cultivation of this plant, it was no unusual thing to see at the Regent Street meetings of the Horticultural Society and Mr. Glenny's Shows at the Egyptian Hall, handsome pot-grown specimens with from 12 to 20 or 30 of its magnificent trusses of flowers upon a single plant; but now it appears to have gone almost out of cultivation, and, with the exception of an occasional half-starved stock plant in the nurseries, it is rarely to be met with. Why it should not be grown in the conservatories of the country, where, either planted out as a bush specimen or trained to a wall, it would flourish exceedingly if properly planted, is incomprehensible. In the conservatory of the Horticultural Society at Chiswick, prior to its being converted into a Vinery, there used to be a fine bush specimen which annually delighted thousands with its magnificent blossoms; that is gone, a thing of the past. But beauty lingers, and we can look back to that plant as an old acquaintance, which it delighted us annually, when the storm beat wildly upon the outer world, to admire and reverence. Dr. Lindley used to write of burying one's face amid the petals of the Tea Roses in the same house, which to some extent might be a figure of speech; but to bury one's face in a truss of Luculia gratissima, and inhale its delicious fragrance, would not be a difficult matter. As there may be readers who do not know the plant, they have only to imagine a rather loosely-grown specimen of Hydrangea hortensis, with the flowers of the natural rosy pink or flesh-colour; and if they will please ideally to invest that with a most grateful and delicious scent, and remember that it blooms through the dead months of winter instead of in the summer and autumn, they will have some idea of what the plant under notice really is.

As an illustration of the fragrance of the Luculia, I may mention that at the time L. Pinciana first bloomed, Mr. Pince sent or rather took it to Sir W. Hooker, at Kew, to have it figured for the "Botanical Magazine." So chary, however, was he of the plant, that he would not trust it out of his sight, not even in the Royal Gardens; and hence he took apartments in one of the taverns on Kew Green, and remained there until the drawing was completed. Calling at the house at the time, my olfactories were most agreeably saluted with the odour of the Luculia, and looking round I concluded the barmaid had accepted a truss of that flower from one of the numerous young gardeners in the neighbourhood. But I was mistaken; not a flower could be seen, and still the fragrance came floating upon the breeze. Fairly puzzled, I asked for an explanation, when I found some one was making a drawing for the "Botanical Magazine" from a plant which a gentleman had brought from Exeter. The mystery was unravelled, as I had heard that a new Luculia was blooming with Mr. Pince. As the odour of this plant fairly filled the whole house, despite tobacco smoke and the smell of spirits, some idea may be formed of the power of the odour; and still it is not offensive, for as with the grateful fragrance of the Rose or Violet, you rarely feel disposed to say, enough!

Unfortunately, however, it is not quite so easily grown as the Hydrangea; though when planted out in a congenial soil and situation it requires very little attention beyond the annual pruning and watering; but in pots it requires treatment different to that generally accorded to it, or we should see it more frequently, and better done than has been customary of late years. The fact is, it is in plant growing as in human occupations—those that will work may work, and among plants those that will grow without much trouble are grown; but if a plant offers any difficulty, as in the case of the Luculia, it is thrown aside as requiring too much attention. Are we, or is the rising generation of gardeners, falling back in energy? It certainly seems so. At the commencement of the Chiswick exhibitions it used to be the pride of gardeners to grow what no one else could grow, but now cultivators appear to pin their faith to a certain class of plants which, without much attention or any particular skill, give a blaze of bloom when it is required, and hence the Luculia has fallen out of cultivation. This may be politic, but it is not energetic.

I will now endeavour to contribute an instalment towards rescuing the plant from the obscurity into which it has fallen as a pot specimen, and if the plants can be procured, and the directions are followed, there is more than a probability that ere long some decent small specimens may be placed before the public. And here I would remark, *en passant*, that if the Royal Horticultural Society, and even country societies holding a Chrysanthemum show in the autumn, would offer special prizes for this and other neglected autumn-blooming plants—Euphorbia jacquiniflora, Poinsettia pulcherrima, Begonia nitida, and many Gesneriads, so as to bring them out in first-rate style at that season, they would be doing a real service to decorative

gardening, and bring really good plants once more into profitable cultivation.

The Luculia is a native of Nepal, from whence L. gratissima was introduced in 1818, and L. Pinciana in 1843. In their native habitats they are, no doubt, exposed to considerable solar influence, and hence the reason why what gardeners call stove treatment suits them in the growing season, while they bloom beautifully in a warm greenhouse through the winter. Presuming that you can procure plants, and that you have nice healthy specimens, 6 to 9 inches high, in 4-inch pots, the first thing to do will be to place them in a plant stove for a week or 10 days until they get accustomed to the soil and situation. The temperature I will presume will not fall much below 60° by night, and average 65° to 75°, according to the brightness, by day. The atmosphere will be moist but not wet, and hence in such a situation the sap will get into healthy action. Such being the case, the next thing will be to prepare to lay the basis of the future specimen. Assuming that the young plant has two shoots, each with eight good-sized leaves, cut off each shoot, leaving the four bottom leaves, and convert the tops into cuttings as will be directed hereafter, and leave the plants until they begin to break young shoots from the base of the leaves retained. Water must be cautiously given, and the plants should be kept rather dry than otherwise, as too much moisture may cause them to start the upper joints prematurely, and the secondary ones will not break at all. *An Old Subscriber, Midland Counties.*

(To be Continued.)

HARDY PICTORIAL TREES.—No. III.

Trees and Shrubs with Purple Leaves.

Acer Pseudo-Platanus purpurea (the Purple Sycamore).—Deciduous. Height, 40 feet. A distinct variety of the common Sycamore; the underside of the leaves purple, deepening in colour as they advance in age. Acer japonicum rubrum should be a valuable plant here, but from what I have hitherto seen of it the growth is delicate.

Berberis vulgaris foliis purpureis (the Purple Berberis).—Deciduous. Height, 10 feet. A very distinct and beautiful shrub, the numerous yellow flowers contrasting admirably with the reddish-purple leaves in spring.

Corylus Avellana purpurea (the Purple Nut).—Deciduous. Height, 6 feet. A valuable shrub, with broad, dark purple leaves.

Daphne Mezereum foliis purpureis (the Purple Mezereum).—Deciduous. Height, 4 feet. Free only in warm loamy soils, but desirable for the colour of its leaves.

Euonymus atropurpureus.— Deciduous. Height, 6 feet. A very distinct and effective shrub, occasionally presenting a mixture of green, scarlet, and purple leaves.

Fagus sylvatica purpurea (the Purple Beech.—Deciduous. Height, 40 feet. The monarch of purple-leaved trees, well suited for parks and the outline of shrubberies. There are many varieties of this tree, shading from copper-colour to blackish purple.

Quercus nigra (the Black Oak).—Deciduous. Height, 30 feet. This beautiful tree is at present but little known; the leaves are as dark as those of the Purple Nut, and there seems a probability that if it does not rival it will at least take a place beside the Purple Beech in the future of gardening.

Ulmus montana purpurea (the Purple Elm).—Deciduous. Height, 50 feet. This tree is less marked in colour than most of the preceding, yet when it becomes of some size the effect is sufficiently striking to make it desirable.

Trees and Shrubs with Leaves Yellowish or Golden.

Aucuba japonica maculata (male and female.)—Evergreen. Height 6 feet. Very useful and ornamental in beds or shrubberies, and stands the smoke of large towns better than any other evergreen. The female plant bears an abundance of scarlet berries. Of other golden-leaved Aucubas the best are limbata, bicolor, and latimaculata.

Buxus sempervirens aurea (the Gold-edged Box).—Evergreen. Height, 8 feet. An invaluable and very hardy evergreen of formal growth, that may be clipped at pleasure.

Chamæcyparis sphæroidea variegata.— Evergreen. Height 10 feet. A graceful Cypress-like plant. Leaves green, beautifully blotched with gold.

Eleagnus pungens variegata.—Evergreen. Height, 8 feet. Leaves green, broadly and distinctly margined with bright gold.

Euonymus japonicus aureo-variegatus.—Evergreen. Height, 8 feet. Leaves dark green, with bright yellow blotch in centre, very beautiful. Euonymus japonicus aureo-marginatus is also a beautiful variety of this plant, the leaves being regularly edged instead of blotched with gold.

Ilex Aquifolium aurea (the Gold Holly).—Evergreen. Height, 3 to 20 feet. The old Gold Holly is perhaps the best for general purposes, because it grows so freely. Of others picta, flava, aurea angustifolia bicolor, speciosa, and obscura are the best; aurea nana and aurea pumila are beautiful dwarf kinds of great value in ornamental gardening. In the garden and in shrubberies these Gold Hollies can hardly be omitted.

Juniperus virginiana aurea (the Golden Cedar).—Evergreen. Height, 20 feet. Leaves green and gold in patches; an effective and beautiful small tree.

Ligustrum japonicum variegatum (the Variegated Japan Privet).—Evergreen. Height, 6 feet. Leaves dark green, beautifully blotched with gold.

Ligustrum lucidum variegatum (the variegated Chinese Privet).—Evergreen. Height, 8 feet. Leaves green, much larger than the preceding, evenly and broadly margined with gold. A very showy plant.

Retinospora pisifera aurea.—Evergreen. Height, 6 feet. A Juniper-like plant, of a golden hue.

Rhododendron ponticum foliis aureis.—Evergreen. Height, 6 feet. Leaves green, well edged with gold. A bright-looking and beautiful evergreen.

Taxus baccata aurea (the Golden Yew).—Evergreen. Height, 20 feet. A very hardy and effective gold-coloured tree.

Thuja aurea (the Golden Arbor-vitæ).—Evergreen. Height, 4 feet. A dwarf compact golden-hued plant of great beauty.

Thuja orientalis foliis aureis.—Evergreen. Height, 10 feet. Leaves green and gold in patches, very effective.

Castanea vesca variegata (the Variegated Spanish Chestnut).—Deciduous. Height, 10 feet. Leaves green, broadly margined with bright gold, very beautiful in early spring.

Fagus sylvatica foliis aureis (the Variegated Beech).—Deciduous. Height, 20 feet. There are several varieties of variegated Beech, the one much handsomer than the rest, the leaves distinctly edged with bright gold.

Fraxinus aucubæfolia.— Deciduous. Height, 30 feet. Leaves green and marbled with gold, as in the Aucuba; very graceful.

Hibiscus syriacus foliis variegatis. — Deciduous. Height, 4 feet. A beautiful dwarf shrub, well variegated.

Ligustrum vulgare variegatum (the Variegated common Privet).—Deciduous. Height, 6 feet. Leaves green, regularly margined with bright gold, very effective.

Prunus Padus aucubæfolius.—Deciduous. Height, 25 feet. Leaves green, distinctly spotted with yellow; a very interesting tree.

Quercus Cerris variegata (the Variegated Turkey Oak).—Deciduous. Height, 30 feet. Leaves green, well margined with yellow. A distinct, handsome tree.

Sambucus nigra foliis aureis (the Golden-leaved Elder).—Deciduous. Height, 20 feet. Leaves green, margined with gold.

Spiræa opulifolia lutea.—Deciduous. Height, 5 feet. Leaves yellow. A most beautiful dwarf shrub in early spring.

Symphoricarpos vulgaris foliis aureis.—Deciduous. Height, 6 feet. Leaves green, edged with gold. A very pretty shrub.

Weigela rosea variegata.—Deciduous. Height, 4 feet. Leaves green, well edged with gold. A beautiful plant.

William Paul, Paul's Nurseries, Waltham Cross, N.

HARDY HERBACEOUS PLANTS.—No. I.

In the selection of these plants for ornamental purposes more care is required than is the case with any other class. We take care that the Orchids, stove plants, &c., introduced and cultivated, are of a high character; or if not, they soon disappear from cultivation, but it is to me a source of wonder that while we find persons going to great expense to build a glass box wherein to preserve a little of the pretty vegetation of New Holland and other warm climates, and which is of necessity always in a condition less satisfactory than vegetation flourishing in the free air, we may seek in vain in their gardens for a group of the noble hardy Lilies, for the vividly-coloured and beautiful early spring flowers of northern and temperate climes, or for any interesting and beautiful hardy vegetation. We live in a country which is, on the whole, better calculated for the successful culture of the most beautiful vegetation of northern and temperate climes than any on the face of the earth, and at present we take as much advantage of it as if we lived in one where, from extremes of some sort, such vegetation could not exist, and where extraordinary and expensive artificial means were requisite for the enjoyment of a little vegetable beauty. That the natives of cool latitudes are of an inferior degree of beauty cannot be admitted. Travellers who love many aspects of vegetation give the palm to that of the Swiss mountains, I believe, and certain it is that the finest Orchids of our stoves do not surpass in beauty Lilies and Irises, that are as easily grown as the common Seakale. The only feasible reason that can possibly be urged against the free use of hardy perennials, is that they do not remain so long in flower as what are called bedding plants. But it is a groundless objection, or if not, why not apply it to the contents of the greenhouse and stove? There it would be sad to think that any one aspect of vegetation should obtain for months at a time, and why should not the same taste be exercised in some select spot in the open garden?

The culture of the finest hardy perennials need not interfere in the slightest degree with that of bedding plants, or anything else—indeed, it would enhance the beauty of all; and in almost every garden there is, goodness knows, an abundance of room for improvement of this kind. To discuss this subject from the basis of the "mixed border," is completely to beg the question, and in any remarks which I have observed your correspondents make about the matter, the old mixed border seems to represent their ideal of hardy plant beauty. To me it has a very different and a very much wider and nobler aspect. I have been somewhat surprised that they have spoken so encouragingly of the matter, considering the point of view. During the past five years I have sought after hardy plants of all kinds unremittingly, and previous to that I had seen a few good old-fashioned mixed borders; but at no time have I ever seen anything in this way that displayed a tithe of the beautiful plants which it might display, or was in any way worthy of a beautiful garden. Assuredly a well arranged mixed border would be one of the most interesting things ever seen in a garden, but to make it well would require a selection of plants which very few private gardens at present possess, and more taste and knowledge of plants than any other arrangement whatever. But it is not alone in that way that the plants under discussion may be made available. Combinations of the utmost beauty, and which have not yet been attempted in British gardens generally, are quite possible with them. Men have built rockworks, and we have all seen the lamentable result of their labours; but a naturally made rockwork arising out of a British garden may, and has been made as beautiful, if possible more so, than the choicest bit of Alpine Gentian or Primula ground ever seen, and that surely is a consummation worthy of our best efforts in this direction. We may have isolated beds of the noblest character, easily and simply made, and giving no trouble or anxiety for years after being once carefully planted; we may add not a little beauty to the bedding-out department proper by the use of the more continuously blooming kinds, and the many things among hardy plants useful as edgings, &c., and in several other ways in which such subjects have not yet been employed in British gardens. But the subject does not need further discussion here; to consider it fairly we should investigate the source or the causes of beauty, value, and interest in a garden or in aught else. My present object is to select the very best of the hardy plants comprised under the terms herbaceous, alpines, and bulbs. Aware that our leading flower gardeners are giving the subject newly awakened attention, and that people generally are beginning to take an interest in it, the papers will doubtless be acceptable, and I trust serviceable in saving us from the wretchedly gawky and ill-weed-growing-apace masses of rubbish that have disgraced the mixed border, and ousted for a time many precious gems from our flower gardens.

Nature does not draw any very sharp line between herbaceous and evergreen herbs, and I will not vainly press her in the matter. With the truly herbaceous, I shall include a few evergreen herbs like the larger Iberises, Alyssums, &c., which are comparatively large in size, vigorous and free to flower.

The plants under discussion are calculated to do more for our gardens than any others in existence. They are loved and cultivated by the highest in the land; they may be grown with hardly any expense, without much care beyond that bestowed by the elements; and are the chief or only ones which the largest class of the garden community can well afford to enjoy. *W. R.*

(To be Continued.)

ARALIA PAPYRIFERA.

The Chinese Paper-plant, as this Aralia is commonly called, is a plant of regal aspect, and may, I think, be considered as the most strikingly beautiful of all the fine foliage plants used for the decoration of the sub-tropical garden. It has been used for several years past in the public gardens of Paris, where it attains such a degree of vigour and size of foliage, as was never seen during the period it occupied a place in our stoves. Though a native of the island of Formosa, the stove is not its proper place. In such a situation its leaves are always a rendezvous for the mealy bug; and there it also lacks that robustness of character which is constantly observed when it is grown in the sub-tropical garden, in which its leaves are perfectly free from that abominable pest of our stoves, and where moreover it appears to revel in all its native luxuriance. In the autumn of 1864 I saw beds of this plant in the gardens of Paris; they were of all sizes, from 3 feet to 8 or 9 feet high. In all cases they stood alone for beauty of foliage and nobleness of aspect, the leaves often measuring 1 foot 6 inches in diameter.

I was delighted last summer (despite the unfavourable weather) to see these plants growing in the sub-tropical garden at Battersea Park, almost as vigorously as in the Paris gardens; and a few small plants turned out in the Horticultural Society's Gardens at South Kensington, grew vigorously, and quite covered the bed with their healthy leaves early in the autumn. It must be most gratifying to all lovers of sub-tropical gardens to know that this beautiful plant can be grown successfully in this country.

Sir W. Hooker informs us in the "Journal of Botany" that this Aralia was sent to Kew by Sir John Bowring, then Governor of Hong-Kong, and that a plant 5 feet high produced blossoms in December, 1855, but owing to the unfavourable season of the year the flowers damped off, and did not develop fruit. Sir John Bowring describes a plant in Hong-Kong as being 7 feet high, with a circumference of terminal branches of 20 feet, throwing out from 12 to 14 panicles of flowers, drooping in magnificent plumes and in regular form over its dark palmate leaves.

I am not aware that the plant produces its flowers in the summer season in Europe. As soon, however, as they are lifted in the autumn and placed in the houses they throw up a number of flower-stems, but I fear, from the unfavourable season of the year, that the flowers rarely become developed. A greenhouse temperature is all that is requisite during the winter months; indeed, the plants look much healthier in a greenhouse than in the stove. It is readily increased by cutting up the roots and planting them in rich light soil in heat; the young shoots will also take root freely. The plants should be strong and well hardened off before turning out, and the soil in the bed should be of a light and rich character. *E.*

Home Correspondence.

Taxodium "disticha."—I have read with pleasure the "Notes on Conifers" which have appeared in your pages. It is interesting to know the relations of living plants to forms of vegetation which have long passed away, though one is tempted to wish that the geological record had been a little less imperfect. But is the learned author of the "Notes" correct in writing Taxodium disticha? Richard, the author of the name Taxodium, Endlicher, and Lindley all write Taxodium

distichum. So does Loudon, in his "Encyclopædia of Trees and Shrubs." I can find no authority for T. disticha, except in nursery catalogues, which in such a matter have not much weight. I am disposed to think that the grounds on which "A. M." has come to his decision are worse than his mistake, as they not only contradict the ordinary rules of grammar, but tend to subvert the whole nomenclature of botany. The Linnean terminology, it is well known, is based on the principle that the generic names are nouns substantive, and the specific names are adjectives, agreeing with the former in gender, number, and case. In a few instances both names are substantives in apposition, such as Datura Stramonium, and Viburnum Opulus, when each retains its original gender. This is not the place to discuss the theory of Latin genders, but I may remark that though the genders apparently follow certain terminations, they seldom do so without exception, and that the whole affair is under the regulation of usage. Nouns in *-um*, whether names of trees or other things, are invariably neuter; and this is precisely the rule which "A. M." proposes to violate. Nouns in *-us* are mostly masculine, but not always, even in common names. The names of trees in *-us* are feminine, with a few exceptions; and this rule, as well as its exceptions, Linnæus, who was a better classic than most botanists are now, very carefully observed. "A. M." is rather unfortunate when he says, "Pinus is not feminine, and yet all the specific names are put in the feminine gender. So with Quercus, and so with all trees." In classical Latin these two names are invariably qualified by feminine adjectives. Thus Horace, in the 14th Ode of the First Book, says:

Quamvis Pontica pinus
Silvæ filia nobilis.

Again, in the 12th Ode of the same book:

Blandum et auritas fidibus canoris
Ducere quercus.

Besides other instances in Horace, I could cite at least a score from Virgil to the same effect. It may be that this usage was originally determined by the gender of the common name *arbor*; but that does not account for the exceptions—for example, Rhamnus is always masculine; Cytisus, Rubus, are mostly masculine; Lotus is masculine or feminine according to the plant it denotes, for in ancient authors it stood for three or four. If the gender of *arbor* is to rule the names of all trees, by a parity of reasoning the gender of *planta* would rule the names of all plants, of whatever description. Or looking at subordinate divisions, as Frutex, Muscus, Lichen, Fungus are all masculine, the specific names would be masculine too. This would introduce a confusion which no scholar would endure for a moment. We are bound, I think, to follow classical usage when we can find it; and in other cases to be guided by the analogy of the terminations. It must be admitted that in constructing new names botanists have indulged in curious freaks. Thus, the Greek *anthos*, a flower, is neuter; yet we have the following compounds: Helianthus and Lisianthus, masculine; Calanthe and Rhodanthe, feminine; Doryanthes and Zephyranthes, also feminine; and Helianthemum and Chrysanthemum neuter. This is a diversity which might match the riddle of the Sphinx herself. At the same time it is evident that our only safety is in adhering to the gender of the generic names, however capriciously formed. Fixed names, if at all correct, are of great importance in systematic botany, and they should never be changed, except for valid, or rather urgent, botanical reasons. Without doubt they are attended with difficulties to those who have not had a classical education. In my youth gardeners used to swear by the "Hortus Kewensis" (the catalogue) or Donn's "Hortus Cantabrigiensis." Sweet's and Loudon's Catalogues, the latter particularly, were extremely useful. Unfortunately, the last Supplement of Loudon's book is dated March, 1839. Who will bring it up to the present day, or give us something better? *J. S. E.*

Roses and the Frost.—I am glad to find by Mr. Rivers' letter (see p. 210) that all Rose-growers have not suffered so severely as I have done, and that he has escaped with so little injury as to experience difficulty in finding a single dead tree amongst some thousands (? standards). I simply gave the lists of sound, disabled, and killed varieties in order to show the results here of a test of 23° of frost, which happily does not often occur, and in the hope of obtaining through the same source the experience of others; at the same time I wished to remind amateurs, and dealers also, that all Roses, especially Hybrid Perpetuals, are not alike hardy here, if indeed they are in the extremely favourable soil and climate of Hertfordshire. Mr. Rivers charges me with enthusiasm, and to this I must plead guilty; but surely Mr. R. will not maintain that such H. P. Roses as Anna de Diesbach, Mdlle. Bonnaire, Lælia, Souvenir de la Reine d'Angleterrre, and Le Rhone, are even in Hertfordshire or elsewhere under ordinary circumstances equally hardy as standards with La Ville de St. Denis, Triomphe de Paris, John Hopper, Rev. H. Dombrain, and (to my discredit, I ought not to have omitted him) Reynolds Hole; and that Cloth of Gold and Devoniensis or Rubens are as hardy as Maréchal Niel, Gloire de Dijon, or others in my No. 1 list? Mr. Rivers wrongly assumes that my Roses had started into growth, and thereon founds his reasons for my losses; although at the same time last year such was the case, this year not a bud had started, the old foliage being to a considerable degree still persistent. The real cause seems to be that the wood, from too much moisture and shade, owing to a comparative want of sunlight last year, coupled with a want of free exposure, was overcharged with sap which had not yet descended. I am confirmed in this opinion from the old wood being much injured. I see also that shoots of the common Briar in the hedgerows in this neighbourhood are much discoloured, and from examination of the pith they seem to have suffered in a similar manner. Conifers and evergreens are also a good deal injured here, and although Belvoir lies probably within a radius of 20 miles of us, it has the advantage of a much more exposed and elevated situation. Such a position is doubtless much more eligible for the ripening of the wood of Roses and shrubs, their best protection against frost. I trust my brother Rose-growers who are more advantageously situated than I am, will not be unnecessarily alarmed by what has taken place here, and that none will discard many of the beautiful yet tender moderate-growing varieties in Lists Nos. 2 and 3, some of which are worth any amount of care and protection. I never intended this, but urged discrimination; whether, however, your readers take robust growth, powers of endurance against frost, or other qualifications as the test in selecting, must depend upon their tastes, the situations, or the purposes for which their Roses are required. I should not like, under any circumstances, to part from such friends as Sénateur Vaisse, Beauty of Waltham, Madlle. Bonnaire, Anna de Diesbach, Madlle. Furtado, and many others in my Lists Nos. 2 and 3, which undoubtedly include some of the most beautiful Roses known. I would ask my brother growers, under ordinary circumstances, if they value such Roses, to make a distinction between them and others in No. 1. There are many in Lists 2 and 3 still remaining in the nurserymen's catalagues, which the frost will induce me not to replace—but every one to his taste. *Thomas Laxton, Stamford.* In p. 210, by a misprint, Mr. Laxton's garden is described as having a "northern" exposure. It should be southern. I have omitted to say, that in 1855 we had, in February, only 24° of frost, yet Roses suffered here to as great an extent as described by Mr. Laxton. *T. R.*

The Mole.—Not only has the mole been recently vindicated by his learned champion, Dr. Gloger, of Berlin, from the imputation of many injurious practices, the blame of which lies at others' doors, but the same observant naturalist gives us a list of the mole's good qualities, long enough, one would think, to secure him from further persecution. Besides waging constant war with rats and mice, whom he has been falsely accused of aiding and abetting, he gives a home to their deadliest enemy, the weasel, and to his own nearest relation, the shrew-mouse, together with other useful little beings who are in need of a lodging, but unable to prepare one for themselves. Amongst these are the ants, which destroy large numbers of young caterpillars of the green-fly, and other mischievous insects. A forsaken "mole's run," adapted according to their wants, is well known to be their favourite dwelling. But especially is this the case, and necessarily so, with the humble-bee, that chief instrument in the fertilisation of the Red Clover, Peas, Beans, &c. To labour in behalf of the humble-bee, by furnishing it with a fit dwelling, is undoubtedly one of the tasks and special offices of the mole in the economy of Nature, amongst whose all-wise contrivances one of the most marvellous is, that an animal whilst working for itself frequently works at the same time for others, and of different kinds. The mole, as said above, does this for the humble-bee, which in a flat country could hardly exist without him and his earth-works; for it has scarcely any power of digging holes for itself, and though it often lives in the crevices of rocks and in stone fences (dykes?), neither of these is often to be met with in a flat country. Nor does the humble-bee find them nearly so comfortable or so nicely arranged as the dwellings of the mole, with their delightful suites of apartments, cushioned and padded with dry roots, or little bits of straw and Moss; besides which, in the absence of rocks and stone fences, no other lodging affords the same needful protection. A phenomenon is thus accounted for which has puzzled many a continental agriculturist, namely, that in some localities the Red Clover ordinarily produces a great quantity of seed, whilst in others it habitually produces very little. In certain districts it now produces so much less than it formerly did, that it is found the best plan, instead of letting the crop stand for seed, to purchase seed elsewhere. In flat tracts of land, where the mole has been constantly trapped, and every bush on every bank destroyed, it succeeds but indifferently. Dr. Gloger, who is writing for Germans, repeatedly recommends the English fashion of hedges, and of a solitary tree here and there in the fields, chiefly as affording shelter to the farmer's best friends, the small birds. In some parts of England, however, hedges are beginning to disappear, so that slugs and caterpillars are likely to have a happy time of it. In consequence of the practice of trapping moles but few even of the moss-humble-bees can exist in such localities, since they make nests amongst the bushes for themselves on the earth. Whilst on the contrary, in districts where there has been no mole-trapping, and which have escaped this odious "clearing" process, the Red Clover seeds well enough, and often very well in favourable seasons, the same as in hilly and mountainous districts where the fields are enclosed within stone fences. For, be it remembered, that each humble-bee in her search for honey and pollen, fertilises in one long summer day several thousands of Clover blossoms; and if there is no Clover, she does the same for other and still more important crops, which at least are more indispensable to the human race. *E. M. C.*

Remarks on Forcing the Strawberry.—In substantiation of the excellent plan of forcing Strawberries adopted and described by Mr. Miller in your columns (see p. 208), allow me to remark that the self-same method has been practised by my father, who is gardener to Sir G. R. Phillips, Bart., Weston House, Warwickshire, with uniform success for several years past, and latterly by myself. I may add that, in addition to soot or lime, mixed with the leaves or other fermenting material, with a view to the extermination of worms, &c., I have found a layer of sand or coal ashes, an inch or two thick, strewn in the trench, for the reception of the pots, prove thoroughly effective in the exclusion of worms. For later crops, satisfactory results may be obtained by allowing the plants to remain in the plunging material until the fruit is ripe, thus lessening a vast amount of watering, and affording a more continued and genial temperature to the roots than when removed to the bare shelves, &c., in Vineries or other convenient structures. With reference to the shelf system, I have found it an excellent plan to employ sparred shelves, with their outer edges turned up, say from 2 to 3 inches, so as to form, as it were, a long box, to contain a layer of fresh horse-droppings, on which to set the pots; the interstices between the spars ensure ample drainage, and the ammoniacal fumes evolved by the droppings afford a supply of food evidently much relished by the leaves of the plants; this mode I consider far preferable to the use of turf or pans. I have, however, lately adopted the system of using pans half filled with coarse sand, by which means the bottom of the pot can be kept constantly moist, and without undue saturation of the roots. This mode is, I conceive, merely a slight modification of that adopted by Mr. Ingram, of Belvoir Castle, which was described and figured in one of your last year's numbers (see p. 1116). In conclusion, I may add that I entertain a high opinion of Mr. Ingram's ingeniously constructed pans, and will venture to predict that, were some enterprising manufacturer induced to turn his attention to them, they would command a ready sale. *W. Gardiner, Eatington Park, Stratford-on-Avon.*

Growth of the Cedar of Lebanon.—Having frequently seen in your pages particulars of remarkable trees, I send you some admeasurements of a Cedar of Lebanon on my lawn, which tends to show that a common impression that this beautiful tree is of slow growth is not well founded. It was planted about 4 feet in height in the autumn of 1828, as a supernumerary, where it was not intended to remain permanently in that which I considered indifferent soil. It grew so handsomely that it was suffered to remain. The following are its dimensions after the lapse of less than 40 years. The circumference of the stem at 2 feet from the ground is 9 feet. The height, 48 feet. The branches cover an extent of 48 feet 6 inches. I accompany this by a photograph, by which it will be seen that the extent of the growth is uniform throughout. *Charles Lawrence, Cirencester.* [The photograph shows a very symmetrically-grown, well-furnished tree. Eds.]

Radiation of Heat.—One word in reply to "Quercus" (see p. 211) upon this subject. The answer to his question is, that, in the experiments quoted from Mr. Glaisher, radiation was not intercepted at all. Air does not radiate heat, nor is its temperature affected by rays of heat passing through it. In the case under consideration, the radiating body, *i. e.*, the ground, or the Grass, lost heat, and became cold; while the air in contact with the refrigerated Grass was cooled by conduction; a process altogether different from radiation. "The interception of radiation," when it takes place, preserves heat, and does not produce cold. A tree will radiate and lose its heat in the same manner as Grass, in proportion to its free exposure to the sky; while the ground under the tree and the lower and interior branches will be comparatively warm and uninjured, the reverse of what is imagined to be the case by "Quercus," who is evidently misled by the term "radiating power," professed to be quoted from Mr. Glaisher. If he will read instead, "refrigerating power of the Grass surface," there will be an end of his difficulty. *An Amateur, Clapham Park.*

Sea-coast Vegetation.—Several of us amateur gardeners living near the sea on this north-east coast, will feel greatly obliged if any of your correspondents will favour us with a list of ornamental trees, shrubs, and flowers most suitable to the district. *W. H. S., West Hartlepool.*

Colourless Fern.—A friend of mine had a silver Fern in a pot under a glass, which last year died. The pot was left in the room unnoticed for some weeks. When the owner was about to throw it away, he found that a dead-looking bit of the stalk of a frond, about half an inch in length, was sticking to the side of the glass, and from it was beginning to grow out, adhering to the glass, a frond, which has gone on increasing to a good large size. This frond is perfectly colourless—more resembling the skeleton of a frond than anything else. The piece of stem from which it has grown has not put out the slightest root. What is the solution of this mystery? *S. Andrews.* [We cannot solve the mystery from your description. Eds.]

Libocedrus decurrens: Propagation.—With regard to Thuja gigantea of gardens, or Libocedrus decurrens (see p. 184), I have rooted upwards of 100, but I consider it a "slow coach," and by grafting it upon Biota orientalis, or Chinese Arbor-vitæ, I have plants in one-third of the time. I consider Thuja Lobbii and Thuja Menziesii to be the same plant, and one very easily rooted from cuttings. I have had cuttings of Thuja gigantea in the propagating bed for upwards of a year, and with a callus as large as a hen's egg before rooting. *J. G.*

The Weather in Yorkshire.—In this part of Yorkshire we have had some very severe frost during the last week. On Tuesday morning, the 26th of February, one of Negretti & Zambra's proved thermometers indicated 13° of frost; Wednesday, 16°; Thursday, 14°; Friday, 15°; Saturday, 14°; Sunday, 18°, with bright sunshine during the day. The land is, however, very dry, and therefore little injury has been done to fruit trees, although the fine mild weather of the previous fortnight had brought the buds to nearly the bursting point. One large Apricot tree is nearly in full bloom, and had to be protected. Crocuses in flower have been spoiled. Polyanthuses in beauty in the

open beds have suffered considerably. The fall of rain in the first two weeks of February was one inch and a half; since then we have had no rain, so that Hyacinths and Tulips, just coming up, have not suffered. I agree with Mr. Ingram (see p. 210) that it might be reasonable to allow a depression of one degree of temperature for every degree of north latitude on the average of the year, but not on one night's frost, the extreme severity of which is generally local, and depends a good deal on the lowness of situation, and contiguity to large quantities of fresh water. I have known the temperature vary several degrees on the same level within a very short distance. The garden here is half surrounded with lakes; consequently the temperature is lower than in any other part of the neighbourhood, excepting the valley of the river Swale, where it often falls from four to six degrees lower than that with us. In 1860 the thermometer here fell to 12° below zero, while at Scruton, a distance of six miles north of this place, it fell to over 13° below zero. At Firby, a distance of one mile north of us, evergreens and other trees were not injured. At Watlass, a place two miles west of this, and a little higher than we are, evergreens and trees escaped unhurt, and the thermometer did not fall so low at the two last-named places by several degrees. Mr. Ingram will at once see by this statement that his argument of an equable depression of temperature northwards does not hold good, and probably nearer the river Swale the degree of cold was much greater than at Scruton, for on passing there in the following summer, I found several fine young Oaks dead, and scores nearly leafless, apparently past recovery. The havoc made here by the frost of 1860 can never be recovered. I took down in the past week the last Walnut tree we had left; one was killed entirely at the time, others were so injured that they have died one after another, until the last is now gone; six fine Quince trees were killed, old Portugal Laurels, with stems 2 feet in diameter; Hollies and Conifers by scores shared the same fate. All this loss occurred within two miles of a place where evergreens were not even browned. I am glad to see that Mr. Ingram has brought under notice Mr. Thompson's claims to a public testimonial. Having spent more than three years in the Gardens at Chiswick, I can speak as to his great kindness and readiness to impart information to all who require advice. I shall, therefore, be glad to hear of some recognition of his services by the public generally. I shall be ready to follow Mr. Ingram's example, and will add my mite. *William Culverwell, Thorpe Perrow.*

Societies.

Royal Horticultural: *March 5 (Scientific Meeting).*—Sir Philip de Malpas Grey Egerton, Bart., M.P., F.R.S., in the Chair. After the election of 13 new Fellows, and the affiliation of two Societies, the awards of the Floral and Fruit Committees were announced. The Rev. M. J. Berkeley then offered a few remarks on the different subjects exhibited. A white-flowered plant shown at the last meeting by Mr. Earley, of Digswell, and supposed to be a species of Bryonia, was now stated to be the Trichosanthes cucumerina, an Asiatic climbing plant of considerable beauty. A collection of Cyclamens from Messrs. E. G. Henderson & Son received especial notice, not only on account of their great beauty, but also because of one of them producing both rose-coloured and white blossoms from the same bulb, the former approaching the persicum, the latter the Coum type. Skimmia oblata, from Mr. Standish, formerly produced hermaphrodite flowers, and an abundant crop of berries, which latter had yielded plants, of which about one-half were females approaching near to the mother plant, the flowers of which had latterly borne less perfectly developed stamens, and the other half were exactly like S. fragrantissima, of which only the male had been known, thus confirming a growing conviction that S. oblata and S. fragrantissima were the two sexes of one dicecious species. A Euphorbiaceous plant, from Mr. Bull, named Dalechampia Roezliana rosea, of which a notice is given in another column, received a First-class Certificate. Like some other plants belonging to the same family, as Poinsettia pulcherrima, the beauty of this new introduction to our gardens consists in its bracts, which in this case consist of two rather large ovate bright rosy organs, which protect the blossoms, the most conspicuous parts of which are confused trusses of abortive stamens, constituting bright yellow spongy masses. It comes from Vera Cruz, one of the hottest districts of Mexico, and will therefore require stove treatment in this country. The Herb Patience (Rumex Patientia) was shown by Mr. Earley as a new kind of Spinach, for which it has long been used on the Continent, as well as in some parts of England, and it was stated to make a tolerable substitute for that esculent. It was originally employed on the Continent as a medicine, and it was stated to have received the name of Patience from the long time which those who partook of it had to wait before any good effect was produced by it. A magnificent head of flowers of Brownea grandiceps was shown from the garden of Sir Hugh Williams at Bodelwyddan. The tree which produced it was stated to be of considerable age and of large size, so much so indeed that the house in which it is growing has had to be enlarged once or twice, in order to give it sufficient room. It has long pinnate leaves with about 12 pairs of leaflets, and axillary or terminal bright crimson flower-heads 6 or 8 inches in diameter. The flowers are very numerous, and are arranged in tiers, as it were, round a conical axis, the outer ones expanding first. This species is a native of Venezuela, where it is called Rosa del Monte or Palo de Crux, and was introduced into this country some 40 years ago. It is nearly related to Amherstia and Jonesia, and besides flowering with Sir Hugh Williams has also blossomed at Chatsworth, Glasnevin, and other places, in which for its great beauty it has been much admired. A dish of Apples was shown by Mr. Lee, of Cliveden, consisting of Orange Pearmain, but among them was a variety from the same tree thickly russeted all over, and altogether different from the kind just named. This was imagined to be produced by cell grafting analogous to that which is supposed to happen in the case of the common yellow Laburnum and Cytisus purpureus producing C. Adami; and it was thought that it might be interesting to determine on what stock the tree was grafted. In reference to Grapes, Mr. Arthur Trollope, of Lincoln, had, it was stated, thrown out the suggestion that it would be a step in the right direction if a race of Grapes without seeds could be raised, and he thought this might be effected by crossing the Sultana with the Monukka. As the Sultana is however somewhat unpopular, Mr. Berkeley thought it would be better to cross the Monukka with the Black Hamburgh. If seedless Grapes could be raised in this way, they would, it was considered, be an improvement on existing kinds, as the energies of the Vine, now expended in a great measure on the production of seeds, would be applied to the formation of pulp, and thus finer fruit would be the result.

Major Trevor Clarke said that Mr. Berkeley's remarks respecting that paradoxical plant Cytisus Adami recalled to his recollection the fact that he had once an example of it on a common Laburnum, and that not only the latter and C. purpureus produced seeds, but also the intermediate form in seasons in which the latter ripened seeds, however, he remarked that the flower-stalks were what botanists term persistent, that they kept green during winter, and that from every place from which a blossom had fallen a shoot was produced which in all cases proved to belong to Cytisus purpureus. At the last meeting of the Society, he said, he had occasion to mention the hardy character of Dyckia rariflora, a plant belonging to a family perhaps one of the last we should look to for such a tendency, the Bromeliads being tropical or semi-tropical plants, but it was certainly hardy in a warm place. He now produced another member of the same class which had stood one winter covered only with a handful of Moss. And more than this, it flowered vigorously in the succeeding summer. In the spring following the next or second winter, the main stem or crown was found to have perished; but a small sucker remained alive, and did in fact grow on healthily till destroyed by accident. He was not quite certain of the name of the plant, but he thought it belonged to the section of Bromeliads called Puya. Another of them, and a very fine one, P. Altensteinii, grew freely with him in the open air during the summer. Then he had another, quite a little pet, but he was not sure of the hardiness of this member of the family; and he next produced another specimen of the same plant which had been wintered in the greenhouse, and which was consequently dormant, but it would flower by-and-by in the warm summer time even in the greenhouse or conservatory. Two other Bromeliads, Bilbergia purpurea and an old zebra-striped plant of which he had forgotten the name, served to make up a little collection of interesting tropical plants grown in common Moss—three of them at least greenhouse plants as to habit, two hardy under careful treatment, and all thriving in glass cases kept in a sitting-room. He had also brought with him a cut spike of an old African plant, Antholyza prælalta, a most picturesque plant, but rarely seen in flower. Unfortunately its habit of beginning to grow at the end of the year and producing its blossoms in early spring, added to a total inability to stand a few degrees of frost, will always be against its cultivation in the open air, except in the south of England or in very favourable spots near the seaside. He well remembered the fine effect of some patches of it in the garden of the Chiaya, at Naples, on one fine February sunset. The next morning every plant was killed by frost. He mentioned this because every now and then the Antholyzas cropped out in the catalogues as plants cultivable out of doors.

Mr. Bateman directed attention to a dish of Grapes that were shown by his gardener from Knypersley. They consisted of a variety called Ahbee, introduced by Col. Sykes from the Deccan, to the Society some years ago, and by that body distributed to its members. Though somewhat shrivelled they were still in good condition, and they were stated to be superior in keeping and juicy qualities to both Lady Downes' Seedling and the Barbarossa [Gros Guillaume], while as regards beauty of appearance it had no equal among Grapes. He had often admired the lovely tints of such fruits in old Dutch and German paintings; but he had never seen anything at all equalling them in subjects under cultivation until this variety of Grape had come under his notice. With the exception of Muscats, magnificent examples of which were shown about this time last year by Mr. Kelk's gardener, Mr. Tillyard, he knew of no Grape so good as the Ahbee at this season. He therefore recommended that it should be largely propagated in the Garden at Chiswick for redistribution. He was gratified to find that Major Clarke had taken an interest in what Mr. Berkeley had said in reference to cell grafting. This was as it should be; for some time past the discussion at these meetings had been too much confined to what he termed a duet between himself and Mr. Berkeley; but he was anxious that all—even ladies—should take part in the proceedings at these meetings, and thereby advance their utility. The transition from Bromeliads, to which Major Clarke had alluded, to Orchids was easy, for they always grew together on the trunks of tropical trees. Among the latter was furnished a cut spike of the white variety of Epidendrum macrochilum, flowered in a Pine stove by Mr. Warren, gr. to T. J. Levett, Esq., Wychnor Park, Burton-on-Trent. Though now-a-days it is found that most Orchids may be grown with much less heat than formerly was considered necessary for them, and for which the East India house, though sufficiently hot, is too damp; yet there are still a few Salamanders among them, and this plant, coming as it does from the Caraccas, is one of them. All know how difficult it is to cultivate Orchids successfully along with Pine-apples, yet a Pine stove is just the place for such a warmth-loving plant as this. Who, for instance, can grow Broughtonia sanguinea well?—yet in the dry warmth of a Pine stove it might perhaps be induced to succeed. Novelties, with the exception of a new Lycaste from Mr. Wright, of Gravelly Hill, Birmingham, and Lælia Pilcheri, the latter one of Mr. Dominy's hybrids, were not plentiful. Of Dendrobium luteolum, from Mr. Bateman's garden, it was remarked it was only beginning to fight its way into notice, and next year he hoped to be able to exhibit it with a dozen spikes in a pot. Mr. Bull's Cypripediums were then referred to, and nothing, Mr. Bateman said, would please him better than to see 10 or 20 species shown at the same time, for there were as many as a score of species already in this country. Of Odontoglossum Alexandræ, of which two or three small plants came from Mr. Bull, it was remarked that it is one of the easiest of Orchids to flower. Cœlogyne cristata, from Messrs. Veitch & Sons, was a most meritorious example of good cultivation, being quite a cascade of white and gold flowers. As regards cultivation, it only required to be kept healthy at all times, and cool when not growing, to induce it to flower well. Another beautiful Orchid of the same class, and requiring similar treatment, was Cymbidium eburneum, which had the merit of continuing long in beauty. Messrs. Veitch had also a remarkable spike of the golden-flowered Dendrobium Farmeri, and one or two good Cattleyas—among them Cattleya Trianæi, a name which, as stated at the last fortnightly meeting, could not be retained. One other of Messrs. Veitch's plants was the lovely and sweet-scented Trichopilia suavis, to which a painful association was attached, for it had been sent to this country by Von Warscewicz, to whom we are also indebted for Trichopilia coccinea and other Orchids. After noticing the fact of Warscewicz's death following so soon after that of his friend and ally, Mr. Skinner, Mr. Bateman said that although Warscewicz had travelled over a great portion of New Grenada, Quito, and Peru, he had scarcely left us more than half a dozen Orchids; not because he was not indefatigable, but owing to our ignorance of how to treat those which he sent home, most of which required cooler treatment than that which had been afforded them, and consequently they were lost. There was one other plant which must be mentioned, the lovely Phalænopsis Schilleriana, exhibited by Mr. Cooper, after whom had been named at the last meeting Epidendrum Cooperianum. Flowers of the Phalænopsis had never before been seen so large or so beautiful as these were.

The next subject to which allusion was made was Mr. Hullett's "New Food." Mr. Hullett had written to say that he thought it cruel of Mr. Bateman to say what he had done at the last meeting respecting this food, leading people to imagine that the seed he sent out was only that of Holcus saccharatus. He sent the black seed to no one except to show the difference between it and the true thing (Sorghum tartaricum), which has white seed, and this he sent to over 10,000 applicants; the residue had a variety with brown seed, which is even hardier than the white, both were grown by him at Waterloo last year, and both were perfectly hardy, which the other (with black seed) is not. "So much for Mr. Hullett's statement," said Mr. Bateman; "now for my defence. In the only two collections that I had the opportunity of examining (those sent to the Royal Horticultural Society, and to myself) in which all the three varieties (white, brown, and black) were included, not a hint was given which was the true Simon Pure. I was, therefore, obliged to find that out for myself, and my only chance was to go to the seed-shops; and at half a dozen around Covent Garden I asked for the Chinese Sugar Grass, and in every case a packet of the black seed was handed to me." Mr. Bateman therefore concluded that the black seed was the right sort, instead of which the white or the brown ought, Mr. H. now says, to have been selected. So much for the colour question; now for the question of names. As Mr. Hullett in his letter to the *Times* joined the "Chinese Sugar Grass" with Sorghum tartaricum, it was natural to infer, according to botanical usage, that Sorghum tartaricum was but another name for the Chinese Sugar Grass, a well-known plant in this country, which Mr. Hullett's S. tartaricum certainly was not. But if S. tartaricum was not the Chinese Sugar Grass, why did Mr. H. in his *Times* letter lead us to infer that it was? And if not that, what was it? Whence did he get the name (S. tartaricum*)? Who gave it the name? He (Mr. Bateman) had spent several hours lately at the Linnean Society's Library, and with the assistance of Mr. Kippist, had tried to discover some trace of S. tartaricum, but all to no purpose. Neither among the Holcuses, nor the Sorghums, nor the Andropogons, a genus in which the former are sometimes included, was there any tartaricum to be found, so that if any Tartar was to be caught, Mr. Hullett must catch him himself.

With regard to the Sorghum, Mr. Bateman had collected the following information. Mr. Fortune stated that at one time the French were very hopeful it might turn out a substitute for the Sugar-cane, and tried it extensively in the south of France, but it failed. It might be useful as a fodder for cattle, but it requires a climate like that of Tien-tsin or Pekin, and where Rice would not grow, its place was taken by tall kinds of Sorghum, some as much as 12 or 15 feet high. It was from the long stout stubble of this Grass that our cavalry horses in the late Chinese war suffered so severely. Mr. Thompson remembered it many years ago in the Society's garden, and about an acre of it was grown near Chiswick by Mr Jessop, and who had it cut for cattle in pieces a foot long. Mr. Bateman also quoted Dr. Roxburgh as to the uses the Holcus or Sorghum is put to, as well as Dr. Royle, who says that he different kinds of Sorghum (called durra by the natives), Great or Indian Millet, is an important branch of Indian tivation. The species most commonly grown were S. vulgare and S. bicolor; but in another list all were classed together—viz., S. album, rubens, nigrum, nigricans, and nigerrimum. He had also examined the specimens in the possession of the Linnean Society, arranged by Dr. Wallich, and which formed part of the East Indian herbarium, and all were treated as mere varieties of the same species. These, with their black, brown, and white seeds, were then exhibited to the meeting. Mr. Bateman concluded by expressing a hope that Mr. Hullett, who seemed now to be in a communicative mood, would tell the Society, and it was the third time of asking, where Passiflora Hullettii (fruit of which had been pronounced superior to the Pine-apple) had fruited; where and when the Durion had been fruited; and where and when the Mangosteens and Mangos, which according to his own account he cut in dozens and sold at 2*s.* 6*d.* a-piece, had been produced. Until these questions had been satisfactorily answered he would recommend people to be cautious how they meddled with Mr. Hullett's "New Food."

Major Clarke remarked that he had known Sorghum saccharatum grown as food for cattle, and that there were several black-seeded Sorghums which were not S. saccharatum, one of which was grown in Italy as food for chickens.

Dr. Masters asked Major Clarke if he had succeeded in raising seeds from all three forms of Cytisus Adami?

Major Clarke said he had saved three packets of seeds from the three different forms of Cytisus; that he had sent them to Dr. Lindley, who had given them to Mr. Gordon; and that the seeds of the Cytisus Adami, or "hybrid portion," had produced yellow blossoms like the Laburnum. He thought, however, that some amount of confusion had crept into the experiment.

Sir Philip Egerton remarked that these fortnightly meetings constituted the very heart's blood of the Society; he was glad to see them so well attended, and he hoped that Mr. Bateman's invitation, as regards discussion, would be productive of good results. He then invited Mr. Murray to make a few observations on some Coniferæ that were exhibited in the form of cut branches; and after Mr. Murray had noticed two or three specimens, the names of which were doubtful, Mr. Bateman announced that Dr. Masters would give a few elementary lectures on Botany, beginning on the last Saturday in March.

The meeting then adjourned to Tuesday, the 19th of March.

March 5 (Floral Committee).—The supply of Orchids on this occasion was again excellent, and there were also many other interesting plants, among which some wonderfully fine specimens of large-flowering Mignonette were exhibited by the Rev. G. Cheere, Papworth Hall, St. Ives. These consisted of single plants in 48-pots, literally masses of bloom. The seeds, we understand, were sown last August, and a little bone-dust was mixed with the soil at the time of potting. They were sown in pans, the seedlings being potted off into thumb-pots, and then transferred to 5-inch pots. A Special Certificate was deservedly awarded for them, and the same award was given for some fine specimens of Anne Boleyn Pink from the same gentleman. Messrs. Veitch received a First-class Certificate for Lælia Pilcheri, a beautiful hybrid, already referred to; also Special Certificates for Cymbidium eburneum, Cœlogyne cristata, and for a general collection of choice and rare plants, among which were Achyranthes Verschaffeltii aureo-reticulata, Camellia Storyi, and others. For three beautiful specimens of Phalænopsis Schilleriana, with unusually large flowers, Mr. Parks, gr. to G. Cooper, Esq., Old Kent Road, received a Special Certificate, and the Committee also recommended them to the Council for the Lindley medal. Mr. Bull contributed largely to the exhibition, and among his productions was the Dalechampia Roezliana rosea, noticed in another column, whose rose-coloured floral leaves remain bright in colour for six weeks, and after the flowers have died away still give a cheerful appearance to the plant; a First-class Certificate was awarded to it. Among other plants, Mr. Bull sent Samyda nobilis, Odontoglossum gloriosum, and others, for which a Special Certificate was awarded. Messrs. E. G. Henderson sent an interesting collection of Cyclamens and Primulas, for which a Special Certificate was awarded. A collection of cut Orchids was contributed

* [We find a Sorghum tartaricum in more than one seed catalogue now before us. Eds.]

by J. Bateman, Esq., which received a Special Certificate. A collection of Orchids was sent from the Society's gardens; also cut specimens of Camellia reticulata.

March 5 (Fruit Committee).—Prizes were offered on this occasion respectively for the best three dishes of Dessert and of Kitchen Apples, and were awarded to Mr. Whiting, The Deepdene, Dorking. His Dessert Apples were Adams's Pearmain, Mickleham Pearmain, and an unnamed kind having some resemblance to the Federal Pearmain; the kitchen varieties were Alfriston, Devonshire Buckland, and a late kitchen Apple believed to be the London Pippin. These were all in an excellent state of preservation. Mr. Ford, gr. to W. E. Hubbard, Esq., St. Leonard's Lodge, Horsham, sent three seedling Apples, which, however, were not considered of sufficient merit to deserve a Certificate. Mr. Stanton, gr. to J. Bateman, Esq., Biddulph Grange, sent dishes of home-grown Oranges and Lemons; and Mr. Sherratt, gr. to the same gentleman at Knypersley, furnished bunches of Ahbee Grape, referred to above. Mr. Wells, Holme Lacy Gardens, exhibited what he believed to be a new variety of Sea-kale, with yellow instead of purple tips to the leafstalks, but the Committee did not consider it distinct from ordinary Seakale.

Linnean: *Feb. 7.*—G. Bentham, Esq., President, in the chair. Mr. D. Hanbury exhibited herbarium specimens and specimens in alcohol illustrating the genera Papaya and Jaracatia, collected by Señor J. Correa de Mello, in South Brazil. The following papers were read:—1. *Notes on Papayaceæ*, by Joaquim Correa de Mello, and Richard Spruce; communicated by D. Hanbury, Esq. The authors describe three forms under which the common Papaw (Carica Papaya, L. =Papaya vulgaris, De C.) occur at Campinas, in the province of Sao Paulo, Brazil. All these are exactly alike in external appearance, and in the size and form of the leaves, but one is altogether female, another hermaphrodite, and the third male. The Papaw is thus trioicous or trimorphous. The Brazilians call the plant Mamoeiro, and the fruit Mamão (plural Momoes.) The second genus of the order Vasconcella, the authors regard as untenable; but the third, Jaracatia, they believe will retain its rank, the aculeate stem, digitate leaves, with distinct stipellate leaflets, and the union of the filaments into a short tube free from the corolla being regarded as sufficient to substantiate it. "The case with which the Papaw is cultivated, and the beauty and singularity of its aspect, have conduced, more perhaps than its large luscious but unsubstantial fruit, to render it a denizen of every warm country in the world. The fruit, although lightly esteemed by those who are new to it, is one of the most wholesome of tropical fruits. In South America it is eaten less as a dessert fruit than as a 'fresco' or grateful 'cooler' in the heat of the day, like Water Melons and Cherimoyas. It varies in flavour in different localities, being very insipid in some but in others very sweet. At Guayaquil the perfectly ripe fruit is still so milky, that after being sliced, and the seeds cleared out, it is usually put in water a short while to allow the milk to drain away, which would otherwise scorch the lips like wild Pine-apples. Not that this acrid and slightly bitter milk is unwholesome; on the contrary, its well-known anthelmintic properties furnish the reason why eating the Papaw fruit is not known to produce ascarides, as indulgence in many other tropical fruits, such as Mangos, is apt to do." The fully grown, but not ripe fruit, is an excellent vegetable cooked in the same way as Vegetable Marrow, which it much resembles in flavour.——2. *On Nutmeg and other cultivation in Singapore*, by Cuthbert Collingwood, M.B. The cultivation of the soil has been carried on in this island with great industry and enterprise, and for a while with success, but unfortunately, after hundreds of thousands of dollars have been spent upon it, the planters have learned too late that neither soil nor climate are favourable to the growth of those productions, such as Nutmegs, Cloves, Cotton, Sugar, Coffee, &c., upon which their money has been expended. The climate of Singapore is very peculiar, being marked by an absence of seasonal change. There is no regular recurrence of winter and summer, no distinctly dry and wet season, but a remarkable equality all the year round. Rain is capricious, and the soil is poor, so that nothing but plenty of manure will induce the growth of remunerative crops. Foremost amongst these crops was the Nutmeg, which once promised a harvest of prosperity, but which ended in utter disappointment. The trees were not left to the natural powers of the soil and climate, but were richly manured, and forced into yielding heavy crops. To the manner of doing this, and to the extent to which they were forced into luxuriance, may probably be traced the catastrophe which blotted out Nutmeg cultivation from the settlement. Around each tree, and just level with the outer branches, a trench was dug, about 1 foot deep and 1 foot wide, and this was filled with manure (cow dung). The result was that the trees for a time grew luxuriantly and yielded large returns, but in 1860 a blight appeared among them, the destructive effects of which could not be arrested, nor its source discovered. In the night a tree would be attacked, and in the morning its topmost branches would be withered, the leaves soon falling away. No insect or fungus has been discovered to account for the damage. It is a curious fact, however, observed the author, that many of the abandoned trees around which has now sprung up a thick jungle of undergrowth, have recovered since they have been left to themselves, a fact which seems corroborative of the idea that the disease was one of exhaustion and decay arising from unnatural forcing. Another significant fact is, that while at Penang, where the cultivation as described was carried on with the greatest vigour and the greatest expenditure, the destruction has been most complete and marked, in Malacca, where the people could not afford to manure the trees so highly, they have not suffered so severely as at Penang and Singapore. At the present moment there is no such thing as Nutmeg cultivation in the two latter islands. The author then referred to other crops cultivated in Singapore. Of these, he said, Cotton and Coffee failed from the absence of regular seasonal changes; Cinnamon, which grows beautifully, would probably have been remunerative, but for the expence of manufacturing it; Sugar fails from natural causes, chiefly the poorness of the soil; Gutta Percha, though hitherto abundant in the forests, must fail in time, because the tree is cut down to get the juice; Gamboge has never been regularly cultivated, but some experimental trees have been found to thrive well; and Gambir and Pepper have been largely planted by the natives, though their growth is now on the decline. The one tree in which is centered the promise and the hope of the Singapore planter, is the Cocoa nut, the original plantations of which are yielding golden returns.

Feb. 21.—G. Bentham, Esq., President, in the chair. Mr. J. G. Baker exhibited a dried specimen of Potamogeton decipiens, a native of Sweden, Denmark, North Germany, &c., gathered by Mrs. Hopkins in the canal at Bath. The following papers were read:—1. *On the Cultivation of Cinchona in the East Indies.* By J. E. Howard, Esq. The author observed that the remarkable plan of successful cultivation by renewal of the bark in reference both to C. succirubra and C. officinalis, var. Bonplandiana, has long been practised at Loja, but Mr. M'Ivor has been the first, so far as he was aware, to save the plant itself from the injurious results of the process. As regards the bark of C. Pahudiana, the results of his recent examination of samples derived from the Government plantations at Ootacamund, are new and striking, indicating a mean between the extreme depreciation in which this sort has been held by some, and the commendation lavished on it by others. It appears to be rather superior in point of produce of alkaloid to the fine bark of Loja, the C. crispa or Quina fina as grown in India. Mr. Howard thinks that a wise selection should be made of those sorts which have proved to be most advantageous, and that these should be "planted in perhaps a quincuncial arrangement, or at least one which might afford to the tender C. Calisaya the advantage of a slight degree of shade and protection from the more hardy sorts, such as C. succirubra."——2. *Additions to the Lichens of New Zealand.* By the Rev. W. A. Leighton.

Notices of Books.

Memoire sur le Groupe des Tiliacées. (On the Group Tiliaceæ, &c.) Par H. Bocquillon. Paris: Baillière, 1867. 8vo, pp. 48.

Originally published in the "Adansonia," a French botanical journal conducted by M. Baillon, the memoir above-named has lately been separately issued. It is, we believe, the first of a series of papers that Dr. Bocquillon intends publishing upon the Lindenworts (Tiliaceæ), and is therefore of a general character. It comprises an historical sketch of the family, from the time of Adanson, 1763, to that of Bentham and Hooker a century later. A second chapter is devoted to the enumeration and description of the various genera, and a third to the consideration of the natural alliances and affinities of the group as a whole. In this place we cannot, of course, enter into any detailed exposition of the views of M. Bocquillon, nor dilate at any length upon the many features of interest presented by the order Tiliaceæ as at present constituted. The greater number of its members can hardly be considered as of general interest. Nevertheless, a family which includes the graceful, honey-blossomed Lime tree has special claims on the attention of horticulturists, as from the bark of the tree in question are made those "mats" which gardeners find so useful.

Humble, weedy-looking plants are the species of Corchorus, another genus of this order, very unlike in general aspect to the lofty plume-like Lime trees, but similar in the construction of their flowers, and like their soaring neighbours yielding excellent fibre, which under the name of jute is made use of to a vast extent in India for the fabrication of "gunny" bags for rice, and which is used also for carpets, for paper-making, and other purposes. The trade in this material is of recent growth so far as this country is concerned, but its magnitude may be appreciated by the fact that in 1858 the quantity imported into Great Britain was valued at considerably over 600,000*l.*, while in 1865 "Jute and other vegetable substances of the nature of Hemp" (exclusive of Hemp itself and Chinese Grass), was imported to the computed value of 1,793,029*l.*

Viewed as ornamental plants, the group Tiliaceæ contributes little except the Lime trees to the decoration of our gardens. The old Sparmannia africana is, however, occasionally seen, and assuredly deserves better treatment at the hands of the gardening fraternity, for its soft velvety foliage and its graceful clusters of snowy flowers, relieved by the purple and yellow of the singularly-formed stamens, render it not only an interesting, but also a very ornamental plant. But poor Sparmannia is generally seen at the back of a crowded stove, drawn up, "leggy," and often a prey to mealy bug.

The West African Glyphæa has also been introduced as a stove plant. It has yellow flowers, somewhat after the pattern of those of Sparmannia, but decidedly less attractive. Another West African plant that collectors should have in view is the Honkenya ficifolia, whose bold Fig-like foliage and large purple flowers, set off by bright yellow anthers, would form a desirable addition to our collections of stove plants.

Structurally the Tiliaceæ come so close to the Mallows and Sterculias, with their satellite groups of Byttnerias, Bombaceæ, &c., that except for purposes of practical convenience it would hardly be right to keep them distinct. As to this point we fully coincide with the opinions of M. Bocquillon, who lays stress, moreover, on the intimate relations that exist between them and the Bixaceæ. In the first stages of the flowers of the two groups the conformation is identical. It is clear, however, that we must deal with plants as they are for purposes of classification, not as they have been. The study of the infantile construction of flowers is a matter of very great importance, but except to a limited extent it can never be made available for purposes of classification. The data furnished by organogeny are too recondite and too uniform to furnish characters that can be made easily and usefully available in the separation of one group from another. It may be that systematic botany suffers, and that the so-called natural system is rendered less natural than ever from this enforced comparative disregard of the labours of the organogenist, but practical convenience in such a matter is of greater moment than rigid accuracy of detail, which after all is unattainable.

We add a few remarks on some points in the structure of Tiliaceæ, suggested by a perusal of M. Bocquillon's memoir. In the Malvales, as has been mentioned once or twice in our columns, the stamens are compound, these compound stamens, or in other words, the bundles of stamens are placed immediately in front of the petals, while the petal-like barren stamens or staminodes, which sometimes exist, are almost invariably placed in front of the sepals. There is scarcely an exception to this state of things among Malvales, but in Tiliaceæ, where a similar conformation of the stamens exists, the position of the organs in question, as is well remarked by M. Bocquillon, is variable; sometimes the fertile stamens are in front of the petals, at other times in front of the sepals, the position of the barren stamens being varied correspondingly. These barren stamens in the Mallows we consider to be in most cases the central or terminal lobe of a lobed or compound staminal leaf; and we have been led to that conclusion by the consideration of their structure, and specially by the regularity of their number and the constancy of their position. On the other hand, in some Tiliaceæ the barren stamens are often variable in position and very numerous, *e. g.*, Sparmannia, Honkenya, Leptonychia, &c., and in these instances we should be inclined to regard the barren filaments as lateral lobes of the staminal leaf, and as such liable to variations in position and number. In the American species of Lime, on the other hand, the five barren stamens probably represent the central lobes of the staminal clusters.

The fruit of some of the Tiliaceæ is curious. We can only now refer to that of a new genus described by M. Bocquillon, from West African specimens collected by Mann, under the name of Desplatzia, which has a large oblong fruit with a leathery rind, enclosing a large quantity of fibrous or corky material, something similar to that forming the husk of the Cocoa-nut, and in which the seeds are imbedded. M. Bocquillon does not appear to have seen the seeds, but those that we have observed have been provided with a large wing-like appendage, which is particularly curious, as no other Tiliacea that we call to mind has such a seed; and, moreover, it forms an exception to the fact noticed by A. De Candolle, that winged seeds are found only (chiefly) in dehiscent fruits. Why this should be so as a rule is obvious; it is not so easy to see why a fruit that does not split open should yet be provided with winged seeds, as is the case in this Desplatzia.

In the establishment of tribes and genera M. Bocquillon has followed sound morphological principles, but this is a branch of the subject upon which we cannot here enter. We merely add our wish that M. Bocquillon may soon give us a monograph of the genera of this family, some of which—*e. g.*, Grewia—stand greatly in need of such a revision.

Black's Guide to Paris. Edited by D. T. Ansted. Edinburgh: A. & C. Black. Pp. 75; maps.

Considering the few pence this little volume costs, and bearing in mind the large amount of useful information contained in it, it may well be called cheap. We should, however, strongly advise that no one attempt to follow the whole of the injunctions laid down in the Itinerary for a visit of one week. Supposing that any one were rash enough to make the attempt, we fear before the week was ended he would have to seek the nearest lunatic asylum, no particulars of which are, however, given. What will Parisian or London botanists say to the following? "The collections of dried plants are quite unrivalled. They include 13,000 species"!

Florists' Flowers.

The Hollyhock belongs to the Malvaceæ, an order consisting for the most part of showy plants generally of the easiest culture. They are moreover useful to man, as their names imply, for the name of Mallow, the type of the order, is said to be taken from *malasso*, to soften, on account of its emollient qualities; and Althæa, the generic name of the Hollyhock, is said to come from *altheo*, to cure, on account of its medicinal qualities. What most concerns us here however is the free-growing habit of the family to which the Hollyhock belongs. We read in Holy Writ of the Mallows as troublesome weeds, requiring to be cut up—just such treatment as we give to the common Ragwort now-a-days. When, however, we have got a plant producing a grand display of flowers, and find that it belongs to such a free-growing family, it is just the specimen to put into the hands of beginners to experiment upon, in the same way as the schoolmaster puts large-text copies into the hands of those who are eventually to write small-hand. There is a prejudice against large flowers as if they were coarse, and against hardy flowers as if they were common; but whoever has had to decorate a church or some large hall with flowers has found that the vastness of the edifice has required large flowers in masses to produce the desired effect; and as regards plants being common, it merely amounts to the simple fact that where plants of any particular genera abound, they have got the elements necessary for their free development. If we take a very simple test, borrowed from the region of the ear instead of from the region of the eye, we find that at a musical festival the dull bass notes bear their part in the general harmony, and that the clamorous drum, and even the brazen trumpet are wanted, as well as the lighter swells and falls of sweeter instruments, for it is not in items, as they stand alone, that either the harmony of flowers or the harmony of sounds can be judged, but by what has gone before, and what accompanies or follows.

Everybody knows how easily Hollyhocks are obtained from seed. The almanacks tell us to sow biennials (of which the Hollyhock may certainly be said to be the king) in summer; plant them out in autumn to flower the following year: so sayeth the "Voice of the Stars" ("Vox Stellarum," 1867), published annually at the modest price of 1*d.* With such high authority I am certainly not prepared to cavil, but I must add that my individual case could not be met by adhering to this general rule, for the summer and the autumn had both gone by before I had any idea of wanting Hollyhocks, and about the end of February I found that I should require some hundreds of them to flower strongly that very year, so I set to work with seed sown in shallow pans, and placed with a brisk bottom-heat in a frame, where in a few days I had some hundreds of seedling Hollyhocks. These had to be pricked off into thumb-pots, and after they had got well rooted in the hotbed were hardened off by degrees in the cold frame, so that by bedding-out time in June the Hollyhock plants were quite as fine as the Dahlias, and all went out together, and the Hollyhocks bloomed admirably.

To those who have no regard for single flowers I

must state as briefly as possible the manner that a magnificent display of double Hollyhocks, all duly named, was obtained. The border was trenched a foot deep, and plenty of good manure was put in, and as the collection had been purchased, the plants were all in pots and labelled with the names and colours. It was therefore an easy matter to place the plants effectively. The colours of Hollyhocks are so diverse, that it is no exaggeration to say that they have all the colours of the rainbow, and some are as nearly approaching to black as they can well be. The Hollyhock crop is truly a heavy one, being about six times the height of a crop of hay-grass, and quite three times the height of Wheat; it is therefore clear that where a grand display is wanted, manure must be forthcoming in no stinted proportions, and water should be given freely; for although Mallows abound in the chalky pastures, the Marsh Mallow (Althæa) requires great depth of tillage, and as its name implies, no stint of moisture.

In the valley of the Thames and in other parts of Middlesex and Kent, the common Mallow is generally to be found in all old gardens, coming up of its own accord, realising the poet's words in the "Deserted Village"—

> "Near yonder copse where once a garden smiled,
> And still where many a garden flower grows wild."

But it is not to Mallows generally, but to that particular Mallow, the Hollyhook, that I would now direct attention, and it is of their great height and their importance in this respect that I would say something. As a background to Dahlias they are well-known, but they are not sufficiently appreciated in places beset with walls, such as town gardens. Planted against a dead wall they require no tall costly prop, and will rise to the height of 10 feet in a season; and as they rise will flower of all hues, and as double as if a globe were cut in two, with the guard petals beneath it, so as to be laid on the table.

Hollyhocks succeed well planted in the open ground in circles of, say 4 feet in diameter, supported by three stakes and a wire ring. It is never in the stalk that the Hollyhock breaks; it always breaks off at the collar, and hence if it is supported up to 3 feet it will stand all reasonable strain above that. *A. Forsyth.*

The Apiary.

Bee-keeping in Yorkshire.—Seeing in your columns a week or two ago some remarks on the effect of the recent cold weather on your southern apiaries, perhaps I may be allowed to say what my experience has been further north.

Of 11 hives set up for the winter, 10 have come safely through; the one that has succumbed being only a nucleus with which I was experimenting. The only hive that has suffered from dysentery, and that but very slightly, is a colony received quite unexpectedly from Switzerland as late as the first week in November. Being able to spare no more than two sealed combs of honey, it was necessary to feed freely for eight or ten days. The weather fortunately continued mild, so that on most days the bees were able to fly out. On the breaking up of the frost the hive was very damp, but internally there were no other signs of mischief, and the colony is now in a very fair condition. My Egyptian stock is by far the strongest of any, and is to-day as populous as it was in August. This is the more satisfactory because the bees showed a remarkable disinclination to venture out during the autumn months. They were closely watched on favourable days, and though it is quite possible that during so long an interval they have escaped attention, yet I feel satisfied that during five months they were strictly confined within their hive, namely, from the middle of August to the third week in January. I purposely molested them on two fine days in November to induce them, if possible, to turn out in a body, but although they resented the intrusion with their usual energy, they quickly settled after each attack, and I left them to what seemed their inevitable fate. To my great surprise, on changing the floor-board on the first fine day after the frost had gone, there was not a trace of dysentery or mischief of any kind. With the exception of a few dead bees, certainly not more than a score, the board may be said to have been quite clean. The hive was perfectly dry, and I shall be very well content if in two months time my other hives are as populous as this is now. Certainly, the more I see of the Egyptian bee, the more I am convinced of its many valuable qualities, and the impunity with which it bears detention and withstands our English climate is not the least of them. The only drawback is its savage disposition. It should be added that the weather has been as severe in this neighbourhood as in most other parts of the country. The temperature registered here during the first five nights of January were 12°, 24°, 16°, 18°, and 17° Fahr. *F. H. West, Potternewton, Leeds.*

The Management of Bees. By W. J. Pettitt. Second and enlarged edition. W. Brett, Dover.

This book, which is published in a pamphlet form, partakes almost entirely of the character of a Trade Catalogue. In addition, however, to copious illustrations of various hives which are supplied and sold by the author, there is a moderate amount of letter-press giving descriptions of the same, and treating of the history of bees, and of judicious modes of management, with a short account of the Ligurian variety. With regard to the introduction of this latter species into England, Mr. Pettitt states only a part of the truth. He withholds the acknowledgment of the credit of the successful fulfilment of the experiment from whom it is really due. As it is not our intention to enter into an argument on this head, nor to enlarge on the merits of the various hives and bee-apparatus portrayed, we have only to add that this little book may be found useful by many bee-keepers, or by persons intending to become such.

Garden Memoranda.

Downie, Laird, and Laing's Nurseries, Edinburgh.—From small beginnings this firm has been extending its sphere of usefulness in catering for the supply of growing public demands. Confined originally within the circumscribed boundaries of West Coates Nursery, at all times a famous emporium for the breeding, rearing, and propagating of florists' flowers, business exigencies have compelled the firm to extend their acreage by four times the original area, and glass erections have been added even to a much greater proportion. West Coates is now grown from a small field under 10 acres to a large one of 39, and consists of a fine blackish loam, suitable for general culture. Situated as it is upon the borders of the suburban district of the city, it is of convenient access, and very much adorned by the æsthetic proportions and gigantic appearance of Donaldson's Hospital, one of the "lions of the city." Pinkhill, distant about two miles further west, although only 7 acres in extent, is considered an invaluable auxiliary for producing Hollyhocks, Dahlias, and Roses in the highest possible pitch of excellence. It is situated at the base of the Corstorphine range of hills, and has a splendid tilth consisting of marly loam—something in fact like a mixture of sand, clay, grit, and rotten trap, which along with any artificial manures that are introduced is capable of doing duty towards the growth and perfection of any article of husbandry or other objects of beauty that do not come within that category. These nurseries are under the immediate superintendence of Messrs. Downie & Laird, while that of Stanstead Park, near London, is managed by Mr. Laing.

West Coates is the head-quarters of the establishment, and is very efficiently managed by Mr. M'Keith, who, along with good business habits, possesses an attachment for flowers of an enthusiastic character. The outdoor department is of a general nature, comprising most things of a remarkable character in the way of forest trees and shrubs, both deciduous and evergreen, in a very excellent state for transplanting. This point, however, cannot be taken up, owing to the many interesting things in the florist way that must pass under review. It will be consulting the interests of the general reader to deal more particularly with the specialities of the firm or firms from time to time taken up.

With this apology I proceed with some statistics of the Hollyhock. On examination it was found there were some 5000 plants potted off singly into from 4 to 5-inch pots. These plants in the beginning of the year were all nicely established, and looked as if they had been systematically and correctly dealt with. It is no easy matter to have such a colony of them so uniform, and so dwarf. The lanky bare-legged stems common to a number of autumn-struck cuttings were not visible; and I was curious in particularly observing this, and pleased to see the foundation of vigorous plants so well laid. On inquiry I found that about 4000 of them were struck from eyes of all the choice varieties in existence, and the other thousand were made up of grafted plants. A great number of your readers will probably be as averse to a grafted Hollyhock as they would be to a grafted Conifer—Picea nobilis, for example—and why? If to a proper union you add a better or a hardier constitution, surely there is a decided gain! In the matter of Hollyhocks we were told that some of the best spikes in Messrs. Downie & Co.'s winning stands were from grafted plants! The *modus operandi* is simple enough: take cuttings from the most vigorous seedlings, get them rooted as early as possible in autumn, head them across on the dawn of early spring, and perform the simple operation of wedge grafting a little below the surface, and ninety-nine out of every hundred will succeed. The house this batch was growing in was a low span-roofed structure, about 80 feet long, with a sunken path and a bed on either side, in which the cutting pots were plunged. All that was deemed necessary was to ward off frost by means of a single hot-water pipe surrounding the interior of the house. Seedlings were making their appearance in great batches in another house with a little more fire-heat, several hundreds being annually planted out to undergo the probationary trial, necessary at Pinkhill, before being Certificated. The three best last year's seedlings which obtained First-class Certificates, were William Thomson, James Anderson, and Mrs. Hastie, all flowers meriting that front-rank distinction. Others are spoken favourably of, but they must yet be submitted to the severe test all florists' flowers of the present day have to pass.

Messrs. Downie & Co. have had similar success with Pansies. We have Chater and others that have done battle vigorously and successfully against them with Hollyhocks, but in the matter of Pansies they seem to maintain an unimpregnable position. At Edinburgh or London their stands figure conspicuously at the head of all competitors; nor are they less successful with those gaudy butterfly subjects—the fancy division, and that not only as growers, but as rearers of the best bred; it seems a pity that some one should not occasionally wrest a laurel from their grasp. Talk of florists' flowers getting out of date, and this one in particular being depreciated in public estimation—go and ask the salesman of the firm, Mr. M'Keith, who, from the glib way he talks about them, must have a pedigree book! The sales are largely on the increase, and although they have had so many as 20,000 plants in stock of all kinds, they are generally tolerably well cleared out. Beds and beds of them in long lines, in the rudest health, meet the eye as you pass over the nursery. There seems to be a very large stock of Imperial Blue, a variety which will figure prominently as a massing plant, and will prove a regular beat in point of colour and form on the best Cliveden Blue. In last year's novelties the following were first-rate sorts:—John Inglis, a bright golden yellow; J. B. Downie, yellow and bronze belting; Lina, a fine yellow, with purple belting and a dense blotch; and Yellow Queen, one of the richest yellow selfs grown. In Fancies there are a few a stride in advance of the best older sorts.—Thomas Downie, Ninian Niven, Miss J. Kay, and Hugh Adair. In the matter of growth and culture they do not seem to approve of striking the shoots that some practise. They only thin out superfluous shootlets and encourage strong well favoured flowers of substance. No one but an expert in the culture of this pretty subject could fancy the amount of labour and pains-taking care necessary for securing flowers fit for exhibition stands, the grower having to do battle against too much sun-heat, too little sun-heat, too much drought, and too much moisture, with all necessary precautions against an invading force of slugs.

The Dahlia ground is fully a quarter of an acre in extent, not to speak of the trial ground for the periodical planting of 2000 seedlings. Estimate by this the amount of labour necessary for securing probably not above half a dozen A 1 flowers, and there is not so much wonder at the half-guinea fixed rate for desirable novelties. The old roots were being started during January in a moderate heat, so as to have good stools for working at by way of propagation during the busy months of February and March. The trade in this flower alone, by this house, is stated to be close upon 9000 annually. The wonder is, taking all other houses that do largely in this article, where all the plants go to.

Roses are everywhere in the ascendant; the extent of their cultivation, were we to have statistics of what is annually sold in this and other countries, must be somewhat fabulous as to numbers. There are 6000 budded here annually, chiefly on the Manetti stock. Noisettes and Teas are found to do best either on their own roots or on the Briar, and the exceptions in the Perpetual section in favour of the Briar as a stock were stated to be Olivier Delhomme, Lord Raglan, and Madame Furtado. All the dwarfs are mostly budded at from 3 to 4 inches from the collar, and they undoubtedly form a splendid array of well-managed plants in this way. All had been lifted in November, laid-in in order, and arranged alphabetically. Some of the standards were protected at the junction between the stock and scion, which was a wise precaution, particularly so during the severe weather. It seems that Madame Vidot and Madame Rivers always produce their best blooms from one-year-old budded plants; and we have seen Sénateur Vaisse and Charles Lefebvre in a similar way with blooms even superior to those from older established plants. There was a vigorous plant in one of the houses of Maréchal Niel, budded as a standard on the Briar, and it was uncommonly promising.

Cinerarias were numerously represented, and a splendid batch of winter and spring-flowering plants they are. As hints about them just now will prove seasonable, 16 of the very best in the house allotted to them may be named:—Clara Oswald, one of the best, if not the best, blue in cultivation; Andrew Johnson, a white, with slight margining of rosy purple; Queen of Spring, something of a like character to the above, but, upon the whole, the best of the two, the habit being better; Rev. H. Dombrain, white, with a broad edging of crimson of the richest character, a desirable novelty, and a good large trusser; Constellation, white, with heavy edging of rosy crimson; Blue Beard, a novelty in the tribe, having a tricoloured zone, first blue, then crimson, and next white; Rev. C. Padley, white, with purple edge, large flower; Mrs. Moore, a very large flower, of excellent substance, rich shaded crimson, with white ring and dark disc; Flower of the Day, the most distinct and beautiful of the tricolors; Lady of the Lake, Neptune, Conspicua, splendid rosy crimson, with white ring; Achilles; Picturata, a fine plum colour, with white ring, and a lilac disc, novel and pleasing; Alice; and Prince Alfred, all superior varieties.

Pentstemons, Antirrhinums, and Phloxes are largely grown, and many young plants, both in and out of doors, were visible, as also was a large lot of Pyrethrums for bedding-out purposes. The trade in the above for general supply must be large, judging from the amount of stock being propagated. Pelargoniums of sorts occupied several houses; some of them were being advanced as specimen plants to grace the show-houses during the summer months. Fuchsias were in great variety. The Russian Violet, Czar, was blooming rather profusely, and it is an agreeable companion to the Neapolitan, both of which are well deserving of a more extended cultivation for their beauty and fragrance. Chrysanthemum Sensation was being largely propagated, and so far appears to be an acquisition to bedding out. The Aubrietia purpurea variegata is a pretty subject, although it seems somewhat shy. Humea elegans, so well named as a tribute to its handsome inflorescence, appears to be in great demand, as every available nook was occupied with samples to supply a steady demand; while Verbenas, both for bedding-out and for their merits as trussers and as varieties, were represented in numbers proportionate to a great florist establishment.

Then we have stove houses, Azalea houses, Camellia houses, and others of a nondescript character, all filled. The show house is a well-proportioned building, suitable for setting off to the best advantage the various articles in succession that adorn it. Adjoining it is a very well-arranged Fernery. The plants are growing some in pots, some in an artificial rockery, the former arranged on tiers of brick terraces. Conspicuous among the plants are several forms of Athyrium, which is multiplying to an almost indefinite extent; Lomatia elegantissima (not a Fern, however), Lomaria gibba, several, Adiantums, Davallia (Odontosoria) tenuifolia stricta, with beautifully cut handsome fronds, &c. These pots

covered as they were on the surface with the dense Lycopodium, and the more trailing and shaded-coloured cæsium, looked extremely pleasing.

The hardy evergreen shrubs and the Coniferæ at Pinkhill were more vigorous than those at West Coates. Such grand Conifers as Picea Nordmanniana, Pinsapo, and nobilis, as well as Wellingtonias, and Cypresses of sorts, were pictures of vigour and symmetry. Rhododendrons were equally at home, splendidly set with buds. The Hollies, gold and silver variegations, evidently fed with avidity upon the nutriment furnished by the red sandy loam, and their foliage was nicely protected from the biting blasts by the contiguous hills. Peach trees luxuriated upon the walls, and there was a houseful of "riders," which were finely finished, and the state of whose wood promised an abundant crop of blossom. Tea and China Roses of sorts were coming away satisfactorily in the low, span-roofed structures in which they were housed. There are some 320 feet of house accommodation in this nursery, and speaking in general terms, nearly 1000 feet at West Coates, the greater portion of which is devoted to the accommodation of florists' flowers and bedding-out stock. *J. A.*

Miscellaneous.

Cottage Garden Societies.—With a view of promoting a good cause, Messrs. Sutton, of Reading, have liberally supplied the members of the Cottage Garden Society, of Bradford Abbas, through Professor Buckman, the Secretary, with upwards of 200 packets of vegetable seeds. We trust the result will show that the recipients appreciate the gift.

The Sugar Cane.—The Sugar Cane is one of a genus of many species of tall Grasses. Like most cultivated plants, it consists of several permanent varieties, differing in size, in the colour of the epidermis, and in the proportion of saccharine matter they contain. Like most of the cereals, the Sugar Cane has not been traced to its wild state. In its cultivated state it has been found in many independent places, often remote from each other, and bearing independent names. Its geographical limits are nearly the same as those of Cotton; that is, extending from the equator to about the 30th degree of latitude. Like Cotton, its culture has been pushed up to the 40th degree, but even with less success, for the cane takes a year to arrive at maturity, and is therefore liable to be cut off by severe frosts. In what country the Sugar Cane was first cultivated it is out of our power to discover; but, as far as we know, it has been immemorially cultivated in the tropical and subtropical parts of Hindustan, in the Hindu-Chinese countries, in the tropical and subtropical parts of China and Japan, in the Malay and Philippine Archipelagos, and in the tropical islands of the Pacific. There is no evidence of its having been cultivated in any country west of the Indus. It was unknown as a wild plant in Australia and New Zealand, and is unquestionably an exotic in America. The Greeks and Romans knew nothing of sugar but as an article of trade. They were uncertain about the country which produced it, and ignorant of the plant which yielded it. The Arabs, on the contrary, brought the plant itself from India, with the Indian name of its produce, cultivated it in Syria, in Egypt, in Greece, in North Africa, in Spain, in Sicily, and in Southern Italy, manufacturing sugar from it in all these places. At what time the Arabs introduced the culture of the Cane and the manufacture of sugar into Syria and Egypt is unknown, but it is ascertained that sugar was imported into Venice from the countries enumerated at the end of the 10th century. The Crusaders found the Cane cultivated in Syria as early as the beginning of the 12th century. In the year 1420, or 72 years before the discovery of America, the Portuguese carried the Sugar Cane to Madeira. In the 15th century the Spaniards carried the Cane and manufacture of sugar to the Canary Islands, from whence they were conveyed to tropical America and its islands. In 1503, or about 11 years after its discovery, the culture and manufacture were fully established in Hispaniola. Sugar was, however, an article of consumption in Western Europe long before the discovery of America. England was supplied from the emporia of Venice and Antwerp, and in the time of Shakspeare the name of the article was so familiar as already to have its secondary or figurative meaning, as in the expression, "sugared words." *Mr. Crawfurd on the Migration of Plants.*

Garden Operations.

(*For the ensuing week.*)

PLANT HOUSES.

THE beautiful Cape terrestrial Orchid, *Disa grandiflora*, if in need of larger pots through the thriving state the roots may be in, or owing to the soil composing the ball having become more or less soured, had better be seen to about this time. When in a growing state, turn the ball out of the old pot with the utmost care, so as not to injure any roots around its inner sides, or any root shoots which may be imperceptibly about to emerge from its base around the upper edges of the pot. Give only a small shift at a time, into a compost formed of one part silver sand, three of fibre abstracted from good brown peat, and one consisting of sphagnum, chopped small, and minute particles of pot-sherds—the whole being well intermixed together. Place one substantial crock at the bottom of each pot, adding a goodly quantity of others, broken small, and of uniform size, which, with a thin layer of sphagnum placed over all, will suffice. Pot only moderately firm, giving all a soaking of water when finished. Do not, however, allow any water to stand in the pans beneath the roots for a time. It has been observed that this plant will grow, and even do well, at one end of a house, whilst, placed in a similar position at the other end, it will live only a short time; hence those who may not have succeeded with it hitherto, should try such changes as the suggestion just given may afford. Cut back the points of all strong-growing *Kalosanthes*, which will break if that operation is done forthwith, and produce fine heads of bloom. Keep them dry for a fortnight or so afterwards, exposing them freely to the sun.

All seed vessels should be carefully picked off plants of *Monochætum* as soon as the plants have done flowering; pot any which may have become pot-bound, placing them all in a light, airy situation, in which there is moderate warmth. They thrive well in an admixture of peat and sand. Many plants, not requiring shifts, will be benefited by surface dressings at this season; this should be formed of good rich composts, prepared to suit individual species. First, loosen the surface of the balls, adding the fresh material sufficient in quantity to admit of space for water after the soil has been well rammed down, and made to amalgamate thoroughly with the old mould. Such dressings are of great benefit to *Euphorbias, Palms, Cycads, Agaves, Dracænas, Yuccas*, and similar plants; where loose soil exists upon the surface, it will be best removed in order to make room for fresh material. *Clianthuses*, which will now be making growth preparatory to flowering, should be freely watered at the root. A moderate amount of manure water will benefit all such plants when moderately pot-bound. Keep down the temperature in all intermediate and cooler structures, to the very lowest point possible, without running unnecessary risks; protecting with coverings, instead of keeping fires, whenever possible. Such houses might be even closed a little earlier, with the view of retaining some amount of the sun's warmth, to meet any anticipated fall in the night temperature. Where *Iresine Herbstii* is in demand for bedding purposes, it should be propagated in sufficient quantities forthwith; it will strike most freely in very moderate warmth. The same applies also to the several varieties of *Coleus*, which if not struck now, and grown on from cuttings, seldom attain a uniform goodly growth. The miffy *Tropæolum elegans* will strike freely now with ordinary care, and should likewise be propagated without delay.

FORCING HOUSES.

Pines, where a proper successional stock exists, will now require dividing into some three sections, namely, those in a progressively fruiting state, those which are to succeed these, and the younger stock generally. Those in fruit will now require a good maximum heat, with abundance of atmospheric moisture. Give air only in the forenoon early, shutting up at 1 o'clock, and moistening all internal surfaces thoroughly. Do not keep water standing too frequently upon the fruiting portion; but rather moisten all other parts of the plant at syringing times, avoiding these where possible. In order to induce those required for autumn and winter use to show flower in or about May, it will be necessary to keep them short of water at this time, with less moisture in the atmosphere. Do not reduce the temperature, however; and do not allow the requisite bottom heat to fall below 82° or 84°. Such as are fresh potted keep closer, with a nice moist atmosphere, shading at all times when the sun shines. *Vines.*—As the days lengthen, heat may be slightly increased; bear in mind, however, that whether it may be possible to increase the heat by day or not, the temperature should receive no sudden increase by night. A natural night heat, it will always be observed, is a minimum one, which is productive of robust, well-matured growth, both of fruit or wood. *French Beans* will be assisted by having any strong young shoots, which overtop the flowering parts, pinched back. Apply manure-water freely to all in a fruiting state, aided by frequent and copious syringings overhead. See that the heat in *Cucumber and Melon frames or pits* does not fall below a minimum of 65° by night. Keep well sweetened—by means of fermentation in the ordinary way—litter always on hand, with which to add to linings, should sudden changes occur. Prepare a quantity of the same, corresponding in amount to the number or size of your frames, for the purpose of potting-off store pots or recently struck cuttings of plants intended for bedding-out in May, bearing in mind that only half the quantity required for early Cucumbers, &c., will suffice for these.

HARDY FLOWER GARDEN AND SHRUBBERIES.

Pruning having been performed, it will be seen what vacancies have been caused through the late severe frosts. All such deficiencies should be filled up without further delay, choosing for the purpose at all times where convenient, plants of a hardy constitution. For the purpose of clothing naked walls, even in shady places, few plants are possessed of finer foliage than the *Ivy*, named Hedera Rœgneriana; or can boast of more striking beauty than the variegated H. canariensis marmorata. Another thoroughly hardy plant is Lonicera aureo-reticulata. L. flexuosa, though having a plain leaf only, is, however, more fragrant, and is equal to the former in point of hardihood, and like it is a semi-evergreen. These are all obtainable at a shilling or so each, and are worthy of far more attention than they get. Plant out *Ranunculus* and *Anemones* in beds or patches where they are to flower. They look well planted in patches of six or eight, various colours. *Myosotis, Cliveden Pansies, Silenes*, and many other plants used in out-door early spring decoration, if in store beds, should now be placed in more permanent flowering quarters. Make up all vacancies found during the winter in autumn-planted sheds. Many *Herbaceous plants* will now require dividing, such as Delphiniums, Phloxes (decussata), Ribbon Grass, and others of similar habit. Enrich the soil around the base of the remaining portion of the old stools, especially those of Phloxes, which greatly impoverish the soil in their immediate neighbourhood. Good varieties of *Pansy* should have the soil firmly pressed round their base, placing slight mounds of finely sifted leaf-mould afterwards around each plant in order to steady them from wind waving, and to induce a free emission of roots into the fresh soil. Harden off, previous to planting out, all *Carnations, Picotees, Hollyhocks*, &c., by free exposure to the air when the weather is moderately fine.

KITCHEN GARDEN.

No portion of this department should remain undug or not trenched at this time, if free from crops. Where fresh plantations of *Seakale* are required it will be time to set about planting them; choose an open, airy, sunny situation, a moderate amount of manure will do. In poor soils add a good quantity. Good plantations might be formed either from seed, or by means of divisions from older roots. In shallow soils the last are best, as seedlings are more prone to form perpendicular tap roots, which push down into the poorer lower strata. Whichever is used, however, they should be placed in rows 20 feet apart, and some 20 inches from stool to stool. Bear in mind, the smallest bit will grow, though the larger the better. Plant three crowns in a place at about 4 inches apart. Defer sowing the seeds for a few weeks longer, where it is intended to adopt that mode of cultivation. Place anything in the shape of pots, tubs, or boxes over *Rhubarb stools*, the object being to form, as far as possible, an air-tight space, in which the sticks are drawn up tender, and brought forward quickly to an edible size. Any old *Onions* commencing to grow should be planted at once in the open ground, some 6 inches deep. They will serve as scallions, where these latter are not habitually cultivated. Remove the litter placed over *Globe Artichokes*, as that will aid in hardening any young growths they may have formed, preparatory to an early spring growth. *W. E.*

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the Week ending March 6, 1867, as observed at the Horticultural Gardens

Feb. and March.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Of the Air. Min.	Of the Air. Mean	Of the Earth. 1 foot deep.	Of the Earth. 2 feet deep.	Wind	Rain.
Thurs. 28	24	30 344	30.162	45	23	34.0	46	45	E.	.00
Friday 1	25	30.565	30 472	45	28	36.5	44	44	N.E.	.00
Satur. 2	26	30.687	30 655	40	25	32.5	43	43	N.E.	.00
Sunday 3	27	30.666	30 518	45	30	37.5	42	42	N.E.	.01
Mon. 4	28	30 438	30.233	47	33	40 0	42	42	N.E.	.00
Tues. 5	29	30.125	29.974	49	25	37.0	41	42	N.E.	.00
Wed. 6	●	29.810	29.657	42	27	34.5	42	42	N.E.	.00
Average		30 378	30.238	44.7	27.3	36 0	42.8	42.8		.01

Feb. 28—Cold haze; dry, slight haze; very fine; frosty.
March 1—Partially overcast; dusky clouds; overcast.
— 2—Foggy; cold, hazy clouds, with dry easterly winds
— 3—Dry and frosty; fine; overcast, slight rain at night.
— 4—Hazy and cold; fine, but cold and dry; overcast.
— 5—Densely overcast, fine, very fine; slight frost at night.
— 6—Overcast; sky of gloomy dusky hue; sun eclipsed, at times distinctly visible; clouds in strata, the lower floating dark and low; the upper stationary.

Mean temperature of the week 4·6·10th deg. below the average.

STATE OF THE WEATHER AT CHISWICK,
During the last 41 years, for the ensuing Week, ending March 16, 1867.

March.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday ..10	49 7	31 6	40.7	15	0.69 in.	4	5	1	4	6	11	4	7
Mon. ..11	49.2	32.1	40.7	17	0.33	2	5	3	5	5	16	4	3
Tues. ..12	50 6	32.0	41 3	19	0 21	1	5	9	4	4	12	7	2
Wed. ..13	50.7	33 8	42 2	14	0 36	4	2	6	3	3	11	6	5
Thurs. ..14	51 0	34.7	42 9	19	0.70	3	7	5	—	6	13	7	2
Friday ..15	50 8	33 9	42.3	20	0.37	3	9	4	1	4	7	8	4
Satur. ..16	51 4	34 3	42 9	14	0.68	—	11	8	1	2	11	5	3

The highest temperature during the above period occurred on the 10th, 1826, 12th, 1841, and 15th, 1828—therm. 67 deg.; and the lowest on the 10th, 1847—therm. 7 deg.

Notices to Correspondents.

BOOKS: *Jersey Subscriber.* Hogg's Treatise on the Carnation, Pink, &c., is an old book, long out of print, but it may occasionally be met with second-hand.

CONCRETE WALKS: *J C S.* Either your Portland cement was effete, or you had too much of the earthy or finer particles in your gravel. The gravel should consist entirely of small stones—no sand, the foundation being also firmly made of hard material. The gravel should be dry, and the cement fresh, and these should be mixed together before being moistened, and then used immediately, so that the cement may "set."

MICROSCOPES: *H M.* Without seeing the instruments we can hardly advise you. No. 114 appears from the description to be the best and most convenient for use.

NAMES OF PLANTS: *J Horner.* Seems to be Pinus parviflora, from Japan. But we were not aware that that species had been long enough introduced to have fruited in this country. Perhaps Mr. Horner would mention where he got it, when he got it, and anything else he knows about it. *A M.—S Garland.* We believe your Fern is an undescribed one, to which, if such ultimately proves to be the case, the name of A. sphenophyllum may be given. Send a scrap of the scaly rhizome and of the sterile pinnules to T. M., Botanic Garden, Chelsea, S.W.

PAINTING HOTHOUSES: *W C.* Dry summer weather is not only best for the work, but most convenient for the plants, when these have to be shifted about and accommodated in other houses while the work is in progress, as is generally an absolute necessity.

PERCENTAGES AND FEES: *Subscriber.* We are unable to say how far percentages are usual, the arrangement, when it exists, being generally a private one, and taking various forms. Strictly, they are not, we think, defensible on principle, but where remuneration is so low, the existence of such a custom is not to be much wondered at. As to fees from under-gardeners, if the master instructs he may fairly claim to be paid; besides, the pupil need not continue unless he is content. Both customs, where they do exist, arise out of the fact that gardeners are badly paid.

TRANSPLANTING PINES: *T A.* If your Pinsapo is a valuable plant, as, being rather large, we conclude it is, and since you say it must be removed, you had better employ some practised planter like Mr. Barron than trust to any instructions we can give you. Favourable weather either in autumn or spring would be alike suitable, success depending mainly upon how the work was done. If the weather proves moist and calm, the tree might be moved any time within the next month. The same remarks apply to the Cembras.

COMMUNICATIONS RECEIVED.—M. de Jonghe.—J. S.—P. T. F.—H. M.—W. B.—W. G.—Isabella (next week).

SUTTON'S
SELECTED FARM SEEDS.

CARRIAGE FREE.

From Mr. JOHN BEDDALL, *Beeches, near Buntingford.*

Jan. 10, 1866.—"The Mangels I grew from your seed last year were by far the best in this neighbourhood, and indeed the best I walked into or saw all the season."



From Mr. ROBT. BOYS, *Eastbourne.*

March 7, 1866. "The Selected Yellow Globe Mangel Wurzel Seed I had of you last year turned out the best I ever grew. I am certain I could get up 100 tons of that root while I was getting up 60 of the Old Yellow Globe."

Sutton's Prize Mangel Seed.

SUTTON'S SELECTED YELLOW GLOBE MANGEL, 1*s.* per lb. Cheaper by the cwt.

SUTTON'S YELLOW INTERMEDIATE MANGEL (seed very scarce), 1*s.* 9*d.* per lb. Cheaper by the cwt.

From Mr. W. WHITECHURCH, *Beckhurst Farm, Wicken, near Newport, Essex.*

November 23, 1866.—"The Yellow Intermediate Mangels are much superior to any other kind I have ever grown, being very large, and free from tops and roots."

SUTTON'S MAMMOTH LONG RED,
and
SUTTON'S MAMMOTH LONG YELLOW,
price 1*s.* 6*d.* per lb. Cheaper by the cwt.

These are superior new varieties, growing to an enormous size, without being coarse; and producing a much greater weight per acre than the common kinds.

The following are good useful sorts, cheaper by the cwt. :—

	Per lb.—*s.* *d.*		Per lb.—*s.* *d.*
GOOD YELLOW GLOBE	0 9	GOOD RED GLOBE	.. 0 9
GOOD ORANGE ditto	.. 0 9	GOOD LONG RED	.. 0 9
SELECTED ORANGE do.	1 0	GOOD LONG YELLOW..	0 9
ELVETHAM LONG RED	1 0	STRATTON S RED GLOBE	1 3
RED INTERMEDIATE..	1 6	YELLOW OVAL ..	.. 1 0

Lowest price per cwt. on application.

SUTTON'S
GRASS SEEDS FOR ALL SOILS.

Messrs. SUTTON specially prepare MIXTURES for every description of soil; therefore in ordering it is only necessary to state the nature of soil, and suitable Seeds will be supplied.

SUTTON'S BEST MIXTURE of PERMANENT GRASSES and CLOVERS (2 bushels of Grasses, and 12 lb. Clovers per acre), 36*s.* per acre, carriage free.

CHEAPER MIXTURES, 26*s.* to 30*s.* p. acre, carriage free.

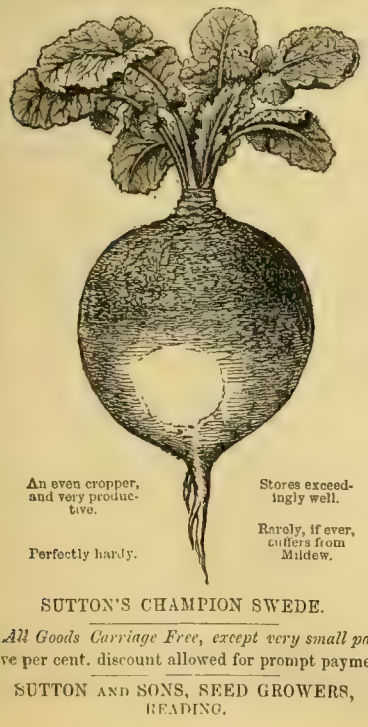
Also MIXED GRASSES and CLOVERS for 1, 2, 3, or 4 Years' Pasture or Hay, at equally moderate prices, as see

SUTTON'S NEW FARM SEED LIST,

Gratis and Post Free on application.

SUTTON'S CHAMPION SWEDE.

Price 1*s.* per pound. Cheaper by the bushel. Carriage free.



Price 1*s.* per pound. Cheaper by the bushel. Carriage free.

An even cropper, and very productive.

Stores exceedingly well.

Rarely, if ever, suffers from Mildew.

Perfectly hardy.

SUTTON'S CHAMPION SWEDE.

All Goods Carriage Free, except very small parcels.

Five per cent. discount allowed for prompt payment.

SUTTON AND SONS, SEED GROWERS,
READING.

Carter's Genuine Seeds.





CARTER'S SELECT LIST of GENUINE FARM SEEDS, at moderate prices, is now ready, and may be had post free on application to
CARTER'S Great London Seed Warehouse, 237 and 238, High Holborn, London, W.C.

Croquet Grounds.

For the Improvement of Croquet Grounds and Lawns,

J. C. WHEELER AND SON,

SEED GROWERS, Gloucester, can recommend a Mixture of the finest LAWN GRASS SEEDS, which should now be sown at the rate of about 10 lb. per acre, with a top-dressing of soot, guano, or superphosphate. The Lawn or Croquet Ground should then be thoroughly well rolled.

The price of the Seed is 1*s.* 3*d.* per lb.

J. C. WHEELER & SON,
Seed Growers, Gloucester.

GRASS SEEDS for PERMANENT PASTURE, of the finest quality, at moderate prices, carefully selected on a new, natural, and scientific system.

See "WHEELER'S BOOK on GRASSES," which contains Illustrations and Descriptions of the most suitable Grasses for Permanent Pasture.

J. C. WHEELER & SON,
Gloucester,
Seedsmen to the Gloucestershire Agricultural Society.

J. C. WHEELER AND SON, SEED GROWERS, Gloucester (Seedsmen to the Gloucestershire Agricultural Society), can very strongly recommend the following Mixtures :—

CLOVER and GRASS SEEDS for ONE YEAR'S LAY.

J. C. WHEELER & SON can supply this excellent Mixture—all of the finest quality—carriage free by Railway, at 15*s.* per acre.

lb.	lb.
3 Italian Rye-grass, Lolium italicum.	4 Evergreen Rye-grass, L. semperivrens
1 Cocksfoot, Dactylis glomerata	7 Red Clover, Trifolium pratense
1 Timothy, Phleum pratense	7 Trefoil, Medicago lupulina

A cheaper Mixture at 10*s.* 6*d.* per acre.

CLOVER and GRASS SEEDS for TWO YEARS' LAY.

J. C. WHEELER & SON can supply this excellent Mixture for Two Years' Lay—all of the finest quality—carriage free by railway, at 18*s.* 6*d.* per acre.

lb.	lb.
4 Evergreen Rye-grass, L. perenne	3 Red Clover, Trifolium pratense
4 Italian Rye-grass, L. italicum	3 Cow Grass, T. pratense perenne
2 Cocksfoot, Dactylis glomerata	3 White Dutch, Tr. repens
1 Timothy, Phleum pratense	4 Trefoil, Medicago lupulina

A cheaper Mixture at 15*s.* 6*d.* per acre.

CLOVER and GRASS SEEDS for THREE or FOUR YEARS' LAY.

J. C. WHEELER & SON can supply this excellent Mixture—all of the finest quality—carriage free by Railway, at 24*s.* per acre.

lb.	lb.
4 Evergreen Rye-grass, L. semperivrens	2 Timothy, Phleum pratense
4 Pacey's Perennial, L. Pacey-anum	3 Red Clover, Trifolium pratense
3 Italian Rye-grass, Lolium italicum	3 Cow Grass, T. pratense perenne
2 Cocksfoot, Dactylis glomerata	3 White Honeysuckle, T. repens
	1 Alsike, Trifolium hybridum
	4 Trefoil, Medicago lupulina

A Cheaper Mixture at 21*s.* per Acre.

J. C. WHEELER & SON'S CLOVER and GRASS SEEDS are of excellent quality, very moderate in price, and 5 per cent. discount is allowed for cash.

J. C. WHEELER & SON, Seed Growers, Gloucester.

SUTTON'S FINE LAWN GRASS for Making New or Improving old Garden Lawns, Croquet Grounds, &c. Price 1*s.* 3*d.* per pound, 24*s.* per bushel, carriage free. For forming New Lawns or Croquet Grounds three bushels, or 60 lb., are required per Acre, or 1 gallon to Six Rods of Ground.

From the Rev. E. J. GOSLING, M.A., *Chaplain to the County Gaol, New Dublin Road, Monmouth.*

Nov. 8, 1866.—"The Lawn Seeds I had from you in the spring have fully testified to the truth of all that has been said in praise of them."

From H. E. TUCK, Esq., 32, *Bartholomew Road North, Kentish Town, London.*

August 8, 1866.—"The Lawn Grass Seed is excellent; grows very quickly indeed, and produces beautiful fine Grass, such as we never had before."

From ROBT. J. STEDMAN, Esq., *Sharnbrook, Bedford.*

Jan. 13, 1866.—"The lawn I laid down last spring with your Grass Seeds answered wonderfully. It looks now as if it had been done with old Turf. Persons who see it scarcely believe it was obtained by sowing."

From MARTIN COUCHER, Esq., M.D., *Bayton Villa, Clifton-on-Teme, Worcester.*

Oct. 6, 1866.—"On the 10th or 12th of June I sowed the Lawn Grass Seed, and though the planting was so late, the Lawn now presents a uniform luxuriant appearance of a beautiful tint, and looks as though it had been planted two years. Of course, attention has been paid to mowing and rolling."

PRICED LISTS gratis and post free.

SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

Very Early Sheep Feed.

SUTTON'S IMPROVED ITALIAN RYE-GRASS.—This "Improved" Italian Rye-grass is recommended in preference to every other variety, producing three or four heavy crops in one summer, and being almost if not strictly perennial.

At a Meeting of the Royal Agricultural Society, on March 16, in a Lecture delivered by Alfred Hughes, Esq., late of Thorness, Isle of Wight, Mr. Hughes said :—

"I always reserve a portion of Oat land to lay down with SUTTON'S Improved Italian Rye-grass, the most reliable plant I have come across for some years for Ewes and Lambs in the Spring. When I tell you that I put it in in the spring, and dressed it after harvest with guano, and that in the autumn, when my Sheep fed it off, it was up to their knees, and that I fed it off again this spring with Ewes and Lambs, I think you will agree that this is a crop of very great value. The Italian Rye-grass which is sold by SUTTON, of Reading, is a most astonishing vigorous plant; indeed, I never saw anything to equal it in the course of all my experience."

SUTTON & SONS have a fine stock of their Improved Italian Rye-grass, which is a very different and superior article to much that is sold as Italian Rye-grass.

Present price 6*s.* 6*d.* per bushel, cheaper in quantities over 5 qrs. Carriage free in quantities of 8 bushels and upwards.

Quantity required per acre, if sown alone, 3 bushels.

Royal Berkshire Seed Establishment, Reading.

Good Clover Seeds at Market Prices.

SUTTON AND SONS can supply the above, of best quality. Samples and prices may be had gratis and post free on application.

SUTTON & SONS, Seed Growers, Reading.

The New Forage Grass (Bromus Schraderi).

SUTTON AND SONS have imported a large supply of True Seed of the above, and offer it at 2*s.* 6*d.* per lb., or cheaper in large quantities. Quantity required per acre, 30 lb. Lowest price per cwt. and instructions on cultivation may be had on application.

SUTTON & SONS, Seed Merchants, Reading.



Improvement of Grass Lands,

at from 5*s.* to 10*s.* per acre.

SUTTON'S RENOVATING MIXTURE

SHOULD NOW BE SOWN.

6 to 12 lb. per acre.

Price 10*d.* per lb. Cheaper by the cwt.

If these Seeds are sown early in the season, the improvement in the land will be very great, and at a small expense.

This Mixture should be bush-harrowed in, and rolled afterwards.

SUTTON & SONS,
Royal Berkshire Seed Establishment,
Reading.

Carter's Genuine Seeds.





Just Published, post free, 12 stamps (gratis to customers).

CARTER'S GARDENERS' and FARMERS' VADE MECUM for 1867.

In consequence of the increasing interest taken in Subtropical Plants and in the finer Border Flowers, JAMES CARTER & Co have devoted special attention to these subjects in their new issue of the above work, and the following original and practical articles plainly indicate the readiest way to get up a stock of these subjects in the most economical manner :—

On the Cultivation of Hardy Flowers from Seed.
How to raise Hardy Flowers from Seed.
Ornamental Annuals.
Fine-foliaged Plants from Seed. Also,
On Laying Down Grass Seed for Permanent Pasture, &c.

Forwarded for 12 stamps on application to CARTER'S Great London Seed Warehouse, 237 and 238, High Holborn, London, W.C.

Seed Corn from the Chalk.

ALL the MOST APPROVED VARIETIES supplied by RAYNBIRD, CALDECOTT, BAWTREE, DOWLING, and COMPANY, LIMITED.
Address, Basingstoke; or 89, Seed Market, Mark Lane, London, E.C.
*** Samples and prices on application.

ROYAL AGRICULTURAL SOCIETY of ENGLAND.
BURY ST. EDMUND'S MEETING, 1867.
STOCK, POULTRY and IMPLEMENT PRIZE SHEETS are now ready, and will be forwarded on application to
12, Hanover Square, London, W. H. HALL DARE, Sec.

The Agricultural Gazette.

SATURDAY, MARCH 9, 1867.

THE value of milk for the purpose of paying the agricultural labourer in kind, or helping him with food at a low "first-hand" price, does not seem to have received the consideration which it deserves.

The greatest difficulties with which capitalists will henceforth have to contend in this country, at least for some time to come, will belong to the labour question. This proposition applies especially to the present position of farmers, and the relation in which they stand to those whom they employ; for the stimulus which has been given to manufactures, trade, and commerce during the fiscal and financial changes of the last 25 years has enabled town employers to compete for labourers, and to pay increased money wages; and at the same time the farmers of this country have probably had upon the whole a proportionate diminution of means for employing labour. Thus, while "operatives" and "artizans" have increased, the peasantry have diminished, and farmers have had to take up with machinery more and more in self-defence, till in many parts of this country the business of farming is left with by far too few hands for its proper prosecution. We do not anticipate that for many years to come the situation in this respect will be improved; for however much it may be evident that many towns are overdone with the unskilled labour which would have been well adapted for agricultural operations, it is not likely that these superfluous hands will return to the villages and farms from which they migrated.

When illiterate folks have been exposed for a time to town sights and temptations, they become spoiled for the more monotonous, though more healthy occupations of rural districts. Besides, when increased money wages have been received, it is difficult for the labourer to believe that a less wage, under other conditions, might be of greater value to him.

Thus the present situation is both complex and

critical. If, therefore, any indirect advantages, in the form of personal comforts, can be bestowed on the labourers who yet remain in agricultural districts, and they can thereby be persuaded to remain; or if any similar inducements can be held out to youths or men, who have left their village or cottage home, to return to agricultural pursuits, not only will it be for their good, but the farmers of this country, and the whole nation, will be at once largely, and ultimately very largely, benefited.

Payments in kind, properly administered, have a power of begetting friendly feelings, which hard cash, by itself, never can produce. Some few years ago this closer relationship was much less common. Now, unfortunately, it too often happens that native husbandmen come upon the farm as strangers would do; their work is allotted them, or bargained for; it is ill or well done, their money is paid them, and off again they go. This may be expedient, and it may have been mutually agreeable for a season, but if it be desired that the confidence which once existed should return, past social relations must be resumed and made more intimate. There is no fear of "strikes" among husbandmen, but the spirit of Trades' Unionists may, and will take deep root, unless it be guarded against by masters, and the present small profits on capital employed in farming may thus be further decreased.

The old and homely axiom—"It is cheaper to buy milk than it is to keep a cow," undoubtedly holds good in very many cases; but where milk is not to be bought the principle falls through, and it becomes an important economical question whether it would not be advisable to set up an establishment of one or more milk-yielding animals. The value of milk as an article of diet is not half appreciated in many parts of this country. Where pure milk is abundant, children are ruddy in the face and their bones and muscle are well grown. A large dairy farmer said—"Milk and eggs are the stuff to feed growing folks on; and if you want a confirmation of this—there's my son," who certainly, in size, and substance, and form, did credit to his father's creed.

Cheshire presents agricultural features besides its great dairies. A large number of its cottagers keep one or two cows. The cottages of the county are scattered about by the roadside and up lanes, and to them there are generally attached two or three crofts from 1 to 2, 3 or 4 acres. By means of these crofts the cottagers keep their cow or cows, and pig or pigs. A part of these crofts are under Potatos and Rye, alternately, for a few years, when another part is broken up and the late cultured part is allowed to return to the indigenous plant of the county—Grass. The milk from these cows is hand-churned in the cottage, and the proceeds are taken to the neighbouring town, be it Nantwich, Malpas, Chester, Whitchurch, or elsewhere, on market days, and sold from the basket, which in a general way is placed on a three-legged stand lent by the general shopkeeper, over whose counter the money taken is expected to be spent as far as a supply of his goods is required. These cottagers' wives and daughters stand in long rows in the open street in some towns, in others shelter for them is provided.

The comforts which are thus derived from a small plot of ground give these people an air of respectability which the inhabitants of many other districts can never attain out of the wages which agriculture pure and simple can afford to pay. The butter not required at home is sold; the butter milk is looked forward for as a treat for the bairns; while skim milk is always, or nearly always, being produced, or it is readily obtained at a neighbouring cottage where a cow is "in flow." The pigs partly kept on the refuse are generally one or two for making bacon hogs; or several for growing to 4 or 5 scores each, for selling to go to the dairy farms, while the flush of cheese-making continues. Fowls are also kept by these cottagers, and when grown taken to market with the butter and eggs. Thus the townspeople and other residents in Cheshire are well supplied with fresh butter, eggs, and poultry at moderate prices. Dealers from Manchester, Birmingham, Wolverhampton, and other large towns also attend and buy up the surplus of these productions at low prices.

A custom prevails in Cheshire which facilitates the keeping of cows by cottagers. It is that of "making a ley," viz., setting a park or range of the poorer pastures for taking in cattle at so much per head from Old May Day to October 12, the prices being—for yearlings 28*s.*, and for two-year-olds 40*s.* The cow is sold sometimes in the autumn, and the heifer kept to calve down, a bull being provided by the owner of the "ley." Or if the crofts have yielded enough hay, and a little straw can be got, and a few Turnips or Mangels have been grown, both heifer and cow are nursed through the winter. The attention which the cottagers' wives pay to these animals is of the most sedulous kind, and their reward is great in the extra comforts or savings thus derived.

A case worth noting we may relate. The wife of a cottager, who had two big bairns to keep, "took 10*s.* a-week out of Chester" for many week in the spring, with the butter she made in excess of the family wants. The plan of feeding adopted was to chaff so much hay and straw, mash up fine so much Mangel, and add to it so much meal of some kind till a large bucket was filled. Then a kettle full of boiling water was put over the whole. This was done twice a-day for a morning and evening meal, the remaining food being rough hay, some roots, and millers' offal, and straw. But for making the milk abundant in the winter, when the cow was always in the stall, great value was attached to the pail-full of scalded food night and morning.

When cottagers have not crofts, and work on dairy farms, they generally get "suppin," that is, butter-milk, skim-milk, or whey, in abundance. For as calves cannot be timed to a day, week, or even a month in all cases, there is mostly a weekly make of "boosey" butter, and perhaps cheese throughout the winter months.

Many points of evidence might be given did our space permit, to show how greatly our forefathers appreciated the qualities of milk. The ancient charter of some boroughs, to which common lands are attached, gives to the freemen the right to turn out a cow under given regulations. Sudbury in Suffolk is one of the boroughs where this boon, now overdone and much abused, continues.

In some parts of Scotland a custom, to which reference is made in another page, prevails of allowing ploughmen to keep a cow as a part of his yearly payment of wage. Shepherds have the liberty of keeping so many score sheep. Single men and strangers have an allowance of three pints a milk a day for use with porridge morning and evening. The nourishing and strengthening qualities of milk thus used are demonstrated during harvest, for the Irish labourers who used to migrate to do the reaping and mowing generally fattened in the face, and gained several pounds weight during the month or so of their stay; and this, notwithstanding that their physical exertions were doubled and tripled.

In the Eastern Counties the price of skim-milk, when sold at the farm houses, is a penny a quart. Butter milk is there looked upon in the light only of pig-food. We have never heard of its being eaten, much less preferred. But this is a great mistake. Nothing is more wholesome than fresh butter-milk, although of course it is not so nutritious as the natural and complete article. It contains however all the bone and muscle-forming qualities of cheese, while its agreeable lactic acid is in chemical quality more like the gastric juice of the human stomach than any production that can be found in nature or produced by art. Cheshire men take a small quantity with a hot Potato to restore the appetite, or as a stimulant to sharpen their taste for dinner. The effect of it when not regularly practised is something marvellous. Folks in other parts who have a "weak digestion" may take a hint from this custom.

There are many other points which we might relate, and we have other facts in store, but we have already occupied the space at our command. The conclusions to be drawn seem to us to be that in many parts of this country, in arable districts as well as Grass "countries," the practice of cow-keeping may be extended, as much for the indirect advantages which it would give to the peasantry as for anything else. In arable districts, cottage dairying cannot be returned to extensively; but while the future price of butter will surely be high enough to make home-made butter directly profitable to the farmers' household, the distribution of milk at a low price cannot fail to be immensely serviceable indirectly, in the way it will cause contentment among farm labourers. Even the Malt-tax question does not possess points of more importance than does that which asks—How can an increased supply of milk be produced? *G.*

—— THE Law of Master and Servant was the subject of conversation in the House of Commons the other evening. The state of the law at present is that for a breach of contract a servant may be seized, handcuffed, taken before a magistrate, and sentenced to imprisonment with hard labour. Last Session a Committee, which inquired into the law regulating contracts between master and servant, unanimously recommended certain amendments, and their resolutions had been substantially approved by a committee representing the united trades of the country. A general feeling prevails that the law which imposes only a civil penalty upon employers for a breach of contract, while it sends the workman to prison, is unequal, and ought to be amended. Mr. WALPOLE said that the subject is engaging the attention of Government, who will do their best to bring in a Bill on the subject this session. The report of the committee referred to above was thus discussed in the *Pall Mall Gazette* at the time:—

"In the year 1864 there were no less than 10,246 cases of prosecution under the existing laws relating to masters, servants, and apprentices. In 1863 there were 8504, and in 1862 there were 7637. In such a state of affairs, no words are necessary to prove that there must be something radically wrong, either in the laws themselves, or in the social condition, which prompts so formidable and so rapidly-increasing an amount of litigation. A select committee was appointed by the House of Commons to inquire into the working of those laws in March last year. The case is as clear as the day. The law, as it now stands, has been manufactured altogether in the interest of the employer of labour, and it has been one of the most prolific of causes in creating and stimulating an ill-feeling in the artisan world against the middle and higher classes. Its nature can be stated in a single sentence. A breach of contract by an employer—technically called the "master"—is treated by the law as a civil offence, while a breach by the person employed—technically called the "servant" is treated as a crime. In the former case there is, therefore, a small pecuniary penalty exacted from the master, by which the employed is compensated for his actual loss; in the latter the employed is sent to gaol and punished heavily for a crime. The arrangement is so glaringly unjust that we are not surprised to find that it is represented by those who know most of the feelings of the working men and of the facts of the case, not only as a fertile cause of strikes, but as the source of that violence and savagery with which at times these trade disputes are embittered. It is not so much the prevalence of actual oppression as the knowledge of what the law is, and of the degradation and wrong to which the workman may be subjected, which creates anger."

It is certain that the existing law will shortly be amended in accordance with a more evenhanded justice than that which it now displays.

—— The *Field* gives a useful list of Substitutes for Straw:—*Ashes*, whether from coals, wood, or burnt clay, make capital litter when covered with straw, or with certain other substances softer than themselves. We have ourselves this winter saved much straw by their use.—*Earth*, even if not burnt to ashes, yet, if dried and pulverised by heat and exposure to the air, can be used in the same way.—*Sand* may be used by itself, and is of a cleansing nature to the skin.—*Leaves* should be collected soon after they fall, and removed from the Grass, which they injure, to heaps under cover.—*Sawdust* is an excellent absorbent, and may be used next the skin of the animal whose bed it forms. Like sand and ashes, however, it is itself of no manurial value.—*Fern*, dried and stacked, is most usefully employed as bedding.—*Tan* will absorb much moisture, and last as long as litter.—*Bad hay* of less feeding value than good straw may be substituted for it. And lastly—the shrewdest remark of all,—straw is a substitute for much of itself when used economically. And then follow remarks on the best means of increasing the growth of straw—as dressings of nitrate of soda, sulphate of ammonia, guano, &c.—and on the best means of saving it all, mowing it close to the ground—and on the best means of keeping it sweet and stiff, stooking your corn on the crown of the ridge instead of the furrow, and thatching it when threshed. To this we may add that it is economised in use by cutting it into chaff, so that only those parts which are soiled are removed in the dung. Sawdust we find a capital bedding stuff for cows, costing about one-half as much as straw at present prices, and keeping the cattle cleaner and as comfortable.

—— The very interesting discussion in the House of Commons last week on Professor FAWCETT's proposal to extend the Factory Acts to the case of children employed in the fields, recalls to recollection the experience of Mr. PAGET, of Ruddington Grange, late M.P. for Nottingham, on the subject of Half-time Schooling for the children of farm labourers. It is very desirable that we should know how the plan continues to answer the benevolent aim of its promoter; but meanwhile we reproduce the following statement made by Mr. PAGET before the Liverpool meeting of the Social Science Association:—

"The boys work and go to school on alternate days:—'They are never weary either of school or of work. Their progress is found to be very nearly equal to that of those whose sole business is attending school. At 14 years they have received not only a fair amount of the rudiments of school-learning, but they have also acquired a knowledge of the business of life, and are ready to enter into service with all that skill arising from habits of labour, combined with hardihood from exposure in out-of-doors work, which the farmer who hires them has a right to expect. They are much better servants than the mere schoolboy could be. Their school-life being compared, not with a holiday, but with a day of labour, they look upon it as a rest, and their associations with books are not irksome, but agreeable; so that, as a rule, they will retain what they have acquired. The schoolmaster also feels the advantage of this system. The boys attend more regularly than the average of children; and, remaining to a later age, their attainments are higher, and they give a higher tone to the school. The best evidence I can give of the value entertained by the labouring classes for this system, is the statement that they voluntarily adopt it in their own arrange-

ments. In addition to 16 who are working as pairs in agricultural labour, there are several pairs employed in the winding and seaming, belonging to the stocking manufactory, and several girls who assist the mother in her domestic duties alternately; and I have good reason to believe that in both these cases the system works very satisfactorily."

Mr. PAGET evidently thinks much better of boys than farmers generally do:—"One boy is a boy—two boys are half a boy—and three boys are ne'er a boy at all." That is the usual rate at which their usefulness as farm labourers is estimated. Properly superintended, and hard at school, and hard at work on alternate days, there is no reason why they should not be as energetic, purpose-like, and useful as their seniors.

— We regret our inability to give this week the detailed report, promised last week, of Mr. BETT'S herd of *Grand Duchesses* at Preston Hall, near Aylesford, Kent, the sale of which is to be conducted by Mr. STRAFFORD early in May. It shall appear as soon as possible.

HINDS' COW-KEEPING IN SCOTLAND

I PURPOSE placing before you the statements of several agriculturists of high standing, and shall conclude with a working man's views of the advantages derivable from a cow's keep being part of a married ploughman's wages.

A report was given in the *Scotsman* of January 10, 1861, of a meeting held in Edinburgh on the "Condition of Rural Labourers in Scotland." I send you the report of the resolution which was moved and supported by Mr. Hope, of Fentonbarns, in which you will find Mr. Hope is an intelligent, zealous advocate of the advantages to hinds derivable from a cow being part of a hind's yearly wages.

Mr. George Hope, Fentonbarns, moved—

"That as improved cultivation necessarily implies an increase in the amount and quality of the labour employed, it is the duty and interest of both landlords and tenants that a sufficiency of cottage accommodation be provided on every farm, thus removing at the same time an impediment to the formation of those domestic and family ties so essential to the happiness and welfare of the human race."

In supporting this resolution he spoke as follows:—

I am not one of those who think the world is going backwards, and that people are worse now, either socially or morally, than they were in former times. "Macaulay's History," "Cockburn's Memorials," "Dr. Carlyle's Biography," and similar works, clearly show that this country has improved, and is improving. Within the last few years we have made greater and more rapid strides in material prosperity than in any other period of recorded history. But in this very condition there are doubtless great dangers. Our material wealth may extinguish our spiritual life, without which no community can really prosper. Unhappily, recent reports of the Registrar of Births, Marriages, and Deaths reveal a very painful state of matters in many of our rural districts. It is obvious, also, that the moral state of some counties is worse than others. By a careful consideration of the circumstances affecting each, we may be able to discover whether this arises from the natural disposition of the people in such districts, or from unfortunate influences under which they may be placed. I will therefore endeavour to state as shortly as I can the position of the rural labourers in East Lothian, with which I am best acquainted. Almost all the ploughmen there are married men, hired from Whitsunday to Whitsunday. Their wages are generally 9 quarters of Oats, 2¼ quarters of Barley, 1 quarter of Beans, the keep of a cow, cottage (with garden and pigstye), land for Potatos, a small sum of money, food in harvest, coals driven, &c., worth something like 12*s.* 6*d.* or 13*s.* per week. I have never yet seen a more respectable class of labourers than those men who are paid in produce in any part of Scotland, or England either. I attach very great importance to every man having a cow of his own. It is of great advantage to him in bringing up his family, by the abundance of wholesome food it supplies, and, from his wife's skilful management, he is besides enabled to sell produce often to double the value of the cow's keep. Before a man sets up as a hind he requires to have saved something like 30*l.*, to pay for his cow and furniture, and few of them marry until they have done so. We all know the feeling of self-respect which property invariably gives. No man with a good cow in the byre readily takes to petty larceny or poaching. Nothing pleases me more than the intense interest displayed by everyman, woman, and child in the welfare of their cow. I have heard it alleged by farmers where it was not the custom for labourers to have cows and pigs, that it tempted them to pilfer. After a pretty long experience I can affirm that this is not the case; I hold the cow and the pig to be pledges for their honesty, neither would I have about me men I suspected of dishonesty. I believe every way it makes them better and more thoughtful servants, and I have 15 men in my employment who have cows of their own. I should not like a man without a cow to be in any charge, or to drive horses belonging to me.

I am glad to furnish you with the concurrent testimony of Mr. Scot Skirving in "Landlords and Labourers." He says:—

"None of Lord Kinnaird's views is more to be regretted than his opinion as to the inexpediency of allowing farm-servants to keep cows. In nothing are masters and servants more entirely unanimous than in acknowledging the great benefit derived from this system, wherever it is in operation. The cow is supposed to cost the master 5*l.*, which forms part of the hind's wage, but the advantage to the servant is not easily estimated. The pecuniary return from the sale of butter or milk is of course various. It depends on the quality of the cow, upon management, situation, and the size of the family; but in all cases the benefit derived is very much greater than could be represented by 5*l.*, and double that sum would be nearer the mark.'*

Besides the wholesome food drawn directly from the cow, she supplies the family with animal food as well, the pig being in no small measure supported by the cow, and pork is the only butcher-meat they ever see. Then carefulness, cleanliness, and good house keeping are necessary to make the little dairy profitable, whilst a good run of pasture for a cow forms an additional motive for remaining in a situation. I know not how it may be in other cottage districts, but I deeply regret that farmers who have recently come into East Lothian from counties where cows are not kept, decline in many cases to grant this most valuable privilege. The masters are no gainers certainly by the innovation, and the best servants are not likely to submit to the want.

Lord Kinnaird thinks that the death of the cow would be a great pecuniary blow to the labourer, but were he to ask a farm-servant what happened in such a case, or had Mr. Robb asked the question, he would probably have received for answer—"Ou, sir, she's i' the box;" meaning that the cow was insured. Every hind insures his cow, in assurance societies admirably managed by themselves, and provision is made to meet the case of the animal's permanent ill-health as well as of its death. I have little doubt that in the "cow," coupled with the system of payment in "kind," is to be found the solution of the mystery already alluded to, of the farm-servant so frequently being able to board out a son, or to sustain other expenses, which set all calculations, based on the nominal amount of his wages, at defiance.

The Rev. Harry Stuart, of Oathlaw, states in his address to the Forfarshire farmers, which was published in the pamphlet form in 1857:—"The best and most unquestionable feature of the Lothian service economy is that of the cow, and which, if well managed, would foster many of those social and economical virtues which are now at such a low ebb among our serving peasantry." "They have almost all cows," says Mr. Howden, an old East Lothian farmer, in his evidence before the Poor Law Commission. "Witness is satisfied that this is an excellent practice."

The Rev. Harry Stuart follows up with his own remarks thus:—It is too much to expect of any ordinary woman, that she can make a good farm-servant's wife in all the requisites, and rear and train children who shall also make farm-servants, and good rural economists as wives, if you do not give her a good cow. I plead for the cow; not so much on account of the health of her children,—although this of itself is a mighty matter in rearing stalwart ploughmen for you—as for the training of her children, especially the girls. Why, in this county, instead of the cow—the health-giving, rosy-cheeking, and interesting cow—it is all the dirty, dusty, clacking, and pale-facing loom that the farm-servant's wife has in general given to her to try and make a penny by. And then how, with a loom in it, can her house be kept nice and clean? how are her husband's dinners cooked, and how dry and poor are his meals? and how are his children kept and looked after? and what kind of serving girls are his daughters in an establishment where cows are kept, and a dairy has to be managed? These, and many such questions as these, deserve the most serious attention, if you would see a better state of things in the quarter we are looking to:—and whether it is to be the cow, or the loom, with a bare allowance of milk, will be decided a vast number of these questions, either for or against the social well-being of your labourers. To support what I now assert, I cannot do better than quote from a letter by another extensive Lothian farmer to Mr. Cowie, Mains of Halkerton, and quoted by him in his very excellent address of March last year, on the same subject to the meeting of the Kincardineshire Farmers' Club, and which Club stamped Mr. Cowie's proposal of giving cows with its approval—only the cow to belong to the servant himself:—"I have thirteen married servants," says this Lothian farmer, "who have all cows of their own; they could not bring up their families without them. I am sure their having a cow each has a most beneficial effect on themselves, their wives, and their children. Besides the feeling of self-respect which property engenders, it gives them habits of forethought, and also of kindness to animals. I have several times assisted individuals with a loan to enable them to purchase a first cow, and they have always speedily repaid me. 10*l.* a-year would not repay them for the want of a cow, although what they actually make depends very much on the industry of the wife. I know some of my people make the sum I have named, besides supplying themselves with milk. It improves or excites the energy and activity of the mother, and through her the whole family; so that whether servants are disposed or compelled to have cows of their own, they are much superior as a class to those who have none. I am sure all my people have my interests as much at heart as I have myself. I have never changed one for many years. I never think of their going away. Some of them have been on the farm for 30 or 40 years, and never worked for any one except my father and myself."

The Rev. Harry Stuart adds:—"And it must be so, in the very nature of things, that where a man has got a cow *well-tethered* on a farm, he is himself in a measure well-tethered—voluntarily bound—there also with her; for it will cost him a vast deal more anxious thinking and looking about to get a good place for his cow, than it will to get a good place for himself, as the whole comfort of the family will in a great measure depend on the good keeping of the pet cow."*

With regard to a general account of this highly cultivated district, it is the general rule for each hind to be the proprietor of the cow which the farmer finds as part of the hind's wages; and such importance is attached to the cow as part of the payment in kind, that a good many farmers "put on a cow" to each hind who cannot purchase—that is, the farmer gives the hind the milk of the cow. The farmer keeps the calf, which is very good interest for the money invested in the price of the cow—say 12*l.*—and each hind's wife milks her own or the "puttin' on" cow.

The farmer and the resident married servants and cottagers on each farm form a community by themselves. As a general rule, there is at least one grocer in every village. A good many of the village grocers have hucksters' licences, and traverse their respective districts with a horse and cart. These hawking grocers are designated "cadgers." So many now try to make a living by "cadging" (hawking groceries) that some farm steadings are visited every week-day by at least one cadger. Thus the hinds' wives dispose of the butter in exchange for the groceries and other household requisites; but a good many of the hinds' wives carry the butter to the nearest provincial town in their respective districts, where they get one penny per lb. more for the butter than the cadgers can pay the wives.

The cadgers expect to realise a profit of 1*d.* per lb. and the grocers in the provincial towns like Kelso also 1*d.* per lb. Thus hinds in close proximity to towns like Kelso, Jedburgh, and Coldstream, themselves pocket the profits which the cadgers realise from the farms six and seven miles from towns. A good many of the hinds' wives go direct to the middle-class families, who give the wives the current retail price of good butter.

The Rev. Harry Stuart gives at page 19 of his Address part of the evidence of Mr. Grey (late of Dilston) before a Committee of the House of Lords, to whom Mr. Grey stated that it is generally an object with the hind to have such a proportion of the earnings of his family paid in kind as will keep him out of the market for such articles as meal, Potatos, cheese, bacon, milk, &c.; and notwithstanding what economists say about money being the only proper medium of exchange for labour, as well as for other things, the custom of paying farm labourers in kind works well for both master and servant. The produce of his garden, his small Potatos, and the refuse of his dairy, enable the hind to fatten two pigs. In this way habits of industry and of economy are promoted, and domestic and social virtues are engendered and preserved, in a manner, and to an extent unknown in those districts where the younger members of a family are early driven from the shelter of the parental roof and the control of a parent's eye."

The Rev. Harry Stuart adds:—"Alas! this last remark gives the real root of the evils now under consideration; having no cow, and no work for their children at home, parents must let their children go before they have got any schooling or training that can be lasting for use, to herd the cow of the stranger."

I shall now show the supposed approximate cost to farmers of a hind's yearly wages:—

	£	*s.*	*d.*
Five loads (bags), 280 lbs., of oatmeal, at 2*l.* 2*s.* 8*d.*	10	13	4
Eighteen bushels of Barley, at 1*l.* 16*s.* 3*d.* per qr.	4	1	6
Six bushels of Peas, at 1*l.* 15*s.* per boll of 6 bushels	1	15	0
Sheep-money	5	0	0
Farmers' money-substitute for cow's keep	6	0	0
Hind's rental to farmers of 1,500 lineal yards of Potato drills, at 8*d.* a score	2	10	0
Cost to farmers of a hind's food for a month's food in harvest	0	16	0
And perquisites of a house and garden free, the cartage of coals, and the hind's liberty to feed a pig or pigs, at his own expense.			
	£30	15	10

Several of my recently published letters in the *Agricultural Gazette* having been republished in the *Kelso Chronicle*, a master-tradesman stated to me that up to a recent date residents in Kelso got Potatos planted on the surrounding small farms at 8*d.* a score of lineal yards. I know of one who had 60 bushels of Potatos for 2*l.* The hinds' wives and families assist with the planting of the Potato seed, and each hind and his family do the manual labour connected with the cleaning of the Potato drills and the lifting the Potato crop.

I am surprised at so few public speakers and writers omitting to point out to quack reformers of farm labourers that the payment of hinds' wages partly in kind secures to hinds the advantages of crofters without crofters' and small farmers' risks. The foregoing tabular account is the general rate of wages. The substituting 60 bushels of Oats instead of the 5 loads of Oatmeal; 3 quarters of Barley instead of the 18 bushels; 7*l.* for the cow's keep, and what I treat as perquisites—house and garden free of rent, the cartage of coals, and the liberty to feed pigs—give hinds of the present day a princely income when compared with the crofters of Dr. Begg's good old times.

I deem it an important matter to show the scope hinds' wives have for acting the part of a farmer's wife in developing the resources of the cow's produce, and in manufacturing pork for family use and for sale; also, that the fluctuating yearly averages give the hinds a proportional share of a well organised system of rural economy. But too many farmers' treatment of the hinds' cows is very discouraging to hinds. My statements, which you published at pages 810 and 826 for 1857, are yet too applicable to too many farmers' treatment of hinds' cows. Since the hinds on a farm where the cows exist during winter on straw and water and 4 cwt. of oilcake, refused to accept of 8*l.* as a money-substitute for the cows, cows which are constantly kept in good milking condition are worth much more than the general money substitute, 6*l.*

Owing to cows so poorly fed not costing farmers more than 4*l.* and 5*l.* per annum, and as the cow part of payment on some farms is put equal to 15*l.* a year, the cow is a source of a deal of dissatisfaction; but I

* Very various estimates are formed as to the value of a cow to a hind. In "The Cottage and the Bothy" the author generally sets it down at 5*l.*, the estimated cost to the farmer. In Forfar he states that this is reckoned 4*l.* to 5*l.* higher than in East Lothian, and he puts it down at from 9*l.* to 10*l.* in that county. But this must have been a calculation of its worth to the servant, not the expense to the master. Few hinds, even in indifferent milk districts, could reckon their cow worth less than 9*l.*; whilst in dairy districts 13*l.* is not too high an estimate. On this subject "A Factor," writing from Ayrshire in the *North British Agriculturist*, says,—"I am not favourable to the reintroduction of the crofter system into the well-cultivated districts, although I think it would be very beneficial that all cottars who wish it were allowed enough of pasture and meadow to enable them to keep a cow. I saw a cow the other day kept in that way which has produced within the last 12 months 320 lb. of butter. Now, putting the profit out of view, what an amount of occupation, of thrift, of interest, pleasure, and exercise of economy, must that animal have created to the household! It has become a serious grievance to the rural working class in many localities, the difficulty they find in procuring a supply of milk for their families—sometimes they cannot get it at all, in other cases they have to send their children miles, through wet and cold, to procure it from some old-fashioned farmer or farmer's wife, even when there are large dairies at their very door, but in which it does not suit the management to supply them. All this might be remedied by proprietors giving pasture for single cows more freely."

* "Agricultural Labourers, as they Were, Are, and Should Be in their Social Condition." By the Rev. Harry Stuart, Oathlaw. William Blackwood & Sons, Edinburgh and London. Price 1*s.*

trust I have adduced sufficient expression of the advantages to hinds derivable from placing them in the position of crofters without crofters' risks.

So many being opposed to field work for single women, the 6*l.* substitute for the cow leaves a broad margin for giving an industrious wife an opportunity of earning a female field labourer's wages in connection with her ordinary household duties. My letter in the *Agricultural Gazette* of July 28 (page 717), will read as a continuation of the foregoing. *Thomas Waugh Rutherford*, 22, *Forest Field, Kelso, N.B.*

THE GAME LAWS.

[The following is the very admirable speech of Mr. MacLagan, M.P., in the House of Commons on Tuesday evening last, on moving for leave to bring in a Bill to amend the laws relating to the preservation of game in Scotland:—]

HE said the object of this Bill was to remove some of the causes of that discontent about game which, not unreasonably, in many instances prevailed among the tenantry of Scotland. Of late years several circumstances had tended to increase that dissatisfaction. The relationships between the different classes connected with land had been considerably modified. The modern system of farming rendered a farmer more subject to loss and annoyance from game. Rents had been much increased, and farming had been conducted on more strictly commercial principles. The palmy days of farming were past, and the tenant was obliged to calculate on every small return which he might obtain from his outlay; this being the more necessary when this annual outlay on manures and feeding stuffs often exceeded the rent paid to the landlord. Contemporaneously, however, with this increase of rent and expenditure and diminution of profits, there had been an immense increase in game, caused by excessive preservation; and if to these causes of dissatisfaction were added the difference in the mode of conducting the sport from that in which it was formerly carried on, the discontent which prevailed could be no matter of surprise. Formerly the sportsman, content with a moderate amount of game, rejoicing in the healthful exercise which he was obliged to take in pursuit of it, and knowing that he had always the good-will of the tenant on whose farm he shot, was always sure of a pleasant day's sport, and never forgot to give a kindly greeting at the farmhouse, and deposit some of the spoils of the day. Now, however, in too many instances the object of the sportsman appeared to be to have a large bag with as little trouble as possible. For months the game had been strictly preserved; and at the proper time he sallied forth accompanied by his keepers, his beaters, his dogs, and the game cart. A wholesale slaughter took place, and the game cart was filled and despatched to the nearest poulterer or game-dealer, without the slightest acknowledgment to the tenant on whose crops the game had been reared. Irritating as such conduct must be to a tenant of spirit, even when the sportsman was the proprietor of the lands, it was still more so when he was a stranger, who, paying a rent for the game, endeavoured to reimburse himself by selling most of what he shot. No wonder a tenant felt discontented when he saw the fruits of his great outlay, his anxieties, his skill, and his labours not merely eaten up, but destroyed by animals which he himself had not the power to keep within reasonable bounds, but which were a source of income and profit to another.

It was said, however, that a tenant had no cause of complaint, since, when he took his farm, he agreed to conditions reserving the game to the landlord, and depriving himself of all claim to compensation on account of any injury done to his crops by that game. In some leases, indeed, the tenant was converted into a gamekeeper, and was bound to preserve game and to prevent poachers entering on his farm. But before condemning them for signing clauses so derogatory to their position as independent yeomen and as men of intelligence and capital, it should be remembered that there was at present a very great competition for farms, owing to many who had made money in other occupations becoming competitors for farms. Moreover, these clauses were stereotyped and unalterable in the leases of many estates, and were till recently, and even now, in some instances regarded by competitors for farms as mere formal sentences which, owing to the great competition, they were inclined to overlook or consent to. They were induced the more readily to agree to them, because, on examining the farm, with the view of giving an offer for it, they observed no unusual number of game, and trusted to the honour of the landlord that, at all events, there would be no increase of it so as materially to damage their crops. It had been argued that a tenant on looking over a farm should have satisfied himself as to the amount of game on it, but this was impossible, for, at particular hours of the day, the game retired to the covers, or might, for the occasion, be driven off the farm by the keepers. He knew a case where a tenant, himself a sportsman, having year after year had fields of turnips destroyed by the deer and hares, complained to the landlord of the superabundance of the game, and the landlord, who lived at a distance, resolved to have a day's shooting on the farm to reduce the numbers. An intimation was being sent to the keepers, but when he made his appearance very little game was seen. The tenant afterwards discovered that previous to the arrival of the landlord the keepers had driven the game off the farm, so that their master might not have cause to complain of their excess of zeal in preserving it. In too many instances, indeed, the keeper was the sole or main cause of disagreement between landlord and tenant; and so great was the damage done to a tenant's crops that he was under the necessity of giving up his farm if the evil were not soon remedied.

It was alleged by some that the damage done to the crops by game, even on strictly preserved estates, was immaterial. Such, however, was not the opinion of gentlemen well qualified to judge. He knew a case in which the damage done to the crops and the expense of protecting the crops from the game on a farm of 560 acres amounted to upwards of 900*l.* for the last two years. The late Mr. Pusey, once a member of this House, and an eminent agriculturist, gave evidence before a Select Committee of this House on the Game Laws, about 20 years ago. He said that he was once a strict game preserver, but, seeing the evils that arose from the system, he discontinued it; and, by so doing he had more satisfaction in the farming of his estate, and his tenants were more contented. His principal reason for ceasing to preserve game was that he was convinced the farmers had grounds for complaining of the quantity of game that was kept, and of the injury which their crops suffered from hares and rabbits. He also stated that game had become a source of serious loss and annoyance to tenants in those parts where it was highly preserved and that the landowners would find great advantages from relaxing the protection, or abandoning it altogether. This evidence of Mr. Pusey was corroborated by that of Lord Hatherton, given before the same committee. His lordship was at one time a strict game preserver, before he became an extensive improving farmer, when he had seldom less than 2000 acres of land under improvement. He stated in evidence that a very extensive and strict preservation of hares and rabbits was most injurious to land in every way, and he found that to pursue the two occupations—a rigid preserver of hares and game generally, and an improver of his land by planting and farming—was perfectly incompatible. He soon found as a farmer desirous of introducing among his tenantry and into the neighbourhood a better system of cultivation, that it was utterly hopeless to do so unless he completely destroyed the hares; and, again, he should have thought it perfectly idle to invest capital in the improvement of land if he had not the power of destroying hares. The Duke of Grafton also stated before the same committee that he had destroyed all the hares on his estate in Suffolk on account of the injury they did to the crops of the farmers. Sir Harry Verney also stated it as his opinion that the preservation of game in great abundance was a serious discouragement to good farming.

All practically acquainted with agriculture agreed in the opinion of these noblemen and gentlemen that the animals most destructive to the crops of the farmer were the hares and rabbbits. It was difficult, if not impossible, to estimate the damage done by hares, for their depredations were not confined to one place, but extended sometimes for miles; and it was not so much what they consumed as what they destroyed. He had seen a field of Turnips destroyed during frost by the hares passing along the rows and taking a bite out of almost every Turnip, thus exposing it to the frost and rendering it useless when the fresh came. He had seen fields of grain cut up with their roads and the ground strewn with the heads of grain which had fallen from the straw being gnawed through at the joints by these pests. He had seen fields nearly ready for harvest trampled on and beaten to the ground by them in their mischievous gambols. He had seen a young plantation of firs irreparably injured by the tops of the finest plants being cut off by them. He had seen pastures so polluted by their manure that more useful animals refused to graze on them. He knew some farms where certain crops such as winter Vetches, could not be cultivated. His observations and experience had led him to the same conclusion arrived at by Lord Hatherton—that the preservation of hares and the improvement and proper farming of land were incompatible. Various estimates had been given as to how many hares were equal to one sheep in the amount of food destroyed by the one and consumed by the other. The estimates had varied from two to six and eight hares for one sheep; and he was certain that, if he took into account the damage done to the different crops mentioned, the lowest estimate would be much nearer the truth than the highest. He recently read of an estate in Aberdeenshire on which 30,000 rabbits and 1400 hares had been destroyed annually for the last 20 years. Suppose that three rabbits were equal to two hares, and four hares to one sheep, and that there must have been fed on the estate at least double the number annually destroyed, we had a number of hares and rabbits kept constantly on that estate which would be equivalent to about 11,000 sheep. The estate contained about 6000 arable acres, about 3000 acres of hill pasture, and about 5000 acres in wood. Thus, there would be as much food destroyed by hares and rabbits on that estate as if nearly two sheep were kept on each arable acre, or about 1½ on each acre in cultivation and in hill pasture. Lord Hatherton, in his evidence before the committee, stated that:—

"He would be extremely glad to see hares taken altogether out of the class of game, and put on the same footing as rabbits. He believed it would correct a great amount of evil, affecting material interests both of tenant and landlord, and affecting the moral condition of the lower orders; and it was the simplest and greatest improvement that could be made in the Game-laws."

Fully sympathising in these views he proposed that hares and rabbits should be dropped from the game list. It might be said that rabbits were not game; but they were included in the Act 2 and 3 William IV., cap. 68, or the Day Trespass Act; in the Act 9 George IV., cap. 69, or the Night Trespass Act; and also in the Act for the Prevention of Poaching of 1862. He proposed, next, to abolish cumulative punishments—that was, punishments imposed by several statutes, under each and every one of which a person might be prosecuted and convicted for one single act. Contrary as this was to the principles of justice and jurisprudence, and opposed as it is to the spirit of our laws, it was no less true. For instance, under the Game Qualification Act of 1621, no man could hunt, or hawk, "who hath not a ploughgate of land in heritage" under a penalty of 8*l.* 6*s.* 8*d.* A ploughgate varied from 50 to 100 acres, so that not a few members of this House rendered themselves liable to be punished when enjoying their autumnal sports on the Highland hills. Then if the unqualified person committed the offence, or wilfully took, killed, destroyed, or had in his possession any moor fowl or ptarmigan out of the proper season—that is to say, between the 10th of December and the 20th of August, he was liable to be fined both 8*l.* 6*s.* 8*d.*, under the Act of 1621, and 5*l.* for each bird he killed or had in his possession, under the Act the 13th of George III., cap. 54, and at the same time to forfeit his gun under the Act 1707. Further, if he were a trespasser, and he was convicted before a justice of the peace of being in the pursuit of game between the beginning of the first hour before sunrise and the end of the last hour after sunset he would forfeit and pay 5*l.*, or in default be imprisoned under the Day Trespass Act of the 2d and 3d of William IV., cap. 68. But if he were convicted of being in the pursuit of game between the expiration of the first hour after sunset, and the beginning of the last hour before sunrise, the the 9th of George IV., cap. 69, or the Night Trespass Act, with imprisonment with hard labour for three months; trespasser would be visited for the first offence, under and he would be bound to find caution for 10*l.* that he would not trespass again for one year, or, if he could not find caution, he must suffer imprisonment with hard labour for an additional six months. For a second offence the penalty is doubled, and for a third offence he may be transported. And lastly, if the trespasser had not taken out the game certificate, he would have the punishment imposed on him under the Game Certificate Acts.

The next clause of the Bill dealt with the tribunal before which all offences against the Game Laws were tried. At present these were all within the jurisdiction of the justices of the peace. In nine cases out of ten the justices before whom these offences were brought were game preservers, or, at all events, being proprietors of land, were interested in the supply of game being kept up. It was very like appointing a man to be judge in his own case. Under the Day Trespass Act a trespasser was liable to be brought up, and, on the oath of the gamekeeper, to be convicted before the master of the keeper, who was at the same time the proprietor of the land on which the trespass was committed. Every gentleman acting as a justice of the peace under the circumstances would conscientiously discharge the duties which the law had imposed on him, and would endeavour to decide according to the Act. But he could not change his human nature, and it could not be denied that a game-preserving justice was very apt to be prejudiced against a poacher; and the sentence, even if according to law, might on that account be unduly severe. This appointing a man to be a judge in his own case was, fortunately, quite an anomaly in our legislation, and is quite at variance with the spirit of all recent enactments. For instance, no road trustee, who was generally a justice of the peace, could act at Quarter Sessions in an appeal from a meeting of road trustees of which he was a member. No occupier, or father, son, or brother of an occupier, could act as a justice of the peace under the Factory Act; no coalmaster or tenant of coal works under the Mines Act; no miller or baker under the Bread Act; and no brewer under the Licensing Act. It is proposed to remove all Game-law cases from the jurisdiction of the justices of the peace to the sheriffs of the county in which the offence was committed. This met the wishes of many justices of the peace, who were desirous of being relieved of what to them was an invidious and irksome task. In most leases there was a clause law reserving the game to the proprietor, and frequently there was such a large increase of game during the currency of the lease as to involve a serious loss to the tenant. At present the tenant had his remedy at law if he had not signed some foolish clause depriving him of his rights. But litigation was generally so expensive, from each party having a right to appeal to a higher court, that few tenants were willing to raise an action for damages from game. The clause provided that the amount of damages in cases of injury caused by increase of game during the currency of the lease should be determined by the sheriff, whose decision should be final. An objection was made to this clause, that the increase of game might have been caused, not by the landlord of the tenant suffering the injury, but by a neighbouring proprietor. It was not sufficient to distinguish a game-preserving landlord who would encourage an increase of game and one who was contented with a moderate amount of game; and the decision of this point might safely be left with the sheriff. He asked the House to consider the provisions of the Bill in a fair, generous, and conciliatory spirit, remembering that if any concessions were to be made, they must be made by that class which was most powerfully represented in that House to a class whose peculiar interests were but poorly represented. He trusted he had said nothing that would tend to stir up class against class, or to increase the heartburnings which, unfortunately, in too many instances existed between landlords and tenants on account of this question. His object had been, not to widen but to repair the breach between them. He might have detailed many cases of great hardship to the tenant from excessive game preservation; but he only touched on such, preferring to leave his case more to the love of justice and the generosity of the landlords. Legislation could do much in this question, but liberal concessions in private agreements could do quite as much. Let us not be too tenacious of our rights, when these operate to the loss of others and the injury of the country. Among no class of the country was it so desirable to have an amicable understanding as among those con-

nected with the land; for, upon a thriving and intelligent tenantry, and a contented and educated peasantry, depended the property of the landlord and the success of agriculture.

MANAGEMENT OF LAMBS.

[The following lecture was given some time since by Mr. Brady Nicholson, of Stourton Grange, a well-known Yorkshire farmer, before the Wakefield Farmers' Club.]

Mr. Nicholson, in commencing, said that the subject he had chosen to address them upon was one of the greatest importance to all breeders of sheep, for generally the greatest loss in lambs occurs from the time of weaning to the time when they are placed to feed upon Turnips. The loss is not alone in the deaths of the animals, but in the great deterioration in their weight and condition; and he had no doubt that that day there were thousands of lambs in England which, in consequence of mismanagement and disease, weighed very little more than they did on the day when they were separated from their dams. Farmers should use the greatest foresight and care in this important matter, and he presumed, considering the present "go-ahead age," and the desire to produce animals in the greatest perfection ready for the market at the earliest period, that breeders must have given their ewes and lambs artificial food during the time of sucking; but if such had not been the case prior to weaning, he would most certainly recommend that the animals should be taught to eat artificial food as soon as they are removed from their dams. Mr. Nicholson impressed upon those present that it is most essential to their future success that the animals should perfectly learn this part of their education, and then said that it is impossible to have fat hogs in the spring if they started with poor, weak, and unhealthy lambs in the autumn. The artificial food that he would recommend was a compound consisting of two parts malt (if the tax was only repealed), two of green cotton-cake, one of Linseed, one of bran, two of Locust-meal, and two of malt-coombs, giving the animals the compound twice a day in such quantities as they would eat.

The pasture to place lambs in after they had forgotten their dams should be a second crop of Red Clover, sufficiently old, then Tares or Rape, Cabbages planted in February, and Turnips sown in April. If they were not plagued with game, an acre of Cabbages planted in February would be ready for pulling in July and August; and the more changes of food the animals had, the greater would be the rapidity with which they would gain flesh. If they had Grass which was not too rich and luxuriant, and the season was dry, they might change them on to it; but in very dry seasons there is not much danger, it being the continuous wet weather that is the cause of the mischief. After saying that they should avoid weaning unless they had a course of food in preparation, so as to carry the lambs forward to Turnips, Mr. Nicholson went on to remark that some years the animals commence dying when sucking the ewes, but this is seldom the case, provided they have artificial food as well as a good supply of salt to run to. After separating the lambs from the ewes, and getting some food ready for them, he generally dipped the lambs as soon as weaned. For dipping he recommended 1 lb. of arsenic, 1 lb. of carbonate of potash, 1 lb. of soft-soap; the arsenic, potash, and soft-soap being boiled, and then a sufficient quantity of water added. Should the lambs be struck with fly, the best remedy was mercurial ointment run in a circle round the maggots, which were killed by it. Caps should be placed on all lambs that had a tendency to sore heads; and if the head was sore, a Dock leaf might be placed under the cap. If they had the scab among their sheep, he advised them to procure 1 gallon of tobacco-juice, which would cost 10*s.*, and to add to it 15 gallons of warm water, and a pint of oil of tar to the score, with about 2 lb. of common salt.

They should be cautious when they first stocked a pasture that the food was dry, particularly if it was Red Clover, and they should not keep the lambs too long upon it for the first few days. They should also use the greatest care not to let the lambs fall back upon the over-eaten land, particularly if it has been cropped once and strikes up again in a few hours, for that sort of food would bring on diarrhœa. Lambs should never be allowed to be depastured upon new seeds after the corn has been taken off, but they should be got upon Turnips as soon as possible, a few being placed upon the pasture where they are feeding, and 10 or 12 old sheep put with them to teach the lambs to bite the Turnips. If the Turnips were luxuriant in the tops, they should be pulled a day or two before being given to the animals; and after about a fortnight of this treatment the animals would be ready to be placed upon Turnips; and if afterwards their food was cut, and the plans which he had suggested were adopted, health, success, and rapid improvement would be the result. If any of the gentlemen present had no Red Clover, if their Grass was unsuitable for lambs, and was not Turnip land, theirs were not breeding farms; but if persons so situated were determined to try breeding, he advised them to sell their lambs to the butcher before weaning. After remarking that, if the season is a wet one, feed upon a wrong pasturage would be attended with disastrous results, Mr. Nicholson gave an instance of the result of a wet summer, and the want of proper food, that had come under his own observation; and after giving another instance of a somewhat similar character, in both of which the losses of the farmers had been enormous, he said that he was happy to say that out of 540 lambs he had not lost 20.

With respect to the treatment of disease, he recommended the removal of the animals from the disastrous pasture into a lane where there are plenty of Briars, for they would eat the leaves and young shoots with avidity, and they would receive much benefit. If they had not a lane, Briars, small Oak boughs with the leaves upon them, and Larch-tops might be spread about the field, and they would also prove beneficial. Mr. Nicholson then gave some recipes for mixtures which he said he had used with great success; strongly recommended the use of cod oil, which is 5*s.* a gallon; and after giving some particulars with respect to his system of feeding with Turnips, he proceeded to say that under the method he had placed before them he had produced at an early age animals as good as most men in Yorkshire, upon land that is not good for sheep, having a bad lairage. The animal that he recommended to breed for profit and early maturity was a cross with a Leicester ram and a Lincolnshire ewe, for he considered that cross would produce the greatest quantity of wool and mutton at an early age. In concluding, Mr. Nicholson said he trusted his feeble efforts might be of some use to his hearers; and if such was the case, and the suggestions he had thrown out were the means of saving life and increasing the supply of mutton, he should be amply repaid for his trouble in preparing the paper. *Journal of Agriculture.*

Home Correspondence.

The Food of the Labourer.—I have read with great interest and pleasure your very opportune article on the food of the poor, and the very able and equally opportune paper of Mr. Cox, reported in the same number of your valuable Paper. It is a subject that cannot be too seriously regarded at the present moment, and one which, if carried to its practical issue, would do much not only to increase the physical well-being of the poor, but also to promote their social and moral advancement, for it is impossible for any man whose entire earnings are swallowed up in the attempt to provide the mere necessaries of life, to devote any share of his time, his thought, or his earnings to the provision of suitable supplies for the higher wants of his intellectual, his moral, and his spiritual nature. What Mr. Cox has said is said well, and needs no confirmation from me; but there is one point on which he has touched which, I think, requires still further development. It is the inseparable connection of the food question with that of what people are to drink. I am very much gratified to find that Mr. Cox so unequivocally condemns beer as an investment for the working man. He is perfectly right in denouncing it as incapable of giving any adequate sustenance or strength, and the most extensive experience now fully establishes the position that every kind of labour, as well as exposure to the extremes of heat and cold, can be better endured without any portion of strong drinks than with them, whether in larger or smaller quantities. It will be seen at once how intimately this question is connected with the food question, if we take two circumstances into account. The first is, the fact that all alcoholic beverages are manufactured out of that which, as it comes from the hand of Nature, is most valuable food; and though a portion of the grain thus employed is utilised in the feeding of pigs and cattle, still the waste in the process of malting and of brewing, and the deterioration of the refuse from the brewers' mash-tub, are equivalent to the absolute destruction of an enormously great quantity of good, wholesome grain. Barley, as shown by one of the tables you produce, is one of the best and most economical kinds of food, and when properly prepared it is truly palatable. The terrible injury inflicted on the country by its conversion into beer, gin, and whiskey, cannot be better proved than by the simple mention of the fact that the quantity destroyed every year in this country for those purposes, is equivalent to all the addition to our food supply which resulted from the repeal of the corn-laws. The second consideration to which I refer is the fact that from the peculiar influence of beer and other strong drinks on the brain, and through it, on the moral and social nature, people are tempted to spend in those drinks an amount of money utterly disproportionate to their means and to their requirements, even supposing a moderate proportion of them to be desirable. To diminish the resources of the working man or to raise the price of the necessaries of life, is alike disastrous. The drinking system does both. The price of bread is raised by the wasteful destruction of corn, and his power to buy food is lessened by his inordinate expenditure in drink; and this, altogether independent of the further mischief of wasted time, injured health, ruined character—all lessening his usefulness in the world, and his power to command and to deserve an amount of remuneration for his services adequate to his real requirements. I think that in view of these considerations, it is not too much to say, that no plan for increasing the comforts of the poor, and securing for them that first requisite of true progress, an abundant supply of cheap and wholesome food, can be considered complete, unless it includes measures to protect the working man from the snares and temptations of the public-house, and to teach him the true philosophy of thirst-quenchers, as well as the chemistry of muscle-forming and heat-sustaining food. I rather regret that Mr. Cox has coupled tea with beer in his animadversions. Not that anything can be said in its favour as food, but because of its domestic and social associations. If it does stimulate at all, it certainly does not intoxicate. It does not torment the reason, or inflame the passions, or tempt the consumer to reckless extravagance, or place him at the mercy of evil men or women, or render him incapable of taking care of himself. Though not supplying nourishment in any appreciable quantity, yet there are medical men of high standing, who assure us that in some way it favours the assimilation of other food; and Professor Liebig states that, on account of the nitrogen it contains, it forms a valuable addition to the ordinary vegetable aliments. As a substitute for beer and wine and gin at social and festive gatherings, its value is incalculable; and though more costly than Nature's best thirst-quencher, cold spring water, still its cost, as compared with intoxicating liquors is a very trifling consideration, and would become merely nominal if only the Government would, in consideration of the moral and domestic well-being of the people, heartily apply to it the principle of free-trade and allow it to come into the country duty free. Improved morality, as tea took the place of gin and beer, leading to increased commercial prosperity, would soon make up the deficit through the increased income-tax paid by prosperous tradesmen, and the gain to domestic comfort, education, religion and true national stability would be beyond calculation. *Samuel Fothergill, Somerset House, Shirley, Hants.*

Societies.

ROYAL AGRICULTURAL OF ENGLAND.

Monthly Council: *Wednesday, March* 6.—Present, Mr. Thompson, President, in the chair. The Duke of Devonshire, K.G.; the Earl of Powis, Lord Berners, Lord Chesham, Lord Tredegar, Sir J. V. B. Johnstone, Bart., M.P.; Sir A. K. Macdonald, Bart.; Mr. Amos, Mr. Bowly, Colonel Challoner, Mr. Davies, Mr. Dent, M.P.; Mr. Druce, Mr. Brandreth Gibbs, Mr. Holland, M.P.; Mr. Wren Hoskyns, Mr. Hornsby, Mr. Hutton, Colonel Kingscote, M.P.; Mr. Milward, Mr. Pain, Mr. Pope, Mr. Randell, Mr. Read, M.P.; Mr. Rigden, Mr. Sanday, Mr. Shuttleworth, Mr. Torr, Mr. Wallis, Major Wilson, Mr. Jacob Wilson, Professor Simonds, and Dr. Voelcker.

Lord Tredegar, Sir John Trollope, Bart., M.P., and David Reynolds Davies, Esq., were transferred from the class of Members to that of Governors. Headworth David Barclay, Esq., of Eastwick Park, Leatherhead, was elected a Governor.

The following New Members were elected:—

Andrews, Onslow, Bradbourne, Ashford
Ardley, Thomas, Long Melford, Suffolk
Barton, George, Tottington, Thetford
Bradley, Alexander, Whepstead, Suffolk
Bromley, Nathaniel W., Bansfield Hall, Newmarket
Bullock, Alfred, Chedburgh Hall, Bury St. Edmund's
Bunbury, Sir Charles, Bart., Great Barton, Bury St. Edmund's
Burrell, Robert, Westley Hall, Bury St. Edmund's
Burrell, Walter, Fornham St. Martin, Bury St. Edmund's
Clayton, Eld Edmund, Bury St. Edmund's
Clements, Samuel, Bury St. Edmund's
Coe, Walter, St. Andrew's Street, Bury St. Edmund's
Cooke, Charles, Livermere Parva, Bury St. Edmund's
Cornish, George, Bury St. Edmund's
Crowe, Daniel, Gaywood, King's Lynn
Dean, Thomas, Mold, Flints
Dennis, Henry, Hafod-y-Cwch, Rhuabon
Downing, Isaac, Turner's Hill, Rowley, Stafford
Eagle, Alfred, Boxted, Bury St. Edmund's
Freeman, John G., Aspall House, Debenham
Fyson, Edward, Higham, Bury St. Edmund's
Gaudin, Philip, St. Martin's, St. Helier's, Jersey
Gibbs, Charles E., Icklingham Hall, Mildenhall
Gittus, Robert, West Row, Soham, Suffolk
Golding, Thomas M., Walsham-le-Willows, Ixworth
Goldsmith, Harry, Bury St. Edmund's
Goodchild, Robert, Garboldisham, East Harling
Greene, E. Walter, Bury St. Edmund's
Grout, John, Woodbridge
Gwilt, Robert, Icklingham, Mildenhall
Harvey, William, Timworth, Bury St. Edmund's
Hitchcock, William Henry, Miserden Park, Cirencester
Hudson, Charles H., Sandall Grove, Doncaster
Jillings, John, Little Saxham, Bury St. Edmund's
Jillings, Frederick Viner, Saxham, Bury St. Edmund's
Jillings, William Harvey, The Nunnery, Bury St. Edmund's
Jonas, George, Duxford, Cambridge
Jones, J. Bowen, Ensdon House, Baschurch, Salop
Josselyn, John, St. Edmund's Hill, Bury St. Edmund's
King, Arthur C., Desning Hall, Higham, Bury St. Edmund's
King, Frederick Wm., St. Mary's Square, Bury St. Edmund's
Knowles, William, Barton Street, Gloucester
Le Grice, Henry, Bury St. Edmund's
Manfield, William, Rattlesden, Woolpit, Suffolk
Montgomery, Sir Henry, Bart., Maidenhead
Mundy, Charles James Massingbred, Ormsby Hall, Alford
Nash, Thomas, Carlton Grange, Newmarket
Neild, Henry, Worsley, Manchester
Norfolk, Richard, Beverley
Nunn, Frederick, Bury St. Edmund's
Nunn, Frederick, Rougham, Bury St. Edmund's
Orbell, William, Hawstead, Bury St. Edmund's
Paine, William Denton, Chevington, Bury St. Edmund's
Parker, John Oxley, Drinkstone, Woolpit
Pashley, Alexander William, Tivetshall, Scole
Patmore, James, Bishop's Stortford
Pead, William, Bury St. Edmund's
Rands, Josiah, Ipswich
Rands, William, Ipswich
Rayner, Henry, Smethwick, Birmingham
Reeve, James, Snetterton Hall, Thetford
Robins, George F., Isleham, Soham
Rogers, John, Chellington, Bedford
Roper, S. Craske, Rougham Place, Bury St. Edmund's
Rudwick, Frederick F., Donnington, Chichester
Scott, J. Stearn, Lavenham Hall, Sudbury
Sheldrake, Edward, Ixworth Thorpe, Ixworth
Shrubb, John Lane, Lymington
Simpson, John, Buckenham, Attleborough
Smith, Percy Lionel, Great Peathing Lodge, Lutterworth
Stephenson, Christopher, Park Farm Office, Woburn
Sturgeon, Joseph, Norton Hall, Woolpit
Stutter, Cawston, Kilns Farm, Woolpit
Taylor, Edwin, Bury St. Edmund's
Thorn, Charles, Norwich
Thornhill, Thomas, jun., Pakenham Lodge, Bury St. Edmund's
Thornton, Thomas, Cavenham House, Wercham, Stoke Ferry
Waite, John Newman, Martham Hall, Great Yarmouth
Wells, Henry, Occold, Eye
Wigston, Richard, Heningsheath, Bury St. Edmund's
Wilson, George Henry, Morston, Thetford
Wright, J. E., Preston, Lavenham
Youngman, Philip, Walsham-le-Willows, Ixworth

Finances.—Mr. Torr presented the Report, from which it appeared that the Secretary's receipts during the past month had been examined by the Committee, and by Messrs, Quilter, Ball & Co., the Society's accountants, and were found correct. The balance in the hands of the bankers on February 28th was

1382*l.* 17*s.* 8*d.* The Committee have to report the death of Sir John Shelley, Bart., one of the trustees of the funds of the Society, and they recommend that the name of the Right Honourable the Earl of Powis be substituted in the bank books. The Committee again wish to draw the attention of the Council to the great inequality of the charges for advertisements, and also whether the present selection of newspapers might not be improved. This report was adopted, and a committee consisting of the Chairman of the Finance Committee, the Chairman of the Journal Committee, the Chairman of the General Bury Committee, the Earl of Powis, Mr. Brandreth Gibbs, Mr. Wren Hoskyns, Mr. Randell, and Mr. Torr, was appointed to consider this subject.

Journal.—The President announced that the reports on Steam Cultivation have all been sent in; that one is now in type, and a second in the printer's hands.

Discussions at Weekly Councils.—The attendance at lectures or discussions at Weekly Councils has been so generally meagre and unsatisfactory, and on the last occasion was so complete a failure, notwithstanding the ability of the lecturer and the interesting character of the lecture itself, that the Committee invite the special consideration of the Council to the question before any further appointment of subjects and speakers be decided upon. Mr. Holland, M.P., having moved that the subject selected for agricultural discussion be duly advertised for the first Tuesday in month of the Society's season, at 8 o'clock in the evening, and that gentlemen conversant with this selected subject, whether members or not, be specially invited by the Secretary to take part in the discussion; also that a similar announcement of the subject of lecture or discussion shall be placed on the Agenda paper of the Council; the Report and Mr. Holland's motion were adopted.

Chemical.—Mr. Wren Hoskyns reported that the Chemical grant for 1866-7 had been awarded to Dr. Voelcker for his papers in the last number of the Journal on

1. Field Experiments on Clover Seeds.
2. Improvement of Grass-land on the Manor Farm, Braydon, Wilts; and in the forthcoming number, on
1. The growth of Clover, and the changes it undergoes in Hay-making both in the Field and in the stack.
2. Potash experiments on Mangels.

The Professor proposes to draw up some directions as to the preparation of Samples for analyses, viz. of Soils, Feeding Materials, and Manures. The subjects for lectures in 1867 named by Dr. Voelcker and determined by the Committee are—1. The relative value of different kinds of purchased Food, with especial reference to their manurial properties. 2. The chemical changes in Haymaking, in the Field, and in the Stack.

This report was adopted.

Veterinary.—The Committee report that they have elected Major-General the Hon. A. N. Hood, Chairman of the Committee.

They have considered the report of the Governors of the Royal Veterinary College, referred to them by the Council. This report differs from any previous reports in not being as heretofore drawn up entirely by Professor Simonds.

The earlier portion of it deals with the continued efforts of the College to provide educated members of the Veterinary profession, and asks the assistance of this Council in obtaining from the Legislature a recognition of the position of Veterinary Surgeons.

Professor Simonds's report deals at considerable length with the several diseases which have been rife amongst domestic animals during the last year. After referring to the Cattle Plague and its extension to sheep, the Professor expresses a hope that the disease may now be considered almost at an end in this country.

Diarrhœa in sheep has been very prevalent, and being a constant accompaniment of cattle disease in those animals has caused some doubts to arise as to the existence of cattle disease amongst sheep. Means have been suggested with success for the prevention and treatment of this disease.

The attacks of pleuro-pneumonia and foot-and-mouth disease have very much decreased, mainly arising from the restrictions in the movement of cattle, and the precautions taken against the cattle plague.

Twelve cases of small-pox in sheep have occurred, eleven clearly traced to foreign importation. The Professor recommends further experiments in inoculation with the virus of small-pox and cattle plague, in order to test the length of time during which the poison has an active existence.

Cases of rickets in lambs have been admitted to the College, but for this disease at present neither curative nor preventive treatment have been found satisfactory.

Dr. Cobbold and the Professor have been occupied in important investigations into diseases connected with entozoa: no less than 42 animals have been treated, and 150 administrations of the parasites have taken place under the joint-superintendence of the above-named gentlemen. Important information has been acquired which may lead to valuable suggestions both for prevention and cure. Winged fowls feeding on trachinous flesh are not subject to the disease, hence game and poultry are a safe food for human beings.

Gastro-enteritis and splenic apoplexy have been frequent, and the Professor has been enabled to suggest preventive treatment in several cases.

The Committee recommend that the whole report of the Governors of the Royal Veterinary College be referred to the Journal Committee to publish such portions as they may think fit.

Of one of the cases of splenic apoplexy visited by Professor Simonds where pigs, sheep, and cattle were affected, he has promised to afford this Committee a detailed report before their next meeting.

Bury St. Edmund's Meeting.—Lord Tredegar, chairman, presented the Report of the Committee, stating that the setting out of the railway siding was already commenced. They recommended that chains and locks for the poultry pens should be provided by the Society. That the band of the Coldstream Regiment of Foot Guards be engaged to play in the Showyard at a cost of about 170*l.* That the General Regulation, No. 8 of the Prize Sheet, be altered so that horses may be admitted up to 4 P.M. on Saturday, the 13th July. That badges for Members of Council have the word "Council" printed on them; and that the Surveyor go down as soon as possible to set out the Showyard. This Report was adopted.

Education.—The Earl of Powis presented the Report of the Education Committee. The Committee have to report the results of the Cambridge Local Examinations held in December, 1866:—

I. Mechanics applied to Agriculture.—The examiners report that only nine candidates attempted these papers, and that they are unable to recommend any of them for the prize.

Chemistry applied to Agriculture.—The examiners report that only seven candidates offered themselves. They recommend R. M. Swannick, of the Royal Agricultural College, Cirencester, for a secondary prize of 2*l.*

II. Candidates who obtained Certificates, regard being had to their place in the general Class List.—*Seniors*: a 1st prize of 5*l.*; 18 were examined. The 1st prize is adjudged to C. J. Langley, of Abington House School, Northampton. Secondary prizes of 2*l.* each to H. T. Bovey, of Clevedon College, Northampton; Thomas Hill, of Grammar School, Wolverhampton; William Waterhouse, of Grammar School, Lancaster. Five others are reported to have done creditably, and only one to have failed.—*Juniors*: a 1st prize of 5*l.*; 44 were examined. The 1st prize is adjudged to E. King, Abington House School, Northampton. Secondary prizes of 2*l.* each to J. E. Betts, of Mr. Durham's, Northampton; H. Cooch, of Mr. Durham's, Northampton; E. B. Hunt, Clewer House School, Windsor; F. W. Weaver, Grammar School, Wolverhampton. Ten others are reported to have done creditably, and four to have failed.

III. To candidates who (having passed the preliminary examination) are distinguished in any of the following special subjects:—

Section E. Pure Mathematics—a 1st prize of 5*l.*, adjudged to C. J. Langley, Abington House School. We recommend H. T. Bovey for a secondary prize of 2*l.* 19 were examined.

Applied Mathematics.—A 1st prize of 5*l.* adjudged to H. T. Bovey, of Clevedon College, Northampton. We recommend C. J. Langley, of Abington House School, for a secondary prize of 2*l.* 10 were examined.

Section F. Chemistry, a 1st prize of 5*l.* No name is published by the examiners as distinguished in this section, and we are therefore unable to recommend any candidate for a 1st prize. As however T. W. L. Hay, of Beewood Grammar School stands 1st in this section, and in Section G. 1, (Zoology), we recommend him for a secondary prize of 2*l.* Three were examined.

Section G. 1, Zoology, a 1st prize of 5*l.*; 2, Botany, a 1st prize of 5*l.* Two were examined in zoology; three were examined in botany. No name is published by the examiners as distinguished in either of these classes. We recommend W. P. Reynolds, of Clewer House, Windsor, for a secondary prize of 2*l.* in Botany.

Secion G. 3, Geology, a 1st prize of 5*l.* The 1st prize is adjudged to W. Waterhouse, of the Grammar School, Lancaster. We recommend W. H. Chippenall, of Grammar School, Lancaster, for a secondary prize of 2*l.* Five were examined.

Juniors.

Section 7. Pure Mathematics, a 1st prize of 5*l.* The 1st prize is adjudged to W. S. Waymouth, of Montvidere House, Torquay. We recommend J. E. Betts, of Mr. Durham's, Northampton, and E. King, of Abington House School, Northampton, for secondary prizes of 2*l.* Forty were examined, and two others were reported to have done creditably.

Section 8. Mechanics, a 1st prize of 5*l.* The 1st prize was adjudged to E. King, of Abington House School. We recommend W. S. Waymouth, of Montvidere House, for a secondary prize of 2*l.* Eight were examined.

Section 9. Chemistry—a 1st prize of 5*l.* The 1st prize was adjudged to J. E. Betts, of Mr. Durham's, and we recommend R. Cambridge, of the Liverpool Institute, for a secondary prize of 2*l.* Three were examined.

Section 10. (*a*) Zoology—a 1st prize of 5*l.* The 1st prize is adjudged to R. Capron, of Fullard's School, Taunton. We recommend Frank Hicks, of Clewer House School, Windsor, for a secondary prize of 2*l.* Three were examined. (*b*) Botany—a 1st prize of 5*l.* The 1st prize is adjudged to H. Cooch, of Mr. Durham's. We recommend E. B. Hunt, Clewer House School, Windsor, for a secondary prize of 2*l.*

Senior Scholarship.

No candidate complied with the conditions for this scholarship. Four junior scholarships. These are adjudged to E. King, of Abington House School, Northampton; E. B. Hunt, Clewer House School, Windsor; J. E. Vidler, of Clewer House School, Windsor; C. A. Day, of Clevedon College, Northampton. Charles Higham, of Clevedon College, also distinguished himself in the examination. Seven were examined.

The Council will notice the smallness of the number of competitors for Mechanics, as applied to Agriculture; Chemistry as applied to Agriculture; Chemistry, Zoology, and Botany among the Seniors, as compared with those for Pure Mathematics and Applied Mathematics. The Committee consider that this is explained by the special nature of these studies and the short time that has elapsed since the attention of teachers and pupils has been specially directed to these branches of knowledge. The position of Geology is more satisfactory.

In Class II. the number and position of candidates who obtained certificates are very satisfactory.

The junior examinations throughout are satisfactory, and afford promise of improvement among the seniors in future years. The Committee regret that no candidate appeared for the Senior Scholarship, by which they had hoped to promote the union of agricultural with general education. They are happy to report that the examinations passed for the Junior Scholarships were highly satisfactory.

This report was adopted.

On the motion of Mr. Dent, M.P., seconded by Mr. Read, M.P., a Fifth Junior Scholarship of 20*l.* was awarded to Charles Higham, of Clevedon College, who distinguished himself in the recent examination.

Steam Cultivation.—Mr. Thompson reported that the Committee had resolved that Mr. J. A. Clarke and Mr. Jacob Wilson be requested to go down to Hereford and see Mr. Howard's double tackle at work, and report before the general Report is published.

Committee of Selection.—Mr. Thompson reported that the Committee recommend that Lord Tredegar be requested to allow himself to be elected a Governor, and on his consent being obtained, that he be recommended to Council to fill the vacancy caused by the death of Sir J. V. Shelley, Bart., a Trustee. That printed lists of the Society's county districts be prepared, showing the counties of which each district is composed, with blank columns for number of Members of the Society, number of Members of Council, and names of the members of Council in each of these districts respectively.

On the nomination of the President, seconded by Sir John Johnstone, Bart., M.P., the Right Hon. Lord Tredegar was unanimously elected a trustee of the Society, in the room of the late Sir John Shelley, Bart., for which honour his lordship made his acknowledgments.

Letters from the Foreign Office, enclosing Reports from the Argentine Republic, and from the Supreme Council of Agriculture of Belgium, were read, and the thanks of the Council were accorded for these communications.

Bath and West of England Agricultural.—At the last monthly meeting of this Society the Secretary having read a letter from the Right Worshipful the Mayor of Salisbury, announcing that as yet there is no authorisation to re-open the Cattle Market, it was resolved "That a deputation, consisting of the President and others, be requested to apply to the Lord President of the Council for authority to hold a meeting for the exhibition of stock in the week commencing the 10th of June, and that the Mayor of Salisbury be requested to co-operate in the application."

On the opening day (June 10th) of the Salisbury Meeting the Mayor of Salisbury, accompanied by the Town Council, &c., the Bishop, the Dean, and the other cathedral dignitaries, the Members of the county of Wilts, and the Members for the city of Salisbury, are invited to be present.

A committee was appointed to co-operate with the Salisbury Local Committee, in considering how the objects of the Society may be promoted during the week of the show by the reading of papers, the giving of lectures, conversazioni, &c. The Committee subsequently met, and the Chairman (Mr. Cotterell) was directed to communicate with the local authorities at Salisbury with the view of arranging for an evening meeting or conversazione, on Wednesday or Thursday evening, at which information on local agricultural and other kindred subjects may be afforded. It was also directed that inquiry be made as to whether an excursion can be arranged to any object of agricultural interest in the vicinity during the week of the show.

Central: *March 4.—Emigration.*—The Rev. E. Smythies said: Mr. Chairman and gentlemen, the subject which I have the honour to bring before you this evening is entered upon the card in the following terms: "Emigration; what to do, and where to go." The Chairman, in taking his seat at the first discussion of the year, remarked:—The Committee are taking a wider range than usual in the subjects selected for this session, and have placed some topics on the list of a character somewhat different from those which are ordinarily brought before this Society. There are, I think, obvious advantages in thus, occasionally at least, enlarging the circle of the subjects discussed amongst us; and, if any apology be needed for the question which I have been requested to introduce to your notice, it will, I think be found in one or two facts which I will shortly mention by way of introduction. It will be in the recollection of those who were present at the meeting of last November, when Mr. Howard delighted and instructed us with his admirable paper on "Things in America," I took occasion to make a few remarks in connection with what Mr. Howard had said about the prosperity which generally attended Englishmen who went out as settlers to the Far West, and I ventured to throw out a suggestion that emigration for farmers and farmers' sons would not be an inappropriate question for this Club to discuss. The Committee were pleased to adopt the suggestion, and, I suppose, failing to find a better man, although I think they might easily have done so, they have asked me to introduce it. That was the origin of this question being placed upon the card. Another circumstance, which may tend to show that this is not an unsuitable subject to engage our attention, is this: From the time of our meeting in November down to the present moment I have received numerous letters asking for information as to the particular part of the world to which I then referred as a desirable field for emigration, and for information also, if I had any to give, as to the best mode of proceeding. So numerous, indeed, have been these letters, and so manifold the questions they asked, that it has been quite out of my power to answer them all. Many of them would have required a paper almost as long as this to answer them fully; and my own regular associations and duties are such as wholly to preclude my undertaking such a task, much as I should have been pleased to assist—assuming that to have been in my power—my numerous correspondents in the object they had in view. Should these words meet the eye of any of those who honoured me with their inquiries, I trust they will accept this statement of simple truth as my apology. I would gladly have written to them at the length they requested had it been in my power to do so without neglecting other and imperative duties. But the circumstance of my having so many letters from intending emigrants of the class of society of which this Club is chiefly composed, to one single part of the world, goes, I think, to show that emigration amongst the middle and upper classes of this country is a subject of large and increasing interest, and is therefore one, which, however feebly and imperfectly it may be introduced, is, nevertheless, a very fitting subject to engage the attention and elicit

the information of the Central Farmers' Club. One fact more I will mention confirming the same view. Just about the time of our last November meeting, a book entitled the "States of the River Plate," by Mr. Wilfred Latham, was published. It is a thoroughly plain, practical, business-like work, upon sheep and cattle farming in the provinces of Central South America. The *Agricultural Gazette*, in reviewing this book, was pleased to say that the few words I uttered in this room, in speaking upon Mr. Howard's paper, would probably act as a capital advertisement of Mr. Latham's book. The first intimation I had of the existence of this book was from reading the review. I sent immediately to Longmans' for a copy, but the answer was that not a single copy was left; the whole edition of a thousand had been sold off in an incredibly short time. A second edition was published before the end of the year, and that I trust is going off as rapidly as its predecessor. For it is a good useful book on the subject—just the sort of book the intending settler and future sheep or cattle farmer requires for his guidance before laying out his money. I shall be not a little indebted to it for much of the information I propose laying before you this evening.

But before we come to that, I must say one word on emigration in general. Nine-tenths of the books which have been published on this question, so far as my experience goes, treat of emigration as if it was solely applicable to what are called the "labouring" classes. The Colonisation Circular and other papers issued by the Government Emigration Office, Emigrants' Manuals, Handbooks upon Australia, New Zealand, and so forth, for the most part are taken up with urging the advantage of emigration to the agricultural labourer, the carpenter, the blacksmith, the wheelwright, and artisans generally, ignoring almost entirely the desire to emigrate of men of education and capital, be it more or less. Those in the position of life of members of this Club might wade through volume after volume of Colonisation Circulars and Emigrants' Manuals, and find very little information adapted to their wants. They would be carefully instructed as to how many fustian jackets and gowns of cotton print they had better take with them, and how many shirts and chemises of strong unbleached calico they will want for the voyage, and how important it is to have a good supply of marine soap to wash them with; but they will be told very little as to the best part of the world to which to take five hundred or a thousand pounds, or the best mode of laying it out when they got there. As regards the Government office, this may be all very right, because that department was created for the express purpose of promoting and assisting the emigration to our colonies of the families of labouring people, who either could not, or would not, emigrate without such assistance. But as regards the other works of which I have spoken, there appears to me to be a great oversight in this respect, a general omission of information suited to the man who goes out more in the character of an employer than as a labourer. To this rule, so far as my experience of such works goes, there are two eminent exceptions—Sidney's "Three Colonies of Australia," and the book to which I have already referred, Latham's "States of the River Plate." Both of these books, but especially the former, are characterised as much by sound good sense as for the extensive and varied practical information which they convey to the capitalist, whether large or small, equally as to the artisan and labourer. The former book, moreover, has a charm of style about it which is seldom to be found in works upon colonisation and emigration. Now, I shall endeavour to avoid the defect of which I have spoken, and shall speak of emigration as applicable to the middle and upper-middle classes of this country. It would be a waste of time to discuss the question as it applies to the artisan and labourer. If it is a useful subject to us who assemble in this room, it must be treated of as applicable to ourselves. Shortly to sum up, then, these introductory matters, there can be no question, I think, that emigration is a subject of very great interest to the farmers and gentry of this country; that many a tenant farmer, and not a few landed proprietors also, and gentlemen, of independent means, especially those who have large families, would be thankful to know of some plan by which, either in one of our colonies or elsewhere, he could establish one or more of his sons in a useful and honourable position of life as a settler, with a prospect of a fair income, without descending to menial employment, and with a reasonable hope of laying by something "in the days of his youth, while the evil days come not, nor the years draw nigh when he shall say, 'I have no pleasure in them;'" that the usual run of publications which treat of our colonies and emigration convey very scanty information of the kind needed by this class of emigrants; and that this want of information is a want very widely felt.

What to Do.—The first practical point, then, for our consideration is brought before us by the words "What to do." By this I mean, What should the young emigrant from either of the classes I have described go out to do? To what channel will he best devote his energies and capital, so as to have the best chance of getting a living without descending to the condition of a mere labourer? To this question I answer, not in agriculture; not in any trade or commerce; still less in gold digging; but in sheep and cattle farming in those parts of the world where pasturage on an extensive scale can be obtained with the least possible employment of labour. And of these two, sheep farming is unquestionably the best. The great obstacle to the success of the emigrant, who either hires or purchases a certain quantity of land for cultivation in any of our colonies, is the necessity of employing labour. Hired labour eats him out of house and home. It seems likely ere long to do this pretty much for the farmer in this country, but it is tenfold more destructive in the colonies. The reason of this, of course is, that hired labour in all countries where the supply of labourers falls so far short of the demand is a very expensive commodity; and from the peculiar circumstances of the case, the labourer not only receives a high money wage, varying from 20*l.* to 50*l.* a year from his employer, but is generally boarded, lodged, and even sometimes clothed besides. The one main difficulty, indeed, in the path of the emigrant who enters upon agricultural pursuits, is the high price of labour in all our colonies, and, indeed, in many of them the very great difficulty of obtaining any hired labour at all that is worth having. It had better be understood broadly at the outset that emigration from England to any part of the world is not only not for the fool, as has been very justly said before now in this room, but it is also not suited for the indolent and luxurious, who require to have everything done for them by others, and who cannot shift for themselves. Many a gentleman settler, who has depended upon hired labour for all that was necessary to be done, has found himself after a year or two in this position—that whilst he furnished the capital which set the whole machine of the station going, and had all the care and anxiety of the concern to himself, his farm-servants reaped all the profit. One gentleman in Canada, after carrying on the experiment for a few years, sums up his balance-sheet in these terms: "I raise all the simple necessaries of life, it is true; but I have little or nothing to sell, because my servants and family consume all I grow; and I find that, besides this, I have to buy numerous barrels of flour and other provisions to eke out our own produce. The money for this has to be furnished out of my capital." It is clear that business did not answer; and although I am quite ready to allow that there are some parts of our colonies where the hard-working young farmer, who takes out his small capital, and hires 200 or 300 acres of land, may obtain a fair livelihood by the ordinary processes of agriculture, still I must maintain that the raising of cereal crops is very far from the best thing he can do, and this for two reasons—first, because the cost of the necessary labour for this purpose is, as I have already said, too great; and secondly, the export of grain from such distant parts of the world as Australia and New Zealand to this country is too precarious and expensive to leave a sufficient margin of price for their profitable cultivation. Stock-farming, on the other hand, as the least costly for labour, produces by far the most rapid increase upon the capital originally invested. The produce can be transported across the seas at far less risk of injury to its quality; and the value being much greater in proportion to its bulk and weight, the cost of transit for many miles by land down to the seaboard, and thence by ship across the seas to England, bears a less proportion to the price ultimately realised. I am well aware that these are trite and obvious truths; but inasmuch as many persons do go out to our colonies with the intention of occupying, either by rent or purchase, a small quantity of land, and farming it much in the same way in which they would in England, and then find they have made a great mistake in so doing, I thought it not out of place to show why, as I conceive, the raising of cereal crops must necessarily be less profitable to the emigrant than stock-farming. The increase of flocks and herds, such as Abraham, Isaac, and Jacob had of old, fed upon the natural pasturage of an extensive run, with the least possible amount of tillage, is the true thing to look to for profit, and is what I think the emigrant should aim at, who can command the necessary capital to hire or purchase an extensive tract of wild land, and to place upon it the proper amount of stock. Indeed, I think we may claim on behalf of sheep-farming, as compared with tillage, something inherently good and amiable: the sweetness of disposition which the former pursuit seems to foster, in contrast with the latter, being due in some measure, no doubt, to the former being associated with greater profits and fewer vexations. At all events, I can claim, on behalf of my position, an illustration of the highest authority and antiquity. Abel, let me remind you, was a keeper of sheep; whilst Cain was a tiller of the ground. I would strongly recommend all young men who intend to emigrate to aim, industrially as well as morally, at walking in the steps of Abel, and not of Cain.

Where to Go.—But I must hasten on to the third point, Where to go, which will probably appear to most as the pith and marrow of the whole question, assuming that there is any marrow at all in the case. The usual fields for British emigration are, first of all, certain of our colonies, such as Australia, Van Diemen's Land, New Zealand, the Cape of Good Hope, Canada, British Columbia, including Vancouver Island, and a few other settlements of less importance in this point of view, such as British Guiana, the Falkland Islands, and some others. Then there are the United States of North America, including California; and last, but by no means least, the vast plains of Central South America, known generally under the name of the provinces of the Argentine Confederation. Even if time permitted, and this were a suitable occasion for doing so (which it is not), it is not my intention in this paper to attempt to cover all the ground which might otherwise be properly included in a treatise on emigration. My object, to-night, is simply to call attention to a part of the world as a field of emigration for English farmers and English gentlemen, which is not so well known as it might be, and the advantages of which, especially to the man of small capital, have not hitherto been appreciated as they ought to be. I do not deny the advantages of many of our colonies for settlers; but I think that in many respects they have seen their best days as outlets for emigrants of the class of which I am specially treating to-night. There is no doubt an almost inexhaustible demand for artisans and labourers as immigrants in our colonies; and no doubt the great majority of the men of this class who go out considerably improve their circumstances in life by so doing. But I do not think there are the same openings for the white-handed emigrant in either Australia or New Zealand, or indeed in any of our colonies, as there were formerly. In Australia the best districts for the pasturage of sheep and cattle near the sea coast, and along the course of the few great rivers that there are, have long since been occupied; and to obtain anything like a good—that is, a well-watered and well-situated—run, it is necessary to pay either a very high price, or else to go a long way up the country into wild and unsettled districts, far from roads and rivers and all the conveniences of civilisation. Besides, I believe the great joint-stock principle has been largely introduced into the sheep farming business in Australia. Many of the great squatters have done what many of our old private banks have done—converted their interests and business into joint-stock concerns. These joint-stock companies, having great command of capital, have obtained possession of vast tracts of country, and no small portion of the best runs and sheep walks at high prices. One result of this has been to shut out the private person and small capitalist, and greatly to narrow the field for individual enterprise and investment. About a year and a half ago I made careful inquiry respecting Australia from persons of experience in the matter, some of whom had been out there a good many years; and the general result was, that it was not much use going to Australia for sheep farming, unless you could command 7000*l.* to 10,000*l.*; that numbers of young gentlemen, who had gone out there, from inability to command the requisite capital to obtain a run and flock of their own, had sunk into the condition of mere labourers and stockmen, and that a few thought themselves very fortunate in obtaining situations as managers or superintendents in the properties of the great joint-stock companies, at a moderate annual salary. Whilst I believe this to be true of the greater part of the older colonies of Australia, an exception should be made in favour of Queensland, the newest of all the settlements of Australia. This colony comprises the entire north-eastern portion of the Australian continent. On the 10th of December, 1859, it was formerly proclaimed a separate colony, under letters patent from the Crown. It contains an area of 678,000 square miles, and is therefore more than five times larger than the United Kingdom, and three times larger than France. This settlement seems to be better watered than many other parts of the continent, five navigable rivers emptying themselves into Moreton Bay alone. The upland plains and downs of the interior are said to afford excellent cattle and sheep pasture throughout the year; and the agricultural capabilities of the colony seem to be very great, the Wheat especially, even in that country of fine Wheat, being pre-eminent for its quality. But I need not occupy your time with a detailed description of this, or indeed of any of our colonies, because those who may wish to go to any of them can obtain the fullest information from many of the numerous handbooks on the subject of emigration, or from the Colonization Circular, issued by the Emigration Commissioners. But there is one pursuit, about which I can find nothing in the books, which seems well adapted to Australia, and which I have reason to think would be at least as profitable as any, and more profitable than many, especially in Queensland, and that is the breeding of horses from the best blood procurable in this country. This is a pursuit which may have an attraction for some young men, who have a soul altogether above the more humble occupation of sheep or cattle breeding, and who might find it an advantageous business, albeit there are no noble dukes or sporting marquises out there to buy the yearlings at 2000 or 3000 guineas a-piece. There seems to be a large demand for the best class of horses, not only for export to India, but for home consumption in Brisbane and other towns of the settlement; and I may mention one fact—not perhaps generally known, but which was stated to me by a friend, who had carried on horse breeding extensively in a district adjoining to Queensland—that he found the natives made particularly good grooms and jockeys; that they were very careful of their horses, became very fond of them, and rode to admiration. I should not be surprised if some of those of the present day, who are fond of doing sensational things on the turf, were to import two or three little Australian piccaninnies, who could ride from 4 to 5 stone each, and give them a mount at Newmarket and Epsom. The Australian natives would considerably astonish our own. I think, to return, however, to the graver matters of which I was speaking, I have the less need to enter upon further details relative to Queensland, because here, as in all the other colonies of Australia, I believe, the system prevails of selling the Crown lands by auction at a minimum price of 1*l.* per acre, and the prohibitions under the land-granting system, of any man having, either by purchase or lease, or both combined, an occupation exceeding 320 acres. In other words, the design of the local legislature, who are the authors of this act, is to promote the tillage of land, and therefore small occupations. However desirable this may be in their eyes, it is not so in ours; it would be fatal to the emigration of all except those who are half-labourer, half-farmer. But I must hasten on. I have already dwelt longer than I ought on the negative view of the subject. It is unnecessary that I should go through the list of all our colonies seriatim, and point out why, in my humble judgment, they are not the best parts of the world for the settler of the description of which we are treating to-night to betake himself to, and there to invest his capital. The same grand objection which bars Australia applies also, with some modifications, to our other colonies. However desirable as a field of emigration New Zealand may have been 30 or even 20 years ago, it is not so now. Not even in the Canterbury Settlement can good-sized runs for the

pasturage of sheep be obtained now at a moderate cost. For here, also, the same fatal system of the sale of the Crown lands at 1*l.* per acre, initiated by Gibbon Wakefield I believe, still prevails. Canada again is a country of vast forests, and rigorous winters. The mere clearing of the land alone would absorb all the capital of the settler of moderate means: whilst the seven months' winter would be an insuperable obstacle to the inexpensive maintenance of a large stock. At the Cape of Good Hope the soil is of rather a sterile character, and, I imagine, is not well adapted to a superior class of sheep. The sheep of the country seem to have a tendency to concentrate all their fat in their tails. If we see an estate advertised for sale somewhere—say, amongst the romantic hills of Wales, where it turns out that 1000 acres are let for a rent of 150*l.* a-year, we can form a pretty shrewd guess of the quality of the land without going to see it; and so, when we know that the upset price of Crown lands in Australia and New Zealand is 1*l.* per acre, and then find that under a similar Government rule at the Cape and in Natal the price is only 4*s.* an acre, we cannot form a very exalted opinion of its fertility.

I pass now from our colonies to the United States. I have here some papers which were kindly forwarded to me by a member of this Club, and which set forth very fully the terms on which land, principally in the Western States, can be obtained. Mr. Wilson, the Commissioner of the General Land Office in Washington, explains in his letter very clearly the States in which good land, well situated, can still be obtained at the price of 1¼ dollar per acre. This is in what are called the Public Land States, and of these there appear to be only the States of Upper and Lower Michigan and Wisconsin east of the Mississippi, whilst west of that river there is almost an unlimited amount of unoccupied territory. Still the same policy in regard to the disposal of lands seems to prevail here in the main as in our own colonies, viz., that of forming small farms, to be occupied by a class of settlers who would cultivate them chiefly by their own labour. East of the Mississippi the public lands are subdivided into tracts of from 40 to 80 acres each, and in some of the States they run as large as 160 acres. Now this system of small farms, to be brought more or less under the plough, for reasons I have already stated, does not fulfil my ideal. Besides, I confess to some little prejudice about the whole political system of the United States. A boot-maker in New York, taking off Charles Dickens's boot to measure him for a new pair, held it up, and surveying it with supreme contempt, remarked through his nose, "I pity the man who lives under the institution that produced that boot." Now quoad the boots, I care nothing for the institutions, provided only the boots fit and wear well; but I confess to a dislike to living under the institutions which have produced the whole state of politics at present existing in the United States. I should be sorry to see either our own institutions at home, or our young settlers abroad, Americanised. I would rather, speaking for myself, take the chance of our own colonies than go to the States, although I am quite willing to believe that they present a fine field to the enterprising settler.

The Argentine Confederation.—I come now to speak of the country which I believe to be, beyond all others, best calculated to fulfil the conditions of the hypothesis upon which I have all along proceeded—the provinces of the Argentine Confederation in South America. The country known as the Argentine Confederation or Republic lies on the southern bank of the great river, or rather estuary, of the River Plate, and west of the Uruguay. It lies between the 25th and 35th degrees of south latitude, is bounded on the east by the river Uruguay, and on the west by the Cordilleras, or the great line of the Andes; it extends over about a million of square miles. [Mr. Smythies frequently referred to an excellent map of South America, lent for the evening to the Club, with one of North America, by Mr. Edward Stanford, the eminent Map Publisher.] It includes the following fourteen provinces: Buenos Ayres, Santa Fé, Cordova, Mendoza, San Juan, Santiago, Tucuman, Salta, Rioja, Catomarca, San Luis, Potosi, Entre Rios, and Corrientes, its chief city and port being Buenos Ayres. Besides these fourteen provinces, which constitute the Argentine Confederation, there is the small independent State called the Banda Oriental, or the Republic of Uruguay, for it is known by both names indifferently. This State lies on the southern limits of, and is bounded by, the Brazilian Empire. Its eastern coast lies on the Atlantic, the river Plate washes its southern shore, and the magnificent river Uruguay forms its western boundary. The whole of this vast territory is watered by some of the noblest rivers in the world—the Rio Negro, running through the centre of the last-named province; the Uruguay, separating the Banda Oriental from the Argentine Confederation; the Parana, passing through the centre of the finest provinces of the Republic, and having a navigable course of over one thousand miles; the Lalado, and several others of less note. The estuary of Plate, or La Plata, bears the same relation to these rivers that the Humber does to the Trent, the Ouse, and other streams, constituting the great central river basin of England. Mr. Latham says: "The delicious and salubrious climate, the extreme fertility of the soil, the wide range and capabilities of production, and the unsurpassed adaptability of these countries for stock breeding, as well as the extent of their river system, mark them out as eminently favourable spots to receive an European emigration, and offer many opportunities for the advantageous investment of European capital. The natural richness and extent of these resources, the facilities of water transit, and the paramount desire for progress which animates the influential portion of the population, their commercial tendencies, the unfeigned welcome and protection extended to foreign settlers, and the full recognition of the advantages derived from immigration and foreign enterprise, are in themselves guarantees both to settlers and to individual or Stock Exchange investments. Moreover, the recognition and thorough comprehension on the part of the governing classes of the importance and policy of national good faith, is a feature which necessarily must weigh with capitalists, and produce its fruits in the development of the incalculable resources of the country." As security for investment will always be a primary consideration in determining the choice of the emigrant, the following *resumé* of the constitution by which the Confederation is governed may be useful: That the inhabitants of the State have a right to be protected in the enjoyment of their life, honour, liberty, and property, and that no one can be deprived of these, except conformably to law. That slavery has no existence, and that the introduction and sale of slaves be for ever prohibited. That all men are equal in the eyes of the law, both in its protection and penal consequences, no other distinction being acknowledged but what may proceed from talents or moral worth. That men in their private actions, when they do not infringe on public order, and are not prejudicial to a third person, are responsible to God alone, and are exempt from any magisterial authority. That intercommunication, by discourses, by private writings, and publications of the press, is entirely free on all subjects, the author and the printer being held responsible before the law for any abuses that may be committed. That any individual may devote himself to any business, trade, or branch of industry that suits him, if it is not contrary to the public good. That every individual is at liberty to enter, to remain in, or to depart from the territory of the Republic, when and how he pleases, so long as he complies with the laws, and does no injury to others. The laws on commerce are in strict bearing with this political liberality, and the port laws equally favour and protect shipping. The utmost religious freedom and toleration exist throughout the Republic, and in the chief towns there are English and Scotch Protestant churches.

I will now proceed to give a general outline of the country and the nature of the soil. A large portion of the country is peculiarly favourable for farming operations. There are vast plains extending for a great number of leagues as level as the table before me. My son writes to me that I can hardly conceive the levelness of the country and its freedom from timber. Compare these plains with the bush of Australia, or the mountainous land of New Zealand or the Cape, and you will see how greatly the advantage as regards surface is in favour of South America. The soil of these level plains is an alluvial soil; and I am told that if a native, in riding over a distance of 100 or 150 leagues, finds his horse's foot kicking against a stone, he gets down and puts it in his pocket as a rarity. I am not speaking now of the Banda Oriental. Speaking generally, however, I may remark that the soil is well adapted for pasturage, and, with a little management, an acre will support a large number of sheep. I do not like to trust myself to give figures; but it is calculated that an acre there will carry twice as many sheep as an acre in Australia, and nearly three times as many as an acre in New Zealand. No doubt some parts of the country are better adapted for cattle than for sheep. The vicinity of Buenos Ayres, which has been the longest settled, is best suited for sheep, and sheep-farming is most carried on, that part being further than many others from the tropic. Climate has, of course, a good deal to do with the success of the sheep farmer. The land of Buenos Ayres being so well situated, the price places it beyond the reach of many emigrants. Land is sold there, both by the Government and by private individuals, by the square league, no heed being taken of quantities of less than 6 acres. It is difficult, it appears, to obtain land in the province of Buenos Ayres under from 5000*l.* to 7000*l.* the square league. Further to the north, in Santa Fé, Cordova, Tucuman, and other parts, there are large districts which are naturally well adapted, first of all for cattle, and afterwards for sheep. The country having a rich virgin soil, the first thing necessary is to graze it with cattle, and after that there springs up a fine sort of herbage, well adapted for sheep. In the north land is very much cheaper than in the south; but, on the other hand, there are some disadvantages. One of these is the existence of what is called Arrow-grass. It is so called in consequence of the seed-pods being almost as hard as a pike of steel. Many sheep are wounded by this Arrow-grass, and, of course, wounds are more dangerous in proportion to the heat; but this difficulty may be got over by means of the careful grazing of cattle in the first instance. Great care is necessary in the purchase of land from private firms or individuals. My son had a very narrow escape from being taken in by certain land-jobbers in Buenos Ayres, for jobbers are by no means confined to Capel Court. There is a well-known Scotch firm who have grown rich in that trade. There are many Scotch firms, and therefore no firm can sue me for libel (laughter); but it is notorious that the firm to which I allude have taken in numbers of young Englishmen, and obtained their money for the purchase of land which was absolutely worthless. My son and his friends had almost signed an agreement, but happily they found out the mistake they were making just in time. Those emigrants who land at Buenos Ayres will soon find out the name of the firm in question, and therefore I need not bring myself under the clutch of our somewhat peculiar libel law. Let me now mention a few practical points with regard to the best mode of proceeding. By all means let the young emigrant purchase, if possible, and if he has not capital enough himself for that purpose, let him unite with others. Indeed, so far as I can learn, it is always the best course for three or four emigrants to unite, and put their capital together, selecting one of their number as captain before they go out, and abiding by his orders. There are many social and material advantages in that course. It will be a protection, and save a vast amount of trouble and expense. On arriving, let them first of all obtain an introduction to some settlers who have gone out before them. Persons having letters of introduction would receive an invitation from settlers, who would, for a certain period, find them all they wanted—bed, board, and a horse to ride upon—in return for their services; and, in a few months, the new emigrant would have obtained knowledge and experience which would enable him to keep clear of land-jobbers and land-sharks generally, and to commence for himself with a fair chance of success. Above all, let the emigrant avoid the common practice of taking a lease of land. He can only obtain a lease for three years; and the mere fact of his occupying it with cattle or sheep for that period will make it worth a great deal more; and, at the end of the three years, the occupier will either have to pay an enormously increased rental, or to begin again. The price to be paid for land is a very difficult question; but, so far as I can gather from my son's letters and from Mr. Latham's book, if a man goes a moderate distance up the country, he can get a square league of good land, well situated and well watered, at from 300*l.* to 600*l.* My son and his partners gave 600*l.* for the three square leagues which they possess. As I have before intimated, if an emigrant cannot find persons to unite with him, he should, at all events, place himself for a few months with some respectable settler, and he will then be enabled to judge of the value of land before purchasing. The price increases enormously with farming operations. That which was sold for 600*l.* this year will fetch 900*l.* next year. By all means, I would repeat, let emigrants purchase, instead of taking leases; but there is nothing lost by their looking around them for a few months, and seeing where they can purchase a good flock of sheep, and lay out their money most advantageously. Then as to the cost of sheep: that varies like the price of land—it varies from 3*s.* to 10*s.* a-head; 10*s.* a-head is the price of what may be called improved sheep, that is, sheep bred from rams carefully selected, either imported rams or rams bred there for the special purpose of improving sheep. And here comes in a question of increasing interest to all English settlers, namely, what breed of sheep it is best to import. I feel totally unable to say whether it is best to import the Lincoln ram, or the Leicester, or the Southdown.

Mr. CONGREVE, of Rugby: Southdowns.

The Rev. J. SMYTHIES: I am very glad to have elicited that opinion from so practical a man. We all know that if Lincoln sheep are removed to the Midland Counties a great deal of the lustre of the wool and other qualities is lost. There are peculiarities of position and soil which affect the quality of wool, and I think what the settlers of Australia, New Zealand, and the Argentine Confederation want to know is, what breed of sheep will, if imported under varying circumstances of soil and climate, show the greatest utility and stability of character, and be most likely to transmit any merits that it may possess to its offspring. I am inclined to think that the Southdown is, on the whole, the best to import. But on the other hand, it should be borne in mind that a short-woolled sheep of this country yields fine wool, and that what settlers want is length and vigour of staple. A sheep that produces a fleece of only 3 lb., selling at from 5½*d.* to 6*d.* per pound, certainly admits of great improvement, and this is one of the wants of the day. Another desirable improvement is a better classification of sheep. At present the rams are too often allowed to mix with the ewes indiscriminately, and the consequence is a great deterioration in the quality of wool. I believe that a very large margin of profit is to be obtained by attention to these points. At present I believe a very good flock of sheep, taking all that walk, that is one with another, may be obtained in the Argentine Confederation at about 5*s.* 6*d.* a head. Let me now say one or two words about the increase. I have prepared a statement taken in a great measure from Latham's book, and based upon actual experience, of what actually occurred on a fair average run. Supposing that in January, 1865, there is a flock of 4000 breeding ewes and 1000 ewe lambs, the result will, according to my table, be as follows:—

1866.—4000 ewes will have yeaned in April and May	1,600 male lambs.	
	1,600 ewe lambs.	
Original stock	5,000	
	8,200 head.	
1867.—5000 ewes will yean	2,000 males.	
	2,000 ewe lambs.	
Previous year's stock	8,200	
	12,200 head.	
1868.—6600 ewes will yean	2,600 males.	
(5000 and 16,000)..	2,600 ewe lambs.	
Previous year's stock	12,200	
	17,400 head.	
1869.—8600 ewes will yean	3,440 males.	
(5000, 1600, and 2000)	3,440 ewe lambs.	
Previous year's stock	17,400	
	24,280 head.	
1870.—11,200 ewes will yean	4,480 males.	
(5000, 1600, 2000, and 2600) ..	4,480 ewe lambs.	
Previous year's stock	24,280	
Total head at shearing time ..	33,240 head.	

This is calculated at 80 per cent. increase. Losses will be more than replaced by the excess of a great increase—over 80 per cent.

I have entirely left out the great beef question. A great deal has been said in modern days about the

utilisation of the beef of South America by importing it into this country. On this point there is, I may remark, a general misapprehension. It is not the long transit by sea that constitutes the great difficulty, but it is the fact that the cattle have to be driven so far before they reach the slaughtering places that the beef is in a very bad condition before it can be salted. The remedy is not to be found in science, but in a better system of management; and with this, South American beef might perhaps arrive here in a perfectly good condition. Some of you may have heard of the mode of preserving by covering the beef over with paraffin. If there be one thing more horrible than another to our olfactory nerves it is perhaps paraffin; but it is said that when the beef thus preserved has been washed over with water it is perfectly sweet. I have no doubt that we are entering on a new era in this respect, but the first thing to be done is to improve the system of management, including feeding, the slaughtering, and the packing. I will now bring these desultory remarks to a conclusion by saying that I think that many young men, with some command of capital, if they could make up their minds bravely and honestly to go out to such a country as the Argentine Confederation—and surely there are in many districts farmers' sons who do not know what to do with themselves, how to walk in their fathers' steps, or to obtain a decent livelihood at home—would have reason to be more than satisfied. No one can feel more than I do that it is not want of time but want of ability that has caused my remarks to extend to such a length; but if it should turn out that I have said one word to assist the class in whose behalf I have been speaking I shall be thankful. If I should have put it in the power of any individual to gratify the feeling so beautifully described by one of our poets:—

> "The pride to rear an independent shed,
> And give the lips we love unborrowed bread,
> To skirt our home with harvests widely-sown,
> And call the smiling landscape all our own,
> Our children's heritage in prospect long—"

If I have done that, I say, I shall be most thankful for having had an opportunity of bringing this subject before the Club. Gentlemen, I thank you for the great patience with which you have listened to my long and desultory remarks.

[During the discussion which ensued, valuable information was given by Mr. Parish, H.B.M. Consul for Buenos Ayres, for whose speech we shall find room next week.]

Reviews.

The Journal of Agriculture. March, 1867. 150, Fleet Street.

A very interesting number. The opening paper, which considers the question—Have our seasons changed?—is a particularly interesting account of a number of winters during the past three centuries; and the result is reached that "the average temperature of the seasons in Britain has not permanently changed. More than once within the last ten years hill stock has been reduced to extremities; and the deaths would have been greater but for the increased facilities for getting supplies of food from a distance. There is more feeding of sheep even in the upland districts than there was 20 years ago; and as a consequence, both life and strength are preserved in cases where formerly there would have been pining and death. Besides better feeding, the sheep have better footing, for the land almost everywhere is more or less drained. But in spite of all appliances, there is still occasional difficulty from prolonged snow-storms or excess of moisture; and the farmer's object must be to guard against the evil effects of severe weather, instead of resting in the confidence that the seasons have become milder. Much has been already done to render agriculturists less dependent on the weather; but science may still do a great deal more in the same direction. In the mean time it is the duty as well as the interest of farmers to contribute each, according to opportunity, to the increase of knowledge regarding the best mode in which a hard season can be successfully endured."

Then follows a good "Lecture upon Eggs," translated from the French, which will deserve perusal, and from which we shall hereafter give an extract. A further account of some of the Northern Islands, a useful paper on farmyard manure, a natural history of birds in winter, the Veterinarian, and the Farmers' Note Book make up the pamphlet.

Miscellaneous.

Adulteration of Milk in Dublin.—Several dairymen appeared before the Lord Mayor's Court last week in Dublin, on summons, served on them at the instance of Messrs. Noonan and Webb, deputy clerks of the markets, to answer complaints against them on account of adulteration of milk. (1). The first case called on was that of Mr. Denis M'Cann, of Denzille Street. Mr. Timothy Murphy deposed that he bought a pint of milk for 1½*d.* from the defendant; he put it into a bottle and gave it to Mr. Webb; this milk was bought at the rate of 3*d.* a quart, the price for which he considered first quality could be purchased.

The defendant said he got 4*d.* a quart for his first quality milk, and that Lord James Butler was having first quality milk sold about the city at 4*d.* a quart. The Lord Mayor asked Mr. Webb whether he had tested the milk with a lactometer.—Mr. Webb: I have, my lord.—The Lord Mayor: What was its quality?—Mr. Webb: It contained, my lord, only a very small portion of cream—not three degrees; it was excessively badly made up.—The Lord Mayor: In your opinion it was fraudulently made up?—Mr. Webb: I should say so, my lord.—The Lord Mayor: I have seen that milk myself, and from my experience as poor law guardian of several unions, I am able to say that it was about the worst quality of milk I ever saw. Unless you sold all later you could not have given worse milk.—Defendant: Your lordship knows the high price of fodder, and that we have to pay a great deal in house rent and taxes, and, therefore, we could not afford to sell first quality milk at 3*d.* a quart. There are parties living outside the city who have not to pay such high rent and taxes, and who can better afford to sell good milk at 3*d.* a quart.—The Lord Mayor: Though you pay rent and taxes, I shall not allow you to adulterate your milk. I never saw milk supplied of such a character as that which you appear to have sold. Dr. Cameron, city analyst, although much indisposed from ill health, attended in court to give evidence in this and the following cases. He said that he got the bottle marked number three from Mr. Webb, and that he made an analysis of the milk which it contained.—The Lord Mayor: What proportion of adulteration was in it?—Dr. Cameron: After making all allowances for every possible variation in the condition of good milk, I can say that this milk must at least have contained 40 per cent. of water. Having tried it by the lactometer, I found that the result which I obtained was fully borne out. It contained barely three degrees of cream, while good milk averages from six to eight, and even up to 20 per cent.—The Lord Mayor (to defendant): What do you say to this?—Defendant: I'll submit to your lordship's decision; but this is the first time, my lord.—The Lord Mayor: As Clerk of the Markets, I must protect the public. It is of very great importance that the public should be supplied with good milk. It was found that one of the causes which operated most injuriously to young children was their being given bad milk. A very large number of the deaths of young children in workhouses was attributable to a supply of bad milk. Is not that true, Dr. Cameron?—Dr. Cameron: It is, my lord.—Defendant: I shall submit to your lordship's decision, and shall be more watchful for the future over the party who measures it.—The Lord Mayor: Your selling at 3*d.* a quart milk which contains 40 per cent. of water is certainly neither honest nor proper.—The Lord Mayor (to Dr. Cameron): Were there any other foreign ingredients in it besides water?—Dr. Cameron: No, my lord.—The Lord Mayor: If this were not the first time you have been complained of, I should fine you 5*l.* However, as it is one of the worst cases I ever knew, I shall fine you 20*s.* and costs; but I warn you that if you are summoned before me again for a similar offence I shall fine you 5*l.*

(2.) James Dowling, of Britain Street, next appeared on summons. Mr. Murphy deposed that the milk which he bought at defendant's shop he put in a bottle, number four, and gave it to Dr. Cameron. Dr. Cameron said that he found this milk contained about 17 per cent. of water more than was usually found in pure milk.

Defendant said that it was impossible that there could be that amount of water in it. If his lordship wished he (defendant) would send for a quantity of milk taken direct from the cow, and have it submitted to Dr. Cameron, for the purpose of showing that the milk analysed by Dr. Cameron did not contain so high a percentage of water beyond that contained in the milk taken direct from the cow.—Dr. Cameron: My lord, that is not a large percentage of water. This person's milk is much better than the average.—The Lord Mayor: I am aware of that.—Defendant: My lord, I shall endeavour to get 4*d.* a quart for my milk, and sell it as it comes from the cow. I have had to compete with my neighbours.—The Lord Mayor: In consideration of your milk not being as bad as that in the last case, and of your undertaking to sell it pure for the future, I shall only now fine you 2*s.* 6*d.*, but if you are brought up again before me I shall fine you 5*l.*—Defendant: Thank you, my lord.

(3.) Mr. Lynam, of Pill Lane, was next called. The milk sold by Mr. Lynam was put in a bottle marked 5, and Dr. Cameron stated that it was about the same quality as that sold by Mr. Dowling.

The Lord Mayor fined the defendant 2*s.* 6*d.*, and cautioned him.

(4.) Charles Meehan, of Middle Abbey Street, was next called, but did not appear.

The Lord Mayor: Go on with the case.—Dr. Cameron said that the milk in this case was about the same quality as that in the two last cases.—The Lord Mayor: Well, as he has not thought proper to attend in court, I shall inflict the same fine as in the first case: 20*s.*—A man in court, apparently a friend of defendant's, said that Mr. Meehan was put out of court by the police constable on duty, because he was drunk.—The constable said the man was drunk.—The Lord Mayor: He has no right to be drunk. If he came before me drunk I should fine him 40*s.* I wish to state here that I am determined, as Lord Mayor and Clerk of the Markets, to put a stop to all frauds in the sale of milk and coal and other articles in trade, and that I shall endeavour to discharge this duty for the benefit of the public.—Mr. Meehan, the defendant in the last case, now came into court, apparently under the influence of drink, and, addressing the Lord Mayor, said, I beg pardon, sir, am I drunk?—The Lord Mayor: You are drunk, sir. (To the constable)—Take that man to the station.—The constable on duty then led Mr. Meehan out of court.

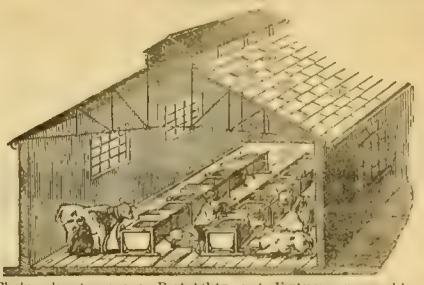
Need of Ventilation in Dwelling-houses.—See the quaint words of William Grant, quoted by Dr. Murchison:—"If any person will take the trouble to stand in the sun and look at his own shadow on a white plastered wall, he will easily perceive that his whole body is a smoking dung-hill, with a vapour exhaling from every part of it. This vapour is subtle, acrid, and offensive to the smell; if retained in the body it becomes morbid; if re-absorbed, highly deleterious. If a number of persons, therefore, are long confined in any close place, not properly ventilated, so as to inspire and swallow with their spittle the vapours of each other, they must soon feel its bad effects. Bad provisions and gloomy thoughts will add to their misery, and soon breed the seeds of a pestilential fever, dangerous not only to themselves, but also to every person who visits them, or even communicates with them at second hand. Hence it is so frequently bred in gaols, hospitals, ships, camps, and besieged towns. A seed once produced is easily spread by contagion." *Sunday Magazine.*

Notices to Correspondents.

BITTER BUTTER: *Emigrant.* Put a bit of saltpetre, about the size of a nut, to every quart of cream, as soon as it is taken off the milk; and then, the day before you churn, put the whole crock to stand in a furnace of boiling water for half an hour, stirring it frequently while it is in the hot water, and afterwards till it is cold. There are many other recipes. A good deal depends on the hot water and steaming to get rid of the aroma.

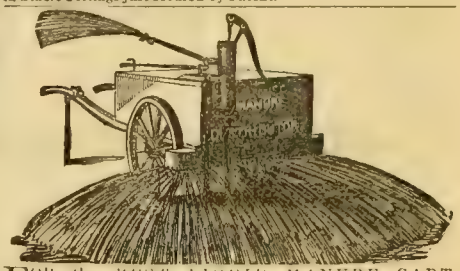
HOPS: *Progress.* Brown Hops, if better than green, [are only so from having arrived at fuller maturity, and even then they must be of sound and healthy growth, and not have lost colour from blight or disease. The finer colour must, in any case, be used for delicate ales.

COTTAM'S PATENT PORTABLE UNITED COW FITTINGS.



Their advantages are—Portability, not Fixtures, removable at pleasure, no Woodwork or Partitions to impede Ventilation or breed Vermin, Hay Rack dispensed with as unnecessary, increased width and depth of Feeding Troughs, Water Cistern, and Patent Drop Cover to prevent over-gorging. Cleanly, durable, and impervious to infection, being all of iron. Price of Fittings per Cow, 55*s.*

Prospectuses free of COTTAM & Co., Iron Works, 2, Winsley Street (opposite the Pantheon), Oxford Street, London, W., where the above are exhibited, together with several important Improvements in Stable Fittings just secured by Patent.



FOR the BEST LIQUID MANURE CART, IMPROVED ROLLER and CLOD CRUSHER, Apply to I. JAMES, Tivoli Works, Cheltenham.

GALVANISED WIRE CABLE STRAND FENCING for FARMS, PARKS, and GARDENS. The ORIGINAL INVENTORS and MANUFACTURERS.



The CHEAPEST, STRONGEST, and NEATEST FENCING in USE THOUSANDS of MILES of this FENCING have been SUPPLIED by us at home and abroad. It sustains no injury by being trespassed upon.

Price, with five lines of Strand and Iron-pronged Standards, and one straining post, stay and screw bolts to every 120 yards, 1*s.* per yard. Five lines of Cable Strand and Staples for wooden posts, 6*d.* per yard HURDLES, HURDLES, HURDLES, 1*s.* 9*d.* to 3*s.* 9*d.* per yard. CONTINUOUS IRON FENCING, GATES of all kinds. PATENT STRAINING PILLARS, &c. GALVANISED WIRE NETTING for POULTRY, &c. GALVANISED SWING WATER BARROWS. GALVANISED IRON WATER CISTERNS. GALVANISED IRON PUMPS. LAWN MOWERS, GARDEN ROLLERS. ASPHALTE ROOFING FELT, 1*d.* per square foot.

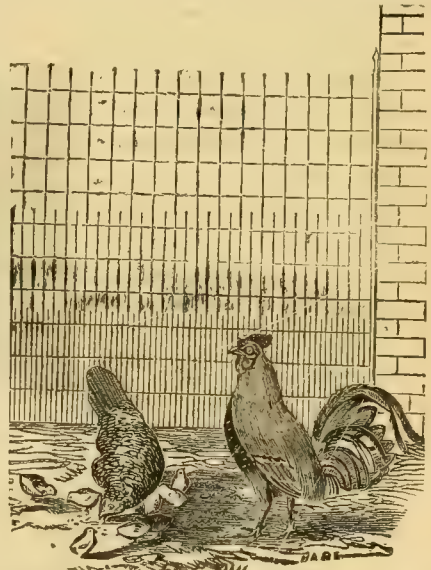
MOTLEY & GREEN.

Illustrated Catalogues and Estimates free on application. 12, Great George Street, Leeds.

Perfectly regular in pattern, neat and pleasing in appearance, easily fixed and removed, and most moderate in price.

TESTIMONIAL FROM THE POULTRY-BOOK OF THE SOUTH LANCASHIRE AGRICULTURAL SHOW:

"By far the most elegant of and durable wire fencing that has come under our notice is that made by GREENING & Co., Manchester. Below, it is sufficiently close to be proof alike against the ingress of rats or the egress of chickens, and, being spiked above, it affords no resting place for the fowls, who consequently do not attempt to fly over."



GREENING AND COMPANY (LIMITED), Manufacturers of Iron Gates, Fences, Palisades, Espaliers, Hurdles, Tree Guards, Garden Seats, Verandahs, Vases, Fountains, Tomb Railings, Stable Fittings, Garden Rollers, Poultry Houses, Emigrants' Houses, Bridges, Corn Rick Stands, &c.; also of Wire Strained Fences, Rope Fences, and Patent Moveable Fences for Railways, Parks, Farms, Gardens, Game Preserves, Poultry Courts, Sheep Walks, &c.; also of Wire Netting, Plant Guards and Protectors, Garden Bordering, Garden Archways, Aviaries, Pea and Plant Trainers, Pheasantries, Hen Coops, and Garden Lounges.

General Catalogue for 1866, in royal 8vo., 72 pages and wrapper, with 33 illustrations (together with Supplement of Testimonials from the leading noblemen and landowners of the United Kingdom to the quality of GREENING & Co.'s manufactures), forwarded on receipt of two stamps to defray postage.

1, Bancroft Street, Manchester.

BY HER MAJESTY'S ROYAL LETTERS PATENT.

ORMSON'S

NEW PATENT WROUGHT IRON MULTITUBULAR HOT-WATER BOILER.

SAFETY, EFFICIENCY, POWER, AND ECONOMY.

MANY OF THESE BOILERS HAVE NOW BEEN FIXED,

AND HAVE IN ALL INSTANCES GIVEN THE

GREATEST SATISFACTION DURING THE LATE SEVERE WINTER.

NOT A SINGLE INSTANCE OF FAILURE IN ANY RESPECT.

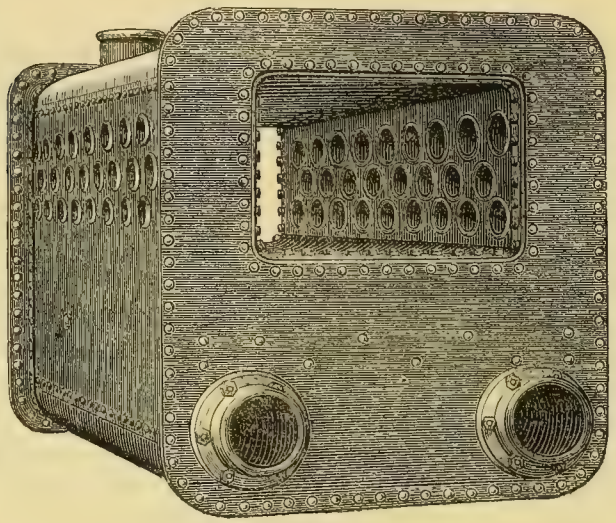
THE GREAT ADVANTAGES OF THIS BOILER ARE :—

1st. Being entirely of WROUGHT-IRON, its safety from leakage and cracks (from expansion or contraction), a danger to which all Cast-iron Boilers are more or less liable.

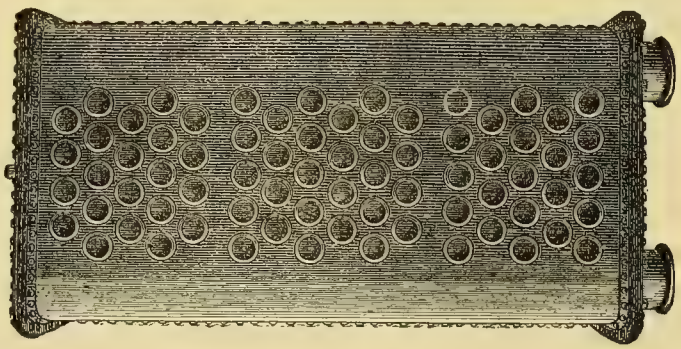
2d. An immensely increased surface exposed to the direct action of the fire, which passes through the tubes, thereby giving a wonderfully increased amount of power.

3d. A great saving in the consumption of fuel. Its facility for banking up the fire. Its peculiarly well-adapted construction for slow combustion, and burning many hours without attention, at a trifling expense.

4th. Its extraordinary power and safety for carrying out the One-Boiler System, and small space and depth for setting.



ELEVATION.



UNDERSIDE OF BOILER AND PLAN OF TUBES.

One of these BOILERS Heated the GREAT ORCHID TENT, 560 feet long, and 40 feet wide, at the INTERNATIONAL HORTICULTURAL EXHIBITION, with a remarkably small quantity of fuel, and gave the greatest satisfaction. Was highly approved of by many Scientific Men and Practical Horticulturists.

The great Power, Economy, and Safe Working of these BOILERS has been thoroughly tested for the last 18 months at the Horticultural Gardens, Chiswick, where they may be seen in action, and also at other places in various parts of the country.

THEY ARE MADE OF VARIOUS SIZES. PRICES ON APPLICATION.

☞ *Plans, Specifications, and Estimates on application.*

HENRY ORMSON, F.S.A.,

HORTICULTURAL BUILDER TO HER MAJESTY, AND HOT-WATER APPARATUS MANUFACTURER TO THE COMMISSIONERS OF HER MAJESTY'S ROYAL PALACES AND PUBLIC BUILDINGS, AND TO THE ROYAL HORTICULTURAL SOCIETY,

STANLEY BRIDGE, KING'S ROAD, CHELSEA, LONDON, S.W.

SHANKS' PATENT LAWN MOWERS FOR 1867.

PATRONIZED FREQUENTLY DURING THE PAST THREE SEASONS BY

HER MAJESTY THE QUEEN,

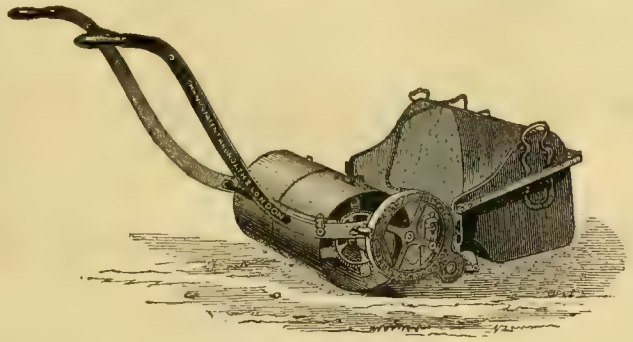
HIS MAJESTY THE KING OF SAXONY, | HIS MAJESTY THE KING OF HOLLAND,

HIS MAJESTY THE KING OF PRUSSIA,

AND AMONGST THE DISTINGUISHED FOREIGN NOBILITY,

THE DUCHESS DE CAMBACÉRÈS, THE MARQUIS DE BOISSY, MARSHAL CANROBERT, &c., &c.

Every minute point in the way of improvement has been carefully considered and adopted, and as A. S. & SON have for more than a quarter of a century devoted their attention to this particular branch of their business, the Nobility, Gentry, and Gardeners may rely on the MACHINES they may order, to be such as to ensure lasting satisfaction, and to stand the wear and tear of many years.



PATENT HAND MACHINE.

SHANKS' PATENT LAWN MOWERS

ARE IN DAILY USE IN

ALL THE ROYAL GARDENS; IN THE HORTICULTURAL SOCIETY'S GARDENS AT KENSINGTON; CRYSTAL PALACE COMPANY'S GROUNDS;

IN VICTORIA PARK; HYDE PARK;

And in almost all the principal Public Parks and Gardens in the Kingdom.

These are the only Machines that can be depended on to give lasting satisfaction.

THESE ARE THE ONLY MACHINES THAT WILL MOW PROPERLY WHEN THE GRASS IS WET.

THESE ARE THE ONLY MACHINES THAT DELIVER THE GRASS WITHOUT STOPPING, THUS SAVING AN IMMENSE AMOUNT OF LABOUR.

SHANKS' PATENT LAWN MOWERS are the only Machines that have been in operation in Her Majesty's Gardens for a quarter of a century.

Shanks' Patent Lawn Mower will Mow on uneven as well as on level Lawns.

ALEXANDER SHANKS AND SON, in referring to their IMPROVED LAWN MOWERS for 1867, doubt not but that the preference which in past years has invariably been given to their Machines will still be awarded them. The principles which guide A. S. AND SON in effecting improvements compel their Machine ever to stand the first in point of general efficiency, simplicity of construction, and durability.

A. S. AND SON have particularly aimed at substituting Wrought for Cast Iron to as great an extent as possible in the construction of their Machines. None but skilled Workmen and the most improved Machinery are employed in manufacturing the various parts, and this applies not only to the Horse and Pony, but also to the Hand Machines.

A. S. AND SON have now ready for delivery a large stock of their celebrated LAWN MOWERS, which will enable them to execute orders on the day they are received.

PRICES, INCLUDING CARRIAGE TO ANY RAILWAY STATION OR SHIPPING PORT IN THE KINGDOM.

SHANKS' NEW PATENT HAND MACHINE.

Width of Cutter.		Easily Worked	Silent Movement.
10-inch Machine	£3 10 0	*By a Lady*	4*s.* extra.
12-inch Machine	4 10 0		
14-inch Machine	5 10 0	*By a Boy*	

Width of Cutter.		Easily Worked	Silent Movement
16-inch Machine	£6 10 0	*By a Man or Two Boys*	4*s.* extra.
19-inch Machine	7 12 6	*By a Man and Boy*	
22-inch Machine	8 7 6	*By Two Men*	7*s.* 6*d.* extra.
24-inch Machine	8 17 6		

SHANKS' NEW PATENT PONY and DONKEY MACHINE.

Width of Cutter.		If with Patent Delivering Apparatus.
25-inch Machine	£12 10 0	25*s.* extra.
28-inch Machine	14 10 0	30*s.* ,,
30-inch Machine	15 15 0	30*s.* ,,

Silent Movement, 12*s.* 6*d.* extra; Boots for Pony, 22*s.* per set
Ditto for Donkey, 18*s.* per set.

SHANKS' NEW PATENT HORSE MACHINE.

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30-inch Machine	£19 0 0	30*s.* extra.
36-inch Machine	22 0 0	30*s.* ,,
42-inch Machine	26 0 0	40*s.* ,,
48-inch Machine	28 0 0	40*s.* ,,

Silent Movement, 20*s.* extra; Boots for Horse's Feet, 26*s.* per set.

The Machines are warranted to give ample satisfaction, and, if not approved of, may be at once returned.

N.B.—*A. S. & Son specially announce to their numerous Patrons that they have a staff of experienced Workmen at their London Warehouse, thoroughly acquainted with all the details of their Machines, so that they are enabled to repair Lawn Mowers in London as well as at the Manufactory.*

PATENTEES AND SOLE MANUFACTURERS:

ALEXANDER SHANKS AND SON, DENS IRON WORKS, ARBROATH, N.B.

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☞ *27, Leadenhall Street is the only place in London where intending purchasers of Lawn Mowers can choose from a Stock of from 150 to 200 Machines. All sizes kept there, whether for Horse, Pony or Hand Power.*

GREEN'S IMPROVED NEW PATENT GARDEN ROLLER.

The above Rollers possess many advantages over all others. They are made in two parts, and are free to revolve on the axis, affording greater facilities for turning, and the outer edges are rounded off or turned inwards, thus avoiding the unsightly marks left by other Rollers.

Diameter,	30 inches;	Length	32 inches,	£7	10	0
,,	24 ,,	,,	26 ,,	4	10	0
,,	20 ,,	,,	22 ,,	3	10	0
,,	16 ,,	,,	17 ,,	2	15	0

Prices for Rollers fitted with Shafts suitable for Pony or Horse Power, free on application.

Delivered carriage paid to all the principal Railway Stations and Shipping Ports in England.

THOMAS GREEN & SON, Smithfield Iron Works, Leeds; 54 and 55, Blackfriars Road, London, S.; and 19, Eden Quay, Dublin.

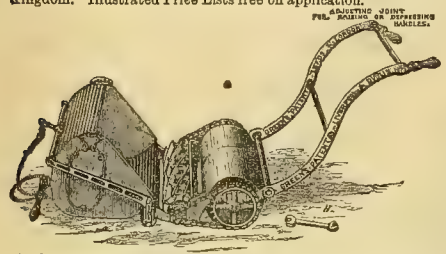
N.B. All Orders executed on the day they are received.

PRIZE MEDALS AWARDED to GREEN'S PATENT LAWN MOWERS.

INTERNATIONAL EXHIBITION, LONDON, 1862.
INTERNATIONAL EXHIBITION, DUBLIN, 1865.

The above Lawn Mowers have proved to be the best, and have carried off every Prize that has been given in all cases of Competition.

Sold by all respectable Ironmongers, Seedsmen, &c., in the Kingdom. Illustrated Price Lists free on application.



AGRICULTURAL and HORTICULTURAL IMPLEMENTS and MACHINES of every description.

IMPROVED IRON STABLE FITTINGS.

HURDLES and CONTINUOUS IRON and WIRE FENCING.

Palisading Entrance and Field Gates. Plain and Galvanised Wire Netting.

GREEN'S PATENT LAWN MOWERS and GARDEN ROLLERS.

Garden Engines, Syringes, Water Barrows, Ornamental Garden Seats, Chairs, Tables, Iron Fountains, Vases, &c.

IRON and BRASS BEDSTEADS, in great variety.

Washing, Wringing, and Mangling Machines.

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Show Rooms opposite the Smithfield Cattle Market, North Street, Leeds; 54 and 55, Blackfriars Road, London, S.; and 19, Eden Quay, Dublin.

PRIZE MOWING MACHINES, FIELD and GARDEN ROLLERS; CHAFF CUTTERS, from 45s. Lawn Mowers, Garden Engines, Parkes' Cast Steel Digging Forks and Garden Tools, Improved Wire Netting, Wheelbarrows, Corn Bins, Churns, Sausage and Mincing Machines. PRICE LISTS per post.

BURGESS & KEY'S Agricultural Implement and Machinery Warehouse, 95, Newgate Street, London, E.C.
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THE IMPROVED TANNED LEATHER DRIVING STRAPS. PATENT EDGE-LAID LEATHER STRAPS, without lap or cross joints—superior to all others for Portable Engines. Prime STRAP and SOLE BUTTS.
Price Lists sent free by post.

THE TANNED LEATHER COMPANY, Tanners, Curriers, &c., Armit Works, Greenfield, near Manchester; Warehouse, 81, Mark Lane, London, E.C. Mr. H. FERRABEE, Agent.

Oil Paint no longer Necessary.



HILL AND SMITH'S PATENT BLACK VARNISH for preserving Iron Work, Wood, or Stone. This Varnish is an excellent substitute for oil paint on all out-door work, and is fully two-thirds cheaper. It may be applied by an ordinary labourer requires no mixing or thinning, and is used cold. It is used in the grounds at Windsor Castle, Kew Gardens, and at the seats of many hundreds of the nobility and gentry, from whom the most flattering testimonials have been received, which HILL & SMITH will forward on application.

From RICHARD HEMMING, Esq., *Bordesley Park, Worcestershire.*

"Gentlemen,—I have great pleasure in stating that I highly approve of your Black Varnish, as a substitute for paint for farm buildings, barn doors, gates, and especially when the wood has been previously painted in the usual way a few years before; in this particular case it leaves a very nice glazed surface, than which nothing could be better. The same observation also applies to ironwork of every description, such as iron hurdles, &c. The Wrought-iron Barrow with apparatus for heating gas tar has been found most useful, and so great a convenience do I consider it that I shall beg you to send me another, as well as a cask of the Black Varnish, for the use of the property which I have in Warwickshire. Please to send the whole by the same conveyance as before."

Sold in casks of about 30 gallons each, at 1s. 6d. per gallon, at the Manufactory, or 1s. 8d. per gallon paid to any Station in the kingdom.

Apply to HILL & SMITH, Brierly Hill Iron Works, near Dudley, and 22, Cannon Street West, E.C., from whom only it can be obtained.

HOTHOUSES for the MILLION, invented by the late SIR JOSEPH PAXTON.



Manufactories: London, Newton in Cartmel (Lancashire), Gloucester, Coventry, Aberdeen, and Paisley only.

Illustrated Circulars, with revised List of Prices, will be sent on prepaid application to Messrs. HEREMAN & MORTON, Head Office, 7, Pall Mall East, London, S.W.

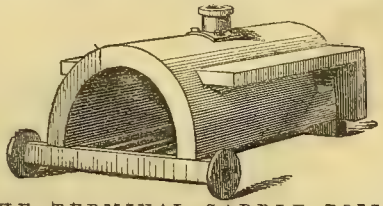
HOT-WATER APPARATUS, of every description, fixed complete in any part of the country, or the materials, viz., Boilers, Pipes, &c., delivered to any Station.
Estimates on application.
J. JONES & SONS, 6, Bankside, Southwark, London, S.E.

Heating by Hot Water.

W. J. HOLLANDS, IRON MERCHANT, 31, Bankside, London, S.E.

HOT WATER PIPES, from Stock, per yard:—2-inch, 1s. 2d.; 3-inch, 1s. 10d.; and 4-inch, 2s. 4d. BENDS, from Stock, 1s. 6d., 2s. 6d., and 3s. each. THROTTLE VALVES, 10s., 13s., and 14s. each. Other Connexions at equally low prices, and all goods of first-class manufacture. Estimates given, and orders by post punctually attended to the same day.

By Her Majesty's Royal Letters Patent.



THE TERMINAL SADDLE BOILER proves itself to be equal to any form now in use for economy and power; while the simplicity of its construction gives it the advantage over all others. See testimonials.

J. IRELAND, Edward Street, Broughton Lane, Manchester.
London Agent: R. HEMMING, 61, Leadenhall Street, E.C.

COTTAM AND COMPANY, CONSERVATORY and HOTHOUSE BUILDERS, &c., Iron Works, 2, Winsley Street, Oxford Street, London, W.

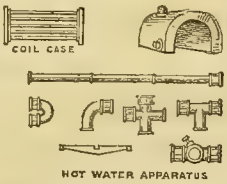
SADDLE BOILERS.

20	24	30 inches long.
45s.	65s.	92s. 6d. each.

HOT-WATER PIPES.

2	3	4 inch.
1s. 6d.	2s. 1d.	2s. 9d. per yard.

Materials supplied as above, or Estimates given fixed complete to Plan, on application to COTTAM & Co., Iron Works, 2, Winsley Street, opposite the Pantheon, Oxford Street, London, W.



CRANSTON'S PATENT BUILDINGS for HORTICULTURE.

"Dry Glazing without Putty."
"Glass without Laps."
"Ventilation without Moving Lights."

Highly Commended by the Royal Horticultural Society, South Kensington.



Plans and Estimates free on application. Descriptive Book fully illustrated, post free for 20 stamps, from the Author and Patentee, JAMES CRANSTON, Architect, Birmingham.

Works: Highgate Street, Birmingham.
HENRY J. GROWTAGE, Manager, 1, Temple Row West, Birmingham.

SWING WATER BARROW, price 45s.
Carriage paid to any Station in England.



The above is very cheap, and invaluable for carrying Liquids of all kinds. No Garden, Farm, Stable, or Kitchen Yard should be without one. A Lad can easily work it; but if required to travel long distances over rough ground, a Pony can be attached. The wheels and carriage are wrought iron, and the tub oak. The water may be dipped out, or the tub tilted and poured out, or by raising the handle it can be placed on the ground and the frame detached.

Powerful GARDEN ENGINE, suitable for the above, price 45s., carriage paid. WATER and LIQUID MANURE CARTS.

Illustrated Catalogues of above, also of WIRE NETTING, FENCING, &c., sent free on application.

W. S. BOULTON, Rose Lane Iron and Wire Works, Norwich.

By Royal Letters Patent.



WELLS'S PORTABLE GROUND VINERY, for Growing and Ripening Grapes without Artificial Heat.

Awarded a Silver Medal at the International Exposition of Horticulture, held at Nice, April, 1865.

Drawings and Instructions can be had of the PATENTEE, Steam Works, 24, Bouverie Street, London, E.C.

AGENTS:—B. J. Edwards, 25, Bishopsgate Street Within, E.C.
J. R. Tanton, Epsom, Surrey.
Drummond Brothers, 62, George Street, Edinburgh.

JOHN WARNER AND SONS, 8, Crescent, Cripplegate, London, E.C., BELL and BRASS FOUNDERS to HER MAJESTY.



No. 35.

PATENT CAST-IRON PUMP, fitted with J. W. & SONS' Metal Bucket and Valve, which cannot clog in action, for Wells not exceeding 25 feet.

Diam.	Height.	£	s.	d.
2½ in. short ..	1 ft. 7 in. ..	1	1	0
2½ in. long ..	2 ft. 3 in. ..	1	8	6
3 in. long ..	3 ft. 6 in. ..	2	1	0
3½ in. long ..	3 ft. 6 in. ..	2	6	0
4 in. long ..	3 ft. 6 in. ..	2	14	0
2½ in. short, with 15 feet of lead pipe attached, ready for fixing	..	2	0	0
2 in. long, do. do.	..	2	14	0

Price of 4½-inch Liquid Manure Pump, with legs, £2 15s.; 2-inch Flexible Rubber and Canvas Suction Pipe, 2s. 5d. per foot. The Barrel is 27½ inches long, and the legs are 5 feet high.



No. 42.

IMPROVED LIQUID MANURE or GENERAL PORTABLE PUMP.—These Pumps are fitted with J. W. & SONS' Patent Bucket and Valve and cannot clog in action. The Barrel is made of Galvanised Iron, not likely to corrode, and can be raised or lowered at pleasure on the stand, the legs of which fold together, and it may be carried with ease by one man to tank or pond.

WARNERS' PORTABLE FIRE or GARDEN ENGINE.



No. 568½.

For use by one Person .. .. price £2 2s.
No. 547B, ditto ditto, on Wheels .. .. „ £2 10s.

The above are complete in themselves, and may be always kept filled with water, and ready for use.

Letter to The Times, *July* 23, 1866, *from* Earl ESSEX.

A REAL FIRE EXTINGUISHER.

To the Editor of The Times.

"SIR,—I feel sure you will kindly allot a small space in the *Times* to these few lines, as the best medium through which I would urge every householder who dreads fire to have on each floor of his house one or more small Garden or other Engines on wheels, always charged and in good order, in case of fire.

"Last night, just as I was going to bed, I was startled by that most fearful of all cries, 'Fire, fire!' I soon learned that a fire was raging in a large two-windowed unoccupied bedroom. How caused is to us all a great mystery. It is my custom to keep one of these small Engines on each floor. In two minutes I was in the room with one of them. It was like a furnace. The curtains, shutters, casements, and cornices of both windows were burning and cracking from floor to ceiling. I was quite alone at the moment, yet before assistance arrived (most of the servants having gone to bed), I had completely subdued the fire of one window without exhausting the Engine, and when assistance and more water did arrive, we very soon extinguished the other.

"So fierce was the fire that the lead of the casements was melted, and the casements themselves were burnt off their hinges.

"I will only add, that by God's mercy, the house was saved by this small Engine. Had it not been at hand and in order, most assuredly Cassiobury would be now a heap of ruins.—Yours faithfully,

"Cassiobury, Watford, July 20. "ESSEX.

"The Engine, even when full, runs so light on the floor, that any woman might draw it, and also work it."

SAMUELSON & CO.'S

PATENT LAWN MOWING and ROLLING MACHINES.

EVERY MACHINE WARRANTED.

TO BE OBTAINED OF

SAMUELSON AND CO., BRITANNIA WORKS, BANBURY.

LONDON WAREHOUSE: 10, LAURENCE POUNTNEY LANE, E.C.

AGENTS:—Messrs. TANGYE BROTHERS AND HOLMAN, 10, LAURENCE POUNTNEY LANE; Messrs. DEANE AND CO., London Bridge; Messrs. DRAY, TAYLOR AND CO., London Bridge; Mr. THOMAS BRADFORD, 63, Fleet Street, E.C.; and all respectable Seedsmen and Ironmongers throughout the Kingdom.

ROLLERS.

ROLLERS FOR THE FARM.
ROLLERS FOR THE GARDEN.
ROLLERS FOR THE LAWN.
ROLLERS FOR CRICKET GROUNDS.
ROLLERS FOR PARKS.
ROLLERS FOR RACECOURSES.
ROLLERS FOR ROAD MAKING.

The best and cheapest are the Patent Adjustable WATER BALLAST ROLLERS, made only by

AMIES, HARFORD, & Co., Agricultural Engineers, Peterborough, who will forward Price Lists and all particulars on application.

GARDEN LABELS and FLOWER STICKS.

PAINTED WOOD LABELS, 3¼ inch, 6d : 4½ inch, 9d. ; 6 inch, 1s. ; 9 inch, 2s. ; 12 inch, 2s 9d. per 100. 4 inch for suspending, 1s. 6d. ; 5 inch, 2s. per 100, cheaper by the 1000.
ZINC LABELS for Pots, Garden, or suspending on Fruit Trees, Roses, &c., 2s., 2s. 6d., 3s., 3s. 6d., and 4s. per 100.
INDELIBLE INK, 6d. and 1s. per bottle.
SOFT HORTICULTURAL WIRE, 1s., 1s. 3d., 1s. 6d., and 1s. 9d. per lb. coil, according to size.
GALVANIZED WIRE PINS for Verbenas, Carnations, &c., 1s. per gross.
FLAT METALLIC PEGS for Verbenas, Carnations, &c., 1s. 6d. per 100.
PATENT EYELET WALL NAILS, single 2s. per gross ; double, 3s. per gross.
GREEN PAINTED FLOWER STICKS, 1 foot, 2d. ; 1½ foot, 3d. ; 2 feet, 4d. ; 2½ feet, 5d. ; 3 feet, 6d. per dozen.
BROWN VARNISHED STICKS, 1 foot, 3d. ; 1½ foot, 4d. ; 2 feet, 5d. ; 2½ feet, 7d. ; 3 feet, 10d., per dozen.
DAHLIA and ROSE STAKES, square, green painted, 4 feet, 2s. 3d. ; 5 feet, 3s. ; 6 feet, 3s. 6d. per dozen.
DAHLIA and ROSE STAKES, brown, varnished, same sizes and prices.
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By Royal Appointment

TO HER MAJESTY, By Special Warrant, dated December 27, 1865.

TO THE PRINCE OF WALES, By Special Warrant, dated February 10, 1866.

DAY, SON, AND HEWITT,

Original and Sole Proprietors of the STOCK-BREEDERS' MEDICINE CHEST, for DISORDERS in HORSES, CATTLE, CALVES, SHEEP, and LAMBS.

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TESTIMONIALS.

The Lambing Season.—The "Chemical Extract" is unequalled for bad cases in drawing Lambs, and to stop heaving and straining. Mr. Woods, in his Lecture on the "Breeding and Management of Sheep," says—"My shepherd declares it to be worth a guinea a bottle."

The "Gaseous Fluid" is famous for debility and exhaustion in Ewes after Lambing ; for diarrhœa in Calves and Sheep, and for colic and gripes in Horses and Cattle. Mr. Bowick, in his prize essay on the "Rearing of Calves," says—"The Gaseous Fluid is sufficient for all the ills that Calfhood is liable to. I have reared 26 calves this year, and by the use of the 'Gaseous Fluid,' I have not lost one." Mr. Thos. Rigby (Cheshire), in his Lecture on "Summer Grazing of Sheep," says—"Day, Son, & Hewitt's Gaseous Fluid is the best corrective of scour in Sheep I have ever tried. I can strongly recommend their 'Medicine Chest' as a most valuable auxiliary to stock-keepers of all kinds, but especially to shepherds. With the medicines they give plain directions for use, which any man may understand."

Orders sent by Post will be promptly attended to if addressed—DAY, SON, & HEWITT, Animal Medicine Factory, 22, Dorset Street, Baker Street, London, W. ; or Wantage, Berks.

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TO BE LET, for a Term of Years, with Immediate Possession, a SEEDSMAN'S and FLORISTS' BUSINESS, situate in one of the most fashionable parts of the West-end. It is well worth the attention of any Nurseryman requiring a West-end branch.

For particulars apply to Mr. KER, Land Surveyor, &c., 17, Connaught Terrace, W.

FOR SALE, or TO BE LET, a HOUSE and GARDEN, with Stable, Coach House, and Premises, and about 5 Acres of Grass Land, situate in a village about 3 miles from Cirencester, Gloucestershire. The House consists of Drawing-room, Dining-room, and Servants' Offices, four Bed-rooms, and four Servants' Bed-rooms. Rent £50 a year. For further particulars apply to

Messrs. BRAVENDER & SON, Land Agents and Surveyors, Cirencester.

NURSERY and SEED BUSINESS for SALE.—A good going Nursery and Seed Business in the North of England will be disposed of on very moderate terms to any party who can take possession at an early date. There is a considerable breadth of glass, almost new, and well stocked with first-rate saleable plants, for which there is a great demand in the district. In the Seed department there is an excellent connection, which is increasing yearly. Most satisfactory reasons can be given for the present proprietor having resolved to relinquish the above.

Apply by letter only, address "Business for Sale," care of Messrs. Peter Lawson & Son, Edinburgh.

Sales by Auction.

Valuable Nursery Stock

IN THE GROUNDS ATTACHED TO "VINE LODGE," SURBITON ROAD, SURBITON, S.W.

JOHN DAWSON AND SON will SELL by AUCTION on the premises as above, on MONDAY, March 18, at 11 o'Clock (Mr. Ross's lease having expired) all his choice NURSERY STOCK, which will be arranged in lots to suit private purchasers, as well as Nurserymen, and among which will be found varieties and of quality seldom offered in this neighbourhood, comprising fine specimens of the GOLDEN YEW, IRISH YEWS, 10 feet high ; elegant specimens of Thuja aurea, Green and Variegated Box, 7 feet high ; Wellingtonia, 7 feet ; Weeping Laburnum and Weeping Ash, Picea Nordmanniana, Picea Pinsapo, Irish and Chinese Junipers, Deodaras, fine Standards of Portugal Laurel, Box, Rhododendrons, and of the new Variegated and Weeping Holly. Also Peach, Nectarine, Plum, Pear, and Apple Trees, and Standard Currants, &c.

May be viewed on Saturday, March 16 ; and Catalogues may be obtained at Vine Lodge ; and of JOHN DAWSON & SON, Auction Office, Kingston-on-Thames, and Marlborough Chambers, 49, Pall Mall, W.

Burghley Park, near Stamford.

IMPORTANT SALE OF SHORT-HORNED CATTLE.

MR. STRAFFORD is favoured with instructions from the Executors of the late Most Hon. the Marquis of Exeter, K.G., to offer for SALE by AUCTION, without reserve, on THURSDAY, March 14th next, at the Dairy Farm, Burghley Park, the entire Herd of PURE-BRED SHORT-HORNS, consisting of nearly 60 head of Bulls, Cows, and Heifers ; many of them are descended from animals of long standing in this valuable and old-established Herd, which has been bred with great care for nearly 50 years ; the most fashionable Bulls have been used during this period, and latterly the far-famed Fourth Duke of Thorndale (17,750), who is included among the Bulls, and is likewise the sire of several of the Young Stock, which are very promising.

Catalogues, with Pedigrees and other particulars, may be had on application to Mr. STRAFFORD, 13, Euston Square, London, N.W. ; or of Mr. WALTON, the Bailiff, at Burghley Park, Stamford.

Maindee House, Newport, Monmouthshire.

IMPORTANT SALE OF SHORT-HORNED CATTLE.

MR. STRAFFORD begs to announce that he has received instructions from John Logan, Esq., to SELL by AUCTION, without any reserve, at Maindee House, Newport, Monmouthshire, on WEDNESDAY, the 20th March next, his entire Herd of FIRST-CLASS SHORT-HORNS, consisting of about 50 head of BULLS, COWS, and HEIFERS, that have been selected and bred from some of the most fashionable blood of the day, the far-famed Killerby and Warlaby sorts being the prominent feature in the breeding of the herd ; the Young Stock are chiefly by Prince of the Empire (20,678), which Bull is now in service.

Catalogues, with Pedigrees and other particulars, may be had on application to Mr. STRAFFORD, 13, Euston Square, London, N.W. ; or of Mr. SKINNER, the Bailiff, at Maindee House, near Newport, Monmouthshire.

AN EXTENSIVE SALE by AUCTION, on FRIDAY, April 12, 1867, at Providence Nursery, Boston Spa, Yorkshire, of SPECIMEN and HALF SPECIMEN, STOVE and GREENHOUSE PLANTS, ORCHIDS, &c.

The Plants are all in first-rate condition, and can be seen on the Ground any day (Sunday excepted).

Catalogues on application to J. C. PADMAN.

Roses, Shrubs, Fruit Trees, Bulbs, &c.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, March 13, at half-past 12 o'Clock precisely, 1000 First-class STANDARD and DWARF ROSES from France ; STANDARD, DWARF, PYRAMID, and TRAINED FRUIT TREES, SPECIMEN CONIFERS, HARDY TREES and SHRUBS, GLADIOLI, RANUNCULUSES, RUSTIC SEATS, STOOLS, VASES, TABLES, &c.

On view the Morning of Sale, and Catalogues had.

Important Sale of Plants.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, March 14, at half-past 12 o'Clock precisely, a fine Assortment of CARNATIONS, PICOTEES, and PINKS, TREE VIOLETS, DAHLIAS, FUCHSIAS, GERANIUMS, DEUTZIAS, AURICULAS, DOUBLE PRIMROSES, ROCKETS, PHLOXES, DAPHNES, PENTSTEMONS, GAZANIAS, IRIS, CLEMATIS, VERBENAS, ROSES, HARDY SHRUBS, FRUIT TREES, GLADIOLI, &c.

On view the Morning of Sale, and Catalogues had.

Imported Orchids.

MR. J. C. STEVENS has been favoured with instructions to SELL by AUCTION, at his Great Rooms, 38, King Street, W.C., on MONDAY, the 18th inst., an important consignment of ORCHIDS, received by the last Mail from Mexico, comprising several plants of a handsome new ARPOPHYLLUM, of dwarf habit, and very free blooming ; Odontoglossum nebulosum, Odontoglossum hastilabium (?), Odontoglossum maculatum, Epidendrum vitellinum majus, Epidendrum aromaticum, Lælia furfuracea, Cattleya citrina, Oncidium oblongatum, (?) and a handsome new Terrestrial Orchid. Dried Specimens and Drawings of the Arpophyllum and the new Terrestrial Orchid will be shown at the Sale.

On view the Morning of Sale, and Catalogues had.

Preliminary Notice of an Important Sale of Orchids.

MR. J. C. STEVENS has been favoured with instructions to SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., without reserve, early in APRIL, First-class ESTABLISHED ORCHIDS, consisting of Duplicates, amongst which are many magnificent Specimens of all the best Varieties, from the well-known Collection of A. Basset, Esq., of Stamford Hill, who is changing his residence.

The Days of Sale will be announced in future Advertisements.

Preliminary Notice.

IMPORTANT SALE OF ORCHIDS, STOVE AND GREENHOUSE PLANTS, AT HIGHGROVE, READING, BERKS.

MR. J. C. STEVENS will SELL by AUCTION, at the Gardens, Highgrove, Reading, Berks, early in April, the valuable Collection of ORCHIDS, STOVE and GREENHOUSE PLANTS, formed by the late J. J. Blandy, Esq., Vice-President of the Royal Horticultural Society of London, comprising a great variety of fine Plants, many of which have been exhibited and carried off prizes at the various Metropolitan and Provincial Shows. Also several Greenhouses, Exhibition Van, &c. Catalogues are preparing and will be ready 14 days before (price 6d. each, to admit parties to the Sale), which may be had at the Gardens ; also of Messrs. COOPER & GOULDING, Auctioneers, Market Place, Reading ; and of Mr. J. C. STEVENS, Horticultural Auctioneer and Valuer, 38, King Street, Covent Garden, London, W.C.

Sale of very handsome Standard Roses, Camellias, Fruit Trees, &c.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at 38 & 39, Gracechurch Street, City, E.C. on SATURDAY, March 16, at 1 o'Clock precisely, Choice DOUBLE CAMELLIAS, beautiful compact plants, 1 to 4 feet, abundantly furnished with bloom buds ; fine AZALEA INDICA ; a superb assortment of about 300 very handsome STANDARD and DWARF ROSES, including the best varieties in cultivation ; choice hardy AMERICAN PLANTS, comprising Ghent and other Azaleas, selected Fruit Trees, Hybrid Rhododendrons, Kalmias, Andromedas, &c. ; some fine Bulbs of LILIUM AURATUM and LANCIFOLIUM ALBUM, ERICAS, EPACRIS, DAHLIAS, &c.

May be viewed the Morning of Sale. Catalogues may be had at the City Auction Rooms, as above ; or of the Auctioneers and Valuers, American Nurseries, Leytonstone, Essex, N.E.

Waterloo Nursery, Kilburn.

IMPORTANT SALE OF NURSERY STOCK, GREENHOUSE PLANTS, GREENHOUSES, PITS, &c.

MESSRS. PROTHEROE AND MORRIS are instructed to offer for UNRESERVED SALE by AUCTION, on the Premises, Waterloo Nursery, Kilburn, Middlesex, close to the Edgeware Road Railway Station on the North London Railway, on MONDAY, March 18, and following day, at 11 o'Clock each day, without reserve, the LEASE having been disposed of with reversion, necessitating an immediate clearance, the whole of the valuable NURSERY STOCK, Evergreen, Coniferæ and Deciduous Shrubs, including large quantities of fine bushy Green and Variegated Box ; Thuja sorts ; splendid Irish and English Yews, 2 to 6 ft. ; Spruce Firs, 2 to 5 ft. ; Aucuba ; Common and Portugal Laurels ; Berberis ; Green and Variegated Hollies ; Cotoneaster, Phillyrea, Cupressus, Thuiopsis, Cedrus, Lilacs, Weigela, Althæa frutex, Syringa, Forsythia, Sweet Briar, &c. ; fine standard and dwarf-trained and untrained Pears ; Apples, Plums, Walnuts, Fruit Trees in pots for orchard houses, &c. ; Ornamental and Forest Trees, viz., Limes, Planes, Elms, Thorns, Acacias, Poplars, Birch, Sycamore, Maples, Chestnuts, Oaks, Ash, &c. ; a choice collection of modern Strawberries, Gooseberries, Currants, Rhubarb ; a rich assortment of American Plants, embracing named and Hybrid Rhododendrons, Azaleas, Kalmias, &c. ; quantities of Ivies, Virginian Creepers, Clematis, Pyrus japonica, and other hardy Climbers ; Yuccas ; Climbing and other Roses ; thousands of yards of Box-edging, &c. ; also about 1000 choice Greenhouse and Stove Plants, viz., Camellias from 3 to 8 ft. ; 200 Azalea indica, well set with bloom buds, including many specimens ; Rhododendron Nuttallii, jasminiflorum, and Edgworthii ; Araucaria, Epacris, Daphne, Gardenia, Begonia, Ixora, Hoya, Eucharis, and Cape Bulbs ; together with the erection of 4 Greenhouses, of which one span roof is nearly new. Pits, Boxes, Hot-water Piping, Bricks, and sundry effects.

May be viewed prior to the Sale. Catalogues may be had, 6d. each (returnable to purchasers), on the Premises ; of the principal Seedsmen in London ; and of the Auctioneers and Valuers, American Nurseries, Leytonstone, Essex, N.E.

Wavertree, near Liverpool.

CLEARANCE SALE OF NURSERY STOCK, CHOICE GREENHOUSE PLANTS, GREENHOUSES, &c.

MESSRS. PROTHEROE AND MORRIS are directed by Mr. Isaac Davies to SELL by AUCTION, on the Premises, Larkfield Nursery, Wavertree, near Liverpool, on TUESDAY, March 12, and three following days, at 11 o'Clock each day, without reserve, the Lease having expired, necessitating an immediate clearance, the whole of the Valuable NURSERY STOCK, comprising about 3600 Variegated and other choice Green Hollies ; about 10,000 Rhododendrons, including 1000 Hybrid Catawbiense, 1 to 6 feet ; 1000 R. ponticum, 300 R. ciliatum, 300 R. dauricum, 300 R. dauricum hybridum, 400 Crimson and White Seedlings, 2000 other choice named varieties, and 1200 R. præcox, one of the many highly esteemed varieties raised by Mr. Davies ; 500 Portugal and Common Laurels, 1 to 4 ft. ; 1500 Azaleas ; 1000 Golden, American, Siberian, and other Arbor-vitæ, 1 to 7 ft. ; 1200 English and Irish Yews, 2 to 6 ft. ; 600 Pinus excelsa, Cembra, and others, 2 to 9 ft. ; 500 Cedrus atlantica and Deodara, 2 to 7 ft. ; 500 Cupressus Lawsoniana, 2½ ft. ; Araucaria imbricata, Thujopsis borealis, Juniperus excelsa, Arbutus Croomii, scarlet and common, in pots ; Lilacs, Weigelas, Standard and Dwarf Roses, Skimmia japonica, Kalmias, Ledums, Hardy Heaths, Fernettyas, &c. ; Forest, Fruit, and Ornamental Trees, consisting of worked Thorns, Scarlet Chesnut, Purple Beech, Tulip Trees, Ailantus glandulosa, Double-flowering Cherries, Laburnums, Willows, large Weeping Elms and Ash ; Standard, Dwarf-trained and untrained Pears, Plums, and Cherries ; Gooseberries and Currants. Wistaria sinensis, Lonicera, variegated Ivies, and other Hardy Climbers ; also a choice collection of Greenhouse Plants, including 1500 fine Azalea indica, 400 Ericas of sorts, a quantity of Acacias, Cyclamen, Cytisus, Geraniums, &c. ; together with three Greenhouses in excellent condition ; one 10-light Pit, ten 2-light Frames, five 1-light Frames, a Nest of 124 Seed Drawers, with Bins, Counters, Seeds, Garden Pots, Implements, and other effects.

May be viewed any day prior to the Sale. Catalogues may be had, 6d. each (returnable to purchasers), on the Premises ; and of the Auctioneers and Valuers, Leytonstone, Essex.

Re William Hunter, Nurseryman, Barnard Castle.

SALE OF NURSERY STOCK.

TO BE SOLD, at the Nurseries, Barnard Castle, on WEDNESDAY, March 13, unless previously disposed of by Private Contract, the whole STOCK of TREES and SHRUBS belonging to the Bankrupt Estate of WILLIAM HUNTER, Nurseryman. To any one wishing to commence the Nursery Business this would be an eligible opening, as the Stock will be disposed of on very reasonable terms.

For further particulars, apply to Messrs. W. W. & G. WATSON, Barnard Castle ; Messrs. J. & R. S. WATSON, Solicitors, Newcastle-on-Tyne ; J. W. SAMUEL SIMPSON, Solicitor, South King Street, Manchester ; Mr. RALPH ROBSON, Hexham ; or Mr. M. BROWN, of DICKSONS & BROWN, Seed Merchants, Manchester.

NEW ORCHIDS.

JAS. BACKHOUSE & SON

HAVE INSTRUCTED

J. C. STEVENS TO SELL BY AUCTION, WITHOUT RESERVE,

on the 21st inst.,

THE FOLLOWING ORCHIDS,

RECEIVED DIRECT FROM THEIR OWN COLLECTOR ON THE CORDILLERAS OF ECUADOR.

A large proportion of these are entirely new, and have never yet been offered ; and they have every confidence in the correctness of names where names are attached. Nearly the whole are in fine condition, and some, received several months ago, are already established, and growing luxuriantly.

The Collection includes a new and fine SELENIPEDIUM, described as having "yellow" sepals, "with darker green and white veins," and "red (probably pink or rose) petals ;" the new and charming ODONTOGLOSSUM ROSEUM, with self-coloured deep rose or rosy-crimson flowers with white column, borne 12 to 20 on the spike ; the new ODONTOGLOSSUM MULTIFLEXUM (Rchb.), bearing enormous branching spikes covered with a vast profusion of small golden flowers blotched with brownish purple ; the recently described ONCIDIUM NUBIGENUM, forming slender spikes of 6 to 12 flowers, resembling small Odontoglossum Phalænopsis, growing at an elevation of 12,000 to 16,000 feet ; MESOSPINIDIUM SANGUINEUM ; fine plants of the true ONCIDIUM MACRANTHUM ; ANOTHER allied but still finer SPECIES (judging by the dried specimens and glowing description) ; also a THIRD very distinct SPECIES of the same section ; strong and healthy Plants of the wonderful "NASONIA SPLENDENS," with enormous purple-crimson deeply fringed labellums ; a new and very distinct ONCIDIUM, with violet and white blossoms ; an ANGULOA, described as having white flowers with rose-coloured veins ; a magnificent NEW ONCIDIUM, or ODONTOGLOSSUM, from 12,000 feet elevation, with branched spikes of 100 to 150 brilliant red-orange flowers with yellow, crenated labellums ! Numerous Plants of ODONTOGLOSSUM BREVIFOLIUM (or *coronarium ?*) ; an EPIDENDRUM, or LÆLIA, bearing spikes or corymbs of fine *fragrant* golden flowers ; a LYCOMORMIUM, with pendent spikes of eight or more waxy Anguloa-like flowers, white shaded with yellow and spotted with purplish crimson ; ONCIDIUM CUCULLATUM ; the new EPIDENDRUM IBAGUENSE, ONCIDIUM HOLOCHRYSUM, and other Plants of much interest.

HEATING BY HOT WATER.

It is now generally admitted that Buildings of any kind can be more effectually Warmed by Hot Water than by any other means; but as so much depends on the way in which the Apparatus is fixed, it is of the greatest importance that it be done by experienced men.

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HAVE EVERY FACILITY FOR

EXECUTING WORK IN THE BEST MANNER

AT A MODERATE COST, AND HAVING THE

LARGEST STOCK IN THE KINGDOM OF BOILERS, PIPES, ETC.,

THEY CAN COMPLETE WORK WITHOUT DELAY.

Their great experience in Hot Water Heating enables them in all cases to supply an Apparatus best suited to the purpose for which it is intended, and they wil be happy to send to any part of the Country at a moderate charge, to take particulars of work, and prepare Plans, &c., or on receipt of particulars per post, they will forward Estimates free of charge.

J. JONES AND SONS having been so extensively patronised for many years by the Nobility, Clergy, Gentry, and others, are enabled to give references to work done in nearly every part of the Kingdom.

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ARE PREPARED TO ESTIMATE FOR WARMING, TO ANY EXTENT—

CHURCHES	PUBLIC OFFICES	VINERIES	ORCHARD HOUSES	BATHS
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LECTURE HALLS	GREENHOUSES	PINE STOVES	MUSIC ROOMS	HARNESS ROOMS
BANKS	CONSERVATORIES	PEACH HOUSES	BILLIARD ROOMS	

J. JONES AND SONS' APPARATUS is simple in construction, moderate in cost, and economical in working.

It is equally available for the AMATEUR'S GREENHOUSE, or the longest range of FORCING HOUSES; for the smallest Chapel or the largest Church; for Private Offices, or those of Public Companies.

It is admirably adapted for DWELLING HOUSES, as coils of pipes can be placed in any part, for warming the various rooms. One or more Baths may be heated from the same Boiler, and a constant supply of hot water obtained in any part of the house.

For WAREHOUSES and WORKSHOPS this system of Heating is unsurpassed as, unlike Stoves and Hot Air Flues, the circulation of Hot Water in Pipes is perfectly safe, and the Management of Apparatus can be left to any ordinary workman.

J. JONES & SONS

HAVE LATELY

FIXED THEIR HOT WATER APPARATUS IN OR NEAR THE FOLLOWING PLACES;

AND THE WORKING OF THE SAME HAS IN ALL CASES GIVEN THE GREATEST SATISFACTION.

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Ash	Chester	Gomshall	Middleton	Stone
Atherstone	Cirencester	Grantham	Minster	Stonehouse
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Bedford	Dartford	Hastings	Norwich	Torquay
Bexhill	Datchet	Hatfield	Nottingham	Tunbridge
Bickley	Deal	Hayward's Heath	Oswestry	Tunbridge Wells
Birmingham	Derby	Hereford	Oxford	Twickenham
Bishop Stortford	Dingwall	Hertford	Paris	Uckfield
Blackheath	Diss	Hitchin	Pembroke	Uxbridge
Blandford	Dorchester	Horsham	Petersfield	Virginia Water
Blisworth	Dorking	Hull	Pinner	Wallingford
Bournemouth	Dover	Huntingdon	Poole	Waltham
Boxmoor	Downham	Inverness	Potter's Bar	Walton
Bracknell	Dublin	Kettering	Ramsgate	Warlingham
Brentford	Eastbourne	Kingston	Reading	Warrington
Bridgend	East Grinstead	Knaresboro'	Reigate	Watford
Bridgenorth	Edenbridge	Leamington	Richmond	Wellingborough
Brighton	Edmonton	Leeds	Rickmansworth	Welwyn
Bristol	Elgin	Lewes	Ringwood	Weybridge
Broadstairs	Ely	Leytonstone	Ross	Weymouth
Bromley	Enfield	Limerick	Rugby	Wimborne
Broxbourne	Epsom	Liphook	Rushton	Windsor
Buckingham	Erith	Liss	Ryde	Wolverhampton
Burton	Exeter	Liverpool	Sevenoaks	Worcester
Bury St. Edmund's	Farnborough	Ludlow	Shiffnal	Wisbeach
Cambridge	Farnham	Luton	Shrewsbury	York

J. JONES AND SONS,

IRON MERCHANTS and HORTICULTURAL ENGINEERS, 6, BANKSIDE, SOUTHWARK, LONDON, S.E.

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THE GARDENERS' CHRONICLE

AND

AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.

No. 11.—1867.] SATURDAY, MARCH 16. {Price Fivepence. {Stamped Edition, 6*d*.

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Kew Garden Report	266 *a*	Weather, the	273 *a*
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Lettuces, Cabbage	265 *b*	Wireworms	275 *a*
Luculia, the	265 *c*	Worms, ship	263 *b*

ROYAL HORTICULTURAL SOCIETY.—The EXHIBITIONS for 1867 will be HELD in the SOCIETY'S GARDENS, SOUTH KENSINGTON, on the following TUESDAYS:—
SPRING SHOWS:—CAMELLIAS, HYACINTHS, and other SPRING FLOWERS, March 19. AZALEAS, ROSES, and other SPRING FLOWERS, April 16. SPECIAL PRIZE SHOW, May 7.
GREAT SUMMER SHOW, June 4, 5, 6, 7, and 8.
ROSE SHOW, July 2.
GREAT SHOW at BURY ST. EDMUND'S, July 15th to the 19th.
☞ Schedules are now ready, and can be had on application.

ROYAL HORTICULTURAL SOCIETY.—FIRST SPRING SHOW, CAMELLIAS, HYACINTHS, &c., on TUESDAY, March 19, doors open at 2; Band, 3 to 5.30. Admission by Privileged Tickets, 2*s*. 6*d*.; Public, 3*s*. 6*d*. (to be bought prior to the day), or by payment at the Gates, 5*s*.

ROYAL BOTANIC SOCIETY'S GARDENS, Regent's Park.—SATURDAY NEXT, March 23, EXHIBITION of SPRING FLOWERS, HYACINTHS, CAMELLIAS, PRIMROSES, &c. Tickets to be obtained at the Gardens by Orders from Fellows of the Society, price 2*s*. 6*d*. each. Gates open at 2 o'clock. Band will play from 2.30 to 5.30.

NATIONAL HORTICULTURAL EXHIBITION, 1867.—The above EXHIBITION will Open at Manchester on JUNE 7, and continue till JUNE 15.
Schedules, &c., may be obtained on application to Mr. B. FINDLAY, Curator, Botanic Garden, Manchester; or from the undersigned,
HENRY WHITWORTH, Secretary.
Carlton Buildings, Cooper Street, Manchester.

SUTTON'S AMATEUR'S GUIDE IS NOW READY.
Price One Shilling. Gratis to Customers.

RIBBON BORDER (six Colours), German and French, COLLECTIONS, and all specialties worth growing. See POYNTER'S LIST. ROBERT H. POYNTER, Taunton.

RHODODENDRON SEED, carefully gathered from the best named varieties, well cleaned and pure. Price on application to B. WHITHAM, Reddish Nurseries, near Stockport.

PELARGONIUMS.—Show, Fancy, French, and Zonal in great variety, fine Plants, at moderate prices. DESCRIPTIVE CATALOGUE now ready.
CHARLES TURNER, The Royal Nursery, Slough.

CALCEOLARIA, Herbaceous, of choicest strains, established plants in small pots, 20*s*. per 100. Also stronger plants in 4-inch pots, 30*s*. per 100.
H. & R. STIRZAKER, Skerton Nurseries, Lancaster.

LOBELIA MISS MURPHY.—The finest WHITE LOBELIA in cultivation. First-class Certificate, R.B.S.; also see "Gardeners' Oracle." 6*s*. per dozen; 40*s*. per 100.
MARTIN & SON, Hull.

SHOW DAHLIAS, in strong plants, now ready. 12 Varieties, named, 4*s*., or 24 Varieties, named, 8*s*. Terms cash.
JOHN J. HASLAM, late John Holland, Bradshaw Gardens, Chadderton, Manchester

Gladioli.

JOHN STANDISH, Royal Nursery, Ascot, can supply fine FLOWERING BULBS of his unrivalled collection in splendid condition. CATALOGUES of these and of his GENERAL NURSERY STOCK on application.

GLADIOLUS, NEWEST and BEST FRENCH VARIETIES.
PRICE LISTS gratis and post free on application to
JAMES CARTER & Co., Seed Merchants and Nurserymen, 237, High Holborn, London, W.C.

GLADIOLI BULBS, for Summer, Autumn, and Winter Flowering, 2*s*. 6*d*., 3*s*. 6*d*., 5*s*. 6*d*., 7*s*. 6*d*., 9*s*., and 12*s*. per dozen. 10*s*. 6*d*., 15*s*., 21*s*., 25*s*. to 100*s*. per 100.
BARR & SCODEN, Seed, Bulb, and Plant Merchants, 12, King Street, Covent Garden, W.C.

GLADIOLI. — Collections containing all the finest varieties in cultivation, many new, and offered for the first time, 105*s*., 63*s*., 42*s*., 30*s*., 25*s*., 20*s*., 15*s*.; 12*s*. BRENCHLEYENSIS, the most showy of all, extra strong roots, 3*s*. per doz., 20*s*. per 100.
DESCRIPTIVE PRICED LISTS free on application.
BUTLER, MCCULLOCH & Co., South Row, Covent Garden, W.C.

Early Spring Flowers.

WEBB'S GIANT POLYANTHUS and COWSLIP, with all the best varieties of Double and Single PRIMROSES, PANSIES, &c., with Seeds of single varieties. LIST of prices of different kinds on application to
Mr. WEBB, Calcot Gardens, Reading.

Male Aucuba Flowers.

JOHN STANDISH, Royal Nursery, Ascot, having a large number of MALE AUCUBAS in flower, will be happy to send the blooms post free at the following rates:—6 flowers 1*s*., 15 for 2*s*., and 20 for 2*s*. 6*d*., with directions for use.

GOOD GARDEN SEEDS. Carriage free.
SUTTON & SONS, Seed Growers, Reading.

EVERY GARDEN REQUISITE kept in Stock at
CARTER'S New Seed Warehouse, 237 & 238, High Holborn, London.

Genuine Garden Seeds.

WM. CUTBUSH AND SON'S CATALOGUE of VEGETABLE, FLOWER, and FARM SEEDS, post free on application. Highgate, London, N.

1867.

VEGETABLE and FLOWER SEEDS of BEST SELECTED quality.
JAMES DICKSON & SONS, 102, Eastgate Street, Chester.

Garden and Farm Seeds direct from the Growers.

CHARLES SHARPE AND CO. beg to inform the Trade that their WHOLESALE SEED LIST is now ready, and will be forwarded post free on application.
Seed Warehouse, Sleaford.

Somersetshire Prize Seeds.

GENUINE GARDEN and FLOWER and FARM SEEDS of the finest stocks and quality; LISTS now ready.
ROBERT H. POYNTER, the County Seed Establishment, Taunton.

Unadulterated Garden and Agricultural Seeds.

SMITHERS AND CRICHTON, SEED MERCHANTS, Bunhill Row, Finsbury Square, London, E.C.
CATALOGUES post free on application.

Genuine Garden, Agricultural, and Flower Seeds.

PAUL TOLLARD, SEED GROWER and MERCHANT, 20, Quai de la Mégisserie, Paris, France.
SPECIAL PRICED LIST of NEW SEEDS, in English weights and money, post free on application.

Genuine Garden and Agricultural Seeds.

JAMES CARTER AND CO., SEED FARMERS, MERCHANTS, and NURSERYMEN, 237 & 238, High Holborn, London, W.C.

JAMES FAIRHEAD AND SON, SEED GROWERS and MERCHANTS, 7, Borough Market, London, S.E.
New and Genuine AGRICULTURAL, GARDEN, and FLOWER SEEDS. Special prices and advantageous offers on application.

Agricultural and Garden Seeds.

H. AND F. SHARPE'S WHOLESALE SPRING PRICED LIST of the above Seeds of 1866 growth is now ready and may be had on application.
Seed Growing Establishment, Wisbech.

PRESENT PRICES of FARM SEEDS.
See Messrs. SUTTON'S NEW LIST, now ready.

1867 AGRICULTURAL SEEDS, of best selected quality, and *carriage free*.
PRICED LIST on application.
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237 and 238, High Holborn, London, W.C.

CARTER'S SELECT LIST of FARM SEEDS, at reasonable prices, forwarded gratis and post free on application to CARTER'S Great London Seed Warehouse, 237 and 238, High Holborn, London, W.C.

FARM SEED LIST of the LONDON SEED COMPANY is now published, and can be obtained from the MANAGER, 68, Welbeck Street, Cavendish Square, London, W.

SKIRVING'S SWEDE TURNIP, 31*s*. per bushel.
Fine selected stock, from the
LONDON SEED COMPANY, 68, Welbeck Street, Cavendish Square, W.

YELLOW GLOBE MANGEL, 50*s*. per cwt.
Fine selected stock, from the
LONDON SEED COMPANY, 68, Welbeck Street, Cavendish Square, W.

To the Trade.

CHOICE stocks of GREEN-TOP SWEDE and PURPLE-TOP YELLOW SCOTCH TURNIP.
Price on application.
JAMES DICKSON & SONS, Seed Merchants, Chester.

WESTMORELAND-GROWN ITALIAN SEED.—The Trade wanting home-grown Italian, must send for samples to JOSEPH DIXON, Seedsman, Kendal.
*** Present prices, 21*s*. to 25*s*. per quarter.

ASPARAGUS PLANTS, strong, 1, 2, and 3 years.
Price on application.
50,000 EVERGREEN OAKS, 1 year, fine.
WM. DILLISTONE, Munro Nursery, Sible Hedingham, Essex.

GIANT ASPARAGUS.—2-yr., strong Roots, 2*s*. 6*d*. per 100; 20*s*. per 1000. 3-yr., very strong, 3*s*. 6*d*. per 100; 30*s*. per 1000.
JOHN CRANSTON, King's Acre Nurseries, near Hereford.

CONQUEROR BROCCOLI.—The finest Broccoli in Cultivation is BARCHARD'S CONQUEROR. See large Advertisement in the *Gardeners' Chronicle*, December 8, 1866.
WITTY & SON, Seed Establishment, Cottingham, near Hull.

SUTTON'S PERMANENT GRASS SEEDS, 26*s*. to 36*s*. per acre, carriage free.
SUTTON'S MIXTURES for 1, 2, 3, or 4 years, 14*s*. to 24*s*. per acre, carriage free.

Bromus Schraderi.

MESSRS. SUTTON AND SONS invite inspection of their several plots of BROMUS SCHRADERI, growing in their Trial Grounds at Reading, in juxta-position with ITALIAN RYE-GRASS and ALSIKE CLOVER.

Good Clover Seeds at Market Prices.

SUTTON AND SONS can supply the above, of best quality. Samples and prices may be had gratis and post free on application.
SUTTON & SONS, Seed Growers, Reading.

PICEA PINSAPO.—Imported Seed of the above, first-rate quality, will be supplied to the Trade at 12*s* per pound. PETER LAWSON & SON, Edinburgh.

Magnolia grandiflora Exmouth (true variety).

E. P. FRANCIS AND CO. have to offer fine Plants of the above, from 1 to 4 feet in height, established in pots. Price on application.
Nurseries, Hertford, Herts.

Verbenas, Verbenas.

PHILIP LADDS is now sending out a good supply of the above, strong plants, in thumb pots, including 40 varieties of 1866, at 2*s*. per dozen, package included. Terms cash.
Nursery, Bexley Heath, Kent.

THE CHOICEST 12 NEW ROSES for 1867, with strong healthy growth, unusually fine plants, so soon as weather permits. Price 42*s*. per dozen.
RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

HALF SPECIMEN TEA-SCENTED ROSES, in 6-inch pots, now ready to send out.
WM. WOOD & SON, Nurseries, Maresfield, near Uckfield, Sussex.

THE BEST and MOST CHOICE NEW ROSES for 1867, in extra-strong well-grown Plants, now ready at 42*s*. per dozen. A very liberal allowance to the Trade.
WM. WOOD & SON, The Nurseries, Maresfield, near Uckfield, Sussex.

CULTURAL DIRECTIONS for the ROSE. Second Edition. By JOHN CRANSTON, King's Acre Nurseries, near Hereford. Free by post from the Author for 20 stamps.

Roses on Own Roots.

H. LANE AND SON have still a large quantity to offer of TEAS, HYBRID PERPETUALS, BOURBONS, CHINAS, &c.; also TEA MARECHAL NIEL, strong, on Manetti, in pots. CATALOGUES free by post on application.
The Nurseries, Great Berkhampstead, Herts.

CHEAP HARDY FLOWER ROOTS for ROCKWORK, SHRUBBERY WALKS, &c., 8*s*. for 100 in 10 varieties; 30*s*. for 500, in 20 varieties; 50*s*. for 1000, in 30 varieties. My selection, from printed list, which can be had on application to
THOMAS S. WARE, Hale Farm Nursery, Tottenham, Middlesex.

Planting.

WM. PAUL begs to refer intending Planters of ROSES, FRUIT TREES, SHRUBS, &c., to his Advertisement of December 1, 1866.
PRICED DESCRIPTIVE CATALOGUES on application.
PAUL'S Nurseries, Waltham Cross, N.

TREES and PLANTS of all sorts and sizes in very great quantity, of best quality and at moderate prices.
PRICED LISTS post-free on application.
JAMES DICKSON & SONS, ("*Old Established Nursery and Seed Business*,") The "Newton" Nurseries, Chester.

Forest and Ornamental Trees.

H. AND R. STIRZAKER are offering in large quantities of all sizes of the above, at very low prices.
Skerton Nurseries, Lancaster.

WANTED IMMEDIATELY, 60 LIME TREES, not less than 12 feet high, for planting an Avenue. Fine strong trees. Apply to Mr. SHARP, Gr., Longmead, Bishopstoke, Hants.

Specimen Horse Chestnuts.

WANTED, a few Hundred Specimen HORSE CHESTNUTS, Stems not less than 10 feet, with good bushy Heads. State numbers and lowest cash price to
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FIVE MILLION Transplanted QUICKS, of superior growth. Also 100,000 LARCH, very good plants, 4 to 6 feet, at 14*s*. per 1000. Samples and prices on application to
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EVERGREENS.—One Hundred Strong Plants of the above, 1 to 1½ foot in height, in twenty varieties and species, for 40*s*., packing included. These are really good plants. A remittance or reference from unknown correspondents.
FIELD BROTHERS, Tarvin Road Nursery, Chester.

ABIES DOUGLASII, all sizes, in quantity. Wholesale and Retail by
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Transplanted Larch.

FOR SALE, in quantities to suit purchasers, about 100,000 3 to 3½ feet Transplanted LARCH, of excellent quality, at 5*s*. 6*d*. per 1000.
EDWARD SANG & SONS, Nurserymen, Kirkcaldy, N.B.

TWO THOUSAND YARDS of DWARF BOX for Edging, of a good green colour. Sample yard sent if required, and price. Apply to
GEO. T. FOX, The Nurseries, Wetley Rocks, near Leek, Staffordshire.

A LOT of FRUIT TREES, SHRUBS, and CLIMBERS to be Sold very Cheap, as they must be cleared off in a few days.
At Prospect House, Enfield Highway, N.

PYRAMID APPLES, PEARS, PLUMS, CHERRIES.
Beautiful Trees for Garden or Orchard Houses.
RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

Dwarf-trained Trees by the 1000, 100, or dozen.

APPLES, PEARS, PLUMS, CHERRIES, PEACHES, and NECTARINES. Fine, flat, well-trained, of best quality and true to name.
RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

Fifty Acres of Fruit Trees,

APPLES, PEARS, PLUMS, CHERRIES, PEACHES, NECTARINES, and APRICOTS in every form desired for Fruiting.
RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

Orchard-house Trees Fruiting in Pots.

PEACHES, NECTARINES, APRICOTS, CHERRIES, PLUMS, PEARS, APPLES, VINES, and FIGS.
RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

FRUIT TREES, for Walls and Espaliers.—Upwards of 50,000 to select from, carefully trained, and in the healthiest condition for planting.
RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

Strong and Extra Strong Vines.

JAMES DICKSON AND SONS can still Supply fine FRUITING CANES of MUSCATS, and several other varieties.
Newton Nurseries, Chester.

VINES, VINES.—Strong Planting and Fruiting Canes of all the leading kinds. Prices on application.
B. S. WILLIAMS, Victoria and Paradise Nurseries, Upper Holloway, N.

Queen Pine Plants.

CHARLES TURNER has a fine healthy lot of Fruiting, Succession, and Suckers of the above to dispose of at very reasonable prices, which may be had on application.
The Royal Nursery, Slough.

CASTLE KENNEDY FIG.—Plants of the above may now be had at 10*s*. 6*d*. and 21*s*. each; the usual discount to the Trade. PETER LAWSON & SON, Edinburgh and London.

WEBB'S PRIZE COB, FILBERT and other PRIZE NUT TREES. LIST of varieties and prices to be had of
Mr. WEBB, Calcot Gardens, Reading.

SURPLUS STOCK.

ROSES.—Strong plants of Hybrid Perpetuals on their own roots, of the leading varieties, at 50s. per 100.
CARNATIONS and PICOTEES.—The very finest varieties, at 6s. per dozen pairs.
Allowance to the Trade.
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JOHN KEYNES' NEW VERBENAS for 1867.

COLESHILL (ECKFORD).—Intense scarlet, with lemon eye, pips large, very smooth, one of the finest Verbenas. First-class Certificate at the Royal Horticultural Society. 5s. each.
UMPIRE (ECKFORD).—Large cerise purple, the largest truss and flower in cultivation, very showy. 5s. each. Certificate at the Royal Horticultural Society.
FANNY MARTIN (ECKFORD).—Beautiful clear rose, very pleasing, large and fine. Certificate at the Royal Horticultural Society. 5s. each.
EARL OF RADNOR (ECKFORD).—Most beautiful clear rosy scarlet, with lemon eye, good habit, and free bloomer. Certificate at the Royal Horticultural Society. 5s. each.
WILLIAM DODDS (ECKFORD).—Light purple, with white eye, most perfect flower, exquisite form, grand flower either for bedding or show. 5s. each.
MR. ELLICE (ECKFORD).—Peach colour, quite new, a most beautiful variety, not to be surpassed. 5s. each.
These six varieties are of the finest quality, and will be found quite equal to those sent out last season from the same Grower. They have been selected with the greatest care.
The SIX VERBENAS of last year have proved to be of first-rate quality. They can now be had fine plants, and consist of

John Keynes	Mr. Gladstone	King Charming
Lady Jane Ellis	Isa Eckford	George Eckford

Many testimonials respecting these Flowers have been received by J. KEYNES, all having given great satisfaction. 9s. per dozen.
CRIMSON KING (METHVEN'S), having proved all that was said of it, may be had 9s. per dozen. The finest crimson bedder in cultivation.
A fine collection of the best BEDDING VERBENAS at reasonable prices. The usual Discount to the Trade.
Castle Street, Salisbury.

Now Ready, in Strong Plants.

THE MAGNIFICENT NEW VIOLET, QUEEN of VIOLETS.

The following additional Nurserymen have ordered Queen of Violets. For full list see *Gardeners' Chronicle*, December 4, 1866.
Messrs. Saltmarsh & Son, Chelmsford
Messrs. Chaltce & Son, Plympton
Messrs. Transon Frères, Orleans, France.
Mr. J. Elcombe, Southampton
Mr. W. Church, Mulbarton.
Strong Plants, 1s. 6d. each; 18s. per dozen. Usual allowance to the Trade.
VIOLETS, NEW DOUBLE RED, 1s. 6d. each; 12s. per dozen.
" SINGLE CALIFORNIAN Species, 1s. each; 9s. per dozen.
" DOUBLE NEAPOLITAN, 9d. each; 6s. per dozen.
" DOUBLE BLUE, 6d. each; 4s. per dozen.
" DOUBLE WHITE, 6d. each; 4s. per dozen.
" SINGLE DEVONIENSIS, extra fine, 9d. each; 6s. per dozen.
" THE GIANT, extra fine, 9d each: 6s. per dozen.
HEPATICAS, DOUBLE and SINGLE RED, 4s. per dozen.
" DOUBLE BLUE, 1s. 6d. each
" SINGLE BLUE, 4s per dozen.
" SINGLE WHITE, 9s. per dozen.
" MAUVE, NEW, 1s. 6d. each.
CHRISTMAS ROSE (HELLEBORUS), WHITE, 9s. per dozen.
" RED, 18s. per dozen.
PRIMROSES, DOUBLE LILAC and WHITE, 6s. per dozen.
POLYANTHUS finest mixed, 3s. per dozen.
PAMPAS GRASS, extra fine, 6s. per dozen.
WALLFLOWER, DOUBLE GOLDEN, YELLOW and DARK, 6s. per dozen.
FORGET-ME-NOT (MYOSOTIS PALUSTRIS), 4s. per dozen.
DIELYTRA SPECTABILIS, strong, 6s. per dozen.
ROCKETS, DOUBLE WHITE and YELLOW, 6s. per dozen.
NEW PINKS, ANNE BOLEYN, improved, and EXCELSIOR, 1s. per pair.
100 HARDY HERBACEOUS and ALPINE PLANTS, in 50 varieties, 25s.
CATALOGUES for one Stamp. Post Office Orders on Castle Hedingham.
WM. DILLISTONE, Sible Hedingham, Essex.

PRINCESS of WALES STRAWBERRY.—This fine variety is now proved to be the best early variety ever produced, either for Forcing or for general Early Crop. See *Gardeners' Chronicle* of May 12, 1866, p. 437. Good Plants can now be supplied from the true stock, at 5s. per 100, from the raiser,
B. W. KNIGHT, Nurseryman, Battle, Sussex.

H. LANE AND SON, who have taken several First Prizes for Vines in pots at the following Exhibitions, viz.:—Royal Botanic, Royal Horticultural, Crystal Palace, London International, Edinburgh International, United Horticultural, Manchester, Leeds, Clay Cross, &c., &c., beg to offer well ripened CANES of the leading varieties of GRAPES for fruiting in pots or planting out, at moderate prices.
CATALOGUES free by post on application.
The Nurseries, Great Berkhampstead, Herts.

Orchard-house Trees in Pots.

H. LANE AND SON have to offer extra strong Plants of the following, well set with Bloom Buds, at moderate prices, viz., APPLES, PEARS, PLUMS, CHERRIES, PEACHES, NECTARINES, and APRICOTS; also well-established fruit-bearing FIGS, &c., CATALOGUES of which may be had post free upon application. The Nurseries, Great Berkhampstead, Herts.

TO BE SOLD, in quantities to suit purchasers,
500 extra-sized Dwarf-trained PEAR TREES.
500 " " CHERRY TREES.
500 " " PLUM TREES.
500 " " APPLE TREES.
The above are all beautifully trained bearing Trees, and are offered at remarkably low prices.
Also Dwarf-trained PEACHES, NECTARINES, and APRICOTS, Standard and Pyramid PEAR, PLUM, and CHERRY TREES, &c.
JOHN CRANSTON, King's Acre Nurseries, near Hereford.

To Grape Vine Growers.

REQUIRED, for Three New Vineries now ready for Planting, a quantity of FRUIT-BEARING CANES. The Names of the kinds and Price to be forwarded to
J. W. THOMSON, Landscape Gardener and Garden Architect, Hortulan Lodge, Penge, near Sydenham, S.

Planting Season

LARCH (Native and Tyrolese), SCOTCH FIR (True Native), SPRUCE, OAK, ASH, ALDER, BEECH, PRIVET, and all kinds of FOREST and ORNAMENTAL TREES and SHRUBS, ROSES, FRUIT TREES, fine specimen ARAUCARIAS and DEODARS, and large TREES for Park Planting, now in fine condition for removal.
CATALOGUES, with sizes and prices, sent free on application to DICKSONS & Co., Nurserymen, Seedsmen, and Florists, 1, Waterloo Place, Edinburgh.

SEEDLING and TRANSPLANTED FOREST TREES.

SEEDLINGS.—Ash, 1 yr., 1s.; Beech, 2 yr., 3s. 6d.; Elm, 3 yrs., 2s.; Norway Maple, 2 yr., 7s. 6d.; Oak, English, 1 yr., 1s. 6d.; 2 yr., fine, 4s.; Silver Fir, 4 yr., 6 to 12 inches, 4s.; Norway Spruce, 4 yr., 2s. 6d.; Crab, 2 yr., 2s. 6d.; Pears, 2 yr., 3s. 6d.; Sycamore, 2 yr., 2s. 6d. per 1000.
TRANSPLANTED.—Alder, 1 to 2 ft., 7s. 6d.; 2 to 3 ft. 10s.; 3 to 4½ ft., 15s.; 4 to 6 ft., 20s.; Beech, 6 to 12 in., 7s. 6d.; Chesnut, Spanish, 1 to 2 ft., 17s. 6d.; Elm, 12 to 21 in., 5s.; Hazel, 1½ to 3 ft., 17s. 6d.; Oak, English, 6 to 12 in., 7s. 6d.; Balm of Gilead, 4 to 8 in., 7s. 6d.; Cembra, 6 to 12 in., 100s.; Larch, 1 to 1½ ft., 6s.; 1½ to 2 ft., 9s.; 2 to 3 ft., 10s.; 3 to 4 ft., 14s.; Scotch Fir, 2 yr. bedded, 6 to 12 in., 5s.; Silver Fir, 9 to 15 in., 12s. 6d.; Spruce, Norway, 6 in., 5s.; 1 to 1½ ft., 10s.; Thorn Quick, 9 to 18 in., 6s.; Sycamore, 1 to 1½ ft., 7s. 6d.; Walnuts, 6 to 16 in., 20s. per 1000.
RHODODENDRON PONTICUM, 4 to 6 in., 6s. per 100.
Apply, with reference, to J. RIDDELL, Steward, Park Attwood, Bewdley, Worcestershire.

SURPLUS STOCK.

Alder, 3 to 5 feet, extra strong
Ash, 18 inches to 2 feet
Berberis dulcis, 2 to 3 feet
" Aquifolium, 1 to 1½ foot
Chestnut, Horse, 2 to 4 feet
" Spanish, 1½ to 2 feet
Fir, Scotch, 1 to 1½ foot
Fir, Spruce, 3 to 4 feet
" Larch, 2 to 2½ feet
Hazel, 2½ to 3½ feet, extra fine
Holly, Green, 1½ to 2 feet, bushy
Laurel, Common, 2 to 2½ ft., bushy
" Portugal, 3 to 4 ft. ex. bushy
Strong DRUMHEAD or CATTLE CABBAGE PLANTS.
FRUIT TREES, as annexed.
Apples, Standards and Dwarfs, very strong
Cherries, Dwarfs and Dwarf-trained, extra fine
Peaches, Dwarfs and Dwarf-trained, extra fine
Pears, Standards and Dwarfs, extra fine
Plums, Standards and Dwarfs, extra fine
Nectarines, Dwarfs and Dwarf-trained, extra fine
Kentish Filberts, 4 to 5 feet, extra fine
Crab Stocks, 2 years Seedlings
PRICED LIST or samples of the above on application to
W. VIRGO & SONS, The Nursery, Wonersh, near Guildford, Surrey.

SURPLUS STOCK.

200,000 RHODODENDRON PONTICUM and HYBRIDS, bedded, 2 to 3, 3 to 4, and 4 to 6 inches, finely rooted.
100,000 SEEDLING COMMON ASH, 1 year, fine.
50,000 " " 2 years.
50,000 " CRABS (true wild) 1 year.
5,000 SORBUS DOMESTICA (true), 2 years' Seedlings.
5,000 AKIA THEOPHRASTA, 2 years' Seedlings, fine.
10,000 BERBERIS EMPETRIFOLIA, 3 years.
50,000 " AQUIFOLIUM, 1 year.
TRANSPLANTED.
30,000 BEECH, 2 to 3 and 3 to 4 feet.
30,000 HUNTINGDON WILLOWS, very fine, 4 to 6 feet.
40,000 HAZELS, 2 to 3 feet.
5,000 BERBERIS AQUIFOLIUM, 1½ to 2 feet, bushy.
N.B.—Samples will be sent of any of the above on application.
For Special Prices, which are low, apply to GEORGE T. FOX, The Nurseries, Wetley Rocks, near Leek, Staffordshire.

Finest New Hardy Plant of the year.

PAUL'S NEW DOUBLE CRIMSON THORN. COLOUR, BRIGHT CRIMSON, VIVID AND DOUBLE.
Awards: First-class Certificates International Exhibition and Royal Botanic Societies.

PAUL AND SON beg to invite orders ere close of planting season for this unique novelty. The following Nurserymen have already ordered it, as well as many of our leading Amateurs:—

Messrs. Austin & McAslan, Glasgow
" Backhouse & Son, York
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ELM, Narrow-leaved, 10 to 12 feet	7	0	0
POPLARS, Balsam and Lombardy, 10 to 12 feet	3	10	0
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Elms, Wych, 3 to 4 feet.
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Larch, 3 to 4 feet.
Spruce, 1 to 2 feet.
Thujopsis borealis, 2 to 4 feet.
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Plums, splendid Victorias, and others, 4 to 6 feet.
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The above are Seedlings.
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10,000 Skimmia japonica, 6 to 9 ins.
10,000 Erica herbacea
15,000 Deutzia crenata flo.-pleno, 12 to 30 ins, bushy
2,000 Arundo conspicua
5,000 Spiræa callosa, strong
5,000 Thujopsis dolabrata, 4 to 12 ins.
10,000 Spruce Firs, 1½ to 3 feet
2,000 Picea Nordmanniana, 1½ to 3 feet
20,000 Rhododendron ponticum, 15 to 20 in., as far through
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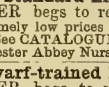
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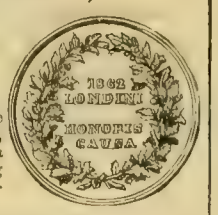
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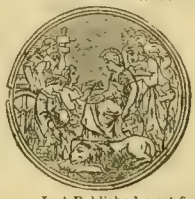
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Early Shaw Round Potatos.	M'Lean's Wonder do.
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Dwarf, Kidney, and Scarlet Beans	Veitch's Perfection do.
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GIANT ASPARAGUS PLANTS, the best that money can procure, 2s. 6d. per 100.—This delicious vegetable does not require half the expense usually incurred in planting it.
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Extra strong SEA KALE, 2s. per doz.
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ROLLISSON'S VARIETY has been proved the best Cucumber in cultivation for Winter or Spring use, especially for growing in houses; an immense cropper, producing six at a joint, length 18 to 26 inches. In sealed packets, 2s. 6d. each. See merits of "Winter Cucumbers," in *Gardeners' Chronicle* for Jan. 12, 1867.
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The above have proved to be the best of their respective classes. Seed of the true Stock may be had of
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Celery, Manchester Champion Red	0 6	Lettuce, Wheeler's Tom Thumb	0 6
Cucumber, Smith's Fine Frame	1 0	Radish, French Breakfast	0 6
Cucumber, Telegraph ..	1 0	Aster, Truffaut's Superb French, 12 vars. mixed ..	1 0
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Endive, Digswell Prize ..	0 6	Stock, improved large-flowering, 12 vars. mixed.	1 0
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WHITE SPANISH ONION SEED, 1s. 8d. per lb.
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HENRY'S PRIZE HYBRID LEEK.—The Largest variety in cultivation; grows 16 inches in length of blanch, and 10½ inches in circumference. Has carried off the First Prizes at the leading Shows in England and Scotland.
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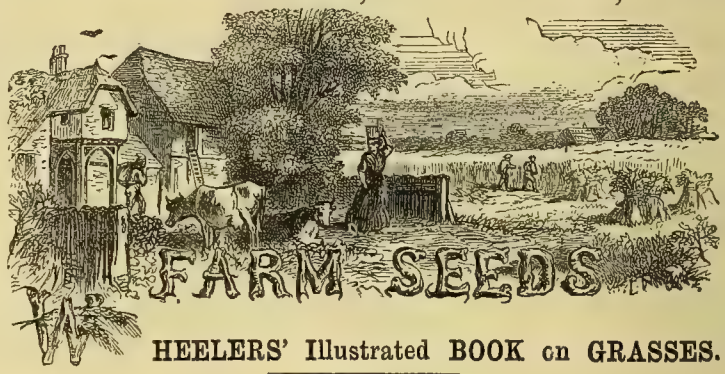
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Grass Seed packed for Exportation.

The New Forage Grass (Bromus Schraderi).

SUTTON AND SONS have imported a large supply of True Seed of the above, and offer it at 2s. 6d. per lb., or cheaper in large quantities. Quantity required per acre, 30 lb. Lowest price per cwt. and instructions on cultivation may be had on application.

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At a Meeting of the Royal Agricultural Society, on March 16, in a Lecture delivered by Alfred Hughes, Esq., late of Thorness, Isle of Wight, Mr. Hughes said:—

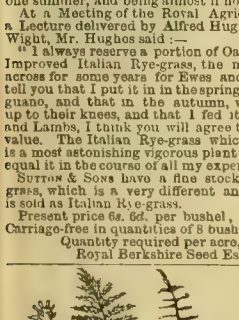
"I always reserve a portion of Oat land to lay down with SUTTON'S Improved Italian Rye-grass, the most reliable plant I have come across for some years for Ewes and Lambs in the Spring. When I tell you that I put it in in the spring, and dressed it after harvest with guano, and that in the autumn, when my Sheep fed it off, it was up to their knees, and that I fed it off again this spring with Ewes and Lambs, I think you will agree that this is a crop of very great value. The Italian Rye-grass which is sold by SUTTON, of Reading, is a most astonishing vigorous plant; indeed, I never saw anything to equal it in the course of all my experience."

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Present price 6s. 6d. per bushel, cheaper in quantities over 5 qrs. Carriage-free in quantities of 8 bushels and upwards.

Quantity required per acre, if sown alone, 3 bushels.

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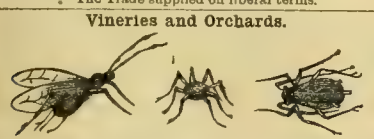
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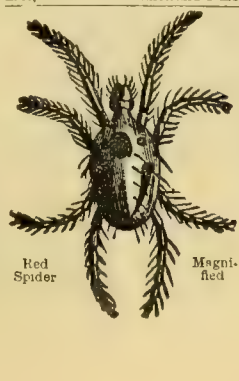
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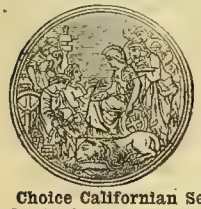
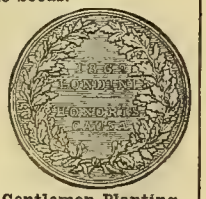
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Rhododendrons.
JOHN WATERER'S DESCRIPTIVE CATALOGUE of HARDY SCARLET and other RHODODENDRONS is now published, and will be forwarded on application. It faithfully describes the colours of the new varieties exhibited by him at the Royal Botanic Gardens, Regent's Park. An Abridged List of popular CONIFERS, with heights and prices, is likewise combined.
The American Nursery, Bagshot, Surrey, near Sunningdale Station, South-Western Railway.

American Plants, &c.
WATERER AND GODFREY'S PRICED and DESCRIPTIVE CATALOGUE of RHODODENDRONS and other American Plants for this Autumn, will be sent on application. The Catalogue also gives a summary of their General Nursery Stock, probably the most extensive in the kingdom.
Knap Hill Nursery, Woking, Surrey.

Rhododendron ponticum for Woods and Plantations.
MESSRS. JAMES VEITCH AND SONS having a large quantity of very good bushy well-rooted RHODODENDRON PONTICUM, suitable for planting in Woods and Covers, beg to offer them at the following prices:—
9 to 15 inches, bushy, 16s. per 100 | 18 to 24 inches, bushy, 30s. per 100
15 to 18 inches ,, 21s. per 100 | 24 to 30 ins., very fine, 50s. per 100
Also a splendid lot of HYBRID RHODODENDRONS, raised from the finest named kinds:—
6 to 10 ins., 25s. to 30s. per 100 | 18 to 24 ins., 100s. to 150s. per 100
10 to 15 ins., 40s. to 50s. per 100 | 24 to 30 ins., very fine, 18s. to 24s. per dozen
15 to 18 ins., 75s. to 100s. per 100
Royal Exotic Nursery, Chelsea, S.W.

GRAND HORTICULTURAL EXHIBITION at BURY ST. EDMUND'S, in connection with the SHOW of the ROYAL AGRICULTURAL SOCIETY, JULY 15, 1867, and four following Days.
Amongst various Special Prizes, amounting in value to nearly £300, and exclusive of the ordinary Prize Schedule,
A SILVER CUP, VALUE £20,
will be offered by the Proprietors of the GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE for the best COLLECTION of FRUITS and VEGETABLES, to be made up as follows:—
Of FRUITS, any Five of the following Eight kinds, one Dish of each:—Grapes, Melons (2 fruits), Strawberries, Gooseberries, Currants, Cherries, Raspberries, or Apples (of the crop of 1866).
Of VEGETABLES, any Eight of the following Fourteen kinds, one basket or bundle of each:—Peas, French Beans (or Scarlet Runners), Broad Beans, Cauliflowers, Cucumbers (brace), Summer Cabbages, Early Carrots, Turnips, Artichokes, Onions, Spinach, Rhubarb, Potatos, or Mixed Salading.
This Cup will be open to Competition amongst Amateur or Professional Gardeners, of all grades, with Fruit and Vegetables of *their own growing*; any article otherwise obtained will disqualify the exhibitor.

The Gardeners' Chronicle.
SATURDAY, MARCH 16, 1867.

MEETINGS FOR THE ENSUING WEEK.

MONDAY,	March 18—	Entomological	7 P.M.
TUESDAY,	— 19—	Royal Horticultural (First Spring Show), at South Kensington	2 P.M.
		Royal Horticultural (Fruit and Floral Committees), at South Kensington	11 A.M.
		Ditto (Scientific Discussion)	3 P.M.
THURSDAY,	— 21—	Linnean	8 P.M.
SATURDAY,	— 23—	Royal Botanic (First Spring Show)	2 P.M.

THE ravages committed by SHIP-WORMS on wooden marine structures of various kinds, especially on the piles of jetties and piers, are unhappily matters of notoriety. A proposition was made in 1860 by the British Association for the Advancement of Science, to our Government, for permission to make a series of experiments with a view to find some remedy against these destructive animals, but though it was at first favourably received by the Port Admiral, Sir THOMAS PASLEY, it was ultimately refused. It is scarcely conceivable on what grounds the refusal rested, as at Plymouth and Devonport alone, the damage in a single year amounted to no less than 8000*l*. We can only ascribe it to the sad indifference which has often been shown to subjects of natural history by our public men, an indifference which has frequently led to very serious difficulties. Our Dutch neighbours have shown a wiser choice in this matter, and we have now before us in the "Annales des Sciences Naturelles," published in Nov. 1866 (vol. vi., Series 5), a report of the labours of the Commission which was instituted in the winter of 1858, to investigate the natural history of the ship-worm, and to suggest, if possible, some remedy.

As regards the nature and habits of the different species of ship-worm, we must refer to the paper in question, or to Mr. GEORGE JEFFREYS' third volume of his "British Conchology," where an immense mass of information will be found. It must suffice here to state that the previous details as to the free motions of the fry in the waters of our harbours are fully confirmed, and it is placed beyond doubt that the process by which they bore into the wood is simply mechanical. It is not, however, wood alone which is subject to their ravages, for their close ally Xylophaga has been found burrowing into the tarred hemp coating of the Mediterranean electic telegraph cable.

Ship-worms are not equally active every year. In certain seasons their ravages are far greater than in others. In Holland it has been found that the conditions favourable to their increase are a deficient rainfall and depression of the surface of the inner waters, with a consequent greater proportion of saline constituents.

The investigations with respect to the discovery of some remedial measures were directed to three points; first to external applications or treatment of the surface only; secondly to impregnation of the wood with various chemical substances; and thirdly the substitution of exotic kinds of wood for those of our own quarter of the globe.

The exact composition of some of the substances employed under the first head was not known, as they were trade-secrets, but they all equally failed with those whose nature is patent to every one, as paraffin, coal tar, paints of various kinds, including those of a poisonous nature, or finally external combustion. Even the practice of studding the whole surface as far as practicable with broad-headed nails, a very expensive one, was found to be ineffectual, as the minute fry established themselves in the interstices, and so penetrated into the heart of the wood, taking, it may be observed, the course of the grain as soon as practicable. Piles were found with a coat of rust more than a third of an inch in thickness, which nevertheless were pierced with ship-worm. A complete coating of metal was found to be a perfect security so long only as it remained uninjured, but no sooner was the surface broken than the piles were subject to injury. A coating of barnacles, or certain mollusca, should they chance to gain possession before the ship-worms, has often been found to be a natural but efficient protection.

The substances injected into the wood were sulphate of copper, green vitriol, acetate of lead, water glass, and chloride of calcium, coal tar, and creosote. The ship-worms do not seem to be very easily affected by poisons, and the mechanical action by which the wood is perforated, presents the fragments in such minute particles that they are easily ejected, and indeed probably never enter the stomach at all, while the solubility of the salts soon renders the degree of impregnation comparatively weak and harmless. The only substance which seemed to be really preservative was creosote, and this in exact proportion to the degree in which it had been incorporated with the substance of the wood, and the purity of the liquid.

As regards the third point, the number of experiments is at present insufficient; but as some of the hardest kinds of exotic wood were not exempt, there is not much hope that any efficient remedy will be found in this direction. As the soft wood of our resinous trees, as for instance the Larch, imbibes the creosote more perfectly than some of our harder woods, their employment for piles and other structures is especially indicated. *M. J. B.*

—— IN order to obviate possible misunderstanding of a phrase in the account of the DALECHAMPIA given by us last week, we have to state that Mr. BULL is the sole possessor of the stock, no other horticulturist, continental or otherwise, having the plant for disposal. Possibly in the future, the pink colour of the bracts might be heightened. It would be worth while to try to do this, and to effect if possible, reciprocal crosses between this plant, and the Poinsettia, or Euphorbia jacquiniflora. There ought to be no great difficulty in the matter, and the result might b excellent.

—— At a recent meeting of the Société Centrale et Impériale d'Horticulture de France, M. GAUDAIS, of Nice, exhibited a very curious HYBRID MALLOW, the produce of fertilising Hibiscus Moscheutos with the pollen of Malvaviscus arboreus (Achania Malvaviscus). The hybrid was obtained three years ago, but it has only this year produced its flowers. It has the habit and foliage of the mother plant, like which it loses its leaves annually. Its flower is white at the base, as in Hibiscus Moscheutos, but it is *double*, and the male parent has imparted to it some of its own rich col-

milion tints. H. Moscheutos has solitary axillary flowers; the hybrid has both terminal and axillary blossoms, the latter forming a kind of umbel at the end of each flower stalk. It remains for a long time in flower, but its leaves are slowly and gradually shed at the approach of winter, those of the male plant being persistent during that season, while the female plant sheds its leaves at the beginning of that period. Other intermediate characters are cited, but the most singular circumstance appears to us to be the formation at once of double flowers as the result of a cross between two single flowers belonging to different genera. No details are given in the Journal of the Society as to whether the flower was completely double, or whether there were sufficient stamens and pistils left unchanged to insure fertilisation. It would be very desirable to ascertain, if possible, what sort of seed-vessel would be produced, that of Hibiscus being dry and capsular, that of Malvaviscus succulent and berry-like. Equally desirable would it be to trace the characters of the seedlings derived from the hybrid. It is to be feared, however, that neither seed-vessel nor seedlings will be produced.

—— At an early meeting of the Linnean Society there will, we believe, be exhibited some fruits of a Hybrid Palm grown at Hyères by M. Denis, and communicated to Dr. Hooker by M. Naudin. The plant in question has been obtained by fertilising Chamærops humilis var. arborescens with the pollen of the Date Palm, Phœnix dactylifera! The leaves are described as like those of the male parent, as also are the small orange-coloured ovate, Date-like fruits. The seed, however, occupies nearly the whole of the interior of the fruit, is rounded or ovate in form, not grooved as in the Date, and the embryo, instead of being in the centre, is at one end of the hard albumen.

—— In a recent number of the *Revue Horticole* M. Delchevalerie, one of the officials at La Muette, gives an account of a method of Root Grafting, which he, following a practice often employed in the United States in the case of trees, has adopted with success in various stove plants, especially in such as are difficult to raise from cuttings. For the stock he takes a small portion of the younger growing part of the root, and on it grafts a scion of the same species. He mentions, as having been grafted in this manner, Coffea arabica, Nauclea undulata, Strychnos colubrina, Aralia trifoliata, leptophylla, and crassifolia, and the Rose known as "Rose du Roi." Care must be taken that the graft be not too long exposed to the air, and that the roots be perfectly healthy. The mode of grafting adopted depends upon the diameter of the scion and stock, and other considerations which will readily suggest themselves to the practical gardener. By adopting with due precautions this method, plants may be obtained within a very short time at any season, while cuttings of the same species often take a year or more to root, and even then the majority perish.

—— In reference to the Hermaphrodite Aucuba recently exhibited by Mr. Standish, M. Lemaire mentions in the January number of *L'Illustration Horticole*, that he had already in a former issue of that work (May, 1866) recorded an example of the same kind, which had been obtained in the early part of 1866, by M. Narcisse Gaujard, a zealous nurseryman of Ghent. In this case the hermaphrodite plant had been obtained from a seed of the ordinary female Aucuba, and had developed a luxuriant panicle of flowers, which were all hermaphrodite. It is not, however, stated whether this plant perfected any fruits. Mr. Standish's experience with his Skimmia oblata, formerly hermaphrodite and self-fertilising, but subsequently requiring artificial fecundation, rather militates against the permanent hermaphroditism of these Aucubas, though we may hope the results will prove otherwise. The matter is of so much interest, that we shall be glad to hear how Mr. Standish's plant is progressing as regards the maturation of fruit.

—— Dr. Regel describes in the *Gartenflora* a new Adiantum Grönewegianum, received from M. Grönewegen, of Amsterdam, as A. venustum, from which he states it is quite different, approaching nearest to A. affine, the A. setulosum of many gardens. It is distinguished, he says, by having thick hairs on the footstalk and on both surfaces of the pinnules, by producing only one pair of pinnæ, and by the pinnules being unequally and sharply serrated. It is said to be a pretty small decorative Fern for the hothouse.

—— Though the culture of Terrestrial Orchids (*Erdorchideen*) and similar subjects, can be carried on, under certain conditions, with perfect success, it often fails through giving them a light peat soil mixed with moss. Dr. Regel finds them to succeed best when planted in open turfy loam without admixture of any other earth. The different kinds of Bletia, Sobralia, Disa, Stenorhynchus, Calanthe, &c., he observes, do well with this treatment. Bletia hyacinthina, and its varieties Gebina and albo-striata, pretty spring-blooming plants for the greenhouse or forcing house, are particularly recommended for this mode of culture.

—— The Dundee Horticultural Society contemplate holding a Grand Floral Fete in honour of the visit to Dundee, during the present year, of the British Association for the Advancement of Science. The Show, which is to be held in the Baxter Park, and is to commence on the 4th and close on the 8th of September, is open for competition to the United Kingdom. The prize schedule may be had on application to the Secretary, Mr. McKelvie.

—— We are requested to state, in reference to the Schedules of the Bury Show, issued by the Royal Horticultural Society, that the note to the effect that 'Money will be paid in most cases in lieu of Cups, if preferred," which occurs on p. 4, at the foot of the list of Special Prizes in some of the copies first sent out, was inserted by error.

New Plants.

Phajus irroratus (*hyb.*).

Sepalis extus minutissime puberulis petalisque paulo latioribus oblongis apiculatis, labello rotundo, ima basi columnæ adnato, antice crenulato crispulo, plicis duabus insilientibus quasi trilobo, carinis tribus obscuris ante basin labelli, columnæ trigono subclavata, calcari pilosulo compresso filiformi, apice retuso bilobo, ovario pedicellato tertia breviori.

This is one of the beautiful evidences of Mr. Dominy's unrivalled talent in hybridising Orchids in Messrs. Veitch's Royal Exotic Nursery. According to the nomenclature of Wiegmann it must be called Phajus vestito-Tankervilliæ, being an offspring of the so-called Calanthe vestita, Wall. (Phajus vestitus, nobis) and Phajus Tankervilliæ, R. Br. The creamy-white flowers are intermediate between its parents as regards their expansion. Both sepals and petals have a rosy hue over the limb, and there is a pale yellow hue over the disk of the lip. The sepals and petals are oblong lanceolate, apiculate, with very prominent



median nerves. The lip is nearly circular. There are three obscure keels on the base. The anterior part is somewhat crisp, and there are two folds in lieu of the lobes of Phajus vestitus. The spur is somewhat compressed and bilobed at the apex, hairy, as is also the stalked ovary. The column is club-shaped, trigonous, white, yellow inside at the base. *H. G. Rchb. f.*

PLANT PORTRAITS.

Cotoneaster Fontanesii.—*Rev. Hort.*, 1867, 33. Rosaceæ. A handsome shrub, forming a roundish bush, with numerous branches, and oval elliptic leaves, which are greyish-green above, and silky below. The flowers are numerous, small, whitish, in small glomerules, and are succeeded by spherical fruit of a coral-red colour, to which the plant owes its beauty. French gardens.

Dahlia Flambeau.—*Floral Mag.*, t. 326. Compositæ. A handsome novelty, with the flower-heads deep chrome yellow, tipped with bright red, described as being a constant variety, and effective either for the garden or for exhibition. Flowered by Mr. Turner.

Dendrobium lituiflorum. — *Warner's Select Orchid. Pl.*, 2 ser., t. 3. Orchidaceæ. A fine species, remarkable for its trumpet-shaped lip. The stems are slender, pendulous, the leaves oblong lanceolate, the flowers 4 or 5 inches across, rosy lilac, the lip convolute, white edged with rose, and having a deep violet eye. Native of India.

Griffinia Blumenavia.—*Rev. Hort.*, 1867, 32. Amaryllidaceæ. A pretty little bulbous plant, with small ovoid bulbs, few ovate-elliptic leaves, and a scape, 6 or 8 inches high, supporting an umbel of white flowers, of which the upper segments have a broad central stripe of delicate rose-colour. Native of Brazil, whence it was introduced by Dr. Blumenau. Sent out by MM. Haage & Schmidt.

Hemerocallis Middendorfii. — *Gartenflora*, t. 522. Liliaceæ. A hardy perennial, known also as H. Dumortieri, and H. Sieboldii. In habit it resembles H. fulva, having long carinate leaves, nearly an inch broad; the golden yellow flowers, brighter than in the other species, and growing three or four together in a compact head, have the nerves of the inner segments ramose. Native of Siberia, extending to the Amoor and Japan. Flowered in the St. Petersburg garden. Dr. Regel recommends it for the margins of lakes or streams of water.

Jasminum officinale aureo-variegatum.—*Floral Mag.*, t. 327. Jasminaceæ. A variety of the common Jasmine, with the leaves handsomely blotched and variegated with golden yellow, the flowers being white, exactly as in the normal state of the plant. A seedling raised by Messrs. E. P. Francis & Co., of Hertford.

Lælia crispilabia.—*Warner's Select Orchid. Pl.*, 2 ser., t. 6. Orchidaceæ. This pretty and distinct plant has been grown under the garden name of Lælia Lawrenceana. It is rather slender and elegant in habit, with pyriform pseudobulbs, supporting each one ligulate leaf, and an arching spike of about half-a-dozen amethyst-purple flowers, the lip of which is closely rolled in at the base, white in the centre, and edged with deep amethyst. Supposed to be from Mexico. Cultivated by the late Mrs. Lawrence, and subsequently by R. Warner, Esq.

Oncidium chrysothyrsus. — *Warner's Select Orchid. Pl.*, 2 ser., t. 5. Orchidaceæ. A very handsome new species with oblong, compressed, two-leaved pseudobulbs, and a branched panicle, 3 feet high, bearing very numerous flowers, of which the sepals and petals are small, greenish, spotted with brown, and the lip is large, and of a clear yellow colour. Its golden thyrsoid inflorescence is hence very effective. Native of S. Pedro, in South Brazil. Flowered by R. Warner, Esq.

Pear, Beurré Clairgeau.—*Florist and Pomol.*, vi., 45. A very handsome Pear, which for the dessert has few rivals, being in size one of the largest, in colour one of the brightest, in form one of the most graceful, and in quality, in certain situations, one of the most excellent sorts grown. The tree is fertile; and the season of maturity in the fruit extends from November till January, so that it is invaluable for keeping up a supply. [See M. De Jonghe's letter in another column.]

Pelargonium (inquinans) Gloire de Nancy. —*La Belg. Hort.*, 1866, t. 18. Geraniaceæ. The finest of the double-flowered scarlet Pelargoniums yet made known. It is of vigorous growth, has soft, hairy, plain green leaves, and the flowers, which form a truss of considerable size, are individually full double, and of a deep crimson scarlet colour. The flower-trusses resemble the heads of a double scarlet Lychnis. Raised by M. Lemoine, of Nancy.

Pleroma sarmentosa.—*Bot. Mag.*, t. 5629. Melastomaceæ. A beautiful greenhouse shrub, with sarmentose branches, shortly stalked ovate or ovate oblong acute leaves, and trichotomous panicles of large deep violet flowers, two and a half inches in diameter, consisting of fine broad obovate cuneate petals. Native of the cool valleys of Peru. Flowered by Isaac Anderson Henry, Esq.

Siphocampylus Humboldtianus.—*Bot. Mag.*, t. 5631. Lobeliaceæ. An elegant warm greenhouse plant, known in gardens as S. fulgens. It has pubescent stems and branches, ovate-lanceolate leaves, and axillary pedicels supporting each a drooping decurved bright scarlet flower, of which the tube is nearly 2 inches long, and the limb consists of five triangular-lanceolate segments spread out like a star. Native of Peru. Flowered by Mr. Bull.

Ulmus campestris aurea.—*La Belg. Hort.*, 1866, t. 19. Ulmaceæ. A hardy deciduous tree, of a very ornamental character, the leaves, which are strongly toothed, being of a deep golden yellow, here and there breaking into green, or bronze, and very constant. Cultivated by M. Rosseels under the name of Ulmus antarctica.

LETTERS FROM PARIS.—No. II.

Floral Decorations at the Hotel de Ville.

You can grow good plants in England without doubt—nobody denies that merit to English gardeners, but now-a-days, when the taste for having plants indoors is becoming so prevalent, it is not enough to have good specimens; we should know also how to arrange them tastefully. That in England conservatories are occasionally well arranged is as much as we can say, for the absence of the plants that are indispensable to good arrangement, is too prevalent to permit of that being at all general. And as for indoor decorations in London or elsewhere in Britain—well, of course some nurserymen who "furnish" extensively, can and do arrange plants nicely for balls, &c.; but it is rare to see anything really well done in that line, while the way plants are arranged at the Linnean and Royal Societies and other important places, on special occasions, is almost sufficient to prevent people tolerating plants indoors at all. As compared to the plant decorations of the last ball of the season at the Hôtel de Ville, anything I have seen in the British Isles was very poor indeed. And observe, the plants were not better than may be seen in England in good gardens. The difference was caused by exceedingly tasteful, and I may add, peculiar arrangement. Yes, it was by far the prettiest and most graceful combination I have ever seen produced with plants under a roof. And why?—because all the beauty which the plants were capable of producing was tastefully disposed, and the very artificial and very awkward conditions which generally surround pot plants were not even suggested.

Entering the Salle St. Jean, the eye was immediately attracted by a charming display of vegetation at one end; while on the right and immediately in front of and around a large mirrored recess was a very tasteful and telling display made as follows:—In front of the large and high mirror stretched forth a bank of Moss, common Moss underneath, and the surface nicely formed of fresh green Lycopodium denticulatum, the whole being dotted over with the variously-tinted Chinese Primulas—a bank of these plants in fact, high enough in its back parts to be reflected in the mirror with the taller plants which surrounded it, gradually falling to the floor, and gradually merging into the groups of larger plants on either side of the bank, the whole being enclosed by a low gilt wooden trellis-work margin. Then the groups at each side contrasted most beautifully with this. Green predominated, but there was a sufficiency of flower, while beauty of form was fully developed. In the centre and back parts of these groups were tall specimens of the common Sugar-cane (Saccharum officinarum) which held their long and boldly arching leaves well over the group, and these were supported by Palms, which threw their graceful lines over the specimen Camellias, these being in their turn graced here and there by the presence of a Dracæna or Dwarf Palm, and so down to the front edge, where

Cinerarias, forced bulbs, Primulas, and Ferns finished off the groups, all very closely placed, so that neither the lower part of the stems, nor a particle of any of the pots, could be seen, any interstices that happened to remain between the bases of the plants being compactly filled with fresh green Moss, which was also pressed against the little gilt trellis-work which enclosed the whole, so that from the uppermost point of the Cane leaves to the floor, nothing was seen but fresh green leaves and graceful forms, enshrouding the ordinary flowers of our greenhouses, which are infinitely more attractive when thus set in the verdure of which Nature is so profuse, and which is always so abundant where her vegetable beauties are at their highest.

A scene such as this explains the prevalence of these graceful and noble-leaved plants in Paris gardens and in Parisian flower-shops and windows, for you may frequently see graceful little Dracænas ornamenting windows here, and as they look as well at Christmas as at midsummer, I need hardly suggest how highly suited they are for purposes of this kind. The number of Dracænas cultivated in and around Paris is something enormous, and among the newer species of these—I do not allude to the coloured-leaved kinds—are some that combine grace with dignity, as no other plants combine them. They are useful for the centres of noble groups of plants in their larger forms, and the smaller species may be advantageously associated with the Maiden-hair Fern and the Cinerarias on the front of the conservatory bench. They are of the greatest utility in these decorations, and are largely used in all parts. So are most kinds of fine-leaved plants, from Phormium to Ficus. In my last letter it was stated that they cultivated 10 species of Ficus at Passy—that was a misprint for 100, and I said 100 to be safely within the mark, for there are nearly a dozen more species, or supposed species, in the collection than that number. Therefore with such materials they have but little trouble to find plants for this kind of embellishment. The wide staircase ascending from this salle had also a charming array of plants so placed that the visitors seemed to pass through a sort of floral grove—fine leaved plants arching over but not rising very high, and having a profusion of flowering things among and beneath them. As the bank of Primulas and the groups of tall plants were placed opposite this staircase and reflected in the great mirror behind, the effect when descending the staircase was fascinating indeed. A still more noble effect was produced in a salle near the great dancing saloon, and through which the *invités* passed to the magnificent ball-room. Against each pillar in this saloon was placed a tall Palm with high and arching leaves as in Seaforthia elegans, and others with longer leaves and pendulous leaflets. These meeting, or almost meeting across, produced a very graceful and imposing effect, while around them were arranged other plants distinguished either by beauty of leaf or flower, and the groups at each pillar connected by single rows of dwarf plants, closely placed however, and well mossed in, as in the case of the more important groups. The very close placing of the plants is the peculiar part of the arrangement—you cannot notice any dividing marks or gaps, yet there was no awkward crowding. The fact is that with an abundance of plants distinguished by beauty of form, it is almost impossible to make a mistake in arrangement.

Trellises covered with artificial Ivy, and dotted here and there with artificial flowers, were a useful aid in these decorations; placed behind the groups of plants and on the walls near them, their effect was very good, and of course these Ivy-covered trellises were carried far above the plants—to the top of the walls in fact. So you see they do not spare a little artificial aid, although so well fortified with a supply of fine plants. I saw other evidences of this at La Muette—another name for the establishment described in my last. A lot of respectable-looking evergreens of pyramidal outline were thrown aside. On closer examination they proved to be composed of boughs cut in a healthy plantation of evergreens, and then tastefully disposed and tied firmly on a strong stake or small pole, which was plunged in a pot filled with a sort of rough and ready mortar, which soon hardened round the stake and kept it perfectly firm. These were employed during the coldest weather, and doubtless it was thought better to act thus, than to expose valuable shrubs to risk of loss from gas and other evil influences. The fine-foliaged things generally, Palms, Ficuses, and such things, are as remarkable for bearing a great deal of removal, and for not suffering much from the drying atmosphere of rooms, as for their grace and verdure. The Camellias were also more fully embellished with flowers by the aid of a little management. Of course there were plants in plenty in full bloom at Passy which were not required at the Hôtel de Ville, and from these, numbers of blooms were taken off without any stem, thus saving the buds immediately below the bloom, while the flowers were brought into Paris in shallow boxes, a slender wire slipped through the base of each, turned down a little on the other side, and then pulled back, the flower being then seated upon a couple of leaves on or near the apex of a shoot on one of the plants already in position, and fixed by a twist of the wire. In this way a great number of blooms were added for the night without touching a wood-bud of the specimens upon which they grew.

Undoubtedly the great want of British gardens at present is a far greater proportion of fine-leaved and graceful plants. With them it is astonishing how much more may be made of flowering plants. We have so long sought after "perfection" of blooming qualities—after masses of bloom, that frequently a show house may be seen with nothing but bloom, in which the culture and the training are so "superior" that leaves have almost totally disappeared. We have seen how highly the beauty of such finely-grown and brilliant specimens is increased when associated with subjects of graceful habit and form at some of our recent exhibitions; we have seen how much those tall Tree Ferns and fine-leaved plants, sent from the Crystal Palace and elsewhere, tended to embellish the International Exhibition, but the gardener in a private place, who has, of course, full control over his materials, has opportunities of making combinations superior to most that have yet been made at a flower show, though on a small scale; and doubtless when he knows fully the great advantages of such plants, from Dracænas to the hardier Palms—knows how useful they are at all seasons for the embellishment of the house or the conservatory, how many of them may be utilised in the flower-garden in summer, from whence they may be taken back again, cleaned and refreshed by the summer rains, to ornament the conservatory when the flower-garden offers no attractions, and how easy they are of culture, and how they keep in good condition for almost any length of time, he will cultivate them largely. Doubtless we shall then see a great improvement in the aspect of English conservatories, now so generally well supplied with flowering plants. At present in numerous cases, even in places distinguished for good gardening, the conservatory is too often filled with very ordinary and graceless vegetation. *W. R.*

SALADS, AND HOW TO GROW THEM.

Cabbage Lettuces.—In my last I promised to give some instructions regarding the culture of Cabbage Lettuces, which are not only useful but ornamental, especially when planted on the margins of beds, such as those of Onions or of other autumn crops. They have also a pretty appearance on nice borders,. Of this kind of Lettuce there are many varieties, the best of which are Neapolitan, the Hammersmith Hardy Green, and the London Market. There are, moreover, Brown Dutch Cabbage, Silesian, Drumhead or Malta, Victoria, Tennisball, and many others, and last and least, but not in quality, Wheeler's Tom Thumb, which is a very useful variety for gentlemen's gardens.

Cabbage Lettuces are not generally so highly esteemed as their taller brethren of the Cos section; but they are, nevertheless, very valuable additions to the class of esculents to which they belong, and in some hard winters, when the Cos kinds have been cut off, these bushy little plants have been found to weather the storm, and to have received but little injury from the ordeal through which they have passed; for owing to the plants growing close to the ground they are often protected by snow.

The best time to sow for the main crop is about the second or third week in August, but this must depend upon the nature of the seed bed. On very poor land they may be sown earlier, say, the last week in July or first in August; but the produce of this sowing is not to be depended upon, because if the weather in autumn should be mild and of a growing character, they will get too forward and run to seed. As a succession to the main crop sow again in the end of the last week in August. If it is intended to grow them through the following spring, sow in the second week in October in frames, as previously directed for Cos Lettuces. Those sown in July will be ready to plant in about three weeks from the time they are sown, and will be fit for use in the autumn. They must be planted in good open ground in rows a foot apart, and 9 inches asunder in the row. See that they do not suffer from want of water, and use the hoe freely among them, to keep down weeds, which are usually very abundant towards autumn.

The main sowing should be planted out, as soon as the plants are large enough to handle, in rows 6 inches apart each way, on ground that has been well manured, and deeply dug. The character of the soil is not of much importance, provided it is tolerably well drained. I have known Lettuces to do well on strong tenacious clay soil, when in the same season the winter has killed those on lighter land. If kept free from weeds, and properly cared for they will make good Lettuces for Christmas, as well as for the first four months of the year, by which time the Hardy White Cos, spoken of in my last, would be ready for eating. We may thus have, as I before said, Lettuces all the year round.

In order to get Cabbage Lettuces in winter of a superior quality, I would recommend the most forward plants of those sown in the middle of August to be planted on a sloping bed, facing the south or south-east, made about a foot above the ordinary level of the ground. This will keep them well drained. They should stand about 9 inches apart, in order that air may circulate freely among them. On the first appearance of early frosts place boxes and lights over them, and do not let the glass be more than 6 inches from them, but open the lights on all occasions when there is no rain or frost. This will keep them dry, which is what they require. In frosty weather the frames must be well protected with litter. These will be found very useful when others in the open ground cannot be easily obtained, and of course, owing to the extra care bestowed upon them, they will be found to be very superior to such as have received less attention, their leaves being much more tender and of larger size.

The best sort to sow in frames for spring planting is Wheeler's Tom Thumb. Plant it out in March 6 inches apart. It is very compact in growth, and stands a long time without running to seed. I have seen the hearts of this variety become as hard as a leathern ball, and to keep in that condition for weeks; indeed it is difficult to obtain seed from this kind at all. There are some good soft-leaved varieties useful for summer growth, but I do not think they are worth growing when Cos Lettuces do so well. I do not consider brown Cabbage Lettuces worth cultivation; some of them are, however, ornamental, while others are large in size, and on that account are cherished by some as a matter of fancy.

My advice to all who would grow good Lettuces is this: having obtained a good sort, to save their own seed, carefully selecting the best every year, as they are apt to run out. When the seed is ripe keep birds from it; a good plan is to pull the stems up by the roots as soon as the first heads are ready, and to place them in a greenhouse to 'cotton' or ripen previous to rubbing it out. This of course applies to both Cos and Cabbage Lettuce seed. *J. M. M.*

NEGLECTED PLANTS.

The Luculia.

(*Concluded from page 237.*)

While the plants are breaking and forming new shoots preparatory to potting, let us see what kind of soil or compost is the most suitable, and here, looking to nature, we should most likely select something rich in vegetable deposit. This, however, is wrong, and is the rock upon which more Luculia plants have been wrecked than any other. The finest soil is rich tough turfy loam, and rather hard turfy peat intermixed with sand, charcoal, and half-inch bones. The turf and peat should be broken into pieces about the size of walnuts, and after that the finest of the soil should be taken away through a fine sieve; and the charcoal should be broken to the size of horse Beans. Then take the following proportions:—Turfy loam, 1 peck; turfy peat, ½ peck: silver sand, 1 pint; charcoal, 1 pint; bone-dust, ½ pint. Mix the whole intimately together, and if dry and warm it is fit for immediate use. In a fortnight from the time of stopping, each branch will have broken, say four shoots, and these will be from half an inch to one inch long, and the plants in a fit state for shifting. If the plants are in 4-inch pots prepare some perfectly clean 6-inch ones by draining them thoroughly with potsherds; then take the plants, and, turning them out of their pots, examine the roots closely, removing drainage and any inert soil, but not disturbing the roots too much; then transfer them to the new pots in the compost specified above, and make it as firm as you can without resorting to the ramming system to compress it. The plants may then be returned to the most moist and shady part of the stove or forcing-house, be shaded for a few days, if necessary, until they make fresh root, and then be exposed to full light. The Luculia, however, under artificial treatment does not like an excessive glare of sunlight, as the leaves quickly burn and become yellow, therefore, it is necessary to use during bright sunshine, a slight shade, such as tiffany or Nottingham lace. If to be had, a bottom-heat of 80° to 90° to plunge the plants in will be found an additional stimulant; and if with this, water is cautiously applied and a moist atmosphere maintained, with a free circulation of air, free growth is certain. As the plants progress tie out the young shoots, and depress the leading ones, so as to give the secondary branches a fair share of the sap. When in free growth, and the first leaves have assumed full proportions, weak liquid manure may be given alternately with clean water, but care must be taken not to overwater at any time, or the leaves will turn yellow and fall off.

The Luculia is rather subject to insect enemies, such as thrip and red spider; and the mealy bug is particularly fond of the flower trusses. Keep a watchful eye, and use the usual remedies, tobacco fumes or water for thrips, sulphur for red spider, and catching and killing for mealy bug and scale. Watchfulness and a healthy atmosphere are the great checks against insects, and if the syringe is freely used, there will rarely be much to fear from them.

When the young plants have progressed so far as to have formed six full-sized leaves upon each shoot, it will be time to stop them, so as to induce another increase of branches. For a week before stopping the shoots, which must all be beheaded at the same time down to the three pair of leaves, it will be well to decrease the supply of water, and the supply should also be limited until such time as the young shoots begin to present themselves. The object in keeping the plant rather dry after stopping the shoots is to allow the sap to accumulate and start all the buds at the same time, whereas if the excitement was kept up, the chances are that the two leading buds upon each shoot would start and the others remain dormant. As the buds swell, increase the supply of water and syringe freely. The bottom-heat should also be kept to 85° or 90°.

When the young shoots are fully formed, say an inch or so long, it will be time to think of shifting the plants into larger pots. If the directions of this article are followed out early, the chances are that the plants will be ready for their second shift by the end of March or beginning of April, and if the growth is strong and the plants well rooted, they may be removed into pots 13 inches in diameter; but if not, what are called 11-inch pots will be sufficiently large.

In shifting be very particular in providing drainage. The same kind of soil must be used, but this time a few larger pieces of charcoal, the size of a walnut, may be intermixed with the soil, and there will be no harm in throwing a small handful of half-inch bones among and over the drainage. Compress the soil firmly, give a little tepid water, and replunge the plant in the stove. Water at the roots must be cautiously given until the plants get into free growth, but they may be dewed over twice or thrice a day with a fine syringe, especially if the weather is bright and sunny; and when the plants get into free vigorous growth an occasional soaking of weak manure water made from Standen's manure, will be a material assistance.

Now, as the blooming of the Luculia, like that of the Hydrangea, depends upon the proper maturation of the wood, it will be necessary to bring the growth into a state of comparative rest, so that by the end of July it will be sufficiently matured to warrant the plants being placed in the open air on a west aspect, where the wood will mature completely. In such a situation some of the leaves will turn comparatively

yellow, but if the plants do not suffer from the want of water these will soon recover when they are returned to the conservatory or greenhouse. While the plants are in the open air care must be taken not to expose them to drenching rains. If early bloom is wanted the temperature of 55° will be necessary, but in the ordinary greenhouse or conservatory the plants will come into bloom from January to March.

This brings the plants to the end of their first season of blooming. If stock is wanted, cut out the flower trusses and the extreme points of any shoots that have not bloomed, place the plants in a temperature of from 55° to 60°, and in a fortnight or three weeks you will have upon the point of each branch a lot of shoots about two inches long. Then prepare some propagating pots in the usual manner, covering the surface of each with an inch or so of silver sand; take off each cutting with a "heel" of the old wood: insert firmly in the sand, water with tepid water. cover with a bell-glass, and plunge in a bottom heat of 80° to 90°, shade from the sun, and dry the glass daily. The Luculia is a slow rooting plant, but, with good healthy cuttings and a nice moist bottom heat, they should be rooted and fully potted off in two months. In potting the young plants off, use the greatest care, and nurse them tenderly until they start into fresh growth, when they may be grown on as before described.

When sufficient cuttings have been procured the old plants must be pruned boldly back, and when they have broken plenty of shoots reduce the ball and pot into fresh soil, using precisely the same treatment as to temperature as in the preceding year. In the second year, plants that will produce 30 heads of bloom may be readily grown, and such plants, blooming from November to March, are something fit to look at. Observe the same rules as to ripening and setting the bloom in July and August. Without this precaution plants grown in heat will not bloom at all, and hence the reason why so many fail to flower the plant in a satisfactory manner.

In growing the Luculia in the open border of the conservatory or greenhouse, perfect drainage must be secured, and the same compost must be used. Plants in the conservatory, unless it is kept very warm, must not be stopped in the young growth, but after blooming the shoots must be cut boldly back before they are started for the second season's growth. To the plants thus situated manure water must be liberally administered during the growing season, and if every spring the surface is removed and replaced by fresh compost without injuring the young roots it will be well.

L. Pinciana is equally sweet, but it does not bloom quite so freely as the original species, neither is it quite so good a grower. *An Old Subscriber, Midland Counties.*

ROYAL GARDENS, KEW.

[The following is a condensed abstract from Dr. Hooker's Report on the progress and condition of the Royal Gardens, Kew, during the year 1866. EDS.]

The year 1866 commenced with a larger number of visitors than any previous one, amounting during the first quarter to 18,000 persons more than during the same period in 1865. Owing, however, to the bad weather of April, June, July, and September, there was so scanty an attendance during these months, that the total number during the year fell 14,000 short of 1865. During each of the other eight months the attendance was much above that of the corresponding ones of the previous year. The following is the number of visitors in the year 1866—488,765.

On being appointed to the directorship I was instructed to carry out various changes in the staff and administration of the Royal Gardens at Kew, which came into full operation at the commencement of the present financial year.

The principal of these were, the abolition of the curatorship of the pleasure grounds, and the consolidation of its duties with those of the curatorship of the Botanic Gardens, and the providing a staff of foremen who should be responsible, under the Curator, not only (as hitherto) for the keep of plants in their charge, but for their good cultivation, and the improving of their several departments in every way, so that the Instructional, Scientific, and Ornamental objects of the whole establishment should be advanced by their efforts, as well as by those of their superiors. At the same time the Museums, Library, and Herbaria were placed under the immediate control of the Keeper of the Library and Herbarium [Professor Oliver], whose department was charged with the naming of the whole collections in the Gardens and Museums, and a scientific assistant was added to this department.

Further, a storekeeper was appointed; also a foreman for the nurseries, arboretum, &c., in the Pleasure Grounds. The wages of the young gardeners and labourers were raised, and a small increase given to four of the best labourers, who act as overseers to detached gangs, and are responsible for their activity.

Hitherto the above changes have worked well; the consolidation of the Pleasure Grounds and Botanic Gardens has saved much labour, expense, and confusion; it has enabled both to be much better served, and many improvements to be made, without the extra grants hitherto called for. A very great many of the plants have been accurately named, and conspicuously ticketed.

Ordinary Works.—Borders have been made round the stoves and plant houses, box-edged, and filled with tender rare shrubs, &c., which being trained against the walls improve their appearance. Beds of Ranunculuses, Tulips, Anemones, and Gladiolus have been made, and preparations for spring gardening during the ensuing season.

In the Palm house the whole collection has been re-arranged, and in great part named. Avenues have been opened down the wings, and many flowering plants introduced on the shelves. I regret to add, that owing to defects in the heating apparatus now employed in this building, many most interesting tropical plants (as the Mango, Cocoa-nut, Chocolate, Bread fruit, &c.) can no longer be cultivated in it.

The tropical Fern and Aroid houses are in the finest condition; but the Tree-ferns are so crowded that the public cannot see them. Were the present small Tree-fern house to be connected with the other Fern house, which is close by, ample space would be gained, and the whole would present a magnificent appearance.

The celebrated collection of succulent plants has been considerably increased, and is in very good condition in all respects.

The Orchids have received the Curator's special attention, and are greatly improved; the collection has been doubled by correspondence, chiefly with the East and West Indies; it is still, however, far below what these gardens should possess, in extent and in the size of the plants.

The Hardy Herbaceous Plants, to which much importance is attached by students, &c., and by means of which many hardy ornamental plants should be introduced into this country, is in a very unsatisfactory state. A new foreman has lately been appointed to this department, and the whole is in process of rearrangement, in a form that will enable them to be better cultivated and inspected.

The collections of Stove Plants have been well cultivated, and the stock of duplicates for exchange largely increased.

A small house devoted last year to Economic Plants has proved very successful and attractive; it is, however, much too small, both for its purpose and for the convenience of the public, so that in another year it will probably require enlargement.

The Temperate House (or Winter Garden) has been placed under a new foreman, whose first duty has been to rearrange most of the large specimens planted in the ground; this is because when originally put in the earth, four or five years ago, their rates of growth were not known. This operation has been conducted with ability and success, and the four rows of Araucarias, half-hardy Palms, Tree Ferns, Dracænas, Dammaras, Gum Trees, &c., planted down the grand centre, have a magnificent effect, whether from the walks or gallery. The collections of Japan and colonial plants on the shelves, destined by my predecessor for the wings, are in excellent condition, and I venture to hope that the completion of this grand structure, by far the finest in Europe, will not be long delayed. By devoting one of the contemplated wings to the plants of our Northern colonies and possessions, and the other to those of the Southern, and arranging the plants in them by countries, a succession of views of the vegetation of these regions would be produced, that would be equally instructive to the public, and gratifying to the colonist on his visiting England.

The Arboretum and Nurseries in the pleasure grounds have also been placed under a new foreman, and the latter are now being put into thorough order.

Very much remains to be done to the trees and plantations over nearly 300 acres of the pleasure grounds. The trees, chiefly Beeches, Elms, and Oaks, which had been neglected for nearly half a century previous to my predecessor's taking office, are dying annually by hundreds, and the ground (sharp sand and gravel) is so full of fungused roots that everything planted near them of late has dwindled or died. Of the once beautiful Cedar grove at the Pagoda only four trees remain. The new plantations made by my predecessor by the river are flourishing, but require thinning, and the good trees to be supplied with better soil. To accomplish all that is required in the pleasure grounds, and lay out the ground properly, will require a large outlay of time and money, and I would propose that a sum be annually applied to this purpose, and the work be proceeded with systematically.

New Works during the Year.—A good mess-room has been built for the labourers, who have hitherto congregated in the stoke-holes and other unwholesome and unsuitable places for their meals. The necessary rules respecting its use were at first grumbled at, but are now unanimously approved.

A gravelled walk, 930 yards long, 12 feet wide, has been made from the Lion to the Unicorn Gates, parallel to the Richmond Road. Another, from the Temperate House steps to the Richmond Road, 160 yards long by 25 feet wide. The sheds and builder's lumber have been removed from opposite the Temperate House, and a gravelled path, 400 yards long by 12 feet wide, carried round the terraces, which also have been turfed and gravelled. A new walk, 500 yards long by 12 feet broad, has been made from the Brentford Ferry Gate to the main walk in the Botanic Gardens, the ground cleared and levelled on both sides, the old shrubs removed from the haw-haw bounding the Palace Gardens, and the fine lawns in its proximity improved and brought into view from the walk.

The celebrated old Arboretum in the Botanic Garden has been cleared of its dying and dead trees, preparatory to trenching the ground and replanting it.

In the Palace grounds the worn-out shrubberies within view of the garden walks have been removed, as have various old trees that were injuring the buildings or hindering the development of better trees.

Works in Progress.—The most important is the enlargement of the yard for coke, soil, &c., &c., which was greatly needed, and which enables us to improve the walks about the lake by the Museum No. 1, and its banks, which are being washed away; also to make a place for the water-fowl and for planting deciduous Cypresses and other trees of which there are no specimens in the gardens.

Museums.—There has been no change of importance in this department.

Herbarium and Library.—In my last year's report, I dwelt at length on this department, the donations to which had been unprecedented in extent and value, amounting to nearly 100,000 specimens. During this year the officers have been actively employed in arranging these, in preparing to distribute the duplicates, and in naming garden plants. Mr. J. G. Baker, an accomplished botanist, has been appointed as first assistant in the Herbarium. About 12,000 specimens have been added to the Herbarium during the present year from various sources.

Distributions.—When clearing out the old nurseries and plantations in the pleasure grounds, means were taken to turn the surplus stock to account; and the same was done with regard to the "bedding-out plants" when they were lifted in autumn. The following distributions have been made:—

Aldershot camp, shrubs and trees	7,705
Other barracks and public places	5,105
Bedding-out plants to Aldershot	12,000
Bedding-out plants to London poor	3,800
Miscellaneous living plants distributed to correspondents in exchange, &c.	2,598
Total	31,208
Ward's cases, chiefly of trees, &c., sent to the Colonies, &c.	29
Packets of seeds	1,603

Jos. D. Hooker, Director.

Home Correspondence.

Rival Systems of Grape Growing.—It is very certain that neither hard words nor fine words will prop an argument, be it right or wrong. And as we have had no thunder and lightning during the last fortnight, I think that the electricity of my friend Mr. Miller must have been exhausted by the hurricane from Gopsall Hall (see p. 182). Mr. Miller remarks that according to my theory his Vines that produced those splendid Grapes he carried on a pole, must be dying now. Well, if they are not actually dying, they are, according to Mr. M.'s own words, fast declining, for what does he say?—that last January he carried into Berkshire six bunches, weighing 30 lb.; and two years before he carried to the Royal Horticultural Society the same number of bunches weighing 36 lb. I conclude, therefore, that the Vines have reached the top of the house, and have seen their best days, for the loss of ½ lb. from a bunch of Grapes each season is something considerable; if they go on diminishing at this rate they will soon become inferior to those at Hampton Court. Will Mr. M. be good enough to inform the readers of the *Gardeners' Chronicle* whether these Vines were more than five years old at the time he cut the heaviest bunches he speaks of. If this question is not satisfactorily answered, I must conclude that the finest bunches were grown under the system I recommend—that of extension, and the smaller ones under the restrictive treatment. If so, Mr. Miller has yet to learn the cause of those fine bunches. Mr. M. appears to think I have little faith in my system. If Mr. M. were to follow the extending system, combined with his other admirable treatment, he would produce grand results. Again, he seems to have great doubts whether Vines grown on the extending system would stand hard forcing at all. My answer to this is, decidedly yes, and even better than those grown on the opposite principle, for I contend that where Grapes are ripened in the month of May and June, the Vines receive better and more congenial treatment in this country than when the crop is ripened in September. At any rate, we are accustomed to see the finest fruit exhibited at the midsummer shows, and it is fair to conclude that the largest and finest fruit being produced at this period, the Vines must be in the most perfect health; this perfect state of health being produced by the most natural and congenial treatment. I know this to be quite contrary to the notions of many blue aprons, but is it wrong or right? One word more. Many thanks to Mr. Ingram for his geological observation, but if the gravelly or poor peaty hungry soil of Windsor Forest and Chobham Common are so beneficial to Vines, that these fine examples have been producing tons weight of good Grapes every season, have we not during the last 20 years been making our Vine borders of the wrong kind of soil? Our Government has foreseen the advantage of cultivating the Quinine plant in India, and reducing the enormous price of that valuable remedial agent for the benefit of the human race. And if this system of extension pruning, as applied to the Vine, were fully understood, we should have five times the quantity of Grapes that is now produced by the old system. Would this not be conferring a blessing equally great, on the many poor creatures daily dying amongst us of consumption? *H. Cannell, Fuchsia Nursery, Woolwich.* —— The innumerable treatises and methods that have lately been promulgated about Vine growing, make it an almost hopeless task to advance anything new on the subject, unless it happens that some daring cultivator like Mr. Cannell startles gardeners with his 100*l.* gratis hint. There has perhaps been no plant so much experimented upon as the Vine, from Speechley's time, when carrion of all kinds was buried in the borders, to our own times when more congenial mixtures are used by good cultivators. All good Grape growers know how well Vines prosper in shallow, well-drained borders; and by yearly adding to their wants as the Vines increase in size and age, and by judicious pruning they may be kept in a first-rate bearing state for a lengthened series of years, even when there is a Vine to every rafter. In short, a pot containing a peck or two of earth, with a young healthy Vine in it, will almost produce as great a weight of Grapes as the weight of the soil which grows them. At Clumber, in Nottinghamshire, are two very large old Vineries, and the Vines planted in them must be above 80 years of age. They consist of Muscats, Hamburghs, Frontignans, and other sorts, one to each rafter. I have known these Vines for these last 30 years, and they have generally produced good crops, with fair-sized bunches and berries. They have been planted outside the houses, and every winter or spring the stems are covered with litter or Fern up to where they enter the houses, and on its being cleared away in the summer, the stems of the Vine look very rough and gnarled from the remains of fibres grown into the covering materials. Many of these Vine stems on the outside must be from 15 to 16 inches in circumference, and the old stems inside the houses are thick in proportion. Mr. Moffatt, the late gardener at Clumber, believed that when these Vines were planted they never had had any regularly made border; the roots have consequently had to rough it ever since over the kitchen garden near them, which is regularly dug and planted with crops. There is likewise a broad gravel walk which passes in front of them, and which never has been disturbed. The soil of the kitchen garden at Clumber must, however, be suitable to the Vine, for it is of a rich sandy nature on a gravelly subsoil. Here, then, is an instructive instance of the longevity of Grape Vines under the system of restricted pruning, and of confining them to one rafter. When I came to Welbeck in 1837 there were three very old Vines in a small low Vinery which had been planted by Speechley. They were named the Black Tripoli (which I now believe is only the true Frankenthal); and they had been lifted by Mr. Mearns, and replanted in a chambered border, with turfy soil, taken from a limestone rock, and only 15 inches in depth. They annually bore good crops, neither the bunches nor berries being very large, but they were highly coloured, and the flavour was the most rich and vinous of any of the Hamburgh sorts which I ever tasted. I have no doubt that these Vines would have gone on bearing well for years, but they had to be destroyed when the old gardens were done away with. This is another instance of a highly restricted system being pursued in regard to the growth of Vines, where both roots and branches were confined to a small space, and their fertility had to be kept up by adding fresh soil every other year. The late Mr. Dowding, when gardener at Oakhill, near Barnet, has perhaps never been surpassed for the

growth of Hamburgh Grapes, both as regards size of bunch and berries. His system was to grow a plant to every rafter. And as for pruning I was amazed when I first went there to know where the fruit was to come from, for he cut so close to the old wood that hardly the vestige of a bud was to be seen. His large bunches grew on the top of the rod, where about a foot of young wood was annually left. One of these bunches, nearly 9 lb. in weight, was exhibited at Chiswick. Mr. Dowding never considered this restrictive system would hasten the decay of his Vines, and only complained of his early Vinery (where ripe Grapes were wanted in March) getting gradually weaker through their unnatural course of forcing. Mr. Cannell must have been a perfect fatalist to look on and see the Vines at Portnall Park yearly perishing before his eyes, without doing something to restore them. An energetic cultivator, by lifting them gradually, would have soon ascertained the state of their roots—whether brought about by bad drainage or poisoned by garbage, and have acted accordingly in renewing them or planting young Vines in their places. His Vines at Portnall Park had by his own account nine stages in their 20 years' growth (two more than in Shakespeare's Seven Ages of Man), which might be rendered thus:—

The Vine has many woes,
And all its history tells of hits or failures
From early infancy to gradual decay,
Extending to nine stages:—At first the eyes,
Cut off and planted into little thumb-pots,
And ably cultured, soon bear splendid bunches,
Deem'd in perfection, after four years' growth
For prize-fruit: after that the bunches dwindle
To smaller size, and lose their bloom and colour.
Then that little pest the spider sucks the juice,
And browns the leaves, making in the next year
A sad and signal failure in the crop.
The next stage shifts into the shanking one,
For roots and branches do not act together,
And footstalks of the half-ripen'd berries
Look brown and shrivell'd up; and then the mildew
Attacks them badly in their weaken'd state.
The seventh is mark'd by general loss of flavour
In all the bunches ripen'd; and in the eighth
The rods are far too weak to bear a bunch,
Or furnish healthy leaves. Last stage of all
That ends their strange eventful history,
Is that the shrunk up rods refuse to break,—
Sans roots, sans leaves, sans fruit, sans everything!

It is no doubt a fine sight to see the grand old Vines at Hampton Court, and other places mentioned by Mr. Cannell; but their fruit, I am afraid, would have little chance of taking prizes, or even of gracing a first-rate dessert at the present time. Nor is this extension system of grape-growing likely to produce so many Grapes as where the Vines are restricted to one rafter, and properly attended to as regards drainage and root-action. *William Tillery, Welbeck.*—With reference to the extended system of Vine culture *versus* the restricted, as advocated by Mr. Cannell, this much may probably be learned, *i. e.* that a too rigid restriction of the foliage undoubtedly must prove very prejudicial to the Vines; at the same time it is evident that the restricted system, judiciously carried out, is very far from effecting the ruin pointed out by Mr. Cannell. One of my nearest neighbours has a Vinery, which has now been planted for upwards of 12 years: the Vines have been absolutely restricted to single rafters, and the same rods spurred from the very commencement. The border is all outside, and the only protection afforded to the roots is a good thatch put over the border during the winter. The fourth year after planting, the largest bunch (a Black Hamburgh) weighed 7 lb. 12 oz.; and last year (1866), the largest bunch (also a Black Hamburgh) weighed 8lb. 4 oz.; and the average weight of the Black Hamburgh bunches all through the house was little, if at all, under 6 lb. This certainly does not look like deterioration. The largest bunch of a Black Frontignan was also at least from 5 lb. to 6 lb., but unfortunately its weight was not actually ascertained. *Walter Briscoe, Thornton Hall, Neston, Chester.*

Cedars of Lebanon (see p. 238).—The following are the dimensions of a few which are growing on the lawns here. These were planted in their present positions by the late J. E. Shirley, Esq., in 1827, and having assumed a symmetrical and most robust growth, are now objects of so much admiration and wonder that the statement of their age is received with some amount of incredulity. Concurrently with Mr. Lawrence, I am cognisant of the prevailing idea that this noble Conifer does not readily acquire a rapid growth in this country. Facts, however, prove the contrary, as the following details will serve to show:—No. 1, 2 feet from the ground, circumference of bole, 10 feet; No. 2, 8 feet; No. 3, 9 feet; No. 4, 7 feet 6 inches; the diameters through the graceful branches of Nos. 1 and 2 are respectively 60 feet and 50 feet, and the heights of the whole vary from 45 to 50 feet. The soil in which they are growing is a dark friable loam on the white lias formation. I may add that my employer, E. P. Shirley, Esq., is so prepossessed in favour of that gem among Coniferæ, Picea Pinsapo, which flourishes so luxuriantly here, that he has commissioned me to procure several more to plant in the pleasure grounds. It may not be irrelevant to remark that No. 1 Cedar presents a remarkable contrast to its fellows on account of its more rigid style of growth and glaucous but less ample foliage, thus bearing a strong resemblance to its near relation, the Atlas Cedar. So much, indeed, is this the case, that more than one nurseryman has at first sight mistaken it for an immense specimen of that variety; its age and size, however, soon dispel that idea—the Atlas only having been introduced into this country about 24 years ago. Furthermore, in contradistinction to its more umbrageous and dark-green leaved companions, it has during the last five years assumed a fructiferous habit in an eminent degree, which its associates have not, and it also possesses a less hardy constitution than the others, so much so, indeed, that the severe frosts in January last denuded it of a considerable portion of its foliage, thus causing it to assume a blighted appearance, whereas its more fortunate brethren passed through that trying ordeal with impunity. I may also remark that a healthy, but comparatively small plant of the beautiful Pinus insignis escaped unhurt, excepting a few leaves on the more exposed shoots, which have thereby assumed a scorched appearance. The tree in question produces a remarkably pictorial effect in the landscape, backed as it is by masses of evergreens and tall deciduous trees. With reference to the more extensive adoption of the Coniferous tribe of trees in our gardens and parks, from what has been adduced by past experience I think we shall not err in giving prominent countenance to the Cedar of Lebanon. *W. Gardiner, Eatington Park, Stratford-on-Avon.*

Effects of the Late Winter in Kent.—You may like to know what effect the late severe winter had in Kent about 10 miles south of Tonbridge, from 50 to 80 feet above the valley, and about 200 feet above sea-level. Subsoil, Hastings sands, alternating with Weald clays. Wellingtonia gigantea, Abies Douglasii and cephalonica, Taxodium sempervirens, Thujopsis borealis, Thuja gigantea, Cupressus Lawsoniana, Cryptomeria japonica are uninjured; Araucaria imbricata is little injured, except one or two specimens in which the points are drooping; Cupressus Lambertiana is much injured, one killed; Pinus insignis much injured, two killed, the recovery of many others doubtful; Cedrus Deodara is killed; Magnolia grandiflora little injured; Laurustinus, Sweet Bay, Escallonia macrantha, and Cotoneaster are killed to the snow line. In the same neighbourhood, but from 100 to 150 feet higher, the Laurustinus and Sweet Bay are uninjured. *W. C. M.*

Roses and the Frost.—I believe that I was your first correspondent who pronounced Maréchal Niel to be perfectly hardy, and subsequently I have been much pleased to see, without a single exception, this opinion confirmed by others. I imagine your readers will not, however, all be prepared to indorse such a sweeping denunciation as to tenderness of different kinds of Roses as your Stamford correspondent has made (see p. 183). Our situation is quite as bad as that described by Mr. Laxton, yet we have by no means suffered so severely. We have no shelter, and are close to water in a valley. The soil is, however, a good strong, sound loam. Your correspondent quotes 23° as the maximum of frost in his locality. On the same night and on the same occasion we had 6° below zero, and while Maréchal Niel was in no way injured, on the same spot, and close to it, Noisette Triomphe de Rennes, Climbing Devoniensis, Céline Forestier, Cloth of Gold, Princess Augusta, and similar varieties perished entirely. Not so Hybrid Perpetuals; a great portion of the sorts named in your correspondent's Lists 2 and 3 are now pushing vigorously. The only ones which appear to have been injured are Eugène Appert and General Jacqueminot, the latter very slightly. Whoever before heard of Baron Prevost, Madame Boll, Duchess of Sutherland, Queen Victoria, and others of a similar type, having been seen, even partially, injured by frost? May not a "light, well-drained, highly-manured, old town garden humus, overlaying the oolite rubble," be favourable to incipient "consumption" in your correspondent's case; and might not John Frost thus have found readier victims to his cold embrace than he could have secured in less favoured localities? *A. Godwin, Ashbourne.*

Old Garden Favourites.—There is another reason why such little gems as Phlox Nelsoni, fruticosa, procumbens, and verna are so seldom met with in gardens besides that assigned by Mr. Dean (see p. 236); in many soils and aspects they will not live through the summer; sunlight and dry weather are too much for them in high situations on the gravel. For the same reason, combined perhaps with the winter cold, I have had to give up Lychnis Haageana, Pentstemon Wrightii, and P. Murryanus. And notwithstanding the assertion of some of the seedsmen that the following are hardy perennials, I find that, as a rule, the first winter invariably disposes of them, viz., all the varieties of Antirrhinum, Cineraria maritima, and Delphinium sinense and varieties. The following also will not outlive the winter—viz., Dianthus sinensis and all its varieties, including Heddewigii and laciniatus, also the Queen, Brompton, and Emperor Stocks. *Alfred Copland, Chelmsford.*

Gravel Walks.—I should feel much obliged by any of your correspondents informing me of the best way of making durable gravel walks in a damp shrubbery. What is the proper method of making them with gravel and Portland cement, or anything less expensive which is of a good colour? Ought the walks to be hoed up first before laying on the gravel and cement? Full particulars will much oblige. *A. T.*

Vines for Vineyards.—I have recently acquired a property in Berkshire, on part of which is a steep hill, sloping to the Thames, with a south-eastern aspect. The soil is pretty good, about 10 inches in depth, the substratum being chalk. I am anxious to establish a vineyard thereupon, but know not the sort of Vine to cultivate. That the soil and situation are not unfit for the out-of-door growth of Vines has been proved, for I well remember some 40 years ago the existence of a vineyard on the above-mentioned site, and so precipitous is the descent that the Vines were grown on terraces. I should like to grow both black and white Grapes. Can any of your readers advise me? *E. J.* [See p. 1220 of our last volume, where several suitable varieties are mentioned. Miller's Burgundy, Esperione, Sweetwater, and Royal Muscadine may be particularly recommended. Eds.]

Beurré Clairgeau Pear.—In the last number of the "Florist and Pomologist" is given a good figure of this Pear, such as is produced when the variety is grown on the Quince, as a pyramid or as an espalier, in a good situation. On the Pear stock the fruit does not attain the same dimensions. In form it approaches the Colmar, and at the time of gathering it is almost green. This description is verified by my own experience, and by that of some 50 amateurs, who have been supplied by me during the last 12 years. In England Messrs. Veitch, Low, Henderson, Rivers, and various amateurs can affirm the same thing. From Holland, Denmark, Germany, Hungary, and the southern provinces of Russia, a favourable report has also been obtained. The variety in question has been considered to be very productive, and as yielding on the Quince a handsome fruit of excellent quality, according to the care bestowed on the planting and culture of the tree. I add some details as to the proper management of the Beurré Clairgeau as grown on the Quince. Whatever be the nature of the soil, sandy, gravelly, alluvial, or what not, do not fear to plant Pear trees worked on the Quince, especially such sorts as the Beurré Clairgeau, which do not extend much even after 12 or 15 years of cultivation. Let a number of holes be dug about 4 feet square, and 2½ feet deep; at the edge of each hole place a cubic metre of a compost made of one-third good kitchen garden mould or loam, and two-thirds of street-sweepings, whereon kitchen refuse is thrown, and in which may be found a quantity of wood and coal-ashes, of sand and of horse-droppings. [In this country we should have to go to the dust-bin for some of these ingredients; our street sweepings, as a rule, are not of so composite a nature! Eds.] Presuming the tree to have been grown in the nursery three or four years, and to have been lifted once or twice, it will have a quantity of fibrous roots, which will greatly increase in such a compost as that just described. The planting should be done in autumn, after the fall of the leaf, in winter or in spring, even up to April. The trees intended for spring-planting should be lifted in December or January, and laid-in in a dry light soil till the proper time comes. Before planting, a heap of the compost must be placed at the bottom of the hole, and in it the lower roots of the tree must be placed. The compost should be sifted in between and among the roots, so as to allow the latter to be placed near together in a somewhat oblique direction, but they should not be placed too closely together. It is, moreover, very important to keep the grafted portion at about a foot above the surface of the ground. If this precaution be neglected, or if the grafted surface be allowed to come into contact with the compost, it will throw out roots above those emitted by the Quince stock, and these will get the upper hand of them, and ultimately cause them to perish. The adventitious roots, springing from the grafted portion, take an oblique or slightly horizontal direction, and produce but few rootlets. In the next year the scion acquires more vigorous development, and either ceases to produce fruit, or, if fruits are produced, they are hard and bad. After the complete destruction of the Quince stock the scion becomes cankery, and is liable to be blown over by the wind if not protected by a solid guard or support. If, on the other hand, the Quince is too much raised above ground it is exposed to the action of frost, and it is well known that the Quince suffers under the influence of a temperature of —15° Centigrade (= 5° F.), and is killed by —17° C., especially in an exposed situation, and when, after a damp autumn, severe frosts occur in the winter. These conclusions are derived from very numerous and extensive observations under many different conditions during many years. When the planting has been done, care must be taken not to prune the stem or the lateral branches in autumn, winter, or spring, but that operation should be deferred until the month of March in the following year. This pruning has one sole object, the consolidation of the wood of the tree. If the pruning be done before the time stated the shoots that are produced are likely to be weak, and the flower-buds are rendered abortive. This pruning is done above a wood-bud, which may readily be discovered in the month of March on the side shoots and laterals. This pruning is repeated every year at the same time, taking precaution to mastic the wounds at first, so as to preserve the vigour of the young tree. It must be understood that these precautions apply to the tree when cultivated as a pyramid. In the case of trees planted against walls or as espaliers, the pruning may be done with the same precautions a month earlier, and in a good situation before or during the winter. It is not necessary to add that at the time of pruning the spines, the "darts" and the "brindilles" should not be interfered with. Indeed they are not touched during the whole year. If after the amputation of a large or small branch (*branche-rameaux*) which is misplaced, "gourmands" are produced on the branches of the tree, they should be removed at the end of July by cutting them off, not level with the bark but just above it (*jusque près de l'empâtement*). On either side may be seen some small rudimentary or latent buds, which when developed usually grow into spines or "darts;" they form at their extremity, during the second year, a fruit bud, and continue to do so for many years. To prevent the formation of "gourmands" on the branches or on the main stem, they should be shortened so as to leave at the end a "chicot" or stump about the length and size of the first finger. This pruning should be done with a sharp knife, but not with pruning shears (sécateur), however well constructed, as the compression exercised by them, always leaves a wound difficult to heal over. So much for the culture of the Beurré Clairgeau and other similar varieties on the Quince, as pyramids or espalier trees. The health of the tree, the abundance and quality of the fruit, &c., undoubtedly depend much on climate, season, situation, and such like. Nevertheless, in our

generally temperate, but variable and sometimes rigorous climate, demanding special care, we may hope to obtain results such as could not be hoped for in too hot or too dry latitudes. Among the varieties of Pear introduced into cultivation for various reasons, which cannot be overlooked with impunity, there are some which require to be planted (in order to yield the desired result every year), either against a wall or in a situation sheltered from the north, north-east and east winds. The Beurré Clairgeau is one of these, and many excellent French and Belgian varieties are in like case. The Beurré Clairgeau does not require to be nailed against a wall or espalier; it is sufficient to place it in a sheltered situation, and to treat it as above directed. Moreover this variety is far from having a constitution hardy enough to resist the inclemency of our winters in an unsheltered position. During the winter of 1860 I lost the seedling mother-plant, although it had been planted with much care in the middle of the garden, in the best compost, and in a good but unsheltered situation. In the nurseries I lost during the same winter 500 strong examples of it, grafted on the Pear stock and on the Quince. On a tall stem on the Pear stock, the fruit, by reason of its weight, is likely to be blown off by the wind in September. Grown as a pyramid on the Pear stock, the variety does not form a good "charpente," as the stem is then badly provided with lateral well placed branches. Hence it should be cultivated by preference on the Quince stock. As to the quality of the fruit the opinion expressed in the "Pomologist" is far from being in conformity with that of the Pomological Committee of the Horticultural Society, which, judging from an isolated case (from fruits sent from Staplehurst, and possibly from a young tree too recently planted, and to which the necessary attention had not been given, or in an unfavourable situation) expressed too hastily the opinion that this fruit was "flat and watery." I protested against this decision at the time, and I sent to my friend the late Dr. Lindley, two fruits gathered in my garden. The Doctor, after tasting them, pronounced them very fine, and among the best of the season. After many protestations that have appeared in the horticultural journals since that time from English growers, I was truly surprised to see in the third edition of the "Fruit Manual," p. 255, this passage,—"Its appearance is its greatest recommendation." I think that in the fourth edition of this useful book, this opinion will be modified in conformity with the notice inserted in the "Pomologist" for this month. I think, moreover, that the Pomological Committee of the Horticultural Society will reconsider its verdict, given too hastily, in my opinion, in April, 1865, concerning two of our best Pears, the Bezy Mai and the Poire Basiner, fruits of which gathered from seedlings, and from the crop of 1864, were submitted to it. This opinion is not in conformity with that of the Société Impériale et Centrale de France, still less with that of the Pomological Committee of the Royal Linnean Society of Brussels, which is composed of amateurs and practical men. The members of this Committee know the seedlings in my establishment, and the trees produced from these varieties in my nurseries, the hardiness of the plants, their beauty when worked on the Quince, and their fertility on that stock as well as the beauty of the fruits, and they declared at one of their meetings unanimously that these two varieties of Pears, as late varieties, were the best that had been submitted to them up to that time, and that the two varieties in question deserved to be generally planted in the garden of the amateur. Ten years will not be required to prove which of the three committees of taste was in the wrong. *J. de Jonghe, Brussels.*

New Plant Club.—Many of my flower-loving lady friends have formed a club or association, with rules hitherto strictly abided by, through which we are enabled to obtain many novelties that otherwise, from the high prices they bear, we could not hope to possess; and since it has proved so eminently successful, I am authorised to communicate with such other ladies as may desire to proceed on the same footing as ourselves, but I beg leave to observe, it will be left to our option to forward our rules only where we can, through the means of friends, ascertain from whence and from whom the applications proceed. I have only to remark that by the combination of friends we are enabled to procure such plants and seeds as are most desirable, and which by propagation and division we can all participate in; and thus we all become possessed of new and choice varieties at very trifling cost, some of our gardeners being, I should say, good propagators, and soon getting up the required number of plants. Should any one of your numerous friends feel desirous of following our example, they will please apply through you. *Isabella, Salisbury.* [Will our fair correspondent favour us with her full name and address, and with a copy of the rules of her Exchange Club? Judiciously managed we have no doubt that such a club would work well. EDS.]

Cucumbers.—A great deal has been written in your columns of late respecting the merits of the different varieties of Cucumbers now in cultivation: their names are legion, and their qualities are extolled by different vendors to such an extent, that it is a difficult task for the uninitiated to select from a list the sorts which may be wanted. The startling names of Long Gun, Fearnought, Derbyshire Hero, Telegraph, Sir Colin Campbell, &c., are being continually advertised. I have no doubt these have all merits, more or less, to recommend them, but why keep adding fresh names yearly to the already over-swollen list, more especially when the new kinds are seldom so good as the old sorts? I have tried a great many varieties for the last few years, and I find none to equal Rollisson's Telegraph, both as a summer and winter Cucumber; in fact, my employers have requested me to grow no other variety but Telegraph in future. The true variety, for there are several under the same name, belongs to the white-spined class. It is a free bearer, thin-skinned, and produces fruit from 20 to 25 inches in length, of excellent flavour, and handsome in shape. *A. Pettigrew, Richings Park, Colnbrook, Bucks.*

Sir Harry Strawberry.—In an advertisement which appeared in your Number of last Saturday (see p. 230), Mr. Underhill states that spurious varieties are often sent out by nurserymen for his Sir Harry. This is true, but I believe they all originally came from him. When Sir Harry was first advertised I wrote to Mr. Underhill for two or three dozen plants, which I received from him in a few days. When they fruited the following season I found that only five or six were true to name; all the others being a worthless kind unknown to me, but which I have since been told is Hooper's Seedling. I wrote to Mr. Underhill on the subject, and in his reply to my letter he said that Sir Harry sported, and advised me to destroy the spurious plants. I received a letter from M. Gloede, of Sablons, last autumn, in which he said that he found it almost impossible to get the true Sir Harry from England, and wished to know if I could spare him a few more runners of it; he saw it growing in my garden two or three years since. I mean to give The Lady another trial this year, as last season was not a favourable one for Strawberries, and I hope that I shall be able to report more favourably of it than I could last summer. *Henry Doubleday, Epping.*

Societies.

LINNEAN: *March* 7.—G. Bentham, Esq., President, in the Chair. W. R. Winch, Esq., was elected a Fellow. Dr. Hooker exhibited specimens of the Myrmecodia tuberosa (Nidus germinans formicarum of Rumphius) from Malacca, sent by Mr. C. Collingwood, and now living, though in a very feeble condition, at the Royal Gardens, Kew. The stem of this remarkable plant, which is tuberous and covered with spines, is invariably filled with ant galleries, and is never known in any other condition. The galleries are lined with a coating of animal matter of such extreme tenacity that, as the tuber decays, the galleries may be removed entire, and resemble branching Algæ. A flower and leaf of the beautiful Dalechampia Roezliana, var. rosea, recently introduced into this country by Mr. Bull, was exhibited by Dr. Masters, who made some observations on the structure of the flowers. The following communications were read:—1. *Notes on the Structure and Fertilisation of the Genus Bonatea, with a Description of a Species found at Bedford, South Africa,* by T. P. Mansel Weale, Esq. This plant is nearly allied to B. speciosa and Habenaria (? Bonatea) Saundersiæ, to which last it is most closely connected, although differing in the very important point of its petals being divided. It is also in some respects allied to B. Boltoni. The flowers, though smaller, are much more conspicuous than those of B. speciosa, and evidently depend principally upon Rhopalocera for their fertilisation. The flower resembles a white lepidoptera, such as Pieris or Anthocharis, and might truly be called the Butterfly Orchis of S. Africa. The sepals are bright green, the lip and anterior portion of the petals pure snow-white.——2. *List of the Musci collected by the Rev. Thomas Powell in the Navigators' Islands,* by Wm. Mitten, Esq.——3. *A Letter from Cuthbert Collingwood, Esq., M.B., to the Secretary, F. Currey, Esq., giving an Account of a Luminous Fungus from Labuan.*——4. *A Letter from Thomas Moore, Esq., to the Secretary, F. Currey, Esq., on Living Plants, exhibited by Mr. Standish, of Two Forms of Skimmia.* These had been originally regarded as distinct species, and described under the names of Skimmia oblata and S. fragrantissima, but had eventually proved to be merely the two sexes of the same plant, as mentioned at p. 235. The parent plant, S. oblata, had some two or three years since borne a crop of berries, which, as no other Skimmia was at the time in bloom, must have been fertilised by its own pollen. At a later period S. fragrantissima blossomed, but the flowers proved to be absolutely male. In subsequent years the mother plant above mentioned had not borne pollen, and in order to secure a crop of berries required to be fertilised by some other kind, and recourse had been had to S. fragrantissima with full success. Thus the male plant only of S. fragrantissima and the female (or sometimes hermaphrodite) only of S. oblata were supposed to be in cultivation. The seedling plants from the self-fertilised berries above alluded to having now blossomed, solve the mystery; males like fragrantissima and females like oblata being produced among them in about equal proportions, thus conclusively proving that the two supposed distinct species are but the two sexes of one plant, which is sometimes hermaphrodite, though it would seem commonly unisexual.

ENTOMOLOGICAL: *February* 4.—Professor Westwood, F.L.S., in the chair. The President, Sir John Lubbock, by letter nominated Messrs. Westwood, Smith, and Stainton as Vice-Presidents for the ensuing year. The Secretary announced that the prize for a memoir on Economic Entomology for the past year had been awarded to Dr. Wallace for a memoir on the Oak-feeding Silkworm of Japan, Saturnia Yama-mai, and that the Council had offered a similar prize of five guineas for the present year to be given for the best memoir on some beneficial or obnoxious species of insect. Mr. F. Bond exhibited specimens of a Lasiocampa, the golden-coloured larvæ of which had been found by Mr. Mitford on the Kentish coast, and which had produced moths apparently distinct from the ordinary L. Trifolii; also some specimens of fritillaries with distorted wings, and a specimen of the rare Dianthæcia Capsincola. He also stated that the Humming hawk moth frequents sunny walls in order to find a crevice in which it may take its ordinary mid-day siesta, a statement confirmed by Dr. Wallace. A remarkably small specimen of Mimestra Brassicæ, captured by Mr. Briggs, of St. John's College, Oxford, was exhibited. Mr. Janson exhibited a box of Coleoptera from Vancouver's Island, including several very interesting forms. Mr. W. W. Saunders exhibited a curious insect-nest from St. Paolo, Brazil, and Dr. Wallace a specimen of Platypteryx Sicula from the collection of Mr. Bree, of Stowmarket, and read an extensive series of notes made during the past year on the Ailantus silk-moth, of which he exhibited a very remarkable collection of specimens, together with their cocoons. He considered S. Ricini to be a local variety of S. Cynthia, and noticed the curious fact that the eggs of this species make a small clicking sound, often repeated. A paper by Mr. Wilson, of Adelaide, was read, containing further notes on the Buprestidæ, and also on Cerapterus MacLeayi and Calosoma Curtisii. Mr. Gould exhibited specimens of Hylurgus piniperda, which have proved extremely injurious to plantations of Pinus insignis in Cornwall; also a collection of insects formed by Mr. W. Prior at Shanghai, almost identical with British species.

February 18.—Sir John Lubbock, F.R.S., President, in the chair. Mr. F. Moore exhibited a number of specimens of a minute wood-boring beetle, Tomicus monographus, which attacks the oaken staves of the casks of malt liquors in India, often causing a loss of the liquor to the extent of 50 per cent. The species has not hitherto been discovered to be a native of this country, and the injury was first observed in Burmah. More than a million of the burrows of the insect have been found in a single cask. Mr. Newman exhibited a garden-door lock filled with the mud nests of a mason bee, Osmia bicornis; also some stems of Sallow infested by the larvæ of Sesia bombyciformis; also specimens of a large ant, Formica pubescens, said to have been taken at Kinloch Rannoch, in Perthshire, each being affirmed to make a cell for itself in rotten Oak wood; also a specimen of Naclea ancilla, taken at Worthing. Mr. F. Smith exhibited two boxes of Hymenoptera, containing many new and interesting species captured at Champion Bay, on the North-West Coast of Australia, by Mr. De Boulay. Mr. Stainton exhibited two species of Micro-lepidoptera which he had reared from Olives at Mentone. Professor Westwood mentioned the capture by Professor Rolleston of a specimen of Vanissa Urticæ on the 7th inst., which proved to be a male, and to have the abdomen filled with oleaginous matter. An important memoir on the Pierideous Butterflies of the Malayan Archipelago was read by Mr. A. R. Wallace, likewise a very elaborate memoir on the distribution of Lepidoptera in Great Britain and Ireland, on the plan of the "Cybele Britannica" of Mr. H. C. Watson, by Herbert Jenner Fust, Esq.; and thirdly, a memoir on the Species of Buprestidæ captured at Penang by C. Lamb, Esq.

Notices of Books.

The North-West Peninsula of Iceland. By C. W. Shepherd, M.A., F.Z.S. Small 8vo., tab. 2, pp. 162.

This book opens appropriately enough with the following quotation from the "Ingoldsby Legends:"

"And they who'd the charge of them wrote in the logs,
Wind N.E.—blows a hurricane—rains cats and dogs,"

for a more dismal, dreary journey, as far as weather is concerned, was surely never undertaken, even by enthusiastic Englishmen. The north-west peninsula of Iceland, though its coasts are occasionally visited by British and French fishermen, seems never to have been previously explored, and the record of the present attempt is not of such a nature as to induce many to follow the same track, at least in the spring of the year. One of the main purposes of the author's journey was to settle some ornithological questions, and hence there will be found in this volume much matter of value to those who pursue that branch of natural history. Here is an extract that will interest the general reader. Speaking of the island of Vigr the author says:—"The shore was the most wonderful ornithological sight conceivable. The ducks and their nests were everywhere, in a manner that was quite alarming. Great brown ducks sat upon their nests in masses, and at every step started up from under our feet. It was with some difficulty that we avoided treading on some of the nests. * * * On the coast was a wall built of large stones, just above the high water level, about 3 feet in height, and of considerable thickness. At the bottom, on both sides of it, alternate stones have been left out, so as to form a series of square compartments for the ducks to make their nests in. Almost every compartment was occupied; and as we walked along the shore a long line of ducks flew out, one after another. The surface of the water also was perfectly white with drakes, who welcomed their brown wives with loud and clamorous cooing. * * * The farmhouse itself was a great marvel. The earthen walls that surrounded it, and the window embrasures, were occupied by ducks. On the ground the house was fringed with ducks; on the turf slopes of the roof we could see ducks, and a duck sat in the scraper; a grassy bank close by had been cut into square patches, like a chess-board (a square of turf of about 18 inches being removed, and a hollow made), and all were filled with ducks; a windmill was infested, and so were all the outhouses, mounds, rocks, and crevices,—the ducks were everywhere." It appears that the produce of down per annum is about 100 lb., each lb. fetching from 12*s.* to 15*s.*

But few details are given of the vegetation of the districts traversed, for the best of all reasons; but at Akreyri, the second town in the island, there are two trees which every visitor is bound to admire. They are Mountain Ashes, and are about 25 feet in height. Near Hals there is, moreover, a forest of Birch trees, many of them 15 feet in height. It is curious to compare the statements of Icelandic manners and customs in this book with those in the late Sir W. Hooker's Recollections of Travels in Iceland in 1809, so little have the people changed in the interval.

Madagascar Revisited. By the Rev. W. Ellis. Murray, 1867. 8vo, pp. 502. Maps and Illustrations.

To those of our readers who are familiar with the long-tailed Angræcum and the net-leaved Ouvirandra, plants of which were brought to this country by the author of this book, and who may be desirous of knowing more about the vegetation of this little-known island, the present handsome volume will be of little service, as it is mainly devoted to political matters, and to the prospects of missionary enterprise, and it will prove most valuable for reference on such points.

CATALOGUES RECEIVED.—The following Seed Lists are before us:—*W. Cutbush & Son's* (Highgate) *Catalogue; H. Brown's* (Liverpool) *Descriptive Spring Catalogue; Peter Lawson & Son's* (Edinburgh) *List; Little & Ballantyne's* (Carlisle) *Descriptive Catalogue; Harrison & Son's* (Leicester) *Catalogue; Mrs. Dixon's* (Moorgate Street, London) *Select List; W. Rollisson & Sons'* (Tooting) *Floricultural and Culinary Seeds; T. Bunyard & Sons'* (Ashford) *Descriptive and Priced Catalogue; W. Hooper's* (New Wandsworth) *Catalogue; F. & A. Dickson & Sons'* (Chester) *New and Select Seeds; Charlwood & Cummins'* (Covent Garden) *Tree and Shrub Seeds; Vilmorin-Andrieux & Cie's* (Paris) *Extrait Général des Catalogues; also Catalogue des Graines de Plantes, Arbustes, &c.*, and *Supplément aux Catalogues; Haage et Schmidt's* (Erfurt) *Seed List;* also *Extrait du Catalogue Général des Graines; Fontaine & Duflot* (Paris) *Supplément aux Catalogues.* We have also received the following lists of Plants:—

James Backhouse & Son's (York) *Alpine Plants*, a most valuable and very extensive descriptive list; *T. Bunyard & Sons' List of Gladioli, &c.*; *G. Smith's* (Hornsey Road) *Descriptive Catalogue of Florists' Flowers*, as usual full of choice things; *Thibaut et Keteleer* (Paris) *Catalogue Général des Plantes*; *Louis de Smet* (Gand) *Prix-Courant pour l'Année* 1867—this contains an extensive descriptive list of Agaves, Yuccas, &c.; *Adolphe Stelzner* (Gand) *Catalogue de Plantes Nouvelles, &c.*

Florists' Flowers.

The raising of seedling Auriculas having become a favourite pursuit, the following instructions may be of service to those persons who are desirous of transmitting their names to posterity as the originators of a few first-class flowers; but let me here advise the raisers of seedlings not to be discouraged should their first efforts prove a failure. The seed of the Auricula, even when saved from the very choicest flowers, is very uncertain as to its produce. I consider myself very fortunate when I get a first-class show flower from a thousand plants.

The most suitable time to sow the seed is about the beginning of February, and the best site for the pan is the front shelf of a greenhouse. Persons who may not have this convenience, may place the pan in a window of a fire room, looking to the south, as frost must not be allowed to act upon it. The pan or box will require to be either 3 or 4 inches deep, and of a size proportionate to the quantity of seed to be sown. Fill the pan with the usual compost to within ½ an inch of the top, and press the surface perfectly level. Then water with tepid water applied by means of a fine rose or a soft brush; when the latter is used, shake out the water and strike the bristles with the hand, so that the water may fall like fine dew on the surface of the soil. Should there be any inequalities on the surface after watering, fill up the cavities, and have it perfectly level. Sow the seed carefully, not too closely, and *merely* cover it with some of the compost finely sifted. When the seed is sown, water again as above directed, and place a piece of glass over the top of the pan. This obviates the necessity of watering often, keeps off dust, and accelerates the vegetation of the seed. Never allow the soil in the seed-pan to become dry.

In about a month or six weeks at farthest the young seedlings will begin to come up. They will then require to be looked over daily, for when they come up, they almost invariably throw themselves out of the soil with a jerk, and must be replanted immediately, otherwise they would be lost. This can be done easily with the point of a penknife. Make a small cleft in the soil, lift the young plant with the point of the knife, and replant it root end downwards, and close the soil about the neck of it.

After the plants are up, give air for a few hours, when the sun is upon them. In April remove the pan into the shade, where they will get the morning sun till about 10 o'clock. Whenever the young plants have six leaves, shift them into pans or pots, and when they again get crowded shift again.

When they have attained to blooming size, pot three plants round the edge of a 5-inch pot. From long experience I have found this the best method of treating them. Then as they bloom in the spring, all the useless sorts must be taken out of the pots; these will do to plant in the borders. Those that promise well are to be repotted, in pots of a suitable size; but they must not be over-potted, and when they bloom the following year, and prove to be really good stage flowers, they must be taken care of. Too often the raiser is disappointed in the quality of seedlings that he anticipates will prove to be first rate. Often they degenerate and turn coarse, after blooming extra fine in the first years of their existence. No dependence can be placed on an autumn bloom. A spring bloom is the only sure test. I have now been raising these flowers for the last 46 years, and the information contained in this article is the result thereof.

I think I have tried every sort of experiment in the way of fertilising, but the most successful was fertilising Chapman's Maria with the pollen of his Sophia. These flowers are both beautiful violets. From this seed I got what have proved, after years of blooming, five first-class varieties—one of them a self, and I think about the finest I ever saw, but after growing it for 10 years I have not yet had any increase from it. The others are all very beautiful violet-ground sorts, causing me to rejoice at having attained the object at which I was aiming. It is curious that among the seedlings raised from this fine seed there were some Primulas, although I have none of either them or Alpines near me for fear of spoiling the seed. *George Lightbody, Falkirk, March 7.*

The Apiary.

Bee Culture: Hives.—In the year 1860 I obtained a copy of the Rev. L. L. Langstroth's valuable book on the Honey Bee, which had been published in the same year. I was at once forcibly impressed with the conviction that the main principles of the moveable frame-hive described by him were admirable, and exactly adapted, not only to my own wants, but to those of all other bee-keepers who aimed at more scientific modes of management than those generally practised. The hive, however, as described by Mr. Langstroth, did not appear to me to be of the dimensions best suited to bees in our climate, and there were also minor details which I believed to be either totally unnecessary, or which might be altered, omitted, or simplified. I quickly set to work, and, early in the spring of 1861, had a lot of hives constructed with the modifications which appeared to be desirable. Having had remarkable success with these hives, I do not hesitate to give a detailed description of them. They do not in their main features vary greatly from the hive known as the Woodbury Hive, brought out subsequently. Since my first lot was constructed, I have adopted some of the improvements invented by the talented constructor of the last-mentioned hive. These have, I believe, been already described in foregoing papers, but I may have to refer to them again in connection with the details of my own hive. I wish it to be understood that I do not claim for my hive any great superiority over the Woodbury Hive. I believe the last to be almost as perfect a hive as can be made, very far superior to the majority of those which are brought out as improvements. Among these so-called improvements, are frames whose tops project beyond the outside of the box, the avowed object of which is to promote facility of handling. This plan involved the invention of metallic frame rests, which, in my opinion, are an expensive and totally unnecessary adjunct. Then, again, we have another improver advocating frames tapering towards the lower portion, with the object of promoting facility of withdrawal: together with his insisting on the necessity of there being a rest or stay at the bottom of the box to prevent the frames shifting. While thinking both of these modifications to be unnecessary, I am not disposed to condemn them as being utterly useless. In the year 1848 I invented a frame hive very nearly akin in principle to those which have of late been so largely adopted. I made ample drawings of its details at that time, but did not, owing to change of residence, thoroughly carry out the invention. It is somewhat singular that one main feature in the plan consisted of frames contracted an inch in width at their lowest part. As I have no doubt that if my plan had been published at that time, I should now have the honour of being considered the originator of moveable frame-hives, I am induced to give an extract from the description in my note-book written in the year mentioned.

"The Improved Grecian Hive has for its chief objects the easy removal of a portion of its surplus contents, and allowing the bees and their works to be all connected within one receptacle, instead of being separated by wooden partitions."

"The present hive is made of such a length that a portion only would be required for breeding purposes, and the rest,—generally the ends,—would be used for the construction and storing of honey combs, which can be removed as fast as filled."

"The inside diameter of the box is about 24½ inches long by 9 inches or 10 inches deep, and 12 inches broad at the top, diminishing in width at the bottom from an inch to an inch and a half. A rabbet is run on the inside of the back and front sides to receive the ends of the frames. A raised ledge is formed by screwing an inch rim on all four sides, so as to be half an inch higher than the top of the box. The frames are 1⅛ inch wide by ½ inch thick, and are to be furnished with guide combs. They are made to slip easily within the box, and ought to be more than a quarter of an inch from its sides. There are 15 frames to this box, but it would be advisable to have several spare ones to insert in the place of any removed." The frames were constructed of a shape narrowing towards the bottom, to correspond with the natural dimensions of the box. There were also movable partition frames capable of being inserted at any part of the hive, for affording the bees more or less space according to their requirements. "When first stocked, the bees are confined to the seven centre frames, to which guide combs have been attached. As they fill these more room is added at either end, until the whole extent of the interior be given."

The tops of the frames were, in addition to the outer and more solid top, covered by an adapter formed of narrow slips of wood, so adapted that the removal of one or two exposed the frame immediately underneath for manipulation, without unduly disturbing the bees by opening the entire surface of the frames. Narrow slits in the centre of each slip, served for communication with supers, feeding, ventilation, &c.

I think I have said enough to show that the idea of the construction of hives with moveable frames, is not one of the last few years only. It was early in my career as a bee-keeper that I was impressed with the conviction that a system which afforded such facilities for manipulation, must be a good and a sound one; but it was not, as I said before, until the perusal of Langstroth's book, that I was made fully alive to all its wonderful advantages. I then saw how much I had lost by not more thoroughly carrying out my own invention. The improvements on my idea, which were at once obvious to me as pertaining to the Langstroth hive, together with what I consider as improvements on that arrangement, subsequently adopted by myself and others, leave me with no wish to return to my own first love. In my next paper I hope to give a detailed description of the construction and dimensions of the frame hive which has been substituted for my somewhat crude invention. *S. Bevan Fox.*

Garden Memoranda.

The Orchids at St. Dunstan's.—It need hardly be related that some of the best finished groups of Orchids that have been seen at our London shows for some years past, have been grown here in the collection of H. H. Gibbs, Esq., by Mr. Penny. These groups, although they may not in every case have displayed plants of the great size of those sent from old established collections, yet always manifested a degree of freshness and vigour of growth rare indeed in the largest Orchid-growing places; and those who know the little collection in the Regent's Park well, know also that some of these plants which were admired by our best Orchid growers, have been grown from very small bits within a very few years.

The houses devoted to Orchids here are comparatively small and low—for the "warm ones" a length of 70 feet by 12 divided into three, and for the "cool Orchids" 40 feet by 12, in two divisions. The first of these warm houses I entered was chiefly devoted to the finer Cypripediums, in prime health; Aerides and miscellaneous kinds, including Dendrobium primulinum and Falconeri, both doing well in garden saucers with half a dozen holes in the bottom, and filled with sphagnum and sand. Angræcum sesquipedale was in fine flower here, and a few of the Aerides were remarkable for healthy and persistent growth. It is not, however, so generally useful to give the size of plants as to indicate the peculiar treatment which causes them to be in such irreproachable health, and here, so far as I could see, it consists in having the pipes so arranged that the dry air passing from them does not directly touch the plants. The pipes, with troughs on them, are not as usual under the benches, or in a position from whence the heated air could arise, but just a little below the wall plate, and have tiles and slates so placed that the heat cannot spread out laterally among the plants on the benches, but must all rise and flow upwards over the tops of the plants in the first instance. In addition to this, the trellis on which the plants stand has a cemented shallow tank beneath it, in which the drippings from syringing, &c., accumulate and remain, giving off at all times abundant moisture. In addition to this every surface is sprinkled with rough gravel or shell, which loosely retains a body of moisture at all times, and thus as much humidity is produced as in the most reeking of moist and warm woods. So much for the first house, the only one in which the pipes are arranged as described, though Mr. Penny would apply it to all if convenient. The second is distinguished by the presence of Phalænopsids in beautiful health, a plant of P. Schilleriana having when I saw it a tall and spreading branch with nearly 100 shining buds preparing to open, and with the leaves 16 inches long and 4 across. I think I have never seen Phalænopsids grown so freely into fine specimens from such bits, bought at Stevens', as here by Mr. Penny. In every case he encourages the roots outside the pots as much as possible, and it is interesting to notice how well they avail themselves of permission to crawl there, some of the pots being nearly covered with the roots that flatten themselves like a slug against them, and go round and round in a snake-like manner. These plants require and get but very little air, except what is necessary to sweeten the atmosphere a little now and then. P. Lüddemanniana was here throwing up a spike about 20 inches long, and near it the very fine piece of Trichopilia crispa which was shown so nicely at the International; it has now 16 growths, is in the greenest health, and is finer now than the plant from which it was taken three years ago, then a small piece. In this house the shelves, the sides of paths, indeed every available surface, is covered with an inch or an inch and a-half of sea-shell, which, being constantly charged with moisture, is a great help towards keeping the house naturally humid at all times. Cleanliness is of course a law here, as in every really well managed Orchid house. "Health is holiness," says Carlyle; "cleanliness is next to godliness;" and with plants as with the "lords of creation," systematic sponging tends very much to all sorts of beatitudes. In these houses the Lælias and Cattleyas are remarkably fine, nearly all the Cattleya Mossiæ beginning to make a good second growth within the year, the roots of many of the Cattleyas clinging round the pots in profusion, and Lælia purpurata being in rude health.

Between two of these small warmer houses there is a division lobby, into which the door enters that admits to the range in the first instance; and here a few Ferns are placed to fill up, and among them two of the best cool Orchids—Odontoglossum Phalænopsis and O. nævium. They are here because they require a few degrees more heat just now, than is given to the cool house, which we shall enter presently. O. Phalænopsis is a large and beautiful specimen, potted in sphagnum and a little sand, the pot being as full of roots as that of a healthy Rhododendron. The first-mentioned plant is worth 80 guineas, and is a fine specimen of successful culture.

The cool house is about 40 feet long and 12 feet wide, and in the first division contains greenhouse Ferns, &c., on one hand, and on the other a lot of the finest plants and the finest flowers I have ever seen of Lycaste Skinneri—flowers and foliage enormous. The house was at about 48° at the time of my visit (the day of the great fall of snow), and it is generally kept at from 50° to 55°. Here again broken shell is spread over the benches and all surfaces, so that abundance of moisture is at all times given off. The Lycaste leaves are now as green as Grass; they are potted in peat and moss, half of each, with a little sand. The bulbs are 4 inches deep and 2 through. In the same house Odontoglossum nebulosum has bulbs 3 inches deep and 2½ across; the large variety of O. grande is of remarkable size; O. hastilabium has bulbs 5 inches deep and 4 across, and in O. cordatum they are equally fine; Odontoglossum citrosmum roseum is nearly 2 feet across the mass of bulbs, the bulbs themselves 4 inches deep and nearly 3 across; and so on. I have never seen cool Orchids so successfully grown. In the middle of summer this house is most agreeably cool, and in ordinary days in winter the transition from the open air to its interior is barely more than noticeable. It has at all times an atmosphere which the most fastidious could enjoy, and remain to work or sit in with pleasure. Like the other houses here, the cool one is kept thoroughly moist, in addition to the surfacing of broken shells on the benches, by well syringing three or four times a-day every available space between the pots, also the paths, and indeed every surface, except that of the plants themselves.

It is very encouraging to see so much success attend the culture of these Orchids in a cool temperature.

The collection, as most Orchid-growers are aware, is quite a young one, and is entirely indebted to Mr. Penny's cultural skill and love of plants for the position it has already taken. The finest kinds have grown with rapidity and perfect firmness of texture, and, with other instances of cool Orchid culture, this seems to point to a new and cheering phase in our indoor gardening, one in which the exquisite Orchids of elevated regions may be enjoyed in company with a host of graceful Ferns, filmy and otherwise. *Viator.*

Miscellaneous.

The late Mr. Haythorn.—We regret to have to announce the death of Mr. John Haythorn, at the advanced age of 85, which took place at Nottingham on the 10th inst. Mr. Haythorn had been head-gardener to three Lords Middleton at Wollaton Park, but for the last 10 years had resided in Nottingham with his son, who is well known as the manufacturer of Haythorn's hexagon net.

Presentation to Mr. Simpson.—On the evening of the 6th inst. a deputation waited on Mr. Simpson, gardener to Lady Maria Molyneux, Stoke Farm, Slough, and, in the name of the young gardeners who have served under his charge, presented him with a handsome microscope. In handing it over to him, the deputation expressed the very great pleasure it afforded them thus to bear testimony to the high esteem in which Mr. Simpson was held by those who had served under him, and to show their appreciation of his worth as a horticulturist. Mr. Simpson thanked the deputation, and, through them, the absent subscribers, for their kindness, and said that he hoped by the faithful discharge of his duty towards his men, to perpetuate the good feeling made manifest by the much-valued gift.

Garden Operations.

(*For the ensuing week.*)

PLANT HOUSES.

Franciscæas which have done flowering should have all old flower-buds removed as soon as the plants have ceased blossoming. This is best effected by taking off a leaf or two at the tips of the flowering shoots bodily with the old buds, an operation which will materially aid the over-worked plants in their efforts to make fresh wood. In about a fortnight after this operation has been performed, those which require larger pots should receive a slight shift. They like a rich fibry soil, intermixed with silver sand. When fairly started syringe freely, giving them, where practicable, a slight amount of bottom-heat. A few *Orchids*, such as Dendrobium nobile, and others of similar habit that have been grown amongst mixed stove plants, or in similar adverse positions, will now be much benefited by a little judicious thinning out of the started buds. First cut away at the base all semi-lifeless growths, then wholly remove any weak, overcrowded, or misplaced young buds formed at the base of others, with the view of directing the whole strength of the plant to the few that have been selected to remain. At this time, when Orchids are commencing their most active season of growth, every possible precaution should be taken to keep off insects, which habitually devour the roots; and it should be borne in mind that roots destroyed at this season in all probability represent the loss of so many flowers hereafter. Cockroaches and woodlice are the greatest pests with which cultivators have to contend. The former often do much mischief before their presence is suspected. Being nocturnal in their habits, they should be sought after late at night, when they will be found issuing cautiously forth from their retreats, to browse upon all that is young and tender, more especially growing roots of Saccolabiums and Phalænopsids as well as the young leaves of those and of many other kinds. They may, however, be destroyed as follows. Upon ordinary unpainted flower-stakes, some 3 feet in length, place neat square pieces of well-toasted bread, having butter, of which they are very fond, spread over its upper surface. One of these should be fixed in a slightly slanting direction in any pot likely to be infested. Late at night set a light quietly in any position from which it may be possible to perceive any which may be feeding upon the bait. When so engaged, quietly approach them; with one hand hold a bowl or other utensil filled with water immediately under the bread, and gently tap the base of the stake with the other. The slightest tap causes them to be thrown completely into the water, when they may be easily destroyed. Of woodlice there are two distinct varieties—the armadillo, or large woodlouse, though very destructive, is not nearly so much so as the smaller ones, which move about with such great rapidity that they baffle the quickest fingers in their efforts to destroy them. These latter too increase with such unexampled speed that no effort should be lost in destroying them. This may be done by keeping a warm corner dry, and placing over it a small wisp of sweet hay, in which they harbour; they are readily destroyed by quickly removing the hay occasionally, and well deluging all that can be detected with scalding water. *Amaryllids* which have flowered should have all the sun possible now in order to duly ripen the bulbs in their latter stage of growth. Procure and place upon a moist warm surface for a week or so, the necessary supply of *Italian Tuberoses*, to be potted at a later date. Some kinds of bulbs might be had in bloom longer than they are, if a few of each sort were now placed in a slight amount of extra heat. Among the kinds to which I allude, are *Liliums*, of the lancifolium section, auratum, &c., *Triteleia uniflora*, *Lachenalias*, *Sprekelias*, and similar plants. Lachenalias showing flower-spikes and having the pots well filled with roots, will improve greatly by being supplied occasionally with slight waterings of liquid manure. *Herbaceous Calceolarias*, if well grown, should now receive their final shift into rich soil in which there is a good supply of yellow loam, potting only moderately firm. Where specimen *Chrysanthemums* are needed, cuttings should be put in at once. Sow seeds of *Thunbergias*, *Impatiens* (Balsams) and Indian *Ipomeas*, for stove decoration; also the Intermediate Stock, and a little Aster seed for flowering in pots.

FORCING HOUSES.

Early Vines swelling fruit, and just before the process of stoning takes place, whether planted inside the house or in pots, will be much benefited by having a moderate quantity of fresh soot dusted over the whole surface of the soil in the evening, to be well watered on the following morning, giving, during the operation, such copious drenchings that every root will be made to feel its direct influence. Take care to maintain an even temperature at this stage, guarding alike against sudden draughts, caused by fluctuating weather and bright sunshine. *Pines* swelling fruit should be examined to see whether gills, or side shoots, emanate from the footstalk of the fruit, or from its immediate base. When sufficiently large these will snap off readily by pressing them downward with the hand; be careful, however, not to slit them down, in such a manner as to injure the footstalk, which may be done if they are taken off when too young. Do not use a knife in the operation, as even worse consequences may follow its use. If any of the younger stock, through some check which it may have received during the late harsh weather, or otherwise, should show symptoms of flowering, give a small shift at once; potting the plants into a good loam, and firmly, taking every care not to injure any roots formed around the sides of the ball. It is advisable to give all such a thorough soaking some eight or ten hours previous to potting them, and to give every encouragement by means of root warmth to help them to successfully ripen their prematurely-formed fruit.

HARDY FLOWER GARDEN.

Flower beds, composed of light gravelly soils, should have their latest digging performed about this time, in order that they may settle down firmly before bedding-out time; under this treatment they retain moisture better throughout dry summer months, than when they are dug at the last moment, and kept loose. Where the stock of *Viola cornuta* consists of old stools or edgings, these should be divided upon the first favourable occasion, and dibbled out thickly in any sheltered position. Where seedlings alone are depended upon, sow forthwith in a gentle warmth. *Variegated Arabis* should now be increased where further demand for it exists. Divide and dibble into store beds any pieces procurable sufficiently large for cuttings, which will root and grow freely. Pinch off all flowers as soon as they begin to show themselves upon plants in beds or edgings, where they are only required in the shape of foliage plants. Roll Grass lawns thoroughly, dusting wood ashes freely in all places where Moss exists; finish all fresh turfing where practicable, this month.

HARDY FRUIT GARDEN.

Besides *Apricots*, the covering of which should not be delayed a day longer, *Peaches* and *Nectarines* should also have the materials got ready for their early protection. Frigi Domo, though far inferior to what it was originally, is purchasable in widths of from 2 to 4 yards, and is still the most handy kind of protection. I run mine upon iron rods, in the way of curtains; drawing them aside daily, and tying them when rolled up to a strong post fixed in the border some 3 feet from the central base of the trees, thereby saving much labour, besides wear and tear of material. Tiffany is more economical, though less efficient; it is procurable in 60 feet lengths by 38 inches wide, at about 9*s*. Upon very cold wet days, and during hail or similar weather, the trees are best left covered, more especially when the pollen is ripe for fertilisation. Many *Filberts* and other Nuts, though well furnished with female blossoms this year, are deficient in catkins; therefore well dust the trees with any which may be upon them, procuring where practicable a bunch of catkins from wild hedge-row Nuts, in order to assist more certainly in securing a crop.

KITCHEN GARDEN.

Plant out *Jerusalem Artichokes* for autumn cropping. Any odd piece of ground will answer, provided it has a moderate sunny aspect. In moderately good soils they require little or no manure. They are generally planted in rows a given distance apart; as this however tends to increase size and height above ground in summer, without a corresponding increase at the root, it is better if the ground has been well dug to dibble them in all over the quarter, some 5 or 6 inches apart, treading the soil afterwards firmly with the feet. Plant out *Shallots* in deep well-manured ground. Press each bulb firmly down into the soil some 8 or 10 inches apart, according to the strength of the bulb, and draw a little soil firmly over the shoulder of each to keep it from being forced out of the ground by the action of the roots in the process of growth. The main crop of early Kidney and other *Potatos* may now be planted. In deep light haulm-producing soils it is best to simply press each tuber firmly down upon the surface of the soil in rows some 16 inches apart all ways. The intervening soil should afterwards be neatly placed over them so as to form a ridge, some 5 or 6 inches high, leaving all in the form of a ridge and furrow for a time. Moderate-sized sets are to be preferred, eradicating all minor eyes except such as appear to be the points or more prominent growing parts, from whence the strongest shoots may be anticipated. When, owing to the size of the tubers, it is necessary to cut them, let this be done at all times a few days before they are required for planting. Do not dust them over with lime or other matters; on the contrary let them dry gradually so as to induce them to heal over naturally. Sow a successional crop of *Peas* to succeed those which are up. Maclean's Wonderful and Prince of Wales are excellent varieties, 3 feet only in height, and requiring short sticks; while Dickson's Favourite is a very prolific sort of stronger growth, say from 4 to 5 feet in height. Sow a little Round Spinach in a row between the first crop of Peas. Plant out a few *Lettuces* which have stood the winter, in a similar position; they will succeed others which do not need transplanting.

In forming Seakale plantations (see p. 242 last week), for "rows 20 feet apart by 20 inches, &c.," read 2 feet apart by 20 inches, &c. *W. E.*

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,

For the Week ending Mar. 13, 1867, as observed at the Horticultural Gardens.

March.	Moon's Age.	Barometer.		Temperature.					Wind	Rain.
				Of the Air.			Of the Earth			
		Max.	Min.	Max.	Min.	Mean	1 foot deep.	2 feet deep.		
Thurs. 7	1	29.593	29.583	37	28	32.5	42	42	N.E.	.00
Friday 8	2	29.570	29.486	40	26	33.0	42	41	N.E.	.08
Satur. 9	3	29.518	29.202	44	35	39.5	45	41	N.E.	.46
Sunday 10	4	29.456	29.121	45	33	39.0	42	42	N.E.	.03
Mon. 11	5	29.682	29.561	41	32	36.5	42	43	N.E.	.04
Tues. 12	6	29.741	29.646	39	27	33.0	42	42	N.E.	.06
Wed. 13	)	29.891	29.633	34	30	32.0	40	41	E.	.40
Average.		29.636	29.461	40.0	30.1	35.1	42.1	41.5		1.07

March 7—Hazy; snow in broad flakes; snow at night.
" 8—Snowing in broad flakes, cloudy and cold; overcast.
" 9—Slight haze; boisterous; heavy rain at night.
" 10—Hazy and damp; drizzling rain; densely overcast at night.
" 11—Hazy throughout; drizzly rain at night.
" 12—Sleet; boisterous; overcast at night.
" 13—Frosty; cold and overcast; snow at night
Mean temperature of the week 5·8 10th deg. below the average.

STATE OF THE WEATHER AT CHISWICK,

During the last 41 years, for the ensuing Week, ending March 23, 1867.

March.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds.							
						N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday ..17	49 9	32 6	41.2	13	0 37 in.	5	8	5	—	6	7	7	3
Mon. ..18	50.3	33.3	41.8	12	0.24	3	9	4	2	2	6	12	3
Tues. ..19	51.3	33.2	42.2	14	0.33	5	6	4	4	2	10	7	3
Wed. ..20	51.4	32.8	42.6	16	1.11	3	6	4	2	—	14	6	6
Thurs. ..21	50.7	32 4	41.5	18	0.21	9	10	4	3	4	2	7	2
Friday ..22	50 4	34 2	42.3	19	0.44	9	4	4	2	4	8	5	5
Satur. ..23	50 5	33 0	41 7	17	0.60	7	8	1	2	2	12	5	4

The highest temperature during the above period occurred on the 19th and 20th, 1836, —therm. 69 deg.; and the lowest on the 20th, 1845, —therm 16 deg.

Notices to Correspondents.

Azalea indica: *S S.* If the growth is partial and disfigures the plants, it may be got rid off by pinching in; but if it is general, this could only be done at the risk of throwing back the plants, perhaps for a whole season, unless, indeed, they are in a state to bear a moderate cutting-in after blooming, and before renewing their growth. Further advice we cannot give, as we are ignorant of your special object, and of the condition of your plants.

Bone-dust: *T. Delta.* A moderate sprinkling of fine bone-dust, lightly forked in over the surface of the border, may be beneficial, but we should prefer applying it later, when the berries commence swelling, and not just at the critical blooming period. As, however, the Vines are healthy, do they want anything beyond mulching with short dung? If the border wants renewing, would it not be better to defer the operation till autumn, and then carefully lift the roots, and give new compost, in which crushed bones may be very beneficially incorporated.

Books: *C E F.* Parnell's Grasses of Britain will best suit your purpose.—*H C.* The Journal of the Royal Horticultural Society may be had by gardeners at a reduced price on application to the Secretary, at the Gardens, South Kensington.

Conifers: *J F.* Those mentioned may be sown at once in loamy soil, in a cold frame, either in pans or boxes, or in a prepared bed of soil.

Fig Tree: *Astley.* If the tree is over luxuriant, prune its roots, and make the soil as hard as possible beneath them. Figs on walls are very apt to grow rank, and to be too much crowded with shoots which never ripen. Endeavour to obviate this by giving the branches plenty of space, so that the leaves are not crowded. Rub off all the fruit which forms during summer on the young wood, as early as it can be seen; this wood should bear the following year.

Names of Plants: *H St Clair.* Your Dendrobium is new to us; but it is impossible to speak positively on such matters if people will not send us any account of the native country, leaves, and habit of their plants.—*Geo Smith.* 1, Zygopetalum Mackaii; 2, one of the innumerable varieties of Oncidium barbatum.—*F B.* Even when a careful description is given of their habits and habitats, Cattleyas are very difficult to make out; but when—as in your case—these particulars are withheld, their determination is almost an impossibility. If your Cattleyas come from the northern parts of South America, and have one-leaved stems, they are probably varieties—and very poor ones, too—of what was once called C. Trianæi; if they have two leaves, and come from Bahia or Brazil, they may be poor varieties of C. elegans, but this is mere guessing.—*C B.* Paulownia imperialis.

Percentages and Fees: *Subscriber.* We have already stated that in our opinion the receipt of percentages is not defensible on principle, and pointed out what we believe to be the chief cause of the existence of such a custom. Fees for instruction given, are on the contrary quite legitimate. It is no part of a gardener's professional duty to teach his subordinates their business, though under kind considerate employers, and when comfortably placed, many of them willingly do so.

Skeleton Leaves: *J S.* These are prepared by maceration in water for several weeks. The remains of pulp are then removed with brushes, and the whole is bleached with chloride of lime, or with the fumes of chlorine or sulphur.

Sugar Cane: *Jamaica.* Sea water is injurious to most plants, except sea-weeds. The Sugar Cane appears to be also an exception, for Humboldt states, that "of all the plants cultivated by man there are only the Sugar Cane, the Plantain, the Mammee, and the Avocado Pear which endure equally irrigation with fresh and salt water." Watering with an infusion of dung in salt water is employed in the West Indies as an unfailing remedy against the blast, which is a withering of the plants. How much salt water the plant will bear we cannot say.

Vines Bleeding: *B M R.* Use Thomson's Styptic.

Watering Orchard House: *D.* The Portable Engines constantly advertised in our columns seem to be just the sort of thing you require.

Communications Received.—W. R.—G. Lightbody.—T. Paul.—H. Cannell.—Prof. Asa Gray.—W. T.—J. S.—J. Sheppard.—J. N. H.—Another Old Sub.

SUTTON'S GRASS SEEDS

FOR ALL SOILS.

CARRIAGE FREE.

MESSRS. SUTTON

Specially prepare MIXTURES for every description of soil; therefore in ordering it is only necessary to state the nature of the soil, and suitable Seeds will be supplied. The following are the popular classifications of Soils :—

1. STIFF CLAY
2. STIFF or HEAVY LOAM
3. GOOD MEDIUM LOAM
4. LIGHT SANDS
5. SHARP GRAVELS
6. CHALKY SOILS
7. SHEEP DOWNS
8. RIVER FLATS, or WATER MEADOWS

The undermentioned kinds of GRASSES and CLOVERS are included in SUTTON'S MIXTURES for PERMANENT PASTURE and other purposes, and which are varied both in sorts and proportions according to the purpose for which the Seeds are required.

Alopecurus pratensis	Meadow Foxtail
Anthoxanthum odoratum	Sweet Vernal
Agrostis stolonifera	Creeping Bent Grass
Avena flavescens	Yellow Oat Grass
Cynosurus cristatus	Crested Dogstail
Dactylis glomerata	Round Cocksfoot
Festuca duriuscula	Hard Fescue
,, elatior	Tall Fescue
,, heterophylla	Various-leaved Fescue
,, pratensis	Meadow Fescue
,, ovina	Sheep's Fescue
,, rubra	Reddish Fescue
,, tenuifolia	Fine-leaved Fescue
,, lolinacea	Darnel-leaved Fescue
Glyceria aquatica	Water Sweet Grass
Lolium Italicum	Italian Rye-grass
,, perenne	Perennial Rye-grass
,, ,, Suttonii	Sutton's Perennial Rye-grass
,, ,, Paceyanum	Pacey's Perennial Ryo-grass
,, ,, sempervirens	Evergreen Rye-grass
Phleum pratense	Timothy
Poa pratensis	Smooth-stalked Meadow Grass
,, trivialis	Rough-stalked Meadow Grass
,, nemoralis	Woodside Meadow Grass
,, fertilis	Fertile Meadow Grass
,, sempervirens	Evergreen Meadow Grass
,, aquatica	Water Meadow Grass
Plantago lanceolata	Plantain or Rib Grass
Trifolium pratense	Broad Red Clover
,, perenne	Perennial Red Clover
,, repens perenne	Perennial White Clover
,, hybridum	Alsike Clover
,, minus	Yellow Suckling Clover
Medicago lupulina	Yellow Trefoil
Lotus corniculatus	Bird's-foot Trefoil

The above varieties may be had separately, of best quality, and carefully cleaned, at very moderate prices, which may be had on application.

Prices of Messrs. Sutton's Mixtures :—

SUTTON'S BEST MIXTURE of PERMANENT GRASSES and CLOVERS, for Soils Nos. 1, 2, 3, 4, 5, 6, and 7 (2 bushels of Grasses, and 12 lb. Clovers per acre), 36*s.* per acre, carriage free.

CHEAPER MIXTURES, 26*s.* to 30*s.* p. acre, carriage free.

For No. 8, 30*s.* per acre, carriage free.

SUTTON'S RENOVATING MIXTURE for the above SOILS, price 10*d.* per lb., cheaper by the cwt.—If these Seeds are sown early in the season, the improvement in the Pasture will be very great, and at small expense. (5*s.* to 10*s.* per acre.)

SUTTON'S BEST MIXTURE for PARK LAWNS, BOWLING GREENS, CRICKET GROUNDS, &c., &c., for the above Soils, price 18*s.* per bushel. Sow 2 or 2½ bushels per acre.

SUTTON'S BEST MIXTURE of GRASSES and CLOVERS for Three or Four Years' Lay, 24*s.* per acre, carriage free. Second Quality cheaper.

SUTTON'S BEST MIXTURE of GRASSES and CLOVERS for Two Years' Lay, 18*s.* 6*d.* per acre, carriage free. Second Quality cheaper.

SUTTON'S BEST MIXTURE of GRASSES and CLOVERS for One Year's Lay, 15*s.* per acre, carriage free. Second quality cheaper.

SUTTON'S MIXTURES of CLOVERS and RYE-GRASS for One Year, 12*s.* to 14*s.* per acre, carriage free.

Good Clover Seeds

at Market Prices.

Samples and lowest price per cwt. on application.

SUTTON'S SELECTED MANGEL WURZEL, TURNIP, and other FARM SEEDS, as see

SUTTON'S NEW FARM SEED LIST,

Gratis and Post Free on application.

☞ *All Goods Carriage Free, except very small parcels.*
Five per cent. discount allowed for Cash Payments.

SUTTON AND SONS,
ROYAL BERKSHIRE SEED ESTABLISHMENT,
READING.

J. C. WHEELER AND SON Gloster

GRASS SEEDS for PERMANENT PASTURE, of the finest quality, at moderate prices, carefully selected on a new, natural, and scientific system.

See "WHEELER'S BOOK on GRASSES," which contains Illustrations and Descriptions of the most suitable Grasses for Permanent Pasture.

J. C. WHEELER & SON,
Gloucester,
Seedsmen to the Gloucestershire Agricultural Society.

J. C. WHEELER AND SON Gloster

Croquet Grounds.

For the Improvement of Croquet Grounds and Lawns,

J. C. WHEELER AND SON, SEED GROWERS, Gloucester, can recommend a Mixture of the finest LAWN GRASS SEEDS, which should now be sown at the rate of about 10 lb. per acre, with a top-dressing of soot, guano, or superphosphate. The Lawn or Croquet Ground should then be thoroughly well rolled.

The price of the Seed is 1*s.* 3*d.* per lb.

J. C. WHEELER & SON,
Seed Growers, Gloucester.

J. C. WHEELER AND SON, SEED GROWERS, Gloucester (Seedsmen to the Gloucestershire Agricultural Society), can very strongly recommend the following Mixtures :—

CLOVER and GRASS SEEDS for ONE YEAR'S LAY.

J. C. WHEELER & SON can supply this excellent Mixture—all of the finest quality—carriage free by Railway, at 15*s.* per acre.

lb.	lb.
3 Italian Rye-grass, Lolium italicum.	4 Evergreen Rye-grass, L. sempervirens
1 Cocksfoot, Dactylis glomerata	7 Red Clover, Trifolium pratense
1 Timothy, Phleum pratense	7 Trefoil, Medicago lupulina

A cheaper Mixture at 10*s.* 6*d.* per acre.

CLOVER and GRASS SEEDS for TWO YEARS' LAY.

J. C. WHEELER & SON can supply this excellent Mixture for Two Years' Lay—all of the finest quality—carriage free by railway, at 18*s.* 6*d.* per acre.

lb.	lb.
4 Evergreen Rye-grass, L. perenne	3 Red Clover, Trifolium pratense
4 Italian Rye-grass, L. italicum	3 Cow Grass, T. pratense perenne
2 Cocksfoot, Dactylis glomerata	3 White Dutch, Tr. repens
1 Timothy, Phleum pratense	4 Trefoil, Medicago lupulina

A cheaper Mixture at 15*s.* 8*d.* per acre.

CLOVER and GRASS SEEDS for THREE or FOUR YEARS' LAY.

J. C. WHEELER & SON can supply this excellent Mixture—all of the finest quality—carriage free by Railway, at 24*s.* per acre.

lb.	lb.
4 Evergreen Rye-grass, L. sempervirens	2 Timothy, Phleum pratense
4 Pacey's Perennial, L. Paceyanum [cum	3 Red Clover, Trifolium pratense
3 Italian Rye-grass, Lolium itali-	3 Cow Grass, T. pratense perenne
2 Cocksfoot, Dactylis glomerata	3 White Dutch, T. repens
	1 Alsike, Trifolium hybridum
	4 Trefoil, Medicago lupulina

A Cheaper Mixture at 21*s.* per Acre.

J. C. WHEELER & SON'S CLOVER and GRASS SEEDS are of excellent quality, very moderate in price, and 5 per cent. discount is allowed for cash.

J. C. WHEELER & SON, Seed Growers, Gloucester.

PASTURE LAND. — The great benefit derived by Sowing down Land intended for Permanent Pasture with Natural Grass Seeds cannot be over-estimated, the trifling cost of KENNEDY'S MIXTURES for PERMANENT PASTURE over that of Common Rye-grass and Clover being far more than compensated by the much greater abundance of Herbage produced, of a more nutritious and permanent kind. These Mixtures are made up in every case to suit the particular soil, situation, or purpose for which they are required.

A DESCRIPTIVE PRICED CATALOGUE of NATURAL GRASSES as well as of CLOVER, TURNIP, and other FARM SEEDS, may be had on application to THOMAS KENNEDY & Co., Nurserymen, Seedsmen, and Florists, Dumfries.

☞ CATALOGUES may also be had of VEGETABLE and FLOWER SEEDS, and FOREST, FRUIT, and ORNAMENTAL TREES, &c.

Free Delivery. Farm and Garden Seeds Delivered at nearest Railway Station under certain limitations, as formerly.

SEEDSMEN BY APPOINTMENT Sutton AND Sons

Improvement of Grass Lands,

at from 5*s.* to 10*s.* per acre.

SUTTON'S RENOVATING MIXTURE

SHOULD NOW BE SOWN.

6 to 12 lb. per acre.

Price 10*d.* per lb. Cheaper by the cwt.

If these Seeds are sown early in the season, the improvement in the land will be very great, and at a small expense.

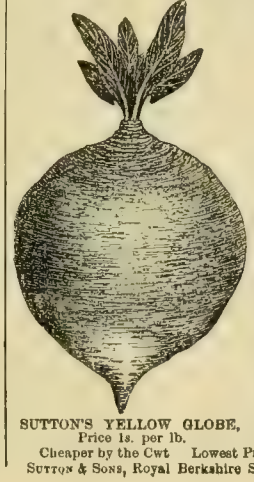
This Mixture should be bush-harrowed in, and rolled afterwards.

SUTTON & SONS,
Royal Berkshire Seed Establishment,
Reading.

SUTTON'S PRIZE MANGEL SEED.

Cheaper by the Cwt.

	Per lb.—*s.*	*d.*
Good YELLOW GLOBE	0	9
,, ORANGE GLOBE	0	9
,, RED GLOBE	0	9
,, LONG RED	0	9
,, LONG YELLOW	0	9



SUTTON'S

Selected Mangel Seed

From Selected Roots.

	Per lb.—*s.*	*d.*
SUTTON'S SELECTED YELLOW GLOBE	1	0
Do. do. ORANGE GLOBE	1	0
FISHER HOBBS' ORANGE GLOBE	1	0
STRATTON'S RED GLOBE	1	3
SUTTON'S ELVETHAM LONG RED	1	0
SUTTON'S MAMMOTH LONG YELLOW	1	6
NEW YELLOW INTERMEDIATE	1	9
Do. RED do.	1	6
SUTTON'S MAMMOTH LONG RED	1	6
BERKSHIRE PRIZE, or SUFFOLK CHAMPION, New, in 8 lb. bags	2	6

SUTTON'S YELLOW GLOBE, Price 1*s.* per lb.
Cheaper by the Cwt Lowest Price per Cwt. on application.
SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

Carter's Genuine Seeds.





CARTER'S SELECT LIST of GENUINE FARM SEEDS, at moderate prices, is now ready, and may be had post free on application to
CARTER'S Great London Seed Warehouse, 237 and 238, High Holborn, London, W.C.

Sutton's Prize Mangel Wurzel,
TURNIP, IMPROVED KOHL RABI, &c., &c.

For PRICES, see
SUTTON'S NEW FARM SEED LIST, which may be had gratis and post free on application to
SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

New Mangel Wurzel Seed.

H. AND F. SHARPE have the following Varieties, raised last season on their own Seed Farm from fine selected Bulbs, which they can offer to the Trade at Low Prices, to be had on application :—

SHARPE'S SELECTED ORANGE GLOBE.
FISHER HOBBS' ORANGE GLOBE.
LARGE YELLOW GLOBE.
ELVETHAM LONG RED.
SELECTED LONG YELLOW.
SELECTED RED GLOBE.
Seed Growing Establishment, Wisbech.

New Turnip Seeds.

H. AND F. SHARPE offer the following varieties to the Trade at low Prices. They are all of 1866 growth, raised from the finest selected Stocks :—

SHARPE'S IMPROVED PURPLE-TOP SWEDE.
SKIRVING'S "KING of the SWEDES."
IMPROVED GREEN TOP SWEDE.
LINCOLNSHIRE RED GLOBE.
IMPROVED GREEN NORFOLK.
DEVONSHIRE GREY STONE.

And many other Yellow and White-fleshed sorts. Prices may be had on application. Seed-growing Establishment, Wisbech.

SOUTHERN COUNTIES ASSOCIATION.
President 1866-'67—HIS GRACE THE DUKE OF RICHMOND, K.G.
The ANNUAL EXHIBITION of STOCK, POULTRY, IMPLEMENTS, FLOWERS, WORKS of ART, &c., will be HELD at BRIGHTON, on the 24th, 25th, 26th, 27th, and 28th of JUNE NEXT.
SUMMARY OF PRIZES OFFERED :—
CATTLE.—Short-horns, £125; Sussex, £125; other Breeds, £50.
SHEEP.—Southdowns, £90; Hants Downs, £90; Oxford Downs, £90
Kent Sheep, £90.
HORSES.—Agricultural, £110; Hunters, £95; Hacks, £15; Ponies,
PIGS.—Berkshire, £32; other Breeds, £32. [£10.
POULTRY.—Various, £93.
The PRIZE LIST may be obtained of the Secretary.
By order of the Council,
Yately, Farnborough. G. B. H. SHUTE, Secretary.

AGRICULTURAL HALL.—HORSE SHOW.—The FOURTH ANNUAL HORSE SHOW will be HELD in the DERBY WEEK. Prize Lists will be ready early in April.
Offices : Barford Street, Islington, N.
By order, S. SIDNEY, Secretary and Manager.

ROYAL AGRICULTURAL SOCIETY of ENGLAND.
BURY ST. EDMUND'S MEETING, 1867.
STOCK, POULTRY and IMPLEMENT PRIZE SHEETS are now ready, and will be forwarded on application to
12, Hanover Square, London, W. H. HALL DARE, Sec.

The Agricultural Gazette.

SATURDAY, MARCH 16, 1867.

THE Report last week of the Monthly Council of the Royal Agricultural Society included a number of interesting particulars. In the first place the discussions at the Weekly Council Meetings are admitted to have entirely failed to collect satisfactory audiences, and at Mr. HOLLAND'S suggestion evening meetings are to be tried. Dr. VOELCKER'S lecture on Foods, and their influence on the richness and fertilising value of the animal's manure, is to be given at the Society's Rooms, not as announced, but at 8 P.M. on the evening of the first Tuesday in April. This is probably the most convenient hour for gentlemen resident in London; but it is too late for most suburban members. Certainly, however, the attempt to make these meetings useful deserves to be supported, and we hope that the Rooms of the Society may be better filled next Tuesday fortnight than they have been hitherto.

But by far the largest portion of the Report is occupied with the subject of agricultural education; and here, as heretofore, we have long lists of candidates who have distinguished themselves, not in connection with any agricultural subject, but in their knowledge of Pure Mathematics! Scholarships had been offered, one of 50*l.* and four of 20*l.*, to the sons of tenant farmers occupying under 500 acres who had acquitted themselves best on the lists of the Cambridge local examinations, and who should be prepared, the one to enter for a year upon an approved farm or at one of the Agricultural Colleges for agricultural instruction, and the four to spend a year at an approved school for general education. Not a single candidate appeared for the first or senior scholarship. Only seven appeared for the four junior scholarships. It is however evident that these, and indeed the whole scheme of prizes for general attainments,

have no connection whatever with agriculture, excepting only those accidental cases in which the boys trying for them may hereafter become farmers.

The English Agricultural Society labours in its proper vocation when engaged (1) in publishing, whether at first-hand or not, that which "has been proved by *practical experience* to be useful to the cultivator of the soil." Does not this strikingly illustrate the limited and professional intention of its formation? It is also working within its proper jurisdiction (2) when engaged for mutual instruction in correspondence with other Agricultural Societies, (3) when employing practical men to make and report experiments on points in farm practice, (4) when encouraging and directing the attention of men of science to agricultural mechanics and chemistry, (5) when promoting the discovery of new varieties of grain and other vegetables useful to man, (6) when collecting information on arboriculture, (8) when engaged in improving the veterinary art, (9) when endeavouring to promote an improved cultivation of the land and improvements in the breeds of the stock upon the land, (10) when helping to promote the comfort of the labourer; and 7thly, putting this particular purpose out of its place upon the list which the Charter specifies, when taking measures for the improvement of the education of those who depend upon the cultivation of the soil for their support.

To most of these objects its attention has been directed with great efficiency and success. A good deal has been done to publish the stores of agricultural information, existing both in independent experience and in books—something has been done in correspondence and co-operation with other societies—a little in the earlier years of its history was accomplished in the way of setting its members to work upon a uniform plan of field experiment—men of science have been employed successfully as investigators, exemplars, and instructors—the relative agricultural values of different plants and varieties of plants have been constantly the subject of discussion and report—arboriculture, perhaps, has scarcely occupied its attention so much as it should have done—the Veterinary College has been encouraged by an annual subsidy, and for much useful information in that class of subjects we have to thank the Society's Veterinary Professor—a very great deal indeed has been done to improve the cultivation of the land and to improve our breeds of live stock—many of the topics affecting the welfare of the labourer have been represented with urgency in the Journal. What has been done for "the improvement of the education of those who depend upon the cultivation of the soil for their support?"

Let us see:—The Royal Agricultural College was established very shortly after the Society was founded. The Royal Veterinary College, already in existence, was, in accordance with the eighth of the Society's purposes, subsidised and brought into immediate connection, an officer selected from its staff was made the Society's Professor, and a standing committee was appointed to work and utilise the connection thus established. The Royal Agricultural College, equally with the other incorporated under Royal Charter, equally with the other, and even more exclusively than it, directly representing one of the ten objects for which the Society was incorporated, has, one may almost say, never had its existence in any way acknowledged. You may search the index of the 25 volumes of the Journal in vain for a single line which shall direct you to an account of it. At Glasnevin, Grignon, Hohenheim, Florence, Pavia, at the very ends of the earth—at Keszthely, wherever that may be—there are, it appears, Agricultural Colleges, and if you wish for information about any of them you will find a line for it in the Index, and a reference to the pages where information is given in the Journal; but our own Royal Agricultural College was altogether ignored during its first 20 years of a struggling existence when, by itself and its disinterested promoters, it was labouring almost without companionship for the improvement of agricultural education in this country. Let us thankfully acknowledge that the first volume of the new series of the Society's Journal opened with a full account of this National institution, and that at length (two years later) for the first time in an official announcement,* the existence of the Royal Agricultural College has been acknowledged, even though it be only classed as "one of the agricultural colleges, Cirencester, Glasnevin, &c." No one, however, who looks back on the history of the Royal Agricultural Society since its commencement, keeping in his mind the while the seventh object for which, according to its Charter, it was founded, can hesitate to say that its refusal of relations with the Royal Agricultural College has been altogether blameworthy.

This seventh object in its Charter had indeed been all along forgotten, but even now, when the attention of the Society has been at length directed to it, just as it had been originally directed to the eighth, nothing can be more diverse than the plans adopted with regard to them respectively. The existing institution for the special promotion of the object in the one case has been helped and used, and in the other it is still neglected. The very principle indeed on which the conduct of the Society is based is as opposite as possible in the one case from what it is in the other. The veterinary profession, equally with the agricultural, would benefit by that good preliminary education which seems to be the sole end at which the Society is aiming for "those who are dependent on the cultivation of the land for their support:"—Why is the professional object in the one case so strictly kept in view, and in the other so utterly ignored? The Agricultural College, equally with the Veterinary, is directed to its proper professional end:—Why is the one so entirely disregarded, and the other so petted and encouraged? The inconsistency is complete. The fact seems to be that the Agricultural Society, led in the outset by practical advisers—Earl SPENCER, Mr. PUSEY, Mr. HANDLEY—was originally content to labour patiently at the set tasks it had proposed to itself. The less definite of its objects no doubt thus remained neglected, but those which had been clearly indicated were undertaken and pursued as belonging to the definitely hedged professional field to which the Society most properly confined its operations. But when the educational purpose of the Society at length was recognised, it accepted the guidance, not of a practical adviser acquainted with the professional wants of agriculturists and with the professional limits of the Society's proceedings, but of—an enthusiast.

Mr. ACLAND has, no doubt done, and is doubtless doing great service in the promotion of middle-class education. No one could be better as the adviser of a University, or of any other great educational institution—no one more efficient as a Commissioner of Inquiry into general education. But his guidance of the Society out of its proper field, where it might have worked effectively in the humbler sphere of professional and technical instruction, into a field, extra-professional and boundless, where it is necessarily incompetent, is leading us all astray. A few more such Council Reports as that of last December—when the farmers of England were called together to hear that SMITH and JONES and the others—boys of 12 and 14 years of age—had gained their 3*l.* and 4*l.* prizes for attainments in "Pure Mathematics!"—and either the Education Committee or the Society must go. And we add—a few more such Reports from the Education Committee as the last (see page 248), and immense mischief will be done. They will very soon convince us all, as, apparently, they already have convinced the Council, that agricultural education is a dream, and agricultural students a mere myth! Boys crowd together with their Euclids and their Latin grammars before the University examiners; but it seems impossible to collect an agricultural class who shall take a paper in Mechanics or in Chemistry. There are plenty of candidates for scholarships which shall help small boys at school, but none for one of 50*l.* a year which is offered to young men about to spend a year at any of our agricultural colleges. The Society has, in fact, purposely got out of the agricultural groove, and now it wonders that it cannot meet with agricultural students. Its Education Committee has gone to the Universities and to schools, not to the agricultural colleges and to farmers' clubs, and it laments the failure of its attempt to promote the union of agricultural with general education!

Six scholarships of 30*l.* a year are offered annually at the Royal Agricultural College for "students intending to follow agriculture as a profession, who have obtained certificates as seniors at the University Local Examinations." We wonder if these have been uncompeted for.—The best thing, we believe, that could at present happen in the interests of agricultural education would be the "winding-up" or resignation of the Agricultural Society's Education Committee, followed by a Resolution of the Council to divide its present education vote into half-a-dozen scholarships, and offer them through the proper professional channels in exactly the terms just quoted from the advertisement of the Royal Agricultural College.

* See Report of Council, Dec. 1866.

—— DOES anybody remember such a March as this?—Snow falling in the southern counties, 2 or 3 inches thick, and lying for two or three days together! We are perched where the sky line at its utmost is 30 miles away—and even the oldest inhabitant, we should think, never before had seen the landscape, including most of Middlesex, much of Surrey, and parts of Oxfordshire and even Hampshire, wrapped up in snow during the equinoctial month as we have seen it during the past 10 days. The land, which was dry and even dusty, is once more sodden, except where it is frozen; and spring work is checked—spring growth also, which is on the whole an advantage. The planting of early Potatos and sowing of Lent corn and Grass seeds had been rapidly progressing, but they are stopped for the present; and that which has been accomplished will probably be no earlier than what may be sown and planted a fortnight hence. The cold east winds which nip and even destroy much young life, both animal and vegetable, serve a useful purpose in hindering growth and preventing that succulence which a mild and sunny February sometimes produces, but which falls an easy prey, often with very disastrous consequences, to the severity of April or even May—

"A February spring is good for *no*-thing—"

and March and even April are none the worse for being backward.

—— The various quarters of the globe to which the English agricultural emigrant may go with the probability of success, were more fairly represented in the discussion which followed Mr. SMYTHIES' paper on the subject, reported last week, than they were in the paper itself. In Mr. HOWARD'S account of American agriculture to which we listened last December, so much was uttered in praise of the United States, that Mr. SMYTHIES felt bound to intimate that other stations on the great Western Continent were equally promising, and that in the experience of his son the River Plate country had proved a most profitable and satisfactory station for the sheep farmer. Although therefore some attempt was made in his own lecture, then suggested, to give the variety of answers of which the question—Where to go?—admitted, yet attention was for the most part directed to this one only. And it was not till other speakers had followed the introductory lecture that the merits of some other stations were fairly represented. Mr. G. M. ALLENDER referred especially to the Western States of America, Mr. HALL to the Cape of Good Hope, and Mr. SIDNEY to the Australian Colonies.

Mr. ALLENDER, from information obtained directly from the United States Commissioner of Immigration, had learned that though in the older settled-land States of Ohio, Indiana, and Illinois, the public lands generally have been disposed of to actual settlers, yet tracts to an immense extent of good land, well situated, may be obtained in the States of Minnesota, Iowa, Wisconsin, Missouri, and Kansas, in the valley of the Mississippi River, in the State of Michigan, in the vicinity of the great Lakes, in California and Oregon on the Pacific, and in the territories of Washington and Nebraska. Such lands are now subject to sale at private entry at 1 dollar 25 cents. per acre; and in the five first-mentioned States, and in Nebraska, the soil and climate are held to be admirably adapted to sheep farming. Here, then, they had 5*s.* per acre for land in the United States, against 1*l.* per acre quoted by Mr. SMYTHIES as the price of any farming land within a reasonable distance of any town in South America; and let it be borne in mind that in the latter there were nothing like such means of transit as existed in the former. He had received letters from South America which showed that on one of the points referred to by Mr. SMYTHIES—viz., horse breeding—the advantages possessed by English settlers were very doubtful. It was there stated that the horses even of English settlers had been taken forcibly for war purposes to a very great extent. There were three ways of obtaining land in the United States. One was by the homestead law, under which any emigrant, on signifying his intention of becoming an American, could claim 160 acres of land free for ever, after he had resided on it for five years. Another mode was to settle on any of the unsurveyed lands; in which case, when the Government surveyor came, the squatter had the pre-emptive right of purchasing the land at the upset price of 5*s.* per acre. Lastly, any man with sufficient money in his pocket could at once purchase of the Government some of the land which was offered for sale every month at a dollar and a quarter per acre, if he were the highest bidder. This, too, was in a country which was within a 10-days' voyage of our own land.

Then followed Mr. PARISH, who had passed many years of his life at Buenos Ayres, latterly as H.M.'s Consul there:—

With regard to that part of South America as a field of emigration, speaking from his own experience, and from those general impressions which a man must obtain from such close connection as he had been brought into with his own countrymen during a long series of years and under different circumstances, he should say there was no part of the world where the emigrant was better received and better protected by the laws of the country, or where there was less of invidious distinction drawn between him and the native of the country. He believed also that there was no country in the world which offered a more extensive field for man's intelligence and labour. Some capital was requisite to ensure a fair chance of success; and as regards the farmer class, he was of opinion that no man would find himself in a position to prosper if he lowered himself to the condition of a common labourer, and had to fight against difficulties of all kinds, which would in all probability break his back before he had begun to make his fortune. He had, during his long residence there, observed many parties of emigrants who had gone to South America, and had seldom seen a man return to his own country discontented, while on the other hand he had met with many who had made large fortunes. People from England now occupied

most influential positions as capitalists, merchants, traders, or landowners. In some parts of the country you might travel for 50 or 60 miles continuously over Englishmen's land, which was, of course, a great advantage as a nucleus for fresh settlers. He believed that if the part of South America in question were better known it would be better appreciated; but unfortunately the history of that country was a history of civil wars, and, considering how large a portion of the world was now open to emigrants, it was not surprising that little was known of the Argentine Confederation beyond the outlines of its history. The position of that country, however, had altered very much of late years; there was a steady progress going on under a most liberal Government, which afforded a full amount of protection, and every reasonable facility to the foreigner in earning his living, and assisting the native population in developing the resources of the country. The tenure of land was one great attraction. The system of registration, which formed the basis of the old Spanish title, was far more simple than anything of the kind in this country. There was in short no difficulty in buying land with a good title. As to the price of land, it was infinitesimal. In reference to a remark made by Mr. Allender on this subject, he might observe that he could cite instances in which land had been sold within 20 or 25 miles of a railway at 1*s.* per acre, which land was now occupied by Englishmen of good family. If settlers did not mind exposing themselves to a little danger from the Indians by settling on the frontier, they might get land almost for nothing; but even within the range of civilisation, in well populated districts, the average price of the most eligible and most favourably situated land was 20*s.* per acre, and that land would bear three sheep per acre. Probably in the course of a few years, as population and the supply of labour increased, much of the land now used for pastoral would be employed for agricultural purposes, and a large portion of the plains of the province of Buenos Ayres, consisting of rich virgin soil, which, with proper cultivation, was capable of bearing anything, would assume a very different character and value.

A representative of the South African colonies followed Mr. Parish:—

Mr. Hall, from the Cape of Good Hope, said he had resided for nine years in that colony, where he was extensively engaged in sheep-farming and horse-breeding. The Cape was in the same latitude as the River Plate, and had, he believed, the same kind of climate. Sheep-grazing was carried on to a very large extent: and, as they were of course aware, from the returns of the wool sales, it was a very large wool-growing colony. It was also a very large cattle and horse-breeding country. It was, in fact, becoming a depôt for the supply of the Indian army with horses; and, being only half the distance from Australia, it was much more available for that supply. Having resided at the Cape for nine years, and purchased a large quantity of land, intending to return and carry on operations on an extended scale, he must say that he felt sure that as much money was to be made there as in any other part of the world, provided a man took out capital, was careful in the selection of his land, and kept out of the hands of land speculators, who abounded in all parts of the world; and the sooner he became connected with some one who had had some years' experience in farming, and the less he had to do with land-jobbers or colonial merchants, or anybody connected with trade or bankers, the better chance would he have of getting on. He had purchased a large quantity of good land at the Cape, at from 6*s.* to 1*l.* per acre. He had recently bought, for another person, a sheep farm of 1500 acres for 150*l.*; and that land would carry one and a half sheep per acre. As regarded the importation of sheep from this country, Mr. Smythies recommended the Southdown. From his experience as a colonist, he should say that the Southdown was about the worst sheep for importation. For the meat, the animal was not worth killing in a wool-growing country; and in South Africa they had found that Negretti and Rambouilli, and long-woolled rams answered best. With a flock of sheep numbering about 2000, the increase in his case had been from 85 to 90 per cent. for each 100 ewes; but he had taken great care of his sheep. He had employed Englishmen, at high wages, to look after them; and the sheep were counted every night, to prevent theft. If English sheep were imported, they would require Grass to be laid down for them; and that had never been attempted, except in Australia and New Zealand. The average weight of sheep in the colony, clean meat, was 40 lb.; the value from 8*s.* to 20*s.*, and that of the wool about 1*s.* 6*d.* to 3*s.* 6*d.* per head. Horses were bred in very large quantities, particularly up the country, in the neighbourhood of the Orange River, where some settlers had as many as from 1200 to 1500.

Mr. Samuel Sidney referred to his book on Emigration, named by Mr. Smythies, which had been widely published many years before. He said:—

He then thought there could be nothing more delightful than for a young man to leave his country and go to another. He now looked upon emigration with different eyes, as a sort of thing that must sometimes be taken like physic, but which one would be much happier for doing without. He thought it was most important that farmers and farmers' sons should be warned that, although five-and-twenty years ago young people going out to a colony with a little money in their pocket and intellect to guide them were almost sure to do well, the case was different now. The colonists would not tell them that, for they were very anxious to have among them hardy and well-to-do young fellows who might assist them; but many emigrants had learnt to their sorrow that a young man going out with a small capital had no chance of contending against the competition to which he was exposed. Take the case of Australian sheep-farming. If a man got his land cheap, and if he had three or four thousand pounds, and a great many good qualities which were not to be found in everybody, he would perhaps succeed; but he had heard that many Australian sheep-farmers were turning their attention to the River Plate country. With regard to Queensland, he had read that the colony was only just recovering from the effects of a fearful drought. One firm of Liverpool had lost 20,000 sheep by drought alone. As to New Zealand, it appeared that the settlers who were doing best there were the industrious Germans, who went out with strong wives, and well understood agricultural economy. Such people worked in the night when it was too hot to work in the day, and made their wives work too. They chose very fertile land, got capital prices for all that they produced, and were many of them making money very fast. Still there was a general deficiency of water, and there were occasional droughts; and though a great many people who worked very hard did well, the country was certainly not an El Dorado. With respect to the Plate, he had seen a letter from a young gentleman, a settler there, which mentioned two drawbacks, one being that the overseers were very much given to drink, and the other that nearly all necessaries were very dear. The writer said you could not open your mouth under a dollar, and it took two dollars t fill it. It was quite clear that no one could live in the towns there without great expense. People who went out there should go with their minds like a blank sheet of paper and learn their business on the spot. When he first began to deal with the subject of emigration, he was as confident as most people; he did not think even their friend Mr. Mechi laid down his opinions with more authority; but he had since learnt to be more doubtful, and he would now recommend a young man who went out as an emigrant to go with no fixed ideas,

We do not apologise for reproducing here so much that was thus instructively presented to the Farmers' Club on Emigration; for the question has important agricultural relations to this country. It may be supposed to be an odd subject for discussion before a Farmers' Club—as though one should say, "English agriculture is exhausted, no profit can be made of it; let us try another country altogether." Yet English farmers, as well as their sons, are interested in it. This was well pointed out by Mr. Allender, who began his speech with saying that the only remedy that he could see for the increased value of land in this country, the benefits of which were almost entirely confined to the landowner, was to encourage emigration on an extended scale amongst tenant farmers.

— In reference to the cases of adulterated milk at Dublin, reported in our last week's Paper, the *Dublin Farmers' Gazette* points out how a substance, of which only a small percentage is nutriment, is especially open to fraudulent dealing. Only 12 per cent. of good milk is food—the rest is water; and 11 per cent. may represent a milk of fair quality; but see what a door is thus opened to dilution. A milk containing 12 is reduced to one containing 11 by adding 8½ of water; or to one containing 10, by making 6 pints into 7. Six samples of milk examined by Dr. Cameron for the Lord Mayor of Dublin afforded the following curious results:—

1. Pure Milk.	
Water	87.2
Butter, &c.	12.8
Degrees of cream, 11.	100.00
2. Pure Milk.	
Water	87.8
Butter, &c.	12.2
Degrees of cream, 5½.	100.00

Showing that the lactometer is of little service, depending for its indication apparently on a variety of circumstances besides the quantity of butter which the milk contains.

3. Milk adulterated with 40 per cent. of water—degrees of cream, 3.
4. Milk adulterated with 17 per cent. of water—degrees of cream, 10.
5. Milk adulterated with 33 per cent. of water—degrees of cream, 4.
6. Milk adulterated with 17 per cent. of water—degrees of cream, 22.

Thus it will be seen that a sample of milk adulterated with 17 per cent. of water yielded no less than 22° of cream, or three times the quantity required to pass milk at the union workhouses. Dr. Cameron states that the percentage of cream in *pure* milk varies from 5° to 26° on the lactometer. Agitation increases the amount, so also does the heat of boiling water to the milk, because the heat coagulates the casein, which rises along with the cream to the top of the vessel.

FOOD.

[The following conversation before the Food Committee of the Society of Arts, is reported in last week's Journal of that Society. We have somewhat abridged it here.]

Food Committee. — The Sub-Committee on Meat Supply met at 10.30 A.M. on Wednesday, the 27th February. Present:—The Right Hon. H. A. Bruce, M.P. (Chairman), Mr. C. S. Read, M.P., Mr. Harry Chester, Mr. Benjamin Shaw, Mr. Edward Wilson, and Mr. James T. Ware.

Dr. Thudichum having attended at the request of the Committee,

Mr. Chester said on the last occasion the Committee had before them specimens of raw meat from South America, preserved by Dr. Morgan's process, also by the paraffin process of Professor Redwood; but the Committee did not at present see that in either of those specimens there was a complete substitute for such meat as was required for the food of the people in this country. They had also before them a specimen of Dr. Hassall's flour of meat, which might be a very useful diet under certain circumstances, but was hardly a form of preparation that could be employed when meat was to be brought to this country from such distances as Australia and South America. The Committee also had before them specimens of Dr. Liebig's *Extractum carnis*. They thought that was a good thing as far as it went, but they wished to ascertain from scientific opinions how far they were justified in recommending experiments to be made upon these foods, on a large scale, in any of the public establishments. Possibly experiments might be tried in the Navy by feeding the crews of the vessels on this *Extractum carnis* in connection with salt meat. In this way it might be ascertained whether the nutritive properties, of which salted meat was said to be deprived, could be compensated by the partial use of the *Extractum carnis*. The Committee would be glad to have the opinion of Dr. Thudichum on these various scientific points.

Dr. Thudichum—Allow me, in the first place, to make a distinction between extract of meat and meat itself. Extract of meat lacks the essential properties of nutriment. There is, I know, a very prevalent but erroneous opinion that extracts of meat, particularly that prepared on Dr. Liebig's plan, are nutritious. Of course, before I go further with that, I must define the term "nutriment." We know that the body wants in every 24 hours a given quantity of carbon, nitrogen, oxygen, hydrogen, phosphates, &c. Now, whereas Liebig's extract of meat contains these elements only in very small quantities, and that mostly in an oxydised condition, it is clear that any practical amount of Liebig's extract would not nourish in the least. Hence this extract, or any similar extract, cannot be called "food." We have to look upon extracts of meat simply as stimulants. Tea and coffee will not nourish a man; but both tea and coffee are strong stimulants of the nerves of the heart and the brain; and it is likely, I think, that the extracts of meat contain a substance which is somewhat similar in its effects to these stimulants. It may contain other substances which we do not know about, but the universal use of decoctions of meat, such as beef-tea, is only to be regarded in the same light as the habit of drinking tea or coffee. These are liquids containing an amount of nervous stimulant, and in that sense only Liebig's extract of meat must be considered. That is the view which I believe Liebig himself takes of his extract. He does not regard it as nutritive; on the contrary, he says it is astonishing that any liquid matter containing so small an amount of solid substance as broth should be by universal consent taken as a restorative, or for some purpose which we cannot define. If the Committee desire to know whether I should recommend them to have experiments made upon the extract of meat of Liebig (which in fact is nothing but condensed beef tea), I must answer that I do not see that any experiments are necessary, unless they wish to open the entire question what is the sense of our drinking beef-tea or drinking broth.

The Chairman—What would be the difference of effect produced by drinking a cup of beef tea and a cup of tea?

Dr. Thudichum—The effects of tea and beef-tea are, perhaps, rather analogous, though dependent upon different chemical agents. The effect of tea would be mainly due to the theine which it contains, and would consist in an acceleration of the heart's action, and greater vivacity of the mental powers. A similar effect would be produced by beef-tea, but not so much through its influence upon the heart as through its influence upon the nerves of taste and digestion, and upon the muscular sense, or sense of strength.

Mr. Chester—We are now dealing with the subject of meat. You say, as I understand, that the extract of meat is not nutritive?

Dr. Thudichum—There is so little nutriment, that if you dissolve a teaspoonful of the extract in a cup of water, and drink it, you would not receive so much nutriment as you would derive from a single mouthful of meat.

The Chairman—Then is the practice of giving beef-tea to delicate children and sick persons altogether a mistake?

Dr. Thudichum—That I do not say. It seems to have an important effect, but the effect is not in the sense of nutriment. It is due to the specific effects of certain ingredients contained in it, especially creatine, the action of which, in some degree, resembles that of theobromine, found in cocoa. The creatine, which when in the system is changed into creatinine, has, perhaps, an action upon the heart, and upon the muscles, of which it is a constituent. Then we have in beef-tea potassium salts, which the body requires for the production of muscular power. Potash is as essential an element in the chemistry of the muscles as in that of the blood. The chemical substances carried by the blood cannot pass into the muscles without the assistance of the potassium salts. Then there are contained in beef tea certain acids, of which lactic acid is one, and inosic acid another. If we look at the history of food among men, we find they have at all times made provision for acids in their food. The ancient Romans were acquainted with sauerkraut, or fermented Cabbage. In Prussia and many parts of Germany they have a food made of fermented Beans; and in Holland and many parts of southern Europe they have a preparation of fermented Cucumbers; and many other vegetables are used in an acid state. This Cabbage, or sauerkraut, is a strong acid, and so with the Beans. These various foods contain lactic acid. This acid, or one identical with it in composition, though differing slightly in other properties, para-lactic acid, is contained in meat. There is no question that the fine flavour of meat—the osmazome—which provokes appetite, is due, in part, to the action of this lactic acid. If there is an absence of flavour in any kind of meat, lactic acid, if mixed with the gravy during preparation, acts as a substitute, and produces a relishing flavour. We find, besides, that lactic acid is useful for digestion. Then we have another acid in various kinds of meat, called inosic acid; of that the properties are not well known. I have no doubt it has a similar action to lactic acid. Beyond that there are indefinable matters in beef-tea, or extract of meat, of which we cannot say that they are not useful, but we know little of their effects. We have, therefore, as far as our present knowledge goes, to rely for an explanation of the efficiency of beef-tea upon these principles—viz.:—Creatine, or creatinine, paralactic acid, inosic acid, inosite and potassium salts. Which of these are essential, and which not, we cannot at present tell. When extract of meat is mixed with water for use the solution should not be too strong. It is a common error, in making beef-tea, to put in an extra dose of this extract, but that is a mistake. Too strong a solution of extract of meat is as bad as too strong tea or coffee.

Mr. Shaw—Are there not carbonaceous matters in beef-tea?

Dr. Thudichum—All these preparations contain carbon, but that carbon does not form food in the sense of the carbon in albumen, fat, or starch.

The Chairman—These preparations, then, you admit to be useful as aids to digestion, if they have not the necessary nutriment for the proper sustentation of the human frame. Salt meat being an imperfect food, may I ask you whether this extract of meat would form a complement to that?

Dr. Thudichum—I do not think so, because salt meat has been deprived of a certain amount of albumen. I think, however, the loss of nutritious value from salting meat is not very great on the whole. The deleterious effects of the long use of salt meat seem to be due to the effect of the excess of chloride of sodium.

Mr. Ware—What nutritive qualities are there in meat itself which the extract does not contain?

Dr. Thudichum—In fresh meat there is albumen, which is very nutritive in this sense, that it supplies the material which is necessary for the production of all the organs of the body. It is also useful in supplying heat, but not so much so as other constituents. We cannot build up the muscles, or the blood, or the eyes, or any other part of the body, without albumen. Next we have muscular fibrine, also termed syntonine. When we mince meat, and extract the albumen by means of water, there remains this syntonine undissolved, but when mixed with dilute acids it becomes a thin jelly, and is afterwards dissolved. Next we have myochrome—that is the colouring matter contained in the muscles—and this is identical, in chemical composition, with the colouring matter contained in the blood.

The Chairman—Is that an essential element?

Dr. Thudichum—Yes, it acts in the breathing of the muscles during life, and for some time after death. As long as meat is in an eatable condition, this matter remains, so to say, alive; it takes up oxygen, and oxydises the noxious products of the spontaneous decay of albumen, giving out carbonic acid. Hence a butcher takes care to let his meat "breathe." If the meat were shut up close after being killed, it would become putrified in a few hours. This myochrome is a compound body, containing a quantity of iron. It is dissolved with the albumen, and precipitated with it during boiling. Besides albumen, syntonine, and myochrome, meat contains a very little gelatine, which, in the shape of connective tissue, binds together the muscular fibres. When you stew meat a long time the gelatine is dissolved, and you have nothing remaining but a bundle of hard fibres. Then we have the other substances I enumerated before as ingredients of beef-tea, viz., creatine and lactic and inosic acids, potassium salts, and finally we have a brown syrupy matter, which is not more definable at present. I have already mentioned inosite, a kind of sugar, met with in French Beans, as being also contained in muscle. There is another similar substance, sometimes contained in muscle, and that is animal dextrine or hepatin, or glycogenic substance from the liver. But this ingredient varies in a manner which is as yet unexplained. Sometimes, in working up half a hundred-weight of meat, the chemist may get a pound of this matter, at others he may not obtain a trace. Now, when beef-tea is made, the albumen and myochrome of the meat are made insoluble by boiling; the syntonine also remains undissolved; the fat fuses, and of the gelatine a small portion is dissolved. After straining there is nothing left in beef-tea but inosite, creatine, creatinine, lactic and inosic acids, and potassium salts, and the brown syrupy matter. In case hepatic glycogen was present, this also would be contained in the beef tea. But I imagine that such glycogen would not remain in the extract as prepared by

Liebig's company, for during evaporation this dextrine forms skins on the surface, like the skins on milk, which have to be removed, as they prevent evaporation. Liebig's extract would therefore probably never contain glycogen or animal dextrine, while fresh beef tea might sometimes contain it. It might perhaps yield the material for the change which is known as the "turning sour" of beef-tea. I may add that meat contains 75 per cent. of water, and 25 per cent. of solids or residue after drying. Of these 25 per cent., 15 to 18 are insoluble in water, 7 to 10 soluble in water; but of these 4 to 4½ become again insoluble by boiling, so that it is not far wrong to say that only from 3 to 5½ out of 25, or from one-eighth to one-fifth of the whole of the solid constituents of meat pass into extract or beef-tea. From four-fifths to seven-eighths of the solids are rejected.

The CHAIRMAN—Do you look upon meat as essential to human food?

Dr. THUDICHUM—Certainly.

The CHAIRMAN—If this be so, how is it that the ox, which grows so fat and strong, and which furnishes the richest meat, feeds entirely upon vegetable food?

Dr. THUDICHUM—Briefly, the ox has a different masticating and digestive apparatus from those of man. The food which the ox takes contains all the elements of the food on which we live. If we analyse Grass, we find it contains albumen and other compounds from which blood can be made. The stalks, leaves, and seeds contain all the ingredients which the body wants for living, particularly one essential matter called cerebric acid, which is the highest organic compound known. That is contained particularly in grain seeds, especially in Indian Corn; eggs also contain it.

Mr. WARE—Chemically, there is no difference between vegetable albumen and the animal albumen on which man feeds?

Dr. THUDICHUM—They have the same percentage composition, though perhaps not the same atomic weight. We find cerebric acid, which forms brain matter, has an atomic weight of 2007; fibrine, about 2000; albumen, 1608; and caseine, 807. Vegetable albumen might differ from animal, as caseine does from albumen.

Mr. SHAW—While these substances differ so little chemically, and yet their effects upon the frame are so different, does this not show that there is something in the question worthy of further experiment, and that chemical analysis is hardly trustworthy as to the effects of these matters upon the human frame?

Dr. THUDICHUM—With regard to the custom of drinking beef tea, there is much to be inquired into.

The CHAIRMAN—Following up what I have asked you with regard to the ox, it is clear we have not got the apparatus for converting vegetable food into what we require as the ox has.

Dr. THUDICHUM—No.

The CHAIRMAN—With regard to vegetarians; in what respect do you consider their diet to be deficient?

Dr. THUDICHUM—We can easily adopt a diet of vegetables only which will fully support our body, even in the wear and tear of London life. The vegetarians, here and in America, are a small example of the people in the world who live upon vegetable food. The Japanese as a people eat no meat, but in that country the cultivation of food seed plants has reached the highest point of perfection. It is by the use of seed plants especially that man is enabled entirely to do without animal food; as the organic functions of the plants attain the highest perfection, the seed is formed which contains all the essential elements of food. In this country there are great numbers of people who chiefly subsist upon vegetable food, in the form of bread. The Shakers, the Japanese, and many other peoples in different parts of the world, are practically vegetable feeders, and there is no difficulty in explaining how they manage to keep their bodies at the same weight and strength, and perform all the functions of life. There are some seeds which contain a large quantity of fibrine, albumen, caseine, and other ingredients, besides oil, acids, and starches. There is, for instance, Indian Corn; that is remarkably adapted to the maintenance of the body. Then, again, we have the Bean fruits; but they do not grow well in this country, because the heat is not sufficient; but Beans in the warmer climate of the south are a magnificent food, and too much neglected in this country. Then, in addition, there are Peas, Lentils, and Millet seed. These, taken together, will fully feed a man.

The CHAIRMAN—He must take a large bulk of such food?

Dr. THUDICHUM—No doubt. It is the advantage of meat that it supplies food in the smallest compass, and is dissolved early in the digestive canal. Vegetable food requires more digestion. Hence the carnivorous animal has a short intestine, the herbivorous a long one. The house cat has gradually had its intestine lengthened, to adapt it to the digestion of bread and Potatos, and in exactly the same manner is the intestine of human vegetarians lengthened and widened to accommodate the greater bulk of their food. If sufficiently fed, vegetarians become big-bellied.

Mr. CHESTER—Are Beans, Lentils, and such food, easy of digestion?

Dr. THUDICHUM—There you have touched upon a difficulty in their use; these seeds require careful preparation. If not properly prepared, they pass through the stomach undigested. That is the main objection to the use of grain foods by the common people. They have neither the knowledge nor the means of properly cooking such food; therefore, practically, there is nothing like bread for them. It is soft; it is that which gives them the least trouble; it is most easily digested, and no other grain food can enter into competition with it.

Mr. CHESTER—What the Committee want to know is, what it is necessary to add to the *Extractum carnis* to give it the nourishing properties of meat, the supply of which is so deficient.

Dr. THUDICHUM—If you add eggs to beef tea you produce an equivalent, in a nutritive sense, to meat. That would make up fully for the loss sustained by the solid materials being rejected. You might also boil Beans with the extractum, or add Peas, Lentils, or Millet. Practically, it would be best to boil these seeds in soft water, or in water made soft by the addition of a crystal of soda, a sufficient length of time, and to add the extractum at the end of the boiling, just before serving. Seed one year old only should be used; seed two years old is not good. By such means beef-tea or extractum may be made equally nutritive to meat.

Mr. SHAW—Have we not now arrived at a point at which experiments with regard to dietaries might be made with the *Extractum carnis* and the seed vegetables which Dr. Thudichum has spoken of?

The CHAIRMAN—No doubt experiments of this kind might be made, but I doubt whether these vegetables could be got in sufficient quantity, or at sufficiently low price, to form a staple article of food in this country. Is Indian Corn equally nutritive in its young and soft state as in its hard and ripened condition?

Dr. THUDICHUM—No; in its young and soft state it has not one-fourth the amount of solid substance which it possesses in its ripe state.

Mr. CHESTER—Is it possible to preserve albumen for any length of time?

Dr. THUDICHUM—Albumen, when kept from the air, may be preserved for a long time. We can preserve it in eggs for a year or two; but though it may remain unchanged in its essential properties, it loses its appetising qualities. That is the difficulty with preserved foods, that though apparently in a good state of preservation, they lose the qualities which make them acceptable to appetite.

Mr. E. WILSON—Would not these qualities be restored by the addition of appetizing condiments?

Dr. THUDICHUM—To a great extent, no doubt; but that presupposes a knowledge of the art of cookery. As the common people do not know how properly to cook the simplest thing, they would not succeed in imparting appetizing qualities to preserved food materials.

Mr. SHAW—Is it your opinion that the theory of cooking should be taught in schools, and perfected by practice afterwards?

Dr. THUDICHUM—I would let the theory of cooking enter into the teaching of the schools, and that would open the minds of the children to the fact that cooking is one of the most essential things to be learnt.

Mr. SHAW—I have mentioned this matter in connection with the educational examinations of the Society of Arts, but the opinion generally expressed was that cooking could not be properly taught apart from actual practice.

Mr. CHESTER—I assisted in the establishment of an Industrial School at Highgate, where all the girls were taught cooking and house work generally.

The CHAIRMAN—Do you not think it would be possible to prepare a catechism of cooking, or a few short, practical chapters, applicable to the condition of the poorer classes in this country, and which might be communicated to the upper classes before they left school without difficulty?

Dr. THUDICHUM—Undoubtedly. I have for a long time conceived the idea of preparing a little book, which might be called "The Spirit of Cookery," and which should contain the elementary principles of cooking.

The CHAIRMAN—What I should suggest would be a pamphlet of five or six pages, containing a few essential rules of cookery, applicable especially to the poorer classes.

Dr. THUDICHUM—Those rules would be very useful; but their execution would have to go hand-in-hand with a number of other practical improvements calculated to minister to the welfare of the lower classes. You have not only to give to them rules how to cook, but to put within their reach the necessary apparatus with which to cook, for the success of cooking is dependent upon proper apparatus for the purpose. No good and economical cooking can be done on grates as they are at present constructed. The introduction of a really practical and economical cooking apparatus for the poor would be a great boon.

Mr. CHESTER suggested that every good apparatus which was introduced might be tried in the first instance in the model lodging-houses, such as those founded by Mr. Peabody. He also suggested that a very useful charitable association would be one for the distribution of iron pots among the poorer classes.

Mr. C. WILSON—I would ask one question of Dr. Thudichum. Have you given any attention to the subject of the rate at which, running over the whole scale of articles suitable for diet, sufficient quantity could be purchased for a man in health to fill his stomach comfortably, as any one of us would do at an ordinary dinner?

Dr. THUDICHUM—He could probably do so at the cheapest rate upon bread and cheese.

Mr. E. WILSON—I presume you mean that that would be the lowest rate now, with the present limited choice of articles of food; but, supposing he had the whole range of diet available, and was educated in the proper preparation of food, would he not be able to fill his stomach with food cheaper than bread and cheese?

Dr. THUDICHUM—I am not able to answer your question off-hand; it is a subject that would require investigation.

Mr. E. WILSON—In the East various kinds of bulbs are eaten, cooked with a little fat. I am sure a meal may be made from them cheaper than with bread and cheese.

Dr. THUDICHUM—Possibly such forms of vegetable food might be imported with advantage, but we have cheese in this country, which they have not in the East; and the cheese, though taken in small quantity, affords an amount of nutriment which the other kind of food does not supply. I may add another consideration; no doubt, Beans and Peas, Lentils and Lupins, are a good kind of dried seed food, and cheaper than any other description; but when the question arises of producing them in this country the laws of agriculture interfere, and it is found that here it will not pay the farmer to grow anything except the best grain. Lupins would be the last resource of agriculture. Where the soil was insufficient to grow Wheat and Beans and Peas you might grow Lupins, because the roots of these plants strike deeply into the subsoil, and gain what nourishment there is there.

Mr. SHAW—Are there not vast extents of such land abroad, where they would be glad to grow such grains for exportation? and they might be grown in places otherwise unproductive, if the demand was sufficient to induce a large amount of cultivation.

Mr. READ—Dr. Thudichum has told us of the difference between the nutriment contained in tea and beef-tea, will he be good enough to tell us the difference between the nutriment in malt liquor and beef-tea?

Dr. THUDICHUM—The nutriment in malt liquor is greater than in beef-tea; it contains alcohol, which is food. I will state the grounds on which I base that assertion. Last summer I performed an interesting experiment. I invited my class in pathological chemistry to meet me one afternoon in the gardens of the present St. Thomas's Hospital, formerly the Surrey Zoological Gardens. There were 33 in number, including myself. We drank, from two o'clock in the afternoon till seven in the evening, 44 bottles of wine, consisting of white and red Hungarian, Burgundy, and Sauterne. The wine had been previously analysed, and the quantity of alcohol it contained determined. The 44 bottles of wine, drunk by the 33 persons, contained, in the aggregate, 4000 grammes of absolute alcohol. The whole of the urine passed by these people from two o'clock in the afternoon till six o'clock the next morning was collected and distilled. There were 24 distillations; and there were left, after the last distillate had been dehydrated, 10 grammes of alcohol, the rest having been burnt up in the system. Supposing that 10 grammes more passed out with the breath and through the pores of the skin, it would give only 5 grammes out of every 1000, or a-half per cent., as the quantity which was left unused by the economy. We have here a direct proof that out of the whole quantity of alcohol drunk only a quarter per cent. was excreted by the kidneys.

Mr. E. WILSON—Is it quite certain that all the alcohol that was retained was beneficially used up?

Dr. THUDICHUM—I have no doubt all was beneficially used up. I do not say that for a man to drink a bottle and a quarter of wine is beneficial to him, but I say this, that whatever alcohol it contains has a stimulating action, and, moreover, a warming action.

Mr. CRITCHETT—Against this experiment may be placed some investigations made by two French chemists, MM. Lallemand and Perrin, and supported by Dr. Edward Smith, tending to show that as soon as alcohol is taken it at once begins to pass off, through the skin and otherwise, perfectly unchanged.

Dr. THUDICHUM—These experiments are quite inconclusive, as no estimation of the quantity of alcohol passing off had been made, which I regard as very small. Besides, alcohol contains sugar and gum. It also contains albuminous matters, which cause it to ferment; they are digestible. Then it contains phosphates in considerable quantity. The phosphates abound in fruit and grain, in bread, and in meat, and no doubt they are of great importance in the animal economy. Then there are in beer certain undefinable substances—the brown syrupy matter, which we cannot define. There is also acetic acid in beer, and the extract from the hops, which are to a slight extent narcotic, something like tobacco.

Mr. CHESTER—There is no nutriment in hops?

Dr. THUDICHUM—No; it merely has a soothing effect upon the brain.

The CHAIRMAN mentioned that the result of an experiment tried by a contractor with a number of navvies working at night at a tunnel, one gang being supplied with bread and butter and coffee, and the other with bread and cheese and beer, was, that the larger amount of labour was performed by the men who took the bread and butter and coffee.

Mr. E. WILSON remarked upon this that the men put upon the coffee regimen might not have confined themselves to that beverage, while with the others it might have been a question of an extra quantity of beer, and it would not be known what quantity of beer the men might have drunk in the day time.

Dr. THUDICHUM—There is no doubt whatever that alcohol drunk at certain times, in certain conditions of the body, takes off the edge of the understanding, and should not, therefore, be taken early in the day. On the other hand, if a man is tired from a morning's work, and has taken as much food as he requires, he feels a craving for something which more food would not supply, and that is given in alcohol.

The CHAIRMAN—What do you say to the particular experiment with the navvies which I have mentioned?

Dr. THUDICHUM—The experiment you have related it is impossible to judge of, for this reason, you do not know what the precise condition of those men was. You do not know what they had eaten and drunk the day before, and what they were accustomed to eat and drink. One set of men may have been accustomed to beer and the other to coffee. To one set of men it may have been so much extra beer acting upon what they had previously taken.

The CHAIRMAN—*A priori* do you assume, supposing the men to have been moderate in their previous living, that the bread and cheese and beer would be as good food for them as the bread and butter and coffee?

Dr. THUDICHUM—I have no doubt of it.

Mr. READ—Suppose a labouring man, whose chief diet was bread, were to drink a glass of beer, would that be a substitute for the meat which he could get for the same money?

Dr. THUDICHUM—It would be but a poor substitute. The nutritive value of the beer would be very small compared with that of the meat. If a man spent 4*d.* in beer he would not obtain half the nutriment he could get if he spent the same amount of money in meat.

(Dr. Thudichum, having received the thanks of the Committee, then retired).

Mr. PHILPOTT, having been introduced to the Committee, stated that he had been in the habit of melting down 1000 to 1500 sheep per day in Australia, for four months together, but he had tried in vain to discover any process by which the meat could be preserved for food, except, perhaps, in the form of the extract. He had had great quantities salted, but it did not succeed.

The CHAIRMAN—Supposing a means were discovered of preserving meat in a fresh state for many months, could such a supply be obtained from Australia and other parts as would make the business commercially successful, and afford such a supply of meat as is required in this country?

Mr. PHILPOTT—An unlimited supply of the very finest quality of meat could be obtained. We only want the means of preserving it. Throughout the vast tracts from Victoria to Brisbane there are no means of disposing of the carcases except by melting them down.

The CHAIRMAN—You know of no means of preserving the meat so as to make it a useful and valuable article of export to this country?

Mr. PHILPOTT said he knew of none except Liebig's process, used by Mr. Tooth. If the extract of meat were made upon a very large scale, he thought it could be sold at half the present price in this country, seeing that a bullock cost only about 3*l.* or 4*l.* in Australia; but he could not state the quantity of extract which such a carcase would yield. At present the meat itself could only be preserved by salting it so intensely that people would not eat it in this country; and he was not aware of any means by which the salt could be extracted from the meat on its arrival here. Legs of mutton salted were sold at 3*s.* per dozen, and they were the finest quality of meat, but they had become hard by the salting. He believed if a process of preservation were discovered to enable meat to be brought from Australia or Buenos Ayres, in such a condition as would lead to its use in this country, it could be sold with profit to the producer at 2½*d.* to 3*d.* per pound.

Home Correspondence.

The Bondager System and Hinds' Wages.—I send you a report in the *Kelso Chronicle* of Feb. 15, 1867, which I shall feel obliged to you for publishing, as a satisfactory proof that the bondager system is still in full force on too many farms in Berwickshire:—

"MEETING OF PLOUGHMEN.—A meeting of ploughmen was held at Clinkimin, parish of Lauder, on Friday evening last to consider the evils of the bondage system—James Bell in the chair, who opened the meeting with some appropriate remarks, and called on James Halliday, who moved the first resolution, viz.:—'That this meeting of ploughmen, knowing from their own experience the oppressive nature of the bondage system, and that although it has been abolished on some farms it yet on others remains, we therefore resolve to maintain against it a perpetual war until it is abolished.' George Rutherford moved the 2d resolution, which was—'Should any farmer in the meantime find it inconvenient to provide himself with workers, owing to a deficiency of cot-houses or otherwise, in that case we object not to keep a worker, but as a lodger only, the master paying her wages, and also the ploughman a proper allowance for her board, that allowance not to be less than 4*s.* per week, and that whether she be a hired girl or the hind's own daughter.' James Robertson moved the third resolution—'That we form ourselves into a self-protecting association, and should any enrolled member, through his steadfast adherence to our foregoing resolutions, be thrown out of service, we agree to assess ourselves to a small amount, and raise a fund out of which such member shall have his house rent paid for at least one year, such rent not to exceed three pounds a year.' All the resolutions were carried unanimously."

I trust this report will satisfy Englishmen that I am dealing with facts, and not attempting to substitute opinions for them. Mr. Thomson unwittingly corroborated my statements in the *Agricultural Gazette* of Sept. 10, 1866, which he attempted to correct in his letter of Sept. 22. He states in his letter of Feb. 23:—"In discussing the wages of 1866 it is out of the question to adduce tables founded on the prices of 1863. And besides, fiars (or average) prices are no rule for the hind's 'gains,' when he has the best corn grown on the farm." Instead of putting down the Roxburghshire money value of the Oatmeal in 1863 and 1864—6*l.* 13*s.* 4*d.*—in my disputed letter of September 10, I put 9*l.* 5*s.* against the hind for the meal produce of 60 bushels of

Oats. I beg to state that 1*s.* 9*d.* and 1*s.* 5*d.* were the Berwickshire yearly average prices of an imperial stone of Oatmeal in 1863 and 1864 respectively. The following are the yearly averages struck at Dunse on the 26th of February, 1867. As Mr. Thomson finds it convenient to state that the averages only represent prices of "horse-corn," I am glad to find that the averages of Merse and Lammermuir Oats and Barley are given:—Wheat, per imperial quarter, 2*l.* 17*s.* $4\frac{11}{12}$*d.*; Merse Oats, 1*l.* 7*s.* $9\frac{1}{12}$*d.*; Merse Barley, 1*l.* 16*s.* 4*d.*; Peas, 2*l.* 2*s.* 3*d.*; Lammermuir Oats, 1*l.* 4*s.* $2\frac{7}{12}$*d.*; Lammermuir Barley, 1*l.* 8*s.* $4\frac{8}{12}$*d.*; Oatmeal, per imperial stone, 2*s.* $2\frac{1}{12}$*d.* Mr. Thomson has failed to prove that I give the hind a large discount in connection with the yearly averages, exclusive of what I refer to in the paragraph preceding the tabular account in my letter of July 7. I stated in my letter of Sept. 10, that the hind's food in harvest consists of porridge and milk for breakfast; a 16-ounce loaf and a bottle of beer for dinner, and six pecks of Barley as a substitute for 24 suppers of porridge and milk. A quarter stone ($3\frac{1}{2}$ lb.) of Oatmeal makes me six breakfasts of porridge, and 14 imperial stones (196 lb.) being the weight of my tabernacle, what satisfies me is sufficient for the ordinary run of hinds. Proof of the foregoing:—

	£	*s.*	*d.*
24 Breakfasts of porridge and milk	0	3	0
24 Sixteen-ounce loaves at 2½*d.*	0	5	0
24 Bottles of beer at 1½*d.*	0	3	0
Six pecks of "supper Barley" at 4*s.* 6½*d.* per bushel	0	6	$9\frac{3}{4}$
Cost to a farmer of a hind's food for a month in harvest	0	17	$9\frac{3}{4}$

I beg to contrast this with the disputed statement in the *Agricultural Gazette* of August 25, 1866.

Hinds' wages for the twelvemonth ending May 25, 1867—calculations based on the averages struck at Dunse on the 26th of February, 1867:—

	£	*s.*	*d.*
100 Stones of Oatmeal at 2*s.* $2\frac{1}{12}$*d.*	10	18	$6\frac{3}{12}$
2½ Quarters of Barley at 1*l.* 16*s.* 4*d.* per qr.	4	1	9
6 Bushels of Peas at 2*l.* 2*s.* 3*d.* per qr. ..	1	11	$8\frac{1}{4}$
Sheep money	5	0	0
Money substitute for a cow's keep	6	0	0
Market value to farmers of 1500 lineal yards of Potato drills	2	10	0
Hind's food for a month in harvest	0	17	$9\frac{3}{4}$
A hind's wages consist of a house and garden, free of rent, the cartage of coals, the liberty to feed pigs, and	30	19	$9\frac{3}{4}\frac{8}{12}$

I send you a list of the averages struck at Dunse, to show you that a distinction is made between Merse Oats and what Mr. Thomson calls "horse-corn," the latter of which averaged only 1*l.* 4*s.* $2\frac{7}{12}$*d.* per quarter, whereas the Merse Oats averaged 1*l.* 7*s.* $9\frac{4}{12}$*d.* per quarter. I am glad to find that English farmers are becoming aware of the value of a cow as part of a married ploughman's wages. I deem it judicious to be careful in estimating the cost to farmers of a hind's wages in kind. I beg to contrast my estimate in the tabular form in this letter with that of August 25. I take no note of the market value of the Potatos grown on 1500 lineal yards of drills 30 inches wide, of a well-fed cow's produce, and of the quantity of pork which a good cow, a good crop of Potatos, and the meal enables an industrious wife to produce. My letter of July 28 shows that hinds have the advantages of crofters without crofters' long hours of toil. Having sent Mr. Thomson a copy of my essay on the Remedy for the Bondager System, I beg to direct his attention to the first and second paragraphs of page 3. *T. W. Rutherford, Forest Field, Kelso, N.B.* [Much abridged.]

Grub and Wire-worm.—The grub and the wire-worm are upon many farms far more injurious (particularly to the various growing crops) than moles, rats, mice, and rooks all put together. Their numbers are so great, and their attacks so stealthy and unlooked for, that farmers for the most part look upon their losses from these causes as great disappointments. Their insidious attacks upon a prosperous crop are very trying and vexatious. No one appears to know the theory of these visitations. We pass over several years without experiencing any material injury, when anon thousands upon thousands of these little but destructive enemies are to be found either at the roots of our crops, or feeding upon the plant itself. Take the summer of 1864, what thousands of the large brown or drab grub, of the May bug or brown clock tribe, devastated our Mangel and Turnip crops, and occasionally we suffer greatly from wire-worm after the same order, and again we are free for years. Now, the wire-worm is a more dreaded pest than the grub, in consequence of his longevity; he is said to abide four or five years in the same locality before his transformation to his beetle life. It is said there are no less than 73 varieties of this species of root-destroyer known. The true wire-worm is the grub of a small beetle (Elator segetes, or click beetle), and it derives its name from its slender form and uncommon hardness. This is a most destructive class of insects, and feeds alike upon the roots of Wheat, Barley, Oats, Rye, Grasses, &c., and is chiefly found in newly broken-up land. These beetles lay a number of tiny eggs, presently they hatch, and little thread-like worms soon attach themselves to the fibres of the roots of the plants above-named, where they grow and thrive, and the particular species just named live five years before assuming their chrysalis state. They have many enemies, but they elude them all for the most part. The rook, mole, birds generally, and one or two of their own tribe of insects, destroy them, but all to very little purpose. Woe be to the crop when once subjected to their attacks! The chief aim of the farmer should be to make the land unpleasant or loathsome to the little beetles if possible. They will then at their emancipation from their chrysalis state take wing and find a home elsewhere, their instinct teaching them where to rest and deposit their eggs with the best prospect of an abundance of food for their progeny. This may appear absurd, if not ridiculous, but it is not so. Some years ago these little destructives paid a five years' visit to a farm managed upon modern and liberal principles. There were at all times some excellent crops, with plenty of roots for their sustenance. These they continued to attack till most serious injury was done. On the adjoining farm laying alongside, of like land, the management was of the old-fashioned order—no aroma from guano or superphosphate; no variety in the cropping and but little prospect of a comfortable home for these little gentry—consequently the preference was given to the highly cultivated farm, and there they revelled for their usual term, and then, for the most part, took their departure, not, however, till from continuous culture, horse-hoeings, hand-hoeings, and rolling, their home was made uncomfortable. This may seem unreasonable, but it is no uncommon occurrence. These insects do so, and this may be presumed to be the cause—instinct guiding their movements. There is no effectual means of ridding the land of them by artificial aids—no poisoning, no collecting, no destroying them. Heavy rolling, when it can be properly done, is perhaps the best preservative for a growing crop. Deep winter ploughing or deep trench ploughing and continuous culture is most disturbing to them. To put in a great abundance of seed is a good way to insure a plant. In green crop culture it is desirable to drill in Mustard seed with the Turnips or like seeds. It acts as a partial preservative. Where these little rogues much abound, it is right to drill alternate rows of common and Swede Turnip seed. The wire-worm will feed upon the earlier common sort, and give time for the Swedes to gather strength of plant. No dressings of seed or nauseous manures will deter their attacks. It is good practice to take a Potato or a Cabbage crop upon lands sadly infested. Pulse crops withstand their ravages. Dead fallowing is destructive to them; continuous culture and constant exposure of them effects the best riddance. *O. F.*

Deep and Shallow Drainage.—Everything having been said with tongue and pen that need be said about the comparative merits of deep and shallow drainage, it is very tantalising to men in any position attempting to make out that draining engineers, farmers, and operative drainers are now ashamed of their published statements in defence of deep drainage. For example, "A Bewdley Forester" states in the *Gardener* of January:—"The above items of an almost inexhaustible subject have, in another form, been some years before our southern audiences, and I now venture to submit them to pass before the northern critics in the culture of the earth's surface. As to the southern critics, if not convinced of their error in draining the fourth foot, they have become silent—no more boasting of their accomplishments now." In early manhood, as I stated in the *Scottish Farmer* of Dec. 3, 1862, I was much prejudiced against the deep system of drainage when it was introduced; but I now regard it a waste of money putting 30-inch drains in strong clays or porous soils. This is the opposite of "becoming silent;" and ought to show the "Bewdley Forester" that northern and southern critics are prepared to criticise his advocacy of shallow drainage. To show the need of calling this would-be authority on drainage to order, he states, "Though he should not adopt extremely shallow drains, yet this kind of land—a subsoil which is drier than the surface—would be just as dry by being drained 1 foot deeper than the sole of the plough as if it were drained 10 feet deep. But, behold! our 'new school" of drainers have passed this 4-feet-deep gridiron drain through tens of thousands of acres of clayey soils." The January impressions of the *Agricultural Gazette* for 1858 contain amply sufficient materials for a fitting reply. As a proof of it, a canny Scotchman stated at p. 76 for 1858, "I had hoped, with steam cultivation staring us in the face, the members of the Central Farmers' Club would have been more inclined to discuss whether or not 30 inches of active soil was not to be more the order of the day than 30-inch draining." Mr. Bailey Denton, who is a good authority on the subject, stated in 1858, in his remarks at Hinxworth: "Lord Tweeddale had been subsoiling 2 feet 8 inches deep, and was it not plain to every reflective mind that if Lord Tweeddale had been subsoiling to that depth, without the aid of steam power, he would with that aid reach the depth of 3 feet; and then what would become of the pipes used in the 3-feet drainage?" The "Bewdley Forester" believes that deep drainage robs the subsoil of its native quantity of water! He states: "Now, as the expense in cutting a drain 4 feet deep is about double that of cutting one 3 feet deep, and as from the above evidence the former drains cannot make the land drier than the latter drain obtains, it is evident that there is a dead loss incurred. Supposing that fourth foot could be robbed of its native quantity of water, it is an unquestionable fact that the crops would sustain an injury in dry weather; for though the roots of Wheat, &c., may not always reach the fourth foot, yet they receive assistance in dry weather from that wonderfully clever root-waterer, called by some radiation; and the more water there is in the fourth foot, the better will the crops succeed." The "Bewdley Forester" has yet to learn that 4 feet drains are better adapted for conveying moisture to the requisite depth than what 3-feet drains are, and also for storing supplies in winter for the summer droughts. I invite him to read a letter by Mr. Bailey Denton; Lord Palmerston's letter to Mr. Denton; and the articles on drainage by "J. C. M.," in the *Agricultural Gazette* of Feb. 10, March 24, and July 7, 14, and 21 for 1866. As those I am addressing keep the back numbers of the *Gardeners' Chronicle*, directing their attention to the articles obviates the need of my quoting extracts from the articles referred to. *T. W. R.*

Societies.

SMITHFIELD: *March* 5.—At the last meeting of the Council of this Club, Major-General the Hon. A. N. Hood, President, in the chair, the minutes of the last Council Meeting were read and confirmed. Mr. John Painter, of Forest Road, Nottingham, and Mr. Thos. Duckham, of Baysham Court, Ross, Herefordshire, were elected Stewards of Live Stock for the ensuing year, to succeed the two who retire by rotation. Mr. Sanday and Mr. Robert Overman were re-elected Stewards of the Implement Department. The prize sheet for the present year was considered, and it was determined to omit the 2d prizes in the division for cattle of the Long-horn breed. It was resolved, "That a list of the winners of Gold Medals and Silver Cups at the past Shows of the Club be printed at the end of the Annual Prize Sheets, the same to be a reprint and continuation of the tabular statement in the Appendix to the Hon. Secretary's 'History of the Smithfield Club.'" Also—"That the President's suggestion, 'that an annual report on the animals exhibited at the Club Shows should be prepared and published,' be referred to a committee for consideration." Also—"That a list of the members of the Club be printed at the end of the Prize Sheet." Also—"That the annual dinner take place on the Monday of the Show week at 6 o'clock (instead of the Wednesday, as heretofore); and that the President and Stewards be requested to revise the toast list, and make such other arrangements as may appear advisable in reference to the dinner." Also—"That none but the official placard respecting the food on which animals have been fed be allowed to be placed over the heads of animals or about the Hall."

The Implement Committee was reappointed, with the addition of Mr. Richard Hornsby in lieu of the late Mr. Garrett. The Committee to have the same duties as heretofore.

Mr. Samuel Jonas, of Chrishall Grange, Saffron Walden, was elected a Member of Council, to supply the vacancy caused by the election of Mr. Torr as a Trustee at the last meeting of the Club.

The deaths of the Right Hon. Lord Feversham and C. T. Tower, Esq., Vice-Presidents, were announced. The vacancies will be filled up at the next Council meeting.

A Committee was appointed, consisting of the President, the Trustees, the Implement Committee, including all the Stewards, to consider and confer with the Directors of the Agricultural Hall Company on the subject of increasing the Implement galleries, and to report to a meeting of the Council to be summoned for that purpose. The same Committee to consider the President's suggestion as to a report on the animals.

The following were duly elected Members of the Club:—Wm. Pritchard, of the Royal Veterinary College; Wm. Henry Hitchcock, of Miserden Park, Cirencester; W. Wells Kilpin, of Bedford.

The best thanks of the meeting were voted to the President for his able conduct in the chair.

BALLINEEN: *Rearing and Feeding Live Stock.*—At the late monthly meeting of this Club Mr. Hooper, of Devonshire, read a paper on this subject, from which we make the following extracts:—

1. *The Cow and Calf.*—The calf being dropped, this is to be borne in mind—that from that moment until it arrives at maturity it must be kept progressing, improving, growing; in no other way will it pay. The question is, how is this best to be done? Now, of course, the best food for a calf is that provided by Nature—the pure, sweet milk of the cow; but dairymen and dairy farmers have proved by experience that an ordinary calf will not pay for new milk, or, at least, that the consumers of milk and butter in our towns will pay a better price for it; and we also find by experience that a calf will grow and be healthy on milk from which all the cream has been taken; and, in my opinion, no better plan can be adopted to rear calves profitably than to give them plenty of thick milk (a thing almost unknown in England, I believe, but decidedly better food for calves than skimmed milk which has not turned thick and sour). [What is "thick milk?" Is it sour or lappered skim milk that Mr. Hooper speaks of? If so, it would be just poison to an English calf, if, indeed, it could be induced to take it. ED.] But this feeding should be continued longer than is usual, say for at least five months. The calf should not be allowed to run out too young. I am convinced a great many of the calves belonging to some of the smaller farmers of my neighbourhood receive a check from which they never recover by being exposed to the cold and wet before they are able to bear it. The calf should be kept in a loose box, with plenty of light and air, and a little fresh hay given him now and then, which he will soon learn to eat; then, at six or eight weeks old, he may be let out for a short time on a fine day, and the time increased by degrees as the weather permits. I believe some good authorities object to giving young calves hay, thinking it too binding for them; but I suppose this must be when the calves are reared on new milk; for I have always found the calves that eat most hay to be the healthiest and do the best. When there is abundance of milk the calves may be reared at very little cost, but they may also be reared very profitably even where there is a scarcity of milk. A Mr. Ruck in Gloucestershire (as I see from a report of the Cirencester Farmers' Club), rears from 50 to 55 calves annually, and he only keeps four cows. This he does by using hay tea, with the addition of a little oilcake mixed with gruel; his calves cost him 1*s.* 6*d.* or 1*s.* 9*d.* a week each. I am myself rearing some calves now with very little milk by the help of hay tea and oilcake, and I find that they cost me about the same. The hay tea is made either by boiling some hay, or putting some in a tub and pouring

boiling water on it: the former plan is the best. We allow each calf four pints of skimmed milk at a meal, and add enough hay tea to make the quantity up to 8 or 10 pints, according to the size and appetite of the calf; into this we put a little oilcake, which has been previously made into a paste with hot water, in the proportion of 2 lb. of cake to five calves; and they are doing very well. I may here mention what appears to me to be a great advantage in rearing calves at this time of year: all the time they are living on milk, and the little bite of hay before mentioned, there is no Grass; but when the Grass comes in the months of April and May, they are ready to eat it; and the difference between them and the summer calves the following winter is remarkable. The latter never overtake them, and one would scarcely think they were calves of the same year. I think at the present price of stock any good calf, dropped from November to May, should be reared.

There is not a ready market in these parts for the prime veal that fetches so high a price in London and Dublin; but a paper on feeding cattle would not be complete without some mention of the fattening of calves. I have occasionally fattened an early calf, and they have paid me very well for the new milk they drank; but I have found that I was quite at the mercy of the buyer, and always felt in taking a fat calf to Cork that I was running the risk of having almost to give him away. I may here mention, that to fatten a calf most profitably he should be dropped not later than January, as the price of veal becomes much lower after March. As regards the mode of feeding for veal, I cannot do better than to quote the account given by a Mr. Dowdall at the Ballymahon Farmers' Club, in the county Westmeath. He lets the calf suck the cow morning and evening, and gives it a midday meal from the pail, which after a while has an egg beaten up with the milk. At a month old he sops white bread in the milk, and at eight weeks old he has a well-finished calf worth 6*l*. I feed mine three times a day from the pail, but I consider Mr. Dowdall's a better plan, and were I fattening another I should adopt it.

We now come to the weaning of the calf. I find my calves do best on a Clover stubble; that is on the stubble of a Barley or Oat field that is laid out with Clover and Grass seeds; and I do not find that such light stock do any harm to the young Clovers, provided they are not kept on them longer than the 1st of January. On whatever kind of pasture they are weaned, however, the milk should not be taken from them too suddenly; they should get a meal of milk in the middle of the day for a week or 10 days after being turned out to Grass, and the quantity of this should be diminished by degrees. When the nights begin to get cold, generally some time in the month of October, they should be housed at night; but, in my opinion, should be allowed out by day the whole winter, and therefore should not be kept in too close or warm a house by night. I have kept them in close houses, and only let them out for a few hours on fine days; and I have kept them in altogether day and night the whole winter, some tied and some in loose boxes; but I find them thrive and grow best on the system I have adopted for the last three or four years, and that is to tie them up at night in a shed open to the south, and let them out the whole day in all weathers, excepting, of course, when the ground is covered with snow, and they could get nothing to eat. If they could be put into a yard at night with sheds around it, perhaps it would be better still, as some have an objection to tying up young calves; but if it has its disadvantages, it has also its advantages, one of which is, that they are much quieter when tied up the next winter, at which age I fatten off my young stock; whereas I find those I buy take some time to get accustomed to the chain and trough, and lose time accordingly. As to the feeding of calves, the first winter I find they do better, with the outrun I have spoken of, on hay alone, than on hay or straw and Turnips. Some may think this unreasonable, but I can only say that I have wintered calves for eight years with Turnips, and for four years without them, and I have no intention of altering my present system. Mr. Ruck, whom I quoted before, who rears calves with so little milk, winters them on pulped Mangels, mixed with straw-chaff, oilcake, and crushed corn, and he says, reckoning 5 cwt. of straw-chaff at 5*s*., 10 cwt. of pulped Mangel at 5*s*., 1 cwt. of oilcake at 10*s*., and 4 cwt. of mixed crushed corn at 30*s*., he has 1 ton of food for 50*s*. equal to the best hay. But as our hay is seldom worth even as much as this in our own yards, I do not think we should gain much here by the adoption of his system, which is certainly, though, a great improvement on the ordinary one of whole or sliced Turnips and hay or straw. I make no difference in the wintering calves intended for beef and those intended for the dairy—no matter what a calf is intended for, he should be well fed the first winter, or he will receive a check from which he will never recover. To proceed with my own system. I give my yearlings the best Grass I have all the summer, and fatten them off the following winter; selling them when 24, 25, and 26 months old. I give them oilcake to the amount of 30*s*. a head (beginning with 1 lb. a day and increasing gradually to 3 lb.), and hay or straw, and Turnips *ad libitum*; and the best fetch from 18*l*. to 20*l*. a head, and the smaller ones from 15*l*. to 16*l*.; that is, at the present and recent high price of beef. My cattle get three feeds of sliced Turnips in the day, the first between five and six, the next at 11 (immediately before which they get their oilcake), and the third and last at five, or later as the days get longer. At each of the meals if any animal has finished before the others, or show any desire for more, more is given till they are satisfied. The cleaning out of the stall and currying of the cattle keep them disturbed a good part of the time between the first two meals; but after the second meal they are left to rest till the third, and after that are left undisturbed for the night. The racks placed above the troughs are filled with hay or straw as often as may be required. At whatever age cattle are put into the stall they should have some Turnips given them on the Grass for a week or two before they are put in, to accustom them to the change of food. The heifers that appear best adapted for the dairy I sell as springers in October and November, when two and a half years old. In my opinion this is young enough for even the largest and best heifers to calve; and smaller and weaker ones should not calve till they are nearly or fully three years old, according to their size and strength.

With regard to the feeding of dairy cows, every one knows that the better you feed them the better they will pay, and I am sure they would pay for a little Linseed or Rape cake in addition to the best food the farm affords. I "let" my dairy cows, and have not had any on my own hands for some years; but I am keeping a few now, chiefly for the purpose of rearing calves, which have of late years increased so much in value, and I mean to try 2 lb. of Rape cake daily to each cow. The cost of this will be about 2*d*., and I feel sure the cow will give an increase of 1 lb. of butter per week, besides being kept in a healthy state, and the rest of her food doing her more good. For I find that cattle getting oilcake not only improve in condition faster, but their general health is better, and a change of food does not affect them as it does those not getting it. Many have used oilcake and other artificial foods extravagantly, and that has set farmers against their use altogether; but I believe, used with caution, and as auxiliaries to other feeding, they well repay the outlay.

But to resume: as I said before, every one knows that the better a milch cow is fed the better she will pay, and there is little fear but that her owner will give her plenty to eat, if he can, as long as she gives him milk and butter; but some are apt to shorten the supplies of food during the time the cow is necessarily dry before calving. This is a great mistake, and tells against the owner in many ways: it weakens the cow at a time when she requires extra strength. This has such an injurious effect on her constitution that it lessens her supply of milk for the ensuing season, and above all it injures the calf; there is no surer way of having strong, healthy calves, than to feed your cows well when they are dry.

2. *The Ewe and Lamb.*—As I have just remarked with regard to the feeding of the cow, so I will say the only way to ensure strong, healthy lambs is to feed your ewes well up to lambing time. I have found nothing so good for ewes during the winter as hay given in racks on the pasture. If the pastures are very bare, and a sufficient quantity of hay cannot be spared, a few Turnips will be necessary; but I do not like them for ewes if it can be helped; and if they must be given, would prefer Aberdeens to Swedish Turnip. After lambing, unless a better pasture can be provided for them, they should get an increased supply of hay and a few Mangels (not too many); and in any case, half a pound of Oats each every morning. I believe no man ever took his Oats to a better market than to give them to a flock of ewes with a good crop of lambs for a month or six weeks after lambing, according to the season and the growth of Grass. The whole cost is nearly repaid in preventing the ewe from shedding her wool, as so many are apt to do after lambing, especially those that have twins; and the effect on the lambs is simply incredible, except to those who have tried it. If circumstances permit, those sheep that have twins should be kept separate from the rest of the flock, and have better keep; by this means you will have a more even lot of lambs at weaning time. The middle of February is early enough for the first lambs to be dropped; and Mr. Davidson, Athy Farmers' Club, says he does not like to begin lambing before March, and that any lambs dropped before April 20th are soon enough, and often beat the March lambs. At whatever time they are dropped, however, this is certain, that a late lamb that has received no check is much better than an early lamb that has been stunted.

Supposing the lambs, then, to have been dropped through the month of March, they will be ready to wean during the month of July. For this purpose neither young Grass nor Clover nor old pasture are suitable—either would scour them: but a field two or three years in Grass that has not been fed with sheep for the past twelve months, or the aftermath of an old Grass field, will generally keep them healthy. If the lambs are intended for the butcher as hoggets they should now get a liberal allowance of corn or cake, which they should have been taught to eat before being taken from the ewes. This will bring them in good condition to the Turnips, a most important point, for if put on Turnips weak, many of them will die, and many more not improve for some time. Before being put altogether on Turnips, a few should be given them on the Grass, to teach them to eat them and to accustom them to the change of food. About the middle of October they should be put on Turnips altogether; and then, no matter what their allowance of oilcake may be (and some will be required to get them fat by the spring), they should get from half to three-quarters of a pound of Oats daily. Until I began this system I lost a large percentage of sheep on Turnips. They should also have a constant supply of good oaten straw or hay in racks; I prefer the former, and if a little is trodden into the ground it is not of so much consequence. The Turnips should be cut in pieces the size of a man's finger, by a machine made for the purpose, and given to them in troughs. By this treatment lambs bred from the common sheep of this country by a good ram will come to 18 and 20 pounds a quarter at 14 months old.

If fat lambs are desired to sell to the butcher at a few weeks old, I have found it a good plan to have them dropped earlier—say at the end of December or beginning of January. When dropped they should be kept in a sheltered field (or, better still, one with a shed in it) with their dams, and the latter should have a constant supply of good hay, a few sliced Turnips, and a liberal allowance of corn and cake. By this means the lambs will be ready for the butcher in about eight weeks; and the ewes, if they were in good condition when they lambed, very soon after.

3. *The Sow and Pig.*—A good breeding sow will pay, and a pig that lives on the refuse of the house, helped out with a stone or so of meal or bran in the week, is a profitable animal to keep; but as a part of the live stock of the farm I have very little worth hearing to say about them. I will, therefore, read you an extract from a letter which appeared last year in the *Farmers' Gazette*, from Mr. William Joyce, of the Abbey Farm, Waterford, a most successful breeder and exhibitor of Berkshire pigs. He says:—"There is no animal that will put on the same amount of flesh in a given time with the same amount of food as the highly bred pig. The Berkshire pig is a particularly thrifty, strong, hardy animal, and can bear any sort of weather; he does not want a sunshade in summer to keep him from the sun, nor a greatcoat in winter to keep him warm; and another great advantage is that no pig will feed on the Grass like him. My breeding sows nearly live on the Grass all the summer, even up to this time (November) they get only one feed of pulped roots in the day, besides what they get on the Grass fields. I never cook any roots (except Potatos), but give everything in a raw state to cows, horses, and pigs. I have at present over 50 pigs, and every one that is able to eat gets pulped Turnips: I find they do well on it, and the saving in labour and fuel is something considerable. People who come to see my pigs are greatly surprised to see them eating raw Turnips, and to see them in such condition. I do not feed them on Mangels if I can avoid it till some time after Christmas. The way I use my pulped food for the pigs is by putting the pulp into a large cask, and pouring over it a few buckets full of boiling porridge, made from Indian meal, leaving it a few hours to cool, and then it is fit for use."

To this I will only add that the remark I made that all young animals should be kept in an improving state applies with equal, if not with greater force, to the pig. From the time of his birth to the time he is slaughtered he should increase daily in size and weight—every day that he does not do so he is a loss to his owner.

4. *The Mare and Foal.*—We now come to the rearing and feeding of the horse—the animal of most interest to the general community, if not to the agriculturist. The farmer may not have all the appliances and arrangements of a stud farm, with its paddocks, open yards, loose boxes, &c., still he may like to rear a foal or two every year; and, without entering deeply into the question whether it pays to breed farm horses, I think most will agree with me that it is better for a farmer to have horses to sell than horses to buy. Moreover, few farmers can afford to give up the whole time of their brood mares to breeding, nor do I see any reason why they should. Neither the mare nor the foal she is carrying will be any the worse for her regular work on the farm; provided she is well fed, and not put to extra hard work, nor to work to which she has been unaccustomed. Of course, the nearer the mare gets to her time of foaling, the lighter must be the work required of her; and a week or two before the time she should be left perfectly idle, especially if not in high condition. If the mare foals very early in the season, and the weather is bad, she and the foal should be put into a loose box at night, and allowed as much liberty by day as the weather will permit; but if she does not foal before the month of April, she may be kept in a sheltered field day and night, and, unless the pasture is very good, a feed of Oats should be given her every morning. Now, we all know that the foal would be better if his dam had nothing to do but to suckle him until he is old enough to wean; but I am speaking of rearing horses on farms where the work of the farm is of primary and the rearing of foals of secondary importance. In general, then, the mare may be put to work a fortnight after foaling, and when she is at work, the foal should be shut up in a light airy, loose box, and the mare taken in to suckle him at intervals of not more than 2 hours. Of course, the mare must be highly fed when doing this double work, and should have as much green food as possible. In addition to the dam's milk I always give the foals of my working mares a quart of cow's milk brought to a natural heat—a pint about an hour and a half after the mare has gone to work in the morning, and a pint in the afternoon. At first the young thing is very shy, and is frightened at being caught and having his nose held into the milk; but he soon learns to expect it, and will come and drink it out of the vessel when held to him. When the Turnips are all sown, and there is very little work for the horses, the foal can get two or three months of uninterrupted liberty with his dam. I find the most convenient time to wean is when the working horses are brought into the stable at night, by that time the foal is accustomed to the company of the other colts (or a donkey will answer the purpose if there are no other colts on the farm), and will stay quietly with them without his dam. In about another month (according to the season) I bring him in also at night, putting him with another of the same age, or not more than a year older, into a loose box, and giving them as much chopped furze and hay as they will eat, and 3 or 4 lb. of crushed Oats; and here let me remark, there is no time of his life at which a horse gives a

better return for a few Oats than the first winter. I turn them out the whole day in all weathers, except very hard frost or snow, and put them out altogether as soon as the weather and Grass are good enough. The feeding the second winter is merely a repetition of the first.

And now, having reared the horse, let us consider his feeding after he has arrived at maturity; and as we are speaking only of the rearing and feeding of farm stock, I shall confine myself to the feeding of farm horses.

Now, a farmer not only requires to feed his horses well, so as to keep them up to their work, but also economically. To this end, it is indispensable, in my opinion, that he possess two machines—viz., the Furze-cutter and Oat-bruiser: the price of the hay and Oats saved will soon repay the cost of both. I find that my horses do as well on 10½ lb. of crushed Oats as on 14 lb. of whole Oats.

They are fed in the following manner:—From the time they are put to regular work after harvest, and stabled at night, they get 3½ lb. of crushed Oats the first thing in the morning (at five o'clock in the autumn and spring months, when they go to work at half-past six; and at six, or a little before it, in the dark winter mornings, when they cannot work till after seven), about an hour and a half before they go to work. At twelve o'clock they get another 3½ lbs. of Oats and a pannier of chopped furze, and at night another 3½ lb. of Oats and two full panniers of furze. On this feeding I have kept several horses in really good working condition all this winter; but I have some horses (not of my own rearing) which will not eat enough furze, and to them we give a little hay in addition. About the end of March the furze becomes less nutritious, and we substitute hay for it; and as the days are then long, and the work hard, we give, in addition to the three feeds of Oats, a small bucketful of boiled Swedes, mixed with a little meal or bran, to each horse at 8 o'clock in the evening. I do not allow the cost of the meal or bran to exceed 1*s.* per week for each horse, so that the feed, including Turnips and firing, costs something less than a feed of Oats. If the Turnips are finished before we can cut any Grass or Vetches, I give a feed of boiled Barley instead; this costs as much as a feed of Oats, exclusive of the firing. As soon as Grass or Vetches can be substituted for the hay, I find two feeds of Oats sufficient without any boiled food. As soon as the Turnips are all sown I turn my horses out; and as th ere is then very little work to be done, and only one, or at most two, are required to be at work at the same time till harvest, I give them no more Oats. This run out to Grass during the summer months I consider is essential to the horse's health.

The cost of each horse per annum will thus be as follo ws:—10½ lb. of Oats a day, reckoning the Oats at the extreme price of 1*s.* a stone, will be 9*d.*, *i. e.*, 5*s.* 3*d.* a week, or 6*l.* 16*s.* 6*d.* for 26 weeks. The cost of the furze is merely the rent of the land on which it grows, as there is no expense attending its cultivation; the cost of preparing it is about 1*s.* a horse per week; this gives 26*s.* to be added to the 6*l.* 16*s.* 6*d.*, making the cost of feeding for 26 weeks from October to March, 8*l.* 2*s.* 6*d.* We now come to eight weeks during which the horse is fed on hay, and has an extra feed of boiled food at night, to be reckoned at the same price as a feed of Oats; this will give 1*s.* a day then for the four feeds, *i. e.*, 7*s.* per week, or 2*l.* 16*s.* for the eight weeks. As for the hay, I must confess I have never weighed it, but I think we may put it at 1¼ cwt. a week, say 4*s.*, this gives 32*s.* to be added to the 2*l.* 16*s.*, making 4*l.* 8*s.* for eight weeks from the beginning of April to the end of May. We have still some four weeks left during which the horse requires two feeds of Oats a-day; these at 6*d.* a-day will amount to 14*s.*, and reckoning the cut Grass at 3*s.* per week, will make 12*s.*, or 1*l.* 6*s.* for the four weeks' feeding. During the remaining 14 weeks of the year the horse gets no corn except a few sheaves of Oats in harvest time, and, perhaps, a feed of corn now and then, if he has to go a journey, which I think need not be reckoned in the cost of his keep. Valuing his pasturage, then, at 2*s.* 6*d.* per week, we have the sum of 1*l.* 15*s.* for the remaining 14 weeks' keep. We have then 8*l.* 2*s.* 6*d.* for 26 weeks; 4*l.* 8*s.* for eight weeks; 1*l.* 6*s.* for four weeks; and 1*l.* 15*s.* for 14 weeks' pasturage; giving the cost of each horse for the year 15*l.* 11*s.* 6*d.* To this must be added something for the Furze (a horse will eat about a quarter of an acre), and something for the wear and tear of the Furze-cutter and Oat-bruiser (I have had mine in constant use for ten years, and they are doing their work as well as ever). With whole Oats the cost would be 4*l.* more on each horse per annum.

I do not know that I could add any more on the rearing and feeding of live-stock from my own experience: I will, therefore, conclude with an extract from an American paper, the *Country Gentleman*:—"It is, perhaps, well for the cause of good management that all neglected treatment of animals should result in loss to the owner. If he has starved his cattle, sheep, and pigs for a year or more, he cannot atone for it by sudden attempts to push them to fatness. On the contrary, the only way is to see that growth continues without cessation, summer and winter, from the earliest period of their existence till they are finally sold in the market. A single check given to this continued progress may arrest or retard it for months. Our own observations lead us to the conclusion that the whole profits resulting from rearing and fattening, when this continued progress is kept up by careful, regular, but not extravagant feeding, are at least triple the amount realised from early neglect and heavy feeding afterwards, and often the difference is many times greater than here stated."

There is nothing that should be more strongly impressed on the mind of the young farmer, who makes the feeding of animals a prominent part of his business, than the importance of keeping up an unremitting growth throughout the whole course of their existence.

Reviews.

Land Agency: its Nature and Duties. By C. G. Grey, Esq., Dilston. *Courant* Office, Hexham.

Amongst the most useful institutions of our day that of Farmers' Clubs holds a distinguished rank. Papers, carefully prepared by gentlemen only possessing sufficient literary power for embodying their expressions and suggestions in clear and intelligible language, and practical knowledge of the subjects on which they treat, are frequently laid before the reading portions of the agricultural classes through the media of these clubs and the agricultural periodicals which report their proceedings. The *Agricultural Gazette* has borne no inactive part in communicating matter theoretically and practically sound and beneficial, which had for its origin and cradle a Farmers' Club.

The writer of the present remarks has been led to offer them from having recently read the report of an admirable lecture, recently delivered by C. G. Grey, Esq., of Dilston, President of the Hexham Farmers' Club, upon an important subject, and yet one seldom brought under consideration in detail. To an Irishman, taking deep interest in the agricultural progress of his country, the subject of Mr. Grey's address appears especially important at this time, when there is reason to expect that increased legislative encouragement will be afforded for improvement *in* and *on* land, including even the abolition of irregular and ineffective and extravagantly numerous fences and the formation of new ones. An increased stimulus may be confidently expected to arouse landlords, owners, and tenants to undertake every sort of land improvement; and it is obvious that the responsibilities and duties of land agents will be proportionally increased. The want of active and personal superintendence of tenants' holdings, by agents of Irish estates, or well qualified subordinates, is the general rule in Ireland. There are many exceptions, and particularly on the largest and least encumbered estates; but in most cases the agent is merely a receiver of rents.

The suggestions of Mr. Grey, independently of their intrinsic force and reasonableness, claim peculiar consideration to an Irishman, from the fact that he unites in himself the two-fold character of a gentleman of land estate, closely connected with the landlord interest in the north of England, and of an experienced Irish agent, Mr. Grey having managed the Earl of Derby's estates in the south of Ireland during 12 years. He is a qualified judge of the subject, on which he has written with perspicuity and succinctness of style, but copiousness of involved matter.

We can only touch upon the salient points of the pamphlet,* in which form the lecture is now presented to the public.

First, the importance of the office of land agent is pointed out with regard to the position of the landowner and that of the agent himself, who according to the circumstances and position of his principal or employer, may be placed in a position of much or little liberty of action. Of all classes of managers, that of the absentee agent, who seldom or never visits the estate, Mr. Grey condemns as unqualifiedly bad. It is but one branch of an agent's work to receive rents and make agreements and sign leases. In Ireland he will, it may be assumed, have much to do of work which hitherto has comparatively occupied but little of his time: "he will have to decide where new or additional buildings are most needed, and advise the owner which applications for such to comply with, and which to refuse: he has then to arrange and plan those that are to be made so as to be most useful to the occupation of the farm, keeping carefully in view the future prospects of the farm, as well as the present wants of the tenant. It is not enough that the tenant should say, 'I am willing to pay 5 per cent. on the cost;' the agent must satisfy himself that the ultimate benefit to the estate will represent that interest or more. * * The agent should himself decide on all alterations to fields by new fences or otherwise * * when farms are out of lease or opportunities offer, making such alterations of boundaries as will improve the occupation of the farms and facilitate the keeping of good fences."

The special education and training for the office of agent are minutely dwelt upon; and intellectual requirements are enumerated to an extent which will alarm many readers, yet the accomplished agent and well educated country gentleman will not deem any of them superfluous or needless. In discussing the disqualifications he adverts specially to the following:—

"Special training in many other professions and pursuits is a disqualification. Retired soldiers and sailors do not generally make good agents, though they have some qualities which are useful, such as punctuality and carefulness. Head clerks promoted from the office are very apt to find themselves in a position for which they are unfit, having been too much bound to routine and detail to take large views of management. Lawyers, attorneys, and writers, though frequently entrusted with the management of estates, are about the most disqualified. Their educational bent of mind, legal way of reasoning and treating all questions, are a positive bar in the management of estates. Landowners in Scotland and Ireland, I believe, more than in England, commit the mistake of making such appointments. To this rule, however, I know some distinguished exceptions in men who, having a taste for country pursuits, spend more of their time in the country than in their offices. A town residence, though not an absolute disqualification, is a great disadvantage to a land agent; for though he may be within as easy reach of the estate as a country agent, his business is apt to degenerate into office work, and his visits to the estate and intercourse with the tenants to become more formal than those of an agent residing on an estate and moving about constantly in the country, and generally such agents depend much more on reports from subordinates and interviews with tenants at their town offices than agents who meet tenants in their own fields and homesteads, and judge from their own observation."

As to the mode of remunerating agents Mr. Grey condemns the per-centage system of payment, which is often disproportionate to the duty performed. Their services should be measured by the value of the work done. An agent with a fixed salary and without perquisites has no temptation to act except for the benefit of the estate. *An Irishman.*

* Printed at the *Courant* Office, Hexham.

Journal of the Bath and West of England Society. Vol. IV. W. Ridgway, 169, Piccadilly.

The editors of our agricultural annuals seem to be all behind. The volume just issued by Mr. Goodwin is the number for 1866, and the first part of the volume we are still expecting from Mr. Frere generally appears long before this time. The Bath Society's annual volume this year contains fewer original articles than usual. Mr. Buckman on the Geology of Dorsetshire, Professor Brown on Sheep Diseases, Dr. Peard on Aqueculture, and Reports of the Salisbury meeting, make up the original part of the work, the remainder being reprints of articles which have already appeared in the Journal of the English Agricultural Society and other periodicals.

We extract a passage from Mr. Corbet's account of the conduct of a Horse Show.

"So soon as 12 or 2 o'clock comes, so surely do the people gather round the horse ring. The Short-horn breeders fairly forsake the prize bull, Captain Davy turns his back on the Devons, and Mr. Stearn, for the nonce, becomes oblivious of the white sow and her wonderful litter. Even the implement makers desert their stands, for, as one of them confessed to me, 'It is of no use our stopping here while the horses are out!' Care, then, should be taken, in the first instance, to provide a good roomy ring, the larger the better, in which two or three classes, if found necessary, may be exhibited at the same time, but, above all, with the object of giving the spectators plenty of space to dispose themselves at the sides. As a rule, the rings, however equal to the business of judging, are too small for the afternoon parade, when the crowd has increased and come to a focus hereabouts. In the next place, the horses should enter strictly according to their numbers on the catalogue, while these should be plainly discernible on each side of the horse's head. The parchment label soon curls up, and the best insignia of the sort I have seen are small metal plates, with the black figure painted on a white ground. These, of course, could be returned at the close of the meeting, and made use of year after year. I hold it, however, to be very essential that the horse should have his number on either side, as this plan must save a deal of trouble in the way of cross questions and crooked answers, for a man naturally gets sick of saying 'this is one hundred and twenty-five' a hundred times over, particularly if he has not taken a prize. The prize horses must be further distinguished by winning colours, and if would be very convenient if the Societies of the kingdom would agree to some uniform recognition of what these rosettes should stand for. Let us say purple for first, crimson for second, and green for third. Any lighter hues, such as pale blue, white, or yellow, soon become discoloured, especially in wet weather, when they are not easily noticed. Some years since I recommended the use of a telegram board, something similar to that on race-courses, upon which the winning numbers should be placed so soon as a decision was arrived at, and this plan is now adopted at the Yorkshire Agricultural Society's meeting, and also in the Agricultural Hall. If, however, the colours be given out at the time, there is not so much call for the telegram; and, indeed, I suggested its use rather where the ribbons were not handed over, as was then the case with one or two of our leading Societies. Further, no horse should be suffered to leave his box out of his turn or his class, for if such a privilege be granted to one, others will be sure to claim it, and the whole business quickly come to confusion.

"Of perhaps the most popular feature of the horse show, that is, the 'jumping' of the hunters, I hardly know how to speak. It may sound like affectation, but, for my own part, I would prefer to judge a hunter without seeing him jump in the ring rather than after going through such a performance. As a matter of proof it really stands for little or nothing. Old seasoned hunters would be above such a business as charging hurdles 20 times in succession, and for young horses the test is still more unfair, with thousands of people shouting and yelling in their faces, and none of the legitimate incentive of hounds running to carry them over their fences. One of our best judges recently paid me the compliment of asking me how they should act in a difficulty of this kind, 'We should give the chestnut horse the prize if he would only jump," to which I answered, 'Give him the prize first, and see if he will jump afterwards'—as, with much persuasion, he eventually did. Still there is no denying that such a placard as that 'the hunters will be jumped at one o'clock' draws with the public, and if this said jumping were confined to the hunters there would be no great harm done. But with the jumping the great Order of Misrule too often commences, and it would be almost impossible to do justice to some of the 'scenes' of this sort that have occurred during the past summer. Let the bushed hurdles be only once put up, and everybody straightway does anything he chooses. Horses that will, and horses that will not fence, ponies, cobs, colts, harness horses, and I am not quite certain but

that some of the stallions, were all in the ring at the same time, and valiantly ridden at 'the leaps.' The very stewards joined in the fun, which created a deal of laughter certainly, but was about as great a burlesque upon the business of a horse show as it would be possible to imagine. It is significant that in the rules of the Yorkshire Agricultural Society there is one prohibiting the jumping of horses upon any pretence whatever; and I would not recommend the West of England Society to introduce such an attraction, even if the Council should extend the classes of hunting horses.

"Co-equal in importance with the appointment of stewards must be the selection of judges, and, as a principle, it is better that these should come from a distance. It is rarely that a man can give satisfaction when he is busy over his own friends' and neighbours' entries, and where the award is often enough attributed to the influence of some interested feeling or assumed partiality. It would, of course, be next to impossible to nominate any man but who would recognise some of the animals brought before him; though the less he knows of them the better, and for this reason I do not advocate the more recent plan of placing the complete catalogue, with the names of the owners and horses, in the judges' hands. Many a timid or otherwise incompetent man might be induced to act with such information at his command, and in one or two cases these full particulars have had a deal more to do with the decision than anything else. It is even something to say that this cob belongs to the celebrated Mr. So-and-so. The services of the veterinarian I have always advocated, that is in his proper place as an inspector, but not as a judge. The very education of this gentleman prompts him to look rather for flaws than beauties, and, like Mr. Weller, his 'wision is limited.' The horse dealer, again, is a still more objectionable authority. He is, the rather, a little too knowing in his way, while his only standard of excellence is that

'The real value of a thing
Is just as much as it will bring!'

and his invariable argument, 'Well, I only know that I would give more for this horse than for any of the others,' without often condescending to look into the conditions of the class. I remember once being taken to task in the eastern counties for putting aside—'never noticing,' as he said—two dealer's horses that he declared 'were worth all the others put together.' And very possibly, as they were a pair of great, banging, young carriage horses, entered for a premium which was at any rate intended to be given to the best hack! I have also seen the first prize for a stallion to get cobs and ponies duly awarded to a coach horse standing nearly 16 hands high, with two out of the three judges in 'the profession;' and apparently for no other reason than that this animal's money-value to sell again was greater than that of any of the clever cobs in the class. 'I should never do for a judge,' I once heard a London dealer remark, with a pride that aped humility, as he hung over a coarse under-bred beast that he no doubt knew where to place, but that had not been selected as the best specimen of the modern hunter. And he was right, for, if this was his ideal, he would have not done for a judge. Dealers, buyers, or agents, are still more out of place in the ring, particularly when called upon to officiate in districts which they are in the habit of visiting, and I have heard a good story of how one of these commissioners said to his colleague, 'We'll give this mare the prize, and I'll go and buy the other!'

"I have been induced to say thus much, as the Horse Show is worth doing well, conducive as it may be made to the national advantage."

The Rearing of Calves. By Thomas Bowick. Bedford: Thomas Bowick, Wholesale Agent for Phospho Guano.

This is another of those standard agricultural essays, to one of which (Mr. Hannam's, on Waste Manures) we referred last week. It takes its place, beside Mr. Wood's lecture on the management of sheep, as a good practical account of calf management to which attention may be usefully directed at this season of the year. Mr. Bowick has for many years managed the Home farm at Kenilworth, and latterly the farm of Mr. Howard, of Bedford. He has been distinguished all these years not only by his intelligent and industrious farm management, but by his warm-hearted and laborious energy for the good of the labouring class around him. During the past year he has been laid aside by illness, but we are glad to see by the advertisements that he is again actively engaged.

The tract which he has here reissued will serve, we hope, as an efficient trade introduction; and, anyhow, its publication having reached its 32d thousand, it must be largely serviceable to its readers.

We quote a passage on feeding from the pail.

"Not much trouble is generally experienced in getting the calf to take to the pail. We find it better to miss the evening's meal, and next morning a very little attention induces the majority of them to partake of what is set before them. At most, the guidance of the fingers may be wanted for the first meal or two.

"As regards the quantity of milk which is needful to keep a moderately bred Short-horn calf in a thriving condition, we have found the following allowance to come pretty near the mark, although the appetite of calves varies, both in individuals and at different times with the same animal:—1st week with the dam; or 4 quarts per day, at two meals; 2nd to 4th week, 5 to 6 quarts per day, at two meals; 4th to 6th week, 6 to 7 quarts per day, at two meals. And the quantity need not, during the ensuing six weeks (after which it is weaned), exceed a couple of gallons per day. This implies that the calf is fed upon new milk only, and that no other feeding liquids are employed. But, in addition to the above, the calf will, towards the fourth week, begin to eat a little green hay; and in a week or two later some sliced roots, or meal, or finely-crushed cake, mixed with hay chaff; and if really good, creditable beasts are wanted—such as will realise 25*l.* a head from the butcher when turned two and a-half years old—a little cake or meal in their early days will be found a desirable investment. In fact, we doubt not but one pound of cake per day to the calf will make as much flesh as triple the quantity of cake at any period of after life. As regards meal, if that is given with the chaff, we prefer Oatmeal, or Barley-meal, or wheaten flour, but not the meal of Beans or Peas. Others may see it differently, but we believe Beans to be too heating for any class of young stock. For roots, the best we know of is the Carrot, grated and mixed with the chaff, or sliced thin with a knife and given alone. It is also, of all roots, the one which we find them most fond of, and which they will most readily take to. As soon as they can eat them freely, an immediate reduction in the supply of milk may be made.

In most articles it holds good in the end that "the best is the cheapest." So with the rearing of calves; the best class of food, or that above referred to, is found to give the greatest ultimate satisfaction. But practically the question often is, how to rear good calves with comparatively little new milk, a condition which circumstances often render almost imperative; for where dairy produce, in any other form, is the chief object, the calves stand in a secondary position, and are treated accordingly. But let us ask whether you cannot rear good stock under such circumstances also? We believe that this may be, and often is done. We manage to turn out from 25 to 30 calves annually—such as will pass muster anywhere—and never use at any one time more than six gallons of new milk daily. For this purpose, as well as to obtain a regular supply of milk for other purposes, the calves are allowed to come at different periods, extending from October to May."

Farm Memoranda.

SUBURBAN FARM.—I venture to offer the result of 25 years' experience on a gravelly soil liable to burn, in the immediate vicinity of a borough of upwards of 20,000 inhabitants. I shall have to consider the advantages attendant on such a situation with its accompanying drawbacks, that I may assist owners and occupiers of land under the like circumstances, in turning the one to the best account, and in making light of the other.

But first it will be well for me to explain what I mean by a farm, and by farming profitably. It is well known that in the immediate neighbourhood of every town small portions of land can be let for large annual rents, from four to five pounds per acre higher than those paid for the same class and quality of land some seven or eight miles further off. These rents are given gladly by gentlemen for the purpose of keeping their cow or pair of horses; by butchers for a lair for their stock till the killing day; by nurserymen and market gardeners, and many others, who use the land merely as a part of the premises necessary to carry on their retail trade. Of these the market gardener makes the nearest approach to being a farmer, but differs from him in that he makes his profit (and consequently his rent) not by the production of the crops he grows, but by their retail delivery—of which more hereafter. I shall exclude these, as also cattle dealers and small milkmen, who keep a cow or two for the supply of the shop, or to carry round milk, &c., to their customers, for the same reason; reckoning as farmers those only who make a living by the land they cultivate, and get a sufficient return from it to live as farmers—employers of labour, not labourers themselves. Again, as regards the returns or profits of the method of farming I recommend, I think I shall best avoid a very uncertain and unsatisfactory discussion by giving, not the actual figures of a balance sheet, but the extra results arising from improved methods, which any one experienced in farming can add to the average prices of his own neighbourhood, and compare with the different values of land and produce which there prevail, according to soil, climate, and situation. The reader will thus be enabled to adapt my suggestions to his own individual position, and will not so readily take exception to figures which, however correct in my case, may be quite inapplicable in another's, or to profits which may be as unreasonably large in one man's opinion, as they are small in that of another. I shall also assume (as the Chancellor of the Exchequer does) that a sum equal to half the rent is a fair annual profit for a tenant.

Nearly 30 years ago I was forcibly impressed with the fact that land let to a farmer on one side of a boundary hedge fetched about 30*s.* per annum, and the adjoining land, in precisely the same circumstances, was taken by a market gardener at 5*l.*; while the latter was making money, the farmer could barely get a living. I therefore determined to try for myself whether, without losing my position and independence as a farmer, I could not realise some advantage from having a large body of consumers in my immediate neighbourhood, and, luckily, began with a few acres at first to learn my lesson and put my ideas to the test of practice. My first efforts were, as is usual with young beginners, unsuccessful. I endeavoured to grow vegetables for sale, supplied straw to butchers and horse keepers, receiving dung in return; but I soon discovered, what I now find to be a general rule in all trades, that the retail dealer—*i. e.* the middle man between the producer and the consumer—reaps all the profit. I grew some excellent crops of vegetables, but could not sell them unless I went about myself with a hand barrow. For Cabbages—sold in the shops at 2*d.* a head, or Turnips realising 2*d.* a bunch, which at this rate would have realised 20*l.* per acre—I was offered 3*d.* or 4*d.* per dozen by the greengrocer. This, with the trouble of weeding out all the inferior ones, and the drawback of cleaning and delivering in small lots, and waiting for the money, at last produced a worse return than I could obtain by feeding cows. Early Peas gave the same result. A fine crop, which at the greengrocer's price of 1*s.* per dish would have made 40*l.* to 50*l.* per acre, only brought me many shillings less than I made eventually by selling the produce as seed.* This was my first disappointment. I now find that I can sell a fair quantity of Potatos during the winter, and now and then a few tons of Mangel Wurzel or Carrots in the spring, at very remunerating prices; but as soon as there is any general demand for these, the farmers at a distance glut the market, and reduce the price to little over the feeding value.

My next disappointment was my dung-heap. Though I got for the straw some hard cash besides the manure, this barely covered the expense of getting it out of the pit (always up a narrow courtyard) and loading. And after all it was not spit-dung; some was only dirty straw, and had to be used again under my own cattle: some was so heated and fire-fanged that it was not fit for the heap—all had to be turned over once or twice before it was fit to plough in; so that it cost me full 5*s.* a cartload by the time I had spread it; and I found I could make my own straw into dung at that price. I now sell all the straw I can spare at from 50*s.* to 60*s.* the ton, and buy good spit-dung, fit for use, as I want it—that is to say, when I have leisure to fetch it, and land ready to receive it. Having bought thus much of experience, I took in hand the rest of the farm, consisting of 100 acres of arable, and rather more of meadow land, from which I have succeeded in reaping a considerable increase, if not the full amount of my hopes, in rent and profit. Two objects have been kept constantly in view—to increase the quantity and quality of the dung; and, as a consequence, to grow the utmost amount of saleable produce. I now keep a herd of above 30 cows, or about 25 in full milk all the year round. These are soiled in the house, except from Midsummer to Michaelmas, when they go out into the meadows. They are fed in winter on chopped hay, straw, and roots, with bought grains, malt-dust, and a little meal. The milk is sold to milkmen, who fetch it from the cowhouse door, and pay 2*d.* a quart, ready money. Each cow produces 20*l.* per annum, which, I reckon, pays for her keep, leaving me the dung for the litter. This latter I economise as far as possible by running all the liquid into a tank, to be drawn over the Grass-land; a very small quantity of straw is then required to absorb the remainder. This is further improved by the manure of 100 pigs fatted every winter. With this, and the help of four cart horses, I am enabled to thoroughly dress one-third of my arable land every year. I plough it in 14 inches deep, with a second plough following in the furrow of the first, and thereby secure very large crops of roots: these are nearly all drawn for the cows or for sale, the tops and refuse being left to be penned over by sheep; the second year, Wheat; the third, Barley, partly after stubble Turnips fed off. After 20 years' repetition of this three-course rotation, I now get an average of 40 bushels of Wheat, and the same of Barley, the latter of prime malting quality, unless where the sheep, remaining too long on the Turnips, have made it rank. By thus keeping two-thirds of my land in corn, I get a large quantity of Wheat-straw for sale, of Barley-straw for fodder for the cows, besides a few acres of Potatos and roots for sale. The horses and cows eat about three-fourths of the meadow hay, and leave the rest for sale. The meadows mown every year are kept in condition by refuse ashes, road dirt, and inferior dung bought in the town, of which large quantities can be procured for less than 2*s.* the one-horse load, or about 2*l.* per acre, every third or fourth year.

In assessing the profits of my farm, I shall compare it with 200 acres of similar land at a distance, the arable being supposed to be farmed highly on the four-course system, and cows kept for the sale of butter or calves, or beasts fatted in yards with the same amount of purchased food:—

Net produce of 30 cows, at 20*l.* per cow	£600	
Deduct usual produce of do. at 14*l.*...	400	
Leaving a profit on selling milk		£200
Arable produce of 33 acres of Wheat × 5 qr.	165 qr.	
Instead of 25 acres do. × 4 qr. ..	100	
Increase	65 qr.	
Profit on 65 qr. at 55*s.* average price (nearly) ..	180	
Add 8 tons of Wheat-straw	20	
		200
Produce of 8 acres of Barley additional = 40 qr., 37*s.*		75
Potatos or roots sold, say 5 acres net		50
Hay sold, say 10 tons only		50
		575
Deductions.—Extra rates	£50	
Do. cost of labour	100	
Manure purchased..	50	
		200
Leaving as clear profit of suburban farm over the same under the usual management		£375

In order not to burden the above account with any unnecessary figures, I have omitted all mention of profit from sheep or pigs, which in my case is pretty much the same as in that of other people. I fat off about 100 pigs and wethers, and lamb down 100 ewes, which are sold with their lambs in the spring. The

* I am informed on good authority that near Tamworth the farmer makes about 12*l.* 10*s.* for a good crop of green Peas, sold standing in his field. They are grown to supply Birmingham. Sangster's No. 1 is a favourite variety. The proximity both of canal and railroad is favourable. Several gardeners in this neighbourhood hire 40 or 50 acres, at rents varying from 8*l.* to 10*l.* per acre, and employ from 20 to 30 men. The dry sewage refuse and sweepings of Birmingham are here rising in repute both for garden crops and for pasture; at Tamworth such manure often sells for 4*s.* per ton, little more than cost of carriage by barge—the supply exceeds the demand. *P. H. F.*

28 acres of roots which enable me to keep this stock, besides supplying some 500 tons of Mangels, Turnips, &c., to my 30 cows, manifestly give as good a return as 50 acres of fallow crops under ordinary management.

I come now to the deductions, with which I have debited the account. I find the general rateable value of a farm situate as mine is to be about 1*l.* per acre more than if it were away from the town, and the rates, including a borough rate instead of county rate, to be somewhat higher; I have, therefore, deducted 50*l.* on that head. I find, too, the labour bill is large. House rent near towns is very high. Common labourers, through the summer, can get their half-crown or more per day, and consequently will not work at farmers' prices, even for constant employment. There is also a little more expense incurred in mending fences, bird keeping, &c. The 50*l.* worth of ashes, &c., is as much as we have time to cart home in the course of the winter. After making these necessary allowances, the handsome balance of 375*l.*, or nearly 2*l.* per acre, remains to be divided between the landlord and the tenant. I have obtained this result now for a series of years with great regularity; indeed there is very little difference in the amount of the corn crop between good years and bad years.

In comparing this system with others that have been recommended, I am convinced there is none more profitable, more easily adapted to all circumstances of soils, seasons, or markets. If two successive corn crops to one root crop be thought too scourging, nevertheless my experience tells me, that with thorough deep cultivation and a plentiful supply of manure, the land, which was naturally poor, has improved under such treatment. I find also that I can make this manure cheaper on my own premises, taking into consideration all the attendant expenses, than I can purchase it. Indeed, on this latter point I believe that farmers very generally deceive themselves. Partly owing to prohibitions in their leases to sell straw, and partly from a habit of looking at the size of their dung heap, instead of calculating its quality, they have been content with spreading ten cart loads per acre of dirty litter from a foldyard, and calling it a dressing; whereas, if they were allowed to sell a part of it, and were to cut up a good portion for cattle food, mixed with bought cake or meal and chopped roots, they would still find that enough remained, if used economically, and under cover from rain, to absorb the excreta of three times as much stock as they now keep loose in a strawyard. The same number of cart loads per acre would then double the amount of the crops produced, and even at present prices leave a very handsome balance to the farmer. While meat and wool are dear and offal corn so cheap, I believe that manure can be made for nothing; deep cultivation, therefore, with thorough manuring and great attention to cleanliness, will enable any man to follow my rotation with the same result. As roads improve and railway stations multiply, every farm is becoming comparatively more suburban—that is, nearer to the dearest market for sale of bulky produce, and to the cheapest for the purchase of feeding stuffs or manures. With this encouragement, let the agriculturist deepen his soil gradually, using an admixture of the subsoil to freshen the top soil; he will then find his crops annually increasing, and his land less dependent on a wet or dry season. When he realises, as I have attempted to show he may do, a net increase of 30*s.* to 40*s.* per acre, he will not grudge his landlord an extra rent. Should he succeed in so doing, he will be ready to thank me for publishing my experience. Should he fail on the first trial, as I did, let him not despair nor charge the drought or the blight with having caused his ill-success; but, putting his faith in the bounteous gifts of Nature, let him redouble his efforts after clean, deep cultivation, with high manuring, and he will assuredly not lose his reward. *Journal of English Agricultural Society.*

West Sussex: *March* 12.—We have had a very changeable winter, and the spring does not promise to be very forward; but work is well advanced, as there has not been much to hinder field operations.

The Wheat plant generally looks well and not too forward, and the Clovers have stood well. The frost has injured the roots to some extent, especially the Turnips, and feed will not be so abundant as was at one time expected; so that lean sheep have rather fallen in value, though they are still high. The lambing season is over, and has, so far as I hear, not been so prosperous as usual, although the weather has been favourable.

There have been a few cross-bred lambs in market, and sold at about 1*s.* per lb., which is lower than last year; but it is yet early, and few are wanted. Mutton does not sell quite so well; we have a good supply. And we have got our cattle market open again and well supplied with both fat and lean.

Corn has commanded a better price this year, and the consequence is that there is not so much unthreshed as usual at this time. The quality has generally been good, but the quantity not up to an average on the best Wheat lands. Barley has yielded well, and the price has been high, about 50*s.* per quarter, and some as high as 54*s.*, and Oats have sold about 24*s.* to 26*s.*

Barley and Oat sowing is now our principal work, and as the land is easily worked, there will not be any difficulty in keeping up close to the sheep. *G. S.*

Notices to Correspondents.

Glycerine: *M A R.* It is in a certain sense a refuse of the candle manufacture, being that part of natural fatty matters the separation of which is one of the objects of the manufacturer. Its non-illuminating power renders its presence undesirable, and its uses for other purposes make its separation a doubly important consideration. Among its uses is said to be its fitness for pig feeding, which is being tested in Edinburgh in comparison with cod-liver oil.

Gorse: *Fox.* Hoe in 20 lb. of seed in rows about 18 inches apart. It is to be done roughly with the hoe, each row being covered with the earth taken in making the next drill. And you may drill 3 bushels of Oats per acre in 12-inch rows across the field in any direction, afterwards, and harrow it all in.

Imports of the Two Past Years: *R.*

Articles.	Importations. 1865.	1866.
I. *Articles Free of Duty.*		
Animals, living—		
Oxen, Bulls, and Cows .. .. No.	227,528	209,171
Calves .. .. ,,	55,743	28,568
Sheep and Lambs .. .. .. ,,	914,170	790,880
Swine and Hogs .. .. .. ,,	132,943	73,873
Ashes, Pearl and Pot .. .. cwt.	143,779	104,073
Bark, for Tanners' or Dyers' use ,,	430,810	543,097
Peruvian .. .. ,,	15,510	13,797
Bones (burnt or not, or as Animal Charcoal) .. .. .. tons	74,307	80,315
Flax and Tow or Codilla of Flax :—From Russia .. .. cwt.	1,444,485	1,245,509
Holland .. .. ,,	169,687	68,474
Belgium .. .. ,,	202,606	148,590
Other Countries .. .. .. ,,	96,354	85,025
Guano, from West Coast of Africa tons	4,274	1,533
United States .. .. .. ,,	1,082	2,197
Peru .. .. ,,	210,784	109,142
Bolivia .. .. ,,	7,468	1,334
British and West India Islands ,,	5,075	3,213
Other countries .. .. .. ,,	8,710	18,278
Hemp and Tow or Codilla of Hemp : from Russia .. .. .. cwt.	636,929	635,393
Austrian Territories and Venetia ,,	170,649	183,946
British India .. .. .. ,,	17,867	26,875
Philippine Islands .. .. ,,	194,846	95,488
Other Countries .. .. .. ,,	45,414	59,396
China Grass .. .. .. ,,	19	1,314
Jute and substances of the nature of Hemp .. .. .. ,,	2,120,813	1,638,174
Hides, Untanned, dry :—From British India .. .. .. cwt.	173,451	189,281
Other Countries .. .. .. ,,	119,300	81,363
Wet :—From Argentine Confederation and Uruguay .. .. .. cwt.	208,701	359,187
Brazil .. .. ,,	137,964	125,927
Australia .. .. ,,	138,664	117,410
Other Countries .. .. .. ,,	189,983	183,475
Tanned, Tawed, Curried, or Dressed (ex. Russia) .. .. .. lb.	7,131,128	8,448,677
Hops .. .. cwt.	82,479	85,687
Oil Seed Cakes .. .. .. tons	109,962	129,023
Potatos .. .. cwt.	807,259	738,115
Provisions :—Bacon and Hams .. ,,	713,346	635,782
Beef, salt .. .. ,,	228,296	178,398
Pork, salt .. .. ,,	183,155	178,548
Butter .. .. ,,	1,083,717	1,165,081
Cheese .. .. ,,	853,277	872,342
Eggs .. .. No.	364,013,280	438,878,880
Lard .. .. cwt.	136,898	228,459
Saltpetre .. .. ,,	311,390	345,152
Cubic Nitre .. .. ,,	1,020,383	966,358
Seeds :—Cotton .. .. .. tons	114,851	93,957
Clover .. .. cwt.	214,071	226,014
Flaxseed and Linseed .. .. qrs.	1,435,414	1,158,736
Rape .. .. ,,	206,111	474,667
Tallow, from Russia .. .. cwt.	693,483	753,073
Australia .. .. ,,	117,729	25,438
South America .. .. .. ,,	411,228	381,805
Other Countries .. .. .. ,,	138,808	162,161
Wool, Sheep and Lambs' : From Europe .. .. lb.	34,668,134	42,808,264
British Possessions in South Africa ,,	29,220,323	29,249,000
British India .. .. .. ,,	17,105,617	25,679,969
Australia .. .. ,,	109 734,261	113,772,604
Other Countries .. .. .. ,,	18,684,914	24,431,174
Alpaca and the Llama Tribe .. ,,	2,793,498	3,617,588
Yeast, dried .. .. cwt.	115,068	114,064
II. *Articles Subject to Duty.*		
Corn :—Wheat from Russia . cwt.	8,093,879	8,937,199
Denmark .. .. ,,	641,273	506,236
Prussia .. .. ,,	5,403,914	4,401,409
Schleswig, Hol., and Lauenburg ,,	254,159	187,938
Mecklenburg .. .. .. ,,	647,685	733,571
Hanse Towns .. .. .. ,,	486,069	878,912
France .. .. ,,	2,252,873	3,473,130
Turkey and Walla. and Mol. .. ,,	574,185	528,433
Egypt .. .. ,,	10,063	33,831
United States .. .. .. ,,	1,177,618	635,239
British North America .. .. ,,	306,765	8,789
Other Countries .. .. .. ,,	1,114,480	2,831,642
Barley .. .. ,,	7,818,404	8,433,863
Oats .. .. ,,	7,714,230	8,844,586
Peas .. .. ,,	783,135	1,211,835
Beans .. .. ,,	959,362	1,324,173
Indian Corn, or Maize .. .. ,,	7,096,033	14,322,863
Wheatmeal and Flour, from Hanse Towns .. .. cwt.	247,796	347,012
France .. .. ,,	3,044,823	3,640,320
United States .. .. .. ,,	256,769	280,792
British North America .. .. ,,	177,353	40,650
Other Countries .. .. .. ,,	177,730	663,506
Indian Corn Meal .. .. .. ,,	7,227	12,241

Exports.

Articles.	Quantities Exported. 1865.	1866.
Bacon and Hams .. .. .. cwt.	4,569	66,760
Caoutchouc .. .. ,,	26,050	24,990
Cheese .. .. ,,	10,733	10,102
Corn :—Wheat .. .. .. ,,	27,124	46,813
Wheatmeal or Flour .. .. ,,	21,072	18,365
Guano .. .. tons	9,342	7,197
Hemp and Tow .. .. .. cwt.	149,518	152,769
Jute .. .. ,,	417,981	416,352
Saltpetre .. .. ,,	23,649	13,166
Seed :—Flax and Linseed .. .. qr.	146,798	17,034
Rape .. .. ,,	84,950	127,499
Wool, Sheep and Lambs', Brit. Pos. :—H. Towns .. .. .. lb.	5,350,579	3,412,390
Belgium .. .. ,,	12,035,133	6,189,234
France .. .. ,,	47,624,819	46,156,582
United States .. .. .. ,,	2,609,281	1,352,992
Other Countries .. .. .. ,,	3,050,414	1,696,397
Wool, Sheep and Lambs', Foreign :—Hanse Towns .. .. .. lb.	214,308	244,019
Belgium .. .. ,,	3,166,810	1,928,394
France .. .. ,,	2,504,354	1,186,764
United States .. .. .. ,,	4,734,984	3,166,712
Other Countries .. .. .. ,,	1,153,073	1,234,429
Alpaca and the Llama Tribe .. ,,	1,175	5,575

FOWLER'S PATENT STEAM PLOUGH and CULTIVATOR may be SEEN at WORK in every Agricultural County in England.

For particulars apply to John Fowler & Co., 71, Cornhill, London, E.C.: and Steam Plough Works, Leeds.

FOR SALE, a DOUBLE CYLINDER LAND ROLLER, 3 feet through, weighing 2 tons. Framework and Shafts all new. Apply to Mr. Morgan, Wheelwright, Willesden Green, Willesden, Middlesex.

Oil Paint no longer Necessary.



HILL AND SMITH'S PATENT BLACK VARNISH for preserving Iron Work, Wood, or Stone. This Varnish is an excellent substitute for oil paint on all out-door work, and is fully two-thirds cheaper. It may be applied by an ordinary labourer requires no mixing or thinning, and is used cold. It is used in the grounds at Windsor Castle, Kew Gardens, and at the seats of many hundreds of the nobility and gentry, from whom the most flattering testimonials have been received, which Hill & Smith will forward on application.

From Robt. Raikes, Esq., *East Dale, near Brough, Yorkshire.*

"I have used your Black Varnish for park palings and consider it to be the most durable and best thing of the kind I have ever seen. I think it might be applied with still greater advantage to iron fencing instead of paint, and it is my intention so to employ it in future."

Sold in casks of about 30 gallons each, at 1*s.* 6*d.* per gallon, at the Manufactory, or 1*s.* 8*d.* per gallon paid to any Station in the kingdom.

Apply to Hill & Smith, Brierly Hill Iron Works, near Dudley, and 22, Cannon Street West, E.C., from whom only it can be obtained.

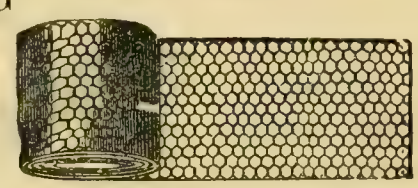
IRON HURDLES (Silver Medal of the Royal Agricultural Society).

SHEEP, 3*s.* 5*d.*; CATTLE, 4*s.* 2*d.*; OX, 5*s.* 11*d.*

List by Post. GATES and FENCING of every description.

St. Pancras Iron Work Company, Old St. Pancras Road, London, N.W.

GALVANISED WIRE NETTING.



PRICES of NETTING, 24 inches high.

Size of Mesh.	Proof against	Light, per Yard.	Medium, per Yard.	Strong, per Yard.	Extra strong per Yard.
2½ inch	Hares, Dogs, Poultry, &c.	3½*d.*	4½*d.*	5½*d.*	6½*d.*
2 inch	All kinds of Game ..	3½*d.*	4½*d.*	5½*d.*	7*d.*
1⅝ inch	Small Rabbits, Hares, &c.	4½*d.*	5½*d.*	6½*d.*	8*d.*
1½ inch	Ditto Ditto ..	5½*d.*	6½*d.*	8*d.*	10*d.*

100 Yards and upwards Carriage Free.

GALVANISED IRON WATER CISTERNS.
GALVANISED CABLE STRAND FENCING.
GALVANISED IRON PUMPS.
GALVANISED SWING WATER BARROWS.
GALVANISED IRON ROOFS and BUILDINGS.
LAWN MOWERS, GARDEN ROLLERS.
ASPHALTE ROOFING FELT, 1*d.* per square foot.
HURDLES, HURDLES, HURDLES, 1*s.* 9*d.* to 3*s.* 9*d.* per yard.

Motley & Green.

Illustrated Catalogues and Estimates free on application.
12, Great George Street, Leeds.

W. S. BOULTON'S 36-gallon SWING WATER BARROW. Price 45*s.*
Carriage paid to any Station in England.



The above is very cheap and invaluable for carrying Liquids of all kinds. No Garden, Farm, Stable, or Kitchen Yard should be without one. Two or more Tubs can be had with one Carriage at a small additional cost. A Lad can easily work it; but if required to travel long distances over rough ground a Pony can be attached. The wheels and carriage are wrought iron, and the tub oak. The following, out of many Testimonials, have been received:—

From Lord Otho Fitzgerald, *West Park, Salisbury.*

"Sir,—You are welcome to make use of my letter recommending your Water Barrow. I find it of great use, and stronger, better, lighter, and more serviceable than one I had made in the neighbourhood, the carriage alone of which, without the barrel, cost me £3 10*s.* I unfortunately ordered it before I saw your advertisement. —I am, yours obediently, "O. Fitzgerald."

"To Mr. W. S. Boulton."

From Thos. Ingle, Esq., *M.D., Emsworth, Hants, June* 24, 1866.

"Sir,—The Swing Water Barrow is in every respect a most admirable improvement on all I have hitherto used in my Gardens. All parties who have seen it, Gentlemen as well as Gardeners, have bestowed upon it their unqualified approval, and several said they would order them of you.—Yours truly, "Thos Ingle, M.D."

"To Mr. W. S. Boulton."

Rose Lane Iron and Wire Works, Norwich.

GREEN'S PATENT SILENS MESSOR,

OR

NOISELESS LAWN MOWING, ROLLING, and COLLECTING MACHINES.

PATRONIZED BY

HER MOST GRACIOUS MAJESTY THE QUEEN
ON TWENTY-NINE DIFFERENT OCCASIONS.
H.R.H. THE PRINCE OF WALES.

THE KING OF THE BELGIANS.
THE EMPEROR OF THE FRENCH.
THE EMPEROR OF RUSSIA.

AND MOST OF THE NOBILITY, CLERGY, AND GENTRY IN THE UNITED KINGDOM.

THOMAS GREEN AND SON, in introducing their PATENT LAWN MOWERS for the present season, beg to state that they have no Novelties to report. The fact is, that after the severe tests their Machines have been subjected to since they added their latest improvements, they have been found to meet all the requirements for which they are intended, viz.:—the KEEPING of LAWNS in the HIGHEST STATE of PERFECTION.

They are the simplest in construction, least liable to get out of order, and can be worked with far greater ease than any other Lawn Mower extant; and in proof of their superiority, 36,000 have been sold since the year 1856.

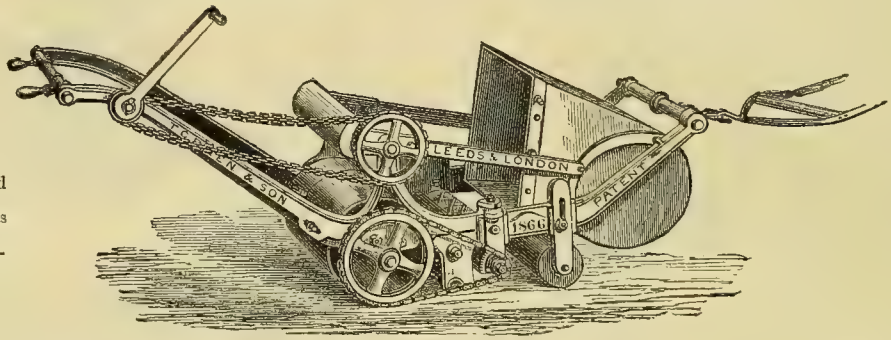
THEY ARE THE ONLY MACHINES IN CONSTANT USE AT

THE ROYAL HORTICULTURAL SOCIETY'S GARDENS, SOUTH KENSINGTON
THE ROYAL BOTANIC GARDENS, REGENT'S PARK
THE CRYSTAL PALACE COMPANY'S GARDENS, SYDENHAM
BUCKINGHAM PALACE GARDENS
MARLBOROUGH HOUSE
THE HYDE PARK GARDENS
THE WINTER PALACE GARDENS, DUBLIN
THE DUBLIN BOTANIC GARDENS
THE LIVERPOOL BOTANIC GARDENS
THE LEEDS ROYAL PARK
THE HULL BOTANIC GARDENS
THE BOTANIC GARDENS, BRUSSELS
THE SUNDERLAND PARK
THE PRESTON PARK

AND IN MOST OF THE PRINCIPAL PARKS, SQUARES, ETC., IN THE UNITED KINGDOM.

HORSE, PONY, AND DONKEY MACHINE.

GREEN'S
PATENT
LAWN MOWERS
have proved to be the best, and carried off every Prize that has been given in all cases of competition.



T. GREEN & SON
warrant every Machine to give entire satisfaction, and if not approved of can be returned unconditionally.

PRICES of HORSE, PONY, and DONKEY MACHINES, including Patent Self-delivery Box; Cross Stay complete; suitable for attaching to ordinary Chain Traces or Gig Harness.

PONY AND DONKEY MACHINES.

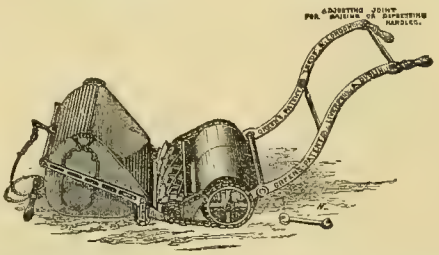
To Cut 26 inches	£13 0 0	*Leather Boots for Donkey*, 18*s*. *Leather Boots for Pony*, 22*s*.
„ 28 „	15 0 0	
„ 30 „	17 0 0	

HORSE MACHINES.

To Cut 30 inches	£21 0 0	*Leather Boots for Horse*, 26*s*.
„ 36 „	24 0 0	
„ 42 „	27 0 0	
„ 48 „	30 0 0	

Both the Horse, Pony, Donkey, and Hand Machines possess (over all other Makers) the advantage of Self-sharpening. The cutters being steel on each side, when they become dull or blunt by running one way round the cylinder, can be reversed again and again, bringing the opposite edge of the cutter against the bottom blade, when the Machine will cut equal to new. Arrangements are made that the cylinder can be reversed, by any inexperienced person, in two or three minutes.

HAND MACHINES.



To Cut 10 inches ..	£3 10 0	*Suitable for a Lady*
„ 12 „ ..	4 10 0	„ „
„ 14 „ ..	5 10 0	*Suitable for One Person*
„ 16 „ ..	6 10 0	„ „
To Cut 18 inches ..	£7 10 0	*Suitable for One Person.*
„ 20 „ ..	8 0 0	*Suitable for Two Person.*
„ 22 „ ..	8 10 0	„ „
„ 24 „ ..	9 0 0	„ „

Packing Cases are charged at the following low rates, viz.:—for the 10 and 12-inch Machine, 3*s*.; 14 and 16-inch, 4*s*.; 18 and 20-inch, 5*s*.; 22 and 24-inch, 6*s*. Parties providing themselves with Lawn Mowers are recommended to purchase the cases in which to stow them away, when not in use, to prevent them from getting damaged; if returned, two-thirds will be allowed for them.

The above MACHINES are made from the best materials, and of superior workmanship; are delivered Carriage Free to all the principal Railway Stations and Shipping Ports in England.

Every Machine is warranted to give entire satisfaction, and if not approved of, can be returned unconditionally.

Having above 3000 Machines in stock at our Leeds and London Establishments, we are in a position to execute orders on the day they are received.

☞ *Illustrated Price Lists, and Sheet of Prize Medals awarded to* GREEN'S PATENT LAWN MOWERS, *free on application.*

T. G. AND SON having taken very extensive Premises in London, are now in a position to do all kinds of Repairs there, as well as at their Leeds Establishment.

THOMAS GREEN AND SON, SMITHFIELD IRON WORKS, LEEDS;

and 54 and 55, BLACKFRIARS ROAD, LONDON, S.

GRAY'S OVAL TUBULAR BOILER.

INTERNATIONAL EXHIBITION, Class IX., No. 2119.

Mr. GRAY begs to call the attention of the Nobility, Gentry, Nurserymen, Gardeners, &c., to his

NEW OVAL TUBULAR BOILER,

Acknowledged by practical judges to be a great improvement on every form of Tubular Boiler yet introduced. It has proved itself superior to all other Boilers for quickness of action and economy of Fuel, doing its work with one-third less the amount required by any other.

Extract from Report in Gardeners' Chronicle *of International Exhibition, May* 24, 1862, *page* 476.

"The upright form of Boiler is usually made on a circular plan, but the oval form given to Mr. Gray's variety of it is said to be preferable in consequence of its bringing the tubes in closer contact with the fire. The usual form of a furnace being a parallelogram rather than a square, it seems feasible that the Boilers on the oval plan should bring the tubes more completely within range of the burning fuel; and this being so, the change, though a slight one, is no doubt an improvement."

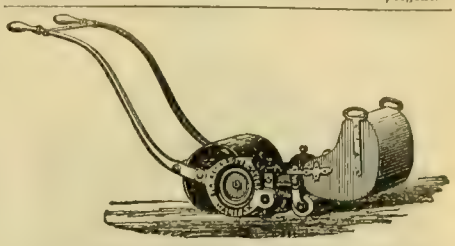
☞ *They are made of all sizes, which, with prices, may be had on application.*

JAMES GRAY, HORTICULTURAL WORKS,
DANVERS STREET, PAULTON'S SQUARE, KING'S ROAD, CHELSEA, S.W.

THE IMPROVED TANNED LEATHER DRIVING STRAPS. PATENT EDGE-LAID LEATHER STRAPS, without lap or cross joints—superior to all others for Portable Engines. Prime STRAP and SOLE BUTTS.

Price Lists sent free by post.

The Tanned Leather Company, Tanners, Curriers, &c., Armit Works, Greenfield, near Manchester; Warehouse, 81, Mark Lane, London, E.C. Mr. H. Ferrabee, Agent.

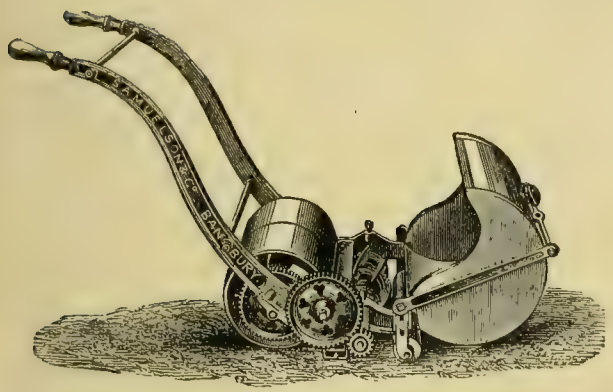


BEST LAWN MOWING MACHINE for 1867 is the PATENT FLEXIBLE LAWN MOWING MACHINE with WROUGHT-IRON SIDES. ILLUSTRATED PRICE LIST, with Testimonials and full particulars, free by post on application to

Messrs. B. Hirst & Sons, Britannia Works, Halifax

SAMUELSON & CO.'S
IMPROVED LAWN MOWING MACHINES.

EVERY MACHINE WARRANTED.



PRICES.

Delivered Free to any Railway Station in Great Britain.

Cutting 12 inches wide	£4 10 0
Cutting 14 inches wide	5 5 0
Cutting 16 inches wide	6 0 0
Cutting 19 inches wide	6 10 0
Cutting 22 inches wide	7 10 0
Cutting 25 inches wide	12 0 0
Cutting 30 inches wide	15 0 0
Cutting 36 inches wide	18 0 0

Great improvements have been made in these Machines during the last few years, in regard to all those small but important points of superiority which the practical working of a Lawn Mower suggests; while for elegance of appearance, lightness of draft, and efficiency in working they cannot be excelled. They possess the following advantages:—

1st, Motion is given to the Cutting Apparatus by toothed gearing, which experience has proved to be by far the best method of driving.

2d, The whole of the Driving Wheels are on one side of the Machine, a point of great importance in preventing damage to Shrubs and Flowers, when mowing round the edges of beds.

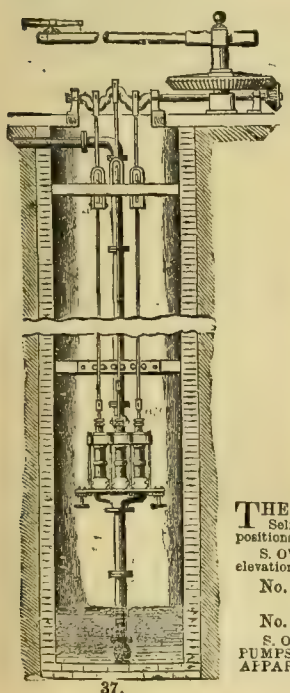
3d, All the smaller working parts of the Machine are made of Malleable Iron, and are not liable to break.

☞ *Illustrated Price Lists, with selections from several Thousand Testimonials, Free by Post on application.*

SAMUELSON and CO., BRITANNIA WORKS, BANBURY.

LONDON WAREHOUSE: 10, LAURENCE POUNTNEY LANE, E.C.

AGENTS:—Messrs. TANGYE BROTHERS and HOLMAN, 10, LAURENCE POUNTNEY LANE; Messrs. DEANE and CO., London Bridge; Messrs. DRAY, TAYLOR and CO., London Bridge; Mr. THOMAS BRADFORD, 63, Fleet Street, E.C.; and all respectable Seedsmen and Ironmongers throughout the Kingdom.



37.

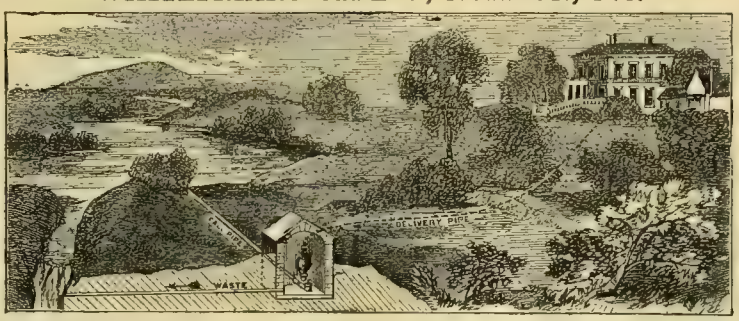
S. OWENS & CO.

(Late CLINTON and OWENS),

MANUFACTURERS OF

PUMPS and HYDRAULIC MACHINERY,

WHITEFRIARS STREET, LONDON, E.C.



THE LANDSCAPE SKETCH shows an adaptation of THE IMPROVED HYDRAULIC RAM. This is a simple Self-acting Machine, suited for raising a Supply of Water for use in Public and Private Establishments. Its adoption is not confined to positions as shown, but it is suited for any situation where a Fall can be obtained from a Stream, Brook, or Spring.

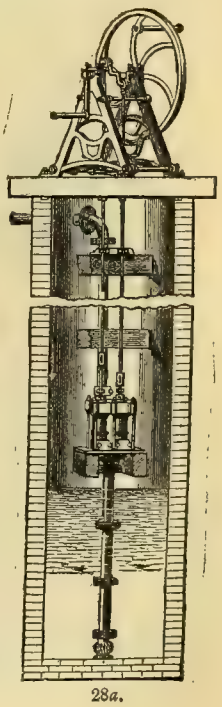
S. OWENS and CO. have fixed a great many in various parts of the country for raising from 600 to 6000 or more Gallons per day to elevations varying from 30 to 300 feet, and forcing through Main Pipes 50 yards to several miles in length.

No. 37. IMPROVED TREBLE BARREL PUMPS, with HORSE GEARING for Raising Water from DEEP WELLS, for the supply of MANSIONS and PUBLIC BUILDINGS.

No. 28*a*. DOUBLE BARREL PUMPS for HAND-POWER for similar purposes.

S. OWENS and CO. Manufacture and Erect every description of Engineer's Work required in Public or Private Establishments, such as PUMPS for any purpose on the largest or smallest scale, STEAM ENGINES, WATER WHEELS, TURBINES, WARMING and DRYING APPARATUS, BATHS, GAS WORKS and FITTINGS. Estimates furnished from Plans or on inspection of position.

☞ *Illustrated Catalogues Free on application.*

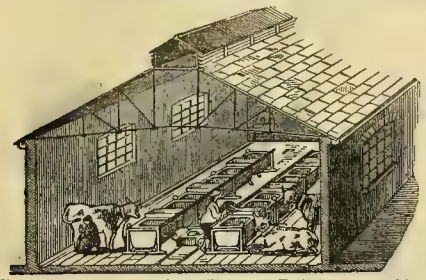


28*a*.

PRIZE MOWING MACHINES, FIELD and GARDEN ROLLERS; CHAFF CUTTERS, from 45s. Lawn Mowers, Garden Engines, Parkes' Cast Steel Digging Forks and Garden Tools, Improved Wire Netting, Wheelbarrows, Corn Bins, Churns, Sausage and Mincing Machines. PRICE LISTS per post.

BURGESS & KEY'S Agricultural Implement and Machinery Warehouse, 95, Newgate Street, London, E.C.
Works: Brentwood, Essex.

COTTAM'S PATENT PORTABLE UNITED COW FITTINGS.



Their advantages are—Portability, not Fixtures, removable at pleasure, no Woodwork or Partitions to impede Ventilation or breed Vermin, Hay Rack dispensed with as unnecessary, increased width and depth of Feeding Troughs, Water Cistern, and Patent Drop Cover to prevent over-gorging. Cleanly, durable, and impervious to infection, being all of iron. Price of Fittings per Cow, 55s.

Prospectuses free of COTTAM & Co., Iron Works, 2, Winsley Street (opposite the Pantheon), Oxford Street, London, W., where the above are exhibited, together with several important Improvements in Stable Fittings just secured by Patent.

JOHN WARNER AND SONS,
8, Crescent, Cripplegate, London, E.C.,
BELL and BRASS FOUNDERS to HER MAJESTY.

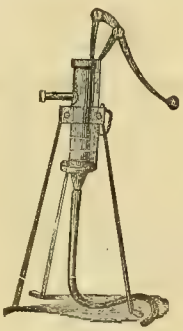


No. 35.

PATENT CAST-IRON PUMP, fitted with J. W. & SONS' Metal Bucket and Valve, which cannot clog in action, for Wells not exceeding 25 feet.

Diam.	Height.	£	s.	d.
2½ in. short	1 ft. 7 in.	1	1	0
2½ in. long	3 ft. 3 in.	1	8	6
3 in. long	3 ft. 6 in.	2	1	0
3½ in. long	3 ft. 6 in.	2	6	0
4 in. long	3 ft. 6 in.	2	14	0
2½ in. short, with 15 feet of lead pipe attached, ready for fixing		2	0	0
2 in. long, do. do.		2	14	0

Price of 4½-inch Liquid Manure Pump, with legs, £2 15s.; 2-inch Flexible Rubber and Canvas Suction Pipe, 2s. 6d. per foot. The Barrel is 27½ inches long, and the legs are 5 feet high.



No. 42.

IMPROVED LIQUID MANURE or GENERAL PORTABLE PUMP.—These Pumps are fitted with J. W. & SONS' Patent Bucket and Valve and cannot clog in action. The Barrel is made of Galvanised Iron, not likely to corrode, and can be raised or lowered at pleasure on the stand, the legs of which fold together, and it may be carried with ease by one man to tank or pond.

WARNERS' PORTABLE FIRE or GARDEN ENGINE.



£2 2s.

No. 568½.

For use by one Person .. .. price £2 2s.
No. 647s, ditto ditto, on Wheels .. .. £2 10s.
The above are complete in themselves, and may be always kept filled with water, and ready for use.

Letter to The Times, *July* 23, 1866, *from* Earl ESSEX.
A REAL FIRE EXTINGUISHER.
To the Editor of The Times.

"SIR,—I feel sure you will kindly allot a small space in the *Times* to these few lines, as the best medium through which I would urge every householder who dreads fire to have on each floor of his house one or more small Garden or other Engines on wheels, always charged and in good order, in case of fire.

"Last night, just as I was going to bed, I was startled by that most fearful of all cries, 'Fire, fire!' I soon learned that a fire was raging in a large two-windowed unoccupied bedroom. How caused is to us all a great mystery. It is my custom to keep one of these small Engines on each floor. In two minutes I was in the room with one of them. It was like a furnace. The curtains, shutters, casements, and cornices of both windows were burning and cracking from floor to ceiling. I was quite alone at the moment, yet before assistance arrived (most of the servants having gone to bed), I had completely subdued the fire of one window without exhausting the Engine, and when assistance and more water did arrive, we very soon extinguished the other.

"So fierce was the fire that the lead of the casements was melted, and the casements themselves were burnt off their hinges.

"I will only add, that by God's mercy, the house was saved by this small Engine. Had it not been at hand and in order, most assuredly Cassiobury would be now a heap of ruins.—Yours faithfully,

"Cassiobury, Watford, July 20. "ESSEX.

"The Engine, even when full, runs so light on the floor, that any woman might draw it, and also work it."

HOTHOUSES for the MILLION,
invented by the late
SIR JOSEPH PAXTON.



Manufactories: London, Newton in Cartmel (Lancashire), Gloucester, Coventry, Aberdeen, and Paisley only.
Illustrated Circulars, with revised List of Prices, will be sent on prepaid application to Messrs. HEREMAN & MORTON, Head Office, 7, Pall Mall East, London, S.W.

HOT-WATER APPARATUS, of every description, fixed complete in any part of the country, or the materials, viz., Boilers, Pipes, &c., delivered to any Station.
Estimates on application.
J. JONES & SONS, 6, Bankside, Southwark, London, S.E.

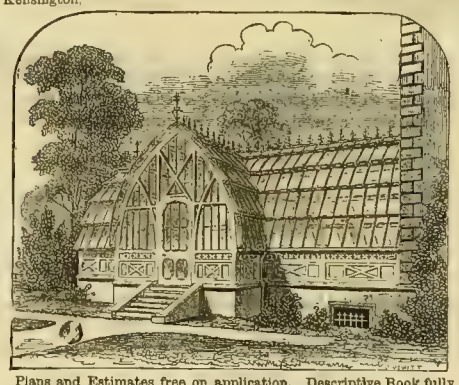
Greenhouses—Heating Apparatus.
DUBLIN
EXHIBITION,



1865.

THE ONLY PRIZE MEDAL AWARDED for Various Improvements in the Ventilation, Construction, and Application of WROUGHT-IRON to Horticultural Buildings.
OUR PATENT WROUGHT-IRON PRIZE MEDAL CONSERVATORIES are of the highest order.
OUR PATENT WROUGHT-IRON PRIZE MEDAL GREENHOUSES perfectly neutralize atmospheric conduction.
OUR PATENT WROUGHT-IRON PRIZE MEDAL VINERIES promote vigorous growth and richness of colour.
OUR PATENT WROUGHT-IRON PRIZE MEDAL ORCHID HOUSES and STOVES, with double-glazed roofs, are a complete arrangement.
OUR PATENT WROUGHT-IRON PRIZE MEDAL ORCHARD HOUSES (as supplied to Mr. Rivers), induce perfect symmetry and unfailing result.
OUR PATENT WROUGHT-IRON PRIZE MEDAL GERANIUM and PLANT HOUSES are thoroughly ventilated, and admit a maximum degree of light.
OUR PATENT WROUGHT-IRON PRIZE MEDAL CUCUMBER and MELON HOUSES are specially arranged and heated upon an improved system.
OUR PATENT WROUGHT-IRON PRIZE MEDAL PINERIES, when heated upon the improved system, are calculated to secure the growth of first-class fruit.
OUR PATENT PRIZE MEDAL FORCING HOUSES are eminently superior for all early work.
OUR PATENT WROUGHT-IRON PRIZE MEDAL STRAWBERRY HOUSES admit a complete flood of air and light.
The above Patent Houses can be glazed with or without putty.
These Houses are now protected by three Royal Letters Patent, and from the complete adjustment of their constructional parts will vie most favourably with Wood Structures in point of cost.
Designs and Estimates prepared for single or complete ranges of Houses in Wood or Iron.
Illustrated Catalogues on application to the Patentees,
T. H. P. DENNIS & A. SCRUBY, Horticultural Builders and Hot-Water Engineers, Chelmsford.

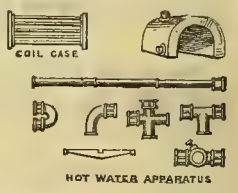
CRANSTON'S PATENT BUILDINGS for HORTICULTURE.
"Dry Glazing without Putty."
"Glass without Laps."
"Ventilation without Moving Lights."
Highly Commended by the Royal Horticultural Society, South Kensington.



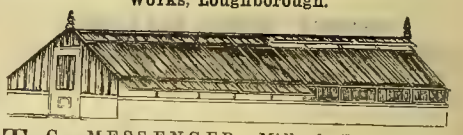
Plans and Estimates free on application. Descriptive Book fully illustrated, post free for 20 stamps, from the Author and Patentee, JAMES CRANSTON, Architect, Birmingham.
Works: Highgate Street, Birmingham.
HENRY J. GROWTAGE, Manager, 1, Temple Row West, Birmingham.

Heating by Hot Water.
W. J. HOLLANDS, IRON MERCHANT,
31, Bankside, London, S.E.
HOT WATER PIPES, from Stock, per yard:—2-inch, 1s. 2d.; 3-inch, 1s. 10d.; and 4-inch, 2s. 4d. BENDS, from Stock, 1s. 6d., 2s. 6d., and 3s. each. THROTTLE VALVES, 10s., 13s., and 14s. each. Other Connexions at equally low prices, and all goods of first-class manufacture. Estimates given, and orders by post punctually attended to the same day.

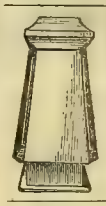
COTTAM AND COMPANY,
CONSERVATORY and HOTHOUSE BUILDERS, &c.,
Iron Works, 2, Winsley Street, Oxford Street, London, W.
SADDLE BOILERS.
20 24 30 inches long.
45s. 65s. 92s. 6d. each.
HOT-WATER PIPES.
2 3 4 inch.
1s. 6d. 2s. 1d. 2s. 9d. per yard.
Materials supplied as above, or Estimates given fixed complete to Plan, on application to COTTAM & Co., Iron Works, 2, Winsley Street, opposite the Pantheon), Oxford Street, London, W.



Midland Steam Power Horticultural and Hot Water Works, Loughborough.



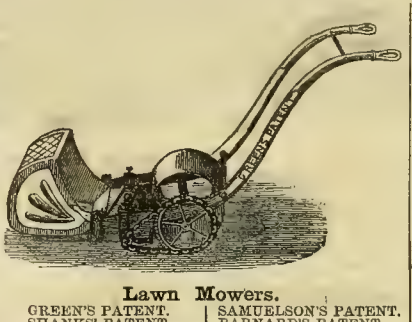
T. G. MESSENGER, Midland Steam Power Horticultural Works, Loughborough, Hot-Water Apparatus and Valve Manufacturer.
Honourable Mention awarded at the International Exhibition, 1862, and at the Dublin Exhibition, 1865; also a First-class Certificate by the Royal Horticultural Society.
T. G. MESSENGER, Patentee of many important improvements in Buildings and Implements connected with Horticulture, and which meet with unqualified approbation, is prepared to give reference to hundreds of works entrusted to him and pre-eminently answering the purpose for which they were constructed.
Any House Glazed single or double, with or without putty.
The mode adopted by T. G. MESSENGER for Heating and Ventilating Forcing Houses is particularly successful.
Houses are constructed by his Patented Ventilating principle to open the whole of roof and sides as though the glass were entirely removed, at once placing the plants in the external atmosphere.
T. G. MESSENGER'S Boiler possesses all the advantages of the Tubular and Saddle combined, has hollow furnace bars, requires but a shallow stokehole, and exposes as much surface to the direct action of the fire as can possibly be obtained, the whole of which can be easily cleaned; and it is an important fact that out of upwards of 500 now at work made upon the improved principle not one has cracked.
T. G. MESSENGER'S Valve (single or double) is effective, simple, easy to work, and as durable as the pipe to which it is attached
Designs and Estimates supplied for all kinds of Horticultural Works, and guaranteed to answer the purpose for which they may be intended.



SMOKY CHIMNEYS.—The best cure is the PATENT ALBERT CHIMNEY CAP.
300 on Buckingham Palace; 80 on Windsor Castle
100 on St. James's Palace; 120 on Claremont Palace;
230 on the Western Heights Barracks, Dover; and hundreds also on the Halls and Mansions of the Nobility, Public Buildings, &c.
Price, Painted Wrought Iron, 25s. each; Galvanised ditto, 30s. each.
JAMES BARTON, Iron Works and Patent Stable Fitting Manufactory, 370, Oxford Street, W.

E. T. ARCHER'S "FRIGI DOMO."
Patronised by Her Majesty The Queen, the Duke of Northumberland for Syon House, His Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, &c.
PROTECTION from COLD WINDS and MORNING FROSTS.
"FRIGI DOMO," a Canvas made of Patent prepared Hair and Wool, a perfect Non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all Horticultural and Floricultural purposes, for Preserving Fruits and Flowers from the Scorching Rays of the Sun, from Wind, from Attacks of Insects, and from Morning Frosts. To be had in any required lengths.
Two yards wide .. .. 1s. 9d. per yard run.
Four yards wide .. .. 3s. 6d. per yard.
An improved make, 2 yards wide .. 1s. 9d. per yard.
An improved make, 3 yards wide .. 2s. 3d. per yard run. Also 'FRIGI DOMO" NETTING, 2 yards wide, 1s. 6d. per yard run.
ELISHA THOMAS ARCHER, Whole and Sole Manufacturer, 7, Great Trinity Lane, Cannon Street, City, E.C., and of all Nurserymen and Seedsmen throughout the Kingdom.
"It is much cheaper than Mats as a covering."

GREEN'S PATENT LAWN MOWERS
HAVE PROVED TO BE THE BEST, AND HAVE CARRIED OFF EVERY PRIZE THAT HAS BEEN GIVEN IN ALL CASES OF COMPETITION.
3,000 Machines in Stock, Ready for Delivery.
Illustrated Price Lists free on application.
THOMAS GREEN AND SON, SMITHFIELD IRON WORKS, LEEDS; and 54 and 55, BLACKFRIARS ROAD, LONDON, S.



Lawn Mowers.
GREEN'S PATENT. | SAMUELSON'S PATENT.
SHANKS' PATENT. | BARNARD'S PATENT.

DEANE & CO.,
46, KING WILLIAM ST., LONDON BRIDGE.
Horticultural Tools, &c.
LAWN MOWING MACHINES, 50s., 70s., 90s., 140s.
GARDEN BARROWS, Wood and Iron, 21s. and 26s.
GARDEN ENGINES, Galvanised Iron. Prices 55s., 65s., 78s., 90s., 100s., 110s.
GARDEN ROLLERS, £1 10s., £1 14s., £2, £2 7s. 6d., £2 12s. 6d., £3 2s. 6d.
STEEL DIGGING FORKS, SPADES, SCYTHES, &c.
GREENHOUSE SYRINGES and GARDEN PUMPS.
WIRE NETTING and ORNAMENTAL WIRE WORK.
GARDEN SEATS and CHAIRS.
FLOWER STANDS, Cast-iron and Wire.
STRAINED WIRE FENCING and IRON HURDLES.
HOT-WATER FITTINGS for GREENHOUSES, CONSERVATORIES, FORCING PITS, &c.
Deane's New Illustrated Horticultural Catalogue post free on application.
ESTABLISHED A.D. 1700.
DEANE AND CO., 46, KING WILLIAM STREET, LONDON BRIDGE, E.C.

JAMES PHILLIPS AND CO.
beg to submit their prices as follows:—
GLASS for ORCHARD HOUSES,
As supplied by them to Mr. Rivers, to the Royal Horticultural Society, and to most of the Nobility, Clergy, and Gentlemen of the United Kingdom.
Each Box contains 100 feet. The prices only apply to the sizes stated.

Squares 20 by 12, 20 by 13, 20 by 14, 20 by 15.

	16 oz. to the foot.	21 oz.
Fourth quality	15s. 0d.	.. 19s. 6d.
Third ditto	17s. 0d.	.. 22s. 6d.
Seconds	18s. 6d	.. 26s. 0d.
English	20s. 0d.	.. 27s. 0d.

The above prices include the boxes, which are not returnable.
HORTICULTURAL GLASS.
Stock sizes, 16-oz., in 100 feet boxes, boxes included.
These prices only apply to the sizes stated.

				4ths.	3rds.	2nds.
11 by 9	12 by 9	13 by 9	14 by 9	s. d.	s. d.	s. d.
12 „ 10	13 „ 10	14 „ 10	15 „ 10	13 6	15 6	17 0
13 „ 11	14 „ 11	..	..			
14 „ 12	15 „ 12	15 „ 11	16 „ 11			
18 „ 12	19 „ 12	16 „ 12	17 „ 12			
16 „ 13	17 „ 13	20 „ 12	..			
16 „ 14	20 „ 13	18 „ 13	..	15 0	17 0	18 6
	17 „ 14	18 „ 14	..	16 to 17 oz. to the foot.		
	20 „ 14					

SMALL SHEET SQUARES.
In 100 feet Boxes

6 by 4	6½ by 4½	7 by 5	7½ by 5½ .. 12s. 6d.
8 by 6	8½ by 6½	9 by 7	9½ by 7½
		10 by 8	10½ by 8½ .. 13s. 6d.

Boxes 2s. each, returnable at full price.
London Agents for HARTLEY'S IMPROVED PATENT ROUGH PLATE.
LINSEED OIL, Genuine WHITE LEAD, CARSON'S PAINTS, PAINTS of various colours, ground ready for use.
SHEET and ROUGH PLATE GLASS, SLATES of all sizes, BRITISH PLATE, PATENT PLATE, ROLLED PLATE, CROWN, SHEET, HORTICULTURAL, ORNAMENTAL, COLOURED, and every description of GLASS, of the best Manufacture, at the lowest terms. Lists of prices and estimates forwarded on application to
JAMES PHILLIPS & Co., 180, Bishopsgate Street Without, E.C.

Great International Horticultural Exhibition 1866.



FIRST AND ONLY PRIZE AWARDED TO
BEARD'S PATENT METALLIC NON-CONDUCTING GLASS HOUSES.
Perfect System of Ventilation and Glazing.
Manufactured by Messrs. SANDERS, FREWER, & Co., Victoria Horticultural Works, Bury St. Edmund's.
See large Advertisement in *Gardeners' Chronicle* of March 2, 1867.

ROLLERS.
ROLLERS FOR THE FARM.
ROLLERS FOR THE GARDEN.
ROLLERS FOR THE LAWN.
ROLLERS FOR CRICKET GROUNDS.
ROLLERS FOR PARKS.
ROLLERS FOR RACECOURSES.
ROLLERS FOR ROAD MAKING.
The best and cheapest are the Patent Adjustable WATER BALLAST ROLLERS, made only by
AMIES, BARFORD, & Co., Agricultural Engineers, Peterborough, who will forward Price Lists and all particulars on application.

Winter Ribbon Garden.
JOHN ROSS, Surbiton, Surrey, W., is prepared to LAY OUT every description of PLEASURE GROUND SCENERY. Photographs of Ribbon Planting may be had for inspection as above.

JOHN GIBSON, JUN., begs to announce that he is prepared to Furnish PLANS and ESTIMATES for LAYING OUT GROUND attached to Mansions and Villa or other Residences, or for the FORMATION of PUBLIC PARKS or GARDENS and to carry out the same by Contract or otherwise.
Address Mr. JOHN GIBSON, jun., Surrey Lane, Battersea, S.W.

G. GLENNY, HORTICULTURAL AGENT and VALUER, continues to PROCURE and SELL on COMMISSION everything appertaining to the Garden. His LIST of the best 60 sorts of FLOWER SEEDS for amateurs to choose from, with a Lesson on Sowing, sent free on receipt of a directed envelope to
G. GLENNY, Dungannon House, Fulham, S.W.

Farm Poultry.
GREY DORKING FOWLS, of purest breed, in any numbers.
Imported TOULOUSE GEESE, the largest and most productive breed known.
Improved NORFOLK TURKEYS, large, hardy, and good breeders.
AYLESBURY and ROUEN DUCKS.
Imported BELGIAN HARE RABBITS, for size and early maturity.
BRAHMA-POUTRA, CREVECŒUR, and LA FLECHE FOWLS, for constant layers.
Priced Lists and Estimates on application.
JOHN BAILY & SON, 113, Mount Street, London, W.

WANTED IMMEDIATELY, within 8 or 10 Miles of London, THREE or FOUR ACRES of good GARDEN LAND in a dry situation. Apply by letter, stating Rent, &c., to
T. G., *Gardeners' Chronicle* Office, W.C.

TO BE LET, a small NURSERY and SEED BUSINESS.—Age causes Retirement from a first-rate situation, where the Houses and Grounds are in good condition and well stocked indoors and out. Stands in a fine situation for business.
For particulars, apply by letter to C. J., Mr. C. Hunt, Post Office, Loughton, N.E.
A large stock of BEDDING PLANTS, &c., cheap.

NURSERY and SEED BUSINESS for SALE.—A good going Nursery and Seed Business in the North of England will be disposed of on very moderate terms to any party who can take possession at an early date. There is a considerable breadth of glass, almost new, and well stocked with first-rate saleable plants, for which there is a great demand in the district. In the Seed department there is an excellent connection, which is increasing yearly. Most satisfactory reasons can be given for the present proprietor having resolved to relinquish the above.
Apply by letter only, address "Business for Sale," care of Messrs. Peter Lawson & Son, Edinburgh.

Sales by Auction.

Valuable Nursery Stock
IN THE GROUNDS ATTACHED TO "VINE LODGE," SURBITON ROAD, SURBITON, S.W.

JOHN DAWSON AND SON will SELL by AUCTION on the premises as above, on MONDAY, March 18, at 11 o'Clock (Mr. Ross's lease having expired) all his choice NURSERY STOCK, which will be arranged in lots to suit private purchasers, as well as Nurserymen, and among which will be found varieties and of quality seldom offered in this neighbourhood, comprising fine specimens of the GOLDEN YEW, IRISH YEWS, 10 feet high; elegant specimens of Thuja aurea, Green and Variegated Box, 7 feet high; Wellingtonia, 7 feet; Weeping Laburnum and Weeping Ash, Picea Nordmanniana, Picea Pinsapo, Irish and Chinese Junipers, Deodaras, fine Standards of Portugal Laurel, Box, Rhododendrons, and of the new Variegated and Weeping Holly. Also Peach, Nectarine, Plum, Pear, and Apple Trees, and Standard Currants, &c.
May be viewed on Saturday, March 16; and Catalogues may be obtained at Vine Lodge; and of JOHN DAWSON & SON, Auction Office, Kingston-on-Thames, and Marlborough Chambers, 49, Pall Mall, W.

Valuable Live and Dead Farming Stock,
ON PARK FARM, LOWER BEEDING, TWO MILES FROM THE WEST GRINSTEAD STATION.

MR. JOHN PLUMER is favoured with instructions from Mr. Scarth, to SELL by AUCTION, on THURSDAY, March 21, 1867, at 1 o'Clock precisely, the MACHINERY and IMPLEMENTS, comprising a Traction Steam Engine, by Clayton & Shuttleworth, almost new: a 3-furrow Steam Plough, by Howard, of Bodford, nearly new; a Steam Cultivator, Windlass and Rope Porters, and everything requisite for steam cultivation; Threshing Machine, by Hornsby; Reaping Machine with Sheaf delivery, by Hornsby, quite new; 2 of Wood's Mowing Machines, Corn Drill, Turnip Drill, Horse Rake, Tedding Machine, Iron Ploughs, Harrows, Winnowing and Blowing Machines, Waggons, 2-horse Van, Manure Carts, Scotch Frames for Carts, Scotch Cart complete, 2 Water Pipes on Wheels, Cambridge Roller, Wood and Land Rollers, Chain Harrows, Oilcake Bruiser, and a variety of Husbandry Tackle; 10 useful DRAUGHT HORSES, all good workers; a YEARLING NAG COLT, almost thorough-bred, got by W. W. Smith, Esq's, horse, "Morgan Lightfoot," out of a thorough-bred mare; Bay Carriage Horse, rising 7 years old, 16 hands high; 3 Cobs, Pony, Handsome Brown Colt, by "Frogmore," rising 2 years; Donkey, Cart, and Harness, good assortment of Harness, Wattles, Sheep Troughs, Dairy Utensils. The NEAT STOCK includes a Sussex and a mixed-bred Cow and their Calves, excellent Poll Cow, good milker, calved in February; Alderney Cow expected to calve in April, Barren Cow, Yearling Sussex Bull, 31 Short-horn and mixed-bred Heifers, 6 Yearling Steers; SOUTHDOWN SHEEP, about 150 Ewes with Lambs and in Lamb, 5 Rams and Ram Lambs, White Swine, 100 head of Poultry; Prongs, Rakes, and Garden Implements, Whitechapel Cart, Plated Harness, Saddle, Bridle, and Iron Corn Bin.
Catalogues may be had at the Office, or by Post, of the Auctioneer, Horsham.

Stock of a Greenhouse Builder,
205, KING STREET WEST, HAMMERSMITH.

J. AND G. BOND will SELL by AUCTION, as above, on WEDNESDAY, March 27, at 12 for 1 o'Clock, several well constructed GREENHOUSES, various sizes, from 14 feet to 30 feet in length; a LEAN-TO PIT, 20 feet; GLAZED ROOF, 21 feet; 100 PIT and GREENHOUSE LIGHTS, 30 GARDEN FRAMES, HAND-GLASSES, DOORS, STEPS, and Sundries.
Catalogues of the Auctioneers, Hammersmith Road, W.

Imported Orchids.
MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on MONDAY, March 18, at half-past 12 o'Clock precisely, an important Consignment of ORCHIDS, received by the last Mail from Mexico, comprising several plants of a handsome new ARPOPHYLLUM, of dwarf habit, and very free blooming; Odontoglossum nebulosum, O. hastilabium (?), O. maculatum, Epidendrum vitellinum majus, E. aromaticum, Lælia furfuracea, Cattleya citrina, Oncidium oblongatum (?), and a handsome new Terrestrial Orchid.
On view the Morning of Sale, and Catalogues had.

Consignment of Plants from Ghent.
MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, March 20, at half-past 12 o'Clock precisely, fine DOUBLE CAMELLIAS, INDIAN AZALEAS, Hardy RHODODENDRONS, Pyramid and Dwarf Named FRUIT TREES, 200 LILIUM LANCIFOLIUM, Hardy and Ornamental SHRUBS, ROSES, GLADIOLI, AMARYLLIS, RANUNCULUS, Ornamental WINDOW BOXES, RUSTIC GOODS, WIRE BASKETS, &c.
On view the Morning of Sale, and Catalogues had.

Important Sale of Plants.
MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on FRIDAY, March 22, at half-past 12 o'Clock precisely, a fine Assortment of CARNATIONS, PICOTEES, and PINKS, TREE VIOLETS, DAHLIAS, FUCHSIAS, GERANIUMS, DEUTZIAS, AURICULAS, DOUBLE PRIMROSES, ROCKETS, PHLOXES, DAPHNES, PENTSTEMONS, GAZANIAS, IRIS, CLEMATIS, VERBENAS, ROSES, HARDY SHRUBS, FRUIT TREES, GLADIOLI, &c.
On view, and Catalogues had.

Consignment of Plants from Holland.
MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on SATURDAY, March 23, at half-past 12 o'Clock precisely, First-class Specimen VARIEGATED and GREEN HOLLIES, STANDARD and WEEPING ROSES, CONIFERS, RHODODENDRONS, LAURELS, and a variety of other Hardy and Ornamental Shrubs, choice Gladioli and Ranunculus, Rustic Seats, Stools, Vases, &c.
On view the Morning of Sale, and Catalogues had.

Preliminary Notice of an Important Sale of Orchids.
MR. J. C. STEVENS has been favoured with Instructions to SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., without reserve, early in APRIL, First-class ESTABLISHED ORCHIDS, being part of the well-known Collection of A. Bisset, Esq., of Stamford Hill, who is reducing his Collection for a short time owing to change of residence. The Plants consist of Duplicates, amongst which will be found many magnificent Specimens of all the best Varieties.
More detailed particulars in future Advertisements.

Choice Established Orchids.
MR. J. C. STEVENS will SELL by AUCTION early in May, a Small Collection of Established ORCHIDS, in fine health, the property of a Gentleman. Further particulars in future Advertisements.
38, King Street, Covent Garden, W.C. March 16.

Waterloo Nursery, Kilburn.
IMPORTANT SALE OF NURSERY STOCK, GREENHOUSE PLANTS, GREENHOUSES, PITS, &c.

MESSRS. PROTHEROE AND MORRIS are instructed to offer for UNRESERVED SALE by AUCTION, on the Premises, Waterloo Nursery, Kilburn, Middlesex, close to the Edgeware Road Railway Station on the North London Railway, on MONDAY, March 18, and following day, at 11 o'Clock each day, without reserve, the LEASE having been disposed of with reversion, necessitating an immediate clearance, the whole of the valuable NURSERY STOCK, Evergreen, Coniferæ and Deciduous Shrubs, including large quantities of fine bushy Green and Variegated Box; Thuja sorts; splendid Irish and English Yews, 2 to 6 ft.; Spruce Firs, 2 to 5 ft.; Aucuba; Common and Portugal Laurels; Berberis; Green and Variegated Hollies; Cotoneaster, Phillyrea, Cupressus, Thuiopsis, Cedrus, Lilacs, Weigela, Althæa frutex, Syringa, Forsythia, Sweet Briar, &c; fine standard and dwarf-trained and untrained Pears; Apples, Plums, Walnuts, Fruit Trees for orchard houses, &c.; Ornamental and Forest Trees, viz., Limes, Planes, Elms, Thorns, Acacias, Poplars, Birch, Sycamore, Maples, Chestnuts, Oaks, Ash, &c.; a choice collection of modern Strawberries, Gooseberries, Currants, Rhubarb; a rich assortment of American Plants, embracing named and Hybrid Rhododendrons, Azaleas, Kalmias, &c.; quantities of Ivies, Virginian Creepers, Clematis, Fyrus japonica, and other hardy Climbers; Yuccas; Climbing and other Roses; thousands of yards of Box-edging, &c.; also about 1000 choice Greenhouse and Stove Plants, viz., Camellias from 3 to 8 ft.; 200 Azalea indica, well set with bloom buds, including many specimens; Rhododendron Nuttalli, jasminiflorum, and Edgworthii; Araucaria, Epacris, Daphne, Gardenia, Begonia, Ixora, Hoya, Eucharis, and Cape Bulbs; together with the erection of 4 Greenhouses, of which one span roof is nearly new. Pits, Boxes, Hot-water Piping, Bricks, and sundry effects.
May be viewed prior to the Sale. Catalogues may be had, 6d. each (returnable to purchasers), on the Premises; of the principal Seedsmen in London; and of the Auctioneers and Valuers, American Nurseries, Leytonstone, Essex, N.E.

Sale of very handsome Standard Roses, Camellias, Fruit Trees, &c.
MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at 38 & 39, Gracechurch Street, City, E.C., on SATURDAY, March 23, at 1 o'Clock precisely, Choice DOUBLE CAMELLIAS, beautiful compact plants, 1 to 4 feet, abundantly furnished with bloom buds; fine AZALEA INDICA; a superb assortment of about 300 very handsome STANDARD and DWARF ROSES, including the best varieties in cultivation; choice hardy AMERICAN PLANTS, comprising Ghent and other Azaleas, selected Fruit Trees, Hybrid Rhododendrons, Kalmias, Andromedas, &c.; some fine Bulbs of LILIUM AURATUM and LANCIFOLIUM ALBUM, ERICAS, EPACRIS, DAHLIAS, &c.
May be viewed the Morning of Sale. Catalogues may be had at the City Auction Rooms, as above; or of the Auctioneers and Valuers, American Nurseries, Leytonstone, Essex, N.E.

Preston Hall, Aylesford, Kent.
IMPORTANT SALE OF SHORT-HORNED CATTLE.

MR. STRAFFORD has the honour to announce that he is instructed to SELL by AUCTION, without reserve, on WEDNESDAY, May 1 next, at the Preston Hall Farm, Aylesford, Kent, the renowned HERD of FIRST-CLASS SHORT-HORNS belonging to Edward Ladd Betts, Esq., which consists of about 70 Head of Bulls, Cows, and Heifers. This magnificent Herd has been bred with great spirit for several years, regardless of expense, from the first sources in the country. It comprises the whole of the far-famed "Grand Duchesses" and some "Grand Dukes," several splendid specimens of the "Cambridge" or "Red Rose" tribe, and other fine Kirklevington sorts, as well as some of the choicest gems from the Towneley Herd, with many more remarkable animals. Bulls of the highest character have been used: the young Stock are by the celebrated Bulls Sixth Duke of Airdrie (19,602), Third Duke of Thorndale (17,749), Fourth Grand Duke (19,874), Imperial Oxford (18,084), and Fourth Duke of Thorndale (17,750). The Sires now in use are Grand Duke 4th (19,874), Lord Oxford 2nd (20,216), and Grand Duke 16th.
Catalogues with pedigrees are in preparation, will shortly be issued, and further particulars given in future Advertisements.

Havering Park, near Romford, Essex.
IMPORTANT SALE OF SHORT-HORNED CATTLE.

MR. STRAFFORD is honoured with instructions from David McIntosh, Esq., of Havering Park, Essex, to SELL by AUCTION, without reserve, on THURSDAY, May 2 next, his entire and well-known HERD of FIRST-CLASS SHORT-HORNS, comprising 56 Head of Bulls, Cows, and Heifers, that have been bred with great judgment and care for more than 20 years from some of the purest and best strains in the kingdom. The animals are principally of Mr. Bates's far-famed Kirklevington blood, who free of many fine specimens of the "Oxford," "Barrington," and "Waterloo" tribes will be found, besides some of the celebrated "Princesses," from which family Belvedere (1706) was bred. There are also several excellent representatives of Sir Charles Knightley's "Fillet" and "Rosy" tribes, and a few "Charmers." Third Duke of Thorndale (17,749) has lately been used, and Fourth Grand Duke (19,874) is the sire of the young Stock. "Baron Oxford," a splendid young Bull, by the noble Duke of Geneva (19,614) and from the 1st Prize Heifer, "Lady Oxford 5th," at the Worcester Royal, is at present in service.
Catalogues with Pedigrees are now being printed, and will shortly be issued.

AN EXTENSIVE SALE by AUCTION, on FRIDAY, April 12, 1867, at Providence Nursery, Boston Spa, Yorkshire, of SPECIMEN and HALF SPECIMEN, STOVE and GREENHOUSE PLANTS, ORCHIDS, &c.
The Plants are all in first-rate condition, and can be seen on the Ground any day (Sunday excepted).
Catalogues on application to J. C. PADMAN.

NEW ORCHIDS.

JAS. BACKHOUSE & SON

HAVE INSTRUCTED

J. C. STEVENS TO SELL BY AUCTION, WITHOUT RESERVE,

on the 21st inst.,

THE FOLLOWING ORCHIDS,

RECEIVED DIRECT FROM THEIR OWN COLLECTOR ON THE CORDILLERAS OF ECUADOR.

A large proportion of these are entirely new, and have never yet been offered; and they have every confidence in the correctness of names where names are attached. Nearly the whole are in fine condition, and some, received several months ago, are already established, and growing luxuriantly.

The Collection includes a new and fine SELENIPEDIUM, described as having "yellow" sepals, "with darker green and white veins," and "red (probably pink or rose) petals;" the new and charming ODONTOGLOSSUM ROSEUM, with self-coloured deep rose or rosy-crimson flowers with white column, borne 12 to 20 on the spike; the new ODONTOGLOSSUM MULTIFLEXUM (Rchb.), bearing enormous branching spikes covered with a vast profusion of small golden flowers blotched with brownish purple; the recently described ONCIDIUM NUBIGENUM, forming slender spikes of 6 to 12 flowers, resembling small Odontoglossum Phalænopsis, growing at an elevation of 12,000 to 16,000 feet; MESOSPINIDIUM SANGUINEUM; fine plants of the true ONCIDIUM MACRANTHUM; ANOTHER allied but still finer SPECIES (judging by the dried specimens and glowing description); also a THIRD very distinct SPECIES of the same section; strong and healthy Plants of the wonderful "NASONIA SPLENDENS," with enormous purple-crimson deeply fringed labellums; a new and very distinct ONCIDIUM, with violet and white blossoms; an ANGULOA, described as having white flowers with rose-coloured veins; a magnificent NEW ONCIDIUM, or ODONTOGLOSSUM, from 12,000 feet elevation, with branched spikes of 100 to 150 brilliant red-orange flowers with yellow, crenated labellums! Numerous Plants of ODONTOGLOSSUM BREVIFOLIUM (or coronarium?); an EPIDENDRUM, or LÆLIA, bearing spikes or corymbs of fine *fragrant* golden flowers; a LYCOMORMIUM, with pendent spikes of eight or more waxy Angulua-like flowers, white shaded with yellow and spotted with purplish crimson; ONCIDIUM CUCULLATUM; the new EPIDENDRUM IBAGUENSE, ONCIDIUM HOLOCHRYSUM, and other Plants of much interest.

SHANKS' PATENT LAWN MOWERS FOR 1867.

PATRONIZED FREQUENTLY DURING THE PAST THREE SEASONS BY

HER MAJESTY THE QUEEN,

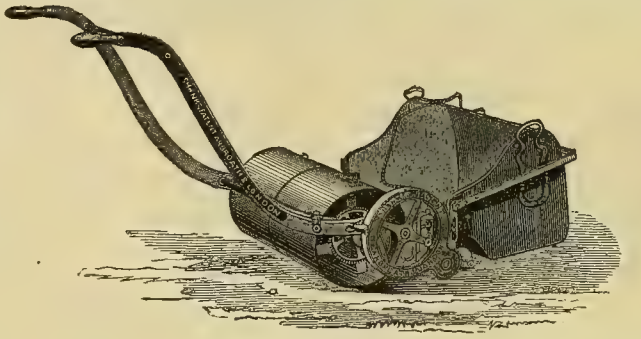
HIS MAJESTY THE KING OF SAXONY, | HIS MAJESTY THE KING OF HOLLAND,

HIS MAJESTY THE KING OF PRUSSIA,

AND AMONGST THE DISTINGUISHED FOREIGN NOBILITY,

THE DUCHESS DE CAMBACÉRÈS, THE MARQUIS DE BOISSY, MARSHAL CANROBERT, &c., &c.

Every minute point in the way of improvement has been carefully considered and adopted, and as A. S. & SON have for more than a quarter of a century devoted their attention to this particular branch of their business, the Nobility, Gentry, and Gardeners may rely on the MACHINES they may order, to be such as to ensure lasting satisfaction, and to stand the wear and tear of many years.



PATENT HAND MACHINE.

SHANKS' PATENT LAWN MOWERS

ARE IN DAILY USE IN

ALL THE ROYAL GARDENS; IN THE HORTICULTURAL SOCIETY'S GARDENS AT KENSINGTON; CRYSTAL PALACE COMPANY'S GROUNDS; IN VICTORIA PARK; HYDE PARK;

And in almost all the principal Public Parks and Gardens in the Kingdom.

These are the only Machines that can be depended on to give lasting satisfaction.

THESE ARE THE ONLY MACHINES THAT WILL MOW PROPERLY WHEN THE GRASS IS WET.

THESE ARE THE ONLY MACHINES THAT DELIVER THE GRASS WITHOUT STOPPING, THUS SAVING AN IMMENSE AMOUNT OF LABOUR.

SHANKS' PATENT LAWN MOWERS are the only Machines that have been in operation in Her Majesty's Gardens for a quarter of a century.

Shanks' Patent Lawn Mower will Mow on uneven as well as on level Lawns.

ALEXANDER SHANKS AND SON, in referring to their IMPROVED LAWN MOWERS for 1867, doubt not but that the preference which in past years has invariably been given to their Machines will still be awarded them. The principles which guide A. S. AND SON in effecting improvements compel their Machine ever to stand the first in point of general efficiency, simplicity of construction, and durability.

A. S. AND SON have particularly aimed at substituting Wrought for Cast Iron to as great an extent as possible in the construction of their Machines. None but skilled Workmen and the most improved Machinery are employed in manufacturing the various parts, and this applies not only to the Horse and Pony, but also to the Hand Machines.

A. S. AND SON have now ready for delivery a large stock of their celebrated LAWN MOWERS, which will enable them to execute orders on the day they are received.

PRICES, INCLUDING CARRIAGE TO ANY RAILWAY STATION OR SHIPPING PORT IN THE KINGDOM.

SHANKS' NEW PATENT HAND MACHINE.

Width of Cutter.		Easily Worked	Silent Movement.
10-inch Machine	£3 10 0	*By a Lady*	4*s.* extra.
12-inch Machine	4 10 0		
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16-inch Machine	£6 10 0	*By a Man or Two Boys*	4*s.* extra.
19-inch Machine	7 12 6	*By a Man and Boy*	
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Ditto for Donkey, 18*s.* per set.

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30-inch Machine	£19 0 0	30*s.* extra.
36-inch Machine	22 0 0	30*s.* ,,
42-inch Machine	26 0 0	40*s.* ,,
48-inch Machine	28 0 0	40*s.* ,,

Silent Movement, 20*s.* extra; Boots for Horse's Feet, 26*s.* per set.

The Machines are warranted to give ample satisfaction, and, if not approved of, may be at once returned.

N.B.—*A. S. & Son specially announce to their numerous Patrons that they have a staff of experienced Workmen at their London Warehouse, thoroughly acquainted with all the details of their Machines, so that they are enabled to repair Lawn Mowers in London as well as at the Manufactory.*

PATENTEES AND SOLE MANUFACTURERS:

ALEXANDER SHANKS AND SON, DENS IRON WORKS, ARBROATH, N.B.

LONDON OFFICE and SHOW ROOMS, 27, LEADENHALL STREET, E.C.

☞ 27, *Leadenhall Street is the only place in London where intending purchasers of Lawn Mowers can choose from a Stock of from* 150 *to* 200 *Machines. All sizes kept there, whether for Horse, Pony or Hand Power.*

Editorial Communications should be addressed to "The Editor;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
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THE GARDENERS' CHRONICLE
AND
AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.

No. 12.—1867.] SATURDAY, MARCH 23. {Price Fivepence. {STAMPED EDITION, 6d.

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ROYAL HORTICULTURAL SOCIETY, SOUTH KENSINGTON, W.
Promenade and Band every Saturday Afternoon throughout the year.
NOTICE.—Dr. MASTERS will give a short LECTURE on PLANT ARCHITECTURE on MARCH 30, and the FOUR succeeding SATURDAYS, at Three.

ROYAL HORTICULTURAL SOCIETY, SOUTH KENSINGTON, W.
Mr. WILLIAM PAUL'S SHOW of SPRING FLOWERS, from March 26 to April 6.
Gardens open to the Public on payment daily from Ten to su nset.

NATIONAL HORTICULTURAL EXHIBITION, 1867.—The above EXHIBITION will Open at Manchester on JUNE 7, and continue till JUNE 15.
Schedules, &c., may be obtained on application to Mr. B. FINDLAY, Curator, Botanic Garden, Manchester; or from the undersigned,
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Carlton Buildings, Cooper Street, Manchester.

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Genuine Garden, Agricultural, and Flower Seeds.
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Fine selected stock, from the
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Price on application.
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DOBSON'S SPLENDID PRIZE CALCEOLARIA SEED, the admiration of the world.
Per packet, 1s. 6d., 2s. 6d., 3s. 6d., 5s.
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A large stock of finest Mixed PANSIES, very strong plants, 15s. per 100.
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Fifty Acres of Fruit Trees,
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Orchard-house Trees Fruiting in Pots.
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FRUIT TREES, for Walls and Espaliers.—Upwards of 50,000 to select from, carefully trained, and in the healthiest condition for planting.
RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

TREES and PLANTS of all sorts and sizes in very great quantity, of best quality and at moderate prices.
PRICED LISTS post-free on application.
JAMES DICKSON & SONS, (*"Old Established Nursery and Seed Business,"*) The "Newton" Nurseries, Chester.

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PRICED DESCRIPTIVE CATALOGUES on application.
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Finest New Hardy Plant of the Year.
PAUL AND SON'S New DOUBLE CRIMSON THORN, colour bright crimson, vivid and double. Price 10s. 6d. each; Three for Two to the Trade.
Old Nurseries, Cheshunt, Herts.
*** By an oversight the price of this was omitted in former Advertisements.

BLACK ITALIAN POPLAR, 4 to 5 feet, 25s. per 1000.
YELLOW ANTWERP RASPBERRIES, fine Canes, first size, 35s. per 1000; second size, 25s.; per 1000.
THOMAS S. WARE, Hale Farm Nursery, Tottenham, Middlesex.

EVERGREENS.—One Hundred Strong Plants of the above, 1 to 1½ foot in height, in twenty varieties and species, for 40s., packing included. These are really good plants. A remittance or reference from unknown correspondents.
FIELD BROTHERS, Tarvin Road Nursery, Chester.

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H. AND R. STIRZAKER are offering in large quantities of all sizes of the above, at very low prices.
Skerton Nurseries, Lancaster.

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FIVE MILLION Transplanted QUICKS, of superior growth. Also 100,000 LARCH, very good plants, 4 to 6 feet, at 14s. per 1000. Samples and prices on application to
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To the Trade.
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FOR SALE, a very fine ALSOPHILA AUSTRALIS and CYATHEA MEDULLARIS; also an ARAUCARIA EXCELSA, 10 feet high, in fine condition. For particulars and price, apply to
W. DEAN, Bradford Nursery, Shipley, Yorkshire.

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WM. CUTBUSH AND SON strongly recommend the following:—

PRIMULA SINENSIS FIMBRIATA, of the finest possible strain, Red, White, or Mixed, 2s. 6d., 3s., and 5s. per packet.
CALCEOLARIA, saved from James' choice strain, very fine, 2s. 6d., 3s. 6d., and 5s. per packet.
CINERARIA, from named flowers, 2s. 6d., 3s. 6d., and 5s. per packet.
SNOW'S WINTER WHITE BROCCOLI (True), Wm. C. & Son's own saving, 2s. 6d. per packet.
NUNEHAM PARK ONION, 2s. 6d. per packet.
For other Choice Seeds see CATALOGUE, post free.
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Superb Double Hollyhocks.

WILLIAM CHATER begs to remind the admirers of this beautiful Flower that now is the best time for planting it out, to ensure fine Spikes and Blooms this season.
DESCRIPTIVE CATALOGUE, with instructions for its cultivation, also Prices of Plants per doz., 100, or 1000 may be had on application.
Seedlings from best named Varieties, 4s. per doz., or from 20s. to 30s. per 100.
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In Collections of 12 separate named Varieties, extra fine, 10s.
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Twelve Named Varieties, all good show flowers, 7s. 6d.
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New Descriptive Lists.

DOWNIE, LAIRD, AND LAING, NURSERYMEN, SEEDSMEN, FLORISTS, and NEW PLANT MERCHANTS, 17, South Frederick Street, Edinburgh; and Stanstead Park, Forest Hill, London, S.E., respectfully beg to intimate that their NEW DESCRIPTIVE PRICED CATALOGUES of FLORIST FLOWERS, GARDEN, FLOWER, and AGRICULTURAL SEEDS, GLADIOLI ROSES, &c., are now ready, and may be had free on application.

Now Ready, in Strong Plants.

THE MAGNIFICENT NEW VIOLET, QUEEN of VIOLETS.

The following additional Nurserymen have ordered Queen of Violets. For full list see *Gardeners' Chronicle*, December 1, 1866, and last three weeks:—

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" Peter Lawson & Son, Edinburgh
" Drummond Brothers, Edinburgh
" E. P. Dixon & Sons, Hull
" Stuart & Mein, Kelso
Mr. John Carter, Keighley
" Wm. Fletcher, Cnertsey
" John House, Peterborough

Strong Plants, 1s. 6d. each; 18s. per dozen. Usual allowance to the Trade.
VIOLETS, NEW DOUBLE RED, 1s. 6d. each; 12s. per dozen.
" SINGLE CALIFORNIAN Species, 1s. each; 9s. per dozen.
" DOUBLE NEAPOLITAN, 9d. each; 6s. per dozen.
" DOUBLE BLUE, 6d. each; 4s. per dozen.
" DOUBLE WHITE, 6d. each; 4s. per dozen.
" SINGLE DEVONIENSIS, extra fine, 9d. each; 6s. per dozen.
" THE GIANT, extra fine, 9d each: 6s. per dozen.
HEPATICAS, DOUBLE and SINGLE RED, 4s. per dozen.
" SINGLE BLUE, 4s per dozen.
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CHRISTMAS ROSE (HELLEBORUS), WHITE, 9s. per dozen.
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PRIMROSES, DOUBLE LILAC and WHITE, 6s. per dozen.
POLYANTHUS, finest mixed, 3s. per dozen.
PAMPAS GRASS, extra fine, 6s. per dozen.
WALLFLOWER, DOUBLE GOLDEN, and YELLOW, 6s. per doz.
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DIELYTRA SPECTABILIS, strong, 6s. per dozen.
ROCKETS, DOUBLE WHITE and YELLOW, 6s. per dozen.
NEW PINKS, ANNE BOLEYN, improved, and EXCELSIOR, 1s. per pair.
100 HARDY HERBACEOUS and ALPINE PLANTS, in 50 varieties, 25s.
CATALOGUES for one Stamp. Post Office Orders on Castle Hedingham.
WM. DILLISTONE, Sible Hedingham, Essex.

J. KEYNES, Salisbury.

NEW DAHLIAS for 1867.

FLOSSY GILL (Keynes).—A beautiful light ground, edged with pink, first-class form. 3 ft. to 4 ft. .. .. s. d. 10 6
CERTIFICATES.—Brighton Horticultural Society, Royal Horticultural Society, Bath, Salisbury, Dorset.

VICE-PRESIDENT (Keynes).—A decided improvement on Chairman, not requiring cutting out, very constant, finest form, greatly admired, bright orange. 3 ft. 10 6
FIRST-CLASS CERTIFICATES.—Crystal Palace, Burton-on-Trent, Bath, Winchester, Dorset, Brighton, Salisbury. 2d, Royal Horticultural Society.

LADY JANE ELLIS (Eckford).—Creamy white ground tipped with purplish rose, fine show flower. 3 ft. to 4 ft. .. 10 6
CERTIFICATE.—Royal Horticultural Society.

CLARA SIMONS (Keynes).—Pure white, with deep crimson edge, one of the most exquisite flowers grown. Must have no cutting out, one of the gems of J. Keynes' Seedlings. 3 ft. 10 6
FIRST-CLASS CERTIFICATES.—Royal Horticultural Society, Glasgow, Salisbury, Dorset. The Money Prize at Trowbridge, beating all the seedlings exhibited.

PARADISE WILLIAMS (Keynes).—The flower of the season—unqualified approbation everywhere—clear claret, quite a new colour. 3 ft. 10 6
FIRST-CLASS CERTIFICATES.—Royal Horticultural Society, Crystal Palace, Brighton, Bath, Dorset, Salisbury.

HARRIET TETTERELL (Keynes).—Blush ground, very deeply margined with dark purple. A standard flower for many years. 3 ft. to 4 ft. 10 6
CERTIFICATES.—Royal Horticultural Society, Trowbridge, Burton-on-Trent, Winchester.

PRINCESS of WALES (Keynes). — Blush ground, slightly edged with lilac. A seedling from Anna Keynes, but more constant—most beautiful form, not to be out out. 3 ft. .. 10 6
FIRST-CLASS CERTIFICATES.—Royal Horticultural Society, Crystal Palace. The two greatest trials for seedlings in existence.

MEPHISTOPHELES (Heatley). — The finest black flower grown. 4 ft. 10 6

GAZELLE (Keynes).—Clear fawn of the finest quality, very constant, no cutting out. 4 ft. 10 6
CERTIFICATES.—Royal Horticultural Society, Salisbury, Trowbridge, Brighton, Winchester.

MRS. THORNHILL (Pilfield).—A beautiful feather-edge like Mrs. Trotter. Very light pink, equal to any Picotee—requires cutting out, but a much larger flower than has yet been seen of its character. It was much admired at the Crystal Palace, where it obtained a Certificate. 3 ft. 10 6

These Ten Flowers are Standards, and have been selected, and all grown and proved, by John Keynes, who warrants them all as First-class Show Flowers.

NEW FANCY DAHLIAS.

BUTTERFLY (Keynes).—Scarlet and brown crimson stripes on a light ground, very fine flower; large, full, and perfect. 3 ft. .. .. s. d. 10 6
FIRST-CLASS CERTIFICATES.—Royal Horticultural Society, Trowbridge, Salisbury, Crystal Palace, Burton-on-Trent, Hampshire.

BESSIE WYATT (Keynes).—White and red striped, full show flower. 3 ft. to 4 ft. 10 6
CERTIFICATES.—Salisbury, Burton-on-Trent, Hampshire.

MISS RUTH (Eckford).—Yellow tipped white, a flower long wished for, constant, which is the character of this flower. 3 ft. to 4 ft. 10 6
FIRST-CLASS CERTIFICATE.—Brighton.

MRS. GOODWIN (Goodwin).—Fawn ground, striped with red—very fine flower. 4 ft. 10 6

PLAUSIBLE (Keynes).—Red and crimson, with purple stripes—very first-class flower. 4 ft. 10 6

SALAMANDER (Keynes).—The best character to give this flower is to call it a striped Charles Turner—it must not be cut out. 3 ft. 10 6

VINES.—SURPLUS STOCK

OF THE FOLLOWING SELECTED VARIETIES, TRUE TO NAME, EXTRA STRONG, WHICH WERE GROWN FOR FRUITING IN POTS,

Can now be supplied at the Planting rate of Prices, viz., 5s. to 7s. 6d. each.

☞ *Special Prices given where 25 or more are required. A fine opportunity for Gentlemen wishing to Plant largely.*

BLACK HAMBURGH
" MUSCAT
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BUCKLAND'S SWEETWATER
BIDWELL'S SEEDLING
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JAMES CARTER AND CO., SEED MERCHANTS AND NURSERYMEN, 237, HIGH HOLBORN, W.C.

FLOWERING PLANTS of AUCUBA JAPONICA VERA MASCULA.

MESSRS. JAMES VEITCH & SONS

HAVING NOW COMING INTO FULL FLOWER A QUANTITY OF

MALE PLANTS OF THE TRUE GREEN AUCUBA JAPONICA,

RAISED FROM SEED IMPORTED DIRECT FROM JAPAN,

beg to offer them at the following low prices:—

First Size, 7s. 6d. each. | **Second Size, 5s. each.**

Each Plant has a fine spike of Bloom, and will impregnate a great number of Female Plants.

☞ *The usual Discount to the Trade, with One Plant over when Six are taken.*

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RHODODENDRON PONTICUM for WOODS and PLANTATIONS.

MESSRS. JAMES VEITCH & SONS

HAVING A LARGE QUANTITY OF VERY GOOD BUSHY

WELL-ROOTED RHODODENDRON PONTICUM,

Suitable for Planting in Woods and Covers, beg to offer them at the following prices:—

9 to 15 inches, bushy, 16s. per 100 | 18 to 24 inches, bushy, 30s. per 100
15 to 18 inches, bushy, 21s. per 100 | 24 to 30 inches, very fine, 50s. per 100

ALSO A

SPLENDID LOT OF HYBRID RHODODENDRONS,

Raised from the finest Named kinds:—

6 to 10 inches, 25s. to 30s. per 100 | 15 to 18 inches, 75s. to 100s. per 100
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24 to 30 inches, very fine, 18s. to 24s. per dozen.

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GENERAL PRICED CATALOGUE of FLOWER and VEGETABLE SEEDS

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Also the following well-known STRAINS of FLORISTS' FLOWERS:—

WILLIAMS' superb strain of PRIMULA, Red, White, or Mixed, 2s. 6d., 3s. 6d., and 5s. per packet
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A full description of each will be found in the Catalogue.

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GRASS SEEDS,
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Catalogues forwarded post free to any address on application.

GENUINE FARM SEEDS.

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Special attention is devoted to the preparation of GRASS SEED MIXTURES to suit all Soils and situations These Mixtures cannot be surpassed in quality.

TURNIP, MANGEL WURZEL, and other SEEDS from the most carefully grown and best selected stocks.

☞ *Where large quantities are required,* J. V. AND SONS *will have much pleasure in quoting special prices.*

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CARTER'S GENUINE SEEDS.

THE NEW CEREAL (SORGHUM TARTARICUM?),

A SUBSTITUTE FOR WHEAT.



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Are in a position to supply a moderate quantity of the above important NOVELTY. They have not as yet proved its qualities, but if the following description (which they have received from a most reliable source) is correct, they have no hesitation in stating that it will become one of the most important additions to Agriculture which has been introduced in the present century:—

"I received a packet of the Seed from China (where it is used largely as an article of food), and grew about 100 square feet of it last season; and notwithstanding the cold wet Summer and Autumn, the results were wonderful. It is quite hardy, and wet does not hurt it. The Seed should be sown the end of March or in April, on stiff land; it is ready for harvest in September. The average produce will be 60 bushels (of 39 lb.) per acre. As an article of food the Bread is more palatable than Wheaten Bread, and it contains more nourishment than any other Cereal whatever. A small Loaf went four times as far as an equal one made of Wheaten Flour.

"As a Forage Plant, from the sweet succulent nature of the leaves and stems, all kinds of Stock thrive on it in a surprising manner. Cows will produce a double quantity of Milk, and it fattens Pigs in a given time as nothing else would."

A Trial Packet forwarded on receipt of 30 Postage Stamps.

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LIST OF SPECIALITIES IS NOW READY,

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CABBAGE, CHILTON EARLY SPRING, DWARF	1	0
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ENDIVE, DIGWELL PRIZE, GREEN CURLED	1	0
ONION, DANVERS YELLOW	0	6
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TOMATO, POWELL'S EARLY DWARF RED	0	6
TURNIP, CESTRIAN GOLDEN STONE	0	6
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☞ *For full descriptions, see* LIST of SPECIALITIES, *Post Free on application.*

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YOUELL AND CO. beg to offer strong healthy Plants of the above at the undermentioned prices:—
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PERPETUAL-FLOWERING or TREE CARNATIONS.—Flowering summer and winter; the choicest and leading kinds to name, 12*s.* and 18*s.* per doz. plants. [doz pairs.
Also a Choice and extensive Collection of PINKS, 9*s.* and 12*s.* per
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Azaleas, Epacris and Ericas.—To the Trade.

YOUELL AND CO. beg to inform the Trade that they abound in many Thousands of the above, all of which are well-grown, healthy and bushy stuff. They beg to offer them at the following low prices:—
AZALEAS, of sorts, fine bushy plants, in 32-sized pots, 24*s.* per doz.; 48-sized pots, 18*s.* per doz.
EPACRIS, in 48-sized pots, consisting of hyacinthiflora, hyacinthaflora candidissima, and all the leading kinds to name, well set for bloom, 6*s.* per doz., 40*s.* per 100
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A very extensive and Choice Collection of GREENHOUSE PLANTS to name, 9*s.* per doz., 70*s.* per 100.
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SPECIAL FRENCH COLLECTIONS.
CHINA ASTERS, Truffaut's varieties, 20 splendid varieties, 10 francs; 10 splendid varieties, 5 francs.
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Extra Double CAMELLIA BALSAMS, collection of 20 varieties, 5 francs 10 varieties, 2½ francs.
Speciality for GLADIOLUS. The General and Descriptive Catalogue of Gladioli, as well as that of Seeds, Plants, and Bulbs, will be forwarded on application.
ARGENTEUIL ASPARAGUS, true and improved variety, very large and very early, 2-yr. old plants, extra fine, 5 francs per 100.
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Mixed Collection of GRASS SEEDS for Lawns and Meadows, 1½ franc per kilogramme (2½ lb. nearly); or 100 kilogrammes (220½ lb.), 140 francs.

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H. LOW AND CO. have for SALE the following, which they warrant clean and healthy, viz.:—
18 FRUITING SMOOTH CAYENNE
6 SMALL ,, about 15 inches high.
3 FRUITING PRICKLY CAYENNE
40 STRONG SUCCESSION QUEEN
70 SUCKERS rooted in pots, ditto
1 STRONG SUCCESSION "CHARLOTTE ROTHSCHILD"
1 ,, ,, BENNETT'S SEEDLING
A new and very fine variety.
The above, being the Surplus Stock of one of the first Growers in Britain, will be sold at very moderate prices.
Clapton Nursery, London, N. E.

"THE LADY," a SEEDLING STRAWBERRY, raised by Mr. UNDERHILL, who was the originator of "Sir Harry."
Plants are now ready to be sent out (in lots not less than 20).
All applications must be accompanied by a Post Office Order, Birmingham, Postage Stamps, or Cash, to receive attention.
PRICES OF THE LADY STRAWBERRY PLANTS, from July, 1866, to August, 1867:—

ONE HUNDRED	£3 7 6	SIXTY	£2 5 0
EIGHTY	2 15 0	FORTY	1 12 6
TWENTY	£1 0 0		

Plants in Pots (not less than 10) at 1*s.* 6*d.* each. Packages of all the above included.
Mr. UNDERHILL'S Treatise on the Cultivation of Strawberries either in English, French, or German, may be had through the Post, price 1*s.*
Address—Mr. RICHARD UNDERHILL, Sir Harry's Road, Edgbaston, Birmingham.
N.B.—The "Sir Harry" being now in general cultivation, Mr. UNDERHILL intends reserving for a few years plants for those persons who may prefer having them direct and genuine from himself, spurious varieties having been so often substituted for the original.
The permanent price of "Sir Harry" for the future will be: 20 (not less), 10*s.*; 40, 18*s.*; 60, £1 6*s.*; 80, £1 14*s.*; 100, £1 18*s.*
Plants in Pots (not less than 10), 1*s.* 6*d.* each, packages included.

Orchard-house Trees in Pots.

H. LANE AND SON have to offer extra strong Plants of the following, well set with Bloom Buds, at moderate prices, viz., APPLES, PEARS, PLUMS, CHERRIES, PEACHES, NECTARINES, and APRICOTS; also well-established fruit-bearing FIGS, &c., CATALOGUES of which may be had post free upon application. The Nurseries, Great Berkhampstead, Herts.

TO BE SOLD, in quantities to suit purchasers,

500	extra-sized Dwarf-framed	PEAR TREES.
500	,,	CHERRY TREES.
500	,,	PLUM TREES.
500	,,	APPLE TREES.

The above are all beautifully trained bearing Trees, and are offered at remarkably low prices.
Also Dwarf-trained PEACHES, NECTARINES, and APRICOTS, Standard and Pyramid PEAR, PLUM, and CHERRY TREES, &c.
JOHN CRANSTON, King's Acre Nurseries, near Hereford.

Under the Patronage of Her Majesty the Queen, and H.R.H. the Prince of Wales.

THE SEEDLING APPLE LORD BURGHLEY.—Awarded a First-class Certificate by the Royal Horticultural Society, March 21, 1865. For full particulars see *Gardeners' Chronicle*, Dec. 8, 1866; "Cottage Gardener," Dec. 11, 1866; "Gardeners' Magazine," Dec. 29, 1866; "Floral Magazine," January, 1867; "Florist and Pomologist," February, 1867; "Garden Oracle," 1867, "The Gardener," January, 1867; also "Hogg's Fruit Manual," p. 25.
Price of fine Maiden Trees, 5*s.* each.
Immediate application is requisite to secure them for planting this season.
J. HOUSE, Eastgate Nursery, Peterborough.

International Telegraph Cucumber.

J. HOUSE has a few SEEDS of the above, saved by himself from the same Stock with which he obtained the First Prize at the International Show, May, 1866, and has proved them to be TRUE; also one of the best and most prolific for Winter and Summer growth. 1*s.* per Seed, or Three for 2*s.* 6*d.*
Eastgate Nursery, Peterborough.

SURPLUS STOCK.

Alder, 3 to 5 feet, extra strong	Fir, Spruce, 3 to 4 feet
Ash, 18 inches to 2 feet	,, Larch, 2 to 2½ feet
Berberis dulcis, 2 to 3 feet	Hazel, 2½ to 3½ feet, extra fine
,, Aquifolium, 1 to 1½ foot	Holly, Green, 1½ to 2 feet, bushy
Chestnut, Horse, 2 to 4 feet	Laurel, Common, 2 to 2½ ft., bushy
,, Spanish, 1½ to 2 feet	,, Portugal, 3 to 4 ft. ex. bushy
Fir, Scotch, 1 to 1½ foot	

Strong DRUMHEAD or CATTLE CABBAGE PLANTS.
FRUIT TREES, as annexed.
Apples, Standards and Dwarfs, very strong
Cherries, Dwarfs and Dwarf-trained, extra fine
Peaches, Dwarfs and Dwarf-trained, extra fine
Pears, Standards and Dwarfs, extra fine
Plums, Standards and Dwarfs, extra fine
Nectarines, Dwarfs and Dwarf-trained, extra fine
Kentish Filberts, 4 to 5 feet, extra fine
Crab Stocks, 2 years Seedlings
PRICED LIST or samples of the above on application to
W. VIRGO & SONS, The Nursery, Woking, near Guildford, Surrey.

Finest New Hardy Plant of the Year.

PAUL'S NEW DOUBLE THORN.—Colour bright crimson, vivid, and double, 10s. 6d. each, usual allowance to Trade when three are taken.

Awards: First-class Certificates International Exhibition and Royal Botanic Societies.

PAUL & SON beg to invite orders ere close of planting season for this unique novelty. Since last Advertisement the following leading Nurserymen have ordered it:—

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Old Cheshunt Nurseries, N.

Arborvitæ, Aucubas, Box, Yews, &c.

THOMAS WARNER begs to remind intending planters and the Trade, that he has a very extensive stock of the above, all in fine health and vigour. See CATALOGUES, Wholesale or Retail. Leicester Abbey Nurseries.

Scarlet Chestnuts, Standard Elms and Thorns, &c.

THOMAS WARNER begs to refer purchasers of the above to the extremely low prices at which they are quoted for the present season. See CATALOGUES, Wholesale or Retail. Leicester Abbey Nurseries.

Maiden and Dwarf-trained Fruit Trees, &c.

THOMAS WARNER begs to state that he has still an extensive stock of the above, more particularly of APPLES, CHERRIES, PEACHES, and NECTARINES. Also of HOUGHTON CASTLE CURRANTS.

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Abies Douglasii.

WILLIAM BARRON begs to offer beautiful well-grown and finely rooted Plants of the above as under:—

ABIES DOUGLASII, 2 to 3 feet, 90s. per 100.
" " 3 to 4 feet, 18s. per doz.
BERBERIS DARWINII, 6 to 9 inches, 6s. per 100.
" WALLICHII, 2-yr., 9s. per 100.

Both fine for lawn and cover planting; bearing a profusion of orange-coloured flowers and purple berries, of which pheasants are remarkably fond.

Elvaston Nurseries, Borrowash, Derby.

BIRCH, 3 to 5 feet, fine, twice transplanted, 45s. per 1000
HAZEL, from Spanish Seed, 2 to 3 feet, fine, once transplanted, 18s. per 1000
SPANISH CHESTNUT, 1 to 2 feet, once transplanted, 18s. per 1000
HORSE CHESTNUT, 1 foot, once transplanted, 18s. per 1000
Samples sent on application.
T. JACKSON & SON, Nurseries, Kingston, S.W.

LARCH, SILVER FIR, &c.

LARCH, 1½ to 2 feet, 8s. per 1000; 2 to 3 feet, 10s.; 3 to 4 feet, 12s. 6d.
SILVER FIR, 6 to 12 inches, 4s. per 1000.
SCOTCH FIR, native, 6 to 12 inches, 5s. per 1000.
LIST of other TREES sent on application.
Apply, with reference, to J. RIDDELL, Park Attwood, Bewdley, Worcestershire.

Planting Season

LARCH (Native and Tyrolese), SCOTCH FIR (True Native), SPRUCE, OAK, ASH, ALDER, BEECH, PRIVET, and all kinds of FOREST and ORNAMENTAL TREES and SHRUBS, ROSES, FRUIT TREES, fine specimen ARAUCARIAS and DEODARS, and large TREES for Park Planting, now in fine condition for removal.

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ONE HUNDRED THOUSAND COMMON LAURELS, fine bushy plants, from 3 to 7 feet high; good for Blinds, particularly for newly laid-out Grounds and Buildings. These Laurels are very fine, and have not suffered from the frost.

Also 5,000,000 of Two-year SEEDLING ASH and CHESTNUTS, ROSES, and other varieties of Shrubs.

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300,000 Hazel, Transplanted.

J. SCOTT, Merriott, Somerset, has the above to offer, in fine condition, 2 to 2½ ft., 25s.; 2½ to 3 ft., 27s. 6d.; 3 to 3½ ft., 30s.; 3½ to 4 ft., 35s.; 4 to 5 ft., 40s. per 1000.

FOREST TREES, twice and thrice Transplanted, in all sizes. Catalogues gratis.

CEDRUS DEODARA, 3 to 4 ft., 4 to 5 ft., 5 to 6 ft., and 6 to 7 ft., from 30s. to 60s. per dozen.

GREEN HOLLIES, 20,000 well-rooted, from 2 to 3 ft., and from 30s. to 40s. per 100.

FRUIT TREES, in 2000 sorts, and in all manner of training. The most complete collection in England.

A 92-page CATALOGUE, with large Supplement full of Fruit Tree information.

JOHN WATERER has to offer a quantity of very handsome AUCUBA JAPONICA, the whole of which are profusely covered with Berries.

1st Size are Plants 2 feet high, bearing 150 to 200 Berries.
2d Size, 1 foot 6 inches, with 100 to 125 Berries.
3d Size, 1 foot, with 40 to 50 Berries.
Price from 10s. 6d. each and upwards.
The American Nursery, Bagshot, Surrey.

Game Covert, Forest Planting, &c.

JAMES SMITH offers the following:—The RHODODENDRONS are fine bushy well-rooted Plants, fit either for Woods or Pleasure Grounds; the LARCH are fine stout Plants, better cannot be grown; also PRIVETS, LAURELS, BERBERIS (in sorts), SCOTCH, SPRUCE, and SILVER FIRS, ASH, OAKS, BEECH, BIRCH, PINUS AUSTRIACA, &c., all strong well-rooted plants, a PRICED CATALOGUE of which will be forwarded on application.

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Do. do., 9 to 15 inches, 18s. per 100; 160s. per 1000; per 10,000, £79.
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Do. HYBRIDUM, 6 to 12 ins., 30s. per 100; 290s. per 100.
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Forest Trees and Cover.

JOSEPH SMITH, JUN., has to offer at very moderate prices TRANSPLANTED ASH, ALDER, BIRCH, HORSE CHESTNUT, ELM, broad and narrow-leaved; SILVER and SCOTCH FIRS, WHITE AMERICAN SPRUCE, HAZEL, OAK, POPLAR, PRIVET, WEYMOUTH and AUSTRIAN PINES, THORN QUICKS, HUNTINGDON and DUTCH WILLOWS, LARCH, good stout plants, 1½ to 2 feet, 12s.; 2 to 2½ feet, 13s.; 2 to 3 feet, 14s.; and 3 to 4 feet, 16s. per 1000. NORWAY SPRUCE FIR, 6 to 9 inches, 6s.; 9 to 12 inches, 9s.; 1 to 1½ feet, 14s.; 1½ to 2 feet, 21s.; and 2 to 2½ feet, 30s. per 1000. COPONEASTER MICROPHYLLA, 1 to 1½ feet, 20s. per 1000; 1½ to 2 feet. RIBES in sorts, 2to 3 ft., 20s. per 1000. SNOWBERRY, 2 to 3 ft., 20s. per 1000. BROOM, White and Yellow, transplanted, 15s. per 1000. LAURELS, BERBERIS, ARBOR-VITÆ, &c., Seedling ASH, CRAB, SPANISH CHESTNUT, SPRUCE, 3 and 4 years; ELM, 2 years, £5 per 100,000. OAKS, 1 and 2 years; OAK, EVERGREEN, 1 year; PRIVET, 1 and 2 years; SYCAMORE. RHODODENDRON PONTICUM, 2 years, 6s.; 4 years, 8s. per 1000; 3 years, and 1 year transplanted, 18s; 3 years, and 2 years transplanted, 25s.; 6 to 9 inches, 50s.; and 9 to 12 inches, 60s. per 1000. Twice-transplanted, and bushy, 4 to 8 inches, 70s.; 8 to 12 inches, 95s.; 9 to 15 inches, 140s.; 1 to 1½ feet, 180s.; and 1½ to 2 feet, 260s. per 1000.

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TRANSPLANTED.—Alder, 1 to 2 ft., 7s. 6d.; 2 to 3 ft. 10s.; 3 to 4½ ft., 15s.; 4 to 6 ft., 20s.; Beech, 6 to 12 in., 7s. 6d.; Chesnut, Spanish, 1 to 2 ft., 17s. 6d.; Elm, 12 to 21 in., 5s.; Hazel, 1½ to 3 ft., 17s. 6d.; Oak, English, 6 to 12 in., 7s. 6d.; Balm of Gilead, 4 to 8 in., 7s. 6d.; Cembra, 6 to 12 in., 100s.; Larch, 1 to 1½ ft., 6s.; 1½ to 2 ft., 8s.; 2 to 3 ft., 10s.; 3 to 4 ft., 14s.; Scotch Fir, 2 yr. bedded, 6 to 12 in., 5s.; Silver Fir, 9 to 15 in., 12s. 6d.; Spruce, Norway, 6 in., 5s.; 1 to 1½ ft., 10s.; Thorn Quick, 9 to 18 in., 6s.; Sycamore, 1 to 1½ ft., 7s. 6d.; Walnuts, 6 to 15 in., 20s. per 1000.

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MARTIN AND SON, Cottingham and Hull, can yet offer a few thousands of very excellent quality. Price on application.

Ash, common, 3 to 4 feet.	Wellingtonias, 2 to 3 feet.
Alder, 3 to 4 feet.	Cupressus Lawsoniana, 2 to 5 ft.
Elms, Wych, 3 to 4 feet.	Plums, splendid Victorias, and
Elms, English, 3 to 4 feet.	others, 4 to 6 feet.
Larch, 3 to 4 feet.	Bedding Plants, Zonal and
Spruce, 1 to 2 feet.	other Pelargoniums, in any
Thujopsis borealis, 2 to 4 feet.	quantity.

LINCOLNSHIRE GEM PEA.—The very finest Dwarf Wrinkled Pea in cultivation, 2s. 6d. per quart. See Testimonials.

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200,000 RHODODENDRON PONTICUM and HYBRIDS, bedded, 2 to 3, 3 to 4, and 4 to 6 inches, finely rooted.
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50,000 " " " 2 years.
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10,000 BERBERIS EMPETRIFOLIA, 3 years.
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TRANSPLANTED.

30,000 BEECH, 2 to 3 and 3 to 4 feet.
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NO PERSON should OVERLOOK the following OFFER at this favourable season for PLANTING:—

20,000 1 year English Laburnums	5,000 Spiræa callosa, strong
10,000 1 yr. Spartium junceum	5,000 Thujopsis dolabrata, 4 to 12 ins.
20,000 1 yr. Berberis Darwinii	10,000 Spruce Firs, 1½ to 3 feet
20,000 1 yr. Mahonia Aquifolium	2,000 Picea Nordmanniana, 1½ to 3 feet
10,000 1 yr. Berberis japonica	20,000 Rhododendron ponticum, 15 to 20 in., as far through
100,000 1 yr. Thorns	10,000 Larch Firs, 2 to 2½ feet
150,000 1 yr. Spanish Chestnut	10,000 Quicks, strong
50,000 1 yr. Cupressus Lawsoniana	5,000 Dwarf H.P. and other Roses, fine
10,000 1 yr. Spanish Oak	1,000 Grape Vines from eyes, Black Hamburgh, and good kinds
The above are Seedlings.	3,000 Lilium giganteum, strong bulbs
10,000 Berberis japonica, 6 to 12 ins.	20,000 Finest named Rhododendrons
10,000 Skimmia japonica, 6 to 9 ins.	
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15,000 Deutzia crenata flo.-pleno, 12 to 20 ins, bushy	
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A General Assortment of NURSERY STOCK.

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YOUELL AND CO. beg to offer strong Plants of the above at the following low prices:—

2-yr., very fine, 10s. per 1000 | 3-yr., extra fine, 15s. per 1000

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GIANT ASPARAGUS PLANTS, the best that money can procure, 2s. 6d. per 100.—This delicious vegetable does not require half the expense usually incurred in planting it.

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Extra strong SEA KALE, 2s. per doz.

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2-yr. GIANT ASPARAGUS ROOTS, 1s. 3d. per 100; 10s. per 1000.
3-yr. GIANT ASPARAGUS ROOTS, 2s. per 100; 15s. per 1000.
GLADIOLUS BRENCHLEYENSIS, 10s. per 100; 84s. per 1000.
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PRIZETAKER GREEN MARROW PEAS, hand picked, 9s. per bushel; 70s. per qr.
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Transplanted GREEN HOLLIES, Seedling and Transplanted ASH, LABURNUMS, LILACS, &c, Price on application.

IVERY'S NONSUCH LETTUCE, the best Summer Variety in cultivation; will stand a month longer than any other kind without running to seed; 1s. per packet, sealed with initials W. I.

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"GENTLEMEN,—I have now grown your Norfolk Hero Cucumber for four years, and have found it far the best ridge Cucumber I ever met with.—Yours faithfully, "(Signed) J. A. COOMBS.

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Early Ashleaf Kidney Potatos.	Nonpareil Peas.
Essex Wonder do do	General Havelock do.
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Dwarf, Kidney, and Scarlet Beans	Veitch's Perfection do.
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ROYAL NURSERIES, GREAT YARMOUTH,

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FOR THE CULTURE OF GLADIOLUS BRENCHLEYENSIS.

Some idea may be formed how highly this variety is esteemed, when they state that this Season they have supplied upwards of 150,000 BULBS of the above, which is the finest and handsomest of this magnificent class. It is the MOST BRILLIANT and showy variety suited for SUMMER and AUTUMN DISPLAY, as the following Report from the *Gardeners' Chronicle* of September 8, 1866, will testify:—

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Y. AND CO. are still in a position to supply extra strong and sound Roots of the above at the following prices:—

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Half No. 1 Collection contains 50 Bulbs, in 25 ditto ditto	..	..	..	..	..	..	2	10	0
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Half No. 2 Collection " 50 Bulbs, in 15 ditto ditto	..	..	..	..	..	..	1	17	6
No. 3 Collection " 100 Bulbs, in 25 ditto ditto	..	..	..	..	..	..	2	10	0
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Fine Selections left to us, 9s., 12s., 18s., and 30s. per dozen.

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A new American variety, 30 days earlier than any other. Plant dwarf, compact and vigorous, producing immense crops. Tomatoes of medium size, round, brilliant red, quite smooth and free from ribs, perfectly solid, and of the most excellent flavour. They are produced in large clusters of 10 to 20 each, with from 7 to 20 clusters on each Vine, and ripen up together, so that the main crop is ripe and ready for market 30 days earlier than any other kind. The foliage has no odour. The Early Prolific is the most distinct and valuable Tomato yet produced.

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WHITE, GREEN, and RED GLOBE	1 11 0	0 16 0	0 8 6	0 4 6
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	Cwt.	Half Cwt.	Quarter Cwt.	14 lb.
LONG RED MANGEL	2 14 0	1 8 0	0 15 0	0 8 0
YELLOW GLOBE MANGEL	2 10 0	1 7 6	0 15 0	0 8 0
RED GLOBE MANGEL	2 14 0	1 8 0	0 15 0	0 8 0
FISHER HOBBS'S ORANGE GLOBE ..	3 10 0	1 17 6	1 0 0	0 10 6
WHITE BELGIAN CARROT	3 15 0	2 0 0	1 2 6	0 12 6
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ITALIAN RYE-GRASS	5*s.* per bushel, or 38*s.* per quarter.			
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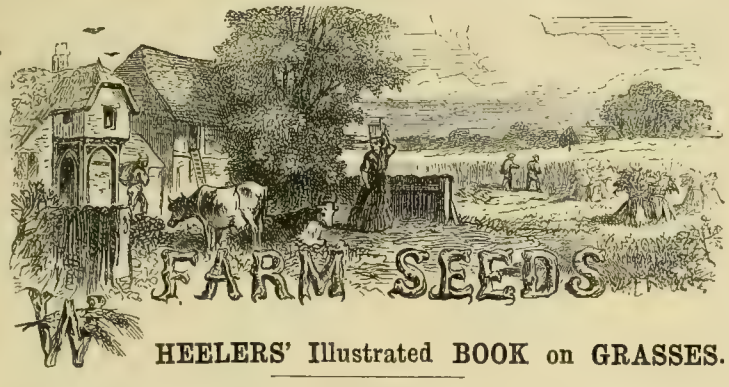
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THE "COLDSTREAM EARLY" POTATO, which received a First-class Certificate at the International Horticultural Exhibition at South Kensington, is the Earliest and Best round Potato in cultivation. 5*s.* 6*d.* per peck; 18*s.* per bushel, including bags. Trade price on application.

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SPENCER'S KING POTATO.—This excellent Potato having withstood the disease better than any other variety last season, the Subscriber has to offer about 300 Bushels of fine clean-grown Tubers, perfectly sound and free from disease, which he can with confidence recommend. For price, apply to

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Is one of the very Earliest, most Productive, and best flavoured Potatos in cultivation.

Price 3*s.* per peck, 10*s.* 6*d.* per bushel.

J. C. WHEELER & SON,

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Post Free.

	Per pkt.—*s.*	*d.*		Per pkt.—*s.*	*d.*
Broccoli, Snow's Imperial Winter	1	0	Moore's Vegetable Cream	0	6
Albert Sprouts	0	6	Beet, Perpetual Spinach ..	0	6
Cauliflower, Early Erfurt ..	1	0	„ Nutting's Superb Red	0	6
Celery, Manchester Champion Red	0	6	Lettuce, Wheeler's Tom Thumb	0	6
Cucumber, Smith's Fine Frame	1	0	Radish, French Breakfast	0	6
Cucumber, Telegraph ..	1	0	Aster, Truffaut's Superb French, 12 vars. mixed ..	1	0
Leek, Henry's Prize ..	0	6	Aster, Victoria, 6 vars. mixed	1	0
Endive, Digswell Prize ..	0	6	Stock, improved large-flowering, 12 vars. mixed.	1	0
Onion, Nuneham Park ..	2	6	Balsam, Camellia-flowered, 6 var. mixed	1	0
Parsley, extra fine curled ..	0	6	Balsam, Rose-flowered, 8 vars. mixed	1	0
Raphanus caudatus (new long-podded Radish) ..	2	6	Phlox Drummondii, 12 splendid varieties ..	1	0
Custard Marrow	0	6			
Melon, Malvern Hall ..	1	6			
Tomato de Layo	0	6			
Cauliflower, The Mammoth	1	0			

RICHARD SMITH, Seed Merchant, Worcester.

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CORN, SEED, MANURE, AND OILCAKE MERCHANTS,

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A DESCRIPTIVE PRICED CATALOGUE of NATURAL GRASSES as well as of CLOVER, TURNIP, and other FARM SEEDS, may be had on application to

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☞ CATALOGUES may also be had of VEGETABLE and FLOWER SEEDS, and FOREST, FRUIT, and ORNAMENTAL TREES, &c.

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Specimens of Hay may be seen at Messrs. Lawson & Son, 28, King Street, Cheapside. Seed can be obtained, price 2*s.* per lb. from our establishment, Biggleswade, Beds.; of Messrs. Peter Lawson & Sons, Seedsmen to the Queen, Edinburgh and London; Messrs. Sutton & Sons, Royal Seed Establishment, Reading; Messrs. Hurst & Son, Seedsmen, No. 6, Leadenhall Street, London; Mr. J. Scruby, Merchan ,&c., Epping, Essex.

To prevent disappointment early Orders are respectfully invited.

J. C. WHEELER AND SON, SEED GROWERS, Gloucester (Seedsmen to the Gloucestershire Agricultural Society), can very strongly recommend the following Mixtures:—

CLOVER and GRASS SEEDS for ONE YEAR'S LAY.

J. C. WHEELER & SON can supply this excellent Mixture—all of the finest quality—carriage free by Railway, at 15*s.* per acre.

lb.	lb.
3 Italian Rye-grass, Lolium italicum.	4 Evergreen Rye-grass, L. semperirens
1 Cocksfoot, Dactylis glomerata	7 Red Clover, Trifolium pratense
1 Timothy, Phleum pratense	7 Trefoil, Medicago lupulina

A cheaper Mixture at 10*s.* 6*d.* per acre.

CLOVER and GRASS SEEDS for TWO YEARS' LAY.

J. C. WHEELER & SON can supply this excellent Mixture for Two Years' Lay—all of the finest quality—carriage free by railway, at 18*s.* 6*d.* per acre.

lb.	lb.
4 Evergreen Rye-grass, L. perenne	3 Red Clover, Trifolium pratense
4 Italian Rye-grass, L. italicum	3 Cow Grass, T. pratense perenne
2 Cocksfoot, Dactylis glomerata	3 White Dutch, Tr. repens
1 Timothy, Phleum pratense	4 Trefoil, Medicago lupulina

A cheaper Mixture at 15*s.* 8*d.* per acre.

CLOVER and GRASS SEEDS for THREE or FOUR YEARS' LAY.

J. C. WHEELER & SON can supply this excellent Mixture—all of the finest quality—carriage free by Railway, at 24*s* per acre.

lb.	lb.
4 Evergreen Rye-grass, L. semperirens	2 Timothy, Phleum pratense
4 Pacey's Perennial, L. Pacey-anum [cum	3 Red Clover, Trifolium pratense
3 Italian Rye-grass, Lolium itali-	3 Cow Grass, T. pratense perenne
2 Cocksfoot, Dactylis glomerata	3 White Honeysuckle, T. repens
	1 Alsike, Trifolium hybridum
	4 Trefoil, Medicago lupulina

A Cheaper Mixture at 21*s.* per Acre.

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Mrs. Pollock, 7s. and 9s. per doz. | Sunset, 21s. per doz.
Italia Unita, 21s. per doz. | Mrs. Benyon, 24s. per doz.
In strong plants at the above prices for Cash, package included.
Remittance required from unknown Correspondents.
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L'ELEGANTE.—Leaves green, margined with creamy-white; flowers white. 10s. 6d. each; six plants, £3.
DERBYSHIRE HERO (Zonal).—Bright cerise.
STAFFORD GEM (Zonal).—Orange-scarlet.
SCARLET CHRISTINE (Plain-leaved).—Bright cerise, shaded with purple.
ROSE MAGENTA (Nosegay).—Fine habit, good bedder.
5s. each, set of four for 15s.
The above to be sent out after April 20.
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To the Trade.

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T. J. BOOTH solicits Orders for the above, to deliver on and after the first week in May. Nice plants, with 6 to 10 leaves, well up in colour, for cash, per dozen, 7s.; 100, 50s.; 500, £12; 1000, £22. SUNSET, 18s. per dozen; £6 per 100.
Rainhill Nursery, Rainhill, Lancashire.

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SPRING CATALOGUE, now ready, and may be had on application.
1000 DAHLIAS in Pot Roots, cheap.

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SUNSET	VARIEGATED LITTLE DAVID
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The above, one of each, good plants, for 10s.
Twelve of the finest ZONAL and NOSEGAY GERANIUMS of 1866, in 12 sorts, distinct, for 10s.
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SUPERB VARIEGATED GERANIUMS.

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BEAUTY of OULTON, LIGHT and SHADOW, SOPHIA CUSACK, BEAUTY of GUESTWICK, GENERAL LONGSTREET, and SOPHIA DUMARESQUE. One each, 42s., package included.
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New Tricolored Geraniums.

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Two £5 Prizes for the Collection	Crystal Palace.
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Strong seasoned Plants now ready.
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6 Varieties AUCUBAS, 3 Male, 3 Female, for 21s.
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BROWN'S INVINCIBLE SCARLET SWEET PEA, per packet, 6d.; per oz.	1	4

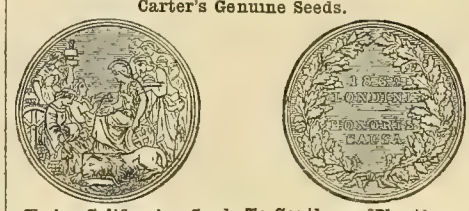
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JAMES CARTER AND CO. have just received splendid BULBS of the above, in finer condition than any imported for some time, and said to contain many highly-coloured varieties. This incomparable Lily has for some time been very scarce, but we can now offer fine Flowering Bulbs, true to name, at the following prices:—1st size, 3s. 6d.; 2d, 2s. 6d.; extra strong large Bulbs, 1st size, 7s. 6d.; 2d, 5s.; a few of the finest, very large and strong, 10s. 6d. each.
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15 Varieties, Selected Hardy Annuals		2s.	6d.
30 " " " "		5	0
50 " " " "		10	0
100 " " " "		20	0
12 Varieties, Selected Half-hardy Annuals		4	0
25 " " " "		7	6
15 " " " "		15	0
100 " " " "		30	0
6 Varieties, extra selected New Annuals 1867		5	0
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15 Varieties, selected Hardy Perennials		3	6
25 " " " "		6	6
50 " " " "		12	6
100 " " " "		25	0
12 Varieties, selected Half-hardy Perennials		4	0
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COMPLETE COLLECTION of VEGETABLE SEEDS for One Year's Supply, 63s., 42s., 30s., 21s., and 10s. 6d.
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CATALOGUE containing details of above Collections, Post Free
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STANDARD GERANIUMS.

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FIFTEEN FIRST PRIZES and TWO SECOND PRIZES were awarded to the above on the 19th of March last. Plants on Sale and Orders taken from the 26th March to the 6th April; both days inclusive.

FOUR HUNDRED and FIFTY RHODODENDRONS,

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Apply to HENRY CLARKE & SONS, 30, King Street, Covent Garden, London, W.C.

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WATERER AND GODFREY'S PRICED and DESCRIPTIVE CATALOGUE of RHODODENDRONS and other American Plants for this Autumn, will be sent on application. The Catalogue also gives a summary of their General Nursery Stock, probably the most extensive in the kingdom.
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FINEST RHODODENDRONS.

Seedlings, raised exclusively from finest named Plants, of all colours, will be forwarded, post free, at the following rates:—50 2-yr. old, 3s. 6d.; 50 1-yr. old, 2s. 6d., on receipt of Postage Stamps for the amount, addressed to
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direct from the Continent. Reine Marguerite is the most beautiful Aster grown; 500 seeds, 1s. TRUFFAUT'S DWARF PEONY-FLOWERING, mixed colours, 500 seeds, 1s. Also, DWARF TEN-WEEK STOCKS, extra double; 500 seeds, 6d. Choice Double BALSAMS, 6d. per packet. All genuine imported Seeds. Mr. HAMMOND, Bedwin Street, Salisbury.

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EDWARD SANG AND SONS, NURSERYMEN and SEED MERCHANTS, Kirkcaldy, N.B., offer strong autumn struck Plants, in single pots, of this new well-known and universally admired BEDDING-OUT CALCEOLARIA. Price 12s. per dozen.
Early orders will oblige and have their careful attention.
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ADAM FORSYTH'S CATALOGUE is now ready, containing a Descriptive List of all the best varieties; also a Practical Treatise on the Cultivation of the Chrysanthemum. Forwarded to all applicants for one stamp.
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This List Free by Post or one stamp. Seeds direct from the Growers the surest way to success.
RICHARD SMITH, Seed Merchant, Worcester.

NEW BEDDING PLANT: IRESINE HERBSTII AUREO-RETICULATA.

—Plants of the above distinct and beautiful variety (which obtained a First-class Certificate at South Kensington last week) 2s. 6d. each, 18s. per dozen, with usual discount to the Trade.
CUPRESSUS LAWSONIANA SEED of good growing quality. Price on application.
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BARR & SUGDEN,

THE METROPOLITAN SEED, BULB, AND PLANT WAREHOUSE,

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FLOWER SEEDS.—The best sorts for present sowing, as supplemental where there is a deficiency of Bedding-out Plants, sent post paid, in Collections, *3s. 6d.*, *5s. 6d.*, *7s. 6d.*, *10s. 6d.*, *15s.*, and *21s.*

KITCHEN GARDEN SEEDS.—The best varieties in Collections, *10s. 6d.*, *15s.*, *21s.*, *30s.*, *42s.*, and *63s.*

FARM SEEDS, saved from pure stocks.—Mangel Wurzel, Swedish Turnip, Yellow-flesh Turnip, White-flesh Turnip, Carrots, Parsnip, Cabbage, Blundell's Cattle Melon, Marrow, &c.

GRASS SEEDS and CLOVERS, finest sorts only, for Laying Down Permanent Pasture on Light, Heavy, or Medium Soils, *with or without a crop*, *32s.* and *36s.* per acre.

Finest LAWN GRASS, *1s. 3d.* per lb.

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STANDEN'S "GARDENERS' and AMATEURS' FRIEND," a highly Concentrated Inodorous Artificial Manure, in all cases inducing free vigorous growth, and promoting early maturity. This Manure is now largely used by Nurserymen in growing pot Vines. They can produce finer canes with it than with liquid manure, and at a less cost, the price not being one-tenth the expense of labour incurred in applying the latter; and besides this, there is not that variability in the results of the "Gardeners' and Amateurs' Friend," as there is in those of liquid manure. This Manure is now used by the leading exhibitors.

DIRECTIONS FOR USE.

FOR PLANTS in POTS—Such as Camellias, Azaleas, Eriostemons, Acacias, Chrysanthemums, Roses, Ixoras, Francisceas, Allamandas, Dipladenias; fine foliage plants, as Palms, Rhopalas, Dracænas, &c., and all plants which are benefited by Manure.

Sprinkle the Manure on the surface of the soil, in the proportion of a large-sized table-spoonful to a plant in a 19-inch pot. The best time to apply the Manure to most plants is when they are starting into growth, but in the case of Allamandas, Dipladenias, and plants which are apt to make too much wood before setting for bloom, it should not be applied until the bloom-buds are fairly set. Strong growing plants, as Camellias, Azaleas, &c., should have several applications during the season, at intervals of a few weeks, while weak-growing plants will not require more than one application during the season. In applying the Manure it should not be allowed to touch the foliage, and special care should be taken for the first few waterings after the Manure has been applied, not to float it over the edge of the pot.

FOR FRUIT TREES and ROSES in POTS—Such as Vines and Orchard-house Trees generally.

Sprinkle the Manure upon the surface of the soil, at the rate of a large table-spoonful to a plant in a 15-inch pot, and repeat the application several times during the season, at intervals of about a fortnight or three weeks. Care should be observed in watering not to float the Manure out of the pot, particularly for the first few waterings after it has been applied. To growing Vines it should be given as soon as they are fairly started into growth: while to Vines and other fruit-bearing plants in pots carrying a crop, it should be given after the fruit is fairly set, to assist the swelling and maturing of the crop. To Roses in pots the Manure should be given as soon as they are fairly started into growth, and again after the buds are set. If a second bloom is expected, a third application will be desirable.

For VINE BORDERS and PLANTS in the OPEN GROUND—Such as Apples, Pears, Peaches, Gooseberries, Strawberries, Standard and Dwarf Roses, Celery, Onions, Cauliflower, and all Vegetables and Flowers which will require abundance of Manure.

Sprinkle the Manure upon the surface of the soil, over the roots, at the rate of a large table-spoonful to a square yard, and rake or hoe it in, and repeat the application two or three times at intervals of a few weeks. Young trees, if more inclined to make wood than to set fruit buds, should have the Manure applied as soon as they are fairly in leaf, or not at all; while to trees carrying heavy crops it should be applied later in the season, to assist in swelling and maturing the fruit. To Vine borders it should be applied after the fruit is stoned, watering it in, if the border is dry, and two or three applications should be given at intervals of about a fortnight. To Roses, apply it as soon as they are fairly started into growth, and again after the first bloom, and water it in if the soil is dry. It should be given to vegetables as soon as they are fairly started into growth, repeating the application two or three times at short intervals.

FOR LAWNS where the GRASS DOES NOT THRIVE.

Mix the Manure with an equal quantity of dry soil or sand, and sow it over the surface in showery weather, at the rate of 1 oz. to the square yard; or, if the weather be dry, water freely two or three times after applying the Manure.

Sold in Canisters at *1s.* and *2s. 6d.*, and in Bags, *5s. 6d.*, *10s. 6d.*, and *21s.*

The above valuable Manure may be had of the leading Nurserymen and Seedsmen in England, Ireland, and Scotland. The following are mentioned as a few of the appointed Agents:—

Messrs. James Veitch & Sons, Chelsea.
" E. G. Henderson & Son, St. John's Wood.
" Hugh Low & Co., Upper Clapton.
Mr. John Standish, Ascot.
" Charles Turner, Slough.
Messrs. James Carter & Co., High Holborn.
" Downie, Laird & Laing, Forest Hill and Edinburgh.
" Hooper & Co., Covent Garden
" J. & C. Lee, Hammersmith.
" B. S. Williams, Paradise Nursery, Holloway.
" W. Dean, Bradford.
" C. Felton, Erdington, Birmingham.
" S. May, Leeds.
" W. Dillistone, Hedingham, Essex.
Mr. F. G. Godwin, Sheffield.
" J. Scott, Yeovil, Somerset.
" J. J. Chater, Cambridge.
" Charles H. Dickson, Manchester.
" R. Dean, Ealing.
" William Cuthbush, Barnet.
" Macintosh, Hammersmith.
" W. Barnes, Camberwell.
" George Davies, Nurseryman, Old Swan, Liverpool.
" Richard Smith, Worcester.
" Cooling, Derby.
Messrs. Smith & Son, Aberdeen.
" John Kearsley & Sons, Leeds.
" Jackson & Son, Kingston-on-Thames.
" Dickson & Brown, Manchester.
" J. & W. Shaw, Swansea.
" Stuart & Mein, Kelso

BARR AND SUGDEN,
12, King Street, Covent Garden, W.C.

ROYAL HORTICULTURAL SOCIETY.—SHOW of CAMELLIAS, HYACINTHS, and SPRING FLOWERS, TUESDAY, March 19.

AWARDS of the JUDGES.

CLASS 1.—18 HYACINTHS, distinct. (Nurserymen.)
1st Prize, Mr. W. Paul, Paul's Nurseries, Waltham Cross, N., *£1 10s.*
2d, Messrs. W. Cutbush & Son, Nurserymen, Highgate, N., *£1.*
3d, Mr. W. Cutbush, Jun., Nurseryman, Barnet, *10s.*
Equal do., Mr. J. Kirtland, Albion Nursery, Stoke Newington, *10s.*

CLASS 2.—12 HYACINTHS, 6 kinds. (Amateurs.)
3d, Mr. W. Bartlett, Shaftesbury Road, Hammersmith, *10s.*

CLASS 3.—6 HYACINTHS, distinct. (Open).
1st, Mr. W. Paul, *£1.* | 2d, Mr. W. Cutbush, Junior, *15s.*
3d, Mr. T. Kirtland, *10s.*

CLASS 4.—6 HYACINTHS, distinct, grown in Windows, in Pots. (Amateurs.)
1st, Mr. J. Beach, Gr. to C. J. Herries, Esq., St. Julians, Sevenoaks, *£1.*
2d, Mr. W. Bartlett, *15s.*

CLASS 5.—6 HYACINTHS, grown in Windows, in Glasses. (Amateurs.)
1st, Mr. W. Rumsey, Waltham Cross, *£1.*
3d, Mr. J. Beach, *10s.*

CLASS 6.—6 HYACINTHS, new kinds of 1866-67. (Open.)
1st, Mr. W. Paul, *£1.*

CLASS 7.—6 NARCISSI, distinct. (Open.)
1st, Messrs. W. Cutbush & Son, *£1.*
2d, Mr. W. Bartlett, *15s.*

CLASS 8.—12 POTS of TULIPS, 6 kinds. (Nurserymen.)
1st, Mr. W. Paul, *£1 10s.* | 2d, Messrs. W. Cutbush & Son, *£1.*
Equal 2d, Mr. J. Kirtland, *£1.*

CLASS 9.—12 POTS of TULIPS, 4 kinds. (Amateurs.)
1st, Mr. W. Bartlett, *£1 10s.*

CLASS 10.—CROCUSES, Collection of. (Nurserymen.)
1st, Mr. W. Paul, *15s.*

CLASS 11.—CROCUSES, 12 POTS of. (Amateurs.)
1st, Mr. W. Bartlett, *15s.*

CLASS 12.—6 FORCED HARDY SHRUBS. (Open.)
1st, Mr. W. Paul, *£3.* | 2d, Mr. W. Bartlett, *£2.*

CLASS 13.—6 POTS of LILY of the VALLEY. (Open.)
1st, Mr. W. Howard, Gr. to J. Brand, Esq., Bedford Hill, Balham, *£1.*
2d, Mr. T. Todman, Gr. to R. Hudson, Esq., Clapham Common, *10s.*
Equal do., Mr. W. Paul, *15s.*
3d, Mr. W. Cutbush, Jun., *10s.* | 4th, Mr. W. Bartlett, *7s. 6d.*

CLASS 14.—6 CHINESE PRIMULAS, various Colours. (Open.)
1st, Mr. J. Wiggins, Gr. to W. Beck, Esq., Worton Cottage, Isleworth, *15s.*
2d, Mr. G. Fairbairn, Sion House Gardens, Isleworth, *10s.*
3d, Mr. T. Todman, *5s.*

CLASS 15.—3 CHINESE PRIMULAS. (Open.)
1st, Mr. J. Wiggins, *10s.* | 2d, Mr. T. Todman, *5s.*
3d, Mr. G. Fairbairn, *3s. 6d.*

CLASS 16.—12 CAMELLIAS, Cut Blooms, distinct. (Open.)
1st, Mr. W. Paul, *£1.* | 2d, Mr. T. Todman, *15s.*

CLASS 17.—6 CAMELLIAS in FLOWER, distinct. (Open.)

CLASS 18.—3 CAMELLIAS in FLOWER, distinct. (Amateurs.)

CLASS 19.—4 CAMELLIAS in FLOWER, distinct. (Nurserymen.)
1st, Mr. W. Bull, Nurseryman, Chelsea, *£2.*

CLASS 20.—CAMELLIA, Single Specimen. (Open.)
1st, Mr. W. Bull, *£1.*

CLASS 21.—3 GREENHOUSE ACACIAS, distinct. (Open.)

CLASS 22.—3 EPACRISES, distinct. (Open.)

CLASS 23.—6 CYCLAMENS. (Amateurs.)
1st, Mr. J. Wiggins, *15s.* | 2d, Mr. G. Fairbairn, *10s.*
3d, Mr. T. Todman, *5s.*
Equal do., Mr. J. Butter, Gr. to B. Hooke, Esq., Morville Lodge, Fulham, *5s.*

CLASS 24.—COLLECTION of CYCLAMENS. (Open.)
1st, Messrs. E. G. Henderson & Son, Wellington Nursery, St. John's Wood, *£1 10s.*
2d, Mr. J. Wiggins, *£1.* | 3d, Mr T. Todman, *10s.*
First-class Certificate, Mr. J. Butter.

CLASS 25.—MISCELLANEOUS COLLECTION of PLANTS in FLOWER. (Open.)
1st, Mr. W. Bull, *£1 10s.* | 2d, Mr. W. Cutbush, Junior, *£1.*
3d, Mr. W. Bartlett, *10s.*

Extra, Messrs. Paul & Son, Cheshunt, for Collection of Pot Roses, *£1 10s.*
Extra, Mr. W. Paul, for Collection of Hyacinths, *£1 10s.*
Extra, Mr. W. Paul, for Collection of Tulips, *£1.*
Extra, Mr. W. Paul, for Collection of Narcissi, *£1.*
Extra, Mr. W. Paul, for Collection of Roses, *£1 10s.*
Extra, Mr. W. Paul, for Collection of Cut Roses, *£1.*
Extra, Mr. W. Bartlett, for Collection of Spring Bulbs, *10s.*
Extra, Mr. W. Bartlett, for Collection of Filmy Ferns, *10s.*
Extra, Mr. W. Cutbush, Jun., for Six Pots of Mignonette, *10s.*
Extra, Mr. W. Bull, for Two Aucubas, *10s.*
Extra, Mr. T. Todman, for Collection of Pot Roses, *10s.*
Extra, Mr. T. Todman, for Collection of Small Azaleas, *10s.*

GRAND HORTICULTURAL EXHIBITION at BURY ST. EDMUND'S, in connection with the SHOW of the ROYAL AGRICULTURAL SOCIETY, JULY 15, 1867, and four following Days.

Amongst various Special Prizes, amounting in value to nearly £300, and exclusive of the ordinary Prize Schedule,

A SILVER CUP, VALUE £20,

will be offered by the Proprietors of the

GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE

for the best COLLECTION of FRUITS and VEGETABLES, to be made up as follows:—

Of FRUITS, any Five of the following Eight kinds, one Dish of each:—Grapes, Melons (2 fruits), Strawberries, Gooseberries, Currants, Cherries, Raspberries, or Apples (of the crop of 1866).

Of VEGETABLES, any Eight of the following Fourteen kinds, one basket or bundle of each:—Peas, French Beans (or Scarlet Runners), Broad Beans, Cauliflowers, Cucumbers (brace), Summer Cabbages, Early Carrots, Turnips, Artichokes, Onions, Spinach, Rhubarb, Potatos, or Mixed Salading.

This Cup will be open to Competition amongst Amateur or Professional Gardeners, of all grades, with Fruit and Vegetables of *their own growing*; any article otherwise obtained will disqualify the exhibitor.

The Gardeners' Chronicle.

SATURDAY, MARCH 23, 1867.

MEETINGS FOR THE ENSUING WEEK.

TUESDAY, March 26 { Royal Horticultural (Mr. Wm. Paul's Lecture on Spring Flowers), at South Kensington .. .. 3 P.M.
TUESDAY, — 26 to SATURDAY, April 6 { Ditto (Mr. Wm. Paul's Exhibition of Spring Flowers), at ditto.
SATURDAY, March 30 { Ditto, (Dr. Masters' Lecture on Plant Architecture), at ditto .. .. .. 3 P.M.

THE FLORAL CAMPAIGN of 1867, which, as far as the metropolis is concerned, began on Tuesday last at South Kensington, and in the Scottish capital on the following day, has opened under conditions brilliant and pleasant enough, so far as the array of flowers in-doors was concerned, but finding a disagreeable contrast in the war of the elements which for the greater part of the time raged on the outside; blinding snow-flakes, biting easterly winds, and pitilessly pelting sleet storms, having had complete ascendancy in the outer world. Let us hope that true to its proverbial character, the present month, having spent its fury, may in the end become peaceable and lamblike, and that such a change for the better in the condition of March weather may typify more genial days for flower Shows during the rest of the season.

The leading feature of the exhibitions of flowers held at this season of the year is usually presented by Dutch bulbs, and that of Tuesday was no exception to the rule, though these were supplemented by a charming display of Primulas, Roses, Cyclamens, Lilies of the Valley, and such like spring flowers. The Hyacinths shown by growers for sale were especially fine; those which formed the principal prize group, furnished by Mr. W. PAUL, being marvellous examples of high cultivation, quite eclipsing the admirable examples shown in previous years, both by himself and by his principal opponent, Mr. CUTBUSH, who on this occasion was completely distanced. There was observable in these winning flowers that vigour of growth, that richness of colouring, that symmetry of spike, that boldness of "pip," and altogether that perfection of finish, which, while it delights the eye of the critical cultivator, never fails to charm the admiring visitor. The details of the display of bulbs will be found at p. 295, but we may in this place refer to some remarkable novel Hyacinths, also from the collection of Mr. W. PAUL, which attracted much observation. Foremost amongst them on the score of quality was one named Blondin, a silver grey, quite a novel colour among these flowers, being many shades paler than the lightest of the grey-blues previously grown, the tinting, pale though it is, being rather of violet than of azure. This excellent variety has a remarkably bold spike, and the individual flowers, or "pips," are large, smooth, and well recurved, just thick enough to stand closely, but without crowding, on the spike, which is thus rendered complete and perfect. It is perhaps in quality, taking all points into view, the finest Hyacinth known. Prince Albert Victor is another acquisition of sterling merit, not quite so bold in character as Blondin, but equally smooth in the flowers, which form a close symmetrical spike, and are of a rich sanguineous tint, with a darker streak on each segment. Another called Linnæus, a rich magenta crimson, is most attractive in colour, but like the bright-coloured Vuurbaak of last year (generally mis-spelt Vunxbaak, but properly Vuurbaak, or Fire-beacon) has the fault of crowding in the spike, and of incurving at the tips of the too narrow segments, which gives undesirable roughness to the spike; these qualities, however, seem at present to be inherent in the class of high-coloured reds, Prince Albert Victor being a notable exception. Linnæus will, we doubt not, find many admirers on account of its brilliant colour. A fourth very distinct sort, valuable on that very ground, though not perfectly novel, was named Lord Shaftesbury; it is a white, and has probably the largest bells of any Hyacinth—bells, too, of fine shape and substance, presenting a grand and noble appearance; but like those of most of the larger-flowered sorts, hanging rather too thinly on the stem. These four, with the acquisitions of last year, show that the Dutch bulb raisers are moving onwards with the age, though the rearing of new Hyacinths for the market is slow and tedious work for them.

To-day the Royal Botanic Society holds its first Spring Show, and Mr. CUTBUSH opens a grand Exhibition of Bulbs at the Crystal Palace; while on Tuesday next Mr. W. PAUL inaugurates his fortnightly Show of Spring Flowers at the Royal Horticultural Gardens. Thus the floral campaign has opened in earnest, and exhibitors will now have little rest till the Show season is over. Fortunately for them, as also for sight-seers, it closes early in London, but it is a hard fight while it lasts, and none should grudge the winners either their honours or their rewards.

IT may, we think, be laid down as a principle in gardening, that, given a certain average amount of care and skill, the reputation of the gardener will be maintained and enhanced in direct proportion to the success with which he carries out some one or more special objects. In private gardens or in small establishments this combination of general good management, with more than average excellence in some one or more departments, is not infrequent. But in the case of large public establishments, like the BOTANIC GARDENS at Kew, the Annual Report

concerning which we published last week (see p. 266), or Glasnevin, or Edinburgh, not only is a high general standard of excellence demanded, but also special attention to a great number of matters which do not come within the scope of ordinary gardens. If success be obtained in such cases, large is the merit, great the honour.

A garden such as those we have mentioned should present an epitome (in so far as it is practicable) of all departments of Botany and Horticulture—scientific, practical, and æsthetic or ornamental. Obviously, in a scientific point of view, the aim should be high, because no private or small establishment is capable of carrying out the desired ends except on a very small scale. Under this head may be included the culture of such plants as afford good illustrations of the ordinary floral structure and conformation; and if in such a garden examples of the general structure of flowers be desirable, how much the more requisite is it that those unusual and often most instructive forms, which the student is not likely to be able to procure for himself, should be included? A similar remark of course applies in the case of systematic botany; selected specimens of as many of the great groups as possible should be grown, and as a rule it would be better to have a large number of the main groups fairly illustrated than to have a small number of sections with very numerous illustrations of each. This multiplication of individuals of one family is laudable enough in the case of small establishments, where it may not be possible to have representatives of many families; but even then the disproportionate representation of some one or two families gives rise to a false impression as to their numerical importance and value. Under this head, too, may be discussed the geographical distribution of plants. Not only is it desirable for botanical purposes that an attempt should be made to arrange plants according to the regions whence they come, but much general interest is thereby excited. Many who know little about botany or horticulture, yet have their attention arrested by well-arranged groups of Australian or Japanese, of arctic or of tropical plants. Question some of the more intelligent sightseers who visit Kew for instance, and inquire what departments strike them most, and in most cases it will be found that the greatest gratification is derived from those portions where some principle of arrangement, other than those of mere convenience of grouping, is followed—for instance, the Succulent House. What an excellent idea is there conveyed of the vegetation of hot, dry countries. What a reproduction of one of those "aspects of Nature" on which HUMBOLDT loved to dwell! And on a smaller scale, and in a less degree, the houses devoted to the Begonias, the Heaths, the Mesembyanthemums, &c. Here are chapters on systematic and geographical botany illustrated far more completely than in any book. To a great extent then, it is obvious, notably so in the case of Ferns, that the scientific and the æsthetic portions go hand in hand.

The difficulties in the way of getting together even a tolerably complete collection of wild plants seem only to be exceeded by the difficulty of keeping them when they have been obtained, and from the many failures we have seen in various gardens in the attempt to illustrate our national flora, we should be inclined to advocate the abandonment of the attempt, except in so far as illustrations of the orders are concerned. In connexion, however, with wild plants, there is one thing that would be as well, if not better, carried out in a small establishment as in a large one—the proving of specific forms. Cultivation often obliterates the distinction between so-called species, or at other times it confirms their independence. Still, as a general rule, the study of wild plants can be better carried on in the field or in the herbarium, than in the garden.

"Economic plants," those which minister directly to the wants and luxuries of mankind, should be as fully represented as possible. The collection at Kew is already attractive to visitors, but is on a scale too small to be commensurate with the intrinsic importance of the subject, or to be in due proportion to the other departments of the garden. This deficiency is to some extent compensated for by the extent and excellence of the Museums, which furnish the best answers that can be given to the *cui bono* class of people. It is only to be regretted that the collections cannot be massed into one large building, instead of being scattered over three. There are other points in connection with the special relations of botanic gardens to horticulture and to physiological science that we must leave for the present, in the hope of soon reverting to them.

—— WE are requested to bring under the notice of our readers the fact that the Municipality of the CITY of PARIS has recently decided that a number of young men shall be received as PUPILS in its HORTICULTURAL ESTABLISHMENTS, where provision is made for that purpose. Students should have some slight knowledge of practical horticulture, and should not be less than 18 years of age. They must be of good character, and will have to conform to the regulations of the establishment, and will be allowed remuneration for their work at the rate of 65 francs a month. The arrangements are so framed that each pupil will be enabled to study all branches of plant culture. Application should be made before the 1st of March in each year, or in the case of the present year before the 31st inst., to M. ALPHAND, Ingénieur en Chef, Avenue d'Eylau 137, Paris.

—— We have been favoured by a correspondent with the following account of the IMPERIAL BOTANIC GARDEN OF ST. PETERSBURGH:—After the death of CARL ANTON MEYER, Dr. FISCHER'S successor in the direction of the Imperial Botanic Garden, the duties of the office were divided between two persons, a scientific Director, Dr. REGEL, to whom the strictly botanical department and technical operations were confided, and an official Director, Baron KÜSTER, who conducted the financial and administrative business; and over them both was a general chief, at first Count PEROWSKI, and afterwards Councillor VON MEYENDORFF. At MEYENDORFF'S death, in 1864, he was replaced by M. TRAUTVETTER, well known for his botanical labours, and who had been many years at the head of the University of Kieff, and afterwards of the Agricultural Institute of Görki. As the previous division of labour and double direction had been found to work very badly, Baron KÜSTER'S place was suppressed, and the whole administration placed in the hands of M. TRAUTVETTER, with Dr. REGEL as scientific Director under him. TRAUTVETTER then proceeded to remodel the whole establishment, and a body of new regulations received the Imperial sanction in November, 1866. Under this new organisation the entire management is under the control of the Director, "His Excellency the Conseiller d'Etat actuel and Chevalier VON TRAUTVETTER." He is to have under him three botanists in chief; one for Plant Cultivation, a second for Systematic Botany, the third for the Glyptological Department (!) Under them there are three botanists or conservators, and a librarian, besides a secretary or clerk for the correspondence and accounts, a house steward, and the requisite number of foremen and gardeners. Dr. REGEL is one of the botanists in chief; and as at the present moment the money is not yet forthcoming for the salaries of the other two, Dr. REGEL has in the interim to do the duties of the three. The garden is large, with a considerable range of plant houses, very good Director's house, &c.; and there is likewise a very rich herbarium and botanical library quite distinct from those of the Imperial Academy, which are at a considerable distance from the garden, in the heart of the town.

—— The King of BELGIUM has, we learn, just honoured M. JACOB MAKOY, the well-known horticulturist of Liège, with the Cross of the Knights of the Order of Leopold.

—— We learn that Mr. WM. PAUL has consented to deliver a short lecture on Spring Flowers on Tuesday next, the 26th inst., in connection with his exhibition of early flowering plants, which, as elsewhere mentioned, is to be opened to the public in the gardens of the Society at South Kensington on that day.

PLANT PORTRAITS.

ANTHURIUM PEDATIFIDUM.—*Gartenflora*, t. 501. Orontiaceæ. A fine-leaved stove perennial, belonging to the group Schizopleurum of Schott, and allied to A. pedato-radiatum. It has a very short stem, and elongated terete leaf-stalks supporting large laminæ which are roundish reniform in circumscription, and pedately divided beyond the middle into from 9 to 11 segments, which are narrow lanceolate, acuminate, and entire. The peduncle is much shorter than the leaf-stalk, and the spathe lance-shaped, green. Native of Brazil, whence it was introduced by M. Linden. Flowered in the St. Petersburgh Botanic Garden.

BLETIA HYACINTHINA ALBO-STRIATA.—*Gartenflora*, t. 527. Orchidaceæ. The species is well known as a highly ornamental greenhouse perennial, bearing rich carmine purple flowers. The present variety differs in having the leaves elegantly striped with white. Introduced from Japan by Dr. Siebold. Flowered by M. Laurentius, of Leipsig.

CAMELLIA MRS. DOMBRAIN.—*L'Illustration Hort.*, t. 488; *Floral Mag.*, t. 330. Ternströmiaceæ. A rather distinct-looking and pretty variety, with flowers of a delicate pink colour, paler at the edges of the petals, which latter are small and neatly imbricated, but become rather too long and pointed in the centre of the flower. The leaves are pointed, and often unequal-sided. Raised in Belgium by M. Van Eeckaute. Flowered by M. A. Verschaffelt.

CYPRIPEDIUM CAUDATUM.—*Warner's Select Orchid. Pl.*, 2 ser., t. 1. Orchidaceæ. A very fine figure of a most curious Orchid, more highly coloured than usual, especially in the lip, which is richly stained with reddish-purple. Native of the Andes of South America. Flowered by W. Marshall, Esq.

DALECHAMPIA ROEZLIANA ROSEA.—*Gartenflora*, t. 532. Euphorbiaceæ. Of this remarkable plant, which has been fully noticed at p. 236, a characteristic figure is given in Dr. Regel's work above quoted. It is said to require a temperate stove, and a compost of rich earth.

EUPATORIUM RIPARIUM. — *Gartenflora*, t. 525. Compositæ. A rather pretty sub-shrubby half-hardy or cool greenhouse plant, growing from 1 to 2 feet high, with opposite oblong-lanceolate, stalked, coarsely-toothed leaves, and terminal corymbs of many small roundish capitules of white flowers. Of easy cultivation, and flowers freely in May. Supposed to be of American origin. Flowered in the St. Petersburgh Botanic Garden.

HEMEROCALLIS FULVA KWANSO. — *Gartenflora*, t. 500. Liliaceæ. This fine hardy ornamental herbaceous perennial, introduced by Siebold, and grown in gardens under the name of H. Kwanso flore-pleno, is merely a variety of H. fulva, with the leaves more or less distinctly marked with white stripes, and the tawny-red flowers filled out with a tuft of smaller petaloid segments in the centre. It blooms in July, and is a good acquisition amongst hardy perennials. Native of Japan. Flowered at the Botanic Garden of St. Petersburgh.

HYDRANGEA PANICULATA FLORIBUNDA.—*Gartenflora*, t. 530. Hydrangeaceæ. A fine deciduous shrub, as hardy as H. Hortensia, growing from 8 to 12 feet high, and having opposite (or in threes) ovate-oblong, acute, scabro-pubescent leaves, and lateral cymes of white flowers, disposed in a great terminal leafy panicle a foot long or more, consisting of openly arranged small white star-shaped fertile flowers, intermixed throughout with sterile ones, more than an inch across, consisting of four or five (rarely three) elliptic-orbicular sepals. The pyramidal outline of the inflorescence must render this a very elegant and showy plant. Introduced from Japan, where it was found by M. Maximowicz in a nursery garden. Flowered in the St. Petersburgh Botanic Garden.

ONCIDIUM SERRATUM. — *Bot. Mag.*, t. 5632. Orchidaceæ. A fine stove epiphyte belonging to the Cyrtochilum section, and having tall oval two-leaved pseudobulbs, rigid acute leaves narrowed to the base, and twining flower scapes 8 to 10 feet long, supporting the rather lax many-flowered panicle. The flowers are large, the parts all chocolate brown, tipped and margined with yellow, the sepals crisped and serrated, the upper one kidney-shaped, the lateral ones much elongated, the petals ovate acute and connivent, and the lip small and hastate. It is the O. diadema of Linden, and requires moderately cool treatment. Native of Peru. Flowered by the Bishop of Winchester.

PELARGONIUM (ZONAL) MISS MARTIN. — *Floral Mag.* t. 332. Geraniaceæ. This is a fine-looking variety, described as of dwarf, vigorous, free-blooming habit. The leaves are somewhat lobed, and heavily zoned with deep brown, and the flowers are large and well-formed, rosy-pink with a small white eye. Raised by Mr. Groom, of Ipswich.

PELARGONIUM (ZONAL) VILLAGE MAID.—A plate of this novel variety has been issued by the raiser. The leaves are obscurely lobed, and marked with a heavy dark brown zone. The flowers are in bold trusses thrown well up, and are individually large, well-formed, and attractively coloured, the ground-colour being a clear rosy-pink, the effect of which is heightened by a large and abruptly defined blotch of pure white at the base of the two upper petals. Raised by Mr. W. Paul, of Waltham Cross.

PLATYCRATER ARGUTA. — *Gartenflora*, t. 516. Hydrangeaceæ. An erect, branching, hardy shrub, growing 3 feet high, with stalked oval-lanceolate sharply-serrated leaves, and terminal corymbs of four-petaled white flowers, not of a very showy character. Native of Japan. Flowered in the St. Petersburgh Botanic Garden.

SARCANTHUS ERINACEUS.—*Bot. Mag.*, t. 5630. Orchidaceæ. A very pretty small-flowered stove epiphyte, with oblong ligulate, distichous leaves, and axillary pendent flower spikes, of which the rachis is red and hairy, as are the ovaries; the flowers are about half an inch broad, numerous on the spikes, white with a prettily rose-tinted lip. It has borne the garden names of Aërides rubrum and dasypogon, and was to have had that of Sarcanthus Stowellianus, had not the above designation had the precedence by earlier publication. Native of Moulmein. Flowered at Kew.

VANDA LOWII.—*Warner's Select Orchid. Pl.*, t. 4. Orchidaceæ. A capital figure of a very singular and noble plant, whose flower-stems are sometimes 10 or 12 feet long. One of its great peculiarities is the dimorphism of its flowers, the two basal ones being quite dissimilar to the rest. This is not accidental, as the dissimilarity always occurs; nor is it functional as the two kinds of flowers, which differ in shape and colour, have been fertilised each by the other, and have always produced ripe fruits. Native of Borneo. Flowered by R. Warner, Esq.

RIVAL SYSTEMS OF GRAPE GROWING.

MR. CANNELL is to arms again, sounding his 100*l.* trumpet. He thinks that the hurricane from Gopsall Hall must have exhausted my electricity, and after waiting for me a whole fortnight, he has been obliged, lame and reluctantly, to attempt another sortie from his own swampy redoubt, after a lull on his part of about four weeks. In coming to his rescue the argument which Mr. Sage brings forward will not stand fire. Mr. Sage grudges us the very ordinary method of lengthening our rods by a yearly advance of about 2 feet. How otherwise are we to get our rods to the top of the house? Mr. Meredith once told me that he did not always get his best bunches from off leading shoots, and my own experience, though much more limited, has taught me the same lesson.

The number of prizes taken by Mr. Henderson, of Cole Orton Hall, is not sufficient proof that he should on this account be admitted the best authority on Grape-growing in the kingdom. Had all the fine Grapes in the country been brought forward for competition at the places where Mr. Henderson showed his, and had he then maintained the first position, we should have readily granted him the position which Mr. Sage claims for him; but there are many fine Grapes in the country which never appear on a provincial or a metropolitan exhibition table. It is not very difficult to point to some celebrated ex-gardeners, who made it almost a rule to send fruit wherever there was the chance of a reasonable prize, and in event of better fruit not being there, the prize was secured—much after the manner of a poor but scheming traveller, of whom I have read, and who made his way through a country in Asia, by selling bread-and-water pills. He first came to the conclusion that in all cases of illness the patients either died or recovered; that if they died there could be no help for it, and that in the case of a recovery he got the credit, and his pills consequently maintained a reputation sufficient for his purpose.

The extending system of Mr. Henderson, of Cole Orton Hall, must be a very limited extending system indeed, and unfit to be held up to us an example. In a leading article in the *Gardeners' Chronicle* (see p. 1137, 1866), our attention is drawn to a Vine at Santa Barbara, in California, the stock of which is stated to be 10 feet in circumference, while the branches are trained on a trellis 60 feet in diameter, and the crop, consisting of several thousand bunches, has been estimated to yield 18,000 lb. of fruit. Although we are cautioned as to the amount of credence we are to put in the existence of this enormous Vine, it is nevertheless held up to us as an example of the natural development of the Grape Vine, and by the same principle we are equally at liberty to use it by way of drawing comparisons between the restrictive and extending systems of management. Hence we are obliged to look upon the extending system as practised at Cole Orton Hall, from a point similar and quite as ridiculous, when compared to the Vine at Santa Barbara, as that of the frog in "Æsop's Fables" which tried to distend itself to the size of the ox.

Mr. Cannell wishes to dispel my doubts as to the adaptation of large Vines for early forcing, and gives as his opinion that they are "decidedly better" May and June are not very early, but for the sake of argument, we will suppose that Mr. Cannell with his extending system can bring to bear sufficient interest to procure for him the management of one of the large Vines. Let it either be that at Finchley, Cumberland Lodge, or Hampton Court. The first year I will ask him to ripen the Grapes in June, the next in May, the next in April, and the last four years in March. The latter is what in gardening is really called forcing, and I shall require Mr. Cannell to guarantee that at the end of the seven years' forcing, he should leave the Vine in the same healthy condition as when he took to it. Observe, my reason for asking for one of those large Vines is to enable Mr. Cannell to substantiate the theory which he has advanced by practice, and in the aid of science is it unreasonable to expect that such a request should be granted?

My carrying Grapes on poles up and down the country appears to have taken the attention of Mr. Cannell, and elicited from him some considerable amount of approbation, for the co-credit of which he fancies he sees in my system of management something approaching so near to his theory (not his practice) that he has a right to pass down to posterity through the gardening world tacked to the tails of my coat. I should have thought that Mr. Cannell, after having entered the higher ranks of the nursery trade, would have had no desire to cling so tenaciously to the tails of one of the "blue apron order."

None of my Vines are yet five years planted. The first six bunches formerly alluded to, and weighing 36 lb., were cut from one Vine exactly two and a-half years after planting. The following year I had on the same Vine more bunches, and similar weights. This year, and also on the same Vine, I allowed an excess of bunches, which resulted in somewhat lighter weights of the bunches individually, although upon the aggregate there was a greater weight of fruit than I ever had before on the Vine. Some of these bunches were grown on leading shoots, and the others on laterals. There are in this house 14 other Vines. These Grapes were ripe in November, but I had to keep them until the 17th of January last, which no doubt detracted considerably from their original weights.

If there can be any further proof required of the lameness of the theory of Mr. Cannell and his philosophical coadjutor "Stet," it is to be found in their attacks on long-acknowledged good principles. But the former, when he had the chance, failed; and the latter holds forth nothing of his own to substantiate the cause he has, in such a hap-hazard sort of way, leaped into, and taunts me with making the common error of opposing a meritorious innovation. "Stet," I hope, understands that I do not wish to oppose his meritorious innovation, but before adopting it I must have conclusive proof that it is really a meritorious innovation; and both "Stet" and Mr. Cannell may find opportunities enough to test their young idea, without advising me to gratify their whim by disturbing my hitherto successful Vines. *Wm. Miller, Combe Abbey Gardens.*

LETTERS FROM PARIS.—No. III.

As for bouquets, and the materials of flower-shops generally, so far as I have yet seen, they do not present much plant interest beyond what may be seen in Covent Garden. In most of them you notice Yuccas, Dracænas, and young Palms for sale, as well as flowers, attesting how thoroughly the French people are awake to beauty of form. I hope these will soon be offered cheap by English nurserymen. As for flowers, there seems to be a great run upon a few kinds, or at least so it has been for the past six or eight weeks. The usual spring bulbs of the English forcing garden are to be seen, with a great quantity of forced Lilac, and particularly of white Lilac. Primroses and hardy spring flowers generally meet with much favour, but the Violet—*la Violette*—is the darling. The flower-shop windows are rich with its tone, wide barrows in the streets are covered with it, the very street seems full of its fragrance betimes. Some buy large rich bunches as wide as a tea-saucer, while old flower-women divide the larger bunches into very small ones, to suit poor purchasers, putting a couple of Snowdrops, a Cyclamen or two, or Primrose, or some other flower in the centre of each little bunch.

I have not here seen any of those ridiculous bunches of Everlastings and Grasses which have been sold in some London seed shops during recent winters, the "Everlastings" of which are mostly Marigolds, Geraniums, and Double Zinnias, &c., starched into an ugly persistency by some valueless process, and the Grasses mostly of a weedy type. Very few would appear to know anything about the beauty, the extraordinary beauty that may be made by a combination of the best of both. The Parisians use but a few kinds—the old Stipa and the fairy-like Agrostis nebulosa, with one or two more; but they arrange these in bunches almost as graceful as the tail of a bird of paradise. As for the Everlastings I have met with none worth speaking of. The quantity of the flowers of the sand Gnaphalium that is here woven into wreaths, or immortelles, for placing on and about the tombs in the cemeteries is something astounding. Next to seeing the contents of a hundred morgues "laid out," the great spread of decaying Everlastings is the most ghastly sight. They hang them on the poor little wooden crosses, they pile them inside on the covered tombs, they hang them on the few green bushes, they sling them under little spans of glass placed purposely over many tombs to protect the immortelles from the weather, and in every other way, till in every part, and particularly the part where the second and third class departed are buried, there is scarcely anything to be seen but Everlastings in every stage of decay, the *coup d'œil* being most depressing to anybody used to green English or Irish churchyards. The way the poorer people, or the third class, "bury their dead out of their sight" here is the most business-like mode of sepulture I have yet seen. A wide trench is cut, wide enough to hold two rows of coffins placed across it, and 100 yards long or so; here they are stowed in rapidly one after another, just as nursery labourers lay in stock "by the heels," only much closer, because there is no earth between each coffin, and wherever the coffins (they are very like soap-boxes, only somewhat less substantial) happen to be short, so that a little space is left between the two rows, those of children are placed in lengthwise between them to economise space; the whole being done exactly as a natty man would pack together turves or Mushroom spawn bricks. This is the *fosse commune*, or grave of the humbler class of people, who cannot afford to pay for the ground. I am not certain whether they are converted into an artificial manure after the lapse of a short time, but by some means or other the ground is soon prepared for another crop. On this principle, "the rude forefathers of the hamlet sleep" but a very short time in their last bed, and there is a very wide difference indeed between "sickle and crown" in Père la Chaise. But do excuse the divergence—I must not stray away from vegetable tissue, though I could relate some things quaint and interesting.

The Chestnut tree which comes in leaf and flower before its fellows in the garden of the Tuileries (*Le Marronnier du vingt Mars*, as the French call it), came out earlier than usual, though for its own sake it is to be hoped it will be cautious and slow about it, for the wind in Paris during the past week or two has been a sharp and attenuated variety of that known to the Irish as "fit to cut the pearl of a blind piper's eye." And snow has fallen often here of late, so that I begin to think that any of your readers who come to the opening of the Exhibition, may require a layer or two over the clothing usually required at flower shows. If there be any bouquets here better or as well made as those in Covent Garden I have as yet failed to discover them. I notice the Spiræa or Hoteia japonica forced a good deal in the flower shops, and need hardly tell your readers what a pretty thing it is for that purpose—it is much better suited for forcing than for the herbaceous border in England generally. On the whole the French display very much better taste in arranging their plants than we do. Of course I have had little opportunity of judging of this, compared with what I shall have by-and-by, but you can see it even in the way they utilise the common Ivy. It is used very extensively to make rather wide and neat edgings to the borders, &c., in the gardens round the Louvre and many others, and also in several other ways, notably to cover with dense green sheets the iron railings. Thus about Passy and in other neighbourhoods some of the iron railings in front of houses and gardens are closely but densely sheeted over with Ivy, except the tops of the spikes, and this forms an agreeable wall of verdure along the boulevards where it occurs, while it may also be useful in keeping out the heavier rushes of dust in summer to some extent, and altogether I think it is a custom which might be well adopted in suburban gardens about London. I expect a great treat in Lilacs by-and-by: they grow the Lilac very largely, training, pruning, and thinning it as carefully as you would a favourite Pear tree. You see it in abundance in the State gardens, trained into low globular-headed half-standard bushes, every shoot distinct and with a fat flower bud at its apex.

The works at the Exposition are progressing rapidly, but the grounds are scarcely in condition to describe, though some of your readers may have long ago read descriptions of them with the fish gliding about in aquariums that were not then even moist. I may however safely say the permanent or out-door features of the gardening part of this great Exhibition will be both interesting, beautiful, and instructive, quite independent of anything that may be sent to the consecutive shows. There is quite an exhibition of glass structures nearly finished—26 in all, from handsome large conservatories to plant and propagating houses. But the whole will not be seen in perfection for two months to come. *W. R.*

MOIST AND DRY AIR.

I wish, in reverting to this subject, to protest against the advice given by some one that practical men should confine themselves solely to practical matters. Take the general destruction of Broccoli by the late frosts, an intensely practical matter that, surely. What of the causes of that destruction? These may have to be sought for deep in the earth beneath or high in the heavens above, or possibly in the nature and properties of the light or heat of the sun himself. Now, who is to reveal these hidden causes? The question has virtually been answered in your columns. The man of science, who is able to bring the sun himself to book, and weigh, measure, or separate its light and heat for the instruction or amusement of admiring thousands at the Royal or kindred Institutions. These experiments are very striking, and it is impossible to over-estimate their value. They are almost sublime in their daring temerity, and reach to nearly mathematical demonstrations in the cumulative certainty of their results.

But their practical application is quite a different matter. And who is to apply them? Can the previous education of the Professors or their studious habits inform them whether Broccoli can be rendered hardier, or whether skilful culture can enable plants to resist or modify the tremendous energies of such natural forces as heat or cold? The charge of ignorance cuts both ways. But why make it at all? To unlock the hidden mysteries of life, to unravel the still tangled skein of influences by which the sun quickens, clothes, moves, and beautifies the earth, is surely labour enough for the highest science and the lowliest practice. Neither will such work ever be accomplished until the labours of all classes of workers are thankfully received into Truth's common storehouse. Practical men must be welcomed into the walks of science, and scientific men invited into the plodding fields of practice. If possible the qualities that distinguish each should be combined in both, for as a rule the purely scientific man does not sufficiently appreciate practical difficulties, nor the plodding practical man make enough allowance for altered conditions, while both are too prone to exalt their own special pursuit at the expense of its complementary parts. Both science and practice suffer grievous loss in this way, and neither can make the progress that it might and should unless heartily united in sympathy and aim. As from our limited powers this union is not always possible in the same person, perhaps the next best thing is that they should be united through the same medium, and I know of none better than the *Gardeners' Chronicle* for this purpose. Practical to the backbone, and scientific to the core, the votaries of science and practice may here freely meet on common ground for mutual gain.

Having thus claimed the right of practical men to intermeddle with all knowledge, I pass on at once to the subject under discussion—the relative powers of dry and moist air as conservers of heat. Of course the terms are not used in an absolute sense. Perfectly dry, and absolutely saturated air are seldom or never found in our climate. Neither is it my intention carefully to indicate any particular amount of moisture. My object is not to measure its volume, but to estimate its force. One can hardly fail to note in passing, however, the small proportion that the aqueous vapour of the air bears to the whole mass of the atmosphere. Of 100 parts of atmospheric air over 99½ are gases, and only a part of ½ per cent. is vapour of water. And yet this suffices to water the earth, and to regulate and modify its warmth. Whether water is looked upon as tending most to the husbanding or dispersion of caloric, none can doubt its ceaseless activity and mighty power. It is constantly disturbing or restoring the balance between heat and cold. Sometimes it appears as a warming agent. Streams of hot brine, freighted with tropical heat, lave our coasts and leave their warmth behind them. Or hot drops come tumbling down from warm strata of air, and carry their warmth down into the earth's cold bosom. Or the heat that carried the water forth, is set free to warm the air. Or it may be, that the water itself is spread out like a transparent or visible screen to hinder the heat of the sun from being dissipated through space during the night. Or water may give out the heat that it has stored up in the summer to temper the rigour of winter. On the other hand, water becomes a cooling power by placing itself between us and the sun, and shutting out a large portion of his energy. Or it descends from cold regions of the air, and carries the cold down with it into the earth. It may also impress all the heat it can find on the surface of the earth, to lift itself up again into the air, thus cooling it by evaporation. It comes down upon every cold surface, and renders it still colder by its condensation as dew, or refrigeration as hoar frost, or by its energy as a radiant. Possibly also it may absorb part of the energy of the sun's rays on their passage through it as invisible vapour, as well as shut them back by its thicker curtain of clouds. It seems almost certain that water is more of a cooling than a heating power. Professor Tyndall says, at page 396, of Heat as a Mode of Motion, that "No doubt can be entertained that the extraordinary energy of water as a radiant *in*

all its states of aggregation (the italics are his), must play a powerful part in a mountain region. As vapour it pours its heat into space, and promotes condensation; as liquid it pours its heat into space, and promotes congelation; as snow it pours its heat into space, and thus converts the surfaces on which it falls into more powerful condensers than they otherwise would be." Of the numerous properties of water, not the least important is this extraordinary power which it possesses of discharging the motion of heat upon the interstellar ether. And hence one might be tempted to infer, the more water in any given atmosphere the greater the amount of heat dispersed and of cold induced. But not so Tyndall. He contends that the freedom of escape does not take place at the surface of the earth. The aqueous vapour prevents it. It absorbs the heat and radiates it down again to the surface. Instead of becoming a source of cold, the vapour becomes a husbander of warmth, and "its removal for a single summer's night would be attended by the destruction of every plant which a freezing temperature would kill," (page 397.) Perhaps the two views upon the influence of aqueous vapour upon heat could not be placed in stronger contrast than in these two extracts from Tyndall's work. In the one water is the heat preserver, in the other the heat disperser. In the latter water is the great warmer; in the former the great chiller of the world. Which is it? It will be observed that I no longer confine the question to the energy of water as a radiant. Neither do I presume to question Professor Tyndall's experiments; they seem conclusive of the fact, that moist air radiates heat with many times greater force than dry air. But these experiments, valuable as they are, do not appear to cover the whole ground. They certainly seem to prove that the aqueous vapour of the air becomes a protecting screen to keep in the heat of the earth. Unfortunately, however, another class of experiments, on a much larger scale, seem to demonstrate with equal clearness and more force, that the aqueous vapour forms an open door to let the heat out or the cold in. Taking the last class of experiments first; we note first their number, and next their exactness. They surround us on all sides by hundreds and thousands, and they are without flaw. The great experimenter, Nature, makes no mistakes; she completes her work in spite of disturbing causes, and sets accidents at defiance. She has left the marks of her experimental energy in every deep valley, low and undrained park or pleasure ground, and by the side of every fresh-water stream, pool, or lake. And what do we find in these localities? The *debris* of dead plants, shrubs, and trees. And why? Chiefly because such positions are invariably the coldest. Could one, as Mr. Ingram proposes (p. 181), in connection with the geology of Vine growing, take a flight with Mr. Glaisher it would be easy to note each spot where the destructive energy of the frost has been most felt. And could the balloon be stopped at our bidding, a halt would be called at every place where the aqueous vapour was the thickest. Here we should find the lowest temperatures and the greatest proportion of deaths. Doubtless I shall be told that the number of plants destroyed affords no correct criterion of the amount of cold. I admit that they do not give an absolutely correct measure, much depends upon the state of the plants themselves. Fast-grown plants will not resist cold so well as those more slowly grown; neither will those grown in low situations resist the same amount of cold as others grown in higher latitudes. Aqueous matter within the plant has perhaps equal or more influence in the matter than the aqueous vapour in the air without. If the latter invite the attack of cold from without, the former is a traitor within, and opens up the very citadel of life to the ingress of the enemy. And yet when we approach towards a few degrees on either side of zero, many so-called hardy plants do become tolerably correct indices of the measure of cold. Life and death is then suspended on a scale of 5° or 10° Fahr. Five either way often decides the vital question. And the 5 or 10 is invariably on the wrong side of zero where there is the greatest proportion of aqueous vapour in the air. It is not only, therefore, that plants where there is most moisture will bear less cold, but it is also that they have to endure more—and hence their destruction. Proofs of this are strewn around us now as thick as Blackberries. They were still more numerous during the severe winter of 1860-1861; Cedars of Lebanon, Spanish Chestnuts, even English Oaks, of a century's growth, were killed in wet localities; and Hollies, Evergreen Oaks, Laurels, and even Laurustinuses escaped only about 50 feet higher up on soils with a dry chalk bottom, with scarcely 50 square yards of water within sight. The same thermometers indicated from 5° to 10° more frost in the wet localities than on the dry ones. I find, within a mile of this place, near the side of the river at Bury, there is constantly a difference of from 5° to 10° against the low lands, and the destruction of plants there, that escape here, is in proportion with this depression. I think the valuable lists of temperatures that have recently appeared in the *Gardeners' Chronicle* will confirm the fact that where the aqueous vapour may reasonably be expected to have been the thickest, there the temperature has been lowest. And certainly the recent destructive experiments do not tend to establish the fact that the aqueous vapour of the air keeps in the heat or out the cold.

Let us take another experiment. We are all familiar with the practice of covering the surface of glass as a means of preserving the heat. We also know something of the efficacy of dry mats or dry straw. But what of wet? Does the aqueous vapour that may be held to be present in the interstices of the straw tend to preserve the heat? Supposing it to increase the energy of radiation, would that be a good thing under the circumstance? Would it not rather be a waste of heat? Would the heat not be radiated, or at least removed faster out of the frame than it would be into it? But then is not radiation and absorption exactly alike, and reciprocal?—is not radiation equal in all directions? &c. But how, then, does the frame cool? That it does cool; that it cools faster when covered with wet material, aqueous vapour notwithstanding, than with dry, is proved by the life-long experience of every gardener.

Take one more experiment. Two uncovered glass frames on a frosty night—one with a saturated atmosphere, the other as dry as the absence of water can make it: which will be the coldest?

I offer one more illustration from Nature. It may be stated thus:—Cold air holds less vapour than hot air; the amount of vapour held increases with the temperature; therefore it follows that if aqueous vapour is such a powerful conserver of heat, that least of it is present when it is most needed, and *vice versâ*, and such a disposition, I had almost said misdirection, of force is certainly not like Nature's usual mode of procedure. *D. T. Fish.*

(To be Continued.)

Home Correspondence.

Neglected Plants.—An "Old Subscriber" inquires (see p. 236) what has become of the beautiful Luculias that were frequently exhibited some 25 years ago. May I also ask where are now the splendid plants of Leschenaultia formosa and biloba, Hovea Celsi and pungens, Pimelea spectabilis, &c., which about the same time were exhibited by almost everybody? Are they neglected, and have they disappeared as being too common for the present race of cultivators, or as unfit for exhibition, or from what other cause have they got out of cultivation? It cannot be that the men of the present day, with all the scientific knowledge which they possess, and all the improved means and appliances which they have at command, are unable to produce them; that is a supposition not to be tolerated for a moment, especially when we recollect magnificent specimens of them seen by the dozen at every metropolitan exhibition about the time named, and grown by men with hardly a tithe of the advantages possessed by cultivators of the present day; and these men, unlike the present generation of cultivators, had to grope their way to success, and not unfrequently in direct opposition to the light derived from their teachers. For instance, in growing Cacti they were taught, that like Dickens' Ivy—for them the brick must be crumbled, the mortar decayed, &c. They, however, speedily discovered that Cacti were fond of far more stimulating condiments than bricks and mortar; in lieu of which they were supplied with good strong loam, broken bones and pigeons' dung, and that not in stinted quantities, and the result was gorgeous banks of bloom at Chiswick in days gone by, equal to those of the Azaleas of the present time. Why, therefore, should they not produce the same now, when variety is as much needed as then? I would also ask where now is the glorious bloom of Ixoras which used in those days to astonish visitors to our great shows? We still see good plants, but there is neither size of truss nor colour about them equal to what were then furnished. There are many other plants which have either disappeared altogether or are only occasionally seen, and that in anything but first-class condition. Even among Orchids, who now-a-days ever sees anything like the Cyrtopodiums exhibited at Chiswick about the time quoted? Truly, notwithstanding all the glorification about our late great International Exhibition, I fear that as regards plant growing we are not much ahead of the first half of the present century. *Another Old Subscriber and whilom Exhibitor.*

The Luculia.—I was rather amused at reading in one of your late numbers a remark under the heading of Luculia Pinceana, that Mr. Pince so prized the plant that the specimen brought to be figured in the "Botanical Magazine" some 22 years ago, was not suffered to leave his surveillance, but had to be figured in a public-house in Kew, wherein he was located; and when the writer of the aforesaid article states, with much collateral circumstance, that he smelt it far above the powerful odour of tobacco, &c. This is a very singular fact, seeing, that as the artist who figured the plant upon that occasion, I must say I have no recollection of doing it where your correspondent states; it was brought to Sir W. Hooker's to be sketched, like any other respectable individual. Verily, your correspondent's olfactories must be unusually acute, or the fragrance of L. Pinceana must be marvellously powerful. A plant that could diffuse so delicious an odour in a house wherein it was not, might well rise superior to the fumes of tobacco, past or present. *W. H. F.*

The Variegated Borecoles at Wardie Lodge.—My remarks on these beautiful Kales have led to the receipt of a letter from Mr. Peter Robertson, which, containing as it does a few hints of general interest, I send on to you. Mr. Robertson writes:—"I quite differ from you as to growing them without manure. My experience for several years leads me to think that they are best grown on dry rich soil, and fully exposed to sun and air. In order to get them dwarf I have found no way to succeed but to breed from dwarf plants. It is a curious fact that the whites and magentas do not readily cross, though grown beside each other; but one plant of either will taint an acre of pure Green or common Purple German Greens. I have found it so to my cost in saving fine self stocks." *W. Dean, Shipley.*

Pears.—Some years ago, Mrs. Clements, wife of the rector of Warleggan, near Bodmin, Cornwall, kindly sent me a specimen of the Beurré Clairgeau Pear, much like in size and appearance the one figured the other day in the *Florist*. I have Dr. Hogg's invaluable present of the 3d edition of his "Fruit Manual," and I agree in most particulars with his description, which runs thus (see page 254):—"Fruit large and very handsome, curved pyriform. Skin smooth and shining, of a fine lemon-yellow colour, and with a tinge of orange-red on the side next the sun; it is thickly covered all over with large russety dots and patches of thin delicate russet, particularly round the stalk. Eye small and open, level with the surface. Stalk half an inch long, stout, and rather fleshy, with a swollen lip on one side of it. Flesh white, crisp, or half-melting, coarse-grained, juicy, sweet, and slightly musky. A handsome and showy Pear, ripe in November. Its appearance is its greatest recommendation." From the words "it is thickly covered," down to "ripe in November," I can recollect nothing. My impression of the Pear was that it was simply not a bad one, and certainly a long way inferior to Beurré Superfin, Josephine de Malines, and Doyenné d'Alencon, the three best Pears I have ever yet eaten. The centre one is the very best of all, but only a trifle superior to the first. The last is quite A 1, but early in its blossoms and tender; it requires a wall and protection. I have no doubt that M. de Jonghe's testimony is quite truthful. Pears, and certainly Strawberries, are best tasted *in loco*. The climate of France and Belgium is doubtless superior to ours; and this will account for discrepancy of testimony. Mr. Rivers has just added to his kind present of 52 bush Quince Pears, 12 most beautiful Quince Pear Pyramids, viz., Doyenné du Comice, Beurré Clairgeau, Dana's Hovey, Gratioli of Jersey, Huyshe's Victoria, La Sœur, Grégoire, Bergamotte Hertrich, Conseiller à la Cour, Summer Beurré d'Aremberg, Doyenné d'Alençon (against south wall), Passe Crassane, and Mr. Ingram's British Queen. These were kindly sent to complete a list of 52 bush Quince Pears (now groaning with buds) previously presented to me. In addition to those three Pears, recommended above, I can strongly recommend the following as most excellent in their seasons, viz., Bergamotte d'Esperen, Bezi d'Esperen, Beurré de Rance, Beurré Diel, Beurré Sterckmans, Bon Chrétien, Comte de Lamy, Glou Morceau, Marie Louise, Marie Louise d'Uccle, Passe Colmar, Peach Pear, St. Michel Archange, and Vineuse. For a July Pear, not equal to any of the above, I recommend Doyenné d'Eté. I have others yet under trial, but not a word will I say till I have tasted. *W. F. Radclyffe, Okeford Fitzpaine.*——In the impression of my letter respecting Beurré Clairgeau Pears (see p. 257), it is stated by mistake that the junction of the stock and scion (*le colet de la greffe*) should be about a *foot* above the surface; it should have been about an *inch*. Again it was the Committee of the Pomological Society, not the Pomological Committee of the Horticultural Society which expressed the hasty opinion that the fruit in question was "flat and watery." *J. de Jonghe, Brussels.*

Rival Systems of Grape Growing.—In considering this matter I think we should leave out of the question Vines required for very early work, and those from which large-sized bunches are wanted. Let us suppose a case in which Grapes are expected to ripen in the beginning of May, and throughout the season, the bunches to be of ordinary size, say from 1 to 2 lb. each in weight, which after all is the most useful size—would it be an advantage to give the Vines more room? I contend that it would. I have a Vinery under my care which was planted 14 years ago, and which bears good crops under the restrictive system. In the early house is a Muscat of Alexandria, which throws out strong shoots from the stock. I have allowed it four rods, and two more have yet to be selected. It has 60 good bunches on it, yet it is as strong or stronger than ever, and I believe that if it were allowed further extension it would be an advantage to it. In our late house the Vines grow very strongly; the amount of moisture which collects on the points of the young leaves is surprising, and if not watched carefully in damp weather we should lose half the leaves. If the Vines could speak I imagine they would say—"Give us more room." Two years ago, after the Vines had grown some 18 inches, I cut off a small branch from one of them. It bled very much, and no more moisture collected on the points of the leaves, but the Grapes set better, and the bunches were more compact than those on any of the other Vines. *J. D.*

Strawberries.—I have no doubt that Hooper's Seedling was sent out for Sir Harry. Dr. Hogg's book, besides the opinion of two amateurs, assures me of it. The following agrees with my untrue Sir Harry, page 403 of "Fruit Manual:"—"Hooper's Seedling: fruit large, conical, rarely flattened, but sometimes deeply flattened: skin dark red, assuming a very deep blackish tinge as it ripens." I recognise it by the black tinge, which took place with me when it began to turn colour. It looked like Prussian blue-black at the commencement of ripening. I had the true Sir Harry afterwards, but it did not answer. The Lady has wintered well, and has fine crowns; she is a quick and abundant rooter, and hardy, but her running strings are very brittle, though very stout. I will also report. Her colour appears to be (by portrait) weak; still we want variety in colours. *W. F. Radclyffe, Okeford Fitzpaine.*

Pruning of Roses, and Soil suitable for their Cultivation.—As long as English gardens afford examples of beauty and cultivation for the rest of the world, so long will the Rose maintain its place as the most popular of all our garden favourites. It is indeed the emblem of the country itself; no other flower is so fit a representative of an English garden, and no other flower has stronger claims to embellish the architecture of an English home. Since, then, the Rose is so much and so justly esteemed, it is not surprising that its cultivation should be carried on to an extent commensurate with its great merits. I fear, however, that the late frosts will have made sad havoc among

them, more especially the Teas, many of which are quite dead, and others have been injured to such an extent as to check their progress for some considerable time. On the other hand, every one must rejoice to know that those two charming Tea Roses, our old and popular friend Gloire de Dijon, and that lovely new Rose, Maréchal Neil, have stood the repeated attacks of the enemy, and appear to be none the worse for them. The soil most suitable for the cultivation of the Rose is a rich deep loam of a rather stiff character, but free from stagnant moisture. Kinds on their own roots will, however, succeed in lighter soils than sorts budded on the Dog Rose, which naturally grows in stiff land. To light soils a dressing of good strong loam would be of great advantage if applied along with cow dung or night soil; the latter however is the best manure that can possibly be used in any but very rich soils, but it must not under any circumstances be applied except in a well-decomposed state. It is best when mixed with a quantity of loam laid up at least for a year or two, and occasionally turned before it is used; in heavy soils, peat, or burnt earth, leaf-mould and stable dung would be most suitable. The Rose likes an open spot, exposed to either south or east, and sheltered from strong winds, but not shaded by trees. The pruning of Roses is best left until spring; autumn pruning has many disadvantages. A few mild days in winter often induce the buds of autumn-pruned Roses to push, and if severe weather follows, the young shoots become frosted, and as a matter of course the bloom is injured. The chief advantage of spring pruning is, that the flower shoots are placed beyond the reach of frost. If any buds push in winter in unpruned Roses they are those at the end of the branches, which would be removed in pruning; but spring, like autumn pruning, has also its disadvantage, as the buds on the ends of the shoots are often in leaf before the work of pruning is commenced; the tree then receives a check, the lower buds find themselves in contact with a great supply of food; soon one or two buds take up the work, they swell apace, but those below remain dormant; consequently spring pruning does not form so neat and compact a tree. It will thus be seen, as I have just said, that spring, like autumn pruning, has its disadvantages; but under all circumstances and disadvantages I prefer spring pruning to that of autumn. *W. C. Bramfield, near Hertford.*

Gravel Walks.—Let your correspondent (see p. 267), who wishes to walk dry-shod on his sylvan walks, attend to the following method, and his desire will be attained. In the absence of any data from him, except that his walks are not what they should be, I will suppose them to be from 4 to 6 feet in width. My first operation would be to remove the surface and the sub-strata to the depth of 1 foot in the centre, sloping to 6 inches at the sides. Then to form a drain, by taking 9 inches in breadth by 6 in depth out of the centre, and the whole length of walk, also making cross drains every 15 yards. If the ground be stiff and not likely to wash, I would cover these with stones; if otherwise, the better plan would be to take out more ground and build the drains with stones or brick, filling the bottom up to within 2 inches of the top with stones, &c., and observing to keep the centre at least 3 inches higher than the sides. All would now be ready for the gravel or other material intended for the surface. This might consist of limestone broken very small, mixed with coarse sand or gravel, all heavily rolled, or it might be asphalt. The former makes a very durable and pleasing walk, without that disagreeable though not unhealthy smell which the latter emits in hot weather. To make walks of asphalt two mixtures are required—coarse and fine. The first may consist of stones, furnace 'crosils,' &c. Ashes or small grit stone will do for the second. These should be well saturated with boiled coal-tar before being applied. The coarser layer need not be above 2 inches thick, and well rolled. The finer from a ¼ to ½ inch, spread very evenly, with some white spar, or other light-coloured material scattered on the top to enliven the effects of the tar, and all should be nicely rolled. To prevent the roller from gathering, wisp it now and then with a wet broom. I need scarcely add, that the mouths of the drains ought to be furnished with stone or metal sockets, and laid flush with the walk. *Brassica.*

Chinese Pinks. — Your correspondent, Mr. Alfred Copland, of Chelmsford, complains of the varieties of Dianthus sinensis, including Heddewigii, &c., not outliving the winter. I have, for some years past, grown a choice stock of D. sinensis. I always sow in the autumn as well as in spring, and I never have found the seedlings to fail surviving the winter. I have also two or three plants of D. Heddewigii growing in a wire basket only 1 foot deep, and 7 or 8 inches through, fixed against the top of a wall, where they have been now three winters, and at the present time they are alive and growing. In January last my thermometer egistered as low as 5°. *B. H., Camberwell.*

Societies.

Royal Horticultural: *March* 19 (*First Spring Show*).—Notwithstanding the occurrence of a snow storm in the morning, and cold north-easterly winds and showers of sleet during the afternoon, this first display of spring-flowering plants was most satisfactory, a circumstance which does credit to the courage of all who showed their really beautiful productions under such trying circumstances. Hyacinths, Narcissi, Primulas, Lily of the Valley, and Roses were wonderfully fine considering the season, and there were large and gay exhibitions of miscellaneous plants.

Hyacinths, as usual, formed the most important feature of the Show. Of these Mr. William Paul, of Waltham Cross furnished most beautiful specimens, which were superior to those of any of his competitors. In the class of 18 he was 1st with magnificent spikes of King of the Blues, Princess Mary of Cambridge, Blondin, Charles Dickens, Van Speyk, Baron Von Tuyll, General Havelock, Feruck Khan, Solfaterre, Koh-i-Noor, Macaulay, Vuurbaak, Prince Albert Victor, Sir Henry Havelock, Grandeur à Merveille, Snowball, Mont Blanc, and La Grandesse. Among these were as large and fine spikes of bloom as ever graced an exhibition. Messrs. Cutbush, of Highgate, were 2d with a collection in which were Baron von Tuyll, Charles Dickens, Grand Lilas, General Havelock, Cavaignac, Von Schiller, Gigantea, Princess Clothilde, Florence Nightingale, Le Prophète, Grand Vainqueur, Macaulay, Duc de Malakoff, Mrs. James Cutbush, Mont Blanc, Snowball, Princess Helena, and Haydn. Mr. J. Kirtland, Albion Nursery, Stoke Newington, and Mr. William Cutbush, of Barnet, were equal 3d, with collections containing good examples of Von Schiller, Sultan's Favourite, Charles Dickens, Grand Lilas, Baron von Tuyll, Orondates, Mimosa, Argus, Queen of the Netherlands, Maria Catharina, and Ida, the last still one of the best yellows.

In the Amateurs' Class for 12 Hyacinths of six kinds, Mr. Bartlett, Shaftesbury Road, Hammersmith, had a 3d prize; and in the open class for six kinds, Mr. Paul was 1st, with splendid examples of Grandeur à Merveille, Prince Albert, Macaulay, King of the Blues, Lord Cowley, a fine kind; and Victor Emmanuel, pale crimson, striped with deeper crimson. Mr. W. Cutbush, of Barnet, was 2d, with good examples of General Havelock, Macaulay, Mont Blanc, Couronne de Celle, Alba maxima, and Von Schiller. Mr. Kirtland was 3d.

Hyacinths grown in pots and glasses in windows were not equal to what might have been expected. Some fair specimens in 48-pots from Mr. Beach, gr. to C. J. Herries, Esq., Sevenoaks, were awarded a 1st prize; and Mr. Bartlett was 2d, with rather unequally-grown examples in 32-sized pots. For Hyacinths in glasses Mr. Rumsey, Waltham Cross, had a 1st, and Mr. Beach a 3d prize.

In the Class of 6 Hyacinths, new kinds of 1866-67, the only exhibitor was Mr. William Paul, whose varieties were altogether of first-class quality. They consisted of Lord Shaftesbury, a kind with very large single white bells arranged in a somewhat loose spike; Blondin, a variety in the way of Princess Mary of Cambridge, but paler, fine spike, large bells; and Prince Albert Victor, a dark purplish red single flower of great beauty. These all received First-class Certificates. Lumæus, a brilliant deep single crimson flower, had a Second-class Certificate; it would doubtless have had a higher position had its form been at all equal to its rich colour, which was not the case. There were also Bird of Paradise, a fine yellow, which has been described by us on previous occasions; and Sir Henry Havelock, a charming plum-coloured kind which cannot fail to be a favourite.

In addition to his other fine collections Mr. W. Paul exhibited in the Miscellaneous class upwards of a hundred pots of Hyacinths, for which an extra prize was awarded. Among Blues in this group were splendid examples of Argus, King of the Blues, Baron von Tuyll, Couronne de Celle, Grand Lilas, Blondin, Leonidas, and Bleu Aimable; nearly Black kinds consisted of Feruck Khan and Prince Albert; Whites, Mont Blanc, Snowball, and Alba maxima; Reds, Von Schiller, Howard, Garibaldi, Princess Clothilde, Macaulay, Duc de Malakoff (buff striped with red); Haydn, mauve; and Ida and Bird of Paradise, yellow.

Tulips made a fine display. Mr. W. Paul was 1st for 12 pots of six kinds, consisting of Proserpine, violet shaded rose; Keizer Kroon, deep red, edged with yellow; Couleur Cardinal, deep scarlet shaded with violet, small but effective; Fabiola, rosy purple and white; White Pottebakker and Van der Neer, violet shaded rose. Messrs. Cutbush were 2d with Tournesol, Vermillon Brillant, Couleur Cardinal, Globe de Rigaud; and Duke of York, red edged with creamy white. Mr. Burley, Bayswater, also furnished a collection in which were Queen, white feathered with crimson; and Bride, crimson and white, both pretty sorts. In the Amateur class for 12 pots, four kinds, Mr. Bartlett was 1st with Keizer Kroon, Vermillon Brillant, White Pottebakker, and Globe de Rigaud. A fine collection of about 100, from Mr. W. Paul, received an extra prize.

Narcissi were also shown by Mr. Cutbush and Mr. Bartlett, Among them were Bazelman Major and Lord Canning, white, with a yellow cup, both fine large flowers; Cleopatra, with an orange cup; and in the same way, but with smaller flowers, Jocrisse, Parfaite, and Regulus. Mr. Bartlett had, among others, Grand Monarque and Gloriosa, the latter a fine white, with a deep yellow cup.

Crocuses.—A beautiful collection of these was furnished by Mr. Wm. Paul, and received a 1st prize. Conspicuous among the different kinds were Sir Walter Scott, a large variety, lilac striped with white; Cloth of Silver: Mammoth, large-flowered white; Princess of Wales, a fine pure white; Princess Alexandra, white, pencilled with purple; Prince of Wales, bluish violet; David Rizzio, and Sir John Franklin, purple; and Golden Yellow. Mr. Bartlett, of Hammersmith, had a 1st prize for good examples of Albion, Sir W. Scott, Victoria, and others.

Cyclamens, especially a large and fine collection from Messrs. E. G. Henderson, formed a prominent feature of the Show. Good collections were also furnished by Mr. Wiggins, gr. to W. Beck, Esq., Isleworth, and others. For 6 kinds, Mr. Wiggins was 1st; Mr. Fairbairn, Syon, 2d; and Mr. Todman, gr. to R. Hudson, Esq., Clapham Common, and Mr. Butter, gr. to B. Hooke, Esq., Fulham, equal 3d; whilst for collections not limited as regards number, Messrs. E. G. Henderson were 1st, Mr. Wiggins 2d, and Mr. Todman 3d.

Chinese Primulas made a great display. For 6 plants of Williams' strain, Mr. Wiggins was 1st, Mr. Fairbairn 2d, Mr. Todman 3d; and for 3, Mr. Wiggins was 1st, Mr. Todman 2d, and Mr. Fairbairn 3d.

Lily of the Valley.—Mr. Howard, gr. to J. Brand, Esq., Balham, contributed magnificent examples of these, for which a first prize was awarded. Mr. W. Paul's plants, to which the 2d prize was awarded, contained a great profusion of bloom, but they were scarcely forward enough. Mr. Todman, Mr. Cutbush of Barnet, and Mr. Bartlett also received prizes.

Camellias.—Mr. W. Paul received a 1st prize for a box of Blooms, consisting of Ochroleuca and Fimbriata, white; Eximia, Mathotiana, and Belle Jeannette, red; Lavinia Maggi, Prince de Canino, and Princesse Clothilde, carnation-striped; and La Reine, delicate pink. Mr. Todman, who had also good blooms, was 2d. For four plants in flower, Mr. Bull, who was the only exhibitor, received a 1st prize for Valtevaredo, Sarah Frost, Teutonia rosea, and another; and a similar award was made to him for a single specimen of Princess Bacciochi.

Of forced shrubs the best six came from Mr. W. Paul, who had a fine specimen of the fragrant white-flowered Raphiolepis ovata, the variegated Weigela rosea, and Rhododendron Schilleri, both in fine bloom; Deutzia gracilis, Double Pink Thorn, and lastly a half standard Genista purgaus, worked on the Laburnum, with its head one mass of yellow flowers. Mr. Bartlett was 2d with Kalmia latifolia, a white variety of Rhododendron catawbiense in profuse bloom: Rhododendron Everestianum, Deutzia, and Yellow Ghent Azalea.

In Miscellaneous collections of plants in flower, the 1st prize was awarded to a numerous one from Mr. Bull, containing six beautiful specimens of the charming Odontoglossum Alexandræ, the brown-spotted O. gloriosum and maculatum, a variety of Phajus grandifolius having the leaves very distinctly striped with creamy-yellow, several Lycastes, Cypripediums Dayanum, Lowii, hirsutissimum, and concolor, Phalænopsis Schilleriana, Rudgea leucocephala, the showy Imantophyllum miniatum, variegated Selaginella denticulata, Palms, Dracænas, fruiting Orange trees, variegated Euonymus, several plants of the small but useful white-flowered Rhododendron virgatum, and various Aucubas in flower and fruit, one of which, the common variegated, covered with fine berries and standing about 4 feet high, received an extra prize. Mr. W. Cutbush, of Barnet, took the 2nd prize with a small well-bloomed collection, containing Tetratheca ericæfolia, Boronia pinnata, Cinerarias, Cytisus racemosus, Mignonette, and fruiting Aucubas; and Mr. Bartlett was 3rd with Azalea amœna, Cinerarias, Hyacinths, and Tulips.

Among Miscellaneous subjects were beautiful collections of Roses in Pots from Mr. W. Paul and Messrs. Paul & Son, to both of whom extra prizes were awarded. Mr. W. Paul's plants were remarkable for fine foliage, and were in excellent bloom, especially Madame Victor Verdier, President, Paul de la Meillerez, Alba Rosa, Le Rhone, and Madame Willermoz. Messrs. Paul & Son's plants were likewise good, especially Princess Mary of Cambridge, an excellent sort for forcing, Lord Raglan, Gloire de Dijon, Devoniensis, Souvenir d'Elise, Maurice Bernardin, and Anna Alexieff were also finely in bloom. Mr. W. Paul contributed, besides, several boxes of cut Roses, many of which were excellent; among them were fine buds of Maréchal Niel, Narcisse, Safranot, and Madame Falcot. Pierre Notting was remarkable for its fine violet-shaded deep red colour, and that old favourite, Gloire de Dijon, was also fine. Mr. Bartlett, besides wire-baskets filled with Hyacinths and Tulips, had a highly creditable set of Filmy Ferns, for which he received an extra prize; and a similar award was made to Mr. Todman for Azaleas; and to Mr. W. Cutbush for half-a-dozen pots of Mignonette trained so as to form pyramids from 18 inches to 2 feet high, and about 18 inches in diameter at the base.

Among subjects which came specially under the notice of the Floral Committee were small specimens of a seedling Retinospora from Mr. Shenton; Azalea Hector, a very dark red kind with spotted upper petals, from Messrs. Smith, from whom also came a collection of golden Zonal Pelargoniums. Mr. Fairbairn, gr. to the Duke of Northumberland, sent a seedling Cineraria, named Duke of Northumberland, which appeared to be an acquisition in point of colour. Messrs. E. G. Henderson exhibited a nice plant of Rudgea leucocephala, which also came from Mr. Bull under the name of Psychotria macrophylla. The last-named exhibitor also sent Aucuba japonica macrophonta mascula; Aralia spathulata, a very curious plant, with long deflexed spotted leaves; Aralia crassifolia similar in character; Agave macracantha, a curious new form of this section of plants, with short thick leaves furnished with sharp teeth, pointed with a sharp awl-like spine; Imantophyllum miniatum superbum, a very slight improvement if any on the species. Messrs. E. G. Henderson had six seedling tricolor Pelargoniums, all of which were very promising, and which we hope to see later in the season. Pyrethrum Golden Feather was sent by the same exhibitors, but not in a condition to display its merits as a bedding plant. Mr. Cruickshanks, gr. to W. Jones Loyd, Esq., Langleybury, Watford, furnished 12 trusses of his new Verbena, Lady of Langleybury, a pale lilac-striped variety, which was awarded a First-class Certificate last summer; this being a sport from Purple King, will, doubtless, be a useful bedding plant. Messrs. Veitch & Sons exhibited a new Orchid, probably a Mormodes, but distinct from others now in cultivation; also Hippeastrum pardinum, a beautiful new form of Amaryllid, which was awarded a First-class Certificate. It has a pale creamy ground colour, thickly spotted with reddish-brown. Mr. Cannell, of Woolwich, exhibited for Mr. Bennett, of Osberton, a few flowers of a yellow Violet, which it is expected may become a good companion for Viola cornuta.

As regards Fruit, Mr. Johnson, gr. to the Marquis of Ailesbury, Savernake, sent Lady Downes' Grape, still in excellent condition; and Mr. Holliday, gr. to H. B. Walmsley, Esq., Acton, had a very good fruit of the Ripley Queen Pine, apparently upwards of 3 lb. in weight. For this a Special Certificate was awarded. Mr. Lydiard, Batheaston, sent Asparagus, and from Mr. Budd came a Cucumber, the result of a cross between Telegraph and Munro's Prolific. James's Long-keeping and Brown Spanish Onions came from Mr. Whiting, The Deepdene; and that called Nuneham Park, from Messrs. Cutbush. Mr. R. Holliday, 2 A, Portobello Terrace, Notting Hill, exhibited a contrivance called "Paxton's Strawberry Crinoline," consisting of a horizontal circular table of galvanised wire set on feet, and dividing in the middle, in order to admit the plants. Its fitness for the purpose must, however, be submitted to the test of experience.

Fourteen new candidates were admitted Fellows on this occasion, and one Society—the Worksop Floral and Horticultural—was affiliated.

Royal Caledonian Horticultural (*Spring Show*), *March* 20.—As usual, this Snow was held in the Music Hall. The weather was very unpropitious, frost having prevailed, accompanied by cold searching winds, which deterred many objects specially prepared from being shown. As a Hyacinth show it was very good, growers and judges being unanimous in believing that, particularly in the first prize collections, samples were staged superior to anything of the kind ever before exhibited in Scotland. In the general show, there were many noteworthy examples, but the whole was scarcely up to the average.

In Hyacinths, for Nurserymen, Messrs. Downie, Laird, & Laing contributed Lord Wellington, which was the best double in the hall; Solfaterre, in better condition as to size and colour than usual; Grand Lilas, Grandeur à Merveille, Charles Dickens, Von Schiller, which was best single; Auricula, very dark violet pips, with radiating white or pale eye of great substance; Gigantea, Koh-i-Noor, General Havelock, Macaulay, Queen of the Netherlands, Prince Albert, Lord Palmerston, Mont Blanc, Noble par Mérite, and Baron von Tuyll. Mr. R. M'Intosh, of the Dean Nursery, stood 2d. Many of the varieties in his group were very rare, but their being, as is usual with rarities, rather small in the spike, told against them, thus showing that ever first-rate new varieties cannot hold their own against standard sorts of older date. The best novelty was Josephine, being of a very rich dark vermillion, and pips of fine substance; De Candolle, very pale blue, good; Snowball, one of the best of the whites; Milton, fine deep ruby red; Pieneman, a very large individual pip of great substance, but appearing to disadvantage by being loose or thinly scattered in the spike; Lamplighter, blackish blue, with pale eye; and several unnamed seedlings.

In the practical gardeners' class Mr. Cowe, gr. to H. W. Hope, Esq., Luffness, had 18 remarkable plants; for general points of excellence as to culture, including condition of foliage and density and size of spikes, they were universally admired; they comprise mostly older sorts, well known by name to all Hyacinth growers,—Lord Wellington, Grandeur à Merveille, Charles Dickens, Howard, Mimosa, Grand Lilas, Seraphine, Von Schiller, Koh-i-Noor, Alba superbissima, Mont Blanc, Baron Tuyll, Macaulay, Lina, beautiful in finish and colour; and duplicates of some of the above to complete the group. Mr. Henderson, gr. to J. Christie, Esq., Millbank, had a good lot, comprising, amongst others, fine spikes of Alba superbissima, Miss Nightingale, Grandeur à Merveille, Chas. Dickens, Mimosa, Macaulay, Lord Palmerston, Victoria Regina, Grand Lilas, Howard, Prince Albert, Leonidas, Le Prophète, Mont Blanc, and Duke of Wellington. Mr. Alexander McKenzie, gr. to Dr. Lowe, had also a collection. In the Class for 12, Mr. Wm. Young, the Assistant Secretary, had 1st prize, with good spikes of Macaulay, Emmeline, Grandeur à Merveille, Mont Blanc, Cavaignac, Dickens, Schiller, Mimosa, Wellington, Lilas, and Maria. Others were shown by Mr. David Ker, Glencarse, and Mr. A. Dunlop, gr. to D. McLaren, Esq., M.P., Newington House. In the Class for 6 Hyacinths, Mr. John Fraser, gr. to

Jas. Hope, Esq., Belmont; Mr. John Jones, gr. to Captain Bolton, Bangholme; and Mr. Wm. Laird, Kinellan, Murrayfield, exhibited. Other first-rate sixes in a different class were contributed by Mr. Cowe, and Mr. Jas. Henderson, Gorebridge. The six shown in glasses by Mrs. Vair, Easter Bush, Edinburgh, were fair samples.

In Narcissus the following sorts were furnished by Mr. Henderson, gr. to Professor Syme, Millbank, and by Mr. Henderson, gr. to J. Christie, Esq., Millbank, Gorebridge: Grand Monarque, Gloriosa, Paper White, and Jaune Suprême. In Tulips the same growers furnished some good potfuls of the yellow and common shaded variety of Tournesol, Cardinal, Queen Victoria, The Monument, Vermillon Brillant, &c. In Lily of the Valley there were many creditable specimens, the best coming from Mr. Anderson, gr. to the Earl of Stair, Oxenford Castle, who showed them to much advantage in shallow pans. The 2d prize lot was furnished by Mr. Gordon, gr. to A. Wanchope, Esq., Niddrie House.

In Hardy Bulbs and other Spring Flowers there was a most interesting assortment, which for effect and quiet beauty would grace any arrangement where beauty and elegance were the primary object desired. Messrs. Dickson & Co., Leith Walk Nurseries, sent various Scillas, the Dog-tooth Violet, Double Snowdrops, and Ornithogalum exscapum. Mr. Handasyde, Musselburgh, had a splendid lot, and encased the common earthenware pots with fancy wooden guards, which had a pleasing effect. They consisted of Saxifraga oppositifolia, with its fine sessile, purplish flowers in abundance, as well as the white variety; the white variety of Scilla bifolia, the Dog-tooth Violet, the charming Iris reticulata, with its dwarf habit and intense blue flowers; Muscari botryoides alba, the showy blue Siberian Scilla, and the two-leaved species.

In Azaleas there was a spirited competition; but many of the larger plants entered had to be kept at home owing to the weather. Mr. Cowe was successful with four pretty uniform plants of Model, Iveryana, Dr. Livingstone, and Duchesse Adelaide de Nassau, as well as being placed 1st with a nice specimen of Criterion, as a single specimen plant. Mr. Colin M'Farlane, gr., Moredun; and Mr. Gorden, Niddrie, exhibited with success. Downie & Co. had the best specimens in the Nurserymen's Class. Camellia plants were not a large exhibition, Peter Lawson & Son being 1st among Nurserymen; and Mr. Colin M'Farlane, gr. to D. Anderson, Esq., Moredun, as also Mr. Allen, gr. to S. Hay, Esq., Trinity, were prize-takers in the Gardeners' Classes. In the matter of Camellia blooms Messrs. James Dickson & Sons had a good assortment, the best of which were Old White, Reine des Fleurs, Jenny Lind, Carswelliana, Henri Favre, Feastii, Cap of Beauty, Fimbriata, and Lowii. Mr. James Henderson, Millbank, had Candidissima, Storyi, Maria Teresa, Duchess of Buccleuch, Jubilee, and La Reine, particularly good. In Rhododendrons there were no great samples of particular merit, the best by far being contributed by Mr. R. M'Intosh, of the Dean Nursery. It was Falconeri, with five immense trusses, bearing about 20 flowers of a fine paper-white, with crimson markings towards the base of the corolla. It was growing as a standard, and, as is to be expected, was a theme of general comment. Dickson & Co. had several well-flowered plants of the common order, as well as some good cut trusses, sharing the 1st prize under this section with Mr. Anderson, Oxenford Castle. The best trusses were Brayanum, Vicar of Wakefield, Everestianum, John Waterer, Nobleman, Victoria (Waterer's), and Nero.

Roses and Geraniums were only feebly represented. Cinerarias were a very good exhibition, especially those from Mr. T. M'Gargan, who had Blue Bonnet, Duchess of Cambridge, and Queen Victoria, very good. Primulas were well shown by Mr. James Henderson; and a charming batch of Primroses in shallow pots or pans were shown by Mr. Anderson, consisting of the double white, yellow, purple, and flesh. Mr. David Marshall, gr. to Miss Hay, Kingston Grange, had several pans, densely flowered, of the double French Violets, but they lacked the fragrance with which their name is ever associated.

The Orchestra had been elegantly decorated with trappings of tapestry, among which niches had been arranged with statuary suitably introduced, the whole forming a sort of Chinese-looking background to the various examples of Coniferæ and other plants of decorative importance, furnished and put up by Peter Lawson & Son. On the table confronting this were plants in great variety suitable for conservatory decoration, consisting of Palms, Arads, Pandanads, and some miscellaneous flowering plants, not the least useful among them being Eurya latifolia variegata, which to a suitable habit has a fine golden and green ovate leaf, commending it to the attention of all decorative plant growers. Carstairs & Sons, and Drummond Brothers, had miscellaneous assortments of plants suitable for general decoration.

Mr. Wm. Campbell, gr., Castlemilk, exhibited a plant of the seedling Pelargonium named Castlemilk, but it did not obtain the notice of the judges; shown under better circumstances it may prove a useful variety, but time will tell. Mr. Lees, gr. to the Earl of Haddington, Tynninghame, showed a panicle of by far the largest flowered variety of Phalænopsis Schilleriana we have ever seen exhibited, which received a special award.

The exhibition of Fruit was not very large, but it was invested with a considerable degree of interest as showing the late-hanging qualities of various Grapes shown. Black Alicante, furnished by Mr. Anderson, Oxenford, was good in bunch and berry, but on comparison with the Lady Downes' shown by the two Dukes' gardeners, Messrs. Thompson and Mitchell, it had not the freshness nor plumpness observable in either of the dishes which respectively obtained 1st and 2d prizes. The flavour, however, of the Alicante is good, taking all things under consideration; but it seemed to be an impression that to Lady Downes' we must look for the best keeping Black Grape. Mr. Wm. Thompson staged a couple of very handsome bunches of a white seedling, as plump and fresh looking as if they had been presented in October. It was moderately shouldered, and made up of a round berry of a very rich amber colour; and being a cross between Muscat of Alexandria and Lady Downes', it slightly partakes of the Muscat aroma, while it has a most agreeable flesh, and altogether is a Grape that excited no little amount of sensation from its condition. It had been growing in a cool house at Dalkeith, grafted on the stem of Lady Downes'. In point of finish it was clearly first-rate, and we would suggest that it should be distinguished as the Amber Lady Downes'. It received a First-class Certificate. A couple of good Queen Pines were shown by Mr. Mitchell, Hamilton Palace; and a couple of large good-looking fruit of Smooth Cayenne came from Mr. Foulis, gr., Tordell, Inverkeithing. They received an equal award. Mr. Anderson had three dishes of Pears, consisting of Buchanan, Spring Beurré, Easter Beurré, and Glou Morceau. Mr. Cowe had a fine collection of kitchen Apples. Mr. Pow, gr., Hanley, and Mr. Jas. Mitchell, gr. to Sir David Baird, Newbyth, had very fine dessert Apples, consisting of splendid Golden Pippins, Blenheim Orange, and Luffness Seedling, a handsome conical-looking Apple, with a russety cheek. Good Strawberries came from Mr. Thompson, Dalkeith.

In Vegetables there were several good collections, that from Mr. Thompson consisting of good new Potatos, Asparagus, French Beans, Cucumbers, Mushrooms, Brussels Sprouts, Rhubarb, and Sea Kale.

Liverpool Spring Show: *Wednesday, March* 13.—The day fixed for the Spring Show at Liverpool was as unlike a spring day as it possibly could be, a fierce biting cold wind having taken possession of all available space outside, where everything indicated severe winter. The most sanguine supporters of our spring floral displays could not, under such reverses, anticipate the attendance of the ladies, but they came out nevertheless, fearless of the weather, and determined to see. There was a brilliant attendance in the afternoon, for in truth, the Liverpool Shows in St. George's Hall have a reputation which ensures a company, unless the weather is absolutely drenching. The floral display was also a brilliant affair, the Grand Hall being so well adapted for a flower show, and so perfectly warmed, and again did Liverpool turn out an Exhibition which of the kind has not yet been equalled elsewhere. The great feature of the Exhibition was the magnificent display of Hyacinths, and although we have seen more there, we never saw so many fine ones; and such is the decided progress made in their culture about Liverpool, that a bad Hyacinth could not found. We have no hesitation in saying that the same number of extra fine Hyacinths were never seen before.

In the Nurserymen's Class for 24 and 12 Hyacinths, Mr. Cutbush, of Highgate, and Mr. George Davies, West Derby, Liverpool, met again for their annual fight; and although our Highgate hero had a fine lot, his opponent had a finer, and so took the 1st prize in each class. Mr. Davies' lot were even and well-grown, and had in almost every case faultless spikes. Mr. John Gray, West Derby, was third in each class. Mr. Davies' 24 consisted of Amphion, in wonderfully fine character; Mont Blanc, Haydn, Alba Maxima, Baron von Tuyll, Van Speyk, Grandeur à Merveille, Noble par Mérite, in fine trim; W. E. Gladstone, a seedling S. B. of a peculiar shade of slaty blue, with a grand spike; Gigantea, a grand Lord Macaulay, Nimrod, a superb Laurens Koster, Grand Lilas, Lady Derby, a fine seedling single white, which seems to be identical with Mont Blanc; Emmeline, Duc de Malakoff, in superb character; Cavaignac, Mimosa, an extra fine Le Prophète, King of the Blues, grand, a superb spike; General Havelock. Von Schiller, and Duke of Wellington. Messrs. Cutbush's 24 were Von Schiller, Grandeur à Merveille, Grand Lilas, General Havelock, Solfaterre, Charles Dickens, Mrs. James Cutbush, a most superb single white; Ida; Princess Clotilde, very fine indeed; Duke of Wellington: Florence Nightingale, in grand character, a wonderfully fine spike; Princess Alexandra, a fine S.W., but not so smooth in petal as Mrs. James Cutbush; Haydn, fine; Macaulay, fine; Baron Von Tuyll, Gigantea, Mont Blanc, Cavaignac, Bleu Aimable, Mimosa, Snowball, fine; Le Prophète, very fine; Duke of Malakoff, and Auricula Eye, a very distinct and fine single blue. Mr. Davies' 12 consisted of Noble par Mérite, Charles Dickens, Nimrod, Howard, very fine; Alba Maxima, Lady Derby, a splendid General Havelock, Van Speyk, very fine; Duke of Malakoff, Grandeur à Merveille, a splendid Von Schiller, and Laurens Koster, very long in spike. Mr. Cutbush's 12 were Von Schiller, fine; Grandeur à Merveille, Duke of Wellington, Charles Dickens, Nimrod, another superb Florence Nightingale, General Havelock, Princesse Clotilde, Baron von Tuyll, Princess Helena, Mimosa, and Gigantea.

There was a spirited competition in the Amateur Class, and a lot of extremely fine flowers were shown. For 24 Hyacinths, 1st, Mr. Dunbar, gardener to F. Braun, Esq., with Amphion, Bleu Aimable, Charles Dickens, Koh-i-Noor, Kroon Princess, a very fine Schiller, Mont Blanc, Ida, a grand Prince Albert, Laurens Koster, Baron von Tuyll, Grand Lilas, Macaulay, very fine; Howard, Emmeline, Grandeur à Merveille; a grand General Havelock, Leonidas, Gigantea; a good Agnes, single red; Prince of Orange, Duke of Wellington, and Princess Charlotte. These were a very fine lot and well done. 2d, Mr. Maunderson, gr. to R. H. Jones, Esq., with Nimrod, General Havelock, Mimosa, Baron von Tuyll, Mont Blanc, Seraphine, Queen of the Netherlands, Prince Albert, Charles Dickens, a very fine Cavaignac, Mirandoline, Grandeur à Merveille, Laurens Koster, Ida, Grand Lilas, Howard, Gigantea, Lina, a very fine Lord Macaulay, Alba superbissima, a superb Von Schiller, and Bleu Aimable. 3d, Mr. Cahill, gr. to W. Nicholl, Esq., in whose lot were very fine Mimosa, Maria Catharina, Cavaignac, Louis Spohr, a very fine shaded single blue; Le Prophète, Duc de Malakoff, and Grandeur à Merveille. For 18 Hyacinths: 1st, Mr. Dunbar; 2d, Mr. Wilson, gr. to J. E. Reynolds, Esq.; 3d, Mr. Cahill. In these lots were very fine examples of Von Schiller, Feruk Khan, Gigantea, Malakoff, Queen of Hyacinths, Lord Macaulay, and Sultan's Favorite. For 12 Hyacinths: 1st, Mr. Cahill; 2d, Mr. Kneale, gr. to J. Bateson, Esq. In the first lot, which were superbly grown, were fine examples of Henrietta Elizabeth, a distinct and peculiar light striped single blue; Gigantea, and Duke of Malakoff. In the second lot were very good Queen of Hyacinths, Laurens Koster, and Le Prophète; in fact this altogether was a clean well-grown lot; 3d, Mr. Dunbar. For 6 Hyacinths: 1st, Mr. Turner, gr. to E. Bates, Esq., and in this lot was a noble Gigantea; 2d, Mr. Hignett, gr. to C. Rowe, Esq., whose General Havelock and Queen of Hyacinths were very fine; 3d, Mr. Maunderson, who had a good Macaulay. The best single Hyacinth staged for the Single Hyacinth prize was an unusually fine Gigantea, exhibited by Mr. Turner. Von Schiller and Gigantea were generally good. Idas, not so fine as usual. Amphion (or Lady Sale) was also excellent. Lord Macaulay was also generally very well shown.

Polyanthus Narcissuses were poor compared with those of previous years, but there was a good display of Tulips. The best doubles were Leonardo da Vinci, red with yellow border; Duke of York, Yellow Tournesol, La Candeur, Tournesol, Imperator Rubrorum, and Gloria Solis. The best singles were Vermillon Brillant, White Pottebakker, Wouverman, Keizer Kroon, Rosa Mundi, Rose Pepin, Proserpine, a superb kind; Duchesse de Parma, Stella, not so bright as Vermillon Brillant, but a capital kind; Canary Bird, Duc d'Aremberg, and Cramoisie Superbe, which resembles Vermillon Brillant in habit, but is of a much lighter colour.

Some good Azaleas were exhibited. Mr. Williams, gr. to D. James, Esq., was placed 1st for six and three, and the plants were fine and well flowered. Mr. Orr, gr. to H. Pierce, Esq., was 2d for six, with smaller but admirably bloomed plants. A few fine Rhododendrons were exhibited, chiefly from Mr. Williams; Mr. Wilson, gr. to J. E. Reynolds, Esq.; Mr. Maunderson, and Mr. Ashcroft. A superb example of Rhododendron formosum, a mass of flower, was sent by Mr. Orr, and a magnificent Acacia Drummondi by Mr. Dunbar. A few forced hardy shrubs in good character were shown, the most striking being Prunus triloba, Prunus sinensis fl.-pleno, and Ghent Azaleas. It is very early for Roses in pots at an exhibition, but some very meritorious plants were exhibited by Mr. Orr and Mr. Dunbar. An extremely fine Phalænopsis Schilleriana with 37 expanded blossoms, sent by S. Maclure, Esq., Claughton, was much noticed. Cinerarias were poorly represented, and with the exception of the 1st prize lot from Mr. Jamieson, gr. to R. C. Naylor, Esq., they were very inferior indeed.

Standard Mignonettes are always well shown here, and Mr. Wilson, gr. to J. E. Reynolds, Esq., took the 1st prize. Camellia flowers look well in boxes of green Moss, and were much admired. The Bouquets were good, and the three pans of Lily of the Valley, exhibited by Mr. Maunderson, were marvels of good cultivation.

Mr. Meredith offered special prizes for two bunches of Black Alicante Grapes, and for two bunches of Black Grapes, any variety, crop of 1866 or 1867. The 1st prize in both cases was gained by Mr. Freeman, gr. to the Earl of Derby, the former with two very large well-coloured bunches, and the latter with Lady Downes'; an extra prize for good Black Alicante and Lady Downes' was awarded to Mr. Hill, Keele Hall.

A model of one of Beard's Patent Metallic Non-conducting Glass-houses was exhibited. In glazing, the use of putty is dispensed with, and the glass is placed between strips of a durable elastic non-conducting material, and a cap-bar is screwed on by means of a metal cap nut. We expressed a fear that these nuts would rust up, but were told they do not. However, the principle deserves every attention at the hands of horticulturists.

Much credit is due to Mr. R. W. Ker, the active Secretary, Mr. Tyerman, and all who work so well in keeping up the *prestige* of the Liverpool Spring Shows, not an easy thing to do after the loss sustained by their Rose Show last year, and in the face of such weather as was encountered.

Notices of Books.

Eléments de Botanique, etc. Par P. Duchartre, de l'Institut. 2de partie. Paris and London: Baillière, 1867. 8vo, pp. 463.

Some time ago we had occasion to announce the publication of the first part of this, the most recent and most complete text book on structural and physiological Botany; and now, after no long interval, we have the pleasure to call attention to the second and concluding portion which has just been issued.

The anatomy of plants is resumed in this part, which opens with the description of the various kinds of fruits and the changes they undergo during the transition from the immature to the ripe condition. We are glad to find that the author does not in his classification of fruits adopt any of the ingenious but most impracticable arrangements that have been proposed, but limits himself to the two main groups of apocarpous and syncarpous fruits, according as the constituent portions are isolated one from another or combined together, and under these heads arranges a few of the generally met with, easily-determined kinds. This is far better than the plan of cumbering the text-books with a long series of terms which are seldom or never made use of by working botanists, and which are scarcely to be found in any other than text-books, where they add no little to the details of an already over-loaded terminology. With the account of the seed, is completed the description of the various organs of the plant, and of their special functions, and in the succeeding chapters M. Duchartre treats of the general phenomena of vegetation, or those manifested specially in the nutrition of the plant. We may here remark *en passant* that M. Duchartre admits that the sap passes up through the vessels as pointed out amongst others by Mr. Herbert Spencer, whose experiments are alluded to in the present volume, though, strange to say, not a word is said about Mr. Spencer's views as to the influence of mechanical compression in propelling the sap through the plant, though that is an explanation that we believe has been given by no other author, and, though certainly not sufficient to account for all the phenomena witnessed, is at least a sufficiently plausible view to have found a place in M. Duchartre's digest. In the chapters on classification M. Duchartre gives very briefly the characters of the principal natural orders, arranging the latter according to the system of M. Brongniart, which is an excellent one in many respects, though occasionally bringing very different groups into close proximity. As to the question of species, M. Duchartre leans to the old notion of the permanence and limited variability of these groups, and considers that positive science, and especially systematic botany, so far from being gainers by the derivative hypothesis, are obliged to leave it on one side, in order not to sacrifice precision to vagueness, and in order not to have their foundations based upon an ever moving quicksand.

Now, it is quite clear, leaving the Darwinian theory out of consideration, that if this principle of conservatism had been acted on, we should still be of opinion that the earth was flat and immovably fixed in the heavens; we should see and believe that apples fell from the trees, but we should be loth to believe in the important deductions from that fact; we might, perchance, bring ourselves to believe that there were such things as valves in the veins and in the heart, but we should reject the inferences derived from those facts;—in truth we should have to assume that we had arrived at such a degree of perfection that no new fact and no new mode of interpreting facts could really be of any use to us. Surely this is not what M. Duchartre intends; surely he is not so wedded to the doctrine of the fixity of species as to make it a reproach to science that she moves on—that the stand point of to-day is necessarily abandoned to-morrow.

It is not so much a question as to which hypothesis or which theory is the true one. Absolute truth being of course unattainable by mortal thinkers, however eminent, the main points, as far as concerns naturalists, are these: which hypothesis offers the greatest facilities for advancing and extending knowledge?—which gives the most reasonable explanation of the facts that we are already in possession of? The answer to these questions will of course depend upon the tone of mind of the individual, or his prejudices perhaps, and the peculiar sphere of work in which he may be engaged. To many of our readers, accustomed as they are to the infinite variations of plant life, an hypothesis which will give a reasonable explanation, even if it be professedly imperfect, will be preferred to one that says plants (or animals) vary simply because they have in them a principle of variability, just as the pupil when asked why opium was narcotic, replied, "*quia est in eo virtus dormitiva.*" So far from sharing M. Duchartre's views as to the inapplicability of the derivative theory of species to systematic botany, it has always appeared to us that one of the most valuable chapters in Mr. Darwin's work was that upon classification. We have always considered that by the aid of the hypothesis in question, a clearer idea of the relation that one living creature or group of creatures bears to another can be obtained than by any

other means; and that not only is the degree of relationship made more evident, but that the extent and cause of modification is more clearly explained than by the notion of the comparative immutability of so-called species.

In arranging the multitudinous forms they study, naturalists have often to set aside, for the sake of expediency, those principles on which they believe a natural system should be based; in fact, they often have to rely upon characters of little physiological importance, upon points of discrimination which appear to be trifling, but which are nevertheless sufficiently constant for the desired purpose. In such cases the Darwinian hypothesis comes to the rescue, and vindicates the importance of the despised "character" by showing it to be an integral portion of the genealogical tree, though possibly long since detached by the chapter of accidents from the main branches. The Darwinian hypothesis adds a reality to the so-called natural system that no assumed morphological types, no arrangement according to physiological manifestations, could of themselves give.

We have only to notice the issue of a Ninth Edition of Mr. Rivers' *Rose Amateur's Guide* (Longmans), as it is clear that the work in question is something more than a nine days' wonder. At any rate the statement on the title page, and which is confirmed by the subsequent pages, shows that this well-known little book has been "enlarged, corrected, and improved," so that it is now more than ever a guide for the amateur.

A Popular Railway Guide on a plan intelligible to all (24 Bride Lane, Fleet Street), is as much a boon to lesser as to greater travellers, if not more so. The specimen before us is certainly much more intelligible than the ordinary time tables, and is printed in clearer type. The plan will not come into full operation till the first of April.

Florists' Flowers.

The group of Bedding Pelargoniums which includes both the zonal and plain-leaved kinds is one of enormous proportions, for at every exhibition during 1866 new varieties were continually turning up, sadly overtaxing the memory, and encumbering the memorandum books of many a "chiel" whose task it was to "make a note" of them. As a matter of course nothing definite can be said, except in cases where there has been given unimpeachable testimony to their fitness, in regard to their value as bedders, until they have been subjected to some reliable trial, such as that afforded at Chiswick or elsewhere; only in a few cases, therefore, in the following notes will evidence be offered in proof of the bedding qualities of the subjects mentioned.

Mr. Salter, of Hammersmith, whose name is intimately associated with this class of Pelargoniums, offers among others the following "good things:"—Aurora, stout foliage, with well-defined zone; flowers orange-vermilion, produced in large trusses; petals broad, stout, and well-formed; habit dwarf and good. Imperial, a magnificent zonal variety, colour vivid orange-scarlet: flowers of fine form and substance; well-defined foliage; awarded a First-class Certificate. Phœnix, a plain-leaved variety, scarlet upper petals, the lower petals slightly shaded with crimson; flowers large and of fine form. Pink Pearl, a pleasing shade of rosy pink, the upper petals blotched with white; large and of fine form; foliage plain. Queen of Denmark, deep pink, a darker shade of colour than that of Madame Barre, and without the white blotch, a colour much desired; habit dwarf and free; trusses of flower good.

Mr. George Smith, of Hornsey Road, maintains his well-earned reputation with the following:—Hector, foliage slightly zonate; flowers bright scarlet, very large, and of fine form and substance. Pink Globe, pale zonate foliage; colour rosy pink; trusses extra large and showy; habit good. Prince of Wales, distinct dark zone; colour rosy salmon; very large trusses; habit free and compact. Regalia, slightly zonate; colour glowing rosy scarlet with clear white eye, finely formed flowers, and excellent habit. Warrior, foliage slightly zonate; colour brilliant scarlet; pips of great size and substance, and of fine form, forming immense trusses; a variety of excellent qualities.

Messrs. E. G. Henderson & Son, of St. John's Wood, announce a sterling novelty, namely Christine Nosegay, an excellent variety, having a close and compact habit, and freely producing large trusses of bright rosy pink flowers; awarded a First-class Certificate. Also Elegans, a white-flowered variety with showy rosy salmon centre, of good form and substance, and having striking zonate foliage; the habit dwarf and close. Floribunda, foliage bright green, with a dark zone and disc of pale green; pure rose flowers and good habit.

Mr. William Paul, of Waltham Cross, has some fine things for 1867, including some of Beaton's race of hybrid Nosegays. Among them are—Autocrat, foliage with distinct zone; flowers bright orange, the pips very large and of good form; a free-blooming variety, and very attractive. Blue Bell, deep rose suffused with blue, described by Mr. Paul as of a bluish lilac shade; flowers of good form; habit dwarf and free. Crimson Queen, very deep shade of crimson, and yet not wanting in vividness; "the flowers large but somewhat loose, and yet more than compensated for by the profusion in which they are produced on the truss;" good foliage, distinctly zonate. Crusader, a very showy variety; flowers crimson-scarlet, with distinct light eye, large and of good form, in bold trusses, zonate foliage. Dr. Hogg, bright rose, distinctly shaded with purple, a tint very effective out of doors, where it should be seen to be appreciated; the petals large and stout; the trusses large, very showy, and freely produced; in its depth of colour it certainly differs from Amy Hogg, as well as in the breadth and size of the florets; the foliage is marked with a distinct dark-brown zone. Enchantress, rich deep magenta, with a shading of purplish-crimson, the upper petals being of a bright deep scarlet; habit very close and desirable, large bold trusses, and distinct zonate foliage. Glory of Waltham, a remarkably fine Nosegay variety of a very showy scarlet; flowers large and of fine form, in large trusses; habit dwarf and strong. Lilacinum, foliage zonate; colour glowing dark lilac of a quite novel shade; good trusses, and excellent habit. Ossian, colour rich crimson-scarlet, slightly suffused with violet; medium-sized trusses very freely produced; leaves pale golden green, with a slight zone; an excellent variety for pot culture, and a promising bedder. There is already another zonate variety named Ossian in existence, though it does not appear to be known about London. In this, as in Mr. Paul's Ossian, the flowers are deep scarlet, the bottom petals having some amount of lilac spread over them. It is said to be an excellent bedding kind, and much used in the locality where it is found. I do not see it catalogued in any metropolitan list, so probably it is of provincial derivation, and has as yet only a local notoriety. Mr. Paul's variety will be easily known for its peculiar Cloth of Gold foliage. Village Maid will prove a very useful bedding kind, and be strikingly effective; colour deep rosy pink, with clear white centre, a beautiful shade of colour; the white, moreover, is so distinctly separated from the pink as to give it a very striking appearance; habit good, and a free bloomer. Waltham Nosegay, upper portion of the flowers scarlet, the lower magenta; foliage distinctly zonate; a very useful and effective bedding variety.

Mr. C. Turner, of Slough, has Countess of Sefton, a very free blooming Nosegay variety, producing good trusses of bloom; the colour a rosy scarlet; and International, likewise a Nosegay variety, considered to be a marked improvement on Black Dwarf, both in the substance and colour of the flowers; the colour is a rich crimson scarlet, the florets broad and stout, the trusses large and very showy.

Messrs. Downie, Laird, & Laing, of Sydenham, have the following:—King of the Nosegays (Bartleman), colour orange-scarlet, very large and showy trusses of bloom; habit excellent, a very promising variety; awarded a First-class Certificate. Mrs. Laing, also a Nosegay variety, colour bright scarlet; petals broad and well formed; trusses large and bold; dwarf free habit, and very effective as a bedder. Mrs. Menzies, flowers rosy salmon, large, and of fine form; very fine for pot culture. Sambo, very finely formed flowers of a bright deep glossy scarlet colour; large compact globular truss; a very distinct and splendid variety; awarded a First-class Certificate.

A few other promising flowers may be briefly summed up as follows:—Dwarf Queen of Whites (Mann), zonal foliage, colour pure white, good trusses and habit. Felix (Tirebuck), a zonal variety, good habit, and large trusses of pale pink flowers; awarded a Second-class Certificate for its obvious good qualities. Salmon King (Batley), colour clear salmon, tinted and pencilled with carmine; good habit, and very promising; also awarded a Second-class Certificate. Messrs. F. & A. Smith offer a large batch, but not having seen them, I am unable to report on their qualities.

Mr. B. S. Williams has a vigorous-growing and very free-blooming double variety named Theophrasta flore-pleno, the colour bright deep scarlet, rayed with carmine; produces huge trusses of bloom. Mr. Bull is growing on for another year's trial a great quantity of double varieties, many of which promise to be greatly in advance of those now grown.

In regard to the Pentstemon, the advance made is marked both by variation of colours and improvement of form, so that this is now a really valuable summer-flowering plant. A variety called Sceptre was exhibited at one of the meetings of the Floral Committee during 1866, and received a Second-class Certificate; the colour of the flower was purplish-crimson, the lower lobes marked with large and distinct dark spots; fine form and stout texture. Glaber, a North American species, pale lavender largely suffused with blue, finds its great recommendation in its peculiar colour; it is in the hands of Mr. Thompson, of Ipswich. The following, from a batch to be sent out by Messrs. Downie Laird & Laing, are really fine things:—Iona, tube and exterior of lobes crimson, the latter large and well expanded; pure white throat veined with crimson. James Douglas, tube pale bluish purple, pure white throat spotted with light blue, a very attractive and novel flower. James Laing, dark violet purple, white throat, pencilled with crimson, distinct and striking.

A very fine variety was added last season to the list of Pinks, namely, Princess of Wales, a flower of large size, and heavily laced with dark rosy crimson; fine for exhibitions. It came from Mr. Turner, and was awarded a First-class Certificate. An invaluable early forcing variety named Rubens, is also in Mr. Turner's hands; colour, pale lilac, close dwarf habit, very free blooming and richly fragrant, a capital market kind. Messrs. E. G. Henderson & Son have a perpetual-flowering kind named Most Welcome, producing fine pure white flowers, laced with dark reddish crimson, and very fragrant.

The Primula sinensis, in both single and double varieties, has undergone a marked advance (thanks to careful and persistent hybridisation) during the past year. The results are so important that they will shortly form the subject of a separate paper. The magnificent varieties of P. cortusoides introduced from Japan by Messrs. Veitch & Sons, are well represented by amœna, a variety producing large umbels of rich rosy purple flowers on slender foot-stalks, which are larger and much more showy than those of the original species. P. intermedia (Fuller) is a hybrid between P. ciliata and P. minima; it is a vigorous hardy variety, producing good trusses of flowers of a brilliant purplish crimson, and will be a valuable addition to the early flowering plants used for spring garden decoration. Both of these were awarded First-class Certificates. *R. D.*

(*To be Continued.*)

The Apiary.

Self-Confinement of Bees.—Hoping that some other apiarian might have a few words to say on the account given us by Mr. West (see p. 241) of the extraordinary self-immolation of the bees of his Egyptian hive during a period of five months, I have, till now, deferred making any remarks on the subject of his observations. The disinclination to stir forth, and voluntary confinement for so long a time, and more especially in the fine weather which prevailed during a portion of the autumn months, manifested by the bees of this particular Egyptian hive, is certainly a very unusual and curious circumstance. It must be remembered that the hive was, and is still, very populous, and was well supplied with provisions. This state of affairs commonly induces a disposition to activity, particularly in the way of attempts to rob other stocks. Besides which, even if there is no forage to be obtained by working in the fields, bees generally like to take advantage of some part of every fine warm day to "play out," as it is called here, and bask in the sun. Why this particular hive should have persisted in following a totally different line of conduct must remain a mystery. Had the hive in question, possessed by Mr. West, been the only colony of Egyptian bees in England, then we might have been led away with the idea that in this peculiarity the bees only exhibited a type of their wonderful instinct in retaining habits suited to their own native clime. Unfortunately for the soundness of this theory this is not the only colony of these interesting and beautiful bees which are kept in England; and as I was, during the same period as that mentioned by Mr. West, in the possession of two, if not three, hives of these bees, I am in a position to give evidence that the conduct of his bees was, to say the least of it, abnormal. During the autumn months the bees of all these hives exhibited signs of activity beyond any other hives in my apiary. They were always, on fine days, the first to show out in any numbers; and even on less favourable occasions the Egyptian bees were sure to be flying in and out pretty numerously, when those of the other stocks in the same garden hardly put out an appearance at all. These hives were not so populous or so well provisioned as Mr. West's hive seems to have been, though by no means very deficient in either attribute; but I compare them with other hives about equal in these respects, and I must give the palm for activity to the Egyptians.

I think, therefore, we must look for some other reason than that of nationality for the peculiarity evinced by the bees of Mr. West's hive. What may have been the true cause I am not prepared to say. If such a circumstance should occur in my apiary with regard to any of my stocks, I should suspect something wrong in the interior economy. Either there might be an old and worn-out, or a young, infertile, or drone-breeding queen; or possibly there might be no queen at all. Or the combs might be filled with foul brood, which would be cause amply sufficient; but we have no grounds for supposing that either the one or the other of these conditions really existed. By all accounts, the hive would appear to have been thoroughly prosperous in all respects. I know that when it came into the possession of Mr. West, a few months ago, it possessed a young and vigorous queen, and there is no reason to suppose that she can have become lost or changed. We must, as I said before, look for some other reason which operated in causing the bees of this particular hive to evince such an extraordinary deviation from the line of conduct usually characteristic of ordinary well-regulated bees. I do not for one moment believe that the fact of their being of Egyptian descent had anything whatever to do with it. If I mistake not, similar instances might be related as connected with our own common English bee; but as I cannot distinctly recall any particular case, I must leave the matter for the consideration of others. *S. Bevan Fox.*

Miscellaneous.

Australian Spinach.—At the commencement of last year Mr. Ramel, who introduced into the French colony of Algiers the Eucalyptus globulus, received from Australia a new vegetable. His friend Dr. Mueller, of Melbourne, had it sent to him as a substitute for Spinach; it is superior in every respect to that vegetable, easier of cultivation, and of an enormous and rapid growth, less subject to run to seed, and also of better flavour. He called the plant New Queensland Spinach. The New Australian Spinach is, however, a better name. It belongs to a group in which is comprised our common Spinach; it answers botanically to the Chenopodium auricomum of Lindley, who described it in a few words in Mitchel's Journal on Tropical Australia. It grows abundantly in the east part, following the course of the River Narrau, and it is again found in Queensland. The Chenopodium auricomum is an annual, with a long stalk rising to a metre. In its general appearance it resembles Chenopodium hybridum, that troublesome weed which overruns our fields, excepting in certain points, especially in the inflorescence, which differs. The stalk is erect, robust, angular, fluted, streaked with a violet kind of red. As regards the eatable qualities of the plant, we have recently gathered an abundant harvest of leaves from two or three plants growing in our garden. These leaves were put into boiling water to bleach them, and they were then cooked as an ordinary dish of Spinach, with this difference in favour of the new plant, that there was no occasion to take away the threads which

are so disagreeable in Chicory, Sorrel, and ordinary Spinach. We partook of this dish with relish; the flavour, analogous to Spinach, had something in it more refined, less grassy in taste. The cultivation is easy: sow the seed in April in a well-manured bed, for the plant is greedy; water it. The leaves may be gathered from the time the plant attains 50 centimetres in height. They grow up again quickly. In less than eight days afterwards another gathering may take place, and so on to the end of the year. *Journal de la Ferme et des Maisons de Campagne.*

Hereford Orchards.—Duncomb, in his "Agriculture of Herefordshire," quoting Evelyn's "Pomona," (A.D. 1679), said:—"The plantations of Herefordshire acquired the peculiar eminence they still retain in the reign of Charles I., when, by the noble exertions of Lord Scudamore, of Holme Lacy, and other gentlemen, Herefordshire has become in a manner one entire orchard." In this opinion I cannot agree. Indeed, Dr. Beale, in his "Herefordshire Orchards," says:—"From the greatest persons to the poorest cottage all habitations are encompassed with orchards and gardens, and in most places our hedges are enriched with rows of fruit trees, Pears or Apples, Ginnett, Moyles, or Crab trees." The same writer adds: "One reason why fruit do so abound in the county is for that no man hath of late years built him a house but with special regard to the proximity of some ground fit for an orchard, which should be some depth, as is commonly towards the foot of a descending ground, and frequently with a proclivity towards the south, and the land not too friable or hollow, but somewhat tough, binding, and tenacious, lest the winds root up the stock; and many times servants when they betake to marriage seek out an acre or two; for this they give a fine or double value for years or lives, and thereon they build a cottage and plant an orchard, which is all the wealth they have for themselves and their posterity." He also remarks upon the great size to which the fruit trees grow, and expresses an opinion that some sorts live a thousand years, in support of which he mentions, "an Apple tree at Ocle Pitchard, which one year yielded 5 hogsheads of cider without water, and never faileth of 3 hogsheads of 64 imperial gallons, which tree had not been noticed to vary in size by the owner, who was then 80 years of age." The difficulty of propagating the old fruits is treated upon at some length, and French fruit is more than once alluded to. Therefore I think Mr. Duncomb would have been more nearly correct had he said Lord Scudamore zealously applied himself to the improvement of orchard cultivation, particularly of the red-streak Apples, and probably was the introducer of French fruits; but there is abundant evidence that the art of cider making, and the knowledge of the strength of cider, were well understood in England and in the county of Hereford several centuries before his day. Be this as it may, I believe I am right in stating that the cider made in the county is unsurpassed in strength by that produced in any other county; and not only so, but the strength is very long retained; indeed, I have myself drunk some which, after having been in bottle 56 years, left a pleasant dry roughness on the palate without acidity. *Duckham on the Farming of Herefordshire.*

The Forests of Russia.—Amongst the sources of wealth, unproductive as yet, are the forests of Russia, and which, for the most part, have the appearance of virgin forests. The forests of Prussia, which are not to be compared with those of Russia, are, thanks to a model management, the source of considerable revenue to the State, whilst those of the latter are at present only an expense. Forest economy in Russia is in its infancy: its importance is reserved for the future; and the numerous railways now in the course of construction will contribute largely to its extension. The western part of Northern Europe is poor in forests, whilst, on the contrary, the east is rich. Finland, the governments of Olonetz, Wologda, Kastroma, and Archangel all possess immense forests. On the 80,269,375 deciatines (1 deciatina=2 acres, 2 roods, 32 perches) that form the government of Archangel 30,312,209 deciatinas are covered with forests, of which 1,151,088 are the property of the Admiralty, as they furnish excellent timber for ship-building purposes. One district alone (Mesen) contains 14,865,872 deciatinas of forest land; and the districts of Pinega, Kemi, Cholmogory, Onega, and Archangel are equally rich in timber. The Scotch Fir (Pinus sylvestris) is found in great abundance, and the forests of the governments are principally composed of this tree; however there is no scarcity of the Spruce Fir, the Siberian Cedar, the Birch, and the Poplar. The first exportation of timber from Archangel appears to have been in 1761. During the last ten years the value of the timber exported from the ports of Archangel and Onega amounted to 346,978 roubles (£54,215), a small sum as compared with the riches of the forests of the country; and the Grand Duchy of Finland, though much smaller in extent, exports annually timber to the value of upwards of two millions of roubles (£312,500). Better results may be predicted for the future, now that the Petchora, and especially its mouths, are navigable. *Correspondance Russe.*

Garden Operations.

(*For the ensuing week.*)

PLANT HOUSES.

CONTINUE, as opportunities offer, potting the few rarer *Stove plants* which may not yet have undergone that operation. Anthuriums, Musas, Cossignia, Ananassa, Vriesia, and many other similar subjects, may now by the aid of a good shift, be pushed on freely in growth, in a moderate amount of temperature, which in stoves, properly so-called, may be allowed to range from 68° by night, to 85° upon favourable days. Ply the syringe pretty freely at shutting-up time. With one exception, the above and many plants similar in habit, will be greatly benefited by having the leaves thoroughly cleaned once or twice a week, with a sponge dipped freely in tepid water. Too much indeed can scarcely be said as to the desirability of frequently resorting to this method of refreshing all plants confined in glass houses. Coccocypselum discolor will also need shifting into an open fibry soil, with the view of promoting good growth, and the production of a fine crop of its quaint purple fruit. Early batches of Achimenes, Caladiums, Gloxinias, &c., will now need potting. The Achimenes will do best in pans of moderate depth; if placed in pots they require good drainage. Pot them loosely into an admixture of two parts peat and one of leaf-mould, with a liberal dash of silver-sand. The Caladiums will require only small shifts into an admixture containing less leaf-mould than that used for the Achimenes, potting moderately firm. Give the Gloxinias a shift into pots about as large again as the size of the bulbs to be operated on. These all need a high moist temperature. Gloxinias, however, dislike having their leaves wetted. Small yellow insects often attack the leaves of the latter, therefore examine them carefully, should the least symptoms of their presence be observed in the shape of brown disfigurations upon the larger and more matured leaves. The two former will receive much benefit by being frequently freely moistened overhead. Now is the time to pot and start in warmth the general stock of all such bulbs as those just adverted to—at all events proceed with potting them, as, if that operation is delayed, they will, by the formation of a weakly growth, lose much of their robustness, besides running the risk of being broken or injured in potting. Shade the Achimenes well on sunny days, especially in fluctuating weather, when laden with condensed moisture. Prepare, and place upon plant-houses generally, the necessary shading material. The most economical shade which I have met with is that called Hessian cloth or canvas. It is some 2 yards wide, and is sufficiently strong for roller work, while its cost is only 1*s.* per yard run. For shading frontages or sides of glass houses, however, or indeed where possible for tacking to the roof inside, scrim or tiffany is to be preferred, as being less thick it admits more light than the shading just named. Where a small stock exists of the *Syringa* or Mock Orange, especially Philadelphus mexicanus, it will be advisable to place some in heat for the purpose of forwarding them a little; being fragrant they will prove acceptable in mixed collections, or for indoor decoration.

FORCING HOUSES.

Set about preparing later *Vineries* for starting in an even gentle way with the view of securing good autumn Grapes, remembering the fact, that according to the way in which, at every succeeding stage, the several processes are well carried out, will not only be the fineness of the crop, but also the keeping properties of the berries. Where *Vines* are cultivated in a mixed house it will be advisable to choose a fine warm day upon which a thorough cleansing of the whole house should take place. Remove all plants from it, well wash the paint, and whitewash the walls; after which each plant should also be properly cleaned and returned to its place, giving the whole, in a night or two afterwards, a searching smoking. In causing the Vines to break, resort as little as possible to artificial means at this advanced date; should they break too slowly, give air only in the front; this, by retaining more moisture in the slightly warmed atmosphere than is possible when the top is thrown open, will aid—not unnaturally—in giving them a favourable start. When fine warm weather occurs it will be advantageous to remove from the outer borders any coverings which may have become sodden by the late snow. *Pines* swelling fruit may be more freely supplied with liquid manure, withholding it altogether from any which show signs of ripening.

Cuttings of different varieties of *Centaureas* should now be put in. I find them to strike freely cut down, with a joint of last season's growth for a base, put singly in small 60-sized pots, with abundance of sand immediately around the bottom of the cutting, and then plunged to the rim in a slight, one or two-framed hot-bed, formed for the purpose, so that they are kept just milk-warm at the bottom, whilst they are kept perfectly cool and airy at the top, by tilting the lights both back and front, to admit a current of air right over them. They will seldom strike in enclosed or very warm positions. They should not yet be propagated, however, if not fairly growing. Keep the old plants moderately dry for a time, and let them occupy a light airy situation.

HARDY FRUIT GARDEN.

Out-door-grown *Figs* may now have any protecting material placed over them in the autumn, removed. Be particular, however, when any trained to walls are exposed thus abruptly, to prune and nail them close in as soon as possible afterwards; as if the younger spurs are permitted to protrude far from the wall, a very slight amount of frost will destroy the embryo fruits thereon. In a general way it is not advisable to winter-prune Figs, as doing so often causes them to emit stronger shoots from the base, ill adapted to the main desideratum, fruitfulness. Should any part become over-crowded, it is best at all times to remove, down at the base, some of the stronger growths of recent formation, retaining, where possible, the lesser, more woody branchlets, or growths more properly formed, for fruiting; and leaving any further pruning operations until the summer time. Do not manure the roots of Figs or loosen the soil around them more than is absolutely necessary. They fruit more freely in hard soils, and delight in old mortar rubbish, especially the old debris from fallen houses. As this is a good season for planting them, borders may be prepared of such, with a little loam intermixed, all well rammed down together; this suits them well. The Brown Turkey and the Brunswick are well adapted for such positions.

KITCHEN GARDEN.

Owing to the sodden state in which most soils must be for a week or two to come, consequent upon the late heavy falls of snow, it is not advisable to proceed with the usual planting or sowing operations upon open quarters. It may be possible, however, by choosing a dry interval, to make a few sowings for the earlier purposes, though even these it will be better to defer for a time, where it may not be possible to rake the seeds in freely when sown. These include *Brussels Sprouts.* Where large-sized sprouts are needed, it will be better at all times to sow the Roseberry. Of *Broccoli*, a little of each of the following may also be sown, viz., Walcheren, and Osborn's, and Backhouse's Winter Whites. In limited gardens sow either of the above, as they are all likely to give a supply, more or less, throughout the winter months; sowing at the same time a pinch of *Cabbage* for summer use. Hill's Incomparable is a compact grower, suitable for this purpose. *W. E.*

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the Week ending Mar. 20, 1867, as observed at the Horticultural Gardens.

March.	Moon's Age.	Barometer.		Temperature.					Wind	Rain.
				Of the Air.			Of the Earth			
		Max.	Min.	Max.	Min.	Mean	1 foot deep.	2 feet deep.		
Thurs. 14	8	29.622	29.512	41	28	34.5	40	40	E.	.00
Friday 15	9	29.778	29.692	40	25	32.5	40	40	N.E.	.11
Satur. 16	10	29.985	29.875	38	20	29.0	40	40	N.E.	.00
Sunday 17	11	29.995	29.678	38	30	34.0	39	39	E.	.00
Mon. 18	12	29.496	29.445	35	30	32.5	40	39	E.	.06
Tues. 19	13	29.370	29.272	36	32	34.0	39	39	N.E.	.25
Wed. 20	○	29.744	29.409	43	27	35.0	39	39	N.E.	.00
Average.		29 713	29.554	38.7	27.4	33 0	39.5	39.4		.042

March 14—Snow and sleet; overcast; snow in broad flakes; overcast.
— 15—Snowing, uniformly overcast; fine at night.
— 16—Clear and frosty; fine, with white clouds; frosty at night.
— 17—Frosty, with slight haze; cloudy and fine; boisterous.
— 18—Very cold and boisterous; snowing; densely overcast.
— 19—Overcast; heavy fall of snow and sleet; drizzling rain at night.
— 20—Densely clouded; cloudy and cold; overcast at night.
Mean temperature of the week 9 3-10th deg. below the average.

STATE OF THE WEATHER AT CHISWICK,
During the last 41 years, for the ensuing Week, ending March 30, 1867.

March.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds.							
						N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday..24	48 5	31.7	40.1	15	0 30 in.	5	6	4	—	5	7	8	6
Mon. ..25	50.9	32.5	41.7	15	0.50	3	11	5	—	2	6	7	7
Tues. ..26	51.5	32.3	41.9	16	0 17	2	7	4	2	3	6	7	7
Wed. ..27	53.7	34.2	43.9	14	0.37	3	8	4	2	3	7	12	2
Thurs. ..28	53 0	34 2	43 6	17	0.68	4	7	6	2	2	7	9	4
Friday ..29	53 8	33 7	43 8	13	0.33	2	5	10	3	2	8	8	3
Satur. ..30	53 8	34 6	44 2	18	0 50	3	6	6	1	6	10	5	4

The highest temperature during the above period occurred on the 27th. 1830—therm. 75 deg.; and the lowest on the 25th, 1850—therm. 14 deg.

Notices to Correspondents.

DEFORMED ROOTS: *C W D.* The Grape-like excrescences on the root sent are insect habitations. Each one contains two or three small grubs, for whose maintenance a store of succulent and starchy food is laid up in the walls of the house.

DESSERT PLUMS: *R W.* The following will probably suit you: viz., Transparent Gage, Jefferson, Reine Claude Violette, Denyer's Victoria. Kirke's, and Coe's Golden Drop.

GARDENERS' EXAMINATIONS: *Croton.* Your application must have been accidentally overlooked. Apply again for the Programme for the Examinations of 1867, to the Secretary, Society of Arts, John Street, Adelphi, London, W.C.

GRAPE-GROWING: *Yorkshire Sub.* Your Vines doubtless break badly because the wood of last year has not been sufficiently well ripened to enable it to undergo the hard forcing to which we suspect your Vines have been subjected; and this explains why they are breaking better from the old wood, which was doubtless well ripened, than from that made last season. The fact of your Black Hamburghs doing better than either of the other kinds mentioned also strengthens our opinion as to the cause of your failure, because the Black Hamburgh ripens its wood better, and bears harder forcing, than almost any other variety. Last autumn was sunless, cold, and wet, and unusually unfavourable for ripening purposes. We shall therefore not be surprised if we hear of many failures similar to that which you have experienced.

HAY LODGE, TRINITY.—In the notice of this place at p. 213, the plant referred to by our correspondent as "Himmerus" Mutisii should be Hemimeris Mutisii, a species now referred to Alonsoa.

INSECTS: *J B.* Your insect is the destructive weevil, Otiorhynchus sulcatus, which feeds by night, and conceals itself by day in the rough parts of the bark. A white cloth should be laid on the ground beneath the Vines, and the house should be visited after dark. The light alarms the beetles, which fall on the cloth, and are easily destroyed by treading on them or putting them in boiling water. *W.*

MANURE FUNGI: *Amateur Perplexed.* The little black specks are the sporangia of Pilobolus. *M J B.*

MALFORMED DENDROBIUM NOBILE: *S H.* The peculiar appearance of your flower is due to the partial union of two of the sepals, and the consequent displacement of the other parts of the flower. It is curious how slight an alteration of this kind will produce a great change in the general appearance of the flower.

NAMES OF FRUIT: *D F, Slough.* It appears to be Raisin de Calabre, but we are not quite sure, as the berries were very much bruised and discoloured when they arrived. Send it again in October or November with a leaf.

NAMES OF PLANTS: *J P.* Adiantum trapeziforme.—*J W P.* 1, Selaginella pubescens; 2, Davallia pyxidata; 3, Doodia caudata.—*J S.* Pinus Pinaster.—*G M.* Eucomis punctata.—*Diss.* Veronica ligustrifolia.—*J M.* Probably a variety of Rhododendron arboreum, or a hybrid between it and some other species. It is not R. Windsori.

PELARGONIUMS: *J N H.* The leaves seem to be affected by some atmospheric injury. Have you been coating your pipes with any suspicious pigment? What is the "Berlin black" you mention?

WASH FOR VINES: *J N H.* One of the washes in common use is made up the following ingredients: 2 lb. soft soap, 2 lb. flowers of sulphur, and 1 lb. tobacco. The latter should be well boiled, then strained and the other ingredients added, with as much water as will make up 5 gallons. It is laid on with a brush. A wash prepared from Gishurst Compound is equally efficacious.

COMMUNICATIONS RECEIVED.—Prof. Regel.—Prof. Morren.—M. de Jonghe.—J. S.—W. Miller.—J. Anderson.—Dr. Smith.—A. Forsyth.—Ferd. Müller.—W. Earley.—Doubtful.—J. C. Nicholson.—A. Boyle.

SUTTON AND SONS,

ROYAL BERKSHIRE SEED ESTABLISHMENT, READING,

Offer the following New or Improved Varieties of

AGRICULTURAL ROOTS

AND

FORAGE PLANTS,

Specially worthy of Cultivation—the merits of which have been tested at their Trial Farms and Grounds :—

BROMUS SCHRADERI (Schrader's Brome Grass).—This useful plant is remarkable for its habit of free growth in the earliest spring and latest autumn months. All kinds of stock eat it freely. It should be mown as soon as 18 or 20 inches high, and by thus cutting while young, four or five good crops will be produced a year. Price 2*s.* 6*d.* per lb., or cheaper in large quantities. Sow in March, April, May, August, and September. Sow 30 lb. per acre.

NEW EARLY OXHEART CABBAGE.—This is a very distinct variety, not of the Drumhead shape. For feeding off early it is invaluable, on account of its quick growth. If drilled in rows 20 inches apart, it will be found to produce a most abundant crop. Sow in March for feeding in Autumn, or in August and September for Spring feed. Price 3*s.* 6*d.* per lb.

THOUSAND-HEADED CABBAGE.—A very hardy variety, tall, and branching. It is valuable as early Spring feed for sheep, which are very fond of it. Sow in March only. Price 2*s.* 6*d.* per lb.

ROBINSON'S CHAMPION DRUMHEAD CABBAGE.—This is the largest variety in cultivation, and invariably takes first prize at Birmingham and other important Agricultural Shows. Some of the heads have attained the enormous weight of 70 and 80 lb. each. Sow in March and August. Our seed is direct from Mr. Robinson. Price 3*s.* 6*d.* per lb.

MALDEN'S NEW WONDER CLOVER.—This is valuable as a change on Clover-sick lands, but especially for its capability of enduring the summer drought. It is a heavy cropper, and thrives on poor sandy or gravelly soils. Price 2*s.* to 2*s.* 3*d.* per lb.

NEW WHITE INTERMEDIATE CARROT.—This is an improvement on the Common White Carrot, having shorter but much larger roots, and is a valuable acquisition. It is easily pulled, and will be found to yield a great weight per acre. It is particularly adapted for shallow soils. Price 3*s.* 6*d.* per lb.

GREEN-TOP ORANGE BELGIAN CARROT.—A much heavier cropper than the old Yellow Belgian Carrot, and very nutritious. Price 1*s.* 9*d.* per lb.

NEW LARGE PURPLE BEET (for Field Culture).—This is a new large variety of the Garden Beet, produces great weight per acre, and is more nutritious than Mangel Wurzel. Price 3*s.* 6*d.* per lb.

FENUGREEK.—An aromatic Forage plant. When cut green, a small quantity mixed with hay in the stack greatly improves the quality, especially when the hay has been damaged by rain. Price 1*s.* per lb.

FRENCH FURZE or GORSE (Ulex europæus).—A valuable plant for cutting while young. If crushed and given with other food it is much liked by cattle, and especially by Milch Cows, which have been found to thrive well on it. It is also useful as horse feed, and admirably adapted for hedges or cover. Price 1*s.* 9*d.* per lb.

SUTTON'S NEW DWARF PERENNIAL RYE-GRASS.—A superior variety, of very dwarf close-growing habit. It is particularly adapted (with other kinds of Grasses) for Lawns and Pleasure Grounds, and is included in all our Permanent Mixtures. Sold by weight only. Price 7*d.* per lb., or 60*s.* per cwt.

SUTTON'S IMPROVED ITALIAN RYE-GRASS.—This is preferred to every other variety of Italian Rye-Grass. It produces three or four heavy crops in one summer, and is almost if not strictly perennial. It has proved very successful under cultivation with Sewage at Barking, West Ham, and other places. Price 6*s.* 6*d.* per bushel, or cheaper in large quantities.

NEW LARGE GERMAN KOHL RABI.—An improved and very early variety, grows to a large size. Price 4*s.* per lb.

THE LUPIN.—This plant is admirably adapted for poor, sandy soils, on which it will grow a great weight per acre. It is a great acquisition in its green state for sheep, on account of its intrinsic feeding value and medicinal properties. The two varieties most worthy of cultivation are the Yellow and the Blue; both are equally useful. Blue, 12*s.* 6*d.* per bushel. Yellow, 17*s.* 6*d.* per bush.

SUTTON'S CHAMPION SWEDE.—This is allowed to be the best Swede in cultivation. It is a very heavy cropper, perfectly hardy, stores well, and almost invariably escapes mildew. It has gained numerous prizes again this season throughout the country. Price 1*s.* per lb., cheaper by the bushel.

NEW GIANT TANKARD SWEDE.—A useful, free-growing Swede, and very distinct from the Yellow Tankard Turnip, being a true Swede of rich yellow flesh. It produces a great weight per acre, but is apt to grow rather coarse on rich soils: the quality, however, is excellent. Price 1*s.* 6*d.* per lb., cheaper by the bushel.

SUTTON'S GREEN-TOP YELLOW HYBRID TURNIP.—A very large yellow-fleshed Turnip, of excellent feeding properties. It is quite distinct from the common Yellow Scotch or Bullock Turnip, being paler in colour, but much larger. Price 1*s.* per lb., cheaper by the bushel.

SUTTON'S PURPLE-TOP MAMMOTH TURNIP.—A very large quick-growing Turnip, selected from the Grey Stone, possessing valuable feeding properties, and producing upwards of 40 tons per acre. This variety was particularly admired on our Stand at the Smithfield Club Cattle Show. It is the largest Turnip in cultivation. (Sow in June or July.) Price 1*s.* per lb., cheaper by the bushel.

SUTTON'S SHORT-TOP SIX-WEEKS TURNIP.—The quickest Turnip known, excellent for sowing very early or very late. It may be sown till the end of August or first week in September with certainty of crop, and the latest sowings will stand the winter well. Price 1*s.* per lb., cheaper by the bushel.

SERRADELLA.—This is now extensively grown as a substitute for Vetches, and is particularly adapted for very poor soils. March and April are the best months for sowing. Sow 28 lb. per acre. Price 1*s.* per lb., or cheaper by the cwt.

SUTTON'S SELECTED YELLOW GLOBE MANGEL.—This is the result of many years careful selection, and possesses the desirable qualities of being very free from roots, with small top and beautiful shape. It is a very heavy cropper, and thrives well on all soils. Price 1*s.* per lb., cheaper by the cwt.

SUTTON'S NEW YELLOW INTERMEDIATE MANGEL.—A most desirable kind, beautiful in shape, superior in quality, and very free from rootlets. It may be allowed to stand closer in the rows than other Mangels, hence it produces a much greater weight per acre, and from its peculiar shape, is more easily pulled than any other variety. Seed scarce. Price 1*s.* 9*d.* per lb., cheaper by the cwt.

BERKSHIRE PRIZE YELLOW GLOBE MANGEL.—A distinct variety introduced by us last season, when it gave great satisfaction, and gained many Prizes. It is remarkable for its small top and freedom from coarse roots, and grows to a very large size. Our stock of Seed is limited, and we can only offer it in quantities not exceeding 5 lb., at 2*s.* 6*d.* per lb.

SUTTON'S MAMMOTH LONG RED and SUTTON'S MAMMOTH LONG YELLOW MANGELS.—These are superior new varieties, growing to a large size without becoming coarse, and producing a much greater weight per acre than the common kinds of Long Red and Long Yellow. 60 tons per acre have been grown of the Red Mammoth. Both were greatly admired on our Stand at the Smithfield Club Cattle Show. Price 1*s.* 6*d.* per lb., cheaper by the cwt.

SHEEP'S PARSLEY.—This is excellent feed not only for sheep; but horses and cows are equally fond of it. A few pounds of Seed sown over any pasture in the months of February, March, or April, will be very useful. Price 1*s.* per lb.

LUCERNE.—This is a most useful plant as green food for horses. It should be sown in April, in drills 12 inches apart, and may be cut four or five times a year. It should be hoed after each time of cutting, and manured every spring. It thrives in any soil, but especially in chalky land. Price 1*s.* to 1*s.* 3*d.* per lb.

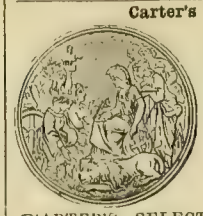
For particulars of other kinds of FARM SEEDS, GRASS SEEDS, CLOVER SEEDS, &c., &c., see "SUTTON'S NEW FARM SEED LIST," which may be had gratis and post free on application.

*** All Goods Carriage Free, except small parcels.

SUTTON & SONS, Seed Growers, Reading.

237 and 238, HIGH HOLBORN, LONDON, W.C.—CARTER'S SELECT LIST of FARM SEEDS, at reasonable prices, forwarded gratis and post free on application to CARTER'S Great London Seed Warehouse, 237 and 238, High Holborn, London, W.C.

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CARTER'S SELECT LIST of GENUINE FARM SEEDS, at moderate prices, is now ready, and may be had post free on application to CARTER'S Great London Seed Warehouse, 237 and 238, High Holborn, London, W.C.



GRASS SEEDS for PERMANENT PASTURE, of the finest quality, at moderate prices, carefully selected on a new, natural, and scientific system.

See "WHEELER'S BOOK on GRASSES," which contains Illustrations and Descriptions of the most suitable Grasses for Permanent Pasture.

J. C. WHEELER & SON,
Gloucester,
Seedsmen to the Gloucestershire Agricultural Society.

SOUTHERN COUNTIES ASSOCIATION.
President 1866-'67—HIS GRACE THE DUKE OF RICHMOND, K.G.
The ANNUAL EXHIBITION of HORSES, STOCK, POULTRY, IMPLEMENTS, FLOWERS, WORKS of ART, &c., will be held at BRIGHTON, on the 24th, 25th, 26th, 27th, and 28th of JUNE NEXT.
SUMMARY OF PRIZES OFFERED :—
CATTLE.—Short-horns, £125; Sussex, £125; other Breeds, £50.
SHEEP.—Southdowns, £90; Hants Downs, £90; Oxford Downs, £90; Kent Sheep, £90.
HORSES.—Agricultural, £110; Hunters, £95; Hacks, £15; Ponies, £10.
PIGS.—Berkshire, £32; other Breeds, £32.
POULTRY.—Various, £93.
The PRIZE LIST may be obtained of the Secretary. ENTRIES CLOSE May 1. By order of the Council,
Yately, Farnborough. G. B. H. SHUTE, Secretary.

ROYAL AGRICULTURAL SOCIETY of ENGLAND.
BURY ST. EDMUND'S MEETING, 1867.
STOCK, POULTRY and IMPLEMENT PRIZE SHEETS are now ready, and will be forwarded on application to 12, Hanover Square, London, W. H. HALL DARE, Sec.

The Agricultural Gazette.

SATURDAY, MARCH 23, 1867.

HAVING had samples of several sorts of Potatos presented to us last spring we determined upon planting them side by side, in order to observe their differences of foliage, productiveness, quality, and other points of interest. Of these nine sorts were sent under the name of PATERSON, and were either new or improved kinds, raised by this successful experimenter with the Potato. Four sorts were from the Messrs. SUTTON, and the rest were from specimens grown in the district.

With these were formed 21 plots in an open field of sandy loam. They were planted in one day; put in with the hack, and on coming up were hoed with the same tool, it being an implement with which our labourers are very expert, and they certainly grow Potatos remarkably well. Dishes of all the sorts were exhibited at our Cottage Garden Show, and amongst them the following obtained marked attention :—

No. 5. The King Kidney (PATERSON).
,, 9. Paterson's Blue.
,, 10. ,, Victoria.
,, 11. Forfarshire Red (PATERSON).
,, 19. Pink-eyed Rusty Coat (SUTTON).

But the following list will give the whole, and some observations in a tabular form :—

TABLE OF EXPERIMENTAL PLOTS OF POTATOS GROWN IN 1866.

No.	Name.	Remarks.
1.	Pink-eyed Kidney, locally Ladies' Thighs	Long, good-sized white-fleshed sort; a large cropper.
2.	Walnut-leaf Kidney	Medium-sized, yellow-fleshed; ditto.
3.	Ashleaf Kidney	Very early, white-fleshed; poor cropper.
4.	Fluke Kidney	White fleshed, but fibrous; good cropper.
5.	The King Kidney.	Early, yellow fleshed; fair cropper.
6.	Regent.	Late, round, white-fleshed, rather close; good cropper.
7.	Scotch Blue,	White-fleshed; good cropper, but small.
8.	Irish Blue,	Ditto, rather deep-eyed, fine flavour; good cropper.
9.	Paterson's Blue.	Ditto, fine sort, improvement on 7 and 8; good cropper.
10.	Paterson's Victoria.	Yellowish flesh, shallow eyes, fine sort; ditto.
11.	Paterson's Forfarshire Red.	Very fine looking sample; good cropper.
12.	Seedling Rocks.	Fine skinned sort; good cropper.
13.	Paterson's Napoleon.	A good looking tuber; excellent cropper.
14.	Different sorts	Merely grown to observe difference of foliage.
15.	Two sorts	The same.
16.	Cheshire Wonder	Yellowish flesh, small; good cropper.
17.	Red Peach bloom.	Externally much like 16, but with white flesh; good cropper.
18.	Prairie Seedling.	Very fine Potato, white-fleshed; good cropper.
19.	Pink-eyed Rusty Coat.	Ditto ditto excellent cropper.
20.	Early Goodrich.	White-fleshed early sort; fair cropper.
21.	Scotch Down	Yellow-fleshed; excellent cropper.

New or selected sorts grown or raised and sent out by Mr. PATERSON.

New or selected sorts from the Messrs. SUTTON, of Reading.

It is to be hoped that attention thus excited may tend to the introduction of new sorts into the district, as there can be no wonder that disease should result from the constant growth of the same sorts in the same soil, and this has been so emphatically the case that bits of land can be found in which no other crop has been grown for years, and amongst these the deep-eyed Rock is one of the more general; indeed a neighbour laughingly remarked that the only three vegetable crops grown in our villages are *Potatos*, *Taturs*, and *Tatees*.

A general remark may be here made on the results of the experiments with the above sorts, varied as they are in time of ripening and in newness to the district, namely, that all those that were early ripe were free from disease, whilst few of the late sorts escaped it, and of these on an average one-eighth were affected. Still, as regards the "earlies," they did not escape the disease when left late in the ground, and this leads us to the opinion that as soon as Potatos are sufficiently ripe they should at once be dug and stored. It is however notorious that this crop is neglected in favour of other work, for while we can readily see any damage a crop may sustain which is above ground, we do not attend to those below ground, as we cannot see any mischief in progress. Early lifting and storing in a dry state in a dry place, warm enough to keep out frost, but not too warm, are desiderata with many as regards the Potato crop. Cottagers have two methods, both of which have great disadvantages. In most cases the crop is placed on the surface of the soil, and covered over with straw, which, in the West of England, is usually sufficient, but this has entailed great losses in the present winter. Another plan is that of placing the crop in their bed-rooms—here they exhale carbonic acid to such an extent when they begin to "chit," or grow, that it is fortunate if, in such cases, the windows and doors are not over well constructed.

Failing a convenient covered place we prefer really to bury our crop, making a pit in a dry sheltered spot, three feet deep, which should be well lined at the bottom and sides with dried fern, then covering them in a conical shape with a thick mass of straw and thatch, surrounding the whole with a deep ditch around and beyond the mound. But we should greatly prefer keeping them in barrels, such as the American Linseed cake is packed in, as these are not air-tight, and if they are put in a dark dry place the tubers are surrounded with air, which can penetrate to them, and so they are better kept than in any other way.

We have been at some trouble to get our friends to adopt the plan of boiling Potatos in their "jackets;" in this, however, we have utterly failed; the cook, though the boon is sometimes promised, persists in the system of paring, which is destructive of flavour, and most wasteful.

In order to show this we weighed the parings taken off three of the above sorts :—

a. No. 2, Walnut-leaf Kidney, a shallow-eyed smooth variety.
b. No. 7, Scotch Blue, eyes of medium depth.
c. Rocks, a deep-eyed form.

The result was as follows in round numbers :—

a. Lost in paring, 16 per cent.
b. Do. do. 18 ,,
c. Do. do. 22 ,,

The latter figures, again, are greatly against coarse sorts, but it is usually found that they are better croppers, and this is deemed a compensation. *B.*

—— WE have received from the Rev. JOHN CONSTABLE, Principal of the Royal Agricultural College, the following interesting letter in corroboration of Dr. VOELCKER's remarks (reported in another page) at the close of Professor SIMONDS' Lecture on the Diseases of Lambs. Mr. CONSTABLE says :—

"I notice in your remarks on Professor SIMONDS' recent lecture that you allude to some statements made by Dr. VOELCKER after the lecture on the poisonous ingredients found in immature vegetable

food. I have in my possession the records of some exact experiments made by Mr. Church in the College Laboratory, which I had hoped to have given to the public last November, in the second number of Practice with Science. It may interest your readers, while the subject is fresh in their minds, to peruse the following extract from Mr. Church's paper:—

"'Some time ago, I was asked to examine into the cause of the death of some young pigs. They had been fed upon a mash of Bean-meal and Mangel tops. On examining this mixed food, I found it extremely acid; so acid as to turn blue litmus a brilliant scarlet immediately on immersion. I thought oxalic acid might have been introduced into the mixture; I tested for it and found it. But on trying the same experiment with fresh Mangel leaves from the field, I found in them also large quantities of oxalic acid. A determination of the actual amount of this acid present in fresh Mangel leaves was then made.

"'In the middle of September the leaves of a Mangel were cut off close to the root, they were bruised in a mortar, and boiling water poured over the mass, which was then analysed. The method adopted of extracting the oxalic acid from the leaves enabled me to estimate the soluble oxalates alone—those, in fact, which would be really active and poisonous.

15,870 grains of Mangel leaves gave oxalate of calcium equal to
30.36 grains of oxalic acid, or
38.85 grains of acid oxalate of potassium.

This latter salt, commonly known as salt of sorrel, is the form in which oxalic acid usually exists in solution in the juices of plants. We may therefore calculate our results into the form of a per centage of this salt. Thus it will be found that in 100 parts of fresh Mangel leaves there is '251 of oxalate of potassium, or 100 lb. of fresh leaves contain rather more than 4 ounces of this poisonous substance.'"

—— Messrs. Sturge, in a recent trade circular, call attention to the extent to which we are becoming dependent on foreign countries for food both for man and beast. The average annual importation of grain during successive periods of six years each is thus given:—

1831	to 1836	was	1,052,977	qrs.	per annum.
1837	,, 1842	,,	3,132,059	,,	,, ,,
1843	,, 1848	,,	5,181,333	,,	,, ,,
1849	,, 1854	,,	9,189,437	,,	,, ,,
1855	,, 1860	,,	10,279,984	,,	,, ,,
1861	,, 1866	,,	15,485,160	,,	,, ,,

The late Richard Cobden anticipated that within 10 years from the reduction of the duty on corn to 1*s.* per quarter the annual import would amount to 10 million quarters. This, it will be seen, has already been exceeded by nearly 50 per cent. What the result may be at the end of another 30 or 40 years, it is difficult to foresee, as even now the consumption of animal food in Great Britain is so great that the quantity of bread used per head is more than one-third less than in France. Since it is estimated that 10 acres of pasture do not produce so much human food as 1 acre of corn, or even a less extent of Potatos, this increased consumption of meat requires that the produce of a much larger portion of the earth's surface shall be devoted to the supply of food for this nation.

—— By a supplementary Charter granted in 1856, the Highland and Agricultural Society is empowered to prescribe a curriculum for Agricultural Education, and to grant diplomas. The Council constituted by this Charter recently reported that there should be two examinations—namely, one for the certificate and one for the diploma, that the examinations should be both written and oral, that the value of the answers should be determined by numbers, and that the oral examination should be public. The first examination under this report took place in March last year, when two candidates received the certificate and diploma. This year's examination, which commenced on Monday of last week, extended over three days—Monday and Tuesday being set aside for the written and Wednesday for the oral examination, which was open to the public. The subjects of examination, and the several examiners present, were as follows:—Science and Practice of Agriculture—Mechanics and Construction—Professor Wilson and Robert Russell, Pilmuir. Botany—Professor Balfour. Chemistry—Professor Anderson. Natural History—Professor Allman. Veterinary Surgery—Professor Hallen. Field Engineering and Surveying—Professor Macquorn Rankine. Book-keeping and Accounts—Kenneth Mackenzie, C.A., and Archibald Paterson, Meadowfield.

The following gentlemen passed the necessary examinations:—*For Certificate and Diploma.*—1, Robert Brydon, Burncastle, Berwickshire; 2. George Kent Walton, Long Compton, Warwickshire. *For Certificate.*—1. James Cooper Bowstead, of Halkthorpe Hall, Penrith; 2. Thomas John Elliot, Wilton, Salisbury.

A meeting of the Council on Education was held at the close of the examinations—Mr. Henry Stephens, in the absence of the president and vice-president, in the chair—when the Report by the Board of Examiners was received, and certificates and diplomas were authorised to be issued to the successful candidates.

—— One of the best shilling pamphlets on Steam Cultivation we have ever seen has just been issued by the Suffolk Agricultural Society.* It is professedly a report of the steam cultivating machinery shown at the late meeting of that Society (July, 1866). A similar exhibition took place there when the same Society visited this town in 1862, but no record was kept of the work done—either the quality or the cost of it; but at the last exhibition the Bury St. Edmund's Local Committee decided that an official record should be kept, and all particulars noted, and these, it was decided, should be printed, and issued as a report to all the members of the Suffolk Association, the town of Bury St. Edmund's paying the expense; the Local Committee wisely trusting that this would be a step for furthering steam cultivation, and for showing its applicability to the soils of the eastern counties. The reporter engaged for this purpose was Mr. William Raynbird. He was educated at the Royal Agricultural College at Cirencester, and holds a large farm at Hengrave, near Bury St. Edmund's. Mr. Syrett, his colleague, is a practical engineer in Bury St. Edmund's. They have together produced, in the way of history, description, argument, and testimony, as good and effective a piece of advocacy as any believer in steam cultivation could desire.

* Apply to J. Le Butt, Esq., Secretary to the Society, 2, St. George's Terrace, Risby Gate Street, Bury St. Edmund's.

LETTERS FROM ITALY.—No. V.

There are some countries that seem to have capitalised a reputation for good husbandry. Putting other parts of the globe out of the question "from China to Peru" (both of which happen to come within this category), almost any one, speaking of Europe, would name Belgium for one, and Tuscany for another: and I fell under a request, and a promise, to endeavour when on the spot to explain to an old friend at home whose love of farming took a sort of traditional character,—why, when that of its neighbor Tuscany is so celebrated, the agriculture of Piedmont is so deficient:—just as you see at home what some one calls 'the reproach of England'—good farming and bad, nay the best and the worst,—and on the same soil—divided from each other only by a hedge.

'Why does a bucket of water with Fish in it, weigh no more than the same bucket of water *without* the Fish?' was King Charles' question to the Savans of the Royal Society in its youth. The reputed answer of Mr. Boyle contains the elements of that which I had to write, as soon as it was possible to form a judgment. "If it please your Majesty the *proposition* is not true."

The unfavourable comparison has, no doubt, been derived from the observation of persons travelling north. The fair plains and slopes of Tuscany fanned by the breezes of the Mediterranean, and enjoying a climate which can ripen a far greater variety of crops, may easily captivate the eye with the appearance of superior cultivation to that of a country whose long dead flats lie under the ice-blast of the Alps.

The valley of the Dora, from Susa to Turin may perhaps be taken as a fair, though somewhat northerly type of the general character which in fact speaks in the very name of *Piedmont*. It is an almost regular descent, running with the stream; and its appearance was aptly described half a century ago by a wanderer whose 'diary of an Invalid' did for travelling what Horace Walpole did for Letter-writing. "Nothing" to use his own words, of Lombardy, "can be more uninteresting than the dull flat plain where there is little to please any eye but the eye of the agriculturist. The land indeed is as rich as land can be, yielding four hay-harvests in the year. Besides, the whole plain is almost one continued Vineyard; and the Vine is not here the little dwarfish plant that it is in other places, but is trained to hang from tree to tree in rich festoons, as it is described by Virgil."

If blood can fertilise Piedmont should be productive; for it was 'the cock-pit of Europe' from the days when Charlemagne, led by a minstrel deserter, crept through a mountain chain of fortresses by a secret path into the Longobardic camp,—down to the days of Napoleon.

If an English farmer could be conveyed blindfold to the South foot of the Alps, and then journey, by train from Susa to Turin, driving *through* the latter on the way to his Hotel, his impression both of Town and Country would I think be given in exactly the same words,—and they would be that both were divided like a chess-board. After the wild and varied mountain scenery of Switzerland, and the recent passage of the Alps, the sensation on taking your seat in an Italian Railway-carriage is that of a return to the luxury of over-civilization. Your fellow traveller, if a native, politely but decidedly seats himself away from the sunny window to which like a foolish Moth to the candle, the northerner will very likely have allowed himself to be attracted; not even pulling the blind down, till a smart stroke of heat suddenly accumulated as if through a burning glass stings his ear and side-face like a blister, making him seize the blind-string as if he had taken a run at it, shutting out landscape, agriculture, and everything else, while the searching heat seems to spread over his exposed side, and the very cushions take up the lead and begin to burn him. Then he feels that he is on the south side of the Alps, and of Europe.

It seems to me somewhat difficult for one whose eye has been accustomed to the Hop-yards of England, even when seen, as the Cockney sees them for the first time between London and Dover, to do proper justice to the Vine. In a Hop-yard (when nearly ripe) the eye is bounded by what it looks upon. The rich and clustering foliage mounting up and pouring over the summits of the poles, and forming in masses of leaf and tendril that seem to fill the intervals of the Binds, presents such a solid columnar regularity, such a wall of verdure, that it is difficult to conceive a form of vegetation more thoroughly rich and voluptuous. Your gaze rests *on* it and dives into it, deeper and deeper, till it is arrested and imprisoned in the intricate and mazy folds and can penetrate no further. In a Vineyard there is more of variety and freedom; but the Eye goes *through* it, and out beyond. This has its advantages no doubt; but it leaves the comparative impression of bareness. There is perhaps equal uniformity in both, a repetition that can never be quite pleasing to the eye; but in the ripe Hopground it is smothered and lost by abundance, in the Vineyard it is open and unconcealed. In the Hopyard the graceful feature consists of spiral lines and pendants, in the Vineyard of festoons rich in every variety of form, and colour.

In Madeira the Vine is trained scarcely 3 feet high from the ground: looked down upon from a hilly point, it appears exactly as if the whole surface of the ground was meshed over by fishermen's nets. In Piedmont it is trained from tree to tree; the most common being the white Mulberry which is shorn twice a year of every leaf, and the shoots then cut back to a sort of fork, which leaves the most melancholy truncated form of 'growing to order' that poor arboreal Nature ever submitted to. Nevertheless, the pruning knife is used with great skill: the young plant is trained to about 10 or 12 feet from the ground, at that point it is headed and pollarded off into branches which shoot out to great length, and become the basis of many a future rich crop for the silkworm. As soon as the leaves are well out along the length of these shoots you see up in each tree a biped, featherless indeed, but with a sack: into this he shreds off every leaf, by running his hand backwards against the leaves from the point of each twig to the stem, where the mouth of the sack lies gaping to receive them. Sad and bare the skeleton trees look as he leaves them one after the other bereft of every trace of a leaf. When this process is finished, and the rich cargo sent off to the nearest town, or silk-worm colony, another important task commences; viz., the cutting back of these denuded branches to within about a foot or two of the stem, or of the *last fork*. For of course as the process continues, year after year, each point of section becomes the *stool* (to use our own woodland term) of a fresh burst of straight leaf-bearing twigs to be similarly dealt with in their turn.

This culture of the Mulberry for silk-worm rearing is now become in point of commercial value, by far the most important branch of Lombard industry. For one foreigner who drinks the wines of Italy, a hundred wear her silks; and the long avenues of forked-looking Pollard-stems that to the eye seem but props for the Vine, are themselves the parents of a crop, whose export value far surpasses that of the produce of the Grape. In 30 years the production of silk has grown from an almost nominal amount to the value of 10 millions sterling. In the north of Italy it is not found advantageous to raise more than one brood of silk-worms in the year. The first supply of leaves takes place in May, and the eggs of the worm are hatched in time to meet and consume it. Summer passes, and by the time that England is reaping her corn, the little silk-worm has rolled himself up in his cocoon, and the sacks of rich green leaves that we saw trundling along every country-road, are now by a magical transition being merrily wound off upon the reel in the form of a rich yellow fibre, destined to take its place in the Drawing-rooms of Paris and London. The reeling off the Cocoons is a very busy and a very lively scene; except to the poor worm who, in spite of the Humane Society, dies a lobster's death in a caldron of boiling water, and, like Bill Bunting's ghost, delivers his long yarn in a posthumous character. An immense quantity is still wound off by the hand; for it is a process of exceeding delicacy; and the length, stickyness, and frangibility of the fibre, present obstacles to machinery more puzzling after all than the shortest staple of Cotton.

And now the snowy peaks of the Alps have gradually settled into the distance, and in a couple of hours from Susa the traveller eye-wearied with a formal country enters the formal City of Turin by a Railway Station whose regal magnificence speaks of that which was, and is no more. Poor Turin! in the history of Cities, did any one ever before undergo a fate so cruel as that which has befallen her? The maker of Italy, she has unmade herself—

"Nor Time nor Place
Did then adhere, and yet you would make both:
They have made themselves, and that their fitness now
Doth unmake you!"

Majus includit in se minus! To cease to be the capital of Italy was to be no longer even the capital of Sardinia. It is like a thing suddenly struck with palsy: whole streets and quarters of noble houses, blocks of ambitious architecture, were springing up all over the Town. Warehouses, Roads, Railways, engagements and investments almost on a national scale were rising up on every side. The *Fiat* came! and all was paralysed in an instant! It is the modern Pompeii—the Niobe of cities. The mere transfer of the Capital, apart from other losses, cost it five and twenty thousand of its population.

This would be a fearful *sudden* loss to any city: but Turin was a city of men, not of idlers. It was a place where men had congregated not by accident, or the gravitation of pleasure or convenience; but for business. It took its place as the *first* capital of new Italy, by merit, not geography. Its right was absolute, and earned. Cavour's *place* was Turin; and had the Restorer of Italy lived, he would never have deserted the Workshop, when everything had yet *to be made*, for the Picture-Gallery, where even the best workmen would begin staring about them, and turn to idlers. Men are but men: and of all the places on earth for the representatives of a nation whose first business was and is to keep off bankruptcy, to find themselves assembled at, Florence is the most dangerous, and delusive. But of that hereafter: at present we will speak of Turin alone. Amongst the other great works devised by the fore-thought and prudence of a Statesman was the opening a new line, an independent outlet from Turin to the Sea. At present its only access to the Mediterranean is by Genoa, a long and roundabout way, angular, steep-gradiented, through the Apennines. But Genoa is in mind, as it ever was in fact, an independent State, jealous, selfish, and solitary. It could snap its finger any day at the Italian Kingdom, *or republic*, and set up for itself again, a gainer in a selfish sense by the change. In former days it did for

the neighbouring seaport of Savona what the Yankees did in the late American War for Charleston,—blocked up its harbour with sunken stones. Now, Savona is or might be to Turin what Liverpool is to Manchester: and if the people of Manchester could not reach the Sea except by Holyhead, they would be much in the predicament of the Turinese who have to find a Mediterranean outport viâ Genoa. Will it be believed that one of the most beautifully made Railways in Europe, constructed chiefly with British money, and skill, and passing through a district abounding in population, and in every element of wealth, mineral and agricultural, now lies five parts out of six completed; *and abandoned*. As you pass over its noble viaducts and bridges you see on each side a country where natural wealth of every kind is redundant, wanting in nothing but an outlet. As you approach the Sea you look upon a Harbour well worthy of the estimation and the fears of its jealous neighbour Genoa, itself unable to accommodate the shipping it monopolises. With all our Railway errors and extravagancies at home, such a thing as ninety miles and upwards of almost completed Line, Tunnels Embankments Arches all finished —and abandoned—is a sight hardly credible. And this is but one of the monuments that Turin can show as her reward for having been the starting point and birth-place of the Liberties, and Unity, of Italy. *C. W. H.*

Home Correspondence.

The Farm Labourer.—I have been reading the admirable Village Lectures, lately published in your columns, namely, the one on a "Sunbeam," another on a "Drop of Water," and a third on "Our Relationships," and they have brought to my recollection the very excellent Essay * on Farm Labour, whose title is given below. It was published some few years since, and has since, I believe, gone through several editions. The following are some remarks and criticisms which I myself made on the essay on its first falling into my hands, and which, I have thought, should you consider them worthy a column in the *Agricultural Gazette*, might induce some of the subscribers to it who take an interest in the well-being of the agricultural labourer, to procure the essay and make themselves acquainted with its contents more fully than my criticisms upon it are able to make them. They will thus, as it were, take a peep into their condition, and learn what it really is in the county of Kent and neighbourhood in which the good and learned physician wrote and then delivered his essay to the Agricultural Labourers' Association. That the physician, the author of the essay, is a good and learned, and I will add skilful practitioner of his profession, there cannot, I believe, be a doubt; and were I to add further, that his essay proves that he is a physician of the mind, also, as well as of the body, and that he has described what he himself, during his practice, had actually witnessed and become familiar with, I further think there will not be a doubt in the minds of those who have already or may hereafter read his essay. But having admitted this, as I very frankly do, I am pleased to be able to record that, though the condition of farm labourers doubtless is as gloomy and unfortunate in the county of Kent as the learned and good physician depicts it, yet it is not so bad universally or throughout all other counties as he represents it to be. It is nevertheless quite true, that the farm labourer is not anywhere "what he ought to be, or what he might be;" but, still, I can speak from long experience, that, taking it for all in all, it is better than very many persons are made to think and believe it to be, and better in most other counties than from some causes which I am unable to understand it is in Kent; and knowing but little of the county I am surprised to learn that it is in the very low condition the author of the Essay has described it to be. But to give one or two examples only on the present occasion which have just come into my mind of a better state of things—and should there be others of greater prominence, as I am writing now partly from memory, and quoting the few passing remarks I committed to paper when the Essay was first published, my reading friends will be so kind as to excuse me, and especially when I inform them that my memory is not so retentive as it was 50 years back, when I first committed my thoughts to paper and to the press, on the condition of the agricultural population and on their practice. You will, I know, excuse the vanity of a young man, for you all must know that I was not far advanced in life 50 years back; but it was in 1817, 1819, and 1820, that I sent articles to the press against what was called the Sliding Scale for the admitting of agricultural produce into this from foreign countries; and maintaining that the lands of England, if scientifically cultivated, would support all the population of England, and that the agriculturists, landlords, and tenants, if left to themselves, and taken out of their go-carts, and deprived of their leading-strings, would soon find means first to totter along, then to walk, and then to run, and go at whatever pace they pleased without protection. Such was my language 50 years back, when, I think, many of my farming readers would consider I had but very few brains in my skull, and less understanding in them; and even now, perhaps, they may believe that length of days has rather diminished than added to them; but, my friends, for so I esteem the bulk of you, I can say, that such as my thoughts were then on those important subjects, such they are now, not improved nor changed in any one important particular; and I repeat, after those 50 years of toil and thought, that I believe, if the lands of England were in the hands of well educated and scientific men, the world would hear no more of the moanings of distressed and breaking farmers that their crops are always failing, one year from too much drought, and another from too much wet, and that their rents and tithes, if in the hands of the clergyman, but seldom otherwise, are so enormously high, and labourers' wages the same. But all this complaining is owing to a lack of education, as is evident if the dissatisfied are compared with other men. Not a week since a most worthy clergyman, one whom I can trust to any extent, indeed, one who could no sooner make up his mind to tell an untruth than he would to commit the most heinous of all crimes that man could commit—this man, nay, this gentleman, for he is such as much as any gentleman I ever knew, told me that not a pound of butcher's meat had been in his house for at least 12 months! But did he complain? And yet we hear of tenant farmers who have grumbled to pay the rents they were so anxious to engage to pay: and to pay their labourers their just wages, by whose labours they live, eat, drink, and are merry; live, in truth, in comfortable or splendid houses, and eat of the fat of the land, and drink of the luscious wines of other lands! No; were they educated or had the knowledge they ought to have, they would be ashamed to repine as some of them now do (but not all, for there are glorious exceptions), but by energy and thought, and adopting the aids which the science of the age gives them, rise above a conduct which would scarcely be endurable in children. *G. Wilkins, Wix Parsonage.*

The Crops.—On drained stiff clays the Wheats look promising where not eaten by slug. The peck of early March dust was worth its weight in gold. The severe frosts have expanded the water in the soil, and so loosened it that the melted snow passes readily away to the drains. The deeply cultivated rough lying soil, ready for roots, has been shaken and pulverised by the frosts, and will be in nice order for Mangel seed in April. Beans and Peas put in just before the frost will take no harm, and be ready for a start when mild weather comes.—*Wire-worm and Slug:* Light land subject to wire-worm should be closely inspected, and if even a few plants show sign of damage, the land should be at once salted at the rate of 6 bushels per acre. Mine is already done, and washed in by rain. This is a certain remedy, but it should be done in time, for the damage is only visible some days after the attack. In some obstinate cases 5 cwt. is not too much. Our heavy lands never suffer from wire-worm. Rape-cake is also a preventive of wire-worm. Slugs have done much mischief on the stiff wet tile earths. Luckily I have 45 acres of Wheat with only 1 bushel of seed per acre on my heavy land—a full plant, except about 1½ acre, which has suffered from slug. Unfortunately they have taken part of the peck an acre as well as the thicker sown. Where my Clover leas were twice ploughed they escaped the slug. This is generally the case. I am very strongly induced to speak well of salt as a cure for wire-worm, not only from personal experience on my light land, which has been always very much subject to it, but also because a neighbouring farmer suffered severe losses for years, until, by salting his land repeatedly, he got rid of these pests. Whether the solution of salt kills them, or only causes their departure, I am unable to say. Salt tends to consolidate the light land. If one dose is insufficient, follow it up by a second. Sowing slaked lime against the wind about 2 o'clock on a mild morning is a check to the slug. They do not come out in cold dry weather. A farmer told me he never lost a plant of Turnips by fly. He sowed lime just as the dew was going off, against the wind. Sowing *down* wind, he said, would not do so well either for slug or fly; they either smell you or hear you.—*The Lambing Season* has not been so favourable as last year. I hear from various quarters that there has been a greater loss of ewes—attributed to the very severe weather of January. Shelter during this inclement March has been all important, and my numerous sheds and sheltered places have been in profitable requisition. Mr. Wood's advice and experience as to the sheltering and separating of newly dropped lambs are truthful and valuable. March came in as a "lion," let us hope that it may go out as a "lamb." *J. J. Mechi, March*, 1867.

The Potato.—What a wonderful acquisition is the Potato for human food! It is not 300 years since its discovery by Europeans; and Sir Walter Raleigh's name stands associated with the high honour of its early culture, if not of the original introduction. It appears to have been "cherished and cultivated for food" on his estate at Youghall, in Ireland, before its value was known in England. This was about the year 1586, and they were supposed to have been brought over from South America or Virginia by colonists sent out by Sir Walter, and who returned in that year. They were not known to botanists till the year 1588. In 1597 some roots were planted near London by Gerard, a botanist, as a great curiosity. In 1610 it began to be known in Ireland, in England only as a curiosity, and Sir Francis Bacon was one of the first to ascertain its virtues; and this so long as 24 years after being planted by Gerard, or about 1621, and even then "they were despised by the rich, and deemed only proper food for the meaner sorts of persons"—the Jerusalem Artichoke being much preferred. It cannot, however, excite much surprise that this should be the case then, as some varieties in the present day are very mean food, and at that time no idea of their improved culture or obtaining improved varieties was entertained. At length however it became more known, and in 1633 the Royal Society took measures to encourage its growth with the view of being useful in preventing famine. About 100 years after their introduction they are spoken of slightingly; and it was thought by the writers of those days that they might be "propagated with advantage to poor people;" but very doubtful if for food of swine or cattle. Planting in the worst ground was openly advocated in 1699, as up to this time they were only planted in gardens. It was not till about the middle of the 18th century that they became generally known over the country, and their useful qualities understood. Since that time their culture has been gradually extending, not only in this country but throughout the civilised world, and next to Wheat forms the most important article of human food; indeed as to quantity it quite outstrips Wheat in the amount of food produced upon a given space. One acre of Potatos would suffice to supply food for double the number of people that can be fed from an acre of Wheat, and according to the qualities now grown almost equal in point of nutrition. This is one of the main points now aimed at by cultivators, to produce an article of the best quality. The extent to which Potato culture has attained is astonishing, amounting to many millions of acres in this and other countries. In this country and Ireland upwards of 1,300,000 acres are devoted to Potato culture, and the produce, where not attacked by disease, is very large. It has become a truly great and scientific business,—the selection and culture of the land, the choice and application of manures, the choice of varieties for cropping, the management, the planting, the seed and its preparation. The land should be a mild loam, or a soil capable of being made open and friable. The manures should consist of fold-yard dung supplemented by guano, or superphosphates and the like, in liberal dressings. The variety should be in accordance with the condition and fertility of the soil; slow-growing and dwarf varieties on the richest soils, and the free-growing and prolific sorts on the medium lands. The management of the manuring should be by the ridge system, as forming a more sure way of depositing the fold-yard manure along the ridges, and also of sowing the artificial aids. The planting should vary according to the habit of growth of the sort; dwarf sorts from 10 to 12 inches apart; free-growing sorts from 12 to 16 inches apart along the rows. The seed should invariably be good; the Kidney sorts for the most part should be planted whole to avoid dry rot in hot and dry seasons. Round sorts may be more freely cut into sets, but small ones should be planted whole. It is good practice to cut away superfluous eyes from Potato sets; it causes the set to put out one or more vigorous stems instead of several weak ones. *O. F.*

Hinds' Wages.—It is gratifying to observe in your Paper of Saturday that Mr. Rutherford is coming round to my view of hinds' wages, and we may leave it to time to complete his conversion. He seems to have mystified himself as to "horse-corn;" but as he is probably alone there, I may refer him to my original statement. Were I to follow him in his dissertation *de omnibus rebus et quibusdam aliis*, I should merit the punishment of being "much abridged." So as the year to which this discussion refers comes to a close at Whitsunday, I shall once for all give my statement of "the cost to farmers" of the Berwickshire hinds' wages, and leave Mr. R. to deal with it *more suo*.

Berwickshire Hind's Gains, 1866–7.

	£	s.	d.
60 bushels of Oats (producing 107½ st. of meal) at 4*s.*	12	0	0
18 bushels of Barley (many of us give 21), at 4*s.* 9*d.*	4	5	6
6 bushels of Beans or Peas (all first quality), at 6*s.* 3*d.*	1	17	6
Sheep siller (some 6*l.* and 7*l.*)	5	0	0
Cow's keep, or cash	7	0	0
1800 yards Potato drill, or cash	5	0	0
House and garden (I let one for several years) at	3	0	0
27 to 30 days' meat in harvest, at 10*d.*	1	2	6
	39	5	6
Cartage of coals from pit mouth, never less than 5 tons, at 4*s.*	1	0	0
	£40	5	6

And liberty to keep pigs.

James Thompson, Mungo's Walls, Dunse.

Drainage Pipes Stopped by Plant Roots or other Sedimentary Matters.—Having seen a complaint made by a correspondent of his drainage pipes having been stopped by the roots of plants growing over them, I beg to call his attention, and that of others who may be similarly circumstanced, to the paper by me on "Garden Drainage," read at the International Horticultural Show and Botanical Congress in London last May, and lately published in the "Proceedings." Although the paper and design of improved drainage appendages were sent as for horticultural purposes, I have for many years adopted in practice for agricultural purposes much more extensively than for horticultural, the principles noted so cursorily in the paper I allude to. As there are as yet no pipes or their accompaniments manufactured for sale on the designs which I have given, the principles can be adopted, of course less effectually, by the use of any ordinary drainage pipes, by placing broken stones, coarse gravel, or any other comparatively imperishable materials under them, the depth of such varying in proportion to the necessities of each case respectively. Should your correspondent or any other be disposed to adopt this simple system in Ireland, at least let him beware of how he attempts it, if draining land with money borrowed from the Board of Works in Ireland, and subject to the supervision and approval of one of the same Board's Drainage Inspectors, as I have good reasons for believing that if this innovation on the Board's prescribed rules be detected by some of these inspectors, who may not be the best judges in the world of what good drainage is, he may disqualify the work altogether, and cause the Commissioners to refuse granting the future money supplies. I could tell some things in regard to such drainage and inspection in Ireland that would astonish your English and Scotch readers who never had had

* *The Farm Labourer; what he is and what he might be.* A Prize Essay of the Kent Agricultural Association. By a Physician. Wertheim & Co., Paternoster Row.

the honour or misfortune, as some would think, of draining or otherwise improving land in Ireland, with money borrowed from the Board of Works. But the time is coming when professional officials will be led to believe that they are not quite infallible, and induced to abandon the delusive hope that "outsiders" will, without remonstrance at least, submit to the dictum, "so far shalt thou go and no further" than the verge of such knowledge, be the same more or less. *Edward Carroll, March 9.*

Societies.

ROYAL AGRICULTURAL: *Feb. 27.—Lecture by Professor Simonds on Diseases in Sheep.*—[The following is a full report of Professor Simonds' important lecture, of which an abstract was publish d at the time.] He said:—

In directing your attention to the subject of this lecture, namely, "Some of the Causes which produce Disarrangement of the Digestive Organs in Sheep," it may be as well perhaps that I should in the first instance make a few general observations with regard to the digestive system of this animal. Every gentleman present is perfectly well aware that in speaking of sheep we speak of animals belonging to that class which are designated *Ruminantia*—that is to say, animals that have a very complicated system of digestive organs, and which are in the habit, after having received a certain quantity of food, of passing that food back from the stomach to the mouth for the purpose of its being re-masticated and re-insalivated. Subsequently to its being thus mechanically reduced and fitted for digestion, the food is returned to the rumen, and then passed on to the true digestive, or fourth stomach. We have, first, the rumen or paunch, into which the food goes primarily; next the reticulum, or second stomach; then the third stomach; and, lastly, the fourth or true digestive stomach, the others being in fact preparatory organs. It is unnecessary that I should go into such disputed questions as to whether the food is passed directly from the rumen into the mouth, or is previously passed into the reticulum, and then into the mouth; or whether, on its second descent from the mouth, after being re-masticated, it passes into the rumen, or directly into the third stomach. These are matters of abstruse scientific interest. I may, however, state that I hold the opinion that the food is passed first into the rumen, and that, at each subsequent swallowing of that food, the matter, however it may be reduced, is still passed into the viscus; and the reticulum is nothing more nor less than a supplier of thoroughly masticated and insalivated food to the third and fourth stomachs, that it may be properly digested. When the food is passed from the fourth stomach it goes into the intestinal canal, and there it becomes subject to the action of certain secretions, which may be said to assimilate or produce that change in it by which the nutritive parts are separated from the others. Subsequently to their mingling with the crude mass which comes from the stomach, the chyle (the nutritive parts) is precipitated unto the mucous membrane of the intestines, where the process of absorbing this nutriment goes on. The feculent or innutritious matter passes into the large intestines, where it is retained for a certain length of time, and subject to the further absorption of any nutritive parts which it may possess. Ultimately it is voided by the rectum in the shape of small nodules, which are compressed into that form by the action of the gut during the passage. It was necessary that these observations should be made, because, as you will see presently, we have the diseases to which I shall specially allude, namely, the affections which are commonly known by the term diarrhœa, centred mostly in the intestinal canal, and having their origin in material, which may be to some extent acrimonious, coming in contact with the lining membrane of the canal. But not only have we causes of that kind affecting the consistency of the feculent matter, and the amount of nutriment extracted from the food of the animal, but we have also very often an irritable condition of the bowels, produced by causes not acting directly on the intestinal canal. Indirect causes frequently produce fatal cases of diarrhœa in sheep, particularly in young sheep; and it is therefore important to be able to separate the one cause from the other, and to ascertain whether the cause is one which is acting directly or indirectly on the intestinal canal.

WHITE SCOUR.

Among very early lambs, we frequently find losses occurring from their being affected with what farmers term "white scour." As practical men you are perfectly aware that when lambs are perhaps not more than four or five days old, there will be an exit of liquid evacuations, which are exceedingly sour, and which to some extent even excoriate the parts they come in contact with; and these evacuations being of a pale colour, the disease is ordinarily designated by the words "white scour." We have to inquire upon what this white scour depends, and I think we shall see that it frequently shows itself under certain circumstances, and very rarely indeed under the opposite circumstances. For instance, if we look at the causes which operate in the production of a mischief of this kind, we shall generally find that it happens when the ewes are remarkably well fed. It is very seldom indeed that we see this disease when the ewes are being fed on ordinary Grasses, or even receiving only a moderate supply of Turnips. We know very well that ewes sometimes have to produce their lambs on Turnip land, depending upon the nature of the soil, the character of the farm, and the system of husbandry pursued. Take the ordinary case of ewes lambing upon Turnips, where they are supplied with a very large quantity of good Turnips, and at the same time with a considerable amount of what we designate highly-nitrogenised food in the shape of Oats, Peas, or oilcake, the object of the individual farmer being to fatten his ewes and his lambs together. This is a system which used to be followed to a certain extent in Middlesex. A farmer purchased a small quantity of ewes; they lambed on Turnips; he supplied them with a large quantity of cake and corn in addition to their Turnips, and gave them hay and chaff; and, under these circumstances, he found that, although he got his ewes into good condition very easily, and could get rid of them in the latter part of the year as fat ewes, yet he lost a large number of lambs from the affection which is designated white scour. This will help to explain what I believe to be the real cause of this affection—namely, that there is a peculiar condition of the lacteal secretion; that is, the milk of the ewe, induced by this highly-nitrogenised food, being in excess. In order to make this a little plainer, I may just remark that the milk of the newly-parturient animal is rich in an animalised product which we call colostrum. If, for example, we examine the milk very shortly after parturition, we shall find that in addition to the ordinary fatty globules which exist in such large numbers, there is present a considerable quantity of cells of large size filled with granular matter. On the condition of these cells will the colour of the milk depend. If they are present in large numbers, the milk will have a yellowish-brown appearance; while if their number is small, the milk will be of an ordinary colour. Now, in the ordinary state of things, these cells of colostrum very soon disappear, and they are met with very sparingly indeed in milk a few days after parturition. If, however, parturient animals are kept too well, to use a homely phrase, there will be a prolongation of the period for the retention of these cells, and in consequence a cause is brought into operation which, when the milk is partaken of by a young animal, leads to its not digesting the milk precisely in the same manner as it would do were the cells not present. It has been said that these cells exist in the milk, that Nature may furnish her own purgative to a young animal, the bowels of which are loaded with a peculiar substance, which is called meconium. I mention this because I wish to remark that there can be no doubt that milk which is rich in colostrum has a laxative effect on the intestinal canal. But it is not simply to the laxative effect of this material that I look for an example of an animal becoming affected with white scour. We must regard these cells as agents which absolutely excite fermentation in the milk; and there can be no doubt, I think, that lactic acid in excess is thereby produced, so that when the milk is received by the young animal there is a more than ordinarily firm curd produced in the stomach. You are well aware that if a young animal partakes of milk—and at this period it partakes of nothing else—that the milk (that is to say, its caseine) is acted upon by the gastric juice, and that the first effect of digestion is the coagulation of the caseine. But after a short time the same cause acts upon the coagulum thus produced, and it is broken up or otherwise digested. Now, if you have an abnormal condition of the milk itself produced by a cause of this kind, you will find that when the clot is produced in the stomach of the young animal the gastric juice is not solvent enough to break it up; so that it becomes an indigestible material, often accumulating to the extent of 3 or 4lb. weight. The whey of the milk is passed through the intestinal canal, and is voided with the mucus of the intestines as an abnormal secretion, and comes from the intestines in the form of a white fluid. I have seen many young animals fall a sacrifice to this state of things, because not merely had they functional derangement of the stomach and intestines, but absolutely inflammation of these organs. The animals then die of gastro-enteritis, induced by causes of this kind. With regard to the means at the disposal of the farmer for getting rid of the affection, knowing what has led to it, of course common sense would tell him to alter the management of his ewes; and everybody who knows anything practically of this matter must be aware that you can hardly do anything that will be beneficial to the lambs without paying attention to the health and food of the ewes. Let the nitrogenised food be lessened in quantity, and the animals be differently managed generally with respect to their food, and especially cease to use cake and corn for a certain time, and then you will find fewer cases of this kind occurring. Thus you will strike at the root of the evil at once. Something might be done also with regard to the lamb. At that time, it may be remarked, the system of the young animal is ill adapted to bear up against disease, so that necessarily a great many fatal cases will occur. But the object of the farmer must be first to remove the cause itself by preventing the animal from taking any more milk for a day or two. There is a difficulty, however, arising here. How is the animal to be supported? Support is necessary at this time; but it should be given in the form of well-boiled Oatmeal gruel, and so on. The lamb should be taken from the ewe for the day, and then it should be supported with diet of that description. Ant-acids should be given to it, particularly bicarbonate of potash, which will have a tendency to break up the firm coagulum of caseine in the stomach; and if that be combined with a little gentle aperient and carminative medicine, the case may not be unsuccessfully treated. I do not know anything better than such a mixture. Perhaps as good a one as can be given to the lamb for a day or two, while it is separated from the mother, is a scruple of bicarbonate of potash, with about 10 grains of Rhubarb and from 5 to 10 grains nutmeg. Give this with a little peppermint-water or gruel once or twice a-day, and with such management as I have indicated the result will generally be to arrest white scour. I have dwelt on this because it is a matter of importance, and because I am inclined to think that this is an affection depending exclusively on the causes to which I have referred, and that it is one of those diseases which are easily prevented.

I pass on to speak of other deranged conditions of the digestive system which lead to diarrhœa in young sheep prior to weaning. We have, of course, to consider the manner in which the animals are managed. I have already intimated that the management must to a considerable extent be influenced by the system of farming. Now, taking ewes upon Turnips again, and supposing that the lambs are getting on strongly, the common practice is to use what are called lamb-hurdles, by means of which the lambs can run out of the fold on to the Turnips, and return to the ewes at their will. If, under circumstances like these, a farmer is constrained to put his flock upon Turnips, having a large amount of top quickly grown, and which may be said not to be perfected, it frequently happens that he loses some of his lambs from diarrhœa. On the other hand, if there is an advanced ripening of the Turnips the weather having been genial, and there having been scarcely any wet, then you will find the animals do remarkably well. Particularly is that the case if the Turnips run up so as to produce their flowering stems. Every farmer knows that lambs can crop Turnip tops when in flower, not only with impunity, but with very great advantage. On the other hand, if the Turnip-tops are immature, or only partially developed, or if the weather is wet, we find that food of this kind, given as it mostly is in great abundance, will act as a direct irritant upon the mucous membrane of the stomach and the intestinal canal, and diarrhœa be the result. Occasionally this functional derangement of the intestines leads to a partial attack of *gastro-enteritis*—in other words to inflammation of the mucous membrane of the intestinal canal, and the young animal soon falls a sacrifice to the scouring. With regard to cases of this description of diarrhœa we can see readily enough that we have only to alter the system of management, by limiting the quantity of green immature tops that are given to the lambs; we have only either to supply them with a smaller quantity of tops or to substitute some other food, for them to get rid of the evil. It is, perhaps, an evil of a minor kind in connection with rearing sheep, because, speaking generally, I may say we know that at that period of the year we very rarely find Turnips in this particular condition. But on certain soils and, in certain states of the weather it will occasionally occur.

HAIR BALLS.

To go a little beyond this, you will observe that after weaning a large number of young lambs are lost; and from precisely the same cause, namely, diarrhœa. Now, here we frequently find that several causes are brought into operation, some of these being unquestionably of the same nature as those to which I have already alluded, and others of a totally different kind. I will now say a word or two with regard to the ordinary causes of the same nature as those which I have mentioned. I would first remark that if lambs are placed on Clover or artificial Grasses, and if the weather at that particular time of the year, as is likely to be the case, is not only elevated in temperature, but marked by the mixture of a great deal of watery vapour with the atmosphere, the animals, if they are eating green succulent vegetable matter in large abundance, particularly in an unripe state, will become affected with diarrhœa; and no system that can be adopted, unless we alter the management or feeding of the animals, will be sufficient to stay an evil of this kind. But we have this affection often induced by another cause. It is not, perhaps, so generally known as it ought to be, that Clover especially abounds in a large quantity of vegetable hairs; that the stems of broad-leaved Clover, and in particular the under and upper parts of the leaf, have a large number of vegetable hairs upon them, and that these are very apt, when received into the stomach, to become agglutinated, and to be rolled into a ball-like form within the rumen. So long as substances of this kind remain in the rumen or first stomach it is a matter of no consequence whatever; so long as they are confined to the second stomach in common with the first it is also a matter of little moment; but if these substances pass, as they are very likely to do, into the third stomach, or rather, I should say, through the floor of the third stomach directly into the fourth, they often become offending agents to this organ, and not unfrequently pass on half-digested thence into the intestinal canal. I do not mean to say that there are very many cases of diarrhœa which are attributable to causes of this kind, but we not unfrequently find a diseased condition of the fourth stomach, and especially of the small intestines, induced by the presence of these bodies. These substances are similar in form to the hair-balls which are frequently found in the stomachs of fatting calves, but they are in fact of far greater moment, in connection with the disease in the digestive organs, in the case of young sheep than in that of other young animals. A hair-ball in a young calf very rarely indeed produces any mischief, unless it be passed or attempted to be passed into the mouth again, to be remasticated, in which case it will often happen that an animal will be choked. In the Museum of the Royal Veterinary College there are specimens showing young calves to have been choked by hair-balls. The chance of choking does not depend upon hair which is deglutated, or attempted to be deglutated; but the evil actually occurs from the hair as a ball passing upwards from the rumen. These vegetable hair-balls can only be detected on a *post mortem* examination. I am not aware of any diagnostic symptoms by which we can dive into a case of that kind; it is only through a *post mortem* examination that one can tell that an animal has suffered from such a cause as this. It is frequently said that lambs die from wool-balls; that is, I know, a common idea among farmers and shepherds. But wool-balls are not to be confounded with vegetable hair-balls. The two are produced in a similar manner—that is, by the matting together of the wool or hair; but hair becomes matted much quicker than wool, and it is only when the

animal is living on Clover, and particularly broad-leaved Clover, that hair-balls are found present.

Diseased Lungs.

Now, besides this cause of derangement of the digestive organs—the feeding of animals on Clover and Grasses at this particular period—this is just the period when we find also a large loss of lambs to arise from diarrhœa as symptomatic of a diseased condition of the lungs. In investigating this disease it is always necessary to endeavour to understand upon what the symptoms really depend. For want of this we frequently find a person saying, "I am losing a large number of lambs from scour," and he believes that this arises entirely from something that disagrees with the digestive organs of the sheep, or that some disease exists in those organs with the nature of which he is unacquainted. When you speak to him further on the subject he will say, "I have changed the food of my animals; they died upon such and such a food, and I put them upon food of a different character; they were upon artificial Grasses, and I put them upon natural Grasses; they were upon Clover, and I put them upon artificial Grasses instead of Clover. I have given them corn, Peas, and so on—what is commonly called dry food; and though they will not eat much dry food, which is not to be expected when they can get green and succulent food at this time of the year, nevertheless I find that a lax state of the bowels is as prevalent among them now as it was a week or two ago." If you ask this man—"Have you noticed whether your lambs are coughing?" he will reply "Yes, I have found them coughing very much, and I have observed that the coughing preceded the diarrhœa." This he will say, though he may know very little about what the coughing depended upon. Now I may remark that this form of diarrhœa is really due to the presence of entozoa within the bronchial tubes of the lambs; that in the disease of the lungs it is produced by the existence of these entozoa, and that the diarrhœa is but symptomatic, coming on as one of the last things in the break up of the animal machine. We know that in several affections of the lungs in sheep or other animals the disease is often accompanied with diarrhœa. In cases where there has not been a healthy and perfect decarbonisation of the blood from structural disease of the lungs, diarrhœa often results. Take, by way of illustration, that disease which in the human subject is known by the name of phthisis. It is well known that some persons who are attacked by this disease have diarrhœa, and when the disease tends to a fatal termination the diarrhœa becomes very copious, and that life is sometimes sacrificed through the depression of the animal powers thus produced. Nevertheless, the origin of the diarrhœa is disease of the lungs, which prevents them from performing their proper functions, and thus prevents the proper decarbonisation of the blood. This accounts to some extent for the presence of diarrhœa in sheep. Now, this filaria bronchialis is a worm, which I am justified in saying is somewhat on the increase. We can readily understand why it should be so, for although we really may know very little of the natural history of the worm, or the best means at our disposal of getting rid of it, we can see that if one flock is affected, that will probably lay the foundation for other flocks becoming affected on the same farm, and that if sheep so affected pass from one farm to another, there will be a wider spread of the evil, and the sheep pastured on a second farm will suffer in turn. So long as we are unable to get rid of these worms before they pass into the organism of the sheep, so long shall we be contending with a disease which is in reality our master.

Filariæ.

With regard to the circumstances which favour an attack, it is rather remarkable that there are far more cases of this description occurring on wooded land, parks, and so on, than in open fields and what may be designated light-land districts. There is no immunity; but sheep kept in open light-land districts are far less frequently attacked with this disease than sheep kept in enclosed spaces, and particularly sheep which are kept at that particular period of the year already alluded to in parks. With reference to the worm itself, it would appear that even if only one or two of the worms find their way into the bronchial tubes that would be quite sufficient, they being of different sexes, to lay the foundation for extensive disease of the lungs. They lay this foundation by travelling as far as they can through the bronchial tubes (which are continuations of the windpipe) into the very air-cells of the lungs, where they deposit their ova. As the result of that deposition of ova, which may be said to be in myriads, irritation is set up first in the lining membrane of the air-cells, which extends to the parenchyma of the lung. The lung then undergoes a peculiar change: it becomes altered in colour, it will sink in water, and it is altogether destroyed in many parts as an aerifying organ. This often takes place, particularly on the fringe or edge of the lung, but not unfrequently in other portions. The brood of young worms is hatched absolutely in the bronchial tubes and in the air-cells of the lungs; so that the large quantity of these worms which are frequently met with in the bronchial tubes did not enter from without, but were produced within. One or two parent worms finding their way into this organ suffice to produce an immense amount of mischief. These creatures may, so far as their immediate development is concerned, be termed ovo-viviparous—that is to say, a great number of eggs will be thrown out as eggs; but frequently the young worm will escape from those eggs while yet within the parent. In making a section of a lung, taking the smallest possible quantity on the point of a scalpel, just sufficient to soil a piece of glass, you will see, in a space of the size of a drop of water, millions of eggs just hatched; and if you examine an old worm, you will see eggs in all stages of development; so that she brings forth her young in a living form, and also in the form of eggs more or less mature. Now, one worm will produce—if I were to use figures here I should have to speak of billions, and even of trillions—an immense number of eggs, and we can therefore easily understand how a vast amount of mischief may be done, even by one or two worms. But now the question arises, How did this one worm get there? Where does the parent worm come from? We must repudiate the theory of fortuitous generation. I no more believe in the fortuitous generation of a worm, or of the lowest form of animal life, than I believe in the spontaneous origin of myself. We must look for other causes. And here we have opened to us a vast field of investigation, and one which may be said to have been as yet scarcely entered upon. I have experimented again and again with this class of worms, which are designated by the name of nematoid or hollow worms, and in every experiment I have failed to produce them within the windpipe. I would, then, throw it out as a probable cause of their existence, that a great number of the ova are expelled in the coughing of the sheep with the mucus which is coughed up. Large numbers are, I believe, expelled at each coughing, mingled with the mucus; and I would just hint at it, as a probable thing, that these ova come to maturity to some extent externally to the sheep; that certain plants—it may be ordinary Grasses—become the habitat of these creatures in an immature form, and that in this condition they are taken into the organisation of the sheep, and as each entozoon has its own particular locale, these creatures very soon find their way into the windpipe, and a very few doing so are productive of immense mischief. Now, I am inclined to believe that this is really the means by which their presence is to be accounted for. We cannot for a moment suppose that all the worms which we meet in the lungs, for example, under circumstances of this kind, can have entered from without. We cannot suppose the explanation to be that the ova floating in the atmosphere are, after they have become somewhat dry, received into the respiratory organs, and there become matured. There are some things which appear to me to militate strongly against that view of the matter. I have, for example, broken up many and many an old worm when yet alive. Having thus procured eggs in various stages of development, I have placed them in different kinds of fluid, none of which could interfere with their vitality, and have in this manner brought them in contact with the nostrils of sheep. Not only have I done that, but I have used a thick mucus, like gum water, putting into it a number of living worms, as well as a large number of ova, and have administered this very slowly to sheep, so that it might hang round the mouth, and the worms might travel down the windpipe; but, singular to relate, in all these experiments I have failed. Knowing that nematoid worms are perfected to a certain extent out of the organism, I have been led to the conclusion that it is not improbable—I do not say it is positively the case—that the ova themselves are the real cause of the mischief; that, being expelled in the manner I have mentioned, they become parasitic to some vegetable matter, and, being thus taken into the sheep, produce disease. This would explain why, if you put fresh sheep on a farm where the worm affection has existed, those sheep become diseased, and the evil continues year after year. We know that weather often has an influence by rendering animals more susceptible: and we know, too, that particular systems of management have an influence; but we are now looking at the matter in an abstract point of view, and I throw out the hint that this may be one cause of the increase of the disease. I might extend my view with regard to worms. There is a large number of worms which affect sheep in particular, some occupying the true stomach itself, under the influence of which sheep will die in a dropsical condition. Under all circumstances and conditions, and at all ages, there are scores and scores of sheep at this moment being lost from this cause. There is no diarrhœa in a case of this description. Within the last few days I have received some worms of exactly the same class as these which were found in wild rabbits; and I believe that the worm which is found in the stomachs of sheep is one that exists in other creatures, and it may be common to half-a-dozen kinds of animals.

One word with regard to the means which we have at our disposal for getting rid of the disease. You will understand that I am speaking of the lax condition of the bowels as being symptomatic of lung affection. I say that in this instance diarrhœa is not a disease which affects the alimentary canal; therefore our object must be not to give astringents. No change of food, no medicine or anything of that kind, having that object in view, will produce any benefit at all. We must endeavour either to get rid of the worms as they exist in the trachea or in the bronchial tubes of the lamb; to root out the disease which they have produced within the lungs. The best thing we can do is of course to attempt to get rid of the worms themselves and destroy the broods as they are following one another; and we can effect their destruction only by getting the sheep to inhale a medicated atmosphere. Perhaps, however, I should not say "only," because it is well known that there are certain worm-destroyers which can be given to sheep, be quickly diffused through the system, and be found beneficial in destroying these worms. But these anthelmintics are often powerless, and the losses are just as great, so that after all we have to come back to a medicated atmosphere, and I know we can do that with great facility, safety, and advantage. If we take the sheep and place them once a day, or perhaps once every other day, in a shed, and so arrange the shed that we can get the animals to inhale the fumes of burning tar in which we cast sulphur from time to time, and thus impregnate the atmosphere with sulphurous vapour, we shall find that we destroy, probably not the parent worms, not the matured worms, but a very large number of those which have been recently hatched. I do not suppose that we have any influence over the ova as ova, but we have considerable influence over the young worms; and I believe also, to use a homely phrase, that we give a "notice to quit" to the old worms. We make their habitat rather untenable, and the result is that they are inclined to quit the body, and so we get rid of some of them in that way. Then, if we strengthen the constitution of the animal by generous diet, we shall frequently find that we can save a large number of young sheep which would otherwise be lost. Here we may take such an agent as turpentine in conjunction with a little balsam of sulphur and a little oil, and I do not know that we can have a nicer anthelmintic. Turpentine, although a diuretic, is found to be got rid of in the animal system to some extent through the medium of the respiratory organs. It is an agent which becomes quickly diffused throughout the system of the animal that takes it. Even the breath of the animal will be affected by it; and the same is the case with the milk and other secretions. It acts powerfully on the kidneys and on the mucous membranes of the lungs, and it is an energetic destroyer of entozoa; so that persons may give turpentine, in conjunction with the old-fashioned balsam of sulphur and a little oil, from day to day, with considerable advantage to their lambs. This must be followed by the use of sulphate of iron in the food of the animal, with corn diet.

Parasites.

On the subject of parasites, we also find, particularly in the situations to which I have referred, the presence of intestinal parasites, which are the cause of the direct irritation of the mucous membrane of the alimentary canal, and are necessarily associated with diarrhœa. There are two forms of worms particularly, which inhabit the intestinal canal, and lay the foundation for diarrhœa. One of them is a worm which is called, from the peculiarity of its formation, the tricocephalus, or hair-headed worm. It is very common to many animals besides sheep; but, among domesticated animals, it exists to a greater extent in sheep than in any other creatures. These tricocephali are very often a great source of mischief. They burrow their heads into the mucous membrane, and exist more particularly in the cæcum and colon than in any other of the large intestines, and but very rarely in the smaller. Dwelling there, and producing an irritation of the intestinal canal, we can easily see that they would cause the hurrying on of the contents of the intestines, and that diarrhœa would, in fact, result from the local irritation. These worms are with great difficulty diagnosed—that is to say, looking at the sheep, we cannot at first say whether they are or are not the cause of diarrhœa. If, however, a large number of sheep are affected, and a good deal of mucus is discharged with the alvine evacuations—if all ordinary means of arresting the diarrhœa fail, and if the animals, although wasting, nevertheless have a tolerably good appetite, we may come to the conclusion that the diarrhœa is due to the presence of worms; for, as a general rule, when worms exist in the intestines of almost any animal, there is rather an increase than a diminution of the appetite. Generally speaking, when we effect the expulsion of the tricocephali, they come away in a mass. They have a peculiar liking for each other; for no sooner do they quit their hold of the mucous membrane of the intestinal canal, than they run together, thus producing a large lump, or mass. In this way they are usually expelled; and it is with difficulty that you can separate one of these long-necked worms without breaking, in consequence of its neck being twisted in all possible directions with that of others. Another kind of worm, not so well known as the tricocephalus, but also the cause of diarrhœa in sheep, is the one which we designate sclerostoma, hard-lipped or hard-mouthed worm. This also exists in the large intestines, attaches itself by its sucking disc or mouth to them, feeds on the juices of the animal, and lays the foundation for diarrhœa in the same manner as the tricocephali do. Very frequently these two kinds of worms co-exist in immense numbers, and I myself have taken great numbers of both from the same animal.

Now, before throwing out a hint as to the best means of getting rid of these, and thereby striking at the foundation of the irregular condition of bowels arising from that cause, I will refer to other worms which are present in the intestinal canal, and about which persons are exceedingly solicitous; I mean tape-worms. They are more particularly common in lambs than sheep. They often exist in large numbers, and I have seen as many as a dozen or so in the intestines of one animal. Speaking in general terms respecting tape-worms, their natural history is pretty well made out. They are, in fact, the perfect entozoa arising out of the hydatid; those peculiar bladder-like bodies which are met with in different parts of the organism of various hydatid animals are nothing more nor less than the scolices of tape-worms. I believe that the dog is infested with something like seven or eight varieties of tape-worm, and with one exception I believe the whole history of the tape-worm is known. In common with Dr. Cobbold I have for some time been engaged in investigating the development of this class of entozoa, and I have by me, as Dr. Cobbold has also, tape-worms produced from various hydatids which have been given to dogs, cats, and other carnivorous animals. We have them at various ages. We gave the hydatids to the dog, and killed him within a certain number of days, and found the product of the hydatids present. And so we followed the development of these creatures from time to time. I merely refer to these experiments in order to show that we know something pretty certain with regard to the tape-worm, but little as to the nematoid worm; for as to how these tricocephali and sclerostoma get into the intestines and increase in

number, all we know is that they are oviparous, perfect male and female, and beyond this we know nothing. It is a remarkable thing. Take some of the large intestinal worms, by way of illustrating this point. You have seen in the horse and in other animals a large worm, nearly a foot in length, very like the earth-worm, but white in colour. We call it, because it is like the earth-worm, the lumbricoid worm. I have a specimen in my possession of a pig's intestines, with worms in it 6 or 8 inches long. There are not less than between 200 and 300 crammed into the intestines, though the pig was only six weeks old, and the worms were developed to the size of an ordinary quill. I have other worms, taken from dogs only three weeks old, and these worms, though they are not lumbricoid, are fully matured. In fact, they had been perfectly formed in that short space of time, but, strange to say, though you find them of various sizes and of perfect form, you never find a young one as the immediate product of these parent worms. Here is an egg, which is not visible to the naked eye: that egg has to produce a young worm, which is to be developed somewhere; yet we never see them in such a form as that we are able to say that it is a young lumbricoid worm. We know nothing about them; but here is this fact, that if you take one of these worms, cut it up, put it in a jar of water, allow it to remain there for 10 or 12 months, and then examine the deposit at the bottom, which has the appearance of so much decomposed matter, you will see the young worms beginning to exist in the eggs, and not before. Their vitality is preserved. They undergo a subsequent change. The young worm is produced; it becomes parasitic, and enters the intestines and stomach of the animal. So that in reality we open up a vast field of science—one that will amply repay an individual for cultivating it, but which will require a life, or two or three, to make anything out of it at all. With regard to getting rid of these intestinal worms as a cause of diarrhœa, I believe that great benefit would result from the daily use of salt. Even though the lambs are scouring, and salt is otherwise objectionable, a certain quantity of salt mingled with ordinary food will be found effectual in arresting diarrhœa. Besides that, advantage will result from the more direct anthelmintic agents. Let balls, which are preferable to draughts, be made of Venice turpentine, with sulphate of iron and some gentian. Give them to the sheep, and you will find that you bring away these tricocephali and callus-tænia in very large numbers. Then, having got rid of this cause, ordinary attention and dry food will be effective.

Bad Food.

But besides these as causes of diarrhœa in lambs, we have other causes that are occasionally brought into operation, but which are precisely the reverse of some of those to which I have referred. Sheep suffer less in this respect from what we may call an excess of indigestible woody fibre of vegetables than any other animals. I will illustrate that in this way. We will suppose that a man has a number of young weaning calves, or under a year old. He is rather niggard. He has heard a great deal about the nutritive properties of straw, and he thinks fit to give the animals an excess of straw, to have it cut into chaff, and supplied to them in a rather large quantity. I know what will be the result. He will have a certain number of cases of diarrhœa, and occasionally sustain severe losses in consequence. That diarrhœa depends upon the direct irritating effects of the ingesta upon the intestinal canal. It is a material that is not properly digested and assimilated. The fact is that straw is straw, and that you can make nothing else out of it.

Professor Voelcker: Yes, paper (a laugh).

Professor Simonds: True; but I am speaking of what is made of it when it gets into the intestinal canal. You may rely upon it that a very small quantity of blood will come out of it; whilst there is a great deal of indigestible material in it, which acts as an irritant on the intestinal canal, and produces diarrhœa. Sheep will now and then suffer from similar causes. If a man gives too much chaff to his sheep, and too little corn, or if he withholds a certain quantity of green and succulent food at the commencement of winter, there will be frequent cases of diarrhœa. The same amount of mischief, however, is not produced in sheep as in cattle, because sheep, though ruminating animals, gather their food in a somewhat different manner from oxen. They take more pains, in short, in masticating their food than the ox. Hence, when sheep are upon pastures, we see them feeding very closely, and masticating every mouthful for a longer time than oxen. The ox swallows his food in a mass. Chaff is partaken of in the same manner. In these circumstances a change of food becomes necessary, and by this means benefit results. It is not necessary to give astringents, because they do not strike at the root of the evil. Remove the cause then, and the effect will follow. Now, not only are these several causes, and a number of others to which I have not referred, productive of mischief, but diarrhœa is also very often symptomatic of other diseases. We have diarrhœa due not only to the active inflammation of the mucous membrane of the alimentary canal, and to the existence of parasites, but not unfrequently to other separate and distinct diseases. If I wanted the best illustration of this which science affords, I should direct your attention to the circumstance of sheep becoming affected with the malady which we term cattle plague. Here we have a disease which in the sheep is invariably, I believe, associated with dysenteric purging. Hence, we get an apt illustration of morbific matter carried into the organism of an animal, and so deranging its entire system as to lay the foundation of a fatal attack of diarrhœa. I have thus thrown out a few hints with regard to some of the causes which produce derangement of the intestinal canal, and I know I have done so very imperfectly. I will only say, in concluding, that among our most useful astringents for arresting diarrhœa are galls. Next to the use of astringents stands the neutralisation of the acid secretions which come from the mucous membrane of the alimentary canal in all cases of diarrhœa, without reference to the causes that may be existing to produce the diarrhœa, by means of ant-acids, particularly bi-carbonate of potash, which is a most effective agent. If we feel a disturbance or a lax state of the bowels coming on, we shall frequently find that by abstaining from food and taking a good bold dose of carbonate of soda the complaint will be checked at once, for the simple reason that the carbonate neutralises the acid secretion which exists under the circumstances, even without reference to the causes which have given rise to the diarrhœa.

Discussion.

Professor Voelcker desired to make a remark or two on the question as to how far food of the same description—for instance, Turnips or Grass—at different periods of their growth affected the health of cattle, by producing either constipation or diarrhœa. There was a very great difference in the practical effects which food of the same kind produced. He believed that the land on which the food was grown had much to do with the quality of the produce. For he knew practically that there were some soils which invariably grew produce that was termed "scouring food." Such were the scouring lands of Somersetshire, which lay upon the lias, and almost invariably had the effect of producing diarrhœa. In some seasons this was more the case than in others, and it was remarkable that in hot summers the land became more scouring than at the colder periods of the year. It has been observed that the period most dangerous to the sheep was when they were put on Clover or natural Grasses at the time the Grass and Clover were making a rapid growth. Thus, when warm weather set in suddenly, after much rain had fallen in the early part of the year, there was a rapid development of leaf, and the produce became very sour. He believed that this was not merely attributed to the presence of much water—an opinion entertained by practical feeders, who thought that the food was merely too watery, and on that account produced scour. In his opinion it was also due to the imperfect condition—the want of elaboration in the crude juices of the plant. Having examined that subject, he had constantly found that a large amount of crude nutritive matter was present. It was not the case, as was sometimes maintained, that unripe food contained a deficiency of nitrogenous matter. The very reverse was the case. If the food were too rapidly grown they would invariably find much nitrogenous matter in it, but not in the form of albumen, of caseine, or of any definite chemical compound which was known from actual experience as the feeding matter that produced flesh. They found it, he could hardly say in what condition, but he could tell them in what condition it was not. It was not as nutritive albumen, or as nutritive gluten, or in any form which was commonly designated flesh-producing. He concluded, then, that it was unelaborated crude feeding material. Then there was also present in this rapidly-developed young produce a very much larger proportion of saline matters which were taken from the soil, and were evidently stirred up in the plant, to serve afterwards in the assimilation of atmospheric food and its conversion into sugar, gum, and other nutritive substances. This unelaborated matter and this excess of saline or mineral substances, often abundant in clay, had a tendency to produce a laxative effect upon sheep, and oxen also. There was another reason, probably, why immature food and food which was given in its earliest stages of growth, like very young Clover, had this effect. In very young produce there was invariably a much larger proportion of vegetable acids present than in riper produce; and these organic acids no doubt had a medicinal effect when taken internally. There they were converted into sugar, and became real nutritive matters. He would observe further, in speaking of these organic acids, that there was a great difference in their character. In the earliest stages of their growth or first development an acid was produced which gave way to another organic acid very similar in its composition, but different in its effects on the living organism. Thus in very young Rhubarb, and in a variety of other plants, the acid to which he alluded (oxalic acid) was not confined to Rhubarb stems, but occurred as perhaps the most common and widely-circulated acid in the vegetable organism. Within a week after detecting the oxalic, which he need hardly say was a deadly poison, it would go away in the form of citric acid—a similar composition, but a different material so far as its effects were concerned. The citric acid was then changed into malic acid. So that one acid changed into another, until finally they disappeared or became neutralised by the very materials which were accumulating in the vegetable organism. The result of these chemical changes in the ripening of the food—changes which had not yet been investigated so minutely as the importance of the subject deserved—was that the food became totally different in its practical effects. In corroboration of what he now said, he might remind them that very early in the season it was an extremely dangerous thing to eat much Rhubarb pie. When the Rhubarb became plentiful and cheap, then he ventured upon it—not because it was cheap, however, but because he knew that by that time the oxalic acid had disappeared, and had given place to the malic acid—the acid of the Apple—or the citric acid, which was extremely grateful to one's constitution.

Mr. Frere considered that the loss of lambs was often hardest to control in the autumn, especially on the richer pastures. He had been informed by a gentleman who farmed good rich Grass land in the Isle of Ely that they used to have such losses from scour in his father's lifetime, that they had almost given up weaning the young lambs; but his father, being a maltster, determined to try malt, and it proved to be of so much service, that it had been employed ever since, without any apprehensions about stocking the land with young lambs in the autumn. Referring to his own flock, he (Mr. Frere) was farming on a dry light land, where he was free from the forms of the malady of which Professor Simonds had spoken, and he experienced no practical difficulty until he arrived at the end of July. Up to that time the lambs would have been weaned on the layers chiefly, and he would have no trouble until they had been over the layers once. From that time, however, difficulties would arise, and careful, vigilant management be particularly required. If the lambs were allowed to feed entirely or mainly over the layer a second time, diarrhœa would inevitably set in. That difficulty, when it did occur, he met in this way: Early in April he put on some early Rape on the strongest of his land, which would best bear it in the warmest and driest months of the year. In the middle of July he folded the lambs on that at night, giving them a free range for two or three hours in the day. During this range they would nibble in the layers, which had already been folded over once; but as they chiefly ate the Rape in doing so, they did perfectly well so long as the Rape lasted. Then, when the Rape was gone, his next green crop in succession would be early Pomeranian Turnips. He had tried to pull some of these and feed upon the old depastured layer, but diarrhœa set in almost immediately on his adopting that system. He wished to ask the Professor to what cause he would attribute this disease, seeing that in his case it had occurred within a few days of the lambs being made to depend on the foul layer, and that the malady abated directly they were taken off it. Perhaps he might be disposed to attribute it to some form of worms; but his (Mr. Frere's) objection to that solution of the question was that the space of time for which the lambs were on the layer was so short, that there was no symptom whatever of any mischief brewing before they went upon it, and that the malady ceased within a day or two after they were taken off. The layer was Dutch Clover and Trefoil; the time was the month of July last, and prior to the rains having set in very much.

Professor Simonds: The fact was pretty well known that in practice it was not judicious to allow lambs to follow ewes, as it was termed. Generally, in the month of January, the lambs were allowed to go first, and the ewes to follow afterwards. If lambs were constrained to partake of food where ewes had been before them, injury might result to their young organisms from the quantity of feculent matter which would be lying about, and in process of undergoing chemical changes. That would be a source of mischief; but it was further inferred that the land having been manured on the surface, the young herbage would grow up very quickly, and particularly in showery weather. Thus they got an unripe leaf of plant, and this he should consider the chief cause in operation. Indeed, he should look to the manuring on the surface, the rapid growth of the vegetable matter, and its immature condition, as explanatory of the fact, rather than to anything else.

Mr. Finlay Dunne: The same rapid growth, with the like effect, produced on the bowels of sheep, occurred on the richer lands during the spring months. On the better grazing lands of the midland counties, they could not keep their lambs without experiencing a good deal of trouble from scour. Very often they died off in large numbers, as described by Professor Simonds, when apparently strong, hearty, and thriving rapidly, from ten days to a fortnight old; and he believed the cause to be that the land was really too strong and the Grass too good for them: it was in a rapidly growing state: it was undergoing changes. Probably it was more easily fermented, and so gave rise to a disturbance of the delicate digestive organs of the young animal. He had been very much gratified and instructed by the able and most useful lecture of Professor Simonds. The remarks of the learned Professor in his able lecture were of great value to farmers. Every year a large number of animals were found to be infested with these creatures. The great difficulty was to cope with the malady when the flock was being increased; and the only way, as it appeared to him, of materially lessening it, was by varying the food, and giving a larger quantity of dry food. He might remark, that he had found great advantage, not only in cases of scouring, but also in connection with worms, in giving sheep a small quantity of lime-water with turpentine. He had often advised the use of it, and those who had adopted his advice had told him that that remedy answered better than any other which they had tried. Most persons were too much inclined to rely on medicines, and he agreed with the Professor that, if they looked more to causes, there would be a better chance of arresting the evil.

The Chairman said he rose with great pleasure to propose a vote of thanks to Professor Simonds for his very able lecture. He was sure they all listened with great pleasure to his instructive remarks, and those remarks, when they went forth to the country, would, he believed, produce beneficial effects. As a practical farmer, he quite believed almost everything the Professor had told them; and he agreed with Mr. Dunne, that the only remedy for the evil in question was to endeavour to protect flocks before the disease had got a firm hold.

The motion having been seconded and adopted, the proceedings terminated.

Edinburgh Chamber of Agriculture. — A special general meeting, very largely attended, was held last week to consider the Bills on the Law of Hypothec, and on the Game Laws, now before Parliament.

The Law of Hypothec.

Mr. William M'Combie, Tillyfour, the President of the Chamber, in introducing this subject, said—This meeting has been specially called to consider the two Hypothec Bills and the Game Law Bill. These appear to me to be the most important measures that could be considered by the agriculturists of Scotland. The first in order is the Hypothec Bills. Would justice to agriculture be satisfied by the Government Bill modifying the law? Or will it only be satisfied by the Bill providing for its entire abolition? I have recently, at our county meeting, answered these questions—the first by an emphatic "No," and the second by an equally emphatic "Yes." Let me just say the question of the abolition of the law of hypothec is not new to this Chamber. You remember the great meeting of 14th November, 1865, so ably conducted under the presidency of my accomplished predecessor in this chair. That meeting resolved, and in terms of its resolutions the Chamber petitioned Parliament, humbly but firmly showing that the law relating to the landlord's right of hypothec in Scotland, in so far as regards agricultural subjects, ought to be repealed, inasmuch as it operates unjustly, impairs mutual confidence and good-will between landlords and tenants, and, by discouraging the application of capital to land, retards the progress of agriculture; and, moreover affects injuriously the interests and welfare of the general community. If I had had any doubt in my own mind as to the necessity of total abolition to satisfy the justice of the case, the arguments in, and the resolutions of, this Chamber would have removed it. But having given much thought to the subject, I unhesitatingly subscribe to the statement in the petition to Parliament of the Chamber, as an exact expression of my opinion, formed after matured thought. If total abolition is not carried in the present Parliament, I venture to opine that it will after the next general election. The law of hypothec and the game laws are not political questions, they are national grievances.

Mr. Mylne, Niddrie Mains, moved the following resolution:—"That the Chamber disapprove of the Lord Chancellor's Bill for modification, and agree to petition in favour of Mr. Carnegie's Bill for the total abolition of the Law of Hypothec. He said:—

The Bill of the Lord Chancellor is founded upon the report of the Royal Commission. But we question that report, on the ground that it was not a unanimous report. Had it been unanimous it would, considering the gentlemen who composed the Commission, have been entitled to and would have had very great weight from the country; but we had first of all differing from that report the Hon. Charles Carnegie, the member for Forfarshire (a large and important agricultural county), and a member of one of the oldest and best landed families of the country; we had the Solicitor-General of the day, Mr. Young, a lawyer of such rare talent and high-toned

eloquence as to place him at once as one of the brightest ornaments of the Scottish bar; we had the two farmers upon the Commission—Messrs. Hope and Curror—men of great practical shrewdness, honesty, and independence of character, and possessing to a large extent the confidence of the practical farmers of the country; we had, therefore, great cause from the first to inquire into that report, and this Chamber took up the subject and discussed it at a general meeting, held in Edinburgh upon the 14th November, 1865. That meeting passed a resolution, by a large majority, in favour of total abolition of the law. The deputation (of which I had the honour to be one) which was sent to London last spring to represent the opinions of this Chamber with regard to the Cattle Plague Bill, and who were also entrusted with the Hypothec and Game-law petitions, placed the following statement before the Lord Advocate Moncrieff on the law of hypothec:—1st, That farmers are dissatisfied with the Commissioners' report. 2d, Their petition to Parliament was for total repeal. 3d, That they object to the security which the law affords the landlord for back rents, enabling him to give the tenant a loan of his capital on the security of the public, and thus admitting tenants of insufficient capital, inducing an unfair competition, and giving to land a fictitious value. The course, therefore, which this Chamber has taken upon the matter, has been a very clear and decided one. For my own part I have come to the conclusion that far more weight has been placed upon this law than it deserves, and that even the total abolition of it would have much less effect than what is imagined. I think, for instance, that its repeal would not lower the general rent of land in this country. On all well-managed estates it would not affect the rent-roll by a single shilling. And I readily admit that the great bulk of the landed property of Scotland is managed in such a fair and equitable manner as to be entirely independent of any such change; but I have no hesitation in saying that it would have a tendency to prevent those cases of hardship which have come under our observation, where, in consequence of a reckless management, tenants are accepted for land who never would be, but for the false and dangerous security of hypothec, and where old tenants have been displaced from their farms by parties who had offered rents which never could be paid for the land, and where the land was very soon thrown again upon the hands of the landlord or a large reduction of rent submitted to. I believe also that it would, as was said of the abolition of the Corn Laws, sweeten the breath of society, without being accompanied by any of the evils which some people would make us believe would follow. Further than this I do not go, but I will now mention a few of the arguments which have been urged both for and against, with a view to show their conflicting nature, and in some cases their great absurdity. It is said by the one party, that it would make a great fall in the rent of land, by reducing competition, and placing landlords at the mercy of the wealthy tenants, while on the other hand it is maintained that it would raise the value of land, by bringing men of more capital and intelligence into its occupation, and thereby improve the general standard of farming, which, in the long run, could not fail to advance rent. Mr. Glendinning, in his evidence before the Commissioners, stated that, although he was to fore-rent all the land under his management, he could immediately relet it at the mere reduction of 4 per cent. for the value of the money. At a meeting of the Haddington county gentlemen the other day, Sir George Grant Suttie is reported to have said, "That in his opinion it was a matter of great indifference to the landlords what Bill was passed, so long as the rights of the landlords under existing agreements were preserved intact. He did not consider that this was a question concerning the landlords so much as how it was to affect the agriculture of the country." Again, it has been said by others, and I think it is much more likely, that it would break up very large farms, as more capital would be considered necessary in proportion to the acreage than is now employed, and that many large farmers would be obliged to take smaller farms, so as to be more within their means. Another statement is, that its abolition would expel the old tenantry from the country, as they would in general be unable to pay fore-rent, and another class of men would be brought in who could do so; while, on the other hand, it is asserted that the law as it stands is driving all the old tenantry out of the country, as the inducement is so great to take in higher bidders, although at rents which never can be paid from the land. Another argument is, that, without it, landlords would not so readily grant leases; while the other side again say, that it would bring in a more improving tenantry, without so much danger of being displaced, and they would be more readily granted than ever. It is also argued for on the ground of expediency; inasmuch as it facilitates the advancement of men from the lower grades of the agricultural classes, and enables them to become extensive and flourishing farmers, which, but for it, they never would have been; and some respectable gentlemen who gave their opinion against the law, were even taunted with the insinuation, that, after they had scaled the hypothec ladder themselves, they had turned round at the top and threatened to kick everybody else down. But it might be said with equal justice, that if a law was required to raise certain grades of the agricultural body, it would be a species of class legislation which should be applicable to the commercial and all other classes in the country. I apprehend that I will be much nearer the truth when I say, that such men rise in the social scale from their own native energy, coupled with persevering and economic habits, and even in spite of laws which are in themselves partial and unfair. I have merely mentioned a few of these statements, in order to show their conflicting nature, and how very little weight can be attached to them. There can be doubt, however, that the law of hypothec, as it stands, and as it still would be, if the Lord Chancellor's Bill should become law, has a tendency to induce a kind of management of landed property, which in some cases has been productive of great injustice to the better class of tenantry and to the public, and in my opinion altogether against the true interests of landlords,themselves. The opportunity which it gives the landlord of postponing his rent for a long period, or, in other words, of lending his capital to the tenant upon the security of the public, is undoubtedly an inducement to risk a tenant at a rent which cannot be paid from the land, and which tenant may neither be possessed of capital or skill sufficient for the undertaking. And I say, all honour be to those landlords, who in spite of the facilities given by this bad law, have never put it in practice, and, as a highly respected landlord in my own neighbourhood said, scarcely knew of its existence, until he heard of the agitation on the subject—an agitation which originated from the cruel and oppressive manner in which it was worked by a few individuals in certain parts of the country. I believe, also, that public opinion is tending more and more in the favour of total abolition of this law; and many who thought at first that a fair compromise of the question might be made by limiting the security to the current year's rent, after seeing the difficulty of adjustment in dealing with landed property in this way, and also taking into account the fact, that in all well-managed landed properties no use is made of the law at all, while, at the same time, the Report of the Royal Commission is well nigh useless as regards the removal of its main evils, have now come to the conclusion that the best solution of the question is to sweep it entirely away, and leave parties to make their agreements. A weak point of the Report is the assumption that the total abolition of the law would have the effect of causing landlords immediately to fore-rent their land, and thereby dispossess a great many of the old tenantry, and especially the smaller tenantry, from their farms. It is much more likely that the landlords would consider whether they were better to take a smaller fore-rent or a larger back-rent, with a little more risk, and I have no doubt that they would find themselves in many cases safe to rely upon the well-tried honesty and enterprise of the Scottish tenantry—a class of men which I will most unhesitatingly affirm, either in this Chamber or out of it, are second to none in their profession in any country in the world; but even if it were to tend in some degree to produce such a result, I as decidedly deny that the small tenants would be in a worse position than the larger ones. It is a fact that many of the smaller tenants in Scotland are fore-rented at present, and where they had to be pulled forward, they would just have the smaller rent to pay; and it should be kept in view that loss to the public is not caused at all by the smaller tenants, but by men who aspire to large farms, without adequate capital to carry them on; while at the same time their position finds them credit, till, in the end, they become their position finds them credit, till, in the end, they become bankrupt, sometimes for a large amount. The landlord then steps in and takes everything, leaving the public the losers, when, in point of justice, the landlord should have been the greatest loser, from his recklessness in choosing such a tenant. The smaller tenants are also a great deal more exposed to competition than the larger tenants, for, while a large tenant with 5000*l.* capital or upwards, may safely lie on his oars for a time, and wait his chance by living on the interest of his capital, the small tenant with 500*l.* or 1000*l.* is utterly unable to live without the land. I know that amongst the small tenants will be found many of the strongest enemies of hypothec, and I therefore hold that the argument, which was indeed the only one of any force used by the Royal Commission against abolition of the law, namely, that it would dispossess old tenants, and] especially smaller tenants, is entirely without foundation; and I hold, on the other hand, that the law as it stands at present has, when used by unfeeling or grasping landlords, the effect of removing the old tenantry from their farms, by accepting of offers from new men who do not know the value of the land, and which offers cannot be paid from the land, because they feel that such offers are to a certain extent backed up by hypothec; and this, in fact, in place of being, as they aver, a reason for its continuance, is an argument for its abolition. I cannot sit down without alluding to a statement which has been made in high quarters with regard to the movement in Scotland upon this question. It has been stated that it is an agitation by a few large and wealthy farmers to worry up the smaller tenantry, and to coerce the landlords into giving them the land upon their own terms. I am truly sorry that such a statement should have been made in such a place, and in the hearing and the presence of the high English nobility; that such an accusation should have been made upon a large portion of the Scottish tenantry, an accusation so calculated to destroy their respect and attachment to any one bearing the name and wearing the honours of our ancient and noble aristocracy, names which should be household words with the tenantry; but I trust that it has been uttered without due consideration, and that some reparation will be made. Such uncalled-for aspersions are not easily got over, but I trust that the gentlemen of this Chamber, who are endeavouring to bring such questions to a satisfactory and permanent settlement, will not be discouraged, but, thoroughly satisfied of their own rectitude of purpose, will persevere in this work. Had the object of this Chamber been to forward the interests oi any one class at the expense of another, I for one, and many whom I now see around me, should never have been members of it. This Chamber was instituted for the express purpose and with the sincere desire of advancing the progress of practical agriculture in this country, and if we keep our aim steadily fixed upon its promotion, it is impossible that we can hurt the interests of any class of the community, least of all the landlords.

Mr. Goodlet, Bolshan, seconded Mr. Mylne's motion. He said:—

The Earl of Dalhousie is reported to have stated in the House of Lords that the "object of the larger farmers was to get rid of the competition of the smaller tenants," and "to acquire a position to enable them to dictate to their landlords the price for which they should let their lands." It is difficult to believe that the Earl could be in earnest in making this accusation; but if a nobleman, possessing the sagacity and experience of his lordship, really believes what he is reported to have said, it betrays an amount of ignorance of the character and aim of the larger tenants of Scotland truly marvellous, and a childish fear of their power; which, if generally believed in by his Scottish compeers in that House, cannot too soon be relinquished by them if they are dispassionately to consider and legislate on the law of which we complain. Such language as his lordship indulged in is only calculated to set class against class—can do no good—nay, must necessarily do harm. It has been argued by his Grace the Duke of Argyll, in a speech delivered by him on the Lord Chancellor's Bill, that the landlord "should have a certain priority over other creditors," on the ground of justice, in respect "that the rent is really part of the produce of the land, and that a portion of the produce ought to be reserved for the security of the land;" and on the supposition that rent was originally paid in kind, he holds "that if a certain number of Wheat sheaves, a certain number of tons of Turnips, and a certain number of cwts. of cheese were delivered to the landlord, they would be the property of the landlord, and never would be the property of the tenant, and therefore ought not to be attachable." This argument proceeds on the fallacy that these products are the spontaneous production of the soil, and to be realised without outlay or labour on the part of the tenant; whereas, like manufactured goods, they are only produced by the skill and capital of the tenant employed on the land, which last the landlord alone supplies, and for the use of which he is paid rent, and consequently can have no such prior right to the produce as that contended for by his Grace. Again, his Grace argues that as the bargain which the landlord makes with the tenant is always prior to any other transaction into which the tenant can enter, the landlord should have a certain amount of priority over other creditors. This argument proceeds on the assumption that when a man takes a farm he enters upon the first mercantile transaction of his life; whereas, most men in taking a farm have pecuniary transactions involving obligations to other parties prior to that; and if they are deficient in means for the undertaking (which is often the case), they have obtained bank credits, or loans, or both, from friends before they can enter into this transaction with the landlord, so there is no force at all in this argument of his Grace. His Grace, however, does not lay much stress upon either of these arguments, but maintains that, on the ground of expediency, the law should not be abolished, and in common with other noble lords who have spoken on the subject in Parliament, asserts "that it would be disastrous to the small tenantry," a class which he describes as paying from 100*l.* to 400*l.* a-year of rent, "because in the present state of the law the landlord is enabled to allow time to these tenants for the payment of rent, where in other circumstances their property would be sequestrated, and they would be displaced from their farms." I do not admit this, or that the law of hypothec is beneficial to the smaller tenantry. So far as I have observed the working of this law on those estates where it has been most used, it operates more severely against the class of tenantry his Grace describes than against any other, and it is only necessary to refer to the evidence which was given before the Royal Commissioners by witnesses from Forfarshire in proof of this. In that county the smaller tenants have often been the victims of the oppressive working of the law; and had its lord lieutenant (the Earl of Dalhousie), who has spoken so disrespectfully of the large tenants, given himself the trouble to inquire a little more particularly into the real facts of the case, he could not have felt himself justified in making the unguarded assertions regarding them which he did. The Duke of Argyll also stated that the agitation is carried on by the large tenants of the Lothians and Berwickshire, and he refers to the evidence taken by the Royal Commission to show "that they have not disguised their opinion that the abolition of the law would tell severely against the small farmers." In this, I have no hesitation in saying that his Grace misunderstands their evidence, the general idea brought out in it being that it would have the effect of preventing men taking farms beyond their means properly to stock and cultivate, but not that it would be against small farmers who had sufficient means for their undertaking. It would certainly be against what are called men of straw competing for farms, which this law enables them to do. But such competition is hurtful alike to landlords and tenants of every class, and ought not to be encouraged by legislation. I am one of those who gave evidence before the Commission in favour of a modification of the law, but such a modification as that proposed in the Lord Chancellor's Bill by no means meets the necessities of the case. It may be to some extent favourable to the mercantile classes, but as far as the tenants are concerned, it leaves them in a worse position than they are at present, and for the interests of the tenantry (broadly viewed) I am opinion total abolition would be preferable to the Lord Chancellor's Bill. I therefore support the motion.

[After a prolonged discussion, to which many other speakers contributed, Mr. Mylne's motion, modified as follows, "That the Chamber should petition against the Bill for modification of the law, and in favour of the Bill for total abolition, in so far as regards agricultural subjects," was carried, and the meeting proceeded to discuss the subject of the Game Laws.]

Reviews.

Old and Remarkable Trees. Printed for the Highland and Agricultural Society. W. Blackwood & Sons.

The concluding portion of this very interesting report upon the trees of Scotland has just been published. The series here collected is, we believe, due to the suggestion of Mr. Milne Home, of Milnegraden, Berwickshire. It is hardly likely that any record so complete could be obtained of any other country. Scotland is sufficiently limited, and sufficiently national, and sufficiently intelligent; and so the work was both possible and appreciated. And the results are very interesting to the general reader.

A collection of examples is tabulated, including from 20 to 100 instances of each tree, giving the height, girth, age, soil and altitude, and exposure of the situation; and in the preliminary statement regarding each sort, its native country and its cultivation, the character of its timber, and the references to it in literature, are all severally discussed, with, on the whole, a most satisfactory result upon the reader.

We give, as an example, the statement relating to *The Sycamore.*

"The Acer Pseudo-Platanus. The Sycamore or Great Maple belongs to the Polygamia Monœcia of the Linnæan system.

"*Native Country.*—This tree abounds in various parts of Europe, as in Switzerland, Germany, Austria, and Italy. In England it is found growing in hedges, in the neighbourhood of houses, but not truly wild, according to Smith, though others consider it a native of Britain. Gerrard, writing in 1597, says it is a stranger in England, only found growing in the parks and places of pleasure of noblemen, where it has been planted for its shade. Ray speaks of it as very common in courtyards, churchyards, and about noblemen's houses. Martyn, in his edition of 'Miller's Dictionary,' says that if it were truly indigenous, the country would have been full of it, since the tree springs with such wonderful rapidity from seed. Dr. Walker supposes it to have been one of the very earliest foreign trees introduced to Scotland. Sir T. D. Lauder says, 'It is a favourite Scotch tree, having been much planted about old aristocratic residences in Scotland; and if the doubt of its being a native of Britain be true, which we cannot, however, believe, then it is probable that the long intimacy which subsisted between France and Scotland may be the cause of its being so prevalent in the latter country. In Switzerland the tree is found growing at an elevation of from 2000 feet to 3000 feet above the sea level. In such situations it suffers much less from frost and snow than many other trees.

"*Foliation.*—In the latter end of April and early part of May the foliage of this tree expands very rapidly, if the weather is warm and moist.

"*Defoliation.*—On the first approach of frost the leaves of this tree perish and suddenly fall from it, seldom later than the end of September or beginning of October.

"*Soil.*—The common Sycamore will grow on any soil not saturated with water. It, however, prefers one that is dry and free rather than stiff or moist. It will grow in exposed situations, and especially on the sea-coast, and maintain its erect position against the sea breeze better than most other trees. It is used in Scotland for this purpose, and for planting round cottages and farm houses on bleak hills. In such situations it can hardly be found with the head leaning more in one direction than the other.

"*Seed.*—No tree seeds more freely than the Sycamore.

"*Mode of Propagation.*—Invariably by seed in the case of the common variety; the variegated varieties have to be propagated by layers, budding, or grafting. The seed, which vegetates very freely, may be sown as soon as gathered, or kept in sand till the following spring, and sown in the usual way.

"*Cultivation.*—After the seedlings have been two years in the seed-beds, they should be transplanted into nursery rows and stand other two, at the end of which time they may be planted where they are to form timber.

"*Effect in Landscape.*—Sir Henry Stewart writes: 'The Sycamore grows to a great size in this our northern climate, and is eminent as a lawn tree for the amplitude of its leaf and its spreading top. Even Gilpin, fastidious as he is, allows it a considerable share of picturesque merit. It is particularly valuable in extensive park plantations, as it will grow freely on any ground that has a light and porous subsoil. There is, perhaps, no tree so well adapted for open exposures, or that will so firmly resist the blast. It never shows, as most trees do in such situations, what is called a weather side, but balances itself equally in spite of every wind that blows. Exposed to the sea breeze, while every tree around it droops, it stands erect and vigorous, bidding defiance to the tempest.' He further adds, 'This beautiful tree is among the first in our climate that cheers the spring with its vivid green; and it is to be lamented that it should be the first to fade on the slightest breath of autumnal frost.'

"*Average Height.*—The average height of 40 trees, as given in the Tabular Abstract, is 66 feet; the highest, 130 feet.

"*Average Girth.*—The average girth of 45 trees is 13 feet 6 inches; the greatest, 42 feet 7 inches. This very remarkable tree is on the estate of Kippenross, in the parish of Dunblane, in Perthshire. It is 100 feet high, and contains 875 cubic feet of timber, and is said to be 455 years ago. When we saw it some eight years ago, it was beginning to decay on one side; the soil it grows on is loam, on a gravel subsoil.

"*Longevity.*—The average age of 26 trees is 215 years; the greatest, 455 years.

"*Soil.*—Of 43 trees, where returns are given, 9 are on loam, 5 on light loam, 1 on loam and clay, 3 on sandy, 1 on earthy, 1 on light gravel and Moss, 2 on clay, 1 on light soil, 1 on strong loam, 1 on brown mould, 6 on black loam, 1 on black earth and stones, 1 on deep soil, 1 on light black, 1 on thin black mould, 1 on dry earth, 2 on free soil, 1 on heavy red loam, 1 on rich loam, 1 on light gravel, 1 on rich alluvial, and 1 on pulverised rock and vegetable mould.

"*Altitude above Sea.*—The average altitude above the sea of 38 trees is 234 feet; the greatest, 745 feet.

"*Exposure and Aspect.*—Of 42 trees, 16 are exposed to the south, 9 to all quarters, 1 to the north, south, and east, 1 to east and north-east, 2 sheltered, 2 to south-west, 2 to south-east, 1 to south and south-east, 1 to north and east, 1 to west, 2 to east, 2 to north, 1 to south and south-west, and 1 to south-west and east.

"*Weight of Timber.*—The timber of this tree weighs, in a green state, 64 lb. per cubic foot, and 48 lb. when dry.

"*Value as Timber.*—The timber of the Sycamore tree, when young, is white. When older, it becomes a little yellow, and even brown towards the heart. Without being hard, it is compact and firm, has a fine grain, and is susceptible of a high polish. It is easily worked, either on the bench or turning-lathe. On the Continent of Europe it is used by wheelwrights, sculptors in wood, cabinet-makers, makers of musical instruments, especially violins, and all manufacturers of toys and small ware. As charcoal, it is superior to Beech in the proportion of 1647 to 1600. Sugar has at times been made from the sap of this tree, but not in such quantities as to give it any importance in this respect. In Britain the wood is used for similar purposes as on the Continent, with the addition of gun-stocks. Its market value in a green state near Edinburgh is from 1*s.* 2*d.* to 1*s.* 6*d.* per cubic foot.

"*Poetical Allusions.*—In the language of flowers the Sycamore signifies curiosity, because it is supposed to be the tree on which Zaccheus climbed that he might see Christ pass on His way to Jerusalem. It appears, however, that the tree was not what we call Sycamore now, but a variety of Fig called Ficus Sycamorus.

"Evelyn condemns the practice of planting the Sycamore near dwelling-houses, as it is frequently much covered with honey-dew, which renders it both unsightly and unwholesome. Of this tree Cowper writes—

> Nor unnoticed pass
> The Sycamore, capricious in attire—
> Now green, now tawny; and ere autumn yet
> Has changed the woods, in scarlet honours bright.

"The Earl of Haddington, when writing of this tree, confounds it with the Plane tree, a custom not uncommon still in Scotland. He writes, 'This tree (the Plane) is the same with what in England is called the Sycamore. By all I can observe, this appears to have been a favourite tree in all the north part of Britain; for there is no old seat, no gentleman's house, nor any place where trees are, but the Plane is the most numerous. It is raised from the keys as the Ash, but with this difference, that when sown in November, when ripe, they rise early the next spring, and when managed as I have advised that the other trees should be, the Plane will rise to a great height and largeness; they carry a fine leaf, and put out early in the spring, one a fortnight before the other, but I see no other difference betwixt them. It makes a fine shade, and never yields to the wind, unless raised when young under the shelter of a wall; that makes it shoot so fast, that when it gets above it the tenderness of the shoots makes it unable to resist the winds. It is shy as to soil, but will thrive where the Elm and Ash do. For the uses of this tree I refer you to Mr. Evelyn, who will inform you not only of this, but of every other tree. In the same house where one room is wainscoted with chestnut there is another done with plane. It looks very well, but I was told it was very hard to work, yet it takes the worm very soon, unless varnished on both sides. I believe it is of no great value, though some think otherwise; and I hear it has lately been discovered that, driven into the earth for posts to gates, it lasts, without rotting, longer than any tree yet tried. If this be true, and what Messrs. Evelyn and Cook say, that in a park the deer will not touch it, there is no doubt it ought to be propagated, since it grows high and great and straight, has a broad leaf, looks well in thickets, and resists the winds.'"

The present part of the Report describes in a similar way the Horse Chestnut, the Spanish Chestnut, the Elm, the Lime, the Oak, the Poplar, the Plane, the Walnut, Willow, and Yew.

Miscellaneous.

Death of Mr. John Ellman.—It is with no ordinary feelings that we record the death of this eminent agriculturist. Born at Glynde, on the 24th of June, 1787, nothing could appear more delightful when Mr. Ellman began life than the prospects of a tenant-farmer on the South Downs. In 1810, when he attained his twenty-third year, Wheat was selling just before harvest at 110*s.* per quarter, and in the December of that year the finest samples still made 98*s.* At the wool fair, too, most of the wool was taken at 3*s.* per lb. In all this there was no material change until the Peace of 1815. As the son of the celebrated breeder, who has been said to have "invented the Southdown sheep," and was in every great agricultural movement in England, the chosen friend of the Earl of Egremont and Arthur Young, Mr. Ellman was from his youth immersed in every variety of agricultural business. During the years of prosperity, however, to which we have referred, if there was more than the ordinary routine of farm-life to attend to, it was of a very gratifying character to all living on the Glynde Farm. Mr. Ellman's father from 1790 to 1816 was in the height of a great career. He it was who instituted the Sussex Agricultural Society, and we may add that as long as he competed for prizes, both there and at Smithfield, he carried off no small share of the honours. The Duke of Bedford was not unfrequently a visitor at Glynde, and the house was the scene of hospitality as general and munificent as it was hearty and unpretending. We may regard this as the first period of the late Mr. Ellman's life. He was receiving his education at Winchester School, and was originally intended for the bar, but at a very early age he evinced a decided preference for agriculture. In 1810 he left his father's residence to take the farm at Firle, now occupied by Mr. Thomas Saxby, and the Manor Farm, Ripe, the property of Lord Hampden; the latter he held up to his death. On the 25th February, 1811, he married Catherine Springate, the third daughter of Mr. John Boys, of Betshanger, Kent, by whom he had eight children, of whom five sons and two daughters are now living. In 1819 he gave up the Firle Farm, and took that at Beddingham, since occupied by his brother Thomas, and he then came to reside in Southover. It was from this residence that, when the stormy time came that followed in 1815, he dated the greater part of the numerous letters which he furnished to *Evans and Ruffy's Farmers' Journal*, the agricultural paper of that day. To all these it appears to have been his invariable practice to append his name. A very interesting period of Mr. Ellman's life was the presentation of a testimonial to him by the owners and occupiers of land. This event took place in 1846. In presenting the testimonial Mr. Tanner alluded to Mr. Ellman "as a warm friend to the agricultural interest, whether it were to preserve to the farmer his rights, or to elevate and reward the honest and industrious labourer," and he added that he was proud to bear his testimony to the zeal and perseverance he had so many years shown in the good cause. If, as a flockmaster, they could not say he had invented a sheep, as a lady did to Mr. Bakewell, he had at least proved himself worthy of being his patentee, in preserving the invention perfect and entire. There were few flocks in the county that had not received some improvement from the Glynde blood, and whose masters had not had reason to feel thankful that they had the opportunity of improving their sheep by attending the annual sales at Glynde. When Mr. Ellman, sen., retired from Glynde Farm, in 1828, the subject of this sketch became the tenant, and remained its occupant until Michaelmas, 1846, when he removed to Landport, near Lewes, where he has since resided. In 1819 Mr. Ellman was appointed a Deputy-Lieutenant for the county of Sussex, and he was, we believe, the senior member of the lieutenancy. In 1838 he received the Commission of the Peace from the late Duke of Richmond, and he was always most indefatigable in his attendance on the bench, and in his endeavours to render the pressure of the county taxation as light as possible to the tenant farmer, on whom its weight principally falls.—*From the Sussex Express.*

Cattle Plague Penalties.—The number of persons convicted in certain counties of infringing the orders issued with respect to the cattle plague appears to have been somewhat considerable. In Berkshire, 124 persons were so convicted; in Cornwall, 253; in Devonshire, 408; in Dorsetshire, 147; in Gloucestershire, 141; in Hampshire, 155; in Herefordshire, 62; in Kent, 207; in Monmouthshire, 69; in Somersetshire, 345; in Surrey, 47; in Sussex, 10; in Wiltshire, 128; in Pembrokeshire, 31; and in Radnorshire, 18. Nearly all these persons were simply fined; but 11 of them were sent to prison.

Notices to Correspondents.

FENCING: *A Z.* Sixty acres are 29,040 yards, rather more than 170 yards square. If the piece be square, then you will need about 680 yards of fencing. If it be round, less will be needed, but it is plain that any quantity *may* be needed according to the irregularity of the outline within which your area lies.

LAND AGENT OR FARM MANAGER: If any landowner desires the services of a well-educated man and good practical farmer, either for the management of a home farm, or for the general supervision of an estate, the Editor of this Journal can recommend one who possesses all the experience, good judgment, and trustworthiness which such a situation requires.

MESSRS. GEORGE GIBBS AND CO.,

25 & 26, **DOWN STREET,** PICCADILLY, W.,

Beg to announce they are now prepared to execute Orders to any extent for Laying Land Down to Permanent Meadow and Pasture, with their best MIXTURES of GRASS and CLOVER SEEDS, to suit various soils, which they can supply at 32*s.* to 36*s.* per acre, allowing 2 bushels of large seeds and 12 lb. of small seeds to each acre.

MIXTURES of GRASS and CLOVER SEEDS for Renovating Old Pastures. Quantity required per acre, 6 lb. to 10 lb. Per lb. 1*s.*

MIXTURES of the FINEST SORTS for Lawns, Croquet Grounds, Bowling Greens, &c. Per lb. 1*s.* 3*d.*

Italian Rye-grass.

	Per bushel.—*s.*	*d.*
GIBBS' IMPROVED EARLY	6	6
FINE HEAVY IMPORTED	7	0

Perennial Rye-grass.

PACEY'S "HEAVY SEED" per bushel	7	0
EVERGREEN Ditto "	7	0

Clovers.

	Per lb.	
FINE ENGLISH RED	10*d.* to 1	0
FINE ENGLISH WHITE	1*s.* 3*d.* to 1	6
FINE ALSIKE HYBRID	2*s.* to 2	3
TRUE COW GRASS	1	3
RED SUCKLING	1	3
YELLOW TREFOIL	4*d.* to 0	5

Bromus Schraderi.

THE NEW FORAGE GRASS	2 6

Buckwheat, or Brank.

ENGLISH SEED per bushel	7 0

Carrot.

LARGE WHITE BELGIAN	1 3
LARGE YELLOW BELGIAN	1 6
LARGE RED ALTRINGHAM	2 0
SCARLET INTERMEDIATE	2 0
LONG SURREY, or ORANGE	2 0

Cabbage.

CHAMPION OX, "fine"	3 6
LARGE DRUMHEAD	2 6
ENFIELD MARKET	3 6

Swedes.

	Per lb.	
THE ASHCROFT	1	0
MATSON'S PURPLE-TOP	1	0
SKIRVING'S	0	0
GIBBS' PURPLE-TOP	1	0
EAST LOTHIAN	1	0

Yellow Turnips.

GIBBS' GREEN-TOP HYBRID	1 0
GIBBS' PURPLE-TOP HYBRID	1 0
GREEN-TOP YELLOW SCOTCH	1 0
DALE'S HYBRID	1 0

Common Turnips.

GREEN GLOBE	0 10
RED GLOBE	0 10
WHITE GLOBE	0 10
GREEN TANKARD	1 0
RED TANKARD	1 0
WHITE TANKARD	1 0
YELLOW TANKARD	1 0
GREY STONE	0 10
EARLY WHITE STONE	0 10
ORANGE JELLY	1 0

Mangel Wurzel,

FROM FINE SELECTED ROOTS.

YELLOW GLOBE	1 0
RED GLOBE	1 0
LONG RED	1 0
LONG YELLOW	1 0

Parsnip.

GIBBS' LARGE CATTLE	1 6
HOLLOW CROWN	1 3

Kohl Rabi.

LARGE GREEN	2 6
LARGE PURPLE	2 6

Lucerne.

FINE IMPORTED	1 3

Furze.

FRENCH and ENGLISH	2 0

Holcus saccharatus.

CHINESE SUGAR GRASS	2 0

Rape, or Cole.

ESSEX SEED	0 5

Special quotations for large quantities.

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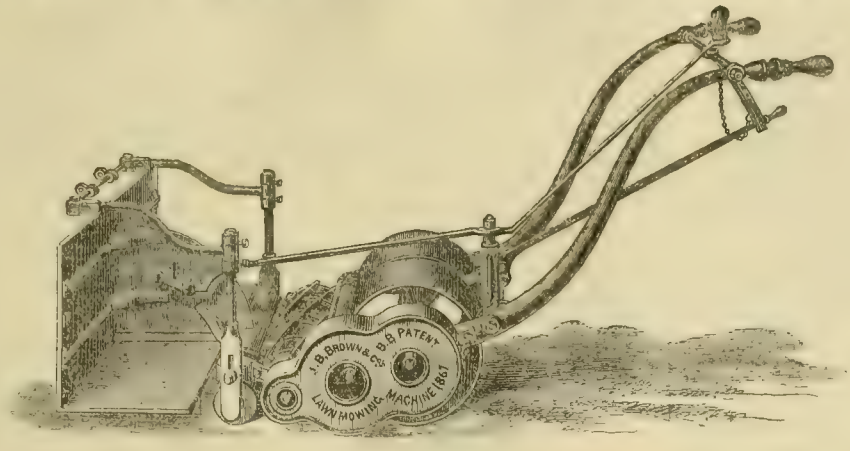
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PATRONISED BY HER MAJESTY THE QUEEN, AND HIS ROYAL HIGHNESS THE PRINCE OF WALES.

J. B. BROWN & CO.'S NEW PATENT B B LAWN MOWER FOR 1867.



PONY MACHINE

With Newly Improved Delivering Apparatus; to Deliver the Grass without Stopping.

The unprecedented success of this NEW PATENT LAWN MOWING MACHINE has far exceeded the most sanguine expectations of the Patentees and anufacturers. As an illustration of this, it may be mentioned that Orders which were received during the months of October, November, and December, 1865, for ie Delivery of Mowers in the Spring of 1866, were executed, not without difficulty, just in time for the commencement of the season's Lawn Mowing, notwithstanding at for more than three months the steam machinery used in the construction of these New Lawn Mowers had to be kept working night and day, with relays of orkmen supplying the Machines.

MESSRS. J. B. BROWN AND CO. being most desirous to avoid this year the great expense which they incurred during last season, by having their Works nployed day and night, owing to the press of Orders they received at the commencement of the season, *would earnestly solicit Orders for this season's requirements ing immediately forwarded to them.*

The NEW PATENT B B LAWN MOWER combines all the latest improvements in Lawn Mowing Machines, being simple in construction, very light, silent in ovement, easily worked, and so strong and durable as to be literally unbreakable,—an all-important feature in Machines of this class; the ordinary cast-iron being ntirely done away with, and malleable iron substituted in all breakable parts, and every part being numbered and accurately made to standard gauges. The workmanip and finish are also of a superior character; *the entire Machine being quite equal to a revolution, so to speak, in Lawn Mowers.*

☞ *The Machines are all guaranteed to give perfect satisfaction in every respect.*

Many of the best known and most intelligent Gardeners have given the New Patent B B Lawn Mower the highest possible character.

Mr. THOMAS INGRAM, *of the Royal Gardens, Windsor Castle, writes* Messrs. Brown & Co., *Aug.* 11, 1866.
"I have much pleasure in stating that your New Patent B B Lawn Mowing Machine (a 24-inch) has d a good trial, and has proved quite satisfactory. The work done is of the first order, leaving the wn like a piece of velvet."

Mr. WILLIAM CARMICHAEL, *Sandringham, King's Lynn, Norfolk, the seat of* His Royal Highness the Prince of Wales, *writes January* 14, 1867.
"The 24-inch B B Lawn Mowing Machine which you supplied suits me well, and does its rk admirably."

Mr. J. BISSET, *of the Gardens, Croxteth, near Liverpool, the seat of the* Right Hon. the Earl of Sefton, *writes September* 13, 1866.
"We have given your Lawn Mowers (a 20 and 24-inch) a fair trial of some three months, and think at a sufficient test to pronounce them the nearest to perfection of any Lawn Mowers I have seen tried."

Mr. WILLIAM SMITH, *The Gardens, Erlstoke Park, near Westbury, Herts, writes July* 24, 1866.
"Your B B Lawn Mower does its work well, and is in every way very satisfactory. I shall have eat pleasure in recommending it, as I am sure there is no other Machine at the present day to beat it."

Mr. JAMES DODDS, *The Gardens, Knole, Sevenoaks, Kent, writes September* 1, 1866.
"I have pleasure in mentioning to you that your New B B Pony Mowing Machine supplied to us continues to give perfect satisfaction, in doing the work exceedingly well."

Mr. JOHN SNOW, *Saltram Gardens, Saltash, Devonshire, writes September* 6, 1866.
"I have much pleasure in bearing testimony to the excellence of your New Patent Pony Mowing Machine sent for the Earl of Morley. The work performed is very satisfactory."

WILLIAM HARDMAN, Esq., *Norbiton Hall, Kingston-on-Thames, writes August* 29, 1866.
"I enclose cheque for the B B Mowing Machine, and at the same time have much pleasure in expressing my decided opinion that it is by far the best Machine we have tried yet. It has been in use now for nearly two months, and works perfectly."

The Rev. M. GIBSON, *Enclos de l'Oratoire, Boulogne sur Mer, France, writes August* 22, 1866.
"I beg to enclose a cheque for the amount due for the B B Lawn Mower which you sent me some short time since. It reached me quite safe, and works very satisfactorily."

PRICES

NEW PATENT B B HORSE MACHINE for 1867.
mplete, without extras, including Delivery Free to any Railway Station in England, with the necessary Tools and Directions for use.

-inch Machine	£28 10 0	*Drawn by a Horse.*
-inch Machine	24 10 0	
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NEW PATENT B B PONY MACHINE for 1867.
Complete, without extras, including Delivery Free to any Railway Station in England, with the necessary Tools and Directions for use.

30-inch Machine	£17 10 0	*Drawn by a Pony or strong Donkey.*
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Including Delivery Free to any Railway Station in England, with the necessary Tools and Directions for use.

-inch Machine	£4 0 0	*Easily Worked by a Boy.*
-inch Machine	5 0 0	
-inch Machine	5 10 0	*Ditto by a Man.*
-inch Machine	6 10 0	*Ditto by a Man and Boy.*
18-inch Machine	£7 10 0	*Easily Worked by a Man and Boy.*
20-inch Machine	8 0 0	*Ditto by Two Men.*
22-inch Machine	8 10 0	
24-inch Machine	9 0 0	

*** *Every Machine is warranted to give complete satisfaction, and, if not approved of, may be at once returned.*

☞ *It is most important, in order to prevent disappointment, that Orders for these PATENT LAWN MOWERS should be given without delay.*

J. B. BROWN AND CO., PATENTEES and SOLE MANUFACTURERS,
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Sutton's Grass Seeds for all Soils, Carriage Free.

MESSRS. SUTTON specially prepare MIXTURES for every description of soil; therefore in ordering it is only necessary to state the nature of the soil, and suitable Seeds will be supplied. The following are the popular classifications of Soils:—

1. STIFF CLAY
2. STIFF or HEAVY LOAM
3. GOOD MEDIUM LOAM
4. LIGHT SANDS
5. SHARP GRAVELS
6. CHALKY SOILS
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8. RIVER FLATS, or WATER MEADOWS

Prices for PERMANENT PASTURES, 28s. to 36s. per acre, carriage free.

For 1, 2, 3, or 4 Years' Lay, 14s. to 24s. per acre, carriage free.

For further particulars apply to
SUTTON & SONS, Seed Growers, Reading.

The New Forage Grass (Bromus Schraderi).

SUTTON AND SONS have imported a large supply of True Seed of the above, and offer it at 2s. 6d. per lb., or cheaper in large quantities. Quantity required per acre, 30 lb. Lowest price per cwt. and instructions on cultivation, may be had on application.
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Improvement of Grass Lands,

at from 5s. to 10s. per acre.

SUTTON'S RENOVATING MIXTURE

SHOULD NOW BE SOWN.

6 to 12 lb. per acre.

Price 10d. per lb. Cheaper by the cwt.

If these Seeds are sown early in the season, the improvement in the land will be very great, and at a small expense.

This Mixture should be bush-harrowed in, and rolled afterwards.

SUTTON & SONS,
Royal Berkshire Seed Establishment,
Reading.

Present Prices of Best Clover Seeds.

SUTTON AND SONS can supply the above at the following prices, carefully cleaned, and free from Dodder and other weeds:—

	Per lb.—s. d.		Per lb.—s. d.
BROAD RED,	10d. to 1 0	YELLOW TREFOIL, 5d. to	0 6
WHITE or DUTCH 1s. 2d.	,, 1 4	COW GRASS .. 1s. 2d. ,,	1 6
PERENNIAL WHITE	.. 1 6	ALSIKE .. .. 2s. ,,	2 6

Samples and lowest price per cwt. sent on application.
Ordinary qualities may be had cheaper.
All goods Carriage Free (except very small parcels).
Five per cent. allowed for cash payment.
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SUTTON'S FINE LAWN GRASS for Making New or Improving old Garden Lawns, Croquet Grounds, &c. Price 1s. 3d. per pound, 24s. per bushel, carriage free. For forming New Lawns or Croquet Grounds three bushels, or 60 lb., are required per Acre, or 1 gallon to Six Rods of Ground.

From the Rev. E. J. GOSLING, M.A., *Chaplain to the County Gaol, New Disdin Road, Monmouth.*

Nov. 8, 1866.—"The Lawn Seeds I had from you in the spring have fully testified to the truth of all that has been said in praise of them."

From H. E. TUCK, Esq., 32, *Bartholomew Road North, Kentish Town, London.*

August 8, 1866.—"The Lawn Grass Seed is excellent; grows very quickly indeed, and produces beautiful fine Grass, such as we never had before."

From ROBT. J. STEDMAN, Esq., *Sharnbrook, Bedford.*

Jan. 13, 1866.—"The lawn I laid down last spring with your Grass Seeds answered wonderfully. It looks now as if it had been done with old Turf. Persons who see it scarcely believe it was obtained by sowing."

From MARTIN COUCHER, Esq., M.D., *Bayton Villa, Clifton-on-Teme, Worcester.*

Oct. 6, 1866.—"On the 10th or 12th of June I sowed the Lawn Grass Seed, and though the planting was so late, the Lawn now presents a uniform luxuriant appearance of a beautiful tint, and looks as though it had been planted two years. Of course, attention has been paid to mowing and rolling."

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Very Early Sheep Feed.

SUTTON'S IMPROVED ITALIAN RYE-GRASS.—This "Improved" Italian Rye-grass is recommended in preference to every other variety, producing three or four heavy crops in one summer, and being almost if not strictly perennial.

At a Meeting of the Royal Agricultural Society, on March 16, in a Lecture delivered by Alfred Hughes, Esq., late of Thorness, Isle of Wight, Mr. Hughes said:—

"I always reserve a portion of Oat land to lay down with SUTTON'S Improved Italian Rye-grass, the most reliable plant I have come across for some years for Ewes and Lambs in the Spring. When I tell you that I put it in in the spring, and dressed it after harvest with guano, and that in the autumn, when my Sheep fed it off, it was up to their knees, and that I fed it off again this spring with Ewes and Lambs, I think you will agree that this is a crop of very great value. The Italian Rye-grass which is sold by SUTTON, of Reading, is a most astonishing vigorous plant; indeed, I never saw anything to equal it in the course of all my experience."

SUTTON & SONS have a fine stock of their Improved Italian Rye-grass, which is a very different and superior article to much that is sold as Italian Rye-grass.

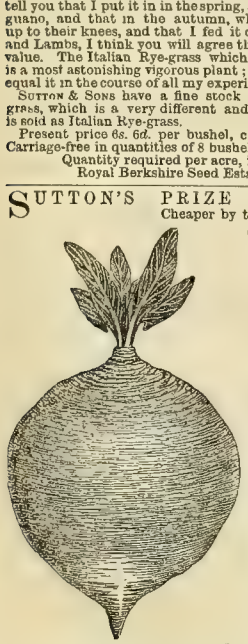
Present price 6s. 6d. per bushel, cheaper in quantities over 5 qrs. Carriage-free in quantities of 8 bushels and upwards.

Quantity required per acre, if sown alone, 3 bushels.
Royal Berkshire Seed Establishment, Reading.

SUTTON'S PRIZE MANGEL SEED.

Cheaper by the Cwt.

	Per lb.—s. d.
Good YELLOW GLOBE	.. 0 9
,, ORANGE GLOBE	.. 0 9
,, RED GLOBE	.. 0 9
,, LONG RED	.. 0 9
,, LONG YELLOW	.. 0 9



SUTTON'S

Selected Mangel Seed

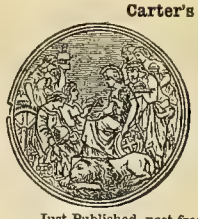
From Selected Roots.

	Per lb.—s. d.
SUTTON'S SELECTED YELLOW GLOBE	.. 1 0
Do. do. ORANGE GLOBE	1 0
FISHER HOBBS' ORANGE GLOBE	.. 1 0
STRATTON'S RED GLOBE	.. 1 3
SUTTON'S ELVETHAM LONG RED	.. 1 0
SUTTON'S MAMMOTH LONG YELLOW	.. 1 6
NEW YELLOW INTERMEDIATE	.. .. 1 9
Do. RED do.	.. .. 1 6
SUTTON'S MAMMOTH LONG RED	.. 1 6
BERKSHIRE PRIZE, or SUFFOLK CHAMPION, New, in 8 lb. bags	.. 2 6

SUTTON'S YELLOW GLOBE, Price 1s. per lb.

Cheaper by the Cwt. Lowest Price per Cwt. on application.
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In consequence of the increasing interest taken in Subtropical Plants and in the finer Border Flowers, JAMES CARTER & Co. have devoted special attention to these subjects in their new issue of the above work, and the following original and practical articles plainly indicate the readiest way to get up a stock of these subjects in the most economical manner:—

On the Cultivation of Hardy Flowers from Seed.
How to raise Hardy Flowers from Seed.
Ornamental Annuals.
Fine-foliaged Plants from Seed. Also,
On Laying Down Grass Seed for Permanent Pasture, &c.

Forwarded for 12 stamps on application to CARTER'S Great London Seed Warehouse, 237 and 238, High Holborn, London, W.C.

Carter's Grass Seeds for the International Exhibition at Paris, 1867.

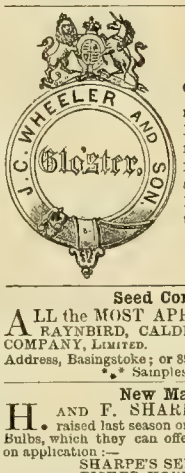


JAMES CARTER AND CO. have the satisfaction to announce that the Imperial Commissioners of the Paris International Exhibition of 1867 have granted to them the concession of supplying the GRASS SEEDS for the purpose of forming the Sward of the Park round the Exhibition Building in the Champ de Mars. The honour conferred on their House will be more readily appreciated when they state the gratifying fact, that they are THE ONLY ENGLISH HOUSE ENTRUSTED WITH THE IMPERIAL COMMISSIONERS' COMMANDS FOR THIS PURPOSE.

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Grass Seed packed for Exportation.



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For the Improvement of Croquet Grounds and Lawns,

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SEED GROWERS, Gloucester, can recommend a Mixture of the finest LAWN GRASS SEEDS, which should now be sown at the rate of about 10 lb. per acre, with a top-dressing of soot, guano, or superphosphate. The Lawn or Croquet Ground should then be thoroughly well rolled.

The price of the Seed is 1s. 3d. per lb.

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Seed Corn from the Chalk.

ALL the MOST APPROVED VARIETIES supplied by RAYNBIRD, CALDECOTT, BAWTREE, DOWLING, and COMPANY, LIMITED.

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H. AND F. SHARPE have the following Varieties, raised last season on their own Seed Farm from fine selected Bulbs, which they can offer to the Trade at Low Prices, to be had on application:—

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Also Genuine PERUVIAN GUANO, and NITRATE of SODA, ex Dock Warehouse; SULPHATE of AMMONIA, FISHERY SALT, &c. E. PURSER, Secretary.

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Fumigate your Greenhouse with TOBACCO TISSUE.

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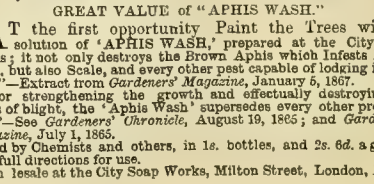
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"AT the first opportunity Paint the Trees with a solution of 'APHIS WASH,' prepared at the City Soap Works; it not only destroys the Brown Aphis which Infests Peach Trees, but also Scale, and every other pest capable of lodging in the bark."—Extract from *Gardeners' Magazine*, January 5, 1867.

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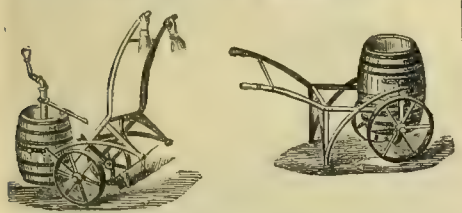
BOSTON'S NE PLUS ULTRA, for the Destruction of Mealy Bug, Scale, American Blight, &c., on Stove and Greenhouse Plants, Fruit Trees, Vines, &c. In bottles, with full instructions for application, price 3*s.* 6*d.*, 6*s.*, and 10*s.* 6*d.*
JAMES CARTER & Co. beg leave to state that the present time is most suitable for applying the above genuine Specific before the commencement of the growing season, thereby preventing the rapid increase of the above pests which would otherwise take place. The infallible properties of BOSTON'S NE PLUS ULTRA are rapidly becoming fully recognised, J. C. & Co. having already sold nearly 2000 bottles since its first introduction in the spring of 1866. Numerous testimonials have been received, and not a single complaint of its inefficiency.
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W. S. BOULTON'S 36-gallon SWING WATER BARROW. Price 45*s.*
Carriage paid to any Station in England



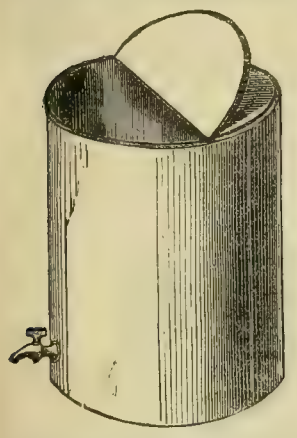


The above is very cheap and invaluable for carrying Liquids of all kinds. No Garden, Farm, Stable, or Kitchen Yard should be without one. Two or more Tubs can be had with one Carriage at a small additional cost. A Lad can easily work it; but if required to travel long distances over rough ground a Pony can be attached. The wheels and carriage are wrought iron, and the tub oak. The following, out of many Testimonials, have been received:—

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"To Mr. W. S. BOULTON."

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"To Mr. W. S. BOULTON."
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GALVANISED IRON WATER CISTERNS.
Cheap, light, and durable, will not rust or corrode, and keep water perfectly sweet.



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30 gallons,	20*s.* 0*d.*
50 gallons,	24*s.* 0*d.*
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100 gallons,	38*s.* 6*d.*
125 gallons,	45*s.* 0*d.*
150 gallons,	49*s.* 0*d.*
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With Lid and Brass Tap.

GALVANISED WIRE STRAND CABLE FENCING.
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HURDLES, HURDLES, HURDLES, 1*s.* 9*d.* to 3*s.* 9*d.* per yard.
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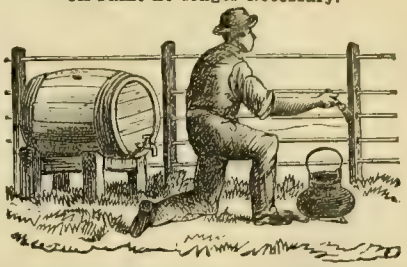
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"I have much pleasure in saying I have known your Black Varnish to be used for some time by friends of mine, and they all speak highly of it, which has induced me to get the quantity I have from you. That I have used looks remarkably well."
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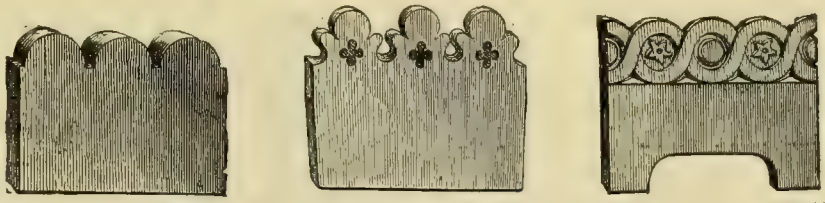
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HIGH STREET, LAMBETH, LONDON, S.

No. 1. No. 2. No. 4.



This Edging is Manufactured in Vitrified Stoneware and in Terra Cotta, and is warranted imperishable.
DRAIN PIPES, TERRA COTTA CHIMNEY TOPS, &c.

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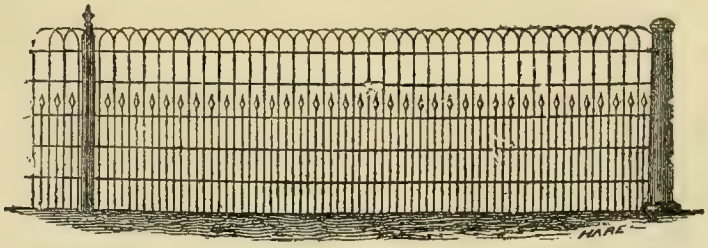
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WIRE HARE AND RABBIT-PROOF GARDEN FENCES

ARE SIX TIMES AS STRONG AS THE VERY BEST WIRE NETTING.
Only 1¼ inch apart in the Meshes, and therefore proof against the smallest Rabbits.
PERFECTLY REGULAR IN PATTERN.
Of a neat and very pleasing appearance, and most moderate in price.
NO. 16 VARIETY.



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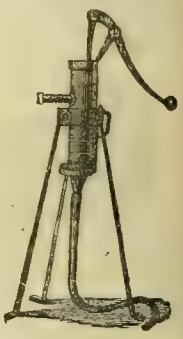
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2½ inches diameter	..	.. £1	8 6
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Ditto, with 15 feet of 1¼-in. lead Suction Pipe attached, £2.



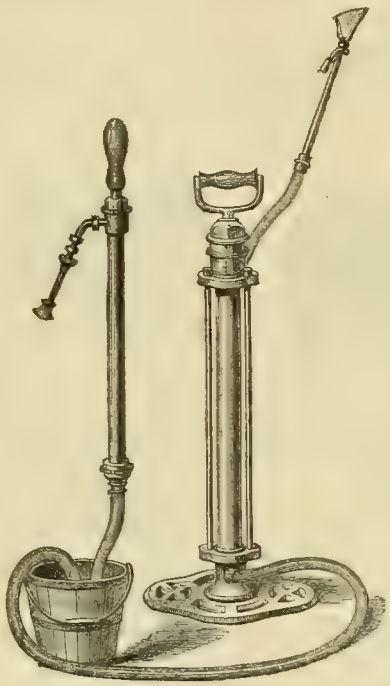
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6 ft. Suction Pipe and Rose, extra, 12s.



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Useful for every variety of purpose, in Watering or Washing Flowers or Trees in Gardens, Conservatories, &c.; also for Washing Carriages or Windows, Laying Dust, &c.

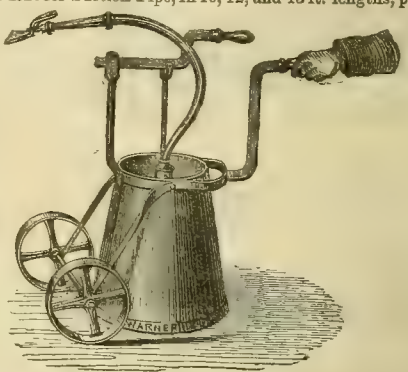
Price, complete £1 10 0

Small Size for the hand, as an ordinary Syringe, 18s.

No. 42. **WARNERS' PORTABLE PUMPS,**

With Improved Valves for Liquid Manure £2 15 0

2-in. Flexible Rubber Suction Pipe, in 10, 12, and 15 ft. lengths, per foot, 2s. 5d.



WARNERS' (No. 547 B) GARDEN ENGINE.

HOLDS SIX GALLONS.

Is light, portable, and easily worked by a lady or child, price £2 10s.

LETTER TO *The Times*, JULY 23, 1866.

FROM EARL ESSEX.

A Real Fire Extinguisher.

To the Editor of "The Times."

"SIR,—I feel sure you will kindly allot a small space in the *Times* to these few lines, as the best medium through which I would urge every householder who dreads fire to have on each floor of his house one or more small Garden or other Engines on wheels, always charged and in good order, in case of fire.

"Last night, just as I was going to bed, I was startled by that most fearful of all cries, 'Fire, fire!' I soon learned that a fire was raging in a large two-windowed unoccupied bedroom. How caused is to us all a great mystery. It is my custom to keep one of these small Engines on each floor. In two minutes I was in the room with one of them. It was like a furnace. The curtains, shutters, casements, and cornices of both windows were burning and cracking from floor to ceiling. I was quite alone at the moment, yet before assistance arrived (most of the servants having gone to bed), I had completely subdued the fire of one window without exhausting the Engine, and when assistance and more water did arrive, we very soon extinguished the other. So fierce was the fire that the lead of the casements was melted, and the casements themselves were burnt off their hinges. I will only add, that by God's mercy, the house was saved by this small Engine. Had it not been at hand and in order, most assuredly Cassiobury would be now a heap of ruins.—Yours faithfully,] "ESSEX.

"Cassiobury, Watford, July 20.

"The Engine, even when full, runs so light on the floor, that any woman might draw it, and also work it."



No. 547, in Wood. 547A, in Iron Tub.

WARNER'S GARDEN ENGINES,

WITH REGISTERED SPREADERS.

These Engines are much improved in construction, are less likely to get out of order, and more easily repaired than others.

No. 547. Best ENGINES, in Wood Tubs.

24 Gallons	.. £6 10 0	14 Gallons	.. £5 10 0

No. 547A. Strong ENGINES, in Galvanized Iron Tubs, well painted inside and out.

10 Gallons	.. £2 19 0	24 Gallons	.. £4 19 0
16 Gallons	.. 3 14 0	28 Gallons	.. 5 10 0

579½. WARNERS' WATER BARROW

Saves a Gardener's time in Watering with the Water Pot.

Made of strong Wrought Iron, Galvanized and painted inside and out

To hold 20 Gallons,	wheels 13 inches high	..	..	£2	2	0
,, 30	,, ,, 20 ,,	..	..	2	13	0
,, 38	,, ,, 24 ,,	..	..	3	17	0
,, 50*	,, ,, 24 ,,	..	..	5	12	0

* This is an extra strong article, with cross handle for two men, suitable for Nursery Grounds, &c.



No. 579½.

SYRINGES, BRANCH PIPES, INDIA-RUBBER HOSE, &c.

☞ *Estimates for any description of Hydraulic Machinery forwarded on application.*

HOTHOUSES FOR THE MILLION.

AWARDED A PRIZE MEDAL, 1862.

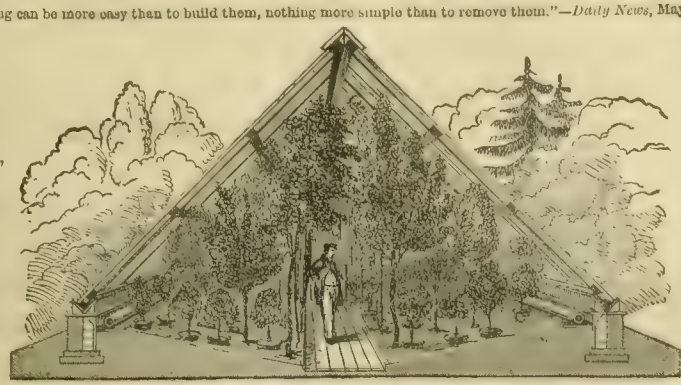
INVENTED AND PATENTED BY THE LATE

SIR JOSEPH PAXTON.

MANUFACTORIES:—LONDON; NEWTON IN CARTMEL, LANCASHIRE; GLOUCESTER, COVENTRY, ABERDEEN, and PAISLEY.

"Nothing can be more easy than to build them, nothing more simple than to remove them."—*Daily News*, May 22, 1862.

COMBINE SIMPLICITY, CHEAPNESS, AND DURABILITY.



FULFIL ALL THE REQUIREMENTS OF HORTICULTURE.

Illustrated Price Lists will be sent on prepaid application. Estimates given for Ornamental Conservatories, &c. to special sizes and designs; also for Heating Apparatus, fixed complete.

HEREMAN AND MORTON, 7, PALL MALL EAST, LONDON, S.W.

A HANDBOOK of VINE and FRUIT TREE CULTIVATION, as adapted to the above Patent Hothouses, may be had of Mr. Hereman. Second Edition, price 1*s.*; post free, 1*s.* 1*d.*

"The instructions given for the Cultivation of the Vine and other Crops are essentially practical, and are evidently written by one who has himself performed all the operations before he attempted to instruct others."—*Cottage Gardener*, Oct. 6, 1863.

Heating by Hot Water.

W. J. HOLLANDS, Iron Merchant, 31, Bankside, London, S.E.

HOT WATER PIPES, from Stock, per yard:—2-inch, 1*s.* 2*d.*; 3-inch, 1*s.* 10*d.*; and 4-inch, 2*s.* 4*d.* BENDS, from Stock, 1*s.* 6*d.*, 2*s.* 6*d.*, and 3*s.* each. THROTTLE VALVES, 10*s.*, 13*s.*, and 14*s.* each. Other Connexions at equally low prices, and all goods of first-class manufacture. Estimates given, and orders by post punctually attended to the same day.

CRANSTON'S PATENT BUILDINGS for HORTICULTURE.

"Dry Glazing without Putty."
"Glass without Laps."
"Ventilation without Moving Lights."

Highly Commended by the Royal Horticultural Society, South Kensington



Plans and Estimates free on application. Descriptive Book fully illustrated, post free for 20 stamps, from the Author and Patentee, James Cranston, Architect, Birmingham.

Works: Highgate Street, Birmingham.

Henry J. Growtage, Manager, 1, Temple Row West, Birmingham.

Greenhouses—Heating Apparatus.

DUBLIN EXHIBITION,



1865.

THE ONLY PRIZE MEDAL AWARDED for Various Improvements in the Ventilation, Construction, and Application of WROUGHT-IRON to Horticultural Buildings.

OUR PATENT WROUGHT-IRON PRIZE MEDAL CONSERVATORIES are of the highest order

OUR PATENT WROUGHT-IRON PRIZE MEDAL GREENHOUSES perfectly neutralize atmospheric conduction.

OUR PATENT WROUGHT-IRON PRIZE MEDAL VINERIES promote vigorous growth and richness of colour.

OUR PATENT WROUGHT-IRON PRIZE MEDAL ORCHID HOUSES and STOVES, with double-glazed roofs, are a complete arrangement.

OUR PATENT WROUGHT-IRON PRIZE MEDAL ORCHARD HOUSES (as supplied to Mr. Rivers), induce perfect symmetry and unfailing result.

OUR PATENT WROUGHT-IRON PRIZE MEDAL GERANIUM and PLANT HOUSES are thoroughly ventilated, and admit a maximum degree of light.

OUR PATENT WROUGHT-IRON PRIZE MEDAL CUCUMBER and MELON HOUSES are specially arranged and heated upon an improved system

OUR PATENT WROUGHT-IRON PRIZE MEDAL PINERIES, when heated upon the improved system, are calculated to secure the growth of first-class fruit.

OUR PATENT PRIZE MEDAL FORCING HOUSES are eminently superior for all early work.

OUR PATENT WROUGHT-IRON PRIZE MEDAL STRAWBERRY HOUSES admit a complete flood of air and light.

The above Patent Houses can be glazed with or without putty.

These Houses are now protected by three Royal Letters Patent, and from the complete adjustment of their constructional parts will vie most favourably with Wood Structures in point of cost.

Designs and Estimates prepared for single or complete ranges of Houses in Wood or Iron.

Illustrated Catalogues on application to the Patentees,

T. H. P. Dennis & A. Scruby, Horticultural Builders and Hot-Water Engineers, Chelmsford.

HOT-WATER APPARATUS, of every description, fixed complete in any part of the country, or the materials, viz., Boilers, Pipes, &c., delivered to any Station.

Estimates on application.

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THE PATENT TERMINAL SADDLE BOILER is unsurpassed for simplicity, efficiency and economy. See Circulars and Testimonials

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COTTAM AND COMPANY,

Conservatory and Hothouse Builders, &c.,
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SADDLE BOILERS.

20 24 30 inches long.
45*s.* 65*s.* 92*s.* 6*d.* each.



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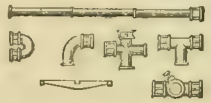


HOT-WATER PIPES.

2 3 4 inch.
1*s.* 6*d.* 2*s.* 1*d.* 2*s.* 9*d.* per yard.

Materials supplied as above, or Estimates given fixed complete to Plan, on application to

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HOT WATER APPARATUS



SMOKY CHIMNEYS.—The best cure is the PATENT ALBERT CHIMNEY CAP. 300 on Buckingham Palace; 80 on Windsor Castle; 100 on St. James's Palace; 120 on Claremont Palace; 230 on the Western Heights Barracks, Dover; and hundreds also on the Halls and Mansions of the Nobility, Public Buildings, &c.

Price, Painted Wrought Iron, 25*s.* each; Galvanised ditto, 30*s.* each.

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NURSERY and SEED BUSINESS for SALE.—A good going Nursery and Seed Business in the North of England will be disposed of on very moderate terms to any party who can take possession at an early date. There is a considerable breadth of glass, almost new, and well stocked with first-rate saleable plants, for which there is a great demand in the district. In the Seed department there is an excellent connection, which is increasing yearly. Most satisfactory reasons can be given for the present proprietor having resolved to relinquish the above.

Apply by letter only, address "Business for Sale," care of Messrs. Peter Lawson & Son, Edinburgh.

To Cattle Dealers and Farmers.

Farm in South Lancashire.

TO BE LET, and may be entered upon Immediately, a good FARM of ARABLE and GRASS LAND, adjoining the Turnpike Road leading from Liverpool to Manchester, and near to Stations on the Liverpool and Manchester Railway, being 13 miles distant from Liverpool and 10 miles from the Stanley Cattle Market there. The Farm is in a Ring Fence, well sheltered and watered, nearly all drained, and has lately been much improved by the owner, in whose hands it has been for two years. Extent, 308 STATUTE ACRES, divided into eight Fields. There is a good and commodious House, large Orchard, four Cottages for Farm Labourers, a Modern-erected Homestead (one of the largest and best in the county), comprising accommodation for tying-up upwards of 60 Head of Cattle; also Open Sheds and Cattle Yards, Stabling for 15 horses, Loose Boxes, Barn with 6-horse Steam-engine, Threshing Machine, Corn Bays, Granary, Piggeries, &c.

For Rent and further particulars apply to Messrs. Henry White & Son, Land Agents, &c., Warrington.

MR. W. WOODWARD has now on offer FIFTEEN CHOICE BULLS, which may be seen and prices obtained at his Bredon's Norton Farm, midway between Bredon and Eckington Stations on the Bristol and Birmingham Railway; five miles from Tewkesbury and five from Pershore.

Printed Pedigrees forwarded by post, on application by letter to Northway House, near Tewkesbury. Early applicants will probably have the best choice.

Farm Poultry.

GREY DORKING FOWLS, of purest breed, in any numbers.

Imported TOULOUSE GEESE, the largest and most productive breed known.

Improved NORFOLK TURKEYS, large, hardy, and good breeders.

AYLESBURY and ROUEN DUCKS.

Imported BELGIAN HARE RABBITS, for size and early maturity.

BRAHMA-POUTRA, CREVECŒUR, and LA FLECHE FOWLS, for constant layers.

Priced Lists and Estimates on application.

John Baily & Son, 113, Mount Street, London, W.

Sales by Auction.

Upper Holloway.

Peremptory Sale of Greenhouse Plants, Greenhouses, Pits, Boxes, Hot-water Pipings, &c.

MESSRS. PROTHEROE AND MORRIS are instructed by the Mortgagees to SELL by PUBLIC AUCTION, without reserve, on the Premises, (St. John's Nursery, John Street, Upper Holloway, N., on WEDNESDAY, March 27, at 12 o'Clock precisely (unless previously disposed of Privately), the whole of the GREENHOUSE PLANTS, including several thousands of Pelargoniums, Scarlet and other Geraniums, 1000 Intermediate Stocks, Calceolarias, &c.; also four capital Greenhouses, 12 ranges of Pits, Boxes; quantity of 2, 3, and 4-inch Hot-water Piping, Boilers; capital Covered Spring Market Van, Wheel and Hand Barrows, Garden Pots, and sundry effects.

May be viewed prior to the Sale, and Catalogues had on the Premises; of J. H. Kaye, Esq., 2, New Inn, Strand, W.C., of the principal Seedsmen in London; and of the Auctioneers and Valuers, Leytonstone, Essex, N.E.

N.B. A Lease for seven years of the above Nursery Premises may be had at a low rent by a Purchaser desiring to carry on the business. The situation is very open and healthy for the growth of plants, and being a convenient distance from Covent Garden Market presents a first rate opportunity to any industrious person to turn a small capital to profitable account.

Sale of very handsome Standard Roses, Camellias, Fruit Trees, &c.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at 38 & 39, Gracechurch Street, City, E.C., on SATURDAY, March 30, at 1 o'Clock precisely, Choice DOUBLE CAMELLIAS, beautiful compact plants, 1 to 4 feet, abundantly furnished with bloom buds; fine AZALEA INDICA; a superb assortment of about 300 very handsome STANDARD and DWARF ROSES, including the best varieties in cultivation; choice hardy AMERICAN PLANTS, comprising Ghent and other Azaleas, selected Fruit Trees, Hybrid Rhododendrons, Kalmias, Andromedas, &c.; some fine Bulbs of LILIUM AURATUM and LANCIFOLIUM ALBUM, ERICAS, EPACRIS, DAHLIAS, &c.

May be viewed the Morning of Sale. Catalogues may be had at the City Auction Rooms, as above; or of the Auctioneers and Valuers, American Nurseries, Leytonstone, Essex, N.E.

Imported Orchids.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on MONDAY, March 25, at half-past 12 o'Clock precisely, a Consignment of Choice Imported ORCHIDS, in fine condition, comprising several hundred Plants of Aerides, Saccolabiums, Dendrobiums, and other valuable varieties from Moulmein.

On view the Morning of Sale, and Catalogues had.

Periodical Sale of Poultry and Pigeons.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on TUESDAY, March 26, at half-past 12 o'Clock precisely, a Choice Assortment of POULTRY and PIGEONS from the Yards and Lofts of well-known Breeders and Exhibitors.

On view the Morning of Sale, and Catalogues had.

Consignment of Plants from Holland.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, March 27, at half-past 12 o'Clock precisely, Specimen VARIEGATED HOLLIES, LAURELS, STANDARD and TRAINED FRUIT TREES, STANDARD and DWARF ROSES, RHODODENDRONS, and a variety of Hardy Trees and Shrubs, Gladioli, Ranunculus, &c.

On view the Morning of Sale, and Catalogues had.

Consignment of Plants from Ghent.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on SATURDAY, March 30, at half-past 12 o'Clock precisely, 200 CAMELLIAS, 200 INDIAN AZALEAS, 200 Hardy RHODODENDRONS, 300 LILIUM LANCIFOLIUM, 6 Specimen Variegated ALOES, MARECHAL NIEL and other New ROSES, CLIMBING PLANTS, Dwarf-trained and Pyramid FRUIT TREES, RUSTIC SEATS, &c.

On view the Morning of Sale, and Catalogues had.

Preliminary Notice.

Important Sale of Orchids, Stove and Greenhouse Plants, at Highgrove, Reading, Berks.

MR. J. C. STEVENS will SELL by AUCTION, at the Gardens, Highgrove, Reading, Berks, early in April, the valuable Collection of ORCHIDS, STOVE and GREENHOUSE PLANTS, formed by the late J. J. Blandy, Esq., Vice-President of the Royal Horticultural Society of London, comprising a great variety of fine Plants, many of which have been exhibited and carried off prizes at the various Metropolitan and Provincial Shows. Also several Greenhouses, Exhibition Van, &c. Catalogues are preparing, and will be ready 14 days before (price 6*d.* each, to admit parties to the Sale), which may be had at the Gardens; also of Messrs. Cooper & Goulding, Auctioneers, Market Place, Reading; and of Mr. J. C. Stevens, Horticultural Auctioneer and Valuer, 38, King Street, Covent Garden, London, W.C.

Important Sale of Orchids.

MR. J. C. STEVENS has been favoured with Instructions to SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., without reserve, on WEDNESDAY and THURSDAY, April 17 and 18, First-class ESTABLISHED ORCHIDS, being part of the well-known Collection of A. Basset, Esq., of Stamford Hill, who is reducing his Collection for a short time owing to change of residence. The Plants consist of Duplicates, amongst which will be found many magnificent Specimens of all the best Varieties, including:—

Aerides Fieldingii
" maculosum
" Lobbii
" Larpentæ
" crispum
Cattleya Mossiæ
" Trianæi
" Bassetti
" Wagneri
Dendrobium macrophyllum
" giganteum
" primulinum giganteum
" nobile pendulum
Cypripedium Stonei
" Veitchi
" barbatum
" concolor
" villosum
Lælia elegans
" Dayi
" purpurata
Miltonia candida grandiflora
Miltonia spectabilis
Odontoglossum citrosmum roseum
Odontoglossum Alexandræ
" radiatum
" B untii
" nævium majus
" Phalænopsis
" coronarium
Oncidium crispum
" ampliatum majus
Phalænopsis amabilis
" grandiflora
" Schilleriana
Saccolabium ampullaceum
" curvifolium
" guttatum
" retusum
Trichopilia crispiflora
Vanda Batemanni
" tricolor
" suavis

&c., &c., &c.

On view the Morning of Sale, and Catalogues had.

Stock of a Greenhouse Builder,

205, King Street West, Hammersmith.

J. AND G. BOND will SELL by AUCTION, as above, on WEDNESDAY, March 27, at 12 for 1 o'Clock, several well constructed GREENHOUSES, various sizes, from 14 feet to 30 feet in length; a LEAN-TO PIT, 20 feet; GLAZED ROOF, 21 feet; 100 PIT and GREENHOUSE LIGHTS, 30 GARDEN FRAMES, HAND-GLASSES, DOORS, STEPS, and Sundries.

Catalogues of the Auctioneers, Hammersmith Road, W.

AN EXTENSIVE SALE by AUCTION, on FRIDAY, April 12, 1867, at Providence Nursery, Boston Spa, Yorkshire, of SPECIMEN and HALF SPECIMEN, STOVE and GREENHOUSE PLANTS, ORCHIDS, &c.

The Plants are all in first-rate condition, and can be seen on the Ground any day (Sunday excepted).

Catalogues on application to J. C. Padman.

SHANKS' PATENT LAWN MOWERS FOR 1867.

PATRONIZED FREQUENTLY DURING THE PAST THREE SEASONS BY

HER MAJESTY THE QUEEN,

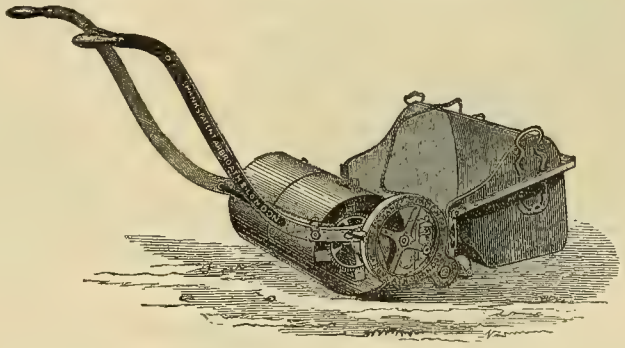
HIS MAJESTY THE KING OF SAXONY, | HIS MAJESTY THE KING OF HOLLAND,

HIS MAJESTY THE KING OF PRUSSIA,

AND AMONGST THE DISTINGUISHED FOREIGN NOBILITY,

THE DUCHESS DE CAMBACÉRÈS, THE MARQUIS DE BOISSY, MARSHAL CANROBERT, &c., &c.

Every minute point in the way of improvement has been carefully considered and adopted, and as A. S. & SON have for more than a quarter of a century devoted their attention to this particular branch of their business, the Nobility, Gentry, and Gardeners may rely on the MACHINES they may order, to be such as to ensure lasting satisfaction, and to stand the wear and tear of many years.



PATENT HAND MACHINE.

SHANKS' PATENT LAWN MOWERS

ARE IN DAILY USE IN

ALL THE ROYAL GARDENS; IN THE HORTICULTURAL SOCIETY'S GARDENS AT KENSINGTON; CRYSTAL PALACE COMPANY'S GROUNDS;

IN VICTORIA PARK; HYDE PARK;

And in almost all the principal Public Parks and Gardens in the Kingdom.

These are the only Machines that can be depended on to give lasting satisfaction.

THESE ARE THE ONLY MACHINES THAT WILL MOW PROPERLY WHEN THE GRASS IS WET.

THESE ARE THE ONLY MACHINES THAT DELIVER THE GRASS WITHOUT STOPPING, THUS SAVING AN IMMENSE AMOUNT OF LABOUR.

SHANKS' PATENT LAWN MOWERS are the only Machines that have been in operation in Her Majesty's Gardens for a quarter of a century.

Shanks' Patent Lawn Mower will Mow on uneven as well as on level Lawns.

ALEXANDER SHANKS AND SON, in referring to their IMPROVED LAWN MOWERS for 1867, doubt not but that the preference which in past years has invariably been given to their Machines will still be awarded them. The principles which guide A. S. AND SON in effecting improvements compel their Machine ever to stand the first in point of general efficiency, simplicity of construction, and durability.

A. S. AND SON have particularly aimed at substituting Wrought for Cast Iron to as great an extent as possible in the construction of their Machines. None but skilled Workmen and the most improved Machinery are employed in manufacturing the various parts, and this applies not only to the Horse and Pony, but also to the Hand Machines.

A. S. AND SON have now ready for delivery a large stock of their celebrated LAWN MOWERS, which will enable them to execute orders on the day they are received.

PRICES, INCLUDING CARRIAGE TO ANY RAILWAY STATION OR SHIPPING PORT IN THE KINGDOM.

SHANKS' NEW PATENT HAND MACHINE.

Width of Cutter.		Easily Worked	Silent Movement.
10-inch Machine	£3 10 0	*By a Lady*	4*s.* extra.
12-inch Machine	4 10 0		
14-inch Machine	5 10 0	*By a Boy*	

Width of Cutter.		Easily Worked	Silent Movement.
16-inch Machine	£6 10 0	*By a Man or Two Boys*	4*s.* extra.
19-inch Machine	7 12 6	*By a Man and Boy*	
22-inch Machine	8 7 6	*By Two Men* ..	7*s.* 6*d.* extra.
24-inch Machine	8 17 6		

SHANKS' NEW PATENT PONY and DONKEY MACHINE.

Width of Cutter.		If with Patent Delivering Apparatus.
25-inch Machine	£12 10 0	25*s.* extra.
28-inch Machine	14 10 0	30*s.* ,,
30-inch Machine	15 15 0	30*s.* ,,

Silent Movement, 12*s.* 6*d.* extra; Boots for Pony, 22*s.* per set
Ditto for Donkey, 18*s.* per set.

SHANKS' NEW PATENT HORSE MACHINE.

Width of Cutter.		If with Patent Delivering Apparatu
30-inch Machine	£19 0 0	30*s.* extra.
36-inch Machine	22 0 0	30*s.* ,,
42-inch Machine	26 0 0	40*s.* ,,
48-inch Machine	28 0 0	40*s.* ,,

Silent Movement, 20*s.* extra; Boots for Horse's Feet, 26*s.* per set.

The Machines are warranted to give ample satisfaction, and, if not approved of, may be at once returned.

N.B.—*A. S. & Son specially announce to their numerous Patrons that they have a staff of experienced Workmen at their London Warehouse, thoroughly acquainted with all the details of their Machines, so that they are enabled to repair Lawn Mowers in London as well as at the Manufactory.*

PATENTEES AND SOLE MANUFACTURERS:

ALEXANDER SHANKS AND SON, DENS IRON WORKS, ARBROATH, N.B.

LONDON OFFICE and SHOW ROOMS, 27, LEADENHALL STREET, E.C.

☞ 27, *Leadenhall Street is the only place in London where intending purchasers of Lawn Mowers can choose from a Stock of from* 150 *to* 200 *Machines. All sizes kept there, whether for Horse, Pony or Hand Power.*

Editorial Communications should be addressed to "The Editor;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London. W.C.
Printed by JAMES MATTHEWS, at the Office of Messrs. BRADBURY, EVANS, & Co., Lombard Street, Precinct of Whitefriars, City of London, in the Co. of Middlesex, and Published by the said JAMES MATTHEWS, at the Office, No. 41, Wellington Street, Parish of St. Paul's, Covent Garden, in the said County.—SATURDAY, March 23, 1867.

THE GARDENERS' CHRONICLE
AND
AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.

No. 13.—1867.] SATURDAY, MARCH 30. {Price Fivepence. {Stamped Edition, 6d.

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ROYAL HORTICULTURAL SOCIETY, SOUTH KENSINGTON, W.
Mr. WILLIAM PAUL'S fine SHOW of SPRING FLOWERS THIS DAY. Open from Ten to Sunset. Admission 2s. 6d. Band from 3.30 to 5.30.

ROYAL HORTICULTURAL SOCIETY, SOUTH KENSINGTON, W.
Promenade and Band every Saturday Afternoon throughout the year.
Notice.—Dr. MASTERS will give a short LECTURE on PLANT ARCHITECTURE THIS DAY, SATURDAY, and the FOUR succeeding SATURDAYS, at Three.

ROYAL HORTICULTURAL SOCIETY, SOUTH KENSINGTON, W.
Notice.—A MEETING of the FRUIT and FLORAL COMMITTEES will be held on TUESDAY NEXT, April 2, at 11 o'Clock. Mr. WILLIAM PAUL'S LECTURE on SPRING FLOWERS at 3.

ROYAL BOTANIC SOCIETY'S GARDENS, Regent's Park.—EXHIBITIONS of PLANTS, FLOWERS, and FRUIT, WEDNESDAYS, May 29, June 19, and July 3. Tickets 4s. each; to be obtained at the Gardens by Orders from Fellows of the Society. The NEXT SPRING EXHIBITION, SATURDAY, April 13; Tickets 2s. 6d. each.

CRYSTAL PALACE—FLOWER SHOWS—SEASON 1867.
The Schedules and List of Prizes are now ready, and will be forwarded on application to I. Wilkinson, Superintendent.

LEEDS HORTICULTURAL SOCIETY.—GREAT FLORAL FETE, JUNE 13 and 14, 1867. PRIZES nearly £450, including £10 given by the Right Worshipful the Mayor for Cut Roses, £5 by Mrs. Fairbairn (the Mayoress) for Bridal Bouquets, &c., and £30 by the Ladies of Leeds and neighbourhood for Hand Bouquets and Table Decorations. Schedules are now ready. Will be forwarded on application to James Birbeck, Secretary.

NATIONAL HORTICULTURAL EXHIBITION, 1867.—The above EXHIBITION will Open at Manchester on JUNE 7, and continue till JUNE 15.
Schedules, &c., may be obtained on application to Mr. B. Findlay, Curator, Botanic Garden, Manchester; or from the undersigned,
Henry Whitworth, Secretary.
Carlton Buildings, Cooper Street, Manchester.

NEW ROSES for 1867.—Strong Plants of all the best NEW ROSES now ready.
DESCRIPTIVE LIST, with prices, on application.
John Cranston, King's Acre Nurseries, near Hereford.

ROSE, NOISETTE, MARECHAL NIEL.—Strong Plants, in Pots, 30s. per dozen. Trade price on application.
John Cattell, Nurseryman, Westerham, Kent.

THE BEST and MOST CHOICE NEW ROSES for 1867, in extra-strong well-grown Plants, now ready at 42s. per dozen. A very liberal allowance to the Trade.
Wm. Wood & Son, The Nurseries, Maresfield, near Uckfield, Sussex

CULTURAL DIRECTIONS for the ROSE. Second Edition. By John Cranston, King's Acre Nurseries, near Hereford. Free by post from the Author for 20 stamps.

THE CHOICEST 12 NEW ROSES for 1867, with strong healthy growth, unusually fine plants, so soon as weather permits. Price 42s. per dozen.
Richard Smith, Nurseryman and Seed Merchant, Worcester.

FORTY THOUSAND DWARF ROSES in POTS.—HYBRID PERPETUALS, CHINA, TEA-SCENTED, BOURBONS, and NOISETTES, all in the finest health and vigour. DESCRIPTIVE LISTS on application.
Wm. Wood & Son, Woodlands Nursery, Maresfield, near Uckfield, Sussex.

Dwarf Roses in Pots for Bedding.
WM. WOOD and SON are now sending out quantities of well-grown Plants of DWARF ROSES in pots for filling up blanks caused by the late severe frost.
Woodlands Nursery, Maresfield, near Uckfield, Sussex.

DWARF ROSES IN POTS, by the 100, dozen, or 1000, at 8s., 12s., and 18s. per dozen. CATALOGUES on application.
Address, Wm. Wood & Son, Woodlands Nursery, Maresfield, near Uckfield, Sussex.

CHOICE CUT FLOWERS.—Wanted, by Rail or otherwise, a regular supply, suitable for Button-holes. Apply, by letter, stating sorts, &c., to W. F. S., 64, Jermyn Street, S.W.

RIBBON BORDER (six Colours), German and French, COLLECTIONS, and all specialties worth growing. See Poynter's LIST. Robert H. Poynter, Taunton.

RHODODENDRON SEED, carefully gathered from the best named varieties, well cleaned and pure. Price on application to B. Whitham, Reddish Nurseries, near Stockport.

CALCEOLARIAS, Herbaceous, of choicest strains, strong established plants, in pots, 4-inch, 30s. per 100.
H. & R. Stirzaker, Skerton Nurseries, Lancaster.

TRICOLOR GERANIUMS.—Italia Unita, Stella, Variegated Topsy, Rainbow, Fontainebleau, Gold Pheasant, Mrs. Pollock, Sunset. The above, one of each, good plants, 12s.
T. J. Boore, Rainhill Nursery, Rainhill, Lancashire.

Zonal and other Geraniums.
THOMAS J. BOOTH begs to offer to the Trade, for cash, good Plants, in 3½-inch pots, of CHIEFTAIN, CHRISTABEL, GLADIATEUR, GREAT EASTERN, SIR R. PEEL, LE GRAND, and PINK PERFECTION, at 7s. per dozen.
Rainhill Nursery, Rainhill, Lincolnshire.

SUTTON'S HOME-GROWN SEEDS. Prices and particulars on application.

EVERY GARDEN REQUISITE kept in Stock at
Carter's New Seed Warehouse, 237 & 238, High Holborn, London.

Plants for the Season.
CHARLES TURNER'S DESCRIPTIVE SPRING CATALOGUE of BEDDING PLANTS, FLORIST'S FLOWERS, &c., is now ready, and may be had on application.
The Royal Nurseries, Slough.

1867.
VEGETABLE and FLOWER SEEDS of Best Selected quality.
James Dickson & Sons, 102, Eastgate Street, Chester.

Garden and Farm Seeds direct from the Growers.
CHARLES SHARPE and CO. beg to inform the Trade that their WHOLESALE SEED LIST is now ready, and will be forwarded post free on application.
Seed Warehouse, Sleaford.

Somersetshire Prize Seeds.
GENUINE GARDEN and FLOWER and FARM SEEDS of the finest stocks and quality; LISTS now ready.
Robert H. Poynter, the County Seed Establishment, Taunton.

Genuine Garden Seeds.
WM. CUTBUSH and SON'S CATALOGUE of VEGETABLE, FLOWER, and FARM SEEDS, post free on application. Highgate, London, N.

JAMES FAIRHEAD and SON, Seed Growers and Merchants, 7, Borough Market, London, S.E.
New and Genuine AGRICULTURAL, GARDEN, and FLOWER SEEDS. Special prices and advantageous offers on application.

Genuine Garden and Agricultural Seeds.
JAMES CARTER and CO., Seed Farmers, Merchants, and Nurserymen, 237 & 238, High Holborn, London, W.C.

Unadulterated Garden and Agricultural Seeds.
SMITHERS and CRICHTON, Seed Merchants, Bunhill Row, Finsbury Square, London, E.C. CATALOGUES post free on application.

Genuine Garden, Agricultural, and Flower Seeds.
PAUL TOLLARD, Seed Grower and Merchant, 20, Quai de la Mégissérie, Paris, France.
SPECIAL PRICED LIST of NEW SEEDS, in English weights and money, post free on application.

Agricultural and Garden Seeds.
H. and F. SHARPE'S WHOLESALE SPRING PRICED LIST of the above Seeds of 1866 growth is now ready and may be had on application.
Seed Growing Establishment, Wisbech.

1867 AGRICULTURAL SEEDS, of best selected quality, and *carriage free.* PRICED LIST on application.
James Dickson & Sons, 102, Eastgate Street, Chester.

237 and 238, HIGH HOLBORN, LONDON, W.C.—CARTER'S SELECT LIST of FARM SEEDS, at reasonable prices, forwarded gratis and post free on application to Carter's Great London Seed Warehouse, 237 and 238, High Holborn, London, W.C.

FARM SEED LIST of the LONDON SEED COMPANY is now published, and can be obtained from the Manager, 68, Welbeck Street, Cavendish Square, London, W.

SKIRVING'S SWEDE TURNIP, 31s. per bushel. Fine selected stock, from the
London Seed Company, 68, Welbeck Street, Cavendish Square, W.

YELLOW GLOBE MANGEL, 50s. per cwt. Fine selected stock, from the
London Seed Company, 68, Welbeck Street, Cavendish Square, W.

New Striped Japanese Maize.
SUTTON and SONS can supply Seed of the above beautiful Ornamental Foliage Plant in packets at 1s. each, post free. Royal Berkshire Seed Establishment, Reading.

SUTTON'S PERMANENT GRASS SEEDS, 26s. to 36s. per acre, carriage free.
SUTTON'S MIXTURES for 1, 2, 3, or 4 years, 14s. to 24s. per acre, carriage free.

DICKINSON'S ITALIAN RYE-GRASS SEED, grown by him and sold to Agriculturists this season at 34s. per quarter, or for 5 quarters 30s. per quarter. Apply to
Mr. Thos. Stanbridge, Bailiff, New Park, Lymington, Hants.

NATURAL GRASSES: their Names and Derivations; Quality, Produce, Elevation, Situation, Soil, Use, Peculiarity, Season, Growth, Increase, Time of Flowering, Price, &c. Free for one postage stamp.
Richard Smith, Seed Merchant, Worcester.

GOOD CLOVER SEEDS, at Market Prices.—Red, White Dutch, Alsike, Cow Grass, and Trefoil; also Perennial, Italian Rye, and other Grasses. For samples and lowest prices, apply to Richard Smith, Seed Merchant, Worcester.

To Improve Meadow Land.
RICHARD SMITH'S MIXTURE of the finest GRASSES and PERENNIAL CLOVERS (3 to 12 lb. per acre, at 10d. per lb.), if sown early, will cause a valuable improvement to the crop. Richard Smith, Seed Merchant, Worcester.

GERMAN FLOWER SEEDS.—Superb Varieties of Aster, Stock, Balsam, Wallflower, Phlox Drummondii, Portulaca, Larkspur, Zinnia, &c. For prices, see DESCRIPTIVE SEED LIST.
Richard Smith, Seed Merchant, Worcester.

SHOW DAHLIAS, in strong plants, now ready. 12 Varieties, named, 4s., or 24 Varieties, named, 8s. Terms cash.
John J. Haslam, late John Holland, Bradshaw Gardens, Chadderton, Manchester.

Dahlias, Bedding Plants, &c.,
From an Immense Stock.
C. E. ALLEN'S CATALOGUE of the above is now ready, and can be had on application.
Norfolk Nursery, Shacklewell, N.E.

Verbenas, Verbenas.
PHILIP LADDS is now sending out a good supply of the above, strong plants, in thumb pots, including 40 varieties of 1866, at 2s. per dozen, package included. Terms cash.
Nursery, Bexley Heath, Kent.

STRAWBERRY PLANTS.—THE LADY (Underhill), 4s. per dozen, 30s per 100. Strong plants of 20 other best kinds, 2s. 6d. per 100.
John Cattell, Nurseryman, Westerham, Kent.

PRINCESS of WALES STRAWBERRY.—This fine variety is now proved to be the best early variety ever produced, either for Forcing or for general Early Crop. See *Gardeners' Chronicle* of May 12, 1866, p. 437. Good Plants can now be supplied from the true stock, at 5s. per 100, from the raiser,
B. W. Knight, Nurseryman, Battle, Sussex.

PINES WANTED, Fruiting and Succession Plants. Address, M., Clarence Lodge, Clapham Road, S.

PINES, VINES, and ASPARAGUS.—Pine Plants, Queens, in all sizes, surplus stock, very cheap. Hamburgh Vines, 2-yr., fine Canes for planting, 24s. per dozen. Asparagus, 2, 3, and 4-yr. old, fine strong roots, 2s., 2s. 6d and 3s. per 100.
M. Rochford, Market Gardener, Page Green, Tottenham, N.

CASTLE KENNEDY FIG.—Plants of the above may now be had at 10s. 6d. and 21s. each; the usual discount to the Trade. Peter Lawson & Son, Edinburgh and London.

WEBB'S PRIZE COB, FILBERT and other PRIZE NUT TREES. LIST of varieties and prices to be had of
Mr. Webb, Calcot Gardens, Reading.

Seedling Cedrus Deodara.
PAUL and SON can offer 1-yr. Seedlings of extra quality to the Trade at 30s. per 100.
The Old Cheshunt Nurseries, N.

Forest and Ornamental Trees.
H. and R. STIRZAKER are offering in large quantities of all sizes of the above, at very low prices.
Skerton Nurseries, Lancaster.

TREES and PLANTS of all sorts and sizes in very great quantity, of best quality and at moderate prices.
PRICED LISTS post-free on application.
James Dickson & Sons, ("*Old Established Nursery and Seed Business,*") The "Newton" Nurseries, Chester.

Railway Planting.
FIVE MILLION Transplanted QUICKS, of superior growth. Also 100,000 LARCH, very good plants, 4 to 6 feet, at 14s. per 1000. Samples and prices on application to
John Hemsley, High Fields, Melbourne, near Derby.

Planting.
WM. PAUL begs to refer intending Planters of ROSES, FRUIT TREES, SHRUBS, &c., to his Advertisement of December 1, 1866.
PRICED DESCRIPTIVE CATALOGUES on application.
Paul's Nurseries, Waltham Cross, N.

Notice.
Paul and Son's New Double Crimson Thorn.
PAUL and SON regret that they find it necessary to repeat, in order to prevent mistakes, occasioned by the similarity of name,
THAT THEY ALONE
are the introducers of this unique plant.
The Old Cheshunt Nurseries, Cheshunt, N.

TRANSPLANTED LARCH, 3 to 3½ feet, at 5s. 6d. per 1000. We have still a few Thousands on hand, for which early orders will oblige.
Edward Sang & Sons, Nurserymen, Kirkcaldy, N.B.

WANTED, TRANSPLANTED WILLOWS, for Stools. State price per 100 or 1000 to
H. Davis, Springbourne Nursery, Bournemouth.

WANTED, a quantity of SNOWBERRY PLANTS, 2 to 2½ feet. Price per 100 or 1000.
G. Wyatt & Son, Nurserymen, Banbury.

SCARLET LYCHNIS (CHALCEDONICA), LAVENDER, and SOUTHERNWOOD, 40s. per 1000; stronger, 50s. per 1000.
Thomas S. Ware, Hale Farm Nursery, Tottenham.

New Holland Pitcher Plant (Cephalotus follicularis).
W. CUTTER, Naturalists' Agent and Dealer in Shells, Minerals, Insects, &c., wishes to inform his customers that 600 strong ROOTS of the above have arrived by this Mail. £5 per 100. 35, Great Russell Street, W.C.

Forsythia viridissima variegata.
THOMAS CRIPPS regrets having to announce (in reply to numerous inquiries) that, in consequence of the Stock being too limited, the above desirable Novelty will not be sent out this season. The Nurseries, Tunbridge Wells, Kent.

New Lucerne Seed (Luzerne de Provence).
SUTTON and SONS have just imported a very fine parcel of NEW LUCERNE SEED, which they can offer at 1s. per lb., or cheaper by the cwt. (Sow 20 lb. per acre in drills.)
Royal Berks Seed Establishment, Reading.

CONQUEROR BROCCOLI.—The finest Broccoli in Cultivation is BARCHARD'S CONQUEROR. See large Advertisement in the *Gardeners' Chronicle*, December 8, 1866.
Witty & Son, Seed Establishment, Cottingham, near Hull.

PEA LINCOLNSHIRE GEM, pronounced by the principal Gardeners in this neighbourhood superior to either Veitch's or Yorkshire Hero, being earlier and heavy cropper.
Martin & Son, 7, Market Place, Hull.

PATERSON'S VICTORIA POTATOS.—The heaviest croppers, the finest flavoured, and the best keepers. Seed direct from Mr. Paterson. Price on application to
Mr. Pearce, Measham, Atherstone.

SEED POTATOS.—Rivers' Royal Ashleaf, Myatt's Prolific, Dalmahoy.
Charles Sharpe & Co., Seed Merchants, Sleaford, have a Surplus Stock of the above to offer Cheap.

White Belgian Carrot.
SUTTON and SONS can supply fine New Seed of the above at a very moderate price, according to quantity required. Apply to
Sutton & Sons, Royal Berkshire Seed Establishment, Reading.

GIANT ASPARAGUS.—2-yr., strong Roots, 2s. 6d. per 100; 20s. per 1000. 3-yr., very strong, 3s. 6d. per 100; 30s. per 1000.
John Cranston, King's Acre Nurseries, near Hereford.

GIANT ASPARAGUS PLANTS, the best that money can procure, 2s. 6d. per 100.—This delicious vegetable does not require half the expense usually incurred in planting it.
See RICHARD SMITH'S SEED LIST for 1867.
Extra strong SEA KALE, 2s. per doz.
Richard Smith, Nurseryman, Worcester.

PYRAMID APPLES, PEARS, PLUMS, CHERRIES.
Beautiful Trees for Garden or Orchard Houses.
RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

Dwarf-trained Trees by the 1000, 100, or dozen.
APPLES, PEARS, PLUMS, CHERRIES, PEACHES, and NECTARINES. Fine, flat, well-trained, of best quality and true to name.
RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

Fifty Acres of Fruit Trees,
APPLES, PEARS, PLUMS, CHERRIES, PEACHES, NECTARINES, and APRICOTS in every form desired for Fruiting.
RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

Orchard-house Trees Fruiting in Pots.
PEACHES, NECTARINES, APRICOTS, CHERRIES, PLUMS, PEARS, APPLES, VINES, and FIGS.
RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

FRUIT TREES, for Walls and Espaliers.—Upwards of 50,000 to select from, carefully trained, and in the healthiest condition for planting.
RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

Arborvitæ, Aucubas, Box, Yews, &c.
THOMAS WARNER begs to remind intending planters and the Trade, that he has a very extensive stock of the above, all in fine health and vigour. See CATALOGUES, Wholesale or Retail. Leicester Abbey Nurseries.

Scarlet Chestnuts, Standard Elms and Thorns, &c.
THOMAS WARNER begs to refer purchasers of the above to the extremely low prices at which they are quoted for the present season. See CATALOGUES, Wholesale or Retail.
Leicester Abbey Nurseries.

Maiden and Dwarf-trained Fruit Trees, &c.
THOMAS WARNER begs to state that he has still an extensive stock of the above, more particularly of APPLES, CHERRIES, PEACHES, and NECTARINES. Also of HOUGHTON CASTLE CURRANTS.
See CATALOGUES, Wholesale or Retail.
Leicester Abbey Nurseries.

SURPLUS STOCK.

Alder, 3 to 5 feet, extra strong	Fir, Spruce, 3 to 4 feet
Ash, 18 inches to 2 feet	„ Larch, 2 to 2½ feet
Berberis dulcis, 2 to 3 feet	Hazel, 2½ to 3½ feet, extra fine
„ Aquifolium, 1 to 1½ foot	Holly, Green, 1½ to 2 feet, bushy
Chestnut, Horse, 2 to 4 feet	Laurel, Common, 2 to 2½ ft., bushy
„ Spanish, 1½ to 2 feet	„ Portugal, 3 to 4 ft. ex. bushy
Fir, Scotch, 1 to 1½ foot	

Strong DRUMHEAD or CATTLE CABBAGE PLANTS.
FRUIT TREES, as annexed.
Apples, Standards and Dwarfs, very strong
Cherries, Dwarfs and Dwarf-trained, extra fine
Peaches, Dwarfs and Dwarf-trained, extra fine
Pears, Standards and Dwarfs, extra fine
Plums, Standards and Dwarfs, extra fine
Nectarines, Dwarfs and Dwarf-trained, extra fine
Kentish Filberts, 4 to 5 feet, extra fine
Crab Stocks, 2 years Seedlings
PRICED LIST or samples of the above on application to
W. VIRGO & SONS, The Nursery, Woncrsh, near Guildford, Surrey.

Sub-tropical and Ornamental Foliaged Plants
FROM SEED FOR FLOWER GARDEN DECORATION.



W. ROLLISSON AND SONS' GENERAL SEED CATALOGUE, containing a List of the above, can be had on application. The Nurseries, Tooting, London.

JOHN WATERER has to offer a quantity of very handsome AUCUBA JAPONICA, the whole of which are profusely covered with Berries.
1st Size are Plants 2 feet high, bearing 150 to 200 Berries.
2d Size, 1 foot 6 inches, with 100 to 125 Berries.
3d Size, 1 foot, with 40 to 50 Berries.
Price from 10s. 6d. each and upwards.
The American Nursery, Bagshot, Surrey.

FIVE HUNDRED THOUSAND LARCH, 1½ to 3 feet, at 8s. per 1000.
500,000 LARCH, 3 to 4 feet, at 12s. 6d. per 1000
500,000 SILVER FIR, 4-yr. Seedlings, at 3s. per 1000
500,000 SPRUCE, 4-yr. Seedlings, at 2s. 6d. per 1000
500,000 SYCAMORE, 2-yr. Seedlings, at 2s. per 1000
For other Trees offered see other Advertisement.
J. RIDDELL, Steward, Park Attwood, Bewdley, Worcestershire.

BIRCH, 3 to 5 feet, fine, twice transplanted, 45s. per 1000
HAZEL, from Spanish Seed, 2 to 3 feet, fine, once transplanted, 18s. per 1000
SPANISH CHESTNUT, 1 to 2 feet, once transplanted, 18s. per 1000
HORSE CHESTNUT, 1 foot, once transplanted, 18s. per 1000
Samples sent on application.
T. JACKSON & SON, Nurseries, Kingston, S.W.

Planting Season

LARCH (Native and Tyrolese), SCOTCH FIR (True Native), SPRUCE, OAK, ASH, ALDER, BEECH, PRIVET, and all kinds of FOREST and ORNAMENTAL TREES and SHRUBS, ROSES, FRUIT TREES, fine specimen ARAUCARIAS and DEODARS, and large TREES for Park Planting, now in fine condition for removal.
CATALOGUES, with sizes and prices, sent free on application to DICKSONS & Co., Nurserymen, Seedsmen, and Florists, 1, Waterloo Place, Edinburgh.

NO PERSON should OVERLOOK the following OFFER at this favourable season for PLANTING:—

20,000 1 year English Laburnums	5,000 Spiræa callosa, strong
10,000 1 yr. Spartium junceum	5,000 Thujopsis dolabrata, 4 to 12 ins.
20,000 1 yr. Berberis Darwinii	10,000 Spruce Firs, 1½ to 3 feet
20,000 1 yr. Mahonia Aquifolium	2,000 Picea Nordmanniana, 1½ to 3 feet
10,000 1 yr. Berberis japonica	20,000 Rhododendron ponticum, 15 to 20 in., as far through
100,000 1 yr. Thorns	10,000 Larch Firs, 2 to 2½ feet
150,000 1 yr. Spanish Chestnut	10,000 Quicks, strong
50,000 1 yr. Cupressus Lawsoniana	5,000 Dwarf H.P. and other Roses, fine
10,000 1 yr. Spanish Oak	1,000 Grape Vines from eyes, Black Hamburgh, and good kinds
The above are Seedlings.	3,000 Lilium giganteum, strong bulbs
10,000 Berberis japonica, 6 to 12 ins.	20,000 Finest named Rhododendrons
10,000 Skimmia japonica, 6 to 9 ins.	
10,000 Erica herbacea	
15,000 Deutzia crenata flo.-pleno, 12 to 30 ins, bushy	
2,000 Arundo conspicua	

A General Assortment of NURSERY STOCK.
TRADE and RETAIL CATALOGUES post free on application.
C. NOBLE, Nursery, Bagshot.—March 16.

SEEDLING and TRANSPLANTED FOREST TREES.

SEEDLINGS.—Ash, 1 yr., 1s.; Beech, 2 yr., 3s. 6d.; Elm, 3 yrs., 2s.; Norway Maple, 2 yr., 7s. 6d.; Oak, English, 1 yr., 1s. 6d.; 2 yr., fine, 4s.; Silver Fir, 4 yr., 6 to 12 inches, 4s.; Norway Spruce, 4 yr., 2s. 6d.; Crab, 2 yr., 2s. 6d.; Pears, 2 yr., 3s. 6d.; Sycamore, 2 yr., 2s. 6d. per 1000.
TRANSPLANTED.—Alder, 1 to 2 ft., 7s. 6d.; 2 to 3 ft. 10s.; 3 to 4½ ft., 15s.; 4 to 6 ft., 20s.; Beech, 6 to 12 in., 7s. 6d.; Chesnut, Spanish, 1 to 2 ft., 17s. 6d.; Elm, 12 to 21 in., 8s.; Hazel, 1½ to 3 ft., 17s. 6d.; Oak, English, 6 to 12 in., 7s. 6d.; Balm of Gilead, 4 to 8 in., 7s. 6d.; Cembra, 6 to 12 in., 100s.; Larch, 1 to 1½ ft., 6s.; 1½ to 2 ft., 8s.; 2 to 3 ft., 10s.; 3 to 4 ft., 14s.; Scotch Fir, 2 yr. bedded, 6 to 12 in., 5s.; Silver Fir, 9 to 15 in., 12s. 6d.; Spruce, Norway, 6 in., 6s.; 1 to 1½ ft., 10s.; Thorn Quick, 9 to 18 in., 6s.; Sycamore, 1 to 1½ ft., 7s. 6d.; Walnuts, 6 to 15 in., 20s. per 1000.
RHODODENDRON PONTICUM, 4 to 6 in., 6s. per 100.
Apply, with reference, to J. RIDDELL, Steward, Park Attwood, Bewdley, Worcestershire.

30,000 2-yr. SEEDLING THUJA LOBBII, 3 to 4 inches high, fine, distinct, and perfectly hardy Arborvitæ. Foliage deep grass green, rapid growth, well adapted for hedges, &c., and will bear pruning. Price (on application) by 100, 1000, or 5000.
GEO. JACKMAN & SON, Woking Nursery, Surrey.

To Large Planters.
HARDY TREES AND SHRUBS IN FINE MOVING CONDITION.
PRICE LISTS on application.

PAUL AND SON beg to invite attention to their large GENERAL NURSERY STOCK. Of the following they have large quantities:—

	Per 100—£	s.	d.
ROSES, dwarf Standards } „ dwarfs, their selection }	5	0	0
ARAUCARIA IMBRICATA, 1½ to 2 feet	12	0	0
ARBOR-VITÆ, transplanted Siberian, 3 to 4 feet	6	0	0
RED CEDARS, 3 to 4 feet	5	0	0
„ 5 to 6 feet	7	0	0
CUPRESSUS LAWSONIANA, 2 to 3 feet	3	15	0
„ 3 to 4 feet	5	0	0
LAURELS, 3½ to 4 feet	3	0	0
„ 4 to 5 feet	3	15	0
„ 5 to 6 feet	5	0	0
„ Higher at proportionate prices.			
„ PORTUGAL, 2 feet	2	10	0
„ 2½ to 3 feet	3	15	0
YEWS, very bushy, 3 to 3½ feet	10	0	0
PINUS CEMBRA, 3 feet	7	10	0
„ INSIGNIS, 6 to 8 feet	15	0	0
WELLINGTONIA GIGANTEA, 2½ feet	12	0	0
„ „ 3 to 3½ feet	15	0	0
„ Larger to 7 feet on application.			
DECIDUOUS SHRUBS, of sorts, 2 to 3 feet	2	10	0
ACACIA, 8 to 9 feet	3	10	0
PLANES, 10 to 12 feet	7	0	0
CHESNUT, Scarlet, 9 to 10 feet	10	0	0
ELM, Narrow-leaved, 10 to 12 feet	7	0	0
POPLARS, Balsam and Lombardy, 10 to 12 feet	3	10	0
LIMES, 8 to 10 feet	7	0	0
WEEPING TREES, of sorts	10	0	0
ORNAMENTAL-LEAVED TREES, as List.			

Planting by Contract, or Estimated for special quantities.
The Old Nurseries, Cheshunt, N. (one mile from Cheshunt Station, G. E. R.)

SURPLUS STOCK.

200,000 RHODODENDRON PONTICUM and HYBRIDS, bedded, 2 to 3, 3 to 4, and 4 to 6 inches, finely rooted.
100,000 SEEDLING COMMON ASH, 1 year, fine.
50,000 „ 2 years.
50,000 „ CRABS (true wild) 1 year.
5,000 SORBUS DOMESTICA (true), 2 years' Seedlings.
5,000 ARIA THEOPHRASTA, 2 years' Seedlings, fine.
10,000 BERBERIS EMPETRIFOLIA, 3 years.
50,000 „ AQUIFOLIUM, 1 year.
TRANSPLANTED.
30,000 BEECH, 2 to 3 and 3 to 4 feet.
30,000 HUNTINGDON WILLOWS, very fine, 4 to 6 feet.
40,000 HAZELS, 2 to 3 feet.
5,000 BERBERIS AQUIFOLIUM, 1½ to 2 feet, bushy.
N.B.—Samples will be sent of any of the above on application.
For Special Prices, which are low, apply to GEORGE T. FOX, The Nurseries, Wetley Rocks, near Leek, Staffordshire.

Forest Trees and Cover.

JOSEPH SMITH, JUN., has to offer at very moderate prices TRANSPLANTED ASH, ALDER, BIRCH, HORSE CHESTNUT, ELM, broad and narrow-leaved; SILVER and SCOTCH FIRS, WHITE AMERICAN SPRUCE, HAZEL, OAK, POPLAR, PRIVET, WEYMOUTH and AUSTRIAN PINES, THORN QUICKS, HUNTINGDON and DUTCH WILLOWS, LARCH, good stout plants, 1½ to 2 feet, 12s.; 2 to 2½ feet, 13s.; 2 to 3 feet, 14s.; and 3 to 4 feet, 16s. per 1000. NORWAY SPRUCE FIR, 6 to 9 inches, 6s.; 9 to 12 inches, 9s.; 1 to 1½ feet, 14s.; 1½ to 2 feet, 21s.; and 2 to 2½ feet, 30s. per 1000. COTONEASTER MICROPHYLLA, 1 to 1½ feet, 20s. per 1000; 1½ to 2 feet. RIBES in sorts, 2 to 3 ft., 20s. per 1000. SNOWBERRY, 2 to 3 ft., 20s. per 1000. BROOM, White and Yellow, transplanted, 15s. per 1000. LAURELS, BERBERIS, ARBOR-VITÆ, &c., Seedling ASH, CRAB, SPANISH CHESTNUT, SPRUCE, 3 and 4 years; ELM, 2 years, £5 per 100,000. OAKS, 1 and 2 years; OAK, EVERGREEN, 1 year; PRIVET, 1 and 2 years; SYCAMORE. RHODODENDRON PONTICUM, 2 years, 6s.; 4 years, 8s. per 1000; 3 years, and 1 year transplanted, 18s.; 3 years, and 2 years transplanted, 25s.; 6 to 9 inches, 50s.; and 9 to 12 inches, 60s. per 1000. Twice-transplanted, and bushy, 4 to 8 inches, 70s.; 8 to 12 inches, 95s.; 9 to 15 inches, 140s.; 1 to 1½ feet, 180s.; and 1½ to 2 feet, 260s. per 1000..
A PRICED LIST forwarded on application. Price to the Trade on application.
JOSEPH SMITH, Jun., Moor Edge Nursery, Tansley, near Matlock, Derbyshire.

KEYE'S EARLY PROLIFIC TOMATO.

A new American variety, 30 days earlier than any other. Plant dwarf, compact and vigorous, producing immense crops. Tomatoes of medium size, round, brilliant red, quite smooth and free from ribs, perfectly solid, and of the most excellent flavour. They are produced in large clusters of 10 to 20 each, with from 7 to 20 clusters on each Vine, and ripen up together, so that the main crop is ripe and ready for market 30 days earlier than any other kind. The foliage has no odour. The Early Prolific is the most distinct and valuable Tomato yet produced.

Price per Packet, 1s., forwarded on receipt of 12 stamps.

CARTER'S GREAT LONDON SEED WAREHOUSE, 237 and 238, HIGH HOLBORN, W.C.

Price to the Trade on application.

Thomas Gibbs

ROYAL AGRICULTURAL SOCIETY OF ENGLAND
THOS. GIBBS & Co.
Corner of
HALF-MOON St
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London.
APPOINTED Apr. 3, 1844
THE SEEDSMEN

CORNER of STREET.

Trade Mark.

GRASS SEEDS,
AGRICULTURAL SEEDS,

KITCHEN GARDEN SEEDS,
FLOWER SEEDS.

Catalogues forwarded post free to any address on application.

GENUINE SEEDS, CARRIAGE FREE.

B. S. WILLIAMS,

VICTORIA AND PARADISE NURSERIES, UPPER HOLLOWAY, LONDON, N.

GENERAL PRICED CATALOGUE of FLOWER and VEGETABLE SEEDS

FORWARDED FREE TO ANY ADDRESS.

It contains, in addition to the best of the established and indispensable varieties of VEGETABLE SEEDS, the following NEW KINDS:—

THE ORANGEFIELD DWARF PROLIFIC TOMATO, 2s. per pkt.
WILLIAMS' ALEXANDRA BROCCOLI, 2s. 6d. per packet
WILLIAMS' MATCHLESS RED CELERY, 1s. per packet
DIGSWELL PRIZE ENDIVE, 1s. per packet
NUNEHAM PARK ONION, 2s. 6d. per packet
RAPHANUS CAUDATUS (The Wonderful Radish), 1s. per pkt.

Also the following NOVELTIES in FLOWER SEEDS:—

APLOPAPPUS RUBIGINOSUS, 1s. per packet
ARUNDO CONSPICUA, 1s per packet
AUBRIETIA GRÆCA, 1s. per packet
BLACK EGG-PLANT, from Japan, 1s. per packet
PINK-FLOWERING CANTERBURY BELL, 1s. per packet
CHRYSANTHEMUM LOUISE HONNORATY, 1s. per packet
STRIPED-LEAVED JAPANESE MAIZE, 1s. per packet
NASTURTIUM TOM THUMB ROSE, 1s. per packet
VIOLA CORNUTA, PURPLE QUEEN, 1s. & 2s. 6d. per packet.
„ MAUVE QUEEN, 6d. & 1s. per packet

Also the following well-known STRAINS of FLORISTS' FLOWERS:—

WILLIAMS' superb strain of PRIMULA, Red, White, or Mixed, 2s. 6d., 3s. 6d., and 5s. per packet
WILLIAMS' superb strain of Camellia-flowered BALSAM, the finest in England, 1s. and 2s. 6d. per packet
JAMES'S CALCEOLARIA, finest for exhibition, 2s. 6d., 3s. 6d., and 5s. per packet
WEATHERELL'S Choice CINERARIA, 3s. 6d. and 5s. per packet

A full description of each will be found in the Catalogue.

☞ *All Packets of Seeds Free by Post.*

LILIUM AURATUM (a large importation).—Strong Bulbs, 3s. 6d., 5s., and 7s. 6d. each.
GLADIOLI, English-grown Seedlings, splendid assortment, 8s. per dozen; 50s. per 100.
„ Named varieties, 6s., 8s., and 12s. per dozen.

VICTORIA and PARADISE NURSERIES, UPPER HOLLOWAY, LONDON, N.

CAMELLIAS, AZALEAS, and ORANGE TREES just imported from Belgium.—A quantity of young FRUIT TREES, WEEPING TREES, SHRUBS, and CLIMBERS, to be Sold very Cheap.

R. GREEN, The Bedford Conservatories, Covent Garden Market, W.C.

Finest New Hardy Plant of the Year.

PAUL'S NEW DOUBLE THORN.—Colour bright crimson, vivid, and double, 10s. 6d. each, usual allowance to Trade when three are taken.

Awards: First-class Certificates International Exhibition and Royal Botanic Societies.

PAUL & SON beg to invite orders are close of planting season for this unique novelty. Since last Advertisement the following leading Nurserymen have ordered it:—

Cranston, Jno., Hereford	Lucombe, Pince & Co., Exeter
Dickson & Co., Edinburgh	Noble, Chas., Bagshot
Dickson & Sons, Newtonards	Rollisson & Sons, Tooting
Ewing, Norwich	Smith, R., Worcester
Fletcher, Ottershaw	Veitch & Son, Chelsea
Jackson & Sons, Woking	Waterer & Godfrey, Knap Hill
Lawson & Son, Edinburgh	

Old Cheshunt Nurseries, N.

To the Trade—Contractors and Builders.

ONE HUNDRED THOUSAND COMMON LAURELS, fine bushy plants, from 3 to 7 feet high; good for Blinds, particularly for newly laid-out Grounds and Buildings. These Laurels are very fine, and have not suffered from the frost.

Also 5,000,000 of Two-year SEEDLING ASH and CHESTNUTS, ROSES, and other varieties of Shrubs.

ABEL FAIRALL, Stanhope Nursery, Westerham Hill, Kent.

Green and Purple Kohl Rabi.

SUTTON AND SONS can supply genuine New Seed of the above, at very moderate prices, as see CATALOGUE, which may be had gratis and post free on application.

SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

TURNIP SEED.—YORKSHIRE PRIZE. Heavy cropper, very hardy. The very best Swede Turnip grown, 1s. per lb. The produce of Seeds obtained of MARTIN & SON have won more £5 Silver Cups, Silver Medals, and other valuable Prizes, than all Seedsmen in this neighbourhood put together.

MARTIN & SON, 7, Market Place, Hull.

New Turnip Seeds.

H. AND F. SHARPE offer the following varieties to the Trade at low Prices. They are all of 1866 growth, raised from the finest selected Stocks:—

SHARPE'S IMPROVED PURPLE-TOP SWEDE.
SKIRVINGS' "KING of the SWEDES."
IMPROVED GREEN TOP SWEDE.
LINCOLNSHIRE RED GLOBE.
IMPROVED GREEN NORFOLK.
DEVONSHIRE GREY STONE.

And many other Yellow and White-fleshed sorts. Prices may be had on application. Seed-growing Establishment, Wisbech.

New Mangel Wurzel Seed.

H. AND F. SHARPE have the following Varieties, raised last season on their own Seed Farm from fine selected Bulbs, which they can offer to the Trade at Low Prices, to be had on application:—

SHARPE'S SELECTED ORANGE GLOBE.
FISHER HOBBS' ORANGE GLOBE.
LARGE YELLOW GLOBE.
ELVETHAM LONG RED.
SELECTED LONG YELLOW.
SELECTED RED GLOBE.
Seed Growing Establishment, Wisbech.

RED CABBAGE PLANTS, extra fine, 4s. per 1000. WHITE SPANISH ONION SEED, 1s. 8d. per lb. KOHL RABI SEED, green, 1s. per lb. All new and genuine. Terms cash.

R. W. can supply any orders for Seeds at lowest possible prices.

RICHARD WALKER, Market Gardener and Seed Grower, Biggleswade, Beds.

Variegated Borecole or Greens.

DOWNIE, LAIRD AND LAING are sending out in sealed packets at 1s. each, Seed of the above, warranted from the same strain as Miss Hope's of Wardie. Vide *Gardeners' Chronicle*, March 9, page 236.

17, South Frederick Street, Edinburgh; and Stanstead Park, Forest Hill, London, S.E.

Cucumber, Telegraph.

ROLLISSON'S VARIETY has been proved the best Cucumber in cultivation for Winter or Spring use, especially for growing in houses; an immense cropper, producing six at a joint, length 18 to 24 inches. In sealed packets, 2s 6d. each. See merits of "Winter Cucumbers," in *Gardeners' Chronicle* for Jan. 12, 1867.

WILLIAM ROLLISSON & SONS, The Nurseries, Tooting, London, S.

IVERY'S NONSUCH LETTUCE, the best Summer Variety in cultivation; will stand a month longer than any other kind without running to seed; 1s. per packet, sealed with initials W. I.

Also IVERY'S NONSUCH CELERY, acknowledged to be the finest flavour known, 6d. per packet.

Price to the Trade on application.

A DESCRIPTIVE CATALOGUE of CHOICE SEEDS may be had post free.

WILLIAM IVERY, Hanover Nursery, Peckham, S.E.

EDWARD TAYLOR, NURSERYMAN, Malton, Yorkshire, offers as under:—

2-yr. GIANT ASPARAGUS ROOTS, 1s. 3d. per 100; 10s. per 1000.
3-yr. GIANT ASPARAGUS ROOTS, 2s. per 100; 15s. per 1000.
GLADIOLUS BRENCHLEYENSIS, 10s. per 100; 84s. per 1000.
TRITOMA UVARIA, 4s. per dozen; 25s. per 100.
FORWARF TRAINED MORELLO CHERRIES, 15s. per dozen.
PRIZETAKER GREEN MARROW PEAS, hand picked, 9s. per bushel; 70s. per qr.
DEAL-WOOD LABELS, 3½ inches long, 2s. per 1000, or 1s. 9d. per 1000 if 20,000 are taken.
Transplanted GREEN HOLLIES, Seedling and Transplanted ASH, LABURNUMS, LILACS, &c, Price on application.

SURPLUS STOCK of

Early Ashleaf Kidney Potatos.	Nonpareil Peas.
Essex Wonder do do	General Havelock do.
Myatt's Prolific do do	Ne Plus Ultra do.
Handsworth's Early Round Potatos	Champion of England do.
Early Shaw Round Potatos.	M'Lean's Wonder do.
Dalmahoy do do	Climax do.
Dwarf, Kidney, and Scarlet Beans	Veitch's Perfection do.
	British Queen do.

Prices on application to JAMES FAIRHEAD & SON, Seed Merchants, 7, Borough Market, S.E.

CHOICE SEEDS.

Post Free.

	Per pkt.—s. d.		Per pkt.—s. d.
Broccoli, Snow's Imperial Winter	1 0	Moore's Vegetable Cream	0 6
Albert Sprouts	0 6	Beet, Perpetual Spinach	0 6
Cauliflower, Early Erfurt	1 0	" Nutting's Superb Red	0 6
Celery, Manchester Champion Red	0 6	Lettuce, Wheeler's Tom Thumb	0 6
Cucumber, Smith's Fine Frame	1 0	Radish, French Breakfast	0 6
Cucumber, Telegraph	1 0	Aster, Truffaut's Superb French, 12 vars. mixed	1 0
Leek, Henry's Prize	0 6	Aster, Victoria, 6 vars. mixed	1 0
Endive, Digswell Prize	0 6	Stock, improved large-flowering, 12 vars. mixed.	1 0
Onion, Nuneham Park	2 6	Balsam, Camellia-flowered, 6 var. mixed	1 0
Parsley, extra fine curled	0 6	Balsam, Rose-flowered, 8 vars. mixed	1 0
Raphanus caudatus (new long-podded Radish)	2 6	Phlox Drummondii, 12 splendid varieties	1 0
Custard Marrow	0 6		
Melon, Malvern Hall	1 6		
Tomato de Laye	0 6		
Cauliflower, The Mammoth	1 0		

RICHARD SMITH, Seed Merchant, Worcester.

THE "COLDSTREAM EARLY" POTATO, which received a First-class Certificate at the International Horticultural Exhibition at South Kensington, is the Earliest and Best round Potato in cultivation. 5s. 6d. per peck; 18s. per bushel, including bags. Trade price on application.

Apply to HOOG & WOOD, Coldstream, N.B.

Seed Potatos.

H. AND F. SHARPE are now offering MYATT'S PROLIFIC KIDNEY, DAINTREE'S EARLIEST, WEBB'S IMPERIAL KIDNEY, FORTY-FOLD, FOX'S SEEDLING, EARLY OXFORD, and many other Early and Late varieties, fine in quality, free from disease, and at low prices.

Seed Growing Establishment, Wisbech, Cambridgeshire.

SPENCER'S KING POTATO.—This excellent Potato having withstood the disease better than any other variety last season, the Subscriber has to offer about 300 Bushels of fine clean-grown Tubers, perfectly sound and free from disease, which he can with confidence recommend. For price, apply to

GEORGE T. FOX, The Nurseries, Wotley Rocks, near Leek, Staffordsh.



WHEELER'S

GLOUCESTERSHIRE KIDNEY

Is one of the very Earliest, most Productive, and best flavoured Potatos in cultivation.

Price 3s. per peck, 10s. 6d. per bushel.

J. C. WHEELER & SON,

Seed Growers, Gloucester.

POTATOS for PRESENT PLANTING.

	Per peck of 14 lb.	Per sack of 16 st.	Per ton.
	s. d.	s. d.	
MONA'S PRIDE	3 0		
RIVERS' ROYAL ASHLEAF	1 6	21 0	
LEMON KIDNEYS	1 6	21 0	
MYATT'S PROLIFIC	1 3	18 0	
SPENCER'S KING	1 2	17 0	
FORTYFOLDS	1 0	15 0	140s.
WEBB'S IMPERIAL KIDNEY	1 2	17 0	160s.
PRINCE OF WALES KIDNEY	1 6	21 0	
FLUKES	1 0	13 0	125s.
DALMAHOYS	1 0	14 0	
REGENTS	0 10	11 0	

CARROTS.	lb.	stone	
WHITE BELGIAN	0 10	11 0	
PURPLE TOP ALTRINGHAM	1 6	20 0	
GREEN-TOP ALTRINGHAM	1 0	12 0	
JAMES' INTERMEDIATE	1 0	12 0	
LONG ORANGE	1 6	20 0	

MANGEL WURZEL.			cwt.
	s. d.	s. d.	s. d.
YELLOW GLOBE	0 5	5 6	40 0
RED GLOBE	0 6	6 6	50 0
LONG RED	0 6	6 6	50 0
LONG YELLOW	0 6	6 6	50 0
ORANGE GLOBE	0 6	6 6	50 0
ELVETHAM	0 6	6 6	
ENGLEFIELD YELLOW	0 6	6 6	50 0

ONIONS.—NUNEHAM PARK, per packet, 2s. 6d.
" WHITE SPANISH, per lb., 2s. 6d.

	lb.	stone	cwt.
	s. d.	s. d.	s. d.
GREEN KOHL RABI	1 0	13 0	10 0

CABBAGE.	
ROBINSON'S OX	2 6
LARGE DRUMHEAD	2 0
THOUSAND HEAD	2 6
ENFIELD MARKET	3 0

SWEDE.	
SKIRVING'S KING OF SWEDES	0 8
OLD PURPLE-TOP	0 8
LAING'S	0 9
SUTTON'S CHAMPION	0 8
EAST LOTHIAN	0 8
HALL'S WESTBURY	0 9

TURNIP.			
GREEN GLOBE	0 6		
RED GLOBE	0 6		
WHITE STONE	0 9	Per 1000	Per 10,000
		p. 100	
Extra strong ASPARAGUS PLANTS	1 6	10 0	90 0

New 4 lb. Sacks, 1s. 0d. each; Bushel Bags, 10d.; Two ditto, 1s. 2d. Remittances to accompany orders.

CHRISTMAS QUINCEY, Seed Grower and Seedsman, Peterborough.

N.B. This Advertisement will *not* be repeated.

Sorghum tartaricum.

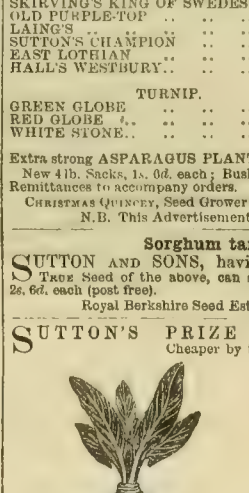
SUTTON AND SONS, having imported a supply of TRUE Seed of the above, can supply it in packets at 1s. and 2s. 6d. each (post free).

Royal Berkshire Seed Establishment, Reading.

SUTTON'S PRIZE MANGEL SEED.

Cheaper by the Cwt.

	Per lb.—s. d.
Good YELLOW GLOBE	0 9
" ORANGE GLOBE	0 9
" RED GLOBE	0 9
" LONG RED	0 9
" LONG YELLOW	0 9



SUTTON'S

Selected Mangel Seed

From Selected Roots.

	Per lb.—s. d.
SUTTON'S SELECTED YELLOW GLOBE	1 0
Do. do. ORANGE GLOBE	1 0
FISHER HOBBS' ORANGE GLOBE	1 0
STRATTON'S RED GLOBE	1 3
SUTTON'S ELVETHAM LONG RED	1 0
SUTTON'S MAMMOTH LONG YELLOW	1 6
NEW YELLOW INTERMEDIATE	1 0
Do. RED do.	1 6
SUTTON'S MAMMOTH LONG RED	1 6
BERKSHIRE PRIZE, or SUFFOLK CHAMPION, New, in 8 lb. bags	2 6

SUTTON'S YELLOW GLOBE, Price 1s. per lb.

Cheaper by the Cwt. Lowest Price per Cwt. on application.

SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

Seed Corn from the Chalk.

ALL the MOST APPROVED VARIETIES supplied by RAYNBIRD, CALDECOTT, BAWTREE, DOWLING, and COMPANY, LIMITED.

Address, Basingstoke; or 89, Seed Market, Mark Lane, London, E.C.

*** Samples and prices on application.

RAYNBIRD, CALDECOTT, BAWTREE, DOWLING, AND COMPANY, Limited,

CORN, SEED, MANURE, AND OILCAKE MERCHANTS,

Address, 89, Seed Market, Mark Lane, E.C.; or Basingstoke.

Samples and Prices post free on application. Prize Medals, 1851, for Wheat; 1862, for "Excellent Seed Corn and Seeds."

Seed Establishment, Dumfries.

PASTURE LAND.—The great benefit derived by Sowing down Land intended for Permanent Pasture with Natural Grass Seeds cannot be over-estimated, the trifling cost of KENNEDY'S MIXTURES for PERMANENT PASTURE over that of Common Rye-grass and Clover being far more than compensated by the much greater abundance of Herbage produced, of a more nutritious and permanent kind. These Mixtures are made up in every case to suit the particular soil, situation, or purpose for which they are required.

A DESCRIPTIVE PRICED CATALOGUE of NATURAL GRASSES as well as of CLOVER, TURNIP, and other FARM SEEDS, may be had on application to

THOMAS KENNEDY AND CO.,
NURSERYMEN and SEEDSMEN, Dumfries.

☞ CATALOGUES may also be had of VEGETABLE and FLOWER SEEDS, and FOREST, FRUIT, and ORNAMENTAL TREES, &c.

Free Delivery. Farm and Garden Seeds Delivered at nearest Railway Station under certain limitations, as formerly.

MALDEN AND SON, AGRICULTURAL SEEDSMEN, Biggleswade, Beds., are now supplying the 1866 growth of Seed from MALDEN'S NEW CLOVER (Trifolium striatum). It will grow one-third greater weight of Hay per acre than any other variety, and of more nutritious quality. It is suited to all soils, and is particularly recommended for lands which are Clover sick. An account of the Plant and its introduction may be found first on the descriptive list of "New Agricultural Plants" in the "Farmers' and Gardeners' Almanack" for 1866, published at the *Farmer* Offices, 150, Fleet Street, London, page 61.

Specimens of Hay may be seen at Messrs. Lawson & Son, 28, King Street, Cheapside. Seed can be obtained, price 2s. per lb. from our establishment, Biggleswade, Beds; of Messrs. Peter Lawson & Sons, Seedsmen to the Queen, Edinburgh and London; Messrs. Sutton & Sons, Royal Seed Establishment, Reading; Messrs. Hurst & Son, Seedsmen, No. 6, Leadenhall Street, London; Mr. J. Scruby, Merchant, &c., Epping, Essex.

To prevent disappointment early Orders are respectfully invited.

J. C. WHEELER AND SON, SEED GROWERS, Gloucester (Seedsmen to the Gloucestershire Agricultural Society), can very strongly recommend the following Mixtures:—

CLOVER and GRASS SEEDS for ONE YEAR'S LAY.

J. C. WHEELER & SON can supply this excellent Mixture—all of the finest quality—carriage free by Railway, at 15s. per acre.

lb.	lb.
3 Italian Rye-grass, Lolium italicum.	4 Evergreen Rye-grass, L. semperirens
1 Cocksfoot, Dactylis glomerata	7 Red Clover, Trifolium pratense
1 Timothy, Phleum pratense	7 Trefoil, Medicago lupulina

A cheaper Mixture at 10s. 6d. per acre.

CLOVER and GRASS SEEDS for TWO YEARS' LAY.

J. C. WHEELER & SON can supply this excellent Mixture for Two Years' Lay—all of the finest quality—carriage free by railway, at 18s. 6d. per acre.

lb.	lb.
4 Evergreen Rye-grass, L perenne	3 Red Clover, Trifolium pratense
4 Italian Rye-grass, L. italicum	3 Cow Grass, T. pratense perenne
2 Cocksfoot, Dactylis glomerata	3 White Dutch, Tr. repens
1 Timothy, Phleum pratense	4 Trefoil, Medicago lupulina

A cheaper Mixture at 15s. 8d. per acre.

CLOVER and GRASS SEEDS for THREE or FOUR YEARS' LAY.

J. C. WHEELER & SON can supply this excellent Mixture—all of the finest quality—carriage free by Railway, at 24s. per acre.

lb.	lb.
4 Evergreen Rye-grass, L. semperirens	2 Timothy, Phleum pratense
	3 Red Clover, Trifolium pratense
4 Pacey's Perennial, L. Paceyanum	3 Cow Grass, T. pratense perenne
	3 White Honeysuckle, T. repens
3 Italian Rye-grass, Lolium italicum	1 Alsike, Trifolium hybridum
2 Cocksfoot, Dactylis glomerata	4 Trefoil, Medicago lupulina

A Cheaper Mixture at 21s. per Acre.

J. C. WHEELER & SON'S CLOVER and GRASS SEEDS are of excellent quality, very moderate in price, and 5 per cent. discount is allowed for cash.

J. C. WHEELER & SON, Seed Growers, Gloucester.



Improvement of Grass Lands,

at from 5s. to 10s. per acre.

SUTTON'S RENOVATING MIXTURE

SHOULD NOW BE SOWN.

6 to 12 lb. per acre.

Price 10d. per lb. Cheaper by the cwt.

If these Seeds are sown early in the season, the improvement in the land will be very great, and at a small expense.

This Mixture should be bush-harrowed in, and rolled afterwards.

SUTTON & SONS,
Royal Berkshire Seed Establishment, Reading.

Present Prices of Best Clover Seeds.

SUTTON AND SONS can supply the above at the following prices, carefully cleaned, and free from Dodder and other weeds:—

Per lb.—s. d.		Per lb.—s. d.	
BROAD RED	10d. to 1 0	YELLOW TREFOIL, 5d. to	0 6
WHITE or DUTCH 1s. 2d.	1 4	COW GRASS 1s. 2d.	1 6
PERENNIAL WHITE	1 6	ALSIKE 2s.	2 6

Samples and lowest price per cwt. sent on application.

Ordinary qualities may be had cheaper.

All goods Carriage Free (except very small parcels).

Five per cent. allowed for cash payment.

SUTTON & SONS, Seed Growers, Reading.

Very Early Sheep Feed.

SUTTON'S IMPROVED ITALIAN RYE-GRASS.—This "Improved" Italian Rye-grass is recommended in preference to every other variety, producing three or four heavy crops in one summer, and being almost if not strictly perennial.

At a Meeting of the Royal Agricultural Society, on March 16, in a Lecture delivered by Alfred Hughes, Esq., late of Thorness, Isle of Wight, Mr. Hughes said:—

"I always reserve a portion of Oat land to lay down with SUTTON'S Improved Italian Rye-grass, the most reliable plant I have come across for some years for Ewes and Lambs in the Spring. When I tell you that I put it in in the spring, and dressed it after harvest with guano, and that in the autumn, when my Sheep fed it off, it was up to their knees, and that I fed it off again this spring with Ewes and Lambs, I think you will agree that this is a crop of very great value. The Italian Rye-grass which is sold by SUTTON, of Reading, is a most astonishing vigorous plant; indeed, I never saw anything to equal it in the course of all my experience."

SUTTON & SONS have a fine stock of their Improved Italian Rye-grass, which is a very different and superior article to much that is sold as Italian Rye-grass.

Present price 6s. 6d. per bushel, cheaper in quantities over 5 qrs. Carriage-free in quantities of 8 bushels and upwards.

Quantity required per acre, if sown alone, 3 bushels.

Royal Berkshire Seed Establishment, Reading.

Fine Grass Seeds for Cricket Grounds,
BOWLING GREENS, or CROQUET GROUNDS.

SUTTON AND SONS can supply suitable kinds of the finest-growing GRASSES and CLOVERS for the above purposes, at 1*s.* 3*d.* per lb., 24*s.* per bushel.
SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

The New Forage Grass (Bromus Schraderi).

SUTTON AND SONS have imported a large supply of True Seed of the above, and offer it at 2*s.* 6*d.* per lb., or cheaper in large quantities. Quantity required per acre, 30lb. Lowest price per cwt. and instructions on cultivation, may be had on application.
SUTTON & SONS, Seed Merchants, Reading.

THE ALSIKE CLOVER for CLOVER-SICK LANDS.—This excellent Clover will thrive in almost any soil. It produces two good cuttings in the year, and makes superior Clover hay. It may be sown alone (14 lb. per acre), or in conjunction with other seeds, either for alternate husbandry or Permanent Pasture. If sown with Italian Rye-grass, it is ready for mowing three times in the year. It is included in all Messrs. SUTTON'S Mixtures, and they strongly recommend it to more general cultivation. Price may be had on application (depending on quantity required).
Royal Berkshire Seed Establishment, Reading.

SELECTED SILVER SAND, PEAT SOIL, LOAM, SANDSTONE, GARDEN POTS, IMPLEMENTS, VASES, TAZZAS, and FIGURES, &c., for SALE in any quantities. By Railway, Canal, and Ship, to all parts of the United Kingdom.
W. SHORT, Horticultural Depôt, Reigate, Surrey.

BOSTON'S NE PLUS ULTRA, for the Destruction of Mealy Bug, Scale, American Blight, &c., on Stove and Greenhouse Plants, Fruit Trees, Vines, &c. In bottles, with full instructions for application, price 3*s.* 6*d.*, 5*s.*, and 10*s.* 6*d.*

JAMES CARTER & Co. beg leave to state that the present time is most suitable for applying the above genuine Specific before the commencement of the growing season, thereby preventing the rapid increase of the above pests which would otherwise take place. The infallible properties of BOSTON'S NE PLUS ULTRA are rapidly becoming fully recognised, J. C. & Co. having already sold nearly two bottles since its first introduction in the spring of 1866. Numerous testimonials have been received, and not a single complaint of its inefficiency.
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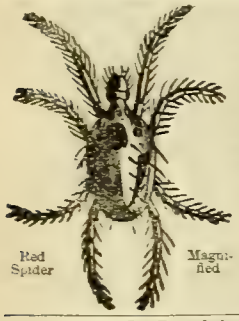


GREAT VALUE of "APHIS WASH."

"AT the first opportunity Paint the Trees with a solution of 'APHIS WASH,' prepared at the City Soap Works; it not only destroys the Brown Aphis which Infests Peach Trees, but also Scale, and every other pest capable of lodging in the bark."—Extract from *Gardeners' Magazine*, January 5, 1867.

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Sold by Chemists and others, in 1*s.* bottles, and 2*s.* 6*d.* a gallon, with full directions for use.
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Red Spider — Magnified

GISHURST COMPOUND.

Used by many of the leading Gardeners since 1859, against Red Spider, Mildew, Thrips, Green Fly, and other Blight, in solutions of from 1 to 2 ounces to the gallon of soft water, and of from 4 to 16 ounces as a Winter Dressing for Vines and Fruit Trees. Has outlived many preparations intended to supersede it.

Sold Retail by Seedsmen, in boxes, 1*s.*, 3*s.*, and 10*s.* 6*d.*

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PRICE'S PATENT CANDLE COMPANY
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By Royal Appointment

To HER MAJESTY, By Special Warrant, dated December 27, 1865.

To THE PRINCE OF WALES, By Special Warrant, dated February 10, 1866.

DAY, SON, AND HEWITT, Original and Sole Proprietors of the STOCK-BREEDERS' MEDICINE CHEST, for DISORDERS in HORSES, CATTLE, CALVES, SHEEP, and LAMBS.

Patronised by upwards of Seventy Thousand of the principal Stock Breeders, Horse Proprietors, and Agriculturists of England, Ireland, Scotland, and Wales.

The only True and Original "DAY'S CHEMICAL COMPOUNDS are prepared expressly by us. The Chest contains the following matchless preparations:—

Half a Dozen CHEMICAL EXTRACT, at 30*s.* per dozen.
One Dozen GASEOUS FLUID, at 20*s.* per dozen.
One Dozen RED DRENCHES, at 13*s.* per dozen.
One Dozen RED PASTE BALLS, at 7*s.* 6*d.* per dozen
Adapted for all ailments among Stock during the present season. Price of Chest complete, with Shilling Book on Farriery, £2 16*s.* 6*d.*, carriage paid. Either preparation may be had separately in boxes.

TESTIMONIALS.

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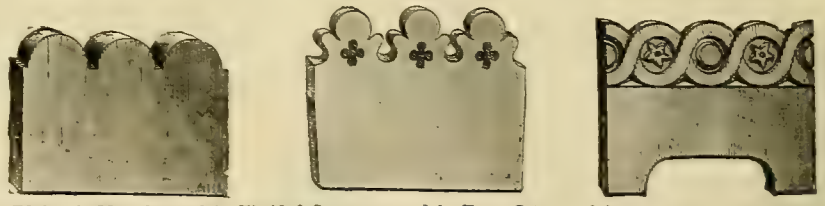
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MANUFACTURED BY
HENRY DOULTON & CO.,
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This Edging is Manufactured in Vitrified Stoneware and in Terra Cotta, and is WARRANTED IMPERISHABLE.
DRAIN PIPES, TERRA COTTA CHIMNEY TOPS, &c.

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INTERNATIONAL EXHIBITION, CLASS IX., No. 2119.

MR. GRAY begs to call the attention of the Nobility, Gentry, Nurserymen, Gardeners, &c., to his
NEW OVAL TUBULAR BOILER,
Acknowledged by practical judges to be a great improvement on every form of Tubular Boiler yet introduced. It has proved itself superior to all other Boilers for quickness of action and economy of Fuel, doing its work with one-third less the amount required by any other.

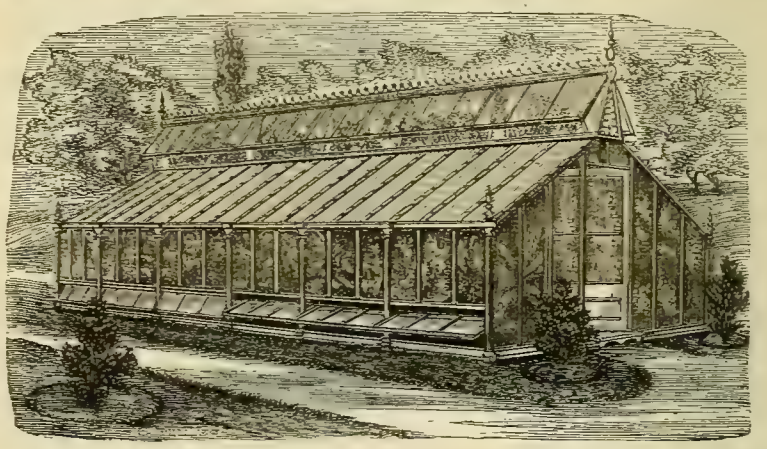
Extract from Report in GARDENERS' CHRONICLE *of International Exhibition, May* 24, 1862, *page* 476.

"The upright form of Boiler is usually made on a circular plan, but the oval form given to Mr. GRAY'S variety of it is said to be preferable in consequence of its bringing the tubes in closer contact with the fire. The usual form of a furnace being a parallelogram rather than a square, it seems feasible that the Boilers on the oval plan should bring the tubes more completely within range of the burning fuel; and this being so, the change, though a slight one, is no doubt an improvement."

☞ *They are made of all sizes, which, with prices, may be had on application.*

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DANVERS STREET, PAULTON'S SQUARE, KING'S ROAD, CHELSEA, S.W.

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GREAT INTERNATIONAL HORTICULTURAL EXHIBITION & BOTANICAL CONGRESS.



The FIRST and ONLY PRIZE given at the above EXHIBITION for the BEST METHOD of VENTILATION for PLANT STRUCTURES, was awarded to

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BEARD'S PATENT METALLIC NON-CONDUCTING GLASS HOUSES,

Showing the Patent System of perfect Ventilation and Patent Method of Glazing, whereby breakage from expansion and contraction is prevented, and facility given for immediate reparation by any ordinary labourer.

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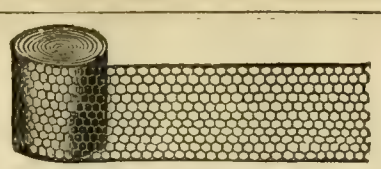
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The CHEAPEST, STRONGEST, and NEATEST FENCING in USE
THOUSANDS of MILES of this FENCING have been SUPPLIED by us at home and abroad. It sustains no injury by being trespassed upon.
Price, with five lines of Strand and Iron-pronged Standards, and one straining post, stay and screw bolts to every 120 yards, 1s. per yard.
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PROTECTION from COLD WINDS and MORNING FROSTS.

"FRIGI DOMO," a Canvas made of Patent prepared Hair and Wool, a perfect Non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all Horticultural and Floricultural purposes, for Preserving Fruits and Flowers from the Scorching Rays of the Sun, from Wind, from Attacks of Insects, and from Morning Frosts. To be had in any required lengths.

Two yards wide .. .. 1s. 9d. per yard run.
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An improved make, 2 yards wide .. 1s. 9d. per yard.
An improved make, 3 yards wide .. 2s. 8d. per yard run. Also 'FRIGI DOMO" NETTING, 2 yards wide, 1s. 6d. per yard run.

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"It is much cheaper than Mats as a covering."

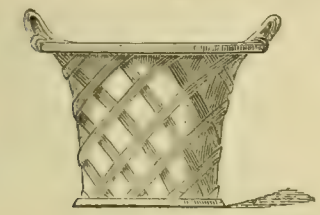
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HORTICULTURAL GLASS MERCHANTS,

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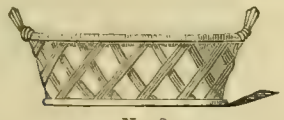
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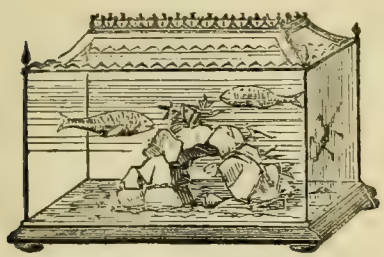
	Each.—s.	d.		Each.—s.	d.
8 inches diameter ..	2	0	15 inches diameter ..	4	6
9 ,, ,, ..	2	3	16 ,, ,, ..	5	0
10 ,, ,, ..	2	6	17 ,, ,, ..	5	6
11 ,, ,, ..	2	9	18 ,, ,, ..	6	6
12 ,, ,, ..	3	0	19 ,, ,, ..	7	6
13 ,, ,, ..	3	3	20 ,, ,, ..	8	6
14 ,, ,, ..	3	9	21 ,, ,, ..	10	0



No. 2.

FLOWER BASKETS.

	Each.—s.	d.		Each.—s.	d.
7 inch ..	1	6	14 inch ..	3	3
8 ,, ..	1	9	15 ,, ..	3	6
9 ,, ..	2	0	16 ,, ..	3	9
10 ,, ..	2	3	17 ,, ..	4	0
11 ,, ..	2	6	18 ,, ..	4	6
12 ,, ..	2	9	19 ,, ..	5	0
13 ,, ..	3	0	20 ,, ..	5	6

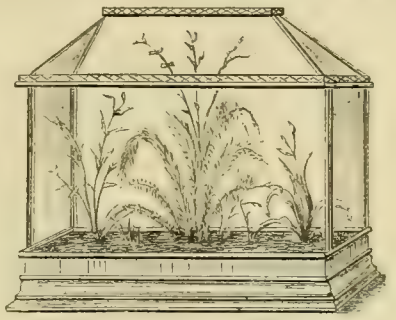


ZINC AQUARIA.

As per Sketch, Glazed with stout Sheet Glass, and Slate Bottoms.

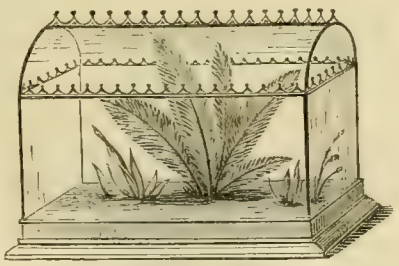
	Each.—£	s.	d.		Each.—£	s.	d.
12 inches long ..	0	18	0	18 inches long ..	1	7	0
14 ,, ,, ..	1	1	0	20 ,, ,, ..	1	10	0
16 ,, ,, ..	1	4	0	24 ,, ,, ..	1	16	0

Larger or Smaller Sizes in proportion.



FERN CASES.

	Each.—£	s.	d.		Each.—£	s.	d.
12 inches ..	1	0	0	22 inches ..	1	18	0
14 ,, ..	1	3	0	24 ,, ..	2	2	0
16 ,, ..	1	6	0	26 ,, ..	2	10	0
18 ,, ..	1	10	0	28 ,, ..	3	0	0
20 ,, ..	1	14	0	30 ,, ..	3	10	0



FERN CASES.

With Circular Tops, 3s. extra on above prices.

GLASS FERN SHADES and STANDS.



No. 3.

	Each.—s.	d.
6 inches dia.	3	0
7 ,, ..	3	6
8 ,, ..	4	0
9 ,, ..	4	6
10 ,, ..	5	6
11 ,, ..	6	6
12 ,, ..	8	6
13 ,, ..	10	6
14 ,, ..	13	6
15 ,, ..	17	6
16 ,, ..	22	6



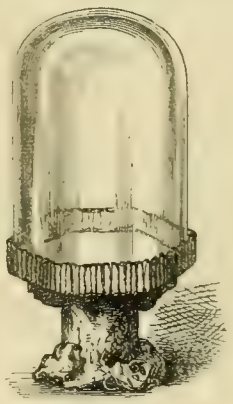
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With Ebony Stands.

	Each.—s.	d.		Each.—s.	d.
12 inches	5	0	17 inches	12	0
13 ,, ...	6	0	18 ,, ...	13	0
14 ,, ...	8	0	19 ,, ...	14	0
15 ,, ...	9	0	20 ,, ...	15	0
16 ,, ...	10	0	Syphons, 1s. 6d.		

GLASS FERN SHADES.

With Rustic Stands.



No. 1.

	Each.—s.	d.
8 inches dia. ..	5	0
9 ,, ..	6	6
10 ,, ..	8	0
11 ,, ..	9	6
12 ,, ..	12	6



No. 2.

	Each.—£	s.	d.
5 inches dia. ..	0	2	6
6 ,, ..	0	3	0
7 ,, ..	0	4	0
8 ,, ..	0	4	6
9 ,, ..	0	5	6
10 ,, ..	0	7	6
11 ,, ..	0	9	6
12 ,, ..	0	12	6
13 ,, ..	0	16	0
14 ,, ..	1	0	0
15 ,, ..	1	6	0
16 ,, ..	1	13	0

Glass Shades for Ornaments, Propagating Glasses, Milk Pans, Cucumber Tubes, Glass for Horticultural Purposes, Paints of all Shades, and various Miscellaneous Articles, see separate Lists.

RICHARD SMITH'S SEED CATALOGUE contains a Calendar of Time for Sowing, particulars of Collections, with Prices, Directions for Cropping well and economically, Soil, Manure, Depth, Distance, Season, Hardiness, Duration, Form, Height, Colour, Storing, Use, Flavour, and other qualities, described.

This List Free by Post or one stamp. Seeds direct from the Growers the surest way to success.

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WILLIAM CHATER, Nurseries, Saffron Walden.

General Plant Catalogue, 176 pages, 8vo.

H. LAURENTIUS', Leipzig, PRICED CATALOGUE, containing Novelties, Beautiful and Rare Plants, also selected Lists of all the favourite Descriptions of Garden Flowers offered by the Horticultural Establishment of H. LAURENTIUS, Leipzig, Germany, can be had post free on application to Messrs. BETHAM & BLACKITH, Cox's Quay, Lower Thames St., London.

GEO. SMITH begs to call the attention of his patrons and friends generally, to his New TROPÆOLUMS, KING of SCARLETS and KING of SPOTS, two beautiful varieties for clumps or ribbon planting. These fine kinds were raised by Mr. George, of Stamford Hill, the raiser of Compactum coccineum, which has been so much admired the last two seasons at the Crystal Palace, &c. Also, the under-named ZONAL GERANIUMS, which G. S. can, with confidence, recommend to be added to the most choice collections.

G. S. has also a fine addition to the VARIEGATED GERANIUMS, the most conspicuous for clumps or borders which has ever been offered, it having a green leaf with broad belt of pure white, of fine habit.

NEW TROPÆOLUMS.

KING of SCARLETS.—Small neat foliage, compact habit, flowers bright scarlet, the most brilliant and beautiful for bedding or ribbon planting. Awarded a First-class Certificate by the Royal Horticultural Society, South Kensington. 5s.

KING of SPOTS.—Bright yellow with amber spots, neat foliage, compact habit, very effective. 5s.

NEW ZONAL GERANIUMS.

HECTOR (GEO. SMITH).—Foliage slightly zonal, pip and truss extra large, fine habit, flowers scarlet; one of the best in cultivation. 5s.

PINK GLOBE (WINDSOR).—Zoned; rosy pink truss, extra large and compact. This beautiful novelty will be found a great advance either as a bedding or exhibition plant. 5s.

PRINCE OF WALES (WINDSOR).—Dark zone, flowers rosy salmon; extra large and fine shape, good habit; a first-class variety. 5s.

REGALIA (GEO. SMITH).—Foliage slightly zoned, flowers fine rosy scarlet, eye white, of fine form and a pleasing variety; good habit. 5s.

RELIANCE (WINDSOR). — Foliage slightly zoned, flower orange scarlet, truss and pips large, of good substance, white eye; in every respect a first-class variety. 5s.

SALAMANDER (WINDSOR).—A zonal variety, flowers bright rosy salmon, with white eye, a most pleasing and desirable variety. 5s.

WARRIOR (GEO. SMITH).—Foliage slightly zoned, flowers brilliant scarlet, of great size and substance, fine form. This flower will prove a most valuable addition to its class. 5s.

NEW VARIEGATED GERANIUM.

PRINCESS ALEXANDRA (GEO. SMITH).—Foliage bright green, with broad band of pure white, of first-class habit; most attractive and beautiful; one of the most effective for ribbon planting of the silver-edged class; fine, 10s. 6d. each.

NEW WHITE-FLOWERED IVY-LEAVED GERANIUM.

"L'ELEGANTE" (CUNNINGHAM). — Foliage bright green, with broad belt of creamy white, throwing up its numerous white blossoms, which give it a fine effect. Awarded a First-class Certificate at the Birmingham Rose Show, also at the Royal Horticultural Society, South Kensington. 10s 6d. each.

G. S., having made arrangements with Mr. Cunningham, is enabled to send out this fine Ivy-leaved Geranium, together with the foregoing novelties, in good plants, after the 24th of April.

Early orders are respectfully solicited.

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FISHER, HOLMES, AND CO. beg to offer the undermentioned well-ripened VINES. The prices, which are moderate, may be had on application.

STRONG FRUITING CANES.	STRONG PLANTING CANES.
Trentham Black	Lady Downes'
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12 Fine Selected Varieties of HARDY ANNUALS	.. ..	1	6
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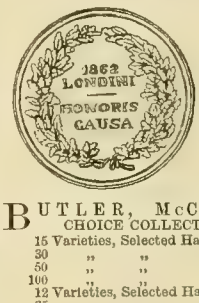
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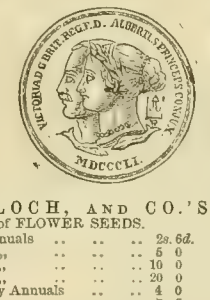
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Sion Nursery, Thornton Heath, Surrey; and at the East Surrey Seed Warehouse, College Grounds, North End, Croydon.

Established Upwards of a Century.

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BUTLER, MCCULLOCH, AND CO.'S CHOICE COLLECTIONS of FLOWER SEEDS.

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15 Varieties, Selected Hardy Annuals	..	..	..	2	6
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15 " " " "	..	..	..	15	0
100 " " " "	..	..	..	30	0
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15 Varieties, selected Hardy Perennials	..	..	..	3	6
25 " " " "	..	..	..	6	6
50 " " " "	..	..	..	12	6
100 " " " "	..	..	..	25	0
12 Varieties, selected Half-hardy Perennials	..	..	..	4	0
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COMPLETE COLLECTION of VEGETABLE SEEDS for One Year's Supply, 63s., 42s., 30s., 21s., and 10s. 6d.

Orders amounting to 21s. and upwards sent Carriage Paid.

CATALOGUE containing details of above Collections, Post Free

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Now Ready, in Strong Plants.

THE MAGNIFICENT NEW VIOLET, QUEEN of VIOLETS.

The following additional Nurserymen have ordered Queen of Violets. For full list see *Gardeners' Chronicle*, December 1, 1866, and last three weeks :—

Messrs. Wood & Ingram, Huntingdon	Mr. Jos. Green, Garforth
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Strong Plants, 1s. 6d. each; 18s. per dozen. Usual allowance to the Trade.

VIOLETS, NEW DOUBLE RED, 1s. 6d. each; 12s. per dozen.

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" DOUBLE BLUE, 6d. each; 4s. per dozen.

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HEPATICAS, DOUBLE and SINGLE RED, 4s. per dozen.

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CHRISTMAS ROSE (HELLEBORUS), WHITE, 9s. per dozen.

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PRIMROSES, DOUBLE LILAC and WHITE, 6s. per dozen.

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WALLFLOWER, DOUBLE GOLDEN, and YELLOW, 6s. per doz.

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ROCKETS, DOUBLE WHITE and YELLOW, 6s. per dozen.

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100 HARDY HERBACEOUS and ALPINE PLANTS, in 50 varieties, 25s.

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EDWARD SANG AND SONS, NURSERYMEN and SEED MERCHANTS, Kirkcaldy, N.B., offer strong autumn struck Plants, in single pots, of this new well-known and universally admired BEDDING-OUT CALCEOLARIA. Price 12s. per dozen.

Early orders will oblige and have their careful attention.

The Trade supplied.

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DWARF BEDDING DAHLIAS.—ALBA FLORIBUNDA NANA, height 2½ feet; LITTLE NAJADE, white, cherry tips, 2½ feet; PURPLE ZELINDA, 2 feet. Strong ground roots of the above at 10s., 8s., and 6s. per dozen. They have proved to be very effective for beds or ribbon borders. Hamper and packing free.

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G. SMITH'S LE GRAND GERANIUM, the finest bedding Nosegay ever raised. Strong Plants, in thumb pots, at 6s. per dozen, package included. Terms, Cash.

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H. LANE AND SON have to offer a very fine lot of extra strong Plants coming into Bloom, of the following kinds, at 36s. per dozen. :—TEA : Isabella Sprunt, Bouton d'Or, Madame Margottin. HYBRID PERPETUALS : Horace Vernet, Antoine Ducher, Gloire de Montplaisir, Madame Rival, Monsieur Noman, Charles Verdier, Souvenir de Monsieur Boll, Monsieur Plaisancon, Mdlle. Jeanne Marix, Madeleine Nonin. Also MARECHAL NIEL, strong on Manetti, in pots.

The Nurseries, Great Berkhampstead, Herts.

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WM. WOOD AND SON beg to offer the annexed TEA-SCENTED ROSES on reasonable terms :—

Barillet Déschamps	Le Pactôle	Madame Joseph Hal-
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Duc de Magenta	Madame Bravy	Rubens
Enfant de Lyon	Maréchal Bugeaud	Sombreuil
Jaune d'Or	Mélanie Oger	Souvenir de David
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Also well-grown TEA-SCENTED ROSES, in 6-in. pots, at 24s. to 30s. per dozen.

GLADIOLI BULBS, for Summer, Autumn, and Winter Flowering, 2s. 6d., 3s. 6d., 5s. 6d., 7s. 6d., 9s., and 12s. per dozen. 10s. 6d., 15s., 21s., 25s. to 100s. per 100.

BARR & SUGDEN, Seed, Bulb, and Plant Merchants, 12, King Street, Covent Garden, W.C.

GLADIOLI. — Collections containing all the finest varieties in cultivation, many new, and offered for the first time, 105s., 63s., 42s., 30s., 25s., 20s., 15s., 12s. BRENCHLEYENSIS, the most showy of all, extra strong roots, 3s. per doz., 20s. per 100.

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GLADIOLI (English-grown Seedlings).—These Seedlings are strongly recommended for growing in masses; there is no more valuable flower during the autumn months. They will produce flowers as varied and beautiful as the best named French varieties. Price 8s. per dozen; 50s. per 100.

GLADIOLUS BRENCHLEYENSIS.—The most gorgeous decorative flower during the months of August and September; should be grown in every garden. Per dozen, 3s.; per 100, 20s.

All the newest and best French varieties kept in stock.

A PRICED LIST sent on application.

12 Choice varieties, selected 24s.		12 Choice varieties, selected, 10s.	
12 " " " 18s.		12 " " " 8s.	
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Early Orders are respectfully solicited.

B. S. WILLIAMS, Victoria and Paradise Nurseries, Upper Holloway, London, N.

J. SCOTT'S CHOICE SEEDS, post free.

	Per packet—	s.	d.
STOCKS, newest large-flowering, Ten-week, 18 varieties		1	0
ASTERS, best Quilled German, 24 varieties, 6d. and ..		1	0
" newest PERFECTION French Exhibition, 24 varieties		1	0
" French Giant EMPEROR, 12 vars...		1	0
" VICTORIA, 6 varieties		1	0
PRIMULA SINENSIS FIMBRIATA, a most superb strain, and cannot be surpassed. 8 vars.	1s. 6d. and	2	6
CALCEOLARIA, Scott's superb strain ..	1s. and	2.	6
MAIZE, new striped-leaved		1	0
PHLOX DRUMMONDII, 12 varieties		1	0
" brilliant Scarlet		1	0
SWEET PEAS, Invincible Scarlet		1	0
BEET, Scott's Crimson Dwarf		0	6
CUCUMBER, Enfield Surprise		1	0
" Kirklees Hall Defiance		1	0
" Scott's Market Ridge ..	6d. and	1	0
CINERARIA, extra fine	1s. and	2	6
TAGETES SIGNATA		0	6
VIOLA CORNUTA		1	0
ZINNIA, superb Double, 8 varieties ..	6d. and	1	0
" Single, 6 varieties		0	6
LETTUCE, Victoria White Cos		1	0
" Wheeler's Tom Thumb		0	6
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For descriptions of the above cheap Collections, &c., see SELECT SEED LIST, free on application to

J. SCOTT, The Seed Stores, Yeovil, Somerset.

JOHN KEYNES' NEW VERBENAS for 1867.

COLESHILL (ECKFORD).—Intense scarlet, with lemon eye, pips large, very smooth, one of the finest Verbenas. First-class Certificate at the Royal Horticultural Society. 5s. each.

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EARL OF RADNOR (ECKFORD).—Most beautiful clear rosy scarlet, with lemon eye, good habit, and free bloomer. Certificate at the Royal Horticultural Society. 5s. each.

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MR. ELLIS (ECKFORD).—Peach colour, quite new, a most beautiful variety, not to be surpassed. 5s. each.

These six varieties are of the finest quality, and will be found quite equal to those sent out last season from the same Grower. They have been selected with the greatest care.

The SIX VERBENAS of last year have proved to be of first-rate quality. They can now be had fine plants, and consist of

John Keynes	Mr. Gladstone	King Charming
Lady Jane Ellis	Isa Eckford	George Eckford

Many testimonials respecting these Flowers have been received by J. KEYNES, all having given great satisfaction. 9s. per dozen.

CRIMSON KING (METHVEN'S), having proved all that was said of it, may be had 9s. per dozen. The finest crimson bedder in cultivation.

A fine collection of the best BEDDING VERBENAS at reasonable prices. The usual Discount to the Trade.

Castle Street, Salisbury.

New and Choice Flower Seeds.

Free by Post or Rail.

SUTTON'S COMPLETE COLLECTIONS of FLOWER SEEDS are sent free by Post or Rail. Prices as under:—

				£	s.	d.
No. 1	Collection of the best English and German varieties, with instructions on cultivation	..	..	2	2	0
No. 2	Collection of	ditto	ditto	1	11	6
No. 3	Collection of	ditto	ditto	1	1	0
No. 4	Collection of	ditto	ditto	0	15	0
No. 5	Collection of	ditto	ditto	0	10	6

Small and useful Collections can also be had from 2s. to 7s. 6d., free by post.

For particulars of the above, see SUTTON'S DESCRIPTIVE CATALOGUE, gratis and post free on application.

Sutton & Sons, Seed Growers, Reading.

CHEAP and BEAUTIFUL FLOWER SEEDS.

		s.	d.
100	Packets of the best and most showy hardy, half hardy, and tender Annuals	20	0
50	" " "	10	0
25	" " "	5	0
25	Packets of the best showy Hardy Annuals	5	0
12	"	2	6

DESCRIPTIVE CATALOGUE on application.

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WATERER and GODFREY'S PRICED and DESCRIPTIVE CATALOGUE of RHODODENDRONS and other American Plants for this Autumn, will be sent on application. The Catalogue also gives a summary of their General Nursery Stock, probably the most extensive in the kingdom.

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FINEST RHODODENDRONS.—Seedlings, raised exclusively from finest named Plants, of all colours, will be forwarded, post free, at the following rates:—50 2-yr. old, 3s. 6d.; 50 1-yr old, 2s. 6d., on receipt of Postage Stamps for the amount, addressed to

Miss S. Davies, 8, Merrion Square North, Dublin, Secretary to The Bird's Nest, the Sale being for the benefit of destitute children.

TRICOLOR PELARGONIUMS.

Mrs. Pollock, 7s. and 9s. per doz. | Sunset, 21s. per doz.
Italia Unita, 21s. per doz. | Mrs. Benyon, 24s. per doz.

In strong plants at the above prices for Cash, package included. Remittance required from unknown Correspondents.

Address, Alfred Fryer, Nurseries, Chatteris, Cambridgeshire.

NEW IVY-LEAVED PELARGONIUMS.

L'ELEGANTE.—Leaves green, margined with creamy-white; flowers white. 10s. 6d. each; six plants, £3.

DERBYSHIRE HERO (Zonal).—Bright cerise.

STAFFORD NEEM (Zonal).—Orange-scarlet.

SCARLET CHRISTINE (Plain-leaved).—Bright cerise, shaded with purple.

ROSE MAGENTA (Nosegay).—Fine habit, good bedder. 5s. each, set of four for 15s.

The above to be sent out after April 20.

DESCRIPTIVE PRICED CIRCULARS to the Trade on application. See *Gardeners' Chronicle*, p. 234, March 2.

W. Cunningham, The Forge Nurseries, Burton-on-Trent.

GEO. SMITH'S PRICED and DESCRIPTIVE CATALOGUE of SHOW, SPOTTED, FANCY, VARIEGATED, ZONAL, and NOSEGAY GERANIUMS, Petunias, Fuchsias, Dahlias, Verbenas, Chrysanthemums, Bedding Plants, &c., is now ready, in exchange for one postage stamp.

Tollington Nursery, Hornsey Road, Islington, London, N.

To the Trade.

Mrs. Pollock and Sunset Geraniums.

T. J. BOOTH solicits Orders for the above, to deliver on and after the first week in May. Nice plants, with 6 to 10 leaves, well up in colour, for cash, per dozen, 7s.; 100, 50s.; 500, £12; 1000, £22. SUNSET, 18s. per dozen; £6 per 100.

Rainhill Nursery, Rainhill, Lancashire.

ZONAL GERANIUMS.

GLOIRE DE CORBENNY	BANNERET
ST. GEORGE	GLOIRE DE NANCY
PHŒNIX	GLOW
PINK STELLA	SALMON NOSEGAY
KING OF WHITES	SIR J. PAXTON
WILTSHIRE LASS	WHITE PERFECTION

One of each, 10s., package included.

Cabbon & Son, Gravel Walk Nursery, Peterborough.

Notice.

THE SIX finest TRICOLOR and VARIEGATED GERANIUMS extant, for Bedding or Pot Culture, are—

ITALIA UNITA	MRS MAXWELL HATTON
SUNSET	VARIEGATED LITTLE DAVID
BICOLOR SPLENDENS	MRS. LONGFIELD

The above, one of each, good plants, for 10s.

Twelve of the finest ZONAL and NOSEGAY GERANIUMS of 1866, in 12 sorts, distinct, for 10s.

Post Office Orders on Castle Hedingham.

Wm. Dillistone, Munro Nursery, Sible Hedingham, Essex.

SUPERB VARIEGATED GERANIUMS.—BICOLOR SPLENDENS, MRS. LONGFIELD, LUNA, GOLD PHEASANT, GLOWWORM, LITTLE PET, ITALIA UNITA, MRS. BENYON, MRS. POLLOCK, YELLOW BELT, CLARA, and PICTURATUM. One each of above, 15s.

BEAUTY of OULTON, LIGHT and SHADOW, SOPHIA CUSACK, BEAUTY of GUESTWICK, GENERAL LONGSTREET, and SOPHIA DUMARESQUE. One each, 42s., package included.

Remittance requested from unknown Correspondents.

Cabbon & Son, Gravel Walk Nursery, Peterborough.

CHEAP, CHEAP, CHEAP.—Two dozen MRS. POLLOCK GERANIUM, Six Plants of ITALIA UNITA DO., and Six dozen STELLA VARIEGATA DO., or 21s.

One dozen best NOSEGAY GERANIUMS, including Pink Stella and Le Grand, for 8s.

One dozen VIOLETS, nine of the magnificent QUEEN and three of the beautiful CZAR, in pots, for 10s.

Basket and packing included.

The above are good plants. A remittance must accompany each order from unknown correspondents.

John Barrett, The Nurseries, Bury St. Edmund's, Suffolk.

FUCHSIAS, ZONAL GERANIUMS, &c.

6 Varieties FUCHSIAS, 3 Male, 3 Female, for 21s.
12 Select NEW FUCHSIAS of 1866 for 6s.
12 Select NEW ZONAL GERANIUMS of 1866 for 6s.
6 Select DOUBLE MIMULUS for 3s.
12 Select CHRYSANTHEMUMS of 1866 for 4s.
12 Varieties JAPAN EUONYMUS, very fine, 6s.
12 fine Varieties DWARF PERPETUAL ROSES, 6s.
3 Varieties NEW JAPAN OSMANTHUS, quite hardy, 5s.
NEW WHITE LOBELIA MISS MURPHY, 4s per dozen.

B. W. Knight, Nurseryman, Battle, Sussex.

ROYAL BOTANIC SOCIETY.

EXHIBITION of SPRING FLOWERS, HYACINTHS, CAMELLIAS, PRIMROSES, &c., SATURDAY, March 23.

LIST OF AWARDS.

12 HYACINTHS (Amateurs.)

1st Prize, Mr. G. Wheeler, Gr. to Sir F. H. Goldsmid, Bart., Regent's Park
2d, Mr. W. Bartlett, Shaftesbury Road, Hammersmith

12 HYACINTHS. (Nurserymen.)

1st, Mr. W. Paul, Waltham Cross, N.
2d, Mr. W. Cutbush, Jun., Barnet Horts
3d, Mr. J. Kirtland, Stoke Newington

6 HYACINTHS, new kinds.

1st, Mr. W. Paul

18 TULIPS.

1st, Mr. W. Paul | 2d, Mr. J. Kirtland
3d, Mr. W. Cutbush, Jun.

12 CAMELLIAS, Cut. (Amateurs.)

1st, Mr. T. Todman, Gr. to R. Hudson, Esq., Clapham Common

12 CAMELLIAS, Cut. (Nurserymen.)

1st, Mr. W. Paul

12 CYCLAMENS.

1st, Mr. J. Wiggins, Gr. to W. Beck, Esq., Worton Cottage, Isleworth
2d, Messrs. E. G. Henderson & Son, Nurserymen, Wellington Road, St. John's Wood
3d, Mr. T. Todman, Gr.

12 CHINESE PRIMROSES.

1st, Mr. J. Wiggins, Gr. | 2d, Mr. T. Todman, Gr.
3d, Mr. G. Wheeler, Gr.

6 FOLIAGE and FLOWERING PLANTS.

1st, Mr. B. S. Williams, Nurseryman, Holloway
2d, Mr. W. Bull, Nurseryman, King's Road, Chelsea
3d, Mr. G. Wheeler, Gr.

MISCELLANEOUS.

SILVER GILT MEDAL.

Mr. W. Paul, for Collection of Roses in pots

SILVER MEDAL.

Mr. W. Paul, for Collection of Hyacinths
Messrs. Paul & Son, Cheshunt, for 6 boxes of Cut Roses
Mr. B. S. Williams, for Collection of New and Rare Plants

SMALL SILVER MEDAL.

Mr. W. Paul, for 5 boxes of Cut Roses

BRONZE MEDAL.

Mr. W. Paul, for Collection of Hardy Forced Plants
Mr. W. Paul, for Collection of Tulips
Messrs. J. Dobson & Son, Isleworth, for 8 Cinerarias]
Mr. W. Bull, for Collection of New and Rare Plants
Mr. S. Ford, Gr. to W. E. Hubbard, Esq., for a Collection of Apples and Pears

SMALL BRONZE MEDAL.

Mr. W. Paul, for Collection of Narcissus
Mr. W. Paul, for Collection of Lily of the Valley
Mr. J. Wiggins, Gr., for Collection of Cyclamens
Messrs. E. G. Henderson & Son, for Collection of Cyclamens
Mr. W. Bartlett, for 9 Filmy Ferns
Mr. W. Bartlett, for Collection of Flowering Plants

NEW PLANTS.

FIRST-CLASS CERTIFICATES.

Mr. J. Wiggins, Gr., for Cattleya Warscewiczii
Messrs. T. Jackson, for Cattleya Warscewiczii delicata
Mr. W. Bull, for Odontoglossum maculatum
Mr. W. Bull, for Odontoglossum Alexandræ
Mr. W. Bull, for Camellia Lavinia Maggi rosea
Mr. W. Bull, for Rogiera hybrida
Mr. W. Bull, for Cypripedium Dayanum
Mr. W. Bull, for Cypripedium concolor
Mr. W. Bull, for Agave macracantha
Mr. W. Bull, for Aralia crassifolia picta
Mr. W. Bull, for Aralia spathulata
Mr. W. Bull, for Phajus grandifolius fol. variegatis
Mr. B. S. Williams, for Amaryllis Ixion
Mr. B. S. Williams, for Odontoglossum maculosum
Mr. W. Paul, for Rosa Cœur de Lion
Mr. W. Cruickshanks, Gr. to W. J. Loyd, Esq., for Verbena Lady of Langleybury

SECOND-CLASS CERTIFICATES.

Mr. W. Bull, for Odontoglossum gloriosum
Mr. B. S. Williams, for Ananassa Porteana
Mr. B. S. Williams, for Azalea Charmer
Messrs. E. G. Henderson & Son, for Pyrethrum Golden Feather

GRAND HORTICULTURAL EXHIBITION at BURY ST. EDMUND'S, in connection with the SHOW of the ROYAL AGRICULTURAL SOCIETY, JULY 15, 1867, and four following Days.

Amongst various Special Prizes, amounting in value to nearly £300, and exclusive of the ordinary Prize Schedule,

A SILVER CUP, VALUE £20,

will be offered by the Proprietors of the

GARDENERS' CHRONICLE and AGRICULTURAL GAZETTE for the best COLLECTION of FRUITS and VEGETABLES, to be made up as follows:—

Of FRUITS, any Five of the following Eight kinds, one Dish of each:—Grapes, Melons (2 fruits), Strawberries, Gooseberries, Currants, Cherries, Raspberries, or Apples (of the crop of 1866).

Of VEGETABLES, any Eight of the following Fourteen kinds, one basket or bundle of each:—Peas, French Beans (or Scarlet Runners), Broad Beans, Cauliflowers, Cucumbers (brace), Summer Cabbages, Early Carrots, Turnips, Artichokes, Onions, Spinach, Rhubarb, Potatos, or Mixed Salading.

This Cup will be open to Competition amongst Amateur or Professional Gardeners, of all grades, with Fruit and Vegetables of *their own growing*; any article otherwise obtained will disqualify the exhibitor.

The Gardeners' Chronicle.

SATURDAY, MARCH 30, 1867.

MEETINGS FOR THE ENSUING WEEK.

Monday,	April 1—	Entomological	7 P.M.
Tuesday,	— 2	Royal Horticultural (Fruit and Floral Committees), at South Kensington	11 A.M.
		Ditto (Scientific Discussion)	3 P.M.
Thursday,	— 4—	Linnean	8 P.M.

In this, and in a former number of our Journal, we have given the rejoinder of Mr. D. T. Fish to the objections taken by some of our correspondents to his views respecting the relations of Aqueous Vapour to Radiant Heat. Every one must admit the great ability, if not the entire success of his reply. He has triumphantly vindicated the right of practical men to deal with such questions. He has also shown, undesignedly no doubt, but with equal clearness, the need there is of caution in these difficult speculations, and the expediency that all reasoners in meteorology, whether trained to scientific investigation or not, should acquire very accurate conceptions of the complex phenomena which they undertake to explain.

In the estimation of men of science Dr. Tyndall's discovery of the power of aqueous vapour to intercept radiant heat holds a similar place to that occupied by Dr. Wells' theory of dew. Dr. Tyndall's process is briefly described by a correspondent at p. 1165 of our last year's volume, and may be found given in full detail in the author's own work, "Heat considered as a Mode of Motion," 2d edition, p. 103, reviewed in our columns p. 437, 1865, where, however, the property of aqueous vapour which has been the subject of discussion in our pages, was not mentioned. By a variety of experiments with the use of the galvanometer, Professor Tyndall found that according to the amount of the aqueous vapour present, humid air acted with 50, 60, or 70 times the energy of dry air in intercepting radiant heat. And going forth from his laboratory into the "green and living world," he describes the aqueous vapour in the atmosphere as acting like a blanket, shielding vegetation even in the summer nights of England from the horrors of severe frost. The first edition of his work, published early in 1863, was in the following year translated into French by the well-known Abbé Moigno. His discovery figures in a series of papers on *La Physique Moderne*, in the November and December numbers of the *Revue des Deux Mondes*. The writer, M. Saveny, gives an amusing description of what he calls Dr. Tyndall's *mise en scène*, that is, his power of exhibiting picturesque experiments by means of the superb apparatus belonging to the Royal Institution, London. We regret that the latter has not developed the main truth he has discovered into its practical applications: he quietly says he knows too little of meteorology to do that.

His caution in this particular gives a note of warning to others; and that it is not uncalled-for we can testify from our own experience. As soon as we became acquainted with Dr. Tyndall's experiments, we turned with eagerness to the Chiswick Meteorological Tables, to see if we could find any distinct traces of the operation of the principle in question. It seemed evident that if radiant heat is intercepted in proportion to the amount of aqueous vapour in the atmosphere, both the terrestrial and the solar radiation would be in the inverse ratio of the humidity of the air as shown by the hygrometer. We were staggered to find no such minute correspondence with this law as we expected. Was Tyndall's principle a delusion? Or had the observations been incorrect? That is, not the observers, but the methods employed by them? Our suspicions settled on the latter alternative; and we are not yet quite satisfied that the methods of ascertaining the terrestrial and solar radiations employed at Chiswick are quite unexceptionable. But on reflection it soon became apparent that the discrepancy was owing to another cause altogether. The hygrometer shows only the humidity of the layer of air within a few feet of the surface of the earth, whereas the radiation of both sorts is affected, if affected at all, by aqueous vapour in all the successive layers in the vertical column, which may amount to a dozen or a score. We sometimes see two strata of clouds, perhaps at the distance of some thousand feet from each other. Such a case probably implies at least five states of humidity in the vertical volume. Who can tell how far the terrestrial radiation penetrates through these? The absolute amount of aqueous vapour in the atmosphere cannot possibly be ascertained. Mr. Glaisher, indeed, in one of his balloon ascents, did he only go up slowly enough, might come to a rough approximation, but the result, rough as it must be, would only be temporary, for, from the aërial currents, the condition of the atmosphere is constantly changing.

It is carefully to be noted that Professor Tyndall limits the application of his principle to the interception of the rays of *obscure* heat, that is to radiation from the earth, for it is to this alone that his experiment directly applies. The inquiry remains: what is the effect of aqueous vapour when radiant heat comes directly from the sun on the wings of light? We are not aware of any experiments fitted conclusively to answer this question. The probability is that the vapour which effectually cuts off the heat sent forth from a feeble source of radiation, such as the earth, would prove a feeble barrier in the way of the radiation coming from such a mighty source of heat as the sun. Such, at least, is the opinion of certain distinguished physicists. Dr. Balfour Stewart, of Kew, in his admirable "Treatise on Heat," p. 228, assuming this principle as true, shows by a diagram, and by a

process of reasoning, how it would operate in the case of the earth. The atmosphere in summer, when it is most largely charged with vapour, would act as a trap for heat, very much as the glass of a Vinery, or other forcing house does. It is greatly to be desired that this were not a matter of hypothesis, but of actual fact ascertained by observation or experiment.

Our readers are requested to observe that we have not yet said a single word as to the effects of cloud, or fog, or mist, in the way of intercepting radiant heat. These are not aqueous vapour, properly so called, but vast collections of minute particles of water, or what used to be called vesicular vapour. They require a separate discussion, which we may reserve for another opportunity. Meanwhile those who have apprehended clearly the operation of Dr. TYNDALL'S principle, will be able to make out for themselves the theory of bell-glasses, hand-glasses, hotbed frames, and glazed houses generally. They will perceive how it is that an Anæctochilus thrives under the shade of a small bell-glass, while it would perish in the ordinary atmosphere of a pit or stove; and they will not rashly conclude, as some have done, that, if TYNDALL'S principle is true, a low damp situation is the best to keep tender plants, which, of course, being untrue, they think a *reductio ad absurdum* of the whole matter. The low damp situation may have only a few feet or more air above it than the comparatively high and dry situation, and these few feet may be only an infinitesimal quantity compared with the whole vertical column of the atmosphere. Besides evaporation, and therefore cold, is generally in proportion to the quantity of the moisture capable of being evaporated. It may be added that plants growing in low damp places are for the most part ill-ripened and succulent, and so most liable to be injured by frost.

Reverting for a little to Mr. FISH'S speculations, it appears to us that he has fallen into some farther misapprehensions as to the action of aqueous vapour on radiant heat. He speaks of the whole of that heat as being thrown back to the earth by the vapour which intercepts or absorbs it; as in a former paper he represents radiant heat as completely reflected from the lower surface of a cloud as from tin-foil. These are certainly erroneous conceptions, but we are not aware that they are entertained by any one except himself. A stratum of heated air, like any other heated body, radiates in all directions, and consequently both upwards and downwards. Besides, such warm air ascends by convection, and so gets either wholly or partially beyond those effusions of aqueous vapour, which at a lower stage impeded the escape of heat into infinite space. It is of importance to remark that the action of the vapour is only to retard, but not completely to prevent the effects of radiation. The escape of heat may be slow, but it is accomplished in the long run. There is no sensible accumulation of heat from year to year at the surface of the earth, or in the circumambient atmosphere. The annual means may vary a little, but they do not increase. Nevertheless the operation of the principle discovered by Prof. TYNDALL is extremely important. As he has shown, it prevents the destruction of plants by sudden frosts in the clear nights of summer. It has an equalising influence on the temperatures of successive days. And it is the cause of that beneficent arrangement of Nature, whereby our autumns are warmer than our springs—that is, comparing periods equally distant on each side of the summer solstice; and so our concluding seasons are propitious to the maturing of the products both of the garden and the farm.

In our Miscellaneous column we give a corroborative extract from a leading French periodical. We would not however say unconditionally that either glass or the atmosphere is opake to the obscure rays of heat.

—— WE have been requested to give insertion to the following resolution affecting Horticultural visitors, adopted at a recent general meeting of the HORTICULTURAL SOCIETY of SWITZERLAND:—"Resolved, that as we expect that many Horticulturists from all parts of Europe and America will visit the Paris Universal Exhibition this year, and perhaps at the same time other parts, and among '*the sights*' some may be tempted to visit the Swiss mountains, and we knowing how difficult it is for strangers in any foreign country (who know neither the country nor the language) to find their way to visit public and private establishments, or any objects of historic value, and knowing also that tourists are often imposed upon by hotel keepers, guides, &c., shall be happy to give information and all the assistance in our power (gratis), to horticulturists from all parts of the world who may visit Switzerland this summer, and that the Vice-President, Secretary, and Librarian be charged to carry this resolution into effect." German horticulturists must address their letters to Mr. G. NITCHNER, director of the Botanical Gardens, Geneva; French horticulturists to Mr. YUNG, Secretary to the Society, 8, Rue Berthelier, Geneva; and English and Americans to me. If they will inform us by letter a day or two before they come, we will send our interpreter to meet them at the railway station. *John A. Watson, Vice President Horticultural Society of Switzerland, Campagne Lammermoor, Geneva.*

—— Of NEW ROSES it is somewhat difficult and venturesome to give a decided opinion, but we think we can scarcely err in recording that Mr. W. PAUL'S new H.P. Cœur de Lion has shown itself deserving of a place in the front rank. We have no hesitation in saying thus much of it as a spring-forced Rose, and if we are not misinformed, it is even better in the out-of-door season. As staged last week at the Royal Botanic Society's Spring Show, it was a fine full flower, in every way perfect, both as to form and petal, and while it appears to belong to the rosy-crimson group, the colour had so much of purple in it, that it may be correctly described as of a purplish-rose tint. We advise Rosarians to be on the look-out for this variety later in the season.

—— Especial attention should be directed to the novel HIPPEASTRUM PARDINUM introduced from Peru by the Messrs. VEITCH & SONS, and recently flowered by them. It is perfectly distinct from all known kinds of Amaryllis, and is remarkable for its form, which is spreading, with scarcely any tube, so that the whole inner surface is displayed, and for its colour, which reminds one of the spotted varieties of Calceolaria or of Tydæa, so closely is it covered with small dots, more or less confluent, of crimson-red on a cream-coloured ground.

—— One of the richest-coloured CAMELLIAS we have seen, is the variety called Lavinia Maggi rosea, which was shown at the Regent's Park on this day week by Mr. BULL. With the fine form and petal of the original striped sort, from which we presume this is a sport, it combines a charming rosy-carmine colour, which is remarkable at once for its brilliancy and its softness of tint. It is a very decided acquisition.

—— M. CLEMENCEAU, in the *Revue Horticole*, calls attention to the use of the young FRUITS of Martynia lutea and allied species as an ESCULENT, and reports them to be excellent when pickled after the fashion of Gherkins.

—— In the same periodical, M. TRUFFAUT affirms the specific identity of Iris spectabilis and Iris Xiphium, two very different looking plants. According to the statement of this well-known horticulturist, I. spectabilis is only a sport from I. Xiphium.

—— Amongst other NEW ORCHIDS that are to be exhibited at South Kensington on Tuesday next, Mr. MARSHALL, we understand, is going to send a plant of Odontoglossum triumphans. A short lecture "On the Nomenclature of Orchid-houses of Different Temperatures" will, we believe, be delivered by Mr. BATEMAN; and Mr. WM. PAUL will also give a second short lecture on Spring Flowers.

PLANT PORTRAITS.

AMPELOPSIS SERJANÆFOLIA.—*Gartenflora*, t. 531. Vitaceæ. This is the Cissus viticifolia pinnatifida of Siebold and Zuccarini. It is an elegant hardy climbing shrub, ornamental on account of the pleasant green colour of its neatly divided leaves, which are palmately five-parted, or the upper ones three-parted, the intermediate division being often ternate or pinnate; the leaflets are obovate acute, and incisely toothed or sublobate, and the rachis is articulately winged. The flowers are insignificant, and come in small subumbellate heads, on peduncles which spring from opposite the leaves. Native of Japan. Flowered in the Garden of St. Petersburgh.

ASPERULA AZUREA SETOSA.—*Gartenflora*, t. 523, fig. 4. Galiaceæ. Dr. Regel speaks of this as one of the nicest and neatest of annual plants recently introduced. It is a low herb, allied to A. arvensis, with linear-lanceolate stellately arranged leaves, and heads of small pale blue flowers. Native of the Caucasus. Flowered in the St. Petersburgh Garden.

BOSSIÆA HENDERSONI. — *Gartenflora*, t. 523. Leguminosæ. A neat-habited dwarf greenhouse shrub, with erect branches, the branchlets thickly set with small ovate or subcordate distichous leaves, having subulate stipules; the pedicels are axillary, much longer than the leaves, and support each a yellow flower stained with red. Native of New Holland. Flowered in the St. Petersburgh Garden.

CHRYSANTHEMUMS.—*Floral Mag.*, t. 328. Compositæ. The following large-flowered varieties are figured in this plate:—1. *Lady Talfourd*, a fine incurved variety of a delicate rosy lilac, and having a full centre. 2. *Purpurea elegans*, a rosette-formed variety, with deep purple violet flowers, likely to form an excellent conservatory plant. Flowered by Mr. Salter.

CHRYSANTHEMUMS.—*Floral Mag.*, t. 331. The following Pompon varieties are figured in this plate:—*St. Michael*, a bright golden yellow, rather large for a Pompon; 2, *The Countess*, small-flowered, blush-tinted lilac, flowering in compact little bouquets; 3, *Madge Wildfire*, medium size, vivid red with golden tips, very showy and pleasing. These are all new varieties, from the collection of Mr. Salter, of Hammersmith.

DAPHNE GENKWA.—*Gartenflora*, t. 499. Thymelaceæ. A neat-growing ornamental hardy or half-hardy shrub, of 2 to 3 feet high, with opposite lanceolate leaves, and fascicles of from three to seven rather large lilac flowers, with a tube nearly half an inch in length, and four ovate obtuse lobes. The flowers are fragrant, and appear in April before the development of the leaves. It is related to D. Fortunei, and is well worth cultivation. Native of Japan. Flowered in the St. Petersburg Botanic Garden.

GONATOSTEMON BOUCHÉANUM.—*Gartenflora*, t. 526. Cyrtandraceæ. A stove sub-shrubby plant, representing a new genus. It grows 1 to 2 feet high, with fleshy flexuous hairy branches, opposite ovate leaves, and solitary axillary purplish woolly two-lipped flowers, dichotomously veined on the lower side with deeper purple. Native of India. Flowered in the St. Petersburgh Garden.

NIDULARIUM LAURENTII.—*Gartenflora*, t. 529. Bromeliaceæ. A very distinct and pretty stove perennial, with rosulate more or less recurved ligulate leaves, spinulose on the margins, suddenly acuminate at the apex, white towards the base, green upwards, and spotted over with dark brown dots and blotches. The outermost leaves are without the white colour, which becomes more marked towards the centre, so that in the short inner leaves the ground colour is almost wholly white. The flowers of the short capitate heads are of a very pale greyish-blue. It is related to N. triste, and had been received from M. Laurentius as Billbergia aurantiaca. Supposed to be South American. Flowered in the St. Petersburgh Garden.

PEPEROMIA ARIFOLIA ARGYREIA. — *Bot. Mag.*, t. 5634. Piperaceæ. This plant is figured also in *La Belgique Horticole* (1867, t. 2), as *Peperomia argyreia*. It is a handsome-leaved dwarf stove perennial, stemless and quite smooth, with peltate, broadly ovate concave leaves, the petioles of which are red, and the blades bright green, marked by broad white bands between the nerves. The minute flowers are densely set on a long slender catkin. Native of South Brazil. Flowered by Mr. Bull.

PHALÆNOPSIS INTERMEDIA PORTEI. — *Warner's Select Orchid. Pl.*, 2 ser., t. 2. Orchidaceæ. A lovely epiphyte, with the general character of P. intermedia, better known in gardens as P. Lobbii, but remarkable for its size, for the deep rich rose colour of its lip, and for the fine flush of rose colour about the base of the sepals and petals. Native of the Philippine Islands. Flowered by R. Warner, Esq.

SEDUM JAPONICUM.—*Gartenflora*, t. 513, fig. 3. Crassulaceæ. A glabrous half-hardy perennial with diffuse stems, scattered or opposite, spathulate-oblong, acute, lively green leaves, and abundant terminal, trifid, simple, or rarely ramose cymes of yellow starry flowers. Native of Japan, introduced by M. Maximowicz. Flowered in the Botanic Garden of St. Petersburgh.

SEDUM MAXIMOWICZII.—*Gartenflora*, t. 528. Crassulaceæ. A smooth, hardy perennial, related to S. Aizoon and S. kamtschaticum, with erect angular stems, upwards of a foot in height, obovate-lanceolate, obtuse, irregularly crenato-dentate leaves, and having rather large floral leaves on the primary branches of the inflorescence, which forms a large flat cyme of yellow flowers. Native of Japan. Flowered in the St. Petersburgh Botanic Garden.

SYNADENIUM GRANTII. — *Bot. Mag.*, t. 5633. Euphorbiaceæ. A curious stove shrub, with fleshy stems, ovate spathulate obtuse leaves, and a terminal cymose inflorescence, the most conspicuous parts of which are the small crimson involucres. "It belongs to a very curious genus, closely allied to Euphorbia." Native of Central Africa. Reared at Kew, where it has flowered, from a fragment found in a collection of dried plants made by Capts. Grant and Speke.

LETTERS FROM PARIS.—No. IV.

DES BARRES, LOIRET.

I HAVE just returned from a very pleasant and instructive trip into the country, where I went with M. Henri Vilmorin to see his late grandfather's estate —des Barres, near Nogent sur Vernisson, in the department of Loiret. Your older, tree-loving readers scarcely need perhaps to be told that the late M. Philippe André Vilmorin was a great lover of trees—he was an intimate friend of Loudon and Michaux, and other men of their time, who did better work at trees, and more for arboriculture, than any who have since come upon the scene; but not many have any idea what an extensive experimentalist with trees was the late head of the very old-established house of Vilmorin, nor had I the least notion, till lucky enough to be taken there by my very kind friend M. H. Vilmorin, who is also fond of fine trees and an enthusiastic student of Conifers. Madame P. A. Vilmorin, who now resides on the estate, is as fond of the trees as was her late husband. I also met there M. Charles Vilmorin, who has imbibed no small love of arboriculture during his shore peregrinations while 26 years in the navy, particularly on the shores of the Black Sea, where he had command of a ship during the war. So that I had guides who made me so much at home in every way, that I did not know whether most to admire their kindness, or the valuable and interesting experimental plantation of trees with which about a fourth part of the estate of a thousand acres or so is planted. This fourth part has lately passed into the hands of the Government, the valuable wood it contains, and particularly the illustration it affords of the kinds of trees suited for wide spreads of poor land in France, rendering it a highly desirable addition to the State plantations; and it is now superintended by an inspector of forests with assistants, so that there is no fear of the public losing the lessons taught by the planting, and the whole is saved from the vicissitudes which are more or less likely to occur to such matters when in private hands. But for the particular desire of the late M. Vilmorin that it should pass into the hands of the State, his family would not have parted with it on any condition.

But we will have a look round. Trees are our theme; but immediately on going outside the house towards the woods I happened to look down among

the Violets and Moss, to be astonished at the quantities of Cyclamen hederæfolium, perfectly naturalised and quite wild-looking, about the plantation near the house, the leaves being large and fat, and the plants as happy-looking as possible, on ground nearly purple with the Sweet Violet. What a pretty sight this Cyclamen must prove in autumn! And of course it may be naturalised in England quite as well as here. I particularly allude to this, because it reminds me of the many beautiful things that may be naturalised about English shrubberies and plantations—in the neighbourhood of every country house in fact. There are some things, like this Cyclamen, the Apennine Anemone, and not a few beautiful bulbs and herbaceous plants, which without requiring any attention, would prove a perpetual source of interest and beauty, and so planted many of them would thrive much better, and look much better, than in the border or any other position in which they are cultivated.

In a wood of Oaks near the house there is a characteristic example of the tree that has proved one of the most valuable here—the Calabrian variety of the Corsican Pine. The specimens were planted 10 years later than the wood of Oaks (about 1830), and are now from 12 to 20 feet above the tops of the Oaks, forming perfect and handsome trees, fit any day to cut down and furnish good-sized planks and wood for any important purposes. The soil is the poorest in the country, a gritty, gravelly soil, and therefore that this tree is highly suitable for the large areas of such-like lands in France has been clearly proved. Things were not planted in small quantities here; there is a goodly-sized grove of all the more important Pines, and therefore you can judge generally of their value and capabilities of growth. The merit of this Calabrian var. of P. corsica cannot be too widely known, and doubtless it is as suitable for the British Isles as for France. There are large plantations of it here in various parts, all exhibiting its vigorous and clean growth and general superiority. This Calabrian variety of the Corsican was M. Vilmorin's favourite for useful planting, after having tried almost every Pine obtainable in his day. In the woods the Spanish Chestnut is pretty freely grown for making the bands for wine casks, being cut down to the ground every six years for that purpose. There are a great many varieties of the Scotch Pine grown here, and each in some quantity, the Riga being much preferred to any other, being straight, free, and the best for commercial and ship-masting purposes. It, like the Pine previously mentioned, is largely planted. Many kinds usually confined to pleasure-grounds are also grown here, but these I cannot touch upon, having so much to see and talk about. It is difficult to save cones in consequence of the squirrels which came to the place from the forests of Orleans, a few years after the trees were planted, and do a great deal of damage, the ground being literally strewn with shoots cut off by their means.

There is a very large plantation of Cedar of Lebanon, in which a curious thing may be observed; some trees are about a yard high, stunted and miserable looking, while others are pyramidal, vigorous and straight as a gun-barrel, and from 30 to 50 feet high or more. All were planted at the same time, but all did not grow up, and some have yet to take the start. But take it they will, and make fine plants some day. Before they spring up they are such objects as if seen singly in a pleasure ground would probably be thrown away. Some that have waited 20 years in an undecided state as to whether they would make a Cedar of Lebanon or a Gooseberry bush, began to arise handsomely a year or two ago, and thus you may see them of all sizes as before stated. Of course this might not be noticed unless in a large plantation; and it may be a fact worth bearing in mind. Between the Cedar plantation and one of the Calabrian Laricio, a Grass drive is bordered on one side with a long and fine line of the fastigiate form of the common Oak, and striking evidence afforded of its value as an ornamental tree. It is surprising how little this distinct tree is planted in British grounds. The old nursery here, in which many of the trees were raised, is no longer a nursery; but as many of the trees were left it is fully planted with a rich variety of trees, and among these I particularly noticed one of these narrowly pyramidal and fastigiate Oaks that would be an object of beauty and interest in any pleasure garden. Tall, large, and strikingly distinct, its branches, both large and small, were spirally twisted so as to give the tree a curiously beautiful effect. Depend upon it that those who pay much attention to planting deciduous trees will reap a richer reward than they can in any other arboricultural field! The Gleditschias make good way here, and it was interesting to see the ground sprinkled here and there with the pods of G. triacanthos, 15 and 16 inches long, dark brown and thin, looking like snake skins on the ground. The Birches are also very fine, particularly the yellow and the Canoe Birch; while Picea Pinsapo is among the freest and noblest of the trees growing rapidly in several parts of the plantations. But we must go back again to look at the American Oaks, which are planted on a large scale, like the useful Pines, remarking in passing that the more southern the varieties or forms, or whatever you like to call them, of the Scotch Fir, the smaller and more contorted they are—the Riga being in every way the best.

Oaks, I have said, were very largely planted—indeed I have never had an opportunity of seeing them to such advantage before; and though they are for the most part leafless, the lover of trees can appreciate good kinds in that state as well as any other. Quercus tinctoria has made a fine tree, a long line of it being handsome, vigorous, and erect, suiting the cold soil and country as well as any tree could, and having made in fact quicker progress than any of the common Oaks. Grown in long parallel lines like the Conifers, the habits and capabilities and beauty of the trees can be judged of much more easily than when placed singly, here and there, in a pleasure ground or plantation. It is never safe to judge from isolated specimens. You cannot be in much doubt in a case like this, when you see a long line of vigorous trees alongside one of a kind that grows to a great size in its native country, but does not outgrow the scrubby form here. Those who make such experiments deserve the gratitude of the planting community. By them they learn what to plant with confidence, and thereby are spared expense and disappointment. What suits this neighbourhood will suit equally well most parts of the British Isles. The Willow Oak (Quercus Phellos) does freely, and forms a handsome tree when leafless. The ground is covered with the large and deeply stained leaves of the brighter coloured American kinds, and rubra and coccinea both do famously. These woods must be beautiful and interesting in autumn, the colour of some of the lines of trees being described as most brilliant. Perhaps the handsomest Oak in the whole lot is an isolated specimen of Q. heterophylla, scarcely 30 years old, with a stem now about 2 feet in diameter, but the tree most remarkable for its free and flowing outline and long dense slightly pendulous branches, which form a grateful shade in summer. As seen here it is a first-class lawn or pleasure-ground tree. Large and tall pyramidal specimens of the common Juniper look like well-grown plants of the Upright Cypress, for which this place is rather cold, but the Juniper furnishes quite as good an effect. Cunninghamia sinensis grows pretty well, while the common Araucaria is not to be seen; and Magnolia grandiflora forms handsome standards, surviving no doubt in consequence of the perfect ripening of the wood. P. Cembra, and not a few others, barely exist. P. austriaca is found as useful as it is in Britain, especially on chalky parts of the estate. The smallest the scrubbiest, and the wiriest of the Oaks, though perhaps not the most useless or uninteresting, is Quercus Banisteri, with a few words on which I shall conclude my brief survey of this most interesting place. This little Oak is planted to the extent of about half an acre here, and chiefly under tall Pines. One can scarcely look at it in that position without being struck with its merit as a cover plant; it grows so freely under the Pines, forms a level, dense, and regular surface with its upper shoots, and an almost impenetrable cover from the toughness of its boughs. It never presumes to go up aloft like other Oaks, but remains a flat-headed scrubby subject at from 3 to 4½ feet high. It begins to fruit at five years old, producing from that age onwards abundance of small pretty dark brown acorns, with light brown stripes radiating from their apex, and is greedily devoured by fowls and other farmyard inmates, and would doubtless be equally useful for game-feeding. Nobody plants so much for cover as the English country gentleman, and I would recommend this subject to his attention. It seems especially suited for the poorest soils and coldest situations, and is as hardy as a Birch.

Another word with reference to Planera Richardi, which grows well here, though not so well as it does in England. M. C. Vilmorin told me that he found it a very useful wood for ships' repairs; but be it so or not, the tree is one which should be more freely planted in England, as it is both handsome, large, and of thoroughly distinct habit, as may be well seen from a specimen in Christ Church meadows at Oxford, and from trees at Syon House, and elsewhere in Britain.

In the Oak plantations it was an object with the late M. Vilmorin to compare the growth of the common French Oaks with that of the American on this poor gritty soil, and the result is much in favour of the American, tinctoria and rubra being most free and vigorous. *W. R.*

MOIST AND DRY AIR.

(*Concluded from page* 294.)

But it is time to turn from these arguments against the claims of aqueous vapour to be considered a heat preserver, to those adduced on the other side. This brings us to the question—What do Tyndall's experiments prove? Certainly this, that aqueous vapour introduced into the path of radiant heat in its passage through dry air stops the passage of the heat by absorbing it and radiating it back again. Radiant heat at low temperatures passes through dry air as if it were a vacuum. Given a heating surface at one end of a given space, and a sensitive index at the other, with a stratum of dry air between, and the whole heat seems to be transferred from the one point to the other, just as if there were no intervening space, or as if it were a vacuum. But introduce vapour of water, carbonic acid gas, or ammonia on the radiating lines, and the passage of the heat is suddenly arrested. This interruption also takes place whether the vapour is visible or invisible. The smallest quantity of perfume, even, is sufficient to cut asunder the radiant beam of warmth, or to arrest its course. Air near saturation will probably resist the passage through it of radiant heat at low temperatures with something like 1600 times the energy of dry air. It is not supposed to have so much, if any, power of keeping out heat when radiating at high temperatures. Thus, the solar rays probably pass quite through aqueous vapour without much, if any, diminution of energy, while the heat radiating from the earth is stopped and returned by it. Such, in brief, is Professor Tyndall's new theory of radiation as effected by aqueous vapour. It is sustained by the most lucid reasoning, and the most brilliant experiments. It will be difficult, if not impossible, to overturn the facts he has established, the most important being probably that aqueous vapour circumscribes the range of terrestrial radiation. It shortens the lines as it were, and keeps the heat nearer the surface.

Now the question forces itself upon our notice, is this fact compatible with the other facts already recorded—can aqueous vapour at once become the cause of heat and cold? Perhaps it may. The first point is to make sure of the facts. The primary question is not, are they in harmony with each other, but are they all true? If so, they must be held firmly, even if they contradict each other. One class of facts proves that aqueous vapour aggravates and intensifies—in fact, strengthens the cold; the other seems to affirm that it husbands and preserves terrestrial heat.

Let us look a little closer at both statements. Aqueous vapour absorbs radiant heat. What becomes of it after it is absorbed? It is again radiated. In what proportion? Science answers that it gives back what it has received. Absorption and radiation are reciprocal and alike! It may be so; but it is difficult to see how bodies would ever cool on that principle. If bodies radiate in all directions in straight lines, and each gives out exactly what it receives, then the temperature of each would remain constant. How, for instance, could Professor Tyndall's source of heat cool, if the aqueous vapour sent back upon it all it received from it? I accept the experiment, as proving a breaking of the current and interruption of the radiating lines; but I do not see that it proves much about the final disposition of the heat. It is this final disposition, either by radiation or in any other way, that chiefly concerns us. The aqueous vapour absorbs the heat—thus much is proved. It radiates it back again—so much is inferred. But how much is lost during the exchange? and where does the lost heat go to? It is probably in this loss that the cooling effects of aqueous vapour are to be sought. It is obvious enough that heat cannot radiate backwards and forwards in either horizontal or vertical lines from the surface of the earth to the aqueous vapour of the air without any loss. Whether the radiating lines be long or short, it may be safely inferred that some heat escapes at the extremities, either of the atmosphere or of the aqueous vapour. In fact Tyndall admits that probably 30 per cent. of terrestrial heat may be radiated away into incompensatory space.

It is obvious from observation that much terrestrial heat must find its way through the aqueous vapour of the atmosphere. Heat passes from the surface of the earth, impinges against the clouds, and is radiated back to the earth again. Now all such heat passes twice through the whole aqueous vapour of the atmosphere. Neither can very much of it be lost on the journey, for it returns with energy enough to prevent the formation of dew. It is also difficult to see how dew can be formed if aqueous vapour have the powerful radiant properties claimed for it. It is only an unequal exchange of heat between bodies that renders the deposition of dew possible. The quantity of dew formed at any given point may be accepted as a measure of the excess of heat radiated there beyond what was absorbed. The excessive activity of the radiation of the one beyond the other destroyed the calorific balance between them, and the thickness of the dew line measures the product of the difference between them. But if aqueous vapour were quite opaque to the passage of heat, dew could not be formed. But no one contends that it is quite impervious. The question is one of degree. Water in all its states is a powerful radiator. It has been said indeed that aqueous vapour is opaque to the passage of heat, radiated from water or itself. Tyndall's experiments seem to prove that such heat has much difficulty in passing through. But he speaks elsewhere of the layers of aqueous vapour being tilted up to allow of heat being poured into space. Something like this may happen in this case. If the radiant heat cannot pass through, perhaps it may have sufficient energy to push the thin flimsy screen out of the way. And is it not quite possible that the very maintenance of the vapour as such creates and maintains a constant demand for heat? In this way the sensible heat of the air might be spirited away and become hidden in the delicate meshes of the aqueous vapour, to prevent the latter being condensed into water. As layer after layer threatened to precipitate itself there would be a continuous demand for heat, and this demand would be large or small in proportion to the amount of aqueous vapour that had to be maintained, and the general temperature of the air. Another point of great importance is that the absorption of heat by aqueous vapour causes its instant displacement. No sooner is the heat absorbed than the vapour darts off with it. It is doubtful if there is time enough to radiate back a ray of heat before the line of communication is snapped asunder by a change of place. If this be so, then the absorbent power of aqueous vapour would tend to chill any body which it enveloped. Whatever its radiating energy the heat would not be sent back to the exact spot from which it proceeded. The inconceivable rapidity with which heat travels or vibrates through space, may be urged as an objection to this view of the subject. But it does not hold here; for motion is as instantaneous as heat—in fact, it is probable the two are identical. Aqueous vapour, then, being a greedy absorbent of heat—being close at hand, taking it in at first sight, and then instantly changing its place, instead of returning the heat from whence it came, it may cool any source of heat, a man or a plant for instance, faster than dry air itself. Another point is worthy of notice here. It is well known that water will scarcely convey heat downwards. But apply it from below and it will instantly be warmed and moved by convection. Aqueous vapour being more sensitive to heat than water, would be instantly disturbed and rearranged in this manner. And in the case of all bodies on the surface of the earth, their heat would be so applied as to insure its instant abstraction by the displacement of their watery envelopes.

It may seem almost presumptuous to advance such views, especially as Tyndall affirms that aqueous vapour

preserves terrestrial heat. I submit, however, that this is not clearly demonstrated by his experiments. It is an inference from them which may or may not be tenable. The facts that he cites in proof are capable of being judged of by practical men. He attributes the extremes of temperature between night and day that attains in the central parts of Asia, and other parts of the world, solely to the dryness of the air. Are there not other causes? Does not the rarity of the air, for instance, contribute to these extremes? Is it not also possible that its increased temperature, by enlarging the area of air and raising it higher into space, brings more of it to confront the interstellar ether, where radiation is intense, and the heat would be lost. Certainly these causes, independent of the influence of aqueous vapour, would cause a sudden violent depression of temperature soon after the source of heat was removed. There is also another reason for the more uniform temperature of insular lands, than the aqueous vapour of their atmospheres. Water receives and parts with its heat much slower than the land, and it requires much more of it to be applied from above to produce a similar rise of temperature. Consequently where much water is present to absorb the sun's rays it will moderate the solar warmth. And again, at night, the land, especially if covered by vegetation, cools much faster than the water. No sooner does the land become coldest than the water wafts its heat over it, and thus tempers the nightly cold. Hence land and sea breezes alternate with day and night. In winter, again, every body of water above the freezing point becomes a source of heat, and softens the rigour of the winter's cold. I think such facts go far to explain the extremes of temperature over wide continents of land, and the equable climates of insular countries, altogether irrespective of the varied quantities of aqueous vapour in their respective atmospheres.

I have thus endeavoured (others must judge with what success) to accept Tyndall's experiments on the opacity of aqueous vapour to the passage of radiant heat at low temperatures, without relinquishing my belief in the destructive power of a moist atmosphere as a cause of severe cold; and I claim the assistance of your readers in helping practical gardeners to understand the whole truth on this most important subject. *D. T. Fish.*

Errata.—At p. 294, col. *a*, near the top, the words *latter* and *former* should be transposed; and, further down, *latitude* should read *altitude*.

Home Correspondence.

Death of Forest Trees.—In replying in part to a communication in a recent number (see p. 235) I observe that there has been a great mortality among the Beech in this neighbourhood (comparatively great, that is) owing entirely neither to frost nor fungus, but to a cause which I have reason to think is not sufficiently estimated, I mean the drought of 1864 and 1865, but especially of the former year. In the springs of 1865 and 1866, many Beech trees showed leaves, seemed exhausted with the attempt, and died away before the leaves were half developed; this I feel sure was owing to deficiency of sap from the extreme dryness of the soil. It was to the same cause, I fully believe, that the loss of many Elms in 1858-59 was to be attributed; every one of the least observation in such matters knows how near the surface the roots of the Elm are, and how porous and full of moisture when in a healthy state. Their loss was generally attributed to the little beetles that bored them, but I was early indoctrinated with Waterton's opinion, that trees were only preyed upon above ground when mischief had already developed itself underground; and if the contrary theory had been true, what would have become of the rest of our Elm trees by this time! But familiar as these beetles were to us at the time I mention, I have not seen one since those years that so many Elms died. There was a great controversy then, partly carried into your columns, as to the cause of destruction of the avenue of Elm trees in St. Giles, Oxford; no one apparently but myself, bethought them that a year or two before, the street, which is not paved, had received a coating of concrete, about 1 or 1½ foot thick; this, added to a deep drain, 6 or 7 or more feet deep, within a couple of yards of their stems, depriving them of a large portion of the benefit of any rain-fall, as well as burying the roots away from atmospheric influences, was ample cause enough to account for their ruin. In 1860, in February, I had a large Silver Fir blown down, a great favourite, and I was satisfied that it had died really from the same cause; the roots were decayed to dust, and in many cases full of the mycelium of some fungus, but was this latter the cause or the consequence of decay? I do not think it was the cause; the tree stood in soil (sand) about four or five feet above clay, upon which ooze springs in many spots, the drainage of the overlying sand. About the time that the tree showed signs of shabbiness, which it had for a year or two preceding its overthrow by the gale, the springs that I speak of had ceased to run for 15 months, a circumstance which I could testify of my own knowledge had never happened for 40 years before. I remember receiving very incredulously the dictum of some practical gardener, that the aphides settling on a plant in the greenhouse showed it at once to need repotting—nevertheless a very little observation convinced me. I believe, generally, that the stinting of the supply of healthy sap, is a prelude to the death of the plant, unless timely arrested, creating a vitiated sap, viscous and often attractive by its sweetness, on which insects prey, and fungi find a suitable nidus, and may hasten but do not cause its destruction. *J. S.* [Drought caused by deep drainage and paving, has killed more London trees than any other cause. Eds.]

Hawks.—Can any of your readers inform me if hawks search brooks in quest of prey? I have a small lake, supplied by a narrow stream from springs issuing from the chalk; in this stream trout spawn. It was visited by herons, of which many were taken in steel spring-traps, placed from two to three inches under water, without bait of any kind; and, to my surprise, three hawks have been taken in the same traps, at that depth, and under similar circumstances. *A., Lyme.*

Dialogue on Vine Forcing.—*Joe:* Have you left work, Jim? *Jim:* Yes, all but giving attention to the fires. *Joe:* Between sulphur and cold we have had a sharp time of it. *Jim:* Yes. For my part, I should not begin forcing Vines in such an unnatural time, and when the Vine is in such an unnatural condition, when perhaps the roots were never forced earlier than February when they were first struck in pans, as cuttings. *Joe:* When do you begin—October? *Jim:* Yes; about the middle of that month. *Joe:* What would you do for early Grapes if you did not begin so early? *Jim:* I believe we could get them quite as early by starting them the first day of December. *Joe:* But that would make six weeks' difference. *Jim:* Well, but I believe they would make that up, for this reason: the longer the Vines are left to rest, and the nearer the time when they start naturally, the greater vigour do they exhibit, which will, on account of quick development, make up for lost time. They will also be assisted by root action much sooner than if started sooner. *Joe:* You are speaking of Vines with roots out of doors. *Jim:* I have found little difference in that respect; in fact, if any, it has been that Vines with roots out doors have been first and best. *Joe:* I have seen two Vines in one house, one with roots in a north border, the other with them within the house, in a chamber warmed by a flue passing under it. The Vine whose roots were out always had ripe Grapes first. *Jim:* Can you account for that? *Joe:* No. *Jim:* I believe we have erred in forcing the Vine; I am of opinion that all Vines for forcing should be raised from seed, and at the time they would eventually be required to start into growth. The root and top would then probably go together, provided the roots were well protected. *Joe:* Did you ever try anything of the kind? *Jim:* Thus far: I sowed some seed, I think in January, some years ago, and I can recollect that the produce of it ever afterwards started naturally at that time, until the seedlings were thrown away. I shall, when opportunity offers, try the experiment on a larger scale. *Joe:* Then it appears you attribute sickness and decay in forced Vines to the top being in growth while the roots are almost dormant? *Jim:* Yes. *Joe:* I have often noticed vigour in a forced Vine when too late to give size to bunch or berry, when the Vine throws out a host of laterals at the time the wood ought to be hardening. *Jim:* That is owing to prolonged root action, which does harm rather than good. If the roots were at work at the same time as the tops they would rest together as well as grow together. *Joe:* Then you think, to get long-lived, healthy Vines for forcing, you must procure them from seedlings. *Jim:* Let the Vines themselves be from seed raised at the time they would be required to start. You find a seedling put forth its root as well as its top, a cutting puts forth its top first. [Not always. Eds.] Of course the roots should be well protected from cold when placed in the border where they are to be forced. *Joe:* What would the "big guns" say if they heard this chat? *Jim:* They would doubtless make a great noise, and perhaps let fall a good hint or two in the scramble. *Joe:* That is what we want. *H. M., Enys, Penryn.*

Self-coloured Sports.—During 20 years' practical experience I have come across a great many sports in different kinds of variegated plants, and have tried a great many times to set a self-coloured sport of Pelargonium, Heliotrope, Antirrhinum, Mimulus, Chrysanthemum, &c., but always without success. I have induced them to emit roots, but never to set, or, perhaps, more properly speaking, I could not get them to grow into plants; on the contrary, they would gradually dwindle and die. The thought, however, struck me that I could manage matters another way; so in 1865 I began with the Fuchsia. I selected Pillar of Gold, sent out by Messrs. Smith, of Dulwich, and fertilised it with the finest-habited sort grown, viz., Puritani; the result was about 18 seedling plants, of a dull yellowish green, the latter tint predominating, and therefore they were useless. That was one year's trial, but I did not get perfectly cured, as Mr. Cannell says, in six months. I therefore looked about for another sort on which to practise—it was then I saw Cloth of Gold, and noticing that some of the leaves had a tendency to become yellow or self-coloured, I took one of the strongest and thickest-leaved sorts, viz., Enoch Arden (Banks), and fertilised Cloth of Gold with it. The result was four seedling plants, which came up with yellow cotyledons, and all four were planted out in the garden, and retained their true golden-leaved character. Two were discarded, one came a little blotched in the leaf after the style of aucubæfolia; the other, which was considered the best, had a beautiful dwarf bushy habit, and only reached a height of about 9 inches, and thinking it might be valuable for bedding purposes, retaining as it did its colour and neat habit, I increased it and named it Golden Fleece, some 12 plants of which were exhibited at a recent meeting of the Floral Committee of the Royal Horticultural Society. Have any of your correspondents ever been more fortunate than myself in getting a self-coloured sport from any variegated plant to grow? *R. H. B.*

English Weather Records.—Happily, with reference to the late frosts, I am not able to chronicle a tithe of the disastrous consequences which followed in the wake of the severe winter of 1860-61. Then, with the thermometer some degrees below zero, and a dense enshrouding vapour, we had here every Portugal and common Laurel killed to the ground. Even large Hollies, clothed with dense foliage through being kept constantly clipped, were in the aggregate too severely injured to be able to stand throughout the following summer. Out of some hundreds, of all shapes and sizes, not more than 1-10th of the whole has survived; and of these there are few which have not lost valuable limbs—some more, some less—almost yearly since. Then every Rose except a few Ayrshires, Austrians, an old Baron Prevost, and a Chenédolé or two, were totally destroyed; those on their own roots were not even exempt. Thus much I state by way of contrast to the more recent severe weather in this immediate neighbourhood. The maximum amount of frost which we experienced here was 29°, which happened upon the night of the 3d January. My thermometer (an upright self-registering max. and min.—Negretti & Zambra) chanced upon that night to hang in the niche of an upstairs window, having a western aspect, and about 20 feet above the ground level. The kitchen garden presents a very bare aspect; most incoming spring crops having been wholly destroyed. The exceptions are—Brussels Sprouts, and a large bed of Cabbages, which were dibbled out on an old Onion bed immediately the crop of Onions was off, no previous preparation having been given. This treatment induced them to grow firmly, with little stocks, a circumstance which has doubtless aided in preserving them. Of Broccolis we have lost the entire stock, with but about one exception in the shape of the variety called Williams' Alexandra. Pampas Grasses I fear are much injured, as on a large plant 7 feet in diameter, many of the autumn-formed shoots have rotted away at the base, especially upon the north side. Varieties of Cistus seem killed to the ground. Taxodium sempervirens, which assumed a bronze red colour soon after the frost, has almost wholly regained its proper colour, and seems to have sustained little or no injury. Laurels, Hollies, Aucubas, and even Laurustinus, though the wood appeared to be much injured, are likely to survive with comparatively little injury. Among Roses, I observe that Reine d'Angleterre, Paul Ricaut, and Souvenir de Leveson Gower, are wholly destroyed; others have escaped. Lonicera aureo-reticulata has survived in a most adverse position, whilst in regard to the common Bay, all above ground which was exposed has been destroyed. The chaste little Sedum carneum variegatam, a portion of which was thrown loosely under a north wall last September, looks as fresh as ever, thus affording proof of the perfect hardihood of another of our late Japanese introductions, and that an exceedingly succulent one. The more prominent spurs upon some Apricots in this neighbourhood are greatly injured, and the general appearance of the trees is bad. Fortunately, when the frost was most severe, mine were under a protection of Frigi Domo. These are now smothered with bloom. It may interest some to know that August-sown plants of the rampant-growing, symmetrical Artemisia annua have withstood the whole severity of the weather in a fully exposed situation. *William Earley, Digswell, Herts.*——The following is a record of weather at Belvoir, Leicestershire, from February 27 to March 23, 1867. Self-registering maximum and minimum thermometers read at 9 A.M. daily:—

	Max.	Min.	Rain or Snow.	
	°	°	Inch.	
Feb. 27	40	27	—	Frosty. N.
28	43	26	—	Clear, frosty. N.E.
March 1	40	25	—	Hoar frost. N.E.
2	40	20	—	Sharp frost. S.W.
3	41	26	—	Frosty. N.E.
4	42	32	.003	Cold, dull. N.E.
5	44	35	.005	Hazy, damp, cold.
6	39	28	.027 s	Fall of snow. N. [N.E.
7	39	30	.032 s	Snow fell to the depth of 2 inches.
8	38	29	.003 s	Snow fell. N.E.
9	40	27	.012	Frosty, foggy. N.
10	38	31	.020	Rainy, dark, cold. N.E.
11	36	32	.006 s	Snow fell. N.E.
12	38	31	.003 s	Snow fell at night. N.E.
13	33	27	.009 s	Keen frost, drying cold wind. E.S.E.
14	35	27	—	Frosty. N.E.
15	40	28	—	Overcast, frosty. N.
16	39	25	—	Sharp frost. N.
17	37	19	.002 s	Severe frost. Lake frozen.
18	35	28	.003 s	Bitterly cold. E.
19	34	29	.010 s	Snow fell. N.E.
20	36	31	.001 s	Snow, frosty. N.W.
21	39	27	—	Frosty. N.
22	38	30	.040 s	Heavy fall of snow. S.E.
23	40	30	.070	Dense fog. Thaw.

The occurrence of 23 days of severe wintry weather in the spring of the year, is a meteorological incident in the history of the weather of this untoward season, of such a singular and exceptional character, that I have ventured to send the record to you. It is premature at present to speak of the effects of this weather on vegetation, but later in the season I hope to be able to send you an account of its action on fruit trees, shrubs, &c. *W. Ingram.* [Pray do so. Eds.]

Irish Weather Records.—Some accounts have lately appeared in your columns of the effects produced on plants in different parts of the country by the intense frosts which have been generally felt in most parts of Britain during the past winter. To those interested in meteorological and cultural matters the accounts furnished by different observers are fraught with much interest, proving, as they do, how unequally the same species of plants have been affected in different localities. Plants are true indicators of climate, and only capable of withstanding a certain amount of cold with impunity, whatever may be the length of time they have been colonists in the countries to which they have been removed from their native habitats. This may appear at first thought to be a rash statement, yet I have no hesitation in making it, subject to the

maturer opinions of those who have had opportunities for forming them on large collections of plants during a considerable period of time. The effects produced by the late frosts on plants might alone be considered sufficient for proving the theory I advance, but I could adduce many more familiar instances if necessary. The extenuating circumstances which we occasionally hear of, being brought forward to prove the possibility of acclimatising plants, are easily accounted for on simple and plain meteorological and physiological grounds. Locality, with respect to elevation and proximity to the sea, has much to do with it in our islands. Situations and seasons which enable the wood of tender plants to get well ripened, are also important considerations to be taken into account when reasoning on this subject. In low and sheltered places, where the atmosphere is surcharged with moisture, tender plants always suffer more from frosts than the same kinds do when growing at higher elevations, which are more exposed, but the individuals themselves never get one whit hardier. If they be removed from the former places to the latter, they will suffer equally with their more sheltered neighbours. I am well aware that it has been asserted by gentlemen of very considerable experience, that plants raised from seeds taken off those which grow at high elevations become gradually hardier, but such is not in accordance with facts I have observed. I believe that no amount of exposure or treatment we can subject a plant to, is capable of rendering it more hardy than the original plant from which it grew was the first day it reached our shores, *e. g.* the Potato! Last week I had an excellent opportunity afforded for observing the different effects of cold on the same species of plants, resulting from situation. In the neighbourhood of the little town of Bray, county Wicklow, where many of our half-hardy plants flourish so well, which will not stand ordinary winters in most parts of Ireland, they have been much damaged there by the late frosts. In Mr. Toole's nursery, Erica arborea, Erica australis, Veronica speciosa, and many other test plants, which are usually so fine there, including the more tender kinds of Tea-scented Roses, &c., have been killed to the ground; whilst only at a distance of six miles, in Mr. Bennett's nursery, at Delgany, not one of those plants has suffered in the slightest degree. No other reason that I am aware of can be assigned for this exemption from injury, except the difference of situation. Mr. Toole's nursery is situated on a rather low-lying piece of ground within one mile of the sea, and at a rough guess, about 40 feet above it. Mr. Bennett's is about two miles from the sea, at an elevation of 350 feet above it, on a rather exposed situation. It was a charming sight to see some thousands of plants of Erica arborea in full bloom, perfuming the atmosphere at a considerable distance with the sweet odour of their flowers during the first week in March, after the most severe winter experienced in Ireland for many years past. E. australis in variety was also in great profusion, just coming into bloom, along with the different varieties of Erica mediterranea. But, probably, the most remarkable examples of the peculiar mildness of climate at this spot were the Sikkim Rhododendrons. I observed no fewer than 11 of Dr. Hooker's species growing luxuriantly there! Rhododendron Falconeri had become a large plant, with fine healthy foliage, but had not yet flowered; R. barbatum was in full bloom without any protection at the time of my visit; R. Thomsoni and R. æruginosum had strong healthy flower buds; R. Edgworthii flowers beautifully every year in the open air, as do R. Wallichii, R. ciliatum, and some others. The only one among them which seemed to be in the least injured was one named R. camelliæflorum. The soil of Mr. Bennett's nursery is not of a peaty nature; it is composed of the debris of schistose rock, in which the Rhododendrons were growing. It seemed admirably adapted also for the growth of Conifers, and some of the more tender kinds succeed well in it. I never before saw Abies Brunoni in good condition growing in the open air. At Delgany the finest plant is about 12 to 14 feet high, in rude health, and producing cones; Wellingtonia gigantea was also in cone near it. Thuja Donniana and Libocedrus chilensis both grow freely without protection, as well as the elegant variety of Cupressus chinensis, called in gardens C. Corneyana. I might furnish a long list of rare plants which stand the winters at Delgany, but my chief object in alluding to them, is more for the purpose of strengthening the opinion expressed by some of your correspondents, and believed in by myself, that tender plants suffer less from cold at high and exposed situations than they do in low and sheltered places. In the neighbourhood of Dublin we have not fared so well. Some of the Conifers, and many other plants which usually escape in moderate winters, have been destroyed. Of these you may probably get a more particular account hereafter. *D. M.*

Scotch Weather Records.—The reports to which you have given publicity, as to the severity and effects of the late frosts in districts so widely apart, have been to me a source of interesting information. The injury done to vegetables has been all but universal; those which did escape were principally in the favourable position of being under a deep covering of snow; the damage done to Roses, Conifers, and shrubs, however, will be found to be varied; it will not be altogether in proportion to the intensity of the frost to which they have been subjected, but it will be more or less influenced by the character of the soil, and the dryness or otherwise of the situation in which they have been growing. Thus plants will be found to have suffered most within reach of the hoar-frost level. Places of this description are more readily distinguished throughout the summer and autumn months, where heavy mists will be seen to rise and remain in stagnation. In such situations I fear the worst prospects will be realised, but in others I hope that some of your correspondents will still find life in plants which were considered to be dead. I would therefore caution the inexperienced not to be over rash in heading down, but to allow time for the sap to be fairly in circulation, as the plant will then show for itself where life ceases, and how the pruning-knife may be applied to make the best of the disaster. Experience has taught me that Roses and many other things are not always past growing when the bark and even the alburnum is browned by frost. I have found this to be more particularly the case in plants that are well established and not liable to make late growth. We have here, trained against a south wall, a strong and healthy yellow Banksian Rose, which forms a stock for a number of different sorts. Amongst them are the Cloth of Gold and Lamarque Noisettes. These have now withstood all the severe frosts without the slightest protection for the last 15 years, and although browned on several occasions, still they flower freely throughout the summer and autumn months. Another case bearing on this point occurred here in the year 1855. A Peach-house had been under repair through the winter months, and during that time the trees were fully exposed, and the flower buds were getting to about the size of small Peas, when a severe frost set in, and on the 22d of February the thermometer was down at 4°, the lowest it has been here for the last 20 years. I was very much alarmed about the safety of the trees, and upon examination I found the inner bark to be so much discoloured as to somewhat resemble weak tea. The whole of the young wood was in that condition, and it was with some considerable degree of anxiety that I watched the swelling of the buds. My worst fears, however, were soon set at rest, as the wood buds started with the same vigour as in former years, while the flower dropped at once. These trees have continued in excellent health, and have borne fruit well ever since. I fear that Mr. Ingram's latitudinal calculations (see p. 210) will not go for much with a climate so proverbially changeable and ticklish as that of Great Britain. The warming influence of the Gulf Stream would of itself at once set aside any such a scale, apart from the varying effects of inlets of the sea, high ranges of hills, and woodlands, all of which exercise an influence in modifying temperature. The islands of Faroe, 300 miles north of Scotland, have a winter temperature of about 2° higher than that of London; while Shetland and the Orkneys are 1°. The Western Hebrides and the Northern Friths are all under the influence of a warm sea current. In the great frosts of December 1860, and last January, the lowest range of thermometer registered here (Gordon Castle) was 10° and 12° respectively, which is not half so low as the temperature in some places in the South. We have therefore really little to complain of in the way of severity or of injury in this quarter. *J. Webster, Gordon Castle, Fochabers.*

Gardeners' Examinations. — Every right-minded person must hail with pleasure the exertions now being made to educate young gardeners; but while I most heartily agree with the movement, and shall help my young men all I can, I must say that I don't at all consider the month of April to be a suitable time for their examination. In fact I consider the spring a bad time, because it will necessitate the young men being absent for a week, at a time when everything in the garden is in full swing—forcing, propagation, and 50 other things which at that period require every hand in his place, more especially the foreman. Why not have it just before the last great exhibition of plants, fruits, and vegetables in July, when the men could be better spared, and the candidates would moreover then have a chance of seeing the result of intelligence in the shape of fine specimens sent to the exhibition? Again, we all know that young gardeners' wages are low, while the books mentioned for their use are expensive. Would it not be better to have three places for examination, say London, Edinburgh, and Dublin, because there are many deserving young men who would have a chance of presenting themselves for examination who under the present arrangement will not, on account of the time of the year and the expense of travelling to a distance. *J. Rust, Eridge Castle, Tunbridge Wells.* [April is a fixed time for the Society of Arts' examinations. Those of the Royal Horticultural Society will, we believe, in future be held about Midsummer and Christmas. EDS.]—— As one of the certificated candidates, and one who has consequently gone through the ordeal of an examination, I can assure "R. C." and the rest of your readers (see p. 53), that it is by no means all "theory, book study, or cramming." Real practice is one of the great essentials to success; but with this must be combined a considerable amount of theoretical study, especially in those books that are designated by the examiners. And if with this the candidate has the advantage of a good scholastic education, with considerable capacity for composition, or the power of reducing his thoughts and ideas to writing in a concise form, he may then look forward somewhat hopefully to obtaining a certificate. It is an error to imagine that these examinations are personally competitive. The successful candidate will receive a certificate according to the merits of his answers, even though the best men in England were going in for the same honours; but I shall always expect to find that young men who have received all the benefits of a good modern education, have an abundance of good books to refer to, and practical teachers of a high order to assist them, will necessarily stand the best chance of carrying off the first honours. Indeed, such is the peculiar character of these examinations, that I have no doubt there are hundreds of really good practical gardeners in this country—men whose opinions on horticultural subjects are always to be received with respect — who would be left far behind by younger men whose scholastic training gave them advantages their elders never enjoyed. I can speak feelingly upon this point, and not the less so, that several of the best years of my life were spent in occupations totally foreign to gardening. To obtain the necessary text-books is not always a matter of ease, and those candidates who have a good horticultural library to fall back upon are greatly favoured. Those employers or head gardeners, therefore, who may wish to see their young men distinguish themselves in these examinations, would do well to provide them with such a library of books as may leave them no excuse in this respect. In looking over the list of places throughout the country at which these examinations are conducted, I find that most of them are literary institutions. Now I know not how it may be with others, but in the library of the Institution in connection with which the Society of Arts' examinations are carried out here, there was not last year a single book that related to horticultural subjects; and when it is understood that you must become a paying member of these institutions before you can be eligible for the examinations, this seems rather hard. This year, however, Lindley's "Theory and Practice of Horticulture" has been added, and from this addition the candidates for the next examinations may be expected to derive some benefit. All your readers may not be aware that an elementary examination in reading, writing, arithmetic, and general history, of a personal character, conducted by the members of the local board, is the first ordeal through which all candidates have to pass before they can be permitted to present themselves at the final examinations; but those who may wish for further information on these matters I would refer to the Journal of the Society of Arts, containing the programme of the examinations, which may be obtained of the Secretary of the Society, Adelphi, London. I must confess that I felt somewhat disappointed when I found how few gardeners had entered the lists upon the last occasion. I remembered how one of your well-known correspondents had declared in these columns that he intended to go in and win; and I felt a certainty of seeing his name in the list of successful candidates. Possibly, however, one great reason for the paucity of gardening candidates is the fact that most of the places of examination are in towns, and therefore are by no means so convenient for their purpose as may be desired. Possibly some arrangement may yet be made that would admit of young gardeners being examined closer home. I sincerely trust that as one result of a ventilation of this subject, we may see a large accession of gardening candidates for the ensuing examination. *Alexander Dean, Maybush.* [Your suggestion to publish the best of the answers is impracticable, the replies being held by the Society of Arts. EDS.]

Rival Systems of Vine Growing.—It is quite certain that the storms of "thunder and lightning" and teapot "hurricanes" with which we have been threatened for these last few weeks respecting the various system of Grape growing, have in Mr. Cannell's hands dege' nerated into nothing stronger than a "blatter of wind.' May I, without joking, ask Mr. Cannell, if ever he saw, or honestly expects to see, "five times the quantity of Grapes" produced under any system, and under the same superficial area of glass, as has been produced, within the ken of the present generation, by the best Grape growers of the day; aye, even say by Mr. Miller, of Combe Abbey Gardens, who can honestly write about what he has done. Surely, Mr. Cannell has not seen the Grapes and crops which he attempts to criticise; in fact, I beg to question if ever he saw a properly managed close-pruned Vinery, for, if he had, common sense would surely have made him think twice before he blew such a blast against so useful a system. Years before, and ever since either myself or Mr. Cannell heard of Grape growing, Vines have been planted and cultivated on the "extension pruning" system which he so strongly advocates—a fact of which all intelligent gardeners are perfectly well aware; and if such a system had been the best for producing the greatest quantity of first-class Grapes, under a given area of glass, for the greatest number of years continuously, and at a moderate original and annual outlay, doubtless such a system would have been extended, for it was "fully understood." After no limited experience amongst Vines, both large and small, from one in a Vinery to some hundreds, under all sorts of systems, from borders of unlimited size to 9-inch fruiting pots, and from "extension" to bare-pole pruning, I am obliged to come to the conclusion that neither Mr. Cannell nor any other cultivator can lay down absolute rules for Vine growing all over the three kingdoms. Gardeners who understand their business know always when and where to prune, both with regard to root and branch, and act accordingly. The splendid Grapes grown and shown, within say the last 10 years, at London, Edinburgh, and Dublin, by Messrs. Meredith, Hill, Fowler, Thomson, and others, confirm this assertion. The danger is not, however, to such as the above, but to tyros in Grape growing, who may be led to adopt Mr. Cannell's system to their own ruin, and if servants, to their masters' loss. To all such I would say, do not despair of being able to grow Vines permanently and with the best results on the plan commonly adopted by good gardeners in this country at the present time, viz., the short spur system, that is, pruning to one sound matured bud, which bud is to be secured by judicious treatment during the previous season. Another word with Mr. Cannell. Did he see the exhibitions of Grapes at Edinburgh in the autumns of 1865 and 1866? If so, how does his theory of June-ripened Grapes agree with the opinion expressed by all (see public papers) who saw the Edinburgh autumn-ripened Grapes? Moreover, Mr. Miller's bunches, which caused such a sensation, were autumn-ripened. How, too, does Mr. Cannell apply his decreasing rule (see p. 266) to Mr. Briscoe's facts (see p. 267), that the

Vines he mentions have increased in eight years 8 oz. per bunch—rare bunches they ought to be at, say, the age of three score and ten: 11 lb. 14 oz. per bunch. "Prodigious!" no doubt, for 70 years old Black Hamburghs. *Over the Water.*

Societies.

Royal Botanic: *March 23 (First Spring Show).*—Owing to the inclemency of the weather this exhibition was held chiefly in the conservatory, it being considered unsafe to risk it wholly in the tent, which, as usual, was provided for it. In its principal features it resembled that held at South Kensington on the previous Tuesday, a large proportion of the subjects, shown there being reproduced on this occasion.

Of Hyacinths, Mr. W. Paul's collection of 12 were again far superior to those of any other exhibitor. It contained magnificent examples of Mont Blanc, Van Speyk, Princess Mary of Cambridge, Grandeur à Merveille, Baron von Tuyll, King of the Blues, Koh-i-Noor, Vuurbaak, Sir Henry Havelock, Solfaterre, Blondin, and Prince Albert. Mr. Cutbush, of Barnet, had good spikes of Von Schiller, Charles Dickens, Cavaignac, General Havelock, Argus, and Ida. Mr. Kirtland also showed in this class; the amateurs' productions in which, were greatly inferior to those of the nurserymen just named.

Of new varieties, Mr. W. Paul, who was again the only exhibitor, had Linnæus, Prince Albert Victor, Lord Shaftesbury, and Blondin, all of which were described by us last week. In addition to these he had moreover La Grandesse, a good white, and Victor Emmanuel, pale crimson, striped with deeper crimson in the centre of each petal.

Mr. W. Paul also contributed a numerous and very fine collection of Hyacinths, among which were Carmine, gay and bright in colour, but poor in spike; Snowball, one of the best shaped of the whites; and Lord Cowley, a fine kind, intermediate as regards colour between Blondin and Princess Mary of Cambridge.

Tulips were also shown in great beauty by Mr. W. Paul, who was 1st for 18 with Vermillon Brillant; Roi Pepin, white flaked with crimson; Couleur Cardinal, violet-shaded deep red; White Pottebakker; Proserpine, violet-shaded rose; Fabiola, rosy purple and white; Van der Neer, purple shaded with violet; Globe de Rigaut, purple streaked with white; and Keizer Kroon. In a numerous collection from the same exhibitor, Brutus rectifié, yellow heavily feathered with crimson scarlet, was very showy. Mr. Kirtland and Mr. Cutbush, Barnet, also showed Tulips.

Cyclamens were again exhibited in great beauty by Mr. Wiggins, Messrs. E. G. Henderson, and Mr. Todman, gr. to R. Hudson, Esq., Clapham Common.

Of Narcissus, an excellent collection was furnished by Mr. Paul, among which Bazelman major, Queen of Yellows, yellow with a deeper yellow cup, and Soleil d'Or, yellow with an orange cup, were large and fine.

Chinese Primulas raised from Williams's strain of seed were again exhibited by Mr. Wiggins and Mr. Todman, and Mr. Wheeler also showed fine varieties of this useful flower.

Roses were furnished by Mr. W. Paul in charming condition, and constituted an important feature of the display. Conspicuous among them were Le Rhone, with some 18 blooms and buds; Alba Rosa, always beautiful; President, with about two dozen blooms; Elizabeth Vigneron, Senateur Vaisse, Cœur de Lion with nine fine blooms; Madame de Stella, not fully out, but very beautiful; and Madame Victor Verdier. Several stands of cut blooms were furnished by the same exhibitor, and also by Messrs. Paul & Son.

For Miscellaneous flowering and fine-foliaged plants Mr. Williams, Holloway, was 1st with Azalea Triumphans in fine bloom, Genetyllis fuchsioides, an excellent specimen of Eriostemon pulchellum, Chamærops humilis, variegated Aloe-leaved Yucca, and Cordyline indivisa, the last remarkably good. Mr. Bull, who was 2d, had a fine Cibotium princeps, measuring at least 9 feet across, Brahea dulcis, Dracæna australis latifolia, and a specimen of Aucuba in fruit. Mr. Wheeler, who was 3d, had a good Alocasia metallica, Dicksonia antarctica, Pandanus javanicus variegatus, and a well-bloomed white Azalea. A collection was also furnished by Mr. Paul, consisting of Rhododendrons, Roses, Deutzias, Clematises, Lilacs, double-flowering Peaches, the fine standard Genista purgans shown at Kensington, and other plants. Mr. Cutbush, Barnet, contributed fine plants of Mignonette, Acacia Drummondi, Erica Wilmoreana superba, and double-flowering Prunus sinensis; and Mr. Williams had a numerous collection, in which were Statice Holfordii, Franciscea confertiflora, Anthurium Scherzerianum, Vanda insignis, Genetyllis, variegated Ananassa, Anthurium acaule with five of its long green spadices, plaited like a whip-thong; a fine specimen of Agave filifera, Todea pellucida, Lomarias, and Gleichenia dicarpa.

Of other subjects Mr. Wheeler contributed Chinese Azaleas, and Messrs. Dobson & Son Cinerarias in excellent bloom, the kinds being Duke of Cambridge, large velvety purplish crimson self; John Spencer, paler in colour; Estelle, white, dark disk, and rosy purple edge; Admiration (Dobson), in the same style, but with a broader edge; Favourite, cream white, dark disk, narrow purple edge; and Lady Theodora Grosvenor (Fairbairn), white with deep bluish violet edge. Mr. Bartlett reproduced his Filmy Ferns; Lily of the Valley was also shown by several exhibitors in beautiful condition.

Among novelties First-class Certificates were awarded for the following, viz., to Mr. Wiggins for a beautiful variety of Cattleya Warscewiczii with a very richly-coloured lip; to Messrs. Jackson, of Kingston, for a variety of the same Cattleya called delicata, pale blush, with a yellow throat; to Mr. Bull, for Odontoglossum Alexandræ. Cypripedium concolor and C. Dayanum; Aralia spathulata and A. crassifolia picta, Agave macracantha, Camellia Lavinia Maggi rosea, a beautiful deep rose-coloured variety; variegated Phajus; and Rogiera hybrida, bearing Laurustinus-like heads of pale rose-coloured blossoms. Mr. Williams had similar awards for Amaryllis Ixion, scarlet, with a white band towards the base of the petals; and for Odontoglossum maculosum, green, dotted with brown, and possessing a spotted white lip. First-class Certificates were also awarded to Mr. W. Paul, for his new Hybrid Perpetual Rose Cœur de Lion; and to Mr. Cruickshanks, gr. to W. Jones Loyd, Esq., for his lilac-striped Verbena Lady of Langleybury. Second-class Certificates were awarded to Mr. Williams for Ananassa Porteana, which differs from the common variegated Pine-apple in having a broad band of yellow down the centre of each leaf, the margins being olive green; and Azalea Charmer, a promising bright rosy-pink variety; to Mr. Bull, for Odontoglossum gloriosum; and to Messrs. E. G. Henderson, for Pyrethrum Golden Feather. The same firm also contributed a collection of tricolor Pelargoniums, as did Mr. Watson, of St. Alban's, who had among others, Mrs. Dix and Miss Watson, which had previously received Certificates.

Among Fruit was a large collection of well-preserved Apples and Pears from Mr. Ford, gr. to W. E. Hubbard, Esq., St. Leonard's, Horsham.

Royal Horticultural: *March 26 (Mr. William Paul's Show of Spring-flowering Plants).*—This charming display of gay spring flowers was opened on Tuesday to Fellows of the Society and their friends, and will continue until April 6. It is held in the Eastern Conservatory Arcade, and the different subjects of which it consists exhibit merit of no ordinary kind. Roses form, perhaps, its most important feature; but there are also admirable groups of Hyacinths, Tulips, and Narcissi, besides a large and excellent assortment of what may be termed miscellaneous flowering plants.

Next the conservatory is a large group of Tulips, bordered with cut Roses, while along the centre of the arcade are raised octagon stages richly decorated with remarkably fine Roses in pots. An oblong table occupies one portion of the exhibition, on which are ranged Hyacinths, in bands of several rows of each colour, set in a framework of Chinese Primulas, Crocuses, and Tulips, and supported at the back by Narcissi, altogether producing a beautiful effect. Another group consists of Azaleas, Deutzias, Cytisus, Acacias, Erioste-mons, Correas, Cinerarias, Mrs. Pollock Pelargonium, and similar plants. Of forced flowering plants there is a mass of Lilacs, double-flowering Peaches, Clematises, Rhododendrons, variegated Weigela rosea, and Gueldres Rose; adjoining this a stage filled with a mixed collection of plants in flower; and lastly there is a stage on which are ranged about 130 pots of Hyacinths with magnificent spikes. Along the front of the arcade, moreover, are various little tables loaded with plants in bloom. On one of these we noticed Aucubas, male and female, also the handsome Ligustrum japonicum maculatum, variegated Euonymus, &c. On another of these tables were small plants of Cytisus Atleeanus as an edging, then a row of variegated Hydrangea, Euonymus radicans variegata, and at the back E. macrophylla, with beautiful shining green leaves, and the rose and white variegated Vitis Labrusca. On a third table Isolepis and Cytisus, placed alternately, form an edging to Cyclamens, Mignonette, and Hyacinths. A fourth table was filled with Chinese Primulas and Deutzia gracilis, with Dielytra spectabilis at the back; a fifth with purple Crocuses, white and blush Hyacinths, and Narcissi; a sixth with Isolepis gracilis, Cytisus, mixed Crocuses, Lily of the Valley, and Hyacinths; and a seventh with Hyacinths, Narcissus, and plants of that kind. Among other matters we noticed some standard fine-leaved Pelargoniums in flower, and a lovely specimen of that fine variety called Waltham Nosegay, the bright crimson blossoms of which are exceedingly attractive at this season. The double-flowering deep crimson Thorn is also an object of admiration. Altogether this is an exhibition which nobody fond of gay early flowers should miss seeing.

March 26 (Mr. Wm. Paul's Lecture).—Dr. Hogg in the chair. This lecture had special reference to the exhibition just named. After a few words from the Chairman, Mr. Paul said:—

The task assigned to me to-day is to give you a popular account of this exhibition. I shall purposely avoid all scientific details: my remarks will be chiefly cultural. Working on the conception that some present would like to hear how these plants are produced—would like to see such in their own gardens,—I shall content myself with showing in as concise a manner as possible how that object may be attained.

It is true there is a short road to the possession of these plants, namely, to buy them as at present exhibited. But by purchasing a plant when in the climax of its beauty one does not realise all the pleasure and satisfaction derivable from cultivating it from an early period of growth. It will, I think, be allowed that every stage of progress in a plant is perfect in its way, and there is a freshness, change, and beauty in its gradual development.

I shall commence my observations by bracketing together Hyacinths, Tulips, Narcissi, and Crocuses, which are usually spoken of collectively as Dutch bulbs. Be it observed, these bulbs are among the least costly, most easily cultivated, and most effective of early flowers. Although called Dutch bulbs, the original Hyacinths and Tulips are natives of the Levant, and have been known in this country for nearly 300 years. Now, however, their descendants, much altered in size, form, and colour, are, or should be annually imported from Holland, where their cultivation is carried out on so large a scale as to be an important branch of national industry.

I may, perhaps, be allowed to remark here that the best Dutch bulbs usually find their way into the hands of the English dealers. The Hyacinths sent to this country are grown from offsets of the root, and are usually four or five years old. In favourable seasons, with free growing sorts, or in the event of a scarcity of any particular sort, three-year old roots are sometimes sent; but such do not produce the finest spikes of flowers. Dutch bulbs usually arrive in England in the month of August, packed in bags and boxes in what is termed a dry state, in which they somewhat resemble Onions.

Now, with regard to the culture of these bulbs, I will assume that the cultivator has obtained possession of good bulbs, bulbs which have not been hastily forced into the market, but which have the stamp of age, and which have been skilfully handled throughout their previous stages of development. Without this there is little hope of reaching a high standard of excellence. If you start wrong no after skill or attention will set you altogether right. Let us then assume the possession of good bulbs. Now they may be grown in pots or boxes in earth, or in glasses in water. I will first relate how they are managed when grown in earth. Sandy loam, enriched by a free addition of manure, is the best compost in which to plant them; plant in October, leaving the apex or crown of the bulb just protruding above the soil, and afterwards thoroughly soak the soil with water. When drained, place the boxes, pots, or vases, in which they are planted, on the level soil, covering them over with 6 inches of Cocoa fibre, old tan, or cinder ashes. Now the length of time they should remain under this covering will depend on the period at which they are wanted to bloom. If removed in January, gradually inured to heat and light, well watered if dry, and placed first in a cold frame and then in a greenhouse with gentle heat, they will bloom in great perfection early in March. If removed in December, and a little more heat employed, they will flower early in February. If removed in November, they should, a fair amount, of heat being employed, flower in January. It should be borne in mind that a plentiful supply of water is requisite at the period when the leaves and flower-spikes are expanding, and during the whole period of flowering. The spikes of flowers should also be tied up almost day by day to preserve their symmetry.

This, then, is the way in which the Hyacinths before you are produced in pots. The rationale of cultivation in glasses in water is the same; but instead of pots, glasses are used; instead of earth, water; instead of covering with fibre, we place the glasses, if transparent, in a dark cupboard, principally for the reason that the roots feed most freely in the dark. But we must not keep them in the dark too long. Gradually inure them to the light when the roots are fairly developed, and before the leaves are 2 inches long. The season of flowering, as with Hyacinths in pots, will depend on the temperature of the house or room in which they are grown. It was remarked to me to-day—"Your Hyacinths are unusually short and stout. I have some good spikes, but they are slender, attenuated, and disposed to droop. How is this?" My answer is, they have had at some period of their growth too much heat or too little light, either, or a combination of both influences would produce the elongation complained of. Tulips, Narcissi, and Crocuses, which are of a kindred nature with Hyacinths, should be managed in the same way. Also them may likewise be planted in beds or borders out of doors, a few inches under the soil, in the month of November, when the Crocuses will flower in February, the Hyacinths, Tulips, and Narcissi in March and April.

The next plant for consideration is the Lily of the Valley. Although a native plant abounding in the woods in many parts of Britain, it must not be supposed that it could be suddenly drawn thence and produced in the beautiful state in which it is exhibited at our flower shows. This is a major variety, selected doubtless for its size at some former period, and planted in rich soil, where by gross feeding the plant has attained an unusual development. The contents of these pots are prepared for forcing in the following way:—Small pieces or crowns are planted in beds in rich ground, and allowed to remain there for three or four years till the whole bed becomes one mass of roots thickly studded with flowering crowns. They are cut out with the spade into small patches to suit the size of the pots in which they are grown, and placed in the pots in the autumn, when by subjecting them to different degrees of heat a succession of flowers may be obtained throughout the winter and spring. The plants are raised from seed, which should be sown in June in pots filled with equal parts of sand, loam, and peat. The seed should be quite fresh to insure germination, and requires to be raised under glass. The plants will not usually flower until the second spring, after which they should continue to increase in size and beauty for many years. When the seedlings lose their leaves, which they should not do till they are about 12 months old, it is important that they be kept in a dry state. Moisture when in a state of rest will certainly injure, and probably destroy them.

We come now to the Chinese Primula. This plant is a native of China, whence it was introduced in 1820. It is raised from seeds, which should be sown in the months of May, June, and July successively in pots filled with light sandy soil and kept under glass. When the seedlings have made their third or fourth leaf they should be transplanted into small pots, giving each plant a separate pot and removing it at short intervals into pots of larger sizes. This plant does not dislike heat, but if much heat is employed, plenty of air should also be given, or the colours of the flowers will be washy and pale.

There is a curious and interesting fact in the history of plants which the Chinese Primula serves well to illustrate. There is a tendency in most plants to vary in form, size, and colour, when transferred from their natural or wild state and subjected to cultivation. The type of the Chinese Primrose of to-day was pink or lilac, and not more than one-fourth of the present size. By culture, through the means of a rich soil and careful attendance, the size has increased, and by watching for even slight variations in form and colour, and selecting such as the parents of future races, the change went gradually on. A break, as it is termed, was at length obtained; that is, a departure from the normal form. A standard of excellence was set up, but it was found that such, although occasionally realised, could not be retained. It was found that seeds saved from the Red Primula would sometimes produce both red and white flowered plants, and seeds saved from White Primulas would do the same, while the seedlings varied greatly in size, colour, and form. The break was retained, but the result was uncertain. The next step was to fix the alteration. Year after year plants of the altered and more approved form, closely resembling each other, were selected and placed apart, and from these alone seeds were saved until the altered form was fixed again—that is, seed saved from Red Primulas produced, with almost unerring certainty, red flowered varieties, seed saved from White Primulas white flowered varieties, both preserving the increased size, altered forms, and clear decided colours of their immediate progenitors.

Take another instance. There are before you plants of the new Double Crimson Thorn. Strange as it may seem this is descended from the common White Thorn, or May of our hedges. But this has not happened suddenly, but by a gradation of changes. Most observers will doubtless have noticed in our hedges that some of the plants produce flowers of a pink tinge, though still with single flowers. This is the "break" previously explained; this was step 1. Some of the seedlings raised from these would give flowers of a still deeper colour. This was step 2, which we recognise in the single Rose-coloured Thorn, a variety found growing in a hedge at Guddington, in Northamptonshire. Some of the offspring of this would be of a still deeper colour, step 3, the new Scarlet Thorn. A seedling, or a sport from this or the original May of our hedgerows would produce double flowers, and here was step 4, the Double White or new Double Pink Thorn. Now, I am not asserting that all these steps are authentically recorded, but it is well known to those who are practically engaged in these matters, that such is the rule of progress. But the origin of this new Double Crimson Thorn we do know. It is not a seedling, but what is called a sport from the Double Pink Thorn, that is, a branch of the Double Pink produced flowers of this deep and beautiful hue. The branch was budded and grafted, and the young plants so obtained produced flowers of the same vivid colour. In the same way have been produced the many varieties of the common Hawthorn, one of the most notable, the Weeping Thorn, having been selected from a bed of seedlings by General Monkton; the upright growing variety was selected from a bed of seedlings by Mr. Ronalds of Brentford. Now it is the same with leaves as with flowers. Take the Pelargoniums before you. They are all originally produced from green-leaved varieties, either from sports of the branch, or later in their history from seeds of the sports so fixed. The first variegated Pelargonium originated by a branch of a green-leaved variety producing variegated leaves. This branch was cultivated till the habit became fixed. The seeds of these were saved and sown, and a brood of young plants was produced, retaining the variegation of the parent. The plants before you, which are seedlings, show this tendency: on some there are both green and variegated leaves. Now, to fix either character is the problem. If we wish to retain the green character, we nip off all the variegated leaves; if we wish to retain the variegated character we nip off all the green leaves from time to time as they appear, till the plant produces leaves of the one character only. It is the same with the Aucubas. The green-leaved variety is the normal form; the variegated kinds are sports, either from branches or from seeds. This is in brief the process that has been worked out in all cultivated plants where leaves or flowers show a wide divergence from the normal form.

The Camellia is a native of China, a country which has supplied us with many of our richest horticultural treasures. The type of our modern Camellias is a plant with small single red flowers, in which the yellow stamens are pleasingly conspicuous. There are now many hundred double sorts, some few of which have been introduced at various times from China; but the majority have been raised from seed in Italy, France, Belgium, England, and America. Most of the Double Camellias are grafted on the single red or type, which is found to strike easily from cuttings placed in a cold pit in sandy soil in the autumn. The grafting is usually performed late in summer, the stocks chosen being two years old. The soil in which Camellias appear to grow best is rough loamy peat, with a plentiful admixture of sand. The process of repotting should take place in summer, when the new growth is pretty well matured, and the flower-buds about the size of a French Bean. When potting, thorough drainage should be secured. Now, although the plant is nearly hardy, successfully resisting several degrees of frost, it is not well suited for the open air in our climate, on account of the cold and uncertainty of the English spring. Spring is its season of growth, and it then requires a high temperature to induce a vigorous and well-matured growth. At this time, when blooming and growing, a plentiful supply of water should be given, but at all other times, especially

in autumn and early winter, water should be given but sparingly. The premature decay and dropping of the flower buds so often complained of in Camellias, usually arises from too dry a state of the roots at the season of growth, or too wet a state of the roots when the growth is matured and the plant is in a state of comparative rest. So soon as the growth is matured it is well to remove the plants from under glass, and to place them on the north side of a wall or hedge where they are protected from the mid day sun. Camellias may be planted out with advantage in the borders of conservatories, where they will attain the height of 20 or 30 feet, forming umbrageous trees of matchless beauty.

The chief points to look to in their cultivation, then, are these:—

1. To secure thorough drainage in the soil.
2. To give heat and moisture during the periods of flowering and growth.
3. To water sparingly from the time the growth is completed till the flower buds are about the size of a Pea.
4. To secure the leaves from being blistered by the sun. Green glass or Hartley's rough plate glass is desirable for the Camellia-house: if ordinary glass be used it should be slightly whitewashed in the month of March.

A vote of thanks was then given to Mr. Paul, and the Chairman reminded the meeting that on next Saturday (this day) Dr. Masters would deliver the first of a series of short lectures on what he termed "Plant Architecture."

On the table in front of the lecturer were exhibited the prizes offered by the Proprietors of this Paper and those of the "Journal of Horticulture" at the forthcoming Bury Show in July next. The former consists of a richly chased silver Claret Jug of Cellini's design; the latter of two richly gilt ormolu French Clocks, with panels and face of painted and jewelled porcelain.

Glasgow and West of Scotland Horticultural (*March* 27).—The Spring Show of this Society was inaugurated under the most favourable auspices, the attendance being all that could be desired, notwithstanding the unfavourable weather, which had changed from severe frost to the drizzling rain characterised as Scotch mist. The great assemblage of ladies and gentlemen seemed to testify that horticulture was a source of never-failing attraction. Although it was one of those shows where Hyacinths and Dutch bulbs are expected to prevail, the great number of miscellaneous plants contributed, and the ornamental character which they assumed, captivated the general sight-seer. Azaleas were particularly attractive, from the size and condition of the plants.

Mr. Mitchell, gr. to his Grace the Duke of Hamilton, Hamilton Palace, had a most interesting assortment of general plants, taking premier position in Azaleas, Stove Plants, Greenhouse Plants, and the general Miscellaneous table. His Roi Leopold and Criterion Azaleas were pictures of first-class cultivation; Alba magna, Triumphans, and others, were also very large fine plants. Tremandra ericoides was a splendidly bloomed plant, showing its adaptability for early decorative purposes. Along with these he had a very fine plant of Erica Victoria, Genetyllis Hookeriana, Clerodendron Balfouri, loaded with blossoms; and among the miscellaneous plants might be named Thrinax elegans, Dendrobium anosmum, Phalænopsis amabilis, Aerides Lobbii, Anthurium magnificum, Lycaste Harrisoni, Rhynchospermum jasminoides, Sanseviera japonica, &c. Mr. Murray, gr. to D. Tod, Esq., Partick, had a very fine lot of plants, comprising several Azaleas, the handsome Acacia juniperina, clad with yellow catkin-like inflorescence, and small linear, fierce-looking leaves; as well as the rare and beautiful Erica Devoniana, Phalænopsis grandiflora, Cattleya Warscewiczii, in several varieties; a beautiful form of Cypripedium insigne, like insigne, but a very *pardinum*, from its numerous chocolate spots on a yellowish-green surface; the handsome Phalænopsis Schilleriana, several Amaryllids, a good Dendrobium anosmum, the handsome broad-leaved Ixora Griffithii, and several plants of Lycaste Skinneri.

In Azaleas there were, besides those named, Baron Rothschild, an improvement on Fielder's White, Symmetry, Iveryana, Reine des Belges, Beauty of Reigate, Magnifica, a finely-managed Chelsoni, Roi Leopold, and Model. These were contributed by Mr. Mitchell, Mr. Boyd, gr. to T. D. Finlay, Esq., Easterhill; Mr. R. Caskie, gr., Partick; and Mr. Joseph Fleming, Eastwood Park. Camellias were pretty well shown, especially those from Mr. M. Campbell, gr. to J. Hozier, Esq., Mauldslie Castle; Mr. Baxter, Daldowie; and Mr. Buchanan, Lochbrae. The best varieties were Saccoi nova, Alba plena, Verschaffelti, a fine ruby and white stripe; Reine des Fleurs, Imbricata, Fimbriata, Lady Belhaven, a splendid bloom; Emilia Campioni, and Teutonia.

Rhododendrons in pots were well exhibited by Mr. Jas. Graham, gr. to Sir A. Campbell, Bart., of Succoth, especially Currianum, Elvira, and Dr. Hooker. Mr. G. M. Butler, Caledonia Nursery, Greenock, exhibited 12 trusses of R. barbatum, a brilliant crimson of large truss, which had successfully withstood the cold out of doors by a simple covering with mats. Blandyanum, Nero, John Waterer, Madame Wagner, Barclayanum, Pardoloton, Lucidum album, Melanthemum, and Limbatum were the most prominent among the sorts contributed by Mr. Jas. Graham, Garscube, and others.

Cinerarias formed a large and very interesting lot. Miss Franklin, a very large and showy variety, with a large circle of white, round disc, and prominent purple tips; Lord Elgin, deep purple; Fire Queen, white and deep crimson; David, a good brilliant flower, with a small white ring, round disc, and crimson-tipped; Duchess of Sutherland, white, and faint purple margin. Mr. D. M'Bride, gr. to J. Goodwin, Esq., Hazlewood; Mr. D. Buchanan, gr., Langside; and Mr. Boyd, Easterhill, were the most successful among a large lot of exhibitors.

Selaginellas were a splendid exhibition of themselves, presenting a most beautiful and captivating assortment. Grown in shallow pots, and mossed up as they extend their root ramifications, they appear to much better advantage than grown in the ordinary way. Mr. John Young, gardener, Dumbreck; Mr. D. McBride, Hazlewood; Mr. D. Fleming, Eastwood Park, had each very creditable lots, including cæsia, Willdenovii, densa, inæqualifolia, and some others.

Hyacinths were more largely shown than in Edinburgh the week previous, but they did not strike us as being quite so praiseworthy in point of culture. Mr. P. McKenzie and Messrs. J. and R. Thyne among nurserymen, had good spikes of the following sorts:— Baron van Tuyll, Lord Macaulay, Charles Dickens, Grand Lilas, Prince Albert, Grand Vainqueur, Ornement de la Nature, Robert Steiger, Voltaire, Mons. de Faesch. In the Gardeners' Classes Mr. Mitchell, Hamilton Palace, was first with Lord Macaulay, Baron Tuyll, Charles Dickens, Grandeur à Merveille, Koh-i-Noor, Lord Wellington, Grand Lilas, Gen. Havelock, Mont Blanc, Von Schiller, and Sultan's Favourite. Mr. Wm. Boyd, Easterhill, was a very good 2d with General Havelock, Alba Superbissima, Baron von Tuyll, Madame Hodgson, Lord Macaulay, Mont Blanc, and Charles Dickens; Mr. Jas. Forbes, gr. to E. Buchanan, Esq., Partick, and Mr. Grant, Carnegie, had also very good groups. In sixes, Mr. John Wilson, Regent's Park, had a very excellent lot, and so had Mr. Mitchell. Of Tulips there was a great exhibition, well grown, and shown by the following gentlemen:—Mr. A. McIntyre, gr., Partick, Mr. Boyd, Easterhill, and Mr. Buchanan, Lochbrae, comprising the following very effective sorts—Vermillon Brillant, Yellow Tournesol (a very grand thing and very showy), White Pottebakker, the Carnation-coloured Royal Standard, the red and yellow-margined Keizer Kroon, the pale and chaste Queen Victoria, and some others, such as Rex and Imperator Rubrorum. Narcissi were also well shown by same exhibitors.

Messrs. Austin & M'Aslan had a very attractive table of Miscellaneous plants. Mr. Alexander Walker, gr. to Thomas Hill, Esq., Cathcart, had a finely managed plant of the old and forgotten greenhouse plant, Hovea Celsi, grown as a standard, and clad with numerous flowers of brilliant blue, flaunting-like miniature ostrich feathers. Mr. Clark, Royal Botanic Gardens, had a Miscellaneous assortment, including Cyrtochilum flavescens, Phlebodium sp., the curious and linear-leaved Drosera binata, the variegated Camellia and Euonymus, the handsome Echeveria metallica, Raphiolepis ensifolia, &c. Thomas Blackwood, Esq., Carnegie Park, had a very ornamental Sikkim Rhododendron, after the character of Nuttalli, but possessing a smoother and narrower leaf. Peter M'Kenzie, 1, Gordon Street, had the best collection of miscellaneous Dutch bulbs, consisting chiefly of Hyacinths, Tulips, and Narcissi, among the latter being the specious double yellow. Dreghorn & Aitken had several Ferns, Scillas, dwarf Narcissus, &c. Messrs. Graham, Garscube, and Mr. Boyd, Easterhill, had each fine plants of the charming Dielytra spectabilis, a most useful spring-flowering plant. Mr. John Wilson, Regent's Park, Glasgow, a most indefatigable amateur, was 1st with Hyacinths, Roses, Primulas, Greenhouse plants, Deutzias, Tulips, Crocuses, and Narcissi. Mr. Robertson, Albert Gardens, was also most successful. Primulas from Mrs. Neil Campbell, Buchanan, Langside, and Drummond, Meadow Park, were unique samples of cultivation.

Mr. Thomson, gr. to his Grace the Duke of Buccleuch, Dalkeith, again showed his White Lady Downes' Grape, and obtained a First-class Certificate. It was exhibited along with Lady Downes', and was in better condition.

Mr. Campbell, the Secretary, deserves much credit for his unweared exertions in promoting the interests of horticulture in the West; and that his efforts are appreciated is amply shown by the unanimous approval of all concerned.

Florists' Flowers.

In concluding a brief sketch of New Florists' Flowers of 1866, it may be remarked that a very useful class of summer-flowering plants, the dwarf bedding Tropæolums, have this season received several desirable additions. Messrs. Carter & Co. have a variety of the Tom Thumb section, which is said to possess the colour of the Trentham Rose Geranium. It is said to be a selection, and will be useful as giving a new shade of colour. Mr. Turner also has a very free-flowering variety of this section named Compactum, in colour bright orange, remarkably free, and highly effective as a bedding kind, and an excellent substitute for the yellow Calceolaria. It will not be distributed till 1868. Mr. George Smith, of Hornsey Road, has two varieties of the Lobbianum class, viz., King of Scarlets, bright scarlet of a very rich hue, small neat foliage, and compact habit, awarded a First-class Certificate; and King of Spots, bright yellow, spotted with amber, compact habit, free-blooming, and very effective. Mr. Cannell, of Woolwich, has of the Lobbianum class, Compactum, bright orange scarlet shaded with crimson, compact habit, and an abundant bloomer; Luteum Improved, habit dwarf and bushy, with golden yellow flowers, each petal having small crimson spots; The Moor, colour rich velvety maroon, deepening in the throat to black, a good acquisition in the point of colour, habit good; and Scarlet Gem, brilliant orange scarlet, flowers small, but of good shape, blooming freely, and effective as a bedder. These four varieties received First-class Certificates. Mr. Cannell also has Novelty, yellow stained and pencilled with brown; and Christmas Beauty, a very promising climbing variety, flowering abundantly during the winter, colour bright golden yellow, each petal spotted with scarlet velvet. Both Mr. Smith's and Mr. Cannell's new varieties were raised by Mr. George, of Stamford Hill: some of these were exhibited by him at South Kensington, and I almost fear a little confusion has occurred, and the same variety is being sent out under two different names.

Mr. Paul's new varieties of Double Tulips, shown by him last spring, have only their novelty of colour to recommend them, as all of them wanted the dwarf habit and substance of the old Tournesol. Some of the colours were very pleasing, and it is to be hoped that they were an earnest of something in the future.

Mr. Perry still maintains his reputation as a raiser of Verbenas, though his seedlings were not shown this season in the best possible form. They were—Auricula, purplish crimson, changing to purple with age, conspicuous lemon eye, enlarging and becoming white with age also; Brunette, bright crimson with dark centre, and clear lemon eye, colour rich and striking, medium-sized pips, and good truss; The Friar, rosy pink, with crimson centre, the pips large, and of great substance, but somewhat rough; Gem, intensely bright scarlet, with white eye, in point of colour a fine and telling exhibition variety; Harry Law, deep rosy cerise, with dark centre, and large lemon eye, pips stout, and of full size, awarded a Second-class Certificate; and Purpurea, crimson suffused with purple, deep crimson centre, and white eye; a good and striking shade of colour. The foregoing, with others of Mr. Perry's raising, will be sent out by Mr. Turner. Mr. Eckford, of Coleshill, Newbury, has also produced some very good flowers, that are to be sent out by Mr. Keynes, of Salisbury. A First-class Certificate was awarded to Coleshill, intense scarlet, with conspicuous lemon eye, pips large and smooth; the colour of this variety is very brilliant and striking. In addition to this, the best of Mr. Eckford's batch of seedlings were Umpire, cerise purple, a novel and desirable shade of colour, pips large and bold; Earl of Radnor, clear rosy scarlet, a "telling" hue, with pale lemon eye; Fanny Martin, bright pale rose, a very pleasing shade, pips large and of good form: these three varieties were awarded Second-class Certificates. The others were William Dodds, light purple, with white eye, good form, and well adapted for bedding; and Mr. Ellice, rosy lilac, a novel shade of colour. Messrs. E. G. Henderson & Son have Blue Shade, said to be the nearest approach to a blue colour yet offered, described as a light azure blue with lavender tint; it is said to stand well as a bedder; also, Alice Norton, rich violet-blue, good habit, and very effective; Edwinia Fitzpatrick, pure bright rose, fine form and free blooming; Harlequin, white ground, evenly striped and flaked with purple, forming a good truss, and having an excellent habit; King of Bedders, bright crimson red, dwarf compact growth, very free blooming, and an excellent bedder, awarded a Second-class Certificate; and White Queen, which is said to surpass all the white kinds, being pure in colour, close habit, a free bloomer, and standing wet remarkably well. Mr. Cruickshanks' Lady of Langleybury is unquestionably one of the best flowers of the year; it is a sport from Purple King, and has large and bold flowers, lilac and white striped, the truss large and showy; awarded a First-class Certificate. A similar award was most deservedly made both to Messrs. Perkins and Son, of Coventry, for Shakespeare, bright scarlet shaded with crimson around a conspicuous lemon eye, pips large, stout, and very smooth, a very fine exhibition variety; and to Mr. Cannell of Woolwich, for Gladiator, deep carmine, changing to clear crimson, large white eye, pips large and bold, and truss fine—another excellent exhibition variety. The three last-named are destined to become exhibition flowers; but Lady of Langleybury has also all the characteristics of a most useful bedding kind. *R. D.*

The Apiary.

Self-Confinement of Bees.—After the remarks in your columns last week, perhaps I ought to give some further account of the Egyptian stock upon whose remarkable seclusion Mr. Fox comments. It came into my hands on the 27th of April last year, kindly sent by Mr. Woodbury to compensate for a Ligurian stock which had not turned out equal to expectation. It has therefore been under observation for about 11 months. My first operation was to transfer the queen and bees to a 5-frame box, containing both honey and brood combs. On the 28th of May they were moved into a full-sized hive, which was rapidly filled, and which became the most populous in my apiary. I should have been glad to put on a super, but their ferocity made me unwilling to interfere with them further. But the hive being so overcrowded, on the 29th of June I put on a glass, rather with the view of giving them room than expecting them to store it, as the honey season, which had been a very poor one, was then almost at an end. They set to work, however, in such a determined manner that two additional glasses were given them, and during the next fortnight they accomplished twice as much as any other stock. But the opportunity was very brief, for the third and fourth weeks of July were wet, and put a stop to all honey-gathering for the season. Then came a fortnight of fine weather, then six weeks of rain, ending Sept. 14th. Then we had occasional rain for a fortnight, and so on until winter set in, the entire autumn being unpropitious to the last degree.

I attribute the fact of the bees secluding themselves to the untoward state of the weather, the temperature being very low, and the atmosphere moist even during the occasional fine days. While there was anything to be got no other stock was so industrious as this, but when the weather broke so completely that even pollen gathering ceased, the Egyptians seemed intelligent enough to know that nothing could be got by venturing out, and so stayed in-doors. I ought to add that during the first two weeks in October my house was shut up, and it is possible that during that time they may have broken their arrest, though I do not see why they should choose that particular period, and no other. It is, however, possible, and must be taken as invalidating the statement to some extent.

That the hive itself is in proper order, and under the control of its rightful sovereign, I make no doubt whatever, as during the fine weather last month (February) it was remarkably busy, the arrivals and departures sometimes numbering 50 a minute each way. I do not think that there is anything wrong with the internal economy of the hive, and I set down the singular fact to the extraordinary nature of the season. The difference between the northern and southern climate is at all times greater than the more favoured bee-keepers of Devonshire are aware of, but last autumn and winter were the most exceptional seasons which that venerable patriarch, the oldest inhabitant, has ever witnessed.

This is not the only singular fact connected with the Egyptian bee, as a hive in the possession of Mr. George Fox is described by him as being perfectly quiet and tractable, and showing no more resentment against interference than the ordinary black bee. This, in its turn, contradicts the experience of every other possessor of the species, but it does not in the least alter the fact. They are certainly peculiar, these little people, and our acquaintance with them as yet is very limited. So far as observation during a single season may go, I should certainly claim for them superior sagacity as well as superior industry. *F. H. West.*

Miscellaneous.

The Atmosphere, in its Relation to Heat.—The movable and transparent element by which we are surrounded, not only furnishes the gases necessary to the respiration of living creatures, but it moreover acts in a manner essential to the general distribution of the light and heat dispensed by the sun. The winds diffuse over the surface of the earth the heat they bring from the burning soil of tropical regions. And the operation of the atmosphere is not limited to that effect. It serves as a vast fire-screen interposed between the earth and the sun; it retains or absorbs a part of the rays which the latter transmits to us; and while it moderates the original warmth and splendour of that luminary, it reverts those calorific rays which escape from the sun, and which without

this kindly barrier would be lost in the celestial spaces. The solar rays, taken together, undergo such an absorption in the atmosphere, that about a half is lost by the way; and this loss is shared by both the visible and the obscure rays. The radiation from the ground, on the other hand, is composed exclusively of obscure heat; it experiences from the atmosphere a much greater resistance than luminous heat does; a tenth only of the terrestrial radiation traverses the thick protecting mantle formed by the air around the globe. This result may be compared with that of our glazed structures. The sunshine passes freely through the glass and warms the soil which it covers; but the heat which the latter throws off in the way of radiation cannot now pass outside, because glass is opake to obscure heat, and that heat is accumulated within the glass. The atmosphere, therefore, produces the same effect as if the whole earth was inclosed in glass; it transforms it into a hothouse; the sun effects an entrance, but its exit is barred. Such is the function of the air in respect to the calorific rays of the sun. *P. Radau, Revue des Deux Mondes*, tome lxvi. p. 223.

Messrs. Cutbush's Exhibition of Spring Flowers.—This is now being held at the Crystal Palace, and will continue open until this day week (April 6). It occupies about 240 feet run of tabling divided down the centre, one side being chiefly filled with Hyacinths and Tulips, the other with a miscellaneous collection of other spring-flowering plants; and at each end is a specimen of white Azalea. The arrangement is as follows:—front row, variegated Pelargoniums, such as Mrs. Pollock, Cloth of Gold, Golden Chain, and Lady Plymouth; second row, Hyacinths and Tulips mixed; third row, the same flowers separately; back row, Hyacinths. Conspicuous among the latter are Florence Nightingale, Cavaignac, Von Schiller, Macaulay, Princess Clothilde, Duc de Malakoff, and Duke of Wellington. Blues are well represented by King of the Blues, Charles Dickens, Grand Lilas, Nimrod, and others; and the very dark or black kinds by General Havelock. Mont Blanc and Snowball are excellent among whites, and Haydn among mauves. Among new kinds are Le Grand Jaune, buff yellow; Princess Helena, with large pure white bells; Mrs. James Cutbush, with white bells of good substance; Princess Anna, a pleasing bright rosy pink variety; and Elise, crimson, edged with pale rose. Of Tulips there is a fine collection, in which the best new sorts appear to be Chrysolora, bright yellow; Zilvareen Standard, rosy crimson, flaked with white; Joost Van Vondell, large, crimson and white; Salvator Rosa, double, rose, striped with deeper rose; and Grand Duc, yellow, flaked with red. Among miscellaneous plants are Dielytra spectabilis, Cytisus racemosus, Deutzias, Acacia Drummondii, Chinese Azaleas, Cinerarias, Mignonette, Gueldres Rose, Lily of the Valley, and the pretty double Prunus sinensis. The whole is effectively and pleasingly bordered with variegated Pelargoniums and Isolepis gracilis.

Road-making in Paris.—The streets of Paris are kept cleaner and in better condition than those of any city it has ever been my lot to visit; but I should not have mentioned this subject had it not a bearing on horticulture. Those who are old enough to recollect the direful tales which filled our papers, day by day, in 1848, will recall the uses to which the paving-stones of Paris were turned. We shall never read a second edition of those tales, for nearly all the paving-stones have been removed—the policy of the Government is everywhere considered. In their place, the broad and comfortable pavements have been floored with asphalt. Now, I have seen a good many paths, court-yards, &c., covered with this material in the old country; but a very large majority of these were anything but satisfactory. They must have a better way of doing it than we have. It wears well too, even with the enormous traffic of such a city as that. I inquired how often it had to be renewed, but nobody seemed able to tell me, and that simply because they had had no experience. I was shown some which had been down for six or seven years; in places it had occasionally been repaired; in fact they were doing it at the time, along a space that had been opened for the purpose of putting down a gas-pipe; the greater part of it, however, was the original work, and to all appearance it was as good as ever. Within the last few years a still better plan has been adopted. The roads are made with concrete, and then thinly covered with some brown powdery stuff looking like cement. This is laid dry, to the depth of about half-an-inch, and then patted down with hot irons. I may show my ignorance by saying so, but I must add that I never saw this plan before. The substance is not melted, but it hisses and smokes under the iron, and becomes so hard and solid that the heaviest vehicles make not the slightest impression upon it. I did not see the men at work upon it, but this was how it was described to me by one of the natives. The French call it by a term, which may be translated "compressed asphalt." Now, as all the roads and footpaths are covered in this way, you might suppose that the trees have but a poor time of it; their welfare, however, is studied. Around the stem of each of them there is an ornamental cast-iron grating, on a level with the footpath, made in concentric circles and segments, so that, as the tree enlarges, it may be accommodated by the taking away of a part of this grating, which admits air and water to the roots. *Scottish Gardener.*

Garden Operations.

(*For the ensuing week.*)

PLANT HOUSES.

Anæctochili generally will now need attention in order to enable them to form a good growth during the ensuing summer. Give all of them a shift into fresh wholesome materials, as those of which the balls now consist will be likely to have become more or less soured on account of the necessity which exists for keeping them freely moistened during their more active period of growth. The admixture in which they have hitherto been known to thrive best is silver sand, and sphagnum in well studied proportions; too frequently however there is a preponderance of the former, and to that I attribute much of the ill-success which often attends the culture of these plants. To one part of the silver sand washed well in two or or three consecutive waters, so as to free it from all vegetable or other decomposing matter likely to prove injurious at a future period, add two of sphagnum, which should also be well washed and picked over, when it should be chopped into minute particles in order that it may freely amalgamate with the sand. In the pots when well crocked by first placing one large one over the bottom, and nearly half filling up with others, broken small, and of uniform size; place a thin layer of crude sphagnum, afterwards filling firmly with the admixture just named, and bringing it up more or less in the form of a cone above the rim of the pot, into which the plants should be firmly fixed. Plants propagated by division, as previously advised, should be removed carefully from their old positions, and neatly placed in 32-sized pots; some five separate pieces might be placed evenly over the surface, making holes with a neat dibble, into which the roots should be dropped their entire length, and afterwards pressed firm by the aid of the dibble. Always fix them so that they may grow inwardly and not out over the rim of the pots, pegging each creeping root, needing such attention, firmly down upon the surface of the soil afterwards; when, after a good soaking, they may be replaced in any warm, shady situation. Carefully wipe the inside of the bell-glasses which cover them daily; this should at all times be done in the morning with a dry glass cloth.

Aquariums, generally, should now be replenished in part, or wholly, with fresh soil; stove aquatics, especially the *Victoria regia* and *Nymphæas*, are very partial to a stiff, tenacious, yellow loam—that found upon the lower edges of ponds, thrown up in a heap, and turned over two or three times before it is used, is most suitable for them. I prefer forming a place for the reception of the plants in the centre of the tank with loose bricks, piled up in a circular form, as hollow as possible, some 5 or 6 feet in diameter, and from 2 to 3 feet deep, according to the depth of the water; the crown of this mound should never be more than 14 inches below the surface. Similar places might be formed, less in size, in the corners, where square tanks exist, for Nymphæas, which assist materially in making a good display in such situations, and being planted thus tidily within given spaces, are approached more readily when necessary, than when loose mounds are thrown up in the tanks. In regard to the Victoria, I prefer seedlings, planted out yearly, to keeping the old plants. Where an attempt is made to cultivate any of the latter in pots, plunged in tanks or otherwise, or other sorts of aquatics, such as Aponogetons, Pontederas, Sagittarias, or the singular Vallisneria, they should be potted into fresh compost forthwith. Good yellow loam, similar to that recommended above, will suit them well; let it be moderately dry, and pot only moderately firm.

Shrubby Calceolarias should be potted off at once into small 60-sized pots, using equal parts of loam and leaf-mould, and potting them moderately firm; when they should be slightly plunged into a bed formed of fermenting materials. The heat at the roots should not exceed a maximum of 70°, whilst they should be kept cool at top, by the aid of a free circulation of air after the two first days, shading for a week or so, at all times, when the sun shines freely. Be careful not to overwater them at the root, as should the soil become soddened it will in all probability induce a disease to which they are liable, with all its evil consequences.

FORCING HOUSES.

Continue stopping the lesser shoots upon all *Vines* in an advanced stage, as soon as one leaf is formed from the break. In a general way, use flowers of sulphur freely in all parts of forcing houses, brushing it over back walls, and strewing it freely upon most other surfaces, short of the actual heating apparatus itself; this will help to ward off red spider and mildew. Also ply the syringe freely twice a-day as the days lengthen. Finish thinning out *Peaches* immediately after they have done stoning, pinching back all weaker growths, whilst some few well-placed stronger shoots required to fill vacancies should receive full encouragement in order to induce a more free root action, and to aid eventually in elaborating the necessary juices in the fruit. Do not allow *Figs* swelling fruit to receive the least check, as such will often cause them at this stage to shed the crop. Those in pots cannot be watered too freely at such a period; give them alternately clear water and liquid manure. *Cucumbers* and *Melons* planted out and making a fair start may now have a little additional soil placed over the mounds upon which they are planted. It should contain more good loam with rather less leaf-mould than that in which they were planted out. Press down firmly with the hands, pegging out the growths made evenly over the bed, and pinching back the points of all strong-growing shoots; which by inducing divisional ones to push freely, will be the means of securing an earlier supply of fruit than if left to ramble over the bed. It will be observed that bunches of male flowers form freely at the axils of the several leaves left upon shoots so pinched back, which rather retard the younger breaks near them; these should at all times be removed with the finger and thumb, taking care not to injure the young shoots closely associated therewith. Do not remove any female or fruit-bearing flowers, which are readily recognised, owing to their having a minutely formed Cucumber behind the flowers. Gardeners make their plants fruit more certainly by dusting the female blossoms with the pollen contained in the centre of the fruitless male flowers, and thus accomplish what in nature is left to the agency of insects.

HARDY FLOWER GARDEN.

Cerastiums should now be planted out in the positions which it is intended they should occupy in the ensuing summer. There are two sorts in general use, of which C. tomentosum is the best for small scroll work and neat narrow edgings; and it is perhaps the most distinct, as the leaves being smaller than those of the other, it dries more quickly after a shower, and is therefore more constant in colour. C. Biebersteinii, the other sort to which I allude, however, is far superior to tomentosum for bold ribbon work, whether straight or curved. Plant thickly where needed, dibbling it in so that only the points of the shoots are seen above ground. Thus treated at this season, almost every particle will grow. Where good thick plants are laid in, a larger edging is formed more quickly, though not at all times with equal continuity. Be careful that when planted in freshly-dug loose soils, the birds do not carry it away, which they often will do at this nesting time, if not watched.

KITCHEN GARDEN.

Young plantations of *Seakale*, which might have been formed last season, and which have not been forced this, should now have the young sprouting crowns cut off at the ground line. This will induce them to break, and form numerous crowns upon each stool, ready to force in the following winter. Where it is requisite to form new *Asparagus* beds it will now be necessary to perform that operation. I always endeavour to transplant seedling plants into their more permanent beds about the time they commence growing, which will be about this date, as thereby any wounds caused by breaking the roots in the operation of removal are more likely to heal up than if planted in wet soil some months earlier. Having the ground well prepared, as previously noticed (see p. 132), it will now only need raking over, for the purpose of removing any large stones, &c., and should be afterwards trodden firmly down, thus obviating, as far as possible, any further settling down after the plants are in. The readiest mode of planting is to run the line down a row, drawing the soil away on either side of it, so as to form a sunken furrow under it, with the apex immediately under the line, 2 inches deep, falling away at either side to 3 inches. Upon the top of this so-called furrow firmly fix the crowns, spreading one half the roots of each plant evenly upon either side. The plants should be at least 10 inches apart. Cover in as quickly as possible when planted, and so level the soil over the bed that no crown is more than 2 inches deep. *W. E.*

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the Week ending Mar. 27, 1867, as observed at the Horticultural Gardens

March.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Of the Air. Min.	Of the Air. Mean	Of the Earth 1 foot deep.	Of the Earth 2 feet deep.	Wind	Rain.
Thurs. 21	15	29.816	29.644	44	30	37.0	39	39	N.E.	.28
Friday 22	16	29.730	29.631	49	36	42.5	39	39	E.	.02
Satur. 23	17	29.722	29.460	57	43	50.0	40	40	S.	.04
Sunday 24	18	29.596	29.495	59	43	51.0	41	41	S.W.	.00
Mon. 25	19	29.697	29.446	53	47	50 0	43	43	S.	.12
Tues. 26	20	29 397	29.335	57	40	48 5	45	43	S.W.	.00
Wed. 27	21	29.421	29.299	57	29	43.0	45	44	S.W.	.00
Average		29 625	29.473	53.7	38.3	46 0	41.7	41.3		0.46

March 21—Partially overcast; cold, with dry air; fine at night.
— 22—Heavy fall of snow; hazy; foggy at night.
— 23—Uniformly overcast; rain; overcast at night.
— 24—Fine; very fine. overcast.
— 25—Cloudy; rain; fine at night.
— 26—Very boisterous; fine, with low white clouds; fine.
— 27—Cloudy; fine, dry air, overcast; fine at night.
Mean temperature of the week 4 1-10th deg. above the average.

STATE OF THE WEATHER AT CHISWICK,
During the last 41 years, for the ensuing Week, ending April 6, 1867.

March and April.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday .. 31	54 9	34.3	44.6	18	0 30 in.	4	7	3	3	9	5	6	4
Mon. .. 1	54.8	34.1	44.5	21	0.76	3	8	4	3	5	11	2	5
Tues. .. 2	55.3	36.0	45.6	21	1 19	5	5	4	3	4	12	5	3
Wed. .. 3	56 8	35.7	46.2	20	1.19	5	4	6	3	4	13	3	3
Thurs. .. 4	56.5	35 9	46.2	16	0.30	5	3	4	1	4	12	6	6
Friday .. 5	56 5	36.6	46.6	20	0.30	2	6	6	2	3	8	12	2
Satur. .. 6	57 0	36 8	46 9	14	0.30	3	9	6	2	4	14	2	1

The highest temperature during the above period occurred on the 3d, 1848—therm. 78 deg.; and the lowest on the 1st, 1838—therm. 16 deg.

Notices to Correspondents.

CLERODENDRON LEAVES: *G A.* The spots on the leaves of your Clerodendron are caused neither by fungi nor sunburn. An examination under the microscope shows that they are little raised cushions of cellular tissue, something like those which occur in some of our own indigenous plants. What the immediate cause may be it is perhaps impossible to say, but it would be as well to omit the manure water. *M J B.*

CHINESE SUGAR GRASS AND RIO NEGRO PASSIONFLOWER: *J G.* If, after all that has been said respecting these plants, you still desire to try them, we recommend you to apply to some respectable firm, from whom, at any rate, the first-named may be had at a *cheap* rate.

FRENCH BEANS: *F W.* There is no insect nor fungus on your French Bean leaves. The spots are a diseased condition of the cellular tissue, probably arising from excess of nutriment. *M J B.*

HOT-WATER PIPES: *Old Dublin Subscriber.* There can be no doubt as to the practical working and safety of joints made by screws and india-rubber rings, but we are not so sure of their durability, as india-rubber, however prepared, perishes after a time. Nothing, however, could be easier than to repair a leaky joint made on this plan.

NAMES OF PLANTS: *B W.* Trapa bicornis, figured in Lindley's "Vegetable Kingdom" (see p. 722).—*J S.* Cheilanthes odora.—*J P D.* 1, Blechnum brasiliense; 2, Pteris cretica albo-lineata; 3, Litobrochia aurita; 4, Pleopeltis Billardieri. *W Ingle.* Curculigo latifolia and Pteris repandula *alias* felosma.—*T B.* Sarracenia rubra.—*B S W.* Perhaps Barklya syringifolia, but it is impossible to tell from such scanty data.—*H B.* Maranta Porteana.

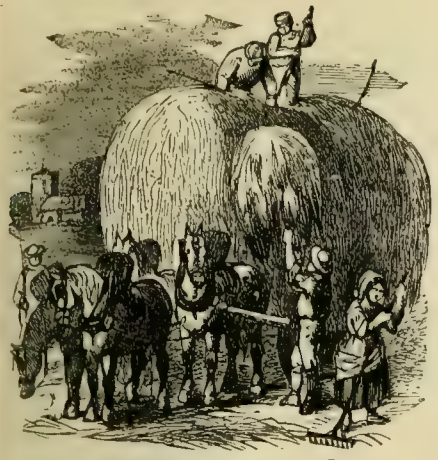
TAXODIUM DISTICHUM: *G C.* This tree is usually increased by imported seeds, but may also be raised from cuttings put in in autumn, and kept moist.

COMMUNICATIONS RECEIVED.—E. Sage, Gopsall Hall.—G. S.—Montgomery Henderson.—Old School.—E. A. M.—A. D. B.—S. R. H.—S. F. & Co.—F. & A. Smith.—Vindicator.—W. J.

SUTTON'S GRASS SEEDS

FOR ALL SOILS.

CARRIAGE FREE.



MESSRS. SUTTON

Specially prepare MIXTURES for every description of soil; therefore in ordering it is only necessary to state the nature of the soil, and suitable Seeds will be supplied. The following are the popular classifications of Soils :—

1. STIFF CLAY
2. STIFF or HEAVY LOAM
3. GOOD MEDIUM LOAM
4. LIGHT SANDS
5. SHARP GRAVELS
6. CHALKY SOILS
7. SHEEP DOWNS
8. RIVER FLATS, or WATER MEADOWS

SUTTON'S BEST MIXTURE of PERMANENT GRASSES and CLOVERS.—Prices for Nos. 1, 2, 3, 4, 5, 6, and 7 (2 bushels of Grasses, and 12 lb. Clovers per acre), 36*s.* per acre, carriage free.

CHEAPER MIXTURES, 26*s.* to 30*s.* p. acre, carriage free.

For No. 8, 30*s.* per acre, carriage free.

From many Letters before us we present one only for each description of Seeds.

From Mr. John Towle, *Weirs and Hincksey Mills, near Oxford.*
April 9, 1866.—"Some five or six years back I had from you Permanent Grass Seeds for 40 acres, and the same quantity from another party; while yours has now a good sward upon it, the other is worn almost to nothing."

SUTTON'S RENOVATING MIXTURE for the above SOILS, price 10*d.* per lb., cheaper by the cwt.—If these Seeds are sown early in the season, the improvement in the Pasture will be very great, and at small expense. (5*s.* to 10*s.* per acre.)

From W. G. Goulbourn, Esq., *North Mimms, Hatfield.*
March 15, 1866.—"The Renovating Mixture I had last year has already made an important improvement both in quality and quantity of crop."

SUTTON'S BEST MIXTURE for PARK LAWNS, BOWLING GREENS, CRICKET GROUNDS, for the above Soils, price 18*s.* per bushel. Sow 2 or 2½ bushels per acre.

SUTTON'S BEST MIXTURE of GRASSES and CLOVERS for Four Years' Lay, 24*s.* per acre, carriage free. Second Quality cheaper.

From Joseph Kerkham, Esq., Jun., *Terrington.*
March 28, 1866.—"The Four Years' Lay Seeds I had from you have answered well; and although I had a heavy crop of Oats, there has been more feed than I ever saw before. I have had 100 ewes and lambs on the 10 acres for a long time, but it appears to grow almost as fast as they eat it."

SUTTON'S BEST MIXTURE of GRASSES and CLOVERS for Two Years' Lay, 18*s.* 6*d.* per acre, carriage free. Second Quality cheaper.

From Mr. William Jones, *Agent to* E. P. Monkton, Esq., *Fineshade Abbey, Wansford.*
May 5, 1866.—"The Clovers and Grass Seeds supplied by you during my residence here (1864 and 1865), have given every satisfaction; indeed, in 1865, when all seeds around me were a failure, I had such an abundant crop of your 'Two Years' Lay Seeds,' that out of 60 acres I mowed 20 acres twice in that season, and the mowings together averaged quite three tons per acre."

SUTTON'S BEST MIXTURE of GRASSES and CLOVERS for One Year's Lay, 15*s.* per acre, carriage free.

From R. Bird Thompson, Esq., *Free Chase, Slangham, Crawley.*
Jan. 19, 1867.—"The seeds for one year's lay had from Messrs. Sutton turned out wonderfully. The mowers stated they had not seen such a crop for years, and that it was like cutting into a wall. They said it was 4 feet high. Certainly it was the finest crop Mr. Bird Thompson ever saw."

SUTTON'S MIXTURES of CLOVERS and RYE-GRASS for One Year, 12*s.* to 14*s.* per acre, carriage free.

From Mr. E. Neal, *Steward to the* Hon. J. K. Howard, *Hazelby.*
June 27, 1866.—"I have harvested 3 acres of Clovers and Italian Rye-grass from seed you sent me last year, which has been the admiration of the neighbourhood."

GOOD CLOVER SEEDS at market prices. Samples and lowest price per cwt. on application.

SUTTON'S SELECTED MANGEL WURZEL, TURNIP, and other FARM SEEDS, as see

SUTTON'S NEW FARM SEED LIST,

Gratis and Post Free on application.

☞ *All Goods Carriage Free, except very small parcels.*
Five per cent. discount allowed for Cash Payments.

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ROYAL BERKSHIRE SEED ESTABLISHMENT,
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Grass Seeds for Permanent Pasture.

RICHARD SMITH'S MIXTURE of the finest PERENNIAL GRASSES and CLOVERS are carefully made to suit all kinds of Soil. Price 20*s.* to 32*s.* per acre.
PRICED LIST on application.
Richard Smith, Seed Merchant, Worcester.

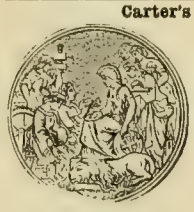
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GRASS SEEDS for PERMANENT PASTURE, of the finest quality, at moderate prices, carefully selected on a new, natural, and scientific system.

See "WHEELER'S BOOK on GRASSES," which contains Illustrations and Descriptions of the most suitable Grasses for Permanent Pasture.

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CARTER'S SELECT LIST of GENUINE FARM SEEDS, at moderate prices, is now ready, and may be had post free on application to
Carter's Great London Seed Warehouse, 237 and 238, High Holborn, London, W.C.

SOUTHERN COUNTIES ASSOCIATION.
President 1866-'67—His Grace the Duke of Richmond, K.G.
The ANNUAL EXHIBITION of HORSES, STOCK, POULTRY, IMPLEMENTS, WORKS of ART, &c., will be held at BRIGHTON, on the 24th, 25th, 26th, 27th, and 28th of JUNE NEXT.
SUMMARY OF PRIZES OFFERED :—
CATTLE.—Short-horns, £125; Sussex, £125; other Breeds, £50.
SHEEP.—Southdowns, £90; Hants Downs, £90; Oxford Downs, £90; Kent Sheep, £90.
HORSES.—Agricultural, £110; Hunters, £95; Hacks, £15; Ponies,
PIGS.—Berkshire, £32; other Breeds, £32. [£10.
POULTRY.—Various, £93.
The PRIZE LIST may be obtained of the Secretary. ENTRIES CLOSE May 1. By order of the Council,
Yately, Farnborough. G. B. H. Shute, Secretary.

ROYAL AGRICULTURAL SOCIETY of ENGLAND.
BURY ST. EDMUND'S MEETING, 1867.
STOCK, POULTRY and IMPLEMENT PRIZE SHEETS are now ready, and will be forwarded on application to
12, Hanover Square, London, W. H. Hall Dare, Sec.

ROYAL AGRICULTURAL SOCIETY of ENGLAND.—On TUESDAY, April 2, at 8 o'Clock P.M., Dr. VOELCKER will deliver a LECTURE on "THE RELATIVE VALUE and MANURIAL PROPERTIES of PURCHASED FOOD."
By Order of the Council,
12, Hanover Square, W. H. Hall Dare, Secretary.

The Agricultural Gazette.

SATURDAY, MARCH 30, 1867.

MEETINGS FOR THE ENSUING WEEK.

Monday,	April	1	Central Farmers' Club (Mr. Nockolds on a Government Board of Agriculture), at the Salisbury Hotel—6 P.M.
Tuesday,	—	2	Central Chamber of Agriculture (Assessment of Property), at the Salisbury Hotel—11.30 A.M. Agricultural Society of England (Dr. Voelcker on Foods and Manure)—8 P.M.
Wednesday,	—	3	Royal Agri. Soc. of England (Council Meeting)—Noon

A NUMBER of the Agricultural Labourers at Gawcott, Buckinghamshire, are "on strike" for better wages. They have worked all winter for 9*s.* and 10*s.* a week, and now they demand 12*s.*, and 1*s.* for Sunday work. Notwithstanding that their demand was refused, and they were promptly paid off at the lower rate, yet the probability is that these men will get what they ask, if not in their own neighbourhood, elsewhere. The natural tether of the agricultural labourer is generally strong enough; his cottage and his family, and his accustomedness to the home locality and people, are sufficient guarantee that his new-found independence will not degenerate into restless vagabondism; and we are glad, therefore, of any illustration which will enforce upon masters the conviction that not custom but the current market value of labour must determine the rate of wages. This is more than ever true now that such facilities exist on the one hand for distributing information, and on the other for travelling from one district to another. The value of locomotion to both masters and servants cannot be overrated, and it was very properly made the other day at Tiverton the subject of an address in connection with this subject by Canon Girdlestone. And this is how he taught by a Devonshire example the truth which is being now illustrated at Gawcott :—

"When I first came to Halberton, I found that the wages of an able-bodied, industrious married labourer were only 8*s.* and in some cases but 7*s.* a week, out of which, with a few exceptions, house rent, fuel, food and clothing, and medical attendance, for self, wife, and children—in short, everything—had to be paid. There never was a more difficult problem set before a man than to endeavour to make both ends meet under such circumstances, and it appeared to me a most improper state of things. I did my best in all possible ways to persuade the farmers of this. I told them that, setting aside all moral obligations, even in a pecuniary point of view they would be gainers by paying their labourers better; that if they took out of one pocket a few shillings a week more for wages, they would put into the other pocket much more, saved out of a decreased poor-rate, and the more efficient work of men better fed, and with fewer temptations to dishonesty. The only answer I got was, that I was a fool for my pains: that I ought to know that wages, like water, always find their own level, and that the labourers, if they could better themselves, would be sure to do so. 'Well,' said I, 'water will find its own level if you give it a vent. But labourers are not in the condition of water as long as they are pent up in the place of their birth, by not knowing in what part of the country better wages are given, and not having the means of removing to a distance.' So I set myself to work to make a vent for the water—to teach the labourer where he might get a fair day's wages for a fair day's work, and furnish him with the means of removal. By my instrumentality no less than 38 labourers from this neighbourhood—about half of whom are married, with families, and half single men—have been removed to various places—Ireland, Lancashire, Yorkshire, Essex, Kent, &c., where the married men all get house and garden rent-free, with sometimes fuel added, with wages varying from 12*s.* a week, the lowest, to 1*l.* a week; and the single men mostly board, lodgings, washing and mending, and 6*s.* a week. This is still going on; I have still applications both from and for labourers; and now that the vent is made, the farmers' dictum, which they thought I was too ignorant to know about, and too wanting in power to make practical, is fulfilled. Wages are finding their own level. As some of the water keeps flowing out to a higher level through the opening which I have made, that which remains keeps rising. The wages of the agricultural labourer are rising, and must continue to rise in Halberton and the neighbourhood. Now that his eyes are opened to the fact that he can get well paid in other parts of the country, the Devonshire labourer will be a great fool for his pains if he does not combine, unite, struggle, and persevere till he gets his cottage rent-free and his 12*s.* a week for wages. As for the merciless pelting which these efforts of mine in behalf of the agricultural labourers have brought upon myself from the farmers and the papers which espoused their cause, I have all along said that my skin, by many years' exposure to public criticism, has become as tough as that of a rhinoceros."

The Canon added, that whether the farmers or the papers aimed a blow at him, it only rebounded against them with double force; and that in spite of the farmers and the papers, there he was alive, and as merry as ever.

LET it be borne in mind in connection with the Gawcott strike, and other influences which affect the agricultural labour market, that "information" is often incomplete, and therefore not always trustworthy. It may tell the labourer who has just received his 10*s.* wage that he might have had 12*s.* or 14*s.* elsewhere; but unless it also tells him about payments in "kind" as well as money—about gardens, cottages, and perquisites—it may mislead him after all. And the upshot of any mistake in such a case, with all the misery which it entails, is to make the labour market less sensitive to such information for the future; and so to do a mischief to labourers as well as masters, who are both of them interested in possessing trustworthy information on the subject. It is in illustration of this subject that we refer to the condition of the labourer in Dorsetshire.

—— In an action recently tried at Dorchester, when the plaintiff, John Ridout, sought to recover damages from the South-Western Railway Company for the death of his wife, caused at an illegally constructed crossing, the constantly vexed question of a Dorset labourer's wages was again a subject for comment, and not a little ridicule. The plaintiff in his examination, stated that "he was a farm labourer, getting 9*s.* a week;" but his master, when interrogated on this point, stated that his average wages amounted to 13*s.* per week.

Now, having inquired into this seeming discrepancy, we find upon an analysis of the wages account paid to John Ridout and his fellow labourers, the case pretty much as follows :—
9*s.* is the nominal weekly pay of all the ordinary men on the farm on which the said John Ridout works, except one carter, to whom the master has given 9*s.* 6*d.* since taking first prize at a ploughing match. The discrepancy between the accounts of the master and the man arises from the customs of the county, and some of these customs may now be stated. They are—

1st, "Put-work," "task-work," "work by the gret," &c.
2d, Harvest money.
3d, Coals.
4th, Cottage and garden rent-free.
As to the first point, hoeing, reaping, mowing,

&c., are taken by the job at so much an acre, and extra wages can be earned at such work.

But (2), as the carters cannot be spared to do many "put-work" jobs, they have so much a year harvest money; and (3), coals are hauled for each labourer, though it is only the shepherd and carter who to a certain extent has them found.

(4). The cottages in Dorset are probably not better than those of other counties, and they certainly are not worse, and they have usually very good sized gardens attached to them. These are found for the more permanent farm servants; and, for those for whom they are not ostensibly provided, they are usually let at as little as a shilling a week.

If, then, we take these matters into consideration, in the case before us we find that the average pay is nearly 13*s.* 6*d.* a week, exclusive of cider, of which there is a liberal provision for each man. The arrangements that are made with different kinds of farm servants tend very much to an equalisation of wages, but it is the height of folly to suppose that the nominal weekly wage is the whole of the labourer's income.

In so far as Dorset is concerned, we conclude wages to be quite as good as those of other purely agricultural counties, and it behoves town-made philanthropists to try to understand the true nature of the case before they make sensational speeches and write sensational articles on the Dorset or any other county labourer's wage.

We much wish however that some plan could be devised to make the wages of the labourer more certain and regular, and more dependent upon the capability of the man; but it is with the farm servant as with the mechanic, for although the former as yet has no trade union, yet he keeps so pertinaciously to his ways and customs that he rebels against an advance of wages to one if not given to another.

There is also, we are sorry to find, another very serious grievance, illustrative of a low condition altogether of the labouring class, which must, of course, be corrected by a just discharge of the duties both of masters and of guardians, but which is in the meantime taking root in many Dorset parishes. Whenever work is somewhat scarce, the young men urge their elders to apply to the Union. Many an elderly man who could do work not requiring full strength or constant application applies for permanent relief, and when so disposed of, the younger men are not only employed but paid full wages for what is often really women's work, and this is more especially the case when women are employed in such work as gloving, straw-plaiting, and the like for some neighbouring town.

These facts, and the erroneous notions of the smallness of wages, are doubling our poors' rates, as whenever a Dorset man is asked by the guardian as to his amount of wages, he invariably says "9*s.* a week, and perhaps a shilling or so extra now and then," so that the real earnings are seldom understood; and so again in the matter of gloving it is next to impossible to ascertain the rate at which they are paid; but let not the townsman talk of the lowness of country wages upon such evidence as is thus obtained, for by this same rule the manufacturer must cut an equally sorry figure. Thus, we have been told, over and over again, at the Board of Guardians, that gloving is paid for at the rate of "2*d.* per pair, by which some 1*s.* 9*d.* or 2*s.* can be earned weekly by a good hand," whereas it is plain to any one that the gloving ladies dress at a rate which such figures can by no means explain.

The truth is that the mere labourer gets pretty much the same in town and country for a given quantity of mere work, but the wages are paid according to so many customs that the sum named is really no criterion whatever of the amount received, or the advantages accruing under different circumstances. *B.*

—— THE question of efficient scavenging is on the point of decision at Great Berkhampstead, a small and somewhat scattered town; and the practice of earth-closets as against drainage is about to be answered in favour of the latter. The reasons given are, that Berkhampstead, with a population of 5000 inhabitants, would need 2400 tons of dry and sifted earth per annum, proportionately and uniformly distributed, at short intervals, to every house in the parish; that, moreover, the used earth must be removed at short intervals of time, that drains must in any case be provided for all foul water, and especially that unless the system is perfectly carried out, the nuisance becomes intolerable. We fear that the earth-closet system is thus confined to the cases of solitary houses or scattered villages, where every cottage has its garden in which house refuse may at once be used. The plan about to be adopted at Berkhampstead is that which Mr. MENZIES advocates where the rainfall and the sewage-water are kept separate; and for the latter only, uniform in quantity, and thus more easily managed, is any special elaborate system of drainage needed. The pamphlet in which the proceedings at Berkhampstead up to the present point are described, includes a number of reports and communications on the subject, and among them the following account by Sir W. HAYTER, Bart., of Southhill Park, Bracknall, of the way in which Mr. MENZIES' plan has been carried out at the Broadmoor Asylum:—

The residents at the Asylum, comprising the patients, the attendants, and artisans, and their families, amount in number to about 650 persons. The Asylum itself is situated on an elevated plateau, so that the whole system is worked by gravitation. The water supply, however, is pumped up by a steam-engine from the valley below.

There is an entire separation of the rainfall from the sewage-water. The former, except such as falls upon the buildings, which is mainly led into cisterns and used for laundry purposes, is carried off in separate drains, adequate only for that object, and having the requisite gratings, into the ponds and ditches around, ultimately flowing into the streamlet from which the ordinary water-supply is obtained. The sewage-water derived from the closets and other places in and about the building, and which averages between 30 and 40 gallons per head per day, is carried off by separate closed drains into a straining or filtering tank, of which there are two, side by side, each being in use alternately for about six weeks. Both the solid and liquid matter flows into the bottom of this tank; the former remains at the bottom of the tank, the latter rises through apertures in wooden trays covered with ashes and charcoal, to the top, and flows off in a covered drain to the garden and grounds, and is distributed in the ordinary way of irrigation, which gives employment to one common labourer. The solid matter which accumulates is easily removed, at the end of about six weeks periodically, and is mixed with gas, lime, burnt earth, ashes, or other materials at hand, and is carted on to the land for agricultural purposes.

The sewage-water having been applied to the garden, where its application is most valuable in the growth of vegetables, is again used in the fields below for the growth of Italian Rye-grass; and the abundant and successive crops upon land hitherto in the lowest scale of natural fertility sufficiently evince its value. The irrigating water, having been thus used, flows off at the end of the estate into a streamlet apparently perfectly pure; indeed, an adjoining parish mainly derives its supply from this streamlet. No complaint whatever has been made of its impurity, and the system has been in use for more than two years, and the bailiff assures me that the solid matter when treated as above forms a very valuable manure.

I am quite at a loss to conjecture of what possible utility it can be, either in an economical or sanitary point of view, to mix the sewage and the rainfall water together. The evils are obvious; in the separate system you have to deal with ascertained quantities, so far as sewage is concerned, and the size of your drains is calculated accordingly; when the sewage and the rainfall are mixed together, there must always be an uncertain quantity to deal with, but your drains must be equal to carry off the largest quantity which the united flow may at any time require, and thus your drains being made too large for ordinary purposes will occasionally be clogged with solid matter, which the ordinary supply will be unable to remove, and which will remain fermenting and evolving noxious gases which must and will escape through the gratings.

The rainfall unpolluted is of service to supply the ponds and the streamlets with pure water; but if polluted with sewage would be rendered unwholesome. It is obviously impossible to carry off the rainfall without gratings to allow of the flow from the roads and general surface of the ground; but if the sewage is mixed with the rainfall the whole becomes polluted, and unhealthy gases are of necessity evolved. This evil appears to me so great and so insuperable, that on sanitary grounds alone a separation appears to me absolutely necessary.

I need scarcely mention that on occasions when a great rainfall happens, the sewage matter by its great dilution will become comparatively useless for agricultural purposes.

In the position in which the system of sewage-removal arrangement requires the application of pumping-power, the separating mode in an economical point of view has manifest advantages, as the quantities can not only be accurately ascertained, but the useless expense of pumping unnecessary and diluted matter will be obviated.

—— "One boy is a boy, two boys is half a boy, and three boys is ne'er a boy at all." That is the popular agricultural verdict as regards the labour of children unsuperintended. Hence the need of their being strictly looked after while at work in the fields. Take the case, now, of a country wholly arable, with a soil extremely fertile and productive of weeds, thus needing much hand labour as well as horse-hoe cultivation—with no scattered cottages or hamlets, so that all the labourers live in widely separated villages or towns; and out of this necessarily arises what is called the gang system, as it prevails in the Fen districts, and is described and condemned in the Blue Book just presented to both Houses of Parliament. The labour of children is needed, and as they live in flocks, so they must come forth in gangs; and as they are useless if they are not looked after, so there is the need of a gang-master. He takes the work and pays the children, and keeps them up to their performance of the task. He may be a short-tempered or even a brutal drunken man, and hence the system is open to the most cruel abuses. These are fully exposed in this Report of the Commissioners,* who recommend that gang masters should be licensed—that the ages of children allowed to work in gangs be limited—that a maximum distance from their homes be fixed, beyond which they should not be allowed to go—that a female superintendent should be required where girls are employed—and that some provision for education be insisted on. Some legislation on the subject is called for and will no doubt follow upon this Report, which deserves to be carefully studied and discussed in those counties where the system prevails.

—— We see it announced that Mr. THOMAS DUCKHAM, of Baysham Court, near Ross, is to be invited to a public dinner, when a testimonial valued at 500*l.* will be presented to him by his brother agriculturists, not of Herefordshire only, but of the country generally, in recognition of his public spirit in all agricultural matters, and especially of his services as Editor of the "Hereford Herd Book."

* Report of Children's Employment Commissioners, 1867.

THE PARIS EXHIBITION OF 1867.

[FROM OUR CORRESPONDENT.]

ON the first issue of the Commission appointed by the French Imperial Government to undertake the onerous, and not always appreciated duties connected with the organisation of this vast undertaking, Agriculture had a very important *rôle* assigned to her. This might easily have been anticipated by those who know the special interest taken by the Emperor personally in all that concerns its progress; but important as the *rôle* was which was thus originally assigned, circumstances which were subsequently brought under their notice, induced the Commissioners to modify very materially their first intention. Modifications have thus been made which have had the result to place the programme of what is intended to be done in connection with the agricultural department at the very head of all others, and to give to it a prominence, which if realised, will make it one of the most important exhibitions ever organised. But it is easier to promise than it is to fulfil; and already a shade of doubt begins to appear, leading to the belief that all that was promised in this department will not be fulfilled. The rumours which have been rife during the last two or three months as to the Exhibition not being ready for the day of opening—fixed ominously enough, at least in the estimation of superstition for the 1st of April—were culminated in an announcement that if opened on that day, it will be opened with many, if not all of the departments, in an uncompleted state. If then, this is correct, and that it is so, nearly all have stated, certain it is that whatever may be the condition of final or ultimate completion of the various sections of the agricultural department, the programme of work to be done in connection with them cannot be carried out so far as the dates are concerned. But be this as it may, it will be as well to place before our readers a statement of what is promised to be done in the agricultural department, leaving it for time to show whether it is to be fulfilled or not; and this we give on the authority of the "*Commission Consultative pour les Expositions d'Agriculture.*"

In addition to a certain space in the Exhibition at the Champ de Mars, and the erections in the Park, which will be not the least interesting portion of the Exposition—the Commission have had appropriated to the purposes of the agricultural department the island of Billancourt, on the Seine, and a smaller island, of which the name is L'Ile de Sequin, near it. In addition to the space afforded by these two islands, two of the Imperial farms—that of Vincennes, with that of Fouilleuse—have been placed at the disposal of the Commission for carrying out certain trials, of which due notice will presently be given. The Imperial farm of Vincennes is within easy reach of Paris, and is well worthy of a visit on its own account. We have not yet visited that of Fouilleuse, but we hope soon to do so, and of what is to be seen there we hope to be able to give our readers in due time an account. The agricultural part of the Exhibition has been divided by the Commission into two great sections, first, that of Implements, and second that of Animals. The first of these sections is again divided into what may be called sub-sections, and these again into classes, the trials of which will take place daily, and more elaborate ones on special dates fixed, as will be seen from the following list of sub-sections and classes. Under the sub-section of "Implements used in connection with the cultivation of the soil," are the following classes:—(1) ploughs for deep ploughing; (2) ditto for light land and general ploughing; (3) hand and subsoiling ploughs; (4) cultivators, scarifiers, drag and heavy harrows; (5) light and seed harrows and land rollers. All the above classes will be subjected to trial during the month of April, commencing with the first and ending with the last day. (6) Steam ploughs: the trials of these will be made from the 20th to the 30th of April, and will be held at the Imperial Farm of Vincennes. The whole of the systems tried will be in one field of large extent, so that the visitors will have them all at one time under inspection, and be able to make their own comparative observations respecting their merits, with ease. This feature we deem of great importance, and only hope that the promises of the programme in this section will be fulfilled. The extent of land given to each competitor will be from 12 to 24 acres. The soil, we believe, of the trial field presents all the features best calculated to allow of the peculiarities of steam-ploughs being fully tested. Class 7 is composed of sowing machines, and these will be tried from the 1st to the 15th of May. Class 8 is made up of Grass-cutting machines, and the trials of these are to extend from the 15th to the 30th of May, and to take place at the Imperial Farm of Fouilleuse, situated at a distance of 12½ miles from Paris; the trial will be made on one field of 60 acres of Lucerne, so that, as in the case of the steam-ploughs, the whole of the machines under work will be seen at once, and comparative observations easily carried out. Class 9, horse rakes, will also be tried at the same place and time. From the 1st to the 15th of June the trials of the horse hoes and double mould-board ploughs (Class 10) will be made. Those of the reaping machines (Class 11) from the 15th to the 30th of July, at the Imperial Farm of Fouilleuse, on a field of winter Wheat of 70 acres in extent. The last of the classes (12) under the present sub-section, composed of the vehicles of the farm, will be tried from the 1st to the 15th of May. The second of the sub-section of Implements is that of "Machines used in the buildings of the farm" (*Instruments d'Intérieur de la Ferme*), and is divided into classes as follows: (1) churns and dairy utensils—trials

from the 1st to the 15th of May; (2) drain and tile-making machines—from the 1st to the 15th of April; (3) steam engines—trials during the whole of the month of April; (4) threshing machines—trials from the 1st to the 15th of August, the same period being that of the trial of the machines under Class 5, winnowing machines. Class 6, oilcake-breakers and mills, will be tried from the 15th to the 30th of April, as also machines under Class 7, straw cutters and root cutters and crushers. Cooking and steaming apparatus under Class 8 will be tried during the month of September. The machines connected with Flax and Hemp will be tried in the month of October. The trials under Class 10, comprising what is called agricultural industries, as distilling from Beet-root, &c., sugar-making from do., beer and cider, starch, &c., will be made during the months of September and October; hydraulic machines, Class 11, from the 15th to the 30th of April; and Class 12, weighing machines, during the same period.

The second great division of the agricultural department is that of the Animals of the Farm (*Exposition d'Animaux*). This promises to be one of the most interesting and suggestive exhibitions of stock ever held, as it will comprise, or it is proposed that it should comprise, specimens of the stock of all countries, and also of what may be called the minor animals of the farm, as well as of insects, which play an important part in its general economy. The Commission find all the stables and buildings necessary for the comfortable housing of the animals, the food which they consume being the only expense to which the exhibitors will be put. Each division is to be exhibited in such a way and at such a time as to enable the best and most characteristic features of the animals composing it to be shown to the utmost advantage. The periods of exhibition will thus depend upon the natural circumstances of the animals exhibited, as will be seen from the following list. Each period of exhibition is to extend over 15 days, this including the time necessary to bring up the animals. This will allow on the average a full period of 10 days to each class. At the end of such period a sale of the animals exhibited in the special department will be held under the care of, and organised by the Commission. The following is the list of the classes under this division, and of the periods at which they are exhibited:—(1) fat stock, cattle, sheep, and pigs, from the 1st to the 15th of April; (2) sheep of breeds other than Merino, from the 15th to the last day of April; (3) dairy cows, of various breeds, as Normandy, Flemish, Brittany, Swiss, Dutch, and British, from the 1st to the 15th of May; (4) Merino breeds of sheep, from the 15th to the end of the same month; (5) draught horses, first fortnight of June; (6) poultry, pigeons, rabbits, &c., the second fortnight; (7) cattle used for work, the first fortnight of July; (8) riding and race-horses, the second fortnight; (9) dogs, the first fortnight of August; (10) draught oxen, the second fortnight; (11) pigs, the first fortnight of September; (12) asses and mules, the second fortnight; (13) fat animals, fed in pastures, the first fortnight of October. In addition to these classes there will be one made up of useful insects, as silk-worms, bees, and the like.

We have said that the accommodation for all the animals exhibited will be provided by the Commission; and this will be arranged in such a way that each department will exhibit specimens of the best forms of buildings adapted for it. Thus in the department of cattle there will be specimens of the best modes of constructing cattle houses, fatting boxes, and the like; in that of horses, the best forms of stables; in that of sheep, sheep walks and shelter sheds; in that of pigs, styes; and so on. In connection with the horses there will be an exhibition of practical farriery; and in that of the draught or working oxen, trials of the various classes in appropriate places. These will be held during the second fortnight of August. Nor is this all: there will be an exposition of farm buildings and cottages, and the best modes of arranging and constructing them; and a very complete exposition is said already to be organised of the best and most approved fittings for adoption in all classes of rural buildings. The classes devoted to the products of agricultural industry will also present much that is peculiarly interesting, such as the cereals and other substances, more or less perishable, used as food, specimens of various timbers, &c.

From what we have given, the reader will see that there is a very promising programme of proceedings in connection with this Great Exhibition of 1867. All may not be realised which it does promise, but the fields it opens up are so large, and the soil, so to speak, so fertile, that if only a comparatively small portion yields produce, that will be so extensive as to make the result somewhat remarkable.

We shall in our next glance at the working of the Juries, and the rewards which have been placed at their disposal for distribution amongst the successful competitors in the several departments. After which, the Fates being propitious, we shall commence our regular notice of the Exhibition as it is complete or not complete in each or all of its departments, as its opening will show.

THE CATTLE PLAGUE IN THE NETHERLANDS.

The following extracts from the Consul's Report, dated Jan. 24, 1867, on the progress of the cattle plague in the Netherlands, shows how virulent the epidemic has been, and that the authorities, like those in England, have been compelled to adopt strong measures to suppress it. It likewise shows that the rules and regulations enforced were in many respects similar to our own.

"At the end of the year 1865 the official returns published for the provinces of South Holland and Utrecht, showed that the plague was increasing and extending its area, and when the Minister of the Interior presented his second report on the subject, dated 23d January, 1866, the total numbers for the two provinces above mentioned had reached by the latest official return 28,728 cases, 8775 deaths, 6964 slaughtered, and 9486 recovered, leaving upwards of 3500 still under treatment, while both to the north and south of the infected districts in North Holland and North Brabant isolated cases had occurred. In the last mentioned instances the evil had promptly been met by slaughtering all the cattle in contact with the infected animals, after awarding compensation to the owners, and by strict measures for cutting off all intercourse with the infected places, which might have the effect of spreading the disease. But before directing attention to the progressive advance of the plague, it may be of advantage to consider the means at the disposal of the authorities for arresting or mitigating it.

"With the additional light of a twelvemonth's experience it is easy to criticise the self congratulation of those who saw in the machinery of the commercial and provincial organisation of the Netherlands a sufficient means of encountering the disaster which had befallen them, and who had pointed to England as an example of the helpless condition of a country destitute of such institutions; it is enough to remark, that in the one country as in the other, the ordinary powers of the State have proved insufficient to avert consequences which yet might have been foreseen and provided against.

"The general laws applicable to the subject at the time of the breaking out of the disease were certain articles of the Penal Code respecting default of giving notice of animals attacked by infectious diseases, and allowing such animals to run among others; together with a law empowering the State to appropriate, on award of compensation, the property of individuals on grounds of public utility. Further, the provincial and commercial laws conferred the right of making certain regulations with the force of law within their respective limits, and the provincial authorities were invested with the attribute of calling on those of the communes to direct and carry out such measures as might be found expedient.

"In pursuance of powers thus vested in them, many communes took measures for the suspension of markets and public sales of cattle; for providing places for the temporary seclusion of suspected and imported animals; for fencing off infected farms, and maintaining a strict watch over them; for prohibiting the introduction of infected or suspected cattle, or of any articles likely to spread the disease—among others, hay, straw, and other fodder for cattle within their limits, and for proper inspection over the passage of cattle through them; for the prevention of indiscriminate access to infected or other stalls or pastures by cattle dealers or others; for destroying the carcases, hides, and offal of animals dying or slaughtered as diseased or suspected; and for enforcing proper cleanliness and disinfection of stalls and other places where diseased cattle had been kept; besides making such other regulations as the necessity of the case might suggest.

"The provincial authorities took measures for proclaiming those communes in which the disease had made its appearance, and also provided for the maintenance of a boundary line, guarded by the local police, augmented according to the exigencies of the crisis, and assisted by a military force placed at their disposal by the general Government. Over this line all introduction and transit of cattle was rigorously subjected to inspection, as well for preventing the infection as for hindering the supply of fresh food for it. Inspectors were empowered to enter premises and pastures to ascertain that proper precautions were taken, and that no clandestine additions were made to the stock; and severe penalties were annexed to offences against the provincial regulations. Finally, funds were provided for meeting the expenditure required for these purposes.

"The Government also found it necessary to apply to the Chambers for a vote of money for the purpose of reimbursing the Communes for advances made in compensating the farmers for cattle slaughtered to prevent infection, and for the engagement of veterinaries in Government service.

"As, however, the action of the communal and provincial authorities was not uniform, and as many of the communes neglected or refused to make or enforce the necessary regulations, it was indispensable to provide more efficient means for arresting the progress of the calamity. Doubts being entertained of the extent of the powers of the Government to take the decisive measures considered expedient for meeting the contingency, a law was passed in the month of October, 1865, by which they were authorised, in the event of any infectious cattle disease breaking out, to prohibit the importation and transit of cattle within the country, and the holding of cattle markets, as well as to make prohibitory and other regulations respecting the returns, sale, treatment, and inspection of living and dead cattle, and all things belonging to them, and the conveyances by which they might be transported from place to place; without setting aside the provincial and communal regulations, in so far as they were not inconsistent with the supreme authority. This law prescribed also the forfeiture of all animals or other property transported or sold or otherwise dealt with in contravention of its provisions, and the destruction of such property if required in the interest of the public; compensation to be given for such destruction in case of acquittal or discharge from prosecution. The law was to continue in force until the 1st January, 1867.

"Under this authority a cordon was drawn round the infected districts corresponding in general with the line already traced by the provincial regulations, and guarded by a military force and vessels belonging to the Royal Navy stationed in such rivers and other navigable channels as formed part of the line of separation. All transport of cattle and other articles before mentioned over this line was forbidden. All cattle markets within the infected districts were suspended, as well as in such other parts of the country beyond the line in which from time to time it was considered expedient to enforce the prohibition. Orders were subsequently given to prevent the introduction of new stock into communes where the plague had prevailed within a month, in order to prevent the perpetuation of the disease by furnishing fresh food for it. In the report of the Minister of the Interior the execution of this order is stated to have been followed by an immediate decrease in the number of cases, though it would be hardly just to conclude that it was in consequence of the prohibition, as subsequent experience has shown that cause and effect cannot so easily be traced at once in the operation of other more stringent measures, which have, however, in their ultimate consequences proved most decisive. By another Royal ordinance permission was granted for the introduction over the line of horned cattle and sheep destined for slaughter under proper precautions as to their condition and custody, and the certainty and expedition of the disposal of them. A subsequent administrative order prescribed the purification of all cattle stalls within and in the vicinity of infected communes, and disinfection of manure, upon notice given by a qualified veterinary.

"In the meanwhile many persons and associations had been urging the adoption of a different course from that which had hitherto been pursued, recommending the immediate destruction of all diseased and suspected animals as well as those which had been in contact with infection; while others had supported the principle of allowing the disease to exhaust itself within the line of exclusion, leaving that part of the country on the exterior of the line to the operation of 'the pole-axe and the purse,' as the opposite system was concisely termed. The latter party had in their favour the plea of self-interest, since a considerable number of the cases did not end fatally, and thus the stock-owner was not compelled to give up his business entirely, as would have been the case were his stock to be appropriated on compensation, while he was prevented from making new additions to it; the animals, also, which had recovered acquired on that account a value which almost repaid the losses sustained. They had also the support of many who had conscientious scruples against the measure recommended, and who alleged that the cattle plague must be looked upon as a judgment of God, calling upon them for simple resignation to His will. The administration acted upon the principle that indiscriminate slaughter was inexpedient when the plague had extended through many stalls, and that such a remedy in many cases was worse than the evil to be cured. It was applied only when the disease appeared for the first time in isolated cases. Then the communal authorities were warned on the report of a veterinary to destroy all cattle in contact with the infected cattle, and on default the summons was enforced by the orders of the provincial authorities. The execution of these orders was often attended with great difficulties, resistance, both passive and open, being offered, the communal authorities themselves being in many cases parties interested, or more or less dependent on the good will of the persons whose property they were called upon to destroy. Sometimes no veterinary was to be found to make the necessary report, and elsewhere farmers intimidated labourers in their employ from giving assistance to the magistrates by threats of dismissal. Cases of open resistance had proceeded so far as to require the intervention of the military force. In addition to this, the procedure under the law of expropriation was dilatory and inadequate, where infection was spreading rapidly, to meet the emergency, even where the goodwill of all parties concerned was not wanting. In ordinary cases the report of the veterinary had to be followed by the decision of the burgomaster and councillors, who might differ in opinion, and the owner might decline to acquiesce, in which case a justice of the peace was appealed to; and further, the property could not be taken from the owner until payment made and recorded, while to all this delay were added the costs of the proceedings.

"With the exception of a modification in a stricter sense of the regulations for introducing animals destined for the butcher within the cordon, and an ordinance providing for the burial and destruction of the carcases, hides, and offal of animals dying of the disease, or slaughtered for the purpose of preventing the spread of it, no further powers were conferred on the administrative authorities for some months. In consequence, however, of the urgency of farmers within the infected districts to renew their diminished stock, a temporary dispensation was granted in the middle of the month of April to introduce cattle across the cordon, and to permit the free passage of cattle within that line to all parts, except pastures, farms, or stalls where the plague was then prevailing, or had existed within a month previously. Under this dispensation it was afterwards stated that 12,000 head of cattle had been introduced into the infected parts of South Holland and Utrecht, which subsequently afforded fresh food for the disease, though the immediate consequence was not discernible in the increase or the number of cases."

A table here shows the number of cases which occurred weekly from January 6 to Dec. 29, 1866, in the three provinces of South Holland, Utrecht, and North Holland, the greatest number of cases being in Utrecht in the week ending Dec. 8, when the numbers reached 4783, and the deaths 3177. In South Holland the greatest number of cases officially reported in one

week was on January 6, when 2869 were recorded, and in the same week that the death rate was highest in Utrecht, viz., Dec. 8, it was likewise highest in South Holland, amounting to 917. In North Holland, for the week ending Dec. 29, 730 cases are recorded, being the highest returns from that province; the death-rate here was highest in the week ending March 3, when 84 deaths occurred.

Before the month of June it appears "the Government had arrived at the conviction that more energetic measures were necessary, and more extensive powers to enforce them. The prevalence of the cholera, however, throughout the kingdom, and especially at the Hague, rendered it unadvisable to reassemble the Chambers for this purpose; and in the meantime the Minister of the Interior endeavoured to obtain from the local authorities a voluntary and uniform application of the expropriation law. But as this attempt proved unsuccessful with a great number of the local administrations the favourable moment for arresting the mischief was lost. It was not until the middle of September that a Bill conferring the necessary powers upon the Government became law, and by that time the cases remaining under treatment had increased to 1344, with a weekly addition of new cases, 1940, and the number of communes infected in South Holland to 48, in Utrecht to 35, and in North Holland to 6. This law empowered the burgomasters, either of their own authority or upon the report of the owner, or of a qualified veterinary, to order the destruction of diseased or suspected animals, or such as had been in contact with them, after valuation of the property and tender of the amount to the owner, namely, two-thirds of the full value for diseased and suspected cattle, and the whole value for such healthy animals as it might be found expedient to destroy. In case of the owner disputing the award of the appraiser, 24 hours were allowed for him to name another, a third being appointed by a justice of the peace. The decision to be given on oath, if required, either by the burgomaster or the owner of the cattle; of a majority of these three was final. The burgomaster was further authorised to enter and visit, accompanied by such professional persons and other attendants as he might consider necessary, all pastures, stalls, and dwelling-places of stock-owners or herds with or without their consent. The regulations for the burial and destruction of animals dying or slaughtered on account of the disease were to be enforced by the general Government. All the stock owners neglecting to report cases of disease or to separate infected cattle were to forfeit all right to compensation on account of them, in addition to the penal consequences of their default. The Royal Commissioners in the provinces, acting under the direction of the general Government, were to issue their orders to the burgomasters to exercise the powers conferred on them by this law. The compensation was to be advanced out of the communal funds, but if these were insufficient for making the proper tender, the burgomaster might receive an advance from the public monies without the previous warrant of the Audit Chamber, nor was he bound to give security for such sums, but an account was to be rendered within two months to the Audit Chamber.

"In every case the ultimate charge for compensation was borne by the general revenue of the country. In the execution of the powers conferred by this law a royal ordinance was issued, prescribing the expropriation and destruction of infected and suspected cattle, and of other cattle which had been in contact with them, in all places to the exterior of the line of separation, while the Minister of the Interior, in concert with the Royal Commissioners, was to determine when it might be expedient to carry out a similar measure in respect of any district within the line, and the interpretation of the terms 'suspected cattle' and 'cattle in contact with diseased cattle,' was left to the discretion of the Royal Commissioners.

"According to the Report of the Minister of the Interior, addressed to his Majesty on the 3rd of December, the general order had been punctually obeyed in the districts without the cordon; within that line these stringent measures had been carried out along the edge of it, and at first it appeared that they were attended with a measure of success, but after the beginning of the month of November new communes, both within and without the cordon, were added week after week to the infected list. It was, therefore, determined to suspend the operation of the new system, within the cordon only, and to wait for a more favourable opportunity of carrying it out, in consequence of the heavy sacrifices demanded, without a commensurate prospect of success.

"The advocates of the principle of stamping out the disease ascribe the failure to the manner of carrying it out, whereby not only money applied to the purposes of compensation was thrown away, but the more ignorant farmers were discontented by the unequal operation of the law, executed as it was in one commune, while perhaps a neighbouring one was exempted from it. It would have been better, they alleged, to proceed systematically by beginning at the circumference of the line, and so gradually to drive the contagion towards the centre, by which means a larger proportional force would be available for vigilantly guarding the infected spots, and preventing all intercommunication. It would have been better also to vest the powers of the law in special committees than in the burgomasters, as less liable to local influence. Much of the spread of the disease is ascribed to the practice of illegally digging up the carcases which had been buried, for the purpose of disposing of the meat, the transport of which from place to place increased the chances of infection, liable as it was to be communicated not only by such meat itself, but by the persons employed in the criminal act.

"However this may be, it is certain that the immediate cause of the rapid increase and spread of the disease in the latter months of the year resulted from bringing the cattle together into the stalls. The same result had followed in the previous year, but from experience it was hoped that the disease would soon exhaust itself, leaving in those communes now attacked none but the animals which had recovered, while the spread of infection might be prevented by the vigilance of the force employed in watching the boundaries. With this view strict orders are given that the burgomasters should see that no additions are made to stock in their communes; that accurate lists should be taken not only of animals in infected farms, but throughout the communes; that animals should be marked; that separate lists should be kept of such as recovered; and that they should be kept separate from others as far as possible; that such accounts should be taken weekly, and by two parties, one for the infected stalls and one for the healthy, while it is suggested that where the disease breaks out, the whole commune, and not the separate farm, only be declared infected.

"The portion of the expenditure charged upon the revenue of the State for the purpose of checking the disease was partially borne by the Department of Justice, in engaging an additional rural police force, and defraying the charges arising out of the employment of the military and naval forces in aid of them. The number of the military employed was about 1300 or 1400, with 150 horses; and the expenditure since the beginning of May from 1000 to 1100 florins per day. For this two votes have been taken, amounting to 319,000 florins (133,333*l.*) A very small amount is to be set off against this for meat of sound animals, for which compensation had been given, sold on account of Government. The burgomaster of one of the communes in North Holland, where such a sale took place, could not realise more than 25 florins for a cow, and a herd of 10 fetched only 162 florins.

"I have already alluded to many of the difficulties encountered in carrying out the measures by which the authorities were endeavouring to meet the exigencies of the crisis. These originated chiefly from the acts of the less enlightened class of farmers, who looked only to their own immediate interests, affected not only by the loss by deaths, but by the difficulty of supplying that loss so as to carry on their business. To avoid the effect of the expropriation law, they neglected to report the appearance of the plague amongst their stock, and in spite of all the vigilance of the rural police, numbers of cattle were passed in every direction across the cordon. Though public markets were closed, the neighbouring country inns filled their stables with cattle destined for sale, and thus by every possible means the provisions of the law were evaded. It is true that many convictions were obtained on prosecutions for the offences above mentioned, but they did not seem to have much effect as examples.

"The most serious cases of violation of the law have arisen from the eagerness of the lower classes to dig up the buried carcases of the animals dying of the disease or slaughtered as suspected. They have assembled in considerable numbers for this purpose, and even set the military force at defiance. Large quantities of meat so obtained have been discovered and seized, but still more has found its way into the houses of the labourers thrown out of work, or been retailed to the poor by unprincipled salesmen.

"The greatest evil of this practice is the danger of spreading the disease, not only by carrying about the meat, but by the clothes and shoes of the persons employed in it. Many of these poor people are under the impression that they are doing nothing illegal in digging up the animals which have not been expropriated, as is the case in those communes where the system introduced under the law of September last has been temporarily abandoned; and no prejudice to their health has appeared to be the result of their partaking of such meat—indeed, I have been assured on most reliable testimony that meat thus buried for several days has seemed to have undergone a purifying process, and even to have been perfectly palatable when eaten in ignorance by a person who mentioned the case to my informant.

"As a commission has been recently appointed to examine the whole question, and to report and recommend what further measures should be adopted, in order, if possible, to extirpate the disease, I propose, as soon as the result of these recommendations shall have been made public, to prepare a supplement to this Report; for which occasion the further observations suggested by the subject will be reserved."

It appears from a short and comprehensive table that the total number of cases officially reported in all the provinces during the year 1866 amounted to 123,408, the deaths to 57,527, the number slaughtered to 22,976, and those recovered to 39,064. *J. R. J.*

AGRICULTURE IN THE THIRTEENTH AND FOURTEENTH CENTURIES.

[The following is abridged from Professor Rogers' exceedingly interesting "History of Agriculture and Prices in England," a work which should be in the library of every farmer desirous of being acquainted with the history of his profession.]

IN the thirteenth and fourteenth centuries the process of cultivation varied little throughout the country. The same kinds of grain, with hardly any exception, are sown in the north and south; the same kind of labour is needed, and the same method of culture is adopted. Such an identity could not have been effected unless communication between different parts of England had been far more free and full than it is generally supposed to have been at that time, or than it actually was three centuries afterwards. Nor, again, are there any important variations traceable in the method of culture, the kinds of seed sown, and the character of stock. There are hardly any farms on which some breadth of Wheat, Barley, and Oats was not sown, and where all kinds of stock were not kept. Similarly the distribution of land, and the tenure by which it was occupied, are generally uniform.

Cheese and butter, though an important source of income, was the cheapest part of agricultural produce, as measured by modern experience. The furniture of the dairy was comprised, as in our own day, of pail, milk-pan, churn, cheese-press, cheese-mould, butter-mould, and straining cloths. Rennet (coagula), though generally produced on the farm, was occasionally purchased. The cheeses were small. The largest could not have weighed more than from six to eight pounds. Butter, besides being pressed into gallon tubs or jars, was made, as in modern times, into pots. This part of the mediæval farm was under the management of a deye or dairy-woman.

The grange contained the grain kept in stock. Towards the close of the year this is generally very low. It was laid up in this building either in sheafs, or threshed and stored in sacks. These sacks were of very various sizes, not as now, containing generally 4 bushels Some of the crops were stored in ricks, called mayae or moyae, a word which still lingers in the rural "mow." Threshing was then, as it remained till our time, when it has been almost superseded by machinery, the chief farm work of the winter.

Ploughing.—It seems that four horses or oxen were ordinarily assigned to each plough, the ploughing horses used being generally called affri, and, judging from their price, of a very inferior kind. The plough was plainly of rough and cheap construction, the costliest parts of the fabric being the share and the iron tips called ferripedoles, with which the wooden frame of the share was protected. These ploughshares were of various value, a distinction being made between summer and winter shares. The wear of iron in ploughing consequent on a dry season was an important calculation in the economy of the farm. The coulter was rarely used. The land was generally ploughed twice, the latter ploughing being called rebinated. Half the arable estate, as a rule, lay in fallow. Occasionally the sheep of a neighbouring farm were lured to lie on the ground and so to fertilise it. Eight weeks were considered necessary in order to get land in good order by these means. It is probable that the ploughing was very shallow. The high price of iron and the rudeness of the ancient plough preclude the notion that the soil was turned over very effectually.

Sowing.—I am disposed to believe that the labour of sowing was performed by the bailiff himself. Fifty years ago, it was generally done by the farmers in person. The rate sown was about two bushels to the acre of Wheat and Rye, four bushels of Barley, Bere, or Drage, and Oats, two bushels of Beans, Peas, and Vetches. Beans were generally dibbled by women; Wheat and some kinds of Barley were sown in winter, and called sewen hyemale; but most of the Barley and other kinds of grain in the spring. I find no trace of harrowing or rolling. But corn was hoed sometimes by customary service, occasionally by hired labour. It is possible that the hoeing was used as much to break the clods, and cover the seed, as to remove weeds. The implements used are mattocks and hoes.

Reaping.—Hay was mown partly by the regular servants of the farm, partly by the customary tenants, partly by hired labour. This labour was often obtained from a distance. It appears that, when the Grass was mown, the task of tedding and cocking the hay was performed by persons on the spot; for it rarely happens that this service is priced. The hay was gathered into ricks, and, as at present, cut into trusses. It is hardly needful to observe, that the Grass was all native. It was long after this period before artificial or foreign Grasses were introduced. Hence, the means of supporting winter stock depended upon the supply of hay, and such straw as was available for the animals kept on the farm. The bailiff, calculating his resources, killed down for salting, at about St. Martin's Day (Nov. 11), as many sheep, oxen, and calves as exceeded his means of sustenance. The business of harvest was the most important in the year, and, as at present, occupied a month or six weeks according to the season. The corn appears to have been cut rather high on the stalk; for it is frequently the case that the stubble is mown after the crop is gathered. The money payments made to the hired servants of the farm were considerably higher in the harvest term, or quarter, than at other times. The labourers were generally allowed beer; were frequently fed, and on some manors feasted, at the termination of harvest. A pig for the farm labourers invariably figures in the charges incurred for autumn in one estate. The same estate supplies the labourers in the same time with two red herrings a day. After the harvest was over, pigs and geese were turned into the stubble. For a certain payment, never of any important amount, the swine belonging to the villagers were permitted to run on the fields. As might be expected, in the absence of artificial Grasses and winter roots, natural meadow was exceedingly valuable, and bore, comparatively speaking, a high rental. The second crop of Grass was, of course, of far less value than the spring crop.

The Farmer's Garden.—The manor house possessed a garden and orchard; but the former was very deficient in vegetables. The householder of the 13th and 14th century grew Onions and Leeks, Mustard, and garden or green Peas. He probably also possessed Cabbage, though I have never found either seed or plants quoted. Apples, and sometimes Pears, are mentioned as part of the orchard produce, but we read of no Plums, except once of Damsons. A regular part of the produce of the orchard was cider, and its low price seems to suggest that it was made in considerable quantities. Sometimes, too, the Vine was grown in England, though not perhaps so frequently as has been imagined, the word *vivorium* having been, it appears, often read as *vinarium*. Crabs were collected in order to manufacture verjuice—an important item in mediæval cookery. Bees, though honey was high-

priced, do not seem to have been commonly kept, though some few entries of hives and swarms have been found.

Farm Servants.—None of the farm servants were, it would seem, maintained in the house except occasionally during harvest. The bailiff appears to have regularly attended the markets. The regular farm servants, after the bailiff, were the ploughmen and drivers, one to each plough, the carters, the cow or ox herd, the pig keeper, and the dairyman. In case sheep were kept, one or two shepherds were engaged. All these persons had land and stock of their own. The dairyman often purchases the calves. The shepherd has his own little flock, and is occasionally remunerated by permission to use the herd's pasture.

Farm Stocking.—The stock on the farm is varied. Horses, oxen, cows, and poultry are almost universally found. Sheep are not always kept. On some estates it was found more advantageous to sell the standing Grass, on others to breed horses.

Hedging and Ditching.—The latter operation, with a view to draining the soil, was a frequent expedient in mediæval agriculture. Where stone was available and easily laminated, trenches were dug, and a rude drain was formed by laying large stones in the course. Marling, too, was common, of course, on stiff soils. Lime was also used for dressing land. It is hardly necessary to say, that the only manure commonly employed was that of the stable and farmyard. Stiff lands on which water was often to lie were ridged.

In order to carry on the necessary business of the estate, the lord was obliged to leave considerable sums in the custody of his bailiff. The aggregate amount of the liabilities debited to the bailiffs of the 11 estates attached to the University of Cambridge from 1333 to 1336, varied from 100*l.* to 121*l.* On an estate like that of Maldon, which during three years cropped 273, 269.3, 264, and 277.2 acres and roods respectively, the capital necessary for carrying on operations must have amounted to upwards of 100*l.* in money of that time. The corn used for seed was, at the average price of corn, worth about 19*l.* The live stock, from similar average, must have reached about 55*l.*, and the dead stock would have been worth from 15*l.* to 17*l.* There must also be reckoned the money wages of labour, and allowances to servants, the cost of wear and tear, especially in tools and agricultural implements, and the charges of the harvest, besides a variable sum for insurance or loss, no inconsiderable item, as the reader will observe by glancing at the annual deaths by murrain, the generic name for all fatal diseases and accidents to live stock. On the other hand, there are other items—cheese, butter, and eggs, wool, fuel, and faggots, and the increase of stock by breeding, which swell the receipts. The profit on growing corn must, owing to the exceedingly meagre return to the seed, have been very small, and the advantages obtained by the mediæval agriculturist can only have been derived from the returns of his farm-stock. While the cost of corn, owing to the low rate of production, was high, and the price necessarily considerable, the market value of all other farm produce, wool and hides excepted, was singularly low, and obtainable in plenty by the general community. In these times, I conclude, the culture of the soil and corn crops was a necessity and not an advantage, and the general distribution of land drove the greater proportion to such kinds of cultivation as would not have been before them except under such circumstances, and which were abandoned when the practical independence of all landowners led them in the 16th century to extensive sheep-farming. The value of timber, and especially of fuel, was comparatively high. Periodical sales were made of the larger trees, and a portion of the underwood, fit for hurdles or faggots, was regularly cut every year. The sale of timber was announced to the public of the neighbouring towns by a crier. This official also cried stolen cattle.

The rate of profit on agricultural operations taken in the aggregate, and carried on under the management of a bailiff, was, I conclude, exceedingly low; so low, indeed, as to make it certain that even a slight change in the circumstances which surrounded the earlier system of agriculture would wholly alter its method, and ultimately bring about a complete revolution in the social condition of the great mass of the community, immediately and speedily after the new set of circumstances was recognised.

The largest part of the land under the plough was occupied by crops of Wheat, Barley, and Oats. Wheat was the customary food of the people of this country from the earliest times. Barley was sometimes mixed with Wheat in the allowances made to farm servants, but its chief use was in the manufacture of beer, which seems to have been continually brewed in small quantities and for immediate consumption. Wheat is sometimes, but rarely, malted. Oat malt is much more common. The chief use of Oats was for horse food, but oatmeal was made for the broth or porridge of the house. Rye was very scantily cultivated. An occasional crop on many estates, it was habitually sown on few. It is regularly sown in Cambridgeshire, and some other of the eastern counties. As the period before us passes on it becomes still more rare, and some of the later years of my inquiry contain no entries of its purchase and sale. A peculiar kind of Barley called Drageum is very generally cultivated, especially in the eastern counties. This is probably Bere. Sprig appears to be another name for this kind of grain, and it is likely that Berecorn, Beremancorn, and some other forms of the name, represent a grain identical with Drageum, or closely allied to it. Drage, like Barley, was made into malt. The three leguminous plants, Beans, Peas, and Vetches, were generally, but not exclusively cultivated, the average being small in every case. Peas, however, are more frequent than the other kinds. They are gray, black, and white, the last being of course the most valuable. Sometimes they are specially designated as pig-peas. They were, I think, generally used for fattening hogs. It seems that Beans and Peas are occasionally grown together, perhaps other kinds of grain also. Wheat and Vetches appear to have been sown together, and a mixture of Oats, Peas, and Vetches formed a regular crop on one estate. Hemp was cultivated to some extent, but no record of the crop or of its destination is found.

The question, whether within the records of historical times, any change in the ordinary temperature of these islands can be distinctly traced, is one which cannot but interest those who inquire into the facts and conditions of mediæval agriculture. It would seem that if any change, to judge from the evidence before us, has taken place in the physical constitution of this country within the last 600 years, it may be inferred to consist in a slight diminution of the annual heat. I take it for granted that effective drainage heightens, and that standing water lessens the average temperature. I do not doubt that far more land was wet in the 13th than in the 16th, and vastly more than in the 18th century. Again, it is generally admitted that tracts of forest land, though they may in particular positions afford shelter, do, if we estimate the average of annual temperature, define the total amount of solar heat. There can be, I think, no doubt, that while ornamental wood was scarce in the 13th, and long afterwards, natural forests were abundant, and occupied considerable tracts or belts. Now, it is said that the cultivation of Wheat was not till within the last 100 years carried on successfully beyond the north bank of the Humber, and that the chief cereal produce in the northern counties was Oats. This rule holds good still on the western side of the island. In Arthur Young's time, indeed, land was cropped with Wheat to some extent on the northern side of the island, but in much less quantity than in the southern counties. But it is clear that Wheat was grown in Northumberland and Durham during the 13th and 14th centuries.

Again, the Vine was cultivated, and wine was manufactured from home-grown Grapes, as far north as Ditchingham, in Norfolk. Nor is the price at which the produce is sold indicative of the quality being much inferior to ordinary Bordeaux or Saxony. At the present time it would be hardly possible, I imagine, to ripen English Grapes sufficiently for the production of the thinnest beverage. Vineries were attempted in many of the southern counties, and the record of such cultivation lingers in local names.

The accounts which I have consulted contain but little allusion to the seasons. Droughts are said to have occurred in the spring and summer of 1284, 1325, 1331, 1344, 1362, 1374, and 1377. The most serious of these must have been that of 1325, for it is alluded to at once in the eastern, the midland, and the western counties.

The live stock kept on the several farms comprised horses, cattle, sheep, pigs, and poultry. Both horses and oxen were used for draught and for ploughing. Cows were kept for butter, cheese, and milk. The calves were generally sold, but sometimes kept for stock. The various losses of stock suffered by the agriculturist were called by the generic name of "murrain." This name was not only given to fatal disorders, but to accidents, though the chief risks were those of disease. The treatment of horses was the business of the mareschallers or farrier; and the well-known complaints, farcy, lampas, and spavin, are mentioned. Bleeding was a customary method of practice. Among the diseases peculiar to sheep, the scab is very frequently mentioned. This disease made its appearance at or about the year 1288, and became endemic. It was at first treated with copperas and verdigris; but in time, that is, at about the close of the 13th century, it was discovered that tar was a specific for the complaint. Shortly after this time the purchase of tar is a regular entry in farm accounts. It is clear that the remedy was mixed with butter or lard, and then rubbed in. Note is occasionally taken of any exceptional prevalence of this disease, which seems never to have been eradicated, but only to have varied in intensity and frequency. The lambing season was as anxious a time for the mediæval agriculturist as it is now. The ewes were sheltered, and received the unremitting care of the shepherd. With every care, however, the losses were heavy.

The sale of wool and woolfells was the chief profit of the farmer. Hence, when arable land was abandoned to the lessee, the land generally retained the sheep-farming—the continuance of sheep and wool farming on the part of the landlords being due to the great and increasing value of the raw material. Wool was occasionally stored in the church. It was removed in packs. The sale of wool was not always effected by the bailiff, even when the rest of the produce was left in his hands for disposal. Hides, except obtained from cattle which had died of a murrain, were not often part of the proceeds of the farm. The flesh of animals which died of disease was often sold and eaten. The pig was the most important article of food. The sides and the barrs were gutted and smoked in autumn and winter. Pigskins were sold; but I do not know whether their ancient was similar to their modern use. Among poultry, we find fowls, geese, ducks, almost universally; peacocks and swans rarely. The low price of poultry suggests that they were kept by the poorest classes. Eggs, in particular, were exceedingly abundant, and no great variation occurs in their price, in consequence of locality. On some manors a large number of pigeons were kept, which were, perhaps, as great a grievance as in France before the Revolution. Rats and moles were considered nuisances in the 13th and 14th centuries; and payment was made for catching and destroying them. The value of arsenic as a means of destroying these pests was known. We read, too, of stoats and their depredations, of the losses incurred by wolves and foxes, and of the charge to which one manor was put, in inviting the king's fox-hunters to destroy the last-named vermin. Rabbits do not seem to have been plentiful, at least the price paid for them is exceedingly high; and I have never found any entry of the sale or purchase of hares or pheasants, though I do not doubt that they existed, as they are mentioned in chronicles, and received in deeds.

The art of mediæval husbandry differs from that and later times by its deficiencies. The land was imperfectly drained; the working of the soil was shallow; the manures employed were limited to stable-dung, to lime or marl, and to sheep-dressing. Scanty as the crop was, it seems to have been very exhausting, for half the land in ordinary cases lay in fallow. Roots and artificial Grasses were unknown. Such crops as were obtained, scanty as they were in amount, were not procured except at large relative expense; and any notable addition to the wages of labour or the cost of production so greatly diminished the value of land as to cause a revolution in its tenure. The rent of land, since it rises and falls as the cost of production increases or diminishes, was very low, and could not be increased except by such improvements in the cost of agriculture as were very distant from the experience of that time. It is probable that in such parts of England as were, for the resources of the 13th and 14th centuries, fully perfected, not much less land was regularly under the plough than at present. It is true that the system of fallows was necessarily practised; and it seems that when old pasture land of indifferent quality was broken up, it was exhausted for some time by a single crop, and was forthwith returned to pasture. But there is even now abundant evidence of ancient culture of land which has time out of mind been used as pasture. Wherever ridge and furrow are seen in pasture, there the land has been at some time or other under the plough; and, as is well known, the marks of such culture are exceedingly permanent, indeed can be effaced only at great cost. So, much land on the South-downs, which has not borne grain crops in the memory of man, retains unmistakable traces of ancient cultivation. The exigencies of mediæval society left little ground which could be available to cultivate, for pasture or pleasure, and upland pasture must have been of little value. [The above is extracted by Messrs. M'Lean & Hope, and published by them in their Trade Circular.]

Home Correspondence.

Children on the Farm.—In these days of rapid progress we abound with philanthropists who are continually trying to lead us in the paths we ought to go. We rejoice to know such is the case. But sometimes we feel disposed to demur to some of their plans. We know that many philanthropic minds are so ardently bent upon the achievement of a positive good, as to overlook some of the immediate hardships which have to be endured by many for whose benefit their efforts are put forth. No one whose opinion is worth notice can view with indifference the ideas propounded by Mr. Fawcett for the education of the agricultural labourers' children; we hail it with great pleasure, but we wish to look at it as a practical question, and also from a business point of view. We suppose that Mr. Fawcett takes the Factory Act relative to the employment of children in factories as an example of what may be done upon farms. They won't bear comparison. Factories are situated in localities near to the abodes of "the factory hands." Farms are distributed over the length and breadth of the land, seldom so near to the labourers' abode as the factory, generally at an inconvenient distance—frequently a long way from the village home—often miles away; and even the farms being extensive present many obstacles against the efficient working of an elaborate educational system. The case is altogether different—young children are of no real use upon the farm. As the law now stands no farmer must permit a lad under 10 years of age to drive a team, at least on a public highway. No half-time scheme of education will avail as a rule. Lads cannot go any great distance to their work, and return at noon for school in the afternoon with any advantage; besides, who would employ them at such disadvantage? It would be equally absurd to try this upon alternate days, or alternate weeks. Factory work is pretty nearly the same routine all the year round. Farm work differs daily, according to seasons, time, and weather; in seed time and harvest, hands are in great request. Throughout the summer work is easily obtained, in winter it is very scarce; there is no uniformity or continuity in field labour, it is always fluctuating, as uncertain as the weather. Whatever plan is to be adopted must be in conformity with these irregularities as a necessity of farm practice. Take another view of it. The factory workman earns nearly twice the wages received by a farm labourer. How is the farm labourer to support his family, if his children are prohibited from work till they have passed some definite age, or some educational examination? A wife and seven or eight children upon 12*s.* per week,—this tests our philanthropy. Would it not suffice to encourage the education of labourers' children up to the age of 10 years, and then leave them free? To compel labourers to educate their children is un-English. Besides, where are the schools, and where are the means to provide such education? Much has to be done before such a great scheme can be brought to bear upon the agricultural population. Cities, towns, and boroughs may have their public and parochial schools, and needy residents can readily take advantage of them, but country towns and villages cannot do so; they are not so provided at present. Take large agricultural parishes, some will require several schools, if the children are to have them convenient to their homes and their labour. Then what position will the farmer be in? Is he to have the policeman prowling over his farm day after day, to ascertain the age of each

child, or to test the children's knowledge of arithmetic, &c.? or must the farmer report to some authority the number and ages of the boys and girls he has twitching, or Potato setting, or weeding, &c.? Verily we shall ultimately be under a new and strange order of things. Well, our counsel is to keep a close and strict watch upon this, in some respects, laudable effort. It may do great good. It will do much harm to our poor labourers' families ere the benefit arises. *O. F.*

Co-operative Farming.—The suggestion of farming on co-operative principles, thrown out by Lord George Manners at the dinner of the Newmarket Farmers' Club, if well considered, is not impracticable. Looking at it abstractedly the first question that suggests itself is, in what position is the labourer to be placed in the event of a loss, his capital, meaning his wages, having been consumed during the past year? It is well known to farmers that the co-operative principle is now in extensive practical operation with a most uncertain portion of his capital, his flock of sheep; the shepherd's share of profit, or extra wages for his additional attention and zeal, is calculated upon the number of lambs he presents at a certain period to his employers; the loss sustained by death of ewes is not taken into consideration when the agreement is entered into between them; the farmer thinks, and justly, by giving his shepherd an interest in the produce of his flock, he will from self interested motives exert himself to insure the largest possible profit therefrom. The principle of co-operation is here practically carried out, and has for a long period been found to work efficiently; and no reason can be assigned for not adopting the same principle gradually in other portions of the establishment. It would be a libel upon the farmers to say that they had not sufficient education, ability, and discretion, to effect such profitable improvements as have been found eminently successful in extensive manufactories. *Corydon, Cambridge, Feb.* 2.

Farmers' Clubs.

LOGIE AND LECROFT: *Relation of Landlord and Tenant.*—At the last meeting of this Farmers' Club, Mr. Peat, of Manor, read a paper on the subject. He said: The demands of the population for a number of years back have overtaken the productive powers of the soil, and more recently for some years it has in general been found that the corn produce is barely remunerative to the grower. It seems, therefore, to be highly proper to refer to the duties of landlord and tenant in order to see that the soil they respectively own and occupy is producing the best possible results, and also to point out, with a view to removal, whatever impediments may be in the way of increasing the desired returns. Liberality, frankness, and goodwill, to which may be added the high moral maxims of "Live and let live," "Bear and forbear," are acknowledged to sum up the relationship that should subsist between the owner and occupier: but as either party can merit these titles only by the performance of the important and especial duties devolving upon them, it may not be altogether unsuitable or inopportune to take a practical view of their respective positions.

IMPROVEMENTS OF PROPERTY.

The one class of duties devolving on the owner of land may be termed the permanent improvements of the property, which include the various buildings necessary for the farm, fencing, and draining the lands. These form the primary operations, and are indispensable to profitable farming. The other class may be said to begin where those leave off, and include stocking the farm, seeding and manuring it, and cultivation. The first-mentioned duties it seems proper the proprietor should be at the expense of. When constructed and completed they become heritable property, which cannot be removed, and are applicable only to the ground on which the work is performed. Their permanency of duration, too, when properly constructed, extends over two or three 19 years' leases, and it ought to be out of the question for a tenant to erect the houses and other enduring improvements, and the proprietor at the beginning of a new tack charge him additional rent for his own erection. It enables the tenant, also, with the same capital, to raise a greater produce, and consequently to pay a greater rent. Instead, however, of the proprietor of the land performing these lasting improvements which so readily suggest themselves to us as being his duty, a not inconsiderable portion falls to be performed by the occupying tenant—on occasion of the erection of new buildings he has in general at least to perform the carriage, a very inconvenient and expensive task for an improving tenant at the beginning of a lease. In draining, it is seldom done at the expense of the proprietor; in a good many instances he stands about one-half of the expense; but these operations are chiefly performed by the proprietor supplying the pipes only, the tenant paying an annual interest thereon during all the years of his occupancy, besides the cutting, carting, and everything else connected therewith, being at his own cost, and not unfrequently he is saddled with the whole expense. The cost of erecting fences is generally apportioned about the same way; the consequence of all which is, these operations are too often done on a temporary scale, or in a superficial manner, just sufficient to last the season, not resulting in increasing the value of the property at the termination of the lease, and very often, by swallowing up part of the tenant's capital meant to have been applied in raising crops, prevents him from farming the land to advantage during its currency. The tenant, on the other hand, should be at the expense of stocking and cultivating, as before mentioned. Although we cannot believe he is so remiss as the landlord, he not unfrequently comes far short in his performances. There are some whose conduct is reprehensible, who, to get in, offer too much rent, and then throw themselves on the indulgence and leniency of their landlords instead of their own self-reliance. This in the long run proves injurious to both parties, and, as might be expected, leads to the poorest results. A tenant should offer no more rent than he considers he will be able out of the proceeds of the farm to pay, and rather use his exertions in enriching the soil for producing heavier and more valuable crops—in improving the breed and increasing the value of his stock—supplying himself with the most approved implements and machinery for economising the expense and abridging the time for preparing the soil and in reaping its harvests—and by all the other means or appliances in his power for making the most of anything. At the same time, as farming in general is found to be a more interesting than lucrative occupation, having a variable climate and many other adverse things to contend with, it is certainly for the happiness of the tenant that he be under a judicious and liberal landlord. It appears to be a great drawback for advancing the science of agriculture, the peculiarity about Scotch landlords especially, in leaving their property too much to take care of itself, who disregard developing sufficiently its resources, and yet, for the small return it yields, they loudly and with truth complain. In the rise and progress of every commercial business that has attained eminence the greatest amount of capital has been employed, and the utmost diligence continually exercised, for producing the beneficial results. The cultivation of the soil forms no exception to the rule; and before it can be said that land has attained the maximum state of fertility, landlords require not only to employ more capital, but they must be more in earnest along with the tenant, otherwise the accomplishment of these desirable results will in most cases be very imperfectly attained. It is sincerely expected that the alterations proposed to be made on the law of hypothec during the present Session of Parliament will be of such a nature as to interest landlords more in the selecting of their tenantry, and in giving a preference to those who offer a fair rent, and have education, energy, and capital, for planning and carrying out the various departments to the greatest advantage, the effect of which would be a higher and more advantageous state of farming, and more business intercourse with, and good will towards, each other. That increased capital on the part of the landlord, properly applied, would prove a good investment, and the facilities thereby afforded to the tenant for acting his part to better advantage would likewise prove fairly remunerative, there can be little doubt—it being those estates on which least is done which give the smallest returns, and the worst farming that leads quickest to poverty.

LEASES.

In referring to the many conditions contained in the lease, this feature of the question stands much in want of reform. It is evident, from the amount of writing about these restrictions and reservations, and the number of lawsuits arising therefrom, that general dissatisfaction exists regarding them. This is not much to be wondered at, when we take into consideration the fact that almost the same forms and clauses they contained 70 years ago and more are embodied in them still, and if the plan or system of farming laid down at that remote period be deviated from, the same fines and penalties are incurred. The conditions of lease may be considered as a private agreement between the two parties, which may be drawn out as they consider best. This to some extent is the case, but their form has got such a hold by their use and wont clauses, that so long as there is more demand for farms than farmers, they appear to fall under the category of those things that require to be publicly discussed before a remedy can be got. It is true that in most cases these clauses are allowed to lie dormant, and the fines following their non-observance seldom heard of; nevertheless their insertion gives the owner a sort of power and patronage over the occupier he has no right to possess, and permits him to better his calling in a great measure only by sufferance. This ought not to be. Leases ought, like other commercial transactions, to impose no unnecessary restrictions, but rather should be framed in such a way as to allow the tenant to make the most of his bargain consistent with the land not being left in a deteriorated state at the end of the lease. This the proprietor can sufficiently guard himself against by prescribing the course of cropping for the three last years only. More liberty does not increase the risk of farming ill, of which the clauses in leases at present seem so much to guard against, there being no inducement to do so, simply because it does not pay. Self-interest is entirely on the side of high or liberal farming alike for landlord and tenant. Our leases generally extend to 19 years—which is considered a very judicious clause, in affording time for making improvements on the land, and for reaping the benefit of them, and likewise for introducing the sort of stock best suited for the place, and opportunity for realising the results of the selections made. The clauses most objectionable are those specifying in detail the kind of crops to be grown in each year during the lease, the amount of seed that must be sown per acre, the quantity and kind of manure to be applied, the portion of the produce allowed to be sold off the farm, and the portion to be kept and consumed on the premises, and the penalties following thereon, when deviating or altering from the prescribed course. All this is most vexatious to the intelligent agriculturist, and it is high time it were redressed. There are besides a number of minor feudal clauses conferring small perquisites on the landlords, in themselves of little intrinsic value, but often irksome for the tenant to perform, that should be done away with. In regard to the cropping clauses, it is next to impossible sometimes, as when we have an adverse spring to contend with, to get sown to any advantage the particular crop ordered. On the heavy clay soils, there have been repeated failures of crops for some seasons back for want of a good seed time. It is, besides, surely an unwise if not unjust proceeding to be bound to grow any particular kind of crop year after year, whether it is selling at a premium or discount in the market. As tenants ought to be the best judges of these details, so I think they should be allowed to exercise their judgment more in producing whatever kind of crop they find pays best. The clause precluding the sale of part of the produce seems to be unnecessary, and often hurtful. Take straw, for instance, one of the prohibited articles, the market price of which at present is 8*d.* per stone (of 22 lb.), while its value, to be converted into manure on the farm, is found, both chemically and practically, barely worth 3*d.* per stone—thus causing, after deducting 2*d.* per stone for carrying it to the market, and the carriage of dung brought back, a loss of 100 per cent. on that item alone. The common fault found with the manure made in the clay lands in this quarter is its poor quality. The great bulk put on the land does not sufficiently tell on the crops following, because its composition is made up too much of rotten straw, and too little of rich animal manure. Were farmers in the districts where the land is about all under crops, and where it is not advisable to grow great breadths of Turnips, allowed to sell more of their surplus straw, and buy with the proceeds dung and cake, the advantages would be great. 30*l.* worth of the straw converted into manure on the farm would, by being sold in the market, realise 30*l.* worth of superior dung in return, and 30*l.* worth of cake for cattle beside. It may be said there are some who would take advantage of this privilege, and exhaust the soil by putting the 60*l.* in their pocket, but I think this would be a penny wise and pound foolish course to practise, and only exceptional persons would do it.

OVER PRESERVATION OF GAME.

There is another thing to be named on my list that farmers are getting a greater antipathy to every year—namely, the Game Laws, and making them, as it is called, the preservers of the game. So long as proprietors kept a fair quantity of game on the land for sport in the season, comparatively few complaints were made; but of late years, on many estates, the quantity has been greatly increased, not, it is currently said, for sport, but for the avowed purpose of bringing additional revenue out of the lands. To such an extent tenants consider they have been aggrieved by the proprietors breaking faith with this clause, and their crops damaged from what they formerly were, that they demand now, not concessions of these laws only, but the entire abolishing of the statute, as the only hope of remedying the evil. As nobody can preserve game, or keep rookeries, without doing injury and hurt to their neighbour, I think these things ought to be considered as a nuisance, and put down by law accordingly. Our leases, besides telling us what to do, also point out what is to be avoided. Nothing, according to them, seems half so bad for the land as the growing of two white crops in successsion. This, by practical men, is now considered not to be against the rules of good husbandry, and is occasionally practised by the best farmers, in the best farmed districts. It is found to be almost a certain remedy for the growth of Clover. Shallow ploughing, and letting the land increase with weeds, seems a worse evil, not only for the present, but also for the prospective value of the land. I therefore think—as no rule can be laid down to force a bad farmer to become a good cultivator, and our stereotyped clauses give no scope for a college education, and as the future value of the soil mainly depends on the kind of management practised by the occupier—instead of encompassing the farmer's path with so many burdens and disadvantages, to which no other class of capitalists are subjected, it would be better for proprietors to obtain an efficient and trustworthy tenantry, and each faithfully to perform to the other their respective parts of the premises; by doing so, their mutual self-interest might not only be promoted, but our national wealth, prosperity, and happiness would be increased.

DISCUSSION.

Mr. M'LAREN, Spittal, said: In our day the connexion between landlord and tenant ought to be looked at as a copartnery—the landlord giving the land (or the raw material, so to speak) and expending the necessary sunk capital as his part; and the tenant, his partner in the business of developing the resources of the soil, brings skill, industry, enterprise, and funds, as his. Looking at the relation of these parties in this light, we would expect to find them treating each other in a spirit of friendship, and not, as we too often see, the landlord on the one hand tying down the tenant by restrictions and conditions, which never made a bad tenant a good one, but has often soured and disappointed a good tenant, and fettered him in his operations, nay, even casting him aside altogether, or compelling him to treat the land niggardly, and so making a loss to himself and the community. Many things might be brought forward to show where the tenant is defrauded of his fair and equitable share of this copartnery. I only cite one, and that is over-preserving of game. It is a well-ascertained fact that every full-grown hare or rabbit eats and destroys from ten to twenty times its own market value of the tenant's crop. I, along with many others, had the mortification of seeing two heavy cart-loads of these vermin emptied down upon the Stirling street on a market day, some three months ago, and, on inquiry, learned they had all come off one estate in the county, and that not a very large one either. Now, suppose these loads to contain a thousand head, and take an average of 1*s.* each as their price, this nets to the landlord 60*l.* But we must stop here to inquire what they cost his copartner. Taking the medium between ten and twenty—namely, fifteen times—their selling price, gives the nice little sum of 750*l.* out of the pocket of the one partner that the other may be privileged to pocket the paltry sum of 50*l.* These things ought not to be.

Mr. HENDERSON, Craigarnhall, said: It is the "live and let live" principle that has placed agriculture in the advanced state we now see it. We see that on estates where strife and discord have reigned agriculture is far behind. It is the introduction of the Turnip into field culture that has so

immensely increased the supply of beef, and it is to the introduction of sheep husbandry on arable farms consequent on the culture of the Turnip, that we are indebted for such a supply of mutton and wool, and that of the best kinds. Turnip being looked on as a scourging crop when introduced about the end of last century, landlords had some doubts about allowing their introduction; tenants, however, were allowed to go on bit by bit, more through the kindness of the landlord than any right they had to do so from their leases. Very few leases in this neighbourhood before the beginning of the present century gave a right to the tenant to sow a full breadth of Turnip. Had leases been strictly followed, agriculture would have made slow progress indeed, only one move in 19 years at the beginning of a new lease. We find the tenant where he was bound to the old out and in field course of cropping, with his Oats after Oats on his out-field until they would grow no longer, and his Oats, Peas, and Bere course for in-field, doing a great stroke of business in the Turnip line, and that with a penalty of so much an acre on his head for every acre of Turnips grown. It is curious to observe how land rose in value about the end of last century, principally through the introduction of a crop negatively forbid by the landlords. One farm with which I am acquainted, and have seen leases of it for 170 years back, shows how land has progressed in value. Previous to 1750 this farm was let at a Scots money rent of about 2*s.* 1*d.* sterling an acre, and at this time it was a good Turnip soil and dry; from 1750 to 1769 it was rented at about 3*s.* 5*d.*; from 1769 to 1788 it was about 8*s.* 4*d.*—during the currency of this lease Turnip culture was introduced, and when it expired 15*s.* an acre was the rent up to 1804, when it rose to 45*s.*, at which it has been about ever since. Sheep husbandry seems to have been in no better favour with proprietors than the Turnip crop, for we find that sheep were one of the things then excluded; and one eccentric old gentleman, in a lease dated 1780—although allowing a small breadth of Turnip—sheep, goats, swine, asses, and Harry Mushet were strictly forbid. This Harry was a degenerate branch of a respectable family, who, for want of a better calling, had betaken himself to horse-couping and dealing in asses: hence the cause of his exclusion. It would appear that it was a good way into the present century before tenants in general had full power to crop with Turnip; and up to the present time farmers of heavy clay soils are growing Turnip on what they are strictly bound to have in fallow. We see, also, that it was owing to the leniency of the landlord that draining was introduced, and that the tenant went illegally beyond his depth in doing so. It is no doubt to draining and Turnip culture that we must attribute the great success that has attended agriculture. The one without the other, in many cases, would be useless; and it is to the two combined that so many thousands of acres have been brought into a state of cultivation—so many more thousands of quarters of grain raised, and so many more thousands of sheep and cattle kept, than what was before. What may be called the legal relation between landlord and tenant—this dry, hard, matter-of-fact sort of thing, called a lease or tack—this connecting-link, or, to use a more modern phraseology, the coupling-chain which unites the parties—this complicated and intricate piece of workmanship, having a screw to work the tenant up to performance, and a screw to fix him down to limitations, and an Archimedian screw to separate the parties at the end of the journey—this wonderful document seems to have been handed down to posterity by patriarchs in agriculture, but lengthened and absurdified by the past and present generation. Lawyers tell us that many of these leases are the most interminable and incongruous pieces of nonsense that disgrace our language—so one-sided, so lengthened and prolix, so ambiguous and abstruse, so vague and evasive, that they marvel that men can be found insane enough to put their names to them. How then should restrictions in leases, that have been a drag on the progress of agriculture so long, be still continued, and worse clauses be still added, consented to and signed? We are told that such documents would pass with no other class but farmers. This well bears out what has often been said, that all the ability goes to other professions and to cities, and leaves only those of minor qualifications to cultivate the soil. That farmers display a great want of forethought and knowledge of business in putting their names to such leases, no one can deny. That tenure of land, if we are to judge from the lease, is in a most unsatisfactory state, most men will allow; which of the parties is most to blame is not easily found out; that it presses with most force on the tenant is quite apparent. The demand for land—the demand being greater than the supply—may have induced many to go into agreements fraught with the worst results. As long as landlords get men willing to subscribe such contracts, so long will they continue adding clause to clause. The land of the country is much monopolised by the nobility, through the working of the law of entail, and this is given as a reason why leases have got so much into that dictative and domineering cast. Twelve noblemen hold half the land of Scotland, and it will be easy for them to enter into any union that may suit themselves, besides having the power to sit and legislate for the good of agriculture.

Mr. Christie, of Cottanhaugh, said—After so much has been said, and so well said, scarcely anything remains to be added. We have already heard to-night that no lease, however stringent, can make a bad farmer a good one. Some of the leases, and quotations from others, that I have seen, are more fitted to make a good farmer a bad one, or, at least, to prevent a tenant of good intentions from carrying these into effect. Many of their clauses are so indefinite as not to be intelligible; others unsuitable to modern agriculture; many of them despotic; and some of them so antiquated, that the originals of them seem likely to have been found in the archives of Noah's Ark. They are often so one-sided that the only use they are for is to bind the goods and chattels of the vassals to their lords—to feed their vermin during their currency, and when the winding-up comes on, nothing over.

Reviews.

Report of the Trials of Steam Ploughs at the Suffolk Agricultural Society's Meeting. By W. Raynbird, Hengrave, and W. Syrett, Bury St. Edmunds. *Bury Post* and *Bury Free Press.*

We referred to this shilling pamphlet last week, and now name it again for the purpose of extracting from its pages an account of the experience in steam cultivation of Mr. Cooper of Fen Drayton, in connection with what appears to be a market garden farm. Mr. Raynbird thus describes Mr. Cooper's management:—

"The number of horses employed in ordinary cultivation is no bad test of the stubbornness of a soil, and of the difficulty of its cultivation. We in Suffolk boast, and with justice, of our two-horse ploughs; but to be able to use them and nothing else only proves that we have no soil of excessive tenacity. It is otherwise in the neighbourhood of Mr. Cooper's residence; there four and six horses are in common use in ploughing. Mr. Cooper resides on a farm at Fen Drayton, about 2½ miles from St. Ives: the soil in the neighbourhood is for the most part deep alluvial loam, free from stones, and approaching to the nature of clay; but on his own farm it is of a lighter and warmer nature, and more adapted for his system of garden husbandry. The farms he occupies are two—one at Fen Drayton of about 350 acres, the other in the adjacent parish of Hilton of about 250. The name 'Fen' is delusive, not being by any means of a fenny nature. The system of cultivation is peculiar; it consists in the cultivation of crops usually grown in gardens, and of Turnip seed in great quantities. The proportion of various crops grown on different farms, on an average, may be stated at 100 acres Turnip seed, 50 acres Onions, 50 acres Potatos, 15 acres ridge Cucumbers. The rotation in the home farm is Onions, Turnip seed, Wheat, Potatos, roots, Barley or Wheat. The Cucumbers are grown in the "root" shift, as are also Carrots and Mangels, and sometimes garden Peas. On the off farm a rotation of Turnip seed, Wheat, Barley, and roots is followed.

"On my paying a visit on the 19th July last, I found in one field of 80 acres, 30 acres of Onions growing, and about 20 acres of garden Peas grown for a Chester seedsman, the latter then being cut. On the opposite side of the road was a field of Early Shaw Potatos, then being taken up and basketed ready for being sent to Birmingham. Close by was a large field of Turnip seed, apparently fit for harvesting, and from the size of the fields, and the lowness of the clipped edges apparently uninjured by birds, although we know that in the small plots we cultivate half the seed would be thus destroyed. The varieties of Turnip sown are various. Swedes are from transplanted roots; White Turnip seed from seed sown in September. Much of the seed goes into Scotland to the Scotch seedsmen. Including the quantities grown on the farms, or grown for Mr. Cooper by neighbouring farmers, from 3000 to 4000 bushels of seed pass through his hands yearly. The Turnip seed is threshed in the field by passing a heavy roller over it, not cut till quite ripe, and carted on very large carts made not to lose the seed. When threshed the seed is laid thinly on cloths on the 'Onion lofts.' These Onion lofts are a handsome range of buildings of white brick with ventilating apertures all along the sides; two lofts one above the other; the floor not boarded, but covered with splines about an inch wide and an inch apart. The ground-floor is asphalted. In these lofts the Onions, after being well dried in the fields, are stored about 2 feet or more thick. The crop is about 10 tons per acre. The Dutch growers are the great competitors in the trade, and export vast quantities to England. The sorts grown by Mr. Cooper are the Globe and the White Spanish. The cost of weeding Onions is very great, and is put out to the men at 5*l.* an acre. Task work, both on the farm and in the management of steam cultivation, is the rule. Ridge Cucumbers were grown with a narrow row of Rye between for the sake of the protection from cold winds. They were just coming fit for market at my visit. The seed is sown direct on the field. The great markets are Lancashire and Yorkshire. They are a very speculative crop: one year the price realised was 200*l.* per acre, but generally only from 30*l.* to 40*l.* The expenses before a penny is realised are at least 20*l.* an acre.

"On the other farm the Cucumbers had rows of seed Onions to protect them. Grace's White Wheat is a favourite, and Browick is also grown. The men not at piece-work have 12*s.* a week, and, as they work overtime, generally earn 15*s.* Summer employment is so plentiful that it is difficult to obtain hands, but in winter it is as difficult to find them employment. Mr. Cooper was thinking of giving each of his best men about an acre of land, so that they might employ themselves in slack times. It was interesting to notice the allotments he had already allowed his men, and to see how they imitated their employer, some having Onions, others early Potatos. Mr. Cooper informed me that he often had to dispose of the crops for his men, they knowing that he could do it to greater advantage.

"With respect to steam cultivation, Mr. Cooper has had one of Fowler's single engines, with clip drum, in use for four years, and another set of double engines (those shown at Bury) for six months. He uses steam on his farms for all cultivating purposes, except light ploughing. His double Fowler's tackle had already earned him 200*l.* this season. He charges at the rate of 1*l.* per acre, twice cultivating. He kindly took me to where the cultivators were at work on a stiff clay Clover layer, which it would have almost been impossible to plough up by horses. The hard rough masses of clay were broken up, 7 inches deep, to a marvel. The quantity of coals employed in going over this land (30 acres) twice was about 6 tons. He considered that the consumption of coal was not greater on the double-engine principle than on the single. The engines he would employ in threshing with as great convenience as those of any other construction. The men he employed were his regular staff, and, with the exception of one who was there from Fowler's, were the same as worked at Bury. The strength of the engines and the stubbornness of the soil were proved by some of the cultivator's tines being straightened by the immense draught. It was work that it was difficult to believe an ordinary farm engine and the 'roundabout' system could have executed, but at the same time it was such as we should not require to do in Suffolk, not having soils of such tenacity. One addition to the steam tackle shows great consideration: this was a roomy portable house, or caravan, on wheels, intended for the men to sleep and shelter in, and with a stove for cooking and warmth. It was intended to be fixed behind the engine, and dragged after it in its peregrinations.

"Mr. Cooper is originally from Sandy, in Bedfordshire. His success in Cambridgeshire is the result solely of his industry and exertions; nor could one help noticing near his residence a tastefully designed and elegant chapel, of which I believe his son was designer and himself principal contributor."

The Transactions of the Highland and Agricultural Society. Published annually. No. 2, 1867. Arthur King & Co., Aberdeen.

This volume contains on one or two important subjects a great deal of valuable information which must be sought out (and it is worth the trouble) by a good deal of laborious reading. There are most elaborate reports of experiments with manures on both large and small scales—the latter directed by the Professor of Chemistry. And there is a full report by Professor Armatage on the Diseases of Farm Horses, for which the prize of 10*l.* 10*s.* was awarded. It occupies 64 pages, and on an ordinary scale of literary payment is worth 40*l.* How long do societies think that they will get essays of this style by such treatment? They may reply:—"We have got this one in just this way." The probability indeed is that they got not only this one, but eight or 10 others, it may be only one degree less in merit, by the offer of just this sum; but it is plain that while once now and then a competent writer may think it worth his while to work for inadequate reward, the only way in which good literary service is to be obtained is by offering sufficient remuneration. The volume is extremely heavy reading, and how it will fare in Scotland we do not know; but in the South it would find fewer readers than even the Journal of the English Agricultural Society does. Notwithstanding the exhaustive character of one or two of its papers, yet, taken as the annual publication of a great national agricultural Society, the volume must be pronounced extremely scanty and deficient.

Farm Memoranda.

A Poultry Farm.—If the apparent health and appearance of the fowls be not satisfactory, visit the hen-house after it has been some hours shut up at night, and if the air be offensive there need be no further quest after the cause of illness or other evil there may be among the living beings breathing its close atmosphere for many hours.

The remedy should at once be applied, by decreasing the number of fowls, and by giving increased ventilation. Except early in the year, when we want our fowls to produce eggs at a time which is not natural to them for the production of eggs, there should be plenty of good fresh air in the hen-house, always avoiding wind from a cold quarter, and any draught on the fowls as they sit at roost. In my wooden hen-houses I always have windows of perforated zinc, of a large open pattern; I never give instructions to have the wood too closely joined, and on the warm side, at a distance from the perches, or above them, I have all the knots pushed out of the boards. One of my best hen-houses, in years gone by, was made of mud walls breast high, and carried up to the roof with trellis, over which Ivy was trained outside. This was a nice airy healthy house; the roof of course was firm and good, as roofs always must be; no air-holes in them to let in water.

A hen-house 6 or 8 feet square will do well for seven old fowls, or one large brood of chickens. More crowding will not lead to a good result, so if the increase of the stock seems to render it necessary, consider means for housing the youngsters out of doors, in coops, rather than overfill the houses.

Fowls, even the tallest, live and breathe very near the surface of the ground; and when the earth becomes foul from having had live stock on it for some time, they cannot fail to inhale the malaria engendered by it. Human beings in such an atmosphere would fall in as great proportional numbers as do the fowls of the most unfortunate amateurs; sanitary measures in their case stop epidemics, and they are the remedies to use with our fowls, or we must not look to have them prosperous and healthy.

The most valuable sanitary measure for the fowls is to renew the surface of the runs by paring from time to time. Spring is a good time to do it, when the pared-off surface, rich with guano-like manure, is a valuable, strong fertiliser. Duck and pigeon manure are, I believe, the strongest; I have known a poor neglected orchard brought into good culture and full bearing by the manure produced by an amateur's stock of fowls running in it most days in the year.

Means must be taken to dry the runs made pure by paring. Low damp ground should be drained. Excellent runs may be made by paring the ground one spit deep, *i. e.*, a foot good measure, and filling in with a depth of 9 inches of chalk and 3 of gravel. On the cold clay of Hampstead I have found this make a capital and lasting run. Another good grounding which will come less expensive is a foundation of baked brick-earth, so largely used on railways, with a thin surface of gravel. After the runs have once been firmly laid down with a foundation of chalk, burnt brick-earth, or coarse gravel, they will afterwards need only paring, and a thin covering of gravel about once a year or so.

Sometimes, when paring would be too troublesome, a sprinkle of lime over the surface will purify it, but the fowls should be kept off it until after rain. Where the fowls have extensive ranges, the immediate neighbourhood of the houses only will need this cleansing process; but the floors of the hen-houses require renewal from time to time.

Many amateurs have so much land at command, for the use of their poultry, that they find it scarcely necessary to confine them to runs at all. Where this is the case, nothing can be better than movable houses, to place about in park, or pleasure-ground, where fowls may range without mischievous trespassing, and without danger of admixture with other fowls, and be removed to fresh ground whenever a change is thought

advisable. Nothing can be better for keeping fowls in first-rate condition than this opportunity of changing them to entirely new ground, when that which they have occupied becomes in the slightest degree tainted.

The kind of pampering which leads to over-feeding fowls, giving them dainties, such as meat, greaves, Hemp-seed, Indian Corn, and other fattening food, and keeping them too warmly housed, is a fertile source of ill-health. Half our choice fowls are out of condition and too fat internally, from over-feeding. The corn or other food is thrown down in such quantities that the fowls can stand and eat their fill, without moving half a dozen yards; and so much is often given that a quantity remains after they leave off eating and go away satisfied. Poultry, to remain thoroughly healthy, and not to become unhealthily fat, should never have a grain more of food given than they can eat up at once with a hungry healthy appetite; they should not be fed too often, they should not have a variety of food given at the same time, and they should have to run for all the food they eat, and have it so thrown abroad that they shall have plenty of work, and consequently plenty of amusement, to find it. I have heard of amateurs' poultry runs where the very earth beneath the fowls' feet was a mass of corn and other food, beaten into the ground. The fowls thus wastefully fed grow fat and out of condition, the food palls on the satiated appetite, until they care for it no more, and crave for greater variety, and they turn from the ever increasing mass before them with disgust.

The well-being of fowls requires that they have regular care as well as judicious economical feeding, regular meals, a regular supply of water, and regular cleaning. The real care that they require is not pampering and superabundant, almost incessant feeding, and sometimes the less they are run after the better they will thrive; but the little care they need should be administered with regularity. This is the kind of care that will keep poultry in the perfect health and good looks which amateurs know so well, and so fully appreciate as good condition.

A fowl in good condition is free and bold in gait, brisk in movement, and bright in the eye. The plumage is full, firm, crisp, and glossy; the bird feels firm in handling; it is neither lean nor too fat; and the comb is clear and bright in colour, according to the season.

When a bird is out of condition, in which case it will take no prizes, and do no good service to its owner, it handles flabby, however fat it may be; it is heavy and listless in movement, often craves continually for food, and seems too lazy to wander far to seek any for itself. The comb and eye lack brightness, but the plumage tells the tale most unmistakably; it is dull, ruffled, and broken, sets away from the body, and either comes out with a touch, or adheres to the skin with unnatural tenacity, fixed by a kind of leprous scurfiness. A tendency to roup is also often seen.

The commonest barn-door fowl in fine condition is a more satisfactory sight than the choicest stock without this crowning merit; and the more naturally we can treat our fowls in letting them have good pure air by night and by day, and plenty of work for their food, the better they will be both in health and appearance. *From Poultry, a Shilling Book, by Elizabeth Watts.*

LAMMERMUIR SHEEP FARM: *March 22*, 1867.—We have a return of winter weather, and that of no ordinary severity, which we take all the worse with after the fine open weather of February. January also was a stormy month, and pretty much reduced the bulk of hay provided for sheep's keep, which, from the dry summer, was unusually scanty. We were beginning to congratulate ourselves on getting through a trying winter, although with small reserves of fodder, and the fine and almost growing weather which we had in February seemed to confirm the anticipation. But March has rudely scattered our hopes and changed them to doubtful foreboding. Keep of every kind was unusually short to begin the winter with. The corn crop was a mere gleaning, having been stinted by the summer drought; and, when rain did come, we had no sunshine to bring the crops to maturity; the consequence was an aftergrowth of green stalks, which certainly added to the bulk, but which produced little or no grain. The stacks do not give half an average yield, and the grain is of poor quality; the straw even won't stand the threshing, and looks poor enough provender; but, even such as it is, we would be glad to have more of it. We notice that young cattle, although getting Turnips, do not thrive when they have not a sufficiency of fodder and litter. A few Swedes, with corn and straw, have kept the horses in good condition; and two or three pounds of cake daily have been well bestowed on the cows throughout the winter. Hill sheep, where Turnips and hay are scarce, must now be losing condition sadly; their pastures are not only difficult to get at, from the snow, but at this season are very sapless. We so often have our winter weather in spring, that it is sound practice to have a good provision made for those trying months. The early months of winter, even although stormy, do not affect hill stock so disastrously, as the pastures at that time still retain a considerable portion of their freshness and succulency, whilst the sheep are also in fuller flesh, and better able to encounter hardship. Ewes especially suffer in a late and stormy spring from being in lamb, and requiring more nourishment at a time when their unaided natural pasture yields less. There is frequently a sad deficiency in the number of lambs, but this is less to be wondered at than that ewes should bring lambs at all on rough pasture, in high situations, and with late and adverse springs. Surely, in these days, when artificial and auxiliary feeding substances are so largely used, a portion will find its way to the hill stock, and a more liberal and safe practice ere long supplant the old starving system. *J. S. B.*

Calendar of Operations.

APRIL.—*Wheat* will need hoeing, and it may be rolled before it, and harrowed after it; if too luxuriant towards the end of the month it may be partially eaten down with sheep.

Barley sowing should be completed early this month, and after the Clover seeds have been sown, the land should be rolled.

Carrots should be sown in the second week of this month. The land, in good tilth and rolled as hard as possible, is to be sown in rows 18 inches apart, by the common Suffolk drill, which is to be followed by a light roller, and this completes the operation. The weights are to be taken off the coulter levers, and care otherwise taken that the seed shall not be buried too deeply. Or Carrots may be sown on ridges as Turnips, only not so far apart, a rut being made by the common Turnip drill on the top of each, and the seed being sown by hand, and trod in by children. In either case, 5 lb. per acre is an abundant seeding, and this should be mixed with two bushels of sand or ashes, the drill being set to sow the bulk of two bushels per acre. If the sand be damp, it may be necessary to mount a boy on the drilling machine, to keep the seed box continually filled from the store in front of it. It is well that the sand be somewhat damp, and that the seed be mixed with it some days before it is sown, the whole being turned daily, so as to help the process of germination, which in the Carrot is very slow. When the land is full of the seed of small weeds, as Chickweed, it may be necessary to sow half a peck of Oats, or a few ounces of Turnip seed, per acre, with the Carrot seed; either of these will sprout long before the Carrot seed, and showing the position of the rows, will enable with safety the earlier use of the hoe. When the double culture of this crop with Beans is adopted, the seed must be sown in double rows, between the couples of Bean rows that were planted in October.

Mangel Wurzel.—After the manure has been laid in the furrows, before splitting the ridges, one or two cwt. per acre of guano, or some other artificial manure, may be sown over the whole. The after splitting of the drills, at the same time that it covers the manure, will mix the guano with the soil. A roller then goes over the land, the horse walking in the furrows; and ribs at the proper distances having been nailed on to the roller, it leaves equidistant marks upon the ridges, at intervals of 15 inches, as guides to the dibblers who follow. These use blunt dibbles, to avoid placing the seed too deep (half an inch is sufficient), and planting the seed in the roller marks, cover it with the foot. A light roller goes over the land, and completes the operation.

Kohl Rabi may be sown in a bed now for transplanting in May.

Lucerne may be sown towards May; 10 or 12 lb. per acre, in rows 12 inches apart, on deeply tilled rich calcareous soil.

Potatos planted early in March will be coming through about the middle of April. The drills should be harrowed down, and then immediately "set up" by the double-mouldboard plough passing up them on the first symptoms of the appearance of the Potatos; as frost, to which they are still liable, would kill all the exposed parts of them. Where Potatos have been planted by ploughing in every third furrow, the land should be well harrowed ten days before the young plants are expected to break through, and the roller may be used.

Spring Tares for consumption in July and August may be sown.

Sainfoin may either be sown with the Barley, at the rate of three bushels (rough seed) per acre, or it may be sown broadcast, or drilled across the rows of Barley as they are coming through. It is best adapted to calcareous soils, on rocky or chalky subsoils. The seed should be well harrowed in, and in dry weather rolled.

Flax.—Sow early this month about two and a half bushels of clean seed per acre. Sow broadcast, either by hand or by a drilling machine from which the drill coulters have been removed. Cover with the Grass seed harrows, and roll.

Turnip Land may receive its first spring furrow, a deep cross-ploughing, early in April, after which it should be immediately harrowed and cleaned of weeds.

Paring and Burning may proceed. As soon as the ashes are spread, the land will receive its first shallow furrow, after which it must be well harrowed and rolled.

Laying down Grass may be done this month, either by sowing or planting. When the latter plan is adopted, the plants of Grass must be obtained by paring a piece of good pasture, chopping up the turf, and the bits are to be spread broadcast out of a cart over a well-tilled and highly-manured field, women and children being employed to put and tread them securely down, about 6 inches from each other, right side up, all over the land. The field is then to be heavily rolled, and 20 or 30 cart-loads of earthy compost may be spread over it, and some Grass seeds sown, "bushed" in, and rolled.

Manures.—The yards, boxes, and sheds must be again cleaned out by the end of this month, and the manure carried to the yards, or to the Turnip fields, in order that it may be partly rotted before use. The early part of this month is the best season for sowing half soluble manures, as guano, soot, gypsum, superphosphate of lime, &c., over grain crops. It should be done in wet weather, and the land, if not too wet, immediately harrowed. And the end of the month is the best time for sowing easily soluble manures, as salt, nitrate of potash.

Notices to Correspondents.

EMIGRATION: *J. Smith.* If you go without capital you will just get labourers' wages; and it may be through a good deal of hardship that you will meet with your employer.

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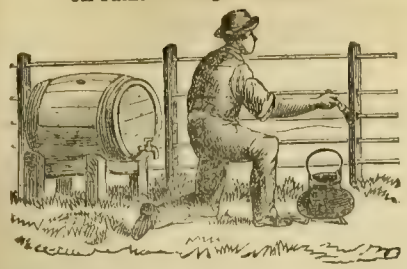
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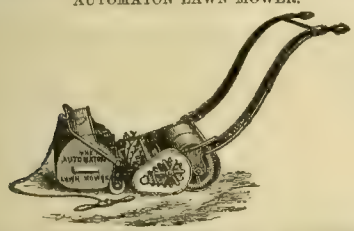
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ORNAMENTAL PAVING TILES for Conservatories, Halls, Corridors, Balconies, &c., as cheap and durable as Stone, in blue, red, and buff colours, and capable of forming a variety of designs.

Also TESSELATED PAVEMENTS of more enriched designs than the above.

WHITE GLAZED TILES, for Lining Walls of Dairies, Larders, Kitchen Ranges, Baths, &c. Grooved and other Stable Paving Bricks of great durability, Dutch and Adamantine Clinkers, Wall Copings, Red and Stoneware Drain Pipes, Slates, Cements, &c.

To be obtained of F. & G. ROSHER, at their Premises as above.

SILVER SAND (REIGATE, best quality), at the above addresses—14*s.* per Ton, or 1*s.* 3*d.* per Bushel; 2*s.* per Ton extra for delivery within three miles, and to any London Railway or Wharf. Quantities of 4 Tons, 1*s.* per Ton less.

FLINTS, BRICK BURRS or CLINKERS, for Rockeries or Grotto Work. F. & G. ROSHER.—Addresses see above.

N.B. Orders promptly executed by Railway.

Caution to Gardeners.—When you ask for

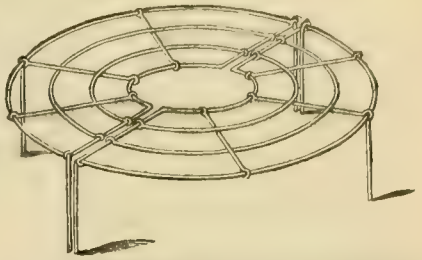
SAYNOR AND COOKE'S WARRANTED PRIZE PRUNING and BUDDING KNIVES, see that you get them. Observe the mark SAYNOR, also the corporate mark OBTAIN WARRANTED, without which none are genuine.

S. & C. regret having to caution Gardeners and others, but are compelled to do so, in consequence of an imitation, of common quality, having been sold for the genuine one, and which has caused many complaints to be made to them of Knives which were not of their make, all of which are warranted both by Sellers and Makers.

S. & C.'s Pruning and Budding Knives are the best and the cheapest in the market.

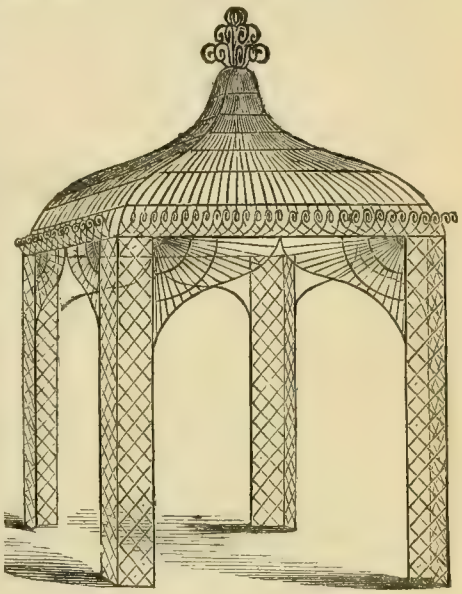
Paxton Works, Sheffield. Established upwards of 125 years.

Strawberry Crinolines.



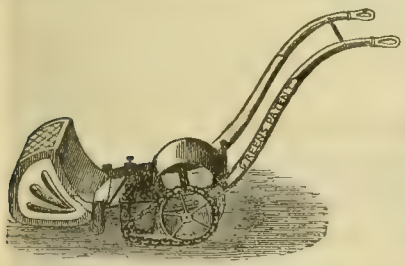
THE STRAWBERRY CRINOLINE was invented by the late Sir Joseph Paxton to support the Berries from the ground, preserve them from superfluous moisture and slugs, contact with the soil, and other nuisances.

The right to Manufacture them was transferred to R. HOLLIDAY, Wire Worker, 2A, Portobello Terrace, Notting Hill Gate, London, W.



ROSERY.

Illustrated Catalogues of Wire Work, Roseries, Arches, Flower Stands, Baskets, Aviaries, &c., furnished by R. HOLLIDAY.



Lawn Mowers.

GREEN'S PATENT. | SAMUELSON'S PATENT.
SHANKS' PATENT. | BARNARD'S PATENT.

DEANE & CO.,

46, KING WILLIAM ST., LONDON BRIDGE.

Horticultural Tools, &c.

LAWN MOWING MACHINES, 50*s.*, 70*s.*, 90*s*, 140*s.*
GARDEN BARROWS, Wood and Iron, 21*s.* and 26*s.*
GARDEN ENGINES, Galvanised Iron. Prices 55*s.*, 65*s.*, 78*s.*, 90*s.*, 100*s.*, 110*s.*
GARDEN ROLLERS, £1 10*s.*, £1 14*s.*, £2, £2 7*s.* 6*d.*, £2 12*s.* 6*d.*, £3 2*s.* 6*d.*
STEEL DIGGING FORKS, SPADES, SCYTHES, &c.
GREENHOUSE SYRINGES and GARDEN PUMPS.
WIRE NETTING and ORNAMENTAL WIRE WORK.
GARDEN SEATS and CHAIRS.
FLOWER STANDS, Cast-iron and Wire.
STRAINED WIRE FENCING and IRON HURDLES.

HOT-WATER FITTINGS for GREENHOUSES, CONSERVATORIES, FORCING PITS, &c.

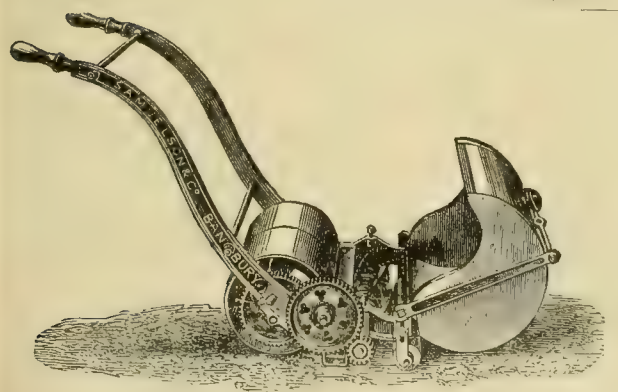
Deane's New Illustrated Horticultural Catalogue post free on application.

ESTABLISHED A.D. 1700.

DEANE AND CO., 46, KING WILLIAM STREET, LONDON BRIDGE, E.C.

SAMUELSON & CO.'S
IMPROVED LAWN MOWING MACHINES.

EVERY MACHINE WARRANTED.



PRICES.

Delivered Free to any Railway Station in Great Britain.

Cutting 12 inches wide	£4 10 0
Cutting 14 inches wide	5 5 0
Cutting 16 inches wide	6 0 0
Cutting 19 inches wide	6 10 0
Cutting 22 inches wide	7 10 0
Cutting 25 inches wide	12 0 0
Cutting 30 inches wide	15 0 0
Cutting 36 inches wide	18 0 0

Great improvements have been made in these Machines during the last few years, in regard to all those small but important points of superiority which the practical working of a Lawn Mower suggests; while for elegance of appearance, lightness of draft, and efficiency in working they cannot be excelled. They possess the following advantages:—

1st. Motion is given to the Cutting Apparatus by toothed gearing, which experience has proved to be by far the best method of driving.

2d. The whole of the Driving Wheels are on one side of the Machine, a point of great importance in preventing damage to Shrubs and Flowers, when mowing round the edges of beds.

3d. All the smaller working parts of the Machine are made of Malleable Iron, and are not liable to break.

☞ *Illustrated Price Lists, with selections from several Thousand Testimonials, Free by Post on application.*

SAMUELSON AND CO., BRITANNIA WORKS, BANBURY.

LONDON WAREHOUSE: 10, LAURENCE POUNTNEY LANE, E.C.

AGENTS:—Messrs. TANGYE BROTHERS AND HOLMAN, 10, LAURENCE POUNTNEY LANE; Messrs. DEANE AND CO., London Bridge; Messrs. DRAY, TAYLOR AND CO., London Bridge; Mr. THOMAS BRADFORD, 63, Fleet Street, E.C.; and all respectable Seedsmen and Ironmongers throughout the Kingdom.

SHANKS' PATENT LAWN MOWERS FOR 1867.

PATRONIZED FREQUENTLY DURING THE PAST THREE SEASONS BY

HER MAJESTY THE QUEEN,

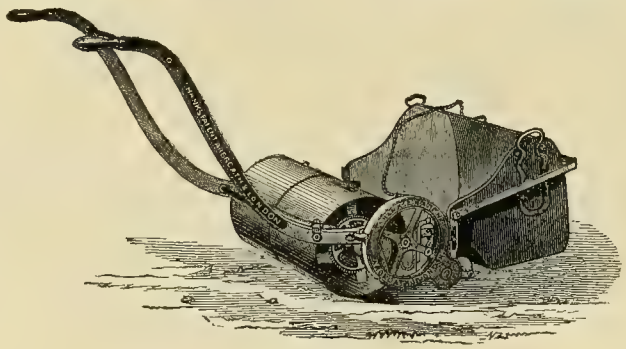
HIS MAJESTY THE KING OF SAXONY, | HIS MAJESTY THE KING OF HOLLAND,

HIS MAJESTY THE KING OF PRUSSIA,

AND AMONGST THE DISTINGUISHED FOREIGN NOBILITY,

THE DUCHESS DE CAMBACÉRÈS, THE MARQUIS DE BOISSY, MARSHAL CANROBERT, &c., &c.

Every minute point in the way of improvement has been carefully considered and adopted, and as A. S. & SON have for more than a quarter of a century devoted their attention to this particular branch of their business, the Nobility, Gentry, and Gardeners may rely on the MACHINES they may order, to be such as to ensure lasting satisfaction, and to stand the wear and tear of many years.



PATENT HAND MACHINE.

SHANKS' PATENT LAWN MOWERS

ARE IN DAILY USE IN

ALL THE ROYAL GARDENS; IN THE HORTICULTURAL SOCIETY'S GARDENS AT KENSINGTON; CRYSTAL PALACE COMPANY'S GROUNDS;

IN VICTORIA PARK; HYDE PARK;

And in almost all the principal Public Parks and Gardens in the Kingdom.

These are the only Machines that can be depended on to give lasting satisfaction.

THESE ARE THE ONLY MACHINES THAT WILL MOW PROPERLY WHEN THE GRASS IS WET.

THESE ARE THE ONLY MACHINES THAT DELIVER THE GRASS WITHOUT STOPPING, THUS SAVING AN IMMENSE AMOUNT OF LABOUR.

SHANKS' PATENT LAWN MOWERS are the only Machines that have been in operation in Her Majesty's Gardens for a quarter of a century.

Shanks' Patent Lawn Mower will Mow on uneven as well as on level Lawns.

ALEXANDER SHANKS AND SON, in referring to their IMPROVED LAWN MOWERS for 1867, doubt not but that the preference which in past years has invariably been given to their Machines will still be awarded them. The principles which guide A. S. AND SON in effecting improvements compel their Machine ever to stand the first in point of general efficiency, simplicity of construction, and durability.

A. S. AND SON have particularly aimed at substituting Wrought for Cast Iron to as great an extent as possible in the construction of their Machines. None but skilled Workmen and the most improved Machinery are employed in manufacturing the various parts, and this applies not only to the Horse and Pony, but also to the Hand Machines.

A. S. AND SON have now ready for delivery a large stock of their celebrated LAWN MOWERS, which will enable them to execute orders on the day they are received.

PRICES, INCLUDING CARRIAGE TO ANY RAILWAY STATION OR SHIPPING PORT IN THE KINGDOM.

SHANKS' NEW PATENT HAND MACHINE.

Width of Cutter.		Easily Worked	Silent Movement.
10-inch Machine	£3 10 0	*By a Lady*	4*s.* extra.
12-inch Machine	4 10 0	*By a Lady*	4*s.* extra.
14-inch Machine	5 10 0	*By a Boy*	4*s.* extra.

Width of Cutter.		Easily Worked	Silent Movement
16-inch Machine	£6 10 0	*By a Man or Two Boys*	4*s.* extra.
19-inch Machine	7 12 6	*By a Man and Boy*	4*s.* extra.
22-inch Machine	8 7 6	*By Two Men* ..	7*s.* 6*d.* extra.
24-inch Machine	8 17 6	*By Two Men* ..	7*s.* 6*d.* extra.

SHANKS' NEW PATENT PONY and DONKEY MACHINE.

Width of Cutter.		If with Patent Delivering Apparatus.
25-inch Machine	£12 10 0	.. .. 25*s.* extra.
28-inch Machine	14 10 0	.. .. 30*s.* ,,
30-inch Machine	15 15 0	.. .. 30*s.* ,,

Silent Movement, 12*s.* 6*d.* extra; Boots for Pony, 22*s.* per set
Ditto for Donkey, 18*s.* per set.

SHANKS' NEW PATENT HORSE MACHINE.

Width of Cutter.		If with Patent Delivering Apparatus
30-inch Machine	£19 0 0	.. .. 30*s.* extra.
36-inch Machine	22 0 0	.. .. 30*s.* ,,
42-inch Machine	26 0 0	.. .. 40*s.* ,,
48-inch Machine	28 0 0	.. .. 40*s.* ,,

Silent Movement, 20*s.* extra; Boots for Horse's Feet, 26*s.* per set.

The Machines are warranted to give ample satisfaction, and, if not approved of, may be at once returned.

N.B.—*A. S. & Son specially announce to their numerous Patrons that they have a staff of experienced Workmen at their London Warehouse, thoroughly acquainted with all the details of their Machines, so that they are enabled to repair Lawn Mowers in London as well as at the Manufactory.*

PATENTEES AND SOLE MANUFACTURERS:

ALEXANDER SHANKS AND SON, DENS IRON WORKS, ARBROATH, N.B.

LONDON OFFICE and SHOW ROOMS, 27, LEADENHALL STREET, E.C.

☞ 27, *Leadenhall Street is the only place in London where intending purchasers of Lawn Mowers can choose from a Stock of from* 150 *to* 200 *Machines. All sizes kept there, whether for Horse Pony or Hand Power.*

GREEN'S PATENT SILENS MESSOR,

OR

NOISELESS LAWN MOWING, ROLLING, and COLLECTING MACHINES.

PATRONIZED BY

HER MOST GRACIOUS MAJESTY THE QUEEN
ON TWENTY-NINE DIFFERENT OCCASIONS.
H.R.H. THE PRINCE OF WALES.

THE KING OF THE BELGIANS.
THE EMPEROR OF THE FRENCH.
THE EMPEROR OF RUSSIA.

AND MOST OF THE NOBILITY, CLERGY, AND GENTRY IN THE UNITED KINGDOM.

THOMAS GREEN AND SON, in introducing their PATENT LAWN MOWERS for the present season, beg to state that they have no Novelties to report. The fact is, that after the severe tests their Machines have been subjected to since they added their latest improvements, they have been found to meet all the requirements for which they are intended, viz.:—the KEEPING of LAWNS in the HIGHEST STATE of PERFECTION.

They are the simplest in construction, least liable to get out of order, and can be worked with far greater ease than any other Lawn Mower extant; and in proof of their superiority, 36,000 have been sold since the year 1856.

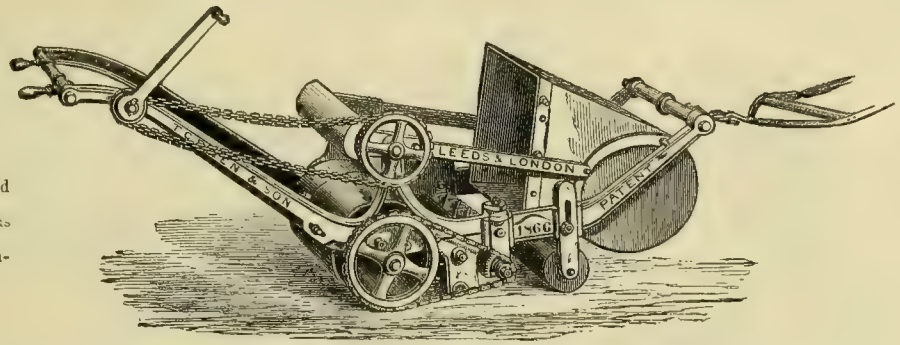
THEY ARE THE ONLY MACHINES IN CONSTANT USE AT

THE ROYAL HORTICULTURAL SOCIETY'S GARDENS, SOUTH KENSINGTON
THE ROYAL BOTANIC GARDENS, REGENT'S PARK
THE CRYSTAL PALACE COMPANY'S GARDENS, SYDENHAM
BUCKINGHAM PALACE GARDENS
MARLBOROUGH HOUSE
THE HYDE PARK GARDENS
THE WINTER PALACE GARDENS, DUBLIN
THE DUBLIN BOTANIC GARDENS
THE LIVERPOOL BOTANIC GARDENS
THE LEEDS ROYAL PARK
THE HULL BOTANIC GARDENS
THE BOTANIC GARDENS, BRUSSELS
THE SUNDERLAND PARK
THE PRESTON PARK

AND IN MOST OF THE PRINCIPAL PARKS, SQUARES, ETC., IN THE UNITED KINGDOM.

HORSE, PONY, AND DONKEY MACHINE.

GREEN'S
PATENT
LAWN MOWERS
have proved to be the best, and carried off every Prize that has been given in all cases of competition.



T. GREEN & SON
warrant every Machine to give entire satisfaction, and if not approved of can be returned unconditionally.

PRICES of HORSE, PONY, and DONKEY MACHINES, including Patent Self-delivery Box; Cross Stay complete; suitable for attaching to ordinary Chain Traces or Gig Harness.

PONY AND DONKEY MACHINES.

To Cut 26 inches	.. ..	.. £13 0 0	}	*Leather Boots for Donkey*, 18*s*. *Leather Boots for Pony*, 22*s*.
„ 28 „	.. .. ..	.. 15 0 0		
„ 30 „	.. .. ..	.. 17 0 0		

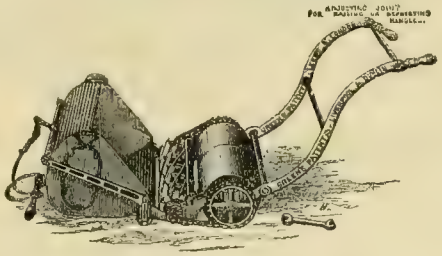
HORSE MACHINES.

To Cut 30 inches	.. ..	.. £21 0 0	}	*Leather Boots for Horse*, 26*s*.
„ 36 „	.. .. ..	.. 24 0 0		
„ 42 „	.. .. ..	.. 27 0 0		
„ 48 „	.. .. ..	.. 30 0 0		

Both the Horse, Pony, Donkey, and Hand Machines possess (over all other Makers) the advantage of Self-sharpening. The cutters being steel on each side, when they become dull or blunt by running one way round the cylinder, can be reversed again and again, bringing the opposite edge of the cutter against the bottom blade, when the Machine will cut equal to new. Arrangements are made that the cylinder can be reversed, by any inexperienced person, in two or three minutes.

HAND MACHINES.

To Cut 10 inches	.. £3 10 0	*Suitable for a Lady*	
„ 12 „	.. 4 10 0	„	„
„ 14 „	.. 5 10 0	*Suitable for One Person*	
„ 16 „	.. 6 10 0	„	„



To Cut 18 inches	.. £7 10 0	*Suitable for One Person.*	
„ 20 „	.. 8 0 0	*Suitable for Two Person.*	
„ 22 „	.. 8 10 0	„	„
„ 24 „	.. 9 0 0	„	„

Packing Cases are charged at the following low rates, viz.:—for the 10 and 12-inch Machine, 3*s*.; 14 and 16-inch, 4*s*.; 18 and 20-inch, 5*s*.; 22 and 24-inch, 6*s*. Parties providing themselves with Lawn Mowers are recommended to purchase the cases in which to stow them away, when not in use, to prevent them from getting damaged; if returned, two-thirds will be allowed for them.

The above MACHINES are made from the best materials, and of superior workmanship; are delivered Carriage Free to all the principal Railway Stations and Shipping Ports in England.

Every Machine is warranted to give entire satisfaction, and if not approved of, can be returned unconditionally.

Having above 3000 Machines in stock at our Leeds and London Establishments, we are in a position to execute orders on the day they are received.

☞ *Illustrated Price Lists, and Sheet of Prize Medals awarded to* GREEN'S PATENT LAWN MOWERS, *free on application.*

T. G. AND SON having taken very extensive Premises in London, are now in a position to do all kinds of Repairs there, as well as at their Leeds Establishment.

THOMAS GREEN AND SON, SMITHFIELD IRON WORKS, LEEDS;
and 54 and 55, BLACKFRIARS ROAD, LONDON, S.

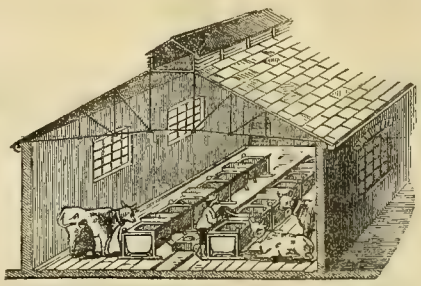
TREE and PLANT LABELS.—10,000 Cloth Punched Labels, 3 inches long, for 15*s.*; 6 inches long, 25*s.* Delivered free in London. Samples sent on receipt of 1*d.* stamp.
JOHN FISHER & Co., West Road Works, Boston, Lincolnshire.

F. A. HAAGE'S WOOD GARDEN STICKS and TALLIES, commended by the Royal Horticultural Society, acknowledged to be the neatest, cheapest, and best Training Sticks and Tallies made.
The above can now be had of all sizes, Wholesale, of BETHAM & BLACKITH, Cox's Quay, Lower Thames Street, London, E.C.; and Retail of the principal Seedsmen and Florists.
Price Lists on application.

IRON HURDLES (Silver Medal of the Royal Agricultural Society).
SHEEP, 3*s.* 6*d.*; CATTLE, 4*s.* 2*d.*; OX, 5*s.* 11*d.*
List by Post. GATES and FENCING of every description.
St. Pancras Iron Work Company, Old St. Pancras Road, London, N.W.

ROLLERS.
ROLLERS FOR THE FARM.
ROLLERS FOR THE GARDEN.
ROLLERS FOR THE LAWN.
ROLLERS FOR CRICKET GROUNDS.
ROLLERS FOR PARKS.
ROLLERS FOR RACECOURSES.
ROLLERS FOR ROAD MAKING.
The best and cheapest are the Patent Adjustable WATER BALLAST ROLLERS, made only by
AMIES, BARFORD, & Co., Agricultural Engineers, Peterborough, who will forward Price Lists and all particulars on application.

COTTAM'S PATENT PORTABLE UNITED COW FITTINGS.



Their advantages are—Portability, not Fixtures, removable at pleasure, no Woodwork or Partitions to impede Ventilation or breed Vermin, Hay Rack dispensed with as unnecessary, increased width and depth of Feeding Troughs, Water Cistern, and Patent Drop Cover to prevent over-gorging. Cleanly, durable, and impervious to Infection, being all of iron. Price of Fittings per Cow, 55*s.*
Prospectuses free of COTTAM & Co., Iron Works, 2, Winsley Street (opposite the Pantheon), Oxford Street, London, W., where the above are exhibited, together with several important Improvements in Stable Fittings just secured by Patent.

Seed Pans, Garden Pots, Edging Tiles, &c.
MESSRS. BONSEY BROTHERS beg to offer to Gentlemen, their Gardeners, and the Trade, GARDEN POTS, SEED PANS, and EDGING TILES, of all sizes, of hard and durable quality and moderate price.
Address Messrs. BONSEY BROTHERS, Brox Potteries, Chertsey, Surrey.

Horticultural Improvements.
READ'S NEW PATENT HYDRAULIC SUCTION PUMP.—This Pump is highly approved by the Nobility, Gentry, and by the principal Horticulturists, &c., throughout the Kingdom; also by Shirley Hibberd, Esq., F.R.H.S., the late Professor Lindley, and many others connected with Horticulture, &c.
Mr. READ has also a large assortment of GARDEN ENGINES, MACHINES and SYRINGES, upon the most approved principle.
Manufactured by the Patentee,
RICHARD READ, 35, Regent Circus, London, W.
*** Drawings sent post free.



SMOKY CHIMNEYS.—The best cure is the PATENT ALBERT CHIMNEY CAP. 300 on Buckingham Palace; 80 on Windsor Castle; 100 on St. James's Palace; 120 on Claremont Palace; 230 on the Western Heights Barracks, Dover; and hundreds also on the Halls and Mansions of the Nobility, Public Buildings, &c.
Price, Painted Wrought Iron, 25*s.* each; Galvanised ditto, 30*s.* each.
JAMES BARTON, Iron Works and Patent Stable Fitting Manufactory, 370, Oxford Street, W.

JOHN WARNER & SONS,

BRASS AND BELL FOUNDERS TO HER MAJESTY.

HYDRAULIC ENGINEERS,

8, CRESCENT, CRIPPLEGATE, LONDON, E.C.

J. W. AND SONS' GOODS MAY BE OBTAINED OF THE TRADE GENERALLY AT THE FOLLOWING PRICES:—

No. 39. WARNERS' CRYSTAL PALACE FIRE ENGINE, OR PORTABLE FORCE PUMP.

With this compact, portable, and generally useful Engine, one man will throw from 15 to 18 gallons of water per minute to a height of 50 feet. All its working parts are of Brass, the Barrow of Wrought Iron; easy access to the valves is gained, and the workmanship throughout is substantial. Not only will it be found most useful in cases of Fire, wherever a supply of water can be obtained, but also for Wate ring Lawns or Fruit Trees.



CRYSTAL PALACE, SYDENHAM, March 2, 1867.

Messrs. WARNER & SONS,

"Gentlemen,—I feel great pleasure in stating that I was present at a trial of your small Crystal Palace Fire Engine, and was much pleased with its efficiency and simplicity.

"The Pump throws out a steady jet of water to a height of 50 feet with very little labour. The Pump we have is well made, very simple in its parts, and not likely, I think, to get out of order. The advantage of this Pump is its being very portable. Besides being a good Fire Engine, it will make an excellent Garden Engine.

"I remain, Gentlemen,
"Yours obediently,
"EDWIN ROSE,
"Engineer to the Crystal Palace Co.

Price on Barrow, with Branch Pipe, Spreader, Unions, and Suction Rose ... ... £6.
1¾-in. 2-ply Rubber Suction Pipe, per foot, 2s. 2d. 1¼-in. ditto Delivery Hose, 1s. 4d.



No. 547, in Wood. 547A, in Iron Tub.

WARNERS' GARDEN ENGINES,
WITH REGISTERED SPREADERS.

These Engines are much improved in construction, are less likely to get out of order, and more easily repaired than others.

No. 547. Best ENGINES, in Wood Tubs.

24 Gallons	..	£6 10 0	14 Gallons	..	£5 10 0

No. 547A. Strong ENGINES, in Galvanized Iron Tubs, well painted inside and out.

10 Gallons	..	£2 19 0	24 Gallons	..	£4 19 0
16 Gallons	..	3 14 0	28 Gallons	..	5 10 0

579½. WARNERS' WATER BARROW
Saves a Gardener's time in Watering with the Water Pot.
Made of strong Wrought Iron, Galvanized and painted inside and out

To hold 20 Gallons, wheels 13 inches high			..	..	£2 2 0
,, 30 ,,	,, 20	,,	..	..	2 13 0
,, 38 ,,	,, 24	,,	..	..	3 17 0
,, 50* ,,	,, 24	,,	..	..	5 12 0

* This is an extra strong article, with cross handle for two men, suitable for Nursery Grounds, &c.



No. 579½.

SYRINGES, BRANCH PIPES, INDIA-RUBBER HOSE, &c.
Estimates for any description of Hydraulic Machinery forwarded on application.

HOTHOUSES for the MILLION, invented by the late SIR JOSEPH PAXTON.



Manufactories: London, Newton in Cartmel (Lancashire), Gloucester, Coventry, Aberdeen, and Paisley only.

Illustrated Circulars, with revised List of Prices, will be sent on prepaid application to Messrs. HERKMAN & MORTON, Head Office, 7, Pall Mall East, London, S.W.

HOT-WATER APPARATUS, of every description, fixed complete in any part of the country, or the materials, viz., Boilers, Pipes, &c., delivered to any Station. Estimates on application.

J. JONES & SONS, 6, Bankside, Southwark, London, S.E.

Heating by Hot Water.

W. J. HOLLANDS, IRON MERCHANT, 31, Bankside, London, S.E.

HOT WATER PIPES, from Stock, per yard:—2-inch, 1s. 2d.; 3-inch, 1s. 10d.; and 4-inch, 2s. 4d. BENDS, from Stock, 1s. 6d., 2s. 6d., and 3s. each. THROTTLE VALVES, 10s., 13s., and 14s. each. Other Connexions at equally low prices, and all goods of first-class manufacture. Estimates given, and orders by post punctually attended to the same day.

COTTAM AND COMPANY, CONSERVATORY and HOTHOUSE BUILDERS, &c., Iron Works, 2, Winsley Street, Oxford Street, London, W.

SADDLE BOILERS.

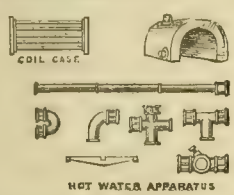
20	24	30 inches long.	
45s.	60s.	92s. 6d.	each.

HOT-WATER PIPES.

2	3	4 inch.

1s. 6d. 2s. 1d 2s. 9d. per yard.

Materials supplied as above, or Estimates given fixed complete to Plan, on application to COTTAM & Co., Iron Works, 2, Winsley Street, opposite the Pantheon, Oxford Street, London, W.



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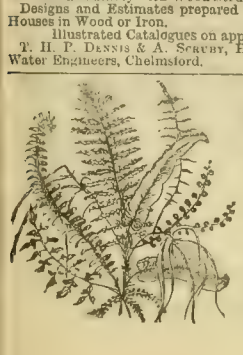
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NURSERY and SEED BUSINESS for SALE.—A good going Nursery and Seed Business in the North of England will be Disposed of on very moderate terms to any party who can take possession at an early date. There is a considerable breadth of glass, almost new, and well stocked with first-rate saleable plants, for which there is a great demand in the district. In the Seed department there is an excellent connection, which is increasing yearly. Most satisfactory reasons can be given for the present proprietor having resolved to relinquish the above.

Apply by letter only, address "Business for Sale," care of Messrs. Peter Lawson & Son, Edinburgh.

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FARM IN SOUTH LANCASHIRE.

TO BE LET, and may be entered upon Immediately, a good FARM of ARABLE and GRASS LAND, adjoining the Turnpike Road leading from Liverpool to Manchester, and near to Stations on the Liverpool and Manchester Railway, being 13 miles distant from Liverpool and 10 miles from the Stanley Cattle Market there. The Farm is in a Ring Fence, well sheltered and watered, nearly all drained, and has lately been much improved by the owner, in whose hands it has been for two years. Extent, 308 STATUTE ACRES, divided into eight Fields. There is a good and commodious House, large Orchard, four Cottages for Farm Labourers, a Modern-erected Homestead (one of the largest and best in the county), comprising accommodation for tying-up upwards of 60 Head of Cattle; also Open Sheds and Cattle Yards, Stabling for 15 horses, Loose Boxes, Barn with 6-horse Steam-engine, Threshing Machine, Corn Bays, Granary, Piggeries, &c.

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UNFURNISHED BED ROOM, DRAWING ROOM, and CONSERVATORY, with piece of Garden if required In a most delightful situation.—J. N. D., 11, Blackheath Hill, S.E.

Sales by Auction.

SALE THIS DAY, AT HALF-PAST TWELVE O'CLOCK.

Consignment of Plants from Ghent.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on SATURDAY, March 30, at half-past 12 o'Clock precisely, 200 CAMELLIAS, 200 INDIAN AZALEAS, 250 Hardy RHODODENDRONS, 300 LILIUM LANCIFOLIUM, 6 Specimen Variegated ALOES, MARECHAL NIEL and other New ROSES, CLIMBING PLANTS, Dwarf-trained and Pyramid FRUIT TREES, RUSTIC SEATS, &c.

On view the Morning of Sale, and Catalogues had

Important Sale of Orchids, Stove and Greenhouse Plants, at Highgrove, Reading, Berks.

MR. J. C. STEVENS will SELL by AUCTION, at the Gardens, Highgrove, Reading, Berks, on TUESDAY and WEDNESDAY, April 9 and 10, the valuable Collection of ORCHIDS, STOVE and GREENHOUSE PLANTS, formed by the late J. J. Blandy, Esq., Vice-President of the Royal Horticultural Society of London, comprising a great variety of fine Plants, many of which have been exhibited and carried off Prizes at the various Metropolitan and Provincial Shows; also several Greenhouses, Exhibition Van, &c.

Catalogues are ready (price 6d. each, to admit parties to the Sale), which may be had at the Gardens; also of Messrs. COOPER & GOULDING, Auctioneers, Market Place, Reading; and of Mr. J. C. STEVENS, Horticultural Auctioneer and Valuer, 38, King Street, Covent Garden, London, W.C.

Important Sale of Orchids.

MR. J. C. STEVENS has been favoured with Instructions to SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., without reserve, on WEDNESDAY and THURSDAY, April 17 and 18, First-class ESTABLISHED ORCHIDS, being part of the well-known Collection of A. Basset, Esq., of Stamford Hill, who is reducing his Collection for a short time owing to change of residence. The Plants consist of Duplicates, amongst which will be found many magnificent Specimens of all the best Varieties, including:—

Aerides Fieldingii	Miltonia spectabilis
" maculosum	Odontoglossum citrosmum
" Lobbii	roseum
" Larpentæ	Odontoglossum Alexandræ
" crispum	" radiatum
Cattleya Mossiæ	" Bluntii
" Trianæi	" brevium majus
" Bassetii	" Phalænopsis
" Wagneri	" coronarium
Dendrobium macrophyllum	Oncidium crispum
" giganteum	" ampliatum majus
" primulinum giganteum	Phalænopsis amabilis
" nobile pendulum	" grandiflora
Cypripedium Stonei	" Schilleriana
" Veitchii	Saccolabium ampullaceum
" barbatum	" curvifolium
" concolor	" guttatum
" villosum	" retusum
Lælia elegans	Trichopilia crispiflora
" Dayii	Vanda Batemanni
" purpurata	" tricolor
Miltonia candida grandiflora	" suavis

&c., &c., &c.

On view the Morning of Sale, and Catalogues had.

Sale of very handsome Standard Roses, Fruit Trees, American Plants, and Evergreen Shrubs.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at 28 and 29, Gracechurch Street, City, E.C., on SATURDAY, April 6, at half-past 12 o'Clock precisely, a superb assortment of 350 very handsome STANDARD and DWARF ROSES, including the best varieties in cultivation; choice hardy AMERICAN PLANTS, comprising Ghent and other AZALEAS, HYBRID RHODODENDRONS, KALMIAS, ANDROMEDAS, &c., selected FRUIT TREES, Hardy CONIFERÆ, and EVERGREEN SHRUBS; some fine BULBS of LILIUM AURATUM.

On view Morning of Sale. Catalogues had at the Rooms as above, and of the Auctioneers and Valuers, Leytonstone, Essex, N.E.

The Cedars, Tottenham Green.

VALUABLE GREENHOUSE PLANTS.

MR. A. RICHARDS will SELL by AUCTION, on the Premises, on WEDNESDAY, April 10, at 2 o'Clock, a valuable Collection of GREENHOUSE PLANTS; also 130 Iron Hurdles, Vases and Figures, Cucumber Frames, &c.

May be viewed, by cards, the day previous. Catalogues obtained of the Auctioneer, Tottenham, N.

AN EXTENSIVE SALE by AUCTION, on FRIDAY, April 12, 1867, at Providence Nursery, Boston Spa, Yorkshire, of SPECIMEN and HALF SPECIMEN, STOVE and GREENHOUSE PLANTS, ORCHIDS, &c.

The Plants are all in first-rate condition, and can be seen on the Ground any day (Sunday excepted).

Catalogues on application to J. C. PADMAN.

Cutteslowe, near Oxford.

IMPORTANT SALE OF SHORT-HORNED CATTLE.

MR. STRAFFORD has received instructions to offer for SALE by AUCTION, without reserve, on THURSDAY, April 4 next, at Cutteslowe, the entire HERD of SHORT-HORNS belonging to Mr. Middleton, who is relinquishing breeding. It consists of about 45 Head of Bulls, Cows, and Heifers, that have been bred for nearly 20 years from four well-known tribes, two of which are descended from Earl Spencer's Nos. 13 and 25, bought at the Chilton Sale; the third was purchased at Earl Ducie's in 1849, and traces back to Mr. Wright's Laurustina by Comet (156); whilst the fourth is bred directly from Mr. R. Colling's Cowslip. The Bulls formerly used were of the Wiseton blood, and latterly the Sires have been principally of Kirklevington blood, viz., Gloster's Grand Duke (12949), Duke Valorous (16951), Earl Ducie (17767), Thornhill Spencer (23072), and Prince of Thorndale. The Herd, which has not been forced for Sale, is in a fine healthy state; it includes some very promising young Bulls, chiefly Roans, and the whole are well worth the attention of purchasers. Several of the Animals have won Prizes at the Oxford and Banbury Shows, and received commendations at the Royal.

Catalogues, with Pedigrees, may be had on application to Mr. STRAFFORD, 13, Euston Square, London, N.W.; or of Mr. MIDDLETON, at Cutteslowe, near Oxford.

Ravensden House, near Bedford.

IMPORTANT SALE OF SHORT-HORNED CATTLE.

MR. STRAFFORD has been directed by Francis Wythes, Esq., to SELL by AUCTION, on WEDNESDAY, April 10, at Ravensden House, near Bedford, his entire HERD of SHORT-HORNED CATTLE, consisting of about 45 head of Bulls, Cows, and Heifers, which have been bred from some fine old families of Short-horns; amongst them are several members of the "Blanche," "Countess," "Millicent," and other well-known tribes. The young Stock are chiefly by two Bulls of the most fashionable blood, May Duke 2d (18372), from Biddenham, and Sir James (2.902), from Clifton Pastures; they are rich in colour, with good hair and quality, and in a fine healthy state of condition, many of the Cows possessing good dairy properties. The whole will be Sold without any reserve, and are well worth the attention of purchasers.

Catalogues, with Pedigrees, may be had on application to Mr. STRAFFORD, 13, Euston Square, London: or of Mr. WYTHES, at Ravensden House, near Bedford.

Professor Mettenius' Botanical Library.

TO BE SOLD by AUCTION, at Leipzig, during the LAST WEEK of MAY, the valuable BOTANICAL LIBRARY of Professor METTENIUS (late Director of the Botanical Gardens, Leipzig).

Catalogues may be had of DAVID NUTT, Foreign and Classical Bookseller, 270, Strand, London, W.C., who will execute commissions on liberal terms.

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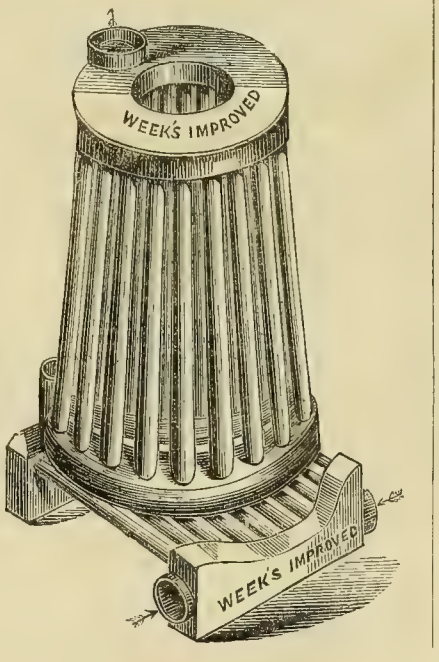
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Home News.

THE COURT.—The Queen and Royal family continue at Windsor. On Thursday evening, the 21st, Prince Christian arrived at the Castle from the Continent. On Friday the Queen, accompanied by Princess Louisa, Princess Beatrice, Prince Leopold, and Prince Henry of Prussia, left Windsor for London. On her arrival at Paddington, her Majesty, with the Princess Louisa, drove to Marlborough House, escorted by a detachment of the 14th Hussars, and visited the King and Queen of Denmark and the Prince and Princess of Wales. Her Majesty afterwards went to Buckingham Palace. In the afternoon, by command of the Queen, a Levée was held at St. James's Palace by the Prince of Wales, on behalf of her Majesty. In the evening Princess Louisa, Prince Arthur, and Prince Leopold attended the performance at the Olympic Theatre. Princess Beatrice attended the performance at the Haymarket Theatre. On Saturday the Queen, accompanied by Princess Louisa, visited the King and Queen of Denmark and the Prince and Princess of Wales at Marlborough House. Her Majesty also visited the Prince and Princess of Teck. The King and Queen of Denmark afterwards visited the Queen at Buckingham Palace. In the afternoon her Majesty and the Royal family returned to Windsor. On Sunday the Queen and their Royal Highnesses attended Divine service in the Private Chapel. The Bishop of Oxford preached the sermon. On Monday the Queen and the Princess Louisa rode on ponies in the Home Park. Princess Louisa went to London in the evening, and attended the Philharmonic Concert in Hanover Square. On Tuesday morning the Queen, with Prince and Princess Christian, drove out in a carriage and four. Rear-Admiral Henry Mangles Denham, F.R.S., Mr. Henry Pennell, Mr. George Harvey, President of the Royal Scottish Academy, and Mr. Noel Paton, R.S.A., her Majesty's Limner for Scotland, arrived at the Castle, and had the honour of knighthood conferred upon them by her Majesty. On Wednesday morning the Queen drove out with the Princess Louisa and Princess Christian. On Thursday the Queen went to London and held a Court at Buckingham Palace. Her Majesty afterwards visited the Prince and Princess of Wales, and then returned to Windsor. The Queen and Royal family will probably visit Scotland some time next month.

THE PRINCESS OF WALES has greatly improved in health during the last few days. Her Royal Highness has had comfortable rest, and suffers much less pain.

THE PRINCE OF WALES AND THE KING OF DENMARK inspected the Hon. Artillery Company on Saturday at their drill ground, Finsbury. On Sunday the Prince, accompanied by the Queen of Denmark, attended Divine service at the Chapel Royal, St. James's. The Bishop of Limerick preached the sermon. On Monday the King of Denmark was present in the House of Commons during the speech of Mr. Gladstone.

PARLIAMENTARY MOVEMENTS.—Lord Robert Montagu, whose seat was vacated by his acceptance of the Vice-Presidency of the Committee of Council on Education, was re-elected for Huntingdon on Monday without opposition.

THE CABINET.—A Cabinet Council was held on Saturday at the official residence of the First Lord of the Treasury, in Downing Street. Another Council is summoned for to-day,

GOVERNORSHIP OF MALTA.—Lieutenant-General Sir Patrick Grant, G.C.B., Colonel of the 78th Foot, has been appointed Governor of Malta, in succession to Sir Henry Storks.

NEW BARONETCIES.—It is announced that the Queen, on the recommendation of the Earl of Derby, has raised the following gentlemen to the baronetage:—The Right Hon. Joseph Napier; Mr. Bagge, M.P. for West Norfolk; Mr. William Lawrence, Serjeant Surgeon to her Majesty; and Mr. B. L. Guinness, M.P. for the city of Dublin.

Foreign.

FRANCE.—The health of the Prince Imperial continues to improve. The *Constitutionnel* has published the following article on the subject:—

"We are informed that the restoration of the Prince Imperial's health suffered a momentary interruption by the formation on the leg of a fresh abscess, which Dr. Nélaton has opened with complete success. The Prince, who, the first time, had only agreed to be chloroformed on the persuasion of his mother, would not consent to again have recourse to that means, and himself invited Dr. Nélaton to commence the operation. His sole anxiety was that the Empress, in whom he feared to excite a feeling of uneasiness, should not be informed of the painful operation he was about to undergo. During the whole time he displayed a firmness above his age. The health of the Prince is at present much improved. The medical men announce a complete cure at a not distant date."

In the sitting of the Corps Législatif on Thursday the first article of the Bill for the abolition of imprisonment for debt was passed by 136 to 92 votes. It is announced that the Prince of Orange and the Count of Flanders have postponed their visit to Paris in consequence of information conveyed to them by telegraph that there will be no inaugural ceremony at the opening of the Exhibition. The excitement in Paris on the subject of the treaties between Prussia, Bavaria, and Baden, has been increased by the announcement that a secret treaty has also been concluded with Wurtemberg, and the public are troubled by all kinds of rumours as to a coming war. It is said that Bavaria, Baden, and Wurtemberg were naturally reluctant to make over their military forces to Prussia, and place them exclusively under her control, but Count Bismark overcame their scruples by showing them French despatches claiming the Rhine frontier, including a slice of the territory belonging to Baden and Bavaria, and cutting off Wurtemberg from the free navigation of that river. The *France* of Sunday declares that no negotiations are pending relative to Luxemburg, and that the rumours which have recently been current on the subject, are due to the imagination of newsmongers. In spite of this contradiction it is believed in Paris that negotiations are pending between France and the King of Holland for the purchase of Luxemburg, the fortress of which is now garrisoned by Prussians. The *France* of Monday publishes an article in which it says that the policy of moderation adopted by the Government is neither a policy of obliteration nor of weakness. France may be silent, but she never abdicates her rights. Prussia, doubtless, is cognizant of the real state of French opinion, and that the public sentiment has not been modified by the events of the last few months, nor by those events which recent publicity has brought to the knowledge of the French people. The German papers, on the other hand, say that Count Bismark will never consent to the cession of Luxemburg, which is German territory, and that any such cession would be treason to Germany. The *France*, referring to the rumour that General Fleury was about to be sent on a mission to Vienna, says:—"We are able to affirm that no question exists in the foreign policy of France with which public opinion need preoccupy itself." The election at Metz for a deputy to the Legislative Body has resulted in the return of the Government candidate by a large majority. The disturbances at Roubaix are virtually at an end. Upwards of 4000 weavers have returned to their looms, but 2000 still hold out. The Imperial Society of Antiquaries of France, at its last sitting, received official notice that the statues of Fontevrault are not to be given up to England. Queen Victoria, it appears, has written to the Emperor to say that, in presence of the emotion caused among the French public, and manifested in the organs of the press, she renounced accepting the present offered to her. Her Majesty only expressed a desire that those precious relics, actually buried in a dark recess of a low and damp chapel in the prison of Fontevrault, should henceforward be preserved in a more suitable manner. The steamer Copernic has arrived at Marseilles from Alexandria, with the Japanese Commission and 621 large cases for the Exhibition. The Commission consists of a chief of the department of Foreign Affairs, an interpreter, a botanist, two merchants, three young women, and four servants. The Japanese females intend, it is said, to keep a tea-house in the palace in the Champ de Mars, after the fashion of those in their own country. The journeymen tailors of Paris held a large meeting on Monday, at which they resolved on striking next week unless their employers agreed to an increase of wages, which amounts to about 18 per cent.

SPAIN.—A railway accident has occurred near Madrid, through a train from Toledo having run off the line. Two persons were killed and 27 wounded.

PORTUGAL.—Popular tumults have taken place in Oporto on account of the new taxes. Troops were ordered out to restore order. The city is now tranquil.

DENMARK.—The King will not pay a visit to Paris. It is his Majesty's intention to return to Copenhagen very shortly. Prince John leaves to-day for Greece, to assume the regency of that kingdom during the absence of King George. The latter will proceed direct to St. Petersburgh, where he will be affianced to the Grand Duchess Olga Constantinovna, niece of the Czar, and will then proceed to Copenhagen.

BELGIUM.—The Belgian Senate has rejected, by 39 against 12 votes, the Government Bill abolishing Article 1781 of the Civil Code, concerning the relations of master and servant.

WURTEMBERG.—The *Official Gazette* of Saturday publishes the text of a treaty of alliance between Prussia and Würtemberg identical in terms with that concluded between Prussia and Bavaria on the 22nd August last. The supreme command of the Würtemberg troops in time of war is given to the King of Prussia. The *Official Gazette*, in a leading article on the treaty, repudiates the possibility of neutrality in the event of European war complications, and says that "it would be chimerical to expect to participate in the benefits of national existence without also sharing the dangers by which it may be threatened." The text of the treaty was laid before the Estates on Saturday. The Committee of the Estates have since demanded of the Government that the treaty should be laid before them, not merely for their information, but for their sanction.

PRUSSIA.—On Friday the King had a reception at the Royal Palace, in honour of his birthday, when His

Majesty addressed to the French and English ambassadors, but especially to the former, in reply to their congratulations, words expressing the most friendly assurances of peace. The King also had a reception of the Cabinet Ministers, at which, in replying to their congratulations, he laid particular stress on the essentially peaceful character of the next task incumbent upon Prussia, which was to sow the seed of peaceful development in Germany, which had been prepared to receive it by the Prussian arms. Such, said the King, would be his work during the remaining years of his life. A parliamentary banquet was also given in honour of the day. Members of all the political parties in the North German Parliament were present. The health of the King was proposed by Herr Simson, who in his speech dwelt especially upon the mission of the Hohenzollerns, which was, he said, to create one people and one state out of the different German races. At night Berlin was splendidly illuminated. It is rumoured that the King will pay a visit to the Paris Exhibition about the end of May. The North German Parliament on Saturday adopted the 5th Article of the draught of the Constitution, together with an additional paragraph proposed by Herr Twesten, relative to the decisive powers of the President of the Bund in legislation respecting the army and navy. The general debate on the sections of the draught relating to the Federal Council, the Presidency of the Bund, and the Parliament, then commenced. The chief subject of debate was the question of Ministerial responsibility. In the sitting of Tuesday, Article 6 of the Constitution was agreed to unanimously. This Article fixed the distribution of votes in the Federal Council among the Governments of the Confederation. All amendments to this Article were rejected, in consequence of a declaration of Count Bismark, explaining the division of the vote of the Federal Council. Article 7, which was agreed to by a large majority, regulated the voting and the introduction of motions in the Federal Council. Article 8, which determined the subjects for the consideration of which committees would be formed in the Federal Council, was almost unanimously adopted. Article 9, which empowered the members of the Federal Council to take part in the debates of the Parliament, and Article 10, which stipulated that they would receive from the presiding Power the customary diplomatic protection, were also adopted by large majorities. The amendment proposing a responsible Federal Ministry was rejected by 177 to 86. Article 11, giving the Presidency of the Bund the right of declaring war, making peace, and representing the Confederation internationally, was adopted, with Herr Lette's amendment, stipulating that treaties with foreign States should require the sanction of the Parliament to become valid. On Article 12, which stated that the presiding Power should appoint the Chancellor of the Bund, who would take the chair at the Federal Council, Herr von Bennigsen moved an amendment, requiring the Chancellor to take the oath to the Constitution. This amendment was agreed to by a small majority, and the Article and the amendment were then put to the vote. The numbers were 125 for and 125 against the Article as amended, which, on a second division, was rejected by 127 to 126 votes. In the sitting of Wednesday, Article 13, giving the presiding Power the right of convoking and closing the Federal Council and Parliament; Article 14, requiring that the Council and Parliament should be convoked annually; and Article 15, authorising the meeting of the Council at any time at the request of a third of the members, were adopted almost unanimously, and without discussion. On the motion for the discussion of Article 16, allowing the Federal Chancellor to be represented by any other member of the Council, Count Bethusy-Huc moved to add to it Article 12, which was rejected on the previous day, and according to which the presiding Power would appoint the Federal Chancellor, who would preside at and direct the business of the Federal Council. Herr von Bennigsen moved an amendment providing that the presiding Power should appoint, besides the Federal Chancellor, a responsible administrative head. An animated debate ensued, in the course of which Count Bismark declared that the amendment could not be accepted, and would, if adopted by the House, imperil the entire draught of the Constitution. Count Bethusy-Huc's proposal was ultimately agreed to almost unanimously, and Herr von Bennigsen's amendment was rejected by 140 to 124. Art. 17, which ordered that the presiding Power should lay before the Parliament proposals in conformity with the resolutions of the Federal Council, and that these proposals should be defended in the Parliament by members of the Council, was also adopted. Art. 18, which declared that to the presiding Power belonged the promulgation and execution of the Federal laws in the name of the Confederation, and with the counter-signature of the Federal Chancellor, was adopted, together with an amendment proposed by Herr von Bennigsen, declaring that by countersigning the laws the Federal Chancellor assumed the responsibility thereof. Art. 19, which intrusted the presiding Power with the appointment of the functionaries of the Confederation, and Art. 20, which established and regulated Federal execution, were also adopted by large majorities. In the sitting of Thursday Art. 21, relating to the election of the Parliament, gave rise to a debate in which the questions of establishing an Upper House, of secret voting, and of the eligibility of public functionaries to seats in Parliament, were discussed at great length. Count Bismark declared that the only amendment he could accept would be one which would allow public functionaries not belonging to the clerical or legal profession to be elected to Parliament. The article was subsequently adopted, with two amendments, one of which, proposed by Herr Fries, stipulated that the elections to Parliament should take place by secret voting; and the other, proposed by Herr Donnersmarck, that all public officials should be eligible for seats in the Parliament, shall receive leave of absence during the time Parliament is sitting, and shall resign their seats in case of being promoted by the Government to any higher office than that occupied by them when returned. The Ministerial *Zeidler Correspondence* of Tuesday says:—

"The publication of the treaties between Prussia and the South German States was not intended as a demonstration against foreign Powers. The relations of Prussia with France are especially satisfactory, and the publication of those treaties had no other object than to reassure the North German Parliament respecting the German policy of the Prussian Government with regard to the negotiations between Holland and France relative to Luxemburg. The initiative came from the Dutch Government, and not from France, and it would be erroneous to suppose that the interests of Prussia could in any way be endangered by the negotiations."

The whole Prussian fleet is to be got ready for sea by the 1st of April. The *Borsenzeitung* of yesterday says that "negotiations are being carried on between Italy and Prussia, and that in the event of complications between France and Germany, King Victor Emmanuel might possibly reclaim Nice and Savoy, the sacrifice of which he feels keenly." It is officially announced that Prussia has recommended the Turkish Government to cede the island of Candia to Greece, and that in so doing Prussia has acted in unison with Russia, France, and Austria. The Prussian Government, in order to facilitate passenger traffic between France and North Germany during the Paris Exhibition, proposed to France the introduction of some reciprocal modifications in the present system of passport supervision between the two countries. The proposal was declined by the French Government on the ground of considerations connected with the French police arrangements.

AUSTRIA.—The Prussian Government announced to the Imperial Cabinet on the 15th inst., through the Prussian Ambassador, the conclusion of the secret treaties between Prussia, Bavaria, and Baden. The Ambassador, in making the communication, added that the treaties were purely of a defensive character. A rumour that France had made overtures to Austria to protest collectively against these secret treaties, and that Austria had refused, has been current in Vienna, but is without any foundation. It is stated that the resolution of France, Austria, and Russia, to recommend collectively to the Porte the cession of Candia to Greece has not been carried out on account of the refusal of England to join in the representation of those Powers. The Ambassadors of those Powers, therefore, have only been instructed to recommend separately to the Porte the cession of Crete, without, however, exercising any pressure upon the Turkish Government. The Treaty of Commerce between Austria and Holland was signed at Vienna on Tuesday.

HUNGARY.—The Emperor left Pesth on Saturday for Vienna, and returned on Tuesday. The coronation of the Emperor and Empress as King and Queen of Hungary will take place at the beginning of July next. In the sitting of the Lower House of the Hungarian Diet on Friday, the general debate on the report of the committee of 67 was continued. In the sitting of Saturday M. Sztrakisnirovici asked the Government whether, and, if so, why, troops were concentrated on the frontiers of Servia and Bosnia. Count Andrassy replied that the rumour of the concentration of troops was unfounded, and added that His Majesty had neither as Emperor of Austria nor as King of Hungary any interest in impeding the peaceful development of the Eastern nationalities, as was proved, indeed, by his assenting to the evacuation of the Servian fortresses. This declaration was received with loud cheers. In the sitting of Tuesday the Committee on the Relations between the different Nationalities of Hungary was instructed to bring in a Bill to regulate those relations as speedily as possible. M. Tisza asked the Government whether they intended to bring in Bills to establish civil equality for all religious denominations, and to settle questions connected with feudal property. Baron Eötvos replied that he would answer the question on an early day. In the sitting of Tuesday a member of the Extreme Left brought forward two Bills, one of which proposed to pension the widows and orphans of the Honveds (the National Guard of 1848), as well as invalided members of that force, and to provide employment for Honveds still able to work. The second Bill proposed to perpetuate the memory of the patriots who were executed in 1848; to liberate all persons suffering imprisonment for political offences, and to revoke their sentences; and to restore all goods which have been confiscated for like causes. The general debate on the report of the Committee of Sixty-Seven was then resumed. Baron Senneyey has been removed from his post as President of the Upper House, and has been replaced by M. Majlath, formerly Aulic Chancellor, and at present Chief Justice of Hungary. Herr Kossuth has published a statement denying that he approves the course of events in Hungary, and expressing his opinion that Hungary has committed political suicide as a State and a nation by her arrangement with Austria.

ITALY.—The Italian Parliament was opened on Friday by the King in person, who delivered the following Speech from the Throne:—

"Signori Senatori, Signori Deputati.—For the happiness of Italy, who has confided to me her destinies, I have deemed it expedient that the representation of the country should be renovated at the fountain-head of the national suffrage. I am confident that it will there have imbibed a consciousness of the serious wants of the country, as well as the strength necessary to provide for them. There has been a time for daring resolutions and bold enterprises. I pursued the course which was then necessary, full of confidence in the holiness of the cause which God had called upon me to defend. The nation replied with readiness to my appeal, and by our union and perseverance we acquired our independence and preserved our liberty. Now that her existence is assured, Italy demands that the forces of her intelligence and her will shall not be exhausted in intemperance and rivalry, but shall, on the contrary, be concentrated with the object of giving her a stable and wise organisation, in order that she may be able to develop in repose and tranquillity the elements of vitality and prosperity which she has received from Providence. The nation demands that the Chamber and the Government shall apply themselves with wisdom and resolution to this work of reparation. Nations love and appreciate institutions by reason of the benefits they derive from them. It is necessary to show that our institutions give satisfaction to the noblest aspirations after national dignity and activity, and that they are at the same time a guarantee for the good organisation of the State and the welfare of the people, in order that the latter may not lose confidence in liberty, which is the honour and the strength of our political reconstruction. In order to obtain this result my Government will submit to your deliberation a Bill for a complete administrative reorganisation, which will strengthen at the same time both liberty and and authority, and facilitate as well as simplify the relations between the governing and the governed. While the provinces and the communes, in accordance with the proposed law, are to enjoy greater liberty in the sphere of their jurisdiction, more extensive powers must be united in the hands of the chief of the province, so as to diminish the confusion inherent in decentralisation by the application of a remedy calculated to strengthen the bonds of unity. There will be presented to you at the same time Bills of which the object will be to render the collection of the taxes more simple and uniform, to reform some portions of our system of taxation, and to obtain by a more sensible method of accounts a safe control and rapid check over the application of the public money. The necessities and engagements of the State do not allow us for the moment to diminish, as I would wish, the burdens which weigh upon my people. In the meantime, the legitimate conversion of the ecclesiastical patrimony into money, strict economy in the expenditure, a vigilant application of the new laws, and the severest morality in the conduct of all the branches of the public administration will make the payment of the taxes appear less burdensome. The prompt discussion and effective application of the proposed reforms can alone restore our credit and remove the necessity for fresh imposts. The financial question is at the present day not only a question of supreme interest for Italy, but also one of honour and national dignity. Parliament will, I have no doubt, direct all its activity to the solution of this question. On solemn occasions we have pledged ourselves to Europe that we would become a Power for the advancement of civilisation, order, and peace so soon as we were placed in possession of our national existence. Now is the time for us to redeem that pledge, and to fulfil the hopes that have been placed in us. Gentlemen of the Senate and Chamber of Deputies,—The honour, the safety, and the future of the nation are now in your hands. If it was a glory for us to have accomplished by so many sacrifices the work of our independence, and to have endowed the nation with the activity and vigour of life, it will be no less a glory for us to organise it at home—to make it sure of itself, respected and strong."

The King concluded his speech amid loud and prolonged cheering. The Chamber of Deputies immediately proceeded to examine the validity of the elections, and up to Monday night had confirmed 402. In the sitting of Tuesday Signor Mari, the Government candidate, was elected President of the Chamber by a majority of 50 over the Opposition candidate, Signor Crispi, the numbers being 195 to 145.

PAPAL STATES.—In a Consistory held at Rome on Wednesday, the Pope appointed the Archbishops of Milan, Rheims, and Algiers to their sees. Twenty-one bishops were also preconised, of whom 4 were French, 1 Hungarian, and 16 Italian.

RUSSIA.—It is currently reported at St. Petersburgh that an offensive and defensive alliance has been concluded between Prussia and Russia, and that Roumania is a party to this arrangement. The *Invalide Russe* of Friday officially denies the intelligence by the overland mail from Bombay relative to Russian affairs in Bokhara, and adds:—

"All previous statements received from Bombay on the same subject are false. Since the capture of the defiles of Djusak, Russia has had no dealings even of a diplomatic nature with the Emir of Bokhara."

The sale of the Moscow and Petersburgh Railway has been resolved upon. The proceeds of the sale will be applied towards the completion of the railway system in Russia. In order that Russian railways shall no longer be dependent upon foreign enterprise, the Imperial Government proposes to guarantee to Russian contractors orders for the manufacture of railway plant for a period of several years, and at the same time to advance them one-half the amount of the annual contract.

POLAND.—An imperial decree has been issued abolishing the Polish Council of State. Until the work of assimilating the Polish administration to that of the Russian empire is completed, all legislative questions in Poland will be submitted to the decision of the Imperial Chancery and the committee of the former kingdom of Poland at St. Petersburg.

SERVIA.—The Prince of Servia issued a proclamation on Tuesday announcing to the inhabitants that he would leave Belgrade for Constantinople on Thursday, to thank the Sultan for the evacuation of the Servian fortresses. The only condition of the evacuation is that the Turkish flag shall be hoisted on the citadel by the side of the Servian standard. During Prince Michael's absence the Government will be conducted by the Council of Ministers.

TURKEY.—The semi-official journal *La Turquie* announces that it is authorised to declare that neither the French nor any other Government have ever proposed to the Porte the cession of Candia to Greece. "Turkey," it says, "will never cede an inch of her territory which has been formally guaranteed by the Paris Treaty of 1856."

CAPE OF GOOD HOPE.—Accounts from Cape Town to Feb. 19 state that there was great speculation as to the probable course of the business during the next Session of Parliament, which will open about the end of April. The necessity of a further retrenchment in the public expenditure was everywhere admitted. The Governor had issued a circular to the resident magistrates and civil commissioners to show how far the retrenchment resolutions adopted by the House of Assembly could be advantageously carried out in their various departments. A pamphlet has been published by Mr. Darnell, pointing out that 400,000*l.*

might be realised by a proper use being made of the Crown Forests alone. Refreshing rains had fallen over a great part of the country, but some districts were suffering slightly from drought. The natives in the colony and on its immediate border were perfectly quiet, but another war between the Free State and the Basutos was considered imminent, as some Boers had been killed. The lands taken from the Basutos during the last war had been sold by auction, but it appeared doubtful whether their purchasers would be allowed peaceful possession. Some of the Burghers admit that the Basutos have not space enough to live in. They think it a great mistake to occupy land beyond Caledon, this greed of land having, in their opinion, been a fruitful source of colonial war. The birthday of the Sultan of Turkey was for the first time celebrated with great solemnity by the Malay population at Cape Town on the 9th of February. There were grand ceremonies at the principal mosque in honour of the day, and a complimentary address was presented to the Hon. P. E. de Roubaix, the Consul-General for Turkey. A controversy had been raised in the colony by Lord Romilly's judgment in the appeal case of the Bishops of Natal and Cape Town. Active meetings continued to be held by the different Churches, and petitions to the Imperial Parliament were adopted. Some of these petitions are in favour of the introduction of a Bill similar to that brought in by Mr. Cardwell last Session, but the large majority of them are opposed to separation in fact or in name from the Church of England. One of the resolutions passed at Cape Town expresses deep regret that doctrines contrary to the fundamental principles of the Church of England are taught within her pale in the colony of Natal, and deeply deplores that measures have not been taken by those whose duty it was to institute them through the lawfully constituted tribunals of the Church of England. Another, at Grahamstown, petitions "that if the Parliament of Great Britain legislate in any way for the English Church in this colony they will legislate only so far as may be necessary to remove the doubts and uncertainty which exist, and to secure for your petitioners the same rights as their fellow-churchmen in Canada now possess by law." The Supreme Court of Natal, by a majority of 2 to 1, has given judgment in favour of the plaintiff in the case of Bishop Colenso *v.* the Bishop of Capetown, the question at issue being in whom the title to the ground on which the cathedral stands is vested.

INDIA.—Sir Bartle Frere left Bombay on March 6. Immediately after his departure Sir Seymour Fitzgerald was to assume the Governorship. The subscriptions to the Sir Bartle Frere Memorial Fund exceed 1100*l.* The gentlemen of the Civil Service have also presented Sir Bartle Frere with a service of plate. The Indo-European Line is now working better than for many months past. Lord Cranborne's resignation is greatly regretted. Accounts from Calcutta state that Mr. Massey was expected to bring forward his budget on the 5th March. It was believed that there would be a deficit of two millions sterling, which would of course necessitate new taxation; it was not however supposed that he would resort to the income tax, but would meet the deficit by a trades tax, increased stamp duties, and an adjustment of the tariff. It is stated that Mr. Bayley, the Home Secretary, succeeds Sir George Yule as Political Resident of Hyderabad. The Nizam has preferred a claim to a portion of Mysore, and at the same time demanded that Berar should be restored to him. The Viceroy has negatived both proposals. The news from Affghanistan is of a conflicting character; the latest accounts favour Afzul Khan. Intelligence from Bokhara states that that place has not fallen, and that the Ameer has not made terms with Russia. The Russian forces, it is added, had not advanced beyond Jeeshuck. The envoy from Bokhara had left Calcutta, and had been told that he would receive the Viceroy's answer from the Lieutenant-Governor of the Punjaub.

UNITED STATES.—President Johnson has vetoed the Supplement to the Reconstruction Bill, but Congress has passed it over the veto. The Senate has passed a resolution to adjourn on the 26th inst. till December next, but the House of Representatives has not yet agreed on the period and conditions of adjournment. A Bill has been introduced in the Senate proposing to allow American citizens to sell war vessels to belligerents at peace with the United States. A resolution has been introduced in the Senate declaring that justice demands either the trial of Mr. Jefferson Davis, or his release on bail on his own recognisances. The Senate has rejected the appointment of Mr. Cowan as United States' Minister to Vienna. Congress has passed a vote of thanks to Mr. George Peabody for his recent gifts to the American people, and has directed that the Freedmen's Bureau shall relieve the suffering whites of the South. The House of Representatives has appropriated 500,000 dols. for carrying the Reconstruction Act into effect. The House has also passed resolutions expressing the popular solicitude regarding the Canadian Confederation, and sympathy with the people in Ireland and Canada in their struggle for nationality. An amendment condemning Fenianism has been rejected. General Schofield, in a recent order, has announced that military power in the South will be exercised only when actually necessary. He appeals to the people to render that necessity as slight as possible by obedience to the laws and an impartial administration of justice. General Sheridan has removed Mr. Herron from the post of Attorney-General of Louisiana, and has also dismissed from their offices Mayor Monroe and Judge Abell. Their successors have been nominated. The Michigan State Democratic Convention has passed a resolution declaring the Reconstruction Act unconstitutional and revolutionary. The disturbances among the negroes at Williamsburg (Virginia) are quieted. The late elections in New Hampshire have resulted in considerable gains for the Democratic party. The levee of the Mississippi is giving way, and an inundation of the lower valley is apprehended. The Fenians are displaying general activity throughout the country, and numerous meetings are being held. Roberts harangued a mass meeting held at Chicago on the 15th inst. A Fenian regiment paraded the streets. Rumours were current there that the Fenians were organising an attack upon Canada. The Fenians at St. Louis have demanded from the United States Government the immediate acknowledgment of the belligerent rights of the Irish Republic, and called on wealthy Irishmen in America to purchase privateers to prey on English commerce.

MEXICO.—Accounts from Vera Cruz, dated the 15th inst., state that Marshal Bazaine left on the 12th. The Liberals were investing the city and had possession of the railroads and watercourses. The Emperor Maximilian is said to have defeated 2500 Liberals at Catahualquay. It is reported that General Santa Anna has proposed to join him. The Republicans were said to have executed the brother of Miramon.

BRAZILS AND PARAGUAY. — Advices from Monte Video state that the Government of the United States has interposed between Brazil and Paraguay, and has announced if its mediation be refused by either State, it will compel that State to accept peace.

Parliament.

IN the House of Lords on Friday, after Lord HARROWBY had presented a petition from the Bishop and clergy of Sydney, New South Wales, praying that no steps might be taken to alter the relations between the Church in the colonies and the United Church at home, the Earl of CARNARVON presented a similar petition from the diocess of Melbourne, Victoria, and expressed a hope that steps would be speedily taken to place the law upon a simple and intelligible basis. The Duke of BUCKINGHAM said that in the course of a few days he hoped to be able to propose to his colleagues a Bill on the subject. The Metropolitan Poor Bill passed through committee. On Monday Lord DUFFERIN explained his reasons for supporting the claims of Mr. Young to a pension, the grant of which had led to a discussion in the House of Commons on Friday. The Earl of DERBY pointed out the impossibility of a Minister in such cases doing more than act upon the recommendation of competent persons, as he had done in this instance. The Traffic Regulation (Metropolis) Bill was read a third time and passed. Lord LIFFORD moved for various returns relating to the conduct of the Irish constabulary during the recent Fenian outbreak in Ireland. The Earl of DERBY said it was desirable that there should be a permanent record of the valuable services of the Irish police; and that it was the intention of Government to advise Parliament to vote a sum of money for pecuniary rewards, and to distribute badges of honour among the men. The Earls of ELLENBOROUGH, CORK, and KIMBERLEY also spoke warmly of the services and conduct of the constabulary. The Duke of CAMBRIDGE fully concurred in the proposed recognition of the services of the Irish police, and referred with warm approval to the conduct of the troops under very trying circumstances. The returns were then agreed to. The Metropolitan Poor Bill and the Trades Union Bill were read a third time and passed. On Tuesday the Archbishop of CANTERBURY announced that as a Royal Commission was expected to be issued to inquire into the question of ritualism and clerical vestments, the Bishops had determined not to introduce any Bill on the subject at present. The Earl of DERBY requested Lord Clanricarde to postpone his motion relating to the seizure of the Tornado until Monday, as the depositions of the crew, which had been detained by the Spanish authorities, had only just reached the Foreign Office. The Marquis of CLANRICARDE, in acceding to the request, expressed an opinion that the conduct of the Spanish Government had been such that it was impossible that this country could allow its subjects to be treated with such utter disregard of international rights. The Shipping (Local Dues) Bill passed through committee. On Thursday Lord LYVEDEN moved for a return of proceedings taken under the Ecclesiastical Titles Act, and stated that his object was to show the inexpediency of continuing a measure which had proved inoperative, except to provoke irritation in the minds of the Roman Catholics of Ireland. The Earl of DERBY declined to discuss the policy of repealing the Act, because he was unwilling to revive the feelings of irritation in which it originated. Moreover, as the Act had been inoperative, the return would of course be *nil*. The Earl of DENBIGH, the Bishop of KILLALOE, the Earl of KIMBERLEY, Earl GREY, the Duke of CLEVELAND, the Marquis of CLANRICARDE, Earl STANHOPE, and Earl GRANVILLE, several of whom had voted in favour of the passing of the Act, expressed opinions favourable to its repeal. After some further conversation the return was agreed to. The Earl of DERBY stated, in answer to Lord DENBIGH, that her Majesty's Government had not been invited by France, Austria, Prussia, and Russia to join them in an identical note to the Porte recommending the cession of Candia to Greece. Lord Stanley, in conversation with the French and Russian Ambassadors, had intimated that the Government did not intend to tender any advice or interfere in any way in the matter. Last evening the Marquis of SALISBURY moved an address for returns relating to the Militia, and expressed his opinion that the force had been too much reduced, and that it was expedient to revise the whole system. The Earl of LONGFORD agreed to the production of the returns, and said that there would be no difficulty at any time in raising the Militia to a greater strength in the recruiting districts whenever necessary. Earl DE GREY AND RIPON concurred in this opinion. The House was left sitting.

In the Commons on Friday, in answer to Mr. MONSELL and Mr. C. FORTESCUE, Lord NAAS said that it was intended to ask the House to pass a special vote of 2000*l.*, to reward the men of the Irish Constabulary who had distinguished themselves in the Fenian disturbances, and that they would be decorated with a good-conduct badge, which would carry a small increase of pay with it. It was also in contemplation to put the police-barracks in a state of defence, and to arm the force in future with the breech-loading rifle. Mr. O'REILLY called attention to the recent grant of a pension to Mr. Robert Young, of Fermanagh, described as an "agricultural and historical poet," and contended that the grant of 40*l.* a-year to such an illiterate person was a gross abuse of the public money, as he had devoted the greater portion of his life to abusing and maligning the Roman Catholics of Ireland. Mr. DISRAELI said that Lord Derby had acted on the recommendation of the Protestant and Roman Catholic Bishops, of Lord Dufferin and Lord Cremorne, and a host of local potentates. The House then went into Committee of Supply, but no vote was taken, and the further progress of the Navy Estimates was postponed. Some progress was made with the Court of Chancery (Ireland) Bill in Committee. The Factory Acts Extension Bill and the Hours of Labour Regulation Bill were read a second time. On Monday several notices of amendments to be proposed in Committee on the Reform Bill, were given, including one by Earl GROSVENOR, to make the borough franchise dependent upon a rateable value of 5*l.* and the personal payment of rates; one by Sir E. DERING, to reduce the county franchise to 12*l.* rating; and one by Mr. ROEBUCK, to reduce the term of rating to six months, and to introduce a Lodger franchise. The CHANCELLOR of the EXCHEQUER then moved, without remark, the second reading of the Bill. Mr. GLADSTONE said that he was prepared to assent to the second reading on the presumption that the Bill was a measure for extending and reducing the franchise, for the redistribution of seats, and for other cognate subjects. To accomplish these objects the Bill would require various alterations. Among them a Lodger franchise must be inserted; means must be provided to prevent traffic in the votes of the lowest classes of householders; the distinction between the different classes of ratepaying householders must be abolished; the taxing franchise and the Dual vote must be abandoned; the redistribution part of the scheme must be enlarged, the county franchise reduced, voting papers given up, and the special fancy franchises abolished. He then proceeded at great length to analyse the case of the compound householders or non-rated occupiers, arguing that the estimates of the Chancellor of the Exchequer were erroneous, and that the Bill as it stood would aggravate inequality, lay the foundations of new agitation, and set up artificial distinctions among men in the same class of life. He appealed to the Chancellor of the Exchequer to deal explicitly with the House, in order that, before the Bill went into Committee, they might clearly understand the extent of the concessions which the Government was prepared to make. Mr. HARDY declined to give any pledge which would commit the Government to any particular course. If, as Mr. Gladstone had asserted, every leading provision of the Bill required alteration, the division ought to be taken at that stage, and if such division involved an abandonment of the leading principles of the Bill, he should refuse to be a party to its progress. The Government declined to accept Mr. Gladstone's dictum that certain things must be given up. They wished for discussion, which would separate the chaff from the wheat, and if met in a reasonable spirit they would not show themselves unreasonable, though they would stand by the main principle of accompanying a free enfranchisement by judicious limitations. After some remarks by Mr. HEADLAM, Mr. YORKE, Sir F. GOLDSMID, Mr. R. J. HARVEY, Lord AMBERLEY, Mr. B. STANHOPE, Mr. ROEBUCK, Mr. J. LOWTHER, the SOLICITOR-GENERAL, and Mr. A. PEEL, the debate was adjourned. The Sugar Duties Bill was read a third time and passed. On Tuesday two notices of amendment on the Reform Bill were given, the first by Mr. COLVILLE to reduce the copyhold franchise from 10*l.* to 5*l.*; and the second by Mr. DILLWYN, providing that at borough elections all electors should give but one vote to one member. The adjourned debate was then resumed by Mr. BUTLER-JOHNSTONE, who was followed by Sir R. PALMER, Sir F. CROSSLEY, Mr. LIDDELL, Mr. H. LEWIS, Mr. P. WYNDHAM, Mr. LAING, and Mr. POWELL, all of whom urged the Ministry to amend the Bill by striking out the portions which were obnoxious to all parties, and to supply its deficiencies, so that a satisfactory measure might be passed this session. Mr. BRIGHT also recommended concessions. He admitted that there might properly be restrictions on Household Suffrage, excluding the residuum of hopeless poverty which is found in all constituencies. He expressed his willingness to accept a franchise on a household basis, with a limitation corresponding as nearly as possible with the ancient limitation of non-payment of rates. Such an extension of the franchise, coupled with a Lodger franchise for London, would be accepted by the working classes, and would shut up the offices of the Reform League. On the County franchise he insisted that it must be brought down at least to the point fixed by the Bill of last year. On the Redistribution Scheme he pointed out that after the great increase of the large borough constituencies like Manchester, the retention of small boroughs would be viewed with more impatience. To the disfranchisement of the convicted boroughs he strongly objected,

and he concluded by assuring the House that hating the ways and scorning the objects of faction, if he gave a vote against this Bill it would be because he would be no party to a measure which cheated the working man of his fair share in the representation, and bore the marks of the enemies of Reform. The Chancellor of the Exchequer vindicated the Bill as based on a rational principle, and contended that all the objections taken to it referred to matters which might with more propriety be answered and discussed in committee. As to the Lodger franchise, which was now demanded as the cardinal principle of the Bill, he said that no one could fairly suspect him of being hostile to such a franchise, as he himself was the first to suggest that very qualification. Believing that the Bill would admit a large number of the working classes of society to the franchise, the Government had recommended the dual vote in order to protect the influence of the middle class from being swamped, but as no one had spoken in favour of it, and all had condemned it, it would be vain to fight against such odds, and they were ready to give it up. The Government were prepared to act in perfect sincerity with the House, and had no desire but to co-operate with it in bringing this affair to a settlement. They were convinced that their duty was not to desert their posts until that settlement was attained, and he entreated the House cordially to co-operate with them—to pass the Bill first, and then to change the Ministry if it pleased. The Bill was then read a second time, and after some remonstrances from Mr. Gladstone at the lateness of the date, the Committee was fixed for the 8th of April, Mr. Disraeli stating that he intended to bring in the Budget on the 4th. On Wednesday Mr. M'Cullagh Torrens moved the second reading of the Artisans and Labourers' Dwellings Bill, stating that it was based upon the recommendations of the select committee to which the subject was referred last year. After some discussion, in which the leading provisions of the measure were generally approved and suggestions made for the improvement of its machinery, Mr. Walpole, on behalf of the Government, assented to the principle of the Bill, intimating that it would require amendment in some of its details. The Bill was then read a second time. The Criminal Law Bill passed through committee. On Thursday, among other notices on the subject of Reform, Sir E. Colebrooke gave notice to reduce the occupancy franchise in counties to 10*l.*, and Colonel French gave notice that on the 9th of April he would move for leave to bring in a Reform Bill for Ireland. In Committee of the whole House, Mr. Adderley moved a resolution authorising the Treasury to guarantee (at 4 per cent.) a loan of 3,000,000*l.*, to be raised by the Government of Canada for the construction of a railway between Quebec and Halifax. He stated that this guarantee was part of the Confederation scheme, and expressed his hope that it would be the last colonial guarantee to which the House would be asked to assent. Mr. Aytoun, Mr. T. Cave, and Mr. Lowe opposed the motion; Mr. Gladstone and Mr. Watkin supported it. On a division the resolution was carried by 247 to 67. In Committee on the Mutiny Act, Sir J. Pakington brought up a new clause limiting the infliction of corporal punishment to soldiers in the second class, which, he said, comprised only 9 per cent. of the army, and for three offences—mutiny, insubordination with violence, and indecent conduct. Mr. Otway moved an amendment abolishing altogether the power of inflicting corporal punishment in time of peace. After some discussion, the second reading of the clause was carried, on a division, by 225 to 131. An amendment by Sir G. Grey to omit the classifications was negatived. A motion by Mr. Lowe to refer to a Select Committee a petition of Mr. Shields, C.E., alleging that the Board of Works in the embankment of the Thames had made use of his designs, was opposed by Lord J. Manners and Mr. Cowper, on the ground that his claim, if any, was against the Board of Works and not against the Government, and negatived by 49 to 29. Last evening Mr. Gladstone gave notice that he would ask the Chancellor of the Exchequer whether it was the intention of the Government to make any alterations in the Reform Bill before inviting the House to discuss the clauses in committee; and whether he was willing to lay on the table copies of the reports from the Commissioners of Inland Revenue on which he based his statements on Tuesday evening respecting the proposed taxing franchise. The House was left sitting.

City Intelligence.

Money Market, Friday.—British Funds: Consols closed at 91 to 91⅛ for Money, and 91⅛ to 91¼ for the Account; New and Reduced, 89⅜ to 89½; India Five per Cents., 109¾ to 110¼; India Stock, 216 to 218; Exchequer Bills, 14*s.* to 18*s.* pm.—Foreign: Mexican, 16⅝ to 17⅛; Greek, 15¼ to 15½; Passives, 21¼ to 21½; Certificates, 14⅜ to 14⅝; Turkish, 29⅛ to 30⅛; Italian, 53⅜ to 53⅝; Russian, 2¼ to 2⅜ pm.; Chilian, 2 dis.; Danubian, 1⅜ to 1¼ dis.; United States' 5-20 Bonds, 74⅛ to 75⅛; Erie Shares, 38⅜ to 39¼; Illinois, 78½ to 79.

Metropolis and its Vicinity.

Visit of the King of Denmark to the Fire Brigade.—The King of Denmark having expressed a desire to witness the general working of the Metropolitan Fire Brigade, it was intimated to Captain Shaw on Saturday that his Majesty would visit the head station in Watling Street in the course of the evening. Soon after the time specified, his Majesty arrived at the station from Marlborough House, accompanied by the Prince of Wales and the Duke of Sutherland. The interior of the station was flanked with a strong detachment of firemen forming a guard of honour, who saluted the King and the Prince as they passed through. The visitors having inspected the telegraphic apparatus connecting all the Fire Brigade stations in London with the head-quarters in Watling Street, they examined the different classes of engines in general use at fires, and then visited the stables, which are situated under the station, where relays of horses are constantly kept day and night. The King and Prince admired the stables, which, though underground and lighted with gas, are well ventilated by means of shafts to carry off foul air, and down shafts to admit pure air. Captain Shaw then conducted his Majesty and the Prince to Southwark Bridge, where they witnessed a turn-out of the force. The intention was kept from the men, who in a few minutes received "a call." All the engines were at once turned out, horsed, and started for the supposed fire, accompanied by 30 or more firemen. Their alacrity took the King quite by surprise, the whole arrangements of their turning out having occupied less than three minutes. His Majesty, with the Prince and Captain Shaw, then proceeded on a manual engine and inspected several of the leading stations in different parts of the metropolis, where the zeal and promptness of the men were similarly tested, after which the Royal party returned to the city, and saw several steam fire-engines at work on the river off Queenhithe. His Majesty stated that the object of his visit to Watling Street was to acquire all the practical information he could obtain about engines, &c., in order to place his brigades on a similar footing of efficiency with the London Brigade. The King expressed himself much pleased with the alacrity displayed by the men, and noticed the quiet manner in which they pursued their operations as far more creditable than the noise and ringing of bells on occasion of turning out fire-engines not only in his own capital, but at Berlin and other cities on the Continent.

The Fate of Dr. Livingstone.—At the meeting of the Royal Geographical Society on Monday, Sir Roderick Murchison read the communication from Dr. Kirk, dated December 20, describing the circumstances connected with the murder of Dr. Livingstone, as related by the Johanna men; and another despatch, dated January 26, 1867, from Dr. Seward to Lord Stanley, holding out the hope that though a great part of his men might have deserted, Dr. Livingstone might still be pushing forward, though cut off from communication with his friends. Sir Roderick also read letters from Mr. E. D. Young, Mr. William Oswell, and Mr. Henry Angelo, all well acquainted with Eastern Africa, expressing their disbelief in the story of the Johanna men. Sir Samuel Baker could not agree that there was any hope of Dr. Livingstone being still alive; and, from the evidence which had been given, he felt perfectly certain that they would see him no more. It was less a wonder, he said, that many travellers lost their lives in Africa, than that even one in a hundred returned safely from that abominable country. Mr. Waller, who had been with Dr. Livingstone on his Zambesi expedition, said that there was no conceivable motive for the Maviti men to have attacked Dr. Livingstone, whom they had before received in a friendly manner, unless they had been bought over by the slave-dealers. The great danger of African travel was the slave trade, to which alone Dr. Livingstone had fallen a victim, if the report of his death were true. Captain Sherard Osborn thought there was great room for doubt, and that it was the duty of those who felt an interest in the fate of the great traveller to follow him, and ascertain the truth. He had been missing twice before, and might be now only out of reach. Mr. Baines corroborated that opinion, and a general opinion was expressed that if no news were received confirming or confuting the statement of the Johanna men, the Geographical Society, or her Majesty's Government, should take steps to ascertain the truth of their story. A despatch received by the Admiralty on Friday states that her Majesty's ship Wasp proceeded on the 2d of January from Bombay to Quiloa, with Dr. Seward, her Majesty's Political Agent and Consul at Zanzibar, to endeavour to ascertain the truth of the report.

The Jamaica Prosecution.—At a Special Session held at Market Drayton on Monday, an application was made to the county magistrates for the issue of a warrant against Mr. John Edward Eyre, ex-governor of Jamaica, on the charge of being an accessory before the fact to the murder of George William Gordon. Sir Baldwin Leighton, Bart., chairman of the Quarter Sessions, presided. The other magistrates on the bench were Colonel Hill, Major Boughton, Mr. R. Corbet, Mr. Egerton Harding, and Mr. John Tayleur. Before the proceedings were opened, Mr. Thomas Swanlow, one of the magistrates, said that Mr. D. Hudson and himself, being subscribers to the Eyre Defence Fund, had thought it right not to sit on the occasion. Mr. Fitzjames Stephen then said he appeared there by the instructions of Mr. John Stuart Mill, M.P. for Westminster, and Mr. Peter Taylor, M.P. for Leicester, to apply for a warrant for the apprehension of Mr. Eyre, now resident at Adderly Hall, in that county, as an accessory before the fact to the wilful murder of George William Gordon, in Jamaica, on the 23d October, 1865. Dr. Fiddes, surgeon, of Jamaica, and Mr. A. H. Lake, a reporter, having proved the execution of G. W. Gordon, the Chairman said the Bench were of opinion that it would be necessary to see before them the prosecutor in the case, in order that he might be bound over to prosecute in case the warrant was granted. Mr. Shaen, one of the solicitors of the Jamaica Committee, at once volunteered to assume the office of prosecutor, and having entered the witness-box charged Mr. Eyre with being an accessory before the fact to the murder of G. W. Gordon, stating that he had good grounds for thinking that he was guilty of the offence, and applying for a warrant to arrest him. Mr. Stephen said that if the Bench were of opinion that they could issue a summons in the place of a warrant, the prosecution would prefer to have the summons. They had no wish to do anything unnecessarily harsh, and if any arrangement could be made to prevent the infliction of the slightest possible inconvenience upon Mr. Eyre, they would be most happy to adopt it. Mr. Rose said that Mr. Eyre was ready at any hour or day which the Court might fix to be present and answer the charges brought against him, but he did not in any way recognise the Jamaica Committee. Mr. Giffard, who had been retained to conduct the defence of Mr. Eyre, was at present at Presteign Assizes, but he could be at Market Drayton in time to proceed with the case on Wednesday. The warrant was then signed, and the proceedings adjourned till Wednesday. On that day Mr. Eyre appeared in person before the magistrates, in consequence of the warrant issued against him. On his entering the Court the crowd gave expression to its sympathy with him. The case for the prosecution was not concluded until the evening, when the Court adjourned. Yesterday morning Mr. Giffard opened the case for the defence. He declined to discuss questions of law, but accepted issue of facts, and entered into an elaborate argument upon them in support of the conduct of Mr. Eyre during his governorship of the colony. He did not propose to call witnesses. The matter was expected to be brought to a close in the course of the day.

The Distress in the East of London.—Up to Friday evening the appeal which the Mansion House Committee made last week for additional funds for the relief, for a short time longer, of the 9000 unemployed men in Poplar, Limehouse, Bow, and Bromley, including, with their families, about 36,000 persons, had resulted in the receipt by the Lord Mayor of nearly 1000*l.*, including about 320*l.* which the Committee had subscribed among themselves, in addition to their former contributions. The Committee, under these circumstances, resolved to continue their exertions a short time longer, and made a grant of 200*l.* to the Deptford Committee, and another of 100*l.* to that of St. James, Ratcliff. At the meeting of the Committee on Monday it was stated that the men were now walking about without soles to their shoes, and that the local Committee last week distributed 1142*l.* in relief to 9704 families. Mr. Ravenhill said that he apprehended there would be a "movement" or demonstration, and that the unemployed men would probably walk through the streets with a black flag. The Rev. Mr. Rogers said that many of them would eventually have to resort to the parish if they could not get work, and asked why those men objected to receive parochial relief, and yet take relief from the Mansion House Fund? Mr. Green said one reason might be found in the fact that on men out of work applying to the parish they were thrust into the stone-yard, where there were in Poplar 1800 or 1900 already employed, as there had been for weeks past. On the other hand, the Local Relief Committee assisted them at their own homes. The Lord Mayor said, that being so, it was to him incomprehensible why the men who were in employment refused to reduce the price of their labour. The cost of much of the materials used in shipbuilding had gone down, and if the men would accommodate their wages to the depressed state of the trade, the masters might be in a better position, and be induced to undertake fresh contracts. A member of the Committee said the Lord Mayor had asked a very proper question. Some of the men now in work were drawing 10*s.* a day. The Lord Mayor remarked that either the men would have to reduce their wages to the standard which the present state of the trade on the Thames imperatively demanded, or would have to go in quest of work to places where they might hope to find it at their own standard. Mr. Wade observed that, even if the men were to take lower wages, no great number of them could obtain work in the present prostrate state of the trade. The Lord Mayor replied, it was well known that by reducing the price of a commodity a demand for it was created, yet that was a fact which the shipwrights at this juncture could not or would not recognise. Even now, in the present depression of their trade, they still adhered to their 7*s.* a day, and would not work unless they got it. In brisk times there was no reason why a working man should not earn 7*s.* or even 10*s.* a day, if people wanted to buy his labour at any price; but here the case was the very reverse, and the shipwrights refused to adapt themselves to the altered circumstances. Eventually the Committee made another grant of 600*l.* for distribution through the central local committees in Limehouse, Poplar, Bow, and Bromley. They also made grants of 50*l.* to Spitalfields poor Roman Catholics, and 25*l.* for distribution by a local committee in Whitecross Street and Chequer Alley.

The Reform Meeting in Trafalgar Square.—On Monday evening the Reform League held their weekly demonstration in Trafalgar Square. The gathering was attended by an immense number of boys and the lowest classes of labourers. Mr. Beales, M.A., as usual took the chair, and condemned the constitution of the House of Commons, stating in effect that it was an unconstitutional body, as it did not represent the people as it professed to represent them. He then described at great length the shortcomings of the new Reform Bill. In order to test, he said, in what numbers the people were voters, he asked all those who had votes to hold up their hands, and about six were held up. He then asked those who were lodgers to hold up their hands, and the large majority of those present were held up. He then called for a show of hands as to the number who would be enfranchised under the "fancy franchise" of 50*l.* in the savings-bank, and two signified that they held this qualification. The proposed qualifications met with much disappro bation. Exhibitions of hands were taken on other points, and about 10 persons by this means stated that they were compound householders, and two that they

paid direct taxes. Mr. Davis then moved a resolution protesting against the confused and contradictory Reform Bill of the Government, and renewing the adhesion of the meeting to the principle of residential manhood suffrage, protected by the ballot, as the only sound basis of a real and satisfactory reform. This was carried. The whole proceedings were very tame, the only enlivening part being occasional skirmishes between the League people and the boys, caused by the former claiming absolute possession of the monument, and the assertion of the boys that they had "as much right there" as any one else.

DEPUTATION OF WORKING MEN TO MR. GLADSTONE.—A deputation from the Working Men's Association, headed by Mr. Potter, waited on Mr. Gladstone on Saturday, on the subject of Reform. In the course of the interview it was stated that the Association were willing to waive their principles of manhood suffrage and vote by ballot, and to accept a household and lodger franchise. Mr. Gladstone expressed his hopes that a Reform Bill would be passed without further delay, as the House of Commons was now willing to do what last year it would not do—sacrifice its time, comfort, and repose, for the sake of settling the question. He then proceeded as follows:—

"With regard to the lodger franchise, he assured them that he would not assent to any measure of Reform which did not give it. As to the case of the compound householder, he should strenuously object to all propositions which were pretences of creating titles to the franchise, but the titles being nullified by obstructions. A Parliamentary return had been issued that morning, giving information with regard to the compound householders. It showed that in Birmingham there were 2384 people, less than 1 per cent. of the population, who might be enfranchised under the Bill as ratepaying householders not enfranchised at present, and there were 36,137 compound householders who would be disqualified and excluded from the franchise. The case of Brighton was still more absurd. The Bill would enfranchise 14 persons who paid their rates, and would exclude 2553. In Kidderminster the numoer admitted by the Bill would be 24, and the number excluded would be 2343. There were other places where similar facts were shown. To give a metropolitan borough, there was Southwark, where 148 would be enfranchised, and 4487 would be excluded. There were places where rating Acts were in force, but there were places where every person paid his own rates, and in these the householders would be enfranchised. Taking Stoke-upon-Trent, for instance, 15,171 would be enfranchised; but what could be said of a Bill which qualified upwards of 15,000 in Stoke, and 14 persons in Brighton? Then, in a great measure, it would give the franchise to the unskilled labourer of the country, while it excluded the skilled artisan of the town. No one would say that those who represented the unskilled labour ought to have the same position as those who represented the skilled. The skilled classes included intelligent and educated men, who read the newspapers, who were conversant with all public questions, and who watched with interest their country's progress; these men were totally different from those classes whose daily life was a struggle with poverty. Yet the unskilled classes, by living in places where the compounding for rates was not carried out, would, under this Bill, be returned in very large numbers as voters. If the Bill passed as it stood there would be such an intolerable state of things as an 8*l.* franchise on one side of a street, and the holders of houses—such was this Household Suffrage Bill—excluded on the other. Persons, too, would be qualified in one parish of a borough and disqualified in another parish of the same borough. If this Bill passed as it stood and was made law, what, he asked, would be the effect? Why, the whole country would at once be in a flame, and there would be no rest until it was entirely altered. This must not be, and there must be a liberal enfranchisement, but not one which would create invidious distinctions. In conclusion, he assured them that the Liberal party would press for an equitable enfranchisement of the working classes. Mr. Bryan asked if it would not be possible to introduce the ballot into the Reform Bill. Mr. Gladstone replied by asking the deputation if they did not think that the growing intelligence and independence of the working classes made the ballot unnecessary. For his own part, he found that there was a growing indisposition on the part of the House to consider the ballot question, as Mr. Berkeley would tell them, and he thought that it would not be wise to overlay the Bill by introducing too much."

FATAL EXPLOSION AT STEPNEY.—A serious accident occurred on Wednesday evening at No. 1, High Street, Stepney, through an explosion of Chinese fireworks. The house was let off in floors. On the basement was an oil and colour shop, on the second floor a firework manufactory, and in the rooms above lived two families, named Wilson and Webster, employed in whipmaking. No one was in the firework manufactory at the time, the workmen having left an hour before, after locking the doors. The explosion did not make much noise, but filled all the upper rooms in a moment with fire. Six of the inmates were more or less burnt, and were conveyed to the London Hospital, where one of them is lying in a precarious condition.

THE FATAL ACCIDENT IN CAMBERWELL.—An inquest was held on Monday on the bodies of the two females who were killed a few days since at Camberwell by the fall of an ornamental piece of stucco work from the top of a house. The jury returned a verdict of Accidental Death.

THE PUBLIC HEALTH.—The Registrar-General's Weekly Return states that in the week that ended on Saturday, March 23, the births registered in London and 12 other large towns of the United Kingdom were 4468; the deaths registered, 3628. The annual rate of mortality was 31 per 1000 persons living; being 29 per 1000 in London, 28 in Edinburgh, 35 in Dublin, 23 in Bristol, 26 in Birmingham, 36 in Liverpool, 34 in Manchester, 36 in Salford, 31 in Sheffield, 29 in Leeds, 23 in Hull, 36 in Newcastle-upon-Tyne, and 35 in Glasgow. The rate in Vienna was 31 per 1000 during the week ending the 16th inst. In London the births of 1147 boys and 1077 girls, in all 2224 children, were registered in the week. In the corresponding weeks of 10 years 1857-66, the average number, corrected for increase of population, is 2187. The deaths registered in London during the week were 1731. It was the 12th week of the year; and the average number of deaths for the week, corrected for increase of population, was 1546. The present return therefore exceeds the estimated number by 185.

Provincial.

ABERDARE.—Benjamin Jones, the puddler, who was convicted at the Glamorgan Assizes of the murder of Thomas Watkins, at Aberdare, and sentenced to death, has been reprieved by Mr. Walpole in consequence of an intimation from the jury that they had intended to have appended to their verdict a recommendation to mercy.

AYLESBURY.—A strike of agricultural labourers has been going on in Buckinghamshire for some time, and is not yet terminated. Men are being exported into other counties, where they obtain the requisite 15*s.* per week. It is thought that the farmers will be obliged to come to the terms of the men, who state that they would be content with 12*s.* per week.

BARNSLEY.—Although more than three months have elapsed since the explosion at the Oaks Colliery, little or no progress has yet been made in extinguishing the body of fire raging at the bottom. All the shafts have been sealed up, and practical men are of opinion that the only effectual mode of putting out the fire is by inundating the works with water, as at Lundhill and Edmund's Main. The adoption of such a course, from the extensive character of the workings, would necessitate the sinking of another shaft to get the water out; and accordingly at an adjourned meeting of mining engineers at Normanton on Wednesday it was resolved to sink a new shaft at the end of the Lip workings. It is supposed it will take nearly two years to sink it.

CAMBRIDGE.—Sarah Porter, who was sentenced to death at the recent assizes, for the murder of her child, a month old, whom she threw into a ditch, has been respited by Mr. Walpole, during her Majesty's pleasure. The prisoner did not appear to realise the effect of the respite, but dreaded the sentence that might follow.

DERBY.—Mr. Walpole, after communicating with Mr. Justice Lush, has commuted the sentence of death passed upon the convict Wager at the recent assizes for the murder of his wife, to penal servitude for life.

LEICESTER.—A new Congregational Church has just been opened in this town, in which there will be no pew rents, the maintenance of the minister and all other expenses being dependent on the weekly offertory. This is the second dissenting place of worship which has abandoned the pew system in Leicester. It is stated that the first has a full congregation, and has never had any difficulty in the matter of funds.

LIVERPOOL.—The Great Eastern left the Mersey for New York at noon on Tuesday. Her departure was marked by another fatal disaster, the capstan having given way while 12 of her crew were raising the anchor with the aid of the donkey engine. The capstan was of course whirled round, throwing the men right and left, and the bars flying out, struck and wounded five men. One of them died immediately, and another was not expected to live. The chief officer had a narrow escape; one of the bars having passed close to his head. The Great Eastern takes out a large number of passengers, including Mr. Cyrus Field and Mr. William Barber, one of the directors of the Great Ship Company.

MANCHESTER.—Mr. Marshall Wood's bronze statue of Mr. Cobden, recently cast in London, has been placed on its granite pedestal in St. Ann's Square, in this city, opposite the front of the Exchange, but has not yet been unveiled. The pose of the figure represents Mr. Cobden with hand uplifted and finger pointed, in the act of addressing the House of Commons. Mr. Gladstone and Mr. Bright are expected to be present at the inauguration of the statue.

NORWICH.—An old man named Winter murdered his wife in this city on Friday, and afterwards cut his throat so severely that he has since died. Fear of the workhouse prompted the fatal deed. They were both upwards of 70 years of age.

OXFORD.—On Sunday and Monday the floods rose to a great height in and around Oxford, and the lands were covered to an extent unknown since the memorable inundation of 1852. Christ Church meadow, with the exception of the broad walk, was entirely submerged, and the "water walk" of Magdalen College was completely covered. Port Meadow was one large lake. Several roads a few miles out of the town were in many places 3 or 4 feet deep in water, and the lands adjacent to the Isis and Cherwell were inundated for miles.

REIGATE.—At a meeting of the Council, held on Saturday, on the subject of the disfranchisement of this borough, it was resolved to petition Parliament against the disfranchisement, on the ground of the divided opinion of the commissioners in their late report, and of the increasing wealth and rapidly growing population of the borough.

STAPLEHURST.—A man named Edward Jones, who was convicted of a burglary last week at the Lewes assizes, before leaving the dock confessed that he also committed the burglary at Linton, and stole the jewels belonging to Viscountess Holmesdale, as well as several articles belonging to his lordship. Suspicion has always rested on the lady's maid, and the prisoner said that he made this confession in order to clear an innocent woman. Chief Justice Bovill said that inquiries would be made in the hope that the young woman's character might be cleared from the stigma cast upon it.

WINDSOR.—On Monday the waters of the Thames, in the vicinity of Windsor and Eton, swollen by the melted snow and rain, rose considerably, and encroached upon the meadows and low-lying lands on the banks of the river. Portions of the playing fields of Eton College and Windsor Home Park were flooded, while a great breadth of land in the neighbourhood of Datchet was under water. On Wednesday night the floods rose so rapidly that the suburbs of Windsor and Eton, and the country on the western outskirts, were converted into one vast lake.

WOLVERHAMPTON.—At the petty sessions in this town last week a man named Scott was charged under Lord Campbell's Act with selling an obscene book. The book in question was that which has been published by the Protestant Electoral Union, as "The Confessional Unmasked;" showing the depravity of the Roman priesthood, the iniquity of the confessional, and the questions put to the females in confession. For the defence it was maintained that the extracts were reprints from Roman Catholic standard works; and evidence of the accuracy of the extracts was given by the Rev. B. M'Ghee, M.A., incumbent of Holywell; and Mr. Samuel Hurst, B.A., Greenwich. The magistrates, however, determined that it was an obscene work within the terms of the Act, and ordered the books to be burned.

YORK.—At the Convocation of the province held in York Cathedral last week a motion was made in favour of an increase of the episcopate. The Bishops of Ripon and Carlisle opposed it, on the ground that there was no fund out of which new bishops could be maintained, unless the funds now applied to augment the income of the poorer clergy were diverted for that purpose. The motion was ultimately withdrawn.

Ireland.

THE LAW APPOINTMENTS.—In consequence of the retirement of Mr. Blackburne from the Lord Chancellorship, Mr. Brewster, Justice of Appeal, has been appointed Lord Chancellor; Mr. Justice Christian has been appointed Chief Justice of Appeal; Mr. Morris, M.P., Justice of Common Pleas; Mr. Chatterton, M.P., Attorney-General; and Mr. Warren, Solicitor-General.

THE FENIANS.—Several additional arrests for high treason were made in the county and city of Cork on Sunday and Monday. One is a man of position, named Loughlin. Another, named Savage, has been identified as leading the attack on the Knockadown Coastguard Station. On Wednesday James A. O'Brien, manager of a commercial establishment in Cork, who is charged with being a head centre, and with leading a Fenian attack on Ballynockin Police-station, was committed for trial for high treason. He was shown to have been in correspondence with Stephens. Eighteen arrests were made on Wednesday in Mill Street and its neighbourhood on a charge of being concerned in an attack on Mount Leader House, by an armed body of Fenians, led by an American officer, and stealing arms. On Sunday night six men were arrested in the neighbourhood of Annfield, near Thurles, and were immediately sent to Nenagh under a large escort. Two of them are respectable farmers, named William Dunne and John Hayes. At Wexford, P. W. Kough, who had been discharged on Saturday for want of evidence, was re-arrested on Sunday morning on the Lord-Lieutenant's warrant. A telegram from Cork states that all the persons accused of high treason have been committed for trial at the special commission; and that in passing from the police office to the gaol they were assured, by vociferations and cheers, of the sympathy of the mob.

Scotland.

ELECTION OF A REPRESENTATIVE PEER.—On Thursday the peers of Scotland assembled in Holyrood Palace, to elect one of their number as one of the 16 representative peers of Scotland in the House of Lords. The Union Roll was called, and nine peers answered, namely, the Duke of Buccleuch, the Earls of Kellie, Haddington, Lauderdale, Southesk, Selkirk, and Stair, Lords Elphinstone and Rollo. Proxies were given for the Dukes of Hamilton and Lennox, and for the Earl of Morton, and signed lists were received from the Marquis of Tweeddale, the Earls of Crawford, Mar, Dundonald, and Hopetoun, Viscount Arbuthnot, Lords Saltoun, Sinclair, Lovat, Torphichen, Rea, and Ruthven. Several signed lists were rejected from informality. The Earl of Mar's vote was taken under protest of the Earl of Kellie, who intimated that he had been advised to claim that title. In all there were 24 votes received, and the election fell unanimously on the Earl of Lauderdale.

RECTORSHIP OF ABERDEEN UNIVERSITY.—The installation of Mr. Grant Duff, M.P., as Lord Rector of the University of Aberdeen, took place on the 22nd inst. in the Music Hall. Mr. Grant Duff was accompanied to the platform by Principal Campbell, the Professors of the University, Sheriff Thomson, and the magistrates and members of the Town Council. The audience, including the students, numbered about 2000. Mr. Duff spoke for an hour and a half. The address was well received, and at the close three hearty cheers were, on the call of the Principal, given in honour of the new Rector.

FENIANISM IN SCOTLAND.—For some time past agents have been employed in Glasgow district collecting subscriptions in aid of the wives and children of the "Republican troops" in Ireland, and large numbers of the Irish inhabitants have subscribed handsome sums; in one instance as much as 27*l.* being given, while many of the poorer classes have contributed freely. The Roman Catholic clergy have tried to restrain their people from giving money to swindlers, but their advice has been disregarded. The police have been keeping a sharp look-out for the "strangers," and any indications of a movement towards disturbing the peace. On Sunday morning a body of supposed Fenians were discovered drilling on the turnpike road near the village of Mossend, but two policemen, under the command of Sergeant M'Naughton, of Bellshill, put the "troops," numbering between 25 and 30, to

flight. The policemen continued the pursuit, and succeeded in apprehending six of the Brotherhood. They were all young men, and are reported to have drilled with the regularity of soldiers. They were commanded by a tall, good-looking young man, dressed in dark clothes, with an American accent; but the "head-centre" was the first to take to his heels, after calling upon his companions to "double." The six men apprehended were Irishmen. The police, after taking down their names, allowed them to depart, but it is said that warrants have since been issued against them. The authorities are taking active measures to suppress any disturbance that may occur in the mining districts, where it is well known there exists strong sympathy for those who have been taken prisoners in Ireland. A Volunteer corps has been organised during the past week at Motherwell, and already musters upwards of 100 strong.

Railways.

THE STRIKE OF THE ENGINE-DRIVERS.—Contrary to the expectation expressed last week the threatened strike of the engine-drivers in the employ of the London, Brighton, and South Coast Company was carried into effect on Tuesday morning. It appears that the Directors had conceded nearly all the points demanded by the men, including the stipulation for 10 hours a day, and a maximum of 750 miles per week, with one day in the shed, all work beyond those hours to be paid extra. The Directors also agreed that the minimum pay of drivers should be 6*s.*, progressing upwards to 7*s.* 6*d.* per day, and the minimum pay of firemen 3*s.* 6*d.*, advancing to 4*s.* 6*d.* per day. But they declined to accede to the demand that all engine-drivers and firemen should be advanced to the maximum scale of wages, after a few months' service, without reference to their ability, on the ground that the demand was so wrong in principle that they could not reconcile it with their sense of duty to consent to it. The men insisted on "equality," and contended that any other principle would lead to favoritism. On Tuesday morning, therefore, out of between 300 and 400 men in the employ of the Company, not more than six returned to their work. In this emergency the Company employed every resource at their command for working the traffic, the greater portion of which was necessarily stopped, many trains being taken off, and the speed of all diminished. Where practicable, the services of station masters, signalmen, and others who had at some period acted as drivers, were brought into requisition, but the amount of manual labour was far from adequate to the number of trains. Consequently, much excitement prevailed at the London Bridge terminus during the morning, increased by the fact of Tuesday being the first day of the Epsom Spring Meeting. The ordinary train, advertised to leave London at 6 A.M. for Brighton, did not start at all, and the 8 o'clock train was not despatched till past 10, when it was mixed up with the Brighton express. The time-tables were, as a matter of course, held in abeyance, and all traffic between London and Brighton, Eastbourne, Hastings, St. Leonard's, and Chichester, was virtually stopped, to say nothing of the disappointment of crowds of sportsmen, who had intended to go down by train to Epsom. Hundreds of city gentlemen residing in the suburbs, and who travel by the Croydon line of this railway to town, were of course put to great inconvenience, and altogether the event was attended by an immense amount of excitement and loss of time and business. During the morning the drivers on strike were visited by delegates from railways in the north and other parts of England, who were specially commissioned to assure them that by not giving way they could rely on their entire support, and that each man would receive the same rate of pay while the strike lasted as if he were at work. On Wednesday the Brighton men held a meeting and agreed that, as the Directors had granted all their demands but one, delegates should be sent to London to arrange a compromise. The London men however refused to surrender, whereupon the Brighton men resolved to resume work on the terms conceded by the Directors, the advance of wages being regulated in the manner proposed by the Board, subject to the condition that if any man should be passed over he should have a right of appeal to the Directors. This decision having been telegraphed to the London committee, the whole body of men in the employ of the Company returned to their work on Thursday. The strike, therefore, so far as the Brighton line is concerned, is at an end. It is stated that 970 men of the North-Eastern sent in their notices on Saturday, and have resolved to strike on the 20th of April, unless the whole of their demands, presented in the first memorial, are conceded. The Stockton and Darlington men intend to give their fortnight's notice, to end at the same time, and the Midland men are also preparing to act in concert with the North-Eastern.

Law.

HOME CIRCUIT: KINGSTON.—*The Shere Murder.*—*James Longhurst*, 21, a sullen, stupid-looking country lad, was charged with the wilful murder of Jane Sax, by cutting her throat. This case stood over from the summer assizes last year, on an application made on behalf of the prisoner for a postponement, in order to afford an opportunity to bring forward evidence to show that the prisoner was not in a sound state of mind at the time the offence that was imputed to him was committed. The facts of the case lay in a very narrow compass, and were perfectly conclusive as to the guilt of the prisoner, besides which they were confirmed by a deposition made by the deceased on the morning of her death. They left no doubt that the prisoner was guilty, not only of the specific offence of which he was accused, but that he had previously attempted to violate the person of the unfortunate child whose life had been sacrificed to his brutality. The jury, after being in deliberation about half an hour, returned into court, and found the prisoner *Guilty*. They at the same time recommended him to mercy, on the ground that the act had been committed without premeditation. Baron Bramwell then passed sentence of *Death* in the usual form. The moment the judgment was given, the prisoner became exceedingly violent. He threw his cap to the floor, and exclaimed, "What am I to be hung for? I have done nothing!" and attempted to strike and kick the warders who were in the dock. It was with considerable difficulty that he was removed to the cells below.

NORTHERN CIRCUIT: LIVERPOOL.—*Child Murder.*—*Letitia Darby*, a middle aged woman, was on Thursday found guilty of the wilful murder of her new born child, and Mr. Justice Mellor passed sentence of *Death* upon her.

Sporting.

EPSOM SPRING MEETING.

TUESDAY.—*Trial Stakes.*—Lord Bateman's Moulsey beat Wild Agnes, Exceller, and 5 others. *Stamford Plate.*—Lord Vivian's Tumbler beat Ammunition, Nikè, and 14 others. *Two Year Old Stakes.*—Mr. Pryor's Grimston beat The Forest King, Hatchment, and 10 others. *City and Suburban Handicap.*—Mr. F. Swindell's Abergeldie beat Fitz Ivan, Violent, and 19 others. *Beaufort Stakes.*—Mr. Pryor's Haymarket beat Purveyor, Spittire, and 7 others. *United Railway Stakes.*—Mr. R. Ten Broeck's Paris beat Alarmist, Sunnyside, and 6 others. *Heathcote Plate.*—Captain Christie's Jeannie Deans beat The Skipper, Tumbler, and 14 others.

WEDNESDAY.—*Epsom Spring Cup.*—Mr. G. Newton's Pinchbeck beat Annie Laurie colt, Midwife, and 9 others. *New Two Year Old Stakes.*—Baron Rothschild's Suffolk beat Cork Jacket, Songcur, and 8 others. *Great Metropolitan Stakes.*—Mr. E. Brayley's Endsleigh beat Jezabel, Lord of the Dales, and 16 others. *Derdans Stakes.*—Mr. Jos. Wood's Paris beat Lictor, Wings of a Dove, and 8 others. *Prince of Wales's Stakes.*—Mr. Pryor's Musician beat King Charming, Pyrrhic, and 8 others. *Welton Stakes.*—Mr. S. Thellusson's Limner beat Dick Turpin, Le Vénitien, and 2 others.

Obituary.

THE DOWAGER VISCOUNTESS DOWNE died on the 20th inst. at Bowden Hall, near Gloucester, in her 87th year. Her ladyship was the daughter of Mr. George Webster, and was married to the fifth Viscount Downe in 1815.

LADY GEORGIANA ROMILLY died on Friday night after a very short illness. She was the eldest daughter of the sixth Duke of Bedford by his second marriage with Lady Georgiana Gordon, fifth daughter of the fourth Duke of Gordon, and was consequently half sister of Earl Russell, and sister of the Marchioness of Abercorn, Lord Wriothesley Russell, Lady Rachel Butler, Lord Charles Russell, Lord Edward Russell, &c. She was born in 1810, and married in 1842 Mr. Charles Romilly, son of Sir Samuel Romilly, and now Clerk of the Crown in Chancery.

SIR JOHN STUART HIPPISLEY, BART., of Warfield Grove, Berkshire, died on the 20th inst. He was the only son of Sir John Coxe Hippisley, Bart., by his marriage with the second daughter of Sir John Stuart, Bart., of Allanbank, and was born in 1790. He succeeded his father as second baronet in 1825. The first baronet was in the diplomatic service, and negotiated the marriage of the Princess Royal of England, eldest daughter of George III., with the King of Wurtemberg. He was created a baronet for his special services. The late baronet having died unmarried, the baronetcy is extinct.

SIR JOHN DICK LAUDER, BART., of Fountain Hall, died at Bournemouth on the 23rd inst. He had not been well for some time, and went to Hants last autumn for the benefit of his health, residing there during the winter, but until a few days ago he had not been so ill as to cause uneasiness to his friends, and his death was somewhat unexpected. He was born in 1813, and was therefore in his 54th year. He was for several years in the service of the East India Company. He succeeded to the baronetcy in 1848, on the death of his father, the seventh baronet, the well-known Sir Thomas Dick Lauder, author of "The Wolf of Badenoch," "The Floods of Moray," and other works. In 1845 he married Lady Anna Dalrymple, daughter of the ninth Earl of Stair; and he leaves a family of four sons and three daughters. The eldest son, Thomas North Dick Lauder, who succeeds to the baronetcy, has been for some time in the 60th Rifles, and is in his 21st year.

MAJOR-GENERAL BONNER, of the Indian Army, died a few days since. He entered the Madras Artillery in 1805, and was continuously employed in the field from 1808 until the close of the Mahratta war in 1818, and was present at the attack and defeat of Wahib Ally Khan Bunghush, at Arumubuair, at the battle of Mehidpore, at the assault and capture of Talnair, and at the siege of Asserghur. He was frequently mentioned in the *Gazettes*. He returned to England in 1827, and as an acknowledgment of his high reputation in the field and his faithful services was appointed by the Court of Directors to succeed Colonel Forest as Inspector-General of Stores for India. He filled that office for more than 30 years, and on his retirement in 1859 he received from the Principal Secretary of State for India an acknowledgment of the zeal, ability, and integrity with which he had discharged the duties of a most responsible office.

ADMIRAL SIR PHIPPS HORNBY, G.C.B., Rear-Admiral of the United Kingdom, died on the 19th inst., in his 82d year. He was fifth son of the Rev. Geoffrey Hornby, rector of Winwich, Lancashire, by the Hon. Lucy Stanley, sister of the 12th Earl of Derby. He entered the Navy in 1797, and saw much service in the West Indies and the Mediterranean. In 1806 he served on shore at the defence of Gaeta, and commanded the seamen and Marines at the capture of the island of Capri. In the same year, when in command of the Duchess of Bedford, 16, in the Gut of Gibraltar, he succeeded in beating off two Spanish privateers. He was next employed at the blockade of Ceuta, and co-operated for some time in the defence of Sicily against the threatened invasion of Murat. He received a gold medal for the part he took in the action off Lissa. In 1832 he was appointed Superintendent of the Royal Naval Hospital and Victualling Yard at Plymouth; in 1838 he was appointed Superintendent of the Dockyard at Woolwich: from 1841, until promoted to flag rank in 1846, he was Controller-General of the Coastguard; and from February to December, 1852, he was one of the Junior Lords of the Admiralty. He was made a Companion of the Bath in 1815; Knight Commander in 1852, and a Knight Grand Cross in 1861.

MR. R. CULLING HANBURY, M.P. for Middlesex, died yesterday in his 44th year. He was first returned for the metropolitan county in 1857. He was a partner in the firm of Truman, Hanbury, Buxton, & Co., and was a Liberal in politics.

MR. CHARLES PASCOE GRENFELL, formerly M.P. for Preston, died suddenly on the 21st inst. at Taplow Court, Bucks, in his 77th year. He married in 1819 Lady Georgiana Molyneux, eldest daughter of the second Earl of Sefton, and aunt to the present peer. He was for many years in the House of Commons, and his second son, Mr. Henry Riversdale Grenfell, is M.P. for Stoke-upon-Trent in the present Parliament.

MR. S. P. LABOUCHERE, the head of the house of Hope & Co., Amsterdam, died a few days since. He was the uncle of Lord Taunton and of the late Mr. John Labouchere, and was a liberal contributor to works of charity and philanthropy.

MR. ALFRED MELLON died on Thursday morning. He was about 50 years of age, and had been for some time suffering from a dropsical attack and derangement of the liver. He began his musical career in the orchestra of the Birmingham Theatre, and came to London as musical director of the Adelphi Theatre, under the successive managements of Mr. Yates and Mr. Webster. While holding this position he married Miss Woolgar—then, as now, the popular favourite at that theatre. His talent as a musical conductor soon became recognised, and when he left the Adelphi he took his seat as second conductor at the Italian Opera under Mr. Costa. He conducted the English Opera under the Pyne and Harrison management, and latterly was the lessee of Covent Garden during the winter season.

THE REV. DR. CAMPBELL, the Congregational Minister and Editor of the *British Standard*, died on the 26th inst. at his residence, Manor House, St. John's Wood, in his 72nd year. He was born in Forfarshire in 1795, and having received his preliminary education at private schools, entered the University of St. Andrew's, whence he migrated to the University of Glasgow. He was ordained in 1829 to the pastoral charge of a congregation in Ayrshire; but coming to London, he was appointed minister of the Tabernacle in Moorfields. On resigning that post, after 20 years' labour, he devoted himself entirely to literature, and was the editor of several periodicals, and the author of several works, principally of a controversial character. In 1839 he opened a controversy in the newspapers with the Queen's Printers, on the Bible printing monopoly, which led to an immense reduction in the price of the Scriptures. In 1841 he received the degree of D.D. from the University of St. Andrew's, and a few months since he received a splendid testimonial from his admirers and friends on his retirement into private life. When his late illness came upon him he was engaged in writing his autobiography.

DEATH.—Mr. CHARLES SOUTHBY, Nurseryman, Clapham, aged 37.

WILLS.—The will of Viscount Barrington, late of Beckett House, Shrivenham, Berks, and Cavendish Square, has been sworn under 80,000*l.* personalty; Lady Caroline Cavendish, 45,000*l.*; Mr. Johann Andreas Frerichs, of Thirlestaine Hall, Cheltenham, 160,000*l.*; Mrs. Elizabeth Chaplin, 120,000*l.*; Mr. William C. Towers, 70,000*l.*; Mr. Richard C. Bowden, 35,000*l.*; Mr. Thomas Morgan, 45,000*l.*; Mr. Robert Nesbitt, 50,000*l.*; the Hon. Frances Elizabeth Mitford, 45,000*l.*; Sir Charles Henry Rich, Bart., 5000*l.*; Mr. J. Rigby, 12,000*l.*; Mr. John D. Middleton, 30,000*l.*

Markets.

COVENT GARDEN.—March 30.

Although favourable weather has now set in, supplies from distant parts of the country are still limited. Hothouse Grapes maintain good prices, but Strawberries fetch much less money than they did last week. Pine-apples are becoming more plentiful. Forced Vegetables comprise French Beans, Potatos, Sea Kale, and Rhubarb. Pears consist of Easter Beurré only, as far as melting sorts are concerned. Apples comprise Nonpareils, Court Pendu Plat, and one or two others. Oranges continue good and cheap. Kent Cobs may still be had. Broccoli continues to arrive from the West of England and the Channel Islands. Potatos continue to realise high prices. Flowers chiefly consist of Orchids, Chinese Primulas, Violets, Pelargoniums, Cinerarias, Mignonette, and Roses.

FRUIT.

Apples, per bushel, 4s to 8s	Oranges, per 100, 3s 6d to 8s
Grapes, per lb., 15s to 30s	Pears, per dozen, 3s to 6s
Lemons, per 100, 7s to 11s	Pine-apples, per lb., 6s to 8s
Nuts, Kent Cobs, per 100 lb., 75s to 80s	Strawberries, per oz., 1s to 2s

VEGETABLES.

Artichokes, per doz., 2s to 4s	Mint, per bunch, 1s 6d
Asparagus, p. bundle, 8s to 12s	Mushrooms, p. pott., 2s to 2s 6d
Beet, per doz., 1s to 2s	Mustard & Cress, p. punn., 2d
Cabbages, per doz., 2s to 3s	Onions, p. bush. 4s to 5s
Carrots, per bunch, 6d to 8d	Parsley, p. bunch, 6d to 8d
Cauliflowers, p. doz., 4s to 8s	Potatos, York Regents, p. ton, 130s to 150s
Celery, per bundle, 2s to 2s. 6d	— Rocks, do., 90s to 110s
Cucumbers, each, 1s to 3s	— Flukes, 150s to 170s
Endive, per score, 1s to 1s 6d	— Other sorts, 70s to 80s
Garlic and Shallots, p. lb., 8d	Radishes, p. 12 bun., 1s to 1s 6d
Herbs, per bunch, 2d to 4d	Sea Kale, p. punn., 2s to 3s
Horse Radish, p. bund. 4s to 6s	Spinach, per bush., 4s to 6s
Leeks, per bunch, 2d to 4d	Turnips, per bunch, 6d
Lettuces, per score, 2s to 3s	

HOPS.—BOROUGH MARKET, Friday, March 29.

Messrs. Pattenden & Smith report that the market continues the same as for some time past, the demand being but moderate, while the small stocks on hand are gradually diminishing. Prices remain unaltered.

HAY.—Per Load of 36 Trusses.

SMITHFIELD, Thursday, March 28.

Prime Meadow Hay	75s	to 85s	Clover, old	100s	to 110s
Inferior do. .	55	65	Inferior do.. ..	80	95
Best Green Hay ..	84	90	Prime second cut	90	95
Inferior do.	—	—	Inferior do. ..	50	70
Straw	40	46	CHARLES JAMES EASTON.		

CUMBERLAND MARKET, Thursday, March 28.

Sup. Meadow Hay	88s	to 95s	Inferior Clover ..	84s	to 96s
Inferior do.	70	78	New do.	—	—
New do.	—	—	Straw..	45	48
Superior Clover	108	114	JOSHUA BAKER.		

WHITECHAPEL, Thursday, March 28.

Fine Meadow Hay	80s	to 85s	Prime last at Clover	105s	to 110s
Inferior do.	65	75	Inferior do. do.. .	90	100
Prime New Hay ..	—	—	Second cut do. ..	95	100
Inferior	—	—	Inferior do.. ..	60	80
Straw	36	42	Rowen	—	—

COALS.—March 27.

Holywell Main, 17s. 3d.; Walls End Harton, 18s. 3d.—Ships at market, 21; sold, 19.

METROPOLITAN CATTLE MARKET.

MONDAY, March 25.

The supply of Beasts is shorter than on Monday last, but trade is very dull, and we cannot quote higher than on that day. The supply of Sheep is large, and the demand very limited. Prices are lower than on Monday last, but rather in advance of last Thursday's quotations. Choice Calves are still scarce and dear. Our foreign supply consists of 1640 Beasts, 6080 Sheep, 115 Calves, and 35 Pigs; from Scotland we have 170 Beasts; from Norfolk and Suffolk, 1850; and 300 from the Northern and Midland Counties.

	s	d	s	d		s	d	s	d
Best Scots, Herefords, &c. ..	5	0	to 5	2	Best Long-wools.	5	4	to 5	6
Best Short-horns	4	8	—	5 0	Do. Shorn	—	..		
2d quality Beasts	3	0	—	3 6	Ewes & 2d quality	4	0	—	4 4
Best Downs and Half-breds ..	6	0	—	6 2	Do. Shorn	—	..		
Do. Shorn ..	—	..			Lambs	—	..		
					Calves	4	4	—	6 6
					Pigs	3	0	—	4 4

Beasts, 3960; Sheep & Lambs, 20,640; Calves, 128; Pigs, 330.

THURSDAY, March 28.

The supply of Beasts is good, but there is scarcely any demand for them. Only a few of the choicest qualities can be sold. The supply of Sheep also very much exceeds the demand. Choice Calves are still in request at fully late rates. Many of the Sheep are now shorn, and there is a good supply of Lambs, but trade is bad for them. Our foreign supply consists of 146 Beasts, 1220 Sheep, 111 Calves, and 70 Pigs.

	s d	s d		s d	s d
Best Scots, Herefords, &c.	4 10	5 0	Best Long-wools	5 4	5 8
Best Short-horns	4 6	4 10	Do. Shorn	4 6	4 10
2d quality Beasts	2 8	3 4	Ewes & 2d quality	4 0	4 4
Best Downs and Half-breds	5 8 to 6	0	Do. Shorn	—	—
Do. Shorn	5 0	5 4	Lambs	—	—
			Calves	4 4	6 6
			Pigs	3 0	4 4

Beasts, 590; Sheep and Lambs, 4810; Calves, 158; Pigs, 160; Milch Cows, —

NEWGATE.—March 30.

Best Fresh Butter .. .. .. 16s. per dozen lb.
Second do. do. .. .. .. 14s. ,,
Small Pork, 4s. 0d. to 4s. 6d.; Large Pork, 3s. 2d. to 3s. 8d. per 8 lb.

MARK LANE.—MONDAY, March 25.

The supply of Wheat from Essex and Kent to this morning's market was small; the former met a slow sale at last week's prices, and the latter at a decline of 1s. per qr. There was a fair attendance, but foreign Wheat met with a retail sale only at our quotations. Barley, Beans, and Peas were a slow sale. Oats brought an advance of 6d. per qr. upon the prices of this day se'nnight, but the sales were restricted. In Flour there was but little business transacted.

PRICE PER IMPERIAL QUARTER.	s. s.		s. s.
WHEAT, Essex, Kent, & Suffolk. White	55–65	Red.....	53–61
— — fine selected runs. .do.	59–68	Red.....	58–67
— — Talavera	64–72		
— Norfolk.....	—	Red.....	—
— Foreign.....	56–72		
BARLEY, grind. & dist., 31s. to 36s... Chev.	45–50	Malting ..	43–48
— Foreign..grinding and distilling	29–33	Malting ..	35–41
OATS, Essex and Suffolk	23–26		
— Scotch and Lincolnshire..Potato	27–29	Feed	23–26
— Irish .....Potato	26–28	Feed	—
— Foreign .....Poland and Brew	19–32	Feed	20–26
RYE	34–39	Foreign ..	—
RYE-MEAL, Foreign			
BEANS, Mazagan ....36s to 43s ..Tick	38–43	Harrow ..	38–43
— Pigeon .... 41s to 49s ..Winds.	—	Longpod	—
— Foreign .....Small	36–37	Egyptian	39–41
PEAS, White, Essex, and Kent..Boilers	38–42	Suffolk ..	36–44
— Maple, 35s to 40s.....Grey	35–37	Foreign ..	35–40
MAIZE	—	Foreign ..	36–40
FLOUR, best marks delivered..per sack	52–57		
— 2d ditto .....ditto	47–52	Country ..	47–52
— Foreign.....per barrel	24–38	Per sack.	48–54

FRIDAY, March 29.

The change in the weather has completely altered the tone of the Wheat trade, which ruled exceedingly dull during the past week, at a reduction of 1s. per qr. in many of our leading markets, while millers continued to purchase only from hand to mouth, in the expectation of still lower rates. Barley of all sorts remained a difficult sale, except in a few of the East Coast markets, which were active at extreme rates; we do not, however, quote a further general decline. Birmingham alone being 1s. to 2s. per qr. cheaper. Peas were unaltered in value. Beans from scarcity were the turn dearer in several markets. Good dry old Oats are scarce, and fully maintain former rates. New are less sought after, and prices in buyers' favour. Flour was difficult of sale and cheaper, Since Friday the arrivals off the coast amounted to 71 cargoes, and there remained for sale last night 50 cargoes. The floating trade has been devoid of activity; buyers are holding off in expectation of easier rates. Arrived Wheat was a slow sale, and declined 1s. to 2s. per qr. Maize being scarce, holders were enabled to realise 2s. per qr. advance in the sales effected during the last day or two. Barley continues steady. In cargoes of Wheat on passage and for forward shipment there is nothing doing. Paris, March 28.—The market for Wheat is without material change; business continues quiet. In Flour transactions are limited to daily requirements. The stock at the Halle is estimated at 23,335 cwts.

The arrivals of English grain and foreign Oats this week have been moderate, large of foreign Wheat, and very considerable of Barley, a large portion of which is American. The attendance at this morning's market was small. There was little English Wheat on offer; nevertheless sales could not be proceeded with except at a reduction of 1s. per qr., and the same concession was submitted to on foreign where business was concluded. Barley and Oats were a slow sale and rather cheaper. Beans and Peas were unaltered n value.

ARRIVALS THIS WEEK.

	Wheat.	Barley.	Oats.	Flour.
English ..	670 qrs.	450 qrs.	150 qrs.	930 sks.
Irish	— ,,	— ,,	— ,,	—
Foreign ..	25,010 ,,	34,330 ,,	23,140	6750 ,, and — brls.
	25,680	34,780	23,290	—

LIVERPOOL, Tuesday, March 26.—The attendance at market was pretty good. Flour met with a slow sale, but is nominally without change. Wheat not in active demand, but steady in price. Beans in moderate request at rather lower rates. Egyptian 36s. to 36s. 9d., retail. Barley dull. Oats dull. Oatmeal in fair demand at the improvement of last week. Indian Corn has declined 1s. 6d. on the week, and but little business is reported. Mixed American, 39s. 9d. to 40s. per 480 lb.

FRIDAY, March 29.—The market was fairly attended. Wheat in moderate demand, and prices favour purchasers. Flour slow, and nominally unaltered. Beans 6d. per qr. cheaper. Barley steady. Oats and Oatmeal quiet. Indian Corn in fair request; mixed, 39s. 3d. to 39s. 6d.

AVERAGES.

	Wheat.	Barley.	Oats.
Feb. 16	59s10d	43s 9d	23s 6d
— 23	59 11	43 4	24 3
March 2	59 8	43 4	24 8
— 9	59 3	41 5	24 1
— 16	59 4	41 5	24 9
— 23	59 9	40 5	24 8
Agg. Average ..	59 7	42 3	24 4

POTATOS.—SOUTHWARK, Monday, March 25.

During the past week the arrivals both coastwise and by rail have been moderate; the trade has been good, and prices for best samples from 8s. to 10s. per ton higher. This day's quotations:—Yorkshire Flukes, per ton, 120s. to 160s.; do. Regents, 110s. to 140s.; Lincolnshire Regents, 110s. to 140s.; Dunbar and East Lothian Regents, 120s. to 140s.; Perth, Forfar, and Fife Regents, 110s. to 130s.; ditto Rocks, 100s. to 110s.; French Whites, 95s. to 100s.

ENGLISH WOOL.

Very little wool of any description has changed hands, and even a concession of ¼d. to ½d. per lb. has only resulted in a few tardy orders.

CURRENT PRICES OF ENGLISH WOOL.	per lb.—s. d.	s. d.
FLEECES—Southdown hoggets	1 5½	to 1 6
Half-bred ditto	1 6	to 1 7
Kent Fleeces	1 5	to 1 6
Southdown ewes and wethers ..	1 4	to 1 4½
Leicester ditto	—	to 1 5
SORTS—Clothing	1 3	to 1 7
Combing	1 3	to 1 10

WANTED, in a small Florist, Nursery, and Jobbing Business in Islington, an active PARTNER, to Manage the Jobbing and Outwork, who can command £50 cash. Also One or Two active JOBBING HANDS.—Apply to MICHELL & Co., William Street, New North Road, London, N.

WANTED, a GROUND FOREMAN, SALESMAN, and HARDY PROPAGATOR, in a Nursery near London.—A thorough knowledge of the Cultivation of Fruit Trees is indispensable.—Address, stating terms and references, K., *Gardeners' Chronicle* Office, W.C.

WANTED, a WORKING FOREMAN for the Wood on an extensive Estate. Wages 16s. per week, with house and fuel.—Apply to J. ANDERSON, Curraghmore, Portlaw, Ireland.

WANTED, a GARDENER, where a helper is kept.—Married, no incumbrance. Wife to be able to Wash. Personal references as to qualifications, in London if possible. Must thoroughly understand Flower and Kitchen Gardens, and take an interest in his work. Wages £52 per annum. Cottage found. Situation 20 miles from London.—Apply personally or by letter to Captain C., 14, Charles Street, St. James's, S.W.

WANTED, in a Provincial Nursery, TWO ACTIVE MEN, who have been accustomed to Planting Forest and other Trees and Shrubs; and if acquainted with Budding and Grafting they would be preferred.—For further particulars, apply to Messrs. HURST & SON, 6, Leadenhall Street, London, E.C.

WANTED, a PROPAGATOR of Soft-wooded Plants.—Must be a person used to Nursery Work and Growing for Market.—Apply to Mr. W. TOWNSEND, St. Mary's Nursery, Hornsey.

Nursery Labourers.

MESSRS. VEITCH AND SONS have work for some good, active YOUNG MEN at their Coombe Wood Nursery, near Kingston-on-Thames. Wages, 15s. and 16s. per week, according to capabilities. Employment constant.—Apply personally, or by letter, at Royal Exotic Nursery, King's Road, Chelsea, S.W.

WANTED in a Small Nursery, as SECOND MAN, a steady industrious Person, age from 30 to 40, who could take the Management in absence of Head. Also a BOY from 14 to 16.—Apply, THOS. SURMAN, Lavender Hill Nursery, Wandsworth Road, S.

WANTED, as WAREHOUSEMAN in a Wholesale Seed Warehouse, a Man to take the entire Management.—Address by letter, stating age, wages, and last situation, to R. C., 152, Fleet Street, London, E.C.

WANTED, a Youth as JUNIOR CLERK for a Seed Establishment in London.—Apply to A. B., *Gardeners' Chronicle* Office, London, W.C.

WANTED, a steady Young Man as GROOM and GARDENER.—One who understands the care of a Horse, Vegetable and Flower Garden, and Greenhouse. Good wages.—Apply by letter to Box 44, Post Office, Swansea.

WANT PLACES.—Letters to be Post Paid.

EXPERIENCED GARDENERS (or as GARDENER and BAILIFF), of various qualifications, recommended to Gentlemen.—Further particulars given on application to Messrs. E. G. HENDERSON & SON, Wellington Nursery, St. John's Wood, London, N.W.

Gardeners, Head, Foremen, and Under.

JAMES CARTER AND CO. having many applications for the above, request those wanting Situations to send Name, Address, and Copies of Testimonials, for entry in their Free Register. Only those who can send unquestionable references need apply. Any Lady or Gentleman requiring Gardeners, as above, may rely upon J. CARTER & Co. adopting the most stringent regulations in reference to testimonials as to ability, honesty, &c.—JAMES CARTER & Co., 237 and 238, High Holborn, W.C.

GARDENER (HEAD).—Age 30; thoroughly proficient in his profession. Will be disengaged on April 6; four years' good character from his present employer.—W. ASHWELL, The Garuens, Bylaugh Park, East Dereham, Norfolk.

GARDENER (HEAD). —Age 30, married, no incumbrance; thoroughly understands his profession in all its branches. Four and a half years' good character.—G. N., Pine-apple Nursery, Edgware Road, London, W.

GARDENER (HEAD).—Age 32; married, no incumbrance; practically acquainted with the various branches of Horticulture. Can be well recommended.—H. N., 3, Auckland Street, Vauxhall Gardens, S.

GARDENER (HEAD).—Age 26, married, one child; thoroughly understands his profession in all its branches. Character will bear the strictest investigation.—J. M., Wilmslow, Manchester.

GARDENER (HEAD).—Age 34, married, no incumbrance. Wife could Manage a Dairy or some other employment in or out of the House. Characters will bear the strictest investigation.—A. B. C., 54, Gough Street, Gray's Inn Road, W.C.

GARDENER (HEAD). — Age 28, married; has a thorough practical knowledge of his profession in all its various branches. Can be highly recommended. — A. B., Mr. Hayward, Grocer, Mitcham, Surrey.

GARDENER (HEAD).—Age 33, married, no incumbrance; thoroughly understands his profession in all its branches. Can take the Management of Land and Stock if required. Two and a half years' good character.—A. B., Mr. W. Paul, Waltham Cross, N.

GARDENER (HEAD). — The Wife of a Clergyman desires to recommend her Head Gardener, who has been 4 years in her service. He is capable of undertaking an extensive place, but would not object to a smaller, if comfortable.—W. F., Post Office, Godstone, Surrey.

GARDENER (HEAD).—Age 40, married; has had considerable experience in Alterations and Improvements, Growing Pines, Vines, Peaches, Melons, Cucumbers, Fruits and Flowers, and can Manage Kitchen Garden and Land if required. Satisfactory testimonials.—CHAS. STEWART, Rofant Gardens, near Crawley, Sussex.

GARDENER (HEAD).—Married, no incumbrance; thoroughly well acquainted with Forcing Fruit, Flowers, and Vegetables of any kind in all branches, together with the general Management of an Estate. Seven years' unexceptionable character. Salary £80, with house, &c. Wife good Dairywoman.—J. V., Mr. Steel's, Post Office, Clapham Common, S.

To Noblemen and Gentlemen.

GARDENER (HEAD).—Age 32, married, one child; will be disengaged the middle of April. Many years' practical experience in the Growth of Pines, Grapes, Peaches, Melons, Cucumbers, &c. First-class hand at Stove and Greenhouse Plants, including Ferns, Orchids, Tropical Plants, &c.; and is a good practical Kitchen and Flower Gardener. A successful exhibitor at the London Shows. Good reference.—H. BARNARD, The Gardens, River House, Woodberry Downs, Stoke Newington, N.

GARDENER (HEAD), age 34, married, one child.—WM. WOOD & SON, Maresfield, near Uckfield, Sussex, have the pleasure to announce that they have permission to forward to any Lady or Gentleman who may require a really good practical Gardener, the name and address of a gentleman, who will be happy to personally recommend his late Head Gardener, who is a man well qualified for a large place. Wife can take charge of Dairy if required.

GARDENER (HEAD), or FOREMAN and PROPAGATOR in a Nursery.—R. M., 22½, Narrow Wine Street, Bristol.

GARDENER (HEAD, or SINGLE-HANDED). — Age 26, married, no incumbrance; 2 years Foreman at present situation now leaving. Understands the general routine of Gardening. Wife could Manage a Dairy if required. No objection to live in a Lodge.—T. Y., Mr. J. Fowler, Byfleet Corner, Weybridge, Surrey.

GARDENER. — WILLIAM HOWARD, Gardener to JAMES BRAND, Esq., Bedford Hill, Balham, S., begs to state that he is at liberty to enter into an Engagement where the services of a good practical Man are required.

GARDENER, in a Gentleman's Garden.—Young, married, no incumbrance; some years' practice. Disengaged in three weeks. Good character.—F. G., Post Office, Sunninghill, Berks.

GARDENER (JOURNEYMAN), in a good Establishment. —Age 20; good references.—W. H., Mr. Poynter, County Seed Establishment, Taunton.

GARDENER (SINGLE-HANDED).—Age 23; understands the Management of Vines, Melons, Cucumbers, Flower and Kitchen Gardening in all its branches, and can make himself useful. Three years' good character.—E. W., Mr. W. Gladwin, High Street, Southgate.

GARDENER (SECOND). — Nine years' experience.—BENJ. WOOD, Forest Cottage, Bracknell, Berks.

GARDENER (SECOND). — Character will bear the strictest investigation.—R. S., Post Office, Ewhurst, Guildford.

GARDENER (SECOND), in a large Establishment.—Age 24; five years' good character from last employer.—A. B., 2, Lime Cottages, Stockwell Private Road, Clapham, S.

GARDENER (SECOND).—Age 21, single; has been used to House Work and Fires in several Noblemen's Establishments. Good recommendation.—Apply, stating wages, &c., to J. C., Post Office, Brimpton, Reading.

GARDENER (SECOND or UNDER), in a Gentleman's Establishment.—Age 25; good reference.—S. B., Post Office, Clifton, Bristol.

GARDENER (UNDER, or SINGLE-HANDED).—Age 24; has a good general knowledge of Gardening. Willing to make himself useful.—A. B., 5, Bantinck Place, High Street, St. John's Wood, N.W.

GARDENER (UNDER).—Age 19; has had good practical experience. Good character.—B. S. C., Boulter, Plumber, Staines, Middlesex.

GARDENER (UNDER).—Age 20; wishes to place himself under a practical Man where he can improve himself. A Premium given.—E. YOUNG, Bylaugh Park, East Dereham, Norfolk.

GARDENER and BAILIFF, or BAILIFF, in a Nobleman's or Gentleman's family.—Age 40; understands the Buying and Selling of Stock, &c.; also the Breeding and Management of Game. Ten years' character.—E. S., 38, Salisbury Street, Portman Market, W.

FOREMAN (NURSERY GROUND).—Age 30; a successful Budder and Grafter. Good references.—T. J. S., Post Office, Cobham, Surrey.

FOREMAN in a Nobleman's or Gentleman's Garden.—Age 24; three years' good character from present employer. —J. B., Faulton's Park, Romsey, Hants.

FOREMAN, in some good Garden.—Age 22; has lived in first-rate establishments, and can have unexceptionable references as to character and ability.—J. H. H., Lime Tree House, Wortham, Diss, Norfolk.

FOREMAN in a Nobleman's or Gentleman's Garden.—Been in the profession eight years, where general Forcing has been carried on with spirit; has a practical acquaintance with, and taste for, Orchids. Two years' good reference.—A. D. F., Mr. W. Earpe, The Gardens, Leighton House, near Westbury, Wilts.

PROPAGATOR or SUPERINTENDENT in a Nursery. Has had great experience in the Trade. High wages not the primary object.—A. B., 18, Malpas Road, New Cross, S.E.

To London Nurserymen.

MANAGER (WORKING), or FOREMAN and PROPAGATOR.—First-class experience and references. Commencing salary 30s. per week.—PROPAGATOR, W. Ottaway's, Sunningdale, Berks.

To Noblemen and Gentlemen.

LAND AGENT, FARM BAILIFF, GARDENER, WOOD FORESTER, &c.—Wanted an appointment as above; thoroughly understands Buildings, Drainage, &c, and has had many years' practical experience in every department, and the Management of a large Estate.—B. B., Post Office, Kew, Surrey, S.

FORESTER.—Has had great experience in Scotland in the Management of Woodlands and Hedges, and has had extensive practice in England, in Forest and Ornamental Planting, the Measuring, Valuing, and Conducting of large Annual Sales of Timber and Underwood; also in Hedging, Ditching, and Fencing, and the general Management of the Woodlands on a large Estate. Good and satisfactory references on application to Messrs. PETER LAWSON & SON, Nurserymen, Edinburgh.

STEWARDSHIP.—The Advertiser, of many years' practical experience, is desirous of engaging. A Home Farm preferred.—J. S., care of Mr. Wm. Skirving, Liverpool.

To Noblemen and Gentlemen.

STEWARD, FARM BAILIFF, or GENERAL MANAGER.—Age 39, married; has a thorough practical knowledge of Farming in every branch—Breeding, Rearing, Fattening, Buying and Selling all kinds of Stock; well understands Draining, Building, Woods, &c.; the Measurement of Land, Timber; Rents, Book-keeping, &c. Has held situations in Yorkshire, Shropshire, and Buckinghamshire. First-class testimonials and references to the gentleman he is now with.—FARM STEWARD, Gorelands Farm, Chalfont St. Peter's, Slough, Bucks.

STEWARD (UNDER).—Age 22; has been five years on an extensive Estate and Home Farm. Has had much experience in Draining and Pipe-making. Would be willing to make himself useful in the above-named capacity. No objection to Ireland.—A. M., Mr. Mitchell, East Hall, Rainham, Essex.

IMPROVER, in a Gentleman's Garden, under a Gardener in the houses.—Age 20; has served in the houses five years. Good character given.—PETER CHICK, Dillington, near Ilminster, Somerset.

IMPROVER, in a Nobleman's or Gentleman's Garden, where he can improve himself. Twelve months' good recommendation. Premium if required.—C. B., 2, Croft Cottages, Forest Hill, S.E.

TO GARDENERS.—Wanted, to place an intelligent YOUTH under a first-class Gardener for about three years, where he will have an opportunity of learning the business. A Premium given.—Mr. W. PARROTT, Railway Station, Rugby.

CLERK (UNDER), and to Assist in the Seed Shop.—Age 24; good references.—H. T., Post Office, Cheshunt.

To Seedsmen.

SHOPMAN. — Age 29, single; has had 14 years' experience with the Seed Trade; also a good knowledge of the Nursery and Florist Trade. Good reference.—W. H., Post Office, Uxbridge, W.

THE GARDENERS' CHRONICLE

AND

AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.

No. 14.—1867.] SATURDAY, APRIL 6. {Price Fivepence. STAMPED EDITION, 6d.

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ROYAL HORTICULTURAL SOCIETY, SOUTH KENSINGTON, W.
SECOND SPRING SHOW of EARLY AZALEAS, ROSES, &c., on TUESDAY, April 16. Doors open at 2. Band 3 to 5.30. Admission, by privileged tickets, *2s. 6d.*; public, *3s. 6d.*, to be bought prior to the day; or by payment at the gates, *5s.*

ROYAL HORTICULTURAL SOCIETY, SOUTH KENSINGTON, W.
Promenade and Band every Saturday afternoon throughout the year.
NOTICE.—Dr. MASTERS will give a short LECTURE on PLANT ARCHITECTURE THIS DAY, SATURDAY, the 6th inst., and the THREE succeeding SATURDAYS, at Three.

ROYAL BOTANIC SOCIETY'S GARDENS, Regent's Park.—SATURDAY NEXT, April 13, EXHIBITION of SPRING FLOWERS. Tickets *2s. 6d.* each. To be obtained at the Gardens by Orders from Fellows of the Society. Gates open at 2 o'clock. Band will play from 2.30 to 5.30.

SLEAFORD HORTICULTURAL SOCIETY.—The ANNUAL EXHIBITION of this Society will be held on THURSDAY, July 11. Schedules on application to
North Road Nursery, Sleaford. FRANK WARWICK, Sec.

SUTTON'S HOME-GROWN SEEDS.
Prices and particulars on application.

EVERY GARDEN REQUISITE kept in Stock at
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Genuine Garden and Agricultural Seeds.
JAMES CARTER AND CO.,
SEED FARMERS, MERCHANTS, and NURSERYMEN,
237 & 238, High Holborn, London, W.C.

JAMES FAIRHEAD AND SON, SEED GROWERS and MERCHANTS, 7, Borough Market, London, S.E.
New and Genuine AGRICULTURAL, GARDEN, and FLOWER SEEDS. Special prices and advantageous offers on application.

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FIRST-CLASS CERTIFICATE.—Brighton.

MRS. GOODWIN (Goodwin).—Fawn ground, striped with red—very fine flower. 4 ft. 10 6

PLAUSIBLE (Keynes).—Red and crimson, with purple stripes—very first-class flower. 4 ft. 10 6

SALAMANDER (Keynes).—The best character to give this flower is to call it a striped Charles Turner—it must not be cut out. 3 ft. 10 6

THE QUEEN.

HAVING PUBLICLY REQUESTED THE NAMES UNDER WHICH MY

NEW WHITE RHODODENDRON

Has been before offered to the Public, I learn that they are *Lady Godiva*, *Ingramii*, *Standish's Perfection*, and *Madame Carvalho*. I have flowered THE QUEEN side by side with all four kinds, and unhesitatingly say it is *superior* and totally different to either. I now challenge the assertions, and ask the authors *if they can* produce THE QUEEN. I give them a *fair field*, viz., the range of the world to select from.

CHARLES NOBLE, BAGSHOT.

TRICOLORED PELARGONIUM, QUEEN VICTORIA.

S. PERKINS & SONS

BEG to ANNOUNCE that this SPLENDID VARIETY will be SENT OUT the FIRST WEEK in MAY NEXT

at 21s. each.

Leaf margin deep golden yellow, with rich broad zone of maroon, interspersed with fiery scarlet, deep olive green centre. The habit being free and short jointed, and the leaves not liable to damp at the edges, it will be found the best Bedding variety yet offered.

☞ *Plants will be exhibited at the Royal Botanic Society's next Exhibition on April* 13.

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KEYE'S EARLY PROLIFIC TOMATO.

A new American variety, 30 days earlier than any other. Plant dwarf, compact and vigorous, producing immense crops. Tomatoes of medium size, round, brilliant red, quite smooth and free from ribs, perfectly solid, and of the most excellent flavour. They are produced in large clusters of 10 to 20 each, with from 7 to 20 clusters on each Vine, and ripen up together, so that the main crop is ripe and ready for market 30 days earlier than any other kind. The foliage has no odour. The Early Prolific is the most distinct and valuable Tomato yet produced.

Price per Packet, 1s., forwarded on receipt of 12 stamps.

CARTER'S GREAT LONDON SEED WAREHOUSE, 237 and 238, HIGH HOLBORN, W.C.

Price to the Trade on application.

Thomas Gibbs & Co

ROYAL AGRICULTURAL SOCIETY OF ENGLAND — THOS. GIBBS & Co. Corner of HALF-MOON St. PICCADILLY, London. — APPOINTED APRIL 3, 1844 — THE SEEDSMEN

CORNER of STREET.

Trade Mark.

GRASS SEEDS,

AGRICULTURAL SEEDS,

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Catalogues forwarded post free to any address on application.

GENUINE SEEDS, CARRIAGE FREE.

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VICTORIA AND PARADISE NURSERIES, UPPER HOLLOWAY, LONDON, N.

GENERAL PRICED CATALOGUE of FLOWER and VEGETABLE SEEDS

FORWARDED FREE TO ANY ADDRESS.

It contains, in addition to the best of the established and indispensable varieties of VEGETABLE SEEDS, the following NEW KINDS:—

THE ORANGEFIELD DWARF PROLIFIC TOMATO, 2s. per pkt.
WILLIAMS' ALEXANDRA BROCCOLI, 2s. 6d. per packet
WILLIAMS' MATCHLESS RED CELERY, 1s. per packet
DIGSWELL PRIZE ENDIVE, 1s. per packet
NUNEHAM PARK ONION, 2s. 6d. per packet
RAPHANUS CAUDATUS (The Wonderful Radish), 1s. per pkt.

Also the following NOVELTIES in FLOWER SEEDS:—

APLOPAPPUS RUBIGINOSUS, 1s. per packet
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AUBRIETIA GRÆCA, 1s. per packet
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PINK-FLOWERING CANTERBURY BELL, 1s. per packet
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STRIPED-LEAVED JAPANESE MAIZE, 1s. per packet
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VIOLA CORNUTA, PURPLE QUEEN, 1s. & 2s. 6d. per packet.
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Also the following well-known STRAINS of FLORISTS' FLOWERS:—

WILLIAMS' superb strain of PRIMULA, Red, White, or Mixed, 2s. 6d., 3s. 6d., and 5s. per packet
WILLIAMS' superb strain of Camellia-flowered BALSAM, the finest in England, 1s. and 2s. 6d. per packet
JAMES'S CALCEOLARIA, finest for exhibition, 2s. 6d., 3s. 6d., and 5s. per packet
WEATHERELL'S Choice CINERARIA, 3s. 6d. and 5s. per packet

A full description of each will be found in the Catalogue.

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LILIUM AURATUM (a large importation).—Strong Bulbs, 3s. 6d., 5s., and 7s. 6d. each.
GLADIOLI, English-grown Seedlings, splendid assortment, 8s. per dozen; 50s. per 100.
„ Named varieties, 6s., 8s., and 12s. per dozen.

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Seeds for the Colonies.

SEEDS DIRECT FROM THE GROWERS ARE THE MOST SUITABLE FOR EXPORTATION, AND THE BEST MEANS OF PREVENTING DISAPPOINTMENT.

MESSRS. SUTTON solicit the favour of Orders from those about to send or take out SEEDS to the COLONIES, and submit the following from among many Testimonials recently received, as to the GENERAL SUPERIOR quality of their Seeds to those usually exported from this country, as well as to the very efficient manner in which their export packing is carried out:—

July 9, from A. N. ELLA, Esq., *Queenstown, Cape of Good Hope.*

"I may mention that the case referred to was in splendid order, looking as fresh after three months' sea and six weeks' land carriage as if only yesterday packed."

From HUGH ROMSAY, Esq., *Shanghae, China, May* 5, 1866.

"The box of seeds and roots has arrived, and nothing has given me greater pleasure for a long time than the excellence of these seeds."

From Mr. Z. W. WELLS, *New Plymouth, New Zealand, May* 7, 1866.

"The Grass and other seeds sent by the Shelburne to me, have come safe to hand. I have tried samples of the Grass seeds, and am happy to inform you that they have come up quite to my satisfaction."

From Mr. JAS DALE, *Orange, New South Wales, September* 20, 1866.

"I have the pleasure to inform you that your seeds have given great satisfaction, and I now send you a larger order."

All Seeds properly packed and delivered free to ship side. Special quotations given for large quantities. A liberal allowance made to Shippers. SUTTON & SONS, Seed Growers, Reading.

NEW BEDDING PLANT: IRESINE HERBSTII AUREO-RETICULATA.—Plants of the above distinct and beautiful variety, 2s. 6d. each, 18s. per dozen, with usual discount to the Trade.

CUPRESSUS LAWSONIANA SEED of good growing quality. Price on application.

THOMAS CRIPPS, The Nurseries, Tunbridge Wells, Kent.

THE GOLDEN VARIEGATED WELLINGTONIA. First-class Certificate from Royal Horticultural Society.

For Testimonials, &c., see *Gardeners' Chronicle*, October 6, 1866; *Times*, October 7, 1866; *Scottish Gardener*, November, 1866; *Gardeners' Chronicle*, January 12, 1867; "Florist," February, 1867.

LAST YEAR'S PLANTS (a few remaining).
1st Size, very choice, 8 to 12 inches, £5 5s. each.

THIS YEAR'S PLANTS.
2d Size, fine, 4 to 5 inches, £2 2s.
3d Size, nice little bits, 2 to 3 inches, £1 1s.

5000 plants are now plunged out-of-doors, in their respective sizes They may be safely forwarded during the summer, if desired, and orders will be executed in strict rotation.

Chromo-lithographs of the parent tree, by Day and Son (Limited), in superior cards, 10 inches by 8 inches, very faithful in outline, but deficient in representing the glorious colour of the original. These are sent free by post for 25 stamps, and one sent to each Purchaser.

It is intended to exhibit a few of the first size at the approaching Paris and Manchester Exhibitions.

R. HARTLAND, The Lough Nurseries.

Vines.—Surplus Stock.

FISHER, HOLMES, AND CO. beg to offer the undermentioned well-ripened VINES. The prices, which are moderate, may be had on application.

STRONG FRUITING CANES.	STRONG PLANTING CANES.
Trentham Black	Lady Downes'
Black Hamburgh	Trentham Black
Royal Vineyard	Black Hamburgh
West's St. Peter's	Royal Muscadine
Royal Muscadine	Muscat Hamburgh
Esperione	Raisin de Calabre
Lady Downes'	Frankenthal
Chasselas Rose de Falloux	Buckland's Sweetwater
	Black Alicante

Handsworth Nurseries, Sheffield.

Abies Douglasii.

WILLIAM BARRON begs to offer beautiful well-grown and finely rooted Plants of the above as under:—

ABIES DOUGLASII, 2 to 3 feet, 90s. per 100.
" " 3 to 4 feet, 18s. per doz.
BERBERIS DARWINII, 6 to 9 inches, 6s. per 100.
" WALLICHII, 2-yr., 9s. per 100.

Both fine for lawn and cover planting; bearing a profusion of orange-coloured flowers and purple berries, of which pheasants are remarkably fond.

Elvaston Nurseries, Borrowash, Derby.

JOHN WATERER has to offer a quantity of very handsome AUCUBA JAPONICA, the whole of which are profusely covered with Berries.

1st Size are Plants 2 feet high, bearing 150 to 200 Berries.
2d Size, 1 foot 6 inches, with 100 to 125 Berries.
3d Size, 1 foot, with 40 to 50 Berries.
Price from 10s. 6d. each and upwards.
The American Nursery, Bagshot, Surrey.

Finest New Hardy Plant of the Year.

PAUL'S NEW DOUBLE THORN.—Colour bright crimson, vivid, and double, 10s. 6d. each, usual allowance to Trade when three are taken.

Awards: First-class Certificates International Exhibition and Royal Botanic Societies.

PAUL & SON beg to invite orders are close of planting season for this unique novelty. Since last Advertisement the following leading Nurserymen have ordered it:—

Cranston, Jno., Hereford	Lucombe, Pince & Co., Exeter
Dickson & Co., Edinburgh	Noble, Chas., Bagshot
Dickson & Sons, Newtonards	Rollisson & Sons, Tooting
Ewing, Norwich	Smith, R., Worcester
Fletcher, Ottershaw	Veitch & Son, Chelsea
Jackson & Sons, Woking	Waterer & Godfrey, Knap Hill
Lawson & Son, Edinburgh	

Old Cheshunt Nurseries, N.

BIRCH, 3 to 5 feet, fine, twice transplanted, 45s. per 1000
HAZEL, from Spanish Seed, 2 to 3 feet, fine, once transplanted, 18s. per 1000
SPANISH CHESTNUT, 1 to 2 feet, once transplanted, 18s. per 1000
HORSE CHESTNUT, 1 foot, once transplanted, 18s. per 1000
Samples sent on application.
T. JACKSON & SON, Nurseries, Kingston, S.W.

SURPLUS STOCK.

Alder, 3 to 5 feet, extra strong	Fir, Spruce, 3 to 4 feet
Ash, 18 inches to 2 feet	" Larch, 2 to 2½ feet
Berberis dulcis, 2 to 3 feet	Hazel, 2½ to 3½ feet, extra fine
" Aquifolium, 1 to 1½ foot	Holly, Green, 1½ to 2 feet, bushy
Chestnut, Horse, 2 to 4 feet	Laurel, Common, 2 to 2½ ft., bushy
" Spanish, 1½ to 2 feet	" Portugal, 3 to 4 ft. ex. bushy
Fir, Scotch, 1 to 1½ foot	

Strong DRUMHEAD or CATTLE CABBAGE PLANTS.

FRUIT TREES, as annexed.

Apples, Standards and Dwarfs, very strong
Cherries, Dwarfs and Dwarf-trained, extra fine
Peaches, Dwarfs and Dwarf-trained, extra fine
Pears, Standards and Dwarfs, extra fine
Plums, Standards and Dwarfs, extra fine
Nectarines, Dwarfs and Dwarf-trained, extra fine
Kentish Filberts, 4 to 5 feet, extra fine
Crab Stocks, 2 years Seedlings

PRICED LIST or samples of the above on application to
W. VIRGO & SONS, The Nursery, Wonersh, near Guildford, Surrey.

Game Covert, Forest Planting, &c.

JAMES SMITH offers the following:—The RHODODENDRONS are fine bushy well-rooted Plants, fit either for Woods or Pleasure Grounds; the LARCH are fine stout Plants, better cannot be grown; also PRIVETS, LAURELS, BERBERIS (in sorts), SCOTCH, SPRUCE, and SILVER FIRS, ASH, OAKS, BEECH, BIRCH, PINUS AUSTRIACA, &c., all strong well-rooted plants, a PRICED CATALOGUE of which will be forwarded on application.

LARCH, good stout plants, per 1000:—1½ to 2 feet, 14s.; 2 to 3 feet, 16s.; 2½ to 3½ feet, 18s.; 3 to 4 feet, 20s.

RHODODENDRON PONTICUM, bushy, well-rooted plants, 6 to 12 inches, 105s. per 1000.

Do. do., 9 to 15 inches, 18s. per 100; 160s. per 1000; per 10,000, £79.
Do. do., 1 to 1½ foot, 23s. per 100; 220s. per 1000; per 10,000, £105.
Do. do., 1½ to 2 feet, 30s. per 100; 290s. per 1000.
Do. HYBRIDUM, 6 to 12 ins., 30s. per 100; 290s. per 100.
Price to the Trade on application.
JAMES SMITH, Darley Dale Nurseries, near Matlock.

SEEDLING and TRANSPLANTED FOREST TREES.

SEEDLINGS.—Ash, 1 yr., 1s.; Beech, 2 yr., 3s. 6d.; Elm, 3 yrs., 2s.; Norway Maple, 2 yr., 7s. 6d.; Oak, English, 1 yr., 1s. 6d.; 2 yr., fine, 4s.; Silver Fir, 4 yr., 6 to 12 inches, 4s.; Norway Spruce, 4 yr., 2s. 6d.; Crab, 2 yr., 2s. 6d.; Pears, 2 yr., 3s. 6d.; Sycamore, 2 yr., 2s. 6d. per 1000.

TRANSPLANTED.—Alder, 1 to 2 ft., 7s. 6d.; 2 to 3 ft. 10s.; 3 to 4½ ft., 15s.; 4 to 6 ft., 20s.; Beech, 6 to 12 in., 7s. 6d.; Chesnut, Spanish, 1 to 2 ft., 17s. 6d.; Elm, 12 to 21 in., 5s.; Hazel, 1½ to 3 ft., 17s. 6d.; Oak, English, 6 to 12 in., 7s. 6d.; Balm of Gilead, 4 to 8 in., 7s. 6d.; Cembra, 6 to 12 in., 100s.; Larch, 1 to 1½ ft., 6s.; 1½ to 2 ft., 8s.; 2 to 3 ft., 10s.; 3 to 4 ft., 14s.; Scotch Fir, 2 yr. bedded, 6 to 12 in., 5s.; Silver Fir, 9 to 15 in., 12s. 6d.; Spruce, Norway, 6 in., 5s.; 1 to 1½ ft., 10s.; Thorn Quick, 9 to 15 in., 6s.; Sycamore, 1 to 1½ ft., 7s. 6d.; Walnuts, 6 to 15 in., 20s. per 1000.

RHODODENDRON PONTICUM, 4 to 6 in., 6s. per 100.

Apply, with reference, to J. RIDDELL, Steward, Park Attwood, Bewdley, Worcestershire.

Notice.

PAUL AND SON'S NEW DOUBLE CRIMSON THORN.

PAUL AND SON regret that they find it necessary to repeat, in order to prevent mistakes, occasioned by the similarity of name,

THAT THEY ALONE

are the Introducers of this unique plant
The Old Cheshunt Nurseries, Cheshunt, N.

HIGHLY CULTIVATED and REGULARLY TRANSPLANTED NURSERY STOCK.—Eighty Acres of the above, consisting chiefly of FRUIT TREES, ROSES, EVERGREENS, and ORNAMENTAL TREES, which for general excellence are unsurpassed

THOMAS WARNER, Leicester Abbey Nurseries.

FIVE HUNDRED THOUSAND LARCH, 1½ to 3 feet, at 8s. per 1000.
500,000 LARCH, 3 to 4 feet, at 12s. 6d. per 1000
500,000 SILVER FIR, 4-yr. Seedlings, at 3s. per 1000
500,000 SPRUCE, 4-yr. Seedlings, at 2s. 6d. per 1000
500,000 SYCAMORE, 2-yr. Seedlings, at 2s. per 1000
For other Trees offered see other Advertisement.
J. RIDDELL, Steward, Park Attwood, Bewdley, Worcestershire.

Forest Trees and Cover.

JOSEPH SMITH, JUN., has to offer at very moderate prices TRANSPLANTED ASH, ALDER, BIRCH, HORSE CHESTNUT, ELM, broad and narrow-leaved; SILVER and SCOTCH FIRS, WHITE AMERICAN SPRUCE, HAZEL, OAK, POPLAR, PRIVET, WEYMOUTH and AUSTRIAN PINES, THORN QUICKS, HUNTINGDON and DUTCH WILLOWS, LARCH, good stout plants, 1½ to 2 feet, 12s.; 2 to 2½ feet, 13s.; 2 to 3 feet, 14s.; and 3 to 4 feet, 16s per 1000. NORWAY SPRUCE FIR, 6 to 9 inches, 6s.; 9 to 12 inches, 9s.; 1 to 1½ feet, 14s.; 1½ to 2 feet, 21s.; and 2 to 2½ feet, 30s. per 1000. COTONEASTER MICROPHYLLA, 1 to 1½ feet, 20s. per 1000; 1½ to 2 feet. RIBES in sorts, 2 to 3 ft., 20s. per 1000. SNOWBERRY, 2 to 3 ft., 20s. per 1000. BROOM, White and Yellow, transplanted, 15s. per 1000. LAURELS, BERBERIS, ARBOR-VITÆ, &c., Seedling ASH, CRAB, SPANISH CHESTNUT, SPRUCE, 3 and 4 years; ELM, 2 years, 25 per 100,000. OAKS, 1 and 2 years; OAK, EVERGREEN, 1 year; PRIVET, 1 and 2 years; SYCAMORE. RHODODENDRON PONTICUM, 2 years, 6s.; 4 years, 8s. per 1000; 3 years, and 1 year transplanted, 18s.; 3 years, and 2 years transplanted, 25s.; 6 to 9 inches, 50s.; and 9 to 12 inches, 80s. per 1000. Twice-transplanted, and bushy, 4 to 8 inches, 70s.; 8 to 12 inches, 95s.; 9 to 15 inches, 140s.; 1 to 1½ feet, 180s.; and 1½ to 2 feet, 200s. per 1000.

A PRICED LIST forwarded on application. Price to the Trade on application.

JOSEPH SMITH, Jun., Moor Edge Nursery, Tansley, near Matlock, Derbyshire.

Vegetable, Agricultural, and Flower Seeds, Alpine Plants, &c.

ROBERT PARKER begs to announce that his CATALOGUE, containing select DESCRIPTIVE LISTS of the finest kinds in cultivation of the above-named is now published, and will be forwarded to applicants. The Stocks of Seeds have all been procured from the best possible sources, all are warranted genuine, and are offered at the lowest possible prices. Intending purchasers are requested to compare the prices with those of other houses. Exotic Nursery, Tooting, Surrey, S.

New and Genuine Seeds.

THOMAS SAMPSON, The Preston Road Nurseries, Yeovil, Somerset, begs to intimate that his CATALOGUE of SEEDS for the GARDEN and FARM is now ready, and can be obtained free on application. It contains a Select and Choice Stock, everything being of the best quality, and are offered at unequalled low prices.

RAYNBIRD, CALDECOTT, BAWTREE, DOWLING, AND COMPANY, Limited,
CORN, SEED, MANURE, AND OILCAKE MERCHANTS,
Address, 89, Seed Market, Mark Lane, E.C.; or Basingstoke.

Samples and Prices post free on application. Prize Medals, 1851, for Wheat; 1862, for "Excellent Seed Corn and Seeds."

Seed Corn from the Chalk.

ALL the MOST APPROVED VARIETIES supplied by RAYNBIRD, CALDECOTT, BAWTREE, DOWLING, and COMPANY, LIMITED.

Address, Basingstoke; or 89, Seed Market, Mark Lane, London, E.C.

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GIANT ASPARAGUS PLANTS, the best that money can procure, 2s. 6d. per 100. — This delicious vegetable does not require half the expense usually incurred in planting it.

See RICHARD SMITH'S SEED LIST for 1867.
Extra strong SEA KALE, 2s. per doz.
RICHARD SMITH, Nurseryman, Worcester.

THE "COLDSTREAM EARLY" POTATO, which received a First-class Certificate at the International Horticultural Exhibition at South Kensington, is the Earliest and Best round Potato in cultivation. 5s. 6d. per peck; 18s. per bushel, including bags. Trade price on application.
Apply to HOGG & WOOD, Coldstream, N.B.



WHEELER'S GLOUCESTERSHIRE KIDNEY

Is one of the very Earliest, most Productive, and best flavoured Potatos in cultivation.

Price 3s. per peck, 10s. 6d. per bushel.

J. C. WHEELER & SON,
Seed Growers, Gloucester.

SURPLUS STOCK of

Early Ashleaf Kidney Potatos.	Nonpareil Peas.
Essex Wonder do do	General Havelock do.
Myatt's Prolific do do	Ne Plus Ultra do.
Handsworth's Early Round Potatos	Champion of England do.
	M'Lean's Wonder do.
Early Shaw Round Potatos.	Climax do.
Dalmahoy do do	Veitch's Perfection do.
Dwarf, Kidney, and Scarlet Beans	British Queen do.

Prices on application to JAMES FAIRHEAD & SON, Seed Merchants, 7, Borough Market, S.E.

CHOICE SEEDS.
Post Free.

	Per pkt.—s. d.		Per pkt.—s. d.
Broccoli, Snow's Imperial Winter	1 0	Moore's Vegetable Cream	0 6
Albert Sprouts	0 6	Beet, Perpetual Spinach	0 6
Cauliflower, Early Erfurt	1 0	" Nutting's Superb Red	0 6
Celery, Manchester Champion Red	0 6	Lettuce, Wheeler's Tom Thumb	0 6
Cucumber, Smith's Fine Frame	1 0	Radish, French Breakfast	0 6
Cucumber, Telegraph	1 0	Aster, Truffaut's Superb French, 12 vars. mixed	1 0
Leek, Henry's Prize	0 6	Aster, Victoria, 6 vars. mixed	1 0
Endive, Digswell Prize	0 6	Stock, improved large-flowering, 12 vars. mixed	1 0
Onion, Nuneham Park	2 6	Balsam, Camellia-flowered, 6 var mixed	1 0
Parsley, extra fine curled	0 6	Balsam, Rose-flowered, 8 vars. mixed	1 0
Raphanus caudatus (new long-podded Radish)	2 6	Phlox Drummondii, 12 splendid varieties	1 0
Custard Marrow	0 6		
Melon, Malvern Hall	1 6		
Tomato de Laye	0 6		
Cauliflower, The Mammoth	1 0		

RICHARD SMITH, Seed Merchant, Worcester.

SPECIAL OFFER OF FARM SEEDS
BY
THE LONDON SEED COMPANY,
68, WELBECK STREET, CAVENDISH SQUARE, W.

	Bushel.	Half Bushel.	Peck.	Gallon.
SKIRVING'S SWEDE TURNIP	£1 11 0	£0 16 0	£0 8 6	£0 4 6
WHITE, GREEN, and RED GLOBE	1 11 0	0 16 0	0 8 6	0 4 6
SCOTCH PURPLE and GREEN-TOP	1 10 0	0 16 0	0 9 0	0 4 6
	Cwt.	Half Cwt.	Quarter Cwt.	14 lb.
LONG RED MANGEL	2 14 0	1 8 0	0 15 0	0 8 0
YELLOW GLOBE MANGEL	2 10 0	1 7 6	0 15 0	0 8 0
RED GLOBE MANGEL	2 14 0	1 8 0	0 15 0	0 8 0
FISHER HOBBS'S ORANGE GLOBE	3 10 0	1 17 6	1 0 0	0 10 6
WHITE BELGIAN CARROT	3 15 0	2 0 0	1 2 6	0 12 6
YELLOW BELGIAN CARROT	5 0 0	2 15 0	1 10 0	0 17 6
ITALIAN RYE-GRASS	5s. per bushel, or 38s. per quarter.			
PERENNIAL RYE-GRASS	5s.	,,	38s.	,,
MIXED GRASSES, for PERMANENT PASTURE	12s.	,,	90s.	,,

This Company was formed by the purchase of the Business of one of the Oldest Established Firms in the Kingdom, of more than Eighty Years' standing.

COPIES of the FARM CURRENT will be forwarded Postage Free to any Address, as the Company desire that their terms and mode of business should be extensively known.

Samples of all kinds of Seeds can be had on application, to prove their growth, &c.

SEEDS FOR EXPORTATION.

Seeds packed in cases for exportation. Great attention is paid to this department of the business. The Seeds are placed in air-tight cases, and will reach their destination with their growing qualities unimpaired.

For CATALOGUES and PRICE CURRENTS apply to
LONDON SEED COMPANY, 68, WELBECK STREET, CAVENDISH SQUARE, W.

Seed Establishment, Dumfries.

PASTURE LAND. — The great benefit derived by Sowing down Land intended for Permanent Pasture with Natural Grass Seeds cannot be over-estimated, the trifling cost of KENNEDY'S MIXTURES for PERMANENT PASTURE over that of Common Rye-grass and Clover being far more than compensated by the much greater abundance of Herbage produced, of a more nutritious and permanent kind. These Mixtures are made up in every case to suit the particular soil, situation, or purpose for which they are required.

A DESCRIPTIVE PRICED CATALOGUE of NATURAL GRASSES as well as of CLOVER, TURNIP, and other FARM SEEDS, may be had on application to

THOMAS KENNEDY AND CO.,
NURSERYMEN and SEEDSMEN, Dumfries.

☞ CATALOGUES may also be had of VEGETABLE and FLOWER SEEDS, and FOREST, FRUIT, and ORNAMENTAL TREES, &c.

Free Delivery. Farm and Garden Seeds Delivered at nearest Railway Station under certain limitations, as formerly.

THE ALSIKE CLOVER for CLOVER-SICK LANDS. —This excellent Clover will thrive in almost any soil. It produces two good cuttings in the year, and makes superior Clover hay. It may be sown alone (14 lb. per acre), or in conjunction with other seeds, either for alternate husbandry or Permanent Pasture. If sown with Italian Rye-grass, it is ready for mowing three times in the year. It is included in all Messrs. SUTTON'S Mixtures, and they strongly recommend it to more general cultivation. Price may be had on application (depending on quantity required).

Royal Berkshire Seed Establishment, Reading.

Present Prices of Best Clover Seeds.

SUTTON AND SONS can supply the above at the following prices, carefully cleaned, and free from Dodder and other weeds:—

	Per lb.—*s.* *d.*		Per lb.—*s.* *d.*
BROAD RED ..	10*d.* to 1 0	YELLOW TREFOIL, 5*d.* to	0 6
WHITE or DUTCH	1*s.* 2*d.* „ 1 4	COW GRASS ..	1*s.* 2*d.* „ 1 6
PERENNIAL WHITE ..	1 6	ALSIKE	2*s.* „ 2 6

Samples and lowest price per cwt. sent on application.
Ordinary qualities may be had cheaper.
All goods Carriage Free (except very small parcels).
Five per cent. allowed for cash payment.
SUTTON & SONS, Seed Growers, Reading.

MALDEN AND SON, AGRICULTURAL SEEDSMEN, Biggleswade, Beds., are now supplying the 1866 growth of Seed from MALDEN'S NEW CLOVER (Trifolium striatum) It will grow one-third greater weight of Hay per acre than any other variety, and of more nutritious quality. It is suited to all soils, and is particularly recommended for lands which are Clover sick. An account of the Plant and its introduction may be found first on the descriptive list of "New Agricultural Plants" in the "Farmers' and Gardeners' Almanack" for 1866, published at the *Farmer* Offices, 150, Fleet Street, London, page 61.

Specimens of Hay may be seen at Messrs. Lawson & Son, 28, King Street, Cheapside. Seed can be obtained, price 2*s.* per lb. from our establishment, Biggleswade, Beds.; of Messrs. Peter Lawson & Sons, Seedsmen to the Queen, Edinburgh and London; Messrs. Sutton & Sons, Royal Seed Establishment, Reading; Messrs. Hurst & Son, Seedsmen, No. 6, Leadenhall Street, London; Mr. J. Scruby, Merchant, &c., Epping, Essex.

To prevent disappointment early Orders are respectfully invited.

J. C. WHEELER AND SON, SEED GROWERS, Gloucester (Seedsmen to the Gloucestershire Agricultural Society), can very strongly recommend the following Mixtures:—

CLOVER and GRASS SEEDS for ONE YEAR'S LAY.

J. C. WHEELER & SON can supply this excellent Mixture—all of the finest quality—carriage free by Railway, at 15*s.* per acre.

lb.	lb.
3 Italian Rye-grass, Lolium italicum	4 Evergreen Rye-grass, L. semperivens
1 Cocksfoot, Dactylis glomerata	7 Red Clover, Trifolium pratense
1 Timothy, Phleum pratense	7 Trefoil, Medicago lupulina

A cheaper Mixture at 10*s.* 6*d.* per acre.

CLOVER and GRASS SEEDS for TWO YEARS' LAY.

J. C. WHEELER & SON can supply this excellent Mixture for Two Years' Lay—all of the finest quality—carriage free by railway, at 18*s.* 6*d.* per acre.

lb.	lb.
4 Evergreen Rye-grass, L. perenne	3 Red Clover, Trifolium pratense
4 Italian Rye-grass, L. italicum	3 Cow Grass, T. pratense perenne
2 Cocksfoot, Dactylis glomerata	3 White Dutch, Tr. repens
1 Timothy, Phleum pratense	4 Trefoil, Medicago lupulina

A cheaper Mixture at 15*s.* 8*d.* per acre.

CLOVER and GRASS SEEDS for THREE or FOUR YEARS' LAY.

J. C. WHEELER & SON can supply this excellent Mixture—all of the finest quality—carriage free by Railway, at 24*s.* per acre.

lb.	lb.
4 Evergreen Rye-grass, L. semperivens	2 Timothy, Phleum pratense
4 Pacey's Perennial, L. Paceyanum	3 Red Clover, Trifolium pratense
3 Italian Rye-grass, Lolium italicum	3 Cow Grass, T. pratense perenne
2 Cocksfoot, Dactylis glomerata	3 White Honeysuckle, T. ropens
	1 Alsike, Trifolium hybridum
	4 Trefoil, Medicago lupulina

A Cheaper Mixture at 21*s.* per Acre.

J. C. WHEELER & SON'S CLOVER and GRASS SEEDS are of excellent quality, very moderate in price, and 5 per cent. discount is allowed for cash.

J. C. WHEELER & SON, Seed Growers, Gloucester.

RED CABBAGE PLANTS, extra fine, 4*s.* per 1000; WHITE SPANISH ONION SEED, 1*s.* 8*d.* per lb.
KOHL RABI SEED, green, 1*s.* per lb.
DRUMHEAD CATTLE CABBAGE PLANTS, 2*s.* 6*d.* p. 1000.
All new and genuine. Terms cash.
R. W. can supply any orders for seeds at lowest possible prices.
RICHARD WALKER, Market Gardener and Seed Grower, Biggleswade, Bedfordshire.

Variegated Borecole or Greens.

DOWNIE, LAIRD AND LAING are sending out in sealed packets at 1*s.* each, Seed of the above, warranted from the same strain as Miss Hope's of Wardie. Vide *Gardeners' Chronicle*, March 9, page 236.

17, South Frederick Street, Edinburgh; and Stanstead Park, Forest Hill, London, S.E.

TURNIP SEED. — YORKSHIRE PRIZE. Heavy cropper, very hardy. The very best Swede Turnip grown, 1*s.* per lb. The produce of Seeds obtained of MARTIN & SON have won more £5 Silver Cups, Silver Medals, and other valuable Prizes, than all Seedsmen in this neighbourhood put together.

MARTIN & SON, 7, Market Place, Hull.

New Turnip Seeds.

H. AND F. SHARPE offer the following varieties to the Trade at low Prices. They are all of 1866 growth, raised from the finest selected Stocks:—

SHARPE'S IMPROVED PURPLE-TOP SWEDE.
SKIRVING'S "KING of the SWEDES."
IMPROVED GREEN TOP SWEDE.
LINCOLNSHIRE RED GLOBE.
IMPROVED GREEN NORFOLK.
DEVONSHIRE GREY STONE.

And many other Yellow and White-fleshed sorts. Prices may be had on application. Seed-growing Establishment, Wisbech.

New Mangel Wurzel Seed.

H. AND F. SHARPE have the following Varieties, raised last season on their own Seed Farm from fine selected Bulbs, which they can offer to the Trade at Low Prices, to be had on application:—

SHARPE'S SELECTED ORANGE GLOBE.
FISHER HOBBS' ORANGE GLOBE.
LARGE YELLOW GLOBE.
ELVETHAM LONG RED.
SELECTED LONG YELLOW.
SELECTED RED GLOBE.
Seed Growing Establishment, Wisbech.

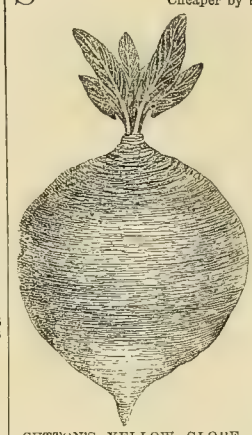
Sutton's Mammoth Long Mangels.

MESSRS. SUTTON are now prepared to execute Orders for New Seed of the above improved varieties of LONG RED and LONG YELLOW MANGEL at 1*s.* 6*d.* per lb., or cheaper by the cwt. Messrs. SUTTON took the 1st prize for MANGEL WURZEL at the Birmingham Show in 1865 with these varieties, which are thus referred to in the *Times* of Dec. 4, 1865:—

"There is a remarkably fine show of Roots. Messrs. SUTTON'S Six Mangels weigh 212½ lb."

PRICED LISTS, gratis, and Post free.
SUTTON & SONS, Seed Growers, Reading.

SUTTON'S PRIZE MANGEL SEED.
Cheaper by the Cwt.



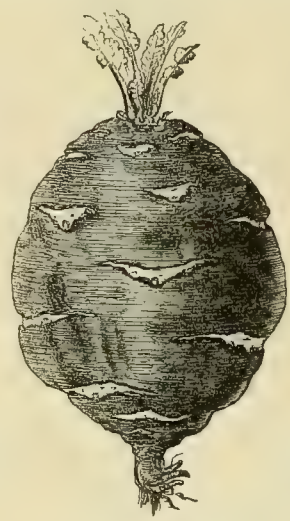
	Per lb.—*s.* *d.*
Good YELLOW GLOBE ..	0 9
„ ORANGE GLOBE ..	0 9
„ RED GLOBE ..	0 9
„ LONG RED	0 9
„ LONG YELLOW ..	0 9

SUTTON'S
Selected Mangel Seed
From Selected Roots.

	Per lb.—*s.* *d.*
SUTTON'S SELECTED YELLOW GLOBE ..	1 0
Do. do. ORANGE GLOBE	1 0
FISHER HOBBS' ORANGE GLOBE ..	1 0
STRATTON'S RED GLOBE	1 3
SUTTON'S ELVETHAM LONG RED ..	1 0
SUTTON'S MAMMOTH LONG YELLOW ..	1 6
NEW YELLOW INTERMEDIATE	1 9
Do. RED do.	1 6
SUTTON'S MAMMOTH LONG RED	1 6
BERKSHIRE PRIZE, or SUFFOLK CHAMPION, New, in 8 lb. bags ..	2 6

SUTTON'S YELLOW GLOBE, Price 1*s.* per lb.
Cheaper by the Cwt. Lowest Price per Cwt. on application.
SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

SUTTON'S PRIZE KOHL RABI.



LARGE PURPLE, 2*s.* 6*d.* per lb.
LARGE GREEN, 2*s.* 6*d.* per lb.
Sow April and May, 3 to 4 lb. per acre.
Sow April and May, 3 to 4 lb. per acre.

SUTTON'S LARGE KOHL RABI.
Price 2*s.* 6*d.* per lb.
Cheaper in large quantities.
PRICED LISTS of other FARM SEEDS gratis and post free.
SUTTON & SONS, Seed Growers, Reading.

Very Early Sheep Feed.

SUTTON'S IMPROVED ITALIAN RYE-GRASS.—This "Improved" Italian Rye-grass is recommended in preference to every other variety, producing three or four heavy crops in one summer, and being almost if not strictly perennial.

At a Meeting of the Royal Agricultural Society, on March 16, in a Lecture delivered by Alfred Hughes, Esq., late of Thorness, Isle of Wight, Mr. Hughes said:—

"I always reserve a portion of Oat land to lay down with SUTTON'S Improved Italian Rye-grass, the most reliable plant I have come across for some years for Ewes and Lambs in the Spring. When I tell you that I put it in in the spring, and dressed it after harvest with guano, and that in the autumn, when my Sheep fed it off, it was up to their knees, and that I fed it off again this spring with Ewes and Lambs, I think you will agree that this is a crop of very great value. The Italian Rye-grass which is sold by SUTTON, of Reading, is a most astonishing vigorous plant; indeed, I never saw anything to equal it in the course of all my experience."

SUTTON & SONS have a fine stock of their Improved Italian Rye-grass, which is a very different and superior article to much that is sold as Italian Rye-grass.

Present price 6*s.* 6*d.* per bushel, cheaper in quantities over 5 qrs. Carriage-free in quantities of 8 bushels and upwards.
Quantity required per acre, if sown alone, 3 bushels.
Royal Berkshire Seed Establishment, Reading.

FIBROUS PEAT of first-class quality for Orchids, Heaths, American Plants, and all potting purposes, may be obtained by application to Mr. THOMAS JESSOP, Farningham Wood, near Farningham Station, Kent. It is despatched by the London, Chatham, and Dover Railway in trucks of 16 yards, about 6 tons, to most Stations in the Kingdom, or fetched in carts from the wood. It is extensively used and appreciated in the principal Nurseries, and in the Royal Parks and Gardens. Price 5*s.* per cubic yard, at Farningham Station.



COCOA-NUT REFUSE is becoming SCARCE, the old reserves will soon be gone. Now sold in bags, 1 for 2*s.*, 10 for 16*s.*, 2 for 30*s.*, 50 for 68*s.*, 100 for £6.

Fourpence allowed for each bag returned carriage-paid.

A Railway Truck-load (not bags), 40*s.*

Postage Stamps or Post-office Order, payable to J. BARSHAM & Co., Kingston-on-Thames, S.W.

LAWES' MANURES.—The Manures manufactured by J. B. LAWES for the present season of 1867 are now ready for delivery at his Factories, at the following prices, per ton:—

	£ *s.* *d.*
LAWES' PATENT TURNIP MANURE and BONE SUPERPHOSPHATE of LIME..	6 6 0
LAWES' SUPERPHOSPHATE of LIME from BURNT BONE or MINERAL PHOSPHATES	5 5 0
LAWES' WHEAT, BARLEY, GRASS, and MANGEL MANURES	8 0 0
CONCENTRATED CORN and GRASS MANURES ..	12 0 0

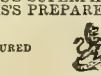
These Manures can be obtained of Mr. LAWES, or through the appointed Agents in all parts of the United Kingdom, at prices varying according to cost of carriage.

Genuine Peruvian Guano direct from the Importers. Nitrate of Soda, Sulphate of Ammonia, and other Chemical Manures.

American and other Cakes at market prices.

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ODAMS'S NITRO-PHOSPHATE for CORN.
ODAMS'S NITRO-PHOSPHATE for ROOTS.
ODAMS'S DISSOLVED BONES.
ODAMS'S SUPERPHOSPHATE of LIME.
ODAMS'S PREPARED PERUVIAN GUANO.

MANUFACTURED  BY

THE PATENT NITRO-PHOSPHATE OR BLOOD MANURE COMPANY (Limited).
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THE LONDON MANURE COMPANY
(ESTABLISHED 1840),
Have now ready for delivery in dry fine condition,
CORN MANURE, for Spring Use
DISSOLVED BONES, for Dressing Pasture Lands
SUPERPHOSPHATES of LIME
PREPARED GUANO
MANGEL and POTATO MANURES

Also Genuine PERUVIAN GUANO, and NITRATE of SODA, ex Dock Warehouse; SULPHATE of AMMONIA, FISHERY SALT, &c.

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ROLL TOBACCO CLOTH.—The cheapest and best article for Smoking Greenhouses and destroying the Fly; equal to Tobacco in strength, 1*s.* 4*d.* per lb.; over 10 lb., 1*s.* 1*d.*
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Testimonials of 1867 too numerous for insertion.
Price on application to HENRY APPLEBY, Foreman to Messrs. Ivery & Son, Dorking, Surrey.

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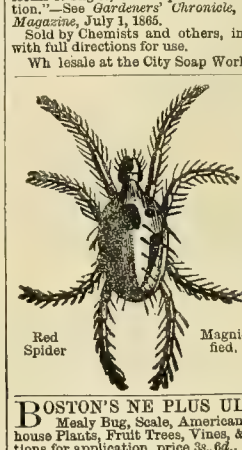
GREAT VALUE of "APHIS WASH."

"AT the first opportunity Paint the Trees with a solution of 'APHIS WASH,' prepared at the City Soap Works; it not only destroys the Brown Aphis which Infests Peach Trees, but also Scale, and every other pest capable of lodging in the bark."—Extract from *Gardeners' Magazine*, January 5, 1867.

"For strengthening the growth and effectually destroying all forms of blight, the 'Aphis Wash' supersedes every other preparation."—See *Gardeners' Chronicle*, August 19, 1865; and *Gardeners' Magazine*, July 1, 1865.

Sold by Chemists and others, in 1*s.* bottles, and 2*s.* 6*d.* a gallon with full directions for use.

Wholesale at the City Soap Works, Milton Street, London, E.C.



Red Spider — Magnified.

GISHURST COMPOUND.

Used by many of the leading Gardeners since 1859, against Red Spider, Mildew, Thrips, Green Fly, and other Blight in solutions of from 1 to 2 ounces to the gallon of soft water, and of from 4 to 16 ounces as a Winter Dressing for Vine and Fruit Trees. Has outlived many preparations intended to supersede it.

Sold Retail by Seedsmen, in boxes, 1*s.*, 3*s.*, and 10*s.* 6*d.*

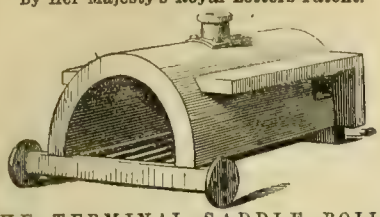
Wholesale by
PRICE'S PATENT CANDLE COMPANY
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BOSTON'S NE PLUS ULTRA, for the Destruction of Mealy Bug, Scale, American Blight, &c., on Stove and Greenhouse Plants, Fruit Trees, Vines, &c. In bottles, with full instructions for application, price 3*s.* 6*d.*, 5*s.*, and 10*s.* 6*d.*

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Sole Agents, JAMES CARTER & Co., 237 and 238, High Holborn, W.C.
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By Her Majesty's Royal Letters Patent.



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CRANSTON'S PATENT BUILDINGS for HORTICULTURE.

"Dry Glazing without Putty."
"Glass without Laps."
"Ventilation without Moving Lights."

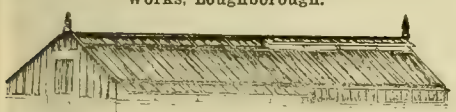
Highly Commended by the Royal Horticultural Society, South Kensington.



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Works: Highgate Street, Birmingham.
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Midland Steam Power Horticultural and Hot Water Works, Loughborough.



T. G. MESSENGER, Midland Steam Power Horticultural Works, Loughborough, Hot-Water Apparatus and Valve Manufacturer.

Honourable Mention awarded at the International Exhibition, 1862, and at the Dublin Exhibition, 1865; also a First-class Certificate by the Royal Horticultural Society.

T. G. Messenger, Patentee of many important improvements in Buildings and Implements connected with Horticulture, and which meet with unqualified approbation, is prepared to give reference to hundreds of works entrusted to him and pre-eminently answering the purpose for which they were constructed.

Any House Glazed single or double, with or without putty.

The mode adopted by T. G. Messenger for Heating and Ventilating Forcing Houses is particularly successful.

Houses are constructed by his Patented Ventilating principle to open the whole of roof and sides as though the glass were entirely removed, at once placing the plants in the external atmosphere.

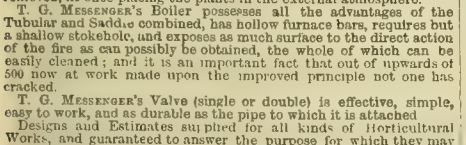
T. G. Messenger's Boiler possesses all the advantages of the Tubular and Saddle combined, has hollow furnace bars, requires but a shallow stokehole, and exposes as much surface to the direct action of the fire as can possibly be obtained, the whole of which can be easily cleaned; and it is an important fact that out of upwards of 500 now at work made upon the improved principle not one has cracked.

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Designs and Estimates supplied for all kinds of Horticultural Works, and guaranteed to answer the purpose for which they may be intended.

Greenhouses—Heating Apparatus.

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THE ONLY PRIZE MEDAL AWARDED for Various Improvements in the Ventilation, Construction, and Application of WROUGHT-IRON to Horticultural Buildings.

OUR PATENT WROUGHT-IRON PRIZE MEDAL CONSERVATORIES are of the highest order.

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OUR PATENT WROUGHT-IRON PRIZE MEDAL STRAWBERRY HOUSES admit a complete flood of air and light.

The above Patent Houses can be glazed with or without putty.

These Houses are now protected by three Royal Letters Patent, and from the complete adjustment of their constructional parts will vie most favourably with Wood Structures in point of cost.

Designs and Estimates prepared for single or complete ranges of Houses in Wood or Iron.

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HOTHOUSES for the MILLION, invented by the late SIR JOSEPH PAXTON.



Manufactories: London, Newton in Cartmel (Lancashire), Gloucester, Coventry, Aberdeen, and Paisley only.

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HOT-WATER APPARATUS, of every description, fixed complete in any part of the country, or the materials, viz., Boilers, Pipes, &c., delivered to any Station.

Estimates on application.
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Heating by Hot Water.

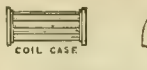
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HOT WATER PIPES, from Stock, per yard:—2-inch, 1s. 2d. 3-inch, 1s. 10d.; and 4-inch, 2s. 4d. BENDS, from Stock, 1s.6d., 2s. 6d., and 3s. each. THROTTLE VALVES, 10s., 13s., and 14s. each. Other Connexions at equally low prices, and all goods of first-class manufacture. Estimates given, and orders by post punctually attended to the same day.

TO NOBLEMEN, GENTLEMEN, NURSERYMEN, and Others, requiring any description of HOT-WATER APPARATUS, constructed and fitted on most scientific principles, for Heating kinds of Horticultural Works, Churches, Mansions, Offices, Baths, and other Public Buildings. Gentlemen finding their own materials can have the same fitted in any part of town or country, by day or contract. All kinds of Kitchen Cooking Apparatus fixed.
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COTTAM AND COMPANY, Conservatory and Hothouse Builders, &c., Iron Works, 2, Winsley Street, Oxford Street, London, W.

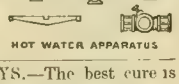
SADDLE BOILERS.
20 24 30 inches long.
46s, 65s. 92s. 6d. each.



HOT-WATER PIPES.
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1s. 6d. 2s. 1d. 2s. 9d. per yard.



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SMOKY CHIMNEYS.—The best cure is the PATENT ALBERT CHIMNEY CAP. 300 on Buckingham Palace; 80 on Windsor Castle; 100 on St. James's Palace; 120 on Claremont Palace; 230 on the Western Heights Barracks, Dover; and hundreds also on the Halls and Mansions of the Nobility, Public Buildings, &c.

Price, Painted Wrought Iron, 25s. each; Galvanised ditto, 30s. each.

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Seed Pans, Garden Pots, Edging Tiles, &c.

MESSRS. BONSEY BROTHERS beg to offer to Gentlemen, their Gardeners, and the Trade, GARDEN POTS, SEED PANS, and EDGING TILES, of all sizes, of hard and durable quality and moderate price.
Address Messrs. Bonsey Brothers, Brox Potteries, Chertsey, Surrey.

Caution to Gardeners.—When you ask for

SAYNOR AND COOKE'S WARRANTED PRUNING and BUDDING KNIVES, see that you get them. Observe the mark Saynor, also the corporate mark Obtain Warranted, without which none are genuine.

S. & C. regret having to caution Gardeners and others, but are compelled to do so, in consequence of an imitation, of common quality, having been sold for the genuine one, and which has caused many complaints to be made to them of Knives which were not of their make, all of which are warranted both by Sellers and Makers.

S. & C.'s Pruning and Budding Knives are the best and the cheapest in the market.

Paxton Works, Sheffield. Established upwards of 125 years.

GREEN'S IMPROVED NEW PATENT GARDEN ROLLER.

The above Rollers possess many advantages over all others. They are made in two parts, and are free to revolve on the axis, affording greater facilities for turning, and the outer edges are rounded off or turned inwards, thus avoiding the unsightly marks left by other Rollers.

Diameter, 30 inches;	Length 32 inches,	£7	10	0
,, 24 ,,	,, 26 ,,	4	10	0
,, 20 ,,	,, 22 ,,	3	10	0
,, 16 ,,	,, 17 ,,	2	15	0

Prices for Rollers fitted with Shafts suitable for Pony or Horse Power, free on application.

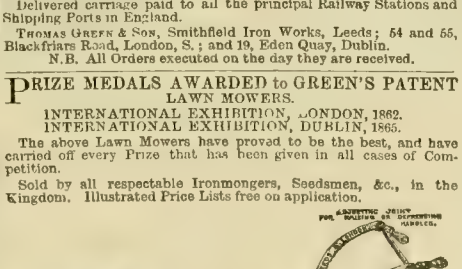
Delivered carriage paid to all the principal Railway Stations and Shipping Ports in England.

Thomas Green & Son, Smithfield Iron Works, Leeds; 54 and 55, Blackfriars Road, London, S.; and 19, Eden Quay, Dublin.
N.B. All Orders executed on the day they are received.

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INTERNATIONAL EXHIBITION, LONDON, 1862.
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The above Lawn Mowers have proved to be the best, and have carried off every Prize that has been given in all cases of Competition.

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AGRICULTURAL and HORTICULTURAL IMPLEMENTS and MACHINES of every description.
IMPROVED IRON STABLE FITTINGS.
HURDLES and CONTINUOUS IRON and WIRE FENCING.
Palisading Entrance and Field Gates. Plain and Galvanised Wire Netting.
GREEN'S PATENT LAWN MOWERS and GARDEN ROLLERS.
Garden Engines, Syringes, Water Barrows, Ornamental Garden Seats, Chairs, Tables, Iron Fountains, Vases, &c.
IRON and BRASS BEDSTEADS, in great variety.
Washing, Wringing, and Mangling Machines.
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TREE and PLANT LABELS.—10,000 Cloth Punched Labels, 3 inches long, for 15s.; 6 inches long, 25s. Delivered free in London. Samples sent on receipt of 1d. stamp.
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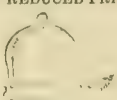
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HORTICULTURAL and DAIRY GLASS of every description.
Builders supplied with ROLLED PLATE, Stained and Ornamental.
SASHES Primed and Glazed for the Trade.
FERN and DRAWING ROOM CASES made to Order.
Marine and Fresh-water AQUARIUMS.
The Cheapest House in the Trade for PICTURE and PHOTOGRAPHIC GLASS, &c.
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Glass for Garden Purposes.

JAMES PHILLIPS AND CO. beg to submit their REDUCED PRICES as follows:—

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GLASSES.

	Each.—s.	d.		Each.—s.	d.
2 inches in diameter ..	0	3½	12 inches in diameter ..	1	9
3 ,, ,, ..	0	4½	13 ,, ,, ..	2	0
4 ,, ,, ..	0	5½	14 ,, ,, ..	2	6
5 ,, ,, ..	0	6½	15 ,, ,, ..	3	0
6 ,, ,, ..	0	8	16 ,, ,, ..	3	6
7 ,, ,, ..	0	10	17 ,, ,, ..	4	0
8 ,, ,, ..	1	0	18 ,, ,, ..	5	0
9 ,, ,, ..	1	2	19 ,, ,, ..	6	0
10 ,, ,, ..	1	4	20 ,, ,, ..	7	0
11 ,, ,, ..	1	6			

HYACINTH and FLOWER DISHES.
6 inches diameter .. .. 1s. 0d. | 9 inches diameter 1 0
12 inches diameter .. .. 2s. 6d.

Hyacinth Dishes are intended to contain a number of Roots Bedded in and covered with Moss, instead of the common Hyacinth Glass.

LACTOMETERS, for Testing the Quality of Milk.
Four Tubes .. .. 4s. 6d. | Six Tubes .. .. 6s. 6d.
With Stands complete.

HAND GLASSES,



WITH OPEN TOPS.

	Each.—s.	d.		Each.—s.	d.
12 inches	6	6	18 inches	9	6
14 ,, ...	7	6	20 ,, ...	10	6
16 ,, ...	8	6	22 ,, ...	11	6
			24 ,, ...	12	6

Painted and Glazed with 16-oz. Sheet Glass.
London Agents for HARTLEY'S IMPROVED PATENT ROUGH PLATE.
LINSEED OIL, Genuine WHITE LEAD, CARSON'S PAINTS, PAINTS of various colours, ground ready for use.
SHEET and ROUGH PLATE GLASS, SLATES of all sizes, BRITISH PLATE, PATENT PLATE, ROLLED PLATE, CROWN, SHEET, HORTICULTURAL, ORNAMENTAL, COLOURED, and every description of GLASS, of the best Manufacture, at the lowest terms. Lists of prices and estimates forwarded on application to
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Horticultural Glass Warehouse.

THOMAS MILLINGTON AND CO., 87, Bishopsgate Street Without, London, E.C.

NEW LIST for ORCHARD HOUSE GLASS as supplied to Her Majesty, the Nobility, Gentry, Mr. Rivers, and the leading Horticulturists of the United Kingdom.

ORCHARD HOUSE SIZES.

in.	in.		4ths.	3rds.	2nds.	Best.
20 by 12						
20 by 13		15 oz.	14s 3d	15s 6d	18s 6d	20s 0d
20 by 14	Per 100 feet.					
20 by 15		21 oz.	19s 6d	22s 2d	25s 6d.	26s 6d
20 by 16						

SMALL SHEET SQUARES, 15 oz., per 100 feet.

in.	in.	in.	in.	in.	in.	4ths.	3ds.	2nds.	Best.
6 by 4	7 by 5	8 by 6	9 by 7			12s 3d	13s 3d	16s 0d	18s 0d
6½ by 4½	7½ by 5½	8½ by 6½	9½ by 7½						

Per 100 feet.

10 by 8	12 by 9	12½ by 10½	14½ by 10½						
10½ by 8½	12½ by 9½	13 by 10	15 by 10			13s 3d	14s 6d	17s 3d	19s 0d
11 by 9	13 by 9	13½ by 10½	13 by 11						
11½ by 9½	12 by 10	14 by 10	14 by 11						

LARGE SHEET SQUARES, 15 oz., per 100 feet.

in.	in.	in.	in.	in.	in.	4ths.	3ds	2nds.	Best
15½ by 10½	14 by 12	22 by 12	22 by 16						
16 by 10	14½ by 12½	17 by 13	24 by 16						
14½ by 11½	15 by 12	23 by 13	20 by 17						
15 by 11	15½ by 12½	18 by 14	22 by 17						
15½ by 11½	16 by 12	22 by 14	21 by 17			14s 3d	15s 6d	18s 6d	20s 0d
16 by 11	16½ by 12½	24 by 14	20 by 18						
21 by 11	17 by 12	22 by 15	22 by 18						
13 by 12	18 by 12	24 by 15	24 by 18						

The above Prices are only for the Sizes stated; if a quantity of any other Size be required, a Special Price will be given.

SHEET GLASS.
In Sheets for Cutting up, averaging from 6 to 9 feet super.

15 oz.		21 oz.	
4ths quality, per 300 feet case,	38s.	4ths quality, per 200 feet case,	38s.
3ds ,, ,,	48s.	3ds ,, ,,	48s.
2ds ,, ,,	62s.	2ds ,, ,,	68s.
Best ,, ,,	92s.	Best ,, ,,	96s.

SHEET GLASS is made only in the following substances, 15 oz., 21 oz., 26 oz., 32 oz., 36 oz., and 42 oz.

HARTLEY'S IMPROVED ROLLED ROUGH PLATE in 1-8th in., 3-16th in., 1-4th in., and 3-8th in. substances.

BRITISH PLATE GLASS for Windows and Silvered for Looking Glasses, Coloured Glass, Glass Shades, Striking Glasses, &c., &c.

PAINTS, COLOURS, VARNISHES, &c.

STUCCO PAINT, 24s. per cwt. This Paint adheres firmly to the walls, resists the weather, and is free from the glossy appearance of Oil Paint, resembling a stone surface, and can be made any required shade. It is mixed with rain or pure river water.

WHITE ZINC PAINT, 36s. per cwt. One hundredweight of pure Zinc Paint, with three gallons of Linseed Oil, will cover as much as one hundredweight and a half of White Lead and six gallons of Linseed Oil. Special Dryers for this Paint.

IMPROVED ANTI-CORROSION PAINT, 28s. to 34s. per cwt. Anti-corrosion Paint is extensively used for all kinds of work in exposed situations, on Brick, Stone, Compo, Iron, Iron Bridges, Conservatories, Greenhouses, &c., and is easily laid on by any ordinary workman. Prepared Oil for ditto, 4s. per gallon.

Per cwt.—s.	d.		Per gallon —s.	d.
GENUINE WHITE LEAD 32	0	LINSEED OIL	3	2
SECONDS WHITE LEAD 30	0	BOILED OIL	3	8
GROUND PATENT DRYERS, 3d. to 4½d. per lb		TURPENTINE	3	6
,, OXFORD OCHRE, 3d. to 4½d. per lb.		LINSEED OIL PUTTY, 8s. to 9s. per cwt.		
,, RAW UMBER, 4½d. to 6d. per lb. [per lb.		Fine OAK VARNISH, 10s. to 12	0	
,, BURNT do., 6d. to 9d.		,, CARRIAGE do., 12s. to 14	0	
GREEN PAINT, all shades,		,, PAPER do. 10s to 12	0	
28s. to 60	0	,, COPAL	16	0
BLACK PAINT, 24s. to 36	0	KNOTTING	1	0
RED PAINT .. 28s. to 36	0	Patent GOLD SIZE ..	10	0
		,, BLACK JAPAN ..	12	0
GROUND BRUSHES.		GLAZIER'S DIAMONDS and TOOLS		
DUSTERS.	SASH TOOLS.	MILLED LEAD and PIPES		
DISTEMPER BRUSHES.		OLD LEAD Bought or taken in exchange.		

The above are Net, for Cash, and as such cannot be booked
Lists of any of the above on application.

Chrysanthemums, Chrysanthemums, Chrysanthemums.

ADAM FORSYTH'S CATALOGUE is now ready, containing a Descriptive List of all the best varieties; also a Practical Treatise on the Cultivation of the Chrysanthemum. Forwarded to all applicants for one stamp.
Brunswick Nursery, Stoke Newington, London, N.

ALLEN'S VERBENAS now ready, out of pots, packed in moss, viz.:—Boule de Neige, White Perfection, Defiance, Foxhunter, Firefly, Mrs. Nicholls, Ariosto Improved, Géant des Batailles, Mrs. Dobree, Blue King, and all the leading Bedding varieties, at low prices, on application.
Norfolk Nursery, Shacklewell, near London, N.E.

Early Spring Flowers.

WEBB'S GIANT POLYANTHUS and COWSLIP, with all the best varieties of Double and Single PRIMROSES, PANSIES, &c., with Seeds of single varieties. LIST of prices of different kinds on application to
Mr. WEBB, Calcot Gardens, Reading.

British Fern Catalogue.

ROBERT SIM can now send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his NEW and PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.
Foot's Cray Nursery, S.E., a mile from Sidcup Station of New North Kent Line of South Eastern Railway.

American Plants, &c.

WATERER AND GODFREY'S PRICED and DESCRIPTIVE CATALOGUE of RHODODENDRONS and other American Plants for this Autumn, will be sent on application. The Catalogue also gives a summary of their General Nursery Stock, probably the most extensive in the kingdom.
Knap Hill Nursery, Woking, Surrey.

Rhododendrons.

JOHN WATERER'S DESCRIPTIVE CATALOGUE of HARDY SCARLET and other RHODODENDRONS is now published, and will be forwarded on application. It faithfully describes the colours of the new varieties exhibited by him at the Royal Botanic Gardens, Regent's Park. An Abridged List of popular CONIFERS, with heights and prices, is likewise combined.
The American Nursery, Bagshot, Surrey, near Sunningdale Station, South-Western Railway.

Hardy Scarlet and other Rhododendrons.

W. H. ROGERS, Red Lodge Nursery, Southampton, can offer splendid named varieties of the above, strong bushy Plants, well set with blooming buds, at £10 per 100, or selected, 30s. per dozen; HYBRID RHODODENDRONS, from seed, saved from the finest varieties, 1 to 2 ft., 30s. per 100; 2 to 3 ft, 50s. per 100.
Also a general NURSERY STOCK of FRUIT, FOREST, and ORNAMENTAL TREES and SHRUBS, extending over 60 Acres.
Detailed CATALOGUES and every information may be had on application.

CHEAP and BEAUTIFUL FLOWER SEEDS.

		s.	d.
100	Packets of the best and most showy hardy, half hardy, and tender Annuals	20	0
50	" " "	10	0
25	" " "	5	0
25	Packets of the best showy Hardy Annuals	5	0
12	" " "	2	6

DESCRIPTIVE CATALOGUE on application.
RICHARD SMITH, Seed Merchant, Worcester.

WANTED, STANDARD MARECHAL NIEL ROSE, 3 to 3½ feet.
Standard-trained WHITE MAGNUM BONUM PLUMS, 5 to 6 feet.
CAULIFLOWER PLANTS.
Please state price to FRANK WARWICK, Plant and Seed Merchant, Sleaford.

New Roses.

H. LANE AND SON have to offer a very fine lot of extra strong Plants coming into Bloom, of the following kinds, at 36s. per dozen.:—TEA: Isabella Sprunt, Bouton d'Or, Madame Margottin. HYBRID PERPETUALS: Horace Vernet, Antoine Ducher, Gloire de Montplaisir, Madame Rival, Monsieur Noman, Charles Verdier, Souvenir de Monsieur Boll, Monsieur Plaisancon, Mdlle. Jeanne Marix, Madeleine Nonin. Also MARECHAL NIEL, strong on Manetti, in pots.
The Nurseries, Great Berkhampstead, Herts.

Woodlands Nursery, Maresfield, near Uckfield, Sussex.

WM. WOOD AND SON beg to offer the annexed TEA-SCENTED ROSES on reasonable terms:—

Barillet Déschamps	Le Pactole	Madame Joseph Hal-
Comtesse de Brossard	Lays	Pharaon [phen
Duc de Magenta	Madame Bravy	Rubens
Enfant de Lyon	Maréchal Bugeaud	Sombreuil
Jaune d'Or	Mélanie Oger	Souvenir de David
Jean Hardy	Madame de Vatry	Triomphe du Luxem-
Laurette	" Falcot	bourg

Also well-grown TEA-SCENTED ROSES, in 6-in. pots, at 24s. to 30s. per dozen.

LILIUM AURATUM.—

Large Consignment just received, 2s. 6d., 3s. 6d., 5s. 6d., and 7s. 6d. per Root. Extra large selected Bulbs, 10s. 6d., 12s. 6d., 15s., and 21s.
BARR & SUGDEN, Seed, Bulb, and Plant Merchants, 12, King Street, Covent Garden, W.C.

GLADIOLI BULBS,

for Summer, Autumn, and Winter Flowering,
2s. 6d., 3s. 6d., 5s. 6d., 7s. 6d., 9s., and 12s. per dozen.
10s. 6d., 15s., 21s., 25s. to 100s. per 100.
BARR & SUGDEN, Seed, Bulb, and Plant Merchants, 12, King Street, Covent Garden, W.C.

GLADIOLI.—Collections containing all the finest varieties in cultivation, many new, and offered for the first time, 105s., 63s., 42s., 30s., 25s., 20s., 15s., 12s. BRENCHLEYENSIS, the most showy of all, extra strong roots, 3s. per doz., 20s. per 100.
DESCRIPTIVE PRICED LISTS free on application.
BUTLER, MCCULLOCH & Co. South Row, Covent Garden, W.C.

GLADIOLI (English-grown Seedlings).—These Seedlings are strongly recommended for growing in masses; there is no more valuable flower during the autumn months. They will produce flowers as varied and beautiful as the best named French varieties. Price 8s. per dozen; 60s. per 100.
GLADIOLUS BRENCHLEYENSIS.—The most gorgeous decorative flower during the months of August and September; should be grown in every garden. Per dozen, 3s.; per 100, 20s.
All the newest and best French varieties kept in stock.
A PRICED LIST sent on application.

12 Choice varieties, selected	24s.	12 Choice varieties, selected	10s.
12 " " "	18s.	12 " " "	8s.
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Early Orders are respectfully solicited.
B. S. WILLIAMS, Victoria and Paradise Nurseries, Upper Holloway, London, N.

Superb Double Hollyhocks.

WILLIAM CHATER begs to remind the admirers of this beautiful Flower that now is the best time for planting it out, to ensure fine Spikes and Blooms this season.
DESCRIPTIVE CATALOGUE, with instructions for its cultivation, also Prices of Plants per doz., 100, or 1000 may be had on application.
Seedlings from best named Varieties, 4s. per doz., or from 20s. to 30s. per 100.
Bloomed Seedlings with colours named, very fine, 6s. per doz.; or from 30s. to 40s. per 100
Seed saved from the finest named Varieties, very choice mixed, 5s. and 2s. 6d. per packet.
In Collections of 12 separate named Varieties, extra fine, 10s.
SIX Varieties extra, 5s.
Twelve Named Varieties, all good show flowers, 7s. 6d.
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WILLIAM CHATER, Nurseries, Saffron Walden.

RICHARD SMITH'S SEED CATALOGUE contains a Calendar of Time for Sowing, particulars of Collections, with Prices, Directions for Cropping well and economically, Soil, Manure, Depth, Distance, Season, Hardiness, Duration, Form, Height, Colour, Storing, Use, Flavour, and other qualities, described.
This List Free by Post or one stamp. Seeds direct from the Growers the surest way to success.
RICHARD SMITH, Seed Merchant, Worcester.

Calceolaria Ambassador (Sang).

EDWARD SANG AND SONS, NURSERYMEN and SEED MERCHANTS, Kirkcaldy, N.B., offer strong autumn struck Plants, in single pots, of this now well-known and universally admired BEDDING-OUT CALCEOLARIA. Price 12s. per dozen.
Early orders will oblige and have their careful attention.
The Trade supplied.

New and Choice Flower Seeds.

FREE BY POST OR RAIL.

SUTTON'S COMPLETE COLLECTIONS of FLOWER SEEDS are sent free by Post or Rail. Prices as under:—

				£	s.	d.
No. 1	Collection of the best English and German varieties, with instructions on cultivation			2	2	0
No. 2	Collection of	ditto	ditto	1	11	6
No. 3	Collection of	ditto	ditto	1	1	0
No. 4	Collection of	ditto	ditto	0	15	0
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Small and useful Collections can also be had from 2s. to 7s. 6d., free by post.
For particulars of the above, see SUTTON'S DESCRIPTIVE CATALOGUE, gratis and post free on application.
SUTTON & SONS, Seed Growers, Reading.

Established Upwards of a Century.

HOLDERS OF PRIZE MEDALS FROM EXHIBITIONS OF BOTH 1851 AND 1862.





BUTLER, MCCULLOCH, AND CO.'S CHOICE COLLECTIONS of FLOWER SEEDS.

15	Varieties, Selected Hardy Annuals	2s.	6d.
30	" " " "	5	0
50	" " " "	10	0
100	" " " "	20	0
12	Varieties, Selected Half-hardy Annuals	4	0
25	" " " "	7	6
15	" " " "	15	0
100	" " " "	30	0
6	Varieties, extra selected New Annuals 1867	5	0
12	" " " "	10	6
15	Varieties, selected Hardy Perennials	3	6
25	" " " "	6	6
50	" " " "	12	6
100	" " " "	25	0
12	Varieties, selected Half-hardy Perennials	4	0
25	" " " "	7	6

COMPLETE COLLECTION of VEGETABLE SEEDS for One Year's Supply, 63s., 42s., 30s., 21s., and 10s. 6d.
Orders amounting to 21s. and upwards sent Carriage Paid.
CATALOGUE containing details of above Collections, Post Free
Covent Garden Market, London, W.C.

AUCUBAS, FUCHSIAS, ZONAL GERANIUMS, &c.

6 Varieties AUCUBAS, 3 Male, 3 Female, for 21s.
12 Select NEW FUCHSIAS of 1866 for 6s.
12 Select NEW ZONAL GERANIUMS of 1866 for 6s.
6 Select DOUBLE MIMULUS for 3s.
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12 Varies JAPAN EUONYMUS, very fine, 6s.
12 fine Varieties DWARF PERPETUAL ROSES, 6s.
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NEW WHITE LOBELIA MISS MURPHY, 4s. per dozen.
B. W. KNIGHT, Nurseryman, Battle, Sussex.

SUPERB VARIEGATED GERANIUMS.

MRS. BENYON	TWILIGHT
GOLD PHEASANT	GLOWWORM
YELLOW BELT	THE COUNTESS
BICOLOR SPLENDENS	MRS. LONGFIELD

One each of above, 10s., package included.
Varieties previously Advertised can still be supplied.
CASHON & SON, Gravel Walk Nursery, Peterborough.

GEO. SMITH begs to call the attention of his patrons and friends generally, to his New TROPÆOLUMS, KING of SCARLETS and KING of SPOTS, two beautiful varieties for clumps or ribbon planting. These fine kinds were raised by Mr. George, of Stamford Hill, the raiser of Compactum coccineum, which has been so much admired the last two seasons at the Crystal Palace, &c. Also, the under-named ZONAL GERANIUMS, which G. S. can, with confidence, recommend to be added to the most choice collections.
G. S. has also a fine addition to the VARIEGATED GERANIUMS, the most conspicuous for clumps or borders which has ever been offered, it having a green leaf with broad belt of pure white, of fine habit.

NEW TROPÆOLUMS.

KING of SCARLETS.—Small neat foliage, compact habit, flowers bright scarlet, the most brilliant and beautiful for bedding or ribbon planting. Awarded a First-class Certificate by the Royal Horticultural Society, South Kensington. 5s.
KING of SPOTS.—Bright yellow with amber spots, neat foliage, compact habit, very effective. 5s.

NEW ZONAL GERANIUMS.

HECTOR (GEO. SMITH).—Foliage slightly zonal, pip and truss extra large, fine habit, flowers scarlet; one of the best in cultivation. 6s.
PINK GLOBE (WINDSOR).—Zoned; rosy pink truss, extra large and compact. This beautiful novelty will be found a great advance either as a bedding or exhibition plant. 5s.
PRINCE OF WALES (WINDSOR).—Dark zone, flowers rosy salmon; extra large and fine shape, good habit; a first-class variety. 5s.
REGALIA (GEO. SMITH).—Foliage slightly zoned, flowers fine rosy scarlet, eye white, of fine form and a pleasing variety; good habit. 5s.
RELIANCE (WINDSOR).—Foliage slightly zoned, flower orange scarlet, truss and pips large, of good substance, white eye; in every respect a first-class variety. 5s.
SALAMANDER (WINDSOR).—A zonal variety, flowers bright rosy salmon, with white eye, a most pleasing and desirable variety. 5s.
WARRIOR (GEO. SMITH).—Foliage slightly zoned, flowers brilliant scarlet, of great size and substance, fine form. This flower will prove a most valuable addition to its class. 5s.

NEW VARIEGATED GERANIUM.

PRINCESS ALEXANDRA (GEO. SMITH).—Foliage bright green, with broad band of pure white, of first-class habit; most attractive and beautiful; one of the most effective for ribbon planting of the silver-edged class; fine, 10s. 6d. each.

NEW WHITE-FLOWERED IVY-LEAVED GERANIUM.

"L'ELEGANTE" (CUNNINGHAM).—Foliage bright green, with broad belt of creamy white, throwing up its numerous white blossoms, which give it a fine effect. Awarded a First-class Certificate at the Birmingham Rose Show, also at the Royal Horticultural Society, South Kensington. 10s. 6d. each.

G. S., having made arrangements with Mr. Cunningham, is enabled to send out this fine Ivy-leaved Geranium, together with the foregoing novelties, in good plants, after the 24th of April.
Early orders are respectfully solicited.
Tollington Nursery, Hornsey Road, Islington, London, N.

TRICOLOR PELARGONIUMS.

Mrs. Pollock, 7s. and 9s. per doz. | Sunset, 21s. per doz.
Italia Unita, 21s. per doz. | Mrs. Benyon, 24s. per doz.
In strong plants at the above prices for Cash, package included.
Remittance required from unknown Correspondents.
Address, ALFRED FRYER, Nurseries, Chatteris, Cambridgeshire.

CHOICE VARIEGATED PELARGONIUMS.

Sunset	Luna	Italia Unita
Mrs. Benyon	Bicolor splendens	Picturatum
Gold Pheasant	Princess Alexandra	Kentworth
Yellow Belt	Queen of Queens	The Fairy

The above 12 varieties suitable for Exhibition or Pot-culture for 21s.
Remittances requested from unknown correspondents.
ALFRED FRYER, Nurseries, Chatteris, Cambridge.

NEW IVY-LEAVED PELARGONIUMS.

L'ELEGANTE.—Leaves green, margined with creamy-white; flowers white. 10s. 6d. each; six plants, £3.
DERBYSHIRE HERO (Zonal).—Bright cerise.
STAFFORD GEM (Zonal).—Orange-scarlet.
SCARLET CHRISTINE (Plain-leaved).—Bright cerise, shaded with purple.
ROSE MAGENTA (Nosegay).—Fine habit, good bedder.
5s. each, set of four for 15s.
The above to be sent out after April 20.
DESCRIPTIVE PRICED CIRCULARS to the Trade on application.
See *Gardeners' Chronicle*, p. 234, March 2.
W. CUNNINGHAM, The Forge Nurseries, Burton-on-Trent.

Geraniums.

H. CANNELL has a large quantity of the following kinds, both large and small, in the very best condition:—ITALIA UNITA, MRS. POLLOCK, SUNSET, HARRY HIEOVER, QUEEN of QUEENS, and FLOWER of SPRING. All these have received the highest rewards from the Royal Horticultural Society. Prices very low on application.
Fuchsia Nursery, Woolwich.

GEO. SMITH'S PRICED and DESCRIPTIVE CATALOGUE of SHOW, SPOTTED, FANCY, VARIEGATED, ZONAL, and NOSEGAY GERANIUMS, Petunias, Fuchsias, Dahlias, Verbenas, Chrysanthemums, Bedding Plants, &c., is now ready, in exchange for one postage stamp.
Tollington Nursery, Hornsey Road, Islington, London, N.

To the Trade.

MRS. POLLOCK AND SUNSET GERANIUMS.

T. J. BOOTH solicits Orders for the above, to deliver on and after the first week in May. Nice plants, with 6 to 10 leaves, well up in colour, for cash, per dozen, 7s.; 100, 50s.; 500, £12; 1000, £22. SUNSET, 18s. per dozen; £6 per 100.
Rainhill Nursery, Rainhill, Lancashire.

CHEAP, CHEAP, CHEAP.
Two dozen MRS. POLLOCK GERANIUM, Six Plants of ITALIA UNITA DO., and Six dozen STELLA VARIEGATA DO., or 21s.
One dozen best NOSEGAY GERANIUMS, including Pink Stella and Le Grand, for 8s.
One dozen VIOLETS, nine of the magnificent QUEEN and three of the beautiful CZAR, in pots, for 10s.
Basket and packing included.
The above are good plants. A remittance must accompany each order from unknown correspondents.
JOHN BARRETT, The Nurseries, Bury St. Edmund's, Suffolk.

HINTS on the CULTIVATION of TRICOLORED GERANIUMS.
See F. & A. SMITH'S NEW CATALOGUE for 1867.
Dulwich, Surrey.

New Tricolored Geraniums.

F. AND A. SMITH'S CATALOGUE for 1867, containing descriptions of their splendid varieties of the above, which have obtained the following awards:—

Two £5 Prizes for the Collection	Crystal Palace.
A Prize for the Collection	Liverpool.
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Strong seasoned Plants now ready.
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SALTMARSH AND SON, NURSERYMEN, SEEDSMEN, and FLORISTS, Chelmsford, have great pleasure in introducing the following SEEDLINGS of their own raising, feeling confident they will give equal satisfaction with the two now well-known varieties, Luna and Little Treasure, sent out by them in 1865. They will be ready for distribution in May next. Early orders are solicited, as the stock is limited.

ZONAL PELARGONIUMS.

REINE D'ITALIE (SALTMARSH & SON).—A seedling from that highly esteemed variety, Roi d'Italie, possessing all the good properties of its parent in compactness of habit, profusion, form, and size of flowers, each blossom measuring 1¼ths or an inch in diameter; colour pale salmon flesh, shading off to flesh white at the edges, with pure white eye, altogether forming a most attractive specimen for pot culture. Price 7s. 6d. each.
CRITERION (SALTMARSH & SON).—Also a seedling from Roi d'Italie, with darker zone, producing an abundance of flowers, of the large size of its parent, of the most perfect form, and borne on stout footstalks; habit compact and vigorous; colour bright orange vermilion, with small white eye. Price 7s. 6d. each.

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The above splendid variety will prove a valuable addition to the Golden Tricolor section of variegated Pelargoniums; it is quite distinct from any variety hitherto introduced, and was awarded a First-class Certificate at the Royal Horticultural Society's Meeting in September, 1864. Price 21s. each.
A Coloured Drawing, by Andrews, of this splendid variety, will be sent (post free) on receipt of 7 stamps.
ELECTRIC (SALTMARSH & SON).—Foliage greenish yellow, changing with exposure to sun and air to a rich golden yellow, with a very broad zone of dark chocolate, in the way of Luna, but more heavily zoned, and of more robust habit, producing fine trusses of scarlet flowers with white eye. Price 10s. 6d. each.
VENUS (SALTMARSH & SON).—Foliage greenish yellow, changing to golden yellow, with slight bronze zone; habit compact and spreading, producing neat trusses of well-formed flowers on short footstalks, of a soft and pleasing shade of rosy cerise, altogether forming a most attractive variety by the harmonious blending of its colours and its remarkably close habit of growth. Price 10s. 6d. each.
SNOWSTORM (SALTMARSH & SON).—Foliage green, with a very deep edge of pure white. This variety will be found to display a greater proportion of white variegation than any other yet produced; the leaves are less disposed to curl than most varieties of this class; in addition to which the habit is exceedingly close, yet robust and bushy; flowers rosy scarlet with white eye. Price 10s. 6d. each.

BARR & SUGDEN,

THE METROPOLITAN SEED, BULB, AND PLANT WAREHOUSE,

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Flower Seeds sent Post Paid.

CHOICE PRIMULA SEEDS.

	Per Packet—s. d.
Barr's splendid strain of Primula sinensis fimbriata alba ..	2 6
" " " " rubra ..	2 6
" " " " mixed ..	2 6
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Prior's Primula sinensis fimbriata atro-carminea splendens, a fine strain .. .. 1s. and	2 6
" " alba, a fine strain .. 1s. and	2 6
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" " striatiflora, a fine strain 1s. and	2 6
" " mixed, a fine strain .. 1s. and	2 6
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Bull's Primula sinensis fl. pl. (this variety comes true from seed)	3 6

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BULL'S MIMULUS, Duplex-flowering.—This is a unique and most beautiful flower, the calyx being as beautifully marked as the corolla .. .. 1s. 6d. and	2 6
" HYBRID PETUNIAS, consisting of beautifully striped and blotched varieties .. .. 1s. and	2 6
BARR'S INTERNATIONAL PRIZE CALCEOLARIA.—This is without exception the finest strain of Calceolaria in cultivation .. .. 2s. 6d., 3s. 6d., and	5 6
" SPLENDID CINERARIA	2 6
RIVINA LAVIS.—An exceedingly pretty plant for table decoration, always covered with berries	1 0
WILLS' [illegible]RBENA.—Of the Velvet Cushion type, saved by Mr. Wills from all his finest varieties .. .. 1s. and	2 6
VIOLA CORNUTA PURPLE QUEEN and MAUVE QUEEN .. .. 1s. and	2 6
ZEA JAPONICA VARIEGATA.—The new Variegated Indian Corn, perhaps the handsomest variegated foliage plant for the flower garden yet introduced, surpassing in beauty the Arundo Donax variegata. Now is the time to sow the seed .. .. 6d., 1s., and	2 6
XERANTHEMUM CARYOPHYLLOIDES, fl. pl.—An exceedingly handsome carnation-striped double Everlasting, for Winter bouquets and Church decoration	1 0
SCABIOSA (New Double).—Very handsome flowers, resembling the Pompon Chrysanthemum	1 0
SANVITALIA PROCUMBENS, fl. pl.—A very handsome bedding plant with bright yellow flowers, resembling a Ranunculus .. .. 6d. and	1 0
THE NEW GIANT TREE TEN-WEEK STOCK.—The handsomest of all, in 10 varieties .. 3s. 6d. and 5s. 6d.; mixed	2 6
THE NEW GIANT CAPE STOCK, in 10 vars., 2s. 6d.; mixed	1 0

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Splendid named GLADIOLI, 12 in 12 varieties, 2s. 6d., 3s. 6d., 5s. 6d., 7s. 6d., 10s. 6d., 12s. 6d. and 15s.

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GREAT NATIONAL HORTICULTURAL EXHIBITION, 1867.

£1000 OFFERED IN PRIZES.

To be HELD in the Gardens of the Botanical and Horticultural Society, Old Trafford, MANCHESTER, 7th to the 15th JUNE.

Charges for Admission:—First Day, 10s. 6d. each; Second Day, 2s. 6d. each; WHIT MONDAY and remaining Days, 1s. each.

Subscribers to the Manchester Botanical and Horticultural Society free each day.

Annual Subscription—Family, £2 2s.; Individual, £1 1s., admitting on all occasions.

Schedules, &c., may be obtained on application to Mr. B. FINDLAY, Curator, Botanic Gardens, Manchester, or from the undersigned. Military Bands in attendance each day.

Cooper Street, Manchester. HENRY WHITWORTH, Sec.

GREAT NATIONAL HORTICULTURAL EXHIBITION, 1867.—Gardeners will be admitted by Tickets as follows:—First Day, 2s. 6d. each; Second and remaining Days, 1s. each. Applications for these Tickets must be made on or before 5th JUNE. HENRY WHITWORTH, Sec.

GRAND HORTICULTURAL EXHIBITION at BURY ST. EDMUND'S, in connection with the SHOW of the ROYAL AGRICULTURAL SOCIETY, JULY 15, 1867, and four following Days.

Amongst various Special Prizes, amounting in value to nearly £300, and exclusive of the ordinary Prize Schedule,

A SILVER CUP, VALUE £20,

will be offered by the Proprietors of the GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE for the best COLLECTION of FRUITS and VEGETABLES, to be made up as follows:—

Of FRUITS, any Five of the following Eight kinds, one Dish of each:—Grapes, Melons (2 fruits), Strawberries, Gooseberries, Currants, Cherries, Raspberries, or Apples (of the crop of 1866).

Of VEGETABLES, any Eight of the following Fourteen kinds, one basket or bundle of each:—Peas, French Beans (or Scarlet Runners), Broad Beans, Cauliflowers, Cucumbers (grace), Summer Cabbages, Early Carrots, Turnips, Artichokes, Onions, Spinach, Rhubarb, Potatos, or Mixed Salading.

This Cup will be open to Competition amongst Amateur or Professional Gardeners, of all grades, with Fruit and Vegetables of *their own growing*; any article otherwise obtained will disqualify the exhibitor.

The Gardeners' Chronicle.

SATURDAY, APRIL 6, 1867.

MEETINGS FOR THE ENSUING WEEK.

SATURDAY, April 13 { Royal Horticultural (Dr. Masters' Lecture on Plant Architecture), at South Kensington .. .. 3 P.M. / Royal Botanic (Second Spring Show) .. 2 P.M.

THE general interest felt in our NATIONAL BOTANIC GARDENS, no less than their intrinsic importance, lead us to return to a subject on which we have already had occasion to comment (see p. 292), but one which is so wide in its scope, and so multifarious in its details, that to treat it fully would require more space than we are enabled to give. We may however allude, in continuation of our remarks, to certain special points suggested by the perusal of the report of the present state of the Royal Gardens at Kew, to which we have previously referred. The cultivation of plants of scientific or economic interest is not likely to be neglected while our Botanic Gardens, remain as they are now under the direction of accomplished botanists and horticulturists. Nor is it likely that ornamental plants, or such as have special interest for the horticulturist or the amateur, will or can be overlooked.

The best proof of what is done in this way is afforded by the amount of popular appreciation shown by the numbers of visitors, and judged by this standard the results are highly satisfactory. But professional horticulturists and connoisseurs may fairly demand something beyond what is necessary to captivate the general public. For them, not only the popular "flowers of the day," but the novelties, those upon which the popular verdict has not yet been given, should be as far as possible exhibited, in order that they may be compared with old established favourites, and an opinion formed as to their probable future merits. While reigning favourites, and their possible successors, should find a place in such establishments, it is almost equally desirable that those which have been discarded from smaller establishments, whether from the caprice of fashion, or even from more substantial reasons, should be retained. And herein lies the difficulty of finding gardeners who have zeal and interest enough in their work to induce them to bestow the requisite care and attention on these often most unjustly neglected plants. It is no doubt a hardship to work in a field where there is little present sympathy or encouragement, but in this case, at least, sooner or later, perseverance is pretty sure to meet with its due amount of appreciation, and the honour of rescuing a plant from unmerited oblivion is almost as great as that of introducing a new one to notice for the first time. Another point in which an establishment of the nature of those we are now considering, may do signal service to all branches of plant knowledge, is by securing correct nomenclature. With the unrivalled facilities for the proper naming of plants possessed by our Botanic gardens, an unnamed or a mis-named plant should in them scarcely be found. The gardens, together with the herbaria and libraries, should, so to speak, be register offices wherein the names, qualities, and conditions of all cultivated plants might be found with little difficulty. Undoubtedly this is the case to a great extent, and those who, for instance at Kew, have experienced the ready courtesy and willing aid of the officials in the determination of a doubtful plant will readily admit the value and importance of such assistance. So far as possible not only the correct scientific names as determined by the authorities, should be affixed to the plants, but also their garden names. How useful would such a system, thoroughly carried out, be. What a valuable standard of reference in cases of doubt or dispute, and what a wholesome check it would prove towards the accidental or designed dissemination under different names, of the same plant.

Before quitting the subject of Botanic Gardens, we may be allowed to point out what appears to us a serious deficiency in them when viewed as means for the advancement of practical physiology, horticulture, or agriculture. We allude to the want of a special experimental garden and laboratory with the requisite apparatus for "vivisection." We shall not greatly err if we say that half our knowledge of vegetable physiology is merely empirical. That it is far behind animal physiology, any one who has but a slight knowledge of the two must perceive; and this arises in great measure, we believe, from the want among us of practical physiologists, who, by their experiments and their tests, shall wring out from plants the now secret history of their lives, to the great ultimate benefit of horticulture and agriculture. We are not unmindful of what has been done in our own country by HALES, by KNIGHT, by DAUBENY, by DARWIN, and others, or of what has been accomplished (especially of late in Germany) by continental physiologists, but we repeat our conviction that one of the most pressing wants of the time as regards vegetable physiology, and the practical operations dependent on it, is a well-organised establishment, where, with definite aim and fixity of purpose, plants may be as thoroughly investigated as to their mode of living, as they are already as to their structural peculiarities, family relationships, and ornamental qualities.

THERE are many plants of great interest to the botanist, or the lover of the more unusual forms of vegetation, which are never likely to become popular, as well from their not answering the requisites of fashionable decoration as the difficulty which attends their cultivation. Some of these, however, are always attractive from their singularity, or a certain degree of beauty of colouring, and are therefore to be found in a greater or less degree of perfection in most of our large establishments. Amongst them the different species of Nepenthes are pre-eminent, but the SARRACENIÆ, which are scarcely less curious in point of form, and more so as regards the structure of the flowers, are at the same time sure to attract interest. They are, however, confessedly difficult of cultivation, and therefore a few words on the subject, suggested by a recent inspection of the magnificent collection in the garden of Lady DOROTHY NEVILL, at Dangstein, which abounds in botanical treasures, and exhibits a very high degree of cultivation under the care of Mr. VAIR, may not be unacceptable to our readers. These Sarraceniæ struck us especially on account of the freedom of their growth, and the perfection of the flowers, which, under artificial fertilisation, produce good seed, and yield a fair number of seedlings.

As the plants are bog plants, they require a considerable degree of moisture and a peculiar soil. It is not, however, found that they do so well when the pots stand constantly in water, as when the bibulous ware is simply kept moist, and the drainage good. The soil consists of rough fibrous peat, containing a large portion of sharp sand, mixed with a little leaf-mould, some broken crocks, or a small quantity of chopped sphagnum. The surface is slightly raised, and covered with a thin coat of sphagnum, sprinkled slightly with silver sand, so as not to cover it entirely, but in quantity sufficient to keep the sphagnum down. The moss, however, is not packed, as is frequently the case in the cultivation of Orchids. The pots are well-made, bibulous pots, with a groove round the edge, which is usually employed for the reception of the rim of a bell-glass, but which is here filled with water; this answers the purpose of keeping the pot moist, while a constant evaporation is also going on round the plant. The beauty of

Sarracenia purpurea rubronervia, S. variolaris, S. Drummondii, and the painted variety of S. flava, is very striking, even at the present season when the tips of the old leaves are withered, while they cannot be removed with safety too hastily. The temperature averages about 68°, being 72° at the time we are writing. In fertilising it is necessary to cut off the petals, which would otherwise collapse and close over the pistil, and soon cause it to wither. The large umbrella-like appendage need not be removed, but should be inverted, a process which gives the flower a singular appearance. Dionæa does not thrive so well under this treatment, the temperature perhaps being too great, but Drosera dichotoma flourishes, and there is little doubt that many species of that interesting genus might, under the same treatment, be successfully cultivated. Darlingtonia californica thrives admirably. The temperature is scarcely sufficient for the different species of Nepenthes, though many good specimens accompany the Sarraceniæ. We are not aware that the only plant of the same natural order which occurs out of North America, Heliamphora nutans, has ever been introduced from Guiana, but there is little doubt that it would flourish under similar treatment. *M. J. B.*

Among the floral sights just now to be witnessed, one of the most remarkable in character is a Bank of Phalænopsids in full bloom, in the well-known collection of Orchids at Broomfield,—a sight which, if less gorgeous than that of the Cattleyas at the same place, of which we made mention at p. 553 of our volume for 1864, is certainly not less charming. About 40 feet of a side table in Mr. Warner's Vanda house is at this moment filled with plants so profusely in flower, that not fewer than 850 blossoms of the different kinds of Phalænopsis may be seen associated in one most lovely group. P. Schilleriana predominates, while associated with it are various examples of amabilis, grandiflora, grandiflora aurea, and Porte's variety of intermedia. The Schillerianas exhibit great variety both of form and tint, scarcely two being in fact quite alike,—some being broader, others narrower in the parts; some more elongated and others more compact in outline; some of a deeper and others of a paler hue; and most of them showing, moreover, some difference in the tinting or spotting of the broad basal lobes of the lip. A close examination of the many plants of this fine species in the collection shows that the opinion which been hazarded to the effect that those plants which have the most finely-marked leaves are inferior in the blossoms, by no means holds good, some of the best as to blossoms being also among the best as to leaf. There are to be seen among these plants of P. Schilleriana, individuals with some 50 flowers on a single panicle, and with leaves measuring 15 inches long—fine certainly, though we understand that as regards the number of blossoms, these examples are far eclipsed by a remarkable plant in the Meadow Bank collection. Nowhere, however, but at Broomfield, can such a wondrously beautiful assemblage of these Butterfly Orchids be seen, for Mr. Warner having been its introducer, through the agency of M. Porte, is the largest holder of plants.

It would appear, then, from these facts, that P. Schilleriana has free-growing and free-blooming properties which wondrously enhance its value from an ornamental point of view. The secret of so successful a bloom, as Mr. Warner believes, lies specially in his avoidance of two errors, from which the treatment given by intelligent cultivators is not always free—the first being that of disturbing the roots by repotting or reblocking, except under extreme necessity, and the second that of constantly keeping up an excessively high temperature about the plants.

—— We are glad to hear so good a report of the prospects of the Manchester National Horticultural Exhibition. The guarantee fund amounts to upwards of 3000*l.*, and such liberal promises of support have been received from exhibitors in the district and elsewhere, that it has been decided to cover three times the space of the large Exhibition-house with canvas, which will be so arranged that visitors can inspect the whole without going from under cover. Arrangements have been made with the Railway Companies, so that all articles for the exhibition will be carried at a single fare for the double journey. We hope London horticulturists will avail themselves of these advantages as to carriage, and return the compliment which the Manchester growers paid them last year, by exhibiting largely, and carrying away some of the principal prizes. The only circumstance of regret in connection with this exhibition is the fact that the dates on which it and the Royal Horticultural Society's Show are to take place, slightly overlap, a difficulty which we should have thought could have been met by a little mutual concession, to the great advantage of both Shows, and of the exhibitors at each. Were the opening of the Manchester show to be deferred from the Saturday till the Monday following, and the plants required for Manchester released from Kensington early on Saturday afternoon, the difficulty would be fully met without detriment to either party. Some of the principal exhibitors at our metropolitan shows have indeed promised the Manchester people large assistance, and with the large number of fine specimens which are to be found in the neighbourhood of Manchester, the handsome prizes offered will no doubt be well contested, and the Exhibition will probably be hardly second to anything we have seen, the International of last year excepted. There is a heavy load of debt upon the Manchester Botanical Society, the Council of which has originated the National Horticultural Exhibition, and any surplus which may result will be applied to the reduction of this debt. The gardens are exceedingly well managed, but Mr. Findlay, the indefatigable Curator, is much hampered for want of means, owing to the large sum required annually to pay the interest of the debt, although his judicious management has considerably reduced the amount.

—— We understand that there is at present in flower in the nursery of Messrs. Dickson & Co., of Leith Walk, Edinburgh, a very handsome specimen of Rhododendron Dalhousiæ, described as one of the finest sights amongst Rhododendrons ever seen in cultivation. The plant is 8½ feet high, and 2½ feet through. The flowers, which are of a rich cream-colour, and have a delicate lemon scent, measure 4 inches across, and 3½ inches deep. There are 94 trusses, averaging three flowers each, making altogether 282 flowers.

—— While the Design for the first Great Exhibition of 1851 was due to one of whose memory the gardening fraternity will ever feel proud, it appears that the plan of the present French Exhibition is, in all material points, such as the form, the concentric naves, the radiating avenues, the central garden, and in many other respects, identical with that proposed in conjunction by two English gentlemen, Mr. George Maw and Mr. E. J. Payne, the former a well-known and esteemed correspondent of the *Gardeners' Chronicle*. Some documents, drawings, &c., now before us, show this very conclusively; and we regret to say that, to our minds at least, they as conclusively show that, while the plan sketched out by the above-named gentlemen in 1861 has been adopted in all its main features, the only recognition accorded to them has been the tender of "the assurance of my perfect consideration" by Mr. Councillor of State, General-Commissioner F. Le Play, or the other officials.

—— The Jurors at the Paris Exhibition nominated to act in Group IX., Live Produce and Specimens of Horticultural Works, are:—Duke of Cleveland, K.G., President. Class 83.—Hothouses and horticultural apparatus; juror, Professor Balfour, M.D.; associate juror, Dr. T. Thomson, F.R.S. Class 84.—Flowers and ornamental plants; no juror allowed. Class 85.—Vegetables; no juror allowed. Class 86.—Fruit trees; no juror allowed. Class 87.—Seeds and Saplings of forest trees; juror, Dr. J. D. Hooker, F.R.S.; associate juror, Dr. Moore. Class 88.—Hothouse plants; juror, Mr. James Veitch; associate juror, Mr. F. W. Brady, Q.C.

—— *Les Mondes* reports the following particulars respecting some species of Eucalyptus, growing in the open air, in the garden of M. C. Huber, of Hyères. E. globulus, some 10 years old, has flowered abundantly for the fifth time. Its height is about 60 feet, and it would have been still higher had not the violent gusts of wind from the Mediterranean already twice destroyed its top. The circumference of the trunk at the surface of the ground is 6 ft. 4 in.; at four yards high, 3 ft. 11 in.; at eight yards, 2 ft. 4 in.; at fourteen yards, 1 ft. 6 in. The tree is remarkably vigorous, and is regarded as the finest example existing in France, in the open air. Of the species which have been tried, it is this E. globulus which always pushes forward most quickly, leaving every other behind. The next to it in rapidity of growth, are E. diversifolia and E. viminalis. E. corynocalyx mounts more slowly, but makes a fine round head.

New Plants.

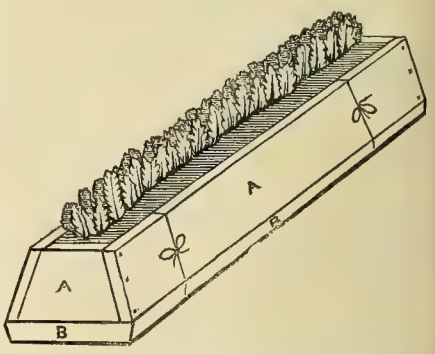
Litobrochia undulata, *Moore.*

Fronds triangular or subpentangular, membranaceo-herbaceous' pinnate; lowest pair of pinnæ deorsely branched, shortly stalked, upper ones sessile decurrent, uppermost pair very much decurrent, confluent with the cuneately decurrent base of the terminal one; pinnæ about 1 foot long, broadly lanceolate, pinnatifid throughout, the segments distinct, more distant below, with a rounded nearly equal sinus; segments 2-2½ inches long, the basal one decurrent, the rest connected by a broad (¼ inch) wing, oblong ensiform, more or less narrowed to the point, where they are sterile and obscurely crenato-dentate, the margin everywhere strongly undulated; sori not extending to the apex or sinus of the lobes; indusium narrow quite entire; basal veins forming single elongated rachidal arcs between the costæ of the segments, spanning nearly the whole width, costal areoles larger than the rest, semiobovate, with about two rows of areoles intervening between them and the free marginal veinlets; stipes slightly grooved in front, and as well as the rachides castaneous; caudex short, stoutish, suberect.

A very handsome large-growing evergreen stove Fern from the Feejees, having some general similarity to Litobrochia comans and Endlicheriana, but differing among other points in the less acuminated segments, the different nature of the toothing, and the undulated instead of plain margin. The stipes and hinder side of the rachides are of a dark chestnut-brown. The fronds are 3½ feet high, with a lamina of 2 feet long and as much in width, triangular, or rather pentangular, pinnate, the pinnæ pinnatifid, divided so as to leave a broad wavy wing to the rachis. All the upper pinnæ are more or less decurrent. The broad undulating surface of the arching fronds gives them a distinct and very pleasing character, so that the plant is one of the more desirable of the larger stove Ferns. It is in the hands of Mr. Bull, and was shown by him in a partially developed state, at the Great International Exhibition. *T. M.*

EARLY PEAS.

The following is a sketch of a contrivance I have adopted with success for raising early Peas in a frame, and establishing them in the open ground, so as to avoid the check which the ordinary method of transplanting from pots or boxes necessarily entails.



A A (drawn 1-6th the actual size) represents a wooden frame or box, with loose bottom B B, made of rough ½-inch boards, and of the following dimensions—2½ inches in vertical depth, 2 inches wide at the top, 3¼ inches wide at the bottom, and 3 feet long, inside measurements. The bottom is simply a loose ½-inch board, about 4½ inches wide, temporarily attached to the box by two pieces of string. The box is filled with light rich soil, and the Peas sown from the narrow side.

The transferring of the ready made row of Peas to the open ground is a simple process; a drill, rather deeper than is necessary for sowing Peas in the open ground, is worked out with the hoe, and the boxes, each containing a yard of Peas, are placed end to end in it. The strings which attach the body of the box to the loose bottom, are released, and by slightly raising it on one side the bottom board is easily slipped from under. The frame from being bevelled readily delivers itself from its contents, and the row of Peas is left *en masse* in the drill without the soil being broken or disturbed or any check being given to the Peas.

These narrow seed-boxes really occupy but very little space. They can be stacked two deep (the edges of the bottoms of the upper layer resting on the top edges of the sides of the lower layer), and a cold frame of 6 feet square would contain 40 lineal yards.

For the earliest crop little more than half the seed that would be sown in the open ground is required, as the boxes are under protection till past injury from birds and slugs. I believe that the saving of seed (which at from 1*s.* 6*d.* to 2*s.* 6*d.* a quart for first crop is a consideration) will quite counterbalance the extra trouble of transferring to the border.

On February 19th I sowed a number of these boxes with Carter's First Crop, and at the same time made a sowing in the open ground; the latter are not yet up (this is a high and rather a late situation), but those in the boxes, after being hardened off in a sheltered place for a few days, were transferred to the open ground, earthed up and stuck on the 28th of March, at once forming two very regular and vigorous rows, which I doubt not will be a fortnight in advance of the others sown in the open ground. *Geo. Maw, F.L.S., Benthall Hall, Broseley.*

LETTERS FROM PARIS.—No. V.

Opening of the Exhibition, and First Flower Show.

After the most disagreeable miserable winter and spring remembered here, one scarcely hoped, during the cold drizzle of Saturday, and dark, cutting wind of Sunday, for a fine day for the formal opening of the Exhibition, but we were agreeably disappointed, for a brighter morning or day could not be desired for a thing of the kind than we were favoured with on Monday. Horses were knee-deep in the mud near the entrance on Saturday afternoon, and everything apparently in hopeless confusion, but the change made in both garden, park, and building by Monday morning was really surprising. Work was all stopped for the day; a green canopy, dotted and margined with gold, covered the way from the bridge to the grand entrance; flags, &c., were profusely and tastefully arranged round the building and along this covered way, and these to some extent hid the hideousness of the building. Some day I hope to give your readers a correct idea of this truly wonderful park; for the present suffice it to say that it is a combination of beautiful garden, lawn, and pleasure ground, with almost every known species of building, from an African palace to a Swiss cottage, with its roof covered with green turf—from a gigantic lighthouse to a winter-garden. Most of your readers know the plan of the building. In its centre there is a geometrical garden, in which they propose to plant Tree Ferns, Palms, and many plants of beautiful habit. Within the past few days it has been planted with spring flowers, doubtless just to occupy the ground till

the summer plants are ready. Let us pass through the building, in which your readers are not so specially interested, and walk into the park, going towards the Ecole Militaire. You are barely in the park when the important position assigned to horticulture at this Paris Exhibition dawns upon you. Twenty-six plant-houses and conservatories of iron show themselves conspicuously, not lumped together or badly arranged, but most tastefully disposed about the grounds, the lead being taken by a noble conservatory, well posed about the centre of the special garden department, and separating the two grand aquariums, which are not yet ready, though, so far as their aspect in the garden is concerned, they are so, with the exception of the waterfalls. Their rocks being fringed with shrubs, and the banks around well planted, the effect is capital. There is winding water, a good deal of "breadth" to be seen about here and there, considering the space and its surroundings, and the merits and demerits of the French way of laying out grounds in the "English style" are fully displayed. Conspicuous in the scene are some noble groups of Magnolia grandiflora in variety—handsome pyramidal-trained trees; not a few of the equally noble deciduous Magnolias are in flower. There are many groups of capital Hollies and shrubberies and beds of hardy plants of all kinds, while here and there some persons have been hardy enough to plant out large beds of Hyacinths in full bloom; and an enormous and handsome specimen of Thuja gigantea makes itself conspicuous above most of the other vegetation. All round the park, and on the opposite side from this, there are Rose-beds flanking round numerous buildings, fine plantations of young shrubs, in many cases choice and interesting, made by French nurserymen. There is a beautiful fruit garden, containing the most extraordinary and perfect specimens of training that I have ever seen—more so, in fact, than I had any idea existed. Therefore, we will postpone those matters, and take the whole place *seriatim* when the last sub-tropical plant is in its place, and when the Grass in the garden is green; it will be sown to-morrow, if I mistake not. The fruit trees alone that are already in position are a fine show in themselves. If, in addition to its present contents, the grounds be as well planted with sub-tropical and bedding plants, as they may be from Passy, I am pretty sure no horticulturist will be ashamed of the aspect presented by the garden department of the first Great Exhibition at which it has had a place, for of course it is here that horticulture has been for the first time fully represented in connection with a great show of this kind. The Emperor and Empress opened the Exhibition, by walking round the elevated promenade in the machinery gallery, and afterwards through the picture galleries, in which were placed such of us as had special tickets, enabling us to be present at the opening.

As for the Flower Show, it was nowhere to be found on the first day—postponed, in fact, with the exception of a few dozen dishes of Apples and Pears and spring flowers. To-day it was to take place, and to-day I went again to find nearly nothing. It is too early; and this day month will have arrived ere there is much to be seen. The "flower show" was held in some of the houses erected in the grounds; and, with the exception of the new plants, is easily disposed of. A tolerably good display of neatly grown medium-sized Camellias was made in one large house. Mr. Knight, of Pontchartrain, showed well-grown Roses in quantity, coming well into flower, and likely to be an attraction for the fortnight. One or two French Rose growers also showed groups of Roses in flower—nice in the mass, though not well-grown individually; and another several varieties of the great-leaved hardy Acanthus lusitanicus; a good lot of Billbergias, by Mr. Linden and others; an interesting little show of Orchids, and several other odds and ends. But the fact is, that though this is the evening of the 2nd of April, the judging has not yet been done, though they hope to do it to-morrow; and, for what I know, exhibitors may be straggling in for a few days more, so I shall go about Friday to see if they have finished staging and judging the few plants exhibited. I begin to understand the necessity for having fifteen-day shows! When I looked back and thought of the busy mornings at the Botanic before nine, it was not without some amusement, though the prospect of interest was so dismal. However, it will be better by-and-by; and whether it is or not, or whether anybody brings anything to these fortnightly shows, it does not matter much, for they have wisely taken care to make the out-door department a grand show in itself, and that is the most important point.

However, there were some nice new plants—a spotted Hippeastrum, H. pardinum, shown by Messrs. Veitch, being remarkably striking from its dissimilarity to the normal members of the family; and the same firm had several beautiful Crotons—Mr. J. G. Veitch's introductions from the South Sea Islands. One, a long-leaved species, with dark yellow margin and midrib when the leaves are young, both margin and midrib changing to a rich olive red when the leaves get old, the whole leaf then assuming a pleasing deep dark tint. Another large-leaved species has the rib of a clear yellow, and in the young leaves the yellow widens towards the base, till their lower parts are quite of a rich yellow; both will make capital stove plants. They also showed a new Dracæna in the way of ferrea, with a drooping, wavy style of leaf; a beautiful hardy Japanese plant—Retinospora filicoides; a distinct new Aralia; several fine and interesting things shown in London before, and which there is in consequence the less occasion to mention here; a fine group of new Ferns and some charming Orchids, including an exquisite little specimen of Angræcum citratum. Messrs. Thibaut & Keteleer's Orchids are also very good, as might be expected, for they are famous growers of these plants; growing them all, strange to say, under like circumstances, Cattleyas with Phalænopsis, and so on—the result being equally good in all cases.

Mr. Linden made a good display of new plants, having a strong candidate to begin with in Gunnera manicata—a noble species, described as even bigger than the remarkable G. scabra—and Mr. Linden told me he had proved it to be hardier than that plant, and if so, it will be a real acquisition in these days of searching after large-leaved plants. And no less interesting was a group composed of eight new species of Oreopanax, from an elevation of 10,000 to 12,000 feet in their native country, and which are therefore eminently suited for the greenhouse—all fine, two of them remarkably so, tortile and dealbatum. He also showed the plants which were successful at the International last year; several new Marantas; Alloplectus bicolor, a curious thing, with leaves 8 inches long or so, in the way of a Gesnera, dark olive green, with silvery mid-rib; Cissus argentea, a nice thing for rockwork in stove or warm fernery; Adiantum Mathewsianum, a very large species; a good Maranta, called Legrelliana; Philodendron Lindeni, with a somewhat velvety and metallic hue; and a nice delicate and distinct Arad for the warm stove, or climbing over an elevated mass of Moss, &c. Much more interest is expected in the new plant way a month hence. Messrs. Veitch are about the only English exhibitors; they have a choice and beautiful group of Conifers, planted near the great central conservatory, and their great Azaleas are being nicely brought on for flowering in one of the houses here. I have no doubt they will literally astonish "the natives," if that name can be applied to Parisians. *W. R.*

NOTES ON CONIFERS.—No. XVI.

Taxodium distichа* and T. Montezumæ.

(*Concluded from p.* 210.)

Rivalling the Sequoias as the Taxodiums do in size, they also compete with them in age. As to duration of the form in past geological formations we have already spoken, but we may add a word or two as to the duration of the present species in the deposits of our own epoch. The banks of the Mississippi, where they fall in under the force of current, give constant opportunities of studying this. Sir Charles Lyell, in his "Second Visit to the United States" (ii. 191) tells us that in other places where the bank (of the Mississippi) consisted of fine stiff clay, he saw here and there the buried stools of Cypresses and other trees in an upright position with their roots attached, sometimes repeated at several different levels in the face of the same bank. When first told of this phenomenon before visiting the Mississippi, it appeared to him very difficult of explanation. He soon, however, discovered that the great river in its windings often intersects the swamps or Cypress basins which had been previously filled up with fine mud or vegetable matter, at various distances from the former river channel; and as the Cypress often attains to the age of three or four centuries, and according to many accounts, occasionally in Louisiana to that of 2000 years, it is clear that the bottoms of the oldest trees may often thus be enveloped in soil several feet deep before they die and rot down to the point where they have been covered up with mud. In the meantime other trees may have begun to grow on adjoining spots at different and higher levels; and eventually some of these will take root in soil deposited directly over the stump or decayed trunk of some of the first or oldest series of Cypresses.

Dr. M. W. Dickeson and Mr. A. Brown, in speaking of the same subject, say that the Cypress brakes or basins, which fill up gradually, give place at length to other lumber; but, before this happens, the buried Cypress stumps often extend through a deposit of vegetable and sedimentary matter, 25 feet thick. "Sections of such filled-up Cypress basins, exposed by the changes in the position of the river, exhibit undisturbed perfect and erect stumps in a series of every elevation with respect to each other, extending from high-water mark down to at least 25 feet below, measuring out a time when not less than ten fully matured Cypress growths must have succeeded each other, the average of whose age could not have been less than 400 years, thus making an aggregate of 4000 years since the first Cypress tree vegetated in the basin. There are also instances where prostrate trunks of huge dimensions are found imbedded in the clay, immediately over which are erect stumps of trees, numbering no less than 800 concentric layers."* These gentlemen also state, that at the bottom of all the Cypress swamps, or brakes, there is found a peculiar layer of tenacious blue clay, which forms the foundation or floor on which the vegetable matter accumulates. Sir C. Lyell concludes, therefore, that as the roots of the Cypress penetrate far beneath the soil and project horizontally far and wide, those of one tree interlacing with another, such root-bearing beds of argillaceous loam would be very analogous to what are called fire clays, so well known to the geologist, as occurring underneath almost every seam of coal in the ancient carboniferous rocks.

As to the age of individual trees, that also must be very great. If we find specimens entombed by the constantly recurring deposits of the Mississippi, in the height of their growth, of such ages as those above mentioned, it may be expected that those which have not been prematurely entombed, but allowed to finish their natural term of years, must have achieved a still greater longevity. The tree that knew Montezuma (or that Montezuma knew)—the tree under which Cortes rested after the terrible slaughter of the *Noche triste*, or that at Santa Maria de Tula, in Oaxaca, must be much older than any of the Louisiana trees. These are no doubt specimens of the Taxodium Montezumæ or the Mexican variety of the Taxodium distichа (if it be a variety and not a species), but we are here contrasting the age of Sequoias and Taxodiums as genera, not that of the species of each.

Taking the largest of them, that at Santa Maria de Tula, in Oaxaca, it has been thought that one line of growth in the year might be a fair average, and this would give 5352 years as its age. But Zuccarini, in his estimate, thinks it safer to assume 1½th of a line as the average, which would give 3512. We prefer the larger estimate. We see that in Louisiana the largest stems which are spoken of are 40 and 41 feet in circumference—and the largest number of rings which are mentioned as having been counted is 2000. Then if 40 feet in circumference is equal to an age of 2000 years, 80 feet certainly should not mean less than 4000, and 117 feet 10 in. not less than 6000 years. But we know that after a certain age has been reached the deposit of wood becomes smaller and smaller as the tree gets older; cons quently to take the same ratio as the measure of age for a tree 117 feet 10, as one of 40 feet in girth, would be unreasonable. What the proportion should be we cannot tell, but we think we are bound not to shrink from the results wherever our premises lead us.

Our belief is that old trees are very much older than is generally supposed. The centre of the trunks of such trees being usually decayed seems to present an obstacle to a fair reckoning of their age, but if those who have the opportunity would be careful to count and record so much as can be seen, we should be able soon to arrive at a fair appreciation of what has been lost. Take, for example, the Oak: there is no difficulty in ascertaining in any Oak county the average rate of growth of the first circle a foot in diameter, so of the second circle a foot in diameter surrounding the first, so of the third—perhaps even of the fourth; and having gone so far we can fill in these four, when we come to a tree in which the fifth or a part of the fifth only remains. A thin shave sliced off by a penknife from the outermost rings of a fallen tree would then be often sufficient to give all the information we desire, so that an average might be ascertained for each successive foot in outward growth. All very ancient trees exercise an influence upon our imaginative feelings, and when they are in some way associated with important events or celebrated people, their power is the stronger. We do not at the moment remember any which appeals more powerfully to them than the tree of Cortes. The Oak of Mamre is surrounded with the awe and solemnity of antiquity, but it has not the stirring effect on the feelings which the association with danger and death gives that Cypress. The tree of Wellington on the field of Waterloo has plenty of association with danger and death, but it wants antiquity, and can never stir the imagination as the silent witness of Cortes' emotion does. We recommend the reader who wishes to have a proper respect and right reverence for the Taxodium distichа to make himself familiar with the events of the *Noche triste*. We shall only quote the conclusion of Prescott's account, so far as it describes what passed beside this ancient tree:—

"The first grey of the morning was now coming over the waters. It showed the hideous confusion of the scene which had been shrouded in the obscurity of night. The dark masses of combatants, stretching along the dike, were seen struggling for mastery, until the very causeway on which they stood appeared to reel to and fro as if shaken by an earthquake, while the bosom of the lake, as far as the eye could reach, was darkened by canoes crowded with warriors, whose spears and bludgeons armed with blades of 'volcanic glass,' gleamed in the morning light. * * * Cortes and his companions now rode forward to the front, where the troops in a loose disorderly manner were marching off the fatal causeway, a few only of the enemy being in their rear, or annoyed them by occasional flights of arrows from the lake. The attention of the Aztecs was diverted by the rich spoil that strewed the battle-ground, fortunately for the Spaniards, who, had the enemy pursued with the same ferocity with which they had fought, would, in their crippled condition, have been cut off probably to a man. But little molested therefrom, they were allowed to defile through the adjacent

We trust that J. S. E. will not think us obstinate beyond the fair bounds allowed to human infirmity, when he sees that we still adhere to Taxodium distichа, notwithstanding his powerful pleading for distichum. But if there is one thing which we like more than another in such matters, it is to get hold of some broad principle as a guide, and to stick to it through thick and thin. J. S. E. does the same thing. The principle which he holds by is to preserve untouched the original designation given to any species by its describer. But is he prepared to follow out his principle to its legitimate conclusion? As for us, and our principle, *we are*. We adopt the principle that every tree is feminine, and would alter to that gender all specific adjectives which have been given them of other genders—*Ecce signum*, Taxodium distichа. But will J. S. E. adopt all the bad grammar, bad sense, bad taste, and false localities and qualities, that have been vented in scientific designations? It was Lesson, if we recollect aright, who proposed a division of Mammals, among which, not being so strong in his classics as J. S. E., he erected the horses, swine, and Hippopotami into families under the names of Equusidæ, Susidæ, and Hippopotamusidæ. Will J. S. E. stand by these? Faults of taste, perhaps, he might bear with, such as those of Mr. James Thomson, a Parisian-American entomologist, who described species under the names of Cacodæmon knownothing, Cacodæmon Cerberus, &c.; but we doubt if he would insist on retaining false statements of fact, as americana for a Grecian species, africana for a Mexican. And how far would he insist on the original gender of a species being retained? If a species originally described under a feminine name were afterwards discovered to belong to a masculine genus, would he still retain the original, now incongruous termination? If not, then he can scarcely consistently object to an alteration of a similar kind being made in species of trees, to bring their specific designations in accord with the governing principle that trees are feminine, even when the name of the genus has a masculine or neuter termination. *A. M.* [We are unconvinced by our correspondent A. M.'s argument. Eds.]

* "Silliman's Journal," 2nd Series, vol. v., p. 17. Jan. 1848.

village, or suburbs it might be called, of Popotla. The Spanish commander there dismounted from his jaded steed, and sitting down on the steps of an Indian temple gazed mournfully on the broken files as they passed before him. What a spectacle did they present! The cavalry, most of them dismounted, were mingled with the infantry, who dragged their feeble limbs along with difficulty; their shattered mail and tattered garments dripping with the salt ooze, showing through their rents many a bruise and ghastly wound; their bright arms soiled, their proud crests and banners gone, the baggage, artillery—all, in short, that constitutes the pride and panoply of glorious war, for ever lost. Cortes, as he looked wistfully on their thinned and disordered ranks, sought in vain for many a familiar face, and missed more than one dear companion who had stood side by side with him through all the perils of the Conquest. Though accustomed to control his emotions, or at least to conceal them, the sight was too much for him. He covered his face with his hands, and the tears which trickled down revealed too plainly the anguish of his soul." (Prescott's "Conquest of Mexico," p. 70).

The reader may say, "But where's the tree?" Prescott does not notice it, but tradition has preserved it. It was beside the Indian temple on whose steps Cortes sat down. We have a photograph of the tree, with a trunk of enormous dimensions, only instead of standing beside an Indian temple it stands within the wall, and overshadows the portal of a Christian church, opening on the road by a couple of steps such as Cortes might have seated himself upon. In fact we have here the ordinary transformation which befals a site or edifice dedicated to religious purposes—the impure faith is replaced by the pure, the corrupt by the reformed—but the site remains, and the edifice is retained by the new comers, only modified and remodelled.

The tree is known to this day by the name of the "Ahuehuete de la Noche triste." In a Mexican Almanac we find the following notice regarding it, accompanied by a rude wood engraving of the tree. "Popotlan, the city of besoms—what a prosaic name for a place, the witness of one of the most dramatic episodes of the Conquest! And nevertheless in this insignificant village, full of dust or of mud according to the season, is to be seen the venerable tree under which, according to popular tradition, Captain Hernan Cortes sat down to breathe and rest his aching body after the frightful catastrophe of the 1st of July."

Returning to the argument which we had in hand, and which we have used as a thread on which to string our notes of the qualities of this tree, we have to remark that there is a great resemblance between its timber, and that of the Red-wood. The latter is the most valued timber in California, the former the most useful in the Southern States. A special good property of both is splitting up straight, so as to serve for planks without the use of the saw. In the Taxodium, Michaux says, they split off in a direction parallel to the concentric circles; but as these are so large, the shingles split off are, when not very hard, nearly flat; and it is the same with the Sequoia. The colour of the timber of both is also alike. Michaux says, "The wood of the Cypress is fine-grained, and, after being for some time exposed to the light, of a reddish colour;" and in speaking of the Sequoia sempervirens, Dr. Bigelow says, "The wood resembles the Cedar" (that is, Juniperus virginiana) "a good deal in lightness and susceptibility of polish, but it is of a slightly darker shade of red. In the rural districts along the coast farmers use it for making fencing rails; and it is almost certain to excite incredulity to state the number of rails that can be made from a single tree. They are counted by thousands, as we count them by hundreds in the Eastern States." (Bigelow, Pac. R. R. Rep. iv., p. 24.)

A resin of an agreeable odour and a red colour exudes from the Cypress. We have already spoken of the red or claret-coloured resin exuded by the Sequoias.

On the whole, we trust we have said enough to satisfy the reader that we have in these two genera the respective representatives of the same type, the one peculiar to the East and the other to the West of North America, south of 38° N. lat.

The characters distinguishing the Mexican Taxodium from the American are slight, but we think sufficient; it is, however, foreign to the purpose of these notes to go into such details. In this country, so far as we know, the American type is the only one in cultivation. There are doubtless some small plants of the other, for the large trees near Mexico produce seeds plentifully, and they must have been brought over by many people. We have received them ourselves. But we do not happen to know of any which have been planted out. The American tree, however, is distributed tolerably abundantly, and does very well in the South of England. Mr. Palmer's tables of the worst effects of the winter of 1860-61 at places reported on by him give the following results:—

	Killed.	Much injured.	Slightly injured.	Uninjured.	Total.
England	1	1	4	23	29
Scotland	—	—	—	2	2
Ireland	—	—	—	2	2
	1	1	4	27	33

The place where it was killed and the place where it was much injured were both in Cambridgeshire. At the latter (Pamperford Hall), the trees were universally cut down to the ground, "but they stool most freely from the stem."

We have scarcely any notes of the height and dimensions of trees of this species in England. At Syon House there is one 80 feet high; at Blenheim Park, one 70 feet high; at Endsleigh, Devonshire, one 36 feet high; at Nettlecombe, Somersetshire, one 30 feet high and about 35 years old; at Enys, near Penrhyn, 43 feet high. *A. M.*

ON CUTTING EVERGREEN SHRUBS, &c.

The damage done to ordinary evergreen shrubs during the memorable winter of 1860-61 will long be remembered by a very large class of garden admirers. It is to some of these generally-cultivated evergreens that I wish to devote the following remarks, suggested by the very low temperatures experienced during the present winter in various parts of the country, but more particularly in England, where, no doubt, the severity of the season has injured some shrubs similar to those damaged in Scotland during the above winter, particularly if growing in low and somewhat damp situations. The injury may not show to its full extent till after several days or even weeks of sunshine, except on some of the more tender species, such as Portugal Laureis, Laurustinus, Aucubas, Alaternus, Phillyreas, Arbutus, Euonymus, Sweet Bays, &c.

Previous to the winter of 1860, the Portugal Laurels in many of the Scottish gardens were exceedingly handsome, being in many cases of a hemispherical shape, and frequently surrounded with shrubs of other species, but often of a less pleasing outline. The latter were often removed to prevent their interfering with some of the finely-shaped Portugals. On the 24th December, 1860, the thermometer at Edinburgh fell to —6°, being 38° below the freezing point. The moist autumn, preceded by an unusually long drought, had caused many of the evergreens to be in a growing condition at a rather late period of the year; and from their being full of sap at the time the frost set in, many of the Portugal Laurel stems were found to be split longitudinally, to the width, in some instances, of fully half an inch. Although their leaves remained tolerably fresh during the following summer, the growths made were scarcely perceptible, and the plants by degrees became thin of foliage—so much so, that it was found advisable to cut many of them down during 1862. Some of the injured shrubs, before being cut, began to push out numerous young growths from the lower parts of their stems, evidently showing that their upper portions had suffered. Many of these plants were cut down to within 18 inches of the ground. The Portugals which survived were chiefly such as stood on Grass lawns or along the front part of shrubberies, particularly on high-lying ground, where the young growths were annually cut quite short all over the surface, so as to keep the plant in a hemispherical shape. Such plants at the time of the frost were densely covered with a thick coating of snow, which completely protected all the inner branches, and was the means of saving them; while some of the unpruned plants, standing immediately behind on the higher ground, where the branches were long and spreading, suffered severely. In some low and damp situations, however, both pruned and unpruned suffered alike. The injured and cut-down shrubs, treated in the following manner, are now forming handsome and vigorous plants. I shall take, as an illustration of my practice, a Portugal Laurel 18 feet in diameter of branches and 15 feet high, with a stem from 3 to 4 feet in circumference at the surface of the ground, many examples of which size were experimented on during 1861-62 in consequence of injuries from frost previously received. The branches of most of these were cut slanting to within 18 inches of the soil; immediately afterwards, the whole surface of the ground, beneath what was the original spread of the branches, was covered over with a thick coating of compost, of leaf-mould mixed with a quantity of soil, chiefly the emptyings of pots, of which large quantities are always accumulating where much potting is carried on. This covering of soil is most essential, and ought to be carefully attended to with all evergreens cut in, whether in consequence of frost or excess of growth. The surface of the ground under most evergreen shrubs is generally very much confined, and the roots in consequence run near the surface. If such ground is exposed, particularly after the tops have been cut down, the surface-roots are very apt to become injured by the sun's rays penetrating the soil and drying them up. It will likewise be found that the surface-roots are liable to become frosted, as they are very tender from long and close confinement. The young shoots on plants so exposed, although they will push out freely at first, will in many cases become sickly and ultimately die, while the young shoots made on the cut-down shrubs treated as described will be found to prosper. Many of the old Portugal Laurel stumps operated on during 1862 are now fine globular-shaped plants, 8 feet high and 15 feet in circumference.

If at any time it is intended to cut down Portugal Laurels, from their being rather large for the situations they occupy, the best way is to cut them in a sort of pyramidal or ovate shape, about 4 feet high. When healthy-stemmed plants are cut in this manner, and the ground coated with soil, as before recommended, such cut plants will break out freely all over that portion of the stems left, and will very soon make beautiful shrubs again.

Many other evergreen plants, such as Aucubas, Bay Laurels, Sweet Bays, Alaternus, Laurustinus, Hollies, and numerous others, treated as recommended for the Portugal Laurel, are now forming finely-shaped plants, and are all in a thriving condition. Many of the hybrid Rhododendrons were also much injured by the frost in 1860, which necessitated their also being cut down. Their roots were afterwards covered with peat-soil, and they soon broke out all over the old wood, and have since made good and shapely plants. Owing to the large quantity of young wood produced, flowering shoots were not made on many of the varieties for several years afterwards.

Some evergreen hedges were also much injured, such as Holly, Portugal Laurel, Alaternus, Sweet Bay, Laurustinus, Evergreen Privet, &c., &c. Amongst the Hollies, one hedge was cut to 5 feet, another to 6 feet, while a third was cut to within 20 inches of the ground. These hedges were treated as described for the standard Portugal Laurels. It was found that the high-cut plants, although they broke freely out all over the tops of the cut stems, left long bare spaces at bottom, while those cut low, broke out freely all over the lower-cut portion of the stems, and being annually breasted in, are now making an excellent fence. Those cut high, on the other hand, although they have stood for several years, will have to be cut down to within 18 or 20 inches of the ground, in order to induce them to break out from the lower part. Laurustinus and large evergreen Privets produce buds freely, if cut higher—say to 3 or 4 feet above the ground. The natural tendency of these plants is to produce a multitude of young growths all over the exposed surface of the bark. Evergreen hedge-plants, as Holly and Portugal Laurel, or others having a natural upright or compact growth, require to be cut lower than such plants as the large, shining, and hairy-leaved varieties of Laurustinus and evergreen Privet, whose natural habit is to diverge. Injuries to the latter hedge-shrubs, particularly the Privet, do not arise so much from the effects of hard frost as from the forcible bending-down of their branches by heavy snow. This renders the over-stretched vessels along the upper surface liable to become injured from frost, particularly when full of sap; and is the cause of so much dead wood being found throughout old Privet hedges. All evergreen hedges when cut, whether high or low, require their surface-roots to be covered with fresh compost for protection, as well as for throwing vigour into their growth.

These notes are the result of observations made at Edinburgh, and may prove applicable for many districts both in England and Ireland, if they should happen to have large evergreens injured, as occurred in Scotland during the winter of 1860. *James McNab, in the "Gardener."*

Home Correspondence.

Fertilisation of Cypripediums.—As the sexes of Orchids form a subject of considerable interest, I beg to forward you the accompanying specimens of Cypripedium insigne. Of this I have several plants, all however originally derived from the same piece, but in spite of numerous attempts, I have uniformly failed to fertilise the flowers. The seed-vessel swells and the flower fades as usual, but no seed is produced. It appears to me that my plant produces a male flower only, and is not hermaphrodite. Have any others of your correspondents made a similar observation? I enclose a flower of Cypripedium insigne and two barren seed-vessels, to which the pollen of C. barbatum and C. venustum was applied this year. To prove that the pollen masses of the plant in question are good, I send also a seed-vessel of C. barbatum, fertilised with the pollen of one of the same flowers of C. insigne, and which is full of seeds. *A. D. B.* [The specimens forwarded appeared on examination to be perfectly formed as regards their stamens and pistils, but perfectly destitute of ovules. On forwarding them to Mr. Darwin, that gentleman kindly favoured us with the following remarks. Eds.:—From the remarkable fact lately ascertained by Dr. Hildebrand, that with many Orchids the ovules do not become developed until many weeks or even months have elapsed after the pollen-tubes have penetrated the stigma, it is not a little difficult to ascertain whether any Orchis is exclusively a male plant, that is, whether the female organs have aborted. Of course there is no difficulty in ascertaining the rudimentary condition of the pollen, and so ascertaining that a plant is a female. The explanation of the sterility of the seed-capsules in the Cypripediums sent to me I have little doubt lies in the circumstance of their having been fertilised by pollen taken from the same plant or seedling. I now know of a long series of cases in which various Orchids are absolutely sterile when impregnated by their own pollen (proved, however, to be in itself effective), but which can be easily impregnated by pollen taken from other individuals of the same species, or from distinct species. These facts strike me as most remarkable under a physiological point of view, and they point to the necessity of an occasional or regular union between distinct individuals of the same species. *Ch. Darwin.*]

Forced White Lilacs.—We have heard much of a certain process—a profound secret, of course—by which a grower of flowers for the Parisian markets is enabled to change the flowers of the common Lilac into the purest white. I have never given free credit to the above, thinking it not improbable that this gentleman may at some previous date have become the possessor of a seedling Lilac, which forces well; or that by a selection of the best and whitest from amongst such as Syringa persica alba, vulgaris alba, or vulgaris alba major, he has attained a like end. I should have troubled myself no further about the matter had not my attention been drawn to it afresh in a late number of the "Floral Magazine." I enclose some flowers of the S. persica alba, an exceedingly useful variety for early forcing, whether for cut flowers or otherwise. *William Earley.* [The flowers in question were beautifully white, and altogether in charming condition. Eds.]

Rival Systems of Vine Growing.—We have full information as to the splendid Grapes produced at Combe Abbey, when both top and bottom were allowed to extend at the same time. It is well-known, however, that nearly all, I might indeed say all, the first prize Grapes, both in London and Edinburgh, have been cut from Vines not exceeding six years of age. I well remember Mr. Hill, who is admitted to be

one of the best growers in England, showing some five years ago the three finest bunches of Black Prince that were, I believe, ever brought to any London exhibition; they were cut from young Vines. The next season the bunches got considerably smaller, and they continued to do so till they ceased to be shown. There must be some reason why these fine Grapes should diminish so quickly after they had attained this age. Surely a plant that is admitted to be as durable as an Oak, cannot possibly be in its prime when only three, four, or five years old. Now it is well-known that whatever may happen contrary to the general practice, whether through foresight and good management or by accident, there is always a cause. What then is that cause in this case? Here is the question at issue, and this we should look full in the face, for it is a most important question. And in fairness too we should look on both sides, and see which is right—not for our own glorification, but for the benefit of future generations. There are several magnificent Vines both in England and Scotland, producing hundreds and even thousands of bunches of beautiful Grapes every season, and that without the slightest indication of failure; in fact they never have failed, and they require but little more attention than a favourite Pear tree. It has been stated on good authority that a Vine is as lasting as an Oak; but we will suppose 100 years to be the full age of a Vine, particularly as Mr. Norman says his large Muscat at Bromley produces now at 100 years of age better Grapes than when it was very much younger. In the face of this, can any practical gardener believe that a Vine of only three to six years old can possibly be in the prime of life? Would it not be reasonable to suppose 10 to 20 years as a more likely age? You have already (p. 1138 of last year's volume) given the particulars of the large Vine at Kinnell. This Vine, it is stated in your Scottish contemporary, though 45 years old, is in healthy vigorous growth, and produces excellent high-coloured fruit, with some of which the 1st prize was taken at the Aberfeldy Horticultural Show last year. "This Grampian giant affords a good example in favour of allowing the branches to have full and free extension; for had it been subjected to short summer pruning and severe winter mutilation, it never would have attained to more than ordinary dimensions." This is not joking, nor is it a "blatter of wind." I may remark that my experience extends over 24 years, and that during that time I have had many Vineries under my charge. I was employed three years in the horticultural establishment of Messrs. Markes & Stewart, Norwich, where there are two ranges of Vineries, one 75 yards long, the other 73, 18 feet wide, and divided into 11 compartments. I have besides taken several first prizes, both for Hamburghs and Muscats. Now let us glance at the present system of managing young Grape Vines. Strong Vines are planted in a well-prepared border, and with good treatment they will make extraordinary growth. I have had them make above 26 feet the first season, and the second season they will make a still greater length in proportion. Then for the next season they are usually pruned down to about one-third the length of the rafter. This is the time for the prize Grapes; the Vines carry a few bunches, and are still allowed to extend themselves upwards, so that by the fourth year they occupy their allotted space, with about 18 feet of main stem. If it is natural for a Vine to cover a space of 147 square yards, as that at Valentine's is recorded to have done, and carry one ton of Grapes every season for half a century, without a sign of failure, can any sane person think that 18 feet of wood is sufficient to keep a Vine in health and vigour? Then let us remember that after the plants have made such a rapid growth for the first three or four years, they are not allowed to extend 1 inch afterwards, under the restrictive system; and yet the roots are treated on the very opposite principle, and gorged with all the fat of the land. But if these roots have got no more to support—in fact, not so much as they had 10 years previously, supposing them to be 16 years of age, what must any intelligent gardener expect? Why, that shanking and other diseases will follow. It is indeed surprising that Grape Vines will stand the continual hard pruning so well as they do. Let it be remembered I do not say the present system of stopping the laterals in the growing season, and of pruning down to one or two eyes in the autumn to get fine Grapes, is wrong. But I do contend that to keep a Grape Vine in perfect health it ought to be allowed to extend itself with 6 feet of fresh rod every season after the fourth year from the time of planting. When some of our eminent Grape growers put this extending as well as pruning into full practice, there is every reason to expect Grapes equal if not superior to those gathered by the children of Israel! I think these facts will be sufficient to prove in the minds of reasonable persons that there is yet a great deal more to be done in producing Grapes than many are aware of, particularly as it is not denied, as asserted, that Messrs. Meredith and Henderson have taken more prizes for Grapes than any other two persons in the United Kingdom, under a moderately extending system. Some persons complain that under this system there would be no variety; could there not be a graft to every rafter, supposing the main trunk was trained along the front? I am sure the Vine is one of the most accommodating plants in the world. *H. Cannell, Fuchsia Nursery, Woolwich.*—I have seldom been more amused than I have been with the peculiar remarks of Mr. Cannell on Vine culture, based, as it seems to me, on such weak grounds—the failure of one house of Vines committed to his charge. He does not even mention the soil or subsoil in which the borders were made, or how they were made, but says "everything having been done (in making the borders), I believe, to make the Vines produce the very best of fruit." Now, one can never believe that a sensible practical man would, on such a basis, propound a new theory, or more properly a very old one, for our old walls tell us that the "extending system" of Vine culture was the only one known to our ancestors. My neighbour's wall, 60 yards long and 9 feet high, is covered with one Vine, which in some seasons gives him more ripe Grapes than he knows what to do with, and in others gives him an equal abundance of unripe fruit. To those who wish to see a house, say 50 feet long, covered with one Vine, there can be no objection to planting a Vine at one end or in the centre, and training its shoots for some eight or ten years under the 12 or 15 Vines trained under the roof, and spurred-in in the usual way, when, if after the luxury of partaking of several choice sorts of Grapes, ripening at different seasons, and of widely different flavour, the cultivator decides to root up the rafter Vines and devote the house to one Black Hamburgh, there is nothing to be said. No man of taste would do it, yet this seems to me what Mr. Cannell recommends. I am not surprised that his recommendation has brought on a storm of criticism from our most experienced Grape growers. Mr. C. assumes that had one of the Vines (the Vines that perished under his hands) "been allowed to extend itself, say 6 feet of rod every season," all would have been right, but why did he not try it, and then have broached his theory? The truth is, I fear, that Mr. Cannell has not travelled or seen much, or thought soundly about Vine culture. If he had seen those closely pruned Vines bearing such magnificent fruit as they do in Languedoc or Provence, and had inquired why the "extended system" was not followed, he would have had a satisfactory answer; or again if he would travel from Valencia to Malaga and see those grand Muscat of Alexandria Grapes turned into raisins, all gathered from closely pruned stumps, he would be prudently silent about his system. To produce fine fruit the Vine must be closely pruned; were it not so the experienced *vignerons* of France and Spain would plant 150 Vines per acre instead of, as now, 2000 or so. It is just possible that in some of the hot fertile valleys of Syria a Vine would climb and cover a large tree, or spread itself over a large area of ground, yet produce fine Grapes; but to recommend such a system to English cultivators is certainly curious and a little eccentric. I am half inclined to suspect that Mr. Cannell's motive in publishing his new ideas was partly if not wholly to elicit discussion, and amuse the Grape-growing world. We therefore owe him thanks. *Vitis.*

Pruning Frost-bitten Evergreens.—In the *Gardeners' Chronicle* of 1861 (p. 98 *c*), there is a strong caution against pruning frost-bitten evergreens before the end of March or the beginning of April. Has actual experience really proved such practice to be prejudicial to the plants? I ask because it is not easy to see what good there can be in deferring the removal of a branch or stem whose inner rind is brown, and which is hopelessly lost. In that year (1861) a Laurustinus on my grounds in Somersetshire, one of the largest and most beautifully grown that I ever saw, was allowed to take its chance, because we were loth to cut it down, and as the summer came on it died altogether. It is my belief that the root, enfeebled by the frost, had been exhausted in the attempt to support the dying stems, but might have been saved by their immediate removal; and this year I have cut down several in the first week of March. There are Job's comforters who tell me that I have killed them. May I ask if such presage is justified by observation, or merely rests on theory? *R. C. A. P.* [The recommendation to defer the too early pruning of such trees is based on the risk to be incurred should a return of severe weather occur after the living but enfeebled parts have been exposed by the removal of the otherwise useless spray. If no injury has been sustained from this cause, none need be feared from the earlier cutting in your case. See some remarks of Mr. M'Nab's on the opposite page. EDS.]

Strawberries.—It was some time before I could procure the true Sir Harry, which I did at last through Mr. Dick, Wynyard Park. We found this to be very different from the spurious sorts grown under that name, and here we consider it, if not first-rate, to be an excellent variety. When The Lady was announced, the flourish of trumpets was great. The Queen, Sir Harry, and others were all—so said the advertisement—to bow before her Ladyship. I therefore lost no time in securing the prodigy, which arrived in pots in the autumn, was wintered in a cold pit, and planted out upon a south-east border, along with Sir Harry and others. The plants kept ahead, and came into flower and fruit about the middle of our Strawberry season. The fruit is medium-sized, round in shape, bright in colour, and rich looking. We had fine weather, clear sunshine daily, yet, as I stated at the time, the flavour was not equal to that of Sir Harry; nor do I now think The Lady will ever make more than a second-class fruit. This year the plants of her ladyship are strong, full of leaf and health, and she will have to prove herself against Dr. Hogg, in addition to her former rivals; should I therefore find her anything superior to what I have stated, I will not fail to repent of what I have said, and report. *John Richardson, Sound Gardens, Southend.*—I cannot allow the observations of Mr. Henry Doubleday (see p. 268) to pass without comment; more especially as the letter to which he refers, dates as far back as August, 1856. I do not certainly state in my advertisement that spurious plants of Sir Harry are sent out by nurserymen, neither do I wish to impute anything of the kind to them. I mention that I keep a few genuine ones, because, as I grow no other varieties than Sir Harry and The Lady, I cannot possibly have a mixture of sorts. I have received many eulogistic letters from Mr. Gloede, of Les Sablons, and in one of last autumn, ordering plants of The Lady, he observes, "It was with a great deal of pleasure that I read in last Saturday's *Chronicle*, that you were sending out a new Strawberry, The Lady, and I sincerely wish that it may have the same lasting success as the famous Sir Harry. The latter is still a great favourite—never fails! on the contrary, crops so much that I advise every one to grow it as an annual, that is to say, to replant anew every year—the plants getting exhausted so quickly by its enormous produce. At the Imperial gardens at Versailles Sir Harry is a great pet, and is largely grown for the Emperor's table." As for Hooper's Seedling, I have not grown it for nearly twenty years. *Rich. Underhill, Sir Harry's Road, Edgbaston.*

Vines for Vineyards.—In reply to your correspondent "E. J." (p. 267), I would say that the late Mr. Ward, who for many years cultivated a vineyard at Keston in Kent, informed me that out of the numerous varieties he had tried, no Grape equalled the Rhenish. I presume he meant the White Rissling. The site was on the chalk, but probably 400 feet above the sea level. Your correspondent is more favourably situated; but whether he will ever be repaid for his trouble is another question. Even at Paris good wine cannot be made. On the banks of the Seine, between Rouen and Havre, such favoured nooks as your correspondent possesses, are often planted with standard Apricots, and I should recommend him to try that fruit trained as a pyramid. *G. S.*

Mikania Lierallii.—What is the Mikania Lierallii from New Grenada, mentioned in *L'Horticulteur Français*, and described as vieing in beauty with the Cyanophyllum, and as having heart-shaped, dark velvety green leaves, a foot long and ten inches wide, with the veins rose-coloured at the base and white towards the extremity of the leaves? Is it a Mikania? The comparison with Cyanophyllum seems rather to suggest that it may belong to the Melastomaceous Miconia, rather than to the Composite Mikania. Perhaps M. Lierval, or some of your French readers, will tell us what it is? *Enquirer.*

Rainfall and Temperature of 1866 *at Culford Hall, Bury St. Edmund's.*—The annexed tabular form shows the maximum, minimum, and mean or average temperatures at this place during the last eight years, together with the amount of rainfall, and also the number of days in each year on which either rain, hail, or snow fell. It will be observed that the rainfall of 1866 is somewhat above the average of that of the preceding seven years. The maximum temperature of the past year was 88°, and occurred on July 13th; the minimum was 16°, and occurred on February 28th. The mean or average temperature of the year was 48°·4 Fahr. The rainfall was 28·73 inches; and the number of rainy days 154. Amongst the most remarkable phenomena of the year were a severe thunderstorm, accompanied by hail and rain, on the night of the 4th of February; and the extreme depression of the barometer on and about the 11th of the same month. By far the most remarkable, however, were the splendid meteoric showers which illumined the night which intervened between November 13th and 14th; the cloudless sky was particularly favourable to this singular exhibition.

	Max. Temp.		Min. Temp.		Mean Temp.	Rainfall.	Rainy Days.
	°		°		°	Inches.	
1859	89	July 8	5.0	Dec. 18	50·2	27.17	124
1860	76	July 15	0.3	Dec. 24	47.0	33.20	188
1861	85	Aug 12	0·0	Jan. 7	49.3	19.51	134
1862	80	May 6	21.0	Jan. 18	49.9	23.78	165
1863	87	July 7	22·0	Mar. 30	49.4	20·39	111
1864	85	July 20	9.0	Jan. 6	47·8	16.44	89
1865	90	June 23	12.0	Feb. 14	48.9	28.31	128
1866	88	July 13	16.0	Feb. 28	48.4	28.73	154

P. Grieve, Culford.

Heavy Grapes.—It is not difficult to understand where the Vines alluded to in Mr. Briscoe's communication (p. 267) are situated. I am of opinion that if Mr. B. had put the average at 4 lb. instead of 6 lb. he would have been much nearer the mark. I think an 8 lb. 4 oz. bunch of Black Hamburgh Grapes is a prodigy which has seldom appeared at the metropolitan exhibitions, much less at Thornton. Although the Vines alluded to by Mr. B. have furnished excellent bunches, I think it a pity to give to the public such extravagant statements of immense crops of Grapes from Vines under the system of culture mentioned. *Doubtful, Neston, Chester.* [A bunch of Black Hamburgh, weighing 8½ lb., was exhibited at Chiswick in 1858, from Oak Hill, and in 1865 Mr. Meredith exhibited a bunch of the same variety, weighing no less than 9½ lb., at one of the great exhibitions in Regent's Park. EDS.]

New Dwarf Sprouting Ulm Savoy.—I have sent for your inspection two heads of ordinary Brussels Sprouts, with the view of showing how they "run" to seed compared with the new Dwarf Sprouting Ulm Savoy, which is still in good condition for use, while the Brussels Sprouts are quite past. These were grown side by side in the same quarter, therefore the superiority of the former over the latter is clearly proven. In most seasons the sproutings of the Dwarf Ulm Savoy are fit for use until May. A more trying winter and spring could not occur than that which we have just experienced; they have therefore been subjected to an unusually severe test. *Stuart & Mein, Kelso.* [The Brussels Sprouts sent are "run" and wholly worthless, while the sprouts on the Savoy are numerous, large, firm, and excellent. EDS.]

Beard's Patent Non-conducting Metallic Glass Houses.—Having observed your notice (see p. 296) of the model of one of our patent greenhouses exhibited at St. George's Hall, Liverpool, in which a remark is made as to the danger of oxidation of the metal nut by which the glass is secured by our patent system of glazing, we beg to observe that this effect cannot possibly take place, inasmuch as the nut is manufactured of white metal, from the connection of which with the iron screw stud no rust could by any means be produced,

We universally use these white metal nuts with the best possible effect in every description of our glass houses, and we have never found any injurious action therefrom in a single case. *Sanders, Frewer & Co., Bury St. Edmund's.*

Luculia gratissima.—Many of your readers as well as myself, would doubtless feel obliged by any of your correspondents who cultivate the Luculia, favouring us with the size of their plants—both as regards height and circumference; also, whether they are planted out in a conservatory border, or grown in pots. *D. C., Chard.*

Societies.

Royal Horticultural: *Saturday, March* 30.—The first of Dr. Masters' Lectures on Plant Architecture was delivered in the Council Room on this day, and was numerously attended. It was illustrated by large drawings as well as by specimens from the Society's Garden. The lecturer began by stating that the subject was chosen as one by means of which a general idea of the conformation of the higher plants could be obtained without the necessity of going into minute detail or of employing many technicalities. After a passing notice of the "cells" or living bricks of which the plant is made up, the lecturer proceeded to show how, on a "foundation" of cellular tissue, of which alone the simplest plants are built, the more complex plant structures, such as the leaves, flowers and fruit, are gradually erected, these several parts being set apart for distinct purposes, just as the rooms of an ordinary house are devoted to special uses, the several organs being connected one with another, by the medium of the root and stem or "axis," in somewhat the same way that the rooms of a house are brought into communication one with another by means of the staircase. In the simplest plants, one cell, or an aggregation of such, sufficed for all the business of life, just as in uncivilised countries a hut or a wigwam served for many purposes, for which, in other climes, and under other circumstances, separate rooms were set apart, and so arranged and modified as to suit the varied requirements of the possessor. In the case of plants, it was shown that the possession of separate organs, and the form of these latter, were specially dependent either on adaptation to particular purposes and to external circumstances, such as mutual accommodation, the necessity for light, air, increased supply of nutriment, &c., or to the hereditary transmission of the form and attributes of the parent plants to the offspring. Plant architecture, or the plan upon which plants are built up, is thus in great measure the result of a compromise between these two agencies. In the case of the flowering plant, all the numerous and seemingly different organs may readily be referred to two primary ones, the axis and the leaf, the differences in form, &c., being brought about by the action of the causes before mentioned. Except for convenience sake, the axis and leaf could hardly be considered as intrinsically different, but for practical purposes it was necessary to consider these two as distinct elements in plant construction. The principal forms and modifications of these, it was intimated, would be treated of in the following Lectures.

April 2 (*Scientific Meeting*).—W. Wilson Saunders, Esq., F.R.S., in the chair. After the election of 16 new Fellows, and the affiliation of the Kirby Stephen Floral and Horticultural Society and the Bildeston District Horticultural Association, the Rev. Joshua Dix directed attention to a beautiful collection of fuchsia Azalées which is now being exhibited by Messrs Lane in the north western conservatory arcade. The awards of the Fruit Committee having been reported by Mr. Wilson, Mr. Bateman stated that a fund was in course of being raised for the purpose of placing a small memorial fountain in the gardens of the Society at South Kensington in remembrance of the late Mr. Skinner, and he thought that the Society ought to contribute its mite to so desirable an object. Mr. Wilson Saunders stated that the Council proposed granting a sum not exceeding 10*l.* for the purpose named, and having put the motion to the meeting the vote was carried unanimously.

Mr. Berkeley then offered a few observations on the subjects exhibited. Primula denticulata, he said, though not new, having been figured in the "Botanical Magazine" as long ago as 1842, was nevertheless well worthy of cultivation, on account of the beauty of its compact heads of rosy lilac blossoms. Attention was next directed to Ataccia cristata, a curious plant belonging to a small Natural Order, and remarkable for having veins proceeding from the midrib, and not from the base, as is usual in Endogens, whilst the structure of the flowers is also peculiar. After pointing out some instances of erroneous nomenclature among Crocuses and other spring bulbs in a small collection which was exhibited, and alluding to a panful of different varieties of the silvery-leaved Physurus argenteus from Mr. Wilson Saunders, Mr. Berkeley remarked that he had never seen Sarracenias grown so well as at Lady Dorothy Nevill's, at Dangstein, and an account of which will be found in another column. In reference to a curious case of fasciation in the Ash which was brought before the meeting by Mr. Earley, of Digswell, he remarked that though fasciated branches are commonly enough met with in the Ash and stems of Asparagus, this was a still more curious instance, the male inflorescence being in every case fasciated and even perfectly woody.

The Chairman then invited Mr. Paul to deliver his lecture on Spring Flowers.

Mr. Paul said:—In continuation of the remarks made last week, I shall to-day endeavour to show the grounds of procedure, and the process of cultivation in the production of early flowers.

The art of forcing, whether applied to fruits or flowers, consists in changing their seasons, or in bringing them to maturity at an earlier period than that at which they blossom or ripen naturally out-of-doors. The art is by no means new. It was known to the Romans. Pliny tells us that they used to obtain Roses at Rome before the natural season, by watering the plants with warm water so soon as the buds were visible. The Romans in the reign of Domitian had undoubtedly abundance of Roses in winter. It is probable that the art of forcing was borrowed from the Egyptians, and first practised at Rome in the time of Martial, the famous epigrammatic poet, who ridicules the Egyptians for still sending them Roses when they had plenty of their own, and asks them to send corn instead. Dr. Deslongchamps relates, on the authority of Seneca, that the Roman gardeners had at this time found out the means of constructing hothouses, which they heated with tubes filled with hot-water, and thus induced Roses and Lilies to flower in December. In dealing with this subject it seems desirable to show, in the first place, the principles on which success depends, and afterwards to describe the most important details of cultivation.

The cultivator should never forget that a plant is a living organism. There are the root, the stem and branches, the leaves, the flowers, the fruit. The sap which traverses all these parts is analogous to the blood in animals. While the plant feeds principally by the roots, and can receive food only in a fluid state, it feeds also by the leaves, which breathe, digest, and perspire. The leaves of plants perform functions analogous to those of the lungs, digestive organs, and skin of animals. The roots of a plant absorb moisture from the soil in which they grow. This moisture or water containing various matters in solution we call sap, which passes in a crude state through the stem and branches to the leaves, where it undergoes certain modifications. It is then returned into the general circulation in an altered and matured condition, suitable to the particular wants of the plant.

Further, plants have two periods of comparative rest, arising from the alternations of day and night, summer and winter. The leaves decompose carbonic acid during the day, liberating the oxygen which they re-acquire during the night. But winter is their longer and more complete period of rest, although the roots are supposed to be never wholly inactive except when frozen. Now this state of rest, which is of vital importance to plants, may be brought about equally by the agency of cold or drought. Deciduous trees lose their leaves by the frost on the approach of winter; bulbous plants fall into a dormant state by the drought of summer, and they equally attain, although by different and opposite agencies, the necessary state of rest, while it is possible to change the seasons—which we do in forcing—without injury to the plant, it is important not to annul or intrench too far on any one of them. Spring, summer, autumn, and winter, if changed as to date, must still be allowed to follow in due succession, or the health of the plant cannot be maintained.

I have judged these few remarks necessary, in order to render clear what is about to follow. I shall not, however, enlarge on these physiological questions, because the lectures of Dr. Masters, the first of which I was fortunate enough to hear last Saturday, will no doubt explain them with a skill and lucidity that I cannot hope to reach.

I shall now pass on to consider certain principles in the art of forcing on the due observance and application of which success depends. To elucidate my views I shall take a single plant as an example, selecting for my purpose the Rose. If a Rose is taken from the ground in the autumn before the natural period of rest has expired, and suddenly thrust into the forcing-house where a high temperature is maintained, growth will quickly recommence, and flowers follow in due course, but both leaves and flowers will be feeble, and of indifferent quality. On the contrary, had the plant been previously rested, both leaves and flowers would have been fully developed. Hence, it will be inferred, that it is important, to prepare the plants, to grow them in pots one season before required for forcing, because in such condition they are more under our control as regards the application of moisture and heat; we can rest them at pleasure, and ensure a more regular growth and plentiful setting of flower-buds.

In preparing Roses for forcing we draw them from the ground in November, and place them in pots of various sizes to suit the age and vigour of the plant.

We next plunge the pots in some sheltered spot in the garden till the beginning of January, by which time fresh rootlets will have formed, and the plants will be in a condition to feed and grow. We now prune closely, and place them in a pit or cool greenhouse, with the view of slightly changing the seasons this first year. The moisture and warmth of this house will induce an earlier development of leaves, branches, and flowers than would have taken place out of doors; the flowers will probably open in May.

Pruning is a very important branch of Rose culture. The principal ends sought are threefold:—

1. To maintain the plants in health and vigour.
2. To induce them to assume a form at once agreeable to the eye and most suitable for the development and display of the flowers.
3. To secure an abundance of fine flowers.

The Greeks were alive to the advantages arising from the removal of some of the branches in Rose trees, although, in the absence of a knowledge of first principles, they took a curious method of accomplishing it. Theophrastus, who lived about 300 years before the Christian era, tells us they used to set fire to the Rose trees in Greece, without which they would never flower. We are elsewhere told that the extraordinary vigour and beauty of some plants on which goats had been browsing, first gave the ancients the idea of pruning. We know by experience, that if we leave a Rose tree unpruned for one year, it loses shape, and the flowers lose size, colour, and consistency. If we leave it unpruned for two or three years in succession, it rapidly degenerates. To this subject I shall recur by-and-by.

Disbudding, which may be considered as an auxiliary to pruning, is a practice which I value highly, and have adopted for many years. A plant, if well fed, often pushes forth new branches in such close proximity, that as the growth extends the branches crowd and stifle each other. To prevent this—and here it should be remarked that a few large vigorous leaves are more desirable than a greater number of small leaves—we rub out and destroy in an early state of growth a portion of these incipient branches, leaving such as have an outward tendency of growth, and are placed at good distances from each other.

Now the flowering of these plants, if placed in a greenhouse, will, as we have already said, take place in May. So soon as the flowering is over, they are gradually inured to the temperature out of doors, whither they are shortly conveyed. The second growth takes place out of doors, and is again regulated by disbudding and the stopping of any gross shoots. The plants being a month in advance of Roses out-of-doors as to flowering and growth, may be brought to rest a month earlier Let us assume, then, that it is the end of September, and the plant is in a state of rest. It should be our aim to keep it so for at least two months. The best means of effecting this is to place it in a house or shed where no heat is employed, keeping the roots rather dry.

A word or two with regard to the forcing house. It should be constructed so as to secure as much light as possible. The artificial spring which we create for our plants does not secure for them the long and strong sunlight of their natural spring—it is the difference between December and March, so that it is important to secure all the light we can.

As to the climate of the forcing-house this is deserving of attentive consideration. If too dry it creates a drain on the natural resources of the plants; if too wet they become gorged with moisture, and this probably is one cause of mildew. I know not how to convey any precise information as to the proper hygrometric state of the atmosphere; this is one of those points in gardening which the practical man judges of by the appearance of the leaves—tests by his own feelings when he enters the house. The leaves should look firm, solid, and dark-green, the climate should be soft, genial, and slightly humid. The defect of climate, once ascertained, it is easy to provide a remedy for: if too dry, pour water on the floor of the house; if too wet, admit air.

A knowledge of these facts and principles, then, is the groundwork on which the intelligent cultivator proceeds in the production of early flowers. He knows that if he would accomplish any marked success before he forces a plant he must rest it, and that to retain it in health he must prune it, and approach as near as may be to those conditions of air, light, moisture, and heat to which it is subjected in its natural state.

I now proceed to the second part of my subject—to describe the most important details of cultivation. Let us assume that it is the month of December, and we have at our disposal Roses which have been prepared as just described, and which we wish to bring into full bloom in March. We have a forcing-house into which we convey them. The soil in the pots is saturated with water, and we prepare for pruning. The Hybrid Perpetual and Tea-scented are the best Roses for forcing, but we must not exclude the Moss Rose, which forces tolerably well, and is of rare beauty. We prune the Hybrid Perpetual Roses closely, the Tea-scented less, and the Moss least of all. There is little fear of pruning either of the former out of bloom, but the varieties of Moss Roses if pruned much will produce leaves and branches only—no flowers!

In illustration of these remarks, take the plants before you. Here is a plant which was drawn from the ground and potted last autumn. We are about to prune it. This, be it remembered, is a plant in course of preparation for forcing. Our first aim is to establish it in its new home, we therefore prune closely, not thinking so much of flowers in the present as looking for branches from which to obtain flowers next year. Let us go forward three months, and imagine that we see the same plant here in a more advanced stage. It is true we have flowers here, but that is due to a peculiarity in the variety. Most Roses pruned as this was would have produced wood-shoots rather than flower-shoots, as in this other example.

I must, in order to work out my illustration, ask of you a little further exercise of the imagination. Imagine the plants on the table to be 12 months older, and they will be in this state. Now, as to pruning. If a Moss Rose, we should prune slightly; if a Tea-scented Rose, a little more; if a Hybrid Perpetual, closer still.

[Here Mr. Paul illustrated short, medium, and long pruning, by shortening the shoots of a pot Rose according to each method of pruning.]

Our plants are in the forcing-house. The pruning finished, we raise the temperature of the house to 50° by day and 40° by night, and keep it about this mark for the first fortnight. The plants should be syringed daily in the morning, and watered at various intervals as the soil becomes dry. No fixed periods can be named for watering, because the drying of the earth in the pots will depend much on the amount of heat and sunlight. Usually once a week, and seldom more than twice a week, will water be required at this early period of growth. As the leaves expand, the amount of heat may be increased to 60° or 65° by day, and 50° to 55° by night. We should now also water our Roses more freely, and syringe twice instead of once daily—morning and afternoon. It is January, and although winter out of doors it is spring with them, and the nearer we can approach the climate of spring, minus the night frosts, the greater amount of success we shall attain. As we want a warm moist climate, we cannot afford to give much air unless the weather be mild, and then, even then, caution is necessary. When the leaves become hard, which they do by February, more air may be admitted, and towards the end of February, as the buds show colour, the amount of air given may be still increased. Throughout this period of growth (their spring) a low night temperature should be maintained. The Rose has many enemies. The aphis, or green-fly, is one of the most formidable, and must be kept in check; the first aphis that is seen should be the signal for filling the house with tobacco-smoke, which must be repeated from time to time as they reappear.

Mildew is another annoyance to which Roses are commonly liable. To maintain a healthy state of the roots and leaves is the best preventive; to dust the leaves with sulphur the best remedy. I always keep in my Rose houses a little machine called a "sulphurator." If any plant or branch is attacked by mildew, that plant or branch is immediately syringed, and the machine brought into use. The sulphur is driven against both the under and upper sides of the moist leaves, the plant is indeed enveloped in a cloud of sulphur, and the mildew is checked or destroyed.

It is March, spring out-of-doors, but summer with our Roses. The plants are free from mildew and aphis, the leaves are clean, broadly developed, intense in their colouring, and the gorgeous blossoms are ready to unfold. We are here in full summer-tide, although the Roses out-of-doors are still in embryo. How shall we proceed to retain these flowers in full beauty for as long a period as possible, and yet develop the later and lingering buds. The temperature of the house may be slightly lowered, and the plants may be watered freely. Syringing may be discontinued, or more sparingly applied. A slight shading—thin canvas is the best—should be drawn over the house, which will materially aid in preserving the freshness of the flowers.

By the end of May the plants may be removed from the house and plunged in the ground, out-of-doors, to complete their growth. If watered sparingly they will fall early into a state of rest. In September they should be repotted, and will be ready for re-introduction to the forcing-house in November or December following.

This, then, is the round of management by which these Roses are produced, and so perfect has the art of forcing become that the out-of-door Roses of June rarely excel those which are produced in the forcing-house in early spring.

One word more. We have been speaking of plants growing in pots. But Roses may be planted out in the borders of a greenhouse or conservatory. To such the same principles of cultivation may be applied; indeed, the system of planting out has many advantages, I should recommend all who are fond of Roses to adopt that plan. By it they may have Roses during the whole of the winter and spring months.

A vote of thanks having been given to Mr. Paul for his very instructive Lecture, Mr. Bateman apologised for thrusting in some remarks which he had offered to give at this meeting on the "Nomenclature of Orchid-houses" before he was aware that Mr. Paul's lecture would take place on the same day. Before proceeding further, however, he would refer to some of the subjects exhibited, and first to a plant (a species of Amorphophallus) from T. Tuffnell, Esq., of Spring Grove, who had received it from the Emperor Napoleon's head gardener in 1864. It reminded him of a plant sent home by his collector, Mr. Colley, 30 years ago, under the name of Labarri-plant—and of which the juice was used by the natives of Demerara as the only known antidote to the bite of a deadly snake (the Labarri) which was one of the scourges of that country. The natives had been led to use it as a remedy from the similitude of the markings on its stem to that of the snake itself, and to its efficacy as a remedy for snake bite the celebrated traveller Waterton had borne testimony from personal observation.

With regard to Orchids, Mr. Wentworth Buller had sent a specimen of Dendrobium thyrsiflorum, and Mr. Anderson the lovely Odontoglossum Phalænopsis with three blooms on a stem, together with Cattleya Loddigesii which Mr. Bateman first saw in flower at Messrs. Loddiges' more than 30 years ago, but which now owing to the different and more sensible manner in which Orchids are cultivated has turned sulky, the fact being that it is found in a district of Brazil, which is exceptionally dry, and consequently requires a drier treatment than Orchids at present for the most part receive. Mr. Anderson had also sent Odontoglossum luteo-purpureum, but there was a better specimen from Dr. Pattison. It also went under the name of O. radiatum and O. hystrix, but though both himself and a far greater man, Reichenbach, had been deceived in thus naming varieties, these proved to be mere forms of the O. luteo-purpureum of Lindley. From Mr. Jones, Whalley Range, Manchester, came a monstrous Cattleya with two lips, and other interesting Orchids, and from Mr. Bull the beautiful Odontoglossum Alexandræ, with respect to which he might mention that the flowers, which arrange themselves all one way in a semi-circle, form a beautiful headdress or tiara for ladies. From Mr. Marshall came the best variety of Oncidium carthaginense that had probably been ever seen, but Odontoglossum triumphans, now exhibited for the first

time, must be considered the gem of that gentleman's collection, especially as in a year or two the plant instead of having two flowers will produce half a dozen or a dozen on a spike.

Among Orchids exhibited for the first time, were the showy Oncidium ampliatum, and a pretty white Dendrobium from Japan, which must be decidedly considered a cool Orchid. It would produce a large mass of flowers, and would doubtless succeed in a mild greenhouse. Mr. Bateman next directed attention to an experiment made by his gardener, Mr. Sherratt, the results of which were exemplified in two stems of Dendrobium amœnum. From one all the flowers had been stripped off but two, on the other all were allowed to remain, and the result was, that the flowers on the former were much larger than those on the latter—a result for which Mr. Bateman said he was hardly prepared, for though he knew that the flowers varied in number according to the wealth and strength of the plants, he was not aware that they could be thus increased in size. This, then, opened a new field in Orchid culture, and if Mr. Paul were to take Orchids in hand as he had done the Rose, there was no knowing what he might produce. After pointing out Dendrobium aggregatum as worthy of attention on account of the colour of its bright orange flowers, affording a striking contrast with others of more subdued hues, Mr. Bateman added, that Major Trevor Clarke had presented a Dendrobium to be allotted for at the end of the meeting.

Mr Bateman said he had next to offer some remarks on the nomenclature of Orchid-houses, and observed that it is only those who had to describe Orchids who know the difficulty which there is in selecting the terms to be used. Just as a person, to whom a physician recommends a change of climate, expects to be told where to go, so a person describing an Orchid is expected to state in what house it should be grown, whether in the East Indian house, the Cattleya house, the intermediate house, the cool house, and so on. Happily, Orchids are now sorted into two classes, the hot and the Cool, and this in itself was a great step gained; but as for the former or "hot" Orchids, if full justice is to be done, three houses are required, so in the case of the latter or "cool" section a threefold division—representing three grades of temperature—seemed to be indispensable. The East Indian house affords the highest degree of heat any Orchid requires, the climate being hot and moist all the year round. The Cattleya house in summer affords a tolerably warm and moist climate, but one which is comparatively dry during winter; while in the intermediate house, in some places called the Dendrobium house, the climate is very hot and moist, but only for six months in the year. Last, then, as three houses are required for warm Orchids, three are necessary for those needing cool treatment—namely, the Mexican house, with a mild and comparatively dry climate all the year; the Peruvian house, moist and very cool all the year, and suitable for Peruvian Odontoglossums; and the intermediate house, moist and mild all the year, and in which may be grown most of the New Grenada Odontoglossums, &c. In addition to the above there might be a West Indian house for Orchids requiring very hot but dry climate, such as Broughtonia sanguinea and various West Indian Oncidiums, Brassias, &c., which used to flower freely enough when Orchid growing was in its infancy, but which could not be grown satisfactorily in any of our houses, such as Orchid houses are now; in fact they required to be dry-nursed. The West Indian house, however, would be the dullest of all, and he would not recommend any one to set about its erection. After noticing the influence of the sea and elevation as regards moisture and temperature, more especially in connection with Mexico and Peru,* Mr. Bateman stated the very highest mean temperatures required in a cool Orchid-house to be 66°, and that the difference between the warmest and the coolest of the cool houses should not at the utmost exceed 10°, instead of a range of 15° or 20°, as in the case of the warm houses, for no plants seem to be so susceptible of a difference of 2° or 3° of heat, as cool Orchids. Hence the importance of noting the exact spot and altitude at which any new Orchid is found, and this information bodies like the Society sending out collectors had a right to expect; but it would not do for nurserymen, in the first instance at all events, to indicate too precisely the spot where any fine new species had been found, otherwise it would put others on the track, and the supply or demand would be soon exhausted. This would not be fair to the firm which had gone to the expense of sending out the collector. All, then, that we had a right to ask till the demand is satisfied, should be not indeed the whole truth, but nothing but the truth—no false statements; and he was glad to say that he only knew of two instances in which this rule had been departed from—one, that of a foreign, and the other that of an English nurseryman. He should mention no names, but this intimation that the facts were known would, he trusted, prevent the recurrence of such dishonourable conduct.

Mr. Bateman concluded by stating that he proposed to give as a prize a plant of Dendrobium Wardianum, one of the rarest and fairest of Orchids, to such nurseryman, gardener, or amateur as shall before the end of April send a filled up form (which is to be obtained from the Secretary of the Society), with the most extensive and accurately-named list of the species of Orchids now in cultivation, and distributed according to the classification of houses given above. This he hoped might be the means of leading to the ventilation and discussion of a most interesting subject, regarding which every new fact was of importance.

Mr. Wilson Saunders, in moving a vote of thanks to Mr. Bateman, took the opportunity to remark in reference to the varieties of Physurus which he had himself exhibited, that their variegation was, unlike that of variegated Pelargoniums and many other plants, natural and permanent, and there was no difficulty in propagating them. Another plant which he had brought was Epidendrum bicornutum with white flowers somewhat like Phalænopsis amabilis. Of Oncidium Sprucei he remarked that it was evidently distinct from O. Cebolleta.

Among the books, &c., presented to the Society since the last meeting, was the fourth part of Mr. Bateman's "Monograph of Odontoglossum."

April 2 (Floral Committee).—Mr. Bull received a Special Certificate for an interesting collection of plants, among which was the robust pretty-looking Fern Litobrochia undulata (noticed at p. 348), to which a Second class Certificate was awarded. The collection moreover contained the ample-leaved Cinchona nobilis, Dracænas of different kinds, the white-blossomed Rudgea macrophylla, the charming Camellia Lavinia Maggi rosea, noticed by us the other day (see p. 320), but in this instance damaged by forcing; the singular-looking Arisæma ringens Sieboldi, and other plants. Mr. Green, gr. to W. Wilson Saunders, Esq., furnished various interesting plants, among which were the handsome white-blossomed Epidendrum bicornutum, a species requiring skilful management in order to get it to flower well; the curious looking Catasetum tridentatum, and some Oncids.

Mr Watson, St. Alban's, furnished examples of the new tricolor Pelargoniums, Mrs. Dix and Miss Watson, which received First-class Certificates last year.

W. Wentworth Buller, Esq., received a First-class Certificate for Dendrobium thyrsiflorum, a handsome new species. Mr. Anderson, gr. to T. Dawson, Esq., Meadow Bank, Glasgow, furnished cut specimens of Orchids, for which a Special Certificate was awarded.

Messrs. E. G. Henderson sent examples of tricolor Pelargoniums, apparently seedlings: also, Pyrethrum Golden Feather, which, if it maintains its yellow tint under ordinary culture, may prove useful in the flower garden in summer. The pretty little Scilla sibirica was also sent by Messrs. Henderson, who had likewise Poa trivialis argentea elegans, which looks as if it would make an elegant hardy basket plant.

Mr. Mitchell, gr. to Lord Wenlock, brought finely grown specimens of Primula denticulata, which were awarded a Special Certificate. Messrs. Veitch exhibited Vanda cristata, with pale-green flowers blotched and streaked with black; also Azalea George Fleming, a deep brick-red flower. Messrs. Paul & Son sent two stands of beautiful cut Roses, which received a Special Certificate. Mr. Williams, Holloway, contributed a collection of Orchids and other plants, which were awarded a Special Certificate. Messrs. Perkins, Coventry, sent a tricolor Pelargonium named Queen Victoria.

Mr. Wilson, gr. to W. Marshall, Esq., Enfield, received a First-class Certificate for Odontoglossum triumphans, to which allusion is made elsewhere. He also showed Oncidium abortivum, with curious abortive flowers, and to a handsome variety of Oncidium carthaginense, distinguished by the name of Marshallianum, a First-class Certificate was awarded. Mr. Elliot, gr. to W. H. Barber, Esq., exhibited a specimen of Lamium maculatum, with leaves having a yellowish hue, with a faint streak of white down the middle.

Mr. Kinghorn sent an Azalea having a peculiar deep purplish rose colour. From the Society's Garden came Hyacinths, Alpine Auriculas, Lily of the Valley, and other plants.

April 2 (Fruit Committee).—Prizes were offered on this occasion for dessert and kitchen Apples. For the best three dishes of dessert Apples the 1st prize was awarded to Mr. G. Curd, gr. to M. G. Thoyts, Esq., Sulhampstead House, Reading, for Royal Pearmain, Old Nonpareil, and Newtown Spitzenberg. Equal 2d prizes were awarded to Mr. Cox, gr. to W. Wells, Esq., Redleaf, and Mr. Lynn, gr. to Lord Boston, Hodsor, for specimens in excellent condition, the former having Golden Knob, Scarlet Pearmain, and Winter Pearmain; and the latter Bess Pool, Scarlet Pearmain, and a kind of which the name was not known. Mr. Cox, Mr. P. Middleton, gr. to Sir Watkins W. Wynn, Bart., M.P., and Mr. Earley, Digswell, also sent dishes of Old Nonpareil, Sam Young, Court Pendu Plat, Sturmer Pippin, Cockle Pippin, and others.

For kitchen Apples Mr. Cox was 1st with Royal Russet, Norfolk Beefing, and an Apple unnamed, but apparently Bedfordshire Foundling; Mr. Earley 2d with Dredge's Fame, Norfolk Beefing, and Bedfordshire Foundling. Other collections from Mr. Cox, Mr. Lynn, and Mr. Middleton consisted of Dumelow's Seedling, Winter Hawthornden, Norfolk Paradise, and Winter Greening"; and a Special Certificate was awarded to Mr. Middleton for a collection in an excellent state of preservation. Mr. Lynn had beautifully grown Hedsor Winter Prolific Cucumbers, a nearly smooth white-spined sort, about 16 inches in length. Mr. Middleton likewise furnished a brace. A Special Certificate was awarded to Mr. Carmichael, gr. to H.R.H. the Prince of Wales, Sandringham, for a most excellent dish of Little Gem Pea, which, sown in pots in September and kept under glass, had been yielding Green Peas all through the winter.

* The mean temperature of Quito—"evergreen Quito," as it has been called—is about 60°; of Loxa, about 63°; of Popayan, about 66°. All these are great stations for cool Orchids.

Notices of Books.

A Book on Angling; being a complete Treatise on the Art of Angling in every Branch. By Francis Francis. 8vo. Plates. Longmans, 1867.

The systematic manner in which the author has classified the information which he communicates in the book before us is the first point which claims our commendation. Primarily he divides his subject into bottom-fishing, midwater-fishing, and surface-fishing, and under each division he discourses of the kinds of fish which are chiefly taken in these different ways, beginning with the simplest kind of angling, and the fish most easily caught, taking up in rotation those that require more crafty tackle and special apparatus, going through the best modes, and the various ways of bottom-fishing for gudgeon, pope, bleak, roach, rudd, dace, chubb, barbel, bream, carp, tench, and eels, until he comes to perch, with which he passes on to midwater-fishing, and describes the manner of spinning for perch and pike, of trolling, and of trimming. The partiality of this last fish for young ducks, and other feathered fowls of small size, and the fact of its taking any large gaudy fly about the end of the year, enables our author now to proceed to his third division of surface-fishing, and to discourse most learnedly upon salmon, trout, and greyling, and the flies which please them most at particular seasons, and on particular rivers in England, Scotland, Ireland, and Wales. In conclusion, the angler is instructed in the art of making artificial flies, of choosing hooks, of finding worms and other bait, and of doing sundry and divers other things which are useful for him to know.

All this is well and fully done, and the piscatorial world is greatly indebted to Mr. Francis for so complete a treatise, embracing as it does every branch of angling, and giving the result of his great experience for the last 20 years, during which time he has, as he informs us, visited and fished nearly every river of note in the kingdom, a privilege which his connection with the *Field* newspaper has doubtless in many cases obtained for him. The work is illustrated by 15 excellent plates, giving sizes of differently-shaped hooks, forms of landing-nets and floats, modes of baiting live-bait and spinning-tackle, and coloured illustrations of natural and artificial flies, together with the different stages of manufacture of the latter.

While surface-fishing occupies 300 out of the 400 pages of the book, those who do not indulge in those higher branches of the art have no reason to complain of the manner in which the author has consulted their interests and requirements. Especially in these parts is the angler favoured with hints, any three of which alone the reader, if he be unacquainted with them, will consider worth the cost of the volume. Here is one, for example, upon the selection of the best place in a stream for fishing. "Let the angler, if not too lazy, get up very early in the morning, and take a walk by the river side, and soon after day-break, when all is yet quiet, he will see the fish begin to break the water, and roach, dace, barbel, bream, and other fish will jump about, or put up their heads, as if to see what sort of a day it is to be. Let him then note the place where these rises are the thickest, and choose that place."

His descriptions of the Thames and the Nottingham styles of angling are excellently given; and here is the conclusion of his remarks: "The much more workmanlike, scientific, and deadly method pursued by the accomplished Nottingham bank-fisher is almost unknown to the generality of Thames anglers, yet it is quite high art in float-fishing from the bank, and is not at all easy to perform well. I strongly recommend anglers who can afford it to take a turn on the Trent, and put themselves under the tuition of a Nottingham adept. It will be money saved, as they will thereafter be very independent of punts and puntsmen, and will enjoy the active exertion of walking the river's bank in preference to the passively apoplectic operation of sitting in an arm-chair, with a pipe and a bottle of stout as a *solatium* for want of sport."

Probably there are but few anglers who have not seen carp basking on a sunny day just beneath the surface of the still waters of some sheltered pond, where the bushes hang well over the margin, and who have not been disgusted at their utter indifference to the reddest and liveliest of wriggling worms. Doubtless at such times they have no inclination to feed, indeed most fish bite better in the morning and evening than when the sun is high. But the carp is always a shy feeder, and the following sensible observations will make it clear to many why they have often not taken home any in their creel. "The depth should be plumbed, so that the bait may rest on the bottom. It is not natural to see a worm hanging in the air (? water, Mr. Francis), barely touching the bottom, and that the carp know well enough. In this position, too, the gut ascends directly from the head of the worm, and the unnatural attitude of the bait challenges the carp's attention to this 'new thing in worms.' Monsieur Carp then catches sight of the shot, and lastly, in all probability, of the float above. All this is of course strange and unusual, and he proceeds to investigate the bait with all due care, nibbling and picking at it like the female ghoul in the 'Arabian Nights,' who eats rice with a bodkin. He cannot make up his mind to take it, and he cannot make up his mind to leave it, so he nibbles, and nibbles, and at last you think he must have got the bait, and you strike. Now it is not customary for worms to dash off in that frantic fashion; and therefore while your worm dashes off one way, Master Carp dashes off the other."

After describing fully the various ways of taking pike, he says—"Gorge baits of all kinds, which were invented by the father of cruelty, should not be permitted on any excuse, because, no matter what the size of the fish may be, they kill him." "Had I the management of a good pike water, I would allow nothing but spinning, and no fish under 4lb. to be killed. Be satisfied, O angler, with landing the three-pounder; you have had your sport from him, let him go to grow bigger, that your sport may grow with him, and your horn be exalted some day at killing a twenty-pounder." Let us hope this appeal will touch those for whom it is intended, and induce them to act differently in future.

Having been so often disappointed with a blank day when the weather has appeared to be everything that could have been wished, one is naturally inclined to anathematise one's luck, or to suspect one's tackle—never, of course, to doubt one's skill—oh no, of course not! It is some satisfaction to find so high an authority as Mr. Francis, affirming that no one can tell whether fish will or will not feed to-day. "You may," he writes, "have sport in all winds and in all weathers, or you may not. I have had some of the best days I ever had in my life with a north or east wind, and some of the worst with a south or west one. I do not believe there is any rule whatever that can be relied on. I have had first-rate sport in snow-storms ere now. The influences which cause fish to feed, or the reverse, are as much a mystery to us as they really were to our forefathers." "My advice to the young angler is, always carry your macintosh, be patient and persevering, and leave the weather to take care of itself."

From the extracts which we have given, the reader will be able to form an opinion of the style in which the work is written; doubtless the information contained in it might have been condensed into less than half the number of pages, but it would have converted a pleasant readable book into a stiff, dry, formal collection of receipts and pieces of advice. Perhaps Mr. Francis might have dispensed with a pun, of not very high order; certainly, he need not have told one anecdote twice over; but this is the worst we can say of his book. On the whole it is a valuable addition to the literature of the subject, from the vast number of practical experiences which are given in it, and it will be appreciated nearly as much by old hands as by the youngest tyro.

The Apiary.

Artificial Swarming.—Having used up several stocks last year in peopling box hives, I have but one stock in a straw vat, with which to carry out a system of artificial swarming. A second belonging to a neighbour can be worked along with mine, as can also another, distant about a mile; but in both cases—that is, whether I bring or two into union with my own, mine must be the last driven. In that case, as it appears to me from the subjoined table of probable dates of forcing swarms, I should fare rather worse with the aid of my neighbour's stocks than if I forced swarms from my hive singly, and much worse with the aid of one neighbour's only than with mine alone.

The period of forcing first swarm may appear rather late, but this will be probably a late season in a late place.

With regard to the time between forcing a swarm from my own after forcing the swarm from the hive

No. 1, in the last case in the table, I find that it takes three weeks for a hive to become populous after removal only. It thus appears that working with two hives of my neighbours and one of mine, theirs being first driven, I get my first swarm the 10th of June only, and my second the 8th of July. When working with one of my neighbours' with mine I fare worse, as I get my first the 10th of June, and my second the 22nd of July. When working with my own only I get the first swarm 20th of May, and second 18th June. Besides, when working with one neighbour's only, unless after driving the first, my neighbour's hive, I waited still longer than three weeks to drive the first swarm from my own hive, when my neighbours must be displaced to populate it —would there not be a danger of the queen of my neighbour—now only about a week old—not being impregnated, and consequently lost when going out again in a new situation?

With Three Hives, first time.	*Own Hive Alone.*
No. 1, 20th May.	1st swarm, 20th May.
No. 2, 30th May.	
Own, 10th June.	
With Three Hives, second time.	
No. 1, 18th June.	2d swarm, 18th June.
No. 2, 28th June.	
Own, 8th July.	
With Two Hives.	*With Two Hives, second time.*
No. 1, 20th May.	No. 1, 1st July.
Own, 10th June.	Own, 22d July.

A. B.

[If you intend to go in for as large an increase of your stocks by carrying out the system of artificial swarming, as you can, it would be highly advisable that you should prepare the way by first raising royal cells and fertile young queens in one or more nucleus boxes. Then follow these directions given by Mr. Langstroth.

"When A is forced, it is placed on the stand of B, which is removed, C (the swarm) taking A's place. Let a fertile young queen be given to A, as soon as it is forced, and in 10 days force a swarm from B, which may be called D. Put D on the stand of B, and after removing A to a new place, set B where A stood, giving to B a fertile young queen. If another colony, E, is to be formed, make it in the same way, by forcing A, and transposing with B; and so continue, by the transposition of A and B—forcing the new colony alternately from each—to make successively at intervals of about 10 days, F, G, H, &c.; A and B being supplied with a fertile queen as often as they are forced.

"To make this process the more intelligible, let A and B represent the first positions, in the apiary, of the original stocks:—

Original stocks	..	.. A, B.
Position after 1st forcing,		C, A, B.
,, ,,	2d ,,	C, B, D, A.
,, ,,	3d ,,	C, A, D, E, B.
,, ,,	4th ,,	C, B, D, E, F, A.
,, ,,	5th ,,	C, A, D, E, F, G, B.

"By looking at this table it will be seen that the new colonies C, D, E, &c., always remain *undisturbed* on the stands where they are first put." Of course some of these numerous swarms will require liberal feeding. Unless we desired to increase as much as possible any particular species or variety of bee, we should be content with *doubling*, or at most *trebling* the original stocks.

"If you want honey as well as a moderate increase of stocks, be content with *one* swarm from two stocks. Force A so as to secure *all* its bees, putting the swarm on the old stand. If any bees are abroad they will join this new colony. Remove to a new stand, B, and put A in its place. Thousands of the bees that belong to B, as they return from the fields, will enter A, which thus secures enough to develop the brood, rear a new queen, and gather, if the season is favourable, large surplus stores. As B loses fewer bees than if it had swarmed, and retains its queen, it will soon become almost as powerful as before it was removed."

We cannot see why your stock must needs be the last driven. We should force a swarm from the first, which might be sufficiently strong for the purpose.

We have had large natural swarms issue from hives which had been removed, in very much less time than that mentioned by you as being necessary for the hive, after removal, to regain its strength; and we have forced out large swarms from such hives in less than a fortnight after such removal.

The catastrophe mentioned in your last paragraph could not occur if you would supply the driven hives with fertile queens as before recommended.]

Miscellaneous.

The Temple Hyacinths.—Mr. Broome's beds in the gardens of the Middle Temple have been unusually gay for the last fortnight and more with red, white, and blue Hyacinths. Not one of the bulbs has failed, and the spikes being of a uniform length, covered some 6 inches in depth with compactly-built, richly-coloured, fragrant blossoms, the effect is most satisfactory. Though now somewhat past their best, these beds are still well worth inspection.

Herefordshire Perry.—The best soils for perry are of a lighter character than those for cider, the valley in the neighbourhood of Ledbury being the most celebrated for the delicious beverage which is so peculiar to this part of the kingdom. Perry made from the Taynton Squash, the Oldfield, Moorcroft, Barland, and Huffcap Pears, is the most celebrated, the Barland being especially so on account of its medicinal properties; and the Taynton Squash, as approaching nearest to champagne; indeed, it is said that for many years past much of it has been sold and sent to London as perry to be resold as champagne, but unfortunately, like the old sorts of cider fruit, it appears to be nearly worn out, and similar difficulties of reproduction present themselves. *Duckham on the Farming of Herefordshire.*

Garden Operations.

(*For the ensuing week.*)

PLANT HOUSES.

Newly potted plants, in stoves, and intermediate houses, will now require individually the strictest attention. See that none of them get too wet at the ball, which they are apt to do if not watered with great judgment, especially any which are potted loosely, and which have not yet formed roots in the fresh soil, to aid in absorbing excessive moisture. Firmly potted ones will need watering, therefore, in a general way three times, while the above will only require it twice; but, as has just been stated, the operator must judge of the requirements of each plant according to the amount of shift it has received, and other concurrent circumstances. Be careful not to water too constantly in one place, so as to form a dip, at the bottom of which it is possible the water may drain freely away, leaving the outside of the ball injuriously dry. *Gardenias*, *Tydeas*, and *Begonias*, together with a few other similar plants about to flower, will derive much benefit from occasionally watering them with liquid manure, especially the first of these. Remember it should at all times be so thoroughly settled as to be perfectly clear. Remove decaying florets from *Correas*, pruning all outstanding branchlets back to a uniform length. Similar treatment will also be necessary in the case of *Libonia floribunda*, of which the points of leading young growths should be stopped, giving any requiring it a small shift into a free peaty soil, potting moderately firm. Where it is necessary to increase the stock of *Crotons*, cuttings might now be put into an admixture of peat and sand, sifted rather fine. They strike freely with moderate attention, either from young wood with a heel of last year's growth attached, or from wood formed during the past season divided into pieces, each having three or four joints, with more or less leaves, attached. Keep all plants cut back, moderately dry for a week or two after cutting. *Pelargoniums* will now need especial attention; those sufficiently advanced to need support should be tied out forthwith. In performing this operation abstain from using more stakes than is absolutely necessary to secure all parts of the plants from being broken. Let the supports also be as small and neat as is consistent with sufficient strength, pointing the ends, to be pressed into the ball with the utmost care, in order to obviate as much as possible injuring the roots, a too frequent occurrence through the use of obtusely pointed stakes. Endeavour also to fix them so that as little of them is seen as possible. Moreover, never push the stake down through the ball, close to the pot; as, however fine it may be pointed, no small amount of injury must accrue to the roots, from being pressed between the stake and pot, from the inner surface of which all stakes should more or less slope. *Bedding Plants* will now need especial attention; pot all where practicable into fresh soil, containing a moderate amount of leaf-mould, and pinch back the points of Pelargoniums, Verbenas, Calceolarias, and bedding plants generally, where these have attained their necessary heights, bearing in mind the positions it is intended they should occupy. By thus inducing them to break freely, they will form more compact heads, and will produce hereafter a multiplicity of flower spikes. These remarks also apply especially to Scarlet and other Pelargoniums, of all sizes intended for *Vases* or *Window-boxes*. By potting these now they will make a fresh start, and will be in a far better state to withstand exposure during the summer than those which have been potted a month or two earlier, and which when turned out will be found to be root-bound —a too frequent occurrence. When properly attended to in this way, keep all such warmer than heretofore, shutting the frames up about 4 P.M. every day, in order to induce a moister atmosphere, with which they might now be surrounded, keeping them shut close until morning. Any such plants which it may not have been convenient to re-pot, should have occasional waterings with liquid manure, not too strong. The utmost precaution will now be needed in regard to flowering plants of *Auricula*; give them all the light and air possible upon all favourable occasions, shutting up always upon the approach of storms, as heavy rains quickly damage them beyond recovery. Do not keep them in too close an atmosphere when about to flower, especially if moisture in any form remain upon the exterior parts of the plant, as the flowers are too apt under such circumstances to rot off at the axils.

FORCING HOUSES.

In *Vineries*, *Peach*, and *Orchard Houses* generally, the finger and thumb will now be in constant activity, disbudding, stopping laterals, or tying-in all young growths requiring such support, thinning berries, and similar operations. Bear in mind that the more gradually such manipulations are performed, the better will the plants be enabled both to perfect a superior crop of fruit this season, and to form well-developed wood for a similar purpose next year. Thin out *Cherries*, where larger crops are set than individual trees are likely to bring to perfection. Continue to maintain an even minimum night temperature in forcing houses generally, depending more upon the direct influences of the sun, assisted at its brighter periods with an atmosphere well surcharged with moisture, to push on the crop, rather than maintaining an unnatural night heat, the too frequent progenitor of vapid and ill-matured crops. The latest sowing of *French Beans* should be made forthwith.

KITCHEN GARDEN.

Choose a fine dry day upon which to make a few main sowings, at the earlier part of the week if possible. *Leeks* might be sown evenly in a seed bed, to be transplanted into their more permanent quarters at a later date. *Onions* might also be sown in deep, well-trenched soils. It saves much labour in cleaning the beds if they are sown in drills across a quarter some 7 or 8 inches apart; do not sow the seeds too deeply—just cover them over, that beingall that is needed. Make the soil as firm as possible by treading it well over, both before and after sowing, if necessary, according to its consistency, raking all larger stones, &c., off after the seeds are well covered in. Sow *Parsley* for a first crop, and the necessary seed for a crop of *Parsnips*, choosing a deep stiff soil, not too recently manured, to sow them upon, in drills 1 foot apart. Sow moderately thin, as they will eventually require thinning out to 10 or 12 inches between the plants in the rows. The same remarks apply to *Skirret*, except that it should be some 20 inches apart in the rows. *Sorrel*, curled *Chervil*, and *Rampion*, might each be sown in the necessary quantities, in drills or otherwise, as may be most suitable, those requiring it to be thinned out later. The last likes a rich deep soil, and moist. Sow *Peas* for a main crop of tall ones from 5 to 6 feet in height. The Abergavenny, Victoria, and Auvergne, are desirable varieties; Champion of Paris and Veitch's Perfection being good sorts, a little dwarfer in habit. Sow *Celery* forthwith for a main crop, Williams' Matchless and Reed's Matchless are amongst the best. Sow Borecoles (Kale) generally—the Green Curled (Scotch) is as hardy as any; and also at the same time the requisite varieties of *Savoys*, the Drumhead for a first crop, and the Green Curled for more permanent winter use. *W. E.*

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the Week ending April 3, 1867, as observed at the Horticultural Gardens

March and April.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Of the Air. Min.	Of the Air. Mean	Of the Earth. 1 foot deep.	Of the Earth. 2 feet deep.	Wind	Rain.
Thurs. 28	(	29.456	29.370	55	30	42.5	46	44	S.W	.00
Friday 29	23	29.652	29.543	52	31	41.5	46	44	W.	.00
Satur. 30	24	29.745	29.738	50	31	40.5	46	44	N.W	01
Sunday 31	25	30.321	30.029	58	24	40.1	46	44	N.W.	00
Mon. 1	26	30.393	30.297	59	46	52.5	46	44	W.	.00
Tues. 2	27	30.136	30.081	62	35	48.5	48	44	W.	.00
Wed. 3	28	30.215	30.097	64	45	54.5	48	45		.00
Average .		29.989	29.878	57.1	34.4	45.7	46.5	44.0		0.01

March 28—Very clear, quite cloudless, fine at night.
— 29—Fine; cloudy and cold; fine, very slight frost.
— 30—Fine, showery; storm of thunder; lightning, with hail at night.
— 31—Cold, and exceedingly clear; fine; very fine at night; frosty
April 1—Fine; sunshine, with dry air; densely overcast.
— 2—Overcast; cloudy; fine at night.
— 3—Fine; very fine throughout, occasionally rather boisterous at night.
Mean temperature of the week 1 1-10th deg. above the average.

STATE OF THE WEATHER AT CHISWICK,
During the last 41 years, for the ensuing Week, ending April 13, 1867.

April.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday .. 7	57 3	36.8	47.0	19	0 50 in.	2	9	4	3	3	12	7	1
Mon. .. 8	56.2	35.8	46.0	21	0.69	2	6	8	2	6	9	6	2
Tues. .. 9	55.0	35.6	45.3	20	0.73	3	7	7	1	5	7	7	4
Wed. .. 10	56.1	33.5	44.8	15	0.27	2	6	9	3	4	7	7	3
Thurs. ..11	56.1	35.6	45.9	20	0.31	3	8	7	—	3	12	2	6
Friday ..12	56.9	36.6	46.3	26	0.56	8	8	3	3	6	8	2	1
Satur. ..13	55.7	35.5	45.6	16	0.45	9	6	4	3	3	8	2	1

The highest temperature during the above period occurred on the 7th, 1859—therm. 79 deg.; and the lowest on the 10th, 1860—therm. 20 deg.

Notices to Correspondents.

BOOKS: *W M.* The latest edition of Loudon's "Hortus Britannicus" contains a Supplement combining the previous Supplements, and bringing the date up to "March, 1850." In the last 17 years the accessions have been very great, and a new Catalogue is very much wanted. We agree with you that "a book of this kind is a *felt* want with hundreds of scientific and practical botanists and horticulturists every day."—*Constant Reader.* There is no good book with which we are acquainted on the subject you name. The best information to be had in reference to the matter is contained in a series of papers by "Alpha," which appeared in our columns during the years 1851 and 1852.—*A B C, Dublin.* Brown's Forester.

FRUIT TREES: *Learner.* Prune these back moderately, according to the form required. For the details of pyramidal training you had better consult Rivers's Miniature Fruit Garden, and Bréhaut's Modern Peach Pruner, two little books that will greatly assist you.

INDIAN AZALEAS: *K C B.* They may be propagated by cuttings, but are generally worked on stocks of some free-growing variety.

INSECTS: *K.* The leaf sent by you was so folded and smashed in the post as not to allow our determining what was the matter with it. It seemed to be much marked with small discoloured spots, possibly from the attacks of red spider. *W.*

NAMES OF PLANTS: *C T.* Hardenbergia Comptoniana.—*H H.* Isotropis striata.—*A W.* 1, Cytisus candicans; 2, it is not reasonable to expect us to name a Conifer from such a scrap.

RHODODENDRONS: *K C B.* The sorts you mention are usually grafted on seedlings of the hardy free-growing sorts, which can be raised with facility. The best rule of selection is that the vigour of the sort used as a stock should bear some proportion to that of the sort worked upon it.

SYRINGA EMODI: *L.* This is perfectly hardy, and of a more erect and tree-like habit than the common Lilac. Its leaves are large, of a pale grass-green colour, something like those of a Rhododendron. The spikes of flowers are large, pinkish white, and have a sweet rich smell resembling that of a Heliotrope.

VINE LEAVES: *Anon.* The leaves are so withered after transmission by post that it is difficult to say anything about them. The affection, however, seems to be of the same nature as rust, and probably has arisen from a sudden chill. —*Young Gardener.* In No. 1 the leaves are affected with a disease very common in the South of France, the cause of which is unknown. So long as it affects the leaves only it is not of much consequence, but very fatal if it attacks the stems. The same remark applies to No. 2. *M J B.*

WARNER'S ORCHIDS: *Sold.* We will make inquiries.

WORKING HOURS: *E M B.* The usual working hours in gardens are from 6 A.M. to 6 P.M., with half an hour for breakfast and an hour for dinner; or when the days are short, from daylight till dark. You have a right to expect this time to be kept with reasonable exactitude.

COMMUNICATIONS RECEIVED.—H. Cannell.—J. B. Tibbitts.—Sold.—T. R.—W. I.—Dr. Smith.—R. Robinson Scott.—G. C. —B. S. W.—R. S. Yates.—Flora.

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FINE ENGLISH RED 10*d.* to	1	0
FINE ENGLISH WHITE 1*s.* 3*d.* to	1	6
FINE ALSIKE HYBRID 2*s.* to	2	3
TRUE COW GRASS	1	3
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ENGLISH SEED per bushel	7	0

Carrot.

LARGE WHITE BELGIAN	1	3
LARGE YELLOW BELGIAN	1	6
LARGE RED ALTRINGHAM	2	0
SCARLET INTERMEDIATE	2	0
LONG SURREY, or ORANGE	2	0

Cabbage.

CHAMPION OX, "fine"	3	6
LARGE DRUMHEAD	2	6
ENFIELD MARKET	3	6

Swedes.

	Per lb.	
THE ASHCROFT	1	0
MATSON'S PURPLE-TOP	1	0
SKIRVING'S	0	9
GIBBS' PURPLE-TOP	1	0
EAST LOTHIAN	1	0

Yellow Turnips.

GIBBS' GREEN-TOP HYBRID	1	0
GIBBS' PURPLE-TOP HYBRID	1	0
GREEN-TOP YELLOW SCOTCH	1	0
DALE'S HYBRID	1	0

Common Turnips.

GREEN GLOBE	0	10
RED GLOBE	0	10
WHITE GLOBE	0	10
GREEN TANKARD	1	0
RED TANKARD	1	0
WHITE TANKARD	1	0
YELLOW TANKARD	1	0
GREY STONE	0	10
EARLY WHITE STONE	0	10
ORANGE JELLY	1	0

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YELLOW GLOBE	1	0
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Parsnip.

GIBBS' LARGE CATTLE	1	6
HOLLOW CROWN	1	3

Kohl Rabi.

LARGE GREEN	2	6
LARGE PURPLE	2	6

Lucerne.

FINE IMPORTED	1	3

Furze.

FRENCH and ENGLISH	2	0

Holcus saccharatus.

CHINESE SUGAR GRASS	2	0

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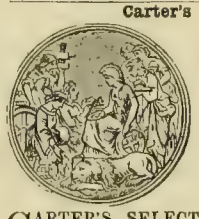
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SUMMARY OF PRIZES OFFERED:—

CATTLE.—Short-horns, £125; Sussex, £125; other Breeds, £50.
SHEEP.—Southdowns, £90; Hants Downs, £90; Oxford Downs, £90; Kent Sheep, £90.
HORSES.—Agricultural, £110; Hunters, £95; Hacks, £15; Ponies, £10.
PIGS.—Berkshire, £32; other Breeds, £32.
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ROYAL AGRICULTURAL SOCIETY of ENGLAND.

BURY ST. EDMUND'S MEETING, 1867.

STOCK, POULTRY and IMPLEMENT PRIZE SHEETS are now ready, and will be forwarded on application to
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The Agricultural Gazette.

SATURDAY, APRIL 6, 1867.

THE PRESTON HALL HERD OF SHORT-HORNS is to be disposed of by public auction on May day. It includes all the *Grand Duchess* tribe sold two years ago at Willis's Rooms for such enormous prices. It also includes most of the descendants now in this country of BATES' *Cambridge Rose* tribe. It includes half a dozen descendants of *Louisa* by CRAMER, one of Lord DUCIE'S cows. And besides these there are separate smaller families descended from first-class cows of the TOWNELEY herd, of Sir C. KNIGHTLEY'S breeding, of the Chilton stock, and others. Taking the *Grand Duchesses* and *Cambridge Roses*, the *Butterflies*, and *Archduchesses* into account, and, as regards the others, considering that for the last few years bulls of pure *Duchess* and *Oxford* blood have alone been used, it may be confidently declared that no better or more valuable herd has ever yet passed through Mr. STRAFFORD'S hands, engaged though he has been in all the great transfers of pure-bred Short-horn stock which a middle-aged memory can call to mind.

The Preston Hall Estate* is one of those characteristic English districts where rich green meadows, gloriously timbered park, with gable-ended cottages scattered along the lanes amid luxuriant Hop-grounds, occasional coppice-woods, and many large fields of rich corn land, are commanded by the mansion, the village, and the church—the whole occupying a gently undulating country, which is traversed by a tidal river, and culminates along the sky-line in bare chalk downs. It has been the property of Mr. E. L. BETTS for 20 years or more, and during most of that time, under the agency and able guidance of Mr. FREEMAN, the agent over the estate, the herd which is now to be dispersed has been gradually gathering here. On the home farm of 800 acres, admirably equipped with a well-furnished farmstead, and cultivated with a view both to the maintenance of a large herd of stock and to the profitable utilization of the stores of rich manure which well-fed stock produce, there have been collected by careful breeding and by purchase from all the leading sales of recent years, many families of the very best Short-horn blood; and now that circumstances enforce the sale both of the estate and of the stock, we cannot doubt that all the leading Short-horn breeders in the country will be present as competitors.

A detailed report of the stock must be postponed, but meanwhile we refer once more to the families which it includes. The *Grand Duchesses* are descendants of *Duchess* 51, sold at the Kirkleavington sale to Mr. BOLDEN. She was a doubtful breeder, and he paid only 50 guineas for her. This cow, besides breeding many high-priced animals, as 4TH DUKE OF YORK sold for 500 guineas, and others, had no fewer than 13 descendants remaining in Mr. BOLDEN'S herd when they were sold to Mr. HEGAN, of Liverpool, for 5000*l.* At Mr. HEGAN'S death the herd numbered 17, which realised 8179*l.* 13*s.* in all, or 481*l.* 3*s.* apiece, at the sale by auction two years ago in Willis's Rooms. And all the cows and heifers were on that occasion bought by Mr. BETTS—12 animals (viz. *Grand Duchesses* 5, 7, 8, 9, 10, 11, 12, 13, 14, 15, 17, and 18) fetching 542*l.* 10*s.* apiece, or 6510*l.* in all. Of these Nos. 4, 5, 9, 11, 15, 17, and 18, with their descendants *Grand Duchesses* 19, 20, and 21, and GRAND DUKES 16TH, 17TH, and 18TH, are to be sold on May day.

The *Cambridge Rose* tribe, descended from the prize heifer shown at the Cambridge meeting of the Royal Agricultural Society by Mr. BATES, included only three—a cow, a heifer, and a heifer calf—at the Kirkleavington Sale. Of these, *Cambridge Rose 6th* was bought by Mr. HARVEY COMBE for 70 guineas; her calf *Moss Rose*, No. 2 in Mr. BETTS' catalogue, was purchased a calf at the Cobham sale by Mr. HALES for 260 guineas, and resold to Mr. BETTS some years afterwards for 245 guineas. She has one daughter in the Preston Hall herd. Her sister, the *Beauty*, was purchased at the Cobham sale by JONAS WEBB, and the descendants of *Beauty* averaged 131*l.* apiece at the Babraham sale. Of these, three, viz., a daughter and twin granddaughters, were purchased there by Mr. BETTS. Another sister of *Moss Rose* was subsequently bought from Miss COMBE, in whose hands it remained after the Cobham sale; and thus, from the three daughters of *Cambridge Rose 6th*, there are no fewer than 10 descendants in the Preston Hall Catalogue.

We come now to the eight descendants of *Louisa* by CRAMER, a Tortworth cow. Her granddaughter, *Lady Louisa*, was bought at the Sarsden sale for 100 guineas, and has four descendants; her great granddaughter *Looey* was purchased at Mr. HARVEY COMBE'S sale by Mr. MARJORIBANKS for 105 guineas, and *her* daughter was bought at the Bushey sale by Mr. BETTS for 130 guineas, and has two descendants at Preston Hall.

There are also four *Butterflies*, descendants of the *Royal Butterfly Duchess*, bought for 500 guineas at the TOWNELEY sale; three *Archduchesses*, descendants of a Chilton cow—*Archduchess*, one of the grandest old Short-horn cows that ever was seen, and her two daughters, the one by IMPERIAL OXFORD, and the other by GRAND DUKE 4TH; five other *Butterflies*, descendants of a 100 guineas cow, *Lady Butterfly*, bought at Mr. MARJORIBANKS' sale; five *Passion Flowers*, and four *Prima Donnas*, descendants from the Chilton herd. It must be remembered that on all these for several generations the very best bulls in this country or America have been used—IMPERIAL OXFORD, 3D and 4TH DUKES OF THORNDALE, DUKE OF WHARFDALE, BARON OXFORD, 5TH and 6TH DUKES OF AIRDRIE, and others.

We shall before the day of sale give the pedigrees of the several families in tabular form. Meanwhile we recommend those who mean to attend the sale to spend a day, as we have done, in the midst of them, and enjoy a leisurely inspection of the results of Mr. FREEMAN'S good management and judgment, and Mr. BETTS' enterprise and pluck. They will see some of the grandest old models of cows, some of the best existent illustrations of good breeding and good health and constitution in stock of all ages; some of the very best specimens in the island of what is still called Kirkleavington blood, with all the

* Aylesford; a station on the North Kent Railway.

wonderful vitality and style and quality which it, more than any other strain of Short-horns, continues to exhibit. We add that on May 2d, the day following the sale of the Preston Hall herd, that of Mr. MACINTOSH'S stock will take place at Havering, near Romford. To this herd we referred some weeks ago, as including some of the best blood in the country; and we doubt not that many attracted by the dispersal of the *Grand Duchesses* and *Cambridge Roses* and *Butterflies* at Preston Hall, will remain to compete for members of BATES' Oxford tribe at Havering on the morrow.

ON Tuesday evening last Professor VOELCKER delivered, at the Rooms of the Royal Agricultural Society, Hanover Square, a highly instructive lecture on "The relative values in respect both of nourishment and of the consequent manure, of various PURCHASED FOODS." A very scanty audience—Mr. THOMPSON, the President of the Society, in the Chair—had assembled to hear him. The following is a condensed summary of what they heard:—

In no country is the art of profitably rearing and fattening stock better understood than in England, and for the superior skill of the British farmer in comparison with that of the continental stock feeder several reasons may be assigned.

Thus (1), the English farmer has learned to appreciate the advantage of fattening well-bred animals, and rightly abstains from spending money upon coarse, ill-bred cattle, which do not fatten even on the best of food. Again (2), the English farmer feeds his animals *well*. He is not satisfied with merely giving them abundance of food, but the food must be of the very best description, and in the case of young stock especially, that which experience has taught to be most appropriate for it. The superiority of the English over the continental stock feeder is perhaps in some measure also (3) due to the fact that whilst in many parts of Germany, Holland, and France animals are half starved in infancy, growing stock is here supplied abundantly with the more concentrated foods, and are not crammed over much with straw chaff, innutritious Grass, or similar bulky materials. Much straw, with some meal, and roots, and cake, is suitable for fattening purposes, but for young growing stock, straw chaff requires to be mixed with more nitrogenous food.

Perhaps, however, the chief reason (4) why the English farmer excels so much as a feeder of stock is that he is an eminently practical man, who, by placing at different times all kinds of good, bad, and indifferent foods before his animals, has learnt by dint of sheer experience what suits them best. On the Continent, on the contrary, the science of nutrition has been much more studied than the practice, to which, indeed, comparatively little attention has been given—at least as far as experiments are concerned.

The art of feeding and fattening stock is peculiarly a practical one, and actual experience with different kinds of food or their mixtures often teaches much more than the most refined scientific feeding experiments, in which too often the experimenter forgets that he has to deal not with mere dead receptacles, but with living creatures which have a nervous system, peculiarities of habit, and an organisation which should always in the first place be consulted.

After contrasting the Continental with the English plan of feeding, the learned lecturer went on to say that the chemistry of food has engaged the attention of many scientific men; the literature of the subject is extensive, and to men of the highest order as chemists or physiologists, such as BOUSSINGAULT, LIEBIG, MULDER, and others, on the Continent, and LAWES and GILBERT in this country, the farmer is largely indebted for many elaborate and useful researches. Though much remains to be done, yet some fixed principles of great value have been established, which at the present time enable us to predict with greater certainty than formerly what the effect of certain feeding mixtures is likely to be when given to different animals.

As regards purchased foods, the subject to which Dr. VOELCKER confined his remarks, special attention was directed to the fact that the money value of such foods is very materially influenced by the value of the food-constituents which pass through the animals in the shape of solid and liquid excrements. It is well known that these residues of different foods vary greatly in fertilising power; some kinds, such as oil-cake, make much better manure than others; the relative value in the respect of the principal purchased foods is therefore a matter well worth attention.

The following list probably includes all, or nearly all, the articles that may be bought in the market, and which are employed as auxiliary feeding materials:—

1. Linseed, various kinds of Linseed-cake, Earthnut-cake (decorticated and undecorticated), Rape-cake and Cotton-cake (decorticated and undecorticated).
2. Beans, Peas, Lentils, and Fœnugreek.
3. Indian Corn, Wheat, Barley, Oats, Rice-meal, Malt, Malt-dust, Bran, and Pollard.
4. Palm-nut-meal, Locust Beans, brewers' grains, and molasses.

As regards the food constituents of these substances, we have in them, on the one hand, ready-made fat, sugar, starch, mucilage, pectin, and digestible fibre, all fat producers; and, on the other, albumen, gluten, casein, &c., flesh formers; besides woody fibre, and mineral matters.

On which of these various constituents, therefore, asked the Professor, does the value of food depend? Is it on the nitrogenous matters, on the fat, sugar, and starchy compounds, or on the mineral ingredients? Here we have to bear in mind that in one sense all the different constituents are equally essential to the well-being of the animal. No animal can live upon starch alone or on albumen; on the contrary it requires a mixture adapted to its digestive organs. Making, however, all allowance for the circumstances which necessarily affect our views of the value of a particular kind of food, and simply inquiring what money return we get in the shape of butchers' meat, according as we use food in which either the nitrogenous or the non-nitrogenous constituents preponderate, we find that the flesh-producing value of the foods just named depends much more on the amount of ready-made fat and non-nitrogenous than upon the nitrogenous compounds in food. The various food constituents succeed each other in the order of value according to the following list:—

1. Ready-made fat, *i. e.* oil.
2. Starch, sugar, pectin.
3. Young cellular fibre.
4. Albumen, gluten, casein, &c.
5. Mineral matters.
6. Woody matters which are of little or no value.

As already said, however, the money value of purchased foods, as has been indicated, does not merely depend upon the actual amount of feeding material which it contains; but also on the value of the fertilising elements which pass through the animal into the manure. Let us, therefore, inquire which of the food constituents usually pass into the manure, and what is their fertilising value. Fat, sugar, starch, and similar compounds should be burned up in the system as thoroughly as possible, and only their products of decomposition should pass into the manure. Whenever undigested oil-cake or grain passes into the manure great loss is experienced; for starch or oil have no value as manure. Nitrogenous matters, which contain about 16½ per cent. of nitrogen, and produce ammonia on decomposition, leave nearly the whole of the nitrogen in the dung. The mineral constituents which chiefly influence the value of manure are potash and phosphoric acid.

Estimating ammonia at 6*d.* per lb., phosphate of lime at 1½*d.* per lb., and potash at the same price; and assuming, further, that the total loss of nitrogen from all sources does not exceed 7 per cent. on articles of food containing 4 per cent. of nitrogen and upwards, and that food containing less than 3 per cent. of nitrogen does not lose more than from 10 to 14 per cent. of its total nitrogen in passing through the animal, the following will be the value of excrement from a ton of food consumed:—

	£	s.	d.
1. Linseed cake	3	15	8
2. Linseed	2	17	9
3. Cotton cake, decorticated	5	6	6
4. " " undecorticated	2	18	0
5. Earth-nut cake, decorticated	4	18	0
6. " " undecorticated	2	10	0
7. Rape cake	4	0	9
8. Beans, 9. Peas, 10. Lentils, 11. Fœnugreek	3	2	0
12. Indian Corn	1	5	0
13. Wheat	1	7	0
14. Barley	1	5	0
15. Malt	1	6	0
16. Malt dust	3	11	0
17. Bran and pollard	2	15	0
18. Rice meal about	1	0	0
19. Locust meal	0	18	3
20. Palm-nut meal	1	14	0
21. Brewers' grains	0	12	0
22. Molasses (no appreciable value).			

The cheapest manure-producing foods were stated to be decorticated Cotton-cake, nut cake also decorticated, Rape-cake and malt dust. The last, together with bran and pollard, were reported to be particularly cheap foods, inasmuch as nearly half their value was returned in the shape of fertilising substances. Palm-nut meal was reported to be a cheap fattening food, and the least expensive food of a bulky description was said to be brewers' grains.

In the discussion which followed Professor VOELCKER'S lecture it was stated that, although he had placed a high value on Cotton-cake, good English Linseed-cake was after all by far the best of the purchased foods. A few other remarks in reference to manure-heaps covered and exposed, and on the value of straw as a spring food mixed with cake, closed an evening full of much useful scientific and practical instruction.

—— THE results of the Sessional examinations in the Class of Agriculture in the University of Edinburgh are as follows:—The Class Medal was awarded to RICHARD G. SCRIVEN. First-class Certificate to RICHARD G. SCRIVEN, LEWIS BILTON, ROBERT BRYDON, JOHN MACARTNEY; Second-class Certificate to H. F. LEDET, GEO. TWEDDLE, W. LOWDEN. Those students only who obtain an average of more than 75 per cent. of marks for their papers receive a First-class Certificate. Those whose average is above 50 per cent., but less than 75 per cent., receive a Second-class Certificate.

—— How futile agricultural estimates often are in our fickle English climate is proved in the case of one published some weeks ago in these columns. It was then calculated that on a sewaged farm containing 100 acres of Italian Rye-grass, 100 tons of Grass would be cut in March. Of course, during such a March as we have experienced, no vegetable growth at all has taken place. It is however rapidly proceeding now; and on the sewaged farm at Barking they are now cutting a noble swathe which weighs 7 to 9 tons per acre, and is a capital illustration of the powers both of sewage and of the plant to which it is being applied.

—— On Monday evening Mr. NOCKOLDS read a very interesting paper before the Central Farmers' Club on the need of a Government Board of Agriculture. Reasoning from the precedent of our own past experience, when such a Board was presided over by Sir J. SINCLAIR, and served by ARTHUR YOUNG as Secretary, and from the practice of other countries—France, Prussia, Russia, &c., where Governmental departments are especially charged with the supervision of matters relating to agriculture, he argued with great spirit for the importance of some central authority here to which our Farmers' Clubs and Chambers of Agriculture might address themselves with a better prospect than now exists of their being fairly appreciated and understood. We shall next week give a full report of Mr. NOCKOLDS' paper.

—— We recommend the study of the speeches by Mr. DENT and Mr. READ, and others, given in another page, delivered last Wednesday in the House of Commons, when that portion of the recent Report of the Commission on Juvenile Labour, which relates to what is called the Agricultural Gang system, came under discussion.

THE PARIS EXHIBITION.

(FROM OUR CORRESPONDENT.)

IN our last paper we gave a general review of the whole of the proposed arrangements having reference to the agricultural departments of this gigantic Exhibition; we now, before proceeding to the more immediate details connected with the daily doings, give a brief statement as to the prizes which are to be offered in connection with implements and machines and with stock. For implements and for improved processes of farm management and machines there are to be seven gold medals, of the value of 1000 francs each (40*l.*); 50 silver, 50 bronze medals, and a certain number of "honourable mentions." Gold medals will be allotted to the stock department to the number of 20; while there will be 150 silver and 150 bronze medals, with also a certain number of honourable mentions. In addition to these the juries will have at their disposal in the department of stock 40 works of art, which will go along with the medals which may have been awarded; thus giving to the holder of such medal, what may be called additional or brevet rank by the possession of one work of art. The works of art will be so arranged or classified that the medal, upon which will be struck the name of the recipient, may be attached to and form part of it. In addition to the awards named above, there will be a "grand prize" of the value of 10,000 francs (400*l.*), consisting of an object of art. This will be awarded to the exhibitor who, from the number of the plans of improved farm management, or of machines, implements, or of stock, will have been decided to have rendered the greatest services to agriculture.

The juries will be composed of French and foreign agriculturists noted in their respective countries for their practical knowledge of the subjects of the department in which they will be named. These juries have been nominated some days before the period of opening of each department with which they are connected. The whole of the objects or animals proposed to be exhibited within each class will be brought under the notice of the jurors, who will then proceed to classify them under four categories, each open to the award of the 1st (Gold Medal), 2d (Silver do.) 3d (Bronze do.),

and 4th Class honourable mentions. This work of the jurors is to commence coincidently with the opening of the exhibition of each *concours* or class of objects or animals. As soon as the awards are made, the object or animal to which they are individually awarded will be distinguished by corresponding marks or *affiches*. The prizes themselves will not be awarded until the end of the Exhibition.

The majority, if not the whole of the Exhibition buildings hitherto constructed, have been on the rectangular plan, with intersecting naves. These buildings, although to a greater or less extent possessing many fine architectural and constructive features, and having interior views remarkable for their length and surface, still presented considerable difficulties in the way of realising a comprehensive, and yet at the same time simple and easily understood classification of their contents—at least, if objection is taken to this structure—while the classification, *per se*, might be philosophical and practical enough, so far as the practical scheme or report was concerned, the finding of the locality of each department in the building, and the systematic examination of its contents, were by no means so, and indeed in practice were almost impossible to be carried out with any degree of ease or of saving of time to the spectator or inquirer; while it was next to practically impossible to make comparative observations between the same class of "exhibits" as contributed by the different countries of the world, or even indeed of the contributions of different exhibitors in the same country. These considerations induced the Imperial Commission appointed in 1865 to carry out the Great Exhibition in Paris, which will be opened before this is in the hands of the reader, to take into consideration the best means of obviating the defects in buildings which had preceded it, and of carrying out a system of classification of its contents, which, while thoroughly philosophical in its aspects, would at the same time be one which could be easily followed in actual practice. This they believe has been done in the building now in the Champ de Mars, and the belief is shared by the great majority, if not all, of the scientific men who have examined and pronounced upon its details. What these are a few sentences will suffice to show—enough at least for the general understanding of them. The building is made up of a concentric series of elliptical rings or zones, encircling a large central garden of the same outline, and of which the length in round figures is 178 yards, and breadth 58. This central garden is reached by a series of vestibules, which intersect all the zones or rings. Each ring is occupied with the objects connected with one department only, the whole of them being contributed by the different nations of the world. Thus in the zone or ring appropriated to the materials of manufacture, either in their raw or partially prepared condition, if walked round completely from one point, returning to the same point, the spectator will have presented to his notice the materials employed in the manufactures of the whole world. The following are the dispositions of the rings or zones, commencing with the zone which is next to or immediately surrounds the central garden. (1.) The objects illustrating the history of labour, or retrospective museum; this zone is about 27 feet in width. (2.) The fine arts, the width of zone being about 50 feet wide. (3.) Objects devoted to the materials employed in and applied to the liberal arts, including educational appliances; the width of zone being about 20 feet. Separating zone No. 3 and the next is an avenue or passage some 16 feet wide, beneath which are the air channels for ventilation; similar passages divide zones Nos. 4, 5, and 6. No. 4 is devoted to the furniture and appliances used in domestic life, the width of the zone being about 77 feet. No. 5 is devoted to articles of clothing and objects connected with personal use, the width of zone being the same as in No. 4. No. 6 is occupied with the raw materials of manufacture, in some cases partially prepared. No. 7 is occupied with machinery in motion and otherwise. This zone or gallery is the grand constructive feature of the building; it is of great width and height, the width being 111 feet, and height 82 feet. The width is so great that it admits of the erection of a light gallery, raised upon elegant pillars, from which an admirable view of the objects below can be obtained. This gallery is reached by handsome flights of stairs, placed at convenient places. No. 8 zone is occupied with articles of food in their natural or in prepared conditions. In this zone, also, are the various *restaurants*, *cafés*, and refreshment rooms, kept by different nations, and served by their peoples in their appropriate costumes. The whole building is surrounded or encircled by a colonnade or promenade, over 16 feet in width, covered at top, but open all round. So much, then, for the different zones or rings which contain collectively the "exhibits" of the world.

We have now to notice the plan adopted of giving to each country a "local habitation," or position in the building. This is done in an exceedingly simple and perfect way by intersecting the zones or rings by radial avenues or passages, starting from the central garden, and ending at the outer zone or ring. These passages are 12 in number, and are nearly 17 feet wide; and if the vestibules are added, which are four in number, there are 16 radial passages or avenues. The whole building is thus cut up into segments or portions; and if the reader will suppose to each country one or more of these segments are given, he will understand that while the contributions of each country are thus confined within a determinate and easily fixed upon and found out space, each of its portions of concentric rings are in immediate continuity with the rings or zones of other and contiguous countries.

From what we have said then it will be evident that as there are always the curved interiors of each zone in view, there can be no grand or extensive hall or vast apartment such as we had in the Exhibitions of 1851 and 1862; indeed the grand vestibules afford the only approach to what may be called a large and imposing hall; and even these have their defects, for they are too narrow for their great length and width.

The shed or annexe, however, in the Park, devoted to the agricultural machinery of Great Britain, is a fine hall, and being well proportioned, looks very well. It will gratify our readers to know that this fine apartment is done ample justice to in the splendid collection of agricultural implements and machines sent by the firms so well known to our readers, as the Howards, the Ransomes & Sims, the Garretts, &c.

Facility will be given the visitor to enable him to find out the segments occupied by the different countries; the radial avenues are most happily distinguished by the names of the countries through which they pass, as the Rue d'Angleterre, &c.; while the different courts, or classes, in each department will be indicated by banners bearing inscriptions in four languages—English, French, German, and Italian. Visitors must not expect, however, to find everything *couleur de rose*. Already there are those who state that the general plan, admirable as it may appear on paper, is not by any means faultless in practice; that much confusion will arise in seeking and finding out the various departments; and as to the details of many of these there can be no doubt that they are at present wrong. Complete, for instance, as the system of ventilation is, this will be rendered to a large extent nugatory by the plan adopted in many of the foreign departments, more especially in that of the French one, of boxing up the whole area of the zones by a series of interminable partitions. The intense glare from the glass roofs will also add to the discomfort of inspecting the contents of the zones, while the close boarded flooring will give rise, we fear, to a most distressing supply of dust.

It is right, and only right to say, seeing what has been said as to the dilatoriness and indifference of the officials and exhibitors of the British department, that in almost every respect it is that which is most advanced, and the different details of which are pronounced to be the best. They have not boxed up into an infinity of little shops the space at their command, but they have left it as open as possible. The light will also be tempered by the blinds which have been put up. And on all hands the decorations adopted are admitted to be in the most correct taste, a strange thing doubtless when we draw to mind what we know to be the real power of our Parisian neighbours in this direction.

There is no doubt but that many if not all of the departments will not be thoroughly ready for some time yet; at the end of last week, up even to the evening of Friday, an extraordinary bustle and confusion prevailed throughout the building, although this is always the case on such occasions, and no one as a rule cares to expose his goods till the last moment.

DO POULTRY PAY?

That is a very proper question to ask, for I hold as a principle that every thing that does not pay, directly or indirectly, should be abandoned as commercially and agriculturally wrong.

I test this by the following propositions and comparisons. It pays indirectly to produce cattle, sheep, and pigs—if so, why not poultry? It does not cost more to produce a pound of poultry live weight, than a pound of meat live weight. Well, then, do poultry sell at more or less per pound live weight than meat? The answer to this is, "a pound of poultry live weight always sells for much more than a pound of meat live weight," and so the question is settled in favour of poultry.

The average price of first quality beef is 5*s.* per stone or 7½*d.* per lb. for the whole carcase net dead weight. The live weight price would therefore be 4½*d.* per lb., because, according to the best authorities, fat beasts lose 40 per cent. of their live weight in offal. The average live weight price of the best poultry is quite 9*d.* per lb., or double the price of beef, and not quite double the price of mutton. At this time of year, poultry sell wholesale for much more than double the price of meat. Those I have sent to market recently have sold for 11½*d.* to 1*s.* per lb. live weight—against 4½*d.* per lb. live weight for beef, which is its present price. That settles the question so far, and the verdict is strongly in favour of poultry. Poultry are evidently dear food to the consumer; but does it cost more food to produce a pound of poultry than a pound of meat live weight. I answer decidedly not; but the reverse. For my cattle and sheep don't eat worms and insects, whereas fowls consume them abundantly, and economise and apply every scattered seed or kernel that would otherwise be wasted.

In another point of view—is the cost of attendance and shelter greater with poultry than with cattle? I reply, not. As to the production of eggs, that depends upon the quality and quantity of food administered, and the accompaniments of proper warmth and shelter. There is no fear of overstocking the market with either eggs or poultry. We consume daily one million of foreign eggs!

I generally keep from 300 to 400 fowls. They have free access to every field during the whole year, and although they help themselves at harvest time when the corn is in sheaf, I always get my best crops of corn on fields adjoining the hen house.

I have this year two fields of Wheat drilled, and only 1 bushel of seed per acre. They come within 10 to 20 yards of the fowl house, and are a perfect plant, although the poultry have been scratching and cultivating the fields ever since they were drilled.

We are apt to forget that fowls, like sheep, manure where they go. I must say I used at one time to feel nervous and angry when I saw them hard at work on the newly-sown corn, but I soon learned to feel confident that insects were their principal gain, and that my well and deeply-deposited corn escaped.

I might well feel sensitive when I knew that many unrelenting and not too favourable critics would inspect those crops before harvest, and that "thin sowing" would get the discredit of any shortcoming in the plants. Under the old broadcast system and consequent imperfect burying of the seed, fowls would have been mischievous. I look upon them now as the farmers' best friends.

It is essential to the well-doing of poultry that they should have free access to Grass, Clover, and green food. They are very fond of Mangel and Swedes, but I never found that they injured them while growing.

"But they ate off my Mangel plants," said a friend of mine; I replied, "I am sure you had no pasture." He acknowledged that he had not, and so the matter was at once accounted for. There is no fear of slugs where there are plenty of ducks. The quality of food has much to do with egg-laying. The high price of Barley and Wheat induced us to sell what would ordinarily be called "tail corn," so that the poor fowls came off badly with the mere refuse. The consequence was a diminished supply of eggs; as soon as we returned to the best Barley the concurrent supply of eggs also made its appearance. I find that with Bramah Pootras, Cochin-China, and Game (crossed) we get size and quality; we do not separate the breeds, but take care to breed from pure stock on each side, changing the male birds every second year. We are fond of Dorkings, but our soil and climate seem too harsh for them. Not a scrap of bread or any other consumable substance is wasted where they are. Boiled Potatos or their parings, and every waste from the kitchen, is at once appropriated. A dead lamb or sheep soon becomes skeletonised by them. Flies have no chance with them, if they settle within reach. The more we remove trees, fences, and shelter for wild birds, the more necessary and, in fact, imperative it will become to greatly increase our store of poultry, that they may scatter over the land and appropriate the farmer's numerous insect enemies. In this respect I may, at all events, call myself a practical man, for I rejoice when I see my fields well dotted with poultry.

If farmers had a good share of winged game when killed, they too should rejoice in its abundance. It is, in my opinion, a sad mistake to send battue game to the poulterer rather than to the tenantry. The money amount is trivial when compared with the discontent that would be thus mitigated or entirely allayed. I repeat here what I said at p. 572 of my book in July, 1864:—

"Nothing pays better on a farm than a good stock of poultry properly managed. With them everything is turned to account; not a kernel, wild seed, or insect escaped their scrutinising eyes. Their industrious claws are ever at work uncovering, ready for appropriation, every hidden but consumable substance. Fowls must have free access to chalk or lime to form the shells of their eggs, and grit or gravel to grind the food in their gizzards. They luxuriate on Grass or Clover, which are a necessity for them; in winter they like Mangel or Swedes. They must have access to plenty of pure water. The quality of the eggs depends upon the quality of the food. They, like ourselves, like shade in summer and warm sheltered corners in winter. They must have access to shelter in wet weather. Fowls will not be long healthy on the same ground or yards, the earth gets tainted; therefore, to prevent disease, lime and salt your yards and their usual pasture once a year, say, in autumn, when the rains will wash it well in and sweeten the surface.

Broods of chickens never do better with us than on the grassy brows or patches abutting upon the growing crops, either of corn or pulse, into which they run either for insects or for shelter. The roofs of the coops should be water-tight, and the coop should often be removed, having only the natural ground for the floor. That natural ground soon gets tainted unless you remove the coop.

"You can hardly make some people good managers of poultry if they lack observation and judgment. These are especially necessary in the breeding of poultry. Your male birds should be often changed, say at least once in two years, and they should be young and vigorous. Breeding in and in will not do any more than it will with animals. Those who wish to understand the proper management of poultry and winged game should read the admirable little pamphlets of Mr. Baily, Mount Street, London. Very few people knew so much of this matter as he does. From him I obtain pure blood occasionally at a moderate price.

"I consider winged game, poultry, and birds the farmer's friends. My poultry have access at all times to my fields. Fowls are very useful in clearing off flies. I have often been amused at seeing the neat and quick manner of their taking flies from reposing bullocks and sheep, much to their comfort." *J. J. Mechi, March* 29.

WOMEN AND CHILDREN EMPLOYED IN AGRICULTURE.

The following is an abridged report of the discussion on this subject last Wednesday evening in the House of Commons:—

Mr. Dent said that the Report of the Children's Employment Commission contained facts of so grave a nature as to the bad results attending the indiscriminate employment of women and children, that it became the duty of the House to take cognizance of them. The system of employing women and children in gangs in the agricultural districts prevailed in Lincolnshire, Huntingdonshire, Cambridgeshire, Norfolk, Suffolk, and Notts. A gangmaster contracted for the work of the farmer, and was a sort of middleman, often perfectly unfit to undertake such a charge. Under him worked the gang, which consisted of from 10 or 12 to 100 women and children of both sexes. This system had been attributed to the existence

of large properties and close parishes, on which the labourers were not allowed to live. But it was not entirely consequent upon this state of things, because in the isle of Oxholme, where the land was owned principally by small freeholders, women and children were employed "to a greater extent, perhaps, than in any district in the county." The Commissioners estimated that 6,400 persons were employed in public gangs; but there were also private gangs, superintended by one of the farmer's own labourers. An analysis of returns from a number of parishes showed that 1,636 children were employed under the age of 13, of whom 871 were males and 765 females; that of young persons between 13 and 18 quoted there were 386 males and 536 females; and over 18 years of age there were 70 males and 388 women. Mr. White found 20 children employed under the age of seven, and they began work even as early as five or six. Boys and girls of this tender age went five or six miles to their work and the same distance back. In fact a case was given in which two girls, aged respectively 11 and 13 years, had to walk eight miles each day to their work, so that they walked 16 miles each day, besides working from 8 a.m. to 5 or half-past 5 in the afternoon. In some districts the day's work averaged eight, in others 11 hours. Then, as to wages, in Suffolk the children began with no more than 2*d*. or 3*d*. a-day, and of two children in a gang, the mother said, "Agnes was seven when she began, and got 2*d*. a-day; Frank was six, and got 1½*d*.; he has been heightened ½*d*. each year since." It would be seen from the reports of medical men on the subject that the death rate among the children who were thus engaged in agricultural labour was very high, as well as among the infants of the adult females who were similarly employed. The medical officer of the Privy Council described those gangs as travelling several miles from their native villages, looking strong, but with the taint upon them of their customary immorality. It was not, he might add, only the loss of life in these cases which was to be deplored, but the hardened feeling which the operation of the system produced in the women themselves, making them completely reckless, and giving rise to a terrible brutality. A more hardening system, in short, could not well be conceived, although it had not been very long in existence, for it was not more than 20 years ago that the Assistant Poor Law Commissioners had spoken of it as a very recent thing. It had its origin in the fact that large tracts of land had, by the ingenuity of our engineers and the energy of our farmers, been reclaimed from the sea and rendered, from being a mere marsh, most productive. The consequences of the system were as yet scarcely felt in their full force, but if its hardening influence went on progressing, it could not fail to have a very injurious effect on the population of the country. But independent of the harm which was done to the health of the women and children engaged in those gangs, the results to their morals were, it was clearly shown, most prejudicial. He would not quote in support of that view the evidence of the clergy, because, meritorious as were their exertions, it might be said by the employers of labour that their testimony was somewhat biassed. The existence of the state of things of which he spoke was abundantly established by the evidence of the women themselves, as well as by that of those by whom they were engaged. The first effect of the system, according to that evidence, was to give the women a hard, bold appearance, and a rude manner, and to unfit them to make good wives or mothers, inasmuch as they were never trained to domestic habits. One labourer's wife said she did not like the gang system, while another stated that she would rather see her daughter enter the workhouse than go into the field. A large number of the employers of labour also admitted that they would prefer having girls excluded from such work. He might, however, be told that there was in some districts such a scarcity of labour that the farmers were driven to employ women and children; but his own opinion was that in many cases no such extraordinary scarcity existed, and that men were not employed so much as they ought to be, because the services of women and children were secured instead. In different parts of Norfolk wages were as low as 10*s*. or 12*s*. a week for men, and the evidence showed that both men and grown-up lads were frequently out of work, while the farmers complained that their labourers were leaving them because of the low rate of wages. If, therefore, a check were placed upon the employment of women and children, it would, he had no doubt, be superseded to a great extent by adult labour. The hon. gentleman then quoted passages from the report of the Commissioners to show that a great many farmers had given up the public gangs, and that they did not approve the employment of a large number of children, even in private gangs. The Commissioners, he added, suggested in their reports several different remedies for the present state of things. They recommended that no gang master or middleman should be allowed to take out a gang without a licence from a magistrate, and when it was borne in mind that those men were very frequently convicted felons or thieves, or men in other respects of the worst character, it would, he thought, be admitted that it was desirable to have some hold of them, and to provide that their places should, as far as possible, be supplied by respectable men. There could, he thought, be no objection to such a proposal, while he was also of opinion that the expediency of placing some restriction on the age of the children employed would be generally admitted. For his own part he thought no child should be employed in those gangs under the age of ten years, though some contended that the age might be very well fixed at eight. He should wish to see no children under ten years of age employed in public gangs; and he thought that the suggestions in the Commissioners' report against allowing children of different sexes to work together in gangs should be carried out, as the evils which arose from mingling them together were too gross to be mentioned. He should be glad if the House would adopt the principle that no young female under the age of 17 should be employed at all in public gangs. Indeed, he should like to see a prohibition against any employment of women in public gangs, but he did not think that such a restriction could be carried out. Recommendations were made in the Commissioners' report as to the hours of labour, and he thought that employment for eight hours a day, including the time required for going to and returning from work, would be quite sufficient for children between eight and ten years of age. Between ten and 13 years of age they might be employed for 11 hours, and afterwards for 12 hours. The Commissioners recommended that a certain amount of license should be left to the local authorities, and that in some places the half-day system should be adopted. In other places it would be impossible to adopt that system, and for a certain period of the year—for three months or six months—it would be necessary to have a continuous school-time to make up for the continuous work-time in the other periods of the year. Another point for consideration was the improvement of the dwellings for the labouring classes, and the erection of cottages in the neighbourhood of their work. He believed that the farmers were beginning to appreciate the fact that a labourer having to walk a great distance to his labour had so much of his work taken out of him. Much benefit would result from the establishment of better schools in the districts where the system of gang work prevailed, and Mr. Long, in his report, said that the extent to which children were employed in any parishes depended on the circumstance of whether or not there was a good school in the locality. In those districts there was a very great deficiency of school accommodation, and in the diocess of Norfolk there were no less than 126 parishes in which at present no day school existed. When the children began to work, he thought that there would be no difficulty in setting aside a portion of their wages for their education, and he suggested whether it might not be expedient to give to the guardians of the poor the power to pay, in cases where they thought it right to do so, a portion of the school fees of the children. As many of the poor did not like the idea of receiving relief even for the education of their children, he would not wish to see the contribution from the guardians put on the footing of relief. He thought that the House was in possession of sufficient evidence to legislate on the subject of public gangs, and to place them on a better footing by proper regulations. The horrors disclosed in the Commissioners' report were greater than many hon. gentlemen could possibly conceive. If it could be provided that the gangs should be placed under the management of decent and respectable persons, then he would not be inclined to condemn the gang system altogether, but Parliament ought to take care that the masters of the gangs did not treat the persons employed under them as slaves, and that they were people of good moral character. He repeated that he thought it would be well not to have females at all employed in the gangs, and he should be glad to learn from the Secretary of State for the Home Department whether he would be able to legislate on the subject during the present Session. The hon. member moved:—"That in the opinion of this House the employment of women and children in agriculture should be regulated so far as may be by the principles of the Factory Acts."

Mr. Fawcett, in seconding the motion, said the evil had arisen from the utter want of cottages; and they must put such impediments in the way of the gang system as would compel landlords to build a sufficient supply of cottages. In one part of the district there were farms after farms of 300 acres on which not a single cottage was to be found. But it might be said, by placing heavy impediments on the gang system, they would destroy it altogether. That was the object he wished to accomplish, which would not only immediately benefit the labourers, but ultimately be most advantageous to the landlords themselves. He went further than his hon. friend in the remedies he suggested. He would say that no child under 13 should be employed in these gangs; he would license gangmasters, and require them to show that they had sufficient means of lodging their gangs. Such enactments would operate as the heaviest discouragements to the system. The Earl of Leicester had recently made a speech on this subject, in which he detailed his experience with reference to the building cottages, and showed the vast advantage landlords would gain by following his example. The gang system was only a branch of a much wider question. The report of the Children's Employment Commission showed that the ignorance of the children employed in gangs was only a sample of the general ignorance of the children of agricultural labourers. Indeed, the gangs could not be formed were there not an ignorant and almost pauper class from whence the children could be obtained. In his opinion, the alternate-day system was the only means by which the ignorance of the agricultural districts could be corrected. He would redeem his pledge of engrafting clauses upon the Bill of the right hon. gentleman the Secretary of State for the Home Department which would extend the operation of the Factory Acts to agricultural districts. Two objections had, however, been taken to that proposal—namely, that there would be great difficulty in inspecting the children, and that such an alteration would involve considerable expense, inasmuch as it would become necessary for farmers to employ adults instead of children in their agricultural operations. The difficulties of inspection might, however, be easily overcome, and the additional expense which the alteration would throw upon a farm of 1000 acres would be under 20*l*. per annum.

Mr. A. Peel said agricultural employment was of a very peremptory and yet of a very desultory character, and it had, therefore, been suggested that the children should work during one half, and be taught during the other half of the year. But if such a system were to be adopted, it would be found that the children would forget in one six months all that they had been taught during the previous six months, and therefore, in his opinion, the alternate-day or half-day system was the best compromise that could be come to. One touching argument that had been used on behalf of the agricultural children was that, whereas the adult labourer saved and economised his strength, and took care not to overwork himself, the child, in its innocence and unselfishness, tasked its feeble strength to the utmost. The House was, therefore, called upon to protect the child from the consequences of its own unselfishness. He wished to draw the attention of the Home Secretary to a particular kind of labour that had come under his especial observation—namely, what was called the coprolite manufacture, in which a large number of women and children were employed, in the counties of Bedford and Cambridge. He had made some notes of the state of things in two of those coprolite mills. In the first, which was a small mill, 35 men, women, and children were employed, among whom were three female children from five to seven, and three from eight to ten years of age. The education of all these labourers was on the whole fair. The second case was of a very different nature. In that mill, which was a very large one, 196 men, women, and children were employed, of whom 20 were women, 26 were children of from five to seven, and 23 from eight to ten years of age. Of the 196 individuals, 91 could read, but only 48 could read and write, and their education was of the very lowest and most imperfect character. The coprolites were first dug out of the earth by means of a pick, and then were gathered up and taken to the mill, where the women and children were employed in selecting the true from the false coprolites, in doing which it was necessary to use water. The coprolites when chemically treated furnished the best superphosphate of lime. He had seen instances of tyranny on the part of the gang masters towards those under them which would make one's blood run cold. It was imperatively necessary that the gang masters should be required to have a certificate, and there should also be a proviso that they should not be publicans or innkeepers, otherwise all the evils of the truck system would be revived. He had seen men at the end of the week going for their wages, and instead of receiving money for their labour they were obliged to truck or barter, mostly for drink sold at a price fixed at the discretion of the master. The subject of education was intimately connected with that of the employment of women and children in agricultural gangs; but there was one kind of mis-named education by which the House ought not to suffer itself to be misled. At the town of Luton, in Bedfordshire, the great head-quarters of the straw-plaiting trade, there were so-called plaiting-schools, in which the worst tyranny was practised in regard to the exaction of youthful labour for the sake of the plaiting trade, with the least possible reference to any educational training whatever. The inspector of that district mentioned 33 of these schools in which straw plaiting and reading were supposed to be combined; and of the 1015 children attending those 33 schools, he classed the whole of them in the category of children who were deprived of the benefits of education owing to the demands of labour. Those "schools" were nothing less than low, hideous, damp, and fetid factories; and it was to be hoped they would be brought within the scope of the proposed beneficent legislation. He trusted the House would endeavour to protect those who could not protect themselves from the double danger to which they were exposed—first, from the danger of missing all, or nearly all, the advantages of education; and secondly, from the tyrannical exaction of what little residue of health and strength they possessed.

Mr. Read said that all must acknowledge the moderation and fairness with which the hon. member for Scarborough had introduced this subject. He went a long way with the hon. member in condemning the evils of the gang system, and in many of the remedies he proposed. He did not however, believe that public gangs were so numerous as they used to be, and bad as they were at the present time, they were much worse a few years since. He could endorse the truth of the statement made by the hon. member for Warwick, that it was customary a few years ago for the head of the gang to keep a public-house or beer shop, and to pay the wages in drink, &c. He agreed that mixed public gangs were an unmixed public evil. By all means license the master, separate the sexes, and limit the distance of walking to the place of work, if they pleased, but pray let the House be reasonable and moderate. Let them keep out boys under nine from the gangs, and girls under 13, but not go the length of some of the recommendations contained in the report, one of which was that all the females under 18 should be excluded, while some declared that no women should be allowed to work in these gangs. In this free country it would not be well to put this fetter upon free labour. There was a difficulty in providing employment for females of all classes, and there was a growing superabundance of women in agricultural labour, owing to the migration of the men into towns and the numbers of those who left this country for foreign shores. Many young women, if not employed in this way, would go into idleness. It was all very well to say that they ought to be employed as domestic servants, but if they did not wish to be so employed, Parliament would not be justified in depriving them of one description of labour in order to force upon them another. Then it was said that field work was detrimental to the refinement and delicacy of women. It did not, however, follow that because they were coarse and rough, they were also immodest and immoral. He believed that female immorality was not unknown either in manufacturing towns, in farm kitchens, or the servants' halls of the "upper ten thousand." The mixture of boys and girls in field labour was not an evil so great as the crowded state of the cottages, for when young persons of both sexes herded together in the same room, they grew up with no sense of decency or delicacy. It was singular that the arguments stated to be used by the mothers against allowing their daughters to work in the gangs were the same which were used to himself when he asked the reason why they did not send their daughters to school. One woman told him one of her daughters caught a fever at school and died, and on no account would she send another. Another said her daughter caught rheumatism from the cold and wet of the journey. A third said her girl got into bad company, which did her more harm than the school did her good. With regard to the causes of the ganging system, 60 years ago the land which in Norfolk produced rabbits and bustards, and which in Lincolnshire produced the stork, the bittern, and the snipe, was now covered with fleecy flocks and waving corn. There were neat farm buildings and good roads, but not many cottages. The question in these days was not how to get labour, but how to employ it; and he must bear his testimony to the way in which the land owners were building cottages. Every farmer would gladly pay 5 per cent. for any outlay of this kind. The employer of agricultural labour was treated, as a rule, in a very different manner from that in which the employer of manufacturing labour was treated. The manufacturer might shut up his mill or work half time without his conduct exposing him to remark; but a farmer could not cease growing or be stingy about the employment of labour without being reproached with not being a good citizen. The farmer, indeed, was driven to the employment of these gangs, and did not employ them as a matter of choice. No labour, in his opinion, was so bad or so costly as this kind of labour, and he assured the hon. member for Scarborough that the gang system did not supplant real good labour, and that it in fact only existed where that real and good labour could not be obtained. The hon. member for Cambridge had suggested that improved machinery might supersede the necessity of employing these women and children, but there were some things that machinery could not do, and never would be able to do, and this was especially the case in some departments of agriculture. In manufacture machinery was employed for working on material in a uniformly good and excellent condition; but in agriculture it was very different, and the farmer had to contend against different descriptions of land as well as different descriptions of crops. He did not, however, believe that if properly managed these gangs were altogether bad. It would, too, he thought be a mistake to keep the agricultural labourer too long at school. Boys kept at school until they were 13 or 14 years of age might make very good indoor servants, but they required the hardy training which could only be gained from an outdoor employment while young to qualify them for the work of agricultural labourers. The intermittent system of education might be very easy in the case of farmers living near the manufacturing towns, where relays of boys could easily be obtained, but in the purely rural parishes it would be found more difficult to adopt such a system. They had, however, a saying in Norfolk to the effect that one boy was equal to half a man, two boys to half a boy, and three boys to no boy at all.

Mr. Forster thought the debate of that evening must convince the House of the progress that had of late years taken place in the minds of the public on this question. The exceedingly moderate and excellent tone of the hon. member who had just sat down, and who, as they all knew, sat in that House as the representative of the farmers, was in itself a proof of that fact, for in all attempts to improve the condition of the juvenile or female labourer, the opposition to the improvement had invariably come from the employers of that labour. The hon member, however, evidently felt that the case presented to the House was so strong that he did not pretend to oppose legislation on the subject, but simply to direct the manner in which that legislation should be applied. For his own part, he rose for the purpose, without any practical knowledge on the subject, and judging merely from the Report, to suggest that the matter should not be legislated upon without further information. The House ought to have some information with reference to the private as well as to public gangs, otherwise the effect might be simply to lessen one evil by promoting another. In any case it would not, he believed, be possible, or, at all events, advisable, in respect to education, to apply the provisions of the Factory Acts to this kind of labour. Still, however, the public would not much longer remain quiet while the children of the agricultural labourers of this country were allowed to grow up untaught or certainly less educated than children engaged in other employments. Speaking from his experience of factory legislation, he trusted his right hon. friend would not legislate on this subject without providing for ample inspection, without which all enactments would be useless. Even delay was preferable to more speedy legislation if that delay resulted in a more complete and useful measure.

Mr. Greene tendered his thanks to the hon. member for Scarborough for having introduced this question. As the farmer of a large estate, and one practically interested in agriculture, he could indorse what had been said of the deplorable state of the agricultural population, but reminded the House that the question had its bright as well as its dark spots. He cordially assented to the proposition that women should not be employed in the fields until they were at least 17 years of age, because then he believed they would never be

employed at all. Field labour unfitted girls for domestic service, and induced immorality, and on these accounts the question peremptorily demanded attention, but the employment of boys also required regulating. There was no intermission of the labour of boys, so numerous were the jobs to which they were put, and although Englishmen were averse to compulsory measures, he thought it would be well to forbid the employment of a boy who could not read or write: indeed, without such a regulation he thought it would be impossible to get the poor properly educated. On making inquiry he found that scarcely any of the boys on his farm could read or write, and he sent them to an evening school, but that had remedied the evil as far as his farm only was concerned. He thought it a mistake to suppose that field labour hurt young people physically; the evil was a moral one, and in gangs, of which he knew little, he presumed it was to be found in the indiscriminate mixture of boys and girls. He had found that female labourers might be dispensed with, and with regard to cottages, it was clearly the interest of the landowner to build them. He thought the condition of the rural districts was not quite so black as it had been painted, as an instance of which he might mention that in his own neighbourhood a tenant farmer had presented a reading room for the use of the labourers of the parish. He objected to agricultural employments being tacked on to the Factory Acts, but he believed a separate measure might be framed which, while no hardship to the farmers, would be of great advantage to the labourers.

Mr. Walpole remarked that the discussion had clearly shown the impossibility of dealing with field labour in the same way as labour in factories. The subject had been introduced by the hon. member for Scarborough with great ability, and he cordially assented to the resolution which the hon. gentleman had moved, on the understanding that it did not imply that the employment of women and children should be placed under exactly the same regulations as factories, but that the principles of the Factory Acts should be applied to it as far as practicable.

Mr. Dent, in replying, expressed gratification at the recognition of the evil by practical agriculturists on both sides of the House, and left it to the Government to determine whether or not they had sufficient information to justify legislation, only trusting that whenever a measure was introduced it would deal with the whole question of the employment of women and children in agriculture.

The resolution was then agreed to.

AGRICULTURAL WAGES.

[The following letter appeared in the *Times* of April 1.]

On September 22 and October 16 last year you were kind enough to publish two letters from me respecting the agricultural labourers of Halberton and other parts of the county of Devon. In those letters I stated that the rate of wages was only 7*s.* or 8*s.* a-week; that even this was not always paid in coin; and that out of this small sum, with few exceptions, house-rent, fuel, food, clothing, and medical attendance had to be provided for a man, his wife, and family. The publication of these details has, I am glad to say, led to results of a more satisfactory character than even I was sanguine enough to expect. These results prove that your readers were deeply interested in my letters which you published last year. I hope, therefore, you will be kind enough to allow me an opportunity of making these results known.

In the first place, I received numerous applications for labourers on liberal terms from Lancashire, Yorkshire, Lincolnshire, Kent, and even Ireland, and some other parts of the country. Next, various persons sent me money, amounting in all to 44*l.*, but now all but exhausted, as an agricultural labourers' removal fund. Then the labourers themselves, of their own accord (for I never asked them), applied to me for situations in which they could earn better wages; and, lastly, those who applied for labourers offered to give or advance, some a part, to be supplemented out of my fund, some the whole of the expense of removal. The result has been that up to this date—in the course, that is, of about six months—I have sent out of Halberton and the neighbourhood 50 agricultural labourers to follow their own vocation in better-paid districts. Of these, 16 are married men with families, the remainder, young single men. The married men are earning, none less than 12*s.*, some as much as 1*l.* per week. All have house and garden rent-free, and some fuel and even furnished houses. The single men mostly have board, lodging, washing, and mending in the farm house, and 6*s.* or 6*s.* 6*d.* a week. Out of the 50 men thus sent out, only one, as far as I am aware, has returned to Devonshire, and he was on trial found incompetent for the work which he undertook. In addition to those who have been removed directly by me, some to my knowledge, and many others I have good reason for believing, have themselves removed to Lancashire, Yorkshire, and other counties, and bettered themselves—partly in consequence of the reports in the local papers, and partly owing to those whom I have removed having written home in glowing terms of the improvement in their position. It is not impossible that the strike of agricultural labourers at Gawcott, in Buckinghamshire, may in some measure be owing to the movement here. It is, at any rate, in the same direction. I have still many applications from labourers, and some for them.

The result of all this, as far as the labourer is concerned, has been exactly that which I expected and have been working for. Wages in Halberton and the neighbourhood and in many other parts of the country have risen—everywhere 1*s.*, and in some places 2*s.* a week. The truck system, likewise, owing to having been exposed, has, I understand, received a fatal blow, and the labourer is in all respects more kindly and liberally treated. Nor will this improvement end here. Wages must and will continue to rise. The eyes of the labourer are now opened, and the removal to a distance, which one man has accomplished, others begin to see is not, as they once supposed, impossible for them. In a word, a vent has been given to the labour which, owing to ignorance of where to go and want of funds to remove at all, has been so far pent up in this one place; and as those who flow out rise to better wages elsewhere, those who remain are getting better wages at home, and will before long, I hope, rise at least to the lowest level of the emigrants—namely, as above stated, 12*s.* a week, with a house and garden rent-free,—the very least an agricultural labourer can live on honestly. The farmer will learn that unless he treats his labourer well he will lose him, and that the more, by kind and liberal treatment, he gives him an interest in his master's prosperity, the more valuable servant he will become.

As regards the farmers, of course it was difficult for them at first to realise that well-paid labourers will in the end be a greater gain to them than to any one else. Some of them, nevertheless, are accommodating themselves to the change in a manly and pleasant spirit. In the case of others, there is no manner of abuse with which they do not assail me, and no kind of retaliation in which they do not indulge. They have refused a church-rate in order that I may be saddled with some of the church expenses. They have withdrawn their support, never having been large, from the schools, for the same reason. They absent themselves from church—a new way of showing dislike to social reform. They have even, some of them, for reasons which good John Wesley certainly never contemplated, been converted to Methodism, and attend chapel. They pass me on the road unnoticed, and, with a want of gallantry almost inconceivable in Englishmen, they treat my wife and daughters, against whom they can have no grievance, with the same disrespect. All this, of course, only shows their own ignorance, and the truth of the Cornish proverb, that if it were not for Devonshire, Cornwall would be in the world. In due course of time, no doubt, they will think better of all this, but, under any circumstances, I shall never regret that, though at the cost of much time, trouble, and wearisome correspondence, with the sole but invaluable personal assistance of my curate, the Rev. C. B. Greatrex, and the pecuniary aid of those who contributed to my Labourers' Removal Fund, I have, with God's blessing, beyond my most sanguine expectations, succeeded in raising the social position of a very deserving, but badly paid class of men. What little I have done will, I hope, be further developed and made permanent by the formation of an Agricultural Labourers' Union for all England. The gratitude which I know is felt by those who have benefited by my exertions will be best expressed by serving God and their masters faithfully, and by taking care that their children avail themselves of the good education which will now be brought more within their reach, and which alone, in this age of rapid progress, can enable them to keep up with others in the hard race of life. *Edward Girdlestone, Canon of Bristol and Vicar of Halberton, Halberton Vicarage, Tiverton, March* 29.

The evidence both at Halberton and Gawcott is now complete. The Vicar of Halberton tells us that the labourers are moving off to a better market. I am not far from Gawcott, and am well-informed that such is the case there. Such men as Mr. Girdlestone would do well to look for employment for surplus labour without casting ill-judged reflections upon the farmers. "The farmer will learn that unless he treats his labourer well he will lose him." The fact is, Halberton and Gawcott have long since been overstocked with labourers. A farmer cannot treat them as he does his sheep and oxen—sell his surplus. It is well known that when a farmer has more sheep than he can keep he does not keep them to eat one another, but sells the surplus. He cannot sell the labourers, and if they will stop where they are bred, the consequence is they remain to eat one another. One writer in a local paper last week throws out an ill-judged remark reflecting upon the farmer:—"I would direct Mr. ——'s attention to the last Census. He will find that, notwithstanding our great increase in population, some of the agricultural districts have actually decreased." That is a bit of good evidence that there are some wise men among the agricultural labourers in some districts, for it shows that the sons of these men in those districts have moved themselves off to a better market, instead of stopping to eat their fathers and brothers up. The farmers at Gawcott are thankful that the surplus labour is being moved off.

That is all that is wanted at Halberton and Gawcott, without hard reflections upon any man, and if the Vicar of Halberton will throw stones he must not mind having his wife and daughters looked coldly upon, or even a church-rate or so withheld. *William Smith, Woolston, Bletchley Station, Bucks, April* 2.

Home Correspondence.

Subsoil Blasting in Woodland.—In the management of woodland in different parts of the country we frequently deplore the poor return that some portions contribute towards the rent roll of the estate, particularly the thin soils overlaying a series of compact strata, and admit that a great portion of land forming the extensive woodlands of England has not met with that attention and judicious treatment to which it is entitled, simply owing to the general failure of most improvements hitherto carried out, and the only consideration to which it is entitled generally, in the opinion of the owners, is the annual demand upon it for saleable timber and underwood. In nearly all soils, as may be observed in cuttings and excavations, there are some hard and unbroken strata underlying the few feet of surface soil which the roots of trees and plants appear unable or object to penetrate, probably from its innutritious or compact nature; consequently the roots are checked in their progress downwards, and the trees and plants become stunted in growth. On the Chiltern range of hills this impenetrable stratum is generally clay, and frequently a thin concrete layer of the upper chalk, below which there is a favourable medium for the extension and growth of roots. Stunted timber may be observed on all land with hard subsoils, and that overlaying stratified rocks, proving clearly that it is not adapted in its natural state to the growth of trees. With the full conviction that it is possible to effect judicious improvements in the treatment of woodland on all formations, I have much pleasure in submitting a system of blasting, and thus deepening the subsoil, for the consideration and adoption of landed proprietors. Admitting that it is necessary for the rapid growth of trees and underwood that the roots should freely traverse the soil to a good depth, I therefore propose that proper holes for inserting blasting cartridges should be bored to a depth of 16 feet, at a distance of 33 feet apart on the surface, which is the depth and distance calculating on the line of least resistance to produce a maximum effect. The cartridges should be loaded with common blasting powder, or gun-cotton is preferable, being considerably stronger and occupying less space, and fired after being properly tampered, by a simple detonating tube or fusee. The effect of blasting, if the charge is rightly apportioned to the depth of the hole, would be the cracking and pulverisation of the subsoil to a certain extent without perceptibly interfering with the surface soil, and the work of comminution would be so thoroughly executed that it would be equal to trenching to the depth of the cartridge fired. All conversant with blasting operations must acknowledge that its action would the more readily permit air, water, and roots to penetrate the lower strata, and it is evident much nutritive soluble matter would thus constantly work downwards, and ultimately improve and deepen the soil considerably. The explosion must be conducted with judgment, and can then in no way injure the roots, and a large area might be done expeditiously without interfering in the least with shrubs or trees. The operation is also applicable to shallow ground round single trees, and is particularly applicable to hard ground on which tap-rooted trees are planted. The proposed extent of ground affected by each explosion would be just 1-40th part of an acre, or a space 33 feet square by 16 feet in depth. I now come to the important question of cost, which will vary according to the hardness of the subsoil in various localities, and am of opinion that a sum of from 2*l.* to 4*l.* per acre would do the work effectually, and prove a permanent and very profitable investment. *Richard Burniston, Surveyor, Henley-on-Thames.*

Barn and Field Work for Women: its effects upon Hinds.—English agriculture supports one able-bodied male labourer for every 10 or 12 acres of arable land. East Lothian farming employed (in 1859) one man for every 30 acres of arable land, exclusive of women, boys, and girls. Contrast this with the fact that only one man for every 60 to 75 acres of arable land is employed in this district on farms which are kept in the highest state of cultivation. The consequence is that the greater part of the manual labour which is connected with the threshing and dressing of corn by machinery, the filling the manure into the carts when cleaning out the cattle pens, the turning the manure heaps and spreading the manure in the Turnip drills, the singling, hoeing, pulling, rooting, and topping the Turnips, is executed by women in the neighbourhood of both sides of the Tweed. The land is ploughed mostly into 14, 14½, and 15 feet ridges for corn crops. On farms where reaping-machines are not used, one man and one woman generally reap upon one ridge, and one man binds and sets up the corn which four reapers cut. Each reaper cuts about half an acre per day. I have known each reaper of an extensive farm cut a fractional part more than half an acre per day during the harvest. Part of the Wheat crop averaged 54 bushels per acre, and weighed from 60 to 65 lb. per bushel; and part of the Potato-oat crop averaged 72 bushels per acre, and weighed 45½ lb. per bushel. The circular corn stacks are generally about 15 feet in diameter at the base, 12 feet high from the base to the eaves, and the slope of the roof more than 45°. A good many farmers' threshing machines will thresh a stack of such dimensions in three hours. Where the stackyard is on a higher level than the threshing machine, the women wheel the corn into the barn with barrows; others carry the corn into the barn on their backs. Where two carts are required for carting the corn from the stack-yard to the barn, a man or woman forks the sheaves from the stack to the cart, and two men or stout lads are required for carting the sheaves to the barn. A man feeds the machine, and two women, boys or girls, untie the sheaves, lay them on the board, and keep the doorway clear; one or two women carry the corn from the spout and riddle it in a heap, *i. e.*, in barns where there is still the common threshing machine; and three or four women pack the straw in the straw barn or carry it into the cattle pens. An experienced female labourer will, according to the nature of the soil, the quantity of Turnip seed sown, and the regularity of the braird, single an acre of Turnips sown in 27 or 28-inch drills in 25 hours on some farms, on others in 30 hours or three days, with an 8-inch hoe. With the exception of the harvest season, when women are paid the current rates of reapers' wages for those days they are engaged in reaping, too many bondagers still perform such laborious work for 1*s.* per day during three-quarters of the year, and 10*d.* a day during the winter quarter! It is right to furnish you with satisfactory proofs of my statements, which are disputed. I forward you reports in the *Kelso Mail* of March 9, 1867, of the Dunse, Selkirk, and Hawick hiring markets, which I shall feel obliged to you for publishing:—

"*Dunse.*—The usual hiring for ploughmen and other farm servants took place on Tuesday last. The morning was raw and cold, and showed symptoms of rain, which fortunately kept off, the few drops which fell now and again never developing so much as into a shower. There was a very large number present, a great many changes occurring. The hiring was very brisk, beginning at an early hour, and was kept up with great spirit during the greater part of the day. Men who had the good fortune to have out-door workers in their families secured places readily, while those who were not so situated were at a discount. Very many indeed were driven to the

necessity of having recourse to the expedient of hiring a bondager in order to secure situations. There was no appreciable rise in wages, but those of the previous and former years were well sustained. The religious services which took place in the Town Hall were numerously attended.

Selkirk.—The annual tryst for the hiring of hinds was held here on Wednesday. There was a full average attendance, but comparatively few engagements were made. The few who found places were mostly hinds able and willing to provide female outworkers, and the terms underwent little change from those current in the district for some time past.

Hawick.—The hinds' hiring market was held on Thursday. There was a large attendance. The hiring was extremely dull, and farmers were most unwilling to enter into contracts where the hind could not supply a female worker, offering as an inducement an advance of 2*d.* daily during summer on the previous wages of female workers; and in some instances it was agreed that the farmer should pay a portion of the female's board, in addition to the wage. Preference was of course given to men who had daughters able to do farm work; but the general tone of the market showed an advance on the money part of the hinds' wage to the extent of about 2*s.* a-week. There was a pretty general request on the part of the men to have a cow's keep restored to them, in place of the cash—ranging from 6*l.* 10*s.* to 7*l.* 10*s.*—which they formerly accepted in place of it, and this was in most cases granted. The best hands were, however, engaged, and the most desirable places filled up previous to the market."

When so many farmers are expatiating in such unmeasured terms about the hypothec and game grievances, it ought to furnish the landowners with a plausible pretext for giving their tenants an imperative order to perform the duties which devolve upon them as renting occupiers of arable land. Landowners are not responsible in some respects for the bondager system. Instead of appointing hired managers for each farm, landowners let their farms for a given rental per annum. Servants' wages, and the money required for horses' keep and for agricultural seeds, are dead stock which cannot be converted into cash. Scotch farmers' and labourers' church membership takes from Scotch landowners all responsibility with regard to the social condition of the labourers. Bondagers do men's work for women's wages, which induces too many farmers to employ such a limited number of men. The number of extensive farmers who are the sons or grandsons of farm labourers, is a practical proof that the resources of arable land are amply sufficient for supporting labourers, tenant-farmers, and aristocratic landowners in their respective spheres. A great deal of misunderstanding is caused by jumbling together the faults of the several classes, and ascribing the aggregate results to landowners. With regard to landowners' hypothec, it ill becomes bondager-farmers to cry "stinking fish." As a proof of the need of addressing you thus, I have just been employed a few days on a farm upon which there is not a labourer's house with more than one apartment. As that farm is about six miles from my present hired lodgings, farmers persisting in perpetuating the bondager system justifies me in contrasting the respective shortcomings of landowners and tenants. Whether is the farmer's game grievance or the hind's bondager grievance the greatest blot on our agricultural and social systems? *T. W. Rutherford, Forestfield, Kelso.* [Abridged.]

Societies.

ROYAL AGRICULTURAL OF ENGLAND.

Monthly Council: *Wednesday, April* 3, 1867.—Present—Mr. Thompson, President, in the Chair; Earl Powis, the Earl of Shrewsbury and Talbot, Lord Chesham, Lord Tredegar, Lord Walsingham, Major-General the Hon. A. N. Hood, Sir A. K. Macdonald, Bart.; Sir T. Western, Bart., M.P.; Mr. Amos, Mr. Barthropp, Mr. Cantrell, Colonel Challoner, Mr. Davies, Mr. Dent, M.P.; Mr. Druce, Mr. Brandreth Gibbs, Mr. Holland, M.P.; Mr. Hornsby, Mr. Hoskyns, Mr. Jonas, Colonel Kingscote, M.P.; Mr. Lawes, Mr. Milward, Mr. Pain, Mr. Randell, Mr. Read, M.P.; Mr. Sanday, Mr. Robert Smith, Mr. Torr, Mr. Turner, Major Wilson, Professor Wilson, Mr. Jacob Wilson, Mr. Frere, and Dr. Voelcker.

Earl Cathcart and Lord Chesham were elected Governors of the Society.

The following New Members were elected:—

Bagot, Rev. Richard Wolfe, Foulstown Glebe, co. Kildare
Baumbach, Henry, Southelmham Hall, St. Cross, Harleston
Beales, John, Hopton, East Harling, Suffolk
Blencowe, George, Bury St. Edmund's
Bridges, Harry, Stowmarket
Burgess, John, Edenham, Bourne, Lincoln
Catchpole, Thomas, Hawstead, Bury St. Edmund's
Clinton, Lord, Heanton Satchville, Beaford, Devon
Colvile, W. E. A., Horningsheath, Bury St. Edmund's
Costerton, Charles Fisher, Scole, Norfolk
Everson, Edgar James, Harleston, Norfolk
Gayford, George, Rymer House, Thetford
Gooderham, George, jun., Monemden, Wickham Market
Gray, Edward, Parham, Suffolk
Greig, David, De Grey Road, Leeds
Halls, Charles, Lavenham, Sudbury
Halls, Joseph, Denham Castle, Bury St. Edmund's
Hawken, Thomas, Mellingey, St. Issey, Bodmin, Cornwall
Henniker, Captain Frederick, Peppingford Park, Uckfield
Hitchcock, Thomas P., Bury St. Edmund's
King, John Lyles, Camois Hall, Woodditton, Newmarket
King, R. W., Brinkley Hall, Newmarket
King, Thomas, Preston, Bildeston, Suffolk
Kyngdon, Francis Boughton, the Bank, Margate
Merrell, Joseph, Guildhall Street, Bury St. Edmund's
Paget, Colonel Leopold Grimston, Park Homer, Wimborne, Dorset
Paine, John Denton, Risby, Bury St. Edmund's
Palmer, Leonard J., Snetterton, Thetford
Partridge, George Anthony, Bury St. Edmund's
Peppercorn, John Hutchinson, Eaton Socon, St. Neot's
Robertson, William Rountree, Norton Hall, Ongar, Essex
Salmon, William, Bury St. Edmund's
Scott, William, Hopton, East Harling, Suffolk
Shaw, Rev. Morton, Rougham Rectory, Bury St. Edmund's
Stanley, Henry, Fornham St. Martin's, Bury St. Edmund's
Taylor, James Wells, 38, Chester Terrace, Regent's Park, London, N.W.
Wallis, Serjeant, Granchester, Cambridge
Webb, John, Hawkedon, Clare, Suffolk

Finances.—Major-General the Hon. A. N. Hood, Chairman, presented the report, from which it appeared that the Secretary's receipts during the past month had been examined, and were found correct. The balance in the hands of the bankers on March 31 was 1382*l.* 17*s.* 8*d.*; 1900*l.* remaining on deposit at interest. The balance sheet for the quarter ended March 31, 1867, and the statement of subscriptions and arrears was laid on the table.

The Committee recommended that application be made for terms of printing the Catalogues for the Bury Meeting to four printing establishments, with a view to a reduction of the present cost. This report was adopted.

Weekly Discussions.—The Journal Committee requested the instruction of the Council upon the question whether a lecture or discussion shall be held on the 4th of June, that being the day preceding the Monthly Council, and if not, on what day it shall be held. It was ultimately arranged that a lecture should be given on Wednesday, the 29th of May, at half-past 12.

Journal.—Mr. Thompson, the President, announced that the issue of the Journal has been unavoidably delayed by the preparation of the Reports on Steam Cultivation, but they are all now in type, and the Journal will be published by the middle of this month.

Bury Meeting.—The Earl of Powis reported that the Committee had ordered the insertion of the usual advertisements for tenders for refreshments in the Show-yard; they recommended that a sum of 50*l.* be assigned for bill posting in the district, and that the report on Steam Cultivation be kept on sale in the catalogue stalls. This report was adopted. On the motion of the Earl of Powis, seconded by Mr. Turner, it was resolved that when a reserved number is placed upon any animal by the judges, a card notifying the reservation be affixed to the stall in the same manner as the cards of prizes and commendations are affixed.

Steam Cultivation Inquiry.—The President informed the Council that up to the present time the Committee had paid 602*l.*, and have no reason to think that the estimate of 750*l.* will be reached, exclusive of the cost of preparing the reports, which may fairly be charged to the account of the Journal. The reports of the three committees of inquiry will be published in a separate form; they will fill more than 300 pages of the Journal, and be published at 5*s.* each.

Advertisements.—Major-General the Hon. A. N. Hood reported that the Committee appointed to inquire into this subject recommended that the general advertisements be discontinued in the *Magnet, Athenæum,* and *Economist;* but that as regards the Journal advertisements, they be continued in the *Athenæum* and *Economist;* that general advertisements be inserted in the *Field;* and that the Secretary be instructed to prepare amended forms of the advertisements, and ascertain from the following papers, viz., *Mark Lane Express, Bell's Messenger,* and *Agricultural Gazette,* their prices for insertion; that a smaller die be prepared for use with all advertisements in the weekly papers; and that advertisements of lectures be inserted in the agricultural papers only. This report was adopted.

Education.—The Earl of Powis, chairman, made the following statement of the general results of the system adopted by the Education Committee:—

There have been 3 examinations, 2 in connection with Cambridge, 1 in connection with Oxford.

The first Cambridge took place in December, 1865; there were then 120 candidates, 27 senior and 83 junior, and 13 (including 3 seniors) for the Society's subjects of Mechanics and Chemistry applied to Agriculture. Out of the number of 27 seniors, 10 first-class prizes were awarded and 8 second-class, while out of 83 juniors, 6 first-class and 12 second-class prizes were awarded.

At Oxford in June 1866 there were 45 candidates, of whom 29 were senior and 16 junior, 10 for Mechanics and 8 for Chemistry applied to Agriculture: out of the whole number of 29 seniors, 7 first-class prizes were awarded and 9 second-class, while out of 16 juniors, 5 first-class and 7 second-class prizes were awarded.

At the second Cambridge examination in December, 1866, there were 74 candidates, of whom 21 were seniors and 45 juniors, and 10 (including 2 seniors) for the Society's subjects. Out of the 21 seniors, 4 first prizes and 8 second class prizes were awarded, while, out of 45 juniors, 6 first and 10 second-class prizes were awarded.

In all these 3 examinations nearly the whole number of candidates, both senior and junior, entered for the general examinations.

As regards the Special subjects, viz., Mathematics, pure and applied Chemistry, Zoology, Botany, and Geology, a large majority (in one case three-fourths, in another case seven-eighths) entered for the mathematical prizes, while but a very small minority competed for the prizes in the remaining subjects.

Mechanics and Chemistry applied to Agriculture: in the former of these subjects there have been altogether at the 3 examinations 25 candidates, among whom 3 have won first prizes, and 5 second prizes; while in the latter subject there have been 27 candidates, among whom 4 first and 5 second-class prizes have been distributed.

This statement was received by the Council.

Lord Powis then moved that the grant of 300*l.* to the Education Committee for the year 1867 be renewed, which was acceded to. Lord Powis then reported that the Committee proposed to frame a list for Scholarships and Prizes at the Cambridge Local Examinations in December next, substantially the same as that of last year, but subject to such minor alterations in detail as the Committee may find expedient. This proposal was supported by Mr. Dent, M.P., the President, and Lord Walsingham; and opposed by Mr. Holland, M.P., General Hood, Mr. Randell, and Mr. Turner; and on a show of hands was lost by 6 ayes to 16 noes. The Earl of Shrewsbury then moved, seconded by Mr. Wren Hoskyns, that a Special Council be held on Thursday, the 2d May, at 12 o'clock, to determine on the appropriation of the Education Grant (1867), which was carried.

Committee of Selection.—The President reported that the Committee recommend that the vacancy caused by the death of the Marquis of Exeter (a Vice-President), be filled up by the election of the Earl of Cathcart, and the vacancy caused by the death of Lord Feversham (Trustee) be filled up by the election of Lord Chesham.

Also that the vacancy in the Council caused by the election of Lord Tredegar to be a Trustee shall be filled up by the election of the Right Hon. Sir John Trollope, Bart., M.P.

Printed lists have been prepared by the instructions of the Council, showing the number of subscribing Members, and number of Members of Council resident in each of the Society's county districts, and in each of the counties composing those districts.

This Report was adopted.

On the motion of the President, seconded by Mr. Turner, the Rt. Hon. Lord Chesham was unanimously elected a Trustee in the room of Lord Feversham, for which honour his lordship returned thanks. The Rt. Hon. Earl Cathcart was unanimously elected a Vice-President in the room of the late Marquis of Exeter, on the nomination of Lord Walsingham, seconded by Mr. Dent, M.P.; and the Rt. Hon. Sir John Trollope, Bt., M.P., was unanimously elected a Member of Council in the room of the Rt. Hon. Lord Tredegar, elected a Trustee, on the nomination of Mr. Torr, seconded by Mr. Milward.

Country Meeting of 1868.—Memorials, with plans signed by the Mayors and Town Clerks of Derby, Leicester, and Nottingham, were presented, soliciting the Council to hold the Society's Country Meeting at those places in the year 1868; and a committee consisting of Lord Chesham, Mr. Cantrell, Mr. Brandreth Gibbs, and Mr. Torr, was appointed to inspect the various sites offered for show-yard and trial fields, and to report to the Council on the 1st May.

Farmers' Clubs.

Hexham: *March* 14.—*Cattle Trade Restrictions.*—At the recent monthly meeting Mr. Rowell read a paper on the necessity for Legislative interference for the Regulation of the Cattle Trade, from which we make the following extracts. He said:—The subject was one which merited the notice of the Club and the serious consideration of every member of the community, because it involved questions of humanity and the proper treatment of animals that contributed so largely to their comfort and welfare, for every pound of beef lost by the improper treatment of the animal was a pound lost from the general store from which the people were fed. How much more—when from the utter disregard to its comfort and well-being its life was sacrificed, as he believed hundreds over hundreds were from the hardships and cruel usage to which they were exposed in moving from place to place—does the source of the supply of food become affected, enhancing the price of beef, or throwing them upon the foreigner to meet their wants.

Foreign Cattle Trade.—When the false prop of the duty on foreign corn was removed, farmers consoled themselves with the reflection that they had one source of industry left in which other countries could not compete with them, viz., the breeding and feeding of cattle and sheep. Their forlorn hope in this, from the development of the foreign cattle trade in the last two or three years, was likely to result in disappointment, for, at the time when the corn-laws were repealed, and indeed for some years after that period, it was computed that all the foreign cattle and sheep imported into Great Britain during the 12 months would not more than furnish a supply for one week's consumption of beef and mutton throughout the kingdom. What was the extent of the trade now? He believed he was not very wide of the mark when he stated that during the last year two-fifths that had been consumed as food had been imported from abroad. The statement might appear somewhat startling, but they might remark the quality of the foreign supplies was greatly inferior to their home-fed cattle, and therefore they had nothing to fear. True, supposing they could produce a far superior quality of beef and mutton, and he believed it would be conceded by all classes of their countrymen that they did, that alone would always constitute their pre-eminence over the foreigner. He would repeat a previous statement—they dread not competition: consequently the competitive feature which the importation of foreign cattle assumes caused them no alarm, but the diseases brought and imported along with them excited their liveliest dread. What had been the experience of the last 18 months? A disease brought from abroad, the virulence of which had decimated their herds and cast a gloom over the country, leaving in its track misery and distress, bidding defiance to the best skill of the veterinarian profession, and the only apparent means by which its progress had been checked had been by the inhuman and cruel means of slaughter, to create a gulf in its ravages between it and their healthy stock, entailing a loss to the country and the farmers as a class estimated at about three millions sterling.

Retrospect of last Thirty-five Years.—In looking back to that period, it was remarkable the changes they discovered. Upon farms where they would have seen from 10 to 20 or more large Short-horned cows, now perhaps there would not be more than three or four; also the offspring of those cows with as many of the calves from town dairies as could be got, might have been seen, but now they were supplanted by cattle brought from another country or at any rate from distant parts. The young stock bred in the district then being fed off upon the most luxuriant pastures in the country—being kept from three to four years old before they were fattened for the butcher, a very small number being fed with Turnips or artificial food during the winter months; in fact, it required but few cattle in the winter to supply the wants of the com-

munity, many providing their winter's store from beef slaughtered in the autumn, which being pickled and dried, with a very occasional joint of fresh meat, was all that was required, and at that time their home produce nearly supplied the demand. He said nearly, for he well recollected the large droves of West Highland kyloes that were taken south at that time, as they were yet in the autumn of every year. He had no doubt but that they would agree with him when he stated that the principal cause producing this great change was the gigantic railway system, giving employment to tens of thousands of their countrymen, facilitating and developing trade, raising their commerce to the proud position it had attained, engaging and giving free circulation to capital, improving the condition of the labouring classes, and by the great increase in the remuneration they received for their labour enabling them to secure for themselves more substantial food, and, as a nation, making them the largest consumers of animal food in the whole world, until the resources of the land were quite inadequate to meet the demand, and instead of the consumption, as formerly, being met from the district wherein it existed, they had to go abroad for the cattle, and instead of breeding them, they had to bring their lean cattle from other countries, and devote their attention to preparing them for the butcher. Since the restrictive measures had been in operation for the suppression of the cattle plague, the murrain and the lung disease had not been known in the country amongst their herds. He had for some time back made extensive inquiries into this, and nowhere could he hear of their existence, this fact to him constituting of itself an overwhelming reason for the necessity of legislative interference for the regulation of the trade, and that it should be placed under the authority of wholesome restrictions; and he was convinced that no question connected with the agricultural interest demanded more the active attention of farmers' clubs and chambers of agriculture than it did, and above all the interference of their legislature. Some might say the fewer restrictions upon the trade the better: so said the slothful and the negligent, when they brought upon them the arm of the law, and enforced sanitary improvements; so said those few who sought to thrive and fatten upon the very existence of others.

The Necessary Restrictions on the Home Cattle Trade.—From causes enumerated they were compelled to receive the bulk of their store cattle from a great distance, the principal source of their supply being Ireland, also not a few from the west of Scotland. If not the murrain, he was inclined towards the opinion that pleuro-pneumonia is contemporaneous with the conveying of cattle by steamboats and railways, the disease being engendered by the close confinement of the animals, the length of time they were in their transit, and from the tossing of the boat should the weather be boisterous, or the delay of the cattle train, so often shunting into sidings to allow other traffic to pass, jamming and bruising them to an extent of which they had but little idea; that, together with the want of rest, food, and water, producing a highly febrile state in their systems. In this condition they were driven to the first pond available. He left it to scientific men to say what the effect of this treatment was likely to be, and if his conclusion was not highly probable under the circumstances. The transporting of cattle by rail had one unmistakable advantage—that was, the expedition with which it was accomplished—and for a distance which could be passed over in seven or eight hours, being rested and fed previously, and carefully trucked, could not be objected to. But what was too frequently the case, the cattle, after having stood all day in the market, were hurried off to the nearest station, and sent away 100 or 200 miles. What might not follow such inhuman treatment? Now, were they turned on to the highways to be driven, they would at night get rested, and some food and water, and though they might become footsore their general health would be better sustained. In reference to those imported from Ireland, they were very probably driven a considerable distance, or they might be, which was worse, thrust into and closely packed in a railway truck, and without protection from heat, cold, or rain, hurried away to the port of embarkation, where they arrived under either circumstances very much exhausted, and not with the most care placed on board the vessel without food or water, and having come to the place of importation, often bathed in perspiration, some were landed by mechanical means, and others were, he was informed, forced overboard into the sea to swim ashore, and, without much time being allowed for rest and food, driven off to the nearest market. After standing exposed for sale, or what was nearer the truth knocked about, and not meeting a customer, they were taken from market to market till sold. Previous to the restrictions now in force towards the suppression of the Rinderpest, cattle affected with epidemical diseases were taken through the country, thus conveying infection amongst herds wherever they went, but since the restrictions referred to had been in operation, murrain and lung disease, as already stated, had been removed. He was glad to find that he was supported in this opinion by Mr. Donkin, who, at a meeting held at Morpeth about a fortnight ago, stated that "there was one good thing the Rinderpest had done—it had freed them from all other diseases." While it might be admitted that the restrictions were too stringent for ordinary trade being conducted with that freedom which was necessary and desirable, it was nevertheless proved that the traffic required some regulative enactments, and in conclusion he urged that some practical steps be taken in the matter.

Discussion.

Mr. John Grey said: Great inconvenience was felt in the transit of cattle, and it was very desirable to return to the holding of fairs, instead of dealing in cattle as at present. The most important object was to take care of the ports at which cattle landed, and certain ports might be set apart for that purpose, and vigilantly watched. It was a great point, to which Government and the Commission should attend. In some German States, and in Holland, the plague was more destructive than it had ever been in this country, and in the importation of foreign cattle great watchfulness must be exercised, and the cattle must pass through a certain ordeal before they could be entirely freed from disease. If that were done, he should rejoice to see free transit of cattle.

Mr. T. P. Dons entirely concurred in what Mr. Grey had said, and the Club and himself would rejoice that Mr. Grey was again amongst them. There was no doubt whatever, although they would return shortly in some measure to their old system, that they could not again return entirely to the free importation of foreign cattle without any restrictions, as before the introduction of Rinderpest, neither was it desirable that the moving about of home bred cattle by railway and steamboat should be without supervision. It had been practically proved that trucks could be constructed containing water troughs and feeding places. He trusted this point would be insisted upon, if any petition was drawn up, for every railway company to supply trucks with conveniences for watering and feeding cattle in them. Then, again, he agreed with Mr. Grey that foreign cattle should be allowed to be landed in the country at certain specified ports, at which places there should be a quarantine and market for store cattle. No cattle should be allowed to go into the country to be fed until they remain 21 or 28 days in quarantine, properly attended and watched by inspectors appointed for that purpose; if the cattle were for slaughter, to be conveyed to the nearest market, where home stock was not exposed. At the meeting held at Newcastle on Monday night, it was resolved to make application to provide a separate market for foreign cattle coming into the port of Newcastle. This subject should not be allowed to drop without taking some practical steps in the matter, by calling upon Government to make such measures as were necessary. The country willingly submitted to these restrictions, and their success had proved the wisdom of the Privy Council in ordering them. They were now clear of Rinderpest, and those other two diseases to which their herds were liable—murrain and pleuro-pneumonia, and undue relaxation might risk their herds being again attacked by one or other of these diseases.

Mr. Joseph Lee thought there should be some restriction to prevent cattle from being "knocked about" from place to place by dealers. He thought many gentlemen would bear him out in what he said, that they had more loss in the country from lung disease than from the cattle plague, and there were few farmers in this neighbourhood but what had suffered heavy loss from this disease. He wished to have some restrictions on cattle coming from Ireland, which were frequently removed from market to market before being sold, and he wished them to be left in the hands of the dealers for 21 days or so if there were any symptoms of disease, so as not to spread the disease over the country. Magistrates should give orders to constables to look after these Irish dealers and drovers at fairs, to prevent them ill-using and knocking about the cattle with long sticks, and that persons so ill-using cattle should be taken into custody under the Cruelty to Animals Act. If anything could be done to secure them better treatment, it would certainly be more advantageous.

Mr. Dryden thought, if they required railway companies to provide better trucks, they would have to submit to pay double toll for them. Persons showing cattle affected with pleuro-pneumonia should be punished, as was recommended by a committee of the House of Commons last session. As to the transit of cattle from Ireland, the animals were crowded and crushed into the steamboats one upon another, for which the parties ought to be punished. It was easy coming to general conclusions, but the carrying of them out was not such an easy matter.

The Chairman (Mr. C. C. Grey, of Dilston) said the discussion had taken the form of two different subjects, or rather divisions—the restrictions on foreign cattle and the restrictions on home-bred cattle. He would not restrict Irish cattle as foreign cattle, but treat the trade as internal traffic, and put it under strict regulations and inspection. With regard to the importation of foreign lean cattle, they should be kept in quarantine 28 days, which would protect the farmers from cattle plague, and also from lung disease, and foot-and-mouth disease. It would open their own markets, and be a great benefit to the country. As to the other matter, some were of opinion there should be restrictions, while others were in favour of free trade, but his opinion was that the weight of evidence was in favour of having restrictions kept up. They had now learned how certain inspections took place, and how traffic could be stopped where infection existed. If the lung disease broke out on a farm, the farmer killed and got rid of those infected with disease, and drove the others off over the country to sell. He did not think, however, a man of high principle would do this, but still it was done, and it tended to spread the disease. When the disease broke out on a farm, it should be surrounded by a cordon, the same as in the case of murrain disease. They did not feel deaths so much from lung disease as from cattle plague, but, according to statistics, the losses from lung disease were more numerous, though not in such a short period as the cattle plague. There should be penalties inflicted upon people for bringing cattle to fairs, if from infected places, with the foot-and-mouth disease, or lung disease, and he did not think it would interfere with trade in cattle.

Reviews.

The Quarterly Journal of Science. Churchill & Sons.

An interesting series of papers, including the discussion of various social and scientific questions, is followed by the usual chronicle of events in the various departments of scientific labour during the past quarter. The volume is well calculated to create, as well as to maintain, the highest intellectual tastes; and no better token of or motive to agricultural advancement could be desired than that works of this class should obtain a wide circulation among agricultural readers. It especially deserves the support of those country residents who are debarred from any direct access to the centres of scientific activity. That the direct interests of agricultural readers are not neglected, appears in the agricultural "chronicle," which stands first upon the list, from which we make the following extract:—

"The President of the Royal Agricultural Society did well, in his Annual Address in December last, to insist upon the need of considering the disease as a conflagration; urging upon the Government that, just as the whole machinery of fire-engines and firemen is maintained where there is no fire, to extinguish it should it arise, so the existing machinery for stamping out the Cattle Plague should be maintained in readiness to deal with it, should it again attack us. The other points to which Mr. Thompson's address referred are also of first-rate agricultural importance, including the difficulties of the labour question, the need of developing those departments of farm practice which result in the production of animal food, and the call for an improved agricultural education. On the first of these topics he declared the impossibility of carrying out the so-called co-operative system in farm practice; recommending, however, as a much more likely expedient for retaining the existing agricultural labourers, that farmers generally should adopt what is already a common practice in some counties—the plan of either letting land to their labourers, or otherwise providing them with a cow's keep. A man who can ensure regular work at fair wages, with sufficient land to keep a cow and a pig, and obtain even a moderately good cottage among the friends and neighbours whom he has known from childhood, will seldom be found willing to change his position for the crowded courts and alleys of the large towns, even by the temptation of considerably higher money wages. Add to these domestic advantages offered to married labourers a system of piecework payments, by which young men shall be remunerated according to the actual value of their services, and it is probable that the ranks of the agricultural labourer may not be so rapidly thinned as, to the great inconvenience and difficulty of the farmer, of late years they have been. The increased supply of animal food—meat and milk—which was the next topic referred to in Mr. Thompson's address, is rapidly becoming a more important branch of English agriculture. Cattle food is being grown in large quantity, not by the laying down of ploughed lands to permanent pasture so much as by the better cultivation of green crops on arable farms. Rotations of crops are altered to suit the demands for an increased live-stock. Two green crops are cultivated in succession, and Clovers and Grasses, taken in alternate husbandry, are kept down more years than one; and the smaller portion of each farm which may thus sometimes be devoted to corn-growing, yields, nevertheless, an increased quantity of grain, owing to the fertilising effect of the larger flock of sheep or herd of cattle which is thus maintained.

"An instructive paper 'On the Application of Manures' was read by Dr. Voelcker before the London Farmers' Club in December, in which he argued for the immediate application of farm-yard dung to the land, not on the ground that loss is incurred during fermentation in the dung-heap, but because there is considerable loss of soluble substances during that process by the exposure of the dung-heap to rain. The unprofitableness of the old-fashioned dung-heap is alleged to be owing, not so much to evaporation, as to the washing effect of rains. There is as much actually of ammonia in the reduced mass of the rotten heap, as there was 'potentially,' to use Dr. Ure's phrase, in the original bulk of the fresh manure there hauled together. The recommendation to put the manure at once upon the land, even though it be autumn, and for a spring crop, is perhaps hardly safe on very light land, where the soil has less ability to retain the products of its slow decomposition. The remedy for the immense loss of fertilising material, which takes place under the ordinary management of the dung-heap, on such farms, is to adopt the plan of covered yards, where the manure is allowed to accumulate under shelter until it is carried out in the spring. Another urgent recommendation of the Professor's, in connection with the application of all kinds of manures, was to take care that they were thoroughly mixed with the soil. It is doubtless owing to the perfect distribution of their fertilising matters through naturally fertile soils, that a good season is, on such soils, able to produce an excessive crop. And the aim should be, whether in applying bone-dust, guano, or nitrates, so to triturate, reduce, or dissolve them, that, after application, every portion of the land through which a root can penetrate shall contain its share of the application ready as the food which that root requires.

"The recent publication of the agricultural statistics collected by the Board of Trade does not materially alter the conclusions, to which students of that subject had already been led as to the actual and relative areas of the different crops cultivated in Great Britain. The Wheat crop in England and Wales was formerly estimated at 3,800,000 acres, it is now declared to be 3,274,000. The total corn crops of the country occupied 7,920,000 acres in 1866, against 8,437,000 at which they were estimated in 1857. And the green crops (food for cattle, &c.) are put at 2,890,000 acres, against about 3,000,000, which was the estimate 10 years ago. The area returned as permanent pasture now is 10,255,000; it was formerly estimated at 10,166,000 acres.

"A clever pamphlet by Mr. Heywood, of Dunham Massey, Cheshire, points out to farmers that, as the cultivators of living plants and animals, they cannot do just what they please, as they might if they were the manufacturers or manipulators of merely dead material. Living creatures follow their own natural laws, and our efforts for the promotion of their health and productiveness must be obedient to their nature. Indeed, as stated in the *Agricultural Gazette* when reviewing Mr. Heywood's pamphlet, the keeper of a living thing must be its most humble servant if it is to prosper in his hands. The nature of the creature, not the arbitrary will of its master, must determine the treatment it receives. And the fact that animals, and even plants, are not mere machines, capable of producing a double quantity of the manufactured article from a double quantity of the raw material supplied to them, rebukes a great deal of that exuberant and urgent, and often wild advice, which is frequently addressed to practical agriculturists by the amateur. They know by long experience the limits of this kind which are imposed by Nature, and against which, or over which, no man ever went uninjured. Within those limits, however, it is the part of a wise and energetic man thoroughly to cultivate the field which is his own; and thus successful high farming consists in selecting animals and plants for cultivation which have great

natural powers of assimilating food, and in treating them fully up to this their precocious nature.

"The new organisation of Chambers of Agriculture, to which reference has been made in previous Chronicles, has gradually developed during the past quarter. Such chambers now exist in almost all parts of the country, and there is a central institution in London professing to act as a common mouthpiece for them all, through which the voice of the agricultural world may be urged upon the Home Secretary, in connection with any amendment or enactment of law that is desired. The consideration of the Turnpike Trusts, with the maintenance of roads otherwise than by the outrageously expensive toll system, is the topic selected for their first attempts to move the Government of the country. There are several other agricultural topics being urged in Parliament, which are equally deserving of attention with this; and they are being taken up by individual members in the House of Commons with great ability. Thus, Professor Fawcett urges the more general enforcement of the Factory Laws, which limit the hours of labour in the case of children under a certain age, and require them to attend school during certain hours of the day. Certainly the application of these laws to the case of children employed in the field would be very difficult, chiefly owing to the immense labour of inspection which would be necessary to see that they were duly carried out; but it cannot be doubted that compulsory education would ultimately be most beneficial in the agricultural districts, as elsewhere.

"The severity and impolicy of the Game Laws is another topic which has lately been urged very effectively upon the House of Commons. And these and other topics of agricultural interest will, no doubt, form the subjects of discussion before the newly constituted Chambers of Agriculture throughout the country."

Farm Memoranda.

Merse of Berwickshire: *March* 30.—Four weeks of frost and deep snow, four of February spring, and three of veritable winter, make a bad sequence. Often have we seen more snow in March, but what struck one was the unflinching persistence of cutting north and east winds, which effectually withered up all Grass. Dry cold, however, is not so very unfavourable to lambs, and mothers' milk and shelter of nights were the most pressing difficulties. The numbers are not great, but still-born lambs are not to be charged to the recent hard weather. The Turnip store has been seriously encroached on by the ewes, and hand-feeding generally resorted to. This milder week has sent the ewes with their lambs to Grass, and they evidently enjoy the change. The west wind, however, is cold and boisterous to-day, and winter threatens. Grasspark rents are considerably above last year's lettings, and takers must hope for a better grazing season. The number of cattle put in to feed may have been little more than half of what used to be kept, owing to the combined scarcity of straw and Turnips, and that small number will leave little profit per head at the present prices, having been dearly laid in. The store of muck is very deficient—so much the better for the "artificials." On dry soils we have had two or three days' sowing, and the men of clay may make a beginning next week if the wind keep hard. It is eight days earlier than last year, yet late enough. *J. T.*

A Highland Estate: *The Crofter System.*—The estate of Skibo skirts the northern shore of the Dornoch Forth. The Duke of Sutherland, and Mr. Gilchrist, of Ospisdale, hold land that projects into it, but substantially the boundaries are from about opposite Tain to Balblair, a mile or two above Bonar Bridge, and inland about 5 miles. A more beautiful highland estate it would be hard to find: the scenery includes fine wood and abundance of water, mountain and valley, moorland and corn-fields; there is game of every kind, excellent trout fishing, with a fair chance of a few grilse in the river Evelix; a good house, and a garden which has been tilled for six or seven centuries, in which stand some magnificent Holly trees, with trunks like Oaks—mementos of the residence of a long line of bishops.

But Skibo has the disadvantage—not an uncommon one, we regret to say—of numbering among its tenantry a considerable settlement of very poor people, who have squatted on the outlying parts of the property from time immemorial—most of them paying a nominal rent, some paying no rent at all—who eke out a miserable existence by such common labour as the remoteness of their dwellings and their want of proper training may enable them to undertake. It is not fair to charge these people with indolence, though it is very often done, for, according to their lights, they work hard enough. During the late severe winter, some of them walked a distance of four or five miles every morning, across a swampy moor full of quagmires, to engage in such work as was going on in the district. They had to leave home in the dark, and it was dark before they began the return journey; they laboured all day in wet clothes and wet shoes, and fared upon the humblest diet. That their work, in such circumstances, was to little profit, in comparison with that of the well clad, well fed, and comfortably-housed skilled artizan, is not to be wondered at. But in nine cases out of ten it is on such unfair conditions that the Highland crofter engages in labour beyond his own little patch of land; and without earning a trifle of hard cash by some such extraneous means it is impossible for him to make ends meet. One can very easily understand how such a state of matters is ready to spring up on almost any Highland estate. The wife of a deserving servant, let us suppose, is suddenly left destitute with a young family. The laird or his lady sees to it that the poor woman shall have at least a roof over her head: with the help of neighbours, a rude bothy is run up in some waste bit of moorland, and there the family grow up, nourished and clothed in some mysterious manner, Heaven knows how! By-and-by the children reclaim a few roods of the wretched soil beside their hut, they fence it in, and thus a settlement is begun, and a race of crofters established on bad land, remote from schools, from roads, from useful fields of labour, and giving no prospect for themselves or their children but a life of poverty, squalor, and dirt, as long as they remain there. So thriftless and profitless is their labour, that, in a recent memorial addressed to the proprietor of Skibo, they plead as a reason why they should not be disturbed, that no other estate will harbour or shelter them if once they lose their present settlement. Yet there is hardly a district in the Highlands, where husbandry has been long established, in which labour—that is to say, labour that is worth paying for—is not scarce and dear. Landlords who have been accustomed to this sort of thing all their lives put up with it rather than break the hearts of the poor creatures by turning them adrift; for the experience of all "evictions" has been that the more ignorant and helpless the people are, the more firmly they seem rooted to the soil on which they vegetate.

The estate of Skibo was bought about a year ago by Thomas Chirnside, Esq., a gentleman who realised a large fortune in Australia as proprietor and occupier of immense sheep farms. He purchased the property, we believe, very much from what he had heard of it, contenting himself with a survey of its great beauty as seen from the public road. But he soon discovered the blot stamped upon it by the poverty and squalor of the crofter settlement among the moors. We attach little importance to the fact that the removal of the crofters will materially improve the grouse-shooting on the estate. Mr. Chirnside is enthusiastically devoted to sport, and nothing is more probable than that it was when in quest of grouse that he lighted on the settlement at Achow. But, in any case, tenantry such as these would not suit his taste—he could not endure such misery among people calling him their landlord, and he gave notice at last term to 28 of the crofters that a change must take place. The nature of the change is now pretty clearly ascertained. About 100 acres of land near the village of Clashmore have been lately cleared of timber, and this he proposes to make accessible by means of two new roads leading on one side to the village, and on the other to the well-tilled land in the neighbourhood of Skibo Castle. He is to divide the land into lots of about 10 acres each, to build substantial cottages, with slated roofs and convenient outhouses, and establish a certain number of the families here on improving leases, the landlord giving assistance in the cost of trenching and reclaiming the land. Six others are to occupy vacant cottages at Pulrossie; but the widows and infirm people are not to be disturbed, and the remainder will either get time to shift for themselves, or some other arrangements will be made for them. There was, of course, a great outcry as soon as it was known that they had received notice of removal: for some people appear to think that, whatever other changes are to be made in the country, there shall be none in the miserable crofting settlements that are scattered over the land. But these are the facts of the case, and we are glad to know that Mr. Chirnside is not likely to be diverted from his practica and truly philanthropical purpose by mere clamour. We have personally seen both the old settlement and the new; the latter is easy of access, well sheltered, and having a fine southerly exposure—the former is miles away from the population of the district, surrounded by swamps and bogs, and unapproachable except by a bridle path, in which a horse in wet weather may at any time sink over the knees. The people themselves seem willing to leave their settlement if they are otherwise provided for on the estate, their chief alarm, we suspect, being that they will have to fall into regular habits of industry, and while they derive the advantages of civilisation and society, have to pay also the price at which alone these can be obtained. *Inverness Courier, quoted by The Farmer.*

Miscellaneous.

On the Purchase of a Horse.—We presume that a gentleman wants a horse. The first question he must put to himself is, "What uses do I want this animal for? Do I want him for a hunter, a hack, a trapper, or a carriage horse?" We will presume that he wants a hunter: "size" is the first thing to be observed; there is no greater folly in the world than buying a horse not big enough for his work. "Rather be overhorsed than underhorsed" is an exceedingly practical and wholesome motto. There are many records of ponies and little horses accomplishing wonders—of carrying heavy weights to hounds, of their getting over "pounding" fences, and of always being "there or thereabouts;" but these may be safely put down as exceptions to the rule. * * * * The question of height having been satisfactorily settled, the next requirement is, that the animal should be "long and low." Where the length should exist we shall hereafter detail; but the word "low" more particularly is applied to the desire that the animal should not be leggy or cocked up. If he has the points well shown and developed to which we shall presently allude, and the average standard fixed at 15.3, then the "long and low" axiom will be fulfilled. These being settled, the next thing a man should be satisfied of is "breed;" and this requirement we would most particularly impress upon the purchaser as an important one: without "blood" a hunter is of no use; "blood" gives stamina, emulation, and intelligence, and when the under-bred, lumbering beast is licked to a stand-still, the wiry, well-bred "weed" will be going on. Let it not be understood that we recommend weeds, but merely give this as an illustration of how even a weak specimen of the thorough-bred will often give the "go by" to an animal possessing more muscular development, but lacking in aristocratic descent. Very well; the horse we are looking at fulfils the qualifications above expressed—viz., "height, length, and breed." And now to further points, and we will begin with the head. This should be small; the skin of the muzzle should be fine and sensitive, and the nostrils broad; the eyes should be bright, large, and displaying intelligence, and the forehead broad; there should be depth in the lower jaw, and the ears should be long; a short ear is a sign of want of blood; the teeth should then be carefully observed. His head should be well set on a neck neither too long nor too short: long-necked horses very often turn out or are roarers; short-necked horses are generally underbred. The neck is one of the most important parts in the symmetry of the animal; it should have great muscular development, just below the fine crest, from which the mane takes its origin, and should blend without any appearance of "lumber" into the shoulders and withers. The windpipe should be large. We now arrive at the shoulders: the form of these important parts of the horse's structure is a subject of great dispute, we mean practically; for it takes a good judge to tell what is a bad shoulder and what is a good one: a man even bearing in mind every desideratum is often at fault in respect of actual judgment; and why is this? We will tell you. A reliable knowledge of what constitutes a good or bad shoulder is only to be learnt from actual experience. We will, however, endeavour to explain the requirements of a good shoulder—and the first great necessary exists in the "slant." By this (as the word implies) we mean that the line from the point of the shoulders to the withers should be of great obliquity: the withers should rise up to a point ("sharp withers") and blend with a gentle curve into the muscles forming the anterior part of the back; the points of the shoulders should be placed well forward, by which means greater length of the humerus is obtained, and the leverage on the limb below proportionally increased. The shoulders, taken as a whole, should not be "shelly;" that is to say, although the muscles run into a finely developed line at the withers, they should, on the great expanse of the shoulders, stand out boldly and prominently. A well-developed shoulder conduces greatly to the length of the horse, for if the obliquity of it is great—*i. e.*, the point placed well forward and the withers well laid back—a not inconsiderable portion of the "trunk" of the animal is thus well accounted for. The part measuring from just behind the withers round the body of the horse constitutes the "girth." This cannot be too deep, for, as it forms the principal part of the cavity in which the lungs are situated, lack of depth of girth will generally be associated with failure of staying powers. The muscles of the back should run in a straight line from the curvature behind the withers to the loins, where they should rise in a slight arch. The rising of the muscles behind the "saddle-seat" should be a great index of speed, strength, and jumping powers, as is most particularly exemplified in the greyhound and hare. The trunk itself, bounded on each side by the ribs, should be well rounded and the flanks well let down. A "tucked up," flat-sided horse is generally both a bad doer and bad stayer. The loins should be broad, and merge into a symmetrical union with the quarters. *Veterinary Gazette.*

How to Weed out the Smaller Farms!—A member of the Edinburgh Chamber of Agriculture thus writes in the *North British Agriculturist*:—Under this law of hypothec, Mr. Glendinning said he was "weeding out" the small tenantry; and many others are doing the same. "Weeding out" has been going on in my own neighbourhood, often to the regret and indignation of the larger farmers. As a specimen of some of the weeds flung across the marches I may mention a few cases—viz., Weed first,—plucked out of about a dozen acres, and about same time his eldest son distinguished himself at the University—gained the gold medal for the year—is now a professor in a college in South Africa, and edits periodicals for circulation in the colony; another is a missionary; another is studying for the Church; and the fourth for being a teacher. Weed second.—The oldest son a most successful teacher, and rector in a large academy; second, a teacher; third, tutor to an Earl's eldest son; and fourth, a teacher. Weed third.—One son is a minister in South Africa; another gained a gold medal at Edinburgh College; another is a teacher. Weed fourth—has three strong, healthy, well-educated sons, who would make excellent grieves or tradesmen. The preliminary education of those youths was got at a school supported by the people—myself one of them. Nor is the stamina of this class of *weeds* a thing newly sprung up. In the beginning of this century one of the same class near this—not considered *weeds* then—educated a son for the Church of Scotland. He went to England, and became well known as a literary man, and now his son is an M.P., and one of the most distinguished men of the present time. Another of the same class, wishing to raise his son in the world, purchased a pack for him; the future millionaire not relishing this mode of rising, consulted the nearest oracle, by putting the pack on the top of a dyke; resolved that if it came to him he would accept his fate, but if it fell the other way he would return and try some other mode of rising; and it did fall away, and by his extraordinary ability and natural talent for business he amassed an immense fortune, and now some of his descendants are deservedly men of world-wide reputation. I could multiply instances; and this is the clear ringing metal which is sown broadcast over Scotland, and which

some proprietors would send to Brummagem by making them paupers at the expense of others, and stamping the iron heel upon them. Free those men from the fetters of hypothec protection, and thus relieve them from the undue competition which affects them even more than it does the larger tenants, and let them have an opportunity of gaining fair remuneration for their capital and their labour. This change would produce a more healthy state than exists at present—a tenantry sometimes wholly in arrear to their landlord, giving him in a good year nearly all, and in a bad one taking from their little capital, or receiving alms in the shape of reduction. If landlords have money to spare, let them plant superior schools, build cottages, and do away with bothies, and the small farmers need not sink, as his lordship predicts, into ploughmen; but the industrious and saving ploughman may rise to be a small farmer.

Cost of Hand Power.—A man will dig 8 perches of land, or say 2000 square feet nearly a foot deep in a day. In doing so he lifts probably three-quarters of it through about a foot in height, that is to say, he lifts 1500 cubic feet, weighing at least 150,000 lb., 1 foot high in 10 hours' time, and to do it therefore he must maintain upon the average a lift of 250 lb. per minute all that time. Of course in addition to the mere lift there is the labour of cutting off this earth from the firm ground to which it was attached. In my second case, then, this portion of his labour is very much reduced. Three men will lift 100 to 120 cubic yards of farmyard dung, and fill it into carts in 10 hours' time. The 33 to 40 cubic yards which fall to each man's share, at 12 to 14 cwt. apiece, weigh 50,000 lb., and this is lifted over the edge of the cart, or 4 feet high—equal to 200,000 lb. lifted daily 1 foot high, or 330 lb. per minute. This is one-fifth more than in the last case. Now take a third instance, in which there is no labour in detaching the weight from any previous connection:—A man will pitch in an hour's time an acre of a good crop, tied in sheaves, to an average height of full 6 feet, on the cart or waggon. Straw and corn together, such a crop will weigh more than 2 tons, say 5000 lb. In doing this he therefore lifts 300,000 lb. 1 foot high in 10 hours' time, or 500 lb. per minute. My fourth case is of much the same kind. One man and five boys or women, equal as regards wages, and I will therefore assume equal as regards power, to three men, will throw into carts upon an average of Swedes and Mangel Wurzels 3 acres of a good crop, say 70 tons in all, in a day of 9 hours' length. They lift these 150,000 lb. 4 feet, being equal to 600,000 lb. 1 foot; or 200,000 lb. apiece in 9 hours' time, which is about 370 lb. a minute. These four cases indicate the mere force of a man then, at a cost of say 3*d.* an hour, as equal to a lift of 250, 330, 500, and 370 lb. per minute; the two former being cases where the load has to be detached as well as lifted, and the third being performed under the influence of good harvest fare. But now compare this even in its best case with the duty of the steam engine, namely, the lift of 33,000 lb. 1 foot high per minute for 3*d.* or even less per hour; and compare it with the actual average performance of the horse, 16,000 to 19,000 lb. lifted 1 foot per minute for 5*d.* an hour. In order at the best rate named to do the work of the steam engine, 66 men would be required at a cost not of 5*d.* but of more than 15*s.* per hour, and in order to do the work of the horse 32 men would be needed at a cost of 8*s.* instead of 5*d.* an hour. It is plain that if we can take much of the mere labour of the farm out of the hands of the labourer, and put it into the hands of steam power for its performance, there is an enormous amount of saving to be made in the cost of agricultural production. It is plainly folly in the labourer to think that as regards the mere labour of the land he can compete with either steam power or horse power. Strength of body is desirable, and sinew hardened by long practice in hard work has a considerable marketable value, for that, however hardly it may sound, is the aspect of the matter in which the interests of the labourer most directly appear; but it is clear that for sheer lift and the mere putting forth of force, horse power, and still more that of untiring steam, must grind the soul out of any body that shall pretend to competition with it. It is in the cultivation not so much of mere strength of body as of skill and intelligence that the safety of the labourer lies, and in his capability of education he is perfectly secure. *Morton's Handbook of Farm Labour.*

Notices to Correspondents.

Capponizing: *C E G.* The art was described by our Correspondent "D. S. E." many years ago in these columns. Consult Mr. Baily, 113, Mount Street, W. We do not know any "elaborate work" on the subject.

Grass Land: *Thomas Ford.* You will get more immediate effect from a dressing of guano and salt than from one of lime and salt. Put on lime in the autumn, 60 or 70 bushels per acre, in an earthen compost.

Measurement of Cattle: *M. A.* Take the length from the front of the shoulder (one-third of the way down from the withers) to the insertion of the tail, or to such a point as that a plumb line from it will most fairly inclose the hind quarters of the ox. Take the girth where smallest, behind the shoulder. Multiply the girth in feet and inches by itself, and the product by the length. The resulting figures are then to be multiplied by the decimal ·23, and the result will be the weight in imperial stones. The last factor may be ·2 up to ·28, according to the breed and fatness of the animal. A fat Short-horn bull might need as high a factor as ·3, while a half fat, ill-bred cow, would not need a higher factor than ·2. ·22 to ·24 are the most generally useful.

Milk Committee of Society of Arts: *Old Subscriber* Apply to the Secretary of the Society, John Street, Adelphi, Strand, W.C.

Weeds: *James Harmer.* In pastures weeds are discouraged by drainage, close pasturage, and artificial top-dressings, and by perseverance in spudding or pulling large plants at all seasons of the year, especially in the spring and summer, and before their seed time. If these means will not avail, the land must be ploughed up, well fallowed, and laid down again.

SUTTON'S GRASS SEEDS

FOR ALL SOILS.

CARRIAGE FREE.



MESSRS. SUTTON

Have one of the most complete Stocks in Europe of

NATURAL GRASSES and CLOVERS,

which have been carefully cleaned, and may be had either separately at moderate prices, or mixed as under:—

MIXTURES are specially prepared for every description of soil; therefore in ordering it is only necessary to state the nature of the soil, and suitable Seeds will be supplied. The following are the popular classifications of Soils:—

1. STIFF CLAY
2. STIFF or HEAVY LOAM
3. GOOD MEDIUM LOAM
4. LIGHT SANDS
5. SHARP GRAVELS
6. CHALKY SOILS
7. SHEEP DOWNS
8. RIVER FLATS, or WATER MEADOWS

SUTTON'S BEST MIXTURE of PERMANENT GRASSES and CLOVERS for the above Soils (2 bushels of Grasses, and 12 lb. Clovers per acre), 36*s.* per acre, carriage free. CHEAPER MIXTURES, 28*s.* to 30*s.* per acre, Carriage free. Special Contracts made for large quantities.

TESTIMONIALS.

From Mr. John Towle, *Weirs and Hincksey Mills, near Oxford*
April 9, 1866.—"Some five or six years back I had from you Permanent Grass Seeds for 40 acres, and the same quantity from another party; while yours has now a good sward upon it, the other is worn almost to nothing."

From Mr. Robert Kay, *Pontrack, Stockton-on-Tees.*
April 25, 1866.—"The Seeds you sent me in 1864 have surpassed those sent by my landlord from Manchester in the same year, and appear as if they will come to swathe much earlier than the others."

From the Rev. Richard H Harrison, *The Parsonage, Builth.*
April 13, 1866.—"It is only right to say that the seeds you sent me two years ago for laying down two fields, have surprised those who have seen the Grass from them, although they were sown on high land in the very dry and hot summer of 1864."

From Mr. G. Wilson, *Agent to the* Earl of Dartmouth, *Woodsome, near Huddersfield.*
March 31, 1866. "The 23 acres of Grass I laid down with your seeds last year are looking first-rate; they are the admiration of the neighbourhood."

From the Rev. J. A. Carr, *Shipton Rectory, Andoversford.*
April 3, 1866.—"The field laid down with seeds I had from you has a most splendid appearance."

From Mr. Richard Duckham, *Newton Farm, Bracknoller, Taunton.*
March 31, 1866.—"The permanent pasture from seed I had of you last season is looking remarkably well, and now fit to stock with sheep. I have been in the parish for the last 25 years, and have never seen any plant equal to it."

From J. Jenkins, Esq., *Ruthin*
April 3, 1866. "The seeds I had from you last season have proved to be all I could possibly desire. I believe that it would be almost impossible to see a more perfect crop of Grass."

From John Marshall, Esq., *Rischolme, Lincoln.*
April 3, 1866.—"The field I laid down with your Grass Seeds to permanent pasture in April, 1864, has now a very beautiful appearance, and bids fair to produce again a large quantity of excellent herbage of the highest quality, after such a crop of hay as was seldom seen in 1865."

From Henry Overman, Esq., *Weasenham, Brandon.*
April 14, 1866.—"The piece of land laid down with your seeds is the best I ever saw."

SUTTON'S GRASSES and CLOVERS for

One Year's Lay, 15*s.* per acre
Two Years' Lay, 18*s.* 6*d.* per acre
Three or Four Years' Lay, 24*s.* per acre

SUTTON'S RENOVATING SEEDS, by the use of which Grass Lands may be improved at from 5*s.* to 10*s.* per acre. Price 10*d.* per lb.

SUTTON'S GENUINE FARM SEEDS.

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SUTTON'S FARM SEED LIST,

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☞ *All Goods Carriage Free.*

Five per cent. allowed for prompt Payments.

SUTTON and SONS,
ROYAL BERKSHIRE SEED ESTABLISHMENT,
READING.

FOWLER'S PATENT STEAM PLOUGH and CULTIVATOR may be SEEN at WORK in every Agricultural County in England.

For particulars apply to John Fowler & Co., 71, Cornhill, London, E.C.; and Steam Plough Works, Leeds.

IRON HURDLES (Silver Medal of the Royal Agricultural Society)
SHEEP, 3*s.* 6*d.*; CATTLE, 4*s.* 2*d.*; OX, 5*s.* 11*d.*
List by Post. GATES and FENCING of every description.
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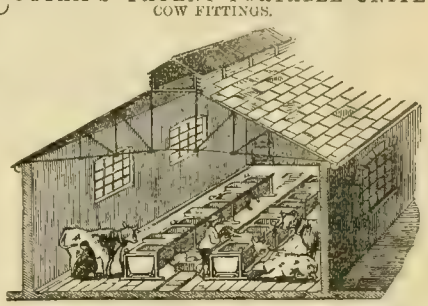
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ROLLERS FOR THE FARM.
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ROLLERS FOR CRICKET GROUNDS.
ROLLERS FOR PARKS.
ROLLERS FOR RACECOURSES.
ROLLERS FOR ROAD MAKING.

The best and cheapest are the Patent Adjustable WATER BALLAST ROLLERS, made only by
Ames, Barford, & Co., Agricultural Engineers, Peterborough, who will forward Price Lists and all particulars on application.

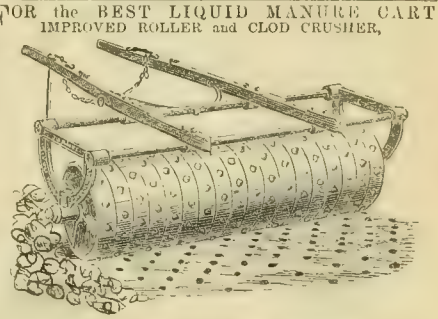
CLAYTON, SHUTTLEWORTH, and CO., Lincoln, and 78, Lombard Street, London.
Illustrated Catalogues, containing the latest revised PRICE LISTS and particulars of PORTABLE and STATIONARY STEAM ENGINES (from 4 to 10-horse power) Thrashing, Grinding, Pumping, Sawing Machinery, &c., &c., will be forwarded free on application as above. TRACTION ENGINES for Common Roads, and for Steam Cultivation.
Note.—Nearly Eight Thousand Engines have been made by this firm within the last few years, and upwards of Six thousand Thrashing Machines.

COTTAM'S PATENT PORTABLE UNITED COW FITTINGS.



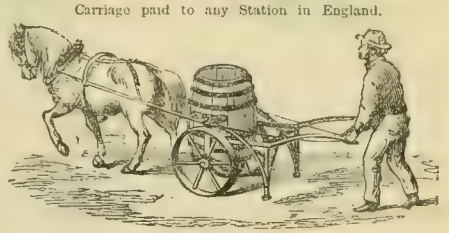
Their advantages are Portability, not Fixtures, removable at pleasure, no Woodwork or Partitions to impede Ventilation or breed Vermin, Hay Rack dispensed with as unnecessary, increased width and depth of Feeding Troughs, Water Cistern, and Patent Drop Cover to prevent over-gorging. Cleanly, durable, and impervious to infection, being all of iron. Price of Fittings per Cow, 6*5s.*
Prospectuses free of Cottam & Co., Iron Works, 2, Winsley Street (opposite the Pantheon), Oxford Street, London, W., where the above are exhibited, together with several important Improvements in Stable Fittings just secured by Patent.

FOR the BEST LIQUID MANURE CART
IMPROVED ROLLER and CLOD CRUSHER,



Apply to I. James, Tivoli Works, Cheltenham

W. S. BOULTON'S 36-gallon SWING WATER BARROW. Price 45*s.*
Carriage paid to any Station in England.





The above is very cheap and invaluable for carrying Liquids of all kinds. No Garden, Farm, Stable, or Kitchen Yard should be without one. Two or more Tubs can be had with one Carriage at a small additional cost. A Lad can easily work it; but it required to travel long distances over rough ground a Pony can be attached. The wheels and carriage are wrought iron, and the tub oak. The following, out of many Testimonials, have been received:—

From Lord Otho Fitzgerald, *West Park, Salisbury.*
"Sir,—You are welcome to make use of my letter recommending your Water Barrow. I find it of great use, and stronger, better, lighter, and more serviceable than one I had made in the neighbourhood, the carriage alone of which, without the barrel, cost me £3 10*s.* I unfortunately ordered it before I saw your advertisement. —I am, yours obediently, "O. Fitzgerald."
"To Mr. W. S. Boulton."

From Thos. Ingle, Esq., *M.D., Emsworth, Hants, June* 24, 1866.
"Sir,—The Swing Water Barrow is in every respect a most admirable improvement on all I have hitherto used in my Gardens. All parties who have seen it, Gentlemen as well as Gardeners, have bestowed upon it their unqualified approval, and several said they would order them of you. Yours truly, "Thos Ingle, M.D."
"To Mr. W. S. Boulton."

Rose Lane Iron and Wire Works, Norwich.

SAMUELSON & CO.'S

PATENT LAWN MOWING and ROLLING MACHINES.

EVERY MACHINE WARRANTED.

TO BE OBTAINED OF

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AGENTS:—Messrs. TANGYE BROTHERS AND HOLMAN, 10, LAURENCE POUNTNEY LANE; Messrs. DEANE AND CO., London Bridge; Messrs. DRAY, TAYLOR AND CO., London Bridge; Mr. THOMAS BRADFORD, 63, Fleet Street, E.C.; and all respectable Seedsmen and Ironmongers throughout the Kingdom.



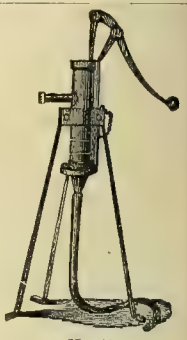
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LIFT PUMPS.

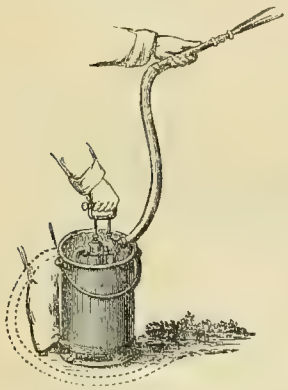
2½ inches diameter	.. ..	£1	8 6
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SHORT-BARREL DITTO,

FOR SINKS, PLANT HOUSES, &c.

No. 37.—2½ ins. diameter .. £1 1 0

Ditto, with 15 feet of 1¼-in. lead Suction Pipe attached, £2.



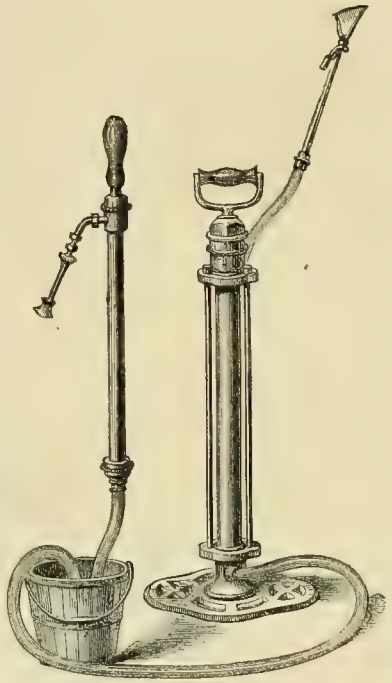
WARNERS' (No. 568½) AMERICAN

GARDEN ENGINE,

OR FIRE ANNIHILATOR,

Is complete in itself, or can be used to draw from a Pond or Tank, price £2 2s.

6 ft. Suction Pipe and Rose, extra, 12s.



WARNERS' AQUAJECT.

Useful for every variety of purpose, in Watering or Washing Flowers or Trees in Gardens, Conservatories, &c.; also for Washing Carriages or Windows, Laying Dust, &c.

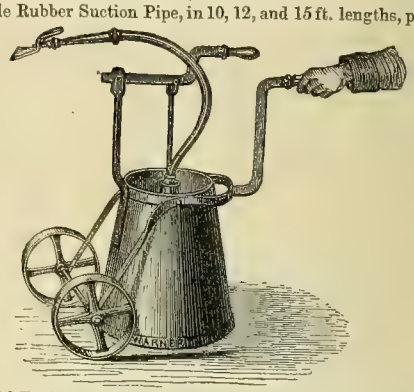
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Small Size for the hand, as an ordinary Syringe, 18s.

No. 42. **WARNERS' PORTABLE PUMPS,**

With Improved Valves for Liquid Manure £2 15 0

2-in. Flexible Rubber Suction Pipe, in 10, 12, and 15 ft. lengths, per foot, 2s. 5d.



WARNERS' (No. 547 B) GARDEN ENGINE.

HOLDS SIX GALLONS.

Is light, portable, and easily worked by a lady or child, price £2 10s.

LETTER TO *The Times*, JULY 23, 1866.

FROM EARL ESSEX.

A Real Fire Extinguisher.

To the Editor of "The Times."

"SIR,—I feel sure you will kindly allot a small space in the *Times* to these few lines, as the best medium through which I would urge every householder who dreads fire to have on each floor of his house one or more small Garden or other Engines on wheels, always charged and in good order, in case of fire.

"Last night, just as I was going to bed, I was startled by that most fearful of all cries, 'Fire, fire!' I soon learned that a fire was raging in a large two-windowed unoccupied bedroom. How caused is to us all a great mystery. It is my custom to keep one of these small Engines on each floor. In two minutes I was in the room with one of them. It was like a furnace. The curtains, shutters, casements, and cornices of both windows were burning and cracking from floor to ceiling. I was quite alone at the moment, yet before assistance arrived (most of the servants having gone to bed), I had completely subdued the fire of one window without exhausting the Engine, and when assistance and more water did arrive, we very soon extinguished the other. So fierce was the fire that the lead of the casements was melted, and the casements themselves were burnt off their hinges. I will only add, that by God's mercy, the house was saved by this small Engine. Had it not been at hand and in order, most assuredly Cassiobury would be now a heap of ruins.—Yours faithfully, "ESSEX.

"Cassiobury, Watford, July 20.

"The Engine, even when full, runs so light on the floor, that any woman might draw it, and also work it."

WARNERS' GARDEN ENGINES,

WITH REGISTERED SPREADERS.

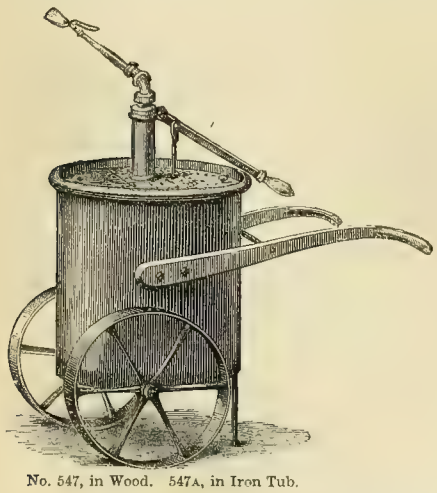
These Engines are much improved in construction, are less likely to get out of order, and more easily repaired than others.

No. 547. Best ENGINES, in Wood Tubs.

24 Gallons	..	£6 10 0	14 Gallons	..	£5 10 0

No. 547A. Strong ENGINES, in Galvanized Iron Tubs, well painted inside and out.

10 Gallons	..	£2 19 0	24 Gallons	..	£4 19 0
16 Gallons	..	3 14 0	28 Gallons	..	5 10 0



No. 547, in Wood. 547A, in Iron Tub.

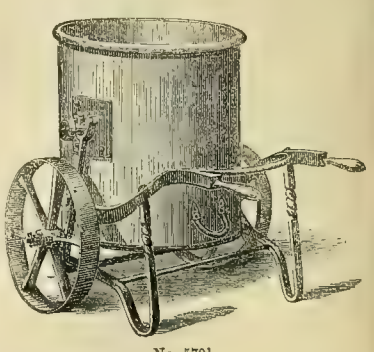
579½. WARNERS' WATER BARROW

Saves a Gardener's time in Watering with the Water Pot.

Made of strong Wrought Iron, Galvanized and painted inside and out.

To hold 20 Gallons, wheels 13 inches high			..	..	£2 2 0
„ 30 „	„ 20	„	..	..	2 13 0
„ 38 „	„ 24	„	..	..	3 17 0
„ 50* „	„ 24	„	..	..	5 12 0

* This is an extra strong article, with cross handle for two men, suitable for Nursery Grounds, &c.



No. 579½.

SYRINGES, BRANCH PIPES, INDIA-RUBBER HOSE, &c.

☞ *Estimates for any description of Hydraulic Machinery forwarded on application.*

F. A. HAAGE'S WOOD GARDEN STICKS and TALLIES, commended by the Royal Horticultural Society, acknowledged to be the neatest, cheapest, and best Training Sticks and Tallies made.

The above can now be had of all sizes, Wholesale, of Betham & Blackith, Cox's Quay, Lower Thames Street, London, E.C.; and Retail of the principal Seedsmen and Florists.

Price Lists on application.

GARDEN LABELS and FLOWER STICKS.—PAINTED WOOD LABELS, 3½ inch, 6d.; 4½ inch, 9d.; 6 inch, 1s.; 9 inch, 2s.; 12 inch, 2s. 9d. per 100. 4 inch for suspending, 1s. 6d.; 5 inch, 2s. per 100, cheaper by the 1000.

ZINC LABELS for Pots, Garden, or suspending on Fruit Trees, Roses, &c., 2s., 2s. 6d., 3s., 3s. 6d., and 4s. per 100.

INDELIBLE INK, 6d. and 1s. per bottle.

SOFT HORTICULTURAL WIRE, 1s., 1s. 3d., 1s. 6d., and 1s. 9d. per lb. coil, according to size. [gross

GALVANIZED WIRE PINS for Verbenas, Carnations, &c., 1s. per

FLAT METALLIC PEGS for Verbenas, Carnations, &c, 1s. 6d. per 100. [3s. per gross.

PATENT EYELET WALL NAILS, single 2s. per gross; double,

GREEN PAINTED FLOWER STICKS, 1 foot, 2d.; 1½ foot, 3d.; 2 feet, 4d.; 2½ feet, 5d.; 3 feet, 6d. per dozen.

BROWN VARNISHED STICKS, 1 foot, 3d.; 1½ foot, 4d.; 2 feet, 5d.; 2½ feet, 7d.; 3 feet, 10d., per dozen.

DAHLIA and ROSE STAKES, square, green painted, 4 feet, 2s. 3d.; 5 feet, 3s.; 6 feet, 3s. 6d per dozen. [prices.

DAHLIA and ROSE STAKES, brown, varnished, same sizes and

B. J. Edwards, 222, Strand, W.C., and 25, Bishopsgate Within, E.C

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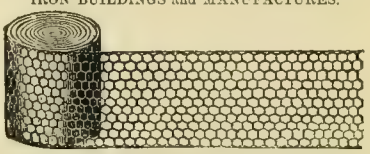
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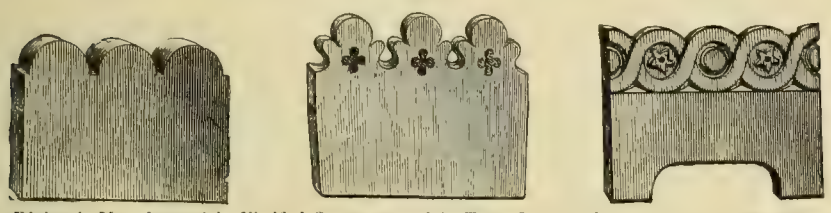
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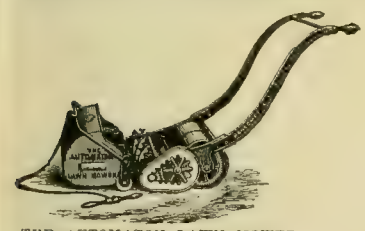
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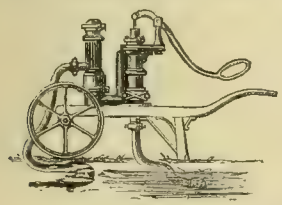
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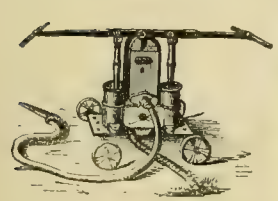
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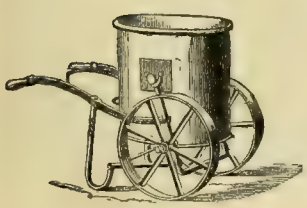
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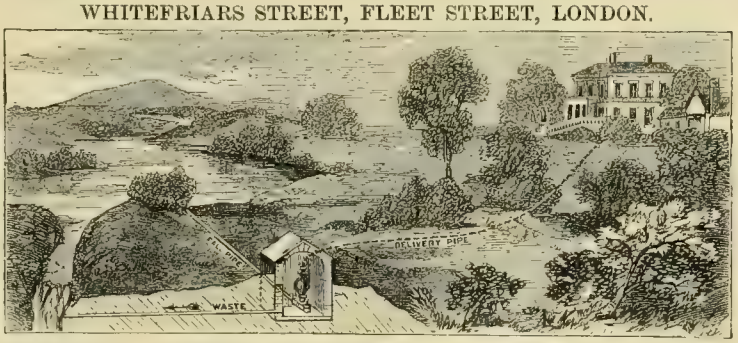
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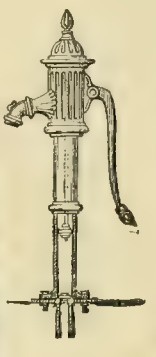
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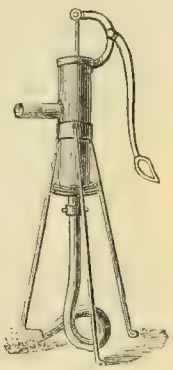
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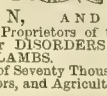
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On view the Morning of Sale. Catalogues may be had at the Rooms as above, and of the Auctioneers and Valuers, Leytonstone, Essex, N.E.

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On view the Day previous, by Catalogues only, to be obtained of the Auctioneer, Tottenham.

AN EXTENSIVE SALE by AUCTION, on FRIDAY, April 12, 1867, at Providence Nursery, Boston Spa, Yorkshire, of SPECIMEN and HALF SPECIMEN, STOVE and GREENHOUSE PLANTS, ORCHIDS, &c.

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IMPORTANT SALE OF SHORT-HORNED CATTLE.

MR. STRAFFORD has the honour to announce that he is instructed to SELL by AUCTION, without reserve, on WEDNESDAY, May 1 next, at the Preston Hall Farm, Aylesford, Kent, the renowned HERD of FIRST-CLASS SHORT-HORNS belonging to Edward Ladd Betts, Esq., which consists of upwards of 60 Head of Bulls, Cows, and Heifers. This magnificent Herd has been bred with great spirit for several years, regardless of expense, from the first sources in the country. It comprises the whole of the far-famed "Grand Duchesses" and some "Grand Dukes," several splendid specimens of the "Cambridge" or "Red Rose" tribe, and other fine Kirklevington sorts, as well as some of the choicest gems from the Towneley Herd, with many more remarkable animals. Bulls of the highest character have been used: the young Stock are by the celebrated Bulls Sixth Duke of Airdrie (19,602), Third Duke of Thorndale (17,719), Fourth Grand Duke (18,874), Imperial Oxford (18,034), and Fourth Duke of Thorndale (17,750). The Sires now in use are Grand Duke 4th (19,874), Lord Oxford 2nd (20,215), and Grand Duke 16th.

Catalogues with Pedigrees may be had on application to Mr. STRAFFORD, 13, Euston Square, London, N.W.; or of Mr. FREEMAN, at the Preston Hall Farm, Aylesford, Kent.

Havering Park, near Romford, Essex.

IMPORTANT SALE OF SHORT-HORNED CATTLE.

MR. STRAFFORD is honoured with instructions from David McIntosh, Esq., of Havering Park, Essex, to SELL by AUCTION, without reserve, on THURSDAY, May 2 next, his entire and well-known HERD of FIRST-CLASS SHORT-HORNS, comprising 56 Head of Bulls, Cows, and Heifers, that have been bred with great judgment and care for more than 20 years from some of the purest and best strains in the kingdom. The animals are principally of Mr. Bates's far-famed Kirklevington blood, whereof many fine specimens of the "Oxford," "Barrington," and "Waterloo" tribes will be found, besides some of the celebrated "Princesses," from which family Belvedere (1706) was bred. There are also several excellent representatives of Sir Charles Knightley's "Fillet" and "Rosy" tribes, and a few "Charmers." Third Duke of Thorndale (17,749) has lately been used, and Fourth Grand Duke (19,874) is the sire of the young Stock. "Baron Oxford," a splendid young Bull, by the noble Duke of Geneva (19,614) and from the 1st Prize Heifer, "Lady Oxford 5th," at the Worcester Royal, is at present in service.

Catalogues with Pedigrees may be had on application to Mr. STRAFFORD, 13, Euston Square, London; or of Mr. BOYD, at the Havering Park Farm, near Romford, Essex.

Important Sale of Orchids, Stove and Greenhouse Plants, at Highgrove, Reading, Berks.

MR. J. C. STEVENS will SELL by AUCTION, at the Gardens, Highgrove, Reading, Berks, on TUESDAY and WEDNESDAY, April 9 and 10, the valuable Collection of ORCHIDS, STOVE and GREENHOUSE PLANTS, formed by the late J. J. Blandy, Esq., Vice-President of the Royal Horticultural Society of London, comprising a great variety of fine Plants, many of which have been exhibited and carried off Prizes at the various Metropolitan and Provincial Shows; also several Greenhouses, Exhibition Van, &c.

Catalogues are ready (price 6*d.* each, to admit parties to the Sale), which may be had at the Gardens; also of Messrs. COOPER & GOULDING, Auctioneers, Market Place, Reading; and of Mr. J. C. STEVENS, Horticultural Auctioneer and Valuer, 38, King Street, Covent Garden, London, W.C.

Choice Hardy, Ornamental, and Bedding Plants.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, April 10, at half-past 12 o'Clock precisely, a fine COLLECTION of CARNATIONS, PICOTEES, and PINKS, Geraniums, Fuchsias, Roses, Auriculas, Pentstemons, Red Cedars, Fruit Trees, Hardy Shrubs, Gladioli, Rustic Seats, Stools, Vases, Baskets, &c.

On view the Morning of Sale, and Catalogues had.

Consignment of Plants from Ghent.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on SATURDAY, April 13, at half-past 12 o'Clock precisely, first-class DOUBLE CAMELLIAS, INDIAN AZALEAS, Hardy Rhododendrons, Fruit Trees, Shrubs, Roses, Rustic Seats, Stools, &c.

On view the Morning of Sale, and Catalogues had.

Imported Orchids from Mr. J. Linden's Collectors.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on MONDAY, April 15, at half-past 12 o'Clock precisely, the following valuable and new ORCHIDS:—

Cattleya species nova	Odontoglossum brevifolium
,, maxima	,, cristatum
Helen sanguinolenta	,, crocatum
Lycaste Xanthophora	Oncidium aurosum,
Mesospinidium sanguineum	,, macranthum hastilerum
Zygopetalum rostratum	,, serratum

&c., &c., &c.

On view the Morning of Sale, and Catalogues had.

Periodical Sale of Poultry and Pigeons.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on TUESDAY, April 16, at half-past 12 o'Clock precisely, CHOICE POULTRY and PIGEONS from the yards and lofts of well-known breeders and exhibitors.

On view the Morning of Sale, and Catalogues had.

Important Sale of Orchids.

MR. J. C. STEVENS has been favoured with Instructions to SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., without reserve, on WEDNESDAY and THURSDAY, April 17 and 18, First-class ESTABLISHED ORCHIDS, being part of the well-known Collection of A. Basset, Esq., of Stamford Hill, who is reducing his Collection for a short time owing to change of residence. The Plants consist of Duplicates, amongst which will be found many magnificent Specimens of all the best Varieties, including:—

Aerides Fieldingii	Miltonia spectabilis
,, maculosum	Odontoglossum citrosmum
,, Lobbii	roseum
,, Larpentæ	Odontoglossum Alexandræ
,, crispum	,, radiatum
Cattleya Mossiæ	,, Bluntii
,, Trianæi	,, nævium majus
,, Bassettii	,, Phalænopsis
,, Wagneri	,, coronarium
Dendrobium macrophyllum	Oncidium crispum
,, giganteum	,, ampliatum majus
,, primulinum giganteum	Phalænopsis amabilis
,, nobile pendulum	,, grandiflora
Cypripedium Stonei	,, Schilleriana
,, Veitchii	Saccolabium ampullaceum
,, barbatum	,, curvifolium
,, concolor	,, guttatum
,, villosum	,, retusum
Lælia elegans	Trichopilia crispiflora
,, Dayii	Vanda Batemanni
,, purpurata	,, tricolor
Miltonia candida grandiflora	,, suavis

&c., &c., &c.

On view the Morning of Sale, and Catalogues had.

Established Orchids.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, April 25, at half-past 12 o'Clock precisely, the entire collection of established ORCHIDS, the property of a gentleman giving up their culture, including fine healthy plants of the following well-known varieties:—

Angræcum sesquipedale	Oncidium leucochilum
Aerides nobile	Lælia purpurata
,, maculosum Schroederi	,, Schilleriana
Cattleya labiata	Phalænopsis Schilleriana
,, amethystoglossa	,, amabilis
,, Warneri	Saccolabium curvifolium
Calanthe Veitchii superba	,, Blumei majus
Odontoglossum nævium majus	Dendrobium Devonianum
,, hastilabium	Vanda cærulea
Oncidium roseum	Sobralia macrantha splendens, &c

On view the Morning of Sale, and Catalogues had.

Choice and Large Collection of Orchids.

MR. J. C. STEVENS has been instructed to SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., without reserve, on THURSDAY and FRIDAY, the 2d and 3d of May, the entire COLLECTION of CHOICE ORCHIDS belonging to Geo. Cooper, Esq., of Alpha House, Coburg Road, Camberwell, owing to his giving up the growth in consequence of his removing into Kent. The Plants consist of all the leading and newest varieties, including:—

Aerides Fieldingii	Odontoglossum Dawsoni
,, maculosum	,, gloriosum
,, Lobbii	,, luteo-purpureum
,, Lindleyanum	,, Insleayi
,, Larpentæ	,, Pescatorei
,, quinquevulnerum	,, pulchellum majus
,, roseum superbum	,, radiatum
,, virens superbum	,, grande
Cattleya amethystoglossa	Oncidium ampliatum majus
,, Trianæi	,, crispum grandiflorum
,, Mossiæ	,, ,, ,, marginatum
,, labiata	,, Lanceanum
,, maxima	Phalænopsis grandiflora
,, ,, superba	,, amabilis
Cypripedium caudatum	,, roseus
,, Hookeri	,, Luddemanniana
,, Lowii	,, Schilleriana
Dendrobium chrysotoxum	Peristeria elata
,, clavatum	Saccolabium guttatum splendens
,, densiflorum album	,, premorsum
,, eburneum	,, Blumei majus
,, heterocarpum	,, Reidii
,, Cambridgeanum	,, retusum
,, thyrsiflorum	,, violaceum
Lælia elegans	Trichopilia suavis
,, purpurata	Vanda cærulea
,, autumnalis	,, Batemanni
,, Wallisii	,, gigantea
Odontoglossum Alexandræ	,, insignis
,, Bluntii	,, tricolor
,, citrosmum	,, suavis, &c.

On view the Mornings of Sale, and Catalogues had.

Highly Important Sale of Established Orchids.

MR. J. C. STEVENS begs to announce that he has been favoured with Instructions to SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, May 9, at half-past 12 o'Clock precisely, some unusually fine Specimens and Choice Varieties of ESTABLISHED ORCHIDS, being duplicates from the renowned Collection of S. Rucker, Esq., of West Hill, Wandsworth, including:—

Aerides Larpentæ	Trichopilia crispa
,, Fieldingii	Miltonia candida grandiflora
Cypripedium caudatum	Odontoglossum Phalænopsis
Dendrobium Wardii	,, nævium majus
Cattleya labiata	Calanthe Veitchii
,, labiata speciosa	Cymbidium eburneum

And many other fine species all in the finest possible health; also some duplicates from the well-known Collection of J. Day, Esq., of Tottenham, including fine Plants and first-class varieties of the following RARE ORCHIDS:—

Angræcum sesquipedale	Lælia elegans
Aerides affine	,, Schilleriana splendens
,, Larpentæ	Maxillaria venusta
,, Dayanum	Miltonia Regnelii
,, quinquevulnerum	Odontoglossum Bluntii
Cattleya amethystoglossa	,, Pescatorei
,, Exoniensis	,, nebulosum
,, labiata	,, Uro Skinneri
,, superba	Phalænopsis amabilis
Cœlogyne cristata	,, Schilleriana
Cypripedium Lowii	,, Luddemanniana
,, Dayanum	Pleione lagenaria
,, Stonei	,, humilis
,, lævigatum	,, maculata
Dendrobium Devonianum	,, Wallichii
,, lituiflorum	Saccolabium guttatum
,, Farmeri	,, ampullaceum
Dendrochilum filiforme	Vanda cærulea
Lælia crispa superba	&c., &c.

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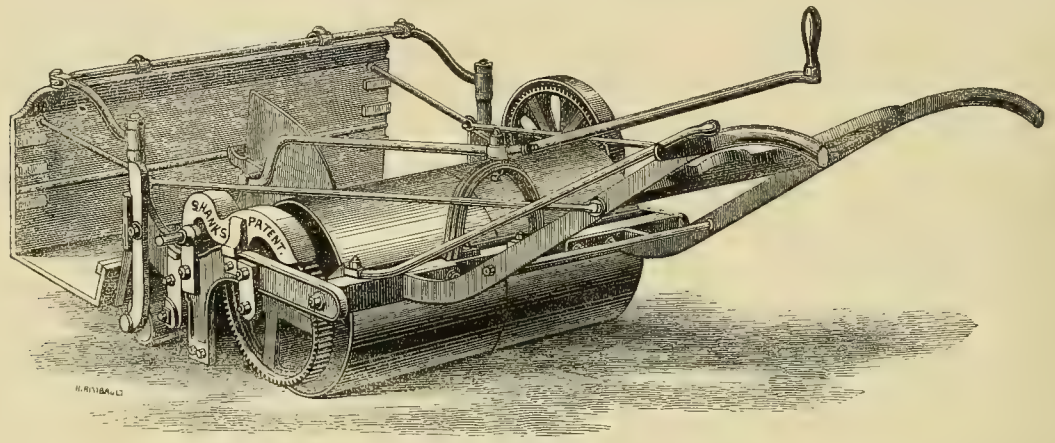
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ALEXANDER SHANKS AND SON, in referring to their IMPROVED LAWN MOWERS for 1867, doubt not but that the preference which in past years has invariably been given to their Machines will still be awarded them. The principles which guide A. S. AND SON in effecting improvements compel their Machine ever to stand the first in point of general efficiency, simplicity of construction, and durability.

A. S. AND SON have particularly aimed at substituting Wrought for Cast Iron to as great an extent as possible in the construction of their Machines. None but skilled Workmen and the most improved Machinery are employed in manufacturing the various parts, and this applies not only to the Horse and Pony, but also to the Hand Machines.

A. S. AND SON have now ready for delivery a large stock of their celebrated LAWN MOWERS, which will enable them to execute orders on the day they are received.

PRICES, INCLUDING CARRIAGE TO ANY RAILWAY STATION OR SHIPPING PORT IN THE KINGDOM.

SHANKS' NEW PATENT HAND MACHINE.

Width of Cutter.		Easily Worked	Silent Movement.
10-inch Machine	£3 10 0	*By a Lady*	4*s.* extra.
12-inch Machine	4 10 0		
14-inch Machine	5 10 0	*By a Boy*	

Width of Cutter.		Easily Worked	Silent Movement.
16-inch Machine	£6 10 0	*By a Man or Two Boys*	4*s.* extra.
19-inch Machine	7 12 6	*By a Man and Boy*	
22-inch Machine	8 7 6	*By Two Men* ..	7*s.* 6*d.* extra.
24-inch Machine	8 17 6		

SHANKS' NEW PATENT PONY and DONKEY MACHINE.

Width of Cutter.		If with Patent Delivering Apparatus.
25-inch Machine	£12 10 0	.. .. 25*s.* extra.
28-inch Machine	14 10 0	.. .. 30*s.* ,,
30-inch Machine	15 15 0	.. .. 30*s.* ,,

Silent Movement, 12*s.* 6*d.* extra; Boots for Pony, 22*s.* per set
Ditto for Donkey, 18*s.* per set.

SHANKS' NEW PATENT HORSE MACHINE.

Width of Cutter.		If with Patent Delivering Apparatu
30-inch Machine	£19 0 0	.. .. 30*s.* extra.
36-inch Machine	22 0 0	.. .. 30*s.* ,,
42-inch Machine	26 0 0	.. .. 40*s.* ,,
48-inch Machine	28 0 0	.. .. 40*s.* ,,

Silent Movement, 20*s.* extra; Boots for Horse's Feet, 26*s.* per set.

The Machines are warranted to give ample satisfaction, and, if not approved of, may be at once returned.

PATENTEES AND SOLE MANUFACTURERS:

ALEXANDER SHANKS AND SON, DENS IRON WORKS, ARBROATH, N.B.

LONDON OFFICE and SHOW ROOMS, 27, LEADENHALL STREET, E.C.

☞ 27, *Leadenhall Street is the only place in London where intending purchasers of Lawn Mowers can choose from a Stock of from* 150 *to* 200 *Machines. All sizes kept there, whether for Horse Pony or Hand Power.*

Editorial Communications should be addressed to "The Editor;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
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THE GARDENERS' CHRONICLE

AND

AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.

No. 15.—1867.] SATURDAY, APRIL 13. {Price Fivepence. {Stamped Edition, 6d.

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ROYAL HORTICULTURAL SOCIETY, SOUTH KENSINGTON, W.
SECOND SPRING SHOW of EARLY AZALEAS, ROSES, &c., on TUESDAY NEXT, April 16. Doors open at 2. Band 3 to 5.30. Admission, by privileged tickets, 2s. 6d.; public, 3s. 6d., to be bought prior to the day; or by payment at the gates, 5s.

ROYAL HORTICULTURAL SOCIETY, SOUTH KENSINGTON, W.
Promenade and Band every Saturday afternoon throughout the year.
NOTICE. Dr. MASTERS will give a short LECTURE on PLANT ARCHITECTURE THIS DAY, SATURDAY, April 13, and the TWO succeeding SATURDAYS, at Three.

THE CHOICEST 12 NEW ROSES for 1867, with strong healthy growth, unusually fine plants, so soon as weather permits. Price 42s. per dozen.
RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

NEW ROSES for 1867.—Strong Plants of all the best NEW ROSES now ready.
DESCRIPTIVE LIST, with prices, on application.
JOHN CRANSTON, King's Acre Nurseries, near Hereford.

CULTURAL DIRECTIONS for the ROSE. Second Edition. By JOHN CRANSTON, King's Acre Nurseries, near Hereford. Free by post from the Author for 20 stamps.

VERY strong H.P. ROSES in POTS on their own ROOTS, 6s. per dozen, selection left to myself, when nothing but good sorts and good plants will be offered.
JAMES CRAWFORD, High Beech, N.E.

ROSE NOISETTE MARECHAL NIEL. Strong plants, in pots, 30s. per dozen.
Trade price on application.
JOHN CATTELL, Westerham, Kent.

THE BEST and MOST CHOICE NEW ROSES for 1867, in extra-strong well-grown Plants, now ready at 42s. per dozen. A very liberal allowance to the Trade.
WM. WOOD & SON, The Nurseries, Maresfield, near Uckfield, Sussex

FORTY THOUSAND DWARF ROSES in POTS.—HYBRID PERPETUALS, CHINA, TEA-SCENTED, BOURBONS, and NOISETTES, all in the finest health and vigour. DESCRIPTIVE LISTS on application.
WM. WOOD & SON, Woodlands Nursery, Maresfield, near Uckfield, Sussex.

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WM. WOOD AND SON are now sending out quantities of well-grown Plants of DWARF ROSES in pots for filling up blanks caused by the late severe frost.
Woodlands Nursery, Maresfield, near Uckfield, Sussex.

DWARF ROSES IN POTS, by the 100, dozen, or 1000, at 9s., 12s., and 18s. per dozen. CATALOGUES on application.
Address, WM. WOOD & SON, Woodlands Nursery, Maresfield, near Uckfield, Sussex.

STRAWBERRY PLANTS. THE LADY (UNDERHILL) 4s. per dozen, 30s. per 100.
Strong plants of 20 other best kinds, 2s. 6d. per 100.
Trade price on application.
JOHN CATTELL, Westerham, Kent.

PRINCESS of WALES STRAWBERRY.—This fine variety is now proved to be the best early variety ever produced, either for Forcing or for general Early Crop. See *Gardeners' Chronicle* of May 12, 1866, p. 437. Good Plants can now be supplied from the true stock, at 5s. per 100, from the raiser.
B. W. KNIGHT, Nurseryman, Battle, Sussex.

Vines for Cool Vineries.
PAUL AND SON have fine Canes, fit for present planting, of HAMBURGH, GOLDEN FRONTIGNAN, LADY DOWNES', and DUCHESS of BUCCLEUCH. 5s. each.
The Old Nurseries, Cheshunt, N.

PINES, VINES, and ASPARAGUS.—Pine Plants, Queens, in all sizes, surplus stock, very cheap. Hamburgh Vines, 2-yr., fine Canes for planting, 24s. per dozen. Asparagus, 2, 3, and 4-yr. old, fine strong roots, 2s., 2s. 6d., & 3s. per 100.
M. ROCHFORD, Market Gardener, Page Green, Tottenham, N.

CASTLE KENNEDY FIG.—Plants of the above may now be had at 10s. 6d. and 21s. each; the usual discount to the Trade. PETER LAWSON & SON, Edinburgh and London.

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PEACHES, NECTARINES, APRICOTS, CHERRIES, PLUMS, PEARS, APPLES, VINES, and FIGS.
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PRICED DESCRIPTIVE CATALOGUES on application.
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FIVE MILLION Transplanted QUICKS, of superior growth. Also 100,000 LARCH, very good plants, 4 to 6 feet, at 14s. per 1000. Samples and prices on application to
JOHN HEMSLEY, High Fields, Melbourne, near Derby.

SUTTON'S GRASS SEEDS FOR ALL SOILS.
See page 391, this week's Paper.

SUTTON'S GRASS SEEDS, at THE CRYSTAL PALACE, | THE ROYAL FARMS, and the LEADING SEATS in the Kingdom.
For prices, see page 391, in this week's Paper.

New Striped Japanese Maize.
SUTTON AND SONS can supply Seed of the above beautiful Ornamental Foliage Plant in packets at 1s. each, post free. Royal Berkshire Seed Establishment, Reading.

Sorghum tartaricum.
SUTTON AND SONS, having imported a supply of TRUE Seed of the above, can supply it in packets at 1s. and 2s. 6d. each (post free).
Royal Berkshire Seed Establishment, Reading.

The New Forage Grass (Bromus Schraderi).
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DICKINSON'S ITALIAN RYE-GRASS SEED, grown by him and sold to Agriculturists this season at 31s. per quarter, or for 5 quarters 30s. per quarter. Apply to
Mr. THOS. STANBRIDGE, Bailiff, New Park, Lymington, Hants.

NATURAL GRASSES: their Names and Derivations; Quality, Produce, Elevation, Situation, Soil, Use, Peculiarity Season, Growth, Increase, Time of Flowering, Price, &c.
Free for one postage stamp.
RICHARD SMITH, Seed Merchant, Worcester.

Grass Seeds for Permanent Pasture.
RICHARD SMITH'S MIXTURE of the finest PERENNIAL GRASSES and CLOVERS are carefully made to suit all kinds of Soil. Price 26s. to 32s. per acre.
PRICED LIST on application.
RICHARD SMITH, Seed Merchant, Worcester.

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CONQUEROR BROCCOLI.—The finest Broccoli in Cultivation is BARCHARD'S CONQUEROR. See large Advertisement in the *Gardeners' Chronicle*, December 8, 1866.
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Giant Asparagus.—To the Trade.
YOUELL AND CO. beg to offer strong Plants of the above at the following low prices:—
2-yr., very fine, 10s. per 1000. | 3-yr., extra fine, 15s. per 1000.
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To the Trade.
TRUE SEED of RAPHANUS CAUDATUS (the Wonderful Radish) by the 100. Price quoted on application.
B. S. WILLIAMS, Victoria and Paradise Nurseries, Upper Holloway, London, N.

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SUTTON AND SONS can supply fine New Seed of the above at a very moderate price, according to quantity required. Apply to
SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

Globe Artichokes.
WANTED, 300 of the above. State price per 100 to
E. P. FRANCIS & Co., Nurserymen, Hertford.

WANTED, strong Early CABBAGE PLANTS. Lowest Cash price to
WM. TROUGHT, Seed Merchant, Preston.

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Versailles Nursery, William Street, Vale Place, Hammersmith, W. (near Kensington Railway Station).

Chrysanthemums, Chrysanthemums, Chrysanthemums.
ADAM FORSYTH'S CATALOGUE is now ready, containing a Descriptive List of all the best varieties; also a Practical Treatise on the Cultivation of the Chrysanthemum. Forwarded to all applicants for one stamp.
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Genuine Garden and Agricultural Seeds.
JAMES CARTER AND CO.,
SEED FARMERS, MERCHANTS, and NURSERYMEN,
237 & 238, High Holborn, London, W.C.

237 and 238, HIGH HOLBORN, LONDON, W.C. —CARTER'S SELECT LIST of FARM SEEDS, at reasonable prices, forwarded gratis and post free on application to CARTER'S Great London Seed Warehouse, 237 and 238, High Holborn, London, W.C.

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MESSRS. SUTTON'S PRICES of FARM SEEDS for APRIL will be the same as quoted in their CATALOGUE for FEBRUARY and MARCH, which may be had post free on application. Royal Berks Seed Establishment, Reading.

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New and Genuine AGRICULTURAL, GARDEN, and FLOWER SEEDS. Special prices and advantageous offers on application.

Garden and Farm Seeds direct from the Growers.
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Unadulterated Garden and Agricultural Seeds.
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CATALOGUES post free on application.

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Genuine Garden, Agricultural, and Flower Seeds.
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SPECIAL PRICED LIST of NEW SEEDS, in English weights and money, post free on application.

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CHARLES TURNER'S DESCRIPTIVE SPRING CATALOGUE of BEDDING PLANTS, FLORIST'S FLOWERS, &c., is now ready, and may be had on application.
The Royal Nurseries, Slough.

EVERY GARDEN REQUISITE kept in Stock at
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Low Prices taken.

RIBBON BORDER (six Colours), German and French, COLLECTIONS, and all specialties worth growing. See POYNTER'S LIST. ROBERT H. POYNTER, Taunton.

GEO. SMITH'S LE GRAND GERANIUM. — The finest Bedding Nosegay ever raised. Strong Plants at 6s. per dozen, package included. Terms cash.
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T. J. BOOTH, Ramhill Nursery, Ramhill, Lancashire.

NEW WHITE LOBELIA MISS MURPHY (USHER'S). —The most beautiful and compact of all white Edging plants. 4s. per dozen; 25s. per 100.
MARTIN & SON, 7, Market Place, Hull.

THE WHITE LOBELIA MISS MURPHY, 3s. 6d. per dozen.
DOBSON & SONS, Isleworth, London, W.

DOBSONS' SEEDS: Second to None.—
PRIZE CALCEOLARIA, 1s. 6d., 2s. 6d., 3s. 6d., 5s.
PRIZE CINERARIA, 1s., 2s. 6d., 5s.
PRIZE PRIMULA, 1s., 2s. 6d., 5s.
PRIZE BALSAM, 1s., 2s.
DOBSON & SONS, Isleworth, London, W.

GERMAN FLOWER SEEDS.—Superb Varieties of Aster, Stock, Balsam, Wallflower, Phlox Drummondii, Portulaca, Larkspur, Zinnia, &c. For prices, see DESCRIPTIVE SEED LIST.
RICHARD SMITH, Seed Merchant, Worcester.

SHOW DAHLIAS, in strong plants, now ready. 12 Varieties, named, 4s., or 24 Varieties, named, 8s. Terms cash.
JOHN J. HASLAM, late John Holland, Bradshaw Gardens, Chadderton, Manchester.

The Finest Winter-blooming Plant is the
SCARLET SALVIA SPLENDENS.
Fine plants, cheap, at
PAYNE'S Nursery, Wincobank, Sheffield.

LAPAGERIA ROSEA.—A splendid Specimen Plant for Sale—standing in a tub nearly 9 ft. high. It is trained spirally, and when opened out would cover a wall of 30 ft. Can be seen at 42, Warwick Road, Maida Hill, W., on presentation of Card.

Clianthus Dampieri.
BUTLER, McCULLOCH, AND CO. have to offer a quantity of the above Seed, just received in splendid condition, at 1s. and 2s. 6d. per packet. Price to the Trade on application.
South Row, Covent Garden Market, W.C.

ONE HUNDRED THOUSAND AUTUMN-STRUCK CUTTINGS of the beautiful VIOLA CORNUTA, so much admired in these gardens during the past summer. Price on application. J. MILLER, Manor Gardens, Worksop, Notts.

TO AMATEURS.—A SMALL COLLECTION of ORCHIDS belonging to a Gentleman going abroad, to be disposed of reasonably.
ALPHA, Mr. Cox, Clement's House, Clement's Lane, E.C.

TRICOLOR PELARGONIUMS.

Mrs. Pollock, 7s. and 9s. per doz. | Sunset, 21s. per doz.
Italia Unita, 21s. per doz. | Mrs. Bonyon, 24s. per doz.
In strong plants at the above prices for Cash, package included.
Remittance required from unknown Correspondents.
Address, ALFRED FRYER, Nurseries, Chatteris, Cambridgeshire.

CHOICE VARIEGATED PELARGONIUMS.

Sunset	Luna	Italia Unita
Mrs. Bonyon	Bicolor splendens	Picturatum
Gold Pheasant	Princess Alexandra	Kenilworth
Yellow Belt	Queen of Queens	The Fairy

The above 12 varieties suitable for Exhibition or Pot-culture for 21s.
Remittances requested from unknown correspondents.
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GEO. SMITH'S PRICED and DESCRIPTIVE CATALOGUE of SHOW, SPOTTED, FANCY, VARIEGATED, ZONAL, and NOSEGAY GERANIUMS, Petunias, Fuchsias, Dahlias, Verbenas, Chrysanthemums, Bedding Plants, &c., is now ready, in exchange for one postage stamp.
Tollington Nursery, Hornsey Road, Islington, London, N.

To the Trade.

MRS. POLLOCK AND SUNSET GERANIUMS.

T. J. BOOTH solicits Orders for the above, to deliver on and after the first week in May. Nice plants, with 6 to 10 leaves, well up in colour, for cash, per dozen, 7s.; 100, 50s.; 500, £12; 1000, £22. SUNSET, 18s. per dozen; £6 per 100.
Rainhill Nursery, Rainhill, Lancashire.

New Zealand Nursery, St. Alban's, Herts.

NOTICE.

JNO. WATSON will EXHIBIT his far-famed TRICOLOR PELARGONIUMS, MISS WATSON and MRS. DIX, at the KENSINGTON SPRING SHOW, on April 16. Purchasers will have a first-rate opportunity to see and judge of their merit for themselves. For fine foliage, free growth, and brilliancy of colouring they are unrivalled, and as Flower Garden Plants will undoubtedly prove gems. Miss Watson, in August, two First-class Certificates, £2 2s. each; Mrs. Dix, 31s. 6d. each, in May, 1868.

NEW IVY-LEAVED PELARGONIUMS.

L'ELEGANTE.—Leaves green, margined with creamy-white; flowers white. 10s. 6d. each; six plants, £3.
DERBYSHIRE HERO (Zonal).—Bright cerise.
STAFFORD GEM (Zonal).—Orange-scarlet.
SCARLET CHRISTINE (Plain-leaved).—Bright cerise, shaded with purple.
ROSE MAGENTA (Nosegay).—Fine habit, good bedder.
5s. each, set of four for 15s.
The above to be sent out after April 20.
DESCRIPTIVE PRICED CIRCULARS to the Trade on application.
See *Gardeners' Chronicle*, p. 234, March 2.
W. CUNNINGHAM, The Forge Nurseries, Burton-on-Trent.

CHEAP, CHEAP, CHEAP.—Two dozen MRS. POLLOCK GERANIUM, Six Plants of ITALIA UNITA DO., and Six Plants of STELLA VARIEGATA DO., for 21s.
One dozen best NOSEGAY GERANIUMS, including Pink Stella and Le Grand, for 8s.
One dozen VIOLETS, nine of the magnificent QUEEN and three of the beautiful CZAR, in pots, for 10s.
Basket and packing included.
The above are good plants. A remittance must accompany each order from unknown correspondents.
JOHN BARRETT, The Nurseries, Bury St. Edmund's, Suffolk.

NEW ZONAL GERANIUMS.—These, now so well known as the Cliveden Seedlings, were selected from many thousands, and have stood the test of trials for two seasons with the best named kinds. They have gained the highest awards wherever shown, including First-class Certificates for each at the Royal Horticultural Society, and have received the highest and most unanimous praise of the Horticultural press. The following is a specimen of the manner in which they have been spoken of:—
The "Gardeners' Magazine" says:—"And this brings me to Duchess of Sutherland and Lady Constance Grosvenor, which have been several times shown by Mr. Turner this season, and ought to be sent out next spring at nothing less than a guinea a plant, to recoup their raisers for the hundreds they have need to grow for the muck-heap."
DUCHESS of SUTHERLAND (NOSEGAY).—A variety of great merit, rosy purple, very free bloomer, with truss of great size; it retains its blossoms to an unusually long time, and is equally effective in pots, vases, or the flower garden. 5s.
INTERNATIONAL (NOSEGAY).—Rich crimson or crimson-scarlet, a deep rich shade of colour, with a wider petal than any other Nosegay, being a decided improvement in the shape of this very useful class of bedding and pot plants. 5s.
LADY CONSTANCE GROSVENOR (NOSEGAY).—Intense fiery scarlet, of the style of Cybister, having a truss of at least double the size; an immense truss, with the advantage of a dwarf compact habit and foliage, so clearly zoned as to be handsome without bloom. This is a most beautiful variety. 5s.
Strong plants ready May 1.
CHARLES TURNER, The Royal Nurseries, Slough.

New Zonal Pelargoniums.

SALTMARSH AND SON, NURSERYMEN, SEEDSMEN, and FLORISTS, Chelmsford, have great pleasure in introducing the following SEEDLINGS of their own raising, feeling confident they will give equal satisfaction with the two now well-known varieties, Luna and Little Treasure, sent out by them in 1865. They will be ready for distribution in May next. Early orders are solicited, as the stock is limited.

ZONAL PELARGONIUMS.

REINE D'ITALIE (SALTMARSH & SON).—A seedling from that highly esteemed variety, Roi d'Italie, possessing all the good properties of its parent in compactness of habit, profusion, form, and size of flowers, each blossom measuring 1⅝ths or an inch in diameter; colour pale salmon flesh, shading off to flesh white at the edges, with pure white eye, altogether forming a most attractive specimen for pot culture. Price 7s. 6d. each.
CRITERION (SALTMARSH & SON).—Also a seedling from Roi d'Italie, with darker zone, producing an abundance of flowers, of the large size of its parent, of the most perfect form, and borne on stout footstalks; habit compact and vigorous; colour bright orange vermilion, with small white eye. Price 7s. 6d. each.

VARIEGATED ZONAL PELARGONIUMS.

METEOR (SALTMARSH & SON).—Foliage large and flat, almost circular, having a green disc about 1½-inch in diameter, surrounded by a very broad and well-defined zone of deep sienna maroon and bright red in about equal proportions, leaving a clear margin of about a quarter of an inch of bright chrome yellow; flowers bright scarlet, with white eye; habit compact and vigorous.
The above splendid variety will prove a valuable addition to the Golden Tricolor section of variegated Pelargoniums; it is quite distinct from any variety hitherto introduced, and was awarded a First-class Certificate at the Royal Horticultural Society's Meeting in September, 1864. Price 21s. each.
A Coloured Drawing, by Andrews, of this splendid variety, will be sent (post free) on receipt of 7 stamps.
ELECTRIC (SALTMARSH & SON).—Foliage greenish yellow, changing with exposure to sun and air to a rich golden yellow, with a very broad zone of dark chocolate, in the way of Luna, but more heavily zoned, and of more robust habit, producing fine trusses of scarlet flowers with white eye. Price 10s. 6d. each.
VENUS (SALTMARSH & SON).—Foliage greenish yellow, changing to golden yellow, with shaded bronze zone; habit compact and spreading, producing neat trusses of well-formed flowers on short footstalks, of a soft and pleasing shade of rosy cerise, altogether forming a most attractive variety by the harmonious blending of its colours and its remarkably close habit of growth. Price 10s. 6d. each.
SNOWSTORM (SALTMARSH & SON).—Foliage green, with a very deep edge of pure white. This variety will be found to display a greater proportion of white variegation than any other yet produced; the leaves are less disposed to curl than most varieties of this class; in addition to which the habit is exceedingly close, yet robust and bushy; flowers rosy scarlet with white eye. Price 10s. 6d. each.

TO THE TRADE.

SCARLET GERANIUMS, 10s. per 100.
VERBENAS to name, 3s. per 100.; do. CRIMSON KING, 16s. do.
CALCEOLARIAS HAMPTON COURT, YELLOW PINE, PRINCE of ORANGE, and CRIMSON KING, 8s. per 100.
DELPHINIUM FORMOSUM, 5s. per 100.
The above are good Plants, shaken out of Cutting Pots. List of sorts on application. Terms: cash.
SAMUEL COX, Nurseryman, Ludlow.

New Zealand Nursery, St. Alban's, Herts.

INTENDING PURCHASERS of TRICOLOR PELARGONIUMS will do well to see J. Watson's Beautiful Tricolors MISS WATSON and MRS. DIX, previous to making their purchases. For fine foliage, excellent constitution, free growth, and brilliancy of colouring they are unrivalled. They have received two First-class Certificates. Plants of Miss Watson in August, £2 2s. each; Mrs. Dix in May, 1868, 21s. 6d. each.

ZONAL GERANIUMS.

GLOIRE DE CORBENNY	BANNERET
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PINK STELLA	SALMON NOSEGAY
KING OF WHITES	SIR J. PAXTON
WILTSHIRE LASS	WHITE PERFECTION

Strong plants of the above set, 10s., package included.
CASBON & SON, Gravel Walk Nursery, Peterborough.

AUCUBAS, FUCHSIAS, ZONAL GERANIUMS, &c.

6 Varieties AUCUBAS, 3 Male, 3 Female, for 21s.
12 Select NEW FUCHSIAS of 1866 for 6s.
12 Select NEW ZONAL GERANIUMS of 1866 for 6s.
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12 Varieties JAPAN EUONYMUS, very fine, 6s.
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3 Varieties NEW JAPAN OSMANTHUS, quite hardy, 5s.
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CHEAP and BEAUTIFUL FLOWER SEEDS.

	s.	d.
100 Packets of the best and most showy hardy, half hardy, and tender Annuals	20	0
50 " " " "	10	0
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25 Packets of the best showy Hardy Annuals	5	0
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DESCRIPTIVE CATALOGUE on application.
RICHARD SMITH, Seed Merchant, Worcester.

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	£	s.	d.
12 Finest New DAHLIAS of 1866	0	9	0
12 " " FUCHSIAS of 1866	0	9	0
12 " " VERBENAS of 1866	0	4	0
36 " " VERBENAS of 1866	0	9	0
12 " " CHRYSANTHEMUMS	0	8	0
12 " " Shrubby CALCEOLARIAS, one each	0	6	0
12 " " PENTSTEMONS	0	9	0
12 Superb New HOLLYHOCKS	3	3	0
12 Fine kinds "	1	4	0
12 Good kinds "	0	12	0
12 Best New BEDDING GERANIUMS	0	9	0

BEDDING PLANTS in large quantities, cheap and good.
CATALOGUE now ready and free.
HENRY MAY, The Hope Nurseries, Bedale.

PRIZE GERMAN ASTER, grown by Mr. BESLEY, Amateur, who has taken many Prizes at the following Shows—Crystal Palace, Reading, Oxford, and Bath. Packets free per post, 1s. each. Assortments of 12 Hardy Annuals, or 6 Half-hardy, with full instructions for cultivation, 2s. each.
T. SMITH, Seedsman, Long Wittenham, Abingdon, Berks.

Lobelias, Lobelias, Lobelias.

THOMAS SAMPSON is now ready to supply by the Dozen, Hundred, or Thousand, the splendid LOBELIA ERINUS SPECIOSA GRANDIFLORA, well known as the best of its class for Bedding and other purposes, being of a compact habit, and of freer growth than the known L. speciosa, having proved it to be more lasting and hardy. The flowers are large dark blue, with fine white eye. Per dozen, in store pots, 2s.; per 100, 12s.; per 1000, 95s.
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Cheap Bedding and other Plants.

THOMAS SAMPSON, Proprietor of the Preston Road Nurseries, Yeovil, Somersetshire, lately carried on by Drummond & Co., and formerly by John Scott, has much pleasure in announcing that his CATALOGUE for the above Plants is now ready, and can be had free on application. T. S. begs to assure his friends that the above has been for many years one of the largest in the country for CHEAP BEDDING PLANTS, and that his present Collection is now most unique and extensive, consisting of upwards of 200,000 Plants, being two to one of any other Establishment in the West of England. Having recently extended his Glass Department to upwards of 12,000 feet, expressly for the culture of Bedding Plants, he is enabled to supply them in such varieties and at such low prices as cannot fail to give the fullest satisfaction. T. S. will feel much obliged if his friends will kindly inspect his Collection and forward their Orders early, so as to avoid delay or inconvenience.
The Plants will be ready to send out after the 20th of April.
PETER DRUMMOND, Manager, The Preston Road Nurseries, Yeovil, Somersetshire.

FINE NEW DAHLIA, MRS. BOSTON (MAY'S), to be sent out May 1st, 1867.—The colour is lilac rose, a fine built flower and superior petal, and very constant. It was in all H. May's Winning Stands during the last season, and is extensively ordered by all who have seen it.
Price 10s. 6d. each. The Trade liberally supplied.
HENRY MAY, The Hope Nurseries, near Bedale, Yorkshire.

Early Spring Flowers.

WEBB'S GIANT POLYANTHUS and COWSLIP with all the best varieties of Double and Single PRIMROSES, PANSIES, &c., with Seeds of single varieties. LIST of prices of different kinds on application to
Mr. WEBB, Calcot Gardens, Reading.

Choice Seeds.

WM. CUTBUSH AND SON strongly recommend the following:—
PRIMULA SINENSIS FIMBRIATA, of the finest possible strain. Red, White, or Mixed, 2s. 6d., 3s., and 5s. per packet.
CALCEOLARIA, saved from James' choice strain, very fine, 2s. 6d. 3s. 6d., and 5s. per packet.
CINERARIA, from named flowers, 2s. 6d., 3s. 6d., and 5s. per packet.
SNOW'S WINTER WHITE BROCCOLI (True), Wm. C. & Son's own saving, 2s. 6d. per packet.
NUNEHAM PARK ONION, 2s. 6d. per packet.
For other Choice Seeds see CATALOGUE, post free.
Highgate Nurseries, London, N.

J. SCOTT'S CHOICE SEEDS.

	Post Free.	Per Packet.
PRIMULA SINENSIS FIMBRIATA.—A most superb strain, and cannot be surpassed, 8 varieties, mixed,	1s. 6d.	and 2s. 6d.
CALCEOLARIA.—Scott's superb strain, extra,	1s.	and 2s. 6d.
CINERARIA.—Extra fine, carefully hybridized,	1s.	and 2s. 6d.

Also newest Perfection French ASTER, for exhibition, greatest variety, 6d. and 1s.; best German Quilled ASTER, 6d. and 1s.; New Victoria ASTER, 6 vars., mixed, 1s.; Dwarf Chrysanthemum fl. Aster, 6d. and 1s.; Newest German STOCKS, greatest variety, 6d. and 1s.; New Striped-leaved Japanese MAIZE, 1s.; Choice PHLOX DRUMMONDII, 12 vars., mixed, 1s.; do., most brilliant Scarlet, 1s.; Invincible Scarlet SWEET PEAS, 1s.; Tagetes signata, 6d.; Viola cornuta, Mauve or Purple Queen, 1s.; superb Double Zinnia, 6d. and 1s.; extra fine Single do., 6d.
SCOTT'S Superb Dwarf Crimson BEET, suitable for ribbon borders in kitchen garden, the best grown, 6d.; CUCUMBER, Enfield Surprise, frame, 1s.; do. Scott's Market Ridge, 6d.; Melville's Variegated KALE, 6d.; Victoria New White COS LETTUCE, 1s.; Princess Alice MELON, 1s.; Raphanus caudatus, or Rat's-tail Radish, 1s.
For descriptions of the above cheap Collections, &c., see SELECT SEED LIST, post free on application to
J. SCOTT, The Seed Stores, Yeovil, Somerset.

Bedding Plants, from 2s. per dozen.

J. SCOTT, The Nurseries, Merriott, Somerset, has now ready his unrivalled Collection of the above, numbering over 300,000, in quality and prices unsurpassed.
LOBELIA SPECIOSA (TRUE), and SPLENDIDA (SCOTT'S), at 2s. per dozen, 10s. per 100, and 80s. per 1000. This last has been advertised by others under the *wrong name* of L. Erinus speciosa grandiflora, a name uncalled for, as J. S. has supplied his customers with it for some years as L. splendida. CATALOGUES on application to J. S.
N.B.—Seeing my name has been inserted in an advertisement of Bedding Plants by Mr. Sampson, Nurseryman, Preston Road, and as it may mislead my customers, I beg to say that I have long ceased to have any connection with that Nursery. It was a small branch established by me, and sold by me two or three years ago, since which time I have had nothing to do with it. I am forced to insert the above, as parties have sent orders to me, which have found their way to and been executed at Preston Road, *unsatisfactorily*, as will appear from the following letter on the subject:—
"SIR,—When I was at Yeovil in April last I called at your shop and inquired if you still sent out Bedding Plants, and was informed that you did. Mrs. ——, as she thought, ordered some of you, but, to our great surprise, we find them sent by Peter Drummond & Co. I mention this, as we were not pleased with the way the order was executed last year, a fact I mentioned to your Foreman (Seedsman), April the 7th; and therefore decided to have no more plants of that firm. The Bedding Plants now sent me [by them. J. S.] are not what were ordered, and not healthy of their kind.—I remain, your obedient Servant, "J. H. P."
J. SCOTT'S Seed Stores in Yeovil are conducted with great care and attention to the requirements of his increasing Customers, and every requisite for the Farm or Garden can be obtained. Orders for Bedding Plants left there will be punctually attended to.

New and Genuine Seeds.

THOMAS SAMPSON, The Preston Road Nurseries, Yeovil, Somerset, begs to intimate that his CATALOGUE of SEEDS for the GARDEN and FARM is now ready, and can be obtained free on application. It contains a Select and Choice Stock, everything being of the best quality, and are offered at unequalled low prices.

Vegetable, Agricultural, and Flower Seeds, Alpine Plants, &c.

ROBERT PARKER begs to announce that his CATALOGUE, containing select DESCRIPTIVE LISTS of the finest kinds in cultivation of the above-named is now published, and will be forwarded to applicants. The Stocks of Seeds have all been procured from the best possible sources, all are warranted genuine, and are offered at the lowest possible prices. Intending purchasers are requested to compare the prices with those of other houses. Exotic Nursery, Tooting, Surrey, S.

NEW BEDDING TRICOLOR ZONAL GERANIUM

"LADY CULLUM."

E. G. HENDERSON & SON

Respectfully intimate, in answer to the numerous daily inquiries they receive, that the above-named beautiful GERANIUM, to which several First-class Certificates have been awarded, will be sent out with other Novelties, on and after the 27th April.
Orders executed in rotation.

A COLOURED LEAF (as specimen) by ANDREWS, will, on receipt of three postage stamps, be forwarded with the "NEW DESCRIPTIVE GENERAL SPRING CATALOGUE" about the 20th of April.

STRONG FRUITING-SIZED VINES,

Equal to a heavy crop this season, can still be supplied, of the best leading kinds.

WELLINGTON NURSERY, ST. JOHN'S WOOD, LONDON, N.W.

KEYE'S EARLY PROLIFIC TOMATO.

A new American variety, 30 days earlier than any other. Plant dwarf, compact and vigorous, producing immense crops. Tomatoes of medium size, round, brilliant red, quite smooth and free from ribs, perfectly solid, and of the most excellent flavour. They are produced in large clusters of 10 to 20 each, with from 7 to 20 clusters on each Vine, and ripen up together, so that the main crop is ripe and ready for market 30 days earlier than any other kind. The foliage has no odour. The Early Prolific is the most distinct and valuable Tomato yet produced.

Price per Packet, 1s., forwarded on receipt of 12 stamps.

CARTER'S GREAT LONDON SEED WAREHOUSE, 237 and 238, HIGH HOLBORN, W.C.

Price to the Trade on application.

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ROYAL AGRICULTURAL SOCIETY OF ENGLAND
THOS. GIBBS & Co.
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GRASS SEEDS,
AGRICULTURAL SEEDS,

KITCHEN GARDEN SEEDS,
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Catalogues forwarded post free to any address on application.

NEW PLANTS FOR THE PRESENT SEASON.

B. S. WILLIAMS,

VICTORIA AND PARADISE NURSERIES, UPPER HOLLOWAY, LONDON, N.,

IS ENABLED TO OFFER TO THE PUBLIC

THE FOLLOWING NEW PLANTS AND VARIETIES.

They each possess some special merit, which will be seen by the truthful descriptions of them given below.

Good Plants will be ready for sending out on the 1st of May, and early Orders are respectfully solicited.

Amaryllis Albertii, fl.-pl.

This plant was found in the Island of Cuba by the son of Mr. Albert Wagner, of Leipzic. It is believed not to be indigenous to the Island of Cuba, but to have been cultivated in a garden there where it was first noticed. The strong bulbs are 2 inches in diameter, and shoot forth in abundance. The leaves are of a lively green, measuring 1½ foot in length, and 2 inches in width. In February and March the stems rise to the height of more than 1 foot, always bearing two flowers, which are of a reddish orange, tinted with carmine and pale yellow at the base; each flower is not less than 6 inches in diameter.
Price 31s. 6d. each.

Azalea Andersonii.

The finest Azalea ever offered, either as a garden seedling or continental variety. Colour of flower a beautiful rich rosy carmine, shaded with purple; deeply marked on the upper segments. The whole flower perfectly round, smooth, and of great substance; medium size; habit good and very free in flowering. Will be a splendid variety for an exhibition specimen.
Price 21s. each.

Aucuba luteo-carpa.

Light green leaf, splashed with yellow, 6 inches long by 3 to 4 inches broad, evenly dentated. This variety, as its name implies, produces yellow berries in great profusion, and of a large oval size; making a handsome contrast to the scarlet-berried kinds.
Price 21s. each.

Calceolaria Holloway Rival.

Colour deep orange, shaded with intense purple; margined with yellow; distinctly spotted; good robust habit; free flowerer, and produces large trusses. Excellent for pot culture.
Price 5s. each.

Fuchsia Golden Queen.

Leaves about 3 inches long by 2 broad; light green, margined with gold, beautifully tinted with red; free branching habit; flowers deep pink sepals, pure white corolla. The great beauty of this variety consists in the unique and peculiar variegation of its foliage.
Price 10s. 6d. each.

Gymnogramma Parsonsii.

A beautiful golden form of G. Wetenhalliana, with fronds from 6 to 9 inches long, divided and subdivided, forming large tassels at the ends of each. The compact form of its growth gives it an entirely distinct appearance from any other variety.
Price 21s. each.

Hibiscus metallicus.

Introduced from one of the New Hebrides group of Islands. A compact-growing and distinct looking shrub, with linear-lanceolate leaves about 6 inches long, changing from copper colour when young to a lighter green; beautifully netted when grown to full size. Its flowers are purplish crimson, changing to a deep lake. It flowers during the winter on very young plants, therefore is a valuable acquisition.
Price 10s. 6d. each.

Double Pelargonium Theophrasta fl.-pl.

Colour more defined than in the original type; the upper petals a rich vermilion, with carmine rays proceeding from the centre; habit vigorous, throwing up magnificent trusses; invaluable for market, and forcing for flower early in the spring.
Price 31s. 6d. each.

Polystichum ordinatum.

Handsome-growing greenhouse Fern; fronds from 1 to 2 feet long, of graceful growth, entirely different from any other variety of the species. Pinnæ bipinnate and prettily arranged.
Price 10s. 6d. each.

Tinnea æthiopica, Violet-scented Tinnea.

It is uncertain who was the first discoverer of this plant, for it was found by Dr. Kirk during Dr. Livingstone's exploration of the Zambesi River; by Captain Grant, during his journey with the lamented Captain Speke to the upper waters of the Nile; and by Mdlle. Tinne during her journey up the Nile; though we owe to Mdlle. Tinne the introduction of the plant, which is named in honour of her. It is a warm greenhouse plant, and is remarkable for the maroon-purple colour of its flower, and for possessing the delicious perfume of Violets. It grows to the height of 5 or 6 feet, forming a bush.
Price 7s. 6d. each.

VICTORIA and PARADISE NURSERIES, UPPER HOLLOWAY, LONDON, N.

SPECIAL OFFER OF FARM SEEDS
BY
THE LONDON SEED COMPANY,

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	Bushel.	Half Bushel.	Peck.	Gallon.
SKIRVING'S SWEDE TURNIP	£1 11 0	£0 16 0	£0 8 6	£0 4 6
WHITE, GREEN, and RED GLOBE	1 11 0	0 16 0	0 8 6	0 4 6
SCOTCH PURPLE and GREEN-TOP	1 10 0	0 16 0	0 9 0	0 4 6
	Cwt.	Half Cwt.	Quarter Cwt.	14 lb.
LONG RED MANGEL	2 14 0	1 8 0	0 15 0	0 8 0
YELLOW GLOBE MANGEL	2 10 0	1 7 6	0 15 0	0 8 0
RED GLOBE MANGEL	2 14 0	1 8 0	0 15 0	0 8 0
FISHER HOBBS'S ORANGE GLOBE ..	3 10 0	1 17 6	1 0 0	0 10 6
WHITE BELGIAN CARROT	3 15 0	2 0 0	1 2 6	0 12 6
YELLOW BELGIAN CARROT..	5 0 0	2 15 0	1 10 0	0 17 6

ITALIAN RYE-GRASS .. .. 5*s.* per bushel, or 38*s.* per quarter.
PERENNIAL RYE-GRASS .. .. 5*s.* „ 38*s.* „
MIXED GRASSES, for PERMANENT PASTURE .. .. .. 12*s.* „ 90*s.* „

This Company was formed by the purchase of the Business of one of the Oldest Established Firms in the Kingdom, of more than Eighty Years' standing.

COPIES of the FARM CURRENT will be forwarded Postage Free to any Address, as the Company desire that their terms and mode of business should be extensively known.

☞ *Samples of all kinds of Seeds can be had on application, to prove their growth, &c.*

SEEDS FOR EXPORTATION.

Seeds packed in cases for exportation. Great attention is paid to this department of the business. The Seeds are placed in air-tight cases, and will reach their destination with their growing qualities unimpaired.

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LONDON SEED COMPANY, 68, WELBECK STREET, CAVENDISH SQUARE, W.

Carnations, Picotees, and Pinks.

YOUELL AND CO. beg to offer strong healthy Plants of the above at the undermentioned prices:—
CARNATIONS.—Finest first-class varieties, by name, 18s. and 24s. per doz. pairs. [per doz pairs.
PICOTEES. — Finest first-class varieties, by name, 18s. and 24s.
PERPETUAL-FLOWERING or TREE CARNATIONS.—Flowering summer and winter; the choicest and leading kinds to name, 12s. and 18s. per doz. plants. [doz. pairs.
Also a Choice and extensive Collection of PINKS, 9s. and 12s. per
Royal Nurseries, Great Yarmouth.

Azaleas, Epacris and Ericas.—To the Trade.

YOUELL AND CO. beg to inform the Trade that they abound in many Thousands of the above, all of which are well-grown, healthy and bushy stuff. They beg to offer them at the following low prices:—
AZALEAS, of sorts, fine bushy plants, in 32-sized pots, 24s. per doz: 48-sized pots, 18s. per doz.
EPACRIS, in 48-sized pots, consisting of hyacinthiflora, hyacinthiflora candida ssima, and all the leading kinds to name, in, and coming into bloom, 6s. per doz., 40s. per 100.
ERICA HYEMALIS, in 48-sized pots, in and coming into bloom, 6s. per doz., 40s. per 100; 60-sized pots, 4s. per doz., 30s. per 100; of sorts, in 48-sized pots, 7s. per doz., 45s. per 100; of sorts, in 60-sized pots, 4s. per doz., 30s. per 100.
A very extensive and Choice Collection of GREENHOUSE PLANTS to name, 9s. per doz., 70s. per 100.
The above are well deserving the attention of the Trade.
Royal Nurseries, Great Yarmouth.

GEO. SMITH begs to call the attention of his patrons and friends generally, to his New TROPÆOLUMS, KING of SCARLETS and KING of SPOTS, two beautiful varieties for clumps or ribbon planting. These fine kinds were raised by Mr. George, of Stamford Hill, the raiser of Compactum coccineum, which has been so much admired the last two seasons at the Crystal Palace, &c. Also, the under-named ZONAL GERANIUMS, which G. S. can, with confidence, recommend to be added to the most choice collections.

G. S. has also a fine addition to the VARIEGATED GERANIUMS, the most conspicuous for clumps or borders which has ever been offered, it having a green leaf with broad belt of pure white, of fine habit.

NEW TROPÆOLUMS.
KING of SCARLETS.—Small neat foliage, compact habit, flowers bright scarlet, the most brilliant and beautiful for bedding or ribbon planting. Awarded a First-class Certificate by the Royal Horticultural Society, South Kensington. 6s.
KING of SPOTS.—Bright yellow with amber spots, neat foliage, compact habit, very effective. 6s.

NEW ZONAL GERANIUMS.
HECTOR (GEO. SMITH).—Foliage slightly zonal, pip and truss extra large, fine habit, flowers scarlet; one of the best in cultivation. 6s.
PINK GLOBE (WINDSOR).—Zoned; rosy pink truss, extra large and compact. This beautiful novelty will be found a great advance either as a bedding or exhibition plant. 6s.
PRINCE OF WALES (WINDSOR).—Dark zone, flowers rosy salmon; extra large and fine shape, good habit; a first-class variety. 6s.
REGALIA (GEO. SMITH).—Foliage slightly zoned, flowers fine rosy scarlet, eye white, of fine form and a pleasing variety; good habit. 6s.
RELIANCE (WINDSOR). — Foliage slightly zoned, flower orange scarlet, truss and pips large, of good substance, white eye; in every respect a first-class variety. 6s.
SALAMANDER (WINDSOR).—A zonal variety, flowers bright rosy salmon, with white eye, a most pleasing and desirable variety. 6s.
WARRIOR (GEO. SMITH).—Foliage slightly zoned, flowers brilliant scarlet, of great size and substance, fine form. This flower will prove a most valuable addition to its class. 5s.

NEW VARIEGATED GERANIUM.
PRINCESS ALEXANDRA (GEO. SMITH).—Foliage bright green, with broad band of pure white, of first-class habit; most attractive and beautiful; one of the most effective for ribbon planting of the silver-edged class; fine, 10s. 6d. each.

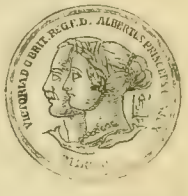
NEW WHITE-FLOWERED IVY-LEAVED GERANIUM.
"L'ELEGANTE" (CUNNINGHAM). — Foliage bright green, with broad belt of creamy white, throwing up its numerous white blossoms, which give it a fine effect. Awarded a First-class Certificate at the Birmingham Rose Show, also at the Royal Horticultural Society, South Kensington. 10s. 6d. each.

G. S., having made arrangements with Mr. Cunningham, is enabled to send out this fine Ivy-leaved Geranium, together with the foregoing novelties, in good plants, after the 24th of April.
Early orders are respectfully solicited.
Tollington Nursery, Hornsey Road, Islington, London, N.

Established Upwards of a Century.

HOLDERS OF PRIZE MEDALS FROM EXHIBITIONS OF BOTH 1851 AND 1862.





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15	Varieties, Selected Hardy Annuals	.. .. ..	2*s.* 6*d.*
30	„ „ „ „	.. .. ..	5 0
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100	„ „ „ „	.. .. ..	20 0
12	Varieties, Selected Half-hardy Annuals	.. ..	4 0
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15	„ „ „ „	.. ..	15 0
100	„ „ „ „	.. ..	30 0
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100	„ „ „ „	.. ..	25 0
12	Varieties, selected Half-hardy Perennials	.. ..	4 0
25	„ „ „ „	.. ..	7 6

COMPLETE COLLECTION of VEGETABLE SEEDS for One Year's Supply, 63s., 42s., 30s., 21s., and 10s. 6d.
Orders amounting to 21s. and upwards sent Carriage Paid.
CATALOGUE containing details of above Collections, Post Free
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A. HENDERSON & SON
EAST SURREY SEED WAREHOUSE
ESTABLISHED 1828

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ARCHIBALD HENDERSON'S DESCRIPTIVE PRICED CATALOGUE and useful GARDEN ALMANACK is now Published, containing much useful information. Can be had gratis and post free on application.

Sion Nursery, Thornton Heath, Surrey; and at the East Surrey Seed Warehouse, College Grounds North End, Croydon.

THE SUPERB new LATE GRAPE, MRS. PINCE'S BLACK MUSCAT, to be sent out in August next, is undoubtedly the best ever raised.

Orders will be executed in strict rotation as received.

See "Fruit Manual," "Garden Oracle," "Gardeners' Year-Book," and all Horticultural journals.

Copies of Testimonials will be forwarded upon application.

LUCOMBE, PINCE, & Co., beg to call attention to their magnificent show of CAMELLIAS and choice Exotic flowers.

Cut flowers carefully packed and sent to any distance.

WEDDING and other BOUQUETS to order. Extra flowers will be sent to pay for distant carriage.

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JOSEPH FRYER, Clarendon Nurseries, Camberwell, has a large quantity of the undermentioned, which were moved in the winter, and will move now with safety:—STANDARD APPLES, PEARS and PLUMS, DWARF-TRAINED VICTORIA, Green Gage, and other Plums, very fine; Gooseberries and Currants, Grape Vines, Scarlet Thorns, Limes, Laburnums, Lilacs, Althæas, Euonymus, Aucubas, Irish Ivies, White Rhododendrons, Magnolias, and other Trees and Shrubs, &c.

SURPLUS STOCK.

Alder, 3 to 5 feet, extra strong	Fir, Spruce, 3 to 4 feet
Ash, 18 inches to 2 feet	,, Larch, 2 to 2½ feet
Berberis dulcis, 2 to 3 feet	Hazel, 2½ to 3½ feet, extra fine
,, Aquifolium, 1 to 1½ foot	Holly, Green, 1½ to 2 feet, bushy
Chestnut, Horse, 2 to 4 feet	Laurel, Common, 2 to 2½ ft., bushy
,, Spanish, 1½ to 2 feet	,, Portugal, 3 to 4 ft. ex. bushy
Fir, Scotch, 1 to 1½ feet	

Strong DRUMHEAD or CATTLE CABBAGE PLANTS.

FRUIT TREES, as annexed.

Apples, Standards and Dwarfs, very strong
Cherries, Dwarfs and Dwarf-trained, extra fine
Peaches, Dwarfs and Dwarf-trained, extra fine
Pears, Standards and Dwarfs, extra fine
Plums, Standards and Dwarfs, extra fine
Nectarines, Dwarfs and Dwarf-trained, extra fine
Kentish Filberts, 4 to 5 feet, extra fine
Crab Stocks, 2 years Seedlings

PRICED LIST or samples of the above on application to
W. VIRGO & SONS, The Nursery, Wonersh, near Guildford, Surrey.

Notice.

PAUL AND SON'S NEW DOUBLE CRIMSON THORN.

PAUL AND SON regret that they find it necessary to repeat, in order to prevent mistakes, occasioned by the similarity of name, THAT THEY ALONE are the introducers of this unique plant.

The Old Cheshunt Nurseries, Cheshunt, N.

JOHN WATERER has to offer a quantity of very handsome AUCUBA JAPONICA, the whole of which are profusely covered with Berries.

1st Size are Plants 2 feet high, bearing 150 to 200 Berries.
2d Size, 1 foot 6 inches, with 100 to 125 Berries.
3d Size, 1 foot, with 40 to 50 Berries.

Price from 10s. 6d. each and upwards.

The American Nursery, Bagshot, Surrey.

BIRCH, 3 to 5 feet, fine, twice transplanted, 45s. per 1000

HAZEL, from Spanish Seed, 2 to 3 feet, fine, once transplanted, 18s. per 1000

SPANISH CHESTNUT, 1 to 2 feet, once transplanted, 18s. per 1000

HORSE CHESTNUT, 1 foot, once transplanted, 18s. per 1000

Samples sent on application.

T. JACKSON & SON, Nurseries, Kingston, S.W.

30,000 2-yr. SEEDLING THUJA LOBBII, 3 to 4 inches high, fine, distinct, and perfectly hardy Arborvitæ. Foliage deep grass green, rapid growth, well adapted for hedges, &c., and will bear pruning. Price (on application) by 100, 1000, or 5000.

GEO. JACKMAN & SON, Woking Nursery, Surrey.

Highly Cultivated and Regularly Transplanted Nursery Stock.

EIGHTY ACRES of the above, consisting chiefly of FRUIT TREES, ROSES, EVERGREENS, and ORNAMENTAL TREES, which for general excellence are unsurpassed.

THOMAS WARNER, Leicester Abbey Nurseries.

THE GOLDEN VARIEGATED WELLINGTONIA.

First-class Certificate from Royal Horticultural Society.

For Testimonials, &c., see *Gardeners' Chronicle*, October 6, 1866; *Times*, October 7, 1866; *Scottish Gardener*, November, 1866; *Gardeners' Chronicle*, January 12, 1867; "Florist," February, 1867.

LAST YEAR'S PLANTS (a few remaining).
1st Size, very choice, 8 to 12 inches, £5 5s. each.

THIS YEAR'S PLANTS.
2d Size, fine, 4 to 5 inches, £2 2s.
3d Size, nice little bits, 2 to 3 inches, £1 1s.

5000 plants are now plunged out-of-doors, in their respective sizes they may be safely forwarded during the summer, if desired, and orders will be executed in strict rotation.

Chromo-lithographs of the parent tree, by Day and Son (Limited), on superior cards, 10 inches by 8 inches, very faithful in outline, but deficient in representing the glorious colour of the original. These are sent free by post for 25 stamps, and one sent to each Purchaser.

It is intended to exhibit a few of the first size at the approaching Paris and Manchester Exhibitions.

R. HARTLAND, The Lough Nurseries.

SEEDLING and TRANSPLANTED FOREST TREES.

SEEDLINGS.—Ash, 1 yr., 1s.; Beech, 2 yr., 3s. 6d.; Elm, 3 yrs., 2s.; Norway Maple, 2 yr., 7s. 6d.; Oak, English, 1 yr., 1s. 6d.; 2 yr., fine, 4s.; Silver Fir, 4 yr., 6 to 12 inches, 4s.; Norway Spruce, 4 yr., 2s. 6d.; Crab, 2 yr., 2s. 6d.; Pears, 2 yr., 3s. 6d.; Sycamore, 2 yr., 2s. 6d. per 1000.

TRANSPLANTED.—Alder, 1 to 2 ft., 7s. 6d.; 2 to 3 ft. 10s.; 3 to 4½ ft., 15s.; 4 to 6 ft., 20s.; Beech, 6 to 12 in., 7s. 6d.; Chesnut, Spanish, 1 to 2 ft., 17s. 6d.; Elm, 12 to 21 in., 5s.; Hazel, 1½ to 3 ft., 17s. 6d.; Oak, English, 6 to 12 in., 7s. 6d.; Balm of Gilead, 4 to 8 in., 7s. 6d.; Cembra, 6 to 12 in., 100s.; Larch, 1 to 1½ ft., 6s.; 1½ to 2 ft., 8s.; 2 to 3 ft., 10s.; 3 to 4 ft., 14s.; Scotch Fir, 2 yr. bedded, 6 to 12 in., 5s.; Silver Fir, 9 to 15 in., 12s. 6d.; Spruce, Norway, 6 in., 5s.; 1 to 1½ ft., 10s.; Thorn Quick, 9 to 18 in., 6s.; Sycamore, 1 to 1½ ft., 7s. 6d.; Walnuts, 6 to 15 in., 20s. per 100.

RHODODENDRON PONTICUM, 4 to 6 in., 6s. per 100.

Apply, with reference, to J. RIDDELL, Steward, Park Attwood, Bewdley, Worcestershire.

Forest Trees and Cover.

JOSEPH SMITH, JUN., has to offer at very moderate prices TRANSPLANTED ASH, ALDER, BIRCH, HORSE CHESTNUT, ELM, broad and narrow-leaved; SILVER and SCOTCH FIRS, WHITE AMERICAN SPRUCE, HAZEL, OAK, POPLAR, PRIVET, WEYMOUTH and AUSTRIAN PINES, THORN QUICKS, HUNTINGDON and DUTCH WILLOWS, LARCH, good stout plants, 1½ to 2 feet, 12s.; 2 to 2½ feet, 13s.; 2 to 3 feet, 14s.; and 3 to 4 feet, 16s. per 1000. NORWAY SPRUCE FIR, 6 to 9 inches, 6s.; 9 to 12 inches, 9s.; 1 to 1½ feet, 14s.; 1½ to 2 feet, 21s.; and 2 to 2½ feet, 30s. per 1000. COTONEASTER MICROPHYLLA, 1 to 1½ feet, 20s. per 100; 1½ to 2 feet. RIBES in sorts, 2to 3 ft., 20s. per 1000. SNOWBERRY, 2 to 3 ft., 20s. per 1000. BROOM, White and Yellow, transplanted, 15s. per 1000. LAURELS, BERBERIS, ARBOR-VITÆ, &c., Seedling ASH, CRAB, SPANISH CHESTNUT, SPRUCE, 3 and 4 years; ELM, 2 years, £5 per 100,000. OAKS, 1 and 2 years; OAK, EVERGREEN, 1 year; PRIVET, 1 and 2 years; SYCAMORE. RHODODENDRON PONTICUM, 2 years, 6s.; 4 years, 8s. per 1000; 3 years, and 1 year transplanted, 18s.; 3 years, and 2 years transplanted, 26s.; 6 to 9 inches, 50s.; and 9 to 12 inches, 60s. per 1000. Twice-transplanted, and bushy, 4 to 8 inches, 70s.; 8 to 12 inches, 95s.; 9 to 15 inches, 140s.; 1 to 1½ feet, 180s.; and 1½ to 2 feet, 260s. per 1000.

A PRICED LIST forwarded on application. Price to the Trade on application.

JOSEPH SMITH, Jun., Moor Edge Nursery, Tansley, near Matlock, Derbyshire.

Finest New Hardy Plant of the Year.

PAUL'S NEW DOUBLE THORN.—Colour bright crimson, vivid, and double, 10s. 6d. each, usual allowance to Trade when thrice are taken.

Awards: First-class Certificates International Exhibition and Royal Botanic Societies.

PAUL & SON beg to invite orders ere close of planting season for this unique novelty. Since last Advertisement the following leading Nurserymen have ordered it:—

Cranston, Jno., Hereford	Lucombe, Pince & Co., Exeter
Dickson & Co., Edinburgh	Noble, Chas., Bagshot
Dickson & Sons, Newtonards	Rollisson & Sons, Tooting
Ewing, Norwich	Smith, R., Worcester
Fletcher, Ottershaw	Veitch & Son, Chelsea
Jackson & Sons, Woking	Waterer & Godfrey, Knap Hill
Lawson & Son, Edinburgh	

Old Cheshunt Nurseries, N.

FIVE HUNDRED THOUSAND LARCH, 1½ to 3 feet, at 8s. per 1000.

500,000 LARCH, 3 to 4 feet, at 12s. 6d. per 1000
500,000 SILVER FIR, 4-yr. Seedlings, at 3s. per 1000
500,000 SPRUCE, 4-yr. Seedlings, at 2s. 6d. per 1000
500,000 SYCAMORE, 2-yr. Seedlings, at 2s. per 1000

For other Trees offered see other Advertisement.

J. RIDDELL, Steward, Park Attwood, Bewdley, Worcestershire.

RAYNBIRD, CALDECOTT, BAWTREE, DOWLING, AND COMPANY, Limited,
CORN, SEED, MANURE, AND OILCAKE MERCHANTS,
Address, 89, Seed Market, Mark Lane, E.C.; or Basingstoke.

Samples and Prices post free on application. Prize Medals, 1851, for Wheat; 1862, for "Excellent Seed Corn and Seeds."

Seed Corn from the Chalk.

ALL the MOST APPROVED VARIETIES supplied by RAYNBIRD, CALDECOTT, BAWTREE, DOWLING, and COMPANY, LIMITED.

Address, Basingstoke; or 89, Seed Market, Mark Lane, London, E.C.

*** Samples and prices on application.

GIANT ASPARAGUS PLANTS, the best that money can procure, 2s. 6d. per 100.—This delicious vegetable does not require half the expense usually incurred in planting it.

See RICHARD SMITH'S SEED LIST for 1867.

Extra strong SEA KALE, 2s. per doz.

RICHARD SMITH, Nurseryman, Worcester.

THE "COLDSTREAM EARLY" POTATO, which received a First-class Certificate at the International Horticultural Exhibition at South Kensington, is the Earliest and Best round Potato in cultivation. 5s. 6d. per peck; 18s. per bushel, including bags. Trade price on application.

Apply to HOGG & WOOD, Coldstream, N.B.



WHEELER'S GLOUCESTERSHIRE KIDNEY

Is one of the very Earliest, most Productive, and best flavoured Potatos in cultivation.

Price 3s. per peck, 10s. 6d. per bushel.

J. C. WHEELER & SON,

Seed Growers, Gloucester.

SURPLUS STOCK of

Early Ashleaf Kidney Potatos.	Nonpareil Peas.
Essex Wonder do do	General Havelock do.
Myatt's Prolific do do	Ne Plus Ultra do.
Handsworth's Early Round Potatos	Champion of England do.
	M'Lean's Wonder do.
Early Shaw Round Potatos.	Climax do.
Dalmahoy do do	Veitch's Perfection do.
Dwarf, Kidney, and Scarlet Beans	British Queen do.

Prices on application to JAMES FAIRHEAD & SON, Seed Merchants, 7, Borough Market, S.E.

CHOICE SEEDS.

Post Free.

	Per pkt.—s. d.		Per pkt.—s. d.
Broccoli, Snow's Imperial Winter	1 0	Moore's Vegetable Cream	0 6
Albert Sprouts	0 6	Beet, Perpetual Spinach ..	0 6
Cauliflower, Early Erfurt ..	1 0	,, Nutting's Superb Red	0 6
Celery, Manchester Champion Red	0 6	Lettuce, Wheeler's Tom Thumb	0 6
Cucumber, Smith's Fine Frame	1 0	Radish, French Breakfast	0 6
Cucumber, Telegraph ..	1 0	Aster, Truffaut's Superb French, 12 vars. mixed ..	1 0
Leek, Henry's Prize ..	0 6	Aster, Victoria, 6 vars. mixed	1 0
Endive, Digswell Prize ..	0 6	Stock, improved large-flowering, 12 vars. mixed.	1 0
Onion, Nuneham Park ..	2 6	Balsam, Camellia-flowered, 6 var. mixed	1 0
Parsley, extra fine curled ..	0 6	Balsam, Rose-flowered, 8 vars. mixed	1 0
Raphanus caudatus (new long-podded Radish) ..	2 6	Phlox Drummondii, 12 splendid varieties ..	1 0
Custard Marrow	0 6		
Melon, Malvern Hall ..	1 6		
Tomato de Laye	0 6		
Cauliflower, The Mammoth	1 0		

RICHARD SMITH, Seed Merchant, Worcester.

JOHN KERNAN, SEEDSMAN, 4, Russell Street, Covent Garden, W.C., respectfully calls attention to his COLLECTION of HORTICULTURAL and AGRICULTURAL SEEDS, selected with the greatest care from the Stocks of the most noted Growers at home and abroad, regardless of cost, as he is well aware that superior articles are duly valued by cultivators, who, once taken in by puffed selections by self-dubbed Seedsmen, take care never to be caught a second time purchasing the inferior, which are dear, and in most cases useless at any price.

J. K. advises Gentlemen to eschew all advertised selections or collections specially recommended by Puffers, "who generally have taken to the trade as a mercantile speculation, and who if placed in a Garden could not distinguish a Dock from a donkey's provender, their own native Thistle," and either to leave their Gardeners to name what they really want or to choose for themselves, as otherwise, in almost every instance, the purchaser will find himself saddled with Seeds of little or no value, or his ground filled with articles he can find no use for, a circumstance not only annoying to himself but also to his Gardeners, who, if consulted, would never have spent half the money, and assuredly have produced a *quid pro quo* in the shape of edibles or flowers worth their cost in cash and labour.

Peas, early and late, of the best varieties. Beans: Windsor, Longpod, Green, Scarlet Runners, French of sorts. Beet, Broccoli, Brussels Sprouts, Cress, Cauliflower, Cabbage, Carrot, Celery, Cucumber, Endive, Lettuce, Leek, Melon, Mustard, Onion, Parsley, Parsnip, Radish, Spinach, Sweet Herbs, Turnip, Lawn and Meadow Grass, Potatos of all the different kinds.

All the New and Choice FLOWER SEEDS. Imported German Asters and Stocks, in separate colours or mixed. Thirty Choice Hardy Flowers for 5s.; Fifteen, 2s. 6d. Named Gladiolus, Anemone, Ranunculus; Lilium auratum, speciosum, and other varieties; Carnations, Picotees, and Pinks, Heartsease, Hollyhock. Geraniums and Verbenas for bedding out, &c. Japan Flax, Fumigators, Syringes, Garden Tools, &c. Genuine Peruvian Guano, and everything requisite for Gardening.

CATALOGUES on application.

LAING'S MAMMOTH RED CELERY.—This is considered the largest yet grown, attaining the extraordinary weight of from 10 to 12 lb., and is at the same time perfectly solid. It is nearly perennial in its habit, as it will not under any circumstances run to seed the first season, and it is difficult sometimes the second, when planted out for that purpose. In colour it is a bright red. In flavour unsurpassed, if equalled. It has been seen growing by many practical Gardeners, who deem it a new feature in the garden, from the fact that you may have it nearly all the year.—In packets, 1s. each.

YOUELL & Co., Royal Nurseries, Great Yarmouth.

YOUELL'S NORFOLK HERO CUCUMBER.—Without exception the very best Cucumber for open ground cultivation that has yet been offered, and they have much pleasure in submitting the following report:—

"Alburgh Rectory, Feb. 27, 1867.

"GENTLEMEN,—I have now grown your Norfolk Hero Cucumber for four years, and have found it far the best ridge Cucumber I ever met with.—Yours faithfully, "(Signed) J. A. COOMBE.

"Messrs. YOUELL & Co., Royal Nurseries, Great Yarmouth."

It is a most prolific bearer, as handsome as any frame variety, and is as delicate in point of texture, the fruit measuring 16 to 20 inches.

Packets containing 12 Seeds, 1s.; 30 Seeds, 2s.

Royal Nurseries, Great Yarmouth.

To Farmers, Gardeners, and Nurserymen.

CABBAGE PLANTS, RED, extra fine, 4s. per 1000.
MYATT'S PROLIFIC KIDNEY POTATOS, 9s. per cwt.
Terms cash.

RICHARD WALKER, Market Gardener and Seed Grower, Biggleswade, Bedfordshire.

SPECIAL OFFER.

To FARMERS, GARDENERS, AND OTHERS.

EXCELLENT NEW YELLOW GLOBE MANGEL WURZEL, 4d. per lb.
EXCELLENT WHITE BELGIAN CARROT, 8d. per lb.
,, JAMES'S SELECT INTERMEDIATE do. 10d. p. lb.
,, RED ALTRINGHAM do. 9d. per lb.
,, GREEN KOHL RABI, fine topped, 10d. per lb.
,, SCARLET RUNNER BEANS, NEW, 7s. 6d. per bsh.
,, MIGNONETTE, 1s. per lb.
ROBINSON'S CHAMPION DRUMHEAD CABBAGE PLANTS, 2s. per 1000.
RED DUTCH CABBAGE PLANTS, fine, 3s. 6d. per 1000.

CATALOGUE of genuine NEW SEEDS on application.

F. GEE, Seed Merchant and Grower, Biggleswade, Bedfordshire.

New Dwarf Sprouting Ulm Savoy.

STUART AND MEIN, Kelso, N.B., have much pleasure in sending-out the above valuable acquisition. The heads can be cut for early use, and the sproutings are invaluable in spring when vegetables are scarce. In most seasons the sproutings are fit for use until May. Heads of the Dwarf Sprouting Ulm Savoy and the ordinary Brussels Sprouts were forwarded to the Editors of the *Gardeners' Chronicle*. The following is their opinion (see No. for 6th April):—"The Brussels Sprouts sent are 'run' and wholly worthless, while the Sprouts on the Savoy are numerous, large, firm, and excellent."

S. & M. have a limited number of packets on hand, price 1s. 6d. per packet, free by post on receipt of stamps.

STUART & MEIN, Seed Warehouse, Kelso, N.B.

TURNIP SEED.—YORKSHIRE PRIZE. Heavy cropper, very hardy. The very best Swede Turnip grown, 1s. per lb. The produce of Seeds obtained of MARTIN & SON have won more £5 Silver Cups, Silver Medals, and other valuable Prizes, than all Seedsmen in this neighbourhood put together.

MARTIN & SON, 7, Market Place, Hull.

New Turnip Seeds.

H. AND F. SHARPE offer the following varieties to the Trade at low Prices. They are all of 1866 growth, raised from the finest selected Stocks:—

SHARPE'S IMPROVED PURPLE-TOP SWEDE.
SKIRVING'S "KING of the SWEDES."
IMPROVED GREEN TOP SWEDE.
LINCOLNSHIRE RED GLOBE.
IMPROVED GREEN NORFOLK.
DEVONSHIRE GREY STONE.

And many other Yellow and White-fleshed sorts. Prices may be had on application. Seed-growing Establishment, Wisbech.

New Mangel Wurzel Seed.

H. AND F. SHARPE have the following Varieties, raised last season on their own Seed Farm from fine selected Bulbs, which they can offer to the Trade at Low Prices, to be had on application:—

SHARPE'S SELECTED ORANGE GLOBE.
FISHER HOBBS' ORANGE GLOBE.
LARGE YELLOW GLOBE.
ELVETHAM LONG RED.
SELECTED LONG YELLOW.
SELECTED RED GLOBE.

Seed Growing Establishment, Wisbech.

J. C. WHEELER AND SON, SEED GROWERS, Gloucester (Seedsmen to the Gloucestershire Agricultural Society), can very strongly recommend the following Mixtures:—

CLOVER and GRASS SEEDS for ONE YEAR'S LAY.

J. C. WHEELER & SON can supply this excellent Mixture—all of the finest quality—carriage free by Railway, at 16s. per acre.

lb.	lb.
3 Italian Rye-grass, Lolium italicum.	4 Evergreen Rye-grass, L. semperirens
1 Cocksfoot, Dactylis glomerata	7 Red Clover, Trifolium pratense
1 Timothy, Phleum pratense	7 Trefoil, Medicago lupulina

A cheaper Mixture at 10s. 6d. per acre.

CLOVER and GRASS SEEDS for TWO YEARS' LAY.

J. C. WHEELER & SON can supply this excellent Mixture for Two Years' Lay—all of the finest quality—carriage free by Railway, at 18s. 6d. per acre.

lb.	lb.
4 Evergreen Rye-grass, L. perenne	3 Red Clover, Trifolium pratense
4 Italian Rye-grass, L. italicum	3 Cow Grass, T. pratense perenne
2 Cocksfoot, Dactylis glomerata	3 White Dutch, Tr. repens
1 Timothy, Phleum pratense	4 Trefoil, Medicago lupulina

A cheaper Mixture at 15s. 8d. per acre.

CLOVER and GRASS SEEDS for THREE or FOUR YEARS' LAY.

J. C. WHEELER & SON can supply this excellent Mixture—all of the finest quality—carriage free by Railway, at 24s. per acre.

lb.	lb.
4 Evergreen Rye-grass, L. semperirens	2 Timothy, Phleum pratense
4 Pacey's Perennial, L. Paceyanum .. .. [cum	3 Red Clover, Trifolium pratense
	3 Cow Grass, T. pratense perenne
	3 White Honeysuckle, T. repens
3 Italian Rye-grass, Lolium italicum	1 Alsike, Trifolium hybridum
2 Cocksfoot, Dactylis glomerata	4 Trefoil, Medicago lupulina

A Cheaper Mixture at 21s. per Acre.

J. C. WHEELER & SON'S CLOVER and GRASS SEEDS are of excellent quality, very moderate in price, and 5 per cent. discount is allowed for cash.

J. C. WHEELER & SON, Seed Growers, Gloucester.



COCOA-NUT REFUSE is becoming SCARCE, the old reserves will soon be gone. Now sold in bags, 1 for 2s., 10 for 16s., 2 for 30s., 50 for 66s., 100 for £6.

Fourpence allowed for each bag returned carriage-paid.

A Railway Truck-load (not bags), 40s.

Postage Stamps or Post-office Order, payable to J. BARSHAM & Co., Kingston-on-Thames, S.W.

PATRONISED BY
HER MAJESTY THE QUEEN,

AND HIS ROYAL HIGHNESS
THE PRINCE OF WALES.

J. B. BROWN & CO.'S NEW PATENT B B LAWN MOWER.

PATENTEES
AND SOLE MANUFACTURERS,
J. B. BROWN & CO.,
LONDON.



GUARANTEED TO GIVE
PERFECT SATISFACTION,
AND IF NOT APPROVED OF
MAY BE AT ONCE RETURNED.

TESTIMONIAL FROM THOS. INGRAM, ESQ., THE ROYAL GARDENS, WINDSOR, August 11, 1866.

"GENTLEMEN,—I have much pleasure in stating that your New Patent B B Lawn Mowing Machine [a 24-inch] has had a good trial, and has proved quite satisfactory. The work done is of the first order, leaving the Lawn like a piece of velvet.—I am, Gentlemen, yours faithfully,

"Messrs. J. B. BROWN & Co., London." "THOS. INGRAM."

PATENT B B HAND MACHINE.

PRICES—Including Carriage to any Railway Station or Shipping Port in England, with the necessary Tools and Directions for use.

10-inch Machine	£4 0 0	*Easily Worked by a Boy.*
12-inch Machine	5 0 0	
14-inch Machine	5 10 0	
16-inch Machine	6 10 0	*Ditto by a Man.*
18-inch Machine	£7 10 0	*Easily Worked by a Man.*
20-inch Machine	8 0 0	*Ditto by Two Men.*
22-inch Machine	8 10 0	
24-inch Machine	9 0 0	

PATENT B B HORSE MACHINE.

PRICES—Complete, without extras, including Carriage to any Railway Station or Shipping Port in England, with the necessary Tools and Directions for use.

48-inch Machine	£32 10 0	*Drawn by a Horse.*
42-inch Machine	£28 10 0	
36-inch Machine	24 10 0	
30-inch Machine	21 10 0	*Drawn by a Horse.*

PATENT B B PONY and DONKEY MACHINE.

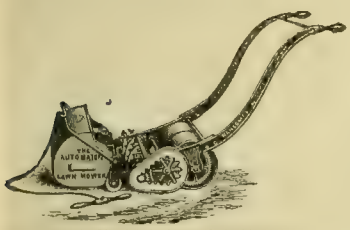
PRICES—Complete, without extras, including Carriage to any Railway Station or Shipping Port in England, with the necessary Tools and Directions for use.

30-inch Machine	£17 10 0	*Drawn by a Pony.*
28-inch Machine	16 10 0	
26-inch Machine	14 10 0	*Drawn by a Donkey*

*** *Every Machine sent out is warranted to give ample satisfaction, and, if not approved of, may be at once returned.*

☞ *It is most important, in order to prevent disappointment, that Orders for these PATENT LAWN MOWERS should be given without delay.*

J. B. BROWN AND CO., WAREHOUSE and MANUFACTORY, 148, UPPER THAMES STREET, LONDON,
OPPOSITE THE CITY OF LONDON BREWERY, AND CLOSE TO THE LONDON BRIDGE STEAM-BOAT PIERS.



THE AUTOMATON LAWN MOWER.

RANSOMES & SIMS'

NEW LAWN MOWER. THE AUTOMATON.

A NEW AND FIRST CLASS MACHINE, WHICH HAS BEEN THOROUGHLY TESTED.

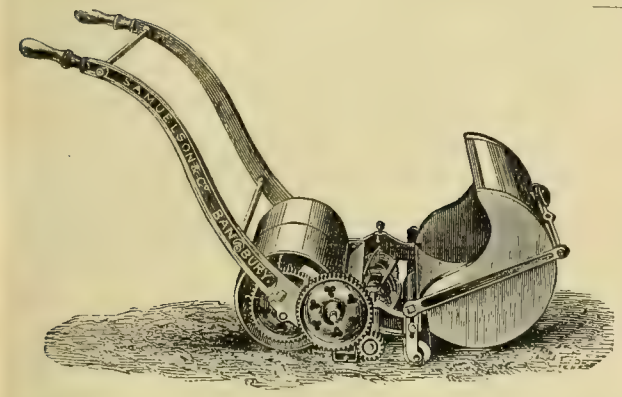
CONTAINS MANY IMPROVEMENTS.

PRICES, ILLUSTRATIONS, AND FULL PARTICULARS, FREE, FROM
RANSOMES AND SIMS, IPSWICH.

SAMUELSON & CO.'S

IMPROVED LAWN MOWING MACHINES.

EVERY MACHINE WARRANTED.



PRICES.

Delivered Free to any Railway Station in Great Britain.

Cutting 12 inches wide	£4 10 0
Cutting 14 inches wide	5 5 0
Cutting 16 inches wide	6 0 0
Cutting 19 inches wide	6 10 0
Cutting 22 inches wide	7 10 0
Cutting 25 inches wide	12 0 0
Cutting 30 inches wide	15 0 0
Cutting 36 inches wide	18 0 0

Great improvements have been made in these Machines during the last few years, in regard to all those small but important points of superiority which the practical working of a Lawn Mower suggests; while for elegance of appearance, lightness of draft, and efficiency in working they cannot be excelled. They possess the following advantages:—

1st. Motion is given to the Cutting Apparatus by toothed gearing, which experience has proved to be by far the best method of driving.

2d, The whole of the Driving Wheels are on one side of the Machine, a point of great importance in preventing damage to Shrubs and Flowers, when mowing round the edges of beds.

3d, All the smaller working parts of the Machine are made of Malleable Iron, and are not liable to break.

☞ *Illustrated Price Lists, with selections from several Thousand Testimonials, Free by Post on application.*

SAMUELSON AND CO., BRITANNIA WORKS, BANBURY.

LONDON WAREHOUSE: 10, LAURENCE POUNTNEY LANE, E.C.

AGENTS:—Messrs. TANGYE BROTHERS AND HOLMAN, 10, LAURENCE POUNTNEY LANE; Messrs. DEANE AND CO., London Bridge; Messrs DRAY, TAYLOR AND CO., London Bridge; Mr. THOMAS BRADFORD, 63, Fleet Street, E.C.; and all respectable Seedsmen and Ironmongers throughout the Kingdom.

Verbenas, Verbenas.

PHILIP LADDS is now sending out a good supply of the above, strong plants, in thumb pots, including 40 varieties of 1866, at 2s. per dozen, package included. Terms cash.
Nursery, Bexley Heath, Kent.

Verbenas, New and Old.

WILLIAM KNIGHT is now sending out strong established Plants, in small pots, of 36 finest Varieties for Exhibitors or Bedding, for 10s. 6d., package included. Terms cash.
DESCRIPTIVE CATALOGUE free.
Floral Nursery, Hailsham, Hurst Green, Sussex.

Verbena Crimson King.

THOMAS M THV N has much pleasure in announcing that CRIMSON KING having completely established its character as the finest Bedding Verbena in cultivation, he has propagated a large Stock of fine healthy Spring-struck Plants, which he offers, on and after April 15, at the following prices:—
12 Plants, 4s.; 50, 12s. 6d.; 100, £1; 500, £4 7s. 6d.; 1000, £7 10s.
Leith Walk Nurseries, Edinburgh.

JOHN KEYNES' NEW VERBENAS for 1867.

COLESHILL (Eckford).—Intense scarlet, with lemon eye, pips large, very smooth, one of the finest Verbenas. First-class Certificate at the Royal Horticultural Society. 5s. each.
UMPIRE (Eckford).—Large cerise purple, the largest truss and flower in cultivation, very showy. 5s. each. Certificate at the Royal Horticultural Society.
FANNY MARTIN (Eckford).—Beautiful clear rose, very pleasing, large and fine. Certificate at the Royal Horticultural Society. 5s. each.
EARL OF RADNOR (Eckford).—Most beautiful clear rosy scarlet, with lemon eye, good habit, and free bloomer. Certificate at the Royal Horticultural Society. 5s. each.
WILLIAM DODDS (Eckford).—Light purple, with white eye, most perfect flower, exquisite form, grand flower either for bedding or show. 5s. each.
MR. ELLICE (Eckford).—Peach colour, quite new, a most beautiful variety, not to be surpassed. 5s. each.

These six varieties are of the finest quality, and will be found quite equal to those sent out last season from the same Grower. They have been selected with the greatest care.

The SIX VERBENAS of last year have proved to be of first-rate quality. They can now be had fine plants, and consist of

John Keynes	Mr. Gladstone	King Charming
Lady Jane Ellis	Isa Eckford	George Eckford

Many testimonials respecting these Flowers have been received by J. Keynes, all having given great satisfaction. 9s. per dozen.

CRIMSON KING (Methven's), having proved all that was said of it, may be had 9s. per dozen. The finest crimson bedder in cultivation.

A fine collection of the best BEDDING VERBENAS at reasonable prices. The usual Discount to the Trade.
Castle Street, Salisbury.

HENRY MAY'S CATALOGUE is now ready, and contains the fullest Collections of DAHLIAS, HOLLYHOCKS, FUCHSIAS, VERBENAS, PELARGONIUMS, and BEDDING PLANTS, &c.

Henry May has been awarded all the First Prizes at all the principal Exhibitions in the North of England, at upwards of 20 different places, for the finest Hollyhocks, Dahlias, and Pelargoniums in 1866.
The Hope Nurseries, near Bedale, Yorkshire.

Fuchsias and Verbenas.

H. CANNELL has got a great quantity of all the very best in cultivation, in fine condition.

H. C.'s FLORAL GUIDE, with full particulars how to grow, show, and get the first prize, and containing a great deal of valuable information on gardening, free for 4 stamps.
Fuchsia Nursery, Woolwich.

New Plants for 1867.

HENRY CANNELL has great pleasure in introducing to the public the following Plants of unusual advance on all other kinds in their respective classes. They have been chosen from upwards of 300 Seedlings, sent from almost every country in the United Kingdom, and are sure to give the greatest satisfaction by their superior qualities.

FUCHSIAS.

KING of the DOUBLES. — This is the finest exhibition Double Fuchsia ever sent out. Habit perfect; the corolla beautifully striped. 7s. 6d. each.
MRS. GLADSTONE.—Great advance on all the white corolla kinds, and reflex equal to the well-known Guiding Star. 7s. 6d. each.
BLAND'S FLORIBUNDA.—This Fuchsia will introduce a new race, being perfectly distinct from all others ever sent out, and H. C. believes it will become equal to the well-known Tom Thumb Geranium, and will shortly be planted in every garden and on every window. It has a scarlet tube and sepals, pure white corolla; very short stiff growth, requiring no stakes. A bed of this looks at a distance to have the appearance of being covered with thousands of stars. For bedding and small pots this really has no equal, and is a decided acquisition. 5s. each.
THE PERFECT CURE.—Scarlet tube, and sepals perfectly reflexed; good habit and grower, with a most extraordinary shaped corolla, which makes it one of the most pleasing and curious novelties in the Fuchsia ever seen. The corolla is formed on the ends of each stamen, and measures from tip to tip 3 to 4 inches over, and is a very attractive and amusing variety. 5s. each; the set of four for £1 1s. Ready to send out on the 1st of May.
MONSTER.—This is the largest ever sent out, the corolla measuring from 2 and 2½ inches over, and is as large as a Rose; scarlet tube and sepals, very rich violet-purple corolla, very short stiff habit. On account of its immense blooms and good growth and being an abundant bloomer, this is the most saleable Fuchsia ever sent out. 7s. 6d. each.

The demand being so great for this, H. C. finds it impossible to get sufficient stock of it to send it out before the 1st of July.

NEW VERBENAS.

The same heading applies to these as the Fuchsia.

GLADIATOR. — Extra large trusses and globular, the colour carmine, deepening to crimson at the base of each petal, with a large circular white eye; fine for border and exhibition. Received a First-class Certificate.
ORANGE PERFECTION. — Flowers very large and admirably formed, the colour deep orange-pink. Beautiful shade of colour, with a lemon-yellow eye. One of the best either for exhibition or borders. 3s. each; or the two for 5s. Ready on the 1st of May.

NEW TROPÆOLUMS COMPACTUM.

For bedding and ribbon bordering.

LUTEUM IMPROVED.—Immense improvement upon the one sent out last season. Beautiful bright yellow, for bedding, &c. No Calceolaria is near an equal to this for its continual and abundance of bloom. 1s. 6d. each.
THE MOOR.—In every way equal to the above; colour deep dark maroon crimson—a grand new colour for bedding; has long been required for geometric gardens. 1s. 6d. each.
SCARLET GEM.—For its beautiful colour and dwarf compact habit, and continual massive blooming, no Scarlet Geranium is equal to this. 2s. 6d. each.

These were examined when growing in the garden by the Committee, and all were awarded a First-class Certificate.

NOVELTY.—In every way equal to the above, with a beautiful peculiar mixed bronze and yellow colour; fine for fancy beds, being quite a novel attractive colour. 2s. each.

These were raised by Mr. J. George, who is well known for introducing this new race of bedding plants; and they are equally valuable for pots, having been in bloom ever since Christmas. All these are acknowledged to be decided acquisitions. The following is an

Official Description from the "United Horticultural Society,"
December 8th, 1866.

"All these were considered as great additions as bedding plants, and cannot be too extensively grown. They far surpass any other plants in profusion of bloom, and the weather does not affect them to any apparent extent; no one should be without them. In Scarlet Gem you have a most brilliant and attractive variety, far surpassing the T. Lobbii section for effect in the parterre or ribbon gardening."—W. Heale, Secretary.

The Set for 6s. 6d.; 12s. per dozen; £2 2s. for 50; £4 for 100; package included. Ready on the 1st of May.
FLORAL GUIDE, with a fuller description, for 4 stamps.
Fuchsia Nursery, Woolwich.

THE QUEEN.

HAVING PUBLICLY REQUESTED THE NAMES UNDER WHICH MY

NEW WHITE RHODODENDRON

Has been before offered to the Public, I learn that they are *Lady Godiva*, *Ingramii*, *Standish's Perfection*, and *Madame Carvalho*. I have flowered THE QUEEN side by side with all four kinds, and unhesitatingly say it is *superior* and totally different to either. I now challenge the assertions, and ask the authors *if they can* produce THE QUEEN. I give them a *fair field*, viz., the range of the world to select from.

CHARLES NOBLE, BAGSHOT.

RHODODENDRON PONTICUM for WOODS and PLANTATIONS.



MESSRS. JAMES VEITCH & SONS

HAVING A LARGE QUANTITY OF VERY GOOD BUSHY

WELL-ROOTED RHODODENDRON PONTICUM,

Suitable for Planting in Woods and Covers, beg to offer them at the following prices:—

9 to 15 inches, bushy, 16s. per 100	18 to 24 inches, bushy, 30s. per 100
15 to 18 inches, bushy, 21s. per 100	24 to 30 inches, very fine, 50s. per 100

ALSO A

SPLENDID LOT OF HYBRID RHODODENDRONS,

Raised from the finest Named kinds:—

6 to 10 inches, 25s. to 30s. per 100	15 to 18 inches, 75s. to 100s. per 100
10 to 15 inches, 40s. to 50s. per 100	18 to 24 inches, 100s. to 150s. per 100

24 to 30 inches, very fine, 18s. to 24s. per dozen.

ROYAL EXOTIC NURSERY, CHELSEA, S.W.

FLOWERING PLANTS of AUCUBA JAPONICA VERA MASCULA.



MESSRS. JAMES VEITCH & SONS

HAVING NOW COMING INTO FULL FLOWER A QUANTITY OF

MALE PLANTS OF THE TRUE GREEN AUCUBA JAPONICA,

RAISED FROM SEED IMPORTED DIRECT FROM JAPAN,

beg to offer them at the following low prices:—

First Size, 7s. 6d. each. | **Second Size, 5s. each.**

Each Plant has a fine spike of Bloom, and will impregnate a great number of Female Plants.

☞ *The usual Discount to the Trade, with One Plant over when Six are taken.*

ROYAL EXOTIC NURSERY, CHELSEA, S.W.

GLADIOLUS BRENCHLEYENSIS.



YOUELL & CO.'S

ROYAL NURSERIES, GREAT YARMOUTH,

STILL STAND UNRIVALLED

FOR THE CULTURE OF GLADIOLUS BRENCHLEYENSIS,

THE PLANTING OF WHICH MAY BE CONTINUED FOR A SUCCESSION OF BLOOM FROM APRIL TO JUNE.

Some idea may be formed how highly this variety is esteemed, when they state that this Season they have supplied upwards of 150,000 BULBS of the above, which is the finest and handsomest of this magnificent class. It is the most brilliant and showy variety suited for SUMMER and AUTUMN DISPLAY, as the following Report from the *Gardeners' Chronicle* of September 8, 1866, will testify:—

"Messrs. Youell & Co.—The spikes of Brenchleyensis are magnificent. Among showy Autumn sorts this still stands in the foremost rank."

Y. and CO. are still in a position to supply extra strong and sound Roots of the above at the following prices:—

No. 1 Size, 20s. per 100; 3s. per dozen. | No. 2 Size, 18s. per 100; 2s. 6d. per dozen.

☞ *A very liberal Discount to the Trade. Early Orders are solicited.*

YOUELL and CO. beg to intimate that they are in a position to supply the most choice kinds of this beautiful tribe, in strong Flowering Bulbs, as follows:—

No. 1 Collection contains 100 Bulbs, in 50 of the most choice and handsome kinds, with names						..	£5	0 0
Half No. 1 Collection contains 50 Bulbs, in 25 ditto				ditto	..	..	2	10 0
No. 2 Collection	,,	100 Bulbs, in 30 ditto		ditto	..	..	3	15 0
Half No. 2 Collection	,,	50 Bulbs, in 15 ditto		ditto	..	..	1	17 6
No. 3 Collection	,,	100 Bulbs, in 25 ditto		ditto	..	..	2	10 0
Half No. 3 Collection	,,	50 Bulbs, in 12 ditto		ditto	..	..	1	5 0

Fine Selections left to us, 9s., 12s., 18s., and 30s. per dozen.

CATALOGUES POST FREE ON APPLICATION.

ROYAL NURSERIES, GREAT YARMOUTH.

RICHARD SMITH'S SEED CATALOGUE contains a Calendar of Time for Sowing, particulars of Collections, with Prices, Directions for Cropping well and economically, Soil, Manure, Depth, Distance, Season, Hardiness, Duration, Form, Height, Colour, Storing, Use, Flavour, and other qualities, described.

This List Free by Post on one stamp. Seeds direct from the growers the surest way to success.

Richard Smith, Seed Merchant, Worcester.

General Plant Catalogue, 176 pages, 8vo.

H. LAURENTIUS', Leipzig, PRICED CATALOGUE, containing Novelties, Beautiful and Rare Plants, also Selected Lists of all the favourite Descriptions of Garden Flowers offered by the Horticultural Establishment of H. Laurentius, Leipzig, Germany, can be had post free on a plication to Messrs. Batham & Blackith, Cox's Quay, Lower Thames St., London.

British Fern Catalogue.

ROBERT SIM can now send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his NEW and PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, &c.

Fern Cray Nursery, S.E., a mile from Sidcup Station of New North Kent Line of South Eastern Railway.

American Plants, &c.

WATERER AND GODFREY'S PRICED and DESCRIPTIVE CATALOGUE of RHODODENDRONS and other American Plants for this Autumn, will be sent on application. The Catalogue also gives a summary of their General Nursery Stock, probably the most extensive in the kingdom.

Knap Hill Nursery, Woking, Surrey.

Rhododendrons.

JOHN WATERER'S DESCRIPTIVE CATALOGUE of HARDY SCARLET and other RHODODENDRONS is now published, and will be forwarded on application. It faithfully describes the colours of the new varieties exhibited by him at the Royal Botanic Gardens, Regent's Park. An Abridged List of popular VARIETIES, with heights and prices, is likewise combined.

The American Nursery, Bagshot, Surrey, near Sunningdale Station, South-Western Railway.

Hardy Scarlet and other Rhododendrons.

W. H. GOGGERS, Red Lodge Nursery, Southampton, can offer splendid named varieties of the above, strong bushy Plants, well set with blooming buds, at £10 per 100, or selected, 9s. per dozen; HYBRID RHODODENDRONS, from seed, saved from the finest varieties, 1 to 2 ft., 30s. per 100; 2 to 3 ft. 50s per 100.

Also a general NURSERY STOCK of FRUIT, FOREST, and ORNAMENTAL TREES and SHRUBS, extending over 60 Acres.

Detailed CATALOGUES and every information may be had on application

Wholesale Catalogue of Nursery Stock.

GEORGE JACKMAN AND SON'S PRICED and DESCRIPTIVE CATALOGUE for 1866 and Spring 1867, can be had free on application, comprising Fruit Trees, Roses, American Plants, Conifers, Clematises, Evergreen and Deciduous Trees and Shrubs, and transplanted Forest Trees, &c., &c.

Woking Nursery, Surrey.

WILLIAMS' SUPERB STRAIN of PRIMULA, RED, WHITE, or MIXED, 2s 6d., 3s 6d., or 5s. per packet. The Collections that received the First Prize at the last Show of the Royal Horticultural Society, and First Prize at the last Show of the Royal Botanic Society were both grown from seed supplied by B. S Williams, Victoria and Paradise Nurseries, Upper Holloway, London, N.

RHYNCHOSPERMUM JASMINOIDES and ROSES.—Plants of this beautiful sweet-scented Greenhouse variety, all set with flower buds, 12s per dozen RED FAIRY ROSES, all of flower buds, 6s. per dozen: MRS. BOSANQUET, flowering plants, 9s. per dozen. Also a large variety of popular sorts of HYBRID PERPETUALS, all from out of pots, at 50s per 100, suitable for Forcing or Planting-out.

H. & R. Stirzaker, Skerton Nurseries, Lancaster.

New Roses.

H. LANE AND SON have to offer a very fine lot of extra strong Plants coming into Bloom, of the following kinds, at 36s. per dozen.:—TEA: Isabella Sprunt, Bouton d'Or, Madame Margottin. HYBRID PERPETUALS: Horace Vernet, Antoine Ducher, Gloire de Montplaisir, Madame Rival, Monsieur Noman, Charles Verdier, Souvenir de Monsieur Boll, Monsieur Plassereau, Mille. Jeanne Marix, Madeleine Nonin. Also MARECHAL NIEL, strong on Manetti, in pots.

The Nurseries, Great Berkhampstead, Herts.

Woodlands Nursery, Maresfield, near Uckfield, Sussex.

WM. WOOD AND SON beg to offer the annexed TEA-SCENTED ROSES on reasonable terms:—

Barillet Deschamps	Le Pactole	Madame Joseph Halphen
Comtesse de Brossard	Lays	Pharaon
Duc de Magenta	Madame Bravy	Rubens
Enfant de Lyon	Maréchal Bugeaud	Sombreuil
Jaune d'Or	Mélanie Oger	Souvenir de David
Jean Hardy	Madame de Vatry	Triomphe du Luxembourg
Lauretta	,, Falcot	

Also well-grown TEA-SCENTED ROSES, in 6-in. pots, at 24s. to 30s. per dozen.

LILIUM AURATUM.—Large Consignment just received, 2s. 6d., 3s. 6d., 5s. 6d., and 7s. 6d. per Root. Extra large selected Bulbs, 10s. 6d., 12s. 6d., 15s., and 21s.

Barr & Sugden, Seed, Bulb, and Plant Merchants, 12, King Street, Covent Garden, W.C.

GLADIOLI BULBS, for Summer, Autumn, and Winter Flowering, 2s. 6d., 3s. 6d., 5s. 6d., 7s. 6d., 9s., and 12s. per dozen.

Barr & Sugden, Seed, Bulb, and Plant Merchants, 12, King Street, Covent Garden, W.C.

GLADIOLI.—Collections containing all the finest varieties in cultivation, many new, and offered for the first time, 10s., 63s., 42s., 30s., 25s., 20s., 15s., 12s. BRENCHLEYENSIS, the most showy of all, extra strong roots, 3s. per doz., 20s. per 100.

DESCRIPTIVE PRICED LISTS free on application.

Butler, M'Culloch & Co. South Row, Covent Garden, W.C.

Calceolaria Ambassador (Sang).

EDWARD SANG AND SONS, Nurserymen and Seed Merchants, Kirkcaldy, N.B., offer strong autumn-struck Plants, in single pots, of this now well-known and universally admired BEDDING-OUT CALCEOLARIA. Price 12s. per dozen.

Early orders will oblige and have their careful attention.

The Trade supplied.

NEW BEDDING PLANT: IRESINE HERBSTII AUREO-RETICULATA.—Plants of the above distinct and beautiful variety, 2s. 6d. each, 18s. per dozen, with usual discount to the Trade.

CUPRESSUS LAWSONIANA SEED of good growing quality. Price on application.

Thomas Cripps, The Nurseries, Tunbridge Wells, Kent.

Superb Double Hollyhocks.

WILLIAM CHATER begs to remind the admirers of this beautiful Flower that now is the best time for planting it out, to ensure fine Spikes and Blooms this season.

DESCRIPTIVE CATALOGUE, with instructions for its cultivation, also Prices of Plants per doz., 100, or 1000 may be had on application.

Seedlings from best named Varieties, 4s. per doz., or from 20s. to 30s. per 100.

Bloomed Seedlings with colours named, very fine, 6s. per doz.; or from 30s. to 40s. per 100

Seed saved from the finest named Varieties, very choice mixed, 5s. and 2s. 6d. per packet.

In Collections of 12 separate named Varieties, extra fine, 10s. Six Varieties extra, 5s.

Twelve Named Varieties, all good show flowers, 7s. 6d.

Six Named Varieties, all good show flowers, 4s.

William Chater, Nurseries, Saffron Walden.

SURPLUS GLADIOLI,

CHEAP AND GOOD.

BARR & SUGDEN,

THE METROPOLITAN SEED, BULB, AND PLANT WAREHOUSE,

12, KING STREET, COVENT GARDEN, W.C.

Clearing off SURPLUS STOCK of GLADIOLI, var. GANDAVENSIS.

Splendid named GLADIOLI, 12 in 12 varieties, 2s 6d., 3s. 6d., 5s. 6d., 7s. 6d., and upwards.

Ditto ditto 25 in 25 vars., 7s. 6d., 10s. 6d., 15s., and 21s.

Ditto ditto 50 in 50 vars 21s., 25s., 30s., and 42s.

Ditto mixed, 7s. 6d., 10s. 6d., and 15s. per 100; 1s. 6d. and 2s. 6d. per dozen.

BRENCHLEYENSIS, 7s. 6d., 10s. 6d., and 15s. per 100; 1s. 6d. and 2s. 6d. per dozen.

BOWIENSIS, 7s. 6d., 10s. 6d., and 15s. per 100; 1s. 6d. and 2s. 6d. per dozen.

LILIUM AURATUM, 3s. 6d., 5s. 6d., 7s. 6d., and 10s. 6d.

STANDEN'S "GARDENERS' and AMATEURS' FRIEND," a highly Concentrated Inodorous Artificial Manure, in all cases inducing free vigorous growth, and promoting early maturity. It is now largely used by the leading Nurserymen, amongst whom we may mention the following:—Messrs. James Veitch & Sons, Mr Charles Turner, Messrs. J. & C. Lee, Mr Barnes, of Camberwell, Mr. Standish, of Bagshot, &c., and by many of the leading amateur Exhibitors.

DIRECTIONS FOR USE.

FOR PLANTS in POTS.—Such as Camellias, Azaleas, Eriostemons, Acacias, Chrysanthemums, Roses, Ixoras, Franciscæas, Allamandas, Dipladenias; fine foliage plants, as Palms, Rhopalas, Draceenas, &c., and all plants which are benefited by Manure. For quantity to be given and mode of application see *Gardeners' Chronicle*, p. 291.

FOR FRUIT TREES and ROSES in POTS.—Such as Vines and Orchard-house Trees generally, also Pines. See *Gardeners' Chronicle*, p 291.

FOR VINE BORDERS and PLANTS in the OPEN GROUND.—Such as Apples, Pears, Peaches, Gooseberries, Strawberries, Standard and Dwarf Roses, Celery, Onions, Cauliflower, and all Vegetables and Flowers which will require abundance of manure. See *Gardeners' Chronicle*, p. 291.

FOR LAWNS where the GRASS DOES NOT THRIVE.—Mix the Manure with an equal quantity of dry soil or sand, and sow it over the surface in showery weather, at the rate of 1 oz. to the square yard; or, if the weather is dry, water freely two or three times after applying the Manure.

Sold in Canisters at 1s. and 2s. 6d., and in Bags, 5s. 6d., 10s. 6d., and 21s.

The above valuable Manure may be had of the leading Nurserymen and Seedsmen in England, Ireland, and Scotland.

Flower Seeds sent Post Paid.

CHOICE PRIMULA SEEDS.

	Per Packet—s.	d.
Barr's splendid strain of Primula sinensis fimbriata alba	2	6
,, ,, ,, ,, rubra	2	6
,, ,, ,, ,, mixed	2	6
,, ,, Fern-leaved Primula sinensis alba	2	6
,, ,, ,, ,, rubra	2	6
,, ,, ,, ,, mixed	2	6
,, ,, Primula sinensis "fimbriata nova, a beautiful madder red shaded variety, with a conspicuous canary-yellow centre	3	6
Barr's splendid strain of Primula sinensis fimbriata striatiflora, a beautiful striped variety	3	6
Prior's Primula sinensis fimbriata atro-carminea splendens, a fine strain 1s. and	2	6
,, ,, alba, a fine strain 1s. and	2	6
,, ,, lilacina albo-marginata, do. 1s. and	2	6
,, ,, striatiflora, a fine strain 1s. and	2	6
,, ,, mixed, a fine strain 1s. and	2	6
,, ,, crecta superba, a fine strain 1s. and	2	6
Bull's Primula sinensis fl. pl. (this variety comes true from seed)	3	6

	Per Packet—s.	d.
BULL'S MIMULUS, Duplex-flowering.—This is a unique and most beautiful flower, the calyx being as beautifully marked as the corolla 1s. 6d. and	2	6
,, HYBRID PETUNIAS, consisting of beautifully striped and blotched varieties 1s. and	2	6
BARR'S INTERNATIONAL PRIZE CALCEOLARIA.—This is without exception the finest strain of Calceolaria in cultivation 2s. 6d., 3s. 6d., and	5	6
,, SPLENDID CINERARIA	2	6
RIVINA LAVIS.—An exceedingly pretty plant for table decoration, always covered with berries	1	0
WILLS' VERBENA.—Of the Velvet Cushion type, saved by Mr. Wills from all his finest varieties 1s. and	2	6
VIOLA CORNUTA PURPLE QUEEN and MAUVE QUEEN 1s. and	2	6
ZEA JAPONICA VARIEGATA.—The new Variegated Indian Corn, perhaps the handsomest variegated foliage plant for the flower garden yet introduced, surpassing in beauty the Arundo Donax variegata. Now is the time to sow the seed 6d., 1s., and	2	6
XERANTHEMUM CARYOPHYLLOIDES, fl. pl.—An exceedingly handsome carnation-striped double Everlasting, for Winter bouquets and Church decoration	1	0
SCABIOSA (New Double).—Very handsome flowers, resembling the Pompon Chrysanthemum	1	0
SANVITALIA PROCUMBENS, fl. pl.—A very handsome bedding plant with bright yellow flowers, resembling a Ranunculus 6d. and	1	0
THE NEW GIANT TREE TEN-WEEK STOCK.—The handsomest of all, in 10 varieties 3s. 6d. and 5s. 6d.; mixed	2	6
THE NEW GIANT CAPE STOCK, in 10 vars., 2s. 6d.; mixed	1	0

For further Novelties and Specialties, see "Guide to the Flower Garden," sent free to intending purchasers, on sending their addresses.

FLOWER SEEDS.—The best for present Sowing, as supplemental where there is a deficiency of Bedding-out Plants. Hardy Annuals—Collections, 2s. 6d., 3s. 6d., 5s. 6d., 7s. 6d., 10s. 6d., 15s., and 21s. Half-hardy Annuals—Collections, 3s. 6d., 5s. 6d., 7s. 6d., 10s. 6d., 15s., and 21s.

KITCHEN GARDEN SEEDS.—The Best Varieties in Collections, 10s. 6d., 15s., 21s., 30s., 42s., and 63s.

LAWN GRASS SEED, finest quality, 1s. 3d. per lb.

FARM SEEDS, saved from pure stocks.—Mangel Wurzel, Swedish Turnip, Yellow-flesh Turnip, White-flesh Turnip, Carrots, Parsnip, Cabbage, Blundell's Cattle Melon, Marrow, &c.

GRASS SEEDS and CLOVERS, finest sorts only, for Laying Down Permanent Pasture on Light, Heavy, or Medium Soils, with or without a crop, 32s. and 36s. per acre.

The GUIDE to KITCHEN and FLOWER GARDEN presented free to intending purchasers.

BARR AND SUGDEN,
12, King Street, Covent Garden, W.C.

GREAT NATIONAL HORTICULTURAL EXHIBITION, 1867.

£1000 OFFERED IN PRIZES.

To be HELD in the Gardens of the Botanical and Horticultural Society, Old Trafford, MANCHESTER, 7th to the 15th JUNE

Charges for Admission:—First Day, 10s. 6d. each; Second Day, 2s. 6d. each; WHIT MONDAY and remaining Days, 1s. each.

Subscribers to the Manchester Botanical and Horticultural Society free each day.

Annual Subscription—Family, £2 2s.; Individual, £1 1s., admitting on all occasions.

Schedules, &c., may be obtained on application to Mr. B. Fisher, Curator, Botanic Gardens, Manchester, or from the undersigned. Military Bands in attendance each day.

Cooper Street, Manchester. Henry Whitworth, Sec.

GREAT NATIONAL HORTICULTURAL EXHIBITION, 1867.—Gardeners will be admitted by Tickets as follows: First Day, 2s. 6d. each; Second and remaining Days, 1s. each. Applications for these Tickets must be made on or before 5th JUNE. Henry Whitworth, Sec.

FLORAL and HORTICULTURAL FETE, to be held in connection with the Northamptonshire Agricultural Society's Annual Show, in EASTON NESTON PARK, near TOWCESTER, on THURSDAY, July 4. Silver Cups and Premiums amounting to more than £150 will be offered for competition. Open to all England. Prizes to be paid on the day of exhibition.

Patrons.

His Grace the Duke of Grafton	Sir Rainald Knightley, Bart., M.P.
The Rt. Hon. the Earl of Pomfret	Sir Thomas Hesketh, Bart, M.P.
The Rt. Hon. the Lord Southampton	Lt.-Colonel Ogilvy
The Rt. Hon. the Lord Penrhyn	John Wardlaw, Esq.
Sir Thomas Bateson, Bart., M.P.	Thomas Bateman, Esq.

President—The Right Hon. the Earl of Pomfret.

Treasurer—Mr H. W. Jepson.

Secretary—Mr R. Howes.

Schedules may be obtained of the Hon. Secretary, Mr R. Howes, Towcester, and of Mr. F. Perkins, Seedsman, &c., 2, Gold Street, Northampton.

GRAND HORTICULTURAL EXHIBITION at BURY ST. EDMUND'S, in connection with the SHOW of the ROYAL AGRICULTURAL SOCIETY, JULY 15, 1867, and four following Days.

Amongst various Special Prizes, amounting in value to nearly £300, and exclusive of the ordinary Prize Schedule,

A SILVER CUP, VALUE £20,

will be offered by the Proprietors of the GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE for the best COLLECTION of FRUITS and VEGETABLES, to be made up as follows:—

Of FRUITS, any Five of the following Eight kinds, one Dish of each:—Grapes, Melons (2 fruits), Strawberries, Gooseberries, Currants, Cherries, Raspberries, or Apples (of the crop of 1866).

Of VEGETABLES, any Eight of the following Fourteen kinds, one basket or bundle of each:—Peas, French Beans (or Scarlet Runners), Broad Beans, Cauliflowers, Cucumbers (brace), Summer Cabbages, Early Carrots, Turnips, Artichokes, Onions, Spinach, Rhubarb, Potatos, or Mixed Salading.

This Cup will be open to Competition amongst Amateur or Professional Gardeners, of all grades, with Fruit and Vegetables of *their own growing*; any article otherwise obtained will disqualify the exhibitor.

The Gardeners' Chronicle.

SATURDAY, APRIL 13, 1867.

MEETINGS FOR THE ENSUING WEEK

Tuesday, April 16	Royal Horticultural (Second Spring Show), at South Kensington	2 P.M.
	Ditto (General Meeting)	3 P.M.
Thursday,	18—Linnean	8 P.M.
Saturday,	20—Royal Horticultural (Dr. Masters' Lecture on Plant Architecture), at South Kensington	3 P.M.

Oh! those dreadful names, sources of perpetual confusion among botanists and horticulturists, the terror of the unlearned, the horror of the scholar, the objects of never ceasing raillery on the part of the facetious, the despair of those who would try to reform the Augean stable of Plant Nomenclature. Shall we put all the generic and specific names into their proper genders—shall we with our correspondent "A. M." make all trees feminine, and adapt the specific names accordingly? Shall we adopt all the corrections made by the learned Editor of the "Illustration Horticole"? How long, for instance, would it take to familiarise our English ears with Orchiaceæ in place of Orchidaceæ as proposed by the *savant* just named? To these questions and a host of similar ones that might be put, we do not intend at the moment to attempt a reply. We have already on more than one occasion expressed our decided opinion as to the impropriety of affixing scientific looking names to plants which have not been scientifically investigated, and we have urged the desirability of attaching the word *Hort.* in all cases where such a garden name has been given, adding, if necessary, the name of the introducer thus—Passiflora macrocarpa, *Hort. Linden.* Let us, however, step aside, and give place to one whose unrivalled knowledge of Orchids, and whose many publications on them, give the utmost weight to any opinion he may form on this vexed subject. Professor Reichenbach thus writes:—

"In what way are newly introduced plants to be named as long as they are not known botanically? This is a very grave and a very difficult question. M. Van Houtte pointed out to us one day, and he did it in a very jocose manner, that it was asking too much to expect a nurseryman to wait for flowers and ripe fruits, or for a botanist able to christen a plant before a name was given to it.

"There are very different customs about the matter among our principal nurserymen. As to English ones, Messrs. Veitch, we believe, rarely dispose of a plant before it has been named. Mr. Stuart Low always tells a purchaser the *status quo*: he will tell you, he suspects this to be Odontoglossum so and so, that he is sure he has Odontoglossum triumphans, &c. Messrs. Backhouse, we believe, intend to present unknown plants by their trade

number. This may be a very good system for purposes of correspondence, yet we are sure Messrs. Backhouse do not expect us to retain the numbers by memory. The great savant, Haller, having employed numbers instead of names, had the grief of finding only good Abraham Thomas able to attach the numbers to the plants. He would have explained you Ophrys apifera, by exclaiming: "Ah, tenez! voilà! numéro mille deux cent vingt-neuf," or something like it.

"Now as to the Continent, M. Linden is in the habit of giving names as far as he is able to do so, and if he has no authentic designation he makes one, assisted as he is by his prodigious memory of the aspect of plants. Some of these after a time are proved to have been well-known before, as was the case with Oncidium Diadema, yet it was easy to understand what was meant; we had the notion of Diadema, and this proved to be serratum. Had it been sold nameless, there would now be great confusion about it.

"But after all, we like names as soon as we hear them to be quite correct. A name in the eyes of the amateur is something different from what it is in those of a botanist :it is an equivalent of a certain prize. Paying for Vanda cristata, and obtaining alpina, is a bad affair. We are more particular as to names than the French game-poacher of Geneva, who having been accused of offering for sale ravens in lieu of pheasants, answered: 'Appelez-les comme vous voudrez, des corbeaux s'il vous plait; moi je les appelle des faisans.'

"We would suggest another plan, and this would be to give to such unknown plants mere fanciful or lady's names. If Nanodes Medusæ had been named 'Gorgonia' or 'Medusa,' as long as a correct name was not to be had, every one, we hope, would have been satisfied. A scientific name always suggests the supposition of a scientific investigation. But the naming of unknown plants in some way appears nearly indispensable, and fancy names will always be more easily retained than numbers.

"We should be much pleased if such a system were approved. But if we can induce others to make more practical propositions we shall feel happy in having assisted, at least, in this very difficult question."

This proposal to attach fancy names to newly introduced garden plants is one that has been advocated by Alphonse de Candolle and other botanists, and though open to certain objections, would, if properly carried out, be far less embarrassing than the plan of attaching false credentials to an undetermined plant.

—— We understand that another fine display of Phalænopsids (see p. 348) may be found at Bedford Hill, Balham, the residence of James Brand, Esq. Though the plants are past their best, and though 100 flowers had been taken off for a ball last week, there were still a few days ago about 1000 flowers open. The plants of P. grandiflora are fast passing out of flower, for they began to blossom in October, and are consequently nearly exhausted. Mr. Howard, the very successful gardener at this place, informs us that they usually cut from 30 to 50 flowers a week for head-dresses, bouquets, &c. "They are all," he observes, "grown in the same house, which they ought not to be, as P. Schilleriana requires more air and a lower temperature than the other kinds, and will even do well in a Cattleya house. Our house has stood as near 60° all the winter as we could keep it; in very cold weather, 50° to 55°; and P. Schilleriana has done very well indeed, but for P. grandiflora, amabilis, and Luddemanniana it was too cold. We now keep the house at from 65° to 70° as nearly as we can, and shall continue to do so for five months to come. The plants here have not been imported more than three years."

—— The demand for the Hullettian Curiosities would seem to be of a very fluctuating character. In a letter addressed to ourselves, on or about the 1st of April last (!), Mr. Hullett thanks us for noticing his new plants, as our remarks have largely contributed to their sale, especially among "your readers, from lords downwards." By the same post, as it happened, a correspondent forwarded us a letter from Mr. Hullett of about the same date, of quite a different character; in fact, an appeal *ad misericordiam*. We forbear, from a feeling of delicacy towards one who says that he is in the "most terrible trouble possible," to quote the exact terms of the letter, but we would urge upon any reader who may have had a similar appeal, to consider whether or no he cannot exercise his charity in some form less open to question than by the purchase at a high rate of extraordinary Passion-flowers, Siamese fruits with seeds as large as a child's head, and other similar curiosities to which we have from time to time alluded. In another letter, dated April 3rd, which has been forwarded to us, Mr. Hullett states that he is very desirous of obtaining "*two* plants of any variety of fruiting Pine-apple, the one having a full-grown fruit on it just about to change colour, the other full swelled but not quite so forward." These are wanted "for a particular chemical experiment," and *any price* will be given for them. Besides these, he is in want of "a full-grown creeper or climber of any sort which will suit a hothouse, about to flower in a short time," and from 10 to 20 feet long. What it is he has "not the least choice, so that it is not Passiflora alata, Bonapartea, or princeps, Allamanda violacea, Bougainvillæa lateritia, or Thunbergia fragrans," of which he has plants; "any other Passiflora, or in short anything strong," will suit. There is so much interest in the horticultural *doings* which take place at Cosham, that we have thought the foregoing particulars worth recording, as they may perhaps convey a useful hint to certain of our readers, and prepare them for some astounding chemical experiments on Pine-apples! Some of our nurserymen who may have been favoured with "orders" for Orchids, &c. &c., will not, after this, be surprised to find that the Hullettian curiosities surpass anything they can grow.

—— The Great Horticultural Exhibition and gala of the Leeds Horticultural Society is to take place this year on the 13th and 14th of June. The Exhibition of the Harrogate Horticultural Society is fixed for September 5th.

—— We are informed that Mr. J. Forsyth Johnson, one of the staff employed under Mr. Findlay, the Curator of the Botanic Gardens, Manchester, has prepared a plan for attaching canvas to the present Exhibition-house (which covers 7840 square feet), to cover 36,280 square feet, 19,080 feet of which is being laid down in Grass banks. He is of opinion that the Royal Horticultural Society might open its forthcoming Show on the 31st of May, and close on the 5th June; by so doing he thinks that both the Manchester and Royal Horticultural Societies would be equally benefited.

—— We are informed that Sir Robert Peel, Bart., M.P., has consented to take the chair at the anniversary dinner of the Gardeners' Royal Benevolent Institution, and has named Thursday, June 27, for that purpose.

—— That well-known grower of Strawberries, M. F. Gloede, late of Les Sablons, writes that he has recently removed to Beauvais (Oise), 14, Faubourg Saint-Louis.

New Plants.

Oncidium nubigenum, *Lindl., Gen. & Sp. Orch.* 197. Oncidium cucullatum, *var.* nubigenum, *Lindl. Folia*, i., Oncidium, 69. Oncidium Phalænopsis, *Linden.* Oncidium Denisonianum, *Bateman.*

Affine Oncidio cucullato, Lindl. labelli auriculis basilaribus obtusangulis, lacinia antica obreniformi sessili maxima, carina quadrata ancipiti antice bifida ante columnam androcliuio nudo.

When the lamented Dr. Lindley was a young lynx-eyed observer, he called this plant a good species. When he was older, and it had come into fashion to combine very heterogeneous types in "one species," because "there were too many species," he believed it was his duty to cancel some of his own, and this Oncidium was degraded to the rank of a variety. Later he even named a variety of O. cucullatum, nubigenum, for Mr. Linden. We believe this was a mistake, since the many flowers we have been favoured with by Mr. Linden, as well as Dr. Jamieson's specimens, and a few sent by Messrs. Backhouse, never show any cucullate anther-bed, never have a produced nasiform keel on the lip, nor is there ever an isthmus to the lip. Messrs. Bateman and Linden are of our opinion as to the distinctness of the plant from O. cucullatum. It is a gay little plant, with spikes of flowers, appearing as if they were diminutives of Odontoglossum Phalænopsis. The petals and sepals are brownish, with a crimson hue, or nearly crimson, or striped with crimson lines. The lip is subject to many variations, so that a fuller collection of varieties would appear desirable. Generally it is snow-white, with a yellow callus at the base, in front of which is a more or less crescent-shaped blotch, now purplish, now violet, now, what is less gay but perhaps more elegant, two rings of purplish points. From Mr. Wallis's sketches the plant and leaves would appear to be not very unlike those of Odontoglossum Phalænopsis. It has been introduced both by Mr. Linden and Messrs. Backhouse; and we believe it will be very much regarded, as there is little doubt that under the coolest treatment it will do well.

Epidendrum amethystinum, *Rchb. f.*

(Spathium Racemosæ) caulibus usque sesquipollicaribus, vaginis paucis rudibus, foliis evolutis 2—3 oblongo-ligulatis obtuse acutis, spatha ancipiti obtusa, racemo pluriloro erecto, sepalis oblongis acutis, lateralibus extus carinatis, petalis linearibus obtuse acutis, labelli lamina libera rotunda acuta apiculata, papulis geminis in ima basi.

A small but very graceful epiphyte, having short stems, bearing two to three leaves, about an inch long, and one-third of an inch broad, apparently of a leathery texture. The spathe is very broad, but short. The raceme is erect, and bears about a dozen amethyst-coloured flowers, nearly as large as those of Rodriguezia secunda. It has been introduced by Messrs. Backhouse from tropical western South America, and though a small thing (only 7 inches high), yet it is more than Saundersian. It is a veritable little gem for amateurs, and we feel pleasure in bearing testimony that a drawing in the possession of Messrs. Backhouse is quite in accordance with a dried specimen with which those gentlemen supplied us. *H. G. Rchb. fil.*

LETTERS FROM PARIS.—No. VI.

Forcing Gardens.

I have just returned from the largest and what is generally considered almost the best of the Parisian forcing gardens, for a look over which I have again to thank M. Henri Vilmorin. It belongs to Madame Froment, and is situated just at the outskirts of Paris. I will state a few items which appeared to me noticeable as contrasted with our own way of doing these matters. They grow a considerable number of Pines, and here I may say at once they appear to be behind us; their plants were fine enough, but too old—ought in fact to have fruited long ago. They do not drive them with the congenial tropical heat that we do, do not allow them to feed freely all through the season, and therefore the less said about them the better. The back wall of a Pinetum was pretty well covered with the Vinca rosea and its white variety, and I had no idea before of how pretty these look on a wall; they were feathered with leaves to the ground, and flowered all over neatly—among the prettiest wall plants I have seen in fact. The Sweet Potato was planted out in some quantity for propagation; they grow it out of doors often here, the purplish variety being the best. They plant the Vanilla against some of the back walls, and have already fruited it in a stove. But that is not very remarkable when we consider that the Vanilla grows as freely as Grass if it can get its roots into a good mass of sphagnum, sand, and peat.

Vines they force in a curious way, and have cut fruit a fortnight ago. I do not say that their system of Vine-forcing is recommendable to your readers, but it may serve to show with what simple means important forcing may sometimes be done. They are forced in what might by courtesy perhaps be called pits, but which are simply frames. Imagine a common, roughly made narrow frame, with its back about three times higher than usual, so as to throw the glass well up against the sun, and you have at once one of these little long forcing frames. The high back is clamped up with a lining to nearly the top, so are the ends, and between all the frames there are beds of manure coming up to their edges. The little Vines are trained any way—some in pots, layers of last year, and some planted out. Judging by this specimen of French in-door Vine growing, they are as much behind us as in-door Grape growers as they are before us as Peach growers. I am in love with several Peach trees I have seen here. The Peach trees in the garden of a famous Peach grower here were only pruned last Monday, the 1st of April. But the little rough-and-ready Vineries, in which they have now ripe the Chasselas de Fontainebleau, are heated with thin-skinned copper pipes and small copper boilers in simple little fire-places outside, the chimneys being evidently formed of a lot of bottomless flower-pots piled one over another, or of some simple machinery of that kind.

Much more like good crops and good business looked the Cucumbers and Melons—at least to my taste. They were grown in those narrow rough frames so popular in France, the space between each row being filled up to the edge with ordinary heating material, and a couple of copper pipes run through those used for the earlier crops. In these there were excellent crops of Cucumbers just now, and the Melons had set a respectable-looking crop of fruit. A goodly number of long pits were thus employed, and many others of like make and size, but minus the pipes, were filled with the second crop of Cucumbers and Melons. With the narrow continuous frames covering a large area, and all the space between them filled with heating material, they manage to originate a sort of "mutual heat accumulating and preserving association," the very antithesis of our hotbed practice, in which one frame or a line of them is set up like a haycock, to be chilled and pelted by all the winds that blow, and only warm beneath. Where you have got a set of frames plunged to the rim, as it were, in heated stuff, it is quite different, and then, by covering the frame well and simply, as the French do, the whole thing is as snug as possible.

The French, in all the gardens that I have seen this past winter, cover their frames very simply, neatly, and well with little straw mats—*paillassons*, as they term them. They are made by tying consecutively little bundles of straw about as thick as the finger—three rows of ties interlacing a mat about 3 or 4 feet wide, the margins being cut quite straight. Of course these mats are perfectly flexible—do not seem to dissolve away like the brown paper which I saw enwrapping a noble steed on his pedestal during the bad weather in the end of March. They are readily made by men in the winter months, and are, I should say, very much cheaper than mats. Asparagus was extensively forced in this garden—the plants being in level beds, with an alley between, and getting a rest every alternate year; they are cut for one month and then left alone. After the narrow frame is put on the beds, the alleys between are dug pretty deep, and the stuff thrown over the bed; then heating material is placed between up to the edge of the frame. Splendid Asparagus is cut from these beds. I never knew what Asparagus was till I came here. I have heard good authorities say here that a French market-gardener can readily take twice as much off a given space of ground as a London market-gardener, and they certainly do their gardens very nicely.

You may probably have heard how they grow the Mushrooms here, or if you haven't you soon will. I stood over the place to-day, and made an unsuccessful attempt to descend into the mine. Mushrooms must be very abundantly and well grown, for in the middle of winter a Frenchman who dines for a franc and a half in a restaurant gets a nice little lot of them with his Kidneys, and a toothpick into the bargain.

Strawberries, Cherries, and Pears are being forced here. The Pears they hope to ripen in about two months, and then sell them in their pots—I suppose to the rich Russians and Americans, who don't mind eating gold, especially while sojourning here. The Strawberries are very well forced, and in much the same way as our own. Vicomtesse Héricart de Thury is the favourite kind, and of it there are good crops of very large showy fruit.

Whenever I want to cool my eyes on first-class subjects, I go to La Muette; and when I want to look out for hardy plant interest I go to the Jardin des Plantes. I was quite charmed with various hardy plants there yesterday, and there is a capital collection of spring things coming on. They name and keep the hardy plants better than in any British botanic garden, though deficient in other respects in which we excel. They cultivate a good many of those finely coloured double and single Chinese Peaches, and these have looked very well for some time past. At La Muette it is charming to see the progress the various

fine-leaved things are making at present. The house of Ficuses, 100 or more feet long, and a very wide conservatory-like structure, presents such a picture of the genus as could not be equalled elsewhere, and is a sight in itself. The Aralias that I formerly described to you as being located in the caves, are now placed in the various warm houses wherever there is room, and are busy making fresh green leaves.

I see so much that is interesting that I think I had better make my letters a sort of running diary, instead of devoting them to special subjects. The Cos Lettuces seen in some of the shops for some time past are simply magnificent. I am told by Mr. Knight, of Pontchartrain, as well as by distinguished French horticulturists, that the French market gardeners surpass us infinitely in the production of winter saladings, and knick-knacks of that kind, as well as in market gardening generally. They seem very fond of a gigantic kind of green bell-glass, about as big as a bee-hive, only a little more pyramidal, and I have made up my mind that they grow a solitary Cos Lettuce under each of these till the glass is full. *Nous verrons.* I have also made up my mind that for us horticultural Britishers "to think there ain't no light in natur when we wink" is a vanity of vanities. I never knew what it was to see a really beautiful Pear or Peach tree till I came here, though I have seen many British places with a great reputation for fruit growing. There are so many curious and beautiful specimens of training to be seen in the Champ de Mars, that I must devote a special paper to them by and by.

This 5th day of April, 1867, I strolled through the magnificent Avenue des Champs Elysées to the Bois de Boulogne, and then to the garden of the Acclimatisation Society therein. It is a pretty garden and a most interesting place. In it you may study many things, from the culture of the oyster to the various breeds of domestic fowls, from the various silkworms to the different plants used for bee feeding. I shall not describe it in full, bearing in mind the many interesting things I have to discuss during the next few months. I take a deep interest in a hybrid ass—a neat cross between a domestic and wild species, albeit he proved useless for the carriage, and kicked it and the harness into smithereens when yoked, in consequence of the virus, or what an Irishman would call the "divilmint" of the exotic parent predominating; I am not insensible to the claims of a Russian dog with a coat like a super-annuated doormat; I laughed to-day at a duck which had a velvet-looking head remarkably like a hunting-cap, and nearly as big, but with a body no larger than a debilitated blackbird; and I was amazed to see a *chien* with no hair except on the top of his head. But we must let all these things pass, and fall back upon the old and everlasting subject of importance—as it is since man first regaled himself upon fruits and greenmeat. I suppose one of the first things the sagacious creature pitched upon was the Grape—at least the best varieties of Grapes and the best varieties of men are supposed to have originated in much the same place. To-day it is more important than ever, and the gardeners here were employed in planting the last of a magnificent collection of 2000 varieties of Vines! What a grand collection! It is the famous one formed in the gardens of the Luxembourg, and fortunately saved from destruction by M. Drouyn de Lhuys, acting upon the urgent request of a friend of horticulture. They were actually about to be thrown away when the recent mutilation of the Luxembourg Garden took place. So by authority they were ordered to the gardens in the Bois de Boulogne, where I trust they will be well looked after, as it would be a great pity if a collection embracing, as far as could be collected, nearly all the varieties cultivated in the world, should be lost to horticulture and to science. As they are but leafless sticks now, we will leave them alone on their bed of sandy loam, with a sprinkling of short manure placed an inch or two over the roots. By the way I observed where they were digging deep for sand in this garden that it is placed on a bed of capital garden gravel almost as thick as the bed of dense clay under the Zoological Gardens in the Regent's Park, and such a basis is of course excellent for a thing of the sort. I saw a man carrying manure on his back to the Vines, and I sat down and contemplated him going through the interesting task, the basket being placed on a slightly elevated board supported by three sticks, from which he could readily hook on to the basket when it was filled. I looked at him with respect, and a strong dilution of sympathy, just as I should at a living specimen of the dodo or any other animal which I had supposed to be extinct. It occurred to me at the time that the acclimatisation of a handy useful species of wheel-barrow would not be unworthy of the Society; and when I have learnt how to put the idea in French of spotless courtesy, I think I shall convey it to the superintendent. I went out there to-day to cool my eyes on the budding green trees. On the way I was pleased to notice a goodly lot of those splendid deciduous Magnolias which are too much neglected in England; but more delighted than I have been for a very long time was I with a beautiful Anemone coming into sparkling flower in the garden. It is bright and rich as a scarlet Geranium, the petals overlaying each other with the prettiest effect; it is dwarf as a Sedum and hardy as a House-Leek—and its name is Anemone pavonina. I had no idea of such another precious gem belonging to the family, and shall add it to my ideal garden of hardy plants as soon as I have selected the ground. Without exception, it is the brightest and richest spring flower I have seen expand during the early part of April. It was the double variety I saw. What a gem for association with the finest spring flowers! Of other facts in connection with this garden I have to state that the Lycopodium is used with the most charming effect to form a turf over its general floor, and that nothing can look more beautiful than the New Zealand Flax, and several Palms and Tree Ferns, planted near the margin of a winding bit of water. Musa Ensete, too, looked nobly in the same position, planted out in a coolish house—a hint, perhaps, for some who have very large conservatories. In the open garden the common double Peaches furnish charming masses of exquisite rose just now. The magnificent collection of Vines are being trained on galvanised wires, running in two lines, at about 3 or 4 feet from the ground, being supported by little strong iron uprights. We will bid these gardens good bye until summer, at all events, when, if they are acclimatising anything noticeable in our way, I shall make a point of seeing it.

I have just (April 10) returned from *Verrières*, M. Vilmorin's place, situated in a pleasant country about 8 miles from Paris. It is here where specimens of all the more miscellaneous plants are grown, and also those of which very small quantities are required. Here also are sown extensive collections of Wheats and other cereals, and altogether so much interest in my own particular way that I hope to visit it with profit as soon as all the annuals, &c., are up, and everything in observable condition. There was a batch of the magnificent Anemone fulgens in full glow; and sufficient evidence afforded that it is one of the most beautiful and valuable flowers ever seen in the spring garden. The brightest variety of the common wind Anemone is poor compared to it, and in richness and decision of tone it is before the great Scarlet Poppy, or the brightest Geranium, while hardy as an aged toadstool, and in a word unsurpassable. I hope to see it well represented at Cliveden and other spring gardening places in England ere long, for I have never looked upon its like therein. I saw also a charming dwarf cruciferous annual or biennial, of which I cannot yet tell you the name. It was in full flush of dense lilac flower the day of my visit, and it has lived out through the past nasty winter, and what I trust we may call the past nastier spring. I need hardly say it will prove a charming addition to the resources of the spring gardener. It is quite distinct from anything I know in that way. I saw also a most desirable dwarf breed of Cinerarias, which will prove a boon to the conservatory and greenhouse, as they form wide, flat, and firm masses of bloom at 6 inches high when fully developed.

The new Sorghum, about which so much has been said, has been tried here last year and found wanting. It did not ripen a grain of seed. It was obtained from Italy. There are the two noblest plants of Picea Pinsapo I have yet seen, both raised from the first packet of seed sent by the person who discovered the tree. But of this interesting place I shall speak again as soon as everything is in observable condition. From the way in which the gardeners are bringing forward the young seedlings in frames and under such conditions as are found to be most suitable to each kind, there is no fear of many failures in the very numerous species grown.

As for the Exhibition there is little to add to last week's account. M. Chantin has added some very striking Zamias since the opening, one of which he calls Zamia magellanica, but which Dr. Hooker told me to-day is the large form of Stangeria paradoxa. There is a vast difference between it and the form seen in England. This larger form is a truly noble plant. Rhododendrons are beginning to glow about the grounds, and there is a great number of Hyacinths in the full flush of beauty here and there, and also some beds of pretty Pansies; Camellias are shown too in the open air as well as in-doors. Some spring flowers of miscellaneous kinds are also in bloom, the prettiest of which is a mass of Muscari botryoides *blanc.* I was also pleased to see a goodly collection of Irises planted; while young, new, and interesting Conifers are in great force. Of Cattleya bogotensis var. macrantha, a large and exquisitely beautiful Orchid, there is a large specimen shown by Mr. Linden, and the Ferns shown by Mr. Veitch are beautiful, new, and distinct. There was no sign affixed to them, or anything else that would indicate if a prize were bestowed, but it matters little whether they get a prize or not, for some of them will be found indispensable to Fern collectors. Among the best are Pleopeltis varians, dotted over with small white spots; Lomaria ciliata, Marattia Cooperi, and Athyrium Goringianum pictum, with fronds of a silvery and dull red hue. Some of Mr. Linden's Bromeliads are fine, particularly Tillandia rosea, with its upper leaves of a brightly shining rose colour, and T. argentea, perfectly covered with silvery down. Mr. Bull shows a well-variegated plant of Phajus grandifolius, and in the grounds the various kinds of deciduous Magnolias are in fine flower. They are not half sufficiently planted in England. The new one, M. Lenné, is remarkably fine when grown to some size. There are also some pretty plants of Libonia floribunda, not a new subject. It appears to be one that in the hands of English plant growers would be really useful for spring decoration.

The second show will be held on Monday, and will doubtless be an improvement on its predecessor.

W. R.

CAMELLIA CULTURE.—No. III.

(*Continued from p.* 876, 1866.)

Having already named 24 of the very best sorts of new and old Camellias for general culture, I will, before proceeding to canvass and discriminate upon the distinguishing characteristics of the more important novelties, make a selection of 40 others that have a more or less title to distinction. Many of them are very excellent and useful sorts, some for one purpose and some for another, and it shall be my endeavour to rate them for what they are worth. For convenience it will be better to arrange them alphabetically.

Alba imbricata is a plant of good bushy habit, with large broadly ovate leaves having a beautiful lustre Flowers medium size, but of fine outline and good depth, produced rather sparingly, but an unquestionably beautiful flower and tolerably constant; pure white with an occasional flush of pink. It is generally to be had in best condition during February and March.

Alexina possesses a beautiful habit, and it is one of the freest of the free in flowering properties. Its petals become somewhat confused towards the centre, which detracts from its otherwise promising appearance. Flowers with white ground, delicately striped and mottled almost to an indefinite degree. It comes early, and stands out the season equally well. It therefore possesses the advantage of permitting its period of inflorescence to be either accelerated or retarded, as circumstances may demand.

Amabilis is a splendid growing variety, and, as a specimen, is of model habit. It is one of the small-flowered section, although it is by no means diminutive in stature. It is so prolific in bud formation that it periodically requires to be disbudded. The flowers are of good outline, imbricated to the centre, of a rich ruby colour, with an occasional white blotch. It is cultivated to much advantage as one of the late-flowering section.

Archiduchesse Augusta.—There are two varieties bearing this name, the one much inferior to the other. The proper variety is easily distinguishable, being a sort of dullish crimson, with very prominent bluish venation, differing in this respect from all other Camellias. The form is good, made up of shell-like petals of pretty outline, full to the centre, but at its very best it can only be classed as a second-rank flower, the colours being somewhat unattractive. It is constant, and quite up to the mark as a grower, and is one of those that always command attention from its distinctness of character.

Archiduchesse Marie.—This variety does not quite bear out the high character which some enthusiasts awarded it on its appearance as a candidate for public favour. It is one of the "henspeckled" class, in flower or out of flower. Its foliage being unusually small, narrow, and pointed, it can always with certainty be selected by those familiar with Camellias. It is by no means stunted in growth, and the stems in process of elongation require frequently to be supported with stakes when the plants are in rude health. In point of inflorescence it is also free and invariably constant. The flowers are imbricated to the centre, with petals of rough outline, which mars its otherwise attractive appearance; they are of a soft shade of crimson almost approaching to cerise, with a distinct white band down the centre of each petal from the base to the extremity—in truth it has all the character of a first-rate flower except in regard to outline, and it is only of medium size.

Bealii, as a late-blooming variety of absolute certainty under the routine of ordinary culture, is probably unrivalled. But for its deficiency in the centre of the flowers, some of the stamens of which show themselves *pur et simple*, I should have had no compunction in placing this among the select 24. In the early stages of expansion it is exceedingly attractive from its highly coloured crimson scarlet flowers, and the profusion of them. In point of habit it is a desirable sort; and although its foliage has not the great show of many others, it has a compactness of growth which it is extremely desirable for breeders to induce and perpetuate. It is best grown as a late bloomer, and can be retarded with very little trouble to the month of May. The lower or outer petals are of fine formation, and great substance. No collection, however small, should be without one or more plants of this variety.

Carswelliana.—This variety was dedicated by the late Mr. Henderson, of Woodhall—a place and a grower not without fame a quarter of a century ago—to Mr. Carswell, who for upwards of 30 years was gardener to Col. Buchanan, Drumpeller. It is of wayward habit, but yields flowers of medium merit, and is constant and free. The flowers are of one of the intermediate shades of reddish scarlet, with an indistinct band of white running lengthways through some of the petals. It can only be ranked, looking at its general character, as a second or third-rate flower.

Catherine Longhi.—Upon the whole this is a very desirable variety, being an advance upon many of the types in point of form and good colour, and, when well managed, making a very handsome plant. It is somewhat shy as a grower, feeling evidently the effects of in-and-in breeding, and more liable, therefore, to give way under fatigue. It is not desirable to attempt the flowering of this among the early section, being always producible in best condition from February onwards. The flowers are of bold outline, made up of petals imbricated to the centre, and meeting in point of form the approbation of the florist; colour a rosy carmine, which is much "faster" than many others of its compeers.

Cavendishii.—No Camellia plant possesses a more elegant habit than this, which assumes that pyramidal build which of all others it is the most desirable to maintain. It grows nearly as formal as the Lawson Cypress, and keeps as readily to due proportions without "knifing." Were the flowers as unexceptionable, I would unhesitatingly hold the plant up as the *modèle de perfection.* They are, albeit, imbricated to the centre, and of good size, but in point of substance and form of petal there is considerable deficiency. It is one that will give, notwithstanding these drawbacks, very general satisfaction, and ought therefore to be included in a select list for cultivation. The flowers are of a rosy crimson hue with a band of white down each petal, having in this instance a tendency to magnify the deficiency of texture, and they are produced in great profusion.

Centifolia alba.—This is a most rampant subject, yielding great lustrous leaves which command admiration. No one under cultivation can be reproduced so rapidly from cuttings—no, not even the common stock, and were I a nurseryman I would propagate it by the thousand for stock purposes. It is the very sort for

improving the dwarf tendency of some, and it has the right sort of sap in its system for intermingling with the general breed. It is not of wayward habit, although it is free; and granted that it requires to be kept within bounds by shortening laterals, it makes a handsome bush. It is useful in being suitable for early purposes, flowering quite as well in October and November as in January and February. It is pure white in colour, as its name implies, and is a formidable-looking flower of great depth, rather wanting towards the "top courses" of petals, which when expanded become yellowish and assume a faded appearance, while the lower portion is in quite good condition. It has many merits to counterbalance this deficiency, and I counsel its general acceptance.

Chandleri.—This, of course, is one of the original breed; but it ought not to be passed aside, if for no other purpose than for reproduction. It is of the semi-double section, and probably has been the parent of more good seedlings than any other variety. Its habit is desirable, being adorned with glistening foliage of noble proportions, and its inflorescence is showy. If flowered early in the season, it comes beautifully blotched and bizarred with white upon the crimson ground, and it is useful for cut flowers—table bouquets, for instance.

Chandleri elegans.—This is an improvement in point of habit to the former, being much more easily grown into specimen size, while it loses nothing as a flowering plant. It can be grown nearly as large as reticulata, and it is an attractive flower. The rich glowing shade of pink that pervades its very broad petals, along with the diminutive feathered white stamens that stand erect in the centre of the flower, render it an object of general admiration. Where cut flowers for table decoration are in much request, by all means this "fellow" should be cultivated, and if at all moderately cared for in the annual routine of management, it will amply repay the trouble.

Comte de Paris.—This may be considered a third-rate flower. The habit of the plant is good, and the blossoms freely induced; but there is a roughness about them which is not so desirable where some others of the same colour can be had of better finish. Flowers of a deep shade of pink with florets irregularly edged with white, and sometimes striped with carmine. *A.*

(*To be Continued.*)

Home Correspondence.

Rival Systems of Grape Growing.—I was wholly unacquainted with Mr. Sage's intention of bringing forward my name in the discussion on this subject which is at present going on in your pages, until I saw it (see p. 182). As, however, Mr. Miller seems to disparage Cole Orton, I will just state a few facts for his edification. If he alludes to me, when he talks about persons sending fruit to every show where there was a chance of gaining a prize, he is mistaken, as I seldom do so unless at the urgent request of some personal friends who have an interest in the success of the Society to which the fruit is sent, and who press me to help them; but I have exhibited for 27 years at the different London shows, and during that time I have taken a great many 1st prizes, and have withstood great competition. In the year 1851 there were 74 competitors in the class of three bunches of Black Hamburgh, and a friend of mine counted them a few years afterwards, when the number was 57. You are aware that there is nothing like that number now. For three successive years I took the 1st prize for Black Hamburgh Grapes (not Red) at all the Royal Botanic Society's exhibitions; this I did by means of the progressive system of pruning. When Mr. Miller has done as much by the Hop-pole system, it will then be time enough to disparage Cole Orton. With respect to the two systems of Vine pruning under discussion, after having practised both, I am decidedly in favour of Mr. Cannell's plan. Now I always prune my Vines to what I think a good eye, whether I leave 3 inches of new wood, or 2 feet, and as the shoots reach the top of the house I cut down to the next coming shoot. My Vines that cover three or four lights produce better fruit and more of it according to the space they cover, than when they were confined to one rafter. It may not be desirable to adopt the progressive plan to its fullest extent in private establishments, as a variety of Grapes is generally required from one house; but I strongly recommend the plan to be practised as far as circumstances will permit. I am perfectly aware that very fine Grapes are produced by the close pruning system for a long time if the Vines are extra strong, but it is a barbarous practice at the best to cut off every good bud, and trust, I may say, to adventitious ones for a crop; and although the Vine will bear under such treatment, this only shows to what it will submit, and does not prove that the system itself is a good one. I think its greatest advocates would not like to try the plan on other fruit-bearing trees. I may add that I have grown Hamburgh Grapes on the progressive plan of pruning between 5 and 6 lb. per bunch, but I could never get them up to first-rate colour or quality at that weight, and quality I consider the first thing to be aimed at. They were magnificent to look at, but they were not very good to eat. I therefore do away with my largest "shows," and content myself with bunches weighing from 1 to 3 lb., which, after all, are the most useful for ordinary purposes, and I get first-rate quality. *M. Henderson, Cole Orton Hall.*—Mr. Miller certainly cannot yet claim to be carrying out the restricted system. He has 15 Vines in a house, and each extending 2 feet gives 30 feet in a year of extension. Why, if Mr. Miller had had one Vine instead of the 15 upon the same extension system, he would soon have a Hampton Court Vine himself. "Oh, but," says Mr. M., "I will soon put a stop to the extension when the Vines get to the top of the house." But why, let me ask, this dead stop, seeing the grand results that have been obtained in their onward course. I have no doubt that Mr. Miller will obtain large bunches upon the restricted system, because his Vines are strong; but will not that powerful root action which is required to produce the fruit in question prevent it from colouring?—and without fine colour Grapes are but half perfect, however large the bunch or berry. Many know that powerful root action will prevent the colouring of Grapes, and therefore they seek every means of checking it. When they succeed, their Grapes are of better colour, but they soon perceive the growth to be too weak to keep the sap up sufficiently over the large-sized sod that has been produced by the previous strong growth. That some may hit on the happy medium and keep it for many years, I will not deny, and Mr. Miller will be fortunate if he should be one of them. I did not claim for Mr. Henderson, of Cole Orton Hall, the honour of being the best authority on Grape growing in the kingdom; but if successful practice is to win that distinction, few, if any, stand higher, and that elevation is based particularly upon the extension system. We are told by Mr. Miller that to ripen Grapes in March is what in gardening is really called forcing, and practice has shown me that this can be done without any very great difficulty beyond the sacrifice of the Vines within a very few years after they have been subjected to such treatment. The late Duke of Bedford was anxious to have Grapes all the year round. Mr. Forbes, the gardener, succeeded in doing so by ripening Grapes in March; but the first year after ripening them in the middle of March, the following July the Vines started into growth, so much so that they had to be pruned; they did not bleed, but broke and produced a very nice crop, which was ripened by the second week in January, 1855; on the 17th of that month Mr. Forbes showed, and won the prize offered by the Horticultural Society for Early Grapes. As soon as frosts would permit, the lights were taken off and wooden shutters put on, but all to no purpose. In June the Vines were in full leaf, and therefore became useless for producing Grapes at the time most desired, namely, the month of March. Mr. Miller will perhaps give us some information how Grapes are to be ripened in March for many years in succession, without destruction to the Vines. I must confess to feeling a doubt myself on the matter, and think it a capital way for the advocates of the restrictive system to get rid of Vines in order that they may plant fresh ones, and win renown from that system of extension inseparable from the bringing up of young Vines to fill an ordinary-sized house. *E. Sage, Gopsall Hall Gardens, Atherstone.*

Sir Harry Strawberry.—I do not understand what purpose Mr. Underhill's letter, published last Saturday (see p. 351), is intended to answer. I said nothing against the true Sir Harry; I merely stated that Mr. Underhill sent it out mixed with other kinds. This is a fact which cannot be denied, as I had my plants direct from him. The Rev. Mr. Radclyffe confirms my statement, and I have received letters from three or four persons since my remarks appeared in your columns, saying that not more than one-tenth of the plants sent to them as Sir Harry were true. I do not know where the spurious plants were grown, and it is possible that Mr. Underhill is not to blame, but that the fault rests with his gardener, or with the person who took up the plants and packed them. I consider Sir Harry to be a useful Strawberry, and quite worth growing. The fruit is large and handsome, and very different from that of any other variety; but the flavour is inferior to that of the Filbert and Frogmore Pines, La Constante, Lucas, La Chalonaise, &c. Lucas is a splendid Strawberry, the fruit large and handsome, and of first-rate flavour. In conclusion, allow me to call the attention of purchasers of Strawberry plants to a practice, now very prevalent among dealers, of sending out pieces of old plants instead of runners. Such plants are really worthless; a whole season is lost, and no good strong runners can be obtained from them. *Henry Doubleday, Epping.*—I can fully confirm Mr. Doubleday and others that when Sir Harry (probably, taking all qualities into account, the best Strawberry ever raised) was sent out, from some cause in my case it was accompanied with Keens' Seedling, to the amount of 70 or 80 per cent. I represented the fact at the time. I had, however, a few true ones, from which I propagated with assiduity. For many years I have never had less than one acre in full bearing, and my observations and that of my experienced assistants testify that it is as pure this day as at first, never having shown the slightest tendency to sport, as some say it does. In 1857 or 1858 I supplied Mr. H. Doubleday, I think, with plants from my stock, through the instrumentality of a friend of his resident in Sale, who having seen his Strawberries at Epping pronounced them something else, and advised him to have some from me. In the same year I also sent to the order of M. Ferdinand Gloede, Sablons, France, 2000 plants, which I pledge my honour were true; he must, therefore, have been unfortunate or neglectful in his culture to be compelled to become an annual suppliant to Mr. Doubleday for true Sir Harry. I have seen many instances in this district in which other kinds are cultivated for the true one; either Hooper's or Keens' would very soon insidiously extinguish it if once amongst it. From an experience of 40 years, my conviction is that Strawberries do neither sport nor degenerate; Myatt's Pine (for flavour unrivalled) raised 30 years ago, is as pure with me as ever, so is British Queen, Keens' Seedling, Grove End, &c. I think the error arises in growing them in proximity, and hence the sorts become mixed, not by a new production, but by the runners of others insidiously mingling with the original plantations. Sir Harry with me, in all soils, light or heavy, rich or poor, is a great cropper, bearing large fruit to the last picking; it is splendid in colour, has a luscious and refreshing juice, sweet enough to be pleasant, and it possesses a robust constitution; it is not a sugary Strawberry like the British Queen and others of that class which have their peculiar excellence. If I may be permitted to use a simile, they are the liqueurs, Sir Harry the champagne of the feast. The Lady I fruited of first-rate size, and under favourable conditions last summer; my impression is that she will never make a creditable mate for Sir Harry. *Richd. S. Yates, Sale, Cheshire.*—My intention was to keep aloof from the controversy concerning Sir Harry; having, however, noticed that my name is mentioned in connection therewith, I feel it my duty to repeat what I have said previously on the subject, both in private and in print. I willingly accept the responsibility of what I wrote to Mr. Underhill a year ago, viz., that Sir Harry, where it exists genuine, is a wonderful Strawberry, and fully equal to the description given by its raiser when sent out for the first time. On the other hand, I cannot but repeat that unfortunately a spurious kind has been distributed simultaneously, which turns out to be Hooper's Seedling, and it is precisely this latter inferior sort which now exists in most English nurseries, under the name of Sir Harry. Up to the present day the demand in this country for Sir Harry exceeding by far the stock which I was able to rear, I ordered on several occasions plants from some of the leading English nurserymen, but, alas! all and every one proved to be Hooper's Seedling. When in London, at that glorious *fête* in May last, I visited several English Strawberry grounds, and pointed out that the whole of the stock labelled Sir Harry was in some instances spurious. To others I wrote and begged them to submit their plants to a first-rate connoisseur and impartial judge, Mr. H. Doubleday, who to my knowledge alone grows Sir Harry free from mixture. Mr. Underhill will recollect, I am sure, that some ten years ago I complained of having received two different kinds of Sir Harry, and the same thing occurred with my late kind friend, Nicholson, of Egglescliffe, as well as probably with others. It is a pity that such should have happened, as we must attribute to this circumstance alone the fact, that the really grand Sir Harry is now rarely to be found. As regards Mr. Underhill's new seedling The Lady, I postpone my judgment until after next season. *Ferdinand Gloede, Beauvais, France.*

Early Peas.—The plan which I have adopted during these last three years for raising a few early Peas is much more simple than that of Mr. Maw (see p. 348). I take two pieces of board, 8 inches wide, and put them together (with rope yarn), exactly as an old-fashioned pig's trough is made. These I fill up with rather poor soil and sow the Peas. I transplant them in the way described by Mr. Maw. My troughs are 12 feet long. I have this season sown four of them, as I have a border here 24 feet wide, and these make two good rows of Peas. I sowed them on the 4th of February, and to-day they measure 14 inches high, while those sown the same time in the open ground are only 3 inches high. The sort sown is Dillistone's Prolific. I made a sowing of Carter's First Crop by the side of the above on the 19th of February, and they are just breaking through the soil. I have my troughs now filled with French Beans. *W. S., Wimborne, Dorset.*

Planting Evergreens.—I am anxious to ascertain the prevailing opinion among practical men as to the season of the year best adapted for the planting of evergreen shrubs of from 18 to 30 inches high. I have hitherto adopted the month of November and the early part of December for such operations, and generally avoided spring planting, in order to escape the injurious effects of those droughts which pretty frequently occur in the beginning of summer, *e. g.*, season 1866. But from the numerous deaths which have taken place among some common Laurels, Hollies, Aucubas, &c., which I planted in December last, this question arises: whether evergreens planted towards the end of autumn or those planted in spring enjoy the greatest immunity from disease and death? Will you kindly give space in your columns for the discussion of this important subject? *A. M.* [Will some of our readers who have had experience in nursery management kindly supply the required information? Eds.]

Commercial Value of Teazel.—Perhaps there may be some of us who have no idea of the commercial value of that well-known plant, the Teazel, which grows on our roadsides and in waste places, and it might startle many to be told that the fruits of a variety of this common British plant form an important item in exports from France into this country. There are two species of Dipsacus found wild in England—Dipsacus sylvestris and D. pilosus. The Fuller's Teazel (D. Fullonum) is now no longer considered a species, but simply a variety of D. sylvestris. The common Teazel is a biennial, growing 5 or 6 feet high; its prickly lilac-coloured flower heads, which open in July and August, are well known. This plant has now no economic use, though it was anciently much valued on account of the water which the connate leaves retained at their bases being considered a certain cure for weak eyes. The Fuller's Teazel was formerly cultivated to a large extent in Essex and the West of England; it is still grown in some of the western counties, but more especially in Yorkshire, and is likewise cultivated in many parts of Europe, in France, Austria, &c. Teazels require much care when growing. In favourable seasons Yorkshire can produce a better class of Teazel than that grown in France. Though the plants will succeed in any soil, they prefer a rich loam. The seed is sown in March or April, in rows about 18 inches apart. In the following spring, when the plants have begun to make a little way, the earth is thrown up about the base of their stems, so that they may be better enabled to stand the force of the winds. The Teazel harvest takes place during the months of August and September in the year following

the sowing, so that one crop occupies the land for nearly two years. Many landed proprietors in letting farms prohibit Teazels being grown, as they impoverish the land very materially. In some parts of Yorkshire as much as 10*l.* per acre is given for land for growing one crop of Teazels. This peculiar cultivation is carried on by people who make it their special business, hiring a plot of land for one season only, and then removing perhaps to some distance for another. After the Teazels are reaped, which is done by cutting the flower-heads off after the flowers have withered, leaving a few inches of the stalk, they are hung up to dry, and when properly dried they are ready for use. Much has been done by inventors, and much money expended in vain attempts to invent machinery to supersede Teazels for the carding of cloth, but at present without success. Nothing has yet been made having the flexibility of the natural hooks of this plant. Metal hooks, however close an imitation to those of the Teazel, are apt, in catching the fibres of the cloth, to tear them, while the natural hooks meeting with any resistance would immediately break, leaving the cloth uninjured. The dressing of a single piece of cloth consumes from 1500 to 2000 Teazel heads. They were formerly fixed in a long iron frame and drawn across the cloth similar to combing; this system has, however, been superseded by arranging the Teazels upon a revolving cylinder, which comes in contact with the surface of the cloth just sufficiently to raise the nap, which is afterwards levelled by cutting. The different forms or sizes of Teazels are known in the trade by various names, as kings, queens, buttons, &c.; these are used for different kinds of cloth, the smallest being for the finer sorts. Though Teazels do not figure as a separate item in the trade reports, it is estimated that upwards of 20 millions are annually imported into this country from France alone, and that the value amounts to something like 30,000*l.*! *John R. Jackson.*

Taxodium distichа!—Will "A. M." (see p. 349) be good enough to inform us when a tree ceases to be a shrub and becomes a tree? If he can, *arbor* being feminine and *frutex* masculine, we shall be able to distinguish when these genders are to be applied to specific names. *Ecce signum!* The Huntingdon Willow being a tree, and consequently feminine, would be called Salix alba, and the small Tree Willow being a shrub, and consequently masculine, Salix arbusculus. Again, in Cassia, C. grandis being a tree, would be feminine; C. corymbosa being a shrub, and therefore masculine, should be C. corymbosus; but what of C. marilandica, which is neither? I say, make it neuter, and call it C. marilandicum! *Bobus mas.*—The old rule in "Propria quæ maribus" shows that the names of trees in Latin are not always feminine. Spinus (masculine) is a doubtful example, but Oleaster (masculine) is a certain one. Malabathrum is neuter. Indeed no noun ending in *um* in Latin can be feminine. As regards the termination *idæ*, as such words are patronymics, they may be masculine, and indeed many words ending in *a* are masculine. The instances alleged, therefore, by "A. M." are correct as far as the gender is concerned. *M. J. B.*

Hawks.—No doubt the three hawks mentioned by your correspondent (see p. 322) as having been caught in an unbaited trap placed 2 or 3 inches under water, had entered the stream for the sake of bathing, of which all rapacious birds are excessively fond. I keep a hen kestrel in a shed in the garden, and she never fails to take a bath about every other day, even in the coldest weather. *W. R. Tate, Grove Place, Denmark Hill.*

Temple Hyacinths.—As you have kindly alluded (see p. 354) to this new attraction which has been added to these gardens, permit me to state that those who doubt the possibility of growing spring-flowering plants in the open air in the heart of London, may be convinced of the practicability of such an achievement by the successful results which have attended my experiment with the Hyacinth. On the Grass plot by the broad walk is a collection of Hyacinths, arranged in 12 oval beds, where they have flowered in perfection, the spikes of bloom being thrown well up above the foliage, and very effective. The sorts are Baron von Tuyll (blue), Grand Vainqueur (white), Charlemagne and Henriette Sontag (pink). The pure white of Grand Vainqueur is apparently but little affected by the London smoke. The bulbs were planted out in Cocoa-nut fibre under a west wall in October, and were shifted to their present position in January, after the beds had been cleared of the Pompon Chrysanthemums by which they were previously occupied. The only shelter they have had has been a slight covering with matting during severe frost. The success of this experiment should encourage London gardeners generally to grow the Hyacinth, as by its means a beautiful display can evidently be obtained in the spring months, and at a moderate cost. *Samuel Broome.* [Here is a hint for the adornment of our dismal London squares. Eds.]

Societies.

Royal Horticultural: *April 6.* — The second of Dr. Masters' lectures on "Plant Architecture" was given on this day, and was devoted to the consideration of the Root, which the lecturer compared in some respects to the basement story of a house. The primary root springs directly from the seed, but secondary or adventitious roots may be produced from any portion of the plant, when required for purposes of support or of nutrition. Gardeners are thus enabled to propagate by cuttings, or by portions of the leaves, and in some instances even the fruit will emit roots, as had been proved in the case of Cactuses, Cucumbers, &c. They may also be formed in the soil, in the air, or in water, but the root formed by from a cutting in water, seems useless when planted in earth; new roots have to be formed when the medium in which the plant is to grow, is changed. Wherever and under whatever circumstances produced, the original form of the root is that of a fine thread with a pointed conical end, the thicker portion being the body or base, which usually divides after a time into a number of branches or fibres. Examples of the different forms of roots were exhibited, and shown to depend on the comparatively large development of the body as contrasted with that of the branches, or *vice versâ*. The causes of these modifications may be better understood by referring to the purposes a root has to fulfil as a support, as a feeding apparatus, and as a storehouse. Where safe anchorage is required, from the locality in which the plant grows, the nature of the soil, the leverage of the branches, &c., long tapering roots, or such as have large, widely spreading, woody branches are met with. The downward tendency which roots generally exhibit seems also connected with their action as fixers of the plant.

For feeding purposes the minute fibres, and of these the ends, are of most consequence. The extreme tips of the roots are covered with a very thin inert layer, immediately beneath which is the true growing point. Owing to the power which the points of the root have of growing in length as well of sucking up liquid nourishment, they are enabled to insert themselves into very minute crevices, and to extend to enormous distances in search of food, often causing great inconvenience in this way, by blocking up drains. This might be obviated by Mr. Carroll's plan as explained in the Report of the Botanical Congress. The lecturer quoted some remarks of Mr. Rivers as to the great advantage of allowing roots to be undisturbed by injudicious digging or stirring the ground. If not interfered with, the roots will form a dense network of feeders or fibres a few inches below the surface, where they are within the influence of the air. This is well exemplified in Mr. Rivers' establishment, where fruit trees are planted in borders, to which surface dressings of manure are occasionally applied, and in which the fibrous roots luxuriate, and are not suffered to be disturbed. The lecturer was also indebted to Mr. Rivers for another curious fact in connection with the development and form of these organs. Some years ago, soon after the first establishment of orchard-houses, the pots in which the fruit trees grew were placed on a loose border, formed of lime-rubbish, manure, &c., so that the drainage might be free; little or no rich surface dressing was applied, and at that time the roots were observed constantly to form large spiral coils, the ends of which passed through the bottom of the pot into the loose border, where they threw out their fibres or feeders. For the last few years, however, a different system has been employed, the pots now stand on a hard, firm border, and the trees are supplied in summer time with two or three surface dressings of rich manure. It is now found that the large coiled roots are no longer formed, but an entangled mass of small feeders or fibres, root in all directions into the rich soil provided for them. These examples furnish excellent illustrations of the way in which the form of the root is modified to suit altered circumstances, and of the power which the plant has in its plastic organisation of taking advantage of favourable conditions.

While it may be necessary under many circumstances for a plant to thrust its larger roots deeply into the ground, or to throw them out far and wide to serve as grapnels or holdfasts, it seems equally clear that other things being equal for feeding purposes, the smaller fibrous roots should be near the surface, where they are within reach of the air. Practical men are familiar with the suffocating effect of heaping up soil around the base of a tree; and this, which is a matter of every day experience, has been confirmed by scientific experiments carried out upon two trees simultaneously—one was partly buried up, the other allowed to remain in its ordinary condition; when the one showed signs of ill-health the soil was removed from around its base and placed around that of the other, which in its turn lost its vigour, while the first tree, relieved of its embarrassments, regained its health.

Roots also, under certain circumstances, are valuable to the plant as storehouses, in which water, starch, or other nutritive materials can be stored up for the plant's use—hence the large tuberous roots so generally met with in the plants of hot arid climates. In reference to this subject a statement was quoted from Dr. Livingstone's Travels, in which it was said that certain native tribes were in the habit of detecting the presence of these tuberous roots by thumping the ground with their clubs, the sound thus emitted enabling them to tell whether or no there were any tubers beneath the surface from which they might slake their thirst. The "callus" which forms around the end of a "cutting" previous to its emitting roots, may also serve the purpose of a storehouse; at least in several cuttings that the lecturer had recently examined he had found in the cells of the callus a large accumulation of starch.

In conclusion, certain garden operations, such as layering, transplanting, &c., were mentioned, the success of which in great measure depends on attention to the peculiarities of root growth, and the inducing causes of such modifications.

Botanical of Edinburgh: *March* 14.—Isaac Anderson-Henry, Esq., President, in the chair. Mr. Henry, on taking the chair, thanked the Society for his election as President, and then proceeded to read a communication on the Hybridisation or Crossing of Plants, from which the following is an extract:—I started in my experiments about or before the year 1840, and in firm reliance on the truth of the Lamarckian doctrine, I stated my belief that "Nature in the beginning, as conjectured by Linnæus (I should have said Lamarck), was occupied by but few original types of the innumerable vegetable forms which have been transmitted to us. How these few first types have become varied and multiplied from classes to tribes, from tribes to genera, and from genera to species, and endless varieties, belongs to those mysteries of Divine agency which set all inquiry at nought," &c.* Yet I could not discard the faith (natural enough) that by skilful manipulation and studying the times and seasons favourable and unfavourable to such operations, I could make Nature stretch a point so as to restore union, if not unity, between and among things related by cousinship some 50 times removed; and by this means transmit among flowering plants all that was beautiful in colour, and elegant in habit, from any one vegetable form to any other at all akin to it. In like manner, among fruits, how easy did it appear to infuse the rich aroma of the Strawberry into every cognate thing. When I look over my notanda of 15 or 20 years back, I see veritably recorded in my experiment books such and such things to be done in this way—of which, perhaps, the simplest might be to cross certain species of the Rubus with the Fragaria, among which genera the Raspberry in the former and the Hautbois in the latter tribe looked promising. Again, having got a small trailing species I raised from Andean seeds (Rubus glabratus), I meant to cross it with R. arcticus, or with R. Chamæmorus—in short, I formed great designs of intercrossing the Rubus family one with another, on a large scale, and felt certain of a successful issue. Though I failed in all of these, I never doubted my ability, and certainly it looked among the most feasible of things, to improve the Bramble by crossing it with the Raspberry. And although I have heard that such a union has been accomplished, I remain an unbeliever; for, among all the most intractable things I ever took in hand, I found the intercrossing of any one species of Rubus with another (and I have tried them in all possible ways, and under the most favourable circumstances) the most impracticable, and, as yet, I have only to record universal failure. Some of my earliest efforts, however, were among what have been since demoninated "florists' flowers," such as the Calceolaria, the Dahlia, the Fuchsia, &c. At that time every colour had been brought out in the Dahlia save blue; and some began to speculate upon such a colour being realised, though none, so far as I was aware of, ever suggested the means of accomplishing it. This, however, seemed to me no great matter to achieve. I looked over the tribes bearing the nearest affinity to it, among its natural family, the Compositæ, having the desired colour, and I found many flowering plants, such as Aster, Agathæa, Kaulfussia, &c., having various tints of blue, sufficient, as I thought, for my purpose. With the pollen of these upon a white Dahlia, a blue might, I believed, be obtained; but it was calling spirits from the vasty deep, for neither blue nor even white, not even a ripened seed, ever came of it. Unvarying failure damped my zeal bit by bit, and I began to see that I could not transfer a colour alien to any one genus from another genus remotely akin to it, to which such colour was common. Yet ere I leave this subject I may observe a rather unusual freak of nature, which I set down as due to an experiment of a somewhat similar kind. At the period I refer to, now upwards of 20 years ago, we had few species of Fuchsia save F. globosa and fulgens. It was the rage then, as it partly is still, to bring out large blooms; so, with that object in view, as well as to infuse some intermixture of colour, I crossed, or attempted the crossing, of F. globosa with a yellow flowered Œnothera. I cannot vouch for the cross being true, for the progeny was a plant to all external appearance a Fuchsia, like F. globosa, its female parent, having flowers of the ordinary globose form and size, but with lightish green tips on the tetrapartite calyx. Now, although I could not regard this plant as a hybrid or mule, yet I could not reject the evidence of these light tips so far as to believe the Œnothera had not influenced them. The Fuchsia and Œnothera, though so unlike, stand in no remote degree from each other in the tribe Onagrariæ—a tribe, be it remembered, of but few genera. Well, this was like the "glorious nibble" to the zealous angler, who fished all day on the faith of it. But it helped to keep me from further seeking to outrage the modesty of nature, as in my effort to change a white into a blue Dahlia. Yet for that wild dream of fancy I was not wholly without warrant, or without a colourable pretext, for ere I gave in to it I had, by crossing a red-flowered Calceolaria on one with purely white flowers, produced a change in the purity of the untouched flowers of the latter plant, many of which, soon thereafter, became flushed with a roseate tint. I communicated the result to Dr. Neill, who, I remember, felt great interest in it, instancing something of a like nature produced by grafting operations, communicated to him by Mr. Brown, of Perth. Ere I pass from the field of my dreamland, it is right to observe that any efforts I made at that time to transmit perfume from one plant to another led to no satisfactory results, just from having no plants then near enough related to effect it. That it may be done, however, and done effectually, I have since again and again proved, as others too have proved among Rhododendrons, by crossing L. ciliatum with R. Edgeworthii. I made this out long before these Sikkim species came to help us—viz., by crossing our common European alpine species, R. ferrugineum and R. hirsutum, with R. formosum (otherwise R. Gibsoni), a beautiful Indian species; and the like result I obtained by crossing the latter with R. atrovirens—of all which crosses I have still many plants in my garden, all quite hardy, and which flower abundantly every year. In these latter hybrids the perfume is faint compared with what it is in the Edgeworthii cross; but of the Rhododendra hereafter. To revert to my earlier operations. Finding that Nature would not do as I bid her, I resolved, as far as possible, to find out her way, and do as she bid me; so I took in sail, lowered my expectations, and betook myself to mere muling. To go no farther back with my experiments than 1842, I tried to accomplish breeds between several kinds of Fuchsia and Epilobium, a genus certainly not far remote from the Fuchsia, especially the F. excorticata of New Zealand. The F. corymbiflora, then new, I drafted into service likewise, crossing it with Œnothera serotina, &c. I wrought with Œ. rubra and also Œ. alba, to whose agency I had a notion the first pure white Fuchsia, named Venus victrix, was in some way due. I also wrought with Epilobium angustifolium, and some time after this with Zauschneria californica, still more closely allied to the Fuchsia. But I failed in all to effect an intermediate. In some cases where I inverted the cross, making the Fuchsia the male parent, there appeared to be seeds partially ripe, borne by the Epilobium, but nothing ever came of them. I was reluctantly obliged to abandon this family altogether. One great object I had in view was to effect a change in the colour of the bloom, as well as in the habit and hardihood of the Fuchsia. In the following year (1843) I changed my tactics. The Fuchsia Venus victrix having a small flower, I entertained the hope, by crossing it with a fine large-flowered variety, called F. splendida, to produce a larger variety, with all the purity of that, still the purest of all the white varieties. The better to secure this, the thought struck me of shading both the pollen and seed-bearing plants. With this view I shaded the female plant (Venus victrix) by covering, with thin muslin bags, its emasculated blooms, and, at maturity, fertilised these with the unsunned pollen of F. splendida. I did get ripened seeds and sowed them, but nothing came of them—at least I obtained no purer white-flowered seedlings. I inverted the cross, making F. Venus victrix the female, and F. fulgens the male parent, but with no better success. I, however, got ripe seeds by this cross also. I again, that same year, to get better expanded flowers, tried a modified form of muling, and effected crosses between F. cordifolia (*mater*), and F. fulgens (*pater*), adding the pollen of the latter to that of Œnothera serotina. I got ripe seeds, but of these, though sown, I have no record; and I have since been fully satisfied that in such cases foreign pollen added to native is impotent. I find from my note book for the year 1847, that I made some attempts among the Scrophularineæ, a family most of whose extant tribes stand in much closer relationship to one another than the Onagrariæ. The Torenia asiatica, a most beautiful plant, introduced about that time from India, offered to me a very tempting opportunity of forming by it a union with a Californian plant of a nearly allied genus—namely, the Diplacus puniceus. And I may here notice a fact I have found of almost universal occurrence among my experiments, that when I had to cross an American with an Asiatic species, it took much more kindly than crossing either of these, especially the former, with European species; and lest I shall not have another opportunity of recurring to this subject, I may here observe also the decided preference of plants of the southern hemisphere to intercross among themselves, however remote their original homes may be; *e. g.*, I found how much easier it was to cross Australian and New Zealand plants with their allies of South America, than with European or kindred things in the northern hemisphere. I have also observed that proper American species have greater aversion to cross with European than with Asiatic species, and that Asiatic species have no less aversion to intermix with European kinds. There is only one instance, I remember, of effecting a successful cross between an Asiatic and a European species, and that was in crossing a small species of Rhododendron with yellow Helianthemum-like flowers, being a form of Rhododendron lepidotum called R. eleagnoides, of the Sikkim ranges, on R. ferrugineum, a European kind. Of this cross I raised two plants: one died, and I kept the other for years; it flowered with me, the blooms being dirty red, splashed with a pale yellow tint. It was an odd-looking thing, and I afterwards sent it to Kew as a botanical curiosity. What became of it there I never heard. In the early summer of 1847, I crossed the Diplacus puniceus

* "Book of the Garden," vol. ii., p. 319.

with Torenia asiatica, and on the 3d August I got, as I believed, a pod of ripened seed. but I found I had pulled it too early, and the seeds do not appear to have sprung, at least I have no note of it if they did. I may observe here that it was and is my custom always to remove the native anthers long before maturity, deferring the cross generally for three or four days, or even a week thereafter—in fact, till the stigma was fully matured—always marking it as so emasculated: and this was carefully done here. From another pod of the same cross, but not so marked, I obtained nine plants, but what became of these I have no record; very likely they were failures. I further tried, and succeeded, in crossing another Torenia—viz., T. intermedia—with the Mimulus, making the latter the seed-bearer. Of this cross the pod contained 17 seeds, which I sowed on the 17th September 1847, and at October 19th I had nine plants finely vegetated. But of these I have no further record. I perhaps lost them during the following winter; for in the few proper mules I have succeeded in raising I always found them most difficult to rear. In this cross, as well as in the following, I had, I find, made sure against self-fertilisation by timely removal of the male organs. I further, in 1847, attempted a cross between the Digitalis purpurea, var. alba, and the Torenia asiatica, making the former the seed-bearer, and got something like immature seeds, which I sowed, but nothing came of them. In the same summer of 1847, I effected another small success by obtaining one pod of ripe seeds of Isotoma axillaris crossed with Lobelia ramosa. These I sowed on 18th September, and at 24th November I potted off nine small seedlings. On September 30th I obtained of the same cross another ripened pod containing 16 seeds, which I do not observe I had sown. On December 4th, of the same year, I obtained another pod of ripened seeds from the same Isotoma axillaris, crossed in this instance with Lobelia coronopifolia, from which I raised 10 plants, potted off 12th January, 1848. What came of them I have no record, but I have found out, much to my cost, that of few things sown as late as October, and before January, can much account be given in the following March. Yet those who, like myself, have only been able to gather such seeds so late, are placed on the horns of a double dilemma—they must either sow at once, at great risk, or put off till spring, when, with longer keeping, the vital principle, weak at first, may be gone. Yet the fact of seeding and raising such things at all was encouraging, and tended to make me more observant of the ways and means by which success might be made more certain. That climate, and especially some peculiarly favourable states of the atmosphere, had much to do with it, I felt every year more and more certain. I had by this time found that crosses which I could easily effect at one time were utterly impracticable at another, and that this ill-conditioned state would sometimes extend over whole summers. But of all times and seasons, I found such weather as frequently preceded thunder, and, oddly enough, which sometimes followed it—when there was a genial balmy texture in the air, not so much from sun heat, as sometimes arises from the presence of a larger portion of electricity than is usual, when every living thing seems more than ordinarily alive and happy—to be the season of all others for a bold experiment, and I seldom failed to improve it. Such a season happened in the spring of 1850; but before I relate a small success I then achieved, I must relate another observation which had been forced upon me from some of my manifold efforts in this way, and I think it will be better if I state it by giving it as set down in my note-book, under dates April and May, 1850:—"Discovered that the short stamens of Rhododendron cinnamomeum, and particularly of R. catawbiense, crossed the small Rhododendron (Rhodothamnus) Chamæcistus." By the short stamens of R. cinnamomeum I had further crossed the same pigmy species of Rhodothamnus with a large white-flowered Indian species; the cross being performed in the beginning of March, 1850, which I noted as then (19th May) well on towards ripening. Off the above muling operations I got some pods of ripened seeds, especially when the Rhodothamnus was crossed by the large Indian Rhododendron, than which none to all appearance could be more perfect—yet nature had been too far strained. I sowed the seeds, and though I preserved the seed-pot for years, not one seed ever vegetated. I was, however, more successful with another cross, which I felt impelled to try by the extraordinary mule raised by Mr. Cunningham, of Comely Bank, and about which so much mystery was observed—and for one good reason, as I have since learned, that he himself, crossing at the time so many things, one with another, did not precisely know its parentage, further than that the seed was borne by a Menziesia crossed, as he might believe, by the Rhodothamnus Chamæcistus. I have now reason to believe, from having wrought much in this section of the Ericaceæ, that the seeds of his mule called Bryanthus erectus were borne, not by the Menziesia cœrulea, as was generally believed, but by M. empetriformis crossed by Rhodothamnus Chamæcistus, for I had myself been trying a similar cross, before I knew of Mr. Cunningham's, between M. cœrulea and the same Rhodothamnus, which, however, had failed. Having thereafter, when in his nursery, been shown Mr. Cunningham's mule by himself, though he declined to say what the parentage was, I felt assured that I was not far off the truth when I told him my belief that it was the very cross I had been attempting, which he, however, would not admit. But, not to be baffled, I set to work afresh, but now inverting the cross, making M. cœrulea the seed-bearer; for before it was the Rhodothamnus. It succeeded. I obtained ripened seeds in June, 1850, and in September following I had four young plants, which, however, were unfortunately devoured one night by a snail. In this I had another instance of success being secured by inverting a cross. From this time forward, I dealt liberally with the short stamens, believing, as I still do, that with these—I mean the pair of shortest stamens which occur in numerous families of plants—the larger species may be made to intermix with the smaller species of its tribe, where otherwise no union could be effected. But there is one singular result, which I think I have fully established as ensuing from the use of these short stamens, especially where the kinds crossed are homogeneous, or not remotely allied, and where there is no great disparity in size between their sexual organs. Pursuing the use of these diminutive organs, especially where I crossed a larger on a smaller species, I find that I had, in the spring of 1855, manifestly used the short stamens of Rhododendron Edgworthii in effecting a cross on R. ciliatum (both Sikkim species), with the object of warding off the tall reed-like growth of the former, and securing the dwarfer, bushier, habit of the latter species in the progeny. I gathered and sowed the seeds of this cross on 7th November, 1855, and I have still three plants alive of this brood, the height of two of them being only 4, and that of the other 4½ inches. These are now in their twelfth year, and have never shown the smallest tendency to bloom. I have no doubt of these being the produce of the short stamens. Earlier in the same autumn I gathered and sowed seeds of the same cross, effected, I have no doubt, with pollen from the longer stamens, for the plants are taller than R. ciliatum, and shorter than R. Edgworthii, the male parent, of whose delicious perfume the flowers largely partake. My attention was first called to the like effect of dwarfishness being produced from the use of the short stamens in the Pelargonium tribes by an article written by Mr. Beaton in 1861, in the "Journal of Horticulture;" and it is not unlikely that the same law holds in other races where the short stamens occur. I was first induced to use these pigmy stamens of the larger species from the belief that their pollen must necessarily be smaller and finer in its granules than that of the larger anthers, and therefore more likely to pass down through the ducts of the female organs of the smaller kindred species. I cling to this idea still, and, if I am correct in it, may not the several pairs of anthers—*i. e.*, the intermediate and longest stalked anthers—have severally their separate functions? Much patience is needed for pursuing experiments here, but it is worth the trial. May not the colour and perfume of flowers, and the size, fecundity, and aroma of fruits too, depend upon the proper selection here? In all my difficult crossing operations latterly, I used the pollen of all the anthers, leaving nature to select for herself. This suggests to me a matter I may as well treat of here as afterwards, and which is referred to by Mr. Darwin at page 545 of the latest edition of his "Origin of Species," where he holds the sterility of hybrids to be a different case from that of a first cross, the reproductive organs of hybrids being more or less functionally impotent; and for which he shows apparently very valid reasons. Yet I may refer to a pretty well-known hybrid of my own as affording, in its case, no failure from either of its parents in this respect. The Veronica Anderson, a hybrid between V. Lindleyana (*mater*) and V. speciosa (*pater*), yields seeds, perhaps, in larger abundance and of equal fertility with those of either of its parents. Another brood which I raised, between Veronica decussata (V. elliptica, Hook.) of the Falkland Islands, and V. speciosa, of New Zealand, bears seeds in equal abundance with its parents, and likewise of equal fertility. These were of course seeds of original hybrids. But I found in another hybrid which I effected many years ago between our own alpine Veronicas—viz., V. saxatilis, having rich bright blue flowers, and V. fruticulosa, having white flowers, striated with pink—which I honoured with the name of our honorary secretary, Veronica Balfouriana, having blue flowers striated with red, that the seeds of the second generation from it, at least of one whose flowers diverged from the colour of either of its parents in becoming red, no seeds of that red descendant, though tried over and over again in successive years, ever vegetated. I may now, ere I quit this subject, allude to a very singular phenomenon in increased fecundity in seed bearing of a first-cross. When the beautiful and fragrant Rhododendron Nuttallii was introduced from Assam into our gardens, I shared, in common with others, a desire to try what could be made of it by crossing with other species—and of its progeny in this way I have two or three broods, some of them now of 2 and 3 feet high. These operations were performed in the spring of 1862. On the 12th January, 1863, I pulled from Rhododendron Dalhousiæ a seed-pod so crossed with R. Nuttallii, the size of which I carefully measured, and found it was 1⅝ inch in length by 2 inches in girth, whereas the largest normal seed-pod gathered, equally ripened from the same R. Dalhousiæ at the same time, I found to be only 1½ inch long by 1½ in girth. But the most remarkable thing of all about this cross was that, though the seeds were fully ripened, and in such abundance as I never before saw equalled in the family, and though, when sown, the seedlings came up thick as Chickweed, yet every one of them died off in the seed leaf or second pair. Though they came up in thousands I could not preserve one of them. Yet, singularly enough, I have raised no end of another brood, obtained by crossing R. formosum with R. Nuttallii, and with another hybrid of my own obtained by crossing with R. Dalhousiæ. The fertility here was due, I have no doubt, to the infusion of the "blood" of R. formosum. As a proof of this, I at the same time sowed the seeds of a cross between R. formosum (pure) and R. Nuttallii; the seedlings came up in double profusion. Are these results due to a nearer or remoter vicinage of original habitat? for all are Himalayan species, the R. Dalhousiæ being from the Sikkim, the R. formosum from the Khasia, and the R. Nuttallii from the Assam or Bhotan ranges. But I am digressing sadly. My object in the experiments above noted has mainly been to show that Nature abhors all alliances in relationship beyond the closest affinities. Members of many genera, besides those so close as the well-known instances of the Apple and Pear, the Gooseberry and Currant, obstinately resist all intermixture by crossing. I have already noticed, in addition, the Bramble and Raspberry, and I could add many others equally closely allied, but equally intractable. I may return to this question of unaccountable antipathies in a subsequent paper, where I may notice some equally unexpected sympathies between unlikely species, of which I may here note only a single instance. Having two very distinct species of Browallia in my garden, one a shrub, growing from 4 to 6 feet in height—viz., Browallia Jamesoni, an orange-flowered species—and another, a tiny blue-flowered herbaceous annual, from 6 to 9 inches high, both from the Andes, it occurred to me to try a cross between them. I made the cross on the B. Jamesoni, having previously most carefully emasculated the blooms. The cross was made on the 17th June, 1865. I gathered the seed on 5th July that year, but the seeds, though well formed, being immature, never vegetated. This cross I mean to try again, for the seeds, though not ripe, were no mere abortions, which often occur in such extreme crosses. I cannot close this part of my paper without suggesting to others an experiment I intend to attempt myself, if spared, on a small scale this ensuing summer, and that with a view to bridging over some of those gaps over which Nature will not of herself be made to leap. I have been again and again surprised how near and even far-off allied things will incorporate, by the simple act of grafting, an act by which the sap and every vital principle which sustains the one must now animate both, and yet the two living things so made one will not, in their separate state, unite by any act of crossing yet resorted to. Hence it occurred to me that a union might be tried between the two separate subjects by fertilising the flowers of the engrafted plant with the pollen of that species which forms its stock. For example, I have several Pear trees engrafted on the common white Thorn, which flower and bear abundantly every year. I mean to try how far the pollen of the latter (Cratægus Oxyacantha) may not fertilise the other, and produce an intermediate. I wish much that others would try what could be done in similar cases. The *rationale* of this experiment is strongly supported by a circumstance noticed in Loudon's "Gardener's Magazine," vol. xiv., p. 430, of a male plant of the Carica Papaya, a dicecious plant, having borne female flowers at the extremity of the racemes of a male plant, which was accounted for by the fact of the plant having been, two years before, inarched on a female plant of the same species, that part which bore such female flowers having grown subsequent to the act of grafting. The familiar case, too, of the Cytisus purpurascens or Adami, a hybrid between the common Laburnum and Cytisus purpureus, affords another striking instance of the influence of the stock on the scion. For when grafted, as it generally is, on the more vigorous Laburnum, shoots sometimes of a mixed character, partaking of both stock and scion, and sometimes of the Laburnum pure and simple, with its proper foliage and flowers, spring out from the branches of the C. purpurascens.* Other instances might be given, but for the purpose in view those cited may suffice. I am yet but on the threshold of a vast subject, with what relates to pure hybridisation—*i. e.*, the crossing of one species with another distinct species of the same genus—and the crossing of varieties scarcely touched upon. With some of my experiments in these still ample fields, I may tax your patience in some other paper at a future time.——The following papers were read:—I. *Notes on some of the Compositæ of the Andes, and more particularly on Chuquiraga insignis.* By Professor Jameson, of Quito. Communicated by Is. Anderson-Henry, Esq. Compositæ are found in all parts of the world, from the northern Polar regions to the sultry plains of the tropics. In Northern Europe and Asia, on the Alps and Pyrenees, they are herbaceous. Throughout the whole range of the Andes many are shrubby and arborescent. The latter occur more generally between the limits of 8000 and 12,000 feet above the sea level. Near the snow line (15,000 feet) we meet with a vegetation of shrubs composed of Chuquiraga, Loricaria, and Diplostephium, associated with the woolly plants called Frailejon (Culcitium nivale and rufescens), which, with the Wernerias, advance to the limit of perpetual snow. The first division, Labiatifloræ, established by Lessing in the year 1839, comprises a small number of beautiful plants, few of which are known to the horticulturist. The genus Mutisia, described and named by the younger Linnæus in honour of Dr. Celestino Mutis, the distinguished New Grenadian botanist, presents species which, for the size and colour of their flowers, call forth the wonder of the traveller. The Mutisias are generally furnished with tendrils, by means of which they cling to trees and shrubs, adorning the woods on the western flank of the volcano of Pichincha. The species of Onoseris occur in greater variety at Alansi than anywhere else, and also possess considerable merit. Onoseris hyssopifolia adorns the sandy ravines of Pomasqui and San Antonia. The genus Perezia, named Clarionea and Homoianthus by various authors, presents species that occur on the higher ridges of the Cordillera, between 13,000 and 14,000 feet above the sea level. One of these, Perezia multiflora, here called Escorzonera, is considered a useful remedy in catarrh, acting as a sudorific. The Chuquiraga, comprised in this division, is, in a medicinal point of view, the most important of the group. The infusion of Chuquiraga, taken by an individual in his usual state of health, operates as a mild tonic, increasing the appetite and promoting digestion. It appears to act as a stimulant on the circulating and organic nervous systems, augmenting the force of the pulse, and giving more energy to the cerebral functions, diffusing a general and equable distribution of warmth over the body, with a tendency to perspiration. In consequence of its action on the organic nervous system, it possesses much efficacy in the cure of intermittent fever. In certain cases it seems preferable to the Cinchona.——II. *Obituary Notice of Professor John Goodsir.* By Professor Balfour.——III. *Report on the State of Open-air Vegetation in the Royal Botanic Garden.* By Mr. M'Nab.—Since the last meeting of the Botanical Society (14th February, 1867) the weather has been very variable, and of such a nature as greatly to retard the progress of open-air vegetation. The finest weather experienced was after the middle of February, when several mild sunny days were the means of advancing vegetation considerably, and also had the effect of testing the damage done to Coniferæ and several evergreen shrubs from the effects of the frost on the 4th of January. At the time of my last report the only shrubby plants then recorded as being injured were the Laurustinus, certain breeds of hybrid Rhododendron, evergreen Oaks and Cork trees. Since that period all the plants of Pinus insignis have become brown. Taxodium sempervirens and Cryptomeria japonica are also much injured. Many plants of Wellingtonia gigantea have had their points destroyed, particularly those growing on low and somewhat damp situations, while those planted on elevated ground are as yet unhurt, and have every appearance of continuing so. The Garrya elliptica, which was in a flowering state at the end of December, now shows injury to a considerable extent, many of its branches being totally destroyed. The Japan species of Euonymus are so much disfigured that the plants will have to be cut down to the ground. The Leycesteria formosa has also suffered severely. With the exception of the Californian shrub, Nuttallia cerasiformis, which is now covered with its short, white racemose flowers, and rich green foliage, few other plants show much appearance of growth; even the Ribes sanguineum, which has been frequently noticed as flowering early in March, shows but little appearance as yet of bursting its buds. Towards the end of February, herbaceous vegetation seemed all ready to advance. The cold and backward weather since the beginning of March has kept them in check. Since the 14th of February, the lowest thermometer readings during the remainder of that month were on the mornings of the 15th, 16th, 26th, 27th, and 28th, marking respectively 30°, 34° 30°, 26°, and 26°, the highest night temperature being on the 20th, 21st, 22d, 23d, and 24th, marking respectively 42°, 48°, 44°, 43°, and 43°. Since the commencement of March the highest night temperature was on the 9th, when the thermometer indicated 35°, all other mornings up to this date falling below the freezing point, the lowest markings being on the 1st, 2d, 5th, 12th, and 13th, marking respectively 23°, 26°, 28°, 27°, and 26°. This comparatively low temperature has been much against the floral calendar for the past month. The plants noted in bloom, in addition to those recorded at the February meeting, are Crocus vernus and Orobus vernus, on 15th February; Scilla bifolia and Rhododendron atrovirens, on the 16th; Doronicum caucasicum and Symplocarpus fœtidus, on the 18th; Nuttallia cerasiformis, on the 20th; Omphalodes verna, Arabis albida, on the 22d; Sisyrinchium grandiflorum album, Scilla sibirica, and Aubrietia grandiflora, on the 23d; Iris reticulata, on the 2d of March; Narcissus pumilus, on the 4th; Narcissus minimus, on the 5th; Scilla bifolia major, on the 10th; and Tussilago Farfara on the 13th.——*Miscellaneous Communications, &c.*—1. Mr. R. T. Mackintosh, of Dean Park Nursery, reported the flowering there of a plant of Rhododendron Falconeri. The plant is 4 feet high, with five branches 1 foot 9 inches in length. It has produced five trusses of flowers, each 2 feet 5 inches in circumference, and possessing from 20 to 25 flowers, each flower measuring 10½ inches in circumference. Size of leaves 13 inches long by 5 inches broad. 2. Mr. I. Anderson-Henry exhibited the fruit of Solanum caripense, ripened at Jardine Hall. He had first raised this plant from seeds sent home by Professor Jameson from Quito, where it

* Since writing the account, I have just read of the Cytisus purpurascens or Cytisus Adami, and stating, as I have done, on the authority of a notice given of it in Lindley and Moore's "Treasury of Botany," of its being a hybrid, I have this morning read another account of its origin in *The Farmer* of yesterday, where, reporting the proceedings of the last meeting of the Royal Horticultural Society, it is stated—"Mr. Lee, Cliveden, Bristol, sent most remarkably dissimilar examples of Apples from the same branch of a tree of Orange Pearmain, which was a fertile subject of comment at the meeting. The tree was the true variety, and the other samples were of a russetty cast, instead of the bright crimson colouring common to the original. The Rev. Mr. Berkeley instanced Cytisus Adami as a sport of a similar character, which is believed to have been produced by grafting Cytisus purpureus on the Laburnum, and by some accident one cell of the stock and one of the graft having each become divided, and then united together, the result had been a plant partaking of the nature of both. Mr. Berkeley suggested that it would be most interesting to know the stock upon which the Orange Pearmain had been worked." Whatever be its origin, the facts I have stated, and which probably many of us have seen with our own eyes, of the same tree producing three kinds of flowers, and two, if not three, different kinds of leaves, there can be no doubt of these having resulted from the operation of grafting. The two kinds of fruit, too, of the Pearmain seem to have arisen from the same cause. And it would seem, also, that many of the sports we see and hear of in Roses, in changing colour, and betaking themselves to a climbing habit, are due to the same cause.

grows on walls (9600 feet above the sea), sending down pendent branches loaded with fruit, which is agreeably acid, and eaten with impunity.

Florists' Flowers.

It would appear that the Chinese Primrose (Primula sinensis) was introduced from China in 1820, and yet it is only at a comparatively recent date that the attention of the florist has been turned to the derivation of varieties of this deservedly popular flower. In the interval, however, much was done in the way of perfecting the two types of the original flower—the red and white varieties. The old star-shaped flowers, ill-coloured, and of a thin texture, were gradually developed into blooms of a larger size and stouter texture, with broader and more rounded segments, these eventually culminating in flowers of full size and thick substance, with finely fimbriated edges, allied in the case of the red sort to an intensity of colour approaching crimson; while there had also been attained large white flowers of equal substance and quality. This vantage ground reached, the hybridiser turned his attention to the development of variation; and now, what but a short time ago was thought to be almost the *ne plus ultra* of improvement, is regarded as but the entrance gate to another field of development—that of beautiful, and, it is to be hoped, enduring variation. In the hands of the skilful cross-breeder, not only are the flowers of the single red variety being produced in shades of cerise carmine, rosy crimson, magenta crimson, purplish crimson, &c., but the white flowers also are undergoing an equally valuable and pleasing transformation, for they have become flaked, spotted, and edged with some one of the foregoing colours, in delicate and lovely forms, and even broad and well-defined circles of these colours have appeared around conspicuous lemon-tinted centres, giving the flowers a very attractive appearance.

A notable and well-known instance of variation in the single flowered state of the plant, was that observed in the variety known as kermesina, in which a very pleasant and novel bright rosy carmine took the place of the rosy purple colour so well known to all. This was of continental offspring, and for a time there was a want of fixity in the variation, while the flowers were found in many cases to be devoid of the fimbriated edges so greatly desired. Now that seed of this variety (and it is of a very pleasing and striking shade of colour), has been produced in our own country, the strain has greatly improved, the original hue has become intensified, and the flowers are both of large size, and beautifully fringed. From this again, probably the result of intercrossing with the rosy purple varieties, there have been derived rich magenta crimson flowers of large size and great beauty, and these again show a great depth of colour approaching to crimson, or in some cases a rosy crimson shade suffused with purple and violet.

The lowest form of variation in the white flower consisted in its becoming suffused with pale rose, this being originally characteristic of the flowers only when mature age had been reached; but the variation has now become to a great extent fixed, as it shows itself on the opening of the flower-buds, and it has also reached to a greater depth of colour, an approach to cerise having become plainly apparent. Some of these flowers—as far as can be perceived, those of the lightest and medium shades—have the edges of the fringed petals heavily tipped with rosy purple when the flowers are just expanding; and on a further examination it would seem that this deep edging of colour gets withdrawn from the edge into the body of the petal, so to speak, as the flowers acquire age. Others are faintly spotted with carmine, or pencilled with just perceptible flakes of the same colour; in others the flakes are broader and more frequent, and have a lilac or pale purple hue; and occasionally a portion of one of the petals is entirely of the latter shade of colour. One very marked novelty consists of the flower having a conspicuous brownish orange centre or eye, surrounded by a ring of white, then a broad ring of pale rosy pink, the edge of the flower being again white. The flowers marked in this manner are remarkably stout and well fringed. In fact, with all these beautiful variations there is (unless the plants are immature) no loss of size or substance; but these desirable characteristics are fully retained, and generally supplemented by large yellow centres that are very conspicuous and striking.

So far the presence of a second colour, whether as constituting spotting or flaking, or a distinct lacing, has been almost entirely confined to the white form. Self flowers of the rosy carmine and rosy crimson shades, that have a preponderance of purple or lilac distributed over them, show a tendency to be paler on the edges in some instances, but this is in truth rather a fault than an improvement in regard to effectiveness, so far as yet seen, though it may be an important step gained, notwithstanding, which shall eventually lead on to results in the highest degree satisfactory. I have just received from Messrs. F. & A. Smith, of Dulwich, an example of a flower which marks an important advance made in this direction. It is a full-sized rosy violet flower, of a deeper tint round the bright yellow eye, and on the edges of the petals is distinctly margined with pure white that breaks into flakes with age, and runs down the ground colour. The flower was somewhat advanced in age, but if it has this characteristic of a white edge on opening, it is then one of the most novel and striking flowers yet seen. If such a combination of colours can be permanently fixed, allied as it was in this case to a stout substance, large size, and the desired fimbriated edge, then there is no reason why such a result should not be indefinitely extended under skilful hybridisation.

Now, whether these variations can become fixed without the aid of persistent artificial fertilisation, is a matter of doubt. That they are fugitive in their character has been demonstrated beyond doubt; nay more, seed saved from the very finest variations has been known to produce plants so degenerated as to occasion great surprise. The hybridizer obtains a certain amount of fixity as the result of his fertilisation, and by seeding sparingly, he perpetuates the rich quality he has created. It is due to the public that when seed of these variations is offered to them, that it should have been saved from plants the blooms of which had been artificially fertilised, and which have been sparingly seeded. The area of their cultivation is so limited that seed of these variations, saved as it should be saved, cannot at present be very extensively circulated: and to spend nearly a twelvemonth in the cultivation of plants that eventually prove to be of but poor value, is not encouraging.

The classification of these variations as named varieties should be discouraged, until an amount of fixity can be relied on, as obtainable through seeds, for propagation by cuttings, or divisions of the plants, is a slow and tedious process, and their perpetuation by seeds is not as yet absolutely certain. There is also a schism among hybridizers on this point; some have averred that complete, or even comparative fixity, will never be realised but in very exceptional cases, so great is their confidence in the sportive tendency of the variations, while others are equally sanguine respecting the converse of this. Till these doubts are convicted as traitorous, and the opposite certainty assured, these floricultural baptisms should be very sparingly performed.

The singular and, I believe, unaccountable sport from the old type of the foliage into that known as the "Fern-leaved," was at least a happy accident, as the habit of the plant has been considerably improved thereby. And it is curious to notice that while under the old type of the pink and white flowers, the colour of the footstalks of the leaves, *i. e.*, whether red or white, had become a sure index to the colour of the flowers,* now, as a result of intercrossing, this landmark of the florist has been swept away, and so, both in the old and new forms of the foliage, the colour of the leaf-stalks is no longer an indication of the colour of the flowers. This result is singular, though probably to the scientific horticulturist by no means strange. As a rule the Fern-leaved kinds are of a stronger constitution than those of the typical style of foliage, and the hybridiser has made a considerable use of the former in the working out of his experiments. The Fern-leaved plants now show as much variation in their flowers as those of the old type, and the blossoms have all the characteristics of that high quality that have been described; in fact, many of these beautifully marked flowers are produced by Fern-leaved plants.

The largest and stoutest flowers of these variations were observed in some instances to possess the germs of a second row of fimbriated edgings to the petals. From blooms of this character, fertilised with the pollen of others of a like character, have been developed double flowers of large size and great substance, produced by plants of a short, stiff, and vigorous habit—a wonderful improvement on the attenuated specimens of the old double red and white varieties one had been accustomed to see, the propagation and preservation of which have given the grower considerable trouble, and caused him no small amount of anxiety. These mark an important step, for they, too, have produced variations of a high character, having reached on the one hand to self flowers of deep lilac, pale lilac, rosy carmine, and rosy-crimson shades, and on the other to pure white, and white flaked and suffused with rose. These have attained to a size double and even treble that of the old red and white kinds, the smooth edges of which are also gone, and in their place are large and stout petals as finely fringed as in the single kinds. The double flowers produce a little seed, but there is considerable difficulty in getting it to germinate, and when it does grow, single flowers are invariably produced. Besides the process of obtaining double flowers just described, there have been cases of the seed saved from single flowers sporting into double flowers. For conservatory decoration and for bouquets these double flowers are invaluable; the plants remain in bloom for a considerable time, and as cut flowers they keep fresh for many days.

Amid all these improvements of the Primula, both single and double, it is curious to observe how much farther removed from any application to their case becomes the "all but universal law" of the florist, that of "form." In an early number of the "Floral Magazine," Mr. T. Moore, its then editor, put the question thus: "In most cases the varieties of popular flowers are prized in proportion as they possess smoothness and evenness of outline, and varieties having the edges of the flowers jagged as they are in the fringed Primroses, would be unceremoniously condemned; but in the case of the plant before us, the fringed forms are undoubtedly the favourites." At the present time the segments of the largest and stoutest flowers are fringed almost to their base, and as they considerably overlap each other, the surface of the flower becomes of necessity very uneven; and yet, in the case of the Primula, this very defect in the "generally inflexible floral code," actually becomes "a thing of beauty."

The variegated forms of the Primula that have been produced, show that so far the tendency to variegation in the foliage is but a questionable advantage. The difficulty experienced in preserving the plants so marked, indicates an undesirable weakness of constitution, while the variegation itself, so far as it has been seen, has little that is attractive about it. Whether, as in the case of the tricolor-leaved Pelargonium, there will be found in the Primula that combination of variegation with a vigorous and healthy constitution, is among the unresolved things left to task the energies of the next generation of florists. *R. D.*

* It was not so at first: see p. 324, so that perhaps this merely indicates the transition state of uncertainty or unfixedness in the Fern-leaved race. Eds

The Apiary.

Bees.—1. Will you please to tell me how soon you would think it advisable to super a stock of bees in a straw hive, having an adapter board. The hive was tenanted with a swarm early in June last year, and was very heavy in November. The bees are now very thriving, and have been receiving food twice a week since the first week in February.

2. Is it possible to adopt the driving system with one stock, in order to obtain an increase before it would swarm naturally; and if so, how soon would you advise it to be done, and which of the already given directions should I follow?

3. Would you think it safe to buy some stocks of bees from a neighbour who lives only about 200 yards off without taking the precaution of sending them to a distance for a time? I suppose the difficulty would not apply to a swarm issuing from a hive in the same garden, which would be conveyed to my house as soon as hived. *A Young Apiarian, Warwickshire.*

[The proper time for affording additional room, either by supers or otherwise, must always depend on the strength and prosperity of the stock, and the character of the season. We usually commence putting on supers the last week in April, or early in May; but our district is an early one. Probably a fortnight later would be more suited for your locality. It is best, if possible, to hit off the exact time that the bees of any particular hive require additional accommodation.

As you have been supplying food for so long a period, we would recommend your endeavouring to ascertain the weight of the stock, and if it is well provisioned, to discontinue the feeding; or you may, by compelling or inducing the bees to fill up the central portions of the combs with sealed artificial food, do more harm than good by prescribing within narrow limits the laying propensities of the queen. This of course is only intended as a caution to prevent over feeding, as judicious, limited feeding, especially in such seasons as the present, will be found of very great advantage.

2. Unless you are so situated as to render it difficult for your bees to have proper supervision during the period of swarming, or unless you are more desirous of obtaining a good swarm, than solicitous for the safety or prosperity of the parent stock, we should hardly recommend following the system of artificial swarming with only one stock. Nevertheless, as circumstances may arise which would render a resort to this system advisable, the following plan is recommended.

During any part of a fine working day remove and invert the stock; drive out all the bees into an empty hive, another empty hive having been placed in the old stand to serve as a decoy for the returning bees. Now take off the hive into which the bees have been forced, and set it down in a cool, shady place, giving the bees plenty of air. Then restore the parent stock to its old stand. The bees which have entered the decoy hive, and those returning from the fields and flying about in considerable perturbation of spirit, will quickly rush into their former home, and will afterwards adhere to it wherever placed! As soon as the majority of the distracted bees have entered, the entrance should be closed with perforated zinc, and the hive removed to a dark and rather warm room, where it must remain until sunset of that or the following day, when it may be removed to its permanent stand in any part of the apiary.

As soon as the old stock has been removed, the bees of the driven swarm must be shaken out of their temporary quarters, and the hive intended for their permanent occupation must be gently placed over them, when, taking possession like a new natural swarm, they must be at once placed on the stand where the stock hive previously stood, and they will proceed to work at once with great vigour.

The same plan may be adopted, only varying the proceedings by at once, on concluding the preliminary operations, sending either the swarm or the parent stock to a distance of not less than half a mile, leaving the one not sent away on the old stand; but this usually involves more trouble, and has no particular advantages to render it preferable. Of course no artificial swarm should be forced from a hive until drones have appeared, and the bees have become sufficiently populous.

To the Rev. L. L. Langstroth we must acknowledge our indebtedness for the general course of manipulation in the formation of artificial swarms, with which we have found the greatest success.

3. It would not be safe to remove hives direct to your garden from a distance of only 200 yards. The lives of an immense number of bees would be sacrificed. The same difficulty does not apply to a swarm from a hive kept at that or any other distance if removed at once or in the evening of the day of issue.]

Garden Memoranda.

R. Warner's, Esq., Broomfield, Chelmsford.—The following additional particulars respecting Mr. Warner's Orchids may perhaps not be unacceptable to some of our readers. Last week (see p. 348) we alluded more especially to his Phalænopsids. The East India house still contains a splendid display of plants belonging to that magnificent genus, in which the pretty mauve colour of P. Schilleriana, and the pure white of P. amabilis and grandiflora, intermixed with others, have a most imposing effect. To these is judiciously afforded a good background of Vandas, Aerides, and other plants which possess ample foliage of a bright green colour. Amongst these charming Phalænopsids are also fine specimens of Cypripediums in bloom, together with the singular Angræcum sesquipedale and Dendrobium Paxtoni, which is in great beauty. Some of the blossoms of the Phalænopsids are of unusually large size, fine in shape, and rich in

colour, especially a variety called grandiflora aurea, the form of which is exquisite, the beauty of the flowers being heightened by their symmetrical arrangement on the spike. P. intermedia Portei has here five spikes and 27 branches, covered with lovely flowers of a white and mauve colour; associated with this is also another variety, the sepals and petals of which are pure white. Wel ikewise noticed a lovely plant of the rare Saccobium violaceum, with two spikes of flower, which are reported to have been in beauty for several weeks.

The central table is filled with Vandas and Aerides, many of which are finely in bloom, more especially suavis and insignis; the rest are throwing up strong flowering buds. On the north side of the house are, moreover, two long rows of Phalænopsids in excellent condition. In another house are fine specimens of Cattleyas and Lælias, many of which promise to produce abundance of bloom. Here are two beautiful plants of the rare Oncidium sarcodes, bearing two fine spikes of richly-coloured flowers; also Cypripedium Crossii; the variety called biflora, a distinct and beautiful kind; and a good variety of venusta, with a golden-coloured lip barred with brown. Lælia elegans is here in fine bloom, also some good varieties of Cattleya Warscewiczii and delicata, which are useful for winter decoration, and are acquisitions inasmuch as they can be grown in a cool house.

A third house, which is span-roofed, is devoted to Cattleyas, of which it contains one of the best collections with which we are acquainted; many of the specimens are magnificent, and promise well for bloom. In this house, therefore, a grand display may be expected in May and June next, though on the whole the plants appear scarcely equal to what they were a year or two since.

In a cool house, the roof of which is covered with Vines, are some very fine Orchids, especially three plants of Odontoglossum pulchellum, which judging by the appearance of the spikes that had gone off, could not have had fewer than 100 spikes on the plants. Here are also good specimens of Lycaste Skinneri, and the beautiful Oncidium Phillipsianum, with charming bright yellow flowers, together with a large specimen of Cœlogyne flaccida, with graceful spikes drooping amongst the leaves.

The Show-house here is one of the most enjoyable of its kind. In the centre is a tank full of gold fish, also a noble plant of Cibotium princeps. At each corner of the tank are other specimen Ferns, and at the back is a well-arranged collection of Ferns and other fine-foliaged plants intermixed. On the side tables are specimen Orchids in bloom, especially three fine plants of Dendrobium nobile; also a splendid example of Cypripedium villosum, together with several fine plants of Lycaste Skinneri, and a very old plant of an Orchid now seldom seen, viz., Cymbidium aloifolium. These Orchids, which have a fine effect, are intermixed with ornamental foliaged plants and Ferns.

A sixth house is filled wholly with Orchids. On one side it has a glass case fitted up as a kind of hospital for those kinds which get into bad health; this keeps them moist and encourages them to make roots. When sufficiently recovered they can be replaced in the house. Under the same range are three other houses which are covered with Vines; one is filled with Cœlogyne cristata, of which there are here great numbers of plants, which seem to thrive well under Vines. A house next to this is filled with different varieties of Orchids and Ferns, and the last division of this range is what is termed a greenhouse, in which are some good Azaleas, various bulbs in bloom, Ferns, &c., together with some good Orange trees in pots, which looked well. Another long house is devoted to Pelargoniums for bedding purposes; and further on we come to a span-roofed Orchid-house, which is filled with Odontoglossums, Lycaste Skinneri, Anguloa, Sophronitis, and Lælia albida, together with some remarkable plants of Arpophyllum giganteum, which thrives well in a cool house. Most persons cultivate it in too much heat, and consequently it does not flower freely.

Nothing appears to please Mr. Warner better than to show those who take an interest in Orchids, his most valuable collection, especially in their gayest season, and the longer they stay the better pleased he is. Those who wish to see his Phalænopsids should therefore not miss the present opportunity of inspecting them. *B.*

Garden Operations.

(*For the ensuing week.*)

PLANT HOUSES.

WHEN *Heaths* and *Epacrises* have done flowering, they should be pruned neatly back to healthy wood, which promises to break freely, and to form a good even growth for flowering next season. Do not cut too deeply into permanent wood; but shorten all small secondary spray which is not growing freely at the point, or is unlikely by elongation to be of use hereafter. As soon as the plants are cut in, keep them moderately well shaded, and maintain somewhat more moisture in the atmosphere than is generally requisite for Heaths or Epacrises, allowing a moderate amount of fresh air constantly to pervade the house in which they are kept. *Coronillas*, when done flowering, should also be pruned back so as to form compact bushy heads; any requiring it should be potted into two parts of loam, and one of peat, together with a little sand. Cuttings of Coronillas will now strike freely with a very slight amount of heat. C. glauca and C. glauca variegata form compact good-looking plants quickly, and as constant winter-blooming cool greenhouse plants are very useful. *Platycerium alcicorne* (Elk's-horn Fern) is a most interesting plant, which is mostly grown in stoves. It is a native of New South Wales, and is capable of making much finer growth in a cool greenhouse. Plants of it may now be potted, and for that purpose choose single crowns, fixing them as firmly as possible upon a slight cone formed of very coarse fibry peat and charcoal in a 32-sized pot previously half filled with potsherds broken very small; encourage the fertile fronds to push upright, a position in which they grow to a large size; the now fertile fronds which cover the base become very ornamental, forming as it were a shield over the edges of the pots to protect the roots. When thus established, one fact must be borne in mind, and that is to keep them moist; for that purpose the pots must be dipped bodily into water, as they cannot readily be moistened by surface sprinklings. When potted place them at the back of the house in a shady place free from draughts.

FORCING HOUSES AND FRAMES.

Pine-apples will now require more or less shading, according to the brightness or otherwise of the weather. The shading of Pines upon every proper occasion is not practised so constantly as it ought to be; though it is well known that if they are forced into a brown-looking autumnal hue thus early in the season, they seldom perfect such a good sound growth of either fruit or foliage as others do which are afforded a studied system of shading. The thinnest scrim is best suited for this purpose, as it moderates the force of any possible scorching rays, and admits light freely, which is all important. If the weather proves at all favourable, *i. e.*, not too cold or too wet, remove forthwith any fermenting material placed upon the outer borders of *Vines* which are being forced; especially if the fruit is beginning to colour. Just loosen the surface of the border in order to allow the air to freely enter the soil, patting the surface smoothly all over afterwards to aid in attracting the solar rays; and to cause heavy showers — should there be any, to flow off in part.

Sow seeds of any of the following *Half-hardy Plants* which are likely to be in request for planting out at a later date, viz., Amaranthus bicolor, A. tricolor, and A. melancholicus ruber, Alonsoas and Cannas, and also of Chenopodium Atriplicis, Eucharidium, Maurandya, Mimulus, Tropæolum, Pentstemon, Phloxes (Drummondii section) Portulacas, Pyrethrum, Schizanthus, Stocks, Tagetes, and Zinnias. To these add also *Ornamental foliaged plants*, generally grown from seeds, not omitting the elegant Chamæpeuces, or the stately tropical Bocconia, Wigandia caracasana, the different varieties of Ricinus (Castor-oil plant), &c. *Ornamental Grasses*, requiring artificial warmth during the process of germination, should also be sown. These include Agrostis nebulosa and pulchella, Chloris fimbriata and radiata, Erianthus Ravennæ, &c. Generally speaking an admixture of two parts loam and one of peat, together with sufficient sand and moderately decomposed leaf-mould, to give the compost a free and open consistency, will suffice for this. Drain the pots or pans, &c., in which they are sown effectually, placing the coarser siftings over the crocks first, and filling in moderately firm with soil sifted finely. Do not cover the seeds too deeply, nor water the surface of the soil until it has become moderately dry. Shade for a week or so, and even until germination has commenced, when all the light possible will be required, and a due amount of moisture. *Carnation, Pink, and Picotee* seeds should also be sown at once, where it is desirable to raise a fresh strain. When sown with care, cover the seeds over with finely sifted mould, such as that just named, and place them upon a front shelf of a cool greenhouse or some similar situation moderately shaded from the more direct rays of the midday sun.

HARDY FLOWER GARDEN.

Proceed with *Box clipping* upon favourable occasions. In places where it may have been permitted to grow unclipped for a season or two, and where it has in consequence become overgrown and unsightly, it may, at this season, be reduced to a neater form, by cutting it down into the older wood with moderate freedom. No greater mistake can be made than to allow Box-edgings to become so large as to assume a proportion causing them to be the most prominent objects in any space designed for a flower garden. They should be so kept as to form an unobtrusive division only, allowing to the plants contained in the beds, a full display of all their parts. The neatest form is that where each side is cut sloping to the centre, at an angle more or less abrupt, according to the assumed width of the edging operated upon, finishing off by reducing the ridge thus formed in the centre to an uniform height.

KITCHEN GARDEN.

Continue to earth up *Peas* and *Broad Beans*, doing so always where convenient, when the soil has become sufficiently dry to admit of being worked after a shower. Young plantations of *Cabbage*, especially, should receive this attention, as it will assist in supporting the crowns in keeping them from wind waving. Sow succession crops of *Radishes*, as frequently as those previously sown have assumed the rough leaf in quantities which will insure a sufficient supply. The French Breakfast Radish is a tender, much esteemed variety, good for use in succession to Wood's Early Frame. Where *Beet-root* is in demand at the earliest possible date, a small sowing should now be made; but I do not advise sowing the main crop yet, preferring to wait until greater certainty exists of obtaining a fine strong growth, unchecked by harsh winds or frosts. Sow the following kinds of *Broccoli* to come into use from November, namely, Snow's Winter White, Adams' Early White, Pink Cape, &c.; also a little of Williams' Alexandra for use in the beginning of May. A little of the last should be succeeded by another sowing in about 14 days' time; the same also applies to Snow's. Prepare a slight hotbed to be covered over with about four inches of good rich soil, upon which to prick out the earlier sown *Celery* plants; with a light soil sifted rather finely upon the surface, it will only be necessary to dibble them in all over the bed an inch or two apart, protecting them upon all unfavourable occasions, to be gradually hardened off for planting out at the proper time. *Vegetable Marrows* should be sown now. Place them in a gentle heat until germination has taken place, when it will be necessary, by giving them all the air and light possible upon all favourable occasions, to imbue them with an endwarfed hardy growth, preparatory to turning them out under hand-glasses next month. *W. E.*

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the Week ending April 10, 1867, as observed at the Horticultural Gardens

April.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Min.	Mean	Of the Earth. 1 foot deep.	2 feet deep.	Wind	Rain.
Thurs. 4	●	29.857	29.792	59	40	48.5	49	46	N.W.	.02
Friday 5	1	30.033	29.945	62	40	51.0	50	46	W.	.01
Satur. 6	2	29.992	29.979	62	45	53.5	50	46	W.	.00
Sunday 7	3	29.972	29.644	58	40	49.0	50	47	S.W.	.04
Mon. 8	4	29.527	29.331	53	39	46.0	50	47	S.W.	.14
Tues. 9	5	29.755	29.545	59	29	44.0	50	47	N.W.	.02
Wed. 10	6	29.899	29.511	54	40	47.0	49	47	S.W.	.02
Average .		29.862	29.692	58.1	39.0	48 4	49.7	46.5		0.23

April 4—Cloudy; boisterous and showery; fine at night.
— 5—Slight haze, very fine, with dry air; very fine at night.
— 6—Overcast; cloudy; fine at night.
— 7—Cloudy; overcast; densely overcast at night.
— 8—Cloudy; boisterous, with rain; very boisterous at night.
— 9—Cold and boisterous; fine; thunder, vivid lightning and some hail.
— 10—Fine; overcast; boisterous, with rain at night.
Mean temperature of the week 2 3-10th deg. above the average.

STATE OF THE WEATHER AT CHISWICK,
During the last 41 years, for the ensuing Week, ending April 20, 1867.

April.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained	Greatest Quantity of Rain	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday ..14	57 2	36 2	46 7	16	0.36 in.	4	9	4	3	3	7	2	9
Mon. ..15	58.1	37.8	47.9	20	0.47	1	10	5	2	5	10	2	8
Tues. ..16	57.3	36 7	47 0	26	0 56	9	7	3	3	3	8	7	1
Wed. ..17	58 0	35.9	46 9	14	0.32	8	7	7	2	1	9	4	3
Thurs. ..18	56 6	35 6	46 1	16	0.49	6	7	7	1	4	6	7	3
Friday ..19	58 9	35 0	46.9	8	0.45	6	13	3	3	3	7	6	—
Satur. ..20	60 3	34 8	47 6	15	0.34	5	8	6	2	—	10	6	3

The highest temperature during the above period occurred on the 19th, 1854—therm. 77 deg.; and the lowest on the 15th, 1863—therm 20 deg.

Notices to Correspondents.

ANOMALOUS GROWTHS: *Wynnstay.* Similar cases of anomalous growth occasionally occur amongst Mushrooms. We have a large collection of such anomalies, on which we purpose shortly to write a paper, of the publication of which we will give you notice. *M J B.*

BOOKS: *F Gloede.* Apply to the Société Centrale et Imperiale de France, whither all the French copies have been sent.

CELOSIA AUREA: *G T.* This plant requires the generous treatment given to Globe Amaranthus, Coxcombs, and other similar tender annuals. Pot in very rich loamy soil; keep in a brisk growing heat, with fresh air freely admitted on all suitable occasions; keep close to the glass, stop freely, till a good bushy plant is formed, and help on, if necessary, by the use of liquid manure.

CRICKETS: *H B.* Try Chase's or Forbes' Beetle poison. Surely boiling water will kill them if properly applied.

EXCHANGE CLUB: *Isabella, Salisbury.* A letter awaits you. Please forward your address.

FIGS: *O T.* It is clear from your account that neither the soil nor the condition of the roots has anything to do with the failure of your Figs. You must look, therefore, to the temperature. Is it too low at night, or have the delicate young Figs been subject to sudden chills from incautious opening of doors? Your letter shall have further consideration when occasion offers. *M J B.*

FLOWER BEDS: *Learner.* Your contrasts seem too violent, and we think your beds would, if large enough, look better if toned down by some appropriate margin; for example, Perilla with a margin of Centaurea, and Purple Verbena with an edging of some dwarf golden Pelargonium.

FRUIT TREES: *Botanist Traveller.* You will find what you seek in the Gardens of the Royal Horticultural Society at Chiswick, or perhaps better still in the Royal gardens at Frogmore, near Windsor.

INSECTS: *J R H.* The minute beetles which attack the Hop-bine are very closely allied to the Turnip fleas. They appear to be Haltica concinna. We can suggest no better plan than to get the Bine forward as rapidly as possible; and if the fleas are very numerous, a tarred rope drawn across the ground would entrap vast numbers. *W.*

NAMES OF FRUITS: *J C & Co.* Knight's Monarch.—*Bourton.* Verulam or Buchanan's Spring Beurré.

NAMES OF PLANTS: *T.* Your Rhododendron, from the description you give of the leaves, is most likely the smaller flowered var. of R. Falconeri.—*R Butler.* It looks like Begonia Griffithii, but is so much dried up as not to be distinctly recognisable.—*A W.* No. 1, Picea Apollinis var.; No. 2 and No. 3, materials insufficient to warrant giving a name; No. 4, Abies Morinda.—*Bourton.* Gymnogramma chærophylla, or an excessively vigorous growth of G. leptophylla—which, the specimen is too immature to determine.

PREPARING TREES FOR TRANSPLANTING: *T K.* Any time after Midsummer the proposed shortening of the roots may be effected.

PRUNING SHRUBS: *G T.* Cut down the hedge immediately to the point where the wood is sound and alive, keeping Mr. M'Nab's instructions in view.

ROOKERIES: *Sub.* You will find many useful hints on the formation of these in our Vol. for last year, especially at pp. 149, 197, 221, 245, 268, and 292.

SANDAL-WOOD: *J O W.* The substance from a Sandal-wood box consists of acicular crystals, closely resembling the raphides of plants, but whether given off by the wood or not it is difficult to say. *M J B.*

SILKWORMS: *F J O.* Your eggs have been placed in safe hands.

SYRINGING CUCUMBERS: *A Young Gardener.* Possibly you may overdo this, though without seeing the plants it is difficult to judge what is wrong. Try the effect of non-syringing a portion of the plants. The requisite moisture is easily kept up without doing this. Perhaps you do not ventilate sufficiently, so that the plants may be dried daily. If not, the moisture may hang about the tender fruits too continuously, and do the injury you describe.

VINE STEMS ROOTING: *Subscriber.* Either the proper roots are less active than they should be, or the atmosphere is over moist. What is the condition of the border as to mechanical texture and drainage? You need not remove them.

COMMUNICATIONS RECEIVED.—W. Howard.—R. W.—J. G. B.—D. T. Fish (Ventilation).—R. D.—W. R.—A. McIntosh.—J. A. Watson.—B., Dungarvan.

MESSRS. GEORGE GIBBS AND CO.,

25 & 26, **DOWN STREET**, PICCADILLY, W.,

Beg to announce they are now prepared to execute orders to any extent for Laying Land Down to Permanent Meadow and Pasture, with their best MIXTURES of GRASS and CLOVER SEEDS, to suit various soils, which they can supply at 32*s.* to 36*s.* per acre, allowing 2 bushels of large seeds and 12 lb. of small seeds to each acre.

MIXTURES of GRASS and CLOVER SEEDS for Renovating Old Pastures. Quantity required per acre, 1 lb. to 10 lb. Per lb. 1*s.*

MIXTURES of the FINEST SORTS for Lawns, Croquet Grounds, Bowling Greens, &c. Per lb. 1*s.* 3*d.*

Italian Rye-grass.

	Per bushel.—*s.*	*d.*
GIBBS' IMPROVED EARLY	0	6
FINE HEAVY IMPORTED	7	0

Perennial Rye-grass.

PACEY'S "HEAVY SEED" per bushel	7	0
EVERGREEN Ditto "	7	0

Clovers.

	Per lb.	
FINE ENGLISH RED	10*d.* to 1	0
FINE ENGLISH WHITE	1*s.* 3*d.* to 1	6
FINE ALSIKE HYBRID	2*s.* to 2	3
TRUE COW GRASS	1	3
RED SUCKLING	1	3
YELLOW TREFOIL	4*d.* to 0	5

Bromus Schraderi.

THE NEW FORAGE GRASS	2	6

Buckwheat, or Brank.

ENGLISH SEED per bushel	7	0

Carrot.

LARGE WHITE BELGIAN	1	3
LARGE YELLOW BELGIAN	1	6
LARGE RED ALTRINGHAM	2	0
SCARLET INTERMEDIATE	2	0
LONG SURREY, or ORANGE	2	0

Cabbage.

CHAMPION OX, "fine"	3	6
LARGE DRUMHEAD	2	0
ENFIELD MARKET	3	6

Swedes.

	Per lb.	
THE ASHCROFT	1	0
MATSON'S PURPLE-TOP	1	0
SKIRVING'S	0	9
GIBBS' PURPLE-TOP	1	0
EAST LOTHIAN	1	0

Yellow Turnips.

GIBBS' GREEN-TOP HYBRID	1	0
GIBBS' PURPLE-TOP HYBRID	1	0
GREEN-TOP YELLOW SCOTCH	1	0
DALE'S HYBRID	1	0

Common Turnips.

GREEN GLOBE	0	10
RED GLOBE	0	10
WHITE GLOBE	0	10
GREEN TANKARD	1	0
RED TANKARD	1	0
WHITE TANKARD	1	0
YELLOW TANKARD	1	0
GREY STONE	0	10
EARLY WHITE STONE	0	10
ORANGE JELLY	1	0

Mangel Wurzel,

FROM FINE SELECTED ROOTS.

YELLOW GLOBE	1	0
RED GLOBE	1	0
LONG RED	1	0
LONG YELLOW	1	0

Parsnip.

GIBBS' LARGE CATTLE	1	6
HOLLOW CROWN	1	3

Kohl Rabi.

LARGE GREEN	2	6
LARGE PURPLE	2	6

Lucerne.

FINE IMPORTED	1	3

Furze.

FRENCH and ENGLISH	2	0

Holcus saccharatus.

CHINESE SUGAR GRASS	2	0

Rape, or Cole.

ESSEX SEED	0	5

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SUTTON AND SONS can supply the above at the following prices, carefully cleaned, and free from Dodder and other weeds:—

	Per lb.—*s.*	*d.*		Per lb.—*s.*	*d.*
BROAD RED	10*d.* to 1	0	YELLOW TREFOIL, 5*d.* to	0	6
WHITE or DUTCH 1*s.* 2*d.*	1	4	COW GRASS 1*s.* 2*d.*	1	6
PERENNIAL WHITE	1	6	ALSIKE 2*s.*	2	6

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Ordinary qualities may be had cheaper.
All goods Carriage Free (except very small parcels).
Five per cent. allowed for cash payment.
SUTTON & SONS, Seed Growers, Reading.

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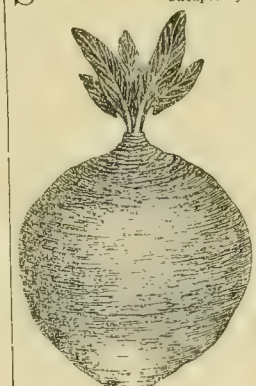
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Cheaper by the Cwt.

	Per lb.—*s.*	*d.*
Good YELLOW GLOBE	0	9
" ORANGE GLOBE	0	9
" RED GLOBE	0	9
" LONG RED	0	9
" LONG YELLOW	0	9



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SUTTON'S SELECTED YELLOW GLOBE	1	0
Do. do. ORANGE GLOBE	1	0
FISHER HOBBS' ORANGE GLOBE	1	0
STRATTON'S RED GLOBE	1	3
SUTTON'S ELVETHAM LONG RED	1	0
SUTTON'S MAMMOTH LONG YELLOW	1	0
NEW YELLOW INTERMEDIATE	1	0
Do. RED do.	1	6
SUTTON'S MAMMOTH LONG RED	1	6
BERKSHIRE PRIZE, or SUFFOLK CHAMPION, New, in 8 lb. bags	2	6

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LARGE PURPLE, 2*s.* 6*d.* per lb. Sow April and May, 3 to 4 lb. per acre.



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SOUTHERN COUNTIES ASSOCIATION.

President 1866-'67—HIS GRACE THE DUKE OF RICHMOND, K.G.

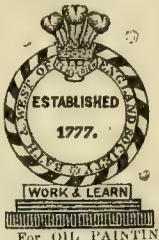
The ANNUAL EXHIBITION of HORSES, STOCK, POULTRY, IMPLEMENTS, WORKS of ART, &c., will be held at BRIGHTON, on the 24th, 25th, 26th, 27th, and 28th of JUNE NEXT.

SUMMARY OF PRIZES OFFERED:—

CATTLE.—Short-horns, £125; Sussex, £125; other Breeds, £50.
SHEEP.—Southdowns, £90; Hants Downs, £90; Oxford Downs, £90; Kent Sheep, £90.
HORSES.—Agricultural, £110; Hunters, £95; Hacks, £15; Ponies,
PIGS.—Berkshire, £32; other Breeds, £32. [£10.
POULTRY.—Various, £93.

The PRIZE LIST may be obtained of the Secretary. ENTRIES CLOSE May 1. By order of the Council,

Yately, Farnborough. G. B. H. SHUTE, Secretary.



BATH and WEST of ENGLAND SOCIETY for the ENCOURAGEMENT of AGRICULTURE, ARTS, MANUFACTURES, and COMMERCE.

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SALISBURY MEETING, 1867.

President—JOHN TREMAYNE, Esq.

The ANNUAL MEETING, 1867, will be held at SALISBURY on the 10th, 11th, 12th, 13th, and 14th of JUNE.

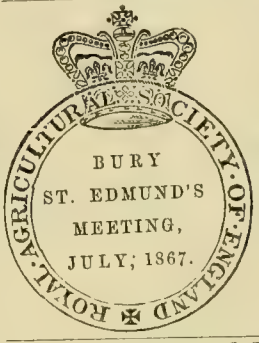
Prize Sheets and Regulation Papers for STOCK, POULTRY, IMPLEMENTS, and HORTICULTURE, may now be obtained from the Secretary, Bath.

For OIL PAINTINGS, WATER-COLOUR DRAWINGS, and ART MANUFACTURE, from R. R. M. DAW, Exeter.

All ENTRIES, excepting those of POULTRY, CLOSE April 18.
POULTRY ENTRIES CLOSE May 10.

By Order of the Council. JOSIAH GOODWIN, Secretary.

4, Terrace Walk, Bath.—February 18, 1867.



PRIZES for HORSES amounting to £800
Do. SHEEP 700
Do. PIGS 225
Do. POULTRY 209
Do. IMPLEMENTS 430

Total £2424

Are offered at the SHOW at BURY ST. EDMUND'S in JULY NEXT.

ENTRIES for IMPLEMENTS CLOSE 1st May, STOCK and POULTRY 1st June.

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ROYAL AGRICULTURAL SOCIETY of ENGLAND.

BURY ST. EDMUND'S MEETING, 1867.

LAST DAY for ENTRY of IMPLEMENTS, 1st of May.

All Certificates received after that date will be returned to the senders.

H. HALL DARE, Secretary.

12, Hanover Square, London, W.

ROYAL AGRICULTURAL SOCIETY of ENGLAND.

BURY ST. EDMUND'S MEETING, 1867.

STOCK, POULTRY and IMPLEMENT PRIZE SHEETS are now ready, and will be forwarded on application to

12, Hanover Square, London, W. H. HALL DARE, Sec.

The Agricultural Gazette.

SATURDAY, APRIL 13, 1867.

THE Council of the Royal Agricultural Society of England are, as we believe, for the present and at length in complete accord with the general body of the members on the subject of Agricultural Education. It was resolved at their last meeting that the annual education grant should be continued for another year. This was certainly a perfectly proper decision. The "promotion of the education of those who are dependent on the cultivation of the land for their support" is one of the objects for which the Society was originally incorporated.

Thereupon it was proposed by Earl POWIS that a list of Scholarships and Prizes substantially the same as that of last year be framed, and offered for competition at the next University local examinations. This proposal was supported by Mr. DENT, M.P., and by Lord WALSINGHAM, but opposed by Mr. HOLLAND, M.P., General HOOD, Mr. RANDELL, and Mr. TURNER; and, on a division, the Noes had it by a majority of 16 to 6. Here again we believe the decision to have been in entire accordance with the whole scheme and history of the Society; with (1) the object for which it was originally founded; with (2) the nature of the powers and qualifications it possesses; and with (3) the will and judgment of the great body of its members.

For (1) one of the objects of the Society has, from the beginning, been "the education of those who are dependent upon the cultivation of the land for their support," and in respect to them it stands precisely as any of our professional institutions stands to its professional students. The Royal College of Surgeons does not offer prizes through University

examiners to the sons of medical men. Its prizes are offered for professional attainment to any professional student who can in the first place show by any sufficient test that he is already possessed of an adequate preliminary and general education. And just as in the case of the prizes offered by medical schools, the prizes offered by the Agricultural Society for educational attainment should have a strictly professional significance. Let them be offered, if you please, to students who have passed certain tests of general educational attainment, but that is an incident of the competition, not the object aimed at. It is of those alone who are to be dependent on the culture of the land for their support that any account can be taken, and it is to strictly agricultural students that the effort must be confined.

Again, (2) to this the Society is limited not merely by the instructions of its Charter but by the inadequacy of its powers. It is not an educational body; it is an agricultural body. The general education of country boys is a task which can only be really done piecemeal by the natural guardians of these boys; and if any external body presumes upon Imperial grounds to lend a hand, it has forthwith to provide a Minister for the purpose who superintends an army of inspectors and examiners, and spends many hundred thousand pounds per annum. The work—the responsibility for it, and in great measure the work itself—is the work of parents; and of these there are two for every three children in this country, so ample is the natural provision for the due performance of a weighty and enormous task. Any artificial aid in addition to them—imperfect as that aid cannot fail to be—is altogether beyond any but Imperial power. Let Professional Societies limit what aid they can offer to strictly professional purposes, and some little good may be done; but the idea that any such Society, with 300*l.* a-year at its command, could undertake to guide and stimulate the general education of a constituency whose number occupies at least six places of figures, is utterly absurd.

And now (3) for the last point to which we have referred. We cannot doubt that the views thus urged are in accordance with the opinion of the Society's own membership. It is not possible indeed to poll the Society in order to ascertain this point, but we can have no hesitation whatever in selecting the truly representative man in connection with this subject upon its Council. Let us hope that at the special meeting to be held for the decision of this question next month, those opinions will prevail which have already been tested by lifelong devotion to the "promotion of the education of those who are dependent upon the cultivation of the land for their support."

The discussion before the London Farmers' Club which followed Mr. Nockolds' interesting paper, given in another page, on the policy of establishing a Government Board of Agriculture, fairly represented both views of the subject. The idea that a permanent officer, to act as the agricultural ear of men in power, could really help the agricultural interest in many ways, was urged by Sir G. Jenkinson, Messrs. Skelton, Smythies, and Duckham, and in a less confident tone by Mr. Read, M.P., and Mr. Pell. And the doubtfulness of any such idea was cleverly expressed by Mr. Sidney and by Mr. Crosskill.

Sir G. Jenkinson had long since advocated the appointment of a Minister of Agriculture. He thought that such a department of the Government would do good service; and he hoped that before long they would see it established.

There could be no doubt that of all departments of the State, agriculture was the most important, and had the first claim to attention. The prosperity of almost every other department concerned mainly that department itself; but the prosperity of agriculture concerned the multitude, who, without agriculture, could not obtain their supply of food. If the merchant were to give up trade, somehow or other articles of merchandise in which he had dealt would still be supplied; but that was not the case as regarded food; and the chief care of the Government ought to be bestowed on that upon which the mass of society was dependent for support. There were many subjects of great importance with which a Board of Agriculture might fitly occupy itself; among these was the collection of agricultural statistics. It appeared to him that the farmer who was anxious to conceal the amount of produce obtained on his farm did not look so much to the advancement of the general good as he ought to do. Moreover, it was vain to attempt to conceal what was grown on a farm. If any land agent in the neighbourhood was anxious to pry into the produce of farms, nothing could be easier than for him to ride about an entire parish, take notes, and give the results to any one who felt interested in the matter. He did not think any farmer need, in that point of view, fear corn returns, as, when the returns reached the department in London, they would have entirely lost their individuality. It would be perfectly easy for the department to summarise all the returns, taking each county, each union, and each parish separately, without any man's name or farm in any way appearing; and he believed it would be very advantageous to the community if such returns were made. There were other matters of great importance which might be usefully dealt with by a Board of Agriculture—the importation of cattle, the prevention and cure of diseases, and various other things of a kindred character, which were more suitable for the department of Agriculture than for the Board of Trade, whose duties were more particularly connected with various branches of commerce.

Add to the points thus enumerated, Mr. Duckham's illustration of the faulty way in which corn averages are now taken, and which would not be permitted were there a special department to which that and other similar matters might be remitted, and you have nearly the whole of the argument for the establishment of a Ministry of Agriculture. Mr. Duckham stated that in his own county, when prices had ruled very low, he had asked a great corn dealer why he never paid them a visit. His reply was that, if he came, judging from their corn returns, he should not be able to buy enough to pay his expenses. Being urged however he did come, and he raised prices 6*d.* a bushel by his visit. This and other corn dealers had been misled, and Herefordshire farmers had been injured by these fallacious corn returns.

Mr. Read, M.P., believed that a separate department of the Board of Trade, with a permanent secretary, would answer all the ends which a special Minister could serve; and that if all that had been done or attempted to be done by Government in connection with agriculture were thus placed under one department, much good might ensue.

Mr. Pell, of Hazelbeach, the Chairman of the Central Chamber of Agriculture, supposed that if they had a Board of Agriculture they must also submit to a Ministry of Health.

There seemed to have been an idea abroad that the two branches should be connected together; and he could well conceive that a Minister of Health, a sort of Sir John Thwaites in the country, might, to a certain extent, be a useful person. It was becoming a serious question in the case of many large villages how to deal best with the nuisances connected with the dwellings of the rural population. Cottages were built without any reference to the conditions of health, and there was at present no authority designed to deal effectually with such matters. They might indict the poor man who had to put up with such nuisances; they might quarrel with their neighbours about the best means of getting rid of the sewage; they might appeal to the Quarter Sessions in particular cases; but, after all, existing arrangements were in a very loose condition, and he thought if such an office or establishment as a Board of Agriculture were established, it might be well to add to it something analogous to the office of the Metropolitan Board of Works, some organisation that would take cognisance of dwellings in rural villages, and require new buildings to be erected in accordance with those sanitary rules, without which, as they all knew, persons could not live together in health and security. Mention had been made that evening, perhaps rather too pointedly, of agricultural statistics. He himself had a difficulty in seeing what good could be derived from annual statistics—at least as they were at present collected. He thought, however, it would be extremely interesting to know—say decennially, when the census was taken—how far the character of the farming in England was altered; whether they were becoming more a Grass-growing people or a corn-growing people. The duty of affording such information might be connected with the Board of Agriculture; but he did not see what immediate good was to result from it. Perhaps in a few years he might be led to a different conclusion.

A thoroughly effective reply upon the agricultural statistics question was given to Mr. Pell by the Rev. E. Smythies (Loughborough), who succeeded him in the discussion.

As regarded statistics, Mr. Smythies could not conceive that such sentiments of opposition as they had heard that evening represented the intelligence of the agricultural body in this country. What was the hypothesis of the whole thing? Why, that the collection of agricultural statistics would be for the benefit of the agricultural interest. Let any one attempt to show that it would not be for its benefit, and that would be a fair and legitimate argument; but instead of that, the whole thing was poohpoohed and ridiculed. The worst that could happen was that no result would be obtained; but he believed that great national benefit was likely to arise. To whom had farmers to sell their produce? For the most part to dealers. These dealers were generally connected with Chambers of Commerce, and *they* took good ca to collect the information that was require They knew the probabilities as to the suppli from other countries, and they knew the prob bilities as to market prices for several months come. On such points farmers were not th informed; on the contrary, they were utterly sea. There were very few farmers who cou tell in October or November what were t probable prices of Wheat in the succeedir April, May, or June. That was a defe which would to a very large extent be supplie by the collection of agricultural statistic At all events, such are the opinions of tho who advocate it, and no one can say that would not produce that result. In his opinio the establishment of a system of collecting sta tistics would be very valuable to agriculture. A to such a system being inquisitorial or injurio to the interests of farmers he could not conceiv how any man of sense could hold such an opinio Publicly, landlords were now in the habit c setting down the produce of farms at twic what it really amounted to, and he had ofte thought that it would be well if many c them would cultivate a little of their own land especially if they took into their own hands th fields adjoining their game coverts, in order tha they might be able to form a more correct judg ment. At present too many of them seemed t think that farmers made gold with every clo they turned, and one advantage perhaps of system of statistics would be that it would ten to dispel that delusion.

Returning to the more immediate object of th discussion, of which we are attempting to give general report, it is necessary that the views o Mr. Sidney, and of those who think with him should be represented. Mr. Sidney does no see what agriculturists are to get by a Board o Agriculture.

It was necessary to consider what sort of peopl were likely to form such a Board. They had now ha a great many years' experience in such matters; the had returned a great many members to Parliament they had had noble lords representing agriculture i cabinets, and they knew what had been done for them They had had some noble dukes to lead them on, i public and in private meetings, and to raise their expectations, and they knew what had been the result. He had seen simple gentlemen grow into peers, and peers' sons grow into dukes, but he did not remember any particular thing that they ever did for agriculture. Mr. Nockolds' interesting paper had said that a great deal of attention was paid in foreign countries to agricultural education. He did not know what there was to prevent those who wished to give agricultural education to their sons from doing so to any extent; but if there was any one thing against which tenant farmers entertained a strong prejudice, it was the being taught by other people how to carry on their own business. Mr. Nockolds had said that if there were a Board of Agriculture agricultural statistics would be collected. Although he did not believe that agricultural statistics would produce such wonderful effects as some statistical people seemed to suppose, he did not doubt that they would be of some use. But why had they no agricultural statistics? Because tenant farmers as a body were much opposed to their collection. They had only got to say the word, and to-morrow there would be a most complete set of agricultural statistics prepared and placed before the public. The former Board of Agriculture was dissolved because tenant farmers thought that continued inquiries led to taxation. They had an illustration in the Board of Trade of what a Board of Agriculture was likely to be. On that Board there was a president and there was a vice-president; but though that Board might have been an advantage to the nation, traders could tell them, if questioned on the subject, that as regarded them the only effect had been to impose vexatious restrictions and fetters. If farmers would like to have more restrictions imposed on them, if they would like to have it laid down that no person was to hold any appointment connected with the land unless he had passed an examination, then perhaps the sooner there was a Board of Agriculture the better.

An amusing picture was then drawn of the kind of influence which a deputation of farmers is likely to exert on Government, through Mr. Sidney's ideal official at the head of the Agricultural Board. Mr. Nockolds had indeed told them that other countries—Prussia, France, and America—have Boards of Agriculture. That is true; but we have one thing which foreigners have not, we have an institution called the House of Commons, which we may make use of if we please for the benefit of agriculture. Farmers have the power of returning members who will really represent their interests; and, if they do not choose to do that, it is they who are to blame.

On the whole, and notwithstanding Mr. Sidney's clever speech, the impression left by the discussion is that, owing to cattle plague and to that perpetual interference with the business

f the farmer by Orders in Council which this as latterly occasioned, there has arisen in the gricultural world a very strong and, as we elieve, well founded opinion that a permanent overnment office should exist where some one ontinually in communication with agriculturists, nd thus acquainted with their necessities and heir difficulties, should be accessible, through whom the opinions of Farmers' Clubs and hambers of Agriculture might be laid with proper effect before the Government.

—— The Agricultural Shows of the coming season are again unfortunately to be shorn of their chief attraction. Recent deputations from the Royal Agricultural Society and from the Bath and West of England Agricultural Society, have waited on the Lord President of the Council for the purpose, as it appears from the reports, less of urging that Orders in Council might now be relaxed, than of simply ascertaining whether these societies would be permitted to hold their annual shows of horned stock. The answer to their representations was ultimately given on Tuesday evening in the House of Commons, when Mr. Acland was informed by Lord R. Montagu that considering there are still five places in England affected by the cattle plague, it has not been thought advisable to alter the Order in Council of the 12th March, 1867, so as to allow of Exhibitions of lean and breeding stock during the present summer. That Order in Council, he added, applied only to cattle, not to sheep or pigs.

—— Schrader's Bromus, from which great things were by many people expected, for it was to yield a larger bulk of more attractive and more productive food for cows in milk than any other Grass, has by no means hitherto fulfilled their expectations. It is not nearly so nice a food for cattle as most of our common Grasses, and especially does it fall in this respect below the Italian Rye-grass. It is harsh and hairy even when still young, and when in bloom or seed it is utterly intolerable. Its hay thus stands probably lower than that of any other known to English agriculture—whether for the willingness of stock to masticate it or for their ability to digest it. The sole redeeming feature it possesses is the quantity of leaf and stem it yields from a given surface of land, which if it be cut frequently enough and thus offered young enough, will be eaten. If this character were united with more sugar in its juices, and less hair on its surfaces, no doubt it would be a wonderfully valuable addition to our forage plants. We have lately seen at Mr. Rivers' nurseries, Sawbridgeworth, the young spring growth of a Bromus resembling Schrader's yielding as great a bulk, but differing from it, so we were informed, in producing a sweet hay. The plant is perfectly hardy, an October sowing having stood the winter well; it is not so harsh and hairy as the other, and it deserves at hay harvest, so we were informed, the name of Bromus *odoratus*, which it is proposed to give it. It is a native of North-east America, and is in all probability the same Bromus as is referred to in another column by a correspondent resident there of the Highland and Agricultural Society. We have not seen it as it appears at mid-summer; but if it then bears out the character given of its hay, it will undoubtedly be a very useful plant for English agriculturists.

LETTERS FROM ITALY.—No. VI.

It is a very old charge against English travellers on the Continent that they expect to be able to carry Great Britain about with them wherever they go;—that instead of accommodating themselves to the ways of the countries to which they come as visitors, they expect the ways to accommodate to them. There is truth in the complaint; and an answer to it, in 'three courses.' First they are islanders, therefore not, like other Europeans, accustomed (which soon means obedient) to habits and practices differing from their own; Secondly they are commonly rich, therefore used to have their own way simply by paying for it; which is not always a sequitur, except in commercial countries; though only too easily taught, and learnt; and never so mischievously and corruptingly as amongst the most simple and *non*-commercial:—and thirdly they wear as naturally as their clothes, a gift of personal freedom, an easy latent consciousness of the right of self-government; the repose of which is very like that of a Lucifer-match before the rubbing,—which it finds at almost every Railway-station, and every other station or spot where a Frenchman, or a German, or even a Swiss sits on the seat of 'office,' no matter how low—or how high—that stool, or throne, may be.

If a man who had long passed out into the world were suddenly to come back (as only happens, alas, in dreamland) to the little controls of school life, he would hardly rear to the curb with more vehement surprise than our untravelled countrymen evince when brought for the first time into contact with the 'Governmental' system which extends over the better part of Europe. In this, every Frenchman is a Frenchman, every German a German, and almost every Swiss a Swiss, if I may be pardoned such frightfully obvious truism. The bit of red ribbon, tape, if you please, may be or not be at the button-hole, but it is *there*,—if not on the coat, *under* it. They cannot help it: and the wise will bow to it with profound civility; then indeed it is like a talisman—or the latch of a door, or tug of a bell-pull, which you have only to lay hold of for what you want.

It is one of the delights of Italy that you get out of this altogether. I have heard Englishmen speak, on this account, of their arrival south of the Alps as—instead of being further separation—very like coming *home again*: so easy, so quick in perception, so man-of-the-world-like is the Italian nature and (I must use the word) genius, compared with almost any northern people. This must not be taken for more than its worth: as an external quality it is quite real; but it is apt to be associated with a happy-go-easy want of that faculty of organisation which it would be better for themselves if they possessed: but the intense natural love of freedom, and appreciation of everything English, renders the reception of an Englishman a very pleasant one, and gratifying to national self-love, throughout the northern part of the peninsula.

This however is by the way. Whatever else an Englishman may find or expect to find south of the Alps, if his search be agricultural he must discard every home association, and take out a new Lease for observation: he must change the very aspect, so to speak, of his point of view. In England, Farming in all its processes, in all its improvements, in its Drainage, in its Steam and other machinery, in its very manures, discards the Past, looks eagerly ahead:—proclaims itself, and almost is the Science of the Future. What seemed like part of a wild Common last year may this year be laid up in ridge and furrow, or laden richly with a thirty-ton crop of Swedes or Mangels on the surface, and pierced by a regular network of drainage pipes four feet down below. In Italy Husbandry, like everything else, is historical, nay more' aristocratic, and points backwards, like an old hidalgo, to its pedigree: indeed without some idea of the history, its agriculture would present to an English eye very much the appearance of a Chinese puzzle. It has taken not years, not decades, not even centuries, but *thousands* of years to construct the kind of picture that offers itself ready made; so totally and organically different to what an English eye carries in expectation, that the first impression is almost of a kind to extinguish curiosity by destroying association. 'I asked you to show me your Farm, and you bring me to your Asparagus bed' would be the exclamation at first sight of one who was quite unprepared for the essential points of difference, in the mere structural features of the farm-landscape, irrespective altogether of difference of climate.

Imagine a colony of enterprising and industrious Dutchmen, or Belgians, or Scotchmen,—or Englishmen if you please! though somehow I always picture *them* as very much preferring *finding* a Farm to *making* one — good soldiers, indifferent pioneers, (pardon me if I hurt your feelings)—imagine, I say, a swarm of this kind alighting upon a swamp; wide, flat, apparently undrainable, but lighted and cheered and broiled by a sun glowing and dazzling like a great Koh-i-Noor in the blue overarching sky, day after day, encouraging and ripening every rank semi-tropical growth that found strength to root itself in the Saurian sludge where 'land' and 'water' had not yet parted company and set up a separate establishment. What would our supposed pioneer company do? how would they go to work? Draining-tile not invented by a thousand years or so; Spirit-level out of the question.

The first thing one can imagine, on seeing there is no way of getting the water out of the land, is to try and get some of the land out of the water; that is, by digging a good trench all round a certain spot, and throwing the spoil on to the top of it, or for the after-convenience of repeating the problem—to divide the land by broad deep ditches into successive squares or parallelograms, sufficiently small for the soil so raised to make a bed above the level of the water collected in the ditches. On getting to a river, an outlet is at last found more or less deep, at any rate in the Autumn, (for Alpine rivers are fullest in the Spring and early Summer, from the sun-thaw of glaciers) and then the 'fall' can be improved and followed up, the trenches deepened and made more regular, and that which began as an expedient, be continued as a system.

It was by such a process as I have described that in periods of the most remote antiquity—long before even the events which first made Italy historical—the whole of that rich country that now bears the name of Lombardy, and a great portion of Tuscany also, were redeemed to the habitation and use of man. *By whom* the work was done, which was *bound* to be done—conjecture itself stands agape at the question of. All that can be answered is that the doers of it came from the South and East; for there was no West, and every human wave that swept from the North destroyed as it advanced, leaving its traces, exactly as an actual wave would have done, upon lands thus kept artificially drained and cultivated.

They came from the South or the East, or both; and they had a written language, whose characters marked the descendants of Japhet, but the mode of reading them, of Shem. So the scholars tell us to think, or at least to say, when we find Greek or Phœnician letters, spelling backwards like Hebrew, instead of what *we call* 'forwards,' like English and other European tongues.

Such were these singular people, bilingual as well as amphibious, who made the dry land appear, over these too well watered plains, so skilful and at home in both elements—and the agricultural and geometrical relations they give rise to,—that, were there no other evidence, one should suspect them of early intimacy with Father Nile, and the periodic floods of Egypt, before they ever landed, or were wrecked, to practise their arts, upon the coast of Italy; at last, however, worried away (like old Norval's flocks and herds) by "bands of fierce barbarians from the hills," they were driven South, leaving the lands they had made so fertile to the savage tribes, whom the Roman armies found there, when they made their first appearance in the district, two centuries before the date we use to count the course of Time by—the Christian Era; and it became a Roman Province, unsurpassed in opulence and splendour by any part of the great Empire in which it was absorbed.

It pleased their conquerors,—and the world has followed suit,—to call that early and mixed race by the general name of 'Etruscan.' It is not the name they knew themselves by: but as they left no history, except their graves,—the most beautiful the world has ever seen,—and relics of skilled workmanship in pottery, and the precious metals, which modern art has never surpassed; their labours on the soil have remained for the careless eye of posterity, just like a work of nature, unlabelled except by the form given to it; and only to be read and judged of by the eye that sees to-day that immense district, the Maremma or Marsh-lands of Italy, as they still remain, and which will yet tax the utmost skill of modern drainage to redeem, and a great part of which perhaps can only be redeemed by the same laborious and aboriginal system, which may be said to have *created* a soil, by *Intersection*.

To the modern traveller, whirled along upon the Rail, the effect of course is that of excessive sameness, but of a most minute and exacting culture. In vain he looks for Field, Hedge, Upland, and Meadow, the accustomed elements of English agricultural Landscape: but in the place of these he sees *above* the soil, the Vine, the Fig, the Chestnut, the Mulberry; and *upon* it the young crop of Maize, or Millet, or other corn, *all* ripening under the same persuasive sun, and promising a triple and even quadruple harvest. It is hard to see what can be added to production such as this, upon land so laid out, and divided. It is elsewhere that Italy must look for new elements of wealth, new industry, and new resources. What the North-Italian has to learn is to keep the estate in order and repair which his ancestors redeemed and handed down. They were cutting Canals when our Plantagenet kings were ruling. The great Milan Canal was nearly finished before the discovery of America; and others are of far older date than that.

I think it is only after one has begun to look at it through these chronological spectacles that the truly '*cut, and dried*' formality of the soil begins to explain itself. And so far as sameness to the eye does not destroy interest to the mind, it is one of the most interesting soils that exist. It is the archetype of European husbandry.

The Railway from Turin to Genoa soon rises from the valley of the Po into the sub-Apennine district where the rich and sparkling wines of Asti are produced; and he, or even she, will be a stern traveller and a clever one, who manages to pass on without a libation to the '*Genius loci*.' Indeed here you may be said to begin 'serious drinking,' in the matter of Italian wines,—a subject too important, as well as puzzling, to be briefly discussed. *C. W. H.*

THE PARIS EXHIBITION.

(From our Correspondent.)

So far, the programme of proceedings in connection with this great undertaking has been faithfully carried out. The building was opened, but with no state ceremonial—if that be not one in which the Emperor and Empress took a part on the 1st of April, the day originally appointed. Whether or not it would not have been better had the opening been delayed till the building, its contents, and its surroundings in the park had been finished and completely arranged, is another question. Those who counselled the opening, whether every department was ready or not, will have this to say in favour of their advice, that many exhibitors notoriously delay preparations till the last minute, and that if the opening had been in May as it was in April, the same incompleteness, or something very like it, would have been in existence. And there is much truth in this way of viewing the matter. At the same time it is but right to state that there has been much exaggeration indulged in by the correspondents of our own papers as to the incompleteness of the various departments. Certainly the fearful confusion which raged throughout the building, even up to within a few hours of the actual opening, naturally led many to believe that to have anything like even a partial preparation of the contents was almost an impossibility; and yet, nevertheless, it was surprising to all when the opening did take place, how wonderfully complete was every department, and how well arranged their contents were. To the official eye many defects were visible, which to that of the uninitiated spectator were not so, so that the general effect was remarkably striking. We do not wish in saying this to convey the idea to the reader that the various departments are in the state of completeness in which they ought to have been at the opening; they are far from this—a vast deal remains to be done before this condition is attained; nevertheless there is even now so much in the building, and so well arranged, that it is easy to see that in a short time the whole will form the most extensive and the richest in detail of all the Exhibitions of Art and Science products which the world has ever seen. The park alone is a world's wonder, and although here more than in the interior of the building confusion reigns, especially in some parts, and a vast deal remains to be done before it is complete, yet there is enough finished to make it one of the most attractive features of this great world's gathering. It is indeed difficult to convey to the reader any adequate idea of the varied nature, the great numbers, and the individual richness of the structures here. Every kind of architecture nearly is illustrated, from the elaborate richness of the Pavilion of the Pacha of Egypt to the plain sheds which contain the agricultural exhibits of France and England. When all are finished we have no hesitation in saying that the park will be not the least attractive department of the Exposition. The Pavilion of the Emperor is designed in a somewhat novel manner, but its external details and its internal fittings are executed in the most exquisite taste. As if in contrast to it, almost immediately opposite to it, and within a very few yards

distance from it, stands the English Cottage, which, puzzling as it is in its most remarkable adjuncts of coloured bricks, tiles, chimney-pots, &c., has been designated by the French, who believe that it is a fair exemplar of what we have in England as houses to live in, by a most irreverent cognomen, which we need not repeat here, but which will be familiar enough to those who have travelled much in France, and who know from the habit formerly prevalent, of many Englishmen taking their Maker's name in vain, the name by which they were and are pretty well known in France. Incongruous as this English Cottage is in many of its details, it should be remembered that it has been specially designed and constructed to enable the various kinds of fittings and domestic appliances to be illustrated. Hence it is, that to get as many of those in and around the house, and to have the works of as many of our manufactories illustrated as possible, they are stuck on and applied in such a fashion and in such irregular profusion that the effect is most *bizarre* and unsatisfactory. Although, therefore, this structure is most, or rather, when finished, which at present it is not by a very great deal, will be most suggestive, in other respects it is so far from being so that it will convey to foreigners a most erroneous idea of what English cottages in reality are. In this respect it will form a contrast to the examples of buildings of other nations, as, for instance, those illustrating Russian cottages, which are, in every respect, perfect models of what actually form the dwellings and their adjuncts in that country. We shall have to return to this English cottage of ours in order to describe its fittings, many of which possess a special interest to our readers. Time will be amply afforded us for this work, inasmuch as while we write, the internal fittings are, in many instances, not begun to be put up, while in others they are in a very unfinished condition.

A great deal has been already, and much more we opine will yet be said, as to the appearance which the building or structure of the Exhibition presents. Our readers will have some idea of this when we inform them that the lively Parisians have already named it the "Gasometer," and truly it is much more like this than a "Palace," as official documents in somewhat grandiose fashion call it. Palatial in no sense it is; to speak truly of it, we may say that externally it is huge and ugly, although here and there, as in the entrances to the radial avenues from the central garden, we meet with some instances of architectural effect. From what we have said in a previous paper, the reader will not now be surprised at being informed that there are in the interior no large spaces which give the fine perspective effects which characterised the Exhibition buildings of 1851 and of 1862. The only place of this kind is the grand vestibule, but even here the effect is much marred by the want of proportions visible throughout; the roof is sadly too low for the length and width, and this depressing effect is still more increased by the unfortunate style of heavy, meaningless decoration to which the flat roof is exposed. Nothing, indeed, could be more unfortunate than this, for with a lighter and more elegant style of colour decoration, this grand vestibule would have afforded a fair example of a large apartment. The light, too, is not abundant, having to find its way through clerestory windows, which are of course placed near the roof line, and the light from which is much obscured by having to pass through stained glass windows. We may remark in passing, that the windows are filled up with the works of different artists, and of different nations, so that this vestibule is an exhibition of stained glass works, some of which is very beautiful.

In the part of the zones or rings of the building devoted to the reception of the works of British exhibitors, the great aim has been to keep the whole space as open as possible, and to adopt a light, simple style of decoration. The result is upon the whole satisfactory. The contrary principle has been adopted in the departments of foreign exhibitors, where the whole is cut up into separate compartments or apartments. One good result which at all events has sprung from this, is that the fittings of the various places present an individuality and a contrast to each other which forms in our opinion not the least striking feature of the Exhibition. These fittings are apparently erected and designed in order to afford examples of the styles prevalent in the countries which they represent, and the result is a richness which is very striking. We would direct the attention of the visitor to the fittings of the Russian and Egyptian departments, which abound in architectural details of a highly suggestive and pleasing kind. The evil which arises from this plan of independent or individual action in the fitting up of the foreign spaces is that from the multiplicity of the apartments met with by the visitor in walking round any particular zone or ring, he is apt to become confused, and to be unable to decide its lateral confines, so to speak. And here we may just remark in passing that we fear much of the value of the classification obtained by dividing—as before explained—the building into concentric zones and radial avenues will be done away with, if what we have observed in many of them is not amended in the future. We allude to the placing of articles in one zone which, strictly speaking, belong to another zone. We noticed this in many instances, and noticed it with regret, as being directly opposed to the principle of classification adopted, and as being calculated to confuse those who are examining the contents of the building with a view to being instructed by them. We had, for instance, much labour in finding out some objects connected with agriculture, and which, after much looking for, we found in a part of the building in which they ought not to be, if the classification adopted is meant to be carried out in practice.

We have already stated that the principal labours of the Agricultural Department of the Exhibition are to be carried out at Billancourt. At present, the beginning of the second week of the Exhibition, everything connected with this department is in a most abnormal condition, and it will be some time yet before order will be observed throughout it. The principal portion of the department of Implements and Machines is to be found in annexes or sheds in the Park. In that devoted to the British Section there is a fair—and we can scarcely say it is anything more than a fair—array of the implements and machines of our well-known makers; but which presents a contrast to the splendid exhibitions at our leading shows. This, however, was what was to be expected, for it should be remembered that it is a very costly affair to send over machines here, and at the best it is doubtful whether they will obtain orders sufficient to recoup what is spent. We know of one well-known firm whose expenses connected with their stall in the annexe in the British section of the Exhibition will cost considerably above one hundred pounds, and in addition to this there are other and much costlier outlays still to be met. The grand array of English implements and machines to which the visitors of our great shows are so much accustomed, must not be looked for here. But if the number of appliances here exhibited is limited, it is only just to say that their quality is pre-eminently marked. We need fear no competition in this respect. But the reader, from what we have said, must not suppose that we shall have little to record in connection with this department of the Paris Exhibition; on the contrary, both in the British and French Annexes, in the building itself, and here and there in the Park, are examples of implements and machines, models and drawings of buildings, &c., all of which will afford us much matter for remark and suggestion, and which will occupy succeeding papers, which we hope to draw up for our readers' perusal.

We conclude this paper by giving the following list of the various countries exhibiting, and of the area of surface which their products occupy or will occupy when they are all placed in position. In round numbers, metres may be taken to represent yards imperial—strictly speaking, a mètre is 39.371 inches, or 3¼ inches more than a yard. France, 61,314 square metres; Holland, 1897 square metres; Belgium, 6881; Prussia, 7880; Southern Germany, 7879; Austria, 7880; Switzerland, 2691; Spain, 1664; Portugal, 713; Greece, 713; Denmark, 751; Sweden and Norway, 1823; Russia, 2853; Italy, 3249; Rome, 554; the United Principalities, 554; Turkey, 1426; Egypt, 396; China, Japan, and Siam, 792; Persia, 713; Morocco, Tunis, 1030; United States of America, 2867; Brazil and the South American Republics, 1808; Great Britain, 21,653. Although last in the list, it will be seen with great satisfaction that our own country is only second in respect to the area which it occupies, and it may not be too much to say that in many of its departments it will be first—pre-eminently so in the mechanical arts, of which more in succeeding papers.

COLUMBIAN GRASSES.

[The following is an extract from the proceedings of the Highland and Agricultural Society at the Monthly Meeting of the Directors last Wednesday week:—]

THE Secretary reported that in the spring of 1866 the Society had received three communications from Mr. W. E. Cormack, New Westminster, British Columbia, transmitting four samples of Grass seeds indigenous to that district. In the first letter, Mr. Cormack says:—

"I beg to forward to you a little of the seed of the inestimable Bunch Grass of British Columbia, celebrated on account of its nutritious qualities for strengthening and fattening horses and horned cattle, and which if introduced into some of the Highland districts of Scotland might prove a valuable acquisition. It grows only in the interior, not at the sea coast; and in those inland districts where artificial provender is not yet produced in any quantity, horses, mules, and horned cattle gain strength and thrive upon it better than upon any artificially grown food. The small quantity now sent in a letter is merely a forerunner of more which I mean to send to you by some other mode of conveyance than by post. The first object is to ascertain if it will grow in Scotland. It thrives better upon moist soil than upon dry. Its history has been little attended to, and what is known of it is from the experience of transient equestrian travellers and cattle dealers, who supply the miners in the districts with meat. There are several varieties of it in different districts, all equally valuable. It grows in large bunches, about one and a half to two feet in height, standing a foot or two feet apart. When eaten down by cattle it is said not to grow again from the same roots, wild Sage taking its place. It is a question if it produces seed every year; and the seed may require two years to germinate. The seed will likely enable you to give it a botanical place."

The second communication, dated 8th February, 1866, is as follows:—

"On the 18th December last, I had the pleasure of addressing you, transmitting a preliminary sample of the seed of a very valuable Grass, called the Bunch Grass, indigenous to the elevated interior parts of British Columbia, and along the range of the Rocky Mountains, in the hope that upon trial such a Grass might prove valuable in the Highlands of Scotland. I have now the pleasure of sending an additional sample."

Mr. Cormack gives the following particulars concerning this plant, which had been supplied to him by an observant traveller in the interior:—

"The nutritious qualities of the Bunch Grass of British Columbia are really surprising. It grows in very poor sandy, gravelly soil, and at very high altitudes, even several thousand feet above the level of the sea, and seems to grow well in places where there is little or no other vegetation. All kinds of live stock fatten very rapidly on Bunch Grass; and the packers in this country burn off the old dry Grass in the fall of the year, so that they may have a fresh supply of young Grass for their horses and mules in the spring. It makes very good hay, and when perfectly dry loses none of its nutritious qualities."

With the third letter from Mr. Cormack, the Society received three other species of indigenous Grasses from Lake La Hache, near the Cariboo district, as well as the following particulars concerning them:—

"No. 1. Found on comparatively low ground; height, 3 feet to 3 feet 6 inches. No. 2. A Timothy, on low, loamy soil and marshes; height, 6 feet to 6 feet 6 inches. No. 3. Red Top, found on comparatively low ground and marshes; height, 3 feet 3 inches to 3 feet 6 inches. The Red Top is allowed by graziers and travellers to be equally valuable with the Bunch Grass; and the other two sorts, Nos. 1 and 2, are evidently well worth a trial."

Under the instructions of the Directors, the late Secretary lost no time in placing the seeds, along with the explanatory notes, in the hands of two eminent nurserymen of Edinburgh (Messrs. Robert T. Mackintosh and Peter S. Robertson), who kindly undertook to prove the seeds; and the reports of these gentlemen have just been received.

Mr. Mackintosh's statement is as follows:—

"Referring to the Grasses that were sent to me by the late Mr. Hall Maxwell to prove and report upon, I beg to say that I sowed said seeds, and watched their growth very narrowly. I have to inform you, however, that out of the four samples sent me only two vegetated—No. 1 and No. 4—and which are quite up to the description that accompanied them. No. 1, in my opinion, is too much allied to the Bent Grasses of our country to be any great acquisition to our already numerous family of Grasses. No. 4 I think differently of from its appearance and succulent nature; growing on poor soils in high situations, it might prove a very valuable addition to the Italian Grass family, which in appearance it very much resembles, with this in its favour over the Italian, of evidently being much hardier."

Mr. Robertson's report is in the following terms:—

"In reply to your favour of this date (30th March), regarding the Columbian Grass seeds which I received from the late Mr. Hall Maxwell, I had them all sown on carefully prepared ground in April, 1866, and the following is the result:—1st, Grass from Lake La Hache came up pretty well, produced broad, short, soft leaves in abundance, came into flower in August, appeared to be a species of Bromus; the panicles grew to a height of 1-1½ foot, but had no fertile seeds. The plants had no covering during last winter, and they are looking very fresh and healthy at present. I notice that the growth made by the leaves at this date is far earlier than our ordinary Grasses, and looks as if it would be nearly as early as Bromus Schraderi. I intend to separate the stools during April to increase the plants, and to see if the second year's herbage be stronger than the first year's. 2nd, Timothy Grass, from same lake as above—only three or four plants of this parcel grew; these did not flower last year, are at present quite healthy, and resemble the common Timothy in every respect, but that they are growing much earlier. I purpose to divide the plants of this also, and as it belongs to a more promising family than the Bromi as a forage Grass, I have a hope it may be worth attention. 3rd, Fescue Grass.—Grew well, leaves long, very narrow, is distinct from any of the cultivated sorts, the herbage scanty, no flowers produced, and about half of the plants killed during the winter. I suspect this parcel contained two species. The seeds did not look different, but the result as to hardiness seems to indicate a mixture. Of the other parcels none grew with me, and I fear that no further germination can be expected this year."

Home Correspondence.

April Work.—Spudding out Docks before horse-hoeing; 38 acres Wheat clean horse-hoed in two days with Garrett's horse-hoe by one man and two pairs of horses. Couch Grass forked out of ploughed land before scarifying, harrowing, and drilling. Wheat harrowed crossways after the horse-hoe. Women pulling Groundsel out of Clover before it flowers—nothing pays better than labour employed in the removal of weeds. Rows of Wheat hand-hoed where required. We shall soon sow artificial manures on the deeply winter-cultivated land for Mangel, scarifying and harrowing it well, but before all this is attempted all Couch Grass will be forked out and carried off the land. The severe March weather stunted the Grass and made feed scarce. Roots, too, are nearly finished, and very scarce. Luckily we disposed of nearly all our fat stock in good time, and at good prices—say 63*s.* for our hoggets, barely one year old, and 23*l.* for bullocks, barely two years. Fat stock is getting cheaper now. A great change and improvement has taken place the last few days in the appearance of the crops. Drains have ceased running, and the land has dried considerably. *J. J. Mechi, April* 10.

The Stallion Shows now in Season.—These annual exhibitions never fail to attract a considerable number of farmers, as also the inhabitants of the market towns, and the rural population of the districts in which the show takes place. Great interest is taken therein, and much business-like as well as much homely criticism is freely indulged in. The show usually commences with the blood horses, hunting horses, and roadsters or nag horses. These are shown in their various attractive paces and attitudes. The blood and hunting horses generally show themselves at rest or at work in their walking paces; very seldom indeed are they ridden, or put to other paces, so as to form any test of action. Nag horses, *i. e.* roadsters, are generally put to efficient test and competitive trials. The grooms are mostly mounted on active ponies. Their horses are at command, and are led by a long rein, and practised to trot somewhat in advance of the pony. In this way their leaders contrive to make them go fast as trotters, trotting at a tremendous pace; and thus are shown these horses trotting one after another in rapid succession, in oft repeated trials, till one or other manifests some superiority of action, *i.e.* "takes the show," the others retiring to their respective standings. This is a dangerous proceeding amidst a crowded street or public road, and not unfrequently ends in some disaster. As this trial closes the dray and cart stallions make their appearance, and in all their majestic bearing and noble contour of frame. These take their stand at safe, respectful distances from each other, and crowds immediately surround them. After an interval, devoted to the distribution of cards of pedigree, and terms, &c., they are carefully led up and down the allotted length of street or road till sufficiently viewed, and the show ends. Many are the arrangements made as to the route of travel of the various horses by their proprietors

and the promises of patronage by the breeders during the show, and the business is over. To the casual visitor it is a very interesting exhibition. The beauty, grace, and fire of the racers—the noble-looking, strong, wiry form and muscular activity of the hunters—the gay-looking, the fast and dashing paces of the roadsters, *i. e.* the trotters, are very attractive; but the colossal frames and finely-developed proportions, the nobility of appearance and haughty paces, the stalking gait of the cart and dray horses generally attract most attention. Indeed, to take them in all their proportions as fine animals, we have none to bear comparison with them. It is at these shows that breeders of horses make their choice of sires for their breeding purposes; the main point being to secure a sire of such developed proportions and activity of limb, as may compensate for any defect in the dam devoted to breeding. Breeders of horses, however, have very many different views of breeding, and each follows up his own course. Some are breeding race horses, others hunters, other roadsters; and again one man aims to breed dray horses, another good cart horses, another useful farm horses, &c., &c. These views must each be carried out with judgment, or failure results. A first-class, powerful race horse would be an admirable sire for a good hunter; but a hunting stallion would be very unlikely to prove a good sire for a race horse, and so in every other department of breeding. A breeder must decide the purpose for which he designs a mare to breed a foal. If he hopes to obtain a good dray horse, he will find it requisite to put large, well-grown mares to the finest dray horse he can meet with. Small mares may produce larger horses from this source, but not dray horses; but it is always good practice to use the finest character of "heavy horses." It is not altogether the same with racers, hunters, or roadsters. Beauty, activity, and strength are good characteristics in these selections. For this purpose large breeding mares of either kind may be put to moderate-sized horses with very satisfactory results; but small mares should invariably be put to horses of good size, or the proportions soon degenerate. As a rule the breeders of all kinds of horses, for saddle or harness, should aim to breed them of full and fine proportions, and if with good action all the better. *O. F.*

Poultry.—It is during winter, and especially in snowy weather, that poultry are more costly to feed; and it is at that time particularly that we should have regard to their comfort by shelter and warmth See what takes place now (April 5). As soon as the ducks are let out they disdain to pick up the Barley, but toddle away to the Clover field and search it from top to bottom, then betake themselves to the ditches or brooks. Nothing living escapes their quick eyes. After the horse hoe the fowls are spread over the fields, scratching into particles every patch of earth between the rows of Wheat plants; and from the frequent applications of their "peck," we can form an idea of how many insects or plant enemies were there, ready to do mischief, and how effectually the crops are thus secured from damage. No wonder that my corn and other crops near the poultry-house are always satisfactory. It would have paid many heavy-land farmers this year to have bought ducks, and so saved their crops from destruction by slug. An old shoemaker in this neighbourhood, too blind to work at his trade, has devoted his workshop to chicken-rearing, keeping a fire in the grate all winter. The consequence was an abundant supply of eggs at 1½*d.* each, wholesale, and young chickens that in a month's time will bring 7*s.* per pair, wholesale. He has thus realised exceptional and profitable results, and escaped that competition of cheapness and abundance which is produced by mild or summer weather. *J. J. Mechi, April* 6.

Farmers' Clubs.

London: *April* 1: *A Government Board of Agriculture.*—Mr. J. A. Nockolds read a paper on this subject, from which we make the following extracts:—He said: In approaching this subject, I found it to be somewhat of the hedge-hog genus: on whichever side I wished to grapple with it, I found it equally beset with difficulties of handling. Precedent, however, if I could find any, at home or abroad, seemed to offer, at all events, some *locus standi* for the gleaning of facts and formation of opinion; for I must here say, that until the very day, or thereabouts, that the subject was named to me, I had never given it a thought; I come, therefore, to the task on this most ominous day, with no pre-conceived opinions upon it. First, then, was there anything like a precedent at home for a "Board of Agriculture as a Government department?" Well, not entirely so; but something very like it. I am old enough to recollect my father and others talking of a Board of Agriculture, and of Arthur Young its secretary. So, to gain some information relative to this Board and its doings, I in the first instance applied myself. I found that its proceedings were published under the title of "Communications to the Board of Agriculture." I found also that Sir John Sinclair, its first president, then in opposition to Pitt the Prime Minister of the day, had made several ineffectual attempts to establish such a Board—so many, that Arthur Young (whom he had promised should be the secretary) laid him a wager that he would not succeed. This wager was his (Young's) complete set of "Annals of Agriculture" against a set of Sir John's "Statistical Account of Scotland." I don't think the loser would be much punished. It would seem that agricultural matters in those days did not meet with overwhelming attention from Government, any more than at the present time. On 10th January, 1793, Young writes thus to Sinclair: "You are going to Mr. Pitt, and I am to lose the wager. When you come from Mr. Pitt I shall have won it. Pray don't give Ministers more credit than they deserve. In manufactures and commerce you may bet securely; but they never do, and never *will* do, anything for the plough. Your Board of Agriculture will be in the *moon* (I am afraid ours will fare no better). If on *earth*, remember, I am to be secretary." And so he was. Some time in that year, I think, the Commons voted a humble address to his Majesty George III., that a Board of Agriculture be established, and that they would defray its expenses to the amount of 3000*l.*—no great amount, certainly; but then, you know, it was only for agriculture. Sir John introduced his motion with a long and able speech, stating that, in the first place, the institution would be a magazine of agricultural knowledge, and board of reference; secondly, it would promote agricultural surveys; thirdly, it would enter into extensive correspondence; fourthly, it would have the privilege of franking (correspondence being an enormous expense in those days); fifthly, it would further the improvement of stock; and last, but not least, it would furnish statistical accounts of the agricultural productions of England. A Charter was granted, 21st August, 1793; and, in conformity with its stipulations, the Board was called "The Board or Society for the Encouragement of Agriculture and Internal Improvement." In his first presidential address to the Board, Sir John said it would be of service to agriculture in two respects—firstly, by removing all discouragements to rural industry; and secondly, by granting encouragement thereto. Alive to his statistical proclivities, he recommends the filling up of tables (of which he gives a form) of farm produce by tenants and occupiers of land, but "not unless perfectly agreeable to the inhabitants of the district." Out of the very munificent grant of 3000*l.* per annum, 500*l.* was set apart for the payment and compensation of those gentlemen who executed the surveys of the several counties; and, if three or four were surveyed and reported on in the course of a year, even the editor of the *Field* himself could not have classed the reporters among his overpaid surveyors. In fact, Young's "Essex" must have been, at that time, worth the total sum. Sir John, as some of you are perhaps aware, made a very extensive tour, chiefly in the North of Europe, and was long after in intimate correspondence with crowned heads and other magnates of the countries he visited. Such a sight had not been seen before, and, I venture to say, never will be again, of the friend and advocate of agriculture generally, and of British agriculture in particular, being received with every courtesy and honour at the tables of Royalty itself, and greeted with complimentary attentions by the good and great of many nations, and this absolutely and solely in regard to his connection with, and his anxious strivings for the welfare of, the agricultural interest. I may say, perhaps, that there is some slight evidence of his not overlooking Sir Pertinax McSycophant's advice, to "keep booing, keep booing, always keep booing;" but, on the whole, he was an energetic, practical, clear-headed man, whose heart and soul were devoted to the well-being of the agriculturist. He had, however, in his mind a somewhat Utopian crotchet of a plan of an agreement among the Powers of Europe and the United States of America, for the purpose of rewarding discoveries of general benefit to society, such as increasing the quantity of animal and vegetable food, improvement in medicine, means of saving fuel, and construction of houses for the poor. And now, as to the practical working of this Board, let me just state a few of the sort of things for which they offered prizes. The first note I have is, that a Committee of the House of Lords offered through the Board, certain sums, to be given to those who would examine into, and report to their Lordships "the best means of converting Grass lands into arable without exhausting the soil, and of returning the same to Grass, after a certain period, in an improved state, or at least without injury." First prize, 200*l.*; 2d ditto, 100*l.*; 3d ditto, 60*l.*; 4th ditto, 40*l.* A silver medal for the means of ascertaining the probable state of the weather. Gold medal for the best account, with drawing, of the various instruments of husbandry. Silver medal for best and cheapest cottage; ditto, for oven for cottage; ditto, for bed and bedding for cottage. Gold medal for a plough, which will with the least force turn a furrow not less than 6 inches deep and 9 inches broad. Gold medal for best cart, &c., &c. And what was the world's opinion of all this? Did it think such a Board of Agriculture desirable as (partially) a Government department? It appears that, for some years at all events, it did. Many of the great potentates and nobles of the age expressed their strong approbation of this Board of Agriculture and its first President, who, as far as I can understand, was the primary cause of the establishment of similar Boards or Agricultural Societies in America, France, and other foreign countries. Can we then from this precedent draw a conclusion favourable to the "Desirability of a Board of Agriculture as a Government Department?" In some degree I think we can. The former Board certainly was in its day of vast service to the cause it advocated, even if the county surveys and reports be alone considered; but I am bound to admit that the same sort of results which were effected by it, have been and are being effected by the Royal Agricultural Society of England, the Highland Society, and other institutions of a similar nature. The question may be naturally asked why, if so much good resulted from Sir John's Board, it was discontinued? I have failed to find an answer to that question. All I know is, that it was put an end to by Lord Liverpool in 1819, and that in 1818 Sir John says:—"From anxiety to procure accurate information regarding the husbandry of Flanders, I had prevailed upon the Board of Agriculture to offer a premium of 200*l.* for the best account of Flemish Agriculture. But before the papers transmitted to the Board in competition for that premium had been examined, the Minister of the Crown (Lord Liverpool) had resolved to extinguish the Board, and orders were given that all the papers belonging to that institution should be deposited in the Tower of London, where they are still kept, inaccessible to the perusal of any one, as if manuscripts full of information of the highest importance to the agriculturists of the country ought to be carefully concealed as prejudicial to the public interest!" In the name of all that is liberal, equitable, and just, why was this? Fit precedent to the collection of agricultural statistics by the police. But then you know it is only agriculture that suffers.

I now come to the second part of my subject. Is there anything like precedent or example to be found abroad in the institutions of foreign countries? Now, you must not imagine that I am going to show you "all the kingdoms of the world and the glory of them." I have neither time nor ability to go much into detail upon this division of my paper, but I trust to show that what some of us think unnecessary is deemed to be quite the reverse both by despotic and democratic governments—that is, a State Department of Agriculture, presided over by a Minister.

Russia.—In 1792 there was an "Imperial Agricultural Society of St. Petersburgh," and Sir John Sinclair was admitted a member. In answer to inquiries lately made if there were any Government department of agriculture in Russia, I was told, "No, excepting Le Département d'Economie du Ministre du Domaine Imperial à St. Petersbourg"—which, it strikes me, must be something in the nature of our Department of "Woods and Forests." However, everything except a man's soul appears to be a Government institution in Russia, and all matters, of whatever nature, are submitted to military arrangement and discipline. That much remains to be done for agriculture in Russia will be apparent when I tell you that so late as 1850 they burned their manure, or mended such roads as they have across their rich alluvial plains with it, although these lands are beginning to feel the constant pull of two white-straw corn crops in three years without manure. The means of transit are also deplorable, and immense wealth must be lost in time and labour of transport; but a thousand or so of bullocks perishing in their return from the seaport on the arid steppes go for nothing. Altogether our question is not much forwarded by a reference to Russia.

Prussia.—Until the year 1848 all matters relating to agriculture were conducted in the office of the Minister of the Interior, or, as we should say, I suppose, the Home Office, a separate division being set apart for them; but in that year, for the better promotion and protection of the agricultural interest, a special minister was appointed, having in his department, and under his supervision, the following, viz. 1. The enfranchisement of feudal tenure: This is not the same as our copyhold enfranchisement, though somewhat analogous to it. And the Minister also has under his control what answers to the powers of our General Inclosure Act, as respects open and common arable fields, namely, "the laying together of pieces of land." 2. The improvement of land; regulation of rivers, canals, &c.; management of the woods and forests, dykes, water-courses, and main-drainage. 3. The establishments for promoting the breeding and rearing of horses, which is a matter of great importance in Prussia. 4. Agricultural schools and colleges, with experimental stations or field laboratories, where scientific agricultural experiments are carried out, after the manner of Mr. Lawes at Rothampsted. 5. Agricultural societies and exhibitions. 6. Measures for advancing the cultivation of the land in general: These embrace a wide scope; but at present not much benefit has resulted from them. Among them may be noted the mission, encouragement, and support of students of agriculture, drainage, engineering, &c.; on journeys of improvement; and the publishing of works on agriculture. To the Minister for Agriculture and matters connected with land appertains an agricultural board, composed of the most eminent agriculturists of the country, whom, as occasion requires, he consults. This board is assembled once or twice a-year at Berlin, for the consideration of important matters, at the request of the landowners and others interested in agriculture. Every member can himself bring forward any proposition for discussion which he may think worthy of consideration. The Board, however, can only tender advice and counsel; and the Minister is not bound by its conclusions. Where agriculture predominates in a State, as in Prussia, it is fully justified in having a Minister of Agriculture. The beneficial working of the system in that country has made itself felt in various ways, particularly with regard to the carrying out of suggested improvements, and the breeding and rearing of horses. Agricultural instruction also is satisfactorily advanced through the ministerial office, whilst of late attention has been paid to the education of the peasantry, or the class who are represented as nearly as may be by our labourers, in the lower or elementary schools. The colleges and upper schools of agriculture also largely conduce to the attainment of scientific agricultural knowledge, exclusive of the elementary tuition and the schools for teaching practical husbandry just mentioned.

France.—The Agricultural Department in France is presided over by a "Minister of Agriculture, Commerce, and Public Works." Agricultural statistics are under his control, and he superintends the agricultural and veterinary instruction afforded by the several colleges and schools, with the model and experimental farms appertaining thereto. He also provides help and assistance to rural industry, probably meaning donations or rewards for good husbandry, and experiments on seeds, roots, &c., but in what way, or whether I am quite right in my apprehension of the meaning of this help, &c., I cannot say. The supply of corn and the state of the markets, in relation to that supply for consumpton by the total population of the empire, are also under his supervision, as well as the drainage of the marshes and land generally. In his department likewise are placed the management of the imperial highways, and what we should call the cross or parish road. There are two descriptions of agricultural schools: 1st. Farm schools, where children of labourers are received without charge, performing all the labour on the farm, and receiving, as a remuneration therefor, instruction in agriculture essentially practical; they are established in most of the Departments of the Empire, and have experimental farms attached. 2nd. Regional Schools: These have three objects, 1. To form enlightened agriculturists, by teaching them the principles of agriculture. 2. To offer an example or model of practical agriculture of a high and advancing order. 3. To make experiments for improving the cultivation of the soil. There were three schools appertaining to this class in 1863, the one at Grignon being the chief. The State furnishes several scholarships to these schools.

America.—In turning to what may be called a Democratic Government as compared with those we have been considering, I feel quite overwhelmed with the magnitude of the consideration given to the Agricultural Department of their Government by the Americans. That department is under a commissioner, who reports to the President yearly. Under the commissioner, and reporting to him, are a superintendent of gardens, superintendent of experimental farms, an entomologist, a chemist, and a statistician. I have here, replete

with salient points for observation, the annual report of the commissioner for 1865, embracing all the subsidiary reports, valuable papers, and tables of statistics. It was forwarded to my kind friend Dr. Voelcker from the commissioner, and to the former I am indebted for its perusal; but time will not permit me to do more than briefly to allude, as I have done, to its principal contents, viz., the reports of the officials before mentioned. In many of the States agricultural colleges with farms attached are established, in connection with the Department of Agriculture, and appear to be in a most flourishing condition; although I must admit that, owing to the difference of the constitution of society here, similar results would not be likely to follow. Still, without wishing to raise that vexed question of Cirencester, something more might be done in this country towards the agricultural education of the youth of the middle classes *destined* to follow agricultural pursuits. Independently of the annual report, the Commissioner of Agriculture issues monthly (sometimes, it appears, bi-monthly) reports, thus keeping the whole country *au courant* with what is going on in farming matters at the time of issue; state of the crops; and such statistics as may then be procurable, not only in America, but in Europe. Among the tables in the Report for November and December last, are an exhibit of "The Farm Stock of Switzerland," "Statistics of Rinderpest in Great Britain," "Recent Export of Cereals to Great Britain and Ireland since September 1st, 1866," "Agricultural Products and Manufactures imported into Great Britain for the first nine months of 1865 and 1866," &c. The Consuls appear to take every pains to report whatever may be thought to be useful to the Agricultural Department, and which may come under their cognizance, in the vicinity of their several consulates: this they seem to do, quite as much as a labour of love, as the mere fulfilment of duty. Every American I have had occasion to converse with, in the course of my inquiries, speaks of the Agricultural as one of the best, if not the best department of the United States Government.

Now, surely, if all the countries I have mentioned—and, I believe, every European State besides—find a Government Department of Agriculture desirable, we cannot contend that it is not so here, in England? I think my precedents, or examples, fully show that it is—modified, probably, to suit the difference of national habits and prejudices; otherwise, we may consider ourselves, in this matter, the only wise people in the world. But to take the subject on its own merits, without reference to what has been done here, or what is doing in other countries. In the course of my inquiries, I have often been met with this observation: "Surely, Mr. Nockolds, the day for bounties and protection is gone by?" To this I answer, "Yes." But "the desirability of a Board of Agriculture as a Government department" does not depend upon such matters at all. You have released the infant from its swaddling-clothes—you have cut its leading-strings; but, while he is enjoying his liberty, why do you persist in punching his head? Is it not probable that if agriculture was fairly represented in the Government, and not by a section of the Board of Trade, several Acts of Parliament lately passed, and which have been alluded to by Mr. Read and others in this room as unduly pressing upon the tenant-farmer, might have been modified? A Board of Agriculture, with its President seated in the Commons, should at all times, when legislative enactments are proposed likely to affect the agricultural interest, examine into the provisions of the proposed measures, to see that impartial justice was done with regard to that interest. It should be enabled to act at once, without loss of time, in such matters as the cattle-plague, and without the lengthened ceremony of instituting a Commission, and consulting hosts of advisers, including Messrs. Stamp-it-out and Knock-'em-down of this Club. Who can doubt that if, upwards of a century ago, when a former visitation of rinderpest took place, a Government department had existed, it would have left valuable documents and precedents in its archives—that is, if they had not been sent to the Tower—which would have been most beneficial to us at this time? The questions of sewerage and water supply cannot long remain in the state they are in at present. They are matters vitally affecting both landowner and land-occupier, and deserve, while they are being discussed, the serious attention of some person of ability and influence on behalf of the landed interest. It would be so in America.

What is the annual value of that interest for which I say a Board is desirable? Such, as alone in my opinion justifies its establishment. In the "Farmers' Magazine" (I got it second-hand from the *Pontefract Telegraph* of 26th January last, and cannot tell the date of the original publication) appeared an article which thus quotes from a speech of Mr. Bright's:—"If in England the tenantry, and in Scotland the tenant farmers, the most capable, the most intelligent, the best agriculturists perhaps in the world, if they were to join in favour of measures, such as measures hostile to the game laws, hostile to any injustice which is supposed to exist with regard to the improvement of tenants, it would be quite impossible for the Parliament to resist their demands." I wish I could make him prove his words. The writer then goes on to make some calculations (which I confess perfectly astounded me) on what he says are the last statistics. I can read all his figures to you if you wish it, but I think the sum total is all we need look at. He makes the value of the live and dead farming stock of this kingdom, based on those statistics, amount to the enormous sum of 400 millions. Now, although I demur to some of his prices of stock, and find that his quantities of corn grown do not agree, so far as I can make out, with the Board of Trade returns for 1866, just published, yet I can see by the latter that he is not very wide of the mark. The total earnings of every other class in the United Kingdom amount to 418 millions, exclusive of the payments to agricultural labourers of 75 millions. Surely the owners of this extraordinary amount of property are entitled to some consideration, and to the poor compliment of having a Board of Trade and Agriculture at all events. But I must add my firm belief that this large amount of capital pays a much lower interest per cent. than capital invested in any other legitimate way. Why are we to be slighted in this absence of all acknowledgment by our Government? Are we less loyal, less moral, less industrious than other classes? Do *we* parade our grievances in the public thoroughfares, to the hindrance of traffic, to the alarm of the quiet and orderly disposed, and to the great detriment of trade? Are we less disposed to public or private charity, according to our means, and in particular those cases of manufacturing distress which of late have visited this kingdom? Do we succour with pecuniary support and other means those operatives who may in any branch of trade be "out on strike," without making any attempt to heal the breach between master and man? I trow not. I trust I may be considered now to have made out a claim for a Board of Agriculture as a Government department, and that I have to a certain extent shown the desirability of it. I would have a Board of Agriculture and Public Health, whose president or head should have a seat in the Cabinet. The supply of food, both vegetable and animal, must of necessity be intimately affected by the well-being of agriculture; and the supply and quality of both kinds of food, together with the supply of water, will also as intimately affect the public health. Again, those conditions of the atmosphere which result from imperfect drainage and disposal of sewage and other noxious matters, producing zymotic diseases, prejudice, though perhaps not exactly in the same form, both man and beast. This Board would therefore have under its control agricultural statistics and all matters relating to land; the supply of water to, and the effectual drainage of, the kingdom generally; and all measures for preserving the public health. [Mr. Nockolds then proceeded to describe in detail the nature of the office he would establish.]

Botley and South Hants: *How far can the Breeding and Grazing of Sheep be advantageously combined?*—Mr. Blundell said, it appears to me that more sheep should be reared, as there is evidently a great scarcity of store stock, and if they are not really dearer than fat sheep they leave but small chance for improving their value by what is termed grazing, viz., the consumption of root crops, hay, cake, corn, &c., for the purpose of enriching and preparing the land for the production of future sale crops. It is very common to hear the grazing farmer say—sheep are too dear to purchase this year, they cannot pay for feeding; but I am very much inclined to think the stock farmers on the hills are of a different opinion, for latterly they have adopted the plan of feeding a considerable portion of their flocks, both ewes and lambs, up to the state in which they are fit for slaughter, instead of selling them in store condition, as formerly. How far this practice is beneficial seems to me a matter for our inquiry. One of the causes, I think, will be found in the increased fertility of the land, which to the hill farmer is a question of immense importance, for he knows practically that he benefits by the increased production of corn, &c.; for on the chalk soils it is not often that crops suffer through a superabundance of straw. On the other hand, upon the loamy soils of what are termed grazing farms it is difficult to consume on the land the root crops, together with hay, and often cake or corn in addition, without injury to the succeeding crops, particularly in an abundant and forcing season, and I reckon that the cake and corn-feeding of stock on chalk soils is attended with 25 to 30 per cent. more benefit than it is on the loamy soils on the average of seasons. Many of the grazing farms, however, it must be remembered, are composed of gravelly or sandy land. On such farms, no doubt, grazing will be as beneficial as high feeding is on the chalk soils just named. In connection with this subject, however, I must say that many farms in South Hants and other districts of light stock soils are of necessity used for the breeding of sheep, instead of grazing, even where the cake and corn consumed would greatly benefit succeeding crops, but generally the farmer knows his interest too well to make a large outlay upon land let upon the terms of six months' notice to quit, for some one or other would be sure to outbid him in rental upon his own improvements. These farms are necessarily stocked with sheep, which are allowed to consume roots and hay only. It often happens, too, that hay and straw cannot be sold, to enable the tenant to make purchases of either artificial food or artificial manure, the latter of which it is assumed the tenant pays for out of his own pocket, but I contend is in part abstraction from rent, by which the landlord is consequently a loser. It has been assumed that the hill farmers, by feeding their sheep for the butcher, have encroached upon the privileges of the grazier. I have, however, shown you to some extent how he turns it to his account.

It is, therefore, now necessary for us to inquire how the grazier, under the circumstances by which he is surrounded, can protect his interest and obtain some benefit through some alteration from his former mode of management. In order to illustrate the subject I will endeavour to set forth what was my own practice upon my farm for nearly 20 years with horned Somerset ewes, and upon another farm for many years with Down ewes. Let us take first for consideration the usual system of grazing horned ewes and their lambs. We will suppose 100 ewes purchased the first week in October; three-fifths of the number will drop their lambs, on the average of seasons, by the 20th of November, leaving 40 out of the 100 to lamb between that date and Christmas. We will then suppose the whole of the flock kept alike upon the usual generous diet of roots, hay, cake, or corn, and often both. Now it is well known that the lambs of all ages, when sold, may make a fair average price, for the latter lambs often fetch as much money as the earlier, but how stands the account of the ewes when sold? Why, I think those which lambed before the 20th of November would realise quite 10*s.* per head more than those which lambed after that date, although they had been fed alike and for the same time. There must be a reason for this, for I assure you that in open field feeding the ewes which lambed in the first week in October, with 14 weeks' feeding with their lambs at side, would be fat, but others which lambed in the first week in December, kept the same time and upon the same food, would be only in moderate condition. No doubt the weather usual at the periods named is the chief cause of the difference, and were the stock kept under cover, nothing like the same result would obtain. I am not, however, advocating house-feeding. I will assume that what I have stated is practically correct, for it is the result of my experience, that the latter part of the stock, or 40 out of the 100, must be sold to a disadvantage, or kept on during the summer to a disadvantage, comparatively, for I have invariably found that the ewes, although they may be fed on costly food, such as cake, &c., do not make such progress in fatting as to justify the outlay, nor is the oilcake or corn consumed in the summer months with so much advantage as during the winter months, and the difference in favour of winter consumption I must put at 20 per cent. on the outlay. I am now alluding to the enclosed districts of this and other counties, for I am aware that in many of the western and midland counties the stock enjoy themselves and make great progress in grazing, not suffering from the heat of the climate, and the flies engendered by it, as they do in many districts of the southern and eastern counties. I think I have now shown you that a considerable portion of the ewe flock yields a poor return for a generous outlay, and as they are generally dear to purchase at the autumn fairs it is clear they cannot be sold cheap, and to a great disadvantage, without producing the dissatisfaction which we hear so much spoken of, and which is probably the cause of the subject on the card being named for discussion this day.

I am now, in consequence, arrived at the turning point of the subject, having shown the disadvantage of a system which generally obtains. I will endeavour to show you how I think it may not only be avoided but actually turned to good account, and that breeding and grazing may be combined. I will put it in a few words—keep grazing stock in the winter months, and breeding stock in the summer months, taking the former period from September to April, and the latter from April to September. I feel it incumbent on me, after stating the difference in the value of grazing off the early and late lambing ewe, to state how I would remedy the evil. I would take all the ewes that have lambed before the 20th November and with their lambs keep them as well as possible, for which I should be sure of a good return in mutton and lamb, but all the ewes lambing after the 20th of November, about 40 to 100, I would keep separate from the forward ewes, feeding them only on roots and hay, upon a good generous allowance as stock ewes, allowing the lambs, however, to run in advance of the ewes, and receive food of that kind which may be considered best adapted to feed them quickly for the butcher. I must, however, in passing, just state what I consider first-rate lamb's food, viz., good Dutch Clover hay, roots passed twice through the cutter, either Carrots, Kohl Rabi, or, which is still better, White-heart Cabbage, mixing cake meal and Barley meal with the cut roots, the trough food to consist of the best oil-cake, cracked fine, and mixed with grey Peas, also cracked. When the lambs are cared for in this way they will turn out well, although the ewes had only been kept in store condition. By the 1st of May the fattest ewes, and all the lambs, will have been sold, leaving the latter ewes in store condition. My practice was to purchase other stock ewes at Guildford and other fairs, thus forming a summer flock, and so manage that the rams were turned in on the 1st of May and removed from the flock about the 1st of July, thus insuring that there would be no lambs to fall after the 20th of November, as before stated. Now, the ewes managed in this way will be more valuable than any which can be purchased in the autumn, as they lamb at the right time, and have become accustomed to the soil and climate. They will have also proved a valuable flock for folding purposes; they have given you their wool, and you have been enabled to keep a large flock, even on scanty keep, and with all these advantages they will have also improved in value as much as though half the number had been kept in a fatting state, and the portion of the ewes not in lamb will be ready for early autumn grazing.

I would here allude to my practice of summer folding, which is to enclose the sheep in a fold in the daytime instead of at night, and, in very hot sunny weather, from 10 o'clock, to 4 o'clock in the afternoon; this plan is far superior to promiscuous feeding, as otherwise they resort to the shade of hedges and trees, leaving their dressing where it does no good. Under the system just described, the grazing farmer will always have half a stock by him of more value than any he can buy, and as his requirements will be diminished, so will it tend to diminish the price of those he has to purchase. My observations have been made to apply chiefly to horned ewes of the best Somerset and Dorset breeds; I have, however, adopted the same plan with the Down ewes, altering the dates and period of lambing about two months, namely, that the ewes which lamb before the 1st of February should be kept together with their lambs upon the best of food, and the latter ewes kept in store condition, and in some cases it answers better instead of fatting the lambs (as with the horned ewes) that they should be also kept in store condition, and weaned at the usual time. This will give an increase of valuable stock for grazing purposes in the succeeding winter. I must also observe that many graziers are deterred from keeping sheep in store condition in the summer months, for fear of the rot, but I hold an opinion in this matter different from many parties. I contend that when sheep are folded, or lay on the dry arable land at night

and have three changes of food allowed them during the 24 hours, two of the changes being the produce of arable land, the third may be the produce of inferior pasture or meadow land (indeed, such as would produce unsound sheep, without change or admixture), and yet they will remain sound, especially if they have rock salt in the field to which they can have access at all times. This matter has been explained thus: although the entozoa which produce the fluke in the liver may have been taken into the system, yet they cannot exist in connection with food of a nutritious kind impregnated with salt; and practically, also, I have found that I never had fluke produced in sheep fed in my meadows during a period of 20 years, and, as I believe, because they had always one change in the day of salt marsh Grass. In support of my argument I quote from a paper on parasites:—

It is stated that sheep fed upon the salt marshes never take rot; and this I believe to be true. And why is it? Because the penultimate form of the fluke cannot live there. No eggs, no embryos no sporocyst, or germ sacs, no cercariæ are to be found here. The earth, and consequently the herbage, contains so much saline matter that if placed here they do not come to perfection, but die. Now this precept from Nature teaches us a most important lesson—how, in a great measure, we may prevent sheep from being affected with this disease. If any of you hold lands that are likely to produce this disease, have your sheep located on the highest and driest parts of your farm; have them folded every night, and feed them with dry succulent food, with which mix a moderate quantity of common salt. This will in a great measure prevent the formation of flukes by destroying them in their early stage of development. I have no hesitation in saying that by allowing sheep to feed for one hour on some situations, sufficient amount of mischief may be done to produce "the rot." Take care of your sheep, and prevent them as much as you possibly can from taking this disease; for remember this, that when once it is generated there is no cure. Palliative measures may be adopted in the early stages with considerable benefit; but when once a rotten sheep, always a rotten sheep.

Strictly in accordance with our object, I venture to suggest the idea, "Breed all you can, and graze all you breed." This, of course, must be kept within the capability of the farm as regards extent, soil, and other circumstances; and in order to combine breeding and grazing advantageously, the occupation should be somewhat extensive, and the stock to be ewes, the number adjusted to the acreage, the ewe lambs kept in store condition in connection with the flock, the wether lambs and full-mouthed ewes to be fattened in the autumn and winter months. This, however, necessitates the consumption of cake and corn food to some extent, and which, as before stated, much of the grazing land will not bear advantageously. A ready way, however, to meet this is by removing from the field one-quarter or one-third of the root crop for use at the homestead for cattle, or on to Grass land for use in April and May for the sheep. I have now laid before you two systems of combined breeding and feeding, each of which deserves our attention, the former as adapted to small farms, the latter to larger farms with some pasture land. In the consideration of our subject nothing has, as yet, been said about the fluctuations in the value of sheep stock. I must, however, call your attention to the great fall in the price of sheep in the autumn of 1860, caused by the wet summer, and in 1864 by the dry summer. As the value of stock is high five years out of seven, I assume that on the average of seasons the breeder has the advantage where he keeps a full stock, and on the lesser farm with a ewe flock he keeps half a stock, thereby in the one case having the full advantage as breeder and grazier, and in the other case adjusting the balance of value by only having half a complement of stock to buy in the year. There is yet a part of our subject to be noticed. Upon many moderate-sized farms it is the practice, where the land is not suitable for a ewe flock, to purchase lambs and fatten them out as mutton in the spring, or otherwise keep them in store condition and sell as store sheep. Which is the best plan of the two must be decided by many of the circumstances before alluded to; one thing, however, is very clear, that parties can, in many cases, make their choice whether they will feed for the butcher or for stock, and certainly with the various methods of stocking, breeding, and feeding, the farmer has but little to complain of, having only to make his selection according to the circumstances by which he is surrounded. I wish, before concluding my observations, to say that it is to be much regretted that with all our importations of sheep from other countries, but a small portion of them offer any advantage for further grazing; this no doubt arises from different causes, some of which are inferiority of breed, difference in climate, and age of the stock. It has long been a matter of surprise to me that in the autumn we have not more lambs imported in store condition, because we know practically that the younger the animal the more easily it becomes acclimatised, and accustomed to the varied modes of management peculiar to this country, and the more the animal by good breeding can be assimilated to the stock of this country the better it would be both for grazier and importer, and I have no doubt if the present high prices for store sheep continue, that the subject must and will commend itself to the attention of the foreign breeder and importer.

Discussion.

Mr. Wyatt said he found it did not answer his purpose to keep all his wether lambs for fattening. He did not profess to act both as feeder and breeder, but after making what profit he could in the latter capacity, he thought it was the best plan to give the grazier a chance. He thought the best principle for upland farmers was to breed all the stock they could, and then sell it to the dealer or grazier. He cannot breed so many if he undertakes grazing; he would have to buy artificial food for his feeding flock, and in the end he would be at a loss by it. He was certain grazing would not answer on hill farms. Where was the keep to come from, supposing they determined to graze their flocks during the summer? He could not do it. The two things—breeding and grazing—should be kept separate, as they were in point of fact.

Mr. Drewitt generally supported Mr. Blundell's conclusions. He had found that it answered better to breed lambs for fattening than resort to the market for all his store stock. He preferred buying wether tegs in the spring and summer, as they turned out more profitable than stock bought in the autumn. The best time for buying ewes for fattening was in the summer.

Mr. T. Warner agreed with Mr. Blundell as to the advantage of keeping a portion of the later lambing ewes back so as to come in for early lambing the next season. He kept his ewes in good condition, and consequently had lambs early next spring. His plan had succeeded tolerably well, as he thought the results of their Easter shows proved, and therefore he should continue to follow it.

Mr. Withers could easily understand why stock farmers declined keeping their flocks for feeding, since they could realise 14*d.* or 15*d.* per pound for them in the shape of store stock, whereas by fattening them they would get only 9*d.* or 10*d.* per pound. He contended that the pasture land in his neighbourhood was not suited to the breeding of sheep, still a portion of the flock might be kept for breeding.

Mr. Holdaway said they were all much indebted to Mr. Blundell for the able manner in which he had introduced this subject, which was rather a peculiar one, as it referred to the business of two different classes of persons—the flockmaster and the grazier. Take the case of a stock farm lying on the chalk; there, in consequence of the rapid strides made of late years in agriculture, more sheep could be kept than formerly, and it was more advantageous to keep a breeding flock, than one for grazing. It paid better to keep the wether lambs together, and sell them off 100 at a time, or in large numbers, than keeping them to graze and selling them off 10 at a time. Stock farmers, as a rule, therefore, did not keep their stock for grazing, because breeding was more favourable to them. He could not see how a breeding flock could be kept on a grazing farm so as to be profitable. It was necessary to keep the ewes in good condition during the lambing season, and when the lambs were sold off, they might be also made fit for the butcher, but to keep them throughout the year, he thought, would entail a loss. He could not quite agree with Mr. Blundell, though he should be glad to be shown how they could manage to breed their own sheep and graze them as well, so as to do it advantageously.

The Chairman said, having listened to the remarks which had been made by different speakers, it appeared to him that there was great difficulty in combining the breeding and grazing of sheep on one farm. If ewes were backward it might answer to keep them till the next year, but it would be different as regarded lambs. It might answer with ewes to a very small extent. He knew a gentleman who intended, instead of selling his lambs this year, to bring them out as tegs next, being of opinion that he shall realise more in that way; at the same time he must go to the breeder for his ewes. How to combine the two objects he did not know. If they found the prices of store stock so high, they need not buy so much, and if there were fewer purchasers in the market there would be less demand, and the prices of stock would fall. One reason why stock was so dear was because people fancied they must get sheep to consume their large stock of Turnips, but it would be better to plough them in, or use them in some other way, than purchase sheep at a high price. They might keep beasts or pigs, in order to consume the Turnips, and it would probably pay them to do so. Grazing farms were higher rented than hill farms, and sometimes by nearly 20 per cent., and with the present prices of stock it would never do for a tenant of such highly-rented land to depend upon that source for his profits. Instead of looking to his stock as the means of enabling him to pay his rent, he must expect to do it from his corn crops. Taking the subject as a whole, they must, he thought, be guided by circumstances; when stock was cheap it would be a good plan to buy as much as they had the means of fattening; and when it was dear, let them buy as little as they could.

Mr. Blundell, in reply, said he was glad that the subject he had introduced to their notice had elicited discussion upon the various points treated of. The three principal points were, first, as respected the hill farms, how far might grazing be combined with breeding; secondly, as regarded the extensive pasture farms in that neighbourhood, how far they might be applied to the purposes of breeding as well as grazing; and thirdly, how the occupier of small farms may retain half his stock for breeding. Mr. Wyatt maintained his position as a breeder of sheep, his remarks proving that of which graziers often complained, namely, that store sheep were often too high to pay for feeding. It would appear from the discussion that there was not a single thing in the grazier's favour, and that he carried on the feeding of sheep at a loss; he first bought them dear, and then had to enter upon an expensive method of feeding, so that when he sold the sheep he did not realise what they had cost him. But his loss was converted into a gain by the corn crops which his stock enabled him to raise. He thought he had pointed out a mode whereby grazing farmers might improve their position; for if a breeding farm had, as was proved, an advantage over a grazing one, then graziers, provided their farms were large enough, should breed, at least, a portion of their stock. He did not agree with Mr. Holdaway that lambing ewes kept in store condition would not answer so well as highly-fed ewes, his own practice during 20 years proving the contrary. He kept a flock of 200 ewes on his farm for three years in succession, upon his root crop, but he grew Mangel Wurzel instead of Swedes, and he recommended that plan, as they might feed their sheep upon it all the year round. Mr. Wyatt complained of paucity of food as one reason for not keeping his flock for feeding, but he could, probably, grow sufficient food for them if he chose to farm high enough. There was nothing that the land produced which would keep such a number of head of stock on a farm as Wurzel. He concluded by moving the following resolution:—"That it is the opinion of this meeting that the breeding of sheep has been lately more advantageous than grazing; and that on the grazing farms of this district it would be, to a certain extent, most advantageous to combine breeding of sheep with grazing."

Mr. T. Warner seconded the resolution, which was then put, and carried unanimously.

On the motion of Captain Robinson, seconded by Mr. Earwaker, a vote of thanks was unanimously accorded to Mr. Blundell for the able manner in which he had introduced the subject, and a similar compliment having been paid the Chairman, the meeting separated. *Abridged from Hampshire Advertiser.*

Reviews.

Children's Employment Commission (1862): *Sixth Report of the Commissioners, with Appendix.* G. W. Eyre & W. Spottiswoode. 1867.

A very able and exhaustive analysis of this Report, which refers to the employment of children in the fields, was given the other evening by Mr. Dent, M.P., in the House of Commons; and his speech, containing a very fair review of the whole subject, was reported in our columns last week. We refer again to the Blue Book containing the statements which were then so effectively marshalled and reviewed, both in order that our readers may be again reminded that here is a perfect mine of truth on a most important agricultural subject, from which they ought themselves to gather the wealth of information it contains, and also that we may lay before them a few additional extracts on topics which have a very material relation to the question of field labour for children.

First, of Mr. Payet's plan of half-time school and work. The following is his latest report on the efficiency of the system, in which he refers to the results of the plan which has now been some years in operation:—

"As to their work at the time, my bailiff is quite satisfied that the work of the farm is carried on better than it would be by boys constantly at work. Educated boys carry out orders with greater intelligence, and they are more alert, because less fatigued, than those who are subject to daily toil.

"As to the effect of the system on the future career of the boys, I can speak with a confidence greatly increased. It would be difficult to find an equal number of boys educated in any other way who have conducted themselves more creditably in their advance to manhood. Many parents, seeing the successful career of the earlier pupils, have readily sacrificed one half of the children's wages to secure for them the same advantages.

"Those boys who wish to continue in farm service easily find masters, for they are, as a rule, better servants than those who have not had the advantage of combined education; the greater number, however, find more lucrative employment, because their manners and intelligence are far above the average; I believe that nine-tenths of them would be entitled to the Parliamentary franchise upon any educational test which I have seen proposed.

"It may be that my experiment is carried out under exceptionally favourable circumstances, that children whose parents are willing to make a present sacrifice to secure the future welfare of their offspring must be brought up under superior home influences, and that if all were equally well educated the chances of advancement in life now enjoyed by my pupils would be materially diminished; however this may be, as there is no reason to believe that my boys possess more than average ability, I think I have proved beyond controversy that a very fair amount of learning may be imparted between the ages of 9 and 13 without impairing a farm boy's preparation for the active duties of his calling.

"I acknowledge the difficulty of applying compulsorily the principle of the Factory Act to agriculture, because inspection would be impossible; but the clergy and the schoolmaster would, I trust, feel themselves the guardians of the children, and might, with the assistance of the police, secure a general obedience to the law.

"Farming employment differs from that in factories, inasmuch as it depends much more on weather and seasons, and I find it compatible with progress at school to retain the boys on the farm occasionally when there is a great press of work. If, therefore, any legislation is proposed respecting farm children it should be marked by considerable elasticity, at the same time securing that the intervals between school attendance should be short. I have a strong opinion that such legislation is desirable, and every application of the system to other labour makes the regulation of farm labour more imperative.

"Factory education in rural districts is very imperfect, because, for the sake of their earnings, children are sent to the farmer who employs and pays for their whole time, until the latest period which is consistent with their admission into the factory, and the education which ought to have been carried on at 9 years of age does not commence before 11 or 12.

"Again, a large proportion of the criminal population in towns consists not so much of their natives as of the outcasts from the country districts and their offspring. Many years ago I traced the history of the criminals who were brought before me in Nottingham, and I found that much the larger portion of English consisted of those who had been driven from their native village for larceny or offences against the game laws.

"I recommend, without the slightest hesitation, immediate legislation for boys employed in coal mines; working in darkness and solitude, they require beyond any other class the physical and moral advantages of the system.

"With the aid of Sir G. C. Lewis and Mr. Adderley I succeeded some years ago in passing through the House of Commons a clause providing that under 13 years of age they should not work constantly in the mine, but should attend at school for two days in the week. Unfortunately the House of Lords substituted for this clause a provision for their attendance at a night school after the hours of labour; the cruelty and insufficiency of this provision are now manifest."

In the second place we extract a portion of Lord Leicester's speech *on the provision of sufficient Cottage accommodation,* delivered at the meeting last year of the Norfolk Agricultural Society. His lordship said:—

"I am the owner of 521 cottages, supplying probably about 450 able-bodied labourers. I calculate that 950 labourers are required to cultivate my property, thus leaving 500 to be obtained who are not resident upon the estate. I will divide the labourers employed into what I will call the home and foreign supply. The home supply can always be depended upon; they have constant employment, and although wages are nominally 10*s.* per week, yet, owing to the system of piece work (a system as beneficial to the labourer as it is profitable to the employer), I think I may state their earnings to be 12*s.*, with a considerable increase in hay and corn harvest. They live in good houses, and I may say that, with hardly an exception, owing to the untiring energies of my late agent, Mr. Keary, and my present agent, Mr. Shellabear, they live in decency and comfort; they almost all have good gardens, and for these and their houses, which are let by the week, they pay an average rent of 2*l.* 17*s.* 4*d.* per annum. These men will remain on the estate; but

of what does the foreign supply consist — those 500 men who are required to properly cultivate the land? They have no certainty of constant employment. Under the most favourable circumstances, if living within the parish, they occupy houses that have been built upon the speculation of a remunerative return upon the outlay, and to afford this they have to pay 4*l.* or 5*l.* a year for a meagre dwelling, in which they cannot live decently or comfortably, and they rarely have a garden. But in very many cases they have also to walk three or four miles to and from their work in all weathers; they have not the same attention in sickness or ill health as those resident on the estate, and there is not, and cannot be, any tie to bind them to it. I say it is much to the credit of those men that they are seeking happier homes and better masters; and in these days of increasing intelligence and consequently more rapid and direct communication with the rest of England, I believe that the scarcity of labour we are now experiencing is merely the commencement of what will be seriously felt in our agricultural districts, unless an immediate remedy is applied; and the only remedy is to build as speedily as possible sufficient cottages for the larger proportion, if not for all those required to cultivate the land, either upon the farm or in the parish where they are employed. I have no hesitation in saying that where there is a deficiency of cottages the supplying that deficiency is one of the best investments a landlord can make. Admitting that the rent received from the labourer would not pay a remunerative interest upon the outlay, I much question whether the existing rents of land can be maintained without further cottage accommodation, but I am satisfied that rents may be considerably increased when there is a sufficiency of homes for the labourer. During an existing lease there is not one of my tenants who is not willing to insure me 5*l.* per cent. interest upon any sum I may expend in providing homes for his labourers, where they are required, and the time is not far distant when the first requirements of a farm will be, not ample farm-steads, but sufficient cottages."

Lord Leicester proceeded to refer in detail to the construction of these cottages, intimating that they cost 100*l.* to 115*l.* a-piece, which, however, is below we imagine what a fair cottage costs in most parts of the country. It is plain that it is by the provision of sufficient cottage accommodation on the one hand, and by the adoption wherever possible of some such plan as Mr. Paget recommends for ensuring the proper education of children on the other, that we shall correct the evils attendant on the field labour of children, whether in gangs or otherwise. And it is well, therefore, to draw attention to these two cardinal points in the argument which is urged by the Blue Book named above.

Miscellaneous.

Hohenheim.—The Agricultural College of Hohenheim, one of the oldest establishments for agricultural education in Europe, is situated near Stuttgard, in the kingdom of Wurtemburg. This institution consists of three separate schools, namely, what may be termed the high school or academy, the agricultural school, and the horticultural school. In the first, students are admitted of not less than 18 years of age, who are proficient in preparatory studies and are desirous of further advancement in agricultural knowledge that they may manage their own estates and the estates of others; the course is two years in duration, and consists of lectures and practical demonstrations. The agricultural school is independent of the foregoing, and was instituted for the purpose of creating a class of thoroughly practical stewards or overseers of small estates, who will take the plough in their own hands; also to teach small proprietors intending to farm their own estates how to perform necessary agricultural operations with their own hands. A great portion of their time is spent in agricultural labour on the farm, but they receive instruction from professors two hours each day, in the lecture-room. No foreigners are admitted under any circumstances to this school, but the 25 pupils to which it seems limited must be natives of Wurtemburg. The course embraces three years. As to the third school, for horticulture, I need not enlarge upon its objects, which are sufficiently apparent from its title. There are in addition to these schools, educational courses annually, on fruit-growing, management of Grass land, shepherding, and school-teaching. The farm attached consists of 778 acres: the directors disclaim the idea of its being a model farm in the usually accepted sense of that term, but it is intended to demonstrate improvements, such as a rational rotation of crops, thorough culture of the soil, proper treatment of manures, under-draining, irrigation, &c. The live stock consists of 10 farm-horses, 90 cows and heifers, 28 working oxen, and 1000 sheep. There are botanical and vegetable gardens, a vineyard and a nursery, and experimental fields: on these the effects of different manures, rotation of crops, succession of the same crop for several years, excessive manuring, thick and thin seeding, broadcast or drilled, are shown. There is a sugar-beet factory, brewery, distillery, malting, several other factories, a roof and drain-tile manufactory, and an agricultural implement and machine manufactory, silk-worm and flax-preparing departments, and also a large forest is attached. Seeds are distributed to the farmers of the kingdom, and there is an annual sale of bulls and rams; I suppose my American author says "bucks." *Mr. Nockolds.*

Concrete.—Mr. W. E. Newton writes as follows to the *Journal of the Society of Arts*:—As some gentlemen appear somewhat sceptical as to the strength of concrete and its applicability for the construction of buildings, and seem to think the advocacy of this material an "amiable weakness," it may perhaps be interesting to state the nature and composition of the concrete which has been successfully used in constructing the Emperor's "Maisons Ouvrières" in the Avenue Dumesnil, Paris, and also that used by me in the works I have carried out here. In Paris we used one part of Portland cement (C. Francis and Sons') to five parts of large gravel stones, varying in size from the size of pearl Barley to that of Peas. The fine sand is sifted or screened out, put on one side, and used for making stucco for facing the work. At this place I find it more economical to use burnt brick earth, or "brick ballast," as it is called, from which I sift out the very fine, and add one of Portland cement to eight of ballast. This makes a very hard wall. I have even reduced the cement to one in 10 with perfect success. I burn the ballast myself, and it costs me under 2*s.* per cubic yard. Therefore, if we take one yard of ballast at 2*s.*, and 2½ bushels of cement at 1*s.* 10*d.*, we shall have a cubic yard of concrete for 6*s.* 7*d.*, to which add 2*s.* 3*d.* per yard for labour, and we shall find we can put up a superficial yard of nine-inch work for less than 3*s.* One gentleman ventured to question the possibility of building a wall 30 feet high in nine-inch work. I only say that this has been done by Mr. Tall, and the houses so constructed have been sold by him at a very large profit. From the numerous experiments I and others have made in concrete constructions, I have no hesitation in offering the following challenge to the sceptics, viz., that they shall build a wall of any dimensions in common brick and mortar, with or without Tyerman's bond, and I will build one in concrete; and if the concrete wall does not sustain a greater weight than the brick wall, I will forfeit to them 50*l.* and the cost of the wall, they undertaking the same liability to me should the brick wall not stand an equal test.—Mr. Samuel Sharp has forwarded the following statement relative to the cost of constructing dwellings of concrete for the labouring classes, viz.:—

(1.) One room, 12 ft. by 12 ft., and 7 ft. high	..	£30
(2.) Two do., ,, ,,	..	60
(3.) Suite of 3 rooms, scullery, and w. c.	..	100
(4.) Do. 2 do., ,, ,,	..	75

The saving by building of concrete and Nicol's patent partitions and roofs is 25 per cent.

Ground-rent for 3 rooms, 3*l.* per annum.
Do. 1 room, 4*d.* to 6*d.* per week.
Do. 2 rooms, 7*d.* to 10*d.* do.

in the centre of London; in the suburbs, at least one-half less. The foregoing calculation is without including the purchase of the land. If this is added, the sums (1), (2), (3), and (4), will be raised to 50*l.*, 100*l.*, 160*l.*, and 115*l.* respectively.

Iron.—The metal, iron, has long held the foremost place among its brethren with respect to practical utility for the service of man. It is widely disseminated through the world, its supply is practically inexhaustible, and the process of extracting it from the ore is, comparatively speaking, easy and inexpensive. But its chief value consists in its adaptability to the manifold purposes for which metals are required. Pure iron is softer than any form of the dark grey material which we are accustomed to see and to handle in everyday life. It is highly ductile, malleable, and has strange affinities for oxygen and carbon, especially the former. So much is this the case that finely divided iron will fall in a fiery shower if scattered in the air, and a rod heated at one end will burn away like a stick of sealing wax if a jet of oxygen be directed upon it. But when mixed or combined with carbon this wonderful metal undergoes the strangest variety of transformations. As the proportion of carbon increases, the property of adhering to its like when hot, which we call welding, gradually decreases, and in exchange we get a number of other properties equally remarkable—equally valuable for daily use. Add a large proportion of carbon and behold an easily fusible mass, partly a mixture, partly a compound, which will not weld but can be made as fluid as milk and run into moulds the smallest interstices of which it will seek out, and, penetrating into the finest niches, solidify into forms of elegance or strength as the will of the founder may direct. This material is called "cast iron," and is soft or hard, grey or white, tough or brittle, according to the quality of the carbon and the rapidity with which it is cooled. But if, instead of much carbon being added, only a small quantity be combined with the pure iron, with perhaps a little nitrogen and other matter (for the elements necessary to constitute steel are not wholly determined), a new and quite wonderful effect is produced. The power of welding is almost gone, and in exchange for it a new and most valuable range of phenomena appear. A bar of steel heated to redness and cooled slowly is very soft, and so ductile that it can be drawn out even when cold into the finest wire. This wire, or a piece of the bar itself, can be bent again and again without breaking, but if heated once more and cooled suddenly by immersion in water, or by other means, it becomes hard as adamant and almost as brittle as glass. Between these two extremes are many steps, and the intelligent worker "lets down" the watchspring, sword, razor, or whatever the piece may be called, to the "temper" required. Brightening the surface, he applies a regular heat slowly, and watches the result. Delicate hues steal one by one over the polished mirror, and when the colour which he seeks appears he stops the process, with certainty that he has obtained the desired result. *The Times.*

Notices to Correspondents.

INCUBATOR: *F J O* wishes to possess one of these in good working order. Would any of our correspondents, therefore, desirous of disposing of one, favour us with their address?

TURKEYS: *A F.* Give your turkeys some Epsom salts in their water; change their food, giving them for a few days bread and ale, chopped onion, a little Garlic, and black pepper mixed with the Barley or Oatmeal, and avoid any whole corn. If practicable keep them away from any pond or standing water.

ODAMS'S NITRO-PROSPHATE for CORN.
ODAMS'S NITRO-PHOSPHATE for ROOTS.
ODAMS'S DISSOLVED BONES.
ODAMS'S SUPERPHOSPHATE of LIME.
ODAMS'S PREPARED PERUVIAN GUANO.

MANUFACTURED BY

THE PATENT NITRO-PHOSPHATE OR BLOOD MANURE COMPANY (Limited).
Chief Offices—109, Fenchurch Street, London.
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Robert Leeds, West Lexham, Norfolk.
George Saville, Ingthorpe, near Stamford.
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This Company was originally formed by, and is under the direction of agriculturists, circumstances that have justly earned for it another title, viz.—"The Tenant Farmers' Manure Company."

Its members are cultivators of upwards of 50,000 acres of land which has been for years under management with Manures of their own manufacture. The consumer, therefore, has the best guarantee for the genuineness and efficacy of the Manures manufactured by this Company.

Particulars will be forwarded on application to the Secretary, or may be had of the Local Agents. C. T. MACADAM, Secretary.
Chief Offices—109, Fenchurch Street, London, E.C.

LAWES' MANURES.—The Manures manufactured by J. B. LAWES for the present season of 1867 are now ready for delivery at his Factories, at the following prices, per ton:—

	£	s.	d.
LAWES' PATENT TURNIP MANURE and BONE SUPERPHOSPHATE of LIME..	6	6	0
LAWES' SUPERPHOSPHATE of LIME from BURNT BONE or MINERAL PHOSPHATES	5	5	0
LAWES' WHEAT, BARLEY, GRASS, and MANGEL MANURES	8	0	0
CONCENTRATED CORN and GRASS MANURES ..	12	0	0

These Manures can be obtained of Mr. LAWES, or through the appointed Agents in all parts of the United Kingdom, at prices varying according to cost of carriage.

Genuine Peruvian Guano direct from the Importers. Nitrate of Soda, Sulphate of Ammonia, and other Chemical Manures.

American and other Cakes at market prices.

Address, JOHN BENNET LAWES, 1, Adelaide Place, London Bridge, E.C.; 22, Eden Quay, Dublin; and Market Square, Shrewsbury.

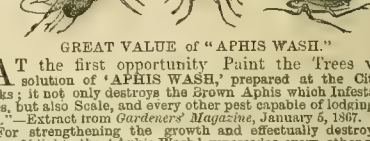
THE LONDON MANURE COMPANY
(ESTABLISHED 1840),
Have now ready for delivery in dry fine condition,
CORN MANURE, for Spring Use
DISSOLVED BONES, for Dressing Pasture Lands
SUPERPHOSPHATES of LIME
PREPARED GUANO
MANGEL and POTATO MANURES
Also Genuine PERUVIAN GUANO, and NITRATE of SODA, ex Dock Warehouse; SULPHATE of AMMONIA, FISHERY SALT, &c. E. PURSER, Secretary.
Offices, 116, Fenchurch Street, E.C.

GENUINE TOBACCO PAPER, 10*d.* per lb.
Terms Cash.
W. DODGSON, Jackson & Sons, Tobacco Manufacturers, 29, Lady Lane, Leeds.

ROLL TOBACCO CLOTH.—The cheapest and best article for Smoking Greenhouses and destroying the Fly; equal to Tobacco in strength, 1s. 4*d.* per lb.; over 10 lb., 1s. 1*d.*
JOSEPH BARER, 10, Gough Square, Fleet Street, E.C.
Post Office Orders payable Fleet Street.

BOSTON'S NE PLUS ULTRA, for the Destruction of Mealy Bug, Scale, American Blight, &c., on Stove and Greenhouse Plants, Fruit Trees, Vines, &c. In bottles, with full instructions for application, price 3s. 6*d.*, 5s., and 10s. 6*d.*
JAMES CARTER & Co. beg leave to state that the present time is most suitable for applying the above genuine Specific before the commencement of the growing season, thereby preventing the rapid increase of the above pests which would otherwise take place. The infallible properties of BOSTON'S NE PLUS ULTRA are rapidly becoming fully recognised, J. C. & Co. having already sold nearly 2000 bottles since its first introduction in the spring of 1866. Numerous testimonials have been received, and not a single complaint of its inefficiency.
Sole Agents, JAMES CARTER & Co., 237 and 238, High Holborn, W.C.
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Vineries and Orchards.



GREAT VALUE of "APHIS WASH."

"AT the first opportunity Paint the Trees with a solution of 'APHIS WASH,' prepared at the City Soap Works; it not only destroys the Brown Aphis which Infests Peach Trees, but also Scale, and every other pest capable of lodging in the bark."—Extract from *Gardeners' Magazine*, January 5, 1867.

"For strengthening the growth and effectually destroying all forms of blight, the 'Aphis Wash' supersedes every other preparation."—See *Gardeners' Chronicle*, August 19, 1865; and *Gardeners' Magazine*, July 1, 1865.

Sold by Chemists and others, in 1s. bottles, and 2s. 6*d.* a gallon, with full directions for use.

Wholesale at the City Soap Works, Milton Street, London, E.C.



GISHURST COMPOUND.

Used by many of the leading Gardeners since 1859, against Red Spider, Mildew, Thrips, Green Fly, and other Blight, in solutions of from 1 to 2 ounces to the gallon of soft water, and of from 4 to 16 ounces as a Winter Dressing for Vines and Fruit Trees. Has outlived many preparations intended to supersede it.

Sold Retail by Seedsmen, in boxes, 1s., 3s., and 10s. 6*d.*

Wholesale by
PRICE'S PATENT CANDLE COMPANY
(LIMITED)

SUTTON'S CLEANED GRASS AND CLOVER SEEDS.

SUTTON'S PERMANENT **GRASS SEEDS** FOR ALL SOILS, **26s. to 36s. per Acre.** *Carriage Free.*



SUTTON'S PERMANENT **GRASS SEEDS** FOR ALL SOILS, **26s. to 36s. per Acre.** *Carriage Free.*

MESSRS. SUTTON

HAVE ONE OF THE MOST COMPLETE STOCKS IN EUROPE OF

NATURAL GRASS AND CLOVER SEEDS,

WHICH THEY SPECIALLY PREPARE FOR EVERY DESCRIPTION OF SOIL.

The following are the popular Classifications of Soils:—

1. STIFF CLAYS. | 2. STIFF or HEAVY LOAM. | 3. GOOD MEDIUM LOAM. | 4. LIGHT SANDS. | 5. SHARP GRAVELS. | 6. CHALKY SOILS. | 7. SHEEP DOWNS. | 8. RIVER FLATS or WATER MEADOWS.

In ordering it is only necessary to state the nature of the soil to be laid down, and suitable Seeds will be supplied.

SUTTON'S BEST MIXTURE OF PERMANENT PASTURE GRASS AND CLOVER SEEDS

(Two Bushels of Grasses and 12 lbs. of Clovers per acre).

Prices for Nos. 1, 2, 3, 4, 5, 6, and 7, 36s. per Acre. For No. 8, 30s. per Acre (Carriage Free).

☞ **CHEAPER MIXTURES can be Supplied at from 26s. to 30s. per Acre (Carriage Free).**

Extracts from a few of numerous Letters received, quite unsolicited:—

From Mr. John Towle, *Weirs and Hinckley Mills, near Oxford.*
April 9, 1866.—"Some five or six years back I had from you Permanent Grass Seeds for 40 acres, and ne same quantity from another party; while yours has now a good sward upon it, the other is worn lmost to nothing."

From Mr. Robert Kay, *Pontrack, Stockton-on-Tees.*
April 25, 1866.—"The Seeds you sent me in 1864 have surpassed those sent by my landlord from lanchester in the same year, and appear as if they will come to swathe much earlier than the others."

From Mr. John Durrant, *Agent to* G. C. Courthope, Esq., *Claphatch Farm, Ticehurst, Sussex.*
Feb. 24, 1867.—"The Grass Seeds we had of you last year were very good, and the land sown now ooks like an old meadow."

From Mr. Richard Duckham, *Newton Farm, Bucknoller, Taunton.*
March 31, 1866.—"The permanent pasture from seed I had of you last season is looking remarkably ell, and now fit to stock with sheep. I have been in the parish for the last 25 years, and have ever seen any plant equal to it."

From John Money, Esq., *Donnington, Newbury*
June 26, 1866.—"The Grass Seeds I obtained from you on the 15th March, 1865, to sow with my Barley crop, have produced a most exuberant crop of Hay, which is now stacked. It was much admired by some of my agricultural neighbours when standing, and promises well for a second crop."

From the Rev. Richard H. Harrison, *The Parsonage, Builth.*
April 13, 1866.—"It is only right to say that the Seeds you sent me two years ago for laying down two fields, have surprised those who have seen the Grass from them, although they were sown on high land in the very dry and hot summer of 1864."

From Mr. G. Wilson, *Agent to the* Earl of Dartmouth, *Woodsome, near Huddersfield.*
March 31, 1866.—"The 23 acres of land I laid down with your seeds last year are looking first-rate; they are the admiration of the neighbourhood."

From Mr. Thos. Vernon, *Steward to* Right Hon. Lord Camoys, *Stonor Park, Henley-on-Thames.*
April 2, 1867.—"The Permanent Grass Seed you supplied me with last year has given a very first-rate plant; in fact, any one would think that the land had been laid down several years."

SUTTON'S RENOVATING GRASS AND CLOVER SEEDS FOR THE ABOVE SOILS,

at from 5s. to 10s. per acre. Sow 6 to 12 lbs. per acre. Price 10d. per lb.

From J. C. Blackett, Esq., *Thorpe Lee, Egham.*
"Sept. 30, 1865.—"Mr. Blackett will be obliged to Messrs. Sutton to send him Renovating Grass eed of the same quality as last year, which was excellent."

From H. Harper, Esq., *Agricultural Colony, Whitwick, Lancashire.*
Jan. 4, 1866.—"Your Renovating Mixture for our Home Meadow answered remarkably well. It is now the greenest and freshest 10-acre field in the neighbourhood."

SUTTON'S MIXTURES OF GRASS AND CLOVER SEEDS.

For THREE or FOUR YEARS' LAY, BEST MIXTURE, 24*s.* per acre, Carriage Free.
Second quality cheaper.

From Joseph Kirkham, Esq., Jun., *Terrington.*
March 28, 1866.—"The Four Years' Lay Seeds I had from you have answered well; and although I ad a heavy crop of Oats, there has been more feed than I ever saw before. I have had 100 ewes nd lambs on the 10 acres for a long time, but it appears to grow almost as fast as they eat it."

For TWO YEARS' LAY, BEST MIXTURE, 18*s.* 6*d.* per acre, Carriage Free.
Second quality cheaper.

From Mr. William Jones, *Agent to* E. P. Monkton, Esq., *Fineshade Abbey, Wansford.*
May 5, 1866.—"The Clover and Grass Seeds supplied by you during my residence here (1864 and 865), have given every satisfaction; indeed, in 1865, when all seeds around me were a failure, I had ich an abundant crop of your 'Two Years' Lay Seeds,' that out of 60 acres I mowed 20 acres twice that season, and the mowings together averaged quite three tons per acre."

For ONE YEAR'S LAY, 15*s.* per acre, Carriage Free.

From R. Bird Thompson, Esq., *Free Chase, Slaugham, Crawley.*
Jan. 19, 1867.—"The Seeds for One Year's Lay had from Messrs. Sutton turned out wonderfully. The mowers stated they had not seen such a crop for years, and that it was like cutting into a wall. They said it was 4 feet high. Certainly it was the finest crop Mr. Bird Thompson ever saw."

SUTTON'S MIXTURES of CLOVERS and RYE-GRASS for ONE YEAR, 12*s.* to 14*s.* per acre, Carriage Free.

From Mr. E. Neal, *Steward to the* Hon. J. K. Howard, *Hazelby.*
June 27, 1866.—"I have harvested some Clovers and Italian Rye-grass from seed you sent me last year, which has been the admiration of the neighbourhood."

SUTTON'S MIXTURE of CLOVER SEEDS, without Rye-grass, 12*s.* to 14*s.* per acre, Carriage Free, according to sorts and quantities required.

SUTTON'S MIXTURE FOR PARK AND GARDEN LAWNS, BOWLING GREENS, CROQUET GROUNDS, &c.

Sow 2 to 3 bushels per acre. Price 18s. to 24s. per bushel (Carriage Free).

MESSRS. SUTTON had the honour of supplying their Grass Seeds for the formation of the Parks and Grounds, now so much admired for their beautiful evergreen appearance, at

THE CRYSTAL PALACE, SYDENHAM;
AND ALSO TO
THE SEVERAL ROYAL FARMS, AND TO SANDRINGHAM HALL;
HER MAJESTY'S GOVERNMENT WORKS AT PORTSEA, SOUTHSEA, AND PORTLAND;
THE ROYAL HORTICULTURAL SOCIETY OF LONDON;
THE PEOPLE'S PARK, HALIFAX;
THE ALDERSHOT AND OTHER CAMPS;
AND TO MOST OF THE PUBLIC PARKS, GARDENS, ASYLUMS, &c., IN THE KINGDOM.

MR. M. H. SUTTON'S NEW ILLUSTRATED WORK, "PERMANENT PASTURES,"

IS NOW READY, PRICE ONE SHILLING, POST FREE. OF ALL BOOKSELLERS.

Special Estimates given for large quantities.

All Goods Carriage Free (except very small parcels). 5 per cent. discount allowed for cash payment.

SUTTON AND SONS, Seedsmen to the Queen, READING, BERKS.

SHANKS' NEW PATENT LAWN MOWERS FOR 1867.

PATRONIZED ON FIVE OCCASIONS DURING THE SEASON OF 1864 BY

HER MAJESTY THE QUEEN,

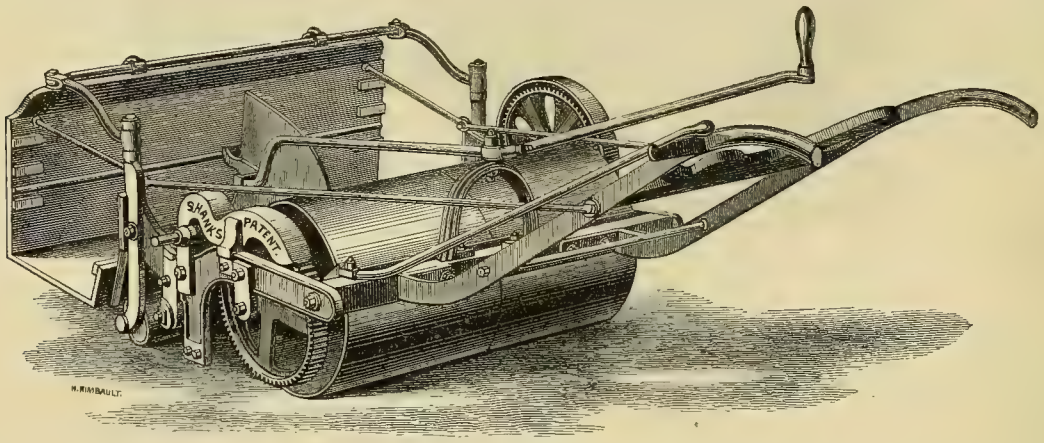
AND ONCE BY HIS MAJESTY THE KING OF SAXONY.

DURING THE SEASON OF 1865 THEY WERE PATRONISED ON FOUR OCCASIONS BY HER MAJESTY THE QUEEN,

ONCE BY HIS MAJESTY THE KING OF HOLLAND, AND ONCE BY HIS MAJESTY THE KING OF PRUSSIA.

AGAIN ON FOUR OCCASIONS DURING THE SEASON OF 1866 BY HER MAJESTY THE QUEEN,

AND BY MANY DISTINGUISHED NOBILITY BOTH IN THIS COUNTRY AND ABROAD.



HORSE-POWER MACHINE.

Every minute point in the way of improvement has been carefully considered and adopted, and as A. S. AND SON have for more than a quarter of a century devoted their attention to this particular branch of their business, the Nobility, Gentry, and Gardeners may rely on the MACHINES they may order, to be such as to ensure lasting satisfaction, and to stand the wear and tear of many years.

SHANKS' PATENT LAWN MOWERS

ARE IN DAILY USE IN

ALL THE ROYAL GARDENS; IN THE HORTICULTURAL SOCIETY'S GARDENS AT KENSINGTON; CRYSTAL PALACE COMPANY'S GROUNDS; IN VICTORIA PARK; HYDE PARK;

And in almost all the principal Public Parks and Gardens in the Kingdom.

These are the only Machines that can be depended on to give lasting satisfaction.

THESE ARE THE ONLY MACHINES THAT WILL MOW PROPERLY WHEN THE GRASS IS WET.

THESE ARE THE ONLY MACHINES THAT DELIVER THE GRASS WITHOUT STOPPING, THUS SAVING AN IMMENSE AMOUNT OF LABOUR.

SHANKS' PATENT LAWN MOWERS are the only Machines that have been in operation in Her Majesty's Gardens for a quarter of a century.

Shanks' Patent Lawn Mower will Mow on uneven as well as on level Lawns.

ALEXANDER SHANKS AND SON, in referring to their IMPROVED LAWN MOWERS for 1867, doubt not but that the preference which in past years has invariably been given to their Machines will still be awarded them. The principles which guide A. S. AND SON in effecting improvements compel their Machine ever to stand the first in point of general efficiency, simplicity of construction, and durability.

A. S. AND SON have particularly aimed at substituting Wrought for Cast Iron to as great an extent as possible in the construction of their Machines. None but skilled Workmen and the most improved Machinery are employed in manufacturing the various parts, and this applies not only to the Horse and Pony, but also to the Hand Machines.

A. S. AND SON have now ready for delivery a large stock of their celebrated LAWN MOWERS, which will enable them to execute orders on the day they are received.

PRICES, INCLUDING CARRIAGE TO ANY RAILWAY STATION OR SHIPPING PORT IN THE KINGDOM.

SHANKS' NEW PATENT HAND MACHINE.

Width of Cutter.		Easily Worked	Silent Movement.
10-inch Machine	£3 10 0	*By a Lady*	4*s.* extra.
12-inch Machine	4 10 0		
14-inch Machine	5 10 0	*By a Boy*	

Width of Cutter.		Easily Worked	Silent Movement.
16-inch Machine	£6 10 0	*By a Man or Two Boys*	4*s.* extra.
19-inch Machine	7 12 6	*By a Man and Boy*	
22-inch Machine	8 7 6	*By Two Men* ..	7*s.* 6*d.* extra.
24-inch Machine	8 17 6		

SHANKS' NEW PATENT PONY and DONKEY MACHINE.

Width of Cutter.		If with Patent Delivering Apparatus.
25-inch Machine	£12 10 0	.. .. 25*s.* extra.
28-inch Machine	14 10 0	.. .. 30*s.* ,,
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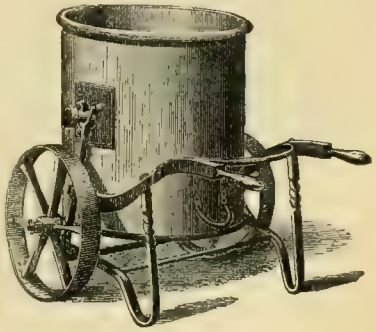
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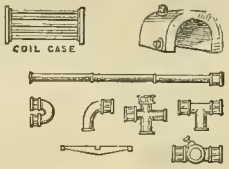
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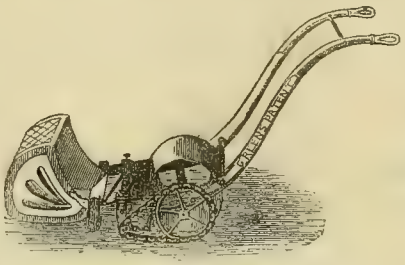
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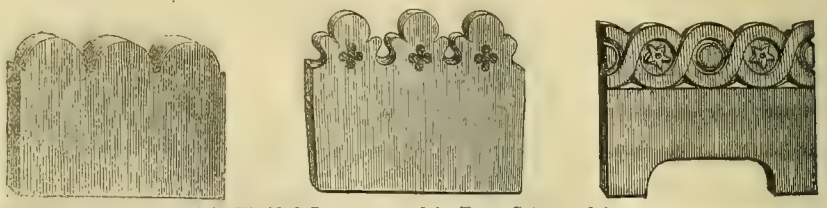
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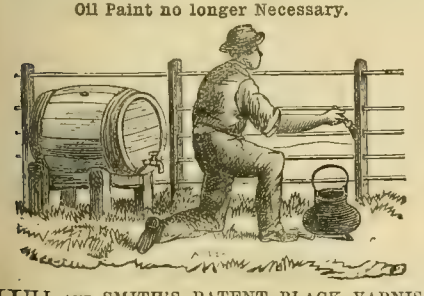
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TO BE LET, at Michaelmas next, the OLD ESTABLISHED NURSERY at Upwey, near Weymouth, Dorset, where for more than half a century an extensive business as Nurserymen, Seedsman, and Florist has been carried on. The House and Premises are commodious. There is a Greenhouse, Hothouse, &c., and the extent of Garden is about 4 Acres.
Apply to Mr. S. Kingman, Upwey, Dorchester, Dorsetshire.

TO BE LET or SOLD, an Excellent NURSERY (owing to the death of the Proprietor, and winding up of the Estate), well situated, not far from London, and well stocked with 40,000 Fruit Trees, Evergreens, Shrubs, &c. £150 will buy Stock, Lease, &c.
For particulars apply to Messrs. Hy. Clarke & Sons, 39, King Street, Covent Garden, W.C.; or to S. Chandler, Esq., Solicitor, Basingstoke.

NURSERY and SEED BUSINESS for SALE.—A good going Nursery and Seed Business in the North of England will be Disposed of on very moderate terms to any party who can take possession at an early date. There is a considerable breadth of glass, almost new, and well stocked with first-rate saleable plants, for which there is a great demand in the district. In the Seed department there is an excellent connection, which is increasing yearly. Most satisfactory reasons can be given for the present proprietor having resolved to relinquish the above.
Apply by letter only, address "Business for Sale," care of Messrs. Peter Lawson & Son, Edinburgh.

Sales by Auction.

Sale of Choice Carnations, Picotees and Pinks, Standard and Dwarf Roses, Fruit Trees, &c.

MESSRS. PROTHEROE and MORRIS will SELL by AUCTION, at 38 and 39, Gracechurch Street, City, E.C., on THURSDAY, April 18, at half-past 12 o'Clock, a first-class Collection of CARNATIONS, PICOTEES, and PINKS; 300 handsome STANDARD and DWARF ROSES, including the best varieties in cultivation; selected Fruit Trees, American Plants, Evergreens and Coniferæ Shrubs, fine Azalea indica, Roses in pots, and other plants in bloom; Verbenas, Fuchsias, Dahlias, some fine bulbs of Lilium auratum, with a choice assortment of imported and other Flower Seeds, &c.
On view the Morning of Sale. Catalogues may be had at the Rooms as above, and of the Auctioneers and Valuers, Leytonstone, Essex, N.E.

SALE THIS DAY, AT HALF-PAST TWELVE O'CLOCK.

Consignment of Plants from Ghent.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on SATURDAY, April 13, at half-past 12 o'Clock precisely, first-class DOUBLE CAMELLIAS, INDIAN AZALEAS, Hardy Rhododendrons, Fruit Trees, Shrubs, Roses, Rustic Seats, Stools, &c.
On view the Morning of Sale, and Catalogues had.

Imported Orchids from Mr. J. Linden's Collectors.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on MONDAY, April 15, at half-past 12 o'Clock precisely, the following valuable and new ORCHIDS:—

Cattleya species nova	Odontoglossum brevifolium
,, maxima	,, cristatum
Heleia sanguinolenta	,, crocatum
Lycaste xanthophora	Oncidium aurosum
Mesospinidium sanguineum	,, macranthum hastilerum
Zygopetalum rostratum	,, serratum

&c., &c., &c.
On view the Morning of Sale, and Catalogues had.

Important Sale of Orchids.

MR. J. C. STEVENS has been favoured with Instructions to SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., without reserve, on WEDNESDAY and THURSDAY, April 17 and 18, First-class ESTABLISHED ORCHIDS, being part of the well-known Collection of A. Basset, Esq., of Stamford Hill, who is reducing his Collection for a short time owing to change of residence. The Plants consist of Duplicates, amongst which will be found many magnificent Specimens of all the best Varieties, including:—

Aerides Fieldingii	Miltonia spectabilis
,, maculosum	Odontoglossum citrosmum
,, Lobbii	roseum
,, Larpentæ	Odontoglossum Alexandræ
,, crispum	,, radiatum
Cattleya Mossiæ	,, B untii
,, Trianæi	,, nevium majus
,, Bassetti	,, Phalænopsis
,, Wagneri	,, coronarium
Dendrobium macrophyllum	Oncidium crispum
,, giganteum	,, amphiatum majus
,, primulinum giganteum	Phalænopsis amabilis
,, nobile pendulum	,, grandiflora
Cypripedium Stonei	,, Schilleriana
,, Veitchii	Saccolabium ampullaceum
,, barbatum	,, curvifolium
,, concolor	,, guttatum
,, villosum	,, retusum
Lælia elegans	Trichopilia crispiflora
,, Dayi	Vanda Batemanni
,, purpurata	,, tricolor
Miltonia candida grandiflora	,, suavis

&c., &c., &c.
On view the Morning of Sale, and Catalogues had.

Important Sale of very fine Orchids from the East Indies and Ceylon, all in splendid Health.

MR. J. C. STEVENS has received instructions to SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on MONDAY, the 22d instant, a consignment received by the last Mail from India and Ceylon. It consists of very fine specimens of—

Saccolabium giganteum	Saccolabium Blumei majus
Vanda Bensoni	

The magnificent and rare Dendrobium McCarthæ, in beautiful health and fine plants, perhaps the finest ever imported.

Dendrobium eburneum	Dendrobium formosum giganteum
,, Pichonianum	,, chrysotoxum

and other Dendrobes; splendid masses of Cypripedium concolor in the finest possible health, &c.
On view the Morning of Sale, and Catalogues had.

Imported Orchids.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, April 24, at half-past 12 o'Clock precisely, a fine lot of VANDA CŒRULEA in excellent condition; also other fine ORCHIDS from Assam, including SACCOLABIUM GUTTATUM, AERIDES ROSEUM or AFFINE, DENDROBIUM NOBILE, &c.
On view the Morning of Sale, and Catalogues had.

Established Orchids.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, April 25, at half-past 12 o'Clock precisely, the entire collection of established ORCHIDS, the property of a gentleman giving up their culture, including fine healthy plants of the following well-known varieties:—

Angræcum sesquipedale	Oncidium leucochilum
Aerides nobile	Lælia purpurata
,, maculosum Schræderi	,, Schilleriana
Cattleya labiata	Phalænopsis Schilleriana
,, amethystoglossa	,, amabilis
,, Warneri	Saccolabium curvifolium
Calanthe Veitchii superba	,, Blumei majus
Odontoglossum nævium majus	Dendrobium Devonianum
,, hastilabium	Vanda cœrulea
Oncidium roseum	Sobralia macrantha splendens, &c

On view the Morning of Sale, and Catalogues had.

Choice and Large Collection of Orchids.

MR. J. C. STEVENS has been instructed to SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., without reserve, on THURSDAY and FRIDAY, the 2d and 3d of May, the entire COLLECTION of CHOICE ORCHIDS belonging to Geo. Cooper, Esq., of Alpha House, Coburg Road, Camberwell, owing to his giving up the growth in consequence of his removing into Kent. The Plants consist of all the leading and newest varieties, including:—

Aerides Fieldingii	Odontoglossum Dawsoni
,, maculosum	,, gloriosum
,, Lobbii	,, luteo-purpureum
,, Lindleyanum	,, insleayi
,, Larpentæ	,, Pescatorei
,, quinquevulnerum	,, pulchellum majus
,, roseum superbum	,, radiatum
,, virens superbum	,, grande
Cattleya amethystoglossa	Oncidium ampliatum majus
,, Trianæi	,, crispum grandiflorum
,, Mossiæ	,, ,, ,, marginatum
,, labiata	,, Lanceanum
,, maxima	Phalænopsis grandiflora
,, ,, superba	,, amabilis
Cypripedium caudatum	,, roseus
,, Hookeri	,, Luddemanniana
,, Lowii	,, Schilleriana
Dendrobium chrysotoxum	Peristeria elata
,, clavatum	Saccolabium guttatum splendens
,, densiflorum album	,, præmorsum
,, eburneum	,, Blumei majus
,, heterocarpum	,, Reidii
,, Cambridgeanum	,, retusum
,, thyrsiflorum	,, violaceum
Lælia elegans	Trichopilia suavis
,, purpurata	Vanda cœrulea
,, autumnalis	,, Batemanni
,, Wallisii	,, gigantea
Odontoglossum Alexandræ	,, insignis
,, Blumii	,, tricolor
,, citrosmum	,, suavis, &c.

On view the Mornings of Sale, and Catalogues had.

Highly Important Sale of Established Orchids.

MR. J. C. STEVENS begs to announce that he has been favoured with instructions to SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, May 9, at half-past 12 o'Clock precisely, some unusually fine Specimens and Choice Varieties of ESTABLISHED ORCHIDS, being duplicates from the renowned Collection of S. Rucker, Esq., of West Hill, Wandsworth, including:—

Aerides Larpentæ	Trichopilia crispa
,, Fieldingii	Miltonia candida grandiflora
Cypripedium caudatum	Odontoglossum Phalænopsis
Dendrobium Wardii	,, nævium majus
Cattleya labiata	Calanthe Veitchii
,, labiata speciosa	Cymbidium eburneum

And many other fine species all in the finest possible health; also some duplicates from the well-known Collection of J. Day, Esq., of Tottenham, including fine Plants and first-class varieties of the following RARE ORCHIDS:—

Angræcum sesquipedale	Lælia elegans
Aerides affine	,, Schilleriana splendens
,, Larpentæ	Maxillaria venusta
,, Dayanum	Miltonia Regnelli
,, quinquevulnerum	Odontoglossum Bluntii
Cattleya amethystoglossa	,, Pescatorei
,, Bowringiana	,, hebelobum
,, labiata	,, Uro Skinneri
,, superba	Phalænopsis amabilis
Cœlogyne cristata	,, Schilleriana
Cypripedium Lowii	,, Luddemanniana
,, Dayanum	Pleione lagenaria
,, Stonei	,, humilis
,, longifolium	,, maculata
Dendrobium Devonianum	,, Wallichii
,, lituiflorum	Saccolabium guttatum
,, Farmeri	,, ampullaceum
Dendrochilum filiforme	Vanda cœrulea
Lælia crispa superba	&c., &c.

On view the Morning of Sale, and Catalogues had.

Preliminary Notice.

Highly Important Sale of Established Orchids.

MR. J. C. STEVENS begs to announce that he has been favoured with instructions to SELL by AUCTION, without reserve, at his Great Rooms, 38, King Street, Covent Garden, W.C., on TUESDAY and WEDNESDAY, May 14 and 15, at half-past 12 o'Clock precisely each day, the Collection of CHOICE and RARE ORCHIDS belonging to Dr. Pattison, of St. John's Wood, consisting of fine healthy plants of all the newest and rarest varieties, including:—

Aerides Fieldingii	Lælia autumnalis
,, Larpentæ	,, Brysiana
,, maculosum superbum, &c.	Odontoglossum Alexandræ
Angræcum sesquipedale	,, cordatum
Cattleya amethystoglossa	,, luteo-purpureum
,, pallida	,, Phalænopsis
,, bulbosa a. Warkeriana	,, nævium majus, &c.
,, Warscewiczii superba, delicata, &c.	Oncidium macranthum
	,, nubigenum
Cypripedium caudatum superbum	,, holochrysum
,, Fairrieanum	,, cruentum, &c.
,, Lowii	Phalænopsis amabilis
,, Stonei	,, grandiflora (Bornean and Philippine varieties)
,, Veitchii [giganteum	,, Luddemanniana
Dendrobium macrophyllum	,, Schilleriana
,, Farmeri aureum flavum	Vanda cœrulea
,, Cambridgeanum	,, insignis
,, nobile pendulum	,, suavis
,, Parishii	,, tricolor, &c.
,, primulinum giganteum	Uropedium Lindleyanum
,, Heyneanum, Blandum, &c.	Zygopetalum rostratum, &c
Lælia majalis	

On view the Mornings of Sale, and Catalogues had.

Coleby Hall, near Lincoln

Important Sale of Short-horned Cattle.

MR. STRAFFORD begs to announce that he has received instructions from Geo. Bland, Esq., to SELL by AUCTION, without reserve, on THURSDAY, the 9th of May next, at Coleby Hall, near Lincoln, his entire and very superior HERD of SHORT-HORNED CATTLE, consisting of nearly 70 Head of Bulls, Cows, and Heifers, that have been bred from the most fashionable sources. Bulls of high character and breeding have been used, such as Lord Raglan (14,849), Victor (21,025), The Baronet (17,088), Knight Errant (18,151), and Lord Red Rose (22,395). The Young Stock are chiefly by Grand Duke 6th (19,879), which Bull is now in service.
Catalogues with Pedigrees are in preparation, and will be announced, with further particulars, in future Advertisements.
London: 13, Euston Square, April 10.

GREEN'S PATENT SILENS MESSOR,

OR

NOISELESS LAWN MOWING, ROLLING, and COLLECTING MACHINES.

PATRONIZED BY

HER MOST GRACIOUS MAJESTY THE QUEEN
ON TWENTY-NINE DIFFERENT OCCASIONS.
H.R.H. THE PRINCE OF WALES.

THE KING OF THE BELGIANS.
THE EMPEROR OF THE FRENCH.
THE EMPEROR OF RUSSIA.

AND MOST OF THE NOBILITY, CLERGY, AND GENTRY IN THE UNITED KINGDOM.

THOMAS GREEN AND SON, in introducing their PATENT LAWN MOWERS for the present season, beg to state that they have no Novelties to report. The fact is, that after the severe tests their Machines have been subjected to since they added their latest improvements, they have been found to meet all the requirements for which they are intended, viz.:—the KEEPING of LAWNS in the HIGHEST STATE of PERFECTION.

They are the simplest in construction, least liable to get out of order, and can be worked with far greater ease than any other Lawn Mower extant; and in proof of their superiority, 36,000 have been sold since the year 1856.

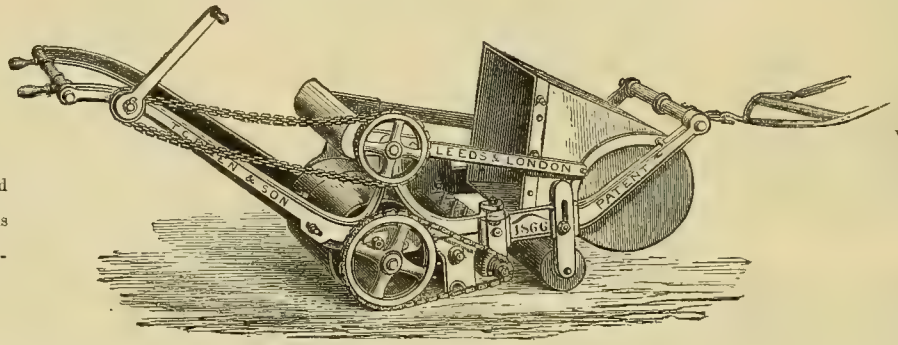
THEY ARE THE ONLY MACHINES IN CONSTANT USE AT

THE ROYAL HORTICULTURAL SOCIETY'S GARDENS, SOUTH KENSINGTON
THE ROYAL BOTANIC GARDENS, REGENT'S PARK
THE CRYSTAL PALACE COMPANY'S GARDENS, SYDENHAM
BUCKINGHAM PALACE GARDENS
MARLBOROUGH HOUSE
THE HYDE PARK GARDENS
THE WINTER PALACE GARDENS, DUBLIN
THE DUBLIN BOTANIC GARDENS
THE LIVERPOOL BOTANIC GARDENS
THE LEEDS ROYAL PARK
THE HULL BOTANIC GARDENS
THE BOTANIC GARDENS, BRUSSELS
THE SUNDERLAND PARK
THE PRESTON PARK

AND IN MOST OF THE PRINCIPAL PARKS, SQUARES, ETC., IN THE UNITED KINGDOM.

HORSE, PONY, AND DONKEY MACHINE.

GREEN'S
PATENT
LAWN MOWERS
have proved to be the best, and carried off every Prize that has been given in all cases of competition.



T. GREEN & SON
warrant every Machine to give entire satisfaction, and if not approved of can be returned unconditionally.

PRICES of HORSE, PONY, and DONKEY MACHINES, including Patent Self-delivery Box; Cross Stay complete; suitable for attaching to ordinary Chain Traces or Gig Harness.

PONY AND DONKEY MACHINES.

To Cut 26 inches	..	..	..	£13 0 0	*Leather Boots for Donkey*, 18*s*. *Leather Boots for Pony*, 22*s*.
„ 28 „ ..	..	..	..	15 0 0	
„ 30 „ ..	..	..	..	17 0 0	

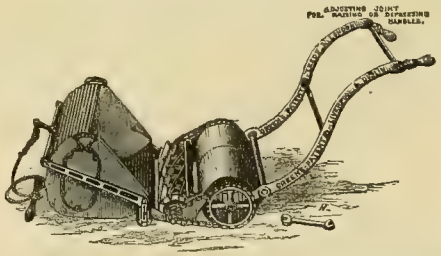
HORSE MACHINES.

To Cut 30 inches	..	..	..	£21 0 0	*Leather Boots for Horse*, 26*s*.
„ 36 „ ..	..	..	..	24 0 0	
„ 42 „ ..	..	..	..	27 0 0	
„ 48 „ ..	..	..	..	30 0 0	

Both the Horse, Pony, Donkey, and Hand Machines possess (over all other Makers) the advantage of Self-sharpening. The cutters being steel on each side, when they become dull or blunt by running one way round the cylinder, can be reversed again and again, bringing the opposite edge of the cutter against the bottom blade, when the Machine will cut equal to new. Arrangements are made that the cylinder can be reversed, by any inexperienced person, in two or three minutes.

HAND MACHINES.

To Cut 10 inches	..	£3 10 0	*Suitable for a Lady*	To Cut 18 inches ..	£7 10 0 *Suitable for One Person.*
„ 12 „ ..	..	4 10 0	„ „	„ 20 „ ..	8 0 0 *Suitable for Two Person*
„ 14 „ ..	..	5 10 0	*Suitable for One Person*	„ 22 „ ..	8 10 0 „ „
„ 16 „ ..	..	6 10 0	„ „	„ 24 „ ..	9 0 0 „ „



Packing Cases are charged at the following low rates, viz.:—for the 10 and 12-inch Machine, 3*s*.; 14 and 16-inch, 4*s*.; 18 and 20-inch, 5*s*.; 22 and 24-inch, 6*s*. Parties providing themselves with Lawn Mowers are recommended to purchase the cases in which to stow them away, when not in use, to prevent them from getting damaged; if returned, two-thirds will be allowed for them.

The above MACHINES are made from the best materials, and of superior workmanship; are delivered Carriage Free to all the principal Railway Stations and Shipping Ports in England.

Every Machine is warranted to give entire satisfaction, and if not approved of, can be returned unconditionally.

Having above 3000 Machines in stock at our Leeds and London Establishments, we are in a position to execute orders on the day they are received.

☞ *Illustrated Price Lists, and Sheet of Prize Medals awarded to* GREEN'S PATENT LAWN MOWERS, *free on application.*

T. G. AND SON having taken very extensive Premises in London, are now in a position to do all kinds of Repairs there, as well as at their Leeds Establishment.

THOMAS GREEN AND SON, SMITHFIELD IRON WORKS, LEEDS;
and 54 and 55, BLACKFRIARS ROAD, LONDON, S.

Editorial Communications should be addressed to "The Editor;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
Printed by JAMES MATTHEWS, at the Office of, Messrs. BRADBURY, EVANS, & Co., Lombard Street, Precinct of Whitefriars, City of London, in the Co. of Middlesex, and Published by the said JAMES MATTHEWS, at the Office, No. 41, Wellington Street, Parish of St. Paul's, Covent Garden, in the said County.—SATURDAY, April 13, 1867.

THE GARDENERS' CHRONICLE
AND
AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.

No. 16.—1867.] SATURDAY, APRIL 20. {Price Fivepence. Stamped Edition, 6d.

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ROYAL HORTICULTURAL SOCIETY, SOUTH KENSINGTON, W.
Promenade and Band every Saturday afternoon throughout the year.
Notice.—Dr. MASTERS will give a short LECTURE on PLANT ARCHITECTURE THIS DAY, and the following SATURDAY, at 3.

ROYAL BOTANIC SOCIETY'S GARDENS, Regent's Park.—EXHIBITIONS of PLANTS, FLOWERS, and FRUIT, WEDNESDAYS, May 29, June 19, and July 3. Tickets 4s. each, to be obtained at the Gardens by orders from Fellows of the Society. The LAST SPRING EXHIBITION, SATURDAY NEXT, April 27. Gates open at 2 o'clock. Band will play from 2.30 to 5.30.

Orchard-house Trees Fruiting in Pots.
PEACHES, NECTARINES, APRICOTS, CHERRIES, PLUMS, PEARS, APPLES, VINES, and FIGS.
Richard Smith, Nurseryman and Seed Merchant, Worcester.

STRAWBERRY PLANTS. THE LADY (Underhill) 4s. per dozen, 30s. per 100. Strong plants of 20 other best kinds, 2s. 6d. per 100. Trade price on application.
John Cattell, Westerham, Kent.

PRINCESS of WALES STRAWBERRY.—This fine variety is now proved to be the best early variety ever produced, either for Forcing or for general Early Crop. See *Gardeners' Chronicle* of May 12, 1866, p. 437. Good Plants can now be supplied from the true stock, at 5s. per 100, from the raiser.
B. W. Knight, Nurseryman, Battle, Sussex.

CASTLE KENNEDY FIG.—Plants of the above may now be had at 10s. 6d. and 21s. each; the usual discount to the Trade. Peter Lawson & Son, Edinburgh and London.

WEBB'S PRIZE COB, FILBERT and other PRIZE NUT TREES. LIST of varieties and prices to be had of Mr. Webb, Calcot Gardens, Reading.

TWO-YEARS' SEEDLING SCOTS FIR, at £10 per hundred thousand.
W. P. Laird & Sinclair, Nurserymen, Dundee, N.B.

Highly Cultivated and Regularly Transplanted Nursery Stock.
EIGHTY ACRES of the above, consisting chiefly of FRUIT TREES, ROSES, EVERGREENS, and ORNAMENTAL TREES, which for general excellence are unsurpassed.
Thomas Warner, Leicester Abbey Nurseries.

GIANT ASPARAGUS.—2-yr., strong Roots, 2s. 6d. per 100; 20s. per 1000. 3-yr., very strong, 3s. 6d. per 100; 30s. per 1000.
John Cranston, King's Acre Nurseries, near Hereford.

FARM SEED LIST of the LONDON SEED COMPANY is now published, and can be obtained from the Manager, 68, Welbeck Street, Cavendish Square, London, W.

SKIRVING'S SWEDE TURNIP, 31s. per bushel. Fine selected stock, from the London Seed Company, 68, Welbeck Street, Cavendish Square, W.

YELLOW GLOBE MANGEL, 50s. per cwt. Fine selected stock, from the London Seed Company, 68, Welbeck Street, Cavendish Square, W.

Robinson's Champion Drumhead Cabbage.
SUTTON and SONS can supply New SEED of the above direct from Mr. Robinson, at 3s. 6d. per lb., cheaper by the cwt. Heads of this variety have been grown 76 lb. each.
Sutton & Sons, Royal Berkshire Seed Establishment, Reading.

White Belgian, Long Red Surrey, Red Intermediate Carrots.
SUTTON and SONS can supply fine New SEED of the above, at very moderate prices, which may be had on application.
Sutton & Sons, Seed Growers, Reading.

GENUINE NEW CARROT SEED. The Three Best Sorts are
WHITE BELGIAN, 1s. per lb. } Cheaper
RED INTERMEDIATE, 1s. 9d. per lb. } by the
LONG RED CATTLE, 1s. 6d. per lb. } Cwt.
Sutton & Sons, Royal Berkshire Seed Establishment, Reading.

1867 TURNIP SEEDS. Best selected quality. PRICED LISTS on application.
James Dickson & Sons, 102, Eastgate Street, Chester.

Strong Drumhead or Cattle Cabbage Plant.
W. VIRGO and SON can supply large quantities of the above, at 3s. per 1000. Samples can be had on application at the Nursery, Wonersh, Guildford, Surrey.
Delivered free at the undermentioned Railway Stations—Guildford, South-Western; Shalford, South-Eastern; Bramley, London, Brighton, and South Coast.

NEW ROSES for 1867.—Strong Plants of all the best NEW ROSES now ready.
DESCRIPTIVE LIST, with prices, on application.
John Cranston, King's Acre Nurseries, near Hereford.

CULTURAL DIRECTIONS for the ROSE. Second Edition. By John Cranston, King's Acre Nurseries, near Hereford. Free by post from the Author for 20 stamps.

ROSE NOISETTE MARECHAL NIEL. Strong plants, in pots, 30s. per dozen. Trade price on application.
John Cattell, Westerham, Kent.

THE CHOICEST 12 NEW ROSES for 1867, with strong healthy growth, unusually fine plants, so soon as weather permits. Price 42s. per dozen.
Richard Smith, Nurseryman and Seed Merchant, Worcester.

THE BEST and MOST CHOICE NEW ROSES for 1867, in extra-strong well-grown Plants, now ready at 42s. per dozen. A very liberal allowance to the Trade.
Wm. Wood & Son, The Nurseries, Maresfield, near Uckfield, Sussex

FORTY THOUSAND DWARF ROSES in POTS.—HYBRID PERPETUALS, CHINA, TEA-SCENTED, BOURBONS, and NOISETTES, all in the finest health and vigour. DESCRIPTIVE LISTS on application.
Wm. Wood & Son, Woodlands Nursery, Maresfield, near Uckfield, Sussex.

Dwarf Roses in Pots for Bedding.
WM. WOOD and SON are now sending out quantities of well-grown Plants of DWARF ROSES in pots for filling up blanks caused by the late severe frost.
Woodlands Nursery, Maresfield, near Uckfield, Sussex.

DWARF ROSES IN POTS, by the 100, dozen, or 1000, at 9s., 12s., and 18s. per dozen. CATALOGUES on application.
Address, Wm. Wood & Son, Woodlands Nursery, Maresfield, near Uckfield, Sussex.

ROSES.—One MARECHAL NIEL and 24 other strong plants (some in bloom) of choice Tea, Noisette, Bourbons, and Hybrid Perpetual Roses, in 48 and 32-pots, for Two Guineas. Purchaser's selection from printed List, which can be had on application. The same quantity a size smaller for 30s.
Thomas S. Ware, Hale Farm Nursery, Tottenham, Middlesex.

WANTED, MANETTI STOCKS, fit for potting. State quantity and price to E. Cooling, Derby.

Primula and Cineraria Seed.
MESSRS. F. and A. SMITH invite inspection of their SEEDLINGS, NOW in BLOOM, saved from the same Stock as sent to their Customers.
The Nurseries, Dulwich, Surrey, S.

Pansies for Spring Gardening.
W. DEAN, Bradford Nursery, Shipley, Yorkshire, can supply very strong Plants of mixed PANSIES, choice sorts, at 15s. per 100. PANSY SEED, 1s. 6d. and 2s. 6d. per packet.

To the Trade.—Clianthus Dampieri Seed.
DOWNIE, LAIRD, and LAING have a few ounces of the above to offer. Price on application.
17, Frederick Street, Edinburgh; and Stanstead Park, Forest Hill, London, S.E.

CLIANTHUS, DAMPIERI, or DESERT PEA of AUSTRALIA.—Direct imported, well-ripened, genuine Seed of the above magnificent Shrubby Biennial, in packets at 2s. 6d. To the Trade at 7s. 6d. per oz.
James Thomson, Kilmarnock, N. B.

GERMAN FLOWER SEEDS.—Superb Varieties of Aster, Stock, Balsam, Wallflower, Phlox Drummondii, Portulaca, Larkspur, Zinnia, &c. For prices, see DESCRIPTIVE SEED LIST.
Richard Smith, Seed Merchant, Worcester.

RIBBON BORDER (six Colours), German and French, COLLECTIONS, and all specialties worth growing. See Poynter's LIST. Robert H. Poynter, Taunton.

SHOW DAHLIAS, in strong plants, now ready. 12 Varieties, named, 4s., or 24 Varieties, named, 8s. Terms cash. CATALOGUES free for one stamp.
John J. Haslam, late John Holland, Bradshaw Gardens, Chadderton, Manchester.

Verbenas, Verbenas.
PHILIP LADDS is now sending out a good supply of the above, strong plants, in thumb pots, including 40 varieties of 1866, at 2s. per dozen, package included. Terms cash.
Nursery, Bexley Heath, Kent.

Verbenas, New and Old.
WILLIAM KNIGHT is now sending out strong established Plants, in small pots, of 36 finest Varieties for Exhibitors or Bedding, for 10s. 6d., package included. Terms cash. DESCRIPTIVE CATALOGUE free.
Floral Nursery, Hailsham, Hurst Green, Sussex.

SCARLET PELARGONIUM, WOOLVEN'S SEEDLING, by far the best dwarf dark zonal (for bedding purposes).—Strong bushy plants, 12s.; small, 6s. per dozen.
Robert Bullen, Horticultural Agent, 1, Newland Street, Kensington, W.

GEO. SMITH'S PRICED and DESCRIPTIVE CATALOGUE of SHOW, SPOTTED, FANCY, VARIEGATED, ZONAL, and NOSÉGAY GERANIUMS, Petunias, Fuchsias, Dahlias, Verbenas, Chrysanthemums, Bedding Plants, &c., is now ready, in exchange for one postage stamp.
Tollington Nursery, Hornsey Road, Islington, London, N.

Dahlias.
GEO. RAWLINGS' NINETEENTH ANNUAL CATALOGUE contains 176 select varieties at 3s. per dozen, including Leah, George Wheeler, and the best of 1865. Also 47 of 1866, at 9s. per dozen, including Fanny Sturt.
Waterloo Road, Romford, E.

Camellias, Orange Trees, Oleanders, Azaleas, &c.
WANTED, a few, 6 to 8 feet high, good sorts, at a moderate price, near to London.
Apply at 1, Warwick Place, Grove End Road, St. John's Wood, N.W.; stating particulars.

LAPAGERIA ROSEA.—A splendid Specimen Plant for Sale—standing in a tub nearly 9 ft. high. It is trained spirally, and when opened out would cover a wall of 30 ft. Can be seen at 42, Warwick Road, Maida Hill, W., on presentation of Card.

OSIERS for SALE.—About 500 bolts, lying within a quarter of a mile of the Harlow Station. May be seen by applying to Mr. C. Barnard, Harlow, Essex.

New Striped Japanese Maize.
SUTTON and SONS can supply Seed of the above beautiful Ornamental Foliage Plant in packets at 1s. each, post free. Royal Berkshire Seed Establishment, Reading.

Sorghum tartaricum.
SUTTON and SONS, having imported a supply of True Seed of the above, can supply it in packets at 1s. and 2s. 6d. each (post free).
Royal Berkshire Seed Establishment, Reading.

Fine Grass Seeds for Cricket Grounds, BOWLING GREENS, or CROQUET GROUNDS.
SUTTON and SONS can supply suitable kinds of the finest-growing GRASSES and CLOVERS for the above purposes, at 1s. 3d. per lb., 24s. per bushel.
Sutton & Sons, Royal Berkshire Seed Establishment, Reading.

The New Forage Grass (Bromus Schraderi).
SUTTON and SONS have imported a large supply of True Seed of the above, and offer it at 2s. 6d. per lb., or cheaper in large quantities. Quantity required per acre, 30 lb. Lowest price per cwt. and instructions on cultivation, may be had on application.
Sutton & Sons, Seed Merchants, Reading.

Bromus Schraderi.
NUTTING and SONS having just received a consignment of the above PRAIRIE GRASS from Australia, will be glad to send samples and price upon application.
60, Barbican, London, E.C.

DICKINSON'S ITALIAN RYE-GRASS SEED, grown by him and sold to Agriculturists this season at 34s. per quarter, or for 5 quarters 30s. per quarter. Apply to Mr. Thos. Stanbridge, Bailiff, New Park, Lymington, Hants.

NATURAL GRASSES: their Names and Derivations; Quality, Produce, Elevation, Situation, Soil, Use, Peculiarity Season, Growth, Increase, Time of Flowering, Price, &c. Free for one postage stamp.
Richard Smith, Seed Merchant, Worcester.

Grass Seeds for Permanent Pasture.
RICHARD SMITH'S MIXTURE of the finest PERENNIAL GRASSES and CLOVERS are carefully made to suit all kinds of Soil. Price 26s. to 32s. per acre. PRICED LIST on application.
Richard Smith, Seed Merchant, Worcester.

GOOD CLOVER SEEDS, at Market Prices.—Red, White Dutch, Alsike, Cow Grass, and Trefoil; also Perennial, Italian Rye, and other Grasses. For samples and lowest prices, apply to Richard Smith, Seed Merchant, Worcester.

To Improve Meadow Land.
RICHARD SMITH'S MIXTURE of the finest GRASSES and PERENNIAL CLOVERS (8 to 12 lb. per acre, at 10d. per lb.), if sown early, will cause a valuable improvement to the crop. Richard Smith, Seed Merchant, Worcester.

237 and 238, HIGH HOLBORN, LONDON, W.C. —CARTER'S SELECT LIST of FARM SEEDS, at reasonable prices, forwarded gratis and post free on application to Carter's Great London Seed Warehouse, 237 and 238, High Holborn, London, W.C.

Notice.
PURCHASERS of LARGE QUANTITIES of FARM or GARDEN SEEDS will be supplied liberally by Sutton & Sons. For prices apply (stating quantity required) to Sutton & Sons, Royal Berkshire Seed Establishment, Reading.

Notice.—Present Prices of Farm Seeds.
MESSRS. SUTTON'S PRICES of FARM SEEDS for APRIL will be the same as quoted in their CATALOGUE for FEBRUARY and MARCH, which may be had post free on application. Royal Berks Seed Establishment, Reading.

JAMES FAIRHEAD and SON, Seed Growers and Merchants, 7, Borough Market, London, S.E.
New and Genuine AGRICULTURAL, GARDEN, and FLOWER SEEDS. Special prices and advantageous offers on application.

Genuine Garden and Agricultural Seeds.
JAMES CARTER and CO., Seed Farmers, Merchants, and Nurserymen, 237 & 238, High Holborn, London, W.C.

Unadulterated Garden and Agricultural Seeds.
SMITHERS and CRICHTON, Seed Merchants, Bunhill Row, Finsbury Square, London, E.C. CATALOGUES post free on application.

Garden and Farm Seeds direct from the Growers.
CHARLES SHARPE and CO. beg to inform the Trade that their WHOLESALE SEED LIST is now ready, and will be forwarded post free on application.
Seed Warehouse, Sleaford.

Agricultural and Garden Seeds.
H. and F. SHARPE'S WHOLESALE SPRING PRICED LIST of the above Seeds of 1866 growth is now ready and may be had on application.
Seed Growing Establishment, Wisbech.

Genuine Garden, Agricultural, and Flower Seeds.
PAUL TOLLARD, Seed Grower and Merchant, 20, Quai de la Mégisserie, Paris, France.
SPECIAL PRICED LIST of NEW SEEDS, in English weights and money, post free on application.

Somersetshire Prize Seeds.
GENUINE GARDEN and FLOWER and FARM SEEDS of the finest stocks and quality; LISTS now ready.
Robert H. Poynter, the County Seed Establishment, Taunton.

EVERY GARDEN REQUISITE kept in Stock at Carter's New Seed Warehouse, 237 & 238, High Holborn, London.

New Spring Catalogue.
WOOD and INGRAM'S Select CATALOGUE of Dahlias, Pelargoniums, Zonal and Variegated Geraniums, Verbenas, Fuchsias, Bedding Plants, &c., is now ready, and will be forwarded on application.
The Nurseries, Huntingdon.

Genuine Garden Seeds.
WM. CUTBUSH and SON'S CATALOGUE of VEGETABLE, FLOWER, and FARM SEEDS, post free on application. Highgate, London, N.

Plants for the Season.
CHARLES TURNER'S DESCRIPTIVE SPRING CATALOGUE of BEDDING PLANTS, FLORIST'S FLOWERS, &c., is now ready, and may be had on application.
The Royal Nurseries, Slough

Established Upwards of a Century.

HOLDERS OF PRIZE MEDALS FROM EXHIBITIONS OF BOTH 1851 AND 1862.





BUTLER, McCULLOCH, AND CO.'S CHOICE COLLECTIONS of FLOWER SEEDS.

15	Varieties,	Selected	Hardy	Annuals	..	..	..	2s.	6d.
30	,,	,,	,,	,,	..	..	..	5	0
60	,,	,,	,,	,,	..	..	..	10	0
100	,,	,,	,,	,,	..	..	..	20	0
12	Varieties,	Selected	Half-hardy	Annuals	..	..	..	4	0
25	,,	,,	,,	,,	..	..	..	7	6
15	,,	,,	,,	,,	..	..	..	15	0
100	,,	,,	,,	,,	..	..	..	30	0
6	Varieties,	extra selected	New	Annuals	1867 ..	..	..	5	0
12	,,	,,	,,	,,	,,	..	..	10	6
15	Varieties,	selected	Hardy	Perennials	..	..	..	3	6
25	,,	,,	,,	,,	..	..	..	6	6
50	,,	,,	,,	,,	..	..	..	12	6
100	,,	,,	,,	,,	..	..	..	25	0
12	Varieties,	selected	Half-hardy	Perennials	..	..	..	4	0
25	,,	,,	,,	,,	..	..	..	7	6

COMPLETE COLLECTION of VEGETABLE SEEDS for One Year's Supply, 63s., 42s., 30s., 21s., and 10s. 6d.

Orders amounting to 21s. and upwards sent Carriage Paid.

CATALOGUE containing details of above Collections, Post Free.

Covent Garden Market, London, W.C.

Bedding Plants, from 2s. per dozen.

J. SCOTT, The Nurseries, Merriott, Somerset, has now ready his unrivalled Collection of the above, numbering over 300,000, in quality and prices unsurpassed.

LOBELIA SPECIOSA (TRUE), and SPLENDIDA (SCOTT'S), at 2s. per dozen, 10s. per 100, and 80s. per 1000. This last has been advertised by others under the *wrong name* of L. Ernus speciosa grandiflora, a name uncalled for, as J. S. has supplied his customers with it for some years as L. splendida. CATALOGUES on application to J. S.

N.B.—Seeing my name has been inserted in an advertisement of Bedding Plants by Mr. Sampson, Nurseryman, Preston Road, and as it may mislead my customers, I beg to say that I have long ceased to have any connection with that Nursery. It was a small branch established by me, and sold by me two or three years ago, since which time I have had nothing to do with it. I am forced to insert the above, as parties have sent orders to me, which have found their way to and,been executed at Preston Road, *unsatisfactorily*, as will appear from the following letter on the subject:—

"SIR,—When I was at Yeovil in April last I called at your shop and inquired if you still sent out Bedding Plants, and was informed that you did. Mrs. ——, as she thought, ordered some of you, but, to our great surprise, we find them sent by Peter Drummond & Co. I mention this, as we were not pleased with the way the order was executed last year, a fact I mentioned to your Foreman (Seedsman), April the 7th, and therefore decided to have no more plants of that firm. The Bedding Plants now sent me [by them, J. S.] are not what were ordered, and not healthy 'of their kind.—I remain, your obedient Servant, "J. H. P."

J. SCOTT'S Seed Stores in Yeovil are conducted with great care and attention to the requirements of his increasing Customers, and every requisite for the Farm or Garden can be obtained. Orders for Bedding Plants left there will be punctually attended to.

Cheap Bedding and other Plants.

THOMAS SAMPSON, Proprietor of the Preston Road Nurseries, Yeovil, Somersetshire, lately carried on by Drummond & Co., and formerly by John Scott, has much pleasure in announcing that his CATALOGUE for the above Plants is now ready, and can be had free on application. T. S. begs to assure his friends that the above has been for many years one of the largest in the country for CHEAP BEDDING PLANTS, and that his present Collection is now most unique and extensive, consisting of upwards of 200,000 Plants, being two to one of any other Establishment in the West of England. Having recently extended his Glass Department to upwards of 12,000 feet, expressly for the culture of Bedding Plants, he is enabled to supply them in such varieties and at such low prices as cannot fail to give the fullest satisfaction. T. S. will feel much obliged if his friends will kindly inspect his Collection and forward their Orders early, so as to avoid delay or inconvenience.

The Plants will be ready to send out after the 20th of April.

PETER DRUMMOND, Manager, The Preston Road Nurseries, Yeovil, Somersetshire.

PUBLIC NOTICE.

MR. JOHN SCOTT AND THE PRESTON ROAD NURSERIES.

It is an old and true adage, "that he who lives in glass houses should not throw stones." I have just noticed in the *Gardeners' Chronicle* of April 13 an attack upon me by John Scott, of the Merriott Nurseries, near Crewkerne, Somerset, with respect to his Advertisement of the LOBELIA E. GRANDIFLORA, now offered by THOMAS SAMPSON, of the Preston Road Nurseries, Yeovil, Somerset. I beg to inform the Public that I had the pleasure of raising the same in the autumn of 1864, and consequently named it L. grandiflora, under which name I have continued it.

John Scott being then about to dispose of this Nursery (so called by him a small Branch, although now requiring one-third more labour than his large Establishment), obtained Plants of the same, and sent it out under the name of L. splendida, by which name he *may* have continued it.

I beg to inform those who do not reside in the immediate neighbourhood, and who consequently may not be aware of the facts, that these Nurseries were, from 1858 until his disposal of the same to me, J. Scott's principal Bedding Plant Establishment, where all orders were executed. In proof of this I need only refer to his own (J. S.'s) Catalogues for several years.

I would beg to remind J. Scott that he agreed verbally to discontinue Bedding Plant growing (except for a few in his own immediate neighbourhood), on receiving £1600 for the Stock and Business of these Nurseries. It was greatly to my surprise and that of others to find immediately afterwards that J. S. had issued an Advertisement (which will still be fresh in the memories of the readers of the *Gardeners' Chronicle*, &c.,) of 100,000 Bedding Plants, which number was increased in the Advertisements of the following year to 500,000. I can safely leave those who happen to know J. S.'s Merriott Nurseries, and the extent of glass they contain, to form their own opinions as to whether a *cipher* was not added by mistake to each of these numbers. The Preston Road Nurseries contain about three times the area of glass as that of Merriott.

It has been against my wish to commence any public controversy with J. S., but his public attack upon me compels me to do so. Surely a man cannot conscientiously expect to retain all the benefits of a Business after having disposed of the same.

J. S. announces in his Advertisement that some person has been misled by me, and has received from me Plants which were not healthy or according to order. I have only to say in reply to his statement, that if J. S. and his Correspondent can prove publicly the truth of their assertions, I will forfeit £10 for the benefit of the Gardeners' Benevolent Institution. I announced publicly enough two years ago that this Establishment was not in any way connected with John Scott's; but it would occupy too much space to publish all the expressions of opinion which I have heard relative to the course which J. S. has pursued since that time. I will however conclude by appealing to my late Customers in all parts of the Kingdom to evince their satisfaction at my efforts to serve them, by continuing their kind favours to the present Proprietor, Mr. THOMAS SAMPSON. PETER DRUMMOND, Manager.

Preston Road Nurseries, Yeovil.—April 16.

P.S.—Allow me to say that I am prepared to challenge J. Scott and any other Nurseryman combined, for quality and quantity of Bedding Plants, leaving the amount to be named by J. S., and the decision with a judge agreeable to both parties.

Vegetable, Agricultural, and Flower Seeds, Alpine Plants, &c.

ROBERT PARKER begs to announce that his CATALOGUE, containing select DESCRIPTIVE LISTS of the finest kinds in cultivation of the above-named is now published, and will be forwarded to applicants. The Stocks of Seeds have all been procured from the best possible sources, all are warranted genuine, and are offered at the lowest possible prices. Intending purchasers are requested to compare the prices with those of other houses. Exotic Nursery, Tooting, Surrey, S.

J. LINDEN'S CATALOGUE of NEW PLANTS is just published, and can be had on application to Messrs. R. SILBERRAD, 5, Harp Lane, Great Tower Street, London, E.C.

The following first-rate NOVELTIES are offered for the first time, with the usual discount to the Trade:—

Bignonia ornata ..	£2	8	0	Maranta Legrelliana ..	£2	8	0
Cissus argentea ..	1	0	0	,, Wallisi	1	4	0
Dichorisandra Mosaica ..	5	0	0	Philodendron Landemianum,	2	8	0
undata ..	2	0	0	Tapino variegata ..	0	12	0
Echites rubro-venosa ..	1	4	0	Theophrasta regalis ..	1	0	0
Eranthemum igneum ..	1	4	0	Anthurium regale ..	1	4	0
Gunnera manicata ..	1	4	0	Maranta Lindeniana ..	1	0	0
Maranta illustris ..	2	8	0	,, roseo-picta, 12s. to	1	0	0

Nursery, Brussels.

J. KEYNES, Salisbury.

NEW DAHLIAS for 1867.

FLOSSY GILL (Keynes).—A beautiful light ground, edged with pink, first-class form. 3 ft. to 4 ft. 10 6

CERTIFICATES.—Brighton Horticultural Society, Royal Horticultural Society, Bath, Salisbury, Dorset.

VICE-PRESIDENT (Keynes).—A decided improvement on Chairman, not requiring cutting out, very constant, finest form, greatly admired, bright orange. 3 ft. 10 6

FIRST-CLASS CERTIFICATES.—Crystal Palace, Burton-on-Trent, Bath, Winchester, Dorset, Brighton, Salisbury. 2d, Royal Horticultural Society.

LADY JANE ELLIS (Eckford).—Creamy white ground tipped with purplish rose, fine show flower. 3 ft. to 4 ft. .. 10 6

CERTIFICATE.—Royal Horticultural Society.

CLARA SIMONS (Keynes).—Pure white, with deep crimson edge, one of the most exquisite flowers grown. Must have no cutting out, one of the gems of J. Keynes' Seedlings. 3 ft. 10 6

FIRST-CLASS CERTIFICATES.—Royal Horticultural Society, Glasgow, Salisbury, Dorset. The Money Prize at Trowbridge, beating all the seedlings exhibited.

PARADISE WILLIAMS (Keynes).—The flower of the season—unqualified approbation everywhere—clear claret, quite a new colour. 3 ft. 10 6

FIRST-CLASS CERTIFICATES.—Royal Horticultural Society, Crystal Palace, Brighton, Bath, Dorset, Salisbury.

HARRIET TETTERELL (Keynes).—Blush ground, very deeply margined with dark purple. A standard flower for many years. 3 ft. to 4 ft. 10 6

CERTIFICATES.—Royal Horticultural Society, Trowbridge, Burton-on-Trent, Winchester.

PRINCESS of WALES (Keynes).—Blush ground, slightly edged with lilac. A seedling from Anna Keynes, but more constant—most beautiful form, not to be cut out. 3 ft. .. 10 6

FIRST-CLASS CERTIFICATES.—Royal Horticultural Society, Crystal Palace. The two greatest trials for seedlings in existence.

MEPHISTOPHELES (Heatley).—The finest black flower grown. 4 ft. 10 6

GAZELLE (Keynes).—Clear fawn of the finest quality, very constant, no cutting out. 4 ft. 10 6

CERTIFICATES.—Royal Horticultural Society, Salisbury, Trowbridge, Brighton, Winchester.

MRS. THORNHILL (Pitfield).—A beautiful feather-edge like Mrs. Trotter. Very light pink, equal to any Picotee—requires cutting out, but a much larger flower than has yet been seen of its character. It was much admired at the Crystal Palace, where it obtained a Certificate. 3 ft. .. 10 6

These Ten Flowers are Standards, and have been selected, and all grown and proved, by John Keynes, who warrants them all as First-class Show Flowers.

NEW FANCY DAHLIAS.

BUTTERFLY (Keynes).—Scarlet and brown crimson stripes on a light ground, very fine flower; large, full, and perfect. 3 ft. 10 6

FIRST-CLASS CERTIFICATES.—Royal Horticultural Society, Trowbridge, Salisbury, Crystal Palace, Burton-on-Trent, Hampshire.

BESSIE WYATT (Keynes).—White and red striped, full show flower. 3 ft. to 4 ft. 10 6

CERTIFICATES.—Salisbury, Burton-on-Trent, Hampshire.

MISS RUTH (Eckford).—Yellow tipped white, a flower long wished for, constant, which is the character of this flower. 3 ft. to 4 ft. 10 6

FIRST-CLASS CERTIFICATE.—Brighton.

MRS. GOODWIN (Goodwin).—Fawn ground, striped with red—very fine flower. 4 ft. 10 6

PLAUSIBLE (Keynes).—Red and crimson, with purple stripes—very first-class flower. 4 ft. 10 6

SALAMANDER (Keynes).—The best character to give this flower is to call it a striped Charles Turner—it must not be cut out. 3 ft. 10 6

GEO. SMITH begs to call the attention of his patrons and friends generally, to his New TROPÆOLUMS, KING of SCARLETS and KING of SPOTS, two beautiful varieties for clumps or ribbon planting. These fine kinds were raised by Mr. George, of Stamford Hill, the raiser of Compactum coccineum, which has been so much admired the last two seasons at the Crystal Palace, &c. Also, the under-named ZONAL GERANIUMS, which G. S. can, with confidence, recommend to be added to the most choice collections.

G. S. has also a fine addition to the VARIEGATED GERANIUMS, the most conspicuous for clumps or borders which has ever been offered, it having a green leaf with broad belt of pure white, of fine habit.

NEW TROPÆOLUMS.

KING of SCARLETS.—Small neat foliage, compact habit, flowers bright scarlet, the most brilliant and beautiful for bedding or ribbon planting. Awarded a First-class Certificate by the Royal Horticultural Society, South Kensington. 5s.

KING of SPOTS.—Bright yellow with amber spots, neat foliage, compact habit, very effective. 5s.

NEW ZONAL GERANIUMS.

HECTOR (GEO. SMITH).—Foliage slightly zonal, pip and truss extra large, fine habit, flowers scarlet; one of the best in cultivation. 5s.

PINK GLOBE (WINDSOR).—Zoned; rosy pink truss, extra large and compact. This beautiful novelty will be found a great advance either as a bedding or exhibition plant. 5s.

PRINCE OF WALES (WINDSOR).—Dark zone, flowers rosy salmon; extra large and fine shape, good habit; a first-class variety. 5s.

REGALIA (GEO. SMITH).—Foliage slightly zoned, flowers fine rosy scarlet, eye white, of fine form and a pleasing variety; good habit. 5s.

RELIANCE (WINDSOR). — Foliage slightly zoned, flower orange scarlet, truss and pips large, of good substance, white eye; in every respect a first-class variety. 5s.

SALAMANDER (WINDSOR).—A zonal variety, flowers bright rosy salmon, with white eye, a most pleasing and desirable variety. 5s.

WARRIOR (GEO. SMITH).—Foliage slightly zoned, flowers brilliant scarlet, of great size and substance, fine form. This flower will prove a most valuable addition to its class. 5s.

NEW VARIEGATED GERANIUM.

PRINCESS ALEXANDRA (GEO. SMITH).—Foliage bright green, with broad band of pure white, of first-class habit; most attractive and beautiful; one of the most effective for ribbon planting of the silver-edged class; fine, 10s. 6d. each.

NEW WHITE-FLOWERED IVY-LEAVED GERANIUM.

"L'ELEGANTE" (CUNNINGHAM). — Foliage bright green, with broad belt of creamy white, throwing up its numerous white blossoms, which give it a fine effect. Awarded a First-class Certificate at the Birmingham Rose Show, also at the Royal Horticultural Society, South Kensington. 10s. 6d. each.

G. S., having made arrangements with Mr. Cunningham, is enabled to send out this fine Ivy-leaved Geranium, together with the foregoing novelties, in good plants, after the 24th of April.

Early orders are respectfully solicited.

Tollington Nursery, Hornsey Road, Islington, London, N.

JOHN WATERER has to offer a quantity of very handsome AUCUBA JAPONICA, the whole of which are profusely covered with Berries.

1st Size are Plants 2 feet high, bearing 150 to 200 Berries.
2d Size, 1 foot 6 inches, with 100 to 125 Berries.
3d Size, 1 foot, with 40 to 50 Berries.
Price from 10s. 6d. each and upwards.

The American Nursery, Bagshot, Surrey.

BIRCH, 3 to 5 feet, fine, twice transplanted, 45s. per 1000

HAZEL, from Spanish Seed, 2 to 3 feet, fine, once transplanted, 18s. per 1000

SPANISH CHESTNUT, 1 to 2 feet, once transplanted, 18s. per 1000

HORSE CHESTNUT, 1 foot, once transplanted, 18s. per 1000

Samples sent on application.

T. JACKSON & SON, Nurseries, Kingston, S.W.

THE GOLDEN VARIEGATED WELLINGTONIA.

First-class Certificate from Royal Horticultural Society.

For Testimonials, &c., see *Gardeners' Chronicle*, October 6, 1866; *Times*, October 1, 1866; *Scottish Gardener*, November, 1866 *Gardeners' Chronicle*, January 12, 1867; "Florist," February, 1867.

LAST YEAR'S PLANTS (a few remaining).

1st Size, very choice, 8 to 12 inches, £5 5s. each.

THIS YEAR'S PLANTS.

2d Size, fine, 4 to 5 inches, £2 2s.

3d Size, nice little plants, 2 to 3 inches, £1 1s.

5000 plants are now plunged out-of-doors, in their respective sizes they may be safely forwarded during the summer, if desired, and orders will be executed in strict rotation.

Chromo-lithographs of the parent tree, by Day and Son (Limited), on superior cards, 10 inches by 8 inches, very faithful in outline, but deficient in representing the glorious colour of the original. These are sent free by post for 25 stamps, and one sent to each Purchaser.

It is intended to exhibit a few of the first size at the approaching Paris and Manchester Exhibitions.

R. HARTLAND, The Lough Nurseries.

General Plant Catalogue, 176 pages, 8vo.

H. LAURENTIUS', Leipzig, PRICED CATALOGUE, containing Novelties, Beautiful and Rare Plants, also selected Lists of all the favourite Descriptions of Garden Flowers offered by the Horticultural Establishment of H. LAURENTIUS, Leipzig, Germany, can be had post free on application to Messrs. BETHAM & BLACKITH, Cox's Quay, Lower Thames St., London.

Novelties.

WM. PAUL (Son and Successor to the late A. PAUL) respectfully solicits Orders for the following NEW and FIRST-CLASS PLANTS, which will be ready for delivery in May.

NEW ROSES.

BLACK PRINCE, H.P. (Wm. Paul).—Flowers dark crimson, shaded with black, cupped, large and full. Price 5s. each.

GLOBOSA, H. P. (Wm. Paul).—Flowers clear dark bright crimson, colour intense and uniform throughout. Price 5s. each.

LADY SUFFIELD, H. P. (Wm. Paul).—Flowers purplish crimson, colour uniform throughout, the purple tint predominating; large, full, and of fine form. Price 5s. each.

The best of the NEW FRENCH ROSES, 3s. 6d. each, 36s. per doz. Older kinds, 9s. to 30s. per doz.

NEW BEDDING GERANIUMS (BEATON'S RACE).

Any 12 Varieties from this group of 18 may be selected by the purchaser for £2 2s.

The following NEW ZONALE and HYBRID NOSEGAY GERANIUMS have been selected from several thousand seedlings raised from the stock of the late Mr. Donald Beaton. Every one now offered has been thoroughly tested, and is believed to be in advance of, or distinct from, all pre-existing kinds.

AUTOCRAT (Wm. Paul). — Flowers bright orange, very large, a decided advance in shape of this colour, blooms freely, very attractive; habit good. Price 3s. 6d. each.

BICOLOR (Wm. Paul).—Flowers bluish purple, with spot of fiery scarlet on top petals; free, good, and quite unique in colour and character. Price 5s. each.

BLUE BELL (Wm. Paul).—Flowers bluish lilac, large, and of good shape and truss; habit fine. A thoroughly distinct and most pleasing novelty. Price 5s. each.

CLIO (Wm. Paul).—Flowers rosy purple, upper petals scarlet, large and good form, truss and habit good; price 3s. 6d. each.

CRIMSON QUEEN (Wm. Paul).—Flowers deep crimson, at once the darkest and brightest crimson yet seen in Zonale Pelargoniums, flowers abundantly. Price 3s. 6d. each.

CRUSADER (Wm. Paul).—Flowers crimson scarlet, with white eye large and smooth, truss large. Price 5s. each.

DR. HOGG (Wm. Paul).—Flowers purplish rose, the colours glowing and very beautiful, trusses good and abundant. Under canvas this novelty appears to resemble Amy Hogg, but is quite distinct from the latter out of doors. Figured in "The Florist" for November, 1866. Price 5s. each.

ENCHANTRESS (Wm. Paul).—Flowers soft purplish crimson, with distinct scarlet eye, trusses and habit good, very lovely Price 3s. 6d. each.

FIREFLY (Wm. Paul).—Flowers scarlet crimson and orange, with scarlet eye; habit free and good; distinct and very effective Price 3s. 6d. each.

GLORY of WALTHAM (Wm. Paul).—Flowers splendid even scarlet, dwarf habit, foliage fine, truss large and close. Probably the finest "Nosegay" Geranium yet raised. Price 3s. 6d. each.

KINGFISHER (Wm. Paul).—Flowers crimson and bluish purple, magenta eye, very free, distinct and effective. Price 3s. 6d. each.

LILACINUM (Wm. Paul). — Flowers dark bright lilac, splendid truss, and fine habit, the colour quite new. Price 5s. each.

MEMNON (Wm. Paul).—Flowers magenta, trusses good and very abundant, habit dwarf. This might be called a rosy purple "Stella." Price 3s. 6d. each.

OMEN (Wm. Paul). —Flowers reddish salmon, splendid truss, good habit, very free, distinct, and first-rate for bedding. Price 3s. 6d. each.

PURPLE QUEEN (Wm. Paul).—In the way of Amy Hogg as to habit and character of truss and flower, but of a totally different colour—dark rosy purple. Price 5s. each.

TROUBADOUR (Wm. Paul). — Flowers rosy purple, fine shape, magnificent under glass. Price 5s. each.

VILLAGE MAID (Wm. Paul). — Flowers bright deep pink, with clear white blotch in the centre of the upper petals, the colours being well separated or defined; habit dwarf and compact; very beautiful. Price 5s. each.

WALTHAM NOSEGAY (Wm. Paul).—Flowers carmine, trusses of good size and abundant; highly recommended for the effect it produces in the flower garden. Price 3s. 6d. each.

GOLD-LEAVED VARIETIES.

The following varieties are the result of a cross between Beaton's race and the ordinary gold-leaved kinds, whereby has been obtained the free growth and leafy character of the former, properties invaluable for bedding purposes.

JASON (Wm. Paul).—Flowers blood crimson, trusses large, round, and compact, leaves pure golden yellow, habit dwarf and free; the plant densely clothed with fine foliage. The association of yellow leaves and blood crimson flowers, both freely produced, is, in this plant, very fascinating. Price 7s. 6d. each.

WALTHAM GEM (Wm. Paul). — Flowers very light red, colour distinct and peculiarly pleasing, white eye; leaves yellow, with very faint zone. A beautiful novelty of dwarf compact habit. Price 7s. 6d. each.

STANDARD ZONALE GERANIUMS.

Scarlet, rose, white, &c., 5s. to 10s. 6d. each.

STANDARD, VARIEGATED, and TRICOLOR-LEAVED GERANIUMS, 7s. 6d. to 15s. each.

GERANIUM REBECCA.—Cherry colour, 21s. per doz.
,, NIMROD.—Orange scarlet, 21s. per doz.
,, ST. GEORGE.—Dark chestnut, 15s. per doz.
,, MRS. POLLOCK, 6s. to 9s. per doz.
,, SUNSET, 18s. per doz.
,, ITALIA UNITA, 21s. per doz.

HOLLYHOCKS.—A fine collection of Hollyhocks by name and well varied in colour, 12s. to 42s. per dozen.

NEW AUCUBAS.—The 10 best sorts for £2 10s.

NEW DOUBLE CRIMSON THORN. — Good plants in pots, 5s. to 7s. 6d. each.

GRAPE VINES.—Planting canes, 3s. 6d. to 5s. each. Fruiting canes, 7s. 6d. to 15s. each.

LILIUM AURATUM.—Flowering bulbs, 2s. 6d. to 10s. 6d. each; 12s. to 60s. the half dozen.

RAPHANUS CAUDATUS, 1s. to 2s. 6d. per packet.

PAUL'S Nurseries, Waltham Cross, London, N.

THE QUEEN.

HAVING PUBLICLY REQUESTED THE NAMES UNDER WHICH MY

NEW WHITE RHODODENDRON

Has been before offered to the Public, I learn that they are *Lady Godiva*, *Ingramii*, *Standish's Perfection*, and *Madame Carvalho*. I have flowered THE QUEEN side by side with all four kinds, and unhesitatingly say it is *superior* and totally different to either. I now challenge the assertions, and ask the authors *if they can* produce THE QUEEN. I give them a *fair field*, viz., the range of the world to select from.

CHARLES NOBLE, BAGSHOT.

TRICOLORED PELARGONIUM, QUEEN VICTORIA.

S. PERKINS & SONS

BEG TO ANNOUNCE THAT THIS

SPLENDID VARIETY WILL BE SENT OUT THE FIRST WEEK IN MAY NEXT

at 21s. each.

Leaf margin deep golden yellow, with rich broad zone of maroon, interspersed with fiery scarlet, deep olive green centre. The habit being free and short jointed, and the leaves not liable to damp at the edges, it will be found the best Bedding variety yet offered.

Was awarded a First-class Certificate by the Royal Botanic Society on April 13, 1867.

PARK NURSERY, COVENTRY.

KEYE'S EARLY PROLIFIC TOMATO.

A new American variety, 30 days earlier than any other. Plant dwarf, compact and vigorous, producing immense crops. Tomatoes of medium size, round, brilliant red, quite smooth and free from ribs, perfectly solid, and of the most excellent flavour. They are produced in large clusters of 10 to 20 each, with from 7 to 20 clusters on each Vine, and ripen up together, so that the main crop is ripe and ready for market 30 days earlier than any other kind. The foliage has no odour. The Early Prolific is the most distinct and valuable Tomato yet produced.

Price per Packet, 1s., forwarded on receipt of 12 stamps.

CARTER'S GREAT LONDON SEED WAREHOUSE, 237 and 238, HIGH HOLBORN, W.C.

Price to the Trade on application.

Thomas Gibbs & Co

ROYAL AGRICULTURAL SOCIETY OF ENGLAND — THOS. GIBBS & Co. Corner of HALF-MOON St PICCADILLY, London. — APPOINTED Apr. 3, 1844 — THE SEEDSMEN

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GRASS SEEDS,
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KITCHEN GARDEN SEEDS,
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Catalogues forwarded post free to any address on application.

NEW PLANTS FOR THE PRESENT SEASON.

B. S. WILLIAMS,

VICTORIA AND PARADISE NURSERIES, UPPER HOLLOWAY, LONDON, N.,

IS ENABLED TO OFFER TO THE PUBLIC

THE FOLLOWING NEW PLANTS AND VARIETIES.

They each possess some special merit, which will be seen by the truthful descriptions of them given below.

Good Plants will be ready for sending out on the 1*st of May, and early Orders are respectfully solicited.*

Amaryllis Albertii, fl.-pl.
This plant was found in the Island of Cuba by the son of Mr. Albert Wagner, of Leipzic. It is believed not to be indigenous to the Island of Cuba, but to have been cultivated in a garden there where it was first noticed. The strong bulbs are 2 inches in diameter, and shoot forth in abundance. The leaves are of a lively green, measuring 1½ foot in length, and 2 inches in width. In February and March the stems rise to the height of more than 1 foot, always bearing two flowers, which are of a reddish orange, tinted with carmine and pale yellow at the base; each flower is not less than 6 inches in diameter.
Price 31*s.* 6*d.* each.

Azalea Andersonii.
The finest Azalea ever offered, either as a garden seedling or continental variety. Colour of flower a beautiful rich rosy carmine, shaded with purple; deeply marked on the upper segments. The whole flower perfectly round, smooth, and of great substance; medium size; habit good and very free in flowering. Will be a splendid variety for an exhibition specimen.
Price 21*s.* each.

Aucuba luteo-carpa.
Light green leaf, splashed with yellow, 6 inches long by 3 to 4 inches broad, evenly dentated. This variety, as its name implies, produces yellow berries in great profusion, and of a large oval size; making a handsome contrast to the scarlet-berried kinds.
Price 21*s.* each.

Calceolaria Holloway Rival.
Colour deep orange, shaded with intense purple; margined with yellow; distinctly spotted; good robust habit; free flowerer, and produces large trusses. Excellent for pot culture.
Price 5*s.* each.

Fuchsia Golden Queen.
Leaves about 3 inches long by 2 broad; light green, margined with gold, beautifully tinted with red; free branching habit; flowers deep pink sepals, pure white corolla. The great beauty of this variety consists in the unique and peculiar variegation of its foliage.
Price 10*s.* 6*d.* each.

Gymnogramma Parsonsii.
A beautiful golden form of G. Wetenhalliana, with fronds from 6 to 9 inches long, divided and subdivided, forming large tassels at the ends of each. The compact form of its growth gives it an entirely distinct appearance from any other variety.
Price 21*s* each.

Hibiscus metallicus.
Introduced from one of the New Hebrides group of Islands. A compact-growing and distinct looking shrub, with linear-lanceolate leaves about 6 inches long, changing from copper colour when young to a lighter green; beautifully netted when grown to full size. Its flowers are purplish crimson, changing to a deep lake. It flowers during the winter on very young plants, therefore is a valuable acquisition.
Price 10*s.* 6*d.* each.

Double Pelargonium Theophrasta fl.-pl.
Colour more defined than in the original type; the upper petals a rich vermilion, with carmine rays proceeding from the centre; habit vigorous, throwing up magnificent trusses; invaluable for market, and forcing for flower early in the spring.
Price 31*s.* 6*d.* each.

Polystichum ordinatum.
Handsome-growing greenhouse Fern; fronds from 1 to 2 feet long, of graceful growth, entirely different from any other variety of the species. Pinnæ bipinnate and prettily arranged.
Price 10*s.* 6*d.* each.

Tinnea æthiopica, Violet-scented Tinnea.
It is uncertain who was the first discoverer of this plant, for it was found by Dr. Kirk during Dr. Livingstone's exploration of the Zambesi River; by Captain Grant, during his journey with the lamented Captain Speke to the upper waters of the Nile; and by Mdlle. Tinne during her journey up the Nile; though we owe to Mdlle. Tinne the introduction of the plant, which is named in honour of her. It is a warm greenhouse plant, and is remarkable for the maroon-purple colour of its flower, and for possessing the delicious perfume of Violets. It grows to the height of 5 or 6 feet, forming a bush.
Price 7*s.* 6*d.* each.

VICTORIA and PARADISE NURSERIES, UPPER HOLLOWAY, LONDON, N.

J. SCOTT'S CHOICE SEEDS.

Post Free. Per Packet.

PRIMULA SINENSIS FIMBRIATA.—A most superb strain, and cannot be surpassed, 8 varieties, mixed, 1*s.* 6*d.* and 2*s.* 6*d.*
CALCEOLARIA.—Scott's superb strain, extra, 1*s.* and 2*s.* 6*d.*
CINERARIA.—Extra fine, carefully hybridized, 1*s* and 2*s.* 6*d.*

Also newest Perfection French ASTER, for exhibition, greatest variety, 6*d.* and 1*s*; best German Quilled ASTER, 6*d* and 1*s.*; New Victoria ASTER, 6 vars., mixed, 1*s.*; Dwarf Chrysanthemum fl. Aster, 6*d.* and 1*s.*; Newest German STOCKS, greatest variety, 6*d.* and 1*s*; New Striped-leaved Japanese MAIZE, 1*s.*; Choice PHLOX DRUMMONDII, 12 vars., mixed, 1*s.*; do., most brilliant Scarlet, 1*s.*; Invincible Scarlet SWEET PEAS, 1*s.*; Tagetes signata, 6*d*; Viola cornuta, Mauve or Purple Queen, 1*s.*; superb Double Zinnia, 6*d.* and 1*s*; extra fine Single do., 6*d.*

Scott's Superb Dwarf Crimson BEET, suitable for ribbon borders in kitchen garden, the best grown, 6*d.*; CUCUMBER, Enfield Surprise, frame, 1*s*; do. Scott's Market Ridge, 6*d*; Melville's Variegated KALE, 6*d.*; Victoria New White COS LETTUCE, 1*s*; Princess Alice MELON, 1*s.*; Raphanus caudatus, or Rat's-tail Radish, 1*s.*

For descriptions of the above cheap Collections, &c., see SELECT SEED LIST, post free on application to

J. SCOTT, The Seed Stores, Yeovil, Somerset.

New and Genuine Seeds.

THOMAS SAMPSON, The Preston Road Nurseries, Yeovil, Somerset, begs to intimate that his CATALOGUE of SEEDS for the GARDEN and FARM is now ready, and can be obtained free on application. It contains a Select and Choice Stock, everything being of the best quality, and are offered at unequalled low prices.

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B. S. WILLIAMS' GENERAL PRICED CATALOGUE of FLOWER and VEGETABLE SEEDS forwarded free to any address. It contains, in addition to the best of the established and indispensable varieties of Vegetable Seeds, the following new kinds:—

The ORANGEFIELD DWARF PROLIFIC TOMATO, 2*s.* per packet.
WILLIAMS'S "ALEXANDER BROCCOLI," 2*s.* 6*d.* per packet.
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DIGSWELL PRIZE ENDIVE, 1*s.* per packet.
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Also the following well-known strains of FLORISTS' FLOWERS:—
WILLIAMS'S superb strain of PRIMULA, Red, White, or Mixed, 2*s.* 6*d.*, 3*s.* 6*d.*, and 5*s.* per packet.
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JAMES'S CALCEOLARIA, 2*s.* 6*d.*, 3*s.* 6*d.*, and 5*s.* per packet.
WEATHERALL'S extra choice CINERARIA, 3*s.* 6*d.* and 5*s.* per packet.

A full description of each of the above will be found in the Catalogue. All packets of seed free by post.

LILIUM AURATUM, a large importation. Strong Bulbs, 3*s.* 6*d.*, 6*s.*, and 7*s.* 6*d* each.

GLADIOLI, English-grown Seedlings, splendid assortment, 8*s.* per dozen, 50*s.* per 100. Named varieties, 6*s.*, 8*s.*, and 12*s.* per dozen.

Victoria and Paradise Nurseries, Upper Holloway, London, N.

THE "COLDSTREAM EARLY" POTATO, which received a First-class Certificate at the International Horticultural Exhibition at South Kensington, is the Earliest and Best round Potato in cultivation. 5*s.* 6*d.* per peck; 18*s.* per bushel, including bags. Trade price on application.

Apply to HOGG & WOOD, Coldstream, N.B.

CHOICE SEEDS.

Post Free.

	Per pkt.—*s.*	*d.*		Per pkt.—*s.*	*d.*
Broccoli, Snow's Imperial Winter	1	0	Moore's Vegetable Cream	0	6
Albert Sprouts	0	6	Beet, Perpetual Spinach	0	6
Cauliflower, Early Erfurt	1	0	,, Nutting's Superb Red	0	6
Celery, Manchester Champion Red	0	6	Lettuce, Wheeler's Tom Thumb	0	6
Cucumber, Smith's Fine Frame	1	0	Radish, French Breakfast	0	6
Cucumber, Telegraph	1	0	Aster, Truffaut's Superb French, 12 vars. mixed	1	0
Leek, Henry's Prize	0	6	Aster, Victoria, 6 vars. mixed	1	0
Endive, Digswell Prize	0	6	Stock, improved large-flowering, 12 vars. mixed.	1	0
Onion, Nuneham Park	2	6	Balsam, Camellia-flowered, 6 var. mixed	1	0
Parsley, extra fine curled	0	6	Balsam, Rose-flowered, 8 vars. mixed	1	0
Raphanus caudatus (new long-podded Radish)	2	6	Phlox Drummondii, 12 splendid varieties	1	0
Custard Marrow	0	6			
Melon, Malvern Hall	1	6			
Tomato de Laye	0	6			
Cauliflower, The Mammoth	1	0			

RICHARD SMITH, Seed Merchant, Worcester.

New Dwarf Sprouting Ulm Savoy.

STUART AND MEIN, Kelso, N.B., have much pleasure in sending-out the above valuable acquisition. The heads can be cut fr early use, and the sproutings are invaluable in spring when vegetables are scarce. In most seasons the sproutings are fit for use until May. Heads of the Dwarf Sprouting Ulm Savoy and the ordinary Brussels Sprouts grown alongside of each other were forwarded to the Editors of the *Gardeners' Chronicle*. The following is their opinion (see No. for 6th April):—"The Brussels Sprouts sent are 'run' and wholly worthless, while the Sprouts on the Savoy are numerous, large firm, and excellent."

S. & M. have a limited number of packets on hand, price 1*s.* 6*d.* per packet, free by post on receipt of stamps.

STUART & MEIN, Seed Warehouse, Kelso, N.B.

To Market Gardeners, Nurserymen, Seedsmen, and Others.

RICHARD WALKER, SEED GROWER and MARKET GARDENER, has left 100,000 extra fine young CABBAGE PLANTS, Green, 4*s* per 1000, no finer stock in England; Red, extra fine, 6*s.* per 1000; WHITE SPANISH ONION SEED, 1*s.* 8*d.* per lb; KOHL RABI SEED, 1*s.* per lb. The Seed being home-grown is new, and can be recommended. Terms, Cash.

Biggleswade, Beds.

Sutton's Mammoth Long Mangels.

MESSRS. SUTTON are now prepared to execute Orders for New Seed of the above improved varieties of LONG RED and LONG YELLOW MANGEL at 1*s.* 6*d.* per lb., or cheaper by the cwt. Messrs. SUTTON took the 1st prize for MANGEL WURZEL at the Birmingham Show in 1865 with these varieties, which are thus referred to in the *Times* of Dec. 4, 1865:—

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PRICED LISTS, gratis, and Post free.

SUTTON & SONS, Seed Growers, Reading.

New Mangel Wurzel Seed.

H. AND F. SHARPE have the following Varieties, raised last season on their own Seed Farm from fine selected Bulbs, which they can offer to the Trade at Low Prices, to be had on application:—

SHARPE'S SELECTED ORANGE GLOBE.
FISHER HOBBS' ORANGE GLOBE.
LARGE YELLOW GLOBE.
ELVETHAM LONG RED.
SELECTED LONG YELLOW.
SELECTED RED GLOBE.

Seed Growing Establishment, Wisbech.

New Turnip Seeds.

H. AND F. SHARPE offer the following varieties to the Trade at low Prices. They are all of 1866 growth, raised from the finest selected Stocks:—

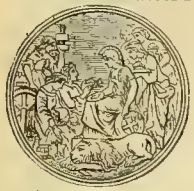
SHARPE'S IMPROVED PURPLE-TOP SWEDE.
SKIRVING'S "KING of the SWEDES."
IMPROVED GREEN TOP SWEDE.
LINCOLNSHIRE RED GLOBE.
IMPROVED GREEN NORFOLK.
DEVONSHIRE GREY STONE.

And many other Yellow and White-fleshed sorts. Prices may be had on application. Seed-growing Establishment, Wisbech.

GIANT ASPARAGUS PLANTS, the best that money can procure, 2*s.* 6*d.* per 100. — This delicious vegetable does not require half the expense usually incurred in planting it.
See RICHARD SMITH'S SEED LIST for 1867.
RICHARD SMITH, Nurseryman, Worcester.

RAYNBIRD, CALDECOTT, BAWTREE, DOWLING, AND COMPANY, Limited,
CORN, SEED, MANURE, AND OILCAKE MERCHANTS,
Address, 89, Seed Market, Mark Lane, E.C.; or Basingstoke.
Samples and Prices post free on application. Prize Medals, 1851, for Wheat; 1862, for "Excellent Seed Corn and Seeds."

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CARTER'S SELECT LIST of GENUINE FARM SEEDS, at moderate prices, is now ready, and may be had post free on application to
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Present Prices of Best Clover Seeds.

SUTTON AND SONS can supply the above at the following prices, carefully cleaned, and free from Dodder and other weeds:—

	Per lb.—*s.* *d.*		Per lb.—*s.* *d.*
BROAD RED ..	10*d.* to 1 0	YELLOW TREFOIL, 5*d.* to	0 6
WHITE or DUTCH	1*s.* 2*d.* ,, 1 4	COW GRASS .. 1*s.* 2*d.* ,,	1 6
PERENNIAL WHITE ..	1 6	ALSIKE .. .. 2*s.* ,,	2 6

Samples and lowest price per cwt. sent on application.
Ordinary qualities may be had cheaper.
All goods Carriage Free (except very small parcels).
Five per cent. allowed for cash payment.
SUTTON & SONS, Seed Growers, Reading.

Ailantus Silkworm Culture.

HENRY MAY has the pleasure to announce to the public that he has been appointed AGENT by Lady Dorothy Nevill for the SALE of the AILANTUS SILKWORMS' EGGS. H. M. will be happy to receive orders now to supply the Eggs, free of expense, about the end of May, at 5*s.* per 100. A great reduction if 500 or 1000 are taken. H. M. flatters himself that this culture will prove a great source of amusement, instruction, and profit to thousands, and perhaps one day a great national benefit, as it is now in Italy and France. The AILANTUS GLANDULOSUS can be grown in any soil, and requires no particular treatment. H. MAY has a large Stock of Trees, which should be planted during April and early May, before the leaves expand. Price for Trees, 2 years' Seedling and 2 years' transplanted, 20*s.* per 100; stronger trees in proportion. Instructions on the SILKWORM CULTURE, by Lady DOROTHY NEVILL, can be procured at 162, Fleet St., London, price 1*s.*
Address HENRY MAY, The Hope Nurseries, Bedale, Yorkshire.

FIBROUS PEAT of first-class quality for Orchids, Heaths, American Plants, and all potting purposes, may be obtained by application to Mr. THOMAS JESSOP, Farningham Wood, near Farningham Station, Kent. It is despatched by the London, Chatham, and Dover Railway in trucks of 16 yards, about 6 tons, to most Stations in the Kingdom, or fetched in carts from the wood. It is extensively used and appreciated in the principal Nurseries, and in the Royal Parks and Gardens. Price 5*s.* per cubic yard, at Farningham Station.



COCOA-NUT REFUSE is becoming SCARCE, the old reserves will soon be gone. Now sold in bags, 1 for 2*s.*, 10 for 16*s.*, 2 for 30*s.*, 50 for 66*s.*, 100 for £6.

Fourpence allowed for each bag returned carriage-paid.

A Railway Truck-load (not bags), 40*s.*

Postage Stamps or Post-office Order, payable to J. BARSHAM & Co., Kingston-on-Thames, S.W.

GENUINE TOBACCO PAPER, 10*d.* per lb. Terms Cash.
W. DODGSON, Jackson & Sons, Tobacco Manufacturers, 29, Lady Lane, Leeds.

ROLL TOBACCO CLOTH.—The cheapest and best article for Smoking Greenhouses and destroying the Fly; equal to Tobacco in strength, 1*s.* 4*d.* per lb.; over 10 lb., 1*s.* 1*d.*
JOSEPH BAKER, 10, Gough Square, Fleet Street, E.C.
Post Office Orders payable Fleet Street.



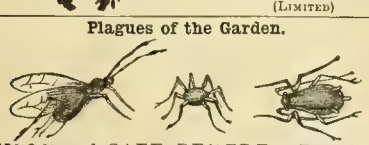
GISHURST COMPOUND.

Used by many of the leading Gardeners since 1859, against Red Spider, Mildew, Thrips, Green Fly, and other Blight, in solutions of from 1 to 2 ounces to the gallon of soft water, and of from 4 to 16 ounces as a Winter Dressing for Vines and Fruit Trees. Has outlived many preparations intended to supersede it.

Sold Retail by Seedsmen, in boxes, 1*s.*, 3*s.*, and 10*s.* 6*d.*

Wholesale by
PRICE'S PATENT
CANDLE COMPANY
(LIMITED)

Plagues of the Garden.



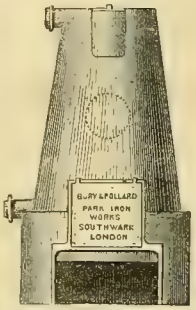
SIMPLE and SAFE REMEDY.—By using the APHIS WASH, these pests of the garden, together with Ants, Scale, Caterpillars, Slugs, Earwigs, &c., are immediately destroyed. Leaves no strain, but strengthens the Trees or Plants.
"At the first opportunity paint the trees with a solution of 'Aphis Wash,' prepared at the City Soap Works; it not only destroys the Brown Aphis which Infests Peach Trees, but also Scale, and every other pest capable of lodging in the bark."—Extract from *Gardeners' Magazine*, January 5, 1867.
"For strengthening the growth and effectually destroying all forms of blight, the 'Aphis Wash' supersedes every other preparation."—See *Gardeners' Chronicle*, August 19, 1865; and *Gardeners' Magazine*, July 1, 1865.
Sold by Chemists and others, in 1*s.* bottles, and 2*s.* 6*d.* a gallon, with full directions for use.
Wholesale at the City Soap Works, Milton Street, London, E.C.

BOSTON'S NE PLUS ULTRA, for the Destruction of Mealy Bug, Scale, American Blight, &c., on Stove and Greenhouse Plants, Fruit Trees, Vines, &c. in bottles, with full instructions for application, price 3*s.* 6*d.*, 5*s.*, and 10*s.* 6*d.*
JAMES CARTER & Co. beg leave to state that the present time is most suitable for applying the above genuine Specific before the commencement of the growing season, thereby preventing the rapid increase of the above pests which would otherwise take place. The infallible properties of BOSTON'S NE PLUS ULTRA are rapidly becoming fully recognised, J. C. & Co. having already sold nearly 2000 bottles since its first introduction in the spring of 1866. Numerous testimonials have been received, and not a single complaint of its inefficiency.
Sole Agents, JAMES CARTER & Co., 237 and 238, High Holborn, W.C.
*** The Trade supplied on liberal terms.

By Royal Letters Patent.

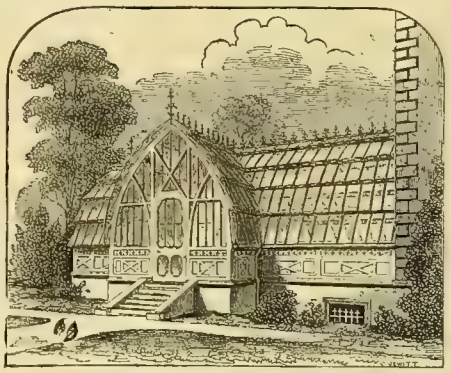
TOBACCO TISSUE for FUMIGATING GREENHOUSES.—This article, which is made from Tobacco, and is entirely free from any paper or rag, is acknowledged by all those who have used it, to be the most effectual remedy for Destroying Insect Life in Greenhouses, and will burn without the assistance of blowing. Price 3*s.* 6*d.* per lb., carriage free.—To be had of Messrs. ROBERTS & SONS, Tobacco Manufacturers, 112, St. John's Street, Clerkenwell, E.C.; and of all Seedsmen and Nurserymen.

Hot-water Pipes, with Elbows and Connections,
SUPPLIED BY
BURY AND POLLARD.
CONTRACTS AND ESTIMATES GIVEN FOR
WARMING PUBLIC BUILDINGS.



Latest Improvements in HEATING by HOT WATER.
The Improved CONICAL BOILERS,
For Heating Pineries, Conservatories, Greenhouses, Mansions, Halls, Warehouses, &c.
Solely Manufactured by BURY & POLLARD.
These Boilers are adapted for setting in Brickwork, or annexed Sketch shows BURY & POLLARD'S improved arrangement, requiring
NO BRICKWORK SETTING.
These Boilers have for their durability and economy attained a celebrity far surpassing any other Boilers ever invented. They have been for many years past in use at many Public Establishments, Royal Botanical Gardens at Kew, at the Regent's Park, the Crystal Palace, and at most of the Nobility's and Gentry's Seats throughout the United Kingdom. References where they have been for 20 years in constant use.
Price Lists on application to BURY & POLLARD, Park Iron Works, 17, New Park Street, Southwark, London, S.E.

CRANSTON'S PATENT BUILDINGS for HORTICULTURE.
"Dry Glazing without Putty."
"Glass without Laps."
"Ventilation without Moving Lights."
Highly Commended by the Royal Horticultural Society, South Kensington.



Plans and Estimates free on application. Descriptive Book fully illustrated, post free for 20 stamps, from the Author and Patentee, JAMES CRANSTON, Architect, Birmingham.
Works: Highgate Street, Birmingham.
HENRY J. GROWTAGE, Manager, 1, Temple Row West, Birmingham.

Greenhouses—Heating Apparatus.



THE ONLY PRIZE MEDAL AWARDED for Various Improvements in the Ventilation, Construction, and Application of WROUGHT-IRON to Horticultural Buildings.
OUR PATENT WROUGHT-IRON PRIZE MEDAL CONSERVATORIES are of the highest order.
OUR PATENT WROUGHT-IRON PRIZE MEDAL GREENHOUSES perfectly neutralize atmospheric conduction.
OUR PATENT WROUGHT-IRON PRIZE MEDAL VINERIES promote vigorous growth and richness of colour.
OUR PATENT WROUGHT-IRON PRIZE MEDAL ORCHID HOUSES and STOVES, with double-glazed roofs, are a complete arrangement.
OUR PATENT WROUGHT-IRON PRIZE MEDAL ORCHARD HOUSES (as supplied to Mr. Rivers), induce perfect symmetry and unfailing result.
OUR PATENT WROUGHT-IRON PRIZE MEDAL GERANIUM and PLANT HOUSES are thoroughly ventilated, and admit a maximum degree of light.
OUR PATENT WROUGHT-IRON PRIZE MEDAL CUCUMBER and MELON HOUSES are specially arranged and heated upon an improved system.
OUR PATENT WROUGHT-IRON PRIZE MEDAL PINERIES, when heated upon the improved system, are calculated to secure the growth of first-class fruit.
OUR PATENT PRIZE MEDAL FORCING HOUSES are eminently superior for all early work.
OUR PATENT WROUGHT-IRON PRIZE MEDAL STRAWBERRY HOUSES admit a complete flood of air and light.
The above Patent Houses can be glazed with or without putty.
These Houses are now protected by three Royal Letters Patent, and from the complete adjustment of their constructional parts will vie most favourably with Wood Structures in point of cost.
Designs and Estimates prepared for single or complete ranges of Houses in Wood or Iron.
Illustrated Catalogues on application to the Patentees,
T. H. P. DENNIS & A. SCRUBY, Horticultural Builders and Hot-Water Engineers, Chelmsford.

HOTHOUSES for the MILLION, invented by the late SIR JOSEPH PAXTON.



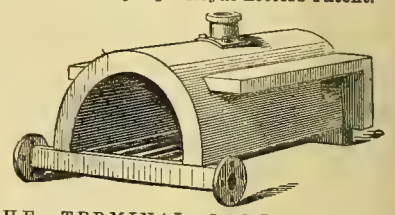
Manufactories: London, Newton in Cartmel (Lancashire), Gloucester, Coventry, Aberdeen, and Paisley only.
Illustrated Circulars, with revised List of Prices, will be sent on prepaid application to Messrs. HEREMAN & MORTON, Head Office, 7, Pall Mall East, London, S.W.

HOT-WATER APPARATUS, of every description, fixed complete in any part of the country, or the materials, viz., Boilers, Pipes, &c., delivered to any Station.
Estimates on application.
J. JONES & SONS, 6, Bankside, Southwark, London, S.E.

Heating by Hot Water.

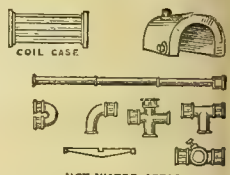
W. J. HOLLANDS, IRON MERCHANT, 31, Bankside, London, S.E.
HOT WATER PIPES, from Stock, per yard:—2-inch, 1*s.* 2*d.* 3-inch, 1*s.* 10*d.*; and 4-inch, 2*s.* 4*d.* BENDS, from Stock, 1*s.* 6*d.*, 2*s.* 6*d.* and 3*s.* each. THROTTLE VALVES, 10*s.*, 13*s.*, and 14*s.* each. Other Connexions at equally low prices, and all goods of first-class manufacture. Estimates given, and orders by post punctually attended to the same day.

By Her Majesty's Royal Letters Patent.

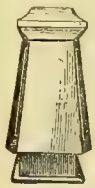


THE TERMINAL SADDLE BOILER, with Hollow Bars, proves itself to be equal to any form now in use for economy and power; while the Simplicity of its Construction gives it the advantage over all others. See Testimonials.
J. IRELAND, Edward Street, Broughton Lane, Manchester.

COTTAM AND COMPANY,
CONSERVATORY and HOTHOUSE BUILDERS, &c.,
Iron Works, 2, Winsley Street, Oxford Street, London, W.
SADDLE BOILERS.
20 24 30 inches long.
45*s.* 65*s.* 92*s.* 6*d.* each.
HOT-WATER PIPES.
2 3 4 inch.
1*s.* 6*d.* 2*s.* 1*d.* 2*s.* 9*d.* per yard.
Materials supplied as above, or Estimates given fixed complete to Plan, on application to
COTTAM & Co.,
Iron Works,
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opposite the Pantheon,
Oxford Street, London, W.



CUCUMBER and MELON BOXES.—Two Hundred 1, 2, and 3-light Boxes and Lights of all sizes, made of best seasoned materials, glazed and painted, complete, ready for immediate use, packed and sent to all parts of the kingdom.
JAS. WATTS, 353, Old Kent Road, S.E.



SMOKY CHIMNEYS.—The best cure is the PATENT ALBERT CHIMNEY CAP.
300 on Buckingham Palace; 80 on Windsor Castle; 100 on St. James's Palace; 120 on Claremont Palace; 230 on the Western Heights Barracks, Dover; and hundreds also on the Halls and Mansions of the Nobility, Public Buildings, &c.
Price, Painted Wrought Iron, 25*s.* each; Galvanised ditto, 30*s.* each.
JAMES BARTON, Iron Works and Patent Stable Fitting Manufactory, 370, Oxford Street, W.

By Royal Letters Patent.



WELLS'S PORTABLE GROUND VINERY, for Growing and Ripening Grapes without Artificial Heat.
Awarded a Silver Medal at the International Exposition of Horticulture, held at Nice, April, 1865.
Drawings and Instructions can be had of the PATENTEE, Steam Works 24, Bouverie Street, London, E.C.
AGENTS:—B. J. Edwards, 25, Bishopsgate Street Within, E.C.
J. R. Tanton, Epsom, Surrey.
Drummond Brothers, 52, George Street, Edinburgh.



GARDEN BORDER EDGING TILES, in great variety of patterns and material, the plainer sorts being especially suited for KITCHEN GARDENS, as they harbour no Slugs and Insects, take up little room, and once put down incur no further labour and expense, as do "grown" Edgings, consequently being much cheaper.



GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, of great durability, and in great variety of design.
F. & G. ROSHER, Manufacturers, Upper Ground Street, Blackfriars, S.; Queen's Road West, Chelsea, S.W.; Kingsland Road, Kingsland, N.E.
Sole London Agents for FOXLEY'S PATENT GARDEN WALL BRICKS. Illustrated Price Lists free by post. The Trade supplied.

ORNAMENTAL PAVING TILES for Conservatories, Halls, Corridors, Balconies, &c., as cheap and durable as Stone, in blue, red, and buff colours, and capable of forming a variety of designs.
Also TESSELATED PAVEMENTS of more enriched designs than the above.
WHITE GLAZED TILES, for Lining Walls of Dairies, Larders, Kitchen Ranges, Baths, &c. Grooved and other Stable Paving Bricks of great durability, Dutch and Adamantine Clinkers, Wall Copings, Red and Stoneware Drain Pipes, Slates, Cements, &c.
To be obtained of F. & G. ROSHER, at their Premises as above.

SILVER SAND (REIGATE, best quality), at the above addresses—14*s.* per Ton, or 1*s.* 3*d.* per Bushel; 2*s.* per Ton extra for delivery within three miles, and to any London Railway or Wharf. Quantities of 4 Tons, 1*s.* per Ton less.
FLINTS, BRICK BURRS or CLINKERS, for Rockeries or Grotto Work. F. & G. ROSHER.—Addresses see above.
N B. Orders promptly executed by Railway.

SAMUELSON & CO.'S

PATENT LAWN MOWING and ROLLING MACHINES.

EVERY MACHINE WARRANTED.

TO BE OBTAINED OF

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AGENTS:—Messrs. TANGYE BROTHERS AND HOLMAN, 10, LAURENCE POUNTNEY LANE; Messrs. DEANE AND CO., London Bridge; Messrs. DRAY, TAYLOR AND CO., London Bridge; Mr. THOMAS BRADFORD, 63, Fleet Street, E.C.; and all respectable Seedsmen and Ironmongers throughout the Kingdom.



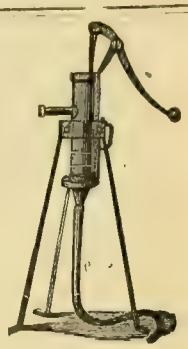
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JOHN WARNER & SONS,

BRASS & BELL FOUNDERS TO HER MAJESTY.

HYDRAULIC ENGINEERS,

8, CRESCENT, CRIPPLEGATE, LONDON, E.C.



No. 42.

J. W. AND SONS' GOODS MAY BE OBTAINED OF THE TRADE GENERALLY AT THE FOLLOWING PRICES:—

35. WARNERS' PATENT CAST-IRON

LIFT PUMPS.

2½ inches diameter	..	.. £1	8 6
3 ,, ,,	..	.. 2	1 0
3½ ,, ,,	..	.. 2	6 0
4 ,, ,,	..	.. 2	14 0

SHORT-BARREL DITTO,

FOR SINKS, PLANT HOUSES, &c.

No 37.—2½ ins. diameter .. £1 1 0

Ditto, with 15 feet of 1¼-in. lead Suction Pipe attached, £2.



WARNERS' (No. 568½) AMERICAN

GARDEN ENGINE,

OR FIRE ANNIHILATOR,

Is complete in itself, or can be used to draw from a Pond or Tank, price £2 2*s.*

6 ft. Suction Pipe and Rose, extra, 12*s.*



WARNERS' AQUAJECT.

Useful for every variety of purpose, in Watering or Washing Flowers or Trees in Gardens, Conservatories, &c.; also for Washing Carriages or Windows, Laying Dust, &c.

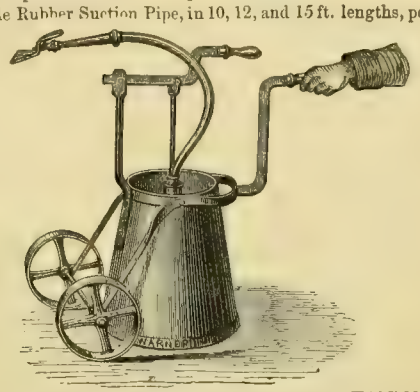
Price, complete £1 10 0

Small Size for the hand, as an ordinary Syringe, 18*s.*

No. 42. WARNERS' PORTABLE PUMPS,

With Improved Valves for Liquid Manure £2 15 0

2-in. Flexible Rubber Suction Pipe, in 10, 12, and 15 ft. lengths, per foot, 2*s.* 5*d.*



WARNERS' (No. 547 B) GARDEN ENGINE.

HOLDS SIX GALLONS.

Is light, portable, and easily worked by a lady or child, price £2 10*s.*

LETTER TO *The Times*, JULY 23, 1866.

FROM EARL ESSEX.

A Real Fire Extinguisher.

To the Editor of "The Times."

"SIR,—I feel sure you will kindly allot a small space in the *Times* to these few lines, as the best medium through which I would urge every householder who dreads fire to have on each floor of his house one or more small Garden or other Engines on wheels, always charged and in good order, in case of fire.

"Last night, just as I was going to bed, I was startled by that most fearful of all cries, 'Fire, fire!' I soon learned that a fire was raging in a large two-windowed unoccupied bedroom. How caused is to us all a great mystery. It is my custom to keep one of these small Engines on each floor. In two minutes I was in the room with one of them. It was like a furnace. The curtains, shutters, casements, and cornices of both windows were burning and cracking from floor to ceiling. I was quite alone at the moment, yet before assistance arrived (most of the servants having gone to bed), I had completely subdued the fire of one window without exhausting the Engine, and when assistance and more water did arrive, we very soon extinguished the other. So fierce was the fire that the lead of the casements was melted, and the casements themselves were burnt off their hinges. I will only add, that by God's mercy, the house was saved by this small Engine. Had it not been at hand and in order, most assuredly Cassiobury would be now a heap of ruins.—Yours faithfully,

"ESSEX.

"Cassiobury, Watford, July 20.

"The Engine, even when full, runs so light on the floor, that any woman might draw it, and also work it."



No. 547, in Wood. 547A, in Iron Tub.

WARNERS' GARDEN ENGINES,

WITH REGISTERED SPREADERS.

These Engines are much improved in construction, are less likely to get out of order, and more easily repaired than others.

No. 547. Best ENGINES, in Wood Tubs.

24 Gallons	.. £6 10 0	14 Gallons	.. £5 10 0

No. 547A. Strong ENGINES, in Galvanized Iron Tubs, well painted inside and out.

10 Gallons	.. £2 19 0	24 Gallons	.. £4 19 0
16 Gallons	.. 3 14 0	28 Gallons	.. 5 10 0

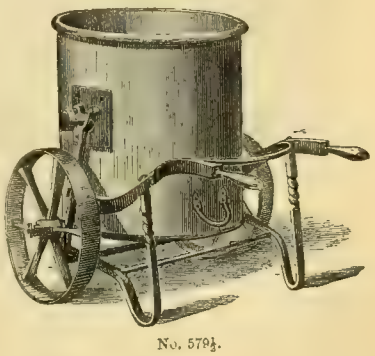
579½. WARNERS' WATER BARROW

Saves a Gardener's time in Watering with the Water Pot.

Made of strong Wrought Iron, Galvanized and painted inside and out

To hold 20 Gallons, wheels 13 inches high	..	..	£2 2 0
,, 30 ,, ,, 20 ,,	..	..	2 13 0
,, 38 ,, ,, 24 ,,	..	..	3 17 0
,, 50* ,, ,, 24 ,,	..	..	5 12 0

* This is an extra strong article, with cross handle for two men, suitable for Nursery Grounds, &c.



No. 579½.

SYRINGES, BRANCH PIPES, INDIA-RUBBER HOSE, &c.

☞ *Estimates for any description of Hydraulic Machinery forwarded on application.*

LILIUM AURATUM.—Large Consignment just received, 2s. 6d., 3s. 6d., 5s. 6d., and 7s. 6d. per Root. Extra large selected Bulbs, 10s. 6d., 12s. 6d., 15s., and 21s.

BARR & SUGDEN, Seed, Bulb, and Plant Merchants, 12, King Street, Covent Garden, W.C.

GLADIOLI BULBS, for Summer, Autumn, and Winter Flowering, 2s. 6d., 3s. 6d., 5s. 6d., 7s. 6d., 9s., and 12s. per dozen. 10s. 6d., 15s., 21s., 25s. to 100s. per 100.

BARR & SUGDEN, Seed, Bulb, and Plant Merchants, 12, King Street, Covent Garden, W.C.

GLADIOLI. — Collections containing all the finest varieties in cultivation, many new, and offered for the first time, 105s., 63s., 42s., 30s., 25s., 20s., 15s., 12s. BRENCHLEYENSIS, the most showy of all, extra strong roots, 3s. per doz., 20s. per 100.

DESCRIPTIVE PRICED LISTS free on application.

BUTLER, MCCULLOCH & Co. South Row, Covent Garden, W.C.

PANSY SEED.—Saved from the very finest Show Flowers, by an amateur who gained upwards of 20 Prizes last season at the Exhibitions of Glasgow, Kilmarnock, &c. Confidently recommended as perhaps the finest Pansy Seed ever offered to the Public; 1s. and 2s. 6d. per packet.

ANTIRRHINUM, from splendid varieties, 6d. and 1s.

DREGHORN & AITKEN, Kilmarnock, N.B.

Plants in Bloom.

MESSRS. F. AND A. SMITH offer the following:—APHELEXIS, AZALEAS, ACACIAS, CINERARIAS, CYTISUS, GERANIUMS, HEATHS, STOCKS, MIGNONETTE, &c., &c. Prices on application.

BEDDING PLANTS in large quantities. LISTS on application.

The Nurseries, Dulwich, Surrey.

Lobelias, Lobelias, Lobelias.

THOMAS SAMPSON is now ready to supply by the Dozen, Hundred, or Thousand, the splendid LOBELIA ERINUS SPECIOSA GRANDIFLORA, well known as the best of its class for Bedding and other purposes, being of a compact habit, and of freer growth than the known L. speciosa, having proved it to be more lasting and hardy. The flowers are large dark blue, with fine white eye. Per dozen, in store pots, 2s.; per 100, 8s.; per 1000, 80s.

PETER DRUMMOND, Manager, The Preston Road Nurseries, Yeovil, Somersetshire.

PLANTS FOR THE SEASON.

		£	s.	d.
12	Finest New DAHLIAS of 1866	0	9	0
12	,, ,, FUCHSIAS of 1866	0	9	0
12	,, ,, VERBENAS of 1866	0	4	0
36	,, ,, VERBENAS of 1866	0	9	0
12	,, ,, CHRYSANTHEMUMS	0	8	0
12	,, ,, Shrubby CALCEOLARIAS, one each	0	6	0
12	,, ,, PENTSTEMONS	0	9	0
12	Superb New HOLLYHOCKS	3	3	0
12	Fine kinds ,, ...	1	4	0
12	Good kinds ,, ...	0	12	0
12	Best New BEDDING GERANIUMS	0	9	0

BEDDING PLANTS in large quantities, cheap and good.

CATALOGUE now ready and free.

HENRY MAY, The Hope Nurseries, Bedale.

AUCUBAS, FUCHSIAS, ZONAL GERANIUMS, &c.

6 Varieties AUCUBAS, 3 Male, 3 Female, for 21s.
12 Select NEW FUCHSIAS of 1866 for 6s.
12 Select NEW ZONAL GERANIUMS of 1866 for 6s.
6 Select DOUBLE MIMULUS for 3s.
12 Select CHRYSANTHEMUMS of 1866 for 4s.
12 Varieties JAPAN EUONYMUS, very fine, 6s.
12 fine Varieties DWARF PERPETUAL ROSES, 6s.
3 Varieties NEW JAPAN OSMANTHUS, quite hardy, 5s.
NEW WHITE LOBELIA MISS MURPHY, 4s. per dozen.

B. W. KNIGHT, Nurseryman, Battle, Sussex.

New Zealand Nursery, St. Alban's, Herts.

INTENDING PURCHASERS of TRICOLOR PELARGONIUMS will do well to see J. WATSON'S beautiful Tricolors MISS WATSON and MRS. DIX, previous to making their purchases. For fine foliage, excellent constitution, free growth, and brilliancy of colouring they are unrivalled. They have received two First-class Certificates. Plants of Miss Watson in August, £2 2s. each; Mrs. Dix in May, 1868, 31s. 6d. each.

NEW IVY-LEAVED PELARGONIUMS.

L'ELEGANTE.—Leaves green, margined with creamy-white; flowers white. 10s. 6d. each; six plants, £3.

DERBYSHIRE HERO (Zonal).—Bright cerise.

STAFFORD GEM (Zonal).—Orange-scarlet.

SCARLET CHRISTINE (Plain-leaved).—Bright cerise, shaded with purple.

ROSE MAGENTA (Nosegay).—Fine habit, good bedder.

6s. each, set of four for 16s.

The above to be sent out after April 20.

DESCRIPTIVE PRICED CIRCULARS to the Trade on application.

See *Gardeners' Chronicle*, p. 234, March 2.

W. CUNNINGHAM, The Forge Nurseries, Burton-on-Trent.

New Zonal Pelargoniums.

SALTMARSH AND SON, NURSERYMEN, SEEDSMEN, and FLORISTS, Chelmsford, have great pleasure in introducing the following SEEDLINGS of their own raising, feeling confident they will give equal satisfaction with the two now well-known varieties, Luna and Little Treasure, sent out by them in 1865. They will be ready for distribution in May next. Early orders are solicited, as the stock is limited.

ZONAL PELARGONIUMS.

REINE D'ITALIE (SALTMARSH & SON).—A seedling from that highly esteemed variety, Roi d'Italie, possessing all the good properties of its parent in compactness of habit, profusion, form, and size of flowers, each blossom measuring 1¾ths or an inch in diameter; colour pale salmon flesh, shading off to flesh white at the edges, with pure white eye, altogether forming a most attractive specimen for pot culture. Price 7s. 6d. each.

CRITERION (SALTMARSH & SON).—Also a seedling from Roi d'Italie, with darker zone, producing an abundance of flowers, of the large size of its parent, of the most perfect form, and borne on stout footstalks; habit compact and vigorous; colour bright orange vermilion, with small white eye. Price 7s. 6d. each.

VARIEGATED ZONAL PELARGONIUMS.

METEOR (SALTMARSH & SON).—Foliage large and flat, almost circular, having a green disc about 1¼-inch in diameter, surrounded by a very broad and well-defined zone of deep sienna maroon and bright red in about equal proportions, leaving a clear margin of about a quarter of an inch of bright chrome yellow; flowers bright scarlet, with white eye; habit compact and vigorous.

The above splendid variety will prove a valuable addition to the Golden Tricolor section of variegated Pelargoniums; it is quite distinct from any variety hitherto introduced, and was awarded a First-class Certificate at the Royal Horticultural Society's Meeting in September, 1864. Price 21s. each.

A Coloured Drawing, by Andrews, of this splendid variety, will be sent (post free) on receipt of 7 stamps.

ELECTRIC (SALTMARSH & SON).—Foliage greenish yellow, changing with exposure to sun and air to a rich golden yellow, with a very broad zone of dark chocolate, in the way of Luna, but more heavily zoned, and of more robust habit, producing fine trusses of scarlet flowers with white eye Price 10s. 6d. each.

VENUS (SALTMARSH & SON).—Foliage greenish yellow, changing to golden yellow, with slight bronze zone; habit compact and spreading, producing neat trusses of well-formed flowers on short footstalks, of a soft and pleasing shade of rosy cerise, altogether forming a most attractive variety by the harmonious blending of its colours and its remarkably close habit of growth. Price 10s. 6d. each.

SNOWSTORM (SALTMARSH & SON).—Foliage green, with a very deep edge of pure white. This variety will be found to display a greater proportion of white variegation than any other yet produced; the leaves are less disposed to curl than most varieties of this class; in addition to which the habit exceedingly close, yet robust and bushy; flowers rosy scarlet with white eye. Price 10s. 6d. each.

TRICOLOR PELARGONIUMS.

Mrs. Pollock, 7s. and 9s. per doz. | Sunset, 21s. per doz.
Italia Unita, 21s. per doz. | Mrs. Benyon, 24s. per doz.

In strong plants at the above prices for Cash, package included.

Remittance required from unknown Correspondents.

Address, ALFRED FRYER, Nurseries, Chatteris, Cambridgeshire.

CHOICE VARIEGATED PELARGONIUMS.

Sunset	Luna	Italia Unita
Mrs. Benyon	Bicolor splendens	Picturatum
Gold Pheasant	Princess Alexandra	Kenilworth
Yellow Belt	Queen of Queens	The Fairy

The above 12 varieties suitable for Exhibition or Pot-culture for 21s.

Remittances requested from unknown correspondents.

ALFRED FRYER, Nurseries, Chatteris, Cambridge.

MRS. POLLOCK GERANIUM.—Fine healthy well-rooted Plants, on and after May 1st. 6s. per dozen.

VERBENA CRIMSON KING (Thomson).—Fine healthy Spring-struck Plants, on and after May 1st. 3s. per dozen, 50 for 10s., 20s. per 100.

DREGHORN & AITKEN, Kilmarnock, N.B.

SUPERB VARIEGATED GERANIUMS.

MRS. BENYON	THE COUNTESS
BICOLOR SPLENDENS	MRS. LONGFIELD
GOLD PHEASANT	YELLOW BELT
GLOWWORM	LITTLE PET
LUNA	LURLINE
TWILIGHT	ITALIA UNITA

Strong plants of the above set, 17s. Package included.

CASBON & SON, Gravel Walk Nursery, Peterborough.

TRICOLOR GERANIUMS.—Italia Unita, Queen of Nosegays, Gold Pheasant, Sunset, Crystal Palace Dwarf, Mrs. Pollock, Stella Variegata, Yellow Belt, one of each, packing included, 12s.; Mrs. Pollock, 7s. per dozen; Sunset, 15s. Strong Plants of the following at 3s. per dozen:—Iresine, Coleus, Perilla, Amaranthus, General Tom Thumb, Spitfire, Christine, Stella, Countess of Warwick, Alma, Flower of the Day, and Bijou.

CALCEOLARIAS, VERBENAS, AGERATUMS, CUPHEA, LOBELIA, GAZANIA, KONIGA and NIEREMBERGIA GRACILIS, Zonal varieties, 6s. cash.

GEO. DAVISON, Hereford.

New Zonal Pelargoniums.

DOWNIE, LAIRD, AND LAING most respectfully announce that they will send out the following splendid varieties, which have been so much admired, and have received the highest awards wherever shown, including First-class Certificates at the Royal Horticultural Society. The following extract is from the "Journal of Horticulture," July 17, 1866:—"There are so many good Nosegays, and so much alike, that it requires something quite new in colour to surpass them, or in many cases to equal them; the large bold truss of Stella and Le Grand, or the KING of the NOSEGAYS, must be the models of perfection in this class of flowers."

KING of the NOSEGAYS.—Bright orange scarlet. Very large truss, dwarf habit. Very free and most effective variety. 7s. 6d. each.

MRS. LAING (Nosegay).—Glowing carmine scarlet, very dwarf, free, and most effective as a bedder. A beautiful and distinct variety. 5s. each.

MRS. MENZIES.—Bright rosy salmon. Flowers perfect, good habit, free, and very fine. 5s. each.

SAMBO.—Very dark glossy scarlet, of great substance. Flowers of the finest form. Very large compact globular truss; quite distinct from all others. 7s. 6d. each.

Ready second week in May.

Stanstead Park Nursery, Forest Hill, S.E.

NEW ZONAL GERANIUMS.—These, now so well known as the Cliveden Seedlings, were selected from many thousands, and have stood the test of trials for two seasons with the best named kinds. They have gained the highest awards wherever shown, including First-class Certificates for each at the Royal Horticultural Society, and have received the highest and most unanimous praise of the Horticultural press. The following is a specimen of the manner in which they have been spoken of:—

The "Gardeners' Magazine" says:—"And this brings me to Duchess of Sutherland and Lady Constance Grosvenor, which have been several times shown by Mr. Turner this season, and ought to be sent out next spring at nothing less than a guinea a plant, to recoup their raisers for the hundreds they have need to grow for the muck-heap."

DUCHESS of SUTHERLAND (Nosegay).—A variety of great merit, rosy purple, very free bloomer, with truss of great size; it retains its blossoms to an unusually long time, and is equally effective in pots, vases, or the flower garden. 5s.

INTERNATIONAL (Nosegay).—Rich crimson or crimson-scarlet, a deep rich shade of colour, with a wider petal than any other Nosegay, being a decided improvement in the shape of this very useful class of bedding and pot plants. 5s.

LADY CONSTANCE GROSVENOR (Nosegay).—Intense fiery scarlet, of the style of Cybister, having a truss of at least double the size; an immense truss, with the advantage of a dwarf compact habit and foliage, so clearly zoned as to be handsome without bloom. This is a most beautiful variety. 5s.

Strong plants ready May 1.

CHARLES TURNER, The Royal Nurseries, Slough.

HINTS on the CULTIVATION of TRICOLORED GERANIUMS.

See F. & A. SMITH'S NEW CATALOGUE for 1867.

Dulwich, Surrey.

New Tricolored Geraniums.

F. AND A. SMITH'S CATALOGUE for 1867, containing descriptions of their splendid varieties of the above, which have obtained the following awards:—

Two £5 Prizes for the Collection	.. ..	Crystal Palace.
A Prize for the Collection	.. ..	Liverpool.
A Prize for the Collection	.. ..	Manchester.
A Prize for the Collection	.. ..	Leicester.
A Prize for the Collection	.. ..	Birmingham.
Five Certificates	.. ..	Peterborough.
Five Certificates	.. ..	Nottingham.
Six Certificates	.. ..	Brighton.
One Certificate	.. ..	International.

May now be had on application.

Dulwich, Surrey.

New Bicolored and Zonal Geraniums.

F. AND A. SMITH'S CATALOGUE for 1867 is now ready, containing descriptions of the above, which have obtained Thirteen Certificates.

Dulwich, Surrey.

New Roses, 1867.

F. AND A. SMITH'S DESCRIPTIVE CATALOGUE of the above may be had on application.

Strong seasoned Plants now ready.

Dulwich, Surrey.

RHYNCHOSPERMUM JASMINOIDES.—Plants of this beautiful sweet-scented Greenhouse variety, well set with flower buds, 12s. per dozen. RED FAIRY ROSES, full of flower buds, 6s. per dozen; MRS. BOSANQUET, flowering plants, 9s. per dozen. Also a large variety of popular sorts of HYBRID PERPETUALS, all from out of pots, at 50s. per 100, suitable for Forcing or Planting-out.

Trade price on application.

H. & R. STIRZAKER, Skerton Nurseries, Lancaster.

Woodlands Nursery, Maresfield, near Uckfield, Sussex.

WM. WOOD AND SON beg to offer the annexed TEA-SCENTED ROSES on reasonable terms:—

Barillet Déschamps	Le Pactôle	Madame Joseph Halphen
Comtesse de Brossard	Lays	Pharaon
Duc de Magenta	Madame Bravy	Rubens
Enfant de Lyon	Maréchal Bugeaud	Sombreuil
Jaune d'Or	Mélanie Oger	Souvenir de David
Jean Hardy	Madame de Vatry	Triomphe du Luxembourg
Laurette	,, Falcot	

Also well-grown TEA-SCENTED ROSES, in 6-in. pots, at 24s. to 30s. per dozen.

New Chrysanthemums, Pyrethrums, &c.

JOHN SALTER'S DESCRIPTIVE CATALOGUE is now ready, and will be sent on receipt of two postage stamps.

Versailles Nursery, William Street, Vale Place, Hammersmith, W. (near Kensington Railway Station).

Chrysanthemums, Chrysanthemums, Chrysanthemums.

ADAM FORSYTH'S CATALOGUE is now ready, containing a Descriptive List of all the best varieties; also a Practical Treatise on the Cultivation of the Chrysanthemum. Forwarded to all applicants for one stamp.

Brunswick Nursery, Stoke Newington, London, N.

ADAM FORSYTH is now sending out his NEW and other CHRYSANTHEMUMS, including Mrs. Geo. Rundle, Mrs. Heale, Dr. Sharpe, and others. For Description, see CATALOGUE of CHRYSANTHEMUMS and other Bedding Plants, now ready, containing a practical Treatise on the Cultivation of the Chrysanthemum, forwarded to all applicants for one stamp.

Brunswick Nursery, Stoke Newington, London, N.

Early Spring Flowers.

WEBB'S GIANT POLYANTHUS and COWSLIP, with all the best varieties of Double and Single PRIMROSES, PANSIES, &c., with Seeds of single varieties. LIST of prices of different kinds on application to

Mr. WEBB, Calcot Gardens, Reading.

British Fern Catalogue.

ROBERT SIM can now send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his NEW and PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.

Foot's Cray Nursery, S.E., a mile from Sidcup Station of New North Kent Line of South Eastern Railway.

DOBSON AND SONS' PRIZE CINERARIAS, 1867.

Extra Special Prize, Royal Botanic Society, March 23
First Prize, Royal Botanic Society, April 13
First-class Certificate, Royal Botanic Society, April 13
First Prize, Royal Horticultural Society, April 16
Extra Special Prize, Royal Horticultural Society, April 16
Second-class Certificate, Royal Hort. Society, April 16

Seed saved from their unequalled collections, which includes all the best varieties, 1s., 2s. 6d., 5s. The Trade supplied on usual terms.

Woodlands Nursery, Isleworth, London, W.

DOBSON'S PRIZE CALCEOLARIA.—Acknowledged to be the finest strain in the world. May be had in sealed packets of every respectable, Nurseryman, Seedsman, or Florist in the United Kingdom or Abroad, in sealed packets, 1s. 6d., 2s. 6d., 3s., 5s.; or of J. DOBSON & SONS, Isleworth, London, W.

Calceolaria Ambassador (Sang).

EDWARD SANG AND SONS, NURSERYMEN and SEED MERCHANTS, Kirkcaldy, N.B., offer strong autumn-struck Plants, in single pots, of this now well-known and universally admired BEDDING-OUT CALCEOLARIA. Price 12s. per dozen.

Early orders will oblige and have their careful attention.

The Trade supplied.

American Plants, &c.

WATERER AND GODFREY'S PRICED and DESCRIPTIVE CATALOGUE of RHODODENDRONS and other American Plants for this Autumn, will be sent on application. The Catalogue also gives a summary of their General Nursery Stock, probably the most extensive in the kingdom.

Knap Hill Nursery, Woking, Surrey.

Rhododendrons.

JOHN WATERER'S DESCRIPTIVE CATALOGUE of HARDY SCARLET and other RHODODENDRONS is now published, and will be forwarded on application. It faithfully describes the colours of the new varieties exhibited by him at the Royal Botanic Gardens, Regent's Park. An Abridged List of popular CONIFERS, with heights and prices, is likewise combined.

The American Nursery, Bagshot, Surrey, near Sunningdale Station, South-Western Railway.

Verbena Crimson King.

THOMAS METHVEN has much pleasure in announcing that CRIMSON KING having completely established its character as the finest Bedding Verbena in cultivation, he has propagated a large Stock of fine healthy Spring-struck Plants, which he offers, on and after April 15, at the following prices:—12 Plants, 4s.; 50, 12s. 6d.; 100, £1; 500, £4 7s. 6d.; 1000, £7 10s.

Leith Walk Nurseries, Edinburgh.

FINE NEW DAHLIA, MRS. BOSTON (May's), to be sent out May 1st, 1867.—The colour is lilac rose, a fine built flower and superior petal, and very constant. It was in all H. May's Winning Stands during the last season, and is extensively ordered by all who have seen it.

Price 10s. 6d. each. The Trade liberally supplied.

HENRY MAY, The Hope Nurseries, near Bedale, Yorkshire.

HENRY MAY'S CATALOGUE is now ready, and contains the fullest Collections of DAHLIAS, HOLLYHOCKS, FUCHSIAS, VERBENAS, PELARGONIUMS, and BEDDING PLANTS, &c.

HENRY MAY has been awarded all the First Prizes at all the principal Exhibitions in the North of England, at upwards of 20 different places, for the finest Hollyhocks, Dahlias, and Pelargoniums in 1866.

The Hope Nurseries, near Bedale, Yorkshire.

Choice Seeds.

WM. CUTBUSH AND SON strongly recommend the following:—

PRIMULA SINENSIS FIMBRIATA, of the finest possible strain, Red, White, or Mixed, 2s. 6d., 3s., and 5s. per packet.

CALCEOLARIA, saved from James' choice strain, very fine, 2s. 6d., 3s. 6d., and 5s. per packet.

CINERARIA, from named flowers, 2s. 6d., 3s. 6d., and 5s. per packet.

SNOW'S WINTER WHITE BROCCOLI (True), Wm. C. & Son's own saving, 2s. 6d. per packet.

NUNEHAM PARK ONION, 2s. 6d. per packet.

For other Choice Seeds see CATALOGUE, post free.

Highgate Nurseries, London, N.

RICHARD SMITH'S SEED CATALOGUE contains a Calendar of Time for Sowing, particulars of Collections, with Prices, Directions for Cropping well and economically, Soil, Manure, Depth, Distance, Season, Hardiness, Duration, Form, Height, Colour, Storing, Use, Flavour, and other qualities, described.

This List Free by Post or one stamp. Seeds direct from the Growers the surest way to success.

RICHARD SMITH, Seed Merchant, Worcester.

CHEAP and BEAUTIFUL FLOWER SEEDS.

		s.	d.
100	Packets of the best and most showy hardy, half hardy, and tender Annuals	20	0
50	,, ,, ,,	10	0
25	,, ,, ,,	5	0
25	Packets of the best showy Hardy Annuals	5	0
12	,, ...	2	6

DESCRIPTIVE CATALOGUE on application.

RICHARD SMITH, Seed Merchant, Worcester.

Superb Double Hollyhocks.

WILLIAM CHATER begs to remind the admirers of this beautiful Flower that now is the best time for planting it out, to ensure fine Spikes and Blooms this season.

DESCRIPTIVE CATALOGUE, with instructions for its cultivation, also Prices of Plants per doz., 100, or 1000 may be had on application.

Seedlings from best named Varieties, 4s. per doz., or from 20s. to 30s. per 100.

Bloomed Seedlings with colours named, very fine, 6s. per doz.; or from 30s. to 40s. per 100

Seed saved from the finest named Varieties, very choice mixed, 5s. and 2s. 6d. per packet.

In Collections of 12 separate named Varieties, extra fine, 10s.

Six Varieties extra, 5s.

Twelve Named Varieties, all good show flowers, 7s. 6d.

Six Named Varieties, all good show flowers, 4s.

WILLIAM CHATER, Nurseries, Saffron Walden.

GREAT NATIONAL HORTICULTURAL EXHIBITION, 1867.
£1000 OFFERED IN PRIZES.

To be HELD in the Gardens of the Botanical and Horticultural Society, Old Trafford, MANCHESTER, 7th to the 15th JUNE.

Charges for Admission:—First Day, 10s. 6d. each; Second Day, 2s. 6d. each; WHIT MONDAY and remaining Days, 1s. each.

Subscribers to the Manchester Botanical and Horticultural Society free each day.

Annual Subscription—Family, £2 2s.; Individual, £1 1s., admitting on all occasions.

Schedules, &c., may be obtained on application to Mr B. FINDLAY, Curator, Botanic Gardens, Manchester, or from the undersigned. Military Bands in attendance each day.

Cooper Street, Manchester. HENRY WHITWORTH, Sec.

GREAT NATIONAL HORTICULTURAL EXHIBITION, 1867.—Gardeners will be admitted by Tickets as follows:—First Day, 2s. 6d. each; Second and remaining Days, 1s. each. Applications for these Tickets must be made on or before 5th JUNE. HENRY WHITWORTH, Sec.

GRAND HORTICULTURAL EXHIBITION at BURY ST. EDMUND'S, in connection with the SHOW of the ROYAL AGRICULTURAL SOCIETY, JULY 15, 1867, and four following Days.

Amongst various Special Prizes, amounting in value to nearly £300, and exclusive of the ordinary Prize Schedule,

A SILVER CUP, VALUE £20,

will be offered by the Proprietors of the GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE for the best COLLECTION of FRUITS and VEGETABLES, to be made up as follows:—

Of FRUITS, any Five of the following Eight kinds, one Dish of each:—Grapes, Melons (2 fruits), Strawberries, Gooseberries, Currants, Cherries, Raspberries, or Apples (of the crop of 1866).

Of VEGETABLES, any Eight of the following Fourteen kinds, one basket or bundle of each:—Peas, French Beans (or Scarlet Runners), Broad Beans, Cauliflowers, Cucumbers (brace), Summer Cabbages, Early Carrots, Turnips, Artichokes, Onions, Spinach, Rhubarb, Potatos, or Mixed Salading.

The Cup will be open to Competition amongst Amateur or Professional Gardeners, of all grades, with Fruit and Vegetables of *their own growing*; any article otherwise obtained will disqualify the exhibitor.

ROYAL HORTICULTURAL SOCIETY.—SHOW of EARLY AZALEAS, ROSES, and SPRING FLOWERS, TUESDAY, April 16, 1867.

AWARDS of the JUDGES.

CLASS 1.—9 AZALEAS, distinct. (Nurserymen.)
1st Prize, Messrs. H. Lane & Son, Nurserymen, Great Berkhampstead, Herts, £2.

CLASS 2.—6 AZALEAS, distinct. (Amateurs.)
1st, Mr. G. Wheeler, Gr. to Sir F. H. Goldsmid, Bart., St. John's Lodge, Regent's Park, £2.
2d, Mr. T. Todman, Gr. to R. Hudson, Esq., Clapham Common, £1 10s.
3d, Mr. A. Wilkie, Gr., Oak Lodge, Addison Road, Kensington, £1.

CLASS 4.—3 AZALEAS, distinct. (Amateurs.)
1st, Mr. A. Wilkie, £1 10s. | 2d, Mr. G. Wheeler, £1.
3d, Mr. T. Todman, 15s.

CLASS 5.—AZALEA, single specimen. (Open.)
1st, Mr G. Fairbairn, Gr. to Duke of Northumberland, Syon House, 2d, Mr. C. Turner, Royal Nursery, Slough, 15s. [Isleworth, £1.

CLASS 6.—9 ROSES in Pots, distinct. (Nurserymen.)
1st, Mr. C. Turner, £2.
2d, Mr. W. Paul, Paul's Nurseries, Waltham Cross, £1 10s.
3d, Messrs. Paul & Son, Old Nurseries, Cheshunt, Herts, £1.

CLASS 7.—6 ROSES in Pots, distinct. (Amateurs.)
1st, Mr. J. James, Gr. to W. F. Watson, Esq., Isleworth, £2.

CLASS 8.—12 NEW ROSES of 1865-66, in Pots, distinct. (Open.)
1st, Mr. W. Paul, £2. | 2d, Mr. C. Turner, £1 10s.
3d, Messrs. Paul & Son, £1.

CLASS 9.—ROSE, Single Specimen in Pot. (Open.)
1st, Mr. W. Paul, £1. | 2d, Mr. C. Turner, 15s.

CLASS 10.—6 CINERARIAS, distinct. (Open.)
1st, Messrs. J. Dobson & Sons, Nurserymen, Isleworth, £1 10s.
2d, Mr. G. Fairbairn, £1. | 3d, Mr. J. James, 15s.

CLASS 11.—6 CALCEOLARIAS, distinct. (Open.)
1st, Mr. J. James, £1.

CLASS 12.—6 AMARYLLIDS, distinct. (Open.)
1st, Messrs. James Veitch & Sons, Nurserymen, Chelsea, £1 10s.

CLASS 13.—12 AURICULAS, 3 Grey-edged, 3 White-edged, 3 Green-edged, and 3 Selfs, distinct kinds. (Nurserymen.)
1st, Mr. C. Turner, £1 10s.

CLASS 14.—8 AURICULAS, 2 of each Class, distinct. (Amateurs.)
1st, Mr. J. James, £1 10s.
2d, Mr. G. Turner, 138, Portland Road, Notting Hill, £1.

CLASS 15.—6 ALPINE PLANTS, distinct. (Open.)
3d, Mr. J. James, 10s. | Equal 3d, Mr. G. Turner, 10s.

CLASS 16.—6 POLYANTHUSES, distinct. (Open.)
1st, Mr. J. Wiggins, Gr. to W. Beck, Esq., Worton Cottage, Isleworth, £1.
2d, Mr. C. Turner, 15s.

CLASS 17.—6 RHODODENDRONS, 4 kinds. (Open.)
1st, Messrs. H. Lane & Son, £2.

CLASS 18.—RHODODENDRON, Single Specimen. (Open.)
1st, Mr. A. Wilkie, £1. | 2d, Messrs. H. Lane & Son, 15s.

CLASS 19.—24 PANSIES, Cut Blooms, 12 distinct kinds. (Open.)
1st, Mr. J. James, 10s.
2d, Mr. H. Hooper, Vine Nursery, Wedcombe Hill, Bath, 5s.

CLASS 20.—8 PANSIES in Pots, distinct. (Open.)
1st, Mr. J. James, 15s.

CLASS 23.—6 POTS of LILY of the VALLEY. (Open.)
1st, Mr. J. Reeves, Jun., Camden Grove Nursery, Kensington, £1 10s.
2d, Mr. J. Salter, Versailles Nursery, Hammersmith, £1.

CLASS 24.—MISCELLANEOUS COLLECTION of PLANTS in FLOWER. (Open.)
1st, Mr. A. Wilkie, £1 10s.
2d, Mr. B. S. Williams, Victoria Nursery, Holloway, £1.
3d, Mr. G. Wheeler, 15s.
Extra, Mr. W. Paul, for Collection of Roses in Pots, £2.
Extra, Messrs. Paul & Son, for 6 Boxes of Cut Roses, £1.
Extra, Mr. Bartlett, Shaftesbury Road, Hammersmith, for Collection of Plants, £1.
Extra, Messrs. H. Lane & Son, for Collection of Roses, £1 5s.
Extra, Messrs. H. Lane & Son, for Collection of Rhododendrons, 15s.
Extra, Mr. J. James, for 12 British Ferns, 10s.
Extra, Mr. C. Turner, for Collection of Alpine Auriculas, 10s.
Extra, Mr. J. Wiggins, for Collection of Polyanthus, 10s.
Extra, Mr. J. Wiggins, for Collection of Cyclamens, 10s.
Extra, Mr. W. Earley, Gr. to F. Fryor, Esq., Digswell, Welwyn, for Box of Cut Spring Flowers, 10s.
Extra, Mr. J. R. Tanton, Nurseryman, Epsom, Surrey, for Papyrus alternifolius variegatus, 7s. 6d.
Extra, Messrs. J. Dobson & Sons, for 12 Cinerarias, £1.

CERTIFICATES AWARDED at FLORAL COMMITTEE.

FIRST-CLASS CERTIFICATES.
Messrs. J. Veitch & Sons, for Coleus Veitchii.
Messrs. J. Veitch & Sons, for Panicum variegatum.
Mr. W. Bull, for Lastrea Filix-mas Barnesii.
Mr. W. Bull, for Athyrium Goringianum pictum.
Mr. W. Paul, for Pelargonium Jason.
Mr. W. Paul, for Aucuba japonica ovata.
Mr. W. Paul, for Alnus aurea.
Mr. W. Paul, for Cratægus oxyacantha coccinea flore pleno.

SECOND-CLASS CERTIFICATES.
Messrs. J. Veitch & Sons, for Dieffenbachia Pearcei.
Messrs. J. Veitch & Sons, for Hypocyrta brevicalyx.
Mr. W. Bull, for Athyrium Filix-fœmina pulchrum.
Mr. W. Bull, for Camellia Lavinia Maggi rosea.
Messrs. J. Dobson & Sons, for Cineraria Beatrice.
Mr. T. W. Pilcher, for Alpine Auricula Emma.

SPECIAL CERTIFICATE.
Mr. P. Parks, Gr. to G. Cooper, Esq., for Collection of Orchids.

ROYAL BOTANIC SOCIETY.—SECOND EXHIBITION of SPRING FLOWERS, HYACINTHS, CAMELLIAS, PRIMROSES, &c., SATURDAY, April 13th.

LIST OF AWARDS.

6 AZALEAS. (Amateurs.)
1st Prize, Mr. G. Wheeler, Gr. to Sir F. H. Goldsmid, Bt., Regent's Park
2d, Mr. A. Wilkie, Gr., Oak Lodge, Kensington

6 AZALEAS. (Nurserymen.)
1st, Messrs. H. Lane & Son, Great Berkhampstead, Herts
Equal 1st, Mr. C. Turner, Slough, Berks

3 AZALEAS, NEW.
1st, Messrs. H. Lane & Son
2d, Messrs. J. Ivery, Nurserymen, Dorking, Surrey
3d, Mr. C. Turner

6 CINERARIAS. (Amateurs.)
1st, Mr. J. James, Gr. to W. F. Watson, Esq., Isleworth
2d, Mr. J. Fairbairn, Gr. to Duke of Northumberland, Syon House,
3d, Mr. J. August, Gr. to Rev. A. H. Bridges, Beddington, Surrey

6 CINERARIAS. (Nurserymen.)
1st, Messrs. J. Dobson & Son, Isleworth

6 AMARYLLIDS.
1st, Mr. J. Burley, Nurseryman, Bayswater
2d, Mr. J. Wilcock, Gr. to Dr. Pattison, Cavendish Road, St. John's Wood

12 LILY of the VALLEY.
1st, Mr. W. Bartlett, Shaftesbury Road, Hammersmith

12 BRITISH FERNS.
1st, Messrs. J. Ivery & Son | 2d, Mr. J. James, Gr.

6 BEGONIAS.
1st, Mr. R. Marcham, Gr. to E. Oates, Esq., Bydorp House, Hanwell
2d, Mr. G. Wheeler, Gr.

6 FOLIAGE and FLOWERING PLANTS.
1st, Mr. B. S. Williams, Nurseryman, Holloway
2d, Mr. G. Wheeler, Gr. | 3d, Mr. A. Wilkie, Gr.

MISCELLANEOUS.

SILVER GILT MEDAL.
Mr. W. Paul, Waltham Cross, for Collection of Roses in Pots

SILVER MEDAL.
Messrs. Paul & Son, Cheshunt, for Collection of Roses in Pots

SMALL SILVER MEDAL.
Mr. B. S. Williams, for Collection of Flowering Plants
Messrs. Paul & Son, for 6 Boxes of Cut Roses

SMALL BRONZE MEDAL.
Mr. W. Bartlett, for 12 Spiræa japonica

NEW PLANTS.

FIRST-CLASS CERTIFICATE.
Mr. J. Wilcock, Gr. to Dr. Pattison, for Odontoglossum luteo-purpureum
Mr. B. S. Williams, for Vanda gigantea
Mr. B. S. Williams, for Lindsæa cultrata
Mr. W. Bull, for Athyrium Goringianum pictum
Mr. W. Bull, for Lastræa Filix-mas Barnesii
Mr. W. Bull, for Polystichum angulare parvissimum
Mr. W. Bull for Fittonia argyroneura
Messrs. J. Ivery & Son, for Azalea Enchantress
Mr. W. Paul, for Pelargonium Red Admiral
Messrs. J. Dobson & Sons, for Cineraria Beatrice
Messrs. S. Perkins & Sons, for Pelargonium Queen Victoria

SECOND-CLASS CERTIFICATE.
Messrs. J. Ivery & Son, for Azalea Princess Alexandra
Mr. W. Bull, for Tradescantia repens vittata
Mr. B. S. Williams, for Dracæna sanguinea

ROYAL HORTICULTURAL SOCIETY.
EXHIBITION of TRICOLORED PELARGONIUMS.

The Council of the Royal Horticultural Society invites the raisers and growers of TRICOLOR ZONATE PELARGONIUMS to exhibit their several productions in this Class, at the Floral Committee and Scientific Meeting, to be held on MAY 21. Also to communicate in writing, as far as it may be known, the history and parentage of the several varieties. The Council trusts that a discussion may be thus induced, which will elicit much interesting and valuable information concerning these beautiful Plants.

As the Floral Meeting commences at 11 A.M., it will be necessary that the Plants should be staged before that hour.

A Large Silver Medal will be awarded to the best and most interesting Collection.

The Gardeners' Chronicle.

SATURDAY, APRIL 20, 1867.

MEETINGS FOR THE ENSUING WEEK.

SATURDAY, April 27 { Royal Horticultural (Dr. Masters' Lecture on Plant Architecture), at South Kensington .. 3 P.M.
Royal Botanic (Third Spring Show) .. 2 P.M.

THE valuable communication on the HYBRIDISATION of PLANTS, made to the Botanical Society of Edinburgh by Mr. ANDERSON-HENRY, and of which we published the substance in our last issue (see p. 379) will be the means, we hope, of eliciting from other observers the record of similar experiments. Whether for scientific or practical purposes we can scarcely have too many such details, provided always that both the experiments themselves, and the record of them, be carried out methodically and carefully. As it is, it far too frequently happens that the attempts at cross breeding are made in a slovenly, hap-hazard, careless sort of way, and the results, if noted at all, are chronicled in a manner even more open to objection than the original experiment. Of course we do not wish to imply that these strictures are of universal or even of general application, but those who know the difficulty that often exists in tracing the origin and unravelling the history of many a garden favourite, will confirm our assertion and share our desire that more jealous care be exercised in these matters for the future. The florists' note book should be as carefully and accurately kept as the pedigree or herd book of the stock-breeder, so that in course of time, from the number of facts observed, the future results may be predicted with something like the same degree of certainty as in the case of animals. Our neighbours on the other side of the Channel have introduced the word *metis* to express the cross between two plants belonging to the same species, reserving the term hybrid for the offspring of plants of two different species. It is to be wished that we could in this country adopt some similar distinctive appellations, the words hybrid, or cross, or seedling, being used too loosely and indiscriminately to express at one time true hybrids, at another time mere mongrels.

Not the least singular among the hitherto ascertained results of crossing, using the term here in its widest sense, are the antipathies and sympathies, as Mr. HENRY terms them, which plants manifest. Of the one, the case of the hybrid Palm obtained between Chamærops humilis arborescens and Phœnix dactylifera is one of the most remarkable on record; of the other none are more noteworthy than the well-known instances of the Apple and the Pear, or the Gooseberry and the Currant, which, as Mr. HENRY says, obstinately resist all intermixture by crossing. Possibly some clue may be found to the explanation of these facts by the di- or trimorphic conditions which certain plants assume, and some cases of which have been the subjects of elaborate investigation on the part of Mr. DARWIN, Mr. SCOTT, and others. Mr. HENRY's remarks on the shorter stamens of Rhododendron, &c., tend to establish the same fact, and to make it appear that the differences in the size of the stamens are connected with corresponding differences in their functions. Especially glad are we to read of Mr. HENRY's intention to pursue experiments on grafted plants, both with reference to the question of the possibility or impossibility of producing intermediate forms by that process alone, and also with the view of ascertaining whether a cross cannot be obtained by fertilising the flowers borne by the scion with the pollen taken from the flowers of the same species as that supplying the stock. We confess we have many doubts as to the success of this latter operation; but, nevertheless, strongly desire to see it tried. The case of the male plant of Carica Papaya alluded to by Mr. HENRY, which, after being inarched on a female plant of the same species, was found to produce female flowers at the extremity of the clusters of the male blossoms, is not conclusive evidence to our minds that the grafting had anything to do with the production of female blooms, as it not unfrequently happens that plants which are ordinarily dicœcious, become monœcious, without any grafting having been practised. We have witnessed this fact frequently, and three or four times in the case of the Papaw. Having recently alluded to the memorable Cytisus Adami (see p. 873, 1866), we shall now merely add from a Nova Scotian paper an account of an Apple similar to that exhibited at a recent meeting of the Royal Horticultural Society by Mr. LEE (see p. 239). Here is our trans-Atlantic contemporary's note:

"On a tree bearing Pound Sweet Apples growing in the garden of C. C. HAMILTON, M.D., in Cornwallis, three Apples formed and grew on a small twig the size of a goose quill and 8 inches long. Two of these Apples had all the characteristics of the Pound Sweet, in colour, size, shape, and other peculiarities; while the middle one was smaller, perfectly russeted, and different in shape, more ribbed at the blossom end, and having a shorter stem. The twig with its three Apples was exhibited at Somerset, and recently the fruit was tested by the Council of the Fruit Growers' Association, when it was found that the Apples differed also in their qualities. The two Apples appearing to be Pound Sweets had all their true characteristics, whereas the middle one, which was russeted, was smaller, less fine in flesh, with a finer oily grain, inclined to wilt, and with a yellow cast of flesh. When tasted, the flavour seemed somewhat different, being by some considered slightly acid.

"Nothing was done to bring about this singular phenomenon; and the fact of the three Apples growing upon the same twig, and differing as they did, was not known to the proprietor until about the 1st of October.

"It is for fruit growers to speculate upon this subject, and assign if they can the true cause of this singular "Apple freak;" there is not a tree bearing russeted Apples within 10 rods of where these Apples grew."

—— WE invite attention to an advertisement which appears in our present issue, announcing on the part of the Council of the Royal Horticultural Society, an exhibition of those beautifully variegated leaved plants to which the name of TRICOLOR ZONATE PELARGONIUMS is commonly applied. Such an exhibition cannot fail to be full of interest; and as these exquisitely coloured plants have now become numerous, an extensive gathering, no less than a gay exhibition, may be anticipated. As an inducement to growers to send in their plants, a medal—probably more than one—will be forthcoming for the most interesting group. One principal object of the Council in inaugurating this exhibition, which is to take place on Tuesday, May 21st, is, we hear, to call forth a discussion on the causes which have induced this novel leaf-coloration, and on the many curious facts which have been observed in respect to the origin of the varieties so marked; and hence exhibitors are asked to supply written particulars of the pedigree of their seedlings, and to affix the same information in an abstract form to the plants themselves when staged for exhibition. One further good

result of bringing together an extensive series of these plants, at a season when their respective colours should be well marked, will be that it will afford an opportunity of determining which are really the most meritorious—a question which it is exceedingly difficult to decide from mere cursory exhibitions of them, and more especially so since there are scarcely any that are not intrinsically good. We hope therefore to see a full representation of them on the occasion referred to above.

—— The Royal Horticultural Society, in reference to its GREAT JUNE EXHIBITION—an exhibition which it has been decided to keep open five days in consequence of "the International Horticultural Exhibition held at South Kensington, in May last year, having proved not only most popular and successful, but demonstrative of the possibility of keeping plants on exhibition for several days," announces that the promises made by the leading exhibitors leave no doubt of the Show being a magnificent one. The admission tickets are now ready, and can be had at various prices by the friends of Fellows and by the public. The charge for admission to these two classes respectively, during the whole period of the show, is 7*s.* 6*d.* and 10*s.* 6*d.*

—— Notwithstanding the severe ordeal to which spring flowers have this year been subjected, we learn with satisfaction that the FLOWER GARDEN at BELVOIR CASTLE, under the care of Mr. INGRAM, is at present in great beauty, and that it has been in that condition for some weeks past, and will remain so probably for some time to come. The beautiful effect of the colouring, is only surpassed by the tasteful way in which the beds are arranged, and the simplicity of the material employed. We hope soon to be able to lay before our readers an account of this in every way remarkable example of Spring Gardening.

—— In Saturday's *Times* we noticed an advertisement headed "NEW FRUIT," in which the advertiser offers a few plants of what he is pleased to call the "dwarf purple-fruited Banana from Cayenne." Our readers had better be on their guard, as we know of no such thing as a dwarf purple-fruited Banana existing in Cayenne, nor indeed is there any dwarf Banana, excepting the well-known Musa Cavendishii, which originally came from Madagascar.

—— The following scrap of sound advice as to QUALITY, which both professional and amateur gardeners are far too prone to sacrifice to Cheapness, and which it may, therefore, be useful to repeat here, occurs in the last Number of "The Horticulturist" (American):—"Sow none but the best seeds. Keep none but the best stock. Use none but the best tools. Plant none but the best trees." This accords with our old English saying—"Whatever is worth doing, is worth doing well."

—— Dr. GEORGE BENNETT, in an interesting article in the "Journal of Botany" on the introduction and cultivation of ORANGE TREES IN NEW SOUTH WALES, remarks that Orange, Apple, and Lemon trees thrive in the greatest luxuriance in very poor sandy loam, from which crop out over the whole land large sandstone rocks. Stone fruits, on the other hand, do not thrive so well on this soil. One fine Orange tree is spoken of as 35 feet in height, the trunk being over 4 feet in circumference. Wax models of some of the finer fruits, together with photographs of the trees, are exhibited in the Paris Exhibition.

—— In the current number of the "Journal of Botany" is the commencement of a valuable article on the SCREW PINES (Pandanaceæ) of India, by Mr. S. KURZ. The author alludes to the singular fact, so often noticed in the case of unisexual plants, of the prevalence of plants of one sex in particular localities. In this way, says Mr. KURZ, whole tracts of the sandy sea shores are covered by the female plants of Pandanus verus without a single male among them; on the other hand, all known plants of P. lævis are males. P. dubius "produces fruits which germinate quite freely, though without being fecundated by males"(!)

—— In the article above referred to Mr. KURZ remarks that HYBRIDS are unknown in the tropics in a wild state, being only found within gardens.

New Plants.

EPIDENDRUM EBURNEUM, *Rchb. f.*

Euepidendrum?) foliis cuneato oblongis acutis, inflorescentia . . . ., flore maximo, sepalis petalisque lineari lanceolatis acutis, labelli lamina subcordata, rotunda, antice trilobula, lobulis lateralibus obscure angulatis, lobulo medio subproducto triangulo, callis triangulis geminis in basi, medio confluentibus, papulis ligulatis intus impositis, androclinio quinquelobo, lobis externis retusis, mediis lateralibus acutis, intimo pluridentato.

This is a most elegant Epidendrum, bearing flowers as large as those of Epidendrum leucochilum Kl., longiflorum H. B. Kth., or Angræcum eburneum P. Th. It has yellowish green sepals and petals, and a snow-white lip, whose calli are golden yellow. It is believed to come from Central America, or from the West Indies, and was grown by T. Tuffnell, Esq., of Spring Grove, Isleworth.

ODONTOGLOSSUM CROCATUM, *Lind. & Rchb. f.*

Affine Odontoglosso mystacino, sepalis lateralibus semiconnatis, labello unguiculato ungue brevi, lamina cordato pandurata bene apiculata, carinis unguis in laminæ basi abruptis, antepositis utrinque apiculis geminis seriatis, columnæ alis linearibus inferne serrulatis.

Flos croceus. Sepalum summum oblongum acutum; petala subæqualia basi subcordata.

This must stand very near to the fabulous or mysterious Odontoglossum bicolor of Lindley. We speak of it thus, not because we would cast any slur on the memory of our lamented friend, but because it has never been seen in Europe, and is only described from a drawing prepared by Matthews, the Chachapoyan collector, who was poisoned by his own wife. It has spreading free lateral sepals, and violet sepals and petals, to judge of it from the representation. Our plant is in the way of Oncidium concolor, exhibited by Messrs. Backhouse at the International Exhibition at London, but there are more flowers, and they are smaller, and of a very bright yellow. It is one of Mr. Linden's numerous recent introductions.

ODONTOGLOSSUM ROSEUM, *Lindl. in Benth. Pl. Hartw.* 151; *Folia*, i., Odontoglossum, No. 65.

This also belongs to the aristocracy of old Odontoglossa. It may be compared to Rodriguezia secunda, H. B. Kth., yet it is much more desirable. The longish flowers are of a rich rosy purple, and the three-lobed lip is paler. It has just been introduced by one of Mr. Linden's collectors.

ODONTOGLOSSUM ASTRANTHUM, *Lind. & Rchb. fil.*

Paniculatum, sepalis petalisque lanceolatis acuminatis stellatis, labelli ungue ima basi cum columna coalito per lineam mediam cpe carinæ, lamina cuneato dilatata utrinque obtusangula, medio ligulata acuminata, crenulato lobulata, callo in ima basi elevato utrinque bidentato, papula nunc interposita carinis falcatis geminis utrinque basin versus, columnæ androclinio longe cucullato denticulato cum brachio falcato utrinque, angulo prosiliente utrinque supra basin.

This is a panicled species, like Odontoglossum odoratum, Lindl., but it has the quite novel feature of having a fringed anther-bed. No one can more regret the advent of this *enfant terrible* than Mr. Bateman, the monographer of Odontoglossum. Why was it not discovered ten years later? It breaks down the proposed section Trymenium, and makes it a wholly artificial group, which will in future be disliked by amateurs, who will never understand why a species so very like Odontoglossum odoratum that a superficial modern plant-namer, after three minutes' "study," would undoubtedly give it that name, should really be separated from it by perhaps 60 species. After all, we hope Mr. Bateman will retain his equanimity, after having been puzzled a good deal more by his well-known Cycnoches adventures. This plant comes from tropical western South America, and is one of Mr. Linden's numerous recent introductions—at least we hope so, having been favoured long since with a kind of a dried specimen, one of the few contributions to herbaria from his recent collectors. *H. G. Rchb. fil.*

RIVAL SYSTEMS OF VINE GROWING.

I DO not think that the fact of remarkably large Vines existing in a few isolated localities in England, Scotland, and Ireland, producing annually, it may be, large quantities of average fruit, for 50 or even 100 years in succession, is to be considered a sufficient reason for every Vine grower to think of all but ceasing to prune his Vines, and of allowing them to roam and extend themselves at pleasure. Neither do I believe in the opposite extreme, viz., close pinching and short rods. I prefer large Vineries and long rods; if I had my choice I would prefer at least 25 feet, with two rods to each Vine. In this respect however the Vine is more pliable than most other plants, provided always that it has a dry, warm, porous border for its roots to grow in; and where not naturally fit the border should be made artificially so to suit these conditions.

Large Vines require a large number of years to produce them, and imply large borders, much more extensive than it is generally convenient to make. In no case do I know of the existence of a really large Vine, which has not extended its roots far beyond the original border to where they have found a congenial soil and subsoil wherein to grow. They are the exception, not the rule. In general, artificial borders must be made and the roots confined to them, otherwise shanking, ill-ripened wood, and many other ills will follow.

It is now more than 30 years since I first directed my attention to the root management of Vines, and I believe it is here more than anywhere else, on which success or failure depends.

In forming a Vine border, almost every one supplies more or less drainage, but, in so far as I have been able to form an opinion, I think in general too little. Above the drainage is put at least two feet of soil, turfy where it can be got, and very generally a quantity of farm-yard manure, broken bones, lime rubbish, oyster shells, charcoal, &c., in various proportions, all well mixed together, and spread out in dry weather on the borders. The immediate result of this is that the border is open and porous, and that it abounds with suitable food for the Vine; and owing to its porous condition water passes freely through it, and does not stagnate in it. Air also enters freely, filling all the interstices, and carrying down a large amount of heat, from 5° to 10° more than will be found in ordinary soil beyond the border. The consequence of all this is rapid growth the first summer; paragraphs begin to appear in horticultural periodicals of "another combatant about to enter the field to fight the battle of the Grapes;" the second year's prospects are equally good; on the third are a few wonderful bunches, which may or may not finish well; but by the fourth, fifth, or sixth year the bunches become very common-place, and we hear no more about them.

This does not arise because the "extending system" has not been adopted, but because the border has become consolidated, because it has cooled down, and because if farm-yard manure has been freely used, it will have formed a black humus, worked into the soil by worms, discolouring it, and making it almost impervious to the ingress of air or water—in fact, in about the worst possible condition for healthy root action. These evils will be greatly increased if the soil is stiff and tenacious, or if a large quantity of farmyard manure has been used, and only a limited quantity of the other ingredients which have been named above.

In forming Vine borders, I have for many years past entirely dispensed with the use of farmyard manure, for the reasons just stated. I use for compost only turfy loam, fresh from the pasture, broken bones, lime rubbish, &c. The consequence is that in turning up one of our Vine borders the other day, the soil looked and smelt as sweet and fresh as when it was drawn from the pastures from which it came some eight or nine years ago, convincing me more than ever of the great importance of paying more attention than we generally do to the mechanical texture of our soils. It may be asked, how are we to avoid the cooling down of the soil of our Vine borders consequent upon their consolidation, which will always happen in time? I answer, this can easily be done by introducing a system of aërating the borders, such as has been long in successful operation here, and which has been frequently described, thus raising the temperature of the soil of the border around the roots, to correspond to some extent with the artificial heat which surrounds the leaves and branches, producing that power of action and sympathy between the roots and branches which is an essential element of success in the cultivation of the Grape Vine.

Till I introduced this system, the Grapes invariably shanked after the Vines had been a few years planted; now shanking is totally unknown.

The most delicate rooted varieties, such as the Muscat Hamburgh, the Golden Hamburgh, and indeed all the Muscat-flavoured kinds, luxuriate here, the borders being always full of roots ready to act whenever a demand is made on them. As an indication of the vigour and general health of my Vines, I may state that I this day measured across the shoulders three bunches of White Nice, all growing on one rod, about 24 feet in length. The following was the measurement of the respective bunches, which are not yet ready to be thinned. No. 1, 2 feet 3 inches; Nos. 2 and 3, 2 feet 4 inches each, being 6 feet 11 inches in all, across the shoulders. They are moreover well proportioned bunches. I mention this more particularly to show how well the Vine likes to grow on an aërated border, and to prove that fine fruit can be grown on Vines more than six years old, without adopting the "extension system;" and I venture to predict that in the future, as in the past, large Vines will be the exception, not the rule. *Archibald Fowler, Castle Kennedy, Stranraer.*

HARDY PICTORIAL TREES.—No. IV.

TREES AND SHRUBS WITH LEAVES SILVERY OR WHITISH.

Abies alba glauca.—Evergreen. Height, 20 feet. A variety of the white Spruce Fir, forming a beautiful medium-sized tree, with bluish white leaves. Very effective in the landscape, especially when the sun shines on it.

Aucuba japonica medio-variegata.—Evergreen. Height, 4 feet. Leaves green, with distinct white blotch in centre, bearing red berries in the autumn. Very distinct and handsome.

Bupleurum fruticosum.—Evergreen. Height, 5 feet. A bluish-white-looking shrub with greenish yellow flowers. Very hardy, free, and distinct.

Cedrus Deodara.—Evergreen. Height, 100 feet. Among the seedlings of Cedrus Deodara may be selected plants of a bluish-white colour, which are invaluable for the variety they afford.

Chamæcyparis sphæroidea glauca.—Evergreen. Height, 10 feet. A bluish-white Cypress-like plant. Distinct and pleasing.

Euonymus radicans variegatus.—Evergreen. Height, 1 foot. A beautiful silvery-looking plant, very desirable for the front of borders and shrubberies, also for the edging of flower beds.

Ilex Aquifolium argentea (the Silver Holly).—Evergreen. Height, 10 to 20 feet. The silver Hollies, like the gold and green, vary much in size and character. Among the best are ferox argentea, argentea angustifolia, a. elegantissima, a. longifolia, a. lucida, a. marginata.

Juniperus virginiana glauca.—Evergreen. Height, 30 feet. Leaves greyish white, distinct and beautiful. There is also a variety of this species in which the leaves are produced in patches of green and white, which is very ornamental.

Ligustrum ovalifolium variegatum.—Deciduous. Height, 8 feet. Leaves green, distinctly and broadly margined with silver; very showy.

Phlomis fruticosa.—Evergreen. Height, 2 feet. Leaves greyish white, flowers yellow. A pretty and distinct dwarf plant.

Pinus excelsa.—Evergreen. Height 100 feet, A free-growing and very handsome white-leaved Pine, good for specimens, groups, and avenues.

Pinus Strobus nivea (the Snow Pine).—Evergreen. Height, 100 feet. A graceful silvery-leaved Pine of slender but graceful and rapid growth.

Picea nobilis glauca.—Evergreen. Height, 100 feet. One of the most beautiful of the Piceas, the leaves almost white.

Rhamnus Alaternus foliis argenteis.—Evergreen. Height, 10 feet. Leaves green, broadly and regularly margined with silver. A very beautiful plant, best against a wall, except in warm dry localities.

Acer Negundo variegatum.—Deciduous. Height, 20 feet. Leaves almost white. Hardy, of free growth, and altogether one of the most beautiful white-leaved trees ever introduced.

Amygdalus communis foliis variegatis (the Variegated Almond).—Deciduous. Height, 20 feet. Leaves green, well and regularly edged with white. A showy and beautiful tree.

Hippophaë rhamnoides (the Sea Buckthorn).—Deciduous. Height, 15 feet. Leaves and bark greyish white, distinct and effective. Well adapted for the seaside.

Philadelphus coronarius variegatus (the Variegated

Syringa).—Deciduous. Height, 3 feet. Leaves green, broadly margined with white. A beautiful dwarf shrub.

Populus argentea vera (the Silver Poplar).—Deciduous. Height, 60 feet. Leaves and bark much whiter than those of the Abele Poplar. A beautiful cool-looking tree in summer, worthy of very general adoption.

Shepherdia argentea.—Deciduous. Height, 6 feet. Leaves like frosted silver. A beautiful dwarf shrub.

Tilia argentea (the Silver Lime).—Deciduous. Height, 40 feet. Leaves large, whitish above, quite white underneath, very effective when the leaves are moved by the wind.

Ulmus campestris variegata (the Variegated Elm).—Deciduous. Height, 40 feet. Leaves white and green. Very effective.

Under the head of colour we must rank those trees whose leaves change before their fall in autumn. The most effective are—*Red.* Acer rubrum (Scarlet Maple), Berberis vulgaris, Cornus alba (Dogwood), Liquidambar, Quercus coccinea (Scarlet Oak), Rhus Cotinus (Venice Sumach), Rhus typhina (Stag's-horn Sumach), Spiræa ariæfolia, Spiræa prunifolia fl. pl., Viburnum Lentago, Viburnum Opulus (Gueldres Rose), Cratægus prunifolia. *Yellow:* Æsculus Hippocastanum (Horse Chestnut), Acer platanoides (Norway Maple), A. Pseudo-Platanus (Sycamore), A. saccharinum (Sugar Maple), Amelanchier Botryapium (Snowy Mespilus), Betula (Birch) of sorts, Cerasus Padus bracteosa (Bird Cherry), Cerasus virginiana, Cratægus (Thorns) of sorts, Gleditschia triacanthos, Kolreuteria paniculata, Liriodendron tulipiferum (Tulip tree), Magnolia tripetala, Morus alba, Pavia flava, Populus (Poplars), of sorts; Salisburia adiantifolia, Syringa vulgaris (Lilac), and Tilia europæa (Lime). The colours of the decaying leaves were less vivid than usual last autumn, owing probably to the quantity of rain that fell late in summer. *William Paul, Waltham Cross, N.*

SALADS, AND HOW TO GROW THEM.

Endive.—This is doubtless the most ornamental of our salad vegetables, and it is by no means used so much as it deserves to be. Its pleasant bitter taste—I may call it, when well blanched, bitter-sweet—is sufficient to recommend it to most palates, putting aside its crispness when well grown. It should be sown on rather warm land in the second or third week in June. Rake the surface of the bed, then sow, and cast an inch or so of mould over the seed; if the earth is dry, water after raking, previous to sowing or casting, and should the weather be very parching, shade or cover the bed with straw mats, or some such material, to keep off the scorching rays of the sun. As soon as the plants show themselves, remove the shade, but do not let the sun burn the plants; it will be better to cover them with litter during the hottest part of the day, leaving them exposed to dews at night, or to rain during the day. If the weather be dull and damp these precautions will not be necessary. Make another sowing about the end of June for late planting, and do not be short of plants, for as this salad is to serve all the winter, a good stock will be required. Some sow in May, but the plants often run to seed prematurely; if early Endive is required, however, it must be sown then. As soon as the plants are large enough—say when they have five or six leaves, they may be planted out in open ground in rows 1 foot apart, by 1 foot 6 inches, watering them well if they require it. Should they have grown long and crowded in the seed bed, cut off the tops with a long knife as if you were mowing, taking care however not to cut too low. This may seem a severe operation, but it will strengthen the plants, and is very much better than allowing them to get too long and drawn. This may be repeated if you have not opportunity to plant them out. They should be planted in drills an inch or so deep, which will induce the plants to blanch better. The best soil for Endive is light land with a sharp grit in it. It may be planted all through August and in the first week in September in open ground; afterwards in sheltered spots until Michaelmas. Plant the late Endive in a rather deeper drill; this protects the hearts from early autumn frosts. Late Endive should be planted much closer than Early. Where there are any spare boxes and lights they may be utilised in this way: put them over the plants where they are growing as soon as early frosts come; then pull up the rows on each side of the box and plant them between those already covered. In transplanting be careful to put them in upright, for if they lay at all on one side, wet will most likely rot them. Keep them as dry as possible, and protect them from frost. As soon as large enough, tie tightly on dry days with small willow twigs, which are preferable to bass for the purpose, being stronger and stiffer.

A good plan is to plant on a sloping bank for a late supply. If you have not such an opportunity throw up a bank about 3 feet high, and plant all over it 6 inches apart. This you will be able to protect from severe weather, though sometimes the plants will stand without any protection. That which has not grown large enough for autumn use may be taken up from the open ground, and placed where it can be protected. Tie according to the demand; it will take longer to blanch in cold weather than in hot, for which allowance must be made.

A good head of Endive should measure from 18 inches to 24 inches in circumference, and should not be more than 10 inches high when it is tied. There are many sorts of Endive, but they may be classed under three heads, viz., Batavian, Green Curled, and French Green Moss. Of the first named there is a good sort very like Cos Lettuce, and useful for stewing, but in its growth it is rather tender. The next sort named is by far the best for a general crop. The last is not so large, but it is nevertheless a pretty, neat variety. The French export the latter largely during the spring months, and long after our home-grown plants have started for seed. This must be attributed to climate, as it is impossible to grow Endive in England after May, whereas I have seen good examples from France in June not at all run. Some folks lay tiles over Endive to blanch it, but it is not so good a plan as tying.

This plant requires to be carefully selected annually for seed, as it is very apt to sport. If this is not done, a good variety will soon become worthless. Seed plants of it might be grown in ornamental grounds, as the flower is of a pretty light blue, and the plant makes not at all an unsightly bush. When the seed is ripe, guard it against the depredations of birds and mice. *J. M. M.*

INTERMEDIATE FORMS IN PLANTS.

[From a notice in a recent issue of the "Bulletin de la Société Botanique de France," we cull the following remarks by M. Nægeli on the intermediate forms between species of plants. Eds.]

The intermediate forms that we meet with between different species of plants, show clearly the relationship of the species, and prove that they are not absolutely different one from the other, but that they are derivative, or at least that they have a common origin. Descriptive botanists often take these intermediate forms for hybrids without just cause for so doing. In order to form an opinion whether any given wild (not cultivated) plant is of hybrid origin or not, the following rules may be laid down:—

1. Hybrid plants are in their entire vegetative system, even in their inflorescence and in their floral envelopes, and generally also in their stamens and pistils, completely normal, so that it is not possible to decide on a first inspection whether a plant be of hybrid origin or not.

2. As hybrids are often fertile, and as on the other hand individual plants of direct descent are sometimes sterile, no proof of hybridity can be derived from the more or less perfect condition of the sexual organs.

3. Hybrids are regular intermediate formations, seeing that they have generally derived their characteristics equally from each of their parents. They do not transgress the limits Nature has assigned them, except under very restricted and sharply defined conditions, since their reproductive powers are weakened, and their vegetative force is specially excited.

4. Between two forms, only one intermediate hybrid form is possible, for with reference to the characteristics of this latter, it is a matter of indifference which of the two parents acts as the male. On the other hand, the hybrid itself may produce different varieties more or less like either of its parents.

5. Crossed fertilisation is effected by foreign pollen, if during the time that the stigma is fit for the reception of pollen, often a very short period, the proper stamen, from any cause, does not come into contact with the stigma. As this often happens, and as it frequently occurs that the sexes of the same flower do not arrive at maturity at the same time, it is easily understood that crossed fertilisation often takes place in plants through the agency of insects, &c.

6. Hybrids between species (not mere crosses) are ordinarily either sterile or of limited reproductive powers. In the latter case they produce a comparatively small number of seeds, and disappear entirely after a few generations. Fertilisation by one of the two parent forms prevents self-fertilisation in the hybrid form, and causes it to revert to the type of the male parent. Intermediate hybrid forms, considered with reference to their relationship to the types whence they derive their origin, present themselves in three aspects:—

A. As intermediate forms, represented by a very small number of completely sterile individuals, without any intermediate gradation between them and the parent forms.

B. Rarely as intermediate, and generally sterile forms, presenting a few transitional characters between one or other parent form.

C. As intermediate forms, of more or less rare occurrence, endowed with partial fertility, and showing numerous transitional stages between one form and the other. These are the varieties that approach most nearly to the character of a species.

7. While the rules laid down in the six preceding paragraphs appear to be well established, and the intermediate forms spoken of in the sixth paragraph are certainly of hybrid origin, there are other intermediate forms remarkable for their greater numerical importance—for the constancy of their characters and for their fertility, and the origin of which is doubtful. These comport themselves in one of three ways:—

A. As isolated intermediate forms, separated from two neighbouring species by intervals that are filled up by rarely occurring hybrid forms.

B. As two or as many intermediate and isolated organisms, which pass by graduated stages from one of two neighbouring species to the other; the intervals between these forms, as also between them and the species, being filled up by transitional hybrid forms.

C. As a series of insensible gradations between the two neighbouring species, transitions all grades of which are represented by numerous perfectly fertile individuals.

What seems to indicate the hybrid origin of these constant intermediate forms is this—that they are scarcely ever met with, except in company with the two legitimate forms. But the experience of the practical hybridiser is opposed to this interpretation, as it is not possible to imagine that, in the presence of the original types, one or more intermediate forms of permanent character and morphologically isolated could be produced. It may also be remarked that artificial or spontaneous hybrids greatly resemble the constant intermediate forms between the two parents, but are distinguished from them by their much smaller degree of constancy.

LETTERS FROM PARIS.—No. VII.

The Second Show — the Park des Buttes Chaumont, and the Bois de Boulogne.

The second Show in connection with the great Paris Exposition commenced to-day, and is not much of an improvement upon its predecessor, nor is it likely that we shall see much in the way of a flower show before the 1st of May. But as regards the permanent classes the Exhibition is simply unique. Everywhere about the grounds one meets with large banks of the choicest and rarest young Conifers ever gathered together. But as these will remain as permanent embellishments to the scene for some time, we had better turn to subjects sent for the coming fortnight. The most remarkable exhibition is that of the Cactus tribe. Many of these are grafted in quaint and ingenious ways, and many are curious and beautiful, notably excelling in the last quality being the Mammillarias with their corona-like circlet of crimson flower-buds pushing through their white spines. Some of the quaintest and most extraordinary combinations ever seen are here. Great cockscomb Mammillarias sheeted over with white spines, stand upon comparatively slender legs or bodies of other genera, and there are other contrasts in this way, offering in fact one of the most singular sights that can be presented to the horticulturist. There is a specimen of Echinocactus Pottsii, a globular mass, a foot in diameter and 10 inches deep, in robust health, not standing on its own feet however, but supported upon three legs of a comparatively slender-stemmed species of Cactus—these three feeders and supports entering together in the centre of the bottom of the great mass, which is also supported by a small wooden framework, to prevent its cracking off from its supports. The curious and distinct round-headed and deeply-ribbed E. myriosigma is also grafted in various ways, and looks remarkable when seen supported on slender stems like those of the Pereskia, &c. But I cannot hope to tell you all about these curiosities, and will leave them, merely adding that those most likely to be appreciated as ornaments are specimens of the common flagelliformis, in good flower, worked pretty high on slender-stemmed Cereuses, &c., the shoots drooping gracefully as is their wont, and the effect of the plant much increased by being supported on a tallish slender stem; and the dwarf pretty Mammillarias, which are as pretty in flower as they are neat and curious in structure. One house is filled with Agaves and other things of that kind, M. Jean Verschaffelt showing many of his best things, and other exhibitors making a creditable display. Bonaparteas are well represented, and include a noble specimen of the true B. hystrix; but best of all the plants shown in this way is what is called Roulinia pitcairniæfolia. It combines the dignity of the best Yucca with the drooping grace of the recurved Beaucarnea, and is a treasure for the select conservatory. There is a fine plant of it shown by M. J. Verschaffelt, and though there are many rarer and newer things in the show, I prefer to make known those most suited to our wants, which are great in the way of conservatory decoration.

Of really new plants there is very little to be seen this time. Some pretty Orchids are shown by Messrs. Thibaut & Keteléer, Oncidium longipes superba appearing a charming member of the family from its dark centre, which causes it to resemble in effect that rare and beautiful Borage-wort Arnebia Griffithii, and it is certainly a thing that in good specimens would add a distinct beauty to a group of Orchids. They also show Epipendrum Stamfordianum and a fine variety of Epidendrum atropurpureum, while a good plant of the true Lycaste Harrisoniæ is also a handsome object among the Orchids. There are a good many plants of the remarkable silvery and hairy Tillandsia argentea shown, but I am not sure that people have established it yet, for the roots appear to have no connection with the soil. To me one of the most interesting things in the Show is the way in which a Lycopodium sent here a fortnight ago by Messrs. Veitch, is growing elevated on the low stumps of a Tree Fern. It is a fine kind from the Solomon Isles, in the way of Phlegmaria, and it has made thick shoots several inches long since it came here. These exotic Lycopods, when we can grow them pretty freely, will prove among the most elegant ornaments of the stove, and therefore I record how well it grows upon an old Tree Fern stem, the collar of the plant being thus kept a few inches above the soil in the pot. Roses in pots are nicely shown by several exhibitors; and Messrs. Thibaut & Keteléer send a very nicely flowered group of small Azaleas, while there is a fine group of the newer and more interesting plants from La Muette. Of vegetables there is a tolerable display, considering the season, but nothing for which special mention is requisite, except the Asparagus, which is as thick as a rake handle, and the Salsify, which they grow and use extensively here. So much for the second Show, to which I will now bid good bye, wishing to tell you a little about places worth seeing. Of the general features of the horticultural part of the Great Exposition I will discuss the more advanced features next week. Like most others of its divisions, ours will not be completely ready for a month to come.

I have just returned from the Park Des Buttes Chaumont, where I went to meet M. André, the chief superintendent of all the outer, or what we may term the suburban gardens and squares of Paris. I did not expect to see much, but was surprised to find it an extraordinary place. It is the boldest attempt at what they call the picturesque style that I have ever seen

attempted in a city, or indeed anywhere else. For my own part I have an opinion, it may be a weakness, that attempting expensive and extraordinary works in places of this sort is not wise, at least till all the densely populous places are provided with healthy well-planted parks. Thus I think that in London it is a mistake to devote great expense to a few parks, and leave so many square miles of population without a green spot; but, nevertheless, in this instance the attempt was to some extent invited by the existence of a great quarry in one part of the ground. I may describe the whole park as a sort of diversified Primrose Hill. Imagine that, with two or three "peaks and valleys," and with an immense pile of rock seen here and there, and you have it at once. At its hollow or lower end there was a quarry, and this has been taken advantage of to produce an immense effect, so to speak. They have cut all round the sides of this quarry, smoothed it down, leaving intact the great side of stone, and adding to it here and there masses of artificial rock. This is a very wide and imposing mass of rock, 160 feet high, or thereabouts, in its highest parts, and from these you may gradually descend to its base by a winding rough stair, exceedingly well constructed, and winding in and out of the face of the huge rocky face. At its base, and widely spreading round it, there is a lake "laid out," the bottom of which they are now cementing, and which will probably be filled with water when I go again. Then this ponderous cliff—and it is best described by that name—has several wings so to speak, and in one bay a most effective stalactite cave is made. I might say enormous, for from its roof to the ceiling is about 60 feet high, while it is wide and imposing in proportion. In its back part above this high roof the light is let in through a wide opening, showing a gorge reminding one of some of those in the very tops of the Cumberland mountains, and down this gorge trickles the water into the cave, Ivy and suitable shrubs being planted along its course above the roof of the cave, and the effect is by far the best of the kind I have seen, though it is hardly the kind of thing to be recommended for a public park. By all means let us leave the luxuries of gardening out of the question, till we have provided the necessaries for the population of great towns, and these are green lawns, trees, and wide open streets and ways, with their necessary consequence, pure air. In one of the buttes, or great mounds here, they have planted 500 or 600 Deodars—made it a hill of Deodars in fact, a mistake I think, for though Paris is not as foggy as Spitalfields, nor its air as destructive to trees as that of the West-end of London, it is a great city, as may be seen from this park, and with many a vomiting chimney too, so that the better plan would be to pay double attention to the deciduous trees, using only such evergreens as were sure to grow. In one wide nook, perfectly sheltered on the three coldest sides, M. André has planted a collection of subjects mostly tender in the neighbourhood of Paris. From this park, the surroundings of which are by no means nice-looking, you can look over nearly all Paris. The approach to it from the central parts is not much for a Paris approach, and on your way you may catch some idea of what Paris was before the splendid improvements of the past ten years—the dirtiest city in Europe; but this approach, like most other things in Paris, is simply tolerated till more important things are out of hand. Of the quick way in which they turn them out of hand here, I can give your readers scarcely a notion. Since coming here I have seen square acres of land removed bodily without any fuss being made about it; thousands of trees planted and replanted in little better than masses of rock; and old houses blown up by hundreds of mines a day, and levelled into commanding terraces fit for princely mansions; and to-day I found this beautiful park full of work in a part of the town which I had thought was chiefly devoted to thieves and *chiffonniers*. To-day—bright, dry, and *beau temps* in everybody's mouth, I saw them planting trees, and large ones too—trees that required great machines to lift them, while they were marking the ground for fresh plantings. You mean to say you plant after this date? Yes, every day in the year! There is an imitation of a small Roman temple erecting on the summit of the great cliff, while the house of the guard of the park, the entrance lodge, the bureau, and the refreshment rooms, are in neat cottage style, and so placed as to add much to the appearance of the park, which in the more finished spots looks like a well cared for bit of green England. They are making many beds of peat for Rhododendrons, and their peat is of an admirable silvery kind, much admired by all the English who have seen it with me. I do not, however, like their planting so late, and, as its consequence, I suppose many of the young trees look as the accomplished Kay of the casual ward described one of the performers at the "Victoria"—"wery dicky."

I will now say a few words about the Bois de Boulogne, and will commence by strongly advising such of your readers as come to Paris this year to pay it a visit, not merely the end nearest the city, but to walk right through it. When I came first I did not like it much, and thought the numerous Scotch Pines around one part of the water gave it a sort of Pine-barren look, but I spent about five hours in it yesterday, and must confess that it is infinitely better than any of our London parks. It has more than the beauty and finish of any London park in some spots, but on the other hand vast spreads of it are covered with a thick, small, and somewhat scrub-like vegetation, in which wild flowers grow as they like, unlike the prim London parks. There were plenty of Cowslips dotted over even the best kept parts of it, and groups of those splendid deciduous Magnolias could be seen for long distances through the yet leafless Oaks. There are beds of spring flowers, and abundant spaces for subtropical and bedding plants in summer, but unless they have anything remarkable in that way we cannot again afford it any space for notice. Now, to see what the Bois de Boulogne really is, the visitor should keep to the left when he enters from Passy or the Arc de Triomphe, and go right to the end of the two pieces of ornamental water. Then, standing with his back to water, he will notice an elevated spot with a Cedar growing on it, and by going to that spot he will get the finest view he has probably ever seen in a park—the water in one direction looking like an interminable inlet, beautifully fringed with green and trees, and in the other several charming views are opened up, showing the hilly suburban country towards Boulogne, St. Cloud, and the neighbourhood. Then, by turning to the right and coming again to Paris by the other side of the water, he will have a good idea of what a noble promenade, drive, and garden this is, in all respects worthy of its grand approaches too, of the width and boldness of which people connected with English parks and gardens, and who have not seen those of Paris, can have no conception. There is some bold rockwork attempted and well done about the artificial water, and very creditable pains taken to make the vegetation along it diversified in character, so that at one place you meet Conifers, at another rock shrubs, in another Magnolias, and so on; and not the eternal repetition of common things which one too often sees at home. If you have time, go across the Bois as far as Longchamps, not for the sake of seeing the race-course, which attracts half Paris to this part of the wood on fine Sundays, but a large and beautiful cascade which faces it. Above the "spring" or shoot of the cascade, if I may so speak, is an arch of rustic rocks over which fall Ivy and rock shrubs, the whole being backed with a healthy rising plantation. See also, if you have time, the pretty Jardin d'Acclimatation, and in addition to these you cannot fail to be delighted with the state of the roads, both as to watering and construction. The fault of the most gardenesque part of the Bois de Boulogne is that the banks which fall to the water are a little too suggestive of a railway embankment, and display but little of that indefiniteness of gradation and outline which we find in the true examples of the real "English style" of laying out grounds. But you do not notice this from the position above described, from whence indeed the scene is charming. The fault just hinted at is common to almost every example of this style that I have seen about Paris; and in most of their walks, mounds, and the turnings of their streams you can detect a family likeness, and a style of curvature which certainly is never exhibited by Nature, so far as we are acquainted with her in these latitudes. *W. R.*

HARDY HERBACEOUS PLANTS.—No. II.

(*Continued from p.* 237).

I BEGIN of course with the Ranunculaceous order in my search for the finer hardy perennials. Though some of the Clematises are herbaceous, I must not mention them, for they are poor in beauty, but as those in the way of lanuginosa may and have been grown very well on good warm sandy soil, spreading over the ground without any support or training, of course it may be as well here to mention the fact. In making mixed borders, rockwork, fringes of plantation, or anything of the kind, we must not be confined by any rules except those of the judgment, and must draw from all sorts of stores; therefore those new varieties of Clematis should not be overlooked, and if one were making a bold rockwork, a grand use might be made of them for dressing with richest colour and noblest flowers precipitous points, putting the roots in a position where they could descend at pleasure into a rich and deep vein of good earth. The warmth of the recumbent position on the stone, and the shelter, could not fail to make them feel at home, and I can imagine nothing more effective than a sheet of these falling over the face of such large stones as those in the rockwork at Chatsworth and a few other gardens where large things in this way have been attempted.

Of the Anemones there can be no kind of doubt. Without touching upon very rare species, or those difficult to grow, it may be safely said that there are at least half a dozen kinds which ought to be in every garden. The beautiful blue A. apennina is as valuable as it is hardy, and as distinctly coloured as it is easy of increase. I know of no flower more worthy of being naturalised in half wild spots, in arboretums where very frequent mowing is not practised early in the season, or in any such place. It is quite at home in the open border or indeed in almost any position in our gardens, but will be found to love the slight shade and shelter of sparsely planted ground. What feature more charming in the grounds of an English country seat in spring than the sweet flowers of the blue Wood Anemone, cropping up among the young green Grass. Anemone alpina is a stately species with large white flowers, downy, and tinted with pale blue on the outside; a fine thing in good free loam. A. sulphurea resembles this, and is probably a variety of the same species, with large lemon-coloured flowers; also a first-rate plant for the full collection. The varieties of the common garden Anemone (A. coronaria) are of course indispensable for the spring garden, while the scarce A. hortensis or stellata is also a good thing, and especially its variety fulgens, of a brilliant scarlet, and of which I think the Messrs. Backhouse have a good stock. A. japonica again, is indispensable, and from its size, vigour, and freedom to flower in autumn, a capital plant for naturalising among shrubs or on a rough low rockwork clothed with dwarf shrubs and creepers. It has scarcely quality enough for the select and well-made rockery which I hope yet to see a feature of British gardens. I suppose A. vitifolia is merely a variety of this, and, so far as I have seen, not sufficiently distinct to make it a want wherever A. japonica is an inhabitant. But its new white variety Honorine Jobert is unquestionably one of the finest things among hardy plants. It grows to a large size in good ground, and bears a wonderful profusion of fine white flowers, with yellow centres, in autumn. It should be in every place where autumn flowers are a desideratum, and may be considered an autumnal bedding plant, from the profusion and continuity of its flowering when in good ground. Doubtless the more rich and moist the ground, the longer the bloom. It is astonishing how quickly it increases, every bit of the root growing, so that if you pull up a plant a thousand may be made from it in a short time. Of the common Wood Anemone, there is a double "red" and a double white variety, but far better than either is a single sky-blue variety, which has flowered densely with me in a fully exposed position, and produced the most exquisite cushions of cœrulean-blue imaginable. One day I hope to see it a popular garden plant, but doubt if it can at present be obtained in any nursery. A. sylvestris is at once very free and very pleasing from its abundance of large white flowers and profuse soft green leafage. When in good soil the flowers are very large, and the effect charming; a capital border plant. There are other species of much merit, but difficult to grow, or obtain; others, of a slightly inferior degree of beauty, or from one cause or another, not so much to be recommended as the preceding indispensables. Not necessary for the young, limited, or newly-made collection, they are sufficiently notable to require a passing mention here, or perhaps some readers might be surprised at their omission. A. narcissiflora, palmata, Pulsatilla, vernalis, ranunculoides, and baldensis, are the best that I know of in this way.

Next we meet with the Hepaticas, of which scarcely a word need be said except that everything in the way of an Hepatica is worthy of care and culture. H. angulosa I have seen growing almost as freely as Celandine among shrubs and in half shady spots, and we all know how readily the old kinds grow on all garden soils of ordinary quality. There are about 10 or 12 varieties of Hepatica triloba grown in British nurseries and gardens, about which, to save space, I will say no more, save that all the colours of the species should be represented in every collection of spring flowers. Can any one fancy an object more beautiful than a mixed edging of the various colours round some bed or clump of choice shrubs, interfering with nothing, or in the way of nothing? If so, let us know of it.

Many of your readers will doubtless remember with pleasure the prettily-buttoned white flowers of the Fair Maids of France—Ranunculus aconitifolius fl. pl., and in a half shady rich border it is a beautiful and first-class plant; but I am disposed to think more of the double varieties of some British Ranunculuses, because of their greater hardiness and pretty character. Weed as is the common R. acris, its double variety, with the perfectly-formed and polished golden buttons, is a charming hardy plant, flowering profusely, and not being of a very transient character; the flowers are even useful for cutting. Good also are R. repens fl. pl. and R. bulbosus fl. pl. In somewhat the same way, but far larger in flower, and of a recumbent habit, is one called bullatus and grandiflora, in the Wellington nurseries. It is both fine and remarkable, the flowers reminding one of those of the Persian Ranunculus, so large are they. R. montanus is a pretty little species, better suited for rockwork, or a spot where it would receive a little protection from injury or rough operations; it is very dwarf and neat, and the flowers comparatively large. Quite distinct from all these, and of chastest beauty when well-grown, is R. amplexicaulis, with flowers of pure white, and simple leaves of a dark glaucous green, and flowing graceful outline; a hardy and charming plant on almost any soil. Good also are alpestris, glacialis, and parnassifolius, though I doubt if they be so well suited for garden culture as those previously named, and I am sure glacialis is not. Although we can grow sufficient of the finest herbs to suit any purpose without difficulty, there is a limit which we cannot overstep, and however fine things may be in their native state, we must give the preference to those that grow and flower satisfactorily, and without any but ordinary attention, in our gardens.

The common wild Marsh Marigold (C. palustris) that

> "Shines like fire in swamps and hollows grey,"

as truly recorded by the Laureate, is such a noble thing, that though common it deserves a word; and it is well worthy of introduction to any water margin or marshy place where not previously established. There is a good double variety sold rather plentifully in London during the spring months, and it too is a fine plant in a bog, and it will not refuse a moist border. Ficaria ranunculoides plena is a pretty little thing, and Adonis vernalis a first-class spring border plant. Of the Trolliuses, the best I know is T. napellifolius. The British T. europæus is delicately scented, and there are half a dozen other good kinds worth growing where the collection is very full, and making a tolerable show on good soil; sufficient is it here to indicate the best I am acquainted with, for this Ranunculus order is so rich in really good things that one can barely enumerate the crowning beauties. *Stet.*

Home Correspondence.

Five Pounds' worth of Good Advice given Gratis.—Encouraged by the success of Mr. Cannell's 100*l.* gratis hint about Grape growing, I venture to suggest that if the following advice is attended to, the modest sum just named might be yearly saved by many gardeners and amateurs in purchasing their annual supplies of seeds and plants. It is well known that the "Fat Catalogues" now compiled by many seedsmen and nurserymen are on the "extending system," and that a return to the "restrictive one" is a consummation devoutly to be wished. This can only be done by the generality of gardeners and amateurs selecting some of the best of the old varieties of seeds and plants, and only ordering

new sorts when well tried and favourably reported upon. The endless varieties of new Cabbages, Broccolis, Cauliflowers, sprouting Kales and Coleworts, Lettuces, and Peas, now yearly brought into notice by their different raisers, so bewilder purchasers, that after having ordered some with grand descriptions they are mortified to find on growing them that they have only been buying old sorts under new names. All the early Cabbage tribe may be reduced to half a dozen good sorts, and the same thing may be done with Broccolis and Cauliflowers. Amongst sprouting Kales and Coleworts, after the Scotch Curlies and Brussels Sprouts, the old Chou de Milan, and the Buda Kale, or Ragged Jack, as it is called in some places, are still the latest, hardiest, and best in severe winters. As regards early Peas, all the different sorts so puffed up might be taken out of the same sack, as far as their few days more or less earliness, flavour, and yielding qualities are concerned. The only real advancement in new Peas is in the early dwarf Marrow section, which will ultimately supersede all small-podded early sorts, both for open-air culture and for forcing purposes. The raising of new and improved vegetables ought by all means to be encouraged, but they ought only to be sent out after their good qualities have been thoroughly tested in competition with older sorts. Raisers of new kinds of Fuchsias, Dahlias, Pelargoniums, and other popular show and bedding-out plants, are also now great offenders in the "Fat Catalogue line." If they succeed during a season in raising a few really first-rate flowers in different classes, they generally, on purpose to make up a set of so much money value, add a lot of inferior flowers to them, which irritates buyers and does the vendor no good when he sends out his next batch. Better by far charge a good price for superior new flowers, and then the floral public would have confidence in what they buy. Our lively neighbours across the Channel are likewise much to blame in the way of new Roses, for their annual batch of seedlings sent out generally contains but one or two good sorts, and ten inferior ones. Another branch of trade which has lately sprung up with the French, is raising new seedling Gladiolus; but this fine bulb could be raised by gardeners of quite as fine a strain as any of the French flowers, and they may thus save their pockets a goodly sum every year. In this country no flower seeds more freely than the Gladiolus, if a little care be taken in the fertilisation, and it can be made to flower in two or three years from the time of sowing the seed. *T.*

Transplanting Evergreens.—Having had considerable experience in transplanting Evergreens of every description, I would advise your correspondent "A. M." (see p. 378), to try early autumn planting, say the beginning of September, and continuing until the end of November. After that it is not desirable to proceed, but the perfect success of early autumn planting greatly depends upon the manner in which the work is done. If the weather should be dry I have always found it a safe plan to pour a quantity of water, say 2 or 3 gallons, into each hole before planting, and to give the plants a good soaking afterwards. If the plants are of a large size, and have not been previously frequently transplanted, syringing them overhead in the evening will be found very beneficial; but for small evergreens this is not necessary. Mid-winter planting of evergreens should always be avoided, as no root action takes place after the ground has become thoroughly cooled. If circumstances would not permit of early autumn planting, I should recommend "A. M." to try April, and even May, should showery weather prevail, especially for Hollies. This I believe to be the next best season. If "A. M." will try the experiment of planting a few evergreens of any description in the early part of October, as directed, and will take one of them up a month after planting, he will find that it has made a quantity of new rootlets which no winter will destroy, and which are prepared to support a vigorous growth in spring. These remarks apply also to forest-tree planting, especially to evergreen forest trees, such as the Scotch Fir, and Austrian and Corsican Pines. If foresters who do not adopt early autumn planting would try it as an experiment, I believe they would find it more profitable to their employers and much more satisfactory to themselves than planting at any other season. *D. Freeman, F. & A. Dickson & Sons, Upton Nurseries, Chester.*—Some advocate autumn, while others strenuously adhere to the spring as the proper season for transplanting; but if I can show that failures arise more frequently from careless planting and future management than from the season, I may be doing some of your correspondents a benefit. To occupiers of suburban villas the question is of most importance, as failures seldom occur at places where gardeners are kept; and the villa occupier may ask Adam, his jobbing gardener, the reason why all the evergreens have died? Now, if I were inclined to bet, I would offer ten to one that Adam's reply would be that they must have been planted at the wrong season; and on his employer telling him that that had taken place in the autumn, he would doubtless remark—"There, I was sure from the first that they must have been planted at the wrong time. Instead of planting in the autumn, when the soil is losing heat, that operation ought to have taken place in spring, when all is bursting into life." And if it had taken place in spring, probably Adam's reply would have been that evergreens planted in spring lose their leaves in summer, and sometimes eventually die. So, according to Adam's reasoning, there is no proper season for planting evergreens, but if that worthy, or his employer, had taken the trouble to examine the roots, they would have arrived at a different conclusion. Most likely they would have found the roots all huddled together, and the soil about them hard and baked, and would at once pass the verdict, "Died of careless planting." A few simple observations are all that are necessary to ensure success in planting evergreens; and whether you plant in autumn or in spring, avoid planting in clay, or the sterile soil which is often found in villa gardens, and see that the roots are nicely laid out, and that some good soil is put to them. When finished planting, let the surface receive a good coating of rough stable litter to ward off the drying winds of March more than the cold of winter. The litter may appear unsightly from certain points of view, but better bear that for a season than have to record another failure. *Brassica, Preston.* [And never lift the plant to shake down the soil, as there is such a tendency amongst workmen to do, but settle down the earth among the roots by watering. Eds.]

Weather Records.—The following is a record of weather at Bloxholm Hall, Lincolnshire, from Feb. 27 to March 23, 1867, three self-registering minimum thermometers being used, viz., No. 1, 4 feet from the ground; No. 2, 2 feet; and No. 3, 6 inches from the ground, the readings being taken at 7 A.M. daily:—

Date.	No. 1.	No. 2.	No. 3.	Remarks.
Feb.	°	°	°	
27	23	20	18	Clear frost. Wind N.E.
28	16	15	13	Clear sharp frost. N.E.
March				
1	20	18	17	Clear frost. N.E.
2	18	16	13	Clear sharp frost. N.E.
3	25	22	18	Misty, frosty. N.E.
4	30	28	24	Cloudy and frosty. N.E.
5	32	31	29	Cloudy, slight frost. N.E.
6	30	27	25	Very stormy, hail. N.
7	32	30	28	Snow 4 inches. N.E.
8	31	30	29	Heavy fall of snow. N.E.
9	25	22	22	Stormy, fall of snow. N.E.
10	30	27	23	Stormy, fall of snow. N.E.
11	32	31	30	Very stormy, fall of snow. E.
12	31	29	26	Bitter cold wind. E.
13	23	26	25	Bitter cold wind. E.
14	27	26	24	Cold wind. E.
15	26	24	19	Cold wind, cloudy. N.E.
16	24	20	15	Sharp frost, shower of hail. N.E.
17	21	16	11	Bitter cold wind, severe frost. E.
18	30	29	26	Stormy, fall of snow. E.
19	30	29	28	Stormy, fall of snow. N.E.
20	31	30	30	Heavy fall of snow, 4 inches. N.
21	25	24	22	Fall of snow, frosty. N.
22	31	29	25	Stormy, snow 3 inches. S.E.
23	40	40	40	Very wet all day, snow gone.

Only on one occasion did the 4-feet thermometer fall below the other two, which was on the 13th March, when we had a bitter cold E. wind. The effects of this weather will soon be seen on vegetation; already Spinach, Lettuce, and Endive have suffered much, but time will show the full extent of injury done. *David Lumsden, Gardener, Bloxholm Hall.*

Sir Harry Strawberry.—I have just read the remarks of your correspondents (see p. 378) respecting this Strawberry. I should not wish to testify anything in the way of injury to Mr. Underhill, but I certainly must add my evidence to what your correspondents report of Sir Harry. I purchased 20 plants for 1*l.* from Mr. Underhill in 1855, therefore I may be regarded as a witness of what Mr. Underhill sent out. Now certainly there were two or three sorts of Strawberry in those 20 plants. I kept them distinct and have planted the runners from them regularly, selecting as well as I could from the plants which fruited best. But I have never been able to get a row or bed of one true sort only; there are always some varieties mixed with what I hoped was true Sir Harry. For the last four or five years I had made up my mind that Sir Harry sported, and that my intermixture must be accounted for on that ground. But I see Mr. Yates declares that Strawberries do not sport or degenerate, and I never found any other variety do so; though if beds or rows are left too long on the same site, seedlings may generate. I have about 12 sorts of Strawberry now, and I have been a grower of almost every variety that has appeared during these last 25 years. *W. M. Rowland, Bishop's Castle Vicarage, Salop.*—It is fair to Mr. Underhill to say that I did not get my first plants (24) of Sir Harry from him. They came to me from a respectable Bath nurseryman, who I am sure believed them to be true. There was not a Sir Harry among them. I believe that few have got it true. Perhaps the best thing I can do is to describe the true Sir Harry as to plant and berry, as compared with Hooper's Seedling, its substitute. They are very different. The true Sir Harry, as to plant and berry, is exactly like the one pictured in Mr. Underhill's treatise. It is a dwarfer plant, rounder in its berries, more refined in its leaves, which are circular—a complete circle. Hooper's seedling in plant and berry is more like Keens' Seedling, but coarser in leaf and taller in plant. Hooper's Seedling is an enormous cropper. I think my plants of it bore from 200 to 300 Strawberries. Sir Harry did not acquit itself in my chalky ground at Rushton. The summer of trial was a wet cold one, so I can say nothing as to its flavour. People plant their different sorts of Strawberries much too near, and hence they get confused. Four feet between the sorts would obviate this. Those who have seedlings to send out should not trust any one to send them out, except a long tried foreman. Some years since the following three Strawberries, so distinct from each other, were confused, viz., Nimrod, Eleanor, and Adair. The true Nimrod I sent to Mr. Rivers, and your readers will see that he describes it as a distinct and good sort. Eleanor, superseded here by Dr. Hogg, Frogmore Pine, Cockscomb, and Wonderful, once seen, could never be mistaken for any other. Nimrod is lankish in the foliage, and like the Queen in her cone shape. Eleanor is deep red, but Nimrod is orange red, and of the Queen's flavour. I do not mulch my Strawberry plants; I always fear softening their crowns. If properly planted and attended to, such sorts as I keep want no mulching. We have got some excellent sorts, defiant of ordinary winters. Get rid of tender kinds, which are an exception in the "genus Fragaria," which is hardy. *W. F. Radclyffe, Okeford Fitz-paine.*

Longevity to Forced Vines.—I hope that Mr. Miller will furnish the information asked for by your correspondent Mr. Sage (see p. 378), as doubtless thousands of gardeners and their employers would be pleased to possess it—I mean some account of the method by which "Grapes can be ripened in March for many years in succession without destruction to the Vine." Has any one ever tried seed? There is this objection to it, viz., that the sorts may not come true. But could we not "work" a true sort on a seedling without destroying the reciprocal action of top and root? I think so. If the roots begin to act first so much the better. To any one who is about to pull out his "spent" Vines and replant, it would be worth while trying the experiment. If it should prove successful he would confer a boon on employers, as well as on the employed. *H. M., Enys, Penryn.*

Crossing of Plants.—There is an error in the abstract of my paper, printed in your last Number (see p. 380). About the centre of the middle column substitute the following sentence for that printed:—Yet, singularly enough, I have raised no end of another brood obtained by crossing Rhododendron Nuttallii on another hybrid of my own, obtained by crossing R. formosum with R. Dalhousiæ. *I. Anderson-Henry.*

Practical Physiology.—You are doing well to direct attention to this interesting and important field of work. There are now so many intelligent men—men of great natural powers of observation in the practical departments of Botanical Science, that never were efforts better timed for sounding the tocsin, and calling the forces into action. A rare harvest awaits the reapers. Too long have they been satisfied with theories. Now is the time to put all these to the test of experiment, and no longer leave to the overtaxed energies of one, though the Coryphæus of the whole science, the working out his own laws by the severe drudgery of manual experiment. All may now see their way to aid him by the light which Darwin has shed on so many of Nature's darkest by-paths, and let no one be discouraged because he has done so much; there is plenty yet to do—victories still to be won. Pray sound the trumpet, and arouse observers to renewed efforts. *I. A. H., Hay Lodge, Trinity.*

Tricoloured Pelargoniums, &c.—Last year Mrs. Pollock sported with me to a good zonal, of which I took care. I find it to be the best of all the sorts from which to raise seedlings. I took pollen from the true Mrs. Pollock, and fertilised the sport with it. From seed saved last July I got 35 seedlings to grow, of which I had seven with variegated cotyledons, and 10 good tricoloured sorts; the remainder were very dark zonals, which promise to be good. I also reversed my experiment, and used Mrs. Pollock as the mother plant, which was fertilised with pollen from the sport. I sowed the seeds about the end of July, and got 40 plants, of which 11 had variegated cotyledons, and have all come tricolor-leaved, and are free growers. The remainder are all very dark zonals, and promise to be good as the season advances. I took pollen from Mrs. Pollock and fertilised Cloth of Gold with it, and this gave a bright yellow-leaved seedling, the best which I have ever seen. Golden Chain I have always found to produce the worst sorts of any I have tried; its produce is utterly worthless, although I have fertilised it with good zonals. I find seedlings from Mrs. Pollock, fertilised with her own pollen, to be very weak, bad growers, and nine out of ten die in the seed-leaf. What I recommend for fertilising Mrs. Pollock with is:—1, the sport above mentioned; 2, Diadem; 3, Master Price; 4, Emperor of the French. Of these crosses I feel sure the produce will be of first-rate character. *Wm. Smythe, The Gardens, Elmham, Norfolk.*

French Gardens.—I have just returned from visiting the Jardin Fleuriste de la Ville de Paris, which was described in the *Gardeners' Chronicle* by your Paris correspondent a few weeks ago. On reading the article my curiosity was a little excited, as I had heard but little of this establishment on any of my previous visits to Paris. I therefore resolved to see and judge for myself. It is even better than I had been led to expect, and is marvellous as a plant-producing great nursery garden, the magnitude and importance of which your correspondent has by no means over-estimated. Parisian gardening appears to have kept pace with the many other important improvements which have taken place in and about Paris within the last 20 years, and it is not too much for me to say that at present, when the first blush of spring has fairly shown itself among them, they convey to one accustomed to look at English gardens a degree of beauty and good taste which is not often seen in the former. The mingling of the flowers of the many varieties of Amygdalus, Prunus, and especially the beautiful Magnolias, backed up with plenty of green foliage, have together a fine effect. Judging from what is already to be seen, and the great masses of rare and beautiful plants prepared for bedding-out in the Bois de Boulogne and other public gardens at Paris, your horticultural friends will experience a treat of no ordinary kind after midsummer, on visiting this city. *D. M., Glasnevin.*

Rival Systems of Vine Growing.—The controversy, or I ought rather to say, the amicable and useful discussion upon Grape growing which has been going on in your columns, increases in interest, and although as a mere amateur I cannot pretend to throw any light upon the question, I am quite inclined to embrace the doctrine of Mr. Cannell, and to reply to one of the arguments of his travelled opponent "Vitis." It is true that in Languedoc and Provence, in Andalusia and Catalonia, Vines are closely pruned to the stumps, and as many perhaps as 2000 are planted in an acre. They are so planted and pruned, not for the purpose of producing "magnificent fruit," but in order to drive

the plough between the rows, and to save the expense of trellises and training. The question with the *vigneron* is cheap production, but the Grapes for his own use he grows in his garden on a trellis on the progressive system, or something akin to it. *An Amateur, Clapham.*

Migratory Birds.—Wryneck first seen on the 1st, sand martin on the 3d, titlark on the 5th, willow wren on the 9th, and black cap and cuckoo on the 10th. The nightingale, if arrived, has not up to this date (April 15) been pleased to "signify the same in the usual way." *G. H., Walden House, St. Mary Cray.*

Heavy Grapes.—Your doubting correspondent (see p. 351) seems to be hardly aware that Thornton is situate less than 10 miles distant from Garston, where Mr. Meredith produces his unrivalled bunches of Grapes, or he would scarcely have pointed out its locality as a cloak for his unbelief. The bunch spoken of as weighing 7 lb. 12 oz. was exhibited in Liverpool. The bunch of 8 lb. 4 oz. was the only one actually weighed last year; several of the bunches, however, seemed quite as large, but they were not quite so densely packed, and I am quite satisfied that 6 lb. per bunch would have been fully realised on the average, and probably even more. The bunch of 8 lb. 4 oz. was quite at the bottom of one of the rods. *W. B., Thornton Hall, Neston.*

Societies.

Royal Botanic: *April* 13 (*Second Spring Show*).—This took place under unfavourable circumstances, the morning being wet, and though the afternoon proved drier, it was anything but fine. The chief features of the Show consisted of Azaleas, Roses, and Cinerarias. Of Azaleas two fine collections came from Mr. Turner, of Slough, and Messrs. Lane, of Berkhampstead, and were awarded equal 1st prizes. Mr. Turner's plants consisted of Madame Miellez and Louise Von Baden, white; Kinghornii and Perfection, rose; Beauty of Reigate, white, with occasional stripes of red; and Etoile de Gand and Variegata superba worked together. Messrs. Lane had Reine des Blanches, Iveryana, and Magnificent, white; Chelsoni, orange scarlet; Roi Leopold, salmon scarlet, and a finely-bloomed Sir Charles Napier. In the Amateurs' Class, Mr. Wheeler, gr. to Sir F. Goldsmid, Bart., M.P., was 1st with Alba cincta, Duke of Devonshire, Marie Louise, Stella, a beautiful orange-scarlet, with violet-purple blotches in the upper petals; Broughtonii and Semiduplex. Mr. Wilkie, gr. to J. McHenry, Esq., Oak Lodge, Kensington, furnished Optima, Marie Louise, Duchesse Adelaide de Nassau, Sinensis, and standard plants of Sir Charles Napier and Mrs. Fry. In the class of three Azaleas sent out in 1862, 1863, and 1864, Messrs. Lane were 1st, with Stella, a fine kind; Elegantissima, white with occasional stripes of rose; and Advance, rosy crimson, heavily spotted in the upper petals. Messrs. Ivery had Flag of Truce, white; Madame Dominique Vervaene, delicate salmon-pink, irregularly edged with white, and spotted in the upper petals with crimson; and Souvenir de Pronay, rosy crimson. Mr. Turner had Stella, Prince of Orange, and Charles Enke, the last salmon rose, each petal boldly edged with white, and spotted in the upper petals with purplish crimson. Messrs. Ivery also exhibited several seedlings, the best of which were Enchantress and Princess Alexandra, which respectively received First and Second-class Certificates. The former is white, slightly flushed and streaked with delicate salmon-rose, and spotted in the upper petals with crimson; Princess Alexandra is white, mottled and streaked with purplish pink, apparently a useful market flower on account of the freedom with which it blooms.

Roses, as usual, formed an attractive feature. Conspicuous among kinds from Mr. Wm. Paul were Mdlle. Marie Rody, with two magnificent crimson-scarlet flowers; a fine specimen of Glory of Waltham, Fisher Holmes, Sénateur Vaisse, Prince of Portia, Madame Anna Alexieff, Madame Rousset, Centifolia rosea, Madame Fillion, Madame Boll, Madame Hoste, Madame Damaizin, Céline Forestier and Marquise de Foucault. Messrs. Paul & Son had likewise a collection, in which were examples of Madame Fillion, Lord Clyde, Princess Mary of Cambridge, Fisher Holmes, Exposition de Brie, Général Jacqueminot, Charles Lawson, Madame Victor Verdier, Maréchal Niel, Céline Forestier, and Madame Villermoz. Messrs. Paul & Son also contributed five boxes of beautiful cut blooms.

Cinerarias were shown by Messrs. Dobson, James, and Fairbairn. Among them were Lord Elgin, a fine magenta kind; Conqueror, crimson self; Miss Smith, white, broadly edged with violet; Eclipse, and Admiration, white, with a broad rosy purple edge; Snowflake, Perfection, Charles Dickens, Fair Maid, William Reeves, and William Dobson, of which a fine plant came from Mr. Fairbairn. For Beatrice, a seedling raised by Mr. Fairbairn, Messrs. Dobson received a First-class Certificate. It is a very large, bold, showy white flower of good quality, conspicuously edged with rosy purple.

Amaryllises came from Mr. Burley, of Bayswater, and Mr. Wilcock, gr. to Dr. Pattison, of St. John's Wood; fine-leaved Begonias from Mr. Marcham, gr. to E. Oates, Esq., Hanwell, and Mr. Wheeler, gr. to Sir F. Goldsmid, Bart.; and excellent pots of Lily of the Valley from Mr. Bartlett, who also contributed a dozen admirably-bloomed specimens of Hoteia (Spiræa) japonica. These, though only in 48-pots, measured about 20 inches across at the base, and 16 or 17 inches high, and each bore about a dozen graceful panicles of white bloom.

Of British Ferns Messrs. Ivery sent the best collection, in which were good plants of Asplenium Trichomanes Moulei, a pretty slender variety; Asplenium fontanum, Cystopteris fragilis angustata, Blechnum Spicant heterophyllum, of which the pale green of the young fronds formed a pretty contrast with the dark hue of the older ones; Scolopendrium vulgare marginato-cristatum, Polypodiums, Athyrium Filix-fœmina formoso-cristatum, a finely-crested variety, A. F.-f. thyssanotum, A. F.-f. pulchellum, also pretty, and a caseful of Trichomanes radicans. Mr. James had a collection chiefly consisting of Athyriums and Lastreas.

Groups of flowering and fine-foliaged plants were furnished by Mr. Williams, Mr. Wheeler, and Mr. Wilkie, in whose collections were Cordyline indivisa, Variegated Aloe-leaved Yucca, Crotons, Alocasia metallica, Dicksonia antarctica, Eriostemons, Azaleas, Genetyllis fuchsioides, and Dendrobium nobile. Mr. Williams likewise contributed a second collection in which were Imantophyllum miniatum, Tetratheca ericæfolia, Boronia pinnata, Trichopilia suavis, and other Orchids, together with a fine specimen of the beautifully-striped Yucca quadricolor, Yucca albo-spica, Ananassa sativa variegata, Todea superba, and Hymenophyllum demissum. Messrs. Lane had a plant of the beautiful hybrid Rhododendron Countess of Haddington, with large trusses of long-tubed rosy blush flowers; also of R. Edgworthii.

Of New or Rare plants a numerous collection came from Mr. Bull, who contributed Litobrochia undulata, Maranta roseopicta; Habenaria margaritacea, with oblong dark green leaves, blotched with white; Iresine Herbstii aureo-reticulata; Tradescantia repens vittata, in which some of the leaves are half green half white, while others are broadly striped; Fittonia argyroneura, beautifully veined with white; Athyrium Goringianum pictum, a graceful variegated Fern, with reddish midribs shading off to grey, and clouded towards the base of the pinnæ; the Japanese Lastrea varia, with green and bronzy fronds; Polystichum angulare parvissimum, and others. Mr. Williams sent the rare Vanda gigantea, with large leathery yellow blossoms, spotted with cinnamon; also a Stelitzia, not unlike S. reginæ; Dracæna sanguinea, with long narrow leaves having red midribs; Lindsæa cultrata; a small yellow and brown-flowered Oncidium; and a Maxillaria, bearing a small spike of dull buff flowers. Mr. Wilcock, gr. to Dr. Pattison, had two Odontoglossums, one O. Bluntii, the other a variety of luteo-purpureum. From Mr. Shenton came several varieties of Retinosporas; and from Messrs. Perkins, of Coventry, Tricolor Pelargonium Queen Victoria, a bright-coloured variety, which received a First-class Certificate. Mr. William Paul had a similar award for Red Admiral, a variety in which the broad zone has more of a roseate tinge than is usual. He also exhibited several other variegated Pelargoniums, and plants of the beautiful new Double Scarlet Thorn.

Royal Horticultural: *Saturday, April* 13.—Dr. Masters' lecture on this day was devoted to the consideration of the Stem and Branches, the distinguishing features of which, as compared with those of the root, were explained. Numerous illustrations of the diversities in form assumed by these parts were exhibited, and were stated to be in some measure explicable by the purposes which the stem served in the economy of the plant. These purposes were:—To serve as a channel of communication between the root and the leaves, to expose the latter organs as fully as possible to the light and air, to serve as a reservoir of nutriment, and in some instances to act as a substitute for the leaf, as in Ruscus, Cactus, &c. In the case of "annual" plants a comparatively small "herbaceous" stem suffices to support the leaves and flowers, but in plants of a longer duration, or in such as are more exposed to winds, &c., a woody stem or trunk becomes necessary. The foundation of the trunk was explained by the greater energy of the terminal bud and its more favourable position as contrasted with the side shoots. These latter receive a less ample supply of nourishing sap, and are moreover overshadowed and interfered with by the more favourably placed buds; hence in process of time the trunk is formed. The different shapes which trees assume was shown to depend on the suppression of some buds, the development of others, the position and arrangement of these latter, and the direction—horizontal, ascending or reflexed—which the shoots ultimately assume. In the organs of individual plants the same struggle for existence, the same ultimate victory of strong over weak, occurs as takes place on a larger scale between plant and plant, and operates powerfully in influencing the general form or "habit" of the organism. Climbing plants were alluded to as affording a means whereby the leaves might be exposed to the light and air as fully as by means of a stout trunk and branches, at a much less expenditure of material. To effect their object these plants were endowed with an unusual amount of tactile sensibility, and with a spontaneous power of movement, by means of which they were brought into contact with branches of trees, &c., and were enabled to adhere to them. These singular phenomena have received much attention from Mr. Darwin.

The underground portions of the stem, those which form tubers, rhizomes, corms, &c., are distinguished from roots by the habitual production of buds, and especially serve the purposes of reservoirs of nutrition, being generally full of starch and other material applicable for the food of the growing plant. By the growth at one end and the gradual decay of the other, many of these subterranean forms of stems have a power of gradually shifting their quarters. Aërial stems also serve sometimes as storehouses for water, as in the case of Cactuses and similar plants, while certain "secretions," such as resins, gums, and many substances of medicinal and economic value, are commonly stored up in the bark.

Allusion was then made to the power that the gardener has of materially altering the form of plants by pinching, pruning, grafting, and other operations. In many cases, especially in our common fruit trees, the branches destined to bear flowers and fruit are of a different form to those that bear leaves only, and which are devoted specially to the formation of wood. It is an object with the gardener to procure the formation of fruit "spurs" in greater abundance, and at an earlier period than would be the case under natural circumstances, and this is effected by the procedures just mentioned. The effect of grafting, and especially of "double grafting" as practised by Messrs. Rivers, in checking rank growth and inducing speedily and, as it were, by anticipation, the formation of fruit spurs, was well illustrated by some specimens kindly forwarded by the above-named gentlemen.

April 16 (*Second Spring Show*).—This, in all respects, excellent exhibition, occupied the two conservatory arcades, which were full of brilliant Azaleas, Roses, Rhododendrons, Cinerarias, and other plants. The weather was however unfortunately wet and cold, a circumstance which considerably lessened the pleasure which must otherwise have been experienced at the sight of so large and beautiful an assemblage of spring flowers.

In the class of 9 Azaleas, Messrs. Lane & Son had a charming collection, to which a 1st prize was deservedly awarded. It consisted of Gem, Chelsoni, Advance, Elegantissima, Stella, and finely-bloomed plants of Roi Leopold, Sir Charles Napier, Magnificent, and Iveryana. In the Amateurs' class of 6, Mr. Wheeler, gr. to Sir F. Goldsmid, Bart., had well-bloomed specimens of Marie Louise, Duke of Devonshire, Stella, Broughtoni, Semi-duplex, and Alba cincta. Mr. Todman, gr. to R. Hudson, Esq., Clapham Common, furnished plants of Duchesse Adelaide de Nassau; Princess Royal, rosy crimson; Roi Leopold, Princess Barthilda, Concinna, purplish lilac; and The Bride, the last a good white. Mr. Wilkie, gr. to J. McHenry, Esq., had Crispiflora, a favourite kind; Burlingtoni, orange scarlet; Coronata, deep rose; a finely-bloomed standard Sir Charles Napier, and a pyramidal plant of Roi Leopold. The same exhibitor likewise contributed plants of Sinensis, Duchesse Adelaide de Nassau, and Marie Vervaene, all in excellent bloom. Mr. Wheeler and Mr. Todman also showed in this class. The 1st prize for the best single specimen was awarded to Mr. Fairbairn, gr. to the Duke of Northumberland at Sion, for a fine plant of Triumphans, well covered with flowers. Mr. Turner, Slough, was 2d with Louise von Baden, covered with fine large white flowers. Messrs. Lane contributed Reine des Blanches, about 3½ feet high; and Mr. Lydiard, Batheaston, a small plant of Extrani.

Of Rhododendrons, Messrs. Lane exhibited a fine collection, to which a 1st prize was awarded. It contained Augustum, delicate pink; Nero, dark rosy purple; Illuminator, with large trusses of rose-coloured flowers; Vervaeanum, semi-double, bluish lilac; Griswoodianum, blush; and Erectum, deep rose—all in excellent condition. Messrs. Lane also contributed a collection of dwarf standards, the beauty and quantity of bloom on which elicited general admiration. The 1st prize for a single specimen was awarded to Mr. Wilkie, for a fine standard Everestianum; and the 2d to Messrs. Lane, for Towardianum, both bearing numerous large trusses of flowers. Mr. Parker, of Tooting, furnished a fine example of Countess of Haddington, loaded with beautiful trusses of charming pale rosy flowers. Mr. Batch contributed cut blooms of Rhododendrons Jacksoni and Pearl, grown out of doors at Hafodunos, Denbighshire; likewise of Aucklandii, which had, however, received protection.

Roses were shown in large numbers and in beautiful condition. The 1st prize for 9 was awarded to Mr. Turner, in whose collection were fine examples of Sénateur Vaisse, Baron Adolphe de Rothschild, Vicomte Vigier, Charles Lawson, Madame Falcot, and Souvenir de la Malmaison. In that of Mr. W. Paul, who was 2d, Victor Verdier, John Hopper, and Madame Villermoz, were in charming condition. Messrs. Paul & Son, who were 3d, had Anna Alexieff, Charles Lawson, Madame Villermoz, and Alba Rosa. Mr. James, gr. to W. F. Watson, Esq., took a 1st prize in the Amateurs' Class; and in that for the best single specimen Mr. W. Paul had a similar award for Madame Alfred de Rougemont, a nearly white Hybrid Perpetual, ornamented with about two dozen expanded flowers; Mr. Turner was 2d. Among new Roses of 1865 and 1866 were Charles Wood, deep velvety crimson; Exposition de Brie, violet shaded crimson; Mdlle. Marie Rody, crimson scarlet; Camille Bernardin, Dr. Andry, Marguerite de St. Amand, Alba mutabilis, Charles Rouillard, and Maréchal Niel. For these Mr. W. Paul was 1st; Mr. Turner, 2d; Messrs. Paul & Son, 3d. Extra prizes were also awarded to Mr. W. Paul, and to Messrs. Lane, who each showed beautiful collections of pot plants; also to Messrs. Paul & Son for boxes of cut blooms.

Among Cinerarias the most attractive was Miss Smith, Lord Elgin, William Dobson, Lady Theodore Grosvenor, blue-edged; and Eclipse, white with a broad rosy purple edge. For these Messrs. Dobson & Son stood in the first rank; and they had also 12 well-bloomed plants, for which an extra prize was awarded. Mr. Fairbairn was 2d; Mr. James 3d. The last-named exhibitor also had a 1st prize for six Calceolarias, all fine kinds, loaded with bloom. Messrs. Veitch and Mr. Burley, Bayswater, showed Amaryllids, the former being awarded the 1st prize for a collection, in which Ackermanni pulcherrima, with large deep crimson flowers, veined with blackish red, was by far the best. Of Auriculas, Polyanthuses, and Pansies a full account will be found in another column. Lily of the Valley, in excellent bloom, came from Mr. Reeves, Campden Grove Nursery; and Mr. Salter, Hammersmith, showed beautiful potfuls of his white striped-leaved kind finely in bloom.

Miscellaneous collections of plants consisted chiefly of subjects which were exhibited the other day at the Regent's Park, and of which notice will be found in another column. Among them were Ixoras, Genetyllis, Vincas, Eriostemons, Azaleas, Rhynchospermum jasminoides, Odontoglossums, Vandas, and other Orchids. Other subjects not shown in classes consisted of a large and beautiful collection of Chinese and Ghent Azaleas; Rhododendrons, including Countess of Haddington and Dalhousianum; Roses, Deutzias, and other interesting plants, contributed by Messrs. Lane: a very pretty mixed collection of Tulips, Lily of the Valley, and Spiræa japonica from Mr. Bartlett; British Ferns from Mr. James; Mrs. Dix and Miss Watson Tricolor zoned Pelargoniums from Mr. Watson; and many fine varieties of the same class of Pelargoniums from Messrs. E. G. Henderson, who also had the beautiful Silver-leaved Meadow Grass and the pretty Aucuba-leaved Daisy. Mr. Tanton, Epsom, exhibited a remarkably fine plant of Cyperus alternifolius variegatus; Mr. Wiggins, a pretty collection of Cyclamens in 60-sized pots; and from Mr. Earley, Digswell, came a box of cut flowers containing Gardenias, Roses, Cinerarias, Persian Lilacs, both the white and ordinary kind; Acacias. Begonias, Clianthus, &c., together with flowers of "Trichosanthes cucumerina," concerning the proper name of which some remarks have already appeared in our columns.

Among subjects which came more immediately under the notice of the Floral Committee were Coleus Veitchii, a species from New Caledonia, with handsome leaves, chocolate-coloured in the centre, and edged with bright lively green; Hypocyrta brevicalyx, a stove plant from Ecuador, with singular-looking globular orange blossoms hairy on the surface, and ovate leaves, veined with white; Panicum variegatum, a South Sea Island plant, forming a dense mass of slender branches furnished with pretty red, white, and green-striped lanceolate foliage. These came from Messrs. Veitch and were awarded Certificates. From the same firm also came six finely-flowered plants of the useful Hoteia (Spiræa) japonica, the charming purple-blossomed Primula cortusoides amœna, a Japan variety stated to have proved hardy in this country; Dieffenbachia Pearcei, with dark green leaves mottled with pale green, to which a Certificate was awarded; the red-veined Gymnostachyum Pearcei; a promising Nepenthes, with small green pitchers; the large variety of Franciscea calycina, and the handsome Sphærogyne peruviana. Mr. Pilcher received a Second-class Certificate for the Alpine Auricula named Emma, alluded to in another column. Mr. Bull received Certificates for Athyrium Filix-fœmina pulchrum, A. Goringianum pictum, Lastrea Filix-mas Barnesii, and the bright rosy-crimson Camellia Lavinia Maggi rosea. He also showed Symphytum tuberosum variegatum superbum, with rather pretty greyish-green leaves bordered with yellow. Mr. Fairbairn's Cineraria Beatrice, shown by Messrs. Dobson, received a Second-class Certificate, and a First-class Certificate was awarded to Mr. Wm. Paul for a yellowish-leaved Alder named Alnus aurea. The same exhibitor also received similar awards for the new double-flowered Crimson Thorn, a brilliant variety, to which too much attention can scarcely be directed; and for Aucuba japonica ovata, a handsome sort, with ample glossy deep-green leaves. From among a batch of fine-foliaged Pelargoniums shown by Mr. Paul, Jason, a golden-leaved sort, was selected, and was awarded a First-class Certificate. Mr. Perkins' Tricolor-zoned Pelargonium Queen Victoria was also reproduced in admirable condition.

In the department entrusted to the Fruit Committee, Mr. Lydiard, Batheaston, sent a good dish of Alice Maude Strawberry, Lydiard's Improved, Rifleman, and Hedsor Winter Prolific Cucumbers, and a dish of a white seedling Potato. From Mr. Melville, gr. to the Earl of Roseberry, Dalmeny Park, came Melville's Imperial Early Cauliflower Broccoli.

Seven new Fellows were elected, and the St. Mary's Church Cottage Garden Society, and the Spalding Floral and Fruit Society were affiliated.

Entomological: *March* 4.—Mr. F. Smith, V.P., in the chair. The Secretary exhibited a collection of Coleoptera and Lepidoptera from Madagascar, presented to the Society by M. Fr. Pollen, of Leyden. Mr. F. Bond exhibited specimens of a small Ichneumon, of which not fewer than 447 had emerged, in the larva state, almost simultaneously from the body of a single caterpillar of Dasypolia Templi. Mr. A. R. Wallace requested information from members of the Society as to the colours of those species of caterpillars which were distasteful to birds; believing that those larvæ which were brilliantly coloured were not acceptable to the feathered tribes, and that rich colours, which according to the views of Mr. Darwin, were as a rule in Nature due to sexual selection, were here employed as a means of defence, by affording a distinction which might supply to the distasteful larvæ that protection which to other caterpillars was afforded by mimicry or other causes. The following memoirs were read:—1. On the Habits of a Species of Phasma found in Jamaica, by Mr. C. B. King; 2. Notes on the Genus Raphidia, by Dr. Hagen; 3. Description of Damaster auricollis; and 4. Notes on Dipelicus Hopei, a genus of Dynastideous Lamellicorn Coleoptera, by C. O. Waterhouse.

March 18.—Prof. Westwood, V.P., in the chair. It was announced by the Chairman that the Council of the Society contemplated the publication of a general catalogue of British insects, but as comparatively little attention had been hitherto paid by collectors to the British Diptera, there would be much

difficulty in compiling the portion of the Catalogue comprising that order. Entomologists were therefore requested to collect Dipterous insects during the ensuing season, noting the place and time of capture of each individual, so as to assist the Council in the preparation of such a Catalogue. The first part of a new French periodical entitled "Insectologie agricole," was placed on the table. Mr. F. Smith read Descriptions of new species of ants, belonging to the Cryptocerides, from Australia, Borneo, Brazil, and Mexico (bringing up the number of species of that family to 68). The Secretary also read portions of a paper by Captain Hutton, "on Species and Varieties," in opposition to Mr. Darwin.

Notices of Books.

IN this place we can do no more than allude to the issue of a new edition of Gwilt's valuable and comprehensive *Encyclopædia of Architecture* (Longmans), under the superintendence of Mr. Wyatt Papworth. A large number of beautifully executed woodcuts has been added to the 1100 that existed in previous editions, so that the work is a veritable storehouse of architectural lore.

We have on our table the two first numbers of a weekly periodical called the *Laboratory*, and which aims at supplying a want in our scientific literature. As may be inferred from its title, the present journal is devoted specially to chemistry and physics, and if the promise of these earlier numbers be fulfilled in the subsequent ones, there can be no doubt that they will be very welcome to all students of experimental science.

We have nothing but commendation to bestow on Mr. Blanchard Jerrold's *Paris for the English* (Bradbury & Evans). Low in price, and easily portable, it nevertheless contains abundance of information of the kind required by nine-tenths of the visitors to Paris.

CATALOGUES RECEIVED.—The following are now before us:—*William Paul's* (Waltham Cross) *Spring Catalogue for* 1867 also *Rose Catalogue*; *John Salter's* (Hammersmith) *Descriptive Catalogue of English and Foreign Novelties*; *Charles Turner's* (Slough) *General Spring Catalogue for* 1867; *F. & A. Smith's* (Dulwich) *Catalogue of New and Choice Plants*; *H. Lane & Son's* (Gt. Berkhamsted) *Descriptive Catalogue of Trees and Shrubs*; *John Morse's* (Dursley) *Catalogue of Cuttings*; *Adam Forsyth's* (Stoke Newington) *Descriptive Catalogue of Chrysanthemums, &c.*; *George Rawlings'* (Romford) *Catalogue of Dahlias*; *J. Linden's* (Brussels) *Supplément et Extrait du Catalogue des Plantes Exotiques Nouvelles et rares*; *Groenewegen & Co.'s* (Amsterdam) *Extrait et Supplément au Catalogue des Plantes Nouvelles, &c.*; *Thomas Lang & Co.'s* (Ballarat) *List of Flowering Bulbs and Tubers*; *John A. Bruce & Co.'s* (Hamilton, U. Canada) *Descriptive Catalogue*; *H. Jamain's* (Paris) *Extrait du Catalogue Général: Rosiers Nouveaux*; *J. Verschaffelt's* (Gand) *Catalogue des Plantes*; *Metz & Co.'s* (Berlin) *Preis-Verzeichniss*; *F. Juhlke's* (Erfurt) *Preis-Verzeichniss*; *C. G. Mohring's* (Arnstadt) *Preis-Courant*; *J. J. Gottholdt & Co.'s* (Arnstadt) *Preis-Courant*. We have also received from *Messrs. Sanders, Frewer, & Co.*, their illustrated prospectus of Beard's Patent Metallic Houses.

Florists' Flowers.

AT the second Spring Show of the Royal Horticultural Society, held on Tuesday last at South Kensington, there was a display of AURICULAS, PANSIES, and POLYANTHUSES, that deserve something more than a mere passing notice. Mr. James, gr. to W. F. Watson, Esq., of Isleworth, exhibited a collection of eight Pansies in pots, which as regards character and finish forcibly reminded one of the triumphs in these respects of 15 or 20 years ago. His plants were remarkably fine, and the flowers were all that could be desired, the colours well defined, and the lacing almost perfect, in spite of so much sunless weather. The sorts were Rev. J. Dix, Rev. H. H. Dombrain, and Black Douglas, dark selfs; J. B. Downie (very fine), and Miss Hill, yellow grounds; Princess of Wales (a very fine and bold white ground flower, dense blotch, margin well defined and evenly laced), and Cupid, white grounds. A stand of 24 cut blooms, including duplicates, from the same, comprised Reine Blanche, white self; Cherub, yellow self; Rev. H. H. Dombrain, Masterpiece, Noir, a rich glossy self; Ladyburn Beauty, very fine; Dux, a really finished self flower, outline perfect, and very smooth; and Jessie, dark selfs; Miss Hill, General Lee, A. Wharmond, Concord, a very finely formed, smooth, and striking flower; Geo. Wilson, Norma, W. Allstree, and a promising seedling, yellow grounds; and Cupid, Miss C. Cochrane, and Attraction, white grounds. Mr. Hooper, of Bath, also exhibited cut blooms, but they were inferior to the foregoing.

A collection of 6 Polyanthuses from Mr. Wiggins, gr. to W. Beck, Esq., of Isleworth, was very well grown, the flowers varied, clean, and evenly marked. The best were Unique, Model, Elegans, and Dark Beauty—all fine, the rich gold lacing contrasting nicely with the dark ground colour. The others were Butterfly and Little Pet. Mr. Turner had fine plants, but of indifferent quality; in fact, Mr. Turner was "out of form" on this occasion. A group of 19 plants, shown also by Mr. Wiggins, deserved the highest commendation.

The quality of the stage Auriculas was quite indifferent. Mr. Turner's 12 were made up of R. Headley (Lightbody), Mary Ann (Fletcher), and Miss Gidding (Read), grey edged; Fair Maid (Lightbody), Pillar of Beauty (Hughes), and Crucifix (Clegg), white edged; Princess of Wales (Ashton), Lady Richardson (Gairn), and Unique (Dickson), green edged; and Eliza (Sim), Meteor Flag (Lightbody), and Stadtholder (Gorton), selfs; the first dark ground, the second having a pleasing shade of purple, and the last yellow. Mr. James's eight plants were Lycurgus and Lovely Ann, green edged; Ann Smith and Ne Plus Ultra, white edged; Union, and True Briton, grey edged; and Mrs. Smith, and Eliza, selfs.

Quite a large group of Seeding Alpine Auriculas came from Mr. Turner, but in place of the rich shaded chocolate ground colour, the majority of these had dark ground colours like the foregoing self Auriculas. Generally they were very attractive indeed, but in most cases they lacked that nice harmony of tube, paste, and ground colour which the florist requires as a *sine qua non* of excellence. Grouping them into something like shades of ground colour the darkest hues were represented by Brutus, a somewhat bold and striking flower, with purplish-violet ground colour, but the area of the paste too small; Nero, glossy maroon-crimson ground, with bright sulphur paste, too much reflexed, but a bold and showy flower; Mabel, dark glossy velvet edge, smooth sulphur paste, pip large, bold, and striking; and Potentate, bright maroon-crimson ground, yellow paste too circumscribed, large and striking pip. The next shade may be classed as crimson, having more brightness in the ground colour than the preceding: as Sparkler, glossy claret-crimson, yellow paste, bright and striking; Frederika, dull maroon-crimson ground, with bright yellow paste, bold and showy; and Alfred Mellon, dark brown chocolate ground colour, with bright yellow paste, pip large. Another group had violet, lilac, and claret grounds, and comprised, popularly speaking, some of the most striking flowers, as Elsie, dark ground, margined with lilac, sulphur paste, wanting smoothness; Conspicua, something like Elsie, but not so smooth, though showy; and Pauline, one of the very best, pale sulphur paste, circled by a velvety ring, and margined with violet, very pretty indeed. Lord Lee (Berry) represented a striking magenta-crimson ground colour, with white paste, and very novel. With the exception of the last named, all were Mr. Turner's own seedlings.

A Second-class Certificate was awarded to Alpine Auricula Emma, from Mr. T. W. Pilcher, of Plaistow. The ground colour of this is rosy-crimson, suffused with purple, deep sulphur paste a little thin, smooth, and good pip.

Another year's growth will probably do much to improve the quality of all these new varieties. *Quo.*

The Apiary.

BEE CULTURE: HIVES.—Circumstances over which I had no control, have prevented the fulfilment of the promise given at p. 269, of a detailed description of the FRAME HIVE, which has been so largely adopted by me.

The stock box, Fig. 1, is 14¼ inches wide between the two sides, by 14⅝ inches from front to back, and 10 inches deep, *inside* measure. The two sides, A, are 21 inches long by 10 inches deep, and 1 inch thick, dovetailed with the back piece. At A, on the inside, grooves ⅜-inch deep are cut to receive the ends of the front piece D, which is 15 inches long by 9⅜ inches deep, which, when fitted, will give the required distance apart of the two sides, viz., 14¼ inches; also leaving an open space at the bottom of ⅜-inch wide, running the entire length of the front, for the entrance.

At the upper part of the two sides, projecting beyond the front, pieces 2 inches deep are cut away. On these is fixed a piece of wood, C, 18¼ inches long by 5½ inches wide; bevelled away from an inch thick next the hive, to ⅜-inch at the front, near the outside of which, on the upper surface, a shallow groove is cut to prevent the

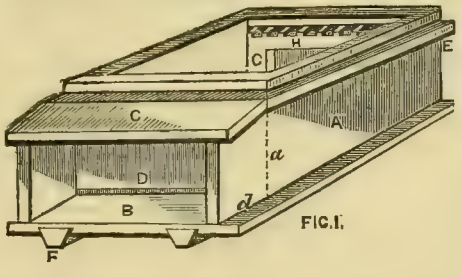
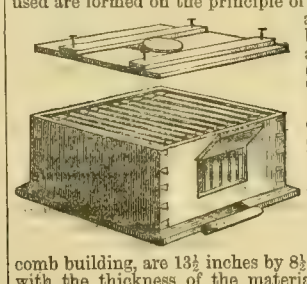


FIG. 1.

dripping of water. This porch forms an admirable protection to the bees, particularly in wet or windy weather.

The hive is intended to contain 10 frames. A rabbet ⅜-inch deep as well as wide, is cut at H, the entire length of the inside of the back and front; below this again are cut out the notches, ⅞-inch wide by ⅜-inch deep, intended to receive the ends of the upper bars of the frames. This allows of a space of ⅜-inch between the upper surfaces of the bars and the cover. The frames used are formed on the principle of the compound bar and frames invented by Mr. Woodbury, already described (see annexed figure.) There is a space of ¼ inch between each frame or from either side of the box, being exactly 1⅜ inch from centre to centre of each bar. The interior dimensions of each frame available for comb building, are 13½ inches by 8½ inches deep, which, with the thickness of the material, leaves a space of ⅜ inch at the sides, top, and bottom, for the passage of the bees.



A rim of wood, 1 inch square, is fixed at E, joined to, and flush with, the porch cover C. This forms a convenient rest for the roof or for the upper outside case for the protection of the supers.

A window, 4½ inches wide by 9 inches long, is cut out at G, the glass being fixed almost flush with the inside. The window, when not in use, is protected with a close-fitting shutter of wood, let into the thickness of the outside space.

The floor-board B is 23 inches long by 17¾ inches wide, and is made of two pieces of plank, 1 inch thick, ploughed and tongued together. It is further strengthened by two stout bevelled clamps, F, driven into grooves, cut out of a dovetail shape. One screw only, close to either side of the junction of the two halves of the board, is to be driven in. This plan allows of a certain amount of play to and fro for shrinkage and expansion, and prevents warping or splitting of the wood. Of course the direction of the grain will be from side to side of the box. This insures the width of the entrance way being always parallel. I usually screw my floor-boards to their hives, and find the plan very convenient. To do this properly, to obviate the evils of shrinkage or expansion, requires some little management. A screw on each side is run in at D, through the thickness of the floor-board only. At the very back, screws are run through both clamp and board, but room for play in the latter is afforded by cutting out a small mortise in the upper board, the screw holding tight only in the clamps, and the upright end of the box. It is evident that the board will be able to play to and fro in as much space as the mortises will permit, otherwise it would be impossible to prevent the joints of the box being started. In addition to the strength afforded by the dovetailed joints, further stiffness is secured by driving in pins of iron wire at the corners. Narrow gimblet holes about 5 inches deep are bored at each corner, so as if possible to make them meet in the centre. Pins of wire of about the same length are driven tightly in, any projecting ends being cut off. The front, D, must be secured to the sides A by nails or screws driven in at the dotted line A. The alighting place is formed by the projecting part of the board B under the porch; but an additional pitching place is recommended by Mr. Langstroth, formed of calico stretched across a light frame attached to the hive-stand. As this soon becomes very dirty, I have sometimes substituted a sloping piece of wood; but I do not think that any addition to the space covered by the porch is actually required.

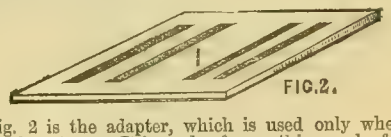

FIG. 2.

Fig. 2 is the adapter, which is used only when a super is put on. It is made of very thin wood, of the exact outer dimensions of the box, that is 16½ in. by 16 in. The communication is formed by means of narrow slits ⅜-inch wide by 10 inches long; the two outer ones being cut so as to be flush with the two inner sides of the box, the next being just the span of a bar distant.

When supers are not in use the adapter is to be taken away, and the top or cover J., Fig. 3, is substituted. This is made of 1-inch or 1¼-inch stuff, and of the same dimensions as the adapter, clamped on the same plan as the floor-board previously described; mortises also being cut out in the board where the screw holes pass through, to allow of proper play. A single screw near the centre of each clamp or cross-piece will keep them in place if they are properly dovetailed in. A 2-inch circular hole must be cut in the centre of the board for feeding, &c. When the top boards or covers are made sufficiently solid and true to fit closely, I usually dispense with the use of any screws for fastening them down to the box, as I find thereby a great saving of time and trouble is effected when manipulating. I find a leaden weight on the centre very useful.



FIG 3.

I must defer till next week a description of the remaining accessories of this hive. *S. Bevan Fox.*

SWARMING: *G.* There is no certain method of preventing swarming in your hives; all you can do is to afford the bees ample super accommodation, and if, in spite of your efforts, the bees will swarm at once, cut out all the royal cells to be found in the stock, and return the emigrants. For the proper time for supering, see the reply given to a correspondent last week. If the weather should still continue so unfavourable, it would be well to give your bees, once or twice a-week, a very small quantity of food in addition to what you have already given.

Miscellaneous.

Hereford Cider.—Cider is generally made by means of a stone mill, varying in size, according to the amount of work to be done, from 8 to 18 feet in diameter; round it is a deep chase or groove, wherein a ponderous stone roller, frequently weighing as much as 10 to 12 cwt., is made to revolve by a horse pushing or drawing, as the case may be. As good cider cannot be made unless every kernel is broken and the rind completely reduced to a pulp, this process is very tedious, inasmuch as the essential oils contained in the kernels, which give flavour to the cider, cannot be extracted unless they are broken. Hence much prejudice prevails against the use of any mills that will not effect this desideratum, but the absolute necessity of a more expeditious system has led to the introduction

of a new kind of mill, similar in construction to the Devon mill. The fruit falls from a hopper upon a wooden roller fitted with iron or steel teeth, revolving between other teeth in a fixed plate in front; thus reduced, it passes between two stone rollers set close enough to break the kernels, when it is received in a wooden trough, and many contend that by passing the must through it a second time they can make better cider than they could with that formerly used. It is, however, highly desirable that the must should remain in tubs or vats for some hours, before the liquor is extracted; this is effected by forcing the liquor through a series of hair cloths by means of a powerful screw press, and the liquor being put into casks a speedy and healthy vinous fermentation is promoted. This, however, sometimes does not readily take place, and in such cases the addition of a little of the ferment from another vessel has been found beneficial. As soon as this fermentation ceases, the liquor should be racked, and its quality will greatly depend on the adoption of means to prevent a second fermentation. This is usually effected by racking the liquor into a clean cask, and by repeated rackings to cool and fine it, but it has been found that different anti-ferments are sometimes used with good effect, one of the least expensive and most effectual perhaps being powdered charcoal, in the proportion of a pound to a hundred gallons. This is applied in different ways, viz., put in the cask when the cider is racked and well stirred; or the cider is placed in a tub with a false bottom punctured with holes, and the charcoal being stirred into the cider, in a few hours the liquor is drawn off. Another, and perhaps the most effectual, method is to put the cider into a large tub or vat having holes in the bottom from which a series of bags are suspended, with another tub underneath to catch the liquor, which is returned until it runs perfectly fine; it is then put into the cask and bunged down, the one end of a tin syphon pipe being inserted either through the cask or bung, and the other end resting in a small pan or basin of water, so that any gas generated may escape from the cask, but no air pass into it. This simple arrangement prevents accident from the bursting of casks, which in the absence of proper care will frequently occur. *Duckham on the Farming of Herefordshire.*

Damp Walls.—A writer in the *Builder* says:—I have just effected a complete cure from damp exuding from a brick wall, upon which no plaster, much less paper, would adhere, on account of its having been several times saturated with sea water. I have done so by using "Italian plaster," the cost of which is but little more than that of Portland cement, and the wall may be papered upon 48 hours after the plaster is used, without any risk of damp or discoloration.

Garden Operations.

(*For the ensuing week.*)

PLANT HOUSES.

Indian Azaleas having undergone the process of early forcing, and which have now done flowering, should have all the old seed-vessels taken carefully off, so as not to injure the points of the weaker shoots, and should receive, where needed, shifts into larger pots. Generally speaking, small shifts at a time are the most successful. The only soil adapted to their requirements is a good wholesome fibrous peat. This should be well chopped, or beaten up together with the side of a spade, removing in the process any stones, as well as bits of decayed roots or other matter likely eventually to breed Fungus. When it has been broken up finely, by manipulating the lesser more tenacious portions with the hands, add to every three parts of peat one of clean silver sand, and add more sand in proportion to the qualities of the peat used, as inferior sorts will always need the most. The pots intended for use, if old, should be well scrubbed, and then dried before the plants are put into them; new ones needing to be dipped into clean water just previously to their being wanted. Crock them well and evenly, so as to insure most perfect drainage, without which the plants cannot thrive, and then a layer of the coarser particles collected from the heap should be placed evenly over the crocks, adding a layer of fresh soil, which should be rammed down evenly and firmly. Place the ball of the plant to be potted, after having first removed all the looser portions of the old soil therefrom, upon the fresh soil, fixing it firmly in the centre of the pot, and adding fresh soil in successive layers, and in such quantities only as to insure an amount of compression by properly ramming it down, as will cause it to equal in solidity that already contained in the old ball, without which, independently of any other causes, the plant cannot succeed, as at any subsequent period, when through any slight inadvertence the ball might be allowed to become too dry, the water given to it at that time will certainly find its way through the more open soil in the faulty compressed places, leaving all other parts perfectly dry. Finish the surface off evenly, giving the ball when finished a thoroughly good soaking throughout, to ensure which two or more applications may be necessary. This operation completed, the plants should be placed in a nice warm house, the temperature of which approaches as nearly as may be convenient to an average of 60° by night, and 70° upon fine days, with occasional sprinklings of tepid water, and maintaining a corresponding humidity. Shade at all times when the sun shines freely between 10 A.M. and 3 P.M. These remarks apply also to young plants intended for future specimens. In *Orchid Houses*, continue gradually to increase the temperature as the days lengthen, and the solar rays become more intense. Most Orchids will now grow rapidly according as the treatment they are subject to is congenial to their requirements severally, or not. Scrutinise thoroughly all open sided Orchid pots, in order to ascertain whether any are not too dry in any parts, through the ready way in which all surface-given water is drained away by these outlets, and also through extreme evaporation, consequent upon such an arrangement. Syringe freely, and especially dash the water against all such pots as those just mentioned, dipping bodily in water those which are too dry. Surcharge the atmosphere with a genial humidity to be imbibed by the retentive warmth of the house from cool surfaces, as opposed to a forced vapour from heated surfaces. *Cattleyas*, *Dendrobiums*, *&c.*, though requiring little heat at other seasons, will now, when they are growing, repay to the utmost, such care as the above remarks suggest. Shade them effectually upon all necessary occasions. The beautiful Gloriosa (Clinostylis) should be taken carefully out of the old soil and repotted into equal parts of good fibrous loam, peat, and thoroughly rotted spit manure. The tropical varieties often need much heat to start them; plunge them therefore into a Cucumber frame, or place them in any position where a strong moist heat exists, watering them freely when started. Even the more hardy G. nepalensis does best thus started in warmth, and afterwards turned out in a warm sunny situation. Enlarge plantations of hardy perennial *Gentianas* by division of the roots where such is needed. These thrive well in a soft tenacious loam, with quantities of soft floury yellow sand intermixed.

FORCING HOUSES.

Keep *Pines*, about finishing to swell fruit, closer than other free-growing succession plants, which should now have the air admitted pretty freely. Gradually raise the temperature, after shutting up especially, to an average of 90°, not to exceed upon any occasion a maximum of 95° by day, with a mean night temperature of 72°. Water freshly potted succession stuff with care. This will be the more essential if the syringe be used freely, as the leaves transmit much moisture to the base of the plant. Any *Vines* which are intended for a very late crop, and which are therefore to be retarded as much as possible, should be kept shaded and as cool as practicable by throwing some wetted straw over the border, and by other means of a similar kind. Cease syringing ripening Grapes, and keep the atmosphere much drier than hitherto, admitting air pretty freely both by night and day upon all favourable occasions.

Pot off *Balsams* which are pushing rough leaves. They require placing deeply in 60-sized pots, and at this stage like a rich fibrous loam with a good supply of leaf-mould and silver sand. Pot only moderately firm, and place them as near the glass as possible, in a high moist temperature. This, by keeping them from being drawn, will materially enhance their future robustness. *Italian Tuberoses* will also need potting. Place them singly into 48-sized pots, in a stiff, tenacious, yellow loam, placing first a layer of leaf-mould over the crock in the bottom of the pot. When finished, place them along the back of a Melon or Cucumber frame in full sunshine, giving no water for a week, and then very little, until they have fairly started. Sow seeds of *Perilla nankinensis*, *Zea japonica variegata*, *Helichrysums* (which are useful for dried winter bouquets), *Dianthus*, *Lupinus*, *Asters*, *Stocks*, &c., where it is possible to give them all proper attention when well started into growth, otherwise defer sowing them for a week, or even a fortnight later, as no greater mistake can possibly be committed than sowing such for the sake of custom on a certain date. Sow them not too thickly, and keep them properly protected when necessary; about the third week in May they may be dibbled out into the open ground without any further trouble; all such will germinate freely in a warmth averaging upon temperate. The Perilla will not do so indeed, in a warmth much higher than that.

It will now be safe for the amateur who possesses a one or two-light frame, and who wishes to grow *Cucumbers* or *Melons*, with restricted time or means at disposal, to sweeten the necessary fermenting material, as has been previously explained, except that half the quantity only will now be necessary, compared with what was wanted a month or two ago. Convert the fermenting material into a bed, from 2 to 3 feet high, as soon as convenient. Should there be no other means of getting the necessary plants, sow some seeds forthwith of Cucumbers (Telegraph is one of the best), and among Melons take Green Gage or Marquis of Ailsa (green-fleshed varieties), and Turner's Scarlet Gem. As soon as sown, the seed should now be watered, potting off the plants singly into small pots, so soon as they show the third, or first rough leaf, to be turned out upon mounds, as previously advised, as they advance in growth.

HARDY FLOWER GARDEN AND SHRUBBERIES.

Finish forking and pointing over Rhododendron beds, and shrubberies generally, as soon as convenient. This can the more readily be done now, as herbaceous and tuberous-rooted plants generally, in such positions, will have pushed through the ground. Clean away all weeds, &c., from around beds or edgings of *Daphne Cneorum*, and others, after which it will greatly assist them in the emission of fresh roots upon the younger growths of last year if a little peat soil and leaf-mould, sifted moderately fine, be placed around them, pegging any lengthy branches down into such where necessary. These remarks are equally applicable to *Cotoneaster microphylla* in places where it is used for a similar purpose. Edge the walks all around neatly in places where they are bordered by Grass; by proper attention to this much labour in clipping them might be avoided. Do not mow the Grass too constantly for a month or so upon hill sides or other exposed positions, where the sun habitually scorches it; by letting it grow pretty freely at this time stronger roots are induced to push down into the cooler subsoil, aiding it much in its efforts to withstand intense sunshine. Sow in the open ground the main crop of *Sweet Peas;* the Scarlet Invincible is a comparatively new variety of considerable merit, and should be mixed in due proportions with the general stock. These will grow away from slugs and other insects pretty freely at this date, if sown moderately thick.

KITCHEN GARDEN.

Where a constant supply of *Peas* will be needed throughout the summer, sow a succession of those sorts previously sown so soon as these show through the ground. Treat *Broad Beans* in a similar manner. Remove all fermenting materials from out-door plantations of *Seakale* immediately the crop is cut, in order to aid them in making a good growth for the ensuing season, by thus quickly allowing the air and superficial rains to penetrate freely down to the roots. *W. E.*

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the Week ending April 17, 1867, as observed at the Horticultural Gardens

April.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Min.	Mean	Of the Earth 1 foot deep.	2 feet deep.	Wind	Rain.
Thurs. 11	☽	29.967	29.516	57	26	41.5	49	46	N.W.	.00
Friday 12	8	30.158	30.066	58	38	48.0	49	46	S.W	.03
Satur. 13	9	30.057	29.799	55	46	50.5	49	47	S.W.	.09
Sunday 14	10	29.607	29.295	49	41	45.0	50	46	S W.	.30
Mon. 15	11	29.695	29.415	62	40	51.0	50	47	W.	.04
Tues. 16	12	29.722	29.608	56	41	48 5	50	47	S.W.	.06
Wed. 17	13	29.901	29.742	62	37	49 5	50	47	N.W.	.01
Average		29 872	29.163	57.0	38.4	49 0	49.5	47.7		0.53

April 11—Boisterous and stormy; very boisterous, with dense dusky clouds; fine at night.
— 12—Clear and very fine throughout.
— 13—Rain and rather boisterous; densely overcast at night.
— 14—Boisterous, with rain; very wet and boisterous.
— 15—Boisterous, showery and boisterous, fine.
— 16—Rain; showery, drizzly; overcast at night.
— 17—Hazy and drizzly; exceedingly fine throughout.
Mean temperature of the week 2 1-5th deg. above the average.

STATE OF THE WEATHER AT CHISWICK,
During the last 41 years, for the ensuing Week, ending April 27, 1867.

April.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain	Prevailing Winds. N.	N.E.	E	S.E	S.	S.W.	W.	N.W.
Sunday ..21	59 5	37.0	48 3	14	0 28 in.	4	7	7	3	2	6	8	4
Mon. ..22	59.0	37 0	48.0	20	0.32	5	10	6	3	1	5	8	3
Tues. ..23	59.0	36 4	47.7	20	0 53	2	9	7	1	4	6	5	7
Wed. ..24	58 7	33.6	47.1	15	0 60	5	7	7	5	2	8	4	3
Thurs. ..25	59.5	36 9	48.4	16	1 40	5	9	6	3	7	5	3	3
Friday ..26	60 5	36 1	48.3	17	0.53	4	9	4	3	1	10	3	7
Satur. ..27	59 2	36 0	47.6	17	0 74	11	3	8	2	0	5	5	1

The highest temperature during the above period occurred on the 27th, 1865—therm. 82 deg.; and the lowest on the 24th, 1854—therm 18 deg.

Notices to Correspondents.

ACHIMENES: *Mary.* The weaker-growing sorts are best for baskets; the whole of the varieties of A. longiflora are suitable for that purpose; sorts belonging to the A. coccinea breed are also good—in short, all semi-prostrate kinds, or such as require most propping up in pots, are just those that do best in baskets.

APONOGETON DISTACHYON: *C E F.* This beautiful aquatic will succeed in open water in the South of England, and will survive if the roots are, during the winter season, sunk deep in the water. The seeds are very fleshy, and we are not aware that they can be purchased in the seed shops; but a plant induced to flower freely by giving it a slight warmth in a greenhouse will mature seed abundantly.

CUCUMBERS: *J P.* It is the old, old story. No one has ever been able to discover, as far as we have heard, the cause of the disease, much less any remedy. It appears to be something constitutional. *M J B.*

DAHLIAS: *J B T.* The following will suit you:—Bullion (Fellowes), James Backhouse (Godwin), Fair Imogene (Fellowes), Master of Arts (Turner), Ultimatum (Keynes), Freemason (Turner), Epaulette (Fellowes), Artemus Ward (Fellowes), Mrs. Savory (Church), Marquis of Winchester (Keynes), Lady of the Lake (Godwin), Lilac Perfection (Leggs), John Downie (Keynes), Gladiator (Church), Golden Admiration (Alexander), Freemason (Turner), Arthur (Fellowes), Annie Austin (Keynes), Lotty Atkins (Keynes), Ellen Potter (Keynes), Herbert (Turner), L'Africaine (Fellowes), Lady of the Lake, (Godwin), Miss Powell (Perry).

DIPLADENIAS: *E P.* The compost in which these are found to succeed best is as follows:—Two parts light turfy loam, two turfy peat, one cow-dung two or three years old, and one silver sand. To these add a sprinkling of broken sandstone, in pieces about the size of nuts, or larger, according to the size of the pots used. The most turfy portions only of the loam and peat should be employed.

NAMES OF PLANTS: *Mr Backhouse.* Sisyrinchium grandiflorum. —*A D.* 1, Narcissus major; 2, Narcissus Pseudo-narcissus; 3, Narcissus odorus; 4, Narcissus incomparabilis.—*Bochyn.* Eriostemon buxifolius.

VINES: *J B.* The leaves have evidently suffered either from radiation at night or heat by day, in consequence of their weak condition. The shoots you have sent indicate as much. Cannot you do something to make the Vines more vigorous? Are the roots in a good condition, or is the soil sour and sodden?—*T D.* The little excrescences on your Vine leaves are not the same with the warts which are so common, but much more delicate, so as to be almost gelatinous when moistened. They deface the leaves in some measure, but in all probability are not injurious. We have seen the same affection before, but not in perfectly fresh leaves, so that we have not been able to investigate it fully. The smaller dots are merely collections of the little crystals called by botanists raphides. *M J B.*

VINE BORDERS: *Sub.* See an article in to-day's paper (p. 404).

WARNER'S ORCHIDS: *Sold.* On inquiry we find the matter stands thus:—A second series was announced in the preface issued with the concluding part of the first series, and it was stated that a prospectus would be issued. Both in the prospectus, a copy of which is before us, and also in an advertisement published about the same period, the price now charged is announced. Therefore, we conclude that your assumed signature is fallacious. The reason for the charge, we are told, is not for profit, but because the former charge did not pay expenses, and Mr. Warner adds: "If any purchaser of the second series, who bought under a different impression, wishes to return the parts of the second series so purchased, he can do so by communicating with the author, and the money paid will be returned." Nothing can be fairer than this.

COMMUNICATIONS RECEIVED.—W. Miller.—J. A.—J. Fleming. —A. Fowler.—Quo.—D. M.—W. T.—J. B.—F. M.—J. B.— J. Standish.—J. Paget.—R. D. S.—S. Mathews.—Flore-pleno. —H. Doubleday.—D. T. F.—W. P. R.—D. Spiers.—A. Pettigrew.—Agricola.—W. Jackson.

LAWES' MANURES.—The Manures manufactured by J. B. LAWES for the present season of 1867 are now ready for delivery at his Factories, at the following prices, per ton:—

	£	s.	d.
LAWES' PATENT TURNIP MANURE and BONE SUPERPHOSPHATE of LIME..	6	6	0
LAWES' SUPERPHOSPHATE of LIME from BURNT BONE or MINERAL PHOSPHATES	5	5	0
LAWES' WHEAT, BARLEY, GRASS, and MANGEL MANURES	8	0	0
CONCENTRATED CORN and GRASS MANURES ..	12	0	0

These Manures can be obtained of Mr. LAWES, or through the appointed Agents in all parts of the United Kingdom, at prices varying according to cost of carriage.

Genuine Peruvian Guano direct from the Importers. Nitrate of Soda, Sulphate of Ammonia, and other Chemical Manures.

American and other Cakes at market prices.

Address, JOHN BENNET LAWES, 1, Adelaide Place, London Bridge, E.C.; 22, Eden Quay, Dublin; and Market Square, Shrewsbury.

THE LONDON MANURE COMPANY (ESTABLISHED 1840),

Have now ready for delivery in dry fine condition,
CORN MANURE, for Spring Use
DISSOLVED BONES, for Dressing Pasture Lands
SUPERPHOSPHATES of LIME
PREPARED GUANO
MANGEL and POTATO MANURES

Also Genuine PERUVIAN GUANO, and NITRATE of SODA, ex Dock Warehouse; SULPHATE of AMMONIA, FISHERY SALT, &c. E. PURSER, Secretary.

Offices, 116, Fenchurch Street, E.C.

ODAMS'S NITRO-PHOSPHATE for CORN.
ODAMS'S NITRO-PHOSPHATE for ROOTS.
ODAMS'S DISSOLVED BONES.
ODAMS'S SUPERPHOSPHATE of LIME.
ODAMS'S PREPARED PERUVIAN GUANO.

MANUFACTURED BY

THE PATENT NITRO-PHOSPHATE OR BLOOD MANURE COMPANY (Limited).

Chief Offices—109, Fenchurch Street, London.
Western Counties Branch—Queen Street, Exeter.
Irish Branch—40, Westmoreland Street, Dublin

DIRECTORS

Chairman—John Clayden, Littlebury, Essex.
Deputy-Chairman—John Collins, Argyll House, Holloway.
Edward Bolt, 48, Marine Parade, Brighton.
Richard Hunt, Stanstead Abbot, Herts.
Thomas Knight, Edmonton, Middlesex.
Robert Leeds, West Lexham, Norfolk.
George Saville, Ingthorpe, near Stamford.
Samuel Jonas, Chrishall Grange, Essex.
Charles Dorman, 23, Essex Street, Strand.
Thomas Webb, Hildersham, Cambridgeshire.
Jonas Webb, Melton Ross, Lincolnshire.

Managing Director—James Odams.
Bankers—Messrs. Barnetts, Hoares, & Co., Lombard Street.
Solicitors—Messrs. Kingsford & Dorman, 23, Essex Street, Strand.
Auditor—J. Carter Jones, Cambridge.

This Company was originally formed by, and is under the direction of agriculturists, circumstances that have justly earned for it another title, viz.—"The Tenant Farmers' Manure Company."

Its members are cultivators of upwards of 50,000 acres of land which has been for years under management with Manures of their own manufacture. The consumer, therefore, has the best guarantee for the genuineness and efficacy of the Manures manufactured by this Company.

Particulars will be forwarded on application to the Secretary, or may be had of the Local Agents. C. T. MACADAM, Secretary.
Chief Offices—109, Fenchurch Street, London, E.C.

SUTTON'S PRIZE KOHL RABI.



LARGE PURPLE, 2s. 6d. per lb. Sow April and May, 3 to 4lb. per acre.

LARGE GREEN, 2s. 6d. per lb. Sow April and May, 3 to 4lb. per acre.

SUTTON'S LARGE KOHL RABI.
Price 2s. 6d. per lb.
Cheaper in large quantities.
PRICED LISTS of other FARM SEEDS gratis and post free.
SUTTON & SONS, Seed Growers, Reading.

THE ALSIKE CLOVER for CLOVER-SICK LANDS.—This excellent Clover will thrive in almost any soil. It produces two good cuttings in the year, and makes superior Clover hay. It may be sown alone (14 lbs. per acre), or in conjunction with other seeds, either for alternate husbandry or Permanent Pasture. If sown with Italian Rye-grass, it is ready for mowing three times in the year. It is included in all Messrs. SUTTON'S Mixtures, and they strongly recommend it to more general cultivation. Price may be had on application (depending on quantity required).
Royal Berkshire Seed Establishment, Reading.

Very Early Sheep Feed.

SUTTON'S IMPROVED ITALIAN RYE-GRASS.—This "Improved" Italian Rye-grass is recommended in preference to every other variety, producing three or four heavy crops in one summer, and being almost if not strictly perennial.

At a Meeting of the Royal Agricultural Society, on March 16, in a Lecture delivered by Alfred Hughes, Esq., late of Thorness, Isle of Wight, Mr. Hughes said:—

"I always reserve a portion of Oat land to lay down with SUTTON'S Improved Italian Rye-grass, the most reliable plant I have come across for some years for Ewes and Lambs in the Spring. When I tell you that I put it in in the spring, and dressed it after harvest with guano, and that in the autumn, when my Sheep fed it off, it was up to their knees, and that I fed it off again this spring with Ewes and Lambs, I think you will agree that this is a crop of very great value. The Italian Rye-grass which is sold by SUTTON, of Reading, is a most astonishing vigorous plant; indeed, I never saw anything to equal it in the course of all my experience."

SUTTON & SONS have a fine stock of their Improved Italian Rye-grass, which is a very different and superior article to much that is sold as Italian Rye-grass.

Present price 6s. 6d. per bushel, cheaper in quantities over 5 qrs. Carriage-free in quantities of 8 bushels and upwards.

Quantity required per acre, if sown alone, 3 bushels.
Royal Berkshire Seed Establishment, Reading.

SUTTON'S GRASS SEEDS
FOR ALL SOILS.
CARRIAGE FREE.



SUTTON'S MIXTURES of PERMANENT GRASSES and CLOVERS for Laying Down Land to Meadow or Pasture, 26s. to 36s. per acre, Carriage Free.

SUTTON'S MIXTURE of GRASSES and CLOVERS for Three or Four Years' Lay. Best Mixture, 21s. per acre, Carriage Free. Second quality cheaper

SUTTON'S MIXTURE of GRASSES and CLOVERS for Two Years' Lay. Best Mixture, 20s. per acre. Carriage Free. Second quality cheaper.

SUTTON'S MIXTURE of GRASSES and CLOVERS.
Best Mixture, 15s. per acre, Carriage Free.
Second quality cheaper.

SUTTON'S MIXTURE of RYE-GRASS and CLOVERS
12s. to 14s. per acre, Carriage Free.

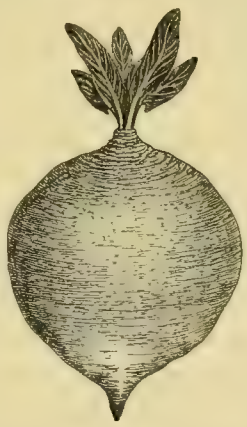
SUTTON'S RENOVATING MIXTURE for Improving Old Pastures, 10d. per lb.; cheaper by the cwt.

SUTTON'S FINE LAWN GRASS MIXTURE,
1s. 3d. per lb.; 24s. per bushel.

SUTTON'S
SUPERIOR FARM SEEDS,
CARRIAGE FREE.

SUTTON'S SELECTED

From Mr. ROBERT BOYS, *Eastbourne*.
March 7, 1866.—"The Selected Yellow Globe Mangel Wurzel Seed I had of you last year turned out the best I ever grew. I could get up 100 tons of that root while I was getting up 60 of the Old Yellow Globe."



From JOHN HITCHMAN, Esq., M.D., *Derby County Asylum, Middleton*.
"May 7, 1866.—Last year I had the satisfaction of winning the First Prize for Mangels at the Derbyshire Agricultural Show, with large smooth heavy roots, produced from your excellent seeds."

YELLOW GLOBE MANGEL,
1s. per lb., cheaper by the cwt. Lowest price per cwt. on application.

	Per lb.—s.	d.		Per lb.—s.	d.
Good YELLOW GLOBE ..	0	9	SUTTON'S ELVETHAM LONG RED	1	0
" ORANGE GLOBE ..	0	9	SUTTON'S MAMMOTH LONG YELLOW ..	1	6
" RED GLOBE ..	0	9	NEW YELLOW INTERMEDIATE	1	9
" LONG RED ..	0	9	Do. RED do.	1	6
" LONG YELLOW ..	0	9	SUTTON'S MAMMOTH LONG RED ..	1	6
SUTTON'S SELECTED ORANGE GLOBE ..	1	0	BERKSHIRE PRIZE, or SUFFOLK CHAMPION, New, in 8lb. bags ..	2	6
FISHER HOBBS' ORANGE GLOBE ..	1	0			
STRATTON'S RED GLOBE	1	3			

Cheaper by the cwt. Lowest price per cwt. on application.

For prices and full particulars of all other Farm Seeds, see
SUTTON'S NEW FARM SEED LIST,
Gratis and Post Free on application.
All Goods Carriage Free, except very small parcels.
Five per cent. discount allowed for Cash Payments.

SUTTON AND SONS,
ROYAL BERKSHIRE SEED ESTABLISHMENT,
READING.

GRASS SEEDS for PERMANENT PASTURE, of the finest quality, at moderate prices, carefully selected on a new, natural, and scientific system.

See "WHEELER'S BOOK on GRASSES," which contains Illustrations and Descriptions of the most suitable Grasses for Permanent Pasture.

J. C. WHEELER & SON,
Gloucester,
Seedsmen to the Gloucestershire Agricultural Society.

Improvement of Grass Lands,
at from 5s. to 10s. per acre.
SUTTON'S RENOVATING MIXTURE
SHOULD NOW BE SOWN,
6 to 12lb. per acre.
Price 10d. per lb. Cheaper by the cwt.
If these Seeds are sown early in the season, the improvement in the land will be very great, and at a small expense.
This Mixture should be bush-harrowed in and rolled afterwards.
SUTTON & SONS,
Royal Berkshire Seed Establishment,
Reading.

HORSE SHOW, AGRICULTURAL HALL, LONDON, MAY 25, 1867.
TO CARRIAGE MAKERS, SADDLERS, AND OTHERS.
SPACE TO LET in the ARCADE and GALLERIES for the EXHIBITION and SALE of the SAME CLASS of GOODS as are sold during the Smithfield Club week.
Horticultural and Agricultural Implement Makers, Seedsmen, Nursery Gardeners, and Manufacturers of Ornamental and useful articles for domestic purposes. Prizes for Saddles and Bridles.
Terms and Conditions may be obtained at the Offices of the Company, Barford Street, Islington, N.
By Order, S. SIDNEY, Secretary and Manager.

SOUTHERN COUNTIES ASSOCIATION.
President 1866-'67—HIS GRACE THE DUKE OF RICHMOND, K.G.
The ANNUAL EXHIBITION of HORSES, STOCK, POULTRY, IMPLEMENTS, WORKS of ART, &c., will be held at BRIGHTON, on the 24th, 25th, 26th, 27th, and 28th of JUNE NEXT.
SUMMARY OF PRIZES OFFERED:—
CATTLE.—Short-horns, £125; Sussex, £125; other Breeds, £50.
SHEEP.—Southdowns, £90; Hants Downs, £90; Oxford Downs, £90; Kent Sheep, £90.
HORSES.—Agricultural, £110; Hunters, £95; Hacks, £15; Ponies, PIGS.—Berkshire, £32; other Breeds, £32. [£10.
POULTRY.—Various, £93.
The PRIZE LIST may be obtained of the Secretary. ENTRIES CLOSE May 1. By order of the Council,
Yately, Farnborough. G. B. H. SHUTE, Secretary.

ROYAL AGRICULTURAL SOCIETY of ENGLAND.
BURY ST. EDMUND'S MEETING, 1867.
LAST DAY for ENTRY of IMPLEMENTS, 1st of May.
All Certificates received after that date will be returned to the senders. H. HALL DARE,
12, Hanover Square, London, W. Secretary.

ROYAL AGRICULTURAL SOCIETY of ENGLAND.
BURY ST. EDMUND'S MEETING, 1867.
STOCK, POULTRY and IMPLEMENT PRIZE SHEETS are now ready, and will be forwarded on application to
12, Hanover Square, London, W. H. HALL DARE, Sec.

The Agricultural Gazette.

SATURDAY, APRIL 20, 1867.

ONE of the most important sales of pure Short-horn stock of the last 20 years was that of Kirkleavington (May 9, 1850), where the herd of the late THOMAS BATES, formerly of Halton Castle and Ridley Hall, in Northumberland, and latterly of Kirkleavington, near Yarm, was dispersed. It fortunately had the advantage of a capital record and report at the hands of Mr. EWART, of Newcastle-on-Tyne, who was present at it, and gave, in the "Farmer's Magazine" of the following month, a characteristic analysis of the proceedings, which has served for the model upon which many subsequent reports for the guidance of Short-horn breeders have been founded.

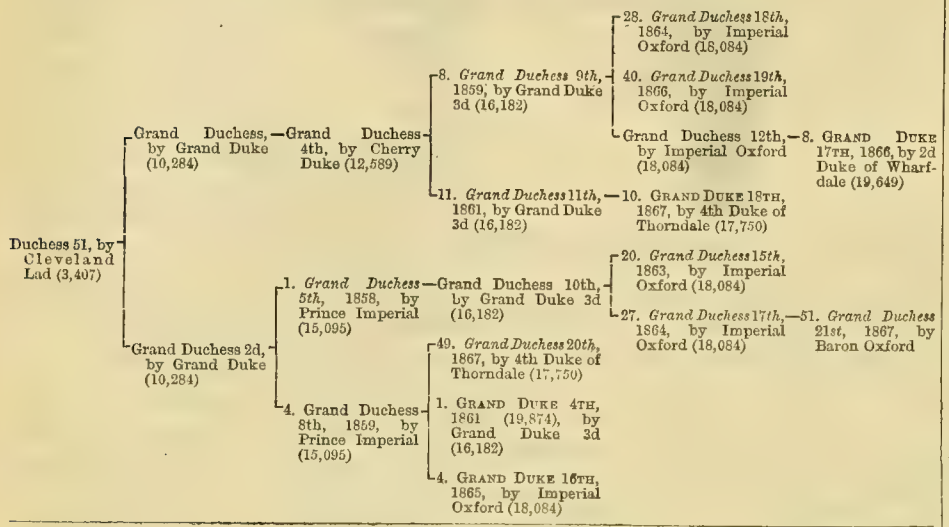
According to this report no fewer than six families were disposed of at the Kirkleavington sale—distinct in their origin on the female side, but latterly more or less related through the use of the same sires upon all alike. These families were the *Duchesses* descended from C. COLLING'S cow Young Duchess, bought by Mr. BATES at the Ketton sale in 1810, the *Oxford* and *Cambridge Rose* tribes, first distinguished by their successes when exhibited at the earliest meetings of the Royal Agricultural Society of England; and the *Waterloo*, *Wild Eyes*, and *Foggathorpe* families, which have since become distinguished in the hands of Mr. BOLDEN, Mr. JONAS WEBB, Mr. SANDAY, and others. Of these several tribes, many of which, since Mr. BATES' death, have achieved a far higher reputation, and commanded higher prices than any previously known in Short-horn history, there are many representatives to be sold at Preston Hall and Havering respectively during the two first days in May.

The *Grand Duchesses*, for example, are descended from *Duchess* 51, bought 17 years ago at Kirkleavington for 50*l.*, and she has been a most profitable investment to all who have since had to do with her descendants. From 50*l.* to 5000*l.*

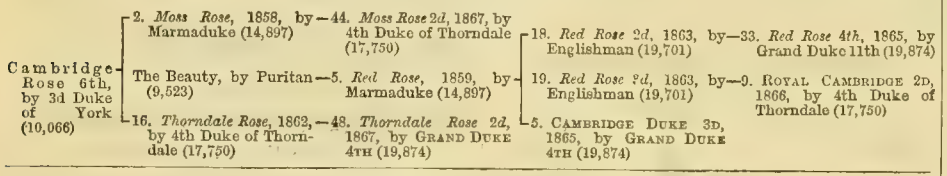
in about 10 years, omitting all reference to many large sums for her produce meanwhile, is an enormous stride—it was made by Mr. BOLDEN, who owned all her family until he parted with them for the above-named sum to Mr. HEGAN, of Liverpool. At his death a few years afterwards, the 5000*l.* had acquired a value exceeding 8000*l.*—not only a higher sum for the whole herd, but a larger average per head, for the 13 had increased but 4. And now 13 GRAND DUKES and *Duchesses* are to be sold on May Day at Preston Hall.

The following Table (in which the animals for sale are numbered, the cows and heifer calves being printed in *italics*, and the bulls in CAPITALS, the date of birth being given in every case, with the descent from *Duchess* 51, and the names of the Bulls employed), gives the whole relationship of this family in the Preston Hall herd.

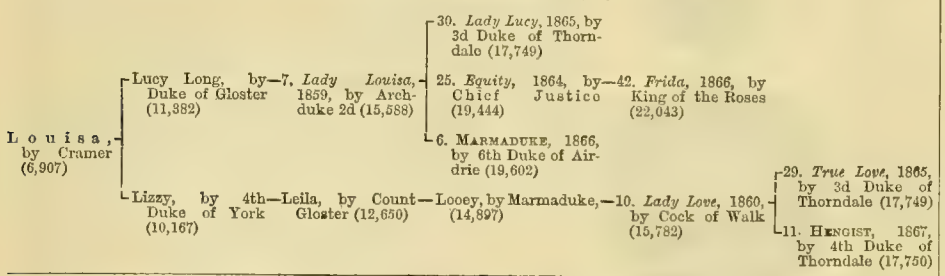
I.—THE GRAND DUCHESSES AND THEIR PRODUCE.



II.—THE CAMBRIDGE ROSE TRIBE.



III.—DESCENDANTS OF LOUISA.

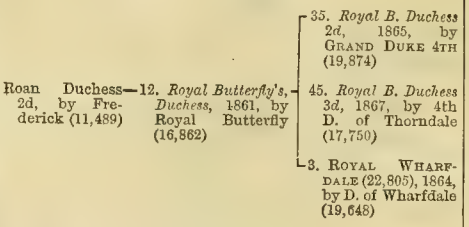


The *Cambridge Rose* tribe is another family of pure Kirkleavington descent, given in our second Table. There are no fewer than 10 descendants here of *Cambridge Rose 6th*, a cow bought at Kirkleavington by Mr. HARVEY COMBE. They have in his hands and in those of Mr. JONAS WEBB acquired the very foremost rank among the fashionable strains of Short-horn blood. At the Babraham sale a very high average price was obtained for the descendants of *Beauty*, a daughter of this Kirkleavington cow. Two of *Beauty's* sisters, both of whom have calves in the Catalogue for sale at Preston Hall, and no fewer than six of her direct descendants, are for sale on May-day. Of these two are bulls and eight are cows and heifers.

The next largest family in the Preston Hall herd (Table III.) includes eight members. They are descendants of *Louisa* by CRAMER, a cow bought by the late Mr. LANGSTON, of Sarsden, at the Tortworth sale, and there are two bulls and six cows and heifers from her here.

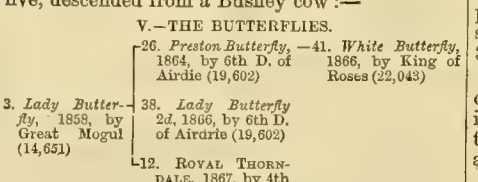
It will be seen that three of the number are *Lady Love* and her calves: she was bought at the Bushey sale in 1864 for 130 guineas. The others are *Lady Louisa* (bought at the Sarsden sale), and her four descendants. The other families are smaller in number. *Royal Butterfly Duchess*, bought for 500 guineas at the Towneley sale, has three descendants related in the following Table, which on the side of both sire and dam certainly represents the most aristocratic descent which any Short-horn breeder could desire.

IV.—ROYAL BUTTERFLIES.



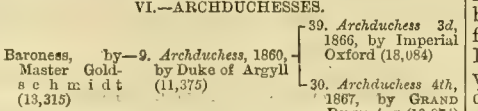
The *Butterflies* are another small family of five, descended from a Bushey cow:—

V.—THE BUTTERFLIES.



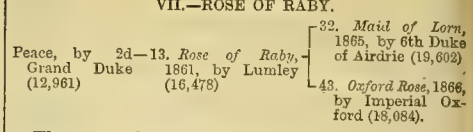
The *Archduchesses* are given in the following Table:—*Archduchess*, descended from the Chilton stock, and bought of Mr. SURTEES, of Durham, is a very fine old cow, and has two daughters here.

VI.—ARCHDUCHESSES.



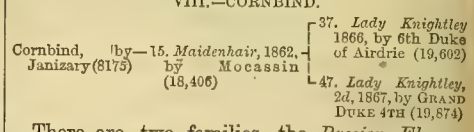
Another small family descended from the stock of Mr. SURTEES includes three members—*Rose of Raby*, and a yearling and two-year-old heifer from her. They are given in the following tables:—

VII.—ROSE OF RABY.



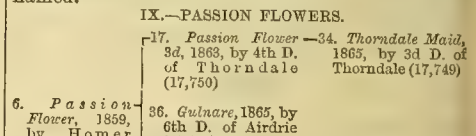
There are three descendants of Cornbind, one of Sir C. KNIGHTLEY's best cows.

VIII.—CORNBIND.

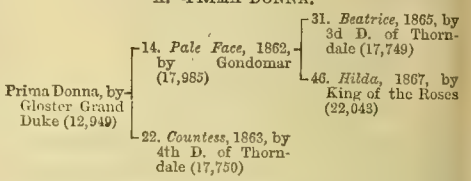


There are two families, the *Passion Flowers* and Prima Donnas, descended from the stock of Mr. GARNE, which are among the last to be named.

IX.—PASSION FLOWERS.



X.—PRIMA DONNA.



Besides these there are No. 21, *Beautiful Butterfly* (1863), (of the Barmpton Rose family), got by Royal Butterfly 10th (18,761). No. 23, *Nymphalin*, a Knightley cow, 1863, got by Bull's Run (19,368), and her son CONRAD, No. 7, by King of the Roses (20,043); and LORD OXFORD 2D, No. 2, one of the American bulls, by 4th Duke of Thorndale (17,750).

It must be remembered, too, that ever since this stock has been in Mr. BETTS' hands, the very best bulls which either England or the States could furnish have been employed. As Mr. STRAFFORD states in the announcement of the sale, it has been selected and bred with dauntless spirit and energy from the first sources in the country, for the sole purpose of forming a magnificent herd, and it now stands one of the finest in the kingdom. We cannot doubt that the dispersal of it will take rank with the foremost sales in the history of the Short-horn breed.

THE scarcity and consequent high price of good English Clover-seed from the growth of last year is tolerably well known. The continued rain of last autumn rendered it next to impossible to harvest the seed until the greater part of it was utterly spoiled. And, on the other hand, a great deal of foreign seed has been imported, which is on the whole brighter and more free from weeds than usual.

Under these circumstances Clover-seed, as offered at market, is exceedingly variable in price, so much so that at one market we had samples of Red Clover offered at prices between 32*s.* and 80*s.* per cwt.

Now this state of the market has excited the cupidity of dishonest dealers, and in consequence it becomes our duty to direct attention to one of the greatest frauds that has recently been attempted in the seed trade.

A short time since a sample of foreign Red Clover seed was sent for our inspection, with directions to report upon its purity, and the only question for our decision having been the presence or absence of weeds, we reported it to contain a little Plantain and other weeds, but to be cleaner than is usually the case with foreign seed. But another sample of the same bulk was sent, with an intimation to examine it for "coloured Trefoil and doctored old Clover." Here then, even to us, was a new phase of villainy, and we have now to point out the different steps in our inquiry.

1st. One hundred seeds as they came, leaving out weeds, were counted out and put in one of our germinating pans and plunged in heat; the good seeds germinated quickly and evenly, from

which it was concluded that the basis of the sample was new and good.

	Per cent.
Of these there germinated	74
Consequently there are of dead seeds	26
	100

2nd. The seeds were examined for differences in form, and we soon separated a quantity of the ovate seeds of Hop Trefoil (Medicago lupulina), which instead of being the bright yellow of that seed in its natural state, were all coloured of a more or less darkish or purplish hue, in imitation of the purple tint of the Red Clover seed, which latter may be described as an ovate form, with a small hump on its back; these separated seeds were reserved for future examination.

3rd. In order to test the amount of this admixture, we counted four 100 lots of seeds of the sample—again omitting weeds—and separated the contained Hop with the following results :—

Seeds.		Seeds.	
1st.	100 contained	15	of coloured Hop.
2nd.	100 do.	13	do.
3rd.	100 do.	14	do.
4th.	100 do.	14	do.
	4) 56		
Average per cent ..		14	do.

4th. The coloured Hop seeds were counted into the germinating pans, but, as was expected, not one of them germinated!

Now if we bear in mind that probably the market value of this unmixed sample of Clover seed would be about 60*s.* per cwt., and that of the Hop Trefoil 20*s.* per cwt., it will be seen at once what a gigantic fraud is here attempted. It is killed, for the reason that "dead men tell no tales," and its colouring is most artfully managed. How the latter process is effected we have not yet discovered, but from other samples that have come before us there is reason to think that different methods are employed—black lead seems to be used occasionally; but this matter is still under consideration, but thus far we have ascertained that some of the doctored seeds are tinctured with the colouring matter, which will not wash off, whilst in other samples the colour readily washes or even rubs off.

On this point a friend informs us that "it is very difficult to get particulars from the doctors, as they are called, they being naturally unwilling that their deeds of darkness should be brought to light."

He further adds, "There are several men in the Borough who make their living principally by this work."

That this work is artfully done may be gathered from the fact, that a few days since we showed the sample of this seed in a country market, both to seedsmen and farmers, and they all concluded it to be very good.

Under all the circumstances now detailed there can be no wonder that we should make the following report :—

"From these results we are led to consider the seed as sent to us to be the most villainous example of seed adulteration that has come under our notice, more especially because, from its artful management, not one farmer in five hundred would detect the imposition, but on the contrary would consider it a fair sample."

Now we are informed that there are Ninety Tons of doctored Trefoil in the Borough undisposed of, owing to the mention in the papers of this inquiry, but let farmers beware, for much has already been mixed and distributed, and this 90 tons is destined to make its escape at some time or another; and let us give the further caution that the price paid or the respectability of the seedsman is not always a guarantee against this fraud, as we detected it at the rate of 5 per cent. in seed quoted at 80*s.* per cwt., and we are sorry to say that we have found it in a sample a seedsman assured us he "got direct from the grower."

Generally seedsmen are not aware of the nature of this doctoring, as it is a somewhat new practice, but it seems that now and then some wholesale seedsman turns up in a country market with this doctored stuff; and as he can undersell the honest tradesman, there is reason to think that much of this stuff is in the market, and that more will be. The samples now before us were sold by a London man in the Bristol market, and with such admixtures it can hardly be wondered at that the Bristol merchants could be undersold.

Now, as this new method of adulteration can hardly be known to all seedsmen, much less to the farmer, it is important that some care should be exercised in the choice of seed, and therefore we beg to intimate that in any case of difficulty we shall be glad to be communicated with.

It may, however, be as well to offer a few remarks upon the nature and plan of such examinations :—

The first point to attend to is to find out the germinating power of the seeds, in the case of Clover counting a hundred seeds, and placing them in a little fine mould, and plunging in a hotbed, or placing in a warm room, and if it should germinate to the extent of 90 per cent. it will be a good sample, but if much less it may be suspected, and its value of course will depend upon whether it will grow. Now, as an evidence of the differences in this respect of a few samples which have come before us within the last few days, we append the following Table :—

Table of the Germination of 10 Samples of Red Clover.

No.	Label.	Price per cwt.		Percentage of Germination.	Dead Seeds per Cent.
		s.	*d.*		
1	Red Clover	56	0	68	32
2	Ditto	32	0	50	50
3	Ditto	51	0	60	40
4	Ditto	66	0	90	10
5	Ditto	74	0	96	4
6	Ditto	80	0	90	10*
7	Ditto	70	0	95	5
8	Ditto	75	0	97	3
9	Ditto	60	0	60	40
10	Ditto	27	0	30	70

This Table shows what an immense difference there is in the value of seeds, but we must caution our friends against coming to a conclusion from taking a pinch of seed and sowing it. No evidence on this point is of any value unless the seeds be counted.

If then the germinating power be as Nos. 2 and 10 of the above Table, we may at once conclude that it is either very old or has been badly harvested. If again it be as Nos. 5, 7, and 8, we may dismiss the idea of doctored seeds; but if as Nos. 4 and 6, we may examine with the view of detecting this new method of adulteration, and then only the difference in form can help us.

Leaving then this subject for the present, we can only hope that this examination of doctored seeds, by being made public, may have as good an effect as our former remarks on weeds in seeds. *B.*

* Five of these were found to be doctored Trefoil.

—— Mr. Lloyd, of Hatfield, referring to the absence of members at the lectures of the Royal Agricultural Society, makes the following suggestion to the *Mark Lane Express* :—The questions that arise are: First, why are no more members present at these lectures? and secondly, how can more be induced to attend? In answer to the first, he imagines that at the time of the lecture there are hardly any members present in town who care to hear it. And, on the other hand, it is not every one who is a member of the Royal Agricultural Society that can afford the time for, or cost of a journey to London to hear a single lecture, however good and instructive it may be; and they are therefore prevented against their will from attending.

And now in answer to the second question: How can a remedy be found for this, so that more may be induced to attend without so great a sacrifice to themselves? The Society holds its annual show in different parts of the country every year, dividing it into districts, and choosing some town in that district that recommends itself for the purpose. Why should not the lectures be delivered in different places also? Would it not be a good plan to choose some town, a different one for each lecture, in the district in which the annual meeting is to be held? If this were done, the members all over England would have in turn opportunities of attending without inconvenience, and any one specially interested in a particular subject to be lectured on, if not living in the immediate neighbourhood, would have no more trouble to attend than at present. If this suggestion were carried out, he thinks that a lecturer would get at least a decent audience, which it can hardly be said that he does now. "The lecturer must go to the audience; for as the mountain will not go to Mahommed, Mahommed must go to the mountain. Surely Reform is wanted in the Society; and if the Cabinet do not bring in a liberal Bill and enlarge the franchise, all the members will resign, or a vote of want of confidence in the ministers will be given." The need of an audience arises out of the importance of the subject being thoroughly discussed; it is for what an audience could bring and give, not exclusively for what they would receive, that they are desirable. We cannot doubt that the lecturers themselves will acquiesce in this. If the lecture is fully reported it is evident that members can receive it, each at his own fireside; but the lecture is itself imperfect without that discussion which it always ought to receive at the hands of practical men; and for which it is necessary that it should be given before a sufficiently large and appreciative audience. Perhaps the Society may succeed in establishing a directer and more personal relationship than it has hitherto obtained with its practical members by adopting Mr. Lloyd's suggestion.

—— Mr. Nockolds recommends to the London Farmers' Club—apparently in place of the existing Chambers of Agriculture throughout the country, and the central Chamber, with which a very imperfectly organised relationship seems at present to exist—that in every market town there should be literally a "chamber" or point of meeting, where those attending every market may on market days assemble, at least four times a-year, for discussions connected with husbandry, or on the political position of the agricultural interest. As the central office of all these local societies, he recommends the appointment of a Tribunal of Agriculture, to consist of some 20 members, to be chosen from the most eminent practical men among the members of the Agricultural Chambers and Farmers' Clubs.

"This Tribunal should have a paid secretary, who should be well versed in Parliamentary forms, usages, and tactics. In fact, he should be something of a Parliamentary agent. We will suppose that there be four ordinary quarterly meetings annually. The secretary should watch all notices given for bringing any Bills into Parliament likely to affect the agricultural interest, and if he, in consequence, thought it necessary to call a special meeting of the Tribunal, he should be empowered to do so, and then notice of the matter requiring consideration and action, should be sent to the country societies, who in return should send to the Tribunal the result of their discussions and the general opinion at which they have arrived. They should also all contribute their quota to the legitimate expenses of the Tribunal, which would not, however, be very great, beyond the secretary's salary. Thus advised, the Tribunal would itself discuss the opinions and conclusions elicited by the reference to the country societies, and take such measures as might seem applicable to the matter. If we never get an Agricultural Board, there must be, at all times, some department or other of the Government which would be accessible to even an agricultural application for a hearing, and to it would the Tribunal appeal, as representing the feelings and opinions of the united agricultural interest of the kingdom at large; thus, a force and a weight would be given to those feelings and opinions which at present they do not possess. The president of the 'Wool-clip cum Muttonbone' Farmers' Club seeks an interview with the Clerk to the Privy Council, President of the Board of Trade, or some other Government official, on some crotchet of the Club's, say, respecting the ovis variola—small-pox in sheep. He is received with courtesy—heard with attention—and is assured of the gravest consideration of the matter by the ruling powers. Well, and what comes of it? Why, as they say in the North of England, 'Nowt.' No, these spasmodic and intermittent efforts emanating from small sections of what would, if united, be unquestionably a very numerous and powerful body, are useless. What is required is a well organised and persistent movement for the protection and defence of that interest, which, it does appear to me, is more open to encroachment and unfair dealing, and is more encroached upon and more unfairly dealt with, than any other in the British Empire."

—— At the recent meeting of the Midland Farmers' Club at Birmingham the Chairman, Mr. Masfen, gave a brief *resumé* of the proceedings at the meeting of the Central Chamber of Agriculture, in London, on the preceding Tuesday, with reference to the rating question, which was in a very unsatisfactory state. They did not complain that the assessment committees had not done their duty so far as they had been called upon, but they considered that legislation ought to be brought to bear in order to make their decisions more uniform and satisfactory. The subject was to be brought forward for discussion by the Club, and therefore he would not detain them further by entering upon it. Mr. Lowe thereupon hit what seems to us a very notable blot in the existing relations between the Central Chamber and the local clubs. He said that the President had informed them that the Club was about to discuss a question which had already been discussed by the Central Chamber; whereas he thought all the country clubs should discuss the question before it went to the Central Chamber, so that that Chamber should, by sifting or "boiling down," be enabled to concentrate the opinions of all the clubs connected with them. It was desirable that the Central Chamber should suggest the subjects which it might be desirable for the different country societies to discuss; and that the latter should send delegates to London to support the resolutions which had been come to, and not their own private opinions; for without the authority of the clubs their arguments would be of very little weight. If any good was to come out of such societies, it must be by a central organisation of some kind.

THE PARIS EXHIBITION.

(From our Correspondent.)

The Island of Billancourt, where the exhibitions of animals and the trials of implements and machines are to be held, is somewhat difficult to be reached—at least the journey there is somewhat tedious. Omnibuses go from the Palais Royal direct to the gate, but their hours of leaving are somewhat uncertain. The omnibuses of the Chemin-de-Fer Americaine, or the street railway, leave from the street at the end of the Louvre furthest from the Palais Royal between the bridges Pont des Arts and Pont Neuf, every hour, the fare being 50 centimes or half a franc—they take the street railway at the Place de la Concorde, changing the wheels there from the form used in the street to those adapted for the rail. These busses do not go to the gate direct, but set down the passengers at the end of a road, indicated by flag staff with gay streamers and escutcheons, which leads directly to the island, which is reached from the main road by a handsome trellis iron bridge constructed specially for the Exhibition. Steam boats also leave from one of the bridges near the Louvre, which disembark their passengers at wharfs alongside the park. Another way to go, most convenient for those who live in the Luxembourg quarter of Paris, is to take the railway, the station of which is in the Boulevard de Mont Parnasse. This railway goes to Versailles by the left bank of the Seine, so that visitors leaving the Billancourt station may visit the Exposition, and thereafter, if so willing, may go on to Versailles, thus killing two birds with one stone, as our expressive phrase goes. We have been thus particular as to the mode of getting to Billancourt; for many visitors will probably find it somewhat difficult to obtain information upon this point, unless indeed more prominence is hereafter given to the Exposition on the island than has been given as yet, and full

facilities thrown in the way of visitors for reaching it, or for knowing how to reach it. For at present no prominence is given to the Exhibition at Billancourt; no one seems to care about it; nor when we made our first visit to the island—a *terra incognita* to so many in Paris this day—were we surprised at the indifference thus manifested, for to be very honest in our statement, at present the Exhibition at Billancourt is a failure, not only from the little interest excited in the public mind as to it, evidenced by the deserted walks of the place, but also from the meagre display there to be met with, of which more at present. Melancholy indeed would our walk have been through its silent spaces—musical only if musical with the 'baa,' every now and then of some sheep, or with the measured tread of the gendarme — melancholy indeed we say would our visit have been, had not the refreshing influence of a lovely day, with the bright blue sky above—blue with a depth of tinge too seldom seen with us—and the beautiful scenery with which on one side especially the island is bounded. At the period of our visit, we believe we are not exaggerating when we say that there were not half a dozen people—not officials—in the whole park in addition to ourselves. The hopelessness of more coming too, seemed to have struck the officials at the pay turnstiles, for at one time they had altogether deserted their posts, and we went in through the barrier and returned as suited our convenience, without any one to challenge us with "stand and deliver" a franc, for that is the price of admission to this rather-dear-at-the-price department of the Exhibition of 1867. We do not wish to be hypercritical, but we could not help contrasting this much talked-of rather pompously alluded-to place in official documents with the grand display of sheds filled with ranges of magnificent stock, implements and machines, which are gathered together under the auspices of our leading agricultural societies. We have seen far finer, more extensive, and infinitely more suggestive gatherings at the meeting of a provincial society in our own country. At the same time, in saying all this, we must also say that we do not forget an expressive proverb that "Fools and children should not see half-done work," that is, for fear they may rashly jump to a false conclusion of what it will be when fully finished. Certainly we saw evidence enough that much remains to be done before the plan, as originally designed, of this department is completed. Only this remains to be said, that the programme of proceedings in connection with it as a programme will no longer hold good, for it is already broken through; and further, that when the blast of the official trumpet is blown so loud, we expect those gathered together by it to see something worthy of the call. What prospect there is in this, the third week of the Exhibition, of the programme being strictly followed, may be gathered from the fact that although, according to it, the exhibition of fat cattle of all sorts is to begin on this day (Monday), up to near the hour of six on the afternoon of Saturday last we did not see a single arrival, nor, indeed, the slightest possible indication that, on the part of the officials, such arrival was expected. Vastly different this from the orderly precision with which we organise our great gatherings.

We have said that the island of Billancourt is very pleasantly situated. The Seine as it flows rapidly by is refreshing to the eye, while the really picturesque heights of Billancourt, to the left, looking down the Seine, make the place still more attractive. It is scarcely necessary to say that the surface of the island is very beautifully laid out, and nearly all the buildings are good and suggestive examples of rural construction. It is probably undesigned, but it is nevertheless suggestive that by far the finest construction in the place is the Restaurant No. 1. This is really a very beautiful design in the Swiss or Châlet style; the arrangement of the whole is very picturesque, and the details in carved and open fret woodwork are worthy of examination—in work of this kind, indeed, our Continental neighbours excel, and are well worthy of being imitated by our carpenters and joiners, who seem always to work as if beauty was a thing rather to be studiously avoided than carried out. Many of our country carpenters might also here get a lesson or two, not only in the economisation of home-grown timber in the erection of sheds and the like, but also in the way of using it ornamentally. Nothing can be more appropriate, and indeed more beautiful, than the way in which the sheds for the animals exhibited at Billancourt are constructed of home-grown timber left in its natural condition. We would draw the special attention of the visitor to the way in which the gable walls of the sheds are left with open spaces, being partly filled up with branches of trees most tastefully disposed, and yet with a strict regard to the constructive offices which the various parts have to fulfil—we were particularly struck with this. But the same may be said, with modifications more or less decided, as to the construction adopted in the various sheds throughout the island; scarcely two are alike, and the rural carpenter jotting their features down might go away with a note or sketch book filled with suggestions of great practical value. The sheds for the animals are placed at the extreme end of the park, opposite to the main entrance. They are wide and lofty, and the fittings of the stalls are, or were, designed to illustrate various ways of constructing them. These are not by any means numerous, the whole being fitted up after two or three types, each of which is more distinguished by ready modes of using timber than by any neatness of design or of construction—none of the very superior stall fittings with which our readers are familiar being used in the sheds. Down the centre of each shed a railway is made, on which the food trucks are conveyed. Some of these trucks are by no means favourable specimens of handy contrivances.

Opposite the principal restaurant the ground is laid out as a garden, in order to illustrate different modes of rearing fruit and other trees; many of the former are in bloom, and add thereby to the attractiveness of the place. Still opposite the Restaurant No. 1, but at the other side of the park, is the inclosure designed to be appropriated to all contrivances and appliances connected with bees. As yet nothing is here constructed. Between the restaurant and the cattle and sheep sheds the ground is devoted to the exhibition of agricultural implements and machines, of which there is a very fair display. The sheds strictly devoted to the British exhibitors are as a rule on one side—the right hand, walking down the central avenue leading from the entrance—those of the continental exhibitors on the other side. In some departments there is a better display here than in like departments in the Exhibition Building and Annexes at the Champ de Mars. The English exhibitors, with the principal entries, are as follows:—Messrs. Howard, with ploughs, harrows, horse rakes, Grass mowing machines, reaping machines, steam ploughs—in all 13 entries. Messrs. Samuelson & Co., of Banbury—with the curiously absurd inversions and mistakes made by French printers, who will not pay attention to the letters constituting a word, printed in the Catalogue as Bomburg. Reaping and hay-cutting machines three entries. Messrs. Shanks & Son—who figure as Shonks, and whose habitat is made out as being at Banbury in Scotland (this word, curiously enough, being properly spelt as the name of Messrs. Samuelson's place alluded to above)—enter a five-horse-power portable engine of the vertical class for which they have made a good reputation. Messrs. Amies, Barford, & Co., of Peterborough, have six entries, made up of food-cooking apparatus, mills, rollers (water weighted), drain tubes on Bailey Denton's system. Henry Hayes & Son have two entries of waggons. The Beverley Ironworks enter a reaping machine with automatic movements. Mr. Allen enters a specimen of his expansive steam engine, with which our readers are familiar. Smith & Son, of Peasenhall, have two entries of their Turnip and Grass sowing machines. Brigham & Bickerton, of Berwick-upon-Tweed, enter three machines, a reaping and Grass cutting machine, and a horse rake. Green & Son, of Leeds, enter a steam engine, meat cutting apparatus, and a lawn mower. James, of the Tivoli Works, Cheltenham, has six entries, made up of his well-known liquid manure cart, clod crusher, and troughs. William Dell, of 72, Mark Lane, has three entries of winnowing machines, and sieves for ditto. Messrs. Riches & Watts, of Norwich, American oil crusher and Wheat grinding mill. Messrs Coleman & Morton, of Chelmsford, have six entries of cultivators, Hanson's Potato digger, oilcake breakers, &c. Messrs. Picksley, Sims, & Co. have nine entries of straw cutters, root cutters, oilcake breakers, vertical steam engines, bone crushers, Grass mowers. Messrs. Garrett have also nine entries, embracing their well-known threshing machines, steam engine, horse rake, manure distributor, mills, corn cleaning machines, traction engine. Messrs. Ransomes & Sims have ten entries, embracing a good selection of their ploughs, harrows and portable engines, straw cutters, &c. Mr. William Nicholson, of Newark, enters a specimen of his hay-making machines and his horse rakes. Messrs. Clayton, Shuttleworth, & Co. enter their portable steam engine, their threshing machine, and their straw elevator. Messrs. Roby & Son (Lincited—for Limited, we presume)—enter steam engines, fixed and portable, and two of their threshing machines. Messrs. Ashby & Jeffery—Mr. Jeffery rejoicing in the name of Seffery in the Catalogue—have eight entries, consisting of their hay makers, hay rakes, steam engine portable, mills, straw cutters, &c. Messrs. Barrows & Carmichael, of Banbury—this time figuring in the catalogue as Bombury (it will get to Bomba soon)—have five entries, as in steam engines, portable threshing machines, &c. Messrs. Marshall & Co., of Gainsborough, have four entries, and show a good display of steam engines and threshing machine work. Ruston & Proctor, of Lincoln, enter their portable engine and their threshing machine. Such, as preliminary to detailed notices which we propose to give in due course, is a brief statement of the position occupied by the British machinists at Billancourt, and which, along with that taken up at the Special Annexe in the park of the Champs de Mars, will enable foreign visitors to judge of what class their work is. We need scarcely say that in respect both of design, arrangement of details, and general construction, they need fear no competition, come from what quarter it may. This much we can say after a fair examination of the agricultural contributions of various nations to the Exhibition, that in all the above-named respects those of the British makers leave all other competitors far behind. Next to them in their variety of appliances, in their design and in their style of workmanship, come the French, and in some departments they may be said to have created and maintained specialties of their own, such as in what they call agricultural industries, such as beet-root distilleries and sugar factories, examples of which will be found in the Exhibition, and of the main peculiarities of which we shall give notices hereafter.

BONES AS MANURE.

[The following briskly written paper was read the other day before the Kendal Farmers' Club, by Mr. Wakefield, the President.]

He said: My text is "Bones, and how to use them." I suppose no one would for a moment attempt to deny that land in course of cultivation has a tendency to become exhausted—to lose its powers of production—and the great thing is, how to prevent this process of exhaustion going on. We shall all admit that that man is the best agriculturist whose aim is to get the largest amount of produce off his ground—whose practice will, in fact, tend in the direction of exhausting the powers of the soil. I say tend in this direction, but I don't say follow on in this path. Don't let me be supposed for a moment to be advocating high treason against the owners of the soil, and sanctioning a sacrifice of the landlord's interest, with a view to the selfish benefit of the tenant farmer. But what I mean is this, that every one of us who seeks to farm to the greatest advantage, should so treat his land that he should get from it all that it is capable of producing in any one particular year, a due regard being had to the future. You see I have a saving clause in looking thus ahead to the future, in which of course I always assume the tenant farmer has a secure interest; for without that we should be all astray. Well, now, I fancy I hear some of you saying to yourselves, "What about bones? You've given us the text: when's the sermon to begin?" My answer is, it's going on now. The point I'm driving at is this. Supposing a farmer to be amply provided with the wherewithal to get the largest possible amount of produce off the ground, how is this to be kept going on year after year? A most essential and important ingredient is bones, applied in a judicious way. Of the value of bones as a manure I am not now going to speak: in fact, it is quite needless that I should do so, for all believe it; it is an established article in the creed of the agriculturist,

Some one will perhaps be arguing thus to himself:—"Bones; it's all very well, a capital thing they are, but they won't do for us tenant farmers—this is a job for the landlord. Why, if I were to put them on myself, I should never get a full return for my money for the greater part of a score of years; why, I may be dead and gone, leaving my family just so much the poorer. No, thank you. Landlord must stump up for this job, and I'll be very glad to pay him interest; but I can't invest my own hard-earned money in bones, except, perhaps, in the shape of superphosphate, just to get a crop of Turnips with." Now my entire object in addressing you is to endeavour to show the fallacy of this very wide-spread view. I am not now going to speak of bones in a state of solution, or dissolved bones; that doubtless, is the condition in which they are most readily appropriated by the soil, and give the most speedy return; but I am turning my attention to bones in their natural state, without any further treatment than, perhaps, boiling, which though it takes away somewhat of their fertilising power, places them in a condition to get sooner to work. I maintain that to apply to the land half-inch bones (or even larger, as is sometimes done) is just the most extravagant way possible of going to work, showing an utter disregard of those principles of economical science by which men of business, now-a-days, are influenced. The ordinary way of describing the benefits of a good, fair dressing of half-inch bones is—Why, the land won't forget it for 20 years; and this at once brings me to the main point of my address. The very idea of putting on manure in this year of 1867, which won't be wanted until 1887! Why, it's monstrous, the very notion of the thing, as it seems to me. What in fact does it really mean? It is just as if you were to deposit in a bank a sum of money, and only get interest upon a very small portion of the amount; which might be all very well for the banker, but wouldn't exactly suit the interest of the depositor. It is in fact simply this—paying a higher price for an article than it can be bought for. I think I can show my meaning still better by a simple kind of illustration. I suppose I may say that half a ton of bones to the statute acre is a pretty tidy dressing. Let's see how much that will be to the square yard. It will be within a small fraction of 3¾ ounces. I will now place upon this square yard exactly that weight of half-inch bones, and upon another square yard I will put a similar quantity of bone-dust. [Mr. Wakefield here spread upon the table the respective quantities of bone and dust upon the measured square yards.] Now, will any one, after attentive consideration, venture to say that a much smaller quantity of the dust will not have as much effect, if not much greater, than the full quantity of the half-inch? The reason is obvious. It is only the surface of the bone which can act beneficially upon the rootlets of the plants which we thus seek to encourage. I think we shall be agreed upon that point. Well, then, that being so, is it not clear that the quantity of bone inside, as it were, is very much greater than that which is outside and exposed to the action of the roots of the plants, and consequently that that much greater quantity is of no earthly use for our present purpose; it is in fact just my illustration—money placed in a bank, and doing no good to the depositor; or to make the comparison more exactly similar, it is as if you were to take to a bank a bag choke-full of sovereigns, and say to the cashier—"There now, I only want interest for this year at any rate, upon just that number of sovereigns that touch the canvas of the bag;" or, if it was a good thick roll of notes, "upon a dozen or so of the notes that are at the outside of the roll, but I'm not very particular to a nicety; I'll leave it to you to fix how much it shall be." As I said before, all very well for the banker. Well, then, I contend that my parallel is complete, for to argue by parallel it must run on all fours. The soil is the bank, the "grassy bank," I may call it, for it is of meadow and pasture that I am chiefly thinking this time. The half-inch bones are the sovereigns deposited therein. The cashier is good Dame Nature, who, when the bag of half-inch bones is handed to her, says, "I can give you very little for all this, not this year at any rate; but if you like to leave them doing nothing, I'll take good care of them against next year, and the following years, and then I shall gradually be able to make something of them." Now this isn't the way we act in our

ordinary concerns; far from it. If we buy a cow, or a horse, or a sheep, we higgle and haggle over the price, half a day sometimes for a difference, may be, of only half-a-crown. But then you see, we understand, at least you do, a transaction of this sort, but we don't understand the proper scientific application of manures to the soil. We can't determine, nor indeed can any one, the exact weight to a pound that should be applied, but as regards the use of bones in their natural state, I am sure we may get somewhat nearer the actual requirements of the case. I won't attempt to fix what quantity of bone, in the form of dust or meal, will do as much good as a very much greater weight of half-inch bones in one particular year; but I will contend that a much smaller quantity will do as much—in fact that it will do a great deal more. I contend that bones thus applied are a tenant farmer's manure; that he need be beholden to no one in this respect. To advocate the use of half-inch bones is, I contend with all deference to the opinion of others, just to talk so many half inches of nonsense.

Discussion.

Mr. John Garnett said he was not going against the use of bones, but his impression was that if a man bought 100*l.* worth of oil-cake to give to his cattle, he would have a more immediate return for his outlay than from almost any quantity of bones. He had tried bones himself on a limited scale, and he did know that the extensive use of bones was too expensive for almost any tenant farmer. He must put on half a ton per acre, and he (Mr. Garnett) believed some landlords put on a ton without any very great result.

The Chairman said his point was, that a much smaller quantity of the ground bones would produce a more rapid result.

Mr. Smith would neither have bone-dust nor half-inch bones, but quarter-inch bones, which insured a certain quantity of dust, and then the dust flushed the crops at once and did the business, and the effect of the bones would be manifested for 20 years and upwards upon Grass land. What they had put on at Storrs would never require to be repeated as long as Mr. Staniforth lived, and year by year the Grass land at Storrs would carry more stock.

The Chairman observed that Mr. Smith had used the old term about the effect of the manure lasting for 20 years, but if they considered what compound interest amounted to in 20 years it was enough to frighten one. That was precisely why he recommended the use of bone dust. Of course it must be honest bone dust, but if that could not be got, we must have a mill of our own.

Mr. Robert Harrison mentioned the case of a field of his which was ploughed up three years since. It was 18 years since the bones were put in, and some of them came up when the field was ploughed.

Mr. H. Cottam believed that he was one of the first to use bones in this neighbourhood. He had tried half-inch bones, and certainly the effect was very great at the back end of the year upon the Turnip crop. After five successive crops, when you examined the Turnips you could find the fibres of the roots wrapped round the bones. He could tell it also in white crops and Clover. For green crops, at half a ton an acre and used with phosphates, it was the best possible till.

CHEDDAR LOAF CHEESE.

Mr. Harding, Marksburgh, has addressed the following letter to an Ayrshire contemporary:—

I have been desired by one of our county gentlemen to offer some practical remarks on cheese making in small farms, with a view to equalise, as far as may be, the advantages of the larger dairy farmer with those of the smaller. It is clear that a thick cheese, such as can be made from a dairy of 25 or 30 cows, will command a higher price than a thin cheese of equal quality. It is also clear that a given quantity of curd made up in one thick cheese will, when ripe, weigh more than if made into two or three, in consequence of there being a larger portion of surface in the latter than in the former. A thick cheese will also retain its quality, and continue to improve for a longer time than a thin one, and will command a superior class of purchasers. It is only in exceptional cases that thin cheese made from whole milk will be as remunerative as when a portion or all the cream is removed. I state this on my own experience, having proved it to my satisfaction. The particulars of those experiments I would give here, were it not that it would occupy too large a portion of your columns. Whole-milk cheese should be made in a form best suited to the public taste. In Somersetshire, within a few miles of the famous village of Cheddar, thousands of small cheeses are made, measuring about 6 inches in diameter, and 8 or 9 inches in depth, weighing from 7 to 9 lb. each. They are called "truckles," and sometimes "loaf cheese." They are made by persons who milk from 10 to 20 cows, and occasionally by larger farmers. These persons being prejudiced to the method of their farms, believe that no other cheese can be made successfully on their land. I have seen several hundreds of these cheeses neatly arranged on the floor of a large room, and of uniform size, painted red, through which, during the process of ripening, a blue tint has penetrated, imparting to them a rather rich appearance. Many tons of them are annually exported to Australia and other parts, the prices fluctuating according to foreign demand. Some of the same description are also made in North Wilts, but without the exterior colouring. In both cases the cheese is of an inferior character, and is not desirable for the small cheese-makers of Scotland to imitate. They are generally a soft, porous kind of cheese, rarely reaching the price of our improved Cheddars by 10*s.* or 15*s.*, and sometimes even 20*s.* The size and shape only is worth our notice. Another example of size and shape is presented to us in the Stilton. Its quality and flavour are good; but the excess of cream required to make them, and the risk of not making good cheese, are objections. The general class of small dairy farmers would scarcely be justified in imitating (as in the former examples) anything beyond its form. The cheeses weigh about 12 or 13 lb. each, and are 10 inches deep, and 7 inches wide. As to the kind of cheese there is nothing more suitable than the Cheddar. The method of making is simple. There is an additional amount of labour and some waste consequent upon making these small cheeses, but if made good it will realise 5*s.* per cwt. beyond even that which is made in larger dairies, as small families will readily pay for the convenient size. As the Cheddar method of cheese-making has been so frequently detailed in your Journal, and is so successfully practised, I need not give it again. It is in every particular suitable for the making of 'loaf' cheese. The vats or chessets may be made of tin, strongly hooped, and without bottom, or of staves, hooped similar to the vats; but I much prefer the expansion vat, a specimen of which I sent to the Ayrshire Agricultural Association three years since, and many of them I have since sent to parties in Wigtonshire. The cost of them is about 10*s.* each. With these the cheese is more easily liberated from the vat, and less liable to get broken in turning. All the vats should be of equal size, and furnished with inside followers (Scottice, lids), made to fit nicely. They may be pressed in tiers of threes or fours, as required. If the cheese is turned twice a day, two days' pressing will be sufficient. The edges should be well bandaged whilst in the press, to secure them against damage. There may not be sufficient curd to fill each vat every day, but if salted, and pressed by the hand into a vessel, and covered, it will keep till the morrow, when the cheese may be made up with new curd. There should be no annatto used, or the colour of the curd of the two days may not correspond. It frequently happens that these small cheeses will not be quite as solid as those of a larger size. Cavities will occasionally appear, unlike a naturally heaving cheese, but as though a portion of air had been suddenly arrested and confined. This, I believe, arises from too sudden pressure upon so small a surface. This should be remedied by a gradual addition of power to the press. With ordinary treatment in the cheese room, these small cheeses will be equal in quality, flavour, and appearance to Cheddar cheese of any size. The small Cheddar cheeses hitherto have been without a definite name. A year or two since, a cheese-factor in Bristol, wishing to give them a name, induced his best cheese maker occasionally to make a few, bearing the impress of the words "Stilton Cheddar," which he had carved on the follower; but it is fair to state, that only in form does it resemble the Stilton cheese. The name I have given at the head of this paper is much more appropriate, as being more expressive of the character of the cheese I should like to see made by the small cheese-makers of Scotland; and which, for its general usefulness, will be best suited to the public taste. The successful effort of the Agricultural Association in the improvement of cheese-making is apparent to all: and the small dairy farmer having an equal proportional claim with the larger, I would respectfully suggest to the Council of that body the propriety of withholding any prize at their Kilmarnock Exhibition for imitation "North Wiltshire loaf cheeses," and offering adequate prizes for "Cheddar loaf cheese," made from dairies of less than 20 cows.

Home Correspondence.

A few Notes relating to Agricultural Men.—From the often repeated discussions which I may say periodically appear in your pages respecting the condition of the agricultural population in several of the counties in the south of Scotland, there seems to be kept up a good deal of interest, one would think far beyond its intrinsic value; no doubt many of the prevalent customs in those districts partake a good deal of the old feudal relations which centuries ago subsisted between the occupiers of lands and their retainers. It is often very amusing to watch and look on from a distance to see how tenaciously some old ones are kept up, especially in the purely agricultural districts. We were "reared," as the Americans term it, in a purely agricultural district, and followed the occupation of husbandry during the earlier portion of our life, so that we are not unacquainted with the nature of agricultural operations, the duties of the employed, and how they appreciate kind and considerate treatment when such is extended to them by their employers. To many it seems very strange with what tenacity the farmers in the south of Scotland hold on to old usages, haggling and mystifying respecting the money value of what everything would come to which their farm men in the course of a year receive in the shape of wages; only let the agitation (to borrow a political phrase) be kept up for a few years more, and ultimately the defenders of this old tattered remnant of feudalism, will, I have no doubt, come round, and adopt a somewhat similar mode of dealing with this question to what the present Government has done respecting reforms in the body politic, and then afterwards they will wonder how it was they did not adopt some such a course many years before. As a system of dependence it is very odious, when considering the very complicated system and nature of engagement. Let us only place ourselves (for argument's sake) in the position of one of those hinds, the very name 'hind' seems to be unbecoming when applied to a fellow-creature, bearing with it at first thought some mark of degradation, which we would wish to throw off. In passing, we may just remark we have lived in a county in Scotland where such a term as hind is never applied to any man, and where they would never hear of it excepting for those squabbles about their half-feudal usages which we are sorry to see are still lingering so tenaciously in the south of Scotland. This may emphatically, to a degree, be termed an age of discussion, and by discussion ventilating every grievance; by so doing what cannot withstand the broad daylight of public discussion must ultimately give way, and so must this hind and bondager system. I would simply venture to inquire of the advocates of this truck system of engagement (and what else is it?), in what other branch of industry or employment do we hear of such a complicated and mystifying system of engagement? We well remember hearing a captious disputant who, some years ago, while in the heat of defending a favourite point, adopted as his mode of defence the bringing forward plenty of bold assertions, and by repeating them, he thought people would believe them, however untenable they were as being only class privileges; and so with the advocates of the hind and bondager system and all its modes of engagements. It must fall; there are too many railways passing through this former stronghold of the system and condition in which both men, women, and children have been held for generations, if not for ages. Cheap literature prevents these once snug preserves being kept so quietly as formerly. We have seen how effectively the farmers in Aberdeenshire have acted respecting the four-footed varmint of game—making the landlords reconsider their proceedings, all through ventilating the grievance through public discussions. What is bad must ultimately give way; railways and cheap literature are two of the very best friends which every poor man has. If there is anything under which in some districts the agricultural population in Scotland suffers, that is as bad if not worse than this hind and bondager system and its mystifying manner of engagements, it is the bothy system. About 20 years ago I well remember then reading in the Inverness newspapers very lengthened, and in many respects very instructive discussions, or they might more appropriately be termed conversations, which had taken place there at the meetings of the agricultural association for that district. Amongst other things, they had under review how some of their number had his cow houses or byres built, the nature of their internal arrangements, and how conveniently they could feed them, having ample passage room in front of the heads of the cattle for this purpose. The stables came likewise under review, and then one of their number assured the rest respecting the correctness of what Mr. —— had just stated to them, as he had been there and seen for himself, and wound up by declaring that, as the times were now, no one could farm profitably without the bothy on the premises; all the men lodged in the bothy; but observe, there was not one word respecting the condition of their several bothies—no allusion to their having been inspected, and found to have every convenience requisite for the proper comfort of the men, who were the means of bringing the farmers their profitable gains. In fact, it reminded one of the condition of the cotton planters and their hands, and how they talked about them previous to their great war, but I am wandering from my original argument; however they all have a similar bearing, capital and intelligence combining, and still more separating themselves from those upon whom the hardest portion of manual labour falls. It is very galling to a man in a humble position to hear of himself and his fellow labourers being always spoken of by these would-be gentlemen farmers, as a being whom only hard necessity causes them to have near to them, "their workers." What has been a means of causing these combinations which we now hear of, springing up amongst the frugal and industrious tillers of the soil? Is it not principally arising from the landlords and principal farmers taking all and every advantage which they can of every modern improvement to their own advantage, caring not one straw how those may be whom they employ if they can get the work done? I am well aware of very honourable exceptions, but they are so few it only assists to make the contrast still more glaring; and the practice of joining farms together still adds to the separation and absence of the proper sympathy which formerly existed between the farmer and the men whom he employed, as it checks and gives no encouragement for the careful and intelligent farm man to look forward to ever becoming a small farmer himself. He is a labouring man, and so must be all his days. They complain of most of the best agricultural hands, that they emigrate or remove to other places. No wonder, since the landlords will let their land in large farms; and however bad the times are, as the farmers call it, many of them seem always very anxious to take more land. If farms were much smaller, and in every district a few running from 40 acres up to 100, it would give a more healthy tone to the agricultural population; but when every door to advancement seems shut before the face of the intelligent and in many cases sharp-sighted agricultural workmen, who can blame them for looking out where their energies may meet with a more encouraging reward? *G. D. Rhynie.*

A Farmers' Orphan Home.—Many of your readers will doubtless learn with pleasure that an attempt is being made by gentlemen resident in several different parts of England to obtain such promises of support as will enable them to open an orphanage for really destitute children, whose fathers, once perhaps prosperous farmers, have died in poverty and distress. The urgent need of such an institution will hardly be disputed. The farmer of the present day is exposed to competition with all the grain-producing countries of the world—even Australia sends us Wheat now; and on the other hand his profits are seriously reduced by rising rents and an ever increasing rate of wage; while he finds, like everybody else—for you hear it from every one in every rank of life—that household expenses are greater than they were even 10 years ago. What wonder, then, if a tenant farmer of small means is quickly reduced to difficulties by any severe loss of live stock or crops, losses by storm and disease or blight, directed by Almighty power, not to be resisted or warded off by the hand of man? At such a time, if he does not fall into the clutches of some provincial usurer, he may indeed retain possession of his farm; but he is little likely soon to recover his position, or to leave any sufficient provision for his family on the early occurrence of his death. Surely this is just the

case in which those farmers who are more prosperous —remembering the source of their prosperity—and those in other more secure walks of life, will think it a duty and a privilege to offer some effectual help. If this be so, our aid can hardly be given in a better form than by providing education and a home for the orphans. Some will perhaps object that there are already several large asylums open to orphans of all classes. But only those who have tried can realise the difficulty of getting any child into those great establishments. It cannot be done without obtaining many hundreds of votes by means of an expensive and often very laborious canvass, often continued through several years. And is it probable that the farmer's orphan, born and brought up in an obscure village, will frequently succeed in competing against other children, whose fathers were clergymen or residents in populous places, or in any other way personally known to a large number of friends, who can vote and canvass for them? It is encouraging to be able to state that two gentlemen have undertaken each to pay the cost of maintaining one child in the proposed "Home," and that a good many others have promised to subscribe; among these are several clergymen and Members of Parliament. All inquiries, suggestions, and offers of assistance will be gladly received by Robert Scott Burn, Esq., Highfield Lodge, Heaton Nursery, near Manchester, and by *W. D. Pritchett, Hadham Park, Bishop Stortford.*

Shingle Roofs.—Some of your correspondents some time since asked about shingle or wooden tiles. I quoted from the only reference I had, that they were sawn or riven. I do not believe the sawn are of any use. In America they are riven, even when of Pine; in this case they are tied together back to back, and kept in water for some time. They are sold in the Oak districts of Kent and Sussex of two widths, 5 and 3 inches, as Oak paling, by the hundred, and you cut them up to the required length. None but Oak are made in England or would stand any time our damp climate. The raw look is toned down by washing them in a weak solution of sulphuric acid and water (or dipping them); either will preserve them longer. *Somerset.*

Lime as a Cure for Slugs.—At midnight we sowed lime at the rate of four bushels per acre on the one and a half acre of Wheat which they had attacked. The lime was sown against the wind, and the lantern showed that they were out feeding and had been destroyed by the lime. Not a blade has disappeared since. It is clear to me that we had been neglectful in not applying it earlier. As soon as a few plants were missed, the lime should have been sown. We had, however, attributed the loss of plant to the wet weather. Our attack from wireworm on the light land was at once arrested by the salt dressing, which I have always found a certain cure if taken in time. The damage done by slug this season has been very considerable, and wireworm, on the light lands, has done much mischief. As it is, half my peck of Wheat per acre is uneaten by slug, and the adjoining three pecks per acre will probably be all the better for having been partially destroyed. I have 50 acres of Wheat a full plant from one bushel per acre—in fact, some of it would be, in my opinion, better if not sown so thick. It is clear to me that lime should be sown late on a mild night and against the wind, in order effectually to destroy the slug. *J. J. Mechi, April* 11.

Steam Cultivation.—I would wish to supply an omission of my own to your recent obliging review of my "Report on the Steam Trials at Bury." Mr. W. Cooper, of Fen Drayton, whose clever and energetic system of culture and application of steam is there alluded to, wishes me to add a slight detail relative to his system of manuring. He uses a large quantity of London manure, which costs 7*s.* per ton to the nearest railway station, and, in addition, artificial manure to a very great extent, viz., for the last four years chiefly, and now solely, the phospho-guano as prepared by Messrs. Lawson, of which the local demand is rapidly increasing, and in many respects surpassing Peruvian guano; and no doubt it is more to be depended on, and of easier application, from its being partly a manufactured article of a more homogeneous character and containing more of the constituents of fertility than the natural guano. The example of Mr. Cooper is not at all quoted as one that could be exactly imitated, circumstances varying so much—locality, soil, changes of lease, and, above all, capital, and the custom of the country, determining in most cases the exact system of cultivation for the agriculturist; but to supply an instance where a novel system, carried out with judgment and spirit, had profitably taken the place of mere routine, and to supply in a small degree a stimulus to other agriculturists to endeavour to improve or alter their modes in unison with their own peculiar circumstances. *W. R.*

Societies.

Southern Counties Association: *Brighton Meeting.*—A meeting of the above Society was held at the Society of Arts, Adelphi, on Tuesday last; Mr. Benyon, M.P., in the chair; 25 new members were admitted.

The answer of the Vice-President of the Committee of Council to Mr. Acland in the House of Commons, with reference to the exhibition of live stock, gave rise to a lengthened discussion, which was eventually adjourned till the decision of the Government authorities was more fully ascertained.

The Rev. James Beck read a report from the Arts Local Committee at Brighton, stating that they had selected the new domed building at the Pavilion for the Exhibition of Works of Art and Industry, and that they had referred the details of the Art Union to the Brighton Art Union.

The Secretary was instructed to request the managers of the Great Western, South-Western, and South-Eastern Railways, to contribute to the success of the Exhibition by granting increased facilities for the transit of animals, implements, &c.

The Council then adjourned to Wednesday, the 1st of May, at 2 o'clock.

The prizes for horned stock are withdrawn, in compliance with the Order in Council.

Derbyshire: *Wintering Store Cattle.*—At a recent meeting of the Derbyshire Agricultural Society, Dr. Hitchman in the chair, a paper was read by Mr. Coleman, of Park Nook, on the "Wintering of Store Cattle, and how the land can be improved by such means."

Mr. Coleman said—Having been brought up in the Eastern counties, my notions differ somewhat from the practice in vogue in this county. The wintering of cattle, and particularly store ones, is of greater importance to this district than to almost any other; for from he greater quantity of stock kept being for milking purposes, and such being of necessity in a store state during the non-producing winter months, it becomes a question of very great importance to our farmers, whether they cannot keep them cheaper than they now do, and also in better condition than many I see at the spring of the year turned out into the field, when they are so low in condition that it takes them many weeks to get up to the proper and natural state; and while they are putting flesh upon their bones they cannot be doing business in the dairy, thereby very much lessening the total quantity of produce at the year's end. Now one of the first things a farmer has to think of is to have a sufficiency of food upon his farm to meet the demands of his stock during the winter months, and how to get through that time at the least expense to himself, consistent with the well-being of his cattle. I will, therefore, notice the various descriptions of food which the farm produces, and the best means of increasing the supply of such food. Hay, of course, in this county stands first and foremost, and has long been, and will be, the main dependence of the farmer for winter provender for his cows; but I wish to draw your attention to the many substitutes which are now well known and used in the present day, and to venture to hope that some of you may be induced to mow less hay, and purchase more artificial food, than you have hitherto done, for many reasons; and one of them is, because I take all hay to be about the most costly food you can keep a cow upon, when she is not giving any milk. We must not take the value of the hay to be what it actually costs the grower, but what it would make with cheese at 75*s.*, if it were all consumed during the summer months as Grass; and I fancy some of you would then put rather more than what is now called a consuming value upon it. Would not you be glad to get rid of your cows, say 1st of November, and have them sent you again 1st April? Supposing them to be returned to you in as good condition as you require, I have no doubt you would be quite willing to pay for such accommodation a handsome sum; and I also fancy that if we could purchase such cows as we want in spring, it would be better for us not to winter any, where we have no arable land to provide straw for fodder and bedding. But as this cannot be done we must all of us make the best use we are able of the means at our disposal; in fact I can see that the four or five months of winter, and the having to provide food for stock during that time, in the manner now adopted, is one of the causes why more Derbyshire farmers do not make fortunes, and also why they are some of them at the mercy of their cheese factor. Now, costly as the keep of a cow is in Derbyshire, I have only to name the practice in some parts of Lincolnshire, and other straw-producing districts, to show that we might mend our ways to our advantage. In many parts it is a trouble to get rid of what we so much value, viz., the straw; and they are glad to get it made into manure with stock, if even such stock pay nothing for keeping, and many store beasts bought in October are sold the following April at less than they cost, after eating straw and 4 to 6 lb. of cake all the winter. You are all, I am sure, well aware of the value of straw when it is well got for fodder; but you must remember that if straw is cut into chaff and mixed with pulped roots, it is very much more palatable to animals; and therefore as a substitute for hay you must have roots to mix with your straw; and with Swedes for winter and Mangels for spring consumption, you will be able to defy the long cold spring to which we are subject, and be less liable to suffer from a short crop of hay; as when the early part of the summer is dry it is generally conducive to the well-doing of the root crops, as they can be sown in good order and kept clean during the first few weeks of their existence, a matter to which attention enough is not paid at the present time. I fancy some of us neglect our root crops as soon as hay time commences, and lose thereby very much more than we gain; for if you take a fair crop of roots to be 20 tons per acre, look at the amount of food for stock grown per acre compared to 1 to 1½ ton of hay, which is the general produce of an acre of average dairy land. I will now proceed to inform you how I did for years winter above 150 head of store cattle without, in some seasons, a taste of hay, and in others the proportion of a quarter hay to three quarters straw. The reason for my doing this was that I found stock bred and reared upon the farm, if of a good sort, always pay better than those purchased from a distance, and are not near so liable to disease in its many forms. My stock consisted of one, two, and three-year olds, in about the same proportion, and were nearly all of them pretty well-bred animals. We will take the treatment when the proportion of hay named (a quarter) was mixed with the straw, and see how we got on. Hay and straw chopped up together and used as chaff, the allowance to each grown animal would be about 2½ bushels of this chaff, half a bushel of roots, and 2 lb. of linseed cake (or other meal that was cheaper) boiled for about two hours, in the proportion of 1 lb. of cake (ground fine) to a gallon of water. A cistern, something like a small grain pit, sunk two and a-half feet in the ground, and about the same height out, made water-tight with cement, has first put into it a layer of the chaff, six inches thick; upon this is spread a thin layer of pulped roots, in the proportion of one bushel of roots to four of chaff, and upon these roots is poured from four to six gallons of the liquid in a boiling state; these are then stirred up together and well trodden down, the same proceeding being carried on until the cistern is quite full; it is then left 24 hours to get ready for use, which it does by fermentation, and the flavour of cake and roots is imparted to the chaff, and the whole becomes a very savoury mass indeed, and should be given quite hot. If any of you should be short of roots, but from the supply of grains like to use them instead, you will find the mixture quite as good, and less cake or corn of course need be used; but unless you have something to make a mucilage of, and pour upon your chaff hot, it will not ferment, and if no fermentation takes place the mixture is not worth having. I used a great deal of Fenugreek as a condiment for some years, at the rate of one ounce per head per day for the cattle, and found it answer the purpose, as it made mouldy hay and rather weathered straw all the more palatable. In fact, by this means you may get your stock to eat very inferior food, and fill their bellies well too; and this I consider to be the end and aim of all owners of store stock, viz., to let them have enough of such as they eat readily, and to be of the least costly material. Now what will two bushels of the chaff I have mentioned, and half a bushel of roots, with 2 lb. of cake, cost you? I will leave you to think over the question, for perhaps my estimate, coming as I do from a straw and root-growing district, will not be satisfactory to you; but put the highest possible value you can upon it, I will venture to say it will not be much more than half what hay costs you at the present time. I wish also to notice, before I leave the subject of food for stock, that there are many crops that can be grown for fodder to advantage that do not come under the designation of root crops, such as Tares, and Oats and Tares mixed. This is famous stuff for using in the way I have named, and if this be done upon strong land that is not very kind for Turnips, and then chop it all, and mix it as I describe, I am sure any sort of stock will thrive well upon it, and not waste so much as they do now when it is given in a dry or natural state. I want to impress upon you the necessity of making the produce of the farm more palatable to your stock: for if you happen to have a bad hay season, and have, as is called in this county, plenty of "stirk hay," why, your stock suffer in their milk producing properties very much during the next season—more than many of you imagine. I fancy that we do not pay attention enough to the production of straw for fodder upon our arable land; in fact, to come to the root of the whole matter, we farm the land for growing corn and corn only, and not for growing or keeping stock, which is of the most importance to us; as it is a great folly for us to think we can grow corn as cheaply as they can in Lincolnshire, Essex, or Norfolk, where the soil and climate are especially suited for such a system of farming, and where not above half the rain falls that does with us. But the causes which militate against Derbyshire as a corn growing county tend to enhance its suitability for the production of stock. When I see all the straw upon a farm made into manure, and put upon the meadows, and when what few roots that are grown share the same fate, I cannot help thinking that we are neglecting the most important branch of our business, and that we are robbing one part of the farm to keep up the other, instead of endeavouring to increase the fertility of the whole, and make them so assist each other, that both the arable and pasture land shall do their duty in adding to the prosperity of the occupier. Now let us consider what must be the state of the land upon which nothing but store stock is kept, and see if we cannot by improved management benefit the stock, and also very much increase the productive powers of the land. Under the present system of purchasing nothing but a few grains, and selling off almost everything the farm produces, viz., "cheese," do any of you think your farms are increasing in fertility or not? And can you deny that all dairy farms, upon which no artificial food is purchased for the stock in winter, are rather imperceptibly and gradually getting lower and lower in fertility; and will they not in the course of a few years, unless you alter your mode of farming, keep less stock and make less cheese than the present time? I do not wish to say one word against dairy farming, although I have never been accustomed to it until I came here, as I am aware nothing would pay so well as it does upon many of the second-class qualities of land which abound in this county. I would rather take the advice of a very old friend, when I first left home for a distance, which was to look over the hedge at what my neighbour was doing before I attempted to teach others; so I would guard against having you think that a more profitable mode of farming may be found than that which you now follow. But I want to see improved as much as you can the system I find you accustomed to. I have had to farm land that 60 years ago was let at 2*s.* 6*d.* per acre, and which by Turnip growing and sheep farming is now worth 30*s.* I find things to have been quite the contrary in Derbyshire; for a valuation of about the same time has come into my hands, and I find that the same farms are now making less than they were valued at. I want to see a more

liberal system of farming adopted in Derbyshire, although I do not expect you to spend more than your rents every year for purchased food, as I have often done to a profit; but use quite as much as your stock will pay for each year, and no more; for unless a farmer does get paid, something is wrong, and always one of the two things—either his expenses are too much, or his receipts too little. Now, as I have not known many Derbyshire farmers given to extravagant ways, I am afraid that the outgoings cannot be very much cut down, for labour increases in cost every day; rates and taxes, I am afraid, will not be less, but I must say just now show a very great tendency to keep pace with the times, and go a-head a little too fast; and rents—well! perhaps I had better say nothing upon this point, as I am situated, but I will just mention that farmers (or those who wish to farm) increase and farms decrease; so that the competition every day becomes keener for anything that is worth having. Now all these things being taken into consideration, what is the farmer to do who has rent, taxes, and labour to find money for? Why, he must produce more, or what he does produce must cost him less than it now does; for as we cannot expect our produce always to maintain its present high value, we must be prepared to meet a fall in price whenever it may come; but with that fall in price I am afraid will come no corresponding diminutions in outgoings.

Discussion.

Lord Denman moved a vote of thanks to Mr. Coleman for his able paper, and proceeded to remark that he thought his Palm-nut meal and cotton-cake steamed was an excellent food, and that steaming was a preferable way of treating food.

The Hon. E. Coke had great pleasure in seconding Lord Denman's proposition. Mr. Coleman had, in his opinion, detected the weak places in Derbyshire farming, and particularly in dairying. He was satisfied that a stingy way of farming is an impoverishing one; and it was not the way to improve by turning the straw into ready money as so many farmers do.

Mr. Abbott spoke as to the extra labour required in chopping, and asked how much richer hay and straw is after being chopped than it was before or in its original state? He thought that where cake is given, the stock would eat the straw up to the last sheaf.

Dr. Hitchman stated that in his small experience he could confirm Mr. Coleman's remarks as to the value of certain compounds in making straw or inferior hay palatable to stock. In 1859-60, when the Burton brewers raised the price of grains to 6*d.* per bushel, he felt that after the processes and the heavy hydraulic pressure to which the grains had been subjected, they were not as mere husks worth the money for feeding materials, and he found a substitute in boiled Linseed two pounds and about a quarter of a pound of Fenugreek and aniseed, the whole of which cost him 4*d.*, and served as well as the grains for mixing with straw chaff, and the cows did very well on it, with their usual quantity of hay. As regards the conversion of Grass fields into root and corn-growing land, he feared that the climate, and especially the soil of much of South Derbyshire on the clays of the new red sandstone—and all of North Derbyshire—was better for Grass than corn, and straw would always be an expensive article; even in the small farm which he conducted much of it was so retentive of moisture that the footprints of a horse or cow would retain water for a long time. He concurred with Mr. Coleman on the propriety of mixing pulped roots with chopped straw and hay, but in his own practice he found that heat was generated by the fermentative process, if grains were added to the compound, even without boiling water being added. He had been asked upon what principle chopped and steamed straw were better than straw unchopped and unsteamed, and the same gentleman had stated that more cattle died from eating chopped straw than from any other cause. Now, the mischief arose—when it did arise—from the straw being chopped too small; all ruminating animals required that they should be supplied with straw two inches long or thereabouts, in order to throw up the cud for mastication, and are always better for some hay unchopped. The fermentation, when not permitted to reach the sour stage, developed some saccharine matter; but under any circumstances, steaming or fermentation softened the woody fibre of the straw and thus rendered it more amenable to the digestive and excretory processes. He attached great importance to the use of salt in the feeding of stock in winter. Mr. Coleman had not suggested it, but he (Dr. Hitchman) was sure of its value as supplying an essential material to the blood (phosphate of soda), which cannot be obtained in sufficient quantity from straw grown inland; and therefore their cattle had about an ounce daily mixed with their chopped food. It was a cheap and useful condiment, aiding digestion and contributing to the health of the animal in other particulars. He had pointed out some years ago to the members of the Society the importance of sheltering stock in winter, and he hoped that all landlords would aid the tenants in this particular; the stock should be sheltered, not only to economise food, but also to improve the value of manure; both chemical analysis and practical experience had shown, that manure unexposed to wind and rain produced much larger crops than that which was exposed; and it would be better when dung heaps were placed in fields to cover them over with some plastic mixture, or even to spread it over the fields as it was produced, as suggested by Professor Voelcker. f stock were better fed the manure would be more valuable, s practical men well knew; it had been valued as worth more han four pounds per ton when cattle were supplied with oil-cake; it is said to be equally valuable, or more so, when they were fed with Cotton-seed cake, which is almost as cheap again as Linseed cake; and it would, perhaps, be worth the attention of stock keepers for mixing purposes, but great care should be observed that it is well decorticated, otherwise it is a dangerous food. In the general principles of Mr. Coleman's very practical paper he cordially concurred.

Mr. Faulkner said he was for years a purchaser of cattle, but now he was a rearer, which he could positively say was by far the best plan. He strongly advised the keeping of stock well, and always in a growing state; but he was sorry to see many farmers keep their beasts so low in winter that for the first six weeks they went to Grass they could not be of any use to the dairy. He once had some stirks offered him in October at 9*l.* apiece, and he could have bought them for 7*l.* in the following spring, simply because they had not been kept in a growing state.

Mr. Coleman—The remarks made by Lord Denman relative to the steaming food for stock, I will answer by saying that I prefer the mode I have named, because it is not half the expense, and because fermentation answers every purpose of steaming, and is even better, for the stock eat the food more readily when steamed. The Palm-nut and Cotton-cake to which the noble lord has alluded are both of them well worthy the attention of the dairy farmer, and are two of the cheapest of the many feeding stuffs now upon the market; but neither of them will answer for boiling, as they are not palatable to the stock when so treated. Cotton-seed cake I have found rather dangerous to give to stock in large quantities, unless they got at the same time a bountiful supply of roots; for from its astringent nature it tends very much more than even chopped straw to interfere with the powers of digestion, which it ought to be the study of the stock owner to keep in order. Dr. Hitchman made an allusion to the use of salt; my practice has been to keep rock salt in such a position that the stock can always get at it, and by this means each animal takes what it requires, for I have invariably found that if a certain portion of salt be mixed with the food at all times, some animals get too much, and it does them more harm than good. I am well aware of the importance to a dairy farmer of proper shelter to his stock in winter, but I think Derbyshire is better provided with shelter than almost any of the Midland counties; and also that this district requires more buildings for their stock than many others, because you keep the same number of cows all the year round, and are unlike the grazing districts of Leicestershire, where there is no stock upon the land in winter. I have no doubt that when a landlord gets a good tenant who requires more buildings, and such are considered necessary, that they will be carried out; but I must protest against farmers calling out against the want of buildings upon their farms, when they do not put what they have to a profitable purpose. Mr. Abbott seems to think chopping straw of no use, but only labour thrown away. I only ask him another season to fairly test the plan I have recommended; and notwithstanding the expense, I think he will be more than repaid for the outlay. For supposing he has mouldy hay and weather straw to give his stock, I will ask him how he is going to keep them in good condition without a very liberal supply of cake or corn, and I fancy he will have some trouble to persuade a dairy farmer in this district that he can afford to run up a heavy bill for this purpose. I am very pleased to hear Mr. Faulkner's remarks, as they so much coincide with my own ideas, which are that for grazing purposes an animal should never lose its calf's flesh, but be kept going on until ready for the butcher. In reply to Mr. Bryer, who has just asked if cooked food will not make the stock more delicate than they are now, all I can say is that I never found this to be the case, and in fact quite the contrary; for when they are turned out to Grass in a good store state they lose no time, but at once commence thriving; and as the owner has the management of them during the time they have cooked food, surely he can take care and not keep them too well; for if an animal is pampered in the stall, of course it cannot be expected to make much progress in the Grass field. *Derby Reporter.*

Farmers' Clubs.

Midland: *Turnpike Roads.*—At a general meeting on Thursday last, Mr. R. H. Masfen, President, in the Chair, Mr. Horley read a paper on "Turnpike Roads." After alluding to the advantages of an abolition of turnpikes, to the avowed intentions of the late and present Government, to the discussion the question had undergone, and to its importance as affecting the ratepaying interests of the country, he proceeded to say it was looking back at the origin of turnpike roads, and believing that they, as being the original means of cheapening traffic from one part of the country to the other, had thereby benefited all classes of society, from the highest to the lowest, which had led him to the conclusion that as everybody was interested in having the roads (more particularly the main roads) kept in an efficient state of repair, it was unfair to throw their maintenance and the redemption of existing debt entirely upon the land. He looked upon the construction of turnpike roads as being as much a march of progress in their day as railroads were in the present day; and when the uses in which they have been employed were considered, they might fairly be looked upon as "imperial and national" rather than local; and whenever they might be dealt with by a comprehensive measure (and the sooner the better) he trusted Parliament would see the justice of contributing towards the payment of the debt, which appeared to be the great difficulty in dealing with the matter, owing to the number of vested interests. He thought it must be clear to every one interested in the future of turnpikes and main roads in the country that Parliament should be urged to deal with the trusts throughout the country generally, and not make the districts where the trusts had been well managed and were out of debt, keep their own main roads in repair, and contribute in the shape of toll to the maintenance of any other roads they may have occasion to use. He would be a bold man who would defend the management of turnpike trusts generally, in which there had been a great want of economy, tact, and ability. However, it behoved them to look calmly and deliberately at the suggestion which appeared to find most favour amongst our legislators—an extension, or he might say an universal and compulsory application of the permissive Highway Act, the salary or expenses of carrying out which cost as much per cent. as the turnpike roads. In this county the rate under the Act varied from 5*l.* 10*s.* to 25*l.* per mile, and the roads generally were not improved. The compulsory application of that Act at present, he thought, would be a great hardship on the ratepayers generally by increasing the cost of maintaining the roads, without any advantage to the public. Mr. Horley went on to say, "Although I believe in a few years turnpike trusts and toll gates will be numbered among things of the past, yet before that event takes place many plans and suggestions may possibly be brought forward with the idea of solving the difficulty of paying the debt and maintaining the roads for the future, without injustice to the interests involved. The consolidation of trusts (as has been done in South Wales), and maintaining the gates until the debts are paid, has many supporters, and it certainly appears in that instance to have economised the expenditure very materially, particularly under the items of salaries and law expenses. In fact, only 13*l.* is charged under those heads in the last returns for 1864, and even less than that some years, since they have been consolidated, and the salaries and law charges amount together to about seven per cent. There are persons who have well weighed the matter who believe that a county rate (including boroughs) would be preferable to the existing machinery of "Highway Boards." . . . If tolls are doomed, and turnpike trusts abolished, a County Board, on which the rate-payers are fairly represented, and the representatives of which, from the nature of the Board, would be chosen from different districts of the county, would tend to remove any local or personal interests from having an unfair or undue influence, and this is a matter worthy of the consideration of all parties interested therein; and it must be remembered that although property is assessed, and owners must have a voice in the expenditure, yet it comes directly out of the pockets of the occupiers. . . . . I think it may be fairly gathered from the Report of 1864 (to which I have before alluded) that great economy in the cost of maintaining turnpike roads by consolidating the whole of the county (or some large area) might be carried out, and yet leave them in a high state of efficiency, and also the desirability of the surveyor being a shrewd and first-class man, and one thoroughly understanding the principles and practical part of road making: but many may take a valuable lesson from the Irish system, where no material is allowed to be put on without being broken to 2 inches; and I am sure any one who travels much by road must notice the superiority of the roads where these directions are properly carried out, and the materials laid upon the road at a proper season, and in a systematic and scientific manner.

Mr. Wm. Fowler, Jun., thought that the old turnpike system should not be abolished, and that the agitation which had recently arisen in reference to it was much to be deprecated. The country would have cause to regret any hasty legislation in the matter. Tolls should not be so high as to make them oppressive. Gates ought to be placed at reasonable intervals, and toll paid at each of them, instead of a person, as at present, paying a heavy toll at one gate being freed for the next 30 miles on which he would not travel. Civil collectors, moreover, should be appointed to receive the tolls. With regard to the mortgage debts the money was honestly lent and must be honestly repaid. With regard to the measure before Parliament, he thought it quite sufficient for the ratepayers of a parish to keep their own highways in repair, without paying off the mortgage debt of the country; and he contended that if the roads were to be maintained in a high state of efficiency, that might be done better and cheaper, and on a better principle, by amending the present system than by throwing them on the parishes.

Mr. J. H. Burbery contended that a great amount of debt had accumulated from the expense of renewing the Acts in reference to the various trusts, which could not be done under an expense, in each case, of 400*l.*

Mr. Jesson said two points seemed to be admitted—first, that it was desirable to get rid of turnpike trusts; and, secondly, that the management of highways should pass into independent hands. He offered the following suggestions:—1. Counties to be divided into convenient districts by Quarter Sessions for the repair and management of all roads and highways within each district. 2. A board of waywardens for each district to be appointed by the persons assessed to highway rates. 3. The board to appoint a surveyor for each district. 4. The board to have the power to continue or to remove the present and to erect new toll gates, but not more than one of them in every seven miles, on any roads or highways during 10 years and no longer. 5. A sinking fund of not less than 10 per cent. per annum on the existing mortgage debts to be provided—half of the cost of the repairs of the roads to be paid by the waywardens, and the remaining half out of each county rate. 6. All toll gates to be removed when the mortgage debts are paid, and then the roads to be repaired by the waywardens—one-half of the cost by a highway rate within each district, and the remaining half out of the county rate. 7. Highways under the management of the Commissioners of towns not to be included in any highway district. He would remind the gentlemen present that they were a farmers' club, and that, in urging that the land should be relieved in part from the cost of the roads, they were advocating the interests of the landowners; for, though the tenants paid the rates, the amount of those rates was always considered in fixing the rent to be paid for a farm. He proposed to leave the waywardens the power of continuing or erecting gates where the amount of the traffic would make it worth while to incur the cost of collection, but that they should all be swept away in 10 years.

Mr. Brawn moved a vote of thanks to Mr. Horley for his valuable paper. He believed an opinion was gaining ground in this country that the entire abolition of turnpike gates was desirable, for not more than 60 per cent. of the money collected at the gates was expended upon the repairs of the roads. In the remarks of the speakers who had preceded him one important feature in the case—the profits of the lessees—had been entirely overlooked. Having come to the conclusion that many people wished to get rid of the gates, the question arose, how were the roads to be repaired? The plain and simple way would be to take the gates away, and let the roads at once become the property of the parish, which would then have to repair them; but all those who derived benefits from the roads ought to support them, and he did not see why property which was assessed to the income-tax should not also contribute to the maintenance of the means of locomotion in an efficient state.

Mr. Ford seconded the motion. The subject (he said) might be narrowed into a small compass. It was a fact already established that turnpikes were to be abolished. The subjects then to be considered were first the debt, and then the best way of maintaining the roads after the gates were abolished. He argued that Government was never scrupulous as to the interests of the people when any great changes were made in the institutions of the country, and never offered remuneration to those who suffered from such cases; and he held that trustees were not necessarily bound to make good the turnpike debts, as those who lent the money knew that they ran some risk from the trust not being

permanent. It would be a great injustice if the debts contracted for imperial purposes should be thrown upon the backs of the owners and occupiers of the land, who already bore more than their fair share of the burdens of the country. The only way of getting out of the difficulty was, as the expense was created for a national purpose and the good of every individual in the kingdom, its liquidation should come from the national funds.

Mr. WRIGHT said they must be satisfied that a change would be made sooner or later in the management of turnpike roads, and it was, therefore, scarcely worth while to discuss anything beyond the plans by which that change could be made so as to secure the greatest benefits to the community at large, guarding, at the same time, against an undue share of the burthen of maintaining the roads being placed upon any one interest. Looking at the difficulties in which many trustees had been placed, and the somewhat rude mode in which the income was raised, it would, he thought, be readily admitted that the roads had been well and economically managed. In many districts, as was well known, there had been during the last 20 years frequent reductions in the tolls charged; and it would probably be found, were the subject fully investigated, that had the districts been more extended, the amount of debt upon the roads would by this time have been comparatively trifling, if any debt at all had remained. This consideration should lead them to urge that in any new system the area of rating should not be too limited, not so limited as appeared to be contemplated by the Bill now before Parliament; and it must be evident that, as good roads were of great importance to every class of the community, the expense of maintaining those roads should be shared by all.

The PRESIDENT thought that the amalgamation of different trusts, which could be effected under a recent Act, and had been done in some of the adjoining counties, and found to work satisfactorily, was desirable. Such an arrangement would enable some of the turnpike trusts to pay off the whole or a greater portion of their debts. One thing was very certain, that in some districts, from the general good management brought to bear upon them, the debts had been paid off, and according to the contemplated arrangements, the roads would be thrown upon the existing parishes in which they were placed. That would be a very hard case, because those parishes would have to suffer indirectly by traffic over which they had no control, and which would pay no corresponding amount of rate towards the repair of these roads, being brought upon them. Millers', brewers', and carriers' waggons, cabs, &c., and all kinds of vehicles would really and truly bring a great amount of heavy traffic along the roads in proximity to large towns. Mr. Horley touched upon the desirability of an uniform system of rating, including both towns and country, and he thought no one could disagree with it, because the inhabitants of towns required as good roads to convey the goods which were purchased by the farmers in towns to them, as the farmers did to convey the produce to the towns.

The CHAIRMAN announced that the next meeting was fixed to take place on the first Thursday in June, when the subject to be discussed would be the advisability of extending the Factory Act to agriculture.

Farm Memoranda.

IN THE FEN DISTRICT.—*The Gang System.*—The following is the evidence of Mr. Nisbet, of Thorney, agent to the Duke of Bedford:—

"In a part of the country like this, in which there is such a wide extent of cultivated land in proportion to the population, and lying at such a distance from it, it is almost a necessity that women and children should be largely employed in field work, to make up for the deficiency of men's labour. This parish contains an area of about 17,000 acres, with a population of only 2219, nearly all of it in the village, which lies about in the centre of the parish. The only way in which children's labour can be made available to any extent is by working them under an overlooker in what are called 'gangs.' The right way of doing this is by means of a 'private gang,' in which only a moderate number are taken to work in the direct service and control of the farmer, and under the direction of one of his own men. The work is then very proper and suitable for the children, and they ought not to be excluded from it. Much of the work which they do, as *e. g.*, hand weeding, would not be suitable for men.

"But the other system, so general in this neighbourhood, *i. e.*, that of "public gangs," is very objectionable. The children in these are in the employment of a man who contracts for work with the farmer by the piece or acre, or by the score of children, and pays his workers what he can get them for. On this plan children are taken about to work in much greater numbers, to much greater distances, and under much less proper supervision. One of the greatest objections to the system is that the gangmasters are often men who from their character cannot get good employment themselves. In fact these gangs are, so to say, a refuge for the destitute, both as to masters and workers, and as long as they are allowed to come from all parts and under no control, I do not see how the general character of such gangs can be any better. Till quite lately there were two gangmasters in this parish, but I have such a dislike to the system that I stopped them by requiring that they should give up either their gangs or their houses. They preferred the former. The farmers thought it hard, and I have often thought since that perhaps more good would have been done on the whole if I had allowed these men to carry on their gangs here, as I could have thus kept some control over them.

"If the gangmasters were required by law to obtain a licence from the magistrates it would do something towards securing proper characters. The magistrates would be able to ascertain if a man was unfit by referring to the police. I have no doubt that if such a law existed it would be carried out effectively, here at least.

"Another objection to these gangs is the numbers of both sexes working together. They ought to be separated. There is no kind of work in which any difficulty would arise from this. The same amount of work would be done by a gang of boys working in one place, and a gang of females in another, as is at present done by the same number of persons working in two gangs promiscuously. It is very likely that as a rule a gang of females could not be put under a woman, owing to her want of power to control them as a man can; though a woman who has a gang in this neighbourhood is, I hear, fully equal to any man in this respect. But it would require masculine and unusually strong-minded women. The separation of the workers would, however, be a great benefit. I have myself seen boys bathing in the presence of girls of the same gang; big girls, say, up to 14 or 15 years old.

"The nature of the soil also makes the work of gangs in the fen districts more necessary than elsewhere, owing to the greater number and quicker growth of weeds. Horse hoes are used as much as possible, but hand weeding is needed in addition. It is, I know, thought by some that getting an extra crop from the land makes it necessary to have more weeding done than would otherwise be required. But I believe that for this soil the five-course system is far better, and that the four-course system would be actually injurious, as under it the corn would run to such a length of straw. Nearly all the farmers in this parish employ the public gangs. One does not, but he has to employ Irishmen instead. Another gets the work done by women only, and some entirely, or partially, by private gangs.

"Some gangs from a distance are carted here, the farmer sending his waggons part of the way for them, but so as to stop short of the toll-bar. Waggons are not sent for the Whittlesea gangs I believe. The toll-bar on that road is near here.

"Where the population is in fair proportion to the extent of land, and is well distributed, gangs are not needed. This is the case with an estate which I manage a few miles west of Peterborough. There, instead of children, I have eight or ten women with a man to look after them. In the same way on an estate, also under my care, near the mouth of the Nene, though the population is very scanty, children are not wanted, because it is the custom for most of the women to go out to field work. I have had a wide acquaintance with farming as carried on in different parts of the country, and never heard of any gangs except in these eastern and one or two adjoining counties.

"In certain other districts with which I am acquainted the scarcity of men's labour for field work has led to systems of female employment which are rather peculiar, viz., the 'Bondager system,' and what may be called the 'Bothie system.'

"In the north of England the bondager system is very much followed, owing to the scarcity of men to do field work in some districts, such as Northumberland. The yearly farm servants are required to find a woman or strong boy to do field work, &c. (boys are the exception, not the rule), such as hoeing and pulling Turnips, spreading manure, &c.; also the barn work, such as dressing corn; and many other acts that men do in the south of England.

"The bothie system has of late years very much crept into the south of Scotland, owing to the extra number of workers required for the cultivation of Potatos. Upon most farms there is a large sleeping room, with another room attached, where you will find 10 or 12 young women living (they are mostly from the north of Scotland). The farmer provides them with Potatos, Oatmeal, and milk, and gives them so much money per week. Both systems are very objectionable, but I do not know how the farmer is to get his work done without either. The women are engaged by the farm servants (when they have no daughters of their own) for a term of half a year, at wages which range from 4*l.* to 6*l.* for the summer half, May to November, and from 2*l.* to 4*l.* in winter; in summer they work from 6 o'clock to 6 o'clock, with an interval of two hours. I have often heard it remarked what fine, strong, healthy-looking women they are, and objectionable as the system is it is, much more healthy for them than the lace making and straw plaiting of Bedfordshire and Buckinghamshire, &c., or the manufactories of large towns. They are very frequently the daughters of pitmen from the large colliery villages, who prefer field work to house work, and in fact house service is at a discount."

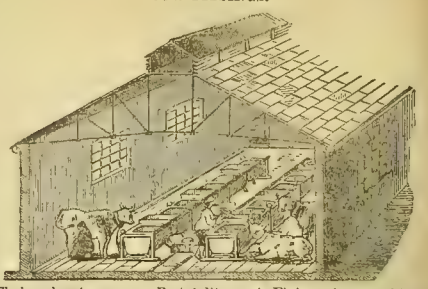
Notices to Correspondents.

IMPROVEMENT OF GRASS LAND: *A. M.* If a man mows his poor, wet pasture every year, and hardly dresses it at all—and unfortunately in this we are not supposing an unusual case—he will very soon find it full of Yellow Rattle, Sedge, Hawkweeds, Purging Flax, Devil's Bit, and other weeds; Fescues, Poas, and Clovers will dwindle and almost disappear. If he drains it and gives up mowing it, dresses it with farmyard dung and bonedust, if he pulls up Thistles and Docks, and the larger weeds, feeds sheep on it, folding them upon the land if necessary and foddering them with hay in winter, giving also roots and cake, he will soon have good grazing grounds and meadows full of Clovers and Grasses. Rush and Sedge, and weeds will have disappeared.

SCAB: *R S.* It is owing to the presence of minute insects called acari, which burrow under the skin and produce excessive irritation, causing the animal to seek relief by rubbing against any hard object. This friction removes the wool, produces sores, and the animal loses flesh and becomes a miserable object. Powdered sulphur, 4 oz.; fish oil, 12 oz.; oil of turpentine, 2 oz.; white hellebore, 2 drachms, are to be well mixed together and rubbed into the affected parts; or mercurial ointment diluted with four times its weight of lard.

TEAZEL, &c.: *A L W Cowper.* Teazels will do well only on poor, stiff clay soil. The best treatise on Market Gardening is by Mr. Cuthill, of Denmark Hill, S.

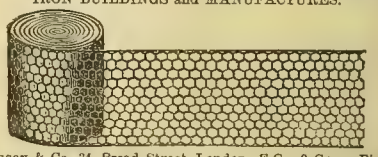
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Their advantages are—Portability, not Fixtures,' removable at pleasure, no Woodwork or Partitions to impede Ventilation or breed Vermin, Hay Rack dispensed with as unnecessary, increased width and depth of Feeding Troughs, Water Cistern, and Patent Drop Cover to prevent over-gorging. Cleanly, durable, and impervious to infection, being all of iron. Price of Fittings per Cow, 65*s.*

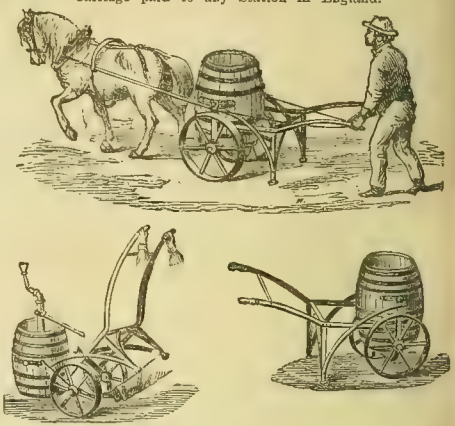
Prospectuses free of COTTAM & Co., Iron Works, 2, Winsley Street (opposite the Pantheon), Oxford Street, London, W., where the above are exhibited, together with several important Improvements in Stable Fittings just secured by Patent.

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The above is very cheap and invaluable for carrying Liquids of all kinds. No Garden, Farm, Stable, or Kitchen Yard should be without one. Two or more Tubs can be had with one Carriage at a small additional cost. A Lad can easily work it; but if required to travel long distances over rough ground a Pony can be attached. The wheels and carriage are wrought iron, and the tub oak. The following, out of many Testimonials, have been received:—

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"SIR,—You are welcome to make use of my letter recommending your Water Barrow. I find it of great use, and stronger, better, lighter, and more serviceable than one I had made in the neighbourhood, the carriage alone of which, without the barrel, cost me £3 10*s.* I unfortunately ordered it before I saw your advertisement. —I am, yours obediently, "O. FITZGERALD."

"To Mr. W. S. BOULTON."

From THOS. INGLE, Esq., *M.D., Emsworth, Hants, June* 24, 1866.

"SIR,—The Swing Water Barrow is in every respect a most admirable improvement on all I have hitherto used in my Gardens. All parties who have seen it, Gentlemen as well as Gardeners, have bestowed upon it their unqualified approval, and several said they would order them of you.—Yours truly, "THOS INGLE, M.D."

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Apply to HILL & SMITH, Brierly Hill Iron Works, near Dudley, and 22, Cannon Street West, E.C., from whom only it can be obtained

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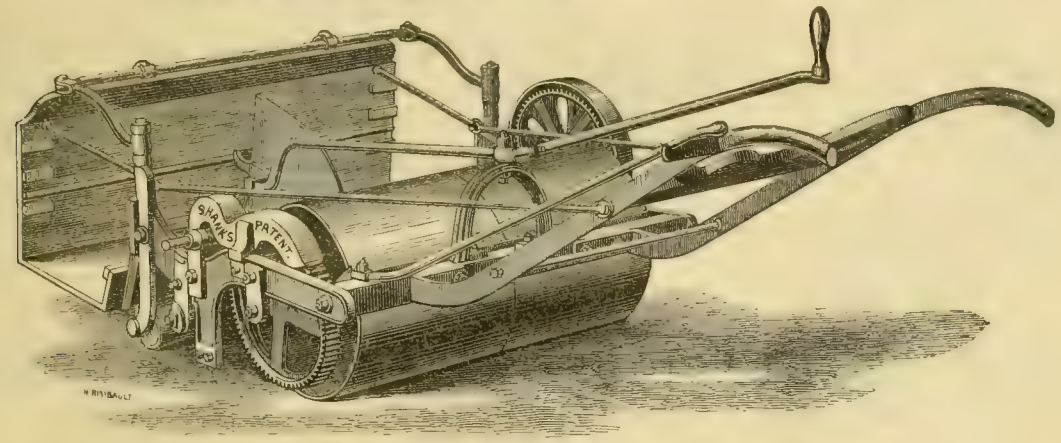
AND ONCE BY HIS MAJESTY THE KING OF SAXONY.

DURING THE SEASON OF 1865 THEY WERE PATRONISED ON FOUR OCCASIONS BY HER MAJESTY THE QUEEN,

ONCE BY HIS MAJESTY THE KING OF HOLLAND, AND ONCE BY HIS MAJESTY THE KING OF PRUSSIA.

AGAIN ON FOUR OCCASIONS DURING THE SEASON OF 1866 BY HER MAJESTY THE QUEEN,

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Silent Movement, 12*s.* 6*d.* extra; Boots for Pony, 22*s.* per set
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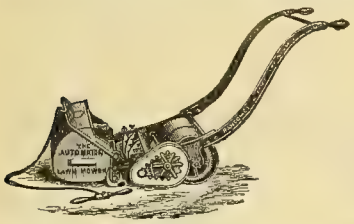
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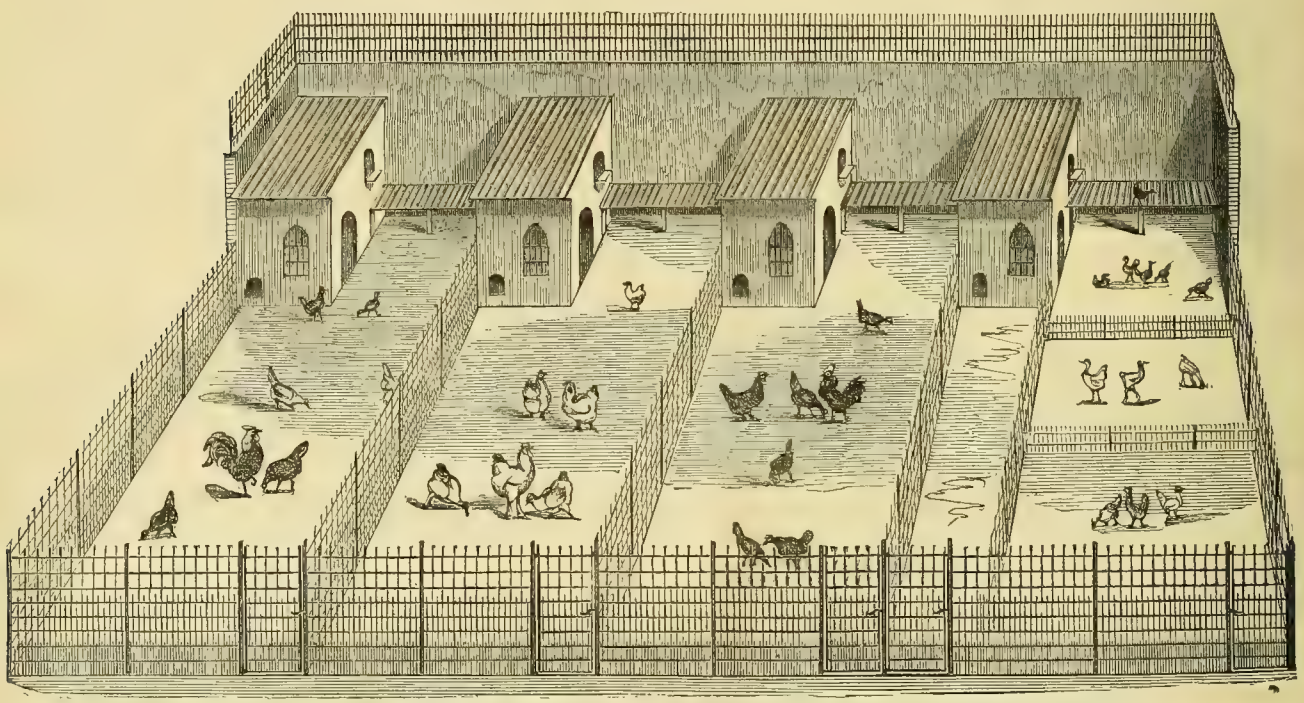
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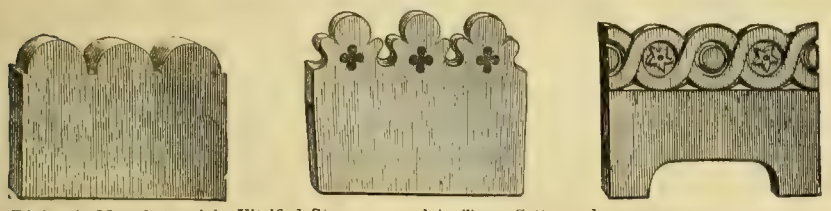
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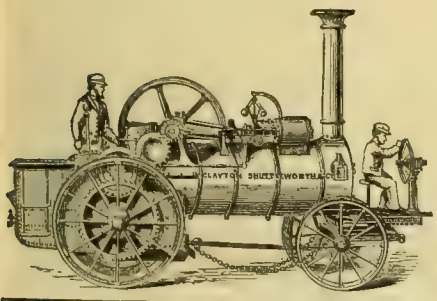
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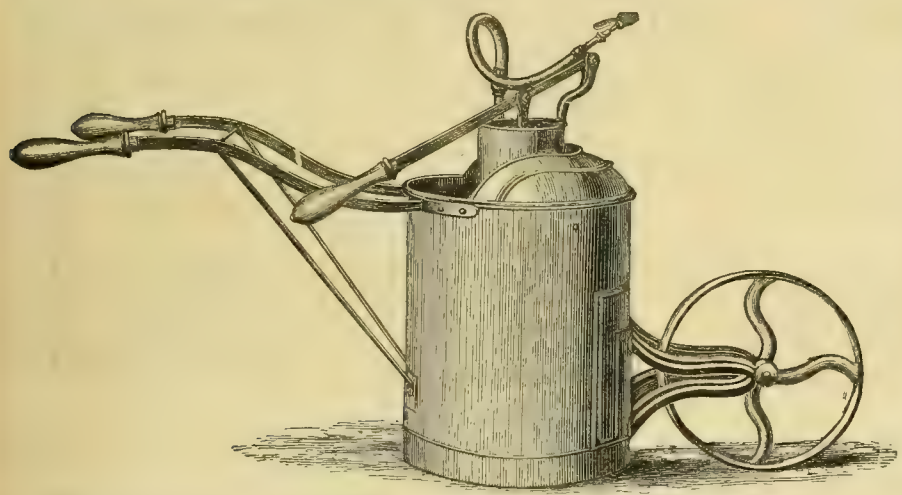
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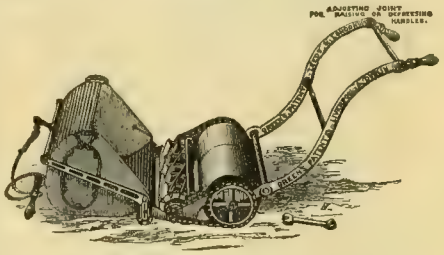
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	Each.—s.	d.		Each.—s.	d.
2 inches in diameter ..	0	3½	12 inches in diameter ..	1	9
3 " " ..	0	4½	13 " " ..	2	0
4 " " ..	0	6½	14 " " ..	2	6
5 " " ..	0	6½	15 " " ..	3	0
6 " " ..	0	8	16 " " ..	3	6
7 " " ..	0	10	17 " " ..	4	0
8 " " ..	1	0	18 " " ..	5	0
9 " " ..	1	2	19 " " ..	6	0
10 " " ..	1	4	20 " " ..	7	0
11 " " ..	1	6			

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6 inches diameter .. .. 1s. 0d. | 9 inches diameter 1 0
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With Stands complete.

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12 inches	6	6	18 inches	9	6
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Painted and Glazed with 16-oz. Sheet Glass.

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in.	in.		4ths.	3rds.	2nds.	Best.
20 by 12						
20 by 13						
20 by 14	Per 100 feet	15 oz.	14s 3d	15s 6d	18s 6d	20s 0d
20 by 15						
20 by 16		21 oz.	19s 6d	22s 2d	25s 6d	26s 6d

SMALL SHEET SQUARES, 15 oz., per 100 feet.

in.	in.	in.	in.	in.	in.	4ths.	3ds.	2nds.	Best.
6 by 4	7 by 5	8 by 6	9 by 7						
6½ by 4½	7⅞ by 5½	8¼ by 6½	9½ by 7½			12s 3d	13s 3d	16s 0d	18s 0d

Per 100 feet.

10 by 8	12 by 9	12½ by 10½	14½ by 10½						
10½ by 8½	12½ by 9½	13 by 10	15 by 10						
11 by 9	13 by 9	13½ by 10½	13 by 11			13s 3d	14s 6d	17s 3d	19s 0d
11½ by 9½	12 by 10	14 by 10	14 by 11						

LARGE SHEET SQUARES, 15 oz., per 100 feet.

in.	in.	in.	in.	in.	in.	4ths.	3ds.	2nds.	Best
15½ by 10½	14 by 12	22 by 12	22 by 16						
16 by 10	14½ by 12½	17 by 13	24 by 16						
14½ by 11½	15 by 12	23 by 13	20 by 17						
15 by 11	15½ by 12½	18 by 14	22 by 17						
15½ by 11½	16 by 12	22 by 14	24 by 17			14s 3d	15s 6d	18s 6d	20s 0d
16 by 11	16½ by 12½	24 by 14	20 by 18						
21 by 11	17 by 12	22 by 15	22 by 18						
13 by 12	18 by 12	24 by 15	24 by 18						

The above Prices are only for the Sizes stated; if a quantity of any other Size be required, a Special Price will be given.

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In Sheets for Cutting up, averaging from 6 to 9 feet super.

15 oz.		21 oz.	
4ths quality, per 300 feet case,	38s.	4ths quality, per 200 feet case,	38s.
3ds " "	48s.	3ds " "	48s.
2ds " "	62s.	2ds " "	62s.
Best " "	92s.	Best " "	96s.

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BRITISH PLATE GLASS for Windows and Silvered for Looking Glasses, Coloured Glass, Glass Shades, Striking Glasses, &c., &c.

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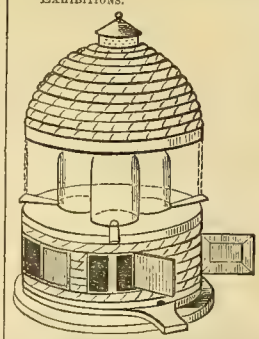
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SECONDS WHITE LEAD	30	0	BOILED OIL	3	8
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12 Dessert Spoons	1	4	0	1	10	0	1	12	0	1	15	0
12 Tea Spoons	0	16	0	1	0	0	1	2	0	1	5	0
6 Egg Spoons, gt. bowls..	0	10	0	0	12	0	0	12	0	0	13	6
2 Sauce Ladles	0	6	0	0	8	0	0	8	0	0	9	0
1 Gravy Spoon	0	6	6	0	9	0	0	10	0	0	11	0
2 Salt Spoons, gt. bowls..	0	3	4	0	4	0	0	4	0	0	4	6
1 Mustard Spoon, gt. bwl.	0	1	8	0	2	0	0	2	0	0	2	3
1 Pair of Sugar Tongs ..	0	2	6	0	3	6	0	3	6	0	4	0
1 Pair of Fish Carvers ..	1	4	0	1	10	0	1	10	0	1	10	0
1 Butter Knife	0	2	6	0	4	0	0	5	6	0	6	0
1 Soup Ladle	0	10	0	0	12	0	0	15	0	0	17	0
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4-inch finest African ivory handles ..	35	0	27	0	12	0
Ditto, with silver ferules	42	0	35	0	13	6
Ditto, carved handles, silver ferules ..	55	0	45	0	18	6
Nickel electro-silver handles	25	0	19	0	7	6
Silver handles, of any pattern ..	84	0	54	0	21	0
Bone and Horn Handles—Knives and Forks per dozen.						
White bone handles	11	0	8	6	2	6
Ditto, balance handles	23	0	17	0	4	6
Black horn rimmed shoulders	18	0	15	6	4	6
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" Stonei
" lævigatum
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" maculata
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Vanda cœrulea
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" Fairrieanum
" Lowii
" Stonei
" Veitchii [giganteum
Dendrobium macrophyllum
" Farmeri aureum flavum
" Cambridgeanum
" nobile pendulum
" Parishii
" primulinum giganteum
" Heyneanum, Blandum, &c.
Lælia majalis
Lælia autumnalis
" Brysiana
Odontoglossum Alexandræ
" cordatum
" luteo-purpureum
" Pescatorei
" nævium majus, &c
Oncidium macranthum
" nubigenum
" holochrysum
" cruentum, &c.
Phalænopsis amabilis
" grandiflora (Bornean and Philippine varieties)
" Luddemanniana
" Schilleriana
Vanda cœrulea
" insignis
" suavis
" tricolor, &c.
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Zygopetalum rostratum, &c.

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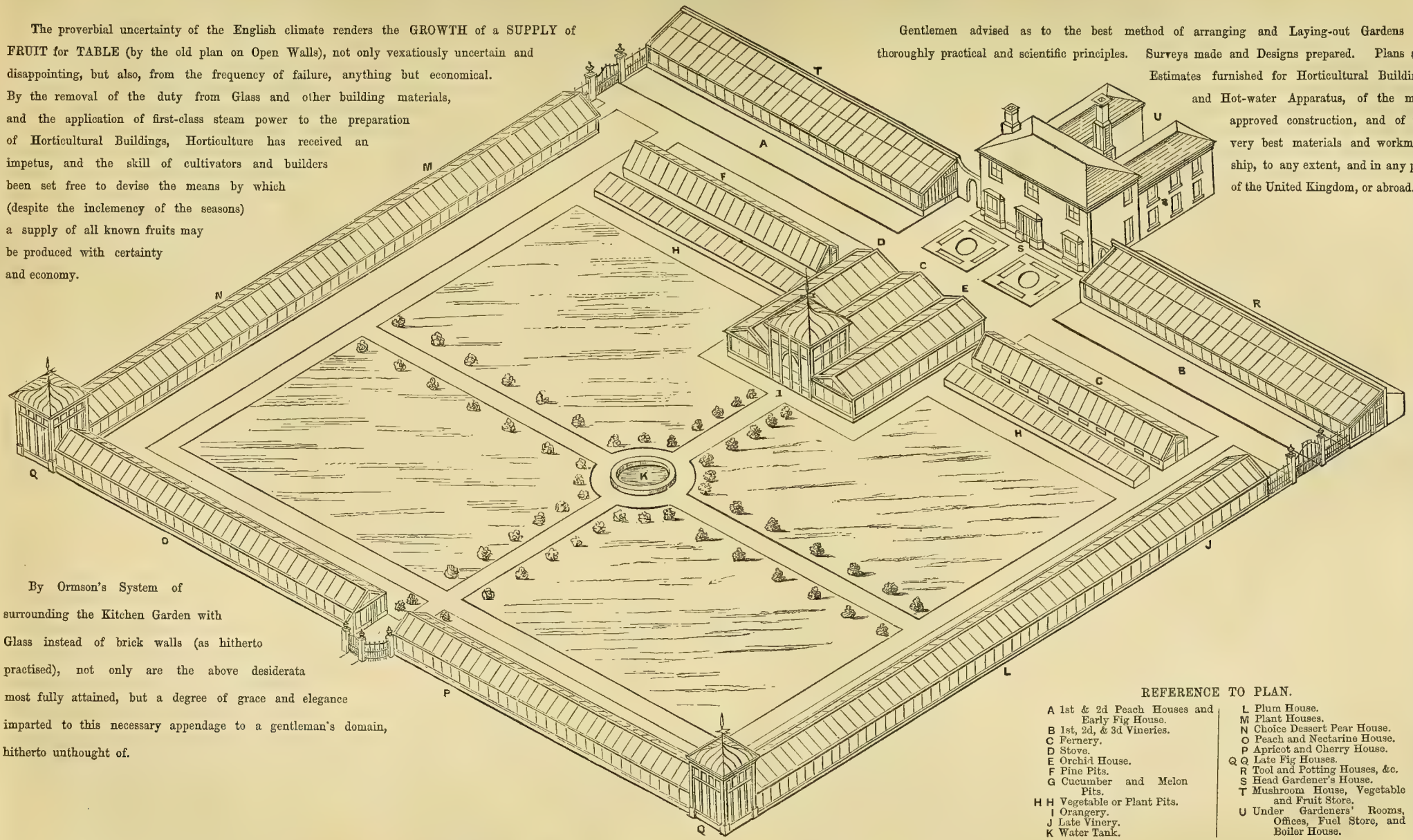
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O Peach and Nectarine House.
P Apricot and Cherry House.
Q Q Late Fig Houses.
R Tool and Potting Houses, &c.
S Head Gardener's House.
T Mushroom House, Vegetable and Fruit Store.
U Under Gardeners' Rooms, Offices, Fuel Store, and Boiler House.

HENRY ORMSON, Horticultural Builder to Her Majesty,
AND HOT-WATER APPARATUS MANUFACTURER TO THE COMMISSIONERS OF HER MAJESTY'S ROYAL PALACES AND PUBLIC BUILDINGS, AND TO THE ROYAL HORTICULTURAL SOCIETY,
STANLEY BRIDGE, KING'S ROAD, CHELSEA, LONDON, S.W.

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THE GARDENERS' CHRONICLE

AND

AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.

No. 17.—1867.] SATURDAY, APRIL 27. {Price Fivepence. STAMPED EDITION, 6d.

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ROYAL HORTICULTURAL SOCIETY, SOUTH KENSINGTON, W.
Promenade and Band every Saturday afternoon throughout the year.
NOTICE.—Dr. MASTERS will give a short LECTURE on PLANT ARCHITECTURE THIS DAY, SATURDAY, at 3.

ROYAL BOTANIC SOCIETY'S GARDENS, Regent's Park.—EXHIBITIONS OF PLANTS, FLOWERS, and FRUIT, WEDNESDAYS, May 29, June 19, and July 3. Tickets to be obtained at the Gardens by orders from Fellows of the Society. Price on or before Saturday, May 18, 4s.; after that day, 5s.; and on the days of Exhibition, 7s. 6d each

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New Garden Seeds.

ARCHIBALD HENDERSON'S DESCRIPTIVE PRICED CATALOGUE and useful GARDEN ALMANACK is now Published, containing much useful information. Can be had gratis and post free on application.

Sion Nursery, Thornton Heath, Surrey; and at the East Surrey Seed Warehouse, College Grounds North End, Croydon.

THE GOLDEN-VARIEGATED WELLINGTONIA.

First-class Certificate from Royal Horticultural Society.

For Testimonials, &c., see *Gardeners' Chronicle*, October 6, 1866; *Times*, October 7, 1866; *Scottish Gardener*, November, 1866; *Gardeners' Chronicle*, January 12, 1867; "Florist," February, 1867.

LAST YEAR'S PLANTS (a few remaining).

1st Size, very choice, 8 to 12 inches, £5 5s. each.

THIS YEAR'S PLANTS.

2d Size, fine, 4 to 5 inches, £2 2s.

3d Size, nice little bits, 2 to 3 inches, £1 1s.

5000 plants are now plunged out-of-doors, in their respective sizes they may be safely forwarded during the summer, if desired, and orders will be executed in strict rotation.

Chromo-lithographs of the parent tree, by Day and Son (Limited), on superior cards, 10 inches by 8 inches, very faithful in outline, but deficient in representing the glorious colour of the original. These are sent free by post for 25 stamps, and one sent to each Purchaser.

It is intended to exhibit a few of the first size at the approaching Paris and Manchester Exhibitions.

R. HARTLAND, The Lough Nurseries.

Box Edging.



MESSRS. JAMES VEITCH AND SONS are in want of a quantity of BOX EDGING. It must be dwarf and good, and warranted to plant at least three yards for one. Parties having any to offer may send One Yard as sample, carriage paid to London, to be forwarded by Parcels Delivery. The price to include free delivery into a truck at a railway station.

Royal Exotic Nursery, Chelsea, London, S.W.

JOHN WATERER has to offer a quantity of very handsome AUCUBA JAPONICA, the whole of which are profusely covered with Berries.

1st Size are Plants 2 feet high, bearing 150 to 200 Berries.
2d Size, 1 foot 6 inches, with 100 to 125 Berries.
3d Size, 1 foot, with 40 to 50 Berries.

Price from 10s. 6d. each and upwards.

The American Nursery, Bagshot, Surrey.

J. LINDEN'S CATALOGUE of NEW PLANTS is just published, and can be had on application to Messrs. R. SILBERRAD, 5, Harp Lane, Great Tower Street, London, E.C.

The following first-rate NOVELTIES are offered for the first time, with the usual discount to the Trade :—

Bignonia ornata ..	..	£2	8	0	Maranta Legrelliana	..	£2 8 0
Cissus argentea ..	..	1	0	0	,, Wallisi ..	..	1 1 0
Dichorisandra Mosaica .		5	0	0	Philodendron Lindenianum,		2 8 0
,, undata ..		2	0	0	Tapino variegata	..	0 12 0
Echites rubro-venosa ..		1	4	0	Theophrasta regalis	..	1 0 0
Eranthemum igneum ..		1	4	0	Anthurium regale	..	1 4 0
Gunnera manicata	..	1	4	0	Maranta Lindeniana	..	1 0 0
Maranta illustris ..	..	2	8	0	,, roseo-picta, 12s. to		1 0 0

Royal Zoological and Horticultural Gardens, Brussels.

New and Genuine Seeds.

THOMAS SAMPSON, The Preston Road Nurseries, Yeovil, Somerset, begs to intimate that his CATALOGUE of SEEDS for the GARDEN and FARM is now ready, and can be obtained free on application. It contains a Select and Choice Stock, everything being of the best quality, and are offered at unequalled low prices.

Vegetable, Agricultural, and Flower Seeds, Alpine Plants, &c.

ROBERT PARKER begs to announce that his CATALOGUE, containing select DESCRIPTIVE LISTS of the finest kinds in cultivation of the above-named is now published, and will be forwarded to applicants. The Stocks of Seeds have all been procured from the best possible sources, all are warranted genuine, and are offered at the lowest possible prices. Intending purchasers are requested to compare the prices with those of other houses. Exotic Nursery, Tooting, Surrey, S.

Lobelias, Lobelias, Lobelias.

THOMAS SAMPSON is now ready to supply by the Dozen, Hundred, or Thousand, the splendid LOBELIA ERINUS SPECIOSA GRANDIFLORA, well known as the best of its class for Bedding and other purposes, being of a compact habit, and of freer growth than the known L. speciosa, having proved it to be more lasting and hardy. The flowers are large dark blue, with fine white eye. Per dozen, in store pots, 2s.; per 100, 8s.; per 1000, 80s.

PETER DRUMMOND, Manager, The Preston Road Nurseries, Yeovil, Somersetshire.

Thomas Gibbs & Co.

GRASS SEEDS,
AGRICULTURAL SEEDS,

ROYAL AGRICULTURAL SOCIETY OF ENGLAND. THOS. GIBBS & Co. Corner of HALF-MOON St PICCADILLY, London. APPOINTED APRIL 3, 1844. THE SEEDSMEN.

CORNER of STREET.

Trade Mark.

KITCHEN GARDEN SEEDS,
FLOWER SEEDS.

Catalogues forwarded post free to any address on application.

THE QUEEN.

HAVING PUBLICLY REQUESTED THE NAMES UNDER WHICH MY

NEW WHITE RHODODENDRON

Has been before offered to the Public, I learn that they are *Lady Godiva*, *Ingramii*, *Standish's Perfection*, and *Madame Carvalho*. I have flowered THE QUEEN side by side with all four kinds, and unhesitatingly say it is *superior* and totally different to either. I now challenge the assertions, and ask the authors *if they can* produce THE QUEEN. I give them a *fair field*, viz., the range of the world to select from.

CHARLES NOBLE, BAGSHOT.

NEW DOUBLE CRIMSON THORN.

WILLIAM PAUL

(SON and SUCCESSOR to the late A. Paul),

BEGS TO OFFER THE

ABOVE MAGNIFICENT HARDY FLOWERING TREE,

Which he believes to be the greatest acquisition for forcing and out-of-door culture that has been introduced for many years.

Fine healthy Plants, well established in pots, 2 ft. high, 7s. 6d. each; 1 ft., 5s. each.

A First-class Certificate was awarded to him for this Plant by the Royal Horticultural Society on the 16th April last.

"A brilliant variety, to which too much attention can scarcely be directed."—*Gardeners' Chronicle.*

"This is certainly a plant which cannot be overrated; the intense bright red colour, and the numerous clusters of the double flowers, make this Cratægus invaluable. No admirer of this charming family can be without it, all other pink varieties are truly in the shade beside it."—*Journal of Horticulture.*

PELARGONIUM JASON (First-class Certificate).—The finest, most leafy, and deepest colour of all pure gold-leaved Pelargoniums. Price 7s. 6d. each.

For other Novelties, see separate Advertisement.

PAUL'S NURSERIES, WALTHAM CROSS, LONDON, N.

J. SCOTT'S CHOICE SEEDS.

Post Free. Per Packet.

PRIMULA SINENSIS FIMBRIATA.—A most superb strain, and cannot be surpassed, 8 varieties, mixed, 1s. 6d. and 2s. 6d.

CALCEOLARIA.—Scott's superb strain, extra, 1s. and 2s. 6d.

CINERARIA.—Extra fine, carefully hybridized, 1s. and 2s. 6d.

Also newest Perfection French ASTER, for exhibition, greatest variety, 6d. and 1s.; best German Quilled ASTER, 6d. and 1s.; New Victoria ASTER, 6 vars., mixed, 1s.; Dwarf Chrysanthemum ditto, 6d. and 1s.; Newest German STOCKS, greatest variety, 6d. and 1s.; New Striped-leaved Japanese MAIZE, 1s.; Choice PHLOX DRUMMONDII, 12 vars., mixed, 1s.; do., most brilliant Scarlet, 1s.; Invincible Scarlet SWEET PEAS, 1s.; Tagetes signata, 6d.; Viola cornuta, Mauve or Purple Queen, 1s.; superb Double Zinnia, 6d. and 1s.; extra fine Single do., 6d.

Scott's Superb Dwarf Crimson BEET, suitable for ribbon borders in kitchen garden, the best grown, 6d.; CUCUMBER, Enfield Surprise, frame, 1s.; do. Scott's Market Ridge, 6d.; Melville's Variegated KALE, 6d.; Victoria New White COS LETTUCE, 1s.; Princess Alice MELON, 1s.; Raphanus caudatus, or Rat's-tail Radish, 1s.

For descriptions of the above cheap Collections, &c., see SELECT SEED LIST, post free on application to

J. SCOTT, The Seed Stores, Yeovil, Somerset.

Cheap Bedding and other Plants.

THOMAS SAMPSON, Proprietor of the Preston Road Nurseries, Yeovil, Somersetshire, lately carried on by Drummond & Co., and formerly by John Scott, has much pleasure in announcing that his CATALOGUE for the above Plants is now ready, and can be had free on application. T. S. begs to assure his friends that the above has been for many years one of the largest in the country for CHEAP BEDDING PLANTS, and that his present Collection is now most unique and extensive, consisting of upwards of 200,000 Plants, being two to one of any other Establishment in the West of England. Having recently extended his Glass Department to upwards of 12,000 feet, expressly for the culture of Bedding Plants, he is enabled to supply them in such varieties and at such low prices as cannot fail to give the fullest satisfaction. T. S. will feel much obliged if his friends will kindly inspect his Collection and forward their Orders early, so as to avoid delay or inconvenience.

The Plants will be ready to send out after the 20th of April.

PETER DRUMMOND, Manager, The Preston Road Nurseries, Yeovil, Somersetshire.

PUBLIC NOTICE.

MR. JOHN SCOTT AND THE PRESTON ROAD NURSERIES.

It is an old and true adage, "that he who lives in glass houses should not throw stones." I have just noticed in the *Gardeners' Chronicle* of April 13 an attack upon me by John Scott, of the Merriott Nurseries, near Crewkerne, Somerset, with respect to his Advertisement of the LOBELIA E. GRANDIFLORA, now offered by THOMAS SAMPSON, of the Preston Road Nurseries, Yeovil, Somerset. I beg to inform the Public that I had the pleasure of raising the same in the autumn of 1864, and consequently named it L. grandiflora, under which name I have continued it.

John Scott being then about to dispose of this Nursery (so called by him a small Branch, although now requiring one-third more labour than his large Establishment), obtained Plants of the same, and sent it out under the name of L. splendida, by which name he *may* have continued it.

I beg to inform those who do not reside in the immediate neighbourhood, and who consequently may not be aware of the facts, that these Nurseries were, from 1858 until his disposal of the same to me, J. Scott's principal Bedding Plant Establishment, where all orders were executed. In proof of this I need only refer to his own (J. S.'s) Catalogues for several years.

I would beg to remind J. Scott that he agreed verbally to discontinue Bedding Plant growing (except for a few in his own immediate neighbourhood), on receiving £1600 for the Stock and Business of these Nurseries. It was greatly to my surprise and that of others to find immediately afterwards that J. S. had issued an Advertisement (which will still be fresh in the memories of the readers of the *Gardeners' Chronicle*, &c.,) of 100,000 Bedding Plants, which number was increased in the Advertisements of the following year to 500,000. I can safely leave those who happen to know J. S.'s Merriott Nurseries, and the extent of glass they contain, to form their own opinions as to whether a *cipher* was not added by mistake to each of these numbers. The Preston Road Nurseries contain about three times the area of glass as that of Merriott.

It has been against my wish to commence any public controversy with J. S., but his public attack upon me compels me to do so. Surely a man cannot conscientiously expect to retain all the benefits of a Business after having disposed of the same.

J. S. announces in his Advertisement that some person has been misled by me, and has received from me Plants which were not healthy or according to order. I have only to say in reply to his statement, that if J. S. and his Correspondent can prove publicly the truth of their assertions, I will forfeit £10 for the benefit of the Gardeners' Benevolent Institution. I announced publicly enough two years ago that this Establishment was not in any way connected with John Scott's; but it would occupy too much space to publish all the expressions of opinion which I have heard relative to the course which J. S. has pursued since that time. I will however conclude by appealing to my late Customers in all parts of the Kingdom to evince their satisfaction at my efforts to serve them, by continuing their kind favours to the present Proprietor, Mr. THOMAS SAMPSON. PETER DRUMMOND, Manager.

Preston Road Nurseries, Yeovil.—April 16.

P.S.—Allow me to say that I am prepared to challenge J. Scott and any other Nurseryman combined in this county, for quality and quantity of Bedding Plants, leaving the amount to be named by J. S., and the decision with a judge agreeable to both parties.

CHOICE SEEDS.

Post Free.

	Per pkt.—s. d.		Per pkt.—s. d.
Broccoli, Snow's Imperial Winter	1 0	Moore's Vegetable Cream	0 6
Albert Sprouts	0 6	Beet, Perpetual Spinach	0 6
Cauliflower, Early Erfurt	1 0	,, Nutting's Superb Red	0 6
Celery, Manchester Champion Red	0 6	Lettuce, Wheeler's Tom Thumb	0 6
Cucumber, Smith's Fine Frame	1 0	Radish, French Breakfast	0 6
Cucumber, Telegraph	1 0	Aster, Truffaut's Superb French, 12 vars. mixed	1 0
Leek, Henry's Prize	0 6	Aster, Victoria, 6 vars. mixed	1 0
Endive, Digswell Prize	0 6	Stock, improved large-flowering, 12 vars. mixed.	1 0
Onion, Nuneham Park	2 6	Balsam, Camellia-flowered, 6 var. mixed	1 0
Parsley, extra fine curled	0 6	Balsam, Rose-flowered, 8 vars. mixed	1 0
Raphanus caudatus (new long-podded Radish)	2 6	Phlox Drummondi, 12 splendid varieties	1 0
Custard Marrow	0 6		
Melon, Malvern Hall	1 6		
Tomato de Laye	0 6		
Cauliflower, The Mammoth	1 0		

RICHARD SMITH, Seed Merchant, Worcester.

Choice Seeds, free by Post.

B. S. WILLIAMS' GENERAL PRICED CATALOGUE of FLOWER and VEGETABLE SEEDS forwarded free to any address. It contains, in addition to the best of the established and indispensable varieties of Vegetable Seeds the following new kinds:—

The ORANGEFIELD DWARF PROLIFIC TOMATO, 2s. per packet.

WILLIAMS'S "ALEXANDER BROCCOLI," 2s. 6d. per packet

WILLIAMS'S MATCHLESS RED CELERY, 1s. per packet.

DIGSWELL PRIZE ENDIVE, 1s. per packet

NUNEHAM PARK ONION, 2s. 6d. per packet.

RAPHANUS CAUDATUS (the wonderful Radish), 1s. per packet.

Also the following well-known strains of FLORISTS' FLOWERS:—

WILLIAMS'S superb strain of PRIMULA, Red, White, or Mixed, 2s. 6d., 3s. 6d., and 5s. per packet.

WILLIAMS'S superb strain of CAMELLIA-FLOWERED BALSAM, the finest in England, 1s. and 2s. 6d. per packet.

JAMES'S CALCEOLARIA, 2s. 6d., 3s. 6d., and 5s. per packet.

WEATHERALL'S extra choice CINERARIA, 3s. 6d. and 5s. per packet.

A full description of each of the above will be found in the Catalogue. All packets of seed free by post.

LILIUM AURATUM, a large importation. Strong Bulbs, 3s. 6d., 5s., and 7s. 6d. each.

GLADIOLI, English-grown Seedlings, splendid assortment, 8s. per dozen, 60s. per 100. Named varieties, 6s., 8s., and 12s. per dozen.

Victoria and Paradise Nurseries, Upper Holloway, London, N.

Sutton's Mammoth Long Mangels.

MESSRS. SUTTON are now prepared to execute Orders for Now Seed of the above improved varieties of LONG RED and LONG YELLOW MANGEL at 1s. 6d. per lb., or cheaper by the cwt. Messrs. SUTTON took the 1st prize for MANGEL WURZEL at the Birmingham Show in 1865 with these varieties, which are thus referred to in the *Times* of Dec. 4, 1865:—

"There is a remarkably fine show of Roots. Messrs. SUTTON'S Six Mangels weigh 212¼ lb."

PRICED LISTS, gratis and Post free.

SUTTON & SONS, Seed Growers, Reading.

The best Swede in Cultivation is SUTTON'S CHAMPION.



Price 1s. per pound. Carriage free. Cheaper by the bushel.

Cheaper by the bushel. Carriage free. Price 1s. per pound.

SUTTON'S CHAMPION SWEDE.

A large purple-top yellow variety, handsome shape, perfectly hardy, stores exceedingly well, and one of the heaviest croppers. Price 1s. per pound, cheaper by the bushel. Carriage free.

PRICED LISTS of other TURNIP SEEDS gratis on application.

SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

SUTTON'S SUPERIOR FARM SEEDS,

CARRIAGE FREE.

SUTTON'S SELECTED YELLOW GLOBE MANGEL, 1s. per lb., cheaper by the cwt. Lowest price per cwt. on application.

From Mr. ROBERT BOYS, *Eastbourne*, March 7, 1866.—"The Selected Yellow Globe Mangel Wurzel Seed I had of you last year turned out the best I ever grew. I could get up 100 tons of that root while I was getting up 60 of the Old Yellow Globe."

From JOHN HITCHMAN, Esq., M.D., *Derby County Asylum, Mickleover*, "May 7, 1866.—Last year I had the satisfaction of winning the First Prize for Mangels at the Derbyshire Agricultural Show, with large smooth heavy roots, produced from your excellent seeds."

	Per lb.—s. d.		Per lb.—s. d.
Good YELLOW GLOBE	0 9	SUTTON'S ELVETHAM LONG RED	1 0
,, ORANGE GLOBE	0 9	SUTTON'S MAMMOTH LONG YELLOW	1 6
,, RED GLOBE	0 9	NEW YELLOW INTERMEDIATE	1 9
,, LONG RED	0 9	Do. RED do.	1 6
,, LONG YELLOW	0 9	SUTTON'S MAMMOTH LONG RED	1 6
SUTTON'S SELECTED ORANGE GLOBE	1 0	BERKSHIRE PRIZE, or SUFFOLK CHAMPION, New, in 8 lb. bags	2 6
FISHER HOBBS' ORANGE GLOBE	1 0		
STRATTON'S RED GLOBE	1 3		

Cheaper by the cwt. Lowest price per cwt. on application.

For prices and full particulars of all other Farm Seeds, see SUTTON'S NEW FARM SEED LIST, gratis and post free on application.

☞ All goods carriage free, except very small parcels. Five per cent. discount allowed for cash payments.

SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

Kohl Rabi Seed should now be sown.

Drilled as Swedes, 3 to 4 lbs. per acre.

SUTTON AND SONS can supply superior SEED, either GREEN or PURPLE, at 2s. 6d. per lb., or cheaper in large quantities.

For Instructions on Cultivation, see SUTTON'S FARM SEED LIST, which may be had post free on application.

SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

Strong Drumhead or Cattle Cabbage Plant.

W. VIRGO AND SON can supply large quantities of the above, at 3s. per 1000. Samples can be had on application at the Nursery, Woncrsh, Guildford, Surrey.

Delivered free at the undermentioned Railway Stations—Guildford, South-Western; Shalford, South-Eastern; Bramley, London, Brighton, and South Coast.

SPECIAL OFFER.

To FARMERS, GARDENERS, AND OTHERS.

EXCELLENT NEW YELLOW GLOBE MANGEL WURZEL, 4d. per lb.

,, WHITE BELGIAN CARROT, 8d. per lb.

,, JAMES'S SELECT INTERMEDIATE do., 10d. per lb.

,, RED ALTRINGHAM do., 9d. per lb.

,, GREEN KOHL RABI, fine topped, 10d. per lb.

,, SCARLET RUNNER BEANS, NEW, 7s. 6d. per bushel.

,, MIGNONETTE, 1s. per lb.

RED DUTCH CABBAGE PLANTS, fine, 3s. 6d. per 1000.

CATALOGUE of genuine NEW SEEDS on application.

F. GEE, Seed Merchant and Grower, Biggleswade, Bedfordshire.

New Dwarf Sprouting Ulm Savoy.

STUART AND MEIN, Kelso, N.B., have much pleasure in sending out the above valuable acquisition. The heads can be cut for early use, and the sprouttings are invaluable in spring when vegetables are scarce. In most seasons the sprouttings are fit for use until May. Heads of the Dwarf Sprouting Ulm Savoy and the ordinary Brussels Sprouts grown alongside of each other were forwarded to the Editors of the *Gardeners' Chronicle*. The following is their opinion (see No. for 6th April):—"The Brussels Sprouts sent are 'run' and wholly worthless, while the Sprouts on the Savoy are numerous, large firm, and excellent."

S. & M. have a limited number of packets on hand, price 1s. 6d. per packet, free by post on receipt of stamps.

STUART & MEIN, Seed Warehouse, Kelso, N.B.

The New Australian Spinach.

STUART AND MEIN, SEEDSMEN, Kelso, N.B., beg to intimate that they have received a small parcel of the above new Vegetable, which is much superior to any other variety of Spinach, being less liable to run to seed, having a delicious flavour and of an enormous and rapid growth. See *Gardeners' Chronicle*, page 297. Price 1s. 6d. per packet.

To Market Gardeners and Others.

RICHARD WALKER, MARKET GARDENER AND SEED GROWER, has left 100,000 extra fine young CABBAGE PLANTS—EAST HAM and ENFIELD MARKET, 4s. per 1000—no finer stock in England; RED, extra fine, 4s. per 1000; WHITE SPANISH ONION SEED, 1s. 8d. per lb.; KOHL RABI SEED, 1s. per lb. The seed being home-grown, is new, and can be recommended. Terms cash.

RICHARD WALKER, Biggleswade, Beds.

New Mangel Wurzel Seed.

H. AND F. SHARPE have the following Varieties, raised last season on their own Seed Farm from fine selected Bulbs, which they can offer to the Trade at Low Prices, to be had on application:—

SHARPE'S SELECTED ORANGE GLOBE.
FISHER HOBBS' ORANGE GLOBE.
LARGE YELLOW GLOBE.
ELVETHAM LONG RED.
SELECTED LONG YELLOW.
SELECTED RED GLOBE.

Seed Growing Establishment, Wisbech.

New Turnip Seeds.

H. AND F. SHARPE offer the following varieties to the Trade at low Prices. They are all of 1866 growth, raised from the finest selected Stocks:—

SHARPE'S IMPROVED PURPLE-TOP SWEDE.
SKIRVING'S "KING of the SWEDES."
IMPROVED GREEN TOP SWEDE.
LINCOLNSHIRE RED GLOBE.
IMPROVED GREEN NORFOLK.
DEVONSHIRE GREY STONE.

And many other Yellow and White-fleshed sorts. Prices may be had on application. Seed-growing Establishment, Wisbech.

GENUINE NEW CARROT SEED.

The Three Best Sorts are

WHITE BELGIAN, 1s. per lb.
RED INTERMEDIATE, 1s. 9d. per lb.
LONG RED CATTLE, 1s. 6d. per lb.

} Cheaper by the Cwt.

SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

RAYNBIRD, CALDECOTT, BAWTREE, DOWLING, AND COMPANY, Limited,

CORN, SEED, MANURE, AND OILCAKE MERCHANTS,

Address, 89, Seed Market, Mark Lane, E.C.; or Basingstoke.

Samples and Prices post free on application. Prize Medals, 1851, for Wheat; 1862, for "Excellent Seed Corn and Seeds."

Grass Seeds for Permanent Pasture.

RICHARD SMITH'S MIXTURES of the finest PERENNIAL GRASSES and CLOVERS are carefully made to suit all kinds of Soil. Price 20s. to 32s. per acre.

PRICED LIST on application.

RICHARD SMITH, Seed Merchant, Worcester.

Fine Grass Seeds for Cricket Grounds,

BOWLING GREENS, or CROQUET GROUNDS.

SUTTON AND SONS can supply suitable kinds of the finest-growing GRASSES and CLOVERS for the above purposes, at 1s. 3d. per lb., 24s. per bushel.

SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

The New Forage Grass (Bromus Schraderi).

SUTTON AND SONS have imported a large supply of True Seed of the above, and offer it at 2s. 6d. per lb., or cheaper in large quantities. Quantity required per acre, 30 lb. Lowest price per cwt. and instructions on cultivation, may be had on application.

SUTTON & SONS, Seed Merchants, Reading.



Improvement of Grass Lands,

at from 5s. to 10s. per acre.

SUTTON'S RENOVATING MIXTURE

SHOULD NOW BE SOWN.

6 to 12 lb. per acre.

Price 10d. per lb. Cheaper by the cwt.

If these Seeds are sown early in the season, the improvement in the land will be very great, and at a small expense.

This Mixture should be bush-harrowed in and rolled afterwards.

SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.



GRASS SEEDS for PERMANENT PASTURE, of the finest quality, at moderate prices, carefully selected on a new, natural, and scientific system.

See "WHEELER'S BOOK on GRASSES," which contains Illustrations and Descriptions of the most suitable Grasses for Permanent Pasture.

J. C. WHEELER & SON, Gloucester,

Seedsmen to the Gloucestershire Agricultural Society.



COCOA-NUT REFUSE is becoming SCARCE, the old reserves will soon be gone. Now sold in bags, 1 for 2s., 10 for 16s., 2 for 30s., 50 for 66s., 100 for £6.

Fourpence allowed for each bag returned carriage-paid.

A Railway Truck-load (not bags), 40s.

Postage Stamps or Post-office Order, payable to J. BARSHAM & Co., Kingston-on-Thames, S.W.

THE LONDON MANURE COMPANY
(ESTABLISHED 1840),
Have now ready for delivery in dry fine condition,
CORN MANURE, for Spring Use
DISSOLVED BONES, for Dressing Pasture Lands
SUPERPHOSPHATES of LIME
PREPARED GUANO
MANGEL and POTATO MANURES
Also Genuine PERUVIAN GUANO, and NITRATE of SODA, ex Dock Warehouse; SULPHATE of AMMONIA, FISHERY SALT, &c. E. PURSER, Secretary.
Offices, 116, Fenchurch Street, E.C.

ODAMS'S NITRO-PHOSPHATE for CORN.
ODAMS'S NITRO-PHOSPHATE for ROOTS.
ODAMS'S DISSOLVED BONES.
ODAMS'S SUPERPHOSPHATE of LIME.
ODAMS'S PREPARED PERUVIAN GUANO.
MANUFACTURED BY

THE PATENT NITRO-PHOSPHATE OR BLOOD MANURE COMPANY (Limited).
Chief Offices—109, Fenchurch Street, London.
Western Counties Branch—Queen Street, Exeter.
Irish Branch—40, Westmoreland Street, Dublin.
DIRECTORS
Chairman—John Clayden, Littlebury, Essex.
Deputy-Chairman—John Collins, Argyll House, Holloway.
Edward Bell, 48, Marine Parade, Brighton.
Richard Hunt, Stanstead Abbot, Herts.
Thomas Knight, Edmonton, Middlesex.
Robert Leeds, West Lexham, Norfolk.
George Saville, Ingthorpe, near Stamford.
Samuel Jonas, Chrishall Grange, Essex.
Charles Dorman, 23, Essex Street, Strand.
Thomas Webb, Hildersham, Cambridgeshire.
Jonas Webb, Melton Ross, Lincolnshire.
Managing Director—James Odams.
Bankers—Messrs. Barnetts, Hoares, & Co., Lombard Street.
Solicitors—Messrs. Kingsford & Dorman, 23, Essex Street, Strand.
Auditor—J. Carter Jonas, Cambridge.
This Company was originally formed by, and is under the direction of agriculturists, circumstances that have justly earned for it another title, viz.—"The Tenant Farmers' Manure Company."
Its members are cultivators of upwards of 50,000 acres of land which has been for years under management with Manures of their own manufacture. The consumer, therefore, has the best guarantee for the genuineness and efficacy of the Manures manufactured by this Company.
Particulars will be forwarded on application to the Secretary, or may be had of the Local Agents. C. T. MACADAM, Secretary.
Chief Offices—109, Fenchurch Street, London, E.C.

LAWES' MANURES.—The Manures manufactured by J. B. LAWES for the present season of 1867 are now ready for delivery at his Factories, at the following prices, per ton:—

	£	s.	d.
LAWES' PATENT TURNIP MANURE and BONE SUPERPHOSPHATE of LIME	6	6	0
LAWES' SUPERPHOSPHATE of LIME from BURNT BONE or MINERAL PHOSPHATES	5	5	0
LAWES' WHEAT, BARLEY, GRASS, and MANGEL MANURES	8	0	0
CONCENTRATED CORN and GRASS MANURES	12	0	0

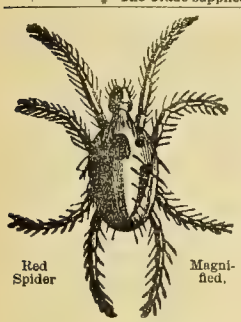
These Manures can be obtained of Mr. LAWES, or through the appointed Agents in all parts of the United Kingdom, at prices varying according to cost of carriage.
Genuine Peruvian Guano direct from the Importers. Nitrate of Soda, Sulphate of Ammonia, and other Chemical Manures.
American and other Cakes at market prices.
Address, JOHN BENNET LAWES, 1, Adelaide Place, London Bridge, E.C.; 22, Eden Quay, Dublin; and Market Square, Shrewsbury.

EGG MANURE.—Analysis of an Egg by Baron Liebig; Carbon, 55,000; Hydrogen, 7073; Nitrogen, 15,920; Phosphorus, Sulphur, Oxygen, 22,007=100,000 equal to Ammonia, 18-50. From 2 to 3 Tons of Refuse Eggs to be disposed of weekly.
Apply by letter, in first instance, to Z. A., care of Mr. Roberts, Advertising Agent, 19, Change Alley, Cornhill, E.C.

GENUINE TOBACCO PAPER, 10*d.* per lb. Terms Cash.
W. DODGSON, Jackson & Sons, Tobacco Manufacturers, 29, Lady Lane, Leeds.

ROLL TOBACCO CLOTH.—The cheapest and best article for Smoking Greenhouses and destroying the Fly; equal to Tobacco in strength, 1*s.* 4*d.* per lb.; over 10 lb., 1*s.* 1*d.*
JOSEPH BAKER, 10, Gough Square, Fleet Street, E.C.
Post Office Orders payable Fleet Street.

BOSTON'S NE PLUS ULTRA, for the Destruction of Mealy Bug, Scale, American Blight, &c., on Stove and Greenhouse Plants, Fruit Trees, Vines, &c. In bottles, with full instructions for application, price 3*s.* 6*d.*, 5*s.*, and 10*s.* 6*d.*
JAMES CARTER & Co. beg leave to state that the present time is most suitable for applying the above genuine Specific before the commencement of the growing season, thereby preventing the rapid increase of the above pests which would otherwise take place. The infallible properties of BOSTON'S NE PLUS ULTRA are rapidly becoming fully recognised, J. C. & Co. having already sold nearly 2000 bottles since its first introduction in the spring of 1866. Numerous testimonials have been received, and not a single complaint of its inefficiency.
Sole Agents, JAMES CARTER & Co., 237 and 238, High Holborn, W.C.
*** The Trade supplied on liberal terms.


Red Spider

Magnified.

GISHURST COMPOUND.
Used by many of the leading Gardeners since 1859, against Red Spider, Mildew, Thrips, Green Fly, and other Blight, in solutions of from 1 to 2 ounces to the gallon of soft water, and of from 4 to 16 ounces as a Winter Dressing for Vines and Fruit Trees. Has outlived many preparations intended to supersede it.
Sold Retail by Seedsmen, in boxes, 1*s.*, 3*s.*, and 10*s.* 6*d.*
Wholesale by PRICE'S PATENT CANDLE COMPANY (LIMITED)

Plagues of the Garden.

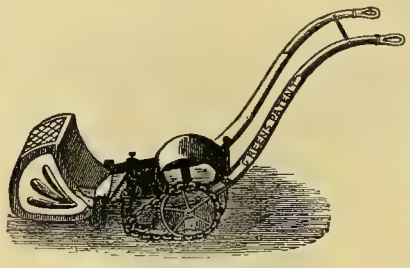


SIMPLE and SAFE REMEDY.—By using the APHIS WASH, these pests of the garden, together with Ants, Scale, Caterpillars, Slugs, Earwigs, &c., are immediately destroyed. Leaves no stain, but strengthens the Trees or Plants.
"At the first opportunity use a solution of 'Aphis Wash,' prepared at the City Soap Works; it not only destroys the Aphis, but also Scale, and every other pest."—Extract from *Gardeners' Magazine*, January 5, 1867.
"For strengthening the growth and effectually destroying all forms of blight, the 'Aphis Wash' supersedes every other preparation."—See *Gardeners' Chronicle*, August 19, 1865; and *Gardeners' Magazine*, July 1, 1865.
Sold by Chemists and others, in 1*s.* bottles, and 2*s.* 6*d.* a gallon, with full directions for use.
Wholesale at the City Soap Works, Milton Street, London, E.C.

By Royal Letters Patent.
TOBACCO TISSUE for FUMIGATING GREENHOUSES.—This article, which is made from Tobacco, and is entirely free from any paper or rag, is acknowledged by all those who have used it, to be the most effectual remedy for Destroying Insect Life in Greenhouses, and will burn without the assistance of blowing. Price 3*s.* 6*d.* per lb., carriage free.—To be had of Messrs. ROBERTS & SONS, Tobacco Manufacturers, 112, St. John's Street, Clerkenwell, E.C.; and of all Seedsmen and Nurserymen.

HOT-WATER APPARATUS, of every description, fixed complete in any part of the country, or the materials, viz., Boilers, Pipes, &c., delivered to any Station.
Estimates on application.
J. JONES & SONS, 6, Bankside, Southwark, London, S.E.

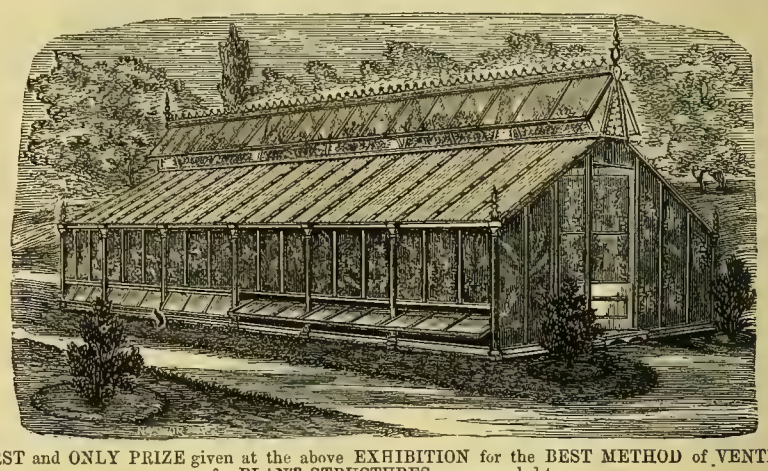
CUCUMBER and MELON BOXES.—Two Hundred 1, 2, and 3-light Boxes and Lights of all sizes, made of best seasoned materials, glazed and painted, complete, ready for immediate use, packed and sent to all parts of the kingdom.
JAS. WATTS, 353, Old Kent Road, S.E.



Lawn Mowers.
GREEN'S PATENT. SHANKS' PATENT. SAMUELSON'S PATENT. BARNARD'S PATENT.

DEANE & CO.,
46, KING WILLIAM ST., LONDON BRIDGE.
Horticultural Tools, &c.
LAWN MOWING MACHINES, 50*s.*, 70*s.*, 90*s.*, 140*s.*
GARDEN BARROWS, Wood and Iron, 21*s.* and 26*s.*
GARDEN ENGINES, Galvanised Iron. Prices 55*s.*, 65*s.*, 78*s.*, 90*s.*, 100*s.*, 110*s.*
GARDEN ROLLERS, £1 10*s.*, £1 14*s.*, £2, £2 7*s.* 6*d.*, £2 12*s.* 6*d.*, £3 2*s.* 0*d.*
STEEL DIGGING FORKS, SPADES, SCYTHES, &c.
GREENHOUSE SYRINGES and GARDEN PUMPS.
WIRE NETTING and ORNAMENTAL WIRE WORK.
GARDEN SEATS and CHAIRS.
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STRAINED WIRE FENCING and IRON HURDLES.
HOT-WATER FITTINGS for GREENHOUSES, CONSERVATORIES, FORCING PITS, &c.
Deane's New Illustrated Horticultural Catalogue post free on application.
ESTABLISHED A.D. 1700.
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GRAY'S OVAL TUBULAR BOILER.
INTERNATIONAL EXHIBITION, CLASS IX., No. 2119.
MR. GRAY begs to call the attention of the Nobility, Gentry, Nurserymen, Gardeners, &c., to his
NEW OVAL TUBULAR BOILER,
Acknowledged by practical judges to be a great improvement on every form of Tubular Boiler yet introduced. It has proved itself superior to all other Boilers for quickness of action and economy of Fuel, doing its work with one-third less the amount required by any other.
Extract from Report in GARDENERS' CHRONICLE *of International Exhibition, May* 24, 1862, *page* 476.
"The upright form of Boiler is usually made on a circular plan, but the oval form given to Mr. GRAY's variety of it is said to be preferable in consequence of its bringing the tubes in closer contact with the fire. The usual form of a furnace being a parallelogram rather than a square, it seems feasible that the Boilers on the oval plan should bring the tubes more completely within range of the burning fuel; and this being so, the change, though a slight one, is no doubt an improvement."
☞ *They are made of all sizes, which, with prices, may be had on application.*
JAMES GRAY, HORTICULTURAL WORKS,
DANVERS STREET, PAULTON'S SQUARE, KING'S ROAD, CHELSEA, S.W.

BEARD'S PATENT.
GREAT INTERNATIONAL HORTICULTURAL EXHIBITION & BOTANICAL CONGRESS.

The FIRST and ONLY PRIZE given at the above EXHIBITION for the BEST METHOD of VENTILATION for PLANT STRUCTURES, was awarded to
MESSRS. SANDERS, FREWER, & CO.,
VICTORIA WORKS, BURY ST. EDMUNDS,
FOR THEIR MODEL OF
BEARD'S PATENT METALLIC NON-CONDUCTING GLASS HOUSES,
Showing the Patent System of perfect Ventilation and Patent Method of Glazing, whereby breakage from expansion and contraction is prevented, and facility given for immediate reparation by any ordinary labourer.
MESSRS. SANDERS, FREWER, AND CO. beg to call special attention to the high value of these great improvements in the VENTILATION, &c., of HORTICULTURAL ERECTIONS, which are also applicable to all WOODEN HOUSES, as well as to CHURCHES, RAILWAY STATIONS, PUBLIC BUILDINGS, MANUFACTORIES, &c.; and have received the highest recommendation from many of the first Horticulturists and practical men of the United Kingdom.
The system is invaluable also for AGRICULTURAL BUILDINGS, as by it abundant Light and Air can be obtained, and the Ventilation regulated to the utmost nicety in the Tops and Roofs of all Structures, where, as is well known, Impure Air constantly accumulates, and where the ordinary system of Ventilation is impracticable.
Full particulars and descriptions may be obtained on application to
MESSRS. SANDERS, FREWER, AND CO.,
VICTORIA HORTICULTURAL AND ENGINEERING WORKS, BURY ST. EDMUNDS.
AGENT FOR LIVERPOOL: MR. W. BENNETT, JUN.

Caution to Gardeners.—When you ask for SAYNOR AND COOKE'S WARRANTED PRIZE PRUNING and BUDDING KNIVES, see that you get them. Observe the mark SAYNOR, also the corporate mark OBTAIN WARRANTED, without which none are genuine.

S. & C. regret having to caution Gardeners and others, but are compelled to do so, in consequence of an imitation, of common quality, having been sold for the genuine one, and which has caused many complaints to be made to them of Knives which were not of their make, all of which are warranted both by Sellers and Makers.

S. & C.'s Pruning and Budding Knives are the best and the cheapest in the market.

Paxton Works, Sheffield. Established upwards of 125 years.

GARDEN LABELS and FLOWER STICKS.—PAINTED WOOD LABELS, 3½ inch, 6d.; 4½ inch, 9d.; 6 inch, 1s.; 9 inch, 2s.; 12 inch, 2s. 6d. per 100. 4 inch for suspending, 1s. 6d. 5 inch, 2s. per 100, cheaper by the 1000.
ZINC LABELS for Pots, Garden, or suspending on Fruit Trees, Roses &c., 2s., 2s. 6d., 3s., 3s. 6d., and 4s. per 100.
INDELIBLE INK, 6d. and 1s. per bottle.
SOFT HORTICULTURAL WIRE, 1s., 1s. 3d., 1s. 6d., and 1s. 9d. per lb. coil, according to size. [gross.
GALVANIZED WIRE PINS for Verbenas, Carnations, &c., 1s. per
FLAT METALLIC PEGS for Verbenas, Carnations, &c, 1s. 6d. per 100. [3s. per gross.
PATENT EYELET WALL NAILS, single 2s. per gross; double,
GREEN PAINTED FLOWER STICKS, 1 foot, 2d.; 1½ foot, 3d.; 2 feet, 4d.; 2½ feet, 5d.; 3 feet, 6d. per dozen.
BROWN VARNISHED STICKS, 1 foot, 3d.; 1½ foot, 4d.; 2 feet, 5d.; 2½ feet, 7d.; 3 feet, 10d., per dozen.
DAHLIA and ROSE STAKES, square, green painted, 4 feet, 2s. 2d.; 5 feet, 3s.; 6 feet, 3s. 6d. per dozen. [prices.
DAHLIA and ROSE STAKES, brown, varnished, same sizes and
R. J. EDWARDS, 222, Strand, W.C., and 25, Bishopsgate Within, E.C.

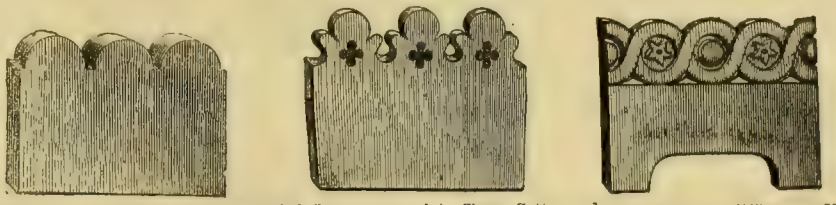
TERRA COTTA AND STONEWARE GARDEN EDGING,

MANUFACTURED BY

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HIGH STREET, LAMBETH, LONDON, S.

No. 1. No. 2. No. 4.



This Edging is Manufactured in Vitrified Stoneware and in Terra Cotta, and . . ARRANTED IMPE. . . ABLE.
DRAIN PIPES, TERRA COTTA CHIMNEY TOPS, &c.

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JOHN WARNER & SONS,

S AND BELL FOUNDERS TO HER MAJESTY.

HYDRAULIC ENGINEERS,

8, CRESCENT, CRIPPLEGATE, LONDON, E.C.

J. W. AND SONS' GOODS MAY BE OBTAINED OF THE TRADE GENERALLY AT THE FOLLOWING PRICES:—

No. 39. WARNERS' CRYSTAL PALACE FIRE ENGINE, OR PORTABLE FORCE PUMP.

With this compact, portable, and generally useful Engine, one man will throw from 15 to 18 gallons of water per minute to a height of 50 feet. All its working parts are of Brass, the Barrow of Wrought Iron; easy access to the valves is gained, and the workmanship throughout is substantial. Not only will it be found most useful in cases of Fire, wherever a supply of water can be obtained, but also for Watering Lawns or Fruit Trees.



CRYSTAL PALACE, SYDENHAM, March 2, 1867.

Messrs. WARNER & SONS,

"Gentlemen,—I feel great pleasure in stating that I was present at a trial of your small Crystal Palace Fire Engine, and was much pleased with its efficiency and simplicity.

"The Pump throws out a steady jet of water to a height of 50 feet with very little labour. The Pump we have is well made, very simple in its parts, and not likely, I think, to get out of order. The advantage of this Pump is its being very portable. Besides being a good Fire Engine, it will make an excellent Garden Engine.

"I remain, Gentlemen,
"Yours obediently,
"EDWIN ROSE,
"Engineer to the Crystal Palace Co.

Price on Barrow, with Branch Pipe, Spreader, Unions, and Suction Rose ... ... £6.
1¾-in. 2-ply Rubber Suction Pipe, per foot, 2s. 2d. 1¼-in. ditto Delivery Hose, 1s. 4d.



No. 547, in Wood. 547A, in Iron Tub.

WARNERS' GARDEN ENGINES,

WITH REGISTERED SPREADERS.

These Engines are much improved in construction, are less likely to get out of order, and more easily repaired than others.

No. 547. Best ENGINES, in Wood Tubs.

24 Gallons	..	£6 10 0	14 Gallons	..	£5 10 0

No. 547A. Strong ENGINES, in Galvanized Iron Tubs, well painted inside and out.

10 Gallons	..	£2 19 0	24 Gallons	..	£4 19 0
16 Gallons	..	3 14 0	28 Gallons	..	5 10 0

579½. WARNERS' WATER BARROW

Saves a Gardener's time in Watering with the Water Pot.

Made of strong Wrought Iron, Galvanized and painted inside and out

To hold 20 Gallons, wheels 13 inches high				.. ..	£2 2 0
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,, 50*	,,	,, 24	,,	.. ..	5 12 0

* This is an extra strong article, with cross handle for two men, suitable for Nursery Grounds, &c.



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SYRINGES, BRANCH PIPES, INDIA-RUBBER HOSE, &c.

Estimates for any description of Hydraulic Machinery forwarded on application.

THE QUADRICOLOUR PELARGONIUM of the Season is METEOR, raised by SALTMARSH & SON.
For description see Advertisements in the "Journal of Horticulture."
This splendid variety has received a First-class Certificate from the Royal Horticultural Society, and was figured in the January Number of the "Floral Magazine."
A Coloured Drawing by Andrews will be sent on receipt of 7 stamps.
Moulsham Nurseries, Chelmsford.

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INTENDING PURCHASERS of TRICOLOR PELARGONIUMS will do well to see J. WATSON's beautiful Tricolors MISS WATSON and MRS. DIX, previous to making their purchases. For fine foliage, excellent constitution, free growth, and brilliancy of colouring they are unrivalled. They have received two First-class Certificates. Plants of Miss Watson in August, £2 2s. each; Mrs. Dix in May, 1868, 31s. 6d. each.

TRICOLOR PELARGONIUMS.

Mrs. Pollock, 7s. and 9s. per doz. | Sunset, 21s. per doz.
Italia Unita, 21s. per doz. | Mrs. Benyon, 24s. per doz.
In strong plants at the above prices for Cash, package included.
Remittance required from unknown Correspondents.
Address, ALFRED FRYER, Nurseries, Chatteris, Cambridgeshire.

CHOICE VARIEGATED PELARGONIUMS.

Sunset	Luna	Italia Unita
Mrs. Benyon	Bicolor splendens	Picturatum
Gold Pheasant	Princess Alexandra	Kenilworth
Yellow Belt	Queen of Queens	The Fairy

The above 12 varieties suitable for Exhibition or Pot-culture for 21s.
Remittances requested from unknown correspondents.
ALFRED FRYER, Nurseries, Chatteris, Cambridge.

SUPERB VARIEGATED GERANIUMS.

MRS. BENYON	THE COUNTESS
BICOLOR SPLENDENS	MRS. LONGFIELD
GOLD PHEASANT	YELLOW BELT
GLOWWORM	LITTLE PET
LUNA	LURLINE
TWILIGHT	ITALIA UNITA

Strong plants of the above set 17s. Package included.
CASBON & SON, Gravel Walk Nursery, Peterborough.

Novelties.

WM. PAUL (Son and Successor to the late A. PAUL) respectfully solicits Orders for the following NEW and FIRST-CLASS PLANTS, which will be ready for delivery in May.

NEW ROSES.

BLACK PRINCE, H. P. (Wm. Paul).—Flowers dark crimson, shaded with black, cupped, large and full. Price 5s. each.
GLOBOSA, H. P. (Wm. Paul).—Flowers clear dark bright crimson, colour intense and uniform throughout. Price 5s. each.
LADY SUFFIELD, H. P. (Wm. Paul).—Flowers purplish crimson, colour uniform throughout, the purple tint predominating; large, full, and of fine form. Price 5s. each.
The best of the NEW FRENCH ROSES, 3s. 6d. each, 36s. per doz.
Older kinds, 9s. to 30s. per doz.

NEW BEDDING GERANIUMS (BEATON'S RACE).
Any 12 Varieties from this group of 18 may be selected by the purchaser for £2 2s.

The following NEW ZONALE and HYBRID NOSEGAY GERANIUMS have been selected from several thousand seedlings raised from the stock of the late Mr. Donald Beaton. Every one now offered has been thoroughly tested, and is believed to be in advance of, or distinct from, all pre-existing kinds.

AUTOCRAT (Wm. Paul). — Flowers bright orange, very large, a decided advance in shape of this colour, blooms freely, very attractive; habit good. Price 3s. 6d. each.
BICOLOR (Wm. Paul).—Flowers bluish purple, with spot of fiery scarlet on top petals; free, good, and quite unique in colour and character. Price 5s. each.
BLUE BELL (Wm. Paul).—Flowers bluish lilac, large, and of good shape and truss; habit fine. A thoroughly distinct and most pleasing novelty. Price 5s. each.
CLIO (Wm. Paul).—Flowers rosy purple, upper petals scarlet, large and good form, truss and habit good; price 3s. 6d. each.
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CRUSADER (Wm. Paul).—Flowers crimson scarlet, with white eye, large and smooth, truss large. Price 5s. each.
DR. HOGG (Wm. Paul).—Flowers purplish rose, the colours glowing and very beautiful, trusses good and abundant. Under canvas this novelty appears to resemble Amy Hogg, but is quite distinct from the latter out of doors. Figured in "The Florist" for November, 1866. Price 5s. each.
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GLORY of WALTHAM (Wm. Paul).—Flowers splendid even scarlet, dwarf habit, foliage fine, truss large and close. Probably the finest "Nosegay" Geranium yet raised. Price 3s. 6d. each.
KINGFISHER (Wm. Paul).—Flowers crimson and bluish purple, magenta eye, very free, distinct and effective. Price 3s. 6d. each.
LILACINUM (Wm. Paul). — Flowers dark bright lilac, splendid truss, and fine habit, the colour quite new. Price 5s. each.
MEMNON (Wm. Paul).—Flowers magenta, trusses good and very abundant, habit dwarf This might be called a rosy purple "Stella." Price 3s. 6d. each.
OMEN (Wm. Paul). —Flowers reddish salmon, splendid truss, good habit, very free, distinct, and first-rate for bedding. Price 3s. 6d. each.
PURPLE QUEEN (Wm. Paul).—In the way of Amy Hogg as to habit and character of truss and flower, but of a totally different colour—dark rosy purple. Price 5s. each.
TROUBADOUR (Wm. Paul). — Flowers rosy purple, fine shape, magnificent under glass. Price 5s. each.
VILLAGE MAID (Wm. Paul). — Flowers bright deep pink, with clear white blotch in the centre of the upper petals, the colours being well separated or defined; habit dwarf and compact; very beautiful. Price 5s. each.
WALTHAM NOSEGAY (Wm. Paul).—Flowers carmine, trusses of good size and abundant; highly recommended for the effect it produces in the flower garden. Price 3s. 6d. each.

GOLD-LEAVED VARIETIES.

The following varieties are the result of a cross between Beaton's race and the ordinary gold-leaved kinds, whereby has been obtained the free growth and leafy character of the former, properties invaluable for bedding purposes.

JASON (Wm. Paul).—Flowers blood crimson, trusses large, round, and compact, leaves pure golden yellow, habit dwarf and free; the plant densely clothed with fine foliage. The association of yellow leaves and blood crimson flowers, both freely produced, is, in this plant, very fascinating. Price 7s. 6d. each.
WALTHAM GEM (Wm. Paul). — Flowers very light red, colour distinct and peculiarly pleasing, white eye; leaves yellow, with very faint zone. A beautiful novelty of dwarf compact habit. Price 7s. 6d. each.

STANDARD ZONALE GERANIUMS.
Scarlet, rose, white, &c., 5s. to 10s. 6d. each.

STANDARD, VARIEGATED, and TRICOLOR-LEAVED GERANIUMS, 7s. 6d. to 15s. each.

GERANIUM REBECCA.—Cherry colour, 21s. per doz.
" NIMROD.—Orange scarlet, 21s. per doz.
" ST. GEORGE.—Dark chestnut, 15s. per doz.
" MRS. POLLOCK, 6s. to 9s. per doz.
" SUNSET, 18s. per doz.
" ITALIA UNITA, 21s. per doz.

HOLLYHOCKS.—A fine collection of Hollyhocks by name and well varied in colour, 12s. to 42s. per dozen.
NEW AUCUBAS.—The 10 best sorts for £2 10s.
NEW DOUBLE CRIMSON THORN. — Good plants in pots, 5s. to 7s. 6d. each.
GRAPE VINES.—Planting canes, 3s. 6d. to 5s. each. Fruiting canes, 7s. 6d. to 15s each.
LILIUM AURATUM.—Flowering bulbs, 2s. 6d. to 10s. 6d. each; 12s. to 60s. the half dozen.
RAPHANUS CAUDATUS, 1s. to 2s. 6d. per packet.
PAUL'S Nurseries, Waltham Cross, London, N.

Mrs. Pollock Geranium.

THOMAS PESTRIDGE, The Greenway Nursery, Uxbridge, Middlesex, can supply strong and highly-coloured MRS. POLLOCK GERANIUM at 7s. per dozen, 50s. per 100.

Luna, 18s. per doz.	Orange Nosegay, 6s.	Madame Vaucher, 4s.
Amy Hogg, 6s.	Venus, 6s.	Centaurea gymnocarpa, 4s.
Indian Yellow, 5s.	Cloth of Gold, 4s.	Coleus Verschaffelti, 4s.
	Iresine Herbstii, 3s.	

PELARGONIUMS in large 60-pots, full of flower buds, 6s. per dozen.
Terms cash.

NEW IVY-LEAVED PELARGONIUMS.

L'ELEGANTE.—Leaves green, margined with creamy-white; flowers white. 10s. 6d. each; six plants, £3.
DERBYSHIRE HERO (Zonal).—Bright cerise.
STAFFORD GEM (Zonal).—Orange-scarlet.
SCARLET CHRISTINE (Plain-leaved).—Bright cerise, shaded with purple.
ROSE MAGENTA (Nosegay).—Fine habit, good bedder.
6s. each, set of four for 15s.
The above to be sent out after April 20.
DESCRIPTIVE PRICED CIRCULARS to the Trade on application.
See *Gardeners' Chronicle*, p. 234, March 2.
W. CUNNINGHAM, The Forge Nurseries, Burton-on-Trent.

TRICOLOR GERANIUMS.—Italia Unita, Queen of Nosegays, Gold Pheasant, Sunset, Crystal Palace Dwarf, Mrs. Pollock, Stella Variegata, Yellow Belt, one of each, packing included, 12s.; Mrs. Pollock, 7s. per dozen; Sunset, 15s. Strong Plants of the following at 3s. per dozen:—Iresine, Coleus, Perilla, Amaranthus; Geraniums Tom Thumb, Spitfire, Christine, Stella, Countess of Warwick, Alma, Flower of the Day, and Bijou.
CALCEOLARIAS, VERBENAS, AGERATUMS, CUPHEA, LOBELIA, GAZANIA, KONIGA, and NIEREMBERGIA GRACILIS, 3s. per dozen; finest Zonal varieties, 6s per dozen cash; strong Plants GLOIRE DE NANCY, 2s. 6d. each.
GEO. DAVISON, Hereford.

Now Sending Out.

GEO. SMITH begs to inform the Readers of the *Gardeners' Chronicle* that he is now sending out his superb ZONAL and VARIEGATED GERANIUMS; also two beautiful DWARF TROPÆOLUMS, all of which have been highly spoken of by the Horticultural press.
G. S. begs to add that they are all of first-rate quality. For descriptions see previous advertisements, or CATALOGUE, which contains Descriptive Lists of Show, Fancy, French, Zonal, and Variegated Geraniums, Fuchsias, Verbenas, Dahlias, Petunias, Chrysanthemums, Bedding Plants, &c.
Tollington Nursery, Hornsey Road, Islington, London, N.

New Zonal Pelargoniums.

DOWNIE, LAIRD, AND LAING most respectfully announce that they will send out the following splendid varieties, which have been so much admired, and have received the highest awards wherever shown, including First-class Certificates at the Royal Horticultural Society. The following extract is from the "Journal of Horticulture," July 17, 1866:—"There are so many good Nosegays, and so much alike, that it requires something quite new in colour to surpass them, or in many cases to equal them; the large bold truss of Stella and Le Grand, or the KING of the NOSEGAYS, must be the models of perfection in this class of flowers."
KING of the NOSEGAYS.—Bright orange scarlet. Very large truss, dwarf habit. Very free and most effective variety. 7s. 6d. each.
MRS. LAING (Nosegay).—Glowing carmine scarlet, very dwarf, free, and most effective as a bedder. A beautiful and distinct variety. 5s. each.
MRS. MENZIES.—Bright rosy salmon. Flowers perfect, good habit, free, and very fine. 5s. each.
SAMBO.—Very dark glossy scarlet, of great substance. Flowers of the finest form. Very large compact globular truss; quite distinct from all others. 7s. 6d. each.
Ready second week in May.
Stanstead Park Nursery, Forest Hill, S.E.

NEW ZONAL GERANIUMS.—These, now so well known as the Cliveden Seedlings, were selected from many thousands, and have stood the test of trials for two seasons with the best named kinds. They have gained the highest awards wherever shown, including First-class Certificates for each at the Royal Horticultural Society, and have received the highest and most unanimous praise of the Horticultural press. The following is a specimen of the manner in which they have been spoken of:—
The "Gardeners' Magazine" says:—"And this brings me to Duchess of Sutherland and Lady Constance Grosvenor, which have been several times shown by Mr. Turner this season, and ought to be sent out next spring at nothing less than a guinea a plant, to recoup their raisers for the hundreds they have need to grow for the muck-heap."
DUCHESS of SUTHERLAND (Nosegay).—A variety of great merit, rosy purple, very free bloomer, with truss of great size; it retains its blossoms to an unusually long time, and is equally effective in pots, vases, or the flower garden. 5s.
INTERNATIONAL (Nosegay).—Rich crimson or crimson-scarlet, a deep rich shade of colour, with a wider petal than any other Nosegay, being a decided improvement in the shape of this very useful class of bedding and pot plants. 5s.
LADY CONSTANCE GROSVENOR (Nosegay).—Intense fiery scarlet, of the style of Cybister, having a truss of at least double the size; an immense truss, with the advantage of a dwarf compact habit and foliage, so clearly zoned as to be handsome without bloom. This is a most beautiful variety. 5s.
Strong plants ready May 1.
CHARLES TURNER, The Royal Nurseries, Slough.

HERBERT TIREBUCK'S NEW ZONAL VARIETIES of PELARGONIUMS for 1867, to be sent out in May:—
EMILY MORELAND.—Bright scarlet flower, with a large white eye, dark zoned foliage, a free bloomer, one of the best ever brought before the public. Price 10s. 6d. Received a First-class Certificate at the Royal Botanic Gardens, July 3, 1866 (see *Gardeners' Chronicle*, No. 27, p. 638).
FELIX (a Nosegay variety).—Dwarf habit, neat green foliage, black zone, carpeting the ground, quite a new colour, with a lilac pink flower, large truss, a gem. Price 10s. 6d. each. Received a Second-class Certificate at the Royal Horticultural Society, Kensington, August 7, 1866 (see *Gardeners' Chronicle*, No. 32, p. 758).
OLIVER TWIST (a Nosegay variety).—Bright red flower, very large truss, and free bloomer. Price 7s. 6d. each.
MASTERPIECE.—Bright orange scarlet, dwarf compact habit, free bloomer. Price 7s. 6d. each.
CERISE (a Nosegay variety).—Scarlet, large truss, compact habit, Price 7s. 6d.
JEWESS (a Nosegay variety).—Indian yellow, scarlet foliage, with a deep green, black zone, very distinct. Price 5s. 6d.
LUTON GEM.—Deep scarlet shaded with a light striped large truss. Price 7s. 6d. each.
CRIMSON CUSHION.—A very large truss, crimson striped, a gem. Price 7s. 6d. each.
TIREBUCK'S GEM.—Rosy-blush colour, very free bloomer, and good habit. Price 7s. 6d. each.
TIREBUCK'S ST. CLAIR.—Pink salmon or cerise scarlet blossoms, large trusses and individual flowers. Price 7s. 6d. each.
RICHARD KELLY.—The foliage is greenish-yellow, with a large scarlet flower, throwing the flowers well up above the foliage; a free grower and flowerer. Price 7s. 6d each.
CATHERINE.—Greenish yellow, edge narrow, plain green centre and deep brown zone between. Compact round scarlet flower. Price 7s. 6d.
The above Seedling Pelargoniums are mentioned by Mr. Fish. See *Cottage Gardener*, No. 307, page 126, Feb. 14, 1867.
H. T. begs to state that he has good variety of sorts at 10s. per doz.
Lea Bridge Nursery, Luton, Beds.

AUCUBAS, FUCHSIAS, ZONAL GERANIUMS, &c.

6 Varieties AUCUBAS, 3 Male, 3 Female, for 21s.
12 Select NEW FUCHSIAS of 1866 for 6s.
12 Select NEW ZONAL GERANIUMS of 1866 for 6s.
12 Select CHRYSANTHEMUMS of 1866 for 4s.
12 Varieties JAPAN EUONYMUS, very fine, 6s.
3 Varieties NEW JAPAN OSMANTHUS, quite hardy, 5s.
NEW WHITE LOBELIA MISS MURPHY, 3s. per dozen.
12 Select NEW VERBENAS of 1866, for 3s.
NEW DOUBLE GERANIUM GLOIRE DE NANCY, 1s. each.
E. W. KNIGHT, Nurseryman, Battle, Sussex.

NEW VARIEGATED GERANIUM CASTLEMILK.—Fine ornamental foliage, one half the leaf margined with the purest white, centre fine green. Free robust branching habit, and effective bedder. First-class Certificate at the Glasgow and West of Scotland Horticultural Society, September 12, 1866. Price on application. Will be sent out second week in May by
AUSTIN & MCASLAN, 16, Buchanan Street, Glasgow.

American Plants, &c.

WATERER AND GODFREY'S PRICED and DESCRIPTIVE CATALOGUE of RHODODENDRONS and other American Plants for this Autumn, will be sent on application. The Catalogue also gives a summary of their General Nursery Stock, probably the most extensive in the kingdom.
Knap Hill Nursery, Woking, Surrey.

Rhododendrons.

JOHN WATERER'S DESCRIPTIVE CATALOGUE of HARDY SCARLET and other RHODODENDRONS is now published, and will be forwarded on application. It faithfully describes the colours of the new varieties exhibited by him at the Royal Botanic Gardens, Regent's Park. An Abridged List of popular CONIFERS, with heights and prices, is likewise combined.
The American Nursery, Bagshot, Surrey, near Sunningdale Station South-Western Railway.

Calceolaria Ambassador (Sang).

EDWARD SANG AND SONS, NURSERYMEN and SEED MERCHANTS, Kirkcaldy, N.B., offer strong autumn-struck Plants, in single pots, of this new well-known and universally admired BEDDING-OUT CALCEOLARIA. Price 12s. per dozen.
Early orders will oblige and have their careful attention.
The Trade supplied.

LILIUM AURATUM.—Large Consignment just received, 2s. 6d., 3s. 6d., 5s. 6d., and 7s. 6d. per Root. Extra large selected Bulbs, 10s. 6d., 12s. 6d., 15s., and 21s.
BARR & SUGDEN, Seed, Bulb, and Plant Merchants, 12, King Street, Covent Garden, W.C.

PANSY SEED.—Saved from the very finest Show Flowers, by an amateur who gained upwards of 20 Prizes last season at the Exhibitions of Glasgow, Kilmarnock, &c. Confidently recommended as perhaps the finest Pansy Seed ever offered to the Public; 1s. and 2s. 6d. per packet.
ANTIRRHINUM, from splendid varieties, 6d. and 1s.
DREGHORN & AITKEN, Kilmarnock, N.B.

Chrysanthemums, Chrysanthemums, Chrysanthemums.

ADAM FORSYTH'S CATALOGUE is now ready, containing a Descriptive List of all the best varieties; also a Practical Treatise on the Cultivation of the Chrysanthemum. Forwarded to all applicants for one stamp.
Brunswick Nursery, Stoke Newington, London, N.

British Fern Catalogue.

ROBERT SIM can now send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his NEW and PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.
Fox's Cray Nursery, S.E., a mile from Sidcup Station of New North Kent Line of South Eastern Railway.

NEW GREENHOUSE FERN,
Pteris serrulata var. polydactyla.

THOMAS CRIPPS has the pleasure to inform lovers of FERNS that he is now prepared to supply strong plants of the above beautiful and distinct variety. Dr. Moore says * * * "It has all the gracefulness of the parent plant, while the points of each division of the frond are several times forked into a many-fingered tassel, the weight of which gives the fronds a decidedly drooping character. * * * It is quite distinct from the var. cristata, and will be found a valuable acquisition for Plant Cases and Small Greenhouses." It was awarded a First-class Certificate by the Royal Horticultural Society, 21st August last.
Price 10s. 6d. each. Trade price on application.
The Nurseries, Tunbridge Wells.

Choice Seeds.

WM. CUTBUSH AND SON strongly recommend the following:—
PRIMULA SINENSIS FIMBRIATA, of the finest possible strain, Red, White, or Mixed, 2s. 6d., 3s., and 5s. per packet.
CALCEOLARIA, saved from James' choice strain, very fine, 2s. 6d., 3s. 6d., and 5s. per packet.
CINERARIA, from named flowers, 2s. 6d., 3s. 6d., and 5s. per packet.
SNOW'S WINTER WHITE BROCCOLI (True), Wm. C. & Son's own saving, 2s. 6d. per packet.
NUNEHAM PARK ONION, 2s. 6d. per packet.
For other Choice Seeds see CATALOGUE, post free.
Highgate Nurseries, London, N.

RICHARD SMITH'S SEED CATALOGUE contains a Calendar of Time for Sowing, particulars of Collections, with Prices, Directions for Cropping well and economically, Soil, Manure, Depth, Distance, Season, Hardiness, Duration, Form, Height, Colour, Storing, Use, Flavour, and other qualities, described.
This List Free by Post or one stamp. Seeds direct from the Growers the surest way to success.
RICHARD SMITH, Seed Merchant, Worcester.

New Plant Catalogue.

G. AND J. RUMLEY beg to announce that their NEW DESCRIPTIVE CATALOGUE of Fuchsias, Verbenas, Geraniums, Hollyhocks, Dahlias, Chrysanthemums, Cinerarias, Calceolarias, Petunias, Phloxes, Greenhouse, Bedding, and Hardy Plants, is now ready, and may be had on application.
The Nurseries, Newton-le-Willows, near Bedale, Yorks.

Verbena Crimson King.

THOMAS METHVEN has much pleasure in announcing that CRIMSON KING having completely established its character as the finest Bedding Verbena in cultivation, he has propagated a large Stock of fine healthy Spring-struck Plants, which he offers, on and after April 15, at the following prices:—12 Plants, 4s.; 50, 12s. 6d.; 100, £1; 500, £4 7s. 6d.; 1000, £7 10s.
Leith Walk Nurseries, Edinburgh.

JOHN KEYNES' NEW VERBENAS for 1867.

COLESHILL (ECKFORD).—Intense scarlet, with lemon eye, pips large, very smooth, one of the finest Verbenas. First-class Certificate at the Royal Horticultural Society. 5s. each.
UMPIRE (ECKFORD).—Large cerise purple, the largest truss and flower in cultivation, very showy. 5s. each. Certificate at the Royal Horticultural Society.
FANNY MARTIN (ECKFORD).—Beautiful clear rose, very pleasing, large and fine. Certificate at the Royal Horticultural Society. 5s. each.
EARL OF RADNOR (ECKFORD).—Most beautiful clear rosy scarlet, with lemon eye, good habit, and free bloomer. Certificate at the Royal Horticultural Society. 5s. each.
WILLIAM HOODS (ECKFORD).—Light purple, with white eye, most perfect flower, exquisite form, grand flower either for bedding or show. 5s. each.
MR. ELLICE (ECKFORD).—Peach colour, quite new, a most beautiful variety, not to be surpassed. 5s. each.
These six varieties are of the finest quality, and will be found quite equal to those sent out last season from the same Grower. They have been selected with the greatest care.
The SIX VERBENAS of last year have proved to be of first-rate quality. They can now be had fine plants, and consist of

John Keynes	Mr. Gladstone	King Charming
Lady Jane Ellis	Isa Eckford	George Eckford

Many testimonials respecting these Flowers have been received by J. KEYNES, all having given great satisfaction. 9s. per dozen.
CRIMSON KING (METHVEN'S), having proved all that was said of it, may be had 9s. per dozen. The finest crimson bedder in cultivation.
A fine collection of the best BEDDING VERBENAS at reasonable prices. The usual Discount to the Trade.
Castle Street, Salisbury.

BARR & SUGDEN.

FROM YOKOHAMA DIRECT, A CONSIGNMENT OF

LILIUM AURATUM,

In fine condition, 2*s.* 6*d.*, 3*s.* 6*d.*, 5*s.* 6*d.*, and 7*s.* 6*d.* each.

SURPLUS STOCK OF GLADIOLI.

Fine Mixed varieties of GANDAVENSIS, 7*s.* 6*d.*, 10*s.* 6*d.*, and 15*s.* per 100; 1*s.* 6*d.* and 2*s.* 6*d.* per doz.

BOWIENSIS, the finest scarlet, 7*s.* 6*d.*, 10*s.* 6*d.*, and 15*s.* per 100; and 1*s.* 6*d.* and 2*s.* 6*d.* per doz.

NAMED VARIETIES, 3*s.* 6*d.*, 5*s.* 6*d.*, 7*s.* 6*d.*, and 10*s.* 6*d.* per doz.

A FEW SPECIALITIES IN SEEDS.

RIVINA LÆVIS. — A most effective plant for table decoration. During the autumn, winter, and spring months, it is covered with elegant drooping racemes of beautiful scarlet berries. For mode of culture, &c., see *Journal of Horticulture*, p. 275, April 4. 1*s.* per packet.

ZEA CUZKO (from Peru). — The largest Maize yet introduced for decorative purposes. Leaves very broad and compact. Last year in Italy this plant attained the height of 20 ft. 1*s.* and 2*s.* 6*d.* per pkt.

ZEA JAPONICA VARIEGATA. — Beautifully striped Maize; as handsome as Arundo Donax variegata. 6*d.*, 1*s.*, and 2*s.* 6*d.* per packet.

DATURA SPECIES (from Peru).—Described as a most beautiful plant. Flowers pure white, 10 inches long, and deliciously fragrant. 2*s.* 6*d.* per packet.

BARR'S SPLENDID STRAIN of PRIMULA SINENSIS FIMBRIATA, ALBA, RUBRA, and Mixed. Each 2*s.* 6*d.* per packet.

BARR'S FERN-LEAF PRIMULA, ALBA, RUBRA, and Mixed. Each 2*s.* 6*d.* per packet.

BARR'S PRIMULA SINENSIS FIMBRIATA NOVA.—A beautiful Madder-red shaded variety; and beautiful new striped variety. Each 3*s.* 6*d.* per packet.

BULL'S DUPLEX-FLOWERING, a unique and beautiful MONKEY FLOWER. 1*s.* 6*d.* and 2*s.* 6*d.* per pkt.

BULL'S INTERNATIONAL PRIZE CALCEOLARIA.—The finest strain in cultivation. 2*s.* 6*d.*, 3*s.* 6*d.*, and 5*s.* 6*d.* per packet.

FLOWER SEEDS in COLLECTIONS, 3*s.* 6*d.*, 5*s.* 6*d.*, 7*s.* 6*d.*, 10*s.*, 15*s.*, and 21*s.* per packet.

FINEST LAWN GRASS SEED for Renovating Old Lawns and Laying Down New Ones. 1*s.* 3*d.* per lb.

STANDEN'S

"GARDENERS' AND AMATEURS' FRIEND,"

A highly Concentrated, Inodorous, Artificial Manure, in all cases inducing free vigorous growth, and promoting early maturity. It is now largely used by the leading Nurserymen, amongst whom we may mention:—Messrs. James Veitch & Sons, Mr. Charles Turner, Messrs. J. & C. Lee, Mr. Barnes, of Camberwell, Mr. Standish, of Bagshot, &c., and many of the leading amateur Exhibitors. Use it freely.

Directions for Use, see *Gardeners' Chronicle*, page 291.

Sold in Canisters at 1*s.*, 2*s.* 6*d.*, 5*s.* 6*d.*, 10*s.* 6*d.*, and 21*s.*

The above valuable Manure may be had of the leading Nurserymen and Seedsmen in England, Ireland, and Scotland.

BARR AND SUGDEN,
The Metropolitan Seed, Bulb, and Plant Warehouse,
12, King Street, Covent Garden, W.C.

CHEAP and BEAUTIFUL FLOWER SEEDS.

	s.	d.
100 Packets of the best and most showy hardy, half hardy, and tender Annuals	20	0
50 " " "	10	0
25 " " "	5	0
25 Packets of the best showy Hardy Annuals	5	0
12 "	2	6

DESCRIPTIVE CATALOGUE on application.
RICHARD SMITH, Seed Merchant, Worcester.

GREAT NATIONAL HORTICULTURAL EXHIBITION, 1867.
£1000 OFFERED IN PRIZES.

To be HELD in the Gardens of the Botanical and Horticultural Society, Old Trafford, MANCHESTER, 7th to the 15th JUNE.
Charges for Admission:—First Day, 10*s.* 6*d.* each; Second Day, 2*s.* 6*d.* each; WHIT MONDAY and remaining Days, 1*s.* each.
Subscribers to the Manchester Botanical and Horticultural Society free each day.
Annual Subscription—Family, £2 2*s.*; Individual, £1 1*s.*, admitting on all occasions.
Schedules, &c, may be obtained on application to Mr. B. FINDLAY, Curator, Botanic Gardens, Manchester, or from the undersigned. Military Bands in attendance each day.
Cooper Street, Manchester. HENRY WHITWORTH, Sec

GREAT NATIONAL HORTICULTURAL EXHIBITION, 1867.—Gardeners will be admitted by Tickets as follows:—First Day, 2*s.* 6*d.* each; Second and remaining Days, 1*s.* each. Applications for these Tickets must be made on or before 5th JUNE. HENRY WHITWORTH, Sec.

GRAND HORTICULTURAL EXHIBITION
at BURY ST. EDMUND'S, in connection with the
SHOW of the ROYAL AGRICULTURAL SOCIETY,
JULY 15, 1867, and four following Days.

Amongst various Special Prizes, amounting in value to nearly £300, and exclusive of the ordinary Prize Schedule,
A SILVER CUP, VALUE £20,
will be offered by the Proprietors of the
GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE
for the best COLLECTION of FRUITS and VEGETABLES,
to be made up as follows:—

Of FRUITS, any Five of the following Eight kinds, one Dish of each:—Grapes, Melons (2 fruits), Strawberries, Gooseberries, Currants, Cherries, Raspberries, or Apples (of the crop of 1866).

Of VEGETABLES, any Eight of the following Fourteen kinds, one basket or bundle of each:—Peas, French Beans (or Scarlet Runners), Broad Beans, Cauliflowers, Cucumbers (brace), Summer Cabbages, Early Carrots, Turnips, Artichokes, Onions, Spinach, Rhubarb, Potatos, or Mixed Salading.

This Cup will be open to Competition amongst Amateur or Professional Gardeners, of all grades, with Fruit and Vegetables of *their own growing*; any article otherwise obtained will disqualify the exhibitor.

The Gardeners' Chronicle.

SATURDAY, APRIL 27, 1867.

MEETINGS FOR THE ENSUING WEEK.

THURSDAY, May 2—Linnean .. .. 8 P.M.

THE discussion on the SPORT or SEEDLING question which was opened in our columns some time since, has served, we are glad to remark, to elicit a good deal of valuable information, to suggest new fields for inquiry, and to afford abundant opportunity for speculation. One very interesting point has been mooted in the course of these inquiries, viz., the degree of influence which can be attributed to man's artificial operations in the production of these variations.

Of course it would be rank heresy to tell a man, after all the pains that he has taken, that the effects he sees are not directly attributable to his efforts, and yet some do go as far as that. Far be it from us to assert so much. What a chorus of indignant remonstrances should we bring down upon our unlucky selves did we uphold a doctrine so utterly distasteful to the complacency of the successful cultivator; and, indeed, in the face of the facts recorded in our own columns and elsewhere, no one would think of denying that the skill of the cross-breeder has been productive of marvellous results, which would not have come to light but for his experiments. Take for illustration the origin of Pelargonium Flower of the Day, as stated by Mr. KINGHORN, or especially that of the favourite Mrs. Pollock, whom by the way our continental friends will persist in calling "*Mistriss*" Pollock. In this last case Mr. GRIEVE set himself down with definite purpose to produce tri-coloured Pelargoniums, and he succeeded. He has given the pedigree in our own columns, while in the *Journal of Horticulture* he gives the train of reasoning which suggested and guided his experiments. We take such facts as these to be irrefragable, but on the other hand we are loth to believe that all or even a majority of the varieties that are now met with, are the designed products of cross fertilisation; the niceties of the operation—the knowledge required of a plant's peculiar habits and constitution, and on the other hand the rough and ready manipulations often practised in such instances, forbid us from acknowledging in all cases the parentage assigned to the varieties. Before we could do so, we should have to be satisfied that all the requisite conditions had been fulfilled, the proper time selected, the necessary manipulations executed with sufficient care, and all sources of fallacy scrupulously guarded against. Who that reads of the precautions deemed necessary by the greatest practitioners of the art—the GÆRTNERS, the KOLREUTERS, the NAUDINS, the DARWINS, the HENRYS—and compares them with the careless methods too often adopted, but will mistrust the results obtained, or said to be obtained, by the less careful class of operators; and this, of course, without in any way impugning their veracity or their good faith.

It is, we think, abundantly evident that in many cases the varieties spring up quite independently of any direct or immediate action on the part of the cultivator, though possibly, nay probably, as a result of more remote agency on his part. How else is it possible to explain the fact on which so much stress is laid by the learned and vivacious conductor of the *Belgique Horticole*, of the appearance at about the same time in widely different localities of similar varieties, *e. g.*, hermaphrodite Aucubas, without any special or designed care on the part of the cultivator? When we find a Gloxinia suddenly losing its pendent habit and irregular form and assuming an erect position, and a regular flower, or when we see an habitually unisexual plant like the Aucuba or the Papaw, producing hermaphrodite flowers, we cannot attribute such unusual developments to any immediate agency on the part of the horticulturist. In the cases we have mentioned, he does not even attempt to make any change, but the alteration takes place, as it were, in spite of him.

Morphologists acquainted with the plan on which these flowers are constructed, and familiar with their early condition, feel but little surprise at such alterations as we have alluded to, because they are well aware that in the first instance the flowers are planned in that particular way, but that the plan is in general afterwards departed from, to suit particular ends, or in obedience to certain conditions. What these conditions are it is not always possible to determine, but until such determination is possible, the power of the horticulturist is necessarily limited.

OUR indefatigable friend, Dr. FERDINAND MÜLLER, of Melbourne, recently suggested to us that the culture of TERRESTRIAL ORCHIDS might be much more sedulously attended to than it is now, with great advantage; and in order to give others the opportunity of so doing, he has distributed, he tells us, some 4000 tubers of Australian species among European gardens. Hence we may fairly hope to see some of these curious plants at our flower shows before long, and Dr. MÜLLER'S suggestion that a prize be offered for collections of terrestrial Orchids is one well worthy the attention of the managers of these exhibitions, for certainly "few collections would be more gay or more interesting than a group of Earth Orchids from all countries—polar, temperate, and tropical."

It is true that a few are already in cultivation, the splendid Cape Disa for one, and that some horticulturists are very successful with our British Orchids; still the number of these plants now grown is altogether insignificant, especially when the beauty and interest of the flowers in question are considered. One reason that makes cultivators look askance on these plants is the capriciousness and uncertainty with which, apparently, their flowers are produced—we say apparently, because there is no real capriciousness in the matter.

In the case of our European tuberous-rooted Orchids, and we presume the same holds good with those of other climes, the flowers are only developed periodically, the interval that elapses between the flowering periods being filled in by the formation of tubers destined either to the production of leaves or of new tubers. Botanists have not quite made up their minds as to whether the swollen, subterranean portions of these Orchids are roots or stems, or buds, or a mixture of all three; moreover the details of their life history are not exactly the same in all the species that have been investigated up to this time. In most cases the life of these plants may be divided into three stages—first, the floral stage, wherein the tuber throws up a flower-spike; second, the leafy stage, wherein no flowers are developed, but leaves at the upper part of the stem, and at the base small axillary buds, which in their turn produce leafy shoots with additional tubercles, some of which latter after a time throw up flower-spikes. In the third stage the tubers form a shoot as before, but the extremity of this shoot, instead of producing either flowers or leaves, becomes itself dilated and tuberous, and this after a time acquires strength enough to form a flower-spike.

There is thus an alternation of generations,

and the length of time required for the plant to pass through its several stages or generations probably varies according to circumstances. Read by the light of these facts, the abundance of Orchids in some places at one time, and their rarity or absence at another time in the same locality, is readily explained.

Cultivators have done so much already in altering the habits and moulding the destinies, so to speak, of the plants under their care, that we do not despair of seeing them in the future enabled to overcome the apparent capriciousness of these Earth Orchids, but until that is accomplished we fear they are not likely to become general favourites with plant growers.

—— WE regret to have to announce the death of the REV. GEORGE CHEERE, of Papworth Hall, Huntingdonshire, which took place on the 10th of the present month. Mr. CHEERE was a devoted horticulturist, and an occasional exhibitor. Among other meritorious subjects grown by him, and exhibited at the beginning of the present season, were some pots of Mignonette of unusual excellence as regards the number and vigour of their flower spikes, notwithstanding the small size of the pots in which they were grown.

—— Messrs. E. G. HENDERSON & SON have obligingly sent us some fine fruiting specimens of HABROTHAMNUS ELEGANS with large ovate masses of rich rosy-crimson berries, resembling clusters of Grapes, accompanied by the following note:—"We forward specimens of Habrothamnus elegans in flower and fruit, grown as a sub-climber upon a pillar within the conservatory. It has been in continuous bloom since last autumn, and matured its large and beautiful clusters of rich rosy-violet-coloured fruit during the winter. Though several other species in the genus have brighter coloured flower tubes than the present, its fine clusters of fruit, equalling in size those of the Black Cluster or Verdelho Grapes, prove it to be a truly beautiful plant for decoration during the entire season when flowers and fruit for decorative purposes are extremely valuable."

—— The Summer Show of the BRIGHTON HORTICULTURAL SOCIETY is to take place this year on the 26th and 27th of June; and the Autumn Show on the 11th and 12th of September.

—— Liverpool is to have a new public park, called SEFTON PARK. Its site lies a little way beyond Prince's Park, and is bounded on the east by Mossley Hill, on the south by Mossley Vale, on the west by the Aigburth Road, and on the north by Ullett Lane. Three hundred and seventy-five acres of land (says the *Liverpool Daily Post*) were purchased from the Earl of SEFTON for a quarter of a million of money, and of these about 200 acres are to be appropriated to the Park, the remainder being sold as sites for gentlemen's villas. As possession will only be obtained next month, plans were sought for in November last, and it was then decided, upon the recommendation of the Improvement Committee, to offer two premiums for the best plans of laying-out the Park—one of 300 guineas, and another of 200 guineas. This produced 29 designs, which have lately been exhibited in the Liverpool Town Hall. We append the names of the competitors, and the cost at which they estimate that the work indicated in their plans can be carried into effect:—

Competitors.	Cost.
1. William Wortley, Liverpool	£92,168 1 8
2. Edmond André, Paris, and Lewis Hornblower, Liverpool	85,000 0 0
3. William Henderson, Landscape Gardener, and David Walker, Architect, Liverpool	123,500 0 0
4. Gay & Swallow, Bradford	75,000 0 0
5. R. W. Barnes, Manchester	89,504 0 0
6. Hans F. Price, Weston-super-Mare	100,000 0 0
7. Rev. James Bateman, Congleton	62,983 6 8
8. Alexander Black, Falkirk	27,285 0 0
9. François Duvillers, Paris	29,000 16 3
10. Rogers & Marsden, South Lincolnshire	38,609 18 0
11. A. Stansfield & Sons, Todmorden	37,516 19 2
12. Henry May, Bedale, Yorkshire	13,062 0 0
13. Charles Eastwood, Luddenden-foot	97,000 0 0
14. Thomas Mercer, Liverpool	156,687 0 0
15. Thomas D. Barry, Leamington	109,350 0 0
16. Reinhart Jahns, Liverpool, First plan	48,929 0 0
(two plans) Second plan	17,919 0 0
17. Alexander M'Kenzie, London	110,192 8 0
18. J. S. Tyerman, Liverpool	97,978 1 0
19. Maurice Young, Godalming, Surrey	62,262 15 5
20. J. A. Mason, Burton-on-Trent	25,000 0 0
21. J. Hart, Bradford	51,000 0 0
22. John Barnett, Shiffnal	56,045 0 0
23. J. A. Hall & George Middleton, Liverpool	98,299 16 9
24. J. H. Hirst, Bristol	100,000 0 0
25. J. W. Cottee, Chelmsford	158,835 0 0
26. Joseph Newton, London	54,666 4 10
27. John Gibson, jun., London	55,964 4 9
28. D. Brade, London	108,880 0 0
29. Edward Milner, Sydenham	122,560 0 0

Upon these designs we hope at an early date to offer some critical remarks.

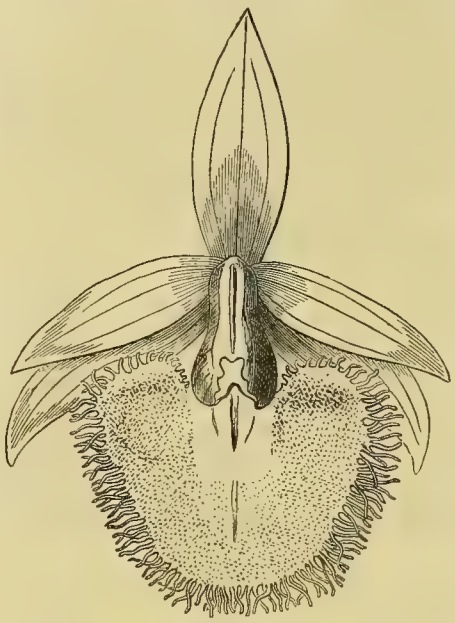
New Plants.

NANONES MEDUSÆ, *Rchb. f.*

Foliis oblongis acutis oblique et inæqualiter bilobulis, floribus paucis terminalibus maximis, sepalis petalisque minoribus ligulatis acutis, labello adnato subrotundo toto limbo ciliato fimbriato.

There was a very diligent writer on Orchids, M. Serapias, in the days of M. "Crabro Scandicus," who declared we should no longer be surprised by new Orchids of novel form. Yet here is such a plant. Long since M. Linden was so kind to send me a drawing of Mr. Wallis', representing this species, or something extremely like it, bearing a circular lip with a splendid border of long fimbriæ, such as are to be seen on Turkish ladies' shawls. We were quite puzzled at these purplish flowers, and from the want of any specimens from which to judge the pollen apparatus, all we could say, was that according to our information the plant was totally new, and that it was a very extraordinary one. We believe M. Linden named it Nasonia splendens.

Much later Messrs. Backhouse, of York, sent us a dried flower. It proved to be very leathery, and as such flowers shrivel very much in drying, we have represented the flower one quarter larger than in the dried one—but even smaller than Mr. Wallis' representation, which we have every reason to believe correct. We entertain no doubt that the plant will be gladly accepted by Orchid growers, provided it is to be



managed. And how few Orchids now resist the efforts of our excellent growers? It comes from the higher Andes of Western South America. *H. G. Rchb. fil.*

ENNOBLING THE WILD CABBAGE.

As long ago as the summer of 1859, during a visit to Llandudno, North Wales, I gathered some seeds of the wild Cabbage, Brassica oleracea, with a view to experiment. This seed was sown in my garden in the spring of 1860, and likely plants were planted from the seed-bed in the usual manner. The behaviour of these was reported upon at the Oxford meeting of the British Association for the Advancement of Science in the following words:—"These are already highly curious as showing a tendency to run into so many of the Cabbage varieties, *e. g.*, long petioles, the types known as 'Kale, Greens,' &c., both with broad more or less undivided leaves, and with a tendency to deep lobes and divisions. Others with short petioles offer the true Cabbage type, whilst these even now show tendencies for the production of sorts, as flat heads, sugar-loaf, green, red, and white varieties."

The termination of that year's experiments left some plants to winter, and in these the most important change observed in 1861, was that of one specimen to an imperfect Broccoli type, inasmuch as the flower was altogether in a sulphur-coloured central head.

Again the seed of this peculiar one was saved, and some of it was sent to the Messrs. Sutton of Reading, for them to experiment upon, and they not only made trial of it themselves, but divided a portion amongst three eminent gardeners. The report from all these gentlemen is remarkable, as it tended to show that while with each a few plants made respectable Broccoli, others went off into different forms of Greens and Cabbages, and in short that the seed was altogether uncertain as to sort.

My own seed was sown at my new residence, Bradford Abbas, in 1864, and at the same time there was sown some seed saved by the four experimenters previously mentioned, and of all these five separate rows were planted in my experimental garden, and from these, in the middle of March, 1865, I began to cut some very nice Broccoli, at least ten days before any others, reserving, however, some of the best, with certain peculiar forms, for future experiments.

Now, in all these five lots the same facts were observable, namely, that while the greater part were really Broccoli, yet even these were different in character; and with them were examples with broad leaves and short petioles, from which it would surely not be difficult to grow Cabbage, and others with purple-curled leaves, from which I have indeed grown a most excellent "Green," to be hereafter described.

Well, the seed of some of these types was saved, and from the Broccoli and Purple Green of last year I have now a very remarkable crop. The Broccoli plants of 1866 consisted of the following, besides my own stock—Snow's Winter White, Dalmeny Park, Carter's Champion. Of these every one has been killed, together with every Broccoli in the parish, except a few examples of Carter's Champion and two whole rows of my own new sort. From the latter I am now cutting some nice heads, but the former are not nearly ready for use.

Considering, then, the enormous mortality in this crop during the present season in this part of the West of England, my crop is looked upon by all as a perfect marvel. Here, however, I must remark, that seven plants out of 40 incline to the Cabbage form, one of which indeed has the tendency to form lots of little heads of minute smooth Cabbages after the manner of the Brussels Sprouts.

The seed of the Purple Green was sown in the field in alternate rows, with the Thousand-headed Cabbage, *Chou de mille têtes*, the Ox-heart, and the Cow-Cabbage, which were all used for stock, except a few Thousand-headed. The Greens have stood the winter in a remarkable manner, for while every Green in the district was utterly killed, and Cottagers' Kale, Ragged Jack, Curly Greens, and Savoy Cabbages, have not a specimen left,—not one of the new Green has succumbed to the severe weather; even the Thousand-headed have had two-thirds killed. It is, however, curious to see that even this Green has several varieties some being less crispated than others, some again inclining to bright green rather than purple—about equal parts of each.

Now it is a matter of importance to point out that in all my experiments in seed growth, I have never seeded Greens or Cabbages of any strain but those described, in any of my gardens—indeed, had I done so and they had got mixed in any way, the results would have been more certain, but the very variations of the stock seem to point to its origin.

That one might get fixed strains of different types is no doubt true, if one took the trouble of careful selection. This I hope to do, as my experience of this season has proved the great importance in point of hardihood of my newly introduced stock, both of Broccoli and Greens, as lately derived from the parent of all, namely, the wild Cabbage.

I claim, then, for these experiments the having shown practically what was at least theoretically supposed:—

1st. That the varieties of Greens, Cabbage, and Broccoli are derivatives from the wild Cabbage.
2d. That we have the power of getting new varieties of each from this source.
3d. That this stock is far hardier than any other yet known.

As regards the Purple Green, I may here mention that it has been before reported upon in the *Agricultural Gazette* as a likely field plant for sheep feed, its productiveness and its total immunity from injury in the past trying season all combining to recommend it for this purpose, and it is moreover an excellent Green for the table. *J. B.*

LETTERS FROM PARIS.—No. VIII.

THE GREAT FRENCH EXHIBITION.

THE world has seen some great shows of this kind, but this is the first instance in which horticulture has received the attention it deserves in connection with what purports to be an all embracing display of human work, art, and taste. At this Exposition horticulture is not only respectably represented, but made a chief feature of, and in the opinion of good judges its gardening department will be the chief charm of what will soon be the most interesting, extensive, and instructive exhibition ever seen. After deliberate consideration it was determined to hold the Exposition of 1867 in the Champ de Mars, and a better position could not have been chosen. Ere they commenced the erection of the building the centre of the ground was something hollower than the sides, and the first thing to be done was to fill up this, which was easily effected from the opposite side of the river, where there is, or was, a high rising ground, known as the Trocadero. Incidentally I may say that since my coming here this Trocadero, a most important position, from which you can see nearly all Paris, has been mined in a thousand places, acres of its soil removed bodily, and a most commanding slope made right in front of the Exposition, and on which I notice they are now commencing to plant shrubs. The whole face of the rising ground opposite the Champ de Mars has in fact been altered within the past eight weeks. When your readers see it, they will probably have an idea of how well and quickly improvements are carried out here. The Champ de Mars is about 500,000 square yards in extent, and of this space 160,000 are occupied by the building. What was to be done with the remaining 340,000? Well, they wisely and most fortunately determined to make a park and garden of it—fortunately, as well as wisely, for the building happens to be the ugliest ever seen, and were its demerits not concealed by the wondrous collection of buildings in the park, and by the extensive and tasteful garden scene, the very large-tailed cats of Paris would have come and howled their indignation at it, and the French, who try to joke at all things, would have a legitimate laughing stock for twelve long months. The convenience of its plan however makes you forget its external shortcomings, and go out of it in almost any direction, and your eyes are kept off the building by the great mass of interest displayed around, both in the shape of trees, shrubs, flowers, and buildings. I intend to describe this garden and park as soon as the last tender plants are in position, the Grass green, and the many interesting features contemplated in a finished state. At present there are of course none of those tender plants which Parisian gardeners make such a fine display of to be seen—when they are, the scene will display a marked improvement for the better, but some departments are already in a condition to be examined with profit, particularly TREES and SHRUBS.

We will begin with Conifers, and of these there is the finest collection ever gathered together—the largest number, and the greatest variety of kinds. They will remain here all the season, so that they may be seen

and studied by all. They are tastefully disposed in rising banks along the flanks of the great conservatory and other houses, and in many spots about the garden department, adding to it much beauty, apart from their individual interest to the horticulturist and planter. There are classes for new Conifers, for the largest and best collections, for the best single specimens, and so on. For an important and permanent exhibition of this kind, it would be a sad thing if groups like these should be badly arranged; and it may be safely said, that the Conifers could not be better disposed than they are in this garden. In its centre there is a large and handsome winter garden in an elevated position, which has been raised upon high walls, and against these great mounds of earth have been thrown up, except in front, where there is a large and beautiful cascade. These rising mounds are covered with Conifers, so that the great conservatory rises out of rich banks of them; while as the ground falls, outside the walks that run round the central conservatory and the banks, are other large groups, interspersed with fine masses of Rhododendrons and by the front mass of rockwork; and as one glances over the whole space, single specimens and groups are to be seen scattered about in all its parts. As there are nearly 40 "exposants," and some of these show as many as 350 plants, I need scarcely say that to detail any more than the newer plants of the collection is out of the question. The two larger collections are planted on the side of the great conservatory, that on the side of it facing the great maritime aquarium. This collection is a very fine one, embracing most things in cultivation, from a dwarf Libocedrus tetragona to large Cedars, pyramidal Junipers, the Wellingtonia, and even the common Larch, the larger plants giving the great house a very desirable finish. Generally throughout the ground the "exhibits" in this important class are excellently disposed, and their plants good. The winner of the premier prize is Mr. Deseine à Bongival, he shows 350 plants; Defresne 2d, with 200; and Odin 3d, with 150.

Of the class for 50 choice hardy species—"*Lot de 50 espèces ou variétés de pleine terre*"—the 1st prize was taken by Messrs. Veitch & Sons. They sent a beautifully finished group, comprising the choicest, though not overgrown plants of kinds much in cultivation, like the Araucaria and Abies Douglasii, and remarkably large specimens of subjects as yet rare, like the true Abies amabilis; the Umbrella Pine, the finest specimen extant no doubt; a beautiful dense and free specimen of Thujopsis dolabrata; a handsome close-growing Juniperus drupacea; very dense, healthy, and compact-growing specimens of Thuja gigantea and Lawsoniana; and a handsome plant of Juniperus fragrans, and Thuja Lobbii; and last, though far from least, several lovely bushes of the invaluable Retinosporas.

But interesting as these classes undoubtedly are, the competitors for the specimen remarkable for size and good cultivation, will soon catch the visitor's eye. The winner of this prize is the finest specimen of Thuja gigantea ever seen, and I doubt if anybody who has never seen the tree wild, could have formed any idea of its noble character ere seeing this plant. A very fine Wellingtonia near at hand, so fine indeed that people wonder at the courage of its owner in risking to lose it by removal here, makes no difference to this great Thuja, which in face of much opposition asserts itself to be a tree of the first order for gardens in cold and temperate climes. The second prize was given to a not very remarkable subject from the English point of view, Abies Nordmanniana, and the fine Wellingtonia only came in third.

Of Conifers of recent introduction in commerce, be it observed, the first prize is taken by M. Seneclause, with a fine group remarkable for having some scarcish things greatly developed, notably Larix Kæmpferi, about 10 feet high, and shooting away even more vigorously than the common Larch. Here is also in fine development, Tsuga Sieboldii, Retinospora Keteleeri variegata, fine; Juniperus myosurus, a curious drooping kind; a cylindrical growing var. of Scotch Fir; several distinct vars. of Abies pectinata; Thuja Craigiana, fine; Abies jezoensis; and Thuja magnifica, very free, bold, and graceful looking, with some tender plants that should scarcely have figured in a collection of this kind—Libocedrus chilensis argentea, Abies grandis and lasiocarpa, and a fine Arthrotaxus cupressoides.

Of new Conifers, naturally of most interest to your readers, there are several very interesting groups, planted in a sheltered position near the covered way at the back of the great conservatory, in which is exhibited the materiel d'horticulture. Messrs. Veitch have beaten all comers in this class, though there was by no means a dull competition.

The first plant you notice in their group, from its distinct and dense habit, is the dwarf and cushiony Thuja pygmæa, very low but spreading out into a healthful little bush. It is probably the prettiest of all dwarf Conifers, and will suit to a T the choice corner of a rockwork, or indeed any other position in the select garden. It also contains two new and beautiful representatives of the genus Retinospora—filiformis and filicoides—the former with a free flowing habit, so to speak, its branchlets pushing well out in a slender style; filicoides of a close habit and neatly cut foliage, graceful too, as its name would lead one to expect. It were better to see additions to this dwarf group of Conifers than almost any other, inasmuch as they are so eminently fitted to meet a great want of the present day—a more diversified and verdant kind of aspect among the dwarfer inmates of flower gardens. It is admitted that we want verdure and grace, or we tacitly admit it by introducing subtropical plants which are expensive to keep, and impossible to cultivate in the open air in many parts of the country. Here in this hardy and elegant family we have that comparatively dwarf but pyramidal habit which we want so much, while when we come close to them and examine them, we find they are as elegantly chiselled and dissected as the finest Fern. Everywhere in this grand collection of Conifers are to be seen evidences of this, and never have I looked upon more beautiful masses of verdure than R. plumosa in Messrs. Veitch's large collection, and also obtusa in the same; they are simply invaluable for those who use them with taste. Apart altogether from our want of a more elegantly diversified surface in the flower garden, and which the best and most practical way to meet is perhaps by the use of such plants as these, and neat and elegant young specimens of such things as Thujopsis borealis, the recurved Yucca, &c., there is in many British gardens a great gulf between the larger tree and shrub vegetation, and the humbler colouring material which most will admit should be filled up, and there is nothing known more suitable for it than these. In most of the groups of new and newish Conifers in the garden may be noticed the fine Cryptomeria elegans, which in every case promises to be a first rate thing, inclining, as I have seen it planted out, to the pendulous in habit, and growing more "kindly" than the old species. In Messrs. Veitch's collection there are also two desirable-looking very dwarf forms of Cupressus Lawsoniana, one dark-green, the other glaucous; Juniperus nobilis, promising looking; Abies firma and microsperma; Thujopsis lætevirens; Retinospora pisifera aurea; Abies Hookeriana; several things unnamed, variegated Retinosporas, and many others. Near their collection is one from Messrs. Thibaut & Keteleer, a compact group of fine new things, which was to the smaller new group what Messrs. Veitch's 50 was to the class for 50. The most striking feature in the bed is the three beautiful specimens of Arthrotaxus which it contains. In the centre it has A. imbricata, a graceful and vigorous-looking perfect pyramid; then Doniana, equally good, but more concise and less pointed in style; and finally, A. Gunneana is on the margin—of a rather dense drooping habit. Without displaying much beyond plants to be obtained in commerce, this group is of the most finished character. The Retinosporas are good, the one grown in England as leptoclada being named andelyensis (Carr.), and the R. squarrosa of English gardens leptoclada of Siebold. In a large group here there is a remarkable specimen of what we call leptoclada, about 4 feet high, and very close and erect in habit.

In the building itself, in the forest production department, there are interesting specimens of freshly cut fruiting branches shown, the most important of which are great specimens of Pinus macrocarpa and Sabiniana, showing the entire distinctness of these two species. Among other groups of Conifers I noticed a young and distinct-looking "Cedrus pinifolia," Tsuga Sieboldii, Pinus Murrayana, Retinospora nova species, Abies numidica, and several species of Podocarpus, surely useless for the open garden. Even the minor parts of the Exposition are great, one bank sweeping round the back and sides of the fresh-water aquarium being more than 100 yards long, and all planted with Conifers. Dacrydium Lobbii looks a very graceful subject in one group, and would make a charming conservatory plant; and funebris is also shown in a well variegated state. Cupressus Goveniana, a fine kind, is also shown both in a large and small state; it is a capital thing for favoured parts of the British Isles. Of Araucarias there is a large nursery-like group of imbricata and several others, while the greenhouse kinds are also planted out, and some shown indoors. There is one remarkable specimen of excelsa planted out. The most remarkable Araucaria is one shown by Mr. Knight, of Pontchartrain, and by him called nana; it seems a distinct and new species, very glaucous in hue, with a stiff development, and thick central stem and shoots. It was not recognised by either Dr. Moore, of Dublin, or Mr. C. Moore, of Sydney, both of whom know Araucarias well, and is likely to prove a useful plant for conservatory decoration.

The collections of 6 various extra large specimens, remarkable for the adornment of gardens, are not arranged in a group, but scattered tastefully about here and there through the garden for effect—a capital plan. So you see they do not allow exhibitors to arrange plants as they please—far from it. More than this, after every one of these exhibitors in the permanent classes had arranged his group, it had to be inspected and pronounced satisfactory by M. Barillet ere it was finally arranged. Thus the arrangements are as perfect as need be. There are between 300 and 400 species exhibited. Few of them seem to suffer much by the late transplanting, though of course they cannot be expected to look like an established plantation. There is a great display of Hollies and evergreen shrubs in various parts of the grounds, the Hollies particularly fine; there are many mixed shrubberies, both in the garden, and also in the Park, near the Pont de Jena entrance. Half the island of Billancourt is covered with young trees and saplings. There are numerous plantings of Rhododendrons and Azaleas; there are also Cactuses 20 feet high, brought from Hyères, in the south of France, which I suppose must be included among "trees and shrubs;" and there is a grand collection of noble Magnolias, with all of which I hope to deal in a future article, the more concise the better, for I wish very much to point out the main interest and teachings of the public gardens of the city of Paris, as soon as they are planted for the season; the market gardening around it; its nursery and private gardening, where noticeable; the making of their various kinds of roads and pathways, as soon as I have seen the effect of the sun upon the asphalted and tarred portions—and in fact everything of interest to the horticulturist, in and around this, the capital of taste.

The roads, paths, and drives are perfect so far as perfection is known to the present generation of judges; but it is quite a mistake to suppose that they are getting rid of paving stones, &c., as recently stated in your Journal, but on imperfect information, as the statement is not correct. They have several ways, all apparently handy and good, and which I should have attended to ere this, did I not wish to see them during the hot as well as the cold weather.

The show of next week is expected to be a great improvement on the former ones, particularly with regard to New Plants. *W. R.*

ON THE STRUGGLE FOR EXISTENCE AMONGST PLANTS.

By J. D. Hooker, M.D., F.R.S.

The quaint dictum, "Plants do not grow where they like best, but where other plants will let them," which is credited to the late eminent horticulturist, Dean Herbert, of Manchester, expresses a truth not yet half appreciated by botanists. It is a protest against the prevalent belief that circumstances of climate and soil are the omnipotent regulators of the distribution of vegetables, and that all other considerations are comparatively powerless. The Dean's crude axiom has lately found a philosophical exposition and expression in Mr. Darwin's more celebrated doctrine of the "Struggle for life, and preservation thereby of the favoured races," and if to it we add that great naturalist's more fruitful discovery of the necessity for insect and other foreign agencies in ensuring fertility, and hence perpetuating the species, we shall find that the powers of climate and soil are reduced to comparatively very narrow limits. Before proceeding to show what are the causes that do materially limit the distribution of species, it may be well to inquire how far the hard-pressed soil and climate theory really helps us to a practical understanding of one or two great questions that fall under our daily observation. Of these the following are the most prominent:—That very similar soils and climates, in different geographical areas, are not inhabited, naturally, either by like species, or like genera; that very different soils and climates will produce almost equally abundant crops of the same cultivated plants; and that in the same soil and climate many hundreds, nay, thousands of species, from other very different soils and climates, may be grown and propagated for an indefinite number of successive generations.

Of the first of these statements the examples embrace some of the best known facts in geographical botany; as, for example, that the Flora of Europe differs wholly from that of temperate North America, South Africa, Australia, and temperate South America, and all these from one another. And that neither soil nor climate is the cause of this difference, is illustrated by the fact that thousands of acres in each of these countries are covered year after year by crops of the same plant, introduced from one to the other; and by annually increasing numbers of trees, shrubs, and herbs that have either run wild, or are successfully cultivated in each and all of them. The third proposition follows from the two others, and of this the best example is afforded by a good garden, wherein, on the same soil and under identical conditions, we grow, side by side, plants from very various soils and climates, and ripen their seeds too, provided only that their fertilisation is insured. The Cape Geraniums, London Pride, and Lysimachia nummularia in our London areas, the pendent American Cacti in the cottage windows of Southwark and Lambeth, are even more striking examples of the comparative indifference of many plants to good or bad climate and soil; and what can be more unlike their natural conditions than those to which Ferns are exposed in those invaluable contrivances, Ward's cases, in the heart of the city? True, the conditions suit them well, and with respect to humidity and equability of temperature are natural to them; but neither is the absolute temperature, nor the constitution, nor freshness of the air, the same as of the places the Ferns are brought from; nor is any systematic attempt made to suit the soil to the species cultivated, for, as Mr. Ward himself well shows, the arctic Saxifrage, the English Rose, the tropical Palm, and desert Cactus, live side by side in the same box, and under precisely similar circumstances, and, as it were, in defiance of their natal conditions.

Let it not be supposed that we at all underrate such power as soil and climate really possess. In some cases, as those of chalk, sand, bog, and saline and water plants, soil is very potent; but the number of plants actually dependent on these, or other peculiarities of the soil, is much more limited than is supposed. Of *bonâ fide* water plants there are few amongst Phænogams. Sand plants, as a rule, grow equally well on stiffer soils, but are there turned out by more sturdy competitors; and with regard to the calcareous soils, it is their warmth and dryness that fits them to so great an extent, for many plants that are almost confined to them, or are absolutely peculiar to them. So, too, with regard to temperature, there are limits, as regards heat, cold, and humidity, that species will not overstep and live; but, on the other hand, so much has been done by selection in procuring hardy races of tender plants, and so much may be done by regulating the distribution of earth temperature, &c., that we already grow tropical plants in the open air during a portion of the year, and eventually may do so for longer periods.

Amongst the most striking examples of apparent indifference to natural conditions of soil and climate, I would especially adduce two. One is the Salicornia arabica, a plant never found in its natural state except in most saline situations, but which has flourished for years in the Succulent House at Kew, in a pot full of common soil, to which no salt has ever been added; the other is the Tea plant, which luxuriates in the hot humid valleys of Assam, where the thermometer ranges between 70° and 85°, and the atmosphere is so perennially humid that watches are said to be destroyed after a few months of wear; and it is no less at home in North-

Western India, where the summers are as hot and cloudless as any in the world, and the winters very cold. I may add that the Tea plant has survived the intense cold of this last January at Kew, on the same wall where many hardy and half hardy plants have been killed.

It is, further, a great mistake to suppose that the native vegetation of a country suffers little and very exceptionally by abnormal seasons. The most conspicuous instance of the contrary that ever fell under my observation was the destruction of the gigantic Gum tree (Eucalyptus) forests, in the central districts of Tasmania, which occurred, if I remember right, about the year 1837. In 1840 I rode over many square miles of country, through stupendous forests, in which every tree was, to all appearance, absolutely lifeless. The district was totally uninhabited, consisting of low mountain ranges, 2000 feet above the sea, separating marshy tracts interspersed with broad fresh-water lakes. The trees, much like the great gaunt Elms in Kensington Gardens during winter, but much larger, were in countless multitudes, 80 to 180 feet high, close-set, and 10 to 20 feet in girth; their weird and ghostly aspect being heightened by the fact of most being charred for a considerable distance up the trunk, the effects of the native practice of firing the Grass in summer during the kangaroo hunting season; and by the bark above, hanging from their trunks in streaming shreds, that waved dismally in the wind; for the species was the stringy-bark gum, that sheds its bark after this fashion. And not only had the Gum trees suffered, the hardier Leptospermum (Tea-tree bush), and many others, were killed, some to the ground and some altogether; so that though my journey was in spring, and the weather was delightful, the aspect of the vegetation was desolate in the extreme.

In such climates as our own, similar devastations are unknown, and though we know that our island was once covered with other timber than now clothes it, we have every reason to suppose that the change was slow, and the effect either of a gradually altered climate, or of the immigration of trees equally well or better suited to the conditions of the soil and climate, but which had not previously had the opportunity of contesting the ground with the ruling monarchs of the forest. *Popular Science Review.*

(To be Continued.)

VINE EXTENSION.

The gardener who is desirous of being successful, is perfectly correct in rigidly adhering to the system which he has been taught, and which he has seen to produce certain results. Nevertheless it frequently happens that when he thinks he has arrived at perfection at a particular point, some change may be imminent. Under either aspect it is scarcely possible to find a more interesting subject for discussion than that upon Vine extension which has been occupying a portion of your columns of late, and which, if continued in a proper spirit, ought to bring out a great amount of experience, both local and accidental. We should consider, in treating this subject at the present day, that the number of Grape growers has doubled within the last 20 years, and there are moreover healthy signs of this number being again doubled before another 20 years has elapsed, so that information on the subject must be highly interesting to a very numerous class of readers. I may be wrong, but I venture to assert that few of us know much of the Vine, beyond the so-called restrictive method. If we take the fortunate case of those who have plenty of maiden loam wherewith to make borders—which I hold to be the key to this system of Vine growing, we find in general that after great care has been expended upon making the border, the rod by the time it reaches the top of the house is expected to carry an average, say of 10 bunches. Now, if we look at the same system as successfully carried out in the conservatory at Chiswick, we find on one rod say 30 bunches, some large, but all of a good medium size. Here we have one rod carrying about 40 lb. of fruit, while another brings to equal perfection 120 lb. Now in no instance that I have yet seen does the cutting to waste of the 20 bunches removed from the short rod, benefit the crop to the extent we might expect; for under such circumstances, sensation bunches, one might think, should be the rule, not the exception. I believe that in both instances, the rods will share the same fate when extension ceases, that is to say they will become the same regular annual producers of ordinary bunches, such as we find in general practice, diminishing in size if the borders are not renewed, or the Vines cut down.

Our short rods and concreted borders are well adapted for this practice. They can at all times be easily renewed, both with soil and Vines, and the close cutting keeps the eye in well ripened wood; but this can be equally well carried out by extension. We cannot ignore the latter as the real source of large bunches. If we do, our scientific leaders are ready to point out to us that the eye is the storehouse of the future bunch, and the more a Vine is allowed to develop its resources, the better will the eyes feed in the gross young shoots.

I think, moreover, that if tried in many old houses, where, as with us, good soil is a very serious and expensive difficulty, a more free development of the root might lead to unexpected results. As an instance, I may observe that 13 years ago we had a house of Muscats, with one rod of the Black Hamburgh. From the former we never got fruit fit for the table, but the latter bore good fruit, and was encouraged every season by cutting out one or two of the other Vines, and training young shoots from the Hamburgh in their places. It now fills two houses, and last summer had fine bunches, a good many getting on for 6 lb. weight, and out of 120 bunches produced scarcely one was below average size. To prove this I send a photograph of a portion of the house, and another of one bunch, by no means the largest, but the best in shape; and, although there was this amount of fruit, the colour was perfect. [In every way good and satisfactory. Eds.] The old border, the cause of failure in the case of the Muscats, still exists; therefore, as the roots are still confined to the same border, it must be the extra development that enables them to use up the extra moisture that existed, and this must be equally true if a tap root has found a favourable stratum to penetrate, which I believe to be the case with all large Vines. I distinctly disclaim any desire to take credit for what was purely accidental; but there are many amateurs and professional gardeners who are in a position to profit in a similar way. We are as yet groping in the dark. There may be hundreds of places in our island where Vines as large as that at Hampton Court might be obtained in 20 years, if it were desired; but the plants must be properly treated, not left, as I have often seen old Vines, mere faggot bundles. If properly pruned, such would produce good medium sized bunches, which I hold to be far the most useful.

It is not possible to get more fruit from the same area of glass than at present; but it must be evident that if our summer houses were increased to three times the size, the Vines would with equal facility bring to perhaps greater perfection two-thirds more Grapes. Intending exhibitors might thus prolong their season of success though planting fewer Vines, instead of having to renew their small houses so often; and old Vines might be increased in vigour by extending the top. Take for instance the old Vines mentioned at page 266: nothing in this way could present a greater contrast than the fine old stems, and diminutive young wood. Such Vines are in a staid position, with no inducement to extend; but let one be selected, and encouraged to make young canes, and along with them fresh roots, and the result might be a surprise. *J. Fleming, Cliveden.*

THE BALSAM.

This continues to be one of our most useful plants for summer decoration. It comes into bloom at a time when many summer-flowering plants are fading, and makes a conspicuous show in the greenhouse or conservatory for some months in succession during the summer and autumn.

I have grown some hundreds of Balsams annually, measuring from 3 to 4 feet high, and from 2 to 3 feet through at the base, tapering in a pyramidal shape to the top. I generally sow the first lot about the beginning of March, in pots filled with a compost of loam, leaf-mould, and a little sand, all previously sifted, and well mixed together. After the seeds are sown the pots are placed in a Pine-pit, or any other house in which they will receive a temperature of 70°, and where they will not be shaded after they germinate. As soon as they have germinated, and the plants are sufficiently large to handle, they are potted off into large 60's (3-inch pots), the same soil being used as before, and the plants kept as well down in the pots as possible. They are then put back into their old quarters where they remain till they have filled their pots with roots—but not till they get pot-bound. They are now shifted into 48's (5-inch pots), adding a barrowful of well-decomposed dung, from a spent hot-bed, to every four barrowfuls of the soil already mentioned—not sifted, but well broken up with the spade, and all thoroughly incorporated together. In potting this time, I let the plants down into the pots so that the cotyledons, or seed-leaves, shall be level with the surface of the soil. The soil is pressed firmly with the hand all round the ball, but great care must be taken to prevent injury to the neck of the plant, by pressing too close to it. The plants are now put into an intermediate house, where a temperature ranging from 65° to 70° is obtained, and placed near the glass. The house is kept close for a day or two, and then air is admitted by degrees. As the plants get established, more air is given; this keeps them short-jointed, firm, and well developed in growth. In a short time they will again require re-potting, and this time into their flowering pots. I generally use 16's (8-inch pots), but larger pots may be used, if extra large plants are wanted.

In giving them their final shift I use very little drainage, only three or four pieces of large potsherds spread over the bottom of the pots, and over these I put about 2 inches of rotten dung. As the Balsam is a gross feeder, and requires a great deal of moisture, this will be found of great benefit to it during hot weather. After potting they are placed in one of the plant houses, or into pits, giving the plants plenty of room to grow, as they are to remain here till wanted for the conservatory or greenhouse. As the flower-buds appear they are all picked off (except two, which are left as a means of distinguishing the good from the bad—I never allow a single-flowered plant to grow), till the plants have attained the size required. This strengthens them, so that they can afterwards be had in a complete mass of flower at once.

When the plants have filled their pots with roots they should be watered two or three times a week with weak liquid manure; but care must be taken not to give it to them too strong, or it will have an injurious effect. If inclined to grow too much to one side, turn them round occasionally. This will have the result of keeping them equally balanced and of good shape. They will now require plenty of air and water, and as they grow they should have plenty of room and receive no check from over-crowding.

By making three sowings from March till May Balsams can be had to bloom in succession for a considerable time. As the season advances any ordinary greenhouse, plant-house, pit, or frame, will be found suitable for growing them if they are properly attended to.

I never shade the plants from the time the seeds germinate till they are in flower, and in the conservatory; but by shading them at this stage they keep a much longer time in bloom.

The Balsam is liable to be attacked with red spider, if allowed to become dry at the root, or sickly in any way. I therefore keep the paths of the house in which they grow well drenched with water, and syringe the plants frequently overhead. They are never allowed to flag for want of water at the root, and to grow up slender for want of room and a free circulation of air. Balsams will not stand fumigation. Should greenfly attack them, which is rarely the case if kept in good health, syringe the infected plants with tobacco-water, which will soon destroy the pests.

Seed should be saved only from the best sorts, and if kept a year before sowing, the plants are more likely to come double. By doing as I have described above I obtain a succession of fine plants, from early summer till late in the autumn. *A. Pettigrew, Richings Park, Bucks.*

Home Correspondence.

Transplanting Evergreens.—I can confirm Mr. Freeman's remarks (see p. 407) relative to early autumn planting of evergreens. I would recommend all kinds of evergreen trees and shrubs (except Hollies) to be planted in September and October, when they will almost immediately become firmly established. They will be thereby enabled to withstand unfavourable weather during winter, and will vigorously start into growth in spring. In early autumn planting, proper care should be taken to efficiently prepare the ground. After making the pit or hole the required depth, it is requisite to well loosen the bottom of it, and in anticipation of the weather being warm and dry, I will say give a good watering; place the plant in its position, working the soil nice and evenly round it, and press the same firmly together, leaving what is termed a "basin" on the top, of the size in circumference of the ball of the plant, for the reception of water, which must be given occasionally during dry weather. After the end of October the planting of evergreens should on no account be continued; but to those who, from whatever cause, could not accomplish the work in the autumn months above mentioned, my advice is, take as the next best time April, and with the last few days of that month discontinue the operation, as it will be utterly ruinous to carry planting into May, particularly if it be a rather early season. April is the only proper and suitable time for planting Hollies, which when placed in well prepared and richly manured ground, either as specimens singly, or as hedgerows, will, without doubt, give entire satisfaction. If your correspondent "A. M." (see p. 378) will adopt and practically carry out the advice just given, I feel convinced that he will not again have cause to complain. The remarks of "Brassica" (see p. 407) in reference to jobbing gardeners, are in a great measure to the point; for I am bound to admit that amateur gardeners are greatly imposed upon by Adam the jobber, who cares little about the success of the plants or seeds he puts in, provided he can make a good bill. Among jobbers there are, however, a few honest, straightforward men. *John Cole M'Ardell, late Gardener to Edward Joseph Weld, Esq.*—An important point in reference to moving evergreens, including even Coniferæ, is frequent transplantation when in a small state, so that each plant may retain a moderate-sized ball of earth with its roots, a condition which enables the plant to make a large number of small fibrous roots, instead of just one or two long straggling ones, the result of standing long in one place. All cuttings and seedlings (with but few if any exceptions) should be transplanted when one-year old, and should not be allowed to stand more than two years afterwards before they are again carefully transplanted. If "A. M." can assure himself that this has been strictly attended to, he may with perfect success plant from September to May, whenever the weather will permit; and the watering system which your correspondent recommends before and after planting, may safely be dispensed with, as the plants will not require it, if they are carefully planted, the soil trodden in firm with the foot, and the plant made secure against winds. If "A. M." is a purchaser, and will go to a nursery where the practice I recommend is strictly carried out, he must be prepared to pay a higher price for his goods than where the long standing system is followed, but success will amply compensate for the extra outlay at first. I may mention a case which occurred some years ago, and which came under my immediate notice, when I had the management of a large nursery in England. A gentleman, accompanied by his gardener, used to visit the nursery frequently during the summer months to make selections of trees, plants, &c., and always used to boast of his success as a planter. After looking at a plant which he admired, his first question was—"When was this last planted?" The answer would be, perhaps, last year or the year before, as the case might be; if he had doubts, he would turn to his gardener and say, "Joseph, what do you think?" Joseph would look round and round the plant, and, after careful examination, if he shook his head it was a bad job—"Stood too long, made too much growth, thin at the roots, no ball, sir." If I was certain when it was last planted I would say so. The answer then was, "Book that plant to me;" when lo and behold! Joseph, who was a powerful man, would take hold of the stem and pull the plant up without the aid of a spade. If the ball and roots appeared satisfactory, Joseph was satisfied. Purchasers should bear in mind that it is cheaper to buy a plant for a shilling that will live and thrive than to pay sixpence for one that will not succeed. It too frequently happens that one, two, and three-year old plants and trees are much taller and more robust in

appearance in one nursery than in another, and that they are offered at a lower price. This is because the expense of labour in transplanting has been saved, and because the growth has had no check; but in removal the roots are sadly mutilated. *J. W., Annan.*

Primula elatior.—I have this day sent you a few seedlings of the true Primula elatior, to show you that after 25 years' cultivation they retain all their original characters. The parent plants came from Bardfield, in Essex, in 1842, and since that time many hundreds of self-sown seedlings have flowered in my garden, and there has not been a variety worth notice among them. *Henry Doubleday, Epping.* [This is evidently distinct in the truss and in the calyx from the "common" Oxlip. Whether the Bardfield Oxlip be or be not a species is a matter of opinion merely. Eds.]

Ventilation.—I am unable to make out the meaning of a remark in Lindley's "Theory and Practice" (page 223), where he refers to ventilation in hothouses and greenhouses, in a way which, to me, implies that it is only necessary in the first to purify the air, and in the latter to lower the temperature. But suppose the observer finds the air of a Vinery in spring sufficiently pure at 9 or 10 A.M., and with this understanding it is left for one hour, during which the sun makes its appearance—what would be the result if such a house were kept close for that time? To what would the evils which would naturally arise from this be attributed—impurity of air, or the rays of the sun? The same paragraph seems to imply that if it were possible the air admitted should be as moist as that of the house; what would be the result of a volume of saturated air passing over Vines or Strawberries when in flower in March or earlier, or again when these are ripening at an early period of the year? For on entering such structures early in the morning, we find them more moist than at any other period of the day. What advantage would be derived by keeping them so? Is not a dry atmosphere of importance in these cases?—*i.e.*, assisting impregnation and imparting flavour to fruit; such are Lindley's expressions in other parts of his work. Again, a house of Grapes not yet beginning to colour is not ventilated, and the sun has been shining upon it for half an hour. The house or the atmosphere is tolerably moist, owing to the watering of the other plants in the house, or of the damping down first thing in the morning. Would the evils that would accrue from this state of things be attributed to impure air or the absence of air not loaded with moisture, or to not giving air in time to remove superfluous moisture? In the same page reference is made to parasitical fungi, and an established law is laid down in the usual emphatic style of the writer: "These productions will not flourish in either dry cold air or in hot damp air." If so, how is mildew accounted for in all kinds of seasons? Does it not appear in dry as well as moist weather? Does it not also appear in Melon and Cucumber houses kept at the proper temperature for their inmates, and with a right adjustment of atmospheric moisture? *W. P. R.* [Our correspondent should read the context. He appears to fail to see that these are generalised statements, from which details and exceptions are omitted. In the case of ventilation, the expression as applied to hothouses contains the word "often," for which "W. P. R." substitutes "only," and thus alters the sense. Then, again, dry air sucks the juices of the plants, and is therefore hurtful at certain periods, besides which the cooler air admitted might be relatively as moist as the hot internal air, without containing as much water as the latter, as may be seen from the moisture which is condensed on a cooler body when brought in contact with hot moist air. In other words the point of saturation is not the same in cool and in hot air, and this single fact meets most of "W. P. R.'s" difficulties. Eds.]

Blind Grapes.—What is the cause of incipient Grapes going blind? We have here a house of Vines, at a rough calculation from 17 to 20 years old. It was started almost naturally the second week in March, and had aid by a coat of manure on an outside border. Cold draughts have been avoided. The Vines flower rather freely, but will not set. They are under the restrictive system; the shoots are weak. Is this from the border being poor? *Amateur.* [The appearances described are such as would lead to the supposition that the roots are growing in a soil the temperature of which is far too much below that in the interior of the house. If the border is not thoroughly well drained, the addition of manure would only increase the evil, which, coupled with too high a night temperature, would result in a weak elongated growth, and blind bunches. We do not consider that the weak growth is in any way affected by the poverty of the border, because if it and the surrounding soil is well drained, the roots of the Vines will travel a long way in search of food under the foundations of walls and buildings—in fact, in any direction where they can find a pabulum sufficiently free from stagnated moisture. We suspect also, from the short time which elapsed from the starting point to that of setting the fruit, that you must have driven them on too fast by overheating, which would greatly accelerate the evils of a cold border. *C.*]

The Mangosteen.—Although I have not heard of any one who was sufficiently venturesome to purchase any of the trees some time since advertised by Mr. Hullett, yet the mere announcement that such trees were for sale may probably have turned the thoughts of some horticulturists to the subject of their culture, and the difficulties which seem to have baffled, except in one solitary instance, the energy and perseverance of British gardeners. Were the difficulty merely one of a high temperature, it might be overcome, but the tree has probably other peculiarities which could only be explained by one who has cultivated it at Penang. To any person who is desirous of trying his hand at an experiment, and has the means and appliances requisite to bring it to a successful issue, I would recommend trying a grafted tree. I am assuming, without being able to prove it, that the Guttiferæ can be grafted. But if they can, I will point out a stock of great promise. On the western coast of India, in latitude 13° or 14°, there grows a shrub called the Wild Mangosteen. Its leaves are acid and pleasant eating. Its fruit is smaller than the cultivated Mangosteen, but has the same permanent calyx on the top, and the inside of the rind is bright crimson. The edible part of the fruit has divisions like an Orange, and though it is difficult to describe a taste, always seemed to me to resemble a mixture of cherries and cream. I wish I could communicate the botanical name of this Mangosteen. I have tried to trace it among Don's descriptions, and his Garcinia Morella seems to come nearest to it. The ripe fruit, packed in a single layer in a deal box, and sent overland to England, would preserve the seed in a state of vitality. Such, at least, is the case with the cultivated variety. It only remains to give the reason why I should recommend this stock. It is because of its superior hardiness. Though there are no tables of temperature published at the exact place of its growth, yet we may fairly assume that the January minimum does not differ much from that of Madras, which is in about the same latitude. If so, the minimum we are seeking is 65°, which, I understand, is about 15° lower than Penang. For aught I know, the Wild Maugosteen may extend far northward of the latitude in which I have seen it, and if so, it will endure a temperature even lower still. *G. S.*

Early Peas.—My plan of producing these may be old, but I have found it to be good. I get a lot of half-drain tiles, cut strips of turf so as to go nicely into them, the grassy side downwards; I then take an old knife and make an incision along the centre, put in the Peas, lay the tiles side by side, and spread about an inch of soil over all. This spring I had no tiles, so I just laid the turf on boards. I sowed Carter's First Crop in this way on the 2d of February, planted them out after hardening off about the end of the same month; and now, April 22, they are from 20 to 24 inches high, and have been in full bloom for the last 10 days. In sowing Peas outside, I find I get better crops and a healthier row of Peas by throwing out the drill the width of a garden spade than by having them narrower. *G. W., Old Court, Co. Cork.*

Large Pear Tree.—At the Abbey of Lindores, on the estate of Mugdrum, are some unusually large Pear trees, mentioned by Sibbald in his "History of Fife" 150 years ago. The trunk of the largest one measures 17 feet 10 inches in circumference at 1 foot from the ground; at 9 feet higher up, where it branches off, it is 17 feet in circumference, and it is 44 feet in height. The spread of the branches is 53 feet in diameter; the circumference of one of the branches is 10 feet 8 inches, and that of another 8 feet 10 inches. It grows in deep alluvial soil, and bears abundant crops. Can any of your correspondents let me know of another as large? *D. Spiers, The Gardens, Mugdrum, Newburgh, Fifeshire, N.B.*

Seaside Trees and Shrubs.—In reply to the question (see p. 238) as to what is best to plant in the way of shrubs and trees on this east coast, I beg to furnish your correspondent with my experience in the matter. In the first place, if he should be a stranger to the locality, I wish to inform him that this coast is one of the worst of places for shrubs and trees, owing to sea-breezes and changeableness of temperature. Many shrubs and trees that do well a few miles inland are quite worthless for the seaside, one of which, I am sorry to find, is the Wellingtonia. I should recommend your correspondent to plant thickly of Sycamores and Poplars for shelter, which seem to do better than any other trees. For a mixture I would advise him not to forget the beautiful varieties of Hollies, which do remarkably well, and will always give satisfaction. I find the following to succeed, viz.:—

Hollies of sorts	Cotoneaster frigida
Yews	C. macrophylla
Box	Evergreen Oaks
Laurustinus	Privet
Laurels, Portugal and Common	Gorse
Arbutus	Pinus austriaca and Laburnums
Aucuba japonica	

It is worthy of note that almost all shrubs and trees that come under the order of Leguminosæ seem to do well. For instance, Laburnums appear to be quite at home. Some 10 years ago I had seeds of a Tree Lupine sent me. It is called Lupinus californicus, and I find it to be very suitable for the seaside. It grows about 4 feet high and 6 feet through in four years; and no one should be without it, for it flowers very abundantly and is quite hardy. I have now plants quite eight years old, which, when in flower, are the admiration of all who see them. The flowers are as large as those of the Laburnum, and stand erect, but the colour is not so deep a yellow. I find October and November the best time to plant, although I have been successful in April. *Hawkins, Sunderland.*

Sir Harry Strawberry.—One would have thought that this very old subject would have been exhausted before now. I am not aware that any grower has questioned the quality of this variety when true, but it must have been only a favoured few who received it true from Mr. Underhill, who I see is now advertising plants of what he calls the true Sir Harry, at a high price. I received, some years ago, plants direct from Mr. Underhill, among which there were about 10 per cent. Sir Harry, the remainder being Hooper's Seedling. Some of your correspondents state that they received Keens' Seedling instead of Sir Harry, which possibly they may have done, but I have had Hooper's Seedling pointed out to me for Keens' in several places. I recollect Hooper's Seedling well, on account of having to pack hundreds of punnets of it for market. It is a good-looking market Strawberry, but it has a very poor flavour. I have not seen Mr. Yates' Strawberry garden, but he kindly sent me a few good plants of Sir Harry last year. I may mention that I never knew any variety of Strawberry to sport, and I question if Mr. Underhill can bring forward a Strawberry grower who can confirm that theory. Strawberries will doubtless degenerate and become unfruitful when kept long on the same ground, but to the last they still retain their original form. *J. T., Chesterfield.*

Garden Catalogues.—A standard catalogue, which might serve all countries and all establishments, is much needed. If from it all unnecessary synonymy were banished, such a garden catalogue might become available as a comparatively inexpensive and certainly convenient medium of circulation for effecting exchanges. Such publication would be remunerative to the author and publisher, and save an immensity of work to garden establishments everywhere: it would afford also much facility to those who do not possess extensive libraries to provide correct nomenclature for their plants. Such index might perhaps, with most advantage, be divided into independent chapters, for instance, for Ferns, for Orchids, for hardy trees and shrubs, for miscellaneous tropical plants, for annual and herbaceous perennials, &c. *F. M., Melbourne.* [We cordially endorse your opinion, and trust something may soon be done in this way. Eds.]

Rival Systems of Grape Growing.—I see by the *Gardeners' Chronicle* of April 13, that Mr. Sage thinks it impossible to grow early Grapes so as to have them fruiting year after year in the month of March, from the same Vines. I maintain that it can be done quite easily, especially with some seedling Vines that I have raised, one called the Royal Ascot Black, the other the Early Ascot White Frontignan. I propose to plant a span-roofed house, 15 feet wide by 41½ feet long inside measure, and to plant them 2½ feet apart, or 34 Vines in the house, single rod, and spurred. I shall plant them next November with small plants, which are now only just potted off from the single eye. I shall grow these all through the winter of 1867 and 1868; and in March 1869 I purpose taking 4 lb. per rod from them, or 136 lb. in all, and to increase the crop every year 1 lb. per rod progressively, until in 1875 I take 10 lb. per rod, or 340 lb. in all. I am ready to challenge Mr. Sage, or as many of his supporters as will join him, that I will produce these quantities of Grapes from the same Vines in the same house, year after year, in the month of March, perfectly ripe and good. Every year that I do not do so I will engage to give Mr. Sage and his advocates a sum to be agreed on (from 10*l.* upwards), and every year that I do so they are to give me a like sum: the money to be deposited at the *Gardeners' Chronicle* Office until the end of the seven years, when whichever side wins is to receive the balance, each side to appoint two referees, whose decision shall be final. *John Standish, Royal Nursery, Ascot, April* 22, 1867.

Hardy Herbaceous Plants.—Your correspondent "Stet," in enumerating examples of those most worthy of notice, has omitted several gems from the order Ranunculaceæ. Anemone palmata, when well grown, is decidedly one of the best of the genus. Also A. palmata fl. pleno, and A. palmata alba. These two last I have lost sight of. Can any one state where they now exist? A. Pulsatilla alba is another beautiful plant. Ranunculus grandiflorus of L., not R. bullatus grandiflorus of DC., is very fine, and so is the last-named plant; the flowers are very large. The former grows only 4 inches high, the latter 12 inches. But perhaps the finest plant of the order is Ranunculus speciosus, a native of New Zealand, and I believe hardy; it attains an altitude of 2 or 3 feet, producing large panicles of large white flowers. When better known it will be well looked after. Moreover Trollius asiaticus, and one I have under the name of T. sinensis, with deep orange flowers, also Caltha palustris var. monstrosus, are all worthy additions to the list furnished by "Stet." *Ebor, Heckfield.*

Spring Visitors.—Upon the 19th (Good Friday) we had here (South Herts) quite an influx of our somewhat delayed migratory birds. At a very early hour in the morning, which was beautifully soft and bright, cuckoos were suddenly heard; redstarts (Phœnicura ruticilla), seen for the first time, tripped lightly along the freshly-mown lawn, the vibratory motion of the males' bright flame-coloured tails being especially noticeable. About 4 P.M. nightingales were also heard. *W. Earley, Digswell.*

Theory and Practice.—The question of the examination of gardeners has given rise to some comments, which have a tendency to disparage the scheme of the Horticultural Society, and to discourage those who may be inclined to offer themselves as candidates. Now, though I would not for a moment entertain the idea that these candidates ought to be set up as model gardeners, nor indorse the opinion that the efforts of the Society will be the means to distinguish between good and bad gardeners, yet that the movement is good in its way is unquestionable. I know plenty of clever, energetic young men who can assign reasons for all the operations they perform, but to sit down and write them within certain limits would be a heavy task. Tact in setting about work in the best and most expeditious manner is one great desideratum in a gardener, where labour is scarce and means limited. To this theory renders no assistance, at least in the manual part. In the examinations self-possession, with the advantages of early education, as one of your correspondents remarks, will generally secure success. Now, the question at issue is, will theoretical knowledge prove injurious to young gardeners? To my mind theory and practice are so combined that it would be difficult to draw a line of demarcation between them. Take the sowing of seeds. Why not sow the main crop of kitchen garden seeds in the month of January? The patron of practice says they will rot. But why do they do so? Theory answers

the question. Take, again, watering or ventilation, why execute these? Theory answers the question on reasonable grounds propounded by chemists as well as vegetable physiologists. It must, however, be admitted that there are things adduced by scientific men which appear strange to those in practice. *W. P. R.*

Foreign Correspondence.

Vines in Switzerland.—Judging from the letters of Grape-growing correspondents which have lately appeared in your columns, it will, doubtless, be useless for me to try to convince the advocates of the restrictive and non-restrictive systems, that either the one or the other is wrong; so I shall not attempt it. I am, however, a firm believer in the "non-limited" system of, not only fruit tree cultivation, but cultivation of all kinds, from the smallest Alpine plant to the Cedar of Lebanon.

"Sage experience bids me thus declare" that fruit trees of all kinds produce more and better fruit when allowed to go on increasing and developing themselves than when they are, like our poor Vines, confined to a 12-feet rafter, or like their still more unhappy "Orchard-house" friends, confined to a 12-inch pot and a 2-feet stick.

I find, however, that I am beginning to trespass on ground that has been held sacred for some years—(the starving [?] of fruit trees in pots)—so I will confine myself to what I meant to be the subject of my letter, namely, a few facts and a few words about an old Vine, and progressive and non-progressive readers may draw their own conclusions.

Thanks to the liberality of my employer, few gardeners have had such chances as I have had of seeing the most celebrated Vineyards on the Continent, and they are with few exceptions managed on the "limited" system, each Vine having about a square yard of space allotted to it, and, being yearly cut down to about 14 inches from the ground, they form in time what nurserymen term a stool, and are allowed to produce five or six shoots, which are tied to a stake about 3 feet long, and are pinched in to that height. Now what is the consequence of this limited system? Ninety Vineyards out of every 100 cease to be profitable after they are 30 years old, and are rooted out and replanted. It takes four years from the time of planting to get a Vineyard into full bearing, and in the 10 following years it produces the greatest quantity of wine, the next 10 years a less quantity but better quality; afterwards the Vines decline, and I do not know a "paying" Vineyard of 40 years old. From about 12 years after planting, about 6 per cent. of the Vines rot at the core, and are replaced by layers or young plants, otherwise a "limited" Vineyard would clear itself out in a quarter of a century.

The Vineyards on the slopes of hills with a southern aspect produce the best wines, and are mostly surrounded by dry stone walls. These walls are covered with "non-limited" Vines, which occupy immense spaces, produce enormous crops every year, and last from generation to generation, whilst their "limited" brethren in the open Vineyard become bankrupt, and are bundled out every 30 years. Some 40 or 50 years before I came to Switzerland, an unfruitful 30-year old Vineyard was, like the barren fig-tree, "cut down and cast into the fire." The destroying woodman spared one root, which was then, and is still, growing partly in and partly over an old stone wall, which separates the public road from the old Vineyard.

Mr. Forsyth, of Gunnersbury Park, and myself measured that Vine which grows on Mount Salève six years ago, and I have measured it every year since, and find it increasing at the rate of one inch a year, and on the 10th of March, 1867, the circumference of the stem, at 4 feet from the ground, was 114 centimetres, or 3 feet 10 inches English. The branches have covered and monopolised several large trees, and have had no pruning nor care of any kind for years; still the produce last year was 400 bottles of first-class red wine; this at 1*s.* a bottle is 20*l.* sterling, and calculating the number of square yards covered by the Vine, is at the rate of over 300*l.* sterling per acre. I know there are thousands of acres of waste land in Her Majesty's colonies that would produce the same. *John A. Watson, Campagne Lammermoor, Geneva.*

Societies.

Royal Horticultural: *Saturday, April* 20.—The leaf and its modifications formed the subject of Dr. Masters' lecture on this day. After alluding to the points of distinction between it and other organs, to its parts, and to the principal heads under which the exceedingly numerous variations in its conformation might be grouped, the lecturer passed on to the consideration of the arrangement of the leaves on the stem and branches—a matter of more importance than the mere shape. The different ways in which the leaves emerge from or are attached to the stem and branches, were explained and illustrated. In all cases, whether the leaves are arranged in pairs, in whorls, or in spiral cycles, care seems to be taken that one leaf shall not interfere with the growth of its neighbours, so that in the case of two adjacent leaves, the one never completely overlaps the other, however crowded they may be, and in this manner every leaf has a fair chance of due exposure to light and air. The same end is sometimes attained by the development of a larger leaf at the base of a spiral cycle than elsewhere, so that the upper smaller leaves only partially overlap the larger one below. The lengthening of the stem between the leaves, and the consequent separation of these organs one from another, tends to the more free exposure of leaf surface; on the other hand where, as in the case of the House-leek, (Sempervivum), the stem is very short and contracted and the leaves numerous, the individual leaves are small and comparatively imperfectly developed. Here the number compensate for the diminished extent of surface in the case of separate leaves. The curious way in which the leaves are often bent so as to get out of one another's way, in cases where if they retained their original direction they must necessarily interfere with their neighbours, was also alluded to as offering another instance of the way in which the arrangement of these parts is subordinated to the offices they have to fulfil as the main organs of respiration, exhalation, and digestion, functions which demand free exposure to light and air for their due accomplishment. Where leaves have to perform the duties of protectors, as in the case of the scales of the leaf-bud, the outer portions of the flowers, &c., there is less need of a widely expanded surface, and the object is attained by the close approximation of a number of imperfect or rudimentary leaf-scales.

Lastly, the several parts of the flower were shown to be merely modifications either of the stem (receptacle, &c.), or of the leaves (sepals, petals, stamens, &c.), and as such were originally identical with them in form, structure, and mode of growth, and were stated to be subject to the same general principles of arrangement as those by which the position and order of the branches or of the leaves were regulated. The manner in which those principles are applied in the case of the flower is to form the subject of the last of these lectures.

Zoological of London: *April* 11.—Dr. J. E. Gray, F.R.S., V.P., in the chair. The Secretary reported the arrival in the Society's Gardens of the first living example of the Lyre Bird of New Holland (Menura superba) ever brought to Europe, and the birth of a young male Giraffe on the 17th ult., being the sixteenth Giraffe born in the Society's menagerie. Professor Huxley read a paper on the cranial characters of Birds, in which a new scheme of classification of the whole class, founded mainly upon the characters presented by the bones of the palate, was proposed. Professor Huxley proposed to divide the class Aves primarily into three divisions, (1) the Saururæ containing only the fossil Archæopteryx, (2) the Ratitæ containing the Struthious birds, and (3) the Carinatæ containing all other birds. The Carinatæ were sub-divided into four great groups, distinguishable by cranial characters, and denominated Dromæognathæ, Schizognathæ, Desmognathæ, and Ægithognathæ. These contained altogether 16 alliances, which were further divisible into families.

Notices of Books.

Sunshine and Showers; their Influences throughout Creation. A Compendium of Popular Meteorology. By Andrew Steinmetz, Esq., of the Middle Temple, Barrister-at-Law. Small 8vo, pp. 432. Reeve & Co.

The author of this book states that he has endeavoured to exhaust the topic in all its meteorological bearings; and that his object has been to make the work entertaining as well as instructive, and replete with suggestions that will be useful to all classes of readers; whilst the leading topic, the curiosities of the weather and weather-wisdom, are, he trusts, explained with a fullness never before attempted.

The celebrated Arago paid great attention to the subject of Meteorology; but that great philosopher could scarcely make people believe that, with all his profound knowledge, he knew but little as regards forecasts of the weather, even although he eloquently wrote an explanation that he really knew but little about it, and held out no great hopes that any one could do so. Things have however greatly altered since then. Instruments have been improved, and by means of the electric telegraph we can know almost instantly what the conditions of the elements are at the opposite side of the globe. Registers of the weather have been kept for considerable periods at various places, and these may yet be turned to useful account. One preliminary towards the object under consideration is the obtaining averages of many years' observations; by these a sufficiently correct knowledge of the normal climates of localities will be obtained, and having this as a basis we may proceed to investigate the more remarkable differences which from time to time have taken place from these normal conditions—what circumstances preceded and what followed any bad or any good year, what circumstances preceded a very dry, what a very wet season, or a remarkably cold, or a very hot one. Something of this sort may be accomplished to serve as beacons in the tide of time; and until this is fairly tried and found utterly wanting, we would not give over all hopes of some useful inductions being made.

The second chapter of the volume before us treats of the arrangement of the atmosphere, which consists chiefly of air properly so called, mixed with a small quantity of carbonic acid, and a variable portion of watery vapour. "The carbonic acid supports vegetation, makes wood, and therefore, so to speak, made coal—which was once wood, growing in mighty forests on the surface of this beautiful world" in the far backward and abysm of time." But sunshine is necessary to enable plants and trees to make wood out of the carbon of carbonic acid; and so, after all, it was the sun, "the Arch-Chymic Sun," as Dante calls it, that made the coal which does so much herculean work for us. "What moves this carriage?" asked George Stephenson, in company with an eminent *savant* in the train on one occasion. "Why, the engine, of course," was the reply. "But what moves the engine?"—"Steam—coal."—"No, no," exclaimed the truly philosophic British workman, "it's neither steam nor coal, but the sun that made the coal, and is now working through it for ever and ever." We have heard it stated that when Mr. Stephenson was asked—"What is coal?" he replied, "Bottled sunbeams," and there is much implied in this reply. It points to the sun as the great source of heat, the greatest earthly motive power. But although the sun's rays have been the most important agents in the formation of wood and coal, and which, although long buried, still, in their carbon, when excited, "live their wonted fires;" yet we do not hold that the very small percentage of carbon which is found in the atmosphere is sufficient to furnish the comparatively great amount of carbon which is embodied in wood which forms the mighty forests that still exist on the surface of the globe. Man can aid the process of growth, and consequently the formation of wood; and many horticulturists have adopted the theory that the carbon of wood is mainly derived from the atmosphere. Yet practically they seem to have no faith in such theory; for if they are about to make a plantation they do not look to the sky for signs of a carbonaceous atmosphere resting over the spot, but content themselves with looking at the earth, where they are more sure to find a notable quantity of this essential element in the formation of the more permanent tissues of plants, and which is situated so conveniently for being absorbed by roots, and carried up to be acted upon by the rays of the sun.

Carbonic acid, as a constituent which pervades the whole atmosphere, may be sufficient to form a layer of tissue over the vegetation found on the surface of the earth, for it has been found in high regions of the atmosphere, from air taken from Mont Blanc, and from above the clouds. Notwithstanding this it must be admitted that the portion of air within the scope of the leaves of the loftiest trees is comparatively but very small; and perhaps we may as well conclude that as the leaves of trees have other offices to perform which they are specially adapted for, carbonic acid is supplied to vegetation by the roots and not by the leaves.

In Chapter 5 there are some very good remarks on the hygrometer, its rules, and weather indications. On the utility of the latter, however, we think the author lays undue stress. But the observation of this instrument may often be useful in detecting the amount of dryness or moisture of the air in apartments, factories, hospitals, and in hot-houses, &c. He mentions various kinds—De Luc's, Regnault's, Daniell's, and the dry and wet bulb hygrometer. To the latter he gives the preference. It is very simple and inexpensive, and being now the most generally used, it affords the most extensive means of comparison. Daniell's, however, is very good. Both act on the principle of evaporation producing cold. When the air is saturated with moisture there is no evaporation, and the thermometer covered with muslin is not lowered, whether moistened with water or with ether; but in a very dry day the evaporation of ether is so rapid that it will soon cool down the mercury 30° or more. In a dry hot day we have seen it lowered from 80° to below freezing, ice being formed on the muslin. The thermometer having its muslin-covered bulb moistened with water, will be lowered 12° to 14° in a very dry day. Glaisher's tables are a useful accompaniment with these instruments, as from them the density of the aqueous vapour, and the weight of it in a cubic foot of air, can be determined. The author says that the hygrometer might be employed to do away with the great inconvenience of carrying umbrellas, which might be avoided by investing 12*s.* or 14*s.* in a good hygrometer. The investment, we think, is not objectionable; on the contrary, it would doubtless prove better than many investments that have been made in these times; and with practice, in connection with the barometer, the hygrometer may even be on the whole profitable, but alone it is perhaps less to be depended on than the barometer.

Many persons interested in horticulture will recollect the days of the fêtes at Chiswick. On some of those days the Grass was wet with dew, and the hygrometer indicated a saturated atmosphere, but notwithstanding the day turned out to be fine. On the other hand, sometimes the mornings were dry, and not a point of Grass could attract moisture to form a drop of dew; yet by noon it began to pour continuously on unprepared thousands; and sometimes when the hygrometer indicates a very dry condition of the air, the weather suddenly breaks up with a violent thunder-storm. The hygrometer may frequently indicate dryness and often prove deceptive; but when the barometer is seen to fall slowly but steadily, with the top of the mercurial column concave instead of convex, rain is almost certain.

In the 12th Chapter the effect of drainage on the temperature of soils, the climate, and rainfall is treated of. This very important subject might have been better explained by reference to the simple principle that warm water is lighter than cold water, and consequently, although the colder liquid can displace and occupy the position of the warmer and lighter, yet the warm cannot displace the cold water, but will float upon it without moving or scarcely at all warming it, but merely resting on it as a basis. When however by underdraining this is carried away, the warm water can then percolate downwards, carrying its heat to the soil below, and warming it down to the extremities of the roots, instead of being carried off as surface water to the rivers. Thus the warm genial summer rains may glide over a deposition of cold winter rain, vegetation being deprived of the benefit of the former, but still subject to the chilling effects of the latter.

For illustrating that most important subject, the effects of draining in raising the temperature of the soil, better examples might have been referred to. For instance, those of Mr. Parkes in draining the Red Moss near Bolton-le-Moors, where it was found that the thermometer rose in June to 66° in the drained portion; but in that which was water-logged it never rose above 47° at any time throughout the year, showing a difference of 19°. The author quotes examples from good authority, but taken under circumstances where only differences of fractions of a degree are exhibited.

In mentioning instances of severe frost he alludes to that of 1838, the very first year in which Murphy published his Weather Almanack. His announcement for the 20th of January was, "Fair. Probably lowest degree of winter temperature." By a lucky chance for him, this proved to be a remarkably cold day. At sunrise the thermometer stood at 4° below zero. It was a lucky hit; the printers could not work off enough copies to supply the ever increasing demand. "But as it was, Murphy cleared 7000*l.* as his share for that year's almanack. He lost all however not long after in some unfortunate speculation, showing that weather wisdom and worldly wisdom are two very different things."

Chapter 18 treats of the influence of the weather on wood, and how to prevent it. The method of carbonisation is explained. "It has been adopted in the

French arsenals, where entire ships have been carbonised, the different parts of the hull being subjected to the operation as soon as they are placed in position." The difficulty of applying the process has been overcome by M. de Lapparent, the Director of Naval Constructions in France. "A recent occurrence suggests that the spars, &c., of ships should be subjected to this process of carbonising. During the late cruise of the Channel squadron, in October, 1866, the 'Ocean' sprang her topmast cross-trees, and had to send down her maintopmast, when examination showed that both trusseltrees were rotten. As this ship is perfectly new, it is evident that the wood of her spars and cross-trees was in a state of decay before being used for the purpose. All wood kept in store should therefore be carbonised. The French railway companies have availed themselves of the discovery, applying it to all their constructions and rolling stock." To farmers and all concerned in agricultural erections, this discovery is invaluable; and we may add, it is so also as regards the construction of hothouses, particularly Orchid houses, which are more especially trying to timber materials. But as regards the decay of timber, no precautions can remedy the culpable want of care in not seeing that the trees are cut at the proper season. It is advisable that this should be attended to even in the case of Pea-sticks, Hop-poles, Osiers, &c., though if these last scarcely a season, there is not much harm done. With regard to ship materials, it is a very different affair. When timber is cut when the sap is in motion in spring, all the sap, including the little that there is in the heart of oak, is in a state ready to ferment, rendering the woody fibre like a loaf of bread, and hence desirable food for worms.

At p. 390, under the heading, "What becomes of the Sunshine?" the revelations of what is called the Spectrum analysis are alluded to, and some of the salient facts are mentioned of this new science, by which, in the light of a star, a portion of common table salt, less than the one hundred and eighty millionth part of a grain, can be detected. "Every force in the world—every power to lift a weight, from our own foot off the ground, to every ton lifted by a steam engine, and all the millions of tons of leaves and wood added to the trees every year, and the clouds full of rain lifted from the seas and rivers by evaporation, as much as the steam of a boiling pot—all is due to heat, that is, ultimately to the sun, to sunshine."

Chapter 25, "What becomes of the Showers?" is very interesting. "Certain meteorologists," the author tells us, "say that the mountains are regions of reservoirs, because it rains more on mountains than on plains; but it happens to be just the contrary. It certainly rains oftener on mountains, but the annual rainfall on mountains is less than that of the plains at their feet. This is an incontestable fact, and it must be evident even from the consideration of mere altitude or height, all other conditions being equal, the greater the height of the locality, the less the rainfall as shown by the rain-gauge. The summits only get, as it were, a slice of the showery column." It does not, however, appear from Mr. Symons' table of total depth of rain in 1866, that the greater height of a locality the less the rainfall; for whilst 30 inches may be reckoned about the average for the year near the level of the sea, we observe that at Greenside, Cumberland, elevation 1550 feet, the fall in the year was upwards of 99 inches; Rhinbrifder, Merioneth, elevation 1140 feet, 114 inches; Snowdon, elevation 1300 feet, 127 inches; Etrick Top Ben, Wigton, 2268 feet, 91 inches; Glasgow Water Works, Ben Lomond, 1800 feet, 100 inches; Lochgoilhead, Argyll, 400 feet, 144 inches.

From this it appears that the "mountain and the flood" may still be associated, and an adequate supply of pure water may be obtained, so long as the sunbeams continue to play on the waves of the Atlantic, raising watery vapour aloft, above the highest mountains of our island; these, pushing up nearly, or quite, into the region of perpetual snow, act as condensers of the comparatively warm vapour which comes within their influence. We find that five of these mountains above mentioned, averaging upwards of 1100 feet high, condense vapour in the year to upwards of 9 feet deep of water. Ten square miles of their horizontal area would thus yield 14,478 million gallons of pure water, or nearly 20 gallons per day for each two million persons. Surely several square miles of these cloudlands could be devoted for such purpose, without interfering to any injurious extent with private property, fishing streams, or lakes in pleasure grounds.

The work requires to be revised in some particulars, but, on the whole, we must repeat that it is pleasantly written, and of useful tendency, and that it may be perused with much satisfaction.

The Apiary.

Bee-Culture: Hives (*Continued from p.* 409).—If the hive is intended to stand on its own separate pedestal, an outer case and roof will be indispensable. The arrangement I have found most convenient is that shown in the accompanying diagrams, which are placed in the order in which they would stand when in position.

The lower division of the outer case, Fig. 4, is made of half-inch deal, of three sides only, dovetailed together at the back. The two side pieces are 17⅞ inches in length by 8 inches wide, outside measure, reaching as far as the dotted line *a* in Fig. 1, when pushed in from behind. The sides are fitted so as, when in position, to rest on and almost flush with, the outer edges of the floor-board both at the back and at the two sides, the back piece being about 18 inches in length extreme measure. At the bottom a 2-inch wide moulding is fastened on, so that rather more than one inch of it may drop outside and completely cover the edges of the floor-board, preventing the accession of any wet. At the front of the two sides narrow slips of wood are nailed, of such a width as to rest against the sides of the stock box, closing up the apertures at the ends. There will be a narrow space for air, which is a good non-conductor, between the inside of the case and the box. An opening, without any glass, corresponding in position with, but rather larger than, the window in the stock-box, is cut out at the back of the case. This is closed by a shutter, which I think is best hung by two brass hinges at the upper part, so as to fall naturally into position when not in use for observation. There should be sufficient room afforded for the easy removal of the inner shutter fitted into the window recess. Fig. 5 is the upper division of the case, 18¾ inches square, outside measure, resting on the rim E, Fig. 1, flush with its edge and with an outer moulding similar to the one described for Fig. 4, hanging down about 1¼ inch below the bottom of the case to allow of the place of junction between the rim and the upper part of the lower case being completely hidden. A window, similar to the one last described, must be cut in this case also. A piece of the moulding is cut away at *c* to fit the roof of the porch (C, Fig. 1.)

When supers are being worked, it is sometimes necessary to have a second upper division similar to Fig. 4, with the exception that no piece of the moulding need be cut away in the front, and also that a trifle of additional internal space be afforded to admit of the dependent moulding being easily slipped down over the top of the case.

The roof (Fig. 6) is made to slip down very easily,

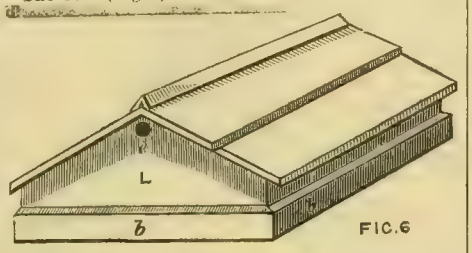


FIG. 6

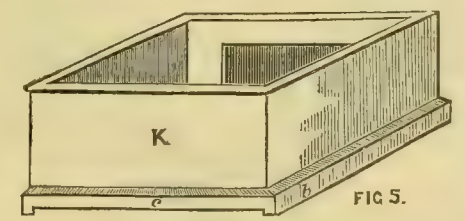


FIG 5.

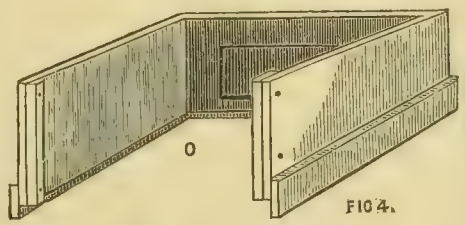


FIG 4.

and so as to fit equally well on any case which may be in use, or on the stock-box. A moulding (*b*), similar to those already described, is attached. Each half of the sloping path may be formed of two or three widths of wood: the narrower these are, the less likely are they to warp and crack. At *e*, both at the front and back, apertures for ventilation 2 inches in diameter are cut out. These may be covered with perforated zinc, nailed on inside. A few smaller apertures may also, with advantage, be cut in the sides under the eaves. I have found it better to use three-quarter stuff for the ends, L, and the sides of the roof, with half stuff for the very top. The upper part may be made to project more or less to suit the taste of the proprietor. I like to have wide overhanging eaves, chiefly for shade from a hot sun. An error, but not my own, occurs in the description of the securing of the floor-board to the stock-box, at p. 409. The two front screws are to be run in at *d* into the lower part of the side pieces A, and not at all into the front piece D, as is there stated. *S. Bevan Fox.*

(*To be Continued.*)

Bees in a Chimney.—A colony of bees has occupied part of a chimney stack for upwards of a century, and there is no recollection of a swarm ever having been captured from them. I should feel obliged if any of your correspondents could suggest a plan whereby such an object could be attained. *Novice.*

Florists' Flowers.

Following up the remarks on the Chinese Primrose at p. 381, it may be observed that much of success or of failure depends on the rules applied to their cultivation. Seeds obtained from the very finest and most advanced strains will, in the hands of an unskilful cultivator, produce nothing but poor weedy flowers. The foliage should be short, stout, and yet vigorous; and the flowers set well above the foliage. This is the "happy medium" in the cultural results which makes the beautiful Chinese Primrose so charmingly attractive. The plants are easily cultivated when the cultivator has become intelligently acquainted with the conditions under which he can produce in the highest state of perfection the living material on which he operates. These conditions are clearly ascertainable, and of ready application, as many successful cultivators can testify. For conservatory and greenhouse decoration, and for the exhibition table, the mode of cultivation sketched in the following remarks will be found worthy of application. If it differs in some of its details from plans usually adopted, it has yet been most successfully applied, and some of the finest plants and flowers I ever saw, sprang from the adoption of the practice now detailed.

A sowing of seed should be made about the middle of February (this is earlier than is generally recommended), in shallow pans well drained, covering the drainage with small lumps of fibry loamy turf, and filling up the pans to within about a quarter of an inch of the rim with a compost made of fine loam, finely sifted decayed leaf-mould, and silver sand well mixed together. The pans should then be sprinkled through a fine rose watering-pot till the soil becomes pretty well saturated, then allowed to drain for about three hours, when the seed should be sown, pressed gently into the soil, and afterwards slightly covered with soil, and again gently pressed. The pans should be plunged in a gentle hotbed, and in about a fortnight the plants will make their appearance, when a little air should be given. It is a good plan to place a piece of glass over the pans, as in a dry atmosphere it prevents a too rapid evaporation of moisture from the soil.

When the plants are strong enough to be handled without fear of injury they should be placed singly into small 60-sized pots, using a compost of the same character as that in the seed pans; the plants should be returned to the hotbed, and be raised to within 6 inches of the glass, where they should be allowed to remain until the roots reach the sides of the pots. Air should be carefully and judiciously administered at this stage. The next shift should be made into 48-sized pots, using a soil composed of nice yellow loam, leaf-mould, some silver sand, and some road sand from a gravelled road. The whole should be passed through a fine sieve previous to using it. A light and friable compost like the foregoing is admirably adapted for the plants, and will be found to suit them exactly. The plants should now occupy a pit having a north or east aspect, and be kept close for some days, and carefully shaded if the sun should be on them during the day. As soon as the plants make a show of growth, air can be administered, for now they will grow into dwarf yet vigorous plants.

About the commencement of August the final shift should be given; 16-sized pots should be used for the largest plants, and 24-sized pots for the smaller. At this stage some lumps of well-rotted manure from an old hot-bed can be with great advantage placed over the drainage. The roots of the plants soon find their way down to it, and feed on it during the winter. This obviates the necessity for administering liquid manure, for this requires careful application, especially as it has been known to cause the plants to rot at the base of the leaf-stalks, when injudiciously applied. From August till November the plants should occupy a frame with a south aspect, and at all hours air should be freely administered, unless severe weather prevails. All flowers that appear previously to the middle of September at least, should be pinched out. By November the plants will be nicely in bloom, when they can be removed to the conservatory or greenhouse, and there they make a fine display until the end of April. To some it may appear at first sight an immoderately large shift from a 48 to a 16-sized pot, but considering the duration of time the plants are required to be in bloom, the room and food for the roots thus provided will be found none too much; for it frequently happens that when the plants are allowed to bloom in small pots, the sustaining qualities of the soil are soon exhausted, the plants become weakly, and the flowers small and unsatisfactory.

Watering is a point to which considerable importance attaches—in fact it is a prime feature in the successful cultivation of the Primula; water should be administered in the morning of the day, adapting the quantity given to the requirements of the plants and the condition of the atmosphere. The plants should be examined in the evening to see if any are very dry, but if they can remain till the morning, it is much the best plan. A considerable experience in the cultivation of "everybody's flower," the Primula, has proved that if the soil be permitted to become soddened with wet, and to remain so at a time when evaporation is scarcely perceptible, the plants are sure to become sickly and ill-conditioned, and rot will ensue.

The Primula possesses one great advantage over most winter and spring-flowering plants, in that it is rarely, if ever, infested with greenfly, or any other of those pests that are often so troublesome in the greenhouse. It is therefore easy to keep the plants clean, and well they repay the small attention they require.

The difficulties attendant on the cultivation of the double kinds are fading away to some extent in proportion to the growing strength of constitution imparted to the improved varieties. "Being increased from cuttings, it is important to secure a sound and well-established plant at the commencement. Such a plant, selected in spring, may be grown on in a warm and partially shaded greenhouse or pit where a moderately moist atmosphere can be maintained, or should be potted in a compost of good loam, pure leaf-mould, decomposed cow-dung, turfy peat, and silver sand in equal quantities, and having a few small nodules of charcoal intermixed. The plants must have the pots thoroughly drained, and be rather firmly potted. They may be repotted as often as the roots form in sufficient quantities, but too large a shift should not be given. When once well-established the plants should receive abundant light and fresh air; and only require shading from strong sunshine. A dry parching atmosphere,

which stunts the growth of plants of this character, should be avoided. Water must never be applied in excess. In hot weather a light but cool north aspect is best for them, and they may be freely ventilated. The plants thus grown, if in good health and vigour, will bloom profusely, from October onwards through the winter months. They must however have a warm but not close greenhouse for their winter quarters, and be very cautiously watered at that season." This quotation from the article in the "Floral Magazine" already referred to (p. 381), contains some valuable suggestions for cultivators of the double varieties.

The following varieties represent the latest improvements in the single flowers with fimbriated edges :—

P. Magenta King (E. G. Henderson & Son).
P. Magenta Queen (E. G. Henderson & Son).
P. splendens grandiflora (R. Dean).

These are very fine examples of the magenta crimson hue; the flowers are large, finely fringed, and very showy, and have conspicuous yellow eyes.

P. Fairy Nymph (E. G. Henderson & Son), white, flaked with rosy lilac.

P. Beauty (R. Dean), blush ground, suffused with deep pink, large size, and handsomely fringed; conspicuous deep yellow centre.

P. Blushing Beauty (E. G. Henderson & Son), blush, with circle of rosy-lilac round a bold lemon centre; a very novel ower.

In addition to Messrs. F. & A. Smith's single variety noticed at p. 381, they have also another with rosy-lilac flowers of medium size, and having an extra large white centre. The curious formation of the calyces, which assume the form of large green pouches, is a very novel characteristic of this flower. The foregoing may be taken as representing types of peculiar variation, the fixity of which may be reasonably assured.

The latest improvements in the fimbriated double kinds are represented by :—

P. Princess (E. G. Henderson & Son), pure white, flaked with rosy-lilac; flowers of medium size, but very novel.

P. White Queen (E. G. Henderson & Son), large pure white flowers of great substance.

P. Lilac Model (E. G. Henderson & Son), lilac; flowers large and full.

P. Queen Victoria (F. & A. Smith), white ground, beautifully suffused with pink; flowers of uncommon size, and most curiously formed.

P. carminata plena (F. & A. Smith), rosy carmine, tinged at the edges with lilac; flowers large and of good substance; a valuable addition in point of colour.

R. D.

Garden Operations.

(For the ensuing week.)

FORCING HOUSES.

Cockscombs requiring their final shift should be potted into 32-sized pots in a compost formed of good yellow loam, intermixed with a free allowance of strong well decomposed manure, and silver sand. Pot them moderately firm, keeping them close to the glass in a high moist temperature until the flowers are formed. *Celosia plumosa* will also require similar generous treatment. These are apt to show flower when very young, and before they have made sufficient growth to properly display their characteristic merits; in such cases it is best to pinch the small flowering points out, which, by inducing them to make better growth, will materially enhance their beauty hereafter. *Tricoloured Pelargoniums* which may have been cut back for purposes of propagation, and which have again formed young shoots upon the older growths, should be potted forthwith in fresh soil. This is best done by shaking them out of the old material in which they have been wintered, repotting them into a free open loam intermixed with abundance of leaf-mould, silver sand, and road drift. Do not pot too firmly, giving a moderate-sized shift according to the state in which the roots may be found. Be careful not to over-water at the roots until they have taken well hold of the fresh soil. Pot off at the same time, also, such spring-struck cuttings of these as may have emitted roots freely, and which may have grown away kindly since.

HARDY FRUIT GARDEN.

Wall Trees generally will now require constant attention. Proceed with disbudding all *Peach* and *Nectarine* trees, doing a little at a time upon all favourable occasions; this is better than waiting until a considerable portion of the growth has been made, thus necessitating a simultaneous disbudding, and causing the tree to undergo a shock of corresponding magnitude, through the sudden check which it receives. It should be understood that Peach and Nectarine trees in various stages of growth will require dissimilar treatment, more or less, according to the age, health, habit of producing an excess of either fruiting or woody shoots, &c. Trees of moderate age and robustness, for instance, will require only a moderate supply of young wood to be left in comparison with others which may not yet have furnished the necessary space allotted to them. In the former case encourage as many promising shoots as possible which emanate from or near the base; these, by constantly furnishing the tree with young wood, will materially aid it in retaining a lengthened period of robustness. Disbud such with greater freedom the nearer the top of the tree misplaced buds are found, either pinching away close down at the base, or disbudding all which are not more than 6 or 7 inches from the apex of any older shoots which have reached the top of the wall. Younger trees of any age which have further unoccupied spaces to fill should, on the contrary, be encouraged to form good sound leading shoots; choose three, or five such upon each of the main sub-leaders retained in process of nailing and winter pruning, according to the abruptness of the angle to be filled in the formation of a fan-shaped tree. Take off carefully all fore shoots, viz., any which grow at nearly right angles with the wall, and any, however well placed otherwise, which are at the back of the shoot, and which are likely to be so compressed between that and the wall as to cause a wound, ending in canker or a constant exudation of gummy matter. Thus a quick eye and ready finger, by detaching any ill-placed shoots, &c., constantly *en passant*, will ease the trees over this trying phase belonging to their culture, and it will be found that an essential operation has been performed with but little labour, compared with cases where this kind of work is left wholly to the last. *Apricots*, if young and the wall not wholly furnished, will need similar attention, where they break freely and form abundance of wood. These are given however at such stages to making very few shoots, which are generally at the very point of last year's wood; in such cases the points of any young shoots sufficiently strong to carry a triple break or so, should be pinched back to within four or five pair of leaves of the base. Do not be afraid of pinching too deeply, as the points pinched in elongate very freely after that operation has been performed. Pinch back ill-placed shoots upon the apex of the upper branches of *Cherry* trees which have grown to the necessary height; this will induce any lower weaker shoots to grow, and will aid more quickly in furnishing the wall. Gansell's Bergamot *Pear*, where it is grown against walls, &c., will now be very generally in flower. It will be observed that in a too general way a great dearth of pollen exists upon trees of this variety, though otherwise the flowers are well formed; hence the cause why this excellent free-blooming sort is so often found to be deficient as a cropper. Dust the flowers of it therefore with the pollen taken from any other kind which appears likely to forward the process of fertilisation. Inspect carefully all freshly planted *Fruit Trees*, standards especially, staking all such when necessary before they assume the additional weight of foliage now in process of formation. Likewise those planted against walls, which sometimes get "hung" through tightness of ligatures placed around them for the purpose of fixing them firmly to the wall, combined with the settling down of the freshly moved soil, in which the roots are planted. Neatly fork or point over borders, adding afterwards a moderate layer of well-rotted manure.

HARDY FLOWER GARDEN.

It will now be safe to plant out into their permanent flowering beds *Picotees*, *Pinks*, *Carnations*, *Hollyhocks*, *Alströmerias*, &c.; indeed Hollyhocks should not be moved in open borders much later. Sow a little *Mignonette* rather thickly for early cutting. Secure from the ill-effects of windwaving tender young shoots upon *Clematises*. Finish planting *Gladiolus*, *Ixias*, &c., forthwith. Protect Tulips in beds against frosts or severe weather should such occur. Place a layer of sifted well-decomposed manure over either beds or patches of *Ranunculus*, *Pinks*, &c. Continue potting off *Dahlias* as they strike, hardening them off well also as they become established afterwards.

HARDY OUT-DOOR FERNERY.

Choose some favourable occasion to go carefully through the collection of plants contained in out-door Ferneries. All shifts or changes of position which suggest themselves as being necessary should be made about the time at which the crowns commence perceptibly to enlarge. When removed at that stage, and fresh soil placed around them, they scarcely feel the change, and their amount of luxuriance is increased. Do not bury too deeply any roots or blocks of wood whatever, if at all decayed, as these only serve to propagate Fungi, which invariably do much injury. There is a variety of materials alike suited to individual species, Cocoa-nut refuse being perhaps most liked by all kinds. A compost in which all will thrive moderately well is an admixture of Cocoa-nut refuse, peat, soft stoneless loam, and leaf-mould, in equal parts or otherwise. Polystichums, Athyriums, and Osmundas, will thrive well in soft loam of moderate consistency; they are all more or less partial to root moisture, more especially the last. Some species, such as Asplenium Ruta-muraria, A. septentrionale, Ceterach officinarum, &c., seldom thrive after removal, if they are not fixed immovably upon whatever it is required they should grow upon. Various ways are used to attain this end, such as compressing the roots firmly between two stones or pieces of potsherds, &c., which in turn are firmly imbedded where they are to remain. They do well nailed to the hard wood formed upon old pollards. The nails to be used for this purpose should be flat-headed copper ones, such as are employed by plumbers. Once established, a little Cocoa-nut fibre placed neatly around them aids them much. Turn over and freshen the surface of all soils; in doing which, disturb all around any old blocks of wood plunged in the ground, as much as possible, with the view of checking all formations of a fungoid character. Be careful to leave sufficient space between the plants, to allow room for each to grow. Much of the beauty of these plants is lost by overcrowding, which prevents many from exhibiting fully their graceful symmetrical proportions. When the surface has been wholly freshened over, add where practicable a layer of new material; the refuse alluded to above is well adapted for this purpose, being retentive of moisture.

KITCHEN GARDEN.

Make fresh plantations of *Chamomile*; the double variety is the only one worth growing, though the single one is often met with even now in cultivation. Take old plants up, the sooner the better, and divide them into as many pieces as will be needed to occupy the space allotted to them; each crown or shoot with roots attached, more or less, will form a plant. The soil wants little preparation, as if too rich they are too apt to run to leaf at the expense of flowers; dibble them in about 16 inches apart all ways, fixing them as firmly as possible, and pressing them well down when planted with the foot. Divide old stools of *Tarragon*, dibbling all portions with roots attached a like distance apart. Sow a few *Early Kidney Beans* in a sheltered corner, placing a handlight over them for protection, to be transplanted at a later period; make a small sowing upon a warm south border also where convenient. A successional sowing should also be made of *Turnips*, *Spinach*, *Lettuce*, &c., in the open quarters. Sow *Salsafy* and *Scorzonera* in ground properly prepared, as previously advised, *i. e.*, that in which the dung has been placed some 10 or 12 inches below the surface. Sow in drills 10 inches asunder, not too thickly, just covering the seeds being all that is needed. *W. E.*

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the Week ending April 24, 1867, as observed at the Horticultural Gardens

April.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Of the Air. Min.	Of the Air. Mean	Of the Earth. 1 foot deep.	Of the Earth. 2 feet deep.	Wind	Rain.
Thurs. 18	O	29.878	29.672	64	47	55.5	51	47	S.	.00
Friday 19	15	29.586	29.460	65	50	57.5	52	48	S.W	.01
Satur. 20	16	29.331	29.015	59	37	48.0	54	49	S.	.32
Sunday 21	17	29.516	29.303	54	37	45.5	53	49	S.W.	.01
Mon. 22	18	29.790	29.714	61	42	51.5	52	49	S.W.	.05
Tues. 23	19	29.735	29.712	64	44	54 0	52	49	S.W.	.12
Wed. 24	20	29.659	29.580	63	43	53.0	53	50	S.W.	.18
Average.		29 646	29.494	61.4	42.8	52.1	53.7	48.7		.69

April 18—Very fine; densely clouded; overcast.
— 19—Very fine; strong S.W wind; overcast.
— 20—Cloudy and rather boisterous; densely overcast, boisterous, with rain.
— 21—Low dusky clouds, and boisterous; very stormy at night.
— 22—Clear, with cold wind; overcast; rain at night.
— 23—Overcast; showery; fine, strong S.W. wind.
— 24—Heavy clouds, with showers; masses of dark and white clouds; rain.

Mean temperature of the week 5 5-10th deg. above the average.

STATE OF THE WEATHER AT CHISWICK,
During the last 41 years, for the ensuing Week, ending May 4, 1867.

April and May.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W	W	N.W.
Sunday ..28	60 8	35.7	48 2	17	0 64 in.	4	7	6	4	5	5	6	4
Mon. ..29	60.4	37 3	48.9	14	0 75	4	5	9	2	4	9	1	7
Tues. ..30	61.0	39.0	50 0	16	0 31	6	5	8	2	3	7	5	5
Wed. .. 1	61.2	39.5	50 4	16	0 51	4	8	8	4	5	7	4	1
Thurs. .. 2	62.5	39 2	50.8	15	0.72	4	9	10	1	5	7	4	2
Friday .. 3	61 7	39.9	50 8	20	0.58	2	8	10	1	4	7	3	6
Satur. .. 4	62 2	38 4	50.3	16	0.70	6	10	8	1	7	4	4	1

The highest temperature during the above period occurred on the 28th, 1840—therm. 81 deg.; and the lowest on the 29th, 1861—therm. 18 deg.

Notices to Correspondents.

AZALEAS: *H G.* The plants should be tied so as to give them their general form, before growth commences, as then the young shoots, by projecting irregularly, relieve the formality of surface which would otherwise exist. If not done then, they should be tied when the new growth has ceased to elongate and is getting firm, in order that the leaves may fall into a natural position before they get too much set.

CINERARIAS: *H Norris.* 1, too coarse for the present day; 2, not sufficiently defined in the colouring.

CLIMBERS: *R D S.* Try Hexacentris mysorensis, Sphærostema marmoratum, Ficus barbata, and Cissus discolor, which are all likely to succeed under the conditions named, and are very different from the other plants you mention.

GRAPES GOING BLIND: *Young Gardener.* See some remarks on this subject in another column; also Mr. Fowler's article at p. 404. From your description of the border, we have no doubt the roots are at fault, and the remedy must be applied there. The roots should be carefully lifted, and a good proportion of lime rubbish, or some such porous material, worked in, or the border remade, if that should prove necessary. A well drained border resting on chalk rock should not have come to such a state; but the "great quantity of rotten dung" is the probable cause of the mischief. If the crop is a failure we should not hesitate to do this at once, shading, of course, and taking all possible care not to distress the plants too much.

HOTBED: *H G.* The manure, properly prepared, should be beaten down thoroughly and evenly with the fork as the making up proceeds, not trodden down.

INSECTS: *D.* The galls on the Cabbages are caused by a weevil of the genus Ceutorhynchus, which deposits its eggs on the root, and causes a swelling, which serves the young larvæ for food. It is very closely allied to, if not actually identical with, the Turnip gall weevil, C. pleurostigma.—*J F R.* The Beeches in various parts of the country have recently suffered much from the small Coccus (not aphis), which causes the white downy secretion with which the trunks are covered. Some sort of a glutinous secretion now applied to the trees would prevent the eggs from hatching.—*A Subscriber.* Your Gloxinias have been eaten by the very troublesome weevil Otiorhynchus picipes. The earth in the pots should be carefully sifted, and the white grubs burnt. The plants also should be carefully inspected with a lanthorn after dusk, and the beetles shaken on a sheet and collected and killed. *W.*

LAYERING SHRUBS: *J B W.* Evergreens may be layered from Midsummer to August, and deciduous shrubs during September or October. Many may be increased by cuttings, which in a general way may be planted early in autumn, though not a few will root freely from the half ripened summer shoots.

NAMES OF PLANTS: *W S.* Ranunculus Ficaria, common Celandine.—*C D.* Caltha palustris, Marsh Marigold.—*R G H.* Philadelphus mexicanus.—*W H.* 1, Polygala Dalmaisiana; 2, Salvia dulcis; 3, perhaps variegated Ageratum; 4, Hardenbergia monophylla; 5, Aubrietia purpurea; 6, double lilac Primrose.—*F B.* Your flower is Vanda cristata.—*John Paget.* 1, Onychium lucidum; 2, one of the varieties of Blechnum occidentale; 3, Pteris hastata macrophylla; 4, Diplazium Shepherdii.—*R D S.* Apparently Acer platanoides.—*S Mathews.* 1, Omphalodes verna; 2, Pulmonaria officinalis.—*Flore-pleno.* 1, Genista canariensis, greenhouse; 2, Chorozema cordatum, greenhouse; cut in and shift these after blooming; 3, Euphorbia Bojcri, stove, very poisonous.—*Constant Reader.* Veltheimia viridifolia.

NEW BANANA: *G G.* The new Bananas are to be had at Cosham. The price is three guineas each, the money to be returned if they do not bear at least 50 lb. of fruit within twelve months. The taste is said to be like that of very ripe Muscat Grapes, with a slight Apricot flavour, and it is also stated to be one of the most nutritious and wonderfully strengthening fruits known. It is said, moreover, to act in the most wonderful way with invalids from fever. We are given to understand that they were brought from Cayenne by Mr. Hullett himself.

PEACH BORDERS: *G C.* The soil, if in accordance with the sample sent, is utterly unfit for growing healthy trees.

SEEDLING PELARGONIUM: *J Laing.* A real pink Stella, so far as a single truss enables us to judge. The truss sent was 4½ inches across, a true Nosegay, of the colour of Christine, with the upper petals paler towards the base. If the habit is satisfactory it will be a valuable acquisition.

COMMUNICATIONS RECEIVED.—T. R.—J. D. H.—W. R. McN.—G. W. (thanks for the hint).—J. R. J.—G. G.—C. E. F.—Thomas Rivers.—Diss.

SUTTON'S GRASS SEEDS

FOR ALL SOILS.

CARRIAGE FREE.



MESSRS. SUTTON

Have one of the most complete Stocks in Europe of

NATURAL GRASSES & CLOVERS,

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MIXTURES are specially prepared for every description of soil; therefore in ordering it is only necessary to state the nature of the soil, and suitable Seeds will be supplied. The following are the popular classifications of Soils:—

1. STIFF CLAY	5. SHARP GRAVELS
2. STIFF or HEAVY LOAM	6. CHALKY SOILS
3. GOOD MEDIUM LOAM	7. SHEEP DOWNS
4. LIGHT SANDS	8. RIVER FLATS, or WATER MEADOWS

SUTTON'S BEST MIXTURE of PERMANENT GRASSES and CLOVERS for the above Soils (2 bushels of Grasses, and 12 lb. Clovers per acre), 36*s.* per acre, carriage free. CHEAPER MIXTURES, 28*s.* to 30*s.* per acre, Carriage free. Special Contracts made for large quantities.

TESTIMONIALS.

From Mr. John Towle, *Weirs and Hincksey Mills, near Oxford.*
April 9, 1866.—"Some five or six years back I had from you Permanent Grass Seeds for 40 acres, and the same quantity from another party; while yours has now a good sward upon it, the other is worn almost to nothing."

From Mr. Robert Kay, *Pontrack, Stockton-on-Tees.*
April 25, 1866.—"The Seeds you sent me in 1864 have surpassed those sent by my landlord from Manchester in the same year, and appear as if they will come to swathe much earlier than the others."

From the Rev. Richard H. Harrison, *The Parsonage, Builth.*
April 13, 1866.—"It is only right to say that the Seeds you sent me two years ago for laying down two fields, have surprised those who have seen the Grass from them, although they were sown on high land in the very dry and hot summer of 1864."

From Mr. G. Wilson, *Agent to the* Earl of Dartmouth, *Woodsome, near Huddersfield.*
March 31, 1866.—"The 23 acres of land I laid down with your seeds last year are looking first-rate; they are the admiration of the neighbourhood."

From the Rev. J. A. Carr, *Shipton Rectory, Andoversford.*
April 3, 1866.—"The field laid down with seeds I had from you has a most splendid appearance."

From Mr. Richard Duckham, *Newton Farm, Bricknoller, Taunton.*
March 31, 1866.—"The permanent pasture from seed I had of you last season is looking remarkably well, and now fit to stock with sheep. I have been in the parish for the last 25 years, and have never seen any plant equal to it."

From J. Jenkins, Esq., *Ruthin.*
April 3, 1866.—"The seeds I had from you last season have proved to be all I could possibly desire. I believe that it would be almost impossible to see a more perfect crop of Grass."

From John Marshall, Esq., *Riseholme, Lincoln.*
April 3, 1866.—"The field I laid down with your Grass Seeds to permanent pasture in April, 1864, has now a very beautiful appearance, and bids fair to produce again a large quantity of excellent herbage of the highest quality, after such a crop of hay as was seldom seen in 1865."

From Henry Overman, Esq., *Weasenham, Brandon.*
April 14, 1866.—"The piece of land laid down with your seeds is the best I ever saw."

SUTTON'S GRASSES and CLOVERS for
One Year's Lay, 15*s.* per acre
Two Years' Lay, 18*s.* 6*d.* per acre
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SUTTON'S RENOVATING SEEDS, by the use of which Grass Lands may be improved at from 5*s.* to 10*s.* per acre. Price 10*d.* per lb.

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CLEAN RYE GRASS SEEDS at low prices.

ITALIAN RYE GRASS	PERENNIAL RYE GRASS
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SCOTCH RYE GRASS	ANNUAL RYE GRASS

Samples and lowest price per quarter on application.
Sutton & Sons, Seed Growers, Reading.

THE ALSIKE CLOVER for CLOVER-SICK LANDS.—This excellent Clover will thrive in almost any soil. It produces two good cuttings in the year, and makes superior Clover hay. It may be sown alone (14 lb. per acre), or in conjunction with other seeds, either for alternate husbandry or Permanent Pasture. If sown with Italian Rye-grass, it is ready for mowing three times in the year. It is included in all Messrs. Sutton's Mixtures, and they strongly recommend it to more general cultivation. Price may be had on application (depending on quantity required).
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Wheeler's Imperial, the finest Swede Grown.



WHEELERS' IMPERIAL SWEDE.
1*s.* per lb.; 45*s.* per bushel (50 lb.)
This is one of the best if not the best Swede in cultivation; the specimens exhibited at the Smithfield Club Show in London, and at Cirencester, Birmingham, and at the Great Show of Roots held in Gloucester, excited considerable admiration, not only for their size, but for their beautiful shape and excellent quality.
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GRASS SEEDS for PERMANENT PASTURE selected on a new, scientific, and natural system, by
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UNDOUBTEDLY a GOOD IDEA.

WHEELER and SON'S "BOOK on GRASSES."—"These enterprising Seedsmen, in introducing a new element into their calculations—viz., the geological formation of the soils for which permanent Grasses are wanted—*have undoubtedly a good idea.*" "Messrs. Wheeler have prepared a new series of tables of the Grasses which they consider most suitable to different geological formations. These are arranged in 11 tables, and include mixtures suitable for heavy, medium, and light soils in each case."—*The Field,* March 9, 1867.

J. C. WHEELER and SON are anxious that every Gentleman Farmer in England, who is about to Lay Down Land to Permanent Pasture, or to Renovate Old Pasture with suitable Grass Seeds, should read their illustrated "Book on Grasses;" with this view they will, on receiving a note to that effect, send a copy to any address they may be favoured with.

HORSE SHOW, AGRICULTURAL HALL, LONDON, MAY 25, 1867.
TO GARDEN IMPLEMENT MAKERS, AND OTHERS.
SPACE TO LET in the ARCADE and GALLERIES for the EXHIBITION and SALE of the SAME CLASS of GOODS as are sold during the Smithfield Club week.
Horticultural and Agricultural Implement Makers, Seedsmen, Nursery Gardeners, and Manufacturers of Ornamental and useful articles for domestic purposes. Prizes for Saddles and Bridles.
Terms and Conditions may be obtained at the Offices of the Company, Barford Street, Islington, N.
By Order, S. Sidney, Secretary and Manager.

MANCHESTER and LIVERPOOL AGRICULTURAL SOCIETY (Established 1767). — GRAND CENTENARY SHOW MEETING at Manchester, August 27, 28, and 29, 1867.
Special Prize List and Forms of Entry will be issued at the end of May.
T. B. Ryder, Secretary.
57A, Church Street, Liverpool.—April 23, 1867.

SOUTHERN COUNTIES ASSOCIATION.
President 1866-'67—His Grace the Duke of Richmond, K.G.
The ANNUAL EXHIBITION of HORSES, STOCK, POULTRY, IMPLEMENTS, WORKS of ART, &c., will be held at BRIGHTON, on the 24th, 25th, 26th, 27th, and 28th of JUNE NEXT.
SUMMARY OF PRIZES OFFERED:—
CATTLE.—Short-horns, £125; Sussex, £125; other Breeds, £50.
SHEEP.—Southdowns, £90; Hants Downs, £90; Oxford Downs, £90; Kent Sheep, £90.
HORSES.—Agricultural, £110; Hunters, £95; Hacks, £15; Ponies, £10.
PIGS.—Berkshire, £32; other Breeds, £32.
POULTRY.—Various, £93.
The PRIZE LIST may be obtained of the Secretary. ENTRIES CLOSE May 1. By order of the Council,
Yately, Farnborough. G. B. H. Smith, Secretary.



ROYAL AGRICULTURAL SOCIETY of ENGLAND.
BURY ST. EDMUND'S MEETING, 1867.
STOCK, POULTRY and IMPLEMENT PRIZE SHEETS are now ready, and will be forwarded on application to
12, Hanover Square, London, W. H. Hall Dare, Sec.



ROYAL AGRICULTURAL SOCIETY of ENGLAND.
BURY ST. EDMUND'S MEETING, 1867.
LAST DAY for ENTRY of IMPLEMENTS, 1st of May.
All Certificates received after that date will be returned to the senders.
H. Hall Dare,
12, Hanover Square, London, W. Secretary.

The Agricultural Gazette.

SATURDAY, APRIL 27, 1867.

MEETINGS FOR THE ENSUING WEEK.
Wednesday, May 1—Royal Agri. Society of England—Noon.
Thursday, — 2—Do. do. (Special, on Agricultural Education).

On Thursday next the Council of the Royal Agricultural Society are to determine what is to be done with their annual grant of 300*l.* for "the promotion of the education of those who are dependent on the cultivation of the land for their support." This sum has hitherto been spent in small prizes awarded to boys by the University examiners for proficiency either generally or in the several branches of ordinary school education. And some attempt has been made to give the scheme an agricultural limitation by requiring candidates to be nominated by members of the Agricultural Society.

The argument urged against any plan of this kind rests mainly on the strictly professional character and purposes of the Society. These are so distinctly defined by its Charter and by its history hitherto, that it is clearly out of place and out of order when it devotes its funds to any but professional objects: and the urgency of this view has at length so far produced an effect upon the promoters of the existing scheme, that they have added to the original arrangement an offer of scholarships to assist any who, by passing an examination in some branch of professional education, have shown that they are heartily at work as agricultural students. This offer, on the other hand, is unquestionably quite in order; but unfortunately no one comes forward to accept it or to claim it. A scholarship of 40*l.* or 50*l.* a-year is certainly a prize worth having; and, offered by the Royal Agricultural Society, it must be attractive beyond its money value, and yet, strange to say, it commands no candidates.

Such a phenomenon requires an explanation; and it must be put down either to the entire absence in this country of any belief in the uses of professional agricultural education, or to the fact that the Society, having got out of the groove of agricultural education, has altogether lost its hold of agricultural students.

On the one side there are those who declare professional education to be little better than a mere idea, with no real existence in fact. "Education," they say, "is that general training of the powers and habits of the boy, and that gradual equipment which he receives at school for the *subsequent* attainment of useful knowledge or of professional skill. His rank upon a scale of this kind can be accurately ascertained by examinations; and seeing that it is upon the energy and precision of such powers as he thus acquires that his subsequent proficiency in any future walk of life depends, great service is rendered by the offer of examinations and prizes which shall guide or stimulate the efforts which he makes or which are made on his account at this particular stage of his career. Well educated

young men will be the most likely to make successful farmers, and the Agricultural Society, by casting in its small contribution to the promotion of the general education of boys, is 'promoting the education of those who are dependent on the cultivation of the land for their support.' Moreover it is plain that not only are the importance and necessity of general school education, which is thus promoted, perfectly admitted by farmers, but the efficiency or value of what is called professional education is altogether denied by them."—We hardly suppose, indeed, that such a view is defended in Hanover Square, but its existence is no doubt urged as a reason why efforts for the promotion of professional training are useless. "Scholarships are offered to agricultural students, but no one claims them, and all the best professional authorities declare that successful farming can be learnt only in the actual prosecution of the business, where it is plain that we should be entirely out of place with our prizes and our scholarships."

That is one view of the subject. Against it there lies what appears to us to be a perfectly overwhelming mass of argument, analogy, and fact. Let it be frankly admitted that everybody sympathises with all that the greatest enthusiast can urge about the importance of a thorough school education, whether the boy is to be a farmer or not. But as it is the constitution of the Society itself which makes its offer to interfere in general education little better than a mere impertinence, so it is the existence of this universal assent on the part not only of educators but of parents that makes such an offer on the part of the Society altogether needless. If the Agricultural Society can do anything to promote the education of those who are dependent on the cultivation of the land for their support, let it lend a hand, not where opinion and testimony and effort are already unanimous, and where so small a contribution as it can make will be utterly unfelt; but where opinion by its own confession is either unfavourable or unformed, where testimony is conflicting, and where the almost solitary effort hitherto made in this country has for years been seeking extension and assistance.

Let it accept the guidance given it by the analogies of other professions. Are clergymen, or soldiers, or lawyers, or doctors satisfied with the good general education with which those who join their several professions are supposed to be equipped? Professional success in these cases, as in our own, is to be achieved only in actual practice; but proficiency is in the first place sought through the recognised process of professional education. It is no mere idea or baseless theory that is meant by professional education here. There is a universally acknowledged need which is thus satisfied, and it is by professional instruction, and from the body of professional students, that these professions are recruited. The heads of these professions are indeed in every case the superintendents and the guides of that course of professional education, through which their places among others will one day be filled by efficient successors. The analogy is a perfect illustration of what is desirable—though not, perhaps, equally necessary—in agriculture, and it ought to guide the conduct of the Agricultural Society on Thursday next.

And the facts of the case point clearly in the same direction. In the first place, there is the fact that in this country good service has been done by the Royal Agricultural College at Cirencester, by the Chair of Agriculture in the University of Edinburgh, and by the Albert Institution at Glasnevin. These are all places of professional agricultural education which have turned out skilful and well-educated farmers. The one which belongs to the country of the English Agricultural Society has long sought encouragement and recognition at its hands, and we do not see how, in connection with the 7th object specified in its Charter, the Society can continue to stand aloof. It would be simply monstrous were it true that a prejudice exists against any guidance or advice offered at the Council table, because it comes from those who have all their lives been connected with agricultural education, either at Cirencester or Edinburgh. The opinion of Mr. Holland, who has given better pledges than any other man of his disinterested devotion to this subject, ought to carry the very greatest weight. And to Professor Wilson's recent report to the Foreign Office of the agricultural meetings last year at Vienna and at Aarhuus, we owe our latest knowledge of the guiding facts upon this subject which are furnished by the experience of other countries. It appears that in the Austrian empire there are many agricultural educational institutions, farm schools, forest schools, and university agricultural chairs which are universally acknowledged to have been of the greatest agricultural service.

"In these various agricultural educational establishments we find no less than 240 teachers regularly engaged in giving special instruction on their respective subjects, to upwards of 2000 students, of which about 300 are attached to the forest schools. In addition to this large number both of teachers and students, there are about 50 additional teachers and lecturers on agriculture in the universities and general schools, who are attended by about 500 students. Many of these schools, especially those intended for the working class of farmers, are carried on in the language of the province in which they are located.

"The subsidies from the State, determined by the claims of the district and the character of the school, vary in amount from 1000 to 10,000 florins per annum. The costs to the students also necessarily vary; but in all cases they are kept at a very low rate, so as to be quite within the means of the classes the schools are respectively intended for. In the higher schools no arrangements exist for the lodging or board of the students, who provide for themselves in the neighbourhood; in the lower farm schools the necessary accommodation is generally provided, and at a very economical rate. In each class of schools practical instruction is combined with theoretical teaching, due prominence being given to one or to the other, according to the character and objects of the particular school."

On the value of these places of professional agricultural education to the prosperity of agriculture, Professor Wilson's opinion given in another place ought to weigh next Thursday.

"That noble precept, inscribed over the portals at Grignon,—'Le sol est la Patrie; améliorer l'un c'est enrichir l'autre,'—is believed in Austria, and is being nobly translated and carried out by the State. The numerous and well-appointed colleges and schools for the special education of her young farmers, which have already been referred to, must tell beneficially upon her agriculture; a policy which the future will acknowledge even more warmly than the present. This is a point in which this country compares very much to its disadvantage with Austria, or, indeed with the other leading kingdoms of the Continent. If the question be asked, What good has resulted from Grignon, Hohenheim, Poppelsdorf, Tharand, Jéna, Möglin, Ungarisch-Altenburg? the agriculture of their respective countries can give speedy and most convincing replies. And yet, with all this evidence and a host more of a similar character open to us; with the knowledge that we have to rely upon foreign sources for fully one-third of our necessary supplies of food, while it is well-known that the average produce of our fields is not more than two-thirds what it might be, were the general standard of intelligence raised to the same level as that which directs our best farmed lands, we are satisfied to remain as we are, ignoring altogether the claims that agriculture has for a *special education*; aiding to teach, by the large contribution we annually pay them, the farmers of other countries,* but neglecting to teach our own. Had this important branch of national education been acknowledged here as it is in Austria, we should have been able readily to have met the present demand of India for skilled foresters, and been spared the mortification of having to delay the supply until we can send our young men to foreign schools to acquire that knowledge which we have no means of imparting to them in this country."

What then is to be done at the Council meeting on Thursday next? Will the Society's own two years' precedent be adhered to, or the example of all other countries followed—our own example in one or two notable instances? Is this professional Society (maintained by the farmers of England for the promotion of agricultural improvement) to continue its prizes for pure mathematics and Latin grammar, because so many juvenile candidates come forward to claim them? Is it to abandon the attempt to urge the study of the various branches of agricultural science because hardly any agricultural students have hitherto made their appearance? This would be to surrender its own peculiar constituency, especially needing its spur and rein, for one which needs no help from it whatever, and has no claim at all on its assistance. Let us hope that at any rate some announcement will be made of the Society's loyalty to its own profession—some declaration that wherever teachers and students of agriculture are at work it is prepared to lend the sanction and the stimulus of its sympathy and help—that wherever a sufficient number of either class desire such aid as its constitution enables it to give, its prizes and the services of its examiners shall be at their disposal.

What is thought of this subject by farmers and by teachers in the neighbourhood of the Royal Agricultural College will be gathered in another page from the report of Mr. Lawrence's excellent lecture before the Cirencester Farmers' Club last week.

* Our average annual importations from foreign countries of corn, cattle, and other produce used for feeding or technical purposes exceed 25,000,000*l.* sterling. These are exclusive of those productions unsuitable to ou climate. This has a political bearing too that ought not to be overlooked. The disastrous effects that might result from such a state of dependence is well known and talked about on the continent —though apparently but little thought of at home.

No one who reflects on the progressive state of modern farming can doubt for an instant the immense importance of science to agriculture.

In the first place farmers are apt to forget that they, in common with other men, reap the advantages of those discoveries which undoubtedly are the fruits of scientific investigation. The farmer who "trucks" his fat cattle up to the London market, or receives telegrams as to the state of Mark Lane, or derives benefit from the methodical labours of the banker, owes a debt to science which he need never hope to repay. In these and many other ways the march of modern civilisation and the unfolding of scientific truth have conferred lasting benefit upon him, enabling him to hold his own in a world revolutionised within the last 50 years, and to compete successfully with foreign rivals who have been frequently looked upon with dread.

Few will deny, although many may forget, that agriculture has thus participated in the good things it has been the privilege of modern science to confer upon mankind. There are many, however, we fear, who see less clearly the special advantages of a close connection between science and agriculture. They look with jealousy upon the gallant attentions of youthful Science to their somewhat aged mistress. That she who has nourished the children of men ever since they began to multiply on the earth, should now be taught by an upstart phantom, partakes of the nature of insult, and smacks of absurdity. That book-learning should intrude itself into the sacred precincts of traditional lore is looked upon as sacrilege. Such men have a delight in instancing the failure of those who have attempted to join a knowledge of principles with the practice of agriculture. This may appear severe language, but we regret to say that we believe it would awaken a responsive chord in the bosom of a large proportion of the representatives of British farming. It is high time that the advantages of the union between science and practice with reference to agriculture were pointed out. The least difficult part of our task consists in indicating the direct benefits derived by agriculture as a whole from applied science. A greater difficulty is found in attempting to show the use of scientific knowledge to the individual, for while the benefit can be easily demonstrated in the first case, there certainly is room for an objector in the second.

We shall briefly consider the first part of the question, and dismiss it to make room for a careful consideration of the second. No one can enter an agricultural show-yard without being struck with the immense display of mechanical contrivances adapted to the requirements of farmers. Engines for ploughing and cultivating the ground, for threshing, pumping, grinding, chaff-cutting, and pulping, occur in endless variety; iron displaces wood, the elaborate machine supplants the simple tool—the use of steam takes the place of horses. Every appliance of engineering skill, whether for diminishing friction, increasing power, or economising heat—all the skill of the draughtsman, and all the genius of the designer, are laid at the feet of agriculture. One science at least, Mechanics, has strengthened the position of the cultivators of the soil. Scarcely less easy will it be to name some important points in which Chemistry has aided the agriculturist. Dealing with the ultimate composition of bodies, we find chemical analysis bringing to light facts which but for it must have remained unknown. Here we have a ready means of detecting adulteration, either in food or manure; a process by which the concealed virtues of waste products may be discovered, and a standard whereby the value of fertilising or feeding materials may be compared. By means of chemical knowledge the invaluable "superphosphate" has been introduced, a class of manures in which not only bones but the intractable coprolite, the uninviting apatite and Silurian phosphatic rocks, alike minister to vegetable growth. If chemistry had only given "super-

phosphate" as a manure to this farmer, that alone would have laid him under lasting obligation to this science. The whole system of artificial manuring would be thrown into complete disorder but for the labours of analytical chemists. If we had to indulge Fancy and allow her to shadow forth the future of this great science in her relations to agriculture, we might be accused of romancing; we might discuss the effect of a perfect knowledge of the wants of the plant, and of the capabilities of the soil—the consequence of an accurate estimate of the value of food for both rearing and feeding stock or producing milk. These questions Chemistry, aided by Physiology, will one day elucidate.

All those sciences which have assisted in advancing the veterinary art to its present position must also be looked upon as having conferred a lasting benefit upon agriculture. Not only do we find improved means of treating the domesticated animals, but by a thorough knowledge of their physiology the conditions of health are known and may be reduced to practice.

Botany has showered down innumerable advantages upon agriculture. If it were not for this department of science we should be too apt to rest contented with the plants we at present cultivate; but a knowledge of the whole vegetable kingdom will, as it has already done, enable men to make use of others. Within the last 200 years the Potato, Turnip, Swede, Mangel Wurzel, Kohl Rabi, Italian Rye-grass, the Clovers, Lucerne, Sainfoin, and many other plants have been added to the formerly scant list of farm crops; and we are constantly hearing of the proposed introduction either of a new kind of Vetch, Clover, Grass, or other forage crop, some of which will doubtless be found well adapted to certain districts and climates, while others will be rejected.

We have now shown several substantial proofs of the practical use of scientific knowledge to agriculture; the examples chosen have been such that even they who take the most mercantile view, that unless money is put into their pocket, they will not confess to any advantage, must be satisfied that some good has been already done, and considering the short time that the firm of "Practice and Science" has been established, that incalculably more will eventually be done.

We have still the most difficult part of our subject before us, namely, the practical use of a knowledge of science to the individual farmer. The consideration of this important question would render the present article too long; we hope therefore to pursue the subject in a future number. *W.*

—— Our readers will not forget that on Wednesday next Mr. Strafford disposes by auction of the Short-horn herd of Mr. E. L. Betts, to which we have already called their attention. A special train leaves Charing Cross at 9 A.M. on the morning of the sale, calling at London Bridge, and returning from Aylesford at 6 P.M. On the following day the entire Short-horn herd of Mr. D. McIntosh, at Havering Park, Romford, will be sold, containing many animals of the Oxford, Barrington, and Waterloo families, as already announced.

—— The Cattle Plague lingers, notwithstanding that on several occasions blank weeks have been reported. There was no case again during the week ending April 13, but the return for the week ending Saturday, April 20, reports two fresh outbreaks, embracing five attacks. One occurred on premises containing three cows, in the petty sessional division of Bakewell (county of Derby), and the other on a farm having a stock of 28 cattle, in the petty sessional division of Barton-on-Humber. In the former case one cow was attacked, and was killed by order of the Inspector; in the latter, four steers contracted the disease, three of which were killed by order of the Inspector, and one died. The total number of cattle reported to have been attacked in Great Britain since the commencement is 253,902, and 52,703 animals have been slaughtered healthy to prevent the spread of the disease.

THE PARIS EXHIBITION.

(From our Correspondent.)

Although we were disappointed at the arrangements of the agricultural department at Billancourt, still the reader must not suppose that the exhibition there is altogether devoid of interest, or that it does not comprise much that is really practically and at the same time suggestively interesting. We would draw in the first place the attention of the visitor to a small, but an interesting collection of hydraulic apparatus useful in rural occupations. M. J. J. Aubry, of 186, Rue Lafayette, Paris, exhibits a pump which possesses, or is said to possess, considerable advantages. It is at the same time a lifting and forcing pump, and the peculiar construction of the valves renders them less liable to obstructions than is usually the case. Chain-pumps, or rather chain and bucket pumps, seem to be thought highly of amongst French armers, more especially for lifting liquid manure, to judge from the number of this class of machines. A very ingeniously arranged double pump is exhibited at Billancourt by M. Fusellier Couteleau à Saumur (Maine et Loire); it is worked by a pendulum movement. A framework carries a horizontal shaft, to which an oscillating movement is given by moving to and fro a long pendulum rod or lever, to the lower end of which a heavy bob or weight is attached.

Some good arrangements are to be noticed at Billancourt for working pumps by horse and by engine power. There is in this department considerable scope for suggestive comparison with the work of our own makers, which we need scarcely say will stand the comparison, if upon no other ground, certainly upon that of superior workmanship. Here we are pre-eminent. At the same time we should notice that the identical process of improvement in this respect is at work on the Continent which was gone through with our agricultural implement makers—and which with some of them even yet is being gone through—years ago. It is now the calm dispassionate opinion of the first of our engineers that our Continental rivals are fast treading upon our heels; already a large amount of work is being done by them, not only for their own people, but even for us, which not so long ago would have naturally come to us as the only engineers able to do it.

The Island of Billancourt is divided transversely by the public road into two parts; the one on the left-hand side entering by the side of the river, over which the handsome steel trellis bridge, alluded to in our last article, is thrown, being devoted to the sheds which are to contain the animals, and those for the reception of machines and implements; this forming the least of the two parts into which the island is divided as above stated. By far the largest part of the island, entering from the entrance on the opposite side of the road, is devoted to plots of land upon which particular styles of cultivation are to be shown. At the present early part of the season these display nothing of interest; some of them are being covered with a green growth, others still look bare and uninviting. A range of land along the river is devoted to examples of different modes of growing Hops, while near it is the plot devoted to the same purposes in connection with Tobacco. Part of the park near this latter plot is devoted to a collection of agricultural implements and machines, some of which are remarkably uncouth-looking concerns, but of which more, probably, hereafter. Why they are placed here and not in the park on the other side of the road, devoted specially to implements and machines, we cannot say. For the sake of some of the objects exhibited it would have been kinder to their *exposants* had they been huddled up amongst a crowd of other objects; so that the marked prominence which is at present given to them, and which they do not deserve, would have been spared. On this part of the island, and also, if necessary, on the Island of Seguin, within a stone's throw of the extreme end of the Island of Billancourt, the trials of the implements and machines used in the preparation and cultivation of the soil and crops will be proceeded with. Things are by no means at present promising as to the interest which will be attached to these trials.

It is a curious thing, which doubtless the experience of our readers has more than once shown to be true, that those arrangements of public gatherings which do not start fair never seem to recover themselves, but the ill-luck which went with them at the beginning follows them to the end; it is, as the French themselves say, the first step which involves the cost in the result. We fear this evil luck with which the agricultural department at Billancourt has begun will follow it to the end. There are some things which look so well at the first that we instinctively feel assured that they will succeed in their career; the converse of this is also true, and we confess that our first look at Billancourt did not by any means convince us that it was to have a promising career. To quote another French proverb, we fear the play will not be worth the candle.

THE WATER SUPPLY OF LONDON FROM THE UPPER THAMES.

In any scheme for furnishing London with water it is not necessary to provide the means of supplying the entire population. There are already eight or nine Water Companies, and I think to supply one-third or to add one-third to the present means would insure an abundance. In such case it would only be necessary to provide for a million of the inhabitants. Eighty-four square miles of watershed will supply a million of people with 30 gallons per head per day, and to effect this there will require to be abstracted from the Thames directly, or intercepted at the confluence of the Windrush, a little more than half its waters; or at the confluence with the Coln nearly all its waters; or at the confluence of the Ock four-fifths of its waters; or to be taken from the Churn and Ampney Brook four-fifths of their waters. The water would have to be taken to London by an aqueduct, conduit, or pipes, and this may be accomplished without the help of steam or any other power. There is a fall from the mouth of the Coln to Paddington of about 3 feet per mile, which is sufficient to convey the water and distribute the same over any part of London which is at a lower level than Paddington, by the force of gravity alone, which power costs nothing.

I think few persons will be disposed to doubt that by proper management under the Thames Commission this quantity can be spared from the river, with little or no effect upon the Thames itself.

I am prepared to show that with a very moderate expenditure the quantity of water descending the Churn and Coln may be greatly increased, and a very large quantity sent down to the Thames which is at present absorbed in the passage over the under oolite rock, which is very porous in this district. The increase which may be obtained from the Churn alone, will be sufficient for more than half a million of inhabitants, but this is now lost to the Thames.

The conveyance of this 84 square miles of rainfall to London may appear to present insuperable difficulties. There are difficulties; but I think not greater than those of an ordinary kind. For the purpose of carrying out this scheme, I should recommend the formation of a new Water Company, whose engineers would soon see how to overcome the difficulties, if there are any.

In ordinary seasons there is an abundance of water in the Thames and its tributaries, but in times of a long continuance of dry weather it diminishes considerably, and in consequence storing will be indispensable in two of the following schemes:—

1. At a place called Langley Wear, near Appleton, in the county of Berks, and nearly opposite the place where the Windrush joins the Thames, about seven miles below Witney, the water may be taken directly from the Thames, and conveyed by conduit, or otherwise, in a straight line to near Didcot Station on the Great Western Railway, and thence by the side of the railway to Paddington.

By the Great Western Railway it is 53 miles to Didcot, and from Didcot to Langley Wear nine miles, making the distance from Langley Wear to Paddington 62 miles.

The water may be stored for use in dry seasons at or near London, or at one or more places on the line of conduit between Langley and London.

2. At the confluence of the Windrush with the Thames the water of the Windrush may be taken and conducted to Paddington as above, and reservoirs for storing made either at the mouth of the Windrush at or near London, or in both places, or at other places on the line between Langley and Paddington. The distance as above is 62 miles.

3. At the mouth of the Coln, about a mile above Lechlade, a reservoir may be constructed into which may be conducted the waters of the Coln, the Ampney Brook, and the Churn. Those rivers would have served all the purposes of the inhabitants on their courses previously to reaching the points where it will be desirable to divert them, and there would be no objection to the water being retained in a reservoir previously to the usual dry season of the year. The water may be conducted through the vale of the Thames to the previously-mentioned point on the river called Langley Wear, and thence it might be taken to Paddington as before stated. The distance from the mouth of the Coln is 72 miles, and the fall from Lechlade to Langley Wear 20 inches per mile, and from Langley Wear to Paddington 3 feet per mile. The mouth of the Windrush is very well suited for a large reservoir, and the mouth of the Coln is most favourable. The Coln joins the Thames at or near this spot, but on the opposite side, and in case of need could be made use of. Steam engines might be placed so as to pump from the Fuller's earth, a little south-eastward of the "Thames Head," and the water thus obtained would descend through pipes to the reservoir at the confluence of the Coln with the Thames. It will be necessary to store up water for six weeks or more, and this may probably be done at both ends of the works, or at one end, or at intermediate places, to provide against unusual and extremely dry seasons. The proposed lines of conduits will cross the river Ock at or near to Marcham Meadow Farm, two miles above Abingdon, at which place a large quantity of water may be taken and sent on to London if it should be required.

A million of inhabitants require 178,000 cubic yards per day, and 42 times this would have to be stored. Reservoir room would, therefore, have to be provided for 7 or 8 millions of cubic yards of water; should larger reservoir accommodation be necessary, it may be had to any extent. It is only a question of expense.

The impurity of the water of the Thames has been spoken of by writers on the subject; but the passing of a recent Act of Parliament will tend greatly to remedy this. The smaller towns on the tributaries beyond the three-mile limit, are preparing for the disposal of the sewage by other means than letting it descend into the streams running near or through them.

I should think that any Company formed for the purpose of supplying this million of the inhabitants of London would be willing, and could afford to pay an acknowledgment to the Thames Commissioners for the privilege, and as compensation for being allowed to take this water from the Thames. The quantity to be taken per annum would be more than 65 millions of cubic yards, and the payment of a very small fraction per yard, say 1*d.* for 90 cubic yards, would create a revenue of 3000*l.* a year. The yearly income of a Water Company at 5*s.* per head for a million of people will be 250,000*l.*

This 3000*l.* a-year would enable the Thames Commissioners to improve the river, and in doing so very greatly to improve the lands on its banks. This would be a beginning, but the works should not be limited to an outlay of a small sum per annum, to effect the improvements to which the Commissioners should direct their attention.

The river from Cricklade to Oxford should be straightened, deepened, and in some places widened, and the inlets of all rivers, brooks, and streams would have to be deepened to correspond on both sides for some way up their course. Without going over the ground it will not be easy to say what the cost of these things will be or ought to be; but I have an idea that 140,000*l.* or 150,000*l.* would carry out what is here indicated. This money would have to be borrowed, and reckoning at 4 per cent. on 140,000*l.*, the interest would come to 5600*l.* per annum. A rate of 2*s.* 3*d.* per acre on 50,000 acres of land between Cricklade and Oxford, which would be greatly improved by the works, will

amount to 5625*l*. This would be a very moderate charge on the land, the greater part of which would be increased in value to the extent of from 5*s*. to 1*l*. per acre per annum. The rate would have to be risen on the lands in proportion to the extent of the improvement of each field by the works, and not on an average of the district to which the operations may extend.

The 3000*l*. a-year which is proposed to be derived from a future Water Company would meet the official and other expenses, and leave something to form a fund for future repairs, extensions, and improvements of the works, and any excess might accumulate and be used from time to time in reducing the borrowed capital. *F.G.S., Cirencester, April*, 1867.

MILK FOR THE LABOURER.

[The following account of the system of cow-keeping as practised in the North of England, as regards the supply of milk to the labouring classes, has been communicated by Mr. Sturgess to the Milk Committee of the Society of Arts, and published in the Society's Journal.]

The system of cow-keeping practised by a portion of the agricultural labouring class living in the agricultural villages in the north of England is of old growth, and has now become, to a certain extent, an institution of the district. There can be no doubt in the minds of those who have seen it in operation that it has tended to the improvement of the position of the industrious and painstaking labourer, enhanced in a material degree his home comforts, given him an interest in the locality, and bound him with a tie of no ordinary character to the occupation he holds; further, it has been the means of retaining in districts many steady, good workmen, who have been of essential service to the farmer located with him in the same parish. This system of cow-keeping, I think, may be considered an elder member of the garden allotment system, for the aim of the latter was, no doubt, to advance further, but in another form, the principle of getting the labourer to settle down, by attaching to his cottage a small plot of garden ground, wherein he could occupy the leisure hours of himself and children, and thus add to his means for procuring more comforts for his family. Before giving particulars of the system, it would be well first to mention that it necessarily involves some additional expenses to be incurred by the owner, in providing the needful accommodation for cow-keeping, and sub-dividing the land with quick fences or post and rails into small and convenient-shaped holdings; and although this expense at first sight may appear heavy, yet I do not doubt that, with the increased rent generally obtained for the cottage and land over what is paid by the neighbouring tenant-farmer for similar land, the cottager pays interest, in the shape of rent, for the additional accommodation that has to be provided for him under this system. The additional accommodation may be stated simply to consist of a small additional space being required in the cottage for a dairy, say about 8 feet long by about 6 feet wide. The cow-house should be about 12 feet long and 8 feet wide; this would give room for one cow and a calf, or, if the latter was not kept, two cows might be accommodated. The pig stye cannot be called an addition, it being generally attached to all cottages in agricultural villages. The extra cost, therefore, for dairy room in house, with cowhouse, would not be more, I estimate, than from 20*l*. to 25*l*.; in fact, in many places, the accommodation required is put up at a very trifling expense.

I now beg to add the following particulars in regard to the extent of land occupied with cottages under this system, the amount of rent paid, with a description of the class of labourer holding those tenancies in the North, and which, I must observe, more particularly refers to the North Riding of Yorkshire:—

Description of Labourer.	Land occupied.	Rent paid for Land and Cottage.
	A. R. P.	£ *s*. *d*.
1. Worked in a brewery	1 0 36	10 10 0
2. General farm labourer	5 2 15	16 15 0
3. ditto ditto.	2 1 22	15 10 0
4. Bricklayer	3 3 13	14 2 0
5. General farm labourer	1 1 14	6 12 0
6. ditto ditto	1 3 22	10 6 0

The houses attached to the above occupations are good, and where the land held exceeded 2 acres, the tenants had increased accommodation for additional stock keeping. I may also add that, in connection with the above tenancies, the tenant had the opportunity of "gating" out his cow during summer in a gentleman's park adjoining the village, thus giving him an opportunity of cutting his own Grass for hay. The cost, I may note, for pasturing a cow from May-day to Michaelmas (20 weeks) varies from 60*s*. to 80*s*., according to size of animal.

Particulars of certain Occupations continued, but taken from another part of Riding.

Description of Labourer.	Land occupied.	Rent paid for Land and Cottage.
	A. R. P.	£. *s*. *d*.
1. General farm labourer ..	10 1 21	13 10 0
2. Worked on the public roads ..	5 0 2	10 19 0
3. Gentleman's servant	5 0 27	12 10 0
4. Village blacksmith	4 2 34	14 14 0
5. ,, carpenter	6 1 33	21 0 0
6. General farm labourer ..		8 5 0
7. ditto ditto ..	8 2 19 pasture	8 5 0
8. ditto ditto ..	5 2 0 meadow	8 5 0
9. ditto ditto ..		8 5 0

The four last occupations had a pasture field allotted among them, containing 8a. 2r. 19p., so they all grazed an equal number of cows in it. The meadow field, 5a. 2r. 0p., was divided by stakes into four portions, so that each knew his own meadow piece for cutting.

The first five occupations in the above list had sufficient ground for keeping two or more cows both winter and summer.

Particulars continued, but taken from a different part of the Riding.

Description of Labourer.	Land occupied.	Rent paid for Land and Cottage.
	A. R. P.	£ *s*. *d*.
1. Village carpenter	4 0 39	12 0 0
2. General farm labourer	1 2 22	6 0 6
3. ditto ditto	6 2 18	9 12 0
4. ditto ditto	4 3 34	8 0 0
5. ditto ditto	4 2 0	8 0 0
6. Village schoolmaster	3 3 3	7 10 0
7. ,, smith	5 0 28	13 14 0
8. General farm labourer	3 0 22	9 10 0
9. Village shoemaker	5 0 9	10 0 0

In some of those last-named occupations, where the quantity of land was not sufficient for pasturing a cow during summer, and reserving a portion to cut for hay, the cottager either got a grant to run his cow in the lanes, or, if that was not obtained, he generally got pasturage with a neighbouring tenant-farmer.

In reference to the disposal of the produce of the cow, it may be stated that, as a general rule, it is made into butter, for which in the district there is a steady and regular demand, arising principally from the increase of large manufacturing towns in the Riding. It is, however, not to be understood that no milk from the cow is sold; on the contrary, where any labourer in a village is without a cow he can have a good supply at 1*d*. per pint. Under those circumstances there is no lack to those desirous of obtaining it. Of the skim milk which is left after the cream is taken off, part is used by the family, and part is sold, the remainder going to help the feeding of one or two pigs.

From a personal knowledge of the system, extending over more than 20 years, I can speak to its beneficial effect in promoting industry, giving greater comfort and many additional luxuries to the labouring man's family, and also as having been the means of promoting socially his own and children's advancement. In many instances I have known that it has helped the labouring man to place one or two of his sons in a useful trade; and as regards the female portion, it has helped, by the duties incident to their position while at home, to prepare them for making useful servants to the farmers and others resident in the district. In respect to any difficulty in obtaining tenants for those small occupations, I can only add, that on a vacancy occurring it is eagerly inquired after, and soon a choice of tenants offers; further, as to punctual discharge half-yearly of the rents, it is satisfactory to state that an arrear rarely, if ever, occurs; I have never known one.

The success which, as shown by the foregoing remarks, attends the cow-keeping system, has only been attained by the length of time it has been in operation, as it must be evident to every one who has made inquiry into its working, that a great deal depends upon the management and skill which the labourer's wife can bring to bear to the occupation, it being left principally in her hands to manage; otherwise without that skill it could not be expected to succeed. It may also be noticed that the system under consideration is now so far recognised as to the advantages which it has conferred, that there is a regular prize now offered by the local agricultural associations for the best cottager's cow; and in this class at those local gatherings cows of excellent quality are exhibited. The cow clubs are also numerous among them, where, by a small annual payment, the loss of a cow is provided against.

In making a few concluding remarks as to how this cow-keeping system could be applied to the south, I may note, first, as regards the land, that I think the Grass lands of the north are better, as well as the herbage; they are also, in the neighbourhood of the villages, divided into small fields, suitable for this class of occupation. I have not found this so in some of the districts of South London. This, however, in itself, need not be a fatal objection to a trial of the system, if other circumstances were favourable. Of course, in the chalky districts, where the Grass lands are very poor, the system could not be introduced with any fair prospect of success, for owing to the quantity of artificial food which would have to be purchased to assist to keep a cow in condition on this description of land, the expense of this artificial food would deprive the system of the advantages it is presumed to confer.

Taking, however, the other districts of the south, where the Grass land is of fair quality, and where facilities would be given for dividing a few Grass fields into suitable occupations for the keep of a cow, there is the practical difficulty yet to be got over, that neither the labourer nor his wife, especially the latter, is qualified by previous experience to undertake the management of cows; further, it is not a system that can be taken up at once, although funds may not be wanting for providing the cows, &c. It is upon the experience of the housewife that so much depends to make the occupation of advantage, aided no doubt by the co-operation and assistance which she receives from her children, who are early instructed in those duties. In my experience of the south, I should say that it is next to impossible to find a female, wife or servant, that can milk, let alone knowing anything about butter-making and other duties attending the successful working of the system. Further, it is far from general that the labouring man knows anything about cows, or is able to milk one, and, therefore, however well the system may be shown to answer in the north, it would not follow, from the circumstances before noted, that if tried it might be equally successful in the south.

The economy of living and the food consumed by the labouring class in the South are very different to the custom in this respect in the North; in the latter more animal food being taken and more milk used, whereas in the former meat does not enter into consumption, except to a limited extent, and, in the place of milk, beer or cider is the substitute. The use of the two latter as a part of the domestic economy of the labouring man's household is, I am afraid, a great inducement to his visiting and being found often at the beer house.

If the system could by any means be introduced, there is no doubt that much good might be derived from it, not only in elevating the position and character of the labouring class, adding greatly to his home comforts, but also further (which I should myself put some stress upon), in the duties which would necessarily be thrown upon the family; these would tend to qualify them for making good and creditable servants, who would thus be more conversant with the duties required of them in many situations they might be called upon to take.

These few suggestions have occurred to me in the consideration of this subject; no doubt more detail could be entered into if space was available, but I trust the little I have adduced in reference to this matter may be of service in helping to bring into notice a branch of cottage economy which I believe has been and is now doing good service in the north of England.

In reference to the foregoing memorandum, Lord De L'Isle writes:—

The above able and comprehensive remarks of Mr. Sturgess so thoroughly explain the subject, that comment on my part is almost unnecessary.

I would simply observe that the system of cow-keeping in the north of England is one of long standing, the growth of years, and it has tended much to the comfort of the labouring class. Whether such a system could be established, in suitable districts in the south, with fair prospect of success, is a question which requires some consideration.

The principle of allotments has answered well in certain places, in others it has not met with the same amount of success.

The habits of the labourers in the north differ much from those of the south, and in the management of a dairy much depends on the skill, cleanliness, and industry of the wife.

In the north most of the labouring classes are well acquainted with the management of dairy stock, but this is not the case in most parts of the south of England, where great difficulty exists in finding either a man or a woman who can even milk properly.

These are some of the difficulties which would attend the introduction of this system; but I cannot help thinking that, from the success it meets with in the north, it is well worthy the attention of landlords, as a means of giving to the labourer a more permanent interest in the soil, and by his own industry and good management adding many comforts to his home. It would also enable him to sell milk in small quantities to those of his own class who now frequently experience great difficulty in obtaining even a limited supply.

Home Correspondence.

Sorghum tartaricum.—Messrs. Carter having advertised the Sorghum tartaricum as capable of producing 60 bushels of corn per acre, and as being four times more nutritious than Wheat, and capable also of making cows yield twice the quantity of milk as green food, we are anxious to know when and where this Sorghum was grown. I have some of the seed, but I perfectly agree with your Paris correspondent that it will not ripen here, and if Messrs. Carter will give us the name of their friend who has grown it in this country we shall be obliged to them, or if they will assure us on their own knowledge that this Sorghum will yield a grain of the value they would lead us to believe, and in the quantity they through their friend represent, many may be induced to give them 2*s*. 6*d*. for a few seeds; if they cannot do so, I do not envy them the half-crowns they may obtain from their advertisement, which states this Sorghum to be the most important introduction of this century. *An Enquirer for Self and Others, Brighton.*

Imperfect Implements.—We have just cross-harrowed 19 acres of our heavy land Wheat in one day, with two horses and a youth, each horse going half the day. This was done as soon after the horse-hoeing as the surface became dry. The harrows were of wood, with steeled teeth. The more perfect cultivation and saving in horse-labour by having steeled instead of iron teeth is considerable. The cost of relaying once in two years is only 13*s*. per set more than the inferior iron teeth, which pass over, but do not so deeply enter the soil. *J. J. Mechi, April* 11.

Societies.

Royal Dublin.—The Spring Show has taken place during the past week, and has realised the best expectations both in the number of entries and in the quality of the stock, particularly the Short-horns, of which there were 195 bulls and 120 cows and heifers. The great prizes of the Society are the challenge cups. The first of these is the Townley Plate, value 155*l*. The cup was originally presented by the Messrs. Purdon, proprietors of the *Irish Farmers' Gazette*, for the animal of the breeding classes which, in the opinion of the judges, possesses the greatest merit. It was permanently won by Colonel Townley, who contributed 100 guineas to replace it, to which sum the Society has added 50*l*. It has been won this time by Mr. Richard Challoner, of Kingscourt, Moynalty, for his Short-horned bull "Sovereign," to which was also awarded the 20*l*. prize and bronze medal for the best Short-horned bull calved in 1866. The other great prize is the Irish Railway Challenge Cup, value 150*l*., to be awarded to the best bull of

any breed, over two years and under five years of age. This cup was won by Mr. Edward J. Smith, of Islanmore, Croom, for his bull "Lictor," which also carried off the 10*l.* prize and bronze medal. Among other exhibitors who won prizes for bulls were Mr. Robert G. Cosley, Stradbally Hall, Queen's County, the Marquis of Drogheda, and Mr. J. Moffat, of Enniscorthy. In the Class of Short-horned Yearling Heifers, the prizes were won by Mr. J. Meadows, Wexford; Mr. J. Anderson, Waterford; and Mr. E. Welsted, of Castle Roche. Considerable interest was felt as to the award to be given to the section for cows of any age, in which there were 14 entries, the exhibitors including Major Hamilton, Sir A. J. Bellingham, and Sir Percy Nugent. The judges gave their fiat in favour of Sir A. J. Bellingham for both 1st and 2d prizes, the former being taken by "Myrtle" and the latter by "Dewdrop." There was a considerable show of Kerrys. In this department the prizes were won by Mr. R. S. Cusack, Captain Bagley, Mr. T. Butler, Mr. A. Comyns, and Mr. J. Brady.

The first silver medal for the best Short-horned heifer, not exceeding four years old, was won by an animal exhibited by Major Burrowes, of Newbridge. The second silver medal was awarded to a heifer belonging to one of the largest farmers in Ireland, Mr. Allen Pollok, county of Galway. In the other varieties of cattle, comprising Devons, Alderneys, and Ayrshires, the competition was small.

Among the first entries of sheep Mr. W. Owen, of Blesinton, obtained the 1st prize for the best Leicester shearling ram, and Mr. A. Pollok for the best fat wedder.

The exhibition of implements, machines, seeds, manures, vehicles, &c., is unusually large, no fewer than 57 firms being represented. There are 10 stands in the Shelbourne Hall, 16 in the courtyard and Shelbourne yards, and 29 in the galleries of the Agricultural Hall. All the modern implements and appliances are shown, and the visitor may acquaint himself with all the newest inventions which the march of science has given to the agricultural world.

Farmers' Clubs.

Cirencester: *Agricultural Education.*—At the April meeting of the Cirencester Club, E. Bowly, Esq., in the chair, the Chairman said it was true in agriculture as in other things that "knowledge is power." It had been said, scientific farmers never got any money. They were not always the cleverest people who acquired wealth. One of the cleverest men of modern times was Mr. Cobden, and he was not very successful either in getting money or in keeping what he did get. Still he was a great advantage to society. With regard to science in agriculture, he thought it could be made of the greatest possible advantage to them, and he hoped the paper of Mr. Lawrence would elicit much discussion on the subject. The question was one that had for some time past engaged the attention of the Royal Agricultural Society, and two different views were taken of it. He trusted that those of the Council who wished to give a more practical bearing to agricultural education would be in the majority.

Mr. Lawrence said: I have during the last 20 years enjoyed much intercourse with the agricultural community, and the result of my observation has been that the nature and extent of the education hitherto deemed sufficient for a young man destined to follow agriculture as a business is very inadequate, and altogether ignores the fact that the practice of truly economical agriculture demands the previous acquisition of knowledge specially applicable to that pursuit which has been in the course of progressive development more particularly throughout that period. It is that conviction which has induced me to propose agricultural education as the subject of our consideration.

A notion seems to have been generally entertained amongst the progenitors of the present race of farmers, that farming is an exception to the discipline deemed essential in all other callings, namely, that young men who have completed their general education at the age of 16 should enter on an apprenticeship for a certain term of years, and then occupy a further period in maturing the information acquired during their apprenticeship before they are deemed qualified to undertake the responsibility of independent action. Is there any reasonable ground for that exception? If agriculture consisted merely of ploughing, and sowing the seeds, gathering in the produce, and such manipulations, and the selection of the proper times and seasons for such operations, it might be granted that a limited observation and experience would be a sufficient training. But those operations, however important, form but a limited portion of the art of agriculture, in the most extended sense of the term, considered as a means of gaining a livelihood in these days. How about the arts of manuring, the breeding and feeding of stock on the farm? I venture to say there yet exists a lamentable want of the due appreciation of the extent of knowledge absolutely essential to economical and therefore successful agriculture as a profession. Young men, not much inclined to study and mental exercise, are too apt to be influenced by stories of fortunes made by their comparatively illiterate grandsires in farming. I remember, some 50 years ago, in conversation with a farmer who had realised a good fortune about the close of the last century, his observing "There was a time, sir, when farmers had only to hold their pots out and it rained porridge into them." Those were days of low rents, high prices, little competition at home, and none from abroad: now all these conditions have been changed; and to enable a young farmer of the present day to maintain his position, under actual circumstances, demands a considerable amount of knowledge to begin with, and that very skilfully applied in practice. Until a recent period farmers have been very unnecessarily scared at the very name of science, as if it involved some special mysteries intelligible only to the learned. Science is really a very innocent term, derived from the Latin word *scio*, to know, and simply signifies real knowledge—they are convertible terms; and, as applied to our present subject, represent established facts and principles on which entire reliance may be placed, as compared with mere usages, theories, and speculations. I may further elucidate this distinction by an observation of a Greek philosopher more than 2000 years ago: "To know and to understand, belong rather to science than experience; and we think that the scientific are wiser than those who derive their knowledge only from experience, because in all men wisdom springs from knowledge rather than from any other source. Those who are skilful from experience only know, indeed, that a thing is—they do not know why it is; the scientific know the why and the cause of a thing." On occasional intercourse with some of the sons of farmers, I have been much struck with their deficiency even in elementary education—with the consequent absence of any desire for the acquirement of any knowledge beyond that which they could see in the limited sphere around them; that they neither read, nay, are unacquainted with the existence of the periodical agricultural literature of the day, in which is recorded investigations and experiments of the greatest interest and importance to them, which are in course of prosecution in all parts of the kingdom. In illustration of the advantage of such reading, I may observe that I lately found in one number of the *Agricultural Gazette* (23d February) amongst other interesting matter, no less than three articles replete with instruction—one by the editor, showing the relative value and cost of various foods for "working animals on the one hand, and growing creatures on the other;" another being Professor Wrightson's introductory Lecture to Agricultural Students at the Cirencester College, in which the lecturer treated the subject under our consideration with great ability; and the other, a paper read by Mr. Henry Cox before the Kingscote Agricultural Club "On the Physical Condition of the Agricultural Labourer."

No farmer, proposing to bring up his son to agriculture as a business, should rest satisfied with any preliminary education for him short of that which would qualify him to pass the middle class examinations now established. Having thus acquired the requisite foundation for any future occupation, the first step for the student in any special art or manufacture should be to attain an intimate knowledge of all the materials on which he will have to operate, and exercise his skill. The farmer is, to a great extent, a manufacturer. He has to produce many varieties of grain and green crops, and to build up beef, mutton, &c. His first inquiry would rationally be into the elements of which these several articles are compounded. These have, of late years, been so frequently reduced to their elements, both by English and foreign chemists of unquestionable reputation, and the results have been recorded in print, that such knowledge has become readily accessible. The next step, in respect of manuring, would be to ascertain to what extent the land he is about to occupy contains, or is deficient in, the most essential elements for the production of the crops he will have to raise. On this point he will have occasion for the aid of a chemist. By these means he will obtain the most reliable knowledge as to any essential element in which his land may be naturally deficient, and be enabled to regulate his manuring accordingly. As a general rule, farm-yard manure, when carefully made, and skilfully preserved, will supply all the necessary materials whether for his cereal, grain, or root crops. But where is such manure to be seen? There exist also abundant analyses published of every article in use for manuring purposes, from which the student may readily select that best adapted for his specific object, or for his particular soil. Then, as respects the successful economical feeding of his various stock, there is much knowledge to be previously acquired. Every tyro in agriculture will know how to put flesh and fat on an animal at more or less cost, and in more or less time; but economical feeding to accomplish those results is quite another affair. The student must, in the first place, inform himself of the constituents of bone, flesh, fat, &c. Secondly, of the elements of which the various articles of food which present themselves to his choice are composed. In both these particulars the requisite information has been also provided ready to his hand in the printed analyses of our agricultural chemists. Whether his immediate purpose be to provide suitable food for the growth of a young animal—to increase the weight of flesh, or fat, or both, on a full-grown animal—for the increase of his dairy produce, or for the feeding of his sheep or pigs, he may find all the requisite information at the sources to which I have referred. I point out these, it must be borne in mind, merely as economic aids, which must be followed out by close observation, and many details of management on which our time on this occasion does not admit of our entering. I should be much misapprehended were it supposed that I considered a knowledge of practical chemistry essential to a young farmer. My purpose is rather to impress on his mind that chemistry is the only sound foundation of economic manuring and feeding—that the chemists deal, not with opinions or speculations, but in the demonstrative and quantitative resolution of compounds into their elements—that implicit reliance may therefore be placed on their analyses, which, to say the least of them, will afford the farmer very important aid in determining the special food or manure applicable to his particular wants. I have before observed that such information is readily accessible to the young farmer; and I would suggest as a commencement for his agricultural library, Morton's "Encyclopædia of Agriculture," comprising, as its title implies, information on every matter of detail connected with the practice of agriculture which he may require from day to day, and that contributed by the best authorities in the various departments of the art; Solly's "Rural Chemistry," and Cuthbert Johnson's "Agricultural Chemistry" are cheap little books, and very useful elementary works. To these may be added Johnston's "Lectures on Agriculture;" the Lectures and Treatises of Dr. Voelcker, some of which have been separately published, and which it is hoped may be given to the public in a collected form, as the most important contributions to modern agriculture; Liebig's "Laws of Husbandry;" and, for practical purposes, Mr. Morton's Hand Books; Johnston's "Chemistry of Common Life" should be carefully read by every youth.

Is it not a remarkable fact, that while the number of farmers in England is computed to amount to, at the least, 100,000, the number of members in the Royal Agricultural Society of England does not exceed 5000; and this, though the annual subscription is only 1*l.*, which entitles a member to the numbers of the Journal published half-yearly, in every one of which are to be found articles worth infinitely more than the annual payment to the observant student, to say nothing of many other valuable privileges of membership? Amongst numerous contributors of their knowledge and experiments to this Journal it is sufficient to mention the names of Professor Way, the late chemist to the Society, and the present Professor, Dr. Voelcker, Mr. Lawes, and Dr. Gilbert, who supply articles of the utmost value to the practical agriculturist, containing not only numerous analyses of foods and manures, but reports of the results of their carefully-conducted experiments. I may add interesting articles by Professor Simonds, of the Royal Veterinary College, on the diseases of animals and their treatment. If time served I could give you numerous illustrations of the useful knowledge derivable from the sources to which I have referred from my note-book, but I must confine myself to two which caught my eye recently while referring to it for another purpose—the one on the selection of foods, and the other on the preservation of our home-made manure. Even the more careful discriminators in the selection of artificial feeding stuffs have not hitherto taken into account the value of the excrements for manuring purposes at the same time. Mr. Lawes, in a paper lately read by him before the Dublin Royal Agricultural Society, stated "that there is far greater difference in the manuring than in the feeding value of the ordinary stock foods in the market." Agriculturists have usually estimated the value of feeding materials mainly by the proportion of nitrogen which they contain, but Mr. Lawes observed, "the comparative value of our current stock foods depends more on the digestible non-nitrogenous substances they contain than on their richness in nitrogenous compounds; but that the richer the food in nitrogen the more valuable is the manure proceeding from it." He added, "it may be stated that the estimated value of the manure from 1 ton of oil-cake is considerably more than that from the same quantity of Linseed, Lentils, Beans, or Peas; from two to three times as much as that from one ton of Oats, Indian Corn, Barley, or hay; from seven to ten times as much as from the same weight of Oat, Wheat, or Barley straw; and 20 times as much as from one ton of roots. It is obvious, therefore, that in the selection of purchased foods for stock it is very important to consider their manuring, as well as their feeding values. One illustration of this point will suffice. A ton of Locust Beans will certainly not yield nitrogen in the manure of animals feeding on it equal to more, if so much, as 28 lb. of ammonia, but a ton of Rape-cake will yield a hundredweight, or four times as much. If, therefore, we take the ammonia in the manure at 7*d.* per lb., the amount of it obtained from the consumption of a ton of Locust Beans would be only 16*s.* 6*d.*, whilst that from a ton of Rape-cake will be 3*l.* 15*s.* 4*d.*" Now that is more than half the cost of the cake.

I have already adverted to the necessity for the preservation of our farm-yard manure. The waste of this important agent is, within my observation, the rule, even at this day. I have rarely met with an exceptional case. My own treatment of it may be seen on my farm previously to the distribution of the remainder of it in the course of the spring. Dr. Voelcker was pleased to observe in a publication some years ago that it was the best mode of treatment he had seen. In confirmation of my observations on the mischief occasioned by the ordinary treatment I should have been glad to give you from my notes the particulars of four experiments performed by Dr. Voelcker when at our College, and which I extracted from a paper of his, "On a given quantity of farm-yard manure placed under circumstances of more or less exposure." Each heap was weighed and analysed when placed, in the November of one year, and again in the months of February, April, August, and November following. The results of each experiment on actual analysis are most instructive, but for my present purpose I will select No. 4 only as exemplifying the waste and loss of the most important elements under the ordinary mode of treatment. The loss in weight was 30 per cent., and of this 2 per cent. only was due to evaporation, the remaining 28 per cent. representing an actual loss to that extent of effective constituents. Out of 59 pounds of soluble organic substances originally present only 11 pounds were left. Out of 23 pounds of soluble mineral matters—essential elements of the manure—only 10 pounds remained. Hardly a trace of the free ammonia present at first was left. The ammonia present at the first in the form of salts had almost disappeared; that was a loss of the vital property of the manure. This is an invaluable homestead lesson. My purpose has been to

impress upon the farmer in embryo the importance of laying a sound foundation for his future operations by storing his mind with general principles, which may be safely applied under any special circumstances of the position in which he may chance to be located; that in the selection of purchased foods and manures he should avail himself of the aid of the published analyses of the agricultural chemist; that during his apprenticeship the evenings will afford him opportunity of studying the standard works on agriculture and the best periodicals of the day, in which will be found progressive agriculture in various parts of the kingdom, and the results of instructive experiments. In the course of such reading, the student will meet with many details of practical importance which his memory would imperfectly retain, hence the advantage of a note-book at hand in which such may be briefly recorded with reference to the authority for the entry. This habit not only impresses facts on the mind, but in the course of practice such memoranda become very useful for reference. The selection of animals for breeding or feeding purposes and the various operations on the farm to which I have before adverted can only be mastered by very close observation and experience.

In conclusion, I desire to impress upon the young man destined to be a farmer that the extent of the farm must be within the limit of the capital at command to insure success; and secondly, that with the advantage of the preliminary education I have shadowed forth he should duly appreciate the numerous difficulties with which he will have to contend before he commits himself to an occupation. He must bear in mind that the area of surface in this country capable of profitable occupation is limited, while the competition for it is greatly on the increase; that the inevitable result of this will tend to an increase of rents; that he will have to encounter in the market the cereals and the live stock of all kinds from more favoured countries, and produced under more favourable circumstances in respect of expense, and the gradual but certain increase of the cost of labour. The manual labour difficulty has been met to some extent by improved machinery and the agency of steam power, and this will be on the increase. This, however, will necessarily involve more skilled workmen, and, consequently, more skilled supervision on the part of the master and a competent knowledge of elementary mechanics. For want of such knowledge I have seen very useful implements discarded as useless, and expenses incurred which might have been easily avoided. In fine, I would tender to the young farmer the advice given by a celebrated man to his son, of general application:—"Whatever you do, do it to the purpose, do it thoroughly,—not superficially; go to the bottom of things."

Discussion.

The Chairman said they must all feel deeply indebted to Mr. Lawrence for the very able and interesting paper which he had read upon a subject which was now engrossing so much attention amongst agriculturists. It would be in the remembrance of many present that about a quarter of a century ago their lamented friend, Robert Brown, brought the same subject before that very Club, and he should never forget the spirited manner in which the matter was taken up by the tenant farmers of this district. The result of their efforts was that an institution was founded where their sons could receive a good education at a moderate expense. They all knew how that ended. He did not know whose fault it was. Perhaps they got a little out of their depth; but he should never cease to regret that the men who then came so nobly forward should have been so disappointed in the result. It was a standing fact that the College at Cirencester was founded by the tenant farmers of this district, and it would always be a credit to them. When the College was formed he went as one of a deputation to the Council of the Royal Agricultural Society to urge upon them the necessity of giving the institution their support, and he could not but contrast the cold shoulder given them there with the earnestness and ardour with which the agriculturists of this neighbourhood came forward and worked. Although one of the conditions of the charter of the Royal Agricultural Society was that they should encourage the education of those who were dependent upon agriculture for their support, they would not help the institution in any way. Many who then belonged to the Council had passed from the stage of life. New blood had been infused into the Society, and the question was now again being mooted, how they could best encourage agricultural education. Different views were taken of the subject, but it seemed to him that what they ought to do was to give all the encouragement they could to that education which would turn out young men practical agriculturists. He should be glad to have the opinion of gentlemen present, because it would strengthen those of the Council who took this view of the question. It had been held that all the general education needed by those who looked to agriculture for their support was that which was necessary for passing an Oxford or Cambridge middle-class examination, and as Mr. Lawrence had kindly offered to give them particulars of what that examination was, he would ask him to do so.

Mr. Lawrence said a misapprehension existed as to what was necessary for passing a Cambridge or Oxford middle-class examination. Many people were not aware how simple the educational test was. Some persons had an idea that it necessarily included classics and studies of that kind; but no such thing. There were three distinct classes in these examinations—first, the lower class, provided at public expense; second, the middle class, for tradesmen, farmers, &c.; and third, the upper class, for the church, the professions, and so on. Now, the middle class examination was very simple. Take the Oxford regulations. To quote from a lecture delivered to the students of the Royal Agricultural College by the Principal, "Every candidate is required to satisfy the examiners (1) in the preliminary subjects, viz., English grammar, English composition, arithmetic, geography, and the outlines of English history; (2), the rudiments of faith and religion; besides which there are four divisions of optional subjects, (1) English; (2) Languages; (3) Mathematics; (4) Physics, each subdivided into four sections. . . . An agricultural candidate might thus secure the title of Associate of Arts by satisfying the examiners in the preliminary subjects, as in the following two, (1) the outlines of political economy and English law; and (2) chemistry; or in these two, (1) pure mathematics to algebraical geometry, and (2) vegetable and animal physiology, all of which have a decided bearing upon his future profession." The Cambridge system was equally simple, so that there would really be no difficulty in passing a middle class examination.

Mr. Warner thought that what was termed agricultural education was not half sufficiently appreciated by farmers in general. He could mention many facts to prove this, but he attributed no blame to the farmers for it. It took a long time to alter the habits of people. It became every man to turn his attention to his profession, and to perfect himself, as far as he could, in it. A short time since he was talking to a respectable farmer of independent means some little distance from Cirencester, and in the course of conversation he referred to the interesting and valuable information contained in agricultural journals, and asked the farmer whether he took in one of those publications. He said he never had, and from what he could make out, he had never read a book on any agricultural subject. This same gentleman, it transpired, had sent two of his boys to school near London, in order to get them out in the world, so that they would be better fitted for society, thus showing that he was inclined to advance them in manners and social refinement, while he paid but little regard to real practical agricultural education. Referring to manures, Mr. Warner showed how essential a knowledge of chemistry was in order to discover their constituents and the description of soil for which they were adapted. The subject of manures was one of the greatest importance to agriculturists, and he referred to a remark of Mr. Buckman, who, when addressing some farmers of this district, exclaimed, "Gentlemen, cherish your dung-hills." He advised farmers to read works on agricultural subjects, and let them also encourage their sons to study those exact points on which success in agriculture rested. This, he submitted, could not be efficiently done without the aid of such institutions as our agricultural college. He sincerely hoped that practical agricultural education, the importance of which could scarcely be over-estimated, would receive greater attention in the future, and that farmers would see the necessity of placing their sons in the way of obtaining such sound and useful information as that imparted at the Royal Agricultural College.

The Rev. Thomas Maurice said the Chairman had carried his mind back 25 years, when they met to discuss a similar question, and talked much in the same way as they were talking now. He thought they must all admit that those 25 years had not been lost. There was doubtless now increased intelligence amongst the agricultural community, and signs of continued educational advancement were not wanting. A remark made by the chairman suggested to his mind the inquiry, "Why the Agricultural College has not answered its original design?" It had been a very useful institution, and he had no doubt that, collaterally, it had tended much to advance agricultural education; but it had not accomplished that for which it was originally intended. It was at the outset intended to be a place for the education of the sons of farmers; but they all knew that that had not been its application. [Mr. Lawrence: "Because they would not come."] Notwithstanding all the energy that was put into it, it had not answered its original purpose. Why? While readily admitting the honesty of the intentions of those who founded the institution, he was inclined to think that it was carried too far, but probably the real cause of its non-success at first was the want of some preliminary preparation on the part of those who became students there. There was a want of some means of general education before going to the College, which means were now provided by middle class schools. We had nothing of that kind in this neighbourhood. It might some day occur to the inhabitants of the district that a good middle-class school might be advantageously established here. That would be extremely beneficial to the farmer, because he would not only be able to obtain the specific and professional education which Mr. Lawrence had so ably set before them, but he would also be enabled to acquire that general education which was necessary if he was to take that position in society to which, he was happy to say, many were now rising. We knew very well that to maintain a good social position education was required; and, as he took the liberty of showing when he had the privilege a short time since of opening a discussion there, the social position of the farmer was a very important one, and, in addition to a specific agricultural education, a general education was necessary to give him a good standing amongst his fellow men in society. This went to prove, as the Chairman had remarked, that "knowledge is power." When a man could take a good standpoint amongst his fellows he gained influence and power by it. [Mr. Maurice then referred at some length to the education of the agricultural labourer.]

Mr. R. A. Iles, of Reevey, said he was struck with a remark of the Chairman, which was that a scientific man never got money. If it was true that a scientific man never did get money, that went rather against agricultural education. The Chairman instanced the case of Mr. Cobden, who, while benefiting society, did not amass wealth himself. But a man did not take a farm to benefit society, but to get a livelihood, and that being his object, he should be thoroughly educated in the scientific management of the farm he proposed to occupy. What a farmer wanted was scientific education combined with practice, and if a man had those qualifications he possessed the best means of keeping his farm in a proper state. With regard to the general education of intending agriculturists, he did not believe in time being spent in acquiring those accomplishments which would be of no use to them in the management of a farm. What they should be educated in and examined upon were such subjects as the different descriptions of soils, the kind of crops adapted for them, the nature of the manures to be used, the management of stock, and so on. He had always thought that the reason why scientific men looked with suspicion upon practical men, and *vice versâ*, was because the two were not combined. From observations he had made he was inclined to think that scientific men made the greatest mistakes in the management of stock. Now, looking at the present prices of stock, he thought that farmers would turn their attention in that direction more than they used to do, and hence he held it to be important that scientific men should devote more time to matters connected with the management of stock. We heard of science in connection with land cultivation, but we hardly heard enough of its application to the treatment of stock.

The Chairman said Mr. Iles made a mistake in attributing to him the remark that scientific men never got money. He did not put that forward as his own opinion, but simply said that such an assertion was often made. He did not think that a man need be very clever to get money. At any rate, he had known many foolish ones get it. The fact of it was, we were living by and on the education and science of others. His grandfather took two days to get to London; he could get there in almost as few hours. This they owed to the scientific work and invention of others. He had nothing to do with making the railway—at least all he had to do with it was to pay calls on shares when they were worth nothing. Science had improved their condition in many other respects. Where they threshed 50 quarters of Wheat now they formerly could thresh but one, and there could be no doubt that the more science spread it must tend to the good of the community.

Mr. Lawrence; One gentleman wished to know how it was the College did not succeed when first started. The payment then was only 30*l.* a-year, and it was soon found that, with the aid of that remarkably fine Cotswold air that prevailed round the College farm, the students would consume that. Then there was instruction of the best kind to be provided, and some of the gentlemen present would perhaps be surprised to hear that their expenses for teaching alone had been as much as 1200*l.* a-year.

The Rev. T. Maurice said the original proposition was that the payment should be 20*l.* a year, and he remembered old John Morton saying, in his broad Scotch, "Weell, gentlemen, you make strange calculations; they will 'ate' 20*l.* a year." It seemed that 30*l.* was afterwards tried, but that was found a great deal too low.

Professor Church said they would perhaps permit him to say a few words on what he conceived to be the true relation of science to the art of agriculture. It appeared to him that although scientific men might constantly fail in getting money, that was not to be laid to the fault of science, whose use in the world was to enable those to get money who practically carried out its discoveries and teachings. The men who invented chloroform and superphosphate, and made some of the greatest discoveries that had blessed the world may have died poor, but many men had made fortunes by those discoveries. The scientific knowledge that the farmer had to gain was the knowledge how to use the discoveries of the chemist, the botanist, the geologist, the physiologist, the veterinary surgeon, and those other men of science who had been able to devote their lives to each one of the branches he had named, and education that would produce such a result as that was the true agricultural education adapted to the wants of the present century. Fifty years hence such an opinion as this would not be an exceptional one, but would be held by all the leading agriculturists in this and other countries. In some countries it was rapidly spreading. There were colleges for the instruction of young men in matters appertaining to agriculture, but if these colleges were intended for the sons of farmers it had always been found necessary to supplement the resources from the students by a Government grant. In some countries this was done, but not here. There could be no doubt that agricultural education to be adapted to the wants of farmers must be cheaper than it could possibly be without some aid from funded property or Government grant. With regard to the education of the agricultural labourer, he thought that subject was distinct from the present, and it well deserved a paper and discussion to itself.

Mr. Smith said the College would have succeeded better if there had been a proper site chosen for it. He thought the spot a very unfavourable one. There was but one quality of land, and the area was too small for an institution of that kind. There was no chance of breeding anything there but a few sheep. The proper site for the College was on the edge of the hill, where they could have had 400 or 500 acres of hill land and a variety of soil; say from 200 to 400 acres of good rich Wheat and Bean land, strong ploughing land, and a quantity of Grass land for the breeding of stock, for dairy purposes, and for feeding. If the College had been so situated, in the midst of 2000 acres of different descriptions of soil, breeding land, and grazing land, and dairy land, and Barley land, and Turnip land, and sheep land, and Wheat land, and Bean land, then it would have been a likely place for farmers to send their sons to, as they might have learnt there all the different branches of agriculture. In the College at the present time chemistry was taught and the rest of the fine arts, but there was no chance of learning the practical part of farming, except what referred to sheep, Turnip, and Barley soils, and that was the very reason why the College had not succeeded much better than it has.

The Rev. J. Constable, M.A., Principal of the Royal Agricultural College, said:—In a meeting of this kind it will of course be expected that I should stand up in defence of the College of which I have the honour to be Principal. And let me say at once that I do not consider the College a failure. I think it has been an eminent success, and I am greatly mistaken if future years do not more than ever prove it to be so. Whether it has failed to satisfy its original promoters I cannot say, because I was not one of them; but I cannot help thinking that if its original object had been gone about in a different way it would not have failed. Had it been possible from the commencement of the institution to offer its advantages only to such as had by previous exertions shown a determination to profit by them, the College, even as at first carried on, would in all probability have succeeded; but it cannot be a wonder to anyone who has had any experience in educational institutions that the Agricultural College at its outset failed, as did the College of Engineers at Putney. To bring together 100 totally uneducated and undisciplined youths from every kind of early training, impatient of restraint, undesirous of knowledge—indeed I may say averse to everything which a college life should create and foster—was to try an experiment which could end but in one way. I may state here that the Council of the College, not insensible to the original object of the institution, have shown their willingness to impart its advantages to the class for whom it was first intended by offering scholarships to young men who, from the position which they take in the middle class examination, show a desire to help themselves, by means of which scholarships young men of slender means may be able to reside at the College. Reference has been made to the objection of farmers to send their sons to the College. What is the cause of that objection? Why, the adverse opinion they have formed of the general system of education adopted in this country. And I must say that that objection has the germ of truth in it. Why does not the farmer appreciate the present system of education?—I might almost say the past system, as it is now giving way to a more advanced one. The farmer is a practical man; his object is to obtain practical business results; and he values things only as he sees they have a practical tendency; hence he desires to set aside all needless scholastic adornments and to turn his attention to those things only which are useful and likely to assist in securing the object he has in view. I hold in my hand an address by the president of an American college, in which occurs a passage which will illustrate my meaning. He says, "No man can be induced to study and to exercise his intellectual powers in a healthy or vigorous way unless he devoutly believes that objective truth is attainable by man." The writer then tells a story of a benevolent Quaker who hired a man to move a heap of gravel from one place to another, and when the man had finished the work he asked what he was to do next. "Move it back again," was the reply. That man, said the writer, was no Yankee, or he never would have consented to do work which was absolutely useless when finished. Now, here is the kernel—the gist—of the whole thing. The British farmer is averse to time being spent about studies which, even if perfected, would be useless to him "when finished." And he is right. Depend upon it, gentlemen, the day is fast passing away when it will be believed, as it has been, that high scholastic training and classical lore are indispensable requisites for the middle classes. Is it not possible to elevate, and develop, and strengthen the mind without these? I say yes. The works of God are about us every moment of our lives; we cannot take a step into the country without seeing the beauties of nature everywhere strewn around us in the richest profusion—without finding something to stimulate thought, to excite wonder, and to call forth admiration—and is it not possible, I say, to educate man by developing his faculties through these without going back to the musty classics and the polished training of the schools? The farmer says "Yes," and he is right. I believe the day is coming, and coming rapidly, too, when it will be generally conceded that we can educate the mind through the natural sciences in a far higher sense than through the dead literature of by-gone ages. It is because the farmer holds an opinion so opposed to the general system of education hitherto adopted that he cannot be got to budge, and I am pleased to say that at the College we meet the farmer in this matter. We believe that education may without evil be directed to some practical end, and that is the principle on which we act. I have always held, and have put it forward in private and in public, that it

is possible and desirable to educate the mind and develop its faculties through mathematics and the natural sciences. Some of you may say, "What, do you pretend to teach botany and chemistry, and geology, and physiology, and all the other ologies?" No; we do not wish to do that. We are not desirous of turning out men with an empirical knowledge of all the subjects I have named. If we have a diversity of studies at the College, it is simply with the hope of suiting a diversity of tastes. Perhaps we may be pandering a little to the popular idea by having such a large staff; but our real intention is, not to give students a smattering of "all the ologies," but to make them proficient in one or two things. We do not wish to turn out men at the College with a knowledge of all that we teach. One takes botany, another chemistry, a third geology, a fourth physiology, and so on, and our object has been to make students thorough, as far as we can, in the one or two subjects which they select. And I appeal to testimony upon testimony that this is the true system of educating the mind. To quote the words of a man whose name should have great weight—Professor de Morgan;—"A small quantity of learning quickly evaporates from the mind which never held any learning except in small quantities, and the intellectual philosopher can perhaps explain the following phenomenon—that men who have given deep attention to one or more liberal studies can learn to the end of their lives, and are able to retain and apply even very small quantities of other kinds of knowledge, while those who have never learnt much of any one thing seldom acquire new knowledge after they attain to the age of maturity, and frequently lose the greater part of that which they once possessed." Let me in conclusion express a hope that I may live to see the day when the College will be looked upon in this light by agriculturists, and when that day comes the College will be an established success.

The Chairman said there had been a great discussion amongst the Council of the Royal Agricultural Society as to the examination of students in practical agriculture. He would like to ask Mr. Constable whether he thought that was possible?

The Rev. J. Constable: From my own experience I should unhesitatingly answer in the affirmative. Mr. Acland, as the Chairman knows, does not consider it possible to examine students in practical agriculture, and yet this very morning I was reading a letter written by him in which he says:—"I do not doubt that if any of the landlords and tenant farmers of the Council were to take a walk over a farm with a young candidate for the honours of the Society, they would soon find out what he was like, and would make a good guess as to the probability of his being able to take a farm as a tenant with profit to himself or to manage an estate with advantage to its proprietor." Now here is the great opposer to the system of practical examinations making a candid avowal of his opinion that simply "a walk over a farm" would be sufficient for a competent person to test the knowledge of a candidate and to "find out what he was like," and yet he believes that examinations in practical agriculture are impossible! Surely if the one can be done, so can the other. Whether the Agricultural Society will ever be able to organise a system of examinations of that kind is quite another question. If I were asked for a suggestion, I would recommend that the examinations be conducted in the same way as here. Let the Agricultural Society appoint three or four gentlemen who would agree to meet at a certain farm on a given day, and let the candidates be assembled there and subjected to three or four hours' examination on the spot. That, I think, would meet the difficulty. To have centres all over the kingdom, as some have proposed, would I believe be attended with great practical inconvenience.

The Chairman did not see why examinations of the kind referred to by Mr. Constable should not be carried out. It was possible even by talking with a man to find out what was the extent of his knowledge. There used to be a class of men who were called "after-dinner" farmers, and if his friend Mr. Iles was travelling with an agriculturist, he was greatly mistaken if he would not find out before he got to Stonehouse station whether his companion was a practical man or one of the "after-dinner" type.

Mr. Ellett, referring to the difficulties which the promoters of agricultural education had to encounter, alluded to the want of proper inducements to study. The whole tenor of the able paper with which Mr. Lawrence had favoured them had been to point out to young farmers the necessity of educating their minds in those subjects which would be essential to them in their profession, and the subsequent discussion had rather gone upon the question as to what was the best mode of managing a collegiate institution for agriculturists. Now, he thought one of the principal points they had to consider was this—how could they best promote agricultural education. There were numbers of young farmers who never went to an agricultural college, who simply received an education more or less good at ordinary schools, then returned to their homes, and in due time followed their fathers, without possessing any agricultural education save that which they had derived by their own observation and exertions. Now, it seemed to him that what these young men wanted was something to induce them to devote their minds to the subject. They knew very well that inducements were wanted in the learned professions, an educational test was established, and an examination was forced upon them before they were permitted to practise. In the ordinary case of a tradesman he had to pass an apprenticeship before he was recognised by the world as qualified and proficient in his particular calling. The farmer was not in this position. In most cases a young man was left to succeed his father in the occupation of a farm, and he had never been in a position which compelled him to undergo any amount of study as a necessity of life. With him study must be rather a voluntary choice than a necessity; hence some inducement was required, and could not that inducement take the shape of scholarships at institutions like the Cirencester College, offered openly to any young man who would pass such examinations as the council of the Society might suggest? He could well understand that there would be numbers of young men who would be glad to compete for these scholarships, which would be valuable to them even in a pecuniary point of view, for if they were seeking to become managers of farms, their scholarships would carry great weight and influence with them. Then the endeavour to obtain these scholarships would, even if the candidates were not successful, be attended with beneficial results. If 20 persons applied for a prize and only one got it, the remaining 19 would find that they had reaped substantial advantage in the attempt, and that knowledge had been acquired which would prove useful to them throughout life.

Mr. Lawrence observed that the very subject referred to by Mr. Ellett had engaged the attention of the Council for some time, and Mr. Holland, Colonel Kingscote, the Chairman, and himself had supported it, but hitherto they had always been in a minority. They held that the funds of the Society ought to be applied to the specific education of agriculturists, but they had as yet been unable to induce a majority of their colleagues to think so. Mr. Acland and two or three others had entirely controlled the Council in this matter. He believed, however, that their eyes were now being opened.

The Rev. J. Constable remarked that the suggestion made by Mr. Ellett with respect to scholarships was a very important one, but it had already been acted upon and only one candidate from the whole of England came forward for a prize of 50*l.*, which would enable the possessor to prosecute his studies at the College. The natural deduction was therefore this—what was the use of offering plums if people did not care for them? In other words, what was the use of multiplying scholarships, if farmers evinced no desire to compete for them? He was present at a meeting at Kingscote a short time since with the Attorney-General, Colonel Kingscote, Mr. Holland, and others, their object being to take into consideration this very subject of scholarships and to see whether the Kingscote farmers were willing to fall in with the suggestion which the leading gentlemen in the county were ready to carry out—namely, to raise a fund of 200*l.* or 300*l.* annually to be distributed in the way of scholarships to enable those young men who passed certain examinations to complete their studies at Cirencester College, or any other place for agricultural education, if there were one. Well, they thought they carried the meeting with them, and they might rest assured that until they convinced farmers that they had something worth giving, it would be no use to offer scholarships. How to alter the current of opinion he did not know, except by challenging people to come and investigate the College, to see what they did and taught there, and if they were not satisfied, to state their objections. Depend upon it, until they got the farmers of England to believe in the value—the practical value—of what was taught at the College, it would be no use bolstering it up with scholarships or anything else.

Mr. H. Rivington observed that there were only two ways of educating agriculturists professionally in England. The first was an apprenticeship to a farmer for some years, and the second a residence, more or less long, at the Royal Agricultural College. As he had tried both ways, and was now a farmer in the neighbourhood of the College, he would like to say a few words in comparison of the two methods. With regard to the education with a tenant farmer he might state that he spent two years in Suffolk with two tenant farmers, and he certainly could not say much in favour of that system. There was no direct method of teaching. He might observe the whole routine and be at liberty to ask questions, but those questions were not always to the point, and he was sorry to say that the answers were rather peculiar at times. When he asked the reason for an operation, he could not get exactly what he wanted, but was told that it was so. The result was that he was perfectly discouraged; he thought he should never be able to grasp all that was required, and become a farmer. At that time he was only too thankful to say that he was led to come to the College at Cirencester—an institution which, as the Chairman had remarked, was a credit to the neighbourhood in which it found its first promoters. At the College he found that, instead of merely following out the routine of operations, there was direct systematic teaching, not only in the lecture room, but in the field, and by this means the whole thing seemed to be wonderfully simplified. He might state, in reply to a remark by a previous speaker, that they had at the College different kinds of land, and he thought there was no farm where the soil would be more varied in its character than there. They were not limited to Barley growing, but they grew Wheat extensively. Then there was a systematic teaching at the College of the different sciences bearing upon agriculture. These were taught by men who had devoted their lives to each particular branch. Thus they had on the one hand the simple observation on a farm, and on the other hand the systematic training of a college. He thought the two methods could hardly be compared, one was so infinitely superior to the other. In his opinion the College was perfectly capable of giving a knowledge of practical business to the farmer, and in addition to teaching him how to fill his pocket, he there learnt the intimate connection between the different sciences and agriculture, which presented a beauty to the farmer and gave him an enthusiastic interest in his profession which he never felt before.

Mr. W. J. Edmonds thought that up to the age of 16 a youth intending to become a farmer should be sent to an ordinary school, from 16 to 19 or 20 he should go to a place like the Agricultural College, where he would learn about the different sciences bearing upon agriculture, and get an insight into the working of a farm, and he should then go, if possible, to some first-rate farm, where he would be able to see how to apply the knowledge which he had acquired. He could not but think that Mr. Rivington went a little backwards in learning farming. Had he come to the College first and then to the farm, it would have been better, and he might then have been able to give the farmer some idea of his mismanagement.

A cordial vote of thanks was then passed to Mr. Lawrence, and the meeting separated. *Wilts Standard.*

Reviews.

Journal of Agriculture. April, 1867. 150, Fleet Street.

The current Number contains papers on Farm Buildings, on Co-operative Farming, on Land Drainage, on the Winter Food of our larger Land-Birds, with the usual monthly notices of events and prices. There is also an interesting sketch of primitive Scottish agriculture. We extract a useful account of a new method of fire-proof floorings and ceilings available for farm buildings:—

"A system, possessing all the advantages of the best system hitherto introduced, and others not yet possessed by them, is now attracting the attention of architects. It was patented some 12 years ago by the Messrs. Dennett, of Nottingham, and has been since largely used, and, where used, with every success. The material used as the binding or concreting material is the sulphate of lime—largely found in the neighbourhood of the town above-named—in conjunction with broken brick, stone, or the like, or, indeed, any other material possessing the requisites of hardness and porosity; and as brick possesses these qualities in a high degree, it is that used by preference by the patentees. The setting qualities of the sulphate of lime are stated by trustworthy authorities as something remarkable—the combined materials possessing, when set, extraordinary hardness. The concrete is set in the arch-form. Spaces or intervals of 10 feet have been arched over, and even wider spaces, with invariable success. The rise given to the arch, as a minimum, is 1 inch to each foot horizontal of span. The spandrel spaces above may be sometimes filled in to form a floor, which may be finished with the concrete itself, or have fillets or light pieces of wood inserted in it before it is set, in which the usual flooring boards can be fixed. Where there is no objection to the curved surfaces of the under sides of the arches—which will be the case in farm-steadings and cottages for labourers—they may be left in their original condition. If required to be provided with plaster ceiling, light rafters are placed below, the walls being supported by the lower flanges of the wrought-iron beams. For granaries the system is peculiarly well adapted, as it forms both floor and ceiling in one mass, and being closely connected with the walls, there can be no possible spaces left for harbouring vermin; so that if provided with properly secured doors, and the windows having boards at both top and bottom projecting outwards, and sloping, beyond which the rats and mice cannot proceed, the granaries so constructed may be said to be both fire and vermin-proof. The great advantage, in an architectural point of view, presented by the system, is the ease with which vaults, &c., can be turned by it. From the pages of the *Builder* we take the following illustration and description of the system, in addition to what we have already described it to be:—

"'Mr. G. G. Scott, about seven years since, adopted this system for the thorough fire-proofing of Kilham Hall, a large mansion near Newark. The floors of the upper bedrooms were finished in the material itself, and coloured decoration freely disposed on the soffits of the arches and the lower flanges of the wrought-iron girders, both of which are exposed. Mr. Scott, in bearing testimony to the advantages of the system, says that "the arches are so entirely in one mass, that they cover the space like a compact shell, or inverted basin, and are consequently almost wholly free from lateral pressure."

"'But it is not alone as a fire-proof construction that the invention is invaluable. The ease with which any form of ground or domed vault can be executed in the material, without the labour of cutting, renders it an excellent substitute for brick or stone; and it is indeed applicable, in many instances, where considerations of cost, or want of strength in the supporting walls to resist outward thrust, would quite preclude their use.

"'The ceiling over the principal staircase at the new Foreign Office is one of the best examples of vaulting on this principle. The hall, which is about 65 feet long by 26 feet wide, is divided into three compartments. The two end compartments of ceiling consist of semi-cylindrical coffered vaults, the depth of the panels, which are octagonal, being 11 inches, and their thickness 7 inches, making a total thickness in the margins of 18 inches. Each panel is intended to receive a cast-plaster patera, which will be secured to the panel by an iron bolt. The centre compartment is occupied by a dome of an average thickness of 8 inches, springing from a stone cornice. The spandrels formed by this cornice, and the rectangular intersections of walls, are also formed by a solid mass of the concrete.

"'It is intended to construct a ground-vault over the cabinet-room of no less span than 36 feet. The ceilings of corridors throughout are executed in semi-circular ground-vaults, divided into square compartments by stone-arch rims.

"'With regard to the strength of the construction, we may mention that some experiments instituted by Mr. Legg, the district surveyor, at the new town-hall of Hackney, which has been recently fire-proofed by Messrs. Dennett, produced the most satisfactory results. The floor chosen for the experiment was occupied by three arches, 13 feet long, 5½ feet span, rising 5 inches on the soffit, and horizontal on the upper surface. The material was 4 inches thick on the crown, and 9 inches at the haunches. The girders upon which the arches rested were of rolled iron, 8¾ inches deep and 4 inches broad on the flange.

"'A number of bricks were placed upon the centre arch, forming a stack 8¾ feet long, 4 feet wide, and 6 feet high, weighing 6¾ tons, or nearly 4 cwt. on every superficial foot of the base of the stack. The load was sustained for several days without any sensible deflexion either of the girders or of the crown of the arch; and after a careful examination, the test was considered perfectly satisfactory and the load removed.

"'The following further tests were then applied by the direction of the architect, Mr. Austin:—A rough block of Portland stone, weighing about 280 lb., was hoisted over the centre of one of the side arches, and being suddenly detached, with a fall of 13 feet, broke into, but not through, the crown of the arch, and there lodged. Another block of stone, weighing 750 lb., was subsequently hoisted, and let fall from the same height as the last, and passed quite through the centre arch, the aperture being cut clean through, without any radial fissures, and without causing any disturbance of the adjoining arches, although one had been previously broken as before described.'

"We believe that we have yet to witness a larger introduction of the system of fire and vermin-proof construction to farm buildings of various kinds than has yet been known; and the system now described and illustrated appears to possess advantages which make it deserving of attention."

Physiology at the Farm in Aid of Rearing and Feeding the Live Stock. By W. Seller, M.D., F.R.S.E., &c., and Henry Stephens, F.R.S.E., Author of the "Book of the Farm." W. Blackwood & Sons.

We must reserve till another notice a completer analysis and account of this important volume than we are able to give it to-day. It consists of three parts: the first two on the Physiology and Chemistry respectively of nutrition in the different kinds of live stock; and the last on the methods in which the agriculturist must proceed to determine, "from his knowledge of preceding facts in physiology and chemistry, the kind and amount of diet that will more or less probably be necessary when special circumstances arise, as well as to satisfy himself how far there is a harmony between established usages of the farm in respect to animals and the precepts of physiological and chemical science. The calculations introduced into this Part are only correct in so far as the chemical analysis of the several articles concerned is already complete. The plan exhibited will suffice, however,

to give exact results in proportion as the analyses become more perfect.

"With respect to the share which each of the authors has had in this work, it will be sufficient to say that with Mr. Stephens, as largely experienced in agriculture and long apprised of the exact kinds of knowledge required by his brethren in that department, originated the plan of the book, and that he has throughout ruled the order, range, and limits of its subjects; that on Dr. Seller rests the responsibility of the execution of that plan in all its details, with the exception of such as are purely of a practical nature."

We congratulate Mr. Stephens on this his latest addition to the many important volumes in the English Agricultural library which bear his name.

Why have a Foreign Cattle Market on the Thames? and Where? By James Odams.

In answering the question Why? the author of this pamphlet is a perfectly trustworthy and disinterested guide through all the arguments and considerations which the history of the past two years of cattle plague has brought to bear on England as a meat-importing country. And in answering the question Where? Mr. Odams may be also trustworthy: at any rate he gives very good reasons for the place which he proposes. He is not, however, disinterested on this subject, seeing that the place in question is land he has to sell. The pamphlet is a clear and well-illustrated statement of the case, both for the public and for himself.

Miscellaneous.

Islington Horse Show.—The prize list of the Agricultural Hall Company just issued offers 395*l.* in four classes for hunters, including a 1st prize of 100*l.* for the best weight carrier. In the class for weight-carrying hacks, in addition to the money prizes, one of the directors, Mr. Dodd, offers a gold medal for the best cob equal to 16 stone. At the annual meeting of the shareholders of the Agricultural Hall, the following letter addressed to the chairman by a very celebrated master of hounds was read:—"As I was an exhibitor at your horse show, and also one of those who represented to your Board the irregular proceedings which took place on Sunday, the 20th May, I beg to express to you, in justice to your Secretary, Mr. Sidney, my satisfaction as to the general management, and the attention with which he performed his duties. I will not again refer to what has taken place, as I believe it to have been an error in judgment. I know that your resolution will prevent anything of the kind occurring again."

Feeding Cattle.—Experience and attention to the amount of progress cattle make when fed differently would soon enable the farmer to decide how he might best supplement the more bulky foods. It was impossible to lay down empirical rules. Where the food consisted of roots and straw chiefly, it was advisable that the artificial food should contain a high degree of nitrogen; oil-cake and Bean-meal might thus be used advantageously together. Where roots were given in small quantities, and Clover chaff was mixed with the straw, the food being thus more nitrogenous, they found Barley-meal largely given with the oil-cake. The marketable value of the different substances they used in feeding would constantly vary, but by paying a little attention to the composition of the different foods supplied, they should finally be able to substitute for an article if it became too dear something cheaper, though differing little in composition, the proportion of flesh-forming to respiratory compounds which had been proved to be most advantageous to supply thus remaining unchanged. And while speaking of the economy of cattle feeding, he could not but refer to two systems which stood in striking contrast. In the one cattle were allowed roots *ad libitum*, and ate 1½ to 2 cwt. per day, and in addition straw, and say 3 lb. of cake; in the other, they received a much smaller allowance of Swedes, say from 50 lb. to 70 lb., 20 lb. of chaff, mixed hay and straw, 3 lb. to 4 lb. of cake, and the same of Barley and other meal. The latter plan was chiefly followed in the southern counties. It deserved their notice, for it presented several advantages. The roots were economised, a smaller allowance being given per head, and as they were supplemented by more straw, cake, and meal, a large number of cattle might be fed. Then, instead of one lot being kept slowly advancing, as they fed faster a second lot was brought in to take the place of those which had gone to the butcher. Again, since Swedes contained eight-ninths of their weight of water, by giving 2 cwt. per head per day they allowed the animals 199 lb. of water, or nearly 20 gallons, and this at the low temperature it would be at in winter must chill the system and require a greater consumption of food to maintain the heat of the body. And lastly, the manure obtained from cattle fed on such a plan as theirs was of better quality than when they received a large amount of very watery food. This was of great importance, for the quality of the manure they obtained must influence the economy of their feeding, but to this he should again refer. For these reasons, therefore, he thought it would be found advantageous to limit the allowance of roots given, say 1 cwt. per day. Now, it would be said that fewer roots could not be given unless the cattle could be made to eat more straw, and they knew that it was the great argument of those who advocated the use of steaming apparatus that this was accomplished. But the same end might be gained by simpler means. On several large farms in the south he had seen the straw, cut into chaff, mixed with the pulped roots, and left for some hours, often 24. The straw became softened and more digestible, and as much might be given them as was deemed desirable. Thus cattle would eat it with relish, and like it none the worse if it had become a little heated. The cost of cutting the straw into chaff, which was very slight, and of pulping the Turnips, were the only extra expenses.

Mr. Caird's Plan for Dealing with the Irish Land Question.—Mr. Caird proposes that the Government should lend the proprietor money to execute permanent improvements, on condition that he grants the tenant a lease for 34 years; the money—principal and interest—to be repaid by the occupier during that time, through what would really be a small addition to his rent. The landlord would gain, for his farms would be so improved that the farmer could make increased profits, and could therefore more surely pay his rent. The tenant would gain; for instead of a bare plot of land he would get a farm with all its appurtenances complete, and would obtain security of tenure for the lifetime of a generation. The State would gain in the increased produce of the soil, and in the improved relations of two great classes of Irish society. The difference between this and Lord Naas's Bill is not inconsiderable. Lord Naas, while proposing that the tenant should obtain advances from Government, stipulates that, without the consent of the landlord, he must make no improvements, except in constructing drains and putting up fences; in these matters the farmer may do what he likes, and he will be entitled to compensation if ejected. As regards other changes he must obtain the owner's assent, or else he will not be entitled to compensation on ejectment. The superiority of Mr. Caird's plan is that it does away with all dissension between the landlord and the occupier, either before or after improvements; leaving no room for dispute as to the expediency of any proposed outlay, and no after question as to compensation. The long lease would contain in itself the tenant's best reward. There is no doubt that if we could carry out this project a great service would be done to the country. *Daily Telegraph.*

Painless Operations under Richardson's Ether Spray.—A committee of the Royal Society for the Prevention of Cruelty to Animals met Dr. Richardson a few days since last at the Society's Rooms, 12, Pall Mall, to witness his demonstration of the production of insensibility to pain by means of ether spray, and to hear his views as to the extension of the process to the performance of operations without pain on the horse and other inferior animals. There were present at the meeting—the Earl of Harrowby in the chair; Mr. John J. Briscoe, M.P., Mr. W. Mackinnon, M.P., Mr. S. Gurney, M.P., General Sir John Scott Lillie, Dr. Fraser, Dr. Sedgwick, Professor Tuson, and a large attendance of members. Dr. Richardson first described why general anæsthesia had not been commonly applied to veterinary operations, and explained that the difficulties connected with the general method were all removed by the local process. He next demonstrated the principle and practice of the local method by ether spray, illustrating it on his own body, making, with Dr. Sedgwick's assistance, large surfaces of his arm insensible to pain, and passing large needles deeply through the benumbed parts. This was repeated on the flesh of Dr. Fraser, Mr. Gurney, and Mr. Mocatta, who testified to the painlessness of the operation. In veterinary surgery this local anæsthesia is, Dr. Richardson said, applicable to all operations, and it has been practised with entire success by several veterinary surgeons, especially by Mr. Mavor, of Park Street. The details of many painless operations on horses were next supplied, particularly the operations of nerving, of firing, of introducing setons, of removing tumours, of opening cavities of the body where there was obstruction, and of applying caustics and escharotics to irritable and open surfaces of the animal. The value of the method as a means of removing pain from inflammation and other causes was also discussed, together with the application of the plan of discovering the seat of disease in cases of lameness. The simple little apparatus used was greatly admired; and Dr. Richardson showed that the assistance of even an uneducated person was sufficient to enable the veterinarian to proceed to painless operation. Messrs. Robins & Co., of Oxford Street, had prepared an ether specially for veterinary purposes, at 4*s.* 6*d.* per lb., which would suffice for twenty operations. Towards the end Dr. Richardson referred to the varying degrees of sensibility belonging to different animals, as proved by the degree of anæsthesia required in order to produce perfect local insensibility. He concluded by stating that whenever members of the community demanded it, every animal that was considered so valuable as to be a proper subject for a surgical operation could now be submitted to operation without physical suffering, and that, too, safely, quickly, conveniently, and cheaply.

Notices to Correspondents.

BAILIFF.—The Editor of this Journal can recommend a good working Bailiff, well acquainted with tillage, farming, and market gardening; also acquainted with stock management. Wages, 90*l.*, with cottage and garden.

BROOM RAPE: *D.* There can be little doubt but that your Clover pest is the Broomrape (Orobanche), but the specimens were so dry and broken as to make it desirable that we should have some in a fresh state for examination.

LOCUST BEANS: *A Z.* Can any of our correspondents tell us of a machine that will grind Locust Beans into fine powder?

POULTRY: *M.* The dissection of several fowls that have died under circumstances similar to those mentioned by you, has shown disease of the liver and great enlargement of the gall bladder. Over-feeding on Indian meal, or similar food, will frequently cause death at this time of year, when the hens are naturally fat and laying; the intestines become covered with fat, so that the egg passage is much compressed, and in the act of laying the hens frequently die from the rupture of a blood vessel internally. Entire change of food is always beneficial when birds get out of condition; a little wormwood put in their water, or soaked in the water with which their food is slaked, will do them much good, or if you think the birds are too fat, reduce their food if at liberty; if in confinement give more green food, and feed on soft Oat or Barley meal for a week or ten days, letting them have plenty of gravel and grit to scratch in.

SEX OF WINTER: *Agricola.* Next week.

LAWN MOWERS.—BARNARD'S PATENT.

PRICES.			
8 inch ..	.. £2 10 0 each	16 inch ..	.. £6 0 0 each
10 inch ..	.. 3 5 0 ,,	18 inch ..	.. 6 10 0 ,,
12 inch ..	.. 4 10 0 ,,	20 inch ..	.. 7 0 0 ,,
14 inch ..	.. 5 0 0 ,,	22 inch ..	.. 7 10 0 ,,

Delivered free to any station in England on receipt of Post Office Order.

Also Lawn Mowers of other kinds, viz., Green's, Shanks', Samuelson's, Ransome's, &c., supplied at makers' prices.

J. JONES & SONS, 6, Bankside, Southwark, London, S.E.

GARDEN ROLLERS.—IMPROVED MAKE.

PRICES.			
16 inch ..	.. £1 13 0 each	24 inch ..	.. £3 0 0 each
18 inch ..	.. 1 17 0 ,,	26 inch ..	.. 3 10 0 ,,
20 inch ..	.. 2 3 0 ,,	28 inch ..	.. 4 0 0 ,,
22 inch ..	.. 2 10 0 ,,	30 inch ..	.. 5 10 0 ,,

Delivered free to any station in England on receipt of Post Office Order.

J. JONES & SONS, 6, Bankside, Southwark, London, S.E.

ROLLERS.

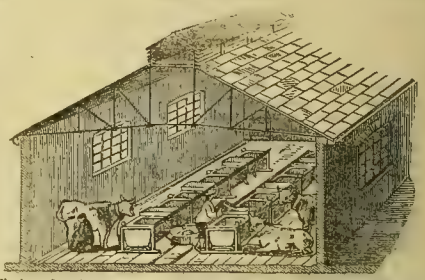
ROLLERS FOR THE FARM.
ROLLERS FOR THE GARDEN.
ROLLERS FOR THE LAWN.
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ROLLERS FOR ROAD MAKING.

The best and cheapest are the Patent Adjustable WATER BALLAST ROLLERS, made only by

AMIES, BARFORD, & Co., Agricultural Engineers, Peterborough, who will forward Price Lists and all particulars on application.

IRON HURDLES (Silver Medal of the Royal Agricultural Society).
SHEEP, 3*s.* 5*d.*; CATTLE, 4*s.* 2*d.*; OX, 5*s.* 11*d.*
List by Post. GATES and FENCING of every description.
St. Pancras Iron Work Company, Old St. Pancras Road, London, N.W.

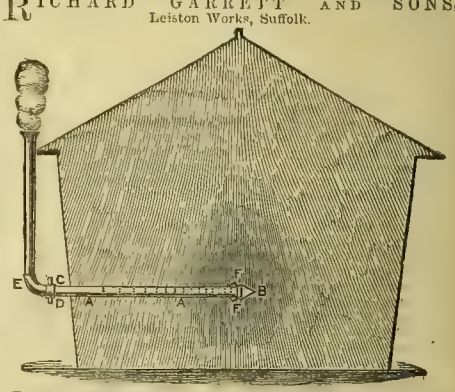
COTTAM'S PATENT PORTABLE UNITED COW FITTINGS.



Their advantages are—Portability, not Fixtures, removable at pleasure, no Woodwork or Partitions to impede Ventilation or breed Vermin, Hay Rack dispensed with as unnecessary, increased width and depth of Feeding Troughs, Water Cistern, and Patent Drop Cover to prevent over-gorging. Cleanly, durable, and impervious to infection, being all of iron. Price of Fittings per Cow, 55*s.*

Prospectuses free of COTTAM & Co., Iron Works, 2, Winsley Street (opposite the Pantheon), Oxford Street, London, W., where the above are exhibited, together with several important Improvements in Stable Fittings just secured by Patent.

Patent Rick Ventilator, Manufactured by
RICHARD GARRETT AND SONS,
Leiston Works, Suffolk.



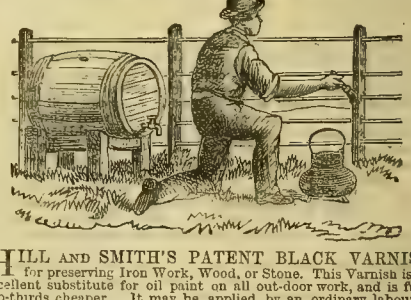
The above represents a Section of a Heated Hay Stack, showing the Patent Ventilating Apparatus in operation.

This Apparatus will be found a complete and perfect means of detecting and promptly reducing Heat in Corn and Hay Stacks.

Price £1 11*s.* 6*d.* each.

Full description forwarded on application to RICHARD GARRETT & SONS, Leiston Works, Suffolk (Sole Manufacturers).

Oil Paint no longer Necessary.



HILL AND SMITH'S PATENT BLACK VARNISH for preserving Iron Work, Wood, or Stone. This Varnish is an excellent substitute for oil paint on all out-door work, and is fully two-thirds cheaper. It may be applied by an ordinary labourer requires no mixing or thinning, and is used cold. It is used in the grounds at Windsor Castle, Kew Gardens, and at the seats of many hundreds of the nobility and gentry, from whom the most flattering testimonials have been received, which HILL & SMITH will forward on application.

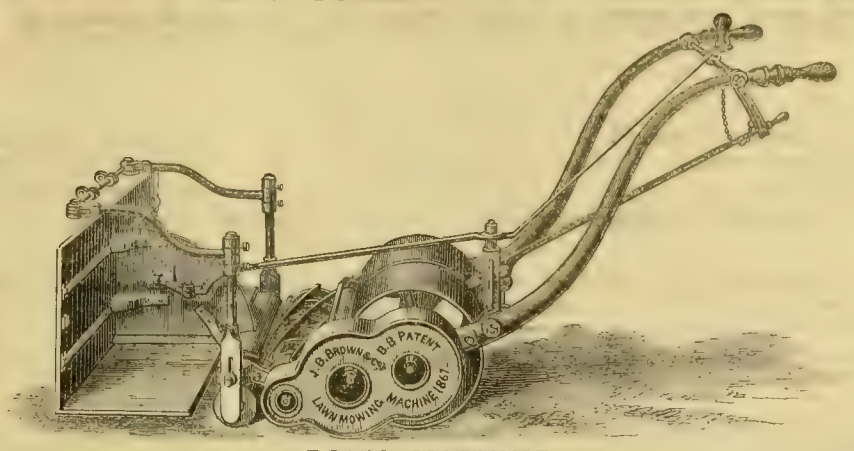
From ROBT. RAIKES, Esq., *East Dale, near Brough, Yorkshire.*

"I have used your Black Varnish for park palings and consider it to be the most durable and best thing of the kind I have ever seen. I think it might be applied with still greater advantage to iron fencing instead of paint, and it is my intention so to employ it in future."

Sold in casks of about 30 gallons each, at 1*s.* 6*d.* per gallon, at the Manufactory, or 1*s.* 8*d.* per gallon paid to any Station in the kingdom. Apply to HILL & SMITH, Brierly Hill Iron Works, near Dudley, and 22, Cannon Street West, E.C., from whom only it can be obtained.

PATRONISED BY HER MAJESTY THE QUEEN, AND HIS ROYAL HIGHNESS THE PRINCE OF WALES.

J. B. BROWN & CO.'S NEW PATENT B B LAWN MOWER FOR 1867.



PONY MACHINE

With Newly Improved Delivering Apparatus; to Deliver the Grass without Stopping.

MESSRS. J. B. BROWN AND CO. being most desirous to avoid this year the great expense which they incurred during last season, by having their Works employed day and night, owing to the press of Orders they received after the commencement of the season, *would earnestly solicit Orders for this season's requirements being immediately forwarded to them.*

Many of the best known and most intelligent Gardeners have given the New Patent B B Lawn Mower the highest possible character.

Mr. THOMAS INGRAM, *of the Royal Gardens, Windsor Castle, writes* Messrs. Brown & Co., *Aug.* 11, 1866.

"I have much pleasure in stating that your New Patent B B Lawn Mowing Machine (a 24-inch) has had a good trial, and has proved quite satisfactory. The work done is of the first order, leaving the Lawn like a piece of velvet."

Mr. JOHN SNOW, *Saltram Gardens, Saltash, Devonshire, writes September* 6, 1866.

"I have much pleasure in bearing testimony to the excellence of your New Patent Pony Mowing Machine sent for the Earl of Morley. The work performed is very satisfactory."

Mr. WILLIAM CARMICHAEL, *Sandringham, King's Lynn, Norfolk, the seat of* His Royal Highness the Prince of Wales, *writes January* 11, 1867.

"The 24-inch B B Lawn Mowing Machine which you supplied suits me well, and does its work admirably."

Mr. JAMES DODDS, *The Gardens, Knole, Sevenoaks, Kent, writes September* 1, 1866.

"I have pleasure in mentioning to you that your New B B Pony Mowing Machine supplied to us continues to give perfect satisfaction, in doing the work exceedingly well."

PRICES.

NEW PATENT B B HORSE MACHINE for 1867.

Complete, without extras, including Delivery Free to any Railway Station in England, with the necessary Tools and Directions for use.

42-inch Machine	£28 10 0	*Drawn by a Horse.*
36-inch Machine	24 10 0	
30-inch Machine	21 10 0	*Drawn by a Horse or strong Pony.*

NEW PATENT B B PONY MACHINE for 1867.

Complete, without extras, including Delivery Free to any Railway Station in England, with the necessary Tools and Directions for use.

30-inch Machine	£17 10 0	*Drawn by a Pony or strong Donkey.*
28-inch Machine	16 10 0	
26-inch Machine	14 10 0	*Drawn by a Donkey.*

NEW PATENT B B HAND MACHINE for 1867.

Including Delivery Free to any Railway Station in England, with the necessary Tools and Directions for use.

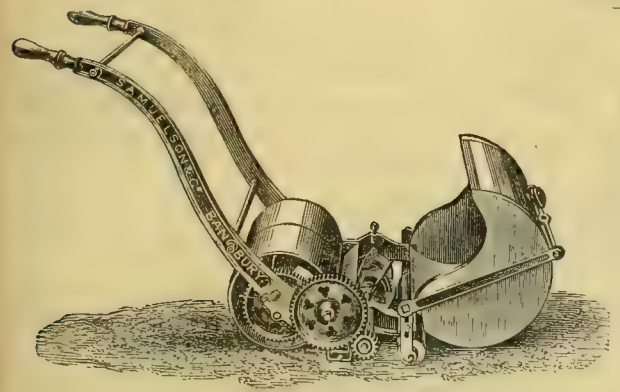
10-inch Machine	£4 0 0	*Easily Worked by a Boy.*
12-inch Machine	5 0 0	
14-inch Machine	5 10 0	*Ditto by a Man.*
16-inch Machine	6 10 0	*Ditto by a Man and Boy.*
18-inch Machine	£7 10 0	*Easily Worked by a Man and Boy.*
20-inch Machine	8 0 0	
22-inch Machine	8 10 0	*Ditto by Two Men.*
24-inch Machine	9 0 0	

☞ *It is most important, in order to prevent disappointment, that Orders for these PATENT LAWN MOWERS should be given without delay.*

J. B. BROWN AND CO., PATENTEES and SOLE MANUFACTURERS,
WAREHOUSE and LONDON MANUFACTORY—148, UPPER THAMES STREET, LONDON, E.C.

SAMUELSON & CO.'S
IMPROVED LAWN MOWING MACHINES.

EVERY MACHINE WARRANTED.



PRICES.

Delivered Free to any Railway Station in Great Britain.

Cutting 12 inches wide	£4 10 0
Cutting 14 inches wide	5 5 0
Cutting 16 inches wide	6 0 0
Cutting 19 inches wide	6 10 0
Cutting 22 inches wide	7 10 0
Cutting 25 inches wide	12 0 0
Cutting 30 inches wide	15 0 0
Cutting 36 inches wide	18 0 0

Great improvements have been made in these Machines during the last few years, in regard to all those small but important points of superiority which the practical working of a Lawn Mower suggests; while for elegance of appearance, lightness of draft, and efficiency in working they cannot be excelled. They possess the following advantages:—

1st, Motion is given to the Cutting Apparatus by toothed gearing, which experience has proved to be by far the best method of driving.

2d, The whole of the Driving Wheels are on one side of the Machine, a point of great importance in preventing damage to Shrubs and Flowers, when mowing round the edges of beds.

3d, All the smaller working parts of the Machine are made of Malleable Iron, and are not liable to break.

☞ *Illustrated Price Lists, with selections from several Thousand Testimonials, Free by Post on application.*

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GREEN'S PATENT SILENS MESSOR,

OR

NOISELESS LAWN MOWING, ROLLING, and COLLECTING MACHINES.

PATRONIZED BY

HER MOST GRACIOUS MAJESTY THE QUEEN
ON TWENTY-NINE DIFFERENT OCCASIONS.
H.R.H. THE PRINCE OF WALES.

THE KING OF THE BELGIANS.
THE EMPEROR OF THE FRENCH.
THE EMPEROR OF RUSSIA.

AND MOST OF THE NOBILITY, CLERGY, AND GENTRY IN THE UNITED KINGDOM.

THOMAS GREEN AND SON, in introducing their PATENT LAWN MOWERS for the present season, beg to state that they have no Novelties to report. The fact is, that after the severe tests their Machines have been subjected to since they added their latest improvements, they have been found to meet all the requirements for which they are intended, viz.:—the KEEPING of LAWNS in the HIGHEST STATE of PERFECTION.

They are the simplest in construction, least liable to get out of order, and can be worked with far greater ease than any other Lawn Mower extant; and in proof of thei superiority, 36,000 have been sold since the year 1856.

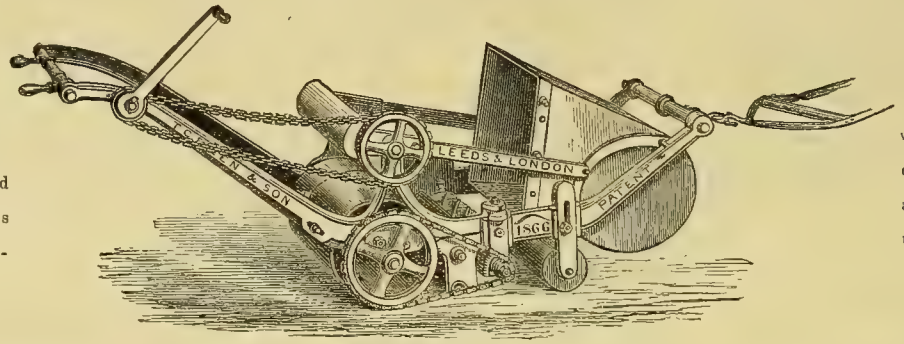
THEY ARE THE ONLY MACHINES IN CONSTANT USE AT

THE ROYAL HORTICULTURAL SOCIETY'S GARDENS, SOUTH KENSINGTON
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MARLBOROUGH HOUSE
THE HYDE PARK GARDENS
THE WINTER PALACE GARDENS, DUBLIN
THE DUBLIN BOTANIC GARDENS
THE LIVERPOOL BOTANIC GARDENS
THE LEEDS ROYAL PARK
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THE BOTANIC GARDENS, BRUSSELS
THE SUNDERLAND PARK
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AND IN MOST OF THE PRINCIPAL PARKS, SQUARES, ETC., IN THE UNITED KINGDOM.

HORSE, PONY, AND DONKEY MACHINE.

GREEN'S
PATENT
LAWN MOWERS
have proved to be the best, and carried off every Prize that has been given in all cases of competition.



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warrant every Machine to give entire satisfaction, and if no approved of can be returned unconditionally.

PRICES of HORSE, PONY, and DONKEY MACHINES, including Patent Self-delivery Box; Cross Stay complete; suitable for attaching to ordinary Chain Traces or Gig Harness.

PONY AND DONKEY MACHINES.

To Cut 26 inches	£13 0 0	*Leather Boots for Donkey*, 18s. *Leather Boots for Pony*, 22s.
,, 28 ,, ...	15 0 0	
,, 30 ,, ...	17 0 0	

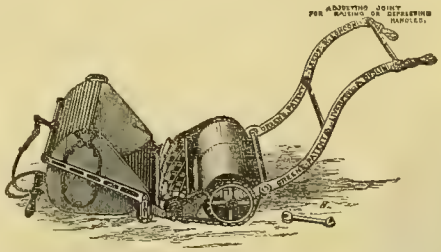
HORSE MACHINES.

To Cut 30 inches	£21 0 0	*Leather Boots for Horse*, 26s.
,, 36 ,, ...	24 0 0	
,, 42 ,, ...	27 0 0	
,, 48 ,, ...	30 0 0	

Both the Horse, Pony, Donkey, and Hand Machines possess (over all other Makers) the advantage of Self-sharpening. The cutters being steel on each side, when they become dull or blunt by running one way round the cylinder, can be reversed again and again, bringing the opposite edge of the cutter against the bottom blade, when the Machine will cut equal to new. Arrangements are made that the cylinder can be reversed, by any inexperienced person, in two or three minutes.

HAND MACHINES.

To Cut 10 inches ..	£3 10 0	*Suitable for a Lady*
,, 12 ,, ..	4 10 0	,, ,,
,, 14 ,, ..	5 10 0	*Suitable for One Person*
,, 16 ,, ..	6 10 0	,, ,,



To Cut 18 inches ..	£7 10 0	*Suitable for One Person*
,, 20 ,, ..	8 0 0	*Suitable for Two Persons*
,, 22 ,, ..	8 10 0	,, ,,
,, 24 ,, ..	9 0 0	,, ,,

Packing Cases are charged at the following low rates, viz.:—for the 10 and 12-inch Machine, 3s.; 14 and 16-inch, 4s.; 18 and 20-inch, 5s.; 22 and 24-inch, 6s. Parties providing themselves with Lawn Mowers are recommended to purchase the cases in which to stow them away, when not in use, to prevent them from getting damaged; if returned, two-thirds will be allowed for them.

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Every Machine is warranted to give entire satisfaction, and if not approved of, can be returned unconditionally.

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☞ *Illustrated Price Lists, and Sheet of Prize Medals awarded to* GREEN'S PATENT LAWN MOWERS, *free on application.*

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NEW LAWN MOWER. THE AUTOMATON.

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HOTHOUSES FOR THE MILLION,

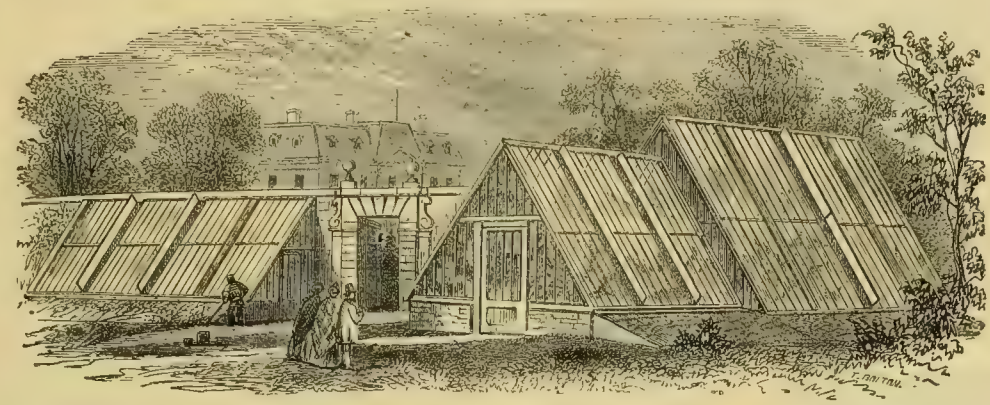
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FULFIL ALL THE REQUIREMENTS OF HORTICULTURE.

"Without any pretence to high finish or elaborate workmanship, which in such structures represent a mere waste of money, they are perfectly well made. Their arrangement is as simple as ingenuity can render them. No rafters obscure the light and make them cumbrous. No sashes have to be pushed up or let down by ever-breaking lines and weights, or by expensive mechanical contrivances; and yet all the ventilation requisite in such buildings is as perfectly secured."—*Dr. Lindley in* "THE GARDENERS' CHRONICLE," *July 28th*, 1860.

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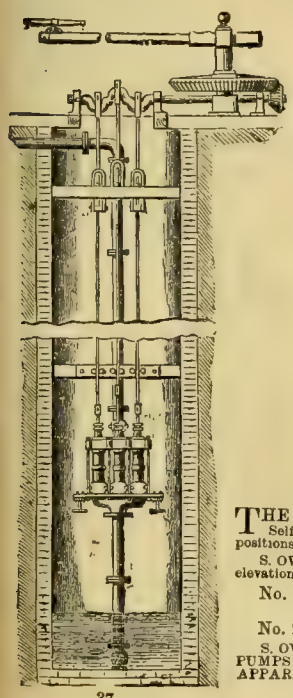
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37.

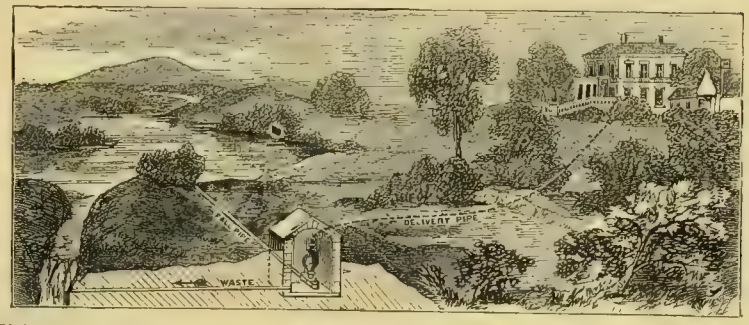
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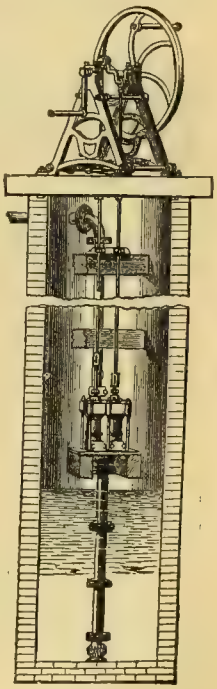
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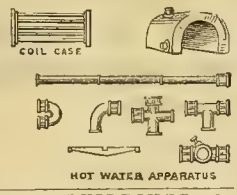
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SADDLE BOILERS.
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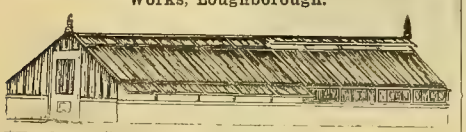
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T. G. MESSENGER, Midland Steam Power Horticultural Works, Loughborough, Hot-Water Apparatus and Valve Manufacturer.
Honourable Mention awarded at the International Exhibition, 1862, and at the Dublin Exhibition, 1865; also a First-class Certificate by the Royal Horticultural Society.
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Any House Glazed single or double, with or without putty.
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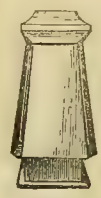


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HOT WATER PIPES, from Stock, per yard:—2-inch, 1s. 2d.; 3-inch, 1s. 10d.; and 4-inch, 2s. 4d. BENDS, from Stock, 1s. 6d., 2s. 6d., and 3s. each. THROTTLE VALVES, 10s., 13s., and 14s. each. Other Connexions at equally low prices, and all goods of first-class manufacture. Estimates given, and orders by post punctually attended to the same day.

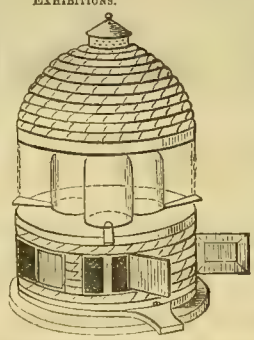


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in.	in.		4ths.	3rds.	2nds.	Best.
20 by 12						
20 by 13		15 oz.	14s 3d	15s 6d	18s 6d	20s 0d
20 by 14	Per 100 feet					
20 by 15		21 oz.	19s 6d	22s 2d	25s 6d	26s 6d
20 by 16						

SMALL SHEET SQUARES, 15 oz., per 100 feet.

in.	in.	in.	in.	in.	in.	4ths.	3ds.	2nds.	Best.
6 by 4	7 by 5	8 by 6	9 by 7						
6½ by 4½	7½ by 5½	8½ by 6½	9½ by 7½	Per 100 feet.		12s 3d	13s 3d	16s 0d	18s 0d
10 by 8	12 by 9	12½ by 10½	14½ by 10½						
10½ by 8½	12½ by 9½	13 by 10	15 by 10						
11 by 9	13 by 9	13½ by 10½	13 by 11			13s 3d	14s 6d	17s 3d	19s 0d
11½ by 9½	12 by 10	14 by 10	14 by 11						

LARGE SHEET SQUARES, 15 oz., per 100 feet.

in.	in.	in.	in.	in.	in.	in.	4ths.	3ds.	2nds.	Best
15½ by 10½	14 by 12	22 by 12	22 by 16							
16 by 10	14½ by 12½	17 by 13	24 by 16							
14½ by 11½	15 by 12	23 by 13	20 by 17							
15 by 11	15½ by 12½	18 by 14	22 by 17							
15½ by 11½	16 by 12	22 by 14	24 by 17				14s 3d	15s 6d	18s 6d	20s 0d
16 by 11	16½ by 12½	24 by 14	20 by 18							
21 by 11	17 by 12	22 by 15	22 by 18							
13 by 12	18 by 12	24 by 15	24 by 18							

The above Prices are only for the Sizes stated; if a quantity of any other Size be required, a Special Price will be given.

SHEET GLASS.
In Sheets for Cutting up, averaging from 6 to 9 feet super.

15 oz.		21 oz.	
4ths quality, per 300 feet case,	38s.	4ths quality, per 200 feet case,	38s.
3ds " "	48s.	3ds " "	48s.
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Best " "	92s.	Best " "	96s

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BRITISH PLATE GLASS for Windows and Silvered for Looking Glasses, Coloured Glass, Glass Shades, Striking Glasses, &c., &c.

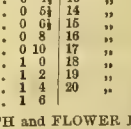
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" OXFORD OCHRE, 3d. to 4½d. per lb.		LINSEED OIL PUTTY, 8s. to 9s. per cwt.	
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DISTEMPER BRUSHES.		OLD LEAD Bought or taken in exchange.	

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3 " " ..	0 4½	13 " " ..	2 0
4 " " ..	0 5½	14 " " ..	2 6
5 " " ..	0 6½	15 " " ..	3 0
6 " " ..	0 8	16 " " ..	3 6
7 " " ..	0 10	17 " " ..	4 0
8 " " ..	1 0	18 " " ..	5 0
9 " " ..	1 2	19 " " ..	6 0
10 " " ..	1 4	20 " " ..	7 0
11 " " ..	1 6		

HYACINTH and FLOWER DISHES.
6 inches diameter .. .. 1s. 0d. | 9 inches diameter 1 0
12 inches diameter .. .. 2s. 6d.
Hyacinth Dishes are intended to contain a number of Roots Bedded in and covered with Moss, instead of the common Hyacinth Glass.
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Four Tubes .. .. 4s. 6d. | Six Tubes .. .. 6s. 6d.
With Stands complete.

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WITH OPEN TOPS.

	Each.—s. d.		Each.—s d.
12 inches	6 6	18 inches	9 6
14 "	7 6	20 "	10 6
16 "	8 6	22 "	11 6
		24 "	12 6

Painted and Glazed with 16-oz. Sheet Glass.
London Agents for HARTLEY'S IMPROVED PATENT ROUGH PLATE.
LINSEED OIL, Genuine WHITE LEAD, CARSON'S PAINTS, PAINTS of various colours, ground ready for use.
SHEET and ROUGH PLATE GLASS, SLATES of all sizes, BRITISH PLATE, PATENT PLATE, ROLLED PLATE, CROWN, SHEET, HORTICULTURAL, ORNAMENTAL, COLOURED, and every description of GLASS, of the best Manufacture, at the lowest terms. Lists of prices and estimates forwarded on application to JAMES PHILLIPS & Co., 180, Bishopsgate Street Without, E.C.

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To be had of every Ironmonger, Hardwareman, and Seedsman in the United Kingdom, and Wholesale of the Sole Licensed Makers, R. P. TAYLOR & COMPANY (late Dray, Taylor & Co.), London Bridge, E.C.

TANNED GARDEN NETTING for preserving Seed Beds, Fruits, Strawberries, from Frost, Blight, Birds, &c., and as a Fence for Fowls, &c. 1 yard wide, 1½d.; 2 yards, 2½d.; 3 yards, 4d.; and 4 yards, 6d. per yard run in any quantity, may be had at Chas. Wright's, 376, Strand, W.C.

TANNED GARDEN NETTING for Seed Beds, and the Protection of Fruit Trees from Frost, Blight, Birds, or as a Fence for Fowls, &c. From 2 to 6 yards wide, at 1d. per square yard; 100 yards, 7s. 6d.; 500 yards, 35s. Carriage paid to any part of England if 1000 yards are taken. Remittance to accompany orders. Christmas Quincy, Seedsman, Peterborough.

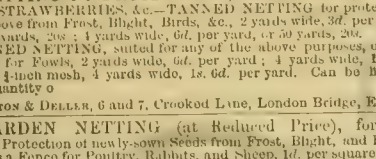
Garden Netting.

JOHN EDGINGTON AND CO. supply TANNED NETTING for the Protection of Fruit Trees, 1d. per square yard. Any quantity. SCRIM CANVAS, &c.; TULIP COVERS and GREENHOUSE SHADES, SUN BLINDS, &c. MARQUEES, TENTS, and FLAGS for FETES, FLOWER SHOWS, &c.
John Edgington & Co., (Tent Makers to the Royal Family), 48, Long Lane, Smithfield, E.C. and 18, Piccadilly, W.

NETTING for FRUIT TREES, SEED BEDS, RIPE STRAWBERRIES, &c.—TANNED NETTING for protecting the above from Frost, Blight, Birds, &c., 2 yards wide, 3d. per yard, or 100 yards, 20s.; 4 yards wide, 6d. per yard, or 50 yards, 20s. NEW TANNED NETTING, suited for any of the above purposes, or as a Fence for Fowls, 2 yards wide, 6d. per yard; 4 yards wide, 1s. per yard; 1-inch mesh, 4 yards wide, 1s. 6d. per yard. Can be had in any quantity o
Eaton & Deller, 6 and 7, Crooked Lane, London Bridge, E.C.

GARDEN NETTING (at Reduced Price), for the Protection of newly-sown Seeds from Frost, Blight, and Birds; also as a Fence for Poultry, Rabbits, and Sheep, 1d. per square yard, carriage free, in quantities of 250, 500, or 1000 yards.
SCRIM CANVAS, for Wall Fruit, Greenhouse Shades, Tulip Covers.
HAYTHORN'S and WALLER'S NETTINGS, sample of material free on application.
PERUVIAN GUANO, and every other kind of Artificial Manure in Stock. Be particular.
Frederick Edgington & Co., Marquee, Tent, Flag, and Rick Cloth Manufacturers, 99 and 62, Old Kent Road, London, S.E.
A Liberal Discount to the Trade.

GALVANISED WIRE NETTING, GALVANISED IRON BUILDINGS and MANUFACTURES.



Croggon & Co, 34, Bread Street, London, E.C.; 2, Goree Piazzas, Liverpool; 59, George Square, Glasgow.

SHAW'S TIFFANY,
For samples and prices apply to
J. Shaw & Co., 29, Oxford Street, Manchester.

FOWLER'S PATENT STEAM PLOUGH and CULTIVATOR may be SEEN at WORK in every Agricultural County in England.
For particulars apply to Joan Fowler & Co., 71, Cornhill, London, E.C.; and Steam Plough Works, Leeds

W. S. BOULTON'S 36-gallon SWING WATER BARROW. Price 45s.
Carriage paid to any Station in England.





The above is very cheap and invaluable for carrying Liquids of all kinds. No Garden, Farm, Stable, or Kitchen Yard should be without one. Two or more Tubs can be had with one Carriage at a small additional cost. A Lad can easily work it; but if required to travel long distances over rough ground a Pony can be attached. The wheels and carriage are wrought iron, and the tub oak. The following, out of many Testimonials, have been received:—

From Lord Otho Fitzgerald, *West Park, Salisbury.*

"Sir,—You are welcome to make use of my letter recommending your Water Barrow. I find it of great use, and stronger, better, lighter, and more serviceable than one I had made in the neighbourhood, the carriage alone of which, without the barrel, cost me £3 10s. I unfortunately ordered it before I saw your advertisement. —I am, yours obediently, "O. Fitzgerald."
"To Mr. W. S. Boulton."

From Thos. Ingle, Esq., *M.D., Emsworth, Hants, June* 24, 1866.

"Sir,—The Swing Water Barrow is in every respect a most admirable improvement on all I have hitherto used in my Gardens. All parties who have seen it, Gentlemen as well as Gardeners, have bestowed upon it their unqualified approval, and several said they would order them of you.—Yours truly, "Thos. Ingle, M.D."
"To Mr. W. S. Boulton."
Rose Lane Iron and Wire Works, Norwich.

The Gardener's Watch.

PATENT LEVER WATCH in Engine-turned Silver Case, with all the latest improvements, jewelled, seconds hand, strong, and calculated for hard wear, 4l. 14s. 6d.
The same Watch in Hunting Cases, 5l. 5s.
STRONG SILVER ALBERT and GUARD CHAINS.
The above being Manufactured on the Premises, are with confidence recommended and warranted for correct performance.
Illustrated Pamphlet, and all particulars gratis, on application to Goldsmiths' Alliance (Limited), 11 & 12, Cornhill, London, E.C.

Breakfast.

EPPS'S COCOA (also called EPPS'S HOMŒOPATHIC COCOA).—The very agreeable character of this preparation has rendered it a general favourite. Invigorating and sustaining, with a refined and grateful flavour, developed by the special mode of preparation applied, this Cocoa is used as their habitual beverage for breakfast by thousands who never used Cocoa before. "Cocoa stands very much higher than Tea or Coffee," Dr. Hassall says, "and contains every ingredient necessary to the growth and sustenance of the body."
It is made simply by pouring boiling water or milk on the Preparation as sold. ¼ lb., ½ lb., and 1 lb. Packets.

E. T. ARCHER'S "FRIGI DOMO."
Patronised by Her Majesty The Queen, the Duke of Northumberland for Syon House, His Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, &c.
PROTECTION from COLD WINDS and MORNING FROSTS.
"FRIGI DOMO," a Canvas made of Patent prepared Hair and Wool, a perfect Non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all Horticultural and Floricultural purposes, for Preserving Fruits and Flowers from the Scorching Rays of the Sun, from Wind, from Attacks of Insects, and from Morning Frosts. To be had in any required lengths.

Two yards wide	1s. 9d. per yard run.
Four yards wide	3s. 6d. per yard.
An improved make, 2 yards wide ..	1s. 9d. per yard.
An improved make, 3 yards wide ..	2s. 8d. per yard run. Also

"FRIGI DOMO" NETTING, 2 yards wide, 1s. 6d. per yard run.
Elisha Thomas Archer, Wholesale and Sole Manufacturer, 7, Great Trinity Lane, Cannon Street, City, E.C., and of all Nurserymen and Seedsmen throughout the Kingdom
"It is much cheaper than Mats as a covering."

Winter Ribbon Garden.

JOHN ROSS, Surbiton, Surrey, W., is prepared to LAY OUT every description of PLEASURE GROUND SCENERY. Photographs of Ribbon Planting may be had for inspection as above.

JOHN GIBSON, Jun., begs to announce that he is prepared to Furnish PLANS and ESTIMATES for LAYING OUT GROUND attached to Mansions and Villa or other Residences, or for the FORMATION of PUBLIC PARKS or GARDENS and to carry out the same by Contract or otherwise.
Address Mr. John Gibson, jun., Surrey Lane, Battersea, S.W.

Farm Poultry.

GREY DORKING FOWLS, of purest breed, in any numbers.
Imported TOULOUSE GEESE, the largest and most productive breed known.
Improved NORFOLK TURKEYS, large, hardy, and good breeders.
AYLESBURY and ROUEN DUCKS.
Imported BELGIAN HARE RABBITS, for size and early maturity.
BRAHMA-POUTRA, CREVECŒUR, and LA FLECHE FOWLS, for constant layers.
Priced Lists and Estimates on application.
John Baily & Son, 113, Mount Street, London, W.

WANTED to RENT, a SMALL NURSERY and SEED BUSINESS, or a small place where there is an opening to commence business. Address,
Alpha, Messrs. Nutting & Sons, 60, Barbican, London, E.C.

FOR DISPOSAL, a First-class NURSERY and SEED BUSINESS; or the present Proprietor would accept of a WORKING PARTNER with a Capital of not less than £1500.
Apply by letter to E., Messrs. Hurst & Son, 6, Leadenhall Street, London, E.C.

Sales by Auction.

Sale of Choice Greenhouse and Bedding Plants, Carnations, Picotees, and Pinks, &c.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at 38 and 39, Gracechurch Street, City, E.C., on THURSDAY, May 2, at 1 o'Clock precisely, a first-class Collection of CARNATIONS, PICOTEES, and PINKS; fine AZALEA INDICA, Show, Scarlet, and Variegated Geraniums, Roses in Pots, and other Plants in bloom; American Plants; imported and other Flower Seeds; with a variety of Ornamental Plants for Bedding; Verbenas, Fuchsias, Dahlias, &c.
On view the Morning of Sale. Catalogues may be had at the Rooms as above, and of the Auctioneers and Valuers, Leytonstone, Essex, N.E.

PRELIMINARY NOTICE of FORTHCOMING SALES by PROTHEROE AND MORRIS.
MAY 9.—Exotic Nursery, Shepherd's Bush. Important to the Trade. 30,000 Greenhouse and Bedding Plants.
MAY 17.—The Nursery, High Beech, Essex. About 20,000 choice Greenhouse and Bedding Plants.
MAY 21 & 22.—The Old Dalston Nursery, by order of Mr. Harrington. The whole of the Greenhouse and Bedding Plants, with eight Greenhouses, several ranges of Pits, Boxes, Hot-water Piping, Boilers, &c.
MAY 28.—Ramsgate. Whole of the Bedding and Greenhouse Plants.
The City Auction Rooms, 38 and 39, Gracechurch Street, City, E.C. Sales of Bedding and Greenhouse Plants weekly.

Clapham Common. Camellias & Greenhouse Plants.

MESSRS. BLAKE will SELL by AUCTION, at the Residence of the late R. C. Bowden, Esq. (near the Spring Well), on THURSDAY, May 2, at 2 for 3 o'Clock, a Collection of 50 CAMELLIAS, including some very fine specimens, AZALEAS, HEATHS, and other Greenhouse Plants, and a quantity of Bedding Out Plants.
May be viewed two days before the Sale, and Catalogues had of Ambrose Sadler, the Gardener at the premises; of Mr. Loat, Estate Agent, Balham Hill: and of Messrs. Blake, Croydon.

Ember Nursery, Thames Ditton,

A few minutes' walk from the Railway Station at Thames Ditton, and a short distance from Esher Station.

MR. KERMOCK is instructed by Mr. Lewis to SELL by AUCTION, upon the Premises, on MONDAY, May 6, at 12 for 1 o'Clock precisely, about 20,000 BEDDING PLANTS, comprising Scarlet Geraniums, Verbenas, Calceolarias, Heliotropes, Petunias, &c.; a choice Collection of about 5000 Pelargoniums, 1000 Fuchsias, 500 Fairy Roses, &c.; also a powerful Tubular Hot-house Boiler, nine handsome Speckled and White Fowls, &c.
Purchasers of lots to the amount of 40s. can have them delivered free within three miles of Ember Nursery.
To be viewed after May 1, when Catalogues may be had on the Premises; at the Auctioneer's Offices, Kingston, S.W., who will also forward the same, on application, by post.

Burnham, Bucks. Eligible Freehold Estate.

MESSRS. BUCKLAND AND SONS are instructed by the Executors of Mr. James Austin, deceased, to SELL by AUCTION, on MONDAY, May 6, at 1 for 2 o'Clock, at the Auction Mart, Tokenhouse Yard, London, E.C., a very desirable FREEHOLD ESTATE, comprising a modern built Residence, with Barn, Stable, Packing Sheds, and large Vinery, together with about 6 Acres 2 Roods 28 Perches of rich soil, cultivated as a Market Garden, thickly stocked with well selected Fruit Trees, with good under crop of Gooseberries, Currants, Raspberries, &c. This eligible property is beautifully situated on a rising ground on the entrance to the Town of Burnham, about 22 miles from London, with southern aspect, commanding a fine view of Windsor Castle and the adjacent scenery. Well adapted for the erection of a good Residence, being in the vicinity of Dropmore, Burnham Beeches, and Cliveden, and the picturesque villages of Stoke, Farnham Royal, and Taplow; within about 1 mile of the Maidenhead Station on the Great Western Railway, and 4 miles of Windsor Castle and Eton College.
May be viewed on application to the Tenant. Particulars and Conditions of Sale may be had at the Bear Hotel, Maidenhead; Crown Hotel, Slough; at the Auction Mart, London, E.C.; of George A. Charsley, Esq., Solicitor, Beaconsfield; and of Messrs. Buckland & Sons, Auctioneers and Estate Agents, Windsor.

Coleby Hall, near Lincoln.

Important Sale of Short-horned Cattle.

MR. STRAFFORD begs to announce that he has received instructions from Geo. Bland, Esq., to SELL by AUCTION, without reserve, on THURSDAY, the 9th of May next, at Coleby Hall, near Lincoln, his entire and very superior HERD of SHORT-HORNED CATTLE, consisting of nearly 70 Head of Bulls, Cows, and Heifers, that have been bred from the most fashionable sources. Bulls of high character and breeding have been used, such as Lord Raglan (14,849), Victor (21,025), The Baronet (17,088), Knight Errant (18,154), and Lord Red Rose (22,205). The Young Stock, chiefly by Grand Duke 6th (19,876), are particularly good, and reflect great credit upon this distinguished sire, who is now in service.
Catalogues with Pedigrees may be had on application to Mr. Strafford, 13, Euston Square, London; or of Mr. Bland, at Coleby Hall, near Lincoln.

Valuable Imported Orchids from Guatemala, New Grenada, and North Australia.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on MONDAY, April 29, Eleven Cases of valuable ORCHIDS, just arrived from Guatemala, comprising extraordinarily fine specimens collected by order of the late Mr Skinner, to be ready on his arrival at Guatemala for him to select from and send home. Also a quantity of fine imported Odontoglossum triumphans and Pescatorei from New Grenada, and a fine lot of Dendrobium Pattonense and another species from North Australia.
May be viewed on the Morning of Sale, and Catalogues had.

Importation of Orchids from Moulmein, and Lilium auratum from Japan.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, May 1, at half-past 12 o'Clock precisely, 4 CASES of VALUABLE ORCHIDS, just arrived from Moulmein, comprising Dendrobiums, Cypripediums, Saccolabiums, Aerides, Calanthes, &c.; also a large number of LILIUM AURATUM, just arrived per sailing vessel from Japan. All for Sale without reserve.
On view the Morning of Sale, and Catalogues had.

Choice and Large Collection of Orchids.

MR. J. C. STEVENS has been instructed to SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., without reserve, on THURSDAY and FRIDAY, the 2d and 3d of May, the entire COLLECTION of CHOICE ORCHIDS belonging to Geo. Cooper, Esq., of Alpha House, Coburg Road, Camberwell, owing to his giving up the growth in consequence of his removing into Kent. The Plants consist of all the leading and newest varieties, including:—

Aerides Fieldingii
" maculosum
" Lobbii
" Lindleyanum
" Larpentæ
" quinquevulnerum
" roseum superbum
" virens superbum
Cattleya amethystoglossa
" Trianæi
" Mossiæ
" labiata
" maxima
" superba
Cypripedium caudatum
" Hookeri
" Lowii
Dendrobium chrysotoxum
" clavatum
" densiflorum album
" eburneum
" heterocarpum
" Cambridgeanum
" thyrsiflorum
Lælia elegans
" purpurata
" autumnalis
" Walkeriana
Odontoglossum Alexandræ
" Bluntii
" citrosmum
Odontoglossum Dawsoni
" gloriosum
" luteo-purpureum
" Insleayi
" Pescatorei
" pulchellum majus
" radiatum
" grande
Oncidium ampliatum majus
" crispum grandiflorum
" " " marginatum
" Lanceanum
Phalænopsis grandiflora
" amabilis
" roseus
" Luddemanniana
" Schilleriana
Peristeria elata
Saccolabium guttatum splendens
" premorsum
" Blumei majus
" Reidii
" retusum
" violaceum
Trichopilia suavis
Vanda cœrulea
" Batemanni
" gigantea
" insignis
" tricolor
" suavis, &c.
On view the Mornings of Sale, and Catalogues had.

Highly Important Sale of Established Orchids.

MR. J. C. STEVENS begs to announce that he has been favoured with instructions to SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, May 9, at half-past 12 o'Clock precisely, some unusually fine Specimens and Choice Varieties of ESTABLISHED ORCHIDS, being duplicates from the renowned Collection of S. Rucker, Esq., of West Hill, Wandsworth, including:—

Aerides Larpentæ
" Fieldingii
Cypripedium caudatum
Dendrobium Wardii
Cattleya labiata
" labiata speciosa
Trichopilia crispa
Miltonia candida grandiflora
Odontoglossum Phalænopsis
" nævium majus
Calanthe Veitchii
Cymbidium eburneum

And many other fine species all in the finest possible health; also some duplicates from the well-known Collection of J. Day, Esq., of Tottenham, including fine Plants and first-class varieties of the following RARE ORCHIDS:—

Angræcum sesquipedale
Aerides affine
" Larpentæ
" Dayanum
" quinquevulnerum
Cattleya amethystoglossa
" Exoniensis
" labiata
" superba
Cœlogyne cristata
Cypripedium Lowii
" Dayanum
" Stonei
" lævigatum
Dendrobium Devonianum
" lituiflorum
" Farmeri
Dendrochilum filiforme
Lælia crispa superba
Lælia elegans
" Schilleriana splendens
Maxillaria venusta
Miltonia Regnelli
Odontoglossum Bluntii
" Pescatorei
" nebulosum
" Uro Skinneri
Phalænopsis amabilis
" Schilleriana
" Luddemanniana
Pleione lagenaria
" humilis
" maculata
" Wallichii
Saccolabium guttatum
" ampullaceum
Vanda cœrulea
&c., &c.
On view the Morning of Sale, and Catalogues had.

Preliminary Notice.

Highly Important Sale of Established Orchids.

MR. J. C. STEVENS begs to announce that he has been favoured with instructions to SELL by AUCTION, without reserve, at his Great Rooms, 38, King Street, Covent Garden, W.C., on TUESDAY and WEDNESDAY, May 14 and 15, at half-past 12 o'Clock precisely each day, the Collection of CHOICE and RARE ORCHIDS belonging to Dr. Pattison, of St. John's Wood, consisting of fine healthy plants of all the newest and rarest varieties, including:—

Aerides Fieldingii
" Larpentæ
" maculosum superbum, &c.
Angræcum sesquipedale
Cattleya amethystoglossa
" pallida
" bulbosa a. Walkeriana
" Warscewiczii superba, dellecta, &c.
Cypripediumcaudatumsuperbum
" Fairrieanum
" Lowii
" Stonei
" Veitchii [gigauteum
Dendrobium macrophyllum
" Farmeri aureum flavum
" Cambridgeanum
" nobile pendulum
" Parishii
" primulinum giganteum
" Heyneanum, Blandum, &c.
Lælia majalis
Lælia autumnalis
" Brysiana
Odontoglossum Alexandræ
" cordatum
" luteo-purpureum
" Phalænopsis
" nævium majus, &c.
Oncidium macranthum
" nubigenum
" holochrysum
" cruentum, &c.
Phalænopsis amabilis
" grandiflora (Bornean and Philippine varieties)
" Luddemanniana
" Schilleriana
Vanda cœrulea
" insignis
" suavis
" tricolor, &c.
Uropedium Lindleyanum
Zygopetalum rostratum, &c.
On view the Mornings of Sale, and Catalogues had.

Chesfield Manor Farm, Stevenage, Herts,

On the Great Northern Railway.

MESSRS. PAGE, HARDING, AND EVE have received Instructions from J. Bailey Denton, Esq., who is quitting the above Farm, to SELL by AUCTION, on THURSDAY, May 16, at 12 o'Clock, the very Choice Herd of pure-bred SHORT-HORNS, consisting of about 35 Cows, Heifers, and Bulls, in fine healthy condition, and possessing some of the best blood in the country. Also a Flock of superior SHROPSHIRE DOWN Ewes and Lambs, and four Rams; and some well-bred Breeding PIGS.
Catalogues, with Pedigrees of the Herd, may be had on application to Messrs. Page, Harding, & Eve, Land Agents, Surveyors, and Auctioneers, St. Alban's, Hitchin, and Silsoe; or to Mr. Hutchinson, at the Farm, who will show the Stock.

SHANKS' NEW PATENT LAWN MOWERS FOR 1867.

PATRONIZED ON FIVE OCCASIONS DURING THE SEASON OF 1864 BY

HER MAJESTY THE QUEEN,

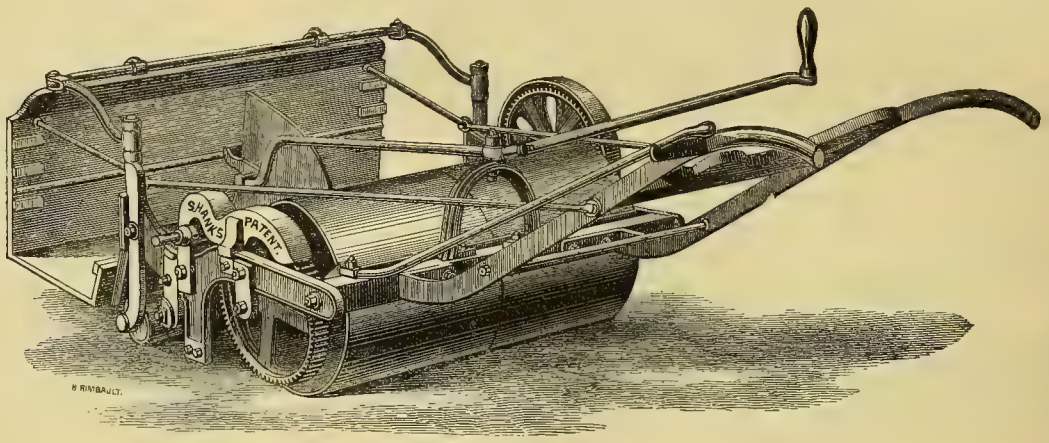
AND ONCE BY HIS MAJESTY THE KING OF SAXONY.

DURING THE SEASON OF 1865 THEY WERE PATRONISED ON FOUR OCCASIONS BY HER MAJESTY THE QUEEN,

ONCE BY HIS MAJESTY THE KING OF HOLLAND, AND ONCE BY HIS MAJESTY THE KING OF PRUSSIA.

AGAIN ON FOUR OCCASIONS DURING THE SEASON OF 1866 BY HER MAJESTY THE QUEEN,

AND BY MANY DISTINGUISHED NOBILITY BOTH IN THIS COUNTRY AND ABROAD.



HORSE-POWER MACHINE.

Every minute point in the way of improvement has been carefully considered and adopted, and as A. S. AND SON have for more than a quarter of a century devoted their attention to this particular branch of their business, the Nobility, Gentry, and Gardeners may rely on the MACHINES they may order, to be such as to ensure lasting satisfaction, and to stand the wear and tear of many years.

SHANKS' PATENT LAWN MOWERS

ARE IN DAILY USE IN

ALL THE ROYAL GARDENS; IN THE HORTICULTURAL SOCIETY'S GARDENS AT KENSINGTON; CRYSTAL PALACE COMPANY'S GROUNDS; IN VICTORIA PARK; HYDE PARK;

And in almost all the principal Public Parks and Gardens in the Kingdom.

These are the only Machines that can be depended on to give lasting satisfaction.

THESE ARE THE ONLY MACHINES THAT WILL MOW PROPERLY WHEN THE GRASS IS WET.

THESE ARE THE ONLY MACHINES THAT DELIVER THE GRASS WITHOUT STOPPING, THUS SAVING AN IMMENSE AMOUNT OF LABOUR.

SHANKS' PATENT LAWN MOWERS are the only Machines that have been in operation in Her Majesty's Gardens for a quarter of a century.

Shanks' Patent Lawn Mower will Mow on uneven as well as on level Lawns.

ALEXANDER SHANKS AND SON, in referring to their IMPROVED LAWN MOWERS for 1867, doubt not but that the preference which in past years has invariably been given to their Machines will still be awarded them. The principles which guide A. S. AND SON in effecting improvements compel their Machine ever to stand the first in point of general efficiency, simplicity of construction, and durability.

A. S. AND SON have particularly aimed at substituting Wrought for Cast Iron to as great an extent as possible in the construction of their Machines. None but skilled Workmen and the most improved Machinery are employed in manufacturing the various parts, and this applies not only to the Horse and Pony, but also to the Hand Machines.

A. S. AND SON have now ready for delivery a large stock of their celebrated LAWN MOWERS, which will enable them to execute orders on the day they are received.

PRICES, INCLUDING CARRIAGE TO ANY RAILWAY STATION OR SHIPPING PORT IN THE KINGDOM.

SHANKS' NEW PATENT HAND MACHINE.

Width of Cutter.		Easily Worked	Silent Movement.
10-inch Machine	£3 10 0	*By a Lady*	4*s.* extra.
12-inch Machine	4 10 0		
14-inch Machine	5 10 0	*By a Boy*	

Width of Cutter.		Easily Worked	Silent Movement.
16-inch Machine	£6 10 0	*By a Man or Two Boys*	4*s.* extra.
19-inch Machine	7 12 6	*By a Man and Boy*	
22-inch Machine	8 7 6	*By Two Men* ..	7*s.* 6*d.* extra.
24-inch Machine	8 17 6		

SHANKS' NEW PATENT PONY and DONKEY MACHINE.

Width of Cutter.		If with Patent Delivering Apparatus.
25-inch Machine	£12 10 0	.. .. 25*s.* extra.
28-inch Machine	14 10 0	.. .. 30*s.* ,,
30-inch Machine	15 15 0	.. .. 30*s.* ,,

Silent Movement, 12*s.* 6*d.* extra; Boots for Pony, 22*s.* per set
Ditto for Donkey, 18*s.* per set.

SHANKS' NEW PATENT HORSE MACHINE.

Width of Cutter.		If with Patent Delivering Apparatu
30-inch Machine	£19 0 0	.. .. 30*s.* extra.
36-inch Machine	22 0 0	.. .. 30*s.* ,,
42-inch Machine	26 0 0	.. .. 40*s.* ,,
48-inch Machine	28 0 0	.. .. 40*s.* ,,

Silent Movement, 20*s.* extra; Boots for Horse's Feet, 26*s.* per set.

The Machines are warranted to give ample satisfaction, and, if not approved of, may be at once returned.

PATENTEES AND SOLE MANUFACTURERS:

ALEXANDER SHANKS AND SON, DENS IRON WORKS, ARBROATH, N.B.

LONDON OFFICE and SHOW ROOMS, 27, LEADENHALL STREET, E.C.

☞ 27, *Leadenhall Street is the only place in London where intending purchasers of Lawn Mowers can choose from a Stock of from* 150 *to* 200 *Machines. All sizes kept there, whether for Horse, Pony, or Hand Power.*

Editorial Communications should be addressed to "The Editor," Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
Printed by JAMES MATTHEWS, at the Office of Messrs. BRADBURY, EVANS, & Co., Lombard Street, Precinct of Whitefriars, City of London, in the Co. of Middlesex, and Published by the said JAMES MATTHEWS, at the Office, No. 41, Wellington Street, Parish of St. Paul's, Covent Garden, in the said County.—SATURDAY, April 27, 1867.

THE GARDENERS' CHRONICLE
AND
AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.

No. 18.—1867.] SATURDAY, MAY 4. {Price Fivepence. STAMPED EDITION, 6d.

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Cabbage, wild	460 a	Short-horns	467 c, 468 c, 474 b
Dairies, Danish	470 a	Society, Royal Horticultural	462 c
Education, agricultural	474 b	— Royal Botanic	463 a
Evergreens, transplanting	462 a	— Botanical of Edinburgh	463 a
Farm, walk over my	468 c	— Linnean	463 b
Ferns, New Zealand	462 a	— Entomological	463 b
Food committee	468 b	— Royal Agricultural	467 b
Fungi as food	460 a	— Highland	473 a
Game	472 a	Soils, light and heavy	471 a
Gardening, spring	462 a—465 a	Sorghum	472 b
Grapes, large bunches of	462 a	Transplanting evergreens	462 a
— ripe, in March	462 b	Trees, Australian	462 c
Labourers, Russian	468 b	Tulips, early	460 a
Land question, Irish	469 a	Vines bleeding	462 c
Mangel in Ireland	472 c	Vine growing	460 c—462 a
Meadows, sewaged	468 b	Window flowers	466 a
Orchids, terrestrial	459 b		

ROYAL HORTICULTURAL SOCIETY, SOUTH KENSINGTON, W.
SPECIAL PRIZE SHOW of NEW PLANTS, &c., on TUESDAY NEXT, May 7. Band from 3.30. Admission by Tickets purchased prior to the 7th. Fellows' Friends, 2s. 6d.; Public, 3s. 6d.; or on the day, 5s.

ROYAL BOTANIC SOCIETY'S GARDENS, Regent's Park.—EXHIBITIONS of PLANTS, FLOWERS, and FRUIT, WEDNESDAYS, May 29, June 19, and July 3. Tickets to be obtained at the Gardens by orders from Fellows of the Society. Saturday, May 18, is the last day for the 4s. Tickets, and the Fellows' Packets for £5 5s.

WEST LONDON ROSE SHOW, Open to All.—The above Exhibition will be held at EALING, on JUNE 11. Schedules may be obtained. G. YOUNG, Hon. Sec.
Sanderling House, High Street, Ealing, London, N.W.

READING HORTICULTURAL SOCIETY. — The SPRING SHOW will be held on THURSDAY, May 23, by permission of the Mayor, in the ABBEY RUINS. A Military Band will attend. Schedules of Regulations and Prizes may be obtained on application to the Secretary, CHARLES COLLINS, 34, Chain Street.

THE BRISTOL, WEST of ENGLAND, and SOUTH WALES CHRYSANTHEMUM, AUTUMNAL FLOWER, PLANT, and FRUIT SOCIETY.—The Schedule of Prizes offered by the above Society for the coming season, can now be had on application to the Nurserymen in Bristol and Clifton, or of the Honorary Secretary, J. HOBBS, 10, Corn Street, Bristol.

WILLIAMS' SUPERB STRAIN of PRIMULA. See large Advertisement.

NEW DOUBLE FUCHSIA, EXTRAORDINARY.—A most distinct and desirable variety. Plants ready in May, 5s. each. JNO. JEFFERIES & SON, Royal Nurseries, Cirencester.

GERMAN FLOWER SEEDS.—Superb Varieties of Aster, Stock, Balsam, Wallflower, Phlox Drummondii, Portulaca, Larkspur, Zinnia, &c For prices, see DESCRIPTIVE SEED LIST. RICHARD SMITH, Seed Merchant, Worcester.

EVERY GARDEN REQUISITE kept in Stock at CARTER'S New Seed Warehouse, 237 & 238, High Holborn, London.

PELARGONIUMS, 24 good distinct kinds for 16s.; 36 do. for 23s.; 50 do. for 30s. The above are all good healthy Plants. Trade price per 100, or otherwise on application. CATALOGUES post free.
H. & R. STIRZAKER, Skerton Nurseries, Lancaster.

NEW ZONAL PELARGONIUMS for the present Season.—For Six choice Varieties of the above, selected with great care from an immense batch of Seedlings, see our Advertisements in the "Journal of Horticulture."
A liberal discount to the Trade.
SALTMARSH & SON, Moulsham Nurseries, Chelmsford.

TEN THOUSAND BEDDING GERANIUMS, consisting of Tom Thumbs, Punch, Vivid, Stella, Bijou, &c. 4000 ZONAL GERANIUMS, selected from the best varieties of the last few seasons. Price on application to WILLIAM COCKS, Old Nurseries, Donington, near Spalding.

CHOICE BEDDING GERANIUMS.—Italia Unita, Luna, Sunset, Mrs. Pollock, Crystal Sea, Le Grand, Amy Hogg, Venus, Indian Yellow, Glowworm, Orange Nosegay, Enamel. The above twelve varieties, in strong healthy plants for 12s. Terms cash. THOMAS PESTRIDGE, The Greenway Nursery, Uxbridge, Middlesex.

CAMELLIAS, AZALEAS, and ORANGE TREES, a fresh importation.—A large collection of BRITISH FERNS, established in pots, 6s. per dozen. EXOTIC FERNS, CLIMBING and other PLANTS, FERN CASES, AQUARIUMS, &c.
R. GREEN, The Bedford Conservatory, Covent Garden Market, W.C.

Clianthus Dampieri.

BUTLER, McCULLOCH, AND CO. have to offer a quantity of the above Seed, just received in splendid condition, at 1s. and 2s. 6d. per packet. Price to the Trade on application.
South Row, Covent Garden Market, W.C.

NEW ROSES for 1867.—Strong Plants of all the best NEW ROSES now ready.
DESCRIPTIVE LIST, with prices, on application.
JOHN CRANSTON, King's Acre Nurseries, near Hereford.

CULTURAL DIRECTIONS for the ROSE. Second Edition. By JOHN CRANSTON, King's Acre Nurseries, near Hereford. Free by post from the Author for 20 stamps.

THE CHOICEST 12 NEW ROSES for 1867, with strong healthy growth, unusually fine plants, so soon as weather permits. Price 42s. per dozen.
RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

ROSES, good plants in Pots.—All the choice named varieties of TEA-SCENTED, CHINA, BOURBON, NOISETTE, and HYBRID PERPETUALS, in 24 and 30-sized pots, our selection, 12 varieties, 8s.; 25 for 14s., 50 for 26s., and 100 for 50s.
Trade price on application.
H. & R. STIRZAKER, Skerton Nurseries, Lancaster.

ROSES.—One MARECHAL NIEL and 24 other strong plants (some in bloom) of choice Tea, Noisette, Bourbons, and Hybrid Perpetual Roses, in 48 and 32-pots, for Two Guineas. Purchaser's selection from printed List, which can be had on application. The same quantity a size smaller for 30s.
THOMAS S. WARE, Hale Farm Nursery, Tottenham, Middlesex.

GLADIOLI BULBS, for Summer, Autumn, and Winter Flowering, 2s. 6d., 3s. 6d., 5s. 6d., 7s. 6d., 9s., and 12s. per dozen. 10s. 6d., 15s., 21s., 25s. to 100s per 100.
BARR & SUGDEN, Seed, Bulb, and Plant Merchants, 12, King Street Covent Garden, W.C.

Genuine Garden and Agricultural Seeds.

JAMES CARTER AND CO., SEED FARMERS, MERCHANTS, and NURSERYMEN, 237 & 238, High Holborn, London, W.C.

Genuine Agricultural and Garden Seeds.

JAMES FAIRHEAD AND SON, 7, Borough Market, and Braintree, Essex.
LISTS and Special Prices on application.

JAMES FAIRHEAD AND SON, SEED GROWERS and MERCHANTS, 7, Borough Market, London, S.E.
New and Genuine AGRICULTURAL, GARDEN, and FLOWER SEEDS. Special prices and advantageous offers on application.

Bedding Plants, mostly 2s. per dozen.

J. SCOTT, Merriott, Somerset, for the 17th year offers his unrivalled Collection of the above.
CATALOGUES on application free.

Bedding Plants.

ARCHIBALD HENDERSON'S DESCRIPTIVE PRICED CATALOGUE is now ready, containing many Novelties. Can be had gratis and post free upon application.
Sion Nursery, Thornton Heath, S., and at the East Surrey Seed Warehouse, College Grounds, North End, Croydon.

Genuine Garden Seeds.

WM. CUTBUSH AND SON'S CATALOGUE of VEGETABLE, FLOWER, and FARM SEEDS, post free on application. Highgate, London, N.

Plants for the Season.

CHARLES TURNER'S DESCRIPTIVE SPRING CATALOGUE of BEDDING PLANTS, FLORIST'S FLOWERS, &c., is now ready, and may be had on application.
The Royal Nurseries, Slough

New Chrysanthemums, Pyrethrums, &c.

JOHN SALTER'S DESCRIPTIVE CATALOGUE is now ready, and will be sent on receipt of two postage stamps.
Versailles Nursery, William Street, Vale Place, Hammersmith, W. (near Kensington Railway Station).

LOBELIA MISS MURPHY (USHER'S).—A compact-growing variety, producing thousands of "pure white" flowers; obtained First-class Certificate R.B.S., and sent out by us last year. Fine plants from cuttings, 4s. per dozen, or 25s. per 100.
MARTIN & SON, 7, Market Place, Hull.

New General Catalogue of Plants.

A. VAN GEERT, NURSERYMAN, Ghent, Belgium, begs to announce that his NEW GENERAL CATALOGUE of PLANTS is just published, and may be obtained on application from his Agents,
Messrs. R. SILBERRAD & SON, 5, Harp Lane, London, E.C.

New Spring Catalogue.

WOOD AND INGRAM'S Select CATALOGUE of Dahlias, Pelargoniums, Zonal and Variegated Geraniums, Verbenas, Fuchsias, Bedding Plants, &c., is now ready, and will be forwarded on application.
The Nurseries, Huntingdon.

To the Trade.—Verbenas.

WM. KNIGHT begs to offer 20,000 VERBENAS, strong plants, in about 24 of the best varieties known, including the best new of last season, at 16s. per 100. Terms cash.
Floral Nursery, Hailsham, Sussex.
Post-office Orders payable at Hailsham.

CASTLE KENNEDY FIG.—Plants of the above may now be had at 10s. 6d. and 21s. each; the usual discount to the Trade. PETER LAWSON & SON, Edinburgh and London.

Orchard-house Trees Fruiting in Pots.

PEACHES, NECTARINES, APRICOTS, CHERRIES, PLUMS, PEARS, APPLES, VINES, and FIGS.
RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

WELLINGTONIA GIGANTEA.—Wanted, One or Two very fine Specimens; if grown in tubs will be preferred. WANTED ALSO, a quantity of fine SPECIMEN PLANTS, any size up to 20 feet. Must be very good and cheap.
Apply to Mr. CLAPHAM, the Owner, Royal Park, Leeds.

Highly Cultivated and Regularly Transplanted Nursery Stock.

EIGHTY ACRES of the above, consisting chiefly of FRUIT TREES, ROSES, EVERGREENS, and ORNAMENTAL TREES, which for general excellence are unsurpassed.
THOMAS WARNER, Leicester Abbey Nurseries.

LILIUM AURATUM.—Large Consignment just received, 2s. 6d., 3s. 6d., 5s. 6d., and 7s. 6d. per Root. Extra large selected Bulbs, 10s. 6d., 12s. 6d., 15s., and 21s.
BARR & SUGDEN, Seed, Bulb, and Plant Merchants, 12, King Street, Covent Garden, W.C.

SHOW DAHLIAS, in strong plants, now ready. 12 Varieties, named, 4s., or 24 Varieties, named, 8s. Terms cash. CATALOGUES free for one stamp.
JOHN J. HASLAM, late John Holland, Bradshaw Gardens, Chadderton, Manchester.

Dahlias.

GEO. RAWLINGS' NINETEENTH ANNUAL CATALOGUE contains 176 select varieties at 3s. per dozen, including Leah, George Wheeler, and the best of 1865 Also 47 of 1866, at 9s. per dozen, including Fanny Sturt.
Waterloo Road, Romford, E.

Rhododendron Javanicum. Finest variety.

WILLIAM ROLLISSON AND SONS having raised many thousands of this beautiful RHODODENDRON from Seed saved on the best variety are enabled to supply the Trade with fine Plants at a considerably reduced price. Terms on application to WILLIAM ROLLISSON & SONS, The Nurseries, Tooting, London, S.

GENUINE NEW CARROT SEED.
The Three Best Sorts are
WHITE BELGIAN, 1s. per lb. } Cheaper
RED INTERMEDIATE, 1s. 9d. per lb. } by the
LONG RED CATTLE, 1s. 6d. per lb. } Cwt.
SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

237 and 238, HIGH HOLBORN, LONDON, W.C. —CARTER'S SELECT LIST of FARM SEEDS, at reasonable prices, forwarded gratis and post free on application to CARTER'S Great London Seed Warehouse, 237 and 238, High Holborn, London, W.C.

Notice.

PURCHASERS of LARGE QUANTITIES of FARM or GARDEN SEEDS will be supplied liberally by SUTTON & SONS. For prices apply (stating quantity required) to SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

Garden and Farm Seeds direct from the Growers.

CHARLES SHARPE AND CO. beg to inform the Trade that their WHOLESALE SEED LIST is now ready, and will be forwarded post free on application.
Seed Warehouse, Sleaford.

Agricultural and Garden Seeds.

H. AND F. SHARPE'S WHOLESALE SPRING PRICED LIST of the above Seeds of 1866 growth is now ready and may be had on application.
Seed Growing Establishment, Wisbech.

FARM SEED LIST of the LONDON SEED COMPANY is now published, and can be obtained from the MANAGER, 68, Welbeck Street, Cavendish Square, London, W.

SKIRVING'S SWEDE TURNIP, 31s. per bushel. Fine selected stock, from the LONDON SEED COMPANY, 68, Welbeck Street, Cavendish Square, W.

YELLOW GLOBE MANGEL, 50s. per cwt. Fine selected stock, from the LONDON SEED COMPANY, 68, Welbeck Street, Cavendish Square, W.

GREEN KOHL RABI, net growth of 1866. 1s. per lb., 100s. per cwt. New 4 lb. Sacks 1s. 6d. each. Remittances to accompany orders.
CHRISTMAS QUINCEY, Seedsman, &c., Peterborough.

WHITE MUSTARD for Sowing, net growth of 1866. 13s. per bushel of 52 lb.; 50s. per sack of 4 bush. New 4 lb. Sacks, 1s. 6d. each. Remittances to accompany orders.
CHRISTMAS QUINCEY, Seedsman, &c., Peterborough.

SUTTON'S HOME-GROWN TURNIP SEED. For prices and particulars apply to SUTTON & SONS, Seed Growers, Reading.

1867 TURNIP SEEDS. Best selected quality. PRICED LISTS on application.
JAMES DICKSON & SONS, 102, Eastgate Street, Chester.

New Mangel and Turnip Seeds.

JAMES FAIRHEAD AND SON, 7, Borough Market and Braintree, Essex. Special Select ORANGE GLOBE and other MANGELS, and all varieties of TURNIPS.
Special prices on application.

New Turnips and Mangel Wurzel Seeds, &c.

ALFRED LEGERTON, SEED MERCHANT, 5, Aldgate, London, E., has to offer to the Trade the above in all the leading varieties, all fine samples, and grown from fine selected stocks; also DWARF ESSEX RAPE, MUSTARD, and all other Agricultural Seeds. Prices (which are low) may be had on application.

Robinson's Champion Drumhead Cabbage.

SUTTON AND SONS can supply New SEED of the above direct from Mr. Robinson, at 3s. 6d. per lb., cheaper by the cwt. Heads of this variety have been grown 75 lb. each.
SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

SPECIAL OFFER.—Fine New SCARLET RUNNER BEANS. Cash Price, 7s. 6d. per bushel.
FREDERICK GEE, Seed Merchant and Grower, Biggleswade, Beds.

GIANT ASPARAGUS PLANTS, the best that money can procure, 2s. 6d. per 100. —This delicious vegetable does not require half the expense usually incurred in planting it.
See RICHARD SMITH'S SEED LIST for 1867.
RICHARD SMITH, Nurseryman, Worcester.

Sorghum tartaricum.

SUTTON AND SONS, having imported a supply of TRUE Seed of the above, can supply it in packets at 1s. and 2s. 6d. each (post free).
Royal Berkshire Seed Establishment, Reading.

New Striped Japanese Maize.

SUTTON AND SONS can supply Seed of the above beautiful Ornamental Foliage Plant in packets at 1s. each, post free. Royal Berkshire Seed Establishment, Reading.

The New Forage Grass (Bromus Schraderi).

SUTTON AND SONS have imported a large supply of True Seed of the above, and offer it at 2s. 6d. per lb., or cheaper in large quantities. Quantity required per acre, 30 lb. Lowest price per cwt. and instructions on cultivation, may be had on application.
SUTTON & SONS, Seed Merchants, Reading.

Genuine Clean Clover Seeds at Market Values.

SUTTON AND SONS, SEED GROWERS, Reading, can supply genuine NEW CLOVER SEEDS at very moderate prices, especially in large quantities.
Samples and Prices post free on application.

FOR IMMEDIATE SALE, 70 to 80 quarters of Westmoreland-grown ITALIAN RYE-GRASS SEED (16 lb. bushel), price 20s.
Apply to J. DIXON, Seedsman, Kendal

GOOD CLOVER SEEDS, at Market Prices. White Dutch, Alsike, Cow Grass, and Trefoil; also Perennial, Italian Rye, and other Grasses. For samples and lowest prices, apply to RICHARD SMITH, Seed Merchant, Worcester.

To Improve Meadow Land.

RICHARD SMITH'S MIXTURE of the finest GRASSES and PERENNIAL CLOVERS (5 to 12 lb. per acre, at 10d. per lb.), if sown early, will cause a valuable improvement to the crop. RICHARD SMITH, Seed Merchant, Worcester.

Grass Seeds for Permanent Pasture.

RICHARD SMITH'S MIXTURES of the finest PERENNIAL GRASSES and CLOVERS are carefully made to suit all kinds of Soil. Price 20s. to 32s. per acre.
PRICED LIST on application.
RICHARD SMITH, Seed Merchant, Worcester.

NATURAL GRASSES: their Names and Derivations; Quality, Produce, Elevation, Situation, Soil, Use, Peculiarity Season, Growth, Increase, Time of Flowering, Price, &c.
Free for one postage stamp.
RICHARD SMITH, Seed Merchant, Worcester.

TRICOLOR PELARGONIUMS.

Mrs. Pollock, 7s. and 9s. per doz. | Sunset, 21s. per doz.
Italia Unita, 21s. per doz. | Mrs. Benyon, 24s. per doz.
In strong plants at the above prices for Cash, package included.
Remittance required from unknown Correspondents.
Address, ALFRED FRYER, Nurseries, Chatteris, Cambridgeshire.

CHOICE VARIEGATED PELARGONIUMS.

Sunset	Luna	Italia Unita
Mrs. Benyon	Bicolor splendens	Picturatum
Gold Pheasant	Princess Alexandra	Kenilworth
Yellow Belt	Queen of Queens	The Fairy

The above 12 varieties suitable for Exhibition or Pot-culture for 21s.
Remittances requested from unknown correspondents
ALFRED FRYER, Nurseries, Chatteris, Cambridge.

New Zealand Nursery, St. Alban's, Herts.

INTENDING PURCHASERS of TRICOLOR PELARGONIUMS will do well to see J. WATSON'S beautiful Tricolors MISS WATSON and MRS. DIX, previous to making their purchases. For fine foliage, excellent constitution, free growth, and brilliancy of colouring they are unrivalled. They have received two First-class Certificates. Plants of Miss Watson in August, £2 2s. each; Mrs. Dix in May, 1868, 3ls. 6d. each.

THE QUADRICOLOR PELARGONIUM of the Season is METEOR, raised by SALTMARSH & SON.
For description see Advertisements in the "Journal of Horticulture."
This splendid variety has received a First-class Certificate from the Royal Horticultural Society, and was figured in the January Number of the "Floral Magazine."
A Coloured Drawing by Andrews will be sent on receipt of 7 stamps.
Moulsham Nurseries, Chelmsford.

TRICOLOR GERANIUMS.—Italia Unita, Queen of Nosegays, Gold Pheasant, Sunset, Crystal Palace Dwarf, Mrs. Pollock, Stella Variegata, Yellow Belt, one of each, packing included, 12s.; Mrs. Pollock, 7s. per dozen; Sunset, 15s. Strong Plants of the following at 3s. per dozen:—Iresine, Coleus, Perilla, Amaranthus; Geraniums Tom Thumb, Spitfire, Christine, Stella, Countess of Warwick, Aurea, Flower of the Day, and Bijou.
CALCEOLARIAS, VERBENAS, AGERATUMS, CUPHEA, LOBELIA, GAZANIA, KONIGA, and NIEREMBERGIA GRACILIS, 3s. per dozen; finest Zonal varieties, 6s per dozen cash; strong Plants GLOIRE DE NANCY, 2s. 6d. each.
GEO. DAVISON Hereford.

Novelties.

WM. PAUL (Son and Successor to the late A. PAUL) respectfully solicits Orders for the following NEW and FIRST-CLASS PLANTS, which will be ready for delivery in May.

NEW ROSES.

BLACK PRINCE, H. P. (Wm. Paul).—Flowers dark crimson, shaded with black, cupped, large and full. Price 5s. each.
GLOBOSA, H. P. (Wm. Paul).—Flowers clear dark bright crimson, colour intense and uniform throughout. Price 5s. each.
ADY SUFFIELD, H. P. (Wm. Paul).—Flowers purplish crimson, colour uniform throughout, the purple tint predominating; large, full, and of fine form. Price 5s. each.
The best of the NEW FRENCH ROSES, 3s. 6d. each, 30s. per doz.
Older kinds, 9s. to 30s. per doz.

NEW BEDDING GERANIUMS (BEATON'S RACE).
Any 12 Varieties from this group of 18 may be selected by the purchaser for £2 2s.

The following NEW ZONALE and HYBRID NOSEGAY GERANIUMS have been selected from several thousand seedlings raised from the stock of the late Mr. Donald Beaton. Every one now offered has been thoroughly tested, and is believed to be in advance of, or distinct from, all pre-existing kinds.

AUTOCRAT (Wm. Paul). — Flowers bright orange, very large, a decided advance in shape of this colour, blooms freely, very attractive; habit good. Price 3s. 6d. each
BICOLOR (Wm. Paul).—Flowers bluish purple, with spot of fiery scarlet on top petals; free, good, and quite unique in colour and character. Price 5s. each.
BLUE BELL (Wm. Paul).—Flowers bluish lilac, large, and of good shape and truss; habit fine. A thoroughly distinct and most pleasing novelty. Price 5s. each.
CLIO (Wm. Paul).—Flowers rosy purple, upper petals scarlet, large and good form, truss and habit good; price 3s. 6d. each.
CRIMSON QUEEN (Wm. Paul).—Flowers deep crimson, at once the darkest and brightest crimson yet seen in Zonale Pelargoniums, flowers abundantly. Price 3s. 6d. each.
CRUSADER (Wm. Paul).—Flowers crimson scarlet, with white eye, large and smooth, truss large. Price 5s. each.
DR. HOGG (Wm. Paul).—Flowers purplish rose, the colours glowing and very beautiful, trusses good and abundant. Under canvas this novelty appears to resemble Amy Hogg, but is quite distinct from the latter out of doors. Figured in "The Florist" for November, 1868. Price 5s. each.
ENCHANTRESS (Wm. Paul).—Flowers soft purplish crimson, with distinct scarlet eye, trusses and habit good, very lovely. Price 3s. 6d. each.
FIREFLY (Wm. Paul).—Flowers scarlet crimson and orange, with scarlet eye; habit free and good; distinct and very effective. Price 3s. 6d. each.
GLORY of WALTHAM (Wm. Paul).—Flowers splendid even scarlet, dwarf habit, foliage fine, truss large and close. Probably the finest "Nosegay" Geranium yet raised. Price 3s. 6d. each.
KINGFISHER (Wm. Paul).—Flowers crimson and bluish purple, magenta eye, very free, distinct and effective. Price 3s. 6d. each.
LILACINUM (Wm. Paul). — Flowers dark bright lilac, splendid truss, and fine habit, the colour quite new. Price 5s. each.
MEMNON (Wm. Paul).—Flowers magenta, trusses good and very abundant, habit dwarf This might be called a rosy purple "Stella." Price 3s. 6d. each.
OMEN (Wm. Paul). —Flowers reddish salmon, splendid truss, good habit, very free, distinct, and first-rate for bedding. Price 3s. 6d. each.
PURPLE QUEEN (Wm. Paul).—In the way of Amy Hogg as to habit and character of truss and flower, but of a totally different colour—dark rosy purple. Price 5s. each.
TROUBADOUR (Wm. Paul). — Flowers rosy purple, fine shape, magnificent under glass. Price 5s. each.
VILLAGE MAID (Wm. Paul). — Flowers bright deep pink, with clear white blotch in the centre of the upper petals, the colours being well separated or defined; habit dwarf and compact; very beautiful. Price 5s. each.
WALTHAM NOSEGAY (Wm. Paul).—Flowers carmine, trusses of good size and abundant; highly recommended for the effect it produces in the flower garden. Price 3s. 6d. each.

GOLD-LEAVED VARIETIES.

The following varieties are the result of a cross between Beaton's race and the ordinary gold-leaved kinds, whereby has been obtained the free growth and leafy character of the former, properties invaluable for bedding purposes.

JASON (Wm. Paul).—Flowers blood crimson, trusses large, round, and compact, leaves pure golden yellow, habit dwarf and free; the plant densely clothed with fine foliage. The association of yellow leaves and blood crimson flowers, both freely produced, is, in this plant, very fascinating. Price 7s. 6d. each.
WALTHAM GEM (Wm. Paul). — Flowers very light red, colour distinct and peculiarly pleasing, white eye; leaves yellow, with very faint zone. A beautiful novelty of dwarf compact habit. Price 7s. 6d. each.

STANDARD ZONALE GERANIUMS.
Scarlet, rose, white, &c., 5s. to 10s. 6d. each.

STANDARD, VARIEGATED, and TRICOLOR-LEAVED GERANIUMS, 7s. 6d. to 15s. each.

GERANIUM REBECCA.—Cherry colour, 21s. per doz.
" NIMROD.—Orange scarlet, 21s. per doz.
" ST. GEORGE.—Dark chestnut, 15s. per doz.
" MRS. POLLOCK, 6s. to 9s. per doz.
" SUNSET, 18s. per doz.
" ITALIA UNITA, 21s. per doz.
HOLLYHOCKS.—A fine collection of Hollyhocks by name and well varied in colour, 12s. to 42s. per dozen.
NEW AUCUBAS.—The 10 best sorts for £2 10s.
NEW DOUBLE CRIMSON THORN. — Good plants in pots, 5s. to 7s. 6d. each.
GRAPE VINES.—Planting canes, 3s. 6d. to 5s. each. Fruiting canes, 7s. 6d. to 15s. each.
LILIUM ACRATUM.—Flowering bulbs, 2s. 6d. to 10s. 6d. each; 12s. to 60s. the half dozen.
RAPHANUS CAUDATUS, 1s. to 2s. 6d. per packet.
PAUL'S Nurseries, Waltham Cross, London, N.

HINTS on the CULTIVATION of TRICOLORED GERANIUMS.

See F. & A. SMITH'S NEW CATALOGUE for 1867.
Dulwich, Surrey.

New Tricolored Geraniums.

F. AND A. SMITH'S CATALOGUE for 1867, containing descriptions of their splendid varieties of the above, which have obtained the following awards:—

Two £5 Prizes for the Collection	Crystal Palace.
A Prize for the Collection	Liverpool.
A Prize for the Collection	Manchester.
A Prize for the Collection	Leicester.
A Prize for the Collection	Birmingham.
Five Certificates	Peterborough.
Five Certificates	Nottingham.
Six Certificates	Brighton.
One Certificate	International.

May now be had on application.
Dulwich, Surrey.

New Bicolored and Zonal Geraniums.

F. AND A. SMITH'S CATALOGUE for 1867 is now ready, containing descriptions of the above, which have obtained Thirteen Certificates.
Dulwich, Surrey.

New Roses, 1867.

F. AND A. SMITH'S DESCRIPTIVE CATALOGUE of the above may be had on application.
Strong seasoned Plants now ready.
Dulwich, Surrey.

Mrs. Pollock Geranium.

THOMAS PESTRIDGE, The Greenway Nursery, Uxbridge, Middlesex, can supply strong and highly-coloured MRS. POLLOCK GERANIUM at 7s. per dozen, 50s. per 100.

Luna, 18s. per doz.	Orange Nosegay, 6s.	Madame Vaucher, 4s.
Amy Hogg, 6s.	Venus, 6s.	Centaurea gymnocarpa, 4s.
Indian Yellow, 5s.	Cloth of Gold, 4s.	Coleus Verschaffelti, 4s.
	Iresine Herbstii, 3s.	

PELARGONIUMS in large 60-pots, full of flower buds, 6s. per dozen.
Terms cash.

SUPERB VARIEGATED GERANIUMS.

MRS. BENYON	THE COUNTESS
BICOLOR SPLENDENS	MRS. LONGFIELD
GOLD PHEASANT	YELLOW BELT
GLOWWORM	LITTLE PET
LUNA	LURLINE
TWILIGHT	ITALIA UNITA

Strong plants of the above set 17s. Package included.
CASBON & SON, Gravel Walk Nursery, Peterborough.

NEW IVY-LEAVED PELARGONIUMS.

L'ELEGANTE.—Leaves green, margined with creamy-white; flowers white. 10s. 6d. each; six plants, £3.
DERBYSHIRE HERO (Zonal).—Bright cerise.
STAFFORD GEM (Zonal).—Orange-scarlet.
SCARLET CHRISTINE (Plain-leaved).—Bright cerise, shaded with purple.
ROSE MAGENTA (Nosegay).—Fine habit, good bedder.
5s. each, set of four for 15s.
The above to be sent out after April 20.
DESCRIPTIVE PRICED CIRCULARS to the Trade on application.
See *Gardeners' Chronicle*, p. 234, March 2.
W. CUNNINGHAM, The Forge Nurseries, Burton-on-Trent.

New Zonal Pelargoniums.

DOWNIE, LAIRD, AND LAING most respectfully announce that they will send out the following splendid varieties, which have been so much admired, and have received the highest awards wherever shown, including First-class Certificates at the Royal Horticultural Society. The following extract is from the "Journal of Horticulture," July 17, 1866:—"There are so many good Nosegays, and so much alike, that it requires something quite new in colour to surpass them, or in many cases to equal them; the large bold truss of Stella and Le Grand, or the KING of the NOSEGAYS, must be the models of perfection in this class of flowers."

KING of the NOSEGAYS.—Bright orange scarlet. Very large truss, dwarf habit. Very free and most effective variety. 7s. 6d. each.
MRS. LAING (NOSEGAY).—Glowing carmine scarlet, very dwarf, free, and most effective as a bedder. A beautiful and distinct variety. 5s. each.
MRS. MENZIES.—Bright rosy salmon. Flowers perfect, good habit, free, and very fine. 5s. each.
SAMBO.—Very dark glossy scarlet, of great substance. Flowers of the finest form. Very large compact globular truss; quite distinct from all others. 7s. 6d. each.
Ready second week in May.
Stanstead Park Nursery, Forest Hill, S.E.

NEW ZONAL GERANIUMS.—These, now so well known as the Cliveden Seedlings, were selected from many thousands, and have stood the test of trials for two seasons with the best named kinds. They have gained the highest awards wherever shown, including First-class Certificates for each at the Royal Horticultural Society, and have received the highest and most unanimous praise of the Horticultural press. The following is a specimen of the manner in which they have been spoken of:—
The "Gardeners' Magazine" says:—"And this brings me to Duchess of Sutherland and Lady Constance Grosvenor, which have been several times shown by Mr. Turner this season, and ought to be sent out next spring at nothing less than a guinea a plant, to recoup their raisers for the hundreds they have need to grow for the muck-heap.
DUCHESS of SUTHERLAND (NOSEGAY).—A variety of great merit, rosy purple, very free bloomer, with truss of great size; it retains its blossoms to an unusually long time, and is equally effective in pots, vases, or the flower garden. 5s.
INTERNATIONAL (NOSEGAY).—Rich crimson or crimson-scarlet, a deep rich shade of colour, with a wider petal than any other Nosegay, being a decided improvement in the shape of this very useful class of bedding and pot plants. 5s.
LADY CONSTANCE GROSVENOR (NOSEGAY). — Intense fiery scarlet, of the style of Cybister, having a truss of at least double the size; an immense truss, with the advantage of a dwarf compact habit and foliage, so clearly zoned as to be handsome without bloom. This is a most beautiful variety. 5s.
Strong plants ready May 1.
CHARLES TURNER, The Royal Nurseries, Slough.

A Special Offer of Geraniums, Dahlias, Verbenas, for Cash.

J. C. PADMAN, Boston Spa, Yorkshire, can supply Two dozen, two each, good strong plants, of any of the Twenty-four GERANIUMS named below, for 8s.:—

Amelia Grisan	Helen Lindsay	Virgo Maria
Amy Hogg	Indian Yellow	Bijou
Baron Ricasoli	Lady Rokeby	Jane
Chancellor	Madam Dufoy	Golden Fleece
Donald Beaton	Mrs. Wm. Paul	Fairy Nymph
Dr. Lindley	Roi d'Italie	Lord Stamford
Gloire de France	Symmetry	Perfection
Glowworm	Una	Mrs. Pollock

DAHLIAS.
12 best leading kinds of, for 3s. 6d. | 50 best leading kinds of, for 9s. 0d.
24 ditto ditto 6 6 | 100 ditto ditto 22 6

VERBENAS.
Crimson King, 3s. per dozen, or 22s. per 100.
Eckford's Six Varieties of 1866, 4s. 6d. per dozen, viz.: George Eckford, Isa Eckford, Jno. Keynes, Lady Jane Ellis, King Charming, Mr. Gladstone.
Six Striped Varieties, beautiful as Pot Plants, viz.:—

M. Missat	M. Wood
Madame Rougies Chanville	Oreglia
Madame Hirman Steyen	Annie.

Two each for .. .. 4s. 6d.
On and after May 15, NEW VERBENAS of 1867, at 1s. each, viz.:—

Fanny Martin	Earl Radnor	Coleshill
Mr. Ellice	Wm. Dodds	Umpire.

Price named includes package. All Orders sent in rotation.
Post-office Orders payable at Boston Spa.
CATALOGUES on application.

NEW VARIEGATED GERANIUM CASTLEMILK.—

Fine ornamental foliage, one half the leaf margined with the purest white, centre fine green. Free robust branching habit, and effective bedder. First-class Certificate at the Glasgow and West of Scotland Horticultural Society, September 12, 1866. Price on application. Will be sent out second week in May by
AUSTIN & MCASLAN, 16, Buchanan Street, Glasgow.

HERBERT TIREBUCK'S NEW ZONAL VARIETIES of PELARGONIUMS for 1867, to be sent out in May:—
EMILY MORELAND.—Bright scarlet flower, with a large white eye, dark zoned foliage, a free bloomer, one of the best ever brought before the public. Price 10s. 6d. Received a First-class Certificate at the Royal Botanic Gardens, July 3, 1866 (see *Gardeners' Chronicle*, No. 27, p. 638).
FELIX (a Nosegay variety).—Dwarf habit, neat green foliage, black zone, carpeting the ground, quite a new colour, with a lilac pink flower, large truss, a gem. Price 10s. 6d. each. Received a Second-class Certificate at the Royal Horticultural Society, Kensington, August 7, 1866 (see *Gardeners' Chronicle*, No. 32, p. 758).
OLIVER TWIST (a Nosegay variety).—Bright red flower, very large truss, and free bloomer. Price 7s. 6d. each.
MASTERPIECE.—Bright orange scarlet, dwarf compact habit, free bloomer. Price 7s. 6d. each.
CERISE (a Nosegay variety).—Scarlet, large truss, compact habit. Price 7s. 6d.
JEWESS (a Nosegay variety).—Indian yellow, scarlet foliage, with a deep green, black zone, very distinct. Price 5s. 6d.
LUTON GEM.—Deep scarlet shaded with a light striped large truss. Price 7s. 6d. each.
CRIMSON CUSHION.—A very large truss, crimson striped, a gem. Price 7s. 6d. each.
TIREBUCK'S GEM.—Rosy-blush colour, very free bloomer, and good habit. Price 7s. 6d. each.
TIREBUCK'S ST. CLAIR.—Pink salmon or cerise scarlet blossoms, large trusses and individual flowers. Price 7s. 6d. each.
RICHARD KELLY.—The foliage is greenish-yellow, with a large scarlet flower, throwing the flowers well up above the foliage; a free grower and flowerer. Price 7s. 6d each.
CATHERINE.—Greenish yellow, edge narrow, plain green centre and deep brown zone between. Compact round scarlet flower. Price 7s. 6d.
The above Seedling Pelargoniums are mentioned by Mr. Fish. See *Cottage Gardener*, No. 307, page 126, Feb. 14, 1867.
H. T. begs to state that he has good variety of sorts at 10s. per doz.
Lea Bridge Nursery, Luton, Beds.

AUCUBAS, FUCHSIAS, ZONAL GERANIUMS, &c.

6 Varieties AUCUBAS, 3 Male, 3 Female, for 21s.
12 Select NEW FUCHSIAS of 1866 for 6s.
12 Select NEW ZONAL GERANIUMS of 1866 for 6s.
12 Select CHRYSANTHEMUMS of 1866 for 4s.
12 Varieties JAPAN EUONYMUS, very fine, 6s.
3 Varieties NEW JAPAN OSMANTHUS, quite hardy, 5s.
NEW WHITE LOBELIA MISS MURPHY, 3s. per dozen.
12 Select NEW VERBENAS of 1866, for 3s.
NEW DOUBLE GERANIUM GLOIRE DE NANCY, 1s. each.
B. W. KNIGHT, Nurseryman, Battle, Sussex.

PANSY SEED.—Saved from the very finest Show Flowers, by an amateur who gained upwards of 20 Prizes last season at the Exhibitions of Glasgow, Kilmarnock, &c. Confidently recommended as perhaps the finest Pansy Seed ever offered to the Public; 1s. and 2s. 6d. per packet.
ANTIRRHINUM, from splendid varieties, 6d. and 1s.
DREGHORN & AITKEN, Kilmarnock, N.B.

CHEAP and BEAUTIFUL FLOWER SEEDS

	s.	d.
100 Packets of the best and most showy hardy, half hardy, and tender Annuals	20	0
50 " " "	10	0
25 " " "	5	0
25 Packets of the best showy Hardy Annuals	5	0
12 " " "	2	6

DESCRIPTIVE CATALOGUE on application.
RICHARD SMITH, Seed Merchant, Worcester.

British Fern Catalogue.

ROBERT SIM can now send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his NEW and PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.
Foot's Cray Nursery, S.E., a mile from Sidcup Station of New North Kent Line of South Eastern Railway.

NEW GREENHOUSE FERN,
Pteris serrulata var. polydactyla.

THOMAS CRIPPS has the pleasure to inform lovers of FERNS that he is now prepared to supply strong plants of the above beautiful and distinct variety. Dr. Moore says "* * * It has all the gracefulness of the parent plant, while the points of each division of the frond are several times forked into many-fingered tassel, the weight of which gives the fronds a decidedly drooping character. * * * It is quite distinct from the var. cristata, and will be found a valuable acquisition for Plant Cases and Small Greenhouses" It was awarded a First-class Certificate by the Royal Horticultural Society, 21st August last.
Price 10s 6d. each. Trade price on application.
The Nurseries, Tunbridge Wells.

Lobelias, Lobelias, Lobelias.

THOMAS SAMPSON is now ready to supply by the Dozen, Hundred, or Thousand, the splendid LOBELIA ERINUS SPECIOSA GRANDIFLORA, well known as the best of its class for Bedding and other purposes, being of a compact habit, and of freer growth than the well known L. speciosa, having proved it to be more lasting and hardy. The flowers are large dark blue, with fine white eye. Per dozen, in store pots, 2s.; per 100, 8s.; per 1000, 30s.
PETER DRUMMOND, Manager, The Preston Road Nurseries, Yeovil, Somersetshire.

General Plant Catalogue, 176 pages, 8vo.

H. LAURENTIUS', Leipzig, PRICED CATALOGUE, containing Novelties, Beautiful and Rare Plants, also selected Lists of all the favourite Descriptions of Garden Flowers offered by the Horticultural Establishment of H. LAURENTIUS, Leipzig, Germany, can be had post free on application to Messrs. BETHAM & BLACKITH, Cox's Quay, Lower Thames St., London.

J. LINDEN'S CATALOGUE of NEW PLANTS is just published, and can be had on application to Messrs. R. SILBERRAD, 5, Harp Lane, Great Tower-Street, London, E.C.
The following first-rate NOVELTIES are offered for the first time, with the usual discount to the Trade:—

Bignonia ornata ..	£2 8 0	Maranta Legrelliana ..	£2 8 0
Cissus argentea ..	1 0 0	" Wallisi ..	1 4 0
Dichorisandra Musaica .	5 0 0	Philodendron Lindenianum,	2 8 0
" undata ..	2 0 0	Tapino variegata ..	0 12 0
Echites rubro-venosa ..	1 4 0	Theophrasta regalis ..	1 0 0
Eranthemum igneum ..	1 4 0	Anthurium regale ..	1 4 0
Gunnera manicata ..	1 4 0	Maranta Lindeniana ..	1 0 0
Maranta illustris ..	2 8 0	" rosco-picta, 12s. to	1 0 0

Royal Zoological and Horticultural Gardens, Brussels.

THE GOLDEN-VARIEGATED WELLINGTONIA.
First-class Certificate from Royal Horticultural Society.
For Testimonials, &c., see *Gardeners' Chronicle*, October 6, 1866; *Times*, October 7, 1866; *Scottish Gardener*, November, 1866; *Gardeners' Chronicle*, January 12, 1867; "Florist," February, 1867.
LAST YEAR'S PLANTS (a few remaining).
1st Size, very choice, 8 to 12 inches, £5 5s. each.
THIS YEAR'S PLANTS.
2d Size, fine, 4 to 5 inches, £2 2s.
3d Size, nice little bits, 2 to 3 inches, £1 1s.
5000 plants are now plunged out-of-doors, in their respective sizes they may be safely forwarded during the summer, if desired, and orders will be executed in strict rotation.
Chromo-lithographs of the parent tree, by Day and Son (Limited), on superior cards, 10 inches by 8 inches, very faithful in outline, but deficient in representing the glorious colour of the original. These are sent free by post for 25 stamps, and one sent to each Purchaser.
It is intended to exhibit a few of the first size at the approaching Paris and Manchester Exhibitions.
R. HARTLAND, The Lough Nurseries.

Choice Seeds.

WM. CUTBUSH AND SON strongly recommend the following:—
PRIMULA SINENSIS FIMBRIATA, of the finest possible strain, Red, White, or Mixed, 2s. 6d., 3s., and 5s. per packet.
CALCEOLARIA, saved from James' choice strain, very fine, 2s. 6d., 3s. 6d., and 5s. per packet.
CINERARIA, from named flowers, 2s. 6d., 3s. 6d., and 5s. per packet.
SNOW'S WINTER WHITE BROCCOLI (True), Wm. C. & Son's own saving, 2s. 6d. per packet.
NUNEHAM PARK ONION, 2s. 6d. per packet.
For other Choice Seeds see CATALOGUE, post free.
Highgate Nurseries, London, N.

J. SCOTT'S CHOICE SEEDS.
Post Free. Per Packet.
PRIMULA SINENSIS FIMBRIATA.—A most superb strain, and cannot be surpassed, 6 varieties, mixed, 1s. 6d. and 2s. 6d.
CALCEOLARIA.—Scott's superb strain, extra, 1s. and 2s. 6d.
CINERARIA.—Extra fine, carefully hybridized, 1s. and 2s. 6d.
A good SEED LIST free on application.
J. SCOTT, The Seed Stores, Yeovil, Somerset.

Primula fimbriata.

B. MALLER has a very superior Stock of the above to offer at 1s. and 2s. 6d. per packet, the usual discount to the Trade.
Also, a very choice Stock of EARLY PURPLE SPROUTING BROCCOLI, in large or small quantities.
A DESCRIPTIVE BEDDING-PLANT LIST to be had on application. Lewisham, and Burnt Ash Lane, Lee, S.E.

Russell's Pyramid Primula.

THE FINEST STRAIN IN EXISTENCE.
GEORGE CLARKE has New SEED of the above unequalled varieties, 2s. 6d. per packet; also the Fern-leaved kinds, 2s. 6d.; Kermesina (scarlet), 2s. 6d.; The Fairy (a lavender colour) 1s. All of the best quality. Now is the time to sow for strong early plants.
Nursery, Streatham Place, Brixton Hill, S.; and Mottingham, Kent, S.E.

PRIMULAS, CALCEOLARIAS, &c.—The following varieties greatly exceed in brilliancy of colour and substance of flower the older kinds:—
PRIMULA SINENSIS coccinea aurantiaca, very deep crimson, 1s. and 2s. 6d. per packet.
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P. sinensis lilacina albo-marginata, lilac, edged white, 1s. and 2s. 6d. per packet.
P. sinensis stratiflora, magnificently striped, 1s. and 2s. 6d. per pkt.
P. sinensis filicifolia, fine Fern-leaved variety, 2s. 6d per packet.
P. sinensis fimbriata, extra fine, mixed, 1s. and 2s. 6d. per packet.
P. sinensis fimbriata alba, 1s. and 2s. 6d. per packet.
CALCEOLARIA, saved from flowers of great beauty, 1s., 1s. 6d., and 2s. 6d. per packet.
CINERARIA, saved from fine named varieties, 1s., 1s. 6d., and 2s. 6d. per packet.
All packets of Flower Seeds sent post free.
CATALOGUES post paid.
BUTLER, MCCULLOCH & Co., Covent Garden Market, London, W.C.

Verbenas.

H. AND R. STIRZAKER have a superior stock, well established, in single pots, to offer in colours of Purple, White, and Scarlet, or in 36 fine varieties at 16s. per 100.
Trade price on application.
DESCRIPTIVE CATALOGUE of Roses in pots, Stove and Greenhouse, Soft-wooded and Bedding-out Plants, post free.
The Nurseries, Skerton, Lancaster.

Verbena Crimson King.

THOMAS METHVEN has much pleasure in announcing that CRIMSON KING having completely established its character as the finest Bedding Verbena in cultivation, he has propagated a large Stock of fine healthy Spring-struck Plants, which he offers, on and after April 15, at the following prices:—12 Plants, 4s.; 50, 12s. 6d.; 100, £1; 500, £4 7s. 6d.; 1000, £7 10s.
Leith Walk Nurseries, Edinburgh.

VERBENA, CRIMSON KING.—Having numerous inquiries as to the best method of sending plants of this splendid Verbena to places at a distance, we beg to say that the safest, cheapest, and quickest method is by Post. We can now send stout, well-rooted plants, safely packed to go any distance, at the following prices, package and postage free:—12 plants for 3s. 4d.; 25 for 6s.; 50 for 11s.
We can also supply the following extra fine varieties on the same terms as the above, viz.:—
CELESTIAL BLUE, COUNTESS of EGLINTON (splendid vigorous-growing, profuse-blooming, magenta-purple variety); LE GRAND BOULE DE NEIGE (the best white); PRINCESS OF WALES (pink and white striped, very compact habit, first-rate either for Bedding or Exhibition); BEAUTY of ENGLAND (splendid exhibition white).
PURPLE KING, 12 plants for 28 stamps, 25 for 50 stamps.
Twelve Plants in 12 Varieties of the finest exhibition Verbenas (including the best of last year's new varieties), for 50 stamps.
IRESINE HERBSTII, 12 plants for 30 stamps.
Postage stamps taken in payment of sums of 20s. and under.
DREGHORN & AITKEN, Nurserymen and Seedsmen, Kilmarnock, N.B.

New Bedding Verbena, Blondin (FOULIS).

Colour, Brilliant Magenta with a pure white eye.
DOWNIE, LAIRD, AND LAING beg to intimate that they will let out the above magnificent VERBENA the first week in May. It is much in the style and habit of Purple King, blooms in the greatest profusion in all kinds of weather, and rain even does not seem to spoil it. It was awarded a First-class Certificate by the Royal Caledonian Horticultural Society, Edinburgh, September 6, 1866. Price 1s. 6d. each, or 12s. per dozen, with the usual allowance to the Trade.
The following Testimonials as to its superior merits are from Gentlemen who have had many opportunities of seeing it in flower during last season, and D., L., & L. have no hesitation in saying it will prove the greatest acquisition ever offered as a Bedding Verbena in its class and colour.

TESTIMONIALS.

From Mr. WILLIAM PIRRIE, *Gardener to* The Right Hon. The Earl of Rosslyn, *Dysart House.*

"I paid a visit to Fordel Gardens last August, and saw a fine New Verbena named Blondin, in colour a beautiful deep magenta with clear white eye, free grower and very profuse bloomer, even during wet, unfavourable weather. It appears to have the blooming qualities of Purple King, with the luxuriant growth of Lord Raglan. This will prove a real acquisition in Bedding Verbenas."

From Mr. ROBERT DEWAR, *Gardener to* James T. Oswald, Esq., *Dunnikier, Kirkcaldy.*

"Having seen Verbena Blondin last autumn, I consider it the best rose-coloured variety for bedding purposes I have seen."

From Mr. WILLIAM M. GORRIE, *Gardener to* Colonel Ferguson, *Raith, Kirkcaldy.*

"I visited Fordel Gardens last autumn, and saw a Verbena named Blondin. The beds covered with it were in rich masses of bloom, and while the others, such as Purple King, Firefly, &c., were nearly destroyed by the severity of the weather, Blondin was flowering in great luxuriance."

From Mr. WILLIAM VAIR, *Gardener to* Sir Arthur Halket, Bart., *Pitfirrane, Dunfermline.*

"In passing through the Gardens at Fordel last autumn, I was very much pleased with a new Verbena named Blondin, colour bright magenta, and flowering most profusely, more so than any Verbena I have ever seen."

From Mr. JOHN MCLEAN, *Gardener to* Mrs. Gibson, *Duloch, Inverkeithing.*

"I was greatly pleased with a beautiful new Verbena named Blondin I saw in Fordel Gardens last autumn. It was flowering in great masses. This I think will prove a great acquisition amongst bedding Verbenas."

DOWNIE, LAIRD, & LAING, Florists to the Queen, Nurserymen, Seedsmen, and New Plant Merchants, 17, South Frederick Street, Edinburgh; and Stanstead Park, Forest Hill, London, S.E.

Seed of Choice Strains of Florists' Flowers.

The following selected Strains are worthy of the notice of all growers of the most useful conservatory decorative flowers.
WILLIAMS' SUPERB STRAIN of PRIMULA.
B. S. WILLIAMS can with confidence offer his superb Strain of Primula as being undoubtedly the finest in cultivation. It is now grown in all the principal Gardens of the Nobility and Gentry throughout the Three Kingdoms, and has never failed to give the greatest satisfaction.
In habit the plants are very robust, and in the foliage differ from all other varieties; but their great beauty consists in the depth of colour in the Red, purity of the White, and beautiful fimbriated form of all the flowers, which are thrown up in large trusses well above the foliage.
As a proof of the truth of the above remarks, this Strain has taken 1st Prizes in every instance that it has been shown in the Provinces this Spring; and 1st Prize at the Primula Show of the Royal Horticultural Society, South Kensington; and 1st at the Royal Botanic, Regent's Park. It is also the favourite Strain in the Covent Garden Flower Market.
This Strain may be procured True, in Sealed Packets bearing B. S. WILLIAMS' Name and Address, from any Seedsman; but B. S. W. particularly requests that Customers will observe, on purchasing, that each Packet has his Name and Address in full printed thereon, as no others are genuine.
The Trade supplied on advantageous terms.

	Per pkt.	s.	d.		Per pkt.	s.	d.
Retail price, RED	.. ..	5	0	Retail price, WHITE	..	3	6
" "	.. ..	3	6	" "	..	2	6
" "	.. ..	2	6	" MIXED	..	5	0
" WHITE	..	5	0	" "	..	3	6

Retail price, MIXED, per packet, 2s. 6d.
WEATHERHILL'S EXTRA CHOICE STRAIN OF CINERARIA.
B. S. W. has purchased the entire Stock and right of Sale of this Magnificent Strain. Many of the flowers produced by this seed last season were as large as a crown-piece. This strain is well known in the London Flower Market, and is the most popular one there, a sufficient guarantee that its qualities are good.
Retail price per pkt., 5s. 0d. | Retail price per pkt., 3s. 6d.
Retail price per pkt. .. .. 2s. 6d.
JAMES'S HERBACEOUS CALCEOLARIAS.—The varieties that took the First Prize at the International Horticultural Exhibition last May were of this noted strain.
Retail price per pkt., 5s. 0d. | Retail price per pkt., 3s. 6d.
Retail price per pkt. .. .. 2s. 6d.
All FLOWER SEEDS in packets, Post free.
B. S. WILLIAMS, Victoria and Paradise Nurseries, Upper Holloway, London, N.

To the Trade.

J. C. WHEELER AND SON can supply the Trade with the following STRAWBERRY ROOTS:—

BLACK PRINCE	PRINCESS ALICE MAUD
ECLIPSE	PRINCE ARTHUR
ELIZA	PRINCE of WALES
ELTON PINE	SIR CHARLES NAPIER
ELEANOR	SIR HARRY
MARGUERITE	ADMIRAL DUNDAS
OSCAR	THE KIMBERLEY

If taken in quantity, at 10s. per 1000.
J. C. WHEELER & SON, Gloucester.

New Dahlias.

GEO. WHEELER, NURSERYMAN, SEEDSMAN, and FLORIST, Warminster, Wilts, offers the following NEW DAHLIAS:—
BIJOU.—Bronzy salmon lilac; a large, smooth and finely-shaped show flower; very constant and good; should be in every exhibitor's stand. Received Certificates at Crystal Palace and Salisbury Exhibitions last season. Height 3 feet. 10s. 6d. each.
VANGUARD.—Dark purplish maroon; a finely-formed noble show flower, of great depth, and very constant. One of the best dark flowers let out this season. Certificate at Crystal Palace. Height 3 feet. 10s. 6d. each.
JUBILEE.—Yellow, tipped with red; one of the best of its class; very certain; always to be had when wanted. A really good useful flower, fine form. Certificates at Salisbury and Keevil District Exhibitions. Height 3 feet. 10s. 6d. each.
The above three flowers are confidently recommended to the notice of Dahlia growers as decided acquisitions in their respective classes.
The supply of plants being limited, early orders will oblige.
A liberal discount to the Trade.

J. KEYNES, Salisbury.
NEW DAHLIAS for 1867.

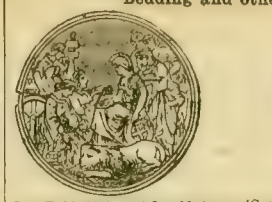
	s.	d.
FLOSSY GILL (Keynes).—A beautiful light ground, edged with pink, first-class form. 3 ft. to 4 ft.	10	6
CERTIFICATES.—Brighton Horticultural Society, Royal Horticultural Society, Bath, Salisbury, Dorset.		
VICE-PRESIDENT (Keynes).—A decided improvement on Chairman, not requiring cutting out, very constant, finest form, greatly admired, bright orange. 3 ft.	10	6
FIRST-CLASS CERTIFICATES.—Crystal Palace, Burton-on-Trent, Bath, Winchester, Dorset, Brighton, Salisbury. 2d, Royal Horticultural Society.		
LADY JANE ELLIS (Eckford).—Creamy white ground tipped with purplish rose, fine show flower. 3 ft. to 4 ft. ..	10	6
CERTIFICATE.—Royal Horticultural Society.		
CLARA SIMONS (Keynes).—Pure white, with deep crimson edge, one of the most exquisite flowers grown. Must have no cutting out, one of the gems of J. Keynes' Seedlings. 3 ft.	10	6
FIRST-CLASS CERTIFICATES.—Royal Horticultural Society, Glasgow, Salisbury, Dorset. The Money Prize at Trowbridge, beating all the seedlings exhibited.		
PARADISE WILLIAMS (Keynes).—The flower of the season—unqualified approbation everywhere—clear claret, quite a new colour. 3 ft.	10	6
FIRST-CLASS CERTIFICATES.—Royal Horticultural Society, Crystal Palace, Brighton, Bath, Dorset, Salisbury.		
HARRIET TETTERELL (Keynes).—Blush ground, very deeply margined with dark purple. A standard flower for many years. 3 ft. to 4 ft.	10	6
CERTIFICATES.—Royal Horticultural Society, Trowbridge, Burton-on-Trent, Winchester.		
PRINCESS of WALES (Keynes).—Blush ground, slightly edged with lilac. A seedling from Anna Keynes, but more constant—most beautiful form, not to be cut out. 3 ft. ..	10	6
FIRST-CLASS CERTIFICATES.—Royal Horticultural Society, Crystal Palace. The two greatest trials for seedlings in existence.		
MEPHISTOPHELES (Heatley).—The finest black flower grown. 4 ft.	10	6
GAZELLE (Keynes).—Clear fawn of the finest quality, very constant, no cutting out. 4 ft.	10	6
CERTIFICATES.—Royal Horticultural Society, Salisbury, Trowbridge, Brighton, Winchester.		
MRS. THORNHILL (Pitfield).—A beautiful feather-edged like Mrs. Trotter. Very light pink, equal to any Picotee—requires cutting out, but a much larger flower than has yet been seen of its character. It was much admired at the Crystal Palace, where it obtained a Certificate. 3 ft.	10	6

These Ten Flowers are Standards, and have been selected, and all grown and proved, by John Keynes, who warrants them all as First-class Show Flowers.

NEW FANCY DAHLIAS.

	s.	d.
BUTTERFLY (Keynes).—Scarlet and brown crimson stripes on a light ground, very fine flower; large, full, and perfect. 3 ft.	10	6
FIRST-CLASS CERTIFICATES.—Royal Horticultural Society, Trowbridge, Salisbury, Crystal Palace, Burton-on-Trent, Hampshire.		
BESSIE WYATT (Keynes).—White and red striped, full show flower. 3 ft. to 4 ft.	10	6
CERTIFICATES.—Salisbury, Burton-on-Trent, Hampshire.		
MISS RUTH (Eckford).—Yellow tipped white, a flower long wished for, constant, which is the character of this flower. 3 ft. to 4 ft	10	6
FIRST-CLASS CERTIFICATE.—Brighton.		
MRS. GOODWIN (Goodwin).—Fawn ground, striped with red—very fine flower. 4 ft.	10	6
PLAUSIBLE (Keynes).—Red and crimson, with purple stripes—very first-class flower. 4 ft.	10	6
SALAMANDER (Keynes).—The best character to give this flower is to call it a striped Charles Turner—it must not be cut out. 3 ft.	10	6

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Just Published, post free 12 stamps (Gratis to Customers), Part III. of CARTER'S GARDENERS' and FARMERS' VADE MECUM, containing complete Lists of new and choice Stove and Greenhouse and Bedding Plants, with an Addendum comprising original and practical articles, "On a Visit to Messrs. Carter's Nursery," by an Amateur Florist; Subtropical Gardening; and 120 Geometrical Designs for Flower-beds; with reliable information for the proper combination of Bedding Plants to produce chaste and striking effects.
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THOMAS SAMPSON, Proprietor of the Preston Road Nurseries, Yeovil, Somersetshire, lately carried on by Drummond & Co., and formerly by John Scott, has much pleasure in announcing that his CATALOGUE for the above Plants is now ready, and can be had free on application. T. S. begs to assure his friends that the above has been for many years one of the largest in the country for CHEAP BEDDING PLANTS, and that his present Collection is now most unique and extensive, consisting of upwards of 200,000 Plants, being two to one of any other Establishment in the West of England. Having recently extended his Glass Department to upwards of 12,000 feet, expressly for the culture of Bedding Plants, he is enabled to supply them in such varieties and at such low prices as cannot fail to give the fullest satisfaction. T. S. will feel much obliged if his friends will kindly inspect his Collection and forward their Orders early, so as to avoid delay or inconvenience.
The Plants will be ready to send out after the 20th of April.
PETER DRUMMOND, Manager, The Preston Road Nurseries, Yeovil, Somersetshire.

Calceolaria Ambassador (Sang).

EDWARD SANG AND SONS, NURSERYMEN and SEED MERCHANTS, Kirkcaldy, N.B., offer strong autumn-struck Plants, in single pots, of this now well-known and universally admired BEDDING-OUT CALCEOLARIA. Price 12s. per dozen.
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The Trade supplied.

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PANSY CLIVEDEN BLUE, 6s. per dozen.
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SUCCULENT PLANT COLLECTION for SALE, containing upwards of 200 named varieties, many of them being very rare, mostly in duplicate or more, principally Agaves, Aloes, Apicras, Gasterias, and Haworthias, with a few Cacti, Euphorbias, and others. Price for the whole, £20. May be viewed any Morning till Sold between 6 o'Clock and half-past 7, or by appointment.
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CORN, SEED, MANURE, AND OILCAKE MERCHANTS,
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Samples and Prices post free on application. Prize Medals, 1851, for Wheat; 1862, for "Excellent Seed Corn and Seeds."

Taxus hibernica fastigiata variegata
(THE GOLDEN IRISH YEW).

FISHER, HOLMES, AND CO. have pleasure in offering the above really beautiful Yew raised by them. It is the exact type of the Irish Yew, with foliage of the same rich golden colour as in the old Golden Yew, and forms a truly beautiful and attractive plant, suitable for decoration in Flower Garden, Terrace, or other Ornamental Planting.
Plants in pots (which have withstood the winter without injury), 21s. each; Six Plants for £5 5s.
A few extra Specimens, £1 11s. 6d. each.
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FISHER, HOLMES, & Co.'s CATALOGUE of STOVE and GREENHOUSE and BEDDING PLANTS, NEW ROSES, &c., is now ready and may be had gratis and post free on application.
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BLUNDELL'S CATTLE MELON.—This productive Fruit is now well-known and generally appreciated for Feeding all kinds of Cattle, &c., in the autumn months. Prices, exclusive of carriage:—100 Seeds, 2s. 6d; Seed for ¼ acre, 5s.; do. ½ acre, 9s.; do. 1 acre, 16s.
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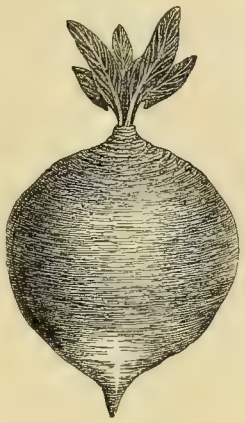
Kohl Rabi Seed should now be sown.
Drilled as Swedes, 3 to 4 lbs. per acre.

SUTTON AND SONS can supply superior SEED, either GREEN or PURPLE, at *2s. 6d.* per lb., or cheaper in large quantities.
For Instructions on Cultivation, see SUTTON'S FARM SEED LIST, which may be had post free on application.
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"There is a remarkably fine show of Roots, Messrs. SUTTON'S Six Mangels weigh 212¼ lb."
Messrs. SUTTON can supply Seed of the above improved varieties of LONG RED and LONG YELLOW MANGELS at 1s. 6d. per lb., cheaper by the cwt., carriage free.
PRICED LISTS, gratis, on application.
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THE BEST GLOBE MANGEL in cultivation is SUTTON'S SELECTED

From Mr. ROBERT BOYS, *Eastbourne*.
March 7, 1866.—"The Selected Yellow Globe Mangel Wurzel Seed I had of you last year turned out the best I ever grew. I could get up 100 tons of that root while I was getting up 60 of the Old Yellow Globe."

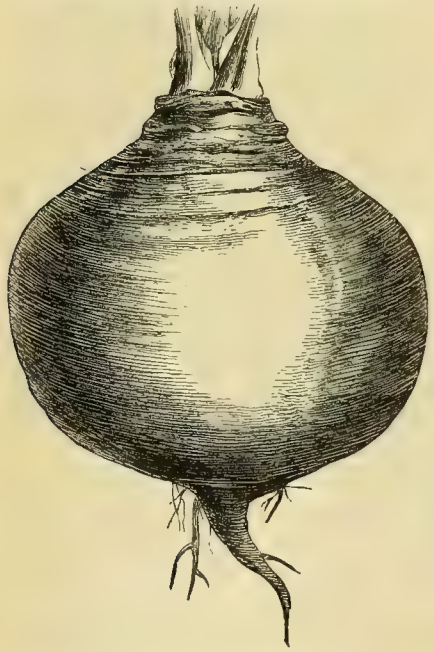


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"May 7, 1866.—Last year I had the satisfaction of winning the First Prize for Mangels at the Derbyshire Agricultural Show, with large smooth heavy roots, produced from your excellent seeds."

YELLOW GLOBE, 1s. per lb., cheaper by the cwt. Carriage free.
Lowest price per cwt. on application.
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Strong Drumhead or Cattle Cabbage Plant.
W. VIRGO AND SON can supply large quantities of the above, at 3s. per 1000. Samples can be had on application at the Nursery, Wonersh, Guildford, Surrey.
Delivered free at the undermentioned Railway Stations—Guildford, South-Western; Shalford, South-Eastern; Bramley, London, Brighton, and South Coast.

Wheeler's Imperial, the finest Swede Grown.



WHEELERS' IMPERIAL SWEDE.
1s. per lb.; 45s. per bushel (50 lb.)
This is one of the best if not THE BEST Swede in cultivation; the specimens exhibited at the Smithfield Club Show in London, and at Cirencester, Birmingham, and at the Great Show of Roots held in Gloucester, excited considerable admiration, not only for their size, but for their beautiful shape and excellent quality.
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GRASS SEEDS for PERMANENT PASTURE selected on a new, scientific, and natural system, by J. C. WHEELER & SON, Gloucester.

UNDOUBTEDLY a GOOD IDEA.

WHEELER AND SON'S "BOOK on GRASSES."—"These enterprising Seedsmen, in introducing a new element into their calculations—viz., the geological formation of the soils for which permanent Grasses are wanted—*have undoubtedly a good idea.*
"Messrs. WHEELER have prepared a new series of tables of the Grasses which they consider most suitable to different geological formations. These are arranged in 11 tables, and include mixtures suitable for heavy, medium, and light soils in each case."—*The Field*, March 9, 1867.

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JAMES VEITCH & SONS

BEG TO ANNOUNCE THAT THE FOLLOWING

NEWLY-PRINTED CATALOGUES ARE NOW READY,

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CATALOGUE of NEW PLANTS for the PRESENT YEAR.
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Each Catalogue contains Lists of the most distinct and popular Plants in their respective classes.

ROYAL EXOTIC NURSERY, KING'S ROAD, CHELSEA, S.W.

TRICOLORED PELARGONIUM, QUEEN VICTORIA.

S. PERKINS & SONS

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PLANTS OF THIS SPLENDID VARIETY ARE NOW READY,

at 21s. each.

Leaf margin deep golden yellow, with rich broad zone of maroon, interspersed with fiery scarlet, deep olive green centre. The habit being free and short jointed, and the leaves not liable to damp at the edges, it will be found the best Bedding variety yet offered.

Was awarded a First-class Certificate by the Royal Botanic Society on April 13, 1867.

PARK NURSERY, COVENTRY.

NEW DOUBLE CRIMSON THORN.

WILLIAM PAUL

(SON and SUCCESSOR to the late A. Paul),

BEGS TO OFFER THE

ABOVE MAGNIFICENT HARDY FLOWERING TREE,

Which he believes to be the greatest acquisition for forcing and out-of-door culture that has been introduced for many years.

Fine healthy Plants, well established in pots, 2 ft. high, 7s. 6d. each; 1 ft., 5s. each.

A First-class Certificate was awarded to him for this Plant by the Royal Horticultural Society on the 16th April last.

"A brilliant variety, to which too much attention can scarcely be directed."—*Gardeners' Chronicle.*

"This is certainly a plant which cannot be overrated; the intense bright red colour, and the numerous clusters of the double flowers, make this Crataegus invaluable. No admirer of this charming family can be without it, all other pink varieties are truly in the shade beside it."—*Journal of Horticulture.*

PELARGONIUM JASON (First-class Certificate).—The finest, most leafy, and deepest colour of all pure gold-leaved Pelargoniums. Price *7s. 6d.* each.

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WILL BE SENT ON RECEIPT OF THREE POSTAGE STAMPS,

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It includes Notices of the best Novelties of the season, amongst which the following:—

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DIANTHUS QUETIERI.
NAPOLEON III., MULE or HYBRID PINK.
GERANIUM MAID of KENT.—Rich rose. Far surpassing Madame Barre, and all others in class and colour.
In the Golden Bronze Section are three distinct styles of Zone in PRINCESS of WALES, DUKE of EDINBURGH, and E. G. HENDERSON. The last one received a First-class Certificate at the International Exhibition.
BANKS'S beautiful FUCHSIAS, BRILLIANTISSIMA, DAY DREAM, and KILLIEKRANKIE.
FUCHSIA PICTURATA.—A fine variety with white corolla.
FUCHSIA PRINCESS ALEXANDRA.—With white sepals, beautiful variety.
NEW CRIMSON BEDDING VERBENA KING of BEDDERS.—A first-class bedding variety, colour a brilliant crimson red, style of Admiral Dundas (one of the best ever raised), but brighter, growth free and compact, not spreading, profuse in bloom, with large well-formed full trusses, and desirably fragrant. Having been proved in both beds and belts in the gardens where it was raised, its merits are guaranteed equal to description, as one of the most effective and useful kinds ever offered. Certified by the Floral Committee of the Royal Horticultural Society.
NEW WHITE BEDDING VERBENA WHITE QUEEN.—For close dwarf growth, large, compact, and well-formed truss, purity of colour, profusion of bloom, and effectiveness in character, the White Queen Verbena is admitted by competent judges to surpass Henriette, Boule de Neige, and Mrs. Holford. Its short-jointed habit requires little attention to training, and its purity of colour after rain is a feature in its favour, both for garden decoration and for exhibition.
LOBELIA PUMILA ELEGANS.
" INDIGO BLUE.
" WHITE QUEEN.
CHRISTINE NOSEGAY.—Rose colour. The finest Bedding Geranium in its class. Awarded a First-class Certificate.
The MINIATURE GOLDEN TRICOLOR ZONALE GERANIUMS are LITTLE BEAUTY, LITTLE FAIRY, LITTLE GEM, LITTLE HARRY.
In New First-class GOLD and SILVER TRICOLOR VARIETIES, see Classes 18 and 19 of Pelargoniums.
CALADIUMS.—Several new and beautiful hybrid varieties.
FUCHSIA ALBO-COCCINEA.—An elegant and novel fancy tri-coloured variety.
FUCHSIA CLAPHAM HERO.—Distinguished by its magnificent size of sepals, and fine proportions.
NEW GOLDEN-LEAVED BEDDING PLANT, GOLDEN FEATHER (Pyrethrum parthenifolium aurea.—A beautiful dwarf hardy perennial plant, 6 to 9 inches in height, as required, surpassing the gold-leaved section of Geraniums in its uniformly neat and densely compact growth, which, by simply pinching off the premature flower buds, the plant is furnished solely by its picturesque golden fan or feather-lobed leaves, forming an equal surface as to height, and an elegant feature for a second front ribaud-row, or a double marginal belt to terrace borders, or as a chaste golden fringe to back lines of Perilla or Coleus. Received a First-class Certificate of Merit and several others.
POA TRIVIALIS ARGENTEA ELEGANS, SILVER-LEAVED MEADOW GRASS.—This plant is commended as one of the most useful and beautiful varieties of hardy Grasses with silvery white-margined leaves yet introduced to gardens. It is strictly a perennial in habit, forming a remarkably dense and compact many-branched growth from the base, and, by its natural and free tendency to emit roots upon the under shoots, it makes a close yet gracefully free growth from 4 to 9 inches in height, and with a luxuriance which renders it suitable for Grass plots, verges, or terraces, covering the ground-surface with a herbage as close as an ordinary meadow, whilst its elegant variegated leaf-blades produce an effect upon a much larger scale than can be had from any other Silver-leaved Grass. By forming ornamental portable specimens and suspended basket groups of this variety in the early winter and spring months, for conservatory and greenhouse decoration, it will at those seasons be found by far the most brilliant and picturesque plant in its tribe.

WELLINGTON NURSERY, ST. JOHN'S WOOD, LONDON, N.W.

The New Australian Spinach.

STUART AND MEIN, SEEDSMEN, Kelso, N.B., beg to intimate that they have received a small parcel of the above new Vegetable, which is much superior to any other variety of Spinach, being less liable to run to seed, having a delicious flavour and of an enormous and rapid growth. See *Gardeners' Chronicle*, page 207. Price 1s. 6d. per packet.

To Market Gardeners and Others.

RICHARD WALKER, MARKET GARDENER and SEED GROWER, has left 100,000 extra fine young CABBAGE PLANTS—EAST HAM and ENFIELD MARKET, 4s. per 1000—no finer stock in England; RED, extra fine, 6s. per 1000; WHITE SPANISH ONION SEED, 1s. 8d. per lb.; KOHL RABI SEED, 1s. per lb. The seed being home-grown, is new, and can be recommended. Terms cash. DRUMHEAD CATTLE CABBAGE PLANTS, 3s. per 1000.

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EXCELLENT NEW YELLOW GLOBE MANGEL WURZEL. 4d. per lb.
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" SCARLET RUNNER BEANS, NEW, 7s. 6d. per bushel.
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RED DUTCH CABBAGE PLANTS, fine, 3s. 6d. per 1000.
CATALOGUE of genuine NEW SEEDS on application.

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CHOICE SEEDS.

Post Free.

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Cucumber, Telegraph	1 0	Aster, Truffaut's Superb French, 12 vars. mixed	1 0
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at low prices.

ITALIAN RYE GRASS	PERENNIAL RYE GRASS
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SCOTCH RYE GRASS	ANNUAL RYE GRASS

Samples and lowest price per quarter on application.

SUTTON & SONS, Seed Growers, Reading.

Very Early Sheep Feed.

SUTTON'S IMPROVED ITALIAN RYE-GRASS.—This "Improved" Italian Rye-grass is recommended in preference to every other variety, producing three or four heavy crops in one summer, and being almost if not strictly perennial.

At a Meeting of the Royal Agricultural Society, on March 16, in a Lecture delivered by Alfred Hughes, Esq., late of Thorness, Isle of Wight, Mr. Hughes said:—

"I always reserve a portion of Oat land to lay down with SUTTON'S Improved Italian Rye-grass, the most reliable plant I have come across for some years for Ewes and Lambs in the Spring. When I tell you that I put it in in the spring, and dressed it after harvest with guano, and that in the autumn, when my Sheep fed it off, it was up to their knees, and that I fed it off again this spring with Ewes and Lambs, I think you will agree that this is a crop of very great value. The Italian Rye-grass which is sold by SUTTON, of Reading, is a most astonishing vigorous plant; indeed, I never saw anything to equal it in the course of all my experience."

SUTTON & SONS have a fine stock of their Improved Italian Rye-grass, which is a very different and superior article to much that is sold as Italian Rye-grass.

Present price 6s. 6d. per bushel, cheaper in quantities over 5 qrs. Carriage-free in quantities of 8 bushels and upwards.

Quantity required per acre, if sown alone, 3 bushels.

Royal Berkshire Seed Establishment, Reading.

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CARTER'S SELECT LIST of GENUINE FARM SEEDS, at moderate prices, is now ready, and may be had post free on application to

CARTER'S Great London Seed Warehouse, 237 and 238, High Holborn, London, W.C.

Fine Grass Seeds for Cricket Grounds,

BOWLING GREENS, or CROQUET GROUNDS.

SUTTON AND SONS can supply suitable kinds of the finest-growing GRASSES and CLOVERS for the above purposes, at 1s. 3d. per lb., 24s. per bushel.

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Sutton's Grass Seeds for all Soils, Carriage Free.



MESSRS. SUTTON specially prepare MIXTURES for every description of SOIL at the following prices:—

For PERMANENT PASTURE, best quality Mixture, 36s. per acre; cheaper ditto, 26s. to 30s. per acre.
For THREE or FOUR YEARS' LAY, best quality, 24s. per acre; second quality cheaper.
For TWO YEARS' LAY, best quality, 18s. 6d. per acre; second quality cheaper.
For ONE YEAR'S LAY, CLOVERS and GRASSES, 15s. per acre; CLOVERS and RYE-GRASS, 12s. to 14s. per acre.
SUTTON'S RENOVATING MIXTURE (sow 6 lb. to 12 lb. per acre), price 10d. per lb.; cheaper by the cwt. Special Contracts given for large quantities.

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GRASS SEEDS for PERMANENT PASTURE, of the finest quality, at moderate prices, carefully selected on a new, natural, and scientific system.

See "WHEELER'S BOOK on GRASSES," which contains Illustrations and Descriptions of the most suitable Grasses for Permanent Pasture.

J. C. WHEELER & SON,
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Seedsmen to the Gloucestershire Agricultural Society.

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Thomas Webb, Hildersham, Cambridgeshire.
Jonas Webb, Melton Ross, Lincolnshire.
Managing Director—James Odams.
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This Company was originally formed by, and is under the direction of agriculturists, circumstances that have justly earned for it another title, viz.—"The Tenant Farmers' Manure Company."

Its members are cultivators of upwards of 50,000 acres of land which has been for years under management with Manures of their own manufacture. The consumer, therefore, has the best guarantee for the genuineness and efficacy of the Manures manufactured by this Company.

Particulars will be forwarded on application to the Secretary, or may be had of the Local Agents. C. T. MACADAM, Secretary.
Chief Offices—109, Fenchurch Street, London, E.C.

LAWES' MANURES.—The Manures manufactured by J. B. LAWES for the present season of 1867 are now ready for delivery at his Factories, at the following prices, per ton:—

	£ s. d.
LAWES' PATENT TURNIP MANURE and BONE SUPERPHOSPHATE of LIME	6 6
LAWES' SUPERPHOSPHATE of LIME from BURNT BONE or MINERAL PHOSPHATES	5 5 0
LAWES' WHEAT, BARLEY, GRASS, and MANGEL MANURES	8 0 0
CONCENTRATED CORN and GRASS MANURES	12 0 0

These Manures can be obtained of Mr. LAWES, or through the appointed Agents in all parts of the United Kingdom, at prices varying according to cost of carriage.

Genuine Peruvian Guano direct from the Importers. Nitrate of Soda, Sulphate of Ammonia, and other Chemical Manures.

American and other Cakes at market prices.

Address, JOHN BENNET LAWES, 1, Adelaide Place, London Bridge, E.C.; 22, Eden Quay, Dublin; and Market Square, Shrewsbury.

THE LONDON MANURE COMPANY
(ESTABLISHED 1840),

Have now ready for delivery in dry fine condition,
CORN MANURE, for Spring Use
DISSOLVED BONES, for Dressing Pasture Lands
SUPERPHOSPHATES of LIME
PREPARED GUANO
MANGEL and POTATO MANURES

Also Genuine PERUVIAN GUANO, and NITRATE of SODA, ex Dock Warehouse; SULPHATE of AMMONIA, FISHERY SALT, &c.

Offices, 116, Fenchurch Street, E.C. E. PURSER, Secretary.

EGG MANURE.—Analysis of an Egg by Baron Liebig: Carbon, 55,000; Hydrogen, 7073; Nitrogen, 15,920; Phosphorus, Sulphur, Oxygen, 22,007 = 100,000 equal to Ammonia, 18·50. From 2 to 3 Tons of Refuse Eggs to be disposed of weekly.

Apply by letter, in first instance, to Z. A., care of Mr. Roberts, Advertising Agent, 19, Change Alley, Cornhill, E.C.

FIBROUS PEAT of first-class quality for Orchids, Heaths, American Plants, and all potting purposes, may be obtained by application to Mr. THOMAS JESSOP, Farningham Wood near Farningham Station, Kent. It is dispatched by the London, Chatham, and Dover Railway in trucks of 16 yards, about 6 tons, to most Stations in the Kingdom, or fetched in carts from the wood. It is extensively used and appreciated in the principal Nurseries, and in the Royal Parks and Gardens. Price 5s. per cubic yard, at Farningham Station.



COCOA-NUT REFUSE is becoming SCARCE, the old reserves will soon be gone. Now sold in bags, 1 for 2s., 10 for 16s., 2 for 30s., 50 for 65s., 100 for £6.

Fourpence allowed for each bag returned carriage-paid.

A Railway Truck-load (not in bags), 40s.

Postage Stamps or Post-office Order, payable to J. BARSHAM & Co., Kingston-on-Thames, S.W.

Plagues of the Garden.



SIMPLE and SAFE REMEDY.—By using the APHIS WASH, these pests of the garden, together with Ants, Scale, Caterpillars, Slugs, Earwigs &c., are immediately destroyed. Leaves no stain, but strengthens the Trees or Plants.

"At the first opportunity use a solution of 'Aphis Wash,' prepared at the City Soap Works; it not only destroys the Aphis, but also Scale, and every other pest."—Extract from *Gardeners' Magazine*, January 5, 1867.

"For strengthening the growth and effectually destroying all forms of blight, the 'Aphis Wash' supersedes every other preparation."—See *Gardeners' Chronicle*, August 19, 1865; and *Gardeners' Magazine*, July 1, 1865.

Sold by Chemists and others, in 1s. bottles, and 2s. 6d. a gallon, with full directions for use.

Wholesale at the City Soap Works, Milton Street, London, E.C.

Thomas Gibbs & Co.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND
THOS. GIBBS & Co.
Corner of
HALF-MOON St
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London.
APPOINTED APL 3. 1844
THE SEEDSMEN

CORNER of STREET.

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GRASS SEEDS,
AGRICULTURAL SEEDS,

KITCHEN GARDEN SEEDS,
FLOWER SEEDS.

Catalogues forwarded post free to any address on application.

PAUL & SON'S

NEW DOUBLE SCARLET THORN.

CRATÆGUS OXYACANTHA COCCINEA PLENA (PAUL & SON).—Colour exceedingly vivid, very double and beautiful. Undoubtedly the finest hardy Novelty of the season. An attempt has been made to detract from the sole credit due to us for introducing it.

Since we first sent it out in November last, we have had the honor to supply Her Majesty's Garden at Windsor, the leading Nurserymen here and abroad (see List in this Journal), the most celebrated Amateurs and Lovers of Hardy Trees. We have gained with this unique novelty—First-class Certificate at Royal Botanic Society, May 21, 1864; First-class Certificate from distinguished Jury of New Plants at late International Exhibition.

The Opinions of the Press are exceedingly favourable, and we take the liberty of quoting from a Letter of Mr. LOUIS VAN HOUTTE of Ghent, and the opinion of an English Firm in last week's Paper:—

"You have not published any figure. I have not seen it, but two of my *chefs* did, and speak of it as very fine."—*Signed*, LOUIS VAN HOUTTE, *Ghent*.

"Magnificent hardy flowering tree, which he believes to be the greatest acquisition for forcing or out-door culture introduced for many years."—*See* Mr. W. PAUL, *page* 426.

PAUL & SON having a large stock of some thousands ready, can offer fine Plants in Autumn.

Strong Standards, 5s. and 3s. 6d. each; Dwarfs, 2s. 6d. each.
Dwarfs in Pots, for export, 5s. each.

PAUL AND SON, OLD CHESHUNT NURSERIES, N.

NEW PLANTS FOR 1867.

JAMES VEITCH & SONS

BEG TO ANNOUNCE THAT THEY ARE

NOW SENDING OUT

THE FOLLOWING SPLENDID NOVELTIES.

Amongst them will be found many of great merit, discovered and sent home by Mr. JOHN G. VEITCH, during his recent voyage to the South Sea Islands; also others received from Mr. PEARCE, Messrs. J. V. & SONS' Collector in South America. Every Plant offered is perfectly distinct from any previously in cultivation, and J. V. & SONS confidently recommend them to the notice of all Plant Cultivators.

Acalypha tricolor.

A very handsome variegated-foliage stove plant, introduced from New Caledonia through our Mr. John G. Veitch.

It has large ovate acuminate leaves, which are irregularly mottled and blotched with bright red and crimson.

In the *Gardeners' Chronicle* of May 28, 1866, it is described as a "most interesting acquisition" to our variegated-leaved plants.

It was exhibited amongst our Prize New Plants at the Great International Exhibition in 1866, and has received a First-class Certificate from the Royal Horticultural Society.

Price 21*s.* each.

Coleus Veitchi.

The most striking variety of Coleus yet offered.

It has very large toothed leaves, of a deep chocolate colour, with the margin and teeth of a bright green, the contrast being very effective and pleasing.

It is of free growth and excellent habit, and as a pot plant cannot fail to please all plant cultivators.

It was introduced to England from New Caledonia, through our Mr. John G. Veitch.

It was exhibited at the Royal Horticultural Society's Show on the 16th of April last, and received a First-class Certificate.

Price 10*s.* 6*d.* each.

Davallia alpina.

This beautiful Fern was introduced by us from Borneo through Mr. Lobb, and has been admired wherever exhibited.

It is a dwarf-habited free-growing stove variety, and to the smallest and most select collections cannot fail to be a pleasing addition. Price 10*s.* 6*d.* each.

Dieffenbachia Pearcei.

This very striking, distinct, and free-growing stove plant was introduced from Ecuador by our collector Mr. Pearce, after whom we have named it.

The leaves are large, of a bright green colour, the mid-rib having a broad creamy white lining, the leaf itself being also thickly marked and spotted, rendering it very attractive and useful as an exhibition plant.

It was exhibited at the Royal Horticultural Society's Show on the 16th April last, and received a certificate.

Price 31*s.* 6*d.* each.

Gymnostachys Pearcei.

A decided improvement on the well-known G. Verschaffelti, the markings of the leaves being of a much brighter colour, and the habit more compact and vigorous.

Price 7*s.* 6*d.* each.

Hippeastrum pardinum.

This magnificent bulbous plant was introduced by us from Peru, through our collector Mr. Pearce.

Its blooms average 6½ to 7 inches in diameter, and the following description, taken from the *Gardeners' Chronicle* of March 30th, 1867, will convey some idea of its great beauty: "It is perfectly distinct from all known kinds of Amaryllis, and is remarkable for its form, which is spreading, with scarcely any tube, so that the whole inner surface is displayed, and for its colour, which reminds one of the spotted varieties of Calceolaria or Tydæa, so closely is it covered with small dots, more or less confluent, of crimson red on a cream colour ground."

It was awarded a First-class Certificate at the Floral Committee of the Royal Horticultural Society, on the 19th March, 1867, and amongst the many novelties then exhibited, was considered by all to be "The Gem."

Price, strong bulbs, 63*s.*; smaller, 42*s.*

Hypocyrta brevicalyx.

This beautiful Gesneraceous plant is equally desirable, either for its ornamental foliage or for the elegance of its flowers.

Its leaves are of a very pleasing bright green colour, with numerous distinct silvery white veins, and the flowers are of a bright orange scarlet, produced very freely and lasting some time in bloom.

It was introduced from Ecuador through our Mr. Pearce.

It was exhibited at the Royal Horticultural Society's Show on the 16th April last, and received a Certificate.

Price 15*s.* each.

Lomaria ciliata.

A very distinct and elegant dwarf-growing Tree Fern, the stems in full-grown specimens attaining a height of 1 foot; introduced from New Caledonia by Mr. J. G. Veitch.

The fronds are pinnately parted, the pinnæ being linear oblong, and frequently bifid or emarginate; the fertile fronds pinnate, sometimes pinnatifid with lateral segments ½ inch long.

It is undoubtedly one of the most ornamental, distinct-looking, and interesting of its genus.

The above description is given by Mr. Moore, the eminent authority on Ferns, and copied from the *Gardeners' Chronicle*. Price, strong plants, 21*s.*; smaller plants, 15*s.*

Miconia Peruviana.

(HORT. VEITCH.)

A very interesting free-growing Melastomaceous plant, the leaves being about 20 inches in length by 10 in width; the foliage is of a bright light green, glaucous on the under side.

Price 10*s.* 6*d.* each.

Nepenthes gracilis major.

A free-growing species introduced by us from Borneo. It is of the N. lævis habit, producing even whilst in a young state its pitchers of medium size, which are spotted and marked with deep brown. This variety is of easy culture, and worth growing even in limited collections.

Price 21*s.* each.

Nierembergia rivularis.

A beautiful perfectly hardy trailing perennial, introduced by us from the Plate River.

The flowers, which are sessile, are 1½ inch across, and of a yellowish white colour, elevated on a slender tube 1 to 2½ inches long.

It is figured in the "Botanical Magazine" for October, 1866, and has received a First-class Certificate from the Floral Committee of the Royal Horticultural Society.

Price 10*s.* 6*d.* each.

Nierembergia Veitchi.

A very pretty dwarf perfectly hardy perennial, introduced by us from Bolivia.

The flowers, which are bell-shaped, of a pale lilac colour, with slender corolla tube an inch in length, are produced in great profusion on slender branching stems, and continue for many months; and whether as a dwarf border plant or for rock-work it will prove a great acquisition.

It is figured in the "Botanical Magazine" for September, 1866.

Price 10*s.* 6*d.* each.

Panicum variegatum.

This beautifully variegated Grass will doubtless prove an excellent decorative plant.

The ground colour of the leaf is bright green, fully one-half being occupied by pure white stripes, tinged with pink, forming a striking contrast, and grown to cover a pan or basket it forms a most effective plant, and is well worth a place in all stoves.

It is of easy culture, rooting freely from the nodes.

It was introduced by us from New Caledonia, and has received a First-class Certificate from the Floral Committee of the Royal Horticultural Society, April 16th, 1867.

Price 7*s.* 6*d.* each.

Primula cortusoides amœna alba.

This beautiful plant forms an excellent companion to the well-known and much-admired Primula cortusoides amœna, sent out by us last season.

We have great pleasure in adding that during the late severe winter these Primulas have proved perfectly hardy.

Price 10*s.* 6*d.* each.

Retinospora plumosa.

One of our finest hardy introductions from Japan.

Its habit is particularly graceful and compact, the foliage being of a fine glaucous hue, forming an excellent contrast to the dark green of other species.

It has been exhibited on several occasions, and received many First Prizes.

Price 21*s.* each.

Sanchezia nobilis variegata.

This magnificent variegated-foliage stove plant is undoubtedly one of the finest we have ever had the pleasure of offering for sale.

It is of beautiful habit and free growth; its leaves, which attain a length of 12 to 15 inches, are of the richest green, the veins and margin being a most brilliant yellow, rendering the plant most striking and effective.

It is excellent for exhibition, and has already received numerous First Prizes.

It was sent to us from Bolivia by Mr. Pearce, our Collector.

Price, strong plants, 42*s.*; smaller, 31*s.* 6*d.*

Messrs. J. V. & SONS will be pleased to forward, Post Free, their "NEW DESCRIPTIVE CATALOGUE" of the above, and many other Novelties sent out by other houses; and to enable purchasers to judge of the merits of the Plants offered by them, a very carefully and accurately prepared engraving of each is given.

ROYAL EXOTIC NURSERY, KING'S ROAD, CHELSEA, S.W.

American Plants, &c.

WATERER AND GODFREY'S PRICED and DESCRIPTIVE CATALOGUE of RHODODENDRONS and other American Plants for this Autumn, will be sent on application. The Catalogue also gives a summary of their General Nursery Stock, probably the most extensive in the kingdom.
Knap Hill Nursery, Woking, Surrey.

Chrysanthemums, Chrysanthemums, Chrysanthemums.

ADAM FORSYTH'S CATALOGUE is now ready, containing a Descriptive List of all the best varieties; also a Practical Treatise on the Cultivation of the Chrysanthemum. Forwarded to all applicants for one stamp.
Brunswick Nursery, Stoke Newington, London, N.

BARR AND SUGDEN.

From Yokohama direct, a consignment of LILIUM AURATUM, in fine condition, 2s. 6d., 3s. 6d., 5s. 6d., and 7s. 6d. each.

SURPLUS STOCK of GLADIOLI.
Fine Mixed varieties of GANDAVENSIS, 7s. 6d., 10s. 6d., and 15s. per 100; 1s. 6d. and 2s. 6d. per dozen.
BOWENNIS, the finest scarlet, 7s. 6d., 10s. 6d., and 15s. per 100; and 1s 6d. and 2s. 6d. per dozen
NAMED VARIETIES, 3s. 6d., 5s. 6d. 7s. 6d., and 10s. 6d. per doz.

A FEW SPECIALITIES in SEEDS.
RICINA LÆVIS.—A most effective plant for table decoration. During the autumn, winter, and spring months, it is covered with elegant drooping racemes of beautiful scarlet berries. For mode of culture, &c., see "Journal of Horticulture, p. 275, April 4. 1s per packet
ZEA CUZKO (from Peru).—The largest Maize yet introduced for decorative purposes. Leaves very broad and compact. Last year in Italy this plant attained the height of 20 feet. 1s. and 2s. 6d. per packet.
ZEA JAPONICA VARIEGATA.—Beautifully striped Maize; as handsome as Arundo Donax variegata. 6d., 1s., and 2s. 6d. per packet.
DATURA SPECIES (from Peru).—Described as a most beautiful plant. Flowers pure white, 10 inches long, and deliciously fragrant. 2s. 6d. per packet.
BARR'S SPLENDID STRAIN of PRIMULA SINENSIS FIMBRIATA, ALBA, RUBRA, and Mixed. Each 2s. 6d. per pkt.
BARR'S FERN-LEAF PRIMULA, ALBA, RUBRA, and Mixed. Each 2s 6d. per packet.
BARR'S PRIMULA SINENSIS FIMBRIATA NOVA.—A beautiful Madder-red shaded variety; and beautiful new striped variety. Each 3s 6d. per packet.
BULL'S DUPLEX-FLOWERING, a unique and beautiful MONKEY FLOWER.—1s. 6d. and 2s. 6d. per packet.
BULL'S INTERNATIONAL PRIZE CALCEOLARIA.—The finest strain in cultivation. 2s. 6d., 3s. 6d., and 5s. 6d per packet.
FLOWER SEEDS in COLLECTIONS.—3s. 6d., 5s. 6d., 7s. 6d., 10s., 15s., and 21s per packet.
FINEST LAWN GRASS SEED, for Renovating Old Lawns and Laying Down New Ones.—1s. 3d. per lb.

STANDEN'S "GARDENERS' and AMATEURS' FRIEND." a highly Concentrated, Inodorous, Artificial Manure, in all cases inducing free vigorous growth, and promoting early maturity. It is now largely used by the leading Nurserymen, amongst whom we may mention:—Messrs. Veitch & Sons, Mr. Charles Turner, Messrs. J. & C. Lee, Mr. Barnes, of Camberwell, Mr. Standish, of Bagshot, &c., and many of the leading amateur Exhibitors. Use it freely. Directions for Use, see *Gardeners' Chronicle*, p. 291. Sold in Canisters at 1s., 2s 6d., 5s. 6d., 10s. 6d., and 21s. The above valuable Manure may be had of the leading Nurserymen and Seedsmen in England, Ireland, and Scotland.

BARR & SUGDEN, The Metropolitan Seed, Bulb, and Plant Warehouse, 12, King Street, Covent Garden, W.C.

ROYAL BOTANIC SOCIETY.
THIRD SPRING EXHIBITION, April 27, 1867.

LIST OF AWARDS

6 ROSES (Amateurs.)
1st Prize, Mr. J. Jaques, Gr. to W. F. Watson, Esq., Isleworth
2d, Mr. J. Wiggins, Gr. to W. Beck, Esq., Worton Cottage, Isleworth

6 ROSES (Nurserymen.)
1st, Mr C. Turner, Slough, Bucks
2d, Messrs. Paul & Sons, Cheshunt, Herts
3d, Messrs. H. Lane & Son, Great Berkhampstead, Herts

3 ROSES, new kinds.
1st, Messrs. Paul & Son | 2d, Mr. C. Turner
3d, Messrs. H. Lane & Son

24 ROSES, cut blooms.
1st, Messrs. Paul & Son | 2d, Mr. C. Turner

ROSES, boxes of cut blooms.
1st, Messrs. Paul & Son

6 PELARGONIUMS. (Amateurs.)
1st, Mr. J. Wiggins, Gr.

6 AURICULAS. (Amateurs.)
1st, Mr. J. Butcher, 1, South Street, Camberwell
2d, Mr. S. Cox, 71, Harwood Street, Camden Town
3d, Mr. J. James, Gr.

6 AURICULAS. (Nurserymen.)
1st, Mr. C. Turner
2d, Messrs. J. Dobson & Son, Isleworth

24 PANSIES.
1st, Mr. J. James, Gr.
2d, Mr. H. Hooper, Nurseryman, Bath

6 FOLIAGE and FLOWERING PLANTS.
1st, Mr. B. S. Williams, Nurseryman, Holloway
2d, Mr. G. Wheeler, Gr. to Sir F. H. Goldsmid, Bart., Regent's Park
3d, Mr. J. Burley, Nurseryman, Bayswater

MISCELLANEOUS.

SILVER MEDAL.
Mr. C. Turner, for Collection of Auriculas

SMALL SILVER MEDAL.
Mr. B. S. Williams, for Collection of Flowering Plants
Mr. W. Gardiner, Gr. to Sir G. Phillips, Bart., for Dish of Peaches
Mr. W. Bull, for 2 Specimens of Agave filifera
Mr. J. James, Gr., for 12 British Ferns
Mr. J. James, Gr., for 6 Calceolarias

BRONZE MEDAL.
Mr. J. James, Gr., for 12 Pansies in Pots
Messrs. J. Dobson & Son, for 9 Azaleas
Messrs. H. Lane & Son, for Collection of Roses

SMALL BRONZE MEDAL.
Mr. J. James, for 6 Cinerarias

NEW PLANTS.

FIRST-CLASS CERTIFICATE.
Mr. W. Bull, for Coprosma Baueriana variegata
Mr. W. Bull, for Adiantum Lindeni
Mr. W. Bull, for Dioscorea discolor variegata
Mr. W. Bull, for Anectochilus Petola marmorea
Mr W. Bull, for Anectochilus Dayi
Mr. W Bull, for Terminalia elegans
Mr. B. S. Williams, for Stenochilæna heteromorpha
Mr. B. S. Williams, for Amaryllis aurantiacum
Mr. C. Turner, for Auricula Illustre
Mr. C. Turner, for Auricula Echo
Mr. C. Turner, for Auricula Constellation
Mr. C. Turner, for Auricula Fascination
Mr. C. Turner, for Auricula Cheerfulness
Mr. C. Turner, for Auricula Col. Champneys
Mr. C. Turner, for Auricula Charles Turner
Mr. C. Turner, for Auricula Crown Prince

SECOND-CLASS CERTIFICATE.
Mr. C. Turner, for Auricula Selina
Mr. C. Turner, for Auricula Jessie
Mr. C. Turner, for Auricula Vivid
Mr. C. Turner, for Auricula Trumpetor
Mr. C. Turner, for Auricula Defiance
Mr. W. Bull, for Azalea Queen of Roses
Mr. B. S. Williams, for Azalea Queen of Roses

RICHARD SMITH'S SEED CATALOGUE contains a Calendar of Time for Sowing, particulars of Collections, with Prices, Directions for Cropping well and economically, Soil, Manure, Depth, Distance, Season, Hardiness, Duration, Form, Height, Colour, Storing, Use, Flavour, and other qualities, described.
This List Free by Post or one stamp. Seeds direct from the Growers the surest way to success.
RICHARD SMITH, Seed Merchant, Worcester.

New Plant Catalogue.

GAND J. RUMLEY beg to announce that their NEW DESCRIPTIVE CATALOGUE of Fuchsias, Verbenas, Geraniums, Hollyhocks, Dahlias, Chrysanthemums, Cinerarias, Calceolarias, Petunias, Phloxes, Greenhouse, Bedding, and Hardy Plants, is now ready, and may be had on application.
The Nurseries, Newton-le-Willows, near Bedale, Yorks.

GREAT NATIONAL HORTICULTURAL EXHIBITION, 1867.
£1000 OFFERED IN PRIZES.
To be HELD in the Gardens of the Botanical and Horticultural Society, Old Trafford, MANCHESTER, 7th to the 15th JUNE
Charges for Admission—First Day, 10s. 6d. each; Second Day, 2s 6d each; WHIT MONDAY and remaining Days, 1s each
Subscribers to the Manchester Botanical and Horticultural Society free each day.
Annual Subscription—Family, £2 2s.; Individual, £1 1s., admitting on all occasions.
Schedules, &c., may be obtained on application to Mr. B. FINDLAY, Curator, Botanic Gardens, Manchester, or from the undersigned. Military Bands in attendance each day.
Cooper Street, Manchester. HENRY WHITWORTH, Sec.

GREAT NATIONAL HORTICULTURAL EXHIBITION, 1867.—Gardeners will be admitted by Tickets as follows:—First Day, 2s. 6d. each; Second and remaining Days, 1s. each. Applications for these Tickets must be made on or before 5th JUNE. HENRY WHITWORTH, Sec.

GREAT NATIONAL HORTICULTURAL EXHIBITION, 1867.
Notice is Hereby Given, that all Persons who intend to take part in this Exhibition must signify their intention to do so (stating the Classes in which they intend to compete), on or before May 17, by letter addressed to the Undersigned. BRUCE FINDLAY.
Botanic Gardens, Manchester.

GRAND HORTICULTURAL EXHIBITION at BURY ST EDMUND'S, in connection with the SHOW of the ROYAL AGRICULTURAL SOCIETY, JULY 15, 1867, and four following Days.
Amongst various Special Prizes, amounting in value to nearly £300, and exclusive of the ordinary Prize Schedule,
A SILVER CUP, VALUE £20,
will be offered by the Proprietors of the
GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE
for the best COLLECTION of FRUITS and VEGETABLES, to be made up as follows:—
Of FRUITS, any Five of the following Eight kinds, one Dish of each:—Grapes, Melons (2 fruits), Strawberries, Gooseberries, Currants, Cherries, Raspberries, or Apples (of the crop of 1866).
Of VEGETABLES, any Eight of the following Fourteen kinds, one basket or bundle of each:—Peas, French Beans (or Scarlet Runners), Broad Beans, Cauliflowers, Cucumbers (grace), Summer Cabbages, Early Carrots, Turnips, Artichokes, Onions, Spinach, Rhubarb, Potatos, or Mixed Salading.
This Cup will be open to Competition amongst Amateur or Professional Gardeners, of all grades, with Fruit and Vegetables of *their own growing*; any article otherwise obtained will disqualify the exhibitor.

The Gardeners' Chronicle.
SATURDAY, MAY 4, 1867.

MEETINGS FOR THE ENSUING WEEK.

MONDAY,	May 6	Entomological	7 P.M.
TUESDAY,	— 7	Royal Horticultural (Special Prize Show), at South Kensington	2 P.M.
		Ditto (General Meeting)	3 P.M.

IN a recent number we had occasion to allude to the tubers of terrestrial Orchids, and we pointed out that complete success was not likely to attend their culture, until cultivators had thoroughly made themselves acquainted with the peculiarities of their growth under natural circumstances. It did not occur to us at the time, that the structure of the TUBERS of the LESSER CELANDINE, Ranunculus Ficaria, was very similar to that of the corresponding organs in terrestrial Orchids, while the Celandine has the advantage of being in general more readily accessible for purposes of observation and experiment than are Orchids. It is not necessary in this place to enter into a long account of the various opinions that have been held by different botanists as to the structure of this plant. It will suffice for our present purpose to avail ourselves of the researches of M. VAN TIEGHEM as recorded in the Annales des Sciences, 1866, p. 88, and to refer the reader desirous of fuller information, to the observations of that gentleman, who, besides giving the results of his own investigation, adds a summary of what has been done by others.

The small yellowish fleshy masses, looking like grains of Wheat, in the axils of the leaves of this plant are familiar to most persons, as are also the longer subterranean tuberous roots that the plant produces. Both forms of tuber appear to be of composite nature—to consist in fact of a small bud, and a swollen adventitious root attached to it, and by means of these the plant reproduces itself, for it rarely happens that perfect seeds are produced, and in those cases where seeds are perfected, the axillary tubercles are not formed, and indeed the whole appearance of the plant becomes changed.

The seedless form grows in patches in moist meadows, its leaves are in general larger, its stems stouter, and the whole vegetative system is more vigorous than in the case of the fertile plant. The latter has comparatively small rounded leaves, in whose axils nestle no tubercles, the stem and its divisions are less vigorous, and the flowers have a reddish-brown tinge on the outer surface; while in the ordinary sterile variety the flowers are yellow or green on the outside. The seed-bearing plant occurs more frequently in dry localities, and in small numbers. It is not, like its tuberous brother, a social being. According to M. VAN TIEGHEM the reason why the seeds are not produced in the sterile Celandines is because no pollen is formed, but this part of his statement seems to us to be only partially true, as pollen is to be found, though certainly in small quantities, in the anther, and moreover the ovules and the embryo are often fully formed, as we have frequently convinced ourselves, though we have not seen perfect seeds or ripe fruit. While then we are not able to endorse M. VAN TIEGHEM'S statements in their entirety, we can certainly do so to a great extent, and at any rate the history of the plant is not only important in a physiological point of view, but it is surely suggestive in a cultural sense, for assuming that in the main the facts are as we have stated them, it seems clear that the different forms that the plant assumes are in some way dependent on external conditions, and the accurate determination of these conditions would probably give some hint as to the growth of tubers—in other words, as to the successful cultivation of root crops! It would be an easy experiment to grow the tubers of this plant under very varied conditions, and to watch the results, while to the cross breeder it offers an interesting field for experiment.

Before quiting the subject, we may mention the fact, that in a double-flowered variety that we have lately examined, the carpels were open, so as to resemble little leaves, or rather leaf sheaths, and each bore two imperfect ovules, which sprung from the inner surface of the carpel, between the margins and the centre.

The interest of these flowers to the morphologist is great, for many reasons, on which, however, we must not in this place dilate. Suffice it for us if we can show that, while for its beauty and its associations, the Lesser Celandine deserves a place in the shady portions of a lawn, and is far too beautiful to be passed over as a mere weed, there are secrets fraught with interest, even in a GRADGRIND point of view, in this little gem, that should induce some among our readers to glance not only lovingly but inquiringly on—

* * * "The first gilt thing
That wears the trembling pearls of Spring."

—— WE have much pleasure in calling attention to the following note respecting the proposed EXHIBITION OF TRICOLOR PELARGONIUMS, from the Chairman of the Floral Committee. We feel the more pleased at this step being taken by the Royal Horticultural Society, as it is so much in conformity with the views from time to time expressed in our columns:—"In common with many amateurs and others much interested in the variegated form of the Zonal Pelargonium, I am looking forward to a grand treat on Tuesday, May 21, when I trust the invitation put forth by the Council of the Royal Horticultural Society will be cheerfully responded to. I believe that the idea of an exhibition of these plants has been most favourably entertained by all the raisers of this class of Pelargoniums, and that a desire prevails that a magnificent display should be made on the 21st. It may be well, perhaps for the benefit both of amateurs and others, briefly to sketch out what is expected from exhibitors on this occasion. It is desirable that groups or collections should be shown, including the earliest form of variegation, showing its progress to that of the present year, that a paper be sent with each collection, stating the advance or improvement gained from an original point—for instance, from Mrs. Pollock to the seedlings of the present year. It would be well if each exhibitor would state whether accurate entries and notes have been made and kept of the parentage of seedlings, giving the names of the male and female parents. One great object in view is to prove if possible whether the skill of the gardener (a point at present doubted by some) has any certain control over Nature in producing these variegations. It will not be necessary that a tedious and lengthy paper should be written; a simple proof stating that definite results have been achieved by certain proceedings in hybridising is all that is required or expected. The names of the parent plants written on the label bearing the name of the seedling plant, would be most interesting. I cannot but think that much valuable information would be thus afforded to the Horticultural world; also that subject matter for a conversation at the meeting to be held afterwards, would be given, which doubtless some of our botanical and horticultural friends would avail themselves of. New and distinct varieties separately entered for the decision of the Floral Committee, will receive certificates according to merit, and medals will be given to such groups or collections accompanied with the written information required, as shall be considered most worthy. Let not the amateur be afraid of exhibiting on this occasion. The raiser of three or four seedlings of merit, after careful and thoughtful selec-

tion of parents for hybridising, may have something of greater interest to exhibit, than seedlings collected from all parts of the kingdom, of the origin of which no trace can be shown. It would be well for those who intend to exhibit on the 21st to give due and early notice of the same to MR. EYLES, also to endeavour to bring their collections as soon after nine in the morning as possible, as it will take some considerable time to arrange them." *J. Dix, Chairman Floral Committee, May* 2.

—— Our experience respecting seedlings produced by the WILD CABBAGE is diametrically opposite to that of our correspondent of last week (see p. 432). Several years ago we brought from the Limestone Cliffs at Gwrwch Castle, which form such a striking feature in travelling from Abergele to Colwyn, some seed of the Wild Cabbage. This has been repeatedly sown ever since, and always with the same result. The plant is a Wild Cabbage still, having leaves without footstalks, without the slightest tendency to form a heart; and the only difference we have ever observed in the seedlings, is a slight redness in some of them. The plant has been cooked, and found quite uneatable. The greatest pains, it should be observed, have been taken to obtain pure seed, and there is little doubt that our correspondent's Wild Cabbage must have been inoculated from some neighbour's garden. We shall however vary the experiment by leaving the flowers unprotected, and we shall anxiously watch for any difference which may arise in consequence. This Wild Cabbage is far from hardy, and our whole stock in consequence of last winter's frost is reduced to a single small plant, which is however in full flower. It would indeed be an extraordinary circumstance if a wild seedling fecundated by itself could in a short time produce such a variety of forms. The subject is one of great importance, and we should be glad of any facts which bear upon it. Some of our seed was sent to Kew, where, so far as we observed, the plant remains unchanged. *M. J. B.*

—— Never before have we seen such a fine display of EARLY TULIPS IN HYDE PARK as Mr. MANN has provided for the London public this season. Along that side of the Park next Park Lane from Stanhope Gate to the Marble Arch there is now one mass of floral beauty, exceeding in magnificence anything of the kind with which Londoners are acquainted. This will be at once apparent when we state that in 10 beds each 25 feet in length and 8½ feet in breadth, and in the different borders, are something like 20,000 Tulips, the bloom of which is now in perfection. The varieties employed to produce so much gaiety are Rex Rubrorum, double red; Tournesol, double red and yellow; Waterloo, early single red; La Candeur, double white; Yellow Prince, single yellow; and White Pottebakker, single white. These are kinds which experience has proved to be best suited for outdoor displays of this description. The beds in question are edged with the little white-blossomed Arabis alpina, which answers well for that purpose. Earlier in the season red, white, and blue Hyacinths, Aconites, Snowdrops, and Crocuses, ushered in the floral year; but the beauty of these is now over. The kinds of Crocus which were found to answer best were Albion, Dandy, Cloth of Gold, Cloth of Silver, Large Yellow, Prince Albert, and Othello. These as well as the Tulips and other bulbs grown here were, we understand, supplied by Messrs. GEORGE GIBBS & Co., of Down Street, Piccadilly, and the manner in which they have bloomed has certainly done credit to the selection made by that firm. The Tulips will be succeeded by bedding plants, of which enormous quantities are annually propagated for that purpose in the Royal Gardens at Kensington.

—— We may add that Messrs. E. G. HENDERSON have also at present a charming collection of SPRING BULBS in flower, in their Wellington Nursery, at St. John's Wood, which, equally with the display in Hyde Park, is well worth inspection.

—— Among other rarities to be shown next Tuesday at South Kensington we understand that Mr. BATEMAN intends to exhibit a remarkably fine specimen of the old ONCIDIUM BIFOLIUM, a species which, after having been all but lost to this country, was reintroduced two years ago by Messrs. VEITCH. It is of the easiest culture now that the proper management is understood.

—— The successful competitors for the laying out of SEFTON PARK (see p. 432), are Messrs. ANDRÉ & HORNBLOWER, Paris and Liverpool; and Mr. MILNER, Sydenham. We shall publish a report upon these plans in our next issue.

FUNGI AS FOOD.

UNTIL the appearance of Dr. Badham's interesting work "On the Esculent Funguses of Great Britain," few, even amongst naturalists, were aware of the value of this tribe of plants for food purposes; a more extended study of them has, however, tended to remove a great deal of prejudice concerning Fungi, and we shall soon expect to find that, like other esculent plants, they will be cultivated for the increasing market which they command. Now, as I happen to have had some years' experience as regards several of the species of this interesting section of plants, I purpose offering a few general remarks upon the subject.

When Badham's book first appeared, nearly every Fungus except the common Mushroom (Agaricus campestris), was put aside as a "Toadstool;" but his long residence in Italy had shown him that this species was by no means the best, and he enumerated no fewer than 50 species of edible Fungi, most of which are on the Continent more highly esteemed than our Mushroom. He says: "In Rome, whilst many hundreds of what we call Toadstools are carried home for the table, almost the only one condemned to be thrown into the Tiber by the inspectors of the Fungus market* is our own Mushroom; indeed, in such dread is this held in the Papal States, that no one knowingly would touch it. 'It is reckoned one of the fiercest imprecations,' writes Professor Sanguinetti, 'amongst our lower orders, infamous for the horrible nature of their oaths, to pray that any one may die of a *pratiola*.'"

I now copy the learned Doctor's list of edible Funguses, and shall remark upon some of the species afterwards. They are as follow:—

Agaricus ..	.. 29	species	
Amanita ..	.. 1	,,	
Boletus ..	.. 3	,,	
Cantharellus	.. 1	,,	
Clavaria .	.. 1	,,	
Fistulina ..	.. 1	,,	
Helvella ..	.. 2	,,	
Hydnum .	.. 1	,,	
Lycoperdon	.. 2	species	
Morchella	.. 2	,,	
Peziza ..	.. 1	,,	
Polyporus	.. 3	,,	
Tuber ..	.. 2	,,	
Verpa ..	.. 1	,,	
	50		

Of this list of genera I would shortly comment on the following dozen of species:—

1. Agaricus prunulus. Mouceron, Fr.
2. ,, Oreades. Champignon, Fr.
3. ,, campestris. Common Mushroom.
4. ,, Georgii. Giant Mushroom.
5. ,, procerus. Shaggy Agaric.
6. ,, personatus. Blewits.
7. ,, melleus. Stump Agaric.
8. Boletus edulis. Esculent Boletus.
9. Cantharellus cibarius. Chantarelle.
10. Lycoperdon giganteum. Giant Puff-ball.
11. Morchella esculenta. Morell.
12. Tuber cibarius. Truffle.

1. The Mouceron may well be placed at the head of our list, as it is one of the earliest and the best of the Mushroom tribe. It usually appears the first week in May on Grass downs, and in poorer meadows growing in rings which vary in size to more than 30 yards in diameter, as we have seen on Salisbury Plain. At this season no other "fairy ring" Agaric has made its appearance, so that it is next to impossible to confound it with any other species. It occurs plentifully in the meadows in front of the Agricultural College at Cirencester, and is the one upon which Professor Way experimented for his paper on Fairy Rings,* though the species was erroneously referred to the A. Georgii.

While at the College I was much interested in the subject, and yearly watched the coming of the Fungus with some anxiety, and seldom for as many as 15 years was it later in making its appearance than the end of the second week in May, its most usual time being the first week. I soon saw that the species was the A. prunulus, so well described by Dr. Badham, being identical with the Italian plant of which he quaintly observes that little baskets of the earlier examples are sent as "presents to lawyers and fees to medical men," and that its Italian name of Funghi di Genoa denotes superior excellence, as with our Kentish Cherries, Battersea Asparagus, &c.; and further, that in the dried state it is sold at Italian warehouses at the enormous rate of 6*d.* per ounce. Seeing, then, that it was described as so good, we procured a dish, and got them cooked for the Professor's table, and, as in the case of the burnt pig so admirably described by Charles Lamb, the perfume was so agreeable, that the whole College was seduced into eating them; the students gathered them, and prevailed on the cook to send them up for supper; and so plentiful were they that enough were gathered for near upon 100 people, all whom ate of them heartily without a single case of indigestion.

In 1849 the Cotteswold Naturalists' Club May Meeting was fixed for Swindon Station; to this I took a basket of this A. prunulus, which were there cooked for breakfast, and in such perfection that the tempting smell wooed all to partake of them, though for the first time in their lives—all except myself, who was so busy making tea that the dish was emptied before that important process was over. I afterwards learned that at this establishment was an Italian cook, who, upon seeing my Funguses, gave vent to his joy in the kitchen, and went into rhapsodies upon "verdant Italy."

From this time the members of the Club and others in Gloucestershire and elsewhere amongst my old pupils, ate this Fungus freely. I know of no better way to cook them than with a little butter, pepper, and salt, to grill them like the common Mushroom; or they may be fried with thin slices of bacon. A lady friend of mine once directed some to be stewed; how the process was performed I cannot say, but the result was that the Fungus had the appearance of bits of soddened leather breeches; and so it is to be feared that the difference between the provider of meat and of cooks, will cause the party who thus tried to partake of them, to consider them mere Toadstools as long as they live.

2. The Champignon is also a fairy ring species, making its appearance from August to October, and even until near Christmas in mild weather. It is common on lawns and in pastures, and sometimes occurs in clusters on banks. Its rings are usually small, but, as I have this year seen, are so thick that many pounds may be gathered in a small space of time; and the Rev. M. J. Berkeley says of it no more than I have constantly experienced:—"When of a good size and quickly grown, it is perhaps the best of all Fungi for the table, whether carefully fried, or stewed with an admixture of finely minced herbs, and a minute portion of garlic. It is, at the same time, tender and easy of digestion; and when its use is known, and character ascertained, no species may be used with less fear. It is so common in some districts that bushels may be gathered in a day." They are exquisite if served on buttered toast with game, or poultry of all kinds.

3. The Common Mushroom is so well-known that, in spite of all that may be said to the contrary, I have never known the veriest bumpkin make a mistake in regard to it. Its flavour is so rich that all classes of people in this country esteem it as a rare "dainty dish" even "to set before a king," and in its favour, except with a few, all other Funguses are cast aside. It is, however, a curious fact that it is despised on the Continent, so much so as not to be permitted to enter the fungus market. I recollect questioning the Prince of Canino on this matter, at one of the meetings of the British Association, when he informed me that it really was a poisonous species; and that it is so with some people, perhaps in peculiar conditions of the digestive system, I can fully confirm.

Few among us but have noticed towards autumn the ominous newspaper paragraph—"Poisoned by Toadstools." Now in some of these cases I have inquired into the species, and never did I detect an error, but take an example of the present season. A farmer and his wife partook heartily of Mushrooms for their supper, of which I found the former had taken the "lion's share." He thought himself dying in the night, as he supposed from eating toadstools, but in this case I not only ascertained that his fungus was the best variety of this Mushroom, but I partook of them with great relish, as his wife had done, without any ill effects. I conclude then with regard to this fungus that it should always be taken with moderation, and only during the period that its gills preserve their fresh pink hue. The smaller pickled "buttons" are always good, and I have never heard of ill-effects from them. *J. B.*

(To be Continued.)

* Fancy an inspector of Funguses in our large towns!

* Journal of the Royal Agricultural Society, vol. vii., p. 549.

RIVAL SYSTEMS OF VINE-GROWING.

A CLEVER invention or plan will always make way on its own merits, and require no persuasive arguments for its introduction. The Prussians during the late war had no difficulty in pursuading the Austrians to believe in the superiority of the needle gun; and not the Austrians only, but all the other fighting nations of the earth besides, have lost no time in adopting either it or something better. If the extending system of Vine-growing is, like the needle gun, really a good thing, it will soon make way for itself and Messrs. Henderson, Sage, and Cannell may at once lay down their arms. Mr. Sage will see (pp. 151-2, 293) that I have forestalled him in the question he puts to me, by my asking Mr. Cannell how Grapes are to be ripened in March for several successive seasons without injury to the Vines? to which question no very satisfactory answer has been given.

We must, before proceeding further, "prop up," and not lose the thread of our subject. Mr. Cannell says that "Doctors have done away with the knife—so must gardeners;" and that "large old Vines are decidedly better for early forcing than young ones," and hence for all purposes. I was aware that Mr. Henderson was one of our best Grape growers, and it is not to criticise his abilities as a Grape grower that I now, on the information received from himself, proceed to make my remarks. Mr. H. says, "I always prune my Vines to what I think a good eye, whether I leave 3 inches or 2 feet, and as the shoots reach the top of the house I cut them down to the next coming shoot." Mr. Henderson himself admits that even although bunches show which might weigh 5 or 6 lb., he cannot let them grow, because he never could colour or get them up to the mark. What advantages, then, has this progressive system? and on what principle can it be called the progressive system, seeing that it is after all more of a slashing system than the one of which I am an advocate?

Every now and then, very probably every year, Mr. Henderson cuts down a piece of a rod to make room for a young shoot. Does he use his finger and thumb to perform this amputation? Thanks to the reciprocity of action in the Grape Vine, it accommodates itself to almost all manner of restrictive manipulations. What relation has this management to the extending system of Mr. Cannell, who recommends leaving 6 feet of new wood every year, and no cutting back of the old? Mr. Henderson, although speaking from the opposition benches, is virtually advocating the restrictive cause. The practice of Mr. Henderson affords another grand example of the advantage taken by a shrewd observer of nature, in making use of the reciprocity of action between root and branch, and in turning it to the account of producing fruit and the necessary quantum of leaves, instead of so much timber. And now that we have Mr. Henderson's system (thanks to Mr. Sage), I cannot see that it enables me to alter my already expressed comparison (p. 293). I have not yet been a Grape-grower as long as Mr. Henderson, but for the time I have been at it, I have no reason to complain. My Vines are not yet five years planted, I have gathered four crops, and during the last three years I have put Grapes plentifully on my master's table all the year round, besides supplying as many as he chose to give away or present to his friends; and this I have accomplished without my Vines starting into growth tropical fashion, as instanced by Mr. Sage as having occurred at Woburn. In the autumn of 1865, three years after all my Vines and other trees were planted, I took 1st prize at the Crystal Palace for a collection of fruit, which was reported as being "by far the best collection there."

Whilst going on with this discussion I should not omit to notice the great commotion which of late years has revolutionised, I should almost say, the entire system of hardy fruit culture; nor are we yet able to perceive that the fruit obtained by this system of dwarfing has deteriorated in any way, when compared to fruit grown on trees of immense size. We get instead a greater number and variety of trees. Now this plan of dwarfing fruit trees I hold to be not only analogous to the restrictive system I am advocating, but in principle similar; and as the dwarfing system is acknowledged to be successful in the case of other fruits, I cannot see how the restrictive system of Vine culture can be held as vicious.

It does not become me to take up the cudgels for so eminent and skilful a man as Mr. Rivers, the champion of fruit-tree culture. My praise is worth little, but I

cannot withhold the expression of my opinion that the horticultural community is more indebted to him than to any man living for improvement in the methods of fruit growing and fruit culture. I need not describe what his process is, but I wish it to be borne in mind, and also the system of Vine culture I uphold, while the few subsequent remarks are read. I do not know Mr. Rivers—I never had the pleasure of speaking to him in my life, therefore I cannot pretend to give his ratiocination on fruit tree culture, but as what little I have thought on the matter has led me to the same conclusion, I cannot help thinking but that we may have arrived at one common goal by a similar way.

Some time ago, in a leading article of this Journal (see p. 125), some remarks were made upon this controversy between Mr. Cannell, myself, and others. By a consideration of the reciprocity of action, and of means to an end, in nature, the writer arrived at what appeared to me to be a conclusion in favour of Mr. Cannell's views rather than of mine. Now it is by a consideration of these very same natural principles or practices, if you so regard them, that I came to the opposite conclusion. And I hold that these considerations, when rightly viewed, are the strongest arguments in favour of the "restrictive system," and the system of Mr. Rivers. The leading article alluded to, and my opponents in this controversy, imply that this system is unnatural. Mr. Cannell opened his arguments by drawing attention to the fact that under the more natural system of surgery now prevalent, the knife had been well nigh abolished. But does the comparison, or, rather, the illustrated parallelism, hold good? Surgery is practised upon beings in their natural condition [?]; our Vine culture is not. Nature in her cultivation has in view the entire plant or tree. She is equally careful for root, and stem, and branch, and leaf, and flower, and fruit, and seed, and every other part. Her idea is to produce a perfect plant by a general excellence of parts, and her guiding plan or principle is reciprocity of action, and adaptation of means to the end. There is the requisite balance observed between the roots, and the work they have to do, and so on. Now if our idea were the same—that is, if we wished to produce perfect plants—perfect in one part as in another, our occupation would be simply to follow Nature—to follow her not only in her principle of action, but in the action itself. Where would then be the art of the gardener? But I believe that when we enter upon the possession of the inheritance that God long ago gave us, the lordship over "every herb bearing seed which is upon the face of all the earth, and every tree in the which is the fruit of a tree yielding seed," we should in reality exercise our powers. And the true art of the gardener consists in exercising the powers in accordance with the principles upon which Nature acts, that is, in accordance with the laws God has laid down—the reciprocity of action, the adaptation of means to the end. Now gardening is, strictly speaking, the art of producing monstrosities. Nature gardens to produce perfect plants; gardeners garden to produce one particular part of a plant. We found a Brassica, and monstrously developed its leaves into a Cabbage plant. We found a Prunus, and monstrously developed its fruit into a Plum. We found a Briar, and monstrously developed its flower into a Rose. In doing all this our highest art consists in following Nature's principles; we cannot follow Nature's actions, for natural action would leave things where we found them. [Not always.] My case is this, and, as I have said, I cannot but think that Mr. Rivers found himself in similar case. I have a tropical and a sub-tropical plant—a Vine. I want, not stem, not leaves, not seeds, but fruit. How shall I proceed? By letting Nature have her own way? If I do, I shall have as much perfection of wood, of leaf, of seed, &c., as of pulpy fruit. No. I must proceed on the natural principles of adaptation of means to the end, and I must check the growth of wood and leaf if need be, and to keep the reciprocity and balance I must root prune as well as branch prune. Is this sound in principle, or is it not? *Wm. Miller, Combe Abbey Gardens, Coventry.*

LETTERS FROM PARIS.—No. IX.

The Great French Exhibition.

At last we have something like a Flower Show, as much from the accumulation of previous exhibitions, however, as from those of to-day; but the new plants shown this morning (May 2) would be considered remarkable in any exhibition, while Orchids are as nearly as possible miserable, and the permanent beauty of the scene, if I may so speak, is improving every hour. The show was to take place this morning, and has to some extent, but the judges will not look round till to-morrow, and some of the best things will not be staged till this evening, and therefore I cannot hope to tell you all about it, particularly as I must post this in two hours' time. First, then, of the New Plants. This would appear to be the show of the season with respect to these, but as they were not arranged in their classes for competition, when I left at 3 o'clock, I cannot tell you as much about them as is desirable. Messrs. Veitch certainly make a fine display this time, and in addition to those shown before, the following are some of the most remarkable subjects.

Two Dracænas not named, one a splendid reddish-leaved kind, with broad leaves, quite unlike the ordinary brightly-coloured kinds, and really fine; another in the style of D. brasiliensis, with a singular and striking variegation, each leaf having a margin of white, and the central or young leaves quite so when unfolding, the crest of the plant in fact almost white, and the leaves margined with the same colour; Aralia Veitchii, a beautiful species, with a crisped margin to a very narrow leaflet—dark olive green, with a reddish midrib; Aphelandra or Sanchezia nobilis variegata, a noble plant with rich green leaves regularly belted with yellow stripes; Maranta Veitchii, the best of all the Marantas; a Croton, with crisped margins to the leaves and with yellow spots on them, but which become of bright red when the leaves get seasoned, so to speak; another Croton, with a dark rose midrib in the midst of a band of yellow; altogether Messrs. Veitch show 10 new Crotons, the most remarkable of the remainder being one with green leaves, yellow midribs and deep rose peduncles and stem. They have also a Pandanus, in the style of ornatus, with brightly and beautifully variegated leaves, which will prove a first-class stove plant; Dieffenbachia gigantea, finely developed, 7 feet high; a most curious Aralia, with long Oak-like leaves, and a very beautiful plant, dissected in the leaf like a small Maiden-hair Fern, but with tendrils somewhat in the way of a Vine, a thing not named or known, but which will prove a gem for trailing over a slender arch or trellis in a stove or Orchid-house; it is a Brazilian plant, and probably Bignoniaceous. Also Dieffenbachia Pearcei, with mottled leaves, the parts that clasp the stem being white; a large Marattia, a Clematis (John Gould Veitch), probably one of the monstrous forms of C. azurea; a lot of varied forms of the Japanese Primulas, which they have so often shown in London; and altogether about 50 distinct new plants, some of which will not be in position till to-morrow.

Mr. Linden also makes a strong display, having one extraordinary thing in the way of a Tradescantia, but with noble leaves a yard or so long and 7 inches broad, with a vein of dull purple along the margin, and the apex of the leaf, slightly recurved, the bases of the leaves clasping the stem like a Billbergia. It is an Epiphyte, and one of the most remarkable ever seen. Echites rubro-venosa, with red veins, is a very nice plant; Dieffenbachia nobilis, well named, a free and bold kind; Ficus dealbata, a large species, with leaves more than a foot long and 6 inches wide, their under side silvery and downy; two Adelasters, somewhat like the species introduced a few years since; Bignonia ornata, with the large young leaves centred with silvery purple; a new Iresine, likely to be good; a well variegated Hemerocallis, a large species of Caladium, spotted rose; Cyanophyllum spectandrum, nearly as good as the magnificum, which is saying a good deal for it; Dracontium pertusum, with a mottled snake-like stem; Spathiphyllum sp. nova, with leaves about 2 feet long, glossy and veined, like the fresh, fat leaves of Ficus elastica, a noble plant for decoration of conservatories, stoves, and probably for the sub-tropical garden; with a magnificently developed specimen of the fine Anthurium regale, and a few other plants. Mr. Bull shows the prettily spotted Bertolonia margaritacea, in flower, with a very pretty flower, too, for a foliage plant; and the fine Odontoglossums Alexandræ superbum, and O. hystrix. Mr. Ambrose Verschaffelt also makes a very respectable display, with Cordyline multicolor, which is in fact, a brightly striped Dracæna; Dracæna lentiginosa, having leaves like Saccharum violaceum, but narrower and smaller; Dracæna Verschaffeltii, a yellow green, with a dark green stripe, a distinct and pleasing plant; Daphne speciosissima, like a variegated Pittosporum; Acer sanguineum, dark rosy claret-coloured, and several other interesting species of Acer; Caladium Barilletii, of a silvery tone, and a few rosy stripes; also Agave mirabilis, compacta, spectabilis, and grandis, all these being new dwarf and beautiful species, the two last especially so, the lower leaves of grandis falling over the edge of the pot as close together as slates on a house. Mr. Verschaffelt assured me that he believed it to be nearly 200 years old, from the number of these leaves that were concealed underneath, and the upper portion of the plant, only surpassed in beauty by grandis, which has leaves of a compact outline swelling in the centres, silvery, and altogether first-rate; while to these and others must be added the magnificent Cibotium regale, a Tree Fern with silky or rather shaggy stem, and great leaves, those made when in its native country in a fully developed state, being said to be 25 feet long.

Of Orchids, as I have said, there is a very poor display, the best new one being Mr. Linden's pretty dwarf sweet and free flowering Aerides japonicum, while Mr. Luddeman stages some nice plants, among them being the Phalænopsis named after him in a fruiting state, he having fertilised it with the pollen of one of the larger flowering species; Rodriguezia venusta, a charming drooping little mass of white; and a capital Cypripedium caudatum, with the Arpophyllum which people think so much about flowering, though it is really quite inferior to the common Orchis maculata of the fields [?].

The exhibition of Cactuses still remains (70 different kinds of grafts being shown by Mr. Pfersdorf), so does the fine collection of Agaves, while they have lately brought many waggon-loads of good plants from Passy, and the Billbergia collection is also complete, so that every house is pretty well full, and one way or other there is plenty of interest, though in no part as yet much effect, such as we see at an English show. However, this morning the great conservatory in the centre of the garden was got pretty nearly ready, and the Azaleas, of which there were many, were in the process of being staged when I left. Doubtless it will soon look well, for they arrange most things very well here. It is embellished with some noble palms, &c., and will be thrown into irregular beds, "English fashion," but which, it is to be regretted, the English have, in too many cases, deserted for the wall-paper style.

Of vegetables, fruits, &c., the Asparagus is again very remarkable, the finest sample, the sticks of which are 1½ inch in diameter, coming from Argenteuil, a place I hope to visit soon. The best hothouse Grapes seen were English, though of course the exposant did not placard the fact. With the Mushrooms were shown the two kinds of Morchella esculenta, and plenty of Agaricus ericæus. About the grounds there are many pretty beds of spring and other flowers, furnished by various French nurserymen; Pansies, Stocks, Rhodanthe, Collinsia verna, and others, fancy Geraniums, Azalea amœna, mixed spring flowers, mixed kinds of new and first-rate bedding plants, and so on, some of these large oval beds being protected by not unornamental canopies, and all being in full bloom, the effect, when you meet them here and there about the ground, is very refreshing, the Mignonette being particularly well grown, while there is a goodly display of Tulips in one long covered way, and a few odds and ends, which we will say a word about, if worth it, at another time.

A few words more about the trees and shrubs of the reserved garden, beginning with some of the smallest and most insignificant little Evergreen and other Oaks, in fact, which are planted on a bed of Truffles to illustrate Mr. Rousseau's mode of cultivating that valuable esculent, so much used here and elsewhere. This little arrangement is just against the two large and beautifully trained Peach trees in the fruit garden, and in its centre is a case containing jars of the Truffles grown by Mr. Rousseau, with printed information on the matter. It appears that this gentleman, who lives at Carpentras, after long observation of the spots in which Truffles are most found in thin Oak woods in chalk or clayey soil, and with a southern exposure, resolved to produce those conditions for them. So he ploughed up a lot of inferior waste land, and sowed it with acorns gathered from woods in which Truffles grow, and was rewarded in six or seven years by an abundant crop, upwards of 50 lb. per acre, while of course the Oak is also of some value. Are there not many wastes in England in which the plan might be tried? Near these Truffles you may observe a specimen of the way the French use the Ivy. It is a temporary plant for removal, but is made to form an elegant little summer-house, about 10 feet wide, a single plant of Ivy being trained on what may be described as a large umbrella frame, the handle being supported by stakes, and the tub containing and feeding the roots being covered with boards, so as to form a seat. Thus a passing or even a sitting observer would not know it was grown in a tub or pot. In England we make but little use of the Ivy, and for any beauty it displays with us we have to thank its own rambling disposition, but any person who looks along the railings in the Avenue d'Eylau outside the Jardin Fleuriste de la Ville de Paris, and sees how beautiful it looks from the iron railings being covered with a dense sheet of it from top to bottom, as well as its many other tasteful uses which may be seen about Paris, will agree, that we might make a very tasteful use of it in English gardens, and particularly in English town and villa gardens. There are some fine American Agaves about the ground and near the cascades. Planting is still going on here and there. The hundreds of large trees removed here from the Luxembourg and other places seem to be leafing with little or no check; and, in fact, the garden is pleasing to the best judges, and will be much more so in six weeks from hence, when the sub-tropical and other plants are established and every bed planted.

The surface of the garden and the park, which was quite brown about twelve days ago, is now as green as an emerald, and the aspect of the planting much improved thereby. They only used one kind of Grass seed, that of the Rye-grass, and, after sowing the seeds, cover them with half an inch of finely sifted rotten manure. It is so in all the Paris gardens; and they say our mixtures would not suit at all. Many of the tenderer trees and shrubs brought from the south of France seem to have suffered much, and a collection of Bamboos put out, is quite naked of leaves, the same end having occurred to the fine Australian tree which they are naturalising so successfully in the south of France and in Algeria—Eucalyptus globosus; but when anything does perish in this way, they soon replace it from the rich stores of La Ville de Paris. All the evergreen Magnolias planted in the gardens, and there are many, are trained carefully in the pyramidal style, and produce quite a novel feature. A great number of varieties are shown; the owner of the best or winning collection being M. Leroy, of Angers. This morning a fine group of Tea plants also came from the same favoured locality; they have of course been grown in the open air, are healthy spreading dark green bushes of the several varieties, and therefore interesting. These, and such as these, with an odd Olive, a few groups of Camellias, &c., give the ground a slightly different appearance to those we English are used to. But, truth to tell, the climate of Paris is no more suited for those things than our own—in fact, I believe it to be worse the first three days of the present week, being so downright wet that I could do no more among the trees and shrubs than experience another illustration of the vanity of human wishes, and beat a retreat with a pulpy note-book and saturated hat. Now the weather is fine again. The large Cactuses, which one is surprised to learn have been grown in the south of France, are planted near the entrances to the Great Aquarium, which are not yet finished, though sufficiently so to see that they will prove a great success, and the faces of the rockwork are adorned with American Agaves from Hyères also. As to the effects of the late bad winter and spring, as displayed by Conifers and such, the evidence is much in favour of the Japanese plants, Thuja Lobbii, Cupressus nutkaensis, Thuja gigantea, and such being all perfectly fresh and healthy, and Mr. Veitch informs me that at Coombe Wood these plants, with the Retinosporas, Thujopsis dolabrata, &c., have perfectly withstood 6° below zero, while the Araucaria perished. *W. R.*

P.S. An error in punctuation in last week's letter makes me say that Abies grandis, lasiocarpa, and other hardy plants are tender. I alluded to such things as Dammaras, &c., the names of which I omitted.

Home Correspondence.

New Zealand Ferns in Ireland.—I hasten to inform you that my experiment with New Zealand Ferns, so far as the Cyathea dealbata is concerned, has succeeded to perfection. The plants are now throwing up their young fronds, and appear to be quite strong and healthy, particularly a plant which was left quite unprotected. Two of the dealbatas were carefully covered up, and appear to have suffered far more than the one which was left to take its chance. The old fronds of course became quite black, with the exception of one or two that had got weighed down with the weight of snow and got buried under dead leaves, and these remained green through the winter. Last winter was a severe trial for an experiment of this kind; we have lost many of our best shrubs, and I fear a very fine Pinus insignis—consequently the C. dealbata may now be safely classed among hardy Ferns. *Louisa Tenison, Kilronan Castle, Carrick-on-Shannon.*

Primula elatior (see p. 435).—I can corroborate the stability of the Primula elatior of Jacquin from seed. In 1845 (at the time when I published in the Phytologist, vol. ii., old series, p. 284, an account of an experiment with the Cowslip), I received some specimens of the above Oxlip from Bardfield (I almost think from Mr. Doubleday), which have during the last 20 years produced a great number of seedlings. None of the latter have lost the character of the parent plants, although both in the size and also in the colour of the flowers there have been a few instances of variation. The squarish form of the segments of the corolla, the patent calyx, the Cowslip-like nodding of the flowers of the truss, the rigidly erect fruit, and the prominent capsule, are ever present to distinguish it unmistakably from its congeners of every kind. *Wm. Marshall, Ely.*

Large Bunches of Grapes.—In reply to your correspondent "C. L.," I beg to say that there is no misprint or mistake regarding the measurements given in your columns (see p. 404) as to the White Nice Grapes growing here. I measured the same three bunches a few days ago, just after being thinned; they then measured, respectively, 2 feet 7½ inches, 2 feet 6 inches, and 2 feet 5½ inches; the three bunches growing on one rod, about 24 feet in length, measuring in all 7 feet 7 inches across the shoulders. Any one at all acquainted with Grape growing will be aware that it would be impossible for a single rod of that size to mature three such clusters. I have, therefore, since cut the smallest one away, leaving the two largest, which measured, when combined, 5 feet 1½ inch across the shoulders. I also measured a bunch of Trebbiano, which proved to be 1 foot 8½ inches, and a bunch of Muscat Hamburgh, which was 1 foot 6 inches across the shoulders, and otherwise well proportioned. I am aware that these sizes are quite unusual, and were it practicable, it would not be advisable to grow such large clusters for general use. I merely give the measurements to indicate the vigour of the Vines, and to show what large crops of Grapes could be produced on Vines grown on aërated borders, when properly managed; it being a simple process to reduce the size of the clusters by pinching, which I generally do, leaving only a few of the largest as specimens of what the system can produce in a locality where both soil and climate are unfavourable for their growth. *Archibald Fowler, Castle Kennedy, Stranraer.*

Spring Gardening.—At this place (Normanton Park, the seat of Lord Aveland, in Rutlandshire) early spring flower gardening is carried on with great success. Except a season of Aconites, Snowdrops, and Hepaticas, we only grow such things as flower in March and April (as after Easter nothing more is required until autumn). The plants we chiefly grow for that purpose are the following, viz., Crocus; Arabis albida; Doronicum cordifolium, a capital plant for the two months just named; Aubrietia purpurea and deltoidea, the former very fine, and the latter not to be despised when seen in quantity; Anemones which we raise from seed by the thousand every year; they are sown in March and April, and form fine plants for blooming through the following winter and spring, the old tubers being always thrown away after a sufficient quantity of seed has been saved from the finest scarlet flowers; Common Primroses annually procured out of the woods; they bloom most profusely, and have a cheerful appearance; Red Primroses; Erica herbacea. Reds and pinks are very much wanted in early spring; blues, yellows, and whites are more numerous. We moreover grow Lungwort, which though not showy is useful; and Saxifraga cordifolia, which is good, but liable to suffer from frost if not protected. Such things as Daisies and Heartsease, if Easter falls early, are of no use to us; therefore we grow few of them. We have two most charming ribbon borders, composed of the following:—Front line, a double row of Primrose; middle, Aubrietia purpurea; back, white Arabis. Second border: front line, white Arabis; middle, a treble line of Anemones; back, Doronicum cordifolium. Of these the former has been much admired. Seventy beds are also filled, besides mixed borders. Altogether we put out about 14,000 plants, most of them over a foot in diameter. *J. G.*

Transplanting Evergreens.—Your correspondent, "J. W., Annan" (see p. 434), says you may plant Evergreens and even Conifers (which are virtually the same) with perfect success during the period from September to May, whenever the weather will permit, and he ignores the necessity of watering either before or after planting—in fact, he says, they do not require it. So far as my experience has taught me I have, however, found it very requisite both before and after planting in September and October if dry weather should prevail. In spring planting of Evergreens I think it is quite as necessary to water as in early autumn, especially if we have a dry spring such as the past, when we had scarcely a shower during the whole month of April. What chance have Evergreens after the transit from a nursery to the place in which they are to be planted, if they are not to be attended to in the way of watering, which is sometimes not so necessary as regards moisture, as for the settling of the soil about the roots, which no treading or shaking of the plants up and down can accomplish so effectually. "J. W." says we may plant with perfect success any time during the winter months, if the weather will permit. During the months of December and January we have often very open weather, quite suitable for transplanting, so far as that operation is concerned, but your correspondent must recollect that the ground has then become thoroughly cool, that no root action can possibly take place, and that hard frost may set in in a week, or even in a day after transplanting. I would ask what chance there is for plants put into the ground at this time compared with those planted in September and October or April. As to the transplanting of Evergreens in nurseries, from one-year old and upwards, until they become saleable, "A. M." does not ask for that information; he simply asks which is the best time to transplant Evergreens, presuming all the necessary preparation of the plant to have been properly attended to by the nurseryman, and no nurseryman who has any regard for his reputation would attempt to deceive any one in this respect. In fact, there are few, if any, respectable nurserymen who would not guarantee the success of every plant they sell, if they had the superintendence of the planting, and were allowed to choose their own season for that operation. "J. W." remarks that one, two, and three-year-old plants are much taller and more robust in one nursery than in another, and that they are offered at a lower price because the labour of transplanting has been saved. These must be very small plants indeed to be so young, and not such as are required by any gentleman about to plant Evergreens. Most Evergreens at this age would not be more than from 6 to 12 inches in height, and would require to be transplanted once before they were three years old, or they would be quite useless to any nurseryman. But this does not answer the question as to what is the best time to transplant, which "A. M." asks, and Evergreens so young would not require such a powerful man as Joseph the gardener to try his strength upon. Any gentleman or gardener who has had any experience in planting can always tell when a plant was last transplanted, from the shortness of the growth it made the season after it was moved. I would say to all who have not sufficient experience to know this, go to a respectable nurseryman, and if they are about to plant largely, employ one of his staff to superintend, leaving the season to him as to which is the best time to transplant, and hold him responsible for the perfect success of the planting. There are few nurserymen who are satisfied with their stock, and have confidence in the men they employ, who would object to this arrangement. I coincide with all Mr. McArdell says about transplanting Evergreens, with the exception of his objection to transplant Hollies in May. I would much rather plant Hollies in May than in such an April as we have just experienced. *D. Freeman, F. & A. Dickson & Sons', Chester.*

Longevity of Vines under Early Forcing.—Seeing of late in your Journal some controversy as to the possibility or not of "forcing Vines for a continued number of years with or without injury to them," I beg to state that I am now cutting the 27th crop in succession without the least apparent injury to my Vines, without any failure of crop, and during the last 27 years I generally commenced cutting about the middle or third week in April. I also find it quite easy to supply the table with Grapes all the year round. This season I sent in a dish of good unshrivelled old Grapes, along with a dish of new ones, on the 20th ult.; again on the 24th I sent in the last bunch of last year's crop, a fine bunch, which was greatly admired, and was considered first-rate in flavour, along with another bunch of new Grapes. It is rarely during this period (of 27 years) that I have been entirely without Grapes, old or new. *J. M., Silksworth, Sunderland.*

Ripe Grapes in March.—It certainly would have been more satisfactory had Mr. Standish been able to have told us what he had done, rather than what he intended to do, with these seedling Vines of his, in order to prove that ripe Grapes can be produced in the month of March, many years in succession, without the Vines deteriorating to such an extent as to necessitate their destruction. I must confess to having little faith in being able to do with these seedlings what we have failed to do with our old friend, the Black Hamburgh; and, with others, would be glad to accept Mr. Standish's challenge could I see any benefit to be derived to the Grape grower, or to those who pay for the production of Grapes. I can, however, see none whatever; for, admitting Mr. S. to be so successful as to have a considerable amount to draw at the end of the seven years, look at the cost of forcing three seasons, from November onward, for four pounds of Grapes from each rod; and, to do them well, these young Vines will require greater heat for those three seasons than old Vines that have been forced many years, and that without producing as many Grapes in the same time, by twenty pounds a rod, or more, according to the health of the old Vines. *E. Sage, Gopsall, Atherstone.*—Mr. Standish's appears to be a very practical plan; and if Grapes are to be grown and ripened in the month of March, for several years in succession, the method he proposes is the only proper one to adopt; and if his seedling Vines were started into growth, from seed, about the time it is intended for the Vines to commence their growth annually when in working order, I think it will be greatly to their advantage. To me, and I doubt not to the vast majority of your readers, Royal Ascot Black, and Early Ascot White Frontignan are quite unknown; but, in all probability, these Vines are destined, through the competency and efficient management of the raiser, to accomplish what no others yet have, namely, produce ripe Grapes in March for many years successively. There is not the least doubt but that Mr. Standish perfectly believes that he is capable of performing what he proposes; and belief in one's self is a mighty means, and usually a sure augury of success. *John Cole McArdell.*

Vines Bleeding.—I forward the following letter, which I have received from a gentleman at Lincoln:—"I have been in the habit of raising and growing Vines out of doors, as well as under-ground vineries, my garden being small. In bad seasons like the last, those out of doors are backward, and some of the wood does not ripen so well, causing the pruning to be done late, and this late pruning causes the Vines to bleed when the sap rushes up the stem in the spring. In many cases I have found it very difficult to stop this bleeding, having tried almost everything, both at the time they were pruned, as well as when they began to bleed. I have found nothing in any way certain but the Potato. I cut a small one in half, then in quarters, and, after that, stick a piece on the end of the stem, or lateral, so as to quite cover that part where it has been pruned. This is a certain, and, I may say, an instantaneous cure; the bleeding stops at once. A Vine with two laterals, four feet each long, was shortened to two eyes each on the 22nd of this month, but did not bleed. Pieces of Potato were stuck on at once. If any other remedy had been applied, the Vine would in all probability have bled to death, or nearly so. Now, what I want to ask is, if you, or any of your scientific friends, would be so kind as to tell me what is the reason the Potato stops the bleeding when a Vine is wounded. A friend here, says it is the starch. Now I do not think, if I put on a pound of starch, if it could be applied to a Vine, it would stop the bleeding. My opinion is that it is the solanine or atropine that is in the Potato, when it begins to grow in the spring, which causes the sap to stop running, although asparagin, azote, &c., may be also found in the root. I shall feel much obliged to you, or any of your scientific friends, if they would give this subject their earliest attention. Although this seems very chemical, your botanical knowledge may throw more light on it than if I had written to a Professor of Chemistry. *Arthur Trollope, Eastgate, Lincoln.*" I am unable to answer this question, which seems an interesting one, and I therefore take the liberty of sending it to you, to ask you to be kind enough to print the substance of this letter, as perhaps some of your correspondents may be able to explain the cause of Potato slices stopping the bleeding of Vines. *George Henslow, F.L.S.*, [Possibly the result may be mechanical merely, and due to the coagulation of the gummy juices of the Potato by the tannin in the Vine, which thus would act in the same manner as collodion. We should be glad to hear with what success others have tried this plan. EDS.]

Foreign Correspondence.

Australian Trees.—The trees of Australia hitherto known are approximately 950. These have lately been statistically tabulated in an essay on Australian vegetation for the International and the French Exhibition. At a glance thus the nature of the trees and their number in any of the great colonial divisions of Australia can be ascertained. Trees impress on each country's vegetation its principal feature. Comparative statistics would be of high interest, and would lead to the development of many new resources. As yet we possess not even a complete special statistical enumeration of the trees of Europe.

Lately several trees of Eucalyptus amygdalina (the species of which now so much oil is imported into Europe) have been measured at the Upper Yarra and in Dandinang. The highest known is ascertained to be 480 feet, therefore as high as the Great Pyramid. The oil of this species was first, by the writer of this note, exhibited in Europe at the Exhibition of 1862. *F. M., Melbourne.*

Societies.

ROYAL HORTICULTURAL: *Saturday, April 27.*—The last of the series of short lectures on Plant Architecture was given on this day, and was devoted to the consideration of the Flower, the various parts of which were pointed out, some seeming to be useful for protection, or for attracting insects, while the stamens and pistils are exclusively devoted to the formation of the seed. The numerous forms which the flower assumes may partly be explained by reference to the principles upon which the leaves are arranged on the stem, as explained at a former lecture, the same principles holding good in the flower. If the parts of the flower are few and even in number, they are usually arranged in pairs, which cross one another or decussate as in the case of "opposite" leaves; the pairs of organs are in this case formed simultaneously, but if the number of parts in the flower be large, or if the number be *odd*, say 3 or 5, or some multiple of those numbers, then the arrangement is spiral, and the development successive. In both instances, as a rule, the organs are so placed as not to interfere with one another, and where, as in the case of Sabia, &c., the "law of alternation" is departed from and stamen stands before petal, petal before sepal, and so on, instead of one petal between two sepals, &c., it will be found that either there is great disproportion in the size of the organs, so that they scarcely impede one another at all, or else that the direction of the parts is different, one being erect, another reflected or bent out of the way, and so forth.

Taking a flower in which all the organs—calyx, corolla, &c.—are present, but isolated one from another, equal in number, regular in form, and symmetrically arranged (such a flower as occurs in some species of Crassula, &c.) as a standard, the many deviations from such standard or type flower may be explained by the operation of some one of the following causes, or by a combination of two or more of them. First, union of parts, as of one sepal to another, of stamens to petals, of calyx to ovary, &c. Many of these cases of apparent union are, however, due not so much to union, for they were never separate, but rather to the non-occurrence of disunion. Secondly, suppression or non-development of some parts often materially changes the appearance and form of flowers, especially in those cases where either stamens or pistils are suppressed, as in

unisexual flowers. Thirdly, the disproportionate growth of some parts of the flower as contrasted with that of others is a frequent cause of variation in the shape of the blossom.

"Double flowers" owe their peculiarities to various circumstances, the two principal, however, being referable to substitution of petals for stamens and pistils, one or both, metamorphosis, as it is sometimes called, and to multiplication or increased numerical development of the parts. Thus while the general plan of construction in flowers is simple and uniform, great divergences in matters of detail are provided for by an arrest of growth in some cases, and by an increased or by a disproportionate development in others, such modifications having usually reference to the general well-being if not of the individual plant, at least of the community.

Royal Botanic: *April* 27 (*Third Spring Show*).—Although the weather on this occasion was somewhat unpropitious, the exhibition itself was very well supported. Its principal feature consisted of Roses, which were again furnished in great beauty. In the class of 9, Mr. Turner was 1st, with Charles Lawson, Victor Verdier, Alpaide de Rotalier, Lord Clyde, Maréchal Vaillant, Professor Koch, Madame Villermoz, Souvenir d'un Ami, and Celine Forestier, the last with upwards of 30 blooms on it. Messrs. Paul & Son had of rose-coloured kinds beautiful specimens of Anna Alexieff and Madame de Stella; Lord Clyde and Madame Boutin, crimson; Le Rhone, deep red; and of Tea varieties, Alba rosea, Souvenir d'Elise, President, and Souvenir d'un Ami. Messrs. Lane contributed good examples of Vicomte Vigier, Pierre Notting, Jean Goujon, Anna Alexieff, Comtesse de Chabrillant, Triomphe de Morny, Louise Darzens, and Madame Alfred de Rougemont, the last two being white Hybrid Perpetuals. Messrs. Lane also exhibited another collection for which they were awarded an extra prize. In the Amateurs' Class, good specimens were shown by Mr. James, gr. to W. F. Watson, Esq., Isleworth, and Mr. Wiggins, gr. to W. Beck, Esq. Of new Roses of 1864, 1865, and 1866, Messrs. Paul & Son had Fisher Holmes, velvety crimson; Princess Mary of Cambridge, pale rose pink; and Duchesse de Caylus, bright carmine. Mr. Turner contributed Duchesse de Caylus, Maréchal Niel, and Mademoiselle Marguerite Dombrain, the last delicate rose. Messrs. Lane had Dr. Andry, crimson scarlet; Marcella, salmon rose, shading off to white; and Duke of Wellington, shaded velvety crimson. Several boxes of cut blooms were shown by Messrs. Paul & Son and Mr. Turner; in these were fine examples of Maréchal Niel, John Hopper, Exposition de Brie, Camille Bernardin, Mdlle. Marie Rody, Madame C. Wood, Céline Forestier, Vicomte Vigier, and Maria Baumann; the last, which was in charming condition, bright carmine crimson, and unusually captivating, was shown by Mr. Turner.

Of Pelargoniums Mr. Wiggins was the only exhibitor; he had finely-bloomed specimens of Vestal, Beadsman, Roseum, Pline, and Madame Reicie. Mr. James showed Calceolarias and Cinerarias beautifully in bloom; and Messrs. Dobson furnished a collection of Azaleas, among which were Reine des Doubles, bright rose, and Baron de Vrière, blush, heavily spotted with rosy crimson in the upper petals.

Of Auriculas, both Alpine and others, there was a really fine display, of which some account will be found in another column. Of Pansies, the best 24 cut blooms came from Mr. James, who also received an extra prize for excellent plants in pots, the varieties being Masterpiece, Dux, Imperial Prince, and Rev. H. Dombrain, dark selfs; Vesta, primrose self; Wm. Austin, J. B. Downie, Chancellor, and A. Wharrard, yellow grounds; and Cupid, Miss E. Cochrane, and Lady E. Stanley, white grounds. Messrs. Downie, Laird, & Laing, exhibited cut blooms of Imperial Blue, a kind which cannot fail to become a favourite for bedding purposes.

Collections of Fine-foliaged and Flowering Plants came from Mr. Williams, Holloway; Mr. Wheeler, gr. to Sir F. Goldsmid, Bart.; and Mr. Burley, Bayswater. Among these we noticed Croton variegatum, Yucca aloifolia variegata, and Cordyline indivisa; Imantophyllum miniatum with eight heads of bloom, Eriostemon pulchellum, Azaleas, the pretty rose-flowered Adenandra fragrans, Alocasia metallica, variegated Pandanus javanicus, Palms, and Dracænas. Mr. Williams also received an extra prize for a miscellaneous collection.

Of New or Rare Plants Mr. Bull as usual furnished a collection, in which were Rogiera gratissima, Chamærops melanocantha in flower, Saurauja sarapigiensis with bronzy red foliage, the spotted-leaved Bertolonia margaritacea; Dieffenbachia Weirii with dark green foliage mottled with yellowish green; Athyrium proliferum, an elegant stove Fern from Ceylon; Coprosma Baueriana variegata, a New Zealand shrub, with obovate leaves broadly edged with yellow; Dioscorea discolor variegata, with leaves richly mottled with brown and green; Anæctochilus Dayi, dark green, veined with red; A. Petola marmorea, deep brownish green, with beautiful pale green markings; Terminalia elegans, with red-veined pale green trifoliate leaves; and Adiantum Lindeni, a handsome robust-looking stove Fern. For these last six First-class Certificates were awarded, and Second-class Certificates were given to the same exhibitor for Athyrium costale dissectum, a pretty East Indian Fern, and Azalea Queen of Roses, a showy kind with large bright rosy coloured flowers. This last named variety of Azalea was also shown by Mr. Williams, to whom a similar prize was awarded for it. To Mr. Williams First-class Certificates also were awarded for Stenochlæna heteromorpha and Amaryllis aurantiacum, the latter having large pale orange red flowers, with a circular straw-coloured throat, and altogether different in aspect from kinds at present in cultivation. A similar plant, but much less developed, came from Mr. Ward, gr. to F. G. Wilkins, Esq., Leyton. Mr. Wilcock, gr. to Dr. Pattison, St. John's Wood, exhibited a Dendrobium, resembling D. chrysotoxum, the little white-flowered D. Heyneanum, and the orange-flowered D. Cambridgeanum. Mr. Burley exhibited Xylophylla latifolia, a curious plant in which the flowers are borne on the margins of flattened leaf-like branches.

Among Miscellaneous subjects Mr. James had a collection of British Ferns, and Mr. Bull two well-matched plants of Agave filifera, about 18 inches in diameter, both very fine densely-grown specimens. An extra prize was awarded to Mr. Gardiner, gr. to Sir G. Phillips, Bart., Shipston-on-Stour, for a good dish of Peaches. Mr. Wiggins contributed some fine Polyanthuses; Mr. Ward, gr. to F. G. Wilkins, Esq., Cattleya citrina with five showy yellow flowers; and Messrs. Ivery a basketful of Azalea Fascination, a beautiful variety with rose-coloured flowers broadly edged with white.

Botanical of Edinburgh.—The Monthly Meeting of this Society was held on Thursday, 11th ult, Isaac Anderson-Henry, Esq., President, in the Chair. The following communications were read:—I. *On Silicified Vegetable Structures from the Zambesi.* By Dr. John Lowe, Lynn.——II. *On the Progress of Cinchona Cultivation in India.* By an Indian Correspondent. Communicated by Professor Balfour.——III. *Notice of Cinchona Planting in the Kangra Valley.* By William Coldstream, Esq., B.A.——IV. *On New Zealand "Carrageen."* By W. Lauder Lindsay, M.D.——V. *On the Botany of the "Jardin" of Mont Blanc.* By Dr. Buchanan White.—In this communication the author gave an account of an excursion which he made to the "Jardin" on Mont Blanc, in September, 1866. He remarked:—"To reach the garden from Chamouni, it is first necessary to proceed to the Montan Vert, to which a footpath leads through the Fir woods. We then descend on the Mer de Glace, and, ascending that grand glacier for about three hours, turn to the left, and climbing up a steep moraine or bank of rocks brought down by the glacier (a proceeding which took nearly an hour to accomplish), we again get upon the snow-covered ice, and in half an hour reach the garden. The Jardin or Courtil is a sloping triangular plot of ground of about 7 acres in extent, and forming a kind of island in the ice. It consists of a group of polished and striated protogine rocks, among the *débris* of which a number of plants have established themselves. The height above the sea is between 9000 and 10,000 feet. A flock of ptarmigan seems to be the only feathered colonists of the place; while a few insects, including among others the common tortoiseshell butterfly (Vanessa Urticæ), one or two species of the genus Erebia, the larva of an Argynis, complete the zoological list. The flora has been several times investigated, and, among others, by Mr. Percy, who recorded the plants he found at a meeting of this Society. In a paper by Professor Martins in the Memoires for 1865 of the Academy of Sciences of Montpellier, the Phanerogamia he stated to be 87 in number; Musci, 16; Hepaticæ, 2; Lichens, 23—making a total of 128 plants. In my visit I found in flower 45 of the species given in Professor Martins's list, and 4 species not mentioned therein; one Fern, Allosorus crispus (not mentioned by him), and one species of Agaricus. The Mosses and Hepaticæ I have not yet examined, but of the former I have at least 26 species, and of the latter 3." The paper was illustrated by specimens of the plants collected, and photographs of the "Jardin."——VI. *Notes on Gronovia subsparrosa of Wilson's MS.* By Dr. Buchanan White.——VII. *Note on the Occurrence of Buxbaumia indusiata in Aberdeenshire.* By Professor Dickie.——VIII. *Extracts from Botanical Correspondence.* By Mr. John Sadler.——IX. *Report on the State of the Open-Air Vegetation in the Royal Botanic Garden.* By Mr. M'Nab.—At the last meeting of the Botanical Society (March 14, 1867) I gave a detailed account of the state of vegetation up to that period. It was particularly noticed that the thermometer readings, from March 1 up to the date of the meeting, were only on one morning marked as being above the freezing point, and which has been the means of keeping back vegetation. The same low temperatures continued till the 24th, the lowest being on the morning of the 17th, when the minimum reading was 18°. With the exception of the morning of the 28th, when the thermometer fell to 29°, on all other mornings up to the present date a favourable improvement for the better has taken place, the early morning readings of the thermometer ranging between 35° and 46°, except on April 2, when it indicated 49°. The cold frosty winds of March have proved very detrimental to the foliage of many of the evergreen shrubs, as well as to the points of numerous coniferous trees, by causing them to become much browned. It will be observed from the floral calendar appended that April has effected an improvement. The list given does not include all the species now in flower, but those only which I am in the habit of annually marking. Although vegetation at the present time is considerably behind the average of years, still it approximates very near the floral records given last spring:—March 21. Gagea lutea. March 22. Scilla bifolia alba. March 25. Scilla bifolia rubra; Erythronium dens canis. March 26. Corydalis cava; Corydalis tuberosa rubra. March 28. Puschkinia scilloides. March 31. Hyoscyamus scopolia. April 1. Knappia agrostidea; Corydalis solida. April 2. Draba aizoides. April 3. Ribes sanguineum; Rhododendron Nobleanum; Narcissus moschatus. April 4. Adonis vernalis; Hyoscyamus orientalis. April 5. Narcissus Pseudo-Narcissus; Primula ciliata purpurata. April 6. Fritillaria imperialis; Primula nivalis; Muscari botryoides. April 7. Muscari botryoides alba. April 8. Hyoscyamus physaloides. April 9. Mandragora vernalis. April 10. Ornithogalum montanum.——X. *Miscellaneous Communications.*—1. Mr. Isaac Anderson Henry, Hay Lodge, exhibited a growing plant of Draba violacea, which he had raised from seeds transmitted to him by Dr. Jameson, of Quito. 2. Mr. R. M. Stark exhibited growing specimens of American plants in flower.

Linnean: *March* 21.—G. Bentham, Esq., President, in the chair. R. J. Lechmere Guppy, Esq.; A. Jones, Esq.; W. S. Hutchett, Esq., LL.B.; and H. C. Rose, M.D., were elected Fellows. The following papers were read:—1. *Letter from Dr. Kirk to Dr. Hooker on the Branching Palms (Hyphæne) of the East Coast of Africa.*——2. *On Melastomaceæ*, by Sig. Triana; communicated by Dr. Hooker.——3. *New Genera and Species of Neuropterous Insects; and a Revision of Mr. F. Walker's British Museum Catalogue of Neuroptera, pt.* 2 (1853) *as far as the end of the genus Myomeleon*, by R. McLachlan, Esq.

April 4.—G. Bentham, Esq., President, in the chair. J. Ince, Esq., was elected a Fellow, and Mr. Ralph Tate, an Associate. Dr. Hooker exhibited a beautiful series of photographs of the Botanic Garden, Peradenia, Ceylon; and fruit of Zanonia macrocarpa, from the Kew Museum. The following communication was read:—*On the Geographical Distribution of Ferns*, by J. G. Baker, Esq. Of this paper an abstract, which has been obligingly furnished to us by the author, will be published hereafter.

April 18.—G. Bentham, Esq., President in the chair. Abbotts Smith, M.D.; and W. E. Williams, jun., Esq., were elected Fellows. The papers read were:—1. *On the prevalence of Entozoa in the Dog, with remarks on their relation to Public Health*, by T. S. Cobbold, M.D.——2. *Fungi Angolenses: a description of the Fungi collected by Dr. Friedrich Welwitsch in Angola during the years* 1855-61, by Dr. Welwitsch and F. Currey, Esq.

Entomological: *April* 1.—Sir John Lubbock, F.R.S., President, in the chair. Mr. S. Stevens exhibited several specimens of the very curious Damaster claptoides, a bettle belonging to the family Carabidæ, from Japan; and Mr. F. Smith, a fine Ichneumon (Rhyssa persuasoria) captured in the act of boring with its long ovipositor into a Fir tree to a considerable depth, in order to deposit its eggs in the body of the larva of Sirex juvencus, upon which it is parasitic. A conversation took place as to the homologies of the parts of the ovipositor and sting of Hymenopterous insects. Mr. G. S. Saunders exhibited a number of Podurida found on the surface of pools of water caused by the melting of the snow in the north of Yorkshire. Mr. F. Pascoe exhibited and read a description of Toxotus Lacordairei, a new species of Longicorn beetle from Greece; and Professor Westwood sent a paper entitled, "A Decade of New Mantispedæ in the Oxford Museum." A letter was read from Mr. Gilbanks, of Wigton, stating the dislike of several kinds of birds to what he called "the Gooseberry Caterpillar," the precise species of insect intended not being mentioned.

Notices of Books.

The Art of Fishing on the principle of avoiding cruelty. With approved Rules for Fishing, used during 60 *years' practice, not hitherto published in any work on the subject.* By the Rev. Oliver Raymond, LL.B. Longmans, Green & Co. 1866.

The River's Side; or, Trout and Grayling, and How to Take them. By Sir Randal Roberts, Bart. 8vo. London, 1866. Horace Cox, 346, Strand.

Of the recommendations for reducing the cruelty which is inseparable from fishing to its minimum, given in the above-named book, the first has reference to the baits. The author tells us that worms, kept in moss for a fortnight, and fed every two or three days with a few drops of cream, may be thrown from the palm of the hand on to the hard ground with sufficient force to paralyse—in another place, he says, to kill them, without breaking them, and that when a worm so treated is placed on a hook, and then dipped in a bottle of aniseed oil, it is far more killing for perch than the liveliest victim that ever wriggled. He also says that dead bait properly put upon the hooks, and well-made artificial bait occasionally rubbed over with a dead fish, are quite as attractive to pike and perch as any live bait, whether for trimmers, trolling, or snap-hook fishing. And, though it may not be proper for a rural dean to back himself for long odds, it is evident that he has all the inclination to pit himself with artificial flies against all comers with natural flies, in all weathers, and upon all waters.

Respecting the fish when hooked, he urges that they should be brought out of their native element with as little delay as possible, and upon being landed should be immediately killed by a smart blow on the back of the head close to the neck, with a staff about a foot long, which is to be kept in a side pocket, always ready for use. "You may then take the hooks out of his mouth, but not before"—would you follow the merciful directions given in the present work. Besides, he might bite your fingers if not dead, from the pain you would give him in extracting the hooks; and it is the hearty wish of the author that he may, if you are so cruel as to torture him unnecessarily. "By killing your fish at once, you not only curtail his suffering, but you secure to yourself a better fish. For fish killed on the instant they are caught eat firmer than when left to die a lingering death. Should you wish to know why, I will tell you; and may the information work on the feelings of those merciless fishermen who leave their fish, when caught, to die by slow degrees, either half smothered in their panniers, or strung on a stick with their torn and bleeding gills hanging down their tormentors' sides. A fish which dies by degrees wastes itself; and why? From pain and suffering! If you observe them, they seem to sigh, their flesh becomes flabby—so much so, that when they are dressed, they have in a measure lost that firmness which a sudden death, like that I have mentioned, would have spread over the whole fish. The blow has somewhat the same effect as in the cod-fish when crimped, and without the torture which this choice fish must suffer in having his back and sides lacerated when alive, and left to die in agony—a cruelty uncalled for, as the same effect might be produced would the operator strike the cod on the nose before crimping him, and thus kill him, for instant death is the consequence of a blow on that part of the fish. Thus, there are two reasons why the fish, captured whether by net or hook, should be killed immediately—the more important of the two, that he suffers no unnecessary pain; the other, less important, that he will eat the better."

With every respect for, and sympathy with, the sentiments of the author in this matter, we need only refer to the title page and to the above extract, as an excuse for our inability to praise the book for any literary merit. We have read it carefully from beginning to end, and have been unable to find any "Rules for Fishing" with which we were previously unacquainted.

Turning now to the second volume on our list, which might have been labelled as a portfolio of 20 Essays on the Art of taking Trout and Grayling with an artificial Fly, we cannot avoid making the remark that whereas the title may lead the reader to expect more than he will find in the book, the contents will induce him to wish for more than he gets.

While fishing "for the pot" is practised probably in every inhabited portion of the globe, fishing as a sport, as a scientific amusement, as a learned pursuit, seems to be appreciated and enjoyed by no other nation besides ourselves. Should you be visiting "Norway's snow-clad hills and iron-bound coast," and enjoying the hospitality of some northern squire, your courteous host will fish with you day after day, because he sees that it pleases you; but when you are gone, it has no pleasure for him, although he may be the owner of some of the finest fishing in the world. Far otherwise is it with a British angler; many a one has, like our author, "wet his line in the sluggish streams that flow through the rich alluvial vales of Hindustan, and in the noble streams of Africa, wandered from the sunny South of Europe away to Russia's vast steppes and along her Baltic coast-line to Stettin, Westphalia, Saxony, Prussian Silesia, and the German States, and lured many a fish from the depths of their rocky streams,"—and all this for the love of sport. Our author's opinions upon certain details are at variance with general practice, and perhaps in these instances he may be chargeable with laying down new rules upon the basis of isolated experiences which have fallen to his lot, and which others may regard as mere exceptions to the more generally adopted modes of fishing; but be that as it may, he asserts nothing without giving full reasons "for the faith that is in him," and whether agreeing or not with his views, it is impossible not to be pleased with his little book.

The 12th and concluding Part, a volume in itself, of the new edition of Brande's *Dictionary of Science, Literature, and Art* (Longmans), has been lately issued. The book as now completed, has more claims than ever to a place in the library of the busy student or the *dilettante*. The names of the contributors afford ample guarantee for the excellence of the articles—those on subjects connected with natural history, geology, horticulture, and agriculture, have been mainly contributed by Professors Owen, Ansted,

the late Dr. Lindley, Mr. T. Moore, and Mr. J. C. Morton.

The 37th, 38th, and 39th Parts of the *Dictionary of Chemistry* (Longmans) are now before us, and deserve mention more particularly as containing within small compass an account of the comparatively new process of Spectrum Analysis and its important application to the detection of the chemical composition of the sun and stars, together with other articles, bringing the work up to the commencement of the article on Sulphur.

Florists' Flowers.

Judging from what has been seen of the Auricula at the recent Spring Exhibitions, and particularly that of the Royal Botanic Society on the 27th of April, it would seem that it is designed to regain something at least of that prominent position it once held in the estimation of the florist, when some half a century ago, as old James Hogg remarks, it seemed to engross undivided attention. At the particular show referred to, there was a freshness and charm about the Auriculas that forcibly awoke some memories of the Past of Floriculture, and linked it in a closer relationship to its Present. It was something new to see the crowd gather before the collections of Auriculas, something like bringing back the dead to "newness of life." On this occasion, inhospitable as the weather had been towards the Auricula, Mr. Turner came out in force, and his large group of show and Alpine kinds, with the several stands, flanked by Mr. James's splendid Pansies in pots, and Mr. Wiggins' fine Polyanthuses, formed the prime features of the show. It was *par excellence* a show of florists' flowers, and sanguine men predicted their speedy return to popularity.

Mr. C. Turner was first in the open class with the following six varieties:—Green-edged: Lycurgus (Smith), a somewhat new variety of undeniably fine quality. Grey-edged: Sophia (Chapman), very fine; Duke of Kent (Dickson), also fine; and General Bolivar (Spalding). White-edged: Fair Maid (Lightbody). Self: Metropolitan (Spalding). Messrs. Dobson & Son were 2d with an indifferent lot, which contained three seedling flowers of no great merit as shown. In the class for amateurs, with six varieties, Mr. J. Butcher, of South Street, Camberwell, was 1st with a very creditable collection indeed, consisting of Green-edged: Blucher (Coldham), and Mayflower (Traill). Grey-edged: Surprise (Chapman), very good; and General Bolivar (Spalding). White-edged: Bright Phœbus (Wild). Self: John Penn (Butcher), rosy crimson ground dashed with violet, the pip stout and smooth, but the paste hardly large enough according to the rigid schedule of "properties" which goes to make the "essential points." Mr. James, of Isleworth, would undoubtedly have been 2d had not one of his best trusses contained two palpable malformed pips, while a self flower was out of condition. This let in Mr. Cox, of Camden Town, with some flowers that will be better now than when shown, and Mr. James was awarded a 3d prize. First-class Certificates were awarded to Mr. Turner for four of his own seedlings, viz., Charles Turner, with well-defined ground colour, violet crimson, well-formed yellow eye, good clear white paste, narrow grey edge, well-formed stout pips, erect and bold truss, and excellent habit; Colonel Champneys, bright rosy purple ground colour, with well-defined narrow edging of grey, good eye and clear white paste, the pips well-formed and stout, the outline good, and a bold truss; Cheerfulness, a fine self flower, ground colour rosy purple, with smooth white paste, pips stout, of good outline, but a little rough, a flower of great promise, and which will no doubt be seen in better character at a future time; and Crown Prince, another very fine self, ground colour rosy mulberry, changing with age to dark crimson, pips large, bold, smooth, and of fine form, truss and habit good. A large group of stage varieties from Mr. Turner contained fine examples of the following sorts:—Imperator (Litton), Blucher (Coldham), Mary Ann (Fletcher), Lovely Ann (Oliver), Conductor (Headley), Smiling Beauty (Heap), Bright Venus (Lees), Ne plus Ultra (Fletcher), Omega (Smith), Sir W. Peel (Lightbody), Maggie Lauder (Lowes), Miss Giddings (Read), Countess of Dunmore (Lightbody); and the following self flowers:—Canary (Turner), a new variety, ground colour bright canary yellow, with small pure white paste; Eclipse (Martin), Negro (Turner), Blackbird (Spalding), and Vulcan (Sim). In looking over these flowers, one could not but be struck with the great difficulty of accurately defining which were green and which were grey-edged—a difficulty by no means uncommon to the grower. James Hogg divided his Auriculas into two general classes, easily apprehended, "plain or self-coloured, and painted or variegated," the last comprising the three divisions of edged flowers popularly known as green, grey, and white-edged. A later writer of some 10 years ago expressed himself as follows:—"It seems to me that if they were divided into edged flowers and selfs, the distinction would be sufficiently marked, and the flowers get their proper position: or if this be considered of too revolutionary a character, greens and greys might be fused into one, whites kept distinct, and selfs, so as to have three classes instead of four." It was well observed at the time that a grey edge was only a "green edge with some white powder over it," and that this was "the intuitive philosophy of the question." Such a movement was too revolutionary at that time, and probably would be branded as heretical now, notwithstanding the common sense that seems to appear on the surface of it.

But another revolution in regard to the Auricula seems imminent—that shown in the marked improvement in the Alpine kinds, which bid fair to drive the stage varieties off the field, and this leads to a notice of those splendid seedlings of Mr. Turner's, which were seen at the Regent's Park. The group contained 50 plants, about 44 of which were seedlings of the present year, and independent of the seedlings produced by Mr. Turner at South Kensington, a short time ago. The following were awarded First-class Certificates:—Lustre, bright yellow paste, very smooth, glossy dark ring of ground colour, margined with bright claret crimson, flowers large, very stout and smooth, a most striking variety; Echo, small pale sulphur paste changing to white, ground colour velvety crimson, margined with rosy violet, flowers large and smooth, and of fine quality, excepting that perhaps the paste was too small from the florist's point of view; Constellation, in the way of Lustre, but a larger flower, both paste and ground colour being of greater dimensions, the latter being also darker, and the margin brighter, flowers large and very smooth, a bold and strong variety; and Fascination, pale sulphur paste, with rich dark ground colour, having a narrow margin of pale violet, pips very smooth and even, a most pleasing and effective variety. Second-class Certificates were awarded to the following:—Jessie, bright yellow paste, with rich velvety-crimson ground colour, with narrow margin of rosy violet, flowers very large and of fine substance, but a little rough; Defiance, bright yellow paste, with rich claret crimson ground colour, pips large and very stout, a bold and showy variety, but a little rough also; and Vivid, bright yellow paste, dark ground colour, each segment of the pip broadly margined with lively rosy crimson, flowers large and smooth, truss dense and erect, like one of the stage flowers. Other remarkably good flowers in this fine collection were President, deep yellow paste, clean and smooth, ground colour dark crimson, with margin of fiery claret crimson, very striking and showy; Princess, white paste, ground colour dark, with margin of clear violet, changing to rosy violet with age, a very novel and handsome flower; and Sparkler in the way of President, but without the dark shade of the ground colour; truss very fine, bold and striking. A similar award was also made to two others that the judges very aptly denominated "Fancy" kinds, as there was about them a kind of originality akin to that possessed by the Fancy Pansy as distinguished from the ordinary show Pansy. These were Trumpeter, with large smooth yellow paste, ground colour formed of rich dark red bordered with pale rosy crimson margined with a broad edge of rosy buff; pips very large and of a striking and novel appearance, but somewhat rough; and Selina, a very distinct and showy variety; sulphur paste changing to white, dark blotch of ground colour heavily edged with rosy violet as a margin, which changing to a paler colour with age, detracts from its attactiveness in some degree; flowers large and very bold. Altogether a strain of Alpine Auriculas has been developed of a very marked and valuable character, and this, combined with that hardihood of constitution that enables them to live through a severe winter out of doors when planted in the open ground, will obtain for them a wide popularity at no distant date.

Very recently there was held at the Marlborough Arms, South Street, Camberwell, the Metropolitan Auricula Show, a small but interesting meeting notwithstanding. On this occasion a First-class Certificate was awarded to Mr. T. W. Pilcher, of Bromley, for Alpine Auricula Emma, which had received a Second-class Certificate from the Floral Committee of the Royal Horticultural Society on the 16th of April, and was fully described at the time. The flower had greatly improved in the meantime, and deserved the higher award. First-class Certificates were awarded to Mr. J. Butcher for the following Alpine kinds:—Lady Middleton, pale sulphur paste, with ground-colour of dark purplish crimson, margined with violet, a flower of fine properties; Rifleman, glowing dark crimson ground colour, margined with a narrow edge of a paler hue, clear yellow paste, pips large and bold, and altogether a novel and striking flower; Jane Webster, golden yellow paste, ground-colour intense dark crimson, margined with a paler hue of the same, pips stout and smooth, and a very fine variety. The same award was made to Mr. John Pink, Coburg Road, S.E., for a seedling named Annie, grey-edged, clear white paste, very smooth, with well-defined ground-colour of rosy purple, and narrow edging of grey, pips stout and well-formed, a flower of fine quality and great promise; Eliza, grey-edged, white paste, with dark ground colour, and broad edge of grey, great substance and very promising; and Miss Oliver, white-edged, clear white paste, and good eye, dark crimson ground colour with deep edge of white, also very promising. Similar awards were made to Mr. Butcher for self John Penn, described above; and for Mrs. Butcher, a very fine grey-edged flower, clear white paste, smooth, crimson ground colour, well defined, and broad edging of green, pip large, of great substance, and fine quality. Trail's Robert Trail, a very fine grey-edged variety, was selected as the premier prize flower of the exhibition. It was grown by Mr. Butcher.

In a group of Alpine Auriculas shown by Mr. Pink, which had been grown from some German seed, was one remarkable for the extraordinary size of the truss, as well as of the individual pips. Each pip was about 2 inches in diameter, and the truss contained some two dozen flowers. The prevailing colour of the pips was lilac, the base of the segments marked with purplish crimson round a light paste. It was remarkable only for its size, reminding one of those extraordinary flowers grown by Dr. Plant, in 1859, the proportions of which were so unusually large, that to quote his own words—"the only thing I could compare them to, as to form and size, was that of a good Cauliflower." It is an objection often urged against the Auricula "that there is not enough of it," and there is certainly some force in this objection from the popular point of view; but could such flowers as Dr. Plant's be occasionally produced, as for instance his Ne plus Ultra, with 15 pips the size of a crown piece, the truss 10 inches in diameter, Hey's Apollo, with 22 pips, and Parker's Metropolitan, with 23 pips—combined, too, with fine quality—then the Auricula would become a feature of great interest to the general public, as well as to the practical florist. *R. D.*

The Apiary.

Bee-Culture: Hives (*continued from p.* 437).—The entrance into the hive extends, as will be seen by referring to Fig. 1, the entire width of the front. This may be supposed to be much more capacious than is at all necessary, but I have often found it of very great benefit, when large-sized supers are being filled by a very populous colony. The internal temperature at such times becomes so intolerable to the bees that, instead of working vigorously, they often, comparatively, desert the super, preferring to hang listlessly outside, to the almost entire suspension of comb-building. By opening a few extra inches of entrance way, the idlers will retire within, and the rapidity and steadiness with which the foragers go out and return is remarkable, and well worth watching.

I have for many years been an advocate for large entrances, believing that, with small apertures in summer, much valuable time is wasted by the overcrowding of the bees in flying out and in returning with their loads, besides the tendency to produce clustering outside; and in winter the interior of the hive is kept in a damp, insufficiently ventilated condition, very conducive to dysentery and other disease. Still the width of doorway allowed must vary with the strength of the colony, a weak population requiring less air, and to be kept snugger and warmer than a stronger one.

To alter the capacity of the entrance way, I do not in these hives use wedges, but I have adopted the excellent arrangement described by the Rev. L. L. Langstroth in his valuable treatise on the Honey Bee. It consists of two triangular blocks, made of deal or mahogany, of about 1 inch in thickness, cut of such a shape and of such dimensions as to allow of the various combinations represented in Fig. 8.



FIG 7.

Fig. 7 shows a pair of blocks, each being a right-angled triangle, $4\frac{1}{4}$" by $5\frac{3}{4}$" by $7\frac{1}{8}$".

Fig. 8 is a diagram giving five different arrangements of these blocks, each division being illustrative of the space occupied by the enclosed porch or entrance way. In the lowest, N, the arrangement of the blocks affords an entrance way of about $5\frac{1}{2}$ inches; the next above gives an opening of about 4 inches; the next allows one of about 3 inches; the next $1\frac{1}{2}$ inch, and the uppermost closes the orifice altogether.

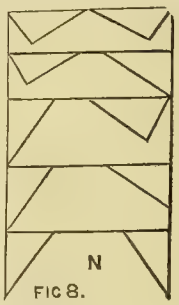


FIG 8.

Among other advantages incident to this plan is the facility with which condensed internal moisture will find an outlet by slightly tilting the hive towards the front; as also the help which the temporary removal of the blocks affords the bees of clearing the hive from accumulations of dirt and refuse.

To Stock the Hive.—The floor-board being screwed to the box, arrange the frames in their proper places, having attached pieces of clean worker comb to alternate bars. The swarm, which has been hived in a common straw hive, must now be knocked out, by a sudden violent shake between the two hands of the operator, on the upper surface of the bars or frames, when the bees will gradually find their way down. At first they will cluster out over the sides of the box, but will gradually return, and when the majority have descended between the bars, the cover must be gently and gradually slid on from one side, leaving a small space open for allowing the bees to enter. A cautious use of a little smoke will occasionally be found useful in compelling outlying clusters to disperse and retire to their proper quarters. The transference of the bees may be effected almost immediately after the swarm has been hived, the new hive standing where it is intended to remain, or the operation may be postponed until evening, an hour or two before dark. There should always, in this particular mode of procedure, be light enough for the bees to be able to see to fly, or, otherwise a great many which may fall to the ground will be lost. After about four or five days the frames should be carefully taken out and the combs examined. Any irregularities in their construction may be, at this time, easily rectified; and it is well to change the order in which they are originally placed. Every possible care should be taken during the first week or two to induce or compel the bees to build straight combs, much of the subsequent care with which all the various manipulations proper to the management of frame-hives, depending on the supervision exercised at the commencement of the swarm's career. *S. Bevan Fox.*

Errata.—The second division of the outer case must be similar to *Fig.* 5, and not *Fig.* 4, as I have inadvertently stated. In describing the slope of the roof at p. 437, instead of "each half of the sloping *path*," it should be "the sloping *part*, or the inclined plane."

Bees.—Should I not super until the combs at the top of the hive (which I see through the hole in the adapter-board) are full of honey? One of our labourers is very anxious for advice as to what to do with a stock, the queen of which he supposes is not breeding, as the bees carry in no pollen. They are in a common straw hive. *Young Apiarian, Warwickshire.* [There

is no necessity for waiting until the upper or other combs in the stock hive are filled, to put on a super. Strength of population is the grand consideration. Much stored honey in the stock or body hive is detrimental, as the breeding of the queen is curtailed, so that there will be a smaller army of foragers to take full advantage of the honey harvest; also it acts as an inducement to the queen to ascend into the super. If it can be satisfactorily ascertained that the hive is queenless, or that the queen, if there be one, is not breeding, either let it be driven and the bees united to another stock, keeping the hive and combs, if tolerably new and clean, to receive a swarm at the proper season, or let the bees take their chance until a swarm can be united to them. With a frame hive there would be no difficulty in giving suitable brood comb, and inducing the bees to raise a queen which would be out in time for the earliest drones.]

Garden Memoranda.

Spring Flowers at Belvoir Castle, the Seat of the Duke of Rutland.—Spring flowers have this year been cradled on snow beds, rocked by icicles, and nourished with tear drops of rain so cold as to freeze their life into a living death. They have leant their beauteous cheeks against the thick-ribbed ice, and grasped with their fragile forms the hard iron girdle of the frozen earth. And yet they have ventured to come forth and bloom unblanched amid the dreary waste of wintry desolation, and never probably have they been more lovely than this season. Doubtless their beauty has been enhanced by the fact of their appearance in the midst of rough unkindly weather. Lion-hearted March planted its rough foot firmly down upon the middle of April, and it appeared as if Spring had forgotten to imprint on the world the vivifying kiss of her warm love.

But no—Spring never forgets her coming. Fitful she may be, forgetful or indolent never. With man's aid, or without his help, the great quickening spirit of Spring works on, works ever, to garland the world with beauty throughout the year. Those who wish to test the rich quality and satisfying perfume of the spring-tide garland must go to Belvoir, and judge for themselves. For the benefit of those who have not this privilege, I will try to bring a spring bouquet from thence, and lay it down on your pages.

Almost the first thing that was impressed upon me at Belvoir was the fewness and simplicity of the materials employed. The next great lesson was the effectiveness of the colouring. This arose from the fact that everything was either massed, or lined, or contrasted by pincushion planting. A single plant of Arabis alpina is pretty but not very striking. A bed filled with it, edged with Aubrietia purpurea, or pincushioned with scarlet Tulip, is a sight never to be forgotten. Another great thing was the form of the beds. As a rule, the more irregular the figures for spring flowers, probably the better they look. Then most of the beds are raised with rough retaining walls of rock, or they are placed upon ground more or less sloping. Both these positions are most favourable settings for spring flowers. In fact the bold undulations of the grounds constitute some of the chief charms of Belvoir; and one of the greatest merits connected with the spring gardening there, is that each display is found just where the accompaniments seem to have invited it. It is the highest praise to Mr. Ingram to say that he has fitted Art so congruously into Nature, that in some cases, when the mellowing effect of time has done its work, the two will hardly be distinguishable. The chain of spring flowers at Belvoir reaches right across the dividing gulf between formal gardening and undressed nature, and links the two together across wide banks of Violets and Primroses, and immense irregular patches of Arabis, Aubrietia, Lamiums, Saxifrages, Periwinkle, Veratrums, Pampas Grass, Roses, and, in fact, every plant or shrub that can be spared from any of the other departments, to lighten up and dress the fine umbrageous woods. An immense amphitheatre is undergoing this process of dressing now, and the effect is charming. Whatever can be spared from other arrangements finds a place here, and by this process of continuous development, probably the whole woods will become a spring garden of rich beauty and sweetest perfume.

Another great feature is the earliness of the flowers. In many places spring gardening flourishes from April to the end of May. Here, from February to April it must be in beauty. This earliness is secured partly by a wise selection of plants, and perhaps more by skilful culture and timely preparation.

All the plants in the Castle, Duchess's and other formal gardens, are removed to make way for bedding plants in May. But instead of being planted on a north border anywhere out of sight, they are placed in warm genial spots in the most suitable soils, to ensure early maturation, and the perfect elaboration of the sap into embryo blossoms. Hence autumn finds the plants ripened and at rest. The first warm beams of spring wakens them into life, and the energy of this new-born life is expanded in blossom. I noticed also that a great many of the bulbs had been planted, and probably brought forward in pots. The habits of each plant are also carefully studied, with a view to the development of early, perfect, and abundant bloom.

A walk through the different gardens will afford the best information concerning the varieties used for early blooming.

In the Castle Garden what we shall call bed A is a circular one raised with rough rockwork into three zones. The centre is filled with a mixture of Wallflowers and Hyacinths, the rocky edge being furnished with golden Sedum hanging over and springing from the side of the rock. The second zone is filled thus:—1st row, scarlet Tulip; 2d, white Hyacinth; 3d, variegated Periwinkle; 4th, Aconite; 5th, Crocus. The third zone: 1, double sulphur Primrose; 2, white Daisy; 3, Crocus. Other six beds surrounding A, were all planted on the pincushion plan, that is, each had a ground colour, with another dotted regularly over it, and all were edged with Crocuses. They were planted as follows:—one with Aubrietia purpurea, dotted over with Primula denticulata, and edged with yellow Primrose in addition to Crocus; another was Russian Violets and pale pink Tulips; a third with white Arabis and scarlet Tulip (Vermillon Brillant), then rows of variegated Arabis and blue Forget-me-Not; a fourth with Aubrietia and Scilla sibirica, edged with common Primrose; the fifth with Erica carnea on a carpet of Saxifraga decusa; and the sixth, white Arabis and scarlet Tulip, then a row, consisting of alternate plants of variegated Arabis and Forget-me-Not. The whole forming such a scene of dazzling beauty as is seldom surpassed in the autumn, and could hardly be imagined as possible in April.

A corresponding group, which we shall call B, is equally beautiful. Four beds surrounding it have each centres of Wallflowers, two of them mixed with Tulips, and two with Hyacinths. Each is then filled up with a row of white Arabis, next Erica carnea, then Aubrietia edged with Crocuses. Four circles between these beds are slightly raised, and planted with Rhododendrons in the centre, edged with zones of Scotch Roses, finishing off with Crocuses and Aconites.

On the front of one of the supporting borders of this plan, there is a splendid mass of bloom, planted thus—masses of shrubs at the back, then fine yellow Doronicum scorpioides (possibly), next Aubrietia, then Hyacinths, Gentiana acaulis (blue), Pansy, Daisy, and Crocus.

A scroll bed supporting the two principal figures has a centre of Aubrietia, then white Hyacinths, edged with Erica carnea. Another has a broad band of Aubrietia, then Hepaticas, next Primroses, and common Aconites. There also some very pretty scroll beds, just before passing down the hill towards the main walk. One is filled with Arabis, Aubrietia, Primroses, blue Pansy, and Crocus. Another with red Hyacinths, blue Hepatica, and white Daisy. There are also large beds of Violets, mixed or edged with Primroses, and a Violet bed mixed with a small yellow Fumaria. One of the most striking beds here is filled thus—the centre is composed of the white Arabis, pincushioned with white Hyacinth, then a row of Erica carnea, then a row of Dog's-tooth Violet, then Sanguinaria canadensis, variegated Daisy, and Crocuses.

Retracing our steps up the hill we look down upon the Statue Garden, about 50 feet lower, and perhaps 50 yards distant. It is placed on a nearly level platform, with a very tall Cedar at the back, and a statue in the centre. It is filled mostly with Variegated Kale, with shrubs intermixed, and has a charming effect as seen from the Castle Garden. The four largest beds are filled with Aucuba japonica, two of them intermixed with Red and the other two with White Variegated Kale. The Kales are equal to flowers when seen in this way, and so perfect is the resemblance to some extraordinary flower, that many visitors have rushed down to gain a closer knowledge of the new beauty, and only discovered their mistake at the bottom. Until meeting with them at Belvoir, I had always considered Kale too cabbage-like for the flower garden; but certainly they are useful decorative subjects at a distance, and arranged so near to the ground as Mr. Ingram has so skilfully brought them, they may ultimately be allowed to come closer to us, while we try to bury the memory of their character and origin deep down in the valley of forgetfulness with their stalks. Variegated Kales are also mixed here with two beds of Laurustinus, two of dwarf Box, two of Holly, and they contrast well with them all. Other beds are filled with Lavender. Variegated Box, Junipers, Daphne Laureola, Wallflower, Tulips, Hyacinths, &c. Altogether the colouring, arranging, and form of the Temple Garden is a picture of beauty—placed at the best possible distance, in the best light, and the most suitable frame of shrubs, trees, &c., for effect.

Proceeding onwards through a noble wood of Oaks, interspersed with fine Yews of great height and beauty, we pass the *omnium gatherum* amphitheatre already referred to, and are ushered suddenly into the Duchess's Garden, of the beauty of which the following particulars can only give a faint conception:—

Here what may be termed A are a connected series of borders on three different levels, supported by rocky fronts about one foot in depth; B may be described as long triangular beds on sloping Grass banks; C, a group of scroll beds, also on the incline; D, raised rock beds; E, other beds on steep sloping banks. These are divided into two sets by means of some steps, with two fine Araucarias on each side at top and bottom. One, imbricata, is about 40 feet high, and a Cunninghamii over 20. What we may call G is a grand piece of rockwork, with Alpine plants inserted in the crevices, forming a rock ladder, or stair to a higher portion of the grounds. H is a bold hill, richly clad with Oaks and magnificent Ferns, whose sombre hues prove an effective setting for the lovely spring flowers that leap up at their base. From the lower portion of the garden, the valley also dips down through fine Oaks, and here Mr. Ingram has formed new walks, and a further extension on a more rustic style of his favourite spring gardening.

Beginning with the rock borders already alluded to, let us now note how they were furnished. These angles were planted with Crown Imperials and red Tulips. First platform, No. 1: 1st row, Arabis; 2d, Primrose; 3d, Pansy; 4th, Aubrietia; 5th, Daisy; 6th, Crocus. No. 2: 1st, Red Tulips; 2d, Oxlips; 3d, Hyacinths; 4th, Anemone, scarlet; 5th, white Arabis; 6th, Blue Forget-me-Not; 7th, Yellow Crocus. This Forget-me-Not seems different from the common one, as it blooms freely on dry soil, and Mr. Ingram calls it Mysotis intermedia. The lower rim, No. 3, is thus planted: 1st row, Anemone Pulsatilla, then two rows of Aubrietia purpurea, then a row of the common Primrose, finished off with an edging of blue Crocuses.

Between the great triangular beds (B) is a central round bed, which was a mixture of Scilla biflora alba and sibirica, with blue Pansy. In the two triangular beds themselves are 1, Aubrietia, then a row of Erica carnea, next blue Pansy, followed by the common Primrose, and furnished with an edging of red Daisy. In a group of three beds below those just named, were variegated Kale, surrounded with dwarf Wallflowers, followed with Oxlips of different colours, Arabis, and Crocus; and right and left white Arabis, Aubrietia, and common Aconite. These formed the central group. In two flanking groups, each of three beds, occurred, first variegated Arabis, blue Pansy, Hyacinths, and Primroses; next, beautiful dwarf red Kale in the centre, surrounded with a dwarf yellow Wallflower, in the way of Cheiranthus Marshallii; then white Arabis and Crocus; then masses of Aubrietia and Primroses. A small circular bed in front contained scarlet Van Thol Tulip among white Arabis, surrounded with Primroses and blue Pansy. Two similar beds were decorated with Hyacinths, Oxlips, scarlet Anemones, Myosotis, and Aubrietia.

Another series of beds were thus filled:—1, double Wallflower; 2, Arabis alpina; 3, Aubrietia grandiflora; while in another knot of peculiarly formed beds in the centre of a sloping bank the middle one was filled with Wallflowers, four surrounding stars with Aubrietia, and the other four portions with white Arabis. Beyond this, again, there are other beds, one of the prettiest being carpeted over with the dense Saxifrage, forming a green cushion of exquisite beauty for a whole host of white Hyacinths; then a Violet bed nestles in the corner, grasping the turf and the Hyacinths with one hand, and the overshadowing Yews with the other.

Further down, in a scroll bed, the centre is a noble line of Pulmonaria virginica, or Lung-wort, surrounded with Primroses, followed by Violets, and edged with the common Aconite. This Pulmonaria is a favourite plant with Mr. Ingram, who thinks, beautiful though it be, that something much better may yet be made of it by culture and crossing. He has several varieties of it, as well as of the Aubrietia from seed. Fine new strains of high-coloured Oxlips are also being developed here. Here are also beds in flower of the large semi-tropical-looking Pennsylvanian Saxifrage; also patches or borders of oppositifolia, paniculata and umbrosa, and a lovely border of the ever welcome Omphalodes verna. The delicate Linaria Cymbalaria grasps hold of and covers projecting stones; the common Fumaria runs about in the crevices, while Orobus vernus, Adonis vernalis, Arabis lucida variegata, Helleborus niger, and many others, are seen springing up or dying down in the most unexpected nooks and corners.

The Duke's Walk winds along through the fine timber and hanging hill until a clearance is reached, giving a superb view of the valley and river, and forming a fine position for Rhododendrons, Cypresses, and other trees. These have lately been planted and are doing well. The entire wooded hill offers fine sites for choice Conifers, and could absorb and turn to good account millions of Rhododendrons. These, when planted in vegetable mould, do exceedingly well on the cool clayey bottom. And there are some very fine specimens 20 feet high near the carriage road, beyond the dairy. The Yew grows exceedingly well at Belvoir, there being many very fine specimens almost equal to Cedars of Lebanon.

Returning to the Castle, we proceed round the terrace to look over the magnificent valley, and take a commanding view over several counties. The house is too well known to need any description. It is a magnificent castellated structure by Wyatt, and stands on the summit of a conical hill, about 200 feet above the level of the sea, and nearly 100 above the surrounding country. The ground falls abruptly from it in a series of slopes and terraces, and the whole surroundings are regal-looking and magnificent. On one side a wide terrace of gravel, supported by a bold retaining wall, sweeps up to the Castle windows. Beyond this a succession of Grass slopes—eight, I think—succeed each other down to a bowling green or croquet ground, and the stables, almost like a village in extent. The garden front has a succession of terraces, supported by walls. First there is the Duke's terrace on the top, next follows the flower garden terrace, then the Walnut-tree terrace, forming the highest point of a sloping lawn. On this terrace garden more spring flowers were found. Beds of variegated Kale, Saxifrages, Wallflowers, Tulips, Hyacinths, Arabis, Crocuses, &c. The different walls were well furnished with Magnolia grandiflora, Lonicera fragrantissima (one of the sweetest and best of spring flowers), Jasmines, Escallonias, Chimonanthus, Roses, and Vines,—the latter, mostly Muscadines, ripen well in most seasons. The Walnut trees are also very large, and there are some superb specimens of Portugal Laurels about the grounds. About here are also some immense masses of Periwinkle, Violets, &c. A fine broad walk leads straight from the kitchen garden to the very pretty dairy. This walk is bounded on each side with some fine timber and magnificent Yews. In front of the dairy a waving sea of Daffodil blooms rise and fall with the breeze. With these I regretfully bid adieu to the beautiful spring flowers at Belvoir.

I conclude with the practical question, can like scenes of spring beauty be produced elsewhere? To a great extent they can. Many of the plants used can hardly be injured by cold. With similar cultural and artistic skill, spring flowers may arise and bloom almost anywhere. Still, Belvoir owes a good deal to its climate—Mr. Ingram's exact records of temperature, so recently given in the *Gardeners' Chronicle*, prove

this, and these records are considerably lower than those that affect the spring flowers. The registering thermometers stand in the middle of a flat, cold, kitchen garden, while the flowers nestle and adorn sheltered nooks and corners, with genial aspects, from 50 to 100 feet higher up. While therefore according to Mr. Ingram the highest praise for his success in clothing his beds so early with a rich carpet of beauty, I would also desire to moderate the disappointment of some who may have partially failed, by acknowledging that the climate exerts a powerful influence on both the earliness and profusion of bloom, and in proof of the geniality of the Belvoir climate, I would point confidently to two large double Camellias that have stood for years in the wood uncovered but unscathed, and which have generally bloomed profusely, within a few yards of the Duchess's Garden.

I hope to notice a few other features of these fine gardens next week. *F.*

Miscellaneous.

Window Flowers.—The great care bestowed upon Victoria, Battersea, Hyde, and Regent's Parks, as well as upon the various horticultural and public gardens, had already instructed the working classes, and stimulated them to become possessors of those beautiful natural productions, which they had learned to value; and which, although hitherto unattainable except at high prices, are now so extensively cultivated that they are within reach of the workman, who has also found out that he can rear and multiply them on his own window-sill wherever the sun shines for but two hours daily. In the whole range of the City, and the most populous of its suburbs, there are very few streets, or narrow lanes and courts, where ranges of beautifully-diversified and luxuriant flowers may not be seen, bestowing an air of lightness and beauty upon scenes that before were sombre and melancholy. Take any lane or court off Aldersgate Street, or in Bermondsey, or Hackney, or Islington, and the evidences of floriculture are the same: in some rooms with only one window and perhaps four or five inmates the pet plants are clustered on the sill, giving out their odour, and through care vigorously flourishing, as though planted in Henderson's, Bull's, or Wimsett's nursery. The possession of these beautiful flowers, comprising rarely more than a few Geraniums, Fuchsias, Convolvuli, Asters, Calceolarias, and Lobelias, creates an interest by the daily-recurring short attentions bestowed upon them, and amply repays, in dazzling radiance and odour, the time and trouble; whilst they tend to make the humble home more tolerable, and to harmonise the mature and rising generation in one common object of admiration. Some ten years back there were scarcely any window flowers to be seen. A few houses in the West-end had Laburnums or Virginian Creepers planted in the areas, and trained to the balcony; of late, the greater number exhibit collections on the first-floor balconies and parlour windows, many having glass cases rested upon the sills, and filled with the choicest specimens from the conservatory. In Piccadilly, several mansions have these cases filled throughout the whole season of their town residence; one of the first examples being Northampton House, which is covered as high as the second floor simply with Virginian Creeper and Ivy; lower in the dip, opposite the Green Park, another house has the glass cases for flowers in the parlour, and all the windows to the second-floor beautifully fringed with parasitic plants. These houses are of the old brick-fronted order, and offer a good basis for ornamentation, as wall-nails may be driven without damage, whereas on stucco or compo frontages a trellis is needed. The general rule now is, in some fashionable quarters, floral balconies and shrubbed areas; but one house in Grosvenor Square surpasses all others in the decorative effect of its luxuriant bloom. The whole plan and arrangement are due to the butler of the Countess of Dysart. In the area, 10 feet under the street level, are planted Ivies, Virginian Creepers, and Cobœa scandens, which clothe the walls in luxuriant tresses, rising on the front elevation to the first-floor balcony, and forming a tastefully-arranged dwarf blind to the parlours; Myrtles in tubs, and various flowers, and plants in pots, are disposed over the pavement, and tendrils trained on bars across from the railings, with pendent flower-baskets, the whole of the front windows being also adorned with the choicest Geraniums and flowers of hues selected for effect. Even the stable-wall adjoining the mansion, in Audley Street, is covered by the Virginian Creepers, all verdant in summer, but ensanguined in September. It is rather strange that the taste for floriculture should not have advanced so much in the neighbourhood of Brompton and South Kensington, where the atmosphere is more genial to their growth, although some houses in the Prince's and Exhibition Roads display a goodly array of flowering plants and exotics. Still the small streets diverging towards Chelsea discover their partiality for window flowers, and these are generally tended by the tenants of floors and single rooms; and in one cottage at the Chelsea end of Keppel Street, a little garden of about 20 feet by 15 feet is worthy of note; although, like some of the mansions whose occupants have left town for the season, it has run somewhat into wilderness. This little patch was ornamented some years back with rockwork around its boundary walls, and planted with shrubs and flowers; several broken pillars, as of a ruined temple, being fitfully placed as possibly they ought to have fallen. This little morsel of fantastic simulation, covered in Ivy, parasitic plants and flowers, was probably the first fancy model in the hortulan way of this vicinity. The last is as much in the opposite style—it is a tastefully finished shop in the Brompton Road, opened for the sale of plants and cut flowers by Messrs. Hopgood; the display at times is, perhaps, unequalled, and occurring at a moment so favourable to the advance of floral taste and skill, may be almost deemed a public acquisition. *Builder.*

Garden Operations.

(*For the ensuing week.*)

PLANT HOUSES.

Begonias generally will now need especial attention. Pot those intended for large plants into pots about two sizes larger than those in which they have flowered. They thrive best in a rough fibrous peat, intermixed with silver sand and leaf-mould. Cuttings should now be put in in such quantities as may be required, bearing in mind that when they are struck, three or four fixed firmly together and potted, will make a good bushy plant much quicker than when single ones only are relied upon. Amongst kinds best suited for general purposes, and which do best treated thus from cuttings annually, are B. odorata, B. Ingramii, B. Saundersii, and B. digswelliensis, the last of which seems to uphold its original character as regards being useful for furnishing a continuous supply of cut flowers throughout the winter months. In order to insure such an abundance of flower with any of the kinds enumerated, however, they must be so treated that by the aid of small shifts and constant pinching back, they may be possessed of a good bushy form, and be thoroughly pot-bound at least a month or five weeks previous to the time when they may be required in flower. To facilitate this, cuttings, even when treated as above, should never be placed in pots exceeding 32-sized, a lesser size being preferable when the plants are required in flower as early as possible. B. fuchsioides blooms best the second season, and requires treatment similar to the above. To flower it well, however, it should be kept in a rather dry situation, such as against a dry wall, the pot in which it grows being placed upon a dry slate, or similar material, with moderate warmth beneath. *Lilium lancifolium, auratum, &c.*, should now have the pots in which they are growing, surface-dressed, as it will be seen, in every case in which they have made a moderate amount of growth, that young roots will be pushing forth from around the base of the young shoots, just at the apex of the bulbs; and it is only by giving these every encouragement in their efforts to grow that fine spikes of bloom are ensured. Do not place around them rich materials; the crudest peat, a little well-decomposed leaf-mould, and sand will suit them perfectly. They may receive all necessary stimulus by means of liquid manure at a later date; and when these, now tender roots, have attained a robustness more capable of turning such food to good account. *Pelargoniums* about to flower, or such as are in blossom, will need every attention now, in order to guard against their becoming too dry at the root. Bear in mind, that such plants may suffer very great injury long before they are compelled by extreme exhaustion to show it outwardly in the form of flagging, and, therefore, assiduous attention is the more needed. Allow a sufficient opening at the top of all structures containing Pelargoniums in bloom, for any excess of moisture in the atmosphere to pass freely out, as if permitted to condense inside, the moisture falling upon the blooms will prove most injurious to their longevity.

FORCING HOUSES.

Pines: continue to pot up all available suckers, in quantities according to requirements. Tax your utmost ingenuity to devise every possible means for keeping up an atmosphere surcharged heavily with a genial humidity, by stirring the tan occasionally and well watering it; any utensils, the shallower the better, placed freely about and kept constantly filled with water, will afford material assistance in this way. Proceed with the disbudding of the later *Vines.* Use the syringe freely, and keep the house as constantly near temperate as possible until they have made a good start. Do not delay bringing inside any Vines placed outside the house for the purpose of retarding them, as soon as they have begun to break. Thin out any remaining secondary laterals upon the divisional young wood to allow the sun free access to the more substantial foliage. As *Cherries* continue to show colour and to ripen, withhold moisture more and more from the roots, giving them the full benefit of the sun and of an airy position.

HARDY FRUIT GARDEN.

Peaches, Nectarines, &c., are greatly infested with aphides this season. They so injure the leaves in their younger stages of growth as to cause them to curl up and become blistered, the latter asperities constituting an excellent protection for them, from whence they can be with difficulty dislodged. To accomplish this, first go over every bud individually, removing carefully any leaf so injured as not to be likely readily to recover its lost vigour, after which give the trees a thorough syringing with tobacco-water, or Gishurst Compound and soft soap intermixed, using 2 and 4 ounces of each respectively to the gallon of water. In syringing the trees, dash it against the wall with some force, and endeavour by every possible means to deluge every remote hiding place. Do not apply the above mixtures to the trees at times when the sun shines fully upon them.

HARDY FLOWER GARDEN.

Proceed with, and finish clipping all *Ivies* in need of such an operation. By clipping now they will readily break back, and refurnish the necessary surfaces more quickly than when cut earlier. Do not, however, deprive young plants which have not yet furnished the spaces allotted to them of more foliage than is absolutely necessary. *Pansies* will propagate pretty freely now. Take off any side shoots sufficiently large for cuttings, and having prepared them by making a clean wound across below a joint, remove the lower pair of leaves, and dibble them firmly into leaf-mould and sand, with a little loam intermixed, in a shady position, and where a handlight can be placed firmly over them. By placing a slight layer of lime under the compost, much of the annoyance caused by worms will be avoided.

KITCHEN GARDEN.

Sow the necessary quantity of *Beet* for a main crop. Paul's Crimson and Pine-apple are amongst the best, the flavour of the former being excellent; it should be sown in a rich deep open soil as previously advised. Sow in rows a foot apart, and moderately deep; do not sow too thickly, however, as it will eventually need thinning out to 8 or 10 inches between the plants. The main crop of *Carrots* should also be sown in similar soil; Short Horns should be sown in drills some 8 or 9 inches apart, and larger sorts from 12 to 13 inches apart. The seeds too frequently are obtained in an adhesive compact mass, a condition in which they will need additional dressing before they are fit for sowing. This is best done by mixing with them half their quantity of silver sand, and rubbing the two together frequently through the hands; the seeds may thus be dropped more uniformly in the rows in process of sowing. Make successional sowings of *Broccoli*, including Walcheren, Cattell's Eclipse, Knight's Protecting, &c. A successional crop of *Savoys* should also be sown. Look well to late sowings, and where any have not succeeded sow again without delay. Use every preventive against slugs, which are "thick as locusts" abroad, by laying traps of Cabbage leaves and similar material, which should be looked over occasionally with the view of destroying any which may have taken shelter thereunder; otherwise their continued attacks must nullify every effort at success, so numerous are they this season. *W. E.*

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the Week ending May 1, 1867, as observed at the Horticultural Gardens.

April and May.	Moon's Age.	Barometer.		Temperature. Of the Air.			Of the Earth		Wind	Rain.
		Max.	Min.	Max.	Min.	Mean	1 foot deep.	2 feet deep.		
Thurs. 25	21	29.818	29.693	53	42	47.5	53	49	N.	.01
Friday 26	22	29.760	29.646	57	42	49.5	51	49	E.	.02
Satur. 27	((	29.523	29.484	60	29	44.5	52	49	S.W.	.03
Sunday 28	24	29.727	29.370	61	30	45.5	52	49	E.	.00
Mon. 29	25	29.830	29.786	65	32	48.5	51	48	N.	.04
Tues. 30	26	29.747	29.664	64	36	50.0	52	49	W.	.12
Wed. 1	27	29.954	29.870	62	33	47.5	52	49	N.W.	.00
Average.		29.765	29.641	60.2	34.9	47.5	51.8	48.8		0.22

April 25—Hazy and damp, overcast; densely overcast at night.
— 26—Hazy, overcast; slight rain at night.
— 27—Cloudy, masses of white clouds, very fine at night.
— 28—Foggy, overcast; very fine at night.
— 29—Fine; exceedingly fine throughout.
— 30—Cloudy; white and dusky clouds; rain at night.
May 1—Cloudy and damp, cloudy; very fine at night.
Mean temperature of the week 1 3-10th deg. below the average.

STATE OF THE WEATHER AT CHISWICK,
During the last 41 years, for the ensuing Week, ending May 11, 1867.

May.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday .. 5	62 6	38.9	50 7	22	1.26 in.	5	11	4	4	10	5	1	1
Mon. .. 6	62.0	38.6	50.3	16	0 68	—	11	5	5	4	6	7	3
Tues. .. 7	59.6	39.3	49.5	18	0 80	6	7	6	3	6	8	3	2
Wed. .. 8	61.7	39.4	50 5	18	0 82	2	7	9	—	6	7	6	4
Thurs. .. 9	62 1	39 7	50 9	18	0.73	3	10	8	1	4	12	3	—
Friday ..10	61.9	40.1	51.0	19	0.60	6	9	6	2	5	7	4	2
Satur. ..11	62 1	40 8	51.4	19	0.52	6	7	9	1	5	6	3	4

The highest temperature during the above period occurred on the 6th, 1862—therm. 84 deg.; and the lowest on the 2nd, 1855, and 6th, 1865—therm 20 deg.

Notices to Correspondents.

AUCUBA: *Scottish Subscriber.* The proper pronunciation is thus—Aūcūbā.—*U Y.* There is no trace of stamens in the flowers sent.

BOILERS: *W B J.* We know nothing of the boiler you mention. Any of the horticultural builders who advertise in our columns would supply you with a good saddle boiler.

BOOKS: —. Walcot's "Flora Britannica Indigena." Our copy contains about 168 plates, and is, we believe, complete. —*J D.* Loudon's "Self-instruction for Young Gardeners," and Kemp's "How to Lay Out a Garden."

HEATING CONSERVATORY: *Subscriber.* We know nothing of the "patent Gill air warmers," but you may rest assured that for a good-sized house like yours there is nothing better than a simple hot-water apparatus—the simpler the better.

ITALIAN PLASTER: *H C D* asks where the Italian Plaster mentioned in a paragraph quoted by us a week or two since can be obtained. Perhaps some of our correspondents can inform him.

LAWNS: *J F.* Of the specimens sent Nos. 1, 2, and 4 are common Mosses; No. 3 is probably Sagina procumbens. We have no faith in either this or the Spergula for lawns, except under special circumstances. Your lawn, with damp sour soil, wants draining; then give a scarifying, so as to break up the surface and root out the Daisies, and sow a good mixture of proper lawn Grass seeds, covering them with a dressing of the richest compost you can obtain. The sooner this is done the better.—*A H.* Apply a top-dressing of soot or guano.

NAMES OF PLANTS: *A W.* No. 1, Juniperus virginiana; No. 2, Juniperus virginiana var. cæsia (Hort).—*F C.* Your Aerides is A. virens. The Epidendrum we do not recognise, nor is it possible to do so without information as to its habit and native country.—*P E F.* 1, Lithospermum fruticosum; 2, Anemone nemorosa; 3, too fragmentary.—*Old Subscriber.* The Wayfaring Tree, Viburnum Lantana.—*G D M.* 1, Polypodium effusum; 2, Pteris serrulata; 3, Pteris hastata; 4, Selaginella Martensii var.

POTATO: *J Davenport.* The Potato, that is, the edible part of the plant so called, is certainly not a root, and as certainly it is a vegetable. We must therefore say Yes to your first, and No to your second inquiry.

VINE LEAVES: *W M.* The little green wart-like excrescences on your Vine leaves are not uncommon. They deface the leaves in some measure, but in all probability are not injurious.

VIOLA CORNUTA: *Messrs J Veitch & Sons* have sent us a box of beautiful flowers of the deep mauve-coloured variety of the Viola cornuta, grown by Mr. Miller, gr. to Lord Foley, Manor Gardens, Worksop, which show the plant to be a veritable acquisition for the early flower garden. This, too, is a remarkably fine-coloured form of the plant.

COMMUNICATIONS RECEIVED.—W. Miller.—J. Veitch & Sons.—E. Sage.—D. T. F.—G. G—T. R.—W. R.—W. E.—E. K.—T. O.—E. A.—E. R. C.—H. G. Rchb.—A. Boyle.—W.

THE BEST SWEDE IN CULTIVATION

IS

SUTTON'S CHAMPION.

Price 1s. per lb.

Cheaper by the bushel of 52 lb. Carriage free.



TURNIP SEEDS direct from the growers.

The most certain means of preventing disappointment.

SUTTON'S CHAMPION SWEDE.

A large Purple-topped Yellow variety, handsome shape, perfectly hardy, stores exceedingly well, and one of the heaviest croppers.

TESTIMONIALS.

From Mr. J. H. HALSE, *Secretary to the Sidmouth Agricultural Association.*

October 26, 1866.—"At the annual meeting of the above Association, held at Sidmouth on the 23d inst., the whole of the Prizes for Swede Turnips were awarded to your Champion Swede, grown from seed supplied by you during the past season."

From H. J. HILLIER, Esq., *Granham Hill, Marlborough.*

"I am bound to say that from my experience you are quite justified in asserting the Champion Swede to be quite as hardy as any of the purple-topped varieties; if not indeed hardier.

From Mr. LARGE, *Bailiff to the* Right Hon. Lord Berners.

"The Champion Swedes, from seed Lord Berners purchased of you, are far superior to any other we have grown. I can confidently say they are many tons per acre heavier than any other Swedes growing on his lordship's farm."

From Mr. B. HUNT, *late Steward to* W. W. Chute, Esq., *Vyne Farm, Basingstoke.*

January 12, 1866.—"Last season I tried eight different kinds of Swede, and find, after a careful examination, that, although several of them are good, none of them equal your Champion."

From Mr. W. TURNER, *Hole Farm, Lyme Regis.*

May 19, 1866.—"Your Champion Swedes last year were the largest and best keepers grown in this neighbourhood."

THREE HUNDRED GUINEAS IN 12 PRIZES.

FOR SIX YEARS SUCCESSIVELY

HIS LATE ROYAL HIGHNESS THE

PRINCE CONSORT'S PRIZE CUPS

HAVE BEEN AWARDED TO

SUTTON'S CHAMPION SWEDES

AT THE

ROYAL EAST BERKS AND SOUTH BERKS AGRICULTURAL SOCIETIES,

And many other valuable Prizes in various parts of the Kingdom.

Price 1s. per lb.

Cheaper by the bushel of 52 lb. Carriage free.

PRICED LISTS of other TURNIP SEEDS gratis on application.

SUTTON AND SONS, SEED GROWERS, READING.

HORSE SHOW, AGRICULTURAL HALL, LONDON, MAY 25, 1867.

TO GARDEN IMPLEMENT MAKERS, AND OTHERS.

SPACE TO LET in the ARCADE and GALLERIES for the EXHIBITION and SALE of the SAME CLASS of GOODS as are sold during the Smithfield Club week.

Horticultural and Agricultural Implement Makers, Seedsmen, Nursery Gardeners, and Manufacturers of Ornamental and useful articles for domestic purposes. Prizes for Saddles and Bridles.

Terms and Conditions may be obtained at the Offices of the Company, Barford Street, Islington, N.

By Order, S. SIDNEY, Secretary and Manager.

MANCHESTER and LIVERPOOL AGRICULTURAL SOCIETY (Established 1767).—GRAND CENTENARY SHOW MEETING at Manchester, August 27, 28, and 29, 1867.

Special Prize List and Forms of Entry will be issued at the end of May.

T. B. RYDER, Secretary.

67A, Church Street, Liverpool.—April 23, 1867.

SOUTHERN COUNTIES ASSOCIATION.

President 1866-'67—His GRACE THE DUKE OF RICHMOND, K.G.

The ANNUAL EXHIBITION of HORSES, STOCK, POULTRY, IMPLEMENTS, WORKS of ART, &c., will be held at BRIGHTON, on the 24th, 25th, 26th, 27th, and 28th of JUNE NEXT.

SUMMARY OF PRIZES OFFERED:—

CATTLE.—Short-horns, £125; Sussex, £125; other Breeds, £60.

SHEEP.—Southdowns, £90; Hants Downs, £90; Oxford Downs, £90; Kent Sheep, £90.

HORSES.—Agricultural, £110; Hunters, £95; Hacks, £15; Ponies, [£10.

PIGS.—Berkshire, £32; other Breeds, £32.

POULTRY.—Various, £93.

The PRIZE LIST may be obtained of the Secretary. ENTRIES CLOSE May 1. By order of the Council,

Yately, Farnborough. G. B. H. SHUTE, Secretary.

BATH and WEST of ENGLAND SOCIETY.

POULTRY SHOW at SALISBURY on the 10th, 11th, 12th, 13th, and 14th of JUNE, 1867.

ENTRIES CLOSE MAY 10, 1867.

For Forms of Entry and all particulars apply to

JOSIAH GOODWIN, Secretary.

4, Terrace Walk, Bath.

ROYAL AGRICULTURAL SOCIETY of ENGLAND.

The PRIVY COUNCIL having REFUSED PERMISSION to hold a CATTLE SHOW at BURY ST. EDMUND'S, the PRIZES for HORSES have been increased by £350, viz.:—

£300 by the SOCIETY and £50 by the LOCAL COMMITTEE.

The PRIZES for THOROUGHBREDS now amount to		..	£175
"	HUNTERS	"	.. 405
"	HACKNEYS	"	.. 130
"	ROADSTERS	"	.. 90
"	CARRIAGE HORSES	"	.. 105
"	PONIES	"	.. 145
			£1050

For Prize Sheets and Forms of Entry apply to

12, Hanover Square, London, W. H. HALL DARE, Sec.

The Agricultural Gazette.

SATURDAY, MAY 4, 1867.

MEETING FOR THE ENSUING WEEK.

MONDAY, May 6—London Farmers' Club (on Harvest Work)—6 P.M.

IT will be seen from the report of last Wednesday's meeting of the Council of the Royal Agricultural Society that the meeting of the Society in 1868 has been fixed by a large majority for Leicester. Another point of interest in the report is the resolution to increase, by 350*l.*, the prizes for the different classes of horses to be shown at Bury St. Edmund's, in consideration of the enforced absence of the cattle classes. Full particulars of the additional premiums are advertised above.

On the following day a Special Meeting of Council met for the purpose of appropriating their educational grant of 300*l.*; and it was decided that, on presenting any satisfactory proof of having received a good general education, candidates for the Society's honours and distinctions, if not younger than 18, nor older than 25, should be admitted to examination in the science and practice of Agriculture, in Book-keeping, and in one or more of the following subjects, at the discretion of the Committee, viz., Mechanics in their application to Agriculture, Agricultural Chemistry, Botany, Geology, Veterinary Science, Field Engineering, and Surveying. The examiners will be appointed by the Council. And it will thus be seen that while the necessity of a good general education is duly insisted on, the Society is for the future to direct its efforts more expressly to the promotion of the several branches of a sound professional training.

Mr. HOLLAND will, we hope, be able to secure upon the future Education Committee the co-operation not only of those who have all along contended for that view of the Society's duty which it has now adopted, but also of many to whom he has hitherto been opposed, but who with all their devotion to the promotion of a better general education for country boys, never have denied that the more limited field into which he has at length succeeded in directing the Society, is one which well deserves all the attention that can be given to it.

No greater sales have occurred in the history of the Short-horn breed than those which Mr. STRAFFORD has conducted during the past week. At Preston Hall on Wednesday, and at Havering on Thursday, the Grand Duchess, Cambridge Rose, Oxford, and Waterloo tribes realised even more than the greatest admirers of Kirkleavington blood could have expected. And many other well-known families fetched such high prices as show both the present high market value of well-bred stock, and the high estimation in which particular families of Short-horns are held.

A detailed priced list of Mr. BETTS's herd is given in another column, and a similar report will appear next week of Mr. MCINTOSH's herd. At the former it will be seen that 63 animals realised 11,399*l.* 17*s.*, or the unprecedented average of 180*l.* 19*s.* each—that 52 cows, heifers, apiece; and 11 bulls and bull calves 1884*l.* 15*s.*, and heifer calves fetched 9515*l.* 2*s.*, or 182*l.* 19*s.* 8*d.* or 171*l.* 7*s.* each. At the latter sale 57 herd of stock made 6647*l.* 11*s.*, or 116*l.* 12*s.* 6*d.* each. And Mr. STRAFFORD has thus sold during the two successive days 120 animals for upwards of 18,000*l.*, or 150*l.* apiece.

The following are the average prices realised by some of the principal families thus disposed of:

Descendants of	No.	Total Price.			Average.			Greatest Price.		
		£	*s.*	*d.*	£	*s.*	*d.*	£	*s.*	*d.*
Grand Duchess	13	5759	5	0	443	0	0	892	10	0
Cambridge Rose ..	10	2149	17	0	214	18	8	372	15	0
Waterloo Cow	9	1103	11	0	122	12	4	168	0	0
Oxford Cow	3	1680	0	0	560	0	0	630	0	0
Royal Butterfly	4	966	0	0	241	10	0	336	0	0
Lady Bates	6	788	11	0	131	8	6	215	0	0

THE question of UTILITY is beset with difficulties sufficiently formidable to puzzle the most philosophical. When *Cui bono?* is asked with reference to almost anything, the answer seems to fly from us from point to point until, if we follow, we are led into vacuity. When we therefore attempt to answer the question—"Of what use is a knowledge of science to the farmer?" we find ourselves on critical ground. It is not that we have no faith in the power of scientific knowledge, but our diffidence springs from the difficulty of treating the subject in a practical manner.

We have in a previous number of this Journal endeavoured to point out the intimate connection between science and agriculture, and we wish now to show the utility of scientific knowledge to the individual agriculturist. The first point, although true, does not prove the second, for it is certain that we may derive advantage from an invention without a knowledge of the principles which guided the originator in his investigations. Thus it would hardly be thought necessary for a shoemaker to understand the theory of tanning leather, or for a sailor to be instructed in the calculations which guide the shipbuilder in laying down his vessels. On the contrary, we find the great principle of division of labour to extend with civilisation, a part of the work of humanity being allotted to each profession or business, so that perfection may eventually be attained in each. Although the relations of these various occupations to each other, and their relative importance to mankind, may afford interesting matter for reflection to the philosopher, those who are engaged in prosecuting them will be better employed in perfecting themselves in the branch they have chosen. Human life is too short and the competition of life too severe to allow the majority of men to pay much attention to branches of knowledge which do not directly influence their prosperity, and we can easily imagine a thoughtful agriculturist considering whether, because chemistry has given him "superphosphate," and mechanics and engineering skill have given him a steam plough, he is bound to be both a chemist and an engineer as well as a farmer.

We believe that to be a successful agriculturist a man must thoroughly understand his business,

and we know of no other requisite qualification. In order to clear up the question under consideration, it is necessary to inquire as to the nature of such knowledge. If we attempt to describe a perfect farmer, with what words shall we paint him? He must possess that shrewdness and intimate knowledge of the general details of agricultural operations and management of live stock so commonly met with among the best examples of farmers in every district; he should not be clogged with local prejudices, but, on the contrary, should be acquainted with the proceedings of farmers in other parts of the country, so that he may adopt any practice which seems economical.

In order to take full advantage of the times in which he lives, he should be able to avail himself of new and valuable implements. He should have no difficulty in reading intelligently analyses of manures and cattle foods, and should know the value which may be affixed to each constituent.

Agricultural experimenters have shown again and again the vast differences in produce when animals or plants are placed under comparative but varied circumstances. The farmer ought to be able to understand the bearings of such results and to interpret to his own advantage the answer which Nature invariably gives when interrogated rightly. In order to do this nothing should be adopted rashly, but each farmer should test the results on his own premises. Now, we maintain that either to understand or conduct an agricultural experiment, a man must have a mind trained to the subject, and on this we found our strongest argument for a sound philosophical view of Science. As to the amount of scientific knowledge which a farmer should possess, we can only say as we should of any useful information—the more the better; but since time is limited we would insist upon a sufficient amount to give him a principle of action in every operation he controls, so that he cannot be accused of being a mere empiric, but will be seen to be following a rational system. The man who thus conducts business has the key to further improvement, time-honoured practices for which he cannot see a reason are cautiously discontinued, and new methods are suggested through his knowledge of principles.

Mr. Lawrence, speaking upon the use of sound scientific knowledge to the agriculturist at the last meeting of the Cirencester Farmers' Club, was most happy in the instance he selected when he pointed out the influence of food upon the quality of manure as well as upon the well-being of the fatting animal. Messrs. Lawes and Gilbert, after thorough investigation of this point, have come to the conclusion that "there is a far greater difference in the manuring than in the feeding value of the ordinary stock foods in the market." Hence it follows that although two foods have an equal effect in fattening an animal, the one may be much more valuable than the other on account of the superior quality of the manure left. "It may be stated that the estimated value of the manure from 1 ton of oilcake is considerably more than that from the same quantity of Linseed, Lentils, Beans or Peas; from two to three times as much as that from 1 ton of Oats, Indian Corn, Barley, or hay; from seven to ten times as much as from the same weight of Oat, Wheat, or Barley straw, and 20 times as much as from 1 ton of roots." What a field of inquiry does this simple fact open up, and yet we may ask—What chance has the farmer to appropriate such valuable information to his own use unless he is furnished with that mental training which will enable him to understand and to value it?

We must, before closing these remarks, say a few words upon the importance of a study of agricultural literature. A mass of evidence, every year increased and enriched by the observations of practical men, lies open to the farmer. Here he can read the experience of men similarly engaged with himself in all parts of the country, and blind and prejudiced must he be who considers such information as valueless. Yet such is, even in this day, too much the disposition of the farmer, and while a piece of experience given in conversation would be esteemed as practical and worth attending to, the same fact presented through the medium of the press, would be looked upon as worthless.

If an intelligent knowledge of business is desired, such as will place the agriculturist in a position of a leader in the van of advancing agriculture, he must exercise his reasoning powers—he must connect facts with ideas, and matters of mere sense with reason, and this will insure him the merited title of a scientific agriculturist. *W.*

—— Mr. Bailey Denton's herd of Short-horn cattle is announced for sale on Thursday, the 16th of May, at Chesfield Manor Farm, near Stevenage. It comprises a number of well-bred animals, related to the herds of Sir C. Knightley, Lord Spencer, Mr. Booth, and others.

—— We see it announced that the sewaged Grass at Craigentinny and other meadows near Edinburgh has been sold for the season at prices equal to from 20*l.* to 33*l.* per acre; at Lochend, from 24*l.* to 41*l.*; and at Quarryholes, from 36*l.* to 38*l.*

—— The Society of Arts' Food Committee, whose proceedings have been so fully reported in the Society's Journal, will, it is hoped, be the means of bringing about beneficial results in the production of cheap and good food for the poorer classes. There is a singular prejudice prevailing amongst Englishmen against the introduction of any new material or substance. We have plenty of instances in materials of manufacture, how they have been introduced at public sales or, in commercial phraseology, "brought to try the market," and having been rejected, probably from prejudice, have been lost sight of for years, when they have been again introduced, and have become important articles of commerce. It is the same with articles of food as with materials of manufacture. It takes a long time to assimilate an Englishman's taste to any new aliment, and this is more especially the case with imported meat. A new article has lately appeared amongst us, and is now largely advertised. It is the boiled beef which is sold in 6 lb. tins, at the rate of 7*d.* per pound; it is quite free from bone, and is the prime parts of the beast only. The meat is not salted, but boiled fresh, and though the system of hermetically sealing in tins is not a new one, the meat is said to be far superior to anything of the kind yet introduced. We see no reason why good meat should not be imported from the Australian colonies. We know that the Australian cattle were originally of English breed, and that they have been much improved by the addition of prize bulls from this country. And from this fact, as well as from the richness of the Australian pasture land, we may be led to hope for really good meat, and that this new article may become an established colonial trade, and an efficient means discovered for bringing the meat over in an uncooked state. John Bull, however, prides himself, and justly so, on the "Roast Beef of Old England," and seldom, if ever, thinks of the large quantity of live cattle with which we are supplied by foreign countries. Our cattle traffic with Holland, however, is a very important branch of trade, the falling off of which, from the prevalence of the rinderpest in that country, has been severely felt by the Dutch as well as by the English traders. The British Consul at Rotterdam, in his report just furnished to the Government, says:—"The cattle trade has suffered considerably, in consequence of the prohibition to import live cattle from Holland into Great Britain during the prevalence of the cattle disease, and the Dutch farmers are equally unable to find a market elsewhere. Large quantities of slaughtered meat are, however, sent over by the steamers to London, and in this manner the London market continues to receive some portion of the usual Dutch supply of beef and mutton." Our traffic in live cattle of all descriptions during the past year was considerably below that of 1865, the trade returns for the two years standing thus:—

	1865.	1866.
Oxen, bulls, and cows	227,528	209,171
Calves	55,743	28,568
Sheep and lambs	914,170	790,880
Swine and hogs	132,943	73,873

It would seem that meat is very apt to lose in quality upon a long journey, and more especially a sea journey, by which reason that brought into the London markets from Scotland by rail is more readily disposed of than that brought by sea. Yet the importations of dead meat from Holland have been so well packed and taken care of on the whole, as to meet with willing buyers in the English market.

—— Many of us in England probably learnt much of the habits and inner life of the Russian nobles and peasantry during the recent marriage of the Czarewitch. After the squalor and wretchedness of the lower classes that was then depicted by the correspondents to our daily press, it is something of a relief to find that the agricultural labourers in some districts of Russia are sometimes even better paid than the same classes in England; and at a time when strikes among our operatives are so prevalent that the usually peaceful, plodding labourers in our fields are partaking of a similar spirit of discord, as is proved by the threatened refusal to work in some of our agricultural counties, it is somewhat satisfactory to read in a report from Berdiansk that the harvest during the past year was so exceptionally good that every one engaged in trade or field labour has profited well by it, and "the local corn dealers, who purchase from the growers and sell to the exporters, realised handsome profits, while the net gains of the exporters varied between 3000*l.* and 30,000*l.* to each house. Labourers were glad in the early spring to find employment at 1*s.* per diem; from July, however, they received 3*s.*, 4*s.*, and even 6*s.* per day; while women earned from 2*s.* to 4*s.* Indeed, there was such a scarcity of hands, that farmers offered high prices to every one who would work, and during the harvest time numbers of house servants even left their situations and went to the fields." The inhabitants of Berdiansk, however, though having such an abundant harvest, and their labour commanding such high prices, suffered much, and were still suffering in January (at the date of the report), from the cattle plague; the consequence was that meat had risen in price 30 per cent.

THE PRESTON HALL SALE.

The following is a priced list of the Preston herd sold on Wednesday last by Mr. Henry Strafford. The breeding of the several animals is given in page 412:—

Cows and Heifers.

Lot.	Name.	Age.	Purchaser.	Price. £	s.	d.
		Years.				
1	G. Duchess 5th ..	9	D. of Devonshire.	210	0	0
2	Moss Rose ..	9	Mr. J. P. Foster .	241	10	0
3	Lady Butterfly ..	9	Mr. Attenborough	152	5	0
4	G. Duchess 8th ..	8	Lord Penrhyn ..	577	10	0
5	Red Rose.. ..	8	Mr. C. Leney ..	346	10	0
6	Passion Flower ..	8	Mr. Stunt ..	47	5	0
7	Lady Louisa ..	8	Mr. C. Leney ..	84	0	0
8	G. Duchess 9th ..	8	Mr. F. Leney ..	220	10	0
9	Archduchess ..	7	Mr. S. Campbell..	59	17	0
10	Lady Love ..	7	Mr. Barnes ..	73	10	0
11	G. Duchess 11th .	6	Earl Spencer ..	420	0	0
12	Royal Butterfly's Duchess ..	6	Col. Towneley ..	336	0	0
13	Rose of Raby ..	6	D. of Devonshire.	110	5	0
14	Paleface	5	Mr. C. Leney ..	44	2	0
15	Maidenhair ..	5	Mr. F. Leney ..	84	0	0
16	Thorndale Rose..	5	Lord Braybrooke	372	15	0
17	Passion Flower 3d	4	Mr. Pulley ..	110	5	0
18	Red Rose 2d ..	4	Mr. Stone ..	86	2	0
19	Red Rose 3d ..	4	Mr. C. Leney ..	157	10	0
20	G. Duchess 15th	4	Mr. Miller ..	84	0	0
21	Beautiful Butterfly	4	Mr. Larking ..	64	1	0
22	Countess	4	Mr. Larking ..	58	16	0
23	Nymphalin ..	3½	Mr. Fowler ..	50	8	0
24	Passion Flower 4th	3	Mr. C. Leney ..	63	0	0
25	Equity	3	Mr. Whitworth ..	73	10	0
26	Preston Butterfly	3	Mr. Allsop ..	91	7	0
27	G. Duchess 17th	2½	Capt. Oliver ..	892	10	0
28	G. Duchess 18th	2½	Capt. Oliver ..	745	10	0
29	True Love ..	2	Mr. Z. Walker ..	131	5	0
30	Lady Lucy ..	2	Mr. Meakin ..	53	11	0
31	Beatrice	2	Mr. J. Fawcett ..	50	8	0
32	Maid of Lorn ..	2	Mr. Whitworth ..	90	6	0
33	Red Rose 4th ..	2	Mr. Brogden ..	252	0	0
34	ThorndaleMaid ..	1½	Mr. Allsop ..	74	11	0
35	Royal Butterfly's Duchess 2d ..	1½	Mr. Bulteel ..	315	0	0
36	Gulnare	1¼	Mr. Pulley ..	63	0	0
37	Lady Knightley	1	Mr. Adcock ..	94	10	0
38	Lady Butterfly ..	1	Mr. Eastwood ..	84	0	0
39	Archduchess 3d	1	Mr. J. Fawcett ..	54	12	0
40	G. Duchess 19th	1	Mr. C. H. Dawson	735	0	0
		Months.				
41	White Butterfly	6	Mr. Larking ..	39	18	0
42	Frida	9	Mr. Whitworth ..	49	7	0
43	Oxford Rose ..	6	D. of Devonshire	52	10	0
44	Moss Rose 2d ..	4	Mr. D. R. Davies.	168	0	0
45	Royal Butterfly's Duchess 3d ..	4	Mr. Bulteel ..	210	0	0
46	Hilda	4	Mr. Friend .	17	17	0
47	Lady Knightley 2d	3	Mr. Adcock ..	50	8	0
48	ThorndaleRose 2d	3	Lord Braybroke	210	0	0
49	G. Duchess 20th	2	Earl Spencer ..	451	10	0
50	Archduchess 4th	2	Mr. S. Campbell..	43	1	0
51	G. Duchess 21st	2	Mr. Macintosh ..	346	10	0
52	Passion Flower 5th	2 days.	Mr. T. Bates ..	21	0	0
	Total, Cows and Heifers (182*l.* 2*s.* 8*d.* each)..			£9515	2	0

Bulls.

		Years.		£	s.	d.
1	Grand Duke 4th .	6	Earl Spencer ..	220	10	0
2	Lord Oxford 2d..	6	Mr. F. Leney ..	210	0	0
3	Royal Wharfdale.	3	Mr. Miller ..	105	0	0
4	Grand Duke 16th.	2	Mr. A. J. Robarts	535	10	0
5	Cambridge Duke 3d	1½	Mr. C. Leney ..	220	10	0
6	Mameluke ..	1	Mr. Allsop ..	69	6	0
		Months.				
7	Conrad	6	Mr. Pomeroy ..	23	2	0
8	Grand Duke 17th.	12	Mr. Brogden ..	320	5	0
9	Royal Cambridge 2d	6	Mr. Mace.. ..	94	10	0
10	Hengist	3	Mr. J. Webb ..	33	12	0
11	Royal Thorndale.	3	Mr. Roper ..	52	10	0
	Total, 11 Bulls (171*l.* 7*s.* each)..			£1884	15	0
	Total, 63 head of stock (180*l.* 19*s.* each) ..			£11399	17	0

A WALK OVER MY FARM.

My walk to-day has suggested to me many reflections. First, that this is, as compared with last year, a more natural season, with winter at the right time, and now genial spring; consequently we have the promise of a much more abundant crop than in 1866, when the forced growth produced by an unusually mild winter was crippled and almost destroyed by severe frosts in April and May. This remark applies equally to our fruit trees.

There has been, however, one drawback as regards lands undrained, naturally or artificially—I mean the large amount of snow and rain in March and April. When I ask myself how it is that the crops on my own poor heavy land are so intensely green, and promise so abundantly, while on similar soils elsewhere they look pale, thin, and faint, the answer is painfully obvious. Into these undrained subsoils, now filled with stagnant water, the nascent spring roots refuse to enter, so the plant gives bilious evidence of its unfavourable condition. One may safely predict that, in such cases, the difference or deficiency of the Wheat crop, as compared with the drained land, cannot be less than one to two quarters per acre, or in money value at present prices from 3*l.* 10*s.* to 7*l.* per acre. The same remark applies in degree to other kinds of crops; and yet the interest or annual charge for perfect drainage would be less than 10*s.* per acre.

Without any desire to boast of my own crops, but with a sincere and earnest intent to stimulate and encourage agricultural improvement, I state that my

crops promise to compete with those of the richest lands in the kingdom; and I trust that, ere harvest arrives, those who desire to satisfy their minds on this point will come and judge of the crops for themselves.

Here are 50 acres of Wheat, drilled with only 1 bushel per acre, in luxuriant bunches really too thick; Oats drilled with 2 bushels per acre, and Barley 6 pecks per acre—all a full plant. Beans, Peas, Tares, Clover, and Italian Rye-grass—all in full vigour. Young lambs, plump, straight in the back, and vivacious; and this on land not naturally better than Woking Common or many of our wastes.

The truth must be spoken. If those wastes were well drained, deeply and cleanly cultivated with perfect implements, and then well manured with the unwashed voidances of well-fed animals, they too might produce food results beneficial to the country, and profitable to capitalists.

Said one of my men to me to-day,—"Master, I think you will be able to thresh 100 quarters of Wheat at harvest time, and then have all your stack frames full." And I quite believe we shall. Now, when it is considered that I have 12 stack frames, besides a very large barn, and when it is remembered that when I first bought the farm I was told by many practical men that I should never grow enough to fill my great barn, it is not to be wondered at that I am very full of comfortable and consoling reflections, and that I am more and more convinced how much this otherwise great country suffers from an insufficient investment of intelligence and capital in the production of its daily food.

My thick-sowing friends will be astonished to see my crops. It will do them good to come just before harvest. The three pecks per acre will be ample, although well eaten by slug; and even the poor peck an acre, which was almost destroyed by slug, promises to surprise us, although I think it can hardly be a full crop.

While passing last week from Salisbury towards Axminster, I saw for five miles on each side of the road that which gratified me exceedingly—I mean unmistakable evidences of an intelligent and patriotic appreciation and realisation of our national agricultural requirements. The whole property belonged to the late much-lamented Lord Sidney Herbert, and is now in the possession of his son the Earl of Pembroke. For the whole distance were noble premises of an architectural character suitable for farmers of intelligence and capital. Good residences, substantial farmeries, and above and beyond all, no end of well-placed labourers' cottages, which gladdened the eye but sorrowed the heart, when I contrasted them with the wretched and demoralising hovels of our general agriculture. Many of those cottages and farmeries have been erected since the death of the late lord, but the plans and arrangements were all completed before his death. Here are fine farms of from 600 to 1000 acres. No miserable three or four-acre fields, shut in by great hedge-rows and large timber trees.

Where there is sufficient capital, who can doubt for a moment the pecuniary advantage of such a state of things as regards the landlord, tenant, and country at large? I am pleased to find that these excellent cottages were let to the labourers at 1*s.* per week, and that attached to each was an ample garden.

So far as I saw, the labourers and shepherds compared favourably with those ragged specimens I have too frequently met in certain ill-paid and ill-housed districts which shall be nameless.

The fine flocks of well-bred Down sheep were to me a gratifying sight. I should, however, have been better pleased had they been supplemented by cattle in the yards eating straw and cake, and thus producing manure to force maximum Wheat and other crops.

Before I conclude this paper, I would advert to a too common but very painful result arising from a misconception or under-estimate of the cost of carrying out agricultural improvements.

A purchaser of unimproved land should reckon that to put an unimproved farm into a suitable condition for a tenant of capital and intelligence, the outlay should probably be—

A new residence	£2 to £3 per acre.
Farm building	6 to 7 ,,
Proper roads, squaring of fields, and removing fences, &c.	1 to 2 ,,
Drainage	6 ,,

So here is a total of some 15*l.* to 18*l.* per acre as landlord's outlay.

The tenant would require on a heavy-land farm, mostly arable, about 15*l.* per acre, independently of any extra investment for chalk or lime—

Steam engine, threshing machine, mill stones, pulpers, chaff cutters, drills, and the usual farm implements	£2 5 0 to £3
Tillages	2 10 0
Horses	1 0 0
Live stock (as in my case)	6 0 0
Unsold produce	3 0 0
	£14 15 0

A complete set of Fowler's steam ploughing and cultivating apparatus would cost near 1000*l.*

It is idle to expect to produce food for the people, and profit for the farmer, without larger investments of capital and intelligence. *J. J. Mechi, April* 23.

THE IRISH LAND QUESTION.

[The following is Mr. Caird's letter on this subject, to which reference was made last week.]

I BEG the favour of your insertion of some remarks on the Irish land question, with a suggestion for a plan of voluntary action between landlord and tenant, which, perhaps, may not be without use in the consideration of the Bills which stand for an early discussion in Parliament. Allow me first to touch one or two points on which I think exaggerated opinions are held by some men of weight and authority. All may admit that Ireland was over-peopled in 1846, immediately after the Potato famine. Since that time, however, more than a third of the people have disappeared. Yet it is said, on high authority, that it will be necessary that she should lose one and a half million more before she can become fairly prosperous. Let us hope this may not be so, for at this moment Ireland, for her extent of corn land, is not more populous than Holland or Switzerland, both countries from which there is little emigration, and both, like her, more pastoral than either arable or manufacturing. Then it is said Ireland is, from the humidity of her climate, not at all fitted for the production of corn. But she does produce more than two million acres of corn annually, of the value of 12 to 15 millions sterling. That she is still, in by far the largest degree of any country in Europe, dependent on the Potato for her food, is much to be deplored.

The small-farm system is condemned by some, and that of the Lothians and the corn counties of England commended as a substitute. Independent of other considerations, I don't think the large farm system suited to the moist climate of Ireland. I am sure it will not usefully maintain so large a population, and statesmen ought not to overlook the fact that of a capital of 31,000,000*l.*, invested in live stock, in Ireland, more than one-third is the property of tenants holding less than 30 acres of land.

Then, it is said, Ireland has neither minerals nor manufactures to give employment to her surplus population. In that respect she is in no worse position than the south of England and the north of Scotland. It is as easy to move labour to Lancashire and Yorkshire from the remotest part of Ireland as from Devon or Caithness. But inasmuch as nine-tenths of the Irish emigration passes through Liverpool, crosses the Atlantic, and most of it then presses on 1000 miles into the interior towards the rich valley of the Mississippi, it would seem that an agricultural population finds little attraction in the high wages of the manufacturing districts so long as there is the prospect of the more congenial agricultural employment in which the people have been bred. Now, I do not question the advantage of that emigration to the individual. What I feel is, that the nation is being weakened by the withdrawal, year after year, of so many thousands of the young, strong, and intelligent. It is no longer a question solely of landlord and tenant, for this constant drain is a national loss.

We may assume that landlords and tenants in Ireland are governed by the same motives as regulate the actions of the same classes in other countries, and that both desire the improvement of their condition—the owner in the permanent advance of his property, and the tenant in the secure enjoyment of his capital and industry. Since it is only from an increase of wealth that the fund can be created from which wages are paid, it is an error to imagine that emigration will make Irish landlords or farmers richer, if unaccompanied by an increased productiveness of the land. On the contrary, the probability is that both will become poorer—the landlord through diminished competition for his land, the farmer by the scarcity and higher cost of labour. But increase the productive qualities of the land, and the farmer's profits increase, the landlord's rents improve, and the foundation is laid for the profitable employment of labour.

Two things are wanted for profitable farming—fixed capital in building, drainage, fences, and roads; and security of tenure for the floating capital of the farmer. The fixed capital should be found by the landlord, the floating capital by the tenant. One of the witnesses before the last Committee on Irish Tenant Right, a high authority on the subject—Mr. M'Carthy Downing—told us that he was not aware of any single case of any landlord in Ireland building a house for a tenant, "if you mean building it from the foundation, paying for it, and putting the roof on." The fact is notorious that in Ireland the landlords, as a class, either cannot or will not find this fixed capital, while the tenants have no security to induce them to do so, even if they could spare it (which very few could) out of the fund they possess to stock and cultivate the land. I propose to remedy this by finding the fixed capital for the landlord, on condition that he gives the security of a lease to the tenant for the period necessary to repay the loan.

At the present price of Consols, Government could borrow money at 3¼ per cent., which would repay itself, principal and interest, in 33½ years. As the operation of a loan of this kind would be gradual—certainly not over a million yearly—it would cause no pressure on the money market.

My idea of a Tenant Right Bill would be that Government should be authorised to advance money to landowners for the execution of such specific permanent improvements on the land as should be sanctioned by competent Government officers, on the condition that, by a voluntary agreement betwixt them, the landlord should for 34 years secure the tenant in the possession of his farm, provided he regularly paid, in addition to his rent, the annual sum of 5 per cent. in repayment of the principal and interest of the Government loan. The tenant would then be certain of his farm for a period long enough to repay him for his exertions, his own capital would be rendered doubly profitable by the buildings, drainage, and other permanent improvements, the annual cost of which to him would not be more than a very moderate rise of rent. The landlord would be relieved of the necessity of making an outlay of money, while he would have increased security for the regular payment of his rent, and in that, and the changed aspect of his estate, would be amply compensated for parting with its control for so lengthened a term. The State which found the money would not only receive it all again, but would benefit by the settlement of a difficult question, resulting in harmonious action between landlord and tenant, and gradually increasing and remunerative employment to tradesmen and labourers.

I do not see any reasonable objection to such a measure as this. It may be tested by considering how it would work in England and Scotland, for a Landlord and Tenant Bill which is sound in principle should be applicable to any portion of the United Kingdom in which the necessity for it may be felt. I ask myself, as a landowner, whether I would accept the aid of the Government on the condition of parting with the control of my land for 34 years? In Great Britain very few landlords would, but that is because they have already invested in their land the larger portion of the fixed capital which is required for its profitable occupation. In that case such an arrangement is not needed, and therefore *cadit questio*. But where it is needed, and where the landlord cannot or will not find the capital, then in any of the three kingdoms this principle would be just and reasonable, and beneficial to all concerned.

There is nothing in it which interferes with the voluntary action of landlord or tenant. Its operation would be gradual, for 20 years have been requisite in Great Britain for the voluntary expenditure of 10 millions sterling on similar land improvements. It would give an immediate stimulus to employment among agricultural labourers, country tradesmen, and artisans; and Parliament might leave such a measure quietly to work its way, in the confidence that a principle had been set in motion which would gradually, but surely, change the face of the country, and put an end to the existing evils in Ireland caused by the inability of limited owners to expend the requisite capital on the improvement of their property. *James Caird.*

[We add to Mr. Caird's letter a report of Mr. C. S. Read's speech the other evening, when the Government Bill on Irish Tenant Right was discussed. It will be seen in the newspaper that an amendment was on that occasion carried against the Government, which, if the Bill should pass, must have the effect of cancelling its chief characteristic feature, that which empowers a tenant to charge the land with the cost of certain improvements without the landlord's consent.]

MR. READ remarked that the great defects in the Bill introduced by the right hon. member for Louth last Session were, as he pointed out at the time, that it laid down no scale for determining the rate of compensation, that it did not register the improvements when made, and that it provided no machinery for deciding whether the works were necessary or had been properly executed. Now, the present measure introduced a third party in the shape of a commissioner, an independent man, who would say whether the improvements had been well carried out, and would also, he supposed, by his inspectors, instruct the tenants as to how they were to be done. He would, moreover, have the power of advancing Government money at a very liberal rate of interest. Any one acquainted with agriculture must be aware that the multiplication of buildings, the making of new farm roads, and the construction of additional fences, though they might be deemed improvements as far as regarded a particular plot of ground, would in all probability militate against the general consolidation and improvement of an estate, and ought not, therefore, to be undertaken without the consent of the landlord. Reclaiming a bog, cultivating a mountain side, draining, when properly executed, and removing numerous rocks and stones, could not, on the other hand, but be suitable improvements for any land, and the landlord who objected to these ought to keep the farm in his own hands. He still held the opinion which he expressed last year, that all purely agricultural improvements ought to be paid for in the course of at least 21 years, and if he had any fault to find with the present Bill, it was for being too liberal, for he thought that instead of extending compensation over a period of 35 years, with the payment of 5 per cent., the term might be contracted to 21 years, with the usual payment of 6½ or 7 per cent. Irish members had said a tenant would not make the improvements unless he expected a return of 10 or 15 per cent., so that no harm would be done by such a restriction of time. It seemed to him that very exaggerated notions prevailed as to the amount of tenant-right existing in England. No tenant-right existed in England, for example, like that of Ulster. In some parts of the country, as Cheshire, a certain allowance was by custom made to tenants for boning, draining, &c., and there was the notable example of Lincolnshire, where improvements were paid for on a certain scale. But there was no fixity of tenure, and every man was liable to quit at six months' notice, yet there was no part of the kingdom better cultivated. A speech of the noble earl at the head of the Government had been quoted, to the effect that if a tenant who had drained his land, received notice to quit, he could sue his landlord for compensation. But in 99 cases out of 100 a tenant in England had no such remedy. A tenant's covenants were very different things. He made certain payments for hay, straw, manure, &c., on taking a farm, and he expected to be repaid for the same on leaving it. He should be sorry to be understood as saying anything in disparagement of leases. As a Norfolk man he was bound to say that in his opinion there was nothing so advantageous to agriculture. The landlord always secured more rent. He knew, also, when to advance his rent, and he could look forward to the improvement of his property. The tenant on his part enjoyed a certain independence under a lease, and had a chance of reaping what he had sown, which encouraged him to make a larger expenditure of labour and capital upon his land. If he were a landlord, he should not object to grant leases to intelligent, enterprising, and prosperous tenants, but he should seriously object to grant leases where the tenants were poor and ignorant. He would rather by far allow the smaller tenantry to expend their own money under the Bill or to borrow of the Government than grant leases indiscriminately for 21 years. The suggestion that where no written agreement could be produced, a lease of 21 years was to be assumed, was about as reasonable as to enact that if a man did not carry a certificate from a doctor to say he was sane he was to be held to be mad. Remarks having been made about the size of farms he would express his belief that in England the largest estates were the best farmed, the lowest rented, and were let with the most liberal agreements in regard to cultivation. He believed Ireland was no exception to this rule. Large farms offered the fullest scope for the employment of capital and scientific appliances to agriculture. Small farms had their uses, for otherwise persons of small capital would have no opportunity of applying themselves to the cultivation of the soil, and the labourer would have no chance of bettering his condition by becoming a small farmer. He believed that if this Bill were passed, an immense stimulus would be given to the employment of labour, for where a large quantity of farms were in the hands of small occupiers, there was very little demand for agricultural labour, and wages were very low. If the Govern-

ment would extend this Bill to England, he and the other tenantry of England would by no means consider it the act of effrontery described by the hon. member for Tralee. He would only add further, that if the Irish tenantry were not content with this judicious recognition of their rights, there must be something of a social and political element in the question of granting leases in Ireland which he as an English farmer could not understand.

DANISH DAIRY MANAGEMENT.

Equivalents of Danish Weights and Measures referred to.

Square mile is nearly	=	22.	square miles (English)
Tönde (metrical)	=	3.8272	bushels ,,
,, (superficial)	=	1.363	acres ,,
Foot (fod)	=	1.0298	feet ,,
Inch	=	1.0298	inch ,,
Pound	=	1.1024	lb. ,,
Pot (fluid)	=	1.1758	quarts ,,
Rigs-daler (96 skillings)	=	2.243	shillings ,,
Rigs-daler per Tönde-land	=	1.6456	shillings per acre ,,

In regard to the quality of their dairy stock generally, I think that in all probability it would be improved by a judicious introduction of some of our blood—Short-horn,—Ayrshire,—or Jersey. In the management of all their leading dairies the old arbitrary "rule of thumb," which still holds sway over too many of ours, has entirely disappeared, and a philosophic treatment, based on sound scientific principles, is the rule and not the exception. The experiments quoted testify to its advantages. The dairy now, instead of, as of yore, being the abode of ignorance, and often too of superstition, is the centre of an enlightened and regular manufacture, where certainty replaces chance, and where the waywardness of the dairymaid is checked and controlled by the daily account she has to give of the produce committed to her, while her skill and attention are encouraged by the registered returns. When Mr. Friis showed me his "Dairy Register Sheet," I expressed my fears that any attempt to introduce such an elaborate system of analysis into the dairy farms of this country would have a very serious mental effect upon our dairymaids, which would at once stop our proceedings. He replied that on first showing it to his own head dairymaid she burst into tears, and continued in a very distressed state of mind for a full week afterwards. As she regained her composure, a few figures were seen chalked on the board; these rapidly increased, until they reached the last column, when she acknowledged freely the value of the daily details, which testified to her own skill while recording her dairy returns, and declared that she would never take the management of any other dairy unless she had the comfort and protection of a similar arrangement. From that day the success of Messrs. Friis and Segelcke's "Dairy Register" was assured, and it is now finding its way into all the best dairies of the country. In our ordinary manufacturing establishments, even where there are none of those elements of disturbance which always exist more or less where primary organic substances are manipulated, as in butter and cheese making, such analyses of results are sought for and valued. Would it not be well, then, for us to introduce them (in modified form, perhaps, suited to our different requirements) into our own dairies, where too commonly practices are quite independent of principles, where figures are eschewed, and the "reign of law" all but unknown.

The farm establishments of the larger proprietors form quite little colonies in themselves. The dwelling-house is necessarily of capacious size, and is replete with every comfort and convenience, while the same roof shelters not only the master and his family, but also his numerous dairy and farm dependants. The single men live in the house, the married have cottages at the homestead, and in most cases have certain daily rations of food allowed to them. Those who live in the house have meat four days in the week, and about 1 lb. of butter and 1 lb. of cheese per week each. Beer is given at the rate of about 150 gallons per head per annum. The annual cost per head depends mainly upon the house-keeper, and ranges generally between 100 and 120 r. d. per annum.* In addition to their keep, they receive from 60 to 70 r. d. for their labour. The head dairymaids live in the house, and receive from 120 to 150 r. d. a year; they are allowed also to take one or more pupils, according to the size of the dairy, with each of whom they receive a fee of 20 r. d., which is paid by the Royal Agricultural Society. These pupils superintend the milking, and take part in all the dairy manipulations. The milking, cleaning, and general labour of the dairy is done by a staff of women helpers, at the rate of one for each 20 cows in milk. The cows are kept for the six winter months in the byres, and for the rest of the year (May to October) in the field. The general practice is to picket them singly over the field, shifting them from three to six times each day, as the keep may render necessary, and leading them to water twice or thrice a day. On some farms, as at Ourupgaard, they are kept picketed until September, and then allowed to run loose; but very rarely indeed is the practice which I saw at Gjeddesdals followed, of allowing them to wander over the pastures and graze at will; and yet that would appear the more rational treatment, as a forced exposure to the sun and blasts of a variable climate without shelter or the means of protection from insect annoyances, must, more or less, affect an animal's comfort, if not its health, and thus disturb its natural secretions. In either case, whether picketed or loose, they are always attended by the herdsman, who has the entire charge of them.

The cows are milked for about 10 months after calving; the milking takes place twice a-day, at about 4.30 A.M. and 4.30 P.M. The calves are sold as soon as dropped, at an average price of 2 r. d. each; a few of the best bred being retained to keep up the stock. In the winter, the milk is allowed to stand from 24 to 26 hours, it is then skimmed, and the butter made from the cream. In the summer, the milk is churned fresh, and always gives a better return both in regard to quantity and flavour of butter than when made from cream. It is usually tubbed at from 18 to 24 hours after it is made. Cheese is made from both the skimmed and the churned milk, the refuse portions being conveyed to the hog pens. It is generally made twice a day in summer, and once in winter; and in winter, both the cheese and the butter are coloured with annatto. The cream or milk for churning is generally set at 56° to 57° Fahrenheit in summer, and at 61° to 62° Fahrenheit in winter; the increase in temperature during the operation is about 4° in summer, and from 2° to 3° in the winter.

The quality as well as the quantity of the milk is a matter of consideration to the farmer. In Mr. Tesdorpf's returns is shown the practical bearing of the latter in the classification of the cows according to their respective yields. The tabulated returns of the Lillerup and Ourupgaard dairies during a continuous period of 26 months, show the variation in the quality of the milk at different periods of the year, and also the proportion of milk required for each pound of butter produced.

Until within the last few years, the dairy management in Denmark was much the same as it existed a century ago. The whole subject, however, in its theoretic as well as practical bearings, has recently been submitted to the test of experimental inquiry, which has rescued it to a great extent from the darkness and uncertainty attending its operations. Foremost in this good service were Mr. Friis and Mr. Segelcke—the former testing and proving practically at Lillerup the value of the principles laid down and explained by his friend and fellow worker. Thanks to these enlightened men, the thermometer has now the post of honour assigned to it in the dairy, for the dairy farmer knows well the important bearing it has upon his breeches pocket. In a pamphlet recently published by Mr. Segelcke,* on the Theory and Practice of Dairy Husbandry, it is shown that—

1. The quantity of butter obtained by churning is dependent on the temperatures used.
2. The temperature that gives the best result, differs according to the quality of the cream (more or less old).
3. At any temperature, higher or lower, the proportion of butter obtained is diminished.
4. A considerable percentage of butter, which otherwise might be obtained, is lost when the churning is not so regulated. This loss may often be very large, as a difference of only 2° F. may result in a loss equal to 4 per cent., whereas where the thermometer is not regularly used, the temperatures frequently vary to the extent of several degrees.

The quality is also directly affected by the temperature at which the cream or milk is set, and its increase during the operation of churning.

The following results of experiments carried out at Lillerup show practically the bearing that attention to temperature has upon the produce obtained.

Influence of Temperature on Churning (Lillerup).

Sets of Double Experiments.	Temperature in Degrees Fahrenheit, at		Quantity Churned in Pounds.		Butter produced in Pounds.	For 1 lb. of Butter there was required		Time occupied in Churning.	Therefore, 1 lb. of Cream gave the same Results as 5½ lb. of Sweet Milk.†	
	Commencement.	End.	Milk.	Cream.		Milk.	Cream.		Sweet Milk used to 1 lb. of Butter.	Per Centage proportion of Butter obtained.
								Min		
1	55¾	60½	284.90	35.10	22	12.95	1.60	105	21.75	100
	60½	63	306.72	37.28	22	13.94	1.69	43	23.24	93.6
2	56¾	60½	333.36	31.37	24½	13.20	1.28	105	20.24	100
	60½	63	321.59	31.18	23½	13.68	1.33	39	21.00	96.4
3	56	60½	343.17	22.36	21½	16.15	1.05	104	21.92	100
	60½	63	347.32	22.63	21	16.54	1.08	68	22.48	97.5
4	56½	60½	340.94	22.53	20¾	16.43	1.09	113	22.42	100
	60½	63	340.56	22.47	20	17.03	1.12	45	23.19	96.7

The results of each of these four double trials showed that a less proportion of butter was produced from the milk or cream when the temperature at the end of the churning was 63° than when it was 60½°; thus the difference of a single degree (Réaumur)‡ was sufficient to affect the butter yield to the amount of from 4 to 5 per cent.

The average produce of butter obtained may be taken at 1 lb. of butter to about 30 lb. of milk. In dairies such as those of Lillerup, Gjeddesdals, and Ourupgaard, and others under like management, the proportion is more satisfactory.

The importance of duly registering the daily produce of the dairy, and thus establishing a system of comparison and checks in each department, was too obvious to need much persuasion to ensure its adoption as soon as a form of register was devised that should comprise all the points on which information was desired.

The dairy working arrangements are generally good. The churns are necessarily of large capacities, generally in wood, and worked either by horse or steam power.

* Meddelelfer vedrörende Meierivösenet, &c., &c. Kjöbenhavn, 1865.

† This proportion is the mean of a series of trials that were undertaken at the same time as the churning experiments.

‡ The temperatures are all registered in Denmark according to the Réaumur scale, which bears the proportion of 4 to 9 to Fahrenheit, between the freezing and boiling points.

At Valbygaard, near Slagelse, a new dairy has recently been erected, in which the shallow rectangular pans or trays in enamelled iron that received so much notice at the Exhibition of 1862, are used to contain the milk. There were 48 of these pans, each 9 × 3 feet, arranged in six rows of eight each. The cream was readily and rapidly removed from the surface by means of a light wooden rake carried upon two small wheels, which travelling on the parallel side edges of the pans or trays, enabled the rake to sweep over their entire surface. The dip of the rake into the pan was regulated by a simple mode of adjustment. When the cream was all removed the end of the trays was slightly tilted, so as to discharge the skimmed milk into an open trough at the other end, which conveyed it direct to the cheese tubs, whence it passed out in the shape of whey to the piggeries. The dairy herd on the farm consisted of 170 cows.

A comparison between the dairy management and produce of our own country with that of Denmark would be valuable to both countries, if the data of both were equally reliable. But unfortunately this could not be ensured, as, with a few exceptions, we are not in possession of any dairy statistics that we could offer for comparison, and those even are too limited in their details to justify a verdict on either side. The following returns from our own dairy records, however, may interest the Danish farmers, and perhaps induce a more general attention to selection and care in breeding, as adopted by Mr. Tesdorpf, and perhaps also the introduction of foreign blood, possessing milking properties, to cross with the best of their own. These returns are, no doubt, to be relied upon, as far as they go,—still they must be only taken for what they are worth—the milk produce of certain dairies on a comparatively limited scale.

Our principal dairy breeds are the Ayrshire, the Channel Islands, the Short-horn, the Suffolk, and the Kerry. Some published returns of two dairies of Ayrshire cows give the annual milk produce per cow at 650 and 632 gallons respectively. Three returns of dairies, consisting wholly of Short-horns, show a produce of 540 gallons, 630 gallons, and 765 gallons respectively, or an average of 625 gallons per annum for each cow. In two dairies, where half-bred Short-horns were kept, the yield was 810 and 866 gallons respectively for each cow. In four dairies in Ireland, where pure Kerrys and crosses with Short-horns and Ayrshires were kept, the annual produce per cow was returned at 500 gallons, 600 gallons, 675 gallons, and 740 gallons respectively; or an average, on the four dairies, of 630 gallons per annum for each cow. A dairy of "pure Kerrys"* gave an average of 488 gallons per cow, and another of the larger Irish breed gave an average of 583 gallons per head per annum. In the great London dairies, now well-nigh extinguished by the ravages of the cattle disease, these returns are greatly exceeded. The cows kept are large framed Short-horns and Yorkshire crosses, which, by good feeding, bring the returns to nearly 1000 gallons per annum for each cow kept. The custom in these establishments is to dispose of a cow directly her milk falls below two gallons a-day, and buy another in her place.

The following milk return of one of our best managed dairy farms (Frocester Court) shows the relative produce of cows in the successive years of their milking. The first lot were bought in at two-years old; all the others at three years:—

No. of Cows.	Year of Milk.	Produce per head.
8 ..	1st ..	317 gals.
15 ..	1st ..	472 ,,
14 ..	2nd ..	535 ,,
15 ..	3rd ..	616 ,,
20 ..	4th ..	665 ,,
18 ..	5th ..	635 ,,
9 ..	6th ..	708 ,,
15 ..	Old ..	651 ,,

The maximum reliable milk produce that we have recorded was that of a single cow belonging to the keeper of the gaol at Lewes, the details of which were authenticated by the Board of Agriculture. In eight consecutive years she gave 9720 gallons, or at the rate of more than 1210 gallons per annum. In one year she milked 328 days, and gave 1230 gallons, which yielded 540 lb. of butter, or at the rate of 1 lb. of butter to 22¾ lb. of milk. In the early part of the present year (1866) a return was published of the produce of a cow in a Vermont (U. S.) dairy, which was stated to have given, in the previous year, a butter yield of 504 lb., at the rate of 1 lb. of butter to 20 lb. of milk.

Quite recently, too, our agricultural journals have recorded the butter produce of an Ayrshire cow at 399½ lb. in the 10 months between calving (March 10, 1866, and January 10, 1867), besides supplying the family with milk and cream; and of another cow of the same breed which has supplied the owner's family with milk and cream, and given for the past three years, 1864, 5, and 6, respectively, 269 lb., 282½ lb., and 274½ lb. of butter.

The proportion of butter varies with the season and with the breed of the dairy cows; the milk of the Ayrshire cow is generally richer in butter than that of the Short-horn or Suffolk; but this again is not so rich as that of the Kerry or Channel Islands breed. As a rule, it has been found that the best returns have been obtained in the later summer or early autumn months, when we have returns of 1 lb. of butter to 20 lb. of milk (Ayrshire breed); 1 to 19 (breed not stated); 1 to 19½ (Irish breed); 1 to 18½ (Ayrshire); 1 to 17½ (Ayrshire); 1 to 16½ (pure Kerry); and even 1 to 16 (Short-horn). This latter, no doubt, was under exceptional conditions. In all probability the average butter yield of our dairies is about 1 in 30, ranging between 25 to 35 lb. of milk to 1 lb. of butter. *Professor John Wilson's Official Report of the Agricultural Exhibition at Aarhuus.*

* A remarkably small native Irish breed.

LIGHT AND HEAVY SOILS.

THE following is the lecture recently delivered at Faringdon by Mr. W. J. Edmonds, of Southrop, on "Some of the Comparative Advantages and Disadvantages in the Occupation of Light and Heavy Soils." Mr. EDMONDS said:—In order to make the comparison we must exclude the extremes of exceedingly weak, cold, hungry clays on the one hand, and the light blowing sand and very weak gravel on the other; indeed, no one taking the advice of a business man would rent a farm of such land; and I will proceed to make the comparison as between what are termed our clay soils, and the stone brash, such as is found on the Cotteswold hills, or the light scanty or gravel loams.

COST OF LABOUR.

The most obvious disadvantages which strike us as belonging to heavy land are, the greater expense of tillage, the confined choice of grain crops, and its inadaptability to the growth of mutton and wool in the winter season; and, as belonging to light land, the failure of crops from dry seasons and from other causes; the difficulty of obtaining a summer supply of food for sheep; and its liability to exhaustion. First, then, it is obvious that in cultivating heavy land a far greater horse power is necessary for the tillages than on light land, and it will be interesting to endeavour to ascertain what that difference really is. We will suppose the strong land farmed on the three-field course, Wheat, Beans, Vetches, and Rape, &c.—the light land on a four-field course, Wheat, Turnips, Barley, or Oats, and seeds. In practice we should doubtless alter the course a little, but not, I think, sufficiently to affect our calculation; of course, on the strong land we should grow forward Turnips for Wheat, Mangel, and certainly some Turnips for winter use, so on the light land we must grow Vetches, Rape, and possibly, now and then, a few acres of Mangel, to be followed by forward Turnips. In each case there would be extra tillage, the one equivalent to the other. Science tells us, and we as practical men are cognisant of the fact, that more power is required to plough heavy land than light; three horses at all events are required for the former, whilst two are enough for the latter; but that is not all, for horses never walk so fast on strong land, say by half a mile an hour, as on light land, and consequently less work per day is performed with the extra power. That difference may be, I think, fairly estimated at one-sixth of the strong land strength or another half horse power. On examining, too, the number of ploughings to be performed, we shall find in the rotation I have named that taking the average of 12 years one-sixth more ploughing will be performed on heavy than on light land; thus, for heavy land, in 12 years we have for Beans, four times, four ploughs; for Vetches following and the preparation for the Wheat crops three to four ploughs (say three and a half) each time, or in the 12 years 14 ploughs, making in all 18 ploughs in the 12 years. On the other hand, in our light-land rotation, we have for Wheat three ploughs in the 12 years. For Turnip cultivation seven and a half ploughs and the risbaulk each time, equal to two and a half ploughs, which ought to be enough, and for Barley four and a half ploughs, namely one plough and one risbaulk each time (and for part, too, one plough only would be enough), total 15 ploughs—thus 15-18ths or five-sixths of ploughing on light land, which is as previously stated one-sixth more on heavy land, or, another one-half horse power, making four horses required for heavy land as against two for light. But ploughing is generally, I believe, estimated at only about one-third of the total horse labour to be performed on the average of farms, light land farms certainly, the remainder being made up of other tillages than ploughing, and of carting. I find, however, from a calculation I have made in the matter of the "other tillages" that taking into account the heavier nature of the work and the extra drilling on the strong land, three horses are required for that purpose to every two required on light land, notwithstanding that on the latter we have to take into account the preparation for the Turnip crops, and about one-fourth more harrowing and rolling for several crops.

Then, again, as regards cartage, the balance is still more against heavy land; we have larger crops, more acres of corn (I will just say that I speak always of land properly drained); we have for whatever roots are grown for winter use their haulage to the fold, and whereas on light soils a large portion of land, namely the Turnip land, and the artificial Grass lands (excepting where mown) are enriched by the manure of the sheep fed upon the land through the whole year, on heavy land we can only fold our sheep on the land eight months in the year, and consequently the manure made during the four winter months by the breeding flock or lambs has to be carted to the soil. Assuming, what is near enough for the present calculation, that ploughing, other tillage operations than ploughing, and carting, each form one-third of the whole operation; on the light land we require, say for 300 acres, two horses for ploughing, two horses for other tillages, and two horses for carting—six in all, whilst on 300 acres of strong land we require four horses for ploughing, three horses for other tillages, and four horses for carting, 11 in all—an additional five horses on every 300 acres. There is also another consideration in estimating the difference of required strength which has to be mentioned; which is, that with a strong land farm it is necessary to have a full strength in order to meet the contingency of wet weather, for on several days may the clay land farmer be hindered in his work—last autumn, for instance, whilst his neighbour on the light land is continuing his. To return to our calculation—It may be objected, in consequence of horse labour having, for many purposes of late years, been substituted for hand labour, as seen in the use of our various implements and machines, that two horses per 100 acres are nearly sufficient for the proper management of even light land (taking also into notice the consideration I have named with regard to the application of manure), and I will vary a little from the conclusion I have endeavoured to demonstrate as being correct (it will slightly diminish the difference stated to be required, namely five horses for every 300 acres), and take that difference to be as two and a half to four, or an additional 1½ horse power for every 100 acres; but as we cannot make use of half-horses it will be clearer, perhaps, to double those numbers, and we find that on every 200 acres of land an additional three-horse power is required. Now, if we add to the cost of keeping these horses the cost of manual labour required to attend to them, we may fairly estimate the total at 30*s.* per week, being 78*l.* a year, or about 7*s.* 9½*d.* an acre, which, at 28 years' purchase, is 10*l.* 18*s.* 2*d.* per acre. In estimating, then, the renting value of a strong land farm, this formidable item of 7*s.* 9½*d.* an acre will have to be taken into account as one set-off against the larger corn crops usually raised on such land; neither can we, I believe, ever wholly avoid it. But can we do so at all? I believe we can, directly and indirectly. I do not hesitate to say that the power of resistance in strong land, after being once thoroughly broken up by the employment of steam power, is very materially diminished; the indurated layer of earth formed under the top soil by the continual tramp of horses, and never completely shaken by the severest frost, is at once destroyed. It is obvious that after steam cultivation, clay soils offer less resistance to the plough; but not so, to any sensible extent, light soils. We must, then, look to the introduction of steam for ploughing and also for after cultivation, for a remedy to the extent of nearly one-half of the disadvantages which the former now labours under (for the most part) in point of expensive cultivation with the latter, so that whatever advantage may be gained by the one by the introduction of steam, that would be gained by the other (that is by the clay soils) plus 3*s.* 6*d.* per acre. The discussion of the indirect advantages would take up too much time for this lecture, but I have no hesitation in saying that a clay land farm, after being once thoroughly cultivated by steam, proper roads made at a cost of 15*s.* to 20*s.* an acre, and a rectification of mounds at another 10*s.*, would be worth more to rent, a steam plough being still employed, by from 7*s.* to 8*s.* an acre, and would raise its value, after deducting for the outlay required, about 7*l.* 10*s.* an acre. I am speaking of properly drained clay land, with a clay subsoil, worth to rent from 18*s.* to 28*s.* per acre. I do not believe that either on clay land with a chalk subsoil or on loams, even stiff loams, the advantage would be so great.

The next disadvantage which I may mention as belonging to clay land is that we are somewhat confined in the choice of our crops, Wheat being the only white straw crop that can be grown often. We might make a rotation of crops for 12 years, thus:—Wheat, Beans, Vetches, Wheat, forward Turnips, Oats, Clover, Wheat, Beans, Barley, Mangels or Swedes (half fed off in spring and half drawn home for winter use), followed in the 12th year by Vetches or Rape as a preparation for the Wheat crop. It may be said that if this is really the best course, a variation of a few shillings in the price of Barley would not materially affect it, it being only grown on 1-12th of the farm, but I submit that supposing only 4 qrs. to an acre to be grown, the difference of even 6*s.* a qr. would be no less a sum than 24*s.* per acre, or 2*s.* an acre over the whole farm. Still the inquiry, Will the land grow good malting Barley? would be more necessary to be made on light soils. If it will, the advantage would rather be over other light land, which grew only a secondary sort, than over heavy land; because Barley, the intrinsic value of which might be only 2*s.* per qr. less than another, is often depreciated by the injurious operation of the Malt Tax to the extent of 8*s.* per qr.; thus, reckoning 4 qrs. to an acre at 6*s.* a qr., 24*s.* an acre, and this amount on a quarter of a farm, or 6*s.* an acre over the whole farm. I may just say that last summer a gentleman said to me something as follows. "I don't want the Malt Tax repealed; I grow a good quality, and its remission would cause greater competition!" The growers of the best Barley being thus protected to the injury of the rest!

SHEEP MANAGEMENT.

But I will pass on to the other disadvantage I have mentioned as regards heavy land. I have already taken into consideration the cost of carting the roots home and the manure back to the field, and the general extra cost of tillages, and it remains to consider the difference between the probable annual profit derived from sheep on such land as compared with that derived from them on light land. I have seen different descriptions of management pursued with sheep stock on heavy land. One way, I may mention, is to graze only; in such a case the farmer would take care to have a supply of food, such as Swedes or Mangels in the spring, before the Vetches and Clover are fit; and buy in his stock in April or May, feeding them through the summer on Vetches, Rape, and early Turnips, with plenty of corn or cake, selling all out in the autumn, the greater number fat, the rest fresh sheep, requiring a month or two on Turnips. By such a system the land is much benefited, and with quite a good judge of stock, and store sheep, it might answer very well, but of late years, although meat has been at a high price, store sheep have also been for the most part very dear, and it seems to me that a breeding flock is more suitable and more certain to yield a return. Suppose, then, a farm of 500 acres, with 318 acres of heavy arable land, the remainder Grass; upon such a farm (the Grass land not being used for sheep excepting late in the autumn) a flock of 220 ewes may be kept to advantage. It is very usual to buy in breeding ewes in the autumn, selling them partly fat the next autumn, after they have had one rear of lambs, and then replacing them with younger ones. This does away with the necessity of keeping ewe lambs through the winter, which, however, I should prefer doing. There is not the slightest difficulty on such a farm in providing straw and hay which, with pulped roots, would do them remarkably well in yards, and if foot-rot is feared by some as the result, the fear is not a well-grounded one. I had, unfortunately, one year, through the failure of the root crop, to keep 200 or 300 lambs in yards all the winter. I did not find any lameness in any of them, and am quite sure that with proper attention to the littering there is no danger. * * * * Presuming, however, that to change sheep annually is the rule on a clay land farm, I will endeavour to give a rough estimate of the probable expenses incurred for the purpose of keeping those sheep, by growing green food of all descriptions for them, by finding dry food for them, and by manual labour, &c., and also of the probable returns, and then, by following a similar process with the light land, we may perhaps be enabled to ascertain to which side the advantage of the sheep stock may be, and to what extent. Let us suppose 220 ewes to be bought in August at 45*s.* per head; these would consume the Clover-hay grown and some of the straw, and, with lambs, would consume the Swedes, Mangel, and summer food in the average of seasons; there would be the produce of about 133 acres, being five-twelfths of the farm to be accounted for, besides 10 acres of Italian Rye-grass laid down among Beans. We have already considered the question of tillages, which therefore must not be entered into here, and, with regard to the rent, I have estimated that a fair annual rental for such land, a clay soil, presuming rates to be about 4*s.* an acre, would be 25*s.* per acre for the arable; and growing, with liberal and therefore expensive farming, 4 qrs. Wheat per acre, 3 qrs. Beans, 8 qrs. Oats, and 4½ qrs. Barley. On the other hand I have estimated the rental on the light land at 28*s.* per acre, growing only on an average 3 qrs. Wheat per acre, and 4 qrs. Barley. I will, if it should not be thought tedious, give you my figures, and make two or three remarks afterwards:—

August sheep stock, 220 breeding ewes, at 45*s.*, 495*l.*

Expenses throughout the Year.	£	*s.*	*d.*
By one shepherd	31	4	0
One boy, half-year	8	0	0
Interest on capital, 495*l.*	24	15	0
Hire of four rams	24	0	0
Run for ewes on Grass land, from October to Christmas	36	8	0
Bran for ewes from 1st December to 1st March following, 90 days, 7 tons 3 cwt., at 5*l.* each	35	15	0
Cake for lambs, 2*d.* per week each lamb, 20th February to 20th August	47	13	4
Cake for draught ewes, ½ lb. each, from 20th July to 20th October	26	14	7
Chaff cutting, hand labour, for ewes, 16 weeks, at 1½*d.* per bag	17	10	0
Loss on hurdles	5	0	0
20 tons of straw for fodder, at 15*s.*	15	0	0
Cost of Clover seed, 26½ acres, and harrowing, 9*l.* 5*s.* 6*d.*; mowing and making hay, at 10*s.*, 13*l.* 5*s.*	22	10	6
Rape, Turnip, Swede, and Mangel seed, 2 lb. per acre, on 53 acres	2	13	0
Hoeing, at 8*s.*	21	4	0
Superphosphate of lime, three cwt. on 26 acres of Swedes and Mangels	26	6	6
2) acres cleaned, at 6*s.*	6	0	0
52 acres of Vetches, 2 bushels per acre, at 6*s.* per bush.	31	4	0
10 acres of Italian Rye-grass seed, two bushels per acre, at 3*s.* 6*d.*	3	10	0
	£385	7	11

Returns throughout the Year.	£	*s.*	*d.*
To sale of 220 lambs, at 2*l.* 2*s.*, on 20th August	462	0	0
To profit on ewes sold in October, including wool, at 10*s.* per head	110	0	0
	£572	0	0
	385	7	11
	£186	10	0

And we have remaining 186*l.* 10*s.*, as profit towards paying rent, rates, and reimbursing the outlay for tillage, &c. Then take a similar case on a light land farm of 318 acres of arable land, half of which would every year be in course of green crops, and on which 80 draught ewes would be sold every year, and 80 theaves brought in to take their place.

August sheep stock, 220 breeding ewes, at 45*s.*, 495*l.*

Expenses throughout the Year.	£	*s.*	*d.*
By one shepherd	31	4	0
One boy, half-year	8	0	0
Interest on capital, 495*l.*	24	15	0
Hire of four rams, at 8*l.*	32	0	0
Run on young seeds and stubble, at 3*s.*, 159 acres	23	17	0
Oilcake for cull ewes (80), ½ lb. each per day, from 1st November to 1st February	19	10	0
Oilcake for 180 lambs, ½ lb. each, from 1st December to 1st April	44	9	6
Loss on hurdles	5	0	0
31 tons of straw	23	5	0
Chaff cutting, hand labour, for ewes and tegs, at 1½*d.* per bag	22	17	0
Cost of seeds, 79½ acres, at 8*s.* per acre	31	16	0
Mowing and making 50 acres hay, at 7*s.*	17	10	0
Turnip and Swede seed, 2 lb. per acre, at 6*d.*	4	0	0
79½ acres, hoeing, at 7*s.*	27	16	6
Superphosphate of lime, 79½ acres, at 19*s.*	75	10	0
30 acres cleaned, at 5*s.*	7	10	0
10 acres Vetches, two bushels per acre, at 12*s.*	6	0	0
	£405	0	0

Returns throughout the Year.	£	*s.*	*d.*
To 80 draught ewes sold 1st February, at 63*s.*	252	0	0
To 140 tegs sold 1st April, including wool, at 58*s.*	406	0	0
To 220 ewe fleeces, five to the tod, at 35*s.*	96	6	0
To 80 teg fleeces, 3½ to the tod, at 40*s.*	45	14	0
	£800	0	0
	405	0	0
	£395	0	0

And we have remaining 395*l.*, as profit towards paying rent, rates, and reimbursing the outlay for tillage, &c. I have in neither case deducted anything

for losses, but neither have I, on the other hand, added anything for double couples; and I apprehended, as a rule, the one would counterbalance the other. We find, then, by this comparative statement, which I believe to be as nearly as possible a fair one, that whilst on the clay land the profit on sheep gives us 186*l.* 10*s.* towards rent and tillages, the profit on light land gives us 395*l.*, the difference between the two being 208*l.* 10*s.*, or about 13*s.* 6*d.* per acre on the whole farm of arable land. On the other hand, if we calculate the corn we shall find 392*l.* in favour of the strong land (reckoning the corn at ordinary prices), or about 24*s.* 6*d.* per acre; then, deducting from 24*s.* 6*d.* the extra tillage expenses—7*s.* 9*d.* per acre—together with the extra cost of manual labour not already reckoned in the foregoing account, 6*s.*, or say 6*s.* 3*d.* per acre, and we find a remainder of 10*s.* 6*d.* per acre in favour of strong land as regards corn, and 13*s.* 6*d.* per acre against it as regards the sheep stock, thus allowing an extra 3*s.* per acre rent on the light land.

One difficulty which the light land farmer has to contend with in the spring as regards his sheep, is this—he is obliged to consume the most of his Swedes by the beginning of April, and sell his tegs at that time (excepting ewe tegs for stock) whatever the trade may be, otherwise he misses the proper time for planting his Barley on a considerable breadth, and is in danger of losing his crop on that part; as it is he has always to save one piece for the ewe tegs, and, indeed, also for his ewes and lambs until the beginning of May, to the prejudice of his Barley crop on that piece. On light land again it is difficult to maintain with any certainty a good supply of food in the summer for the lambs. How different is the case of his neighbour on the strong land! His lambs are luxuriating on Vetches, lattermath, Clover, and Rape, always in the fold, perfectly healthy, improving every day, and so until September he continues his advantage. At that time, however, the case is altered; the heavy land farmer must sell his lambs to those who can winter them, whilst, once fairly on Turnips, with a tolerable supply of hay chaff for the first two or three weeks, and careful management until they are used to the change of diet, the lambs belonging to the light land farmer will begin to improve, and the more liberal he is, in reason, in giving them artificial food, the better will they pay him, and the larger will be the succeeding crop. * * * I have taken the second disadvantage which I named as belonging to light land, namely, the difficulty of obtaining a summer supply of food, before the first, because I wished to bring it into comparison with the third disadvantage I named as belonging to heavy land, which was its inadaptibility for the growth of mutton and wool through the winter season.

Excessive Game.

I will now pass on to notice another chance of a failure of the crop planted, whether Wheat or Barley. This is a cause of failure, too, which, although one on all land where it exists, is, I consider, especially one on light land, and that is, whenever game is sufficiently numerous to eat the young shoots to any sensible extent. It is not my province now to dwell upon the disappointment, the constantly harassing annoyance, and the material damage to the farmer occasioned by this cause of the loss, or partial loss, of crop, nor upon the evil influence it has upon the morals of the labouring population by the temptation it offers to them of unlawfully gratifying an apparently natural taste with almost every one for the excitement of the chase, and which, from being unlawful, is immoral, and leads men once taking to it to worse immoralities, until imperceptibly to themselves, for, "in vain is the net set in the sight of the bird," they become such men whom themselves would have shrunk from at the commencement of their career; nor will I dwell on the loss occasioned to the country at large from this cause, a country, too, which has to import corn to feed its population, the consideration of which should alone be sufficient to induce those who have hitherto taken pleasure in seeing more than a fair sportlike sprinkling of game upon such portions of their estates as may be either Grass-growing or corn-producing, cheerfully to give up their own gratification for the good of their country; but I will say that it is often a cause of failure or partial failure in crop, and I would recommend that those who are seeking farms should, before taking one, be careful to guard against the danger of suffering from this sad cause of failure. I now pass on to another disadvantage which I have mentioned as belonging to light land: its liability to exhaustion. It is well-known that if we once get strong land into good condition and full of manure, it will with moderately good farming continue so, and is not easily deteriorated; light land, on the contrary, requires continually substantial help to keep it in condition to bear a good crop, and can be soon exhausted; it being an admitted fact, that all soils destitute of clay soon lose the valuable properties contained in the manure applied to them. * * * Mr. Chare, of Buckland, if I remember rightly, once told me that he would on no account apply manure in autumn on his sandy land for the following year's root crop. Whereas clay soils, which are slow to lose the help you give them, can have the dung drawn on at any convenient time, and at no time better than during frost in winter when little else can be done, and when no damage is occasioned by treading. This tendency to exhaustion is felt more towards the end of a lease, when, according to usual custom, the treatment of the farm becomes less generous. * * * Now what remedy can we suggest for this inconvenience? I believe only by an alteration in the clause inserted in the leases which for the most part prevail in this neighbourhood, which provides for the incoming tenant paying for the artificial manure of the last year only. Now if, instead of that, compensation for all unexhausted improvements was made to the outgoing tenant, then his inducement to economise prejudicially to the land would be taken away, and it would be left in such a state that the incoming tenant could afford, and be glad to pay, whatever sum might be considered sufficient for such compensation. * * * It may be said that the system of "taking out," as it is called, at the end of a lease may all be obviated by farms being held on a yearly tenancy, and that in this way they continue in the same hands for as many years as under leases. It may be so in many cases, but I submit that a yearly tenancy is not desirable. Mr. Edmonds brought his paper to a close by recapitulating the principal comparative disadvantages connected with holdings composed of one description of soil whether heavy or light, and then very briefly pointed out some of the advantages arising from occupying farms composed of different descriptions. He argued strongly in favour of the introduction of steam ploughing. The expense, however, was very great, and no doubt made farmers hesitate. He thought, however, as the soil was so benefited by steam ploughing, that landlords should render some aid in introducing the steam plough.

The Chairman said that steam power was very expensive. A steam engine for land cultivation cost a good deal of money. It had been said that when not at work it was not eating; but then it was lying still when it ought to be eating; it was bringing no return for the money expended in its purchase. The cost of a steam plough, he believed, was between 800*l.* and 1400*l.*; but supposing the cost to be 1000*l.*, how could a tenant farmer go to so great an expense in such a matter?

Mr. Moore said it struck him that the best answer was to be found in the fact that Mr. Edmonds was himself a tenant farmer, and had found the use of the steam plough profitable on the land in his own occupation. As to steam cultivation in general, it was becoming more and more important as they went on; there was sufficient experience in the country now to demonstrate its vast worth; and its advantages would be still further disclosed in the future. Mr. Edmonds, however, was a large occupier, and his was one of those instances in which steam cultivation was successful; he had that variety of soil on his farm which enabled him to try both methods. The valuable paper which he had read and for which they were all much indebted, had almost exhausted the subject; and he was glad that they should have the opportunity of perusing it at leisure through the medium of the press. In it had been placed before them, most impartially, the advantages and disadvantages of occupying light and heavy land. In doing this, Mr. Edmonds had pretty well overcome natural biases and inclinations, and stated both sides of the question fairly and fully. It had been a matter for consideration whether it was more profitable to occupy strong or light land. Mr. Edmonds had commenced by saying that he left out of consideration barren land, and included land capable by good cultivation of producing good crops; and after hearing from him what could be said on both sides, he (Mr. Moore) drew again the conclusion at which he had arrived many years ago, that when people had the chance, it was very desirable to have a mixed occupation. With reference to stock, he (the speaker) went a little further than Mr. Edmonds, for he thought that as much beef and mutton might perhaps be raised on heavy as on light land, though the expense might be greater. He approved of yards for sheep in the winter, and expressed the opinion that strong land, well drained and cultivated, was the best paying description. They would find it a very good servant; but once let it be master, and it was one they would be glad to get rid of. They must keep the strong hand; but from land of this kind, if well cultivated, and if under a 20 years' lease, they would get more money than from any other.

Mr. C. Edmonds said that in the paper read the system was approved of putting Rape on strong land. His own experience, however, was entirely the reverse, as the crops succeeding the Rape were partial failures. Mr. Smith, who was present, had also experienced the same result. He had seen Wheat come very well after Rape on some soils; but on his farm, where the soil consisted of a strong clay—the Oxford clay, he believed—it was the most unsuccessful thing he ever tried.

Mr. Edmonds said this showed the necessity for discussion, for on his own strong land he had always found Rape do very well; and it further showed that we should not, on going into a fresh neighbourhood, be too confident in our own opinion, or too ready to look over our neighbours' heads. He did not, however, advocate the system objected to, but said that it was usual to put Rape on such soils.

Home Correspondence.

Sorghum tartaricum.—Our attention has been called to a letter in your last week's issue, asking us to give up the name and address of the authority which we make use of in advertising the above new cereal. This we do not feel disposed to do to an anonymous writer to a public paper, although we should have no objection to replying to private inquiries, with the understanding that the information is not for publication. It is a matter of little moment to us whether your correspondent does or does not "envy us" the liberal patronage our house is receiving from the public for this, as well as other articles. All successful houses are more or less a source of envy; and we therefore accept it as one of the penalties which go hand and hand with prosperity. We can assure your correspondent, however, that the extract quoted in our advertisement is *bonâ fide*; and as our "friend" is quite disinterested in the matter, he can have no object in misleading us or the public. As we have not yet had an opportunity of testing the merits of the Sorghum ourselves, we are unable to enlighten your correspondent, beyond mentioning the mere fact that we are informed it has been successfully grown in this country. Relying upon our friend's very encouraging report, we have sown a large breadth on our farms in Essex, where we hope, in due time, to realise the happy results described. We have no reason to doubt that the Sorghum will ripen seeds in England; but even if our changeable climate will not admit of this, it may still be valuable as a forage plant; at any rate, we think so promising an article deserves a trial. *James Carter & Co.*

The Growth of Mangel Wurzel in Ireland.—I believe that Ireland has taken the lead of all other parts of the United Kingdom, if not as earliest in cultivating this crop, certainly at an early period after its introduction, in producing the heaviest arable produce on record, as seen by reports from our public competitive exhibitions. Crops weighing from 60 to 100 tons per acre, are reported to have been produced, and accompanied by reports of expenditure in the production as low compared with such great produce. Some thought such reports, both as to produce and cost of production, to be in the one case far above, and in the other far below the reality, and that these monster bulbs were so inferior in quality and in point of value, so low in nutritive value, bulk for bulk or weight considered, as to be dearly bought even at the reported low cost of production, because of an additional objection—their great tendency to start into flower, and susceptibility to rot in late autumn and early winter. My belief is, and it is founded on no very limited experience, that both these objections were well founded. In this opinion I have been borne out by the analyses of some of the most eminent chemists in Europe, and by a singular coincidence, without previous concert with such scientific men, I with other practical men considered it quite possible that a heavy acreable produce could be had by growing smaller bulbs at shorter distances apart, and the following is the result of one out of my many experiments:—

No.	Distances between Drills.	Distances asunder in the Drills.	Average Weight of Bulbs.	Average Acreable Produce.	Per Centage of Solid Matter.
	Ft. in.	Ft. in.	lb.	Tons.	
1	3 0	2 0	14 and upwards	45	None of this size analysed
2	2 9	1 9	12 to 14	47	9.16
3	2 6	1 6	10 — 12	49	10.10
4	2 3	1 3	8 — 10	50	11.69
5	2 0	1 2	6 — 8	51	13.64
6	1 6	1 0	4 — 6	52	14.58
7	1 3	0 9	2½— 4	47	14.05
8	1 0	0 6	1½— 2½	48	13.45

The crop of which the above were a part was grown in the year 1859, a dry and an unfavourable year for Mangel culture in Ireland. Otherwise the acreable produce might in all cases have been heavier, and the results in all other cases perhaps different. The land on which they grew was what is considered a poor soil for any other purpose than the growth of Whins and Larch trees, for which purposes few soils could be better adapted, judging by their growth on it. It was moderately loose, and when deeply cultivated fairly moist, resting on a pretty firm dry subsoil, abounding in granite small boulders, and I presume rich in potash; the subjacent rock, a clay slate, occasionally interlined or chequered with veins of felspar. It was well ploughed the previous autumn, grubbed, well cleaned and drilled in spring. Chief manure, farmyard dung kept dry during the winter, and composed of the excreta of cows, horses, sheep, and pigs, bedded with chopped straw, the residue of Furze left after horse and cattle feeding, and turf mould regularly compounded, in quantity 30 tons per acre, to which was added 4 cwt. superphosphate and 2 cwt. Peruvian guano; the latter compound placed in ruts on the ridglets, and covered with a little earth before the seed was dibbled in by hand at the respective distances, and all pretty heavily rolled in the usual way. Seed, three years old, meaning the third year, including that in which it was saved.* Time of sowing, the last week in April. After culture: amongst the widely spanned drills, those of 2 feet and upwards asunder, done with the horse-hoe, grubber, and double mould-plough.† Those below 2 feet asunder by the spade, hand-hoe, rake, and shovel.‡ Time of raising and storing the crop, first week in November§, topped and tailed with the hand, no knife being used. Stored on a dry floor of an airy shed, open to the north. The bulbs covered with dry Fern to keep off frost and exclude the light; of the latter more hereafter—if not in this, in another letter. Time of use and length of time the bulbs hold good: none used till showing slight indications of decay were weekly examined. The largest the last week in December the same year. The period lengthened with the lesser-sized plants until November in the second year, when the majority of the smaller ones were as sound and as

* Having been for many years an experimentalist in saving such farm and garden seeds with the view of testing the durability of their vitality, and ascertaining other results, I have found that the seeds of [Wurzel?] generally, when obtained from good plants and well saved and preserved, will retain their vegetative powers fully 10 years, and that the seed under three years old, all other circumstances duly considered, will be more apt to start prematurely into flower stalks than those of greater age. On the other hand, I have found that such seeds which when sown after they pass five years old, will produce weaker and less bulky plants as each year advances after that time.

† The cost of culture differed very little, according to the wages of the locality. Horses at 3*s.* 9*d.*, men at 1*s.* 3*d.*, and women and boys at 10*d.* per day.

‡ The moulding-plough and shovel were used to earth the plants over the bulbs, far less with the view of keeping the land dry or protect the bulbs from frost as to exclude their bulbous parts from the light, it having been ascertained that the parts of the bulbs so *greened* are of less value than those parts growing below the surface of the land.

§ My rule in raising such crops is to secure them at their greatest value, which becomes depreciated as soon as the plants throw up flower stalks. Oftentimes much earlier than November. *E. C.*

fresh as the day they were stored, save that the surfaces appeared a little shrivelled, when the cattle seemed to like them less; but their plumpness became soon restored by immersion for a few hours in soft clean water, after which the cattle ate them with their wonted avidity. Before concluding this, I fear overlengthened letter, I should perhaps repeat, that the year in which the foregoing experiments were made was in Ireland a very dry one, otherwise the crops might have been heavier—such as I often had them on similar land before and since then; but the question is—were they of a great acreable nutritive value? I doubt it. I should also, perhaps, add the variety experimented upon was what is called the Yellow Globe, they being as I find the best for such land of several other varieties. *Edward Carroll, Walnut Grove, Glasnevin, Dublin, April* 22, 1867.

Barley.—The experience of the past season tends exceedingly to show the great necessity of improving our culture and growth of Barley with the view of improving its quality. The price of Barley during the last year has varied astonishingly, the difference being from 24*s.* to 58*s.* per quarter, according to quality. True, this was in a great measure owing to the unfavourable weather for the ingathering of the last Barley harvest. But be that as it may, it proves one very important point, *i. e.*, that our best and most popular brewers will and do give enormous prices for prime quality Barleys; in fact, it is quite essential to their continued prosperity. Pale ales and first-class beer cannot otherwise be brewed acceptably, and this is a class of business which is immensely on the increase. The exportation of such and other ales is also in a satisfactory state of progression, amounting to some 70,000 barrels per month. There is every prospect of a great increase, being only retarded by the high price of beer, which in many European and other countries exceeds the cost of wine. A friend of the writer who was the other day in Rome had to pay more for his glass of ale than the like quantity of wine. British brewers cannot hope successfully to compete against such odds, although their beer is becoming highly popular in many countries, and would be more so if it could be afforded at a cheaper rate. Here then is another argument for the repeal of the Malt-tax. One feels indignant at the continuation of such a gross imposition upon agricultural progress, for Barley growers are most injured by it after all. Only read the Parliamentary return of Saturday last—no less than 53,281,222 bushels of malt (Barley) have paid duty in the year 1866, and the amount realised by the tax amounts to the astounding sum of 7,089,247*l.* 13*s.* 9½*d.* The number of acres under Barley culture is estimated to be about 3,006,701, so that the tax would be something like 46*s.* per acre. This cannot much longer be borne; and, moreover, it is nearly all imposed upon the English grower, as, of the above large number of bushels, 47,263,665 are of English growth. It must also be borne in mind that no Barley is equal to English Barley for malting and brewing, as is proved by numerous experiments. Take Scotch and English Barley, for instance, of the same apparent quality and weight, let the same maltster malt them, and the same brewer brew from them, it will be found that the English malt will yield from 10 to 15 per cent. more spirit and fulness for the beer than the Scotch malt, and it is so from every country from which it is imported, only in a greater degree. Seeing, then, that England more particularly, and many favoured districts of England absolutely, enjoy this partial monopoly, namely, the production of a quality of Barley best adapted for brewing purposes, why should such an enormous tax be levied upon them? Their business ought to be as free as air, and let the whole world be benefited by their exertions. I venture to assert that if the tax were abolished, the growth of English Barley would be immensely increased, all parties vieing with each other to produce the best kind, and that the price of the primest quality would equal, if not exceed, the price of Wheat. It is quite reasonable that it should be so, seeing that no other country can produce the like, and common quality Barley would suffice for common brewing. Besides, brewing itself would no doubt be surprisingly increased, and the quality of ales, &c., greatly improved. A large export trade would unquestionably lead to this. It is not to be supposed that our brewers have reached the highest department of their business. Perfection is yet before them. It is far better to tax beer than malt, as by such means the malting of Barley might be made open to the public, and every grower of Barley be free to malt his own produce. *O. F.*

Societies.

ROYAL AGRICULTURAL OF ENGLAND.

MONTHLY COUNCIL: *Wednesday, May* 1, 1867.—Present, Mr. Thompson, President, in the Chair; the Duke of Devonshire, the Duke of Rutland, the Earl of Shrewsbury, Lord Berners, Lord Chesham, Lord Tredegar, Lord Vernon, Lord Walsingham, Major-General the Hon. A. N. Hood, Sir J. V. B. Johnstone, Bart., M.P., Sir A. K. Macdonald, Bart., Sir J. Trollope, Bart., M.P., Sir H. Vane, Bart., Sir T. Western, Bart., M.P., Mr. Amos, Mr. Barnett, Mr. Bowly, Mr. Cantrell, Col. Challoner, Mr. Clive, M.P., Mr. Brandreth Gibbs, Mr. Holland, M.P., Mr. Wren Hoskyns, Mr. Hornsby, Col. Kingscote, M.P., Mr. Lawrence, Mr. Milward, Mr. Pain, Mr. Pope, Mr. Randell, Mr. Read, M.P., Mr. Rigden, Mr. Sanday, Mr. Shuttleworth, Mr. Robert Smith, Mr. Torr, Mr. Turner, Mr. Wallis, Mr. Wells, Major Wilson, Professor Wilson, Mr. Jacob Wilson, Mr. Frere, and Dr. Voelcker.

The following new Members were elected:—

Bayning, Lady, Honingham Hall, Norwich
Bennett, Philip, Rougham Hall, Bury St. Edmund's
Bramwell, Frederick Joseph, 35A, Great George Street, Westminster
Cooke, W. R., Rickinhall, Botesdale
Cranfield, William, Buckden, Huntingdon
Crowe-Read, Captain, R.N., Llandinam Hall, Montgomeryshire
Croft, John, Dalton House, Saddington, Market Harborough
Denton, Henry, Wolverhampton
Fair, James, Tabley Villa Farm, Knutsford
Fison, Joseph, Ipswich
Griggs, George, Oaklands, Romford
Hetherington, John Railton, Carleton, Carlisle
Jefferson, Skelton, Preston House, Whitehaven
Johnson, B. B., Withersfield, Newmarket
King, Henry, Bury St. Edmund's
Lockwood, Rev. Edward J., Belstead, Ipswich
Mallows, William James, Manor House, Beyton, Bury St. Edmund's
Mason, James, Eynsham Hall, Witney
Mathew, Edward Windus, Wern, Port Madoc, Carnarvon
Nunn, Charles, Fornham, Bury St. Edmund's
Peto, James, Barningham Park, Ixworth
Pretty, William, Palgrave, Diss
Riley, John Edward, Elm House, Winkfield, Windsor
Searle, Malcolm, 2, Bond Court, Walbrook, Middlesex
Smith, John F., Hill Farm, Glemsford, Sudbury
Stutter, Arthur, Market Hill, Bury St. Edmund's
Stutter, John, Oaks Lodge, Queen's Road, Clapham Park, S.
Swinburne, Sir John, Bart., Capheaton, Newcastle-on-Tyne
Taylor, Edward, Whitton, Leintwardine, Hereford
Whiting, Thomas Chapman, Barsham, Beccles, Suffolk
Wright, William, Wollaton, Nottingham
Yeoman, Robert Charles, Merton, Thetford
York, J. Neal, Newmarket, Suffolk

FINANCES.—Major-General the Hon. A. N. Hood presented the report of the Committee, from which it appeared that the Secretary's receipts during the past month had been examined by the Committee, and by Messrs. Quilter, Ball & Co., the Society's accountants, and were found correct. The balance in the hands of the bankers on April 30 was 1680*l.* 6*s.* 8*d.* Different tenders have been received for the printing of the Society's catalogues, the lowest of which is from Messrs. Clowes & Sons, the Printers of the Society's Journal, and it is recommended that their tender be accepted; and a considerable saving will be the result. The Committee have had prepared an account, showing the receipts and expenditure of the Society under various heads, and the results of country meetings, inclusive and exclusive of prizes, for twelve years. They recommend that a copy should be sent to each member of Council, and that it be referred to the Journal Committee. This Report was adopted.

JOURNAL.—Part I., Vol. III., 2nd series, was laid on the table, and will be delivered to members in the course of next week.

VETERINARY.—Major-General the Hon. A. N. Hood reported that the Committee have received the following letter from Professor Simonds of his visit to Mr. Jordan's farm, near Driffield, to inspect some sheep, pigs, and cattle. The Professor reports that they were affected by splenic apoplexy of a peculiar character, inasmuch as the disease was communicated from the sheep to the cattle and pigs.

Royal Veterinary College, March 30th, 1867.

Gentlemen,—I have the honour to report that during the month of August last a communication, herewith enclosed, marked No. 1, was received from Mr. F. Jordan, Eastburn House, Driffield, which set forth that a very fatal disease had appeared among his sheep, and that he feared the infection had extended to some beasts and pigs on the farm. Mr. Jordan's letter inclosed one from Mr. Bowman, Veterinary Surgeon, marked No. 2, in which Mr. Bowman stated that 20 of the sheep had died up to the first day of his attendance, and seven since; and that among other lesions which he observed *post mortem* was a great enlargement of the spleen.

Under these circumstances I deemed it right to visit the farm and institute an inquiry into the nature and causes of the disease. I found that the breeding ewes, 267 in number, had been the first attacked, and that they were still the chief victims of the disease. I further ascertained that they had been kept on the same farm on which they lambed, and that 143 "cull ewes," which had been removed from them to another occupation, only eight days before the disease broke out, continued in perfect health.

It further appeared that by bringing the ill sheep into the farm premises the disease had been communicated to the bullocks and pigs, two bullocks having already died out of ten, and five pigs out of 19, being all which to this time had been attacked. No doubt could exist that all the animals had succumbed to the same disease—one of those mysterious blood affections, known as splenic apoplexy. The causes of this malady are not well understood, but its pathology would point to the probable entrance of minute organisms—bacteria—into the blood, thus giving rise to chemical changes in that fluid.

It would appear from recent researches that bacteria are the active agents in producing the putrefaction of manure, &c.; and as the disease had manifested itself while the ewes were being fed on a piece of seeds, recently manured on the surface with farm-yard manure, it is not improbable that in this circumstance is to be found an explanation, in part, of the cause of the outbreak.

Splenic apoplexy, like other allied blood diseases, may be said not to admit of cure, and often also the best devised preventive measures will fail, unless carried to the extent of an entire removal of the animals from the place where the malady had originated. In the present instance this course was adopted to as great an extent as the surrounding circumstances would permit, and with the further view of fortifying the systems of the animals against the inroad of the disease antiseptic agents were freely employed. These consisted chiefly in the daily administration of the sulphite of soda in combination with the compound tincture of bark and gentian. In a few days a marked improvement took place, fewer attacks occurred, and they soon ceased entirely. I am, Gentlemen, your most obedient servant, JAS. B. SIMONDS.

To the Veterinary Committee of the Royal Agricultural Society.

BURY ST. EDMUND'S MEETING.—Mr. Milward reported that the programme had been settled and would shortly be forwarded to all the members. A payment of 279*l.* 10*s.* on account of forage was recommended to be made to the Steward of Forage. The local Press would be permitted to have tents upon the ground, under the orders of the Honorary Director. The Secretary had been instructed to apply to some of the principal clock-makers for the use of a clock for the show yard, and also for a large bell, to be rung for clearing the showyard of visitors in the evening. They also recommended that local photographers be permitted to attend, for the purpose of taking portraits of prize animals. This report was adopted.

STEAM CULTIVATION.—The Committee have to report the completion of the task entrusted to them; the peculiarly unfavourable character of the summer and autumn of 1866 has, by protracting the enquiry, somewhat added to its cost, and materially delayed the publication of the report. The Committee have, however, every reason to believe that the work has been thoroughly well done. The reports occupy 330 pages of the Journal; and if the cost of their preparation (180*l.*) be considered properly chargeable to the Journal expenses, the whole expense of the inquiry will not exceed 692*l.* The Committee express their confident hope that the valuable information thus obtained will be considered an adequate return for the expenses necessarily incurred in its collection.

COMMITTEE OF SELECTION.—1. The Committee have had under consideration the two vacancies in the Council caused by the election of Lord Chesham to be a Trustee and Lord Cathcart to be a Vice-President; and they beg to report that District C, containing 468 members, is represented in the Council by five members only; and District E, containing 424 members, sends four members only to the Council. Mr. Hassall, Shropshire, a large dairy farmer, is recommended in District C, and Mr. Webb, Worcestershire, in District E.

2. *House List of Members of Council to be recommended to General Meeting.* — The consideration of this list not having been included in the duties of the Committee, no suggestions are offered with reference to it. The Committee would be glad to receive the instructions of the Council whether in future years the Committee is expected to furnish similar information with reference to the House List, which it has done in the case of casual vacancies in the Council.

On the motion of the President, in the absence of the Earl of Powis, and seconded by Lord Walsingham, Mr. William Hassall, of Bubney, Whitechurch, Salop, and on the motion of Mr. Randell, seconded by Mr. Pope, Mr. James Webb, of Spring Hill, Fladbury, Pershore, Worcestershire, were unanimously elected Members of Council in the room of Lord Chesham, elected a Trustee, and the Right Hon. Earl Cathcart, elected a Vice-President.

HOUSE LIST.—Agreeably with the by-laws the Council arranged by ballot the following election list, to be recommended by them for adoption at the ensuing General Meeting on the 22d inst.

ATTENDANCES (FROM THE RISING OF THE PLYMOUTH MEETING IN 1865 TO THE PRESENT TIME).

Names.	Monthly Councils. 14.	Special Councils. 11.	Weekly Councils. 16.	Committees. Number of Meetings.	Committees. Attendances.
Acland, Thomas Dyke, M.P., Sprydoncote, Exeter, Devon.	6	4	1	46	18
Barnett, Charles, Stratton Park, Biggleswade, Beds.	5	1	..	27	8
Cantrell, Charles S., Riding Court, Datchet, Bucks.	11	1	..	17	16
Clayden, John, Littlebury, Saffron Walden, Suffolk.	10	2	..	33	25
Dent, John D., M.P., Ribston Hall, Wetherby, Yorkshire.	10	2	3	84	53
Hudson, John, Castleacre Lodge, Swaffham, Norfolk.	2	1	..	1	1
Kingscote, Colonel, M.P., Kingscote, Wootton-under-Edge, Gloucestershire.	10	3	..	3	3
Liddell, Hon. Henry George, M.P., Ravenscroft Castle, Durham.	..	..	..	..	..
Lopes, Sir Massey, Bart., M.P., Maristow, Devon.	4	1	..	18	4
Milward, Richard, Thurgarton Priory, Southwell, Notts.	6	2	..	48	20
Pain, Thomas, Ugford Cottage, Salisbury, Wilts.	9	2	1	13	7
Pope, Edward, Great Toller, Maiden Newton, Dorset.	4	2	1	15	1
Rigden, William, Hove, Brighton, Sussex.	10	1	..	15	2
Stone, Nathaniel Chamberlayne, Ayleston Hall, Leicestershire.	..	..	...	..	..
Torr, William, Aylesby Manor, Great Grimsby, Lincolnshire.	13	1	1	73	62
Turner, George, Brampford Speke, Exeter, Devon.	3	1	1	3	..
Vane, Sir Henry Ralph, Bart. (Elected Nov. 7, 1866), Hutton Hall, Penrith, Cumberland.	..	..	..	..	..
Vernon, Lord, Sudbury, Derby.	8	2	2	55	29
Wallis, Owen, Overstone Grange, Northampton.	5	2	..	60	9
Western, Sir Thomas Burch, Bart., M.P., Felix Hall, Kelvedon, Essex.	6	2	4	..	..
Wilson, Major Fuller Maitland (Elected Nov. 7, 1866), Stowlangtoft Hall, Bury St. Edmund's, Suffolk.	4	1	..	4	4
Wilson, Jacob, Woodhorn Manor, Morpeth, Northumberland.	13	2	..	64	31
Wilson, Professor John, Iver, Uxbridge, Bucks.	5	1	3	11	2
Wynn, Sir Watkin Williams, Bart., M.P., Wynnstay, Rhuabon, Denbighshire.	3	1	..	..	..

COUNTRY MEETING OF 1868.—The Report of the Committee appointed to inspect the various sites offered to the Society at Derby, Leicester, and Nottingham having been read, the Council were favoured by the attendance of deputations from the above towns:

Derby Deputation.—His Grace the Duke of Devonshire, K.G.; the Right Hon. the Earl of Harrington, the Right Hon. the Earl of Lichfield, the Right Hon. Lord Scarsdale, the Right Hon. Lord Vernon, the Right Hon. Lord Denman, the Marquis of Hartington, M.P.; the Lord George Cavendish, M.P.; the Hon. E. W. K. Coke, Lieut.-Colonel Wilmot, V.C.; W. T. Cox, Esq., M.P.; M. T. Bass, Esq., M.P., and the Mayor of Derby, John Renals, Esq.; the Town Clerk of Derby, John Gadsby, Esq.; Mr. Alderman Barber, Mr. Alderman Madeley, Mr. Alderman Roe, Mr. Alderman Lingdon, Mr. Councillor F.

Forman, the Borough Surveyor, George Thompson, Esq., C.E.; John Hitchman, Esq., M.D., Chairman Derbyshire Agricultural Society; John Faulkner, Esq.; James Nuttall, Esq.; John Coleman, Esq.; the Secretary of the Derbyshire Agricultural Society, James C. Smith; G. W. Baker, Esq.

Leicester Deputation.—His Grace the Duke of Rutland, Lord-Lieutenant of the County of Leicester; E. B. Hartopp, Esq., M.P., Dalby Hall, Leicester; John Dore Harris, Esq., M.P., Ratcliffe Hall, Leicester; T. W. Hodges, Esq., Mayor of Leicester; Samuel Stone, Esq., Town Clerk, Leicester; Richard Harris, Esq., J.P. and Alderman, Leicester; Samuel Viccars, Esq., J.P., and Alderman, Leicester; George Baines, Esq., Alderman, Leicester; William Hunt, Esq., J.P., Leicester; Mr. John Crow, Mr. George Harrison, Mr. Charles Harding, Mr. Joseph Swain (Town Councillors, Leicester); Major Knight, J.P., Glenn Parva Manor House; The Rev. E. Smythies, Hathern; Thomas Allen, Esq., Thurmaston; N. C. Stone, Esq., Aylestone Hall; J. E. Bennett, Esq., Husbands Bosworth Grange; Thos. Willson, Esq., Knaploft Hall; R. H. Chapman, Esq., Upton, Nuneaton; P. P. P. Goodchild, Esq., Glenn Parva Grange; Mr. Thos. Sheppard, Mr. T. A. Wykes (Secretaries).

Nottingham Deputation.—W. H. Barrow, Esq., M. P.; T. B. T. Hildyard, Esq., M.P.; Lord Amberley, M.P.; T. J. S. Foljambe, Esq., M.P.; R. Milward, Esq., J.P.; H. A. Smith, Esq., J.P.; W. Sanday, Esq. (Holme Pierrepont); the Mayor, J. L. Thackeray, Esq., J.P.; The Town Clerk, W. Enfield, Esq.; G. Beaumont, Esq.; J. Brown, Esq.; F. G. Rawson, Esq.; The Corporation Surveyor, M. O. Tarbotton, Esq.

These gentlemen having communicated to the Council the fullest local information connected with their respective districts, and having answered satisfactorily the inquiries made of them by the Council, the President expressed to them the best thanks of himself and the Council for their kindness in having attended the meeting that day, and for the deep interest they had evinced in promoting the objects of the Society.

The deputations having withdrawn, the Council proceeded to the consideration of the particular locality best suited, under all circumstances, for holding the country meeting next year; and, after some discussion of the respective advantages of each position to which their attention had been called, it was decided in favour of Leicester by 26 votes, to 6 for Derby, and 2 for Nottingham.

Thursday, May 2: Adjourned Monthly Council.—Mr. Thompson, President, in the Chair. Present: His Grace the Duke of Devonshire, K.G., the Earl of Shrewsbury and Talbot, Lord Tredegar, Lord Walsingham, Major-General the Hon. A. N. Hood, the Right Hon. Sir John Trollope, Bart., M.P., Sir Henry Vane, Bart., Mr. Brandreth Gibbs, Mr. Greene, M.P., Mr. Holland, M.P., Mr. C. Wren Hoskyns, Mr. Lawrence, Mr. Randell, Mr. Read, M.P., Mr. Torr, Mr. Wells, Major Wilson, Professor Wilson, Mr. Frere, and Dr. Voelcker.

The report* of the Stock Prizes Committee was presented by Lord Walsingham, recommending an addition of 300*l.* for prizes in the Horse Classes, to which 50*l.* was added by the Local Bury Committee. This report was adopted.

A Special Council was subsequently held to determine on the appropriation of the Education Grant of 300*l.* for the year 1867. After a long discussion it was resolved that a candidate for the Society's honours and premiums must produce a satisfactory certificate of having received a good general education, and must be between the ages of 18 and 25. The Society's prizes to be awarded to candidates passing an examination in the Science and Practice of Agriculture, in Book-keeping, and in one or more of the following subjects at the discretion of the Committee, viz., Mechanics in their application to Agriculture, Agricultural Chemistry, Botany, Geology, Veterinary Science, Field Engineering, and Surveying. The examiners to be appointed by the Council. A Committee to carry out this scheme will be nominated at the Monthly Council in June.

Highland and Agricultural Society: *May 2.*—At the monthly meeting of this Society the half-yearly general meeting of the Society was fixed to be held on Wednesday the 19th of June, being the week after the closing of the entries for the Glasgow Show. The Secretary reported that the subscriptions received to the testimonial to the Rev. Patrick Bell for his services in connection with the reaping machine, amounted to 709*l.* 19*s.* 6*d.*, and that several additional sums had been intimated. As there are subscription papers at all the banks in Scotland, and returns are to be received by the beginning of June from the several agencies, it is expected that the additional sum obtained through this channel will raise the subscriptions considerably.

Reviews.

Second National Trial of Mowers, Reapers, Horse-powers, &c., by the New York State Agricultural Society at Auburn, July, 1866. Albany: C. Van Benthuyson & Son, Printers.

In the very interesting paper on American Agriculture which Mr. James Howard read before the London Farmers' Club last December, reference was made to the elaborate trials which agricultural machines receive before American Agricultural Societies. He has since been good enough to send us a copy of the report issued by one of the Societies before which last year's trials took place; and certainly nothing can be more detailed or explicit than the instructions under which its judges appear to have acted—nothing more patient or elaborate than the examination and the trial to which under these instructions the several implements were submitted—nothing completer or more satisfactory than the report which justifies and announces the various awards that were made. It is much to be desired that the English Agricultural Society may so far copy the proceedings of the trans-Atlantic Sister Societies as to provide for a longer and more particular examination of agricultural machines than is at present given to them at its annual meetings.

The Journal of Agriculture. May, 1867. 26, Cockburn Street.

The Meteorological Aspects of Spring—the Natural History of the Salmon Tribe—how Water Birds and Waders live—are readable papers occupying a large portion of the current number, and having a certain degree of right to a place in an agricultural journal. An excellent chapter of the series on the Permanent Improvement of Estates, Notes on Manures (of very little value), the Farmers' Note-book, the Veterinary section, and monthly notes of Markets and of Prices furnish more properly the contents of such a periodical. An account of the healing water of Limply Stoke is grotesquely out of place, and has no business in the periodical at all. The number is not equal in agricultural value or interest to its predecessors.

Miscellaneous.

Mr. Thorne's Herd of Short-horns.—The *Albany* (U. S.) *Cultivator*, of date 4th ult., states: An important sale of Short-horned cattle has taken place, which will be quite a surprise to the Agricultural public. Jas. O. Sheldon, Esq., White Spring Farm, Geneva, has purchased the entire herd of Samuel Thorne, Esq., Thorndale, Duchess Co., with the only exceptions of two bulls, the 6th and 12th Dukes of Thorndale, for which animals, we understand, Mr. T. will now receive offers. This is probably one of the largest transactions of the kind, if not the largest, which has ever occurred. By it Mr. Sheldon is placed at the head of what is undoubtedly the leading herd in America, if not in the world. There are, perhaps, one or two which count larger numbers, but we presume no other breeder in the United States or Great Britain has more than one-half the number of pure Bates animals now united in Mr. Sheldon's hands. Out of the six score or more, all together, which compose the combined herd, he will doubtless be able to offer immediately some opportunities to purchasers, of rare occurrence, and which would not occur now, but for the union of the two herds; while, in the progeny resulting from the means thus placed at his command, we may hope for the most brilliant successes in the future, as regards the well-won reputation of the breed. A word of regret at losing the name of Thorne from its high place on the current list of American breeders, may well accompany this announcement of Mr. Sheldon's good fortune. What has been accomplished at Thorndale will not be forgotten, and the name will be carried down in the pedigrees of many a future generation, both in this country and in England. The valley of the Hudson has lost what to the agricultural pilgrim has long been one of its chief attractions:

"Westward the star of empire takes its way;"

and the beautiful village of Geneva will more than ever become a centre of interest to the traveller. We shall hope to announce the fact, as soon as the Thorndale animals are fairly ready to "see company" at their new home; and the journey thither will be well worth taking before the brisk demand now existing shall have made inroads on the numbers of those which Mr. Sheldon may consent to spare.

Agricultural Education.—Talk of agricultural improvements, of the difficulty of getting the labourers to take to a new implement, or adopt an improved method! What enables *you* to see its advantage and adopt it? Your mind. What cultivates your farm better than your neighbours? Your mind. If that alone be left uncultivated around you—at every point, at every turn, in every field, in every hedge, in every ditch, in your house, in your dairy, in your stable, in your barn, everywhere and at every time, by day and by night, winter, spring, summer, and autumn—the neglect that has been allowed to sow itself, the moral weed-crop, will meet your eye to baffle and torment you with the feeling, so truthfully expressed when you say that you "have not a single mind you can depend upon!" No wonder; you have never tried to make one. *Hoskyns.*

Notices to Correspondents.

Bailiff.—The Editor of this Journal can recommend a good working Bailiff, well acquainted with tillage, farming, and market gardening; also acquainted with stock management. Wages, 90*l.*, with cottage and garden.

Cider Mill: *W M.* Will any one say where our correspondent can obtain the best new Hereford cider mill?

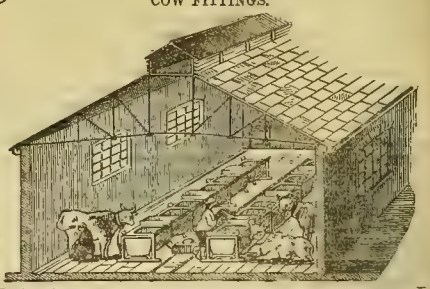
Concrete Floor: *A 0.* Three parts coal ashes (those from the blacksmith's forge to be preferred) and two parts gas lime from gas-works, to be thoroughly mixed, and then made into a mortar with gas-tar. If the gas-tar come from gas works where the ammoniacal liquor is not separated, it will be sufficiently mixed for the purpose; but if the latter be separated, and the tar be thick, it will set quicker if about one-fourth part of water be mixed thoroughly with the tar when used. For the floors of cow-sheds, this should be laid about 3 inches thick in one layer, on an even surface of gravel, or stone broken very small with a sprinkling of gravel over, and rolled down. The mortar may be laid on with a common shovel, and merely patted down flat. In dry warm weather, if the mortar has been carefully made, the floor will set firm in a few days. For any ordinary out-house, half the thickness will make a permanent floor.

Nitrate of Soda: *A Reader.* Nitrate of soda and common salt, "which has been used for salting South American hides," may be properly used together in hot weather on Grass land. They will not neutralise but rather assist each other.

Turnip Seed: *Agricola.* We do not hear either of any scarcity of seed or of any generally anticipated failure of the coming seed crop. Rape and Cabbage and Kohl Rabi are the best substitutes—the two former on land in good condition come as rapidly into a useful stage of growth as anything you can plant.

Wood's Grass Mower: *A Z.* We are not aware if the patent is run out for Wood's grass-mowing machines, but we imagine it is still in force.

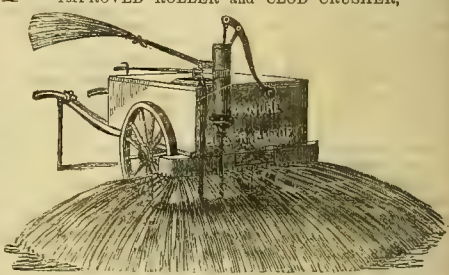
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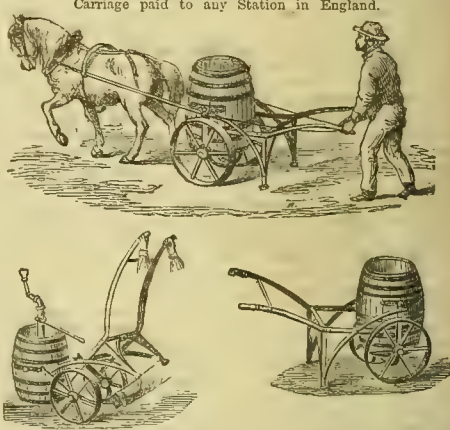
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From Lord Otho Fitzgerald, *West Park, Salisbury.*

"Sir,—You are welcome to make use of my letter recommending your Water Barrow. I find it of great use, and stronger, better, lighter, and more serviceable than one I had made in the neighbourhood, the carriage alone of which, without the barrel, cost me £3 10*s.* I unfortunately ordered it before I saw your advertisement.—I am, yours obediently, "O. Fitzgerald."

"To Mr. W. S. Boulton."

From Thos. Ingle, Esq., *M.D., Emsworth, Hants, June* 24, 1866.

"Sir,—The Swing Water Barrow is in every respect a most admirable improvement on all I have hitherto used in my Gardens. All parties who have seen it, Gentlemen as well as Gardeners, have bestowed upon it their unqualified approval, and several said they would order them of you.—Yours truly, "Thos. Ingle, M.D."

"To Mr. W. S. Boulton."

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"I have much pleasure in saying I have known your Black Varnish to be used for some time by friends of mine, and they all speak highly of it, which has induced me to get the quantity I have from you. That I have used looks remarkably well."

Sold in casks of about 30 gallons each, at 1*s.* 6*d.* per gallon, at the Manufactory, or 1*s.* 8*d.* per gallon paid to any Station in the kingdom.

Apply to Hill & Smith, Brierly Hill Iron Works, near Dudley, and 22, Cannon Street West, E.C., from whom only it can be obtained.

* In consequence of the refusal of the Privy Council to permit any Show of Cattle to be held during the present summer, the Prize Sheet, already issued, is withdrawn.

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H. ORMSON, aware of the increasing demand for what are termed Cheap Hot-houses (which in reality, as usually constructed, are far from realising that term)—and the desire of Horticulturists, and the Public generally, to Cultivate their Fruits with a greater degree of certainty and success than can be done on open walls, and also to enable them to Grow Choice Flowering Plants under Glass, has made it his study to produce a class of Structures combining all the qualities and requisites of the most expensive Hot-houses, at prices most economical.

The CONSTRUCTION of these HOUSES is based upon a plan which offers many advantages over other low priced Houses, inasmuch as all the parts BEING FRAMED, can be readily taken down and re-erected if required, whilst as permanent buildings they possess many advantages over all descriptions of "bar roof" structures. They are adapted for the growth of either Fruits or Flowers, and can be made of any width required.

The VENTILATION is effected in a manner at once simple and most efficient, by machinery, combining all the latest improvements, and in such a manner that neither wind nor rain can do damage; and at the same time not offering any obstruction to shading, or netting the openings against insects.

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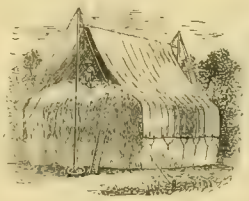
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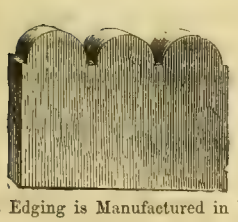
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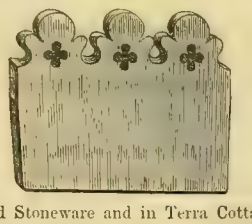
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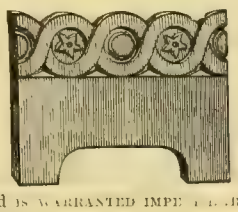
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Prices on application of C. AND E.'S PATENT TUBULAR ARCHED SADDLE BOILERS. Acknowledged by gardeners of experience to be the best invented.

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LAWN MOWING MACHINE, 36-in., by FERRABEE & Co., including the Leather Shoes for a Pony, all in excellent condition, and to be Sold, a Bargain.

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LAWN MOWERS.—BARNARD'S PATENT.

PRICES.			
8 inch ..	£2 10 0 each	16 inch ..	£6 0 0 each
10 inch ..	3 5 0 ,,	18 inch ..	6 10 0 ,,
12 inch ..	4 10 0 ,,	20 inch ..	7 0 0 ,,
14 inch ..	5 0 0 ,,	22 inch ..	7 10 0 ,,

Delivered free to any station in England on receipt of Post Office Order.

Also Lawn Mowers of other kinds, viz., Green's, Shanks', Samuelson's, Ransome's, &c., supplied at makers' prices.

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GARDEN ROLLERS.—IMPROVED MAKE.

PRICES.			
16 inch ..	£1 13 0 each	24 inch ..	£3 0 0 each
18 inch ..	1 17 0 ,,	26 inch ..	3 10 0 ,,
20 inch ..	2 3 0 ,,	28 inch ..	4 0 0 ,,
22 inch ..	2 10 0 ,,	30 inch ..	5 10 0 ,,

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ROLLERS FOR THE FARM
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The best and cheapest are the Patent Adjustable WATER BALLAST ROLLERS, made only by

AMIES, BARFORD, & Co., Agricultural Engineers, Peterborough, who will forward Price Lists and all particulars on application.

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Caution to Gardeners.—When you ask for

SAYNOR AND COOKE'S WARRANTED PRIZE PRUNING and BUDDING KNIVES, see that you get them. Observe the mark SAYNOR, also the corporate mark OBTAIN WARRANTED, without which none are genuine.

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SHANKS' NEW PATENT LAWN MOWERS FOR 1867.

PATRONIZED ON FIVE OCCASIONS DURING THE SEASON OF 1864 BY

HER MAJESTY THE QUEEN,

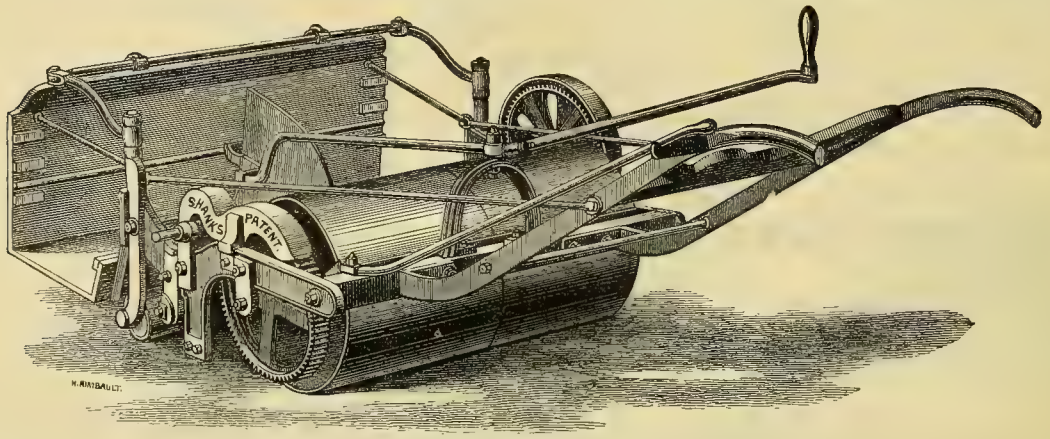
AND ONCE BY HIS MAJESTY THE KING OF SAXONY.

DURING THE SEASON OF 1865 THEY WERE PATRONISED ON FOUR OCCASIONS BY HER MAJESTY THE QUEEN,

ONCE BY HIS MAJESTY THE KING OF HOLLAND, AND ONCE BY HIS MAJESTY THE KING OF PRUSSIA.

AGAIN ON FOUR OCCASIONS DURING THE SEASON OF 1866 BY HER MAJESTY THE QUEEN

AND BY MANY DISTINGUISHED NOBILITY BOTH IN THIS COUNTRY AND ABROAD.



HORSE-POWER MACHINE.

Every minute point in the way of improvement has been carefully considered and adopted, and as A. S. AND SON have for more than a quarter of a century devoted their attention to this particular branch of their business, the Nobility, Gentry, and Gardeners may rely on the MACHINES they may order, to be such as to ensure lasting satisfaction, and to stand the wear and tear of many years.

SHANKS' PATENT LAWN MOWERS

ARE IN DAILY USE IN

ALL THE ROYAL GARDENS; IN THE HORTICULTURAL SOCIETY'S GARDENS AT KENSINGTON; CRYSTAL PALACE COMPANY'S GROUNDS;

IN VICTORIA PARK; HYDE PARK;

And in almost all the principal Public Parks and Gardens in the Kingdom.

These are the only Machines that can be depended on to give lasting satisfaction.

THESE ARE THE ONLY MACHINES THAT WILL MOW PROPERLY WHEN THE GRASS IS WET.

THESE ARE THE ONLY MACHINES THAT DELIVER THE GRASS WITHOUT STOPPING, THUS SAVING AN IMMENSE AMOUNT OF LABOUR.

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PRICES, INCLUDING CARRIAGE TO ANY RAILWAY STATION OR SHIPPING PORT IN THE KINGDOM.

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Width of Cutter.		Easily Worked	Silent Movement.
10-inch Machine	£3 10 0	*By a Lady*	4*s.* extra.
12-inch Machine	4 10 0		
14-inch Machine	5 10 0	*By a Boy*	

Width of Cutter.		Easily Worked	Silent Movement
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19-inch Machine	7 12 6	*By a Man and Boy*	
22-inch Machine	8 7 6	*By Two Men*	7*s.* 6*d.* extra.
24-inch Machine	8 17 6		

SHANKS' NEW PATENT PONY and DONKEY MACHINE.

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25-inch Machine	£12 10 0	25*s.* extra.
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NEW LAWN MOWER. THE AUTOMATON.

A NEW AND FIRST-CLASS MACHINE, WHICH HAS BEEN THOROUGHLY TESTED.

CONTAINS MANY IMPROVEMENTS.

PRICES, ILLUSTRATIONS, AND FULL PARTICULARS, FREE, FROM

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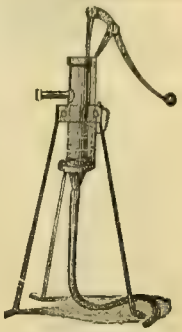
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HYDRAULIC ENGINEERS,

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2½ inches diameter	.. ..	£1	8 6
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No 37.—2½ ins. diameter .. £1 1 0

Ditto, with 15 feet of 1¼-in. lead Suction Pipe attached, £2.



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Is complete in itself, or can be used to draw from a Pond or Tank, price £2 2*s*.

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Useful for every variety of purpose, in Watering or Washing Flowers or Trees in Gardens, Conservatories, &c.; also for Washing Carriages or Windows, Laying Dust, &c.

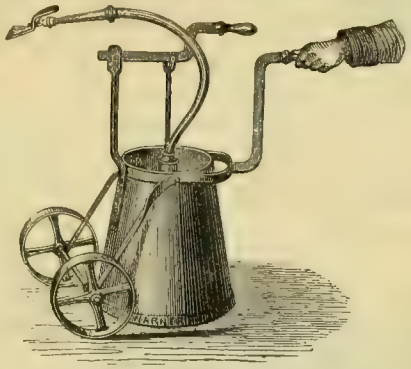
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2-in. Flexible Rubber Suction Pipe, in 10, 12, and 15 ft. lengths, per foot, 2*s*. 5*d*.



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HOLDS SIX GALLONS.

Is light, portable, and easily worked by a lady or child, price £2 10*s*.

LETTER TO *The Times*, JULY 23, 1866.

FROM EARL ESSEX.

A Real Fire Extinguisher.

To the Editor of "The Times."

"SIR,—I feel sure you will kindly allot a small space in the *Times* to these few lines, as the best medium through which I would urge every householder who dreads fire to have on each floor of his house one or more small Garden or other Engines on wheels, always charged and in good order, in case of fire.

"Last night, just as I was going to bed, I was startled by that most fearful of all cries, 'Fire, fire!' I soon learned that a fire was raging in a large two-windowed unoccupied bedroom. How caused is to us all a great mystery. It is my custom to keep one of these small Engines on each floor. In two minutes I was in the room with one of them. It was like a furnace. The curtains, shutters, casements, and cornices of both windows were burning and cracking from floor to ceiling. I was quite alone at the moment, yet before assistance arrived (most of the servants having gone to bed), I had completely subdued the fire of one window without exhausting the Engine, and when assistance and more water did arrive, we very soon extinguished the other. So fierce was the fire that the lead of the casements was melted, and the casements themselves were burnt off their hinges. I will only add, that by God's mercy, the house was saved by this small Engine. Had it not been at hand and in order, most assuredly Cassiobury would be now a heap of ruins.—Yours faithfully,

"ESSEX.

"Cassiobury, Watford, July 20.

"The Engine, even when full, runs so light on the floor, that any woman might draw it, and also work it."



No. 547, in Wood. 547A, in Iron Tub.

WARNERS' GARDEN ENGINES,

WITH REGISTERED SPREADERS.

These Engines are much improved in construction, are less likely to get out of order, and more easily repaired than others.

No. 547. Best ENGINES, in Wood Tubs.

24 Gallons ..	£6 10 0	14 Gallons ..	£5 10 0

No. 547A. Strong ENGINES, in Galvanized Iron Tubs, well painted inside and out.

10 Gallons ..	£2 19 0	24 Gallons ..	£4 19 0
16 Gallons ..	3 14 0	28 Gallons ..	5 10 0

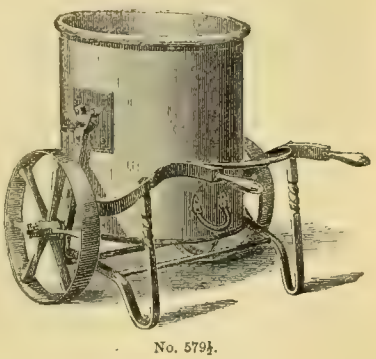
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Saves a Gardener's time in Watering with the Water Pot.

Made of strong Wrought Iron, Galvanized and painted inside and out

To hold 20 Gallons, wheels 13 inches high	.. ..	£2	2 0
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* This is an extra strong article, with cross handle for two men, suitable for Nursery Grounds, &c.



No. 579½.

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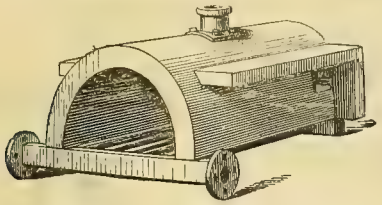
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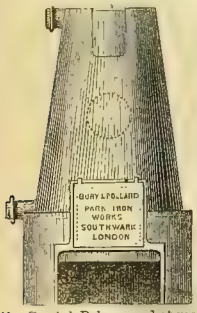
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By Her Majesty's Royal Letters Patent.



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Hot-water Pipes, with Elbows and Connections, supplied by BURY AND POLLARD.

Contracts and Estimates given for WARMING PUBLIC BUILDINGS; latest Improvements in HEATING by HOT WATER; the Improved CONICAL BOILERS, for Heating Pineries, Conservatories, Greenhouses, Mansions, Halls, Warehouses, &c., Solely Manufactured by BURY & POLLARD. These Boilers are adapted for setting in Brickwork, or annexed Sketch shows BURY & POLLARD's improved arrangement, requiring

NO BRICKWORK SETTING.

These Boilers have for their durability and economy attained a celebrity far surpassing any other Boilers ever invented. They have been for many years past in use at many Public Establishments, Royal Botanical Gardens at Kew, at the Regent's Park, the Crystal Palace, and at most of the Nobility's and Gentry's Seats throughout the United Kingdom. References where they have been for 20 years in constant use

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SADDLE BOILERS.

20	24	30 inches long.
45s.	65s.	92s. 6d. each.

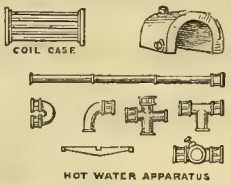
HOT-WATER PIPES.

2	3	4 inch.

1s. 6d. 2s. 1d. 2s. 9d. per yard.

Materials supplied as above, or Estimates given fixed complete to Plan, on application to

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THE NEW PATENT NONPAREIL GAS BOILER effects a saving of 75 per cent. in the Consumption of Gas.

Will keep alight any length of time without attention.
Requires no Setting in Brickwork.
Can be fixed inside or outside the Greenhouse, and
Will Heat from 30 to 200 feet of Pipe.

Price from 35s.

A HOT-WATER APPARATUS complete, 50s.

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CUCUMBER and MELON BOXES.—Two Hundred 1, 2, and 3-light Boxes and Lights of all sizes, made of best seasoned materials, glazed and painted, complete, ready for immediate use, packed and sent to all parts of the kingdom.

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To be obtained of F. & G. ROSHER, at their Premises as above.

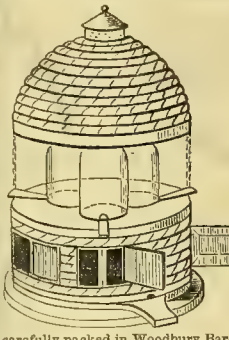
SILVER SAND (REIGATE, best quality), at the above addresses—14s. per Ton, or 1s. 3d. per Bushel; 2s. per Ton extra for delivery within three miles, and to any London Railway or Wharf. Quantities of 4 Tons, 1s. per Ton less.

FLINTS, BRICK BURRS or CLINKERS, for Rockeries or Grotto Work. F. & G. ROSHER.—Addresses see above.

N.B. Orders promptly executed by Railway.

Bee Hives.

PRIZE MEDAL AND HONOURABLE MENTION AWARDED TO GEORGE NEIGHBOUR & SONS, FOR BEE HIVES AND HONEY AT THE VARIOUS EXHIBITIONS.



NEIGHBOUR'S IMPROVED COTTAGE BEE HIVE, as originally introduced by GEORGE NEIGHBOUR & SONS, with all the recent improvements, working three bell-glasses; is neatly and strongly made of straw; it has three Windows in the lower Hive, with a Thermometer affixed to the centre one. This Hive will be found to possess many practical advantages, and is more easy of management than any other Bee Hive that has been introduced.

Price complete .. £1 15 0
Stand for ditto .. 0 10 6

THE LIGURIAN or ITALIAN ALP BEE being much in repute at the present time, we are in a position to supply Stocks of the pure race carefully packed in Woodbury Bar-Frame Hives, so as to travel with comparatively no risk of damage.

ENGLISH BEES.—Stocks and Swarms may be obtained as heretofore.

A newly-arranged CATALOGUE of other Improved Hives, with Drawings and Prices, sent on receipt of two stamps.

Address, GEO. NEIGHBOUR & SONS, 127, High Holborn, W.C.; or 149, Regent Street, London, W.

AGENTS:—Liverpool: James Cuthbert, 12, Clayton Square. Manchester: J. Wilson, 60, King Street. Birmingham: J. H. Cottrell, 16, Bull Ring. Dublin: Edmondson Brothers, 10, Dame Street. Glasgow: Austin & McAslan, 16, Buchanan Street.

GREENING & COMPANY'S

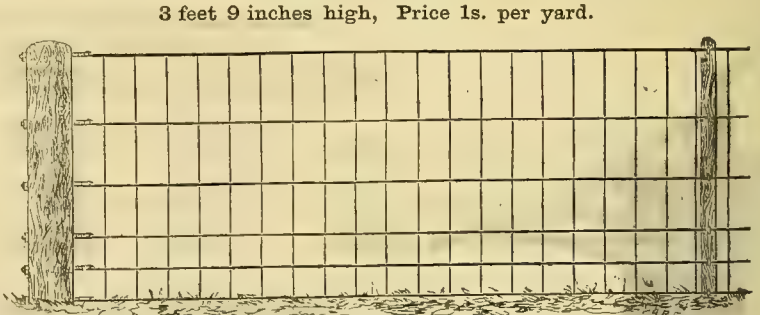
PATENT MACHINE-MADE

PORTABLE WIRE CATTLE AND SHEEP FENCE,

AN EXCELLENT AND ECONOMICAL SUBSTITUTE FOR WOOD AND IRON HURDLES.

No. 1A VARIETY.

3 feet 9 inches high, Price 1s. per yard.

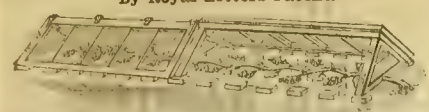


GREENING AND CO., LIMITED, Manufacturers of IRON GATES, FENCES, PALISADES, ESPALIERS, HURDLES, TREE GUARDS, GARDEN SEATS, VERANDAHS, VASES, FOUNTAINS, TOMB RAILINGS, STABLE FITTINGS, GARDEN ROLLERS, POULTRY HOUSES, EMIGRANTS' HOUSES, BRIDGES, CORN RICK STANDS, &c.; also of Wire Strained Fences, Rope Fences, and Patent Moveable Fences for Railways, Parks, Farms, Gardens, Game Preserves, Poultry Courts, Sheep Walks, &c.; also of Wire Netting, Plant Guards and Protectors, Garden Bordering, Garden Archways, Aviaries, Pea and Plant Trainers, Pheasantries, Hen Coops, and Garden Lounges.

GENERAL CATALOGUE for 1866, in Royal 8vo, 72 Pages and Wrapper, with 33 Illustrations (together with SUPPLEMENT of TESTIMONIALS from the leading Noblemen and Landowners of the United Kingdom, to the quality of GREENING & Co.'s Manufactures), forwarded on receipt of Two Stamps to defray postage.

1, ALBERT SQUARE, MANCHESTER.

By Royal Letters Patent.



WELLS'S PORTABLE GROUND VINERY, for Growing and Ripening Grapes without Artificial Heat.
Awarded a Silver Medal at the International Exposition of Horticulture, held at Nice, April, 1865.
Drawings and Instructions can be had of the PATENTEE, Steam Works 24, Bouverie Street, London, E.C.
AGENTS:—B. J. Edwards, 25, Bishopsgate Street Within, E.C.
J. R. Tanton, Epsom, Surrey.
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TANNED GARDEN NETTING for Seed Beds, and the Protection of Fruit Trees from Frost, Blight, Birds, or as a Fence for Fowls, &c. From 2 to 6 yards wide, at 1*d.* per square yard; 100 yards, 7*s.* 6*d.*; 5.00 yards, 35*s.* Carriage paid to any part of England if 1000 yards are taken. Remittance to accompany orders.
CHRISTMAS QUINCEY, Seedsman, Peterborough.

Garden Netting.

JOHN EDGINGTON AND CO. supply TANNED NETTING for the Protection of Fruit Trees, 1*d.* per square yard. Any quantity. SCRIM CANVAS, &c.; TULIP COVERS and GREENHOUSE SHADES, SUN BLINDS, &c. MARQUEES, TENTS, and FLAGS for FÊTES, FLOWER SHOWS, &c.
JOHN EDGINGTON & Co., (Tent Makers to the Royal Family), 48, Long Lane, Smithfield, E.C.; and 18, Piccadilly, W.

NETTING for FRUIT TREES, SEED BEDS, RIPE STRAWBERRIES, &c.—TANNED NETTING for protecting the above from Frost, Blight, Birds, &c., 2 yards wide, 3*d.* per yard, or 100 yards, 20*s.*; 4 yards wide, 6*d.* per yard, or 50 yards, 20*s.* NEW TANNED NETTING, suited for any of the above purposes, or as a Fence for Fowls, 2 yards wide, 6*d.* per yard; 4 yards wide, 1*s.* per yard; 1-inch mesh, 4 yards wide, 1*s.* 6*d.* per yard. Can be had in any quantity of
EATON & DELLER, 6 and 7, Crooked Lane, London Bridge, E.C.

SHAW'S TIFFANY,
For samples and prices apply to
J. SHAW & Co., 29, Oxford Street, Manchester.

SHAW'S TIFFANY, from 7*s.* per piece. GARDEN SEATS (Vine stalk pattern, 25*s.*) LAWN MOWERS, GARDEN ENGINES, ROLLERS, TERRA COTTAS, &c.
The Garden Repository, 32, James Street, Covent Garden, W.C.
Price Lists for all Garden Requisites may be had on application.

SHADING.—The best and cheapest Shading is ANDERSON'S SCRIM CANVAS, 2 yards wide. Price 8*d.* per yard. Samples on application.
JAMES T. ANDERSON, 7, Commercial Street, Shoreditch, London, N.E.

BROWN'S FLORAL SHADING, for Shading Plants under Glass and protecting Wall Trees from frost.—Sold by all Nurserymen and Seedsmen. No. 1 at 6*s.* 8*d.*; No. 2 at 7*s.* per piece, 20 yards long, 38 inches wide; No. 3 at 9*s.* 3*d.* per piece, 18 yards long, 39 inches wide. Samples on application to
CHARLES BROWN, Greenheys, Manchester.

E. T. ARCHER'S "FRIGI DOMO." Patronised by Her Majesty The Queen, the Duke of Northumberland for Syon House, His Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, &c.
PROTECTION from COLD WINDS and MORNING FROSTS.
"FRIGI DOMO," a Canvas made of Patent prepared Hair and Wool, a perfect Non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all Horticultural and Floricultural purposes, for Preserving Fruits and Flowers from the Scorching Rays of the Sun, from Wind, from Attacks of Insects, and from Morning Frosts. To be had in any required lengths.
Two yards wide .. .. 1*s.* 9*d.* per yard run.
Four yards wide .. .. 3*s.* 6*d.* per yard.
An improved make, 2 yards wide .. 1*s.* 9*d.* per yard.
An improved make, 3 yards wide .. 2*s.* 8*d.* per yard run. Also "FRIGI DOMO" NETTING, 2 yards wide, 1*s.* 6*d.* per yard run.
ELISHA THOMAS ARCHER, Whole and Sole Manufacturer, 7, Great Trinity Lane, Cannon Street, City, E.C., and of all Nurserymen and Seedsmen throughout the Kingdom.
"It is much cheaper than Mats as a covering."

MR. A. CHANDLER (of the late Firm of CHANDLER & SONS, Nurserymen, Vauxhall), HORTICULTURAL AGENT and VALUER. N.B. Horticultural Exhibitions attended, as Judge.
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Winter Ribbon Garden.

JOHN ROSS, Surbiton, Surrey, W., is prepared to LAY OUT every description of PLEASURE GROUND SCENERY. Photographs of Ribbon Planting may be had for inspection as above.

JOHN GIBSON, JUN., begs to announce that he is prepared to Furnish PLANS and ESTIMATES for LAYING OUT GROUND attached to Mansions and Villa or other Residences, or for the FORMATION of PUBLIC PARKS or GARDENS and to carry out the same by Contract or otherwise.
Address Mr. JOHN GIBSON, jun., Surrey Lane, Battersea, S.W.

GENUINE TOBACCO PAPER, 10*d.* per lb. Terms Cash.
W. DODGSON, Jackson & Sons, Tobacco Manufacturers, 29, Lady Lane, Leeds.

ROLL TOBACCO CLOTH.—The cheapest and best article for Smoking Greenhouses and destroying the Fly; equal to Tobacco in strength, 1*s.* 4*d.* per lb.; over 10 lb., 1*s.* 1*d.*
JOSEPH BAKER, 10, Gough Square, Fleet Street, E.C.
Post Office Orders payable Fleet Street.

BOSTON'S NE PLUS ULTRA, for the Destruction of Mealy Bug, Scale, American Blight, &c., on Stove and Greenhouse Plants, Fruit Trees, Vines, &c. In bottles, with full instructions for application, price 3*s.* 6*d.*, 6*s.*, and 10*s.* 6*d.*
JAMES CARTER & Co. beg leave to state that the present time is most suitable for applying the above genuine Specific before the commencement of the growing season, thereby preventing the rapid increase of the above pests which would otherwise take place. The infallible properties of BOSTON'S NE PLUS ULTRA are rapidly becoming fully recognised, J. C. & Co. having already sold nearly 2000 bottles since its first introduction in the spring of 1866. Numerous testimonials have been received, and not a single complaint of its inefficiency.
Sole Agents, JAMES CARTER & Co., 237 and 238, High Holborn, W.C.
*** The Trade supplied on liberal terms.



Red Spider — Magnified.

GISHURST COMPOUND.
Used by many of the leading Gardeners since 1859, against Red Spider, Mildew, Thrips, Green Fly, and other Blight, in solutions of from 1 to 2 ounces to the gallon of soft water, and of from 4 to 16 ounces as a Winter Dressing for Vines and Fruit Trees. Has outlived many preparations intended to supersede it.
Sold Retail by Seedsmen, in boxes, 1*s.*, 3*s.*, and 10*s.* 6*d.*
Wholesale by
PRICE'S PATENT CANDLE COMPANY
(LIMITED)

TO BE SOLD, 8 or 10 HIVES of HEALTHY BEES.
For particulars apply to
JOHN LACEY, Stationer, Eltham, Kent, S.E.

GOLD PHEASANTS.—Several First-rate Birds for Sale. Also a few Dozen EGGS.
Apply to R., *South Eastern Gazette* Office, Maidstone.

Farm Poultry.

GREY DORKING FOWLS, of purest breed, in any numbers.
Imported TOULOUSE GEESE, the largest and most productive breed known.
Improved NORFOLK TURKEYS, large, hardy, and good breeders.
AYLESBURY and ROUEN DUCKS.
Imported BELGIAN HARE RABBITS, for size and early maturity.
BRAHMA-POOTRA, CREVECŒUR, and LA FLECHE FOWLS, for constant layers.
Priced Lists and Estimates on application.
JOHN BAILY & SON, 113, Mount Street, London, W.

SEWAGE of NORWICH.—Notice is hereby given that the Local Board of Health for the Corporate District of Norwich are prepared to RECEIVE TENDERS for the PURCHASE of the SEWAGE of the DISTRICT, and for the Hire of about 1300 Acres of Land in the possession of the Board, intended to be irrigated with such Sewage which will be pumped to the highest part of the Land at the cost of the Board.
Further particulars, and any other information required may be obtained upon application to Mr. A. W. MORANT, the Engineer to the Board, at his Offices, Norwich, or to myself.
The Tenders are to be addressed to The Clerk of the Board, and delivered at my Office on or before the 4th of June next, endorsed "Tender for Sewage of Norwich."
The Board do not bind themselves to accept the lowest or any Tender.
H. B. MILLER,
Clerk to the Norwich Local Board of Health.
Bank Chambers, Norwich, May 2, 1867.

FOR DISPOSAL, a First-class NURSERY and SEED BUSINESS; or the present Proprietor would accept of a WORKING PARTNER with a Capital of not less than £1500.
Apply by letter to E., Messrs. Hurst & Son, 6, Leadenhall Street, London, E.C.

To Florists, Jobbing Gardeners, Seedsmen, &c.

TO BE DISPOSED OF, a first-class well-paying BUSINESS, with Conservatory well stocked, and comfortable home attached, well furnished with every comfort, for the low sum of £250.
Apply to Mr. DERRY, 19, Nelson Square, Blackfriars Road.

Sales by Auction.

Bedding Plants, Bulbs, Rustic Work, &c.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, May 8, at half-past 12 o'Clock precisely, a COLLECTION of GERANIUMS, IRIS, GAZANIAS, AURICULAS, Clematis, Phloxes, Carnations, Picotees, Pinks, Fuchsias, Veronicas, Dahlias, Gladioli, Rustic Seats, Stools, Vases, Baskets, &c.
On view the Morning of Sale, and Catalogues had.

Highly Important Sale of Established Orchids.

MR. J. C. STEVENS begs to announce that he has been favoured with instructions to SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, May 9, at half-past 12 o'Clock precisely, some unusually fine Specimens and Choice Varieties of ESTABLISHED ORCHIDS, being duplicates from the renowned Collection of S. Rucker, Esq., of West Hill, Wandsworth, including:—

Aerides Larpentæ
" Fieldingii
Cypripedium caudatum
Dendrobium Wardii
Cattleya labiata
" labiata speciosa
Trichopilia crispa
Miltonia candida grandiflora
Odontoglossum Phalænopsis
" nævium majus
Calanthe Veitchii
Cymbidium eburneum

And many other fine species all in the finest possible health; also some duplicates from the well-known Collection of J. Day, Esq., of Tottenham, including fine Plants and first-class varieties of the following RARE ORCHIDS:—

Angræcum sesquipedale
Aerides affine
" Larpentæ
" Dayanum
" quinquevulnerum
Cattleya amethystoglossa
" Exoniensis
" labiata
" superba
Cœlogyne cristata
Cypripedium Lowii
" Dayanum
" Stonei
" lævigatum
Dendrobium Devonianum
" thyrsiflorum
" Farmeri
Dendrochilum filiforme
Lælia crispa superba
Lælia elegans
" Schilleriana splendens
Maxillaria venusta
Miltonia Regnelli
Odontoglossum Bluntii
" Pescatorei
" nebulosum
" Uro-Skinneri
Phalænopsis amabilis
" Schilleriana
" Luddemanniana
Pleione lagenaria
" humilis
" maculata
" Wallichii
Saccolabium guttatum
" ampullaceum
Vanda cœrulea
&c., &c.

On view the Morning of Sale, and Catalogues had.

Preliminary Notice.

HIGHLY IMPORTANT SALE OF ESTABLISHED ORCHIDS.

MR. J. C. STEVENS begs to announce that he has been favoured with instructions to SELL by AUCTION, without reserve, at his Great Rooms, 38, King Street, Covent Garden, W.C., on TUESDAY and WEDNESDAY, May 14 and 15, at half-past 12 o'Clock precisely each day, the Collection of CHOICE and RARE ORCHIDS belonging to Dr. Pattison, of St. John's Wood, consisting of fine healthy plants of all the newest and rarest varieties, including:—

Aerides Fieldingii
" Larpentæ
" maculosum superbum, &c.
Angræcum sesquipedale
Cattleya amethystoglossa
" pallida
" bulbosa a. Walkeriana
" Warscewiczii superba, delicata, &c.
Cypripedium caudatum superbum
" Farreanum
" Lowii
" Stonei
" Veitchii [giganteum
Dendrobium macrophyllum
" Farmeri aureum flavum
" Cambridgeanum
" nobile pendulum
" Parishii
" primulinum giganteum
" Heyneanum, Blandum, &c.
Lælia majalis
Lælia autumnalis
" Brysiana
Odontoglossum Alexandræ
" cordatum
" luteo-purpureum
" Phalænopsis
" nævium majus, &c.
Oncidium macranthum
" nubigenum
" holochrysum
" cruentum, &c.
Phalænopsis amabilis
" grandiflora (Bornean and Philippine varieties)
" Luddemanniana
" Schilleriana
Vanda cœrulea
" insignis
" suavis
" tricolor, &c.
Uropedium Lindleyanum
Zygopetalum rostratum, &c.

On view the Mornings of Sale, and Catalogues had.

Danbury Palace, Essex.

MR. WAKELING respectfully informs the Public that he is favoured with instructions from the Executors of the late Right Rev. Lord Bishop of Rochester, to SELL by AUCTION, in the Grounds, on TUESDAY, May 14, at 11 o'Clock precisely, 20,000 valuable GREENHOUSE and BEDDING PLANTS of esteemed Varieties, consisting of Geraniums, Fuchsias, Verbenas, Petunias, Azaleas, Camellias, Ferns, Strawberry Plants in pots, and various others.
Catalogues may be had five days prior to Sale, of Mr. TINSLEY, Head Gardener at the Palace; and of the Auctioneer, Chelmsford.

Sale of Choice Greenhouse and Bedding Plants, &c.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at 38 and 39, Gracechurch Street, City, E.C., on SATURDAY, May 11, at 12 o'Clock precisely, a choice Collection of GREENHOUSE PLANTS, including fine Azalea indica; Show, Fancy, and French Pelargoniums; Scarlet and Variegated Geraniums, Roses in pots, and other Plants in bloom; named Rhododendrons; imported Flower Seeds; with a variety of Ornamental Plants for Bedding; Verbenas, Fuchsias, Dahlias, &c.
On view the Morning of Sale. Catalogues may be had at the Rooms as above, and of the Auctioneers and Valuers, Leytonstone, Essex, N.E.

Shepherd's Bush.

SALE OF ABOUT 25,000 GREENHOUSE AND BEDDING PLANTS.

MESSRS. PROTHEROE AND MORRIS are instructed to SELL by AUCTION, on the Premises, Exotic Nursery, Shepherd's Bush, adjoining the Shepherd's Bush Station on the Metropolitan Railway, on TUESDAY, May 14, at half-past 11 o'clock precisely, without reserve, about 25,000 GREENHOUSE and BEDDING PLANTS, comprising about 7500 Scarlet and Variegated Geraniums, 1000 Pelargoniums, Azaleas, Hydrangeas, Deutzias, Ericas, Camellias, Gardenias, Calla Roses in pots, &c., with a large Assortment of useful Ornamental Plants for Bedding, Cloves, Chrysanthemums, Hardy Climbers in pots, &c.
May be viewed prior to the Sale. Catalogues had on the Premises, and of the Auctioneers & Valuers, Leytonstone, N.E.

High Beech, Essex.

IMPORTANT SALE OF ABOUT 20,000 BEDDING AND GREENHOUSE PLANTS.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. J. Crawford (who is retiring from the Business) to SELL by AUCTION, on the Premises, opposite the King's Oak, High Beech, about 20 minutes' walk from the Loughton Railway Station, on the Woodford and Loughton line, on FRIDAY, May 17, at 12 o'Clock precisely, about 20,000 BEDDING and GREENHOUSE PLANTS, including a large quantity of Geraniums, Pelargoniums, Heliotropes, Calceolarias, Lobelias, Fuchsias, Coleus, &c.; 1000 Azalea indica, Ericas, Epacris, Hybrid Perpetual and other Roses in Pots, Gardenia, Vallota purpurea, Cytisus, Ferns, &c.; some very handsome specimen Rhododendrons of the choicest named varieties, now coming into flower, &c.
May be viewed prior to the Sale. Catalogues may be had on the premises, and of the Auctioneers and Valuers, Leytonstone, N.E.

Forest Side, Chingford, Essex.

IMPORTANT SALE OF ABOUT 25,000 GREENHOUSE AND BEDDING PLANTS.

MESSRS. PROTHEROE AND MORRIS are directed by Mr. James Kelman to SELL by AUCTION, on the Premises, Queen Elizabeth's Lodge Nursery, Chingford (about 20 minutes' walk from Buckhurst Hill Railway Station on the Woodford and Loughton Line, on SATURDAY, May 18, at 2 o'clock precisely, about 25,000 GREENHOUSE and BEDDING PLANTS, remarkably well grown, including with the usual Miscellaneous Assortment, some of the Novelties of the present season, such as Beaton's Geraniums, Mrs. Pollock, and others; Lilium auratum, &c.
May be viewed prior to the Sale. Catalogues had on the Premises, and of the Auctioneers and Valuers, Leytonstone, N.E.

PRELIMINARY NOTICE of FORTHCOMING SALES by PROTHEROE AND MORRIS.
MAY 20.—Kennington Park Road. Bedding Plants, Greenhouses, Sheds, and Utensils.
MAY 21 & 22.—The Old Dalston Nursery, by order of Mr. Harrington. The whole of the Greenhouse and Bedding Plants, with eight Greenhouses, ranges of Pits, Boxes, Hot-water Piping, Boilers, &c.
MAY 28.—Ramsgate. The whole of the Bedding and Greenhouse Plants.
The City Auction Rooms, 38 and 39, Gracechurch Street, City, E.C. Sales of Bedding and Greenhouse Plants weekly.

Ember Nursery, Thames Ditton,
A few minutes' walk from the Railway Station at Thames Ditton, and a short distance from Esher Station.

MR. KERMOCK is instructed by Mr. Lewis to SELL by AUCTION, upon the Premises, on MONDAY, May 6, at 12 for 1 o'Clock precisely, about 20,000 BEDDING PLANTS, comprising Scarlet Geraniums, Verbenas, Calceolarias, Heliotropes, Petunias, &c.; a choice Collection of about 5000 Pelargoniums, 1000 Fuchsias, 500 Fairy Roses, &c.; also a powerful Tubular Hot-house Boiler, nine handsome Speckled and White Fowls, &c.
Purchasers of lots to the amount of 40*s.* can have them delivered free within three miles of Ember Nursery.
To be viewed after May 1, when Catalogues may be had on the Premises; at the Auctioneer's Offices, Kingston, S.W., who will also forward the same, on application, by post.

Burnham, Bucks. Eligible Freehold Estate.

MESSRS. BUCKLAND AND SONS are instructed by the Executors of Mr. James Austin, deceased, to SELL by AUCTION, on MONDAY, May 6, at 1 for 2 o'Clock, at the Auction Mart, Tokenhouse Yard, London, E.C., a very desirable FREEHOLD ESTATE, comprising a modern built Residence, with Barn, Stable, Packing Sheds, and large Vinery, together with about 6 Acres 2 Roods 28 Perches of rich soil, cultivated as a Market Garden, thickly stocked with well selected Fruit Trees, with good under crop of Gooseberries, Currants, Raspberries, &c. This eligible property is beautifully situated on a rising ground on the entrance to the Town of Burnham, about 22 miles from London, with southern aspect, commanding a fine view of Windsor Castle and the adjacent scenery. Well adapted for the erection of a good Residence, being in the vicinity of Dropmore, Burnham Beeches, and Cliveden, and the picturesque villages of Stoke, Farnham Royal, and Taplow; within about 1 mile of the Maidenhead Station on the Great Western Railway, and 4 miles of Windsor Castle and Eton College.
May be viewed on application to the Tenant. Particulars and Conditions of Sale may be had at the Bear Hotel, Maidenhead; Crown Hotel, Slough; at the Auction Mart, London, E.C.; of GEORGE A. CHARSLEY, Esq., Solicitor, Beaconsfield; and of Messrs. BUCKLAND & SONS, Auctioneers and Estate Agents, Windsor.

Osborne Park Gardens, Potter's Bar, Middlesex,
Near the Railway Station.
EXTENSIVE SALE OF CHOICE BEDDING OUT PLANTS.

MR. DUCKWORTH will SELL by AUCTION, by order of the Proprietor, without the least Reserve, on WEDNESDAY, May 15, at 12 o'Clock, on the Premises, in suitable Lots, 20,000 CHOICE PLANTS, in pots. The plants comprise Variegated Pelargoniums — Mrs. Pollock, Mrs. Milford, Annie Williams, Golden Chain, Cloth of Gold, Queen of Queens, Bijou, Dandy, Flower of the Day, and Brilliant; Zonals—Mrs. Wm. Paul, Donald Beaton, Christine, Beaton's Indian Yellow, Black Dwarf, Lord Palmerston, Paul L'Abbé, Cybister, Stella, Tom Thumb, Punch, Fireball, Mad. Vaucher, Mrs. Millington, Cerise Unique, Trentham Rosy Scarlet, Richmond Gem, Harry Hieover, Bishopstowe, Rival Stella, Model Nosegay, Wiltshire Lass, Rollisson's Unique, and others; Verbenas—Crimson King, &c.; Fuchsias, Salvias, Ageratums, Heliotrope, Viola cornuta, Gazania splendens; Lobelias—Miss Murphy (New White), and speciosa; Cineraria maritima, Perilla nankinensis, and Amaranthus melancholicus; Mimulus, &c. Luncheon will be provided at 11 o'Clock. In case of unsettled weather Buyers will be allowed 14 days to clear away their Lots, during which time the Plants will receive every attention.
May be viewed two days prior to and on the Morning of Sale. Catalogues to be had at the usual Inns at Watford, St. Alban's, Hertford, Hatfield, Potter's Bar, and Barnet; on the Premises; at Cowing's Public Library and *Press* Office, Barnet; and of Mr. DUCKWORTH, Auctioneer and Estate Agent, Hadley, Barnet.

Chesfield Manor Farm, Stevenage, Herts,
ON THE GREAT NORTHERN RAILWAY.

MESSRS. PAGE, HARDING, AND EVE have received Instructions from J. Bailey Denton, Esq., who is quitting the above Farm, to SELL by AUCTION, on THURSDAY, May 16, at 12 o'Clock, the very Choice Herd of pure-bred SHORTHORNS, consisting of about 35 Cows, Heifers, and Bulls, in fine healthy condition, and possessing some of the best blood in the country. Also a Flock of superior SHROPSHIRE DOWN Ewes and Lambs, and four Rams; and some well-bred Breeding PIGS.
Catalogues, with Pedigrees of the Herd, may be had on application to Messrs. PAGE, HARDING, & EVE, Land Agents, Surveyors, and Auctioneers, St. Alban's, Hitchin, and Silsoe; or to Mr. HUTCHINSON, at the Farm, who will show the Stock.

GREEN'S PATENT SILENS MESSOR,

OR

NOISELESS LAWN MOWING, ROLLING, and COLLECTING MACHINES.

PATRONIZED BY

HER MOST GRACIOUS MAJESTY THE QUEEN
ON TWENTY-NINE DIFFERENT OCCASIONS.
H.R.H. THE PRINCE OF WALES.
THE KING OF THE BELGIANS.
THE EMPEROR OF THE FRENCH.
THE EMPEROR OF RUSSIA.

AND MOST OF THE NOBILITY, CLERGY, AND GENTRY IN THE UNITED KINGDOM.

THOMAS GREEN AND SON, in introducing their PATENT LAWN MOWERS for the present season, beg to state that they have no Novelties to report. The fact is, that after the severe tests their Machines have been subjected to since they added their latest improvements, they have been found to meet all the requirements for which they are intended, viz.:—the KEEPING of LAWNS in the HIGHEST STATE of PERFECTION.

They are the simplest in construction, least liable to get out of order, and can be worked with far greater ease than any other Lawn Mower extant; and in proof of their superiority, 36,000 have been sold since the year 1856.

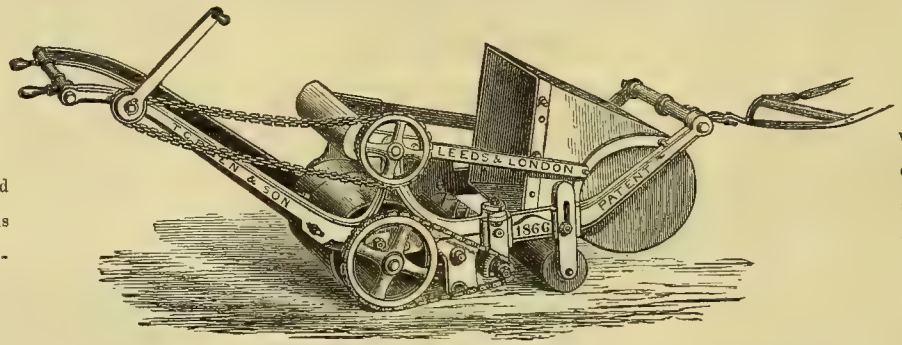
THEY ARE THE ONLY MACHINES IN CONSTANT USE AT

THE ROYAL HORTICULTURAL SOCIETY'S GARDENS, SOUTH KENSINGTON
THE ROYAL BOTANIC GARDENS, REGENT'S PARK
THE CRYSTAL PALACE COMPANY'S GARDENS, SYDENHAM
BUCKINGHAM PALACE GARDENS
MARLBOROUGH HOUSE
THE HYDE PARK GARDENS
THE WINTER PALACE GARDENS, DUBLIN
THE DUBLIN BOTANIC GARDENS
THE LIVERPOOL BOTANIC GARDENS
THE LEEDS ROYAL PARK
THE HULL BOTANIC GARDENS
THE BOTANIC GARDENS, BRUSSELS
THE SUNDERLAND PARK
THE PRESTON PARK

AND IN MOST OF THE PRINCIPAL PARKS, SQUARES, ETC., IN THE UNITED KINGDOM.

HORSE, PONY, AND DONKEY MACHINE.

GREEN'S
PATENT
LAWN MOWERS
have proved to be the best, and carried off every Prize that has been given in all cases of competition.



T. GREEN & SON
warrant every Machine to give entire satisfaction, and if no approved of can be returned unconditionally.

PRICES of HORSE, PONY, and DONKEY MACHINES, including Patent Self-delivery Box; Cross Stay complete; suitable for attaching to ordinary Chain Traces or Gig Harness.

PONY AND DONKEY MACHINES.

To Cut 26 inches	..	..	..	£13 0 0	*Leather Boots for Donkey*, 18*s*. *Leather Boots for Pony*, 22*s*.
,, 28 ,,	..	..	..	15 0 0	
,, 30 ,,	..	..	..	17 0 0	

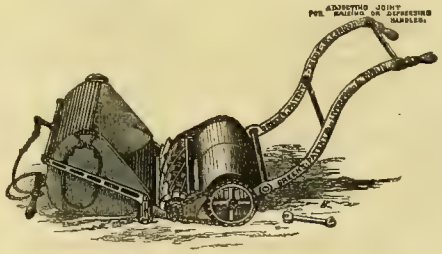
HORSE MACHINES.

To Cut 30 inches	..	..	..	£21 0 0	*Leather Boots for Horse*, 26*s*.
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,, 42 ,,	..	..	..	27 0 0	
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Both the Horse, Pony, Donkey, and Hand Machines possess (over all other Makers) the advantage of Self-sharpening. The cutters being steel on each side, when they become dull or blunt by running one way round the cylinder, can be reversed again and again, bringing the opposite edge of the cutter against the bottom blade, when the Machine will cut equal to new. Arrangements are made that the cylinder can be reversed, by any inexperienced person, in two or three minutes.

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To Cut 10 inches	..	£3 10 0	*Suitable for a Lady*	To Cut 18 inches ..	£7 10 0 *Suitable for One Person*
,, 12 ,,	..	4 10 0	,, ,,	,, 20 ,, ..	8 0 0 *Suitable for Two Persons*
,, 14 ,,	..	5 10 0	*Suitable for One Person*	,, 22 ,, ..	8 10 0 ,, ,,
,, 16 ,,	..	6 10 0	,, ,,	,, 24 ,, ..	9 0 0 ,, ,,



Packing Cases are charged at the following low rates, viz.:—for the 10 and 12-inch Machine, 3*s*.; 14 and 16-inch, 4*s*.; 18 and 20-inch, 5*s*.; 22 and 24-inch, 6*s*. Parties providing themselves with Lawn Mowers are recommended to purchase the cases in which to stow them away, when not in use, to prevent them from getting damaged; if returned, two-thirds will be allowed for them.

The above MACHINES are made from the best materials, and of superior workmanship; are delivered Carriage Free to all the principal Railway Stations and Shipping Ports in England.

Every Machine is warranted to give entire satisfaction, and if not approved of, can be returned unconditionally.

Having above 3000 Machines in stock at our Leeds and London Establishments, we are in a position to execute orders on the day they are received.

☞ *Illustrated Price Lists, and Sheet of Prize Medals awarded to* GREEN'S PATENT LAWN MOWERS, *free on application.*

T. G. AND SON having taken very extensive Premises in London, are now in a position to do all kinds of Repairs there, as well as at their Leeds Establishment.

THOMAS GREEN AND SON, SMITHFIELD IRON WORKS, LEEDS;
and 54 and 55, BLACKFRIARS ROAD, LONDON, S.

Editorial Communications should be addressed to "The Editor;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
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THE GARDENERS' CHRONICLE

AND

AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.

No. 19.—1867.] SATURDAY, MAY 11. {Price Fivepence, {Stamped Edition, 6d.

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ROYAL BOTANIC SOCIETY'S GARDENS, Regent's Park.—EXHIBITIONS of PLANTS, FLOWERS, and FRUIT, WEDNESDAYS, May 29, June 19, and July 3. Tickets to be obtained at the Gardens; or of the Society's Clerk, Austin's Ticket Office, St. James's Hall; or by orders from Fellows of the Society. Saturday next, May 18, is the last day for the 4s. Tickets and the Fellows' Five Guinea Packets. After that day, 5s., and on the days of Exhibition, 7s. 6d. each.

CRYSTAL PALACE.—GREAT FLOWER SHOW, MAY 25.—Schedules, with List of Prizes, may be had on application to J. Wilkinson, Superintendent, Crystal Palace.
*** The ENTRIES CLOSE on the 18th inst.

FARM SEED LIST of the LONDON SEED COMPANY is now published, and can be obtained from the Manager, 68, Welbeck Street, Cavendish Square, London, W.

SKIRVING'S SWEDE TURNIP, 31s. per bushel. Fine selected stock, from the London Seed Company, 68, Welbeck Street, Cavendish Square, W.

YELLOW GLOBE MANGEL, 50s. per cwt. Fine selected stock, from the London Seed Company, 68, Welbeck Street, Cavendish Square, W.

FARM SEEDS.—All the best kinds of MANGEL WURZEL, SWEDE TURNIP, and other Farm Seeds of finest quality on moderate terms.
PRICED LISTS on application to
Richard Smith, Seed Merchant, Worcester.

SWEDE SEED.—The WORCESTERSHIRE SWEDE, NEW SEED of this excellent kind at 10d. per lb. Cheaper by the cwt. or bushel.
Richard Smith, Seed Merchant, Worcester.

New Mangel and Turnip Seeds.
JAMES FAIRHEAD AND SON, 7, Borough Market, and Braintree, Essex. Special Select ORANGE GLOBE and other MANGELS, and all varieties of TURNIPS.
Special prices on application.

1867 TURNIP SEEDS.
Best selected quality.
PRICED LISTS on application.
James Dickson & Sons, 102, Eastgate Street, Chester.

New Turnip and Mangel Wurzel Seeds, &c.
ALFRED LEGERTON, Seed Merchant, 5, Aldgate, London, E., has to offer to the Trade the above in all the leading varieties, all fine samples, and grown from fine selected stocks; also DWARF ESSEX RAPE, MUSTARD, and all other Agricultural Seeds. Prices (which are low) may be had on application.

SUTTON'S HOME-GROWN TURNIP SEED.
For prices and particulars apply to
Sutton & Sons, Seed Growers, Reading.

GENUINE NEW CARROT SEED.
The Three Best Sorts are
WHITE BELGIAN, 1s. per lb. } Cheaper
RED INTERMEDIATE, 1s. 9d. per lb. } by the
LONG RED CATTLE, 1s. 6d. per lb. } Cwt.
Sutton & Sons, Royal Berkshire Seed Establishment, Reading.

Robinson's Champion Drumhead Cabbage.
SUTTON AND SONS can supply NEW SEED of the above direct from Mr. Robinson, at 3s. 6d. per lb., cheaper by the cwt. Heads of this variety have been grown 75 lb. each.
Sutton & Sons, Royal Berkshire Seed Establishment, Reading.

SCARLET BEANS.—Surplus Stock at any price.
Fairhead & Son, 7, Borough Market.

SPECIAL OFFER.—Fine New SCARLET RUNNER BEANS. Cash Price, 7s. 6d. per bushel.
Frederick Gee, Seed Merchant and Grower, Biggleswade, Beds.

Early Sheep Feed—Mustard and Rape.
SUTTON AND SONS can supply good New Seed of the above at very moderate prices, which may be had on application
Sutton & Sons, Seed Merchants, Reading.

Sorghum tartaricum.
SUTTON AND SONS, having imported a supply of True Seed of the above, can supply it in packets at 1s. and 2s. 6d. each (post free).
Royal Berkshire Seed Establishment, Reading.

New Striped Japanese Maize.
SUTTON AND SONS can supply Seed of the above beautiful Ornamental Foliage Plant in packets at 1s. each, post free. Royal Berkshire Seed Establishment, Reading.

The New Forage Grass (Bromus Schraderi).
SUTTON AND SONS have imported a large supply of True Seed of the above, and offer it at 2s. 6d. per lb., or cheaper in large quantities. Quantity required per acre, 30 lb. Lowest price per cwt. and instructions on cultivation, may be had on application.
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Fine Grass Seeds for Cricket Grounds,
BOWLING GREENS, or CROQUET GROUNDS.
SUTTON AND SONS can supply suitable kinds of the finest-growing GRASSES and CLOVERS for the above purposes, at 1s. 3d. per lb., 24s. per bushel.
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FOR IMMEDIATE SALE, 70 to 80 quarters of Westmoreland-grown ITALIAN RYE-GRASS SEED (16 lb. bushel), price 20s.
Apply to J. Dixon, Seedsman, Kendal.

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PURCHASERS of LARGE QUANTITIES of FARM or GARDEN SEEDS will be supplied liberally by Sutton & Sons. For prices apply (stating quantity required) to
Sutton & Sons, Royal Berkshire Seed Establishment, Reading.

237 and 238, HIGH HOLBORN, LONDON, W.C.—CARTER'S SELECT LIST of FARM SEEDS, at reasonable prices, forwarded gratis and post free on application to Carter's Great London Seed Warehouse, 237 and 238, High Holborn, London, W.C.

Genuine Garden and Agricultural Seeds.
JAMES CARTER AND CO.,
Seed Farmers, Merchants, and Nurserymen,
237 & 238, High Holborn, London, W.C.

Genuine Agricultural and Garden Seeds.
JAMES FAIRHEAD AND SON, 7, Borough Market, and Braintree, Essex.
LISTS and Special Prices on application.

RAYNBIRD, CALDECOTT, BAWTREE, DOWLING, AND COMPANY, Limited,
Corn, Seed, Manure, and Oilcake Merchants,
Address, 89, Seed Market, Mark Lane, E.C.; or Basingstoke.
Samples and Prices post free on application. Prize Medals, 1851, for Wheat; 1862, for "Excellent Seed Corn and Seeds."

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H. AND F. SHARPE'S WHOLESALE SPRING PRICED LIST of the above Seeds of 1866 growth is now ready and may be had on application.
Seed Growing Establishment, Wisbech.

Garden and Farm Seeds direct from the Growers.
CHARLES SHARPE AND CO. beg to inform the Trade that their WHOLESALE SEED LIST is now ready, and will be forwarded post free on application.
Seed Warehouse, Sleaford.

Genuine Garden Seeds.
WM. CUTBUSH AND SON'S CATALOGUE of VEGETABLE, FLOWER, and FARM SEEDS, post free on application. Highgate, London, N.

New Spring Catalogue.
WOOD AND INGRAM'S Select CATALOGUE of Dahlias, Pelargoniums, Zonal and Variegated Geraniums, Verbenas, Fuchsias, Bedding Plants, &c., is now ready, and will be forwarded on application.
The Nurseries, Huntingdon.

New General Catalogue of Plants.
A. VAN GEERT, Nurseryman, Ghent, Belgium, begs to announce that his NEW GENERAL CATALOGUE of PLANTS is just published, and may be obtained on application from his Agents,
Messrs. R. Silberrad & Son, 5, Harp Lane, London, E.C.

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The Royal Nurseries, Slough

Bedding Plants, mostly 2s. per dozen.
J. SCOTT, Merriott, Somerset, for the 17th year offers his unrivalled Collection of the above.
CATALOGUES on application free.

Bedding Plants.
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JOHN SALTER'S DESCRIPTIVE CATALOGUE is now ready, and will be sent on receipt of two postage stamps.
Versailles Nursery, William Street, Vale Place, Hammersmith, W. (near Kensington Railway Station).

Chrysanthemums, Chrysanthemums, Chrysanthemums.
ADAM FORSYTH'S CATALOGUE is now ready, containing a Descriptive List of all the best varieties; also a Practical Treatise on the Cultivation of the Chrysanthemum. Forwarded to all applicants for one stamp.
Brunswick Nursery, Stoke Newington, London, N.

Wholesale Catalogue of Nursery Stock.
GEORGE JACKMAN AND SON'S PRICED and DESCRIPTIVE CATALOGUE for 1866 and Spring 1867, can be had free on application, comprising Fruit Trees, Roses, American Plants, Conifers, Clematises, Evergreen and Deciduous Trees and Shrubs, and transplanted Forest Trees, &c., &c.
Woking Nursery, Surrey.

American Plants, &c.
WATERER AND GODFREY'S PRICED and DESCRIPTIVE CATALOGUE of RHODODENDRONS and other American Plants for this Autumn, will be sent on application. The Catalogue also gives a summary of their General Nursery Stock, probably the most extensive in the kingdom.
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BUTLER, McCULLOCH, AND CO. have to offer a quantity of the above Seed, just received in splendid condition, at 1s. and 2s. 6d. per packet. Price to the Trade on application.
South Row, Covent Garden Market, W.C.

Orchard-house Trees Fruiting in Pots.
PEACHES, NECTARINES, APRICOTS, CHERRIES, PLUMS, PEARS, APPLES, VINES, and FIGS.
Richard Smith, Nurseryman and Seed Merchant, Worcester.

Highly Cultivated and Regularly Transplanted Nursery Stock.
EIGHTY ACRES of the above, consisting chiefly of FRUIT TREES, ROSES, EVERGREENS, and ORNAMENTAL TREES, which for general excellence are unsurpassed.
Thomas Warner, Leicester Abbey Nurseries.

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TO BE SOLD, a quantity of strong FRUITING and SUCCESSION PINE PLANTS, to make room for other Plants, consisting of White Providence, Montserrat, Black Prince, and Jamaica, warranted free of white scale and mealy bug. Prices moderate.—Thos. Pape, Undercliffe Gardens, Bradford, Yorks.

WILLIAMS' SUPERB STRAIN of PRIMULA.
See large Advertisement

EVERY GARDEN REQUISITE kept in Stock at
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Mrs. Pollock Geranium.
T. J. BOOTH offers the above, in good Plants, at 7s. per dozen, or 50s. per 100, for cash.
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TEN THOUSAND BEDDING GERANIUMS, consisting of Tom Thumbs, Punch, Vivid, Stella, Bijou, &c.
4000 ZONAL GERANIUMS, selected from the best varieties of the last few seasons. Price on application to
William Cocks, Old Nurseries, Donington, near Spalding.

HUSSEY AND SON beg to offer TOM THUMB GERANIUMS, extra strong plants, at 14s. per 100; SILVER VARIEGATED, of sorts, at 16s. per 100; and GOLDEN CHAIN, at 18s. per 100.
Mile End Nursery, Eaton, Norwich.

CHOICE BEDDING GERANIUMS.—Italia Unita, Luna, Sunset, Mrs. Pollock, Crystal Sea, Le Grand, Amy Hogg, Venus, Indian Yellow, Glowworm, Orange Nosegay, Enamel. The above twelve varieties, in strong healthy plants for 12s. Terms cash.
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NEW ZONAL PELARGONIUMS for the present Season.—For Six choice Varieties of the above, selected with great care from an immense batch of Seedlings, see our Advertisements in this Paper, April 6, 13, and 20.
A liberal discount to the Trade.
Saltmarsh & Son, Moulsham Nurseries, Chelmsford.

NEW VARIEGATED GERANIUM CASTLEMILK.—Fine ornamental foliage, one half the leaf margined with the purest white, centre fine green. Free robust branching habit, and effective bedder. First-class Certificate at the Glasgow and West of Scotland Horticultural Society, September 12, 1866. Price on application. Will be sent out second week in May by
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Mrs. Pollock, 7s. and 9s. per doz. | Sunset, 21s. per doz.
Italia Unita, 24s. per doz. | Mrs. Benyon, 24s. per doz.
In strong plants at the above prices for Cash, package included.
Remittance required from unknown Correspondents.
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WANTED, SCARLET IVY-LEAVED GERANIUMS. —Any one having Plants of the above to Dispose of may hear of a Purchaser by applying to
Thomas Davies & Co., Wavetree Nursery, Liverpool.

NEW ROSES for 1867.—Strong Plants of all the best NEW ROSES now ready.
DESCRIPTIVE LIST, with prices, on application.
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ROSES, good plants in Pots.—All the choice named varieties of TEA-SCENTED, CHINA, BOURBON, NOISETTE, and HYBRID PERPETUALS, in 24 and 30-sized pots, our selection, 12 varieties, 8s.; 25 for 14s., 50 for 26s., and 100 for 50s.
Trade price on application.
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PURPLE KING, strong plants, 12s. 6d. per 100.
PRICED LIST of BEDDING PLANTS, &c., on application.
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WM. KNIGHT begs to offer 20,000 VERBENAS, strong plants, in about 24 of the best varieties known, including the best new of last season, at 10s. per 100. Terms cash.
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Post-office Orders payable at Hailsham.

SHOW DAHLIAS, in strong plants, now ready. 12 Varieties, named, 4s., or 24 Varieties, named, 8s. Terms cash.
CATALOGUES free for one stamp.
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HOLLYHOCKS, HOLLYHOCKS.—Strong Plants of the best named kinds, from 12s. to 24s. per dozen.
Henry Minchin, The Nurseries, Hook Norton, Oxon.

Hyde Park.
THE large STANDARD and other RHODODENDRONS recently planted in Hyde Park were supplied by
Waterer & Godfrey, Knap Hill Nursery, Woking, Surrey.

Rhododendron javanicum. Finest variety.
WILLIAM ROLLISSON AND SONS having raised many thousands of this beautiful RHODODENDRON from Seed saved on the best variety are enabled to supply the Trade with fine Plants at a considerably reduced price. Terms on application to
William Rollisson & Sons, The Nurseries, Tooting, London, S.

VIOLA CORNUTA, PURPLE QUEEN.—The variety so extensively and successfully used by Mr. Bennett, the well-known Gardener at Osberton, and so highly spoken of in the *Gardeners' Chronicle* last week, given away in exchange for spring-flowering or other plants.
G. H. Fox, Scofton, Worksop.

Cineraria Seed, 1867.
E. AND A. SMITH beg to announce that the CROP of the above will be saved from their whole Collection of named varieties (the finest in England), as well as from a few superb Seedlings selected for their superior merits. Their well-known Strain of Cinerarias is a guarantee of the superior quality of their Seeds. The Nurseries, Dulwich, S.

GLADIOLI BULBS, for Summer, Autumn, and Winter Flowering, 2s. 6d., 3s. 6d., 5s. 6d., 7s. 6d., 9s., and 12s. per dozen.
10s. 6d., 15s., 21s., 25s. to 100s. per 100.
Barr & Sugden, Seed, Bulb, and Plant Merchants, 12, King Street Covent Garden, W.C.

LILIUM AURATUM.—Large Consignment just received, 2s. 6d., 3s. 6d., 5s. 6d., and 7s. 6d. per Root. Extra large selected Bulbs, 10s. 6d., 12s. 6d., 15s., and 21s.
Barr & Sugden, Seed, Bulb, and Plant Merchants, 12, King Street, Covent Garden, W.C.

Seed of Choice Strains of Florists' Flowers.

The following selected Strains are worthy of the notice of all growers of the most useful conservatory decorative flowers.

WILLIAMS' SUPERB STRAIN of PRIMULA.

B. S. WILLIAMS can with confidence offer his superb Strain of Primula as being undoubtedly the finest in cultivation. It is now grown in all the principal Gardens of the Nobility and Gentry throughout the Three Kingdoms, and has never failed to give the greatest satisfaction.

In habit the plants are very robust, and in the foliage differ from all other varieties; but their great beauty consists in the depth of colour in the Red, purity of the White, and beautiful fimbriated form of all the flowers, which are thrown up in large trusses well above the foliage.

As a proof of the truth of the above remarks, this Strain has taken 1st Prizes in every instance that it has been shown in the Provinces this Spring; and 1st Prize at the Primula Show of the Royal Horticultural Society, South Kensington; and 1st at the Royal Botanic, Regent's Park. It is also the favourite Strain in the Covent Garden Flower Market.

This Strain may be procured True, in Sealed Packets bearing B. S. WILLIAMS' Name and Address, from any Seedsman; but B. S. W. particularly requests that Customers will observe, on purchasing, that each Packet has his Name and Address in full printed thereon, as no others are genuine.

The Trade supplied on advantageous terms.

	Per pkt. s. d.		Per pkt. s. d.
Retail price, RED	5 0	Retail price, WHITE ..	3 6
,, ,, ...	3 6	,, ,, ..	2 6
,, ,, ...	2 6	,, MIXED ..	5 0
,, WHITE ..	5 0	,, ,, ..	3 6

Retail price, MIXED, per packet, 2s. 6d.

WEATHERHILL'S EXTRA CHOICE STRAIN OF CINERARIA.

B. S. W. has purchased the entire Stock and right of Sale of this Magnificent Strain. Many of the flowers produced by this seed last season were as large as a crown-piece. This strain is well known in the London Flower Market, and is the most popular one there, a sufficient guarantee that its qualities are good.

Retail price per pkt., 5s. 0d. | Retail price per pkt., 3s. 6d.

Retail price per pkt. .. .. 2s 6d.

JAMES'S HERBACEOUS CALCEOLARIAS.—The varieties that took the First Prize at the International Horticultural Exhibition last May were of this noted strain.

Retail price per pkt., 5s. 0d. | Retail price per pkt., 3s. 6d.

Retail price per pkt. .. .. 2s. 6d.

All FLOWER SEEDS in packets, Post free.

B. S. WILLIAMS, Victoria and Paradise Nurseries, Upper Holloway, London, N.

PRIMULAS, CALCEOLARIAS, &c.—The following varieties greatly exceed in brilliancy of colour and substance of flower the older kinds:—

PRIMULA SINENSIS coccinea aurantiaca, very deep crimson, 1s. and 2s. 6d. per packet.
P. sinensis atrocarminata splendens, light carmine, 1s. and 2s. 6d. per packet.
P. sinensis lilacina albo-marginata, lilac, edged white, 1s. and 2s. 6d. per packet.
P. sinensis striatiflora, magnificently striped, 1s. and 2s. 6d. per pkt.
P. sinensis filicifolia, fine Fern-leaved variety, 2s. 6d. per packet.
P. sinensis fimbriata, extra fine, mixed, 1s. and 2s. 6d. per packet.
P. sinensis fimbriata alba, 1s. and 2s. 6d. per packet.
CALCEOLARIA, saved from flowers of great beauty, 1s., 1s. 6d., and 2s. 6d. per packet.
CINERARIA, saved from fine named varieties, 1s., 1s. 6d., and 2s. 6d. per packet.

All packets of Flower Seeds sent post free.
CATALOGUES post paid.

BUTLER, MCCULLOCH & Co., Covent Garden Market, London, W.C.

Primula New Seed, 1867.

F. AND A. SMITH'S NEW CROP of the above will be ready the first week in June, quality of flowers unsurpassed for size and colour, producing 10 per Cent. double flowers. The following colours are now offered:—

STRIPED, WHITE and PURPLE, 2s. 6d. per packet.
KERMESINA. 2s. 6d. and 5s. per packet.
WHITE. 1s., 2s. 6d., and 5s. per packet.
CRIMSON, 1s., 2s. 6d., and 5s. per packet.
FERN-LEAVED RED, 2s. 6d. and 5s. per packet.
FERN-LEAVED WHITE, 2s. 6d. and 5s. per packet.

Dulwich, Surrey, S.

New Dahlias.

GEO. WHEELER, NURSERYMAN, SEEDSMAN, and FLORIST, Warminster, Wilts, offers the following NEW DAHLIAS:—

BIJOU.—Brouzy salmon lilac; a large, smooth and finely-shaped show flower; very constant and good; should be in every exhibitor's stand. Received Certificates at Crystal Palace and Salisbury Exhibitions last season. Height 3 feet. 10s. 6d. each.
VANGUARD.—Dark purplish maroon; a finely-formed noble show flower, of great depth, and very constant. One of the best dark flowers let out this season. Certificate at Crystal Palace. Height 3 feet. 10s. 6d. each.
JUBILEE.—Yellow, tipped with red; one of the best of its class; very certain; always to be had when wanted. A really good useful flower, fine form. Certificates at Salisbury and Keevil District Exhibitions. Height 3 feet. 10s. 6d. each.

The above three flowers are confidently recommended to the notice of Dahlia growers as decided acquisitions in their respective classes.

The supply of plants being limited, early orders will oblige.
A liberal discount to the Trade.

THE GOLDEN-VARIEGATED WELLINGTONIA.
First-class Certificate from Royal Horticultural Society.
For Testimonials, &c., see *Gardeners' Chronicle*, October 6, 1866; *Times*, October 7, 1866; *Scottish Gardener*, November, 1866; *Gardeners' Chronicle*, January 12, 1867; "Florist," February, 1867.

LAST YEAR'S PLANTS (a few remaining).
1st Size, very choice, 8 to 12 inches, £5 5s. each.
THIS YEAR'S PLANTS.
2d Size, fine, 4 to 5 inches, £2 2s.
3d Size, nice little bits, 2 to 3 inches, £1 1s.

5000 plants are now plunged out-of-doors, in their respective sizes they may be safely forwarded during the summer, if desired, and orders will be executed in strict rotation.

Chromo-lithographs of the parent tree, by Day and Son (Limited), on superior cards, 10 inches by 8 inches, very faithful in outline, but deficient in representing the glorious colour of the original. These are sent free by post for 25 stamps, and one sent to each Purchaser.

It is intended to exhibit a few of the first size at the approaching Paris and Manchester Exhibitions.

R. HARTLAND, The Lough Nurseries.

NEW DOUBLE CRIMSON THORN (NOW READY).

WILLIAM PAUL

(SON and SUCCESSOR to the late A. Paul),

BEGS TO OFFER THE

ABOVE MAGNIFICENT HARDY FLOWERING TREE,

Which he believes to be the greatest acquisition for forcing and out-of-door culture that has been introduced for many years.

Fine healthy Plants, well established in pots, 2 ft. high, 7s. 6d. each; 1 ft., 5s. each.

By Ordering at once Purchasers may establish these Plants to bloom well next year.

A First-class Certificate was awarded to him for this Plant by the Royal Horticultural Society on the 16th April last.

"A brilliant variety, to which too much attention can scarcely be directed."—*Gardeners' Chronicle.*

"This is certainly a plant which cannot be overrated; the intense bright red colour, and the numerous clusters of the double flowers, make this Cratægus invaluable. No admirer of this charming family can be without it, all other pink varieties are truly in the shade beside it."—*Journal of Horticulture.*

PELARGONIUM JASON (First-class Certificate).—The finest, most leafy, and deepest colour of all pure gold-leaved Pelargoniums. Price 7s. 6d. each.

For other Novelties, see separate Advertisement.

PAUL'S NURSERIES, WALTHAM CROSS, LONDON, N.

VICTORIA and PARADISE NURSERY, UPPER HOLLOWAY, LONDON, N.

B. S. WILLIAMS

RESPECTFULLY INVITES HIS PATRONS AND THE PUBLIC GENERALLY

TO PAY A VISIT TO THE ABOVE NURSERY

DURING THE PRESENT MONTH.

A continuous show of SPECIMEN FLOWERING and FOLIAGE PLANTS is maintained in the LARGE SHOW CONSERVATORY, and the ORCHID HOUSES, PALM STOVES, NEW HOLLAND HOUSES, FERN HOUSES, AZALEA HOUSE, &c., &c., are replete with interest for lovers of either Beautiful and Rare Flowers, or the magnificent foliage of Tropical Vegetation.

The Collection of MEXICAN PLANTS at this Nursery is perhaps the finest in Great Britain, with the exception of the one at the Royal Gardens, Kew.

CARRIAGE ROUTE AND MEANS OF ACCESS.—This Nursery is easily reached from any part of London. The direct carriage route from the West End is through Albany Street or Regent's Park; Park Street, Camden Town; Kentish Town Road and the Junction Road.

The "Favorite" Omnibuses from the Bank and London Bridge Railways; Victoria Station, Charing Cross, and Westminster; Regent Street, Piccadilly, and Brompton, arrive at and start from the entrance of the Nursery every 7 minutes.

VICTORIA and PARADISE NURSERY, UPPER HOLLOWAY, LONDON, N.

E. G. HENDERSON & SON'S

NEW DESCRIPTIVE SPRING CATALOGUE

WILL BE SENT ON RECEIPT OF THREE POSTAGE STAMPS,

WITH A COLOURED LEAF-PLATE OF THE BEAUTIFUL

NEW TRICOLOR GERANIUM "LADY CULLUM" (by Andrews).

It includes Notices of the best Novelties of the season.

BLANDFORDIA CUNNINGHAMI.
COLEUS LAMONTI.
NAPOLEON III., MULE or HYBRID PINK.
GERANIUM MAID of KENT.—Rich rose. Far surpassing Madame Barre, and all others in class and colour.
In the Golden Bronze Section are three distinct styles of Zone in PRINCESS of WALES, DUKE of EDINBURGH, and E. G. HENDERSON. The last one received a First-class Certificate at the International Exhibition.
BANKS'S beautiful FUCHSIAS, BRILLIANTISSIMA, DAY DREAM, and KILLIEKRANKIE.
FUCHSIA PICTURATA.—A fine variety with white corolla.
FUCHSIA PRINCESS ALEXANDRA.—With white sepals, beautiful variety.
NEW CRIMSON BEDDING VERBENA KING of BEDDERS.—A first-class bedding variety, colour a brilliant crimson red, style of Admiral Dundas (one of the best ever raised), but brighter, growth free and compact, not spreading, profuse in bloom, with large well-formed full trusses, and desirably fragrant. Having been proved in both beds and belts in the gardens where it was raised, its merits are guaranteed equal to description, as one of the most effective and useful kinds ever offered. Certified by the Floral Committee of the Royal Horticultural Society.
NEW WHITE BEDDING VERBENA WHITE QUEEN.—For close dwarf growth, large, compact, and well-formed truss, purity of colour, profusion of bloom, and effectiveness in character, the White Queen Verbena is admitted by competent judges to surpass Henriette, Boule de Neige, and Mrs. Holford. Its short-jointed habit requires little attention to training, and its purity of colour after rain is a feature in its favour, both for garden decoration and for exhibition.
LOBELIA PUMILA ELEGANS, INDIGO BLUE, and WHITE QUEEN.
CHRISTINE NOSEGAY.—Rose colour. The finest Bedding Geranium in its class. Awarded a First-class Certificate.
The MINIATURE GOLDEN TRICOLOR ZONALE GERANIUMS are LITTLE BEAUTY, LITTLE FAIRY, LITTLE GEM, LITTLE HARRY.
In New First-class GOLD and SILVER TRICOLOR VARIETIES, see Classes 18 and 19 of Pelargoniums.
CALADIUMS.—Several new and beautiful hybrid varieties.
FUCHSIA ALBO-COCCINEA.—An elegant and novel fancy tri-coloured variety.
FUCHSIA CLAPHAM HERO.—Distinguished by its magnificent size of sepals, and fine proportions.
NEW GOLDEN-LEAVED BEDDING PLANT, GOLDEN FEATHER (Pyrethrum parthenifolium aurea.—A beautiful dwarf hardy perennial plant, 6 to 9 inches in height, as required, surpassing the gold-leaved section of Geraniums in its uniformly neat and densely compact growth, which, by simply pinching off the premature flower buds, the plant is furnished solely by its picturesque golden fan or feather-lobed leaves, forming an equal surface as to height, and an elegant feature for a second front ribband-row, or a double marginal belt to terrace borders, or as a chaste golden fringe to back lines of Perilla or Coleus. Received a First-class Certificate of Merit and several others.
POA TRIVIALIS ARGENTEA ELEGANS, SILVER-LEAVED MEADOW GRASS.—This plant is commended as one of the most useful and beautiful varieties of hardy Grasses with silvery white-margined leaves yet introduced to gardens. It is strictly a perennial in habit, forming a remarkably dense and compact many-branched growth from the base, and, by its natural and free tendency to emit roots upon the under shoots, it makes a close yet gracefully free growth from 4 to 9 inches in height, and with a luxuriance which renders it suitable for Grass plots, verges, or terraces, covering the ground-surface with a herbage as close as an ordinary meadow, whilst its elegant variegated leaf-blades produce an effect upon a much larger scale than can be had from any other Silver-leaved Grass. By forming ornamental portable specimens and suspended basket groups of this variety in the early winter and spring months, for conservatory and greenhouse decoration, it will at those seasons be found by far the most brilliant and picturesque plant in its tribe.
ACALYPHA TRICOLOR, 21s. each.
COLEUS VEITCHII, 10s. 6d. each.
DAVALLIA ALPINA, 10s. 6d. each.
DIEFFENBACHIA PEARCEI, 31s. 6d. each.
GYMNOSTACHYS PEARCEI, 7s. 6d.
HIPPEASTRUM PARDINUM, 63s. and 42s.
HYPOCYRTA BREVICALYX, 15s.
LOMARIA CILIATA, 21s. and 15s.
MICONIA PERUVIANA, 10s. 6d. each.
NEPENTHES GRACILIS MAJOR, 21s.
NIEREMBERGIA RIVULARIS, 10s. 6d. each.
,, VEITCHII, 10s. 6d. each.
PANICUM VARIEGATUM, 7s. 6d. each.
PRIMULA CORTUSOIDES AMŒNA ALBA, 10s. 6d. each.
RETINOSPORA PLUMOSA, 21s.
SANCHEZIA NOBILIS VARIEGATA, 42s. and 31s. 6d. each.

P.S. A Supplementary Descriptive List of Verbenas sent on application.

WELLINGTON NURSERY, ST. JOHN'S WOOD, LONDON, N.W.

New Zealand Nursery, St. Alban's, Herts.

INTENDING PURCHASERS of TRICOLOR PELARGONIUMS will do well to see J. WATSON'S beautiful Tricolors MISS WATSON and MRS. DIX, previous to making their purchases. For fine foliage, excellent constitution, free growth, and brilliancy of colouring they are unrivalled. They have received two First-class Certificates. Plants of Miss Watson in August, £2 2s. each; Mrs. Dix in May, 1868, 31s. 6d. each.

TRICOLOR GERANIUMS.—Italia Unita, Queen of Nosegays, Gold Pheasant, Sunset, Crystal Palace Dwarf, Mrs. Pollock, Stella Variegata, Yellow Belt, one of each, packing included, 12s.; Mrs. Pollock, 7s. per dozen; Sunset, 15s. Strong Plants of the following at 3s. per dozen:—Iresine, Coleus, Perilla, Amaranthus; Geraniums Tom Thumb, Spitfire, Christine, Stella, Countess of Warwick, Alma, Flower of the Day, and Bijou.

CALCEOLARIAS, VERBENAS, AGERATUMS, CUPHEA, LOBELIA, GAZANIA, KONIGA, and NIEREMBERGIA GRACILIS, 3s. per dozen; finest Zonal varieties, 6s. per dozen cash; strong Plants GLOIRE DE NANCY, 2s. 6d. each.

GEO. DAVISON, Hereford.

Novelties.

WM. PAUL (Son and Successor to the late A. PAUL) respectfully solicits Orders for the following NEW and FIRST-CLASS PLANTS, which will be ready for delivery in May.

NEW ROSES.

BLACK PRINCE, H. P. (Wm. Paul).—Flowers dark crimson, shaded with black, cupped, large and full. Price 6s. each.

GLOBOSA, H. P. (Wm. Paul).—Flowers clear dark bright crimson, colour intense and uniform throughout. Price 5s. each.

LADY SUFFIELD, H. P. (Wm. Paul).—Flowers purplish crimson, colour uniform throughout, the purple tint predominating; large, full, and of fine form. Price 5s. each.

The best of the NEW FRENCH ROSES, 3s. 6d. each, 36s. per doz. Older kinds, 9s. to 30s. per doz.

NEW BEDDING GERANIUMS (BEATON'S RACE).

Any 12 Varieties from this group of 18 may be selected by the purchaser for £2 2s.

The following NEW ZONALE and HYBRID NOSEGAY GERANIUMS have been selected from several thousand seedlings raised from the stock of the late Mr. Donald Beaton. Every one now offered has been thoroughly tested, and is believed to be in advance of, or distinct from, all pre-existing kinds.

AUTOCRAT (Wm. Paul). — Flowers bright orange, very large, a decided advance in shape of this colour, blooms freely, very attractive; habit good. Price 3s. 6d. each.

BICOLOR (Wm. Paul).—Flowers bluish purple, with spot of fiery scarlet on top petals; free, good, and quite unique in colour and character. Price 5s. each.

BLUE BELL (Wm. Paul).—Flowers bluish lilac, large, and of good shape and truss; habit fine. A thoroughly distinct and most pleasing novelty. Price 5s. each.

CLIO (Wm. Paul).—Flowers rosy purple, upper petals scarlet, large and good form, truss and habit good; price 3s. 6d. each.

CRIMSON QUEEN (Wm. Paul).—Flowers deep crimson, at once the darkest and brightest crimson yet seen in Zonale Pelargoniums, flowers abundantly Price 3s. 6d. each.

CRUSADER (Wm. Paul).—Flowers crimson scarlet, with white eye, large and smooth, truss large. Price 5s. each.

DR. HOGG (Wm. Paul).— Flowers purplish rose, the colours glowing and very beautiful, trusses good and abundant. Under canvas this novelty appears to resemble Amy Hogg, but is quite distinct from the latter out of doors. Figured in "The Florist" for November, 1866. Price 5s. each.

ENCHANTRESS (Wm. Paul).—Flowers soft purplish crimson, with distinct scarlet eye, trusses and habit good, very lovely. Price 3s. 6d. each.

FIREFLY (Wm. Paul).—Flowers scarlet crimson and orange, with scarlet eye; habit free and good; distinct and very effective. Price 3s. 6d. each

GLORY of WALTHAM (Wm. Paul).—Flowers splendid even scarlet, dwarf habit, foliage fine, truss large and close. Probably the finest "Nosegay" Geranium yet raised. Price 3s. 6d. each.

KINGFISHER (Wm. Paul).—Flowers crimson and bluish purple, magenta eye, very free, distinct and effective. Price 3s. 6d. each.

LILACINUM (Wm. Paul). — Flowers dark bright lilac, splendid truss, and fine habit, the colour quite new. Price 5s. each.

MEMNON (Wm. Paul).—Flowers magenta, trusses good and very abundant, habit dwarf. This might be called a rosy purple "Stella." Price 3s. 6d. each.

OMEN (Wm. Paul). — Flowers reddish salmon, splendid truss, good habit, very free, distinct, and first-rate for bedding. Price 3s. 6d. each.

PURPLE QUEEN (Wm. Paul).—In the way of Amy Hogg as to habit and character of truss and flower, but of a totally different colour—dark rosy purple. Price 5s. each.

TROUBADOUR (Wm. Paul). — Flowers rosy purple, fine shape, magnificent under glass. Price 5s. each.

VILLAGE MAID (Wm. Paul). — Flowers bright deep pink, with clear white blotch in the centre of the upper petals, the colours being well separated or defined; habit dwarf and compact; very beautiful. Price 5s. each.

WALTHAM NOSEGAY (Wm. Paul).—Flowers carmine, trusses of good size and abundant; highly recommended for the effect it produces in the flower garden. Price 3s. 6d. each.

GOLD-LEAVED VARIETIES.

The following varieties are the result of a cross between Beaton's race and the ordinary gold-leaved kinds, whereby has been obtained the free growth and leafy character of the former, properties invaluable for bedding purposes.

JASON (Wm. Paul).—Flowers blood crimson, trusses large, round, and compact, leaves pure golden yellow, habit dwarf and free; the plant densely clothed with fine foliage. The association of yellow leaves and blood crimson flowers, both freely produced, is, in this plant, very fascinating. Price 7s. 6d. each.

WALTHAM GEM (Wm. Paul). — Flowers very light red, colour distinct and peculiarly pleasing, white eye; leaves yellow, with very faint zone. A beautiful novelty of dwarf compact habit. Price 7s. 6d. each.

STANDARD ZONALE GERANIUMS.

Scarlet, rose, white, &c., 5s. to 10s. 6d. each.

STANDARD, VARIEGATED, and TRICOLOR-LEAVED GERANIUMS, 7s. 6d. to 15s. each.

GERANIUM REBECCA.—Cherry colour, 21s. per doz.
" NIMROD.—Orange scarlet, 21s. per doz.
" ST. GEORGE.—Dark chestnut, 15s. per doz.
" MRS. POLLOCK, 6s. to 9s. per doz.
" SUNSET, 18s. per doz.
" ITALIA UNITA, 21s. per doz.

HOLLYHOCKS.—A fine collection of Hollyhocks by name and well varied in colour, 12s. to 42s. per dozen.

NEW AUCUBAS.—The 10 best sorts for £2 10s.

NEW DOUBLE CRIMSON THORN. — Good plants in pots, 5s. to 7s. 6d. each.

GRAPE VINES.—Planting canes, 3s. 6d. to 5s. each. Fruiting canes, 7s. 6d. to 15s. each.

LILIUM AURATUM.—Flowering bulbs, 2s. 6d. to 10s. 6d. each; 12s. to 60s. the half dozen.

RAPHANUS CAUDATUS, 1s. to 2s. 6d. per packet.

PAUL'S Nurseries, Waltham Cross, London, N.

BEDDING GERANIUMS.

For dozen.

BICOLOR SPLENDENS, 12s.	COUNTESS of WARWICK, 3s.
FLOWER of SPRING, 4s.	FLOWER of DAY, 2s. 6d.
CLOTH of GOLD, 3s.	GOLDEN HERO, 3s.

Choice ZONAL GERANIUMS, 4s. and 6s. per dozen. LIST of sorts on application. Remittance requested.

CARSON & SON, Gravel Walk Nursery, Peterborough.

SUPERB VARIEGATED GERANIUMS.

MRS. BENYON	THE COUNTESS
BICOLOR SPLENDENS	MRS. LONGFIELD
GOLD PHEASANT	YELLOW BELT
GLOWWORM	LITTLE PET
LUNA	LURLINE
TWILIGHT	ITALIA UNITA

Strong plants of the above set 17s. Package included.

CARSON & SON, Gravel Walk Nursery, Peterborough.

CHOICE VARIEGATED PELARGONIUMS.

Sunset	Luna	Italia Unita
Mrs. Benyon	Bicolor splendens	Picturatum
Gold Pheasant	Princess Alexandra	Kenilworth
Yellow Belt	Queen of Queens	The Fairy

The above 12 varieties suitable for Exhibition or Pot-culture for 21s. Remittances requested from unknown correspondents.

ALFRED FEYER, Nurseries, Chatteris, Cambridge.

Mrs. Pollock Geranium.

THOMAS PESTRIDGE, The Greenway Nursery, Uxbridge, Middlesex, can supply strong and highly-coloured MRS. POLLOCK GERANIUM at 7s. per dozen, 50s. per 100.

Luna, 18s. per doz.	Orange Nosegay, 6s.	Madame Vaucher, 4s.
Amy Hogg, 6s.	Venus, 6s.	Centaurea gymnocarpa, 4s.
Indian Yellow, 5s.	Cloth of Gold, 4s.	Colous Verschaffelti, 4s.

Iresine Herbstii, 3s.

PELARGONIUMS in large 60-pots, full of flower buds, 6s. per dozen. Terms cash.

New Zonal Pelargoniums.

DOWNIE, LAIRD, AND LAING most respectfully announce that they will send out the following splendid varieties, which have been so much admired, and have received the highest awards wherever shown, including First-class Certificates at the Royal Horticultural Society. The following extract is from the "Journal of Horticulture," July 17, 1866:—"There are so many good Nosegays, and so much alike, that it requires something quite new in colour to surpass them, or in many cases to equal them; the large bold truss of Stella and Le Grand, or the KING of the NOSEGAYS, must be the models of perfection in this class of flowers."

KING of the NOSEGAYS.—Bright orange scarlet. Very large truss, dwarf habit. Very free and most effective variety. 7s. 6d. each.

MRS. LAING (NOSEGAY).—Glowing carmine scarlet, very dwarf, free, and most effective as a bedder. A beautiful and distinct variety. 5s. each.

MRS. MENZIES.—Bright rosy salmon. Flowers perfect, good habit, free, and very fine. 5s. each.

SAMBO.—Very dark glossy scarlet, of great substance. Flowers of the finest form. Very large compact globular truss; quite distinct from all others. 7s. 6d. each.

Ready second week in May.

Stanstead Park Nursery, Forest Hill, S.E.

NEW ZONAL GERANIUMS.

These, now so well known as the Cliveden Seedlings, were selected from many thousands, and have stood the test of trials for two seasons with the best named kinds. They have gained the highest awards wherever shown, including First-class Certificates for each at the Royal Horticultural Society, and have received the highest and most unanimous praise of the Horticultural press. The following is a specimen of the manner in which they have been spoken of:—

The "Gardeners' Magazine" says:—"And this brings me to Duchess of Sutherland and Lady Constance Grosvenor, which have been several times shown by Mr. Turner this season, and ought to be sent out next spring at nothing less than a guinea a plant, to recoup their raisers for the hundreds they have need to grow for the muck-heap.

DUCHESS of SUTHERLAND (NOSEGAY).—A variety of great merit, rosy purple, very free bloomer, with truss of great size; it retains its blossoms to an unusually long time, and is equally effective in pots, vases, or the flower garden. 5s.

INTERNATIONAL (NOSEGAY).—Rich crimson or crimson-scarlet, a deep rich shade of colour, with a wider petal than any other Nosegay, being a decided improvement in the shape of this very useful class of bedding and pot plants. 5s.

LADY CONSTANCE GROSVENOR (NOSEGAY). — Intense fiery scarlet, of the style of Cybister, having a truss of at least double the size; an immense truss, with the advantage of a dwarf compact habit and foliage, so clearly zoned as to be handsome without bloom. This is a most beautiful variety. 5s.

Strong plants ready May 1.

CHARLES TURNER, The Royal Nurseries, Slough.

A Special Offer of Geraniums, Dahlias, Verbenas, for Cash.

J. C. PADMAN, Boston Spa, Yorkshire, can supply Two dozen, two each, good strong plants, of any of the Twenty-four GERANIUMS named below, for 8s.:—

Amelia Grisan	Helen Lindsay	Virgo Marie
Amy Hogg	Indian Yellow	Bijou
Baron Ricasoli	Lady Rokeby	Jane
Chancellor	Madam Dufoy	Golden Fleece
Donald Beaton	Mrs. Wm. Paul	Fairy Nymph
Dr. Lindley	Roi d'Italie	Lord Stamford
Gloire de France	Symmetry	Perfection
Glowworm	Una	Mrs. Pollock

DAHLIAS.

12 best leading kinds of, for 3s. 6d. | 36 best leading kinds of, for 9s. 0d.
24 ditto ditto 6 6 | 100 ditto ditto 22 0

VERBENAS.

Crimson King, 3s. per dozen, or 22s. per 100.

Eckford's Six Varieties of 1866, 4s. 6d. per dozen, viz.: George Eckford, Isa Eckford, Jno. Keynes, Lady Jane Ellis, King Charming, Mr. Gladstone.

Six Striped Varieties, beautiful as Pot Plants, viz.:—

M. Missat	M. Wood
Madame Rougies Chanville	Oreglia
Madame Hirman Steyen	Annie.

Two each for .. .. 4s. 6d.

On and after May 15, NEW VERBENAS of 1867, at 1s. each, viz.:—

Fanny Martin	Earl Radnor	Coleshill
Mr. Ellice	Wm. Dodds	Umpire.

Price named includes package. All Orders sent in rotation. Post-office Orders payable at Boston Spa.

CATALOGUES on application.

THE QUADRICOLOR PELARGONIUM of the Season is METEOR, raised by SALTMARSH & SON.

For description see Advertisements in this Paper, April 6, 13, and 20. This splendid variety has received a First-class Certificate from the Royal Horticultural Society, and was figured in the January Number of the "Floral Magazine."

A Coloured Drawing by Andrews will be sent on receipt of 7 stamps.

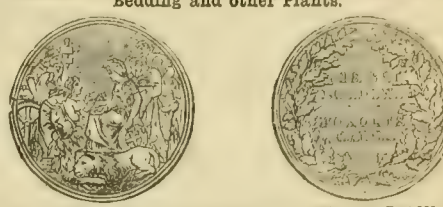
Moulsham Nurseries, Chelmsford

AUCUBAS, FUCHSIAS, ZONAL GERANIUMS, &c.

6 Varieties AUCUBAS, 3 Male, 3 Female, for 21s.
12 Select NEW FUCHSIAS of 1866 for 8s
12 Select NEW ZONAL GERANIUMS of 1866 for 6s.
12 Select CHRYSANTHEMUMS of 1866 for 1s
12 Varieties JAPAN EUONYMUS, very fine, 6s.
3 Varieties NEW JAPAN OSMANTHUS, (quite hard), 6s.
NEW WHITE LOBELIA MISS MURPHY, 3s per dozen.
12 Select NEW VERBENAS of 1866, for 3s.
NEW DOUBLE GERANIUM GLOIRE DE NANCY, 1s. each.

B. W. KNIGHT, Nurseryman, Battle, Sussex.

Bedding and other Plants.



Just Published, post free 12 stamps (Gratis to Customers), Part III. of CARTER'S GARDENERS' and FARMERS' VADE MECUM, containing complete Lists of new and choice Stove and Greenhouse and Bedding Plants, with an Addendum comprising original and practical articles, "On a Visit to Messrs. Carter's Nursery," by an Amateur Florist; Subtropical Gardening; and 120 Geometrical Designs for Flower-beds; with reliable information for the proper combination of Bedding Plants to produce chaste and striking effects.

Forwarded on receipt of 12 stamps on application to CARTER'S Great London Seed Warehouse, 237 and 238, High Holborn, London.

Cheap Bedding and other Plants.

THOMAS SAMPSON, Proprietor of the Preston Road Nurseries, Yeovil, Somersetshire, lately carried on by Drummond & Co., and formerly by John Scott, has much pleasure in announcing that his CATALOGUE for the above Plants is now ready, and can be had free on application. T. S. begs to assure his friends that the above has been for many years one of the largest in the country for CHEAP BEDDING PLANTS, and that his present Collection is now most unique and extensive, consisting of upwards of 200,000 Plants, being two to one of any other Establishment in the West of England. Having recently extended his Glass Department to upwards of 12,000 feet, expressly for the culture of Bedding Plants, he is enabled to supply them in such varieties and at such low prices as cannot fail to give the fullest satisfaction. T. S. will feel much obliged if his friends will kindly inspect his Collection and forward their Orders early, so as to avoid delay or inconvenience.

The Plants will be ready to send out after the 20th of April.

PETER DRUMMOND, Manager, The Preston Road Nurseries, Yeovil, Somersetshire.

Verbenas—New Varieties of 1867.

DREGHORN AND AITKEN, NURSERYMEN, Kilmarnock, beg to offer the best of this year's NEW VERBENAS at the following remarkably low prices for well-rooted plants, viz.:—

SET of SIX sent out by J. Keynes, for 5s
SET of THIRTEEN sent out by Charles Turner (raised by C. J. Perry), 7s. 6d.
SET of FIVE sent out by Hugh Low & Co. (raised by Nicholls), for 4s. 6d.
Or the Lot for 15s., including package and postage.

Keynes's are ready now, the others will be ready on the 25th May. Early Orders are solicited, as the strongest plants will be sent out first.

Finest Bedding Verbena in cultivation, Crimson King.

GEORGE SMALL AND SON are now sending out Strong Plants of the above beautiful Verbena at 3s. per dozen; 50, 10s. 6d.; 100, 19s.; less by larger quantities. Also a great many of the leading varieties at 2s. 6d. per dozen. VIOLA CORNUTA, strong plants from cuttings, 2s per dozen. ZONAL GERANIUMS, 12 of the finest varieties, including Gloire de Nancy and Le Grand, 8s. 12 best FUCHSIAS of 1866, 6s.

CATALOGUES on application.

Nurseries, Ilkeston, near Nottingham.

Verbena Crimson King.

THOMAS METHVEN has much pleasure in announcing that CRIMSON KING having completely established its character as the finest Bedding Verbena in cultivation, he has propagated a large Stock of fine healthy Spring-struck Plants, which he offers, on and after April 15, at the following prices:—12 Plants, 4s.; 50, 12s. 6d.; 100, £1; 500, £4 7s. 6d.; 1000, £7 10s.

Leith Walk Nurseries, Edinburgh.

VERBENA, CRIMSON KING.— Having numerous inquiries as to the best method of sending plants of this splendid Verbena to places at a distance, we beg to say that the safest, cheapest, and quickest method is by Post. We can now send stout, well-rooted plants, safely packed to go any distance, at the following prices, package and postage free:—12 plants for 3s. 4d.: 25 for 6s.; 50 for 11s.

We can also supply the following extra fine varieties on the same terms as the above, viz.:—

CELESTIAL BLUE, COUNTESS of EGLINTON (splendid vigorous-growing, profuse-blooming, magenta-purple variety); LE GRAND BOULE DE NEIGE (the best white); PRINCESS OF WALES (pink and white striped, very compact habit, first-rate either for Bedding or Exhibition); BEAUTY of ENGLAND (splendid exhibition white).

PURPLE KING, 12 plants for 28 stamps, 25 for 50 stamps.

Twelve Plants in 12 Varieties of the finest exhibition Verbenas (including the best of last year's new varieties), for 50 stamps.

IRESINE HERBSTII, 12 plants for 30 stamps.

Postage stamps taken in payment of sums of 20s. and under.

DREGHORN & AITKEN, Nurserymen and Seedsmen, Kilmarnock, N.B.

JOHN KEYNES' NEW VERBENAS for 1867.

COLESHILL (ECKFORD).—Intense scarlet, with lemon eye, pips large, very smooth, one of the finest Verbenas. First-class Certificate at the Royal Horticultural Society. 5s. each.

UMPIRE (ECKFORD).—Large cerise purple, the largest truss and flower in cultivation, very showy. 5s. each. Certificate at the Royal Horticultural Society.

FANNY MARTIN (ECKFORD).—Beautiful clear rose, very pleasing, large and fine. Certificate at the Royal Horticultural Society. 5s. each.

EARL OF RADNOR (ECKFORD).—Most beautiful clear rosy scarlet, with lemon eye, good habit, and free bloomer. Certificate at the Royal Horticultural Society. 5s. each.

WILLIAM DODDS (ECKFORD).—Light purple, with white eye, most perfect flower, exquisite form, grand flower either for bedding or show. 5s. each.

MR. ELLICE (ECKFORD).—Peach colour, quite new, a most beautiful variety, not to be surpassed. 5s. each.

These six varieties are of the finest quality, and will be found quite equal to those sent out last season from the same Grower. They have been selected with the greatest care.

The SIX VERBENAS of last year have proved to be of first-rate quality. They can now be had fine plants, and consist of

John Keynes	Mr. Gladstone	King Charming
Lady Jane Ellis	Isa Eckford	George Eckford

Many testimonials respecting these Flowers have been received by J. KEYNES, all having given great satisfaction. 9s. per dozen.

CRIMSON KING (METHVEN'S), having proved all that was said of it, may be had 9s. per dozen. The finest crimson bedder in cultivation.

A fine collection of the best BEDDING VERBENAS at reasonable prices. The usual Discount to the Trade.

Castle Street, Salisbury.

Thomas Gibbs & Co.

GRASS SEEDS,
AGRICULTURAL SEEDS,

ROYAL AGRICULTURAL SOCIETY OF ENGLAND
THOS. GIBBS & CO.
Corner of
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APPOINTED Apr. 3. 1844
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CORNER of STREET.

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KITCHEN GARDEN SEEDS,
FLOWER SEEDS.

Catalogues forwarded post free to any address on application.

British Fern Catalogue.

ROBERT SIM can now send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his NEW and PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.

Foot's Cray Nursery, S.E., a mile from Sidcup Station of New North Kent Line of South Eastern Railway.

Calceolaria Ambassador (Sang).

EDWARD SANG AND SONS, NURSERYMEN and SEED MERCHANTS, Kirkcaldy, N.B., offer strong autumn-struck Plants, in single pots, of this new well-known and universally admired BEDDING-OUT CALCEOLARIA. Price 12s. per dozen.

Early orders will oblige and have their careful attention.

The Trade supplied.

Primula fimbriata.

B. MALLER has a very superior Stock of the above to offer at 1s. and 2s. 6d. per packet, the usual discount to the Trade.

Also, a very choice Stock of EARLY PURPLE SPROUTING BROCCOLI, in large or small quantities.

A DESCRIPTIVE BEDDING-PLANT LIST to be had on application. Lewisham, and Burnt Ash Lane, Lee, S.E.

Russell's Pyramid Primula.

THE FINEST STRAIN IN EXISTENCE.

GEORGE CLARKE has New SEED of the above unequalled varieties, 2s. 6d. per packet; also the Fern-leaved kinds, 2s. 6d.; Kermesina (scarlet), 2s. 6d.; The Fairy (a lavender colour) 1s. All of the best quality. Now is the time to sow for strong early plants.

Nursery, Streatham Place, Brixton Hill, S.; and Mottingham, Kent, S.E.

J. SCOTT'S CHOICE SEEDS.

	Post Free.	Per Packet.
PRIMULA SINENSIS FIMBRIATA.—A most superb strain, and cannot be surpassed, 6 varieties, mixed,	1s. 6d.	and 2s. 6d.
CALCEOLARIA.—Scott's superb strain, extra,	1s.	and 2s. 6d.
CINERARIA.—Extra fine, carefully hybridized,	1s.	and 2s. 6d.

A good SEED LIST free on application.

J. SCOTT, The Seed Stores, Yeovil, Somerset.

To the Growers and Admirers of the Tulip.

MR. RICHARD HEADLEY, of Stapleford, near Cambridge, has the pleasure of informing his friends of the above, that his truly splendid and well-known COLLECTION is this year in magnificent condition, and he invites all lovers of that noble flower to pay a visit and inspect his unrivalled SHOW of SEEDLINGS, which consists of two long beds of named flowers under canvas, besides a very large bed of BREEDERS of every conceivable variety of colour natural to the Tulip. They will be in FULL BLOOM from the 15th to the 25th day of MAY.

Shelford, on the Great Eastern and Great Northern Railways, is the Station for Stapleford, a very short distance from his house and grounds, where he will be happy to see all who may favour him with a call.—Stapleford, May 10.

General Plant Catalogue, 176 pages, 8vo.

H. LAURENTIUS', Leipzig, PRICED CATALOGUE, containing Novelties, Beautiful and Rare Plants, also selected Lists of all the favourite Descriptions of Garden Flowers offered by the Horticultural Establishment of H. LAURENTIUS, Leipzig, Germany, can be had post free on application to

Messrs. BETHAM & BLACKITH, Cox's Quay, Lower Thames St., London.

NEW GREENHOUSE FERN,

Pteris serrulata var. polydactyla.

THOMAS CRIPPS has the pleasure to inform lovers of FERNS that he is now prepared to supply strong plants of the above beautiful and distinct variety. Dr. Moore says * * * * "It has all the gracefulness of the parent plant, while the points of each division of the frond are several times forked into a many-fingered tassel, the weight of which gives the fronds a decidedly drooping character. * * * It is quite distinct from the var. cristata, and will be found a valuable acquisition for Plant Cases and Small Greenhouses." It was awarded a First-class Certificate by the Royal Horticultural Society, 21st August last.

Price 10s. 6d. each. Trade price on application.

The Nurseries, Tunbridge Wells.

New Plants for 1867.

HENRY CANNELL has great pleasure in introducing to the public the following Plants of unusual advance on all other kinds in their respective classes. They have been chosen from upwards of 300 Seedlings, sent from almost every country in the United Kingdom, and are sure to give the greatest satisfaction by their superior qualities.

FUCHSIAS.

KING of the DOUBLES.—This is the finest exhibition Double Fuchsia ever sent out. Habit perfect; the corolla beautifully striped. 7s. 6d. each.

MRS. GLADSTONE.—Great advance on all the white corolla kinds, and reflex equal to the well-known Guiding Star. 7s. 6d. each.

BLAND'S FLORIBUNDA.—This Fuchsia will introduce a new race, being perfectly distinct from all others ever sent out, and H. C. believes it will become equal to the well-known Tom Thumb Geranium, and will shortly be planted in every garden and on every window. It has a scarlet tube and sepals, pure white corolla; very short stiff growth, requiring no stakes. A bed of this looks at a distance to have the appearance of being covered with thousands of stars. For bedding and small pots this really has no equal, and is a decided acquisition. 5s. each.

THE PERFECT CURE.—Scarlet tube, and sepals perfectly reflexed; good habit and grower, with a most extraordinary shaped corolla, which make it one of the most pleasing and curious novelties in the Fuchsia ever seen. The corolla is formed on the ends of each stamen, and measures from tip to tip 3 to 4 inches over, and is a very attractive and amusing variety. 5s. each; the set of four for £1 1s. Ready to send out on the 1st of May.

MONSTER.—This is the largest ever sent out, the corolla measuring from 2 and 2½ inches over, and is as large as a Rose; scarlet tube and sepals, very rich violet-purple corolla, very short stiff habit. On account of its immense blooms and good growth and being an abundant bloomer, this is the most saleable Fuchsia ever sent out. 7s. 6d. each.

The demand being so great for this, H. C. finds it impossible to get sufficient stock of it to send it out before the 1st of July.

NEW TROPÆOLUMS COMPACTUM.

For bedding and ribbon bordering.

LUTEUM IMPROVED.—Immense improvement upon the one sent out last season. Beautiful bright yellow, for beading, &c. No Calceolaria is near an equal to this for its continual and abundance of bloom. 1s. 6d. each.

THE MOOR.—In every way equal to the above; colour deep dark maroon crimson—a grand new colour for bedding; has long been required for geometric gardens. 1s. 6d. each.

SCARLET GEM.—For its beautiful colour and dwarf compact habit, and continual massive blooming, no Scarlet Geranium is equal to this. 2s. 6d. each.

These were examined when growing in the garden by the Committee, and all were awarded a First-class Certificate.

NOVELTY.—In every way equal to the above, with a beautiful peculiar mixed bronze and yellow colour; fine for fancy beds, being quite a novel attractive colour. 2s. each.

These were raised by Mr. J. George, who is well known for introducing this new race of bedding plants; and they are equally valuable for pots, having been in bloom ever since Christmas. All these are acknowledged to be decided acquisitions. The following is an

Official Description from the "UNITED HORTICULTURAL SOCIETY," *December 8th*, 1866.

"All these were considered as great additions as bedding plants, and cannot be too extensively grown. They far surpass any other plants in profusion of bloom, and the weather does not affect them to any apparent extent; no one should be without them. In Scarlet Gem you have a most brilliant and attractive variety, far surpassing the T. Lobbii section for effect in the parterre or ribbon gardening."—W. HEALE, Secretary.

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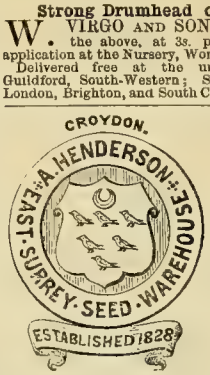
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Strong Drumhead or Cattle Cabbage Plant.

W. VIRGO AND SON can supply large quantities of the above, at 3s. per 1000. Samples can be had on application at the Nursery, Wonersh, Guildford, Surrey.

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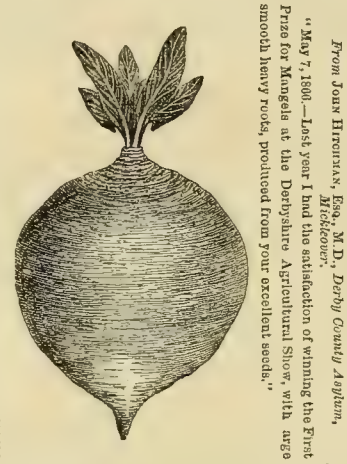
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THE BEST GLOBE MANGEL

in cultivation is

SUTTON'S SELECTED



From Mr. ROBERT BOYS, *Eastbourne.*

March 7, 1866.—"The Selected Yellow Globe Mangel Wurzel Seed I had of you last year turned out the best I ever grew. I could get up 100 tons of that root while I was getting up 60 of the Old Yellow Globe."

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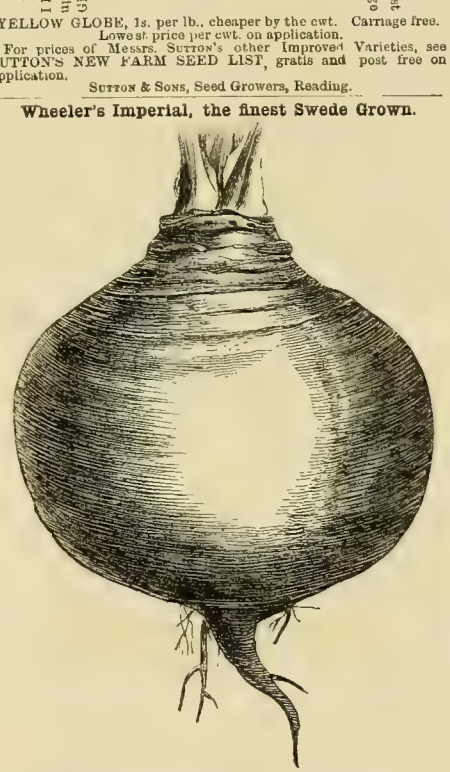
"May 7, 1866.—Last year I had the satisfaction of winning the First Prize for Mangels at the Derbyshire Agricultural Show, with large smooth heavy roots, produced from your excellent seeds."

YELLOW GLOBE, 1s. per lb., cheaper by the cwt. Carriage free. Lowest price per cwt. on application.

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Wheeler's Imperial, the finest Swede Grown.



WHEELERS' IMPERIAL SWEDE,

1s. per lb.; 45s. per bushel (50 lb.)

This is one of the best if not THE BEST Swede in cultivation; the specimens exhibited at the Smithfield Club Show in London, and at Cirencester, Birmingham, and at the Great Show of Roots held in Gloucester, excited considerable admiration, not only for their size, but for their beautiful shape and excellent quality.

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GRASS SEEDS for PERMANENT PASTURE, selected on a new, scientific, and natural system, by J. C. WHEELER & SON, Gloucester.

UNDOUBTEDLY a GOOD IDEA.

WHEELER AND SON'S "BOOK on GRASSES."—"These enterprising Seedsmen, in introducing a new element into their calculations—viz., the geological formation of the soils for which permanent Grasses are wanted—*have undoubtedly a good idea.*

"Messrs. WHEELER have prepared a new series of tables of the Grasses which they consider most suitable to different geological formations. These are arranged in 11 tables, and include mixtures suitable for heavy, medium, and light soils in each case."—*The Field*, March 9, 1867.

J. C. WHEELER AND SON are anxious that every Gentleman Farmer in England, who is about to Lay Down Land to Permanent Pasture, or to Renovate Old Pasture with suitable Grass Seeds, should read their illustrated "Book on Grasses;" with this view they will, on receiving a note to that effect, send a copy to any address they may be favoured with.

Choice Seeds.

WM. CUTBUSH AND SON strongly recommend the following:—

PRIMULA SINENSIS FIMBRIATA, of the finest possible strain, Red, White, or Mixed, 2s. 6d., 3s., and 5s. per packet.

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SNOW'S WINTER WHITE BROCCOLI (True), Wm. C. & Son's own saving, 2s. 6d. per packet.

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PANSY CLIVEDEN BLUE, 6s. per dozen.
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TRITOMA UVARIA GLAUCESCENS, 12s. per dozen.
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PRICED and DESCRIPTIVE CATALOGUES of AGRICULTURAL, FLOWER, and VEGETABLE SEEDS, GREENHOUSE, HARDY, and STOVE PLANTS, are published, and will be forwarded free to applicants.

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Wellingtonia gigantea for Sale.

JOHN HARRISON has about 1000 fine Plants of the above, varying in size from 2 feet to 6 or 7 feet, at prices from 7s. 6d. to 40s. each. These plants have been removed every other season, from the Seedling to the present time, and every plant can be warranted to grow.

Nearly all the 2 to 3 feet plants have from three to six cones each upon them. Those with cones, 10s. 6d. to 15s. each.

Darlington Nursery.

ALL PERSONS having any CLAIM against the ESTATE of the late Mr. R. B. BIRCHAM, of Hedenham, Norfolk, deceased, are requested to send in their ACCOUNTS for examination; and all persons INDEBTED to the same, are respectfully requested to pay the amounts to the Executrix without delay.

Hedenham Rosery, Bungay, Suffolk, May 7, 1867.

The business will be continued by Mrs. BIRCHAM as usual, under her late husband's name.

Taxus hibernica fastigiata variegata

(THE GOLDEN IRISH YEW).

FISHER, HOLMES, AND CO. have pleasure in offering the above really beautiful Yew raised by them. It is the exact type of the Irish Yew, with foliage of the same rich golden colour as in the old Golden Yew, and forms a truly beautiful and attractive plant, suitable for decoration in Flower Garden, Terrace, or other Ornamental Planting.

Plants in pots (which have withstood the winter without injury), 21s. each; Six Plants for £5 5s.

A few extra Specimens, £1 11s. 6d. each.

F., H., & Co. respectfully return thanks for the liberal orders received. As the stock of plants of the same age as those already sent out is now very limited, early orders are respectfully solicited to secure the same. The annexed are the names and addresses of those in the Trade who have ordered and received plants.

Backhouse & Son, York	Macintosh, R. T., Edinburgh
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Francis, E. P. & Co., Hertford	Veitch, R. T., Exeter
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Kohl Rabi Seed should now be sown.

Drilled as Swedes, 3 to 4 lbs. per acre.

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CABBAGE PLANTS (Eastham and Enfield Market), 2s. per 1000; DRUMHEAD CATTLE CABBAGE, 2s. per 1000; RED DUTCH PICKLING CABBAGE, 3s. per 1000; KOHL RABI SEED, 6d. per lb. The finest Stock in England. Terms cash.

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CHOICE SEEDS.

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	Per pkt.—s.	d.
Broccoli, Snow's Imperial Winter	1	0
Albert Sprouts	0	6
Cauliflower, Early Erfurt	1	0
Celery, Manchester Champion Red	0	6
Cucumber, Smith's Fine Frame	1	0
Cucumber, Telegraph	1	0
Leek, Henry's Prize	0	6
Endive, Digswell Prize	0	6
Onion, Nuneham Park	2	6
Parsley, extra fine curled	0	6
Raphanus caudatus (new long-podded Radish)	2	6
Custard Marrow	0	6
Melon, Malvern Hall	1	6
Tomato de Laye	0	6
Cauliflower, The Mammoth	1	0

	Per pkt.—s.	d.
Moore's Vegetable Cream	0	6
Beet, Perpetual Spinach	0	6
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Aster, Truffaut's Superb French, 12 vars. mixed	1	0
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For PERMANENT PASTURE, best quality Mixture, 36s. per acre; cheaper ditto, 26s. to 30s. per acre.
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SUTTON'S RENOVATING MIXTURE (sow 6 lb. to 12 lb. per acre), price 10d. per lb.; cheaper by the cwt. Special Contracts given for large quantities.
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THE LONDON MANURE COMPANY
(ESTABLISHED 1840),
Have now ready for delivery in dry fine condition,
CORN MANURE, for Spring Use
DISSOLVED BONES, for Dressing Pasture Lands
SUPERPHOSPHATES of LIME
PREPARED GUANO
MANGEL and POTATO MANURES
Also Genuine PERUVIAN GUANO, and NITRATE of SODA, ex Dock Warehouse; SULPHATE of AMMONIA, FISHERY SALT, &c. E. PURSER, Secretary.
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LAWES' MANURES.—The Manures manufactured by J. B. LAWES for the present season of 1867 are now ready for delivery at his Factories, at the following prices, per ton:—

	£	s.	d.
LAWES' PATENT TURNIP MANURE and BONE SUPERPHOSPHATE of LIME	6	6	
LAWES' SUPERPHOSPHATE of LIME from BURNT BONE or MINERAL PHOSPHATES	5	5	0
LAWES' WHEAT, BARLEY, GRASS, and MANGEL MANURES	8	0	0
CONCENTRATED CORN and GRASS MANURES	12	0	0

These Manures can be obtained of Mr. LAWES, or through the appointed Agents in all parts of the United Kingdom, at prices varying according to cost of carriage.
Genuine Peruvian Guano direct from the Importers. Nitrate of Soda, Sulphate of Ammonia, and other Chemical Manures.
American and other Cakes at market prices.
Address, JOHN BENNET LAWES, 1, Adelaide Place, London Bridge, E.C.; 22, Eden Quay, Dublin; and Market Square, Shrewsbury.

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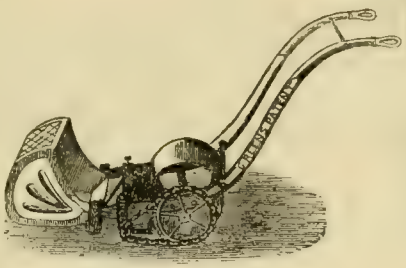
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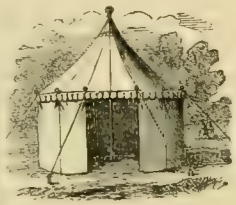
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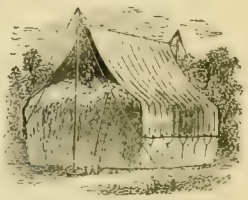
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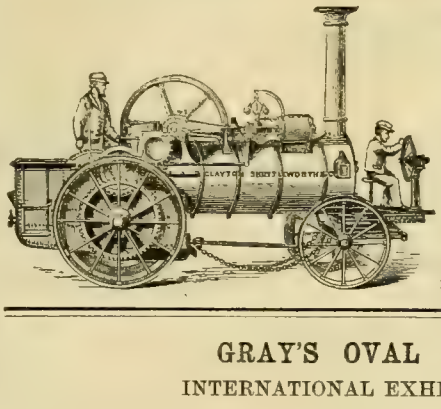


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The following magnificent varieties were raised by that successful amateur, Mr. Morris, of Deptford, who has succeeded in originating a breed of Tricolor-leaved Geraniums totally distinct from other families of the same class, and unsurpassed for gorgeous colouring, and even beauty of outline of foliage. A distinguishing characteristic of Mr. Morris's Seedlings over the Sunset and Lucy Grieve section, is their great freedom of habit, an immense advantage both for propagating and for display.

Oberon (Morris).

A splendid variety in the way of Lucy Grieve, equally bright in colour, but with a much broader nearly black zone, edged and blotched with vivid crimson, and margined with golden yellow, fine large flat surface and round outline of foliage, and a most vigorous grower; bloom cerise scarlet. Obtained Honourable Mention at the International Horticultural Exhibition, Kensington.

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The finest yet sent out, with dark bronze nearly black zone, surrounded and blotched with vivid scarlet, margin a pure belt of bright golden yellow, flower cerise scarlet; a limited number only to offer of this really splendid variety. Price 42*s.* each.

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Tricolor-zoned variety, with flat salver-shaped leaves, bright golden margin, scarlet and chocolate bronze zone; will make a most admirable Plant for specimens for exhibition, being a very free grower, and very good habit; lively scarlet bloom.

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Tricolor-zoned, with very dark brown zone, blotched and edged with a narrow line of brilliant crimson, good flat leaf, and fine branching habit.

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NEW GOLDEN GROUND BRONZE-ZONED GERANIUMS.

The following, of which Goldfinch, Luna, Mrs. Longfield, and others are the leading types, and which have made such rapid progress in public estimation for their effective beauty in Flower Garden Decorations, are selected from an immense quantity of Seedlings raised by Mr. Morris, and are sent out as being entirely distinct and superior to any hitherto offered.

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Clearly defined crimson bronze zone, delicately and regularly pencilled on a smooth shining bright canary yellow ground, with rosy scarlet flower; exceedingly beautiful as a pot plant, and also a good bedder. Exhibited at the International, Horticultural, Botanic, and Crystal Palace Exhibitions of 1866. Price 10*s.* 6*d.* each.

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Golden ground, with broad zone, nearly 1½ inch across, of deep chocolate, fine bold foliage, and most vigorous habit; well suited for centres of beds or for large beds, immense scarlet truss of bloom.

Price 5*s.* each.

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A great improvement on Goldfinch, having darker and broader zone, flatter and larger leaf, and freer habit, with large rosy scarlet trusses of bloom shown well above the leaves, and contrasting with the golden ground of foliage underneath.

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Triomphe de Lorraine (Rendatler).

A magnificent variety of this new section of Geraniums, raised by the celebrated French Nurseryman, M. Rendatler, of Nancy, who describes it as follows:—Enormous truss of very double flowers, well imbricated, and of the finest cherry carmine, with occasional stripes of pure white, habit dwarf, very free, flowering the handsomest of all known double varieties."

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IRESINE AUREO-RETICULATA.

A most beautiful ornamental-foliage plant, which will become as great a favourite as the parent plant, Herbsti, for bedding purposes; veins of leaves beautifully reticulated with bright gold, with footstalks of leaf and stems of a bright semi-transparent carmine; it has a most pleasing effect in beds, in bouquets, or as specimen foliage plant for pot culture in conservatory. First-class Certificate at the South Kensington Show.

Price 1*s.* 6*d.* each; 12*s.* per dozen.

NEW TROPÆOLUM (LOBBIANUM).

Crystal Palace Perfection (Gordon).

A variety raised by Mr. Gordon, superintendent of the Crystal Palace grounds, the raiser of most of the previously distributed good varieties of this useful bedding plant, and considered by him and all who have seen it to be as near perfection as can be obtained in this class, both for habit and growth, brilliancy of colour, hardiness, and long continuation in perfect beauty. It will be largely planted at Battersea Park; Royal Horticultural Gardens, Kensington; and at the Palace; both Mr. Gibson and Mr. Eyles, superintendents of the two former establishments, having seen, admired, and secured stock of it.

Colour brilliant orange scarlet, and bloom produced at every axil, foliage glaucescent silvery in appearance, habit very dwarf, and not liable, like many of the others, to run too much to foliage.

Price 2*s.* 6*d.* each; 21*s.* per dozen.

NEW LOBELIAS.

Lobelia Attraction (Keeler).

A splendid seedling, raised from Paxtoni, a popular variety sent out by us some years ago, which it resembles in colour, but has a vastly superior strong habit of growth, with blooms double the size, and has been proved during the summer and autumn of last year, both as a bedder and as a pot plant, superior to every other bedding variety of speciosa.

Extract from *Gardeners' Chronicle*, January 19, 1867.

"Messrs. Carter & Co. exhibited, during the past year, a variety called Attraction, evidently a selection from Paxtoni, having the white blotch larger than is generally observed."

We have raised a large stock, and offer it at the following low prices:—
2*s.* 6*d.* each, and 12*s.* per dozen. | 18*s.* per 25, and 25*s.* per 100.

Lobelia speciosa Miss Murphy.

A lovely pure white variety of the true Speciosa section, and likely to become as universally grown as a dwarf white bedder as Speciosa and its varieties are in the various shades of blues; it has a remarkable dwarf and compact habit, and the flower is as white as snow, and produced in great abundance; will be most useful for an outer margin or line.

Price, per dozen, 6*s.* | Price, per 50, 15*s.*
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Lobelia Beauty of Ravensbourne (Stanton).

This charming variety was described as follows in the *Gardeners' Chronicle* of January 19, 1867:—

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NEW GERANIUMS.

Crystal Palace Beauty (Gordon).

Bright salmon-coloured variety, perfect shape, large truss, broad nearly black zone.

Price 2*s.* 6*d.* each.

Crystal Palace Gem (Gordon).

Brilliant cerise or cherry red self, the most perfect formed flower that ever came under our notice, 4½ to 5 inches in circumference; very large trusses, with scarcely any tendency to seed; good dwarf compact habit, deep zoned foliage. All that is said of G. Excellent for habit and free-blooming qualities may be said of this variety; it has all the good qualities, with a different colour, and will, as it becomes known, be a general favourite.

Price 2*s.* each, 18*s.* per dozen.

Goldfinch (Goode).

The most striking of the golden-foliaged Geraniums yet sent out. It has a bushy, vigorous, dwarf, and compact habit, with foliage of great substance, 4 to 5 inches in diameter, margined with deep yellow; bronzy scarlet zone 1 inch in diameter, and bright golden yellow centre. Flowers vivid scarlet, produced in great profusion in large trusses; a first-class bedder.

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Excellent (the best Scarlet Bedding Geranium).

The many proofs we have observed of the inestimable value of this variety as a bedder, has induced us to work up a large stock, and to officially call attention to its great merits. It has been tried in numerous places, and everywhere gives satisfaction; at the Crystal Palace alone over 5000 will be planted out this year, many of the older less effective varieties of long standing having been discarded to make room for it. Colour brilliant orange scarlet, immense truss, carried on strong footstalks well above the foliage, which is firm and deeply marked with very dark zone; habit, like name, excellent, and a continuous bloomer. Price 9*s.* per dozen.

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This uniquely beautiful miniature Geranium is a most desirable novelty, and from its great merits must speedily become a universal favourite. Colour of flowers a deep rich rose, produced in great profusion on footstalks about 2 inches long (a miniature Christine for edgings.

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Having a fine lot of seedlings of this beautiful, rare, hitherto very expensive variety, we can offer nice plants as below; it is admitted to be one of the handsomest hardy greenhouse Ferns introduced of late years."

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£1000 OFFERED IN PRIZES.

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Charges for Admission:—First Day, 10s. 6d each; Second Day, 2s. 6d. each; WHIT MONDAY and remaining Days, 1s. each.

Subscribers to the Manchester Botanical and Horticultural Society free each day.

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GREAT NATIONAL HORTICULTURAL EXHIBITION, 1867.

Notice is Hereby Given, that all Persons who intend to take part in this Exhibition must signify their intention to do so (stating the Classes in which they intend to compete), on or before May 17, by letter addressed to the Undersigned. BRUCE FINDLAY.

Botanic Gardens, Manchester.

ROYAL HORTICULTURAL SOCIETY.

SPECIAL PRIZE SHOW, MAY 7, 1867.

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CLASS 1.—The 9 best cultivated Greenhouse AZALEAS, in Bloom.
1st, Messrs. J. Veitch & Sons, Royal Exotic Nursery, Chelsea, £10.

CLASS 2.—The 9 best cultivated ROSES in Pots, in Bloom.
1st, Messrs. H. Lane & Son, Nurserymen, Great Berkhampstead, Herts, £10.
Extra, Mr. W. Paul, Paul's Nurseries, Waltham Cross, £2.

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CLASS 5.—The 6 best cultivated Show PELARGONIUMS, in Bloom.
1st, Mr. C. Turner, Royal Nursery, Slough, £6.
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1st, Messrs. James Veitch & Sons, Silver Flora Medal
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CLASS 9.—The best 6 NEW PLANTS sent out in 1867.
1st, Messrs. James Veitch & Sons, Silver Flora Medal
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CLASS 13.—The best Mixed Group of FOLIAGE and FLOWERING PLANTS, 6 of each.
1st, Messrs. J. & C. Lee, Royal Vineyard Nursery, Hammersmith, £10.
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CLASS 14.—The best 12 STOVE and GREENHOUSE PLANTS, distinct, in flower, in 12-inch pots.
1st, Messrs. J. & C. Lee, £10.

CLASS 15.—The best 6 CAPE HEATHS, distinct, in Flower, in 12-inch Pots.
Extra, Mr. A. Wilkie, £2.

CLASS 16.—The best 12 EXOTIC FERNS, distinct, in Pots not larger than 12 inches across.
1st, Mr. B. S. Williams, £5.

MISCELLANEOUS.
1st, Mr. J. Burley, Albert Nursery, Bayswater, for Collection of Palms and Dracenas, £1.

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Mr. W. Bull, for Ptychosperma regalis.
Messrs. J. Backhouse & Son, for Iberis carnosa.
Mr. W. Muir, Gr. to Sir P. de M. G. Egerton, Bart., M.P., for Epidendrum cnemidophorum.
Messrs. Rollisson & Sons, for Erica Turnbullii

SECOND-CLASS CERTIFICATES.
Mr. C. Turner, for Pelargonium Maid Marian.
Mr. C. Turner, for Pelargonium Marmion.
Mr. C. Turner, for Alpine Auricula Novelty.
Messrs. Rollisson & Sons, for Erica tubiformis.

SPECIAL CERTIFICATES.
Messrs. H. Low & Co., for Collection of Orchids.
Messrs. H. Low & Co., for Collection of Cattleya citrina.
Mr. C. Turner, for Collection of Tulips. [curvifolium
Mr. John Richards, Gr. to Lord Londesborough, for Saccolabium

GRAND HORTICULTURAL EXHIBITION
at BURY ST. EDMUND'S, in connection with the
SHOW of the ROYAL AGRICULTURAL SOCIETY,
JULY 15, 1867, and four following Days.

Amongst various Special Prizes, amounting in value to nearly £300, and exclusive of the ordinary Prize Schedule,

A SILVER CUP, VALUE £20,
will be offered by the Proprietors of the
GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE
for the best COLLECTION of FRUITS and VEGETABLES,
to be made up as follows:—

Of FRUITS, any Five of the following Eight kinds, one Dish of each:—Grapes, Melons (2 fruits), Strawberries, Gooseberries, Currants, Cherries, Raspberries, or Apples (of the crop of 1866)

Of VEGETABLES, any Eight of the following Fourteen kinds, one basket or bundle of each:—Peas, French Beans (or Scarlet Runners), Broad Beans, Cauliflowers, Cucumbers (brace), Summer Cabbages, Early Carrots, Turnips, Artichokes, Onions, Spinach, Rhubarb, Potatos, or Mixed Salading.

This Cup will be open to Competition amongst Amateur or Professional Gardeners, of all grades, with Fruit and Vegetables of *their own growing*; any article otherwise obtained will disqualify the exhibitor.

ROYAL HORTICULTURAL SOCIETY,
SOUTH KENSINGTON, W.

At the suggestion of HIS ROYAL HIGHNESS the PRINCE of WALES, a SPECIAL FLORAL FETE will be held in the Royal Horticultural Society's Gardens on the occasion of the LAYING of the FOUNDATION STONE of the HALL OF ARTS and SCIENCES by HER MAJESTY on MONDAY, May 20.

Admission to the Gardens, 2s. 6d

The Gardeners' Chronicle.

SATURDAY, MAY 11, 1867.

WE are requested to announce that in consequence of the ceremony of laying the foundation-stone of the HALL of ARTS and SCIENCES by HER MAJESTY having been fixed to take place on Monday, May 20, at South Kensington, immediately adjoining the Royal Horticultural Society's Gardens, the Society has determined, upon the suggestion of H.R.H. the PRINCE OF WALES, to hold a SPECIAL FLORAL FÊTE, to which it is hoped that the exhibitors of Tricolor zonate Pelargoniums and other plants will largely contribute. Special medals will be awarded on this occasion. This Exhibition will in no way interfere with the arrangements already announced for the day following.

THERE are, we cannot doubt, hundreds of residents within the limits of towns or cities, or scattered about their suburbs, who know nothing of the amount of enjoyment to be drawn from a COLD GREENHOUSE, by which we mean a glass house merely, without any of the heating apparatus which adds so materially to the cost of greenhouses and other structures suited to repel frost. Of course there is greater luxury in the moderately-heated stove or Orchid-house, greater luxury indeed in the nicely-warmed greenhouse with its Madeira climate all the year round, and we are not disparaging these in the least, or recommending their discontinuance by those who can command them; but for a most extensive class of persons—and we may use this term in the comprehensive sense which Mr. MILL does in reference to another subject—who are really fond of their gardens and capable of deriving great enjoyment from the culture of flowers, but who at the same time cannot afford the expense of a warmed greenhouse or stove, there is, we can assure them, very much satisfaction to be drawn from a simple greenhouse, which is a mere shell of glass, and has no provision whatever for the supply of artificial heat.

We strongly recommend then to that numerous section of amateur horticulturists to which we have already made allusion, the adoption of a Cold Greenhouse as a garden luxury of comparatively small cost, and yielding a most abundant return. Why, to cover over with a glass roof the whole or the half of any of the long narrow strips which are dignified with the name of town gardens, would furnish the most enjoyable of all modes of gardening in such situations. We venture to say that greater results in the way of the production of favourite plants would be realised by thus covering over a larger portion of such a garden, than could be obtained from the smaller pent-up ill-ventilated conservatories, as they are called, which are often attached to town residences, and in which an attempt is made, generally without success, to repel the winter's frosts. True, the same kinds of plants would not be suitable for the cooler as for the warmer structure, but there is no question as to which would be the most pleasing and satisfactory to the owner:—perfect success with inmates of the cold house, or partial if not total failure with the inmates of the warmer one,—on the one hand, we will suppose, luxuriant Camellias, revelling in beauty; and on the other, frost-bitten or sunburnt Pelargoniums.

Our recommendation that those who can do so should by all means set up their Cold Greenhouse, even though they cannot go further, is founded on experience, and we may here briefly describe

NEW PLANTS.

Just Published, Price One Shilling,

A DESCRIPTIVE LIST OF NEW PLANTS,

MANY OF THEM NEVER BEFORE OFFERED, WITH PRICES TO EACH.

Apply to WILLIAM BULL, F.L.S.,
NEW PLANT MERCHANT, KING'S ROAD, CHELSEA, LONDON, S.W.

NEW PLANTS.

JAMES VEITCH & SONS

BEG TO ANNOUNCE THAT THEY ARE NOW

SENDING OUT THEIR SPLENDID NOVELTIES FOR 1867,

Amongst which will be found many of great merit, discovered and sent home by Mr. JOHN G. VEITCH, during his recent voyage to the South Sea Islands; also others received from Mr. PEARCE, Messrs. J. V. & Sons' Collector in South America. Every Plant offered is perfectly distinct from any previously in cultivation, and J. V. & SONS confidently recommend them to the notice of all Plant Cultivators.

For full descriptions of the Plants, Messrs. J. V. & SONS beg to refer to their large Advertisement, at page 458 of the *Gardeners' Chronicle* for May 4, 1867, and to their "NEW ILLUSTRATED and DESCRIPTIVE CATALOGUE," which they will be pleased to forward Post Free on application.

ROYAL EXOTIC NURSERY, KING'S ROAD, CHELSEA, S.W.

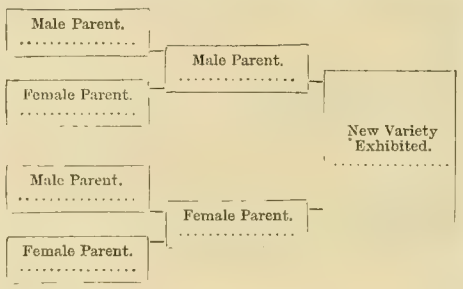
such a house, of which the particulars are now before us:—The length is 50 feet; the width, 16 feet. The roof is hipped, forming an unequal span, somewhat flattish, and facing the north-east, with a boundary wall on the south-west. In front is an upright glazed sash, 2 feet high, above which has been introduced a strip, 6 inches wide, of perforated zinc, so as to yield a gentle and constant ventilation when desirable, the space being closed up in cold weather by wooden flap shutters, which mode of ventilation has answered the purpose very well. There is no heating apparatus, the house being in winter shut up close, and merely opened occasionally on fine days as a corrective of damp. One half of the two ends is of glass, and at each end, in the angle formed by the ridge of the roof, is introduced a moveable wooden flap for additional ventilation. Two glazed flaps are also provided in the short slope of the roof, to be used in hot weather as occasion may require. The back wall is covered with Ferns, Lycopods, Oxalis, &c., planted in the interstices of galvanised wire netting, which holds up a stratum of peat earth, and in which Snowdrops, Crocuses, and Primroses are dotted for early spring blooming. This house has now been erected nearly four years, and answers the purpose admirably.

The plants are all planted out. As a matter of convenience in this particular case, the interior has been laid out in a very simple manner, a straight path running through the centre, with a raised bank of earth supported by a dwarf wall on either side, back and front, the surface of both banks being more or less varied. But of course a more irregular arrangement could be adopted when desirable. The position of the house is somewhat shaded, and for general purposes no doubt a greater command of light would be desirable, but as it is, the plants put on a robing of refreshing verdure, rendering the house at all seasons a pleasant resort. In a lighter situation no doubt a greater profusion of varied flowers might be produced.

With regard to the plants used, experience has shown that Camellias take the first rank. Even for these alone, such a house is quite worth building. They grow healthily, and blossom freely. Ferns of all kinds capable of enduring slight frost, also succeed well. The New Zealand and Japanese species in particular, thrive admirably; and many of the choicer forms of British Ferns find under these conditions a pleasant home. Himalayan Rhododendrons, Fuchsias, Roses of the Chinese section, Berberis nepalensis and japonica, and Chamærops Fortunei all do well, besides many hardy subjects, which, though in favourable localities growing well enough exposed, cannot be made to succeed in the open air in smoky towns. Of the latter series may be instanced such things as Sanseviera carnea, Helonias bullata, Wahlenbergia hederacea, Calla palustris, &c., plants which, in localities such as those indicated, dwindle away in the open air, but with the mere shelter of the glass, such as they obtain in a cold house, grow and flower freely. Then again, Snowdrops, Crocuses, Hyacinths, and other bulbs, planted annually, enliven such a house in the early spring, when it is perhaps most enjoyable. There are many other flowering subjects, such as Cassiopes, Cyclamens, common and double Primroses, and small herbaceous and Alpine plants generally, which might be readily grown in a structure of this kind, in situations where the light is not too much obstructed. On the other hand, plants that will not endure slight frosts are unsuitable; for in the house to which we have referred the internal temperature sometimes falls as low as 24° F. =8 degrees of frost, and anything like a sharp frost is sure to make an entrance.

We repeat that the erection of a glass structure of this kind, without fire-heat, would furnish a most agreeable and enjoyable adjunct to the dwelling of a town resident. Its interior might be laid out picturesquely, and there are plants enough which if once fairly started, would succeed under the care of persons altogether ignorant of floriculture, to furnish admirably any such house of ordinary size; while those who make the culture of special subjects a hobby, might without difficulty make successful arrangements for accommodating their pets.

—— In anticipation of the Show of Tricolor-leaved Pelargoniums at South Kensington on the 21st inst., which, from the promises of support, cannot fail to be a most interesting display, a Pedigree Card has been drawn out by an Amateur, and printed by Messrs. Wertheimer, Lea, & Co., of 1½, Circus Place, Finsbury Circus, who are prepared to supply them at 2*s.* 3*d.* per dozen, or 13*s.* 6*d.* per 100. It is a stout card, 8 inches by 5 inches, containing oblong spaces (as shown in the accompanying reduced diagram) for the insertion of the names of the immediate male and female parents of the plant exhibited, for the name or number of which latter a larger space is appropriated. There are also spaces set apart for the names of the grandparents of the new variety. With a view to render as clearly intelligible as possible to the eye the influence which the paternal or maternal relationship may have had on the progeny, the spaces for the names of the seed-producing parents are enclosed with red lines, and it has been suggested by the designer that the names of these seed-bearing plants should be entered on the card in red ink. These cards have been shown to, and approved by, the Floral Committee of the Horticultural Society, and we hope they will be generally adopted at the forthcoming Show. It should be understood that the card is not without its value, even if the grand parents of the plant shown are not known, or only partially known. If the exhibitor will put down upon the card (which is of course to be affixed to the plant), all the information he is possessed of, before he comes to stage his plants, he may possibly then meet with some brother-hybridiser, who can assist him to fill up the blanks on his card:—



In the event of any hybridiser, say Mr. Jones, being unable to give the name of either of the parent plants, it would be desirable that he should exhibit that plant, as well as any other little-known plant mentioned on the card. Thus, if the seedling under consideration came, say from the imposition of the pollen of Jones's $\frac{A}{1866}$ upon Sunset, and if Jones's $\frac{A}{1866}$ was the result of seed produced by Jones's $\frac{D}{1865}$ after being touched with the pollen of Dr. Lindley, it would materially add to the value of the pedigree, if labelled plants of these unknown parents were also exhibited.

—— Those who are fond of new sensations must have been gratified by the extraordinary effect produced by a mass of about a hundred plants—all beautifully in flower—of Cattleya citrina as furnished by Messrs. Low to the exhibition of the Royal Horticultural Society of Tuesday last. Constant groups of admiring visitors might be seen hanging about these strange flowers, and speculating as to the family to which they belonged, though in most instances, we believe, the Lilies rather than the Orchids had the credit of them. And indeed at a distance they might have been mistaken for a bank of Daffodils! We hope that Mr. Low's plants may remain in flower for another fortnight, and that he will repeat the display at the next regular Tuesday meeting of the Society, when it might furnish a hint for some interesting remarks. One important lesson, however, may even now be drawn from it, and that is the striking effect which masses of Orchids of the same or nearly related species are capable of producing. No plants gain so much by an orderly, or lose so much by what we can only describe as a higgledy-piggledy arrangement, as the Orchids. We are convinced that the time is rapidly approaching—and therefore exhibitors must prepare for it—when a promiscuous jumble of air plants and Odontoglots, Dendrobes and Cypripediums, Cattleyas and Burlingtonias, will no more be endured than the mingling of Orchids with Cacti and other incongruous forms would be tolerated now; and yet 25 or 30 years ago such barbarisms were of constant occurrence.

—— We understand that there are five competitors for the prize that Mr. Bateman offered to give for the most complete List of Cultivated Orchids arranged according to Temperature. The name of the winner is to be declared at the next Tuesday meeting (May 21) at South Kensington.

—— The Jury of the Paris Exhibition consists, we find, of three degrees:—1. The Jury of Groups, consisting of French and foreign "notabilities," of the presidents, vice-presidents, and reporters of the Juries of Classes. The duty of the Jury of Groups is to confirm the decisions of the Jury of Classes, and to serve as a Court of Final Appeal. 2. The Jury of Classes, the members of which are nominated by the Imperial Commission, and which consist of Frenchmen and delegates proposed by the Foreign Commissions. Their duty is to take note of the Exhibition, to prepare for and direct the labours of the Associate Jury, and to supply them with all the documents and information that they require to draw up reports, and to be present at the meetings of the Associate Jury. 3. The Associate Jury is composed of practical men, French and foreign, selected for their special knowledge. Their duty is to discuss and decide on the merits of the objects exhibited; to fix the degree of the award which is to be allotted, and to give in a report of their labours to the Jury of Classes, the members of which latter attend the meetings of the Associate Jury, but merely as spectators, and are not to take any active part in the proceedings.

—— The Botanical Society of France, in accordance with a resolution to which we have before called attention, has just issued a circular inviting the presence of botanists and horticulturists of all degrees at an International Botanical Congress, to be held in Paris from the 16th to the 23d of August. While communications on any matters relating to pure or *applied* Botany will be received, the Society specially think it desirable to call the attention of those who propose to accept the invitation of the Society to the following questions:—1. The nature and composition of the soil, its influence on the distribution of plants. 2. The necessity for the establishment of a botanical code with the object of reducing to order the various litigated points in nomenclature, synonymy, and priority. A programme will be published previously. The meetings of the Congress will be held in one of the apartments of the Imperial Horticultural Society, 84, Rue de Grenelle, Saint Germain, the first meeting being fixed for August 16, at 8 P.M. precisely. At this meeting a Special Committee, for the entire duration of the Congress, will be formed, and consisting particularly of *savans* of all nations. Between the meetings some of the members of the Society will devote themselves to the foreign visitors, to give them all necessary information, and accompany them in their visits to the scientific institutions of Paris. Any botanist desirous of taking part in this *réunion* should notify his intention to either of the Secretaries—M. de Schoenefeld, M. G. Bureau, M. G. Planchon, or M. Henri Vilmorin; and any one who wishes to make any communication—written or verbal—to the Congress, should communicate his intentions forthwith to one or other of the above gentlemen. Furthermore, M. de Schoenefeld, General Secretary, begs any botanist who proposes to visit Paris during the Exhibition, to make known to him his address in Paris, in order that invitations or information may be sent. We have only to add that Count Jaubert is the President, and M. A. Gubler, Vice-President, of the Committee.

—— It may be useful to those who are desirous of exhibiting at any of the forthcoming series of competitions at the Paris Exhibition, to know that 10 days or a fortnight's previous notice to the authorities in Paris is sufficient.

—— We are requested to state that the Royal Horticultural Society's Examinations for Young Gardeners for 1867, will take place on the 3d and 4th of July, and on the 30th and 31st of December. They will be based upon the Programme issued by the Society of Arts for the present year, the particulars of which may be had on application to the Assistant-Secretary of the Royal Horticultural Society, South Kensington, W., and are here also subjoined:—

In the Section of Floriculture the candidates will be expected to answer questions on any of the undermentioned subjects:—The leading flowers of the different seasons, indicating those to be obtained naturally, and those by artificial means. Leaf buds and flower buds, the conditions favourable to their development respectively. Food of plants, how and whence derived, and in what form received. Manuring substances best adapted for flower culture. Improvement of races in plants, how has it been effected, and by what means can it be carried forward? Hybridisation, objects and guiding principles of. Conditions necessary to ensure fertility in flowers. Construction of houses for Plant Culture. Warming and Ventilation. Influence of ventilation on plants confined in forcing houses. Limits of temperature endurable by plants, and how to turn this to advantage in practical floriculture. Bottom heat, value of in plant culture. Watering, the *rationale* of—what to avoid. Liquid Manures. Propagation, the various modes of, and their special adaptations. Germination of seeds, conditions favourable and unfavourable to. Vitality of seeds, duration of, and how best preserved. Treatment of seedling plants. Budding, grafting, and inarching, how performed, and to what subjects best adapted. Increase by cuttings and by layers. Leaf-cuttings, how is it that they can organise buds? Potting. Composts. Acclimatisation: Is it possible to increase the hardiness of any race of plants, and by what means?—The text books are: Lindley's "Theory and Practice of Horticulture," McIntosh's "Book of the Garden," "Thompson's "Gardener's Assistant."

Under the head of Fruit and Vegetable culture, the subjects on which questions may be put, are:—*Fruits*: Kinds of Fruits adapted for various soils and exposures. The propagation, pruning, and training of fruit trees. The forcing of fruit trees, and their cultivation under glass, both in and out of pots. The Theory of Ripening, and the principles that ought to regulate the preservation of Fruits after they are ripe, or their subsequent maturation. The packing of Fruit for transmission to great distances. *Vegetables*: The kinds and quantities of vegetable seeds and roots required for cropping gardens of given dimensions. The culture of the different kinds of vegetables and salads. The preparation of fermenting materials for artificial heating. The forcing of vegetables and salads. *General Subjects*: Soils, water, atmospheric air, light and heat in their relation to the successful cultivation of Fruit and Vegetables. Manures and their application. The diseases and insects to which Fruit Trees and Vegetables are subject and their remedies. The structure and functions of the organs of plants considered in their relation to growth and reproduction. The erection, heating, and ventilation of garden structures.—The Text Books are: Loudon's "Suburban Horticulturist," Johnson's "Cottage Gardener's Dictionary," Hogg's "Fruit Manual."

These examinations, which are open free to all the persons indicated below, secure to successful candidates diplomas, medals, and certificates, as follows:—

"1. Diplomas will be granted to those who, having been certificated by the Society of Arts, or other public body of Examiners recognised by the Council, in Mensuration, in Book-keeping, in Practical Geometry, in Botanical knowledge, in Floriculture, and in Fruit and Vegetable culture, shall also receive Certificates from the Royal Horticultural Society for practical skill in the cultivation of fruit and vegetables, and in the culture of flowers, and shall show a fair amount of skill in Surveying and Plan-drawing, and taste in Laying-out gardens. Such diplomas will confer the title of Associates of the Society.

"2. First and Second-class Certificates for the following branches of practical Gardening will be granted by the Royal Horticultural Society to candidates who shall pass the Society's

examinations in those branches:—(a) In the operations of the Fruit and Vegetable Garden. (b) In the operations of the Flower Garden.

"3. A Medal will be presented annually to the candidate who, having taken the Certificates of the Society of Arts in Botany, and in the cultivation of Fruit and Vegetables and in Floriculture, shall gain the highest number of marks in Practical Gardening at the examinations of the Royal Horticultural Society.

"Candidates will be eligible for examination in Practical Gardening, if they have previously obtained Certificates from the Society of Arts in Botany and in Floriculture, or in Botany and Fruit and Vegetable culture. A candidate who can present a written recommendation from any Fellow of the Royal Horticultural Society, from the President of any Floral or Horticultural Association acknowledged by the Society, or from the Director of any public park or garden, may also be examined in Practical Gardening."

VARIEGATED PELARGONIUMS.

The Royal Horticultural Society has proved alike its wisdom, and the reality of its desire to serve the highest interests of horticulture, by resolving to hold a special Exhibition of Tricolor Zonal Pelargoniums on the 21st May. One of the most useful purposes of such an exhibition will be to establish real merit, and stamp out of the trade at least, if not out of existence—for it is a pity that anything of beauty should perish—all that are decidedly inferior. While due importance will, doubtless, be given to colour, I hope other considerations will not be lost sight off. There are some pretty things that have been in existence for years, and never will be worth one farthing for decorative purposes. They are pretty toys, and nothing more. No one can make them grow. Constitution is one of the first merits in any beautiful plant, but especially among these, which require to be produced by the million; habit is another point of great importance. If these two are faultless, and the colour striking and distinct, or brighter than existing varieties, then only will a new variety have sufficient merit to command public support.

Only of secondary import to this unique exhibition itself are the questions that are to be asked of cultivators respecting the origin of their varieties, and the probable causes of their production. Each plant is to compete for honours with its history and origin attached, and if these are certainly known and truly given, a most valuable mass of information upon the influence of progenitors, paternal and maternal, and the transmission of parental idiosyncrasies or distinctive peculiarities, will be brought together. The expression of opinion on the causes of variegation by those who may be presumed to have studied them in pursuit of their efforts to change the colour of leaves or flowers, will also have a special interest and value.

The plants without pedigrees will, in one sense, be almost as instructive as those that have them, for they will furnish data on the vexed question of how many are the results of direct design on the part of hybridists, how many may have originated in their haphazard, chance-work operations, and in what proportion they are the products of Nature's operation uninfluenced by the interference of man. It will only be fair that Nature should have the credit of producing at least half of the pedigreeless plants; for doubtless, if any good thing is raised, and its raiser knows anything at all about it, he will not be backward to cover the plant with a pedigree that reflects some of the beauty and glory back on himself. I am enabled, however, to state, as a matter of fact, that many, perhaps most of the best plants that will appear at Kensington, will be accompanied with a truthful pedigree. Their history is known to myself and others as well as to their raisers, and can be traced back through six or seven generations. Such a record, written indelibly upon their leaves as well as on their pedigree cards, and thus twice displayed, can hardly fail to throw fresh light, if not upon the origin of variegation, at least upon the almost equally interesting, if not even more practically important problem of the likeliest modes of producing it, and of perpetuating and intensifying it after its manifestation.

Practical men can at least speak with authority on this branch of the subject. If their practice has been less carefully minute than that of scientific manipulators, it has at least been equally or more successful. By their fruits we are content to assess their skill, and I challenge even the great Darwin to place the species or varieties that he has originated beside those of Mr. Grieve on the 21st of May, and allow the public to judge for themselves. Neither am I careful to uphold all the theories of the hybridists. A serious slip in the theory or nature of colour may readily be forgiven when the results of their theories, right or wrong, has produced such splendid results. What I contend for is that most of the best practical hybridisers have a theory, and that their success has either resulted from or been coincident with its persistent application. Take for instance Mr. Grieve's practice, as that with which I am best acquainted, and that has resulted in at least a great amount of success. His theory was, and is, that, by mixing silver and dark-zonate blood, the silver would probably be improved, and a new pink colour obtained. Finding that this was actually the case, he poured golden blood into zonals, with the express purpose of developing red, while improving the gold, and his splendid Golden Tricolors came forth at his bidding. It matters little whether Mr. Grieve has or has not given in the "Journal of Horticulture" the true rationale of the working of his own theory. The point of most import is that his theory led to the intermarriage of such varieties, and has given to the world such splendid strains of colour, form, and stamina, as characterise his best seedlings.

Great practical wisdom was also displayed in the employment of zonals as the seed-bearing parents. The formation of a zone of a distinct colour shows such varieties to be endowed with selective colouring powers, if I may so express it; and it is a singular fact that most of the changes effected by man are confined to this region of the leaf, and to the edges.

On the general subject of variegation it may seem presumptuous to write in prospect of the revelations that may be expected on the 21st of May. Still there are several points that I should like to see discussed on that occasion, and I will therefore advert to them here. The first is the nature of colour. Is it material, and therefore a quality of bodies? Is it an optical illusion or manifestation? Is it something painted on plants, or a manifestation of their power of playing with, or selecting and rejecting certain sunbeams of various velocities or different lengths or angles of incidence? Another point closely related to this is the influence, if any, of structure upon colour. Is it influenced, and to what extent, by the mechanical arrangement, thickness, or quality of tissues, or by the texture, form, or embellishments of their cuticles? A third question is the organic chemistry of colour. The influence of chemical combustion in changing colour is well known, and the probability is that this power is equally or more active within the cells of living plants, as it is seen to be elsewhere. There it has the range of salts, acids, and alkalies, and probably may work out or on most of the colouring matter. Facts illustrating this, as in the application of alum or steel filings to Hydrangeas, would be valuable.

Then we must grapple with the influence of vitality upon colour. After all, our power of changing colour is limited. In no other pursuit are we more frequently stopped with the imperative law, "Thus far shalt thou go, and no further." Were colour merely the result of mechanical arrangement, or the product of chemical combinations, it were impossible to account for the sharp, hard boundary lines that seem capriciously to limit the extent of possible change. How upon either of these hypotheses are we to account for gold and silver tricolor Pelargoniums refusing to blend their colours in the same leaf, or the impossibility of producing a blue Rose or a Dahlia? But once admit the selective power of the vital principle, and all difficulties of this character vanish. It would seem that in all matters affecting the life, form, and probably also the colour of the plant, the plant itself must be consulted—violence cannot be offered to life of any kind with impunity, nor constitutional barriers be swept away without the consent of the governed. Hence, without any apparent reason, Apples will not intermarry with Pears, Gooseberries with Currants, nor will some colours appear at our bidding. The effect of light upon colour is patent and obvious to every observer. Light is probably Nature's great painter; but whether light carries its paint with it, or finds, or makes it, within the plant, or simply makes it appear to be there, are questions of the highest interest, scarcely more mysteriously difficult than they are practically important. The probability is that all vegetable colouring results from the blending of the three primary colours of the spectrum, yellow, blue, and red; and that we cannot by any process of mixing the blood of plants originate either of these colours. How light acts to produce variegation may never be clearly understood. It seems much easier to understand how it may perpetuate and intensify it after it is developed. For not only are different rays of the sun, or distinct constituents of one ray, endowed with different powers, but these powers are modified by different *coloured media*. Thus we have heating rays, luminous rays, and chemical rays; and each is modified differently by passing through the *same* medium. One medium intercepts the heat, while almost obscuring the light, and destroying the actinic force; another adds brilliance to the luminosity, or quickens chemical action, while it moderates the heat, and so on to infinity. It is highly probable that the different coloured parts of the same leaf are endowed with these selective powers; if so, the fact will explain the perpetuation and progressive increase of variegation.

My last question brings me almost back to my first. Is variegation the product of an addition of new matter to the plant, or the removal of old from it? Probably it is neither: but originates in a redistribution or classifying of matter, or in a quickening or strengthening of the selective or rejective power for light of different colours.

It seems as if the uniform action of natural light produced only or chiefly greens of different shades. This might have been anticipated from the primary colours of the spectrum; blue and yellow form green, and the red may blend with it in various various ways, to modify its hues by means that artists wot little or nothing of. It must be borne in mind, however, that experimentalists have failed to produce green from the mixture of the prismatic blue and yellow of the spectrum. Nevertheless, plant life may accomplish what man's powers cannot compass, and part of the red may also be used in the production of vegetable greens. As a matter of obvious fact we know that the general colour of vegetable life is green. Hence we may infer that this is the normal product of white or natural light. This light, be it observed, is colourless to us, and yet it has colour in it. It is so with plants, I believe. They are green all over, it may be, and yet the primary colours, bright, distinct, and beautiful, are in them all. How are these colours to be brought out? Let us answer the question by another. How are they brought out of colourless light? We want a rainbow on the sky or on a Pelargonium leaf. Shall we send an artist with his palette and brushes to paint it on either? No; let us tear this beam asunder—resolve it into its constituent elements—by sending it through a prism, and the imprisoned light will instantly burst forth in all its rich beauty and dazzling glory. It may be, I believe is so, with a Pelargonium or any other plant leaf. Its green colour enwraps it, like a ray of colourless light. It hides up the glory that is there all the while. The pencil of the hybridist, changes of structure, chemical action, or the vital force, may become the force that rends the green asunder, and bids the primitive colours come forth or appear in their primary beauty and distinctive purity. We have only to loosen or set free the colours and let them each stand alone. They are there already. If this theory of variegation is correct, then there is no limit to its extension—except what the laws of life may impose. And I do not consider there is any such limit. It is possible that any plant may yet yield to our skill the product of variegation. And the whole of the primary colours may thus be liberated, and be made to appear pure. Red has been the first to come, as was to have been expected, for it can have but little real affinity with the other two in the production of green. Yellow has also come freely, but then we have had it separated for a century or more in Golden Chain to start with. Blue has been long in coming, but if my views are right it will come at last. It is worth waiting and working for, and when it arrives we shall have more classifications, exhibitions, and awards to establish the merit and elucidate the history of the origin of the Rainbow or Chameleon class of Pelargoniums. *D. T. Fish, May* 6.

ON THE STRUGGLE FOR EXISTENCE AMONGST PLANTS.

By J. D. Hooker, M.D., F.R.S.

(*Continued from p.* 434).

Making every allowance, then, for the influence of soil and climate in checking the multiplication of individuals, we have still two classes of facts to account for; the one, that plants which succeed so well when cultivated, that we are assured both soil and climate are favourable to their propagation, nevertheless become immediately or soon extinct when the cultivator's care is withdrawn; the other, that plants of one country, when introduced into another, even with a very different soil and climate, will overrun it, destroy the native vegetation, and prove themselves better suited to local circumstances than the aboriginal plants of the country. In the first case, the reasons are very various, all of them relating to the conditions of the plant's existence. Of these the two most potent are, the absence of fertilising agents, and the destruction of seeds and seedling plants. In the present state of our knowledge it is impossible to say which of these is most fatal in its effect. In the case of our annual plants, or our cereals, which never run wild, it is the latter certainly, for they seed freely enough; in the case of many perennials, shrubs, and trees, it may be the former, as with the common Elm and Lime, which rarely or never seed in England, though the latter is so notably frequented by insects during its flowering season; whilst a third cause is to be found in the seedling plants being smothered by others, of which we have numerous examples in our common pasture Grasses, which are, perhaps, the most prejudicial in this respect. A most conspicuous example of this is afforded by the common Maple, of which the seedlings come up early in spring by thousands in the neighbourhood of the parent tree, in lawns and plantations, but scarcely ever survive the smothering effects of the common summer Grasses, as soon as these begin to shoot.

When I visited the Cedar grove on Mount Lebanon, in the autumn of 1860, I found thousands of seedling plants, but every one of them dead; and so effectual is the annual slaughter of the yearlings in that grove, that, though the seeds are shed in millions, and innumerable seedlings annually spring up, there is not a plant in the grove less than about 60 years old. It may hence have been 60 years since a Cedar there survived the first year of its existence; that is to say, has struggled through its infancy, and reached the age even of childhood!

On the other hand, when once the natural conditions of a country have been disturbed, the spread and multiplication of immigrants is so rapid, that it shortly becomes impossible to discover the limits of the old, indigenous Flora. Take the English Flora, for example. If we contrast the cultivated counties with the uncultivated, the difference of their vegetation is so great that I have often been compelled to doubt whether many of the most familiar so-called wild flowers of the cultivated counties are indigenous at all; nay, more, I have been tempted to suspect that some of the more variable of them, as some species of Chenopodium and Fumitory, may have originated since cultivation began. In the uncultivated counties the proportion of annual plants is exceedingly small, whereas, in the cultivated counties, annuals are very numerous; and the further we go from cultivation, roads, and made-ground, the rarer they become, till at last, in the uninhabited islets of the West Coast of Scotland, and in its mountainous glens, annuals are extremely rare, and confined to the immediate vicinity of cottages. Let any one, who doubts this contrast between the Floras of cultivated and uncultivated regions, compare the annuals in such Floras as those of Suffolk or Essex, the North Riding or Cumberland, with those of the Isle of Wight and the Isle of Arran. And it is not only that annuals abound in the cultivated districts, but that so many are nearly confined to ground that is annually or frequently disturbed. The three commonest of all British plants, for example, are, perhaps, Groundsel, Shepherd's Purse, and Poa annua. I do not remember ever having seen any of these plants established where the soil was undisturbed, or where, if undisturbed, they had not been obviously brought by man, or the lower animals; and yet I have gathered one of these, the Shepherd's Purse, in various parts of Europe, in Syria, in the Himalayas, in Australia, New Zealand, and the Falkland Islands. Were England to be depopulated, I believe that in a very few years these plants, and a

large proportion of our common annual "wild flowers," would become exceedingly rare, or extinct, such as the Poppies, Fumitories, Trefoils, Fedias, various species of Speedwell, Anagallis, Cerastium, Lithospermum, Polygonum, Mallow, Euphorbia, Thlaspi, Senebiera, Medicago, Anthemis, Centaurea, Linaria, Lamium, &c.

It is usually said of some of the above-named plants that they prefer cultivated ground, nitrogenous soil, and so forth; and this is no doubt true, but that they will flourish where no such advantages attend them a very little observation shows; and that they do not continue to flourish elsewhere is due mainly to the fact that, being annuals, their room is taken as soon as they die, and the next year's seedling has no chance of success in the struggle with perennials.

For good instances of this rapid replacement of annuals by perennials, the new railroad embankments should be examined. Whence the plants come from which spring up like magic in the cuttings, many feet below the surface of the soil, is a complete mystery, and reminds us of the so-called spontaneous generation of protozoa in newly-made infusions or in distilled water. In the South of Scotland in 1840-50, and many parts of the North of England, the first plant that made its appearance was Equisetum arvense, which covered the new-formed banks for miles and miles with the most lovely green forest of miniature Pines. In the following year comparatively few of these were to be seen, and Coltsfoot, Dandelions, and other biennials, especially Umbelliferæ, with a great number of annuals, presented themselves. For many successive years I had no opportunity of watching the struggle for life on these banks, but when I last saw them they were clothed with perennial Grasses, Docks, Plantains, and other perennial-rooted plants. *Popular Science Review.*

(*To be Continued.*)

SEFTON PARK, LIVERPOOL.

No previous competition, in modern times, has been at all calculated to excite the same amount of interest for the English artist in ornamental gardening. The magnitude of the area to be arranged, the liberality of the premiums offered, and the certainty that something like 100,000*l.* would have to be expended on the work, were all elements of unusual attraction. And yet, from some cause, the landscape gardeners of this country have, for the most part, kept aloof; and, with few exceptions, the contest has been confined to architects, nurserymen, or those nondescript tyros who are ever ready to struggle for a prize, however apparently unattainable it may be. In this case, too, we have to recognise the unwonted introduction of foreign blood among the competitors; and having, during the brief reign of the present French Emperor, inoculated our continental cousins with the English style of gardening, are now, in return, to receive from our pupils the Gallicised version of the *Jardin Anglais*, which, as in architecture and costume, we are bound to accept with reverence, and to pronounce the fashion, however much the stomach of a genuine John Bull may revolt against it.

If space permitted, it might be worth while to inquire why open competitions are so distasteful to men of any standing, and why their results are generally so unsatisfactory. It is only necessary to say, on this occasion, that the conditions are commonly ill-considered and badly defined; and that little confidence can usually be placed in the judgment of the arbitrators. If, in the present instance, the Liverpool Town Council had consulted some landscape gardener of repute as to the framing of the conditions, and announced that no departure from these would be permitted, and that the advice of a thoroughly competent and independent landscape gardener would be taken as to the merits of the different plans submitted, the competition would, doubtless, have included designs from men of a higher stamp.

In this Journal, at least, it may be permissible to assert that there never was a competition which more thoroughly belonged to the genuine landscape gardener. The premiums were offered for plans for laying out the park. Architectural embellishments, however necessary and valuable, could only be subordinate elements in the general arrangement; and, except in so far as every good landscape gardener could plan them, were no essential features of any design. It is hardly too much to say, as a rule, that architects are utterly ignorant of the mode of arranging ground artistically, especially on a large scale. Hence, the architect's point of view was in no way the right one from which to prescribe what was desirable, nor to judge of the plans submitted. It was emphatically a question for a landscape gardener.

Two or three serious mistakes, besides those already glanced at, were made by the Council in issuing their conditions and suggestions. First, the scale prescribed (176 feet to an inch) was much too small, and nearly all the competitors must have felt how difficult, indeed impossible, it was to express their intentions clearly and intelligibly on such a scale. The second error was in requiring bird's-eye views of the effects proposed to be produced. This would necessarily give the impression that it was pictures, not plans, that would be likely to be rewarded; and it doubtless induced that unfortunate expenditure of labour in the preparation of showy drawings of buildings, conservatories, &c., in which some of the candidates so lavishly indulged. If anything were needed to prove the utter fallacy of this requirement, it would be found in the fact that the very best bird's-eye view in the exhibition was the exponent of one of the feeblest and poorest plans; while the plan which was accompanied by the most extraordinary number of highly-finished architectural and other embellishments was probably the crudest and the least worthy of notice of the whole set. The third mistake in the conditions was the demand that the plans should be accompanied by "complete sections, detailed specifications, and an estimate of the cost of carrying out the work." If faithfully adhered to, these requisitions must have caused an infinitude of useless trouble, which ought never to be exacted from any man who had not the certainty of executing the work. Such details could be of no value except as indicating fitness on the part of the competitor for dealing with these matters; and this fitness would have been sufficiently pronounced by the plans themselves to the eye of a competent judge. To show the extreme vagueness and want of truthfulness in the matter of estimates, for example, these range from a little over 13,000*l.* to nearly 160,000*l.*; and if all the details of the plan selected for the highest premium were fully carried out, the cost (estimated at 85,000*l.*) would most likely equal the price of the land, and demand an expenditure of another quarter of a million sterling. The fourth and crowning mistake in the conditions was that each competitor should sign his own name to his plans. The novelty of this proceeding may possibly find some excuse in the argument that it is better to let personal influence be exercised openly than under the form of any ordinary thin disguise. But, on the other hand, it may be alleged that it is wiser to keep up the appearance of virtue than recklessly to exult in its overthrow; and there is, unhappily, but too much reason to fear that names rather than plans are omnipotent in these cases.

Among the "suggestions" distributed with the conditions was one which, although it may not have been regarded as binding on the competitors, few of them were likely to imperil their success by ignoring. It was that "a road 75 feet wide, either straight or very slightly curved, be carried from the point A to the point B on plan, and treated as a boulevard." Now, however useful the road in question might become, as an alternative route from and to Aigburth and Liverpool, it must be obvious to any practised eye that the conformation and outline of the land—both extremely irregular—are quite opposed to anything approaching to a straight road, which would not only violate the peculiar character of the place, but greatly embarrass the designer in dealing with the awkward plots of building land that would be left on the west side of this road. Some of the best of the plans have been seriously damaged by their designers being thus fettered. If the "suggestion" had been that a public road between the two points named was very desirable, and that it should be made as direct as possible, consistently with other important considerations, there is no doubt that some of the competitors would easily have overcome the difficulty by a pleasingly curved line; and the few extra yards of length that this would have occasioned would not have been of the slightest practical consequence. Indeed, in the plan which has received the 1st prize, this road has been treated quite naturally, and is really the best feature of the design.

It appears that, in judging the plans, the Council have obtained the professional assistance of Mr. Markham Nesfield, and that, under his advice, they have awarded the first premium (300 guineas) to M. André, of Paris, and Mr. L. Hornblower, of Liverpool; and the second premium (150 guineas) to Mr. E. Milner, of Sydenham. The plan of the first-named gentlemen is exceedingly elaborate, and, although possessing a good deal of merit in regard to some of the lines, is frivolous in many of its details. As already mentioned, the public road through the land is admirably devised, and is the only example in which this point is boldly and appropriately dealt with. The position of the great open space for a review ground is also well chosen, and nearly all the lines of roads and walks are in graceful and easy curves. An inner drive or equestrian ride is placed along the side of the public road, but separated by a fence, and this inner road is carried round the eastern and southern portions of the park. But, although it is everywhere guarded by gates from all the inlets to the park, there are a great many villa plots within it, which could only be accessible through the gates; and this arrangement would virtually render it impossible to keep the park closed at night, which is very objectionable, while it would at the same time convert the "Rotten Row" into a carriage drive, thus attempting to combine two uses which are incompatible. As in many of the other plans, too, there seems to have been an attempt to cram in as many villa sites as possible, without the slightest regard to securing views from them, or making them effective as parts of a great general scheme. The radical defect of the plan is, however, that it is sadly frittered away by roads and walks, by useless buildings, objects, or compartments, and by an attempt to utilise or render ornamental a very insignificant streamlet, breaking it up into pools and impracticable cascades. The roads and walks, indeed, often run nearly parallel with each other, at short distances apart, and curving in the same direction; thus cutting up the ground into narrow and ugly strips, with very long acute corners, and presenting, as a whole, the appearance of a network of railways, as seen in a map of Yorkshire, Lancashire, and some other densely populated counties. Among the singular objects provided for or introduced, are an archery ground, a croquet ground, a deer park (!) and deer house, an apiary, a bird park and aviary, a Moorish Kiosk, a windmill to be used as a prospect tower, and other fanciful productions, which are assuredly not ordinarily to be found or expected in a public park. The water also, if we exclude the impossible streams and cascades, is very tame, and destitute of variety or naturalness, and without a single island to relieve it. Were this plan adopted in anything like its present integrity, and including the designs for railings, buildings, &c., the outlay would be enormous, and the expense of maintenance equally extravagant.

In Mr. Milner's prize design there is much more of simplicity, but still far too little of open space. The ground is sadly too much cumbered with building plots, and some of the marginal land is even cut up into straight roads, which would be little better than streets. Considerable blocks of terraces are shown; and an extraordinary crescent, embracing an entire half-circle, would furnish a knotty problem to an architect to arrange the interior of the houses satisfactorily. The great public road is arranged in one slight curve from end to end, and there is a winding carriage-drive all round the interior of the park, including the west side, which has an unhappy tendency to cut up the ground too much, and to leave the open spaces of park comparatively meagre and insignificant. The Botanic Garden in this plan is placed on the northern boundary, at the top of the long, irregular hollow which traverses the land from north to south—a spot in which, judging by the contoured survey, serious difficulties of level would probably have to be encountered; but the views from which, over the entire park, and towards the River Mersey and the Welsh hills, would doubtless be striking, and superior to those of any other site. The lake, as here presented, is decidedly more natural-looking and pleasing than that previously described, but is lacking in that play of outline and indefiniteness which are indispensable to any artificial piece of water that is not arranged in a purely formal manner, or in imitation of a river. The plantations, too, are all thin, and deficient in breadth and force of expression; still the plan is one that ranks unquestionably high in the exhibition.

It would be tedious to attempt to describe all the rest of the designs individually. Some are strong in particular parts, others present great peculiarities, and a few are altogether creditable to the designers, and deserved the utmost commendation. Of these last, in particular, are the plans of Mr. John Gibson, junior, who exhibits the most promising talent, and of Mr. Wortley, who has evidently studied very carefully all the salient features of the locality, and worked in harmony with these. Mr. Bateman's contribution likewise embodies many of the points which ought to be established data in legislating on this subject; such as placing the review ground near the entrance from Prince's Park; the Botanic Garden close to the Police Station in Ullet Road, and between that and Toxteth Farm; and the simplifying of roads and walks, and the obtaining of broad sweeps of open Grass land. The effort put forth by Mr. D. Brade is remarkable for the successful treatment of the water, the arrangement of which is probably superior to that of any other competitor. The other portions of the plan are cleverly presented, but are in no wise adapted to the ground or the object. Mr. Newton sends a number of most attractive sketches, including a set of glass houses, perhaps extravagantly pictorial. Messrs. Henderson & Walker show a great terrace across the middle of the ground, this terrace being 100 feet wide and about half a mile long, accompanied by an avenue of trees, and a large architectural pavilion. One of the other plans includes four or five lakes, another an observatory, another a Sanatorium and hotel, and a fort surrounded by water, in connection with the review ground. Finally, M. Duvillers, of Paris, has a sketch which transcends everything else in singularity, and looks like the emanation of a by-no-means happy dream, although not picturesque enough to be the product of nightmare. *K.*

LETTERS FROM PARIS.—No. X.

THE LOUVRE AND TUILERIES, THE CHAMPS ELYSÉES, PARC MONCEAU, AND OTHER PUBLIC GARDENS, AND THE THIRD FLOWER SHOW.

A GREAT point is gained when the public gardening of a city is not quite out of the way of its promenading inhabitants; when, instead of having to go a mile or two to see a public park or garden, one can scarcely go out of doors without encountering something green and pleasant to the eye; and it is so to a great extent in Paris, and will be much more so if improvements progress for a few years more at their present rate. In Paris the public gardens and all that relates to them are as a rule admirably managed and kept; faults they have, to be sure, to an English eye, but on the whole they are probably more attractive and useful to the inhabitants than those of any other city in Europe. In endeavouring to give the reader a concise idea of those gardens, and which may act as a guide to him, I will take my stand in the Place du Carrousel. The eastern part of this great square is narrower, in consequence of the projection into it of the splendid buildings of the new Louvre, thus projected in consequence of a difference in the line of standing of the two buildings; and in this part of the square—called the Place Napoleon the Third—there are two pretty little gardens surrounded by railings with gilt spears, and these spots may give the visitor an idea how the gardens of Paris are kept. It simply displays trees and evergreens, Grass as green as could be desired, Ivy edgings, and looks like an oasis in the centre of the great palace-surrounded square. Doubtless they would have a garden in the centre of the Place du Carrousel also, were it not that the traffic across it from the Rue de Rivoli to the quai and the bridges on the river side, and which passes in through arches on each side, is so great. Then by passing through the great court of the Louvre and out on the eastern side the visitor may see the garden of the Louvre, which is simply a rail-surrounded space, laid out with the usual very green and well-kept Grass, the round-headed bushes of Lilac, Ivy edgings, evergreen shrubs here and there, flowers, both spring and summer, and the best, cheapest, prettiest, and most lasting edgings in use in any garden, made of cast iron in imitation of bent sticks. Much of this garden was once covered with old buildings and streets—even the great square just spoken of was once packed with alleys, but the recent improvements of Paris have swept all those things away, and on every side the buildings stand as

free as could be desired, unlike our London ones, which can hardly be found out, and which when they have an enclosed space around them, have one which is merely a receptacle for dead cats, &c. The best idea I can give your readers of the size of these buildings is to say that the space they occupy is nearly 60 English acres. Let us next go to the west end of the great mass to see the gardens of the Tuileries, which stretch from the western face of the palace to the Place de la Concorde, bounded on one side by that fine straight street the Rue de Rivoli, on the other by the river. Being nearly in the centre of Paris these gardens are the most frequented of all perhaps. The garden is very large, and laid out in the plain geometrical style by Le Notre, wide straight walks, borders round Grass plots dotted with Lilac bushes, which have been cushions of colour in all the gardens of Paris for some time past, and spring flowers below. About one-fourth of it near the Palace is cut off for the Emperor's private use, but this part is merely divided from the public one by a sunk fence and low railing, so that the view of the private garden is enjoyed by all. In it they simply plant good evergreens and plenty of deciduous flowering shrubs, while the Grass plots are belted by borders, and one runs right along under the Palace windows with the usual round bushes of Lilac, but this border has looked charming all the spring with Forget-me-Not and other spring flowers. They plant them after a geometrical fashion, and as soon as one flower is past it is taken up and replaced by a Fuchsia, Pelargonium, or summer flower of some kind. However you must not judge of what Parisian bedding-out is by what you see here. There is a very wide walk crosses the garden just outside the private part, at about its centre a large basin and fountain, from which another wide walk goes straight towards the Place de la Concorde, and by looking in that direction you see the whole length of the magnificent Avenue des Champs Elysées, terminated on the crest of the hill by the Arc de Triomphe. This walk cuts the garden into two portions chiefly planted by Chestnuts and other tall trees, which have not been sufficiently thinned, but allowed to run up very tall, and thus afford a high arched shade in summer, the ground being gravelled underneath so that it is comfortable to walk or play upon. There is a slight narrow terrace on both sides, an Orangery, the contents of which are placed out in summer, an alley arched over with Lime trees by the side of the Rue de Rivoli, and at the western end there are terraces which afford a capital view of the bright and busy scene around, and the magnificent scene towards the west. The sculpture is fine, and there is a great deal of it, both copies of celebrated works and original ones, but as for fresh horticultural interest there is little or none to be seen, and a passing glance is all the visitor need bestow, though it is only fair to add that its general effect is very good, and that it in all respects answers its purpose as a play and promenading ground, and a lung if you like to the city.

The effect of the Chestnuts in flower has been very fine for a week or so past. The Place de la Concorde is not a garden but a noble open square—a worthy centre to the magnificent roads and streets that are near and radiate from it, and with a terrible history. Fountains and statues embellish it; there is no sign of its fearful associations to be seen; it is a place to make one ashamed of Trafalgar Square, which has been ridiculously called the finest site in Europe. By looking to the east the Palace of the Tuileries may be seen through the division made in the wood of Chestnuts by the central walk, and the other way the Champs Elysées. It is not the Avenue of that name that I allude to now, but the wide piece of ground laid out as a garden, through the centre of which runs the Avenue. If the reader will suppose the lower part of Regent Street to be on a large and wide pleasure-ground, with a grand tree-bordered avenue passing through its centre straight away to the highest point of the broad walk in the Regent's Park, and there crested by an immense triumphal arch—the largest in the world, 161 feet high and 145 wide—he will be able to form some idea of what the scene here is. It is only in 1860 that the garden part was laid out as such, and yet it looks a permanent affair, has many respectable specimens of Conifers, Magnolias, &c., numerous large and well made banks and beds of Rhododendrons, Azaleas, Hollies, and the best shrubs generally, with abundant room for planting summer flowers, chiefly however as margins to the clumps of fine shrubs. It is a large space, large enough for the allied armies to encamp here in 1815, and the most remarkably diversified scene in the world: in the centre of all the Avenue itself, usually covered in fine weather with carriages; then wide asphalte foot-ways and gravel walks, with about five rows of trees on each side, and then the ground begins to assume the gardenesque aspect, and to become in short a first-rate pleasure-garden, exhibiting however, like most of the gardens about Paris, too much of the dotting about style and regular waving banks. Here and there among the trees may be seen neat and showy-looking buildings surrounded by a close planting of Rhododendrons or other shrubs, and with a rather large gravelled space surrounding each; these are cafés, where singing, music, &c., are to be heard in the summer—the summer residences of the music halls, in fact. On Sundays and fine days the wide tree-shaded walks are crowded with pedestrians; all the little games are in full swing, and though it may seem a queer jumble to some readers, so far as I have seen the whole thing is about as orderly as a crowd at a flower show, and there is not so much noise as one may hear amongst the boys in an ordinary London street. A little above this is the Rond Pont, a circular open space, where a lot of avenues radiate, and in which there are large beds for flowers, fountains, &c., disfigured, however, by attempting to undulate the small bits of Grass. From this point to the garden at the east end of the Louvre must be more than a mile and a half, all of which space is simply either garden, open space, or palace, and above the Rond Pont the Avenue becomes flanked with houses in the ordinary way, with a couple of rows of trees, and a fine bitumen walk between them, till it reaches the great arch, beyond which it runs in the same straight direction for miles into the country.

The arch is surrounded by an immense circular space, from which straight boulevards and avenues radiate in all directions. Now, I have read in a guide book strong advice to the visitor to Paris to see the lamps lit at night in the Champs Elysées, but if he should want to see the finest effect from lamps ever seen, he must go to this arch of a dark night, and standing in the centre look at their effect in the great avenues, which fall from where he stands, and afterwards walk round the arch to see them better still. With a horror of a London illumination and all others, as I thought, I have several times been induced to take a breathing in this direction late in the evening. It was the only thing worth seeing in the place during the middle of winter. Now, one of the avenues that radiate from this great circle is the Avenue de la Reine Hortense, and at its end may be seen large handsome gilt gates: they are the entrance to the Parc Monceau, and that is a place which should be seen by every horticultural visitor to Paris. It is not large, but exceedingly well stored, and judging from appearances will display a vast wealth of subtropical plants during the coming summer. I visited it for the second time on the evening of the 3d of May, and then it was positively radiant with the sweet bloom of spring-flowering shrubs and trees, and every bed and bank covered with Pansies, Alyssum, Aubrietia, and all the more known of the spring flowers, while thrushes and blackbirds were whistling away as if miles in the country, though it is only a few minutes' walk from the Rue du Faubourg St. Honore. It contains abundant plantations of good shrubs, large trees, with a few shady walks through them, masses of good shrubs here and there—I counted more than 150 plants of the fine Acer Negundo variegata in one clump—and around nearly all the clumps and beds are detached circular little beds just big enough for one plant, filled with sandy peat, and into which my cane sunk to the handle. These are for the choicer subtropical plants to be put out in three weeks' time or so, and as I have told you before that Theophrasta imperialis was one of the things grown for bedding out at Passy. Here, as in all the public gardens of Paris, may be seen the excellent edgings before described. A lot of specimens of Thuja aurea outside one clump of trees and shrubs is a handy illustration of the way they dot about the subtropical plants in summer; and, by the way, if we made good use of such plants we should have little want for costly subtropicals. This park—it is more properly a garden—has glowed with the refreshing beauty of spring-flowering trees and shrubs for the past three or four weeks, and will continue attractive till the close of autumn. In one large bed Aralia papyrifera is pushing up rather strong. I saw the same bed exactly three months ago snugly thatched over like a little flat house. It was laid out so long ago as 1778 for Philip Egalité as an "English garden," and passed through various changes, till it at last fell into the hands of the Municipality of Paris, a very astute corporation, who have converted it into a charming garden, and are not likely to part with it in a hurry. It contains a small and not pretty lake, half encircled with round fluted columns, and exhibits to the full the great fault of what may be termed the Parisian-English style of laying out grounds—a sort of ceaseless, monotonous, objectless and unnatural diversification of the ground. That and the lumping together of too many things in one mass are the weak points in the gardening of la Ville de Paris. Surely a better use could be made of the beautiful variegated Acer Negundo than putting many score plants of it in one great pudding-like bed! They do the same thing to some extent with the subtropical plants, but it is a fault which must be cured some day in the natural order of things. It is very likely that this "park" will contain a fuller illustration of the summer decoration of Paris gardens than any other spot, and therefore it should be seen by all who have the opportunity. The best way to go to the Bois de Boulogne from the Arc de Triomphe is along the grand Avenue de l'Impératrice, which is bordered by Grass, trees, Conifers, fine villas, gardening, &c., and is in itself worth seeing. It leads straight to the Bois, which I have before alluded to. This should be seen by everybody; and as La Muette at Passy or the great propagating establishment described in my first letter lies on its east side, exactly in a straight line between the Bois and the entrance to the Exposition, there is no lack of real horticultural interest in the vicinity.

I have previously described the best way to see the Bois—pass along the two lakes, L. Supérieur and L. Inférieur, and go on to the mound with the Cedar on it, the Butte Mortemart as it is called. The islands in the lakes have pretty little buildings on them, and from these islands on a fine day the fashionable driving along the avenues on each side may be seen to much advantage. This park illustrates how we improve by friction, so to speak. Till 1852 the Bois was a forest, a dwarf tangled one, too, for when the English and Prussians encamped in it in 1815, they cut down everything for fuel. But Napoleon III., in his admiration for English parks, determined to add their charms to Paris, or rather to improve upon them, and the Bois is one result. In concert with the municipality, the Emperor dug out the lakes, made the waterfalls, &c. As a combination of wild wood and noble pleasure garden it is fine. The deer are placed in a closed-off part to themselves, and there are some minor attractions which I have not space to allude to, such as the Pré Catelan, where they occasionally hold flower shows and other fêtes. The Cascade de Longchamps is certainly very beautiful and natural-looking, and is near the race-course of that name, to see which you must cross the Bois in a direct line from La Muette. The Bois is splendid, too, as regards size—much larger than the Phœnix Park at Dublin—in fact, nearly 2500 acres. Though I had large expectations in other directions, it never once occurred to me that the French could beat us in parks. There is another magnificent park at the eastern end of the city, which with the other public gardens of the city I shall treat of at a future time. To such as are alluded to before their summer ornaments are in position I can easily do justice in an article descriptive of the best features of the distinct system of bedding out pursued here, written when they are in the flush of beauty in August. Perhaps a word about prices may not be out of place. There is not any rise to be alarmed about, in any but the more expensive restaurants; lodgings, however, are very high, and altogether things will be far from so agreeable as they are in ordinary seasons in Paris. It is a city which every horticulturist should see, but except in particular instances it would probably be better to defer a visit till things can be enjoyed quietly, and without great expense, and great inconvenience. The Exhibition is certainly a marvel, but when it is gone and the Champ de Mars again level, the horticulture of Paris will be still to the good, while any real interest that may be met with, or facts which may be elucidated in the horticultural part of the great show, I shall, I hope, simply explain to you.

In addition to the remarks in last week's issue, respecting the third show at the Paris Exhibition, I have to state that three remarkable Orchids were added on Saturday, a Vanda tricolor about 8 feet high, and two plants of Cattleya Skinneri, each about 4 feet wide or more, masses of bloom, more like greenhouse plants of the days of Mrs. Lawrence in development than Orchids. They were sent by M. le Duc d'Ayen, were grown in large baskets of Moss with a few lumps of charcoal between, and were altogether extraordinary as regards their development. The house containing the New Plants probably contains the best lot of these that has been seen together for some time, not excepting those at the International, Mr. Ambroise Verschaffelt, Mr. Veitch, and Mr. Linden, each having very large groups for which they received 1st prizes, apart from the minor groups of new plants. Mr. Veitch is 1st with a group of new plants, 35 in number, and Mr. Linden 1st for 6 new plants, Messrs. Veitch being 2d and 3d, with two groups entered for the same prize, there being the difference of a quarter of a point between them and Mr. Linden, one marking 20 and the other 19¾! and which would, I believe, have been altered had the variegated Pandanus, or the elegant fine cut-leaved plant alluded to in my last, been substituted for a Croton which appeared in Messrs. Veitch's lot, and which, though fine as a Croton, was not so distinct from others in cultivation as the plants I have named—and entire distinction goes a long way with judges of new plants. A great number of Azaleas are shown, Mr. A. Verschaffelt and other Belgian exhibitors staging plants very finely bloomed and trained, after a flat, hemispherical style. Mr. Vervaene is 1st for a large collection, and Messrs. Veitch 1st for six, Messrs. Veitch being 2d for the single specimen; and, I think unfairly, for it is a not remarkable specimen of an old kind that has won the first prize. The judges objected to the English plant because of its elaborate training, &c., and perhaps not unjustly, but the plant which won was as prim as prim could be. Now an Azalea first trained into the loose, pyramidal shape, and then allowed to fall into a naturally diversified surface, is a much more pleasing object than one trained precisely in any shape; but if you object to an exact pyramid, why bestow a prize upon an even more exact pudding-shaped plant? The effect of the large conservatory with all these plants is not good, by and by I hope it may be improved by the addition of a large number of fine-leaved subjects, which are much grown in French gardens, and of which I saw a capital collection with Mr. Knight at Pontchartrain last Monday. M. Chantin is 1st for a fine collection of plants employed for the decoration of apartments, and Mr. Luddemann 2d. There is scarcely a decent house in this great city that is not embellished by a graceful "foliage plant" of some kind—not merely for particular occasions, but at all times. In windows within 10 yards of where I am writing this, the same Palms and Dracænas have been greenly growing for the past three months. This is a branch of gardening much better done in Paris than anywhere else, and being much interested in it I shall devote a paper to it some day, giving at the same time a list, with remarks, of all the plants shown in this class. The reader may best understand what is done in this way when I say that one nurseryman of Versailles, M. Truffaut, a most genial and excellent horticulturist, told me on Tuesday last that he invariably sells 5000 plants of one kind alone for this purpose, and that kind not a cheap one—Dracæna terminalis. Mr. Veitch was 1st with a single specimen new plant, a fine example of the best of all Marantas, M. Veitchii, winning it.

If there be one thing the corps of men under M. Barillet do better than another, it is watering the gardens thoroughly with the hose, a thing the British gardener has not yet learnt, with rare exceptions. The consequence is that the reserve garden looks as fresh as a bit of Killarney after a May shower. A nice collection of distinct Ivies has arrived from Angers since I last wrote. Great lamprey eels and other fish are beginning to swim about in fresh-water aquariums; the salt-

water aquarium, the most ingenious thing of the kind ever seen, is nearly ready, and when these are in working order, and the summer things planted, the garden will be the most attractive thing in Paris. *W. R.*

Home Correspondence.

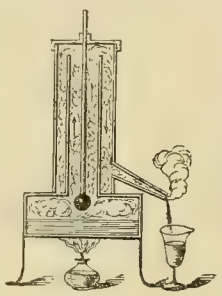
Manchester National Horticultural Exhibition.—It may be interesting to many of your readers to know that the preparations for this Exhibition are progressing with great spirit. From the centre of Manchester to the Botanical Garden, where the Exhibition is to be held, is a little over two miles, and the Old Trafford railway station is close to the garden. The site is therefore an excellent one in every respect. The entrance to the garden from the main road is by a splendid carriage way, with side gates of heavy iron and elegant workmanship; those who saw that gem of an Exhibition, of Paintings, called the Manchester Exhibition, will remember the garden entrance to it, which so much enhanced the beauty of the place, since the Botanic Garden became thereby the porch to the Temple of the Arts. The arrangements for the display of flowers and plants will be quite a palace of canvas, with an immense glass-house by way of reception room. Owing to the peculiar levels of the site, the Exhibition will be upon an inclined plane of easy descent, so that when you enter by the glass structure you come suddenly upon the top of the incline, and will get an isometrical view of the treasures as they are spread out in the vale below. The sheets of flower will have their lines broken by raised mounds, which will be gigantic flower-stands, tier above tier, neatly turfed, the true English background to the picture, for all foreigners admit that we excel in greensward. As regards the programme, it may suffice to say that any person may exhibit, either for sale or competition, if he will only give three weeks' notice to the Curator of what he intends to show. I have just gone through the schedule of prizes, and poor gardeners will be astounded to hear that the Manchester men offer the round sum of 1000*l.* as prizes to insure a gathering such as has not been witnessed, if we except the International of London, last year. I have watched the premiums offered to successful competitors at flower shows from their commencement at Chiswick 30 years ago, but I have never before seen such a liberal scale laid down. Whatever may be said or done in the way of improving the tastes of her Majesty's lieges in Lancashire and Yorkshire by this overwhelming spread, one thing is certain, that the left-hand breeches pocket of many a plodding meritorious British gardener will materially mend its furniture thereby. The show will be too early for fruit in perfection; and one might carp at the offer of 30*s.* for two bunches of Muscat of Alexandria Grapes ripened to a golden yellow, as they ought to be, by the first week in June. It is simply a mockery where 5*l.* is offered for a dozen plants of hardy Ferns from some ditch bank. Shades of the departed winners at Chiswick, John Wilmot and Charles Dowding, resent the affront. "Rise, Fathers, rise;" it is not Rome demands your help, but Manchester. As a sample of the offers made in the first and second classes, I may state that for 14 stove and greenhouse plants there is offered 20*l.*, 15*l.*, and 12*l.*, and for 20 exotic Orchids, 20*l.*, 15*l.*, and 12*l.*, making in round numbers 100*l.* to amateurs for the first two items. There are 33 classes for amateurs, 30 classes for nurserymen, and 17 classes for fruit (open to all). Arrangements for the show of implements and horticultural appliances have been made, from the sheath knife of the Cabbage grower, up to a galvanic battery. *A. F., Manchester.*

Preserving Pelargoniums during the Winter.—The following letter, received by T. H. Carr, Esq., of Fulwood Park, near Preston, from W. C. S. Chauncey, Esq., of Lancaster, in answer to an inquiry respecting his experience in the preservation of Pelargoniums during the winter, will, we are sure, be read with interest:—"At the end of last autumn I laid in a trench at one corner of my garden for the purpose of preservation during the winter of 50 or more Tom Thumb Geraniums. The trench was about 12 inches deep, in which the plants were laid covered with straw, the earth being heaped over them, so as to form a covering 12 or 14 inches thick, and shaped like a roof, to allow the water to run off. This morning the Geraniums were dug out of their beds; they were all alive except two which had rotted, though the winter has been very severe. They are now put in a dark place, prior to being potted, and put in the greenhouse. *W. C. S. Chauncey, Lancaster, April 23.*"

Lime and Leaf Compost.—Will some of your practical correspondents inform me in a plain way as to the effects of a mixture of leaf and lime compost, in which the latter considerably preponderates, upon shrubs, such as Juniper, Rhododendron, Bay Laurel, Portugal Laurel, and Arborvitæ; also upon Conifers generally, but especially on Deodar and Cedar of Lebanon. All the above are degenerating, having been planted in lime and leaf compost at various periods from three to ten years; the last as well as the first planted seem all sickly, and some Pines, eight to ten years planted, have died. Rhododendrons grow sickly the first year, and in three years the leaves nearly all fall off. The natural soil is clay loam, rather damp. Sheltered and exposed plants alike degenerate. *X. P. R.* [Lime is very injurious to Rhododendrons. Eds.]

Italian Plaster (see p. 466) is otherwise known by the name of Parian cement, and is in daily use by all first-class builders. *T. S. U., Staplehurst.* [We have received a circular descriptive of what is called "Italian Composition Plaster," which is described as a new material, and is said to differ from the plasters or cements previously known, by resisting all damp, so that newly-built houses plastered with it will be sufficiently dry to paint or paper in 48 hours. The sole agent for London is Mr. Henry Barker, 17, Harp Lane, Great Tower Street. Eds.]

Testing Thermometers.—Having seen no answer to Mr. Backhouse's letter in your Paper of the 19th January last on this important subject, and the degrees of cold produced by different freezing mixtures, I am induced, notwithstanding that the cold weather is now gone, to send you the following notes, extracted from Miller's "Elements of Chemistry," vol. i., in case you should think them worth inserting, as an answer to your correspondent:—"When matter passes from the solid to the liquid state, or from the liquid into the aeriform state, heat in large quantity disappears, and ceases for the time to affect the thermometer; hence this modification of heat is called latent heat. For example—when a lump of ice of 32° F. is brought into a warm room, it gradually thaws and is converted into water, but neither the ice nor the water in contact with it rises in temperature. So long as any portion of the ice remains unmelted, the water continues to indicate the temperature of 32°, as does also the ice. Test of a good thermometer: a good mercurial thermometer should answer to the following tests. When immersed in melting ice, the column of mercury should indicate exactly 32° F.; when suspended with its scale immersed in the steam



of boiling water in a metallic vessel, as represented in the accompanying figure (the barometer standing at 30 inches), the mercury should remain stationary at 212°; when the instrument is inverted, the mercury should fill the tube, and fall with a metallic click, thus showing the perfect exclusion of air. The value of the degree throughout the tube should be uniform. To ascertain this, a little cylinder of mercury may be detached from the column by a slight jerk, and on inclining the tube it may be made to pass from one portion of the bore to another. If the scale be properly graduated, the column will occupy an equal number of degrees in all parts of the tube. Freezing mixtures: 4 oz. nitre and 4 oz. of sal-ammoniac, each in fine powder, mixed with 8 oz. of water, reduce the thermometer from 50° to 10°. Equal parts of water and of powdered crystallised nitrate of ammonium, and of carbonate of sodium, also crystallised and in fine powder, effect a reduction from 50° to −7°, but with two parts pounded ice (or better still of fresh snow) and one part common salt," not equal parts of each, "a steady temperature of −4° Fahr. can be maintained for many hours. Again, three parts crystallised chloride of calcium and two of snow will produce a cold sufficient to freeze mercury, if before making the mixture the vessel in which the experiment is to be performed and the chloride be cooled to 32°. Such a mixture will cause a thermometer when plunged into it to fall to −50°." From the preceding it will be seen that your correspondent's thermometer from Negretti & Zambra marked about right, as he tested it in the cold frosty weather, when the salt used was about 32° probably to start with, and so produced the extra three or four degrees of cold below the −4° mentioned above. *C. E. F., Salop.*

Herbaceous Plants.—I am much obliged to "Ebor" for his additions to my selection, and shall be equally so to any person who may send the names of any really first-class things that I may omit. I would add that in endeavouring to do justice to this important subject of herbaceous plants, I have from my knowledge of the failures and misfortunes attending the growth of these fine plants, been induced to omit, except in the case of really fine and remarkable plants, all such as are difficult to grow, all such as are very difficult to obtain, and all such as are not first-class from an ornamental point of view. Were I to mention all the beautiful plants in this order, I should make a catalogue, and I know that the reason why people fail in producing the highest beauty from their herbaceous borders is that they grow too large a number of badly selected kinds. I would also remind your correspondent that I did not omit Anemone palmata, and I did not enumerate its varieties because I felt I could do better than by calling attention to really first-rate plants that are obtainable, and because I am certain that if a first-rate species be grown, its varieties are also sure to receive attention. Neither do I look through the genus botanically, or I could mention fine kinds, but which might prove useless in cultivation. I do not, if I can help it, mention a plant unless I know it to be hardy in our climate. What we first want is to get all the really valuable hardy plants into the notice they deserve. All the plants I mention I have grown or seen growing, and in many cases in various soils and positions, so that I have a pretty good idea of their value for the country generally. I have observed that some things, useful for one part of the country, are perfectly useless for another, and to such we cannot give the first position, considering the great number of first-rate subjects that may be grown with ease in all parts of the country. Meantime I have good opportunities of studying this subject fully, and now add the names of some fine things which I have recently become acquainted with. The most distinct and noticeable is Fritillaria latifolia, which may be described as a large and noble Meleagris, and altogether a fine bulb; Iris nudicaulis, a very dwarf but free-growing kind, with broad, fat leaves, however, and producing a mass of large flowers of a dark and beautiful purple—masses of rich colour on the ground in fact; Yucca lutescens; and the splendid Anemone fulgens, which has been before alluded to in your columns. Of combinations of herbaceous plants, the sweetest thing I have seen of late, was an edging a foot wide or so, composed of the three forms of Iris pumila, the yellow, the pale blue, and the dark purple. Jeffersonia diphylla, considered an interesting botanic garden plant generally, I have also seen lately grown in fine sandy peat to a large size and really ornamental character; and also Anemone pavonina, a bright flower, which I am not sure would grow everywhere freely in England, but which should be fairly tried in every select collection of herbaceous plants. One or two of the above are not to be had in the trade perhaps, but I make no doubt that Messrs. Backhouse or Henderson, or some other enterprising cultivators of hardy plants, will add them to their collections. I also wish to add that Trollius napellifolius is infinitely superior to any other species I have seen in cultivation. As there are such an immense number of second-rate hardy plants, distributed over cold and temperate regions, we should first select those A 1 in all respects. *Stet.*

Prospects of the Forthcoming Apple Crop.—I regret to say that appearances in my immediate neighbourhood bespeak a sad falling off in the Apple crop of the ensuing autumn. Writing somewhat within bounds, there would seem to be a deficiency of about 90 per cent. of actual bloom, compared with data derived from some five years' experience. The immediate cause of this untoward poverty of Apple bloom would seem to be due to the ill-effects of the past severe winter, as very generally the trees show abundant remains of the peduncles of now abortive flower-buds. These are observable plentifully upon trees which are not likely to have a single example fully expanded. Young trees and old seem to have suffered alike in this respect in kindred positions. Though instances are not wanting of individual trees having still a fair proportion of flower, yet it is certain that here at least they are "but few and far between." Pear trees, on the contrary, are marvellously productive in the way of bloom this season. A similar remark might also be made with reference to Cherries and Plums, the majority of which, excepting Morello Cherries, are now well set, and are consequently free from frost, with the exception of such as would be capable of destroying the harder enveloped pericarps themselves. How fare others, in this wise, especially as regards the not hopeful phase of Apple bloom? *William Earley, Digswell, S. Herts.*

Solanum Capsicastrum.—This has proved itself with me to be more hardy than I think it is generally considered to be. It has stood out of doors here during three winters, including the last. It has often borne from 5° to 10° of frost without the slightest damage, and last winter, when the thermometer fell to 8° above zero, it escaped without hurt. No doubt the snow protected it in a great measure, yet to have ripened its berries, as this plant has done in such cold, while Bays, Euonymus, &c., close to it, have been killed to the ground, gives sufficient proof that it possesses a degree of hardiness hitherto unexpected. This fact, together with the evidence it had already given us of its well-doing out-of-doors, will lead many to prolong the stay of the plants in their quarters in the autumn, and also to place them out earlier than is usually done in the spring. Perhaps it would be too much to expect it to become a plant of sufficient hardiness to assist us in filling our flower beds in winter. Yet in sheltered positions I should not be much afraid of it in ordinary winters after the test to which it has been here subjected. *H. M., Enys, Penryn.*

Societies.

Royal Horticultural: *May* 4 (*Weekly Show*).—The first of these shows to be held during this month and next took place last Saturday, when prizes were offered for Pelargoniums, miscellaneous plants, Azaleas, baskets of flowers, and collections of fruit.

Of Pelargoniums Mr. Wilkie, gr. Oak Lodge, Kensington, and Mr. Bartlett, Hammersmith, furnished groups; and Mr. Wilkie had also a collection of Miscellaneous plants, among which were Dendrobium nobile, Azalea crispiflora and Erica candidissima, in good condition. Mr. Bartlett also had a collection of plants. The only exhibitor of Azaleas was Mr. Wilkie, who had variegata, Marie Vervaene, and Coronata. Mr. Earley, gr. to F. Pryor, Esq., Digswell, obtained a 1st prize for cut flowers, of which Mr. Bartlett and Mr. Wilkie also showed collections. Mr. Lynn, gr. to Lord Boston, Hedsor, obtained a 1st prize for fruit, among which was a dish of Figs, Sir Charles Napier Strawberries, and a dish of Black Hamburgh Grapes. Mr. Earley obtained a 2d prize, and was also awarded an extra prize for a dish of Vegetables. An extra prize was also given to Mr. Morgan, Ball's Park, Hereford, for a dish of Keens' Seedling Strawberries, and a box of cut Roses.

May 7 (*Special Prize Show*).—Owing to the number and striking beauty of some of the novelties produced on this occasion this was an unusually interesting exhibition, which was also well supported in other departments. The day, too, was one of the hottest and most brilliant which we have experienced this season.

The President's prize for 9 Azaleas was won by Messrs. Veitch, who had magnificent specimens of Præstantissima, Extranii, Criterion, Roi Leopold, Trotteriana, Carnea superba, Magnifica, Delecta, and Chelsoni, the last a brilliant orange scarlet.

Another prize offered by the President for Roses in pots was cleverly carried off by Messrs. Lane, with beautiful examples of Souvenir d'un Ami, Vicomtesse de Cazes, Chénédolé, Anna Alexieff, Charles Lawson, Paul Perras, Gloire de Dijon, Victor Verdier, and Coupe d'Hébé. Mr. William Paul received an extra prize for another beautiful collection, in which were Souvenir d'un Ami in excellent bloom, Anna Alexieff, Pau Perras, Paul Delamefilleray, Victor Verdier, Madame C. Wood, Comtesse de Chabrillant, Madame de St. Joseph, and President. Messrs. Lane also contributed several young flowering plants of the magnificent new yellow Rose Maréchal Nicl.

Mr. Wilson Saunders offered prizes for the best 10 Orchids and the best 6 Show Pelargoniums. The former was carried off by Mr. Penny, gr. to H. H. Gibbs, Esq., St. Dunstan's, Regent's Park, with Phalænopsis grandiflora, with three fine spikes of large flowers; Cypripedium villosum in fine bloom, Saccolabium curvifolium, and Lælia cinnabarina, each with four spikes; Dendrobium primulinum, with seven spikes; Vanda suavis, V. tricolor superba, the yellow and brown Oncidium sarcodes, and the Foxbrush Aerides. The prize for Pelargoniums was

won by Mr. Turner, of Slough, with finely-bloomed plants of Patroness, Beacon, Desdemona, Mdlle. Patti, Empress Eugénie, and Rose Celestial. Mr. Wiggins, gr. to Walter Beck, Esq., received an extra prize for half a dozen plants, among which the most conspicuous was Roscum, a variety remarkable for the brilliancy of its rich rosy-red colour.

Major Trevor Clarke's prize for the best collection of Fragrant blossomed Plants was but poorly contested by Mr. Reeves, Campden Grove Nursery, Kensington, who had Mignonette, Stocks, Gardenia florida, Ixora acuminata, Stephanotis floribunda, Daphnes, Boronia serrulata, Nerium splendens, Orange tree, Acacia armata, Jasminum ligustrifolium, Heliotrope, Petunia, Rose, Lily of the Valley, and one or two other plants, all small, and devoid of any distinguishing character either as regards growth or bloom.

New Plants, as already alluded to, constituted the most important feature of the show. For the best six plants sent out in 1865 and 1866, Messrs Veitch & Sons were 1st with Primula cortusoides amœna, bearing rich magenta white eyed flowers as large as a florin, and said to be perfectly hardy; the beautiful Maranta rosco-picta and Veitchii, Verschaffeltia splendida, Dieffenbachia Weirii, and Begonia Pearcei, the latter with rich velvety dark green leaves veined with pale green. Mr. Bull was 2d with Maranta rosco picta, Verschaffeltia splendida, a beautiful Palm; the silvery-veined Fittonia argyroneura, the rose-spotted Bertolonia guttata, Zamia villosa, an elegant species, and Anthurium regale, resembling magnificum, with leaves of a bronzy green colour prominently veined with pale green. Mr. Williams, of Holloway, sent the Variegated New Zealand Flax, Dieffenbachia Weirii, Dracæna sanguinea, Maranta Lindeni, a glaucous Gleichenia, and a panful of Chrysanthemum Sensation, which, in general appearance, is not unlike Lady Plymouth Pelargonium. With new plants of the present year, Messrs. Veitch were again 1st, with Sanchezia nobilis variegata, a stove Acanthad with large elliptic leaves having yellow bands radiating from a yellow midrib; Coleus Veitchii, from New Caledonia, with dark chocolate leaves edged with bright green; the slender Panicum variegatum, also from New Caledonia, with rose, white, and green striped foliage; Dieffenbachia Pearcei, noticed before in our columns; Hypocyrta brevicalyx, from Ecuador, with nearly orbicular silvery veined leaves; and Lomaria ciliata, from New Caledonia. Mr. Bull was 2d, with two Peruvian Dichorisandras, named D. mosaica, with dark green leaves, lined transversely with pale green and brownish purple on the under side; and D. undata, with undulated dark green leaves, ornamented longitudinally with pale green bands; Agave macracantha, with glaucous pale green leaves edged with bold brown spines; the elegant Adiantum Lindeni; Maranta illustris; and Bignonia ornata from Rio Negro, the latter with broad lanceolate leaves, which when young are of a bronzy hue, with a rosy variegation along the midrib, but which becomes silvery in older foliage. For the best new plant shown for the first time in flower, a prize was awarded to Mr. Bull for Dalechampia Roezliana rosea, of which a brilliant representation will be found in the last number of the Botanical Magazine. In the same class was a scarlet-flowered Begonia, from Bolivia, which promises to be an acquisition, inasmuch as its showy flowers seem different both in shape and shade of colour from anything of the kind now in cultivation. This came from Messrs. Veitch, and received a First-class Certificate. As the best new plant with ornamental foliage, Messrs. Veitch showed a species of Alocasia from the East Indies, having nearly heart-shaped bright green leaves, marked with dark chocolate in sections between the green veins, and altogether a very handsome foliaged plant, to which a 1st prize was deservedly awarded; a First-class Certificate was also given to Mr. Bull, for Ptychosperma regalis, a handsome East Indian Palm. For the best new garden seedling, the prize was taken by Messrs. Veitch with a pretty hybrid Cattleya. The last-named firm also contributed an extensive collection of recently introduced and rare plants, among which were Anthurium Scherzerianum with three splendid spathes; Hippeastrum equestre, the beautiful Bertolonia margaritacea and guttata, the red-veined Gymnostachyum Pearcei, a panful of Davallia alpina, the handsome Retinospora plumosa, Miconia peruviana, with large and beautiful Sphærogyne-like foliage, Palicourea discolor, Maranta Veitchii, and Acalypha tricolor with coppery foliage From Mr. Bull came a similar collection, including Terminalia elegans, Dieffenbachia Weirii, the silvery-mottled Habenaria margaritacea, Eranthemum igneum, with deep green leaves and bold orange veins, Rhopala aurea, having the stem and leafstalks covered with orange down, Bertolonias, Anæctochilus Petola marmorea, Dæmonorops elegans, a handsome-looking plant for table decoration; several new Ferns, and other plants.

Of Fine-foliaged and Flowering Plants mixed, several remarkably fine groups were exhibited. That from Messrs. Lee, to which a 1st prize was awarded, consisted of a handsome specimen of Alocasia metallica, Rhopala corcovadense, Croton variegatum, Theophrasta imperialis, Dicksonia antarctica, with a noble trunk, a very large Pandanus elegantissimus, one of the best flowered specimens of Genetyllis which we have seen; Medinilla magnifica, with splendid panicles of bloom; Azalea Lecana, Erica Cavendishiana, Polygala cordifolia, and Pimelea spectabilis, Mr. Williams, who was 2d, had remarkably fine specimens of Palms, together with Variegated Aloe-leaved Yuccas, Pandanus elegantissimus, and Alocasia metallica; Azaleas, Eriostemon pulchellus, Erica Cavendishiana, and other plants. An extra prize was awarded to Mr. Fairbairn, gr. to the Duke of Northumberland at Syon, who had some noble Palms, large specimens of Alocasia zebrina, and A. macrorhiza variegata, Phalænopsis grandiflora, Vandas, and other plants. Similar awards were also made to Mr. Wilkie and Mr. Gell. Messrs. Lee received a 1st prize for the best 12 stove and greenhouse plants in flower.

Of Cape Heaths Mr. Wilkie was the only exhibitor; and in the class of Exotic Ferns in 12-inch pots, Mr. Williams was first with good examples of Dicksonia antarctica, Alsophilas, Gleichenias, a fine Platycerium grande, Adiantum Féei, Todea superba, and others.

Of Miscellaneous subjects Messrs. Veitch contributed a charming group, consisting of Azaleas Stella, Marie Vervaene, and Holfordii; the white-flowered Rhododendron Sesterianum, Hoteia japonica, Clianthus Dampieri, Coleus Veitchii, and the variegated-leaved variety of Hemerocallis fulva. Messrs. Lane had a beautiful group of Azaleas, and Mr. Burley, of Bayswater, Palms and Dracenas, for which an extra prize was awarded; Mr. William Paul furnished a box of cut-blooms of early summer-flowering shrubs; and Mr. Dean, Ealing, cut blooms of double Tulips. Mr. Anderson, Meadow Bank, and Mr. Sherratt, gr. to J. Bateman, Esq., Knypersley, both sent cut Orchids, among which were the beautiful Dendrobium chrysotoxum, a Saccolabium, Phalænopsis grandiflora, and others. The beautiful Oncidium bifolium mentioned in our last (see p. 460), came from Mr. Bateman.

Subjects which came more immediately under the notice of the Floral Committee were numerous. Mr. Muir, gr. to Sir P. de Malpas Grey Egerton, Bart., M.P., received a First-class Certificate for Epidendrum cnemidophorum, with three spikes of gracefully drooping flowers borne at the end of long slender shoots. In addition to the beautiful specimens of Cattleya citrina exhibited by Messrs. Low, to which allusion is made elsewhere (p. 488), they had a white variety of Odontoglossum citrosmum, which received a First-class Certificate, and a collection of beautiful Orchids, for which a Special Certificate was awarded. Mr. Turner furnished seedling Auriculas and Pelargoniums, of which some account will be found in another column. Messrs. Rollisson, Tooting, had a First class Certificate for Erica Turnbullii, a variety between odorata and vasflora in aspect; and a Second-class Certificate for Erica tubiformis, both promising kinds. From Messrs. Downie, Laird, & Laing came Nosegay Pelargonium Rose Stella, a variety of great merit, which will be a useful bedding plant, and of which some account will be found in next column. Mr. William Paul sent a large collection of seedling Zonal Nosegay Pelargoniums, among which Waltham Nosegay was awarded a First class Certificate; Dr. Hogg was awarded a First class Certificate. An Elm from Japan, also shown by Mr. W. Paul, was awarded a First class Certificate. Iberis carnosa, a very dwarf plant for rockwork, which came from Messrs. Backhouse, of York, also had a First class Certificate. Mr. Williams sent Azalea Reine des Roses and Amaryllis aurantiaca. From Mr. Barnes, Camberwell, came Azalea Her Majesty, a fine flower, which received a First class Certificate on a former occasion. Mr. Watson, St. Alban's, again exhibited Pelargoniums Mrs. Dix and Miss Watson, both good in character. Mr. Richards, gr. to Lord Londesborough, sent a Saccolabium curvifolium, brighter-coloured than usual, which was awarded a Special Certificate. Mr. Bull exhibited a bright rose-coloured seedling Azalea Charmer, which has been noticed on former occasions.

In the department under the care of the Fruit Committee, Mr. Turner, of Slough, received a Special Certificate for three well ripened bunches of Muscat Grapes; also for three bunches of Black Hamburgh, in excellent condition. Mr. Merrett, Battersea, sent a box of Sir Charles Napier Strawberry, very fine in flavour, and the same exhibitor had a Special Certificate for six plants of the same in pots. A similar award was made to Mr. Fairbairn, for seven pots of Keens' Seedling, likewise bearing an abundance of finely-ripened fruit. Mr. Gardiner, Weston House, sent a dish of Peaches, and Mr. Earley, Digswell, Sturmer Pippin, Sam Young, and Cockle Pippin Apples in good preservation. From the same exhibitor also came fine heads of Williams' Alexandra Broccoli, which received a special certificate, and from Mr. Dean, Ealing, selected Stanstead Park Lettuce, a most excellent Cabbage variety, and a variegated-leaved Cabbage.

Sixteen new Fellows were elected, and the Stour Valley Horticultural Society, Ludlow Horticultural Society, Bodmin Cottage Gardening Society, and Basingstoke Horticultural Society, were affiliated.

Notices of Books.

The *Technologist* for the present month appears under the auspices of a new editor, Mr. G. Y. Hunter. It is enlarged in size, and contains a great variety of pleasantly written and instructive articles. It is not so exclusively devoted as it was at one time to economic products and their utilisation, but is much more general in its scope, being, as its title now implies, a popular magazine of general information.

We have to mention the publication of a second edition of Dr. Stephen Ward's lectures on *Healthy Respiration* (Van Voorst). The plain unvarnished facts relating to this all-important function are here stated with clearness and conciseness. The book is "popular" in the best sense of the word.

Dr. W. M'Nab has recently published in the Transactions of the Botanical Society of Edinburgh, a classified list of the *Selaginellas cultivated in the Royal Botanic Gardens, Edinburgh*, as well as in other establishments. The author is however hardly justified in assuming that Dr. A. Braun's paper on cultivated Selaginellas "has been entirely overlooked in this country." That paper is well-known and appreciated by those who study these plants, and what is more, Mr. Smith's list of these plants in his "Ferns, British and Foreign," is, like the above, drawn up in conformity with Braun's views. Dr. M'Nab describes a new species, S. Veitchii, introduced by Mr. J. G. Veitch from Japan. As we intend shortly to publish a full list of the cultivated species of this elegant genus, together with their distinctive characters, drawn up by Mr. J. G. Baker, we confine ourselves to the notice of the above list of Dr. M'Nab's, which will be useful to many as a catalogue of cultivated species, with their synonymy, &c.

Florists' Flowers.

THE AURICULA bloom, as far as it has been seen at the London shows during the present season, may be said to have culminated at the Special Prize show at South Kensington on the 7th inst., as the prevailing hot weather will soon tell upon the flowers. On this occasion Mr. Turner staged a very fine lot of the show varieties, the trusses being generally of good average size, the pips large, smooth, and clean. There were a few flowers among them of extra fine quality, such as Lancashire Hero (Cheetham), the paste of which was very smooth, and the pips large and stout; Smiling Beauty (Heap), the dark ground colour of which was thrown up very strikingly; Apollo (Hudson), very fine; Sophia (Chapman), ground colour purplish violet, well defined, and smooth white paste; Belisarius, green-edged variety, forming a good truss, but the pips a little rough; Great Eastern (Smith), distinct pure yellow eye, remarkably well shouldered, fine pips; Earl Grosvenor (Lee), a very fine white-edged variety, the ground colour dark violet crimson, with pure white smooth paste, and greenish yellow eye, fine pip and truss; Lycurgus (Smith), ground colour bright claret crimson, pips very bold and striking; Sir Wm. Peel (Lightbody), fine and bold truss; and Star of Bethlehem (Lightbody), eye good and well shouldered, ground colour purplish crimson, though somewhat running into the green edge as shown; a very distinct variety, possessing a great deal of merit. This fine and large collection was deservedly awarded a Special Certificate.

Still more Alpines, and so rich and varied are they as to be well worthy a close inspection. The hot weather had, however, told upon these severely, and the heat of the conservatory robbed many of the flowers of the charms they possessed in the early morning. A First-class Certificate was awarded to Bertha (Turner), pure greenish-yellow paste, with dark crimson ground colour, distinctly margined on each segment of the pip with pale violet; and a Second-class Certificate to Novelty (Turner), another of the "Fancy" kinds, having a pale yellow paste, with a dark blotch at the base of each segment, with broad margin of pale violet, changing to buff with age. This has a very novel and somewhat striking flower, and deserved the award made for these, though the pin of the eye was too prominent amid the thrum. Wonderful (Turner), is an extra-sized flower, with a clean and smooth, bright yellow paste, well shouldered; large dark, velvety blotch on each segment, and margined with bright rosy crimson; the flowers rough and indented. Marion (Turner) is another "Fancy" flower, the ground colour silken velvet, with distinct margin of pale violet; very striking character, but the pin of the eye was much too prominent. One of the most conspicuous flowers was Landseer (Turner), the ground colour of which was a bright claret crimson, with pale yellow paste, somewhat rough; its large and showy trusses were freely produced, and the habit was excellent. Annie (Turner) forms the last of the most distinct flowers, the paste clear white, and very smooth, with a narrow dark circle, broadly edged with rosy crimson and lilac; of thin substance, but showy.

A grand lot of Tulips also came from Mr. Turner, the blooms being pure and of fine quality. Of Bizarre flowers the following were the best:—Everard, very fine: Dr. Horner, very fine; Geo. Hayward, Polyphemus, Sir J. Paxton, Caliph, Vivid, Henry Groom, Lord Canning, Shakespeare, Lord Raglan, and Glory of Abingdon. Of Byblœmens—Duchess of Sutherland (Walker), Queen (Rutley), Nora Creina, John Kemble, Adonis, Queen Charlotte, Lady Grenville, Duchess of Cambridge, Queen Victoria, and Desiderata. Of Roses, Cerise à belle forme, Sarah Headley, Aglaia, Maid of Falais, Emily, Lady Stanley, Lady Waldegrave, Duchess of Sutherland (Gibbons), Rosy Morn, and Rosa Bianca.

A batch of Seedling Cinerarias and also of Fancy Pelargoniums were also contributed from Slough. The former were but of average quality, and generally the habits of the plants were somewhat spare and thin. The best flower was a large dark purple self, named Uncle Tim, the florets broad and stout, forming a bold flower, and having a good dark disc. The others worthy of notice were Redan, a large bright rosy purple self; Imperator, deep margin of rosy crimson, with a narrow ring of white round a dark disc; flowers large and bold, but the habit very irregular; and Agrippa, pure white ground, with narrow margin of rosy lilac, and dark disc, florets stout and broad, and good outline.

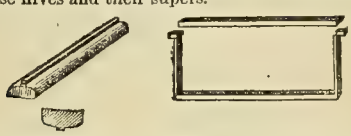
First-class Certificates were awarded to the following Fancy Pelargoniums:—Pink Perfection, large bright rosy pink flowers of fine form and quality, with white centre, bold and very striking, good habit and a fine exhibition variety; Brightness, bright rosy carmine, the lower petals having a distinct narrow edging of white, and pure white centre, a flower of excellent form, smooth and stout, and will be a good exhibition flower; Perfection, the top petals claret crimson with narrow margin of rosy lilac, lower petals veined and dashed with rosy claret, excellent habit, flowers of fine form, stout and smooth; and Belle of the Season, pale ground, lower petals with rosy carmine blotches, upper petals rosy crimson, good form and substance, and very free blooming. Second-class Certificates were awarded to Maid Marian, upper petals rose dashed with violet, lower petals white spotted and veined with bright rose, a good flower; and Marmion, rosy crimson suffused with violet and margined with pale rosy lilac, conspicuous white centre, flowers large, stout and well formed, and the habit free blooming.

Of Bedding Pelargoniums shown on this occasion, Messrs. Downie Laird & Laing's Nosegay Rose Stella appeared in the front rank. It has the foliage of the parent variety, but seemingly more close and compact, the trusses of rosy-pink flowers are large, and very attractive: it well deserved the First-class Certificate awarded. The same award was made to Mr. William Paul for a large and well-grown plant of Waltham Nosegay, a plain-foliaged kind, the habit close and short jointed, and having a profusion of good trusses of vivid crimson flowers, altogether promising to make a splendid and reliable bedder; and for Dr. Hogg, well-defined zonal foliage, excellent habit, producing trusses of purplish-rose flowers, of a charming shade of colour. Some small plants of several other varieties that looked very promising, and which will no doubt be seen again, were also shown by Mr. W. Paul. *B. D.*

The Apiary.

BEE-CULTURE: HIVES (*continued from p. 404*).—During the first season, it is seldom that these large-sized hives require, or will work in, a super, though under peculiarly favourable circumstances additional room may be advantageously afforded. As a rule, we may suppose that no super will be necessary during the first summer of the swarm's occupation. Little attention will be required until the autumn, when the hive should be weighed or examined, and any deficiency in the supply of stored food must be made up. Tilt the hive somewhat forward by placing wedges of about 1½ inch or 2 inches wide under the floorboard at the back. This allows any accumulation of internal moisture to run off, and facilitates the removal of dead bees or other refuse. During the winter but little care or attention will be required. As the succeeding spring advances, it will be necessary to ascertain, by actual examination or otherwise, the exact condition of the interior. If stored food should be nearly exhausted, care should be taken to supply a small quantity about twice a week. When the warm weather arrives, the hive will be in good condition for taking the best advantage of it. At the end of April or early in May, remove the cover, and substitute for it the thin adapter. This should, as in all other similar operations, be effected by sliding it gently on from behind, taking care not to put it down on any bees. Not a bee need be

crushed if the operation be performed carefully. Then take a super, of any shape which may be preferred, and slip that on in the same gentle manner. The supers I prefer for these hives are of two kinds; large octagonal boxes, either of glass or wood, or square wooden boxes. The octagonal supers are usually 13¼ inches in diameter, by from 5 to 8 inches in depth. The second kind of super is a square shallow box, constructed to carry the bars which fit into the frames of the main hive. These are 13¼ inches square, varying in depth from shallow ones of 3 inches, without notches for bars, being only used to serve as ekes or raisers, to some of 4½ inches with notches for eight bars sunk below the top only their thickness; and others of 5⅝ inches in depth, the bars sunk as in the main or stock hive, that there may be ⅜ of an inch between the upper surfaces of the bars and the cover. The bars may be placed wider apart than in the body box, for the purpose of obtaining thicker combs; therefore I have said eight bars instead of nine, which last number would be right for a breeding compartment of that diameter. The movable bars, fitting alike either the supers or the frames of the stock box, are great adjuncts to the successful working of these hives and their supers.



By their use, bars containing clean comb can be transferred from any stock to a super, or at times from a super to a stock hive. The bars may be ribbed as in the diagram, or, when it is desired to attach guide combs, they may be constructed without the ribs. Some of each will be found the most useful. When no guide comb is attached, the ribs must be smeared with melted wax. The super having been added, the hive should be properly covered with the case, and if necessary shaded from a very hot sun. In the course of a fortnight or more, it may be advisable to give additional room; this should be effected by slipping a second shallow super, with or without any bars, between the super and the stock. If the season is good this second super will be quickly filled, and even a third may be necessary. In adding these after supers, great care is requisite not to break the combs, or crush the bees. A thin wire should be drawn through between the super and the adapter to sever any attachment of comb to the latter that may have taken place. Then, by the aid of several thin wedges, the supers may be adjusted with the loss of few or no bees. The operator should be well protected, as frequently a most savage attack will be made. Promptness and decision, with great gentleness, will, however, save the operator from much of the annoyance, which the reverse would ensure to one less careful.

If one of the deepest supers has been first worked in, and it appears that additional accommodation is necessary, according as the honey season is then advanced, add one of the shallow or deep supers without any bars or adapter. The combs will be continued down to the bottom of the space thus afforded. Sometimes a third and even a fourth eke has to be given. It will then be advisable to insert bars, or the combs will be unable to sustain the great weight. I have had these supers piled 15 inches high, and filled from top to bottom with splendid combs of honey, uncontaminated by a cell either of brood or pollen.

When considerable progress has been made in comb-building, sometimes my suspicions are aroused as to the probability of the queen having ascended to fill the cells with her eggs. I then do not hesitate to remove the top of the super, take out and examine the combs, and if any contain eggs or larvæ, these are, if of worker brood, transferred into some young swarm, or artificial nucleus box, to assist and strengthen it. Drone brood is usually destroyed. Bars furnished with guide combs are inserted where the others previously stood. The queen will have most probably been induced to take refuge in the lower or stock hive, and is not very likely to ascend again. The bees quickly repair damages, and, if the weather continue favourable, fill up the vacant spaces with new combs. At the close of the honey season any unfinished or unsealed combs are put carefully by to be used as guide combs, or helps the following year. If the combs contain honey they should be given to some hive to clean out prior to putting them away. *S. Bevan Fox.*

Bees.—N. E. L. L. (next week).

Miscellaneous.

Death of Mr. Dobson, Sen.—We regret to have to announce the decease of Mr. Dobson, Sen., of Woodlands Nursery, Isleworth, which took place on the 3rd inst., after a long and severe illness, which he bore with patience and resignation. As a cultivator and raiser of Pelargoniums, Cinerarias, and other Florists' flowers, both while acting as gardener to the late E. Beck, Esq., and subsequently at his nursery at Isleworth, Mr. Dobson's skill, perseverance, and success, are well known amongst horticulturists; and his productions at the Metropolitan Exhibitions have always been of a highly creditable character.

Garden Operations.

(*For the ensuing week.*)

PLANT HOUSES.

Fuchsias will now need especial attention according to the advanced stage of growth to which individual collections may have attained. Do not delay starting any much later than this; place them in a warm moist atmosphere, after having first reduced the old balls, by shaking the soil well away from the roots, and repotting into small pots. Those which have previously undergone this operation will require shifting into pots two sizes larger than the small ones in which they were first placed, as soon they have made a fair start at the root. The compost most suitable at this stage will be the best of loamy turves, thoroughly decomposed, three parts, and well rotted spit manure and leaf-mould, in equal proportions, one-part with one-fifth of the whole of silver sand. Crock the pots thoroughly with the least possible number of potsherds. Pot only moderately firm, and do not fill the pots too full of compost, as space for future top-dressing will be needed with the view of giving them all assistance possible when laden with flowers, and when the roots are pot-bound. As they continue to grow, regularly pinch in all stronger growing shoots; an operation which should be performed decisively, or otherwise, according to the necessity of affording all possible assistance to growths of lesser strength in their immediate neighbourhood. With the view of securing a good main shoot, or leader, it may occasionally be necessary to shorten a plant more or less down to where a good strong shoot exists for such a purpose, and by thus reducing the height of a too leggy-formed frame-work, in two or three-year old specimens, greatly enhance the future symmetrical appearance of the plant, independent of affording additional support to the remaining parts. Pot off all cuttings as soon as they may have become fairly rooted, into a similar compost to that recommended above, with a slight addition only of a little more leaf-mould and sand, and chopping the loam smaller. Give all such a moderate amount of bottom-heat where practicable. Syringe freely, and maintain an even moist temperature, varying from 55° by night to 65° by day, moderated during intense sunshine by shading. *Exotic Ferns* will now need an atmosphere constantly surcharged with a soft humidity. Water all lesser varieties, such as Adiantums and the like, freely over head with a fine-rosed water-pot on every favourable opportunity, and especially when they are forming young fronds. This will assist them much in forming fine masses. Do not continue to do so, however, when these are once fairly formed, but depend more upon a constant supply of atmospheric moisture, as when fronds are once formed they do not afterwards receive so great assistance from actual syringings as is generally supposed; moisture, in fact, tends to destroy the fronds rather than benefit them at that stage. Pot any which may be more or less pot-bound. With few exceptions they prefer good fibrous peat, broken potsherds, &c., well intermixed together. *Chrysanthemums* which were put in as cuttings will now need potting off into single pots. A compost similar to that recommended for Fuchsias will suit them well at this stage, with a little more leaf-mould added thereto. When potted, place them in a close cool frame for a few days, occasionally sprinkling them overhead. Pinch the points off in a week or so, and harden them off, by gradually inuring them to full sunshine and open air. Continue to put in cuttings where more are needed; they will make fine plants even if put in after this date; indeed, where plants are required for ordinary narrow stage work, they are best put in later.

FORCING HOUSES, PITS, &c.

Melon plants will now need soiling over in a general way for the last time previous to fruiting. This will be the case when they have fairly started into growth, and are making some progress toward filling the allotted space intended for them. Good stiff yellow loam alone is suitable for them at this stage. In placing it over the roots, a space some 3 feet in diameter at least should be soiled over to the depth of 3 or 4 inches; though, as in the case of frames, ordinary-sized pits, &c., it is best to soil all internal spaces well over. Do not bury the crowns too deeply, and thoroughly ram the soil down in layers as it is put in, making it as firm as possible in the operation; finish the whole surface off as level as possible, with the view of assisting future waterings, to drain down evenly throughout the whole. *Cucumbers*, at a similar stage, will also require earthing up. The soil most suitable for them, however, will be a good open loam, with a moderate quantity of well rotted manure intermixed; press it down with moderate freedom only, and, in so doing, bury any portions of the old vines which are likely, by emitting fresh roots, to aid the parent plants in their efforts to furnish a continuous supply of good sound fruit. Give both an abundant supply of water at this stage, watering them, and shutting them down closely at half-past three P.M., daily, upon sunny afternoons; the real quantity of water to be given them upon respective days to be judged by the fact as to whether the roots are so dry as to necessitate more than such a sprinkling only as will engender a nice moist warm atmosphere, in which they are to remain during the night, &c. Continue pinching back all grosser shoots, tendrils, and the like, and to stop each shoot bearing a fruit, at one leaf beyond the joint where it is placed.

HARDY FRUIT GARDEN.

Keep a searching eye upon *Peaches*, *Nectarines*, and *Cherries*, for, as previously surmised, I fear that aphis pests are too abundant everywhere; constantly syringe the trees with the proper solutions, as frequently as any insects are seen to remain alive, and use every effort to thoroughly destroy them, bearing in mind the fact that a high state of culture cannot possibly be attained contemporaneously with broods of aphides. *Gooseberries* should also be constantly looked over, to see if any symptoms of the Gooseberry caterpillar exist. Looked carefully after at this date, they may often be detected under leaves which have been slightly punctured in one or more places, where a whole brood might often be secured by pinching off the single leaf containing them, while if left a few days, and until they become diffused throughout the bush, it would cost hours of labour to destroy them, if, indeed, a loss of crops and premature destruction of the bush itself did not result.

HARDY FLOWER GARDEN.

Out-door *Roses*, in whatever stage of growth, should be carefully gone over in search of Rose maggots, which, in common with many other garden pests, are very numerous this season. These are to be found enveloped in the younger leaves, which are found to be more or less deformed, or otherwise deranged in growth. Do not crush them up between the growing parts of the plants, a too common practice, but remove the parts infested entirely, or what is better, remove the maggot itself from its stronghold. Continue the potting off of all annuals and other plants in general, which will be required for planting-out in open quarters about the end of the month. Harden off all which have already established themselves in single pots or other store pots which it is not intended to divide until planting out begins. These include *Pelargoniums*, *Heliotropes*, *Lobelias*, *Calceolarias*, as previously advised; *Verbenas*, and others similar in habit. Look well after edgings of *Cerastium*, *Violas*, &c., making good all blanks which might occur, through the ill success of any previous plantings.

KITCHEN GARDEN.

Continue planting out of frames or other nursery quarters spring-sown *Lettuces*, *Cauliflowers*, *Endive*, *Cabbages*, &c. A second batch of *Celery* may also be pricked out in a favourable position, as previously advised for a similar earlier lot. Pot off also *Vegetable Marrows* into moderate-sized pots. Ridge *Cucumbers*, *Gherkins*, &c., in positions where a ridge can be formed of a sufficiency of fermenting materials to insure a slight warmth. This, when it has commenced heating, should have a layer of fine rich soil spread all over it, and seeds of either of those enumerated above sown therein. Put half a dozen seeds in a place, and place a handlight over them until they have become strong plants. Sow *Scarlet Runners* in an open situation for an early row. It is better to defer sowing the main crop however for another fortnight. Keep the hoe constantly at work amongst early Lettuces, Cabbages, Cauliflowers, &c., for the purposes of destroying seedling weeds and of admitting the air freely into the soil around the roots. Make another sowing of *Peas* as soon as those previously sown have vegetated. *W. E.*

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the Week ending May 8, 1867, as observed at the Horticultural Gardens.

May.	Moon's Age.	Barometer.		Temperature.					Wind	Rain.
				Of the Air.			Of the Earth			
		Max.	Min.	Max.	Min.	Mean	1 foot deep.	2 feet deep.		
Thurs. 2	28	30.051	30.027	65	40	52.5	52	49	N.E.	.00
Friday 3	29	30.148	30.072	70	37	53.5	53	50	S.	.00
Satur. 4	● 0	30.125	30.093	68	39	53.5	54	50	S.E.	.00
Sunday 5	1	29.965	29 889	73	47	61.0	55	51	N.E.	.00
Mon. 6	2	29.905	29.878	81	49	65.0	56	52	S.E.	.00
Tues. 7	3	29.958	29.880	82	51	66 5	56	52	S.E.	.00
Wed. 8	4	29.866	29.842	82	42	62 0	57	53	S.	.00
Average		29 983	29.941	74.7	43.5	59.1	54.7	51.0		0.00

May 2—Very fine; overcast; fine at night.
" 3—Overcast; cloudless and very fine; fine.
" 4—Very fine throughout.
" 5—Very fine throughout; warm at night.
" 6—Very fine; exceedingly fine; masses of black clouds.
" 7—Exceedingly fine, cloudless and hot.
" 8—Very fine, hot and dry, fine at night.
Mean temperature of the week 8 6-10th deg. above the average.

STATE OF THE WEATHER AT CHISWICK,
During the last 41 years, for the ensuing Week, ending May 18, 1867.

May.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain	Prevailing Winds.							
						N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday ..12	62 9	40.6	51.8	19	1.14 in.	2	11	6	2	3	9	5	3
Mon. ..13	63.6	38.1	50.9	19	0 66	3	9	8	1	5	9	4	3
Tues. ..14	63.2	40.4	51.8	16	0 46	4	11	3	2	8	9	3	1
Wed. ..15	64 8	40.6	52.7	15	0.46	6	6	7	—	3	13	4	2
Thurs. ..16	66.2	42.5	54.3	15	0 34	2	8	4	2	4	13	4	4
Friday ..17	65 7	41.3	53 5	16	0 58	2	7	4	2	6	12	4	4
Satur. ..18	66 0	42.2	54.1	17	0 17	2	9	5	4	3	11	6	1

The highest temperature during the above period occurred on the 15th and 17th. 1833—therm. 85 deg.; and the lowest on the 15th, 1850—therm. 25 deg.

Notices to Correspondents.

Insects: *J S.* The ground where your Peas were planted must have been very foul, or the manure used must have been greatly infested with the millepedes. We know no better plan than to sink slices of Potatos or Turnips in the ground, examining them every morning and destroying the numerous millepedes (Iulus pulchellus) which will be there congregated. Possibly it may be necessary to burn the soil. *W.*

Names of Plants.—Correspondents are requested to bear in mind that they are not to send more than four plants for naming at one time, and that they must send specimens of reasonable size, and packed so as to avoid crushing or shrivelling. They should remember that a small sprig which would be recognisable when fresh-gathered is utterly useless when shrivelled up in a letter, or crushed into pulp along with other similar scraps.—*Irishman.* 1, Doronicum Pardalianches; 2, Berberis Darwinii; 3, Stellaria Holostea; 4, Nepeta Glechoma; 5, Asperula odorata.—*Reader.* You send 13, mostly undeterminable from the causes above alluded to; of these we name four: 5 and 6, Doronicum Pardalianches; 9, Draba verna; 12, Tussilago Petasites; 13, Saxifraga cordifolia.—*A H.* 1, Doodia caudata; 2, Lomaria membranacea; 3, Lomaria lanceolata; 4, Loxsoma Cunninghamii. The latter has been introduced, but is rare.—*J M.* Pittosporum tenuifolium.—*W C.* 1, Phlox verna; 2, Nemophila insignis; 3, Asperula odorata; 4. Alyssum sp.; 7, Nemophila maculata. *G T S.* Plantago Coronopus.—*P C.* 1, Sanicula europæa; 2, Alchemilla vulgaris.—*F H S.* Polygonum complexum.

Oaks: *J S.* Quercus coccinea and Q. palustris are hardy and very ornamental; Q. rubra and tinctoria are also quite hardy.

Vines: *E J W.* Your Vine leaves are full of thrip, caught, no doubt, from the Azaleas. If the removal of a few leaves here and there will check them, you may adopt that plan; but if not, the only remedy will be to fumigate very cautiously, so as to keep them under till the crop is gathered, when it must be done thoroughly.

Communications Received.—A. Forsyth.—D. T. Fish.—R. D.—Rev. J. Dix.—W. Thomson.—J. Wills.—Garaway & Co.—E. G. Henderson & Son.—G. Breese.—T.—J. G. B.—D. M.—H. W.—W. R.

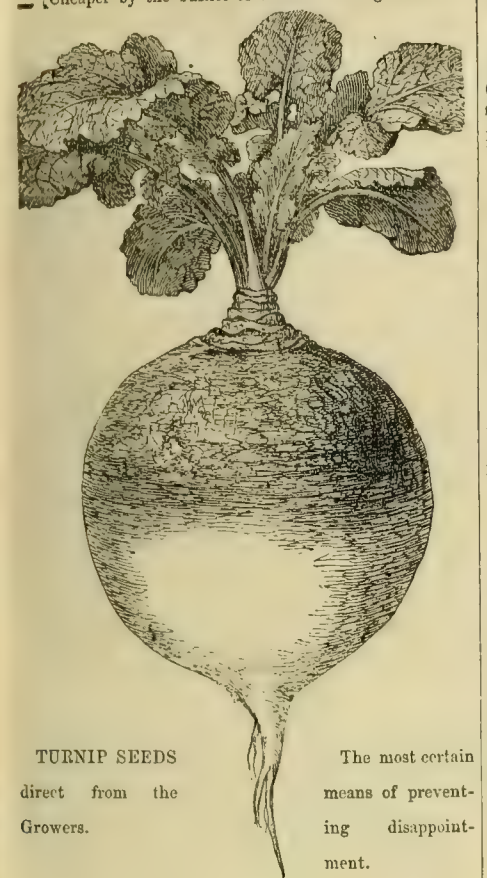
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TURNIP SEEDS direct from the Growers.

The most certain means of preventing disappointment.

SUTTON'S CHAMPION SWEDE.

A large Purple-topped Yellow variety, handsome shape, perfectly hardy, stores exceedingly well, and one of the heaviest croppers.

TESTIMONIALS.

From Mr. J. H. Halse, *Secretary to the Sidmouth Agricultural Association.*

October 26, 1866.—"At the annual meeting of the above Association, held at Sidmouth on the 23d inst., the whole of the Prizes for Swede Turnips were awarded to your Champion Swede, grown from seed supplied by you during the past season."

From H. J. Hillier, Esq., *Granham Hill, Marlborough.*

"I am bound to say that from my experience you are quite justified in asserting the Champion Swede to be quite as hardy as any of the purple-topped varieties; if not indeed hardier."

From Mr. Large, *Bailiff to the* Right Hon. Lord Berners.

"The Champion Swedes, from seed Lord Berners purchased of you, are far superior to any other we have grown. I can confidently say they are many tons per acre heavier than any other Swedes growing on his lordship's farm."

From Mr. B. Hunt, *late Steward to* W. W. Chute, Esq., *Vyne Farm, Basingstoke.*

January 12, 1866.—"Last season I tried eight different kinds of Swede, and find, after a careful examination, that, although several of them are good, none of them equal your Champion."

From Mr. W. Turner, *Hole Farm, Lyme Regis.*

May 19, 1866.—"Your Champion Swedes last year were the largest and best keepers grown in this neighbourhood."

From Arthur H. Wood, Esq., *Theadon Grange, Alton.*

April 3, 1866.—"My Swedes (Sutton's Champion) have done very well indeed; in fact, men on the farm who have worked here for 20 years say they have never seen such a crop before."

From Mr. Henry Cantrell, *Baylis Farm, Slough.*

April 12, 1866.—"The Champion Swede kept first-rate last season, notwithstanding the drought."

From Mr. John White, *Halse Mincombe, Sidbury.*

April 18, 1866.—"The Champion Swedes from seed I had of you last year, were the best I have ever grown, and stood the dry weather better than any others in the neighbourhood.'

From William Littlehales, Esq., *Hursley, Winchester.*

April 28, 1866.—"I won a prize for the best roots at the Romsey Show with your Champion Swedes."

From the Rev. H. Raymond Barker, *Daglingworth Rectory, Cirencester.*

May 15, 1866.—"I find none that answer so well as your Champion Swede on my poor soil."

From Robert A. Bryll, Esq., *Woodford, Armagh.*

February 6, 1866.—"Your Champion Swedes last year, notwithstanding the extremely dry season, were a first-rate crop, and acknowledged by all who saw them to be the best in the neighbourhood."

From Horace B. Leggatt, Esq., *Brownwick, Fareham.*

February 10, 1866.—"Your Champion Swedes are a very fine crop, and of excellent quality."

From J. H. Wheatley, Esq., *Sligo.*

March 7, 1866.—"The Champion Swede Seed I had from you last year produced the finest crop here."

From Robt. Bruce Willis, Esq., *North Abbey Cottage, Ballasalla, Isle of Man.*

March 17, 1866.—"My Champion Swedes grown from your seeds beat any others in the parish, although grown on land naturally inferior to most in this neighbourhood."

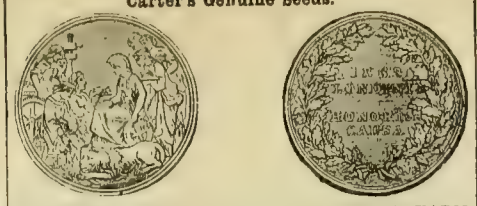
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GRASS SEEDS for PERMANENT PASTURE, of the finest quality, at moderate prices, carefully selected on a new, natural, and scientific system.

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EXCELLENT NEW YELLOW GLOBE MANGEL WURZEL. 4*d.* per lb.
" WHITE BELGIAN CARROT, 8*d.* per lb.
" JAMES'S SELECT INTERMEDIATE do., 10*d.* per lb.
" RED ALTRINGHAM do., 9*d.* per lb.
" GREEN KOHL RABI, fine topped, 10*d.* per lb.
" SCARLET RUNNER BEANS, NEW, 7*s.* 6*d.* per bushel.
" MIGNONETTE, 1*s.* per lb.
RED DUTCH CABBAGE PLANTS, fine, 3*s.* 6*d.* per 1000.
CATALOGUE of genuine NEW SEEDS on application.
F. Gee, Seed Merchant and Grower, Biggleswade, Bedfordshire.

BLUNDELL'S CATTLE MELON.—This productive Fruit is now well-known and generally appreciated for Feeding all kinds of Cattle, &c., in the autumn months. Prices, exclusive of carriage:—100 Seeds, 2*s.* 6*d*; Seed for ¼ acre, 5*s.*; do. ½ acre, 9*s.*; do. 1 acre, 16*s*

To be obtained of all the principal Seedsmen, and of Messrs. Blundell & Palmer, Land Agents, &c., 3, Portland Street, Southampton. Cash remittances from unknown correspondents.

SUTTON'S MAMMOTH LONG MANGELS.—Extract from the *Times* of December 4, containing report of the Birmingham Show, where Messrs. Sutton took First Prize for Mangels:—

"There is a remarkably fine show of Roots, Messrs. Sutton's Six Mangels weigh 212½ lb."

Messrs Sutton can supply Seed of the above improved varieties of LONG RED and LONG YELLOW MANGELS at 1*s.* 6*d.* per lb., cheaper by the cwt., carriage free.

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Sutton & Sons, Seed Growers, Reading.

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The COUNCIL of the SOCIETY of ARTS have resolved to offer the GOLD MEDAL of the SOCIETY and a PRIZE of FIFTY GUINEAS for the best "ESSAY on the HARVESTING of CORN in WET SEASONS." For particulars and conditions apply to

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Society of Arts, John Street, Adelphi, W.C.

HORSE SHOW, AGRICULTURAL HALL, LONDON, MAY 25, 1867.

TO GARDEN IMPLEMENT MAKERS, AND OTHERS.

SPACE TO LET in the ARCADE and GALLERIES for the EXHIBITION and SALE of the SAME CLASS of GOODS as are sold during the Smithfield Club week.

Horticultural and Agricultural Implement Makers, Seedsmen, Nursery Gardeners, and Manufacturers of Ornamental and useful articles for domestic purposes. Prizes for Saddles and Bridles.

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By Order, S. Sidney, Secretary and Manager.

MANCHESTER and LIVERPOOL AGRICULTURAL SOCIETY (Established 1767).—GRAND CENTENARY SHOW MEETING at Manchester, August 27, 28, and 29, 1867.

Special Prize List and Forms of Entry will be issued at the end of May. T. B. Rider, Secretary.

57A, Church Street, Liverpool.—April 23, 1867.



ROYAL AGRICULTURAL SOCIETY OF ENGLAND.—The PRIVY COUNCIL having REFUSED PERMISSION to hold a CATTLE SHOW at BURY ST. EDMUND'S, the PRIZES for HORSES have been increased by £350, viz., £300 by the SOCIETY, and £50 by the LOCAL COMMITTEE.

The PRIZES for THOROUGHBREDS now amount to £175
do. HUNTERS 405
do. HACKNEYS 130
do. ROADSTERS 90
do. CARRIAGE HORSES .. 105
do. PONIES 145
—1050
do. SHEEP 700
do. PIGS 225
do. POULTRY 209

LAST DAY for ENTRY, 1st June. Total £2184

For Prize Sheets and Forms of Entry apply to
12, Hanover Square, London, W. H. Hall Dare, Secretary.

The Agricultural Gazette.

SATURDAY, MAY 11, 1867.

It has been evident for some months past that apprehensions of danger were entertained by dairymen in certain parts of the metropolis. At a time when men are rather anxious to replace the diminished herd than to further curtail its proportions, the circumstance of cows, apparently in full milk, being sent to market for slaughter, or being directly disposed of to a butcher, is significant of something more than pleuro-pneumonia, or mouth and foot disease.

Since the outbreak at Islington last January, however, no cases of cattle plague have been reported to have occurred in the metropolis until a fortnight ago, when the disease was discovered to exist among some cows in Limehouse. The greater part of the herd had been removed before the nature of the malady was ascertained. Of something like 40 cows, nearly 30 had been sent for slaughter, and the remainder were killed immediately on the discovery of the presence of plague among them. The premises were declared infected, and the usual process of disinfection was adopted. During the worst period of the prevalence of plague in the metropolis, the sheds in which these cows stood were twice cleared of their stock by plague, but as the herd last attacked had stood there for some months in perfect health, there is no reason for believing that the infection was communicated to them in consequence of anything left by the former cases of disease; and it is the less necessary to seek for a remote cause when a proximate one exists. In the neighbourhood of the infected premises there are private lairs in which foreign cattle and sheep are temporarily placed every week before being sent on to market. The cattle plague is ravaging the herds on the Continent, and it is next to impossible to prevent the importation of infected beasts without doing what is no less impossible—stopping importation altogether.

The outbreak at Laycock's Dairy in January we had strong presumptive reason for believing to be due to the presence of infected cattle in the adjoining lairs. In the case at Limehouse there are no lairs on the same premises, but foreign cattle and sheep may be found at no great distance, and it is perfectly well known that the disease may be caused to spread from a centre over a considerable space, while at the same time no direct contact can be proved to have occurred. Opposed to the idea of the contagion being traced to foreign cattle is the fact that these imported animals have been noticed to be remarkably healthy in the markets, and that no case of plague has been detected in any of the private lairs; these objections, however, lose nearly all their force if it be remembered that the animals remain in the lairs for a very short time, and that no inspection takes place while they are there; besides which, if one or two beasts should happen to be taken ill, the butcher rather than the inspector is the functionary whose services would be in request.

Another outbreak of cattle plague was discovered last week among 19 cows, nearly half of which we believe have been killed diseased, at Islington; and here, again, no direct source of contagion could be found, but the same indirect evidence exists of the influence of imported cattle, and if we knew all the facts relating to the last attacks it might not be difficult to connect them with what has gone before, but the great difficulty in the way of timely discovery is the objection which dairymen naturally feel to publicity, and taking into account the injury which even a false alarm would cause to their business, this is not to be wondered at. Meanwhile we have good reason to congratulate ourselves that the removal of cattle from the metropolis is not permitted. This restriction, even if it is sometimes evaded, must in a great degree tend to prevent the extension of the disease to the provinces.

The Journal of the Royal Agricultural Society—that part of the current year's volume which has just appeared—is occupied for the most part with elaborate and instructive reports of steam cultivated farms, drawn up by Messrs. H. Reed, J. A. Clarke, and J. Coleman. Of its 436 pages, 340 are devoted thus, so that this subject may at length be confidently pronounced to have commanded from the managers of the Society all the attention which it deserves. The general body of members have now ample opportunity of learning whatever the experience of the last few years contains of guidance for them on the value of steam power for tillage purposes. We hope soon to be able to state the general conclusions to which these reports must lead their readers. The point in which an anxious student will at the outset blame them is the absence of any index by which he might be guided from one to another of the 140 farms whose experience is related. Assistance of this kind is especially needed, when it is not so much the success of steam cultivation that is in question as the relative values of the various rival methods by which it has been carried out.

The first 100 pages of the Journal are filled

with readable and interesting matter of other kinds. A most instructive paper by Mr. W. K. BRIDGMAN, on the uses to the farmer of a magnifying glass, worthily stands first upon the list of contents. It is the production of an experienced microscopist, and is well illustrated with diagrams of many of the objects, animal and vegetable structures, &c., in which the farmer is interested. The author well defines his subject by declaring that, "The magnifying-glass or microscope must not be mistaken for other than it really is—that is, only 'a means to an end;' for it *teaches* us nothing, it only affords us the power of examining objects too small for the naked eye, and thus places those that are wholly invisible, or but slightly visible in the ordinary way, on an equality with larger structures for the purpose of examination. For instance, if we mix together a handful of Beans, Peas, Wheat, Oats, or any other of the larger seeds, any ordinary observer could sort out the different kinds with the naked eye, but to name them correctly would require previous knowledge. But if we substitute for these the grains of three or four different kinds of starch or pollen, no human eye, if unaided, would be able to detect the difference between them, although under the microscope this case would prove quite as practicable as the former. As, however, the objects to be examined *decrease* in size, so must the magnifying power be *increased* in proportion; hence a range of powers becomes requisite; and as these magnifying glasses vary in description, a short account, with diagrams of some that would prove serviceable to the farmer, has been appended to this paper, together with some few hints to novices and students as to the selection of glasses, the preparation of objects, and the choice of books of reference. It must, however, be borne in mind, that there is no royal road to knowledge, and in this respect the use of the magnifying-glass is not an exception; *its successful application must be acquired by practice.*"

Dr. VOELCKER contributes to the current volume valuable reports on the changes which take place in the field and stack during hay-making, and on the usefulness of potash and soda salts as manure for Mangel Wurzel. One of the principal lessons taught us in the former essay, is the rapid increase in the weight of solid matter (*i. e.*, of hay), which takes place during the later stages of the ripening of the Clover crop. Thus, "on comparing the weight of the Clover reaped on plot 4, on the 26th of May, with that of the two cuttings made on plot 3 on the 12th and 26th of May, we find a very large accumulation of organic matter has taken place by allowing the Clover to grow a fortnight longer before mowing it. The fresh Clover on plot 3 weighed 98 lb. on the 12th of May, and 4¼ lb. on the 26th of May, which is 102¼ lb. together, whilst the first mowing on plot 4, made on the 26th of May, yielded 131 lb., or 28¾ lb. more. This increase in feeding materials is greater than the mere weights of the fresh produce indicate, for in the first mowing of plot 3, the Clover contained 81⅓ per cent. of water, whilst the Clover cut on plot 4, a fortnight later, contained only 78 7/10 per cent.; when due allowance is made for both these differences, it will be found that the single mowing produced nearly *one-half more of solid food* than the double one."

Of course the fact here stated about the Clover crop must not be raised to the rank of a general law, affecting all kinds of forage plants, until it has been verified in the case of each. But it is very desirable that we should learn how the matter stands, for example, in the case of Italian Rye-grass, which is forced into rapid and luxuriant growth by irrigation. In one case five cuttings might be taken in the year, and they might average 12 tons per acre each; and it is possible that in another case 10 cuttings, averaging 6 tons per acre each, so far from being equal to the former, as at first they might appear to be, might be found on examination to contain 8 or 10 per cent. more water than the other, and thus to contain very much less solid serviceable food. The experiments reported with Common Salt and Potash Salt respectively as manure for Mangel Wurzel, are on the whole unfavourable to the pretensions of the latter.

Mr. H. H. DIXON, whose services to English agriculture as the historian of the Shorthorn and other breeds of cattle have often commanded grateful acknowledgment in these columns, contributes a very readable and interesting paper on Rinderpest Precautions and Remedies. The good policy of isolation is amply proved by the instances here collected. The serviceableness of chlorine, of iodine ointment, and of chloroform, as curative agents, is less satisfactorily illustrated. Mr. AYLMER'S treatment by chloroform seems, from the account given, to have been the most satisfactory, or rather, the least discouraging of any.

Professor ANSTED'S elaborate paper on Rainfall, Natural Drainage, and Subterranean Water Storage, and the President's very interesting annual December Address, with the usual statistical paper, make up the remainder of a very satisfactory volume.

—— MR. DU BOULAY ventures again to foretell the coming season. Writing from Florence, he declares that he has now for seven successive years written anticipatively about the prospects of cereal crops, as founded on the weather prognostics of the Vernal Equinox, and has not really once failed during that period as regards the influences of the probable weather to come upon them. Last year he left Nice and came to England on purpose to observe the vernal equinoctial weather, and nearly lost his life by a chill in consequence. This year he has not attempted personally so to do. But friends in different parts of England and Scotland have forwarded to him their equinoctial diaries, and he does not doubt, from such considerations as have thus been forced upon him, that the coming season in Great Britain does not promise to be a bountiful one as regards the yield of the cereals, and though he has no special information from any part of France or Belgium, or any other near neighbouring country, whose climate usually follows somewhat that of England, he can hardly see how they can be expected not to participate in some degree in the same weather conditions and results as we are threatened with.

—— The following announcement may be made in connection with the subject discussed last Monday before the London Farmers' Club, as reported in another page:—The Council of the Society of Arts have resolved to offer the Gold Medal of the Society, and a prize of fifty guineas, for the best Essay on the Harvesting of Corn in Wet Seasons. The first part of such essay—after noticing the various systems at present adopted in damp climates for counteracting the effects of moisture upon cut corn in the field, and for avoiding such exposure in wet seasons by peculiar harvesting processes—should furnish a practical and analytic exposition of the best available means:—

1st. Whereby cut corn may be protected from rain in the field.
2nd. Whereby standing corn may, in wet seasons, be cut and carried, for drying by artificial process.
3rd. Whereby corn so harvested may be dried by means of ventilation, hot air, or other methods: with suggestions for the storage both in the ear and after threshing.
4th. Whereby corn, sprouted, or otherwise injured, by wet, may be best treated for grinding or feeding purposes.

The whole to be supplemented by a statement of practical results, and actual cost of each system described; and authenticated estimates of any process proposed for adoption, based upon existing but incomplete experiments. The above requisitions are given suggestively; not to bind the writer to the order or to limit the treatment of the subject, provided it be kept within the scope of practical experience and utility. The essays must be sent in to the Secretary of the Society of Arts on or before the 1st of January, 1868. The Council reserve the power to withhold the whole or part of the prize, in the event of no essay being, in the opinion of the judges, of sufficient merit.

—— In the West of England, particularly in parts of Dorset and Somerset, a breed of sheep prevails which is remarkable for the earliness of its lambs, which begin to come as early as November; and in ordinary seasons for this part of England the winter is not usually too severe for the lambs, but during the present year many hundreds were lost by the severity of the weather at yeaning time, and the late frosts made it necessary to delay such operations as tailing and cutting; and we have now to record a deplorable disaster in consequence, connected with the latter process. A Dorsetshire man, possessing a fine flock of early well-fed horn lambs, had them operated upon as late as April, when they were a good size, and the consequence has been the loss of 50 out of 250, and these for the most part consisting of the finest and best-fleshed individuals. Of course such a catastrophe has raised considerable discussion as to its cause. In the first place it was considered to have arisen from the admixture of sulphate of copper with the verdigris which is employed as a stimulant and detergent ointment to the part operated on. There can be no doubt that sulphate of copper,—blue-stone—in powder, is frequently used by the dishonest druggist to dilute the acetate of copper—verdigris—and when the former is sold at 6*d.* per lb., and the latter for 8*s.* per lb., the motive can only be too apparent. Now, whether such a mixture would be prejudicial in these cases we are not aware, but the present case can scarcely be attributable to this cause; for there is sufficient to account for the state of things we have adverted to in the forward and highly fed condition of the stock, which is a bad preparation for a severe operation. "The ointment," to use the words of Prof. BROWN, "might have added to the mischief, but they were left too long before they were operated upon." Emollient treatment, warm bathing to the affected part, and the use of a little weak solution of chloride of zinc, one part of the disinfecting fluid to 50 of water, were prescribed with reference to the survivors. Our own lambs were operated upon still later than our neighbour's, and we were anxious to avoid our neighbour's experience. The plan was therefore adopted of putting the lambs into a dry but not rich pasture, giving to each 6 drachms of Epsom salts and 1½ drachm of sweet spirits of nitre in half a pint of water. This perhaps, and the fact that our young stock had not been kept in too high condition, has so far carried us safely over this important crisis without a single loss. *B.*

—— It will be seen in the newspaper that Mr. CARNEGIE'S Bill for the abolition of the Law of Hypothec in Scotland was lost on Wednesday last by a large majority against a second reading. The argument in favour of the law rests mainly on the assertion that, as it gives to landlords special facilities for the recovery of their rents, they are able to wait until the crops on their tenants' farms have not only been raised, but have actually been sold. If the law were repealed it is alleged that landlords would demand their rent after six months' occupation; whereas now they give credit to the tenant for 18 months. And so it is said that a struggling but deserving tenant has a better chance under this law than he would have without it. On the other hand, it may be said that rents are the higher for it, owing to the competition of needy men which is thus encouraged. Landlords are, in fact, thus enabled to let land to needy tenants at an unnatural rent without risk to themselves. It is significant of the truth upon this subject that the landlords as a body are in favour of the law; and that the tenants demand its abolition. We see indeed that Mr. M'LAGAN, who is a landowner as well as a farmer, and was one of the commissioners appointed to inquire into this subject, is of opinion that the law ought not to be abolished, declaring that, after carefully studying the evidence taken before the commissioners, he has become convinced that the success of many a farmer in Scotland depends in great measure on the Law of Hypothec, which, though it might be beneficially amended, ought not to be entirely repealed. Many things, he says, are just in legislation but not expedient, and this is one of them. But it is plain that, if agricultural prosperity in Scotland depends on the Law of Hypothec, it is built upon a very artificial and uncertain foundation.

THE HAVERING PARK SALE.

ON Thursday, May 2, Mr. Strafford disposed of the herd of D. McIntosh, Esq., having on the previous day sold the herd of E. L. Betts, Esq., at Preston Hall, Aylesford. The priced list of the latter sale was given last week. The following are the prices and the purchasers of the several lots sold at Havering:—

Lot.	Name.	Age.	Purchaser.	Price. £	s.	d.
		Years.				
1	Blue Bell	13	Mr. Burchnal	40	19	0
2	Coquelicot	12	Mr. F. Sartoris	32	11	0
3	Fawsley Garland	11	Sir George Philips	84	0	0
4	Lady Sale	10	Mr. Tunicliffe	44	2	0
5	Lady Bates	10	Mr. Bromet	71	8	0
6	Fawsley Garland	10	Mr. Gerard Barton	36	15	0
7	Miss Oxford	8	Mr. Pulley	64	1	0
8	Waterloo 24th	8	Mr. Z. Walker	110	5	0
9	Lady Valiant II.	8	Mr. Gaitskill	42	0	0
10	Archduchess of Cambridge	8	Mr. E. J. Clayden	80	17	0
11	Princess Alice	7½	Mr. G. Barton	65	2	0
12	Charmer	6	Mr. Henry Moore	84	0	0
13	Lady Bates III.	6	Mr. W. W. Slye	182	15	0
14	Lady Valiant III.	5	Mr. Whitworth	42	0	0
15	Wellingtonia	5	Mr. D. R. Davies.	126	0	0
16	Wellingtonia II.	5	D. of Devonshire.	168	0	0
17	Lady Oxford V.	5	D. of Devonshire.	630	0	0
18	Lady Valiant IV.	4	Mr. Whitworth	73	10	0
19	Princess	4	Mr. A. Lawrie	42	0	0
20	Mildred	4	Mr. Whitworth	71	8	0
21	Fawsley	3½	Sir George Philips	52	10	0
22	Wellingtonia III.	3	Mr. C. Marshall	58	16	0
23	Princess II.	3	Mr. J.P. Foster	87	3	0
24	Lady Oxford	2½		630	0	0
25	Fawsley II.	2½	Mr. J. Christie	52	10	0
26	Wellingtonia IV.	2	Mr. F. Sartoris	115	10	0
27	Charmer II.	2	Mr. W. W. Adcock	178	10	0
28	Blue Bell V.	2	Mr. J. Whitworth	84	0	0
29	Fawsley III.	2	Mr. Fred Leney	198	10	0
30	Fawsley IV.	2	Mr. Chas. Howard	283	10	0
31	Wellingtonia V.	2	Mr. J. Whitworth	147	0	0
32	Lady Bates V.	2	Mr. Z. Walker	215	5	0
33	Lady Valiant V.	2	Mr. H. J. Skeldon	120	15	0
34	Charmer III.	1½	Mr. T. Walker	102	18	0
35	Wellingtonia VI.	1½	Mr. J. Whitworth	131	5	0
36	Fawsley V.	1	Mr. J. Bulteel	105	0	0
37	Lady Valiant VI.	1	Mr. J. Whitworth	59	17	0
38	Mildred II.	1	Mr. J. Whitworth	60	18	0
39	Lady Valiant VII.	1	Mr. J. Whitworth	58	16	0
40	Blue Bell VI.	1	Mr. S. Dickers	87	16	0
		Months.				
41	Fawsley VI.	9	Mr. J. Bulteel	210	0	0
42	Charmer IV.	6	Mr. F. Wythes	43	1	0
43	Wellingtonia VII.	5	Lord Penrhyn	126	0	0
44	Fawsley VII.	5	Mr. C. Howard	71	18	0
45	Princess III.	5	Mr. J. P. Foster	74	11	0
46	Miss Wharfdale	1 week.	Mr. B. Wainman	38	17	0

BULL STOCK.

		Years.				
1	Baron Oxford	2	Colonel Townelcy	525	0	0
2	Grand Duke of Essex II.	3	Mr. R. Betts	76	13	0
3	Fawsley Baronet.	2	Earl of Radnor	105	0	0
4	Fawsley Hero	1½	Mr. J. Leadbeater	42	0	0
5	General Napier	1½	Mr. E. H. Cheney	84	0	0
6	Wellington IV.	1	Mr. R. Tetley	120	15	0
7	Grand Duke of Essex III.	1	Mr. F. Munn	84	0	0
8	Royal Prince IV.	1	Mr. W. F. Harvey	43	1	0
9	Grand Duke of Essex IV.	1	Mr. D. R. Davies.	178	10	0
10	Baron Oxford II.	1	E. Holland, M.P.	525	0	0

Forty-five cows and calves made 4818*l.* 9*s.*, or 107*l.* 1*s.* 6*d.* apiece, and 12 bulls and calves brought

1829*l.* 2*s.*, or 152*l.* 8*s.* 6*d.* each. In all 57 fetched together 6647*l.* 11*s.*, or 116*l.* 12*s.* 6*d.* each. The 120 animals disposed of at both sales by Mr. Strafford amounted to 18,047*l.* 8*s.*, or 150*l.* 8*s.* each.

THE PARIS EXHIBITION.

(From our Correspondent.)

Admirable as is the system of arrangement adopted, so far as the different rings of this vast structure is concerned, it is greatly to be regretted that agriculture is not benefited by it. The Commissioners have allowed the different nations to exhibit their objects in this department in various places; the result is, that those directly interested in it find them scattered all over the place; and even those in the Park are in different parts of it. If more than one annexe was required, the whole should have been together; and this would rather have assisted the classification under the different nations who have exhibited. As it is the visitor is perplexed. Nor is the collection of objects at Billancourt a less disturbing element. It is in some degree a consequence of this that the labours of the jurymen are not likely to result in much satisfaction either to themselves or to the exhibitors. Already whispers have been heard which may give place to more audible complaints that their awards will not always be pleasing to either the makers or themselves.

On such comparison as is possible under the difficult circumstances referred to it appears that in machinery adapted to steam cultivation, we are the strongest in the Exhibition. We are likely for some years to command the trade; although, at present, appearances seem to indicate that this trade will not be very extensive. The truth is, French agriculturists are not yet convinced of the utility of steam cultivation; or if convinced of this, do not yet see its adaptability to the somewhat peculiar circumstances of French agriculture. All the more necessary then does it seem that they should have as abundant opportunities as can be given them to see what steam cultivation can do. In this view of the matter, it is greatly to be regretted that the Commissioners have not yet seen their way to establish steam plough trials. The experience of the leading makers abroad has not been such as to induce them again to go to the expense of getting up trials.

In the Annexe, part of which contains the British agricultural machines, Messrs. Howard, of Bedford, exhibit a very accurate model of their steam cultivating apparatus, and in another place one of their traction engines. Very considerable improvements have been effected in this engine, since the period of its introduction in 1864, when it attracted such attention that a large number of orders was the result. To the general observer the main feature of this engine is the position of the boiler, with relation to the framework which carries the machinery. The boiler is not in a line with the framing, as in all other engines introduced hitherto, but at right angles to it, the result of this arrangement being that when the engine stands upon sloping or inclined ground, the boiler does not partake of the inclination of the slope in the direction of its length, but only for that small portion included in its transverse or cross diameter, so that the water-level is not altered, and no part of the internal surface left exposed to the heated air and flame. Another advantage which this arrangement gives, is the very large "foot-plate," or that part in which the attendant stands; this is a very great improvement, as the working of the engine is very greatly facilitated. A third advantage is the large tank with which the engine can be furnished, and which is placed under the foot-plate. The engine cylinders, two in number, of 8 inches diameter and 12-inch stroke, are placed upon the top of the boiler, and are supplied with valve-gearing similar to that employed in locomotives, so that the engines can be reversed at pleasure. The fly-wheel shaft, by appropriate gearing, drives the winding drums, which are employed when the traction engine is used for steam cultivating apparatus; and drives also the main wheels which carry the whole apparatus, and which can be put in and out by appropriate and very ingeniously contrived and constructed gearing. In the first examples of this engine the steering wheel was worked from the foot-plate; it is now worked from a place in front of the engine, which enables the steersman better to see obstructions, &c., and to control the progress of the engine. Not that it seems especially necessary to care for any obstructions of the usual kind ordinarily met with; for it appears that one of the tests to which the Messrs. Howard put all their engines before sending them out, is to drive them over obstructions placed in the path of the engine, and which are as large as 8 and 10 inches square, and while the engine is at full speed, the obstructions being placed not on a yielding but a hard surface, and, further, some of them in such a way that only the driving-wheel passes over them, than which no more crucial test could scarcely be devised. In addition to this capability of overcoming such huge obstructions, and of doing so without injury to the working parts or framing, the engine is so easily guided by the steering-wheel that it can be made to turn in a space but a little larger than its own length.

And here we may describe the steam-engine boiler of the same firm, which is at work in the boiler-house, in which steam is raised for the supply of the machinery of the British Department. It is a strictly tubular boiler, but not tubular in the ordinary or popular sense, in which the main part consists of a shell containing water through which pass a series of tubes, these being surrounded with water, and through the interior of which pass the heated flames and air from the furnace. The arrangement is the converse of this, the boiler being made up of a series of tubes which are filled, or nearly so, with water, and round the exterior of which pass the heated air and flames of the furnace. This principle of filling tubes with water and heating them on the exterior is due, we believe, to French engineers, and has been partially adopted by more than one in this country; but to Mr. James Howard has been left the work of bringing out a boiler in which this principle is carried out to its fullest extent.

The tubes are of small diameter, 7 inches, and are of wrought iron. They are jointed, so as to stand vertically, in a peculiarly ingenious way, to horizontal cast-iron tubes, which run along the furnace in a direction from front to back. The vertical tubes are closed or welded at their upper ends, and are so arranged on the horizontal pipes that they do not stand behind one another, but in zig-zag fashion; so that the heated air, &c., from the furnaces is compelled to assume a similar course and thus act upon as large a tube surface as possible. There is of course free communication with the interior of the vertical and horizontal tubes. In the interior of each vertical tube there is placed a galvanised iron tube of smaller diameter, so that a concentric space is formed all round it, to admit the water to the inside of this galvanised tube spaces are cut out on each side at the lower ends where it rests upon the bottom of the horizontal cast-iron tube to which the vertical wrought-iron tube is fixed. The upper end of the galvanised iron tube terminates at a distance within 18 inches or so of the iron vertical tube, or just below the water line; and to maintain the circulation of the water within the galvanised iron tube, slots are cut on each side of it, extending some distance below the water line, so that should the water pass below its proper level, the circulation will still be maintained. This is found to act very efficiently. The horizontal wrought-iron tubes are so placed in the furnace that the heated air, &c., from it passes along the under sides, the upper sides being filled in with cast-iron plates; this arrangement protects the upper side of the horizontal tubes from the intense heat, and still further to secure this, screens are placed at intervals. The steam is taken from the vertical tubes by a series of short pipes which communicate with larger pipes, which again communicate with a large steam pipe provided in the usual way with safety and other appliances. The whole arrangement is particularly novel and effective; scale rarely forms in the tubes, while from their small diameter and the excellent form of the joints used, there is practically no limit to the pressure which they can safely sustain. Another advantage of the arrangement is that the upper part of the vertical tubes virtually act as superheaters, so that positively dry steam is obtained, an immense advantage, as every one who employs a steam engine knows.

THE LABOURER AND THE COTTAGE.

[The following is the paper on this subject lately read by Mr. W. Brown, of Beach Lodge, Tring, before the Central Bucks Agricultural Association, at Aylesbury.]

Mr. Cox, in a paper recently read by him before a society in Gloucestershire, referring to the physical condition of the agricultural labourer and to certain advantages which might be conferred, said—"There is one thing in which the farmer is particularly interested, namely, the actual material used in building up that most noble of all the works of creation, an upright, honest man." So far as my experience extends, the labouring classes are not good managers in this respect; they do not economise as they ought to do, nor do they understand the properties of the various kinds of food which contain most nourishment. For instance, they buy white bread from the baker's, which before hungry children melts away fast, instead of having a bushel of flour with the bran, at a less expense, and, if possible, baking at home. Again, Potatos, which have much degenerated within the last few years, form a considerable portion of the food of the labourer, but although desirable with other food, they do but little towards forming the bone and muscle. Animal food is at the present time too dear for the labourer to have to any extent; but there are portions of the carcase less costly and equally nutritious, which a good housewife may, if she knows her duty, prepare for the good man at the end of his day's work. Rice is also cheap. Oatmeal and Peas are very nutritious, but very little used by the labouring classes. Milk in the dairy districts is a great advantage to a man, and I am happy to find that in some parts of the country a liberal allowance is made to those having the charge of the cattle. In certain districts and on large occupations the foreman is allowed the use of a cow. Dr. Lankester says, "The question of food lies at the foundation of all other questions. There is no mind, no work, no health, no life, without food; and just as we are fed defectively or improperly, so are our frames developed in a way unfitted to secure that greatest of all earthly blessings—a sound mind in a sound body." Before quitting this subject allow me to call the attention of the managers of this Society to the benefits which they could confer upon the labouring classes by devoting a small portion of their funds to the publication and distribution of advice and information through the members of the Society to the labourers they employ, in the hope and belief that it would have fruit, and take the place of the trash to be found in many dwellings of the poor.

Labourers' Cottages.

In connection with the food of the people, the labourer's cottage and garden seem naturally to follow, and on these I can speak with more confidence than upon other matters; but first I would observe that this point has not been treated as it deserves. Does not every good farmer at the present day demand more and better shelter for his cattle, and conveniences for preparing their food, and does he not insist that they are absolutely necessary to the proper cultivation of the soil? If this be so, is it not right that the man who is to till the soil and look after these cattle should be treated equally well? In fact, are not the dwellings of the labourers part and parcel of the manufactory of the farm, and should not the investments for each be the same? If this is so, whose duty is it to provide these cottages, and how can they pay? My opinion is that this must be met by the co-operation or mutual sacrifice of the three parties, the landlord, the farmer, and his labourer; first, the land necessary for the cottage and garden, say not less than a quarter of an acre, should be given up by the farmer, who should also pay the rates; second, the landlord should build the cottages in pairs, or in threes, at the entrance or some convenient part of the farm. These should have good drainage, water supply, and ready means for cooking and washing, and last, but not least, a convenient, well-arranged closet, not only for the purposes of the family, but for preserving, by the liberal use of fresh earth, every particle of solid excrement and refuse in order to enrich the garden at the proper time, instead, as at present, of becoming a nuisance and unhealthy to the occupants. These cottages cannot be erected in this neighbourhood at a cost of less than 250*l.* the pair, which, at 4 per cent., treated as farm buildings, would make the rent 5*l.* per annum, or say 2*s.* per week; and this the labourer, with such conveniences, and a garden at the rear of his house, can well afford to pay—indeed, better than half the sum for a miserable cottage with a scanty garden. I approve of the allotment system near towns and villages; but half the quantity of land at the rear of the cottage is of as much value as double the quantity at a distance. The spare minutes of himself, his wife, and family can be better devoted to the cultivation under such circumstances. The advantage of having three cottages together is that the centre one may be built with two bedrooms only for aged persons and newly married couples, and the end cottages with three bedrooms each, which are essential for a growing family to divide the sexes.

Wages.

I now come to the important question of wages. I have received many communications from gentlemen with whom I am acquainted in various districts, giving me an account of the wages paid in their different localities, which I will endeavour to lay before you, for the purpose of comparison, in as concise a form as possible, beginning with the south of England. The Rev. Canon Girdlestone has published letters in the *Times*, stating that in his parish of Halberton, Devonshire, the rate of wages has been only 7*s.* or 8*s.* per week, and even this not always paid in cash. Out of this miserable pittance, with but few exceptions, the labourer has to pay house rent, and the remainder was supposed to furnish him with fuel, food, and clothing. Now, does any man in this room believe this? The *Times*, in one of its leaders, echoes this statement, and says, "How could independence, or self-respect, or even industry, be expected from the father of a young family, each of whom perhaps has less than a shilling's worth of food in the course of the week? The labourer on such wages is a mere animal." You will observe that nothing is said about perquisites or the earnings of the wife and family. Further on we are informed that Mr. Girdlestone set to work to get 50 of his parishioners to the better paid districts in the Eastern and Northern counties. Of these, 16 were married men with families, and the remainder single men. The married men are in no case earning less than 12*s.* a week. Our energetic friend, Mr. Smith, of Woolston, has written to the *Times* and congratulated the men of Halberton on getting better wages elsewhere, and so relieving the parish of much surplus labour. The *Times* winds up this great case by observing, "In one way or another a labourer and his family must receive enough to live on. But even if the farmer pays actually more he will still be better off, for he will get a better return for his money. A half-starved man has neither the will nor the power to work; and there can be no doubt that the proverbial sleepiness and sloth of agricultural work are, in a great degree, due to sheer lack of vital force." I have no connection with Devonshire, the refore I cannot give you any information; but in my native county of Dorset wages are supposed to be equally low; and I have lately seen it announced that a general rise in wages will be demanded this year in that county. I have requested a worthy and excellent Dorsetshire friend to furnish me with his statement, from which you will see how necessary it is to ascertain surrounding circumstances before prejudging the systems adopted in other counties. He says, "All my labourers have houses and gardens, and extra land cultivated all free, and the crop hauled home for them. Also fuel. The wages, paid every Monday evening, are—shepherds 11*s.* per week and a penny for every lamb bred; half a hogshead of liquor (cyder) for the lambing season, 1*l.* and a hogshead of liquor for his assistance during the hay and corn season. Carters 10*s.* per week, and 1*l.* and a hogshead of liquor for the summer. Other men (many of whom have piecework a great portion of their time) 8*s.* per week, women 4*s.*, boys from 2*s.* to 6*s.*" He then gives the prices of various piece work, hay work, cutting corn, &c., and adds, "All my labourers have their liquor sent to their houses at the commencement of the summer, so that they can use it as they like. I have done this for 20 years, and have never seen more than one or two cases of any abuse of the system; I don't think, generally speaking, they are as good as they used to be, or do as much labour; and whether education has anything to do with it I know not, but this I do know, their great desire is to try and raise the price of piece work, not to earn more money, but to do less of it for the same sum. How people manage that have no cottages on their farms I am at a loss to know. Men are by no means as plentiful as formerly, and numbers from this and other counties are gone to the

coal mines, but some have returned again, not liking the work, however good the pay." My next communication is from a gentleman in Wiltshire, well known to many in this room. His farm contains Grass and down land 143 acres, arable 375. Wages 10*s.* per week, stock men 1*s.* extra, with cottages rent free, Potato ground, and other perquisites. The summer work is done by the piece, the women engaging largely in it. Female labour helps to lessen expenses. Total amount paid for labour on an average, 550*l.* per annum. This gentleman states that in his neighbourhood Sainfoin is grown to some extent, which is kept down some years, as well as a good proportion of artificial Grasses. This also reduces the labour; but still they are short of hands, and all would employ more if they had it. Our friend seems to have settled in a place with great privileges attached—amongst others the right to fish three leagues into the sea all round the kingdom, also the right to use any fair or market in the kingdom, toll free. The former is seldom exercised; the latter may probably be some day at Aylesbury, but I hope it will not depreciate the shares of the Market Company to any serious extent. The next is from one of the most careful and practical men in Berkshire. His farm is 547 acres, nearly all arable. Wages paid from Michaelmas to Lady Day—carters and shepherds, 13*s.*; cowman and general labourers, 12*s.* The cowman has in addition a cottage rent free, firing, vegetables, and table beer, equal to 18*s.* per week all the year round, Taking an average of several years, his labour, including hay time and harvest, will amount to 35*s.* per acre. I now come nearer home, and will refer to the case which has figured so much of late in the prints—that of Gawcott, in this county, where what is called a strike has taken place. A letter has recently appeared from Mr. Barge, who lives in the adjoining hamlet of Hillesden, which, like the Devonshire case, puts a very different face upon the matter. I shall not trouble you by reading it, as most of you have probably done so previously, but will give you the information I have obtained from an independent but reliable source, quite confirming Mr. Barge's statement. "Wages of carters, shepherds, and cowmen, generally 12*s.* per week; in some cases, where there is great responsibility, 13*s.* and 14*s.*; these of course have Sunday duty. The ordinary men 11*s.* per week, and if at piece work they are enabled, in fine weather, to ensure 2*s.* 3*d.* to 2*s.* 6*d.* per day. Boys go to work at nine or ten years old; the girls to service or lacework. On an average a man with five children would have two fit for work, who would earn 5*s.* to 7*s.* per week, thus making an aggregate income of from 16*s.* to 20*s.* per week. In the dairy farms milk is boiled in the morning for the men, and on Saturday evenings they generally have some given them to take home for Sunday. The rents of cottages vary; several have a cottage and a good piece of garden ground at 50*s.* per annum; whereas, others have to pay 60*s.* without a garden." Subscriptions have been collected to relieve these men on strike, and in the *Bucks Herald* of Saturday last I observe it stated that "the secretary is endeavouring not only to procure more remunerative employment for the men of Bucks in other parts of the country, but also to assist others out of the funds at the disposal of the strike committee to emigrate to Canada and other colonies." We can have no objection to men trying to better themselves by removing from places where there is surplus labour, to districts where labour is more in request, at better wages, but I doubt if strikes are necessary for this purpose, or if the advice and assistance to emigrate are either promoting the happiness of the labourer, or benefiting his native country. In the more southern part of this county, amidst hills and stones, the labour per acre is much beyond that of the districts I have quoted. One gentleman, who holds a farm of 320 acres arable and 33 of Grass on the border of the county, states that his regular number of men and boys employed yearly (exclusive of haymaking, Turnip hoeing, and harvest) are three men at 13*s.* each; eight at 12*s.* each; and six boys at 4*s.* 6*d.* each; the hoeing, mowing, and harvesting being nearly all piece work. The earnings of the men would not be less than 40*l.* per annum. The women and children are principally occupied in straw plaiting, and will earn on an average from 8*s.* to 10*s.* per week. Cottage rents are about 3*l.* per annum. He adds, "The moral and social habits of the men generally are far from what I could wish, owing, in a great measure, to the number of beer-shops and public-houses, which I consider the curse of the neighbourhood, tempting not only the men, but, I am sorry to say, the boys also." The labour of this farm averages about 35*s.* per acre (exclusive of beer). In my own immediate neighbourhood the labourers with their families are probably earning as much as in any part of the county, instances having been furnished to me of the children earning more than the father by making straw plait; indeed many girls pay their parents from 3*s.* to 5*s.* per week for their board, and have something left, which, unfortunately, they spend liberally in dress, instead of looking to the future. I have solicited information from a few of the best farmers in my own parish, and find that the average wages now paid are, for shepherds, cowmen, and carters, 12*s.* to 14*s.*, and ordinary labourers 9*s.* to 12*s.* per week. One farmer pays over 40*l.* per annum for steam threshing. I also find that their labour, including hay time and harvest, averages from 34*s.* to 40*s.* per acre, but there are many other cases where this average is exceeded. I cannot tire your patience by quoting the wages from many other counties, but two cases claim special attention, the first being from the vicinity of Doncaster—size of farm, Grass, 30 acres; arable, 300 acres; wages of ploughmen, from 10*l.* to 15*l.* per annum, boarding with the foreman at a cost of about 24*l.* each; shepherds, 16*s.* per week, two bushels of malt, and houses rent free: other labourers, 15*s.* per week; total paid, including foreman, harvest wages, corn threshing, and hay getting, 500*l.* per annum. This gentleman, who formerly resided in Lincolnshire, adds that he finds a great difference between the two counties, the manual labour here being rather over 30*s.* per acre, and even this is smaller than some others in the same district. The last is from a thoroughly practical farmer in the county above alluded to (Lincolnshire). He was formerly a tenant, but I am happy to say is now the owner of his farm, containing about 800 acres, which I wish was the case with many I am now addressing. I cannot omit one fact—there is neither a public-house nor beer-shop in this parish of 3000 acres. My friend's letter is so business like that I prefer giving it to you in his own words. "The general wages since last harvest have been 15*s.* per week for labourers, the men paying their own rents, varying from 3*l.* to 4*l.* per annum, according to the accommodation. We find it more and more desirable to provide as much good cottage and garden accommodation for our labourers as possible, with not less than two and some three bed-rooms, and to pay them as liberal wages as times and circumstances will afford, in order to insure a good feeling amongst them, and to secure a sufficient supply of the rising generation. There is no fear of losing the old men, but it is very clear that the young agricultural men are being very much drawn by the higher wages they can procure in a variety of other branches. There is not so much work done by the piece as formerly, owing to most of the land having been drained and the old hedges removed or plashed; also the corn being threshed by steam. The reaping machines are getting into more general use, and steam cultivation partially so. We have companies in different localities who have efficient sets of tackle, and cultivate by the acre, charging according to depth and strength of soil. Fowler's cultivator and tackle, worked by two traction engines, are the most approved, and require no horse to move them. It was the custom in this county to board the servants, but the farmers' wives prefer their being boarded with the foreman, which is becoming more general. Schools and proper masters are generally provided for the education of the children. The boys begin work at 10 years old, and the girls can go out to service at 13 or 14. We don't think the men do more work than formerly, but we have not much to complain of, and I must say their general habits have improved. The young men now think more about dress and less about beer." The labour now amounts to near 30*s.* per acre. I will not trouble you with any more letters or extracts, but proceed to the

Conclusions.

Why do I advocate education? I will not say better education, because some do get it, and I regret to add, abuse it afterwards: but what I am contending for is a suitable education, that a youth, when he approaches manhood, may know how to read and write, that his spare time may be devoted to the improvement of his mind; and comprehend why he does certain things, and not move about very often with less sagacity than a shepherd's dog. You cannot fail to see that better stock, better implements, and extensive machinery are being kept: and to whom are these to be entrusted? An ignorant labourer, who may ruin an animal or spoil an implement in a very short space. Again, why do I advocate good cottages and gardens upon or near to the farms? It is to encourage the respectable, honest, industrious man, to prevent his having to pass a beer-shop every time he goes to his home, or to a crowded town or village, where "evil communications corrupt good manners." And here let me ask what are the great, I may say the crying evils of the present day? The gin palaces in towns, and the beer-shops in the rural districts. Talk about reform of the representation of the people—suppose we leave out a portion of these words by way of amendment, and let it read "Reform of the people." "Know thyself" was the golden rule of the men of Greece, and this motto was placed over one of their great temples for all men who entered to study. It would be well if we would investigate this a little more. We daily read of deputations from depressed trades, poor law unions, grievances of taxation, including the malt tax; but I do not remember a deputation going to Whitehall to represent the ruinous and demoralising effects of these gin palaces and beer-shops, and asking for their suppression; which have caused more dishonesty, crime, and misery than all other things put together. Then I suppose I shall be told that this is impracticable, and the words "vested interests" will be pointed to, but when the beer duty was abolished, and beer-shops were established, this was not regarded very much. Again, I may be asked, would you deprive the labourer of the means of getting his pint of beer? Certainly not; but I would have public or licensed houses restored to their original purpose for the accommodation of the public, which I am sorry to say is not the case. Let beer be sold like other commodities, over the counter, and taken home for consumption. It is probable that many present know cases amongst the upper and middle classes of their getting what is called "tight" at their own houses; but who has heard of a similar occurrence at the home of the artisan or labourer? If I may be allowed to prophesy to those who are strong advocates for the repeal of the malt-tax, I should say this is the road that will lead to that result. Numerous persons very fairly argue that under the present system the repeal would increase drunkenness. Why have I troubled you at length about wages? It is because I believe it to be a pressing matter, and that you will have to use greater discrimination upon this point. A good, honest, industrious labourer, who does a fair day's work and interests himself in his master's welfare, must be treated differently to those who get through the day as easily as they can, and care but little about the result. From what I have read to you the highest wages are not the most costly per acre; and from my own experience good men at good wages are cheaper in the end. I have lately seen it stated that in certain localities the farmers, unsolicited, have agreed to raise the rate of wages 1*s.* per week all round, but I submit to you that this is a mistake, and wrong in principle. You cannot make alterations all at once, or reduce some men's pay to what they are actually worth; but you can increase the wages of the deserving, whether he be a married or a single man. I strongly advocate paying men by piece work, wherever practicable. I believe the farmer gets more for his money, and the industrious the advantage to which he is entitled over the indolent. Steam has equalised the price for corn and cattle throughout the kingdom, and I believe it will do the same for labour. Steam has done wonders in manufactures, although doubts and difficulties occurred at first, and I believe every succeeding year will witness its further appliances in agriculture. When I see the ponderous engine and tender traversing the road up and down the steep hills of Ashton Clinton, I arrive at the conclusion that before many years they will become as common and for many purposes take the place of a waggon and horses. *Bucks Herald.*

PRESENT CONDITION OF IRISH AGRICULTURE.

[The following is the speech of His Excellency the Lord Lieutenant at the recent meeting of the Royal Dublin Society.]

PERHAPS the pleasure I now feel in being present here for the first time is enhanced by being able to take the bright side of the picture, and being able to congratulate you upon the complete success of your Show and Exhibition this day. I believe the entries were only 18 short of last year, while in Shorthorned bulls the entries were 37 over those of last year. We have the testimony of Mr. Maunsell that the money received at the door was in excess of any former occasion. We have had a winter of unusual severity; we have had nipping winds preventing the verdure of your fields and almost the vegetation. We have had, still more, a disturbed state of the country, which for some months paralysed the hands of the farmer, and has thrown uncertainty, doubt, and distrust upon all employments and avocations of peaceful and industrial life. While looking to these facts, the successful result of your meeting to day is a subject of the highest satisfaction. It shows that the prosperity and strength of agriculture here are not built upon a flimsy or unsubstantial foundation, or liable to be much affected by extraneous or fortuitous events, but that the fostering care of societies like this, and the increase of skill and intelligence among all classes of farmers have produced their fruits in the certainty of remunerative returns, and the increased improvement in agricultural skill and labour. Mr. Maunsell has with much ability described the showyard to-day. I need go no further than to say that, as usual, Shorthorns were in preponderance. With regard to sheep, the entries have not been so numerous, but I believe they have been exceedingly good, many of the animals being of very high quality. In swine the entries were more numerous. If we look further into the matter, we shall find that the evidence of the past year fully bears out the promises of the showyard to-day—the increasing improvement in the prominent feature which eminently and specially characterises your Society as far as agriculture is concerned—namely, the improvement and increase of stock throughout the country. We find that in the three years since 1863 there has been an increase of 600,000 cattle, and the value of these cattle must not be estimated by its numerical increase, considering the value of cattle at the present time. The increase in sheep approaches 1,000,000, which must also be estimated upon an increased value as compared with former years. This is, so far, satisfactory. There is one point to which I look with some anxiety, which is well worthy the consideration of those who are able to take a more comprehensive view of subjects of this nature. I mean that, while cattle have increased in the last three years 600,000, and sheep to the extent of a million, the quantity of land under rotation of crops has decreased by 450,000 acres, and the decrease of green crops alone is upwards of 150,000 acres, while there has been very little increase in hay and meadow lands. Therefore, there is some doubt whether so large an increase of cattle and sheep, without corresponding crops, may be an unmixed benefit. I venture to throw out these observations for those members of your society who have more knowledge than I have upon this subject. There is another subject that has not been mentioned here to-night, but it is one to which the Society has devoted much care and attention—I mean the culture of Flax. As one connected with a part of the country where it is very extensively grown, and as I believe I have as large a number of Flax-growing tenants as any one, I would take the liberty of making a few observations on it. I believe there can be no doubt that Flax, as it is cultivated in Ulster, is a most profitable crop for the small farmer, and by the small farmer I mean the man holding from 10 to 15 to 30 or 40 acres of land. But while I assert that I do not mean to convey that it is not also a crop profitable to the large farmer. There are special reasons why Flax should be a crop more profitable to the small than to the large farmer, and among others may be mentioned the fact that the small farmer is able to use the unpaid labour of his family in the preparation of the crop for culture, and in all the processes of steeping and drying in which the small farmer displays his skill and industry. The large farmer, however, is not so circumstanced, for he has to use paid labour—the ordinary hired labour—without the existence of that *esprit de corps* which is to be found among the members of the same family who work and labour together for a

common object. It is, therefore, pretty clear that though Flax may be a profitable crop to the large farmer, it is to the small farmer essentially advantageous, and it is among the small farmers you should wish to see it extended. I now come to the question whether it is possible to introduce the culture of Flax into the three other provinces, just as it has been cultivated in Ulster, and I confess I have some doubts as to whether it is practicable to introduce it to the same degree as in Ulster. If you look to the physical features of Ulster you will find that it is, as a rule, a hilly country, and very much intersected by small natural streams, and therefore it is that it is so well adapted for the cultivation and preparation of Flax. In fact, Flax requires as much water in its preparation as, judging by certain cases in the Lord Mayor's Court, milk does. It is in consequence of this abundance of water in Ulster that the small farmer can have his own steeping-place or Flax-dam, and it is because of the want of this abundance that you will find it difficult to get the small farmers of the other provinces to plant and cultivate Flax to the same extent as is done in Ulster. And concomitant with this is the existence of scutching-mills, which are so essential to the preparation of Flax for market, and which exist in several parts of Ulster. The pith and marrow of the growing of Flax, therefore, depend on these conditions, in the absence of which I fear it will be difficult to get the crop grown to any considerable degree. My lords and gentlemen, I venture to throw out these observations as one deeply interested in the prosperity of the country, because they explain, and even suggest, probable reasons for the comparative failure which has taken place in the endeavour to increase the growth of Flax in these provinces. There is another subject in which I take a very deep interest, and in which this Society has displayed considerable concern. While we spare nothing that skill and science and money can avail in the improvement of our herds, and in the better cultivation of our fields, we must not forget those to whom the care of the cattle and the cultivation of the fields are intrusted—I mean the agricultural labourers of the country. I confess that, as a large proprietor in Ireland, I have long felt that the improvement of the home of the agricultural labourer is one that must take a prominent part in the requirements of the present day. No doubt the improvement of the farmer's home would be advantageous, but the farmers are able, to a certain degree, to take care of themselves; and between them the labourer, the *adscriptus glebæ*, is apt to fall through. I believe the condition of the labourer, as regards wages and diet, has been very much improved during the last 20 years, but I do not think it has kept pace with the times, and I very much fear that the old cabins of their forefathers shelter many labourers of the present day. While we regret the emigration that is taking so much of the bone and sinew of the land to other countries, it will be a question well worth the consideration of the Society, by what means and how far a better and more improved home would render the peasant comfortable and contented, and reconciled to remain on his native soil. No one knows better than I do the difficulty attending such a subject, but it is by the Royal Dublin Society and by societies like it that it must be overcome, and it is a question that, in my opinion, would amply repay any care bestowed on it in the increased comfort and content, and the improved condition of a large portion of the population. We cannot but hope and believe that the softening influence of a bountiful and plentiful harvest may be in store for the country; we deeply regret that some who have sown the whirlwind may reap the bitter and inevitable storm; but I believe we may have the confidence and assurance that you as members of the Society, and others, like myself, your fellow-labourers, will live to see the rewards of your labour in the increased prosperity and improved state of the country and in the contented condition of the people.

Home Correspondence.

Barley.—The curious reasoning of "O. F." is hardly calculated to promote the cause of the abolition of the Malt Tax. He correctly quotes the price of Barley as having varied from 24*s.* to 58*s.* per quarter, but does not see that the latter excessive high price was solely occasioned by the fact of there being a heavy duty, which obliged the maltster to give an unduly high price for the best Barley, rather than to run any risk by paying the duty upon inferior stuff. He altogether ignores one argument for the abolition of the Malt Tax, viz., that it is an artificial protection of the heavy English Barley against the thin foreign corn, and doubtless the total abolition of the tax would greatly lower the price of beer to the consumer by enabling the brewer to use the weak but sound and cheap malt made on the Continent, which cannot now be imported to advantage, as it is charged with the same duty as the stronger English-made malt. It is notorious that the price of Barley has been for years excessively high in proportion to other corn, and that the production of Barley instead of Wheat has been unduly stimulated since the abolition of the Corn Laws. A tax upon beer instead of malt would be so expensive and inquisitive (requiring the collection from a hundred brewers for every one maltster) that it can never be substituted with advantage, and what is really required (not in the interest of the farmer, but of the consumer) is a decided reduction, with a view to the future total abolition of the malt duty, and not a mere shifting of the tax from one stage of the production to another. The statement of "O. F." that the Malt Tax raises the price of English beer abroad is mistaken, as the duty is remitted on all exported, and English beer is delivered to most Continental ports at a lower price than it is sold in England. *C. E. F.*

Gorse.—In your Journal (No. 11, 1867, p. 277), Mr. Hooper is reported to have stated at Ballineen that for six months of the year he feeds his farm horses on bruised Oats and chopped Furze. I am desirous of further information on this subject, and Mr. Hooper will oblige me, and I doubt not many more of your readers, if he will state in your columns his plan of growing and using Furze. If Mr. Hooper has any experience of this food for cows in milk, store beasts, and sheep, I hope he will give your readers the benefit of it. *Hillside.* [Sow 20 to 25 lb. of seed per acre now in rows 18 inches apart, and keep the land clean. You can cut down every other row, beginning November, 1868, and thereafter every other row annually during winter. Give 40 lb. of the chopped and bruised plant daily to horse or cow. These are the main points. But if Mr. Hooper will give us his experience we shall be much obliged.]

The Water Supply of London from the Upper Thames.—Under the above heading a communication signed "F. G. S., Cirencester," appeared in your Paper of the 27th of April. Without entering into the statements as to the quantities of water from a given water shed, &c., there are certain positions which, should they find a practical application, would rather hinder than promote the object in view. First, he states, that under proper management, 30 million gallons per day may be spared from the Thames with little effect on the rivers. Now, it has been ascertained that in a dry season the whole flow of the rivers above the Cherwell has been reduced to about 60,000,000 gallons per day; and, with the best management, it is believed that the whole flow is barely sufficient to maintain the navigation; to maintain the head of water for this purpose, the rapidity of the water, so necessary to its purity, would be retarded by any abstraction. As for an increase by any dealing with the waters of the Churn or Coln, and as for these waters being sufficient for half a million of inhabitants of London, it has been proved that the whole yield of the Churn above the point where its waters are absorbed is about 2,000,000 gallons per day: where the rest is to come from it were hard to guess. As for all this water, or even a great part, being eventually lost to the Thames, that is a physical impossibility; so surely as these waters were conveyed by other means to London, so surely would some of the springs at the edge of the Oxford clay be diminished in volume. Much may be done by storage, no doubt, though the localities mentioned do not seem best fitted for the purpose. Into the calculation of the expense it is not necessary to enter. The object of this communication is to protest against any abstraction of water from the Thames, as proposed by "F. G. S." *J. C. Clutterbuck, Long Wittenham, May 4.*

Foreign Correspondence.

Alamos Farm, Buenos Ayres: *February*, 1867: *The Horse of the Pampas.*—The horse of the Pampas is an animal not unworthy of remark. Descended from the Spanish barb—probably with a cross of other Spanish horses of undetermined pedigrees, introduced by the colonists, it has multiplied on the prairies of the Rio de la Plata in an extraordinary degree, and in a more or less wild state. Immense troops of wild mares and their progeny everywhere exist, though of late years considerably reduced in number by their wholesale slaughter for the hides and for their yield of grease. In the killing season several thousands are daily slaughtered; for this purpose they are worth about 25*s.* each. On the Estancias numerous separate "manadas" are formed by accident or intention, composed of mares and their progeny of all ages, kept together by the stallions, which jealously guard them. As in the case of the cattle, once a year they are corraled, with the object of marking (branding) the young stock and cutting the young horses. Also the mares are sometimes lassoed and thrown, and the manes and tails are cut for the hair, which constitutes a not inconsiderable article of export. The mode of throwing them is this—one lasso man (mounted or on foot, as the animals gallop round the corral (staked enclosure), driven by the whirling of the lasso) throws the noose over the head of one in the group, and allowing it to settle on the neck, he holding, if on foot, the lasso with his hands about a yard apart, brings the right hand back on his right hip, and places the left on the outer side of the left thigh, stretching forward the right leg and bending the left knee, plants his feet firm set on the ground; a powerful strain is put on the lasso by the galloping animal, frequently drawing the man sliding over the surface (when on other occasions a horseman throws the lasso it is fastened to the ricado in the usual way). A second lasso man awaits the cutting off of the mare or colt from the group, and as she gallops in a circle under the strain of the neck lasso casts the noose on the ground in front of the animal in such a manner that the outer portion of the loop rebounds, and as the animal plants its fore feet into it, gives it a pull upwards, and closes it into the two forelegs, an operation called "prelando," and so trips it up and brings it heavily to the ground, while another gaucho, catching at the fallen animal by the mane, plants his knee on the head. The man who has the animal by the forelegs now moves rapidly, keeping the lasso taut and catching it round the pasterns of the hind leg or legs draws them up to the fore legs and makes fast; whatever operation has to be performed is then effected. If it is a colt or horse that has to be broken in, a halter is put on, and the animal tied up to a stake of the "palenqui"—a row of stakes for the purpose—that he may pull away, as the gaucho says, "to soften his neck;" his legs are then tied, and the saddle (ricado) put on, also the bridle, which consists of a strip of hide tied round the under jaw behind the nippers, and the reins buckled to it; the domador, or horsebreaker, then mounts, and when seated firmly in the saddle the thongs are slipped from the horse's legs, when he either sulks, for a while, or immediately bounds forward, plunging and bucking violently, but only in rare instances succeeding in unhorsing the rider; he finally breaks into a gallop, and another horseman places himself alongside of him in close contact on the side he inclines to, and by main force—the weight of his own horse—keeps the unbroken one heading the way he is required to go. In about half an hour the colt or horse (they are often from seven to ten years old before they are caught for breaking) is brought back pretty well tired and conquered. This being repeated for a few days the animal is more or less serviceable. The "bitting" and "breaking to paces" is an after part of his education. Numbers are lamed in the shoulder, or sometimes their necks or legs broken by the fall in catching. The manœuvres of the stallion in keeping the mares together, or collecting the stray ones of the "manadas," are interesting; neighing, he gallops round and through them, sometimes with crested neck, at others with outstretched neck and head, and ears back, menacing or biting the mares to drive them to the group; or missing one or more, dashes off in search, neighing the while, and from time to time coming to a sudden halt, listens for reply; if the missing mare has got into the "manada" of another stallion, he dashes in, singles her out, and chases her back to his own. The stallions often rob mares from one another, and fight for the prize. The young stallions form their "manadas" by stealing away mares from the older horses. Mares are rarely ridden, and any one mounted on a mare out in the campo would be exposed to the jeers of any gauchos who encountered him. This of course arises from the fact of the equine kind always running loose, and the mares with the stallions, so that the mares are nearly always in foal or suckling young foals. Tamed horses (geldings) are separated from the "manadas" and formed into "tropillos," as they are called, and a "carenciada" with (attached to) a mare, carrying a bell round her neck, which they follow in moving from place to place. In travelling the mare and her tropilla are driven forward, and when a change of horses is required, the mare, which is generally trained to allow herself to be caught by hand, has the hobbles put on, and the horses gathering round her are easily caught with lasso or by hand.

The horses are of every variety of colour, as may be supposed from the mode of breeding. Many are most singularly marked, and anything very peculiar in colour markings is esteemed. I have seen a horse dark brown, almost black, from the girth forward, as if drawn by a line, and from the girth back perfectly white. It is not uncommon to see horses with crisp curled hair all over, something like the "wool" of a negro's head; occasionally whole manadas are seen of them. I should suppose that it was one of this singular race that Barnum exhibited in the States; these horses have scarcely any mane, and little or no hair on the tail. I have not been able to ascertain the origin of this peculiarity in horse-flesh. The horses of the country, taken on the average, are well-formed, short-legged animals, of good bone, round quarters, and full tails, deep chests, having a tendency to be a little heavy and straight in the shoulder, arched neck, somewhat short and thick at its junction with the shoulder, as is to be looked for from their general configuration. Heads in every variety, neat or large, straight-nosed and round-nosed, straight backs and long barrel, short strong pasterns. Their pace is a canter, and particularly easy, from the action being a little round and short. They trot fairly when taught, and when in harness. They stand from 14 hands 1 inch to 15 hands, some reach 15 and an inch, or even 15 and 2 inches, but this rarely. These horses have carried me well to hounds over the plain, hunting the deer with a small pack I had in my younger days, composed of drafts from the Cheshire and north country packs of hounds. I have trained them to fence fairly, and on more than one occasion have taken part in hurdle races, in which the horses performed creditably. I have even run down the Emu on them. They are ridden with a very severe bit, rein perfectly by the neck, and turn rapidly in the gallop. They can be brought on their haunches from full speed, and turned round almost in their own length. This training is necessary for working amongst wild cattle. The short, strong pastern is esteemed, from the less liability to lame in such work.

They have wonderful endurance; the country horses are simply Grass-fed, and are never shod; the day's work over, and the saddles (ricados) taken off, they are turned loose in the plain, and immediately join the rest of the tropilla in their accustomed feeding-ground. They have an extraordinary attachment to the place of their birth (carencia), to which they will return almost as the crow flies from long distances away; they will throw up their heads, look around, snuff the air, and then bound off in the direction of their "carencia."

Horses have been known to return thus, distances of 90 leagues, in four days. It is not unusual for one of the Grass-fed horses to carry his rider 30 leagues in a day, starting at dawn. The usual mode of travelling is with the "tropilla," headed by the mare, with a bell, with 12 or 15 horses trained to follow a "Madrina," (mother mare), and a couple of peons driving them and carrying molotas (saddle bags); the traveller speeds over the plain, and, changing horses every five leagues or so, can make his 35 to 40 leagues a-day, an exhilarating gallop, and particularly attractive in the early morning, skimming through the dew-bespangled Grass, festooned with fine spider-web moist with dew, and glittering in the rays of the just risen sun. In this way I have ridden 20 leagues of a morning, breakfasting at 9 o'clock with a friend after an appetising gallop of 60 miles.

When the horses are fat with the succulent Grasses of the early summer, it is necessary to be very careful with them in the heat of the day; a hard gallop in the

sun will kill them: the fat becomes soft, and in effect melts. In the winter season they frequently become excessively lean and weak from the scantiness of the Grass, its cold and watery stage of organism also super-inducing scour. The mares of the country are well calculated for crossing with the European stallions. The thorough-bred stallion gets exceedingly nice stock out of well-chosen mares, provided the young stock are insured even growth by proper feeding, giving greater size and speed, better style, and more elastic paces. In the second cross the stock is everything that could be desired. I have bred from two sires—one a son of Harkaway out of Fanny Kemble's dam (Elcho); the other, which I now have (Buck-hunter), by Fallow buck (by Venison) out of own sister to Coronation—and in the second cross, both horses have got stock little short of thorough-breds in every point. The Cleveland bay gets excellent carriage and saddle horses out of the mares of the country; some of the progeny of this cross are a trifle loose in form, as is to be expected from the disparity of size, but the half-bred mares of this cross put to powerful blood horses, I feel assured will throw very superior general purpose stock. A friend and neighbour is now putting a son of West Australian (Antipodes) to his half Cleveland mares.

There are also several dray stallions which get powerful horses, excellent for rough draught work. It is not to be expected that when the disparity is so great as between a great 16½ or 17 hand dray-horse with his hugh hoofs, and the neat 14½ hand mares of the country, that the progeny should be level. The neatness of the mare, however, frequently prevails, and the result is then very satisfactory, so much so as to throw handsome horses for carriage purposes.

We labour here under great disadvantages in breeding fine horse stock, from the habitual carelessness among the population at large in respect to horses (which live or die, according to the season). All are horsemen, but no one is a groom, and it is difficult in the extreme to get either young stock or made horses attended to as required.

Then, again, the horses of the country are of such comparatively small money-value, owing to their great number, that prices that would be required to cover cost of breeding, rearing, breaking, and turning-out made horses, fed and cared for, as they should be to give them full development, are not freely paid. It is, therefore, not yet a paying business, the majority of the breeders of improved stock being the landed gentry (Estancieros), who breed for their own pleasure, and to improve their general stock, from which ultimately profit will be obtained, not by the sale of a few colts r horses at prices that would be remunerative of pecial care, but in the sale of hundreds at a future date at equivalent to a few pounds sterling each over the value of the horses of the country breed. These estancieros having thousands of mares on the establishment might, and in a few cases have done so, put the cross-bred stallions in their "manadas," and in this way it would pay them well if they got equal to 2*l*., 3*l*., or 4*l*. more apiece for the unbroken stock, as the pasturage on a cattle estancia is nearly nominal for the horses, as can readily be comprehended from the fact that it is a fair business to an estanciero to sell his 3-year old neats and cows at 25*s*. to 30*s*. each by the thousand. A few pairs of cross-bred carriage horses have recently been sold at 100*l*. the pair, and a few half-bred blood stock for saddle or racing purposes for equal to 50*l*. or 60*l*. each. Trained and fed horses for saddle or carriage are annually rising in value; they are to-day worth ten times what 20 years ago was considered a high price, and I have no question that many sires will be purchased for these countries in the English markets; ten or 12 have been imported during the past year. There is not such a thing as a regular veterinary surgeon in the city of Buenos Ayres, which has 200,000 inhabitants, and swarms with horses. There may be one or two men who profess to be horse doctors—that is, who can rub in a blister or give a ball; I believe a clever active young "vet" or two who had some practice, as well as passed the College, would find an excellent opening here, combining the profession with a well-conducted livery stable. Also a few score of sober, trustworthy grooms would find immediate employment at first-rate wages. *Alamos.*

Societies.

LONDON: *May* 4.—*On Harvest Work.*—A paper on this subject by Mr. Tuxford was read by the Secretary. The importance of the subject was illustrated by the position in which farmers were placed last year as regarded harvest operations. The process of ingathering last autumn was very protracted, and a lack of machinery, combined with a scarcity of labour, in many cases increased the difficulty. If English farmers generally had had the same facilities for harvesting as prevailed in America, their position would manifestly have been much better. The reaping of corn had, since the introduction of the reaping machine, been a matter of comparative ease to those who possessed that advantage. Mr. John Hudson, of Castleacre, had, Mr. Tuxford stated, cut in the course of a day 60 acres of Barley.

1. *On the Employment of Reaping and Mowing Machines.*—My first allusion will be to the weather. Every farmer knows the loss and vexation attending a harvest protracted indefinitely by a succession of wet weather. Frequently, too, when hot weather supervenes, the Wheat becomes dead ripe all at once, and requires immediate reaping, or great loss is sustained by the grain being shed on the ground. We had an instance of the misery and loss attending a wet harvest during the last season, more especially in the northern counties, where the Wheat and other grain remained on the ground after cutting for months, until it was perfectly rotten and unfit for human food. There are men living with whom we have conversed on this subject who can recall the harvest of 1800 and 1816. In those two seasons scarcely a dry sound sample of corn of any description was saved, and Wheat rose to fabulous prices. Now, without pretending to show that the use of the reaping and mowing machines would alter or even modify directly the character of such seasons as these, I may and do say that the farmer who employs these implements can avail himself of a dry day (which may be exceptional), to cut and carry a portion of his corn at such an interval of sunshine, which even the most unfavourable seasons do afford. An example of this facility will illustrate what I mean. A foreman was some years since directed to go to a farm in an adjoining county to inspect the working of a particular machine. On arriving at the homestead he saw a waggon loaded with sacks filled with Barley standing at the barn-door. On inquiry he found that on the previous morning the same Barley was standing in the field, and that in the interval of four-and-twenty hours it had been mown, carted, threshed, dressed, put up in sacks, and loaded ready to be delivered to the maltster. Such expedition would have been impossible under the old *régime* of the scythe. On the same occasion the farmer was about to put the mower to work on another field of Barley (also dead ripe), having a full plant of Clover 9 or 10 inches high. He was about to mow the whole field close to the ground, under the idea of improving the quality of the straw by the mixture, for the use of the cattle. The visitor suggested that as the Barley was dead ripe, it would be better to cut it above the Clover, by which, in a fickle time, it would be ready for carting at once, whilst, with the Clover amongst it, it would require several days to weather it; and, on the other hand, he could afterwards either mow the Clover for hay, or feed it off as occasion required. Now, with the scythe, in neither of the above cases could the corn have been cut in the time, or in the manner recommended in the latter crop, even if the whole staff of harvestmen had been employed about it. The machine required only two or three men to work it, the rest being engaged in gathering and carting, or in other work, as the case might be.

2. *Labour.*—Formerly, England was visited annually at harvest-time by a vast number of Irish labourers, who, using only the reaping-hook were employed by the farmers in cutting the Wheat, which they performed at so much per acre; so that the master had only to see that the work was properly done. This, however, was attended with considerable additional expense, and materially reduced the profits of the farmer. Such a source of supply is now cut off by the wholesale emigration of Irish labourers to the United States, or to the British colonies; and the farmer must consequently rely upon the native and local supply of labour. But even this is not the whole of the case in respect to agricultural labour; for, taking a leaf out of the book of the manufacturing operatives, the rural population is now exhibiting a restlessness and uneasiness on the subject of wages that bids fair to assume an almost national importance. Strikes are a modern invention for coercing the employers of operatives to increase the rate of wages, or to lessen the hours of labour. I shall not enter upon the question of the sufficiency, or otherwise, of the prices paid for agricultural labour, only remarking that it is one likely, in a material degree, to affect the position of British agriculture itself, unless the farmer finds an expedient to lessen the demand for hand-labour, in the greater and more general use of machinery. In the United States of America, as shown by Mr. James Howard, in his excellent paper read before this Club in November last, the use of machinery is an indispensable necessity, on account of the small amount of manual labour procurable. It is estimated by American writers that, on the average, there is not more than one man and two-thirds to every 200 acres of cultivated land; so that without machinery it would be impossible to either reap the crops or cultivate the ground in a proper manner. Returning to our own country, where competition with the foreign grower and an advancing price of labour place the farmer as it were between two fires, it is doubly necessary to resort to machinery, even if no other advantage accrued from it than that of lessening the amount of hand-labour required. I look upon the introduction of machinery upon the farm as the regulator that will tend to settle the balance between labour and capital in that branch of industry, as it has in the cotton factories of the North, by economising hand-labour at those periods when it is of the most importance to do so.

3. *Autumnal Tillage.*—It is now generally admitted by all advanced agriculturists that autumnal tillage of the stubble lands and fallows, in preparation for the succeeding crops, is of essential importance. By the employment of machines the duration of harvest is shortened by from a week to 10 days on the average, thus making room for the plough to perform its task before it is engaged in the preparation of the land for Wheat sowing. No one can calculate the benefit of thus having the stubbles "laid up" in the rough, to receive the ameliorating influence of the winter's frost and snow; but I have no hesitation in asserting that if the week or 10 days thus saved from the harvest is properly improved by the farmer, it will frequently make all the difference to him of a good and a bad crop, of whatever kind, whether of roots or spring corn. Harvest work, however joyous to him who employs, is no child's play to the workman himself. It is true that to a young and healthy man accustomed to farm-work the labour of reaping and mowing, though heavy, is not overwhelming. But many a man who has arrived at the age of fifty finds it difficult and painful to keep up with the gang, and is generally in the rear of his fellows. I believe that any medical man will bear me out in saying that the introduction of these machines and of the threshing machine will tend to lengthen the average life of the agricultural labourer by many years, besides enabling him to perform the operations of husbandry with ease and comfort, as certainly with much greater efficiency and despatch. In conclusion, I beg to add that the advantages above enumerated as accruing to the husbandman from the use of these machines are sufficiently general to establish their claim to the character of a national benefit. Any invention that tends to ameliorate the condition of a class of the community may be with propriety considered in that light—especially if, with other objects, it promotes the health and the duration of the physical powers, and, consequently, the life of the labourer. Such is the case with the extended use of agricultural machinery, and it is therefore to be hoped that the employment of reapers and mowers will become, like that of the threshing machine, *universal.*

[After the subject had received a vigorous practical discussion, to which we shall next week refer, Mr. TUXFORD said, in conclusion, that on visiting Hampshire last year he saw an immense amount of farm produce exposed to the varying influences of the climate. He was told that that arose from the scarcity of labour, but he found that where the reaping machine was used the harvest was carried.]

BATH AND WEST OF ENGLAND.—The following programme of the arrangements for the forthcoming show at Salisbury, in June next, was brought up by the Secretary, and confirmed:—

Monday, 10th June, admission 2*s*. 6*d*.—Open Judging at 10 A.M. Implement department open at 10 A.M. Arts department open at 10 A.M. Sheep shearing in the yard at 11 A.M. The Exhibition to be opened by the President and the officers of the Society, assisted by the Worshipful the Mayor and Town Council of the city of New Sarum, the Bishop of the diocese, the Cathedral dignitaries, the members of Parliament for the city of New Sarum and the two divisions of the county of Wilts, and the members of the Local Committee, at 1 o'clock. Luncheon in the Pavilion at 2 P.M. Tickets for ladies and gentlemen (to be paid for on entering the tent), 2*s*. 6*d*. each, exclusive of wines, &c. Horticultural department open at 1 o'clock. Band of the Grenadier Guards at 1 o'clock. Yard closed at 6 P.M.

Tuesday, 11th June, admission, 2*s*. 6*d*.—The sheep, horses, pigs, poultry, implements, arts, and horticultural departments open from 9 A.M. to 6 P.M. Field implements of various kinds at work at intervals from 10 to 3. Band of the Grenadier Guards at 11 A.M. Reception of members by the Bishop of Salisbury at the Palace at 8 P.M.

Wednesday, 12th June, admission, 2*s*. 6*d*.—The sheep, horses, pigs, poultry, implements, arts, and horticultural departments open from 9 A.M. to 6 P.M. Band of the Grenadier Guards at 11 A.M. Performance of concerted pieces by the bands of the Grenadier Guards and Royal Marines at 3.30 P.M. The shoeing of horses at portable forges at 10 A.M. Field implements of various kinds to work at intervals from 10 to 3. Annual Meeting of members of the Society in the Council Tent at 12 (noon). Conversazione at the Council Chamber by invitation of Dr. Lush, Mayor of Salisbury, at 8 P.M.; Paper to be read by Mr. E. P. Squarey.

Thursday, 13th June, admisssion 1*s*.—The sheep, horses, pigs, poultry, implements, arts, and horticultural departments open from 9 A.M. to 6 P.M. Royal Marine Band at 11 A.M. Excursion to Lady Herbert's farm buildings and Wilton House, under the direction of Mr. Rawlence. Members to meet at the Council Tent at 1 o'clock. Reception of members by the Bishop of Salisbury at the Palace at 8 P.M.

Friday, 14th June, admission 1*s*.—The sheep, horses, pigs, poultry, implements, arts, and horticultural departments open at 9 A.M. Royal Marine Band at 11 A.M. The horses (excepting in Class 47) will remain in the yard until 3 P.M. No poultry to be removed without special order until after 3 P.M. Horticultural tent closed at 3 P.M. Poultry tent closed at 3 P.M. Yard closed at 5 P.M.

On Monday the horses will be openly judged; on Tuesday and following days they will be paraded in the circle, for at least 30 minutes, at 12 and 4 o'clock (weather permitting).

In consequence of the decision of the Committee of Privy Council no horned cattle can be shown at the meeting of this or any other agricultural society during the summer of this year.

WARWICKSHIRE CHAMBER OF AGRICULTURE: *The Earl of Clarendon on Agricultural Topics.*—At a dinner held last week at Coventry to inaugurate the establishment of a Chamber of Agriculture for Warwickshire, the Earl of Clarendon presided, and was supported by Lord Leigh, Lord Hyde, Mr. A. Pell, Chairman of the Central Chamber, and nearly 300 of the principal agriculturists of the district.

The noble CHAIRMAN proposed the toast of the evening, "The Warwickshire Chamber of Agriculture," and in the course of a long and interesting address, said,—The object for which they were assembled, the importance which was attached to it, the interest which it excited, and the hope of usefulness with which it was viewed, were all attested by the numbers and respectability of those whom he had the honour to address; but he thought it would not be out of place, or in any way detrimental to their future success, if they, on that occasion, which, though not the earliest, was the most public of their proceedings, came to an understanding among themselves as to the principles to which they intended to give effect. It would be useful to themselves in steadily directing their energies; it would be useful to others in dispelling delusions, for they must not disguise from themselves that Chambers of Agriculture, capable as they were, if well conducted, of vast and beneficial development, were viewed in certain quarters with feelings of apprehension. They were thought to be Trades' Unions in embryo. He spoke, let him say, from his own knowledge—from

what he had actually heard. Chambers of Agriculture were thought by some to be anti-social, and as having a tendency to organise an uprising of a class supposed hitherto to have been passive against another class supposed hitherto to have been dominant. Some men might harbour evil designs, others might have an immoderate tendency to panic; but his belief was that these notions were chimeras. The object of Chambers of Agriculture should be to advance steadily, to promote by every possible means, the interests of agriculture; to promote those interests by an elucidation of facts, by the lights of experience, and by the application of science. In the desire which agriculturists and cultivators of the soil were now manifesting to better their position, social and national, he could see nothing anti-social—nothing that was subversive; on the contrary, he looked with the greatest satisfaction at that movement, which showed that knowledge was producing its legitimate results; that knowledge, with its increased facilities, is spreading; that the cultivators of the soil were determined to emancipate themselves from the disadvantages under which they had hitherto laboured, as compared with manufacturers and other inhabitants of towns, who had an opportunity of interchanging ideas and of fostering that spirit of association without which nothing useful is attempted and nothing great is ever achieved. That was not setting class against class. That would not—and ought not—to disturb those friendly relations between landlord and tenant which had been productive of such substantial benefits, and which he trusted would always continue. There was no one who could say that the landlord who had an intelligent and well-educated tenantry—a tenantry who were capable of meeting the requirements of the times, and who were ready to adopt all those improvements which the inventive genius of the age is bringing forward—would not be happier and wealthier than the man who had such a tenantry as he and many others could remember having existed in former days, whose chief pride was that they deviated in nothing from the practice of their forefathers, and who would have been as willing to see an evil spirit come upon the land as they would a drainer. It must ever be borne in mind that a tie of common interest bound together the owners and occupiers of land, and it was only by a misuse of reason or a perversion of common sense that the two classes could be supposed to represent antagonistic interests. There might be differences of opinion as to how the productive powers of Nature may be best developed, and as to the manner in which her bounties may be best appropriated, and with respect to the rights of capital and the just claims of labour; but these were matters which required to be watched and constantly discussed in a spirit of identical, not of opposing interests—in a spirit, so to speak, of a joint-stock company. It was for that reason that he ventured most respectfully, but with all the force that conviction could give, to say that it would be a grave error on the part of landlords if they held themselves aloof from these Chambers of Agriculture, which were one of the signs of that movement—that vast and advancing movement, which could not be retracted; and tenant-farmers would commit an error not less grave if they sought to dissociate themselves from their landlords, and to avoid rather than promote that harmonious action by which intelligence would be made to fructify, and legitimate intelligence develop itself far more safely and more quickly than by single-handed attempts to redress grievances, which would entail the penalty of resistance and the misfortune of enmity among men who ought to be friends. He trusted the example of Warwickshire would be followed throughout the country. They wanted no Trades' Unions in agriculture; and the best way to avoid them, or to avoid drifting into something corresponding to them, would be by raising up a frank, an honest, and a real understanding between owners and occupiers of land upon matters affecting their common interest; and he could see no better medium of cementing friendship and reconciling differences than that which was afforded by a well-conducted Chamber of Agriculture. He expressed his opinion that, as a usual rule, not to be adhered to pedantically, politics ought not to be admitted to their discussions. If such a rule was found expedient at agricultural gatherings generally, he thought it was the more especially expedient at the present moment, when all parties were so jumbled together that Conservative, Whig, and Radical seemed as much at a loss to know what to think as to know where they were going.

County Rates.

Among the various questions which might be suggested for discussion, he might mention, for example, the subject of county expenditure, which seemed to require very strict supervision; and it was a matter in which tenant-farmers had a very direct interest. County rates, generally speaking, were on the increase, and were not likely to diminish. He did not presume to say that a single shilling was improperly levied or improperly expended, but he did say that for the satisfaction of the agricultural interest a more strict supervision was desirable, and more evidence should be given than at present—he did not speak of any county in particular, but generally. There was another question arising out of this, and it was how the rates were to be levied—whether upon the land alone or upon other property besides. He was glad to see a Bill extending the area of rating had passed a second reading and had been referred to a select committee, and he thought the subject should be immediately taken into consideration by the Chamber of Agriculture, as he could conceive nothing that was more worthy of its attention; and the facts brought out by the Chamber would be extremely useful to the Committee, and should be at once transmitted to them.

Turnpike Trusts.

The next topic to which he referred as being of great importance to agriculture was the abolition of turnpike trusts—a matter which involved great difficulties, and great embarrassment in reconciling conflicting interests; but those difficulties were not insuperable, and he trusted a settlement of the difficulty would be arrived at by the substitution of a better, a more economical and a more convenient system than that which now existed in England. They had been abolished in Ireland ten years ago. South Wales had been relieved of them by Rebecca, and London had for the last three years relieved herself from tolls, which had stuck like leeches to her suburban districts. That the thing was practicable and ought to be done was apparent from the report made to the Committee of the House of Commons in 1864, which stated that the tolls were unequal in pressure, costly in collection, inconvenient to the public, and injurious, by causing serious impediments to the free course of traffic. He believed that statement correctly described the feelings of Warwickshire men on the subject. There would be considerable difficulty in settling this question, but he was glad to see that on the previous day there was a debate in the House of Commons the spirit of which was favourable to doing away with tolls. He would only ask them to bear in mind that the cost of collection and management of turnpikes amounted to 40 per cent. on the amount received, which fully proved that there was no system which could be adopted more injurious or less economical than the present. He would suggest the advantage of Chambers of Agriculture sending up deputations to state the facts with regard to the operation of the present system.

Drainage.

There was another subject in reference to which those things called stubborn facts had done a great deal; but facts required a great deal of soaking, and when they met with a stratum of antediluvian prejudice they sometimes did not penetrate so deep as one could desire. He alluded to the question of drainage. There was nobody at the present day who denied the advantages of drainage, but he thought the necessity of it was not generally recognised.

He had once vainly urged one of his tenants to drain a hill-side which grew a very luxuriant crop of rushes, he did one part of it himself, and having thus clearly shown the wonderful effects of drainage, in changing barrenness and waste to fertility and profit, he confidently appealed to the farmer to allow the work to be completed, when, to his astonishment, he declared he would sooner pay a trifle more rent to have it left as it was. He felt satisfied that if that man had been enabled to associate with others, by being a member of a Chamber of Agriculture, he would not have died in the conviction that it was better to grow rushes than to lay drains. He knew that drainage was expensive, but, at the same time, he believed that there was no investment which gave a better return, and his principal reason in alluding to the subject was that it was not generally known or appreciated that the burdens incurred by drainage might be greatly alleviated by borrowing money from the Government or the Lands Improvement Society, under the supervision of the Enclosure Commissioners, and which was converted into a moderate rent-charge for a term of 27 years, after which the improvement remained.

Cottages.

This power of borrowing through the Government had been wisely extended to farm buildings and tenements, and he thought it would be a question well worthy attention whether the powers of that Act might not, under certain regulations and strict supervision, be beneficially extended to labourers' cottages. He was speaking to practical men, and he would ask why it was that farmers erected excellent and comfortable buildings for keeping their stock? It was because they knew they could not keep their cattle in health, and could not get good manure, unless they had such facilities; and for the same reason they would have good stables for their horses, because they knew that unless the horses were well kept they could not be got to perform the amount of work required of them. Now, he thought that in the cultivation of the land the man was not inferior in importance to the horse, putting aside all the moral and Christian obligations that ought to weigh with us so heavily, but let him ask whether a man who gets up half rested, and puts on his half-dried clothes and shoes, and trudges four or five miles to his work, could be in a state to earn even the scanty wages that he received? Cottages are bad investments, he knew, and people shrank from building them, but they were not wholly unproductive, and the difference of interest between what they do and ought to produce would be made up by the improved quality of the labour of the man who lives close to his work. Many of the labourers would do an hour's additional work rather than incur the useless fatigue of the three hours' walk to and from their homes. The whole subject had been painfully pressed on public attention by the disclosures made before the Commission on Agricultural Gangs. It appears that in the eastern counties, between the public and private gangs, upwards of 20,000 children were driven daily four, five, and six miles to work for which they were unfit. Boys and girls of ages averaging from 12 to 18 were herded together. The most frightful immorality ensued, and the opinion of 70 medical practitioners and the returns of mortality testified to the evils of the system. No slave plantation could furnish more horrors than the evidence taken before this Commission. He well knew that it was easier to talk about than to effect great social reforms, and changes such as he had alluded to must be the work of time and grave consideration, but nothing could be more worthy of the practical and enlightened men who would compose Chambers of Agriculture, nothing could be more calculated to raise them in the estimation of their fellow countrymen, than a determination to improve the condition of the labourer.

Statistics.

There was another subject to which he would allude, although it was not popular, but he had for many years attended to it, and knew the time would come when its importance would be universally recognised. He alluded to agricultural returns. It was impossible to exaggerate the importance to all persons interested in agriculture, or concerned in the supply of food for the people of this country, of obtaining reliable information respecting the extent of land under cultivation, and the relative acreage of the different descriptions of crops in the United Kingdom. Those returns would become more valuable as affording the means of comparing each year the annual and periodical variations in the cropping of the land. Such returns had been collected in Ireland for the last 17 years; the people there were fully alive to the advantages they derived from them, and the willingness with which the information was contributed annually called forth the thanks of the Registrar-General. Warwickshire was not one of the unwilling counties, but in others there were owners and occupiers of land who looked upon these returns with the same horror as his tenant did upon draining. The Government now possessed efficient machinery for collecting the desired information, and it would be almost a disgrace that a comparatively small number of persons in England should force the Government to apply to Parliament for power to oblige all the occupiers in Great Britain to fill in the schedules with the necessary figures.

Game.

He begged to apologise to the assembly for having detained them at such great length, and he would conclude with one word, which should be a monosyllable—viz., "game." On an occasion like the present he thought it would be like shrinking from his duty if he avoided allusion to it merely because it was a sore subject, though he need not add that his object would be to calm and not to excite irritation; but the fact was indisputable that high farming and high preserving did not and could not go hand-in-hand together. Farming was now-a-days a science requiring not only great capital, great skill, and knowledge, but the nicest calculations as to their application; and it was manifest that 500 or 1000 hares, and rabbits *ad infinitum*, were great disturbers of calculations. The love of sport was genuine and general in this country, and he hoped it would always remain so. Every tenant was glad that his landlord should find game on his farm. No landlord wished to enjoy sport to the detriment of his tenant; but the appetite for enormous returns of game killed, which had latterly increased by indulgence, went beyond the legitimate requirements of sport; those competitive bags entered into the region of vanity, the superabundant supply of Leadenhall Market entered into the region of lucre; hence arose irritation, some of it exaggerated, some of it well justified, but which ought not to exist, and which he was certain could be removed by a friendly discussion of facts between owners and occupiers of land.

In short, there was nothing affecting the interests of agriculture which might not be advantageously discussed there. All the materials of strength existed, but they had been scattered; farmers, owing to the nature of their calling, had been isolated, and agriculture had been weak; but, now that the necessity and practicability of union were felt, agriculture, he hoped, would take a foremost place as a great national industry. He saw no objection to a department of the Board of Trade being devoted to agriculture, but the advantage of it was not apparent to his mind. He would prefer a Central Chamber of Agriculture in London, to which the country Chambers should be affiliated, but which should have a national character, and be composed of men fully entitled to confidence. There would be the concentration of strength, the essence of agricultural opinion. There it would be determined what legislation could do for the landed interest, and what it could not do; and then the Government in its collective capacity and Parliament could be applied to. He thought this would have more concentrated force and weight, and in action would be more independent, than seeking aid from the Government; and that the experiment ought in the first instance to be tried. It would be matter for future discussion and decision, but in the meanwhile we might congratulate ourselves on being at length in the right groove, and on a momentum in the right direction being now given to agriculture which would prove to be a sound and lasting national benefit.

Farm Memoranda.

Lillerup lies near Horsens, some 40 miles to the south of Aarhuus. The farm consists of 218 Tönderland of arable and 30 of meadow land, and is drained throughout with pipes at a depth of 4 feet. A 14 years' rotation is followed on this farm—

Year.		Year.
1. Fallow.		8. Roots.
2. Wheat.		9. Barley.
3. Barley.		10. Tares.
4. Oats.		11. Rye.
5. Seeds } fed off.		12. Seeds.
6. Seeds }		13. ,,
7. Oats.		14. ,,

Manure to the extent of 20 tons per Tönde-land is given to the fallow and to the Oat and root crops. To the latter 2 cwt. of guano and 3 cwt. of bones are given, in addition to the farm-yard dung. Six pairs of horses are kept, and 13 regular men, besides some boys. The farm is worked and managed entirely for dairy purposes. The dairy staff comprises two chief dairymaids, with four women to assist. The herd consists of 86 cows, giving an average annual return per head of 506 gallons of milk, from which an average yield of 160 lb. of

butter and of 180 lb. of cheese is obtained. During the past year the largest yield of milk from one cow amounted to 990½ gallons, and the 10 best cows in the herd gave an average of 770 gallons each. Everything is consumed on the farm except the Wheat and one moiety of the Rye crop.

In addition to the food produce of the farm, about 15 Tönder of Rape-cake and the same quantity of bran are purchased annually for the stock.

The farm of Gjeddesdals is situate on the island of Zealand, about four miles south-east of Roeskilde, a chief station on the Copenhagen and Korsoer Railway. The farm consists of 585 Tönder-land of a deep loam, mostly of a superior quality, containing naturally a good proportion of organic matter. It is worked and managed principally for dairy purposes.

"The land has all been drained with pipes at 4 feet depth, under the personal superintendence of the proprietor, Mr. Valentin, who, with great kindness and liberality, placed before me the outgoings and returns of his farm for each year since 1832, when he came into possession of the property. The accounts appeared to have been kept with scrupulous exactitude, even to the smallest details, and no doubt have contributed much to the reputation he has achieved as a practical farmer, and to the high value which is everywhere placed upon his advice and opinions. The cost of drainage averaged about 30 r.d. per Tönde-land; the usual cost, however, ranges from 30 to 50 r.d. per Tönde-land. The rotation followed on the farm is an eight years' course—

1. Oats	5. Barley
2. Fallow	6. Seeds for hay
3. Wheat and Rape	7. Seeds
4. Peas and Wheat	8. Ditto

The manure is applied to the fallow and the Barley crop, and a top dressing of artificial manures is given to the seeds cut for hay.

The working force on the farm comprises a bailiff and 32 regular men, and 11 pairs of horses. The live stock consists of 140 cows, with 20 heifers and 20 heifer calves, all for dairy service; about 200 swine for breeding and feeding; and half a score or so of sheep, kept merely for their lambs and wool produce, which is used up for stockings and other knitting,

All the dairy produce, butter and cheese, as well as the calves and fat swine, are sold; as is also the surplus grain produce, after reserving sufficient for the requirements of the farm.

The entire herd of cows were of the Angel breed, all good, and many of them excellent specimens of an excellent breed. It is very rare indeed to see such a large herd of a pure breed of such good and uniform quality. The dairy returns gave good evidence of their milking qualities. The dairy staff comprised one chief and one second dairy maid, with nine women to milk and assist.

"In 1864-5 the gross milk produce of the farm was 331,000 pots,* equal to 97,297 gallons, or an average of 695 gallons per cow. In the past year, 1865-6, the gross milk produce amounted to 328,000 pots, equal to 96,413 gallons, which gives the average per cow at 688½ gallons. In 1864-5 the gross amount of butter made was 19,000 lb.,† and of cheese 18,000 lb., which would give an average produce of between 130 and 140 lb. of both butter and cheese for each cow.

A good cow well kept will yield from 600 to 700 gallons per annum. Mr. Valentin informed me that he has had cows that have given more than 1000 gallons in the course of the milking year. The butter made on this farm has a good reputation in Copenhagen, where all of it is sent in earthenware jars of different sizes, suitable for family use. Thus the ordinary sale expenses are lessened, and a better price and quicker return obtained.

The following is an abstract of the income and expenditure of the farm for the past year (1865):—

		Income.		
450 Tond.	Wheat	which sold for	3,991	Rigs-dalers.
130 ,,	Rye	,, ,,	970	,,
922 ,,	Barley	,, ,,	4,992	,,
1650 ,,	Oats	,, ,,	6,859	,,
275 ,,	Peas	,, ,,	1,040	,,
376 ,,	Rape-seed	,, ,,	5,192	,,
Butter	..	,, ,,	10,280	,,
Cheese	..	,, ,,	1,455	,,
Calves	..	,, ,,	516	,,
Swine	..	,, ,,	1,695	,,
Cast Cows sold off		,, ,,	520	,,
Odds and Ends		,, ,,	470	,,
	In all		37,980	
		Expenditure.		
For house and living expenses, labour, &c.			15,495	Rigs-dalers.
Corn, &c., for horses			4,460	,,
Corn and other food for cows			7,901	,,
Balance for rent, and interest on capital ..			10,124	,,
Total			37,980	,,

This would show a net balance, after paying for all house expenses, in favour of the farm equal to between 17 and 18 r.d. per Tönde-land. The season, however, had been very unfavourable for farming throughout Denmark, and the profits everywhere had been below the average, as the accounts for the three previous years showed an average net balance of 32 r.d. per Tönde-land per annum in favour of the farm.

The rent value of the land was estimated at about 14 to 15 r.d. per Tönde-land; and the taxes, &c., amounted to 1200 r.d., of which 900 r.d. were State, and 300 local imposts. *Professor Wilson's Report to the Foreign Office on the Agricultural Society's Meetings at Aarhuus and Vienna last year.*

* The Danish pot is equal to 1.1758 quart English.

† The Danish pound is equal to 1.1024 lb. English.

Calendar of Operations.

May: *Turnip Culture.*—Swedish Turnips should be got in during the early part of the month in Scotland, and in South England in June. The land, after the cultivation already received, may be reduced to a sufficient tilth, and will probably be sufficiently cleaned by once using the cultivator or scarifier, which is to be followed by the harrows, and then by women to gather weeds, pick stones, &c. The land is then to be ridged up in drills, about 26 inches wide; the dung-cart passes up every third furrow, the man behind it pulling out the manure as the horse proceeds, so as that the load shall be emptied in a length of from about 50 to 100 yards, according as the quantity to be applied is from 40 to 20 loads per acre. The filling of the manure may be let at ¾d. per cubic yard. The manure thus delivered is divided by a man who follows amongst the three drills to which it belongs, and the share of each is spread evenly by three women or boys following the man. If no guano, or especially superphosphate of lime, has been mixed with the dung in the heap, now is the time to apply it broadcast over the field, so that on the splitting of the drill it may be covered with the manure, and at the same time mingled with the earth which is to act as seed bed. In some cases bones and artificial manures are all that the Turnip crop receives; in this case the drills may be opened as before, the manure sown by hand along the furrows, and mingled with the soil by a horse-hoe following the sower. In either case it will be understood that in order to avoid the loss of moisture, both from the soil and the manure, the ploughs which are at work in the field, after opening up about 12 drills on which the dung cart or manure sower is at work, keep working round and round the parties thus engaged, opening furrows on the one side for receiving the manure, and closing them on the other side, thus covering their contents. The sowing machine is immediately to follow all, sowing 2 or 3 lb. per acre. The only safe remedies for fly are a good and rich cultivation and abundant seeding, which all tend to force the young plant rapidly through the season of its danger. It is well to have 12 or 14 drills ready for the sowing machine on the evening before you commence sowing, that there be no loss of time in the morning. A piece of common Turnips may be sown this month, as an early root crop for consumption in September. Land that has been broken out of old pasture, which received its first shallow ploughing in April, should be cross-ploughed now, and may be again worked with grubber, harrows, and roller, until in sufficiently fine tilth for Turnips. It is advisable to plough shallow at the first furrow, and cross-plough deep afterwards, both because the operation of reducing to tilth is better done thus piecemeal, a few inches at a time, and because the ashes which were spread on the surface are thus not buried too deep in the land. Crosskill's clod-crusher will be found useful this and next month.

Rye, all through this month, and Vetches during part of it, will have been supplying cattle, sheep, and horses with food. The land which bears these crops is to be ploughed as soon as cleared. The roller must immediately follow the plough, to keep all the moisture in the soil.

Cabbages may now be transplanted in the fields, the land having been prepared, as for any other green crop, by deep and clean cultivation, and plentiful manuring. The large Drumhead Cabbage seldom requires a less space than 27 by 24 inches; on very rich or highly-manured land the distance between the rows may be as much as 3 feet.

Miscellaneous.

The Barley Question.—It is in the production of malt liquor and ardent spirits, and in the fattening of live stock, that our Barley crops are chiefly consumed. We have no doubt that it would be better for the whole community if this grain were more largely used in the form of butcher's meat, and greatly less in that of beer or whisky. It has been customary for farmers to look upon distillation as beneficial to them, from the ready market which it affords for Barley, and more especially for the lighter qualities of this and other grain crops. But this is a very short-sighted view of the matter, for careful calculation shows that when the labouring man spend a shilling in the dramshop, not more than a penny of it goes for the agricultural produce (Barley) from which the gin or whisky is made; whereas when he spends the same sum with the butcher or baker, nearly the whole amount goes for the raw material, and only a fraction for the tradesman's profits. And not only so, but the man who spends a part of his wages upon strong drink, diminishes, both directly and indirectly, his ability to buy wholesome food and good clothing; so that, apart from the moral and social bearing of this question, it can abundantly be shown that whisky or beer is the very worst form for the farmer in which his grain can be consumed. Were the 50,000,000*l.* at present annually spent in Great Britain upon ardent spirits (not to speak of beer), employed in purchasing bread, meat, dairy produce, vegetables, woollen and linen clothing, farmers would on the one hand be relieved from oppressive rates, and on the other have such an increased demand for their staple products, as would far more than compensate for the closing of what is, at present, the chief outlet for their Barley." *Mr. J. Wilson, of Edington Mains, in British Farming.*

Notices to Correspondents.

Bailiff.—The Editor of this Journal can recommend a good working Bailiff, well acquainted with tillage, farming, and market gardening; also acquainted with stock management. Wages, 90*l.*, with cottage and garden.

Books: *J Smith.* Any bookseller will get you the books you name. Solly is, we believe, out of print.

Coltsfoot: *M. A.* Pull the flowers in early Spring, and cut off the leaves as soon as and whenever they appear, and if you can fork or fallow the land, get rid of the root.

Dandelion: *Old Reader.* You must spud them up, and keep your Grass hard fed down with stock of any kind.

Lactometer: *R C Lewis.* There is no lactometer made under Dr Voelcker's name.

FOWLER'S PATENT STEAM PLOUGH and CULTIVATOR may be SEEN at WORK in every Agricultural County in England.

For particulars apply to John Fowler & Co., 71, Cornhill, London, E.C.; and Steam Plough Works, Leeds

THE IMPROVED TANNED LEATHER DRIVING STRAPS. PATENT EDGE-LAID LEATHER STRAPS, without lap or cross joints—superior to all others for Portable Engines. Prime STRAP and SOLE BUTTS.

Price Lists sent free by post.

The Tanned Leather Company, Tanners, Curriers, &c., Armit Works, Greenfield, near Manchester; Warehouse, 81, Mark Lane, London, E.C. Mr. H. Ferrabee, Agent.

IRON HURDLES (Silver Medal of the Royal Agricultural Society).

SHEEP, 3*s.* 5*d.*; CATTLE, 4*s.* 2*d.*; OX, 5*s.* 11*d.*

List by Post. GATES and FENCING of every description.

St. Pancras Iron Work Company, Old St. Pancras Road, London, N.W.

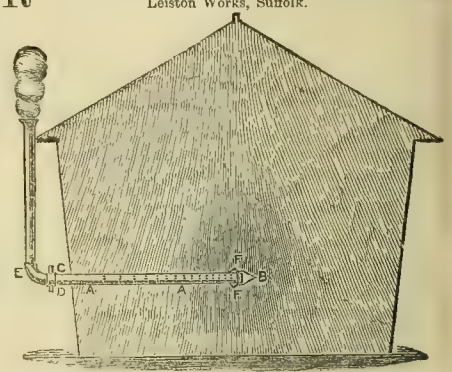
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Their advantages are—Portability, not Fixtures, removable at pleasure, no Woodwork or Partitions to impede Ventilation or breed Vermin, Hay Rack dispensed with as unnecessary, increased width and depth of Feeding Troughs, Water Cistern, and Patent Drop Cover to prevent over-gorging. Cleanly, durable, and impervious to infection, being all of iron. Price of Fittings per Cow, 55*s.*

Prospectuses free of Cottam & Co., Iron Works, 2, Winsley Street (opposite the Pantheon), Oxford Street, London, W., where the above are exhibited, together with several important Improvements in Stable Fittings just secured by Patent.

Patent Rick Ventilator, Manufactured by RICHARD GARRETT and SONS, Leiston Works, Suffolk.



The above represents a Section of a Heated Hay Stack, showing the Patent Ventilating Apparatus in operation.

This Apparatus will be found a complete and perfect means of detecting and promptly reducing Heat in Corn and Hay Stacks.

Price £1 11*s.* 6*d.* each.

Full description forwarded on application to Richard Garrett & Sons, Leiston Works, Suffolk (Sole Manufacturers).

W. S. BOULTON'S 36-gallon SWING WATER BARROW. Price 45*s.*

Carriage paid to any Station in England.



The above is very cheap and invaluable for carrying Liquids of all kinds. No Garden, Farm, Stable, or Kitchen Yard should be without one. Two or more Tubs can be had with one Carriage at a small additional cost. A Lad can easily work it; but if required to travel long distances over rough ground a Pony can be attached. The wheels and carriage are wrought iron, and the tub oak. The following, out of many Testimonials, have been received:—

From Lord Otho Fitzgerald, *West Park, Salisbury.*

"Sir,—You are welcome to make use of my letter recommending your Water Barrow. I find it of great use, and stronger, better, lighter, and more serviceable than one I had made in the neighbourhood, the carriage alone of which, without the barrel, cost me £3 10*s.* I unfortunately ordered it before I saw your advertisement. —I am, yours obediently, "O. Fitzgerald."

"To Mr. W. S. Boulton.'

From Thos. Ingle, Esq., *M.D., Emsworth, Hants, June* 24, 1866.

"Sir,—The Swing Water Barrow is in every respect a most admirable improvement on all I have hitherto used in my Gardens. All parties who have seen it, Gentlemen as well as Gardeners, have bestowed upon it their unqualified approval, and several said they would order them of you.—Yours truly, "Thos. Ingle, M.D."

"To Mr. W. S. Boulton."

Rose Lane Iron and Wire Works, Norwich.

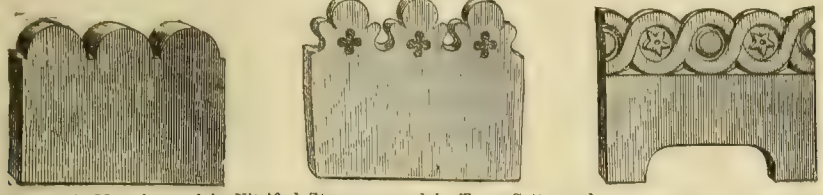
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This Edging is Manufactured in Vitrified Stoneware and in Terra Cotta, and is WARRANTED IMPERISHABLE.
DRAIN PIPES, TERRA COTTA CHIMNEY TOPS, &c.

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LAWN MOWERS, SCYTHES, ROLLERS, GARDEN SEATS, &c.—SHAW'S TIFFANY, from 7s. per piece.
The Garden Repository, 32, James Street, Covent Garden, London, W.C. Price Lists on application.

F. A. HAAGE'S (Jun.) WOOD TRAINING STICKS and TALLIES, commended by the Royal Horticultural Society, the neatest, cheapest, and best made,can now be had of all sizes, Wholesale, of BETHAM & BLACKITH, Cox's Quay, Lower Thames Street, London E.C.; and Retail of the principal Seedsmen and Florists. Price Lists on application.

E. T. ARCHER'S "FRIGI DOMO." Patronised by Her Majesty The Queen, the Duke of Northumberland for Syon House, His Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, &c.

PROTECTION from the SCORCHING RAYS of the SUN.
"FRIGI DOMO," a Canvas made of Patent prepared Hair and Wool, a perfect Non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all Horticultural and Floricultural purposes, for Preserving Fruits and Flowers from the Scorching Rays of the Sun, from Wind, from Attacks of Insects, and from Morning Frosts. To be had in any required lengths.

Two yards wide .. .. 1s. 9d. per yard run.
Four yards wide .. .. 3s. 6d. per yard.
An improved make, 2 yards wide .. 1s. 9d. per yard.
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"FRIGI DOMO" NETTING, 2 yards wide, 1s. 6d. per yard run.
ELISHA THOMAS ARCHER, Whole and Sole Manufacturer, 7, Great Trinity Lane, Cannon Street, City, E.C., and of all Nurserymen and Seedsmen throughout the Kingdom.
"It is much cheaper than Mats as a covering."

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BRASS AND BELL FOUNDERS TO HER MAJESTY.

HYDRAULIC ENGINEERS,

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With this compact, portable, and generally useful Engine, one man will throw from 15 to 18 gallons of water per minute to a height of 50 feet. All its working parts are of Brass, the Barrow of Wrought Iron; easy access to the valves is gained, and the workmanship throughout is substantial. Not only will it be found most useful in cases of Fire, wherever a supply of water can be obtained, but also for Watering Lawns or Fruit Trees.



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"Gentlemen,—I feel great pleasure in stating that I was present at a trial of your small Crystal Palace Fire Engine, and was much pleased with its efficiency and simplicity.

"The Pump throws out a steady jet of water to a height of 50 feet with very little labour. The Pump we have is well made, very simple in its parts, and not likely, I think, to get out of order. The advantage of this Pump is its being very portable. Besides being a good Fire Engine, it will make an excellent Garden Engine.

"I remain, Gentlemen,
"Yours obediently,
"EDWIN ROSE,
"Engineer to the Crystal Palace Co.

Price on Barrow, with Branch Pipe, Spreader, Unions, and Suction Rose ... ... £6.
1¾-in. 2-ply Rubber Suction Pipe, per foot, 2s. 2d. 1¼-in. ditto Delivery Hose, 1s. 4d.



No. 547, in Wood. 547A, in Iron Tub.

WARNERS' GARDEN ENGINES,

WITH REGISTERED SPREADERS.

These Engines are much improved in construction, are less likely to get out of order, and more easily repaired than others.

No. 547. Best ENGINES, in Wood Tubs.

24 Gallons	..	£6	10	0	14 Gallons ..	£5	10	0

No. 547A. Strong ENGINES, in Galvanized Iron Tubs, well painted inside and out.

10 Gallons	..	£2	19	0	24 Gallons	..	£4	19	0
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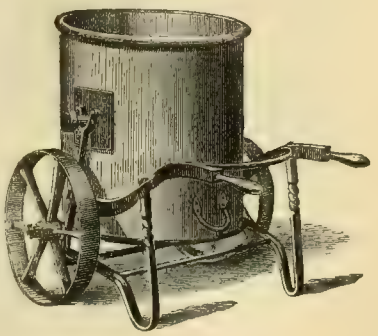
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To hold 20 Gallons, wheels 13 inches high	..	..	£2	2	0
,, 30 ,, ,, 20 ,,	..	..	2	13	0
,, 38 ,, ,, 24 ,,	..	..	3	17	0
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* This is an extra strong article, with cross handle for two men, suitable for Nursery Grounds, &c.



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LAWN MOWING MACHINE, 36-in., by FERRABEE & Co., including the Leather Shoes for a Pony, all in excellent condition, and to be Sold, a Bargain.
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Diameter, 30 inches;	Length 32 inches,	£7	10	0
„ 24 „	„ 26 „	4	10	0
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Prices for Rollers fitted with Shafts suitable for Pony or Horse Power, free on application.

Delivered carriage paid to all the principal Railway Stations and Shipping Ports in England.

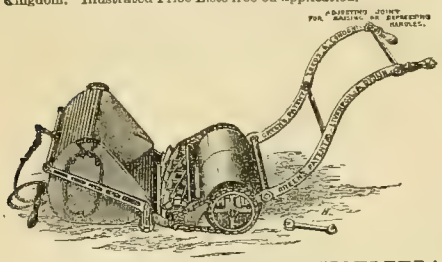
THOMAS GREEN & SON, Smithfield Iron Works, Leeds; 54 and 55, Blackfriars Road, London, S.; and 19, Eden Quay, Dublin.

N.B. All Orders executed on the day they are received.

PRIZE MEDALS AWARDED to GREEN'S PATENT LAWN MOWERS.
INTERNATIONAL EXHIBITION, LONDON, 1862.
INTERNATIONAL EXHIBITION, DUBLIN, 1865.

The above Lawn Mowers have proved to be the best, and have carried off every Prize that has been given in all cases of Competition.

Sold by all respectable Ironmongers, Seedsmen, &c., in the Kingdom. Illustrated Price Lists free on application.



AGRICULTURAL and HORTICULTURAL IMPLEMENTS and MACHINES of every description.
IMPROVED IRON STABLE FITTINGS.
HURDLES and CONTINUOUS IRON and WIRE FENCING.
Palisading Entrance and Field Gates. Plain and Galvanised Wire Netting.
GREEN'S PATENT LAWN MOWERS and GARDEN ROLLERS.
Garden Engines, Syringes, Water Barrows, Ornamental Garden Seats, Chairs, Tables, Iron Fountains, Vases, &c.
IRON and BRASS BEDSTEADS, in great variety.
Washing, Wringing, and Mangling Machines.
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Caution to Gardeners.—When you ask for
SAYNOR AND COOKE'S WARRANTED PRIZE PRUNING and BUDDING KNIVES, see that you get them. Observe the mark SAYNOR, also the corporate mark OBTAIN WARRANTED, without which none are genuine.
S. & C. regret having to caution Gardeners and others, but are compelled to do so, in consequence of an imitation, of common quality, having been sold for the genuine one, and which has caused many complaints to be made to them of Knives which were not of their make, all of which are warranted both by Sellers and Makers.
S. & C.'s Pruning and Budding Knives are the best and the cheapest in the market.
Paxton Works, Sheffield. Established upwards of 125 years.

LAWN MOWERS.—BARNARD'S PATENT.
PRICES.

8 inch ..	.. £2	10	0 each	16 inch ..	.. £6	0	0 each
10 inch ..	.. 3	5	0 „	18 inch ..	.. 6	10	0 „
12 inch ..	.. 4	10	0 „	20 inch ..	.. 7	0	0 „
14 inch ..	.. 5	0	0 „	22 inch ..	.. 7	10	0 „

Delivered free to any station in England on receipt of Post Office Order.
Also Lawn Mowers of other kinds, viz., Green's, Shanks', Samuelson's, Ransome's, &c., supplied at makers' prices.
J. JONES & SONS, 6, Bankside, Southwark, London, S.E.

GARDEN ROLLERS.—IMPROVED MAKE.
PRICES.

16 inch ..	.. £1	13	0 each	24 inch ..	.. £3	0	0 each
18 inch ..	.. 1	17	0 „	26 inch ..	.. 3	10	0 „
20 inch ..	.. 2	3	0 „	28 inch ..	.. 4	0	0 „
22 inch ..	.. 2	10	0 „	30 inch ..	.. 5	10	0 „

Delivered free to any station in England on receipt of Post Office Order.
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ROLLERS FOR THE FARM.
ROLLERS FOR THE GARDEN.
ROLLERS FOR THE LAWN.
ROLLERS FOR CRICKET GROUNDS.
ROLLERS FOR PARKS.
ROLLERS FOR RACECOURSES.
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The best and cheapest are the Patent Adjustable WATER BALLAST ROLLERS, made only by
AMIES, BARFORD, & Co., Agricultural Engineers, Peterborough, who will forward Price Lists and all particulars on application.

CUCUMBER and MELON BOXES.—Two Hundred 1, 2, and 3-light Boxes and Lights of all sizes, made of best seasoned materials, glazed and painted, complete, ready for immediate use, packed and sent to all parts of the kingdom.
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GARDEN BORDER EDGING TILES, in great variety of patterns and material, the plainer sorts being especially suited for KITCHEN GARDENS, as they harbour no Slugs and Insects, take up little room, and once put down incur no further labour and expense, as do "grown" Edgings, consequently being much cheaper.



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Sole London Agents for FOXLEY'S PATENT GARDEN WALL BRICKS. Illustrated Price Lists free by post. The Trade supplied.

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FLINTS, BRICK BURRS or CLINKERS, for Rockeries or Grotto Work. F. & G. ROSHER.—Addresses see above.
N.B. Orders promptly executed by Railway.

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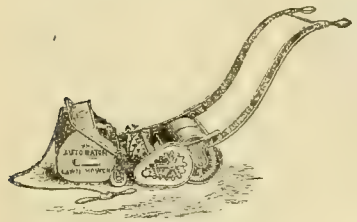
NEW PATENT B B LAWN MOWER.

Note from THOS. INGRAM, Esq., *the Royal Gardens, Windsor, August* 11, 1866.

"I have much pleasure in stating that your New Patent B B Lawn Mowing Machine [a 24-inch] has had a good trial, and has proved quite satisfactory. *The work done is of the first order, leaving the Lawn like a piece of velvet.*"

*** *Every Machine sent out is warranted to give ample satisfaction, and, if not approved of, may be at once returned.*

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THE AUTOMATON LAWN MOWER.

RANSOMES & SIMS'

NEW LAWN MOWER. THE AUTOMATON.

A NEW AND FIRST-CLASS MACHINE, WHICH HAS BEEN THOROUGHLY TESTED.

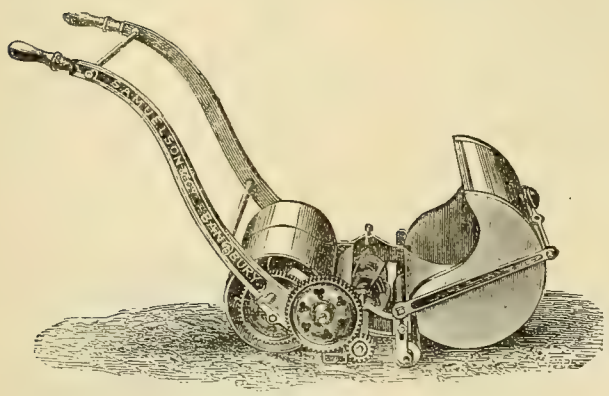
CONTAINS MANY IMPROVEMENTS.

PRICES, ILLUSTRATIONS, AND FULL PARTICULARS, FREE, FROM
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SAMUELSON & CO.'S

IMPROVED LAWN MOWING MACHINES.

EVERY MACHINE WARRANTED.



PRICES.

Delivered Free to any Railway Station in Great Britain.

Cutting 12 inches wide	£4 10 0
Cutting 14 inches wide	5 5 0
Cutting 16 inches wide	6 0 0
Cutting 19 inches wide	6 10 0
Cutting 22 inches wide	7 10 0
Cutting 25 inches wide	12 0 0
Cutting 30 inches wide	15 0 0
Cutting 36 inches wide	18 0 0

Great improvements have been made in these Machines during the last few years, in regard to all those small but important points of superiority which the practical working of a Lawn Mower suggests; while for elegance of appearance, lightness of draft, and efficiency in working they cannot be excelled. They possess the following advantages:—

1st. Motion is given to the Cutting Apparatus by toothed gearing, which experience has proved to be by far the best method of driving.

2d, The whole of the Driving Wheels are on one side of the Machine, a point of great importance in preventing damage to Shrubs and Flowers, when mowing round the edges of beds.

3d, All the smaller working parts of the Machine are made of Malleable Iron, and are not liable to break.

☞ *Illustrated Price Lists, with selections from several Thousand Testimonials, Free by Post on application.*

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NEW PATENT HYDRAULIC SUCTION PUMP.

This PUMP is highly approved by the Nobility, Gentry, and by the principal Horticulturists, &c., throughout the Kingdom; also by SHIRLEY HIBBERD, Esq., F.R.H.S., the late Professor LINDLEY, and many others connected with Horticulture, &c.

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MESSRS. BONSEY BROTHERS beg to offer to Gentlemen, their Gardeners, and the Trade, GARDEN POTS, SEED PANS, and EDGING TILES, of all sizes, of hard and durable quality and moderate price.

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HILL AND SMITH'S PATENT BLACK VARNISH for preserving Iron Work, Wood, or Stone. This Varnish is an excellent substitute for oil paint on all out-door work, and is fully two-thirds cheaper. It may be applied by an ordinary labourer requires no mixing or thinning, and is used cold. It is used in the grounds at Windsor Castle, Kew Gardens, and at the seats of many hundreds of the nobility and gentry, from whom the most flattering testimonials have been received, which HILL & SMITH will forward on application.

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"Lord Greenock has seen the Patent Black Varnish made by Messrs. HILL & SMITH, applied with success, and has heard it highly recommended by friends who have tested it extensively."

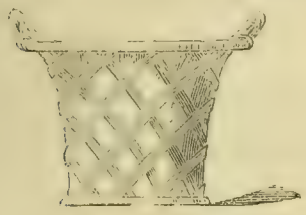
Sold in casks of about 30 gallons each, at 1s. 6d. per gallon, at the Manufactory, or 1s. 8d. per gallon paid to any Station in the kingdom. Apply to HILL & SMITH, Brierly Hill Iron Works, near Dudley; and 22, Cannon Street West, E.C., from whom only it can be obtained.

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HORTICULTURAL GLASS MERCHANTS,

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No. 1.

FLOWER BASKETS.

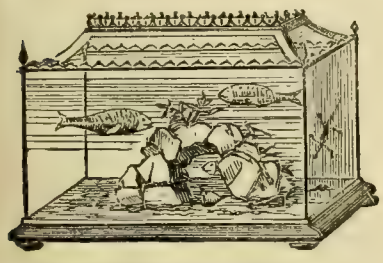
	Each.—s.	d.		Each.—s.	d.
8 inches diameter ..	2	0	15 inches diameter ..	4	6
9 ,, ,, ..	2	3	16 ,, ,, ..	5	0
10 ,, ,, ..	2	6	17 ,, ,, ..	5	6
11 ,, ,, ..	2	9	18 ,, ,, ..	6	6
12 ,, ,, ..	3	0	19 ,, ,, ..	7	6
13 ,, ,, ..	3	3	20 ,, ,, ..	8	6
14 ,, ,, ..	3	9	21 ,, ,, ..	10	0



No. 2.

FLOWER BASKETS.

	Each.—s.	d.		Each.—s.	d.
7 inch	1	6	14 inch	3	3
8 ,, ...	1	9	15 ,, ...	3	6
9 ,, ...	2	0	16 ,, ...	3	9
10 ,, ...	2	3	17 ,, ...	4	0
11 ,, ...	2	6	18 ,, ...	4	6
12 ,, ...	2	9	19 ,, ...	5	0
13 ,, ...	3	0	20 ,, ...	5	6

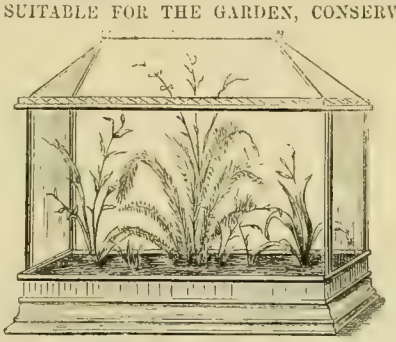


ZINC AQUARIA.

As per Sketch, Glazed with stout Sheet Glass, and Slate Bottoms.

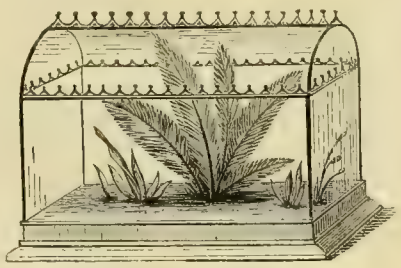
	Each.—£	s.	d.		Each.—£	s.	d.
12 inches long ..	0	18	0	18 inches long ..	1	7	0
14 ,, ,, ..	1	1	0	20 ,, ,, ..	1	10	0
16 ,, ,, ..	1	4	0	24 ,, ,, ..	1	16	0

Larger or Smaller Sizes in proportion.



FERN CASES.

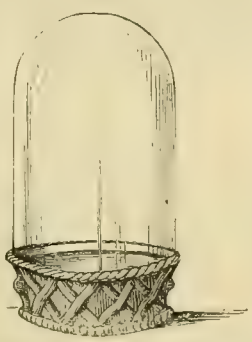
	Each.—£	s.	d.		Each.—£	s.	d.
12 inches ..	1	0	0	22 inches ..	1	18	0
14 ,, ..	1	3	0	24 ,, ..	2	2	0
16 ,, ..	1	6	0	26 ,, ..	2	10	0
18 ,, ..	1	10	0	28 ,, ..	3	0	0
20 ,, ..	1	14	0	30 ,, ..	3	10	0



FERN CASES

With Circular Tops, 3s. extra on above prices.

GLASS FERN SHADES and STANDS.



No. 3.

	Each.—s.	d.
6 inches dia.	3	0
7 ,, ..	3	6
8 ,, ..	4	0
9 ,, ..	4	6
10 ,, ..	5	6
11 ,, ..	6	6
12 ,, ..	8	6
13 ,, ..	10	6
14 ,, ..	13	6
15 ,, ..	17	6
16 ,, ..	22	6



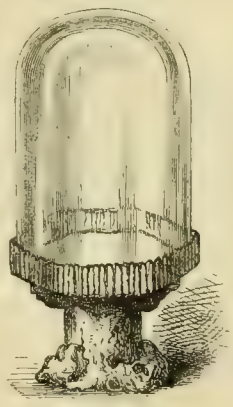
BEST ROUND AQUARIA,

With Ebony Stands.

	Each.—s.	d.		Each.—s	d.
12 inches	5	0	17 inches	12	0
13 ,, ...	6	0	18 ,, ...	13	0
14 ,, ...	8	0	19 ,, ...	14	0
15 ,, ...	9	0	20 ,, ...	15	0
16 ,, ...	10	0	Syphons, 1s. 6d.		

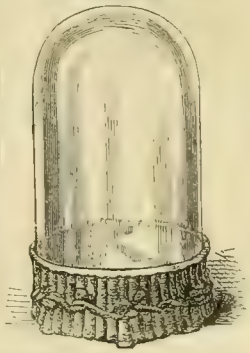
GLASS FERN SHADES.

With Rustic Stands.



No. 1.

	Each.—s	d.
8 inches dia. ..	5	0
9 ,, ..	6	6
10 ,, ..	8	0
11 ,, ..	9	6
12 ,, ..	12	6



No. 2.

	Each.—£	s	d
5 inches dia. ..	0	2	6
6 ,, ..	0	3	0
7 ,, ..	0	4	0
8 ,, ..	0	4	6
9 ,, ..	0	5	6
10 ,, ..	0	7	6
11 ,, ..	0	9	6
12 ,, ..	0	12	6
13 ,, ..	0	16	0
14 ,, ..	1	0	0
15 ,, ..	1	6	0
16 ,, ..	1	13	0

Glass Shades for Ornaments, Propagating Glasses, Milk Pans, Cucumber Tubes, Glass for Horticultural Purposes, Paints of all Shades, and various Miscellaneous Articles, see separate Lists.

SHAW'S TIFFANY,
For samples and prices apply to
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SHADING.—The best and cheapest Shading is ANDERSON'S SCRIM CANVAS, 2 yards wide. Price 8d. per yard. Samples on application.
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BROWN'S FLORAL SHADING, for Shading Plants under Glass and protecting Wall Trees from frost.—Sold by all Nurserymen and Seedsmen. No. 1 at 6s. 8d.; No. 2 at 7s. per piece, 20 yards long, 38 inches wide; No. 3 at 9s. 3d. per piece, 18 yards long, 39 inches wide. Samples on application to
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TANNED GARDEN NETTING for preserving Seed Beds, Fruits, Strawberries, from Frost, Blight, Birds, &c., and as a Fence for Fowls, &c. 1 yard wide, 1½d.; 2 yards, 2½d.; 3 yards, 4d.; and 4 yards, 6d. per yard run in any quantity, may be had at
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TANNED GARDEN NETTING for Seed Beds, and the Protection of Fruit Trees from Frost, Blight, Birds, or as a Fence for Fowls, &c. From 2 to 6 yards wide, at 1d. per square yard; 100 yards, 7s. 6d.; 500 yards, 35s. Carriage paid to any part of England if 1000 yards are taken. Remittance to accompany orders.
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JOHN EDGINGTON AND CO. supply TANNED NETTING for the Protection of Fruit Trees, 1d. per square yard. Any quantity. SCRIM CANVAS, &c.; TULIP COVERS and GREENHOUSE SHADES, SUN BLINDS, &c MARQUEES, TENTS, and FLAGS for FETES, FLOWER SHOWS, &c.
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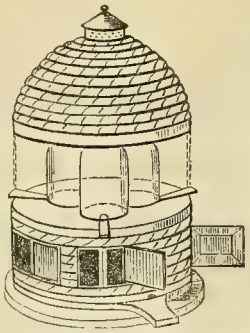
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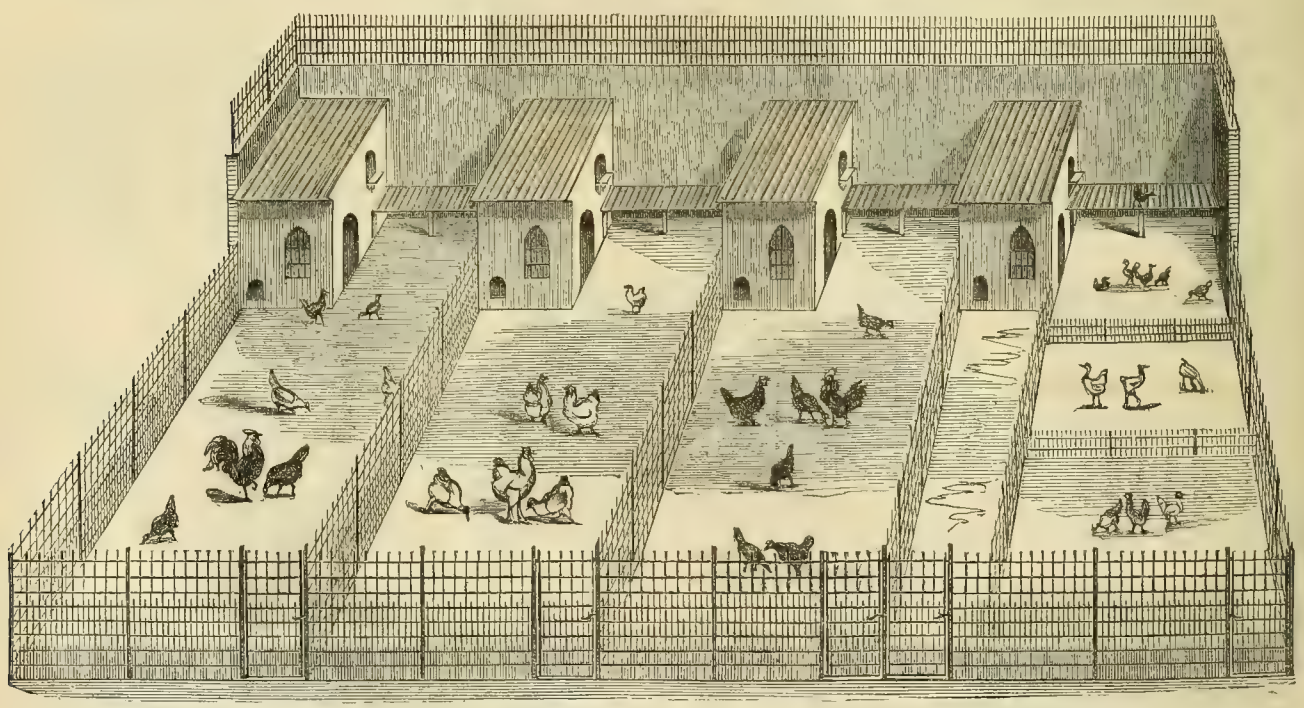
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HER MOST GRACIOUS MAJESTY THE QUEEN,

AND HIS ROYAL HIGHNESS THE LATE PRINCE CONSORT,

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By far the most elegant of, and durable, Wire Fencing, that has come under our notice is that made by Greening & Co., Manchester. Below it is sufficiently closed to be proof alike against the ingress of Rats or the egress of Chickens, and being spiked above, it affords no resting place for the Fowls, who consequently do not attempt to fly over."—*From the "Poultry Book."*

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Manufacturers of IRON GATES, FENCES, PALISADES, ESPALIERS, HURDLES, TREE GUARDS, GARDEN SEATS, VERANDAHS, VASES, FOUNTAINS, TOMB RAILINGS, STABLE FITTINGS, GARDEN ROLLERS, POULTRY HOUSES, EMIGRANTS' HOUSES, BRIDGES, CORN RICK STANDS, &c.; also of Wire Strained Fences, Rope Fences, and Patent Moveable Fences for Railways, Parks, Farms, Gardens, Game Preserves, Poultry Courts, Sheep Walks, &c.; also of Wire Netting, Plant Guards and Protectors, Garden Bordering, Garden Archways, Aviaries, Pea and Plant Trainers, Pheasantries, Hen Coops, Garden Lounges.

GENERAL CATALOGUE, in Royal 8vo, 72 Pages and Wrapper, with 33 Illustrations (together with SUPPLEMENT of TESTIMONIALS from the leading Noblemen and Landowners of the United Kingdom, to the quality of G. & Co.'s Manufactures), forwarded on receipt of Two Stamps to defray postage.

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LONDON AGENTS: THE AGRICULTURAL and HORTICULTURAL ASSOCIATION, LIMITED.—OFFICES: 29, PARLIAMENT STREET, WESTMINSTER, S.W.

Horticultural Glass Warehouse.

THOMAS MILLINGTON AND CO., 87, Bishopsgate Street Without, London, E.C.

NEW LIST for ORCHARD HOUSE GLASS as supplied to Her Majesty, the Nobility, Gentry, Mr. Rivers, and the leading Horticulturists of the United Kingdom.

ORCHARD HOUSE SIZES.

in.	in.		4ths.	3rds.	2nds.	Best.
20 by 12						
20 by 13		15 oz.	14s 3d	15s 0d	18s 0d	20s 0d
20 by 14	Per 100 feet.					
20 by 15		21 oz.	19s 0d	22s 2d	26s 0d	26s 0d
20 by 16						

SMALL SHEET SQUARES, 15 oz., per 100 feet.

in.	in.	in.	in.	in.	in.	4ths.	3ds.	2nds.	Best.
6 by 4	7 by 5	8 by 6	9 by 7			12s 3d	13s 3d	16s 0d	18s 0d
6½ by 4½	7½ by 5½	8½ by 6½	9½ by 7½						

Per 100 feet.

10 by 8	12 by 9	12½ by 10½	14½ by 10½						
10½ by 8½	12½ by 9½	13 by 10	15 by 10			13s 3d	14s 6d	17s 3d	19s 0d
11 by 9	13 by 9	13½ by 10½	13 by 11						
11½ by 9½	12 by 10	14 by 10	14 by 11						

LARGE SHEET SQUARES, 15 oz., per 100 feet.

in.	in.	in.	in.	in.	in.	in.	4ths.	3ds.	2nds.	Best
15½ by 10½	14 by 12	22 by 12	22 by 16							
16 by 10	14½ by 12½	17 by 13	24 by 16							
14½ by 11½	15 by 12	23 by 13	20 by 17							
15 by 11	15½ by 12½	18 by 14	22 by 17				14s 3d	15s 6d	18s 6d	20s 0d
15½ by 11½	16 by 12	22 by 14	24 by 17							
16 by 11	16½ by 12½	21 by 14	20 by 18							
21 by 11	17 by 12	22 by 15	22 by 18							
13 by 12	18 by 12	24 by 15	21 by 18							

The above Prices are only for the Sizes stated; if a quantity of any other Size be required, a Special Price will be given.

SHEET GLASS.

In Sheets for Cutting up, averaging from 6 to 9 feet super.

15 oz.		21 oz.	
4ths quality, per 300 feet case,	38s.	4ths quality, per 200 feet case,	38s.
3ds " "	48s.	3ds " "	48s.
2ds " "	62s.	2ds " "	66s.
Best " "	92s.	Best " "	96s.

SHEET GLASS is made only in the following substances, 15 oz., 21 oz., 26 oz., 32 oz., 36 oz., and 42 oz.

HARTLEY'S IMPROVED ROLLED ROUGH PLATE in 1-8th in., 3-16th in., 1-4th in., and 3-8th in. substances.

BRITISH PLATE GLASS for Windows and Silvered for Looking Glasses, Coloured Glass, Glass Shades, Striking Glasses, &c., &c.

PAINTS, COLOURS, VARNISHES, &c.

STUCCO PAINT, 24s. per cwt. This Paint adheres firmly to the walls, resists the weather, and is free from the glossy appearance of Oil Paint, resembling a stone surface, and can be made any required shade. It is mixed with rain or pure river water.

WHITE ZINC PAINT, 36s. per cwt. One hundredweight of pure Zinc Paint, with three gallons of Linseed Oil, will cover as much as one hundredweight and a half of White Lead and six gallons of Linseed Oil. Special Dryers for this Paint.

IMPROVED ANTI-CORROSION PAINT, 28s. to 34s. per cwt. Anti-corrosion Paint is extensively used for all kinds of work in exposed situations, on Brick, Stone, Compo, Iron, Iron Bridges, Conservatories, Greenhouses, &c., and is easily laid on by any ordinary workman. Prepared Oil for ditto, 4s. per gallon.

	Per cwt.—s. d.		Per gallon.—s. d.
GENUINE WHITE LEAD	32 0	LINSEED OIL	3 2
SECONDS WHITE LEAD	30 0	BOILED OIL	3 8
GROUND PATENT DRYERS, 3d. to 4½d. per lb.		TURPENTINE	3 6
		LINSEED OIL PUTTY, 8s. to 9s. per cwt.	
" OXFORD OCHRE, 3d. to 4½d. per lb.		Fine OAK VARNISH, 10s. to 12	
		" CARRIAGE do., 12s. to 14	0
" RAW UMBER, 4½d. to 6d. per lb.	[per lb.	" PAPER do. 10s. to 12	0
" BURNT do., 6d. to 9d.		" COPAL	16 0
GREEN PAINT, all shades,		KNOTTING	10 0
	28s. to 60 0	Patent GOLD SIZE ..	10 0
BLACK PAINT,	24s. to 36 0	" BLACK JAPAN ..	12 0
RED PAINT ..	28s. to 36 0	GLAZIER'S DIAMONDS and TOOLS	
GROUND BRUSHES.		MILLED LEAD and PIPES	
DUSTERS. | SASH TOOLS.		OLD LEAD Bought or taken in	
DISTEMPER BRUSHES.		exchange.	

The above are Net, for Cash, and as such cannot be booked.
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Great International Horticultural Exhibition 1866.

FIRST AND ONLY PRIZE AWARDED TO

BEARD'S PATENT METALLIC NON-CONDUCTING GLASS HOUSES.

Perfect System of Ventilation and Glazing.

Manufactured by Messrs. SANDERS, FREWER, & Co., Victoria Horticultural Works, Bury St. Edmund's.

See large Advertisement in *Gardeners' Chronicle* of April 27, 1867.

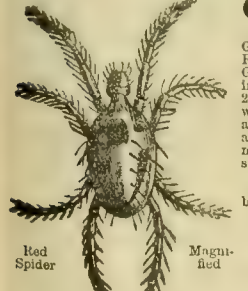
GREY STONE TURNIP — TOBACCO PAPER.

Price to the Trade on application to
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ROLL TOBACCO CLOTH.—The cheapest and best article for Smoking Greenhouses and destroying the Fly; equal to Tobacco in strength, 1s. 4d. per lb.; over 10 lb., 1s. 1d.
JOSEPH BAKER, 10, Gough Square, Fleet Street, E.C.
Post Office Orders payable Fleet Street

Fumigate your Greenhouse with TOBACCO TISSUE.

—This article is acknowledged by all parties who have used it to be the best remedy for Destroying Insect Life; is entirely free from paper or rag, and will burn without the assistance of blowing.
Price 3s. 6d. per lb., carriage free. To be had of Messrs. ROBERTS & SONS, Tobacco Manufacturers, 112, St. John Street, Clerkenwell, E.C., and of all Seedsmen and Nurserymen.



Red Spider — Magnified

GISHURST COMPOUND.

Used by many of the leading Gardeners since 1859, against Red Spider, Mildew, Thrips, Green Fly, and other Blight, in solutions of from 1 to 2 ounces to the gallon of soft water, and of from 4 to 16 ounces as a Winter Dressing for Vines and Fruit Trees. Has outlived many preparations intended to supersede it.

Sold Retail by Seedsmen, in boxes, 1s., 3s., and 10s. 6d.

Wholesale by
PRICE'S PATENT CANDLE COMPANY
(LIMITED)

BOSTON'S NE PLUS ULTRA, for the Destruction of Mealy Bug, Scale, American Blight, &c., on Stove and Greenhouse Plants, Fruit Trees, Vines, &c. In bottles, with full instructions for application, price 3s. 6d., 5s., and 10s. 6d.
JAMES CARTER & Co. beg leave to state that the present time is most suitable for applying the above genuine Specific before the commencement of the growing season, thereby preventing the rapid increase of the above pests which would otherwise take place. The infallible properties of BOSTON'S NE PLUS ULTRA are rapidly becoming fully recognised, J. C. & Co. having already sold nearly 2000 bottles since its first introduction in the spring of 1866. Numerous testimonials have been received, and not a single complaint of its inefficiency.
Sole Agents, JAMES CARTER & Co., 237 and 238, High Holborn, W.C.
*** The Trade supplied on liberal terms.

MR. A. CHANDLER (of the late Firm of CHANDLER & SONS, Nurserymen, Vauxhall), HORTICULTURAL AGENT and VALUER, N.B. Horticultural Exhibitions attended, as Judge. Address, 308, Fulham Road, S.W.

Winter Ribbon Garden.

JOHN ROSS, Surbiton, Surrey, W., is prepared to LAY OUT every description of PLEASURE GROUND SCENERY. Photographs of Ribbon Planting may be had for inspection as above.

JOHN GIBSON, JUN., begs to announce that he is prepared to Furnish PLANS and ESTIMATES for LAYING OUT GROUND attached to Mansions and Villa or other Residences, or for the FORMATION of PUBLIC PARKS or GARDENS and to carry out the same by Contract or otherwise.
Address Mr. JOHN GIBSON, jun., Surrey Lane, Battersea, S.W.

GOLD PHEASANTS.—Several First-rate Birds for Sale. Also a few Dozen EGGS
Apply to R., *South Eastern Gazette* Office, Maidstone.

Farm Poultry.

GREY DORKING FOWLS, of purest breed, in any numbers.
Imported TOULOUSE GEESE, the largest and most productive breed known.
Improved NORFOLK TURKEYS, large, hardy, and good breeders.
AYLESBURY and ROUEN DUCKS.
Imported BELGIAN HARE RABBITS, for size and early maturity.
BRAHMA-POUTRA, CREVECŒUR, and LA FLECHE FOWLS, for constant layers.
Priced Lists and Estimates on application.
JOHN BAILY & SON, 113, Mount Street, London, W.

ON SALE, Two first-class Middle-bred YOUNG SOWS, in Pig by Kettledrum.—For price, &c., apply to THOMAS STONISBY, Earlsheaton, near Dewsbury.

SEWAGE of NORWICH.—Notice is hereby given that the Local Board of Health for the Corporate District of Norwich are prepared to RECEIVE TENDERS for the PURCHASE of the SEWAGE of the DISTRICT, and for the Hire of about 1300 Acres of Land in the possession of the Board, intended to be irrigated with such Sewage which will be pumped to the highest part of the Land at the cost of the Board.
Further particulars, and any other information required may be obtained upon application to Mr. A. W. MORANT, the Engineer to the Board, at his Offices, Norwich, or to myself.
The Tenders are to be addressed to The Clerk of the Board, and delivered at my Office on or before the 4th of June next, endorsed "Tender for Sewage of Norwich."
The Board do not bind themselves to accept the lowest or any Tender.
H. B. MILLER,
Clerk to the Norwich Local Board of Health.
Bank Chambers Norwich, May 2, 1867.

WANTED, a PARTNER, with £400, in a Nursery and Florist and an extensive Jobbing Trade and Laying-out. Also THREE ACRES of FLOWER and KITCHEN GARDEN, with Cottage and Seed Shop, close to the Crystal Palace. A good Investment for an active Young Man.—Apply to
L. MEAGHER, Hamilton Road Nursery, Lower Norwood, Surrey.

FOR DISPOSAL, a First-class NURSERY and SEED BUSINESS; or the present Proprietor would accept of a WORKING PARTNER with a Capital of not less than £1500.
Apply by letter to E., Messrs. Hurst & Son, 6, Leadenhall Street, London, E.C.

Market Garden.

TO BE LET, at Michaelmas next, about THIRTY-SIX ACRES of Capital LAND, well suited for a MARKET GARDEN, between the Bath and Staines Road, and about 16 miles on the West side of London.
For particulars, apply to Messrs. TAYLOR, HOARE, & TAYLOR, 23, Great James Street, Bedford Row, W.C.

Sales by Auction.

SALE THIS DAY, AT HALF-PAST TWELVE O'CLOCK.

Imported Orchids from Guatemala.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on SATURDAY, May 11, at half-past 12 o'Clock precisely, the remaining portion of the late Mr. Skinner's IMPORTATION of ORCHIDS from Guatemala, comprising fine masses of Lycaste Skinneri, Barkeria Skinneri, Oncidium Sprucei, Odontoglossum grande, Hartwegia purpurea, Barkeria speciabilis, Brassavola glauca, Lælia superbiens, Epidendrum vitellinum, &c., &c.
On view the Morning of Sale, and Catalogues had.

Valuable Imported Orchids from New Grenada.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 33, King Street, Covent Garden, W.C., on MONDAY, May 13, at half-past 12 o'Clock precisely, an IMPORTATION of SPLENDID PLANTS of Odontoglossum triumphans, Alexandræ, gloriosum, and other choice Odontoglots. Several hundred Plants of Cattleya Mossiæ, &c., just arrived in the finest possible health, and for Sale without the least reserve.
On view the Morning of Sale, and Catalogues had.

Valuable Imported Orchids from New Grenada.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on SATURDAY, May 18, at half-past 12 o'Clock precisely, an importation of splendid new CATTLEYAS and ODONTOGLOSSUMS from New Grenada, comprising wonderful specimens in the finest possible health, and including some of the finest masses ever imported. Drawings and dried Specimens will be exhibited at the Sale, and the Plants are lotted to suit all buyers.
On view the Morning of Sale, and Catalogues had.

Imported Orchids from Moulmein.

MR. J. C. STEVENS will SELL by AUCTION at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, MAY 22, at half-past 12 o'Clock precisely, a Consignment of Valuable DENDROBIUMS, AERIDES, SACCOLABIUMS, and other Choice Species from Moulmein.
On view the Morning of Sale, and Catalogues had.

Preliminary Notice.

HIGHLY IMPORTANT SALE OF ESTABLISHED ORCHIDS.

MR. J. C. STEVENS begs to announce that he has been favoured with instructions to SELL by AUCTION, without reserve, at his Great Rooms, 38, King Street, Covent Garden, W.C., on TUESDAY and WEDNESDAY, May 14 and 15, at half-past 12 o'Clock precisely each day, the Collection of CHOICE and RARE ORCHIDS belonging to Dr. Pattison, of St. John's Wood, consisting of fine healthy plants of all the newest and rarest varieties, including:—

Aerides Fieldingii
" Larpentæ
" maculosum superbum, &c.
Angræcum sesquipedale
Cattleya amethystoglossa
" pallida
" bulbosa a. Walkeriana
" Warscewiczii superba, delicata, &c.
Cypripedium caudatum superbum
" Fairrieanum
" Lowii
" Stonei
" Veitchii [giganteum
Dendrobium macrophyllum
" Farmeri aureum flavum
" Cambridgeanum
" nobile pendulum
" Parishii
" primulinum giganteum
" Heyneanum, Blandum, &c.
Lælia majalis
Lælia autumnalis
" Brysiana
Odontoglossum Alexandræ
" cordatum
" luteo-purpureum
" Phalænopsis
" nævium majus, &c.
Oncidium macranthum
" nubigenum
" holochrysum
" cruentum, &c.
Phalænopsis amabilis
" grandiflora (Bornean and Philippine varieties)
" Luddemanniana
" Schilleriana
Vanda cærulea
" insignis
" suavis
" tricolor, &c.
Uropedium Lindleyanum
Zygopetalum rostratum, &c.

On view the Mornings of Sale, and Catalogues had.

Shepherd's Bush.

SALE OF ABOUT 25,000 GREENHOUSE AND BEDDING PLANTS.

MESSRS. PROTHEROE AND MORRIS are instructed to SELL by AUCTION, on the Premises, Exotic Nursery, Shepherd's Bush, adjoining the Shepherd's Bush Station on the Metropolitan Railway, on TUESDAY, May 14, at half past 11 o'Clock precisely, without reserve, about 25,000 GREENHOUSE and BEDDING PLANTS, comprising about 7500 Scarlet and Variegated Geraniums, 1000 Pelargoniums, Acacias, Hydrangeas, Deutzias, Ericas, Camellias, Gardenias, Calla Roses in pots, &c., with a large Assortment of useful Ornamental Plants for Bedding, Cloves, Chrysanthemums, Hardy Climbers in pots, &c.
May be viewed prior to the Sale. Catalogues had on the Premises, and of the Auctioneers & Valuers, Leytonstone, N.E

Sale of Choice Greenhouse and Bedding Plants, &c.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at 38 and 39, Gracechurch Street, City, E.C., on WEDNESDAY, May 15, at 12 o'Clock precisely, a choice Collection of GREENHOUSE PLANTS, including fine Azalea indica; Show, Fancy, and French Pelargoniums; Scarlet and Variegated Geraniums, Roses in pots, and other Plants in bloom; named Rhododendrons; Imported Flower Seeds; with a variety of Ornamental Plants for Bedding; Verbenas, Fuchsias, Dahlias, &c.
On view the Morning of Sale. Catalogues may be had at the Rooms as above, and of the Auctioneers and Valuers, Leytonstone, Essex, N.E.

High Beech, Essex.

IMPORTANT SALE OF ABOUT 20,000 BEDDING AND GREENHOUSE PLANTS.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. J. Crawford (who is retiring from the Business) to SELL by AUCTION, on the Premises, opposite the King's Oak, High Beech, about 20 minutes' walk from the Loughton Railway Station, on the Woodford and Loughton line, on FRIDAY, May 17, at 12 o'Clock precisely, about 20,000 BEDDING and GREENHOUSE PLANTS, including a large quantity of Geraniums, Pelargoniums, Heliotropes, Calceolarias, Lobelias, Fuchsias, Coleus, &c.; 1000 Azalea indica, Ericas, Epacris, Hybrid Perpetual and other Roses in Pots, Gardenia, Vallota purpurea, Cytisus, Ferns, &c.; some very handsome specimen Rhododendrons of the choicest named varieties, now coming into flower, &c.
May be viewed prior to the Sale. Catalogues may be had on the premises, and of the Auctioneers and Valuers, Leytonstone, N.E.

Forest Side, Chingford, Essex.

IMPORTANT SALE OF ABOUT 25,000 GREENHOUSE AND BEDDING PLANTS.

MESSRS. PROTHEROE AND MORRIS are directed by Mr. James Kelman to SELL by AUCTION, on the Premises, Queen Elizabeth's Lodge Nursery, Chingford (about 20 minutes' walk from Buckhurst Hill Railway Station on the Woodford and Loughton Line, on SATURDAY, May 18, at 12 o'clock precisely, about 25,000 GREENHOUSE and BEDDING PLANTS, remarkably well grown, including with the usual Miscellaneous Assortment, some of the Novelties of the present season, such as Benton's Geraniums, Mrs. Pollock, and others; Lilium auratum, &c.
May be viewed prior to the Sale. Catalogues had on the Premises, and of the Auctioneers and Valuers, Leytonstone, N.E.

Kennington Park.

CLEARANCE SALE OF BEDDING AND GREENHOUSE PLANTS, GREENHOUSES, SHEDS, BRICKS, &c.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. Tooley, to SELL by AUCTION on the Premises, Garden Cottage, Queen's Row, Kennington Park Road, S., close to the Horns Tavern, on MONDAY, May 20, at 12 o'Clock precisely, the whole of the GREENHOUSE and BEDDING PLANTS, including the usual assortment; also 4 Greenhouses, 4 Three-Light Boxes, Hand Glasses, Sheds, Hot-water Piping, Boilers, Bricks, Water Butts, and sundry effects.
May be viewed prior to the Sale. Catalogues had on the Premises, and of the Auctioneers and Valuers, Leytonstone, N.E.

Dalston.

CLEARANCE SALE OF GREENHOUSE AND BEDDING PLANTS, GREENHOUSES, PITS, &c.

MESSRS. PROTHEROE AND MORRIS have received instructions from Mr. Harrington (who is relinquishing the business), to SELL by AUCTION, without reserve, on the Premises, The Old Dalston Nursery, Dalston Lane, within five minutes walk of the Dalston Junction Station on the North London Railway, on TUESDAY, May 21, and following day, at 12 o'Clock precisely each day, the whole of the GREENHOUSE PLANTS, including large Double Camellias, Azalea indica, Ficus, Cytisus, Acacia, Calla, Oleander, Cacti, Agapanthus, Hoya, Roses in pots, American Aloes, &c.; about 15,000 Scarlet, Variegated, Zonale, and other Geraniums; 2000 Pelargoniums, and the usual assortment of Bedding Plants in large quantities; Evergreens in pots, Lilium lancifolium, Hardy Climbers, Vines in pots, &c., with eight Lean-to and Span-roof Greenhouses; several ranges of Pits, Boxes, Hot-water Piping, Boilers, Water and Garden Pots, Bricks, and other effects.
May be viewed prior to the Sale. Catalogues may be had on the Premises, at Kingsland Nursery; and of the Auctioneers and Valuers, American Nurseries, Leytonstone, N.E.

Hornsey Road.

CLEARANCE SALE OF GREENHOUSE AND BEDDING PLANTS.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION on the Premises, Devonshire Nursery, Hornsey Road, on THURSDAY, May 23, at 11 o'Clock, without reserve, the whole of the Valuable BEDDING and GREENHOUSE PLANTS, including 7000 very fine Calceolaria aurea floribunda; 3000 Lobelia speciosa; 4000 Scarlet and Variegated Geraniums, of various sorts; Fuchsias, Verbenas, &c. &c.; 3000 well-grown Pelargoniums, fine blooming Plants; quantity of Manure; 9 Glazed Lights; a Spring Cart; Garden Pots, &c.
May be viewed three Days prior to the Sale. Catalogues may be had on the Premises, and of the Auctioneers, American Nurseries, Leytonstone, Essex, N.E.

Danbury Palace, Essex.

MR. WAKELING respectfully informs the Public that he is favoured with instructions from the Executors of the late Right Rev. Lord Bishop of Rochester, to SELL by AUCTION, in the Grounds, on TUESDAY, May 14, at 11 o'Clock precisely, 20,000 valuable GREENHOUSE and BEDDING PLANTS of esteemed Varieties, consisting of Geraniums, Fuchsias, Verbenas, Petunias, Azaleas, Camellias, Ferns, Strawberry Plants in pots, and various others.
Catalogues may be had five days prior to Sale, of Mr. TINSLEY, Head Gardener at the Palace; and of the Auctioneer, Chelmsford.

At Hendon, near the Church.

750 dozen Bedding Plants, about 2 tons of Oak Bark, 42 Oak, 13 Ash, 7 Plane, 7 Chestnuts, 6 Sycamore, 5 Lime Trees, and about 200 Faggots.

MESSRS. HUMBERT AND COX will SELL by AUCTION, on the Premises, Church Lane, Hendon, N.W. on WEDNESDAY and THURSDAY, May 15 and 16, at 12 o'Clock, 211 dozen GERANIUMS, consisting of Mrs. Pollock and other good varieties, 200 dozen VERBENAS, 6 dozen FAIRY ROSES, 200 dozen FUCHSIAS, 50 dozen LOBELIAS, and about 10 dozen others.
May be viewed the Mornings of Sale, and Catalogues had at the Inns in the neighbourhood; and of the Auctioneers, Watford, Herts, and 88, St. James's Street, S.W.

The Laundry Farm, Denham, near Uxbridge.

VALUABLE FARMING STOCK, CARRIAGES, DOUBLE AND SINGLE CARRIAGE HARNESS, USEFUL CART-HORSE, BEDDING PLANTS, GARDEN IMPLEMENTS, AND EFFECTS.

MESSRS. VENTOM, CLARKE, AND BULL will SELL by AUCTION, on the Premises, on MONDAY, May 20, at 12 for 1 o'clock, SIX COWS, three Heifers, two Calves, a Steer, three Sows, 30 Pigs, Poultry, a Howard's Patent Haymaking Machine, an Oilcake Crushing Machine, a Water-cart, a Tumbril-cart, Iron and Wooden Hurdles, &c.
Catalogues may be had of Messrs. HART, BROTHERS, & Co., No. 57, Moorgate Street; of Messrs. LAWRANCE, PLEWS, & BOYER, Solicitors, 14, Old Jewry Chambers; at the Chequers Hotel, Uxbridge; and of the Auctioneers, 8, Bucklersbury, E.C.

SHANKS' NEW PATENT LAWN MOWERS FOR 1867.

PATRONIZED ON FIVE OCCASIONS DURING THE SEASON OF 1864 BY

HER MAJESTY THE QUEEN,

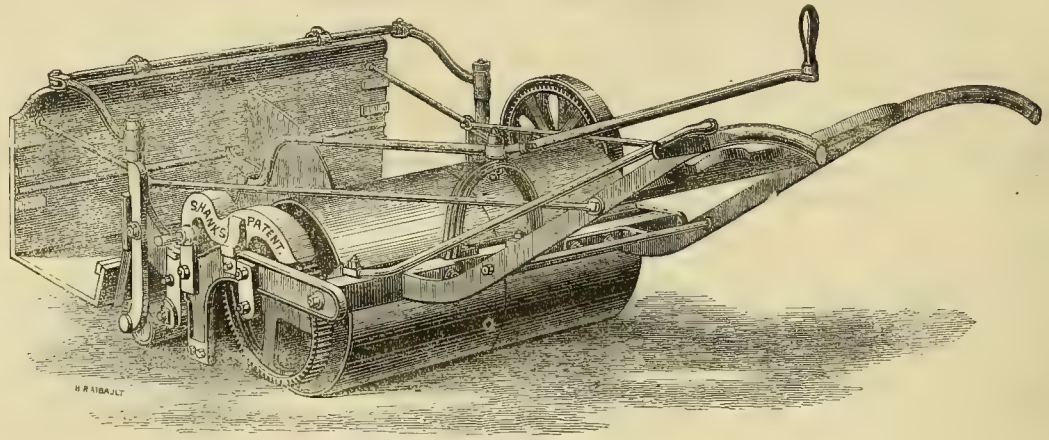
AND ONCE BY HIS MAJESTY THE KING OF SAXONY.

DURING THE SEASON OF 1865 THEY WERE PATRONISED ON FOUR OCCASIONS BY HER MAJESTY THE QUEEN,

ONCE BY HIS MAJESTY THE KING OF HOLLAND, AND ONCE BY HIS MAJESTY THE KING OF PRUSSIA.

AGAIN ON FOUR OCCASIONS DURING THE SEASON OF 1866 BY HER MAJESTY THE QUEEN

AND BY MANY DISTINGUISHED NOBILITY BOTH IN THIS COUNTRY AND ABROAD.



HORSE-POWER MACHINE.

Every minute point in the way of improvement has been carefully considered and adopted, and as A. S. AND SON have for more than a quarter of a century devoted their attention to this particular branch of their business, the Nobility, Gentry, and Gardeners may rely on the MACHINES they may order, to be such as to ensure lasting satisfaction, and to stand the wear and tear of many years.

SHANKS' PATENT LAWN MOWERS

ARE IN DAILY USE IN

ALL THE ROYAL GARDENS; IN THE HORTICULTURAL SOCIETY'S GARDENS AT KENSINGTON; CRYSTAL PALACE COMPANY'S GROUNDS; IN VICTORIA PARK; HYDE PARK;

And in almost all the principal Public Parks and Gardens in the Kingdom.

These are the only Machines that can be depended on to give lasting satisfaction.

THESE ARE THE ONLY MACHINES THAT WILL MOW PROPERLY WHEN THE GRASS IS WET.

THESE ARE THE ONLY MACHINES THAT DELIVER THE GRASS WITHOUT STOPPING, THUS SAVING AN IMMENSE AMOUNT OF LABOUR.

SHANKS' PATENT LAWN MOWERS are the only Machines that have been in operation in Her Majesty's Gardens for a quarter of a century.

Shanks' Patent Lawn Mower will Mow on uneven as well as on level Lawns.

ALEXANDER SHANKS AND SON, in referring to their IMPROVED LAWN MOWERS for 1867, doubt not but that the preference which in past years has invariably been given to their Machines will still be awarded them. The principles which guide A. S. AND SON in effecting improvements compel their Machine ever to stand the first in point of general efficiency, simplicity of construction, and durability.

A. S. AND SON have particularly aimed at substituting Wrought for Cast Iron to as great an extent as possible in the construction of their Machines. None but skilled Workmen and the most improved Machinery are employed in manufacturing the various parts, and this applies not only to the Horse and Pony, but also to the Hand Machines.

A. S. AND SON have now ready for delivery a large stock of their celebrated LAWN MOWERS, which will enable them to execute orders on the day they are received.

PRICES, INCLUDING CARRIAGE TO ANY RAILWAY STATION OR SHIPPING PORT IN THE KINGDOM.

SHANKS' NEW PATENT HAND MACHINE.

Width of Cutter.		Easily Worked	Silent Movement.
10-inch Machine	£3 10 0	*By a Lady*	4*s.* extra.
12-inch Machine	4 10 0		
14-inch Machine	5 10 0	*By a Boy*	

Width of Cutter.		Easily Worked	Silent Movement.
16-inch Machine	£6 10 0	*By a Man or Two Boys*	4*s.* extra.
19-inch Machine	7 12 6	*By a Man and Boy*	
22-inch Machine	8 7 6	*By Two Men* ..	7*s.* 6*d.* extra.
24-inch Machine	8 17 6		

SHANKS' NEW PATENT PONY and DONKEY MACHINE.

Width of Cutter.		If with Patent Delivering Apparatus.
25-inch Machine	£12 10 0	.. .. 25*s.* extra.
28-inch Machine	14 10 0	.. .. 30*s.* ,,
30-inch Machine	15 15 0	.. .. 30*s.* ,,

Silent Movement, 12*s.* 6*d.* extra; Boots for Pony, 22*s.* per set
Ditto for Donkey, 18*s.* per set.

SHANKS' NEW PATENT HORSE MACHINE.

Width of Cutter.		If with Patent Delivering Apparatus.
30-inch Machine	£19 0 0	.. .. 30*s.* extra.
36-inch Machine	22 0 0	.. .. 30*s.* ,,
42-inch Machine	26 0 0	.. .. 40*s.* ,,
48-inch Machine	28 0 0	.. .. 40*s.* ,,

Silent Movement, 20*s.* extra; Boots for Horse's Feet, 26*s.* per set.

The Machines are warranted to give ample satisfaction, and, if not approved of, may be at once returned.

PATENTEES AND SOLE MANUFACTURERS:

ALEXANDER SHANKS AND SON, DENS IRON WORKS, ARBROATH, N.B.

LONDON OFFICE and SHOW ROOMS, 27, LEADENHALL STREET, E.C.

☞ 27, *Leadenhall Street is the only place in London where intending purchasers of Lawn Mowers can choose from a Stock of from* 150 *to* 200 *Machines. All sizes kept there, whether for Horse, Pony, or Hand Power.*

Editorial Communications should be addressed to "The Editor;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
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THE GARDENERS' CHRONICLE

AND

AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.

No. 20.—1867.] SATURDAY, MAY 18. {Price Fivepence. {Stamped Edition, 6*d*.

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ROYAL HORTICULTURAL SOCIETY, SOUTH KENSINGTON, W.

SPECIAL NOTICE.—MONDAY NEXT, May 20, being the day appointed for laying the Foundation Stone of the Hall of Arts and Sciences by Her Majesty the Queen, there will be a GRAND FLORAL FETE given in honour of the occasion. The Cascades and Fountains will play, and Military Bands perform. Doors open at 10. Admission, by Tickets purchased prior to the 20th, 3*s*. 6*d*. ; or on the Day, 5*s*. After the ceremony all visitors will have free access to the Tent.

ROYAL HORTICULTURAL SOCIETY, SOUTH KENSINGTON, W.

FELLOWS are informed that on MONDAY NEXT, the 20th inst., their Privileges of Admittance will be the same as on any other Fête Day. All Tickets must be shown on entrance.

ROYAL HORTICULTURAL SOCIETY, SOUTH KENSINGTON, W.

NOTICE.—A MEETING of the FRUIT and FLORAL COMMITTEES will be HELD on TUESDAY NEXT, May 21, at 11 for half-past precisely.

Band every Tuesday to June 30, from 4 o'clock.

ROYAL HORTICULTURAL SOCIETY, SOUTH KENSINGTON, W.

The FIRST GREAT FETE will be HELD on JUNE 4, and the Flowers, &c., will remain on view until the 8th. Band each day from 4.

Admission (for the Opening Day) by Tickets purchased prior to the 4th:—Fellows' Friends, 3*s*. 6*d*. ; Public, 5*s*. ; or on the Day, 7*s*. 6*d*. ; or by Ticket admitting from 4th to 8th, Fellows' Friends, 7*s*. 6*d*. ; Public, 10*s*. 6*d*., which may be bought of all the principal Musicsellers at the West End, and of KEITH, PROWSE, & Co., Cheapside.

ROYAL BOTANIC SOCIETY'S GARDENS, Regent's Park.—FIRST EXHIBITION of PLANTS and FLOWERS, WEDNESDAY, May 29. Tickets to be obtained only at the Gardens; and of the Society's Clerk, Austin's Ticket Office, St. James's Hall; by orders from Fellows of the Society, price 5*s*. each, and on the day of the Exhibition, 7*s*. 6*d*. each. Gates open at 2 o'Clock.

LINNEAN SOCIETY, Burlington House, Piccadilly.—The ANNIVERSARY MEETING of this Society will be held here on FRIDAY, May 24, at 3 o'Clock precisely, for the ELECTION of a COUNCIL and OFFICERS for the ensuing Year.

GEORGE BUSK, Secretary.

CRYSTAL PALACE.—GREAT FLOWER SHOW, MAY 25.—Schedules, with List of Prizes, may be had on application to I. WILKINSON, Superintendent, Crystal Palace. Entries should be at once forwarded.

GRAND FLORAL FETE, YORK, JUNE 19.—The PRIZES amount to upwards of £400, including Special Prizes for ORCHIDS, ROSES, and FRUITS. Schedules on application to JOHN WILSON, Secretary, 13, New Street, York.

BIRMINGHAM ROSE SHOW, JULY 4 and 5.—For Prize Lists, apply to Mr. A. FORREST, Secretary, Cherry Street, Birmingham. Entries Close June 29.

Royal Botanic Gardens, Regent's Park.

JOHN WATERER'S RHODODENDRONS will be EXHIBITED at the above Gardens at the end of the present month, and continue on view throughout the month of June.

American Nursery, Bagshot, Surrey.

Hyde Park.

THE large STANDARD and other RHODODENDRONS recently planted in Hyde Park were supplied by WATERER & GODFREY, Knap Hill Nursery, Woking, Surrey.

Rhododendron javanicum. Finest variety.

WILLIAM ROLLISSON AND SONS having raised many thousands of this beautiful RHODODENDRON from Seed saved on the best variety are enabled to supply the Trade with fine Plants at a considerably reduced price. Terms on application to WILLIAM ROLLISSON & SONS, The Nurseries, Tooting, London, S.

GLADIOLI BULBS, for Summer, Autumn, and Winter Flowering, 2*s*. 6*d*., 3*s*. 6*d*., 5*s*. 6*d*., 7*s*. 6*d*., 9*s*., and 12*s*. per dozen. 10*s*. 6*d*., 15*s*., 21*s*., 25*s*. to 100*s*. per 100.

BARR & SUGDEN, Seed, Bulb, and Plant Merchants, 12, King Street Covent Garden, W.C.

LILIUM AURATUM.—Large Consignment just received, 2*s*. 6*d*., 3*s*. 6*d*., 5*s*. 6*d*., and 7*s*. 6*d*. per Root. Extra large selected Bulbs, 10*s*. 6*d*., 12*s*. 6*d*., 15*s*., & 21*s*.

BARR & SUGDEN, Seed, Bulb, and Plant Merchants, 12, King Street, Covent Garden, W.C.

Clianthus Dampieri.

BUTLER, McCULLOCH, AND CO. have to offer a quantity of the above Seed, just received in splendid condition, at 1*s*. and 2*s*. 6*d*. per packet. Price to the Trade on application.

South Row, Covent Garden Market, W.C.

AMERICAN ALOES.—TWO AMERICAN ALOES to be SOLD Cheap, being too large for the owner's greenhouse. One striped and the other plain.

Apply to Mr. FRYER, Florist, Camberwell New Road, S.

Highly Cultivated and Regularly Transplanted Nursery Stock.

EIGHTY ACRES of the above, consisting chiefly of FRUIT TREES, ROSES, EVERGREENS, and ORNAMENTAL TREES, which for general excellence are unsurpassed.

THOMAS WARNER, Leicester Abbey Nurseries.

Plants for the Season.

CHARLES TURNER'S DESCRIPTIVE SPRING CATALOGUE of BEDDING PLANTS, FLORIST'S FLOWERS, &c., is now ready, and may be had on application.

The Royal Nurseries, Slough

Bedding Plants, mostly 2s. per dozen.

J. SCOTT, Merriott, Somerset, for the 17th year offers his unrivalled Collection of the above.

CATALOGUES on application free.

Bedding Plants.

ARCHIBALD HENDERSON'S DESCRIPTIVE PRICED CATALOGUE is now ready, containing many Novelties. Can be had gratis and post free upon application.

Sion Nursery, Thornton Heath, S., and at the East Surrey Seed Warehouse, College Grounds, North End, Croydon.

High Beech, Essex, N.E.

JAMES CRAWFORD begs to offer upwards of 20,000 BEDDING PLANTS, in small 60-pots, 1*s*. 6*d*. per doz. ; in stove pots at 1*s*. per doz. And other Greenhouse Plants equally cheap. Well hardened off and fit to turn out.

Hardy Bedding Plants.

STUART AND MEIN, NURSERYMEN, Kelso, N.B., have the following to offer :—

ARABIS LUCIDA, fol. variegata, 6*s*. per dozen.

VIOLA LUTEA.—Bright yellow of dwarf habit, 6*s*. per dozen.

VIOLA CORNUTA, PURPLE QUEEN, true, 12*s*. 6*d*. per 100.

BEDDING PLANTS.—Strong healthy Plants at 16*s*. per 100, consisting of VERBENAS, CALCEOLARIAS, GERANIUMS, PETUNIAS, GAZANIAS, LOBELIAS, &c., &c. VERBENAS, all the best kinds, at 16*s*. per 100.

CATALOGUES on application.

H. MINCHIN, The Nurseries, Hook Norton, Oxon.

CHOICE BEDDING GERANIUMS.—Italia Unita, Luna, Sunset, Mrs. Pollock, Crystal Sea, Le Grand, Amy Hogg, Venus, Indian Yellow, Glowworm, Orange Nosegay, Enamel. The above twelve varieties, in strong healthy plants for 12*s*. Terms cash.

THOMAS PESTRIDGE, The Greenway Nursery, Uxbridge, Middlesex.

CHOICE GERANIUMS.—LUCY GRIEVE, ITALIA UNITA, SOPHIA DUMARESQUE, TOPSY, SUNSET, MRS. BENYON, QUEEN'S FAVOURITE, ELEGANS, FONTAINEBLEAU, and KENILWORTH.

Prices and terms to the Trade and others on application to THOMAS J. BOOTH, Rainhill Nursery, Rainhill, Lancashire.

Mrs. Pollock Geranium.

T. J. BOOTH offers the above, in good Plants, at 7*s*. per dozen, or 50*s*. per 100, for cash.

Rainhill Nursery, Lancashire.

HUSSEY AND SON beg to offer TOM THUMB GERANIUMS, extra strong plants, at 14*s*. per 100 ; SILVER VARIEGATED, of sorts, at 16*s*. per 100 ; and GOLDEN CHAIN, at 18*s*. per 100.

Mile End Nursery, Eaton, Norwich.

PELARGONIUMS, Show, Fancy, and Spotted kinds.—24 choice named sorts for 16*s*. ; 36 for 23*s*. ; 50 for 30*s*., all strong healthy plants. Trade price on application.

H. & R. STIRZAKER, Skerton Nurseries, Lancaster.

SAMBO PELARGONIUM (ZONALE) is the finest formed and richest coloured variety ever introduced. First-class Certificate by Floral Committee. Strong Plants, 7*s*. 6*d*. each.

DOWNIE, LAIRD, & LAING, Stanstead Park, Forest Hill, S.E. ; and Edinburgh.

NEW ZONAL PELARGONIUMS for the present Season.—For Six choice Varieties of the above, selected with great care from an immense batch of Seedlings, see our Advertisements in this Paper, April 6, 13, and 20.

A liberal discount to the Trade.

SALTMARSH & SON, Moulsham Nurseries, Chelmsford.

NEW ROSES for 1867.—Strong Plants of all the best NEW ROSES now ready.

DESCRIPTIVE LIST, with prices, on application.

JOHN CRANSTON, King's Acre Nurseries, near Hereford.

CULTURAL DIRECTIONS for the ROSE. Second Edition. By JOHN CRANSTON, King's Acre Nurseries, near Hereford. Free by post from the Author for 20 stamps.

WILLIAMS' SUPERB STRAIN of PRIMULA. See large Advertisement

To the Trade.—Verbenas.

WM. KNIGHT begs to offer 20,000 VERBENAS, strong plants, in about 24 of the best varieties known, including the best new of last season, at 16*s*. per 100. Terms cash.

Floral Nursery, Hailsham, Sussex.

Post-office Orders payable at Hailsham.

VERBENA CRIMSON KING, the finest Crimson Verbena in cultivation. Strong plants, in pots, 16*s*. per 100.

PURPLE KING, strong plants, 12*s*. 6*d*. per 100.

PRICED LIST of BEDDING PLANTS, &c., on application.

JOHN CRANSTON, King's Acre Nurseries, near Hereford.

Seeds for Present Sowing.

DOBSON'S PRIZE CALCEOLARIA, 1*s*. 6*d*., 2*s*. 6*d*., 3*s*. 6*d*., and 5*s*.

DOBSON'S PRIZE CINERARIA, 1*s*., 2*s*. 6*d*., and 5*s*.

DOBSON'S PRIZE PRIMULA, 1*s*., 2*s*., and 5*s*.

The above strains are second to none.

DOBSON & SONS, Woodlands Nursery, Isleworth, W.

New Seed of 1867.

DOBSON'S CELEBRATED PRIZE CINERARIA has taken all First Prizes at the London Shows this Season. Seed from the above, in Sealed Packets, 1*s*., 2*s*. 6*d*., and 5*s*. Without exception unequalled by any other strain.

DOBSON & SONS, Woodlands Nursery, Isleworth, London, W.

New Spring Catalogue.

WOOD AND INGRAM'S Select CATALOGUE of Dahlias, Pelargoniums, Zonal and Variegated Geraniums, Verbenas, Fuchsias, Bedding Plants, &c., is now ready, and will be forwarded on application.

The Nurseries, Huntingdon.

New Chrysanthemums, Pyrethrums, &c.

JOHN SALTER'S DESCRIPTIVE CATALOGUE is now ready, and will be sent on receipt of two postage stamps.

Versailles Nursery, William Street, Vale Place, Hammersmith, W. (near Kensington Railway Station).

Orchard-house Trees Fruiting in Pots.

PEACHES, NECTARINES, APRICOTS, CHERRIES, PLUMS, PEARS, APPLES, VINES, and FIGS.

RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

New Striped Japanese Maize.

SUTTON AND SONS can supply Seed of the above beautiful Ornamental Foliage Plant in packets at 1*s*. each, post free.

Royal Berkshire Seed Establishment, Reading.

Sorghum tartaricum.

SUTTON AND SONS, having imported a supply of TRUE Seed of the above, can supply it in packets at 1*s*. and 2*s*. 6*d*. each (post free).

Royal Berkshire Seed Establishment, Reading.

The New Forage Grass (Bromus Schraderi).

SUTTON AND SONS have imported a large supply of TRUE Seed of the above, and offer it at 2*s*. 6*d*. per lb., or cheaper in large quantities. Quantity required per acre, 30 lb. Lowest price per cwt. and instructions on cultivation, may be had on application.

SUTTON & SONS, Seed Merchants, Reading.

Fine Grass Seeds for Cricket Grounds,

BOWLING GREENS, or CROQUET GROUNDS.

SUTTON AND SONS can supply suitable kinds of the finest-growing GRASSES and CLOVERS for the above purposes, at 1*s*. 3*d*. per lb., 24*s*. per bushel.

SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

PARIS EXHIBITION.—The attention of VISITORS to this EXHIBITION is respectfully called to a COLLECTION of 200 VARIETIES of NATURAL GRASSES, Exhibited in SALOON No. 47, by ERNST & VON SPRECKELSEN (Successors to J. G. Booth & Co.), Hamburg.

EVERY GARDEN REQUISITE kept in Stock at CARTER'S New Seed Warehouse, 237 & 238, High Holborn, London.

Dahlias.

GEO. RAWLINGS' NINETEENTH ANNUAL CATALOGUE contains 176 select varieties at 3*s*. per dozen, including Leah, George Wheeler, and the best of 1865. Also 47 of 1866, at 9*s*. per dozen, including Fanny Sturt.

Waterloo Road, Romford, E.

Genuine Garden Seeds.

WM. CUTBUSH AND SON'S CATALOGUE of VEGETABLE, FLOWER, and FARM SEEDS, post free on application. Highgate, London, N.

Garden and Farm Seeds direct from the Growers.

CHARLES SHARPE AND CO. beg to inform the Trade that their WHOLESALE SEED LIST is now ready, and will be forwarded post free on application.

Seed Warehouse, Sleaford.

Agricultural and Garden Seeds.

H. AND F. SHARPE'S WHOLESALE SPRING PRICED LIST of the above Seeds of 1866 growth is now ready and may be had on application.

Seed Growing Establishment, Wisbech.

Genuine Agricultural and Garden Seeds.

JAMES FAIRHEAD AND SON, 7, Borough Market, and Braintree, Essex.

LISTS and Special Prices on application.

Genuine Garden and Agricultural Seeds.

JAMES CARTER AND CO., SEED FARMERS, MERCHANTS, and NURSERYMEN, 237 & 238, High Holborn, London, W.C.

237 and 238, HIGH HOLBORN, LONDON, W.C.—CARTER'S SELECT LIST of FARM SEEDS, at reasonable prices, forwarded gratis and post free on application to CARTER'S Great London Seed Warehouse, 237 and 238, High Holborn, London, W.C.

FARM SEED LIST of the LONDON SEED COMPANY is now published, and can be obtained from the MANAGER, 68, Welbeck Street, Cavendish Square, London, W.

SKIRVING'S SWEDE TURNIP, 31*s*. per bushel. Fine selected stock, from the LONDON SEED COMPANY, 68, Welbeck Street, Cavendish Square, W.

YELLOW GLOBE MANGEL, 50*s*. per cwt. Fine selected stock, from the LONDON SEED COMPANY, 68, Welbeck Street, Cavendish Square, W.

FARM SEEDS.—All the best kinds of MANGEL WURZEL, SWEDE TURNIP, and other Farm Seeds of finest quality on moderate terms.

PRICED LISTS on application to RICHARD SMITH, Seed Merchant, Worcester.

SWEDE SEED.—The WORCESTERSHIRE SWEDE, NEW SEED of this excellent kind at 10*d*. per lb. Cheaper by the cwt. or bushel.

RICHARD SMITH, Seed Merchant, Worcester.

New Mangel and Turnip Seeds.

JAMES FAIRHEAD AND SON, 7, Borough Market, and Braintree, Essex. Special Select ORANGE GLOBE and other MANGELS, and all varieties of TURNIPS.

Special prices on application.

1867 TURNIP SEEDS. Best selected quality.

PRICED LISTS on application.

JAMES DICKSON & SONS, 102, Eastgate Street, Chester.

SUTTON'S HOME-GROWN TURNIP SEED. For prices and particulars apply to SUTTON & SONS, Seed Growers, Reading.

Early Sheep Feed—Mustard and Rape.

SUTTON AND SONS can supply good New Seed of the above at very moderate prices, which may be had on application.

SUTTON & SONS, Seed Merchants, Reading.

Robinson's Champion Drumhead Cabbage.

SUTTON AND SONS can supply New SEED of the above direct from Mr. Robinson, at 3*s*. 6*d*. per lb., cheaper by the cwt. Heads of this variety have been grown 75 lb. each.

SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

GENUINE NEW CARROT SEED. The Three Best Sorts are

WHITE BELGIAN, 1*s*. per lb.
RED INTERMEDIATE, 1*s*. 9*d*. per lb. } Cheaper by the Cwt.
LONG RED CATTLE, 1*s*. 6*d*. per lb.

SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

SCARLET BEANS.—Surplus Stock at any price.

FAIRHEAD & SON, 7, Borough Market.

SPECIAL OFFER.—Fine New SCARLET RUNNER BEANS. Cash Price, 7*s*. 6*d*. per bushel.

FREDERICK GEE, Seed Merchant and Grower, Biggleswade, Beds.

TRICOLOR GERANIUMS.—Italia Unita, Queen of Nosegays, Gold Pheasant, Sunset, Crystal Palace Dwarf, Mrs. Pollock, Stella Variegata, Yellow Belt, one of each, packing included, 12s.; Mrs. Pollock, 7s. per dozen; Sunset, 15s. Strong Plants of the following at 3s. per dozen:—Iresine, Coleus, Perilla, Amaranthus; Geraniums Tom Thumb, Spitfire, Christine, Stella, Countess of Warwick, Aima, Flower of the Day, and Bijou.

CALCEOLARIAS, VERBENAS, AGERATUMS, CUPHEA, LOBELIA, GAZANIA, KONIGA, and NIEREMBERGIA GRACILIS, 3s. per dozen; finest Zonal varieties, 6s per dozen cash; strong Plants GLOIRE DE NANCY, 2s. 6d. each.

GEO. DAVISON, Hereford.

New Zealand Nursery, St. Alban's, Herts.

INTENDING PURCHASERS of TRICOLOR PELARGONIUMS will do well to see J. WATSON'S beautiful Tricolors MISS WATSON and MRS. DIX, previous to making their purchases. For fine foliage, excellent constitution, free growth, and brilliancy of colouring they are unrivalled. They have received two First-class Certificates. Plants of Miss Watson in August, £2 2s. each; Mrs. Dix in May, 1868, 31s. 6d. each.

New Zonal Pelargoniums.

DOWNIE, LAIRD, AND LAING most respectfully announce that they will send out the following splendid varieties, which have been so much admired, and have received the highest awards wherever shown, including First-class Certificates at the Royal Horticultural Society. The following extract is from the "Journal of Horticulture," July 17, 1866:—"There are so many good Nosegays, and so much alike, that it requires something quite new in colour to surpass them, or in many cases to equal them; the large bold truss of Stella and Le Grand, or the KING of the NOSEGAYS, must be the models of perfection in this class of flowers."

KING of the NOSEGAYS.—Bright orange scarlet. Very large truss, dwarf habit. Very free and most effective variety. 7s. 6d. each.

MRS. LAING (NOSEGAY).—Glowing carmine scarlet, very dwarf, free, and most effective as a bedder. A beautiful and distinct variety. 5s. each.

MRS. MENZIES.—Bright rosy salmon. Flowers perfect, good habit, free, and very fine. 6s. each.

SAMBO.—Very dark glossy scarlet, of great substance. Flowers of the finest form. Very large compact globular truss; quite distinct from all others. 7s. 6d. each.

Ready second week in May.

Stanstead Park Nursery, Forest Hill, S.E.; and 17, South Frederick Street, Edinburgh.

Novelties.

WM. PAUL (Son and Successor to the late A. PAUL) respectfully solicits Orders for the following NEW and FIRST-CLASS PLANTS, which will be ready for delivery in May.

NEW ROSES.

BLACK PRINCE, H. P. (Wm. Paul).—Flowers dark crimson, shaded with black, cupped, large and full. Price 5s. each.

GLOBOSA, H. P. (Wm. Paul).—Flowers clear dark bright crimson, colour intense and uniform throughout. Price 5s. each.

LADY SUFFIELD, H. P. (Wm. Paul).—Flowers purplish crimson, colour uniform throughout, the purple tint predominating; large, full, and of fine form. Price 5s. each.

The best of the NEW FRENCH ROSES, 3s. 6d. each, 36s. per doz. Older kinds, 9s. to 30s. per doz.

NEW BEDDING GERANIUMS (BEATON'S RACE).

Any 12 Varieties from this group of 18 may be selected by the purchaser for £2 2s.

The following NEW ZONALE and HYBRID NOSEGAY GERANIUMS have been selected from several thousand seedlings raised from the stock of the late Mr. Donald Beaton. Every one now offered has been thoroughly tested, and is believed to be in advance of, or distinct from, all pre-existing kinds.

AUTOCRAT (Wm. Paul).—Flowers bright orange, very large, a decided advance in shape of this colour, blooms freely, very attractive; habit good. Price 3s. 6d. each.

BICOLOR (Wm. Paul).—Flowers bluish purple, with spot of fiery scarlet on top petals; free, good, and quite unique in colour and character. Price 5s. each.

BLUE BELL (Wm. Paul).—Flowers bluish lilac, large, and of good shape and truss; habit fine. A thoroughly distinct and most pleasing novelty. Price 5s. each.

CLIO (Wm. Paul).—Flowers rosy purple, upper petals scarlet, large and good form, truss and habit good; price 3s. 6d. each.

CRIMSON QUEEN (Wm. Paul).—Flowers deep crimson, at once the darkest and brightest crimson yet seen in Zonale Pelargoniums, flowers abundantly. Price 3s. 6d. each.

CRUSADER (Wm. Paul).—Flowers crimson scarlet, with white eye, large and smooth, truss large. Price 5s. each.

DR. HOGG (Wm. Paul).—Flowers purplish rose, the colours glowing and very beautiful, trusses good and abundant. Under canvas this novelty appears to resemble Amy Hogg, but is quite distinct from the latter out of doors. Figured in "The Florist" for November, 1866. Price 6s. each.

ENCHANTRESS (Wm. Paul).—Flowers soft purplish crimson, with distinct scarlet eye, trusses and habit good, very lovely. Price 3s. 6d. each.

FIREFLY (Wm. Paul).—Flowers scarlet crimson and orange, with scarlet eye; habit free and good; distinct and very effective. Price 3s. 6d. each

GLORY of WALTHAM (Wm. Paul).—Flowers splendid even scarlet, dwarf habit, foliage fine, truss large and close. Probably the finest "Nosegay" Geranium yet raised. Price 3s. 6d. each.

KINGFISHER (Wm. Paul).—Flowers crimson and bluish purple, magenta eye, very free, distinct and effective. Price 3s. 6d. each.

LILACINUM (Wm. Paul).—Flowers dark bright lilac, splendid truss, and fine habit, the colour quite new. Price 5s. each.

MEMNON (Wm. Paul).—Flowers magenta, trusses good and very abundant, habit dwarf. This might be called a rosy purple "Stella." Price 3s. 6d. each.

OMEN (Wm. Paul).—Flowers reddish salmon, splendid truss, good habit, very free, distinct, and first-rate for bedding. Price 3s. 6d. each.

PURPLE QUEEN (Wm. Paul).—In the way of Amy Hogg as to habit and character of truss and flower, but of a totally different colour—dark rosy purple. Price 5s. each.

TROUBADOUR (Wm. Paul).—Flowers rosy purple, fine shape, magnificent under glass. Price 5s. each.

VILLAGE MAID (Wm. Paul).—Flowers bright deep pink, with clear white blotch in the centre of the upper petals, the colours being well separated or defined; habit dwarf and compact; very beautiful. Price 5s. each.

WALTHAM NOSEGAY (Wm. Paul).—Flowers carmine, trusses of good size and abundant; highly recommended for the effect it produces in the flower garden. Price 3s. 6d. each.

GOLD-LEAVED VARIETIES.

The following varieties are the result of a cross between Beaton's race and the ordinary gold-leaved kinds, whereby has been obtained the free growth and leafy character of the former, properties invaluable for bedding purposes.

JASON (Wm. Paul).—Flowers blood crimson, trusses large, round, and compact, leaves pure golden yellow, habit dwarf and free; the plant densely clothed with fine foliage. The association of yellow leaves and blood crimson flowers, both freely produced, is, in this plant, very fascinating. Price 7s. 6d. each.

WALTHAM GEM (Wm. Paul).—Flowers very light red, colour distinct and peculiarly pleasing, white eye; leaves yellow, with very faint zone. A beautiful novelty of dwarf compact habit. Price 7s. 6d. each.

STANDARD ZONALE GERANIUMS.

Scarlet, rose, white, &c., 5s. to 10s. 6d. each.

STANDARD, VARIEGATED, and TRICOLOR-LEAVED GERANIUMS, 7s. 6d. to 15s. each.

GERANIUM REBECCA.—Cherry colour, 21s. per doz.
" NIMROD.—Orange scarlet, 21s. per doz.
" ST. GEORGE.—Dark chestnut, 15s. per doz.
" MRS. POLLOCK, 6s. to 9s. per doz.
" SUNSET, 18s. per doz.
" ITALIA UNITA, 21s. per doz.

HOLLYHOCKS.—A fine collection of Hollyhocks by name and well varied in colour, 12s. to 42s. per dozen.

NEW AUCUBAS.—The 10 best sorts for £2 10s.

NEW DOUBLE CRIMSON THORN.—Good plants in pots, 5s. to 7s. 6d. each.

GRAPE VINES.—Planting canes, 3s. 6d. to 5s. each. Fruiting canes, 7s. 6d. to 15s. each.

LILIUM AURATUM.—Flowering bulbs, 2s. 6d. to 10s. 6d. each; 12s. to 60s. the half dozen.

RAPHANUS CAUDATUS, 1s. to 2s. 6d. per packet.

PAUL'S Nurseries, Waltham Cross, London, N.

NEW VARIEGATED GERANIUM CASTLEMILK.

Fine ornamental foliage, one half the leaf margined with the purest white, centre fine green. Free robust branching habit, and effective bedder. First-class Certificate at the Glasgow and West of Scotland Horticultural Society, September 12, 1866. Price on application. Will be sent out second week in May by

AUSTIN & MCASLAN, 16, Buchanan Street, Glasgow.

THE QUADRICOLOR PELARGONIUM of the Season is METEOR, raised by SALTMARSH & SON.

For description see Advertisements in this Paper, April 6, 13, and 20.

This splendid variety has received a First-class Certificate from the Royal Horticultural Society, and was figured in the January Number of the "Floral Magazine."

A Coloured Drawing by Andrews will be sent on receipt of 7 stamps.

Moulsham Nurseries, Chelmsford.

TRICOLOR PELARGONIUMS.

MRS. POLLOCK, 7s. p. doz.	MRS. BENYON, 14s. per doz.
ITALIA UNITA, 14s. p. doz.	LUNA, 14s. per doz.
SUNSET, 14s. per doz.	BICOLOR SPLENDENS, 14s. p. doz.

In strong plants at the above prices for Cash, package included.

Remittances required from unknown Correspondents.

Address, ALFRED FRYER, Nurseries, Chatteris, Cambridgeshire.

CHOICE VARIEGATED PELARGONIUMS.

BEAUTY of CALTON	GOLDFINCH	ITALIA UNITA
NEATNESS	SUNSET	KENILWORTH
LUNA	STELLA	THE FAIRY
MRS. BENYON	RAINBOW	PICTURATUM

The above 12 varieties suitable for Exhibition or Pot-culture for 21s. Remittances requested from unknown Correspondents.

ALFRED FRYER, Nurseries, Chatteris, Cambridge.

Mrs. Pollock Geranium.

THOMAS PESTRIDGE, The Greenway Nursery, Uxbridge, Middlesex, can supply strong and highly-coloured MRS. POLLOCK GERANIUM at 7s. per dozen, 50s. per 100.

Luna, 18s. per doz.	Orange Nosegay, 6s.	Madame Vaucher, 4s.
Amy Hogg, 6s.	Venus, 6s.	Centaurea gymnocarpa, 4s.
Indian Yellow, 5s.	Cloth of Gold, 4s.	Coleus Verschaffelti, 4s.
	Iresine Herbstii, 3s.	

PELARGONIUMS in large 60-pots, full of flower buds, 6s. per dozen. Terms cash.

SUPERB VARIEGATED GERANIUMS.

MRS. BENYON	BEAUTY of DALTON
BICOLOR SPLENDENS	THE COUNTESS
GOLD PHEASANT	MRS. LONGFIELD
GLOWWORM	YELLOW BELT
LUNA	LITTLE PET
TWILIGHT	ITALIA UNITA

Strong plants of the above set 15s. Package included.

CASNOR & SON, Gravel Walk Nursery, Peterborough.

NEW ZONAL GERANIUMS.

These, now so well known as the Cliveden Seedlings, were selected from many thousands, and have stood the test of trials for two seasons with the best named kinds. They have gained the highest awards wherever shown, including First-class Certificates for each at the Royal Horticultural Society, and have received the highest and most unanimous praise of the Horticultural press. The following is a specimen of the manner in which they have been spoken of:—

The "Gardeners' Magazine" says:—"And this brings me to Duchess of Sutherland and Lady Constance Grosvenor, which have been several times shown by Mr. Turner this season, and ought to be sent out next spring at nothing less than a guinea a plant, to recoup their raisers for the hundreds they have need to grow for the muck-heap.

DUCHESS of SUTHERLAND (NOSEGAY).—A variety of great merit, rosy purple, very free bloomer, with truss of great size; it retains its blossoms to an unusually long time, and is equally effective in pots, vases, or the flower garden. 5s.

INTERNATIONAL (NOSEGAY).—Rich crimson or crimson-scarlet, a deep rich shade of colour, with a wider petal than any other Nosegay, being a decided improvement in the shape of this very useful class of bedding and pot plants. 5s.

LADY CONSTANCE GROSVENOR (NOSEGAY).—Intense fiery scarlet, of the style of Cybister, having a truss of at least double the size; an immense truss, with the advantage of a dwarf compact habit and foliage, so clearly zoned as to be handsome without bloom. This is a most beautiful variety. 5s.

Strong plants ready May 1.

CHARLES TURNER, The Royal Nurseries, Slough.

AUCUBAS, FUCHSIAS, ZONAL GERANIUMS, &c.

6 Varieties AUCUBAS, 3 Male, 3 Female, for 21s.
12 Select NEW FUCHSIAS of 1866 for 6s.
12 Select NEW ZONAL GERANIUMS of 1866 for 6s.
12 Select CHRYSANTHEMUMS of 1866 for 4s.
12 Varieties JAPAN EUONYMUS, very fine, 6s.
3 Varieties NEW JAPAN OSMANTHUS, quite hardy, 5s.
NEW WHITE LOBELIA MISS MURPHY, 3s. per dozen.
12 Select NEW VERBENAS of 1866, for 3s.
NEW DOUBLE GERANIUM GLOIRE DE NANCY, 1s. each.

B. W. KNIGHT, Nurseryman, Battle, Sussex.

A Special Offer of Geraniums, Dahlias, Verbenas, for Cash.

J. C. PADMAN, Boston Spa, Yorkshire, can supply Two dozen, two each, good strong plants, of any of the Twenty-four GERANIUMS named below, for 8s.:—

Amelia Grisan	Helen Lindsay	Virgo Marie
Amy Hogg	Indian Yellow	Bijou
Baron Ricasoli	Lady Rokeby	Jane
Chancellor	Madam Dufoy	Golden Fleece
Donald Beaton	Mrs. Wm. Paul	Fairy Nymph
Dr. Lindley	Roi d'Italie	Lord Stamford
Gloire de France	Symmetry	Perfection
Glowworm	Una	Mrs. Pollock

DAHLIAS.

12 best leading kinds of, for 3s. 6d. | 36 best leading kinds of, for 9s. 0d
24 ditto ditto 6 6 | 100 ditto ditto 22 6

VERBENAS.

Crimson King, 3s. per dozen, or 22s. per 100.

Eckford's Six Varieties of 1866, 4s. 6d. per dozen. viz.: George Eckford, Isa Eckford, Jno. Keynes, Lady Jane Ellis, King Charming, Mr. Gladstone.

Six Styled Varieties, beautiful as Pot Plants, viz.:—

M. Missat	M. Wood
Madame Rougies Chanville	Oreglia
Madame Hirman Steyen	Annie.

Two each for .. .. 4s. 6d.

On and after May 15, NEW VERBENAS of 1867, at 1s. each, viz.:—

Fanny Martin	Earl Radnor	Coleshill
Mr. Ellice	Wm. Dodds	Umpire.

Price named includes package. All Orders sent in rotation.

Post-office Orders payable at Boston Spa.

CATALOGUES on application.

VERBENAS and GERANIUMS, scarlet, &c., good and well established, supplied as follows:—VERBENAS, in variety, 16s. per 100; GERANIUM, in great variety for bedding, 18s. per 100; UNIQUE, crimson, extra strong, 30s. per 100. DESCRIPTIVE CATALOGUE of Roses in pots, Stove, Greenhouse, Soft-wooded, and Bedding-out Plants. Post free. Trade price on application.

H. & R. STIRZAKER, Skerton Nurseries, Lancaster.

Notice of Removal.

ISAAC DAVIES, NURSERYMAN, late of Larkfield, Wavertree, near Liverpool, having now REMOVED to CHAPEL STREET, ORMSKIRK, where he will continue his business on a more extensive scale, respectfully requests that all Letters and Communications may be in future addressed to the last named place.

Verbena Crimson King.

THOMAS METHVEN has much pleasure in announcing that CRIMSON KING having completely established its character as the finest Bedding Verbena in cultivation, he has propagated a large Stock of fine healthy Spring-struck Plants, which he offers, on and after April 15, at the following prices:—12 Plants, 4s.; 50, 12s. 6d.; 100, £1; 500, £4 7s. 6d.; 1000, £7 10s.

Leith Walk Nurseries, Edinburgh.

VERBENA, CRIMSON KING.—Having numerous inquiries as to the best method of sending plants of this splendid Verbena to places at a distance, we beg to say that the safest, cheapest, and quickest method is by Post. We can now send stout, well-rooted plants, safely packed to go any distance, at the following prices, package and postage free:—12 plants for 3s. 4d.; 25 for 6s.; 50 for 11s.

We can also supply the following extra fine varieties on the same terms as the above, viz.:—

CELESTIAL BLUE, COUNTESS of EGLINTON (splendid vigorous-growing, profuse-blooming, magenta-purple variety) · LE GRAND BOULE DE NEIGE (the best white); PRINCESS OF WALES (pink and white striped, very compact habit, first-rate either for Bedding or Exhibition); BEAUTY of ENGLAND (splendid exhibition white).

PURPLE KING, 12 plants for 28 stamps, 25 for 50 stamps.

Twelve Plants in 12 Varieties of the finest exhibition Verbenas (including the best of last year's new varieties), for 50 stamps.

IRESINE HERBSTII, 12 plants for 30 stamps.

Postage stamps taken in payment of sums of 20s. and under.

DREGHORN & AITKEN, Nurserymen and Seedsmen, Kilmarnock, N.B.

Verbenas—New Varieties of 1867.

DREGHORN AND AITKEN, NURSERYMEN, Kilmarnock, beg to offer the best of this year's NEW VERBENAS at the following remarkably low prices for well-rooted plants, viz.:—

SET of SIX sent out by J. Keynes, for 5s.

SET of THIRTEEN sent out by Charles Turner (raised by C. J. Perry), 7s. 6d.

SET of FIVE sent out by Hugh Low & Co. (raised by Nicholls), for 4s. 6d.

KING of BEDDERS and WHITE QUEEN, sent out by E. G. Henderson & Son, 6d. each.

One plant of each of the above (26 in all) for 15s.; or 12 plants (in 12 vars., selected from the above), 8s., including package and postage.

Keynes's are ready now, the others will be ready on May 25. Early Orders are solicited, as the strongest plants will be sent out first.

New Bedding Verbena, Blondin (FOULIS).

Colour, Brilliant Magenta with a pure white eye.

DOWNIE, LAIRD, AND LAING beg to intimate that they send out the above magnificent VERBENA; they are now ready. It is much in the style and habit of Purple King, blooms in the greatest profusion in all kinds of weather, and rain even does not seem to spoil it. It was awarded a First-class Certificate by the Royal Caledonian Horticultural Society, Edinburgh, September 6, 1866. Price 1s. 6d. each, or 12s. per dozen, with the usual allowance to the Trade.

The following Testimonials as to its superior merits are from Gentlemen who have had many opportunities of seeing it in flower during last season, and D., L., & L. have no hesitation in saying it will prove the greatest acquisition ever offered as a Bedding Verbena in its class and colour.

TESTIMONIALS.

From Mr. WILLIAM PIRRIE, *Gardener to* The Right Hon. The Earl of Rosslyn, *Dysart House.*

"I paid a visit to Fordel Gardens last August, and saw a fine New Verbena named Blondin, in colour a beautiful deep magenta with clear white eye, free grower and very profuse bloomer, even during wet, unfavourable weather. It appears to have the blooming qualities of Purple King, with the luxuriant growth of Lord Raglan. This will prove a real acquisition in Bedding Verbenas."

From Mr. ROBERT DEWAR, *Gardener to* James T. Oswald, Esq., *Dunnikier, Kirkcaldy.*

"Having seen Verbena Blondin last autumn, I consider it the best rose-coloured variety for bedding purposes I have seen."

From Mr. WILLIAM M. GORRIE, *Gardener to* Colonel Ferguson, *Raith, Kirkcaldy.*

"I visited Fordel Gardens last autumn, and saw a Verbena named Blondin. The beds covered with it were in rich masses of bloom, and while the others, such as Purple King, Firefly, &c., were nearly destroyed by the severity of the weather, Blondin was flowering in great luxuriance."

From Mr. WILLIAM VAIR, *Gardener to* Sir Arthur Halket, Bart., *Pitfirrane, Dunfermline.*

"In passing through the Gardens at Fordel last autumn, I was very much pleased with a new Verbena named Blondin, colour bright magenta, and flowering most profusely, more so than any Verbena I have ever seen."

From Mr. JOHN MCLEAN, *Gardener to* Mrs. Gibson, *Duloch, Inverkeithing.*

"I was greatly pleased with a beautiful new Verbena named Blondin I saw in Fordel Gardens last autumn. It was flowering in great masses. This I think will prove a great acquisition amongst bedding Verbenas."

DOWNIE, LAIRD, & LAING, Florists to the Queen, Nurserymen, Seedsmen, and New Plant Merchants, 17, South Frederick Street, Edinburgh; and Stanstead Park, Forest Hill, London, S.E.

Taxus hibernica fastigiata variegata

(THE GOLDEN IRISH YEW).

FISHER, HOLMES, AND CO. have pleasure in offering the above really beautiful Yew raised by them. It is the exact type of the Irish Yew, with foliage of the same rich golden colour as in the old Golden Yew, and forms a truly beautiful and attractive plant, suitable for decoration in Flower Garden, Terrace, or other Ornamental Planting.

Plants in pots (which have withstood the winter without injury), 21s. each; Six Plants for £5 5s.

A few extra Specimens, £1 11s. 6d. each.

F., H., & Co. respectfully return thanks for the liberal orders received. As the stock of plants of the same age as those already sent out is now very limited, early orders are respectfully solicited to secure the same. The annexed are the names and addresses of those in the Trade who have ordered and received plants.

Backhouse & Son, York	Macintosh, R. T., Edinburgh
Baker, S. C., Atherston	Morrison Brothers, Aberdeen
Ballantyne & Sons, Dalkeith	Morrison, R., Elgin
Brewin, C., Bawtry	Osborn & Sons, Fulham
Bull, W., Chelsea	Paul, G. & Son, Cheshunt
Cooling, E., Derby	Paul, Wm., Waltham Cross
Cranston, John, Hereford	Pearson, J., Chilwell
Cripps, T., Tunbridge Wells	Perkins, John, Northampton
Cunningham, C., Liverpool	Platz & Son, Erfurt, Prussia
Dancer, A., Fulham	Robinson, W. & Son, Tooting
Darby, R. F., Cirencester	Shaw, John, Manchester
Davies, G., Liverpool	Skirving, W., Liverpool
Dicksons & Co., Edinburgh	Smith, Jas., Darley Dale, Matlock
Dickson & Turnbull, Perth	Smith, Joseph, Sen., Tansley Matlock
Dickson & Turnbull, Brechin	
Dickson, F. & A. & Sons, Chester	Smith, Richard, Worcester
Dickson, James & Sons, Chester	Smith, Peter & Co., Hamburgh
Dickson & Sons, Edinburgh	Soden, J., Middle Barton, Oxon
Dillistone, W., Sible Hedingham	Stewart, J. & Sons, Dundee
Dixon, W. E., Beverley	Stewart, W. & D., Ferndown, Wimborne
Drummond & Son, Stirling	
Farnsworth, H. & G., Matlock	Transon Bros., Orleans, France
Fox, G. F., Wetley Rocks, Leek	Turner, C., Slough
Francis, E. P. & Co., Hertford	Van Geert, Aug., Ghent, Belgium
Fraser, J., Lea Bridge	Veitch, James & Sons, Chelsea
Glendinning & Sons, Chiswick	Veitch, R. T., Exeter
Grigor, J. & Co., Foires	Verschaffelt & Co., Ghent, Belgium
Henderson, W., Birkenhead	
Jackson & Son, Kingston	Warwick, F., Sleaford
Jefferies & Son, Cirencester	Waterer & Godfrey, Knap Hill, Woking
Kennedy & Co., Dumfries	
Kimberley, C., Coventry	Waterer, John, Bagshot
Laird & Sinclair, Dundee	Wheeler, Geo., Warminster
Lane & Son, Gt. Berkhampstead	Wheeler, J. C. & Son, Gloucester
Lawson, Peter & Son, Edinburgh	Williams, B. S., Holloway
Lee, J. & C., Hammersmith	Wood & Ingram, Huntingdon
Lucombe, Pince, & Co., Exeter	Wood, Wm. & Son, Maresfield

FISHER, HOLMES, & Co.'s CATALOGUE of STOVE and GREENHOUSE and BEDDING PLANTS, NEW ROSES, &c., is now ready and may be had gratis and post free on application.

Handsworth Nurseries, Sheffield.

J. SCOTT'S CHOICE SEEDS.
Post Free. Per Packet.
PRIMULA SINENSIS FIMBRIATA.—A most superb strain, and cannot be surpassed, 6 varieties, mixed, 1s. 6d. and 2s. 6d.
CALCEOLARIA.—Scott's superb strain, extra, 1s. and 2s. 6d.
CINERARIA.—Extra fine, carefully hybridized, 1s. and 2s. 6d.
A good SEED LIST free on application.
J. Scott, The Seed Stores, Yeovil, Somerset.

Extra Fine Quality of
PRIMULA SINENSIS FIMBRIATA RUBRA and ALBA.—Unsurpassed for size of flower, colour, and fringe, and robust habit. For Exhibition and Decorative purposes this strain is acknowledged to be unequalled. Seed, in Sealed Packets, separate colours, 2s. 6d. and 5s.; Mixed, 1s., 2s. 6d., and 5s.
Dobson & Sons, Woodlands Nursery, Isleworth, London, W.

Russell's Pyramid Primula.
THE FINEST STRAIN IN EXISTENCE.
GEORGE CLARKE has New SEED of the above unequalled varieties, 2s. 6d. per packet; also the Fern-leaved kinds, 2s. 6d.; Kermesina (scarlet), 2s. 6d.; The Fairy (a lavender colour) 1s. All of the best quality. Now is the time to sow for strong early plants.
Nursery, Streatham Place, Brixton Hill, S.; and Mottingham, Kent, S.E.

Primula fimbriata.
B. MALLER has a very superior Stock of the above to offer at 1s. and 2s. 6d. per packet, the usual discount to the Trade.
Also, a very choice Stock of EARLY PURPLE SPROUTING BROCCOLI, in large or small quantities.
A DESCRIPTIVE BEDDING-PLANT LIST to be had on application. Lewisham and Burnt Ash Lane, Lee, S.E.

Seed of Choice Strains of Florists' Flowers.
The following selected Strains are worthy of the notice of all growers of the most useful conservatory decorative flowers.
WILLIAMS' SUPERB STRAIN of PRIMULA.
B. S. WILLIAMS can with confidence offer his superb Strain of Primula as being undoubtedly the finest in cultivation. It is now grown in all the principal Gardens of the Nobility and Gentry throughout the Three Kingdoms, and has never failed to give the greatest satisfaction.
In habit the plants are very robust, and in the foliage differ from all other varieties; but their great beauty consists in the depth of colour in the Red, purity of the White, and beautiful fimbriated form of all the flowers, which are thrown up in large trusses well above the foliage.
As a proof of the truth of the above remarks, this Strain has taken 1st Prizes in every instance that it has been shown in the Provinces this Spring; and 1st Prize at the Primula Show of the Royal Horticultural Society, South Kensington; and 1st at the Royal Botanic, Regent's Park. It is also the favourite Strain in the Covent Garden Flower Market.
This Strain may be procured True, in Sealed Packets bearing B. S. Williams' Name and Address, from any Seedsman; but B. S. W. particularly requests that Customers will observe, on purchasing, that each Packet has his Name and Address in full printed thereon, as no others are genuine.
The Trade supplied on advantageous terms.

	Per pkt.	s.	d.		Per pkt.	s.	d.
Retail price, RED	.. ..	5	0	Retail price, WHITE	..	3	6
,, ,,	.. ..	3	6.	,, ,,	..	2	6
,, ,,	.. ..	2	6	,, MIXED	..	5	0
,, WHITE	..	5	0	,, ,,	..	3	6

Retail price, MIXED, per packet, 2s. 6d.

WEATHERHILL'S EXTRA CHOICE STRAIN OF CINERARIA.
B. S. W. has purchased the entire Stock and right of Sale of this Magnificent Strain. Many of the flowers produced by this seed last season were as large as a crown-piece. This strain is well known in the London Flower Market, and is the most popular one there, a sufficient guarantee that its qualities are good.
Retail price per pkt., 5s. 0d. | Retail price per pkt., 3s. 6d.
Retail price per pkt. .. .. 2s 6d.

JAMES'S HERBACEOUS CALCEOLARIAS.—The varieties that took the First Prize at the International Horticultural Exhibition last May were of this noted strain.
Retail price per pkt. 5s. 0d. | Retail price per pkt., 3s. 6d.
Retail price per pkt. .. .. 2s. 6d.
All FLOWER SEEDS in packets, Post free.
B. S. Williams, Victoria and Paradise Nurseries, Upper Holloway, London, N.

Choice Seeds.
WM. CUTBUSH AND SON strongly recommend the following:—
PRIMULA SINENSIS FIMBRIATA, of the finest possible strain, Red, White, or Mixed, 2s. 6d., 3s., and 5s. per packet.
CALCEOLARIA, saved from James' choice strain, very fine, 2s. 6d., 3s. 6d., and 5s. per packet.
CINERARIA, from named flowers, 2s. 6d., 3s. 6d., and 5s. per packet.
SNOW'S WINTER WHITE BROCCOLI (True), Wm. C. & Son's own saving, 2s. 6d. per packet.
NUNEHAM PARK ONION, 2s. 6d. per packet.
For other Choice Seeds see CATALOGUE, post free.
Highgate Nurseries, London, N.

PRIMULAS, CALCEOLARIAS, &c.—The following varieties greatly exceed in brilliancy of colour and substance of flower the older kinds:—
PRIMULA SINENSIS coccinea aurantiaca, very deep crimson, 1s. and 2s. 6d. per packet.
P. sinensis atrocarminata splendens, light carmine, 1s. and 2s. 6d. per packet.
P. sinensis lilacina albo-marginata, lilac, edged white, 1s. and 2s. 6d. per packet.
P. sinensis striatiflora, magnificently striped, 1s. and 2s. 6d. per pkt.
P. sinensis filicifolia, fine Fern-leaved variety, 2s. 6d. per packet.
P. sinensis fimbriata, extra fine, mixed, 1s. and 2s. 6d. per packet.
P. sinensis fimbriata alba, 1s. and 2s. 6d. per packet.
CALCEOLARIA, saved from flowers of great beauty, 1s., 1s. 6d., and 2s. 6d. per packet.
CINERARIA, saved from fine named varieties, 1s., 1s. 6d., and 2s. 6d. per packet.
All packets of Flower Seeds sent post free.
CATALOGUES post paid.
Butler, McCulloch & Co., Covent Garden Market, London, W.C.

THE GOLDEN-VARIEGATED WELLINGTONIA.
First-class Certificate from Royal Horticultural Society.
For Testimonials, &c., see *Gardeners' Chronicle*, October 6, 1866; *Times*, October 7, 1866; *Scottish Gardener*, November, 1866; *Gardeners' Chronicle*, January 12, 1867; "Florist," February, 1867.
LAST YEAR'S PLANTS (a few remaining).
1st Size, very choice, 8 to 12 inches, £5 5s. each.
THIS YEAR'S PLANTS.
2d Size, fine, 4 to 5 inches, £2 2s.
3d Size, nice little bits, 2 to 3 inches, £1 1s.
5000 plants are now plunged out-of-doors, in their respective sizes they may be safely forwarded during the summer, if desired, and orders will be executed in strict rotation.
Chromo-lithographs of the parent tree, by Day and Son (Limited), on superior cards, 10 inches by 8 inches, very faithful in outline, but deficient in representing the glorious colour of the original. These are sent free by post for 25 stamps, and one sent to each Purchaser.
It is intended to exhibit a few of the first size at the approaching Paris and Manchester Exhibitions.
R. Hartland, The Lough Nurseries.

New Turnip and Mangel Wurzel Seeds, &c.
ALFRED LEGERTON, Seed Merchant, 5, Aldgate, London, E., has to offer to the Trade the above in all the leading varieties, all fine samples, and grown from fine selected stocks; also DWARF ESSEX RAPE, MUSTARD, and all other Agricultural Seeds. Prices (which are low) may be had on application.

Turnip Seeds for Early Sowing.
The Best Sorts are
POMERANIAN WHITE GLOBE,
SUTTON'S SHORT-TOP SIX WEEKS.
SUTTON AND SONS can supply New Seed of the above excellent sorts at 1s. per lb., or cheaper by the bushel.
PRICED LISTS of other sorts gratis on application.
Sutton & Sons, Seed Growers, Reading.

Skirving's Improved Varieties of Swede Turnip.
WM. SKIRVING, Queen Square, Liverpool, begs to announce that his present price for SEED of his three best varieties of SWEDE TURNIP is 1s. per pound, bags included. Terms Cash. Sorts, SKIRVING'S KING of the SWEDES.
,, ,, QUEEN ,,
,, ,, TANKARD ,,
A remittance must accompany orders from unknown correspondents.

Strong Drumhead or Cattle Cabbage Plant.
W. VIRGO AND SON can supply large quantities of the above, at 3s. per 1000. Samples can be had on application at the Nursery, Wonersh, Guildford, Surrey.
Delivered free at the undermentioned Railway Stations—Guildford, South-Western; Shalford, South-Eastern; Bramley, London, Brighton, and South Coast.

BLUNDELL'S CATTLE MELON.—This productive Fruit is now well-known and generally appreciated for Feeding all kinds of Cattle, &c., in the autumn months. Prices, exclusive of carriage:—100 Seeds, 2s. 6d; Seed for ¼ acre, 5s.; do. ½ acre, 9s.; do. 1 acre, 16s.
To be obtained of all the principal Seedsmen, and of Messrs. Blundell & Palmer, Land Agents, &c., 3, Portland Street, Southampton. Cash remittances from unknown correspondents.

SPECIAL OFFER.
To Farmers, Gardeners, and Others.
EXCELLENT NEW YELLOW GLOBE MANGEL WURZEL. 4d. per lb.
,, WHITE BELGIAN CARROT, 8d. per lb.
,, JAMES'S SELECT INTERMEDIATE do., 10d. per lb.
,, RED ALTRINGHAM do., 9d. per lb.
,, GREEN KOHL RABI, fine topped, 10d. per lb.
,, SCARLET RUNNER BEANS, NEW, 7s. 6d. per bushel.
,, MIGNONETTE, 1s. per lb.
RED DUTCH CABBAGE PLANTS, fine, 3s. 6d. per 1000.
CATALOGUE of genuine NEW SEEDS on application.
F. Gee, Seed Merchant and Grower, Biggleswade, Bedfordshire.

The New Australian Spinach, Chenopodium auricomum.
STUART AND MEIN, Seedsmen, Kelso, N.B., beg to intimate that they have received a small parcel of the above NEW VEGETABLE, which is superior in every respect to any other variety of Spinach. 1s. 6d. per packet. The Seed should be sown this month, on a well manured bed, and watered freely. For its description and other particulars, see *Gardeners' Chronicle*, page 297; "Gardeners' Magazine," page 171; "Florist and Pomologist," page 89.

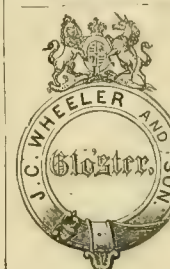
CHOICE SEEDS.
Post Free.

	Per pkt.—s.	d.		Per pkt.—s.	d.
Broccoli, Snow's Imperial Winter	1	0	Moore's Vegetable Cream	0	6
Albert Sprouts	0	6	Beet, Perpetual Spinach ..	0	6
Cauliflower, Early Erfurt ..	1	0	,, Nutting's Superb Red	0	6
Celery, Manchester Champion Red	0	6	Lettuce, Wheeler's Tom Thumb	0	6
Cucumber, Smith's Fine Frame	1	0	Radish, French Breakfast	0	6
Cucumber, Telegraph ..	1	0	Aster, Truffaut's Superb French, 12 vars. mixed ..	1	0
Leek, Henry's Prize ..	0	6	Aster, Victoria, 6 vars. mixed	1	0
Endive, Digswell Prize ..	0	6	Stock, improved large-flowering, 12 vars. mixed.	1	0
Onion, Nuneham Park ..	2	6	Balsam, Camellia-flowered, 6 var. mixed	1	0
Parsley, extra fine curled ..	0	6	Balsam, Rose-flowered, 8 vars. mixed	1	0
Raphanus caudatus (new long-podded Radish) ..	2	0	Phlox Drummondii, 12 splendid varieties ..	1	0
Custard Marrow	0	6			
Melon, Malvern Hall ..	1	6			
Tomato de Laye	0	6			
Cauliflower, The Mammoth	1	0			

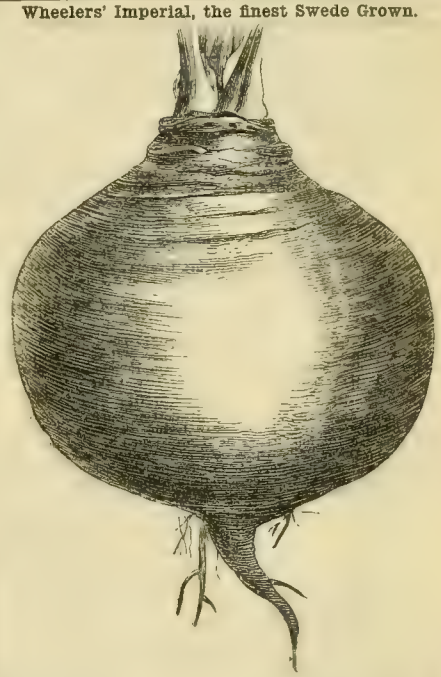
Richard Smith, Seed Merchant, Worcester.

Sutton's Grass Seeds for all Soils.


SUTTON AND SONS have still on hand some of each of the leading kinds of
PERMANENT NATURAL GRASSES and CLOVERS,
which are mixed expressly to suit the soils for which they are intended.
Price 26s. to 36s. per acre.
Carriage free.
Sutton & Sons, Royal Berkshire Seed Establishment, Reading.



GRASS SEEDS for PERMANENT PASTURE, of the finest quality, at moderate prices, carefully selected on a new, natural, and scientific system.
See "WHEELER'S BOOK on GRASSES," which contains Illustrations and Descriptions of the most suitable Grasses for Permanent Pasture.
J. C. Wheeler & Son,
Gloucester,
Seedsmen to the Gloucestershire Agricultural Society.

Wheelers' Imperial, the finest Swede Grown.

WHEELERS' IMPERIAL SWEDE,
1s. per lb.; 45s. per bushel (50 lb.)
This is one of the best if not the best Swede in cultivation; the specimens exhibited at the Smithfield Club Show in London, and at Cirencester, Birmingham, and at the Great Show of Roots held in Gloucester, excited considerable admiration, not only for their size, but for their beautiful shape and excellent quality.
J. C. Wheeler & Son, Seed Growers, Gloucester.

GRASS SEEDS for PERMANENT PASTURE, selected on a new, scientific, and natural system, by J. C. Wheeler & Son, Gloucester.

UNDOUBTEDLY a GOOD IDEA.
WHEELER AND SON'S "BOOK on GRASSES."—"These enterprising Seedsmen, in introducing a new element into their calculations—viz., the geological formation of the soils for which permanent Grasses are wanted—*have undoubtedly a good idea.*
"Messrs. Wheeler have prepared a new series of tables of the Grasses which they consider most suitable to different geological formations. These are arranged in 11 tables, and include mixtures suitable for heavy, medium, and light soils in each case."—*The Field*, March 9, 1867.
J. C. WHEELER AND SON are anxious that every Gentleman Farmer in England, who is about to Lay Down Land to Permanent Pasture, or to Renovate Old Pasture with suitable Grass Seeds, should read their illustrated "Book on Grasses;" with this view they will, on receiving a note to that effect, send a copy to any address they may be favoured with.

VICTORIA and PARADISE NURSERY, UPPER HOLLOWAY, LONDON, N.

B. S. WILLIAMS
RESPECTFULLY INVITES HIS PATRONS AND THE PUBLIC GENERALLY
TO PAY A VISIT TO THE ABOVE NURSERY
DURING THE PRESENT MONTH.
A continuous show of SPECIMEN FLOWERING and FOLIAGE PLANTS is maintained in the LARGE SHOW CONSERVATORY, and the ORCHID HOUSES, PALM STOVES, NEW HOLLAND HOUSES, FERN HOUSES, AZALEA HOUSE, &c., &c., are replete with interest for lovers of either Beautiful and Rare Flowers, or the magnificent foliage of Tropical Vegetation.
The Collection of MEXICAN PLANTS at this Nursery is perhaps the finest in Great Britain, with the exception of the one at the Royal Gardens, Kew.
CARRIAGE ROUTE AND MEANS OF ACCESS.—This Nursery is easily reached from any part of London. The direct carriage route from the West End is through Albany Street or Regent's Park; Park Street, Camden Town; Kentish Town Road and the Junction Road.
The "Favorite" Omnibuses from the Bank and London Bridge Railways; Victoria Station, Charing Cross, and Westminster; Regent Street, Piccadilly, and Brompton, arrive at and start from the entrance of the Nursery every 7 minutes.
VICTORIA and PARADISE NURSERY, UPPER HOLLOWAY, LONDON, N.

Kohl Rabi Seed should now be sown.
Drilled as Swedes, 3 to 4 lb. per acre.

SUTTON AND SONS can supply superior SEED, either GREEN or PURPLE, at 2s. 6d. per lb., or cheaper in large quantities.
For Instructions on Cultivation, see SUTTON'S FARM SEED LIST, which may be had post free on application.
SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

RAYNBIRD, CALDECOTT, BAWTREE, DOWLING, AND COMPANY, Limited.
CORN, SEED, MANURE, AND OILCAKE MERCHANTS,
Address, 89, Seed Market, Mark Lane, E.C.; or Basingstoke.
Samples and Prices post free on application. Prize Medals, 1851, for Wheat; 1862, for "Excellent Seed Corn and Seeds."

LAWES' MANURES.—The Manures manufactured by J. B. LAWES for the present season of 1867 are now ready for delivery at his Factories, at the following prices, per ton:—

	£	s.	d.
LAWES' PATENT TURNIP MANURE and BONE SUPERPHOSPHATE of LIME..	6	6	0
LAWES' SUPERPHOSPHATE of LIME from BURNT BONE or MINERAL PHOSPHATES	5	5	0
LAWES' WHEAT, BARLEY, GRASS, and MANGEL MANURES	8	0	0
CONCENTRATED CORN and GRASS MANURES ..	12	0	0

These Manures can be obtained of Mr. LAWES, or through the appointed Agents in all parts of the United Kingdom, at prices varying according to cost of carriage.
Genuine Peruvian Guano direct from the Importers. Nitrate of Soda, Sulphate of Ammonia, and other Chemical Manures.
American and other Cakes at market prices.
Address, JOHN BENNET LAWES, 1, Adelaide Place, London Bridge, E.C.; 22, Eden Quay, Dublin; and Market Square, Shrewsbury.

ODAMS'S NITRO-PHOSPHATE for CORN.
ODAMS'S NITRO-PHOSPHATE for ROOTS.
ODAMS'S DISSOLVED BONES.
ODAMS'S SUPERPHOSPHATE of LIME.
ODAMS'S PREPARED PERUVIAN GUANO.
MANUFACTURED BY

THE PATENT NITRO-PHOSPHATE OR BLOOD MANURE COMPANY (Limited).
Chief Offices—109, Fenchurch Street, London.
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This Company was originally formed by, and is under the direction of agriculturists, circumstances that have justly earned for it another title, viz.—"The Tenant Farmers' Manure Company."
Its members are cultivators of upwards of 50,000 acres of land which has been for years under management with Manures of their own manufacture. The consumer, therefore, has the best guarantee for the genuineness and efficacy of the Manures manufactured by this Company.
Particulars will be forwarded on application to the Secretary, or may be had of the Local Agents. C. T. MACADAM, Secretary.
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THE LONDON MANURE COMPANY (ESTABLISHED 1840),
Have now ready for delivery in dry fine condition,
CORN MANURE, for Spring Use
DISSOLVED BONES, for Dressing Pasture Lands
SUPERPHOSPHATES of LIME
PREPARED GUANO
MANGEL and POTATO MANURES
Also Genuine PERUVIAN GUANO, and NITRATE of SODA, ex Dock Warehouse; SULPHATE of AMMONIA, FISHERY SALT, &c. E. PURSER, Secretary.
Offices, 116, Fenchurch Street, E.C.

EGG MANURE.—Analysis of an Egg, by Baron Liebig: Carbon, 55.000; Hydrogen, 7.073; Nitrogen, 15.920 (equal to Ammonia, 18.50); Phosphorus, Sulphur, Oxygen, 22.007 = 100.000: suitable for Hops, Grain, Grass, &c. From 2 to 3 Tons of Refuse Eggs to be disposed of weekly.
Apply by letter, in first instance, to Z. A., care of Mr. Roberts, Advertising Agent, 19, Change Alley, Cornhill, E.C.

PEAT.—A quantity of good fibrous PEAT for SALE, as supplied by the Advertiser to her Majesty's Gardens. Price per ton 14s. Delivered to Seven Oaks or Edenbridge Station, by F. HAYNES, Brasted Chart, near Seven Oaks.

FIBROUS PEAT of first-class quality for Orchids, Heaths, American Plants, and all potting purposes, may be obtained by application to Mr. THOMAS JESSOP, Farningham Wood, near Farningham Station, Kent. It is dispatched by the London, Chatham, and Dover Railway in trucks of 16 yards, about 6 tons, to most Stations in the Kingdom, or fetched in carts from the wood. It is extensively used and appreciated in the principal Nurseries, and in the Royal Parks and Gardens. Price 5s. per cubic yard, at Farningham Station.



COCOA-NUT REFUSE is becoming SCARCE, the old reserves will soon be gone. Now sold in bags, 1 for 2s., 10 for 16s., 20 for 30s., 50 for 66s., 100 for £6.
Fourpence allowed for each bag returned carriage-paid.
A Railway Truck-load (not in bags), 40s.
Postage Stamps or Post-office Order, payable to J. BARSHAM & Co., Kingston-on-Thames, S.W.

Plagues of the Garden.



SIMPLE and SAFE REMEDY.—By using the APHIS WASH, these pests of the garden, together with Ants, Scale, Caterpillars, Slugs, Earwigs, &c., are immediately destroyed. Leaves no stain, but strengthens the Trees or Plants.
"At the first opportunity use a solution of 'Aphis Wash,' prepared at the City Soap Works; it not only destroys the Aphis, but also Scale, and every other pest."—Extract from *Gardeners' Magazine*, January 5, 1867.
"For strengthening the growth and effectually destroying all forms of blight, the 'Aphis Wash' supersedes every other preparation."—See *Gardeners's Chronicle*, August 19, 1865; and *Gardeners' Magazine*, July 1, 1865.
Sold by Chemists and others, in 1s. bottles, and 2s. 6d. a gallon, with full directions for use.
Wholesale at the City Soap Works, Milton Street, London, E.C.

BOSTON'S NE PLUS ULTRA, for the Destruction of Mealy Bug, Scale, American Blight, &c., on Stove and Greenhouse Plants, Fruit Trees, Vines, &c. In bottles, with full instructions for application, price 3s. 6d., 5s., and 10s. 6d.
JAMES CARTER & Co. beg leave to state that the present time is most suitable for applying the above genuine Specific before the commencement of the growing season, thereby preventing the rapid increase of the above pests which would otherwise take place. The infallible properties of BOSTON'S NE PLUS ULTRA are rapidly becoming fully recognised, J. C. & Co. having already sold nearly 2000 bottles since its first introduction in the spring of 1866. Numerous testimonials have been received, and not a single complaint of its inefficiency.
Sole Agents, JAMES CARTER & Co., 237 and 238, High Holborn, W.C.
*** The Trade supplied on liberal terms.

ROLL TOBACCO CLOTH.—The cheapest and best article for Smoking Greenhouses and destroying the Fly; equal to Tobacco in strength, 1s. 4d. per lb.; over 10 lb., 1s. 1d.
JOSEPH BARER, 10, Gough Square, Fleet Street, E.C.
Post Office Orders payable Fleet Street

Fumigate your Greenhouse with TOBACCO TISSUE.
—This article is acknowledged by all parties who have used it to be the best remedy for Destroying Insect Life; is entirely free from paper or rag, and will burn without the assistance of blowing.
Price 3s. 6d. per lb., carriage free. To be had of Messrs. ROBERTS & SONS, Tobacco Manufacturers, 112, St. John Street, Clerkenwell, E.C., and of all Seedsmen and Nurserymen.



Red Spider — Magnified.

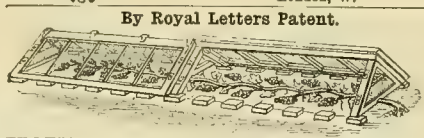
GISHURST COMPOUND.
Used by many of the leading Gardeners since 1859, against Red Spider, Mildew, Thrips, Green Fly, and other Blight, in solutions of from 1 to 2 ounces to the gallon of soft water, and of from 4 to 16 ounces as a Winter Dressing for Vines and Fruit Trees. Has outlived many preparations intended to supersede it.
Sold Retail by Seedsmen, in boxes, 1s., 3s., and 10s. 6d.
Wholesale by PRICE'S PATENT CANDLE COMPANY (LIMITED)

Garden Netting.
JOHN EDGINGTON AND CO. supply TANNED NETTING for the Protection of Fruit Trees, 1d. per square yard. Any quantity. SCRIM CANVAS, &c.; TULIP COVERS and GREENHOUSE SHADES, SUN BLINDS, &c MARQUEES, TENTS, and FLAGS for FETES, FLOWER SHOWS, &c.
JOHN EDGINGTON & Co., (Tent Makers to the Royal Family), 48, Long Lane, Smithfield, E.C.; and 18, Piccadilly, W



ORNAMENTAL WIRE WORK for Gardens and Conservatories, FLOWER STANDS, HANGING BASKETS, TRELLIS for Creepers, ARCHES, ROSERIES, VASES, AVIARIES, &c.
ILLUSTRATED CATALOGUE.
R. HOLLIDAY,
2, Portobello Terrace, Notting Hill Gate, London, W.

By Royal Letters Patent.



WELLS'S PORTABLE GROUND VINERY, for Growing and Ripening Grapes without Artificial Heat.
Awarded a Silver Medal at the International Exposition of Horticulture, held at Nice, April, 1865.
Drawings and Instructions can be had of the PATENTEE, Steam Works 24, Bouverie Street, London, E.C.
AGENTS:—B. J. Edwards, 25, Bishopsgate Street Within, E.C.
J. R. Tanton, Epsom, Surrey.
Drummond Brothers, 52, George Street, Edinburgh.

Bee Hives.
PRIZE MEDAL AND HONOURABLE MENTION AWARDED TO GEORGE NEIGHBOUR & SONS, FOR BEE HIVES AND HONEY AT THE VARIOUS EXHIBITIONS.



NEIGHBOUR'S IMPROVED COTTAGE BEE HIVE, as originally introduced by GEORGE NEIGHBOUR & SONS, with all the recent improvements, working three bell-glasses; is neatly and strongly made of straw; it has three Windows in the lower Hive, with a Thermometer affixed to the centre one. This Hive will be found to possess many practical advantages, and is more easy of management than any other Bee Hive that has been introduced.
Price complete .. £1 15 0
Stand for ditto .. 0 10 6
THE LIGURIAN or ITALIAN ALP BEE being much in repute at the present time, we are in a position to supply Stocks of the pure race carefully packed in Woodbury Bar-Frame Hives, so as to travel with comparatively no risk of damage.
ENGLISH BEES.—Stocks and Swarms may be obtained as heretofore.
A newly-arranged CATALOGUE of other Improved Hives, with Drawings and Prices, sent on receipt of two stamps.
Address, GEO. NEIGHBOUR & SONS, 127, High Holborn, W.C.; or 149, Regent Street, London, W.
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Caution to Gardeners.—When you ask for SAYNOR AND COOKE'S WARRANTED PRIZE PRUNING and BUDDING KNIVES, see that you get them. Observe the mark SAYNOR, also the corporate mark OBTAIN WARRANTED, without which none are genuine.
S. & C. regret having to caution Gardeners and others, but are compelled to do so, in consequence of an imitation, of common quality, having been sold for the genuine one, and which has caused many complaints to be made to them of Knives which were not of their make, all of which are warranted both by Sellers and Makers.
S. & C.'s Pruning and Budding Knives are the best and the cheapest in the market.
Paxton Works, Sheffield. Established upwards of 125 years.

SHAW'S TIFFANY,
For samples and prices apply to
J. SHAW & Co., 29, Oxford Street, Manchester.

RUSSIAN MATS.—A quantity for Sale.
Apply to Mr. SIMONDS, Oil Mill, Boston.

ARCHANGEL MATS.—The Trade supplied with the best ARCHANGEL MATS at 95s. per 100; second quality, 90s. per 100. Cash. Prices of Sacks and Seed Bags on application.
JAMES T. ANDERSON, 7, Commercial Street, Shoreditch, London, N.E.

BROWN'S FLORAL SHADING, for Shading Plants under Glass and protecting Wall Trees from frost.—Sold by all Nurserymen and Seedsmen. No. 1 at 6s. 8d.; No. 2 at 7s. per piece, 20 yards long, 38 inches wide; No. 3 at 9s. 3d. per piece, 18 yards long, 39 inches wide. Samples on application to
CHARLES BROWN, Greenheys, Manchester.

SHADING.—The best and cheapest Shading is ANDERSON'S SCRIM CANVAS, 2 yards wide. Price 8d. per yard. Samples on application.
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IRON HURDLES (Silver Medal of the Royal Agricultural Society).
SHEEP, 3s. 5d.; CATTLE, 4s. 2d.; OX, 5s. 11d.
List by Post. GATES and FENCING of every description.
St. Pancras Iron Work Company, Old St. Pancras Road, London, N.W

JAMES PHILLIPS AND CO beg to submit their prices as follows:—
GLASS for ORCHARD HOUSES,
As supplied by them to Mr. Rivers, to the Royal Horticultural Society, and to most of the Nobility, Clergy, and Gentlemen of the United Kingdom.
Each Box contains 100 feet. The prices only apply to the sizes stated
Squares 20 by 12, 20 by 13, 20 by 14, 20 by 15.

	16 oz. to the foot.	21 oz.
Fourth quality	15s. 0d.	.. 19s. 6d.
Third ditto	17s. 0d.	.. 22s. 6d.
Seconds	18s. 6d	.. 26s. 0d.
English	20s. 0d.	.. 27s. 0d.

The above prices include the boxes, which are not returnable.
HORTICULTURAL GLASS.
Stock sizes, 16-oz., in 100 feet boxes, boxes included.
These prices only apply to the sizes stated.

				4ths.	3rds.	2nds.
				s. d.	s. d.	s. d.
11 by 9	12 by 9	13 by 9	14 by 9	13 6	15 6	17 0
12 „ 10	13 „ 10	14 „ 10	15 „ 10			
13 „ 11	14 „ 11	..	..			
14 „ 12	15 „ 12	15 „ 11	16 „ 11			
18 „ 12	19 „ 12	16 „ 12	17 „ 12			
16 „ 13	17 „ 13	20 „ 12	..	15 0	17 0	18 6
16 „ 14	20 „ 13	18 „ 13	..			
	17 „ 14	18 „ 14	..	16 to 17 oz. to the foot.		
	20 „ 14					

SMALL SHEET SQUARES.
In 100 feet Boxes.

6 by 4	6½ by 4½	7 by 5	7½ by 5½	.. 12s. 6d.
8 by 6	8½ by 6½	9 by 7	9½ by 7½	
		10 by 8	10½ by 8½	.. 13s. 6d.

Boxes 2s. each, returnable at full price.
SHEET and ROUGH PLATE GLASS, SLATES of all sizes, BRITISH PLATE, PATENT PLATE, ROLLED PLATE, CROWN, SHEET, HORTICULTURAL, ORNAMENTAL, COLOURED, and every description of GLASS, of the best Manufacture, at the lowest terms. Lists of prices and estimates forwarded on application to
JAMES PHILLIPS & Co., 180, Bishopsgate Street Without, E.C.

Horticultural Glass Warehouse.
THOMAS MILLINGTON AND CO.,
87, Bishopsgate Street Without, London, E.C.
NEW LIST for ORCHARD HOUSE GLASS as supplied to Her Majesty, the Nobility, Gentry, Mr. Rivers, and the leading Horticulturists of the United Kingdom.
ORCHARD HOUSE SIZES.

in.	in.		4ths.	3rds.	2nds.	Best.
20 by 12						
20 by 13	Per 100 feet	15 oz.	14s 3d	15s 6d	18s 6d	20s 0d
20 by 14						
20 by 15		21 oz.	19s 6d	22s 2d	25s 6d	26s 6d
20 by 16						

SMALL SHEET SQUARES, 15 oz., per 100 feet.

in.	in.	in.	in.	in.	in.	4ths.	3ds.	2nds.	Best.
6 by 4	7 by 5	8 by 6	9 by 7						
6½ by 4½	7½ by 5½	8½ by 6½	9½ by 7½			12s 3d	13s 3d	16s 0d	18s 0d
Per 100 feet.									
10 by 8	12 by 9	12½ by 10½	14½ by 10½						
10½ by 8½	12½ by 9½	13 by 10	15 by 10						
11 by 9	13 by 9	13½ by 10½	13 by 11			13s 3d	14s 6d	17s 3d	19s 0d
11½ by 9½	12 by 10	14 by 10	14 by 11						

LARGE SHEET SQUARES, 15 oz., per 100 feet.

in.	in.	in.	in.	in.	4ths.	3ds.	2nds.	Best
15½ by 10½	14 by 12	22 by 12	22 by 16					
16 by 10	14½ by 12½	17 by 13	24 by 16					
14½ by 11½	15 by 12	23 by 13	20 by 17					
15 by 11	15½ by 12½	18 by 14	22 by 17					
15½ by 11½	16 by 12	22 by 14	24 by 17		14s 3d	15s 6d	18s 6d	20s 0d
16 by 11	16½ by 12½	24 by 14	20 by 18					
21 by 11	17 by 12	22 by 15	22 by 18					
13 by 12	18 by 12	24 by 15	24 by 18					

The above Prices are only for the Sizes stated; if a quantity of any other Size be required, a Special Price will be given.
SHEET GLASS.
In Sheets for Cutting up, averaging from 6 to 9 feet super.

15 oz.		21 oz.	
4ths quality, per 300 feet case,	38s.	4ths quality, per 200 feet case,	38s.
3ds „ „	48s.	3ds „ „	48s.
2ds „ „	62s.	2ds „ „	66s.
Best „ „	92s.	Best „ „	96s.

SHEET GLASS is made only in the following substances, 15 oz., 21 oz., 26 oz., 32 oz., 36 oz., and 42 oz.
HARTLEY'S IMPROVED ROLLED ROUGH PLATE in 1-8th in., 3-16th in., 1-4th in., and 3-8th in. substances.
BRITISH PLATE GLASS for Windows and Silvered for Looking Glasses, Coloured Glass, Glass Shades, Striking Glasses, &c., &c.
PAINTS, COLOURS, VARNISHES, &c.
STUCCO PAINT, 24s. per cwt. This Paint adheres firmly to the walls, resists the weather, and is free from the glossy appearance of Oil Paint, resembling a stone surface, and can be made any required shade. It is mixed with rain or pure river water.
WHITE ZINC PAINT, 36s. per cwt. One hundredweight of pure Zinc Paint, with three gallons of Linseed Oil, will cover as much as one hundredweight and a half of White Lead and six gallons of Linseed Oil. Special Dryers for this Paint.
IMPROVED ANTI-CORROSION PAINT, 28s. to 34s. per cwt. Anti-corrosion Paint is extensively used for all kinds of work in exposed situations, on Brick, Stone, Compo, Iron, Iron Bridges, Conservatories, Greenhouses, &c., and is easily laid on by any ordinary workman. Prepared Oil for ditto, 4s. per gallon.

Per cwt.—s. d.		Per gallon.—s. d.	
GENUINE WHITE LEAD	32 0	LINSEED OIL	3 2
SECONDS WHITE LEAD	30 0	BOILED OIL	3 8
GROUND PATENT DRYERS, 3d. to 4½d. per lb.		TURPENTINE	3 6
„ OXFORD OCHRE, 3d. to 4½d. per lb.		LINSEED OIL PUTTY, 8s. to 9s. per cwt.	
„ RAW UMBER, 4½d. to 6d. per lb.	[per lb.	Fine OAK VARNISH, 10s. to 12	0
„ BURNT do., 6d. to 9d.		„ CARRIAGE do., 12s. to 14	0
GREEN PAINT, all shades,	28s. to 60 0	„ PAPER do. 10s. to 12	0
BLACK PAINT,	24s. to 36 0	„ COPAL 16	0
RED PAINT ..	28s. to 36 0	KNOTTING 10	0
		Patent GOLD SIZE .. 10	0
		„ BLACK JAPAN .. 12	0
GROUND BRUSHES.		GLAZIER'S DIAMONDS and TOOLS	
DUSTERS. | SASH TOOLS.		MILLED LEAD and PIPES	
DISTEMPER BRUSHES.		OLD LEAD Bought or taken in exchange.	

The above are Net, for Cash, and as such cannot be booked.
Lists of any of the above on application.

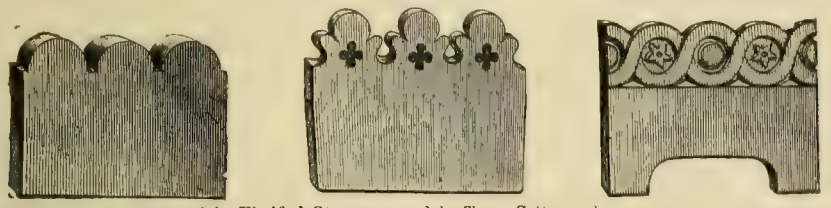
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This Edging is Manufactured in Vitrified Stoneware and in Terra Cotta, and is WARRANTED IMPERISHABLE.

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LAWN MOWERS.—BARNARD'S PATENT.

Prices.

8 inch ..	.. £2 10 0 each	16 inch ..	.. £6 0 0 each
10 inch ..	.. 3 5 0 ,,	18 inch ..	.. 6 10 0 ,,
12 inch ..	.. 4 10 0 ,,	20 inch ..	.. 7 0 0 ,,
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Delivered free to any station in England on receipt of Post Office Order.

Also Lawn Mowers of other kinds, viz., Green's, Shanks', Samuelson's, Ransome's, &c., supplied at makers' prices.

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GARDEN ROLLERS.—IMPROVED MAKE.

Prices.

16 inch ..	.. £1 17 0 each	24 inch ..	.. £3 0 0 each
18 inch ..	.. 1 17 0 ,,	26 inch ..	.. 3 10 0 ,,
20 inch ..	.. 2 3 0 ,,	28 inch ..	.. 4 0 0 ,,
22 inch ..	.. 2 10 0 ,,	30 inch ..	.. 5 10 0 ,,

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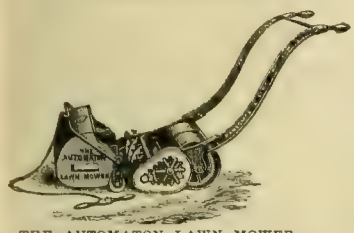
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The best and cheapest are the Patent Adjustable WATER BALLAST ROLLERS, made only by

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NEW LAWN MOWER. THE AUTOMATON.

A NEW AND FIRST-CLASS MACHINE, WHICH HAS BEEN THOROUGHLY TESTED.

CONTAINS MANY IMPROVEMENTS.

PRICES, ILLUSTRATIONS, AND FULL PARTICULARS, FREE, FROM

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ORMSON'S PARADIGM HOT-HOUSES

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EFFICIENT, SUBSTANTIAL, AND MODERATE IN PRICE.

H. ORMSON, aware of the increasing demand for what are termed Cheap Hot-houses (which in reality, as usually constructed, are far from realising that term)—and the desire of Horticulturists, and the Public generally, to Cultivate their Fruits with a greater degree of certainty and success than can be done on open walls, and also to enable them to Grow Choice Flowering Plants under Glass, has made it his study to produce a class of Structures combining all the qualities and requisites of the most expensive Hot-houses, at prices most economical.

The CONSTRUCTION of these HOUSES is based upon a plan which offers many advantages over other low priced Houses, inasmuch as all the parts BEING FRAMED, can be readily taken down and re-erected if required, whilst as permanent buildings they possess many advantages over all descriptions of "bar roof" structures. They are adapted for the growth of either Fruits or Flowers, and can be made of any width required.

The VENTILATION is effected in a manner at once simple and most efficient, by machinery, combining all the latest improvements, and in such a manner that neither wind nor rain can do damage; and at the same time not offering any obstruction to shading, or netting the openings against insects.

SPECIMENS of these HOUSES may be seen Erected in the ROYAL HORTICULTURAL GARDENS (EASTERN ARCADE), SOUTH KENSINGTON, and Prices obtained on application.

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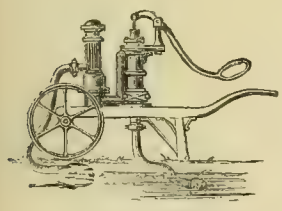
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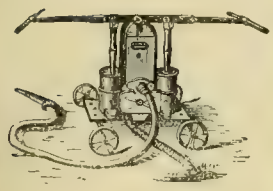
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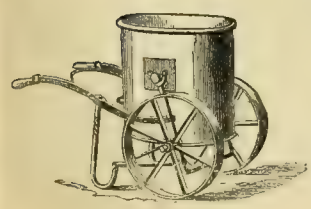
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No. 46*a*.



No. 50.



No. 49*a*.



THE LANDSCAPE SKETCH shows an adaptation of THE IMPROVED HYDRAULIC RAM for Forcing Water to considerable Heights and Distances to supply Mansions, Farms, &c., where a few feet fall can be obtained. Full particulars of this useful Self-acting Machine can be had on application.

No. 4. Useful YARD, GARDEN, and COTTAGE PUMPS, from £1 5*s*. each.

No. 38. PORTABLE LIQUID MANURE PUMPS, with Flexible Suction Pipe.

No. 46*a*. DOUBLE-ACTION PORTABLE FORCE PUMPS and FIRE ENGINES for WATER or LIQUID MANURE.

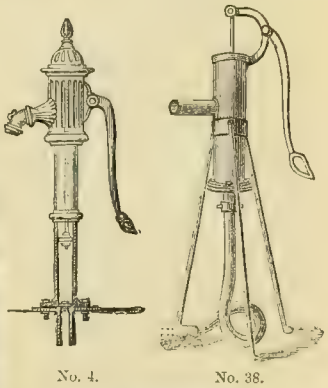
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No. 49*a*. IMPROVED SWING WATER CARRIERS, holding 24 and 35 Gallons, for GARDEN USE.

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No. 4. No. 38.

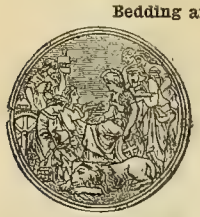


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No. 49.

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Just Published, post free 12 stamps (Gratis to Customers), Part III. of CARTER'S GARDENERS' and FARMERS' VADE MECUM, containing complete Lists of new and choice Stove and Greenhouse and Bedding Plants, with an Addendum comprising original and practical articles, "On a Visit to Messrs. Carter's Nursery," by an Amateur Florist; Subtropical Gardening; and 120 Geometrical Designs for Flower-beds; with reliable information for the proper combination of Bedding Plants to produce chaste and striking effects.

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Cheap Bedding and other Plants.

THOMAS SAMPSON, Proprietor of the Preston Road Nurseries, Yeovil, Somersetshire, lately carried on by Drummond & Co., and formerly by John Scott, has much pleasure in announcing that his CATALOGUE for the above Plants is now ready, and can be had free on application. T. S. begs to assure his friends that the above has been for many years one of the largest in the country for CHEAP BEDDING PLANTS, and that his present Collection is now most unique and extensive, consisting of upwards of 200,000 Plants, being two to one of any other Establishment in the West of England. Having recently extended his Glass Department to upwards of 12,000 feet, expressly for the culture of Bedding Plants, he is enabled to supply them in such varieties and at such low prices as cannot fail to give the fullest satisfaction. T. S. will feel much obliged if his friends will kindly inspect his Collection and forward their Orders early, so as to avoid delay or inconvenience.

The Plants will be ready to send out after the 20th of April.

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Seed, in Sealed Packets, 1s. 6d., 2s. 6d., 3s. 6d., and 5s. each.

This strain of Seed is the result of many years' careful hybridisation, and is unrivalled by any other strain in the world. Those who are fond of this class of plants should secure a packet and judge for themselves.

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VARIEGATED, ZONAL, and NOSEGAY GERANIUMS, in large quantities, to be had Cheap.

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ROBERT SIM can now send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his NEW and PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.

Foot's Cray Nursery, S.E., a mile from Sidcup Station of New North Kent Line of South Eastern Railway.

NEW GREENHOUSE FERN,

Pteris serrulata var. polydactyla.

THOMAS CRIPPS has the pleasure to inform lovers of FERNS that he is now prepared to supply strong plants of the above beautiful and distinct variety. Dr. Moore says * * * "It has all the gracefulness of the parent plant, while the points of each division of the frond are several times forked into a many-fingered tassel, the weight of which gives the fronds a decidedly drooping character. * * * It is quite distinct from the var. cristata, and will be found a valuable acquisition for Plant Cases and Small Greenhouses." It was awarded a First-class Certificate by the Royal Horticultural Society, 21st August last.

Price 10s. 6d. each. Trade price on application.

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ADAM FORSYTH'S CATALOGUE is now ready, containing a Descriptive List of all the best varieties; also a Practical Treatise on the Cultivation of the Chrysanthemum. Forwarded to all applicants for one stamp.

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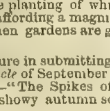
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Gladiolus Brenchleyensis.

Royal Nurseries,  Great Yarmouth.

YOUELL AND CO. beg to state that they are daily executing Orders for the above magnificent variety, in strong sound selected Roots, the planting of which may be continued till the latter end of June, affording a magnificent display through the late autumn months, when gardens are generally divested of floral beauty.

Y. & Co. have much pleasure in submitting the following report from the *Gardeners' Chronicle* of September 8, 1866:—

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NEW DOUBLE CRIMSON THORN (NOW READY).

WILLIAM PAUL

(SON and SUCCESSOR to the late A. Paul),

BEGS TO OFFER THE

ABOVE MAGNIFICENT HARDY FLOWERING TREE,

Which he believes to be the greatest acquisition for forcing and out-of-door culture that has been introduced for many years.

Fine healthy Plants, well established in pots, 2 ft. high, 7s. 6d. each; 1 ft., 5s. each.

By Ordering at once Purchasers may establish these Plants to bloom well next year.

A First-class Certificate was awarded to him for this Plant by the Royal Horticultural Society on the 16th April last.

"A brilliant variety, to which too much attention can scarcely be directed."—*Gardeners' Chronicle.*

"This is certainly a plant which cannot be overrated; the intense bright red colour, and the numerous clusters of the double flowers, make this Cratægus invaluable. No admirer of this charming family can be without it, all other pink varieties are truly in the shade beside it."—*Journal of Horticulture.*

PELARGONIUM JASON (First-class Certificate).—The finest, most leafy, and deepest colour of all pure gold-leaved Pelargoniums. Price 7s. 6d. each.

For other Novelties, see separate Advertisement.

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GOOD PLANTS IN POTS, NOW READY, 5s. EACH.

PAUL & SON'S

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CRATÆGUS OXYACANTHA COCCINEA PLENA (PAUL & SON).—Colour exceedingly vivid, very double and beautiful. Undoubtedly the finest hardy Novelty of the season. An attempt has been made to detract from the sole credit due to us for introducing it.

Since we first sent it out in November last, we have had the honour to supply Her Majesty's Garden at Windsor, the leading Nurserymen here and abroad (see List in this Journal), the most celebrated Amateurs and Lovers of Hardy Trees. We have gained with this unique novelty—First-class Certificate at Royal Botanic Society, May 21, 1864; First-class Certificate from distinguished Jury of New Plants at late International Exhibition.

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Standards to bloom, 5s. and 3s. 6d. each; Dwarfs, 2s. 6d. each.

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It includes Notices of the best Novelties of the season.

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NAPOLEON III., MULE or HYBRID PINK.

GERANIUM MAID of KENT.—Rich rose. Far surpassing Madame Barre, and all others in class and colour.

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NEW WHITE BEDDING VERBENA WHITE QUEEN.—For close dwarf growth, large, compact, and well-formed truss, purity of colour, profusion of bloom, and effectiveness in character, the White Queen Verbena is admitted by competent judges to surpass Henriette, Boule de Neige, and Mrs. Holford. Its short-jointed habit requires little attention to training, and its purity of colour after rain is a feature in its favour, both for garden decoration and for exhibition.

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NEW GOLDEN-LEAVED BEDDING PLANT, GOLDEN FEATHER (Pyrethrum parthenifolium aurea.—A beautiful dwarf hardy perennial plant, 6 to 9 inches in height, as required, surpassing the gold-leaved section of Geraniums in its uniformly neat and densely compact growth, which, by simply pinching off the premature flower buds, the plant is furnished solely by its picturesque golden fan or feather-lobed leaves, forming an equal surface as to height, and an elegant feature for a second front riband-row, or a double marginal belt to terrace borders, or as a chaste golden fringe to back lines of Perilla or Coleus. Received a First-class Certificate of Merit and several others.

POA TRIVIALIS ARGENTEA ELEGANS, SILVER-LEAVED MEADOW GRASS.—This plant is commended as one of the most useful and beautiful varieties of hardy Grasses with silvery white-margined leaves yet introduced to gardens. It is strictly a perennial in habit, forming a remarkably dense and compact many-branched growth from the base, and, by its natural and free tendency to emit roots upon the under shoots, it makes a close yet gracefully free growth from 4 to 9 inches in height, and with a luxuriance which renders it suitable for Grass plots, verges, or terraces, covering the ground-surface with a herbage as close as an ordinary meadow, whilst its elegant variegated leaf-blades produce an effect upon a much larger scale than can be had from any other Silver-leaved Grass. By forming ornamental portable specimens and suspended basket groups of this variety in the early winter and spring months, for conservatory and greenhouse decoration, it will at those seasons be found by far the most brilliant and picturesque plant in its tribe.

ACALYPHA TRICOLOR, 21s. each.
COLEUS VEITCHII, 10s. 6d. each.
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P.S. A Supplementary Descriptive List of Verbenas sent on application.

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From Yokohama direct, a consignment of LILIUM AURATUM in fine condition, 2s. 6d., 3s. 6d., 5s. 6d., and 7s. 6d. each.

SURPLUS STOCK of GLADIOLI.

Fine Mixed varieties of GANDAVENSIS, 7s. 6d., 10s. 6d., and 15s. per 100. 1s. 6d. and 2s. 6d. per dozen.

BOWIENSIS, the finest scarlet, 7s. 6d., 10s. 6d., and 15s. per 100; and 1s 6d. and 2s. 6d. per dozen.

NAMED VARIETIES, 3s. 6d., 5s. 6d., 7s. 6d., and 10s. 6d. per doz.

A FEW SPECIALITIES in SEEDS.

RIVINA LEVIS.—A most effective plant for table decoration. During the autumn, winter, and spring months, it is covered with elegant drooping racemes of beautiful scarlet berries. For mode of culture, &c., see "Journal of Horticulture," p. 275, April 1. 1s. per packet.

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FLOWER SEEDS in COLLECTIONS.—3s. 6d., 5s. 6d., 7s. 6d., 10s., 15s., and 21s per packet.

FINEST LAWN GRASS SEED, for Renovating Old Lawns and Laying Down New Ones.—1s. 3d. per lb.

STANDEN'S "GARDENERS' and AMATEURS' FRIEND," a highly Concentrated, Inodorous, Artificial Manure, in all cases inducing free vigorous growth, and promoting early maturity. It is now largely used by the leading Nurserymen, amongst whom we may mention:—Messrs. Veitch & Sons, Mr. Charles Turner, Messrs. J. & C. Lee, Mr. Barnes, of Camberwell, Mr. Standish, of Bagshot, &c., and many of the leading amateur Exhibitors. Use it freely. Directions for Use, see *Gardeners' Chronicle*, p. 291. Sold in Canisters at 1s., 2s. 6d., 5s. 6d., 10s. 6d., and 21s. The above va uable Manure may be had of the leading Nurserymen and Seedsmen in England, Ireland, and Scotland.

BARR & SUGDEN, The Metropolitan Seed, Bulb, and Plant Warehouse, 12, King Street, Covent Garden, W.C.

LEEDS HORTICULTURAL SOCIETY.—GREAT EXHIBITION of PLANTS, FLOWERS, FRUIT, &c, THURSDAY and FRIDAY, June 13th and 14th, 1867. Prizes nearly £450; including £10 given by the Right Worshipful the Mayor, for CUT ROSES; £5 by the Mayoress, and £30 by the Ladies of Leeds and Neighbourhood, for HOUSE BOUQUETS, &c. Entries must be made on or before JUNE 3d.

The North Eastern, Great Northern, and Midland Railway Companies will convey Plants, &c., to the Show at the ordinary rates, and return them free. The Committee provide Assistants and Horses for Exhibitors' Vans coming by Rail; also covered Spring Vans to convey Plants, &c., between the Railway Stations and the Exhibition Grounds close at hand.

Schedules, with Form of Entry and any further information on application to JAMES BRAMLEY, Secretary, Shakspeare Street, Leeds.

GREAT NATIONAL HORTICULTURAL EXHIBITION, 1867.
£1000 OFFERED IN PRIZES.

To be HELD in the Gardens of the Botanical and Horticultural Society, Old Trafford, MANCHESTER, 7th to the 15th JUNE.

Charges for Admission:—First Day, 10s 6d. each; Second Day, 2s. 6d. each; WHIT MONDAY and remaining Days, 1s each.

Subscribers to the Manchester Botanical and Horticultural Society free each day.

Annual Subscription—Family, £2 2s.; Individual, £1 1s., admitting on all occasions.

Schedules, &c., may be obtained on application to Mr B. FINDLAY, Curator, Botanic Gardens, Manchester, or from the undersigned. Military Bands in attendance each day.

Cooper Street, Manchester. HENRY WHITWORTH, Sec.

GREAT NATIONAL HORTICULTURAL EXHIBITION, 1867.—Gardeners will be admitted by Tickets as follows:—First Day, 2s 6d. each; Second and remaining Days, 1s. each. Applications for these Tickets must be made before 5th JUNE. HENRY WHITWORTH, Sec.

BRIGHTON and SUSSEX FLORICULTURAL and HORTICULTURAL SOCIETY.—The FOURTEENTH ANNUAL GRAND SUMMER SHOW will be held, by kind permission of the Town Council, on the Eastern Lawn, and in the Suite of Rooms of the Royal Pavilion, on WEDNESDAY and THURSDAY, June 26 and 27. Open till 5 P.M. each day on this occasion, being held at the same time as the Exhibition of the Southern Counties Association. Above £200 in Prizes, including the Railway Cup, value £10, which is offered for the best Eight Varieties of Stove and Greenhouse Plants. Schedules of Prizes to be had on application to the Secretary, 96, St. James's Street; or E. SPARY, Superintendent, Queen's Graperies, Brighton.

N.B. AUTUMN SHOW will be held SEPTEMBER 11 and 12.

May 18. EDWARD CARPENTER, Secretary.

GRAND HORTICULTURAL EXHIBITION at BURY ST. EDMUND'S, in connection with the SHOW of the ROYAL AGRICULTURAL SOCIETY, JULY 15, 1867, and four following Days.

Amongst various Special Prizes, amounting in value to nearly £300, and exclusive of the ordinary Prize Schedule,

A SILVER CUP, VALUE £20,

will be offered by the Proprietors of the GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE for the best COLLECTION of FRUITS and VEGETABLES, to be made up as follows:—

Of FRUITS, any Five of the following Eight kinds, one Dish of each:—Grapes, Melons (2 fruits), Strawberries, Gooseberries, Currants, Cherries, Raspberries, or Apples (of the crop of 1866).

Of VEGETABLES, any Eight of the following Fourteen kinds, one basket or bundle of each;—Peas, French Beans (or Scarlet Runners), Broad Beans, Cauliflowers, Cucumbers (brace), Summer Cabbages, Early Carrots, Turnips, Artichokes, Onions, Spinach, Rhubarb, Potatoes, or Mixed Salading.

This Cup will be open to Competition amongst Amateur or Professional Gardeners, of all grades, with Fruit and Vegetables of *their own growing*; any article otherwise obtained will disqualify the exhibitor.

The Gardeners' Chronicle.

SATURDAY, MAY 18, 1867.

MEETINGS FOR THE ENSUING WEEK.

MONDAY,	May 20	Royal Horticultural (Special Fruit) at South Kensington	10 A.M.
TUESDAY,	— 21	Royal Horticultural (Fruit and Floral) Committees, at South Kensington	11 A.M.
		Do. do. (Scientific Discussion)	3 P.M.
FRIDAY,	— 24	Linnean (Anniversary)	3 P.M.

FROM the vast number of new varieties springing up around us, of what have hitherto, for want of a better name, been called Tricolor zonate Pelargoniums, but for which it seems to us better to adopt the more correct appellation of VARIEGATED ZONAL PELARGONIUMS,—a number which, moreover, is likely soon to become overwhelming unless some means of limitation can be found,—it has become most urgent that a code of "properties" should be adopted, by means of which those sorts that approach the nearest to ideal perfection, may obtain the prominence which they merit, and may not be swamped in the flood of rich leaf colouring by which we and they are alike threatened. The production of these "things of beauty" must not be discouraged, nor must any of them be lightly despised. They all are charming, and it would be a sin to destroy any of them; but on the other hand, it is quite obvious that the least attractive should be least widely distributed; and we may go further and add that so long as they are sufficient to meet the demand, the best only should be extensively propagated and circulated. It may be long before we attain to any standard of perfection that may be set up, for colour is a fickle element, and must enter largely into the estimate in this case; but still, we should have the standard before us, and work upwards and onwards till we reach it.

Anxious to contribute our mite towards the usefulness of the show of these painted-leaved Pelargoniums which is to take place on Tuesday next at South Kensington, and at which, from what we hear, we shall see all the finest varieties which have yet obtained sufficient development to be brought out for examination, we have set ourselves to devise some rules for the determination of merit amongst the novelties to be exhibited, and which we place at the service of those who will be called upon to make the decisions.

The knowledge we already possess that some beautiful varieties of this painted group are delicate in constitution, and slow in development, indicates one of the essential properties which must be insisted on in any variety which may claim a high position in popular favour, namely, a free vigorous constitution; without that it will be, as Mr. FISH has observed, a mere toy. Then we have seen that certain varieties, especially amongst those with silvery margins, have a tendency to curl up their leaves from contraction of the edge; and this indicates a second essential property, namely, flatness of leaf surface. Next comes effectiveness in the style of colouring, as a third essential before high honours can be granted, a more difficult point to determine than the foregoing, since we have here to leave the real and tangible, for the ideal and imaginary. We have attempted to codify the several points which it seems necessary to insist on, in the following series of propositions, which we submit as the essential properties of an ideally perfect Variegated Zonal Pelargonium.

1. The plant must be of vigorous constitution, free-growing, but not long-jointed.
2. The habit must be stout, close, and branching, and the branches thickly furnished with horizontally-set well-displayed leaves.
3. The surface of the leaves must be flat, that is, neither concave nor convex from contraction of the margin.
4. The leaf-colouring must be bright, distinct, and well defined.
5. The ground colour (green) must occupy a space in the centre equal in diameter to the combined zone and marginal belt, *i. e.*, half the diameter of the leaf; it must be of uniform hue, and must not extend into or appear beyond the zone.
6. The zone must be either evenly arcuate, or regularly scolloped or vandyked, dark on the inner and brightly coloured on the outer edge.
7. The inner portion of the zone to an extent not exceeding one-half its whole breadth, must be dark-coloured throughout (blackish or deep brownish red), breaking outwardly in a symmetrically radiated manner into the bright colour (red or pink) of the outer half, which latter must at no point break through the dark belt so as to touch the ground colour.
8. The marginal belt must be of uniform breadth, and of the same tint throughout (yellow, straw-colour, cream-colour, or white), entirely separated from the ground colour, or from contact with the darker belt of the zone.

Now, in judging according to these rules we ought first to separate the real from the ideal, and allow equal marks, say 15, for each, making a total of 30 for those which reach the standard. The real would include the points numbered 1 to 3, perfection in any one of which would consequently secure 5 marks for that point. The ideal would include the points numbered 4 to 8, and when perfection in any of these is attained there would be 3 marks for that point, while in the mean time a lower number would be awarded in proportion to the degree in which the idea of perfection had been therein realised. Supposing our essential points to be themselves correct, and they are the result of a very careful study of the subject, it must with them be an easy task to find out which are the best sorts, namely, those which come nearest the standard.

One word as to the collective term, Variegated Zonal Pelargoniums, here adopted. Many attempts have been made to designate and classify the zonale-inquinans group of Pelargoniums, now so essential to the decoration of our gardens and conservatories, and promising every year to become more and more so. Our own columns, indeed, have contained many suggestions towards this end. Some classification, when the cultivated varieties of a particular plant become so numerous and varied as in this case, is no doubt useful for purposes of discrimination, but an excess of subdivision is rather apt to become confusing and embarrasing than otherwise. Now, for the whole group of what were once known as Scarlet Geraniums, there has been no general term proposed so distinctive and suggestive, so clearly indicating the intended group, and so little open to objection, as that of "Zonal Pelargonium," which in our opinion is therefore the best that can be adopted, notwithstanding the few exceptions that occur in the shape of green-leaved, and marginate variegated varieties. We think moreover, that for all practical purposes the three primary divisions of Concolorous or whole-coloured, Zonate or zoned, and Variegated or parti-coloured (in which latter it is always to be understood that white or yellow occurs), are quite sufficient; while practically the two first may soon be expected to merge into one, as the line of distinction between them is every day becoming more and more broken down. Subdivisions are readily formed, the principal being the Nosegay and the Golden Zonate forms in the Zonate series, and the Marginate and Zonate forms in the Variegated series. Thus we arrive at the term Variegated Zonal as the most suitable by which to designate the particular group which forms the special subject of these remarks, and which, of course, is intended to include both those with golden, and those with silver variegation. *M.*

— It has been officially announced that HER MAJESTY the QUEEN will pass through the Royal Horticultural Gardens, after laying the foundation-stone of the Hall of Arts and Sciences, on Monday next. It is, therefore, to be hoped that the *impromptu* Show or FLORAL FETE with which the Council of the Royal Horticultural Society, as mentioned by us last week, has determined to mark the Royal visit, may not only be such as to prove gratifying to the QUEEN, but equally so to the numerous visitors who may be expected to assemble on such an occasion. The principal ceremony of the day is fixed to take place at half-past 11 o'clock, and HER MAJESTY'S visit to the garden will be immediately after its completion. We understand that most of the growers of Tricolor-leav d Pelargoniums have intimated their intention to exhibit their plants on the 20th; and we cannot but think that such an occasion will afford a fine opportunity for extending the popularity of these very beautiful plants. The more critical examination of them proposed for the 21st, will not be at all interfered with by the proposed Monday show, which is held entirely in honour of the Royal visit.

— We are glad to observe that amongst the Civil List Pensions recently granted, is one of 100*l.* a year to our much-valued correspondent and fellow-labourer, the Rev. MILES JOSEPH BERKELEY, on account of the eminent services which he has rendered as a botanist, to practical horticulture and agriculture. These, together with his almost unrivalled acquaintance with Cryptogamic plants towards the diffusion of a knowledge of which he has done so much, amply entitle him to such a distinction. In this country we have so little cause to be proud of the recognition accorded to our men of science, that we cannot afford to pass over in silence this mark of honour—small though it be, relatively speaking—to our most distinguished Cryptogamic botanist. Long may he live to enjoy it!

— It is announced in our advertising columns that the Sixth Annual BIRMINGHAM ROSE SHOW will take place on Thursday and Friday, July 4 and 5, and that, as usual, it will be held in the Town Hall. The Schedule of Prizes, which will be in circulation in a few days, is a decided improvement on those of former years, good though they have been. The principal additions to the Prize lists are:—in the open class, a division for 18 varieties, Tea-scented, Noisette, and Chinas, single trusses; and one for 12 varieties of summer Roses (including Provence, not Moss), Hybrid China, Hybrid Bourbon, Gallica, Damask, and Alba Roses; and a reduction in the number of varieties of Moss Roses, which must be shown in first condition which will best display their distinctive characteristics. Baskets, designs, and vases of Roses have hitherto been classed together; in this schedule baskets and designs form one division, and vases another. In the Amateur Class we note the following new division:—12 varieties, single trusses, to be competed for by exhibitors who have never previously won a prize for Roses. This has evidently been inserted with a view to encourage small growers in the immediate neighbourhood of Birmingham, and seems to be a very proper

experiment. Seedling Roses, seedlings of other plants, and new plants are invited, their merits to be adjudicated on by an efficient body of judges.

—— In what are called PARADIGM HOTHOUSES, and which are described as being moderate in price and yet substantial structures, Mr. ORMSON has adopted a somewhat novel mode of ventilation, which appears to be both simple and efficient. The roof-sashes are fixtures; and instead of being carried up to a ridge plate in the usual way, the rafters on each side terminate so that there is left a continuous open space of a foot in width along the upper angle of the roof—as if, in fact, a lantern has been let down flush with the roof. This opening is closed by a bevelled cover or capping, which is held on by moveable iron bars, fixed at intervals on each side, and by means of a sash line and pulleys this capping may be elevated as well as thrown forward in a longitudinal direction, whenever it is desired to give air, while the slackening of the line allows the capping to fall back in its place when it is desired to close the ventilators. When open, the capping is elevated 6 inches above the roof, so that the ventilation is ample, while, as it still remains over the opening, there is small risk of inconvenience from the entrance of rain. This plan has all the advantages of the lantern mode of ventilation, combined with the economy arising from its greater facility of construction, a consideration of some importance, considering the use to which Mr. ORMSON proposes to devote these houses.

—— Among the objects of interest to which the attention of the Fellows of the Royal Horticultural Society will be called at their meeting on Tuesday next, will be found, we are informed, some specimens of the FABRICS (such as handkerchiefs, &c.) made from JAPANESE FLAX, as well as specimens of the Flax itself, which Mr. ALLISON has the credit of having been the first to bring into notice. It is already in extensive use as a substitute for Russian bass, for tying plants, flowers, and bouquets. Mr. BATEMAN will, on this occasion, exhibit his plant of Dendrobium M'Carthiæ and also some other Orchids.

—— Bearing in mind the importance of the subject in all ways, it is desirable to chronicle all the CURIOSITIES OF GRAFTING that are brought to light. Here is one such recorded in a recent number of the *Revue Horticole* by M. BRIOT. Libocedrus tetragona (one of the Cupressineæ), when grafted on the Saxegothæa (Podocarpeæ) not only succeeds in spite of the somewhat distant affinity, but, says M. BRIOT, its habit becomes changed in consequence; instead of forming a narrow cylindrical column it spreads widely, so as to form with its numerous and short branches an irregularly spherical or somewhat depressed mass, similar to Juniperus Oxycedrus echiniformis. An instance of an opposite kind is also cited in the case of Chamæcyparis. When C. obtusa pygmæa is grafted on C. Boursieri, plants are obtained which are very free growing and erect in habit, while if it be grafted on a Biota or a Thuja, or if it be propagated by cuttings, the plants instead of becoming erect spread horizontally on the ground. We should be glad to hear how far our cultivators are able to confirm these statements.

—— Mr. PARSONS, of Danesbury, has forwarded to us some flowers of a NEW AZALEA which he has raised that are noteworthy, inasmuch as they have outside the ordinary corolla, between it and the calyx, but detached from both, five small coloured petal-like bodies, oblong in shape, and slightly revolute at the margins. These petalodes alternate with the sepals, and are, therefore, superposed to the petals. We think it probable that these curious structures will in course of time be further developed. We refrain at present from expressing a definite opinion as to their morphological significance, but simply chronicle their existence, and hint at the possible analogy between them and the similar formations sometimes seen in Gloxinias.

—— In the current number of the Pharmaceutical Journal Mr. DANIEL HANBURY recommends the CULTIVATION of the JALAP PLANT (Exogonium Purga) on the ground of the deficient and unsatisfactory supply of that drug. The plant might be profitably cultivated, in the opinion of Mr. HANBURY, in the Neilgherry Hills, in Jamaica or Madeira, while even in the Isle of Wight, in Devon, and Cornwall the experiment might be tried.

—— We understand that the works of the SEFTON PARK, Liverpool, are to be commenced without delay, and to be completed in two years, according to a revised design prepared from that which obtained the first premium. The Improvement Committee of the Liverpool Town Council, have, it appears, accepted the contract of Messrs. ANDRÉ and HORNBLOWER, the terms arranged being 5 per cent. on the outlay. According to the conditions of the competition the premium might have been absorbed in the commission, but the Committee have presented the designers with a cheque for the amount. This graceful act will no doubt be fully appreciated, and deserves to be recorded. The above statements will, in great measure, supply a satisfactory answer to sundry questions and unfavourable criticisms which have reached us with reference to this subject.

New Plants.

ODONTOGLOSSUM TRIUMPHANS, *Rchb. f.*, *Bonplandia*, ii., 99. Odontoglossum Hallii, *Lindl. in Orch. Lind.*, p. 15; *Folia*, No. 6, nec *Bot. Reg.*, 1992. Odontoglossum spectatissimum, *Lind. Folia*, No. 55.

Racemosum seu paniculatum, sepalis oblongo-ligulatis acutis, petalis subæqualibus hinc grosse dentatis, labello ab ungue lineari columnæ adnato pandurato acuto seu emarginato denticulato, carina depressa ligulata antice divergenti biernri in basi, papulis utrinque, columnæ alis subquadratis denticulatis.

This plant has an unlucky history. At first it was put with the old Odontoglossum Hallii, when Mr. Linden had the good fortune to discover it. Later an anomaly was described as O. spectatissimum, and the type left again as O. Hallii. Incapable of making out these puzzles at a distance, we gave a new name, and we believe one that must be retained from all laws of justice. It has long been familiar to us in a fresh state, yet we have received it only three times. The first flowers were sent by Mr. Linden. Later ones came from Consul Schiller, of Hamburgh, then an enthusiastic collector of Orchids; and while writing this a flower came from Mr. Low. No doubt it is a splendid thing. The pure golden yellow of the flower is revived by the dark cinnamon-brown blotches. The lip is nearly white, with some brownish blotches, but it occurs also yellowish. That it is subject to varieties, may be seen from our representations. Perhaps these are also hybrids with



Odontoglossum luteopurpureum—we are not sure of it: yet we believe it must be a good species, having before us numerous wild specimens gathered by various collectors. *H. G. Rchb. fil.*

HYBRIDISING AND CROSS BREEDING.

MR. ANDERSON-HENRY'S remarks on this subject (see p. 379) have much interested me, and brought to mind many of the almost-forgotten experiments of my early manhood. His remarks on the difficulty of crossing the Rubus, in particular, have arrested my attention, owing to my having, in years long past, turned my mind to the apparent facility of creating some new variety out of species nearly related. Mr. H. is an unbeliever in a cross between the Raspberry and the Bramble (Rubus fruticosus)—so am I; and yet I have experienced such curious results from the crossing of Raspberries that I am tempted to give some account of them. In doing so I may probably induce Mr. Henry, or some one like him in perseverance and observation, to throw some light on a subject which has for many years been to me a mystery. Some time ago (probably nearer forty than thirty years since) I received from a very old gardener, living at Weathersfield, near Braintree, in Essex, a curious kind of Raspberry, which he called the "Black Raspberry," and at the same time he stated that it was a cross between the Bramble and the common Raspberry. At that time I took a mere horticultural view of the plant, and observing it to have, when established here, long, dark brown shoots, I thought it just possible. In the course of time these so-called black Raspberries bore fruit, and true enough, the fruits were, although not black, yet of a dark purple, small, and acid, and of a very different flavour to other Raspberries. I became interested in the variety, and began to think of its probable origin, dismissing the idea of its being a cross with the Bramble, as that flowers in August, while the Raspberry flowers in June; but thinking it just possible that it might be a cross with what is here called the Dewberry (Rubus cæsius), which flowers in June with the Raspberry. In the course of years I raised many generations from my black Raspberry; the seedlings all partook more or less of the qualities of the parent stock, giving berries more or less purple and acid, and keeping themselves distinct from our Red Antwerp and other sorts of Raspberries. I cannot now recall how many generations I raised. They occupied my notice for a time only, because they formed part of the routine of business; but a change came, not "o'er the spirit of my dream," but among my seedling Raspberries. Some ten or twelve or more years since I received, among many novelties, from the late A. J. Downing, of America—a man whom I feel proud to have personally known, and the creator of true gardening taste in America—a plant of the Ohio Everbearing Raspberry, a variety of the Black Cap (Rubus occidentalis). This was planted, with other new kinds, in a department near to my seedling black Raspberries, and, after observing its peculiar nature of bearing a full crop in autumn, it did not attract further notice, as its fruit was small and acid. A few years—perhaps two or three—after the introduction of this sort, I happened to be passing a bed of my seedling black Raspberries which had been raised in the usual way, and observing among them some canes different in colour to the others—they had the blue tinge peculiar to the canes of the Ohio Raspberry—I paid them very close attention. They bore fruit in summer of a darker colour than those they were growing amongst, and smaller, varying in colour as did the canes. I thought at first that they were sports from my original black Raspberry, resulting from—may I so call it?—domestication; and although interested, I was not surprised, this being reserved for the autumn, for then surprise did come, the canes which I had noticed, or rather the young canes of the growth of the summer, putting forth in October an abundant crop of fruit, the canes which had given fruit in summer being then dry and sapless. The colour of the canes, most of them having the pretty blue tint of the sort from Ohio, induced me to think that I had by accident obtained some curious cross-breeds. I now believe this to have been the fact. I wished, however, to see the end of this curious outbreak; for I thought, why should not other kinds of Raspberries growing near the Ohio Raspberry, and from which seedlings had been raised, receive a stain? I therefore raised a number of seedlings from the first apparent hybrids I discovered, and I have since then raised three or four generations, confining myself to the seed taken from the largest berries of a deep purple colour, hoping to establish a race that might be reproduced from seed without difficulty; for I must add that nearly all my black autumnal Raspberries are like their Ohio parent—they make a large stub after being repeatedly cut down, but produce no suckers from their roots. The result of my sowing carefully-selected seed from the finest purple berries produced in autumn is most curious. I have had red summer Raspberries, red and pink, flesh-coloured, and large white autumnal sorts; yellow summer and yellow autumnal varieties; small-berried black autumnal Raspberries of gigantic growth—making strong canes 15 feet in length, and some dwarf bushes 2 feet in height; in short, such a *mélange* as I think never before was seen in a bed of Raspberries. It would take a long chapter to describe them; but as the greater portion were horticulturally valueless, they have been destroyed. I have, however, settled down to a few sorts, which seem as if they would, with the exception of a few slight vagaries, prove constant. One, a large black autumnal variety, with blue canes, ripening in October; another with large black berries, and with canes not so blue, ripening in August; another with very large orange berries, and another with large white berries, covered with a glaucous bloom, both ripening in October. It is curious to note that the sorts with pale berries put forth suckers from the roots like the common kinds of Raspberries, whereas those with blue canes and black berries put forth none, yet all came from the same source—the black autumnal hybrids.

From these four varieties I raised, in 1866, some hundreds of seedlings. They are now in the second year of their growth, and are of much interest. Those from the black-berried hybrids seem to adhere to the character of their parents in having shoots more or less purple; still a few among them have white spines, and will probably give white or yellow fruit. Those from the large orange variety—one of the largest Raspberries I have ever seen—seem to adhere pretty closely to the habit of their parent, having white spines. Nearly all these strange hybrids seem to partake of the character of the Ohio Everbearing Raspberry in their tendency to produce a more abundant crop of fruit in the autumn than in summer.

I beg to ask your readers to help to solve my little mystery—why is it that seedling Raspberries from one variety only, have deviated so widely

from all known varieties, and that seedlings raised from our well-known kinds, such as the Red and Yellow Antwerp and other kinds of summer Raspberries, although growing near the Ohio sort, should most strictly adhere to the habits of their parents in giving only one crop of fruit in the summer, merely varying in the size and colour of their berries? I am well aware of the varieties of our summer Raspberries that bear abundantly in autumn; hundreds of seedlings from these kinds (the October Red and Yellow) have been raised here, but they have been only reproductions without any cross, such as occurs in the various hybrids I have endeavoured to describe.

In these hypercritical times as regards vegetable physiology one fears to propound a theory, yet I cannot help, with humble submission, endeavouring to tell the reason why my original Black Raspberry has been the only sort open to cross breeding. It is this:—the variety was undoubtedly a hybrid between the Raspberry and the Dewberry, so that, so to speak, the continuity of the species was broken into, and the variety thus became more susceptible of impregnation by a wild and vigorous species like the Rubus occidentalis. My opinion may be weak and untenable, but if a clever observer like Mr. Henry will take the trouble to read my Raspberry narrative, he will probably be able to give one more sound, and I for one shall be thankful.

With respect to the cross-breeding of other fruits, what can seem more probable than the union of the Apricot Peach (Admirable Jaune)—really partaking of the Apricot in flavour—and the Apricot, or the Orange Nectarine and the Apricot; yet, after years of trial here in the orchard houses, under most favourable circumstances and great care, no impression has been made. Some of the seedling crossed Apricots have, in their early stages of growth, shown leaves more elongated than usual, but after a time there was no hope. The most facile of all crossing—it scarce deserves the name—is that between Peaches and Nectarines, the Pitmaston Orange Nectarine being carefully crossed with the Stanwick Nectarine has produced an Orange Nectarine, with the full flavour of the Stanwick, and ripening later than its female parent. A very early Peach being crossed with a Nectarine has produced an early Nectarine with the flavour of the Peach, its female parent. All these trifling crosses are easy enough, but when the Plum and the Cherry are operated upon no effect is produced—like the Peach and the Apricot they seem obstinately fixed. Still we may hope on. It is now some 20 years since, that looking on a grand tree of the Pyrus spectabilis (the double Chinese Apple) growing here, a tree some 70 years old, the thought struck me that if such a tree, covered with the scarlet flowers of the Pyrus (now Cydonia) japonica, could be raised, what a glorious creation it would be! I therefore set to work in crossing the Pyrus spectabilis, which bears abundance of fruit, with the Cydonia, and I raised many seedlings, but after waiting many years and seeing them all bloom, I found I had totally failed in my cross, although the foliage of some of them gave me hopes. One, however, proved distinct, to which I was vain enough to give the name of P. spectabilis Riversii; it gives flowers larger, darker, and later than its parent. I fully believe that in a warm climate some fine hybrids may be raised between Cydonia japonica and the common Quince. If I lived in the warm south, I should try this.

Mr. W. Paul, in his lecture on Spring Flowers, stated that the double and some other kinds of Thorns are mostly from sporting shoots or branches. This is doubtless true of the sort he exhibited; it is not, however, generally known that the double Pink Thorn produces haws tolerably freely if the flowers be fertilised. I happen to know this fact well, for many years since I fertilised the flowers of this very beautiful sort with the pollen of the single dark crimson Thorn; two or three plants were raised, and on one, particularly vigorous in its habit, I placed my hopes. In due time it blossomed and gave flowers of the purest white. In my agony of disappointment I destroyed the tree, a hasty act of which I have long since repented. *Thos. Rivers.*

FUNGI AS FOOD.

(*Concluded from page* 460.)

4. The larger Mushroom, called sometimes White-Caps or Horse Mushroom—the latter probably because horses and cattle are usually allowed to destroy them, or, as some say, because "they are not fit for a horse"—I have found growing in rings in Oakley Park, Cirencester, some specimens being nearly a foot across. When not fully grown, and their paler gills looking fresh, I have always relished this species, and consider its flavour second to none. Cooke says, "Like its ally, the common Mushroom, it has several varieties, and some of these are of a much finer flavour than others."* They are excellent for catsup.

5. The Shaggy Agaric is not very abundant. I have partaken of occasional specimens found growing in my garden, and have liked them very much. This and the following are commonly exposed for sale in Covent Garden Market.

6. The Blewit, so called from its bluish or purple stems, is very common, frequently occurring in large fairy rings. Next to the Mushroom it is the commonest at Covent Garden; but it is coarse in flavour, in which respect, though it may vary, I prefer several other species of its month, namely October.

7. The Stump Agaric, is well distinguished by its fine plum blue colour and by its growing in clusters on old tree stumps. I knew that this was a favourite on the Continent, and so once upon a time having gathered some of these in the neighbourhood of Church Stratton I got them cooked for a mid-day meal; but whether from the state of the stomach, or a subsequent coach journey, or both, I know not, but at midnight in the hotel at Ludlow I felt all the symptoms of having been poisoned. After some difficulty I succeeded in getting a glass of brandy-and-water, hot and strong; this soon caused the offending Fungus to be ejected. Here let me digress to point out the merits of brandy-and-water in all suspicious cases of poisoning by Fungi. At the first symptom of oppression, take this fluid, stiff, hot, and in plenty, and if the case be mild, digestion will proceed and sound sleep be obtained, but if obstinate, sickness soon follows, the offending Fungus is got rid of, while the stimulus of the fluid relieves that prostration which usually attends such cases. This is advice which an old stager has found of benefit more than once.

I will say no more of this Fungus, except that this lesson decided me not to eat it again, and always to have a flask of brandy in my bedroom, whether at home or on a journey.

8. The Esculent Boletus has delicate white flesh, which does not turn blue or brown when broken. It should be skinned and the gills removed, and simply cooked, either fried with butter or oil, and seasoned with lemon juice, or treated with pepper, salt, and butter, and cooked in a warm oven or before the fire.

9. The Chanterelle occurs in woods, oftentimes in great profusion, and is well distinguished by its bright yellow colour; to this may be added its congener Lactarius deliciosus. Both of these I have partaken of with great relish, but have not had sufficient experience of them to be able to accord the lavish praises which some have bestowed upon them. They are sometimes served as most rare and expensive dainties at great dinners, though their rarity is rather attributable to the scarcity of judges of the species on the one hand, or of cooks who can properly serve them, on the other.

10. The Giant Puffball is a Fungus which has been abundant on my own farm this year, and which I was glad to welcome. One specimen was growing in a dry ditch, and was so large that at a distance I mistook it for a lamb—it measured 2 ft. 2 in. round, and weighed 3 lb. It was quite white when cut into, and slices of this done over with egg and bread-crumbs, and fried like a veal cutlet, proved to be most delicate, and easy of digestion. More than once I have introduced it at dinner, and always to the satisfaction of those who can overcome the usual prejudice to anything they have not seen before. Still the labourers, whose meals are usually free from meat, could not be prevailed upon to touch it, which is a great misfortune, as it contains most of the nutritive elements of meat itself, and in this case is certainly more digestible than any white meats, not excepting the chicken, than which I consider it far more delicate.

My friends saw some of a smaller species of Puffball exposed for sale in the market at Weymouth, from which it may be gathered that everybody does not reject these plants as "Toadstools and Cankers." Of course when the Puffballs have gone to seed, or have lost their original fine white colour, they will not be good for food, but this is not a difficult fact to decide upon.

11. The Morell was first introduced to me in Oakley Park, Cirencester, where I have in some years found it in great abundance under old Fir trees. I was told that the Earl Bathurst's family sometimes partook of them, and I have seen them exposed for sale at the greengrocers, and heard that they became highly esteemed at the mess of the Militia officers. I prefer them stuffed with forcemeat or sausage-meat, and fried, to any way, but as a foreign method may be preferred by some I give the following, not from the cookery book, but from Cooke's book before cited. "*Morells à la Italienne.*—Pick, wash, and dry your Morells. Cut them in two or three pieces according to size, and place them in a stew-pan over a lively fire; add olive oil, pepper, salt, a bundle of sweet herbs, a little Onion, and a chive of garlic. Continue the cooking over a gentle fire. Soften with beef gravy and a glass of white wine. Serve with a piece of lemon and bread crumbs fried brown and crisp." There now, that ought to be good, and yet how few know of the delicious flavour of the fresh Morell, though for English, or perhaps French cooking, it meets with a steady sale at the Italian houses at from 1*s.* to 1*s.* 6*d.* an ounce; and Cooke asserts, "that the demand was formerly so great for Morells in Germany, that the peasantry were induced to burn down the woodland in immense tracts, on account of the more productive nature of the burnt soil, until legislative enactments put an end to the practice."

Why, this is as bad as the Chinese burning down houses to roast pigs; and I can assure my readers that if they ever tasted well-cooked Morells, they would very likely wink at some malpractice—say trespassing—to procure them.

12. Of the Truffle I scarcely know anything except from foreign examples. Atkyns, in his "History of Gloucestershire," says that formerly Truffles were obtained by dogs in Oakley Park. I have long been anxious to see the process of finding these by means of dogs bred for the purpose, a few of which, I am told, are still used in Hants. Should any of my readers possess one, and be able to show a day's sport in a Truffle wood, I would go far to see it.

I cannot conclude these notes without a word of regret that a tribe of plants so useful as the Fungi should yet be not merely neglected, but despised. I have only commented on a few species—such, indeed, as I am practically acquainted with; I am, however, convinced that there are many more that are capable of yielding wholesome and nutritious food, and I therefore hope that in time they will obtain a proper share of attention. *J. B.*

* See British Fungi, by M. C. Cooke, which should be in the library of every one in the country.

LETTERS FROM PARIS.—No. XI.

French method of wiring walls—cordons at the Imperial kitchen garden—and the fourth flower show.

Many good gardeners in England still adhere to old shreds and nails, and their consequent holes for vermin, expense, and great loss of time. This is one of the odds and ends that they do thoroughly well here, having a simple and lasting system of wiring, which is satisfactory in all respects. It is applied in many ways, but the best example of it, as applied to walls that I have seen, is at Pontchartrain, a fine country-seat in charge of Mr. Knight, formerly of Dalkeith Gardens, and which has been much improved by him. Although conversant with the best English practice he has followed the French mode of doing some things, and believes that some of their ways might with advantage be introduced to English gardens. Nobody who resides here any time can fail to perceive that any mode of culture successful with fruits and vegetables in the neighbourhood of Paris will be found equally so in England generally. So far as I observe and hear, there is a closer correspondence between the two climates than is generally supposed. It has been so through the winter and spring, and lately we have experienced the few exceptionally hot days which also visited London, and since their disappearance, we have, like yourselves, the most dismally wet weather; this 16th of May being remarkably like a December day in England. All the walls that surround the kitchen garden at Pontchartrain are wired thus: strong bolt-like nails are driven in at each angle of the walls, and to these the galvanised wire is attached. But the first thing to be done is to employ a mason to insert rough nails with an eye along the walls at equal distances—say 10 inches apart, row from row, and the nails 10 feet apart in the row. Through these the wire is to pass for its support, and of course it is necessary to have those lines of hooks quite straight, a thing which a mason can readily arrange. Then the wire—about as thick as a crow-quill—is passed through the eyes, being fastened at both ends of the wall into the strong iron nails, and then made as tight and firm as can be desired by a tiny rack-wheel revolving in an oblong loop of metal, galvanised like the wire, and, in fact, a part and parcel of it. One wire is attached to the tongue of the loop, so to speak, and the other passes in through a hole in the opposite end, and is inserted through another which is perforated in the strong little axle of the wheel, and then with a few turns the wire is made as tight as possible, and quite permanently and neatly. These little tighteners being placed one over another, or nearly so, in vertical lines, and at great distances apart, they are no noticeable disfigurement to the wall. The wires remain at about the distance of half an inch or three quarters from the wall. They are ten inches apart from top to bottom of the wall, a most convenient distance, for the shoots, which are tied straight along each wire with willow twigs. The difference in the amount of training and tying a man can perform on a wall thus arranged I need hardly suggest to your readers. In the course of a few years such a handy means of training would save the cost of its erection, and do away almost entirely with the expense, trouble, and great amount of time lost upon nails, shreds, pock-marked walls, &c. I trust to see it universally adopted in British gardens ere many years elapse. This wire and its appendages is to be bought cheaply here, and probably more so in some of the manufacturing towns of England.

The Calville Blanc, or White Calville Apple, a superb kind for any purpose, is now selling in a first-rate fruit house in the Rue du Marché St. Honoré, at three different prices—1 franc for the smaller, 2 for the medium-sized, and 3 francs each for the largest fruit! The way in which this fine kind, and a few others of the choicest kinds are grown in France, is, trained as cordons, *i. e.*, as single freely fruiting shoots along a single wire. In like manner must they be grown in England if we desire to perfect such fruit. Now, in nearly every French kitchen garden, and even running into many of their little flower-gardens, you may see a single cordon trained along as an edging to the bed or border, but I had no idea of what the system was capable of till I visited the Imperial Potagérie, or Frogmore of France, at Versailles the other day. This is a large, an interesting, though a rough kind of place as compared with Frogmore, but contains an immense quantity of these cordons trained invarious ways, and all masses of bloom. The prettiest and most successful arrangement was on a border with a warm aspect, in front of a low wall on which Pears were trained. First, there was a low edging of Parsley or some useful herb, and then behind it a single cordon. Then at a distance of 2 feet or so, or just about as much as would permit a man to get between the rows, another line, but this time with two cordons, one over another, and behind it again a line of three cordons. The whole was a mass of bloom, and the sight one of the most attractive I have ever seen in a kitchen garden. I am told the crops are fine, and hope to visit it again in the autumn to see how they look. Such an arrangement would be a useful and desirable addition to the English kitchen garden. The wires for those cordons are, in the first instance, tied to strong Oak posts at each end of the border, and then strained precisely in the way described above for the walls. It need hardly be stated that these cordons are all formed of small trees worked in the Paradise or Doucin stock. They come into bearing immediately, and cost no more than about 2*d.* apiece, at least so I have been told.

The Fourth Show commenced yesterday, but as usual will not be finished in arrangement till this afternoon. Its main features are Palms, &c., Azaleas, Rhododendrons, and other greenhouse plants; Roses, herbaceous and annual plants. Mr. Chantin was engaged in quite filling a large house with many of the

best of his capital collection of Palms, and Messrs. Veitch have a splendid group of 10 Azaleas in the large conservatory. In that structure, Palms, &c., now predominate, and make it look quite different to what it did 10 days ago with Azaleas, &c., but still the effect is bad—unmitigatedly bad, and will, it is to be hoped, be improved upon, for it is the one really objectionable thing in the design. There is a lot of green turf in it which should be removed immediately, and gravel substituted, as it is of course impossible to have turf look decent in such a place without renovating it every few days. I saw, too, charming young Palms just unpacked, Cocos elegantissima, of the most exquisite grace, sure one day to make a fine thing for room decoration; and Desmoncus species nova, like a graceful small Bambusa. A very charming feature in the grounds just now are numerous beds of all kinds of pretty annuals, mixed with ornamental Grasses, &c., in full bloom, perhaps 60 or more kinds in one bed. They have been grown in shallow pits for this purpose, and planted out just ready to bloom. Occasionally there are large beds of the best things, like stocks, &c., on the massing system; and a bed of Rhodanthe, about 24 feet long and 10 feet wide, surrounded with Collinsia, and outside that, with a band of Nemophila insignis, is one of the prettiest things ever seen, the Rhodanthe being strong and in the full flush of its beautiful rose. Mr. Lüddemann has again sent some nice Orchids, and Mr. Oudin ainé has a beautiful pure white and hardy new seedling Rhododendron, also Laurocerasus fastigiatus, which he describes as a Laurel that forms a pyramidal bush. A military band plays in the garden every afternoon, a belt of well-flowered Hydrangeas filling the borders around the band-house. There are some very fine cut Roses shown by M. Margottin, not as we do, but with a considerable portion of stem and leafage, and looking all the better for it. The fine Wellingtonia appears to be dead, and also some other specimens in the grounds; but on the whole the great variety of things planted look very fresh and well. It is fortunate that the Roses, and many other things exhibited in the open ground, have been covered with waterproof canopies, as the weather has been of the vilest description for some days past. *W. R.*

FERN DISTRIBUTION.

[The following is an abstract of Mr. Baker's paper read before the Linnean Society (see p. 463), obligingly furnished by the author.]

This paper is intended as a geographical index to the "Synopsis Filicum," planned and commenced by Sir William Hooker (and carried on after his death by Mr. Baker), which is expected to be ready for publication in the course of the present year. For nomenclature and species limitation this work has of course been followed as a standard. The paper consists principally of a Table, in which the species are all enumerated, and their distribution traced through the different parts of the world by means of districts, which we will explain presently. The total number of species admitted is 2229. This includes, besides the true Ferns, the Osmundaceæ, Schizæaceæ, Marattiaceæ, and Ophioglossaceæ, but not Salviniaceæ, Lycopodiaceæ, or Equisetaceæ. The districts adopted are 10 in number, the north temperate zone, south temperate zone, and torrid zone being each divided into three longitudinal sections, so as not to include in the same district portions of different continents, but the arctic zone is not divided at all. We obtain, therefore, by this plan the 10 districts already named, as follows:—

	Approximate area.
1. Arctic district	3 millions of square miles.
2. Temperate Europe and North Africa	6 ,, ,,
3. Temperate Asia	14 ,, ,,
4. Temperate North America ..	5¼ ,, ,,
5. Temperate South Africa ..	¾ ,, ,,
6. Temperate Australia and New Zealand	2½ ,, ,,
7. Temperate South America ..	1¼ ,, ,,
8. Tropical Africa	10 ,, ,,
9. Tropical Asia and Polynesia ..	5½ ,, ,,
10. Tropical America	6 ,, ,,

The following Table shows the total number of species known in each of these districts, arranged according to the tribes, or, in the case of the Pseudo-Filices, the suborders:—

	Total number of species.	Frigid zone.	North Temperate Zone.			South Temperate Zone.			Torrid Zone.		
		1	2	3	4	5	6	7	8	9	10
1 Gleicheniaceæ ..	25	0	0	2	0	2	8	3	4	11	6
2 Cyatheæ	143	0	0	8	1	3	11	4	12	50	74
3 Dicksonieæ	53	3	5	16	9	1	6	2	3	17	15
4 Hymenophylleæ ..	151	0	2	16	2	10	26	21	26	54	66
5 Davallieæ	86	1	5	26	3	4	4	1	12	57	12
6 Lindsayæ	49	0	0	4	0	1	8	0	5	29	17
7 Pterideæ	312	3	13	52	28	33	42	27	54	81	152
8 Blechneæ	31	0	1	7	4	1	8	3	1	10	11
9 Asplenieæ	284	4	21	64	12	29	19	11	64	116	102
10 Scolopendricæ ..	9	0	2	2	2	0	0	0	0	1	4
11 Aspidieæ	292	5	13	81	16	18	20	10	54	129	99
12 Polypodieæ ..	384	4	5	72	14	21	26	17	42	170	165
13 Grammitideæ ..	168	0	5	29	7	13	9	13	22	61	80
14 Acrostichæ ..	135	0	1	13	1	7	6	1	31	45	80
15 Osmundaceæ ..	9	0	1	4	3	2	4	0	1	4	2
16 Schizæaceæ ..	60	0	0	5	4	5	7	3	6	14	37
17 Marattiaceæ ..	21	0	0	2	0	1	2	0	2	5	15
18 Ophioglossaceæ ..	17	3	7	9	1	3	6	3	7	9	7
Total number of species	2229	26	81	413	114	153	212	118	346	863	946
Percentage of the order		1	4	18	5	7	9	5	15	39	42
Number of peculiar species		0	12	114	37	22	74	32	127	477	757

Going through the districts one by one, the following are the most noteworthy points about them:—

1.—*Arctic Zone.*—The Arctic region yields in all only 26 species, about 1 per cent. of the order. Not one species is peculiar to it, and no species can even be said to have its head-quarters there. The two most pre-eminently northern Ferns are Asplenium crenulatum and Nephrodium fragrans, and both are widely dispersed in the north temperate zone. Fifteen species inhabit Arctic America, all of which, with one exception, grow also in Arctic Europe, and the other 13 are in the Arctic zone exclusively European, with one exception, Nephrodium fragrans. All the Arctic Ferns have a wide range in Temperate Europe, and only two species, the two just mentioned, are not inhabitants of Britain.

2. *Temperate Europe and Africa.*—Of all the temperate districts this has the smallest Fern-flora, and considerably the smallest number of peculiar species. The total number of species which it yields is 81, 4 per cent. of the order. Taking first those of Europe, which are 67 in number, we may divide them into four classes, viz.—1, Species almost universally or, at any rate, widely diffused through Central Europe. The number in this class may be put at 22; 2, Species widely diffused through the centre of the Continent, but restricted to mountainous tracts, say 12; 3, Species pre-eminently south-western, restricted to the vicinity of the Mediterranean and Atlantic, say 18. This leaves 15 species, only one of which, Asplenium crenulatum, is particularly northern in its range, the other 14 being scattered more or less sparingly through Central Europe, not a single one being pre-eminently eastern, or having its head-quarters in Asia, and coming a little within European bounds. The only widely diffused Central European species which we do not possess in Britain are, with some doubt as to the last, Onoclea germanica, Cystopteris alpina, Asplenium fissum, and Botrychium rutaceum. On the other hand, eight of the south-western species enter into the British list, one of them, Hymenophyllum tunbridgense,* being widely dispersed, but two not reaching further north than the Channel Islands. Twelve species grow in the West African Islands which are not European; these are—

*Dicksonia Culcita	*Aspidium falcinellum
Adiantum reniforme	,, frondosum
*Cheilanthes pulchella	Nephrodium molle
Asplenium monanthemum	*Polypodium drepanum
,, furcatum	Gymnogramma Totta
,, umbrosum	Acrostichum squamosum

The four marked with a star are quite peculiar to these islands, the Dicksonia being much the most distinctly-marked specific type which this second district furnishes. Of the others, the Adiantum is Mauritian (but the Mauritian plant is a well-marked variety), Aspidium frondosum, long supposed to be peculiar, has been detected recently in Natal, and the other six are widely diffused tropical and subtropical species, all being met with in tropical Africa, so that in the Fern-flora of these islands we cannot find any trace of an American affinity. The number of Canarian species is 31; of Azorean, 25. The species common to the islands and Europe are all of the south-western or general European type, the 12 Montane Continental species being quite absent. To the European list we get only two species added in North Africa, Nephrodium unitum and Actiniopteris radiata, a very significant fact in illustration of the close connection there is between climate and Fern-geography, as we shall see best when we come to contrast this addition of only two species for an area of between two and three million square miles of subtropical country, with the large number of species which are added in subtropical Asia to the list of those that grow further north. The number of species peculiar to Continental Europe is only six—Asplenium germanicum, Heufleri, Petrarchæ, fissum, Selosii, and Cheilanthes hispanica. Nephrodium æmulum is confined to Britain, the Canaries, and Madeira; and Davallia canariensis to the West African Isles and Spanish peninsula. Of species nearly but not quite peculiar to this second district, Nephrodium montanum (Oreopteris) extends into Lapland and Georgia, and Asplenium Hemionitis to the Cape Verde Isles.

3. *Temperate Asia.*—It is here, as compared with all the other temperate districts, that the Fern-flora reaches its maximum development. This district yields 413 species, 18 per cent. of the total number, more than half the total number of temperate species, out of which one out of between three and four is peculiar to it. But a large proportion of the species, and nearly all the peculiar ones, are concentrated in a small part of its area, in Japan, East China, and the Himalayas, a tract not embracing more than a tenth part of the fourteen million square miles which the district includes. In broad terms we may say, the northern half of the district belongs to Asiatic Russia. The total number of Russian species, European, Asiatic, and American put together is only 49. Taking the provinces of Asiatic Russia as defined in Ledebour's "Flora," and reckoning the species according to the Synopsis standard, we find they produce Ferns as follows:

Caucasian provinces ..	28	Dahurian Siberia ..	14
Altaic Siberia . .	20	Eastern ,, ...	8
Baikalian ,, . ..	22	Kamschatka	17
Uralian ,, ...	27	Eastern Isles . ..	14

nearly all of them being species which belt the world in the North Temperate Zone. For Amur-land Maximowicz gives 21 species, only 6 of which are not European. Turning to the south-west we find for Asia Minor only 25 species, all of them European. The small Syrian and Palestinian Fern-floras are also entirely European; in fact, we do not get a single addition to the European list in this direction till we reach the Himalayas. The number of Himalayan species we may state safely at 320. In separating these out into subtropical and typically temperate I have had to rely almost entirely upon the notes of Dr. Hooker and Dr. Thomson, who have observed and recorded carefully the altitudes of all the species they gathered. Taking the Temperate region as beginning at 5000 feet above sea level in the Eastern Himalayas, and at the base of the hill country in the north-west we have definite knowledge that 184 species grow above this line. There can be no doubt that this figure is too low, as we have no definite information as to the heights at which Wallich, Griffith, and others gathered their specimens, and I have not included any species as Temperate on mere presumption alone, so that there is every probability that further exploration will raise it considerably above 200. Passing from north-west to south-east, along the range we find the European species gradually disappear, whilst from the Malayan Isles, the second in importance and productiveness of the great tropical Fern centres, a crowd of subtropical species extend to the southern slope of the eastward extension of the great chain, and find a congenial home in the close humid valleys of Khasia, Sikkim, and Assam, where the hill-spurs shut out the wind, and the rays of almost vertical sun fall upon dense masses of subtropical forest-vegetation. According to our present knowledge this sub-tropical region of the Himalayas yields 136 species not known in the Temperate region above it, and many of the species that extend to the latter have their head-quarters here. It is of course evident that it is through the combination of conditions of station and climate brought about by the Himalayan range filling the position which it occupies, and no doubt partly also by reason of the proximity of the range to one of the great head-quarters of the order, with a suitable highway of communication between the two, that Temperate Asia is so much richer in Ferns than any other of our five temperate districts. To see this we need only contrast the 136 sub-tropical species added here, with the two added to the European list in North Africa. Passing from the Himalayas eastward we have a few peculiar species in East China, but the number is very small. The Japanese Fern-flora is a remarkable one, on account of, latitude considered, its richness and southern character. Of the species in the synopsis 118 are known to us clearly as inhabiting the Japanese group of Islands, exclusive of the more southern clusters of Bonin and Loo-Choo. In latitude Japan is about upon a par with the Spanish peninsula and considerably smaller in area, but the Japanese Ferns are to the Spanish ones as three to one, 118 species against 39. We see here well shown, what was indicated before by the British list, how that with Ferns an insular position may compensate to a very large extent for the effect of a higher latitude. Of the Japanese species 20 are peculiar, 14 restricted to Japan and other parts of temperate Asia, we have only 17 out of the 34 European species that belt the globe, and the others, at any rate we may safely say, 60 species, are characteristically subtropical, and nearly all Malayan. If we classify according to their geography, the peculiar Ferns of temperate Asia, the following will be the result:—

Restricted to the Himalayas	66
,, Japanese isles	21
,, Korea and Siberia	4
,, East China	6
Common to Japan and the Himalayas .	1
,, East China and Himalayas	2
,, Japan and Siberia or Korea	5
,, Japan and East China ..	9
Total	114 species.

The most remarkable circumstance thus elicited is the absence of that affinity, which we might *à priori* expect between the essentially temperate species of Japan and the Himalayas. In point of fact it seems that such an affinity can scarcely be said to have any existence. The species which the two Floras have in common are the subtropical ones which they possess in common with the Malayan isles, not the characteristically temperate forms. Comparing the list for temperate Asia as a whole with that of the two other north temperate districts, we find 34 species common to it and both the other two, 18 species which are European or North African and Asiatic but not American, and 8 species which are Asiatic and American, but not European. These latter are:—

Onoclea sensibilis	*Asplenium thelypteroides
*Adiantum pedatum	Nephrodium fragrans
*Pellæa gracilis	Osmunda Claytoniana
* Blechnum serrulatum	* ,, cinnamomea.

Of these the five marked with a * extend to the Himalayas, and the other three do not reach further south than Siberia and Manchuria.

(*To be Continued.*)

* [This name indicates the principle of species limitation adopted by Mr. Baker, and which of course affects his numbers throughout. The Hymenophyllums of Great Britain are counted as one species. EDS.]

Home Correspondence.

The Relations of Gardening to Nature and Art.—By accepting Mr. Miller's dictum, that gardening is the art of producing monstrosities, as true, we make war with Nature, ignore art, and reduce gardening to the low level of such barbarous practices as tattooing the skins of savages, cramping the feet of women, or crushing in the skulls of heathen children. Such devices aimed at the production of monstrosities, and they succeeded. Gardening has also had its monstrous era in days gone by. With appliances analogous to an iron boot for root or stem, and fetters, shears, or knives for the top, the graceful freedom of Nature has been cut or cramped into the most hideous distortions, and gardeners and savages have rejoiced at the work of their own hands, and declared them to be very good and beautiful. But surely we have outgrown such conceits. Surely we are not to go back to the times when living things were squared into pillars, rounded into balls, fashioned into men, horses, apes, dogs, pigs, fowls, or likeness of things in heaven and things on earth, and many other things that had never been seen in either. Every rule of art, every grace of nature forbids the resuscitation of the grotesque taste of the dead past. Neither, to do Mr. Miller full justice, do I think that this is his meaning. His object is cultural, his aim is to bend the vital power to the growth of monstrosities—not their external manipulation afterwards. Yet his expectations of success are not based chiefly nor wholly, if at all, on cultural considerations. It is from our findings and developments that he makes our art culminate in the production of monstrosities. Now, it is easy to join issue with Mr. Miller on every point here. In what respect is a Cabbage a less perfect plant than a wild Brassica—a Plum tree than a Prunus—a Rose, with the single exception of its comparative inability to seed, than the Briar? The pulp of the Plum and the heart of the Cabbage are so much clear gain, and in no way mar the perfection of the plants as such. But I go further than this, and demand on what authority we are to accept it as true that man—taking the name in its widest sense—found all these things in such a worthless state as is here assumed? Having the coincident testimony of observation and history to show us how rapidly the vegetation of a country rises and falls with the knowledge, civilisation, or virtue of its inhabitants, I refuse to accept the development theory in the off-hand, absolute manner proposed by your correspondent. I cling to the old faith, that our first Father had as fair a start in the midst of such a garden of the best fruits, vegetables, and flowers, as the earth has ever seen—the possessor of an Eden of beauty and glory. If so, man's boasted developments and improvements of vegetable life may be simply restorations of their primitive excellence and beauty, a re-awakening and bringing back of the old qualities, and not the origination of anything new: and the development theory and the monstrosity fancy both fall together. I pass Mr. Miller's surgical mistake in his pursuit of illustrated parallelisms with simply denying that "surgery is practised upon beings in their natural state," and proceed to notice the distinctions drawn between Nature's intentions and our own. I am pleased to be able to accept his definition of Nature's cultural intentions. "Nature has in view the perfection of the entire plant. She is equally careful for root, stem, branch, leaf, flower, fruit, seed, and every other part." She aims at the perfection of the whole by securing the excellence of the parts, a proper balance being maintained between the roots

and their work by reciprocity of action and adaptation of means to the end. I further agree with Mr. Miller "that the true art of the gardener consists in exercising these his powers in accordance with the principles on which Nature acts, that is in accordance with the laws God has laid down—the reciprocity of action—and the adaptation of means to the end. Therefore I infer that as our object, like Nature's, is the production of perfect plants, the totality of the greatest possible excellence of all their parts, &c., our occupation should be simply to follow Nature, "not only in the principle of the action, but in the action itself." Most certainly, the action that results in perfection is the identical action, principle, and all that we desiderate. Not so, however, reasons Mr. Miller. He seems to think that if we thus follow Nature our occupation is gone. He therefore falls back upon our heritage of lordship over Nature, and entreats gardeners to exercise their power in the production of monstrosities. How your correspondent gets from his logical premises to his illogical conclusion, or what connection there can possibly be between the laws of reciprocity, adaptation of means, &c., which are alike in accordance with the common sense of men and the laws of God, and "how gardening is the art of producing monstrosities," it is impossible to tell. To my mind there seems none whatever. It is received as an axiom in logic that the greater includes the less. Mr. Miller's theory seems based upon the opposite assertion. According to him, the perfection of the whole is incompatible with the highest development of the individual parts. Now, whatever modicum of truth this statement may contain in reference to the preliminary stages of growth, or the secondary function of plants, it contains none whatever applicable to the case before us. For if Nature aims at perfection in any part of its vast economy, it is in the reproduction of itself. Her whole powers are put forth in the preservation of fruits, or what is the same thing, the ripening of seeds. Every vital force, every living function becomes tributary to the primary purpose, is determinedly bent in this direction. The question then is narrowed to this. Will fruit—Grapes, for that is the specific point—become larger or better if roots, stems, or leaves are rendered imperfect? Are the sensation monstrous bunches with which we are all more or less familiar, the legitimate results of the designed enfeeblement of any of these organs? Let the names of our Merediths, Fowlers, Thomsons, and others answer these questions. We know that the vigour of the whole plant is essential to the highest perfection of any and every one of its parts. Especially is this the case in relation to fruit. This, above all things, cannot be monstrously developed. If it must be large, other organs must be large also, and then monstrosity would merge into natural size by the operation of the law of comparison. Mr. Fowler has lately sent some extraordinary measurements of bunches of Grapes to the *Gardeners' Chronicle*. Might I beg of him to supplement these with the size of some of the leaves of his Vine, and I will promise beforehand to allow my argument against special monstrosities to stand or fall by their measurements. I ought, perhaps, to add that I know nothing personally of Mr. Miller. I am, however, sorry to have to differ so entirely from him on these points. But I could not allow any one to degrade our art to the low level of the manufacture of monstrosities, which seems to me almost as despicable as the miracle-mongering of the dark ages, without uttering the strongest possible protest. *D. T. Fish.*

Bougainvillæa spectabilis and glabra as Conservatory Climbers.—Although these beautiful climbers have been in this country for several years, yet we seldom see them in good condition as regards bloom. I have not even seen them grown as conservatory climbers, but I take the liberty of sending you a cut specimen from a plant of spectabilis now in perfection in our conservatory at this place; it was planted out in good turfy loam and peat intermixed with a considerable quantity of sand, in June, 1865. It was trained to an iron rod, and it is now 18 feet in height, 5 feet through, and forms a perfect column of such beautiful inflorescence as I now furnish; it has been in bloom over two months, and not one flower has as yet faded. As far as my experience goes, these climbers require a liberal supply of water during the growing season, so as to induce a quick growth, and their wood must be well ripened before winter, when the plants ought to be kept moderately dry till they show flower, and then treated as you would any other plant: water when required. Unlike glabra, spectabilis flowers from the shoots of the previous year, so that the stronger you can grow it the finer and longer will be the wreaths of flower. I am told that all the sorts blossom freely in Spain trained over verandahs in front of dwelling houses. I expect our plants to be in bloom from two to three months longer. *W. Dodds, The Gardens, Ashton Court, Bristol.* [A most charming specimen of spectabilis, beautifully ornamented with mauve-coloured inflorescence for at least 4 feet in length. Eds.]

Aucubas Fruiting.—I have an Aucuba japonica fruiting, with bright scarlet berries in clusters. There are only two plants in the garden, and each is over 20 years old. I thought it was a fact that there were no fruiting plants in England until the new Japanese varieties were introduced. There are none of the new ones near. *F. H. S.* [Has there been no pollen artificially applied? Eds.]

Vines Bleeding.—The application of pieces of Potato is no new method of keeping Vines from bleeding. Forty years ago my father always adopted the same plan. He was then gardener to Sir Thomas Neave, Dagnam Park, Essex. At that time he was considered a good Grape grower, and carried off many prizes at the now nearly forgotten Chiswick shows. I have been growing Grapes for these last 15 years, and for stopping the bleeding of Vines I have always adopted the Potato remedy, and in every case I have found it effectual. I, too, should be glad to know the reason why Potatos stop the bleeding of Vines. *Geo. Breese, Killarney Gardens.*—Thanking you for inserting a previous communication, I take the liberty of forwarding a second letter from Mr. Trollope, as his experiment will, I think, probably interest some of your readers. *George Henslow.*—I have moulded warm gutta-percha on the end of a Vine which had been cut down, and before it got cool tied waxed thread round it so tight that you would think that no sap could possibly get away; yet it did, backwards under the gutta-percha, and where the thread went round. Nothing could fit tighter than the gutta-percha, having been moulded to the stem. The latter did not yield to the pressure, being too old, so that it does not seem to be mechanical force that will stop bleeding; it must, I think, be the poison in the Potato that arrests the sap. [Just as we said. Eds.] The Rev. Mr. ——, residing here, had his Vine pruned at the end of March, and which had been allowed to grow last year in consequence of the death of his predecessor. It bled from every lateral; he stuck pieces of Potato on each extremity, and the whole Vine stopped bleeding directly. *Arthur Trollope.*

Ripe Grapes in March.—I should very much like to know what Mr. Sage means by three years' hard forcing to obtain 4 lb. of Grapes to a rod. I suppose he will admit that to force a house of Vines they must at any rate be planted one year before they can be forced, and that is all I propose to do. Mr. Sage tells us that Grapes cannot be produced year after year in March on the same Vines, and then he tells us that 24 lb. per rod can be produced. Now, if ever Mr. Sage has done this, no wonder his Vines would not do it a second year; it would be about the same thing as a person, who, when he once got on the back of horse, rode him until his tail dropped off; in fact, for a house that I have described, 41 feet 6 inches by 15 feet, 34 rods, about 10 feet each, would give 816 lb. of fruit. I am not quite a greenhorn in these matters, and I am ready to challenge Mr. Sage or any other man in England in a good round sum to grow my Royal Ascot Black, to fruit in March year after year, from three to seven years in succession, against any other Grape at present known that can be brought against it, both for quality and quantity; in fact, for a house of the same size, which ever would be worth the most money in Covent Garden, each to have two referees. I should have a fruit salesman for one, and the best gardener I could find for the other. *John Standish, The Royal Nursery, Ascot, Berks.*

The forthcoming Apple Crop.—I think that Mr. Earley's prognostics of a very light Apple crop in his own locality may prove to be a very exceptional case, and that we may hear from other parts of the country as good an account of the present Apple bloom as it is in my power to give from this neighbourhood. I do not think that I have ever seen a more promising bloom than that of the present season; the trees in all directions have been literally garlanded with flowers, and the past warm sunshine, coupled with the mild gentle rains that have just fallen, have served to set it in rich abundance. Indeed, all kinds of fruit trees are promising us a large crop, and we may well look forward to one of the most plentiful fruit seasons we have ever had. It is a noticeable fact, also, that in spite of the very hard winter the Strawberry has sent up an immense bloom, and the earlier kinds are setting freely; the bush fruits are also exceedingly abundant. I cannot but think that to the defective and immature setting of the fruit-buds of last autumn is to be attributed the failure of which Mr. Earley writes, rather than to the severity of the past winter. *Alexander Dean, Maybush, Southampton.*—I fear that many will have to lament a partial if not a total failure of their Apple crops. In my own orchard, and also in two belonging to my employer, the prospect of having fruit is most unpromising. The trees generally show abundant remains of the peduncles of now abortive flower-buds, which, had all been well, would have furnished plenty of fruit; but little can now be expected from them. A number of young trees, too, planted here about six or seven years ago, and which have made all possible progress, look as if some malicious thumb and finger had been assiduously at work nipping out the whole of the buds. *Geo. Scott, Elkington Hall, Louth.*

Erica tintinnabula.—At p. 492 it is stated that we had a First-class Certificate at the late Special Prize Show at South Kensington for Erica Turnbullii, a variety said to have been raised apparently between odorata and vasiflora. Instead of Turnbullii, however, it should have been tintinnabula, and the cross was one between E. odorata and hyemalis, not odorata and vasiflora. *William Rollisson & Sons, Tooting.*

Early Peas.—I have had Peas ready since the 7th inst. I simply cut turf from an old pasture 6 inches wide and 1 foot in length, making a groove in it with an edging iron. On February 2d, I sowed Dickson's first and best Early, removing them to a cool Vinery when a few inches high. I staked them in the turf, and owing to the severity of the season I kept them indoors till the first flowers had produced pods. I then removed them to a south border, and protected them by means of straw ropes tied on stakes, after the fashion of a wall, and to-day, May 13, I can gather a peck of Peas. *Joseph Baxter, Caythorpe Gardens, Lincolnshire.*

Singular Growth of Mistleto.—I submit a freak of Nature that baffles my judgment to explain, viz., at Hayle Place, Loose, near here, is an old Mountain Ash, the branches of which got in headway and were cut off and instead of a repetition of itself, all the shoots which came from between the wood and bark are Mistleto; this has been repeated for three years with the same result, although no atom of the parasite was on it before. If opportunity occurs I would walk with you and show it, as it is only about a mile from here. *Thomas Bunyard, Maidstone.* [We submitted the above communication to our friend Dr. John Harley, of King's College, who has made a special study of the mode of growth of the Mistleto. That gentleman has kindly sent us the following observations, and we can but echo his request, that a small portion of an infested branch be sent for examination. Eds.]:—The statement made by Mr. Bunyard implies a fact so strange as to be well nigh inexplicable. Indeed, if one accepts the whole of his statement, I must confess that it is to me wholly inexplicable. Granted that the Mistleto had formed a previous connection with the Mountain Ash, there is no difficulty in accounting for the production of Mistleto shoots upon the cut ends of its branches, as will appear upon the following considerations:—1. A single plant of Mistleto may infest all the main branches of a given tree by the extension of its horizontal roots within the bark. 2. The roots, or more properly rhizomata, having spread away from the sides of the parent, this, by previously causing the death of the branch upon which it grows, itself dies, and both in course of time rot and fall away, or are removed by the hand of man. 3. When this has happened the tree may appear to a superficial observer to be free from Mistleto, when, in reality, its branches are pervaded by the rhizomata of the parasite, from which young shoots will be developed as soon as favourable circumstances arise. In such a case, I should certainly expect to find obvious indications of the existence of these slumbering runners, such as a thickening of the branches here and there, with cracking of the bark, and the protrusion of a stunted shoot of Mistleto an inch or so high, or only a pair of small leaves through the chink. Such being the case I can readily understand how, upon the amputation of such branches, the rhizomata would soon develop green leaf-bearing shoots of Mistleto upon the face of the stump from between the wood and the bark. I have frequently seen branches of the Hawthorn and Apple infested with the cortical stems or rhizomata of the Mistleto distending and here and there rupturing the bark, when at the same time the tree was to all appearance destitute of the parasite. In such a case careful examination will discover the rotted base of an old plant of Mistleto upon some dead and stunted branch, or possibly only the cavities occupied by its roots. It may indeed be possible for a seed to germinate within the bark of a given tree, and thus infest it without ever developing into a conspicuous plant. I do not say that such is really the fact, but in the case referred to in Mr. B.'s letter it would appear that the Mistleto had not, for some years at least, been observed upon the tree. It is clear to me however that the rhizomata of the Mistleto, whether prevented by a large bushy plant of the parasite, or by an inconspicuous shoot, really occupied the branches of this Mountain Ash long before its branches were subjected to the pruning process. And yet it is very remarkable that they should have remained in such a quiescent state for three years at least, as to elude the notice of an experienced observer. The question would be readily solved by a further examination of the tree, and a careful dissection of a portion of a branch, and I hope that you may be able to procure this evidence, and so put an end to all future speculations about the matter. *John Harley, M.D., King's College, London.*

Sir Harry Strawberry.—I have grown Sir Harry for several years, having at first obtained only half a dozen plants with some difficulty. With me it has never degenerated in the smallest degree, nor has it ever failed to bear an abundant crop. It is more productive than any of the 20 varieties that I have cultivated, and may easily be distinguished from all others with which I am acquainted by the appearance of the plant, the berry, and the long fruit stalk. The fruit is not so brilliant as the Marguérite, nor has it the regular form and firm texture of La Constante, nor the luscious flavour of the Frogmore Pine; but take it for all in all, I know nothing of the Fragarian tribe which can compete with it. I have never had any difficulty in preserving it genuine, or keeping it to itself, although grown generally within 3 feet of other varieties, it being my constant practice to cut off all the straggling runners as fast as they grow, and Sir Harry with me is now full of promise. *W. Worsley, Gainsborough.*—Will some of your correspondents have the kindness to state some of the distinctive marks of the true Sir Harry Strawberry plant, viz.,—1. Its general habit? 2. Leaf light or dark-green; deeply furrowed or smooth? 3. Stalk long, short, or hairy? 4. Shape and flavour of fruit? *Subscriber from Jan.* 1841. [In Dr. Hogg's "Fruit Manual" the fruit of Sir Harry is described as follows:—"Fruit very large, roundish, irregular, frequently cockscomb-shaped. Seeds large, and deeply embedded. Skin dark crimson, being almost black when fully ripe. Flesh dark red, not very firm, but tender, very juicy, and richly flavoured." Eds.]

Viola cornuta.—In your "Notices to Correspondents" (see p. 466) I observe that you speak highly of a boxful of Viola cornuta flowers which are of a beautiful mauve colour. This is a variety which I brought into notice some few years ago, and which is now known by the name of Purple Queen. The stock grown by Messrs. Veitch, who sent you the specimens, originally came from Osberton, and consequently consists of the true Purple Queen. I state this because two beautiful varieties are now in existence, one being known as Mauve Queen, the other as Purple Queen. Of the latter I may positively assert that I have cartloads. While speaking of the above I cannot help calling attention to the beautiful blue Gentian (G. verna), a little plant which is certainly unrivalled for beauty of colour at this season. I have large masses of it in full blossom, and a more lovely sight I have never beheld. This, like many old favourites, is fast drifting into obscurity; but I venture to say that a sight of my margins and masses of it would drive many persons

almost Gentian mad, as has been the case with Viola cornuta. *Edward Bennett, gr. to G. S. Foljambe, Esq., Osberton Hall, Worksop.* [How do you treat it? Eds.]

Vine Extension.—I do not blame any man for adhering to a plan that he knows to answer, and that he can depend upon; but such an one cannot at the same time be aware of what he loses by another method which he has not tried. Let us suppose the Vines at Clumber (see p. 266), instead of being one to each rafter, had been cut out except one, and that one encouraged to fill the house—can your correspondents affirm that there would not have been better wood and better Grapes than at present? Again, if the Vines in a particular house have a tendency to shank, there will certainly be one or two better than the others, and if one of these were encouraged, it might surprise the manager by very soon filling the house, bringing excellent Grapes, and saving labour and loam, which is a serious object where it costs a good many shillings per ton. Where soil is an object, and where a Vine, being allowed to extend its top, would extend its roots also, and get beyond our cramped concrete dishes, holding frequently sour mixtures, the advantage is self-evident. No one would imagine that a large Vine is dependent upon the surface for its food. I have not the least hesitation in saying that the roots of the Vine at Hampton Court are 50 feet down in some good stratum. I do not mean to affirm surface dressing will give no assistance, but the main source of supply should be far beyond that influence. But no Vine roots planted on the present system can at any time be in a position to find out these feeding sources. They are cut and cramped so much in their natural development that the roots have no strong action to push beyond their narrow limits, or where that does not exist, no provision has been made for their obtaining extra food. The necessity for concreting borders cannot exist in more than one place out of 20, if they are carefully drained. I therefore maintain that we who are short of fine loam, lose a great many chances to get fine Grapes, from the want of trying a good development of wood and foliage. The size of bunches and berries is, I believe, in every such case, a question of pruning and top treatment. I admit that in old Vines, as in young ones, a steady system of pruning must be adhered to. A good many old Vines I have seen are completely cramped by fagots of old hard wood, that really tends to weaken them. A fearless cutting would in many cases bring a strong growth and better fruit, and would add greatly to the vigour of the plant by stimulating the roots to fresh action in search of supply. *Frutex.*—I must own that I never saw a Vine die a natural death; but I have known a great many to be murdered, or to undergo treatment such as no other plant would live under. At the same time no other plant I know can assume the same proportions as the Vine, and make a similar return of fruit in the time. Let any one visit the conservatory at Chiswick when the Grapes are ripe, and study for himself the problem—Do we not cut to waste every season, or are our summer houses sufficiently large? I think he will come to the same conclusion as myself, that we know very little about it. Has any one experience sufficient to say what the result would be if the Vines in the conservatory in question were by degrees reduced to one on each side? Perhaps more and better Grapes would be got from the two, and I think they would continue longer in vigorous bearing than the collection would, as their roots must now be jostling each other. A collection could be had upon one of these Vines by grafting, as easily as by planting, and the healthy stock would bring to greater perfection than they would acquire upon their own roots, some of the varieties of weaker constitution. There is one point I think we must all agree upon, namely, that the Grapes from large Vines are as a rule better flavoured, particularly in the white sorts, as Tokay. With respect to forcing old Vines, I think there is as much to be said in their favour, both in a practical and scientific point of view, as there is for young ones. At all events, I have seen several that have been forced for March and April for 50 years, and have never failed. *Vitis.*—I thought that I had made it sufficiently plain in my former letter (see p. 378) that my Vines pruned on what I shall call (to please Mr. Miller) the limited extending system, occupied three and four lights each, and although when they reach the top of the houses I cut down to the next coming shoot, I am still allowing them to extend right and left. When I state I cut a shoot I mean it, and that I do not cut with finger and thumb. I also stated that I got fruit in proportion to the space the Vines cover; therefore I do get some advantage; and although I cut off my largest shows, I allow the Vines to carry two or three times the number of bunches they would have borne had I left the large ones. And here I will state what I consider to be the great point in growing good Grapes, and that is, to know exactly what amount of crop the Vines are capable of bringing to perfection. If the crop is too light the Vines will be always striving to run too much to wood to the neglect of the fruit. If too heavy the growth will be stopped altogether, the fruit will not come to perfection, and the Vines will be weakened for the next season. And now I will tell Mr. Miller my reason for preferring the progressive method of pruning. It was from no shrewdness of mine that I adopted it, but it was forced upon me by circumstances. In a Vinery here, which we call the earliest, were four Muscat of Alexandria Vines at the warmest end of the house, the rest were Black Hamburghs. The rods were excessively strong and closely pruned every year. After a good many years forcing to have the Hamburghs ripe in May, the Muscats in June and July, the latter began to show weakness; and first the one next the fire split up the centre of the large root and died; in a year or two afterwards the second and third did the same; the fourth was also getting very weakly, but in consequence of the loss of the other three it was allowed to extend itself to fill their places. It soon began to increase in vigour, and although it has been forced to be ripe at the same season of the year ever since, is as healthy as I could wish it to be. I attribute the death of the Vines to having too little foliage to keep the large stem properly supplied with sap. If Mr. Miller, or any one else, can give me a better reason, I shall be happy to be made acquainted with it. The extension way of pruning must be the most rational one—the Vine is particularly fond of rambling, and I think should be pruned and trained more conformably with its natural habits than is generally the case. *M. Henderson, Cole Orton Hall, Ashby-de-la-Zouch.*

Zizania aquatica.—This Grass was much sought, but without success a year or two since, for the purpose of sowing it in the shallow lakes of the north as food for water fowl. I have lately obtained a good supply of the seed for our Botanical Garden at Cambridge through the kindness of the Bishop of Rupert's Land, and we shall be happy to send a small quantity to any person who will send a stamped (2*d.*), and directed envelope to Mr. Mudd, Curator, Botanical Garden, Cambridge. The seeds should be sown immediately, and in mud covered constantly with water, so as to have a chance of germinating, after being for a long time on their journey from the centre of North America. *C. C. Babington.*

Aubrietia græca.—In connection with spring gardening, I have seen no plant more deserving the attention of the amateur than this newly introduced variety of A. purpurea. Its flowers are considerably larger than those of any other that I have met with, and in many of the plants are of the finest violet-blue. It is very early, commencing to bloom in February and lasting in perfection until the present time. When raised from seed there is some variety of shade, which rather enhances its value than otherwise, as any particular shade can be readily increased. I have raised one of a deep red-purple which will, I think, prove an acquisition. *W. T.*

Primula cortusoides amœna.—From your notice of the above plant at p. 493, as exhibited by Messrs. Veitch, its hardiness might appear doubtful. We have had plants of it out for the last two winters, and it formed this spring one of the most charming beds we have had, up to the morning of the 9th inst., when a heavy thunder storm broke the flowers about a good deal. The first plant was sent to us by Mr. Veitch in the autumn of 1864, in order to try its usefulness as a spring decorative plant, and we have had it growing outside since the summer of 1865, or as soon as we could get a duplicate, but either for the early spring borders or in-doors it is a great acquisition. Our practice has been to remove the plants, after blooming, to a north border, where they are planted in a good mixture of rather heavy loam, peat, dry cow dung, and sand. It must be borne in mind, that the habit of the plant very much resembles that of the Lily-of-the-Valley, namely, that it forms flowering crowns in the summer and loses its leaves in the autumn, therefore the roots are at work all the summer, and I think during the winter also, for it is surprising with what balls it may be lifted in spring. I have generally put a small wooden frame round the roots to prevent the workmen treading on their crowns. The leaves with us begin to come up in March, they are of a rich green, and fringed, so as very much to resemble some of the Ferns. The bed should be a little shaded from the hot sun, which robs the flowers of their rich mauve colour. The flower-stems should also be tied, otherwise the wet will break down the heavy heads of bloom. *J. Fleming, Cliveden.*

Notices of Books.

Light, its Influence on Life and Health. By Forbes Winslow, M.D., D.C.L. Longmans. Small 8vo. pp. 301.

No classes of the community are so fully alive to the "influence of light" as medical men and horticulturists, or in one word, as physiologists. Their daily avocations bring them constantly face to face with the beneficial effects resulting from a free exposure to light, and with the untoward results of the deprivation of this agent, and therefore it is no matter of surprise that in the contest waged against the window duty, and the restrictions on the glass trade, that such men as Lindley and Ward, were associated with physicians and philanthropists. Dr. Winslow's book is a compilation from various authorities who have written on the nature and effects of light. It reads like a string of extracts from the Doctor's common-place book, strung together upon a very slender thread of personal observation or research, so that the ordinary reader might readily take them all to be equally trustworthy, equally well established, or equally important. If the learned author were examining a patient as to his degree of sanity, he would hardly follow the plan he has adopted in the work before us; he would no doubt collect all the evidence he could get, whether on the one side or the other; but he would not in forming his conclusions give equal weight to all the signs and symptoms of the disorder which he might discover, either by his own observation or the statements of others. This want of appreciation of the relative value of facts is a singular feature in the work before us, and gives an unfavourable impression that the author was not so conversant with his subject as he must necessarily be. Even in matters coming strictly within his own province, such as the alleged influence of the moon on the insane, on which so much has been written, Dr. Winslow adds nothing at all to the stock of definite knowledge; he tells us he has little faith in what has been written on the subject, but he does not say upon what grounds he bases his disbelief. The following extract will show the method in which the subject is treated:—

"It is stated as a fact that if Peas are sown in the increase of the moon they never cease blooming; that if fruits and herbs are set during the wane of the moon, they are not so rich in flavour, nor so strong and healthy, as when planted during the increase. All Vines should be pruned at the wane of the moon, says Sibley, the astrologist. He also asserts that Pomegranates will live only as many years as the moon was days old when they were planted. In planting shrubs, if they are desired to shoot up straight and late, and to take little root, they are to be set when the moon is in an airy sign, and in increasing light. Flowers that are under the influence of the moon only open their blossoms at night, whilst those that are peculiarly under the government of the sun open every morning when it begins to rise, and close in the evening when he sinks below the horizon. M. Auguste de Saint-Hilaire states, that in Brazil, cultivators plant during the decline of the moon, all vegetables whose roots are used as food; and, on the contrary, they sow during the increasing moon the Sugar-cane, Maize, Rice, Beans, &c., and in general those which bear the food upon their stocks and branches. Experiments, however, were made and reported by M. de Chanvalon, at Martinique, on vegetables planted at different times in the lunar month, and no appreciable difference in their qualities was discovered. There are some traces of a principle in the rule adopted by the South American agronomes, according to which they treat the two classes of plants distinguished by the production of fruit on their roots or on their branches differently; but there are none in the European aphorisms. The directions of Pliny are still more specific: he prescribes the time of the full moon for sowing Beans, and that of the new moon for Lentils. 'Truly,' says M. Arago, 'we have need of a robust faith to admit, without proof, that the moon, at the distance of 240,000 miles, shall, in one position, act advantageously upon the vegetation of Beans, and that, on the opposite position, and at the same distance, she shall be propitious to Lentils.' The wise husbandman is said to prune his Vines in obedience to certain phases of the planet. It is a maxim amongst gardeners that Cabbages and Lettuces which are desired to shoot forth early, flowers which are to be double, trees which it is desired should produce early ripe fruit, should severally be sown, planted, and pruned during the decrease of the moon; and, on the contrary, that trees expected to grow with vigour should be sown, planted, grafted, and pruned during the increase of the moon. These opinions Dr. Lardner considers to be altogether erroneous. The increase or decrease of the moon, he maintains, has no appreciable influence on the phenomena of vegetation; and the experiments and observations of several French agriculturists, and especially of M. Duhamel du Monceau, have, he observes, clearly established this fact."

At the present moment, when the subject is attracting so much attention, we may mention that Mr. Dixon, gardener to W. Blinkhorn, Esq., Waterdale, Sutton, St. Helens, has published a small pamphlet, entitled a *Practical Treatise on the Hybridization and Cultivation of the Tricolor Pelargonium* (St. Helens: Lees). It is brief but thoroughly practical, and gives plain and succinct instructions how to effect the crossing of Pelargoniums, and by inference that of most other flowers. The Tricolor, Mr. Dixon states, is got or improved by getting the zone of a zonal parent on the variegated leaf of another parent, "the different colours being produced by the dark zone passing over the variegated leaf, forming the different shades of red where it passes over the white or yellow, and dark or black where it passes over the green. The darker the zone of the zonal parent, and the more white or yellow there is on the leaf of the other, the better the Tricolor progeny is likely to be. The nearer to the margin of the leaf the zone is in the zonal parent the more red will it be in the seedlings, as the zone will be thrown more on to the variegated part, as in Sunset. The nearer the zone is to the centre of the leaf the more black will it be in the seedlings, as the zone will be thrown more on to the green part of the leaf, as in Mrs. Pollock." To the uninitiated this little book will be very useful.

A very useful companion volume to Hogg's "Gardener's Year Book" has just been published, under the name of the Horticultural Directory (office of "Journal of Horticulture," 171, Fleet Street). We believe that it will be found indispensable by the gardening community.

The last part of M. Van Houtte's *Flore des Serres* is in great part devoted to plates of Hardy Bulbs—a class of plants which deserve far more attention than they usually receive. Among those figured are the lovely Scilla sibirica, Double Anemones, and Ranunculuses, 2 plates of different varieties of Crocus, and 4 plates of hardy Tulips, single and double. These latter are invaluable for flower-garden decoration in the month of May.

Catalogues Received.—*J. Linden's* (Bruxelles) *Supplément et Extrait du Catalogue des Plantes Exotiques; L. Van Houtte's* (Gand) *Catalogue de Plantes des Serres et de Plein Air; A. Verschaffelt's* (Gand) *Prix Courant pour le Printemps et Eté* 1867; *J. Veitch & Sons'* (Chelsea) *Plant Catalogue*; also *List of Bedding Plants*; and *Catalogue of New and Beautiful Plants; Downie, Laird, & Laing's* (Forest Hill) *Descriptive Catalogue of Florists' Flowers; C. Turner's* (Slough) *General Spring Catalogue; E. Abraham's* (Limerick) *Catalogue of Bedding Plants; F. & A. Smith's* (Dulwich) *New and Choice Plants; J. Fraser's* (Lea Bridge Road) *General Descriptive Catalogue; T. Sampson's* (Yeovil) *Catalogue of Bedding Plants; J. Garaway & Co.'s* (Bristol) *List of Plants for Spring of* 1867; *W. Bull's* (Chelsea) *Retail List of New Plants; J. Carter & Co.'s* (Holborn) *Stove, Green-*

house, and Bedding Plants; W. Paul's (Waltham Cross) *Spring Catalogue; E. G. Henderson & Son's* (St. John's Wood) *Catalogue of Stove, Greenhouse, and Bedding Plants*, containing a coloured figure of Lady Cullum tricolor-leaved Pelargonium; *R. Parker's* (Tooting) *Catalogue of Stove, Greenhouse, and Hardy Plants; J. Saltmarsh & Son's* (Chelmsford) *Select Catalogue of Choice Florists' Flowers; B. S. Williams'* (Holloway) *General Catalogue of Plants; G. Smith's* (Hornsey Road) *Descriptive Catalogue of Florists' Flowers; T. S. Ware's* (Tottenham) *Select Catalogue of Border Plants, &c.*

Florists' Flowers.

When engaged a short time ago in supplying notes of the new Tricolor-leaved Pelargoniums of the past year, I alluded incidentally to some fine things in this way shown by Messrs. Carter & Co., the well-known seedsmen and nurserymen, at one of the Royal Botanic Society's shows in 1866, and promised to furnish notes of some of them at a future date. Having just had an opportunity of inspecting their stock of the four new varieties they are now sending out, seedlings raised by Mr. Morris, of Deptford, I append the following notes of the same in fulfilment of the promise given. At the International Horticultural Exhibition, in class 157, a group of seedling tricolor and bicolor-leaved Pelargoniums were shown by Messrs. Carter & Co.; of these Oberon, Titania, Red Gauntlet, and Ruby Ring were very promising. These were the most distinct and striking of the group, and were selected by them to be sent out in the spring of the present year. Oberon is a very fine variety in the way of Lucy Grieve, and only requires to be contrasted with it to manifest its superiority in the matter of foliage. The zone of Oberon is much broader and darker, it is edged and blotched with bright crimson, the zone is regularly and evenly traced on the leaf, and is margined with a clear golden-yellow edge. The leaves are large and well rounded, the habit close-jointed and vigorous; the good qualities of colour, constitution, and habit appear to be well blended. The colour of the flowers is a lively cerise-scarlet. Titania is, however, the gem of the quartette, having a very distinct and nearly black zone, blotched and lined with fiery scarlet, without any confusion of colours, and margined with a pure belt of bright golden yellow. The habit is excellent, and the leaves bold and striking. The flowers of this variety are also cerise scarlet. Red Gauntlet has large bold and very slightly concave leaves, with a well defined bronzed chocolate zone blotched with bright scarlet, and leaf margin of clear gold; a very free and strong grower, habit good, and flowers bright scarlet. Ruby Ring has a dark brown zone, blotched and narrowly edged with vivid crimson, and deep yellow leaf margin; habit strong and freely branching, apparently a good bedding kind. The following new golden ground bronze-zoned varieties, raised by Mr. Morris, are also being sent out:—Madeline Schiller, ground colour of leaf bright canary yellow, with a zone of crimson bronze which comes out clearly defined and regular, contrasting well with the bright yellow leaf margin; habit close, and excellent for pot culture, and promising to be a very effective and durable bedding variety. Mrs. Bass, a variety that promises to become a standard bedding kind in this section. The leaf colour is clear yellow, with an unusually broad, deep chocolate zone, well defined, not too large for the bold leaves which bear it; the habit is close and yet vigorous, and there are a profusion of large trusses of scarlet flowers. Eclipse, not so bright in the ground colour as the previous variety, though it has obvious excellent qualities; it has a broad dark zone, distinctly traced on a golden ground, the leaves are large and flat, and the plant has large trusses of rosy scarlet flowers. A new variety, not yet sent out, named Egyptian Queen, is an improvement on Mrs. Bass, excellent as are the qualities centered there. The ground colour is clear creamy gold, with broad bronzy zone, very distinct, and well defined; the habit dwarf and vigorous, the leaves large, bold, and fully exposed to view. This will make a most effective kind for massing, as exposure does not detract from the distinctness and durability of the leaf marking.

But Mr. T. C. Boston, the enterprising manager of Messrs. Carter & Co.'s nursery, at Perry Hill, Sydenham, is doing something more than relying on adventitious aid for new tricolor-leaved Pelargoniums. He is also engaged in the work of hybridization, and that with the most cheering results. He has now a large quantity of seedling plants, some of which have "broken" into fine things, while the large majority have yet to display their character. His record of the pedigree of all these has been kept with a minuteness that will gladden the heart of the worthy chairman of the Floral Committee; that of a Derby favourite could not be more explicit. Mr. Boston aims at the production of leaves that shall be large, smooth, well-rounded, and very slightly convex, so as to form a graceful habit; the zone dark and clearly defined, with the attendant colour clear and vivid, and not running into or confusing the zone, and with so much of strength and durability infused into the blood as shall beget a fixity and continuity of the leaf marking, not, he hopes, so evanescent as is observed in some of the kinds already in cultivation. Whether this last be, or be not, scientifically correct, Mr. Boston is bent on its development. He also aims at a strong constitution, allied with a close short-jointed and yet vigorous habit, capable of withstanding exposure to cold and wet. To these he aims to add large trusses of deep-coloured flowers, that shall be stout, well-formed, and durable in their character, and to be thrown up well above the foliage on short stiff foot-stalks.

Some other bedding Pelargoniums were worthy of notice. One named Excellent, not however new, is propagated in very large quantities because of its great value as a bedder. The foliage is deep green with a dark zone, the habit dwarf and vigorous, and it produces immense trusses of brilliant orange-scarlet flowers, well up above the foliage; it is also a continuous bloomer. It is a variety very largely used at the Crystal Palace. Crystal Palace Gem (Gordon), has all the qualities of the foregoing, but the colour is a brilliant cerise scarlet, the flowers very large, stout, and well-formed. Crystal Palace Beauty is a variety with an excellent habit, marked with a distinct zone nearly black; the flowers salmon, trusses large and bold. Souvenir de Sir Joseph Paxton has deeply marked zonate foliage, habit dwarf and vigorous, flowers bright rosy pink, a charming colour; pips large, bold, stout and smooth, freely produced, and blooming continuously. This appears a fine variety for exhibition. Christabel is a miniature bedding kind with the foliage of Christine and the colour of Madame Barré; it grows about 4 inches only in height, and would be quite effective in small beds or as an edging for large ones. The habit is excellent, and it also blooms freely. *R. D.*

The Apiary.

Nadiring Stocks.—Will you kindly tell me what would be the probable result of putting an old hive with a stock of bees in it on the top of a new hive which I wish them to inhabit; would they work down into it and take to the new hive as their permanent habitation? *N. E. L. S.*

[It is not considered to be good practice to raise an old stock hive above an empty one with the object of having the colony transferred into the latter habitation. The probable result would be, that the bees would almost certainly discard and fill the lower box with combs; the queen would also after a short time go down and fill the combs with eggs, and the lower hive would become the stock. This result, you will say, is just what you desire, why then is it wrong? In the first place, a large proportion of the combs in the lower compartment will almost certainly be drone-celled, more particularly the most central, and therefore the most important. The cause being, that at the period favourable for the descent of the bees, the queen will be just at the height of her greatest laying of drone eggs. This preponderance of drone comb, especially if occupying a central position, is almost sure to militate against the ultimate prosperity of the colony; in fact, we have generally found that the bees dwindle away to nothing after one or two seasons.

Another great objection to the plan of nadiring is, that as the brood in the old stock becomes hatched out the cells are filled with honey, so that at the close of the season a quantity of honey is obtained which is almost useless, from having been stored in dirty black combs mixed up with pollen. This being taken off, it is often found that there is next to nothing stored in the lower division, and the bees will in that case require liberal feeding.

Having objected to the course of procedure suggested by you, it is right to state what we should recommend you to do under the circumstances. If you do not object to the uncertainty attending the issue and successful capture of a natural first swarm, wait for that to make its appearance, and tenant your new hive therewith. Exactly three weeks afterwards, invert the old stock and drive out all the bees, which unite to the new swarm, or to any second or weak swarm you may have. If united to the first swarm, you may then, if not already done, put on a super, the season being favourable for honey gathering. Or, if you do not like to run the risk of the contingencies attendant on natural swarming, towards the end of May, or earlier if your stock is sufficiently strong, drive out the bees, and proceed to make an artificial swarm, following the directions given in reply to a correspondent at p. 381. If you do not wish to retain the old stock, three weeks afterwards drive out all the bees, and unite as in the former case, breaking up the old stock. The reason for waiting exactly three weeks is that all the brood which was in the old stock at the time of its being forced will have become hatched out, the young queen not having yet commenced egg laying. Take what honey there may be, and all that is not good enough for domestic use either give at once in its pure state to the swarm, or put by for autumn or spring feeding, to be then added to artificial food prepared in the proportion of 6 lb. of loaf sugar to 4 lb. of water, boiled for five minutes, to which, when cooling, from 2 to 6 lb. of honey may be stirred in.]

Garden Memoranda.

Belvoir Castle Gardens. — (*Continued from p. 466*).—From the Spring Gardens we descend to the Kitchen Gardens. It is a descent literally and figuratively. The kitchen gardens are on a much lower level, and the stoop is tremendous from such scenes of beauty as we have attempted to describe, to wide patches of Cabbage, Kale, or Spinach, and acres of Potato ground. Therefore to provide a gradient, safe, and, if possible, pleasant to travel on, we elect to pass boldly through the kitchen garden and plunge at once into a series of Paxtonian plant houses, placed in the slip beyond it. We are just in time to witness the waning glory of much that has formed the winter and spring garden within the Castle itself. In these houses immense numbers of fine healthy Azaleas, Camellias, Kalmias, Deutzias, Roses, Rhododendrons, and other plants that have lightened up by their brilliance, or sweetened with their fragrance the dull, cheerless, months of winter, are either being prepared for another campaign in pots, or for a permanent residence in the pleasure grounds. The former classes of plants are now being stimulated into vigorous growth, with the intention of concentrating their vital force into fully developed and early matured blossom-buds; the latter are maturing their growth as speedily as possible. The object in the one case is early and abundant inflorescence, in the other the restoration of that pristine vigour that may have been seriously impaired by forcing. This after treatment is essential to the restitution of the original stamina in so-called hardy forced plants. And the want of it is the chief reason why so many of them sicken or actually die when returned from whence they came, to do battle with the fickleness of our somewhat harsh and capricious climate.

But here is a house that at once recalls us from speculating upon the past or anticipating the future to the high enjoyment of the actual present. It is a Duchess's spring garden in pots, probably excelling even it in variety of tint and profusion of bloom. It is a picture of many coloured beauty and endless diversity of form, an inexhaustible floral bank of deposit, capable of being drawn upon for any amount at sight without danger of breaking. It seemed rich enough to meet all demands, from a few sprays for a child's bouquet, to a van load for the embellishment of a palace.

Turning from that dazzling display to cool our eyes in the next house on Cucumber plants that have borne well all winter, and still seem capable of rendering good service, we note the following useful facts about their treatment. Along the whole of the back wall a screen of garden mats is suspended. Behind the screen the flue that furnishes the surface heat is placed. The lower ends of the mats just touch the front edge of this flue. The mats are kept more or less saturated with water, according to the brightness or otherwise of the weather. The dry heat generated by the flue has to pass through the interstices of the mats before it can reach the general atmosphere of the house, or come into contact with the Cucumber leaves; and of course it is entangled sufficiently long in the meshes of the mats to be charged with the complement of water proper to its temperature before it is liberated. In fact, the mats perform the functions of the genialising wet blanket in the Polmaise mode of heating. Now, however simple and primitive this arrangement may be thought, it possesses the rare merit of efficiency. But another plan is also adopted here which may find more favour with those who disapprove of the use of mats. Along the front side of the flue drain pipes hermetically stopped at their lower ends are placed vertically, with their flat soles impinging closely against the hot surface of the flue. The pipes are then filled with water, and their upper ends left open. The greater the warmth in the flue of course the more copious the evaporation, and *vice versâ*; and by this arrangement also something like a proper reciprocal relation may be maintained between the caloric and the moisture of any given atmosphere. This small house conveys another lesson. On the top of the furnace a hot-air chamber is formed for economising the heat usually wasted up the chimney. It is connected with the external air with a drain that receives its fresh supplies from the lowest available point, and thus furnishes facilities for changing and renewing the air of the Cucumber house in winter without lowering its temperature.

Another point of great interest here is one of Mr. Ingram's Strawberry houses. Those who have visited Kensington will be familiar with their form. The glass is on three different levels, like the steps of a stair or the shelves of a plant stage. Each plane of glass lifts up and admits air to the plants which are placed in double or treble rows on a stage of the same form as the roof, and at a distance of from 6 to 18 inches from the glass. The advantages of this form are that every ray of light is utilised, and the ventilation is abundant and direct. Nothing could exceed the health and vigour of the plants in this house, which is one of Beard's patent metallic ones, and seems extremely well adapted for the object in view. In this quarter are also a series of shutter pits for the preservation of Cauliflower, Broccoli, Lettuce, Endive, &c., in winter, and cold pits for the growth of early salading in spring.

Close by these useful expedients for resisting or neutralising the cold of winter and early spring another invention is found which tends to set the vicissitudes of climate at defiance. This consists in a series of hollow pillars 5 feet high and 2 feet square, placed at intervals of 9 feet apart. The whole are connected with an underground flue that rises gently from the furnace to the highest outlet. The pillars are built of 4½ brickwork, thus leaving a large space in the centre hollow for the diffusion of warmth. Each pillar thus furnishes four aspects and 40 feet of surface. I believe Mr. Ingram has generally allowed only one tree to a pillar, and expects a considerable succession of fruit from the fact of its being exposed to four distinct aspects. I think however these pillars admirably adapted for cordon trees. Each side could thus receive one or even two trees. Thus four, or even eight distinct varieties or species of fruit could be obtained from one heated pillar, and from four or six pillars a tolerably large collection of first class fruit could be gathered. Both for utility and ornament I should prefer the pillars round, hexagon, or octagon, to square. These shapes would look lighter and more artistic, obviate sharp angles, and afford more variety of aspect. The size could of course be enlarged to any extent. I would, however, strongly recommend the restrictive system of training as the most profitable for furnishing them. Having gone to the expense of building and warming fruit pillars, the great object is to gather the largest possible amount of good fruit from their limited surface. This will be most readily accomplished by planting cordon trees all round them at distances of from 1 foot to 18 inches. Ropes of fruit will then hang from the base to the summit of the

pillar, and more would be obtained than by any other system of training.

The tops of such pillars should also be surmounted with vases, both for ornament and use. A pipe for the discharge of the smoke could be carried up through the centre of each vase, and the vase itself be filled either with flowers for ornament, or such plants as Tomatoes, Capsicums, Chilies, Cucumbers, Rat-tailed Radishes, or even small pocket Melons or Gourds, for use. Perhaps few things could be made more artistic in kitchen gardens than such pillars prettily constructed, richly furnished, and artistically planted on the top. A kind of umbrella frost protector could readily be invented for them in the early spring, and this, with their internal heat, would almost insure a crop against destruction from cold.

Having an underground flue I would also propose to utilise its warmth by connecting the pilllars together with ground or curates' vineries. Thus, while each pillar was laden with luscious fruit, the ground itself would contribute perhaps the richest portion of the dessert. For, with the help of glass, and the warmth from the flues, no one can doubt that excellent Hamburghs, Muscadines, Sweetwaters, or even Frontignan Grapes could be ripened. The pillars themselves next the furnaces might also be devoted to Grape culture. Another might be used for Apricots, a second for Peaches, a third for Nectarines, a fourth for Plums, a fifth for choice Pears, so that with six pillars, and four or six varieties of fruits on each, a pretty extensive and choice dessert might be secured. Few things could give a more artistic character to the sides of a main walk in the kitchen garden than these pillars. Or covered with tender Tea Roses they would prove invaluable embellishments for terraces or for lining the principal walks in the flower garden or pleasure grounds. The objection of smoke could be met by burning coke in the flues, and even this could be dispensed with as soon as all danger from frost was over. For Rose culture of course the pillars might be much taller, and of any circumference. The vases could also be filled with delicate Tea Roses. The power of supplying artificial heat would enable us to set the cold at defiance, and to introduce pillars of such Roses as Cloth of Gold, 10 or 15 feet high, as charming novelties in garden scenery.

Architectural Fern pillars might also be heated and placed as centre pieces to gardens, conservatories, corridors, passages, &c. Furnished with rich tropical Ferns the effect would be charming. Or more rustic stands could be associated with hardy Ferneries out of doors. The power of supplying heat would enable most of the tender varieties to be grown to great perfection in sheltered places, and would add immensely to the interest and enrichment of such scenery. *F.*

(To be Continued.)

Miscellaneous.

Sales of Orchids.—Several sales of established Orchids have recently taken place at Stevens's. In that of Mr. Cooper, Alpha House, Coburg Road, the highest price realised for a single lot was for those of Phalænopsis Schilleriana and amabilis, fine specimens of each of which fetched about 9*l.* Aerides Lindleyanum superbum realised 8*l.* 8*s.*; other lots fetched from 12*s.* to 4*l.* The whole of the lots, of which there were in all some 422, fetched 454*l.* 16*s.* 6*d.* Among duplicates, selected from the collections of Mr. Rucker and Mr. Day, a very fine plant of the spotted variety of Odontoglossum Pescatorei fetched as much as 25*l.*; the spotted variety of Cypripedium eburneum realised 12*l.*; and a fine plant of C. caudatum, 14*l.* 14*s.*; for Veitch's variety of Vanda suavis, 7*l.* 15*s.* was obtained; the Fox-brush Aerides sold for a similar sum, and altogether for some 220 lots 521*l.* 6*s.* 6*d.* was realised. In the late Mr. Blandy's collection, which has also recently been brought to the hammer, no such prices as those just mentioned, however, were obtained for individual lots, which ranged between 10*s.* and 5*l.*; nevertheless, for some 374 lots as much as 645*l.* was obtained. Among duplicates from Mr. Basset's collection, a fine plant of Trichopilia crispa fetched 22*l.*; and another of Odontoglossum Phalænopsis, 16*l.*; O. nævium majus fetched 13*l.* 13*s.*; for Aerides affine superbum 11*l.* was obtained, and for Cypripedium barbatum superbiens, 10*l.* The whole sale, which consisted of some 320 lots, realised 821*l.* Among recently imported Orchids 416*l.* was obtained for some 237 lots, among which the highest price realised was 10*l.* 10*s.* for Barkeria spectabilis, a fine mass on native wood, associated with Epidendrum and Tillandsia. Other examples, however, only fetched about 1*l.* per lot, and many lots of other kinds of Orchids only fetched from 6*s.* to 10*s.* each. Saccolabium giganteum realised 5*l.* 15*s.*, and the beautiful Dendrobium M'Carthiæ 4*l.* 5*s.*; Vanda Bensoni realising about the same amount.

Garden Operations.

(For the ensuing week.)

PLANT HOUSES.

Early flowered *Epacrises* and *Ericas* previously cut in, and which have since formed young shoots at the points of the shortened branches, if in want of larger pots, or requiring a shift into fresh soil, should now be potted, and receive every assistance likely to aid them in perfecting a good growth preparatory to flowering in the ensuing season. Good crude fibrous peat and silver sand alone are suitable for them in proportions of about four to one respectively. Thoroughly chop the peat up into small particles, without, however, removing any of the fibrous matter; after which the whole should be completely amalgamated with the sand. Crock the pots thoroughly, after having used every precaution in their preparation, as regards cleanliness, &c., laying an even mass of very small crocks over the larger ones. In potting use a small neat rammer, with which ram each layer of soil down as firmly as possible, bearing in mind that it is hardly possible to place the soil too firmly around the balls. Be very careful, however, not to bury the base too deeply; it is better, indeed, to have it at too great an elevation than too low. Afterwards give a searching soaking with clear water, and place the plants in a cool airy situation upon a stage, or elevated upon pots in a cool pit, which if it has an easterly aspect all the better. If placed in any position due south, or approaching that aspect, they will require moderate shading for about four hours daily about midday, when the sun shines uninterruptedly and intensely. Keep the lights slightly tilted at the back at night, in order to allow free egress to any damp which may have collected around the plants. Pot off seedling *Cyclamens* so soon as they show the second leaf; they need a good rich loamy soil, which should be pressed moderately firm around each corm, burying it about half its depth in the soil.

FORCING HOUSES.

By studied economy in the use of fuel, besides the saving of it much labour in applying it may now be obviated, if, by proper attention to the weather, all structures, in which forcing is going on, are shut up at the earliest moment possible in the afternoons. If, with an abundance of atmospheric moisture, the temperature then rises to a maximum of 95°, the consequences will be the reverse of injurious. Promote the growth of *Cockscombs* and *Balsams* in every possible manner by giving them abundance of liquid manure. Shift the latter into larger pots if large specimens are needed, as frequently as the roots "feel" the sides of the pots they are in. Give abundance of light and heat; give air freely by night as well as by day to *Peaches, Nectarines, &c.*, ripening, as their flavour depends greatly upon attention to this matter. Do not moisten the upper surface of *Figs* when the fruit is ripening, and cease giving such an abundance of water to the roots as they have hitherto received.

HARDY FLOWER GARDEN.

Herbaceous Phloxes will now be much benefited by having their stools thinned. Select from five to eight of the strongest and best placed shoots, and cut away all smaller ones down at the base, placing stakes in the centre of taller-growing varieties for future support. *Hardy Annuals*, such as the following, may now be sown in the open ground in places where it is intended they should flower, namely, Collinsias, Clarkias, Convolvulus (both major and minor), Larkspurs, Nasturtiums, Lupinus, Mignonette, Nemophila, Love Lies Bleeding, &c. Sow in patches on borders, or in beds thickly, thinning them out to 2 or 3 inches apart when well above ground. It will now be perfectly safe to proceed with bedding-out, as there is little fear of frosts after this date. Having made the necessary arrangements as to which plants are intended for certain beds, &c., proceed with the preparation of them. Where the soil consists of light, open, stony materials, do not fork it over, but rather run the hoe over the surface and rake off the larger stones. Heavy tenacious soils, on the contrary, lighten up by forking and other means. Add a little extra well decomposed leaf-mould and manure to all beds intended for tricolored Pelargoniums, such as Mrs. Pollock. Judiciously commence with hardier subjects, such as Verbenas, Calceolarias, &c., leaving more tender sorts, such as Coleus, Amaranthus, and others until the last. In planting press the soil firmly around the ball of every plant, and fix by pegging or otherwise all those that may be planted in exposed situations, and which are likely to be injured by violent winds.

KITCHEN GARDEN.

Attend to manuring and forking between plantations of *Globe Artichokes*. In doing this first remove carefully, and without injury to the roots, all the soil around the stools, some 4 feet in diameter, and just sufficiently deep to barely uncover the surface roots, placing the soil in ridges close at hand, to be returned when the necessary operations are finished. When the soil is removed, carefully select four or five of the strongest shoots upon each stool for future flowering, removing all smaller ones, and thoroughly eradicating any other symptoms of future growth from around the base. When this is done, place a good layer of well-rotted manure upon the roots, and return half the soil; then place another layer of manure, and cover it well over with what soil remains, pressing it firmly around the selected shoots to keep them from injury by wind-waving, and as an additional inducement to push forth fresh roots from the sides, which they do readily under favourable circumstances. When it is intended to form fresh plantations, the opportunity to do so occurs when the above operation is being performed. Choose from amongst those useless suckers from which it is necessary to separate the finer growths, strong, well-rooted shoots, removing them in such cases with great care, so as not to injure the roots. Having selected a site for them, which should be in an open, sunny situation, with soil in good heart having been previously well manured, they should be dibbled firmly into the soil in rows, four feet apart, and about three feet stool from stool. Where abundance of well-rooted suckers are at hand, and it is an object to form plantations quickly, three such suckers may be dibbled in eight inches apart, in the form of a triangle, in the place of the single ones. Dibble them in quite half the length of the main stems and keep them well watered afterwards. As they generally do better planted in wet, showery weather, it is advisable at all times to take advantage of such when convenient. Make a sowing of *Cardoon* seed, where a demand for Cardoons exists. It should be sown in good rich soil, in rows, in patches, some six seeds in a place at distances of 3½ feet between the rows, and 6 inches apart, to be thinned out to the necessary number when properly grown. Continue to earth up *Potatos*, by drawing soil up to them with a hoe, as soon as they show well above ground. Any planted out upon the ridge and furrow principle, as previously advised, will be benefited if a slight forking be given to the soil forming the furrows, drawing a little more up over the ridges afterwards. Keep the hoe at work upon every favourable occasion, as long as any weeds remain within the garden; by thoroughly destroying these as they come up, much subsequent labour is saved. Give frequent and copious waterings to earlier *Celery* plants pricked off, and now growing freely, if the weather continues fine. Look well to the earlier sowings of *Beet, Carrots, Parsnips*, &c., throw a mixture of soot, lime, or woodashes, over any which are being destroyed by slugs, &c., constant watchfulness being now needed against injury likely to accrue from the attacks of these pests. Run the hoe also between any of the above as soon as sufficiently large to be well seen in the rows. Stake *Peas* as soon as convenient after earthing them up, and when well above ground, as they receive much injury if left too long, especially if beaten down by heavy showers, or twisted about by wind-waving. If forwarding and enlarging the earlier pods is a desideratum, pinch the tops off all the stronger shoots, as soon as sufficient flowers are set. Continue cutting every stem of *Asparagus* that pushes through. Do not let any of the shoots continue to grow, until all are allowed so to do; as it is impossible for individual plants to thoroughly develop such final growth whilst being constantly robbed at the base by a deprivation of other growths in process of formation. A good sprinkling of salt given once every three weeks, for two or three months to come, will greatly benefit the plants. *W. E.*

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the Week ending May 15, 1867, as observed at the Horticultural Gardens.

May.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Of the Air. Min.	Of the Air. Mean	Of the Earth 1 foot deep.	Of the Earth 2 feet deep.	Wind	Rain.
Thurs. 9	5	29.952	29.825	75	47	61.0	57	53	S.	.00
Friday 10	)	29.778	29 597	79	47	63.0	57	53	S.	.52
Satur. 11	7	29.776	29.461	69	48	58.5	58	54	S.W.	.00
Sunday 12	8	29.444	29.341	58	43	50.5	59	54	S.E.	.07
Mon. 13	9	29 685	29 523	51	44	47.5	58	54	N.E.	.01
Tues. 14	10	29 803	29 723	52	40	46.0	55	53	N.E.	.00
Wed. 15	11	29.916	29.620	53	40	46.5	54	52	N.E.	.00
Average.		29 764	29.584	62.4	44.1	53 2	56.8	53.3		0.60

May 9—Cloudless and very fine; exceedingly fine throughout
— 10—Cloudy and hot; thunder shower in forenoon; overcast.
— 11—Heavy thunder-storm 4—5 A.M., cloudy; fine at night.
— 12—Slight rain; densely overcast throughout; rain.
— 13—Overcast; hazy; densely overcast at night.
— 14—Overcast and cold; cloudy; cold at night.
— 15—Overcast and cold; cloudy, cold, and dry; overcast at night.
Mean temperature of the week 2 deg. above the average.

STATE OF THE WEATHER AT CHISWICK,
During the last 41 years, for the ensuing Week, ending May 25, 1867.

May.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday ..19	66.5	42.7	54.6	13	0.50 in.	2	8	8	3	4	8	4	1
Mon. ..20	67.0	43.4	55.2	19	0.44	2	7	9	3	4	11	1	4
Tues. ..21	66.5	45.1	55 8	18	0 50	3	8	12	2	5	6	3	2
Wed. ..22	65 9	42.6	54.2	17	0.30	6	8	5	3	3	11	3	2
Thurs. ..23	67 9	44.2	56 0	14	0.53	1	8	7	3	4	9	4	5
Friday ..24	67 9	43 3	55 6	11	0.54	4	8	7	1	6	11	3	1
Satur. ..25	66 6	43.3	55 0	15	0 64	4	11	4	2	2	11	5	2

The highest temperature during the above period occurred on the 22d, 1847—therm. 89 deg.; and the lowest on the 23d and 25th, 1863, and 23d, 1864—therm. 26 deg.

Notices to Correspondents.

Butcher's Broom: *J G, Cumberland.* You doubtless know that this is dicœcious. If, therefore, your plants are all male, you cannot possibly have fruit.

Insects: *W A.* The insects which have attacked the crowns of your Asparagus are a small species of millepede (Iulus sp.). The plants must have been in a diseased state to have attracted the insects in such numbers. If you had salted your beds well the insects would not have gained such a head.—*W H B N.* Your Camellias are attacked by a black aphis. You must fumigate the plants in the usual manner. *W.*

Lily of the Valley: *R L.* Plants bearing double flowers may occasionally be met with, but of their value in a commercial point of view we can offer no opinion.

Names of Plants: 1, Mormodes lineatum; 2, variety of Oncidium Cebolleti.—*W D.* 1, Saxifraga hypnoides; 2, Polemonium cœruleum album; 3, Polemonium cœruleum; 4, Veronica gentianoides; 5, insufficient.—*C W.* Halesia tetraptera.—*T Davis.* 1, Nothochlæna nivea; 2, Pteris crenata; 3, Platyloma sagittatum; 4, Acer striatum.—*R P.* Bauera rubiæfolia.—*Gibba.* 1, Doodia caudata; 2, 5, Selaginella Martensii varieties; 3, Gymnogramma Ochracea; 4, Blechnum occidentale minor.—*J Dillistone.* 1, Tellima grandiflora; 2, Chelidonium majus; 3, Arenaria trinervis; 4, Bunium flexuosum.—*Cholmondeley.* 1, Cupressus macrocarpa; 2, Juniperus virginiana; 3, Pinus Pumilio; 4, Picea nobilis var.; 5, Thuja occidentalis; 6, Pinus Lambertiana; 7, Abies (Tsuga) canadensis; 8, Pinus ponderosa; 9, Pinus Pinaster; 10, Pinus Pallasiana; 11, Forsythia viridissima; 12, Crataegus coccinea var.; 13, Halesia tetraptera.—*J J.* As far as can be ascertained from a single leaf, your plant, if not Berberis japonica, which it most nearly resembles, is B. nepalensis; send flowers.—*H W.* Some Crinum, but the flowers were hopelessly smashed.—*J C Wheeler.* Quercus rubra, Prunus (Cerasus) Padus,

Onion: *Sibble.* The young shoots of last year's Onions, or the stems of Onions which have run to seed prematurely, are called Scallions. What you mean by Sibble is probably the Ciboule, a name applied to the Welsh Onion, which being a bulbless sort, bears much resemblance to the shoot from an exhausted bulb of the common Onion. The Scallion itself is in some books said to be sometimes called Sybol.

Orchard House Trees: *Reader.* An Orange tree which has been cultivated in an orchard house with fruit trees is certainly itself a fruit tree, and under the circumstances might be entered amongst orchard house trees.

Palms: *Reader.* The probable cause of your Palms turning yellow and losing their leaves is that you have not given them sufficient heat. They like a strong moist heat, and are all the better for a good bottom heat. As a rule, they also like plenty of moisture at the root.

Communications Received.—M. Y.—C. (next week)—R. D.—M. N. E.—M. C. C.—Prof. Passerini.—W. Paul.—D. T. Fish.—J. Fleming.—S. Walliker.—Un Viel Abonné.

THE BEST SWEDE IN CULTIVATION

IS

SUTTON'S CHAMPION.

Price 1s. per lb.

Cheaper by the bushel of 50 lb. Carriage free.



TURNIP SEEDS direct from the Growers.

The most certain means of preventing disappointment.

SUTTON'S CHAMPION SWEDE.

A large Purple-topped Yellow variety, handsome shape, perfectly hardy, stores exceedingly well, and one of the heaviest croppers.

TESTIMONIALS.

From Mr. J. H. Halse, *Secretary to the Sidmouth Agricultural Association.*

October 26, 1866.—"At the annual meeting of the above Association, held at Sidmouth on the 23d inst., the whole of the Prizes for Swede Turnips were awarded to your Champion Swede, grown from seed supplied by you during the past season."

From H. J. Hillier, Esq., *Granham Hill, Marlborough.*

I am bound to say that from my experience you are quite justified in asserting the Champion Swede to be quite as hardy as any of the purple-topped varieties; if not indeed hardier."

From Mr. Large, *Bailiff to the* Right Hon. Lord Berners.

"The Champion Swedes, from seed Lord Berners purchased of you, are far superior to any other we have grown. I can confidently say they are many tons per acre heavier than any other Swedes growing on his lordship's farm."

From Mr. B. Hunt, *late Steward to* W. W. Chute, Esq., *Vyne Farm, Basingstoke.*

January 12, 1866.—"Last season I tried eight different kinds of Swede, and find, after a careful examination, that, although several of them are good, none of them equal your Champion."

From Mr. W. Turner, *Hole Farm, Lyme Regis.*

May 19, 1866.—"Your Champion Swedes last year were the largest and best keepers grown in this neighbourhood."

From Arthur H. Wood, Esq., *Theaden Grange, Alton.*

April 3, 1866.—"My Swedes (Sutton's Champion) have done very well indeed; in fact, men on the farm who have worked here for 20 years say they have never seen such a crop before."

From Mr. Henry Cantrell, *Baylis Farm, Slough.*

April 12, 1866.—"The Champion Swede kept first-rate last season, notwithstanding the drought."

From Mr. John White, *Halse Mincombe, Sidbury.*

April 18, 1866.—"The Champion Swedes from seed I had of you last year, were the best I have ever grown, and stood the dry weather better than any others in the neighbourhood.'

From William Littlehales, Esq., *Hursley, Winchester.*

April 28, 1866.—"I won a prize for the best roots at the Romsey Show with your Champion Swedes."

From the Rev. H. Raymond Barker, *Daglingworth Rectory, Cirencester.*

May 16, 1866.—"I find none that answer so well as your Champion Swede on my poor soil."

From Robert A. Bryll, Esq., *Woodford, Armagh.*

February 6, 1866.—"Your Champion Swedes last year, notwithstanding the extremely dry season, were a first-rate crop, and acknowledged by all who saw them to be the best in the neighbourhood."

From Horace B. Leggatt, Esq., *Brownwick, Fareham.*

February 10, 1866.—"Your Champion Swedes are a very fine crop, and of excellent quality."

From J. H. Wheatley, Esq., *Sligo.*

March 7, 1866.—"The Champion Swede Seed I had from you last year produced the finest crop here."

From Robt. Bruce Willis, Esq., *North Abbey Cottage, Ballasalla, Isle of Man.*

March 17, 1866.—"My Champion Swedes grown from your seeds beat any others in the parish, although grown on land naturally inferior to most in this neighbourhood."

Price 1s. per lb.

Cheaper by the bushel of 50 lb. Carriage free.

PRICED LISTS of other TURNIP SEEDS gratis on application.

SUTTON AND SONS, SEED GROWERS, READING.

Carter's Genuine Seeds.





CARTER'S SELECT LIST of GENUINE FARM SEEDS, at moderate prices, is now ready, and may be had post free on application to

Carter's Great London Seed Warehouse, 237 and 238, High Holborn, London, W.C.

SOCIETY of ARTS.

HARVESTING of CORN in WET WEATHER.

The COUNCIL of the SOCIETY of ARTS have resolved to offer the GOLD MEDAL of the SOCIETY and a PRIZE of FIFTY GUINEAS for the best "ESSAY on the HARVESTING of CORN in WET SEASONS." For particulars and conditions apply to

P. Le Neve Foster, Secretary.

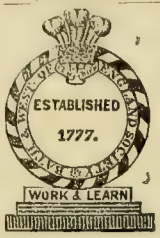
Society of Arts, John Street, Adelphi, W.C.

MANCHESTER and LIVERPOOL AGRICULTURAL SOCIETY (Established 1767).—GRAND CENTENARY SHOW MEETING at Manchester, August 27, 28, and 29, 1867.

Special Prize List and Forms of Entry will be issued at the end of May.

T. B. Ryder, Secretary.

57A, Church Street, Liverpool.—April 23, 1867.



BATH and WEST of ENGLAND SOCIETY.—For the Encouragement of Agriculture, Arts, Manufactures, and Commerce.

Patron, H.R.H. The Prince of Wales, K.G.

President, John Tremayne, Esq.

The ANNUAL EXHIBITION of SHEEP, HORSES, PIGS, POULTRY, IMPLEMENTS, WORKS of ART, and HORTICULTURAL SPECIMENS will take place at SALISBURY on the 10th, 11th, 12th, 13th, and 14th JUNE, 1867.

Josiah Goodwin, Secretary.

4, Terrace Walk, Bath.



ROYAL AGRICULTURAL SOCIETY OF ENGLAND.—The PRIVY COUNCIL having REFUSED PERMISSION to hold a CATTLE SHOW at BURY ST. EDMUND'S, the PRIZES for HORSES have been increased by £350, viz., £300 by the SOCIETY, and £50 by the LOCAL COMMITTEE.

The PRIZES for THOROUGHBREDS now amount to	..	£175
do. HUNTERS	.. ..	425
do. HACKNEYS	.. ..	130
do. ROADSTERS	.. ..	90
do. CARRIAGE HORSES	..	95
do. AGRICULTURAL HORSES		525
do. PONIES	.. .. ..	145
		1585
do. SHEEP	.. .. ..	700
do. PIGS	.. .. ..	225
do. POULTRY	.. .. ..	209
	Total	£2719

LAST DAY for ENTRY, June 1.

For Prize Sheets and Forms of Entry apply to

12, Hanover Square, London, W. H. Hall Dare, Secretary.

ROYAL AGRICULTURAL SOCIETY of ENGLAND.—The GENERAL MEETING of MEMBERS will be held at the Society's House, 12, Hanover Square, on WEDNESDAY, May 22, at 12 o'Clock. By Order of the Council.

London, May 18. H. Hall Dare, Secretary.

The Agricultural Gazette.

SATURDAY, MAY 18, 1867.

MEETING FOR THE ENSUING WEEK.

WEDNESDAY, May 22 { Royal Agricultural Society of England (General Meeting)—Noon.

THE efficacy of the restrictive measures which have been in force for some time past, with the avowed object of preventing the extension of the cattle plague from the metropolis, is undergoing a somewhat severe test, and, as far as we can judge at present, with satisfactory results. Fresh outbreaks of the epizootic have, indeed, been discovered during the last few days. Even while our last article recording the fact of the existence of the plague in the metropolis was in the press the disease has just commenced its ravages among a herd of cows at Stoke Newington. Nine animals have been condemned, and the remainder of the herd, 21 in number, have been slaughtered to prevent the extension of the disease; thus in a few days 30 fine cows in full milk have been lost to their owner, and what is yet more calamitous, the plague has extended to a much larger herd belonging to the same person. Another case of plague appears to have been discovered, by the vigilance of the police, in Hackney; the cow, which was subsequently condemned by the inspector of the district and destroyed, undoubtedly came from a shed at no great distance, and as she was seen by the inspector upon premises where the manufacture of sausages was being carried on at the time with considerable activity, it is not unreasonable to suppose that she was destined to contribute some portions of her carcase to swell the bulk of the savory mass; although the prime joints would probably have escaped a fate so ignoble. The prejudice against "rinderpest meat" is stronger by far than that which affects the public mind in reference to the flesh of animals afflicted with any of the other maladies which attack stock, but lovers of savory mixtures may take consolation from the proved fact that no serious consequences have followed the consumption of the flesh of cattle affected with plague.

At the beginning of the present week some cows suffering from rinderpest were found in a shed also in the Hackney district, and in this instance, as in others which we have recorded, the greater part of the stock had been sold before any suspicion was aroused. Sometimes the owner, in his alarm, at once calls in the aid of the butcher, and the matter ends; but in many instances only the sick beast has been slaughtered, and the others, apparently well but really infected, have been sent to the metropolitan market. When the cattle plague first appeared in London two years ago, a similar plan of getting rid of infected animals was adopted, and we know with what disastrous results. Under the present system the danger is very materially diminished, but we cannot admit that it is entirely obviated. If any over-confident purchaser should be so unfortunate as to successfully exercise his ingenuity in evading the law and get a few of these infected beasts out of the metropolis, a vast amount of mischief would follow. At present we appear to hold the plague within bounds, but we are dealing with a subtle thing that may at any moment pass from our control.

THE Society of Arts offers its gold medal and a prize of 50*l.* for the best essay on harvest work * in wet weather. It must contain an accurate statement of results under the several methods employed in various countries and in various parts of this country; and it must also give some account (with results) of such methods of artificial drying as have been adopted or attempted under such circumstances as those of last year's harvest, when the natural method fails of completeness.

Of course the natural method is generally sufficient. Agriculture grows in every place out of the natural circumstances of soil and climate; and its methods, corrected by generations of experience, must, under these circumstances, be on the average the best. Moreover, the results of the natural method as, under the ordinary conditions, it is carried out, far transcend in economy those of any other that can be substituted for it. Ten tons of Clover, ripe for hay, cut and lying in swathe over an acre of ground will, after 24 hours of drying weather in June or July, weigh but five. Five tons of water have thus disappeared without the expenditure of a single penny; whereas, had it been driven off artificially, the process must have needed fuel, labour, and machinery, all of which are costly. At least 75 per cent., sometimes more nearly 85 per cent., of the weight of a green crop has to be driven off before the remainder is dry enough to stack or store without the risk of excessive fermentation, and it is doubtful if the value of the 25 or 15 per cent. which remains can generally bear much greater cost than is at present incurred. There is a better chance of success in the case of corn crops than in that of hay, for the remainder is then both larger and more valuable: there is less to drive off before the residue is fit to store, and the value of that residue is better able to bear the expense of the process. What the loss of weight may be in harvesting Peas or Beans or Oats (cut greener than other grain both that the corn may not shed and waste in drying, and that the straw may be better fodder), we do not know;—probably the fresh-cut crop is in these cases twice as heavy as it is when ready to be carried, and if it then weighs 3 tons per acre, 3 tons of water have been driven off in the interval; but the remainder may be worth 10*l.* to 15*l.* if well harvested, and not more than 5*l.* or 6*l.* if spoiled in the process. There is thus a larger margin of value dependent on the completeness of a much smaller quantity of work, than exists in the case of other crops. And if this is so in the case of Beans or Oats, still more is it in that of Wheat or Barley—especially the latter, which is always left till dead ripe before being cut; from which therefore a much smaller quantity of water is driven in the harvest process; and in which there is much greater variation of quality and price, according to the manner in which its harvesting is done.

The most costly and least promising of all proposed substitutions of an artificial for the natural process, undoubtedly is in the case of young and succulent Grass which it may be proposed to convert into hay. We are now cutting a swathe of 12 tons of such Grass per acre. One ton of

* See p. 496, last week.

it, weighed and sold last month upon the ground, was cut off 400 square yards of ground. How much of this was water?—probably, at least six-sevenths; nearly all of which must be driven off to make hay dry enough to rick.

Of course, if it had been intended to make hay of it, the crop would have been allowed to attain a further stage of ripeness; but it was already substantial enough to make first-rate cow food; and even in the stable, where the horses have as much as they will eat, it is good enough to enable them to do with a diminished allowance of Oats. Being left till riper, there would not only be a larger relative proportion of hay from the Grass grown in a given time, but according to Dr. Voelcker's experiments on the Clover crop, a larger actual quantity of dry substance from the land. We have however to consider the character of the plant which in our case yields the crop; and there can be little doubt that it is the best policy in the case of Italian Rye-grass to cut often and not to allow a seed stem to show itself at all. A greater quantity of actual food might perhaps be won per acre by letting the crop ripen, but it would be at the expense of injuring the future productiveness of the plant. If therefore Italian Rye-grass grown on water meadows has to be converted into hay by artificial means, the probability is that 5 to 6 tons of water must be driven off to make 1 ton of hay.

The question is—can this, or, supposing it possible to get rid of some of it by a day or two's exposure in the natural way, can 3 tons of water be evaporated artificially for less than 1*l.*, which is all the expenditure that a ton of hay at most will bear? Now to this question an immediate answer can be given in the affirmative. The heat produced by burning 1 lb. of ordinary coal will boil off in vapour from 6 to 8 lb. of water. And we may therefore say that (provided we can apply all the heat it will produce) from 10 to 12 cwt. of coal is all the fuel needed for driving off the quantity of water of which we propose to get rid in order to make a ton of hay. It is however impossible to apply strictly to our purpose all the heat thus produced. The water in the Grass is contained in a cumbrous and bulky set of vessels which have to be raised to the full heat before the water which they hold can be affected by it. If the experiments in evaporation, whose result is given above, had been conducted in clumsy apparatus, absorbing much heat before any of it reached the water to be acted on, no such result as we have given could have been obtained, and probably 1 lb. of coal would not have driven off more than one-half the quantity stated. It is therefore plain that it is on the mode of carrying out the process of evaporation, even more than on the mere theoretical datum, that our success depends.

The heat has to be produced by the combustion of fuel in a furnace, and thence it has to be carried to the water in the Grass. If carried by steam, then whatever quantity of water is to be driven off from the Grass, at least that quantity of water must be evaporated in the furnace to convey the heat needed for the purpose. If 1 ton of hay is to be made per hour, our furnace power must be equal to the evaporation of at least 3 tons of water in the same time; and seeing that heat will be wasted both in the Grass itself and on the way to it, it is probable that in place of 11 or 12 cwt., 14 or 15 cwt. of coal will be needed, which is at the rate of 1 lb. for every 4 or 5 lb. of water to be evaporated.

A nest of steam pipes packed together at the foot of a shaft or chimney through which air is driven, would give off its heat, and the air passing through it would thus be sent heated up the shaft, to do what it can in the way of evaporating water. What can it do? That depends on the temperature at which, supposing it to pick up this water on its passage, it leaves the chimney in a perfectly saturated condition. If it enter the heating apparatus at 65°, already saturated, it will take in with it about 7 grains of water per cubic foot; and if it leave the chimney saturated at 150° it will take with it about 64 grains of water; so that it must have picked up on the way about 57 grains per cubic foot—rather more, indeed, for the cubic foot which contained 7 grains of water, has expanded and become more than a cubic foot at the higher temperature. If, then, Grass is falling down this chimney for the purpose of saturating with water the air driven up it, the object should be to get rid of the air as soon as it approaches saturation, and not allow it to get cooled below the temperature at which any of its acquired water would be condensed, either upon the sides of the chimney or on the Grass itself.

In the following Table the first column names the temperature at which the air may emerge from the chimney; the second represents the number of grains of water which it will hold per cubic foot as vapour at the given temperature; and the third states the number of cubic feet of air of the given temperature which must be driven off saturated in order to carry off 50,000,000 grains or 3 tons 6 cwt. of water, which is what we suppose to be driven off in order to make 1 ton of hay.

Fahr.	Grains of water held per cubic foot.	No. of cubic feet to hold 50,000,000 grains.
°		
86	12+	4,166,000
95	16+	3,125,000
104	22	2,272,000
113	28	1,785,000
122	35+	1,428,000
131	44+	1,136,000
140	55+	909,000
149	70	714,000
158	86+	581,000
167	105	476,000
176	129	387,000
185	156	320,000
194	187	267,000
203	223	223,000
212	259	191,000

It appears, then, from this Table, which is calculated from one given in the article VAPOUR in the lately published edition of BRANDE'S Dictionary of Science, that if air at 212° can get saturated with moisture by passing through Grass before it becomes cooled to 150°, then 800,000 cubic feet of it will carry off the water which the Grass needed for 1 ton of hay contains. If the heated air has to come in contact with so much more Grass before it can be saturated as will reduce its temperature to 140°, then 1,000,000 cubic feet are needed to carry off the 50,000,000 grains of water which must be got rid of to make a ton of hay.

In any contrivance, then, for drying Grass the object must be to get rid of saturated air at as high a temperature below that of boiling water as we can. Conduct the process how we may, considering that all our processes take place in an atmosphere at from 50° to 70°, in which our heat *must* waste, it is plain that it must be more economical to burn our fuel slowly, and thus to produce a large quantity of comparatively low temperature, than to burn fast and thus produce a comparatively small quantity, so to speak, of high temperature. Rapid furnace work means rapid draught of air, which goes red hot to waste. We are therefore shut up to the adoption of slow firing with a minimum of draught. The whole heat of our burning fuel being thus carried off by the water in the form either of water or of steam (probably the former will be most economical), is conveyed by it to air, which must then be carried through a shaft in which there may be a thick shower of falling Grass or a succession of zigzag open webs carrying Grass, from which it takes the moisture. What the power may be which is required to manipulate 4 or 5 tons of Grass until it gradually becomes 1 ton of hay, and to drive 1,000,000 cubic feet of heated air throughout it, so as to effect by its drying action this reduction of weight, we do not know. But, of course, whatever this power may be, that, too, must be represented by so much fuel, and the 12 or 15 cwt. needed to drive off 50,000,000 grains of water must be increased by, perhaps, 5 or 6 cwt. more, for such horse-power as the fan or pump may require to create the current needed. A shaft 20 feet by 10 feet in section would need to have air passing through it at the rate of about 1 mile per hour, and it would need to be long enough to give sufficient time for the air at that rate of movement to pick up all the moisture it will hold before being parted with; and there must be a sufficient quantity of Grass in continual motion downwards to feed the upward current of the air, and satisfy its appetite for moisture, before it is cooled down below 140°, and then we shall have a manufactory of hay at the rate of 1 ton per hour.

In any case, it must be remembered that the efficiency of the process depends on, and is measured by, the quantity of saturated air of the highest possible temperature below boiling water which we can send off in a given time. Every cubic foot of saturated air at 200°, 180°, 150°, or 120° Fah., of which we can get rid, will carry off 200, 150, 70, or 35 grains of water; and it is therefore obvious that the higher the temperature at which we can obtain saturation the better. The ingenuity of the contriver must be directed to the invention of some method which shall carry all the heat of the burning fuel to the air, which is our drying agent, and which shall saturate each cubic foot of this air as rapidly as possible from the Grass, so as to get rid of it fully charged with water before it has materially lost its carrying power by being cooled. Looking at the principal fact that 1 lb. of coal will boil off 6 lb. of water, it seems almost certain that we ought to be able to drive off the water which a ton of hay contained when it was Grass, at less cost than 20*s.*

—— SINCE the publication of our recent article on the doctoring of Clover seed we have had to review samples of Clovers from many parts of the kingdom, and it is satisfactory to note that not more than three per cent. of them were found to contain the doctored Hop Trefoil. Indeed the present season may be said to be in some respects unfavourable to the success of this particular form of roguery, as the generality of samples, especially of home growth, are naturally diluted with an unusual quantity of dead seeds, our examples varying from 3 per cent. of seeds that could not germinate to as much as 80 per cent. Now, as a matter of course, this latter seed is cheap enough, but it can scarcely be used for diluting a better sample, as it would at once be seen by the most careless observer. The doctored Hop however is not in this category, as it can and has been used with apparently, and indeed in other respects really, good samples. It is then satisactory to know that for this season its use in the dilution of Clover seeds has received a considerable check; but our information is correct upon the point that tons of it are in existence, and there is reason to think that much of what has been subjected to only the first process, viz., merely killing, is now getting vent in samples of Hop Clovers. Purchasers should have regard to this, and should test their samples by trying its germinating power. Common Clovers and Hop Trefoil seeds should germinate to the extent of 90 per cent. to be considered at all good samples, and if not so good, as a matter of course they should not command so good a price. Again, as regards red Clover seed, we must inform our readers that it is very difficult to find samples altogether free from Plantain seeds, and as these are so natural to even clean crops, advantage is taken of this by the dishonest dealer to mix a large percentage of Plantain. And as each seed of this is nearly double the weight and size of the Clover seed, a mixture of 5 per cent. of Plantain robs the farmer of 10 per cent. of his Clover, and what is worse, places in his fields a plant which cannot be considered much better than a weed. It behoves farmers, then, not only to deal with upright men, in whom they can trust, but to be able to judge and examine into these matters for themselves.

—— On Friday of last week an Order in Council was published, permitting after this month exhibitions of animals in any county in England and Wales, with the licence of the lords of the said Council. But no such licence will be granted unless their lordships shall be satisfied with the regulations under which such show is held, and that no case of cattle plague has occurred in the county where such exhibition is to be held within four calendar months prior to the date of such licence, nor unless the exhibition is situated at a distance exceeding 30 miles from the outward boundary of any infected place. No animal shall be admitted to such exhibition from any place within 20 miles of which a case of cattle plague has occurred during the four calendar months previous to the holding of such exhibition, nor from any place situated out of the county within which such exhibition is held. Each animal on entering and leaving such exhibition shall be examined by a duly qualified veterinary surgeon, appointed by the society holding such exhibition, and approved of by the local authority, and if any animal is declared to be suffering from infectious disease, it shall forthwith be slaughtered. This relaxation of the existing orders will enable many county associations to hold their usual shows this summer, and as the *Mark Lane Express* points out, it will enable the Suffolk Agricultural Society, or the local committee at Bury St. Edmunds, to hold a county show, if they please, of Short-horns and Polled Suffolks at the Bury meeting of the English Agricultural Society in July.

—— It will seen in the newspapers that Colonel BARTELLOT and Mr. C. S. READ have obtained their Committee to inquire into the operation of the Malt Tax—the former urging that we should then learn what experience had taught of the value of malt as a food for cattle, and what degree of truth there was in the allegation that to collect 6,000,000*l.* revenue cost the consumer 20,000,000*l.* And it would also be shown that, by checking adulteration and reducing the price of beer, the repeal of the Malt Tax would be a great boon to the working classes. Mr. READ, in seconding the motion for the Committee, entered at greater length into the agricultural relations of the subject. We give his speech in another column.

—— The discussion which followed Mr. TUXFORD'S paper on Harvest Work, read last week before the London Farmers' Club, brought out a number of interesting particulars. Mr. Leeds, of West Lexham, Brandon, said that Mr. Hudson, of Castle Acre, had cut as much as 40 acres a day by machinery, and his harvestmen had cut 12 acres before breakfast, and carted 50 acres after during the day, making in all, cut and carted, 102 acres—a pretty fair day's work. He had himself always found that the quickest and cheapest way of getting harvesting done was to put it out by the lump; so that the labourers had an equal interest with the master in finishing the work. His harvesting generally cost 11*s.* 6*d.* an acre; but, they did not grow very heavy

crops, the land of his district being poor. In other districts the cost was much greater, the crops being perhaps almost double in quantity.—Mr. CROSSKILL lamented that nothing had been said about the relative merits of carts and waggons for carrying home the crop. Mr. PUSEY's report on the subject had been that three horses in carts were as efficient as four in waggons.—Mr. T. B. DRING referred to the progress of English agriculture in crop growing as well as crop harvesting:—

"Land in this country was much better cultivated now than it was when he was a boy. At that period the land was badly cultivated; the seed corn was put into it at various times and in various conditions, and as it did not come up together a longer time was allowed for harvesting. He remembered the harvest extending over eight weeks. Now, the seed being put in in time, the crops came nearer together than was formerly the case, and hence the work could be done better within a given time than under the old system. A greater weight of produce was grown, and a greater amount of labour was required. These were the chief reasons why there was a deficiency of labour for the getting-in of the crops, and farmers had been obliged to have recourse to reaping-machines. The better a crop was, or the riper, the more necessary it was that it should be cut in a short time, and they had to prepare to meet that difficulty. He found that even with reaping machines at his command his corn ripened faster than he could get it cut. They should always take care to get all other work done in preparation for harvesting. The harvest time came very often 'like a thief in the night,' and as a great many men would be required, all the work connected with Turnips, Thistles, and so on, should be completed beforehand. He thought, that, as a rule, harvesting was not begun soon enough by about three days. The labouring populations of a district would generally suffice to get in the harvest in about 18 days, and it would be a great advantage if by getting everything close done early the farmer was enabled to begin three days before the crop had become dead ripe. A gain of three days in 18 would, of course, be one-sixth, or more than 15 per cent., and beginning three days earlier, they would not have much difficulty in getting in their crops well, except in very wet seasons. It might sometimes have been supposed that he had begun too soon; but while he had often regretted beginning late, he had never regretted beginning early. He had found that Wheat which was cut early was finer in the skin, less rough and coarse, weighed heavier, and made a shilling or two more at market than Wheat which was cut late. Wheat was the heaviest when the kernel had the greatest amount of sap, and this was the case when it was cut early. He thought, therefore, that the difficulties which they met with in some seasons might be met by using reaping-machines and cutting early."

In answer to a question Mr. DRING stated that if the corn were cut with a machine, he would take off about one-third of the cost. Supposing the whole of the work to be worth 15*s.* an acre, he would allow the men two-thirds for tying up the crop, shocking it, and making it fit for the waggon. He thought that was a liberal allowance; and it was good policy to give a liberal allowance in such cases.—Mr. J. CLAYDEN, of Saffron Walden, advocated the use of the scythe:—

"He found that with the scythe a man, with his wife and family, earned a great deal of money. And corn cut with a scythe would stand wet better than corn cut with a sickle. When corn was cut with a sickle, and bound closely together, the water was held in it, and the grain was swollen and injured; but when corn was cut with a scythe or a reaping machine, it was held more loosely, the water run through it, and its quality was not much affected by wet. The reaping machine increased the amount of dirt in the sample. A large quantity of dirt was carried up by the wheels; and it got into the sheaf, and was thrashed with the corn in the wet weather that was experienced last harvest."

Mr. COUSSMAKER, of Guildford, related his experience under somewhat different circumstances:—

"He had a heavy-clay farm, with small lands, in which a reaping-machine would not work. As to the mowing-machine he had found it invaluable. He had employed it ever since the wet summer of 1860, and he had made his hay, cutting it with the mowing-machine, and performing with haymaker and horse rake all the work with very little manual labour. But the case was very difficult with regard to cereal crops. He was an old-fashioned man, and there were certain rules by which he had always abided. One of those rules was never to cut corn unless he could tie it up. Another rule was never to allow a larger sheaf to be made than could be spanned by three hands. A large sheaf that had once got thoroughly wet never, scarcely, became dry again. So much for the cutting. As to the harvesting, many persons thought that in order to save time it was best to stack in the field. But he had suffered great loss from threshing and being caught in bad weather; his straw had, in consequence, got damaged, and the cavings, which were of great value to him as fodder for his cattle, had in some cases been almost good for nothing. Again, there had been great complaints—he was talking now of fields averaging from 10 to 30 acres—that the stacks in the fields had caused them to be over-run with rats. There were perhaps fewer rats about the buildings than there were formerly, but then they were concentrated about the field stacks; and whereas in the buildings they could be easier got rid of, being killed by bushels, in the fields it was almost impossible to destroy them. He had done all he could by means of ferrets, poison, and so on, but without much effect, and this evil was to be attributed to the practice of making stacks in the field and meadows. Rats were as bad as rabbits. He thought the best mode of harvesting was to bring the crops to the homestead, building the stacks on staddles, making them long, high, and narrow, so that the wind would go through them. The effect of making the stacks in this form last year was wonderful. Through the adoption of a system of having narrow stacks, the corn was prevented from receiving as much damage as it otherwise would have done, and the result was very satisfactory."

The discussion was perhaps somewhat out of season in the month of May, but it was a thorough ventilation of a most important subject, to which in some of its aspects attention is now directed by others as well as agriculturists. Consumers as well as producers are interested in good and economical harvest work, and the Society of Arts, as stated in another column, have offered a handsome prize for the best essay on the subject which last week occupied the London Farmers' Club.

THE LONDON MILK TRADE.

[At a recent meeting of the Sub-Committee of the Society of Arts, on Milk, the following evidence on the subject was given, and is now taken from the report of it in the Society's Journal.

Mr. W. HOPE said that he was connected with the Dairy Reform Company, the chief depôt of which is at the West-end of London, and the intention was to establish branches in as many districts of London as possible for the sale to the public of pure unadulterated milk. At present arrangements were made for the daily supply of milk from about 300 cows, and the milk was brought to the establishment by road in the Company's own vans, so that if possible there should be no tampering with it. They had already made arrangements for the sale of skim milk and a small quantity of new milk to the poor in Whitechapel. They had also a branch in Westminster, at which about 20 or 30 gallons of milk were sold per day. Upon the branch in Whitechapel being opened a dealer in that neighbourhood made an application to the Company to make arrangements for the sale of the milk to him, instead of its being supplied through their own agent; but on inquiry being made into his character, it was found that he was a person who would not be likely to carry out the objects of the Company with regard to the quality of milk they wished to supply, and the application was refused. It was ascertained that he immediately afterwards went to the agent and offered him 20*l.* to retire, and a little time after subscriptions were made by the dealers in that locality amounting to 100*l.*, which was offered to the man to induce him to retire from the agency of that branch. The agent, however, withstood the temptations of these offers, and the business of retailing new milk was continued amid many oppositions and annoyances on the part of the dealers. Those who dealt at the company's shop were subjected to personal interruption by a number of rough people employed to molest them. This having been put a stop to by the police, the opposition had placed some persons with a can of milk opposite the shop, and engaged men to "tout" the milk as that which the company really supplied, and many people discovered the imposition by the quality of the milk they thus obtained. He might say there was the most determined and organised opposition to the introduction of pure milk by the company into that quarter of the metropolis. The opposition parties reduced the price to a penny per pint by the addition of a certain quantity of water, and the agent was subjected to numerous remonstrances as to the quality of the article by the parents of children who had been sent by them to get milk at the branch, but who had been induced to buy that supplied by the competing parties. One of the principal—he believed the largest milk dealer at the West-end, came to the company in a very friendly spirit, and, with many professions of desire to put a stop to the "tricks of the trade," made various offers to buy milk of the company. Among other offers was one to take 12 to 15 barn gallons of skim milk per day, stating that he had a contract to supply a workhouse with that quantity of new milk, and that the price at which the contracts for these establishments were let precluded the possibility of new milk being supplied unless it was well watered. The company had been applied to for tenders for various places, but on ascertaining the prices usually paid they refused, as it was impossible to supply pure milk on such terms. The prices varied from 1*s.* 4*d.* to 1*s.* 6*d.* and 1*s.* 8*d.* per "barn" gallon delivered. He believed the dealers received 17 pints as the barn gallon from some farmers. The company sold 16 pints to the barn gallon, this being the quantity which they received. The percentage of waste in retailing 16 pints of milk in the small quantities usually sold to the customers by the milk carriers depended very much upon the carefulness of the milk-carriers in serving it out. In the company's shop he did not think the waste would be more than a quarter or half per cent. Most dealers did not profess to sell skim-milk, but they were ready to buy any quantity of it. The company had sold skim-milk at 1*s.* per barn gallon, or 1½*d.* per quart. As far as he had been able to ascertain, no new milk was sold in London except that which was supplied for the use of infants and invalids. He believed some dealers, if they got a good contract, did supply genuine milk, but the price they got would be equal to about 5*d.* per quart. The price of milk at the West End at the present time had been reduced since the company supplied milk at 4*d.* per quart. As he passed a dairy in Brook Street that day, he saw the prices put up—new milk, 4*d.*; skim milk, 2*d.*; and cream 4*s.* per quart. With regard to the quality of milk sold generally in London, he took the existing evidence on that subject, chiefly that of Dr. Letheby and the statistics Mr. Morton had given, showing that the milk supply of London was derived from about 30,000 cows. Dr. Letheby stated, in his report to the Corporation of the City of London in 1854, that the addition of water to the milk amounted to about 30 or 40 per cent., and so if an Act of Parliament were passed, rendering the use of water for the reduction of the quality of milk practically impossible, an increase of 50 per cent. in the number of cows from which the supply of milk to London was derived would be necessary to keep up the existing supply. Before the company's shop was opened they sold a large quantity of milk—about 70 barn gallons per day—to a dealer at the East End. He bought it on the farm, and brought it away at his own expense, and he made his living out of it, although he stated he had a contract for a workhouse at 1*s.* 6*d.* a gallon, or 2*d.* less than he paid for it. The Company made a tender for the supply of the Brompton Hospital at 1*s.* 3*d.* per imperial gallon, the milk being guaranteed to contain 12 per cent. of cream. That would be about 3¾*d.* per quart. Milk varied very much in quality, even when not tampered with. Cows which had recently calved yielded richer milk than those which had calved five or six months; the milk of a young vigorous cow was richer than that of an old animal. The best cows would yield considerably more than a pailful of milk at each milking, a pailful being about 8 quarts. It was difficult to state what would be the percentage of cream from a bulk of milk taken from a number of cows of different ages and condition of circumstances, and it could only be done by a knowledge of the general average quality of the milk so mixed together, but the Company had offered to guarantee 12 per cent. of cream in the milk they supplied. He could not say what was the average percentage of cream contained in London milk. It varied in different districts. The company had sent large quantities of skim-milk to a charity in Soho Square, which was distributed to the poor gratuitously, and he had been assured that the skim-milk so sent was better than what the dealers charged 5*d.* per quart for. The quality of the milk of course depended very much upon the food of the animals. The company's supply was derived from a large dairy-farm near Barking. The cows there were fed on Mangel Wurzel, hay, and grains. Some Barley-meal was given to the cows which were heavy in milk, and those which were shrinking in milk were fattening. Mr. Hope further stated that dairy farmers could supply the dealers with milk wholesale at 2*d.* per quart delivered in London, but he thought there was very little delivered quite genuine at the stations. Many of the farmers no doubt adulterated their milk to a certain extent before they sent it away. He should say a large proportion of it was adulterated.

Mr. CAIRD remarked that where neither of these practices was resorted to, there was no produce which yielded so large a profit to the farmer as milk at 2*d.* per quart. He would, therefore, like to know how it was the company could not supply milk at less than double that price?

Mr. HOPE replied that the carriage cost about 2½*d.* per barn gallon delivered at the depot. He thought that a small dealer required a margin of profit of 1*s.* per barn gallon, or 6*d.* per imperial gallon, to pay for the transit from the station and the delivery in town, to cover waste, wear and tear, and wages. The quantity of milk taken by each customer was small, and the labour of retailing it was great. The experience of the company had as yet been short, but as far as it went he should say that no milk-carrier on foot could retail more than 80 quarts in the two deliveries per day. That depended, of course, upon the number of separate deliveries and the distance between the customers. Sixty quarts per day, he thought, would be as much as some carriers could deliver on an average.

Mr. CAIRD remarked that the question was whether, if milk could be produced to yield a good profit to the farmer at 2*d.* per quart, it could not be sold by the dealers at less than double that price, and give a fair margin of profit to them?

Mr. HOPE said the whole question turned upon the purity of the article supplied. He thought the reason why there was not a greater demand for milk in London was because people felt that they could not get it genuine, and therefore used as little of it as possible; and though the dealers got it at prices from 1*s.* 2*d.* to 1*s.* 4*d.* and 1*s.* 6*d.* per gallon, until lately they had been charging 5*d.* per quart for what they called new milk. Moreover the dealers "protected" themselves by the measure given. When the company was organised he went to the person who made the small delivery cans for the principal dealers in London, to order some dozens of cans; and in speaking of those which were wanted for cream he asked "Do you want them 'full?'" which he found meant whether he required them to be of full measurement. He then learnt it was the "custom of the trade" to have cans for cream which held 25 per cent. less than the proper measure. A large West-end dealer offered to purchase the cream of the company at 2*s.* 6*d.* per quart, which he sold at 5*s.* and 6*s.* per quart. In course of conversation he (Mr. Hope) asked him if he gave the full measure in cream; to which he replied, "Oh, yes; that is to say we give full 'cream' measure," and implied that that was as much understood by the public in the article of cream as the wine-merchant's six bottles to the gallon of wine. A small measure was thus adopted for the more valuable commodity of cream. It was, no doubt, a more difficult operation to adulterate cream than milk, but he believed the dealers more generally "protected" themselves by the short measure. The public got a genuine article, but 25 per cent. short of the measure. The dealers bought the cream full measure, by the imperial quart or gallon. When asked why he preferred to pay 20*d.* per gallon for the milk from this farm instead of 1*s.* 4*d.* for that delivered at the railway stations, the reply of one dealer was, "There is a great deal more 'room' in it:" which led him to infer that the farmers sent out their milk adulterated to a certain extent. He had seen a great deal of tampering with milk at the railway stations on the part of porters. He had seen them tipping the cans over and filling jugs from them.

Mr. READ suggested that it was the practice of some dairy farmers to give food to cows with a view to the quantity rather than the quality of the milk they produced.

Mr. HOPE then proceeded to explain the plan which had been adopted by the Company for collecting the cream from the surplus milk, and also their experience in making butter from the new milk on their own premises. As far as the experiment had gone at present, using the atmospheric churn, the yield of butter had been as much as an average of 1 3-17ths of a pound of butter from two imperial gallons of milk. That was no doubt in excess of the yield of ordinary new milk. There was some difficulty in the use of the atmospheric churn, from the extreme nicety to which it was necessary to regulate the temperature of the churn. The best yield of butter was at 68°. If it were raised above that, such butter as was produced was of a lardy appearance, and of a colour which made it unsaleable, and the quality was not good. There was sometimes difficulty in getting the precise temperature required. The residue under the operation of the atmospheric churn was nothing but pure skim milk, perfectly sweet. It was not what is usually termed buttermilk. The butter, when produced in sufficiently large quantities, was sold in Newgate Market at 1*s.* 6*d.* per lb.; and none but very freshly-made butter was sold in the Company's shop at 22*d.* per lb. at the present time. He had not found that any prejudicial effect was produced on the milk by the carriage from the farm to the establishment in London, so far as its churning qualities were concerned. As the result of some consideration of the subject, and looking to the natural laws by which the process of the rising of the cream upon the surface of the milk was governed, he had tried the experiment of "setting" the milk in deep and narrow metallic cylinders, instead of the ordinary method of doing so in wide and shallow vessels. The result was that in the long and narrow cylinders the cream rose more quickly than was the case in the shallow vessels, and, forming a compact mass at the top, it could be dipped out with much less labour and in much less time than was required to skim the same quantity of cream off the surface of the shallow vessels, and there was a less quantity of surface cream left upon the milk. Where there was a large quantity of milk to be "raised," and when the shallow vessels were used for the purpose, it occupied two women the whole of the day in skimming off the cream, whereas by the use of the deep cylinders the cream was removed by dipping out the mass which formed to a considerable depth at the top of the cylinder. The results of the latter method of raising the cream were tested in the first instance in a glass tube about 16 inches high and 2 inches diameter. This tube was filled with new milk in order to see whether his assumptions were based on fact. The milk was placed in the tube at half-past

nine o'clock in the morning, and at five minutes past 11 nearly the whole of the cream had risen. His partner, who was at first sceptical on the point, afterwards admitted that the theory was proved to be correct. That plan he believed would in future be acted upon in the establishment, and his endeavour would be directed to obtaining large glass cylinders, 5 or 6 feet in height and 9 inches diameter, in which to raise the cream in the manner he had described. By the use of glass cylinders the line of demarcation between the two liquids could be exactly ascertained, and the removal of the cream be conducted accordingly. The wasting surface of cream by this method was nothing in comparison to that which would exist in the nine or ten shallow dishes that would be required for raising the same quantity of milk as was contained in a cylinder of the dimensions he proposed to adopt. Temperature had much to do with the rapid rising or otherwise of the cream. The company had painful experience of that during the recent very severe weather. The cream would not rise, and the milk had to be sold, or rather given away, to the company's loss.

Mr. CAIRD mentioned that when travelling in Sweden in the summer time, he was much struck by the practice which was adopted by a large and thoroughly experienced dairy farmer, of placing the vessels containing the milk from which the cream was to be raised, in water cooled by pieces of ice being placed in them. The reason given for this was that it caused the more rapid rising of the cream; that was a plan adopted by a man of great intelligence and practice; and, therefore, he concluded it was based on sound conclusions, although differing from his preconceived ideas on the subject.

[The French milk-can which had been sent to the Committee from Paddington Station having been exhibited to Mr. Hope, that gentleman expressed his unqualified approbation of it, both as regards its handy size and the material of which it was constructed, as also the mode in which the top was fitted in, so as to prevent the agitation of the milk in travelling by railway or other conveyance.]

Mr. BROOKS, an officer of the London and North-Western Railway Company, having been introduced to the sub-committee,

The SECRETARY read a return of the gross quantity of milk carried on the above railway, which had been furnished from that company, as follows:—

	No. of gallons.
1. Milk brought to the Euston Square terminus in the year ending December, 1865	490,320
Ditto in year ending December, 1866 ..	1,209,284

2. The stations from which the milk arrives at the Euston terminus are the following, viz., Aylesbury, Bletchley, Cheddington, Claydon, Crick, Dunstable, Leighton, Marston Gate, Newport Pagnell, Northampton, Rugby, Swanbourne, Tring, Ullesthorpe, Winslow, and Wolverton. N.B.—The quantities received from each station cannot be arrived at with any degree of accuracy, from the mode of keeping the accounts not being framed with such an object in view.

3. The company run one special train with milk from the country daily, and return the empty cans in like manner.

4. The milk is conveyed [in cans provided by the senders] on open carriage trucks, and no special mode of stowage is resorted to.

Mr. BROOKS said, in reference to the figures just read, there was a considerable falling off in the quantity of milk carried since the period embraced in this return. He had taken out the last week's cash receipts for carriage of milk, and he found they were only 83*l.*, or equal to about 4300*l.* a-year, as compared with the corresponding period in 1866, when it was 229*l.*, or equal to about 12,000*l.* a-year. He accounted for this decrease by stating that the London milk trade was regaining its normal condition previous to the cattle disease breaking out. The same rates were charged this year as last. The charge for a distance not exceeding 100 miles was 1½*d.* per gallon, and exceeding 100 miles 2*d.* per gallon (imperial). When the great increase in the traffic commenced, milk was sent up from places 180 and 200 miles distant—from Huddersfield, Macclesfield, &c. The greatest distance from which milk was sent now was about 95 miles. The largest quantity of butter sent from any place on the London and North-Western line was from Aylesbury, but that did not come under his attention, as the carriage of that article was by goods trains. He did not think any material improvement could be made in the carriages which were used for the conveyance of the milk, carriage trucks being now used for that purpose. Those now used were about as well constructed in respect of the springs as they could be, and it was desirable that the milk should be as little shaken on the journey as possible. He thought the size and form of the French milk-can much better than that in use in this country. He considered it an advantage that the milk should be fixed as solidly as possible in the cans, but he had heard no complaints as to the condition of the milk being deteriorated by the journey on the railway, although he thought it might be somewhat affected in hot weather; but that, he believed, depended a good deal on the quality of the milk and the distance travelled.

Mr. MORTON (being appealed to on this point) said the London-produced milk sold at a higher price than that which was sent from the country, the highest price paid by the dealers being for the milk which they themselves milked.

Mr. BROOKS said the French can was much more convenient to handle at the station. It was a stipulation with the dealers that their men should assist the porters in unloading the cans, because the cans were too heavy to be handled by one person. The weight of a can filled with milk would be near upon 200 lb. The trade came to be of such an extent as to lead to the putting on of special trains for the purpose. They were timed as passenger trains, and passengers could travel by them if they pleased. The milk was brought to the various stations in time for the arrival of the milk trains. One train arrived in London at a quarter to twelve in the forenoon: that was for the afternoon supply, and the second train arrived about half-past eight in the evening; that was for the next morning's supply. The reason for putting on the special milk train was owing to the impediment to the ordinary passenger trains caused by stopping at the stations to take up the milk. With regard to improvements in the method of carrying milk and cream long distances, Mr. Brooks mentioned that, during the time of the greatest scarcity of milk, an arrangement was made for bringing cream from a distance as remote as Carlisle, and that was done by the article being placed in small cans—much smaller than the French milk-can—and carried suspended in the truck; but, when it arrived in London, it was found that the cream was reduced almost to the consistency of milk. That trade was therefore abandoned. He believed in that case the vessels were filled as full as possible, to prevent the shaking of the cream. In the long journey of 300 miles the cream was converted—by some means he could not account for—into the consistency of milk. It arrived in London quite sweet, but could not be used as cream. There was at the present time a considerably larger quantity of milk sent up by the railway than was the case previously to the cattle plague, and he thought it likely that the present quantity would be continued for some time. The quantity began to fall off in March and April last year, from 161,000 gallons in March, to 142,000 gallons in April, and from 125,000 gallons in May, to 95,000 gallons in June; in July to 80,000 gallons, in August to 64,000 gallons, in September to 53,000 gallons, in October to 63,000 gallons, in November it fell again to 59,000, and in December it rose to 66,000 gallons. The quantities for the corresponding months in 1865 were—July, 6288 gallons; August, 17,400 gallons; September, 61,868 gallons; October, 95,484 gallons; November, 116,760 gallons; and December, 148,296 gallons. Thus it would be seen that the marked increase in the milk trade on this line commenced in the month of August, 1865, the month in which the disease first broke out in the herds of Lord Granville and Miss Coutts.

Mr. BROOKS, in reply to other questions, stated that no other means were taken by the railway company to develop the milk trade than the putting on of more trucks and eventually establishing special trains for it. The rate charged was increased as soon as the special trains were put on, and that had not had the effect of diminishing the quantity. The rates were increased from a penny per gallon under 100 miles to 1½*d.*, and that rule was still continued for that distance. The trade at present amounted to about 54,000 gallons per month. Those parties who made complaint about the increase in the rates could not have calculated at what price per ton the company carried the milk, or they would have found that the milk, including the weight of the cans, was carried up to a distance of 100 miles for 1*s.* per cwt. When the milk train arrived the dealers assisted in the unloading of the vans, and the milk was carried away in the dealers' own conveyances. He was not aware of any other means by which the milk could be more promptly or more rapidly distributed than it was under the present system. When the large business in milk was commenced the dealers wanted something of a market place, but there was not space enough at the station for that; they then adjourned to some of the adjoining streets, but that was stopped by the police authorities. As far as the railway authorities were concerned, he imagined it made no difference to them whether the smaller sized can were used or the present large size, inasmuch as the same quantity would have to be carried, whether it were done in large or small cans. Undoubtedly the French can was more conveniently handled, and a man of ordinary strength could load and unload one of these cans without help. He apprehended if the small cans were adopted waggons with two tiers, something in the form of the sheep vans, would answer the purpose, as it was not desirable to place the load too high; but, if special vehicles were constructed, they must be reserved for the milk traffic alone, and would not, like the carriage trucks now in use, be available for other purposes. There had been cases in which cans of milk had been stolen from the station by the milk dealers; and he knew of one instance in which the offence was condoned by a public apology and the payment of a sum of money to the poor-box of the police court.

THE IRISH LAND QUESTION.

IT is now about, I believe, 20 years since Mr. Caird commenced to write on the state of things in Ireland, and it is by no means with a desire to take from that gentleman's great merits if I say that in some things I cannot agree with him. I wish by my remarks to assist him and all others who interest themselves in and out of Parliament in the settlement of that discord, so shameful to Ireland herself, and by no means creditable to the British Legislature, whilst a source of weakness in both a moral and material sense to the whole of the United Kingdom.

In the last letter of Mr. Caird to the *Times*, going the rounds of the Irish press, he says, "All may admit that Ireland was over-peopled in 1846, immediately after the Potato famine." Now, sir, I flatly but respectfully deny that any man sufficiently well acquainted with Ireland and its vast resources of industry could admit that, even before 1846, when its population was greater than it ever was before, since, or for a long time may be again.

It was not from an over population that starvation had ensued, but because of absolute ignorance—more in the case of the landlord and legislative bodies than of the farmers themselves, ignorant though they then were, and in so many cases still are—and because of the uncertainty amongst those who were comparatively intelligent of ever being permitted to reap the reward of their industry in the expenditure of their capital. And if Mr. Caird had taken the same stand in Ireland then which they are seeking to take now, the case would be now quite different to what it is in all the relations of life. But the time was let slip which may not for a long time, if ever, return to settle the land and other social questions in this country as readily and with as much advantage to all without injustice to any as could then be effected. Mr. C. goes on, "Since that time, however, more than a third of her people have disappeared, yet it is said on *high authority* (the italicism is mine) that it will be necessary that she should lose one and a-half million more before she can be fairly prosperous." I care not how high those authorities who say so may be considered by those who rely on their opinions, and I defy them to the proofs of their qualifications to justify such statements. Mr. C. proceeds, "Then it is said Ireland is, from the humidity of her climate, not at all fitted for the production of corn." I utterly deny this also, and defy all such authorities. I care not how scientific they may be, pretend to be, or may be considered by ignorant men; nor do I care what amount of what is called practical knowledge they may fancy they possess in sustentation of such views. When I speak thus I am ready to admit that some who write and speak in disparagement of the Irish climate as regards profitable corn culture may understand its mere routine corn culture pretty well, but I protest against their assumed knowledge, whether in a scientific or a practical point of view, of its intrinsic value when grown and harvested as a true source of Irish wealth. I will go further with Mr. Caird and others who may think, as I have no doubt he honestly does, and admit it has been said by high authorities outside of Ireland, and inside of it too by a high authority, that even our green crops, for the production of which Ireland is so distinguished, and whose extension in cultivation is said to be one of Ireland's chief panaceas, if not the only one, that they too, the class of Beets more especially, are deficient in nutritive matter generally, but in sugar more especially, compared with those grown not only in England and Scotland, but in the supposed more favourable climes of the European continent. I deny that; and permit me to say that whilst agreeing in principle with such a high authority as he is—and if a politician, which I by no means am, I might agree with him generally and in detail to a great extent—I feel bound to say that some of his leading propositions or suggestions are not likely to meet at the hands of the Irish landlords or the Legislature the favourable consideration he would bespeak for them. "Two things," writes Mr. C., "are wanted for profitable farming, fixed capital in buildings, drainage, fences, and roads, and a security of tenure for the floating capital of the farmer." To this I will add a third want, industrial knowledge, scientific and practical—a want though seemingly not felt by all, visible, with some honourable exceptions, in all classes connected with agricultural proceedings in Ireland, from the highest peer and his land-agent, to the lowest peasant and rent "driver."

Will the landlords of Ireland, or even a majority of them, have "fixed capital" so employed? They will not, for the majority who would, cannot do so, for the chief of many reasons, they have no such capital "to fix." Will the tenants, or a majority of them, apply such "floating capital" for the purposes specified? As a whole, or even a great majority, they will not, because of the same reasons which govern the landlord's proceedings, and for others besides.

Mr. Caird says, "My idea of a Tenant Right Bill would be that Government should be authorised to advance money to landowners for the exhibition of such specific permanent improvement on the land as should be sanctioned by permanent Government officers, on the condition that by a voluntary agreement betwixt them, the landlord should for 34 years secure the tenant in the possession of his farm, provided he regularly paid, in addition to his rent, the annual sum of 5 per cent. in payment of principal and interest of the Government loan." Will the Government, or any other Government, ever agree to lend money on such terms to landlords with the view of securing on the Irish soil the class of small tenants that Mr. Caird alludes to in another part of his letter? If they do, I will for one be agreeably disappointed. If the Government so agrees, will the landlords agree to a 34 years' lease to such tenants, or to any even larger tenant landholders without further restrictions? They will not, and though it may be by some considered censurable in me to say so, they ought not. But supposing I am quite mistaken in these views, and that both Government and landlords agree to Mr. Caird's suggestions, will the tenants of Ireland be satisfied to be bound by the *ipse dixit* of the permanently employed Government officers? They will not, and here I confidently say they should not, without having in themselves some controlling power over the capricious arbitrament of such Government officers, in whose knowledge, giving them credit for the best intentions, the Irish public, from sad experience, place but a very questionable reliance.

All must agree with Mr. Caird when saying, "What I feel is, that the nation has been," and will be "weakened" even more than it is, "by the withdrawal year after year of so many thousands of the young, strong, and intelligent, it is no longer a question only of landlord and tenant, for the constant drain is a national loss." *Edward Carroll.*

ALSIKE CLOVER.

[The following, taken from the columns of the *North British Agriculturist*, is translated from the "Hand-Book of Swedish Agriculture," by J. Arrhenius, Secretary to the Royal Academy of Agriculture, and late Superintendent of the Ultuna Agriculture Institute.]

Alsike Clover (Trifolium hybridum) is a pale red perennial species of Clover, which, mixed with Grass, is cultivated with great advantage on permanent Grass land, whether employed for pasture or mowing. This species of Clover thrives best on marly clay with a somewhat moist bottom.

Alsike Clover has obtained its name from the parish of Alsike, in Upland, where it was first discovered, and where it grows in the greatest abundance in every field ditch.

This species of Clover has pale red flowers, a somewhat lank stalk, and oval obtuse leaves, which are less and of a lighter green than those of Red Clover. The flower-head, growing from the upper leaf joint, is globular, and formed of fragrant blossoms supported by stems. These blossoms are at first whitish and upright, and subsequently of a pale red, which, when the flowering has passed, becomes brown and somewhat bent. The calyx is smooth, and its tags of equal length. The seed pods, containing three or four grains of seed, extend out of the calyx, surrounded by the withered crown. The seed is much less than that of Red Clover, is in the form of a kidney, and dark green, or verging somewhat towards violet. Yellow green seed of this plant is not ripe.

Alsike Clover does not attain its full luxuriance until the second or third year after it has been sown, and during the first year seldom arrives at any great degree of growth. It is therefore best adapted to mixture with Grass, for permanent Grass land. It yields, on suitable and fruitful soil, rich and good fodder. It loves clayey soil, especially marly clay, with a somewhat moist position; but it also thrives on cultivated fens and marshes. Alsike Clover grows but little after mowing, and no second crop can be expected from it, as is the case with Red Clover. Both in this respect, as well as in the longer time it requires before it yields a full crop, Alsike Clover stands after Red Clover. Its great and undeniable advantage, on the other hand, lies in the fact that it is far more hardy than Red Clover, and can be cultivated on moist soil, and land that is flooded at certain times of the year, on which Red Clover will not grow. If Alsike Clover be mixed with White Clover and suitable Grass, it yields rich and certain crops, and when cultivated on arable land common Red Clover may and should be mixed with

the seed with which the field is sown, by which the great advantage is gained that, the first year after sowing, two crops of fodder may be gathered, chiefly consisting of Red Clover; and that the following years, in the same proportion as the Red Clover declines the Alsike Clover appears in its place, and yields rich and certain crops, together with the Grass with which it is sown.

With reference to cultivation and tending, the same prescriptions will apply, in the main, that are usually given with respect to Red Clover, with the addition of the following:—As Alsike Clover, in full vegetation, has a great tendency to lodge, it should always, when cultivated for fodder, be sown together with Grass—by preference with Meadow or Fox-tail Grass on marshy land, and with Timothy Grass on drier soil. The crops by this means become much richer, and the Grass supports the Alsike Clover, so that it does not fall down to the ground and rot.

As Alsike Clover seed is not more than about half the size of Red Clover seed, no more than about half as much, in measure, of the former is required as of the latter, and may be sown winnowed or in its pods like Red Clover. Every farmer will soon learn by observation what quantity of seed is required to the acre. If he uses the unwinnowed, or seed in the pod, the quantity required is four or five times greater than if he uses the clean seed.

The quality of Grass and other kinds of seed that should be mixed with Alsike Clover in sowing, when it is cultivated for fodder, we will specify below. Alsike Clover seed, both winnowed and unwinnowed, may be sown in the autumn, directly after the sowing of autumn grain, or in the spring. When the seed is unwinnowed it is considered best to sow it in the autumn; it may, however, also be sown in the spring on the last snow. From the time Alsike Clover first began to be cultivated by us, it has been found that "the unwinnowed seed produces a stronger growth than the winnowed," which has been rightly attributed to the fact that "the tender shoot derives, in part, its first nourishment from the husks that surround the seed." (Annals of the Academy of Agriculture for the year 1819, 2d vol., p. 223.)

The yield of mixed Grass and Alsike Clover seed is, on good and rich soil, very considerable. Lundstrom (Hand Book for Farming, p. 294), considers that it should yield, with certainty, from two to three tons per acre. At Frotuna, in Nerike, in four years, one of which was a very dry year, the average yield was nearly two tons of Alsike Clover and Timothy hay per acre; the largest crop, on well manured and lime strewed soil, amounted to between four and five tons per acre (Farming Transactions, 2d vol., p. 104), a yield that certainly cannot be expected, excepting on very rich soil and in rainy years, in which Alsike Clover especially thrives and attains much greater luxuriance than in ordinary dry summers. It yields, however, in general, good and safe crops, and both in the middle of Sweden (especially in Nerike), as well as at several places in Upland, Gestrickland, and Helsingland. Alsike Clover, mixed with Grass, is prized as being far more reliable then Red Clover. Alsike Clover yields, too, better and finer hay, and, when ripe, the stalk is not so hard as Red Clover.

Gathering the seed of Alsike Clover demands especial care, as it is of importance to gather seed for home use; the purchase of such seed being always connected with considerable expense. In addition to this, however, the gathering of Alsike Clover-seed for sale may be attended with considerable profit, it being in great request in the foreign markets, and fetching high prices. It is also well known that the gathering and sale of Alsike Clover-seed is now prosecuted on several estates as the main object, and it is desirable that the production of this seed for sale were more generally carried out, as from it might be derived a very profitable article of export.

On one estate in Sweden, where 20 acres were set apart for raising the seed, the average annual production for five years was 133 pounds per acre, while the production of one year was 200 pounds per acre. When it is recollected that Alsike Clover-seed generally obtains in the market about double the price of the common Red Clover-seed, it is evident that the gathering of the former seed must render a very handsome return.

Alsike Clover seed is more easily threshed than Red Clover seed. When cultivated and threshed together, the Alsike Clover seed always comes out of the pods before the Red Clover seed. The ripened seed-heads of Alsike Clover, however, falls off easier than that of Red Clover, and therefore in mowing Alsike Clover that has been allowed to ripen, still greater care must be taken than with the seed of Red Clover.

The mowing of ripe Alsike Clover should always be effected either early in the morning or late in the evening while it is moist with dew; otherwise the riper seed pods fall off with the best and finest seed, however carefully the mowing may be performed. The mowed Alsike Clover is left lying as it falls, and is turned once or twice while moist with dew, after which it is housed when dry. In carting home canvas lining should be used in the carts, of sufficient size to cover the whole of the bottom and a part of the sides of the carts, so that those seed pods that fall off in carting may not be lost.

BRICKMAKING.

[The following useful paper was lately read before the Ballymahon Farmers' Club by Mr. W. B. Digby, of Ballimeena.]

The composition of a well-burnt brick may be expressed chemically as a silicate of lime and alumina in the proportion of three parts of silica (or sand), one of lime, and one of alumina, bonded together not merely mechanically, as in the ordinary method, but amalgamated chemically. There are no natural clays found in England or Ireland composed of these ingredients alone, and in their exact proportions; neither is it necessary that an artificial clay should; but by knowing the chemical formula, we can, in practice, make such a compound as will fully answer the purpose.

In selecting clays, those must be rejected which contain bog-earth or vegetable-mould, because these contain organic matter, which in burning would be reduced to ashes; also earths containing gravel or small stones, because these will burst in the fire; and if limestone, the escape of carbonic acid gas will and must find a vent, and burst the bricks.

In districts, however, where no other clay is found, this difficulty is got over by grinding the clay under metal rollers, as in Nottinghamshire; but this increases the cost of the bricks considerably. The presence also of iron, whether as earth, or ore, or chalybeate water, in any quantity, must be avoided; because, although at first the iron may aid in fusing and combining the ingredients, yet, after some time, it will by exposure to the air and weather oxidise and decompose, and, like the feet of Nebuchadnezzar's image composed of iron and miry clay, will ultimately crumble away. The presence of a small quantity, however, of iron, if as a peroxide, and if evenly distributed through the clay, will not be injurious, provided there be no more than the alumina in fusing can take up and combine with, thus neutralising its effects.

As I observed before, the best clays are those containing most alumina. It is, however, very "refractory," or infusible, at ordinary furnace heat. To cause it to fuse slightly, so as to combine with the silica and other ingredients in the clay, and form a homogeneous mass, it is necessary to add a "flux"—a substance which will cause it to fuse. For this purpose chalk is procured, and mixed with the clay in the following manner: chalk not being found in Ireland, slaked lime will do equally well. The chalk or lime is reduced to powder, and mixed with water to the consistence of cream, in an enclosure on the surface of the ground, formed by temporary walls or banks of the brick clay, and close to the clay pit. When ready it is either led in by wooden gutters or emptied by scoops upon the clay, until the mass is saturated with it. Besides acting as a flux, the lime acts mechanically, by preventing the clay and sand, when drying, from cracking and warping. It also improves their colour greatly, which, for house fronts and ornamental work, is an important consideration. This powerful effect of lime as a flux is made use of in the smelting of ores, as I have seen in the iron foundries of Scotland, where quantities of limestone from the north of Ireland are thrown into the furnaces along with the coal.

After selection of the clay, the next process is to prepare for working it. The soil or vegetable mould to the depth of 12 or 15 inches is removed, both because it is unsuited for bricks, and for restoring the arable earth after the brick-making is finished. The brick clay must then be raised in heaps for exposure to the weather; this should be done late in the autumn. After lying two or three months at least, it should be turned over, and any stones carefully picked out. At this stage there is another important difference in the manufacture of bricks in England, namely, the addition of "breeze" to the clay. This consists of crushed and sifted cinders, domestic coal ashes, refuse of coke from gas works, &c., collected for this purpose, forming enormous heaps; as I have seen in the brick-fields of England some 30 feet high and 100 feet wide. There the value of such things is known, and paid for at the rate, sometimes, of 9*s.* per ton; whereas, in this country they are treated as refuse, or at best as manure.

In laying it on the clay the proportion of breeze is about 3 inches deep to every spit (12 inches) of clay. By measure it is about 35 chaldrons (= 36 bushels weighing 18 cwt.) to every 100,000 bricks. 182 cubic yards of strong clay and 200 cubic yards of loose clay will make 100,000 bricks, or one statute acre one foot deep will yield about 1600 cubic yards, or 1,000,000 bricks. This process of mixing cinders is called soiling, and is essential to their excellence. It has many advantages: 1st, it facilitates the drying of the bricks; 2d, it lightens the brick; 3d, it enables them to burn quicker and more thoroughly, being actually fuel inside the brick. Simultaneous with this soiling the liquid chalk or lime-wash is introduced. The clay is then lifted into a pug mill for the purpose of being tempered, which I will describe. There are various forms of them, but the simplest is like a vat, made of staves like a tub; it is about 7 feet high, 5 feet wide at top, and 3 feet at bottom. It has a small opening about a foot square at the bottom, opening at the side next the moulding table. There is an upright shaft in this, and a frame attached armed with knives for cutting the clay. A beam is attached similar to a common threshing machine, and is worked by a horse. In a short time the clay, lime, sand, and breeze are mixed, the door is opened, and the clay comes out like well-kneaded dough, almost dry to the touch. I should mention that no driver is required; for, being near the table, the clot boy, who carries the clay from the mill to it, sets and keeps the horse agoing. This process is called dry or clot moulding, in contradistinction to our Irish method, the slop moulding.

The advantages of the dry moulding are numerous. The bricks so made shrink very little in drying, and dry much quicker; besides, the whole process of spreading, with all its trouble, waste of time and space, risk of rain, and being trodden on by animals, is dispensed with. Moreover, instead of several moulds being required, one is sufficient, which never leaves the table. This mould is of iron, brass, or sheet iron cased in wood: the latter is the best. The mould is well dusted with fine sand or sifted road stuff; then the clot, a lump of clay, also dusted, is dashed into the mould with great force: a stick with fine edge, called a plane, is slid along the top of the mould to cut off the superfluous clay. I should mention that the mould is not laid on the surface of the table, but on a "stock-board." This stock-board rests on four pins, one at each corner, which can be screwed up or down at pleasure, according to the required thickness of brick. The board itself fits the mould true, but freely. On this board, and next to the brick, is an angular slip of wood, called a "kick;" it is 7 inches long by 2 inches wide, tapering to an arras like a ridge tile. The object of this is to make a hollow in the under side of the brick, to give the mortar a good hold; it also lightens the brick. The brick is turned out by the moulder upon a "pallet," a thin piece of wood, the size of the outside of the mould; a boy then lifts the brick off the table between two pallets, placing it on the hack barrow, a framework on wheels, which carries 24 or 26 bricks; they are brought direct to the hacks, which are the same as in this country: they should be about 40 yards long, and two hacks should be built up simultaneously, to allow the bricks a little time to harden before others are laid on them; they are laid edgeways on each other, and set obliquely in the hacks, to afford better ventilation. I have seen in this way hacks of eight and nine bricks high, built up the same day they were moulded. The rapidity with which a practised hand can mould is very great. With sufficient assistance, a moulder has been known to turn out 1000 in an hour, and I have seen a man, with his wife and two boys, mould at the rate of 7000 a day. The contract price for this work is 4*s.* per 1000 for moulding and hacking. To guard against rain, the hacks are covered at night, or in wet weather with little portable roofs made of wood, straw, or matting. The period of drying depends on the weather, but it takes a much shorter time than in this country, where the drying consists of two operations, instead of one.

We now come to the last process—building the kiln, or clamp. A layer of old bricks or bats is laid on the ground, the size of the intended kiln. This floor is not quite level, but hollowed in the middle, to cause the bricks to lean inwards, according as the support of the fuel is taken away as it burns. In laying this floor there are galleries left, 3 feet apart (6 inches wide by 9 inches high), which are filled with faggots. Common peat would suit as well. These are called "live holes," and are the means of setting the kiln on fire. Upon this floor is laid a stratum of bats and inferior bricks edgeways, and 2 inches apart. In these spaces a quantity of breeze, coarse cinders, or common slack is thrown, and swept into the interstices, till they are full and all even. Upon this the first layer of raw brick is laid, over this again are 7 inches of breeze, &c., extending the length and breadth of the kiln. This is carefully levelled, and a course of raw brick laid on it; then a stratum of breeze 4 inches deep; then a layer of bricks and a stratum of 2 inches of breeze. Every course of brick has a thin layer of breeze about ¾ or ½ an inch, merely to conduct the fire up. The whole is surmounted with a course of breeze and ashes 4 inches deep. Up to the 16th course there should be a casing of either old brick or clay, to keep in the heat; then the faggots in the live holes are lit, the openings closed, and the kiln is left to itself. The period of burning varies in proportion to the number of the live holes and quantity of fuel; but the longer and slower the better; there is less chance of the bricks being fused into clinkers, which will be the case if too much fuel is used. The shortest time is a fortnight, but it will be far better if the kiln take three weeks to burn.

The cost price of such bricks in England is 1*l.* 6*s.* per 1000. This includes labour, fuel, plant, interest on cost of machinery, rent of field, and excise duty of 5*s.* 10*d.* per 1000. Consequently, in Ireland, where we pay no duty, deducting 33 per cent. (*i. e.* 3*d.*) for difference of labour, but making some allowance for the difficulty of getting the breeze, also the expense of slack, bricks might be made for about 12*s.* or 13*s.* per 1000. Although novel to some of us, I am of opinion that the method I have described could be carried out quite well here, especially in the vicinity of large towns, near gas works, railway termini, and large stations, also near country towns where coal is used; also smiths' forges, many private houses, &c., might supply a good deal, if carefully saved. This breeze is only necessary for "soiling," *i. e.*, mixing with the clay. For burning the kiln, if sufficient breeze cannot be obtained, common slack, which is one-half the price of coal, could be got, and will do as well as breeze for fuel.

THE OPERATION OF THE MALT TAX.

[The following is Mr. C. S. Read's speech on this subject in the House of Commons on Wednesday last.]

An opinion was very prevalent out of doors that several Parliamentary inquiries had already taken place upon this question; but of inquiries conducted at the instance of the House of Commons the only trace he could find was in 1835, when Commissioners were appointed by the House of Commons to inquire into the Excise revenues generally. The Commissioners reported upon paper, bricks, glass, soap, and lastly upon malt, and they said, remarkably enough, that if it was possible to increase the supply of Barley by admitting free importation, it would be perfectly safe for the Government to abolish half the duty on malt, as in a very few years the revenue would be recouped by increased consumption. Through the medium of free trade the farmers had learnt many lessons and acquired much information which previously they had not the means of obtaining. With regard to meat, for instance, they found that although it cost no more to send a bullock from Holland, or even from Hamburgh, than from the eastern counties of England, yet the prosperity of the working classes, and with it the demand for animal food, had increased to such an extent that the farmers continued to receive a very large amount of money for the meat consumed in this kingdom. In the case of wool, again,

we had prided ourselves upon the short Southdowns as the kind best adapted to our English climate; but it was found that other counties could produce these short varieties in greater excellence than ourselves, and so the despised long-wools of Leicestershire and Lincolnshire had come permanently into favour. Other countries, it was found, could grow Wheat cheaper and much better than we could. But in Barley it was impossible for the foreigner to touch us, the soil and climate of England being peculiarly favourable to its growth. We received from Australia a little Wheat, but sent in return not only malt and beer, but a considerable and increasing quantity of Barley. In 1862 we sent 275 cwt., and last year 3846. It was said that the Malt Tax acted as a protection to the growers of the best Barley, and especially to those in Norfolk. Let him ask whether an Excise duty of 6*d*. in the pound upon meat would be any benfit to the graziers; whether a tax of 1*s*. on woollen yarn would be any benefit to the growers of wool; or whether an Excise duty of 20*s*. on flour would be of any service to the growers of Wheat. Would that not create a monopoly? Should we not have the trade fall into the hands of a few gigantic manufacturers? This certainly would be the result; and, as a consequence, cultivation would be restricted and consumption diminished. Now, he contended that the Malt Tax was a similar restriction. On certain descriptions of heavy and of very light land, it was found that it paid best to keep the land in Grass; for as you employed less capital and less labour, more profit was obtained. It was well known that an acre of Wheat produced more human food than ten acres of ordinary Grass. It did not answer to grow Wheat at 5*s*. 6*d*. a bushel, and it was only malting Barley that paid. The right hon. gentleman the member for South Lancashire had told them more than once that they ought to be content with the improved value of their Barley crops; but he could assure the House that the farmers wanted all the improvement in prices to enable them to compete with the foreigner, who had the advantages of cheap labour, cheap land, and very light taxation. Under free trade Wheat had fallen 10*s*. a quarter, except during the Crimean war; but the imports had very largely increased. In 1831 they amounted to only one million of quarters; during the last five years the average imports had been 15 million quarters. He found by experience that winter grazing did not answer. On every bullock he had been winter grazing he lost 40*s*., on every sheep 5*s*., and he also lost one penny per lb. on pork. Every extra bushel of corn, every extra pound of meat, produced, not by protection, but by freeing the producer from fiscal restrictions, must be a benefit, not only to the farming class, but also to every other class of the community. He wished he could prove what he said by statistics. A few years ago the Poor Law Board attempted to collect some, and he believed that among the most accurate were those compiled in the county of Norfolk by Sir J. Walsham. It appeared that in 1854 there were under Wheat 203,000 acres; in 1866 there were 189,000 acres; in the former year there were under Turnips 161,000 acres; in the latter there were 134,000 acres. In 1854 the number of acres in pasture was 193,000; last year it was 209,000. In 1854 the cattle were 100,000; last year they were reduced by 9000, but there were losses by the cattle plague. In 1854 the sheep were 841,000; last year they were 596,000. Some attempts made by the right hon. gentleman the member for South Lancashire to afford relief to the farmers had signally failed. Of a total of 50½ millions of bushels last year only 3½ millions were malted by weight, or something under 4 per cent. (Mr. Gladstone: "Seven per cent.") He quoted the figures as he found them. It was sufficiently proved that malt made a very useful condiment for grazing cattle, and for young and sick stock it was particularly valuable. As to the question of the consumers of beer, it was said that in the desire of country gentlemen to benefit the labouring classes, they were treading on dangerous ground. He did not believe in the *evangelising* influence of beer, but he did believe that Providence intended that it should be a national beverage in this country to strengthen and refresh the people. It was commonly said that the artisans got too much beer, but he believed that the great majority of agricultural labourers got very little. If there were a moderate supply of good beer to the labourer it would be of incalculable advantage to him, and if it were not for the Malt Tax a great deal of beer would be brewed by the cottagers. Abroad, where wines were cheap, drunkenness was not prevalent. Indeed he heard Archbishop Manning state the other day that during a long sojourn in foreign countries he had seen only two drunken men, and not one drunken woman. The arguments used against the repeal of the Malt Tax were numerous. First of all it was said that we should be inundated with foreign Barley, but he might remark that at the present time we got all the foreign Barley which foreigners chose to send us. Then it was said that we should be inundated with foreign malt, and, indeed, a few years ago, when an import duty of 25*s*. was imposed upon malt, the hon. member for Derby expressed a fear that we should have a very large importation of malt. Experience, however, had shown that that fear was entirely unfounded, although the foreign maltster had several advantages which the English maltster did not possess. The former could bond his malt, but the latter was prohibited from doing so, and, consequently, when there was an extraordinary yield of Barley, he was unable to keep a portion of it till another year without paying duty for it at once. There was no credit now, as they used to have in former days. There was, no doubt, a short credit of six weeks, but he did not call that any credit at all. Again, the maltster could not use his malt-house as he pleased. To show what a monopoly malting and brewing had become during the last ten years, he might mention that the number of maltsters had decreased in that period by 1000, while the present number of brewers was 3000 less than it was ten years ago. This year, notwithstanding a small and damaged crop, the price of Barley was exceptional, and it was preferred to foreign Barley, and, no doubt, the price would have been still higher if there were no tax. With regard to sugar, he found from the returns that the quantity used in brewing in 1865 was 2760 tons, and in the following year had increased to 7372 tons. It was very remarkable too, that the return moved for by the hon. member for Suffolk showed that in the first six weeks of this year, the quantity was 2853 tons, or more than was consumed during the whole of the year 1865. In his opinion the Excise unfairly favoured sugar. It was clear either that adulteration went on to a considerable extent, or else that the brewers could extract a larger quantity of beer from a quarter of malt than they could formerly. The following figures showed this. In 1862, 42,000,000 bushels of malt produced 17,000,000 barrels of beer; but in 1866, 45,000,000 bushels of malt produced 22,000,000 barrels of beer: whereas if the beer had been extracted in the last-mentioned year in the same proportion to the malt as in 1862, the produce would only have been 18,500,000 barrels. The prosperity of the labouring classes was shown to be greatly increased by the consumption of beer. If a man got more wages he would eat more meat and drink more beer than before. Last year the Malt Tax amounted to nearly 7,000,000*l*., and the right hon. gentleman, the Chancellor of the Exchequer, calculated that it would produce the same amount this year. He thought, however, that in the first six weeks after Lady Day the right hon. gentleman would not receive so large an amount from the tax as he expected. Comparing the consumption of malt with the population, he found that 30 years ago it was 2·350 bushels per head, but this year the consumption was only 2.074 bushels per head. At the time of the Crimean war it fell to 1·833 bushels per head, although in the early days of the Malt Tax, before tea and coffee were much used, it was nearly five bushels per head. He was of opinion that the only practical argument against the repeal of the Malt Tax was that the Chancellor of the Exchequer could not spare the revenue; but if the right hon. gentleman could not remit the whole of the tax, he might remit a part of it. It seemed to be the fashion of late to substitute one tax for another less obnoxious. Thus, the house tax had taken the place of the window tax, and the brewer's licence had replaced the hop duties. Now, he thought that the imposing of a tax on beer would be the only way of escaping from the malt duty. Three shillings a barrel duty would produce over four millions of money. If there must be an excise licence on private brewing, he felt assured that the burden would be cheerfully borne. He thought he had proved to the House that a great injustice was inflicted by the Malt Tax. If a committee were appointed to inquire into the matter, he believed it would show the iniquity of the tax, and would be the means of showing the House that the farmers had not unfairly complained of it.

Home Correspondence.

Sorghum tartaricum.—In your impression of the 4th inst., Messrs. Carter state it as a "fact," that they are informed the above "has been successfully grown in this country." I do not entertain the slightest doubt of the correctness of their assertion, but not being able to substantiate that fact from their own experience, it would be a satisfaction not only to myself, but to agriculturists generally, to know if any one else than their incognito friend, to whom let all due respect be paid, has done so, or even seen the crop alluded to by Messrs. Carter, in its state of growth, and where it was produced? I obtained a half-crown packet of seed from Messrs. Sutton, of Reading, advertised by them to be the true Sorghum, not one of which has vegetated with me, although tried in various ways, and therefore, I am inclined to think it was imperfectly ripened, notwithstanding its having been imported, as mentioned in their advertisement. From the appearance of the seed, it seems to me to be more of a species of Lentil than Cereal, though so called by Messrs. Carter. What may I ask, is its habit of growth, how ought it to be sown, and treated when reaped? Are the seeds contained in ears or pods? If in the latter, should it not be regarded as a Pulse plant? *G. M.*

The Danger of a Return of Rinderpest. — My attention was called yesterday to a paragraph in a daily newspaper giving a very alarming account of its spread and destructive attacks in Holland. I have not the paragraph at hand, but the substance is, that about a month since the deaths exceeded 2000 head, the following week about 1800, and last week about 1700, and such was the excitement at these heavy losses, and the probabilities of greater, that about 7000 head were doomed to die, and the authorities in effecting this destruction came into collision with the populace, who resisted so determinedly that the military were compelled to act, and in the attack some of the people were killed. If such strong measures are necessary in order to "stamp out the disease" in Holland, it is highly suggestive for this country. Unquestionably it is exceedingly rife there. Does our Government take sufficient care against its inroads here? Some months ago the importation of cattle from Holland was prohibited, and the importation of hay from thence was deprecated, but I am not aware that it too was stopped. There ought to be the most stringent means adopted and pursued to prevent any intercourse with that country likely to result in the re-introduction of that awful pest. Infected skins, yes, and infected hay, will bring it. In 1767-68 it was said to be introduced by skins or hides, or by two calves imported. This country requires to be thoroughly aroused to the renewed danger. If we are afraid of its re-visit from the Steppes of Russia, how much more cause for fear from our very next neighbour? We must not relax our vigilance. We are open to a fresh visitation at any time. Surely our official authorities are on the alert. If not they are unpardonable. It is very gratifying to know that last week's Cattle Plague report is without a case of attack. We earnestly hope it may long continue so; but in order to keep clear it is imperatively requisite that great care be taken. The minds of the cattle graziers and dealers have become indifferent to its late woful evils; and they are ready—yes, anxious—to do away with all restrictions. Now this is wrong. It may subject them to a little inconvenience, but what is that compared with such wholesale destruction as in the past two years. They certainly have great cause of complaint of the way in which these restrictions are carried out. In many districts the markets are open; the adjoining districts are quite closed. Some counties are entirely open; others entirely closed. One market town enjoys quite a monopoly in the sale of cattle; the neighbouring town stands prohibited. The county magistrates shut up the divisions of counties. The borough magistrates open their markets. This leads to no protection at all. All parties take advantage of the open markets, which are excessively crowded, and the facilities for moving cattle have become almost nominal; magistrates, local authorities, policemen, are all alike becoming careless relative to certificates; little or no inspection takes place. Certificates are almost indiscriminately granted, nearly as a matter of course, for the applicant seldom meets a denial now. I confess I am not without serious apprehensions of another outbreak, the country is so indifferent and careless. As one of the local authorities, my applications for certificates are numerous, but almost every applicant laughs at the idea of a return of the pest. I deprecate this false confidence. My only hope is in governmental supervision. *O. F.*

Baron Liebig.—Let me advise my young practical friends to have in their agricultural library the Baron's works on Agriculture, viz., "Chemistry in its Relation to Agriculture," "Principles of Agriculture," and, above all, "Letters on Modern Agriculture," and "The Natural Laws of Agriculture." It is only by the perusal and the frequent re-perusal of these original and profound works that we can form a true estimate of our agricultural ignorance, and the mere empiricism of ordinary agriculture. It is here that we learn the why and wherefore of our agricultural puzzles,—why, in one case, nitrate of soda, guano, or bones, are a great success, in others a perfect failure—why certain plants succeed on one soil, and fail in another—why a rotation of crops is necessary. These works teach us, for the first time, that each plant is variously composed, and that the want or absence of any one of its component parts will render unavailable all the others, much as in building a house we may have lime, bricks, slates, sand, boards, nails, and labour, and yet they will all be useless for the want of one element—water, or any one of the other materials. From him we learn how unprofitable it is to leave the soil below the ploughed land undrained, uncultivated, and unmanured, for he proves to us that we cannot manure the heavy subsoils through the top or ploughed soil, and hence all deep-rooted plants fail to come to their fullest development. Altogether we owe to that great philosopher an immeasurable debt of agricultural gratitude. *J. J. Mechi, May*, 1867.

Farmers' Clubs.

TARPORLEY: *Cheshire Farmers.*—Mr. Finchett, of Rushton, read a paper on this subject referring to want of united action in matters of importance, as, for instance, (1), in the steps that were taken, or rather the steps that ought to have been taken, in our recent visitation of the cattle plague; (2), in the attempt which was made a few years ago to adjust the varying natures of our weights and measures; (3), in the desirability, or otherwise, of abolishing the Malt-tax; and (4), in our efforts to obtain a better farm agreement between landlord and tenant. He said:—I think there is no class of people in which there is less combination than among the tenant farmers. I am not one to advocate anything nearly akin to the trades unions among the mechanics, but I do think it would have been better for us, had there been sufficient union, to have resisted some of the Government restrictions imposed upon us with regard to the movement and disposal of our cattle, without some guarantee had been given for compensation, for you are aware that our losses were not confined to cattle, but, owing to the Orders in Council, were extended to sheep and pigs; and this was done to benefit the public as well as ourselves, so the public ought to bear a share of its loss.

(1.) As to the compulsory Slaughtering Act, considering the little sympathy we received from the manufacturing interests, or from the small country towns who partly live by us, and the small compensation granted by Government for the few that were slaughtered, some would say we should have been justified in offering an active resistance to their measure. Our receiving no compensation for cattle dying between the 23d November and 23d February is doubly galling, when we think that neither the late nor present Government deny the justice of our claim. Sir Stafford Northcote, in the House of Commons, when speaking of the deputation that waited upon him, said, "The inhabitants of Cheshire had suffered a very severe calamity, which had fallen upon them particularly during this period, and under these circumstances they, not unnaturally, came to Government to know whether anything could be done to compensate them for that loss." When he says we "not unnaturally came to Government," I say it is admitting our claim; and were the same calamity again to befall us, I think we should not unnaturally resist their inter-

ference without compensation. No other class but the farmer would have tolerated such arbitrary enactments. Those of who you read the Royal Agricultural journals will see that Earl Cathcart, at one of the Weekly Council meetings, in speaking upon this subject and referring to the plague 100 years ago, in quoting from the "Gentleman's Magazine" from 1745 to 1757, says "that in the sixth year of the plague the justices have great difficulty in enforcing the orders," and "in the eighth the cattle are shot by order of the Quarter Sessions, and paid for out of the county stock," and when it spread to Holland, that "the population was impatient of restrictions, and even resisted them by force."

The lecturer then noticed (2) at length the inconvenience resulting from a want of unanimity in the weights and measures in local use, stating how difficult and puzzling the transaction of business became with such varying standards. In regard to the Malt-tax (3) he thought its abolition would conduce to sobriety rather than the opposite, leading to more extensive cottage brewing. Beer was now sufficiently cheap for a man to make a beast of himself if he wished, and if it were cheaper, the disgrace attending drunkenness would be greater. In order, however, that the abolition of the tax might produce its legitimate effect, he thought that small beer houses should be put down, as insobriety proceeded more from the adulterated drink sold at these places than from the consumption of good wholesome ale. The duty, again, was taken off Wheat to benefit the consuming part of the population, and it ought to be taken off Barley for malting purposes to benefit the producing part. Barley, Mr. Finchett added, is a grain that has hitherto been little grown in this county, but this year, owing to the cattle plague, and having found it a very productive crop, I think it will be more extensively cultivated, especially if we consider its value as a cattle food which we are prevented using by the duty payable on its being made into malt. The growth of Barley does not so much exhaust the land as Wheat, and as the maltsters are not now so particular as to colour, and if the duty was taken off there would be a readier sale for this description. Our want of unity on this subject was shown just previous to the present session of Parliament. When a deputation waited upon Mr. Disraeli to abolish the Malt-tax, he replied by saying, "That when he proposed to reduce the tax by one-half, in 1852, the proposal was not received with any enthusiastic support from the agriculturists themselves, and it was owing to the opposition offered to that measure that any portion of the tax now remained." (4). The subject of farm agreements is one of great difficulty, not only in this county but in the adjoining ones. About two or three years ago the North Staffordshire Agricultural Society offered a 50*l.* prize for the best farm agreement, for which there was good competition, and the best failed to give satisfaction.

In connection with our county society's meeting some few years ago, we had discussion meetings, and this was one of the subjects, and I think it led to Mr. Humberston's bringing out a farm agreement, and it, too, was not satisfactory. The difficulty in this county arises from the varying natures of our farms, some being all clay, some all sand, and others an admixture of both: hence arises the difficulty of making the same agreement apply to all; I think we should have agreements for each. I shall not attempt to draw out one suitable for any of the above classes of farms, but will just point out one or two objectionable clauses that are sometimes inserted, and that we ought to have erased—First, where tenants are not allowed to sell off root crops. I think this very objectionable, as very often these have been raised with artificial manures bought, and the farmer may have more than he requires; secondly, where in our agreements certain fields are mentioned that we are not allowed to plough, others to mow, without the consent of our landlord or his agent in writing. Where this occurs we are no longer our own farmer, but our landlord is for us. It is very right and proper we should be bound to a certain quantity (and for my own part I should not care how little), but it is placing us very low as a class when we are told where we shall plough or mow. It is not long since I saw a farmer going to ask his landlord if he might plough a certain field. I felt thankful that I did not live under such an one. Thirdly, where we are charged with 10 per cent. for an outlay our landlord may make in bone manure. Under a good agreement it is almost impossible for a farm, with a good tenant, to sink into its former state after a large outlay in bones, and if the landlord charged, say 6 or 8 per cent. for the outlay, it would pay him better than buying more land, which would in all probability pay him only 3 per cent. The tenant with a small capital may take a hint from this by improving what land he already has, instead of taking more or a larger farm, and so produce more food for our fast-increasing population. When I have said that all farm agreements ought to have compensating clauses for inexhausted improvements, I think I have mentioned all that we as tenants need keep in view; the rest the landlord will not lose sight of. After pointing out these objectionable clauses, and suggesting the last one, I would wish you to understand I do not think it important to have such strict agreements with all landlords; on the contrary, I would rather live under some without one, than others with the most stringent. These facts prove the necessity for the formation of chambers of agriculture, which would have a tendency to produce more unity of action in these matters.

(5) I will mention a failing very general and of great importance—not keeping better farm accounts. There is no class of people who keep such loose or bad accounts as the tenant farmers; in fact, very many keep none at all, whilst others have them in a most complicated and unintelligible form. A few years ago a nobleman's bailiff, having heard that I kept farm-accounts, called upon me with his books to compare notes, but I must confess I could not understand them. I said, "Can you tell me from these accounts—with a very little trouble—what you make of any particular part of your stock, say sheep?" "Well, no," said he, "not without going through the year's accounts." Well now, gentlemen, it is very easy to arrange our accounts so that such questions may be answered as quickly as asked, and tell at a glance what we make of any particular stock or produce. I have always been in the habit of keeping a farm account, but never saw any before my own, and had to form them to suit my system of farming. They are very plain and simple, but answer every purpose of my own; and I think farm accounts are like machinery—the simpler the better. It is said it more difficult to keep farm accounts than any others. If so, some are very easy. My plan is to keep a separate account of every kind of stock and produce bought and sold, or reared upon the farm, and a labour account, and then on the 6th March (the day on which I commenced farming, and which I think a good time for a Cheshire farm), I make out a balance-sheet, and so know what profit or loss I may have had. If every farmer kept accounts, many would farm very differently; they would be a guide in many cases to show what is the most profitable system, or otherwise, of farming in Cheshire. I found keeping accounts beneficial to me in 1857, when I lost 20 cows and a few heifers by the pleuro, by getting off the property-tax, under Schedule B. I don't think it necessary to keep a field account in this county, except on very large farms. A bankruptcy commissioner once said, "If men kept their accounts better we should have far less come into this court." The lecturer then proceeded to remark that it was one of the farmer's failings not to employ more manual labour. They underworked their arable land, and did not keep it sufficiently clean, especially when in green crops. The weeds which were encouraged impoverished the land more than a proper crop, and in too many cases took place of it. Again, it was said by some to be one of their failings to spend all they got upon their farms, and perhaps it was often done where there was confidence in the landlord. It would be well to remember the advice given by a retired tradesman in that room, that "out of every 100*l.* made off the farm, 50*l.* should be spent upon it in improvements and 50*l.* put in the bank for the family." There were those who erred on the other side, and spent nothing on the farm; but were he landlord to such, he would give them notice to quit. Another fault was to be behind-hand with their labourers' work—not to be fully prepared for each succeeding season of the year. Having too much tillage, again, was a fault, while other failings were taking a larger farm than they had capital to stock well, under-keeping their dairy stock; and, finally, there was a mistake committed by many farmers of bringing up all or nearly all their sons to agricultural pursuits.

Lest they should think him too censorious, he would now go on to notice the hindrances to successful farming. Some of these were—the growth of too much hedge-row timber, such as Ash, Sycamore, and that worthless sort, Poplar, the over-preservation of rabbits, which, besides making it very expensive to keep neat fences, and almost impossible to rear young ones, was a great encouragement to poaching, and often led to unpleasantness between landlord and tenant; the hazardous nature of their dairy and feeding stock, owing to the periodical return of the pleuro-pneumonia, and now of the Rinderpest, the state of the labour market, as labour was becoming scarcer and dearer every day, the sale of land above its legitimate value, and lastly, the difficulty of obtaining good female farm servants.—The lecturer's remarks under all these heads were eminently practical, and we regret that our limited space precludes the possibility of giving them fully. While considering the paucity of efficient labourers, he strongly advocated the building of good and substantial cottages on every farm, by the landlord, as a means of retaining the active and skilful among them. He was aware, he said, that this, viewed by itself, would not be a paying speculation, and, to meet that part of the outlay which was unremunerative, he thought the farmer should be prepared to sink a small sum annually, as well as the landlord. In the end it would, he felt convinced, answer the purposes of both.

Newcastle: *Sheep Farming on Strong Land.*—At a recent meeting of this Club a paper was read by Mr. William Bell, of Harlow Hill, on "Sheep Farming on Strong Land, and the Best Means of Extending it."

This subject is one of considerable importance, and must have engaged the attention of all concerned in the cultivation of strong land, and more especially in this county, where land of this character is so extensive. Taking into consideration the improbability of a permanent rise in the price of grain, the increasing demand for labour, and, on the other hand, the enhanced price of butcher meat and consequent demand for pasturage, it becomes all the more imperative that the subject should be considered in all its bearings, and some decision arrived at as to the best mode of applying it to feeding purposes. On such soils the cereal crops are chiefly depended upon, and in the preparation of the land for them, if the expenditure cannot be curtailed, or an increase take place in the price of the produce, or crops of a more valuable description can be substituted, it appears to be very improbable that after the improvement effected by drainage the land will be much further increased in value. By the use of manures and good management it will be brought to a higher state of cultivation, thereby yielding a larger produce; but too frequently, as soon as these are withdrawn, it recedes to its former state. On the less retentive portions, Turnips, Rape, and Cabbages may be grown; but it is important to inquire whether these can be grown to advantage. For such crops it is essential to have the land prepared and the seed sown in proper season; and as the disadvantage of commencing operations too early is well known, the work must be performed in a much more limited time than is required on land of a freer nature; consequently more horse power is required; great expense and risk are entailed, and the objections to consuming the crops on the ground are so great as scarcely to warrant the production of them to any great extent. It will be generally admitted that of the above-mentioned roots the cultivation of the Turnip will be found most profitable; and as there exists a diversity of opinion as to whether strong arable soils capable of growing green crops can be more remuneratively employed in the feeding of stock than if laid to Grass, I will endeavour to show the number of sheep likely to be profitably fed on the Turnips grown on such land, worked on the four-course system—assuming the roots are drawn off the land as early as possible—stored up and consumed upon a dry and well sheltered pasture, care being taken that the land from which they are led is sufficiently dry so as to prevent it from being poached or cut in the operation, otherwise it not unfrequently follows that a deficiency is experienced in the yield of the succeeding corn and hay crops. I may here mention that sheep fed under cover will consume a less quantity of food and perhaps feed quicker; but by such a mode I don't think there is much to be gained; they require considerably more attention, and if laid on to Grass in the spring, I have noticed that they do not make the same progress or feed so quickly as those fed in the usual way. The extent of strong land a man and a pair of horses will be able to cultivate on the four-course system, one-fourth being in Turnips, is 44 acres. We have first 11 acres of Turnips, averaging say 14 tons per acre; and as a sheep cannot be depended upon leaving more than 3*s.* 4*d.* per month, and will consume in that time about 7 cwt. of Turnips, the 11 acres of Turnips will carry 73 sheep six months, leaving 73*l.*; 11 acres of Barley, 5 quarters per acre, at 28*s.* per quarter, 77*l.*; 11 acres of hay, 1 ton per acre, at 4*l.* per ton, 44*l.*; 11 acres of Oats, 5 quarters per acre, at 20*s.* per quarter, 55*l.*; 11 acres of Oat straw, 11*l.*;—making a total of 260*l.* for the 44 acres. The straw and hay supposed to be eaten on the premises, and the manure made to be applied to the land for the corn crops. From the above we must deduct expenses as follows:—Keep of horses wages for man, small work, blacksmiths' and joiner's work, &c., 110*l.*; seed for above-named crops, 17*l.*; manure for Turnips, 27*l.* 10*s.* From the average value of crops we may put down rent, including rates, at 28*s.* per acre, *i. e.*, 61*l.* 12*s.*; total, 216*l.* 2*s.* The capital required will be six times the rent, or say 369*l.*, and the amount of profit, after deducting the expenses, being 43*l.* 8*s.*, is at the rate of 11¾*l.* per cent. for interest on capital, management, and casualties. You will perceive by those figures that the average yield of crops has not been taken, but is still liable to be affected by unfavourable seasons. Assuming such land to be worked with a bare fallow, 60 acres will be as easily cultivated with the same capital and at the same cost as 44 acres with a root crop; and calculating on the same principle, making allowance for extra small work and manure which the root crop requires, it will be found to leave 13¾*l.* per cent.; showing that the advantage of a Turnip crop on strong soils is more than met by the additional cost it is attainable at.

It thus appears to be unprofitable to grow root crops purposely for the feeding of sheep on soils where they cannot be advisedly consumed, though, when horses are not kept solely for the purpose of working the whole of a strong fallow quarter for a root crop, to a certain extent, a portion may be grown to advantage to assist in breaking up the straw, and carrying store cattle and sheep over the winter. On fine working soils the result is entirely different; they being worked at considerably less expense, and the roots drawn off or consumed on the ground, and the land ploughed at almost any season without incurring scarcely any risk to the succeeding crops. How, then, are we to keep pace in supplying a population increasing at the rate of about 200,000 per year with butcher meat? It has been suggested, to increase the stock in this country, that a prohibition on the slaughter of lambs and calves would be beneficial; but when we consider that even at present no hay, straw, Turnips, or Grass go unconsumed, it appears such a mode would only tend to enforce the slaughter of older animals. The impossibility of increasing the stock without first increasing the articles of food for them, must be evident to all; and the weekly variation of about 2*s.* per stone in the quality of cattle sold in our fat markets, is a proof that there is an ample supply of store stock in the country, and a scarcity of food to bring it to perfection. On looking at the agricultural statistics which have been recently issued, we find 870,857 acres standing under the head of bare fallow. Now, supposing it cultivated on the four-field system, which is likely to be most generally adopted on inferior soils, we have 3,483,428 acres of this class of land in England and Wales; and judging from what we see around us, comparatively speaking, doing little towards the keeping and feeding of stock. Then what might we suppose would be the result if a large portion of this description of land was laid down to pasture? Taking, for instance, the 44 acres to feed 73 sheep six months, and assuming it to be sown away with a spring corn crop. The capital required will be about 9*l.* per acre, or say 396*l.*, viz., 30*s.* per acre for seeds, 50*s.* per acre for manure for a top dressing in the spring following the cutting of the corn, leaving 5*l.* per acre for the purchase of stock, management, &c. Now, it may with safety be estimated that one acre will carry two sheep throughout the year, and a sheep calculated to leave 2*s.* 6*d.* per month. We find on

deducting rent, that the 41 acres will carry 88 sheep, and leave a profit of 17¾ per cent., less the usual losses a sheep stock is subject to—against 44 acres arable feeding 73 six months, and leaving 11¾*l.* per cent. And assuming out of 3,483,428 acres of this kind of land there are 2,500,000 on which, from the nature of the soil, a root crop cannot be advantageously grown; and supposing it, after having been laid out dry by drainage, to be sown to Grass in such a way as to enable it to carry two sheep to the acre, by this means the sheep stock in this country would be increased by 5,000,000, and mutton and wool produced to the value of 7,500,000 per year. And as a sheep leaving 30*s.* should produce 2¾ stones of mutton, the addition to the country in butcher meat would be 85,937½ tons, and equal to a yearly importation of 343,750 foreign cattle averaging 40 stones each. From this statement it must not be inferred that it is most beneficial to graze new lands solely with sheep, or that they will convert Grass into a greater weight of meat than cattle, but merely to give an idea of how our home supply of animal food might be augmented. The supply being regulated by the demand, stock of either description would be reared accordingly. Nor do I think any serious loss need be apprehended to the country in corn and straw.

Mr. Browell said he was in the unfortunate position of having to cultivate a quantity of strong land, and he had considerable difficulty in rendering it at all profitable. He was of opinion, however, that all land which was too strong for Turnips might be put to Grass, and he was now still more strongly impressed with that opinion. Draining was another point which should be looked to, so that the land might be well cleaned before it was manured, and the result of this would be that they could get good Grass land.

Reviews.

Potash as a Manure: a Lecture delivered by Mr. W. C. Spooner before the Winfrith Farmers' Club. *Dorset County Chronicle* Office, Dorchester.

Mr. Spooner is a very good lecturer, and well qualified to speak to agriculturists on both the theory and practice of their profession. In the present tract, reprinted from a county paper, he gives a number of telling illustrations of the defective character of many scientific theories. The mineral theory in its original limited dimensions is very well exposed. The need of all the elements of a plant to its growth, and the consequent advantages of artificially adding some of them to the soil are sufficiently admitted; but, as Mr. Spooner told his audience—

"They paid an annual rent for the land they occupied, with all those stored minerals—at any rate all those within reach of the plough. They did not want to buy over and over again that which they already had and paid for. They did not wish to purchase that in which the soil already superabounded, but rather to supply that in which the soil was deficient, and which would enable the plant to put on such increased growth, upwards and downwards, as to extract both from the atmosphere and the soil a far greater amount of nutriment than could otherwise be supplied. He would just illustrate a point. He occupied a small farm for something like 20 years, and he gave it up at last, because he was unwilling to pay double the rent for it, or at least an increase of 60 per cent. Be that as it may, he was enabled during that period to try a great number of experiments, and he would proceed to mention one which would illustrate the subject before them. He applied to a Wheat stubble in the early spring a solution of ammonia, and it had no other manuring than this carbonate of ammonia. The land was ploughed and afterwards sown with Oats, some portion of the field—about an acre—being left without any dressing. The contrast was most striking. Where there was no manure he had about 10 sacks of Oats per acre; but where the ammoniacal dressing had been applied he reaped more than 20 sacks. The increase of straw was still more striking, and it was almost dangerous to walk across the field after the Oats were cut with a reaping hook, as the stubble stuck up like so much reed. This increased quantity of grain and straw contained, as they imagined, treble as much silica and potash as that portion of the field not dressed with ammonia, and yet not one single particle of silica or of potash was added in the manure. Now what did this show? That this land possessed sufficient silica and potash for this large and bumper crop, and that the ammonia which was applied enabled the plant to take the properties of the soil into its possession. Well, supposing he had added some potash and silica to the ammonia, most people would have attributed half the beneficial result to that application; and this showed then they should be most careful, whenever experiments were made, in order to come to anything like an accurate conclusion. Now, supposing he were to take this piece of felspar, which he held in his hand, and which contained about 12 per cent. of potash, and were to grind it up and sell it as manure, telling farmers it was a wonderful substance, it would be a fraud; but it he were to combine it with some guano, or ammonia, or dressing of some sort, it would be no fraud, but simply humbug."

Mr. Spooner's arguments and illustrations go to prove that we have enough potash in our soils for all the requirements of English agriculture:—

"That, although potash enters so largely into the composition of vegetable produce, yet, under the system pursued in British farming, the greater portion is left behind in the dung of animals, so much so that every ton of dung contains 12 to 15 lb. of potash, and is thus the cheapest and most available form of supplying or restoring this alkali. That, in woods and forests, plants and timber requiring and possessing potash have been grown and removed for hundreds of years without any apparent injury to the land, although no potash has been returned to the land during this period. That, an analysis of a great variety of soils demonstrates that potash exists in almost all, and in many to the extent of many tons per acre, reckoning to the usual depth of the plough, whilst phosphate of lime is found much more sparingly. That the facts above mentioned sufficiently explain the reason why nearly all experiments with potash as a profitable manure have hitherto failed, and afford no encouragement whatever to the employment of this alkali as an artificial manure."

And to the same conclusion Mr. Lawes arrives. A letter from him was read on the occasion of Mr. Spooner's lecture, and we transcribe it here:—

"Dear Sir,—I have been experimenting with potash as a manure for the last 25 years, and I have sent it out as an artificial manure both alone and mixed with other ingredients. The conclusions I have arrived at are as follow:—1. That its action is very uncertain. 2. That it will not pay a farmer to use it as an artificial manure. 3. That it is more suitable for Clover or Beans than for other crops. 4. That on most of our English soils where grain and meat are sold, and roots and green crops are consumed on the land, there is sufficient potash set free in the soil by the action of the atmosphere to supply the quantity removed in the grain and meat. 5. That on highly cultivated farms where cattle foods are largely used, as much or more potash is brought upon the land than is removed. 6. That it will not pay to purchase potash to grow Potatos or roots for sale, unless the potash is contained in some bulky manure, such as town dung, sea-weed, &c. 7. That although potash is much cheaper, owing to the supplies obtained from Germany, the price is too high to enable farmers to use it with profit. 8. Potash cannot be recommended for general use or to be mixed with other ingredients used artificially; each farmer must therefore try it on his own land and decide for himself whether it is worth his while to use it.'

Pigeons; their Structure, Habits, and Varieties. By W. B. Tegetmeier, F.Z.S., &c. With coloured representations by Harrison Weir. G. Routledge & Sons, Broadway, Ludgate.

The first number of this beautifully illustrated book, which is coming out in parts, has just appeared. Never, we suppose, was there a better union of author and artist for the satisfactory attainment of a particular end, than when Mr. Routledge induced Messrs. Tegetmeier and H. Weir to unite their forces here. The former in the present part contributes a chapter on the structure and general character of the genus Columba; and makes Mr. MacGillivray tell the natural history of the native species "Rockdove," from which our domesticated pigeons are derived. The latter gives four well drawn but highly coloured pictures of as many varieties, viz., turbits, jacobins, nuns, and swallows. No. 1 gives handsome promise of a very successful volume.

Farm Memoranda.

Merse of Berwickshire: *May* 11.—Farm work is getting much in arrear. Since the opening fortnight of April, which barely sufficed for seed-time, little good has been done on the land. We are not sure that all have got their Potatos planted this week, and we certainly never saw them done in such bad order. The rainfall of four weeks is 3½ inches. A dry day or two occasionally tempted us to stir fallow, but then on came the rain, and we had better never have stirred. During the cold rains of April young Grasses were much poached by the invariable wandering of hoggs in such circumstances; latterly, however, the high temperature has caused a marked improvement in all pastures.

Store hoggs have now come down to a moderate price, and yet dear enough if mutton is to continue at 6*d.* per lb. Cattle sold in winter left more pay than the few that have been held to the last. Our "sheet-anchor" seems rather insecure just at present. Good fat stock is a pleasant sight to see; pity 'tis that, when the cake is paid for, there is so little left for the poor Turnip crop. That corn is sold out is a fact that may come to the knowledge of market reporters by and by. The braird is flourishing in general, but grey slugs are walking off with the Oats on our clay lands, for which we intend a dressing of nitrate of soda. *J. T.*

West Sussex, *May* 13.—Though the spring has been late it is now making up for lost time, everything is growing at a rapid pace, and we have a promise of a large crop of hay; it is seldom that we have seen the Clover so heavy, and so few failures, and the meadows are good, and as stock has been dear they are not so heavily stocked as usual, and so there will be more Grass mown. All our growing crops look well, and it is to be hoped that such will continue to be the case, for at present the old Wheat is nearly all gone; the stock has not been so low for many years at this season, and the reason is very obvious: it was a light crop especially in straw, and the winter being wet, straw was wanted more than usual, and both corn and straw have been dearer, so that there was every inducement to thresh more readily. The yield upon the high lying farms has been fair, but deficient on the lower and colder lands, but the price has compensated the farmer to some extent. Mangel is nearly all sown, but the land has worked rather coldly and has required more labour than usual, and we have to defer turning up the fallows till rather late, as they get hard if not dry when ploughed up. And those who employ steam in cultivating will find that a grubber run through the cold land in the spring will be far better than ploughing it up, as it then dries gradually without getting lumpy. But nothing tends so much to allow of its early working in the spring as deep autumn cultivation, done before the land gets wet.

Wages have been raised, not so much on account of scarcity of men, as of provisions being dear. At one time there was a prospect of hands being short on farms, but for some time that will not now be the case, as many of those who were employed on railway making are thrown out of work there, and will find their way back to farming. And machinery is being still more extensively used, and will be more and more. *G. S.*

Overstone Grange, Northampton.—Mr. Wallis—occupying a home farm of 375 acres arable, with 28 of pasture, and also a large grazing farm at a distance—has had five years' experience of steam cultivation. The soil of the largest part of the farm is a clay-loam, with a subsoil of calcareous clay—a drift clay, containing flint and other pebbles and small fragments of chalk; four large fields are of stiff clay; some of the land has clay-and-sand veins, which are noted for being "either all bricks or all mortar;" and a portion of the farm is of a lighter description, adapted for Turnip as well as Bean growing. There is very little stone to interfere with the progress of the implements or to grind the rope. The surface presents gentle slopes, without being steep or hilly in more than two or three fields, and the enclosures are large, having been squared and fences straightened some time before steam ploughing was adopted. In some fields an exchange of property has enabled a straight fence to be struck, in place of a most crooked boundary; and old parish bounds and the sites of grubbed-up hedges are seen across several of Mr. Wallis's fields by the big timber trees still left standing in line in the middle of green crops and stubbles. Were it not for these remnants of "the forest primeval," this farm would be splendidly laid out for steam tillage; as it is, we know from experience in similar situations, that many plough-skifes must be broken in the course of a year against the huge roots of these field trees; and the necessity for going at a snail's pace when under their shadow, and shifting the ropes twice at each tree, must lose the engine and men a great deal of precious time. We observed, too, that while Mr. Wallis sides up his Thorn-fences to perfection (topping, however, only in the winter, so as not to weaken the growth by cutting away too much green) many of the fences are overcrowded with timber—a state of things eminently mischievous, we should say, to the tenant, and of no earthly advantage to the proprietor, seeing that the trees are damaging one another, and the felling of one-half would both enhance the picturesque effect and promote the growth into profit of the remainder. Perhaps we may be permitted to name here the example of Lord Leicester, whose practice is to sell injurious hedge-row or outstanding timber to his tenants at below market-price, with an order for immediate cutting-down.

At the Leeds meeting, in 1861, Mr. Wallis purchased a Fowler 14-horse engine, cultivator, and plough, with drag harrow to work at the side; and added a "rope-carrier," or light four-wheeled carriage, with reel upon it, made by Amies & Barford, of Peterborough, which he finds very handy in removals, and for taking care of the most costly wearing part of the tackle. Elaborate book-keeping has not been pursued with respect to the steam tillage, so that we can record only the experience and results as they appear in the long run. The engine is used entirely in field work, an old portable doing duty with the threshing machine, &c., and no steam culture has been undertaken off this one farm. The "road gear" of the engine has stood well; no difficulty or special delay has arisen with the anchorage, the implements, or "slack-gear," and only a very few new "clips" have been required on the drum. Between 300 and 400 acres have been grubbed or ploughed, say nearly 2000 acres in the five years, and the renewal of rope has amounted to only 650 yards; the remaining portion of old rope is still working, and the 650 yards of new is, in our judgment, about one-fourth worn. The consumption of rope due to the 2000 acres' work would appear to be about 900 yards length, or say about 1*s.* per acre. The daily performance is 6 acres with the digger or the plough and 12 acres with the cultivator, the coal burned being 15 cwt. per day, at 15*s.* per ton. The water is carted from a brook or from the homestead, as most convenient.

To shift the whole machinery from one field to another generally occupies four horses and the steam hands for three hours.

On the principal part of the farm a 5-course rotation of cropping is adopted, that is to say (1), Turnips, (2), Wheat, (3) Barley, (4) seeds, (5) Wheat; or else, (1) Turnips, (2) Oats, (3) Wheat or Barley, (4) seeds, (5) Wheat. The steam work embraces "smashing-up" all the Wheat stubble for the fallow crop or for the Barley; the preparation for roots consisting of "three times over" with the cultivator or the plough, while the seed-bed for Barley is worked twice. When clean, the land is broken up by the "digger;" when any Twitch has to be eradicated, the cultivator is the first tool employed. Then, further, a portion of the seeds (layer or aftermath) is ploughed by the engine for Wheat; the remainder being ploughed, as usual, by horses. And Mr. Wallis makes admirable steam ploughing with the shallow furrow slices requisite for a Wheat seed bed by driving five 8-inch wide instead of four 10-inch wide furrows, thus obtaining the right proportional dimensions for neatly turning work only 5 inches in depth; and the drag harrow hung beside the plough reduces to tilth without the trampling of horses' hoofs. By a judicious application of steam power husbandry the fallow break, at first-starting, was cultivated only 6 or 7 inches deep; whereas now the digger is put in 9 or 10 inches; and this cautious and sensible method of procedure has undoubtedly avoided many of the disappointments which have overtaken some adventurous steam ploughmen before they began to realise the wondrous profits they had expected.

Mr. Wallis's Turnip crops are certainly very fine, and his practice is to feed off about three-fourths, the other quarter being carted to the homestead. One field of Rape was shown us, part of which had been

steam tilled and the other horse ploughed; the plant was small and somewhat "foxy" on the latter part, but very thick, high, and luxuriant on the "steamed" portion of the land. We had the pleasure of walking over "a good farm, well done," the stubbles being strong, and the whole farm remarkably clean, excepting only one "close," a little Grassy, and this is a Wheat stubble, the seed bed for the Wheat having been ploughed 5 inches deep by steam power, after one year's Rye-grass. On the four fields of clay soil green crops have been again entirely due to steam cultivation, taking the place of bare fallow in a 4-course rotation, which brings Beans and Clover every eighth year. Mr. Wallis has not greatly reduced his stock of farm horses, the 14 he used to work being now lessened by two or three.

The drainage of the farm was formerly accomplished by bundles of wood tied up and buried some 18 inches deep, and this sort of work stood (in some places) for 25 years. All is now well drained with pipes at an average depth of 4 feet, that is, varying from 3½ to 4½ feet; the old broad high ridges have been gradually lowered, and now "the water sinks away better" after the steam work than after horse ploughing. *Mr. J. A. Clarke's Report in the Journal of the Royal Agricultural Society.*

Miscellaneous.

Law of Hypothec.—I ask, is this a just law? Or rather, should not the Scottish landlords be ashamed to come forward to advocate its continuance, as if every other class of society were formed only to minister to their especial security? Is it not a fact that, upon a farm becoming or likely to become vacant, this is put up to auction—or competition, if you like the term better, the effect being the same—and knocked down to the highest bidder, who, 10 to 1, is a man of straw, but anxious to have a farm at any rate, trusting to the chapter of accidents to render the speculation good or bad, as the case may be? Is it not a fact that, the instant a lease is executed by a poor tenant, he is compelled to sign also a sequestration over all the property that may be on the farm at any future period, including stock, crop, and machinery, in consideration of which the landlord is to allow him to keep the payment of rent in abeyance for two or two and a-half-years? Is it not a fact that both parties calculate upon the tenant's obtaining credit for large purchases of stock and machinery, during those years, by which the working capital of the farm, and consequently the landlord's security, are enhanced to the same amount? Is it not a fact that, should a bad season or two occur at the commencement of a lease, the poor tenant is certain to be unable, at the expiration of the landlord's credit, to pay the rent, and be left without a chance of retrieving his position, having nothing to fall back upon, and his other creditors pressing upon him for payment? Is it not certain that, under such circumstances, the landlord, unless he is a merciful man, will avail himself of the law, and put his sequestration in force, selling stock, crop, and implements and machinery by public roup (the chief part unpaid for), probably at half the cost price; paying himself in full out of the proceeds, and handing over the balance, if any, to the other creditors, who in fact are the only sufferers, the tenant himself being no poorer than when he began? Is it not, in the last place, a fact that, supposing the proceeds of the sale are insufficient to pay the rent due, the landlord, if he can discover any miller or other tradesman who has at any time within the two years, privately (or not at the open market or fair) purchased any portion of stock or crop, has the power of compelling such purchaser to pay over again the full amount of such purchase, although he had already paid it to the tenant? *Mark Lane Express.*

Rating of Woodland and of Game. (1.) *Woodland.*—I do not mean the underwood—that is the growth from the old stub (which when the land is let is the property of the tenant)—but the saplings, the tillers, and the timber trees, which are retained by the landlord, and are not uncommonly of three or four times the value of the freehold on which they have grown, and yet according to the present law of assessment cannot be valued, because the Act directs that the property shall be assessed at what it will let for—mark you—from year to year, and the right to cut the timber is never let. In addition to this permit me to remind you that as the timber trees increase in size, and thus exclude from the underwood below them both light and air—the two most important elements in the vegetable as well as the animal kingdom—they destroy it, and so not only is timber free from rating, but it depreciates the rateable value of the land that otherwise would bear a portion of its liability. These particulars apply to timber grown in hedge-rows as well as in woods. (2.) *Game.*—He might mention an instance of how the law worked. Supposing a gentleman were to take a farm, at say 1*l.* an acre, the landlord might, if he chose—and many did at the present time—let that shooting, the result of which would probably be that such a large amount of game would be preserved that the tenant would suffer severely when the landlord was reaping a large profit. He would suppose an opposite case, when a farmer took some land with the right of shooting. The tenant would say, "I will give you 2*s.* or 3*s.* an acre for the right of shooting," and concluded the bargain. When the Assessment Committee came round, they would ask for the lease, and tell from that what the tenant had to pay. The law said they should have no appeal, and in consequence of the unequal bearing of the law one man would pay (on) 20*s.* while another would pay (on) 23*s.*, and thus 3*s.* per acre would be lost to the country. That was where game was preserved in moderate quantities. In the neighbourhood of Croydon he had seen where a tenant was obliged to leave his farm while it was at 1*l.* an acre, while another man could carry it on at 50*s.* per acre; but then that was when there was no game preserved. *Mr. R. Fuller, Chairman of Croydon Farmers' Club.*

Storm Warning.—In 1860 the late Professor Espy, of Washington—whose great work on meteorology, I say advisedly, is the only modern work on the physics of the science worth the study—made a request to the British Association, then met at Aberdeen, that they would appoint a committee to examine and report upon certain phenomena that had been wholly overlooked by European meteorologists. Sir David Brewster earnestly backed up this proposal. General Sabine, now president of the Royal Society of London, could not see his way to recommend such a step, and the matter fell to the ground. At that same meeting, however, the British Association may be said to have instituted the Meteorological Department of the Board of Trade. They then imposed upon Admiral Fitzroy some tasks which neither he nor they could possible solve. What has been the result? We have expended 50,000*l.* on the Meteorological Department, and the French, I think, must have expended far more. Have they found out a single principle which either they or any one else have any confidence in? They have translated Dové, but what of that? When Signor Matteucci was organizing his storm warnings for Italy, and was beseechingly asking for some plain rules to guide him, and, as he said, wanted "none of the grand discoveries of Dové," I then contributed my mite. I told him that the chief thing he had to do was to watch the barometer at Valentia, on the west coast of Ireland. When a great fall occurred there, it would be propagated on to Italy, and he should be on the out-look. He asked for my authority for such an opinion, and asked if there were no such things as cyclones. I told him there was no evidence of such meteors; and as for the easterly progression of the falling barometer, the "Transactions of the Meteorological Society of the Palatinate" had established that fact 80 years ago. But I told him neither to believe me nor the cyclonologists, but to judge for himself. Well, he has tested the matter for several years, and what is his experience? In the last January number of the *Nuovo Antologia*, published at Florence, he says:—

"The great storms from the Atlantic, after investing the west coasts of Ireland and England, cross France, Switzerland, and the Alps, and arrive at our ports in the Mediterranean and Adriatic in a space of time varying from one to two days. The wind begins to blow at Naples, and the sea is raised before the ditch * has passed Genoa. This knowledge is of little use, however, as we cannot obtain with punctuality and despatch telegrams from Penzance or Valentia."

Now, if the winter storms of Europe are of a similar nature and character to those of 2d and 3d December, 1863, do you see any difficulty any country in Eastern Europe has in allowing either the easterly or the north-westerly storms bursting upon them without being warned of their approach by telegraph. The steepness of the sides of the "ditch" might be given as it approaches from the west, and all its bendings known. Sweden must watch the barometric curve at Aalesund, on the west of Norway; and every country in Europe must watch the character of the barometric curve on the farthest land west of them. Had the French not have been theoretically predisposed to believe that storms come from the south-west, might not the port of Marseilles be warned of every north-west wind or mistral, as they term it, on its appearance at Brest or Rochefort? We face the Atlantic, out of which all the storms issue, and we have less space to work on. Can it be possible to give warning to the east coasts of England in such storms as those of the 2d and 3d December, 1863, which were travelling at the rate of upwards of 50 miles an hour, without having a night and day watch on the west coast to telegraph the characters of the storms as they became manifested? If we at Edinburgh wish to know the flatness or sharpness of the curves as they approach us, and know the force of the wind as it changes from one quarter to the other, we must look to Greencastle. But there is a point to the far west where we could now look for material guidance. I said 10 years ago that, as soon as the Atlantic telegraph was laid down to Newfoundland, we might telegraph from that quarter great breakings up in our weather—such as in the December disturbance of 1863. Had the notion not pre-occupied English meteor agents, that our storms all travel from the Gulf Stream, I think it is not improbable that we should have had recourse to this easterly point of the American continent before now. *Mr. R. Russell, of Pilmuir, before the Royal Society of Edinburgh, April* 15.

* This is Matteucci's phrase for the line of minimum barometer.

Notices to Correspondents.

ATOMIC WEIGHTS: *J B Buckland.* The most recent chemical works should be consulted for the truth on this subject.

BAILIFF.—The Editor of this Journal can recommend a good working Bailiff, well acquainted with tillage, farming, and market gardening; also acquainted with stock management. Wages, 90*l.*, with cottage and garden.

HEREFORDSHIRE CIDER MILL: *Mr Duckham* informs "W. M." that the maker of the cider mill he uses was Mr. Davies, of Linton, near Ross. Mr. Coleman, of Westbury-on-Severn, Gloucester; and Mr. Latcham, of Hereford, are both of them extensive makers of the same kind of mill.

MANURE FOR PASTURE: *Suburban.*—In the absence of farm yard or town dung, probably bone dust applied now will be most beneficial to the Grass. If you get some well broken and mix it with some damp mould to heat and rot before applying, it will be more immediately active: 16 bushels an acre are a good dressing.—The Thorn and hedges of it are to be grown just as any other plant is cultivated, by planting in land properly prepared, and taking care that no other plant is with it. Clean the hedge, stir the earth about the roots, and cover them up with good compost mould.

SORGHUM: *Mr J Stringer's* letter arrived too late for this week. He asks Messrs. Carter where their Sorghum has been grown in England, and who has proved its yielding qualities in this country.

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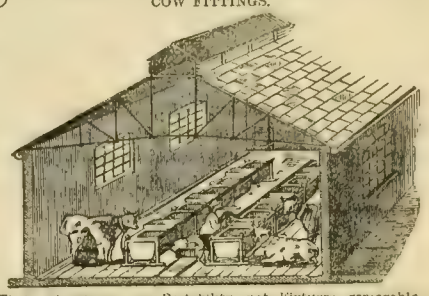
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Their advantages are—Portability, not Fixtures, removable at pleasure, no Woodwork or Partitions to impede Ventilation or breed Vermin, Hay Rack dispensed with as unnecessary, increased width and depth of Feeding Troughs, Water Cistern, and Patent Drop Cover to prevent over-gorging. Cleanly, durable, and impervious to infection, being all of iron. Price of Fittings per Cow, 55*s.*

Prospectuses free of COTTAM & Co., Iron Works, 2, Winsley Street (opposite the Pantheon), Oxford Street, London, W., where the above are exhibited, together with several important Improvements in Stable Fittings just secured by Patent.

W. S. BOULTON'S 36-gallon SWING WATER BARROW. Price 45*s.*

Carriage paid to any Station in England.



The above is very cheap and invaluable for carrying Liquids of all kinds. No Garden, Farm, Stable, or Kitchen Yard should be without one. Two or more Tubs can be had with one Carriage at a small additional cost. A Lad can easily work it; but if required to travel long distances over rough ground a Pony can be attached. The wheels and carriage are wrought iron, and the tub oak. The following, out of many Testimonials, have been received:—

From Lord OTHO FITZGERALD, *West Park, Salisbury.*

"SIR,—You are welcome to make use of my letter recommending your Water Barrow. I find it of great use, and stronger, better, lighter, and more serviceable than one I had made in the neighbourhood, the carriage alone of which, without the barrel, cost me £3 10*s.* I unfortunately ordered it before I saw your advertisement. —I am, yours obediently, "O. FITZGERALD."

"To Mr. W. S. BOULTON."

From THOS. INGLE, Esq., *M.D., Emsworth, Hants, June* 24, 1866.

"SIR,—The Swing Water Barrow is in every respect a most admirable improvement on all I have hitherto used in my Gardens. All parties who have seen it, Gentlemen as well as Gardeners, have bestowed upon it their unqualified approval, and several said they would order them of you.—Yours truly, "THOS. INGLE, M.D."

"To Mr. W. S. BOULTON."

Rose Lane Iron and Wire Works, Norwich.

Oil Paint no longer Necessary.



HILL AND SMITH'S PATENT BLACK VARNISH for preserving Iron Work, Wood, or Stone. This Varnish is an excellent substitute for oil paint on all out-door work, and is fully two-thirds cheaper. It may be applied by an ordinary labourer, requires no mixing or thinning, and is used cold. It is used in the grounds at Windsor Castle, Kew Gardens, and at the seats of many hundreds of the nobility and gentry, from whom the most flattering testimonials have been received, which HILL & SMITH will forward on application.

From J. A. TAYLOR, Esq., *Strensham Court.*

"In answer to your inquiries, I beg to inform you I find your Black Varnish an excellent substitute for oil paint upon iron and wood out of doors, and have found the iron Barrow with apparatus essential in applying the Varnish to lines of fencing. I can strongly recommend the Black Varnish for all out-door work as superior to anything I have yet used for the purpose, and it can be applied with great economy by careful labourers."

Sold in casks of about 30 gallons each, at 1*s.* 6*d.* per gallon, at the Manufactory, or 1*s.* 8*d.* per gallon paid to any Station in the kingdom.

Apply to HILL & SMITH, Brierly Hill Iron Works, near Dudley, and 22, Cannon Street West, E.C., from whom only it can be obtained.

GREEN'S PATENT SILENS MESSOR,

OR

NOISELESS LAWN MOWING, ROLLING, and COLLECTING MACHINES.

PATRONIZED BY

HER MOST GRACIOUS MAJESTY THE QUEEN
ON TWENTY-NINE DIFFERENT OCCASIONS.
H.R.H. THE PRINCE OF WALES.

THE KING OF THE BELGIANS.
THE EMPEROR OF THE FRENCH.
THE EMPEROR OF RUSSIA.

AND MOST OF THE NOBILITY, CLERGY, AND GENTRY IN THE UNITED KINGDOM.

THOMAS GREEN AND SON, in introducing their PATENT LAWN MOWERS for the present season, beg to state that they have no Novelties to report. The fact is, that after the severe tests their Machines have been subjected to since they added their latest improvements, they have been found to meet all the requirements for which they are intended, viz.:—the KEEPING of LAWNS in the HIGHEST STATE of PERFECTION.

They are the simplest in construction, least liable to get out of order, and can be worked with far greater ease than any other Lawn Mower extant; and in proof of their superiority, 36,000 have been sold since the year 1856.

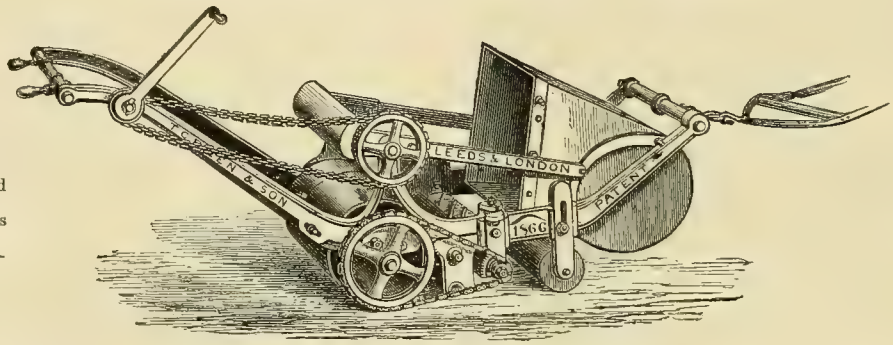
THEY ARE THE ONLY MACHINES IN CONSTANT USE AT

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HORSE, PONY, AND DONKEY MACHINE.

GREEN'S
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LAWN MOWERS
have proved to be the best, and carried off every Prize that has been given in all cases of competition.



T. GREEN & SON
warrant every Machine to give entire satisfaction, and if not approved of can be returned unconditionally.

PRICES of HORSE, PONY, and DONKEY MACHINES, including Patent Self-delivery Box; Cross Stay complete; suitable for attaching to ordinary Chain Traces or Gig Harness.

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To Cut 26 inches	..	..	..	£13 0 0	*Leather Boots for Donkey*, 18*s*. *Leather Boots for Pony*, 22*s*.
„ 28 „	..	..	..	15 0 0	
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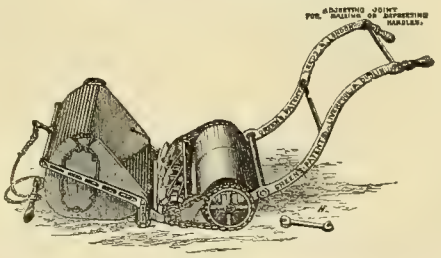
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To Cut 30 inches	..	..	..	£21 0 0	*Leather Boots for Horse*, 26*s*.
„ 36 „	..	..	..	24 0 0	
„ 42 „	..	..	..	27 0 0	
„ 48 „	..	..	..	30 0 0	

Both the Horse, Pony, Donkey, and Hand Machines possess (over all other Makers) the advantage of Self-sharpening. The cutters being steel on each side, when they become dull or blunt by running one way round the cylinder, can be reversed again and again, bringing the opposite edge of the cutter against the bottom blade, when the Machine will cut equal to new. Arrangements are made that the cylinder can be reversed, by any inexperienced person, in two or three minutes.

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To Cut 10 inches	..	£3 10 0	*Suitable for a Lady*	
„ 12 „	..	4 10 0	„	„
„ 14 „	..	5 10 0	*Suitable for One Person*	
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To Cut 18 inches	..	£7 10 0	*Suitable for One Person*	
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„ 22 „	..	8 10 0	„	„
„ 24 „	..	9 0 0	„	„

Packing Cases are charged at the following low rates, viz.:—for the 10 and 12-inch Machine, 3*s*.; 14 and 16-inch, 4*s*.; 18 and 20-inch, 5*s*.; 22 and 24-inch, 6*s*. Parties providing themselves with Lawn Mowers are recommended to purchase the cases in which to stow them away, when not in use, to prevent them from getting damaged; if returned, two-thirds will be allowed for them.

The above MACHINES are made from the best materials, and of superior workmanship; are delivered Carriage Free to all the principal Railway Stations and Shipping Ports in England.

Every Machine is warranted to give entire satisfaction, and if not approved of, can be returned unconditionally.

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☞ *Illustrated Price Lists, and Sheet of Prize Medals awarded to* GREEN'S PATENT LAWN MOWERS, *free on application.*

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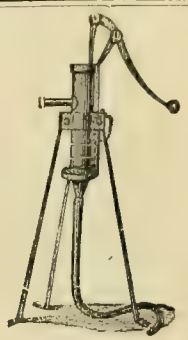
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Useful for every variety of purpose, in Watering or Washing Flowers or Trees in Gardens, Conservatories, &c.; also for Washing Carriages or Windows, Laying Dust, &c.

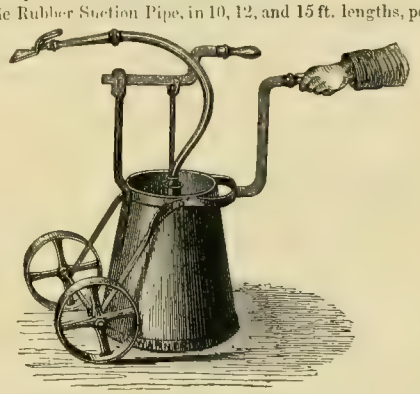
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HOLDS SIX GALLONS.

Is light, portable, and easily worked by a lady or child, price £2 10*s*.

LETTER TO *The Times*, JULY 23, 1866.

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To the Editor of "The Times."

"SIR,—I feel sure you will kindly allot a small space in the *Times* to these few lines, as the best medium through which I would urge every householder who dreads fire to have on each floor of his house one or more small Garden or other Engines on wheels, always charged and in good order, in case of fire.

"Last night, just as I was going to bed, I was startled by that most fearful of all cries, 'Fire, fire!' I soon learned that a fire was raging in a large two-windowed unoccupied bedroom. How caused is to us all a great mystery. It is my custom to keep one of these small Engines on each floor. In two minutes I was in the room with one of them. It was like a furnace. The curtains, shutters, casements, and cornices of both windows were burning and cracking from floor to ceiling. I was quite alone at the moment, yet before assistance arrived (most of the servants having gone to bed), I had completely subdued the fire of one window without exhausting the Engine, and when assistance and more water did arrive, we very soon extinguished the other. So fierce was the fire that the lead of the casements was melted, and the casements themselves were burnt off their hinges. I will only add, that by God's mercy, the house was saved by this small Engine. Had it not been at hand and in order, most assuredly Cassiobury would be now a heap of ruins.—Yours faithfully,

"ESSEX.

"Cassiobury, Watford, July 20.

"The Engine, even when full, runs so light on the floor, that any woman might draw it, and also work it."



No. 547, in Wood. 547A, in Iron Tub.

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These Engines are much improved in construction, are less likely to get out of order, and more easily repaired than others.

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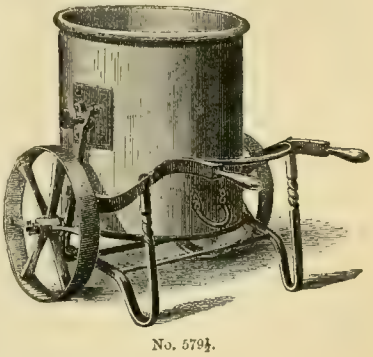
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Saves a Gardener's time in Watering with the Water Pot.

Made of strong Wrought Iron, Galvanized and painted inside and out.

To hold 20 Gallons, wheels 13 inches high	.. ..	£2	2	0
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* This is an extra strong article, with cross handle for two men, suitable for Nursery Grounds, &c.



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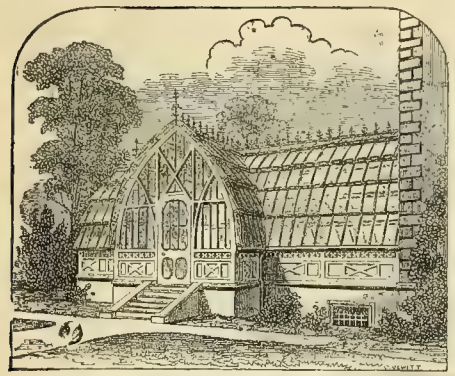
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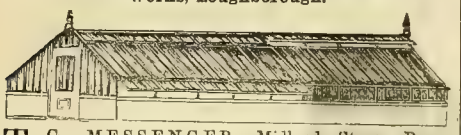
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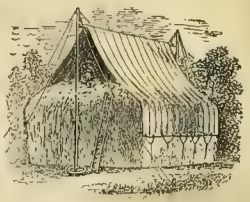
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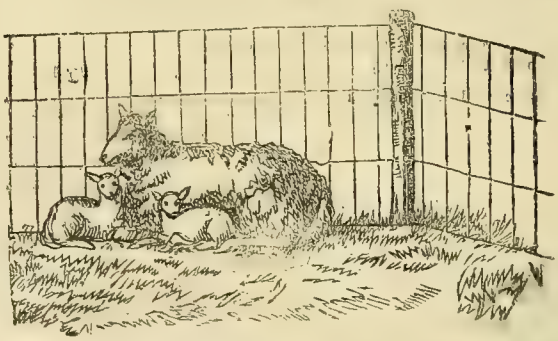
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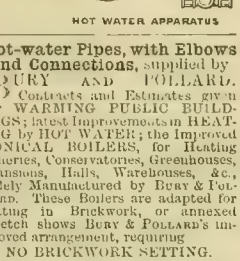


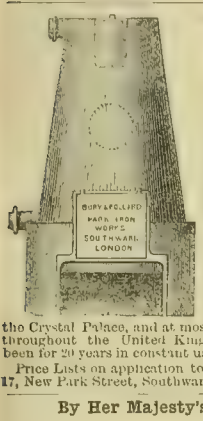
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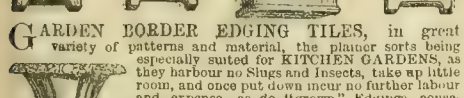


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SEWAGE of NORWICH.—Notice is hereby given that the Local Board of Health for the Corporate District of Norwich are prepared to RECEIVE TENDERS for the PURCHASE of the SEWAGE of the DISTRICT, and for the Hire of about 1300 Acres of Land in the possession of the Board, intended to be irrigated with such Sewage which will be pumped to the highest part of the Land at the cost of the Board.
Further particulars, and any other information required may be obtained upon application to Mr. A. W. MORANT, the Engineer to the Board, at his Offices, Norwich, or to myself.
The Tenders are to be addressed to The Clerk of the Board, and delivered at my Office on or before the 4th of June next, endorsed "Tender for Sewage of Norwich."
The Board do not bind themselves to accept the lowest or any Tender. H. B. MILLER,
Clerk to the Norwich Local Board of Health.
Bank Chambers Norwich, May 2, 1867.

WANTED, a PARTNER, with £400, in a Nursery and Florist and an extensive Jobbing Trade and Laying-out. Also THREE ACRES of FLOWER and KITCHEN GARDEN, with Cottage and Seed Shop, close to the Crystal Palace. A good Investment for an active Young Man.—Apply to
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WANTED IMMEDIATELY, a moderate sized WELL-FURNISHED HOUSE, in thorough Repair, for a few weeks or longer. Three Sitting Rooms, 7 or 8 Bed Rooms. Situation dry, sheltered, and rural, not near London. Rent moderate. The House must in every respect be suitable for the residence of a Gentleman's Family.
Apply to A. B. C., 107, Park Street, Grosvenor Square, London, W.

WANTED to RENT, a SMALL FLORISTS' BUSINESS, or PREMISES suitable for Growing Flowers for Market. Address, C. A., *Gardeners' Chronicle* Office, W.C.

FLORIST'S BUSINESS for DISPOSAL.—A fine opening for the Jobbing Trade. No Premium. The Proprietor having taken a Nursery in the North of England.
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Sales by Auction.

SALE ON MONDAY NEXT, AT TWELVE FOR ONE O'CLOCK.
The Laundry Farm, Denham, near Uxbridge.
Valuable Farming Stock, Carriages, Double and Single Carriage Harness, capital Hunter, useful Cart-horse, about 200 dozen Bedding Plants, comprising Mrs. Pollock, Madame Vaucher, Christine, Cloth of Gold, and other Choice Geraniums; Orange Trees, Camellias, Azaleas, Rose Trees, Fuchsias, Carnations, Strawberry Plants, &c.; Garden Implements and Effects.

MESSRS. VENTOM, CLARKE, AND BULL will SELL by AUCTION, on the Premises, on MONDAY NEXT, May 20, at 12 for 1 o'Clock, SIX COWS, three Heifers, two Calves, a Steer, three Sows, 30 Pigs, Poultry, a Howard's Patent Haymaking Machine, an Oilcake Crushing Machine, a Water-cart, a Tumbril-cart, Iron and Wooden Hurdles, &c.
Catalogues may be had of Messrs. HART, BROTHERS, & Co., 57 Moorgate Street; of Messrs. LAWRANCE, PLEWS, & BOYER, Solicitors, 14, Old Jewry Chambers; at the Chequers Hotel, Uxbridge; and of the Auctioneers, 8, Bucklersbury, E.C.

Kennington Park.
CLEARANCE SALE OF BEDDING AND GREENHOUSE PLANTS, GREENHOUSES SHEDS, BRICKS, &c.
MESSRS. PROTHEROE AND MORRIS are instructed by Mr. Tooley, to SELL by AUCTION on the Premises, Garden Cottage, Queen's Row, Kennington Park Road, S., close to the Horns Tavern, on MONDAY, May 20, at 12 o'Clock precisely, the whole of the GREENHOUSE and BEDDING PLANTS, including the usual assortment; also 4 Greenhouses, 4 Three-light Boxes, Hand Glasses, Sheds, Hot-water Piping, Boilers, Bricks, Water Butts, and sundry effects.
May be viewed prior to the Sale. Catalogues had on the Premises, and of the Auctioneers and Valuers, Leytonstone, N.E.

Dalston.
CLEARANCE SALE OF GREENHOUSE AND BEDDING PLANTS, GREENHOUSES, PITS, &c.
MESSRS. PROTHEROE AND MORRIS have received instructions from Mr. Harrington (who is relinquishing the business), to SELL by AUCTION, without reserve, on the Premises, The Old Dalston Nursery, Dalston Lane, within five minutes walk of the Dalston Junction Station on the North London Railway, on TUESDAY, May 21, and following day, at 12 o'Clock precisely each day, the whole of the GREENHOUSE PLANTS, including large Double Camellias, Azalea indica, Ficus, Cytisus, Acacia, Calla, Oleander, Cacti, Agapanthus, Hoya, Roses in pots, American Aloes, &c.; about 15,000 Scarlet, Variegated, Zonale, and other Geraniums; 2000 Pelargoniums, and the usual assortment of Bedding Plants in large quantities; Evergreens in pots, Lilium lancifolium, Hardy Climbers, Vines in pots, &c., with eight Lean-to and Span-roof Greenhouses; several ranges of Pits, Boxes, Hot-water Piping, Boilers, Water and Garden Pots, Bricks, and other effects.
May be viewed prior to the Sale. Catalogues may be had on the Premises, at Kingsland Nursery; and of the Auctioneers and Valuers, American Nurseries, Leytonstone, N.E.

Hornsey Road.
CLEARANCE SALE OF GREENHOUSE AND BEDDING PLANTS.
MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION on the Premises, Devonshire Nursery, Hornsey Road, on THURSDAY, May 23, at 11 o'Clock, without reserve, the whole of the Valuable BEDDING and GREENHOUSE PLANTS, including 7000 very fine Calceolaria aurea floribunda; 3000 Lobelia speciosa; 4000 Scarlet and Variegated Geraniums, of various sorts; Fuchsias, Verbenas, &c. &c.; 3000 well-grown Pelargoniums, fine blooming Plants; quantity of Manure; 9 Glazed Lights; a Spring Cart; Garden Pots, &c.
May be viewed three Days prior to the Sale. Catalogues may be had on the Premises, and of the Auctioneers, American Nurseries, Leytonstone, Essex, N.E.

The Last City Sale for this Season of Greenhouse and Bedding Plants.
MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at 38 and 39, Gracechurch Street, City, E.C., on FRIDAY, May 24, at 12 o'Clock, a choice assortment of GREENHOUSE and BEDDING PLANTS, including fine Azalea indica; Show, Fancy, and French Pelargoniums; Scarlet and Variegated Geraniums; Roses in pots, and other Plants in bloom; named Rhododendrons, Fuchsias, Verbenas, Petunias, Heliotropes, Lobelias, Herbaceous and Shrubby Calceolarias, Dahlias, Cupheas, Ageratums, Intermediate Stocks, Double Nasturtiums, &c.
On view the Morning of Sale. Catalogues may be had at the Rooms as above, and of the Auctioneers and Valuers, American Nurseries, Leytonstone, Essex, N.E.

GEORGE F. MORRIS (of the Firm of PROTHEROE & MORRIS) undertakes SALES and VALUATIONS of FREEHOLD LANDED ESTATES, LEASEHOLD and REVERSIONARY PROPERTY of every description. FARMING and MARKET GARDEN PRODUCE, HOUSEHOLD FURNITURE, STOCK in TRADE, &c.
Auction and Estate Agency Office, The Limes, Leytonstone, Essex.

SALE THIS DAY, AT HALF-PAST TWELVE O'CLOCK.
Valuable Imported Orchids from New Grenada.
MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on SATURDAY, May 18, at half-past 12 o'Clock precisely, an importation of splendid new CATTLEYAS and ODONTOGLOSSUMS from New Grenada, comprising wonderful specimens in the finest possible health, and including some of the finest masses ever imported. Drawings and dried Specimens will be exhibited at the Sale, and the Plants are lotted to suit all buyers.
On view the Morning of Sale, and Catalogues had.

Periodical Sale of Poultry and Pigeons.
MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on TUESDAY, May 21, at half-past 12 o'Clock precisely, choice POULTRY, PIGEONS, FANCY SONG BIRDS, and EGGS, from the yards of well-known Breeders.
On view the Morning of Sale, and Catalogues had.

Bedding Plants.
MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on SATURDAY, May 25, at half-past 12 o'Clock precisely, a quantity of Variegated and Green GERANIUMS, FUCHSIAS, HELIOTROPES, VERBENAS, AURICULAS, CUPHEAS, VIOLETS, PHLOXES, DAHLIAS, GLADIOLI, LILIUM AURATUM, RUSTIC SEATS, VASES, STOOLS, BASKETS, &c.
On view the Morning of Sale, and Catalogues had.

Imported Orchids from New Grenada and Moulmein.
MR. J. C. STEVENS will SELL by AUCTION at his Great Rooms, 38, King Street, Covent Garden, W.C., on MONDAY, MAY 27, at half-past 12 o'Clock precisely, the remaining portion of Mr. Bowman's CONSIGNMENT of IMPORTED ORCHIDS from New Grenada, comprising fine Plants of many very choice varieties. Also an importation from Moulmein of fine masses of Saccolabium curvifolium, S. Blumei majus, Ærides Lobbii, virens, and affine; several fine Dendrobes, &c.
On view the Morning of Sale, and Catalogues had.

MR. DUCKWORTH will SELL by AUCTION, without reserve, at Park Farm, Finchley, Middlesex, on THURSDAY, May 23, at 12 o'Clock, 3000 CHOICE PLANTS for Bedding out and for Vases. The Plants are large and in the most healthy condition, and comprise the following sorts:—GERANIUMS: Mrs. Pollock, Mrs. Milford, Queen of Queens, Bijou, Donald Beaton, Indian Yellow, Christine, Paul L'Abbe, Cybister, Stella, Tom Thumb, Punch, Madam Vaucher, Cerise Unique, Trentham Rose, Harry Hieover, Masterpiece, Little David, Countess of Warwick, Rubens, and many other choice sorts, among which are some very choice seedlings just coming into bloom. VERBENA: Crimson King. LOBELIAS (New White): Miss Murphy and speciosa. HELIOTROPES, FUCHSIAS, CHRYSANTHEMUMS, GOLDEN BALM, PELARGONIUMS, and other choice sorts of Bedding Plants.
May be viewed one day prior to Sale. Catalogues had of Mr. DUCKWORTH, Auctioneer and Estate Agent, Hadley, Barnet.

Manor House, Chislehurst, Kent.
MESSRS. G. B. AND S. BAXTER AND PAYNE have been favoured with instructions to SELL by AUCTION, on the Premises, as above, on THURSDAY, May 23, at 12 o'Clock precisely, about 6000 very excellent BEDDING PLANTS of different sorts, the whole of the very Choice STOVE and GREENHOUSE PLANTS, 216 very fine Fruiting Pines (some of them forward), Garden Tools, Frames and Lights, Hand Lights, Garden Pots, Matting, Netting, Wheelbarrows, Orange Boxes, Water Butts, Water Tub on wheels, a quantity of Peat and Manure, 40-round and 30-round Ladders, Stack Cloth, Poles and Ropes, Hay Forks and Rakes, nearly new Haymaking Machine, a Horse Rake, nearly new Liquid Manure Cart, 2 nearly new Dung Carts, Iron Horse Hoe, Patent Plough, Sheep and Pig Troughs, Cow Cribs, Oilcake Crusher, Carpenter's Bench, Grindstone and Frame, Pig Tub and Form, a large Meat Safe, very fine Short-horn Cow, useful Van Horse, &c., &c.
May be viewed the Morning of Sale, and Catalogues had on the Premises, at the Inns in the neighbourhood, and of the Auctioneers and Valuers, Sun, Fire, and Life, Mid-Kent and General Property Register Offices, Town Hall, Bromley, Kent; and 8, Cullum Street, Fenchurch Street, London, E.C.

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PATRONIZED ON FIVE OCCASIONS DURING THE SEASON OF 1864 BY

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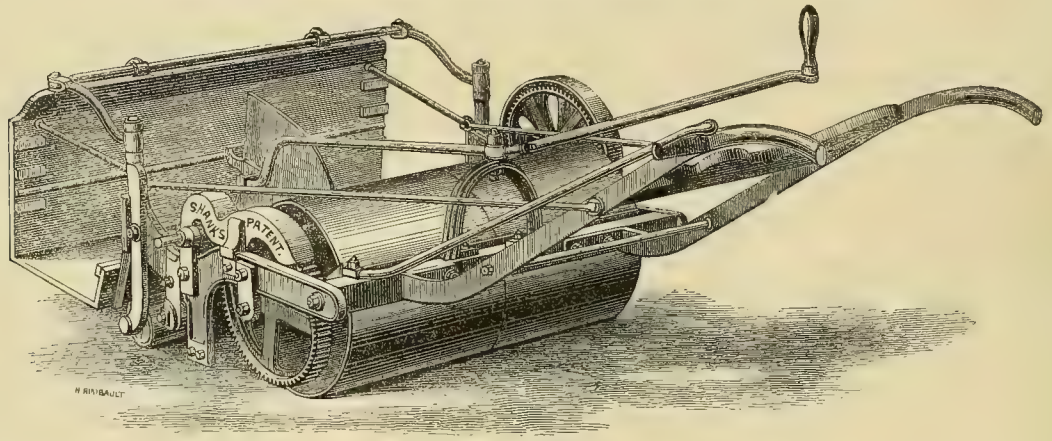
AND ONCE BY HIS MAJESTY THE KING OF SAXONY.

DURING THE SEASON OF 1865 THEY WERE PATRONISED ON FOUR OCCASIONS BY HER MAJESTY THE QUEEN,

ONCE BY HIS MAJESTY THE KING OF HOLLAND, AND ONCE BY HIS MAJESTY THE KING OF PRUSSIA.

AGAIN ON FOUR OCCASIONS DURING THE SEASON OF 1866 BY HER MAJESTY THE QUEEN

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ARE IN DAILY USE IN

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These are the only Machines that can be depended on to give lasting satisfaction.

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A. S. AND SON have particularly aimed at substituting Wrought for Cast Iron to as great an extent as possible in the construction of their Machines. None but skilled Workmen and the most improved Machinery are employed in manufacturing the various parts, and this applies not only to the Horse and Pony, but also to the Hand Machines.

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PRICES, INCLUDING CARRIAGE TO ANY RAILWAY STATION OR SHIPPING PORT IN THE KINGDOM.

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30-inch Machine	£19 0 0	30*s.* extra.
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The Machines are warranted to give ample satisfaction, and, if not approved of, may be at once returned.

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Editorial Communications should be addressed to "The Editor;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
Printed by JAMES MATTHEWS, at the Office of Messrs. BRADBURY, EVANS, & Co., Lombard Street, Precinct of Whitefriars, City of London, in the Co. of Middlesex, and Published by the said JAMES MATTHEWS, at th Office, No. 41, Wellington Street, Parish of St. Paul's, Covent Garden, i the said County.—SATURDAY, May 18, 1867.

THE GARDENERS' CHRONICLE

AND

AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.

No. 21.—1867.] SATURDAY, MAY 25. {Price Fivepence. STAMPED EDITION, 6*d*.

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ERRATUM.—LEEDS HORTICULTURAL SOCIETY.—In the Advertisement of this Society, inserted last Saturday, for *House* Bouquets, read HAND Bouquets.

ROYAL HORTICULTURAL SOCIETY, SOUTH KENSINGTON, W.

The FIRST GREAT FETE will be HELD on JUNE 4, and the Flowers, &c., will remain on view until the 8th. Bands each day from 4.

Admission (for the Opening Day) by Tickets purchased prior to the 4th:—Fellows' Friends, 3*s*. 6*d*.; Public, 5*s*.; or on the Day, 7*s*. 6*d*.; or by Ticket admitting from 4th to 8th, Fellows' Friends, 7*s*. 6*d*.; Public, 10*s*. 6*d*., which may be bought of all the principal Musicsellers at the West End, and of KEITH, PROWSE, & Co., Cheapside, E.C.

ROYAL BOTANIC SOCIETY'S GARDENS, Regent's Park.—WEDNESDAY NEXT, May 29, FIRST GENERAL EXHIBITION of PLANTS and FLOWERS. Tickets to be obtained only at the Gardens; and of the Society's Clerk, Austin's Ticket Office, St. James's Hall; by orders from Fellows of the Society, price 5*s*. each, and on the day of the Exhibition, 7*s*. 6*d*. each. Gates open at 2 o'Clock.

AMERICAN PLANTS, MONDAYS, June 3d and 10th. Tickets, 2*s*. 6*d*. each.

GRAND FLORAL FETE, YORK, JUNE 19.—The PRIZES amount to upwards of £400, including Special Prizes for ORCHIDS, ROSES, and FRUITS Schedules on application to JOHN WILSON, Secretary, 13, New Street, York.

BIRMINGHAM ROSE SHOW, JULY 4 and 5.—For Prize Lists, apply to Mr. A. FORREST, Secretary, Cherry Street, Birmingham. Entries Close June 29.

Royal Botanic Gardens, Regent's Park.

JOHN WATERER'S RHODODENDRONS will be EXHIBITED at the above Gardens at the end of the present month, and continue on view throughout the month of June.
American Nursery, Bagshot, Surrey.

Hyde Park.

THE large STANDARD and other RHODODENDRONS recently planted in Hyde Park were supplied by WATERER & GODFREY, Knap Hill Nursery, Woking, Surrey.
The AMERICAN PLANTS at Knap Hill will be in their greatest beauty during the ensuing fortnight. The Nursery is readily reached by Train to Woking Station.

PINES (QUEENS) in all sizes, very strong and healthy, from a stock that never had scale. Surplus stock, cheap.
M. ROCHFORD, Market Gardener, Page Green, Tottenham, N.

Pines.

T. J. BOOTH offers clean, well-rooted Suckers of BLACK JAMAICA PINES. Any one who will take the lot, about 150, may have them cheap. Price on application.
Rainhill Nursery, Rainhill, Lancashire.

Orchard-house Trees Fruiting in Pots.

PEACHES, NECTARINES, APRICOTS, CHERRIES, PLUMS, PEARS, APPLES, VINES, and FIGS.
RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

Just Imported, a quantity of Handsome Healthy

ORANGE TREES in Pots, with from 50 to 100 blooms and bloom buds on each, some with Fruit, 3*s*. 6*d*., 5*s*., & 6*s*. each.
R. GREEN, The Bedford Conservatories, Covent Garden Market, W.C.

TRICOLOR-LEAVED and OTHER IVIES.—Twelve of the most beautiful IVIES in cultivation will be sent anywhere on receipt of Post-office Order on Castle Hedingham for 10*s*.
DILLISTONE & WOODTHORPE, Munro Nursery, Sible Hedingham, Essex.

Highly Cultivated and Regularly Transplanted Nursery Stock.

EIGHTY ACRES of the above, consisting chiefly of FRUIT TREES, ROSES, EVERGREENS, and ORNAMENTAL TREES, which for general excellence are unsurpassed.
THOMAS WARNER, Leicester Abbey Nurseries.

FOR SALE, the finest ALOE in this country, almost ready to blossom. Would be disposed of on moderate terms.
Apply to J. DURHAM, Gardener and Coachman, 34, Grove End Road, St. John's Wood, N.W.

CENTAUREA CANDIDISSIMA.—Wanted, five or six dozen of the above. State price, &c., to
E. P. FRANCIS & Co., Nurserymen, Hertford.

CALADIUMS, CALADIUMS.—BICOLOR SPLENDENS, CHANTINI, HOWLETTI, and WIGHTI. The four varieties sent free for 36 Stamps. Also eight varieties of Ornamental GRASSES, including Striped-leafed Japanese Maize, post free for 12 Stamps.
G. C. SHORT, Seedsman and Florist, Market Place, Stokesley.

Retinospora filifera.

JOHN STANDISH is the holder of the stock of the above most distinct and beautiful weeping CONIFERA. It is of a pale glaucous green, with slender thread-like branches a foot long, which hang in the most graceful manner, and altogether the most distinct weeping plant ever offered to the Public. It is also perfectly hardy. Strong Plants, now ready, 31*s*. 6*d*. each.
Royal Nursery, Ascot.

SAMBO PELARGONIUM (ZONAL) is the finest formed and richest coloured variety ever introduced. First-class Certificate by Floral Committee. Strong Plants, 7*s*. 6*d*. each.
DOWNIE, LAIRD, & LAING, Stanstead Park, Forest Hill, S.E.; and Edinburgh.

PELARGONIUMS, Show, Fancy, and Spotted kinds.—24 choice named sorts for 10*s*.; 30 for 23*s*.; 50 for 30*s*., all strong healthy plants. Trade price on application.
H. & R. STIRZAKER, Skerton Nurseries, Lancaster.

NEW ZONAL PELARGONIUMS for the present Season.—For Six choice Varieties of the above, selected with great care from an immense batch of Seedlings, see our Advertisements in this Paper, April 6, 13, and 20.
A liberal discount to the Trade.
SALTMARSH & SON, Moulsham Nurseries, Chelmsford.

Mrs. Pollock Geranium.

T. J. BOOTH offers the above, in good Plants, at 7*s*. per dozen, or 50*s*. per 100, for cash.
Rainhill Nursery, Lancashire.

MRS. POLLOCK GERANIUMS, 7*s*. and 9*s*. per doz.; VERBENAS, GERANIUMS, CALCEOLARIAS, FUCHSIAS, LOBELIAS, &c., £1 per 100; 50 for 10*s*. 6*d*.
DESCRIPTIVE PRICED CATALOGUE free on application.
W. HOOPER, New Wandsworth, S.W.

CHOICE GERANIUMS.—LUCY GRIEVE, ITALIA UNITA, SOPHIA DUMARESQUE, TOPSY, SUNSET, MRS. BENYON, QUEEN'S FAVOURITE, ELEGANS, FONTAINEBLEAU, and KENILWORTH.
Prices and terms to the Trade and others on application to
THOMAS J. BOOTH, Rainhill Nursery, Rainhill, Lancashire.

NEW VARIEGATED GERANIUM CASTLEMILK.—Fine ornamental foliage, one half the leaf margined with the purest white, centre fine green. Free robust branching habit, and effective bedder. First-class Certificate at the Glasgow and West of Scotland Horticultural Society, September 12, 1866. Price on application. Now ready to send out by
AUSTIN & MCASLAN, 16, Buchanan Street, Glasgow.

CULTURAL DIRECTIONS for the ROSE. Second Edition. By JOHN CRANSTON, King's Acre Nurseries, near Hereford. Free by post from the Author for 20 stamps.

NEW ROSES for 1867.—Strong Plants of all the best NEW ROSES now ready.
DESCRIPTIVE LIST, with prices, on application.
JOHN CRANSTON, King's Acre Nurseries, near Hereford.

WILLIAMS' SUPERB STRAIN of PRIMULA. See large Advertisement.

VERBENA CRIMSON KING, the finest Crimson Verbena in cultivation. Strong plants, in pots, 16*s*. per 100.
PURPLE KING, strong plants, 12*s*. 6*d*. per 100.
PRICED LIST of BEDDING PLANTS, &c., on application.
JOHN CRANSTON, King's Acre Nurseries, near Hereford.

Bedding Plants, mostly 2s. per dozen.

J. SCOTT, Merriott, Somerset, for the 17th year offers his unrivalled Collection of the above.
CATALOGUES on application free.

Hardy Bedding Plants.

STUART AND MEIN, NURSERYMEN, Kelso, N.B., have the following to offer:—
ARABIS LUCIDA, fol. variegata, 6*s*. per dozen.
VIOLA LUTEA.—Bright yellow of dwarf habit, 6*s*. per dozen.
VIOLA CORNUTA, PURPLE QUEEN, true, 12*s*. 6*d*. per 100.

BEDDING PLANTS.—Strong healthy Plants at 16*s*. per 100, consisting of VERBENAS, CALCEOLARIAS, GERANIUMS, PETUNIAS, GAZANIAS, LOBELIAS, &c., &c. VERBENAS, all the best kinds, at 16*s*. per 100.
CATALOGUES on application.
H. MINCHIN, The Nurseries, Hook Norton, Oxon.

Bedding Plants.

ARCHIBALD HENDERSON'S DESCRIPTIVE PRICED CATALOGUE is now ready, containing many Novelties. Can be had gratis and post free upon application.
Sion Nursery, Thornton Heath, S., and at the East Surrey Seed Warehouse, College Grounds, North End, Croydon.

GLADIOLI BULBS, for Summer, Autumn, and Winter Flowering, 2*s*. 6*d*., 3*s*. 6*d*., 5*s*. 6*d*., 7*s*. 6*d*., 9*s*., and 12*s*. per dozen. 10*s*. 6*d*., 15*s*., 21*s*., 25*s*. to 100*s*. per 100.
BARR & SUGDEN, Seed, Bulb, and Plant Merchants, 12, King Street, Covent Garden, W.C.

TO THE TRADE. CHRYSANTHEMUM SENSATION, 21*s*. per 100; GERANIUM LORD PALMERSTON, 25*s*. per 100; Ditto STELLA NOSEGAY, 20*s*. per 100; CLEMATIS STANDISHII, 60*s*. per 100; HUMEA ELEGANS, 30*s*. per 100.
W. RUSHFORTH, Nurseryman, Leeds.

New Chrysanthemums, Pyrethrums, &c.

JOHN SALTER'S DESCRIPTIVE CATALOGUE is now ready, and will be sent on receipt of two postage stamps.
Versailles Nursery, William Street, Vale Place, Hammersmith, W. (near Kensington Railway Station).

Chrysanthemums, Chrysanthemums, Chrysanthemums.

ADAM FORSYTH'S CATALOGUE is now ready, containing a Descriptive List of all the best varieties; also a Practical Treatise on the Cultivation of the Chrysanthemum. Forwarded to all applicants for one stamp.
Brunswick Nursery, Stoke Newington, London, N.

New Seed of 1867.

DOBSON'S CELEBRATED PRIZE CINERARIA has taken all First Prizes at the London Shows this Season. Seed from the above, in Sealed Packets, 1*s*., 2*s*. 6*d*., and 5*s*. Without exception unequalled by any other strain.
DOBSON & SONS, Woodlands Nursery, Isleworth, London, W.

Seeds for Present Sowing.

DOBSON'S PRIZE CALCEOLARIA, 1*s*. 6*d*., 2*s*. 6*d*., 3*s*. 6*d*., and 5*s*.
DOBSON'S PRIZE CINERARIA, 1*s*., 2*s*. 6*d*., and 5*s*.
DOBSON'S PRIZE PRIMULA, 1*s*., 2*s*., and 5*s*.
The above strains are second to none.
DOBSON & SONS, Woodlands Nursery, Isleworth, W.

Extra Fine Quality of

PRIMULA SINENSIS FIMBRIATA RUBRA and ALBA.—Unsurpassed for size of flower, colour, and fringe, and robust habit. For Exhibition and Decorative purposes this strain is acknowledged to be unequalled. Seed, in Sealed Packets, separate colours, 2*s*. 6*d*. and 5*s*.; Mixed, 1*s*., 2*s*. 6*d*., and 5*s*.
DOBSON & SONS, Woodlands Nursery, Isleworth, London, W.

SUTTON'S HOME-GROWN TURNIP SEED.
For prices and particulars apply to
SUTTON & SONS, Seed Growers, Reading.

1867 TURNIP SEEDS.
Best selected quality.
PRICED LISTS on application.
JAMES DICKSON & SONS, 102, Eastgate Street, Chester.

FARM SEEDS.—All the best kinds of MANGEL WURZEL, SWEDE TURNIP, and other Farm Seeds of finest quality on moderate terms.
PRICED LISTS on application to
RICHARD SMITH, Seed Merchant, Worcester.

SWEDE SEED.—The WORCESTERSHIRE SWEDE, NEW SEED of this excellent kind at 10*d*. per lb. Cheaper by the cwt. or bushel.
RICHARD SMITH, Seed Merchant, Worcester.

New Mangel and Turnip Seeds.

JAMES FAIRHEAD AND SON, 7, Borough Market, and Braintree, Essex. Special Select ORANGE GLOBE and other MANGELS, and all varieties of TURNIPS.
Special prices on application.

Strong Drumhead or Cattle Cabbage Plant.

W. VIRGO AND SON can supply large quantities of the above, at 3*s*. per 1000. Samples can be had on application at the Nursery, Wonersh, Guildford, Surrey.
Delivered free at the undermentioned Railway Stations—Guildford, South-Western; Shalford, South-Eastern; Bramley, London, Brighton, and South Coast.

Robinson's Champion Drumhead Cabbage.

SUTTON AND SONS can supply New SEED of the above direct from Mr. Robinson, at 3*s*. 6*d*. per lb., cheaper by the cwt. Heads of this variety have been grown 75 lb. each.
SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

Early Sheep Feed—Mustard and Rape.

SUTTON AND SONS can supply good New Seed of the above at very moderate prices, which may be had on application.
SUTTON & SONS, Seed Merchants, Reading.

To the Trade and Others.

GENUINE NEW RAPE or COLE SEED.—Fine sample. For sample and price apply to
FREDK. GEE, Seed Merchant and Grower, Biggleswade, Beds.

To the Trade.

FOR SAMPLES and PRICES of fine English-grown RAPE SEED, apply to
CHARLES SHARPE & Co., Seed Merchants, Sleaford.

SPECIAL OFFER.—Fine New SCARLET RUNNER BEANS. Cash Price, 7*s*. 6*d*. per bushel.
FREDERICK GEE, Seed Merchant and Grower, Biggleswade, Beds.

FOR SALE, about 3 Tons of YORK FLUKE SEED. Apply to J. H. BATH, York Street, Borough Market, S.E.

EVERY GARDEN REQUISITE kept in Stock at
CARTER'S New Seed Warehouse, 237 & 238, High Holborn, London.

Genuine Garden and Agricultural Seeds.

JAMES CARTER AND CO., SEED FARMERS, MERCHANTS, and NURSERYMEN, 237 & 238, High Holborn, London, W.C.

Genuine Agricultural and Garden Seeds.

JAMES FAIRHEAD AND SON, 7, Borough Market, and Braintree, Essex.
LISTS and Special Prices on application.

Genuine Garden Seeds.

WM. CUTBUSH AND SON'S CATALOGUE of VEGETABLE, FLOWER, and FARM SEEDS, post free on application. Highgate, London, N.

Agricultural and Garden Seeds.

H. AND F. SHARPE'S WHOLESALE SPRING PRICED LIST of the above Seeds of 1866 growth is now ready and may be had on application.
Seed Growing Establishment, Wisbech.

Garden and Farm Seeds direct from the Growers.

CHARLES SHARPE AND CO. beg to inform the Trade that their WHOLESALE SEED LIST is now ready, and will be forwarded post free on application.
Seed Warehouse, Sleaford.

RAYNBIRD, CALDECOTT, BAWTREE, DOWLING, AND COMPANY, Limited,
CORN, SEED, MANURE, AND OILCAKE MERCHANTS,
Address, 89, Seed Market, Mark Lane, E.C.; or Basingstoke.
Samples and Prices post free on application. Prize Medals, 1851, for Wheat; 1862, for "Excellent Seed Corn and Seeds."

New Striped Japanese Maize.

SUTTON AND SONS can supply Seed of the above beautiful Ornamental Foliage Plant in packets at 1*s*. each, post free. Royal Berkshire Seed Establishment, Reading.

Fine Grass Seeds for Cricket Grounds,
BOWLING GREENS, or CROQUET GROUNDS.

SUTTON AND SONS can supply suitable kinds of the finest-growing GRASSES and CLOVERS for the above purposes, at 1*s*. 3*d*. per lb., 24*s*. per bushel.
SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

PARIS EXHIBITION.—The attention of VISITORS to this EXHIBITION is respectfully called to a COLLECTION of 200 VARIETIES of NATURAL GRASSES, Exhibited in SALOON No. 47, by ERNST & VON SPRECKELSEN (Successors to J. G. Booth & Co.), Hamburg.

Clianthus Dampieri.

BUTLER, MCCULLOCH, AND CO. have to offer a quantity of the above Seed, just received in splendid condition, at 1*s*. and 2*s*. 6*d*. per packet. Price to the Trade on application.
South Row, Covent Garden Market, W.C.

LILIUM AURATUM.—Large Consignment just received, 2*s*. 6*d*., 3*s*. 6*d*., 5*s*. 6*d*., and 7*s*. 6*d*. per Root. Extra large selected Bulbs, 10*s*. 6*d*., 12*s*. 6*d*., 15*s*., & 21*s*.
BARR & SUGDEN, Seed, Bulb, and Plant Merchants, 12, King Street, Covent Garden, W.C.

Notice of Removal.

ISAAC DAVIES, NURSERYMAN, late of Larkfield, Wavertree, near Liverpool, having now REMOVED to CHAPEL STREET, ORMSKIRK, where he will continue his Business on a more extensive scale, respectfully requests that all Letters and Communications may be in future addressed to the last named place.

THE QUADRICOLOR PELARGONIUM of the Season is METEOR, raised by SALTMARSH & SON.
For description see Advertisements in this Paper, April 6, 13, and 20.
This splendid variety has received a First-class Certificate from the Royal Horticultural Society, and was figured in the January Number of the "Floral Magazine."
A Coloured Drawing by Andrews will be sent on receipt of 7 stamps.
Moulsham Nurseries, Chelmsford.

New Zealand Nursery, St. Alban's, Herts.

INTENDING PURCHASERS of TRICOLOR PELARGONIUMS will do well to see J. WATSON'S beautiful Tricolors MISS WATSON and MRS. DIX, previous to making their purchases. For fine foliage, excellent constitution, free growth, and brilliancy of colouring they are unrivalled. They have received two first-class Certificates. Plants of Miss Watson in August, £2 2s. each; Mrs. Dix in May, 1868, 31s. 6d. each.

TRICOLOR GERANIUMS.—Italia Unita, Queen of Nosegays, Gold Pheasant, Sunset, Crystal Palace Dwarf, Mrs. Pollock, Stella Variegata, Yellow Belt, one of each, packing included, 12s.; Mrs. Pollock, 7s. per dozen; Sunset, 15s. Strong Plants of the following at 3s. per dozen:—Iresine, Coleus, Perilla, Amaranthus; Geraniums Tom Thumb, Spitfire, Christine, Stella, Countess of Warwick, Alma, Flower of the Day, and Bijou.
CALCEOLARIAS, VERBENAS, AGERATUMS, CUPHEA, LOBELIA, GAZANIA, KONIGA, and NIEREMBERGIA GRACILIS, 3s. per dozen; finest Zonal varieties, 6s. per dozen cash; strong Plants GLOIRE DE NANCY, 2s. 6d. each.
GEO. DAVISON, Hereford.

AUCUBAS, FUCHSIAS, ZONAL GERANIUMS, &c.

6 Varieties AUCUBAS, 3 Male, 3 Female, for 21s.
12 Select NEW FUCHSIAS of 1866 for 6s.
12 Select NEW ZONAL GERANIUMS of 1866 for 6s.
12 Select CHRYSANTHEMUMS of 1866 for 4s.
12 Varieties JAPAN EUONYMUS, very fine, 6s.
3 Varieties NEW JAPAN OSMANTHUS, quite hardy, 5s.
NEW WHITE LOBELIA MISS MURPHY, 3s. per dozen.
12 Select NEW VERBENAS of 1866, for 3s.
NEW DOUBLE GERANIUM GLOIRE DE NANCY, 1s. each.
B. W. KNIGHT, Nurseryman, Battle, Sussex.

Novelties.

WM. PAUL (Son and Successor to the late A. PAUL) respectfully solicits Orders for the following NEW and FIRST-CLASS PLANTS, which will be ready for delivery in May.

NEW ROSES.

BLACK PRINCE, H. P. (Wm. Paul).—Flowers dark crimson, shaded with black, cupped, large and full. Price 5s. each.
GLOBOSA, H. P. (Wm. Paul).—Flowers clear dark bright crimson, colour intense and uniform throughout. Price 5s. each.
LADY SUFFIELD, H. P. (Wm. Paul).—Flowers purplish crimson, colour uniform throughout, the purple tint predominating; large, full, and of fine form. Price 5s. each.
The best of the NEW FRENCH ROSES, 3s. 6d. each, 36s. per doz. Older kinds, 9s. to 30s. per doz.

NEW BEDDING GERANIUMS (BEATON'S RACE).
Any 12 Varieties from this group of 18 may be selected by the purchaser for £2 2s.

The following NEW ZONAL and HYBRID NOSEGAY GERANIUMS have been selected from several thousand seedlings raised from the stock of the late Mr. Donald Beaton. Every one now offered has been thoroughly tested, and is believed to be in advance of, or distinct from, all pre-existing kinds.

AUTOCRAT (Wm. Paul).—Flowers bright orange, very large, a decided advance in shape of this colour, blooms freely, very attractive; habit good. Price 3s. 6d. each.
BICOLOR (Wm. Paul).—Flowers bluish purple, with spot of fiery scarlet on top petals; free, good, and quite unique in colour and character. Price 5s. each.
BLUE BELL (Wm. Paul).—Flowers bluish lilac, large, and of good shape and truss; habit fine. A thoroughly distinct and most pleasing novelty. Price 5s. each.
CLIO (Wm. Paul).—Flowers rosy purple, upper petals scarlet, large and good form, truss and habit good; price 3s. 6d. each.
CRIMSON QUEEN (Wm. Paul).—Flowers deep crimson, at once the darkest and brightest crimson yet seen in Zonale Pelargoniums, flowers abundantly. Price 3s. 6d. each.
CRUSADER (Wm. Paul).—Flowers crimson scarlet, with white eye, large and smooth, truss large. Price 5s. each.
DR. HOGG (Wm. Paul).—Flowers purplish rose, the colours glowing and very beautiful, trusses good and abundant. Under canvas this novelty appears to resemble Amy Hogg, but is quite distinct from the latter out of doors. Figured in "The Florist" for November, 1866. Price 5s. each.
ENCHANTRESS (Wm. Paul).—Flowers soft purplish crimson, with distinct scarlet eye, trusses and habit good, very lovely. Price 3s. 6d. each.
FIREFLY (Wm. Paul).—Flowers scarlet crimson and orange, with scarlet eye; habit free and good; distinct and very effective. Price 3s. 6d. each
GLORY of WALTHAM (Wm. Paul).—Flowers splendid even scarlet, dwarf habit, foliage fine, truss large and close. Probably the finest "Nosegay" Geranium yet raised. Price 3s. 6d. each.
KINGFISHER (Wm. Paul).—Flowers crimson and bluish purple, magenta eye, very free, distinct and effective. Price 3s. 6d. each.
LILACINUM (Wm. Paul).—Flowers dark bright lilac, splendid truss, and fine habit, the colour quite new. Price 5s. each.
MEMNON (Wm. Paul).—Flowers magenta, trusses good and very abundant, habit dwarf. This might be called a rosy purple "Stella." Price 3s. 6d. each.
OMEN (Wm. Paul).—Flowers reddish salmon, splendid truss, good habit, very free, distinct, and first-rate for bedding. Price 3s. 6d. each.
PURPLE QUEEN (Wm. Paul).—In the way of Amy Hogg as to habit and character of truss and flower, but of a totally different colour—dark rosy purple. Price 5s. each.
TROUBADOUR (Wm. Paul).—Flowers rosy purple, fine shape, magnificent under glass. Price 5s. each.
VILLAGE MAID (Wm. Paul).—Flowers bright deep pink, with clear white blotch in the centre of the upper petals, the colours being well separated or defined; habit dwarf and compact; very beautiful. Price 5s. each.
WALTHAM NOSEGAY (Wm. Paul).—Flowers carmine, trusses of good size and abundant; highly recommended for the effect it produces in the flower garden. Price 3s. 6d. each.

GOLD-LEAVED VARIETIES.

The following varieties are the result of a cross between Beaton's race and the ordinary gold-leaved kinds, whereby has been obtained the free growth and leafy character of the former, properties invaluable for bedding purposes.

JASON (Wm. Paul).—Flowers blood crimson, trusses large, round, and compact, leaves pure golden yellow, habit dwarf and free; the plant densely clothed with fine foliage. The association of yellow leaves and blood crimson flowers, both freely produced, is, in this plant, very fascinating. Price 7s. 6d. each.
WALTHAM GEM (Wm. Paul).—Flowers very light red, colour distinct and peculiarly pleasing, white eye; leaves yellow, with very faint zone. A beautiful novelty of dwarf compact habit. Price 7s. 6d. each.

STANDARD ZONAL GERANIUMS.
Scarlet, rose, white, &c., 5s. to 10s. 6d. each.
STANDARD, VARIEGATED, and TRICOLOR-LEAVED GERANIUMS, 7s. 6d. to 15s. each.
GERANIUM REBECCA.—Cherry colour, 21s. per doz.
" NIMROD.—Orange scarlet, 21s. per doz.
" ST. GEORGE.—Dark chestnut, 15s. per doz.
" MRS. POLLOCK, 6s. to 9s. per doz.
" SUNSET, 18s. per doz.
" ITALIA UNITA, 21s. per doz.
HOLLYHOCKS.—A fine collection of Hollyhocks by name and well varied in colour, 12s. to 42s. per dozen.
NEW AUCUBAS.—The 10 best sorts for £2 10s.
NEW DOUBLE CRIMSON THORN.—Good plants in pots, 5s. to 7s. 6d. each.
GRAPE VINES.—Planting canes, 3s. 6d. to 5s. each. Fruiting canes, 7s. 6d. to 15s. each.
LILIUM AURATUM.—Flowering bulbs, 2s. 6d. to 10s. 6d. each; 12s. to 60s. the half dozen.
RAPHANUS CAUDATUS, 1s. to 2s. 6d. per packet.
PAUL'S Nurseries, Waltham Cross, London, N.

SUPERB VARIEGATED GERANIUMS.

MRS. BENYON	BEAUTY of JULTON
BICOLOR SPLENDENS	THE COUNTESS
GOLD PHEASANT,	MRS. LONGFIELD
GLOWWORM	YELLOW BELT
LUNA	LITTLE PET
TWILIGHT	ITALIA UNITA

Strong plants of the above set 15s. Package included.
CASBON & SON, Gravel Walk Nursery, Peterborough.

Mrs. Pollock Geranium.

THOMAS PESTRIDGE, The Greenway Nursery, Uxbridge, Middlesex, can supply strong and highly-coloured MRS. POLLOCK GERANIUM at 7s. per dozen, 50s. per 100.

Luna, 14s. per doz.	Orange Nosegay, 6s.	Madame Vaucher, 4s.
Amy Hogg, 6s.	Venus, 6s.	Centaurea gymnocarpa, 4s.
Indian Yellow, 5s.	Cloth of Gold, 4s.	Coleus Verschaffelti, 4s.
	Iresine Herbstii, 3s.	

Package included. Terms cash.

NOTICE.—The following Magnificent GERANIUMS, one of each for One Guinea, or six of the best for 12s.:—

ITALIA UNITA	GOLDEN NUGGET
SUNSET	LUNA
CANARY BIRD	MRS. LONGFIELD
BRILLIANTISSIMA	MRS. M. HUTTON
MRS. P. J. PERRY	Variegated QUEEN of
ANNIE WILLIAMS	NOSEGAYS
CRYSTAL SEA	

12 of the finest ZONALE and NOSEGAY GERANIUMS of 1866 for 7s. 6d.; 12 of the best FUCHSIAS of 1866 for 6s.; 12 of the best VERBENAS of 1866 for 4s.
CATALOGUE of NEW PLANTS for one stamp.
DILLISTONE & WOODTHORPE, Munro Nursery, Sible Hedingham, Essex.

Special Offer.

BEDDING PLANTS, BEDDING PLANTS. Strong Plants in or out of pots as may be requested.
The following (for 21s., or half the quantity for 11s. 6d.), contains many of the new and beautiful kinds of 1866:—

25 Distinct Named GERANIUMS	12 Choice FUCHSIAS
12 AGERATUM PRINCE	12 Choice LOBELIA MISS MURPHY
12 Choice DAHLIAS [ALFRED	12 Choice PETUNIAS
12 Choice DAISIES	

Post-office Orders on Castle Hedingham.
LISTS and CATALOGUES free.
DILLISTONE & WOODTHORPE, Munro Nursery, Sible Hedingham, Essex.

VERBENAS and GERANIUMS, scarlet, &c., good and well established, supplied as follows:—VERBENAS, in variety, 10s. per 100; GERANIUM, in great variety for bedding, 18s. per 100; UNIQUE, crimson, extra strong, 30s. per 100. DESCRIPTIVE CATALOGUE of Roses in pots, Stove, Greenhouse, Soft-wooded, and Bedding-out Plants. Post free. Trade price on application.
H. & R. STIRZAKER, Skerton Nurseries, Lancaster.

New Verbenas of 1867.

H. CANNELL has purchased a large quantity of all the above, both English and Foreign. Several of these are now in Bloom, and are certainly fine. They will be sent out on and after June 1 at the following prices:—Established Plants, in thumb pots, 8s. per dozen; strong rooted little Plants, 6s. per dozen, warranted to be delivered safe, fresh, and free by post to any part of the United Kingdom. H. C.'s FLORAL GUIDE contains full descriptions of all the best older varieties in cultivation. Free for three stamps.
Fuchsia Nursery, Woolwich.

Verbenas—New Varieties of 1867.

DREGHORN AND AITKEN, NURSERYMEN, Kilmarnock, beg to offer the best of this year's NEW VERBENAS at the following remarkably low prices for well-rooted plants, viz.:—
SET of SIX sent out by J. Keynes, for 5s.
SET of THIRTEEN sent out by Charles Turner (raised by C. J. Perry), 7s. 6d.
SET of FIVE sent out by Hugh Low & Co. (raised by Nicholls), for 4s. 6d.
KING of BEDDERS and WHITE QUEEN, sent out by E. G. Henderson & Son, 6d. each.
One plant of each of the above (26 in all) for 15s.; or 12 plants (in 12 vars., selected from the above), 8s., including package and postage.
Keynes's are ready now, the others will be ready on May 25. Early Orders are solicited, as the strongest plants will be sent out first.

VERBENA, CRIMSON KING.—Having numerous inquiries as to the best method of sending plants of this splendid Verbena to places at a distance, we beg to say that the safest, cheapest, and quickest method is by Post. We can now send stout, well-rooted plants, safely packed to go any distance, at the following prices, package and postage free:—12 plants for 3s. 4d.; 25 for 6s.; 50 for 11s.
We can also supply the following extra fine varieties on the same terms as the above, viz.:—
CELESTIAL BLUE, COUNTESS of EGLINTON (splendid vigorous-growing, profuse-blooming, magenta-purple variety); LE GRAND BOULE DE NEIGE (the best white); PRINCESS OF WALES (pink and white striped, very compact habit, first-rate either for Bedding or Exhibition); BEAUTY of ENGLAND (splendid exhibition white).
PURPLE KING, 12 plants for 28 stamps, 25 for 50 stamps.
Twelve Plants in 12 Varieties of the finest exhibition Verbenas (including the best of last year's new varieties), for 50 stamps.
IRESINE HERBSTII, 12 plants for 30 stamps.
Postage stamps taken in payment of sums of 20s. and under.
DREGHORN & AITKEN, Nurserymen and Seedsmen, Kilmarnock, N.B.

Verbena Crimson King.

THOMAS METHVEN has much pleasure in announcing that CRIMSON KING having completely established its character as the finest Bedding Verbena in cultivation, he has propagated a large Stock of fine healthy Spring-struck Plants, which he offers, on and after April 15, at the following prices:—12 Plants, 4s.; 50, 12s. 6d.; 100, £1; 500, £4 7s. 6d.; 1000, £7 10s.
Leith Walk Nurseries, Edinburgh.

New Bedding Verbena, Blondin (FOULIS).

Colour, Brilliant Magenta with a pure white eye.

DOWNIE, LAIRD, AND LAING beg to intimate that they are now ready to send out the above magnificent VERBENA. It is much in the style and habit of Purple King, blooms in the greatest profusion in all kinds of weather, and rain even does not seem to spoil it. It was awarded a First-class Certificate by the Royal Caledonian Horticultural Society, Edinburgh, September 6, 1866. Price 1s. 6d. each, or 12s. per dozen, with the usual allowance to the Trade.
The following Testimonials as to its superior merits are from Gentlemen who have had many opportunities of seeing it in flower during last season, and D., L., & L. have no hesitation in saying it will prove the greatest acquisition ever offered as a Bedding Verbena in its class and colour.

TESTIMONIALS.

From Mr. WILLIAM PIRRIE, *Gardener to* The Right Hon. The Earl of Rosslyn, *Dysart House.*
"I paid a visit to Fordel Gardens last August, and saw a fine New Verbena named Blondin, in colour a beautiful deep magenta with clear white eye, free grower and very profuse bloomer, even during wet, unfavourable weather. It appears to have the blooming qualities of Purple King, with the luxuriant growth of Lord Raglan. This will prove a real acquisition in Bedding Verbenas."

From Mr. ROBERT DEWAR, *Gardener to* James T. Oswald, Esq., *Dunnikier, Kirkcaldy.*
"Having seen Verbena Blondin last autumn, I consider it the best rose-coloured variety for bedding purposes I have seen."

From Mr. WILLIAM M. GORRIE, *Gardener to* Colonel Ferguson, *Raith, Kirkcaldy.*
"I visited Fordel Gardens last autumn, and saw a Verbena named Blondin. The beds covered with it were in rich masses of bloom, and while the others, such as Purple King, Firefly, &c., were nearly destroyed by the severity of the weather, Blondin was flowering in great luxuriance."

From Mr. WILLIAM VAIR, *Gardener to* Sir Arthur Halket, Bart., *Pitfirrane, Dunfermline.*
"In passing through the Gardens at Fordel last autumn, I was very much pleased with a new Verbena named Blondin, colour bright magenta, and flowering most profusely, more so than any Verbena I have ever seen."

From Mr. JOHN MCLEAN, *Gardener to* Mrs. Gibson, *Duloch, Inverkeithing.*
"I was greatly pleased with a beautiful new Verbena named Blondin I saw in Fordel Gardens last autumn. It was flowering in great masses. This I think will prove a great acquisition amongst bedding Verbenas."

DOWNIE, LAIRD, & LAING, Florists to the Queen, Nurserymen, Seedsmen, and New Plant Merchants, 17, South Frederick Street, Edinburgh; and St anstead Park, Forest Hill, London, S.E.

E. G. HENDERSON & SON'S

NEW DESCRIPTIVE SPRING CATALOGUE

WILL BE SENT ON RECEIPT OF THREE POSTAGE STAMPS,

WITH A COLOURED LEAF-PLATE OF THE BEAUTIFUL

NEW TRICOLOR GERANIUM "LADY CULLUM" (by Andrews).

It includes Notices of the best Novelties of the season.

BLANDFORDIA CUNNINGHAMI.
COLEUS LAMONTI.
NAPOLEON III., MULE or HYBRID PINK.
GERANIUM MAID of KENT.—Rich rose. Far surpassing Madame Barre, and all others in class and colour.
In the Golden Bronze Section are three distinct styles of Zone in PRINCESS of WALES, DUKE of EDINBURGH, and E. G. HENDERSON. The last one received a First-class Certificate at the International Exhibition.
BANKS'S beautiful FUCHSIAS, BRILLIANTISSIMA, DAY DREAM, and KILLIEKRANKIE.
FUCHSIA PICTURATA.—A fine variety with white corolla.
FUCHSIA PRINCESS ALEXANDRA.—With white sepals, beautiful variety.
NEW CRIMSON BEDDING VERBENA KING of BEDDERS.—A first-class bedding variety, colour a brilliant crimson red, style of Admiral Dundas (one of the best ever raised), but brighter, growth free and compact, not spreading, profuse in bloom, with large well-formed full trusses, and desirably fragrant. Having been proved in both beds and belts in the gardens where it was raised, its merits are guaranteed equal to description, as one of the most effective and useful kinds ever offered. Certified by the Floral Committee of the Royal Horticultural Society.
NEW WHITE BEDDING VERBENA WHITE QUEEN.—For close dwarf growth, large, compact, and well-formed truss, purity of colour, profusion of bloom, and effectiveness in character, the White Queen Verbena is admitted by competent judges to surpass Henriette, Boule de Neige, and Mrs. Holford. Its short-jointed habit requires little attention to training, and its purity of colour after rain is a feature in its favour, both for garden decoration and for exhibition.
LOBELIA PUMILA ELEGANS, INDIGO BLUE, and WHITE QUEEN.
CHRISTINE NOSEGAY.—Rose colour. The finest Bedding Geranium in its class. Awarded a First-class Certificate.
The MINIATURE GOLDEN TRICOLOR ZONAL GERANIUMS are LITTLE BEAUTY, LITTLE FAIRY, LITTLE GEM, LITTLE HARRY.
In New First-class GOLD and SILVER TRICOLOR VARIETIES, see Classes 18 and 19 of Pelargoniums.
CALADIUMS.—Several new and beautiful hybrid varieties.
FUCHSIA ALBO-COCCINEA.—An elegant and novel fancy tri-coloured variety.
FUCHSIA CLAPHAM HERO.—Distinguished by its magnificent size of sepals, and fine proportions.
NEW GOLDEN-LEAVED BEDDING PLANT, GOLDEN FEATHER (Pyrethrum parthenifolium aurea).—A beautiful dwarf hardy perennial plant, 6 to 9 inches in height, as required, surpassing the gold-leaved section of Geraniums in its uniformly neat and densely compact growth, which, by simply pinching off the premature flower buds, the plant is furnished solely by its picturesque golden fan or feather-lobed leaves, forming an equal surface as to height, and an elegant feature for a second front riband-row, or a double marginal belt to terrace borders, or as a chaste golden fringe to back lines of Perilla or Coleus. Received a First-class Certificate of Merit and several others.
POA TRIVIALIS ARGENTEA ELEGANS, SILVER-LEAVED MEADOW GRASS.—This plant is commended as one of the most useful and beautiful varieties of hardy Grasses with silvery white-margined leaves yet introduced to gardens. It is strictly a perennial in habit, forming a remarkably dense and compact many-branched growth from the base, and, by its natural and free tendency to emit roots upon the under shoots, it makes a close yet gracefully free growth from 4 to 9 inches in height, and with a luxuriance which renders it suitable for Grass plots, verges, or terraces, covering the ground-surface with a herbage as close as an ordinary meadow, whilst its elegant variegated leaf-blades produce an effect upon a much larger scale than can be had from any other Silver-leaved Grass. By forming ornamental portable specimens and suspended basket groups of this variety in the early winter and spring months, for conservatory and greenhouse decoration, it will at those seasons be found by far the most brilliant and picturesque plant in its tribe.
ACALYPHA TRICOLOR, 21s. each.
COLEUS VEITCHII, 10s. 6d. each.
DAVALLIA ALPINA, 10s. 6d. each.
DIEFFENBACHIA PEARCEI, 31s. 6d. each.
GYMNOSTACHYS PEARCEI, 7s. 6d.
HIPPEASTRUM PARDINUM, 63s. and 42s.
HYPOCYRTA BREVICALYX, 15s.
LOMARIA CILIATA, 21s. and 15s.
MICONIA PERUVIANA, 10s. 6d. each.
NEPENTHES GRACILIS MAJOR, 21s.
NIEREMBERGIA RIVULARIS, 10s. 6d. each.
" VEITCHII, 10s. 6d. each.
PANICUM VARIEGATUM, 7s. 6d. each.
PRIMULA CORTUSOIDES AMŒNA ALBA, 10s. 6d. each.
RETINOSPORA PLUMOSA, 21s.
SANCHEZIA NOBILIS VARIEGATA, 42s. and 31s. 6d. each.

P.S. A Supplementary Descriptive List of Verbenas sent on application.

WELLINGTON NURSERY, ST. JOHN'S WOOD, LONDON, N.W.

Bedding and other Plants.





Just Published, post free 12 stamps (Gratis to Customers), Part III. of CARTER'S GARDENERS' and FARMERS' VADE MECUM, containing complete Lists of new and choice Stove and Greenhouse and Bedding Plants, with an Addendum comprising original and practical articles, "On a Visit to Messrs. Carter's Nursery," by an Amateur Florist; Subtropical Gardening; and 126 Geometrical Designs for Flower-beds; with reliable information for the proper combination of Bedding Plants to produce chaste and striking effects.

Forwarded on receipt of 12 stamps on application to CARTER'S Great London Seed Warehouse, 237 and 238, High Holborn, London.

Russell's Pyramid Primula.

THE FINEST STRAIN IN EXISTENCE.

GEORGE CLARKE has New SEED of the above unequalled varieties, 2s. 6d. per packet; also the Fern-leaved kinds, 2s. 6d.; Kermesina (scarlet), 2s. 6d.; The Fairy (a lavender colour) 1s. All of the best quality. Now is the time to sow for strong early plants.

Nursery, Streatham Place, Brixton Hill, S.; and Mottingham, Kent, S.E.

Primula fimbriata.

B. MALLER has a very superior Stock of the above to offer at 1s. and 2s. 6d. per packet, the usual discount to the Trade.

Also, a very choice Stock of EARLY PURPLE SPROUTING BROCCOLI, in large or small quantities.

A DESCRIPTIVE BEDDING-PLANT LIST to be had on application. Lewisham and Burnt Ash Lane, Lee, S.E.

Choice Seeds.

WM. CUTBUSH AND SON strongly recommend the following:—

PRIMULA SINENSIS FIMBRIATA, of the finest possible strain, Red, White, or Mixed, 2s. 6d., 3s., and 5s. per packet.
CALCEOLARIA, saved from James' choice strain, very fine, 2s. 6d., 3s. 6d., and 5s. per packet.
CINERARIA, from named flowers, 2s. 6d., 3s. 6d., and 5s. per packet.
SNOW'S WINTER WHITE BROCCOLI (True), Wm. C. & Son's own saving, 2s. 6d. per packet.
NUNEHAM PARK ONION, 2s. 6d. per packet.

For other Choice Seeds see CATALOGUE, post free.
Highgate Nurseries, London, N.

PRIMULAS, CALCEOLARIAS, &c.—The following varieties greatly exceed in brilliancy of colour and substance of flower the older kinds:—

PRIMULA SINENSIS coccinea aurantiaca, very deep crimson, 1s. and 2s. 6d. per packet.
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P. sinensis lilacina albo-marginata, lilac, edged white, 1s. and 2s. 6d. per packet.
P. sinensis striatiflora, magnificently striped, 1s. and 2s. 6d. per pkt.
P. sinensis filicifolia, fine Fern-leaved variety, 2s. 6d. per packet.
P. sinensis fimbriata, extra fine, mixed, 1s. and 2s. 6d. per packet.
P. sinensis fimbriata alba, 1s. and 2s. 6d. per packet.
CALCEOLARIA, saved from flowers of great beauty, 1s., 1s. 6d., and 2s. 6d. per packet.
CINERARIA, saved from fine named varieties, 1s., 1s. 6d., and 2s. 6d. per packet.

All packets of Flower Seeds sent post free.
CATALOGUES post paid.
BUTLER, MCCULLOCH & Co., Covent Garden Market, London, W.C.

Seed of Choice Strains of Florists' Flowers.

The following selected Strains are worthy of the notice of all growers of the most useful conservatory decorative flowers.

WILLIAMS' SUPERB STRAIN of PRIMULA.

B. S. WILLIAMS can with confidence offer his superb Strain of Primula as being undoubtedly the finest in cultivation. It is now grown in all the principal Gardens of the Nobility and Gentry throughout the Three Kingdoms, and has never failed to give the greatest satisfaction.

In habit the plants are very robust, and in the foliage differ from all other varieties; but their great beauty consists in the depth of colour in the Red, purity of the White, and beautiful fimbriated form of all the flowers, which are thrown up in large trusses well above the foliage.

As a proof of the truth of the above remarks, this Strain has taken 1st Prizes in every instance that it has been shown in the Provinces this Spring; and 1st Prize at the Primula Show of the Royal Horticultural Society, South Kensington; and 1st at the Royal Botanic, Regent's Park. It is also the favourite Strain in the Covent Garden Flower Market.

This Strain may be procured True, in Sealed Packets bearing B. S. WILLIAMS' Name and Address, from any Seedsman; but B. S. W. particularly requests that Customers will observe, on purchasing, that each Packet has his Name and Address in full printed thereon, as no others are genuine.

The Trade supplied on advantageous terms.

	Per pkt. s. d.		Per pkt. s. d.
Retail price, RED	5 0	Retail price, WHITE ..	3 6
" "	3 6	" " ..	2 6
" "	2 6	" MIXED ..	5 0
" WHITE ..	5 0	" " ..	3 6

Retail price, MIXED, per packet, 2s. 6d.

WEATHERHILL'S EXTRA CHOICE STRAIN OF CINERARIA.

B. S. W. has purchased the entire Stock and right of Sale of this Magnificent Strain. Many of the flowers produced by this seed last season were as large as a crown-piece. This strain is well known in the London Flower Market, and is the most popular one there, a sufficient guarantee that its qualities are good.

Retail price per pkt., 5s. 0d. | Retail price per pkt., 3s. 6d.
Retail price per pkt. .. .. 2s 6d.

JAMES'S HERBACEOUS CALCEOLARIAS.—The varieties that took the First Prize at the International Horticultural Exhibition last May were of this noted strain.

Retail price per pkt. 5s. 0d. | Retail price per pkt., 3s. 6d.
Retail price per pkt. .. .. 2s. 6d.

All FLOWER SEEDS in packets, Post free.

B. S. WILLIAMS, Victoria and Paradise Nurseries, Upper Holloway, London, N.

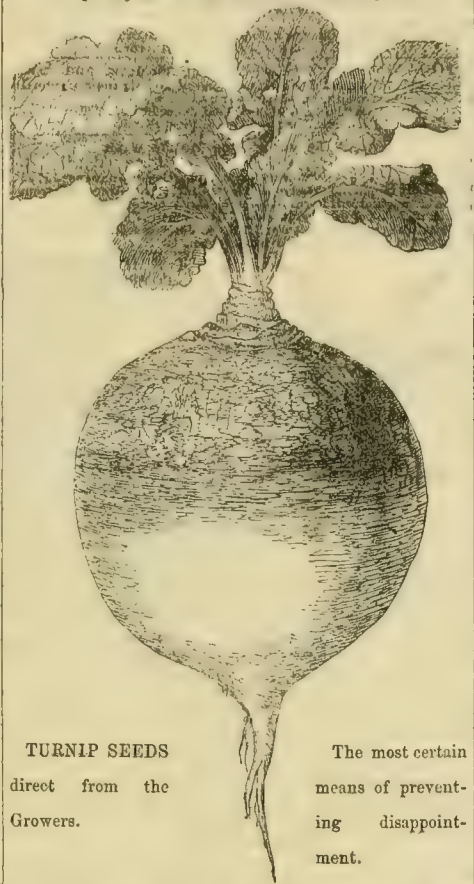
THE BEST SWEDE IN CULTIVATION

IS

SUTTON'S CHAMPION.

Price 1s. per lb.

Cheaper by the bushel of 50 lb. Carriage free.



TURNIP SEEDS direct from the Growers.

The most certain means of preventing disappointment.

SUTTON'S CHAMPION SWEDE.

A large Purple-topped Yellow variety, handsome shape, perfectly hardy, stores exceedingly well, and one of the heaviest croppers.

TESTIMONIALS.

From Mr. J. H. HALSE, *Secretary to the Sidmouth Agricultural Association.*

October 26, 1866.—"At the annual meeting of the above Association, held at Sidmouth on the 23d inst., the whole of the Prizes for Swede Turnips were awarded to your Champion Swede, grown from seed supplied by you during the past season."

From H. J. HILLIER, Esq., *Granham Hill, Marlborough.*

"I am bound to say that from my experience you are quite justified in asserting the Champion Swede to be quite as hardy as any of the purple-topped varieties; if not indeed hardier."

From Mr. LARGE, *Bailiff to the* Right Hon. Lord Berners.

"The Champion Swedes, from seed Lord Berners purchased of you, are far superior to any other we have grown. I can confidently say they are many tons per acre heavier than any other Swedes growing on his lordship's farm."

From Mr. B. HUNT, *late Steward to* W. W. Chute, Esq., *Vyne Farm, Basingstoke.*

January 12, 1866.—"Last season I tried eight different kinds of Swede, and find, after a careful examination, that, although several of them are good, none of them equal your Champion."

From Mr. W. TURNER, *Hole Farm, Lyme Regis.*

May 19, 1866.—"Your Champion Swedes last year were the largest and best keepers grown in this neighbourhood."

From ARTHUR H. WOOD, Esq., *Theuden Grange, Alton.*

April 3, 1866.—"My Swedes (Sutton's Champion) have done very well indeed; in fact, men on the farm who have worked here for 20 years say they have never seen such a crop before."

From Mr. HENRY CANTRELL, *Baylis Farm, Slough.*

April 12, 1866.—"The Champion Swede kept first-rate last season, notwithstanding the drought."

From Mr. JOHN WHITE, *Halse Mincombe, Sidbury.*

April 18, 1866.—"The Champion Swedes from seed I had of you last year, were the best I have ever grown, and stood the dry weather better than any others in the neighbourhood."

From WILLIAM LITTLEDALES, Esq., *Hursley, Winchester.*

April 23, 1866.—"I won a prize for the best roots at the Romsey Show with your Champion Swedes."

From the Rev. H. RAYMOND BARKER, *Daglingworth Rectory, Cirencester.*

May 15, 1866.—"I find none that answer so well as your Champion Swede on my poor soil."

From ROBERT A. BRYLL, Esq., *Woodford, Armagh.*

February 6, 1866.—"Your Champion Swedes last year, notwithstanding the extremely dry season, were a first-rate crop, and acknowledged by all who saw them to be the best in the neighbourhood."

From HORACE B. LEGGATT, Esq., *Brownwick, Fareham.*

February 10, 1866.—"Your Champion Swedes are a very fine crop, and of excellent quality."

From J. H. WHEATLEY, Esq., *Sligo.*

March 7, 1866.—"The Champion Swede Seed I had from you last year produced the finest crop here."

From ROBT. BRUCE WILLIS, Esq., *North Abbey Cottage, Ballasalla, Isle of Man.*

March 17, 1866.—"My Champion Swedes grown from your seeds beat any others in the parish, although grown on land naturally inferior to most in this neighbourhood."

Price 1s. per lb.

Cheaper by the bushel of 50 lb. Carriage free.

PRICED LISTS of other TURNIP SEEDS gratis on application.

SUTTON AND SONS, SEED GROWERS, READING.

The New Australian Spinach, Chenopodium auricomum.

STUART AND MEIN, SEEDSMEN, Kelso, N.B., beg to intimate that they have received a small parcel of the above NEW VEGETABLE, which is superior in every respect to any other variety of Spinach. 1s. 6d. per packet. The Seed was distributed this month, on a well manured bed, and watered freely. For its description and other particulars, see *Gardeners' Chronicle*, page 297 "Gardeners' Magazine," page 171; "Florist and Pomologist," page 89

CHOICE SEEDS.

Post Free.

	Per pkt.—s. d.		Per pkt.—s. d.
Broccoli, Snow's Imperial Winter	1 0	Moore's Vegetable Cream	0 6
Albert Sprouts	0 6	Beet, Perpetual Spinach .	0 6
Cauliflower, Early Erfurt ..	1 0	" Nutting's Superb Red	0 6
Celery, Manchester Champion Red	0 6	Lettuce, Wheeler's Tom Thumb	0 6
Cucumber, Smith's Fine Frame	1 0	Radish, French Breakfast	0 6
Cucumber, Telegraph ..	1 0	Aster, Truffaut's Superb French, 12 vars. mixed ..	1 0
Leek, Henry's Prize ..	0 6	Aster, Victoria, 6 vars. mixed	1 0
Endive, Digswell Prize ..	0 6	Stock, improved large-flowering, 12 vars. mixed.	1 0
Onion, Nuneham Park ..	2 6	Balsam, Camellia-flowered, 6 var. mixed	1 0
Parsley, extra fine curled ..	0 6	Balsam, Rose-flowered, 8 vars. mixed	1 0
Raphanus caudatus (new long-podded Radish) ..	2 6	Phlox Drummondii, 12 splendid varieties ..	1 0
Custard Marrow	0 6		
Melon, Malvern Hall ..	1 6		
Tomato de Laye	0 6		
Cauliflower, The Mammoth	1 0		

RICHARD SMITH, Seed Merchant, Worcester.

Skirving's Improved Varieties of Swede Turnip.

WM. SKIRVING, Queen Square, Liverpool, begs to announce that his present price for SEED of his three best varieties of SWEDE TURNIP is 1s. per pound, bags included. Terms Cash. Sorts, SKIRVING'S KING of the SWEDES.
" " QUEEN "
" " TANKARD "
A remittance must accompany orders from unknown correspondents

SANG'S FIFESHIRE YELLOW TURNIP.—This TURNIP, introduced by us in 1863, keeps longer than any other variety whatever, being sound so late in the season as June and July. The flesh and skin are of a rich cream colour, and the yield is an average for Yellow Turnips. Fourteen pounds paid to any Railway Station in England or Scotland, bag included, 1ls.

EDWARD SANG & SONS, Nurserymen and Seed Merchants, Kirkcaldy, Scotland.

Turnip Seeds for Early Sowing.

THE BEST SORTS ARE
POMERANIAN WHITE GLOBE,
SUTTON'S SHORT-TOP SIX WEEKS.

SUTTON AND SONS can supply New Seed of the above excellent sorts at 1s. per lb., or cheaper by the bushel.
PRICED LISTS of other sorts gratis on application.
SUTTON & SONS, Seed Growers, Reading.

BLUNDELL'S CATTLE MELON.—This productive Fruit is now well-known and generally appreciated for Feeding all kinds of Cattle, &c., in the autumn months. Prices, exclusive of carriage:—100 Seeds, 2s. 6d.; Seed for ¼ acre, 5s.; do. ½ acre, 9s.; do. 1 acre, 16s.

To be obtained of all the principal Seedsmen, and of Messrs. BLUNDELL & PALMER, Land Agents, &c., 3, Portland Street, Southampton. Cash remittances from unknown correspondents.

Wheelers' Imperial, the finest Swede Grown.



WHEELERS' IMPERIAL SWEDE,
1s. per lb.; 45s. per bushel (50 lb.)

This is one of the best if not THE BEST Swede in cultivation; the specimens exhibited at the Smithfield Club Show in London, and at Cirencester, Birmingham, and at the Great Show of Roots held in Gloucester, excited considerable admiration, not only for their size, but for their beautiful shape and excellent quality.

J. C. WHEELER & SON, Seed Growers, Gloucester.

GRASS SEEDS for PERMANENT PASTURE, selected on a new, scientific, and natural system, by
J. C. WHEELER & SON, Gloucester.

UNDOUBTEDLY a GOOD IDEA.

WHEELER AND SON'S "BOOK on GRASSES."—"These enterprising Seedsmen, in introducing a new element into their calculations—viz., the geological formation of the soils for which permanent Grasses are wanted—*have undoubtedly a good idea.*

"Messrs. WHEELER have prepared a new series of tables of the Grasses which they consider most suitable to different geological formations. These are arranged in 11 tables, and include mixtures suitable for heavy, medium, and light soils in each case."—*The Field*, March 9, 1867.

J. C. WHEELER AND SON are anxious that every Gentleman Farmer in England, who is about to Lay Down Land to Permanent Pasture, or to Renovate Old Pasture with suitable Grass Seeds, should read their illustrated "Book on Grasses;" with this view they will, on receiving a note to that effect, send a copy to any address they may be favoured with.

Kohl Rabi Seed should now be sown.
Drilled as Swedes, 3 to 4 lb. per acre.

SUTTON AND SONS can supply superior SEED, either GREEN or PURPLE, at 2s. 6d. per lb., or cheaper in large quantities.

For Instructions on Cultivation, see SUTTON'S FARM SEED LIST, which may be had post free on application.

SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

Sutton's Grass Seeds for all Soils.

SUTTON AND SONS have still on hand some of each of the leading kinds of

PERMANENT NATURAL GRASSES and CLOVERS,

which are mixed expressly to suit the soils for which they are intended.

Price 26s. to 36s. per acre.
Carriage free.

SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

GRASS SEEDS for PERMANENT PASTURE, of the finest quality, at moderate prices, carefully selected on a new, natural, and scientific system.

See "WHEELER'S BOOK on GRASSES," which contains Illustrations and Descriptions of the most suitable Grasses for Permanent Pasture.

J. C. WHEELER & SON,
Gloucester,
Seedsmen to the Gloucestershire Agricultural Society.

PEAT.—A quantity of good fibrous PEAT for SALE, as supplied by the Advertiser to her Majesty's Gardens. Price per ton 14s. Delivered to Seven Oaks or Edenbridge Station, by F. HAYNES, Brasted Chart, near Seven Oaks.

FOR SALE, in any quantities, selected SILVER SAND, PEAT SOIL, LOAM, SPHAGNUM, SANDSTONE GRAVEL, SHINGLE, GARDEN POTS, GARDEN ENGINES, IMPLEMENTS, &c., cheap for cash. Carefully dispatched by Rail, Canal, and Ship. List of Prices post free on application to W. SHORT, Horticultural Depôt, Reigate.



COCOA-NUT REFUSE is becoming SCARCE, the old reserves will soon be gone. Now sold in bags, 1 for 2s., 10 for 16s., 20 for 30s., 50 for 66s., 100 for £6.

Fourpence allowed for each bag returned carriage-paid.

A Railway Truck-load (not in bags), 40s.

Postage Stamps or Post-office Order, payable to J. BARSHAM & Co., Kingston-on-Thames, S.W.

ODAMS'S NITRO-PHOSPHATE for CORN.
ODAMS'S NITRO-PHOSPHATE for ROOTS.
ODAMS'S DISSOLVED BONES.
ODAMS'S SUPERPHOSPHATE of LIME.
ODAMS'S PREPARED PERUVIAN GUANO.

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THE PATENT NITRO-PHOSPHATE OR BLOOD MANURE COMPANY (Limited).
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THE LONDON MANURE COMPANY
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Have now ready for delivery in dry fine condition,
CORN MANURE, for Spring Use
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SUPERPHOSPHATES of LIME
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Also Genuine PERUVIAN GUANO, and NITRATE of SODA, ex Dock Warehouse; SULPHATE of AMMONIA, FISHERY SALT, &c. E. PURSER, Secretary.
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LAWES' MANURES.—The Manures manufactured by J. B. LAWES for the present season of 1867 are now ready for delivery at his Factories, at the following prices, per ton:—

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LAWES' PATENT TURNIP MANURE and BONE SUPERPHOSPHATE of LIME	6	6	0
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LAWES' WHEAT, BARLEY, GRASS, and MANGEL MANURES	8	0	0
CONCENTRATED CORN and GRASS MANURES	12	0	0

These Manures can be obtained of Mr. LAWES, or through the appointed Agents in all parts of the United Kingdom, at prices varying according to cost of carriage.

Genuine Peruvian Guano direct from the Importers. Nitrate of Soda, Sulphate of Ammonia, and other Chemical Manures.

American and other Cakes at market prices.

Address, JOHN BENNET LAWES, 1, Adelaide Place, London Bridge, E.C.; 22, Eden Quay, Dublin; and Market Square, Shrewsbury.

BOSTON'S NE PLUS ULTRA, for the Destruction of Mealy Bug, Scale, American Blight, &c., on Stove and Greenhouse Plants, Fruit Trees, Vines, &c. In bottles, with full instructions for application, price 3s. 6d., 6s., and 10s. 6d.

JAMES CARTER & Co. beg leave to state that the present time is most suitable for applying the above genuine Specific before the commencement of the growing season, thereby preventing the rapid increase of the above pests which would otherwise take place. The infallible properties of BOSTON'S NE PLUS ULTRA are rapidly becoming fully recognised, J. C. & Co. having already sold nearly 2000 bottles since its first introduction in the spring of 1866. Numerous testimonials have been received, and not a single complaint of its inefficiency.

Sole Agents, JAMES CARTER & Co., 237 and 238, High Holborn, W.C.
*** The Trade supplied on liberal terms.

ROLL TOBACCO CLOTH.—The cheapest and best article for Smoking Greenhouses and destroying the Fly; equal to Tobacco in strength, 1s. 4d. per lb.; over 10 lb., 1s. 1d.
JOSEPH BAKER, 10, Gough Square, Fleet Street, E.C.
Post Office Orders payable Fleet Street

Fumigate your Greenhouse with
TOBACCO TISSUE.—This article is acknowledged by all parties who have used it to be the best remedy for Destroying Insect Life; is entirely free from paper or rag, and will burn without the assistance of blowing.

Price 3s. 6d. per lb., carriage free. To be had of Messrs. ROBERTS & SONS, Tobacco Manufacturers, 112, St. John Street, Clerkenwell, E.C., and of all Seedsmen and Nurserymen.



Red Spider — Magnified.

GISHURST COMPOUND.

Used by many of the leading Gardeners since 1859, against Red Spider, Mildew, Thrips, Green Fly, and other Blight, in solutions of from 1 to 2 ounces to the gallon of soft water, and of from 4 to 16 ounces as a Winter Dressing for Vines and Fruit Trees. Has outlived many preparations intended to supersede it.

Sold Retail by Seedsmen, in boxes, 1s., 3s., and 10s. 6d.

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PRICE'S PATENT CANDLE COMPANY
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SHAW'S TIFFANY,
For samples and prices apply to
J. SHAW & Co., 29, Oxford Street, Manchester.

RUSSIAN MATS.—A quantity for Sale. Apply to Mr. SIMONDS, Oil Mill, Boston.

BROWN'S FLORAL SHADING, for Shading Plants under Glass and protecting Wall Trees from frost.—Sold by all Nurserymen and Seedsmen. No. 1 at 6s. 8d.; No. 2 at 7s. per piece, 20 yards long, 38 inches wide; No. 3 at 9s. 3d. per piece, 18 yards long, 39 inches wide. Samples on application to
CHARLES BROWN, Greenheys, Manchester.

TANNED GARDEN NETTING for preserving Seed Beds, Fruits, Strawberries, from Frost, Blight, Birds, &c., and as a Fence for Fowls, &c. 1 yard wide, 1½d.; 2 yards, 2½d.; 3 yards, 4d.; and 4 yards, 6d. per yard run in any quantity, may be had at
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Garden Netting.

JOHN EDGINGTON AND CO. supply TANNED NETTING for the Protection of Fruit Trees, 1d. per square yard. Any quantity. SCRIM CANVAS, &c.; TULIP COVERS and GREENHOUSE SHADES, SUN BLINDS, &c MARQUEES, TENTS, and FLAGS for FETES, FLOWER SHOWS, &c.
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NETTING for FRUIT TREES, SEED BEDS, RIPE STRAWBERRIES, &c.—TANNED NETTING for protecting the above from Frost, Blight, Birds, &c., 2 yards wide, 3d. per yard, or 100 yards, 20s.; 4 yards wide, 6d. per yard, or 50 yards, 20s. NEW TANNED NETTING, suited for any of the above purposes, or as a Fence for Fowls, 2 yards wide, 6d. per yard; 4 yards wide, 1s. per yard; ½-inch mesh, 4 yards wide, 1s. 6d. per yard. Can be had in any quantity of
EATON & DELLER, 6 and 7, Crooked Lane, London Bridge, E.C.

Seed Pans, Garden Pots, Edging Tiles, &c.

MESSRS. BONSEY BROTHERS beg to offer to Gentlemen, their Gardeners, and the Trade, GARDEN POTS, SEED PANS, and EDGING TILES, of all sizes, of hard and durable quality and moderate price.
Address Messrs. BONSEY BROTHERS, Brox Potteries, Chertsey, Surrey



GARDEN BORDER EDGING TILES, in great variety of patterns and material, the plainer sorts being especially suited for KITCHEN GARDENS, as they harbour no Slugs and Insects, take up little room, and once put down incur no further labour and expense, as do "grown" Edgings, consequently being much cheaper.



GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, of great durability, and in great variety of design.

F. & G. ROSHER, Manufacturers, Upper Ground Street, Blackfriars, S.; Queen's Road West, Chelsea, S.W.; Kingsland Road, Kingsland, N.E.

Sole London Agents for FOXLEY'S PATENT GARDEN WALL BRICKS. Illustrated Price Lists free by post. The Trade supplied.

ORNAMENTAL PAVING TILES for Conservatories, Halls, Corridors, Balconies, &c., as cheap and durable as Stone, in blue, red, and buff colours, and capable of forming a variety of designs.

Also TESSELATED PAVEMENTS of more enriched designs than the above.

WHITE GLAZED TILES, for Lining Walls of Dairies, Larders, Kitchen Ranges, Baths, &c. Grooved and other Stable Paving Bricks of great durability, Dutch and Adamantine Clinkers, Wall Copings, Red and Stoneware Drain Pipes, Slates, Cements, &c.
To be obtained of F. & G. ROSHER, at their Premises as above.

SILVER SAND (REIGATE, best quality), at the above addresses—14s. per Ton, or 1s. 3d. per Bushel; 2s. per Ton extra for delivery within three miles, and to any London Railway or Wharf. Quantities of 4 Tons, 1s. per Ton less.

FLINTS, BRICK BURRS or CLINKERS, for Rockeries or Grotto Work. F. & G. ROSHER.—Addresses see above.
N B. Orders promptly executed by Railway.

Caution to Gardeners.—When you ask for
SAYNOR AND COOKE'S WARRANTED PRIZE PRUNING and BUDDING KNIVES, see that you get them. Observe the mark SAYNOR, also the corporate mark OBTAIN WARRANTED, without which none are genuine.

S. & C. regret having to caution Gardeners and others, but are compelled to do so, in consequence of an imitation, of common quality, having been sold for the genuine one, and which has caused many complaints to be made to them of Knives which were not of their make, all of which are warranted both by Sellers and Makers.

S. & C.'s Pruning and Budding Knives are the best and the cheapest in the market.
Paxton Works, Sheffield. Established upwards of 125 years.

Horticultural Glass Warehouse.

THOMAS MILLINGTON AND CO.,
87, Bishopsgate Street Without, London, E.C.

NEW LIST for ORCHARD HOUSE GLASS as supplied to Her Majesty, the Nobility, Gentry, Mr. Rivers, and the leading Horticulturists of the United Kingdom.

ORCHARD HOUSE SIZES.

in.	in.		4ths.	3rds.	2nds.	Best.
20 by 12						
20 by 13		15 oz.	14s 3d	15s 6d	18s 6d	20s 0d
20 by 14	Per 100 feet					
20 by 15		21 oz.	19s 6d	22s 2d	25s 6d	26s 6d
20 by 16						

SMALL SHEET SQUARES, 15 oz., per 100 feet.

in.	in.	in.	in.	in.	in.	in.	in.	4ths.	3ds.	2nds.	Best.
6 by 4	7 by 5	8 by 6		9 by 7				12s 3d	13s 3d	16s 0d	18s 0d
6½ by 4½	7½ by 5½	8½ by 6½		9½ by 7½							
Per 100 feet.											
10 by 8	12 by 9	12½ by 10½		14½ by 10½				13s 3d	14s 6d	17s 3d	19s 0d
10½ by 8½	12½ by 9½	13 by 10		15 by 10							
11 by 9	13 by 9	13½ by 10½		13 by 11							
11½ by 9½	12 by 10	14 by 10		14 by 11							

LARGE SHEET SQUARES, 15 oz., per 100 feet.

in.	in.	in.	in.	in.	in.	4ths.	3ds.	2nds.	Best
15½ by 10½	14 by 12	22 by 12		22 by 16		14s 3d	15s 6d	18s 6d	20s 0d
16 by 10	14½ by 12½	17 by 13		24 by 16					
14½ by 11½	15 by 12	23 by 13		20 by 17					
15 by 11	15½ by 12½	18 by 14		22 by 17					
15½ by 11½	16 by 12	22 by 14		24 by 17					
16 by 11	16½ by 12½	24 by 14		20 by 18					
21 by 11	17 by 12	22 by 15		22 by 18					
13 by 12	18 by 12	24 by 15		24 by 18					

The above Prices are only for the Sizes stated; if a quantity of any other Size be required, a Special Price will be given.

SHEET GLASS.

In Sheets for Cutting up, averaging from 6 to 9 feet super.

15 oz.		21 oz.	
4ths quality, per 300 feet case,	38s.	4ths quality, per 200 feet case,	38s.
3ds " "	48s.	3ds " "	48s.
2ds " "	62s.	2ds " "	66s.
Best " "	92s.	Best " "	96s.

SHEET GLASS is made only in the following substances, 15 oz., 21 oz., 26 oz., 32 oz., 36 oz., and 42 oz.

HARTLEY'S IMPROVED ROLLED ROUGH PLATE in 1-8th in., 3-16th in., 1-4th in., and 3-8th in. substances.

BRITISH PLATE GLASS for Windows and Silvered for Looking Glasses, Coloured Glass, Glass Shades, Striking Glasses, &c., &c.

PAINTS, COLOURS, VARNISHES, &c.

STUCCO PAINT, 24s. per cwt. This Paint adheres firmly to the walls, resists the weather, and is free from the glossy appearance of Oil Paint, resembling a stone surface, and can be made any required shade. It is mixed with rain or pure river water.

WHITE ZINC PAINT, 36s. per cwt. One hundredweight of pure Zinc Paint, with three gallons of Linseed Oil, will cover as much as one hundredweight and a half of White Lead and six gallons of Linseed Oil. Special Dryers for this Paint.

IMPROVED ANTI-CORROSION PAINT, 28s. to 34s. per cwt. Anti-corrosion Paint is extensively used for all kinds of work in exposed situations, on Brick, Stone, Compo, Iron, Iron Bridges, Conservatories, Greenhouses, &c., and is easily laid on by any ordinary workman. Prepared Oil for ditto, 4s. per gallon.

	Per cwt.—s. d.		Per gallon.—s. d.
GENUINE WHITE LEAD	32 0	LINSEED OIL	3 2
SECONDS WHITE LEAD	30 0	BOILED OIL	3 8
GROUND PATENT DRYERS, 3d. to 4½d. per lb.		TURPENTINE	3 6
" OXFORD OCHRE, 3d. to 4½d. per lb.		LINSEED OIL PUTTY, 8s. to 9s. per cwt.	
" RAW UMBER, 4½d. to 6d. per lb.	[per lb.	Fine OAK VARNISH, 10s. to 12	0
" BURNT do., 6d. to 9d.		" CARRIAGE do., 12s. to 14	0
GREEN PAINT, all shades,	28s. to 60 0	" PALE do. 10s. to 12	0
BLACK PAINT,	24s. to 36 0	" COPAL	16 0
RED PAINT	28s. to 36 0	KNOTTING	10 0
		Patent GOLD SIZE	10 0
		" BLACK JAPAN	12 0
		GLAZIER'S DIAMONDS and TOOLS	
GROUND BRUSHES.		MILLED LEAD and PIPES	
DUSTERS. | SASH TOOLS.		OLD LEAD Bought or taken in exchange.	
DISTEMPER BRUSHES.			

The above are Net, for Cash, and as such cannot be booked.
Lists of any of the above on application.

JAMES PHILLIPS AND CO.
beg to submit their prices as follows:—

GLASS for ORCHARD HOUSES,

As supplied by them to Mr. Rivers, to the Royal Horticultural Society, and to most of the Nobility, Clergy, and Gentlemen of the United Kingdom.

Each Box contains 100 feet. The prices only apply to the sizes stated.
Squares 20 by 12, 20 by 13, 20 by 14, 20 by 15.

	16 oz. to the foot.	21 oz.
Fourth quality	15s. 0d.	19s. 6d.
Third ditto	17s. 0d.	22s. 6d.
Seconds	18s. 6d.	26s. 0d.
English	20s. 0d.	27s. 0d.

The above prices include the boxes, which are not returnable.

HORTICULTURAL GLASS.

Stock sizes, 16-oz., in 100 feet boxes, boxes included.

These prices only apply to the sizes stated.

				4ths.	3rds.	2nds.
11 by 9	12 by 9	13 by 9	14 by 9	s. d.	s. d.	s. d.
12 " 10	13 " 10	14 " 10	15 " 10	13 6	15 6	17 0
13 " 11	14 " 11	..	..			
14 " 12	15 " 12	15 " 11	16 " 11			
18 " 12	19 " 12	16 " 12	17 " 12			
16 " 13	17 " 13	20 " 12	..	15 0	17 0	18 6
16 " 14	20 " 13	18 " 13	..	16 to 17 oz. to the foot.		
	17 " 14	18 " 14	..			
	20 " 14					

SMALL SHEET SQUARES.

In 100 feet Boxes.				
6 by 4	6½ by 4½	7 by 5	7½ by 5½	.. 12s. 6d.
8 by 6	8½ by 6½	9 by 7	9½ by 7½	
		10 by 8	10½ by 8½	.. 13s. 6d.

Boxes 2s. each, returnable at full price.

SHEET and ROUGH PLATE GLASS, SLATES of all sizes, BRITISH PLATE, PATENT PLATE, ROLLED PLATE, CROWN, SHEET, HORTICULTURAL, ORNAMENTAL, COLOURED, and every description of GLASS, of the best Manufacture, at the lowest terms. Lists of prices and estimates forwarded on application to
JAMES PHILLIPS & Co., 180, Bishopsgate Street Without, E.C.

E. T. ARCHER'S "FRIGI DOMO."
Patronised by Her Majesty The Queen, the Duke of Northumberland for Syon House, His Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, &c.

PROTECTION from the SCORCHING RAYS of the SUN.

"FRIGI DOMO," a Canvas made of Patent prepared Hair and Wool, a perfect Non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all Horticultural and Floricultural purposes, for Preserving Fruits and Flowers from the Scorching Rays of the Sun, from Wind, from Attacks of Insects, and from Morning Frosts. To be had in any required lengths.

Two yards wide	1s. 9d. per yard run.
Four yards wide	3s. 6d. per yard.
An improved make, 2 yards wide	1s. 9d. per yard.
An improved make, 3 yards wide	2s. 8d. per yard run. Also

"FRIGI DOMO" NETTING, 2 yards wide, 1s. 6d. per yard run.

ELISHA THOMAS ARCHER, Whole and Sole Manufacturer, 7, Great Trinity Lane, Cannon Street, City, E.C., and of all Nurserymen and Seedsmen throughout the Kingdom.

"It is much cheaper than Mats as a covering."

SHANKS' NEW PATENT LAWN MOWERS FOR 1867.

PATRONIZED ON FIVE OCCASIONS DURING THE SEASON OF 1864 BY

HER MAJESTY THE QUEEN,

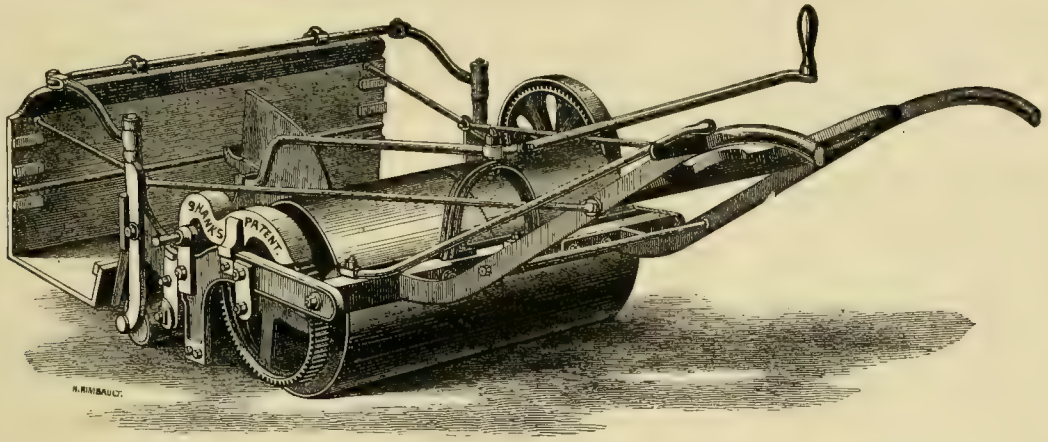
AND ONCE BY HIS MAJESTY THE KING OF SAXONY.

DURING THE SEASON OF 1865 THEY WERE PATRONISED ON FOUR OCCASIONS BY HER MAJESTY THE QUEEN,

ONCE BY HIS MAJESTY THE KING OF HOLLAND, AND ONCE BY HIS MAJESTY THE KING OF PRUSSIA.

AGAIN ON FOUR OCCASIONS DURING THE SEASON OF 1866 BY HER MAJESTY THE QUEEN

AND BY MANY DISTINGUISHED NOBILITY BOTH IN THIS COUNTRY AND ABROAD.



HORSE-POWER MACHINE.

Every minute point in the way of improvement has been carefully considered and adopted, and as A. S. AND SON have for more than a quarter of a century devoted their attention to this particular branch of their business, the Nobility, Gentry, and Gardeners may rely on the MACHINES they may order, to be such as to ensure lasting satisfaction, and to stand the wear and tear of many years.

SHANKS' PATENT LAWN MOWERS

ARE IN DAILY USE IN

ALL THE ROYAL GARDENS; IN THE HORTICULTURAL SOCIETY'S GARDENS AT KENSINGTON; CRYSTAL PALACE COMPANY'S GROUNDS; IN VICTORIA PARK; HYDE PARK;

And in almost all the principal Public Parks and Gardens in the Kingdom.

These are the only Machines that can be depended on to give lasting satisfaction.

THESE ARE THE ONLY MACHINES THAT WILL MOW PROPERLY WHEN THE GRASS IS WET.

THESE ARE THE ONLY MACHINES THAT DELIVER THE GRASS WITHOUT STOPPING, THUS SAVING AN IMMENSE AMOUNT OF LABOUR.

SHANKS' PATENT LAWN MOWERS are the only Machines that have been in operation in Her Majesty's Gardens for a quarter of a century.

Shanks' Patent Lawn Mower will Mow on uneven as well as on level Lawns.

ALEXANDER SHANKS AND SON, in referring to their IMPROVED LAWN MOWERS for 1867, doubt not but that the preference which in past years has invariably been given to their Machines will still be awarded them. The principles which guide A. S. AND SON in effecting improvements compel their Machine ever to stand the first in point of general efficiency, simplicity of construction, and durability.

A. S. AND SON have particularly aimed at substituting Wrought for Cast Iron to as great an extent as possible in the construction of their Machines. None but skilled Workmen and the most improved Machinery are employed in manufacturing the various parts, and this applies not only to the Horse and Pony, but also to the Hand Machines.

A. S. AND SON have now ready for delivery a large stock of their celebrated LAWN MOWERS, which will enable them to execute orders on the day they are received.

PRICES, INCLUDING CARRIAGE TO ANY RAILWAY STATION OR SHIPPING PORT IN THE KINGDOM.

SHANKS' NEW PATENT HAND MACHINE.

Width of Cutter.		Easily Worked	Silent Movement.
10-inch Machine	£3 10 0	*By a Lady*	4*s.* extra.
12-inch Machine	4 10 0		
14-inch Machine	5 10 0	*By a Boy*	

Width of Cutter.		Easily Worked	Silent Movement
16-inch Machine	£6 10 0	*By a Man or Two Boys*	4*s.* extra.
19-inch Machine	7 12 6	*By a Man and Boy*	
22-inch Machine	8 7 6	*By Two Men* ..	7*s.* 6*d.* extra.
24-inch Machine	8 17 6		

SHANKS' NEW PATENT PONY and DONKEY MACHINE.

Width of Cutter.		If with Patent Delivering Apparatus.
25-inch Machine	£12 10 0	.. .. 25*s.* extra.
28-inch Machine	14 10 0	.. .. 30*s.* ,,
30-inch Machine	15 15 0	.. .. 30*s.* ,,

Silent Movement, 12*s.* 6*d.* extra; Boots for Pony, 22*s.* per set.
Ditto for Donkey, 18*s.* per set.

SHANKS' NEW PATENT HORSE MACHINE.

Width of Cutter.		If with Patent Delivering Apparatus.
30-inch Machine	£19 0 0	.. .. 30*s.* extra.
36-inch Machine	22 0 0	.. .. 30*s.* ,,
42-inch Machine	26 0 0	.. .. 40*s.* ,,
48-inch Machine	28 0 0	.. .. 40*s.* ,,

Silent Movement, 20*s.* extra; Boots for Horse's Feet, 26*s.* per set.

The Machines are warranted to give ample satisfaction, and, if not approved of, may be at once returned.

PATENTEES AND SOLE MANUFACTURERS:

ALEXANDER SHANKS AND SON, DENS IRON WORKS, ARBROATH, N.B.

LONDON OFFICE and SHOW ROOMS, 27, LEADENHALL STREET, E.C.

☞ 27, *Leadenhall Street is the only place in London where intending purchasers of Lawn Mowers can choose from a Stock of from* 150 *to* 200 *Machines. All sizes kept there, whether for Horse, Pony, or Hand Power.*

British Fern Catalogue.

ROBERT SIM can now send, post free for six postage stamps, Part 1. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his NEW and PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.

Foot's Cray Nursery, S.E., a mile from Sidcup Station of New North Kent Line of South Eastern Railway.

NEW GREENHOUSE FERN,

Pteris serrulata var. polydactyla.

THOMAS CRIPPS has the pleasure to inform lovers of FERNS that he is now prepared to supply strong plants of the above beautiful and distinct variety. Dr. Moore says * * * "It has all the gracefulness of the parent plant, while the points of each division of the frond are several times forked into a many-fingered tassel, the weight of which gives the fronds a decidedly drooping character. * * * It is quite distinct from the var. cristata, and will be found a valuable acquisition for Plant Cases and Small Greenhouses." It was awarded a First-class Certificate by the Royal Horticultural Society, 21st August last.

Price 10*s.* 6*d.* each. Trade price on application.

The Nurseries, Tunbridge Wells.

J. SCOTT'S CHOICE SEEDS.

	Post Free.	Per Packet.
PRIMULA SINENSIS FIMBRIATA.—A most superb strain, and cannot be surpassed, 6 varieties, mixed,	1*s.* 6*d.*	and 2*s.* 6*d.*
CALCEOLARIA.—Scott's superb strain, extra,	1*s.*	and 2*s.* 6*d.*
CINERARIA.—Extra fine, carefully hybridized,	1*s.*	and 2*s.* 6*d.*

A good SEED LIST free on application.

J. SCOTT, The Seed Stores, Yeovil, Somerset.

ROBERT PARKER begs to offer the following.—All the Plants are strong and healthy, and can be supplied in quantities.

PANSY CLIVEDEN BLUE, 6*s.* per dozen.
PANSY CLIVEDEN PURPLE, 6*s.* per dozen.
PANSY CLIVEDEN YELLOW, 6*s.* per dozen.
POLEMONIUM CŒRULEUM VARIEGATUM, 2*s.* 6*d.* each.
RHODODENDRON COUNTESS of HADDINGTON, 3*s.* 6*d.* each.
TRITOMA GRANDIS, 18*s.* per dozen.
TRITOMA UVARIA GLAUCESCENS, 12*s.* per dozen.
VIOLA CORNUTA, best variety, 4*s.* per dozen.
VIOLET, REINE DES VIOLETS, 6*s.* per dozen.
VIOLET, THE CZAR, 6*s.* per dozen. [per packet
PRIMULA SINENSIS FIMBRIATA, finest mixed seed, 2*s.* 6*d.*

PRICED and DESCRIPTIVE CATALOGUES of AGRICULTURAL, FLOWER, and VEGETABLE SEEDS, GREENHOUSE, HARDY, and STOVE PLANTS, are published, and will be forwarded free to applicants.

Exotic Nursery, Tooting, Surrey, S.

THE MAGNIFICENT NEW VIOLET, QUEEN of VIOLETS.

The following additional Nurserymen have given Orders:—

Bell, Mr. J., Norwich	Giddens, Mr. B., Stoke Newington
Henderson, Messrs. A. & Co., Edgware Road, London	Fry, Mr. Geo., Lee
	Brewin, Mr. C. M., Bawtry

For complete List see back Papers.

Strong Plants potted now will bloom well in autumn and spring.

Price 1*s.* 6*d.* each, 18*s.* per doz. Full particulars on application.

Post-office Orders on Castle Hedingham.

DILLISTONE & WOODTHORPE, Munro Nursery, Sible Hedingham, Essex

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DOBSON'S UNEQUALLED HYBRIDISED CALCEOLARIAS are NOW in fine BLOOM, and are the admiration of all who see them.

Seed, in Sealed Packets, 1*s* 6*d.*, 2*s.* 6*d*, 3*s* 6*d.*, and 5*s.* each.

This strain of Seed is the result of many years' careful hybridisation, and is unrivalled by any other strain in the world. Those who are fond of this class of plants should secure a packet and judge for themselves.

DOBSON & SONS, Woodlands Nursery, Isleworth, London, W.

POA TRIVIALIS ARGENTEA ELEGANS, Silver-leaved MEADOW GRASS, 4*s.* per dozen.
CHRYSANTHEMUM SENSATION, white edged, 4*s* per dozen.
AGERATUM PRINCE ALFRED, the darkest and dwarfest blue variety out, 3*s.* per dozen.
100 VERBENAS, in 50 varieties, for 10*s.*
100 ZONAL GERANIUMS, in 50 varieties, for 30*s.*

B. W. KNIGHT, Nurseryman, Battle, Sussex.

STRAWBERRIES.

ADMIRAL DUNDAS (Myatt)	LA CHALONNAISE
ALPINE	LE CONSTANT
BLACK PRINCE (Cuthill)	LEON DE ST. LANNIER
BRITISH QUEEN (Myatt)	MARGUERITE (Lebreton)
CAROLINA SUPERBA (Kitley)	OSCAR (Bradley)
COMTE DE PARIS	PREMIER
ECLIPSE (Reeves)	PRESIDENT (Green)
ELEANOR (Myatt)	PRINCE ARTHUR (Ingram)
ELIZA (Rivers)	PRINCE CHARLIE
ELIZA (Myatt)	PRINCESS ALICE MAUD
ELTON PINE (Knight)	RIFLEMAN (Ingram)
ELTON IMPROVED	SCARLET PINE
EMPRESS EUGENIE (Knivett)	SIR C. NAPIER (Smith)
FILBERT PINE (Myatt)	SIR HARRY (Underhill) [ley)
FROGMORE LATE PINE (In-	SIR JOSEPH PAXTON (Brad-
GOLIATH (Kitley) [gram)	SOUVENIR DE KIEFF (De
HAQUIN	Jonghe)
HAUTBOIS (Myatt)	VICTORIA (Trollope)
HAUTBOIS, ROYAL	WIZARD of the NORTH
JOHN POWELL	(Robertson)
KEEN'S SEEDLING	WONDERFUL (Joyes)

Strong Plants of the above are now ready, with other kinds of less note.

CHARLES TURNER, The Royal Nurseries, Slough.

Juniperus excelsa stricta.

A New Plant, suitable from its pyramidal growth for Ornamenting Flower Gardens and Terraces.

WILLIAM ROLLISSON AND SONS beg respectfully to inform the Nobility, Gentry, and Trade, that their New JUNIPERUS EXCELSA STRICTA is now ready for sending out; it is unquestionably the best and most suitable plant ever yet introduced for decorating Terraces and Flower Gardens; also any situations in which single Specimen Shrubs or Trees are usually planted. It is cheerful in appearance and of a close and compact habit; upright and pyramidal in growth, and perfectly hardy; in proof of which several hundreds of them stood in the open ground exposed to the severity of the weather all last winter and spring, without suffering the least injury, even in the foliage.

They may now be seen growing in perfect health in the open ground in their Home Nursery at Tooting.

Price per Plant, or by the dozen, will be forwarded post paid on application.

A GENERAL CATALOGUE of their extensive Collection of Orchids, Stove, Greenhouse Plants, Hardy Shrubs, Fruit Trees, &c., &c.; and a DESCRIPTIVE LIST of Tree and other Ferns, will be shortly ready for forwarding; these also may be had post free on application to

The Nurseries, Tooting, London, S.

THE GOLDEN-VARIEGATED WELLINGTONIA.

First-class Certificate from Royal Horticultural Society.

For Testimonials, &c., see *Gardeners' Chronicle*, October 6, 1866; *Times*, October 7, 1866; *Scottish Gardener*, November, 1866; *Gardeners' Chronicle*, January 12, 1867; "Florist," February, 1867.

LAST YEAR'S PLANTS (a few remaining).

1st Size, very choice, 8 to 12 inches, £5 5*s.* each.

THIS YEAR'S PLANTS.

2d Size, fine, 4 to 5 inches, £2 2*s.*

3d Size, nice little bits, 2 to 3 inches, £1 1*s.*

5000 plants are now plunged out-of-doors, in their respective sizes they may be safely forwarded during the summer, if desired, and orders will be executed in strict rotation.

Chromo-lithographs of the parent tree, by Day and Son (Limited), on superior cards, 10 inches by 8 inches, very faithful in outline, but deficient in representing the glorious colour of the original. These are sent free by post for 25 stamps, and one sent to each Purchaser.

It is intended to exhibit a few of the first size at the approaching Paris and Manchester Exhibitions.

R. HARTLAND, The Lough Nurseries.

CATALOGUES FOR 1867.

JAMES VEITCH & SONS

BEG TO ANNOUNCE THAT THE FOLLOWING

NEWLY-PRINTED CATALOGUES ARE NOW READY,

and will be forwarded Post Free on application:—

CATALOGUE of NEW PLANTS for the PRESENT YEAR.

CATALOGUE of GENERAL COLLECTION of STOVE and GREENHOUSE PLANTS, ORCHIDS, FERNS, &c.

CATALOGUE of SOFT-WOODED and BEDDING PLANTS.

☞ *Each Catalogue contains Lists of the most distinct and popular Plants in their respective classes.*

ROYAL EXOTIC NURSERY, KING'S ROAD, CHELSEA, S.W.

VICTORIA and PARADISE NURSERY, UPPER HOLLOWAY, LONDON, N.

B. S. WILLIAMS

RESPECTFULLY INVITES HIS PATRONS AND THE PUBLIC GENERALLY

TO PAY A VISIT TO THE ABOVE NURSERY

DURING THE PRESENT MONTH.

A continuous show of SPECIMEN FLOWERING and FOLIAGE PLANTS is maintained in the LARGE SHOW CONSERVATORY, and the ORCHID HOUSES, PALM STOVES, NEW HOLLAND HOUSES, FERN HOUSES, AZALEA HOUSE, &c., &c., are replete with interest for lovers of either Beautiful and Rare Flowers, or the magnificent foliage of Tropical Vegetation.

The Collection of MEXICAN PLANTS at this Nursery is perhaps the finest in Great Britain, with the exception of the one at the Royal Gardens, Kew.

CARRIAGE ROUTE AND MEANS OF ACCESS.—This Nursery is easily reached from any part of London. The direct carriage route from the West End is through Albany Street or Regent's Park; Park Street, Camden Town; Kentish Town Road and the Junction Road.

The "Favorite" Omnibuses from the Bank and London Bridge Railways; Victoria Station, Charing Cross, and Westminster; Regent Street, Piccadilly, and Brompton, arrive at and start from the entrance of the Nursery every 7 minutes.

VICTORIA and PARADISE NURSERY, UPPER HOLLOWAY, LONDON, N.

NEW ORCHIDS.

JAS. BACKHOUSE & SON

INVITE ATTENTION TO

THE FOLLOWING NEW ORCHIDS,

Which have been received direct from their own Collector amongst the Cordilleras of Ecuador.

ODONTOGLOSSUM ASTRANTHUM (Rchb.), 42*s.* each.
" RETUSUM? 42*s.* each.
" ROSEUM, 42*s.* each.
ONCIDIUM AUROSUM (Rchb.), 21*s.* each, 180*s.* per doz.
" AUROSUM, extra strong, 42*s.* to 63*s.* each.
" ACINACEUM, 31*s.* 6*d.* each.
" CUCULLATUM, 42*s.* each, 210*s.* for Six.
" GYRIFERUM (Rchb.), 63*s.* each.
" HOLOCHRYSUM (Rchb.), 31*s.* 6*d.* to 105*s.* each.
" HYPHÆMATICUM (Rchb.), 42*s.* each.
" MACRANTHUM, 63*s.* to 210*s.* each.
ONCIDIUM NUBIGENUM, 42*s.* each, 210*s.* for Six.
" NUBIGENUM, a few extra size, 105*s.* each.
" OBRYZATUM, 21*s.* each.
" TRIFURCATUM (Lindl.), 63*s.* each.
" CHEIRI, 21*s.* each.
CATTLEYA MAXIMA VAR.? very distinct, 42*s.* each, 210*s.* for Six.
CATTLEYA MAXIMA VAR.? extra size, 63*s.* to 105*s.* each.
EPIDENDRUM ASPERUM (Lindl.), 42*s.* each.
MESOSPINIDIUM SANGUINEUM, 42*s.* to 105*s.* each.
RODRIGUEZIA BATEMANNII, 21*s.* to 42*s.* each.

For Descriptions see CATALOGUE just issued, sent free on application.

YORK NURSERIES.

NEW DOUBLE CRIMSON THORN (NOW READY).

WILLIAM PAUL

(SON and SUCCESSOR to the late A. Paul),

BEGS TO OFFER THE

ABOVE MAGNIFICENT HARDY FLOWERING TREE,

Which he believes to be the greatest acquisition for forcing and out-of-door culture that has been introduced for many years.

Fine healthy Plants, well established in pots, 2 ft. high, 7s. 6d. each; 1 ft., 5s. each.

By Ordering at once Purchasers may establish these Plants to bloom well next year.

A First-class Certificate was awarded to him for this Plant by the Royal Horticultural Society on the 16th April last.

"A brilliant variety, to which too much attention can scarcely be directed."—*Gardeners' Chronicle.*

"This is certainly a plant which cannot be overrated; the intense bright red colour, and the numerous clusters of the double flowers, make this Cratægus invaluable. No admirer of this charming family can be without it, all other pink varieties are truly in the shade beside it."—*Journal of Horticulture.*

PELARGONIUM JASON (First-class Certificate).—The finest, most leafy, and deepest colour of all pure gold-leaved Pelargoniums. Price 7*s.* 6*d.* each.

For other Novelties, see separate Advertisement.

☞ See Coloured Drawing by FITCH, and History, in the "Florist" for June.

PAUL'S NURSERIES, WALTHAM CROSS, LONDON, N.

GREAT NATIONAL HORTICULTURAL EXHIBITION, 1867.
£1000 OFFERED IN PRIZES.

To be HELD in the Gardens of the Botanical and Horticultural Society, Old Trafford, MANCHESTER, 7th to the 15th JUNE.

Charges for Admission.—First Day, 10s. 6d. each; Second Day, 2s. 6d. each; WHIT MONDAY and remaining Days, 1s. each.

Subscribers to the Manchester Botanical and Horticultural Society free each day.

Annual Subscription—Family, £2 2s.; Individual, £1 1s., admitting on all occasions.

Schedules, &c, may be obtained on application to Mr. B. FINDLAY, Curator, Botanic Gardens, Manchester, or from the undersigned.

Military Bands in attendance each day.

Cooper Street, Manchester. HENRY WHITWORTH, Sec.

GREAT NATIONAL HORTICULTURAL EXHIBITION, 1867.—Gardeners will be admitted by Tickets as follows:—First Day, 2s. 6d. each; Second and remaining Days, 1s. each. Applications for these Tickets must be made on or before 5th JUNE. HENRY WHITWORTH, Sec.

GRAND HORTICULTURAL EXHIBITION at BURY ST. EDMUND'S, in connection with the SHOW of the ROYAL AGRICULTURAL SOCIETY, JULY 15, 1867, and four following Days.

Amongst various Special Prizes, amounting in value to nearly £300, and exclusive of the ordinary Prize Schedule,

A SILVER CUP, VALUE £20,

will be offered by the Proprietors of the GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE for the best COLLECTION of FRUITS and VEGETABLES, to be made up as follows:—

Of FRUITS, any Five of the following Eight kinds, one Dish of each:—Grapes, Melons (2 fruits), Strawberries, Gooseberries, Currants, Cherries, Raspberries, or Apples (of the crop of 1866).

Of VEGETABLES, any Eight of the following Fourteen kinds, one basket or bundle of each:—Peas, French Beans (or Scarlet Runners), Broad Beans, Cauliflowers, Cucumbers (brace), Summer Cabbages, Early Carrots, Turnips, Artichokes, Onions, Spinach, Rhubarb, Potatos, or Mixed Salading.

This Cup will be open to Competition amongst Amateur or Professional Gardeners, of all grades, with Fruit and Vegetables of *their own growing*; any article otherwise obtained will disqualify the exhibitor.

The Gardeners' Chronicle.

SATURDAY, MAY 25, 1867.

MEETING FOR THE ENSUING WEEK.

WEDNESDAY, May 29 { Royal Botanic (First General Exhibition of Plants and Flowers) .. .. .. 2 P.M.

A LETTER has just been received from Professor PASSERINI, in which he alludes to two LEAF PARASITES which have lately been observed in Italy. Of the first he says—"It may perhaps interest you to know that I have lately published and described, under the name of Uromyces Amygdali, in 'Erbario crittogamico Italiano,' No. 1373, a new Fungus which has been gathered on Peach leaves at Lago Maggiore; and in the fasciculus of that work just published I have given specimens and a description of another new Fungus, which has been named Zythia Rabiei, from its being found on Cicer arietinum (the Chick Pea) when attacked by Rabbia, a disease which causes great injury in our fields to the crops of that plant. Though I have long been acquainted with the disease, I have not hitherto been able to detect the immediate cause, which perhaps is not dependent on the Zythia, though it seems at least to be a constant attendant on the malady."

We shall have occasion to allude to the latter in some observations we shall have to offer on a disease which has occurred in Cotton fields in Italy. The former is of especial interest to us, as we touched on a similar subject in this Journal (Nov. 26, 1864) on receiving some diseased Peach leaves from an unknown correspondent, "W. W." These Peach leaves were attacked by a little Fungus, Puccinia Pruni, which in an early stage of growth is Lecythea Pruni spinosæ of Léveillé. We had, however, previously received from different parts of the world a distinct though nearly allied parasite on Peach leaves, of which also we gave a figure. We have specimens of this from Madeira, sent by Mr. SALWEY; from South Carolina, by Dr. CURTIS; from Port Louis, Mauritius, by the late Dr. AYRES; from Valparaiso, by Mr. BRIDGES; and on Apricot leaves from Marseilles by Monsieur CASTAGNE—so that it has a very wide geographical range; and like Puccinia Pruni, which occurs on Apricot and Peach leaves occasionally, as well as on those of the Plum, seems to travel wherever the tree which produces it is carried. It becomes, therefore, a matter of some interest to ascertain exactly what Signor PASSERINI's parasite is, and we hope, therefore, to obtain specimens of that as well as of the Zythia.

It is curious to see several of our leaf parasites so widely distributed. Both smut and Wheat mildew occur wherever our common cereals are cultivated, and seem quite indifferent to climate. We are prepared to meet with the same species of Fungi in similar climates, but scarcely in such different localities as Northern Europe and the hot plains of India. We might perhaps attribute this to the extreme simplicity of their organisation, which enables them to adapt themselves to very diverse conditions, were it not for the fact that some plants, as the common Hollyhock, which are free from parasites here, are martyrs to them in other countries. *M. J. B.*

IF there is one calling more than another that would seem by its very nature likely to foster habits of prudence and providence, that calling is Horticulture. Without forethought, without provision for possible contingencies, without unceasing care for the present and thoughtful provision for the future, the professional duties of the gardener could not be satisfactorily fulfilled. It might reasonably be expected that the habits of care so engendered would be manifested in other matters besides those more immediately connected with the craft. It is in general easy to recognise the military man, even if he be in "mufti;" the clergyman carries the demureness of the cloth with him, even if he don an unclerical costume; the barrister needs no wig to reveal his calling; the doctor stands confessed, meet him where you may. In truth the daily avocations and daily habits of thought leave their impress on the man, and mould and fashion his actions, and so, no doubt, it is to a certain extent with the fraternity of blue aprons. They yield to none in intensity of love and zeal for their work, in cordiality and good fellowship amongst each other. But lest we be accused of a desire to flatter these hard-working toilers, let us at once recommend them as a class to practise for themselves a little more of that same kind of forethought which they bestow on the subjects committed to their charge. There are many ways of doing this, of an individual or personal character, on which it would be impertinent for us to say aught, but there are certain other means of a more public nature where co-operation is needed, to which we may allude, and especially to the GARDENERS' ROYAL BENEVOLENT INSTITUTION.

Through the aid of such an association it is possible to provide for emergencies more cheaply than by most other means; it is possible in such an Institution, while providing for one's-self, if necessity should ever arise, to contribute towards the alleviation of the misfortunes of others. No one can doubt for a moment the value of such a Society; no one can deny its claims upon the liberality of those in any way concerned in horticulture. There may be differences of opinion as to matters of detail,—one class may think that it is not fairly represented, or that it does not share in its fair proportion the benefits the Society has to bestow. These are points into which we do not care to enter now, further than to say that the fault, if any there be, lies with the gardeners. There has been no lack of liberality on the part of the wealthy or of the large employers of labour; they have come forward again and again to help the Society; but they complain, and as it appears to us justly, that the class for whose benefit all this is done is apathetic in the matter, and though the Society bears their name, yet that the number of practical gardeners who show their interest in it is comparatively limited. Now this is a state of things which should be immediately remedied. We believe in most cases it arises from mere thoughtlessness; in others because the objects of the Society are not sufficiently well known. In any case it is not creditable to a class numbering so many thousands of members dispersed throughout Great Britain, that they should not be able to render more efficient support to a Society instituted for their especial behoof. It is idle to find fault with the regulations, when the very class whose opinions would have most weight hold aloof as they do.

Even if the regulations are open to improvement, what chance is there of their being improved if the gardeners themselves do not lend a hand? Are they content that others should labour for them, that others should be ready to loose their purse-strings on their behalf, while they themselves do nothing? Let us consider what the effects of such a course are likely to be: either the management of the Society is likely to fall into the hands of extra professional persons, who with all their good-will are not likely to understand class interests and class requirements, so fully as actual gardeners are; or, and this is really a danger that is more than imminent, many who are ready and willing to help—many who have helped, and that largely—will cease, and are ceasing, to do so—not because they have any doubts as to the value of the Society, but simply because it is an ungracious task to be continually helping those who will not, or do not try to help themselves.

We repeat that it is a shame to the craft that out of so many thousands, so small a proportion should be found provident enough to secure for themselves, in case of need, a share in the benefits the Society offers, a blemish to those whose general *esprit de corps* is so strong that they should not be more anxious to do what they can to alleviate the misfortunes of their less prosperous brethren. If every local horticultural society would contribute to the general fund, or if they would publicly call attention to the objects and the necessities of the Institution; if every present subscriber would urge the claims of the Society upon his neighbours and friends, we should not much longer hear of difficulties in making income and expenditure meet—we should not have to lament the fact of necessitous cases being necessarily unrelieved or tortured by delay—we should not hear the taunt that the Society's designation is a misnomer—we should not hear of funds which would go towards helping many a deserving member being locked up or diverted into other channels, because the gardeners will not show their interest in their own Institution. We cannot doubt but that we shall hear at the annual dinner on June 27th, when Sir ROBERT PEEL is to preside, that the subscription list, upon which the Society chiefly depends for its annual outlay, has been largely augmented. A guinea a year is a slight premium to pay for the prospect of future personal relief if necessary, for the promotion of habits of self reliance and forethought, and last, not least, for the comfort and relief of those who have not merely general claims upon us as fellow men, but a special title to our consideration as being all of the "same strain." Subjoined are a few statistics which show what has been done and is doing—it is for the gardeners to say what shall be done in the future.

—— We have been favoured with the following statistics of the GARDENERS' ROYAL BENEVOLENT INSTITUTION, to which we earnestly call the attention of our readers. Two main objects are sought by the Committee, the one the increase of the annual subscriptions, the other the increase of the Funded Stock of the Society, so as to provide for the fluctuations which, under the best circumstances, must occur in the annual income:—

Pensioners placed on List for July, 1866, 159. Of these—
20 were Widows, who succeeded their Husbands without election.
20 were either Subscribers of 1*l.* 1*s.* per annum for 15 years, or their Widows, and were placed on the Pension List without election.
55 were Subscribers for a shorter term, and had to stand an election. And
64 were not Subscribers at all.

Total amount paid to Pensioners to December, 1866, 12 899*l.* giving an average of 81*l.* to each Pensioner.

Stock in 1845, £1400 Consols.	Dividend ..	..	£42
,, 1855, 3700 ,,	,, ..	..	111
,, 1865, 5900 ,,	,, ..	..	177
,, 1866, 7100 ,,	,, ..	..	213
No. of Pensioners in 1845, 21			
,, ,, 1855, 38			
,, ,, 1865, 55			
,, ,, 1866, 61			
Annual Subscriptions in 1845	.. ..	..	£414
,, ,, 1855	.. ..	..	547
,, ,, 1865	.. ..	..	621
,, ,, 1866	.. ..	..	591

Average Age of the Pensioners, 73.

60 Pensioners now on List—
32 Women, at £12
28 Men 16

—— We may fairly congratulate the ROYAL HORTICULTURAL SOCIETY on the success both of its impromptu show established to do honour to the Royal visit to the garden at South Kensington on Monday last, and specially on the magnificent display of TRICOLORED PELARGONIUMS and other plants on the following day. We look back upon this exhibition with the more pleasure, inasmuch as it gives a proof both that the Society is alive to the interests of horticulture in its scientific no less than its commercial and æsthetic phases, and that exhibitors are no less willing to come forward and promote the good cause. A full report of this most interesting exhibition will be found in another column, and at a future time we shall revert to some among the many points of physiological interest suggested by this unrivalled display, and by the remarks of the various speakers, among whom we are specially glad to have to record such practical men as Messrs. GRIEVE and WILLS. This sort of discussion is specially deserving of encouragement. Practical experience, as Mr. MILL says, requires brains to make it useful, while practical experience without brains is of less avail than are brains alone. In this case, where both were combined, the results are not a little hopeful.

—— A superb bloom of MARECHAL NIEL ROSE, grown by Mr. J. COX, was shown at Nottingham market, on Saturday last, by Mr. J. GIBBONS, jun., of Bramcot. This flower was of the richest golden yellow, and measured 5 inches in diameter, the petals being beautifully cupped and symmetrically arranged. It is most gratifying to find that this magnificent Rose is perfectly hardy, is an excellent grower, and blooms, when well established, beautifully in all

situations. Its parent, Isabella Gray, though fine in some situations in the open air, is in others perfectly useless, as not a single flower will open, but the present variety has no such drawbacks. We learn from the same Nottingham paper that records the above, that the finest plant of that grand old Tea Rose, Devoniensis, is, or was some years back, at Newstead Abbey, where it was trained upon one corner of the mansion; and to see 50 or 60 of its fully developed flowers at one time was a sight worth going a long distance to witness.

—— The BLOTCHED BREADALBANE ASH, incidentally alluded to in Mr. ANDERSON HENRY'S remarks on Hybridisation at p. 379, affords an illustration of a cross effected by inoculation. On recently making further inquiries respecting the facts at the Kinnoull Nurseries of Messrs. DICKSON & TURNBULL, Mr. HENRY has obtained from Mr. JOHN ANDERSON the following particulars, which are condensed from a letter addressed to the *Farmer*:—"With regard to the Ash you inquire about, my uncle says it is an event of half a century ago. Mr. BROWN and he were on a botanical excursion in the Highlands, and looking over a glen about three miles west from Kenmore, they noticed the branch of an Ash with entirely yellow foliage, which they took away with them, and budded on the common Ash at Perth Nurseries. As far as I can ascertain from him, none of the buds grew, and memory fails him in recollecting much about it, only the fact that the operation communicated the disease or blotch to the stocks on which it had been budded, and it has been grown since that time, and annually grafted and catalogued under the name of Blotched Breadalbane Ash. It had been further experimented on by grafting Weeping Ash on the same stocks, and it communicated to the Weeping Ash the blotch also. We must presume that the piece of bark introduced with the bud did attach or grow, although the eye did not push: this is a circumstance that often takes place in budding. I have seen the bud of a variegated Holly lie dormant or blind, as we term it, for a number of years, and grow afterwards. Your inquiry fixes the fact of the inoculation of the disease by budding in this case, and perpetuated through a long series of years." This is exactly analogous to the case of the variegated Jasmine operated upon by Mr. W. ANDERSON while Curator of the Chelsea Botanic Garden. A variegated white Jasmine was budded on a branch of Jasminum revolutum; the bud adhered but never pushed, yet the following year slight variegation appeared in the stock; the worked branch was the next year accidentally cut out, yet the variegation increased, so that the whole plant became variegated. How suggestive these facts are to the growers of variegated Zonal Pelargoniums.

—— We are glad to see in the current number of the "Journal of Botany" a letter from PROFESSOR DE CANDOLLE, relating to the confusing and, as we think, unwarrantable innovations which Dr. MÜLLER introduced into the nomenclature of the Euphorbiaceæ in his recent monograph on this vast family. We took exception to these changes at the time (see p. 1094, 1866), and are now glad to find that Professor DE CANDOLLE declines to hold himself responsible for these injudicious changes, and has not himself adopted them, although he points out that it is quite possible to ascertain the original author of any genus or species, even though it have the letters *Müll.* after it, and not those of the original author. As to the value of the monograph in question there can be but one opinion, and that a most favourable one.

—— In the same communication as that above referred to M. DE CANDOLLE calls attention to the PRIZE of 20*l.*, offered by the "Société de Physique et d'Histoire Naturelle de Genève," for the best unpublished MONOGRAPH, in French or Latin, of a family or genus of plants, to be sent to the Society through Professor DE CANDOLLE on or before the first of July, 1869. No award was, it appears, made in 1866, as no monograph was sent in—a fact we are not particularly surprised at.

—— Mr. WALTER HILL, the director of the Botanic Garden at Brisbane, records in the *Queenslander* the existence of an EDIBLE FRUIT indigenous to the colony:—"Some years ago," says Mr. HILL, "I discovered in the coast scrubs a small, but rather handsome, tree, the botanic name of which is Macadamia ternifolia; but I was not aware, until recently, that it bore an edible fruit, and, singular to say, the aborigines appear to have been equally ignorant. The tree is now bearing abundantly in the scrubs, both to the southward and northward, and in several localities the children of the Europeans, as well as those of the blacks, are regularly employed in gathering the fruit for the purpose of food. The fruit is about the size of a Walnut, and contains within a thick pericarp a smooth brown-coloured nut, embracing a kernel of a remarkably rich and agreeable flavour, resembling in some respects that of a Filbert, but, to my taste, much superior." This must be an acquisition, and we cordially endorse Mr. HILL'S wishes that the tree may be soon brought under cultivation so as to enhance its productiveness and the size and quality of its fruit.

—— Professor LECOQ, of Clermont, has recently made a communication to the Botanical Society of France, descriptive of the RHYTHMICAL TREMORS observable in the LEAVES of CALADIUM ESCULENTUM. Sometimes the tremor would last the whole day and following night; it usually occurred from nine in the morning until noon, and not unfrequently the plant would remain in a state of perfect rest for days and even whole weeks. This induced M. LECOQ to attach a few light bells to the plant, in order to be warned of the approach of the paroxysm. On one occasion it began at two o'clock after midnight and continued nearly the whole morning. The bells tinkled, and the leaves of the Colocasia struck the neighbouring plants with sufficient distinctness to enable the author to count the pulsations by a stop-watch; he found them to be between 100 and 120 per minute. On several other occasions the fits were exceedingly violent. On the 2d of March last, although the temperature of the hothouse had fallen to 7° Cent., the plant seemed to be labouring under a fit of ague, so that the very pot containing the plant, and weighing 10 kilos., shook so that the hand of a man could not steady it. [!] The rhythmical tremor was likewise communicated to a fine leaf of a Strelitzia Nicolai, another of a Philodendrum pertusum, and to some fine clusters of flowers of the Begonia manicata. M. LECOQ cannot explain the cause of this tremor, but he thinks himself warranted in not attributing it to the temperature; he suggests the possibility of its being the result of a stoppage in the perspiration of the plant. While engaged in this exercise the leaves are said to have emitted jets of water. Such is the substance of Prof. LECOQ'S communication, which we for the moment are obliged to take at second hand. Should they excite a smile or suggest thoughts of table turning and such like myths, we must ask our readers to suspend their judgment. This Caladium has long been known to emit water from a large pore near the apex of the leaf, and there is nothing improbable in the idea of its leaves being sensitive.

New Plants.

BEGONIA BOLIVIENSIS, *Alph. De Cand., Prod.*, vol. xv., sect. prima, p. 287.

Glabra, foliis anguste lanceolatis, acuminatis, valde inæquilateralibus, penni-palmatinerviis, lobo inferiore amplo, rotundato, serrato-dentatis, dentibus setaceis; stipulis lanceolatis; pedunculis pauciforis; bracteis ovato-ellipticis; floris masculi sepalis oblongis, petalis angustioribus subsimilibus; floris feminei bracteolis fugacibus; lobis 4—5 longe lanceolatis, capsula turbinata, triquetra, basi acuta, alâ majore lanceolata.

Among the many interesting and beautiful plants sent home by Messrs. Veitch's collector, Mr. Pearce, from South America, the Begonia above described takes



high rank. It has been exhibited in Paris and at the Royal Horticultural Garden, and at both places attracted much attention from the beauty and singularity of its flowers. The stem springs from a tuberous stock, and attains a height of 12 to 18 inches, the leaves are very oblique at the base, lanceolate, and toothed. So far the plant differs little from its many congeners, but in the appearance and structure of the flowers there is considerable diversity from ordinary Begonias, as will be seen from the following remarks:—The flowers are pendent, given off from the stem in groups of two or three, and are of a bright scarlet hue. The male flowers are about 2 inches long, and of a compressed, bell-shaped form; the two sepals are oblong-lanceolate; the two petals decussate with the sepals, and are similar in shape but narrower. The stamens, in place of being aggregated in great numbers in a sort of head, as happens in most Begonias, are in this plant consolidated at the base into an elongated column rather shorter than the petals, and resembling that of Mallows; the anthers are small, egg-shaped, and sharply pointed, bursting outwardly. The female flowers are about half the size of the males, and have an oblong perianth of five lanceolate scarlet segments. The ovary is inferior, sub-globose, and provided with three wings,—one, small, forming a slight rim along one side of the ovary, another rather larger, and a third forming a triangular or falciform coloured wing, the point of which is directed upwards. The three styles are short and fleshy, each of them dividing almost immediately into two linear, twisted, yellowish stigmata, which are about half the length of the segments of the perianth. Such are the more salient features of this beautiful plant, sufficient in the opinion of Klotsch to warrant the formation of a new genus (Barya), but this has we think properly been reduced to a section of Begonia by De Candolle; a genus including no less than 354 species, according to the enumeration of the last-named author, some of which, however, are as difficult of discrimination as the present one is easy. There are some minor discrepancies between De Candolle's account and the characters visible in the living plant, attributable no doubt to the learned monographer having examined dried and confessedly imperfect specimens collected in Bolivia by Weddell. Thus, the male flowers are described as erect, and smaller than in the cultivated plant, while there is less difference in the length of the individual segments of the female perianth than is stated to be apparent in the dried specimens. The flowers, however, vary in size on the same plant.

We believe that a coloured figure of this very desirable greenhouse plant will shortly appear in the "Botanical Magazine." *M. T. M.*

PHAJUS INQUILINUS (*hyb.*).

Sepalis cuneato oblongis acutis, petalis spatulato obovatis apiculatis, labello a basi utrinque semicordato flabellato antice obtusato emarginato, utrinque plica insilienti plicato, carinis dorso obtusis transverseque sulcatis ternis parallelis a basi in discum, columna utrinque obtusangula.

This is a plant whose parents are not known, though it is one of Mr. Dominy's hybrid seedlings, raised at Messrs. Veitch's Royal Exotic Nursery. No doubt Phajus vestitus is one of the parents; perhaps Calanthe masuca or versicolor the other. The flowers are cream colour, the three keels of the lip yellowish white.

NASONIA CINNABARINA, *Lind. Rchb. fil.*

Vaginis nervosis, foliis carnoso membranaceis, linearibus, acutis, infra apicem ancipiti carinatis, floribus axillaribus, sepalis ligulatis acutis, petalis paulo latioribus, labello cordato triangulo acuto, callo lineari in basi, apice obtuse bilobo, rostello sigmoideo.

Centropetala and Nasoniæ are native ornaments of some mountain ranges of Western South America, creeping on their summits between Mosses and Lichens, bearing small distichous-leaved stems, as some Angræca, Podochilus, Appendiculas, &c., and producing scarlet or purplish coloured very pretty flowers. Poor Warscewicz was full of enthusiasm when talking about these gems. Though we warn amateurs not to expect some grand thing, yet we would point out that tufts of these modest plants, covered with their admirable flowers, must be charming. No doubt, by reasonable, cool treatment, one might succeed in growing them. The plant has been introduced by M. Linden. *H. G. Rchb. f.*

PLANT PORTRAITS.

AGAVE SCHIDIGERA.—*Bot. Mag.*, t. 5641. Amaryllidaceæ. One of the more remarkable and ornamental of the American Aloes, closely related to A. filifera. It is stemless, forming a sub-hemispherical mass; the leaves linear ensiform, with red subpungent apices, and longitudinal white bands and margins, from which latter are given off broad, white, recurved woolly filaments. The scape is erect, 6 feet high, bearing a slender, cylindrical, many-flowered spike of pale green flowers, with projecting stamens. Native of Mexico. Flowered by Mr. Williams.

COLEUS GIBSONI.—*Floral Mag.*, t. 338. Labiatæ. A free-growing, soft-wooded plant, suitable for summer bedding. It has purplish stems, and ovate leaves, which are irregularly blotched along the veins, often most conspicuously so on the under surface with dark chocolate-brown. Native of New Caledonia. Introduced by Mr. J. G. Veitch.

DALECHAMPIA ROEZLIANA ROSEA.—*Bot. Mag.*, t. 5640. Euphorbiaceæ. One of the most remarkable stove plants which have of late been introduced; and fully described by us at p. 236. Dr. Hooker regards the variety described as having the bracts green, as an imperfectly developed condition of that with the rose-coloured bracts. Native of Vera Cruz. Flowered by Mr. Bull.

DODECATHEON JEFFREYI.—*Flore des Serres*, t. 1662. Primulaceæ. A very beautiful hardy perennial of vigorous habit, with long, erect, lanceolate leaves, much tapered downwards into the stalk, and numerous scapes supporting umbels of pretty nodding rose-coloured flowers, which become paler towards the base, and have a ring of yellow and dark brown at the orifice of the reflexed corolla. Native of the Rocky Mountains. Flowered by M. Van Houtte.

EPIDENDRUM EBURNEUM.—*Bot. Mag.*, t. 5643. Orchidaceæ. A neat stove epiphyte, which has been described at p. 404. The stems are erect, the leaves oblong, and the raceme terminal, bearing four to six flowers, which have narrow yellowish sepals and petals, and a broad flat cordate white lip. Native of Panama. Flowered by T. R. Tuffnell, Esq.

GRIFFINIA HYACINTHINA MAXIMA.—*Flore des Serres*, t. 1667-8. Amaryllidaceæ. A handsome stove bulb, resembling the old G. hyacinthina, but of a much larger size. The bulb has a long neck; the leaves are ovate-oblong, and the flowers are white banded with blue, very large, measuring between 4 and 5 inches across. Native of Brazil. Flowered by M. Van Houtte.

HYDRANGEA PANICULATA GRANDIFLORA.—*Flore des Serres*, t. 1665-6. Hydrangeaceæ. A remarkably fine hardy or half-hardy shrub, with elliptic, acuminate, toothed leaves, and large branched pyramidal panicles of white flowers, each floret measuring about an inch across, but very abundant, and forming a crowded and highly-ornamental inflorescence. Native of Japan. Flowered by M. Lemoine.

IRESINE HERBSTII AUREO-RETICULATA.—*Floral Mag.*, t. 333. Amaranthaceæ. A variety of I. Herbstii (Achyranthes Verschaffeltii), in which the red colour of the leaves is replaced by green, the secondary veins being marked by creamy-white reticulations, while the stem, leaf-stalks, and primary veins retain the natural

red colour. A Belgian garden variety, selected by M. Van den Hecke, of Ghent.

Magnolia Lennei.—*Flore des Serres*, t. 1693-4. Magnoliaceæ. This is probably the finest of all the deciduous group of Magnolias, and is admirably suited for forcing. It is said to be the produce of M. Yulan and purpurea. The flowers are very large, obovate or somewhat pear-shaped when moderately expanded, white within, and of a fine reddish purple without. An Italian garden variety.

Maranta illustris.—*Flore des Serres*, t. 1691-2: *Illust. Hort.*, t. 515. Marantaceæ. One of the finest of the numerous beautiful forms which have of late been added to this very ornamental genus. It resembles M. roseo-picta in form, but appears to be of larger growth, and the leaves have more play of colour. The basis is a very deep rich green, the midrib, itself red, is marked out by a paler green, which breaks outwards in broad streaks across the face of the leaf, while a broad band of silvery grey passes up each side at some distance within the margin. The under surface is a rich wine purple. Native of the country of the Upper Amazon. Introduced by M. Linden.

Maranta roseo-picta.—*Flore des Serres*, t. 1675-6; *Illust. Hort.*, t. 508. Marantaceæ. One of the most beautiful of the many stove herbs with painted leaves which are now met with in cultivation. The habit is dwarfish and compact, the leaves broadly roundish-oval, stalked, wine purple beneath, and on the upper side of a lustrous shaded green marked with a deep rose-coloured midrib, and on each side with a broad wavy band of the same colour. Native of the Amazon country on the frontier of Peru. Introduced by M. Linden.

Saccolabium giganteum.—*Bot. Mag.*, t. 5635. Orchidaceæ. A magnificent stove epiphyte, with broad distichous leaves, bi-lobed at the apex, and of a leathery texture, and with dense racemes of very fragrant flowers, which have white sepals, white petals with a few purple spots, and a trifid lip prominently tipped with rose purple. It is nearly related to S. violaceum, and has been called Vanda densiflora. Native of Rangoon. Flowered by Messrs. Veitch & Sons.

Tapeinotes Carolinæ.—*Floral Mag.*, t. 336. Already noticed at p. 126.

Tinnea æthiopica.—*Bot. Mag.*, t. 5637. Labiatæ. An erect-habited warm greenhouse or cool stove shrub, 4 to 6 feet high, with moderate-sized ovate entire leaves, and two to three-flowered axillary peduncles, bearing rather showy flowers, which have ventricose green calyces, and deep maroon purple, two-lipped corollas. The flowers are described as having a delicious smell of violets. Native of Central Africa. Flowered by Mr. Williams.

Zea japonica albo-vittata.—*Flore des Serres*, t. 1673-4. Graminaceæ. A very effectively variegated, stout-growing, annual Grass, with broad ribbon-like leaves, boldly striped with bands of white and green varying in tint, and of various width, producing a most effective variegation. Introduced from Japan.

ON THE STRUGGLE FOR EXISTENCE AMONGST PLANTS.

By J. D. Hooker, M.D., F.R.S.

(*Concluded from page* 490.)

The destruction of native vegetations by introduced is a subject that has only lately attracted much attention, but it has already assumed an aspect that has startled the most careless observer. Some 30 years ago the fecundity of the horse and of the European Cardoon in the Argentine provinces of South America, so graphically described by Sir Edmund Head, drew the attention of naturalists to the fact, that animals and plants did not necessarily thrive best where found in an indigenous condition; and the spread of the common Dutch Clover, Trifolium repens, in North America, where it follows the footsteps of man through the pathless forests, has long afforded an equally remarkable instance of vegetable colonisation. Still more recently, in South Africa, Australia, and Tasmania, the Scotch Thistle, Briar Rose, Xanthium, Plantains, Docks, &c., have all become noxious weeds; and this leads me to the last and most curious point to which I shall allude in this article, viz., that the same annuals and other weeds that are held so well in check by the indigenous perennial plants of our country, when transplanted to others, show themselves superior to the perennial vegetation of the latter. Of this, New Zealand furnishes the most conspicuous example. It was first visited scarcely more than 100 years ago, and it is not yet 50 since the missionaries first settled in it, and scarce 30 since it received its earliest colonists. The Islands contain about 1000 species of flowering plants, amongst which no fewer than 180 European weeds have been recorded as intruding themselves, and having become thoroughly naturalised; and probably double that number will yet be found, as they have never been systemically collected; but the most curious part of the history is this, that whereas of indigenous New Zealand plants scarcely any are annual, no less than half the naturalised European ones are annual.

Of the effect of these introduced European plants in destroying the native vegetation, I have given examples in an article that appeared in the *Natural History Review* (January, 1864), from which I quote the following:—

"In Australia and New Zealand, the noisy train of English emigration is not more surely doing its work than the stealthy tide of English weeds, which are creeping over the surface of the waste, cultivated, and virgin soil in annually-increasing numbers of genera, species, and individuals. Apropos of this subject, a correspondent (W. T. Locke Travers, Esq., F.L.S.), a most active New Zealand botanist, writing from Canterbury, says:

"You would be surprised at the rapid spread of European and other foreign plants in this country. All along the sides of the main lines of road through the plains a Polygonum (aviculare) called 'Cow-grass,' grows most luxuriantly, the roots sometimes 2 feet in depth, and the plants spreading over an area from 4 to 5 feet in diameter. The Dock (Rumex obtusifolius or R. crispus) is to be found in every river-bed, extending into the valleys of the mountain rivers, until these become mere torrents. The Sow-thistle is spread all over the country, growing luxuriantly up to 6000 feet. The Watercress increases in our still rivers to such an extent as to threaten to choke them altogether; in fact, in the Avon, a still, deep stream running through Christ Church, the annual cost of keeping the river free for boat navigation and for purposes of drainage exceeds 300*l*. I have measured stems 12 feet long and three-quarters of an inch in diameter. In some of the mountain districts, where the soil is loose, the White Clover is completely displacing the native Grasses, forming a close sward. Foreign trees are also very luxuriant in growth. The Gum trees of Australia, the Poplars and Willows, particularly, grow most rapidly. In fact, the young native vegetation appears to shrink from competition with these more vigorous intruders."

Dr. Haast, F.L.S., the eminent explorer and geologist, also writes to me as follows:—

"The native (Maori) saying is 'As the white man's rat has driven away the native rat, as the European fly drives away our own, and the Clover kills our Fern, so will the Maoris disappear before the white man himself.' It is wonderful to behold the botanical and zoological changes which have taken place since first Captain Cook set foot in New Zealand. Some pigs, which he and other navigators left with the natives, have increased and run wild in such a way that it is impossible to destroy them. There are large tracts of country where they reign supreme. The soil looks as if ploughed by their burrowing. Some station-holders of 100,000 acres have had to make contracts for killing them at 6*d*. per tail, and as many as 22,000 on a single run have been killed by adventurous parties without any diminution being discernible. Not only are they obnoxious by occupying the ground which the sheep farmer needs for his flocks, but they assiduously follow the ewes when lambing, and devour the poor lambs as soon as they make their appearance. They do not exist on the western side of the Alps, and only on the lower grounds on the eastern side, where snow seldom falls, so that the explorer has not the advantage of profiting by their existence where food is scarcest. The boars are sometimes very large, covered with long black bristles, and have enormous tusks, resembling closely the wild boar of the Ardennes, and they are equally savage and courageous.

"Another interesting fact is the appearance of the Norwegian rat. It has thoroughly extirpated the native rat, and is to be found everywhere, even in the very heart of the Alps, growing to a very large size. The European mouse follows it closely, and, what is more surprising, where it makes its appearance it drives, in a great degree, the Norway rat away. Amongst other quadrupeds, cattle, dogs, and cats are found in a wild state, but not abundantly.

"The European house-fly is another importation. When it arrives it repels the blue-bottle of New Zealand, which seems to shun its company. But the spread of the European insect goes on very slowly, so that settlers, knowing its utility, have carried it in boxes and bottles to their new inland stations."

But the most remarkable fact of all has been communicated to me since the above was printed, viz., that the little White Clover, and other herbs, are actually strangling and killing outright the New Zealand Flax (Phormium tenax), a plant of the coarsest, hardest, and toughest description, that forms huge matted patches of woody rhizomes, which send up tufts of sword-like leaves, 6 to 10 feet high, and inconceivably strong in texture and fibre. I know of no English plant to which the New Zealand Flax can be likened, so as to give any idea of its robust constitution and habit to those who do not know it: in some respects the great matted tussacks of Carex paniculata approach it. It is difficult enough to imagine the possibility of White Clover invading our bogs, and smothering the tussocks of this Carex, but this would be child's play in comparison with the resistance the Phormium would seem to offer.

The causes of this prepotency of the European weeds are probably many and complicated; one very powerful one is the nature of the New Zealand climate, which favours the duration of life in individuals, and hence gives both perennials and annuals a lengthened growing season, and, in the case of some, more than one seed crop in the year. This is seen in the tendency of Mignonette and annual Stocks to become biennial and even perennial; in the indigenous form of Cardamine hirsuta being perennial, and in the fact that many weeds that seed but once with us seed during a greater part of the year in New Zealand. Another cause must be sought in the fact that more of their seeds escape the ravages of birds and insects in New Zealand than in England, the granivorous birds and insects that follow cultivation not having been transported to the Antipodes with the weeds, or, at least, not in proportionate numbers.

Still the fact remains as yet unaccounted for, that annual weeds, which, except for the interference of man, would with us have no chance in the struggle with perennials, in New Zealand have spread in inconceivable quantities into the wildest glens, long before either white men or even their cattle and flocks penetrate to their recesses. Such is the testimony of Drs. Haast and Hector, and Mr. Travers, the original explorers of large areas of different parts of the almost uninhabited middle island, and who have sent to me, as native plants, from hitherto unvisited tracts, British weeds that were not found in the island by the careful botanists (Banks, Solander, Forster, and Sparrmann) who accompanied Captain Cook in his voyages, and which were not found by the earlier missionaries, but which of late years have abounded on the low lands near every settlement.

This subject of the comparative great vis-vitæ of European plants, as compared with those of other countries, involves problems of the highest interest in botanical science, and the subject is as novel as it is interesting; it is quite a virgin one, and requires the calmest and most unprejudiced judgment to treat it well. It cannot be doubted that the progress of civilisation in Europe and Asia has, whilst it has led to the incessant harassing of the soil, led also to the abundant development of a class of plants, annual, biennial, and perennial, which increase more rapidly and obtain a greater development when transplanted to the Southern hemisphere than they have hitherto done in the Northern, and that, in this respect, they contrast strikingly with the behaviour of plants of the Southern hemisphere when transplanted to the Northern; and hitherto no considerations of climate, soil, or circumstance have sufficed to explain this phenomenon. *Popular Science Review.*

LETTERS FROM PARIS.—No. XII.

The Versailles Flower Show, Billancourt, and Miscellaneous Subjects.

A flower show was held in the Gardens at Versailles on Saturday last and the four following days; in point of effect it was much prettier than anything at the Exhibition. Several of the plants and various items were shown in the open air; the best things, however, being grouped in a large circular tent. In this the effect was charming, in consequence of a free mingling of fine-leaved plants among the Azaleas and brilliant subjects. The groups of fine-leaved plants that came from Pontchartrain and Madame Fortado's would have been considered remarkable in any show, being in fact the finest kinds known, and very well cultivated. By alternating beds of such as these between the Roses, Rhododendrons, &c., it need hardly be stated that a pleasing result was produced. A fine Cocos, with drooping leaflets, was placed in the centre of the tent, tree Ferns, &c., were plunged in the turf here and there, some of the beds were edged with dwarf plants (Spiræa japonica for instance surrounding a bed of Azaleas); and of course all this was in the right direction. The plants were mostly placed on, or plunged in, beds of light mould, surrounded by turf and occasionally mossed over. The hardy Ferns were shown in a very rustic kind of pot, evidently made of clinkers, covered with cement, cemented together, and plunged in a Moss-covered bed, looking very nice and natural. Mr. Jean Verschaffelt had a good show of his fine collection of Agaves, &c., and also half a dozen seedling Clematis, of a new and desirable strain, but considering the distance of Versailles from most of your readers, and remembering that there is a perspective in literature as well as in art, I must not go into details. One little "exhibit," however, deserves special notice; it was a large collection of very dwarf Rhododendrons used three deep as an edging to a bed. Each little plant bore one good truss of flower. They may be almost exactly compared with those strong flowered but dwarf Hydrangeas sold with a single truss in Covent Garden. They will be found highly useful for conservatory decoration, and are obtained by grafting short shoots with plump buds on small plants of R. ponticum in autumn. This is the first time they were shown here, and they were much admired. For edging large vases, pits, benches, or any decoration in which tidy plants are required, they will be found highly useful. The Mignonette was also remarkable—much better than it is seen in England. They grow it in very rich earth—all very rotten dung in fact, with the exception of a little sand. It is considered that the plant growing in the neighbourhood of Versailles is better than it is elsewhere in France. In the evening of the first day the members of the Horticultural Society of Seine et Oise dined together in the town. The banquet was attended by about 80 gentlemen, and altogether the affair was very suggestive of the great interest taken in horticulture by a large section of the French people. Taking them "in the lump," French private gardens are a good way behind our own. They have not the number of wealthy amateurs that we have in England. But the French middle-class garden is often very pretty, full of well-trained little and big fruit trees, spring flowers, &c., and on the way by rail to Versailles numbers of such may be seen.

I visited Billancourt for the fourth time on Tuesday. It is, of course, more intended for an agricultural than a horticultural display; indeed, the latter is quite a minor point. As a whole, the place is a failure, for reasons which are known but need not be detailed here. In our own way, the most interesting portion is that devoted to fruit trees, which are shown by Durand & Baltet and other French nurserymen. One arranges a complete little fruit garden, with every style of training exhibited, the plants being mostly fastened to the galvanised wire alluded to in my last. Space forbids the description of their methods of training, though I may give an idea of its variety. A tree with a tall stem has its head trained in the shape of a wine glass. Then around it are planted at a distance, say of a couple of feet, a ring of cordons pretty thick; these are then drawn in towards the base and attached to a loop, when they are taken back again and attached to a very much wider one, and that is followed by two others higher up, to which the trees are trained, so as to form a gigantic tulip-like vase around the central tree. There is much ingenuity of this kind displayed both here and at the Exhibition, though I cannot add that such curiosities are much in

favour with good French fruit growers. Another exhibitor was busy covering a considerable space with fruit trees of various kinds, trained on spiral wires; these are galvanised, of various heights, from 1 yard to 10 feet. They may be described as large tapering corkscrews. The exhibitor's object, as he said, was to afford the trees more space within small compass—the tree being trained in cordon fashion around the spiral wire. In some cases his trees were in pots, placed in single file in a narrow box, a case of the galvanised wire springing from and covering this box so that it might be covered with mats at pleasure. In fact, some were thus covered with the mats described in a previous paper, the sunny side being open. In this way he hopes to forward the fruit trees in pots a good deal. The system is probably more plausible than useful. One of the little fruit gardens is very neatly done and pretty, surrounded by tall subjects, and nicely varied with different forms within, the ground being mulched and dotted with strawberries, annuals, &c., and the beds edged with the cordons described in my last. There is also an interesting specimen of the way they grow the Peach in the south of France. In some places, as is well known, it is grown as a field tree. But the climate, while warm enough, is by far too windy, and so they are obliged to train them as very dwarf flat standards, spreading their limbs on the ground, but never rising, so that the breeze can "get under them," so to speak; they are dwarfer than an ordinary Gooseberry bush. There are a few other interesting things in our way at Billancourt, such as plantations of Vines, edible plants, &c., but they are better left alone till fully developed.

As for the fourth exhibition, there is very little to be said. It is not so good as the previous ones. Messrs. Linden, Verschaffelt, and Dallière show new and newish Palms, among the best of which are Cocos Wendlandiana, Calamus sumatrana, Acanthophœnix crinitus, and Areca nobilis. M. Linden has also a fine plant of the noble Seaforthia robusta in the Conservatory, and the rich collection of M. Chantin alone fills the second-sized structure in the place. The weather is still very bad, the breeze yesterday and to-day (22d and 23d May) being such as would be considered cold for April in England. We had hailstones on the 21st! With all this they have planted out some Bananas in the grounds. These poor Bananas look no better than could be expected, and if they survive I shall be surprised, the leaves being quite broken down. We shall want a great deal of hot weather to compensate for all this.

At La Muette at present they have a great quantity of the more tender things out of doors, the most delicate being placed between narrow and tallish hedges of Arbor-vitæ. They have already sent out many thousand plants.

The freshest-looking things in Paris for some time past have been the wide edgings of Irish Ivy around the flower borders in the Louvre and other gardens. When the young fresh leaves come up and spread over the old ones that have stood the winter, they are very refreshing to look upon. In England we do not make half sufficient use of this, the finest of Evergreen climbers. As regards Aralia Sieboldi, there are two facts which should be generally known, *i. e.*, that it is very hardy and about the best plant in existence for room cultivation. I have seen this spring plants of it making leaves as fresh and healthfully green as the Ivy just mentioned, in rooms where it was even far removed from the light; and I yesterday saw a plant of it in M. André's little garden at Passy which has stood out all the past winter without a particle of protection. It has made strong shoots and fine leaves, and is now in a much better state than if brought out of the greenhouse and planted out for the summer. Therefore it is one of the very best plants that can be employed in the "sub-tropical garden"—a phase of horticulture, by the way, which will yield little but disappointment if not carefully done. I should have said something of the Jardin des Plantes ere this, were it not that its best feature is a fine collection of hardy plants, especially in the part known as the School of Botany, and I have been waiting to see these open. There are not a few good things among them worthy of introduction to British gardens.—As I post this (4 o'clock on Thursday) there is a breeze blowing across the bridges of the Seine such as one would not be justified in expecting in the end of May in any other locality than the top of an iceberg. Blue noses are again the rule in the streets of Paris, and one is afraid to reflect upon the condition of the sub-tropical plants that they have just begun to move out. *W. R.*

FERN DISTRIBUTION.

(*Continued from p.* 518).

4. *Temperate North America.*—Next to Europe and North Africa, this has the smallest Fern-flora of the temperate districts, 114 species, 5 per cent. of the order, which may be classified as follows:—

Essentially temperate species peculiar to it	..	37
Do. Common to Asia, America, and Europe	..	34
Do. Common to America and Europe	..	2
Do. Common to America and Asia	..	3—81

And the remaining 33 species are nearly all subtropical forms common to this district, and the tropical zone of the same Continent. The most prominent point to be noted is the smallness of this last element. We have excluded from this district the whole of Mexico. If the subtropical species of the northern part of Mexico were included, the number would be considerably increased, but we do not possess the means of clearly separating them out. Comparing this district with Europe, which, as a whole, it resembles most, the greater range and abundance of several of the peculiar species is noteworthy. We have instances of this furnished by Woodwardia areolata and virginica, Polypodium hexagonopterum, Dicksonia punctiloba, Cystopteris bulbifera, Scolopendrium rhizophyllum, Nephrodium marginale, noveboracense, and Goldieanum. All these have their head-quarters in the Northern United States, which yield all together 51 species. Throughout British North America we have only 46 species, seven of which are absent from the Northern States. In the Southern States east of the Mississippi, there are 57 species, 19 of which are not known in the Northern States. The remaining 37 are peculiar to California and New Mexico. About one-fifth of the Ferns of this district belong to Cheilanthes and Pellæa, a group proportionately preponderant also at the Cape.

North Temperate Zone.—Taking the north temperate zone as a whole, we find it to yield 514 species, 34 of which are common to the three districts, 18 to the second and third, 8 to the third and fourth, and 2 to the second and fourth. Of these 177 species, or about one in three, are peculiar to it.

5. *Temperate South Africa.*—In temperate South Africa we have within an area of under a million square miles 153 species or 9 per cent. of the order. Of these 23 are peculiar to Cape Colony, 4 to the island of Tristan d'Acunha, 11 belt the world in the South Temperate zone, 7 others are American and 19 Australian; and the remaining 89 are species common to this district and the tropics, 20 of them being confined exclusively to Tropical Africa. When we consider the strongly marked peculiarity of the phanerogamic Flora of this district, the lack of individuality in its Fern-Flora is remarkable. Even out of these 23 peculiar species 4 or 5 are doubtfully distinct. The three most distinctly-marked types are Schizæa pectinata, Anemia Dregeana, and Ophioglossum Bergianum, all Pseudo-Filices. Ten species out of the 23 belong to Pellæa, Cheilanthes, and Nothochlæna, of all groups perhaps the least moisture-needing in its stations. The species which the districts of the South Temperate zone have in common, it may be noted here once for all, are many of them not characteristically temperate, but plants which have their head-quarters in the tropics and occur less abundantly outside them. Of well-marked truly temperate species common to the Cape and Australia, we may note Todea barbara, Asplenium bulbiferum and flaccidum, and amongst those common to the Cape and Temperate South America Polypodium incanum and Lomaria magellanica. To meet with Aspidium falcatum and Asplenium varians again, we must go from the Cape to the Himalayas, and for Asplenium ebeneum and Pellæa andromedæfolia to North America. Of well-marked species peculiar to Africa, which have their head-quarters here, but pass slightly within the tropic, Pteris flabellata, Mohria caffrorum, Cyathea Dregei, and Nothochlæna inequalis are examples. Considering the smallness of the Tropical African list, the addition to that of this district of 89 subtropical species is large, but several of them inhabit Mauritius and Madagascar, and do not pass further south than Natal.

We have included Tristan d'Acunha in this district. This little island is not more than 20 miles in circumference, and is situated in the midst of the Atlantic, nearly in the latitude of Cape Town and Monte Video, where the distance between the two continents is one-fifth of the whole circumference of the globe. It is about 10° nearer to Africa than America, and is remarkable for having the Flora, in which, as compared with all others that are known, Ferns are most nearly upon an equality with flowering plants in number of species. The following is its Fern list, 23 species, Lycopods not included; the number of flowering plants enumerated by Captain Carmichael in his monograph of the plants of the island in the 12th vol. of the Linnean Transactions, being 29:—

*Hymenophyllum æruginosum	Nephrodium tomentosum
Adiantum æthiopicum	Aspidium coriaceum
Pteris incisa	*Polypodium aquilinum
Blechnum australe	,, punctatum
Lomaria alpina	,, australe
,, Boryana	Gymnogramma cheilanthoides
Asplenium obtusatum	*Vittaria stricta
,, erectum	Acrostichum conforme
,, monanthemum	,, hybridum
,, medium	,, spathulatum
*Trichomanes tenerum	,, succisæfolium
	Ophioglossum bulbosum

It is curious to analyse this list and compare it with that of St. Helena. Here we have four peculiar species, those marked with a star, three only found elsewhere, in the Mauritius, nine of which are both Cape and American, six which are American but not Cape, one which is nominally Cape but not American, but very doubtfully distinct from a common American plant. There are only 16 species altogether which are common to temperate South America and the Cape, and here we have half of them in this little isolated half-way island; whilst St. Helena, which is much nearer a continent, has more than half its Ferns peculiar to it. Here we have only a sixth of them, and for the rest, although it is nearer Africa than America, the affinity is considerably closer with the latter.

6. *Temperate Australia and New Zealand.*—Of the south temperate districts this is the largest and most fertile, yielding a much larger number of species and peculiar ones than any other temperate district except the third. The total number of its Ferns is 212, and of these one in three is peculiar to it. Taking New Zealand and Australia separately we obtain the following results:—

New Zealand.

Species quite peculiar	.. ..	34
Not peculiar but not Australian	.. ..	12
Common to New Zealand and Australia	.. .. ..	67
Total	.. ..	113

Australia.

Species quite peculiar	.. ..	25
Not peculiar but not New Zealand	.. ..	68
Common to New Zealand and Australia	.. .. ..	67
Total	.. ..	160

Of the 74 species peculiar to the district, 34 are confined to New Zealand, 25 to Australia, 11 only are common to both, and 4 inhabit the adjacent small islands. Eleven species are common to this district and the other two south temperate ones; 12 others to this and South temperate America; 19 others to this and the Cape. The 12 New Zealand species not peculiar but not Australian, are nearly all Polynesian, and the 68 Australian species which are not peculiar but do not occur in New Zealand, are many of them subtropical Malayan species which do not reach further south than Queensland. To complete the Australian list it must be borne in mind that a few, not more than three or four species, require to be added, which are restricted to the tropical part of it.

(*To be Continued.*)

Home Correspondence.

New Plants at the Paris Exhibition.—I beg leave to call your attention to an inaccuracy in your correspondent's account of the competition that occurred in the exhibition of new plants on the 1st of May (see p. 491). Your correspondent begins by saying that Messrs. Veitch were first with a group of new plants, 35 in number; and goes on to express his opinion that these exhibitors would have obtained a higher award in a more important "concours" if they had substituted a Pandanus, which formed one of the second lot, for a Croton, in the first lot. If you will refer to the official report, published in the *Moniteur Universel*, you will see that your correspondent is mistaken in the first of these assertions, as M. Linden, of Brussels, is there mentioned as first in the only two "concours" of new plants, the "lot of six new plants," and "that of the group of new plants" (sic), while Messrs. Veitch and A. Verschaffelt are each first with collections of plants of *recent* introduction, but not of those of *new* introduction. These two "concours," moreover, as in the case of the group of new plants, were not contested. *An Old Subscriber.* [Disregarding the question, whether the substitution above referred to would or would not have been productive of a different issue, we find the facts of the case to have been as follows:—The official programme now before us sets forth that there were four concours for *new* plants of any description, "*de tout genre.*" The first concours was for a "lot" of distinct (*variées*) stove plants of *recent* introduction. In this the Messrs. Veitch alone exhibited, and to them a first prize was awarded. The second concours was for a lot of six distinct (*variées*) plants of *new* introduction. For this, which was the tug of war, Messrs. Linden and Veitch competed, each with two sets of six. Of these four sets of six, one of M. Linden's was first in the opinion of the jury; the remaining three lots being thus classed—Veitch 2nd and 3rd, and Linden 4th. M. Linden gained the first prize with 20; Messrs. Veitch the second with 19⅔ points. This is, we believe, a correct account of the decision of the jury. Into the merits of the case we cannot enter. It must be distinctly understood that our reporter is alone responsible for his opinions, though we have full confidence in his impartiality. EDS.]

Cuttings of Oleander.—Is it true that if a cutting, say of Oleander, be struck in water and well rooted and afterwards be placed in earth, that the original roots perish and new ones are formed? The fact was stated in one of Dr. Masters' lectures at the Horticultural Society. *P.* [We believe the statement to be quite correct as a rule, though we cannot vouch for its truth in the particular case you mention. EDS.]

Tambayang.—What is the botanical name of the plant called Tambayang, and which is used for lozenges in the same way as jujubes? *C.* [Can any correspondent furnish information on this point? EDS.]

Vanda Spikes Rotting.—Why do the young flower spikes of Vandas at times turn black when they are about an inch in length? I have a plant just now with a spike about 8 inches in length and with eight buds on it, but I perceive that the lowest bud alone will open, the others being quite dead. *A Reader.* [The probable cause of your Vanda spikes going black is that water has been lying in the axils of the leaves. This should be avoided as much as possible. It is a good plan never to syringe Vandas while their flower spikes are in the leaf-axils; in fact, the tops of the plants are the better for not being syringed at any time, as this often causes the heart to rot, especially when the heat is low. EDS.]

Early Peas.—The cause of the disparity of opinions upon these Peas is quite clear to my mind. The numerous amateurs, gardeners, and some nursery and seedsmen who have pronounced that First Crop or Ringleader is different to Dilliston's Early Prolific evidently have not had the true variety of Dilliston's Early Prolific, as was originally sent out by a wholesale London establishment. If the true stock of Dilliston's and Carter's First Crop or Sutton's Ringleader were all sown the same day, the following result would ensue, which I proved myself, and saw others prove also, the first season that Carter's First Crop or Ringleader were sent out. I had the sealed bags; their contents were sown on the same day as Dilliston's; they kept pace with each other in growth, in height, came into flower, podded, were ready to pick, were gathered, and the ground cleared at the same time; to use an old phrase they were as like as two Peas. This was a fair and impartial trial, of which I could, if needed, give further proofs from persons who saw them growing. Last season I had the sealed bag for trial of First Crop or Ringleader, and of Dilliston's Early Prolific. Dilliston's came from another source, and from whence I should have thought it would have been true; in this instance it was much better than the original stock, more in the way of Sangsters' No. 1, but different to that variety. I presume many people must have had this variety of Dilliston's, which has been the cause of the various opinions. I have this season again the sealed bag of Carter's First Crop, and Dilliston's Early Prolific from the original source, and the result of the two up to the present time is, that they make the same growth, are both equally of the same height, and are both full of flower. He would be the cleverest man in England that could at the present time tell if there is any difference as they are now growing. *M. N. E.*

Vines Bleeding.—A very simple and effective remedy for this may be found in the late Mr. Andrew Knight's Horticultural Papers. He says (see Paper No. 17), "If to four parts of scraped cheese be added one part of calcined oyster shells, or other pure calcareous earth, and this composition be pressed strongly into the pores of the wood, the sap will instantly cease to flow, so that the largest branch may be taken off at any season with safety." I may add that the same proportions or even equal quantities of cheese and slaked lime braided up together are equally effective, and I have used this simple remedy successfully many years. It is not surprising that Mr. Trollope's remedy, the application of Gutta-percha, was found ineffectual, when the force of the ascending sap is considered. It is shown by Hale, in his "Vegetable Statics," vol. ii., p. 114, that the sap of a Grape Vine can force up a column of mercury 32½ inches in height, or about 36 feet 5 inches height of water; and by applying the principle of the hydraulic press to the Vine stem capped with gutta-percha, it will be seen that the covering must be of extraordinary strength to resist the force of the sap flowing from the surface, covered by the gutta-percha. I doubt if the Potato remedy, mentioned by Mr. Breese in your columns,

can be accounted for on the supposition of poison. I have not tried this remedy myself. Probably, as you have suggested, some chemical action takes place, by which a portion of the juices of either Vine or Potato, or both, may become solidified so as to act similarly to Knight's composition (which appears to be mechanical), and may be the cause of the efficiency of the Potato. The Potato remedy does not appear to be so generally, or so easily or effectually applicable as Knight's composition. *George Wood, Rochford, Essex.* ——The best application for the prevention of bleeding which I have yet met with consists of the following ingredients:—half a pint of patent knotting (as used by painters), placed in a wide-mouthed bottle, adding half an ounce of shellac, and placing it in a warm place till dissolved; then add by degrees finely-powdered resin till it attains consistency enough to dry quickly without cracking; apply with a hard brush, forcing it into the pores. The above will cost about 15*d.* a pint, and is better than all the styptics I have met with. I have seen Potatos used with various degrees of success, and often applied when the bleeding was on the decline, and would, in all probability, have ceased without the application. As for the poison in the Potato stopping the bleeding, I think that far-fetched, as the only poison contained in it is a very small portion of solanin, and that only exists after germination. Should solanin have the power to stop bleeding it is easily obtained in quantity from the ripe berries of Solanum nigrum, or S. Dulcamara by a simple process. *Thomas Shortt.* [No one supposed that the solanin produced the effects in question. Eds.]

Ripe Grapes in March.—The assertion of Mr. Standish as to his producing Grapes from young Vines in March is all very well on paper, but it will cause much mischief between many employers and their gardeners, and is to my own knowledge doing so already. From what I saw of the Vines at Ascot last year, a very different system from that which Mr. Standish was then practising must be followed to ensure the result in question, and were I required to produce Grapes in March I should certainly use a Grape less liable to crack than the Royal Ascot, which has this fault equally with Josling's St. Alban's. *E. G. Cammeron, Woodhouse, Winchfield, Hants.*

Silk Worms.—Can any of your readers tell me how silk worm cocoons should be wound, and how many together? and if there is any manufacturer who would make the silk afterwards into ribbon? *Lady J. W.*

Gooseberry Wine.—Can any of your readers inform me at what stage of their growth Gooseberries should be gathered for the purpose of making Gooseberry wine? *J. M., Templeague, co. Dublin.*

Foreign Correspondence.

The Seegoor Ghaut, Neilgherries.—The main road from Ootacamund to Mysore passes down the Seegoor Ghaut, which lies in a north-westerly direction, and about four miles distant from Ootacamund. From the edge of the Neilgherry plateau and at the commencement of the ghaut an interesting view is obtained. Precipitous hills, their bases sunk, as it were, in a *débris* of time-worn boulders, these again embedded in a fine alluvial soil, in which luxuriant crops of Potatos, Onions, and European vegetables and fruit trees generally thrive in abundance. The climate here is mild, and free from the cold drenching rains of the south-west monsoon, so that the district towards the upper part of the ghaut is well suited for general cultivation, consequently a good-sized village has been established by people who cultivate vegetables for the Ootacamund market. The vegetation also shows the approach to a warmer climate; a fine magenta-flowered Argyreia, Asparagus racemosus, Thunbergia mollissima, and two or three small-flowered Convolvulaceæ are common, and on moist rocks with a northern face Cœlogyne corrugata, Aerides Lindleyanum, and Selaginella cuspidata. Of Ferns, Niphobolus linguæforme, Cyrtomium caryotideum, and the pretty Lastrea eriocarpa are the commonest on this part of the ghaut. Lower down, two species of Cucurbitaceæ, having scarlet fruits with white flaked stripes, are very common, also a fine Asclepiadaceous plant with green flowers. Cotoneaster buxifolia is the principal shrub about half way down the ghaut, where the temperature is quite subtropical; a blue Cleroden dron is also common, in company with the beautiful Indigofera pulcherrima, and a little thorny Jasmine-like plant, with white, highly odoriferous flowers. Emblica officinalis is very common here, and is generally called the Gooseberry; its fruit has a peculiar sweet, mild astringent taste when chewed, and is used in the plains to correct the taste of bad water. Its foliage is extremely pretty, the leaves being pinnate, the little oblong pinnæ set regularly and closely together, and the whole having a reddish tinge. The beautiful Rivea cuneata, with its deep crimson flowers, is common; also a species of Artemisia. On the banks of streams, Hedychium Gardnerianum, Caladium antiquorum, Klugia Notoniana, Nasturtium officinale, and a species of Equisetum, with Didymocarpus Humboldtii, are common. The Ferns in similar situations are Hemionitis cordata, Pteris geraniifolia, and a small-leaved Cyrtomium. Begonia malabarica and Selaginella cuspidata are also common. About half way down the ghaut a comfortable rest-house has been built by Government, and close to it is a fine waterfall, probably 60 feet high, the rock over which the water falls being nearly perpendicular. On the submerged rocks Podostemons grow in abundance, and on half submerged rocks the pretty Utricularia reticulata. Bignoniaceæ are well represented on the lower part of this ghaut, a subscandent one with yellow sweet-scented flowers being the most plentiful species. A handsome white-flowered kind, forming a small tree, is to be found, though sparingly. Pterocarpus Marsupium, yielding an excellent gum kino, is very abundant. Tectona grandis and Dalbergia latifolia are also met with towards the foot of the ghaut. Of Ferns, Adiantum caudatum, Asplenium exiguum, Cheilanthes mysorensis, and Actinopteris radiata are very common by the road side, the principal undergrowth being Stachytarpheta mutabilis and Justicia buxifolia. A low-growing Date Palm, with a stem seldom more than a foot high, is very common. The hills around the lower part of the ghaut are very steep and rocky, and the soil consequently of little depth, so that in seasons deficient in rain large tracts of vegetation, including trees, die out. At the foot of the ghaut Bamboos of majestic proportions fringe the banks of the streams, along with groves of the wild Mango and Tamarind. Santalum album is common, and seems to thrive in a deep alluvial soil composed of vegetable mould, in a close warm atmosphere. Several Coffee plantations have been established here, and the climate seems well adapted for them. Several varieties of Plantain are cultivated in them, one of which bears a scarlet fruit of great merit. The Papaw is also grown, and produces a fruit the size of a man's head, of a green colour when ripe. The Cocoa-nut, Chamærops Fortunei, Artocarpus integrifolia, and Psidium pomiferum are also cultivated, and are doing well. From here the country stretches into Mysore in a large unbroken plain, with occasional isolated conical hills, sometimes forming small chains, as in the Mudamalli Hills, from whence the principal amount of Teak timber used in Ootacamund is brought. The country is generally wooded, but the forests are by no means dense. *G. B.*

Societies.

Royal Horticultural: *May* 20 (*Special Floral Fête*).—This, as was announced last week (see p. 515), was held in connection with the laying of the foundation stone of the Royal Albert Hall of Arts and Sciences by her Majesty, the Queen, and we have much pleasure in stating that the display made on the occasion was one well worthy of Royal inspection. Large groups of beautiful plants from Messrs. Veitch, Bull, Lane, E. G. Henderson, Turner, Lee, and others, graced the Society's fine Conservatory, through which her Majesty passed after the performance of the ceremony; and in the Arcades were Roses, stove and greenhouse plants, hardy Ferns, and other objects of interest, from Mr. Wm. Paul, Messrs. Paul & Son, Williams, and Ivery; while variegated zonal Pelargoniums were furnished in profusion, their handsomely-zoned golden leaves lending quite a charm to the gay scene of which they formed by no means an unimportant part. Of these some account of the best will be found below. We may add that Her Majesty and the Royal party, in passing through the Conservatory, specially noticed the Prince Consort's Gold Medal, awarded last year to Mr. Bull; and a bouquet of flowers of the Bougainvillea spectabilis, which was exhibited in Mr. Bull's collection, was presented by Mr. Bateman to the Princess Beatrice.

May 21 (*Scientific Meeting.*)—W. Wilson Saunders, Esq., in the chair. After the election of 17 Fellows, and the affiliation of the Wolverhampton Horticultural Society, the Rev. M. J. Berkeley remarked, that as the meeting was chiefly devoted to tricolor-leaved Pelargoniums, he would call attention to the principles on which their colouring depended. The original species from which they were all derived was the old Cape species Pelargonium zonal, of which he produced a specimen, in which the leaves were only slightly zoned. The first improvement on this was Fothergillii, which was a seedling, from which all the improved varieties around him had emanated. Variegation, he said, was really a disease; and in the vegetable kingdom everything abnormal in structure may be considered as the result of disease. Kohl Rabi, the useful portion of which results from an overgrowth of the stems, Radishes, &c., were cited as illustrations of this fact, even blanching was stated to be a species of disease, as was also the variegation in Tulips and other matters of that description. Diagrams showing the structure of the leaf of one of the best showy zoned Pelargoniums were then exhibited. If a vertical section of a leaf of the common zoned Pelargonium be placed under the microscope it will be found that beneath the colourless cells of the cuticle is a single layer of elongated prismatic cells which are perfectly green if taken from the unzoned part of the leaf, but are filled either with red or green matter if taken from the zone. Beneath these are several layers of more or less rounded cells, with spaces between, some of them containing air. The red and green matters are always contained in distinct cells, and the brown tint of the zone arises from the green rays passing through the red cells, the brown tint being more or less intense in proportion as a greater or less quantity of green prismatic cells is mixed with the red ones. In variegated leaves it is clear that if the border consists of a pure white, the red colour of any overlying cells will be very slightly, if at all, modified by the subjacent cells, which contain no chlorophyl; if, on the contrary, the border is more or less of a golden tint, the subjacent cells will have a tendency to make the red tint more or less flame-coloured, and where the variegation is not confined to the border, but radiates towards the centre, we shall have various tints according as the subjacent cells contain a greater or less proportion of chlorophyl; and if, at the same time, there is golden and white variegation, there will be a still greater variety of colouring. The red cells, it should be observed, as well as the green, when perfect, contain distinct grains with definite outlines in the general fluid mass, but in a section these are seldom distinctly visible, as if the slice is very thin, most of them are injured. Beautiful, he said, as were the plants exhibited, it might, however, safely be concluded that perfection in regard to these Pelargoniums had not yet been attained, and in illustration of this he exhibited a drawing of a leaf, in which occurred distinct zones of yellow, red, and green, without radiation, which he said it has been proposed by Mr. Moore should in future form a criterion by which the merits of these plants should be judged (see p. 515).

The Rev. Joshua Dix congratulated the meeting on the success of the Exhibition, the idea of holding which had first originated with Major Trevor Clarke. He mentioned that the Committee could give no certificates to yearlings, on which little dependence could be placed; they could only deal with plants sufficiently established to have their variegation fixed: and this he said would explain why some highly-promising seedlings, from Messrs. Carter and others, were passed over apparently without notice.

Major Trevor Clarke said, that when he had put together a few notes on the general phenomena of variegation in plants, he was not aware that the subject would be taken up by Mr. Berkeley; but as his own views were somewhat different from those of the reverend gentleman, he would state them. He then said—

Few who have been accustomed to roam about with observant eye through copse and dell, or by lake and river, in the sweet spring time, can have failed to notice the frequent occurrence of variegation in wild trees, shrubs, and plants. Whatever the nature of it may be, it is certainly not a special effect of cultivation. What is it then? a morbid state, as proposed by some? I think hardly so. Although in some cases accompanied by constriction of the leaf and tenderness of constitution, these conditions are by no means necessarily concomitant. Not a few plants in the variegated state are healthy and vigorous. The beautiful gold or silver Holly sprig, with coral berries, that decks our homes at Christmas tide, was gathered from a strong and healthy tree, as strong and healthy as those plainly clad in homely green. They do say the berries won't grow, but that we may have to discuss by and by. Again, the Sycamore, with leaf striped with silver or flecked and dusted with gold, is a lofty, vigorous, and healthy tree. Gardeners have but little to say against the general good constitution of our beautiful Queen of the May, Mrs. Pollock. She is of fair and noble presence, and like another monarch in our land, has given birth to a fair, noble, and numerous offspring. Mrs. Pollock still lives in the hearts of our gardeners as our own dear Queen lives in the hearts of her people. Say then, is this strange and certainly beautiful manifestation a healthy but rarely occurring natural phenomenon? It is not a normal one, for there is in such plants a constant tendency to recur to another form, which is more generally frequent than itself. Gardeners call it a sport, translating unconsciously the "Lusus Naturæ" of the old Latinists. It certainly appears more frequently as a bud formation than as a seed change. The late Dr. Lindley used to say that a bud and a seed were pretty much the same thing. The main difference is, that in the case of reproduction by seed like never—strictly speaking—produces like. I once made a very curious observation bearing upon this subject. A half variegated or Magpie Seedling Pelargonium grew into a plant, and in this plant I traced the unmingled lines of green and white from stem to branch, from branch to flower stalk, and thence to the seed vessel, which enclosed a parti-coloured seed. That seed again produced a pied offspring, of which one cotyledon was white and the other green. When a pure green line in this case passed up into the seed vessel, the seed was green and so was the seedling. A white stripe or line ruled in like manner the destiny of a pure white offspring. These latter never developed a second or true leaf pair; seedlings with golden seed leaves, however, produce perfect plants. Perhaps we should not be far wrong in considering variegation, at any rate symmetrical variegation, as an occasional natural state, and to class it with other unusual developments: as laciniations in entire leaved plants; red or yellow twigs where plain brown should be the rule; the abnormally rampant shoot lately observed on the Devonian Tea Rose, and the pigmy "Clanbrazilianized" branch occasionally seen mimicking a rook's nest high on the lofty Norway Spruce tree. I will not take up time in multiplying instances, but hope that I have sufficiently explained myself on this point. Closely connected with variegation or the partial absence of chlorophyl from the leaf, is the occurrence of striped or pure white flowers upon red, blue, or otherwise coloured plants. I find that the colouring matter, if white may be called a colouring matter (and in this case it is), is identical in both cases. It is probably the fact that both in white flowers and variegated leaves there exist yellow cells which become more apparent when the tissue is treated with an alkali. I believe the colouring matter is what chemists call luteoline. For fear of wandering into another and still more interesting subject, that of the colouring matter of flowers and plants in general, I will not now allow myself to soar into the regions of chemistry; I will merely remark that this subject has been partially investigated by several distinguished French chemists, and that I hope I may live to tell you some day what little glimpses they gained from their peep into Nature's wondrous laboratory.

I regret extremely that circumstances have prevented me from contributing more practically—I mean in the way of plants, and so on—to this most interesting exhibition, and that, for the same reason, I have not been able to put together a more detailed scientific note, or collection of facts on the subject. I have scarcely attempted this; my mission to-day being principally to place before you a subject upon which, I understand, several of my brother gardeners are prepared to give some valuable and interesting information. How well they have responded to our invitation to ventilate this subject I need not say. We reckoned upon a certain number of enthusiastic exhibitors, with a few choice plants, but they have come upon us like an army,—even like the Byronic Assyrian,

"Their banners are gleaming with purple and gold."

On entering the room this morning I found Judges and Committee in a state difficult to describe,—in a perfect *embarras de richesse.* It had evidently been raining Golden Pheasants and Golden Fleeces. Poor Mr. Dix stood there, looking like —like—Danae in a golden shower of Mrs. Pollocks.

Mr. Grieve, gr. at Culford Hall, near Bury St. Edmund's, who was introduced by Major Clarke, and to whose indefatigable industry we owe the first and best of the fine forms of tricolored Pelargoniums which now grace our gardens, then read a Paper as follows:—

The cause or causes of variegation in the leaves of plants, including of course the Pelargonium, are as yet I believe unknown: consequently, no means could be successfully used to produce it; but when from some unknown cause it spontaneously developed itself in an individual plant, then in accordance with the law or doctrine of hereditary transmission of qualities, little difficulty is experienced in inducing it to reproduce itself in succeeding generations.

The chemical or other changes, however, which must take place in a plant to induce its foliage to become variegated, present undoubtedly a very interesting subject for inquiry, and one worthy, it may be supposed, of the attention of the vegetable physiologists. I have at different times consulted various authorities upon this subject, without, however, being much enlightened thereby. Doctor Hope says: "That there is in plants a colourable principle consisting of two separate parts, one of which forms a red compound with acids, while the other forms a yellow with alkalies." And he attributes the green colour produced by the latter to the mixture of the yellow matter with the blue infusion. The two principles, according to him, may exist together or separate, in different parts of the same plant.

Dr. Balfour also says: "The whitish or brown spots which occur on the leaves are often produced by thickened cells containing peculiar colouring matter underlying the chlorophyl cells. In such cases variegations might be traced to an alteration in the epidermal cells, and the same is true of certain bright colours assumed by the surface of some leaves."

With regard to the leaf of the tricolored Pelargonium I have sometimes been inclined to think that the zone undergoes no change whatever when the leaf becomes variegated, or yellow margined, and notwithstanding the fact of red being one of the primary colours, consequently, according to theory, cannot be produced by any combination of colours. But covering as the zone does the junction of the yellow margin with the green disc, or centre of the leaf, we find that whatever part of the zone rests upon the yellow appears bright red, while the portion which may rest upon the green part of the leaf retains its normal or brown colour. The question now is, how is this red colour produced? For my own part I too hastily jumped at the conclusion that the brown and yellow had produced the red; but this, according to the theory of colour, could not have been the case. So I must leave the settlement of this

interesting question to those whose scientific knowledge may qualify them for the task.

Before proceeding to what was intended to have been the principal part of this paper, viz., the furnishing what little information I could as to the history of the tricolored Pelargoniums, I may notice a defect incidental to the Silver tricolored section, but without being able, I am sorry to say, to suggest a remedy. I alluded to the cupping, or crumpling of the foliage, more particularly when the varieties are cultivated in the open air, and if the weather is at all cold and wet. This crumpling appears to be caused by the fact of the white or colourless margins being unable to expand in proportion to the growth of the green, or central part of the leaf, consequently cupping or crumpling is inevitable; and very possibly this deficiency of expansive power in the white margins of the leaves may be attributed to the nearly entire absence of chlorophyl, or the green colouring matter: and that this defect does not in any way apply to the yellow-margined varieties may be accounted for by the fact that their yellow margins are not entirely destitute of this principle.

Some 20 years ago there were I believe but few varieties of variegated Pelargoniums in existence. Of these the two best fitted for the purpose of bedding or massing in the flower garden, were a sort known as Variegated Nosegay, and another called Mangles' Variegated Nosegay. Of the origin of the first named I know nothing. Of the latter I have heard that it was obtained by the late Captain Mangles as a sport from a green-leaved variety. This sport is well adapted for the purpose of bedding, and is still I believe extensively used for that purpose. The two varieties named above were both silver-margined sorts, with Nosegay, or very narrow-petaled flowers. The only golden-margined sort of any merit was the variety known as Golden Chain, and of its origin I am also quite ignorant, but I have been informed by an old gardener that he recollected having grown it along with a collection of stove plants nearly 50 years ago.

But somewhere about 17 or 18 years since the horticultural world was somewhat startled by the announcement of a Scarlet Pelargonium, having broad-petaled flowers and variegated foliage. This proved to be the celebrated and now well-known variety called Flower of the Day, and I believe that we are indebted to Mr. Kinghorn for the introduction of this forerunner of a highly ornamental race of plants. This variety was soon followed by others of increased merit, the production, I believe, of more than one successful raiser, amongst which the names of Lennox, Elphinstone, &c., deserve to be mentioned.

Amongst these new introductions the beauty of several varieties was greatly enhanced by having, in addition to their silver margins, a well defined red or pink zone, well defined and exceedingly beautiful when the leaves were in the early stages of their development.

These varieties, combining as they certainly did three distinct colours in their foliage, may with propriety be designated as the forerunners of the silver tricolored race. And to Mr. Kinghorn, I believe, belongs the credit of having originated the first of them, and the variety was, I think, named Attraction.

About the year 1855 or 1856 I had succeeded in originating several varieties which were considered as advances on their predecessors, the best of which however was the variety named Italia Unita, which in its class is perhaps unsurpassed. And about the time stated above it occurred to me that similar improvement might possibly be effected in the golden-margined varieties, which at that time consisted only of Golden Chain, and I think one or two other sorts inferior to the sort named. But at all events I confined my experiments to the variety I have named (Golden Chain), and after trying many experiments, many of them resulting in failures, I at last succeeded in originating two varieties which were considered as worthy of being distributed under the names of Golden Tom Thumb, and Golden Cerise Unique.

These were succeeded by Gold Pheasant, which was also in its turn eclipsed by the variety known by the name of Sunset. And in the following year I succeeded in raising the now well known variety, Mrs. Pollock, which was succeeded by Mrs. Benyon, Lucy Grieve, and lastly Lady Cullum, which is now being distributed by the Messrs. Henderson, and about which variety it is quite unnecessary to say that it will be sure to prove a public favourite. The great desideratum in a variegated Pelargonium is a vigorous constitution, and consequently the power of rapid increase by cuttings. And this quality is possessed in an eminent degree by the variety last named, and in a still greater degree by the variety which I had named Queen Victoria, which I consider to be in all respects the best I have ever raised, and on that account took the liberty of giving to it the name of her gracious Majesty. But since doing so I find that I have been forestalled, as the name appears to have been already assigned to another variety; but I think that I may still adhere to the name in the slightly altered form of Victoria Regina.

Soon after the introduction of the variety named Mrs. Pollock the attention of other cross-breeders appears to have been directed to this subject, and the consequence is that the number of tricolored Pelargoniums may now be said to be legion; and growers have ample opportunities of selecting and adding to their collections varieties of the greatest merit, including, of course, habit of growth, quality of bloom, &c.

In the pages of the *Gardeners' Chronicle*, &c., I have recently given the pedigree of the variety Mrs. Pollock, so that it is unnecessary for me to again repeat it here, but I may briefly state that all the Golden Tricolor Pelargoniums which I have originated have all descended from the well-known Golden Chain. I have also at various times tried sundry experiments with the variety called Mangles' Variegated Nosegay, without having been very successful. It is a sort which did not produce pollen freely, nor did it seed freely when fertilised by the pollen of other varieties; and even when it does appear to ripen seeds, they very frequently refuse to grow. I have, however, succeeded in raising a few seedlings from it, and one of them is known as Stella variegata, and was produced between a seedling Nosegay variety (raised from a very strong growing sort known as Mrs. Vernon), and Mangles' Variegated Nosegay. This variety (Stella variegata) greatly resembles sports which have at different times, and in various localities, been obtained from Beaton's Stella, although their origin, as I have endeavoured to show, is entirely distinct, and their flowers, it will also be observed, are of a different shade of colour.

Last year I fertilised blooms of a small-leaved seedling Nosegay sort, with well-defined zones, and which has been named Blackband, with pollen taken from Stella variegata, and one of the results is the Minimum variety, with very white leaf margins, which has been named Minnie Warren. Some years since, on the introduction of some of the better sorts of the white-flowered zonal varieties, such as Madame Vaucher, White Tom Thumb, &c., all kinds having well-defined zones, it occurred to me that if sorts with foliage similar to Mrs. Pollock, Lucy Grieve, &c., could be induced to produce pure white flowers, that it would be a very desirable acquisition. And I immediately set about experimenting in the matter, but found the process to be much slower than I had at first calculated upon; and I fear that if I were to attempt to describe all my experiments and failures, that it would justly entitle my paper to be considered as tedious and lengthy, if it be not already entitled to that distinction. But suffice it to say, that in four generations I succeeded in producing plants having golden tricolored foliage, and also in producing pure white flowers, but unfortunately accompanied by an exceedingly feeble constitution, and apparently a strong determination to leave this world as soon as they conveniently could, and which most of them succeeded in doing; still I managed at the same time to persuade a few of them to live, and one of them is now before you; it is named The Ghost, as it is only the ghost of what I wished it to be. But the first two points had been gained, viz., tricoloured foliage and white flowers; and the third point only is wanting, and that is vigour of constitution; and the first step towards that point is, I believe, successfully taken, and the proof of which is now before you in the variety named Eva Fish.

Two principles, it will be observed, had been active in tending to enfeeble or debilitate the constitutions of the white-flowered and golden tricolor race; that is, variegation itself, which always tends to diminish the vigour of any variety: and also what is called the "in and in" system of breeding, which is known to have a similar effect in the vegetable as well as in the animal kingdom. And the method I have adopted to throw fresh blood, as it were, into the race is as follows, and, as far as I can udge at present, I think that it is likely to prove successful:—

I selected one or two strong-growing silver-margined seedlings, having very light pink, or nearly white flowers; these I fertilised with pollen taken from Madame Vaucher, White Tom Thumb, and some other green-leaved, white-flowering sorts. Most of the progeny proved green-leaved; a few, however, showed variegation; but I selected a few of those which showed no symptoms of variegation whatever, and when they bloomed they nearly all proved to have white flowers, and these I fertilised with pollen taken from the variety named The Ghost; and the result of this cross is the plant named Eva Fish, and one or two other promising seedlings, which I have little doubt will produce white flowers.

It would appear that because the hand of Science has not directed such experiments as I have endeavoured to record above, scientific men hardly feel inclined to assign to the rough and ready cross-breeder the amount of credit which he may possibly consider as due to his exertions. Professor Morren in treating upon this subject says that the cause that operates in the production of such varieties as Mrs. Pollock, Sunset, &c., is a multiple or complex one; and draws attention to the apparent diversity of the origin of such plants, and to the simultaneous appearance of similar forms in different localities in England, in France, and in Belgium. Now, all this I believe to be incorrect, and to be an instance of conclusions being arrived at without trouble having previously been taken to ascertain the facts. I believe, in common with most growers and raisers of these plants, that no Golden Tricolored Pelargonium deserving of the name existed antecedent to Mrs. Pollock and Sunset; and if any similar varieties originated simultaneously, either in this country or on the Continent, let me ask where they are to be found, or what has become of them? M. Morren further says—"These varieties are not the result more or less directly of man's agency, nor of this or that operation of the cultivator, but they are the indirect but inevitable natural and spontaneous consequences of the mode of development belonging to the species when grown under artificial circumstances, &c." Possibly we may be told some day that St. Paul's Cathedral was a spontaneous production, independent of man's agency, &c.; and some, perhaps, may be found to believe it.

For my own part I believe that the Pelargonium is grown at present under much the same artificial circumstances as it was grown a hundred, or, possibly, two hundred years ago; and our great-grandfathers might have enjoyed the luxury of bedding-out tricolored Pelargoniums in the summer of 1767 in precisely the same way as their descendants are doing at the present time had their tastes led them in that direction, and if the idea had occurred to them to use the means at their command.

As I have said before, I believe that the cause of variegation is unknown, and consequently cannot be produced; and the cross-breeder does not for a moment presume to say that he can control Nature. All that he can do is to watch her closely, and when he perceives her in the least degree inclined to tread the path he wishes her to pursue, he can, as it were, smooth that path and render it as inviting as possible. He may, perhaps, even go a little further, and policeman-like touch her gently on the shoulder, and respectfully request her to move on. More than this he cannot do, for what the Poet has said with regard to Nature's fairest production will also apply to Nature herself—

"For if she will, she will, you may depend on't;
And if she wont, she wont; so there's an end on't."

I have stated that the pedigree of the Pelargonium Mrs. Pollock was made public in the pages of the *Gardeners' Chronicle*, &c. But as some who may read, or hear this paper read, may not recollect the particulars, I will again briefly state that the seed parent of Mrs. Pollock was Emperor of the French, and the pollen parent Gold Pheasant. The seed parent of Gold Pheasant was also Emperor of the French, and the pollen parent Golden Tom Thumb. The seed parent of Golden Tom Thumb was Cottage Maid, and the pollen parent Golden Chain.

As to the parentage of some of my seedlings of the present and last years, I am unable to give any information, as in most instances both parents were themselves seedlings, and many of them have not been preserved.

Mr. Wills, gr., Huntroyde Park, near Burnley, Lancashire, next gave some illustrations of the manner in which sports of variegated Pelargoniums become fixed, and said that although he intended to have read a paper on the origin of variegated Pelargoniums, as Mr. Grieve had touched on many of the same points he would not occupy time by reading it, but it would appear in the Society's Proceedings.

Mr. Chater then at some length stated his views as to the causes of colouration in Pelargonium leaves.

Mr. Bateman followed with some observations on the Orchids which were exhibited. He had heard it often remarked that these occupy too much attention at these Tuesday meetings; but his friends Mr. Dix and Major Clarke had on this occasion had a magnificent revenge, for he was quite overwhelmed by the golden shower of Zonal Pelargoniums that they had brought upon him. Cattleya citrina, of which Messrs. Low again exhibited a collection, had, he said, a tendency always to grow downwards, and he pointed out the singularity of the pseudo-bulbs, which are, as it were, wrapped in silver paper. The plant lasts quite a month in flower, and he never saw a more remarkable sight than a regiment of it, nearly a thousand strong, which he had met with at Messrs. Low's. It was an Orchid with which dry and cool treatment agreed. Cypripedium caudatum, from Mr. Bull, with tail-like appendages nearly 2 feet long, next occupied attention. For Cypripediums with tails we are indebted to America; but kinds possessing most beauty we obtain from the East, and foremost among them in that respect was C. lævigatum, a fine plant of which was exhibited by Mr. Buller. Dendrobium MacCarthiæ was also shown for the third time; it was now arriving at its full maturity, and Mr. Wentworth Buller had informed him he had seen imported specimens of it with as many as 12 spikes of flowers; and very few Dendrobiums, indeed very few Orchids of any kind, would be able to compete with it when it shall have become better established. He had next to notice a little gem, viz., Oncidium nubigenum, so called from its living almost in the clouds, for it was found in Ecuador, at an altitude of 12,000 to 14,000 feet—a greater elevation than ever attained by any other Orchid. It had gone under the names of O. Dennisonianum and O. Phalænopsis; but Prof. Reichenbach, after careful comparison and examination, had proved that the plants to which these names had been applied were nothing but the O. nubigenum of Lindley, for which O. cucullatum had been mistaken. A beautiful group of Lælia purpurata from Mr. Buller, and wreaths of Bougainvillea spectabilis, shown by Mr. Bull, were then noticed; the latter, it was remarked, came from Cliveden, where this plant is most successfully managed by Mr. Fleming. Mr. Bateman then announced that Mr. Anderson of Meadow Bank, near Glasgow, was the successful competitor for his prize offered for the best list of Orchids arranged according to climate, winning by about 20 marks, and that Mr. Wentworth Buller was second. There were five competitors, and some of the lists contained some 1200 or 1300 names of Orchids that either are or have been in cultivation. After mentioning a Sarcopodium which was said to exist in New Guinea, as a plant which it would be desirable to introduce on account of the size of its flowers, which are said to be 8 inches in diameter, attention was directed to the Japan Flax, sold by Mr. Alison, and which whilst resembling bass matting is much stronger. Mr. Bateman considered it much superior to matting for tying purposes. A handkerchief made of its fibre was also shown to the meeting; in appearance it looked like a mixture of silk and cotton. Mr. Bateman concluded by announcing that the subscription to erect a memorial to the late Mr. Skinner had already produced a considerable sum, which would be stated at the next meeting, by which time the subscription list would be exhibited in the room.

Major Clarke said that Mr. Bateman ought not to complain that Orchids had been treated coolly, since he himself was always advocating cool treatment for them.

Mr. Wilson Saunders said that the use of the term Tricolor Pelargoniums was botanically incorrect, and exhibited a plant of Pelargonium tricolor to which alone the name should apply. Versicolor or parti-coloured Pelargoniums would, he thought, be a better name; indeed the best of the so-called Tricolors exhibited not three but four colours.

May 21 (*Floral Committee*).—Of tricoloured Pelargoniums there was, as has been already stated, a magnificent assemblage; but owing to the great similarity which exists among them, those to which Certificates were awarded were comparatively few. Messrs. E. G. Henderson contributed collections, in which we noticed fine specimens of Lucy Grieve, Sophia Cusack, Lady Cullum, Sophia Dumaresque, Sunset, and Italia Unita. To Sunshine, which has a yellow edge and a showy flamed deep crimson zone, was awarded a First-class Certificate. From the same firm came also a collection of miniature Tricolors, both golden and silver-edged, most of them not exceeding 4 inches in height, and consisting of Golden Pet, The Bride, Jenny Wren, the Fairy, Queen's Favourite, Little Dear, Little Pet, Minnie, Tom Tit, Little Harry, and one or two others. Mr. Wills, gr. at Huntroyde Park, Burnley, also had a very fine collection of new sorts, having for the most part large bold leaves, broadly zoned with reddish brown. Of these Beauty of Ribblesdale was very conspicuous. It has large foliage, with a showy vandyked reddish bronze zone on a yellow ground. This received a First-class Certificate, as did also Her Majesty, a vigorous-growing kind, of a yellowish brown, with a very broad even deep brown zone. Messrs. Garaway & Co., of Bristol, had a number of good varieties, both bronze-leaved and tricolor; of the latter, Mrs. Allen, which received a First-class Certificate, has nearly circular leaves, with a narrow golden edge, and a regular crimson zone, which in the young leaves is very bright. From Messrs. Carter & Co. came a collection of seedlings, remarkable for robust growth and striking colour, but to which, for reasons already stated, no award could be made. One named Prince of Wales, with reddish-purple leaves 5 inches across, with a broad yellow edge and a very broad zone, is especially promising. Mr. Grieve had a very fine collection, the gem of which was a variety called Victoria Regina, to which allusion is made above, and which we believe was at one time called Mrs. Grieve. This beautiful variety deservedly received a First-class Certificate. Minnie Warren, with a broad white edge, was also very pretty.

A beautiful tricolor named Lord Stanley, from Mr. Groom, of Ipswich, received a First-class Certificate, as did also Sunrise, from Messrs. Saltmarsh & Co. The latter has a compact neat habit, and is otherwise a variety of first-class merit. Crown Jewel, from the same exhibitors, is also a fine kind, apparently more robust in constitution than that just named. Mr. Watson, St. Alban's, furnished his fine kinds called Mrs. Dix and Miss Watson. First-class Certificates were given to Jetty Lucy, Magnificent, and Resplendent, shown by Messrs. F. & A. Smith; and to Prince Leopold, from M. Langlois of Jersey. Perkins' Queen Victoria was exhibited, but not in sufficiently good condition to receive any award. It is stated to have been raised between Wonderful and Mrs. Pollock. From Mr. Chater, of Cambridge, came a group, in which was Senior Wrangler, a variety raised between Mrs. Pollock and Woodwardianum. Collections also came from other raisers. A silver-edged Ivy-leaved Pelargonium, suitable either for edgings or baskets, came from Mr. Cunningham, The Forge, Burton-on-Trent, and a purple-edged example of the same variety of Pelargonium, to which a First-class Certificate was awarded, came from Mr. Wheatley, gr. to the Rev. A. Clive, Whitfield, Hereford.

Of other plants Messrs. Veitch exhibited a fine collection, in which Dichorisandra mosaica, Dracæna regina, Adiantum concinnum luteum, Retinospora filifera, and Maranta illustris, received First-class Certificates; and Dichorisandra undata, a Second-class Certificate. Mr. Bull, who had also a good collection, received First-class Certificates for Anthurium regale, Dichorisandra mosaica, and the handsome spreading Zamia villosa, and a Second-class Certificate for Dichorisandra undata. For a pretty Golden Elm, from Mr. W. Paul and Messrs. E. G. Henderson, a First-class Certificate was awarded to both exhibitors. W. W. Buller, Esq., received a Special Certificate for fine examples of Lælia purpurata, and other Orchids. From Mr. Wilson Saunders also came a collection of curiosities in the way of Orchids and other plants. Mr. Sherratt, gr. to J. Bateman, Esq., also showed Orchids. To Messrs. Osborn & Sons was awarded a First-class Certificate for a new variety of the Royal Fern (Osmunda regalis acutiloba). Messrs. Backhouse and Osborn showed the little pale blue Viola pedata, and a little tree of what is called Silver-variegated Deodar was exhibited by Messrs. Maule & Son, of Bristol, who also furnished a group of Zonal Pelargoniums. Mr. Williams, of Holloway, contributed a group of fine foliaged and flowering plants.

May 21 (*Fruit Committee*).—Prizes were offered for the following subjects:—1, The best three dishes of dessert Apples. In this class there were three exhibitors—Mr. Lynn, gr. to Lord Boston; Mr. Whiting, of the Deepdene; and Mr. Cox, of Redleaf. Mr. Lynn and Mr. Cox each showed two collections. The 1st prize was awarded to Mr. Whiting for Adams' Pearmain, Mickleham Pearmain, and a variety not named, but which was similar to Federal Pearmain. Mr. Lynn was 2d with Scarlet Nonpareil, Golden Knob, and Cockle Pippin. Mr. Curd, gr. at Sulhampstead House, Berks, obtained a 1st prize for three dishes of Strawberries. They were fine fruit and in good condition, consisting of Reeves' Eclipse, Marguerite, and Sir Harry. For the best dish of Cherries, Mr. Lynn took a 2d prize with Frogmore Early; and Mr. Tegg was awarded a 1st prize for a splendid dish of Bellegarde Peaches, from the Duke of Newcastle's garden at

Chamber. Mr. Pearson, of Chilwell, exhibited a dish of Walnuts that had been kept in fine condition by Mrs Hetley, of Orton, near Peterborough, for two years and five months, to which a Special Certificate was awarded. The method adopted is to allow the nuts to fall naturally from the tree, then dry them in the sun and wind, and afterwards to hang them in bags in an attic. Mr. Cox, of Redleaf, also received a Special Certificate for a collection of six kitchen Apples kept in fine condition. Mr. Short, gr. to Lord Ewersley, Heckfield, sent fruit of the curious Cerasus Pseudo-Cerasus. It is a small Cherry of a yellowish pink colour, with a hooked beak at the apex, and in some instances grows in pairs on one stalk, like the Cluster Cherry and Bigarreau Legrey. The flavour is flat and acid.

Florists' Flowers.

THE great congregation of Variegated Zonal Pelargoniums assembled at South Kensington on the 21st inst., extensive as it was, did not altogether crowd out some other NOVELTIES of great interest, that for the time were content to be subjects of minor consideration. Foremost among these was Mr. Kinghorn's beautiful new Azalea Lizzie, that was awarded a First-class Certificate. The flowers are large, bold, stout, and of fine form, the colour white, flaked with rosy carmine: and though the style of the plant as shown did not allow much room to judge of the merit of its habit, it is yet a very free-blooming kind, and will make a first-class exhibition flower. The pretty little North American Viola pedata, which came from Messrs. Osborn & Sons, of Fulham, had all the attractions of a new plant, because so very rarely seen, though introduced upwards of a century ago. The flowers are deep lilac, which becomes paler with age; it is very dwarf, and blooms profusely, but does not continue long in flower. It is, however, a pretty and effective plant for rockwork.

Some new Pelargoniums of the large flowering section, raised by Mr. G. W. Hoyle, of Reading, were shown by Mr. Turner. It has been urged as an objection to these new Pelargoniums that, as shown, the habits of the plant are invariably spare and wiry. It should however be remembered that the plants are grown on without "stopping," solely for the head of flower, for the purpose of producing them at the exhibition table, and that if they were "stopped," as is usually the case in the young plants, they would become branching, and consequently of closer and dwarfer growth. First-class Certificates were awarded to Example (Hoyle), a flower of very fine shape and quality, the lower petals rosy pink suffused with violet, intense dark blotch on upper petals, bordered with fiery crimson, and margined with a slight edge of violet, a conspicuous white centre, very free-blooming, with bold effective trusses; and to Victor (Hoyle), a very fine spotted variety, rosy pink, lower petals heavily suffused with carmine, and blotched and pencilled with rich dark, upper petals glossy dark, with narrow margin of rosy crimson, white centre, the flowers bold, showy, and of fine form, and the habit good. A Second-class Certificate to Heirloom (Hoyle), a large and bold flower, with lower petals soft pale rose, dark top petals, bordered with fiery crimson, conspicuous white centre; a fine exhibition variety. Another spotted kind was Patrician (Hoyle), having bright rosy carmine lower petals, pencilled and slightly spotted with dark, and having a very narrow edge of pale violet; upper petals glossy dark, with very narrow edge of deep rosy crimson: a fine and effective flower, which should be seen again, as the truss was too small to judge accurately of its qualities. Two very free-blooming Fancy kinds were shown by Mr. Turner, viz., Fanny Gair and Excelsior, both light flowers, very free blooming, but wanting form and smoothness; and another named Leotard, having large rosy carmine flowers suffused with violet, the flowers large, but wanting outline and smoothness.

A group of Zonal Pelargoniums was shown by Mr. Bull, and among them one named Valiant, the flowers of a rich hue of vivid orange scarlet, the pips being very smooth, stout, and of fine form, but too much reflexed, the trusses were also very small.

Messrs. Downie, Laird, & Laing, received First-class Certificates for two splendid pink Nosegay varieties, viz., Countess of Rosslyn, bright violet pink flowers, smooth and stout, large bold trusses, very effective, plain foliage, habit dwarf and compact; and Emmeline, a delicate and beautiful shade of blush pink, pips stout and smooth, truss large and bold, and excellent habit. These two fine varieties were the result of a cross between Lord Palmerston Nosegay and Rose Rendatler. Marksman was another fine Nosegay variety, the result of a cross between King of Nosegays and Rose Rendatler, and had large trusses of vivid cherry crimson flowers, and good zonal foliage. Mr. Paul had a First-class Certificate for a dwarf rosy lilac Nosegay, called Lilacinum. He also exhibited a large plant of Nosegay Crimson Queen, a very striking shade of colour, very vivid deep crimson, a free bloomer, having good zonal foliage; also several plants of the gold leaf variety Ossian, the trusses of bright scarlet flowers contrasting well with the yellow foliage; Troubadour, flowers somewhat loose, but very showy—cherry colour, suffused with purple, zonal foliage; and Blue Bell, a beautiful shade of violet, or bluish lilac, flowers large and stout; a distinct and pleasing variety.

In a collection of Zonal and other Pelargoniums from Mr. John Mann, of Brentwood, was a plant that bids fair to rank as the premier Zonal Pelargonium of the year. It was named Lord Derby, and received a First-class Certificate. The foliage was dark green, with a well defined dark zone, the flowers intense scarlet of a very bright shade, large, and of very fine form and substance; trusses fine, and habit excellent. This will make a valuable and effective exhibition kind. A Second-class Certificate was awarded to Mr. Mann, for Christabel, having good zonate foliage, with large rosy-salmon coloured flowers suffused with violet, stout and smooth, and the plant of excellent habit.

Messrs. F. & A. Smith also had a collection of Zonal Pelargoniums, mainly of varieties of their own raising. They were of remarkably good quality, though no award was given in this collection. A very free-blooming variety in the large-flowered or show class, with medium-sized white flowers, the upper petals marked with rosy crimson, was shown by Messrs. E. G. Henderson & Son. It was named Empress, and appeared as if it would make a good forcing kind. The flowers were crumpled, and yet this very defect imparted to it a real attractiveness. A double-flowered variety of the French class had mottled crimson and pale-coloured flowers, which may, perhaps, prove useful to cut from, as the flowers do not fall to pieces so readily as the single kinds. Incomparable was a single variety received from France, having flaked carmine and white flowers, very peculiar, and which will probably prove of great use to breed from. A Pelargonium of the old Tricolor race, with its showy white and purplish crimson flowers, was also contributed from the Wellington Road Nurseries. *R. D.*

The Apiary.

BEE CULTURE: RANDOM NOTES.—Having been much engaged during the early months of this year, I was unable to give my hives the attention which I have always hitherto afforded them. As soon as the bees show vigorously at work in carrying pollen, every bar or frame hive is examined, the combs and bees being transferred into clean, dry boxes with clean floor-boards and covers. At the same time the presence of the queen is ascertained, and note taken of the quantity of brood and strength of the population. The amount of stored food is also noted, and if deficient, feeding is resorted to. Having a few surplus hives, I proceed with the work of transference by doing two or three stocks on one day: the boxes, boards, &c., which have been in use are thoroughly cleaned and dried, and on the next favourable opportunity are again made use of to do duty for another shift. So, in the course of a week or 10 days, 20 stocks may be easily gone through. It is remarkable with how much more energy the bees seem to be inspired after this assistance in the cleansing line. The presence of an accumulation of dirt, and debris of the covers of unsealed combs, mixed with bad pollen and the nibbled away particles of mouldy combs, all saturated with moisture, is a source of very great discomfort to the bees, tending to make them listless and comparatively unprogressive. Until the population becomes very strong, and the season hot and dry, so that the moisture within the hives is completely dried away, the bees are quite unable to grapple with the abominable mess, and to carry it off in minute particles.

For the operation of shifting combs and bees from one hive to another, a mild, dry day must be chosen, and the affair carried through as expeditiously as possible, to prevent either the bees or the brood becoming chilled. The box into which the combs are being shifted should be placed on the usual stand, that returning bees may at once enter the domicile where they are to remain.

Soon after the breaking up of the great frost in January, I examined three or four hives, which had succumbed. In one or two cases the combs contained a sufficiency of stored food, but the population seemed to have perished from starvation combined with cold, although surrounded by plenty, probably being unable to leave the centre, where they were closely huddled together, to shift their quarters to other combs. So sensible are the Germans and Americans of the possibility of this contingency that they frequently cut channels through the middle of the combs to allow of easy passage from one to another. It is, however, seldom necessary to adopt such a plan in our milder climate.

Some of the moribund hives perished from sheer starvation, notwithstanding that they were all most liberally supplied with food in the autumn. The consumption of stores during the whole season, but particularly during the period of intense cold in January, must have been enormous. Food is fuel, and the greater the cold the more fuel required to sustain the temperature necessary to existence.

Since the early part of February, other hives in my home apiary would have perished had I not resorted to timely feeding; while in an apiary at a distance in the country, to which I was unable to give the required supervision and assistance, some hives, which were then alive, have been lost.

Having lately been able to accomplish in some degree what, in the way of cleansing hives, ought to have been effected long ago, I have been particularly struck with the evils of negligence in this respect. In some hives the accumulation of saturated refuse was very great. In one case the heap was perforated by the larvæ of the wax moth, which had left their spun passage ways behind. In others, families of woodlice were in quiet possession; and in another hive, a large spider was comfortably quartered in a snug corner of the interior, with his web attached to the end comb and the side of the box. The number of carcases proved that the rogue had made good use of his or her opportunities. The bees seemed to endeavour to keep as far away from their enemy as possible, and had evidently suffered considerably by its ravages. Although in possession of a very fine queen, the hive appeared so little likely to recover to much purpose during the present season, that I did not hesitate to unite the bees and brood-combs to another colony.

THE LATE MR. CARPENTER'S BEES.—Mr. Carpenter, one of the great bee-masters of Hampshire, died a few days ago. He had 200 stocks. He and his family have resided at Godfrey's Farm, at Beaulieu, in the New Forest, for upwards of a century. *Western Times.*

COTTAGERS' CONDEMNED BEES.—Almost, if not quite, the strongest and most prosperous colony of bees I am at present acquainted with, is a condemned lot which I drove out last autumn from a hive destined for the sulphur pit. These were transferred into a bar hive, furnished with empty combs, the bees of which had died during the summer. They were fed on boiled sugar in sufficient quantity to enable them to go safely through the winter. It is now a most promising stock. *S. Bevan Fox.*

Garden Memoranda.

BELVOIR CASTLE GARDENS (*concluded from p. 522*).—There is a range of Vineries at Belvoir about 3000 feet long, divided into six compartments, varying in width from 17 to 21 feet. The whole are cultivated on what may be termed the restrictive system, if that term can properly be applied to such long rods as the width of these houses demand. Each Vine, is however confined to a single rafter, and instead of meditating an extension of top, Mr. Ingram is now engaged in doubling the number of the roots to each individual Vine. Some of the Vines are planted inside of the houses, with free access to the outside borders. These have not only more roots than those wholly planted outside, but the two sets of roots are excited to action at somewhat different periods in the growth of the Vines.

But those Vines that are planted outside have only one great supply of roots, and to these Mr. Ingram is engaged in supplying a second-fold root power. For this purpose he has formed borders, and planted young Vines inside the house. These are to be inarched on young shoots, near the bases of the present Vines. When thoroughly established the present rods will be cut out, and replaced by these inarched rods, that will be endowed with a double root power. Such is the practice for which I prophesy abundant success. The theory lies in a nutshell, thus:—Well-ripened Vines will break, show, flower, and swell up to the process of stoning, with but a very limited supply of fresh food from the roots. It is important, however, that they should not only pass through these preliminary stages without exhaustion, but that they should acquire fresh vigour at every step of their progress. Hence the importance of having some roots to act in advance of, or at least simultaneously with the tops. This is the service performed by the inside roots. Then just when the great tug of war, the stoning, the second swelling, and colouring period arrive, the outside roots have just gathered up their energies for active service, and they forthwith send such a supply of food to the front, that the berries are distended almost to bursting, the seeds are perfectly matured, the colour laid on in the highest perfection, and that inimitable finish of form, colour, and flavour imparted which is the glory and delight of Grape growers. The surplus energy, if I may so designate it, is packed away in hard solid brown bundles, or buds, for use another season. Now, had these outside roots been stimulated into languid action at first, or had they withheld their supplies until the economy of the Vine had become enfeebled, it is obvious that such results could not have been obtained. And I look with confidence to the double-root system, so happily initiated by Mr. Ingram, as probably affording a solution of most of those difficulties that meet and often master the cultivator in the last or finishing stages of Grape growing.

We turn from Grapes to Mushrooms. These are largely grown here in back sheds; and the mode of culture is peculiar. First of the material. This consists mostly of horse droppings mixed with straw collected from the covered exercise house at the stables. The beds are formed of about the usual depth on the floor of back sheds against the wall. Along the front of the bed a sunk flue is carried, which economises the heat that would otherwise be discharged through the chimney. The beds are covered with wooden shutters that proceed from the back wall, and rest upon either a wall or slab of wood beyond the flue. This simple arrangement ensures sufficient warmth and obviates the necessity of any other covering for the beds. The Mushrooms soon spring up and a plentiful crop is gathered. Up to this point there is excellent but not exceptional culture. As soon however as the produce begins to fail, the beds are allowed to become rather dry, and are then stimulated to fresh production by the following treatment. They are thoroughly watered with strong manure water made from horse or cow's droppings. And into every 4-gallon can of the water a good handful of common salt is thrown, and well stirred into and dissolved in the water, and applied with it. The Mushrooms spring up as if by magic, and the same bed is renewed several times in this manner. Nothing could exceed the productiveness of the bed that was in bearing at the time of my visit, which, I understood, was producing its third crop.

I had previously tried manure-water with good results; but confess that I should have dreaded salt almost as much as lime, which is fatal to most forms of fungus life. Mr. Ingram, however, values the salt more than the manure, and says it will stimulate the growth of Mushrooms in meadows as well as in-doors. He also added that the French have long used saltpetre as an aid in Mushroom culture, but that he never derived much benefit from it; but that salt is a sure stimulant for exhausted beds, and a certain producer of Mushrooms. I have already tried it in a bed in full bearing, and also on an exhausted bed, with the best results, and advise your readers to do the same and report progress through your columns. Mr. Ingram also thinks that the salt improves the quality and flavour of the produce. The whole subject is full of interest, and opens up almost untrodden cultural, chemical, and physiological fields of inquiry. Possibly it may turn out that the urine of animals, from the salts they contain may prove almost as useful as stimulants to Mushrooms as their droppings seem to be essential to their production.

Entering the kitchen garden, we obtain at a glance some striking proofs of the value of science to practice.

Mr. Ingram's favourite sciences are meteorology and geology. His knowledge of the former appears in the number, quality, and skilful disposition of the instruments for measuring with exactness the temperature, moisture, motion, and weight of the air. And his acquaintance with the latter is seen in his persevering efforts to alter and improve the entire staple of the kitchen garden. His chief renovating or ameliorating forces are burnt earth, charred refuse, and a modicum of the clay subsoil, the latter being used with the greatest caution. Only a thin sprinkling thrown on the surface at the winter digging, and thoroughly pulverised by the winter frost being used in conjunction with burnt earth or charred refuse. Trenching on the usual topsy turvy style would be absolute ruin to this garden, as the surface soil is a strong unctuous loam, and the subsoil is heavy, dead, unmanageable clay. But by caution and perseverance the surface is being deepened and lightened, until most crops are produced in great perfection, and even fruit trees are well grown. Many of these latter, however, have a special soil provided for them thus:—Spaces about 3 feet square and from 2½ to 3 feet deep are dug clean out and removed. The bottom is closely paved or solidly concreted, and the sides built up with 4½-inch brickwork. One or two holes are left near the bottom, so that the roots may be allowed at some future time to enlarge their feeding space if desirable. The position of these holes being known, the excision of the outside roots becomes a very easy matter. But the chief object is to confine the roots to these large brick pots. They thus escape the chilling influence of the clay subsoil; form fibrous instead of gross feeding tap-roots, are kept near the surface, can readily be protected from an excess of rain by covering the top with two boards, and thus, without the disturbing operation of root pruning, the trees become a mass of fruit buds, and produce excellent crops. Similar expedients, high planting, paring the bottoms for the roots, and entire removal of the soil from the borders, have also been found necessary for the wall trees, which are now in robust health and great beauty. In fact, in spite of an ungenial soil, fruit culture is carried out with great success at Belvoir both in the gardens and in several fine Orchards, and a very extensive choice collection of fruit is grown. I observed that the Apricots are protected with wooden shutters hung on to hooks from the top of the wall, and kept clear of the trees by iron spikes projecting a foot or more from the wall towards their lower ends. The labour of their daily removal must be considerable, but of their power of resisting any amount of frost there can be no doubt whatever. Several of the wall copings, which are very wide, are also provided with water troughing—a point of great importance, alike for the protection of early blossoms, and the preservation of late fruit, such as Cherries, &c.

The anti-stake method of Raspberry culture deserves a passing notice. Mr. Ingram has taught the canes self-reliance, and educated them into standing alone without any support whatever. The stools are planted in rows 7 feet apart, and 5 feet from plant to plant. As many as from 15 to 20 canes are left to each stool, and they are shortened back to from 2 to 3 feet in height. Treated in this manner the produce is enormous, and of fine quality; and yet the canes support their burdens without touching the earth. The pruning is well nigh confined to the removal of the previous year's growth, as most of the young wood is left to perform its natural function of producing a crop of fruit. Looking at the promising character and number of these canes, one can only congratulate the Raspberry upon its deliverance from the galling slavery of reckless reduction and harsh stiff tieings to stubborn stakes.

Mr. Ingram is also a great Potato grower, a believer in Paterson's varieties, and in surface culture as an antidote to disease. Paterson's Regent and Victoria are largely grown, and their hardy vigorous constitutions have hitherto resisted the inroads or mastered the insidious power of the disease. The Potato ground is laid up to pulverise as early as possible in the autumn. At planting time shallow drills an inch deep are marked out on the surface of the ground at intervals of 30 inches. A liberal dressing of burnt earth and charcoal is strewed along these tiny drills. Upon this the Potatos are placed whole. Then the surface soil on each side is drawn on to the top of the sets in sufficient quantity to render any further earthing up unnecessary, and the planting is complete. The advantages of this are that the Potatos are placed in direct contact with only the best and warmest portion of the soil; they are as far as possible removed from the influence of the cold subsoil, and placed beyond the chilling reach of stagnant water. This system has been tried in wet and dry seasons at Belvoir, the whole crop being grown in this manner, and the result both in quantity and quality has been highly satisfactory. It can therefore be recommended with the utmost confidence to all who have to grow Potatos on unctuous loams or clayey soils. On light spongy lands, or with chalk, sandy, or gravelly subsoils, surface-planting might unduly expose the crop to the inroads of drought.

Altogether the kitchen gardens at Belvoir, while replete with cultural interest, are of regal dimensions. They contain about 8 acres within the walls, besides extensive slips outside, and three large orchards on the sites of old gardens. The walls average from 13 to 14 feet in height, and are surmounted with a massive stone coping, 2 feet wide. The main walks intersecting the garden are 18 and 12 feet wide; they are approached from the pleasure grounds by a magnificent straight walk proceeding from the dairy. The three main entrances are through massive gothic arches, adorned with beautiful chaste towers, which accord well with the massive grandeur of the place, and the style of the Castle itself.

But with a hurried look into Mr. Ingram's geological museum—so rich in fossils, strata, soils, &c.—where the horticulturist might spend a profitable day or two, and after once more sharing his cordial hospitality, I regretfully turned my back on Belvoir. The one great lesson these fine gardens teach beyond all others, is the charm of congruity. The Castle is imposing, the site commanding. Art has done much, Nature perhaps more, for the embellishment of the place; the kitchen gardens are grand; the spring gardens fairy scenes of brilliance, and sweetness; the woods are vocal with the hum of life, and echoing with the sweetest melody; the distant prospect embraces in its wide sweep the greater portion of three or four fine counties,—and all these are sources of satisfying pleasure. But the chief charm after all is, that everything seems to be just where it ought to be. It could not look so well anywhere else. Remove any one feature of the place, and an aching void would be left, which a sense of want would crave to have instantly filled up. In one word, here art has linked her arms so closely around Nature, that the two have grown up together into one harmonious whole, without a discordant note between them. Higher or more truthful praise to the past and present artists who have left their marks, or are imprinting them now upon the gardens and pleasure grounds at Belvoir, few could desire and none give. *F.*

Garden Operations.

(For the ensuing week.)

PLANT HOUSES.

Plants of *Victoria regia*, which should be now fairly starting into growth, must not at first be kept buried too deeply under water; as, owing to becoming drawn, they thereby lose much of their proper robustness. The apex, or growing crown of the plant, should not be more than three or four inches below the surface, until about two pair of leaves are formed, after which it will be well to encourage rapid growth, by gradually habituating it to all the depth possible. The same remarks apply with equal force to *Nymphæas*, and most others of that class. Use every possible means to keep the water in the tank in a constant state of agitation, bearing in mind the fact that aquatics, like other plants, are equally benefited by constant motion of the elements which surround them. I have found nothing better for the purpose of keeping the surface of large tanks constantly in motion, than a vessel in the form of the balance, or flour-hod, used in a general way for weighing flower or meal; this, made with a nicely adjusted balance, should be hung up under the roof over the tank, a small water pipe being so fixed as to run directly into it, constantly if required. When filled, it will by overbalancing itself, shoot its contents abruptly down into the tank, and as quickly, when emptied, right itself again, to be again emptied when required. *Pancratiums* which may have flowered, if in need of a shift, should have it now. They should be potted firmly in an admixture of three parts good loam with one of leaf mould and a little silver sand, and, if convenient, should afterwards be plunged into a slight bottom heat. If it should be necessary to enlarge the stock, offsets might be removed, where they exist, from around the base of the older bulbs.

FORCING HOUSES.

Do not omit all necessary stopping, tying, and arranging the young growths in *late Vineries*, as the Vines grow quickly now, and need frequent attention. In thinning out the berries upon bunches of Royal Vineyard, Trebiano, West's St. Peter's, and Hamburgh Grapes, intended for use from December onward, do not overlook the fact, that if left too thick they will, when fully grown, be the reverse of what is needed to ward off the damps of winter. Cut freely away, therefore, in order that air may be evenly diffused throughout the bunches. Be careful not to load the Vines with too great a crop, as it is only by the formation of well-matured fruit that a good and long hanging crop can be secured. *Stone fruits*, generally, will be much benefited if, at the time of stoning, or just anterior to that event, the plants receive a copious supply of liquid manure; if a good syringing be given to the upper parts at the same time, it will be all the better. *Pines* generally will soon need shifting, prepare therefore a plentiful supply of the necessary soil for that operation as previously advised.

HARDY FLOWER GARDEN.

Finish staking *Carnations*, *Pinks*, and *Picotees*, and so secure the spindles that no injury may befall them. Transplant seedling *Pansies* as frequently as any have fully occupied the spaces allotted to them individually; they like a soil containing an abundance of well-decomposed leaf-mould, more especially at this their earlier stages of growth. Secure each plant firmly at the base, thus to encourage any roots which may be formed upon the base of the main stalks. Beds or patches of *Ranunculus* may be assisted materially at this season if a good mulching of well rotted manure be placed over their roots. *Violets* generally should now be divided and transplanted. The Czar, which is a great advance upon other single varieties, if a constant succession of flowers be needed throughout the winter months, should be treated in two separate ways. Old established plants should if necessary have all suckers removed from around them. These, by simply keeping them free from weeds during the summer, will form fine masses for autumn and early winter blooming. Where a sufficient stock does not exist, old plants may be pulled into as many pieces as possible, provided some stem is attached to them, and a few roots. These, or indeed the suckers dibbled in some 8 or 12 inches apart, will make fine plants, which, generally speaking, will supply a succession of blooms after the older established plants are over. *Neapolitan Violets* will succeed, treated in a similar manner. To form fine stocky plants, however, strong crowns only, with abundance of roots, should be selected. Remove from such all side shoots, or suckers; and dibble them into a good rich loam, with abundance of leaf-mould, in an open warm situation; be careful however not to bury the crown too deeply. Sowings should now be made of *Wall-flowers*, *Brompton Stocks*, *Sweet Williams*, *Dianthuses*, *&c.* Pinch all seed vessels off out-door *Tulips*, so soon as they have begun to look shabby, and so direct the whole energy of the plants to the formation of good bulbs, for flowering the following season.

HARDY FRUIT GARDEN.

Do not delay removing all superabundant shoots from *Peaches*, *Nectarines*, *Cherries*, &c., and especially all stronger misplaced ones, which, by appropriating an undue supply of the energies of the tree, are likely to impoverish in an unnecessary degree all lesser ones. Pinch back all stronger-growing ones which it may be necessary to retain, thereby diverting the sap to other weaker channels. Be very careful in operating on any at this advanced date not to slit the rind of the more permanent wood at their base; to obviate doing this it is at all times better to cut them off with a keen-edged knife. Finish thinning the fruit upon *Apricots*, and commence the same process with Peaches and Nectarines, doing them only partially this time.

KITCHEN GARDEN.

Sow seeds of Green Curled *Endive;* and of Knight's Protecting, Walcheren, Snow's, and Alexandra *Broccolis*, for a successional supply. Make final sowings of *Scarlet Runners* and *Beet*; also another sowing of *Dwarf French Beans.* These latter may now be sown in the open quarters. Prepare a trench or two for early *Celery;* these should be 10 inches deep, put the plants in 6 inches apart. Do not continue to cut young plantations of *Asparagus* beyond this date, but rather afford it an opportunity the better to establish itself for future usefulness. Plant *Tomatos* against walls in sunny aspects. They do well planted upon south borders with the ground around them covered with slates, upon which to grow and ripen their fruit. *W. E.*

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the Week ending May 22, 1867, as observed at the Horticultural Gardens.

May.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Of the Air. Min.	Of the Air. Mean	Of the Earth 1 foot deep.	Of the Earth 2 feet deep.	Wind	Rain.
Thurs. 16	12	30.054	29.977	53	32	42.5	53	52	N.E	.00
Friday 17	13	30.124	30 067	60	27	43.5	53	52	S W.	.00
Satur. 18	○	30.039	29.925	66	42	54.0	53	52	E.	.00
Sunday 19	15	29 867	29.714	67	45	56.0	55	52	E.	.02
Mon. 20	16	29.570	29.529	69	50	59 5	55	51	N.W	.76
Tues. 21	17	29 939	29 560	54	30	42 0	55	51	N E.	.09
Wed. 22	18	30.046	29.919	48	28	38 0	54	51	N.E.	.12
Average		29 948	29.813	59.5	36.3	47 9	54.0	51.5		0.99

May 16—Cloudy and cold; densely clouded; overcast.
— 17—Fine; overcast; very fine at night.
— 18—Frost early in morning; fine; very fine at night.
— 19—Very fine; densely clouded overcast at night; rain.
— 20—Overcast, constant heavy rain, very wet at night.
— 21—Clear and cold; rain; cold and wet; cloudy; frost at night.
— 22—Clear and cold; snow mixed with hail; overcast; frosty.
Mean temperature of the week 6 6 10 deg. below the average.

STATE OF THE WEATHER AT CHISWICK,
During the last 41 years, for the ensuing Week, ending June 1, 1867.

May and June.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain	Prevailing Winds. N.	N.E.	E.	S.E	S.	S.W.	W.	N.W.
Sunday ..26	67 3	43.0	55.2	18	0.50 in.	3	12	4	1	4	12	3	2
Mon. ..27	66.3	44.9	55.6	22	0 63	2	10	6	3	2	12	3	3
Tues. ..28	67.8	44.5	56 1	15	0 97	1	10	8	1	6	8	5	2
Wed. ..29	67 1	43 9	55.5	13	0 97	3	13	3	3	8	6	4	7
Thurs. ..30	67 9	44 6	56.3	16	0 34	3	8	6	2	4	10	4	4
Friday ..31	69 1	45 1	57.1	15	0 48	2	9	7	2	5	9	5	2
Satur. .. 1	68.0	44.0	56 0	15	0 76	1	11	6	1	5	11	3	3

The highest temperature during the above period occurred on the 28th, 1847—therm. 91 deg., and the lowest on the 29th, 1865—therm. 25 deg.

Notices to Correspondents.

Errata.—P. 518, col. *c*, 21 lines from bottom, for "as fair a start," read "a fair start;" p. 519, col. *a*, for "how gardening," read "now gardening;" for "preservation of fruits," read "maturation of fruits;" and for "the pruning purpose," read "this pruning purpose."

Ambatcha: *C.* This name is applied to the edible corms or roots of Arum abyssinnicum. We do not know what Anemone mirabilis is, nor do we believe in the existence of a shrubby Anemone.

Calampelis: The distinctions between this and Eccremocarpus are not now deemed sufficient to allow of the retention of the former name.

"Illumination with Dark Lanterns:" *Lucus a non Lucendo.* The correspondent of the "Horticulteur Français" can apparently see through a stone wall. We saw no such illuminations, perhaps because it was dark! But after all, it was not a correspondent, but a "telegram from London," which announced the fact. If not the electric light, it was the electric spark that lit up the "lanternes sourdes." In any case you will agree with us that it was a Will-o'-the wisp. Statements like these, to use our contemporary's motto, *vana sunt et risu digna.*

Insects: *W H T.* Your Vine is infested with the common Vine Coccus. The white mass beneath the scale is at the present time filled with a vast number of eggs, which will be very soon hatched, and if the insects are not previously destroyed, your plant will swarm with the young to such an extent as to destroy it. When the scale have been carefully picked off, it will be well to give the affected parts a coating of lime, flowers of sulphur, and soft-soap suds. *W.*

Names of Plants: *Nemo.* 1, Ajuga reptans; 2, next week; 3, Viola cornuta.—*Mot.* 1, Gymnogramma chrysophylla; 2, Platycerium alcicorne; 3, Pilea serpyllæfolea; 4, Hypœstes sanguinolenta.—*Novice.* 1, Prunus Padus; 2, Syringa persica.—*W W B.* 1, Osmunda regalis; 2, Polypodium Dryopteris; 3, Davallia canariensis; 4, Polypodium vulgare.—*J T S.* Scolopendrum vulgare obtusidentatum.—*W M.* Passiflora Banksii.

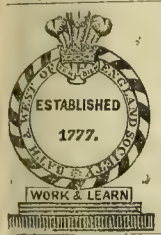
Vine Leaves: *X Y Z.* Your leaves have two sorts of excrescences upon them; one which is extremely common, and resembling very much those which occur on Pear leaves, the other of a more gelatinous nature. The former certainly are not injurious, and we suppose that the latter are so many safety valves to get rid of superabundant nourishment. If so, they are rather beneficial than otherwise. *MJB.*

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SOUTHERN COUNTIES ASSOCIATION
BRIGHTON SHOW, JUNE 24, 25, 26, 27, and 28.
An Enlarged POULTRY PRIZE LIST is Now Ready. ENTRIES to CLOSE JUNE 1. G. B. H. Shute, Secretary.
Yately, Farnborough, Hants.

MANCHESTER and LIVERPOOL AGRICULTURAL SOCIETY (Established 1767).—GRAND CENTENARY SHOW MEETING at Manchester, August 27, 28, and 29, 1867.
Special Prize List and Forms of Entry will be issued at the end of May.
T. B. Ryder, Secretary.
67A, Church Street, Liverpool.—April 23, 1867.



BATH and WEST of ENGLAND SOCIETY.—For the Encouragement of Agriculture, Arts, Manufactures, and Commerce.
Patron, H.R.H. The Prince of Wales, K.G.
President, John Tremayne, Esq.
The ANNUAL EXHIBITION of SHEEP, HORSES, PIGS, POULTRY, IMPLEMENTS, WORKS of ART, and HORTICULTURAL SPECIMENS will take place at SALISBURY on the 10th, 11th, 12th, 13th, and 14th JUNE, 1867.
Josiah Goodwin, Secretary.
4, Terrace Walk, Bath.



ROYAL AGRICULTURAL SOCIETY OF ENGLAND.—The PRIVY COUNCIL having REFUSED PERMISSION to hold a CATTLE SHOW at BURY ST. EDMUND'S, the PRIZES for HORSES have been increased by £350, viz., £300 by the SOCIETY, and £50 by the LOCAL COMMITTEE.

The PRIZES for THOROUGHBREDS now amount to	.. ..	£175
do. HUNTERS	.. .. ..	425
do. HACKNEYS	.. .. ..	130
do. ROADSTERS	.. .. ..	90
do. CARRIAGE HORSES	.. ..	95
do. AGRICULTURAL HORSES		525
do. PONIES	.. ..	145
		—1585
do. SHEEP	.. ..	700
do. PIGS	.. ..	225
do. POULTRY	.. ..	209
		—

LAST DAY for ENTRY, June 1. Total £2719
For Prize Sheets and Forms of Entry apply to
12, Hanover Square, London, W. H. Hall Dare, Secretary.

The Agricultural Gazette.

SATURDAY, MAY 25, 1867.

MEETINGS FOR THE ENSUING WEEK.

Monday,	May	27	Horse Show at the Agricultural Hall, Islington.
Tuesday,	—	28	
Wednesday,	—	29	
Wednesday,	—	29	Royal Agricultural Society of England (Discussion on Steam Cultivation)—Noon.

Cattle plague in the Metropolis is again a serious and substantial reality, which day by day becomes more and more portentous. After the outbreak of the disease in January last at Laycock's Dairy, a long period of immunity gave rise to confident hopes that the pest had been stamped out. Nor does it now appear that this was not the case, so far as that centre of infection was concerned. At the time we remarked upon the obvious probability of the contagion having been received from foreign cattle which were kept in adjoining lairs. The malady was discovered at once, measures were promptly taken to arrest its spread, and beyond doubt those measures were for the time successful, and no fresh cases occurred for something like three months after the slaughter of the whole of the cows in the infected sheds.

During last month, however, rumour was rife, and the facts which transpired were significant. Cow sheds were mysteriously emptied of their occupants. Cows in unusual numbers were seen in the Metropolitan Market, animals which were not fat in the butcher's sense of the word, but unmistakably milking cows, that would never have been sent away without good reason. It is undeniable that much of this was due to a species of panic, which naturally upon slight provocation attacks those who have previously gone through the sad experience of seeing their beasts swept off by the pestilence. When the slightest change in an animal's habits or condition is perceived—if the appetite be slightly impaired, or the quantity of milk lessened, these are at once sufficient grounds for alarm, and perhaps the hasty consignment of several animals to the butcher is the result; but a panic will not explain the hurried slaughter of an entire herd, nor will it account for the removal of cows which under ordinary circumstances would be far more valuable as milkers than as butcher's meat: and making every allowance for possibilities, we cannot shut our eyes to the known facts which tend to the conviction that cases of cattle plague had occurred, not before any suspicion was aroused, but before they were discovered in the beginning of May at Limehouse; and that in reality the disease had, unlike the outbreak in January, made some progress before its detection led to the adoption of the necessary measures for its eradication.

Since the outbreak at Limehouse we have had to record one at Islington, which caused the sacrifice of over 20 cows; another at Stoke Newington, causing the loss of 30; and since then of more than 70 in the same neighbourhood. In the last eight days cases have occurred at Hackney and Whitechapel, and quite recently among two large herds at Islington; and in addition a case of the plague has been detected close to the Metropolitan Cattle Market.

That the Government authorities are thoroughly impressed with the gravity of the question is apparent from their late proceedings. An order, which took effect on Thursday, provides that no cattle shall be driven through the streets of the Metropolis, not even to the Metropolitan Market, without a police licence. This regulation, if properly carried out, will place a barrier in the way of those who seek to evade the law; and although at first some embarrassment may arise, principally from inattention or misapprehension of the terms or even of the existence of the order, it may be expected to work well in a short time.

On Thursday last the experiment commenced, and with a small number of cattle and other stock in the market the circumstances were especially favourable, nevertheless some difficulties occurred. Drovers came to the market gates unprovided with the police licence, and in some cases without the necessary certificates from the counties whence the cattle had been brought; and the police authorities consequently refused the pass to the market area. A number of calves from France arrived, *viâ* Southampton, at the Maiden Lane Station of the North London Railway without the certificate of the Customs inspector, and in its absence the consignees were unable to obtain a police licence to take the animals to the market. Beyond these little grievances, which, however deserved as the reward of negligence are nevertheless trying to the temper, everything seemed to progress smoothly, but we shall look forward to a crowded Monday market as the test of the working capabilities of the officials, whose energies will be taxed to the uttermost.

[It was satisfactory to find at the general meeting of the Agricultural Society on Wednesday last, that the Council entirely sympathised with the general feeling that Government should be urged to require the slaughter of all imported cattle at the place of landing. The Bill introduced into the House of Lords on Tuesday last is to be referred to a Select Committee, and the whole influence of the Agricultural Society of England will there tell upon the side of anxiety and precaution.]

The Hop gardens of England, and more especially of Kent, have often been spoken of as forming one of the prettiest sights to be seen in a cultivated country. When the Government relieved the growers some few years since of the duty inflicted upon their produce, and withdrew the Excise officers from the supervision of their Oasts, the Hop cultivation became more profitable to the growers, besides relieving them of many binding restrictions which no doubt caused them some anxiety.

Foreign Hops are, however, still largely imported, and are admitted into this country free of duty. The total quantity of Hops brought into England during the past year was 85,687 cwt., of which we exported again 13,224 cwt. Bavarian Hops are well known to English brewers, many of whom deal largely in them. It seems from the following report that the crops in that country during the past year were below the average:—

The most important of the Hop-growing districts of Bavaria, both as regards the quantity and quality of its produce, is the province of Central Franconia, of which Nuremberg is the chief town, and which city may be considered as the centre of the Bavarian Hop trade. The particular districts of that province in which the finest Hops are grown, and which rank amongst the best produced on the Continent of Europe, are Spalt, Weingarten, Stein, and Moosbach, known under the general designation of the 'Spalterland,' and after these districts rank those of Heisbruck, Lauf, Altdorf, and Eischgrund, all in the same province.

Next in importance as a Hop-producing district is Hallertan, a section of country of about 20 German square miles (about 100 English square miles) in extent, lying partly in the province of Upper Bavaria, and partly in that of Lower Bavaria, and comprising the communal districts of Wollnzach, Au, Moosburg, Nandlstadt, and Geisenfeld.

Hops are also cultivated to a greater or less extent in all the other provinces of Bavaria Proper, viz. Upper and Lower Franconia, Upper Pfalz, and Swabia; and a small quantity is likewise produced in Rhenish Bavaria, on the left bank of the Rhine.

The average extent of land appropriated to the cultivation of Hops in the whole of the Bavarian dominions is about 52,000 Bavarian acres,* equal to about 43,000 English acres, and the average yearly produce is about 122,000 Bavarian cwt., or about 134,464 cwt. avoirdupois.

The average annual yield during the 10 years preceding 1866 was 128,000 Bavarian cwt.; but it is calculated that if the whole of the land planted with Hops were to yield throughout a full crop (an event however which scarcely ever occurs), the total yearly produce would amount to about 225,000 Bavarian cwt. It would therefore appear that the actual average crop is little more than two-thirds of what it would be if each district produced regularly what is considered to be a full crop.

As regards the Hop harvest of the year 1866 no official return has as yet been made public, beyond a statement contained in the general Report of the Bavarian Agricultural Association, to the effect that the crop was below an average both as to quantity and quality, and inferior in both respects to that of the previous year; but from information obtained from private sources it would appear that in point of quantity the harvest of 1866 has fallen very far short of the usual average; so far short, indeed, as to be considered almost a general failure, a parallel to which is only to be found by going back as far as the years 1851 and 1854; for, whilst the extent of ground under cultivation was about 57,000 Bavarian acres, or 10 per cent. more than the average, the entire crop gathered is reckoned at only about 70,000 Bavarian cwt., or 43 per cent. less than an ordinary average. As regards the quality, however, the harvest of 1866 is considered to be, generally speaking, a very fair one.

The natural result of the shortness of the crop has been a considerable rise in the prices as compared with those of previous years. The finer description of Hops, viz., those from the Spalt district, which, as being especially suited to the English and other foreign markets, are much sought after for exportation, were held, at the date of my information, viz., at the beginning of November last, at prices varying from 130 to 200 florins per Bavarian cwt. (about 9*l.* 15*s.* to 15*l.* 6*s.* per English cwt.) according to their quality; and those from the second-rate districts of Central Franconia, from Hallertan, and from the other provinces, at 110 to 150 florins per Bavarian cwt. (about 8*l.* 6*s.* to 11*l.* 16*s.* per English cwt.)

The average value per Bavarian cwt. of the whole crop of 1866, taking one quality with the other, the inferior descriptions being by far the most abundant, may be estimated at about 115 florins. It would appear that up to the above-mentioned period, but a small proportion of the crop had been disposed of, buyers having been unwilling to pay the high prices demanded by the growers. But the latter showed no inclination to make any abatement; on the contrary, as the yield of Hops not only in Germany generally, but also in the other Hop-growing countries of Europe, was believed to have been far below an average, and as it was also known that the greater portion of the crop in Wurtemberg, Baden, and Bohemia, had already been bought up, the Bavarian growers were of opinion that prices would at any rate be maintained, and might, not improbably, rise still higher in the course of the coming winter and spring. *J. R. J.*

—— On Wednesday next the Agricultural Benevolent Association will dine together under the presidency of Colonel Loyd Lindsay, M.P., and election to the annuities which the Society confers will take place on the following Wednesday at the Salisbury Hotel, Fleet Street. The Society deserves more of the support of landowners and wealthy farmers than it at present receives. For every one of its small annuities

* The Bavarian acre or "tagwert" contains 36,000 square feet, English measure. The Bavarian cwt., or centner, is equal to 132½ lb. avoirdupois.

there are many applicants, most of whom lay very distressing claims before the electors. And in addition to those, having been farmers, or being the aged widows or orphan daughters of farmers, now being without the means of subsistence, who alone have hitherto been eligible, it is now proposed to maintain and educate a certain number of a still larger class—the destitute orphan children of farmers; so that there is now an even greater claim presented by the Society for the contributions of the benevolent; and we cordially hope that an influential gathering next Wednesday may receive a vigorous impulse which will spread over a still larger circle, and result in placing more abundant means at the disposal of the Society.

—— We are happy to see it announced that on Wednesday last, at a public dinner, in Hereford, in honour of Mr. Thomas Duckham, of Baysham Court, Ross, a valuable testimonial,* was presented to that gentlemen in recognition of his services in conducting the "Hereford Herd Book," and in promoting the Hereford meeting of the Bath and West of England Society. The Rev. Archer Clive, who presided, thus referred to Mr. Duckham's services :—

I can truly say that Mr. Duckham has rendered us and the farmers of Herefordshire who are interested in preserving and improving our excellent breed of cattle great service by the compilation of the "Herd Book." I may say that every one throughout England is interested in our beautiful breed of cattle. When the cattle plague was frightening us all, and we were anxious to indemnify those who had suffered loss from that fearful calamity, Mr. Duckham's exertions were not wanting—whether with his pen, his tongue, or his contributions—to aid in the work. It is to him, again, that we are indebted for the meeting of the Bath and West of England Society in Hereford, which not only enlivened the city and caused a great deal of money to be spent and much valuable information to be communicated to us, but led to a great many men of eminence becoming acquainted with this part of England, of which they had previously known nothing. We were much disappointed in not having the meeting of the Royal Agricultural Society here, but I think we were almost indemnified by the excellent meeting of the Bath and West of England Society. Now these are services which many men wish to render to their neighbours, and which many men would take a journey or some trouble to render; but we find few men who go on labouring year after year, devoting their services to one useful object and another for the public benefit. This Mr. Duckham has done, and I am sure that in the acknowledgment which we this day offer to him we are not in any way exceeding his deserts, but simply paying a tribute of our thankfulness for his exertions and showing that we are not ungrateful for the services which he has so efficiently rendered.

—— Mr. Samuel Jonas, of Chishall Grange, Cambridgeshire, writes to the newspapers urging the necessity of forbidding the importation of live stock :—

"Surely the time has arrived when the only precautionary measures that can be adopted, whereby the safety and security of the cattle and sheep of England can be ensured, should be carried into effect, namely, the slaughtering of all foreign cattle and sheep at the port of debarcation, which would not lessen the supply of meat to this country; that public slaughter-houses should be provided at the public expense; that certain seaports only should be licensed by the Privy Council for the landing of foreign cattle, which should be slaughtered on landing, and forwarded as dead meat only into the country.

"By the importation of foreign cattle England has sustained an immense loss by the rinderpest, or cattle plague. I believe nearly 60,000 head of healthy English cattle have been slaughtered for the stamping out this fearful malady, thus entailing a loss of about one million sterling, and that those lost by the disease may be fairly put at from three to four millions sterling; say, total loss from four to five millions. I ask, can we afford a repetition of such a loss by still allowing the free import of foreign cattle and sheep alive into this country, and to be forwarded to our great Metropolitan market, and from thence to spread into our London dairies as this frightful scourge has recently done? I answer, certainly not; but that we should, by the adoption of such restrictive measures as slaughtering foreign animals on arrival at the port of landing, secure to our people an abundant supply of animal food, and yet secure our own producers from the losses entailed by this frightful disease.

"We have now, I regret to say, a fresh outbreak in some of our London dairies. Can this be attributed to any other source than the import of foreign cattle into our London market? We are also informed the disease has broken out in several fresh centres on the Continent; and let me ask, is not our danger increased in the same ratio? and is it fair to us, the British farmers, after the immense sacrifice we have lately made in attempting to stamp out this fearful calamity, thus to continue to endanger us by subjecting us to a repetition of this scourge, when so simple a plan as the slaughtering animals on their arrival in this country can so easily be adopted!

"Take the port of London as the most important. Surely a site on the banks of the Thames, on the Essex side of the river, could be procured by Government, on which slaughter-houses could be erected. I name the Essex side of the river, as it would give every facility for the conveyance of the dead meat, thus slaughtered, by the various lines of railway running from the Essex coast to nearly all our great hives of industry by the Great Eastern, Great Northern, Midland, &c. Then why not adopt a plan that would not lessen the supply of animal food one ounce, yet at the same time give security and safety, not only to the owners of our own herds and flocks, but to the meat-consuming population of England?

"Last winter, in consequence of this disease, I should not have had the courage to have bought any beasts for stall feeding; but in consequence of Ireland being free from this disease I sent two of my sons over, and they bought largely, sufficient for all our farms; and, thank God, we escaped the disease, and did not lose a bullock.

"In January, 1865, by letters in the *Standard* and the *Mark Lane Express*, I urged the necessity of adopting the plan of slaughtering all foreign cattle on arrival. Had this plan been adopted, something like four millions sterling might have been saved. Let this plan be now carried out, and I have no fear as to the future."

The reappearance of the disease in London, to which reference is made above, is certainly the strongest possible argument in favour of the plan here insisted on.

—— Our correspondent at Paris tells us that the programme of the agricultural department of the Great Exhibition of 1867 must now take its place as a remarkable example of "how not to do it." The trials of steam cultivating apparatus, which were announced to take place on specially prepared land at the Imperial Farm at Vincennes, may be taken as an example. For this altogether fell through, and long before the Exhibition opened it was quite an understood thing that there was to be no trial of steam cultivating apparatus. Each exhibitor might, if he chose to go to the expense of his own trial, have a share of the trial field, on which, without assistance, to work. The upshot has been, that a model in the Exhibition building, and specimens of the various forms of steam ploughing tackle in the Annexe and at Billancourt, are all the illustrations steam cultivation receives.* Indeed, it must be confessed that steam cultivation is not believed in on the Continent; and this, which is a great reason for regretting the public trials of it which had been promised, is actually urged as a justification of their abandonment. And it has not only been in connection with steam plough trials that the programme has so signally failed: in other departments also its promises remain unfulfilled. The plough trials came off, indeed, some weeks ago, and resulted in establishing the superiority of the ploughs sent for competition by Messrs. Ransome & Sims, and by Messrs. Howard, who were the only English exhibitors who competed; not the least attractive part of the competition, so far as the Continental spectators were concerned, being the exhibition, so to call it, of the horses and the men working the ploughs above-named. The Continental Exhibitors were much more numerous, but their work by no means came up the standard of efficiency set before them by the Englishmen, much of their failure being due rather to the way the tools were handled than to the ploughs themselves. It is a curious thing that, fond as the French people are of having everything done according to "rule," on this occasion much loss both of time and of practical utility resulted from the want of order or regulation. So far then as the trials, or projected trials, in connection with the Paris Exhibition of 1867 are concerned, the result seems to be a lesson more what to avoid than what to copy; and we say this with all the more regret that in many even agricultural respects the Exhibition must be considered admirable and complete.

CONTAGIOUS DISEASES (ANIMALS) BILL.

[The following is the speech of the Duke of Marlborough on moving the second reading of the Bill in the House of Lords on Tuesday evening.]

In asking their lordships' consent to the second reading of the Bill, he must remind them of the legislation which had already taken place upon this subject. Parliament had had to cope with a mysterious and fatal disease, which, during last year and the year preceding, had made most fearful ravages among the cattle in this country, and early last session their lordships had been called upon to consider the state of the law as regarded the powers which were in the hands of the Government for arresting and for employing remedies for that disease. Their lordships would also recollect how great were the difficulties they had experienced in introducing efficient remedies for coping with that national calamity. It was first of all thought that a large measure might be proposed to receive the sanction of both Houses, and that in that measure might be introduced those provisions that would enable Parliament to make such enactments as would be adequate to meet the emergency of the case. But it was found on experiment that though very excellent provisions might be framed, yet in their application there would be so much difficulty, affecting as they did such varied interests in the country, that it would be impossible to legislate by Act of Parliament for emergencies as they arose, and it would be more desirable on all accounts to give powers to the Privy Council to frame orders and regulations as they might be necessary to meet emergencies. It might not be without interest to know that the course forced on them by the necessity of circumstances was that which, without knowing it, the House followed in imitation of that adopted by Parliament above 100 years ago. He found in 1745, when cattle plague broke out in this country, and continued its ravages for 11 or 12 years, that, Parliament being met together and called on to consider the measures that should be adopted, various resolutions were passed and a Bill was brought in founded upon them; clauses were added in committee to empower justices in Quarter Sessions to grant licences for collections for the immediate relief of "poor sufferers" by the distemper, and to enable the King to lay a penalty on the importers of raw hides. Considerable discussion then took place as to a clause which was proposed to prevent driving infected cattle from one county into another. A division was taken upon the adjournment, which was carried by 57 to 44. This seems to have decided the fate of the Bill, for on the same day a second Bill was introduced "to enable His Majesty to make rules, orders, and regulations more effectually to prevent the spreading of the distemper which now rages among horned cattle in this kingdom." This Bill was passed with the utmost expedition through both Houses, and received the Royal Assent on the 13th of February. It was rather a remarkable circumstance that about 120 years after that event the very same course should have been taken by Parliament. Finding the impossibility of introducing a satisfactory measure, the attempt was abandoned, and power was given to the Privy Council to deal with cases as they arose. He need not remind their lordships of the Act passed last year. Its principal feature was to order the slaughter of all diseased animals; following that Act various Orders in Council had been passed from time to time, so that they now numbered upwards of 140. These related to contagious diseases; 126 related to cattle plague; and of these 53 orders, or parts of orders, were still in force. That was the state of the case at present as regarded Orders in Council. These Orders in Council, in conjunction with the enactment ordering the slaughtering of diseased animals, had produced a most favourable and beneficial effect. As regards slaughtering of animals, the results had been most remarkable. The Cattle Plague Commissioners stated in their third report :—

"The Act authorising slaughter came into force on the 20th of February, and, as will be seen, the diminution in the number of attacks in successive weeks was not only coincident with the action of the new restrictive measures, but runs a course closely parallel to the operation of the most important of these measures—slaughter. Taking Yorkshire as a fair indication of the success of these measures, it was found that on the 6th of January, 1866, there were 2,028 fresh attacks; that number continued varying to the 18th of February, when it was 1,836; but after the Act the number fell, on the 3rd of March, to 1,193, and on the 7th of April there were only 330 attacks."

He could not omit the opportunity of doing justice to the wisdom of the Commissioners who were appointed to investigate this subject, as to their recommendations for the slaughtering of animals, particularly as on one occasion he had taken a contrary view. He must confess that the view he then took had been proved by the event to be erroneous; and no measure, under Providence, could have been more successful in stopping the progress of the disease than slaughtering the cattle. Having referred to what had been done in former times with regard to the outbreaks of cattle plague, it was curious to find that in 1771 the practice of slaughtering had been employed with marked success. The cattle plague broke out in 1745; in 1771 there was a fresh attack, and by adopting the strong measure of slaughtering the cattle attacked it was put a stop to. He held in his hand a letter written by Dr. Layard to M. Garnier, Chargé d'Affaires in France, from which he would read, with their lordships' permission, a somewhat long extract :—

"Inasmuch as at the end of the year 1769 and in the spring of 1770 this disease appeared in the county of Southampton, in England, and in the county of Banff, in Scotland, where it had spread through the medium of infected skins and ballots of straw for packing purposes also infected, the English Government ordered that wherever this disease evinced itself the magistrates, called the justices of the peace, should assemble and immediately cause all the cattle on the premises to be valued, the healthy as well as the diseased, and to be killed without any bloodshedding, and to be buried about six feet deep, without slashing their skins, as was the former practice; taking care, by means of stakes driven into the ground by the side of the carcass in such a manner that the dead animal should be fastened in the pit so that it could not be removed; then, having completely covered it with the earth, and having stamped the earth down with the rammer, to have sentinels posted there to watch for several days, in order that the peasants or others may not in any way disinter the carcasses for the purpose of obtaining the skins. The reason why they no longer slash the skins is from fear of the purulent matter of the abscesses flowing from the incisions, the vapour of which abscesses infects the air and the clothes of the assistants, and, through the medium of dogs and certain substances, equally communicates the disease to neighbouring cattle. Care is taken at a certain distance from the contagion to separate the healthy beasts, and to place them in remote pastures, forbidding them to be restored without permission to do so. It has also been forbidden to convey them there from an infected place, and if it is discovered that they have passed by such a place in spite of the order, they are pursued, as actually happened in the county of Surrey, and, without awaiting the slightest symptom or the permission of the owner, they are all killed on the very spot where they have been caught. By such means the English Government have put an end to that cruel disease which threw the whole nation in the greatest confusion, and incited the King and his Government, as much as the subjects, to neglect nothing in freeing themselves from it. Providence permitted that at a small expense, below 2000*l.*, a disease which had cost the English nation between 1774 and 1756 212,400*l.* odd should be seen to disappear entirely."

The other Orders in Council related to the movement of cattle, and it was, perhaps, hardly known to what extent it had gone. The regulations connected with the movement of cattle were intended to affect merely the cases of cattle plague; but the incidental benefit which arose from them had been very great indeed, not only with reference to the cattle plague but other diseases most fatal in former years, which had now almost disappeared. It had been supposed that cattle plague was the most destructive disease that could visit the country; but pleuro-pneumonia was still more so. In the appendix to the report of the Medical Officer of the Privy Council it was stated that in 1845 the Agricultural Cattle Insurance Company was formed, which was joined by five other companies afterwards. Insurances were effected at the rate of 300,000*l.* weekly for a length of time. In three years there were ten millions' worth of stock insured. In their report of 1848 they state that nearly three-fourths of their losses were due to pleuro-pneumonia. This company was compelled to wind up its affairs in 1861. Mortality among cattle appears to have increased year by year, as the insurance companies commenced by assuming that 3½ per cent. would cover all possible losses, but were eventually obliged to increase their premium to more than double this amount, and yet came to ruin. He estimated that in the year 1860 there died of disease in the United

* On one of the shields of the base of the epergne is the following inscription :—"Presented to Mr. Thomas Duckham, of Baysham Court, Herefordshire, together with a purse of ——, in recognition of his services in conducting the 'Hereford Herd Book,' and promoting the meeting of the Bath and West of England Agricultural Society at Hereford, and the general interests of Agriculture. 1867." The blank in this inscription is not yet filled, the subscription list not being closed—the amount received is nearly 500*l.*

* In the Park, between the Belgian Annexe on the left hand side of the avenue leading from the Ecole Militaire entrance and the French Annexe, and near to the traction engines of Aveling & Porter and of Fowler & Co, the visitor will find an example of a steam ploughing engine by Mr. Lotz, senior, of Nantes. In this the arrangement is evidently borrowed from Savory's patent, in which the leading feature is the drum on which the wire rope is wound, encircling the boiler. By this means a very large circumference of drum is obtained, which is a decided advantage, lessening the wear of the rope. The workmanship, as well as many points of the design, bear out the remark we have made as to the status which steam cultivating mechanism occupies in France.

Kingdom 374,048 horned cattle, and that more than half this loss was from pleuro-pneumonia. The average loss for the six years ending 1860 is estimated at upwards of 166,000*l.* per annum from pleuro-pneumonia alone. Bearing these facts in mind, it was gratifying to know that the effect of the Orders in Council passed in reference to the cattle plague had not only stopped it, but pleuro-pneumonia as well. There was a report on the subject from Professors Simonds and Brown, dated the 6th of March, 1867:—

"It appears from the statements of those veterinary surgeons who have replied that pleuro-pneumonia and foot and mouth disease prevail only to a slight extent, which they very generally attribute to the effect of the restrictions which have been imposed upon the movements of cattle. The regulations affecting animals sent to the metropolitan market have had a powerful influence in preventing the extension of infectious diseases; and although instances of pleuro pneumonia and mouth and foot disease are much less frequent in the market than they formerly were, little doubt can be entertained that these affections would again be carried to different parts of the country by infected beasts were the regulations at present in force to be withdrawn. From all we have observed in our inspections, and from the evidence obtained from veterinary surgeons and agriculturists, we see no reason to doubt that the continuance of certain restrictions upon the movement of stock, with the view to prevent the exposure in fairs and markets of animals affected with contagious diseases, would be attended with the best results."

Various reports had come in from different counties, all expressing a similar opinion. Another remarkable circumstance as regards the social comfort of the people of this country in connection with the restrictions imposed on the movement of cattle, was well worthy of mention. It was gratifying to find that the restrictions necessary to prevent the spread of this disease had not had any injurious effect in raising the price of meat, as shown by the quotations of the Metropolitan markets. The average price from the 1st of January, 1866, to the 24th of March, was 6¾*d.* per lb., and from the 27th of April to the 26th of May, 1866, when the disease was raging at its height, and the restrictive orders were in full force, the price was exactly the same, namely, 6¾*d.* per lb. Various orders had been passed prohibiting the importation of sheep from Belgium, and cattle from other parts of the Continent, and the price of meat had not been materially affected by those orders. It was therefore gratifying to know that the orders which had had the effect of diminishing and almost annihilating the cattle plague, and which had also been incidentally beneficial in greatly neutralising other complaints of a serious character, had not materially interfered with the supply of the necessaries of life to the community. There was one point on which great interest centred. A serious outbreak of the cattle plague had broken out in the Metropolis, where it was difficult to carry out the regulations with respect to the movement of animals. One great omission in the Orders of Council was the absence of a provision prohibiting the movement of cattle in the Metropolis without a police licence. In consequence of that omission great infringements of the law had taken place, and animals had been moved about that ought not to have been permitted to be moved without a licence. He believed that there existed a general opinion that the increase of the cattle plague in the metropolis within the last month was attributable mainly to the omission he had referred to; but the other day the Privy Council passed an order prohibiting the removal of cattle to or from market in the metropolis without a police licence. A great deal of fear, however, was entertained in reference to importations, and it was thought that all animals ought to be slaughtered at the ports of entry. The endeavour of the Privy Council had been to take every possible precaution with respect to the importation of animals. At the same time the supply of food to the people was a matter that should not be overlooked, and it was deemed not possible in every case to slaughter animals at the port of entry, without seriously affecting the price of meat. The object should be to apply at the ports of entry the regulations, which would ensure the cattle being brought under inspection, so as to prevent any diseased cattle from being sent up to London. By such an arrangement a great advantage would be secured, and he did not believe that any danger of infection would be incurred. The object of this Bill, the second reading of which he now proposed, was to continue the existing Acts, but in consequence of the experience derived in the application of the Orders of Council with respect to the removal of cattle, it had been thought desirable to introduce some of the early regulations into the measure. It was proposed to continue the existing Acts for three years, during which period the experiment would be made of those statutory provisions with respect to the removal of cattle. The Privy Council would have power, for the purposes of the Act, to declare any disease which made its appearance among cattle or other animals, contagious or infectious. It was possible that other diseases besides the cattle plague might, from the facilities of communication now existing, reach this country from abroad. No doubt there were cattle diseases in Russia, the nature of which were not yet known in this country, and therefore it was thought highly desirable not to limit the provisions of the Bill to the cattle plague alone. There was another important point he wished to advert to. During the existence of the cattle plague counties were required to keep inspectors, but when the plague ceased they had no power to appoint permanent inspectors. Now, as it was known by experience that the cattle plague might at any moment make its appearance, it was thought desirable that there should be an enactment requiring the local authorities to keep a competent inspector, who would have power to enter premises wherever he suspected that the cattle plague existed, and who would be required to make a report immediately to the Privy Council. Another important change was made by the Bill in the present law. Under the present law a place was not considered an infected place until it was declared so by the local authority; but the Bill enacted that when an inspector found that the cattle plague existed in a place, that place should be deemed *ipso facto* to be an infected place; and it was not left for the local authority to declare the place infected. In some cases the local authorities had been unwilling to declare a place infected, in consequence of the inconvenience resulting from such a declaration, in respect to the movement of cattle. At the same time the Privy Council would have the power to vary the limits assigned to infectious places, and to declare places to have ceased to be infectious. Another important point was that the Bill authorised places to be declared infected, in which the cattle plague existed within the previous seven or eight days. The present law only required the declaration to be made in respect to places where the cattle plague existed at the time. The effect of this had been that when the cattle plague manifested itself the infected animal or animals had been killed, and then the disease could no longer be said to exist there. He now needed only to mention one or two points connected with the duties thrown on the police by the Bill. It would be their duty to apprehend persons by whom its provisions were infringed, very much as the existing law enabled them to do. Stringent regulations were also laid down to prevent false declarations from being made. At present the greatest difficulty was experienced in following up those declarations when fabricated, so that many of the certificates for the removal of cattle were rendered practically useless, for most palpable untruths were constantly told with impunity. He had now stated the general provisions of the Bill, and he hoped it would meet the approval of the House. It was impossible to review the course of events with regard to the great national calamity to which it related without bearing testimony to the willingness of the people, in all parts of the country, to put their shoulders to the wheel in the endeavour to assist the Government in carrying out the law for the general good. It was to that co-operation that the success which had attended their efforts was mainly to be attributed, and he trusted that by continuing the course of legislation which had hitherto been adopted the further spread of a dreadful disease would be effectually prevented. The noble duke concluded by moving the second reading of the Bill.

THE SEEDING OF GRAIN CROPS.

[What as an ordinary rule is the most economic and beneficial seeding of our ordinary cereal and grain crops?]

It is a remarkable fact, that in this very year 1867, nay, after the lapse of 2000 years and upwards, during which agriculture has been the most vital interest which has engaged the mind of man, it is an unresolved question of frequent controversy—what is the quantity of seed per acre of the different varieties of grain we cultivate, which will produce the greatest return in point of crop? That such is a fact is palpable to every one who reads the periodicals devoted to agriculture, or who is in frequent communication with farmers. Is not this mainly attributable to the relative idiosyncracies of farmers, and merchants, and manufacturers? The latter class is trained to careful scrutiny of quantities, weights, and measures, and habitual accuracy in every detail of their occupation; while the former, with rare exceptions, contemn such trammels, and submit only to those loose computations which are aptly enough characterised as "the rule of thumb."

Surely this question is resolvable by carefully conducted experiment. It is one of serious importance both to the farmer and the public. Regarding the point as to the quantity of Wheat per acre which a seeding of one peck has in fact returned, or may return by careful manipulation, as illustrative rather than practical, the actual usage in the case of Wheat has no less a range than from between 4 pecks and 12 pecks of seed per acre, and with other grain in the same proportion. In the absence of those statistics so material to the true interest of the farmer, and of which we have been hitherto deprived by his prejudices, I am unable to compute the value in money involved in the question between a seeding of 4 pecks and 12 pecks per acre of Wheat alone over the annual acreage of Wheat in the United Kingdom; but it may be safely stated this would amount to several millions annually. I anticipate the remark, that circumstances which suggest the expediency of employing various quantities of seed vary materially. No doubt about that; but are they not few and exceptional, affording no ground for discouraging an attempt by experiment to establish some approximation to a safe general rule as to quantity of seed? I cannot admit quality of the seed to affect the argument, for I conclude that a common heresy amongst the less informed farmers which extensively prevailed in my time, that any unmarketable grain would do for seed, has been to a great extent abandoned; and that farmers generally have learned the true economy of using only the best quality of grain for seed. I can recognise only two exceptional cases of any material importance, the one arising from any deviation which weather or other hindrances may occasion from the most advantageous date for sowing in any given district, the other arising from the natural character of the land. For example, assuming in the former case that it has been ascertained in any given locality that September is the most favourable month for sowing Wheat, and the impediments referred to have prevented this before November, a moderate increase of the normal quantity of seed would be judicious. Then, in the latter case, in good Wheat land, in which the plant tillers freely, the quantity of seed requisite is considerably less than on lighter and poorer soils, in which it tillers very sparingly.

It must be borne in mind that every seed requires a specific amount of food to enable it to produce and mature the largest increase of which it is naturally capable, and, consequently, that the employment of any greater quantity is not only sheer waste, but diminishes both the quantity and the market value of the rest.

With respect to the experiments by which, it appears to me, useful and economical results may be arrived at, I concur entirely with the remarks in a late number of the Society's Journal by Dr. Voelcker, on the care and attention essential in their performance and superintendence; demanding more time, trouble, and expense to some extent, than can be expected at the hands of a tenant farmer, unless he have a more than common love of investigation. Such experiments, undertaken by gentlemen farming their own land, would, on the other hand, be a source of interest and amusement. After some experience of the unavoidable incidents which affect the conclusiveness of a single experiment, I would suggest that the terms of one should be settled by the Council of the Society—that the execution of it should be entrusted to gentlemen in different counties to be carried out in, say four successive seasons, the results of which, in detail, should be sent to the secretary. I have tried this experiment during the two past seasons on six contiguous acres of land, in order to secure as nearly as possible land of the same quality, but this will be still better assured by taking half acres. My experiment in 1865 was rendered inconclusive from my having unfortunately performed it on the side of a field which rabbits invaded from a cover at some distance, instead of on the opposite side, which they did not reach. I give below the result of the last experiment. The only remarks which occur on this are, that the general character of Wheats last season was unusually thin on the ground, and the ears shorter than usual, and that the acres Nos. 5 and 6 extended further into the field than I had contemplated, and encroached on a clayey surface, unfavourable in so unpropitious a season; the other 4 acres were a fair loam on the stone brash.

The impression left on my mind, after several years' observation is, that on good Wheat land, and in that state of cultivation usually found on an amply stocked farm, and when sown sufficiently early to ensure the free tillering of the plant, 4 pecks of good plump seed drilled in rows 10 inches apart, which admit of the free use of the horse-hoe, are a sufficient seeding. If the sowing be retarded for three or four weeks, I should use 5 pecks, and if the period of sowing were necessarily extended to seven or eight weeks, when vegetation has become feeble, and liable to the check of frost, I should employ 6 pecks. My usual practice has been to set the drill for 12-inch work; but I now adopt 10-inch, as giving me more straw, which I use more extensively than heretofore for feeding stock.

Results of Experiment in 1866 on Six Contiguous Acres.

	Distance between rows.	Quantity per acre.	Weight per bushel.	Total weight of grain.	Weight of straw.
	inches	pecks	lbs.	lbs.	cwt. qr. lb.
No. 1 ..	8	7	62	1882	30 0 24
No. 2 ..	10	5	63	1993	31 3 24
No. 3 ..	12	5	62	1967	29 0 17
No. 4 ..	12	8	61	1925	27 2 18
No. 5 ..	12	6	62	1891	27 0 6
No. 6 ..	12	4	62	1889	26 0 6

Feeding off Wheat in the Spring.—I will take this opportunity of stating the result of an experiment, ascertained for the information of some students at our college to whom the practice seemed hazardous. I had a field of young Wheat of 10 acres in a state of forwardness which was very inviting at the beginning of April for ewes and lambs, when other food was getting scarce. We divided this in the centre with a line of hurdles, and put on 100 ewes with their lambs, on one portion, on the morning of the 7th of April. They were removed on the evening of the 22d—16 days. The Wheat was fed off close to the ground; there was not a blade of Grass left standing. The 5 acres so fed were harvested four days after the 5 acres hurdled off. On a mere inspection over the surface, the general impression was that the 5 acres fed off would give the best yield of corn; but on being threshed out, the portion not fed yielded just 5 sacks more than that which was fed. The feed of the ewes and lambs, at that season, would be an equivalent for the 5 sacks of corn. I may add, that rather over 2 acres of the land fed was of a comparatively unkind and inferior quality to any part of the other 5 acres. *Charles Lawrence, Cirencester.*

RECLAMATION FROM THE SEA.

[At a recent meeting of the Royal Agricultural Society this subject was introduced by a paper from Mr. Shellabear, agent to the Earl of Leicester, who described what had been done at Holkham. In Mr. Shellabear's absence his paper was read by Mr. Hall Dare. We were not able to find room for it at the time, and hence the delay of its appearance here.]

The enclosure of the land at Holkham was begun in the summer of 1856, by the erection of a short length of embankment of about 150 yards at the western end, excluding the sea, which flowed over it in that direction from Holkham Bay. At this time the land was protected from the sea, on the north side, by a long range of sand hills of considerable width and height, covered with marram, the growth probably of a long series of years; and there is, perhaps, no more secure protection against the sea than these hills, with ordinary care and attention in repairing with rows of faggots the occasional damages made from time to time by currents of wind, and planting the new-drifting sand with marram on the south side, where the Grass-

marshes, enclosed many years since, and the whole of the eastern end, open to the shifting channel of Wells Harbour, which formed its boundary in that direction to a length of a mile and 200 yards. The embankment here was the heaviest portion of the work connected with the enclosure; it was commenced in the spring of 1857, and completed in the autumn of 1858, starting from a point at the western end of Wells Quay, and running in a straight line alongside the Channel, nearly due north to a high shingle beach, forming the eastern end of the sand hills, and crossing the old channel twice in its length, a new one having been previously cut to the eastward. The south end of this bank being upon the high level clay deposit, is formed entirely of that material for a distance of about 400 yards, but the remainder of it is built upon the sand, and is formed entirely of sand inside, protected on the sea side by 2 feet thickness of puddle (dipping at the foot 5 feet into the sand), and on the land side by 12 inches. The width at the top is 5 feet. On the sea side its slope is 4 to 1 for a distance of 8 feet from the top, and 5 to 1 for the remaining distance. Upon the land side the portion made in 1857 had a slope of 2 to 1 to a distance of 8 feet from the top, and then 3 to 1 to the level of the ground. The portion made in 1858 was formed throughout to a slope of 2 to 1. The upper portion of the slope upon the sea side, and the whole of that upon the inside, were covered with glass flag, cut 3 inches thick. The top of the embankment and the 5 to 1 slope on the outside were covered with shingle. Experience has shown sand to be the better material for the construction of these banks, no settlement having occurred in the large one so formed, while the smaller one, entirely of clay, has been added to, to maintain the original dimensions. The sluice is in this bank, towards the south end, and is built in the clay upon piles: it is a barrel-arch of 3 feet 6 inches diameter, with a self-acting sea-door, and a second door upon the inside, raised or dropped by a screw. Besides carrying off the water from the 580 acres of land comprised in this enclosure, it is required to discharge the drainage water of 1000 acres of Grass-marshes and the supply from some strong springs upon them. It is found to be too small to do this during the short time the tides will allow it to work, and not being in a good state from a settlement in the centre, it is contemplated to remove it, and put in an arch of 5 feet diameter. The whole of this work was executed by Messrs. Buxton, of Manchester, from the designs and under the superintendence of Mr. Arthur Saunders, of King's Lynn. This bank has not received any serious injury since it was completed, except upon the inside during the winter of 1862 and spring of 1863 from the water inside, after the breach made in December, 1862—in fact, none beyond the occasional renewal of the flag and shingle being washed away, and the necessity of maintaining the shingle which protects the foot of it to a higher level than was originally contemplated. It should, however, be said that it is but little exposed to the action of the sea. Its sea-face is towards the east and adjoining the channel, on the opposite side of which are unenclosed marshes but rarely covered by the sea, with the additional protection of high sand-hills in the distance. The highest tides (which alone cover these unenclosed marshes) occur only with a west or north-west wind; in an easterly gale, therefore, there is no expanse of water to break upon the bank, and in a gale from the west or north-west it is to a great extent self-protecting. The extreme north of this bank is connected with a high bank of shingle, with the sand-hills forming the remainder of the northern boundary. It was through this bank that the breach was made by the very high tide of December 22, 1862, which at the same time also broke over and swept away the short bank at the west end of the enclosure. The last was speedily replaced; but the shingle bank, when once broken over, wasted rapidly to an extreme depth of 28 feet in the breach and a width at the upper part of 125 yards, and its repair was a work of greater difficulty. The breach was successfully closed in the month of June following with shingle, conveyed to the spot by two lines of tramway, from an average distance of about half a mile. The new bank thus formed, having a slope of 12 to 1 on the sea-side and 5 to 1 towards the land, has stood exceedingly well up to the present time, costing but little for repairs. Marram is rapidly growing upon it, and in a very few years it will probably become a high sand bank, with a strong base and face towards the sea beneath the sand and about 5 feet above the highest tides.

Detailed Report.

Of the 580 acres enclosed, above 200 acres adjoining the old Grass-marshes were a strong clay loam, 80 acres mud land (originally skirting the high clay lands), 170 strong blue clay, or clay-loam, buried beneath the sand to a depth of from 6 inches to 3 feet, and the remaining 130 are either shingle, stones, or sea-sand, to an unknown depth. A very large portion of the land enclosed was therefore either almost worthless or required considerable outlay to bring it into cultivation; and to this may be added, that from the meeting of the tides from the east and west upon the land, it was intersected by several large creeks and the best portions of it by innumerable small ones. In the autumn of 1859 the land was laid out for division into fields. One road, passing through the entire length, was crossed at intervals of about 500 yards at right angles by two others. These roads are each 30 feet wide, and are bounded on each side by a ditch. The lands between are again divided by a ditch into fields, varying in extent from 10 to 20 acres. Every field, therefore, has access to a road, and is square—two very important advantages with steam-cultivation. In bringing it into cultivation the next operation was to fill up the large creeks, which has been done throughout the farm, sand being brought from a distance where necessary by means of a portable tramway worked with horses, or moved from the adjoining lands where available by barrow roads; in either case the creek being ultimately brought to the level of the land on each side of it by a coating of soil of similar quality. In the same way the small creeks which appeared only in the stiff lands were filled up, or by digging, thus reducing the level of the adjoining land. By the summer of 1862, a large breadth of this land had been brought into cultivation; Cole-seed, Peas, Wheat, and Oats being grown upon it, and a further portion was sown with Wheat when the sea again came over it. Up to this date the crops were better than they have been at any time since, and it seems probable that the cultivated lands, especially those which had been subsoiled, became more strongly impregnated with the salt than when in their original state.

The damage done to the watercourses and roads was inconsiderable; but the land had become so thoroughly saturated as to be incapable of bearing horses until late in the spring, and the roots of autumn-sown corn were destroyed by the wet and salt in the land. Underdraining, which had been done partially before, was now systematically commenced, and up to the present time fields containing about 230 acres have been drained with 1½-inch pipes at 12 yards distance in the clay, and 24 yards in the sandy subsoils, nearly all the drains emptying into the ditches. The fields being all flat, considerable difficulty was experienced in maintaining a regular and proper fall in the drains, the slightest dip in them in the sandy lands causing the drain pipes to tilt up. The plan now adopted is to set out the level of the outlets in the ditches, and a point 4 feet above the bottom of the drains to be cut across the centre of the field with a spirit level, adding the rise to be allowed in the drains. From these two points given him, the foreman is enabled to give an even fall to the bottom of the drain throughout its length, by placing a staff 4 feet long upon the level point at the outlet, and having a similar staff moved up and down the drain, aligning it upon the level given him in the centre of the field. Four levels only are given in each dish, and four across the centre of the field, the remainder being put in with the T staves in the same manner. By this means the work is satisfactorily done, and the foreman is able to superintend the whole, check the levels of every drain, and assist a second man in laying the pipes in the drains, of which about 16 to 18 chains are cut every day from April to August, the work being impracticable in winter. 420 acres of the land have been cropped, but only 340 are at present under cultivation; the remaining fields are being treated as follows: Some of the heaviest clay lands are being sanded to a depth of 3 or 4 inches by means of the portable tramway (two horses drawing a load of from 4 to 6 tons), 8 or 10 inches of sand being taken from the sandy fields for this purpose, to bring the clay beneath and within reach of the steam plough. In other fields where the clay is at a greater depth, pits are sunk, and the clay is barrowed upon the land to a depth of 5 or 6 inches (when solid), the sand having been previously reduced to that extent, and barrowed into the last pit sunk; and in others, where the clay is from 12 to 16 inches from the surface in portions of a field, or where the sand is not required for the heavy lands, the ground is trenched, and from 8 to 10 inches of the clay brought to the surface. But in these cases, from the frequent occurrence of creeks in the clay below, the sinking of a pit is often necessary to complete the field, and make the soil equally good throughout. With respect to cultivation, but little at present can be said. Good crops of Wheat, Oats, Barley, Cole-seed, Turnips, Mangel Wurzel, and Clover have been grown upon the land, both before and since the winter of 1862; but it was not until the summer of last year that we can be said to have recovered to any extent from the flooding of the land. As soon as they have been drained, the fields are broken up with Fowler's steam subsoil plough to a depth of 16 inches, allowed to lie the winter, and put under crop the following year. Since the erection of the main bank the work has been all done by Lord Leicester's own staff and labourers, with the surplus labour of the immediate district, under his own personal direction. It has necessarily, therefore, occupied a considerable time, and no steps have at present been taken to reduce the cropping of the land to any system.

Discussion.

Mr. R. B. Grantham, C.E., F.G.S., said that he had taken some pains to collect information on the reclamation of land from the sea, and the formation of tidal and other banks, and was very glad of the opportunity to lay his practical experience before the Society. Mr. Shellabear's paper was very appropriate, although it had a local bearing, because it gave an example of the reclamation of land on the coast of Norfolk, showing at the same time that there had been some failures, and that the bank had proved very expensive. The question was perhaps of more interest to the agriculturist than the engineer; and this was why he had determined to bring it before the notice of the Society. In reclaiming lands from the sea there were several considerations which ought never to be lost sight of. There was, first, the question of area—whether it was worth while to make an expensive bank to reclaim a certain number of acres? Then came the question whether, when the expense of shutting out the sea had been undertaken, the land would prove of sufficient value to be worked for agricultural purposes. In his own experience, on the coast of Essex portions of land had been reclaimed at considerable cost, but a long time elapsed before it could be utilised by the agriculturist. In these instances the land was rough in itself, and seemed to retain the salt of the sea so long that it was necessary to wait while a protracted course of air and rain dispersed the salt before it was fit for cattle to graze upon, and, in fact, some years elapsed before it was properly cultivated. On the other hand, he had known cases where the land had been brought into cultivation almost as soon as the sea had been shut out. He remembered a peculiar example in the case of one of the large rivers in Ireland, where the tenants of the landholders ran small walls, and shut out the sea. By this means the mud was enclosed, and the next year the farmers were able to raise a crop of Wheat. In this particular instance he attributed the success to the river running over a large bed of limestone, and bringing down a deposit which neutralised the effect of the salt. The soil, too, was very rich, and under these circumstances perhaps it was natural that the crops would take almost immediate effect. Instances similar to this, he believed, had been experienced in Norfolk. The nature of the soil which the rivers brought down into the bays that were to be reclaimed was a highly important consideration. Limestone always neutralised the salt, but there were materials often brought down of a totally different character. Much skill was required in determining the kinds of banks to be used for different places. An engineer of even long experience could scarcely find two cases admitting of precisely the same treatment. The excavation for and formation of banks depended upon the surrounding circumstances, which of course were of the most varying description. Hence anything like classification was impossible. Generally speaking, embankments might be treated under three heads. One was an embankment of earth against the sea, with large slopes, and perhaps flat foreshores, where the waves did not break with great force, in which case the work might safely be done by sodding, and other similar contrivances. This method was as inexpensive as it possibly could be. The second method was banking against the deep water of the sea. This work required to be stoned on the one side and of considerable strength on the top, the width being generally sufficient to bear the blow of heavy waves, even at a considerable elevation above them. The back slopes of these banks were of pretty much the same kind, because a foreshore was really the portion that received the blow of the sea, and was therefore more likely to be injured. It was here the engineer found the greatest trouble in resisting the opposing force. The third kind of embankment was the stone walling, or the upright wall, which was of all the most difficult of construction. The value of earth walls depended entirely upon the locality. Mr. Shellabear mentioned that sand had been found to be the best substance. Mr. Grantham, however, did not agree with this, believing there was a great deal of difficulty attending the working of such a material. Of course, much depended upon the mode in which the faces of the banks were made. A good sodding, in some cases, might be made from the marram mentioned in the paper; and if it could be got to grow in time to save the bank from injury, no doubt it was one of the best protectors it was possible to get. He had been called upon to prepare plans for fencing off some accumulated land in the Humber. The land (an island) had accumulated from the sea, and a wall was built, round which it was proposed to extend further. The sort of sod that had been referred to seemed to be the best adapted for the purpose, and he had no doubt they would be able to place it at a very small slope. A wall had been in construction for some years on the principle of pitching it with stones. In the first place, for the purposes of temporary protection, faggots were used with great advantage. Groins were also used, and they acted well in protecting the foundations from wear and tear. The Morecambe Bay Railway might be instanced as a case where a good deal of land was recovered by banks of facing stone and also of groins. He had himself at the present time superintendence of a bank at Fleetwood which had been successful to a certain extent. There were several circumstances of a secondary character that operated in the erection of walls, which, if not properly attended to as minor matters, gave vast trouble, and involved enormous expense. Particularly might be mentioned sluices and culverts for drainage. It was seldom that sluices were put in at sufficient depth; and often the capacity of the drains was not properly regulated. It frequently happened that the sluices were cheaply made, and were merely effective for the moment when the bank was made; afterwards they were sources of perpetual trouble and cost. He himself had, same time since, to repair works of this kind that in the first instance had cost but little, while the repair alone cost 700*l*., simply because of a want of attention and foresight in the original builders. Another question that should not be overlooked was the cost per acre at which these reclamations could be made with profit. Having gone carefully into the question, he was of opinion that, except in the case of extraordinarily good lands, an agriculturist should not go beyond a cost of 20*l*. per acre in making a bank. This might be considered a rather high figure, but he had known it pay in a case of large reclamation. At the same time he admitted it was a hard thing to quote precise figures; and he had mentioned 20*l*. because he thought that was very likely to be remunerative. It would have to be brought quickly into cultivation, and all the work should be well done, so as to incur as little annual maintenance as possible. Some lands were done at a much cheaper rate, but it was doubtful whether the cheaper was not actually the dearer method. He called the attention of every agriculturist interested in these matters to the recent Act of Parliament, by which a combined system could be established for the purpose of bringing about extensive reclamations. An individual enclosing land would do so at his own cost and risk, but there was no reason why this should be involved. The Commissions of Sewers appointed under the 23d of Henry VIII. had been continued, and the powers of the Act had been increased by the Land Drainage Act of 1861, enabling landowners who were interested in a piece of reclaimable land to combine to execute the work of enclosure, being equally taxed to defray the expenses. His experience of inland rivers had taught him that there was great advantage to be gained by such a union of landowners. He recommended all who felt a concern in the question to look into the Act, and become acquainted with its provisions. The advantage was that in combining in a work of this kind every contributor took his part, not only in the cost, but in the management and benefits to be derived from the prosecution of a work in a systematic way. The Enclosure Commissioners had the sanctioning of this Act, and therefore everything was done in a public manner. The operations of the Act could be carried out without difficulty, and the result would be the improvement of inland rivers, and the reclamation of land from the sea, the latter being, of course, the original intention of the Legislature in the time of Henry VIII. No doubt there were a great many persons having coast lands, and large areas of border, who would be glad to combine to borrow or expend money for their reclamation. The Act to which he had referred would show how this could be done, and the general interests of agriculture would be promoted thereby.

Mr. Lawrence said there could be no doubt the Wash was a fruitful school for engineering of the description connected with the reclamation of land, and experience of the most useful character had been acquired there. Sir J. Rennie, Mr. Fowler, and some of the other eminent engineers had attempted too much there, when they endeavoured to grapple with the ocean at once. They struck a line across the estuary of the Wash, and in one instance they spent 14,000*l*. in making a fragment of an embankment which was washed away with a single tide. The quiet processes which were now being followed to reclaim the land were very instructive, and they would probably lead eventually to the saving of that immense tract of land which once had the designation of Victoria County. This could only be done by degrees, and to save any land from the sea it was always necessary to follow the operations of nature slowly. He did not believe in some of the great works that had been undertaken of building large sea walls, and grappling suddenly with a tidal ocean with 26 feet rise and fall. In a sea-girt island like ours, such wonders could not be expected. We must proceed as it were terrace by terrace. The notion that once prevailed in this country, and that led to the expenditure of hundreds of thousands of pounds in the Wash, proved how great were the mistakes made in the reclamation of lands. The drainage of the Fens was one of the greatest works in the country. Even in Holland there was nothing that exceeded the Norfolk estuary for the drainage of high land lying behind the sea. The Norfolk Estuary Company undertook a vast work; but their shares at the present time were only worth a few shillings, and hundreds had been bought at half-a-crown each. The general question of land enclosure closely concerned the society and its supporters, because all agricultural topics were strictly economical questions. The reclamation of land should be encouraged by all practical agriculturists. The mode of making embankments was not a whit more important a subject than it had been described, and equally important was the question of the President as to the undermining of banks by the water. The only thing to do was to give a good foreshore. Of course if the occupiers of land chose to go to more expense they could stone the front of the bank and make an effectual barrier against the sea, as they did in Holland.

Mr. Hawkshaw said it was impossible to lay down general principles regarding slopes, because so much depended upon material. The sand of the sea-shore made its own slope, and that was six or seven to one. This proved to be an effectual barrier against waves if it was long enough. General principles as to the formation of banks could not, however, be laid down, unless in every instance the nature of the material of which it was formed was given. He could give one piece of information respecting slopes in works of great magnitude. In Holyhead it was found that stone thrown into the sea in deep water gradually assumed three kinds of slopes. At about five feet below the water it was six to one; deeper down it was three to one; and very deep down it was one and a-half to one, showing that everything depended upon the force of the water

and waves and the kind of material. If the material had been softer the slopes would have been flatter. Neither could general rules be laid down as to where land could be reclaimed. All that could be said was that if the land was worth 30*l.* an acre when reclaimed, not more than 15*l.* or 20*l.* ought to be laid out upon it. If the cost was greater, it was much better to buy land ready made. Slopes covered with soil and sods were, in his opinion, utterly inadequate to resist the sea, unless there were a very large foreshore and shallow water. If the foreshore was flat and very wide, an embankment possessing a slope of two to one was practicable covered with sods. No slope of such a description, however, should be relied upon to resist the action of the sea. In the Mediterranean the French made all their barriers against the sea by blocks of stone of some 20 tons each, which they found stood to a slope of one to one, and if they were a third the size they would be two to one, and so on.

Mr. Holland, M.P., said that taking into consideration the fact that our population was increasing every year, that our island did not increase except through these adventitious circumstances and scientific achievements, and that a large area was taken annually from agriculturists for the purpose of building, the discussion of such a subject as this could hardly fail to be of service. Knowing that with a diminished area agriculturists had to multiply their produce to meet the wants of an increasing population, it was necessary to gather all the facts that could be gathered as to the means by which our waste lands might be made serviceable. One or two interesting things had arisen out of the discussion. One was as to the value of silt, and another remark showed how valuable it was in all agricultural matters to apply animal matters to the land for the production of vegetable substance. In reclaiming lands from the sea they were providing additional area, and at the same time a manure to enrich it—things of weighty importance at the present moment. The hon. member concluded by moving a vote of thanks to Mr. Grantham and Mr. Shellabear for their addresses.

Mr. Clayden seconded the motion. He said he was connected with the Norfolk Estuary Company, whose depreciated shares had been mentioned during the discussion, and he begged to state they were not in quite such a bankrupt condition as had been represented. The company was working slowly in the reclamation of land, and they felt assured they should be able in a few years, from the silting-up of the land, to add to the value of the county of Norfolk.

The vote of thanks having been carried, and a similar compliment paid to the Chairman, the proceedings terminated.

DAIRIES IN NEW YORK.

There are in the city of New York and its suburbs several dairies, some of which do a very extensive business. But no one thinks of setting up a dairy by itself. There is, of course, no grazing to be had, and hay or roots for the cows would be very expensive if imported from the country. Besides which they would not serve sufficiently well as a milk-producing aliment. The practice therefore is to establish the dairy in connection with some business which shall furnish an artificial mode of supplying food for the animals in an inexpensive manner. This is admirably managed, and in such a way as to make the two undertakings mutually beneficial. The idea might reasonably occur to one uninformed on the subject that the dairy would be attached to some factory for the production of artificial food, such as oilcake for instance. But the ingenious man who first undertook this line of business would have scorned such a commonplace notion. The milk-producing department must have a suitable parent establishment prepared for it, and this was no other than a whiskey distillery. It is probable that the idea of the dairy was not the original intention of the inventor, but resulted as an after-thought. He most likely was in the first instance the proprietor of a distillery, and being gifted with a brighter genius than had fallen to the share of other distillers, saw a first-rate opportunity of diminishing the normal expenses of the established business, and of combining with it an entirely new commercial undertaking. He possibly, also, had an eye to the prevalent taste on the part of spirit drinkers for mixing milk with the spirit; a combination of whiskey and milk being a very favourite drink with many persons. It may be that he foresaw how convenient it would be if he maintained a retail branch of the business on the premises, to have a tap laid on for milk as well as for spirits. But these were minor points.

The first and principal benefit was obtained as follows:—

In all distilleries there is, of course, a large quantity of waste liquor which results from the evaporation of the pure spirit after passing through the condenser. This liquor, which is called "swill," had generally been considered of no value, and merely an incumbrance. But our speculator determined to utilise it, and with that view resolved to extend his business by the addition of a new one which should afford the desired opportunity. This new undertaking was that of a dairy. It was known that the "swill" was a powerful stimulant or agent in the production of milk in the vaccine economy, and further that the animals were very far from showing any dislike to the flavour. In this respect the quadrupeds were only imitating the human beings whose tastes they naturally respected, and were willing to follow at a humble distance by partaking of the weaker and less fiery "residuum" which their masters rejected. The difference in quality between the spirit and the "swill" typified the space which lay between the qualities and gifts of the human being and the beast. This accommodating behaviour of the cow was really the origin of the whole undertaking, and we are glad to give our testimony in favour of this useful creature; but good intentions often fail of good results, and the sequel illustrates the fact in relation to the animals in question. So much for the far-seeing individual who first thought of applying to a useful purpose a propensity which had always been productive of evil results. We are unacquainted with his name, but he is no worse off in this respect than many a fellow-genius. We will now describe the way in which the business is carried on, as improved and increased by several years of experience since the day when the idea first commenced to bear fruit.

We will suppose that in some quarter of the city there stands an extensive distillery. The first thing that is required is a piece of ground of sufficient extent to admit of the erection of sheds for the cows. The number to be provided for will be in proportion to the quantity of "swill" produced in the establishment. If the desired space cannot be obtained, such as is available is devoted to the purpose, and excavations are made underneath the premises of such extent as may be needful. The stables must be close to the distillery to be at all serviceable and economical, the furthest distance allowable being the width of the street. In a well-managed undertaking they are never removed further than the exactly opposite part of the roadway. As some of the distilleries do a very extensive business, and as land is very high-priced in New York, the number of cows requiring accommodation is sometimes excessively great. In one of the largest dairies in that city 3000 animals are stabled above and under ground in what appears an incredibly small space; but we shall see by-and-by that the cow is treated precisely in the same manner as any part of the distilling apparatus, except in one respect, and is considered solely as a machine for converting "swill" into milk. They are, therefore, stowed as closely together as the utmost ingenuity of a stevedore could accomplish, if he tried.

The majority of them are kept in the stables underground, and thus where there is but little land available, a great advantage is gained as far as accommodation and space is concerned.

The animals are placed in long rows, and at the two opposite sides of the stable long troughs are fitted running the whole length of the wall. The cows thus stand in two files, the hind quarters facing inwards. At the head of each trough is the mouth of a pipe communicating with the distillery, and by this means the "swill" is made to flow directly from the still to the stable. This method of supplying stalled animals with their food is certainly the most convenient ever practised. Wherever the stable may be situated, it is so easy to lay a pipe in connection with it, and immense labour is thereby saved. The quantity of "swill" that will be consumed is easily calculated, and as there is seldom accommodation for a sufficient number of animals to exhaust the entire supply produced in the distillery, a large quantity is still left available. We shall account for this residue further on. Proper means are taken to regulate the supply of "swill," and occasionally it is varied in strength, according to the necessities of the case. The underground stables are, of course, low, dark, wretched-looking dens, and worse, if possible, than some of the London subterranean cow-houses. Those above ground are by no means pleasant places, but they are ten times better than those below.

We now come to the cows themselves. These unfortunate animals are in the most pitiable situation which it is possible for any creature to be placed in. There are no animals anywhere that undergo a quarter of the misery and pain which they pass through. The horses in France which are so barbarously vivisected do certainly endure more acute physical suffering for a time, but death is not so long delayed as in the case of the poor cows in the "whiskey" dairy. For five years, in some cases, do they endure the extreme of pain and ill-treatment, and are not even allowed to expire in peace. They are, as we stated above, packed together in rows so tightly that when, as sometimes happens, one of them has lost the power of standing on its feet, it does not fall down at once, being too tightly wedged in between the others. The first thing that is done to them when they enter the stable is to make an incision in the tail, and inoculate them for the "swill" disease. The result is that the whole of the tail shortly afterwards rots off and leaves nothing but a stump. The attendants say that it is a very fortunate thing to get these tails out of the way, and that to be troubled with the whisking of 3000 cows' tails in the stables would be such a nuisance that they could not put up with. As every animal is minus this appendage, a most extraordinary sight is afforded to a visitor standing at the end of the shed or vault, and looking along the rows. He will see two long rows of angular, bony, tailless creatures wedged and jammed together, with short and prominent stumps protruding from the hind quarters, and looking like a succession of pegs for hanging bridles on. It is, in fact, a horrid unnatural spectacle. The inoculation results in the "swill" disease, a kind of cow-pox in a mild form as to its immediate effect, and which would otherwise have speedily killed them. But from the moment they enter the stable they are doomed, and the inoculation only delays the approach of death, for nothing can afterwards save them entirely. The next event to be noticed as following the destruction of the tail is the loss of the teeth. It is true they do not feel the loss of these so much, because they have no use for them. But it is believed with good reason that they suffer very great pain whilst the decay continues. The only kind of food supplied to the poor creatures is the swill which is always pouring down the troughs, and which they swallow in immense quantities. As we noticed above, they like the taste of it, and do not refuse to drink, but they must crave for more solid food at times. They no doubt do so at first, but after a time they become as unable to partake of anything more substantial, as a confirmed drunkard who cannot eat, though he is always longing for drink. They become, in short, in a constant state of stupid intoxication, and go on drinking in the deadly poison which is to produce nourishment for thousands of infants and older persons till they are completely worn out. If they do not then die, they are sold for what they will fetch.

The longest time during which a cow can endure this kind of existence is five years, but most of them die very much sooner, and examination after death has shown that it is surprising they are able to last out a twelvemonth. The lungs are totally destroyed by ulceration, the vitals generally are decayed and wasted away. The whole of the interior of the body, in fact, is ruined by the same cause. This is not confined to the interior only; the udder is attacked at an early period of the life in the stables, and becomes as badly ulcerated as any other part. These horrible effects are produced by the want of proper food, the constant consumption of hot smoking "swill," by the inoculation and the unnatural position which they are compelled to maintain, as they can never lie down. They are also affected by the shocking impurity of the atmosphere, where so many poisonous breaths are mingled together and can find no free ventilation, and by the fearfully dirty state of the floor, which is neglected for an unlimited length of time. The Augean stable was no worse than this at certain periods. Hercules would have had his hands full here. The ill-fated prisoners commence losing flesh shortly after entering these abodes of wretchedness, and continue to do so until they are nothing but skin and bone. They are milked with constant regularity, and the milkmaids are so energetically industrious that the approach of death makes no difference to them. If a cow should, through weakness, be unable to stand, and should slip down between the two on either side, she is taken out and slung up by a stout band to a hook or beam overhead, and in this position the milk is taken from her. There have been instances where death has actually occurred before the milking was quite finished, and the wretched carcase has been lowered down immediately after for conveyance to the knacker's yard. Those cows which cease to yield milk and are thus useless, are purchased by butchers, and are by them fed as well as they can manage to make them eat, till they are enabled to furnish forth some slight show of meat, when they are slaughtered and positively sold for food! To see one of these poor tortured and mutilated creatures with no tail, and the appearance of no animal that ever was created by the Almighty, is a shocking sight; but to behold hundreds of the same kind imprisoned, starved, ill-used, and stupefied with an unnatural fluid, and to know that a fearful disease is raging within every one of them, preying on their vitals and killing them by inches, is a spectacle which makes the blood boil in one's veins. The Creator made this animal perfect in its adaptation to our proper wants, fitting it to live in the open country, enjoying the fresh air and the sweet refreshing Grass, and man has abused and ruined the useful and docile creature for the sake of present gain, which he acquires at the cost of the life that was given for so different a purpose. *Stephen Buckland, in Fraser's Magazine for April.*

FARM NOTES.—By Mr. Mechi.

1. *The Labourer's Cottage.*—If built of 4½ or 9-inch brickwork it will be very hot in summer and damp in winter. The clay with which our Essex bricks are made is, when baked, very porous and absorbent. This remark applies to many other counties, but not to all, for I have seen in Staffordshire and elsewhere pipes and bricks so dense as to be nearly impervious to water. But into porous bricks the winter rains will enter, and the moisture naturally draws towards the warm room. I have found that lime wash well worked into the surface of the bricks closes the pores, and thus keeps the house dry. It requires doing annually; the cost is trifling. In summer it has the effect of reflecting the sun's rays instead of absorbing them, and thus keeps the house cool. I have before mentioned that lime washing slated roofs keeps the house cool. A whitened slate in the hottest summer's day feels cool, the heat being reflected, but one can hardly bear one's hand upon a non-whitened slate. I wonder this is not more often availed of in our towns where attics as sleeping rooms are almost unbearable in the summer heat. All cattle sheds should be so treated. It is a curious fact that heavy rains will not detach or wash off the lime, but the winter's frosts remove it from the slates, not from the bricks. Where vegetation has begun to establish itself on slated and tiled roofs, lime washing with hot lime destroys it. Frosts remove the lime, and old-looking roofs then look quite new and fresh. The interior of cattle sheds and stables should be lime washed at least once a year, on the score of health. The land on which the labourer's cottage stands should be always well drained at least 4 feet deep, with pipes covered with loose stones. This prevents the moisture of the ground rising up into the walls by capillarity. Capillarity is overcome thus by gravity. Lime washing brickwork before painting saves much paint.

2. *Birds' Nests in Chimnies.*—We were once a good deal puzzled by a smoking chimney that had never smoked before, and was perfectly clean. On opening the trap at the angle or turn, we found half a bushel of birds'-nest materials, completely filling the chimney; what surprised us was that it occurred at least 12 feet from the top, so that the birds must have descended in the chimney. I believe that they were starlings. Swallows also build in chimnies occasionally, and sparrows in gutters, so that one has to take note of such matters, or suffer discomfort. It is desirable to examine the flues before winter.

3. *Agriculture a Naturally Slow Business.*—Ardent, ambitious, and impatient minds, anxious for speedy accumulations of wealth, must not look to agriculture for a realisation of their desires. Nature will have its course. A Wheat crop is a nine months' child, and another nine months is taken in its realisation. One year for sheep and two years for bullocks are the very earliest returns that can be expected, and then we have adverse seasons to contend with. Besides, there is not the opportunity for credit, as in trade—where an honest, industrious, and prudent young man may be trusted and encouraged by manufacturers; fortunately this is so, or else who would submit to the murky confine-

ment of a town life? Agriculture ought to be very intellectual, for there is plenty of time for study and reflection while the crops are growing. No doubt pure country air is a more sleepy atmosphere than that of a town—at least my town friends say so; but in my opinion much of this effect is due to the tranquillity of Nature as compared with the noisy traffic, bustle, and flaring gaslights of a crowded city—so we countrymen must be excused for being somewhat dull and stolid. I have remarked frequently how ready my town friends are for an early bed when in the country, and how soundly they repose.

4. *The Fattening of Young Growing Animals.*—The days of four and five-year old beef and mutton are passing away under the influence of modern agriculture, which requires a more speedy realisation; one-year old mutton and two-year old beef are becoming the order of the day. To arrive at a satisfactory conclusion in this matter it is necessary to take a review of the conditions required. Young growing animals are like young growing schoolboys—who, always in motion, rarely get fat;—so it is with young growing animals; allow them to roam at large, and vain will be your efforts to produce obesity. At one year old my sheep are extremely fat, and at two years old my bullocks are full of fat, the lean being everywhere well mottled with intervening fat. The result is a rich mellow meat, satisfactory to the butcher, because pleasing to his customers. The flavour may be somewhat higher and the colour darker in old meat, but the fibre is hard, and not easy of digestion, unless well hung in cool weather. Large joints, too, are unsuited to small families. Good rich food from their birth, and a limited area for exercise, are essentials for early fattening. In addition to cake, corn, malt-combs, and bran, a small quantity of crushed Linseed and a little condimental food are essential to early ripeness. I could never satisfy myself or my butchers until I gave my young bullocks 1 lb. daily of crushed Linseed, and about 1 lb. of condimental food. I have this year sold my bullocks (exactly two years old) at 23*l.* each, and my sheep (one year old) at 3*l.* 3*s.* (half-bred Down and Lincoln). Linseed contains 25 per cent. of oil, and in that form it appears to answer admirably as a fattening ingredient. The stimulants in the condimental food, such as fenugreek, ginger, and carraway, prevent flatulence, and facilitate digestion. My bullocks rarely get more than one bushel of pulped or cut roots daily. Although I have not used it myself, I know of cases where Linseed oil, mixed with Bean-meal, has been most effective in putting on fat. I again commend a study of the late Mr. Horsfall's most valuable papers on "Fattening and Dairy Management," in the 17th and 18th vols. of the Royal Agricultural Society's Journal. Our lambs, after leaving the ewes, are generally folded; our bullocks kept in sheds. Locusts, molasses, and sugar, being all soluble saccharine substances, promote early fattening.

5. *The Labourer's Food.*—It is instructive to see how a natural instinct has caused the labourer in South Britain to select the most economical as well as the most nutritious food, well adapted to climatic requirements, viz., bread and cheese—much of the former, little of the latter; at night for supper some hot Potatos and a slice of fried fat pork, also some very small beer provided by the farmer (one bushel of malt to the hogshead). Said one of my labourers to me to-day, "There are 11 of us (baby included), and we consume in bread and puddings 5 pecks of flour weekly, equal to 20 4 lb. loaves, and we could eat more." As the price of flour is 3*s.* per peck, this makes a large claim upon the man's average weekly wages of 14*s.* 6*d.* per week, and leaves little for rent, clothing, firing, cheese, butter, milk, and grocery. It is true his three eldest children earn a trifle, for without this he could not go on. How unfavourably a deficient harvest like the last tells upon the agricultural labourer. There is less corn to harvest, thresh, dress, carry out; less straw to cut up, and less manure to cart; in fact, with considerably dearer food, the demand for his labour is diminished, and the farmer is no better off than with an abundant harvest and a low price. But to return to the food. We all agree that milk contains all the elements necessary for the formation and support of the human frame, and that before dentition it is the most suitable form of nourishment. In the cheese we have all, or nearly all, the elements of milk; and so we have in bread, though in a less condensed form; so that we may safely rely upon bread and cheese as strength-supporting food. As to economy, we must also give for it a most favourable verdict. The price per lb. of meat and cheese are about equal; not so their nutritive properties. 1 lb. of cheese contains only 6 oz. of water; 1 lb. of meat about 12 oz. of water. In Mr. Morton's admirable "Cyclopædia of Agriculture," vol. i., p. 1, page 440, under the head "Cheese":—"It will be seen from the foregoing analysis that cheese is an exceedingly nutritious substance, standing considerably higher in this respect than butcher's meat. Dividing the constituents into the principal nutritive groups, cheese is composed as follows:—

Flesh-forming substances	31.02
Heat-giving substances	25.30
Mineral matter	4.99
Water	38.78
	100.00"

The instinct of growing children attracts them to cheese, and it is a great mistake not to allow them to indulge that instinct. My children have always had free access to bread and cheese, and the result has been a most ample and vigorous development and unobstructed health. We may leave out of the question "curry powder," for the labourer will find a sufficient stimulant in a strong raw Onion: the needful salt he gets in his cheese. Unfortunately, I fear that too many labourers' children get a very short supply of cheese. Seeing that cheese is so nutritious, we may reasonably expect that its exportation from the soil is a heavy tax on its fertility. Cow farming requires good natural soil, or very high farming, or we shall grow little corn where cows are kept for cheese or milk.

6. *May* 2, 1866, *and May* 2, 1867.—What a contrast! This day last year, a heavy thunder and hail-storm, the ground afterwards covered with snow. To-day, a genial temperature, a lovely sunshine, the surface-soil dry and crisp and warm; smoke ascending vertically, light airs fluctuating from all points of the compass. All this gives us hope of a better harvest than last year, when we had severe frosts up to the end of May. Spring crops plant admirably. Now is the time to judge whether the Wheat crops are "going to Halstead Fair," which is on the 6th of May. It is a saying in Essex, when the Wheats look pale and bilious early in May, that they are going to Halstead Fair, and will never return. How truly plants testify by their appearance to the condition of the subsoil in which their roots ramify! On deeply and clean cultivated, drained, and well-manured land they have the colour and bloom of the Cucumber. On the contrary, without drainage, with foul and shallow cultivation, and insufficient manure, the thin, narrow, pale, vertical leaf, with its yellow tinge and slow growth, almost reproaches man for his suicidal neglect. A paltry saving of a few shillings per acre, in not eradicating the weeds at the right time, permits them not only to starve the Wheat plant, and thus greatly diminish the crop, but also stocks the soil with innumerable seeds of weeds for future and still more injurious competition. When 2*s.* worth of labour will spud out several hundred Docks in a day, who would not readily pay it? After all, it is in the subsoil, below the ploughed land, where most of the mischief takes place, for that subsoil is raw, unaërated, and unmanured. The roots of our Wheat crops have already passed through the ploughed land, and as they descend into the subsoil its unhealthy condition affects their appearance and growth. A rank old Dock or Thistle will plunge its roots deep into this subsoil, without suffering; not so the corn plants. Beans are the most hardy in this respect. Passing at railway speed, we can detect readily those fields of corn that are suffering from the causes I have named. Experience has taught me that the removal of these causes is a profitable operation, and that neglect or want of means for such a purpose results in heavy pecuniary loss. A high temperature of the soil promotes the growth of plants. Drainage, deep and clean cultivation, raise the temperature of the soil. I have in my conservatory a striking instance of the advantage of warmth to the roots of plants, and consequently to their general development. An ordinary bricked flue passes (below the surface) near the roots of some Camellia and other trees, and raises the temperature of the soil; the result is a most vigorous development, and very numerous and large flowers at least two months before any are produced by those on the other side of the conservatory. The temperature of the atmosphere is alike for each; but the temperature of the soil being higher in one case than in the other causes the difference. It teaches us that we should by every means in our power endeavour to increase the temperature of the soil. Spring sown crops look remarkably well, and so do Clovers—on well-managed farms. Many heavy-land fields of Wheat have been destroyed by slug, and are resown with Oats or Barley. I have only lost about one acre in this way, including a part of my peck an acre. May 14: Since writing the foregoing we have had very hot weather, succeeded by thunder storms and much rain, and the drains discharging abundantly. A strong cold north-easter is now drying the land rapidly. Altogether the crops present a most promising appearance on all well-farmed land. [What about the contrast between May 2 and May 20 of *this* year? ED.]

7. *A Saturday New Moon.*—It is a common saying hereabout that a Saturday new moon is always a wet one, and that it comes in harvest time once in seven years—which is once too soon. The new moon on Saturday the 15th December was followed by a heavy fall of snow in January, and now the Saturday new moon of this month has been succeeded by heavy rainfall and floods. Assuming that this tradition is correct, we can shape our arrangements more in accordance with it, for in 1865 much corn might have been secured earlier and in good order had the tradition been attended to. *J. J. Mechi, May*, 1867.

Home Correspondence.

Gorse.—I see a wish expressed by you and your correspondent "Hillside" for further information as to my mode of growing and using Furze or Gorse as food for horses. I have merely followed the custom of this county, where it is in general use, and where I first saw it used. The poorest part of the farm is generally chosen for the "Furze brake," and the seed is sown broadcast, either with or without corn, like Clover. As I have known it to fail in several instances when sown with corn, I will state the plan I adopted for the last piece of brake I sowed. I ploughed as for Lea Oats, harrowed down in dry weather in March or April, then sowed the seed broadcast at the rate of 10 or 12 quarts an acre, and covered with a chain harrow and roller. Furze is fit to use, as you say, the October twelvemonth after sowing, and every alternate year after; but any cut at the beginning of one season may be cut again at the end of the next. If an acre of Furze is desired, half should be sown one year and half the next. (I have never heard before of sowing the Furze in rows, and cutting them alternately. I should think it an excellent plan as far as the growth of the plant is concerned, but is there not a difficulty in cutting and carting so as not to injure the young shoots of the rows which are to be left?) Grass growing amongst the Furze is not considered a disadvantage by the farmers here, but the contrary. Some prefer to sow Furze in the best part of the farm and cut it every year. At this age it is very soft and succulent, and I think should have a good proportion of hay cut up with it. The best implement for cutting the Furze is a scythe with a short strong blade made for the purpose. Care must be taken to cut it close to the earth the first time, and then there will be no difficulty in mowing it on future occasions. Our mode of preparing it for the horses is simply to pass it through a chaff-cutter, cutting it into half-inch lengths; the man feeding the machine wearing hedging gloves. Horses that have not been accustomed to Furze will not eat it at first, and I have found it a good plan in such cases to cut up a little Furze with some hay, increasing the former and decreasing the latter by degrees. I write in haste, having only observed your correspondent's letter this morning, but may perhaps add a line next week. *Wm. Hooper, Drumkeen, co. Cork, May* 14. [We add to Mr. Hooper's letter the following memoranda from the *Irish Farmers' Gazette*:—"Furze should be sown, at the latest, some time in May. Amongst Barley or Oats it does remarkably well; or, better still, it may be sown alone, without a corn crop. It requires a very light covering; so that one stroke of a light bush harrow is all that is required. The land should be tolerably clean, and particularly free from Scutch Grass, as the latter injures it considerably in the first year of its growth; but after the Furze takes full possession of the soil, it will smother most weeds. It is in its prime from early in November, or by the end of October, to April each year, but will not be fit for cutting till the October or November twelvemonth after sowing, and lasts good for many years after. The Rev. Mr. Townsend says: 'A statute acre of good Furze will feed five head of cattle from 1st of November to 1st of May, giving three feeds of one bushel (eight gallons) each by-day, and two bushels at night, with one stone of Mangels or Turnips at each feed for Milch cows; the Turnips or Mangels to be cut in a Gardner's Turnip-slicer. It is beneficial to cut a portion—a fourth—of Grass in the long cut of the Furze-cutter (the Furze being cut with the short cut), and mix with the Furze. Horses at work should get two feeds of steamed Swedes or Carrots and 8 lb. of crushed Oats. Dry cattle or young stock require no additional food.' 'A very great improvement, which greatly facilitates the mastication, is to put the Furze, when cut, into a vat, and cover it with boiling water, and add to it 4 lb. of any meal and 2 lb. of malt dust. Pigs feed on this food and thrive well; the vat to be kept covered for 12 or more hours.' Some years ago it was thought advisable to give a ration of Swedes or other roots to animals fed with Furze, as the latter were thought to be too heating, if given alone. Such has been our own practice, and we believe it to be good, and founded on practical experience; and we have no doubt that those who may be induced to try the cultivation of a Furze meadow, even on a small scale, not only on poor, dry land, but on the deepest and best, will have no reason to repent of their having done so, but, on the contrary, will be more inclined to increase its area than to lessen or give it up. Hay and straw have been gradually getting scarce and dear for some years past, and those who have had a good Furze meadow were enabled to save and sell their hay to their own great advantage, besides keeping their stock in a better condition than they ever did before. This is in itself a great incentive to Furze cultivation; but there is yet another blessing attending it, which is, that of giving employment in mowing and preparing it at a time of the year when manual labour is difficult to provide, and keeping the husbandman, to whom the farmer is so much indebted, employed, and enabled to maintain himself and family, instead of consigning him and them to the poorhouse or to emigration. Mr. G. Bolster, Currabower, Mallow, stated that in November, 1864, he then fed 40 cows and 8 horses, giving the cows 2½ bushels of the prepared Furze, with 1 stone of pulped Turnips mixed through them at night, and oaten straw in the morning. The area of Furze cut was about 5½ or 6 Irish acres, grown on cutaway bog, not worth 5*s.* per acre, of two years' growth. The cows were fed from 1st December till 25th March; the horses a little longer. The number of hands employed were—one man cut the Furze in the meadow, brought to the mill in two cartloads, and another man and boy cut the Furze and pulped the Turnips in four hours. The machinery used was a 10*l.* Richmond and Chandler's straw-cutter, to chaff the Furze, which was conveyed to a bark-mill by an endless web, and thoroughly bruised—all worked by water-power."]

Sorghum tartaricum.—As a farmer I am as much interested about this Sorghum as your other inquirer, and I think Messrs. Carter's reply is not fair in a matter of such importance as the introduction of a grain that they lead us to believe has been grown in England, reported to yield 60 bushels per acre, and said to be four times more nourishing than bread from Wheat-flour. I think Messrs. Carter, who are inducing the public to purchase their half-crown pinches of the seeds, have no right to withhold from us their authority for these representations. I have bought and sown some, but none has come up yet, though put in at the same time with Indian Corn, which is sprouting. Of this I am very sure, no gentleman would condescend by such means, and through such a medium, to make public the introduction of a grain that would prove so inestimable a boon to the country at large: speaking in my own humble position, I should not hesitate a moment about it, though as a farmer I might endeavour to turn a penny honestly when so doing; and I now ask Messrs. Carter if they will tell us whereabouts this Sorghum has been grown in England, and who also has proved its yielding qualities in this country, as well as its superiority over Wheat as a staple of life. I think, Mr. Editor, you will not con-

sider me asking an impertinent question. A great number of my friends are very anxious about it. *James Stringer, Lynn.*—Permit me to give the result of my experience of the above. From Messrs. Carter & Co. a packet containing 150 seeds was received in exchange for 30 stamps, 100 seeds of which I sowed in pots, in heat averaging 70° Fah. About 30 plants made their appearance in a very weak state, it evidently being a difficult matter for them to vegetate at all (the seeds having the appearance of damaged Rice, and as if they were not ripe when gathered, and were artificially dried), and were now treated in every respect like half hardy annuals,—being removed to a lower temperature of 50° to 60°, again shifted to a cold frame (being protected at night by covering to secure from frost), and then the second week in April were turned out in the kitchen garden; and now they are all dead through cold. Two plants were, however, potted and placed in heat averaging 50° by night, and they are growing fairly. The remaining 50 seeds were sown in a drill, covering them the same as for Onions; these were sown April 4th, and have not yet made any appearance. The plant is certainly not so hardy or so rapid a grower as Zea Mays, or Indian Corn, which has been under similar treatment, not one of which has failed. The Sorghum has the appearance of Wheat, and does not at present show that, if hardy, it would be at all likely to be useful as a forage plant. Will Messrs. Carter kindly inform us where the plant is a native of, the result of the present breadth sown at their seed farm, also who fattened pigs with it? Was it Mr. Thorley? or Mr. Hullett? What dairy has been overflowing with milk through its use? Their doing so would oblige many. *J. H. B. H.*

Societies.

ROYAL AGRICULTURAL OF ENGLAND.

THE Annual General Meeting of this Society was held on Wednesday last, at the Society's House, Hanover Square, H. S. THOMPSON, Esq., President, occupying the Chair. Being the Derby Day the attendance was very limited, but it was explained that the 22d of May was the day fixed for the meeting by the charter, and that it was impossible to alter it.

The PRESIDENT submitted the List of Members of Council proposed for election and re-election to that office, containing the following new names:—The Hon. H. G. Liddell, M.P.; and N. C. Stone, Esq. The members present having signed and handed in the voting papers, the scrutineers were appointed, and after examining them, reported that the list, as proposed by the Council, was unanimously adopted.

Lord WALSINGHAM proceeded to move the election of his Grace the Duke of Richmond, as President for the ensuing year. All who knew the attention which the late Duke of Richmond paid to agricultural matters, and his interest in this Society, would be glad to learn that the present Duke was following his example, and had consented to accept this office.

The motion was seconded by Sir M. LOPES, M.P., and carried unanimously.

The Trustees and Vice-Presidents were then re-elected.

The SECRETARY read the following Report:—

The Council have to report that since last December the Society has lost by deaths and resignations 226 Governors and Members, while 5 Governors and 173 Members have during the same period been enrolled on its list, which is now constituted as follows:—77 Life Governors, 82 Annual Governors, 1388 Life Members, 3903 Annual Members, 15 Honorary Members—making a total of 5465.

The Council have elected the Right Hon. Lord Tredegar and the Right Hon. Lord Chesham to be Trustees in the room of the late Sir John Shelley, Bart., and the late Lord Feversham; the Right Hon. Earl Cathcart a Vice-President, in the room of the late Marquis of Exeter, K.G.; his Grace the Duke of Devonshire, the Right Hon. Sir John Trollope, Bart., M.P.; Mr. William Hasseli, of Bubney, Whitchurch, Salop, and Mr. James Webb, of Springhill, Fladbury, Pershore, Worcestershire, to be Members of Council in the room of Lord Tredegar and Lord Chesham elected Trustees, and of Sir Edward Kerrison, Bart., and Earl Cathcart elected Vice-Presidents.

The Bury St. Edmund's Meeting, to be held in the week commencing Monday the 15th of July, postponed from 1866 in consequence of the prevalence of the cattle plague, promises to be unusually large in the display of Implements. The entries of Horses, Sheep, Pigs, and Poultry, will remain open as usual till the 1st of June, but the Privy Council having decided not to allow any Exhibitions of Store Stock to take place during the ensuing summer, the Council have been compelled to withdraw that portion of the Prize Sheet relating to Cattle. The Society have therefore increased the amount offered in Prizes for Horses 300*l.*, which, with 50*l.* added by the Local Committee, makes the total amount for Horse Prizes 1565*l.*

The Council have decided, subject to the usual conditions, to hold their Country Meeting next year at Leicester.

Lectures have been delivered before the Members by Professor Simonds on Diseases in Sheep; and by Professor Voelcker on the Relative Value of different kinds of Purchased Food, with especial reference to their Manurial Properties; and a discussion has taken place on the Reclamation of Land from the Sea, and the Formation of Tidal and other Banks.

The improvement of the education of the agricultural classes has been the subject of much consideration by the Council, and they have voted 300*l.* for the promotion of that object during the ensuing year, subject to the following conditions:—The Candidates for the Society's honours and prizes must be between the ages of 18 and 25 years, and must produce satisfactory certificates that they have received a good general education. They must also satisfy examiners appointed by the Council that they possess a competent knowledge of the Science and Practice of Agriculture, of Book-keeping, and of one or more of the following subjects:—1. Agricultural Chemistry. 2. Mechanics in their application to Agriculture. 3. Surveying; Veterinary Science, Geology and Botany.

The Council invite special attention to the number of the Journal lately issued. It will be in the recollection of the members of the Society that soon after the decision was made not to hold a Country Meeting last summer, the Council resolved to vote the requisite funds for a special inquiry into the results of Steam Cultivation in England and Wales. The Committee appointed to conduct this inquiry have lately reported that they have concluded their labours, and that notwithstanding the very unfavourable character of the summer and autumn of 1866, they are satisfied that the work has been well and thoroughly done. They state that the reports of the Committees of Inspection occupy 330 pages of the Journal, and have been prepared at a cost of 180*l.* Independently of this amount, which may properly be classed among the Journal expenses, the whole cost of the inquiry has been 692*l.* The wideness of the area over which this investigation has extended, and the magnitude of the interests involved, give to these reports an almost national character, and the numerous lessons to be derived from their careful perusal, both in the way of encouragement and of warning, will be fully appreciated not only by those engaged in Steam Cultivation, but by that much more numerous body who are anxiously endeavouring to satisfy themselves whether or no they may safely take a part in this latest and most powerful development of the resources of British Agriculture. By order of the Council, H. HALL DARE, Secretary.

Sir H. VAVASOUR, Bart., moved, and Mr. J. C. MORTON seconded, the adoption of the Report.

Mr. J. D. DENT, M.P., begged to call the attention of the meeting to the alarming outbreak of cattle plague in the metropolis, to which he thought the attention of the Government had not been sufficiently directed. If they were asked what course they would pursue, it might be the means of imposing some restrictions on the importation of diseased foreign cattle, but without wishing to criticise severely the Privy Council Office, he thought there were marks of doubt and indecision which might lead to great danger. He hoped, however, that remonstrances would be made in Parliament, and by the farmers generally, against allowing foreign cattle to be brought, as at present, into the metropolitan market. He believed the disease was raging in many parts of Europe, and no adequate supervision was exercised to prevent its being brought into London. He hoped the Bill which the Duke of Marlborough had introduced, and which had been read a second time in the House of Lords on the preceding evening, would contain some very stringent restrictions. Last year he scarcely thought they could insist upon the slaughter of foreign cattle at the port of disembarkation, but he was now inclined to think they should be compelled to resort even to that measure. The Government should get more complete information as to the existence of the disease abroad, so as to prohibit the export of cattle from any part of Europe where it existed, but until that were done it was essential to the prosperity and health of our own stock that cattle should be slaughtered at the port where they are disembarked. The present outbreak was of a very grave and serious character. One case had been traced to some Austrian cattle, which had been placed in one of the lairs in the vicinity of the dairy in which it occurred.

Mr. SYMES thought it was not desirable to impose such restrictive measures as might be equally injurious with the cattle plague itself. It was essential however to stop importation from infected districts.

Sir MASSEY LOPES, M.P., concurred in the advisability of slaughtering foreign cattle at the port of entry. He thought the meeting should ask either the Council or a Committee to meet the Government and ask for the adoption of stringent measures. No cattle should in his opinion be allowed to leave a foreign port until we had had no disease in England for one year.

Lord WALSINGHAM said that the Government Bill was referred to a Select Committee, and there would therefore be an opportunity for the Society to interfere, and it was most desirable that they should do so. He inclined to Mr. Dent's opinion that fat cattle, intended for consumption, should be slaughtered at the port of entry.

Dr. CRISP believed there would be no difficulty in carrying such a measure out, as there had been none in introducing other changes. He had always advocated this course. He looked upon the present outbreak as a very serious matter indeed, and thought it scarcely possible that the disease could exist in London without spreading into the country. He hoped the Society would pass a resolution that foreign animals should be slaughtered at the port of landing for the next 12 months.

Sir HENRY VAVASOUR thought that a treaty might be entered into with advantage between England, Russia, Belgium, Holland, and France, to prevent the importation of diseased foreign cattle.

Sir WALTER STIRLING regretted the smallness of the meeting, as it would have been very desirable to discuss not only the important question of the cattle disease, but also the proposal as to the establishment of Chambers of Commerce, and the question of the Malt-tax. He should also have been glad to see some public tribute paid to the ability and exertions of the President, and of the late Lord Feversham and Sir John Shelley.

The PRESIDENT referred to the proposed special meeting appointed for Wednesday next to discuss the great question of steam cultivation, when from the number of those interested therein, who had promised to attend, there would doubtless be a very useful and interesting discussion. With regard to the cattle plague, the Duke of Marlborough had intimated to him his wish that the Council of this Society should appoint a deputation to the Government with reference to the Bill now before Parliament. He had himself been of opinion that an effectual system of quarantine might be adopted. With regard to the prohibition of the showing of cattle at the Society's next exhibition at Bury St. Edmund's, the President read a letter which he had addressed to the President of the Council, and the official reply thereto, dated the 7th instant, to the effect "that if the Privy Council were to allow exhibitions of Store Stock, like that of the Royal Agricultural Society, to take place, the risk of spreading the disease would be increased, without a corresponding increase of advantage to the public; and that, so long as the danger of the cattle plague spreading is such as to render it necessary to place the country generally under severe restrictions, which must seriously interfere with the ordinary traffic in animals, the Privy Council do not feel justified in relaxing any of such restrictions in favour of a Society whose object is to improve the breed of cattle by collecting them for exhibition from all parts of Great Britain; an object which cannot be accomplished at the present time without considerable risk."

Dr. CRISP said that the importance of preventing the spread of the cattle disease was so great that he would move as a resolution, "That in the opinion of this meeting, during the existence of cattle plague in this country, and for some time after its disappearance, all foreign cattle used for food should be slaughtered at the ports of landing, and all store cattle kept for 21 days in quarantine."

The PRESIDENT said that a resolution on the subject had been prepared by Sir Massey Lopes, as follows:—"That the Council be requested to give their special and immediate attention to the Government Bill on contagious diseases among cattle, and to appoint a deputation to represent their views to the Lords of the Privy Council, as well as to impress upon them the importance of enforcing the slaughter of all foreign cattle at the ports of disembarkation during the prevalence of cattle disease in the countries from which they are brought."

Dr. CRISP said that although he preferred his own resolution, as he could not trust the Government on the subject, he would withdraw it in favour of that now suggested.

Sir MASSEY LOPES having moved, and Mr. DENT having seconded, the above resolution, it was carried unanimously.

The adoption of the Report of the Council was also agreed to unanimously, and the proceedings terminated with thanks to the Auditors and the President.

Farmers' Clubs.

MORAYSHIRE: *Steam Cultivation.*—At the last quarterly meeting of this Club, Mr. Yool, Coulartbank, read the following paper on Steam Cultivation:—

At the request of the Committee, I have now much pleasure in laying before you a few notes of my experience in steam cultivation, as carried out on the farms I occupy. I will not enter on any lengthened review of the comparative merits of the different systems of steam cultivation now in use, seeing that the report of the Committee of the Royal Agricultural Society of England, soon to be published, will be much more full and explicit on that subject than any remarks I could offer. The system which I have in use, as many of you doubtless know, is that in which the engine and windlass are stationary, being set down at the end or any other convenient part of the field, while the hauling rope is carried round the field on porters, the implement (plough, cultivator, or harrows, as may be desired) being worked backwards and forwards between two moveable anchors. The reasons which induced me to adopt this system were, its first cost being comparatively moderate, and its general adaptability to fields of any size, shape, or irregularity of surface. The double engine system requires less rope, and where the fields are square and large a greater amount of work can be got over in a day than with the stationary engine system. The double engine system also requires less time in removing from field to field, but I consider it is more adapted for letting out for hire than for a farmer's own use, unless his holding is exceptionally large. Besides, the first cost is nearly three times that of the other. The cost of such a set of tackle as I use with a ten-horse power portable engine, as supplied by Messrs. Howard, Bedford, is 520*l.* This sum includes the cultivator, but not a plough or harrows. The price of a three furrow plough is 65*l.*, and of steam harrows 22*l.* 10*s.*

The apparatus came to hand last October, and was worked during the autumn and early winter. As might have been expected, there was, at first starting, a considerable loss of time and many annoyances, owing to the want of knowledge on the part of the men employed, not one of whom had ever seen or known anything of steam cultivation before. From these causes, no just or accurate idea of the cost of working would be got from a detailed account of the first few weeks' experience, so that I propose, in the following remarks, to confine myself to the period embraced between the starting of the apparatus in February of this year and this date.

The hands employed consist of five men and two boys, with occasionally an additional boy with pony and water cart, when the engine does not happen to be set down near a ditch or other supply of water. The wages paid are at the following rates:—Engine driver, 2*s.* 8*d.* per day; three men at 2*s.* 4*d.* each, one at 1*s.* 8*d.*, and two boys at 10*d.* each—in all, 13*s.* per day. When the boy with pony and water cart are required, I have charged them at 4*s.* per day additional. I may mention here that at first I had 800 yards of rope on each drum of the windlass, but have now added 250 yards more, making 1050 yards on each, which is sufficient to go round a field of 40 acres, the largest I have. By this a considerable saving of time and labour is effected, as, before, with the shorter rope, first one half and then the other of a large field had to be done, entailing an additional shifting of the tackle, and, of course, considerable loss of time. I have also adopted the patent snatch block slings. By their use time is also economised, the anchor men being enabled to shift their anchors without any help from the ploughman, who has merely to change his seat from the one end of the plough or cultivator to the other, and away he goes again.

The first work this spring was ploughing a field of Grass for Potatos, and then cross cultivating it. The field was 14 acres in extent, and consisted partly of hard gravelly soil, and partly of light sand, with occa-

sional bars of clay through it. Most of it had a very hard indurated subsoil. It was ploughed 8 inches deep in four days at an expenditure for wages of 52*s.*; for coals, 2 tons 7 cwt. at 16*s.*—37*s.* 6*d.*; and 4*s.* for oil—in all, 93*s.* 6*d.*, or 6*s.* 8*d.* per acre. A good deal of time was lost in ploughing this field, owing to the number of large stones which the plough encountered, and which broke several shares, besides a mouldboard. The same field was immediately afterwards crossed with the cultivator to a depth of from 10 to 11 inches, and at a much quicker rate. Two days sufficed for this latter operation, at an expenditure for wages of 26*s.*; for coals, 1 ton 3 cwt. at 16*s.*, 18*s.* 9*d.*; and 2*s.* for oil—in all, 46*s.* 9*d.* or 3*s.* 4*d.* per acre. This finished the preparation of the field for Potatos, the next operation being the drilling and planting. The engine in this case was set close to a well in a drain, so that a water-cart was not required.

The next field operated on was one of 37 acres, intended for Turnips. The previous crop had been Oats, and the field was rather dirty, and in one hollow very wet. This hollow had been several times drained, but after a very short time the drains always ceased to run. Immediately it was steam cultivated the water disappeared, as I suppose from the breaking of the hard Moray coast, which underlies that part of the field, and since then (25 March last) notwithstanding the unusual amount of rain which has fallen, water has not lain on it. The 37 acres were once cultivated from 8 to 9 inches deep in five days and two hours, including time occupied in removing from the previous field, at the following cost—Three hours of a man and pair of horses removing windlass, running out ropes, &c., 3*s.*; wages (including boy, pony, and water-cart, at 4*s.* a-day), 88*s.* 6*d.*; four tons of coals, at 16*s.*, 64*s.*; and oil, 5*s.* 6*d.*—in all, 161*s.*, or 4*s.* 4*d.* per acre. A considerable part of this field had to be done with only three tines to the cultivator instead of five, as in the previous case. The only breakage was of one of the cultivator tines, which struck an earth-fast stone while the implement was going at a considerable speed, and snapped right across. The most of the field was of a light, sandy nature, and partly, as I have already said, overlying what is too well known in this county by the name of Moray coast.

The next field operated on was one of 24 acres, consisting in the middle of very fine, deep, alluvial loam, and towards the sides of lighter and more gravelly soil. It had been steam ploughed in the autumn to a depth of 8 inches, and was, on the occasion now referred to, cross cultivated with three tines to a depth of from 10 to 11 inches, in preparation for Turnips. When steam ploughed in the autumn, a good many large stones were turned up along a ridge which runs through the field, and a number more were turned up while cultivating it across. These stones caused a good many breakages with the plough, but none with the cultivator, the engine-driver being instructed to slacken speed while passing over the ridge, so as to avoid a sudden concussion. The time occupied in cross cultivating this field, with three tines, to the depth indicated, was three and a half days, which included the time occupied in removing from the previous field, about three-fourths of a mile away. The cost was—three hours of a man and pair of horses shifting, 3*s.*; wages (including boy and water-cart, at 4*s.* per day), 59*s.* 6*d.*; coals, 2½ tons at 16*s.*, 40*s.*; oil, 3*s.* 6*d.*—in all, 103*s.*, or 4*s.* 5*d.* per acre. Being clean, this field lies in a fine state ready for drilling.

The next field cultivated was one of 30 acres, also intended for Turnips. It consisted of lightish soil, which had been in grass the two previous years, and was, during the end of last season, skim-ploughed with horses for the purpose of turning down and rotting the surface. A deep ditch runs through the corner of this field, cutting off a triangular piece of about 6 acres. This caused some waste of time, which always occurs with such small pieces. The larger and the nearer square a field is, the more economically it can be worked by steam. The time occupied in cultivating this field, to a depth of 9 inches, including the time taken in shifting from the previous field, which was 2½ miles distant, was five days. The cost for wages, including boy and water cart, was 85*s.*; for coals, 2 tons 17½ cwt. at 16*s.*, 46*s.*; oil, 5*s.*; four hours of a man and pair of horses shifting windlass, &c., 4*s.*—in all, 140*s.*, or 4*s.* 8*d.* per acre. Except a few spots which contain couch Grass, this field requires no more working previous to opening the Turnip drills. One large stone was encountered, but there were no breakages.

The next field cultivated consisted mostly of strong clay, and intended for Barley. The Turnips on this field had been eaten off by sheep, and the ground was consequently very hard. Owing to the wet unfavourable nature of the season during the time the sheep were on the field, a good deal more poaching and consequent hardening of the land took place than would have been the case had the season been more favourable. Part of the field was ploughed and part left unploughed, as an experiment. The steam cultivator was sent right across both the ploughed and unploughed, and the drill kept going immediately behind it. The field was 36 acres in extent, and was broken up in a masterly manner to the depth of from 9 to 10 inches in four and a half days. It lay contiguous to the previous field, and consequently little time was required in shifting. The outlay was:—For wages, 58*s.* 6*d.*; for coals, 4 tons 16 cwt. at 16*s.*, 76*s.* 9*d.*; oil, 4*s.* 6*d.*; and two and a half hours of a man and a pair of horses shifting, 2*s.* 6*d.*—in all, 142*s.* 3*d.*, or very nearly 4*s.* per acre. The quantity of coal used for this field was large, owing to the high pressure of steam required to drive the implement at the rapid pace at which it went through the indurated clay. The cultivator came in contact with two large stones, which it tore out and brought to the surface, but, luckily, without any breakage.

This comprises all the work that has been done this spring up to this date. The apparatus is still at work, and has a good deal to do for myself yet, as well as some on hire, in preparation of land for Turnips.

In the previous remarks on the cost of the various work done, I have not put anything down to the expense of keeping the apparatus in repair, nor for tear and wear, nor interest on capital. I could not do so without more extended experience. The heaviest item of tear and wear will, I expect, be the wire rope, which, if not kept off the ground, soon wears, and is expensive. Altogether, I do not anticipate that the wear and tear and expense of repairs will cost more, if so much, as that of the horses and implements displaced. I have not, in the previous remarks, made any comparison between the cost of horse and steam work. Each of you can do so for yourself; at the same time I may state that, from my experience, the same work could not be done by horses at anything like the same cost; in fact, many of the operations could not be done by horses at all. A steam drawn implement shatters the land in a way that a horse drawn implement cannot do. Of course, the great test of the value of any operation in agriculture is the result in the crops. This I cannot state, seeing that I have not yet reaped a crop from land that had been steam cultivated; but, judging from analogy, I have no fear of the result. Deep and efficient cultivation at the most favourable season, more especially on strong land, is admittedly a great means for securing a good crop, and I have no hesitation in saying that steam gives us a power by which such may be obtained, which horses cannot equal. It is of great importance to work strong land when dry; but this is precisely the time when horses cannot do it, heavy clay becoming so hard and blocky after a tract of dry weather in autumn, that horses have not sufficient power to pull through it, and the work must be delayed until some rain falls to soften the land. The horses' weakness is the steam engine's opportunity. It does not matter how hard and dry the land is for steam; indeed, if there is one thing more than another that should be attended to in steam cultivation, it is never to attempt to work unless the land is dry; the tackle should be laid aside whenever it becomes at all wet. If clay land is ploughed or cultivated by steam when in a wet state, more power will be expended in hauling the sinking implement and dirty rope than if the land were ever so hard and dry.

I may mention that the engine I use is a traction one of 10-horse power, which removes itself and all the necessary apparatus, except the windlass, from place to place, thus saving a good deal of heavy horse work. The engine, besides ploughing, is also, of course, available for threshing. I use a portable threshing-mill, which the engine takes back and forward between the two farms as it is required.

In conclusion, Mr. Yool stated that he had no doubt his steam cultivation was a success; but the man who adopted it must lay his account for a large amount of personal labour. It would not do to leave the cultivator to the care of servants; the master must be there. The machinery would never be got into working order without a large amount of personal labour to begin with. His cultivator would have stuck altogether, if he had not been in attendance at the working of it himself. When the implements were left to the care of servants, they would not work them. Their prejudices were against the innovation, and so much in favour of their old ways that, unless a man were determined, it could not succeed.

Reviews.

Agricultural Class Book. Longmans. 1867.

This is printed and published under the direction of the Commissioners of National Education, Ireland. It is one of the first fruits of Mr. Baldwin's directorate of the agricultural department of the Board.

It is addressed to the wants of three classes of readers.

"It is intended to be read as an Agricultural Class-book in rural National Schools, and as an introductory text-book by the agricultural boarders who are undergoing a regular course of agricultural training in the large National Agricultural Schools of the country. And it is also hoped the book will be read by the adult farming classes.

"The author has aimed at explaining the principles and describing the practice of modern agriculture in plain and simple language, intelligible to these classes.

"The book is divided into four parts. In the first part the nature of the soils and manures, or raw material on which the farmer operates, is explained. Then follows a description of the principal implements and machines used in agriculture. The crops raised on the soil, and the mode of cultivating them are described in part three. A description of the breeds of live stock fed on these crops, and the mode of rearing and feeding them, are given in the fourth part.

"In the first part, several terms are used, of which the reader, who has had no previous knowledge of the subject, requires an explanation. These terms, and some others, are explained in a glossary at the end of the work.

"It is hoped the book will be the means of disseminating correct views of agriculture among the tenant farmers of Ireland, and materially aid in correcting those defective practices which have hitherto been a source of reproach and loss to the Irish people."

We quote this from the preface, which is a fair description of the contents of the work. It is a small octavo of 340 pages, as closely packed as possible with useful information on soil, manure, and implement, and crop, and animal—and there is a long list of illustrations of tools, and plants, and breeds of cattle, sheep, and pigs. The drawings of the Grasses are very good—those of live stock are less satisfactory—the farm implements are well drawn—the whole is a very excellent class book, well adapted for all the three purposes to which its preface points.

We have to lament the recent death of Dr. Kirkpatrick, the late director of the Irish Agricultural Schools; the work just issued shows that his office is filled with admirable efficiency by his successor.

Farm Memoranda.

Falster is one of the most fertile of the Danish isles, and contains probably the best managed and most productive estate in the whole kingdom. Mr. Tesdorpf, the proprietor, is well known as an advanced farmer of the advanced school, practically acquainted with all the details of modern husbandry, ready from his knowledge to appreciate all real improvements, and able and willing to carry them out on his farms as soon as he is satisfied that they are sound and suitable. His farming is upon a very extensive scale, having in his own hands and under his own direct management, no less than 2386 Tönder-land = 3252 acres, in tillage cultivation, with 250 Tönder-land = 338 acres, in permanent pasture, and 940 Tönder-land = 1281 acres, in woodlands, chiefly Oak and Beech. The arable land is divided amongst five farms:—

Ourupgaard, which contains	1016	Tönder-land.
Kringelborg "	276	"
Gjedsergaard "	529	"
Frisenfeld "	291	"
Böttögaard "	280	"

The soils are chiefly strong alluvial loams, containing a good percentage of organic matter, with generally a strong marly substratum. The land lies pretty level, the maximum elevation of the surface not exceeding 50 feet above the sea level. This, however, gives an inclination quite sufficient for all the purposes of drainage, which has been carried out gradually all over the estate.

Mr. Tesdorpf, like Mr. Valentin, believes in the importance and value of strictly-kept "farm accounts," and can turn to his "ledger" and give the debtor and creditor statement in produce as well as in cash returns, of every department of his farming since he came into possession of the property. From these sources Mr. Tesdorpf was able to reply to every inquiry in the fullest and most satisfactory manner, attaching the stamp of exactitude to his information, which the mere opinions even of the most scrupulous and honest could not give. The land has all been thorough drained. The cost of draining averaged 40 rigs-dalers per Tönder-land or about 3*l.* 7*s.* per acre. The drains were laid with pipes at a general depth of 4 feet,* and at 48 feet distances apart. The Kringelborg farm, which is of a more argillaceous character than the others, was drained 5 feet deep, with 36 feet intervals.

The estate is farmed on a seven years' rotation:—

1st year, Bare fallow—two-thirds winter, one-third summer.
2d year, Wheat.
3d year, Barley or Oats.
4th year, Beans, one-fourth: Peas, one-half; Turnips, one-fourth.
5th year, Oats or Barley.
6th year, Seeds, mown and grazed.
7th year, do. do.

This rotation has been found to succeed very well, and it allows a long interval to elapse between the recurrence of the same crop on the same land—a principle that never should be forgotten—a policy that cannot be questioned. The large area of permanent pasture which has been drained and improved, furnishes, with the seeds of the regular rotations, ample keep for the large stock of cattle and sheep kept on the estate.

The use of artificial manures was only introduced on the farms a few years ago, now they are applied liberally, in conjunction with the farmyard dung, to all the crops. The following are about the proportions in which manure is applied to the different crops. For winter corn—Wheat and Rye—14 loads of farmyard manure with 4 cwt. of superphosphate, and 1 cwt. of Peruvian guano per Tönder-land. For the Barley crop, 3 cwt. of superphosphate, ½ cwt. each of nitrate of soda and Peruvian guano. For Oats, 4 to 5 cwt. superphosphate and 1 cwt. of Peruvian guano. For Beans, 3 cwt. of superphosphate and 2 cwt. of Peruvian guano. For roots, 4½ cwt. superphosphate and 2 cwt. Peruvian guano. For Beans and Peas, 12 loads of farmyard dung.

The superphosphate is all made on the farm. The average annual consumption of bones is between 350,000 and 400,000 lb. weight; these are steamed and ground, and then treated with sulphuric acid (sp. gr. 1.52) at the rate of 35 lb. to each 100 lb. of bones. The cost of the manure applied averages about 13½ rigs-dalers per Tönder-land under tillage crop.

The effects of thorough drainage and of a judicious and liberal application of manure on the produce of the land, may be seen in the following returns, summarised from the detailed annual statement.

	Average corn produce 1850 to '54	Average produce for 1855 to '59.	Average produce for 1860 to '64.	1865. Estimated produce.
	Un-drained.	After draining & artificial manure.		
	Tönder.	Tönder.	Tönder.	Tönder.
1. Ourupgaard ..	5463	5931	7324	8233
2. Kringelborg ..	1624	1726	2293	2648
3. Gjedsergaard ..	2580	2833	3748	4268
4. Frisenfeld ..	1049	1416	1965	3070

The Wheat and Barley are all sold; the Rye is only grown for home use as a bread corn; Beans, Peas, and Oats are all consumed on the farm. The principal object of the management is dairy farming, and two of the best farms are devoted to that object, the soils and arrangement of the others not being so suitable.

Five labourers are kept, on the average, for each 100 Tönder-land, besides a certain force of women and

* The Danish foot is equal to 1.0298 feet English.

boys; at harvest time additional hands are employed. The necessity for such help has of late years been considerably lessened by the use of reaping and mowing and haymaking machines. Two pairs of horses are kept for each 100 Tönder-land for the ordinary work of the farm. If the farm lies at a distance from the markets or shipping port an additional horse or two may be required for road work. The labourers are generally hired by the year or half-year. The single men live altogether on the farm; the married either live in cottages at the homestead or in the neighbouring villages. The present rate of wages for single men ranges from 50 to 70 rigs-dalers per annum (5*l.* 10*s.* to 8*l.*) The married men living off the farm have about a half rigs-daler (13½*d.*) per day. In harvest time they earn about double this sum. In all the best districts the rate of wages is gradually being raised. To most of the cottages a portion of land is attached, generally two to three Tönder-land. Those married men working regularly on the farm who have no land with their dwellings have the privilege of obtaining a certain quantity of corn, butter, and milk of their employer at reduced rates—in addition to which they receive firewood, medical attendance for their family, and schooling for their children, all free, besides that general consideration and those many little kindnesses which are rarely omitted when the relations between the master and his servants are properly understood by both.

In Denmark the ordinary labourers' cottages are good, comfortable, and very cheap; the rent, with about half an acre of garden ground attached, being only from eight to ten rigs-dalers per annum. The men are free to work for whom they please, but, as a rule, they work on the nearest farm. There are altogether on this estate 114 cottages, with about three Tönder-land attached, and about 100 other cottages, with garden ground, but no arable land. The rest of the property consists of small farms, averaging 60 Tönder-land each (Böndergaard), which are let on the usual tenures.

The live stock on the several farms consists of 10 bulls, 368 dairy cows, 103 head of young stock, 90 head of feeding beasts, 2353 sheep, and 310 head of swine of various ages, besides the horses already enumerated. The cows are all kept for milking purposes, and are all of the Angel breed. The sheep are coarse-bred Merinos; about 600 of them are breeding ewes, and about the same number of wethers, &c., ready for the butcher, are sent to market each year.

The wool-produce of the flock averages 4 to 4½ lb. all round. The fat sheep and cattle are generally sent to Leith, where they have averaged lately about 35*s.* per head for sheep (out of the wool), and 20*l.* per head for cattle. The pigs are sent to Hamburgh, where 235 were sold fat during the last 12 months, at an average price of 32 rigs-dalers (3*l.* 12*s.*) per head.

The entire herd of dairy cows are of the Angel breed. Mr. Tesdorpf considers that this breed gives a larger yield of milk in proportion to its size and weight, than any other breed. By judicious selection in breeding, and care and good feeding from the birth, his stock has acquired proportions and points far superior to what are usually to be met with in its native districts, and he is sanguine that in the course of a few years he will have secured a herd with milking qualities of a very superior description. The milk produce of each cow is noted daily, and the best milkers are put to the best bulls, and each year fresh heifer blood is bought in from the choicest stocks in Slesvig, and a fresh bull obtained from a well-known herd in Zealand. The cows are kept for half the year in the byres, and the other half in the fields, where they are tethered in the usual way until September, and then allowed to go loose. The strong feeding they receive in the byres during the winter, aided probably by the want of proper exercise, causes a rather large percentage to miss being in calf. The loss, too, by milk fever after calving is rather high, being about two per cent.

The general management of the dairy is on the most improved system; any improvements that are made, either in the manipulation of the materials or in the utensils used, are from time to time introduced. Besides the large staff of dairymaids and assistants, there is a small three horse-power steam engine to do all the heavy work connected with the dairy. It grinds corn, &c., for the cows, works the churns, and supplies steam for the preparation of the milk for cheese, and for cooking the food as well as warming the chambers of the persons employed in the dairy. The whey from the cheese vats is carried by means of a pipe direct from the dairy to the piggeries. *Professor Wilson's Official Report.*

Calendar of Operations.

JUNE: *Turnip Culture.*—We repeat here the memoranda on Turnip culture which have previously been published in the *Agricultural Gazette* Swedish Turnips should be got in during the early part of the month of May in Scotland, and in South England during the latter part of it, and in June. The land, after the cultivation already received, may be reduced to a sufficient tilth, and will probably be sufficiently cleaned by once using the cultivator or scarifier, which is to be followed by the harrows, and then by women to gather weeds, pick stones, &c. The land is then to be ridged up in drills, about 26 inches wide; the dung-cart passes up every third furrow, the man behind it pulling out the manure as the horse proceeds, so as that the load shall be emptied in a length of from about 50 to 100 yards, according as the quantity to be applied is from 40 to 20 loads per acre. The filling of the manure may be let at ¾*d.* per cubic yard. The manure thus delivered is divided by a man who follows amongst the three drills to which it belongs, and the share of each is spread evenly by three women or boys following the man. If no guano, or especially superphosphate of lime, has been mixed with the dung in the heap, now is the time to apply it broadcast over the field, so that on the splitting of the drill it may be covered with the manure, and at the same time mingled with the earth which is to act as seed bed. In some cases bones and artificial manures are all that the Turnip crop receives; in this case the drills may be opened as before, the manure sown by hand along the furrows, and mingled with the soil by a horse-hoe following the sower. In either case it will be understood that in order to avoid the loss of moisture, &c., both from the soil and the manure, the ploughs which are at work in the field, after opening up about 12 drills, on which the dung-cart or manure-sower is at work, keep working round and round the parties thus engaged, opening furrows on the one side for receiving the manure, and closing them on the other side, thus covering their contents. The sowing machine is immediately to follow all, sowing 2 or 3 lb. per acre. The only safe remedies for fly are a good and rich cultivation and abundant seeding, which all tend to force the young plant rapidly through the season of its danger. It is well to have 12 or 14 drills ready for the sowing machine on the evening before you commence sowing, that there be no loss of time in the morning. A piece of common Turnips may be sown this month, as an early root crop for consumption in September. Land that has been broken out of old pasture, which received its first shallow ploughing in April, should be cross-ploughed now, and may be again worked with grubber, harrows, and roller, until in sufficiently fine tilth for Turnips. It is advisable to plough shallow at the first furrow, and cross-plough deep afterwards, both because the operation of reducing to tilth is better done thus piecemeal, a few inches at a time, and because the ashes which were spread on the surface are thus not buried too deep in the land. Crosskill's clod-crusher will be found useful this and next month.

Cabbages may now be transplanted in the fields, the land having been prepared, as for any other green crop, by deep and clean cultivation, and plentiful manuring. The large Drumhead Cabbage seldom requires a less space than 27 by 24 inches; on very rich land the distance between the rows may be 3 feet.

Flax is to be carefully hand-weeded by women and children, who go on the land on their knees, facing the wind, that the bent plants may be blown upright.

Buckwheat.—One bushel of seed per acre should be sown in rows 12 inches apart, in the middle of this month, on any light soil ploughed early in spring, and now cleaned and reduced to a tilth by the action of scarifier and harrows.

GRASS LANDS may be fully stocked. Meadow lands must all be "laid in."

LIVE STOCK.—*Health.*—As the hot season approaches, animals become more subject to diseases of the digestive organs, and epidemic diseases become greatly modified; for instance, in horses, *influenza*, when it occurs, is characterised by great derangements of the liver, and the mucous membrane of the bowels. *Colic*, particularly the flatulent kind, is also very common with horses, from the green food with which they are usually supplied, and which might to a great extent be prevented by greater moderation with this article of diet. *Inflammation* of the bowels is also more prevaleut; and also inflammation and congestion of the lungs from over exertion. *Lamenesses*, from the hardness and dryness of the roads, are frequent.

In animals more in a state of nature, such as horned cattle and sheep, summer is the healthiest period. In both classes, however, *Hoven*, or blasting, is common, from the Clovers and Grasses which are partaken. The *Fly* also proves exceedingly troublesome.

Sheep.—The practice of night folding on fallows, common along the edge of the Chalk Downs, begins this month. The ewes on good pastures will now be doing well. Their lambs will require constant attention; and change of pasture and food will be necessary. Fattening and ordinary grazing sheep will require extra care, as the transition from Turnips to Grass frequently causes purging, which may be partially stopped by bleeding; if, however, it prove obstinate, some astringent must be given, as Catechu, chalk, laudanum, Wheat-meal, &c. Their feet should be examined, and all loose portions of skin and hoof removed, in order to prevent foot-halt.

Dairy Farm.—Cheese-making is become general, even in the smallest dairies. Care must be taken that, in turning out the cows to Grass, which is done about the 10th of May, they be not chilled by sudden changes of weather, as this will immediately lessen their produce of milk. Pigs must be bought to consume the whey and buttermilk. By the end of this month the earliest calves are turned to Grass, which is done with great care. There are placed in a field near the homestead, where milk and water, or sweet whey, is given them once a-day. It is well to wean them from milk by diluting it with water. At ten weeks old they will need nothing but Grass. The older cows are allowed access to the bull this month. In cheese-making the night's milk is used to cool the morning's new milk. The rennet should be added at a temperature of about 80° Fah., and when the curd has formed, a portion of whey may be heated, so that when returned it may raise the whole to 90° Fah., when the curd will be rich, firm, and well formed. The whey should be run into shallow vats, and the cream collected and churned; the quantity of whey butter should never exceed half a pound per week for each cow.

Notices to Correspondents.

POULTRY: *E R R.* In an instance known to us 13 hens and a cock (no young birds raised) consumed 2*l.* 8*s.* 3*d.* worth of Barley, Wheat, and graves in 11 months. In another, 4*l.* 7*s.* 6*d.* worth of Wheat, Barley, Oats, and Groats were consumed in the year by 10 hens, one cock, four ducks, and one drake; as many as 104 chickens and ducklings being raised, to the average value of 1*s.* 6*d.* apiece. In the latter case there was a good run, in the former very little.

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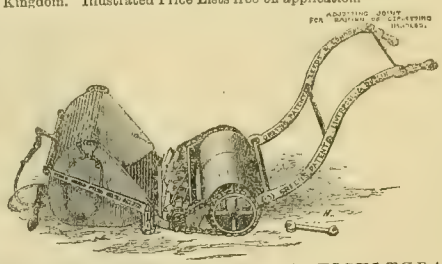
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12 inch ..	.. 4 10 0 "	20 inch ..	.. 7 0 0 "
14 inch ..	.. 5 0 0 "	22 inch ..	.. 7 10 0 "

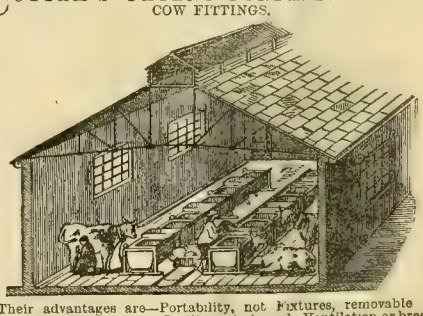
Delivered free to any station in England on receipt of Post Office Order.
Also Lawn Mowers of other kinds, viz., Green's, Shanks', Samuelson's, Ransome's, &c, supplied at makers' prices.
J. JONES & SONS, 6, Bankside, Southwark, London, S.E.

GARDEN ROLLERS.—IMPROVED MAKE.
PRICES.

16 inch ..	.. £1 13 0 each	24 inch ..	.. £3 0 0 each
18 inch ..	.. 1 17 0 "	26 inch ..	.. 3 10 0 "
20 inch ..	.. 2 3 0 "	28 inch ..	.. 4 0 0 "
22 inch ..	.. 2 10 0 "	30 inch ..	.. 5 10 0 "

Delivered free to any station in England on receipt of Post Office Order.
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COTTAM'S PATENT PORTABLE UNITED COW FITTINGS.



Their advantages are—Portability, not Fixtures, removable at pleasure, no Woodwork or Partitions to impede Ventilation or breed Vermin, Hay Rack dispensed with as unnecessary, increased width and depth of Feeding Troughs, Water Cistern, and Patent Drop Cover to prevent over-gorging. Cleanly, durable, and impervious to infection, being all of iron. Price of Fittings per Cow, 55*s.*
Prospectuses free of COTTAM & Co., Iron Works, 2, Wimsley Street (opposite the Pantheon), Oxford Street, London, W., where the above are exhibited, together with several important Improvements in Stable Fittings just secured by Patent.

IRON HURDLES (Silver Medal of the Royal Agricultural Society).
SHEEP, 3s. 5d.; CATTLE, 4s. 2d.; OX, 5s. 11d.
List by Post. GATES and FENCING of every description.
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CAST IRON VASES. FLUTED PATTERN.

Size.		Price.	With Pedestal.
High.	Diam.	Each.	
20 by	16	£1 0 0	£1 10 0
30 by	25	1 13 0	2 10 0

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CAST-IRON VASES. TAZZA PATTERN.

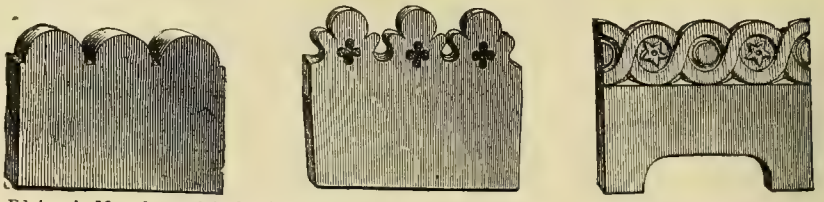
Size.		Price.	With Pedestal.
High.	Diam.	Each.	
14 by	22	£1 5 0	£1 15 0
22 by	30	2 5 0	3 3 0
25 by	42	3 15 0	4 15 0

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MANUFACTURED BY
HENRY DOULTON & CO.,
HIGH STREET, LAMBETH, LONDON, S.

No. 1. No. 2. No. 4.



This Edging is Manufactured in Vitrified Stoneware and in Terra Cotta, and is WARRANTED IMPERISHABLE.
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JOHN WARNER & SONS,
BRASS AND BELL FOUNDERS TO HER MAJESTY.
HYDRAULIC ENGINEERS,
8, CRESCENT, CRIPPLEGATE, LONDON, E.C.

J. W. AND SONS' GOODS MAY BE OBTAINED OF THE TRADE GENERALLY AT THE FOLLOWING PRICES:—

No. 39. WARNERS' CRYSTAL PALACE FIRE ENGINE, OR PORTABLE FORCE PUMP.

With this compact, portable, and generally useful Engine, one man will throw from 15 to 18 gallons of water per minute to a height of 50 feet. All its working parts are of Brass, the Barrow of Wrought Iron; easy access to the valves is gained, and the workmanship throughout is substantial. Not only will it be found most useful in cases of Fire, wherever a supply of water can be obtained, but also for Watering Lawns or Fruit Trees.



CRYSTAL PALACE, SYDENHAM, March 2, 1867.

Messrs. WARNER & SONS,

"Gentlemen,—I feel great pleasure in stating that I was present at a trial of your small Crystal Palace Fire Engine, and was much pleased with its efficiency and simplicity.

"The Pump throws out a steady jet of water to a height of 50 feet with very little labour. The Pump we have is well made, very simple in its parts, and not likely, I think, to get out of order. The advantage of this Pump is its being very portable. Besides being a good Fire Engine, it will make an excellent Garden Engine.

"I remain, Gentlemen,
"Yours obediently,
"EDWIN ROSE,
"Engineer to the Crystal Palace Co."

Price on Barrow, with Branch Pipe, Spreader, Unions, and Suction Rose ... ... £6.
1¾-in. 2-ply Rubber Suction Pipe, per foot, 2s. 2d. 1¼-in. ditto Delivery Hose, 1s. 4d.



No. 547, in Wood. 547A, in Iron Tub.

WARNERS' GARDEN ENGINES,
WITH REGISTERED SPREADERS.
These Engines are much improved in construction, are less likely to get out of order, and more easily repaired than others.

No. 547. Best ENGINES, in Wood Tubs.

24 Gallons	..	£6 10 0	14 Gallons	..	£5 10 0

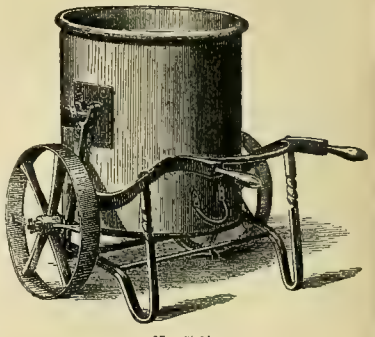
No. 547A. Strong ENGINES, in Galvanized Iron Tubs, well painted inside and out.

10 Gallons	..	£2 19 0	24 Gallons	..	£4 19 0
16 Gallons	..	3 14 0	28 Gallons	..	5 10 0

579½. WARNERS' WATER BARROW
Saves a Gardener's time in Watering with the Water Pot.
Made of strong Wrought Iron, Galvanized and painted inside and out.

To hold 20 Gallons, wheels 13 inches high			..	..	£2 2 0
,, 30 ,, ,, 20 ,,			..	..	2 13 0
,, 38 ,, ,, 24 ,,			..	..	3 17 0
,, 50* ,, ,, 24 ,,			..	..	5 12 0

* This is an extra strong article, with cross handle for two men, suitable for Nursery Grounds, &c.



No. 579½.

SYRINGES, BRANCH PIPES, INDIA-RUBBER HOSE, &c.
Estimates for any description of Hydraulic Machinery forwarded on application.

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INTERNATIONAL EXHIBITION, Class IX., No. 2119.

Mr. GRAY begs to call the attention of the Nobility, Gentry, Nurserymen, Gardeners, &c., to his

NEW OVAL TUBULAR BOILER,

Acknowledged by practical judges to be a great improvement on every form of Tubular Boiler yet introduced. It has proved itself superior to all other Boilers for quickness of action and economy of Fuel, doing its work with one-third less the amount required by any other.

Extract from Report in Gardeners' Chronicle *of International Exhibition, May* 24, 1862, *page* 476.

"The upright form of Boiler is usually made on a circular plan, but the oval form given to Mr. Gray's variety of it is said to be preferable in consequence of its bringing the tubes in closer contact with the fire. The usual form of a furnace being a parallelogram rather than a square, it seems feasible that the Boilers on the oval plan should bring the tubes more completely within range of the burning fuel; and this being so, the change, though a slight one, is no doubt an improvement."

☞ *They are made of all sizes, which, with prices, may be had on application.*

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RICK CLOTHS, New and Second-hand, with Poles, &c., complete.

MARQUEES and TENTS, for Croquet, Cricket, and Archery.

TEMPORARY ROOMS on HIRE for Balls, Dinners, Parties, &c.

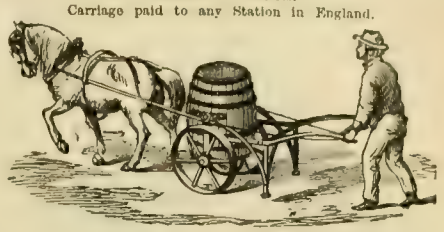


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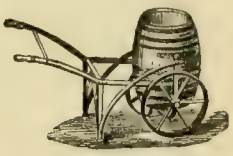
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No other Establishment.

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W. S. BOULTON'S 36-gallon SWING WATER BARROW. Price 45s.
Carriage paid to any Station in England.





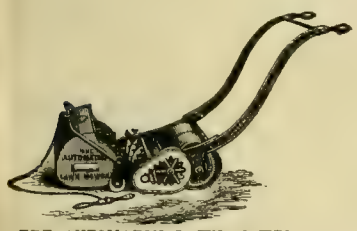


The above is very cheap and invaluable for carrying Liquids of all kinds. No Garden, Farm, Stable, or Kitchen Yard should be without one. Two or more Tubs can be had with one Carriage at a small additional cost. A Lad can easily work it; but if required to travel long distances over rough ground a Pony can be attached. The wheels and carriage are wrought iron, and the tub oak. The following, out of many Testimonials, have been received:—

From Lord Otho Fitzgerald, *West Park, Salisbury.*
"Sir,—You are welcome to make use of my letter recommending your Water Barrow. I find it of great use, and stronger, better, lighter, and more serviceable than one I had made in the neighbourhood, the carriage alone of which, without the barrel, cost me £3 10s. I unfortunately ordered it before I saw your advertisement. —I am, yours obediently, "O. Fitzgerald."
"To Mr. W. S. Boulton.'

From Thos. Ingle, Esq., *M.D., Emsworth, Hants, June* 24, 1866.
"Sir,—The Swing Water Barrow is in every respect a most admirable improvement on all I have hitherto used in my Gardens. All parties who have seen it, Gentlemen as well as Gardeners, have bestowed upon it their unqualified approval, and several said they would order them of you.—Yours truly, "Thos. Ingle, M.D."
"To Mr. W. S. Boulton."

Rose Lane Iron and Wire Works, Norwich.



THE AUTOMATON LAWN MOWER.

RANSOMES & SIMS'

NEW LAWN MOWER. THE AUTOMATON.

A NEW AND FIRST-CLASS MACHINE, WHICH HAS BEEN THOROUGHLY TESTED.

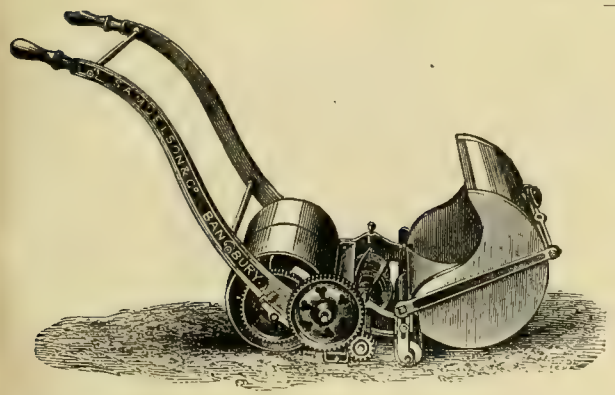
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SAMUELSON & CO.'S

IMPROVED LAWN MOWING MACHINES.

EVERY MACHINE WARRANTED.



PRICES.

Delivered Free to any Railway Station in Great Britain.

Cutting 12 inches wide	£4 10 0
Cutting 14 inches wide	5 5 0
Cutting 16 inches wide	6 0 0
Cutting 19 inches wide	6 10 0
Cutting 22 inches wide	7 10 0
Cutting 25 inches wide	12 0 0
Cutting 30 inches wide	15 0 0
Cutting 36 inches wide	18 0 0

Great improvements have been made in these Machines during the last few years, in regard to all those small but important points of superiority which the practical working of a Lawn Mower suggests; while for elegance of appearance, lightness of draft, and efficiency in working they cannot be excelled. They possess the following advantages:—

1st, Motion is given to the Cutting Apparatus by toothed gearing, which experience has proved to be by far the best method of driving.

2d, The whole of the Driving Wheels are on one side of the Machine, a point of great importance in preventing damage to Shrubs and Flowers, when mowing round the edges of beds.

3d, All the smaller working parts of the Machine are made of Malleable Iron, and are not liable to break.

☞ *Illustrated Price Lists, with selections from several Thousand Testimonials, Free by Post on application.*

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AGENTS:—Messrs. TANGYE BROTHERS AND HOLMAN, 10, LAURENCE POUNTNEY LANE; Messrs. DEANE AND CO., London Bridge; Messrs. DRAY, TAYLOR AND CO., London Bridge; Mr. THOMAS BRADFORD, 63, Fleet Street, E.C.; and all respectable Seedsmen and Ironmongers throughout the Kingdom.

HOT-WATER APPARATUS, of every description, fixed complete in any part of the country, or the materials, viz., Boilers, Pipes, &c., delivered to any Station.
Estimates on application.
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HOTHOUSES for the MILLION.—Medal, 1862.
INVENTED BY THE LATE SIR JOSEPH PAXTON.
Manufactured in London; Newton in Cartmel, Lancashire; Worcester; Coventry; Paisley, and Aberdeen.

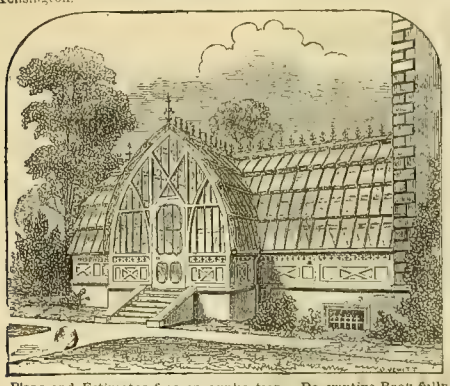


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Hot-water Pipes, with Elbows and Connections, supplied by BURY AND POLLARD. Contracts and Estimates given for WARMING PUBLIC BUILDINGS; latest Improvements in HEATING by HOT WATER; the Improved CONICAL BOILERS, for Heating Pineries, Conservatories, Greenhouses, Mansions, Halls, Warehouses, &c., Solely Manufactured by BURY & POLLARD. These Boilers are adapted for setting in Brickwork, or annexed Sketch shows BURY & POLLARD'S improved arrangement, requiring
NO BRICKWORK SETTING.
These Boilers have for their durability and economy attained a celebrity far surpassing any other Boilers ever invented. They have been for many years past in use at many Public Establishments, Royal Botanical Gardens at Kew, at the Regent's Park, the Crystal Palace, and at most of the Nobility's and Gentry's Seats throughout the United Kingdom. References where they have been for 20 years in constant use.
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CRANSTON'S PATENT BUILDINGS for HORTICULTURE.
"Dry Glazing without Putty."
"Glass without Laps."
"Ventilation without Moving Lights."
Highly Commended by the Royal Horticultural Society, South Kensington.



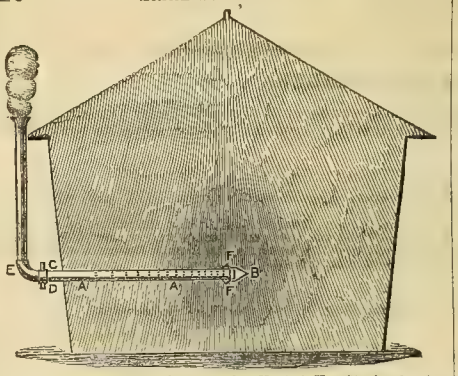
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Greenhouses—Heating Apparatus.
DUBLIN EXHIBITION



THE ONLY PRIZE MEDAL AWARDED for Various Improvements in the Ventilation, Construction, and Application of WROUGHT-IRON to Horticultural Buildings.
OUR PATENT WROUGHT-IRON PRIZE MEDAL CONSERVATORIES are of the highest order.
OUR PATENT WROUGHT-IRON PRIZE MEDAL GREENHOUSES perfectly neutralize atmospheric conduction.
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OUR PATENT PRIZE MEDAL FORCING HOUSES are eminently superior for all early work.
OUR PATENT WROUGHT-IRON PRIZE MEDAL STRAWBERRY HOUSES admit a complete flood of air and light.
The above Patent Houses can be glazed with or without putty.
These Houses are now protected by three Royal Letters Patent, and from the complete adjustment of their constructional parts will vie most favourably with Wood Structures in point of cost.
Designs and Estimates prepared for single or complete ranges of Houses in Wood or Iron.
Illustrated Catalogues on application to the Patentees,
T. H. P. DENNIS & A. SCRUBY, Horticultural Builders and Hot-Water Engineers, Chelmsford.

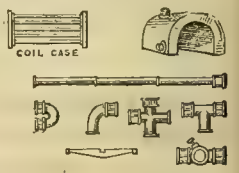
Patent Rick Ventilator, Manufactured by
RICHARD GARRETT AND SONS,
Leiston Works, Suffolk.

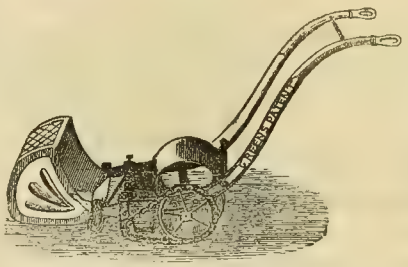


The above represents a Section of a Heated Hay Stack, showing the Patent Ventilating Apparatus in operation.
This Apparatus will be found a complete and perfect means of detecting and promptly reducing Heat in Corn and Hay Stacks.
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Full description forwarded on application to RICHARD GARRETT & SONS, Leiston Works, Suffolk (Sole Manufacturers).

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HORSE SHOW—STAND 34.

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CONSERVATORY and HOTHOUSE BUILDERS, &c.,
Iron Works, 2, Winsley Street, Oxford Street, London, W.
SADDLE BOILERS.
20 24 30 inches long.
45s. 65s. 92s. 6d. each.
HOT-WATER PIPES.
2 3 4 inch.
1s. 6d. 2s. 1d. 2s. 9d. per yard.
Materials supplied as above, or Estimates given fixed complete to Plan, on application to
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Iron Works,
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(opposite the Pantheon),
Oxford Street, London, W.





Lawn Mowers.
GREEN'S PATENT. | SAMUELSON'S PATENT.
SHANKS' PATENT. | BARNARD'S PATENT.

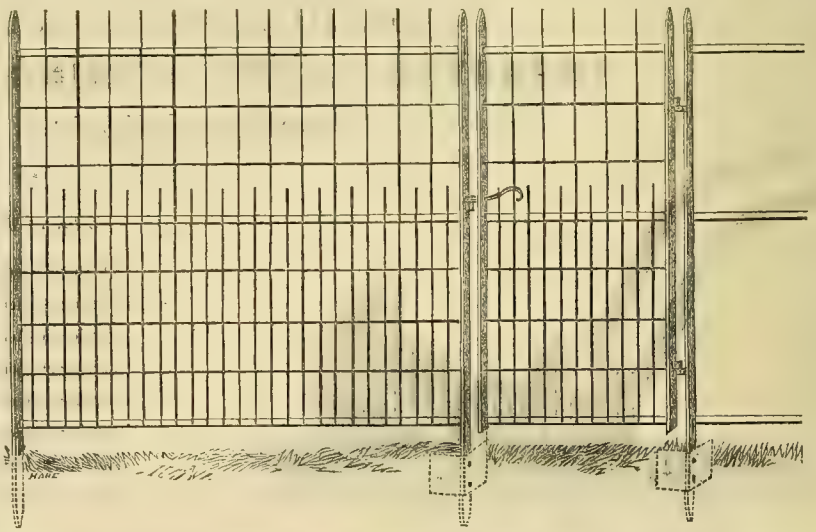
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Horticultural Tools, &c.
LAWN MOWING MACHINES, 50s., 70s., 90s., 140s.
GARDEN BARROWS, Wood and Iron, 21s. and 26s.
GARDEN ENGINES, Galvanised Iron. Prices, 55s., 65s., 73s., 90s., 100s., 110s.
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STRAINED WIRE FENCING and IRON HURDLES.
HOT-WATER FITTINGS for GREENHOUSES, CONSERVATORIES, FORCING PITS, &c.
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ARE PERFECTLY MOVEABLE, READILY FIXED TO FORM ANY SIZE OF ENCLOSURE,
And are Manufactured at 30 per cent. less cost than inferior hand-made fences.

"By far the most elegant of, and durable, Wire Fencing, that has come under our notice is that made by Greening & Co., Manchester. Below it is sufficiently closed to be proof alike against the ingress of Rats or the egress of Chickens, and being spiked above, it affords no resting place for the Fowls, who consequently do not attempt to fly over."—*From the* "POULTRY BOOK."



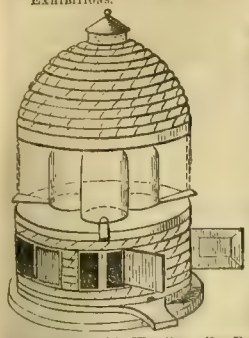
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PRIZE MEDAL AND HONOURABLE MENTION AWARDED TO GEORGE NEIGHBOUR & SONS, FOR BEE HIVES AND HONEY AT THE VARIOUS EXHIBITIONS.



NEIGHBOUR'S IMPROVED COTTAGE BEE HIVE, as originally introduced by GEORGE NEIGHBOUR & SONS, with all the recent improvements, working three bell-glasses; is neatly and strongly made of straw; it has three Windows in the lower Hive, with a Thermometer affixed to the centre one. This Hive will be found to possess many practical advantages, and is more easy of management than any other Bee Hive that has been introduced.

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MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on SATURDAY, May 25, at half-past 12 o'Clock precisely, a quantity of Variegated and Green GERANIUMS, FUCHSIAS, HELIOTROPES, VERBENAS, AURICULAS, CUPHEAS, VIOLETS, PHLOXES, DAHLIAS, GLADIOLI, LILIUM AURATUM, RUSTIC SEATS, VASES, STOOLS, BASKETS, &c.

On view the Morning of Sale, and Catalogues had.

Imported Orchids from New Grenada and Moulmein.

MR. J. C. STEVENS will SELL by AUCTION at his Great Rooms, 38, King Street, Covent Garden, W.C., on MONDAY, MAY 27, at half-past 12 o'Clock precisely, the remaining portion of Mr. Bowman's CONSIGNMENT of IMPORTED ORCHIDS from New Grenada, comprising fine Plants of many very choice varieties. Also an Importation from Moulmein of fine masses of Saccolabium curvifolium, S. Blue ei majus, Ærides Lobbii, virens, and affine; several fine Dendrobes, &c.

On view the Morning of Sale, and Catalogues had.

Phalænopsis Lowii.

MR. J. C. STEVENS will include in his SALE, at his Great Rooms, 38, King Street, Covent Garden, W.C., on MONDAY, May 27, 20 healthy Plants, just starting into growth, of PHALÆNOPSIS LOWII, a very lovely and scarce species, from Moulmein. A Coloured Plate will be shown which was taken from small Plants. The flowers attain the size of those of P. amabilis, and number 12 to 14 on a spike.

On view the Morning of Sale, and Catalogues had.

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MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at 38 and 39, Gracechurch Street, City, E.C., on SATURDAY, June 1, at 12 o'Clock precisely, a choice Collection of GREENHOUSE PLANTS, including fine Azalea indica; Show, Fancy, and French Pelargoniums; Scarlet and Variegated Geraniums, Roses in pots, and other Plants in bloom; named Rhododendrons; imported Flower Seeds; with a variety of Ornamental Plants for Bedding; Verbenas, Fuchsias, Dahlias, &c.

On view the Morning of Sale. Catalogues may be had at the Rooms as above, and of the Auctioneers and Valuers, Leytonstone, Essex, N.E.

Final Sale.—Dalston.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. Harrington to offer by PUBLIC AUCTION, without reserve, on the premises, the Old Dalston Nursery, Dalston Lane, Middlesex, on TUESDAY, June 4, at 12 o'Clock, the choice Collection of GREENHOUSE and BEDDING PLANTS from his Kingsland Nursery, including Specimen Azalea Indica, Camellias, Ericas, Acacias, Cytissus, Ficus Elastica, Cacti, Hoya, Plumbago, Erythrina, Show and Fancy Pelargoniums, Scarlet, Zonal and Variegated Geraniums, Fuchsias, Verbenas, Heliotropes, &c., Hardy Climbers and Roses in pots, with the Greenhouses, Fits, Hand-Glasses, Garden Pots, and sundry effects.

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THE GARDENERS' CHRONICLE
AND
AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.

No. 22.—1867.] SATURDAY, JUNE 1. {Price Fivepence. {Stamped Edition, 6*d*.

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ROYAL HORTICULTURAL SOCIETY, SOUTH KENSINGTON, W.
The GREAT FETE will be HELD on JUNE 4, and the Flowers, &c., will remain on view until the 8th. Military Bands each day from 4
Admission (for the Opening Day) by Tickets purchased prior to the 4th:—Fellows' Friends, 3*s* 6*d* ; Public, 5*s*. ; or on the Day, 7*s* 6*d*. ; or by Ticket admitting from the 4th to 8th, Fellows' Friends, 7*s*. 6*d*. ; Public, 10*s* 6*d*., which may be bought of all the principal Musicsellers at the West End; and of KEITH'S, Cheapside; or of MELLISHIP, 37, Westbourne Grove

ROYAL BOTANIC SOCIETY'S GARDENS, Regent's Park.—EXHIBITION of AMERICAN PLANTS, MONDAY NEXT, June 3. Tickets to be obtained only at the Gardens; and of the Society's Clerk, at Austin's Ticket Office, St. James's Hall; by Vouchers from Fellows of the Society, price 2*s*. 6*d*. each. Gates open at 2 o'clock. Band will play from 2.30 to 6 o'clock.

TUNBRIDGE WELLS HORTICULTURAL SOCIETY.—The GRAND ANNUAL FLOWER SHOW will take place on FRIDAY, July 5. Prizes Open to all England. Also Prizes for the best arrangement of Flowers or Fruit in Groups, for Single Bouquets, &c. Schedules of Prizes may be obtained of Mr. E. F. Loof, Secretary, 5, Parade, Tunbridge Wells.

BIRMINGHAM ROSE SHOW, JULY 4 and 5.—For Prize Lists, apply to Mr. A. FORREST, Secretary, Cherry Street, Birmingham. Entries Close June 29.

ROSE SHOW, RUGBY, WARWICKSHIRE, will be HELD on FRIDAY, the 12th of July next, when a Silver Cup value £10, and Other Prizes will be offered. Entries to be made on or before July 8. Schedule of Prizes and further particulars may be obtained on sending two postage stamps to
JOHN SAVAGE or WILLIAM MASON, Hon. Secs.

Hyde Park.

THE large STANDARD and other RHODODENDRONS recently planted in Hyde Park were supplied by WATERER & GODFREY, Knap Hill Nursery, Woking, Surrey.
The AMERICAN PLANTS at Knap Hill will be in their greatest beauty during the ensuing fortnight. The Nursery is readily reached by Train to Woking Station.

Royal Botanic Gardens, Regent's Park.

JOHN WATERER'S display of Hardy, Scarlet, and other RHODODENDRONS (the only one in London) is NOW in FINE BLOOM at the above Gardens, and will continue in great perfection throughout the month of June.
☞ The Scarlet and White RHODODENDRON clumps, also the large Single Plants, which bloomed and were so much admired at Rotten Row last year, were supplied by
JOHN WATERER, American Nursery, Bagshot, Surrey.

PÆONIES, IRIS, and PYRETHRUMS.—These beautiful flowers are NOW in BLOOM, and may be viewed every day, except Sunday, admittance free.
Versailles Nursery, William Street, Vale Place, Hammersmith (near Kensington Railway Station).

Royal Ascot Grape.

JOHN STANDISH begs to invite all Grape Growers to come and see the above GRAPE, which is now coloured and will be on view for three weeks.
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T. J. BOOTH offers clean, well-rooted Suckers of BLACK JAMAICA PINES. Any one who will take the lot, about 150, may have them cheap. Price on application.
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EIGHTY ACRES of the above, consisting chiefly of FRUIT TREES, ROSES, EVERGREENS, and ORNAMENTAL TREES, which for general excellence are unsurpassed.
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TRICOLOR-LEAVED and OTHER IVIES.—Twelve of the most beautiful IVIES in cultivation will be sent anywhere on receipt of Post-office Order on Castle Hedingham for 10*s*.
DILLISTONE & WOODTHORPE, Munro Nursery, Sible Hedingham, Essex.

FERNS.—Cultivators and those interested in this beautiful class of Plants, are recommended to obtain "HOOPER and CO.'S CATALOGUE" of every estimable species and variety, British and Exotic. Post free for two stamps.
HOOPER & Co., Covent Garden, London, W.C.

British Fern Catalogue.

ROBERT SIM can now send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his NEW and PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.
Foot's Cray Nursery, S.E., a mile from Sidcup Station of New North Kent Line of South Eastern Railway.

RAYNBIRD, CALDECOTT, BAWTREE, DOWLING, AND COMPANY, Limited,
CORN, SEED, MANURE, AND OILCAKE MERCHANTS,
Address, 89, Seed Market, Mark Lane, E.C.; or Basingstoke.
Samples and Prices post free on application. Prize Medals, 1851, for Wheat; 1862, for "Excellent Seed Corn and Seeds."

Mrs. Pollock Geranium.

T. J. BOOTH offers the above, in good Plants, at 7*s*. per dozen, or 50*s*. per 100, for cash.
Rainhill Nursery, Lancashire.

MRS. POLLOCK GERANIUMS, 7*s*. and 9*s*. per doz.; VERBENAS, GERANIUMS, CALCEOLARIAS, FUCHSIAS, LOBELIAS, &c., £1 per 100; 50 for 10*s*. 6*d*.
DESCRIPTIVE PRICED CATALOGUE free on application.
W. HOOPER, New Wandsworth, S.W.

FOR SALE, 350 good Plants of MRS. POLLOCK and SUNSET, and 350 REBECCA, AMY HOGG, ST. GEORGE, in 32, 48, and 60-pots, to be sold cheap.
Apply, Mr. BARTLETT, Shaftesbury Road, Hammersmith.

PELARGONIUMS, Show, Fancy, and Spotted kinds.—24 choice named sorts for 16*s*.; 36 for 23*s*.; 50 for 30*s*., all strong healthy plants. Trade price on application.
H. & R. STIRZAKER, Skerton Nurseries, Lancaster.

HUSSEY AND SON beg to offer extra fine TOM THUMB GERANIUMS, at 14*s*. per 100; BIJOU and SHOTTESHAM PET, 16*s*. per 100; STELLA and MINIMUM, 14*s*. per 100; and GOLDEN CHAIN, at 16*s*. per 100.
Mile End Nursery, Eaton, Norwich.

SAMBO PELARGONIUM (ZONAL) is the finest formed and richest coloured variety ever introduced. First-class Certificate by Floral Committee. Strong Plants, 7*s*. 6*d*. each.
DOWNIE, LAIRD, & LAING, Stanstead Park, Forest Hill, S.E.; and Edinburgh.

NEW ZONAL PELARGONIUMS for the present Season.—For Six choice Varieties of the above, selected with great care from an immense batch of Seedlings, see our Advertisements in this Paper, April 6, 13, and 20.
A liberal discount to the Trade.
SALTMARSH & SON, Moulsham Nurseries, Chelmsford.

CHOICE GERANIUMS.—LUCY GRIEVE, ITALIA UNITA, SOPHIA DUMARESQUE, TOPSY, SUNSET, MRS. BENYON, QUEEN'S FAVOURITE, ELEGANS, FONTAINEBLEAU, and KENILWORTH.
Prices and terms to the Trade and others on application to
THOMAS J. BOOTH, Rainhill Nursery, Rainhill, Lancashire.

NEW VARIEGATED GERANIUM CASTLEMILK.—Fine ornamental foliage, one half the leaf margined with the purest white, centre fine green. Free robust branching habit, and effective bedder. First-class Certificate at the Glasgow and West of Scotland Horticultural Society, September 12, 1866. Price on application. Now ready to send out by
AUSTIN & MCASLAN, 16, Buchanan Street, Glasgow.

New Zealand Nursery, St. Alban's, Herts.

INTENDING PURCHASERS of TRICOLOR PELARGONIUMS will do well to see J. WATSON'S beautiful Tricolors MISS WATSON and MRS. DIX, previous to making their purchases. For fine foliage, excellent constitution, free growth, and brilliancy of colouring they are unrivalled. They have received two First-class Certificates. Plants of Miss Watson in August, £2 2*s*. each; Mrs. Dix in May, 1868, 31*s*. 6*d*. each.

WILLIAMS' SUPERB STRAIN of PRIMULA.
See large Advertisement.

GLADIOLI BULBS, for Summer, Autumn, and Winter Flowering, 2*s*. 6*d*., 3*s*. 6*d*., 5*s*. 6*d*., 7*s*. 6*d*., 9*s*., and 12*s*. per dozen. 10*s*. 6*d*., 15*s*., 21*s*., 25*s*. to 100*s*. per 100.
BARR & SUGDEN, Seed, Bulb, and Plant Merchants, 12, King Street, Covent Garden, W.C.

LILIUM AURATUM.—Large Consignment just received, 2*s*. 6*d*., 3*s*. 6*d*., 5*s*. 6*d*., and 7*s*. 6*d*. per Root. Extra large selected Bulbs, 10*s*. 6*d*., 12*s*. 6*d*., 15*s*., & 21*s*.
BARR & SUGDEN, Seed, Bulb, and Plant Merchants, 12, King Street, Covent Garden, W.C.

Clianthus Dampieri.

BUTLER, MCCULLOCH, AND CO. have to offer a quantity of the above Seed, just received in splendid condition, at 1*s*. and 2*s*. 6*d*. per packet. Price to the Trade on application.
South Row, Covent Garden Market, W.C.

NEW ROSES for 1867.—Strong Plants of all the best NEW ROSES now ready.
DESCRIPTIVE LIST, with prices, on application.
JOHN CRANSTON, King's Acre Nurseries, near Hereford.

CULTURAL DIRECTIONS for the ROSE. Second Edition. By JOHN CRANSTON, King's Acre Nurseries, near Hereford. Free by post from the Author for 20 stamps.

J. SCOTT'S CHOICE SEEDS.
Post Free. Per Packet.
PRIMULA SINENSIS FIMBRIATA.—A most superb strain, and cannot be surpassed, 6 varieties, mixed, 1*s*. 6*d*. and 2*s*. 6*d*.
CALCEOLARIA.—Scott's superb strain, extra, 1*s*. and 2*s*. 6*d*.
CINERARIA.—Extra fine, carefully hybridized, 1*s*. and 2*s*. 6*d*.
A good SEED LIST free on application.
J. SCOTT, The Seed Stores, Yeovil, Somerset.

Bedding Plants, mostly 2*s*. per dozen.

J. SCOTT, Merriott, Somerset, for the 17th year offers his unrivalled Collection of the above.
CATALOGUES on application free.

Bedding Plants.

ARCHIBALD HENDERSON'S DESCRIPTIVE PRICED CATALOGUE is now ready, containing many Novelties. Can be had gratis and post free upon application.
Sion Nursery, Thornton Heath, S., and at the East Surrey Seed Warehouse, College Grounds, North End, Croydon.

Cheap Bedding Plants.

JAMES HOLDER can supply the following:—Scarlet and Variegated GERANIUMS, VERBENAS, FUCHSIAS, CALCEOLARIAS, DAHLIAS, SALVIAS, CUPHEAS, HELIOTROPES, LOBELIAS, KONIGAS, AGERATUMS, PERILLAS, TROPÆOLUMS, CERASTIUMS, &c.—Eight dozen for 20*s*., or four dozen for 10*s*. 6*d*., hamper and package included.
Crown Nursery, Reading.

Cheap Bedding Plants.

JOSEPH WESTLEY is now prepared to offer the above, from a stock of 100,000 Plants, in 300 varieties, including STELLA, FLOWER of the DAY, SENATOR, CERISE UNIQUE, LITTLE DAVID, and BRILLIANT GERANIUMS, PRINCE of ORANGE CALCEOLARIAS, and LOBELIA SPECIOSA, from 2*s*. per dozen. A liberal discount allowed to the Trade.
Packed on the most liberal terms.
Address, JOSEPH WESTLEY, Floral Nursery, Blisworth, Northampton.

King of Swedes.

SUTTON AND SONS can supply TRUE SEED of the above excellent SWEDE at 1*s*. per lb., or cheaper by the bushel. Carriage free.
Royal Berkshire Seed Establishment, Reading.

SUTTON'S HOME-GROWN TURNIP SEED.
For prices and particulars apply to
SUTTON & SONS, Seed Growers, Reading.

Turnip Seeds for Early Sowing.
THE BEST SORTS ARE
POMERANIAN WHITE GLOBE,
SUTTON'S SHORT-TOP SIX WEEKS.

SUTTON AND SONS can supply New Seed of the above excellent sorts at 1*s*. per lb., or cheaper by the bushel.
PRICED LISTS of other sorts gratis on application.
SUTTON & SONS, Seed Growers, Reading.

Early Sheep Feed—Mustard and Rape.

SUTTON AND SONS can supply good New Seed of the above at very moderate prices, which may be had on application.
SUTTON & SONS, Seed Merchants, Reading.

Kohl Rabi Seed should now be sown.
Drilled as Swedes, 3 to 4 lb. per acre.

SUTTON AND SONS can supply superior SEED, either GREEN or PURPLE, at 2*s*. 6*d*. per lb., or cheaper in large quantities.
For Instructions on Cultivation, see SUTTON'S FARM SEED LIST, which may be had post free on application.
SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

FARM SEEDS.—All the best kinds of MANGEL WURZEL, SWEDE TURNIP, and other Farm Seeds of finest quality on moderate terms.
PRICED LISTS on application to
RICHARD SMITH, Seed Merchant, Worcester.

SWEDE SEED.—The WORCESTERSHIRE SWEDE, NEW SEED of this excellent kind at 10*d*. per lb. Cheaper by the cwt. or bushel.
RICHARD SMITH, Seed Merchant, Worcester.

New Mangel and Turnip Seeds.

JAMES FAIRHEAD AND SON, 7, Borough Market, and Braintree, Essex. Special Select ORANGE GLOBE and other MANGELS, and all varieties of TURNIPS.
Special prices on application.

Skirving's Improved Varieties of Swede Turnip.

WM. SKIRVING, Queen Square, Liverpool, begs to announce that his present price for SEED of his three best varieties of SWEDE TURNIP is 1*s*. per pound, bags included. Terms Cash. Sorts, SKIRVING'S KING of the SWEDES.
" " QUEEN "
" " TANKARD "
A remittance must accompany orders from unknown correspondents.

SANG'S FIFESHIRE YELLOW TURNIP.—This TURNIP, introduced by us in 1863, keeps longer than any other variety whatever, being sound so late in the season as June and July. The flesh and skin are of a rich cream colour, and the yield is an average for Yellow Turnips. Fourteen pounds paid to any Railway Station in England or Scotland, bag included, 14*s*.
EDWARD SANG & SONS, Nurserymen and Seed Merchants, Kirkcaldy, Scotland.

BLUNDELL'S CATTLE MELON.—This productive Fruit is now well-known and generally appreciated for Feeding all kinds of Cattle, &c., in the autumn months. Prices, exclusive of carriage:—100 Seeds, 2*s*. 6*d* ; Seed for ¼ acre, 5*s*. ; do. ½ acre, 9*s*. ; do. 1 acre, 16*s*.
To be obtained of all the principal Seedsmen, and of Messrs BLUNDELL & PALMER, Land Agents, &c., 3, Portland Street, Southampton. Cash remittances from unknown correspondents.

SPECIAL OFFER.—Fine New SCARLET RUNNER BEANS. Cash Price, 7*s*. 6*d*. per bushel.
FREDERICK GEE, Seed Merchant and Grower, Biggleswade, Beds.

Agricultural and Garden Seeds.

H. AND F. SHARPE'S WHOLESALE SPRING PRICED LIST of the above Seeds of 1866 growth is now ready and may be had on application.
Seed Growing Establishment, Wisbech.

Genuine Agricultural and Garden Seeds.

JAMES FAIRHEAD AND SON, 7, Borough Market, and Braintree, Essex.
LISTS and Special Prices on application.

Genuine Garden and Agricultural Seeds.

JAMES CARTER AND CO.,
SEED FARMERS, MERCHANTS, and NURSERYMEN,
237 & 238, High Holborn, London, W.C.

Garden and Farm Seeds direct from the Growers.

CHARLES SHARPE AND CO. beg to inform the Trade that their WHOLESALE SEED LIST is now ready, and will be forwarded post free on application.
Seed Warehouse, Sleaford.

Genuine Garden Seeds.

WM. CUTBUSH AND SON'S CATALOGUE of VEGETABLE, FLOWER, and FARM SEEDS, post free on application. Highgate, London, N.

EVERY GARDEN REQUISITE kept in Stock at
CARTER'S New Seed Warehouse, 237 & 238, High Holborn, London.

Fine Grass Seeds for Cricket Grounds,
BOWLING GREENS, or CROQUET GROUNDS.

SUTTON AND SONS can supply suitable kinds of the finest-growing GRASSES and CLOVERS for the above purposes, at 1*s*. 3*d*. per lb., 24*s*. per bushel.
SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

PARIS EXHIBITION.—The attention of VISITORS to this EXHIBITION is respectfully called to a COLLECTION of 200 VARIETIES of NATURAL GRASSES, Exhibited in SALOON No. 47, by ERNST & VON SPRECKELSEN (Successors to J. G. Booth & Co.), Hamburg.

Retinospora filifera.

JOHN STANDISH is the holder of the stock of the above most distinct and beautiful weeping CONIFERA. It is of a pale glaucous green, with slender thread-like branches a foot long, which hang in the most graceful manner, and altogether the most distinct weeping plant ever offered to the Public. It is also perfectly hardy. Strong Plants, now ready, 31*s*. 6*d*. each.
Royal Nursery, Ascot.

STRAWBERRIES.

ADMIRAL DUNDAS (Myatt)	LA CHALONNAISE
ALPINE	LE CONSTANT
BLACK PRINCE (Cuthill)	LEON DE ST. LANNIER
BRITISH QUEEN (Myatt)	MARGUERITE (Lebreton)
CAROLINA SUPERBA (Kitley)	OSCAR (Bradley)
COMTE DE PARIS	PREMIER
ECLIPSE (Reeves)	PRESIDENT (Green)
ELEANOR (Myatt)	PRINCE ARTHUR (Ingram)
ELIZA (Rivers)	PRINCE CHARLIE
ELIZA (Myatt)	PRINCESS ALICE MAUD
ELTON PINE (Knight)	RIFLEMAN (Ingram)
ELTON IMPROVED	SCARLET PINE
EMPRESS EUGENIE (Knivett)	SIR C. NAPIER (Smith)
FILBERT PINE (Myatt)	SIR HARRY (Underhill) [ley)
FROGMORE LATE PINE (In-	SIR JOSEPH PAXTON (Brad-
GOLIATH (Kitley) [gram)	SOUVENIR DE KIEFF (De Jonche)
HAQUIN	VICTORIA (Trollope)
HAUTBOIS (Myatt)	WIZARD of the NORTH
HAUTBOIS, ROYAL	(Robertson)
JOHN POWELL	WONDERFUL (Jeyes)
KEEN'S SEEDLING	

Strong Plants of the above are now ready, with other kinds of less note.

CHARLES TURNER, The Royal Nurseries, Slough.

ROBERT PARKER begs to offer the following.—All the Plants are strong and healthy, and can be supplied in quantities.

PANSY CLIVEDEN BLUE, 6s. per dozen.
PANSY CLIVEDEN PURPLE, 6s. per dozen.
PANSY CLIVEDEN YELLOW, 6s. per dozen.
POLEMONIUM CERULEUM VARIEGATUM, 2s. 6d. each.
RHODODENDRON COUNTESS of HADDINGTON, 3s. 6d. each.
TRITOMA GRANDIS, 18s. per dozen.
TRITOMA UVARIA GLAUCESCENS, 12s. per dozen.
VIOLA CORNUTA, best variety, 4s. per dozen.
VIOLET, REINE DES VIOLETS, 6s. per dozen.
VIOLET THE CZAR, 6s. per dozen. [per packet.
PRIMULA SINENSIS FIMBRIATA, finest mixed seed, 2s. 6d

PRICED and DESCRIPTIVE CATALOGUES of AGRICULTURAL, FLOWER, and VEGETABLE SEEDS, GREENHOUSE, HARDY, and STOVE PLANTS, are published, and will be forwarded free to applicants.

Exotic Nursery, Tooting, Surrey, S.

Bedding and other Plants.





Just Published, post free 12 stamps (Gratis to Customers), Part III. of CARTER'S GARDENERS' and FARMERS' VADE MECUM, containing complete Lists of new and choice Stove and Greenhouse and Bedding Plants, with an Addendum comprising original and practical articles, "On a Visit to Messrs. Carter's Nursery," by an Amateur Florist; Subtropical Gardening; and 120 Geometrical Designs for Flower-beds; with reliable information for the proper combination of Bedding Plants to produce chaste and striking effects.

Forwarded on receipt of 12 stamps on application to CARTER'S Great London Seed Warehouse, 237 and 238, High Holborn, London.

AUCUBAS, FUCHSIAS, ZONAL GERANIUMS, &c.

6 Varieties AUCUBAS, 3 Male, 3 Female, for 21s.
12 Select NEW FUCHSIAS of 1866 for 6s.
12 Select NEW ZONAL GERANIUMS of 1866 for 6s.
12 Select CHRYSANTHEMUMS of 1866 for 4s.
12 Varieties JAPAN EUONYMUS, very fine, 6s.
3 Varieties NEW JAPAN OSMANTHUS, quite hardy, 5s.
NEW WHITE LOBELIA MISS MURPHY, 3s. per dozen.
12 Select NEW VERBENAS of 1866, for 3s.
NEW DOUBLE GERANIUM GLOIRE DE NANCY, 1s. each.

B. W. KNIGHT, Nurseryman, Battle, Sussex.

THE MAGNIFICENT NEW VIOLET, QUEEN of VIOLETS.

The following additional Nurserymen have given Orders:—

Bell, Mr. J., Norwich	Giddens, Mr. B., Stoke Newington
Henderson, Messrs. A. & Co.,	Fry, Mr. Geo., Lee
Edgware Road, London	Brewin, Mr. C. M., Bawtry

For complete List see back Papers.

Strong Plants potted now will bloom well in autumn and spring.
Price 1s. 6d. each, 18s. per doz. Full particulars on application.
Post-office Orders on Castle Hedingham.

DILLISTONE & WOODTHORPE, Munro Nursery, Sible Hedingham, Essex.

EDWARD TAYLOR, NURSERYMAN, Malton, Yorkshire, offers as under, all good Plants, well established in single pots:—

LOBELIA SPECIOSA, 15s. per 100
" MISS MURPHY, White, 15s. per 100
" PAXTONII, 15s. per 100
IRESINE HERBSTII, 15s. per 100
AUBRETIA PURPUREA VARIEGATA, 4s. to 6s. per dozen
IRESINE HERBSTII AUREA RETICULATA, 1s. each
GAZANIA SPLENDENS VARIEGATA, 6d. each
AGERATUM PRINCE ALFRED, 2s. 6d. per dozen
" LITTLE PET, 2s. 6d. per dozen
BEATON'S NOSEGAY GERANIUMS, 4s. to 6s. per dozen; 20s. to 30s. per 100

CATALOGUES gratis on application.

Genista præcox.

GEO. WHEELER, NURSERYMAN, &c., Warminster, Wilts, is prepared to send out good established young Plants of the above, now growing in pots in the open ground, at 5s. each, the usual allowance to the Trade when six or more are ordered. This new, very hardy, showy, pea-flowered shrub will be found an acquisition to any collection of shrubs. The flowers are of a light lemon colour on opening, and become paler when fully bloomed. The original plant was in full bloom on the 1st of May, having withstood the past severe winter in a very cold exposed site, sloping to the north, without the slightest protection, not losing a twig or flower bud. It is well suited for the rockery, border, or lawn.

A Photograph taken the 1st of May, from the original Plant, which is 6 feet in diameter by 4 in height, showing its graceful and drooping habit and profusion of bloom, may be had for 12 stamps.

Juniperus excelsa stricta.

A New Plant, suitable from its pyramidal growth for Ornamenting Flower Gardens and Terraces.

WILLIAM ROLLISSON AND SONS beg respectfully to inform the Nobility, Gentry, and Trade, that their New JUNIPERUS EXCELSA STRICTA is now ready for sending out; it is unquestionably the best and most suitable plant ever yet introduced for decorating Terraces and Flower Gardens; also any situations in which single Specimen Shrubs or Trees are usually planted. It is cheerful in appearance and of a close and compact habit; upright and pyramidal in growth, and perfectly hardy; in proof of which several hundreds of them stood in the open ground exposed to the severity of the weather all last winter and spring, without suffering the least injury, even in the foliage.

They may now be seen growing in perfect health in the open ground in their Home Nursery at Tooting.

Price per Plant, or by the dozen, will be forwarded post paid on application.

A GENERAL CATALOGUE of their extensive Collection of Orchids, Stove, Greenhouse Plants, Hardy Shrubs, Fruit Trees, &c., &c.; and a DESCRIPTIVE LIST of Tree and other Ferns, will be shortly ready for forwarding; these also may be had post free on application to

The Nurseries, Tooting, London, S.

THE DOVE FLOWER.

MR. WILLIAM BULL

Has just received an importation from Panama in fine condition of

THE DOVE FLOWER "PERISTERIA ELATA"—"ESPIRITU SANTO"

(HOLY GHOST FLOWER) OF THE SPANIARDS.

The centre of each blossom gives a striking resemblance to a Waxen Dove, hence its name.

Price—Half a Guinea each, or Five Guineas per dozen.

Fine Specimens can be made by grouping several together.

ESTABLISHMENT for NEW and RARE PLANTS, KING'S ROAD, CHELSEA, LONDON.

VICTORIA and PARADISE NURSERY, UPPER HOLLOWAY, LONDON, N.

B. S. WILLIAMS

RESPECTFULLY INVITES HIS PATRONS AND THE PUBLIC GENERALLY

TO PAY A VISIT TO THE ABOVE NURSERY

DURING THE PRESENT MONTH.

A continuous Show of SPECIMEN FLOWERING and FOLIAGE PLANTS is maintained in the LARGE SHOW CONSERVATORY, and the ORCHID HOUSES, PALM STOVES, NEW HOLLAND HOUSES, FERN HOUSES, AZALEA HOUSE, &c., &c., are replete with interest for lovers of either Beautiful and Rare Flowers, or the magnificent foliage of Tropical Vegetation.

The Collection of MEXICAN PLANTS at this Nursery is perhaps the finest in Great Britain, with the exception of the one at the Royal Gardens, Kew.

CARRIAGE ROUTE AND MEANS OF ACCESS.—This Nursery is easily reached from any part of London. The direct carriage route from the West End is through Albany Street or Regent's Park; Park Street, Camden Town; Kentish Town Road and the Junction Road.

The "Favorite" Omnibuses from the Bank and London Bridge Railways; Victoria Station, Charing Cross, and Westminster; Regent Street, Piccadilly, and Brompton, arrive at and start from the entrance of the Nursery every 7 minutes.

VICTORIA and PARADISE NURSERY, UPPER HOLLOWAY, LONDON, N.

GOOD PLANTS IN POTS, NOW READY, 5s. EACH.

PAUL & SON'S

NEW DOUBLE SCARLET THORN.

CRATÆGUS OXYACANTHA COCCINEA PLENA (PAUL & SON).—Colour exceedingly vivid, very double and beautiful. Undoubtedly the finest hardy Novelty of the season. An attempt has been made to detract from the sole credit due to us for introducing it.

Since we first sent it out in November last, we have had the honour to supply Her Majesty's Garden at Windsor, the leading Nurserymen here and abroad (see List in this Journal), the most celebrated Amateurs and Lovers of Hardy Trees. We have gained with this unique novelty—First-class Certificate at Royal Botanic Society, May 21, 1864; First-class Certificate from distinguished Jury of New Plants at late International Exhibition.

Opinions of the Press were exceedingly favourable, a Leading Article of the *Gardeners' Chronicle* especially notices it.

Having an enormous stock of some Thousands, PAUL & SON can offer fine Plants in autumn.

Standards to bloom, 5s. and 3s. 6d. each; Dwarfs, 2s. 6d. each.

The Advertisers take the opportunity of stating that their Tea Rose House will be during next week full of flower. The Roses in open ground promise to be at their best from the middle of June until early in July. The stock is particularly fine and worth visiting.

THE OLD NURSERIES, CHESHUNT, N.

One Mile from the Cheshunt Station, Great Eastern Railway.

NEW DOUBLE CRIMSON THORN (NOW READY).

WILLIAM PAUL

(SON and SUCCESSOR to the late A. Paul),

BEGS TO OFFER THE

ABOVE MAGNIFICENT HARDY FLOWERING TREE,

Which he believes to be the greatest acquisition for forcing and out-of-door culture that has been introduced for many years.

Fine healthy Plants, well established in pots, 2 ft. high, 7s. 6d. each; 1 ft., 5s. each.

By Ordering at once Purchasers may establish these Plants to bloom well next year.

A First-class Certificate was awarded to him for this Plant by the Royal Horticultural Society on the 16th April last.

"A brilliant variety, to which too much attention can scarcely be directed."—*Gardeners' Chronicle.*

"This is certainly a plant which cannot be overrated; the intense bright red colour, and the numerous clusters of the double flowers, make this Cratægus invaluable. No admirer of this charming family can be without it, all other pink varieties are truly in the shade beside it."—*Journal of Horticulture.*

PELARGONIUM JASON (First-class Certificate).—The finest, most leafy, and deepest colour of all pure gold-leaved Pelargoniums. Price 7s. 6d. each.

For other Novelties, see separate Advertisement.

See Coloured Drawing by FITCH, and History, in the "Florist" for June.

PAUL'S NURSERIES, WALTHAM CROSS, LONDON, N.

Mrs. Pollock Geranium.

THOMAS PESTRIDGE, The Greenway Nursery, Uxbridge, Middlesex, can supply strong and highly-coloured MRS. POLLOCK GERANIUM at 7s. per dozen, 50s. per 100.

Luna, 14s. per doz. | Orange Nosegay, 6s. | Madame Vaucher, 4s.
Amy Hogg, 6s. | Venus, 6s. | Centaurea gymnocarpa, 4s.
Indian Yellow, 5s. | Cloth of Gold, 4s. | Coleus Verschaffelti, 4s.
Iresine Herbstii, 3s.

Package included. Terms cash.

THE QUADRICOLOR PELARGONIUM of the Season is METEOR, raised by SALTMARSH & SON. For description see Advertisements in this Paper, April 6, 13, and 20. This splendid variety has received a First-class Certificate from the Royal Horticultural Society, and was figured in the January Number of the "Floral Magazine."

A Coloured Drawing by Andrews will be sent on receipt of 7 stamps.
Moulsham Nurseries, Chelmsford.

VERBENAS and GERANIUMS, scarlet, &c., good and well established, supplied as follows:—VERBENAS, in variety, 16s. per 100; GERANIUM, in great variety for bedding, 18s. per 100; UNIQUE, crimson, extra strong, 30s. per 100. DESCRIPTIVE CATALOGUE of Roses in pots, Stove, Greenhouse, Soft-wooded, and Bedding-out Plants. Post free. Trade price on application.

H. & R. STIRZAKER, Skerton Nurseries, Lancaster.

Special Offer.

BEDDING PLANTS, BEDDING PLANTS. Strong Plants in or out of pots as may be requested.

The following (for 21s., or half the quantity for 11s. 6d.), contains many of the new and beautiful kinds of 1866:—

25 Distinct Named GERANIUMS | 12 Choice FUCHSIAS
12 AGERATUM PRINCE | 12 Choice LOBELIA MISS MURPHY
12 Choice DAHLIAS (ALFRED) | 12 Choice PETUNIAS
12 Choice DAISIES

Post-office Orders on Castle Hedingham.
LISTS and CATALOGUES free.

DILLISTONE & WOODTHORPE, Munro Nursery, Sible Hedingham, Essex

NOTICE.—The following Magnificent GERANIUMS, one of each for One Guinea, or six of the best for 12s.:—

ITALIA UNITA | SUNSET | GOLDEN NUGGET
CANARY BIRD | LUNA
BRILLIANTISSIMA | MRS. LONGFIELD
MRS. P. J. PERRY | MRS. M. HUTTON
ANNIE WILLIAMS | Variegated QUEEN of NOSEGAYS
CRYSTAL SEA

12 of the finest ZONALE and NOSEGAY GERANIUMS of 1866 for 7s. 6d.; 12 of the best FUCHSIAS of 1866 for 6s.; 12 of the best VERBENAS of 1866 for 4s.

CATALOGUE of NEW PLANTS for one stamp.
DILLISTONE & WOODTHORPE, Munro Nursery, Sible Hedingham, Essex

SUPERB VARIEGATED GERANIUMS.

MRS. BENYON | BEAUTY of OULTON
BICOLOR SPLENDENS | THE COUNTESS
GOLD PHEASANT | MRS. LONGFIELD
GLOWWORM | YELLOW BELT
LUNA | LITTLE PET
TWILIGHT | ITALIA UNITA

Strong plants of the above set 15s. Package included.
CANNON & SON, Gravel Walk Nursery, Peterborough.

Novelties.

WM. PAUL (Son and Successor to the late A. PAUL) respectfully solicits Orders for the following NEW and FIRST-CLASS PLANTS, which will be ready for delivery in May.

NEW ROSES.

BLACK PRINCE, H. P. (Wm. Paul).—Flowers dark crimson, shaded with black, cupped, large and full. Price 5s. each.
GLOBOSA, H. P. (Wm. Paul).—Flowers clear dark bright crimson, colour intense and uniform throughout. Price 5s. each.
LADY SUFFIELD, H. P. (Wm. Paul).—Flowers purplish crimson, colour uniform throughout, the purple tint predominating; large, full, and of fine form. Price 5s. each.
The best of the NEW FRENCH ROSES, 3s. 6d. each, 30s. per doz. Older kinds, 9s. to 30s. per doz.

NEW BEDDING GERANIUMS (BEATON'S RACE).
Any 12 Varieties from this group of 18 may be selected by the purchaser for £2 2s.

The following NEW ZONAL and HYBRID NOSEGAY GERANIUMS have been selected from several thousand seedlings raised from the stock of the late Mr. Donald Beaton. Every one now offered has been thoroughly tested, and is believed to be in advance of, or distinct from, all pre-existing kinds.

AUTOCRAT (Wm. Paul). — Flowers bright orange, very large, a decided advance in shape of this colour, blooms freely, very attractive; habit good. Price 3s. 6d. each.
BICOLOR (Wm. Paul).—Flowers bluish purple, with spot of fiery scarlet on top petals; free, good, and quite unique in colour and character. Price 5s. each.
BLUE BELL (Wm Paul).—Flowers bluish lilac, large, and of good shape and truss; habit fine. A thoroughly distinct and most pleasing novelty. Price 5s. each.
CLIO (Wm. Paul).—Flowers rosy purple, upper petals scarlet, large and good form, truss and habit good; price 3s. 6d. each.
CRIMSON QUEEN (Wm. Paul).—Flowers deep crimson, at once the darkest and brightest crimson yet seen in Zonale Pelargoniums, flowers abundantly. Price 3s. 6d. each.
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DR. HOGG (Wm. Paul).—Flowers purplish rose, the colours glowing and very beautiful, trusses good and abundant. Under canvas this novelty appears to resemble Amy Hogg, but is quite distinct from the latter out of doors. Figured in "The Florist" for November, 1866. Price 5s. each.
ENCHANTRESS (Wm. Paul) —Flowers soft purplish crimson, with distinct scarlet eye, trusses and habit good, very lovely. Price 3s. 6d. each.
FIREFLY (Wm. Paul).—Flowers scarlet crimson and orange, with scarlet eye; habit free and good; distinct and very effective. Price 3s. 6d. each.
GLORY of WALTHAM (Wm. Paul).—Flowers splendid even scarlet, dwarf habit, foliage fine, truss large and close. Probably the finest "Nosegay" Geranium yet raised. Price 3s. 6d. each.
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LILACINUM (Wm. Paul). — Flowers dark bright lilac, splendid truss, and fine habit, the colour quite new. Price 5s. each.
MEMNON (Wm. Paul).—Flowers magenta, trusses good and very abundant, habit dwarf. This might be called a rosy purple "Stella." Price 3s. 6d. each.
OMEN (Wm. Paul). — Flowers reddish salmon, splendid truss, good habit, very free, distinct, and first-rate for bedding. Price 3s. 6d. each.
PURPLE QUEEN (Wm. Paul).—In the way of Amy Hogg as to habit and character of truss and flower, but of a totally different colour—dark rosy purple. Price 5s. each.
TROUBADOUR (Wm. Paul). — Flowers rosy purple, fine shape, magnificent under glass. Price 5s. each.
VILLAGE MAID (Wm. Paul). — Flowers bright deep pink, with clear white blotch in the centre of the upper petals, the colours being well separated or defined; habit dwarf and compact; very beautiful. Price 5s. each.
WALTHAM NOSEGAY (Wm. Paul).—Flowers carmine, trusses of good size and abundant; highly recommended for the effect it produces in the flower garden. Price 3s. 6d. each.

GOLD-LEAVED VARIETIES.

The following varieties are the result of a cross between Beaton's race and the ordinary gold-leaved kinds, whereby has been obtained the free growth and leafy character of the former, properties invaluable for bedding purposes.

JASON (Wm. Paul).—Flowers blood crimson, trusses large, round, and compact, leaves pure golden yellow, habit dwarf and free; the plant densely clothed with fine foliage. The association of yellow leaves and blood crimson flowers, both freely produced, is, in this plant, very fascinating. Price 7s. 6d. each.
WALTHAM GEM (Wm. Paul). — Flowers very light red, colour distinct and peculiarly pleasing, white eye; leaves yellow, with very faint zone. A beautiful novelty of dwarf compact habit. Price 7s. 6d. each.

STANDARD ZONAL GERANIUMS.
Scarlet, rose, white, &c., 5s. to 10s. 6d. each.
STANDARD, VARIEGATED, and TRICOLOR-LEAVED GERANIUMS, 7s. 6d. to 15s. each.

GERANIUM REBECCA.—Cherry colour, 21s. per doz.
" NIMROD.—Orange scarlet, 21s. per doz.
" ST. GEORGE.—Dark chestnut, 15s. per doz.
" MRS. POLLOCK, 6s. to 9s. per doz.
" SUNSET, 18s. per doz.
" ITALIA UNITA, 21s. per doz.

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NEW AUCUBAS.—The 10 best sorts for £2 10s.
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GRAPE VINES.—Planting canes, 3s. 6d. to 5s. each. Fruiting canes, 7s. 6d. to 15s. each.
LILIUM AURATUM.—Flowering bulbs, 2s. 6d. to 10s. 6d. each; 12s. to 60s. the half dozen.
RAPHANUS CAUDATUS, 1s. to 2s. 6d. per packet.
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POA TRIVIALIS ARGENTEA ELEGANS, Silver-leaved MEADOW GRASS, 4s. per dozen.
CHRYSANTHEMUM SENSATION, white edged, 4s. per dozen.
AGERATUM PRINCE ALFRED, the darkest and dwarfest blue variety out, 3s. per dozen.
100 VERBENAS, in 50 varieties, for 16s.
100 ZONAL GERANIUMS, in 50 varieties, for 30s.
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Post Free.

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Broccoli, Snow's Imperial Winter	1 0	Moore's Vegetable Cream	0 6
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Cucumber, Smith's Fine Frame	1 0	Radish, French Breakfast	0 6
Cucumber, Telegraph	1 0	Aster, Truffaut's Superb French, 12 vars. mixed	1 0
Leek, Henry's Prize	0 6	Aster, Victoria, 6 vars. mixed	1 0
Endive, Digswell Prize	0 6	Stock, improved large-flowering, 12 vars. mixed.	1 0
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JAMES VEITCH & SONS

BEG TO ANNOUNCE THAT THE FOLLOWING

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and will be forwarded Post Free on application:—

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CATALOGUE of GENERAL COLLECTION of STOVE and GREENHOUSE PLANTS, ORCHIDS, FERNS, &c.
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☞ *Each Catalogue contains Lists of the most distinct and popular Plants in their respective classes.*

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THE SUPERB NEW GRAPE.

"MRS. PINCE'S BLACK MUSCAT"

IS DECIDEDLY THE BEST GRAPE EXTANT.

It has been repeatedly exhibited at the London Horticultural Meetings, and obtained the highest Prize awarded to Seedling Grapes. ☞ *Orders, if sent now, can be executed in August next.*

The Vines from which last year's Grapes were cut (as late as the 4th inst.), can now be seen bearing a heavy crop. The Public are respectfully invited to see for themselves, or send for Copies of Testimonials to the

EXETER NURSERY, EXETER.

BATH and WEST of ENGLAND SOCIETY.

SALISBURY MEETING, 1867.

STAND 168.

SUTTON & SONS,

SEEDSMEN TO THE QUEEN, READING, BERKS,

Inform their Patrons and the Public generally that they will have their usual extensive display of AGRICULTURAL, HORTICULTURAL, and FLORICULTURAL SEEDS, GRASSES, FORAGE PLANTS, and ROOTS, at the above MEETING, and invite inspection of the same, which will be found well worthy a visit.

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All Goods Carriage Free, except very small parcels.

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THE FOLLOWING NEW SPECIES,

INTRODUCED DIRECTLY THROUGH HIS COLLECTORS IN PERU AND ECUADOR.

ODONTOGLOSSUM ASTRANTHUM, 31s. 6d.
" BREVIFOLIUM, 63s. to 105s.
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ONCIDIUM ACINACEUM, 31s. 6d.
" AUROSUM, 18s., 180s. per dozen.
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" RACEMOSUM, 42s.
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" HYPHÆMATICUM, 31s. 6d., 180s. for six.
" MACRANTHUM, 63s. to 105s.
" NUBIGENUM, 31s. 6d. to 63s., 320s. per dozen
" " LINDLEYANUM, splendid, lips and petals spotted with crimson, 63s. to 100s.
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" SEMELE (Rchb), 31s. 6d.
" SERRATUM (Diadema), 42s., 400s. per dozen.
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MESOSPINIDIUM SANGUINEUM, 31s. 6d., 320s. per dozen.
NANONES MEDUSÆ (Rchb.), 147s.
CATTLEYA MAXIMA VAR., with glaucous leaves, described as very fine, 42s. to 100s., 400s. per dozen.
" NOVA, from Choco, very distinct, of pseudo bulbs, but described as being in the way of C. Warscewiczii, 63s. to 100s.
BURLINGTONIA (RODRIGUEZIA) BATEMANIANA, 18s., 180s. per dozen.
" " TRICOTIUM (Rchb.), quite new and very distinct, 21s. to 42s.

For other NEW and RARE ORCHIDS, see the CATALOGUE just published.

ROYAL ZOOLOGICAL and HORTICULTURAL GARDENS, BRUSSELS.

Verbenas—New Varieties of 1867.

DREGHORN AND AITKEN, NURSERYMEN, Kilmarnock, beg to offer the best of this year's NEW VERBENAS at the following remarkably low prices for well-rooted plants, viz.:—

SET of SIX sent out by J. Keynes, for 5s.
SET of THIRTEEN sent out by Charles Turner (raised by C. J. Perry), 7s. 6d.
SET of FIVE sent out by Hugh Low & Co. (raised by Nicholls), for 4s. 6d.
KING of BEDDERS and WHITE QUEEN, sent out by E. G. Henderson & Son, 6d. each.

One plant of each of the above (26 in all) for 15s.; or 12 plants (in 12 vars., selected from the above), 8s., including package and postage.

Keynes's are ready now, the others will be ready on May 25. Early Orders are solicited, as the strongest plants will be sent out first.

New Bedding Verbena, Blondin (FOCLIS).

Colour, Brilliant Magenta with a pure white eye.

DOWNIE, LAIRD, AND LAING beg to intimate that they are now ready to send out the above magnificent VERBENA. It is much in the style and habit of Purple King, blooms in the greatest profusion in all kinds of weather, and rain even does not seem to spoil it. It was awarded a First-class Certificate by the Royal Caledonian Horticultural Society, Edinburgh, September 6, 1866. Price 1s. 6d. each, or 12s. per dozen, with the usual allowance to the Trade.

The following Testimonials as to its superior merits are from Gentlemen who have had many opportunities of seeing it in flower during last season, and D., L., & L. have no hesitation in saying it will prove the greatest acquisition ever offered as a Bedding Verbena in its class and colour.

TESTIMONIALS.

From Mr. WILLIAM PIRRIE, *Gardener to* The Right Hon. The Earl of Rosslyn, *Dysart House.*

"I paid a visit to Fordel Gardens last August, and saw a fine New Verbena named Blondin, in colour a beautiful deep magenta with clear white eye, free grower and very profuse bloomer, even during wet, unfavourable weather. It appears to have the blooming qualities of Purple King, with the luxuriant growth of Lord Raglan. This will prove a real acquisition in Bedding Verbenas."

From Mr. ROBERT DEWAR, *Gardener to* James T. Oswald, Esq., *Dunnikier, Kirkcaldy.*

"Having seen Verbena Blondin last autumn, I consider it the best rose-coloured variety for bedding purposes I have seen."

From Mr. WILLIAM M. GORRIE, *Gardener to* Colonel Ferguson, *Raith, Kirkcaldy.*

"I visited Fordel Gardens last autumn, and saw a Verbena named Blondin. The beds covered with it were in rich masses of bloom, and while the others, such as Purple King, Firefly, &c., were nearly destroyed by the severity of the weather, Blondin was flowering in great luxuriance."

From Mr. WILLIAM VAIR, *Gardener to* Sir Arthur Halket, Bart., *Pitfirrane, Dunfermline.*

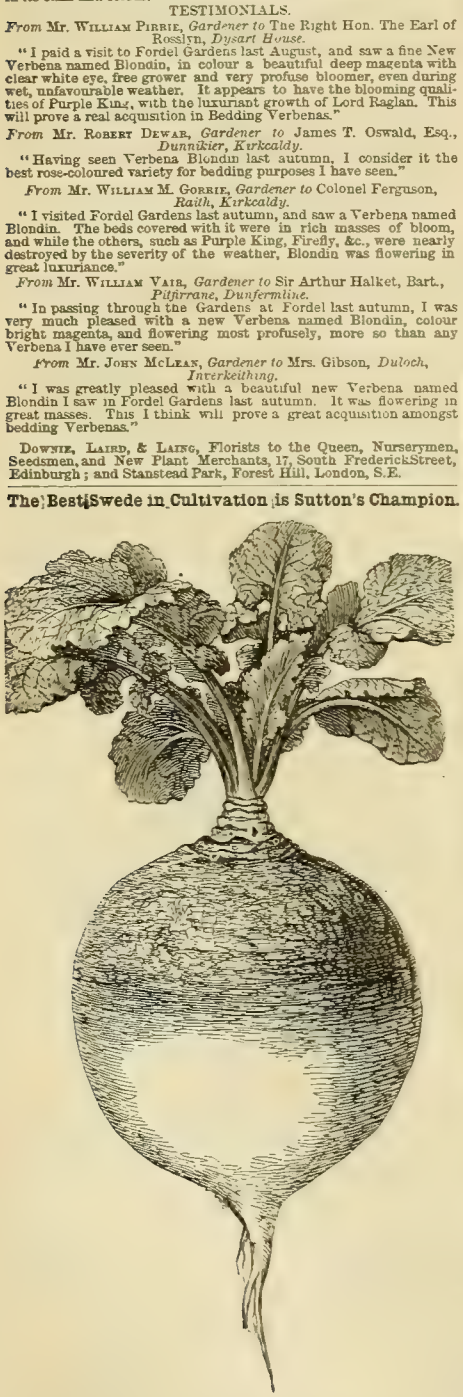
"In passing through the Gardens at Fordel last autumn, I was very much pleased with a new Verbena named Blondin, colour bright magenta, and flowering most profusely, more so than any Verbena I have ever seen."

From Mr. JOHN MCLEAN, *Gardener to* Mrs. Gibson, *Duloch, Inverkeithing.*

"I was greatly pleased with a beautiful new Verbena named Blondin I saw in Fordel Gardens last autumn. It was flowering in great masses. This I think will prove a great acquisition amongst bedding Verbenas."

DOWNIE, LAIRD, & LAING, Florists to the Queen, Nurserymen, Seedsmen, and New Plant Merchants, 17, South FrederickStreet, Edinburgh; and Stanstead Park, Forest Hill, London, S.E.

The Best Swede in Cultivation is Sutton's Champion.



SUTTON'S CHAMPION SWEDE.

A large Purple-topped Yellow variety. Handsome shape, perfectly hardy, stores exceedingly well, and one of the heaviest croppers.

From Mr. J. H. HALSE, *Secretary to the Sidmouth Agricultural Association.*

"October 26, 1866.—At the annual meeting of the above Association, held at Sidmouth on the 23d inst., the whole of the Prizes for Swede Turnips were awarded to your Champion Swede, grown from seed supplied by you during the past season."

From H. J. HILLIER, Esq., *Granham Hill, Marlborough.*

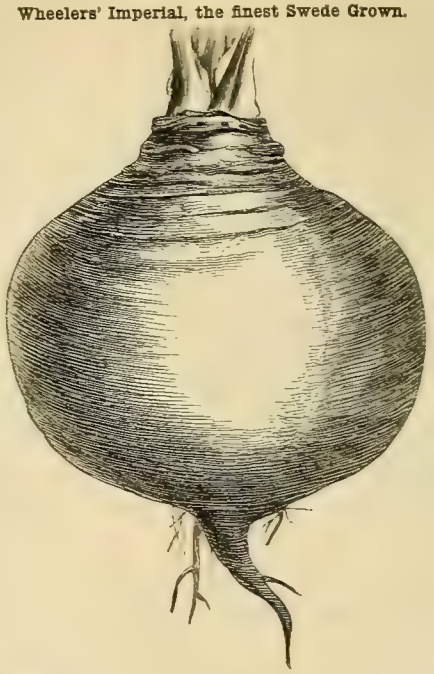
"I am bound to say that, from my experience, you are quite justified in asserting the Champion Swede to be quite as hardy as any of the purple-topped varieties; if not indeed hardier."

Lowest price per bushel on application.

PRICE LISTS of other TURNIP SEEDS gratis on application.

SUTTON & SONS, Royal Berks Seed Establishment, Reading.

Wheelers' Imperial, the finest Swede Grown.



WHEELERS' IMPERIAL SWEDE.

Early Orders are necessary, as the Seed is scarce.

This is one of the best if NOT THE BEST Swede in cultivation; the specimens exhibited at the Smithfield Club Show in London, and at Cirencester, Birmingham, and at the Great Show of Roots held in Gloucester, excited considerable admiration, not only for their size, but for their beautiful shape and excellent quality.

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GRASS SEEDS for PERMANENT PASTURE, selected on a new, scientific, and natural system, by J. C. WHEELER & SON, Gloucester.

UNDOUBTEDLY a GOOD IDEA.

WHEELER AND SON'S "BOOK on GRASSES."—"These enterprising Seedsmen, in introducing a new element into their calculations—viz., the geological formation of the soils for which permanent Grasses are wanted—*have undoubtedly a good idea.*

"Messrs. WHEELER have prepared a new series of tables of the Grasses which they consider most suitable to different geological formations. These are arranged in 11 tables, and include mixtures suitable for heavy, medium, and light soils in each case."—*The Field*, March 9, 1867.

J. C. WHEELER AND SON are anxious that every Gentleman Farmer in England, who is about to Lay Down Land to Permanent Pasture, or to Renovate Old Pasture with suitable Grass Seeds, should read their illustrated "Book on Grasses;" with this view they will, on receiving a note to that effect, send a copy to any address they may be favoured with.

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GRASS SEEDS for PERMANENT PASTURE, of the finest quality, at moderate prices, carefully selected on a new, natural, and scientific system.

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J. C. WHEELER & SON,
Gloucester,
Seedsmen to the Gloucestershire Agricultural Society.

Sutton's Grass Seeds for all Soils.

SEEDSMEN BY APPOINTMENT Sutton AND Sons

SUTTON AND SONS have still on hand some of each of the leading kinds of

PERMANENT NATURAL GRASSES and CLOVERS,

which are mixed expressly to suit the soils for which they are intended.

Price 26s. to 36s. per acre.
Carriage free.

SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

Notice.

H. CANNELL has received so many letters requiring various information on the extending System of GRAPE GROWING, that he begs to say he really cannot answer any more privately, and has determined to publish his System in full, including all the valuable Correspondence that has lately appeared in the *Gardeners' Chronicle;* so that all persons possessing Vines may be able to see at a glance how Vines and all other Plants should be grown naturally and to perfection for many years without decaying.

Fuchsia Nursery, Woolwich.

NOTICE is HEREBY GIVEN, that the PARTNERSHIP lately subsisting between us, the undersigned, SPENCER MITCHELL HAMILTON and JAMES VINCENT WRIGHT, as SEEDSMEN, NURSERYMEN, and FLORISTS, at Thornton Heath Terrace, Croydon, in the County of Surrey, was on the 18th day of May instant DISSOLVED by mutual consent. The said Business will henceforth be carried on solely by the said SPENCER MITCHELL HAMILTON, at Thornton Heath Terrace, aforesaid, and all debts due to and owing by the said late firm will be received and paid by the said SPENCER MITCHELL HAMILTON. As witness our hands this 29th day of May, 1867. S. M. HAMILTON and JAS. V. WRIGHT.

Witness, JNO. ALF. TEMPLE, Solicitor, 5, Bloomsbury Square.

PEAT.—A quantity of good fibrous PEAT for SALE, as supplied by the Advertiser to her Majesty's Gardens. Price per ton 14s. Delivered to Seven Oaks or Edenbridge Station, by F. HAYNES, Brasted Chart, near Seven Oaks.

FOR SALE, in any quantities, selected SILVER SAND, PEAT SOIL, LOAM, SPHAGNUM, SANDSTONE GRAVEL, SHINGLE, GARDEN POTS, GARDEN ENGINES, IMPLEMENTS, &c., cheap for cash. Carefully dispatched by Rail, Canal, and Ship. List of Prices post free on application to W. SHORT, Horticultural Depôt, Reigate.

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Have now ready for delivery in dry fine condition,
CORN MANURE, for Spring Use
DISSOLVED BONES, for Dressing Pasture Lands
SUPERPHOSPHATES of LIME
PREPARED GUANO
MANGEL and POTATO MANURES.

Also Genuine PERUVIAN GUANO, and NITRATE of SODA, ex Dock Warehouse; SULPHATE of AMMONIA, FISHERY SALT, &c. E. PURSER, Secretary.

Offices, 116, Fenchurch Street, E.C.

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LAWES' PATENT TURNIP MANURE and BONE SUPERPHOSPHATE of LIME	6	6	0
LAWES' SUPERPHOSPHATE of LIME from BURNT BONE or MINERAL PHOSPHATES	5	5	0
LAWES' WHEAT, BARLEY, GRASS, and MANGEL MANURES	8	0	0
CONCENTRATED CORN and GRASS MANURES	12	0	0

These Manures can be obtained of Mr. LAWES, or through the appointed Agents in all parts of the United Kingdom, at prices varying according to cost of carriage.

Genuine Peruvian Guano direct from the Importers. Nitrate of Soda, Sulphate of Ammonia, and other Chemical Manures.

American and other Cakes at market prices.

Address, JOHN BENNET LAWES, 1, Adelaide Place, London Bridge, E.C.; 22, Eden Quay, Dublin; and Market Square, Shrewsbury.

ODAMS'S NITRO-PHOSPHATE for CORN.
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ODAMS'S DISSOLVED BONES.
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This Company was originally formed by, and is under the direction of agriculturists, circumstances that have justly earned for it another title, viz.—"The Tenant Farmers' Manure Company."

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Particulars will be forwarded on application to the Secretary, or may be had of the Local Agents. C. T. MACADAM, Secretary.

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COCOA-NUT REFUSE is becoming SCARCE, the old reserves will soon be gone. Now sold in bags, 1 for 2s., 10 for 16s., 20 for 30s., 50 for 66s., 100 for £6.

Fourpence allowed for each bag returned carriage-paid.

A Railway Truck-load (not in bags), 40s.

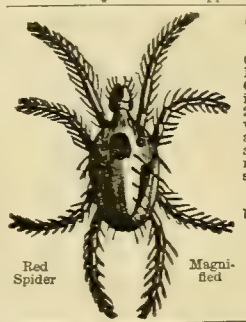
Postage Stamps or Post-office Order, payable to J. BARSHAM & Co., Kingston-on-Thames, S.W.

BOSTON'S NE PLUS ULTRA, for the Destruction of Mealy Bug, Scale, American Blight, &c., on Stove and Greenhouse Plants, Fruit Trees, Vines, &c. In bottles, with full instructions for application, price 3s. 6d., 5s., and 10s. 6d.

JAMES CARTER & Co. beg leave to state that the present time is most suitable for applying the above genuine Specific before the commencement of the growing season, thereby preventing the rapid increase of the above pests which would otherwise take place. The infallible properties of BOSTON'S NE PLUS ULTRA are rapidly becoming fully recognised, J. C. & Co. having already sold nearly 2000 bottles since its first introduction in the spring of 1866. Numerous testimonials have been received, and not a single complaint of its inefficiency.

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GISHURST COMPOUND.

Used by many of the leading Gardeners since 1859, against Red Spider, Mildew, Thrips, Green Fly, and other Blight, in solutions of from 1 to 2 ounces to the gallon of soft water, and of from 4 to 16 ounces as a Winter Dressing for Vines and Fruit Trees. Has outlived many preparations intended to supersede it.

Sold Retail by Seedsmen, in boxes, 1s., 3s., and 10s. 6d.

Red Spider — Magnified

Wholesale by
PRICE'S PATENT CANDLE COMPANY
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Plagues of the Garden.



SIMPLE and SAFE REMEDY.—By using the APHIS WASH, these pests of the garden, together with Ants, Scale, Caterpillars, Slugs, Earwigs, &c., are immediately destroyed. Leaves no stain, but strengthens the Trees or Plants.

"At the first opportunity use a solution of 'Aphis Wash,' prepared at the City Soap Works; it not only destroys the Aphis, but also Scale, and every other pest."—Extract from *Gardeners' Magazine*, January 5, 1867.

"For strengthening the growth and effectually destroying all forms of blight, the 'Aphis Wash' supersedes every other preparation."—See *Gardeners' Chronicle*, August 19, 1865; and *Gardeners' Magazine*, July 1, 1865.

Sold by Chemists and others, in 1s. bottles, and 2s. 6d. a gallon, with full directions for use.

Wholesale at the City Soap Works, Milton Street, London, E.C.

ORMSON'S PARADIGM HOT-HOUSES

ARE

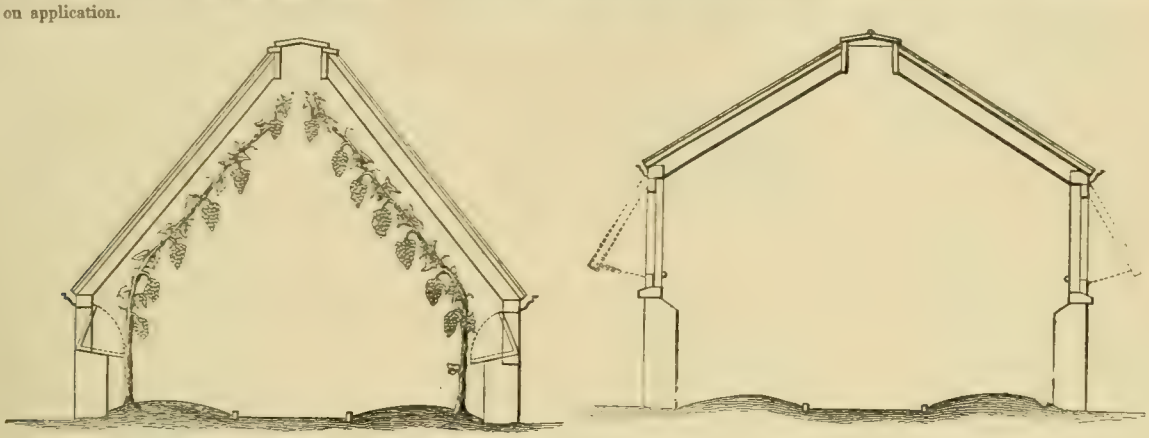
EFFICIENT, SUBSTANTIAL, AND MODERATE IN PRICE.

H. ORMSON, aware of the increasing demand for what are termed Cheap Hot-houses (which in reality, as usually constructed, are far from realising that term)—and the desire of Horticulturists, and the Public generally, to Cultivate their Fruits with a greater degree of certainty and success than can be done on open walls, and also to enable them to Grow Choice Flowering Plants under Glass, has made it his study to produce a class of Structures combining all the qualities and requisites of the most expensive Hot-houses, at prices most economical.

The CONSTRUCTION of these HOUSES is based upon a plan which offers many advantages over other low priced Houses, inasmuch as all the parts BEING FRAMED, can be readily taken down and re-erected if required, whilst as permanent buildings they possess many advantages over all descriptions of "bar roof" structures. They are adapted for the growth of either Fruits or Flowers, and can be made of any width required.

The VENTILATION is effected in a manner at once simple and most efficient, by machinery, combining all the latest improvements, and in such a manner that neither wind nor rain can do damage; and at the same time not offering any obstruction to shading, or netting the openings against insects.

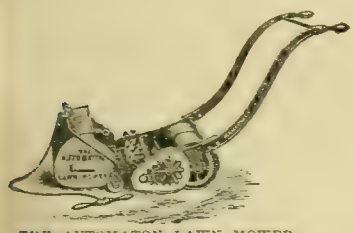
SPECIMENS of these HOUSES may be seen Erected in the ROYAL HORTICULTURAL GARDENS (EASTERN ARCADE), SOUTH KENSINGTON, and Prices obtained on application.



HENRY ORMSON, F.S.A.,

HORTICULTURAL ARCHITECT, BUILDER, AND HOT-WATER APPARATUS MANUFACTURER,

STANLEY BRIDGE, KING'S ROAD, CHELSEA, LONDON, S.W.



THE AUTOMATON LAWN MOWER.

RANSOMES & SIMS'

NEW LAWN MOWER. THE AUTOMATON.

A NEW AND FIRST-CLASS MACHINE, WHICH HAS BEEN THOROUGHLY TESTED.

CONTAINS MANY IMPROVEMENTS.

PRICES, ILLUSTRATIONS, AND FULL PARTICULARS, FREE, FROM

RANSOMES AND SIMS, IPSWICH.

WARNER'S SILICATE OF IRON PAINT.

The peculiarities and advantages of this PAINT are that it will stand extreme Heat and Damp, and is not affected by Acid, Sea Water, Sulphuretted Hydrogen, or Ammonia. It is equally well adapted for Iron, Wood, Brick, or Cement. Every Shade of Colour ground to order. The Creamy White and Bright Stone will retain the soft delicate shades, regardless of the fumes of Gases. It has no smell, and there is an entire absence of deleterious effect.

WARNER'S ANTITERMITE COMPOSITION

Is suitable for Felt Roofing, and is a cheap Coating for Iron Work, and preserves Wood in India from the ravages of the White Ant.

Price 1s. 3d. per Gallon.

17, LAURENCE POUNTNEY LANE, CANNON STREET, LONDON, E.C.

CONSERVATORIES, GREENHOUSES, FRAMES.

THE ONLY PAINT THAT SUCCESSFULLY STANDS UPON THE ABOVE TRYING WORK IS

CARSONS' ORIGINAL ANTI-CORROSION PAINT,

TRADE MARK.



ENTERED AT STATIONERS HALL.

AND IS CONSEQUENTLY LARGELY USED BY THE NOBILITY AND GENTRY, ALSO THE LEADING HORTICULTURISTS.

IT IS EQUALLY ADAPTED FOR ALL DESCRIPTIONS OF EXTERNAL WORK.

Three Cwt. Free to any Station in England and Wales, and most Ports of England, Ireland and Scotland.

PREPARED OIL MIXTURE FOR THE ANTI-CORROSION PAINT.

OILS, TURPENTINE, VARNISHES, BRUSHES, &c., &c.

TRADE MARK.



ENTERED AT STATIONERS HALL.

Before Painting, send for PATTERNS, PRICES, and TESTIMONIALS, which can be had Post Free on application to

WALTER CARSON AND SONS, LA BELLE SAUVAGE YARD, LUDGATE HILL, LONDON, E.C.

CAUTION.—All Casks bear the Trade Mark, or are not Genuine.

Seed of Choice Strains of Florists' Flowers.

The following selected Strains are worthy of the notice of all growers of the most useful conservatory decorative flowers.

WILLIAMS' SUPERB STRAIN of PRIMULA.

B. S. WILLIAMS can with confidence offer his superb Strain of Primula as being undoubtedly the finest in cultivation. It is now grown in all the principal Gardens of the Nobility and Gentry throughout the Three Kingdoms, and has never failed to give the greatest satisfaction.

In habit the plants are very robust, and in the foliage differ from all other varieties; but their great beauty consists in the depth of colour in the Red, purity of the White, and beautiful fimbriated form of all the flowers, which are thrown up in large trusses well above the foliage.

As a proof of the truth of the above remarks, this Strain has taken 1st Prizes in every instance that it has been shown in the Provinces this Spring; and 1st Prize at the Primula Show of the Royal Horticultural Society, South Kensington; and 1st at the Royal Botanic, Regent's Park. It is also the favourite Strain in the Covent Garden Flower Market.

This Strain may be procured True, in Sealed Packets bearing B. S. WILLIAMS' Name and Address, from any Seedsman; but B. S. W. particularly requests that Customers will observe, on purchasing, that each Packet has his Name and Address in full printed thereon, as no others are genuine.

The Trade supplied on advantageous terms.

	Per pkt. s. d.		Per pkt. s. d.
Retail price, RED	5 0	Retail price, WHITE ..	3 6
,, ,, ...	3 6	,, ,, ..	2 6
,, ,, ...	2 6	,, MIXED ..	5 0
,, WHITE ..	5 0	,, ,, ..	3 6

Retail price, MIXED, per packet, 2s. 6d.

WEATHERHILL'S EXTRA CHOICE STRAIN OF CINERARIA.

B. S. W. has purchased the entire Stock and right of Sale of this Magnificent Strain. Many of the flowers produced by this seed last season were as large as a crown-piece. This strain is well known in the London Flower Market, and is the most popular one there, a sufficient guarantee that its qualities are good.

Retail price per pkt., 5s. 0d. | Retail price per pkt., 3s. 6d.

Retail price per pkt. .. .. 2s 6d.

JAMES'S HERBACEOUS CALCEOLARIAS.—The varieties that took the First Prize at the International Horticultural Exhibition last May were of this noted strain.

Retail price per pkt. 5s. 0d. | Retail price per pkt., 3s. 6d.

Retail price per pkt. .. .. 2s. 6d.

All FLOWER SEEDS in packets, Post free.

B. S. WILLIAMS, Victoria and Paradise Nurseries, Upper Holloway, London, N.

Russell's Pyramid Primula.

THE FINEST STRAIN IN EXISTENCE.

GEORGE CLARKE has New SEED of the above unequalled varieties, 2s. 6d. per packet; also the Fern-leaved kinds, 2s. 6d.; Kermesina (scarlet), 2s. 6d.; The Fairy (a lavender colour) 1s. All of the best quality. Now is the time to sow for strong early plants.

Nursery, Streatham Place, Brixton Hill, S.; and Mottingham, Kent, S.E.

Choice Seeds.

WM. CUTBUSH AND SON strongly recommend the following:—

PRIMULA SINENSIS FIMBRIATA, of the finest possible strain, Red, White, or Mixed, 2s. 6d., 3s., and 5s. per packet.
CALCEOLARIA, saved from James' choice strain, very fine, 2s. 6d., 3s. 6d., and 5s. per packet.
CINERARIA, from named flowers, 2s. 6d., 3s. 6d., and 5s. per packet.
SNOW'S WINTER WHITE BROCCOLI (True), Wm. C. & Son's own saving, 2s. 6d. per packet.
NUNEHAM PARK ONION, 2s. 6d. per packet.
For other Choice Seeds see CATALOGUE, post free.
Highgate Nurseries, London, N.

PRIMULAS, CALCEOLARIAS, &c.—The following varieties greatly exceed in brilliancy of colour and substance of flower the older kinds:—

PRIMULA SINENSIS coccinea aurantiaca, very deep crimson, 1s. and 2s. 6d. per packet.
P. sinensis atrocarminata splendens, light carmine, 1s. and 2s. 6d. per packet.
P. sinensis lilacina albo-marginata, lilac, edged white, 1s. and 2s. 6d. per packet.
P. sinensis striatiflora, magnificently striped, 1s. and 2s. 6d. per pkt.
P. sinensis filicifolia, fine Fern-leaved variety, 2s. 6d. per packet.
P. sinensis fimbriata, extra fine, mixed, 1s. and 2s. 6d. per packet.
P. sinensis fimbriata alba, 1s. and 2s. 6d. per packet.
CALCEOLARIA, saved from flowers of great beauty, 1s., 1s. 6d., and 2s. 6d. per packet.
CINERARIA, saved from fine named varieties, 1s., 1s. 6d., and 2s. 6d. per packet.
All packets of Flower Seeds sent post free.
CATALOGUES post paid.
BUTLER, McCULLOCH & Co., Covent Garden Market, London, W.C.

Dutch Bulbs.

A. E. BARNAART, NURSERYMAN, Vogelenzang, Haarlem, begs to inform Nurserymen and the Trade generally, that he has just published his New CATALOGUE of DUTCH BULBS for the coming season, which may be had post free on application to his Agents, Messrs. R. SILBERRAD & SON, 5, Harp Lane, Great Tower Street, London, E.C.

A. E. BARNAART having extensive Nurseries at Haarlem, Overveen, and Vogelenzang, possess unusual cultural advantages, being able to select the soil and situation most desirable for perfecting the growth of each description of Bulb.

His HYACINTHS were crowned this spring at the Paris Exposition Universelle.

THE GOLDEN-VARIEGATED WELLINGTONIA.

First-class Certificate from Royal Horticultural Society.

For Testimonials, &c., see *Gardeners' Chronicle*, October 6, 1866; *Times*, October 7, 1866; *Scottish Gardener*, November, 1866; *Gardeners' Chronicle*, January 12, 1867; "Florist," February, 1867.

LAST YEAR'S PLANTS (a few remaining).
1st Size, very choice, 8 to 12 inches, £5 5s. each.
THIS YEAR'S PLANTS.
2d Size, fine, 4 to 5 inches, £2 2s.
3d Size, nice little bits, 2 to 3 inches, £1 1s.

5000 plants are now plunged out-of-doors, in their respective sizes they may be safely forwarded during the summer, if desired, and orders will be executed in strict rotation.

Chromo-lithographs of the parent tree, by Day and Son (Limited), on superior cards, 10 inches by 8 inches, very faithful in outline, but deficient in representing the glorious colour of the original. These are sent free by post for 25 stamps, and one sent to each Purchaser.

It is intended to exhibit a few of the first size at the approaching Paris and Manchester Exhibitions.

R. HARTLAND, The Lough Nurseries.

ROYAL BOTANIC GARDENS,

REGENT'S PARK.

FIRST GENERAL EXHIBITION of PLANTS and FLOWERS,

WEDNESDAY, MAY 29, 1867.

LIST OF AWARDS.

LARGE GOLD MEDAL.

Mr. J. Baines, Gr. to H. Nicholls, Esq., Bowden, near Manchester, for 10 Stove and Greenhouse Plants
Mr. C. Penny, Gr. to H. H. Gibbs, Esq., St. Dunstan's, Regent's Park, for 15 Exotic Orchids

MEDIUM GOLD MEDAL.

Mr. B. Peed, Gr. to Mrs. Tredwell, St. John's Lodge, Norwood, for 10 Stove and Greenhouse Plants
Messrs. J. & C. Lee, Nurserymen, Hammersmith, for 8 Stove and Greenhouse Plants
Mr. D. Donald, Gr. to J. G. Barclay, Esq., Leyton, for 8 Stove and Greenhouse Plants
Messrs. S. Glendinning, Nurserymen, Chiswick, for 8 Greenhouse Azaleas
Mr. S. M. Carson, Gr. to W. R. G. Farmer, Esq., Nonsuch Park, Cheam, Surrey, for 8 Greenhouse Azaleas
Mr. W. Wilson, Gr. to W. Marshall, Esq., Clay Hill, Enfield, for 15 Exotic Orchids
Mr. C. Turner, Nurseryman, Slough, Bucks, for 10 Roses in Pots

GOLD MEDAL.

Mr. W. Kemp, Gr. to Earl Percy, Albury Park, Guildford, Surrey, for 10 Stove and Greenhouse Plants
Mr. O. Rhodes, Nurserymen, Sydenham Park, Kent, for 8 Stove and Greenhouse Plants
Mr. J. Coles, Gr. to H. H. Page Henderson, Esq., Beckenham Place, Beckenham, Kent, for 8 Stove and Greenhouse Plants
Messrs. J. & C. Lee, for 10 Foliage and Flowering Plants
Mr. O. Rhodes, for 8 Cape Heaths
Mr. B. Peed, Gr., for 8 Cape Heaths
Mr. C. Turner, for 8 Greenhouse Azaleas
Mr. J. Wheeler, Gr. to Sir F. H. Goldsmid, Bart., Regent's Park, for 8 Greenhouse Azaleas
Mr. W. Gidney, Gr. to Rev. W. Ellis, Hoddesdon, Herts, for 15 Exotic Orchids
Mr. T. Hill, Gr. to R. Hanbury, Esq., Poles Ware, Herts, for 8 Exotic Orchids
Mr. C. Turner, for 9 Pelargoniums
Mr. J. Fraser, Nurseryman, Leyton, Essex, for 9 Pelargoniums
Mr. W. Paul, Nurseryman, Waltham Cross, for 10 Roses

LARGE SILVER GILT MEDAL.

Mr J. Wheeler, Gr. to J. Phillpott, Esq., Stamford Hill, for 10 Stove and Greenhouse Plants
Messrs. S. Glendinning, for 8 Stove and Greenhouse Plants
Mr. A. Wilkie, Oak Lodge, Kensington, for 8 Stove and Greenhouse Plants
Mr. J. Ward, Gr. to F. G. Wilkie, Esq., The Poplars, Leyton, for 6 Stove and Greenhouse Plants
Mr. B. S Williams, Nurseryman, Holloway, for 10 Foliage and Flowering Plants
Mr. R. Baxindine, Nurseryman, Guildford, Surrey, for 8 Cape Heaths
Mr. W. Kemp, Gr., for 8 Cape Heaths
Mr. C. Penny, Gr., for 8 Greenhouse Azaleas
Mr. C. Turner, for 6 Greenhouse Azaleas
Mr. B. Peed, Gr., for 15 Exotic Orchids
Messrs. J. Veitch & Sons, Nurserymen, Chelsea, for 6 Exotic Orchids
Mr. J. Wiggins, Gr. to W. Beck, Esq., Worton Cottage, Isleworth, for 8 Exotic Orchids
Mr. J. Ward, Gr., for 9 Pelargoniums
Messrs. Paul & Sons, Nurserymen, Cheshunt, Herts, for 10 Roses
Mr. J. Terry, Gr. to A. G. Pullen, Esq., Youngsbury, Ware, Herts, for 6 Roses
Mr. B. S. Williams, for 12 Exotic Ferns

LARGE SILVER MEDAL.

Mr. B. S. Williams, for 8 Stove and Greenhouse Plants
Mr. C. Smith, Gr. to A. Anderson, Esq., The Grove, Norwood, for 6 Stove and Greenhouse Plants
Mr. J. Ward, Gr., for 6 Cape Heaths
Messrs. J. & C. Lee, for 6 Greenhouse Azaleas
Mr. B. S. Williams, for 6 Foliage Plants
Mr. J. Fraser, for 6 Fancy Pelargoniums
Mr. D. Donald, Gr., for 6 Fancy Pelargoniums

SILVER GILT MEDAL.

Mr. G. Wheeler, Gr., for 10 Foliage and Flowering Plants
Mr. W. Kemp, Gr., for 8 Cape Heaths
Messrs. J. & C. Lee, for 6 Cape Heaths
Mr. A. Wilkie, Gr., for 8 Greenhouse Azaleas
Messrs. H. Lane & Son, Nurserymen, Great Berkhampstead, Herts, for 6 Greenhouse Azaleas
Mr. B. S. Williams, for 6 Exotic Orchids
Mr. G. Fairbairn, Gr. to Duke of Northumberland, Syon House, Isleworth, for 8 Exotic Orchids
Mr. W. Taylor, Gr. to W. Yates, Esq., Lauderdale House, Highgate, for 12 Exotic Ferns
Mr. J. Fairbairn, Gr., for 6 Foliage Plants
Mr. J. Wiggins, Gr., for 9 Pelargoniums
Mr. C. Turner, for 6 Fancy Pelargoniums
Mr. J. Weir, Gr. to Mrs. Hodgson, The Elms, Hampstead, for 6 Fancy Pelargoniums
Mr. T. Baines, Gr., for 6 Foliage Plants

SILVER MEDAL.

Mr. G. Wheeler, Gr., for 6 Cape Heaths
Mr. B. Peed, Gr., for 6 Greenhouse Azaleas
Messrs. J. & C. Lee, for 6 Exotic Orchids
Mr. G. Young, Gr. to W. H. Stone, Esq., Leigh Park, Havant, Hants, for 8 Exotic Orchids
Mr. J. Weir, Gr., for 6 Pelargoniums
Messrs. E. P. Francis, Nurserymen, Hertford, for 10 Roses
Messrs. Paul & Sons, for Boxes of Cut Roses
Mr. T. Baines, Gr., for Collection of Sarracenias
Mr. D. Donald, Gr., for 6 Foliage Plants
Mr. T. Baines, Gr., for 12 Exotic Ferns
Messrs. S. Glendinning, for 6 Foliage Plants

SMALL SILVER MEDAL.

Mr. W. Bull, Nurseryman, Chelsea, for 6 Exotic Orchids
Mr. R. Baxindine, for 8 Stove and Greenhouse Plants
Messrs. Downie, Laird, & Laing, Nurserymen, Forest Hill, for 36 Pansies

SMALL SILVER MEDAL.

Mr. E. Kingston, Militia Barracks, Bath, for 24 Pansies
Messrs. S. Glendinning, for 6 Anæctochilus
Messrs. Hooper & Co., Covent Garden, for Cut Blooms of Ixias, Spiraxias, &c.
Messrs. J. Ivery & Son, Nurserymen, Reigate, for Collection of Hardy Ferns
Mr. J. James, Gr. to W. F. Watson, Esq., Isleworth, for Collection of Calceolarias
Messrs. J. Dobson & Son, Nurserymen, Isleworth, for Collection of Calceolarias
Mr. W. Paul, for Collection of Foliage Plants, Hardy
Mr. W. Paul, for Collection of Standard Geraniums
Mr. C. Turner, for Collection of Fruit

BRONZE MEDAL.

Mr. H. Hooper, Nurseryman, Widcombe Hill, Bath, for 36 Pansies
Mr. W. Meddick, 9, St. James Parade, Bath, for 24 Pansies
Messrs. H. Lane & Sons, for Collection of Azaleas

CERTIFICATE.

Mr. H. Hooper, for 36 Fancy Pansies
Mr. J. James, Gr., for 24 Pansies
Mr. J. Lewis, Stamford Hill, for Dish of Black Hamburgh Grapes
Mr. J. James, Gr., for 12 Ferns

FIRST-CLASS CERTIFICATES of MERIT.

Messrs. J. Veitch & Sons, for Dichorisandra mosaica
Messrs. J. Veitch & Sons, for Echites rubro-venosa
Messrs. J. Veitch & Sons, for Maranta illustris
Messrs. J. Veitch & Sons, for Coleus Veitchii
Messrs. J. Veitch & Sons, for Hypocyrta brevicalyx
Messrs. J. Veitch & Sons, for Miconia peruviana
Messrs. J. Veitch & Sons, for Panicum variegatum
Messrs. J. Veitch & Sons, for Retinospora filifera
Messrs. J. Veitch & Sons, for Sanchezia nobilis variegata
Messrs. J. Veitch & Sons, for Anthurium regale
Messrs. J. Veitch & Sons, for Cypripedium lævigatum
Messrs. J. Veitch & Sons, for Dendrobium McCarthiæ
Mr. W. Bull, for Polystichum angulare parvissimum
Mr. W. Bull, for Ptychosperma regalis
Mr. W. Bull, for Tillandsia argentea
Mr. W. Bull, for Amorphophallus nobilis
Mr. W Bull, for Echites rubro-venosa
Mr. W. Bull, for Maranta illustris
Mr. W. Bull, for Pyrethrum Parthenium aureum
Mr. W. Bull, for Scolopendrum vulgare Morgani
Mr. W. Bull, for Sanchezia nobilis variegata
Mr. W. Bull, for Coleus Veitchii
Mr. W. Bull, for Anæctochilus Dayi
Mr. W. Bull, for Dichorisandra mosaica
Mr. W. Bull, for Panicum variegatum
Mr. W. Bull, for Gymnostachyum Pearcei
Mr. W. Bull, for Maranta picturata
Mr. W. Bull, for Anæctochilus Petola marmorea
Mr. W. Bull, for Adiantum Lindenii
Mr. W. Bull, for Anthurium regale
Mr. W. Bull, for Agave macracantha
Mr. W. Bull, for Zamia villosa
Messrs. J. Ivery & Sons, for Athyrium Filix-fœmina Girdlestonii
Messrs. J. Ivery & Sons, for Athyrium Filix-fœmina plumosum (Axminster var.)
Messrs. J. Ivery & Sons, for Polystichum angulare oxyphyllum (Jackson's var.)
Messrs. E. G. Henderson & Son, for Philodendron Lindenii
Messrs. E. G. Henderson & Son, for Echites rubro-venosa
Messrs. E. G. Henderson & Son, for Pyrethrum Golden Feather
Messrs. E. G. Henderson & Son, for Blandfordia Cunninghamii
Messrs. E. G. Henderson & Son, for Ulmus campestris aurea
Messrs. E. G. Henderson & Son, for Alnus glutinosa aurea
Mr. Wm. Wilson, Gr. to W. Marshall, Esq., Clay Hill, Enfield, for Miltonia spectabilis rosea
Mr. Wm. Wilson, Gr., for Dendrobium thyrsiflorum
J. Gray, Esq., Ashridge Park, for Deutzia gracilis variegata
Mr. Wm. Paul, Waltham Cross, for Pelargonium Dr. Hogg
Mr. Wm. Paul, for Pelargonium Waltham Nosegay
Messrs. Downie, Laird, & Laing, Forest Hill, for Pelargonium Emmiline
Mr. John Mann, Nurseryman, Brentwood, for Pelargonium Lord Derby
Mr. J. Wiggins, Gr. to Wm. Beck, Esq., Worton Cottage, Isleworth, for Pelargonium Hermit
Mr. J. Wiggins, Gr., for Pelargonium Lady of Quality
Mr. W. Nye, Gr. to E. B. Foster, Esq., Windsor, for Pelargonium The Emperor
Mr. W. Nye, Gr., for Pelargonium Grande
Mr. W. Nye, Gr., for Pelargonium Rob Roy
G. W. Hoyle, Esq., Reading, for Pelargonium Example
G. W. Hoyle, Esq., for Pelargonium Man of Mark
G. W. Hoyle, Esq., for Pelargonium Victor
Mr. C. Turner, Slough, for Pelargonium Pink of Perfection
Mr. C. Turner, for Pelargonium Marmion
Mr. C. Turner, for Pelargonium East Lynn
Mr. Wm. Bull, Chelsea, for Pelargonium L'Elegante
Mr. Wm. Bull, for Pelargonium Rosy Gem
Mr. B. S. Williams, for Sanchezia nobilis variegata
Mr. B. S. Williams, for Panicum variegatum
Mr. B. S. Williams, for Coleus Veitchii
Mr. B. S. Williams, for Anthurium regale
Mr. B. S. Williams, for Echites rubro-venosa
Mr. B. S. Williams, for Polystichum angulare parvissimum
Mr. B. S. Williams, for Stenochlæna heteromorpha
Messrs. J. Dobson & Son, for Pelargonium Magnet
Messrs. J. Dobson & Son, for Pelargonium L'Elegante

SECOND-CLASS.

Messrs. J. Veitch & Sons, for Eranthemum igneum
Messrs. J. Veitch & Sons, for Bignonia ornata
Messrs. J. Veitch & Sons, for Epidendrum sp.
Messrs. J. Veitch & Sons, for Dieffenbachia Pearcei
Messrs. J. Veitch & Sons, for Asplenium elegantulum
Messrs. J. Veitch & Sons, for Dichorisandra undata
Mr. W. Bull, for Nephrodium molle polycuspis
Mr. W. Bull, for Nephrodium molle grandiceps
Mr. W. Bull, for Odontoglossum luteo-purpureum
Mr. W. Bull, for Bignonia ornata
Mr. W. Bull, for Maranta Legrelliana
Mr. W. Bull, for Lastrea Filix-mas Barnesii
Mr. W. Bull, for Dieffenbachia Pearcei
Mr. W. Bull, for Eranthemum igneum
Mr. W. Bull, for Dichorisandra undata
Messrs. E. G. Henderson & Son, for Anthurium Lindenii
Messrs. E. G. Henderson & Son, for Eranthemum igneum
Messrs. E. G. Henderson & Son, for Epigynium acuminatum

GREAT NATIONAL HORTICULTURAL EXHIBITION, 1867
£1000 OFFERED IN PRIZES.

To be HELD in the Gardens of the Botanical and Horticultural Society, Old Trafford, MANCHESTER, 7th to the 15th JUNE.

Charges for Admission :—First Day, 10s. 6d. each; Second Day, 2s. 6d. each; WHIT MONDAY and remaining Days, 1s. each.

Subscribers to the Manchester Botanical and Horticultural Society free each day.

Annual Subscription—Family, £2 2s.; Individual, £1 1s., admitting on all occasions.

Schedules, &c., may be obtained on application to Mr. B. FINDLAY, Curator, Botanic Gardens, Manchester, or from the undersigned Military Bands in attendance each day.

Cooper Street, Manchester. HENRY WHITWORTH, Sec.

GREAT NATIONAL HORTICULTURAL EXHIBITION, 1867.—Gardeners will be admitted by Ticket as follows:—First Day, 2s. 6d. each; Second and remaining Days, 1s. each. Applications for these Tickets must be made on or before 5th JUNE. HENRY WHITWORTH, Sec.

BRIGHTON and SUSSEX FLORICULTURAL and HORTICULTURAL SOCIETY.—The FOURTEENTH ANNUAL GRAND SUMMER SHOW will be held, by kind permission of the Town Council, on the Eastern Lawn, and in the Suite of Rooms of the Royal Pavilion, on WEDNESDAY and THURSDAY, June 26 and 27. Open till 8 P.M. each day on this occasion, being held at the same time as the Exhibition of the Southern Counties Association. Above £200 in Prizes, including the Railway Cup, value £10, which is offered for the best Eight Varieties of Stove and Greenhouse Plants. Schedules of Prizes to be had on application to the Secretary, 96, St James's Street; or E. SPARY, Superintendent, Queen's Graperies, Brighton.

N.B. AUTUMN SHOW will be held SEPTEMBER 11 and 12.

May 18. EDWARD CARPENTER, Secretary.

GRAND HORTICULTURAL EXHIBITION at BURY ST. EDMUND'S, in connection with the SHOW of the ROYAL AGRICULTURAL SOCIETY, JULY 15, 1867, and four following Days.

Amongst various Special Prizes, amounting in value to nearly £300, and exclusive of the ordinary Prize Schedule,

A SILVER CUP, VALUE £20,

will be offered by the Proprietors of the GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE for the best COLLECTION of FRUITS and VEGETABLES, to be made up as follows:—

Of FRUITS, any Five of the following Eight kinds, one Dish of each:—Grapes, Melons (2 fruits), Strawberries, Gooseberries, Currants, Cherries, Raspberries, or Apples (of the crop of 1866).

Of VEGETABLES, any Eight of the following Fourteen kinds, one basket or bundle of each:—Peas, French Beans (or Scarlet Runners), Broad Beans, Cauliflowers, Cucumbers (brace), Summer Cabbages, Early Carrots, Turnips, Artichokes, Onions, Spinach, Rhubarb, Potatos, or Mixed Salading.

This Cup will be open to Competition amongst Amateur or Professional Gardeners, of all grades, with Fruit and Vegetables of *their own growing*; any article otherwise obtained will disqualify the exhibitor.

The Gardeners' Chronicle.

SATURDAY, JUNE 1, 1867.

MEETINGS FOR THE ENSUING WEEK.

MONDAY,	June 3	}	Royal Botanic (Exhibition of American Plants), at Regent's Park
TUESDAY,	— 4	}	Royal Horticultural (First Great Show), at South Kensington.
to			
SATURDAY,	— 8		
THURSDAY,	— 6		Linnean .. .. 8 P.M.
FRIDAY,	— 7	}	Manchester Great Horticultural Exhibition.
to			
SATURDAY,	— 15		

FOR eliciting facts there is nothing like a brisk DISCUSSION, even if the facts be mixed up with a good deal of irrelevant matter, or hidden by a large admixture with nonsense. The hearers and participators are pretty sure, if not at the time, at any rate no long while after, to winnow the chaff from the grain, and store up the latter in their granaries till occasion calls for its use. We were forcibly reminded of this by what took place at the ROYAL HORTICULTURAL SOCIETY at its last Tuesday meeting.

There were learned botanists, intelligent amateurs, shrewd practical men, all taking part in the discussion relating to the Tartan Pelargoniums as we might, by the way, call them, and thus obviate the difficulty as to the number of colours to be found in their harlequin leaves. But the discussion—How is it possible to chronicle half that was said? We should have to call in the aid of the Herald's College or of those complaisant gentlemen who for a small consideration will furnish a pedigree drawn up *secundum artem* to all comers. We should have to take note of the behaviour of Anthoxanthin and Anthocyan, of Erytophyll and Xanthophyll, of Phylloxanthin and Phyllocyanin, while Chlorophyll and Chromule would pall upon the ear from frequent repetition. Having become familiarised with these euphonious words we should find ourselves rather perplexed to know what is health, what disease; and we should join issue with our excellent correspondent "M. J. B.," who maintains, or is reported to do so at any rate, that anything out of the ordinary course is disease, or the result of disease, were it not for the paradoxical fact that there are many diseases which do not perceptibly impair the health of the patient; and so while we listen, as in duty bound, to the communications of "M. J. B.," we are quite as much disposed to pay heed to the opposite notions propounded by Major CLARKE, while Mr. GRIEVE'S practical assertion, confirmed as it is by a glance at our ribbon border, of the crumpling of the white-edged silver zonals, must assuredly be thrown into the botanist's scale. For our own parts we, in spite of being considered "trimmers," cannot help thinking that in this matter of variegation, neither one nor the other speaker was wholly right or wholly wrong. We shall not be accused of dogmatism in so saying, because it must, we think, be evident, that under this general term, variegation, several distinct conditions are implied, some quite consistent with health—constituting, in fact, the normal, or, as we should prefer to call it, the ordinary condition of the plant (*e. g.*, the particoloured Marantas, in which chlorophyll is present, though disguised by the presence of coloured fluids, &c.), while others are as certainly morbid in their nature. To pursue this subject we should have to write a treatise on variegation, which it is not our present intention to do.

Between Mr. GRIEVE and M. MORREN there is no such wide gap as the former seems to suppose. Mr. GRIEVE, as we infer, makes special application of a general statement to his own particular case: he is of course at liberty to do this if he chooses, but he must bear in mind the popular saying if he does so. Neither M. MORREN, nor any one else so far as we know, would be silly enough to depreciate the labours of so intelligent a cultivator, especially of one whose labours have been crowned by such brilliant success.

Mr. GRIEVE himself, with the characteristic modesty of one who has earned an undoubted right to be proud of his achievements, will, nay does, admit that many varieties spring up as it were spontaneously — we know not how — certainly not from any designed action on our parts. This is really all that Professor MORREN has asserted, except—oh those buts, ifs, and excepts!—except that he has expressed an opinion that many of the varieties for the origination of which the gardener now takes the credit upon himself—in perfect good faith—may nevertheless be the result of agencies perhaps wholly beyond, or at any rate only indirectly under, the control of the gardener. Taken in the limited sense, in which Professor MORREN meant his remarks to be understood—nay, in which he expressed them—we certainly feel inclined to "trim" again, and while according to Mr. GRIEVE and his fellow-labourers all the credit which is so justly due to them, reiterate our conviction that "there is much to be said on the other side," and that many of the garden varieties, not only of Pelargoniums but of other plants, *supposed* but not known for certain to be the result of intentional cross-breeding, may really originate from causes beyond man's control. Meanwhile an exhibition and discussion, such as we have alluded to, cannot fail to put us upon the right track in these matters, and must assuredly increase the well-earned fame of those practical men, to whose well-directed, zealous efforts we owe so much of the beauty of our gardens.

—— The following correspondence, relating to the appropriation of the SURPLUS FUNDS of the INTERNATIONAL HORTICULTURAL EXHIBITION of 1866, and by which the proposition to found therewith a Horticultural Library was adopted by the Executive Committee at its meeting of the 30th ult. in the form therein set forth, has been forwarded to us for publication. The Library, it will be seen, will be secured, by investing it in the names of Trustees; it will be deposited at South Kensington, as an adjunct of the Royal Horticultural Society; and it will be accessible to gardeners and others, under regulations for its preservation, to be agreed upon by the Trustees. We may fairly congratulate the Executive Committee on this wind-up to the grand enterprise, which they have carried to so successful an issue. The correspondence runs thus:—

Botanic Gardens, Chelsea, April 11, 1867.

Sir,—I am desired by the Executive Committee of the International Horticultural Exhibition, to forward you the enclosed copy of certain proposals for the disposal of the surplus funds now in its hands, adopted at its last meeting, and through which it is trusted the Society will derive some permanent benefit in acknowledgment of the facilities granted by your Council to the Committee at the time the extension of the Great Show was thought desirable.

May I beg that you will lay the proposals before the Council at the earliest opportunity, and that you will as soon as possible acquaint me with its reply.—I am, Sir, your obedient servant, THOMAS MOORE.

To the Secretary of the Royal Horticultural Society.

Extract from Minutes of Executive Committee, embodying the Proposals above referred to.

"1. That the Surplus Funds realised at the International Horticultural Exhibition of 1866 be applied to the establishment of a permanent Horticultural and Botanical Library, to be vested in Seven Trustees, as hereinafter mentioned, and to be called the Lindley Library, in memory of the late Dr. LINDLEY, and his zealous devotion to the cause of Horticultural and Botanical Science.

"2. 600*l.* of this Surplus to be applied to the purchase of Dr. LINDLEY'S own Library. As it appears that the Royal Horticultural Society has already provisionally secured possession of this collection with a view to prevent its dispersion, the Society to surrender it to the Trustees absolutely, in consideration of being repaid the sum of 600*l.* in question.

"3. The Society to consent to the Library now proposed to be formed, being placed in the Council Room during the period of the continuance of their Lease under the Royal Commissioners for the Exhibition of 1851.

"4. Of the balance of the Fund (about 1200*l.*) the Trustees to expend such sum as they may think expedient in the purchase or construction of book-cases and fittings for the reception of the Lindley Library, and any subsequent extension of it in the Council Room of the Society.

"5. The Library to be available for consultation by Fellows, Members, and Associates of the Royal Horticultural Society, and other persons possessing rights of admission to the premises, also by Gardeners on their producing a satisfactory introduction from their employers, and by young gardeners who may have passed on the preparing for the Examinations held by the Royal Horticultural Society and by the Society of Arts. In the case of other persons to whom it may appear desirable to give the privilege of consulting the Library, the Trustees and the Society to agree upon the conditions under which the privilege of admission shall be given.

"6. In the event of the books being kept under lock and key in the book-cases, the Society to entrust the custody of the Keys to one of its Officers, who shall be prepared at all reasonable times to give access to the books to those persons entitled to consult them.

"7. The remaining balance of the Surplus, after providing for the above items of expenditure, and setting aside any sum that may be necessary for contingencies (such as the preparation of the Trust Deed hereafter referred to, &c.), to be applied by the Trustees to the purchase of further works to be added to the Library.

"8. A Trust Deed to be prepared for the purpose of giving effect to the present arrangement,—three of the Trustees to be appointed by the International Executive Committee (namely, the three Secretaries of the International Horticultural Exhibition and Botanical Congress, Mr. THOMAS MOORE, Dr. M. T. MASTERS, and Dr. R. HOGG)[1] three by the Royal Horticultural Society (namely, the Treasurer and Secretary of the Royal Horticultural Society for the time being, and one other person to be chosen by the Society), and one to be added by the six Trustees above-mentioned jointly.

"9. The Trustees to have the power of removing the whole of the books purchased under the Trust, or added to the Library by presentation, together with all the book-cases, fittings, &c., referred to in paragraph 4, in the event of the determination of the Lease held by the Society under the Royal Commissioners, and of making such arrangements as they may think fit for establishing the Library elsewhere."

Royal Horticultural Society, South Kensington, April 17, 1867.

Sir,—The Extract from the Minutes of the Executive Committee of the International Horticultural Exhibition, respecting their surplus, which you were good enough to forward me, was yesterday read to the Council, and I am requested to convey to you their thanks for the very liberal proposition which your Committee has made.

The Council will, as wished, surrender absolutely the Lindley Library for the sum of 600*l.*; and in accordance with the terms of paragraph 8 has elected Mr. W. WILSON SAUNDERS as the third and permanent Trustee from the Council.

With respect to paragraph 5 the Council would prefer that the admission of strangers should be regulated by the Trustees, and perhaps your Committee will find no difficulty in adding this slight concession to their very handsome present.

The Council desire me to add that in their opinion no better or more acceptable return could have been made to the Society for the facilities afforded to your Committee, by the Council.—I have the honour to be, Sir, your obedient Servant,

HENRY SCOTT, Secretary.

To THOS. MOORE, Esq., F.L.S., &c.

Certain practical difficulties having prevented the realisation of this idea of a Horticultural Library in the exact form originally contemplated (see p. 151), the Committee could scarcely have done better than adopt the plan now determined on, which substantially secures the same privileges to the profession.

—— Among the curiosities exhibited at the PELARGONIUM SHOW on Tuesday week was a plant of "Mrs. Pollock" exhibited by Messrs. VEITCH. As we understand, the plant in question was originally procured on the Continent. In consequence apparently of the sea voyage it lost all its leaves, but shortly afterwards it produced on one branch green leaves without dark zones; on another branch were produced green leaves with bronzed zones; while later still on the youngest branch the parti-coloured dress of Mrs. Pollock was resumed. The plant exhibited had the three descriptions of leaf still attached to the plant. Regarding the three branches as so many distinct generations, we have here a phenomenon such as occurs in the animal kingdom, when an ancestral peculiarity, after lying dormant as it were for a generation or two, reappears in a subsequent one. In this case the loss of the leaves seems to have produced the effects in question. Messrs. E. G. HENDERSON & SON also exhibited a very interesting series showing the germs, so to speak, of the parti-coloured leaves, their gradual development and fixation, or in other cases their degeneration, if we may use such a term. To complete our record of this interesting Show, we may add that the Council of the Royal Horticultural Society has awarded the following MEDALS in recognition of the merits of the several collections:—Silver Flora Medals to Messrs. E. G. HENDERSON & SON, who besides showing fine specimens of all the best known kinds, had, as above stated, copious illustrations of the different stages and phases of variegation; to Mr. WILLS, who had admirable representations of the Beauty of Oulton type; to Mr. GRIEVE, hitherto the principal raiser of these variegated Zonals; and to Messrs. CARTER & Co., who had some varieties of extraordinary growth. Silver Knightian Medals to Messrs. F. and A. SMITH of Dulwich, Messrs. GARAWAY & Co., and Messrs. SALTMARSH; and Bronze Flora Medals to Mr. GROOM, M. LANGLOIS, and Messrs. WINDEBANK and KINGSBURY.

—— Rose lovers may be interested to know that the third SPECIAL EXHIBITION OF ROSES will be held at Brie Comte Robert (Seine et Marne) on the 14th and 15th July next. At the same time will be held a Congress of Rose growers, to discuss matters *de Rosâ*. It appears that about 2,000,000 Rose trees are grown in the immediate vicinity of Brie Comte Robert by professional cultivators, hence a fine show is anticipated. Last year 78,000 Roses were exhibited! Horticulturists and *Rosièristes* of all grades are invited to take part in these Rosalia. Those who purpose doing so should communicate with M. CAMILLE BERNARDIN, the President of the Society.

—— Some years ago we gave in this Journal (1849, p. 595), a notice accompanied by figures of cer-

tain PERFORATIONS IN CHERRY LEAVES and Plum leaves, which we attributed to the effect of cold, and we have seen no reason to alter our opinion, as we have observed in a near relation of the Cherry, the Portugal Laurel, similar perforations clearly produced by the same cause. A few days since, in a garden at Kew, some perforated leaves on a White Heart Cherry attracted our notice, and we were inclined at first sight to attribute the perforations to the same cause, but on examining the withered discoloured membrane, which in many cases still closed the aperture, we observed that, especially on the under side of the leaves, there was always a perfectly round aperture, and that the membrane instead of being simple was double, consisting merely of the two cuticular layers, the intermediate cells having vanished. We were obliged therefore to look if possible for some other explanation of the phenomenon. We soon discovered a leaf in which there were apertures, and the larvæ apparently of some sawfly at work; but this accomplished its task effectually, and left no membrane behind: everything on the contrary, whether cuticle, parenchym or vein, disappeared before it. We were obliged therefore to look farther, and at length our search was rewarded by finding some little brown cases, made of young leaves, or stipules, and resembling in form the larva-cases of the common clothes moth, attached to the above-mentioned aperture by one end, the other remaining open. In each of these was a small larva, which was able at pleasure to dive into the depths of the leaf for food, while the upper open end served for the discharge of the excrements. We have thus before us three several causes for the apertures in Cherry leaves, which might all have been judged to proceed from a single cause, had we not been able to watch the progress of their formation. It is very possible that the habit of this little insect may have been observed by REAUMUR, to whose admirable work we have not at present access, though there are multitudes of curious matters in the insect world which have not at present been reported. Our object in recording what we have observed is not so much connected with entomology, as to supplement our former notice, and to give a word of caution to horticultural observers in general not to come too hastily to conclusions, which a more diligent research or better opportunities may overthrow. *M. J. B.*

—— The subjoined has been sent to us for publication, and we earnestly hope that the VICTORIA PARK PRESERVATION SOCIETY may succeed in preventing a short-sighted piece of Vandalism:—"Last year the East-enders, thanks to the timely aid of Parliament and the Press, were enabled, after a sharp but decisive struggle, to prevent the Gas Companies from erecting their proposed gigantic works in the immediate vicinity of VICTORIA PARK. This year we are threatened with a new and equally serious danger. At a time when the heavily rated Parishes here are, as in the case of Poplar, making every effort to procure recreation grounds for the use of their labouring poor, it seems almost incredible that of the 290 acres which form the area of Victoria Park no less than one-third should be devoted to building purposes. Fancy that portion of St. James's Park abutting on Piccadilly being covered with houses. This is what is being done at Victoria Park. It is being surrounded by a thick belt of cottages and villas, which completely shut out the Park from public view. When Victoria Park was originally formed, the then Commissioners of Woods and Forests, apparently unaware of the extensive popularity it was afterwards destined to enjoy among the working classes, thought a space of 290 acres would be too large. Instead of this, the area has proved far too small. Large as it is, Victoria Park is already insufficient to accommodate the thousands of cricket players and others who resort thither on Saturday afternoons. Take Victoria Park away from these, and where are they to go? Hackney Common is being built upon, London Field is a mass of muddy pools, the Hackney Downs are being cut up by new railway lines, while Epping Forest is being stolen piecemeal from the people. Yet this is the time chosen for the purpose of building rows of fourth-rate streets over the grassy acres on which the pale-faced children of the labouring poor have so often come forth to bask and play in the bright golden sunshine; to threaten with destruction almost the only bits of real landscape scenery remaining in this part of London. . . Before it is too late, before the Government finally sanction what is virtually the destruction of this little Arcadia of the East-enders, let something be done to preserve to them and their children their beautiful so highly-prized Park."

—— What an agreeable duty must the Curator of the ROYAL GARDENS, KEW, have had on Sunday last if we may judge of it from a paragraph in the *Express* of May 30! It appears from the above journal that the Council of the National Sunday League, with sundry of the members (*pro tem.*) assembled in the "forest" adjoining (we presume the pleasure gardens are meant), then and there to hear an introductory lecture on Botany. Mr. SMITH seems to have thought that an introductory lecture on Botany might possibly have served for the introduction of controversial matters—relating to Politics, perhaps to Religion—for the discussion of which the Royal Gardens are not exactly the proper place, and in all courtesy seems to have suggested an adjournment to the "Green." We are not informed as to the name of the botanist who was to have delivered the "Introductory Lecture," and in the absence of guarantees that the Lilies of the field and nothing else were to be descanted on, we think the Curator acted wisely in suggesting, and the Society in acceding to his suggestion, that the lecture be delivered elsewhere.

New Plants.

BOLBOPHYLLUM SIAMENSE, *Rchb. f.*

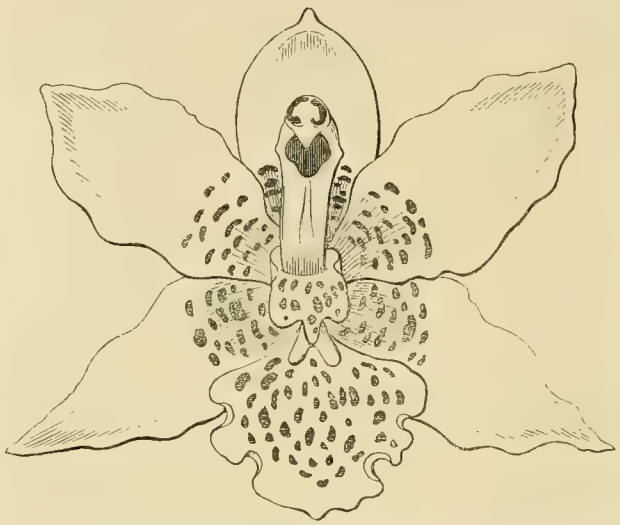
Affine Bolbophyllo Lobbii Lindl. sepalo summo ligulato acuminato, sepalis lateralibus subæqualibus falcatis, petalis basi superiori semicordatis lanceolatis acuminatis rectis, labello unguiculato basi angustissime cordato hastato, oblongo acuto utrinque medio plica insiliente.

This has pale yellow, nearly nankin-coloured flowers, striped with purplish brown lines, and a yellow lip with purplish black lines, and little points, and a deep yellow disk to the base. It stands between Bolbophyllum Lobbii and Reinwardtii, but the petals and the lip furnish very good characters of distinction.

It was imported from Siam. The bulbs are long and oval, placed at intervals along the rhizome. Leaves much longer than those of Bolbophyllum Lobbii. It is one of the numerous nice introductions of J. Day, Esq., and is grown at High Cross, Tottenham, under Mr. Stone's care. The remarks on the vegetative organs are Mr. Day's.

ODONTOGLOSSUM NEBULOSUM, *Lindl. Sert.* sub 25; *Folia* 21; *Batem. Odontogl.*, No. 1. Odontoglossum apterum, *Lex. Nov. Veg.* ii. 35? Odontoglossum maxillare, *Lindl. Bot. Reg.*, 1847, sub t. 47?

This is one of the earlier Odontoglossa, having been found 30 years ago on Oaks, near Oaxaca, by Baron von Karwinski, from whose dried specimens Dr. Lindley



described it. We learn from Mr. Bateman's splendid work, that he introduced the plant during the severe winter of 1837-1838; though ultimately it perished from excess of heat. Then it was found again by Galeotti, and later by Ghiesbreght, who sent his plants to Mr. Linden, with whom it flowered in 1856. We saw it in flower at Consul Schiller's. There are two varieties, one with brown one with red blotches. Later still it came into Mr. Low's hands, and he does not consider the plant so easy to grow as it is in Mr. Bateman's opinion, the latter being perhaps misled in his judgment by Mr. Day's good specimens. It appears that the acclimatisation is the grand difficulty with this species, for when newly introduced many perish, while established plants do well enough. Thus, perhaps, both these gentlemen are right. As to the question whether this is Odont. apterum, we believe it will never be easily solved, though it appears probable. As to Odont. maxillare we have before us two copies of Dr. Lindley's original representation, made by Miss Drake we think. These sketches are very good, but not made with the accuracy of the Dr. himself. When Dr. Lindley described the plant, he had never seen a fresh flower of Odontoglossum nebulosum, and we believe that he may never have seen one. Let us add, that he saw a single flower only. Among the numerous dried specimens we have now before us, there is one, coming from the gardens of M. Reichenheim at Berlin, extremely like it as to the lip; others correspond exactly as to the petals. Thus, without being sure, we have a strong belief of being entitled to reduce the mysterious plant, never seen again, to Odontoglossum nebulosum. *H. G. Rchb. fil.*

ARAUCARIA IMBRICATA.

IN the year 1836 I saw a charmingly healthy specimen of this tree at Mr. Wells', of Redleaf, growing high and dry on a rockwork, and was at once struck with its beauty and majesty, thinking at the time that such was the position it naturally likes. I have never been at Redleaf since, but if it has lived through all the severe frosts up to the present time it must be one of the finest specimens of the second batch introduced. In that part of the country, and in many others, there are numerous specimens of this fine tree, though that it does not grow freely, and is not hardy everywhere in this country, is quite true. But it is possible, that even in places where it fails to do well, further trials or more attention to its natural habits may induce success. It is a mountain tree, and we learn from travellers that its roots run about like serpents above ground, over the rocks, and into the fissures in search of food, and this fact might be of some service or some guidance to us. More than 26 years ago I found two nice Araucarias here, planted on the natural surface of the ground, in light sandy loamy soil, the subsoil being a sharp red sand, just such as masons like to use for mortar-making. They were planted in a large hole filled with turfy loam, and in this throve very well till their roots reached the natural soil, and then they stopped short, and became rusty and "blighted." I then had a circle of the bad native earth taken out all round, the top soil being put by to intermingle with good holding loam, which I brought to take the place of the sand, and I dug this trench out 18 inches deeper than the original hole had been made. This deeper 18 inches I filled up with stones and rubble, covering the same with tough turf turned upside down, then filled in the 3-feet circle with the soil before named. I only did this at first with one tree to see the result. It was quite marvellous to see how the roots enjoyed the new "medium" I provided for them, and how amazingly the tree throve. In the course of time it got too big for its position, and we determined upon removing it to the arboretum, and planting it in the place of a sickly plant, which we resolved to take elsewhere and give another chance to. In moving our large tree I had some tons of earth to carry, but we did it safely, and for its position I chose a pretty high and sloping bank, turning off the turf 30 feet in diameter, and trenching the ground. The ball was from 4 to 5 feet thick, and 9 or 10 in diameter, solid as a rock, and I placed it on the surface of its new station, and well it looked when perched up, I assure you, though rather awkward about the base.

We were not daunted by that, however, and soon gave it a more respectable aspect by heaping firmly around it a large bank of earth that was near at hand, and soon formed, with the aid of carts, a circular mound 60 feet in diameter round our tree; an easy slope from sides to centre being obtained, and all the mass made firm, and the whole neatly turfed over. It got no check, but grew to be a noble tree, and proved to be a female, which has produced abundance of female cones. The afflicted tree that had stood on the same spot we then removed; it was sadly blotched with dead brown branches, and I had no hope of its ever becoming a fine tree, and very little of its returning again to a presentable state. However, we resolved to try, and in any case determined that the preparation of the ground should not disgrace us, choosing this time a low but otherwise favourable situation. I had a hole dug about 15 feet in diameter, and deep, into the bottom of which we shot loads of rough old stone and brick rubble that was convenient to hand, placing turf over it of course. Here again the tree was placed, on about the natural level of the surrounding ground, and some scores of loads of good soil carted round as in the previous instance, to form an easily graduated mound. That was done 21 years ago. The second year after this the plant began to make very vigorous growth, and in a few years it became a splendid tree, well shaped, and of the darkest green, with dead branches, leaves, and all, cast off and forgotten! About nine or ten years since to my astonishment it commenced to show itself a male plant, bearing a profusion of catkins, and has continued to do so ever since. Those catkins are not only produced in spring, but in every month of the year, from the extreme points of the shoots, in bunches of from two to ten, growing in the course of the season to about 4 or 6 inches in length, about the size of a Spruce cone, and so freely produced that when ripe the pollen flies about of a fine sunny day in clouds of a yellowish-brown colour. How unfortunate, thought I, that we should have brought this male plant from our arboretum, where the fine female specimen is exposing her charms without a response from the distant male. The male is now nearly 30 feet high, and branched to the ground, or I think I should have thought of effecting a natural marriage between them by moving it back to the arboretum. Of course I carried pollen to the female; succeeded in raising perfect seed from it, and we have now promising young specimens planted out, raised from that seed. There is an erroneous idea prevalent, consequent upon what I conceive to be erroneous descriptions, as to the difference of shape and habit and hue of the male and female plant. I am perfectly satisfied that nobody can point out to me in any way the difference between the male and female Araucaria before they have seen them show their cones! We have a long avenue of large Araucarias here, as many of your readers may know, and many fine specimens in various parts of the grounds. I have seen three females producing cones, and have had 15 males in full catkin during the early months of the spring season. I cannot understand how it is that travellers state there is such a difference to be seen between males and females in their native country; here I can perceive no trace of a variation of habit, though perhaps it may be developed at a maturer age. However I cannot find a trace of difference, though I have had such a number of trees daily under observation for such a length of time. Besides, it appears unnatural that the female should be higher, producing its cones quite erect on the summit of its branches, as they describe it. The oldest Araucaria here is only about 30 feet high, its coning for so many years having prevented it from obtaining a nobler growth, the head being about 26 feet in diameter, with

a clean stem of 13 feet to the first branch, and a bole 4 feet in circumference. As it grows on, the lower branches hang down, and eventually get exhausted, while it is growing freely and producing "cones" as large as a child's head above. This specimen seems falling into the way of the long straight and bare-stemmed trees described by travellers. The perfect seeds of this tree are about from 1½ to 2 inches long. *Jas. Barnes, Bicton.*

RESTRICTED AND UNRESTRICTED GROWTH.

To prune or not to prune, that is the question. I have been much amused with the confession of Mr. Watson (see p. 436) that he is inclined not to trouble himself with that great and constantly recurring plague, pruning. I can quite understand his leaving nice little Alpine plants, such as Drabas, and Saxifrages, and Gentians to grow as Nature dictates, also the Cedar of Lebanon, and the Oak, which, left to Nature, like that glorious tree at Panshanger, seems to form itself unaided into one of God's temples, so beautifully arranged are its branches, but I cannot form a high opinion of his "sage experience" when he, wishing, as it seems to me, to lead an easy life, allows his unpruned trees to run into riotous unfruitfulness. He writes also about starving a tree; now if my gardener allowed a tree, even in a "12-inch pot," to starve, I should think his weekly wage a high figure at 12*s*. I sincerely hope that Mr. Watson's employer is not of my way of thinking. The terms "restrictive and non-restrictive" are in gardening language pruning and not pruning; to the gardener who delights in walking round his garden on a sunny summer's morning with his arms folded and his pipe curling its delicate wreaths of smoke upon his nose, while he divides his attention between them and his non-restricted trees, the latter must be high in favour—the true "dolce far niente" of a gardener's life. How happy must Mr. W. be in his Swiss house with nothing, or at least no pruning, to do, and a good salary, which I trust he has. I have, like Mr. Watson, had the privilege of seeing many thousands of acres of Vineyards in Germany and in France, and from my conversations with the most clever vignerons in both countries, I have always felt a conviction that their long experience is a safe guide. Could such wines as Chateau Lafitte, Margaux, or Clos Vougeot be produced if the Vines were suffered to run wild? I think I see the shrug of surprise with which the experienced vignerons of those districts would listen to the question. It is possible that the 30 years' old Vineyard in Switzerland alluded to by Mr. Watson was worn out, the climate and soil not being favourable; but Mr. Watson should have gone to the favoured sites in the south and south-west of France before he pronounced his dictum, that a "limited" Vineyard is worn-out and "bankrupt" in 30 years. There is no doubt about the beauty of a Vine in a fine climate, left to Nature; no tree can be imagined more magnificent; but the question, whether it would give the finest quality of wine would soon be put to rest if the fine claret and Burgundy growers were applied to. The truth is, they would laugh in the inquirer's face. But even if the restricted system limits the existence of a Vineyard to 30 years, there is no doubt that, long ere then, if the Vines were properly pruned, it would have bought the fee simple of the land five times over. There is, however, no foundation for the assertion that the Vineyards in Europe are allowed unrestricted growth, there may possibly exist some few experimental Vineyards, but they are very rare. I have only to-day received a letter from a gentleman, who is largely engaged in the wine trade, prior to his making an extended tour in the wine districts of France and Spain, from which he has but recently returned. I requested him to notice the different modes of pruning the Vines in both countries. He writes as follows:—"As I promised you, I took particular note of the pruning of the Vines, both in France and Spain, and I found that different practices obtain in the various districts. In the Bordeaux districts they always leave three short shoots, which are to throw out the bearers of the following year. In Montilla (Spain), and in some parts of France they cut every shoot close back; in Xeres, where the finest sherries are produced, they leave one or two shoots to each Vine, about 2 feet long, and cut all the rest close back. In Xeres the Vines must be 15 to 20 years old before the Grapes will make fine wines; the young Vines produce large quantities of Grapes, but the wine made from them is not good; how is this?"

As this intelligence comes from an experienced and close observer, the fullest dependence may be placed upon it. What, then, can we say to Mr. Watson's assertion, that a pruned Vineyard will not yield profit after 30 years?

With respect to the restricted and unrestricted culture of garden fruit trees, I have had some few years experience, as I have, say a quarter of an acre of unrestricted standard trees, and about the same quantity of ground occupied with restricted trees, such as bushes, pyramids, cordons, &c., all pruned by summer pinching, and occasionally removed or root-pruned. My large standard Marie Louise, and other fine Pears, give me a full crop two years out of five; my Standard Apple trees a full crop three years out of five. When these abundant crops come to hand I cannot thin the fruit, consequently it is small, unmarketable, and comparatively useless. My restricted trees, owing to their being easily protected, seldom or never fail to give me a fair crop; and as I thin the fruit, and amuse myself by attending to the summer culture of my trees, I am generally rewarded by having fine specimens. My unrestricted standard trees give me pain, because it is most laborious to have to place a ladder to reach their branches, whether in winter or summer. My restricted trees, of the same age as my standards (25 years), have been removed several times, and are now marvels of fertility and beauty. My standard trees stand 20 feet apart; my restricted trees, mostly pyramids, are from 6 to 8 feet apart, and not at all crowded.

In the few lines I have troubled you with I hope I have shown that the "sage experience" given so oracularly in p. 436 by your correspondent, must be taken with a large grain of salt. *Pomum.*

FERN DISTRIBUTION.

(*Concluded from page 546.*)

7. *South Temperate America.*—We have included the whole of Brazil with tropical America, and know so little of the Ferns of Uruguay and La Plata that our list for this district applies principally to Chili and Patagonia. It includes 118 species, of which 32 are peculiar, 11 common to this and the other two south temperate zones, 12 others to this district and the last, and 7 to this and the Cape. The other 58 are tropical American species which pass beyond the tropic, and as before indicated, we cannot consider all those that are common to this and the other two south temperate zones as characteristically temperate.

South Temperate Zone.—Taking the south temperate zone as a whole, we find it to yield 423 species, 131 of which are peculiar to it. It is only one-fifth the area of the north temperate zone, but the total number of species and the number of peculiar ones are to those of the latter as 4 to 5.

8. *Tropical Africa.*—This district offers a great contrast to the other two tropical ones in its Fern geography, and is even considerably below temperate Asia in the number of species it yields. Beginning with the Cape Verde Islands, we find in the group a total absence of individuality. There are only 13 species in all, not one of which is peculiar. Asplenium Hemionitis and Nothochlæna lanuginosa are not tropical African, but they are both Canarian and Mediterranean; and Nephrodium odoratum is not known nearer than Mauritius. For the west side of the continent, from Senegambia southward through Guinea to Angola, the botany of which the recent explorations of Barter, Mann, and Welwitsch have done so much to make known to us, we can now enumerate 197 Ferns, 47 of which are peculiar. Of these 116 are common to both sides of the continent, 6 being restricted to Angola, and most of the other 41 to Guinea and Senegambia. A small number (13) of the West African species are very interesting geographically as being essentially tropical, and common to tropical Africa and America, but absent from Asia. This is the case with—

Hymenophyllum ciliatum	Nephrodium subquinquefidum
Pteris chilensis	Polypodium cultratum
Trichomanes crispum	,, rigescens
Asplenium Serra	,, glaucophyllum
,, dimidiatum	Acrostichum hybridum
,, cicutarium	,, villosum
Nephrodium hirtum	

St. Helena comes next of known Floras to Tristan d'Acunha in the proportion which Ferns bear to flowering plants, which is nearly as two to three; and it is very remarkable from the fact that half of them are peculiar to it. The St. Helenan list is as follows, the peculiar species being those marked with a *:—

'Dicksonia arborescens	'Nephrodium Napoleonis
'Hymenophyllum capillaceum	* ,, cognatum
Cheilanthes multifida	'Polypodium molle
Pteris flabellata	,, marginellum
* ,, paleacea	,, punctatum
Asplenium compressum	,, lanceolatum
,, erectum	Monogramma graminoides
,, platybasis	'Gymnogramma Houghtoni
,, furcatum	*Acrostichum dimorphum
,, lanceolatum	,, bifurcatum
* ,, nigro-paleaceum	,, subdiaphanum
Nephrodium patens	,, conforme
	Ophioglossum vulgatum

Analysing the list we find the result as follows:—

Species peculiar to the island	13
Common to Africa and America	5
African not American	2
American not African	2
Canarian neither African nor American	1
Total	25

Ascension Island yields only seven species, as follows:—

Pteris incisa	Polypodium trichomanoides
,, flabellata	*Gymnogramma ascensionis
Asplenium erectum	Marattia fraxinea var. pur-
*Nephrodium ascensionis	purascens

Two of these are peculiar, two common to Africa and America, two African only, one American only; so that it is very curious to note that if we sum in a single phrase the leading characteristics of the Fern Floras of these Atlantic islands, it is different in each case:—

Of Tristan d'Acunha it is	American affinity.
Of St Helena, ,,	individuality.
Of Ascension Island, ,,	the want of any decided characteristic.
Canaries, Madeira, and Azores, ,,	Mediterranean affinity.

We must note in passing the want of individuality in the Angolan Fern Flora. A few of the Angolan Ferns are Cape species which do not reach Guinea, but the rest, with the exception of six species, all occur elsewhere in the district. For the east side of the Continent, principally through the researches of Schimper in Abyssinia, and Kirk in Zambesiland, we know now 133 species; but here there is even less individuality than in Angola, not a single peculiar species in Zambesi-land, and in Abyssinia only one. Asplenium pumilum is an east continental species, only known elsewhere in America; Cheilanthes Kirkii in Angola, Cheilanthes arabica and Onychium melanolepis in Arabia and Persia. Taking next the East African islands, including Madagascar, Mauritius, Bourbon, and the Seychelles and Comoro groups, we find that they have a Fern Flora which presents several points of interest. The total number of species is a little over 200, and very likely, when Madagascar is better explored, it will be raised to 250. But dealing with it as we know it at present, we find that more than half these species are not known in the tropical parts of the Continent, that more than a quarter of them are absolutely peculiar, and that it has a strong Indo-Malayan affinity, as the following table will show:—

Species known in Tropical Africa	90
,, quite peculiar	56
,, tropical Asiatic	40
,, Cape	12
,, American	7
,, Australian	3
,, Tristan d'Acunha	3
,, Temperate Asia	2
Total	213

The American species not already mentioned for West Africa are Hymenophyllum lineare, Nephrodium conterminum, Aspidium mohrioides, Polypodium parvulum, Acrostichum lineare, and Ophioglossum palmatum, the Australian Hymenophyllum gracile, Nephrodium hispidum and Platycerium alcicorne. In the above analysis the Seychelles are included, but very likely when we know them better it will be worth while to consider them separately. So far as we know their Flora, most of the species are both Mascaren and Indo-Malayan; but there are three which are peculiar, and two which are Malayan but not African. Summing up the district as a whole we find that it has 346 species, the peculiar ones being distributed as follows:—

Mascaren isles	54
Guinea and Senegambia	41
St. Helena	13
Common to east and west	8
Angola	6
Seychelles	3
Abyssinia	1
Common to east and Mauritius	1
Total	127

9. *Tropical Asia.*—We come now to the great centres of Fern-distribution. Our list for Tropical Asia and Polynesia as a whole includes 863 species, 39 per cent. of the whole order, out of which 477 species are peculiar to it. Beginning in the west, we find a million square miles in Tropical Arabia almost a blank so far as Ferns are concerned. Forskahl's list for Arabia Felix includes only 19 species, and we do not know one that is peculiar. The Ferns of Peninsular India are very much concentrated in the range of hills that runs parallel with the coast from Bombay to Cape Comorin, and especially on the Neilgherries. Of the state of things in the drier tracts of the centre we get an idea from Mr. Edgeworth's florula of Banda, which only includes seven Ferns for a district which produces upwards of 600 flowering plants. There are probably very few additions still to make to the Ferns of Southern India and Ceylon, and we have a full account of them in the recent works of Dr. Thwaites and Captain Beddome, the latter containing quarto plates of all the species. We may reckon the number of species at 250, of which 200 are Ceylonese. The number of species which are neither Malayan nor Polynesian is 46, of which about half are peculiar and the other half nearly all Himalayan. Of well-marked peculiar species we have instances in Cyathea Hookeri and sinuata, Asplenium zeylanicum, Nephrodium deparioides, Polypodium zeylanicum and Gardneri; of species common to South India and the Himalayas, but not known elsewhere, Cyathea spinulosa, Sphæropteris barbata, Asplenium normale, Aspidium auriculatum, Nephrodium cuspidatum, Polypodium membranaceum and hemionitideum. Cheilanthes myriophylla, and Pteris palmata only grow elsewhere in Tropical America; Pellæa Boivini, in South Africa; Acrostichum spathulatum, in Natal, Tropical America, and Tristan d'Acunha. Of the Ferns of Siam and the country to the east we know nothing. For the island of Hong-Kong 75 species are enumerated in Bentham's Flora, of which three are peculiar, and two interesting species, Brainea insignis, known only elsewhere in Khasia, and Alsophila podophylla on the mainland further north. For Formosa the collections of Oldham, received lately, contain 81 species, and several others have been sent by Mr. Swinhoe, making the number 100 in all. But the great concentration is in the narrow Malayan peninsula and the Malayan and Philippine groups of islands. Here, in a space not more than a hundredth of the globe in area, we have more than a quarter of the known Ferns gathered together. For this tract we can now with confidence enumerate 630 species, and still Borneo, Celebes, and Sumatra can only be considered as very partially explored. Out of these 630, 250 are absolutely peculiar, about one in nine of the known Ferns; 70 other species are not known in Polynesia and peninsular India, of which upwards of 50 are Himalayan. Our list for Polynesia contains now 350 species, of which about 150 are absolutely peculiar, and 30 others not Malayan, the latter mostly occurring in New Zealand and Australia. Taking Polynesia as a whole, the most noteworthy point about it seems to be that the portion of its Fern Flora that is not peculiar is, with the exception of a faint Australian tinge, thoroughly Malayan, not American. We may conveniently subdivide the islands into three groups; first, a western one, including New Guinea, New Caledonia, and the Solomon and Loyalty Isles; second, a central group, including the Society and Friendly Isles, Samoa and Fiji; and third, a north-eastern one, including the Sandwich Isles. About the first group we know very little, and that little has principally been gained by the recent travels in New Caledonia of M. Vieillard. His collections, happily for science, were worked up by Mettenius, in whose death, occurring as it has so soon after that of Sir W. Hooker, Fern literature has sustained a loss that can scarcely be estimated too highly. We know already in this western group 55 of the species peculiar to Polynesia; and no doubt further investigation will add to the number largely, and add in this group to the Polynesian list many species now known in Malaya alone. The central group we know much more thoroughly, principally through the explorations of Powell in Samoa, of Seemann and others in Fiji, and of Brackenridge in most of the islands. For Samoa the list will reach nearly to 150 species, and for Fiji exceed 200. In this central group are known 47 of the peculiar Polynesian species, mostly special to the group, and here many of the Malayan type reach their eastern limit. The Sandwich Islands have a smaller list, many of the Malayan species that grow in the other two groups being absent here. The number of peculiar species is smaller than in the other two, being only 37, but several of them are very distinctly marked plants, as, for instance, the three species of Cibotium, whilst Sadleria is nearly and Diellia quite confined to the group. The only American species which occur here and not further west are Pellæa ternifolia and Asplenium fragile and sandwichianum. To this group in Polynesia Aspidium aculeatum and Nephrodium Filix-mas appear to be restricted, and we do not know Cystopteris fragilis, Asplenium Adiantum-nigrum, Trichomanes, and monanthemum anywhere else in Tropical Asia.

10. *Tropical America.*—But taking it as a whole, tropical America is the most productive district, in peculiar species especially, of which, indeed, it has nearly as many as all the other districts put together. It is here, amongst the dripping rocks of the higher levels of the Andes, the forests of their slopes and ravines, and the dense humid flats that border the innumerable branches of the Amazon, where the sun's rays and the wind never penetrate the recesses of the primeval jungles, and climbers and parasites seem almost to contest with the leaves of the bright flowering trees for the possession of the branches, that we obtain the great concentration of species. Our list for tropical America contains 946 species, 42 per cent. of all that are known, and of these more than three out of four are quite peculiar to it. And as by gradual degrees, as each traveller brings or sends to Europe, the result of his explorations, our knowledge of the distribution of the species is increased, two points are more and more brought out into prominence, how that all this vast area constitutes in any broad sense of the term, but one single and indivisable Fern-region, and how prominently individualised the characteristics of that region are. It has one Fern out of every three that are known in the world, quite peculiar to itself, and yet a very considerable proportion of them reach

from Mexico and Brazil on the north to Peru and the south of Brazil. How completely the West Indian islands form part of the same region may be judged from the fact that whilst they yield upwards of 400 species, and have been much better explored than the adjacent parts of the continent, only one species in seven has not been gathered on the mainland; and for the Galapagos group we know clearly only one species that does not occur on the mainland.

Torrid Zone.—Taking the torrid zone as a whole, we find that it yields 1901 species, 85 per cent. of the whole order, and that of these 1437 species 65 per cent. of the order are peculiar to it, upwards of 1000 species being confined to Malaya and tropical America.

The General Plan of Distribution.—To illustrate the most striking point about the general distribution of the order, I will borrow a quotation from Mr. Darwin.* "Some few families, many sub-families, very many genera, and a still greater number of sections of genera, are confined to a single region; and it has been observed by several naturalists that the most natural genera, or those genera in which the species are most closely allied to one another, are generally local or confined to one area." A very remarkable point about the distribution of Ferns is that there is so little trace amongst them of this concentration of allied forms in the same district. Most of the tribes are distributed through the districts in very much the same proportion as the whole order, and in the genera there is no striking exception to the same plan, although three-fourths of the species are confined to single districts. The only instances in which any district has more than half the species of a tribe are the following:—

Tropical America.—Cyatheæ, Acrosticheæ, Schizæaceæ, Marattiaceæ.

Tropical Asia.—Davallieæ, Lindsayæ, Ophioglossaceæ.

Temperate Asia.—Ophioglossaceæ.

That is to say, eight instances out of 180, and the highest percentage which any tribe containing more than 100 species attains in any district is 68; consequently the leading characteristic of any district must be expressed by giving the percentage it yields of the total number of species, not by saying, as is so often the case in flowering plants, that such orders, groups or genera, characterise it specially. The theoretic bearings of this are important. *J. G. Baker.*

* "Origin of Species," p. 353.

Home Correspondence.

Ripe Grapes in March.—I saw the Royal Ascot Grape, when it first fruited on the seedling plant. It showed no symptoms then of cracking; on the contrary, it appeared to be as fine a sample of a highly developed Grape as I had ever seen. I have since met with gardeners who have seen it, and not one has mentioned, or even hinted at, its liability to crack. The first mention of such liability is that at p. 547, by Mr. E. G. Cammeron, who may probably have seen a plant of this Vine under difficulties, which are quite as liable to overtake the oldest favourites among our Grapes, as the new Royal Ascot. An attack of mildew is easily brought on, and as easily killed, but it is rarely expelled without leaving its marks, which, when on the berries, consists of an incrusting or thickening of the skin, which prevents the affected part from swelling equally with the non-affected, and hence inducing the liability to crack. Any person seeing a Vine under such circumstances, may, if so disposed, do much mischief. When first I commenced Grape growing I experienced the same thing; my Vines got mildewed, and did little good the first year, during which two celebrated gardeners called to see me, and not finding my Vines particularly satisfactory they did not fail to parade my temporary misfortune. The Vines were not my seedlings, so that it was only my reputation as a gardener that for the time suffered—enough, too, for a young man. It is hardly necessary for me now to say that these same Vines have increased in strength year after year, and have produced such crops as to be the wonder of every one who has yet seen them. Muscats, too, are equally luxuriant and prolific as the Black Hamburgh and other Grapes; so that, unlike the unfortunate Vines at Cliveden and Portnall Park, I have the pleasure of seeing my Vines all thrive alike. Were I, even now, to pull up and replant all my Vines, calculating on the same amount of success I have had during the last four years, and including even my greater prospects for this, I should have better Grapes, and of more commercial value, in the same or less time, than was obtained either at Cliveden or Portnall Park, under the system of extending—a system of surrendering the gardener's powers to dame Nature herself. I have lived down my early misfortune with mildew, and Mr. Standish, I have no doubt, will have little difficulty in doing the same. In choosing a Vine with which to challenge "Mr. Sage and his supporters" in the production of Grapes in March for several years, without injury to the Vines, I should have supposed that, had the Royal Ascot a tendency to crack, Mr. Standish would have been aware of it, and have carefully avoided it, but his having chosen it is, I think, the strongest possible proof against its having the slightest tendency to crack. *Wm. Miller, Combe Abbey Gardens, Coventry.*——I should be exceedingly sorry if I thought I was doing any injury to gardeners or gardening (see p. 547), but I imagine that I am doing quite the contrary. I know that March is the most difficult season of the year at which to ripen Grapes, and that the most careful treatment as well as proper appliances are required to accomplish this, but still it has been done even with the old flues, and with the appliances we now have, I cannot see that it would be so difficult as your correspondent Mr. Cammeron seems to think it would be. I am sorry to say that my Vines were very badly managed last year, and were smothered with mildew, and that under those circumstances several of my Grapes cracked. But I question if Mr. Cammeron saw the Royal Ascot at all, as there were only a few berries on two little scrubs of plants. I bought a Vine which turned out to be a cracker under any circumstances, so much so that though it has cost me a large sum of money, I have decided not to send it out. My Vines, however, this year, under the able management of an old Grape grower, Mr. Daniels, have no mildew on them; and as Mr. Daniels is out of a situation, he would be happy to undertake to grow this Grape for any nobleman or gentleman so that they could have it ripe in March. My answer to Mr. Cammeron is, that I invite the public to come and see it now in all its stages and judge for themselves. *John Standish, Royal Nurseries, Ascot, Berks.*——As a gardener and resident at Ascot, I beg to state that I have watched Mr. Standish's Royal Ascot Grape ever since it first fruited as a seedling, and I can safely say that I have never seen it show any disposition to crack until last season, when a few berries on a plant or two of it growing in pots, and covered with mildew, did crack. I have examined it this day in two houses—one in which it is coloured, and another in which it is just beginning to colour—and I cannot see a cracked berry in either. The bunches are so full that if any had been cut out it could have been easily seen. In fact, I should only like to have an opportunity of forcing a house of it. *G. Talbot, The Gardens, Englemere, Ascot.*——I was surprised to see Mr. Cammeron's account of the Royal Ascot Black Grape, which has been classed with Josling's St. Alban's, as regards its liability to crack. I am sure that if Mr. Cammeron were to pay the Ascot Nursery a visit now, as I have done, he would form quite a different opinion of it from what he did last year. I have no hesitation in saying that it is one of the best early Black Grapes in cultivation. *J. Wells, Fernhill, Windsor.*—— Whatever Mr. Cammeron's opinions may be about ripe Grapes in March, I cannot agree with him that the Royal Ascot Black Grape is liable to crack. Mr. Meredith and I were, I believe, about the first to taste and approve of this Grape. What I have seen of it since confirms the opinion we then formed of its qualities; as to defects, I should say cracking is not one of them. *John Shaw, Manchester.*

Gardeners' Royal Benevolent Institution. — You deserve the hearty thanks of gardeners for your outspoken leader (see p. 543). It contains much, but not the whole truth. Carelessness about the Society, or dissatisfaction with its management, have doubtless prevented some from becoming subscribers. But for one that these have kept away—hundreds have been stopped by a sheer lack of means. A guinea a-year is not a large sum; but it is large to those who cannot spare it. And such is the state of thousands of gardeners in what are termed good situations. Allow me to propound this problem. Take a family of five to feed, clothe, educate, and keep in health on 80*l.* per annum; how many guineas can be spared to make provision for the future? I wait for an answer. Mine has long been ready, and it is, none. Why, food alone at present prices will absorb one-half or more of the sum. Then there are the clothes, from shoes up to hats, caps, or bonnets for five. Will 20*l.* per annum find these? If it does, then there is 15*l.* or 20*l.* left for education, books, doctor's bills, travelling and incidental expenses. Even our virtues and our talents increase our difficulties. That very cordiality and good fellowship that you so justly praise, cannot be cultivated without expense. Societies, too, follow in the same strain. I have known gardeners travel miles to act as judges at horticultural shows, and be offered half their railway fare as compensation. Thus while our regular salaries are insufficient, it becomes almost impossible to supplement them. And if society and our employers alike demand that ourselves and families should be well clothed and taught, and maintain a social status far beyond our limited means, we are also expected to make provision for the future if we have held a situation for a few years. Now I answer emphatically that all this cannot be honestly done. With a family it is utterly impossible, at the present rates of wages, to make provision for the future. I have held situations better than the average, and have lived with the best of employers for the last 20 years, and find it is utterly impossible to save money out of my salary. I have been unhappy—positively unhappy—about this very Institution for years, but the guinea was constantly needed for something else; and even now, while I have resolved to respond to Sir Robert Peel's personal invitation—and I trust many will make a special effort to do likewise—the guinea I shall send is not saved out of my regular income. I therefore most logically meet the appeal for more subscribers among gardeners, with the more urgent appeal for higher wages. Only by such means can the permanent prosperity of such an Institution be maintained. This would help the Society at both ends. It would augment the number of subscribers, reduce the number of pensioners, and render it probably in the end almost self-supporting. I therefore most humbly submit to Sir Robert Peel and the gentlemen who will dine on behalf of the Society on the 27th of next month, that the best mode of promoting its permanent prosperity is to raise the wages of gardeners, and thus enable them not only to live free from harrassing care in the present, but to make provision for themselves or families in the future. I would also urge every gardener who has it in his power to send a guinea to this excellent Institution. Thus may we comfort and solace some brother or sister in distress, while my earnest wish for every practical subscriber is that we may never need it for ourselves. *D. T. Fish.*——I have received a circular signed by Sir Robert Peel, Bart., M.P., in reference to the next anniversary dinner of the Institution, and I hope every effort will be made to give Sir Robert the support he so generously asks for; but I think it will be very satisfactory to the subscribers generally if the following passage in Sir Robert's letter can be explained. It is this—"I learn that from various causes its income last year suffered a severe reverse." Perhaps Mr. Cutler will, through your columns, explain why the income of the Institution is so much reduced. I have been a subscriber for nearly 20 years, and therefore venture to ask this. *A.* [The falling off was, we presume, owing to the general monetary pressure, from which charitable institutions generally suffered more or less. EDS.]

Retinospora filifera.—The First-class Certificate which was awarded to this plant on Tuesday, May 21, was awarded to Mr. John Standish, of the Royal Nursery, Ascot, and not to Messrs. Veitch & Sons, as is stated (see p. 548). Mr. Standish holds the entire stock of this splendid Conifer, which he is now sending out. *J. Smith.*

The Nomenclature of Variegated Zonal Pelargoniums.—There is great danger of a considerable amount of confusion resulting from the naming of such a large number of these new Pelargoniums, as two professedly distinct varieties are receiving the same name. Mr. Grieve, in the paper he read before the Royal Horticultural Society alluded to a very fine variety he had named Victoria Regina, having intended to name it Queen Victoria, but found there was already another variety of that name in the field, viz., that of Messrs. Perkins & Sons. Messrs. F. & A. Smith have a Victoria Regina, also a Queen Victoria. Messrs. E. G. Henderson & Son have a Sunshine; so have Messrs. F. & A. Smith. The latter have also a Prince of Wales; so have Messrs. Carter & Co. In your report of the show of "Tricolor" Pelargoniums it is stated that Mr. Grieve's fine variety, Victoria Regina, "was at one time called Mrs. Grieve." Under the name of Mrs. Grieve, a fine variety shown by Messrs. F. & A. Smith received a Certificate at the Crystal Palace show on the 25th inst. Should this variety by any means prove to be identical with Victoria Regina, *née* Mrs. Grieve, confusion will be rendered "worse confounded," and to know "what is what" will prove a difficult task. Such confusion is the more to be regretted because of the sameness that exists to a great extent among the varieties, a similarity that does not apply so readily to flowers merely; as in the case of two show Pelargoniums, they may receive the same name but yet be so very distinct that they could not possibly be confounded the one with the other. *R. D.*

Variegated Pelargoniums.—I enclose two leaves just received from Mr. Rush, of the Eaton Road Nurseries, Chester. No. 1 is a cross between Helen Lindsay and Golden Fleece. The whole leaf, as you will observe, is of a golden hue, without green, beautifully edged with a band of very bright crimson. It is the most novel thing I have seen, being a yellow self with a crimson edge. It is not only beautiful in itself, but will probably give us a new class. I advise Mr. Rush to lose no time in forwarding the plant, which has only seven leaves as yet, to the Floral Committee at Kensington. No. 2, the Nigger, is a cross from Stella. The dark zone covers the greater part of the leaf; the green being confined to the ramifications of some of the largest veins and to a well defined margin. The edge of the leaf is tipped with brown. The irregular crimson blotches on the dark ground are probably the result of bruises in the transit of the leaf. Will you kindly add your opinion, especially of No. 1? *D. T. Fish.* [No. 1 is perfectly novel, a yellow self with red margin, as described by Mr. Fish; No. 2, with a dark centre instead of zone, has been seen before. EDS.]

The Great May Frost of 1867.—During the last two nights a most destructive frost, considering the season of the year, has occurred, and I have been induced to make a minute investigation in my own garden at Carshalton to ascertain the probable damage the country has sustained therefrom. All trees are in full leaf except the Catalpa, the Ash, and Mulberry, the tops of all of which, especially the latter, have suffered. Besides these the young shoots of the Walnut, Yew, Holly, and Ivy, are much damaged, and those of the Laburnum slightly, but the leaves of all other trees have escaped. The Oak frequently suffers from May frosts, but this year, in my grounds, it is not injured, probably because the leaves are forward and capable of resisting cold. A very large crop of Apples is destroyed, the fruit being completely frozen through. The largest Apples in my grounds are those of the Irish Peach, some of which are larger than marbles. Some are saved, but many destroyed. The state of the crop varies from this condition to trees now in flower of the Court Pendu Plat, and over a collection of about 300 distinct kinds, nearly all the young Apples have perished. The leaves of the Siberian Crab are damaged. Medlars appear secure, and possibly Quinces may not be destroyed where the fruit is not set. Pears did not set well this year, and of those that did, very few in a collection of over 200 kinds will come to perfection, nearly all being killed. The crop of Plums was unusually large, but hardly one is left of about 50 kinds. Curiously enough the out-door Peaches, Nectarines, and Almonds, appear uninjured. Cherries also promised an enormous crop, but of 15 kinds every one, whether late or early, appears to be utterly disorganised. The aspect of the Morello Cherries is particularly pitiable. Gooseberries have partially suffered where exposed. All kinds of Currants are uninjured where covered by leaves, but where exposed are killed. Strawberries are in great part ruined. The Black Prince about half-grown, the Keens' seedling well-formed, the British Queen and the Alpine Strawberries, have been frozen. Probably later flowers and later kinds not in flower have escaped. The first fruit of the Raspberries is frozen, but the blossoms and buds are uninjured. Figs, Plums, Peaches, Nectarines, Apricots, Apples, Pears, and Strawberries in the orchard house are safe, and Strawberries now ripe in cold frames escaped injury. The havoc in the vegetable garden has been equally great; French Beans and Scarlet Runners are destroyed. Perhaps, however, the latter may shoot again. This is a misfortune which the cottager will especially feel. Broad Beans, November planted, which have withstood the last winter, have their young pods frozen, and in some cases the stalks are bent over as though broken. The spring

sown, now in flower, are similarly damaged. Peas, November planted, and yielding their first crop, this day show marks of frost, and the young pods of Sangster's No.1, spring planted, are completely destroyed; Champions are also injured in the haulm, but all later crops are safe. Potato plants, from 1½ foot high, with incipient tubers, to those of the first growth, are completely destroyed, and also those grown in frames, and now ripe, have had their leaves frozen, the glass having been removed. The tubers in this case are perfect. The Early Cauliflower somewhat flags, but Lettuces, and all other crops, are safe. The curious new vegetable, the Raphanus caudatus of Japan, has defied the freezing blast. In the flower garden, Pelargoniums, Fuchsias, Heliotropes are destroyed in open spots, and Dahlia roots, which withstood the severe winter, and have since sprouted about a foot high, are cut down like the Potato haulm. Azaleas in great beauty last Thursday, and many kinds of English Orchids in flower, have had their blooms utterly destroyed. Alpine plants remain intact. Roses have remarkably escaped, even the Tea-scented, the Noisette, and monthly Roses, show no signs of damage. The Hybrid Perpetuals, now budding, and the Scotch, commencing to flower, have not felt the cold. Of English Ferns, the Lady Fern and Mountain Fern have suffered most severely, some having been utterly ruined, and others more or less disfigured. The Brake Fern, Male Fern, Broad Fern, Shield Fern, Hard Fern, and Hart's Tongue, and some flowering Ferns have had some of the tops of their fronds frosted, and are consequently damaged for the season. On the contrary, the Oak, Beech and Limestone Fern, the Holly Fern, the Marsh Fern, the Hay-scented Fern, the Parsley Fern, and all the Aspleniums, have stood their ground. Amongst foreign Ferns, young fronds of Hypolepis repens, and of Woodwardia radicans and orientalis, have suffered, but North American Ferns have entirely escaped, and the frail and delicate fronds of Adiantum pedatum have not cared for the vicissitudes between the 1st of March and the present time. There is no out-door Vine on my premises, but in the neighbourhood some had their young shoots utterly destroyed, some are partially injured, and others have not suffered. The Chinese Banana has its leaves considerably frosted. I made a minute inspection on Thursday evening, May 23d, fearing mischief, but all was safe and exhibited the glorious beauty of spring, but between this and Saturday morning, May 25, this unprecedented damage was done. Gardeners always dread May frosts. History and individual experience abounds in examples of damage, and therefore the present instance simply stands out as one of intensity of degree and lateness of occurrence. May frosts must be regarded as a phenomenon of Nature unexplained and philosophically unexplainable; but nevertheless to be acknowledged, feared, and practically dealt with. All we can say is that the frosty blast of May has passed over Europe this year with unusual severity, and doubtless will be hereafter described as the Great May Frost of 1867. *Alfred Smee, 7, Finsbury Circus.*

Societies.

CRYSTAL PALACE HORTICULTURAL EXHIBITION: *May* 25.—This was in many respects equal to previous shows; but, owing to the comparative coldness of the weather some of the more tender plants suffered so much as to be almost wholly ineffective.

Stove and greenhouse plants were shown in great numbers. Mr. Baines, gr. to H. Micholls, Esq., Summerfield, Bowden, Manchester, took the lead in the class for 16 with a wonderfully fine collection, in which were Ixora aurantiaca and coccinea, Acrophyllum venosum, in beautiful condition; a large and finely-bloomed plant of Genetyllis tulipifera, the showy Clerodendron Thomsonæ, Dipladenia crassinoda, Boronia serrulata, Eriostemon densiflorum, Franciscea confertiflora, Aphelexis, Azaleas, Heaths, and a fine plant of Epacris Eclipse. Mr. Peed, gr. to Mrs. Tredwell, Lower Norwood, was 2d with, among others, a fine specimen of Erica Cavendishiana, E. ventricosa magnifica, Eriostemons, Pimelea decussata, Genetyllis fuchsioides, Dracophyllum gracile, Tetratheca ericæfolia, and Allamandas. Mr. Donald, gr. to J. G. Barclay, Esq., Leyton, who was 3d, had a charming Stephanotis floribunda, Sollya linearis, a fine Clerodendron Thomsonæ, Rhynchospermum jasminoides, and the deep yellow-flowered Cassia corymbosa. Other collections in the same class were furnished by Mr. Kemp, gr. to Earl Percy; Mr. Wheeler, gr. to J. Philpott, Esq.; and Mr. Coles, gr. to R. H. Page Henderson, Esq.

In the class of 10 Stove and Greenhouse plants, Mr. Peed was 1st, and Mr. Wilkie, Oak Lodge, Kensington, 2d; the latter had Medinilla magnifica, and Clerodendron Balfourii in good condition. Mr. Kemp, who was 3d, had a large specimen of Coleonema rubrum, and Erica Westphalingia in fine bloom. From Mr. Wheeler, gr. to Sir F. Goldsmid, Bart., M.P., came the old-fashioned yellow-flowered Dillwynia floribunda. In the Nurserymen's class, Messrs. Lee, of Hammersmith, took the 1st prize with fine specimens of Genetyllis tulipifera, Ixora coccinea, Aphelexia macrantha purpurea, Stephanotis floribunda, Franciscea confertiflora, Azaleas, and Heaths. Mr. Rhodes was 2d with Heaths, Aphelexis, and Genetyllis tulipifera and fuchsioides. In the collection of Mrs. Glendinning & Sons, which was 3d, was a charming example of Stephanotis floribunda; and in that of Mr. Williams, which took the next place, was Bougainvillæa glabra.

In the class of six Stove and Greenhouse Plants, Mr. Ward, gr. to F. G. Wilkins, Esq., Leyton, was 1st; Mr. Smith, gr. to A. Anderson, Esq., Norwood, 2d; and Mr. Wheeler, Stamford Hill, 3d. The first two had good examples of Dracophyllum gracile; and Mr. Ward had also a fine specimen of Phœnocoma prolifera Barnesii.

Mixed collections of fine-foliaged and flowering plants were in all respects satisfactory, especially those from Messrs. Lee, Williams, and Baines, who took the three principal prizes. Among fine-foliaged plants were Theophrasta imperialis, Rhopalas, Cordyline indivisa, Alocasia metallica, Sphærogyne latifolia, Pandanus, tree Ferns, Palms, Crotons, variegated Aloe-leaved Yucca, and Marantas. Mr. Baines had a noble specimen of Dicksonia antarctica, Gleichenia Speluncæ and flabellata, large and in beautiful condition; and Sarracenia purpurea, with green and purple-veined pitchers, in wonderfully fine condition. Among flowering plants were Ixoras, Clerodendron fallax, Aphelexids, Genetyllis tulipifera, Stephanotis floribunda, Medinilla magnifica, Rhynchospermum jasminoides, Azaleas, Heaths, Eriostemons, and Mussænda frondosa, whose showy white bracts and small yellow blossoms elicited general admiration.

Heaths were furnished by Messrs. Rhodes, Baxindine, Peed, Wheeler, Wilkie, Ward, and Lee, from all of whom came excellent examples of skilful cultivation.

Azaleas were in some instances past their best. There were, however, well-bloomed specimens of Extrani, Coronata, Holfordi, Perryana, Iveryana, Chelsoni, Optima, Trotteriana, Criterion, Triumphans, Gledstanesi formosa, Barclayana, and the still most useful yellow flowered Sinensis. The best collections came from Mrs. Glendinning & Sons, Mr. Turner, Mr. Penny, Mr. Carson, and Messrs. Lee.

Orchids were not shown so plentifully as usual. The best collection of 20 came from Mr. Penny, gr. to H. Gibbs, Esq., Regent's Park, who had Odontoglossum Phalænopsis with five beautiful lilac flushed white blooms, Phalænopsis grandiflora with three good spikes, a good Cattleya Skinneri, Dendrobium nobile, the yellow and brown Oncidium sarcodes, Lælia purpurata, L. cinnabarina, Vanda suavis, Cypripedium lævigatum with four blooms, and a fine specimen of C. barbatum superbum. Mr. Gedney, gr. to the Rev. W. Ellis, Hoddesdon, was 2d with Cattleya citrina with six fine blooms; Lælia cinnabarina, with four spikes of bright orange flowers; the showy Oncidium ampliatum majus, Dendrobium tortile, Vanda cristata, Epiphora pubescens, a South African species, with which one rarely now meets in collections; Chysis Limminghi, Cattleya Mossiæ, and Saccolabiums. In the class of 10, Mr. Williams, of Holloway, was 1st, with Cypripedium Stonei, with remarkably fine flowers, unusually delicate in colour; Anguloa Clowesii, Cattleya Skinneri, Lælia elegans, and others. Messrs. Lee, who were 2d, had, among others, Dendrobium densiflorum and nobile, Odontoglossum citrosmum, with more colour than usual; and Oncidium altissimum. In the collection of Mr. Young, gr. to W. H. Stone, Esq., Leigh Park, Havant, who was 1st for 12, were fine examples of Phalænopsis Schilleriana, Cypripedium hirsutissimum, and Odontoglossum citrosmum.

New and rare plants were shown in considerable numbers by Messrs. Veitch, Mr. Bull, and others. First-class Certificates were awarded to Messrs. Veitch for the yellow-veined Sanchezia nobilis variegata, Dichorisandra mosaica, Maranta Veitchii, Dracæna regina, with creamy yellow variegation, and Areca crinita, a graceful Palm; Second-class Certificates for Lomaria ciliata, from New Caledonia, Retinospora plumosa, and Bignonia ornata. Mr. Bull had First-class Certificates for Sanchezia nobilis variegata, Dichorisandra mosaica, Anæctochilus Petola marmorea, Tillandsia argentea, and Zamia villosa: and Certificates of the Second Class for Asplenium myriophyllum, Agave macracantha, Athyrium Goringianum pictum, and Maranta roseo-picta. The last two being likewise shown by Mr. Williams, a similar award was made to him for these, as also First-class Certificates for Sanchezia nobilis variegata, and the golden-variegated New Zealand Flax. Mr. Carr, gr. to P. L. Hinds, Esq., Byfleet, had a First-Class Certificate for a beautiful specimen of Adiantum Farleyense, a distinct and bold-looking Fern, favourable allusion to which has often been made in our columns. A similar award was made to Messrs. Lee, who, together with Messrs. Veitch, exhibited Areca crinita.

Roses were exhibited in considerable numbers, and generally in good condition. The two collections of ten exhibited by Mr. W. Paul and Mr. Turner were magnificent. Mr. Paul had Juno, Charles Lawson, Général Jacqueminot, Madame de St. Joseph (Tea), Souvenir d'un Ami, Madame Villermoz, Senateur Vaisse, Lælia, President, and Paul Ricaut. Mr. Turner showed Anna Alexieff, Victor Verdier, Souvenir d'un Ami, Charles Lawson, Général Jacqueminot, Souvenir de la Malmaison, Maréchal Vaillant, Paul Perras, Madame Damaizin, and President. From Messrs. Paul & Sons, who were 3d, came, among others, a fine plant of Maréchal Niel. In the class for 12 Roses in 8-inch pots Messrs. Paul & Son were 1st with nice young specimens of Princess Mary of Cambridge, Maurice Bernardin, Souvenir d'un Ami, and others. Messrs. Paul & Son exhibited some boxes of beautiful cut blooms.

Of Pelargoniums there was a magnificent bank. Mr. Turner, to whom the 1st prize was awarded, had Desdemona, Rose Celestial, Lilacinum, Royal Albert, Spotted Gem, Mdlle. Patti, Pericles, Belle of the Ball, Fair Rosamond, Exhibitor, and Fairest of the Fair. Mr. Fraser was 2d with Celeste, Sanspareil, Desdemona, Candidate, Empress Eugénie, Beacon, Regina formosa, Pericles, Roseum, and James Lodge. Amongst Amateurs Mr. Nye, gr. to E. Foster, Esq., Clewer Manor, was 1st with Favourite, Mdlle. Patti, Royalty, Sir C. Campbell, Belle of the Ball, Rose Celestial, Patroness, Fair Rosamond, and Garibaldi. Fancy Pelargoniums were also abundant and good. Mr. Turner was again 1st, with Lady Craven, Ellen Beck, Lucy, Delicatum, Roi des Fantaisies, and Undine. Mr. Fraser, who was 2d, had Clara Novello, Undine, Delicatum, Ellen Beck, and Marionette. Amongst amateurs, Mr. Donald was 1st; and Mr. Weir, gr. to Mrs. Hodgson, 2d. Of Seedlings some account will be found in another column.

Among miscellaneous subjects were some remarkably fine Ferns from Mr. Baines, who likewise contributed Sarracenias in magnificent condition; and Mr. Gedney furnished Nepenthes Rafflesiana. From Mrs. Glendinning & Sons came some pretty Anæctochils; and from Mr. Drewett, gr. to H. Turnbull, Esq., Rookery, Down, came beautiful wreaths of Bougainvillæa spectabilis.

ROYAL BOTANIC, *May* 29 (*First Great Show*).—This, the opening show of the season as regards this Society, though one of the most effective that have ever graced its garden, was held under most unfavourable circumstances in reference to weather, a thunder-storm occurring in the morning, and heavy rains falling at intervals during the whole afternoon. Stove and greenhouse plants were present in large numbers, and in excellent condition: Roses and Pelargoniums were the admiration of everybody. Ferns occupied shady recesses, while Azaleas, masses of bloom, stood out in bold relief, their gay colours lending a charm to the scene and rendering it one of unrivalled brilliancy. Orchids, though sometimes gathered together in larger numbers, rarely contained finer examples of cultural skill than they did on this occasion, and of new plants there was an extensive display.

In the Class of 10 Stove and Greenhouse Plants, Messrs. Baines, Peed, Kemp, and Wheeler exhibited collections, prizes for which were awarded in the order in which the names stand. Mr. Baines' collection differed little, if at all, from that shown at the Crystal Palace. His fine Acrophyllum was reproduced in excellent condition, as was also his Genetyllis tulipifera, the only fault belonging to which was a little too much formality as regards training. Its large finely coloured flowers, placed about 2 or 3 inches apart, covered a ball some 4 feet in diameter. Aphelexis and Ixoras were good in this group, as were also Dipladenias, Azaleas, and Heaths. From Mr. Peed came Allamanda grandiflora, literally a mass of large clear yellow blossoms, a healthy well-grown and flowered Acrophyllum venosum, showing rich reddish brown young leaves at the end of the flower spikes, a condition in which it should be when in perfection; the beautiful Erica ventricosa magnifica, the New Holland Dracophyllum gracile and the sombre-looking Genetyllis Hookeriana. In other collections we noticed the purplish lilac Statice profusa, blue Leschenaultia; Genetyllis tulipifera, with unusually large drooping cream-coloured bell-shaped flowers, conspicuously flaked with crimson; Stephanotis floribunda in charming condition; and other plants, the names of which have often appeared in our columns. The most successful exhibitors in groups of 8 Stove and Greenhouse Plants were, among amateurs, Messrs. Donald, Coles, and Wilkie; and among nurserymen, Messrs. Lee, Rhodes, Glendinning, Williams, and Baxindine. Collections of 6 plants were furnished by Messrs. Ward and Smith. Among these were Haemanthus puniceus bearing six large heads of scarlet inflorescence, Azaleas, Heaths, Pimeleas, Allamandas, Stephanotis, Rhynchospermums, Dracophyllums, Genetyllis, Eriostemons, Medinilla magnifica, a magnificent example of which came from Mr. Wilkie, Tetratheca verticillata, Clerodendron Thomsonæ, Hoyas, Polygalas, and Aphelexis.

Collections of 10 fine foliaged and flowering plants mixed together were highly effective; Messrs. Lee, Williams, Wheeler, Rhodes, Baxindine, Peed, Kemp, and Ward all contributed groups of this description, in which were associated with the flowering plants already named, Tree and other Ferns, Theophrastas, with ample deep green glossy leaves of great beauty; Rhopalas, variegated Aloe leaved Yuccas, Cordylines, Palms, Screw Pines, and Alocasias of different kinds, among which a fine specimen of Zebrina, with beautifully marbled snake like stems of great strength, came from Mr. Fairbairn, gr. to the Duke of Northumberland, at Sion. Dieffenbachias and Dracænas also formed no inconsiderable proportion of the groups just named.

Groups of fine foliaged plants unmixed with others came from Messrs. Williams, Fairbairn, Baines, Glendinning, and Donald, all of whom had finely managed plants, consisting chiefly of Cycads, Palms, Ferns, Alocasias, among which were Lowii, a magnificent kind, Yuccas, Cordylines, Beaucarneas, Rhopalas, Theophrastas, variegated New Zealand Flax, Sarracenia purpurea, and others.

Roses were magnificent, especially a group of 10, to which a 1st prize was awarded, from Mr. Turner. These were not only loaded with blossoms of the most perfect description, but the plants themselves were models of fine growth, round and shapely, and furnished to the base with foliage of wonderful health and beauty. The varieties consisted of Anna Alexieff, Vicomte Vigier, a brilliant and fine rose; Charles Lawson, Souvenir d'un Ami, Céline Forestier, Maréchal Vaillant, Général Jacqueminot, Barronne Prevost, Souvenir de la Malmaison, and Victor Verdier. Mr. Wm. Paul was but little behind, with Lælia, loaded with blooms remarkable for their large size; Souvenir d'un Ami, President, Charles Lawson, a fine variety for pot culture; Juno, Paul Ricaut, Madame Villermoz, in beautiful condition; and Général Jacqueminot. From Messrs. Paul & Son came Céline Forestier, well furnished with bright yellow blossoms, Madame de St. Joseph, Charles Lawson, and others equally fine; while Messrs. Francis had good examples of Madame Villermoz, Vicomtesse Decazes, Souvenir d'un Ami, Comte de Paris, and Souvenir d'Elise Vardon, the last a handsome Tea Rose. Messrs. Paul & Sons contributed beautiful boxfuls of cut blooms, among which, though there was nothing new, were glorious examples of Gloire de Dijon, Madame Willermoz, Maurice Bernardin, and other favourite well-known varieties. Mr. Terry, gr. to Giles Puller, Esq., Youngsbury, showed a good group of Roses, in pots, in the amateur class.

Ferns, where all was so bright with Azaleas, Pelargoniums, and Roses, formed an agreeable relief to the eye fatigued with gay colours, and to these many turned with evident delight. Beautiful collections of them came from Messrs. Williams, Taylor, and Baines, all of whom had fine specimens, among which were Lomaria gibba, the green-surfaced silver-backed Nothochlæna lævis, the huge Dicksonia antarctica, Woodwardia radicans, Cyathea dealbata, Gleichenias, Cibotium princeps, Davallia tenuifolia, with light feathery foliage; the handsome Davallia bullata, various varieties of Pteris, Todea africana, and Lomaria cycadifolia, the last with a black short trunk and fine head of coriaceous pale green leaves. From Mr. Ivery, of Dorking, came some beautiful British kinds, among which the following three new sorts received First-class Certificates, viz., Athyrium Filix-fœmina Girdlestonei, the Axminster A. F. f. plusosum, and Polystichum angulare oxyphyllum.

Among Orchids, though scarcely perhaps so fine as a whole as we have seen them in former years, were nevertheless some remarkably fine specimens, foremost among which was a plant of Cypripedium caudatum, bearing a dozen great brown-stained greenish yellow blossoms from which hung ribbon-like tails quite 2½ feet in length. This came from Mr. Wilson, gr. to W. Marshall, Esq., of Enfield. The same exhibitor had also Odontoglossum Alexandræ, bearing a noble wreath of delicate blossoms; Eriopsis rutidobulbon, with a fine spike of warm brown and yellow inflorescence; the Gloxinia-like Warzewiczella discolor, with buff sepals and petals and violet purple lip; the pale variety of Dendrobium densiflorum, Cattleya citrina, in fine condition, and various others. To these a 2d prize was awarded. The 1st prize collection came from Mr. Penny, who had Aerides Warneri, the Fox-brush Aerides, and other varieties of that genus; a fine specimen of Calanthe veratrifolia, the same Odontoglossum Phalænopsis, which was shown in such beauty the other day at the Crystal Palace, still in fine condition; a small example of Dendrobium Parishii, Lælia purpurata, Cypripedium lævigatum, one of the handsomest of the kinds whose flowers are furnished with tails; the ever-flowering Lycaste Skinneri, and other equally well-known species. In another good group from Mr. Gedney, to which a 3d prize was awarded, were examples of Lælia cinnabarina, Fox-brush Aerides, and the orange yellow Epiphora pubescens, from the Caffre country. In a collection from Mr. Peed was a finely-flowered plant of the bright yellow Oncidium sessile, a fine species, which was also shown in good condition from Syon by Mr. Fairbairn. The best group of eight plants came from Mr. Hill, gr. to R. Hanbury, Esq., The Poles, Ware, who contributed, among others, good examples of Vanda suavis and tricolor; Calanthe veratrifolia, the still somewhat rare Chysis Limminghii, from Central America; Phalænopsis grandiflora, the showy Cattleya Skinneri, and Cypripedium Stonei, the last a fine species, yet by no means common. The next collection in point of merit came from Mr. Wiggins, gr. to Walter Beck, Esq., Isleworth, who furnished the charming Saccolabium præmorsum, Dendrobium densiflorum, Cypripedium hirsutissimum, and other well-managed plants. Messrs. Veitch received a 1st prize for a collection of six plants, among which were Cattleya Mossiæ superba and lobata, Cypripedium barbatum, Lælia purpurata, and the Fox-brush Aerides, beautifully flowered, and otherwise indicating good management. From Leigh Park came the beautiful Phalænopsis Schilleriana, which was shown in good condition by Mr. Young; and Mr. Williams, Messrs. Lee, and Mr. Bull all contributed collections of Orchids.

Azaleas, as is usual at this season, constituted the most important feature of the Show. To Mrs. Glendinning & Sons was awarded the 1st prize, for eight well grown pyramidal plants, covered with bloom; but not sufficiently so to hide entirely the green leaves which here and there displayed themselves with excellent effect. The sorts were Gem, Alba lutescens, white striped with red; Madame Miellez, white striped with purple; Variegata, Perryana, Extrani, Eulalie, and Iveryana. Mr. Turner was 2d with plants, which as regards size and beauty have for these last few seasons been the admiration of all who have seen them, as well as the envy of Azalea growers, but on this occasion, though "mountains of bloom," and very effective, it was evident that their constitutions had given way under the hard work to which they have been subjected, and that they were greatly past their best. The sorts were Gledstanesii formosa, Perryana, Illustris nova, purpurea arborea, Conqueror, Etoile de Gand, Gem, and Coronata, all plants of unusually large size. In the Class 6 Azaleas, Mr. Turner was 1st with magnificent examples of Juliana, Petuniæflora, a pretty rosy coloured kind; Holfordi, Sir Charles Napier, Iveryana, and Flower of

the Day. Other collections from other exhibitors bore no comparison with these in point of size or effect. From Messrs. Lane, of Berkhampstead, came a charming collection of small plants, to which a Bronze Medal was awarded.

Of Pelargoniums there was a beautiful bank, with which all who saw them were delighted. In collections of nine plants Mr. Turner received a 1st prize for finely bloomed specimens of Lilacina, Spotted Gem, Pericles, Royal Albert, Fair Rosamond, Desdemona, Belle of the Ball, Patroness, and Lord Clyde. In Mr. Fraser's group, which was placed equal in point of merit with that of Mr. Turner, were finely-managed plants of Rose Celestial, Empress Eugénie, and others. In the Amateurs' Class Mr. Nye, gr. to E. B. Foster, Esq., had the best collection, in which were Sir Colin Campbell, Desdemona, Belle of the Ball, Patroness, Garibaldi, Etna, Rose Celestial, Madlle. Patti, and Fair Rosamond, Mr. Ward, Mr. Wiggins, and Mr. Weir also showed collections in this class. In Fancy kinds Mr. Fraser was 1st with a beautiful collection, in which were magnificent examples of Lucy, Clara Novello, Celestial, Roi des Fantasies, Arabella Goddard, and Maroon. Mr. Turner made a good 2d with Delicatum, Lady Craven, Godfrey Turner, and others, in nearly equally good condition. Mr. Donald, Mr. Weir, and Mr. James also showed pretty collections of Fancy kinds.

Calceolarias, beautifully flowered, bright, and striking, were shown both by Mr. James, gr. to W. Watson, Esq., Isleworth, and Messrs. Dobson. They were 2-year old plants, of herbaceous kinds, which, although not so fashionable as they have been, still cannot be dispensed with, and need not be while beautiful varieties like those in question can be procured.

Of Cape Heaths there was a fine display of well-known kinds, the best of which came from Mr. Rhodes, Sydenham, and Mr. Peed. New and distinct varieties in this class of plants is still a desideratum.

New Plants were plentiful. From Mr. Williams came the variety of Polystichum angulare called parvissimum, Stenochlæna heteromorpha, a promising species; Panicum variegatum, which will doubtless make a useful basket plant; the handsome-leaved Anthurium regale, Echites rubro-venosa, the foliage of which is beautifully veined with bright red; Sanchezia nobilis variegata, an effective plant frequently noticed already; and the handsome Coleus Veitchii with black leaves bordered with pale green. To most of these Certificates (see list at p. 570) were awarded, as well as to the following from Mr. Bull, viz., the wavy-leaved Dichorisandra undata, and the silver-leaved D. mosaica; the richly-veined dark-leaved Anæctochilus Dayi; Eranthemum igneum, with dark green foliage ornamented with a flame-coloured variegation; Bignonia ornata, Golden Feverfew, Zamia villosa, a graceful-habited, fine-looking plant; Maranta Legrelliana, and picturata, two plants remarkable for the beauty of their foliage; Anæctochilus Petola marmorea, Odontoglossum luteo-purpureum, Ptychospermum regalis, a promising young Palm; Dieffenbachia Pearcei, and Gymnostachyum Pearcei, the last with a beautiful red venation; the singular-looking Tillandsia argentea, and several fine Ferns, conspicuous among which were Lastrea Filix-mas Barnesi, Nephrodium molle grandiceps, and N. m. polycuspis, Polystichum angulare parvissimum, Scolopendrium vulgare Morgani, and Adiantum Lindeni, all acquisitions to the genera to which they belong. The same exhibitor also showed the singular-looking Arad called Amorphophallus nobilis, coming into flower, and forming, as it were, a solid fleshy Fungus-like mass, some 6 or 8 inches in height, and 4 or 5 through, deep chocolate-coloured at top, becoming paler towards the base. When fully developed, its smell will, we apprehend, be anything but pleasant; but in its present state it is apparently perfectly inodorous. Messrs. Veitch showed fine examples of most of their novelties mentioned above, for which they received Certificates, as well as for the fine-leaved Miconia peruviana; Retinospora plumosa, a beautiful species; the silvery-veined Hypocyrta brevicalyx, a species of Epidendrum, the beautiful Dendrobium McCarthiæ, Asplenium elegantulum, and other plants, all worthy of the fine establishment from which they come. Mr. Wilson, gr. to W. Marshall, Esq., had a pretty variety of Miltonia spectabilis, called rosea, and also a good example of Dendrobium thyrsiflorum; and Mr. Grey, of Ashridge Park, showed a distinctly variegated form of Deutzia gracilis.

Among miscellaneous subjects was a neat group of flowering and fine foliaged plants, edged with the silvery-leaved Meadow Grass and Golden Feverfew, from Messrs. E. G. Henderson; some beautiful Aucubas and other variegated hardy plants, from Mr. Wm. Paul; Lilium auratum, from Mr. Turner and Mr. Bull; Anæctochili, from Mrs. Glendinning & Sons; a matchless pair of Agave filifera, from Mr. Bull; a huge and handsome specimen of Iresine Herbstii, from Mr. Hill, gr. to R. Hanbury, Esq.; a magnificent group of Sarracenias from Mr. Baines; cut flowers of Ixias and other Cape bulbs from Messrs. Hooper; and variegated Bamboo and other plants from Messrs Barr & Sugden.

Of Fruit Mr. Turner had a small collection, in which were ripened Muscat and Black Hamburgh Grapes, Peaches, Nectarines, and Strawberries. Mr. Lewis, Stamford Hill, furnished Black Hamburgh Grapes, and Messrs. Lane White Heart and May Duke Cherries.

It may be worthy of mention, that Messrs. John Waterer's beautiful exhibition of Rhododendrons, held annually in the grounds of this Society, will be in perfection during the next week or ten days, and we may add that they are well worth inspection.

ROYAL CALEDONIAN HORTICULTURAL, *May* 23.—The usual Midsummer Exhibition, under the auspices of this Society, in the City Hall, was more remarkable for fine specimens than for a great and preponderating variety of plants for mere table filling. The orchestra was as usual decorated with specimens of Tree Ferns, Rhododendrons, and other plants of imposing appearance, contributed by the various nursery firms. The principal prize of the day was for a table of miscellaneous plants, and this was awarded to Mr. Thomson, gr. to his Grace the Duke of Buccleuch, Dalkeith, who had, among other things, Dicksonia antarctica and a handsome Dracæna, the old but effective Maranta zebrina, two good plants of Erica Cavendishiana, Croton augustifolium and C. pictum, Erica ventricosa magnifica, E. persoluta alba florida, Clerodendron Balfourii, Vanda suavis with three spikes, each twelve-flowered; the best variety of Vanda teres we ever saw, having flowers twice as large as the variety generally bearing that name, and of fine substance; Oncidium sphacelatum, Anthurium magnificum, Dracæna ferrea, the handsome Hibiscus Cooperi, Sanseviera japonica, Yucca quadricolor, and a finely managed plant full of bloom of the old but interesting Epidendrum ciliare.

Mr. Lees, gr. to the Right Hon. the Earl of Haddington, her Majesty's Lord High Commissioner, had a very fine lot of plants, not quite so majestic looking upon the whole as Mr. Thomson's, but as specimens of cultivation they were worthy of all praise. His specimens of Saccolabium guttatum were beautifully managed plants, the one with six spikes and the other with four, each 18 inches long, and hanging very gracefully to wires bent for the purpose. Each plant had at least 20 leaves, in the rudest health, and was growing on a block of wood. Another remarkable plant in this collection was Cypripedium spectabile, with five very fine peduncles, some of them two-flowered, and the leaves showing the best state of health. Calanthe veratrifolia had 20 spikes of flowers. This old plant is scarcely now seen in decent order, and it would be very useful if Mr. Lees would publish his mode of cultivation. Conspicuous among the others was a crimson tubed variety with a shaded white corolla, of an Erica named profusa; as well as E. ventricosa var. and florida campanulata, Clerodendron Balfourii, Aerides Lindleyanum, the handsome Rhododendron Countess of Haddington, loaded with bloom; Alocasia macrorhiza variegata, a very fine Adiantum trapeziforme, &c.

Rhododendrons were in very fine condition, especially those from Mr. Methven, Leith Walk Nurseries, which were not only very large plants, but densely clothed with bloom. Stanwellianum album is a good white; Hugh Fraser a splendid rosy purple, slightly spotted; Melanthemum, good dark; Rosalie, immense truss of good purple with very dark spotting; Criterion, showy as a plant, but not so good as an individual; and Bouquet Parfaité, a fine soft rose. Messrs. Dickson & Co. had also an assortment, but not so good by odds as Mr. Methven's. The best in their lot were roseum magnum, and nigrum. A variety named Napoleon III. was a very finely formed crimson, of conspicuous character. Dr. Johnson, March Hall, had a very fine lot, comprising Lord John Russell, dark purple, heavily spotted with rose, the chaste crimped-edged Everestianum, the dark black-spotted Sir Isaac Newton, and the soft rose Sir Charles Napier.

In stove and greenhouse plants Mr. J. Paterson, gr. to Professor Syme, Millbank, was successful with fine plants of Pimelea spectabilis and Hendersoni, Erica Cavendishiana and candidissima, Oncidium sphacelatum, Aphelexis macrantha, a very finely bloomed Genetyllis fuchsioides, and Tremandra ericoides. Mr. Fowler, gr. to G. C. Arbuthnot, Esq., Mavisbank, had some good Heaths and Azaleas in his collection.

In show and fancy Pelargoniums there were some very good lots, Messrs. Downie & Co. being 1st among nurserymen, and Mr. Alan Cameron, gr. to Samuel Hay, Esq., Trinity Cottage, and Mr. John Jones, gr. to Captain Boulton, Bangholm Bower, were the most successful among gardeners. The best sorts were Lord Clyde, Lilacinum, International, Rosa Bonheur, Rose Celestial, Prince of Wales.

Messrs. P. Lawson & Sons had an extra award for a fine lot of Tree Ferns and a miscellaneous collection of plants, comprising Coniferæ in 30 rare sorts, some nice plants of dwarf Palms, &c. Messrs. Dickson & Sons had an extra award for a lot of Azaleas, new and old, in 8-inch pots, which were very effective. Messrs. Downie & Co. had a fine plant of Souvenir de la Malmaison Carnation, full of flower, and several stands of Pansies. Among the fancy section were some very good sorts, which attracted general attention, including Hugh Adair, a bronze ground, with black dense blotches, and prominently edged with yellow, beautiful; Major Mackay, bronze and black; Amy, large blueish black on a bronze ground; Mrs. Northcote; Black Prince, very deep black, shining like a piece of silk; and Ninian Niven: all most desirable varieties, and by far the more prominent among a very large assortment.

P. Neill Fraser, Esq., Canon Mills, had a nice lot of Ferns, both hardy and tender, which received a First-class award; and along with them several panfuls of Saxifraga Stansfieldii, a good white and mauve variety; S. hypnoides, S. gibraltarica, a tiny white; and S. incurvifolia, Sedum Rhodiola, and the deep blue Veronica saxatilis, most interesting plants for general cultivation.

Mr. Thomas Carstairs, Warriston Nurseries, had some fine flowered Azaleas, especially Roi Leopold and Beauty of Europe, as well as some Ferns and other plants. Mr. R. McIntosh, The Dean Nursery, had some very fine hardy Ferns, conspicuous among which was the Scolopendrium vulgare fissum, with elegantly cut fronds, and Lastrea Filix-mas cristata. John Stewart & Sons, Broughty Ferry, Dundee, had a very good lot of cut Roses, and Drummond Brothers had also a table of miscellaneous plants.

In the fruit department, Mr. Foulis, gr., Fordell, Inverkeithing, had two good Pines, the one a smooth Cayenne, and the other a Queen. In Grapes, Mr. John Laing, gr. to R. Cathcart, Esq., Pitcairlie, had 1st for excellent Black Hamburghs, and 1st for flavour. The same grower had also 1st in the White class with Golden Hamburgh, beating Mr. Thomson with the Archerfield Muscat. Both samples were unripe. The Duchess of Buccleuch again obtained the premium for flavour against Buckland Sweetwater, Mr. J. Gordon, gr., Niddrie, being 1st, and Mr. Thomson 2d.

Vegetables were a good display, especially the collection from Mr. Temple, gr. to J. Balfour, Esq., of Balbirnie, Markinch, and from Mr. William Reid, gr. to C. Dalrymple, Esq., of Newhailes; capital samples of Henderson's Champion Cucumber came from Mr. Laing.

The day was propitious, but the visitors were by no means numerous, owing to the greater attractions of the Assembly Meeting.

Notices of Books.

A Handy Book of Meteorology; by Alexander Buchan, M.A., Secretary of the Scottish Meteorological Society. 12mo. Pp. 204. William Blackwood & Sons.

The Society, of which the author of this Manual is the Secretary, is one of the most active and popular of the scientific institutions of Edinburgh. It has 86 stations at home and abroad, where journals are kept by competent observers; and it is composed of 582 members. Its quarterly meetings are of a very interesting description. Recently at one of these meetings its venerable President, the Marquis of Tweeddale, who is well known as a distinguished agriculturist, signalised the approach of his 81st birthday, by an address "On Solar Radiation in relation to Crops," replete with enlightened views and happy suggestions. Not less fortunate is the Society in its secretary. It is his duty to remain in Edinburgh as the centre of correspondence, to keep the machine in motion, to tabulate observations, and to enunciate results. He generally enlivens the quarterly meetings by a short lecture on some point of interest, such as "The Meteorological Peculiarities of the Summer of 1865," illustrated by 26 maps constructed by him for the occasion, an exposition which we had the pleasure of hearing. The amount of work he gets through is wonderful. He has charted, he tells us, 100 European storms. In short he lives in a sort of atmosphere of meteorology; he is intimately familiar with all its details, and it is scarcely possible to conceive any one better fitted, from daily experience, to be the author of a practically useful treatise on the subject.

Mr. Buchan has traversed the whole range of the science. Beginning with a brief sketch of its history and scope, he proceeds, in successive chapters, to treat of the pressure of the atmosphere, its temperature, solar and terrestrial radiation, distribution of temperature, moisture, &c. The instruments employed are described and figured, illustrative woodcuts are intercalated when necessary, and various charts are given. Observed facts are stated, and the laws deduced from them are explained. We cannot do better than present to our readers some specimens of Mr. Buchan's volume; and we shall select those which, from recent discussions in the pages of this Paper, are likely to prove most interesting.

Sensible Coldness of Damp Air.—"Damp air is a much better conductor of heat than dry air. Damp air consequently feels colder than dry air of the same temperature, because it takes away the heat from our bodies more rapidly. Thus at the breaking of the severe frost which prevailed in Great Britain in December, 1860, when the temperature had risen to 32°, the air being moister, the weather was more disagreeably chilly, than when the temperature was below zero." P. 45.

Increase of Temperature with Height in Cold Weather.—"This takes place invariably in dry, calm, clear weather during the night, and in winter, when the temperature of the air falls by contact with the chilled surface of the earth (Proofs from the observations of Mr. Glaisher and Mr. Ch. Martins). But the rate at which the temperature rises with the height is modified to a very great extent by the physical configuration of the surface—that is, whether that surface be level, undulating, or mountainous. Suppose an extent of country, diversified by plains, valleys, hills, and table lands, to be in circumstances favourable to radiation, and each part under the same meteorological conditions, except in the single point of position. Radiation will proceed over the whole at the same rate, but the effects of radiation will not be felt everywhere in the same degree and intensity. For as the air in contact with the declivities of the hills and rising grounds becomes cooled by contact with the cold surface of the ground, it acquires greater density and weight, and consequently slips down the slopes, and accumulates in the plains below. Hence places situated on rising grounds are never exposed to the full intensity of frosts; and the higher they are relatively to the surrounding ground, the less are they exposed, because they are protected by their elevation providing, as it were, an escape for the cold almost as fast as it is produced. On the contrary, valleys more or less environed by hills or eminences, not only retain their own cold of radiation, but also serve as reservoirs for the cold of neighbouring heights. Hence low-lying place are peculiarly exposed to intense cold. Plains and table lands are similarly affected by their own radiation. This explains why vapour becomes visible so frequently in low places, whilst adjoining eminences are clear; and the same fact instinct has made known to cattle and sheep, which generally prefer to rest during nights on knolls and other eminences. Along most of the watercourses of Great Britain, during the memorable frost of Christmas, 1860, Laurels, Araucarias, and other trees growing below a certain height, were destroyed, but above that height they escaped, thus attesting by unmistakeable proof the great and rapid increase of the temperature with the height above the lower parts of the valleys." Pp. 57, 58.

"*Hints to Horticulturists.*—The ascertaining of the dew-point is of great practical importance, particularly to horticulturists, since it shows the point near which the descent of the temperature of the air will be arrested during the night. For when the air has been cooled down to this point, dew is deposited, and latent heat is given out. The amount of heat thus set free being great, the temperature of the air is immediately raised. But as the cooling by radiation proceeds, the air again falls to, or slightly under, the dew point: dew is now again deposited, heat liberated, and the temperature raised. The same process continues to be repeated; and thus the temperature of the air in contact with plants, and other radiating surfaces may be considered as gently oscillating about the dew-point. For if it rises higher the loss of heat by radiation speedily lowers it, and if it falls lower by ever so little, the liberation of the heat, as the vapour is condensed into dew, speedily raises it. Thus then the dew-point determines the minimum temperature of the night. This suggests an important practical use of the hygrometer. If the dew-point is ascertained by it, the approach of low temperatures, or of frost, may be foreseen and provided against. Thus suppose on a fine clear spring day towards evening, that the dry bulb was 50° and the wet 40°, the dew-point at the time is therefore 29.4°. Frost on the ground may then be predicted with certainty, and no time ought to be lost in protecting such tender plants as may be exposed in the open air at that season. If, on the other hand, with a sky quite as clear, the dry bulb was 50° and the wet 47°, the dew-point being thus 43.8°, no frost need be apprehended. The raising or depressing of the dew-point during the night by a change of wind is the only circumstance that can happen to interfere with the predictions founded on the hygrometer."—P. 92.

In reference to the diathermancy of the air, and the manner in which it is affected by aqueous vapour, we intended to cite the account given in pp. 94, 95 of the observations of Lieut.-Colonel Strachey at Madras, and of M. Neumayer at Melbourne, as confirming Professor Tyndal's discovery of the interceptive power of aqueous vapour, and slightly modifying its application in practice; but the limits set to such notices as the present require us to stay our hand. We must refer to the volume itself on this as on many other points. In conclusion, we have to state that this "Handy Book of Meteorology" is wonderfully correct, both in its statements and in the reasonings deduced from them. After careful, and, of many parts, repeated perusal, we have found nothing the accuracy of which we were inclined to challenge. In the chapter on storms we should have liked a little more evidence on the movements of the so-called Cyclones. Contrary to the views of Dove and many others Mr. Buchan holds them to be not circular but vorticose. His explanation of their progressive motion is singularly ingenious, and it is probably original,

though in a recent number of the *Revue des Deux Mondes* something similar is propounded by M. Jamin, and claimed as exclusively his own. The style of the volume is equable and lucid, except in a passage or two, which have become obscure from over condensation. There is no sensational writing, and no epigrammatic touches to astonish the unlearned. It deserves also to be remarked that there is almost a total absence of mathematical symbols, which are so abhorrent to the general reader, but there is no discernible want of mathematical power and information. Any person of ordinary intelligence, if he will read patiently and thoughtfully, will not fail to understand the book from beginning to end. We do not know a better book on meteorology, and certainly it is by far the best book on that subject which we know for the horticulturist, the farmer, and, speaking generally, the unscientific reader. Every gardener of the least pretensions to an intelligent knowledge of his profession should not only possess it, but thoroughly master it.

Professor Reichenbach has recently published, under the title *Beitraye zu einer Orchideenkunde Central-Amerikas* (4to, pp. 112), a descriptive list of the Orchids collected in Central America by Warscewicz, Oersted, Wendland, Hoffmann, and Wullschlagel. Ten lithographs accompany the Latin descriptions, which refer for the most part to plants already published elsewhere, though some are here described for the first time. It will be valuable for reference to those interested in the rich Orchid flora of the region to which it refers.

The fifth volume of Dr. Ferdinand Müller's *Fragmenta Phytographiæ Australiæ* has recently been issued. We have already had occasion to speak of this useful record, with reference especially to Australian Ferns. In the present volume, among other plates is one representing a graceful Palm, 70 to 80 feet high, named Ptychosperma Alexandræ, found near the Fitzroy river in Eastern tropical Australia.

Florists' Flowers.

The great show at the Crystal Palace on the 25th ult. brought together a few Novelties of special interest. Foremost were some new bedding Lobelias of the Erinus section, shown by Mr. Bull, of Chelsea. A First-class Certificate was awarded to Rosy Gem, a variety much in the way of Beauty of Ravensbourne, but larger and of a taller and stouter growth. Mr. Bull's variety has more rose in the lilac than Carter's variety, and has a white centre slightly spotted with rosy purple. This central marking also differs from that of Beauty of Ravensbourne. As shown, the habit of the plant was somewhat spare; all the under leaves withered, but this might have resulted from pot cultivation. The habit is erect and free, and it promises to make a very desirable and effective bedding plant. Crown Princess was a very novel variety, having a ground colour of violet blue, with a white centre, and the segments were also mottled with white—excellent compact habit, erect, and very free blooming. Celestial was of a bluish lilac shade, with white centre, having small spots of deep blue—habit dwarf and compact, the flower stalks freely spreading; a good kind for massing. In addition to some of the zonal and nosegay varieties of Pelargoniums shown by Messrs. Downie, Laird, and Laing at South Kensington, on the 21st ult., they had here Mrs. Laing, a nosegay, with pale zonate foliage, and having large, bold, and striking trusses of bright cherry crimson flowers. This is a very promising variety, and will no doubt be yet seen in better condition. Hercules is a zonal kind, with very strong foliage, the broad zone by no means regularly defined, but having immense salmon scarlet flowers, very stout and of fine outline; but not sufficiently advanced in bloom to judge accurately of its merits. Perfection, a zonal variety from Messrs. F. & A. Smith, had salmon scarlet flowers, a little deeper in colour than Hercules, though not quite so large or so smooth as the last named; habit good, well-defined bronzy zone and free blooming. Achievement was much in the same way, the zone darker, and more orange in the flowers; a very good free bloomin kind. Superexcellent has an irregular pale bronzy zone, with large and bold trusses of bright orange scarlet flowers; excellent habit. These three varieties were the best of a large batch of seedlings from Dulwich.

Mr. Wiggins, gr. to W. Beck, Esq., of Isleworth, and Mr. Nye, gr. to E. B. Foster, Esq., of Clewer, both exhibited Seedling large-flowering Pelargoniums. The latter were not nearly enough in bloom to judge of their value, and will be seen later in better condition. First-class Certificates were given to Queen of Roses (Beck), lower petals vivid rosy crimson, the upper petals rich dark blotch, shaded and margined with fiery crimson, the centre rayed with purple; a very fine and striking shade of colour; medium-sized flowers, a little rough; and to L'Empereur (Beck), warm pink lower petals, slightly blotched with rosy crimson, the upper petals dark, with margin of fiery crimson, edged with rosy pink, conspicuous white centre; a large and bold flower. Others that will no doubt be sent out for their obvious good qualities were, Hermit (Beck), a large flower, the lower petals white, slightly suffused with pink; dark top petals, with margin of fiery carmine, and broad edging of pink; the flowers as shown somewhat lacking outline and smoothness; and Prince of Orange (Beck), a small flower, but noticeable for its superb shade of dark orange scarlet, with broad edging of dark scarlet to the upper petals; a rich and striking hue of colour. *E. D.*

The first Great Show of the Royal Botanic Society, held on the 29th ult., brought together as usual a considerable quantity of Novelties. Among these, the show in large flowering Pelargoniums contained some flowers of high-class quality. First-class Certificates were awarded to Mr. C. Turner for Example (Hoyle), and Victor (Hoyle), described at page 549, and which were here shown in fine condition; and to Man of Mark (Hoyle), a cheerful-looking but somewhat small spotted flower, lower petals bright carmine rose spotted with rich dark crimson; upper petals dark, with broad margin of glowing rosy crimson; the habit somewhat spare and drawn. First-class Certificates were also awarded to Mr. Turner for the following Fancy Pelargoniums: Marmion (Turner), described at page 493, a variety that may be termed an improved Godfrey Turner, though not so dark in colour as the last named, and it also has a pure white centre instead of the somewhat confused blueish centre of the older flower; it is of a very pleasing shade of colour, but a little crumpled on the edges; to Pink Perfection (Turner), also described at p. 493; and to East Lynne (Turner), a flower somewhat in the way of Mr. Turner's new variety Perfection, but rather larger, the lower petals rosy crimson, suffused with purple, and slightly edged with pale rose, top petals dark rosy crimson, with a pale edge; flowers stout, smooth, and of fine form and excellent habit. First-class Certificates were awarded to Mr. Wiggins, gr. to W. Beck, Esq., Isleworth, for Hermit (Beck), described above, and shown in much better condition than at the Crystal Palace—a promising exhibition flower; and to Lady of Quality Improved (Beck), a very finely formed and smooth flower, the lower petals vivid carmine rose, stained and pencilled with dark crimson, dark top petals, with narrow rosy crimson margin; habit good. Some others furnished by Mr. Wiggins were Electra (Beck), a very delicate and beautiful flower, though not of first-rate properties; lower petals delicate pink, slightly blotched with carmine on each petal; dark top petals running into and margined with fiery crimson, and broadly edged with pale rosy pink, another very promising exhibition kind; Queen of Roses (Beck), described above, not in good condition, being rough, the centre of the lower petals also becomes long with age, and the blue centre of this flower has a confused appearance, though the hue of colour is very rich and striking; Mignonette (Beck), a small flower, but of a striking shade of colour, rosy violet lower petals, dark top petals, broadly edged with bright rose, white centre; Calypso (Beck), clear orange carmine lower petals, dark top petals, with broad rosy crimson margin, run into by the dark; and Aspasia (Beck), lower petals rosy pink, with dark top petals, margined and run into with bright rosy crimson, and edged with pink, conspicuous white throat, a large and bold flower. Mr. Nye, gr. to E. B. Foster, Esq., of Clewer, had some very fine and striking flowers, among them the best new Show Pelargonium of the present year, namely, Emperor (Foster), pale rosy salmon lower petals, the upper petals having a well-defined medium dark blotch, regularly margined with fiery crimson carmine, and broadly edged with pure salmon rose; flowers large, pure, and very smooth; a beautiful and striking flower, the colours on the upper petals being very regularly defined. It was awarded a First-class Certificate, as were also Rob Roy (Foster), lower petals rosy-violet, with small blotch of pale rosy crimson on each petal, the upper petals dark margined, with deep rosy crimson, which runs into the dark blotch, and edged with rosy pink; a fine, bold, and stout flower; and Grandee (Foster), clear pale pink lower petals, pencilled and stained with crimson, and having a regular and smooth edge of pink; flowers of fine form and substance. Magician (Foster) has a rich shade of colour, but was not in good condition, the upper petals appear to have a tendency to become crumpled, and the white centre is confused and ill-defined; while King of Trumps (Foster) and Troubador (Foster) are beaten by Emperor, though they have more carmine in the colour of the lower petals, and some claim to distinctness, they still run in the same way, while being inferior in quality. The Peer (Foster) is a very fine stout and smooth stained flower of good qualities; Conquest (Foster), a very free blooming flower in the way of The Peer, but darker in the lower petals; and Northern Star (Foster), a flower of good quality, bright orange scarlet lower petals, with slight dark blotch; upper petals dark, margined with glossy rosy scarlet, a taking flower, but rough on the upper petals.

If it had been in the province of the judges to grant a certificate to a plant that has an excellent character both for decorative and market purposes, it should have been given to Dobson's Pelargonium Magnet. A large quantity of small plants literally covered with bloom were grouped together, and a most striking effect they had. The colour is very bright purplish crimson, the habit good, and it has the appearance of forcing well. Messrs. Downie, Laird, & Laing received a First-class Certificate for their beautiful pink Nosegay Pelargonium Emmeline, described at page 549; and the same award to Mr. John Mann, of Brentford, for Zonal Pelargonium Lord Derby, also described at page 549, which, though not so fine as at South Kensington the previous week, was yet in excellent condition. Eugénie (Mann) had good zonal foliage, and large and stout pale salmon flowers produced on good trusses. Evidently Mr. Mann has in his possession the materials by which to produce some very fine things in the way of Zonal Pelargoniums. Mr. W. Paul has some small plants of Nosegay and other varieties, and two large specimens of Dr. Hogg and Waltham Nosegay; the former, probably one of the finest formed and stoutest flowers in the Nosegay section, promises to make a very effective exhibition kind. A First-class Certificate was awarded to Dr. Hogg. Some Standard Variegated Pelargoniums shown by Mr. W. Paul, were an excellent feature in the way of decorative plants. The stems averaged 3 feet in height, and were surmounted with robust heads of foliage and masses of bloom. For conservatory work these will be very effective. A large plant of Little Gem, a hybrid variety with scented foliage, also came from Mr. W. Paul, and is the brightest coloured of this tribe yet seen. The colour is lively rosy pink, marked with purplish crimson on the top petals; free blooming and good habit.

A First-class Certificate was awarded to Mr. W. Bull for his new Lobelia (Erinus) Rosy Gem, described above; and in addition Mr. Bull had another variety named White and Blue, flowers white, with slight edging and tip of pale blue, a somewhat tall growing but free blooming and showy kind.

Cut Pansies were shown by Messrs. Downie, Laird, & Laing, and Hooper of Bath. The former had a good stand of 36 kinds, and Mr. Hooper's flowers were much better than generally comes from that quarter. Of Mr. Hooper's new flowers, John Gray and George Catley are two fine dark selfs, the former having a good deal of rose, the latter rich glossy dark. Cream of the Creams, a cream ground flower; and Mrs. Gladstone, both classed among the white grounds, are large and bold flowers. Mr. Hooper's Fancy Pansies contained some large and stout flowers, though generally rough and crumpled. Mr. James, of Isleworth, had a box of blooms somewhat small in size, but clean, smooth, and of good quality; and it was pleasing to note the appearance of two new amateur exhibitors of the Pansy—Messrs. Kingston and Weddick, who showed in very good condition. Mr. Hooper had some flowers of a new yellow self Pansy for bedding, named Sunset. The blotch was extremely well defined, the flowers stout, and of a good bright yellow colour. *R. D.*

The Apiary.

Drone Comb in Nadirs.—I should be glad if Mr. Thompson, who has hitherto so kindly and efficiently instructed us in the management of Stewarton hives, would give his opinion on the following case. Finding one of my stocks in a Stewarton hive weak this spring, and the season very bad for bees, I thought it best to join it to its next neighbour, which I did in the manner usual with these hives, on the 3d of May, by first puffing in five or six puffs of tobacco smoke into the entrance of each, and then putting the top boxes together, having of course first drawn the slides of that that was to go underneath.

Upon looking into the box, which I had removed from beneath the weak stock, and which was about two-thirds full of combs, I found them to be all drone combs, except one little bit at the side. This directed my attention to the under box of the hive to which the weak stock had been joined, and I saw plainly through the window that the combs of this one too, which by the way had not been over strong, were also, as far as could be seen, drone combs. As this would have eventually injured the prosperity of the hive, I took away this box, which I had left as a nadir to the united stock, and found upon examination of the combs, which were about the same in quantity as in the corresponding box of the other hive, that fully two-thirds of them were drone. This much I cut away, and then returned the box, as the season for nadiring appeared to have arrived. The stock is now very strong, and working in its nadir. The inclination of bees to construct drone combs in nadirs, stated by you, first occurred to me; but I then recollected that this had happened to weak stocks only, for two strong stocks, which had been likewise nadired last summer, and an account of which I had given you, had not constructed drone combs elsewhere than at the very sides of the nadirs, and only in usual quantity. Of one, that in 9-inch Stewarton's, I can speak with absolute certainty, as I took its nadir away as I told you; and through the windows of the other, which command the centre of the box, no drone comb can be discovered. It appears thus that the strength of the stock makes a material difference in this matter; and also that it is necessary to keep a sharp look out as to what kind of combs are being constructed. In both cases it was in the very centre of the box that the most drone comb was constructed, one being wholly of that except a very trifling portion.

The account that you have given of your own peculiar modification of Langstroth's hive, has shown me what is the most probable reason that the honey-box, which I took off a Stewarton stock last year, and which I told you of, was not perfectly finished and sealed. I believe the bees wanted more entrance space, to ventilate four boxes one over the other, than the entrance cut in the Stewarton boxes affords; and I intend now either to alter my floor-boards so as to give ventilating space the whole breadth of the boxes, or to slip a bit of board ⅜ of an inch thick, and cut to suit the shape of the box, beneath the nadir, so as to have the same effect. Possibly the climate of South Wales being warmer than Scotland, may make a difference in the amount of ventilation required. *A. Boyle.*

Garden Memoranda.

Messrs. Carter's Nursery, Sydenham.—In an establishment like Messrs. Carter & Co.'s Nursery, where, at present at least, bedding stuff is the staple article of trade, and is produced in great quantities, the extent to which certain kinds are propagated is a pretty sure index to their value for this purpose. Thus Coleus Verschaffeltii, and C. nigricans, are largely grown, because they are the two best kinds for out-door work. Mr. Boston entertains a high opinion of the value of Iresine Herbstii aureo-reticulata as a bedding plant, and is propagating large quantities of it. In a young state it looks stronger than the red variety. The striped Japanese Maize was to be seen in several stages of growth from strong plants 2 feet in height down to young stuff just potted off from the seed pans. In the larger plants the beautiful variegation was showing itself, and it cannot be too highly recommended for sub-tropical work. Wherever used in the garden it will always please, and it is very effective grouped in parties of three, five, or

seven plants. That beautiful new Silver Grass, Poa trivialis argentea elegans, is in great demand. This elegantly-variegated meadow Grass is eminently valuable for its wonderfully free growth, its dense but gracefully drooping habit, and for the combination of three colours on its beautiful foliage, pure white, light green, and pale pink, being "blended in each linear leaf." It is recommended for "hanging baskets, for the outer margins of rustic or stone ornamental vases on raised pedestals, also for dividing in small tufts for the decoration of drawing-room vases." A very dwarf form of Tagetes signata pumila, selected by Mr. Gordon of the Crystal Palace, is largely grown for the extreme compactness of its habit. The flowers are well above the foliage, and, being freely produced of a pale yellow colour, it is the best substitute for the yellow Calceolaria grown. It has the great advantage of blooming very late in the season. Large patches of Tyerman's variety of Viola lutea, and the Osberton Hall purple variety of Viola cornuta were in flower in the open ground. The yellow one blooms earliest, and is of a dwarfer habit. Of the varieties of Alternanthera, A. paronychioides is the best for bedding purposes, being stouter and hardier in constitution than the others. A. (Teleianthera) versicolor should have a sheltered position assigned to it, as it needs some protection out of doors. It looks the strongest of all, but it is not so in fact. Tropæolum Perfection (Gordon), is an excellent dwarf growing variety for beds, having a profusion of deep orange-scarlet flowers. Some plants in pots were quite little bouquets in themselves.

All the higher classes of plants are cultivated here, and this department of the nursery is now being rapidly extended. In the Orchid-house were some plants of Phalænopsis amabilis, P. grandiflora, and P. Schilleriana that had been fertilised by Mr. Boston, and were now producing their seed pods. A very stout and vigorous-growing golden Gymnogramma, a sport from G. aurea, was noticeable in the Fern-house. Mr. Boston says that it excels any golden variety he has yet cultivated. One house had as a part of its occupants a large collection of the choicest Cannas from the south of France. They are expected to produce something of more than average quality among this class.

The cleanliness of the stove house was remarkable, as not the slightest trace of scale or mealy bug could be discerned. Mr. Boston uses a preparation of his own, termed the "Ne plus ultra," and with the happiest results.

It may throw some light on the "Early Pea controversy" to state that in the grounds there were growing both Carter's First Crop, and Dickson's First Best. The first named had been in bloom since May 6th; the last named began to bloom on the 9th, and certainly had the best situation. Both were sown on the 2d of February.

Miscellaneous.

Ginseng.—The Foreign Commissioner at the treaty port of Newchwang reports that Ginseng maintains its great repute in China. Every native, from the Emperor to the humblest coolie, places implicit faith in the efficacy of this strange root, which, for ages, has been extolled as a universal medicine or panacea. The genuine Manchurian Ginseng consists of a stem, from which the leaves spring, of a centre root, and of two roots branching off at the same point from each side of the centre root; the stem somewhat resembles the head and neck, the side roots the shoulders and arms of a man, the main root represents the body, and a fork, which the main root frequently forms, supplies the legs. The Chinese, with a not ungraceful feeling, believe that a plant which thus expands into the human form, amid thickets and jungles on which the foot of man never trod, must be intended to alleviate the sufferings of the human race. For Ginseng loves the moist, dense forests which cling to the slopes of the hills; it nestles in recesses which are as pathless now as in the days when the Golden Tartars were dwelling in the plain. Fine Manchurian Ginseng is only found in the upper valley of the Usuri, where ruined towns and forts mark the cradle of the race which occupies the imperial throne. The precious qualities of Ginseng are increased and intensified by age, and a plant is of no great value until it has been growing and gathering strength for at least an ordinary lifetime. The upper portions of the root possess the healing power; the stem which appears above ground ought not to be eaten. Formerly the collection of Ginseng was in the hands of some 40 merchants, who obtained the necessary authority from the Tartar General Kirin on payment of a heavy fee, handing over to Government also a certain weight of the product of the search. The merchants employed outlaws, whom the fear of punishment had driven to take refuge in these wilds, and who underwent great hardships in the task, menaced by starvation, and by the wolf, the tiger, and the leopard. But in the time of Taukuang, Ginseng was becoming yearly more scarce, and plants of any great age were rarely found. In order to arrest their utter extinction the collection of the wild root was prohibited by Imperial edict. Nevertheless a very small quantity is still clandestinely collected—to a considerable extent, however, in Russian territory. The cultivation of Ginseng, though allowed, is not encouraged. It is cultivated in Manchooria, and in the Corea. *Times.*

Garden Operations.

(*For the ensuing week.*)

PLANT HOUSES.

WITH increasing light and warmth, and the power of more largely assimilating the internal air of all structures with the more natural outer air, let no proper opportunity be lost to aid all plants by every possible means in the formation of good sound growth. By securing this thus early, if possessed of a luxuriant foliage, there is a greater possibility that abundant flower-buds will be set in the autumn, and that the plants will be the better matured to withstand the ills of winter. Keep a keen eye upon all plants, quickly to detect any insects in process of formation; the high temperature prevalent at this season greatly increases the liability to the attacks of red spider, whilst mealy-bug and other detestable pests will likewise thrive apace. As the only thorough cure for the former of these is prevention, therefore ply the syringe constantly and with searching effect. Deluge every chink and cranny with tepid water upon sunny afternoons; shutting up closely about half-past 3 P.M. afterwards, thereby forcing actual and atmospheric moisture to still further permeate the whole. Continued attention will be needed by stove plants as they cease flowering individually; they will require cutting back, potting, and the like. It is only by proper attention to their several requirements, and by a seasonable application thereof, that thorough success can be attained. Such plants as *Impatiens Hookeri*, and others, together with *Justicias*, and *Pentas carnea*, should be cut back so as to form nice compact plants, according to their respective habits, as soon as the flowers upon them commence getting shabby, soon after which give them a shift into fresh compost. Shake the balls smaller, potting them into a general admixture of peat, loam, leaf-mould, and sand. Pinch all decayed flower stalks off *Goodyeras*, *Peperomias*, &c., where they have flowered. Give the latter a small shift into a good fibrous soil with abundance of silver sand, and induce them to make a kindly growth. *Rondeletias*, not potted in the early spring, should when flowering is over receive such attention if necessary. They like fibrous loam and sand. Carefully remove all remnants of decayed flower stalks, and neatly tie the shoots into all vacant spaces. These and many similar plants derive great benefit from a slight bottom-heat at this season, where it is possible to apply it. Place *Gesneras* in warmth with the view of starting them into growth for the purpose of forming fine plants for autumn and midwinter decoration. Cut back any late flowered plants of *Euphorbia fulgens*, keep the plants so cut in, rather dry for a time to induce more plentiful breaks; the pieces so cut off grow freely if dibbled into sandy peat, in pieces 4 or 5 inches in length, and properly prepared at the base. *E. splendens* equals the above in usefulness, and should be more generally grown. Keep all structures, whether conservatories or cool houses, constantly sprinkled over the borders, side paths, &c., as this, independent of the assistance it gives upon hot parching days to the plants actively growing, will aid also in prolonging the flowers upon all plants in bloom. Plants of *Thyrsacanthus rutilans* should be potted about this time where it is intended the older stock should be grown on. Give them a moderate shift into a general admixture of peat, loam, decomposed manure, and sand; cleansing them well, should that be necessary, before replacing them in the house. It is better at all times, where no necessity for large specimens exists, to strike a fresh lot of cuttings annually, as, thus grown, they are not nearly so liable to be infested with the many insects which are generally so partial to them, as when old plants are kept year after year. They strike very freely if put into a warm, close place, in a sandy compost for two or three weeks; and they should be potted off singly when well rooted. Seedlings of *Clianthus Dampieri*, which have been sown singly in small pots, should be potted into larger ones as soon as they have well established themselves. The compost best suited to them is an admixture of two parts fibrous peat, one good yellow loam, and one of sand, charcoal, and well broken potsherds; well intermix the whole, and thoroughly crock the pots previous to potting. These like an intermediate temperature, with abundance of fresh air, after being gradually hardened to withstand exposure, and to be treated successfully they must be grown on quickly, after the fashion of many of our tenderest annuals. Be very careful not to break the balls, or otherwise injure the roots in the process of potting. *Daphnes*, which require shifting, might now have that operation performed. They do best in an admixture of sandy peat; good drainage being indispensable to successful culture. Carefully attend to watering; some plants in smaller sized pots will now require watering twice upon very hot days. Gradually inure the inmates of all intermediate houses, conservatories, &c., to a constant supply of night air. Make small sowings of *Primula* and *Cineraria* seeds, where a demand exists for fine specimen plants for early winter decoration. The Primula seeds will not germinate freely unless every attention is given them. Prepare a pan, nicely filled with well-sifted loam, leaf-mould, and sand, by filling it nearly full, and first giving it just a sprinkling overhead; place the seeds evenly over the surface, sprinkling a little drier soil evenly over them, and well water the whole; after which, place a piece of thick paper firmly over the pan, where it should remain, excepting when water is required, until germination has commenced. They germinate more freely in an average temperature of 55° than in any other.

FORCING HOUSES.

Pines, which received a shift early, will now when the pots are getting well filled with roots be benefited by occasionally watering them with the proper manure water. Be particular to keep the atmosphere in very late *Vineries* perfectly dry at the time the pollen is in a proper state for fertilising the flowers, as some sorts do not set too freely at that season. Strong growing shoots upon *Peach* and *Nectarine* trees should have the points removed at or about the period at which the fruits cease to swell, and are making a collective effort finally to ripen; by doing so at a proper moment much assistance will be given to the trees. Use unintermitting vigilance in order to keep down red spider, which are ready visitors at this stage, and such as are not quickly expelled from Peach houses if once allowed to become established. Their origin is certainly attributable to a too dry atmosphere or ill-health in the plants they attack, and by some cause or other, moisture in any and every form is the greatest and best preventive; hence it will be seen that permitting any to originate now will prove an immense source of mischief at a later date, and when, to ripen the fruit, a drier atmosphere will be absolutely necessary. Use every precaution, should the weather continue so changeable, to give air at the proper moment, when the sun shines, and not to allow the foliage near the glass in *Vineries* to become scorched, which it readily will do, if condensed moisture rests thereon.

HARDY FRUIT GARDEN.

All grafts should now be examined minutely, and if the clay around any has crumbled away it will need renewing. Fasten permanently all grafts which have commenced growing, and those that are likely by weight of moisture, caused by heavy rains or high winds, to become loosened, and so destroy their juncture with the stock. So fasten them therefore that it may not be possible for them to oscillate to and fro. At the base of *Raspberries*, in a fruiting state, it will be seen that numerous strong suckers will have made some progress. These, the intended canes for next season's fruiting, should now be thinned out, choosing about one in excess of the requisite number for saving for that purpose, when all others should be removed bodily and with the least possible injury to the stools.

KITCHEN GARDEN.

I cannot too earnestly impress upon all the necessity for frequent hoeing amongst crops. This not only very greatly affects the destruction of weeds, but also advances cultural success on account of its permitting access of the air, and its vast fertilising properties, freely to the roots. If constant successional sowings of *Peas* have been made it will be necessary about this time again to make another. Sow a pinch of *Cabbage* seed for early autumn use. I would especially advise a sowing to be made this week of Cattell's Eclipse Broccoli. This, which is in cutting at the present time, is an excellent late variety. Plant out Lettuces; also *Cucumbers* upon ridges, placing hand-lights over the latter. *Celery*, if pricked out from the seed-bed, should have well-prepared beds, the surface of which, for 2 inches deep, should consist of well-rotted manure, soaked with water, and rolled or pressed level previous to pricking out the plants. *W. E.*

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the Week ending May 29, 1867, as observed at the Horticultural Gardens.

May.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Of the Air. Min.	Of the Air. Mean	Of the Earth 1 foot deep.	Of the Earth 2 feet deep.	Wind	Rain.
Thurs. 23	19	30.101	29.937	51	25	38 0	51	50	N.E.	.00
Friday 24	20	30.125	30 038	52	25	38.5	50	49	N.E.	.00
Satur. 25	21	30.044	29.803	56	31	43.5	50	49	E.	.35
Sunday 26	(	29 640	29 533	71	43	57 0	50	49	S.	.02
Mon. 27	23	29.621	29 357	68	44	56 0	50	49	S.	.00
Tues. 28	24	29 807	29.759	70	47	58 5	50	50	S.W.	.00
Wed. 29	25	29 929	29.836	74	44	59 0	51	51	S.E.	.04
Average .		29 895	29.780	63.1	37.0	50 0	50 3	46.7		0.41

May 23—Very cold and blustrous: heavy clouds; fine; frosty.
— 24—Heavy clouds; cloudy; fine; sharp frost at night.
— 25—Slight dry haze; densely overcast; heavy rain.
— 26—Heavy rain; fine; cloudy at night.
— 27—Heavy clouds, cloudy and fine; very fine at night.
— 28—Densely clouded; fine with clouds; mild at night.
— 29—Densely overcast; showery, cloudy at night.
Mean temperature of the week 5 5-10 deg. below the average.

STATE OF THE WEATHER AT CHISWICK,
During the last 41 years, for the ensuing Week, ending June 8, 1867.

June.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday .. 2	68 4	45.0	56.7	18	0.87 in.	1	4	4	5	4	11	6	5
Mon. .. 3	69.4	44.2	56.8	20	0.91	1	5	5	1	5	16	3	5
Tues. .. 4	69 5	44.5	57 0	15	1.02	2	6	2	2	4	13	8	4
Wed. .. 5	70.8	47.3	59.0	23	0.99	2	8	2	1	7	10	8	8
Thurs. .. 6	69.7	47 6	58.6	21	0.28	5	7	2	2	4	12	6	3
Friday .. 7	69 2	46.8	58 0	25	0.53	3	9	—	5	3	13	4	4
Satur. .. 8	70 6	46.6	58 6	15	0 45	4	8	2	—	3	17	1	2

The highest temperature during the above period occurred on the 6th and 7th, 1846—therm. 90 deg.; and the lowest on the 5th, 1856—therm. 33 deg.

Notices to Correspondents.

CATTLEYA CITRINA: *E J Harty* will find a reference to the superb collection of Messrs. Low at p. 488.

CROWN IMPERIAL: *Subscriber.* The bulbs of these plants may be taken up after they have become thoroughly ripened, if required; but, like those of Lilies, they are better not exposed longer than is necessary. They do not require frequent removal.

CUCUMBER: *D R, Liskard Hall.* Your Cucumber had a small leaf adherent to it for half its length.

LIQUID MANURE: *E T A.* Liquid manure may be made from dung in any state, fresh or fermented; but it must always be used in a fined or clear state, and diluted to a very moderate strength.

MUSA: *W K.* A Musa would be eligible to show in a collection as a fine foliaged plant, certainly; whether it would be effective therein would depend on its condition.

PEAT: *E T A.* Peat earth cut from tolerably high and dry situations may be used at once. If it is boggy peat, it is better that it should be aërated before using.

RHODODENDRONS: *E T A.* It will tend to benefit the next year's bloom if the flowers are removed. Old decaying flowers and seed vessels should, in fact, always be removed early.

TAN: *Weston.* We cannot advise you to use fresh tan as a manure for a kitchen garden on a heavy soil with clay subsoil, nor, indeed, tan in any state, except it be the harder portions of old tan, after it has been charred or "smother-burnt."

COMMUNICATIONS RECEIVED.—J. Wills (with thanks).—H. V.—D. T. Fish.—J. Miller.—J. Anderson.—J. A. Watson.—J. Donald.—A Gardener.

THE LANDS IMPROVEMENT COMPANY,
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BATH and WEST of ENGLAND SOCIETY.—For the Encouragement of Agriculture, Arts, Manufactures, and Commerce.

Patron, H.R.H. The PRINCE OF WALES, K.G.
President, JOHN TREMAYNE, Esq.

The ANNUAL EXHIBITION of SHEEP, HORSES, PIGS, POULTRY, IMPLEMENTS, WORKS of ART, and HORTICULTURAL SPECIMENS will take place at SALISBURY on the 10th, 11th, 12th, 13th, and 14th JUNE, 1867.

JOSIAH GOODWIN, Secretary.
4, Terrace Walk, Bath.

BIRMINGHAM HORSE and HOUND SHOW.—The BIRMINGHAM and MIDLAND COUNTIES EXHIBITION of HORSES, PONIES, FOX HOUNDS, CARRIAGES, HARNESS, SADDLERY, &c., will be held in BINGLEY HALL, Broad Street, Birmingham, on TUESDAY, WEDNESDAY, THURSDAY, and FRIDAY, June 11, 12, 13, and 14. Admission on Tuesday, the day of Judging, 5s.; on Wednesday, Thursday, and Friday, 1s. For Excursion Trains, see the Companies' Bills and Time Tables.

MANCHESTER and LIVERPOOL AGRICULTURAL SOCIETY (Established 1767).—GRAND CENTENARY SHOW MEETING at Manchester, August 27, 28, and 29, 1867.

Special Prize List and Forms of Entry will be issued at the end of May.
T. B. RYDER, Secretary.
57A, Church Street, Liverpool.—April 23, 1867.

The Agricultural Gazette.

SATURDAY, JUNE 1, 1867.

MEETINGS FOR THE TWO FOLLOWING WEEKS.

WEDNESDAY, June 5—Royal Agricultural Society of England.
MONDAY, — 10 to FRIDAY, — 14 } Bath and West of England Society at Salisbury

THE publication of a Journal full of reports of steam cultivated farms has been followed by a very interesting discussion of the information thus collected and on steam cultivation generally. On the invitation of the Council of the Royal Agricultural Society, some 30 or 40 gentlemen who farm all over the country, between Northumberland and Kent, and between Gloucestershire and Essex, and who have adopted FOWLER'S, HOWARD'S, SMITH'S, and COLEMAN'S steam cultivating apparatus, assembled in the Society's room last Wednesday, and, after a preliminary address by the President, stated the results of their experience, not so much of the rival merits of the different machines employed, as of the main features characterising steam cultivation generally—its efficiency and its influence on general farm management, on fertility, on the labourer, and even on the landlord.

Mr. THOMPSON stated that faults had been found in his hearing with the collection of reports which the Society had published, because there is no statement of average results given. It is 10 or 12 years since steam cultivation has been adopted, some hundreds of farms are now cultivated in this way, and there ought now to be a settlement, by the comparison and averaging of results, of some of the questions on which a purchaser needs advice—as, for example, which is the best apparatus to employ, and what is the exact superiority of each over ordinary horse-power. Then, again, the best mode of laying out a farm, and of accommodating the general scheme of farm management to the new power, ought to have been stated, or ought to have appeared in a full report of so many instances. But in answer to this it was pointed out—1st, that averages are of no value whatever where the examples averaged differ widely from one another; and the experience of farms differs so immensely as regards soil and other circumstances that no collection of instances for the purpose of mere tabulation and extraction of the average result would afford any guidance for the steam cultivator. And, 2d, as to the information needed on the laying-out of land and accommodation of small-farm practice to steam cultivation, time enough has not yet been given for the growth of a perfect system under such experience as yet exists. There is but one man in the country who has had 11 years' experience of steam cultivation on his farm; and of all the instances reported there are but 33 who can speak of five years' practice. No wonder, then, that there has not yet grown up a perfect code of rules for the right administration and development of steam culture, and no wonder that the task of describing such a scheme remains still to be accomplished. Mr. THOMPSON concluded by recommending that the discussion on the published reports should turn on the questions:—(*a*) What is their most useful practical feature? (*b*) Does it appear from them that steam cultivation is successful as a commercial speculation? and—(*c*) In what direction does it now require guidance or assistance?

But it was hardly likely that gentlemen who had come for the most part prepared just to state their individual experience on steam cultivation should at once be able to apply it in the particular direction thus desired; and so the first speaker, Mr. RUCK, of Cricklade, declaring his perfect satisfaction with the reports which had been published, stated that he was unable to answer Mr. THOMPSON these questions; he would rather substitute another triplet:—What power can be extracted from 6*d.* worth of coals?—Is the work done by the steam power thus obtained equal or superior to that done by horses? and—Is the land made better, as proved by the superiority of its produce? And to these questions he made answer—that from 6*d.* worth of coals he can get power equal to that of one horse throughout a day—that two operations by steam power are equal to at least three by horses—that clay land is gradually, and light land almost immediately, improved by steam cultivation; the improvement being equal to at least 8 bushels per acre of additional corn produce per annum. Mr. RUCK uses Mr. FOWLER'S double-engine apparatus.

Mr. SMITH, of Woolston, followed Mr. RUCK. He had examined the published reports, and read them carefully, and he thoroughly approved of them. Trustworthy evidence had been collected, and the task had been well done—both by the reporters and by the several tenant farmers who had furnished their experience. And as regards Mr. THOMPSON'S second question, Mr. SMITH contended that the reports furnish ample evidence that steam cultivation has been a commercial success. Take the example of Mr. RANDAL, of Evesham—his tackle had been bought in 1857, and has been worked ever since. His own tackle had been at work for 11 years, and it is now the same tool as he had originally employed. The drainage of his land is improved by it—its cultivation is easier year by year. His cold clay land has not had a water furrow on its surface all these years; all the rain water sinks where it falls, and finds its way through the drains. *Of course* it is a commercial success—the land is deepened, more easily worked, and in every way improved. On his little farm three horses have never had full work since he started his steam cultivator, whereas six had formerly been fully employed. Certainly steam tillage will not altogether make up for manure, but it makes the natural stores in soil and subsoil more available. He now applies artificial manure to the surface of the land, and takes successive corn crops annually from it, confident that by steam tillage he can both clean the land and keep it fertile. The saving is great whatever system is adopted. Mr. PROUT, of Sawbridgeworth, had adopted FOWLER'S plan, and many others had long adopted the Woolston plan. Both had been successful; and he rejoiced in the success of both. It was little to him whether he ever sold another set of his tackle to any one—he had made his tackle not to sell but to cultivate his farm, in which it had thoroughly succeeded, and many therefore had followed his example.

Dr. VOELCKER followed Mr. SMITH'S remarks on the better drainage of his clay land, with the suggestion that possibly hereafter, when steam cultivation had done its work, even clay soils might be able to deal with all the water falling on them without the help of drainage. Mr. PROUT'S success upon clay soils near Sawbridgeworth had been so great, that it had made him bold enough to think that ultimately land drainage might not be needed on such land. It was evident, however, that on this subject Dr. VOELCKER'S expectations were not sympathised with by his audience.

Mr. BOMFORD, of Evesham, stated that having employed SAVORY'S double engines for some years, he was about to purchase another set of tackle for an outlying farm of clay land, with the intention of letting it out for hire when otherwise unemployed. Reference had been made to his case as one of unusual pluck, and this statement of the circumstances was necessary.

Mr. BULSTRODE, of Maidenhead, made by far the most interesting and instructive contribution to the discussion, addressing himself to a number of points arising out of the reports, and connected with steam cultivation generally. The question of first outlay is one of importance to the great majority of farmers. The direct system, which has throughout been patronised by the Society, is the most costly. It is no doubt the most scientific, and the best for large open areas; but its success in the show yard and trial ground has been greater than on farms, as evidenced by the fact that the prize tackle purchased by Lord BERNERS and Lord VERNON had in both instances been a failure. The "roundabout" cheaper system, though condemned by the Society, has been going on from year to year satisfying the expectations of large numbers of comparatively small farmers. While, therefore, the costly direct system may be the best and even cheapest for large farms, yet for farms of ordinary size, and for fields of ordinary shape, and for ordinary agricultural experience, he believed that the roundabout and cheaper plan of working tools by steam is thoroughly efficient, satisfactory, and profitable. But if the direct system is the best, under favourable circumstances, why should we not adopt it, and go in for hiring the tackle instead of buying it? To this there are two objections: (1), we dare not reduce our stock of horses, if we only have a chance of getting our work done in this way; and (2), unless we can certainly have the tackle when we want it, we are better without it altogether.

Mr. BULSTRODE alluded, in conclusion, to two points of practical importance, which steam cultivators ought to bear in mind. They should not attempt too much; it is better to get a certain depth of work done at two operations than break your ropes in trying to do it at one. And every care should be taken to avoid all unnecessary hindrances and delays. The fields ought to be prepared for the operation, and all helps for avoiding delays at the end of the furrows should be adopted. It is a point often greatly in favour of the stationed engine and windlass plan, that it can be placed by a tank or pond, and thus the very considerable cost and labour of water carriage is avoided.

Mr. EDMONDS, of Lechlade, had adopted FOWLER'S system for three or four years on a large farm; it had diminished the expense and increased the efficiency of his cultivation. He could not agree with Dr. VOELCKER in his remarks about drainage. Water falling on clay land must either evaporate, or flow off the surface, or flow through drains below the surface; and whether steam ploughed or not, it was necessary to such land that the last plan be adopted. On the light land portion of his occupation he had found an especial profit in steam cultivation; but a wider tool was necessary than we yet possessed, in order to gain the full advantage of it. He believed that good autumn cultivation, followed by a mere drag harrowing, or the use of a drag with scarifying teeth in spring, was all the tillage that most land needed. He lived in a county where coal cost 1*l.* per ton, and additional means of economising fuel in the engine are required. He also found on his clay land that roads are necessary to get the engines to and from their work. Under ordinary circumstances FOWLER'S tackle can be moved from one field to another with the aid of two horses in two hours' time.

Lord VERNON explained the failure of the prize tackle which he had bought at Newcastle, and to which Mr. BULSTRODE had referred. He had 2000 acres in hand of the very stiffest soil, and it was necessary to substitute stronger apparatus for the machinery he had first bought. This Messrs. FOWLER & Co. with great fairness had enabled him to do, and now his experience was perfectly satisfactory. He had now some of the most promising Wheat crops in the country after steam cultivation. He could not lay the blame of his failure in the outset on the Society—for

the judges at Newcastle, by whose verdict he had been guided, had done their duty thoroughly, and he quite agreed with their decision. The circumstances, however, to which he had introduced their prize implement had been so different that his experience was not to be wondered at. The Society had little by little urged steam cultivation on the attention of the agricultural world, and he believed that it had done great service to agriculture in this way.

Mr. HOLLAND, M.P., spoke of the need of dealing with the subject, not on the ground of first principles, but with special reference to the case of each farm by itself. Like the medical man who studied the particular constitution of his patient, we must apply our remedy to the individual farm. There are however certain leading influences which the system exerts, and the fruits of which, wherever it has been successfully adopted, must appear on all classes alike. It will necessitate on the part of the landowner greater attention to the equipment of the estate —fields must be enlarged, clay lands drained, roads made, and hedgerows removed. The greater intelligence and enterprize which it will call for in the tenants will enable them very soon to secure leases of these lands for terms of years; and the educated labourer whom it requires will command better cottages. In reference to a remark of Lord VERNON'S, about the staff of mechanics he employed, whose extra wages even when the tools are lying idle are in his case a charge upon steam cultivation, Mr. HOLLAND said that all his steam ploughmen and engineers are the ordinary working men of his home village.

Mr. JACOB WILSON explained that Lord VERNON'S experience on this point had arisen out of the fact that, commencing with only a small farm, he had not had a body of labourers from whom he might select efficient hands, and he had thus had to hire his mechanics from the steam plough works. Mr. WILSON has now for two or three years used FOWLER'S double engine apparatus, and finds that crooked hedgerows and winding roads are no difficulty in his way. He can cultivate any field, of whatever shape; coals, indeed, are very cheap in his country, only 3*s.* and 4*s.* a ton; and under his circumstances steam cultivation is a perfect success. He does not, however, want any the less manure upon his farm, he needs even more than formerly; for great as may be the increased fertility due to better tillage, the demands of the stimulated crop are greater still.

Mr. PEARCE BROWN referred to his experience on a farm of 2000 acres near Swindon. The steam plough is a fair-weather implement only. The question of cost has very little to do with the question of its adoption; for when used in fitting weather, the cultivation it effects is so much better that it is worth the cost, whether it be greater or less than that of horse power. The idea of doing without manure, whether horse or steam power be adopted, is mere moonshine.

A gentleman farming near Evesham stated that steam cultivation is being very widely adopted in that neighbourhood. Mr. HOLLAND'S example had told upon the locality, and now seven or eight farms, within a radius of five or six miles there, are cultivated in this way. He had adopted the Woolston apparatus, and it was perfectly satisfactory.

We have thus referred to only the principal contributions to this very interesting discussion, which was closed by a vote of thanks to the Society's Commissioners, on behalf of whom Mr. J. A. CLARKE, the author of one of the reports, replied. He said that the President had told them, some had expected to find at the close of the reports a decision of the question in some such terms as these:—"You farm so many acres of land of this, that, or the other quality and character; we therefore confidently recommend you to try Mr. A, B, or C's steam cultivating apparatus." But he thought that any such decision as this on the part of the reporters would have been both untrustworthy and mischievous. It was much better that every instance of actual experience should be described by itself, in order that intending purchasers might seek out the example which was most nearly a guide to himself, than that reporters, the influence of whose work depended very much on their reputation for disinterested fairness, should pretend to decide upon the relative merits of the rival manufacturers.

The suggestion made before the conclusion of the discussion, that the reports of the Society's correspondence be published separately in a cheap form, is one which well deserves the attention of the Council.

Mr. HOLLAND congratulated the Society on having given such a volume to the agricultural world, on which it was remarked that nothing has ever yet been given to the agricultural world in a 10*s.* volume. It seems that the number of the volume containing the reports can be had for 6*s.*; and that the reports are to be extracted and published separately for 5*s.* An experience of many years enables us to say that there is no greater delusion than the very common one that anything printed in a book or periodical is *published*. The Society has gone to very great expense to obtain these reports; and it is upon the *publication* of them that the serviceableness of its great outlay altogether depends. It is, therefore, a most suicidal policy which, for any purpose whatever, shall put any hindrance in the way of making known throughout the agricultural world the valuable results of this expensive inquiry; and we hope very soon to hear of a cheaper edition of the report than is at present contemplated.

CONTAGIOUS diseases, we are told, proceed from east to west, and, whether in obedience to this assumed law or not, the Cattle Plague in the Metropolis just now may be quoted as an illustration; the first outbreak which was recorded a few weeks ago, occurred in the east of London, since then the disease has progressed along the line of cattle traffic from the landing places of the port of London to the Metropolitan Market, and now it exists in the west on the extreme verge of the metropolitan boundary. In the neighbourhood of Notting Dale, cows have died during the last few weeks under very suspicious circumstances, and suspicion becomes almost certainty in the presence of the fact that a cow affected with cattle plague was discovered in Latymer Road, Notting Dale, last week. The animal, it appears, was taken ill while she was pastured in Wormwood Scrubs, and it is therefore hardly a matter for surprise that another instance of the disease has since been reported in an animal on the same pastures, which have been declared to be an infected place. At last, then, we have the Plague in a position from which its extension to the country is so imminent that the most rigid enforcement of the law is imperatively demanded. The hardship of the case is extreme: most of the 60 odd animals on the Common belong to comparatively poor owners, to whom no amount of compensation will be an adequate recompense for the loss of their livelihood; but every consideration must give way before the great danger which exists of the disease getting beyond the boundaries in which it has, up to this, been confined. An order has been given, we understand, for the slaughter of the healthy cattle on the Common, and we can only hope that the mischief which we see reason to apprehend has not already happened.

At Islington cattle plague has been for the time arrested by the slaughter of healthy and diseased cows in the two dairies in which the malady last appeared. In one instance 95 cows, and in the other 35 have been killed, and so rapidly did the epizootic spread among the herd that, in the first case, where the 95 cows were in the shed, 60 of them were attacked in a few days. Other cows, belonging to the same owners, but kept in sheds some short distance from the infected premises, have not yet been attacked, although they cannot be considered free from the risk of infection.

Meanwhile, there are anxious inquiries on all sides as to the means of repression. The disease may be eradicated when it occurs in a confined space by the simple process of slaughtering all the animals that are likely to come under its influence, but the agricultural interest demands something beyond the stamping out of the disease. The prevalent opinion among stock owners seems to be, that for the protection of home-bred cattle some more stringent precautions should be taken in reference to foreign stock.

Slaughter at the ports of landing has long been estimated as a panacea; whether it would prove to be so, can only be ascertained by making the experiment. There are two sides to the question, and the truth probably lies between the two extreme views, one of which represents our own stock enjoying perpetual immunity from imported diseases, while the other threatens the gloomy alternative of meat raised in price and becoming a luxury in which only the rich could indulge.

The last order issued from the Privy Council Office, to take effect on the 18th of June, is a step in the right direction. It provides that foreign cattle landed in England on their road to the Metropolitan Market must be kept at the landing place for 12 hours, and then be taken to the market, or the lairs, or such other lairs as shall be licensed by the Privy Council, by rail only, to within 1000 yards of the market. Next to slaughter at the landing places, these provisions appear to us to promise the greatest amount of security with the least interference with trade interests. A short experience will prove how far the arrangements will require modification, and should more radical changes be found necessary we do not despair of their being effected. The interests of agriculture, which are intimately associated with the prosperity of the country, must be held to be paramount, and minor considerations must give place.

—— AGRICULTURAL CO-OPERATION, in the sense in which Mr. LAWSON means it, is not likely to be a plant of natural growth. When proposed by a master to his servant, or when proposed at a time of difficulty by a body of allotment tenants to a landlord it may perhaps obtain commencement, and if carefully superintended during its earlier years its members may ultimately find their interest in it stimulated by annual success; and capital may grow out of industry sufficiently to meet the occurrence or the risk of loss which in agriculture more than any other occupation so often dashes the hopes and destroys the means of the employer. Co-operative trade or manufacture seems to be almost the only remedy for the ill-conditioned state of things between masters and servants, which the almost daily strikes in every trade reveal. And in agriculture, too, if ever that method of expressing the difference between the employer and employed shall become general, possibly co-operation may be called for as a cure. Masters and servants on the farm do however at present manage to accommodate their differences pretty satisfactorily, and in an occupation with so much casualty and hazard as agriculture presents it is impossible to look for success except in the employment of sufficient capital to tide over many inevitable losses; and this supposes the case of a master by whom this capital is owned. Agricultural Co-operation, however, in the sense in which Mr. E. O. GREENING* means it, may very reasonably be expected to succeed. The association which he proposes and which has been inaugurated by the Hon. W. COWPER, and Messrs. W. MORRISON, M.P., and THOMAS HUGHES, M.P., and three other gentlemen, taking 25 to 100 shares apiece and constituting themselves a Council under articles of association seems likely enough to meet an existing difficulty—and to save some at least of the large percentages which are at present lost between the manufacturer or the grower and the purchaser. If the gentlemen whose names are given above as the Council of Mr. GREENING'S Association do exercise any real control, if indeed the shareholders or "associates" have any means of making their views heard in the management, there can be no doubt that unadultered and genuine goods will be obtained for them by their co-operative association with that end in view, at a lower price than has hitherto been generally given.

—— As we are threatened with renewed outbreaks of the cattle disease, it may interest our readers to peruse an ancient account of a visitation among our sheep in A.D. 1274. It is the more interesting, as showing the disease was then of foreign origin; and though there seems to have been no fresh infection, yet the virus once introduced took almost a generation before it disappeared. The *St. Alban's Chronicle* runs thus:—"In that year an unfortunate pestilence among the sheep crept into England, so that everywhere on a sudden the folds were emptied as the disease made progress; which pestilence lasted for the 28 following years, so that no village in the whole kingdom was free from the destruction wrought by this calamity. The cause of this disease, previously unknown to the inhabitants, was attributed by many to a certain rich man who had come into Northumberland from quarters in France, bringing with him a Merino sheep affected with the disease, which by transporting the disease contaminated the whole of the English flock." *Isis.*

RATS.

HAS any one ever estimated the number of rats that prey upon the farmer's property? Allowing one to each acre, we should then have about 60 millions in the United Kingdom. As animals consume according to their weight, a full-grown rat would consume much grain in a year. But, unfortunately, it is not only what they consume, but what they destroy that concerns us. Said an old labourer's wife to me, "A rat has taken away in one night eight of my brood of young ducks, worth 8*d.* a piece. My neighbour, Mrs. B——, a small farmer's widow, cannot raise any poultry, for under her house is a honeycomb of rats' runs. She took them in a hamper into her sleeping room last night, and even there they tried to get them out."

I can testify to their destructive powers from experience. When they have young they will carry away and store up scores of young chickens, ducks, or turkeys in a single night, much the same as a cat having kittens. A friend of mine who had a little

* *Agricultural Co-operation. Articles of Association of the Agricultural and Horticultural Association*, formed to supply its members with implements, and machines, and seeds, manure, &c., 20, Parliament Street, Westminster.

rabbit warren opposite his windows, saw his cat catch a young rabbit. He followed her, and found that she already had laid up 36 that morning near her kittens. I have known of a brace of foxes taking 37 turkeys in a single night, and burying many of them up in some dung-heaps which were upon an adjoining field ready for spreading.

When hard pressed for food for themselves or their young, rats are very daring, and will attack large chickens and good-sized rabbits. I know a case where a youth was awoke in the night by a rat beginning upon his ear. Wherever stock are fed with meal or grain there the rats will surely come, to share, with the pigs especially, their Barley-meal and pollard.

When dining at Vintners' Hall with the late excellent Mr. Green, the great shipowner, he said to me:—"Mr. Mechi, I can beat you in pigs: I make a thousand a year by my pigs." I expressed my surprise, and said if I got their manure free of cost I thought myself a lucky fellow. "Well, said he, "I have only 60 pigs; before I kept these pigs the rats used to damage the sails of my ships to the extent of a thousand a year, eating every greasy portion. They now dine with or after the pigs, and never touch the sails." This hint may be useful to shipowners as well as to housekeepers, who find that the mice destroy the greased or stained portions of table cloths.

Rats migrate, and travel a long way in a night, in search of food. A neighbour of mine told me that he one night met a small army of them, some hundreds together. The carelessness of some farmers or their false economy causes serious loss to their neighbours. They may be called rat-preservers or rat-breeders. I used to pass frequently by two Wheat stacks which were completely honey-combed by the rats, whose paths into and up the stacks were visible from the road. Having consumed nearly all the grain, they left the stacks for better quarters. When threshed there was plenty of straw, but the corn was nearly "nil." Those who keep their corn in stacks for seven years (and I know of some who do so) had need have an eye to the rats. I have used a dozen iron stack frames (Garrett's patent) for the last 20 years, without any rats. The fact is, they cannot do without water, so if one gets into the stack he must come down to drink and cannot re-ascend. It is too common a practice to leave carts, ladders, or anything close to the stacks, thus affording access. As soon as these are removed, Mr. Rat must come down for water and cannot return. We always trim or shave our stacks (cost 1s. per stack) to cut off access from below, as well as for economy of corn and neatness.

Mice are more difficult to expel than rats, for they get into the sheaves at harvest time and are thus carried on to the stack. Unless poisoned by liquid immediately after putting up the stack they soon find out that they can exist by the 12 per cent. of water contained in straw and 11 per cent. in the grain. They also learn to avail themselves of dew and rain. In the spring and summer they will so multiply as to destroy or damage a large quantity of the grain, especially if left over-year. To show how animals can exist by the water contained in what is called dry grain and its straw, I will relate the case of a horse at Cressing Temple, a few miles from me, where a horse used for treading or consolidating the Barley in the barn, being left there all night, slipped down between the closely packed Barley and the boarded sides of the barn. In vain was search made for him in the morning, and it was concluded that he had been stolen. On Christmas Day, as the ploughmen came to attend to their horses, they heard the neighing of a horse in the barn, and after removing the Barley they found the lost horse as fat and as sleek as a mole. Thinking he must be very thirsty they ignorantly allowed him to go the pond and drink his fill, and in consequence he died. This is well known to many persons now living. The horse had gradually eaten his way into a comfortable space. But to return to our rats. They are most industrious and destructive burrowers: as they cannot destroy a solid brick wall they will burrow under it, unless the foundation is well connected; where beams enter the wall they will gnaw the wood. It requires a watchful eye to keep them under. Every hole should be noted, and plugged at once with a piece of tile or brick fixed with cement, or a piece or hard wood dipped in gas tar. Their runs should be tarred, and thus they will soon get disgusted with their quarters. Wherever a small heap of earth is thrown up near a wall, the run should be traced and at once stopped; lime and stones as a concrete conquers them. Loose lime they cannot work in, it blinds and disgusts them. In every barn and shed door there should be a round hole, about eight inches in diameter, so that the cats can have free access in search of the rats. It is at night they work, and they do so as much as possible under cover. They may be easily poisoned by strychnine, mixed with ground Barley or Oats, but before trying this they must be fed for several nights with the meal unmixed with poison. Rats are very sagacious, and had I space I could relate many instances of their cunning. It is a most dangerous thing to spread poison on bread and butter, for they carry it away; and I know of too many instances where valuable dogs, fowls, &c., have perished. Another inconvenience is that when poisoned they die in their burrows, which are too frequently under your drawing or dining-room, or in the walls. Their decomposition causes a most detestable and too durable stench. There is nothing like plenty of cats. I find male cats castrated when young by far the best rat-catchers, and by blocking the holes you give the cats a better chance of catching them. Traps may also be set, but they are very wary of them. Hollow walls are objectionable, so is thatch on buildings.

Water rats undermined the banks of my pond until I turned in a few pike, which soon converted rats into fish. A pike of 3lb. will take a rat and swallow him at once. Beware of pike where you have young ducks, for they enjoy them quite as much as they do rats. I had imagined that there was a chance of the rat biting the stomach of Mr. Pike; but, as an old angler, and examining the condition of the pike's stomach with a bait in it, I found that there is no fear of that, for instantly the stomach collapses like an elastic pitch-plaster, and not a single breath could the rat or any living thing draw. Pike always swallow their prey alive and head foremost. They are very fond of eels, and swallow them alive and head foremost. They always seize their prey across the middle, and, unless very hungry, hold them so for some time.

Rats find abundant accommodation and concealment under the old-fashioned wooden barn floors and dilapidated or thatched farm buildings. The modern system of asphalting upon concrete is an effectual barrier: they cannot gnaw it; their only chance is to burrow under between the ground and the concrete, and this, by a careful examination, may be easily prevented. A very destructive cunning old rat, that could never be trapped, was taken as follows:—Every hole except one was carefully stopped with gas-tar substances, and the trap set at the remaining hole. For two days and nights he declined coming out, but hunger and thirst at last compelled him to face the traps, and he was taken.

I very much commend asphalted floors to my agricultural brethren. It is so cheap and clean, and, above all, prevents any damage to corn, &c., by preventing damp arising from the earth beneath it. Cats such as I have will not only kill rats, but also weazels. The latter will destroy a brood of poultry in a night, if they have access to them. Of course every one knows the value of ferrets and a good rat dog. *J. J. Mechi, May*, 1867.

AGRICULTURAL MEMORANDA.

[A paper on "Agriculture in Common Life," was lately read by Mr. Whitfield, of Garden House, before the Chester-le-Street Farmers' Club, Durham, from which we make the following extracts]:—

1. Home-made Manure.—I believe it is now generally admitted that the best part of manure is in the urine; if so, it becomes of some importance how best to utilise this manure. A gentleman farmer would at once exclaim—why, erect your manure tank and pump, and convey it away by pipes or water cart, and spread it on your land. Now, I am quite of opinion that these tanks and pumps at all events ought to be permanent erections by the landlords on small holdings, but seeing such is not the case, my object is now to show how best we can do without such appliances. I believe it is now an undisputed fact that urine, if carefully collected, would bear a very large proportion in bulk to the bulk of the droppings. I believe it is equally certain that straw mixed both with urine and droppings will make a much larger quantity of good manure than straw mixed with droppings alone; while straw mixed with neither, but simply rotted down by water, will bear a very small proportion to either as to bulk of good manure. It is still a practice far too general (or at all events was recently) to set a day apart now and then to lead short or spoiled straw from the stackyards into the fold or middenstead, and in some instances in great quantities, when it is almost impossible it can get properly saturated with urine, or even with rain-water, to make it anything like good manure. Now, I have a perfect horror of seeing a stackyard littered with great quantities of straw, at all events after the stacks are all covered and finished. The plan I adopt and would strongly recommend (at all events for a trial) is to collect all the short or spoiled straw into a heap as convenient as possible to the cow byres and stable, but more especially the former; and every morning, as soon as the dung, &c., for the night is taken away, to have a portion of the aforesaid straw stowed neatly behind the cows, &c., which not only keeps the byres perfectly clean for the milkers, but also absorbs all the urine—which is carried out the next morning, and so on every morning in succession, making the quantity of straw used each time to correspond with the quantity on hand, so as always to have a supply. Because, to be successful, it must not be done, as it were, by fits and starts, but must be introduced and maintained as a system; and as fresh straw accumulates, by taking in stacks or otherwise, to have it regularly carried to the main heap, as aforesaid, and if properly carried out, it will not only take up all the urine, but also prevent those unseemly streams of liquid manure too often witnessed, which is an unmitigated nuisance. I also make a practice in mixing the cow and horse dung together as carried out, which I think makes better manure than when stored separately; but I am not eloquent enough to explain the reason why, except that the heat of the horse dung is qualified by the coldness of the cow dung. One thing, however, is certain, that if carefully mixed they make much more solid manure than when stored separately, especially the horse dung, which is very apt to get to a white mould when stored alone, but it is prevented from doing so when mixed together. It is a lamentable fact that of many farm onsteads far in the country, the chief thing aimed at is, how to get rid of the urine, which may be seen in sadly too many instances running down from the low side of the onstead, and absolutely destroying vegetation, and even in some instances injuring the quick Fences. The best that can be done in such cases is to alter its course a little now and then, and in some instances it is got as soon as possible to any little runner of water to carry it away. Another consideration which I think is of some importance, is to have the middensteads so arranged as neither to get too much saturated with rain, nor to let the urine escape more than can possibly be avoided. The plan I adopt is to have the bottom of the middenstead taken out considerably below the surface of the ground, but so sloped at the sides that laden carts can easily be got out, and not to let more rain-water from the buildings or otherwise enter the place than what is necessary to keep the manure in a moist state, but certainly on no account (if it can possibly be avoided) to let rain-water enter in such quantity as to carry off the liquid manure aforesaid. I am also very careful to have the manure as taken out spread on the midden, as I have no notion of having it lying in heaps like hay-cocks to dry. I am also an advocate for keeping the manure in the fold or midden till wanted to lay on the fields; but where the distance from the onstead is too great to be convenient in Turnip or Potato time, it is then necessary to lead it out in the winter season, and store it in the fields where it will be required; but in every case when this is necessary I would have it carefully put together and covered over either with ashes or soil of some sort, as I am perfectly satisfied if any person would count the loads led out of the fold or midden, and count the loads again when used, he will find a great many loads short, more especially when it is only in small quantity. I am equally opposed to turning manure heaps in the fields, as I am of opinion a great deal of the very essence of the manure is lost by so doing. Still I presume it is properly mixed in the middenstead; and when I say mixed, I simply mean the barrowfuls laid side by side, which will answer every purpose.

2. Live Fences.—A short time ago there was a great deal of prejudice amongst old farmers about cutting hedges. When I went to the north a few years ago and began to cut my hedges, all sorts of jeering remarks were made, such as "cutting hedges pay no rent," "a new besom sweeps clean," &c.; but I paid no attention to them, and had the satisfaction before I left to see nearly all the hedges in the neighbourhood cut. I am quite of opinion that to cut and dress the fences every year is cheapest in the end. No doubt, when fences have been along time neglected, they take a good deal of putting right at first; but when once properly dressed it is astonishing how easy they are kept if attended to at the proper time. Besides you get a good deal more land when the fences are all properly dressed up, and if the Thorns are not too far gone the more you cut them the better they become. Besides great ugly undressed fences are only fences in name, and are continually wanting repairing; and if once cattle and sheep get wrong in the summer season, there is no end of trouble with them, besides they seldom do much good when once unsettled; whereas when the fences are properly kept, either cattle or sheep very seldom attempt to stray, and consequently do much better.

3. Roads.—A writer says that good roads are a certain test of a high state of civilisation, whilst bad roads show the very reverse. Now, we all know the value of good roads when leading our hay and corn, and particularly in a bad season. Now, in keeping up good roads on a farm many things have to be taken into consideration, such as the nature of the soil, whether a high or low situation, and the distance of ballast of any sort for repairing them; I shall therefore only treat of the means which are within the reach of every one. Now, on almost every farm the stones, if carefully gathered and judiciously applied, will almost always keep the roads in tolerable repair. There is a great advantage, however, in this respect in having a farm bordered either with a turnpike or a good township road, where you can get in or out of a great many of your fields without encroaching as it were on any of the others, over a farm situated as it were inland, where every road path for leading in and out is necessarily in the fields, and will of course take a great deal more labour to keep them in repair. Still, if every opportunity is taken to repair them at a proper time, and in a proper manner, we should not often see such roads as unfortunately we sometimes come upon at no very great distance from towns. Still, after all that can be said in a general way, a great deal depends upon people making the best they can under the circumstances in which they are placed, or, as it might be termed, doing things by brains.

4. Tillage Land.—As far as I understand it (I speak only for small farms), I would strongly recommend the four-course system; and if Turnips can be grown, and the land is suitable, to have a considerable portion of them eaten on with sheep, which I am of opinion is the best and cheapest mode of improving light land. Besides there is a great deal less labour and carting when eaten on with sheep than when carted off and stored to be consumed with cattle; but as there must be a part so consumed to put down the straw, perhaps about half eaten on by sheep and half consumed by cattle may be the most acceptable. If the farmer is so fortunate as to have a fair proportion of Grass land, I am of opinion that sheep are the best stock for improving it also. But perhaps in this case also about one-half sheep and one-half cattle may be most generally acceptable. Another excellent method for improving Grass lands (especially if undrained) is to have a plough prepared to cut about 4 or 5 inches square out of every furrow, then carted into heaps, mixed with lime, and laid on the land the following year; and if the ridges are of the ordinary size, it will be an excellent covering; but if not needed for the Grass land, I understand it is an excellent substitute for manure for Wheat, but I have not tried it for Wheat myself. When the above is used for Grass, it should be got on the early part of the winter if possible; as if put on late in the spring and dry weather sets in, it is possible it will do very little good, if not absolutely harm. But if got on in autumn or early winter, it will in most cases be very beneficial. If got on early, I would recommend it to be well brushed in as soon as possible, and if brushed again in the spring it will almost entirely disappear, and the land will get the full benefit of it; but if put on late in the spring it remains on the surface, and I have known instances of it doing harm by raising dust when making hay in dry weather,

THE RINDERPEST—PRECAUTIONS AND REMEDIES.

THE following are Cattle Plague notes which were made in the course of last summer's ramble among English herds. First, as regards precautions against the disease. As soon as this broke out in Sussex, Mr. Dumbrell, of Ditchling, who had upwards of a hundred Alderneys in milk, commenced washing them all over every morning with a weak solution of chloride of lime before they were put out to graze; the same disinfectant was kept standing in earthern vessels behind the stalls; the feeding troughs and the drains were also sluiced out with it daily; and every cow was tarred just above the nostrils. This herd was in a position of no ordinary danger, as three owners of adjacent land were losing beasts, and the infected farms were only separated from Mr. Dumbrell's by a hedge. A fourth herd was also suffering within a quarter of a mile. One of Mr. Dumbrell's shippons was bounded by the high road on one side and by a footpath on the other, but the cows were kept as private as possible, and no fat stock was brought on to the farm. These precautions were attended with complete success.

Major Gunter's Wetherby farm was in a deeply-infected parish, and cattle were dying or being slaughtered almost daily, close up to the park gates, for months. Chloride of lime was used liberally, but the Major's main reliance was on the very strictest observance of the isolation principle. The Duchesses and the rest of the cattle were divided into several lots of two each, and placed in small sheds all over the six-hundred-acre occupation; the yards attached to these sheds were netted round the bottom, so as to keep out dogs, hares, rabbits, and other "travellers." The herdsman and his assistants never went near any other cattle or person engaged about cattle on any pretence whatever; and if the Major had been out hunting, or anywhere else in the country, he never entered the sheds until he had changed his clothes. One valuable bull was slaughtered after a slight accident, rather than run the risk of bringing a veterinary surgeon to attend upon him; and when the butcher came for fat sheep they were driven out of the field for him while he waited with his dog on the road.

The Warlaby herd were in nearly as great peril, and had an equally happy escape. For six months the plague was within 1½ mile of them, and nearly 300 beasts went down either by disease or pole-axe. The last outbreak was within 400 yards of the farm buildings, and the fate of this great herd seemed to tremble in the balance. Vaccination and MacDougall's disinfectant were freely used, but Mr. Thomas Booth's main reliance was on burning tar in braziers at several points of the farm yard. These fires were carefully looked to the last thing at night and the very first thing in the morning, and might have been smelt down wind for a couple of miles. So much for successful preventives—*quantum valeant.*

Secondly, as to remedies. In the case of Mr. Davies, of Mere Old Hall, near Knutsford, preventive measures failed, simply, as he believes, because, when the Grass came, he placed his cattle in the field for a short time time daily, out of the influence of chlorine gas. In this belief he is confirmed by the experience of his near neighbour Lord Egerton of Tatton, whose milch cows and feeding stock were subjected to the same treatment, but never allowed to leave the shippons. Hence, in spite of a severe attack of the plague on several farms in the vicinity of the Tatton Home Farm, they all escaped, while some of the West Highland bullocks in the park went down. Chlorine gas was quite the fashion in Cheshire, and as farmers were very "jealous" of contagion, every rural policeman carried, at the suggestion of Professor Stone, a wooden kit with him, as well as a waterproof bag, for disinfecting his dress. The kit had four compartments for bottles of muriatic acid, chlorate of potash, Stockholm tar, and "soap and sundries." The two former generate chlorine gas by contact, and a few drops of the tar poured upon some hot cinders will disinfect boots or clogs when suspended on a poker within reach of its vapour. The inspection dress is made of strong calico and fashioned like a diver's, and is fumigated and made ready for the next visit by putting it into the bag along with a perforated box in which chlorine gas has been generated and retained on pumice stone.

Mr. Davies' shippon is at the junction of three roads leading to Chester, Warrington, and Knutsford, and in the centre of a district through which the plague wended the same fatal way that it did in the last century—commencing near Warrington, and coming along the low ground. In the small township of Tabley alone 662 beasts died; 41 were slaughtered, and only 20 per cent. were left. It skipped some farms and attacked others, and it would sometimes in its later stages take one cow, and return to the same herd for another victim at the lapse of three weeks. Cleanliness was of no avail, and some of the very worst-kept shippons escaped. Mr. Davies' precautionary efforts were unintermitting from the first; every beast about the place was vaccinated; hyposulphite of soda, beginning at 3 lb. and so on to 5 lb., was mixed for four or five months in 100 gallons of water; and chlorine gas was used night and day in the shippon. Sawdust was substituted for straw, in consequence of its absorbing the *fæces* better, and being so much more easily removed. The cattle were never more blooming than when they were turned out in the middle of May, for a few hours daily, into a field adjoining the shippon and abutting on the high road. There was no infected farm nearer than a mile, but at the end of three weeks an Alderney heifer was taken ill, and died in 36 hours. She had no symptom of illness about her except a slight discharge from the vagina, and until the veterinary surgeon opened her he thought she was ruptured. The bull by which she had been recently served was slaughtered immediately, but there was no arresting the evil, and in two days more nine or ten were down with it. Leonora, from Mr. Jolly's, was the first decided case, as they found her one morning with her back up, her coat staring, and her head and ears drooping; but Lady Best, from the late Mr. Langston's, Minstrel from Holker, Heiress from Mr. Hales', Cherry Empress from Mr. Logan's, and Water Girl from the late Mr. Anthony Maynard's, soon followed suit. They sickened for three or four days, and on the fourth there was a strong discharge from the nose, eyes, and vagina. They could neither lie nor stand; their legs and heads were never still, and their moanings were sad to hear. They would become feverish, and then shiver like a man in the ague, and their *fæces* were quite lax and costive by turns.

As they were very valuable stock, and Cheshire was at its wit's end in the hope of discovering some alleviation or remedy, the local committee consented to have them treated, but everything was useless except the iodine ointment, a compound of iodine, mercury, and lard, which was recommended by Mr. Lawson, veterinary surgeon, of Manchester. His object was to set up a counter-irritation if possible, and the ointment rubbed twice or thrice a day on the chest gave apparent relief. When applied in the early stage it seemed their only chance, but unfortunately it was not thought of till some of the best had died. The climax was generally on the fourth day, and those which died often lingered on about three days more. One old cow of the Towneley blood fought on for upwards of a fortnight. When the turn for the better came, frequent doses of Oatmeal gruel were administered. Up to that point they could not be got to take anything, as their mouths were sore with inflammation, and they did not even notice water. Countess of Barrington and Surmise were never so ill as the others, but they wasted to skin and bone, and it took them and seven others (which had all been treated with iodine ointment) several weeks to recover their bloom. None of these nine survivors out of 36 were able to carry their calves, but slunk them, a perfect mass of putridity, after which they "came to hand" much quicker.

Mr. Aylmer, of West Dereham, grounded his treatment entirely on the administration of chloroform. When the plague broke out on this gentleman's farm last April, 16 store bullocks were immediately slaughtered; and of his Short-horn herd, which numbered 90 head, five died before treatment, and six were not attacked, while 41 recovered, and 38 died under chloroform treatment. On April 4th the disease showed itself by simultaneously attacking Easthorpe Rose in the home shippon, and then Easthorpe Lady in the fen (which is 1½ mile distant); and on the 11th Henrietta was taken ill at the White House Farm, within 300 yards of Mr. Aylmer's residence. The herd, which its owner always regrets having turned into the fields so early, was, like Mr. Davies', of far too much value to be given up to the pole-axe without an effort, and hence, by the advice of Mr. Anthony Hamond, and with the ultimate sanction of the Privy Council and the assistance of Mr. Robert Overman, of Egmere, who had cured six by that agency already, Mr. Aylmer determined to try chloroform. "A friend in need is a friend indeed," and with very occasional absences, Mr. Overman worked day and night at West Dereham for nearly two months. They commenced on the 12th, when five had gone down, and a staff of 17 or 18 men were soon in regular hospital work.

The cattle were kept as warm as possible, and covered with sheets in their sheds, which were made still more snug by hanging curtains of sail-cloth or sacking in front of them, and the disease was always allowed to develop itself in the mouth before the treatment began. They were also kept on as short commons as possible, and their mouths were examined the moment their appetites failed. Still there was no exact rule in the matter. Some were heavily smitten and full of mouth symptoms when the appetite was good and the dew was on the nose. The fat cows were uniformly the worst cases; and the one ear down, the drooping eyelid, and the nervous twitch of the head, were among the sure and certain symptoms of seizure. Some became quite mad with pain, and broke their horns and tore out their teeth with convulsive rushes at the manger; whenever the air lodged in the tissues, the skin was swollen up some inches from the flesh, and nothing could bring them round.

It was found in practice that the chloroform acted best on an empty stomach, and that it could be applied too soon after the premonitory symptoms. A white steer, among others, which inhaled for seven days, and relapsed at the end of a fortnight, was certainly dealt with too soon. In fact, looking back upon the cases, both Mr. Aylmer and Mr. Overman believe that with their present experience they could have saved many more with half the quantity of chloroform. The bulls were as easy to chloroform as the cows, and they were one and all cast and bound, to prevent them breaking their horns. With some young bulls the chloroform acted too severely on the kidneys, and fatal inflammation of the bladder and urinary canal set in. After this, diuretics and alkaline solutions were used to neutralise the salts of the urine, and in two or three cases it had the desired effect.

Full-grown beasts had an ounce of chloroform administered to them each time, calves a quarter of an ounce, and others in proportion to their age. A saturated handkerchief was simply put in a bag, which was hung close under the nostrils, and tied by a string behind the poll. Five to seven minutes was generally sufficient to produce insensibility, and the cattle were kept under the influence for periods of from half-an-hour to two hours. Seven or eight doses upon the average were generally found sufficient to effect a cure. Rosa Lee had 74 inhalations between April 19th and June 18th, and five others had from 48 to 60. General Hopewell, which was hired from Mr. Thomas Booth at 200 guineas for the season, was a very anxious and curious case, as his general external symptoms were healthy, but his mouth very bad. He was only ill three days, and had six inhalations, but his cure became hopeless, and he was killed on the fourth. Master Jolly fought hard for a month, but 52 inhalations only kept the disease under, and failed to cure him.

The leading effect of the chloroform was to convert the breath of the cattle from a very foul into a perfectly pure state. Before the administration the stench from their fevered mouths was fearful, and in a few minutes the breath became "as sweet as a nut." The inflammation of the mouth also seemed very much subdued, and the blood-shot fiery eye, under its influence, gradually grew quite natural again. It appears to neutralise the poison in the system, while the suspended vitality gives the constitution rest, and enables it to "spar for time." The fever usually returned in not less than twelve hours, and if it kept away for more than 48 they were generally safe, and ready for Linseed tea, Oatmeal gruel, and other stimulants. Still the disease was most treacherous. They would rise up, eat hay, and drink water after chloroform as if nothing had happened, and then, when everything seemed to be going on well, they would relapse and become as ill as ever. However, after all this care and anxiety, Mr. Aylmer found himself, before July, with a clean bill of health, and with upwards of 50 per cent. of those which had been treated alive and well in their stalls. All of those which were in calf went their full time, and the calves showed no traces of the crisis through which the dams had passed. The treatment was originally suggested by Dr. Dickson, author of "The Fallacies of the Faculty." Such are the principal facts as to precautions and remedies which I gathered in the course of my tour. *Mr. H. H. Dixon, in the Royal Agricultural Society's Journal.*

THE FLOUR OF WHEAT.

[At a recent meeting of the General Committee of the Society of Arts, on the Food of the People, Professor Wilson laid before the Committee the following information on the subject of bread-food and the nutritive properties of Wheat, more especially with reference to a system of grinding and dressing corn and the process of panification which had resulted from the investigations of M. Mège-Mouriés, of Paris.]

PROFESSOR WILSON stated that he need not go into the question, as to the different properties of alimentary substances, which might be divided into two classes—one which subserves the plastic purposes of the body, and the other which subserves the respiratory process generally; and that for healthy life these must be had in definite proportions, these proportions being about six of the respiratory aliment to one of the other; Wheat, better than any other grain, possesses those two alimentary principles in the proper proportions; consequently Wheat has been generally looked upon as the bread corn of all civilized nations; as people progress in civilization they give up the old Barley and Rye, and employ Wheat solely for that purpose. About 12 years ago (1853-54) M. Mège-Mouriés directed his attention to the composition of the grain of Wheat, and to the processes of grinding and of panification, and the results he obtained were sufficiently important to form the subject of a report, which was presented to the Academy of Science by M. Chevreul, in 1857. The object of M. Mouriés' investigation was to show the defective knowledge and the waste of material in the ordinary practices of the trade; but, although these were fully proved by his results, there appeared to be trade and other difficulties in the way of its general adoption; for, with the exception of some of the large public establishments in Paris, including the Ecole Polytechnique, the Ecole Normale, and the Lycée St. Louis, where it was carried out with marked success and advantage, no good has practically resulted from the principles he so ably marked out and made known to us. In the summer of 1865, while acting as juror on food substances at the Dublin Exhibition, Professor Wilson's attention was recalled to the subject by an article which was exhibited under the name of "Cerealine," and purported to be a preparation of Wheat flour by the process indicated by M. Mège-Mouriés. On examination this preparation replied to the tests in a very satisfactory manner, so much so, indeed, as to induce them to verify them by a determination of the nitrogen it contained. This confirmed the opinion they had previously formed of its food value. On further inquiry he found that a simple mechanical process had been devised in the United States, (where, indeed, the flour exhibited had been prepared,) for effecting the most difficult part of M. Mouriés' process—that of decorticating the grain. This renders the operation of preparation so easy and so inexpensive as to make it desirable that attention should again be called to M. Mouriés' process, for, besides being far more philosophical, it unquestionably effects a large saving in a food point of view, as compared with the ordinary practice of mealing. Before describing M. Mouriés' process it may be well, for the purposes of comparison, to give in a few words a rough outline of the ordinary process of grinding, bread-making, &c. The Wheat is taken in its natural state, and submitted to the friction of two stones between which it is placed. It is then passed through sieves for the purpose of—1st, separating the bran from the flour; and 2d, of separating the finer from the coarser portions of the flour. We thus have three principal divisions; the two latter again are sometimes further separated, and various names—boxings, shaps, &c.—given to them. The bran averages from 14 to 15 per cent. of the whole weight, the relative proportions of the residue vary according to the differences of separation. In examining the composition of the grain of Wheat M. Mège-Mouriés found that it was a far more complicated structure than was commonly understood. This structure consists—1st, of an outer covering or epidermis; 2d, epicarp; 3d, endocarp; and that these

three layers consist chiefly of ligneous tissue, and form the extreme covering or true bran. Together they average from 2 to 3 per cent. of the weight of the Wheat. The three outer, or ligneous tissues, are valueless for food. They contain a certain amount of nitrogen, but are indigestible; and are not only valueless as food, but do harm as local irritants. These are distinct from the ordinary bran of the mealing process. Beneath these come, 4th, the "testa," or seed coat proper, which is a distinct cellular tissue of a dark colour, yellow or orange, according to the description of the grain. Next to that comes the embryonic membrane, directly connected with the germ, which, indeed, it supplies as soon as the vital processes of growth are excited. These two enveloping membranes contain nitrogenous principles in larger proportion than the interior portions of the grain; and as we go from the exterior coverings to the centre and follow the starch granules, the amount of nitrogenous compounds diminishes. The ordinary bran not only consists of the "epidermis," or true bran, but also contains the whole of the nitrogenised tissues enveloping the starch granules, and always a certain proportion of them also. Indeed, it has been found commercially profitable to purchase bran and separate the starch or flour from it; from 5 to 6 per cent. of flour are thus often obtained. As already stated, the ordinary bran averages from 14 to 16 per cent. of the weight of the Wheat. It is the same in the case of the Potato. We throw away a good deal of valuable food in the peeling of Potatos. We ought only to remove the epidermis. Simple experiment shows that. The nitrogenous compounds do not exist in the starch granules, but they envelop them. As you approach the centre of the Wheat grain the starch cells do not contain so much nitrogenous compound as the other tissues. He might further state that the embryonic membrane plays the most important part, both in alimentation and germination. That is the active agent of decomposition during the process of panification. The outer covering of Wheat when immersed in water speedily becomes saturated with water, but if salt be added, the solution only penetrates so far as this membrane, where it is arrested. These two inner tissues contain nitrogen in large proportions, and envelop the mass of starch cells which form the body of the grain. Ordinary flour is composed entirely of these interior starch cells, the remaining portions of the grain being separated in the shape of bran, and carrying away with them at the same time a proportion—generally 5 or 6 per cent.—of the flour also. M. Mouriés found that the proportion of nitrogenous compounds in the grain was very unequally divided; that while in the epidermis proper it was least, it existed in larger proportions in the two next layers than it did in the starch cells or flour of the interior, and consequently, if we would preserve the maximum food properties of the grain, we must return and combine those two layers with the flour, and not waste them by separation with the bran. In the starch cells or flour too the nitrogen was found to diminish towards the centre of the grain, where it was at its minimum, and where of course the flour, though finer and whiter, has the least nutritive value. This is known practically by the fact that the finest Wheat flour will not combine with so large a proportion of water in bread-making as the second quality will, though it may not be so well known that the cause is due to the smaller proportion of gluten present. It has been found by experiment that the finest flour will not take up more than 20 per cent. of water, known as *pain blanc;* that the second quality will take up 30 per cent., *pain de gruaux;* while the third quality, with which a portion of the ordinary bran is always mixed, will take up 40 per cent., *pain bis.* M. Mouriés, therefore, recommends that the grain should be merely decorticated previous to grinding, and that the layers of cells, so rich in gluten as the testa and embryo membrane, shall be ground up with the starch cells, and form part of the flour used for bread and other food purposes. The bread thus made absorbs more water, rises from 20 to 30 per cent. more, and is more nutritive as well as digestible. Gluten is the nitrogenous property of the Wheat, and by the greater absorption of water by the flour in which it is present, weight for weight of flour there is a gain, in the greater number of loaves produced from a given weight of flour, and that would be the baker's inducement to try this process. It would be at the same time more nutritious, owing to the greater proportion of nitrogenous matter the loaves contain. The loaves will contain more water, but the extra proportion of nitrogenous compounds will counter-balance that. One hundred parts of flour of this sort will make say 140 loaves, whereas 100 parts of the other flour would only make 100, and every one of the 140 would be more nutritious than the other. This process may be said to add 60 per cent. to the nutritive value of the flour, while the bulk is only increased 40 per cent.

The true bran, according to M. Mouriés, consists of only the outer coverings, the ligneous tissues, which represent 3 to 4 per cent. of the whole. He was only speaking of the Wheat as it is in the market; and as we are told we shall probably require 8,000,000 quarters of foreign Wheat, it is a matter of vast importance to utilise the grain to the utmost extent it admits of. There is another point of importance in connection with M. Mouriés' process, in regard to the storage and preservation of Wheat. It appears that the outer covering—epidermis—absorbs moisture far more readily than the regular cellular tissues of the inner layers, and this renders the grain more or less liable to mould and other injuries, unless great care be taken by occasional shifting, &c. If you soak Wheat grains in water, you will find that the water is readily absorbed by the outer or ligneous tissues, and when you come to the inner tissue there is no longer the same tendency to absorb; consequently, if you moisten the outside surface, and rub it gently, you will rub these tissues off the grain, and the grain will come out in this shape [producing specimens of decorticated grain], that is, the absorbent envelopes will be taken off, and nothing will remain but the cellular tissues: and in that state Wheat may be kept stored for any length of time without its quality being impaired. On the Continent this question is more important, where they have Government stores of Wheat to last for 12 months, whereas we have free markets. When the Wheat is decorticated it can be kept for years without a chance of mustiness or mould getting on it. He would give the Committee the relative values of these different preparations [referring to samples on the table], assuming that the proportion of nitrogenous compounds determines the nutritive value, and that is what we usually go upon. This sample of true bran or epidermis was taken from a very coarse sample of red Wheat, and no doubt it exists in larger proportions than in the finer samples of Wheat. The true bran contained 4.571 of nitrogenous compounds, the ordinary bran of the market contained 15.019. These analyses were all carried out last winter in Edinburgh. Of ordinary market flour he got three samples, and made an analysis of each, and he found they contained on an average 9.795, whereas the flour prepared by M. Mouriés' process contained 15.672 per cent. of nitrogenous compounds, showing an excess in nutritive value of 60 per cent. over the ordinary flour. The average proportion of bran is 14 to 15 per cent. while by M. Mouriés' process it is only from 3 to 4 per cent.; we thus have a result of 10 per cent. addition in weight and 60 per cent. more of nutritive properties than by the old process, and at the same time we deprive the Wheat of those portions which render it not so well able to be kept. As he had already stated, Wheat, by this process of decortication, has less affinity for moisture, and may be stored with less risk. The flour contains more gluten, absorbs more water in panification, and makes more bread, which retains its freshness. All smut and other dirt from insects or otherwise is removed, and the phosphates as well as gluten are preserved. The gluten obtained in starch manufacture has been utilised by mixing it up into bread, with ordinary flour, and thus greatly improving its quality. In this case the same result is obtained by simply not losing it in the ordinary bran. M. Mouriés' plan has, in fact, more nutritive value than the actual whole Wheat, because you take away this three or four per cent. of what is no good whatever, and the 96 per cent. left behind contains a higher per centage of nutritive value than the whole Wheat does. Thus it appeared to him that M. Mouriés' process increases the quantity of food material obtained from wheat by at least 10 per cent., because here we have only 4 per cent. of valueless matter, while in the ordinary process we have 14 per cent., so that we get an improved quantity of 10 per cent., and when we come to the manufacture of flour we get an improvement of 60 per cent. upon the value. M. Mouriés' flour was found to be equal to 15½, whereas the ordinary flour was equal to only 9¾. The grain would weigh heavier, bulk for bulk, after decortication, as it would pack closer, owing to the smoothness of the surface. We find that the nearer Wheat assumes the form of a sphere, the heavier it is per bushel, and the specific gravity of the grain is a market test of its quality. Chidham Wheat is heavier than Talavera Wheat, and yet the latter usually fetches a higher price in the market. A bushel of Talavera Wheat weighs about 65 lb., while the same quantity of Chidham Wheat weighs from 65 to 68 lb. That is determined chiefly by the shape of the particles. No doubt by this process the shape of the grain is altered, because in Wheat in its natural state there is always a little beardy roughness, which, though invisible to the naked eye, exists, and increases the tendency to fermentation when affected by moisture, and also prevents the particles lying so close together; therefore, he should say a bushel of decorticated Wheat would weigh 5 lb. or 6 lb. heavier than ordinary Wheat.

Mr. Read observed, with regard to the commercial value of the bad portions of the grain—The price of flour for the last 10 years averaged 1*s.* 3*d.* per stone, while the price of bran was 9*d.*; therefore, though the latter was lost to the human race, it was not lost to the animal world, because it took the place sometimes of Wheat meal when it was cheap relatively to other grain in the feeding of animals.

Professor Wilson said that the animal organisation was better adapted for it than our own. They got rid of it easy enough. An animal, out of 14 lb. of ordinary bran, would appropriate 10 lb., and 4 lb. would be expelled in the shape of manure. The ruminating process could not convert this into food value at all. Professor Wilson then proceeded to describe the process of decortication as follows: The Wheat, he said, is carried up to the topmost floor, then passing through a screen, or riddle, it falls through a hopper into a long narrow trough which contains water, and is traversed through its length by an Archimedean screw. This carries the Wheat slowly along the trough to the discharge end, where it now, in a moistened state, falls down a tube to the unbranning or decorticating cylinders. These are formed of cylinders of cast iron, ridged on the interior diameters, and with closed ends. A screw shaft traverses the centre of them, carrying broad arms, or floats, set at an angle diagonal or "aslant" to the face of the cylinder, and with a diameter so much less than that as to cause friction, but to allow the grain to pass without crushing. A rapid rotation is given to this central shaft, and, owing to the angle at which the floats are set, a slight progressive motion is given to the grain. The friction causes a large proportion of the true bran—epidermis, epicarp, &c.,—to be separated, and this is removed as it is separated by a blast driven through the cylinder in a direction contrary to the motion of the shaft, which also has the effect of drying the excess of moisture of the grain. The grain then passes along a spout into a second cylinder, where it undergoes the same process, and finally is carried into the drying chambers, composed of a series of iron troughs, along which it is propelled by screw shafts, a current of warm air being driven along them in an opposite direction. It then, being dry, receives its last friction in the polishing cylinders, where the friction is applied to the surface of the grains themselves, which are left in a dry, smooth, rounded form. As this generates a considerable elevation of temperature, the grain requires to undergo a cooling process before storing or using. This is effected by carrying it up to the upper floor, and allowing it to fall down inclined planes through a flat shallow shoot, up which a blast of cold air is driven. With regard to the grinding of this prepared Wheat, there are some advantages over the old system. In ordinary grinding, Professor Wilson continued, there is always a mechanical difficulty in arranging the stones. The aim of the miller is always to produce the best flour, and he has to grind it in such a manner as not to crush and cake the meal, not to allow it to heat between the stones, but to granulate it perfectly and evenly throughout, giving it the wiry feel characteristic of No. 1 flour. If set too close, or if the stones be dull, the flour cells are crushed rather than granulated; it has a soft unctuous feel, and is then termed "killed." In that state it never mixes well, will never work up properly, or rise well in the oven. If the stones be too keen or sharp they are apt to shave and cut up the bran into fine scales, which speck the flour. Therefore, the successful miller has to steer between dull bran with deadness and sharp bran with speckiness. By this process the true bran (epidermis) is all removed and the stones have to act on a gluten surface and not on the bran, and consequently the latter risk is avoided. In baking, care should be taken not to let the dough stand too long, as is frequently done, and not to have the oven too hot at starting. The bread rises 25 to 30 per cent. more than when made with the ordinary flour, and if the heat is too great at first the crust hardens, and the panification forces the loaf out of shape. This process adds at least 10 per cent. to the weight of the food portion of Wheat, while it increases the nutritive value of the flour about 60 per cent. These proportions in all probability admit of some modification, as the flour and the bran of the ordinary process of mealing were obtained in the market, while the flour and bran of M. Mouriés' process were, no doubt, obtained from a finer description of Wheat than that grown in our climate. This, upon the Wheat consumption of the kingdom — say, 20,000,000 of quarters—is a matter of considerable importance. By this process you get a large increase of food value, but you do not get the white bread which is so universally eaten in this country.

Mr. Chester inquired whether Professor Wilson could give any practical suggestion to the Committee whereby the process could be brought into notice, and whether he was aware of any public establishment, in any part of the country, where, on the advantages of the process being demonstrated, it was possible a trial of it might be induced?

Professor Wilson replied that he was not prepared with any suggestion at the moment. It was hardly a matter for private enterprise. It was a matter which might be represented to the Government or the Poor-law Board. There was no gainsaying the advantages that were derived from the process; and it might be put to them whether it was worth their while to direct a trial of it in some of the poorhouse establishments. The decorticating machinery would not be very expensive. In the first instance public prejudice to this flour would have to be overcome; he feared that it would take some time to bring the flour into favour with the lower classes, who have a proverbial preference for very white flour. It was computed that we should require this year foreign supplies amounting to eight millions of quarters of corn, whereas five millions of quarters treated by M. Mouriés' process would be equal in food-value to eight millions treated in the ordinary way. He added that he was thoroughly satisfied with the philosophy of the subject that it was sound, and it was owing to the circumstance of his acting as a juror on food substances at the Dublin Exhibition that his attention was called to it by seeing some of this article, the value of which the Americans were keen enough to recognise. *Journal of the Society of Arts.*

Home Correspondence.

The Committee on the Malt Tax.—This is better than nothing. It keeps the question under "agitation," which politicians now so much approve of. But what is the Committee to do? Can they obtain any extensive information which is of greater value than is already known? Will the Committee be able to throw any new light upon the subject? We can only hope they will. This they will do, and so far it will be exceedingly serviceable,—they will bring the whole question from first to last once more before the public—yes, a thinking and right-judging public—who upon being shown the rank injustice of such a tax, will pay but little regard to Chancellors of the Exchequer, and at once proceed to its repeal. The general public will alike repudiate the tax on "drink" as they would upon "meat." This will ere long be the result. Colonel Barttelot has obtained a Select Committee to inquire into the operations of the Malt Tax. I will endeavour to put in the form of direct objects and questions what this Committee should more particularly inquire into to make it complete. The origin of the tax—the amount first imposed—the sum realised—the subsequent additions to the original tax, and when increased—the variations in subsequent taxation, reductions and increase—the effect upon the price of Barley under these various alterations—their influence

upon the quantity of beer brewed or malt used—the actual or estimated number of acres of Barley grown under these circumstances. This would show in farm practice the plain results; for farmers as a body soon learn to grow the crops that pay best. In the form of questions I will now put down what appears to me the chief business of the Committee for present guidance. What is the number of acres now under culture for Barley, and the annual produce? Would the quantity be greatly increased if the duty was removed? Is English Barley superior to foreign for malting purposes? Will much inferior Barley be malted upon the repeal of the duty? Would much inferior malt be used for live stock? Would great alterations take place in rotations of cropping in order to produce more Barley, upon the repeal? Would not the price of best Barleys be greatly enhanced, and the price of inferior Barleys partake of like benefit? Has the price of Barley gained relatively upon the price of Wheats in the past few years? What is the actual tax upon malt at the present time as taken by the Excise in their peculiar modes of assessing it? Would a tax upon Wheat-flour be synonymous with the tax upon malt? *i. e.*, Wheat made into flour, Barley into malt. How, then, is it shown that it is not a tax upon the producer of Barley? What would be the effect of a like tax upon Wheat-flour? What is the cost of collection by the Excise? Does not the interference of the Excise operate against malting for cattle? Would the change of taxation from malt to beer be advantageous and cost less in the collection? Would a partial reduction be of much avail if the restrictions in malting are kept up? Would this partial reduction recoup the revenue to any extent by an increase of consumption? Would it tend much to the increase of a foreign trade in beer? What is the total amount of duty now realised? Does not the large increase in duty prove a great extension in the consumption of beer both at home and abroad? Does not the heavy duty lead to great monopolies in the brewing and malting business? What has been the reduction both of brewers and maltsters in the past few years? Would not the repeal lead to an increase of both departments, and consequent useful competition? What is the quantity of Barley malted and of beer consumed annually? Would the tax be best upon malt or beer? What are the adulterations practised, and to what extent? What are the chief ingredients used? Is sugar extensively used in brewing? What would be the effect of the repeal upon the distillation of spirits? What is the drawback, and how charged, upon the exportation of beer? Ought the common brewer to be charged a licence? Would there be much danger in allowing private and cottage brewing without a licence? Would not a daily supply of beer be a boon to the labouring poor? Will drunkenness greatly increase under such arrangements? Would the labouring poor brew at their homes, or join in companies for that purpose? What has been the result of charging the duty by weight instead of measure? Have farmers taken advantage of the privilege of malting for cattle? Can the revenue be replaced by other taxes less objectionable? These questions, &c., I have penned down as my humble contribution towards obtaining a repeal of the odious malt tax, the last great burden upon our agriculture. They have simply struck me as the more important matters for investigation, although not requiring all the abilities and urgent attention of a Select Committee of the Commons House of Parliament to set them before the public. *O. F.*

The Continuance of Cattle Plague, and on the best method of eradicating it.—Dr. Crisp thus describes his correspondence with Government on this subject:—In my first letter (September 21st, 1865) I advised the stoppage of all movements of cattle and the establishment of dead-meat markets in all our large cities and towns. In my second letter (September 30th) I advocated the establishment, for a short period, of one experimental hospital to test the efficacy of disinfectants and internal medicines; a plan long after resorted to by the Government on so small a scale that it was entirely useless. In my fourth letter (October 30th) I was the first to point out the exanthematous nature of this disease (Pathological Society, October 17th, 1865), which has little or no resemblance to typhus or typhoid fever, as stated by the Government advisers; that the meat of animals (sheep and oxen) suffering from cattle plague, as shown by experiments upon myself and upon the lower animals, has no injurious effect when used as human food; that sheep, as shown by the report of 27 autopsies made by myself, were liable to cattle plague, and that these animals should not be driven along public roads (October 31st, 1865); that so-called disinfectants are nearly if not altogether useless, and that heat and exposure to the air are the best means of eradicating the poison (December 26th, 1865); that hounds and hunting have been the means of disseminating the disease to a great extent. In my eighth letter (January 8, 1866) I was the first to point out the non-identity of small-pox and cattle plague; that the only way to eradicate the disease was to kill and compensate, to slaughter all foreign sheep and cattle at the ports of landing, and to keep all store animals in quarantine. I need not again dwell long on the dilatory nature of all the proceedings for the suppression of this murrain. The passiveness of the Royal Agricultural Society; the non-assemblage of Parliament for eight months; the "patient" trusting to local authorities and their divided counsels; the suggestion of the Royal Commissioners that inspectors should not have the right to slaughter; homœopathic delusions and garlic disseminations; the assertion by four members of the House of Commons (February 21st, 1866), that sheep could not be affected with cattle plague; the order to tie up single dogs in Ireland and to allow of their hunting in packs in England; these and many other inconsistencies and short-comings I could, as I have said before, dilate upon; but let me proceed to the practical and more useful part of my letter, viz., Why does cattle plague exist in this country? and how is it to be got rid of? The first question, I think, is easily answered: Cases occur from the disturbance of the dormant poison, and the bringing it into active life; but more frequently from the introduction of foreign sheep and cattle from the Continent of Europe. According to the last return now before me, during the week ending April 20, two fresh outbreaks of cattle plague have occurred in Derby and Lincolnshire; and here let me point to one important omission in these returns, viz., the want of information respecting the origin of this disease. We are told week after week, in a stereotyped form, that a certain number of animals have been attacked, and that a given number in contact with the diseased animals have been killed; but we are left entirely in the dark as to how the disease originated—whether it arose from latent poison, or whether from recent importation. Surely, if a competent person were appointed to investigate thoroughly every case, and to report weekly on the supposed cause of the outbreak, it would be a great advantage to the public, and we should be more likely to get rid of the pestilence. In some instances the existence of a latent poison is clear enough; but in others I have reason to believe that the importation of cattle and sheep from the Continent has been the means of disseminating the disease. I moreover believe that whilst cattle plague exists in Holland, Belgium, and other parts of Europe, and whilst the present lax and careless system exists at the ports of landing, we shall never get rid of cattle plague for any length of time. At an early period of the outbreak of the disease in this country I pointed out the impossibility of detection in the early stage, and that an animal (ox or sheep) might infect others without having the disease itself, so that animals coming from infected countries, unless they undergo proper seclusion, will always be liable to import the plague. *Edwards Crisp, M.D., 42, Beaufort Street, Chelsea, May* 1, 1867.

Introduction into Great Britain of the Swedish Turnip.—Something over 20 years ago I was invited to join in an examination of the pupils of the establishment from which I now write, and had the honour of meeting for the first time the late Protestant Bishop of Kildare as a brother examiner. On that occasion, amongst other important matters, he told me of the early history of the Swede in Scotland, introduced into that country by his late father, the Earl of Balcarras, who not only grew the Swede on his own demesne, but distributed the seed amongst his tenantry, who were at first, as he said, and for some time, averse to such an innovation on their then habits. I took notice of all the good Bishop then told me, of not only the introduction and progress of the Swede in Scotland, but also of his attempts at industrial teaching in this country in the early part of the present century, when he came into it as chaplain and private secretary to his brother-in-law, the Earl of Hardwicke, in 1801. He at that early period took such an interest in industrial improvements, especially in regard to the Hibernian School in the Phœnix Park, over which he had considerable control, and set the first example of public agricultural or rather horticultural teaching by employing the boys in the school during a portion of their recreation time in cultivating various things in the grounds attached to the school, and gave prizes to such as showed excellence of skill, taste, and industry. He it was who planted the beautiful dell in the park convenient to where the Royal Zoological Gardens now stand, as indeed other parts of the park. He invented an atmospheric churn, a model of which he presented to the Duchess of Dorset, then Lady-Lieutenant, in 1816; and in 1846—the period at which I had the honour of becoming acquainted with him—he had a large churn on the same principle capable of churning the milk of 10 or 12 cows on his demesne at Glasnevin, by which the milk was churned in what was then considered an unusually short period, and producing a greater quantity of butter from a given quantity of milk or cream than could be produced by any other mode of procedure. But to return to the Swedish Turnip, said to be first grown in the British dominions as a field crop in Wiltshire, by Sir John De Beausoir, the seed brought by Sir Robert Keith, British Envoy at Stockholm. The Earl of Balcarras having seen it growing there, had a large quantity of seed procured for a seedsman in Edinburgh, and another in some other part of Scotland—these names I forget—who offered it for sale, but at first could get no one to purchase it until its value was proved by the Earl of Balcarras and his tenantry. Thus far for the early history of this invaluable plant to the British, Scotch, and Irish farmers, according to my information from the foregoing respectable source; but if any of your readers can account for its introduction at an earlier date as a historical event of great magnitude, it would, in my opinion at least, be well worth recording through your valuable and widely circulated pages. Permit me in justice to the memory of the good Bishop, to whom I have been indebted for the above and other important facts connected with the industrial improvement of this country, to mention one or two traits in his character, both in his private capacity as a landlord and employer, and in his public capacity as a member of the House of Lords, well worthy the character of a christian, a statesman, and philanthropist. Although a rigid and steadfast Protestant, he never made a distinction in selecting his tenants or employers. He has seldom, if ever, been known more than once or twice to take a leading part in politics. One of his first acts in the House of Lords was to vote for Catholic emancipation, early in the year 1812, and long before the same course was adopted by any other Irish Bishop. The other was his opposition to any and every law used in taxing the people's food. *Edward Carroll, Glasnevin, May* 21.—P.S. In my letter on the Irish land question, which appeared in your last issue, there is an omission of two words, whether through the type or pen, which I wish to supply, in reference to certain writers and speakers of the present day, compared with the views of such sentimentalists 20 years ago. "And if Mr. Caird *and others* had taken the same stand in Ireland then which they are seeking to take *now*, the case would be now quite different to what it is in all the relations of life." *E. C.*

A Saturday New Moon.—I was accidentally in error as to the Saturday new moon on the 15th December last. There was no Saturday new moon in last year. An old labourer tells me that he always found that a Saturday new moon was followed by a flood. *J. J. Mechi, May 28th.*

Societies.

ROYAL AGRICULTURAL OF ENGLAND.

SPECIAL COUNCIL: *Wednesday, May* 29, 1867.—Present—Mr. Thompson, President, in the Chair; the Earl of Powis, the Earl of Shrewsbury and Talbot, Lord Vernon, Lord Walsingham, the Right Hon. Sir John Trollope, Bart., M.P.; Sir Massey Lopes, Bart., M.P.; Sir A. K. Macdonald, Bart.; Sir Watkin Wms. Wynne, Bart., M.P.; Major-General the Hon. A. N. Hood, Mr. Cantrell, Mr. Clayden, Col. Challoner, Mr. Dent, M.P.; Mr. Brandreth Gibbs, Mr. Holland, M.P.; Mr. Hutton, Mr. Jonas, Mr. Milward, Mr. Read, M.P.; Mr. Rigden, Mr. Wells, Mr. Jacob Wilson, Professor Wilson:—to consider the Government Bill on Contagious Diseases among Cattle.

It was resolved that in the opinion of the Council of the Royal Agricultural Society of England, all foreign cattle should be slaughtered at the port of entry; and that quarantine establishments should be formed at all ports where store cattle are imported, in which they shall be detained a sufficiently long time in quarantine.

A deputation consisting of Mr. Thompson, President, the Earl of Shrewsbury, Lord Vernon, Lord Walsingham, Sir John Johnstone, M.P.; Sir Thomas Western, M.P.; Colonel Kingscote, M.P.; Mr. Claydon Dent, M.P.; Mr. Brandreth Gibbs, Mr. Holland, M.P.; Mr. Milward, Mr. Read, M.P; Mr. Wells, and Mr. H. Hall Dare, Secretary, had an interview with the Lord President of the Council on Thursday, to impress the above unanimous opinion of the Council of the Society upon his Grace, who informed the deputation that the Privy Council under the proposed Bill would have power to regulate or to prohibit the landing of foreign cattle, and to regulate their removal or "disposal," which word would give power to order their slaughter; but he should be reluctant to give such order without great consideration, and without obtaining the sanction of the Government. The Privy Council were well informed of the state of the Cattle Plague on the Continent, and were of opinion that the recent outbreak in England must be attributed to the seeds of the disease of last year, as in many instances it had appeared in spots where diseased stock had been removed, and that it was erroneously assumed to spring from lately imported cattle: of this there was no direct evidence. They had been in correspondence with the Metropolitan Board on the subject, and had induced them to reappoint committees, who exercised constant vigilance over their districts.

Mr. Thompson, Mr. Dent, M.P., Lord Vernon, Mr. Clayden, Mr. Milward, and Mr. Read, M.P., urged the views of the Council on his Grace, and the deputation then withdrew.

SHOW OF HORSES.

AGRICULTURAL HALL.—Large crowds have daily filled the Agricultural Hall during the past week, attracted by the largest if not the best collection of horses which has yet been shown there. As large a Show—as good a Show indeed, in many respects, is any fine day to be seen in Rotten Row; a collection, too, in as good condition, the sight of which you can enjoy without the perpetual intimation that almost every where meets you here that the animal is for sale—a collection of horses therefore for the most part good enough to keep, including the pride rather than the culls of the stud. No doubt, however, the pride of many a man's stud is here also, whether for sale or not; and the ring in which the classes successively were judged on Saturday and Monday, and in which the prize animals have since been daily paraded, is certainly one of the most attractive and charming sights imaginable. No wonder that galleries and area and reserved seats have been well filled.

The 1st Class (weight-carrying hunters) included no fewer than 50 entries, many of them animals already well known in the exhibition ring and prize takers at many previous shows. The prizes went, 1st to Major Stapylton, for "Sprig of Nobility;" 2d, to Mr. Gilman, of Birmingham, for "Little John;" and 3d, to W. Deacon, Esq., for "Priest"—the decisions, excepting perhaps in the last case, being generally approved. The Class, as a whole, did not however meet with the approval of the judges. Hunters, without condition as to weight, numbered more than 40, and the winners made a very good exhibition of their jumping powers; then, too, the Class is on the whole a mixed lot, including however first-class specimens at the upper end of the scale. Mr. Lucy's "Goldfinder" jumped beautifully, as did "Brayfield," the property of Mr. Sandars, who took the 1st prize. The other Class of hunters are inferior in both number and quality. Harness horses included 20 entries, and both single and as pairs they form an extremely interesting department of the Show. The prizes are taken by Mr. Kirby and Captain Speirs. No fewer than 100 entries compete in the classes of cover hacks and roadsters, and park hacks and ladies' horses, and the judges had a long and laborious task

before them. Among these is "Champion of the World," the property of Mr. Edwards, of Ealing, who has, however, to be satisfied with a 3d place here. His performance, as a trotting horse, is declared to be half a mile in 70 seconds.

The Pony Classes are as interesting as ever, and nothing can be more beautiful than the spirited display made by them in the ring. The prize list below states the awards. In the Stallion hall, where some of the Pony Classes are located, we have the thoroughbred classes, of which a very fair show is made, notwithstanding the comparatively small offer of prizes.

"Aristocrat," a very showy and beautiful, almost black horse, is beaten by "False Alarm," a somewhat sleepy-looking chesnut, the property of Captain Barlow, who is placed first, and by "Beckhampton," Mr. Starkey's thick-necked bay horse, and so are six or seven others, making on the whole a fair exhibition of the class to which they belong.

On Wednesday the prize animals in certain classes competed for the Gold Medal offered for the best cob up to 16 stones, and not exceeding seven years; and it was awarded to "Brunetti," Mr. Jonas Webb's "Park Hack," which had received the 3d prize in its class.

On Thursday the Show was attended by H.R.H. the Prince of Wales, before whom the prize animals were paraded in the ring.

LIST OF JUDGES.

CLASSES 1, 2, 3, 4, and 14.—The Earl of Portsmouth, Lieut.-Colonel Lord Suffield, Captain Percy Williams.

CLASSES 6, 7, 8, 9, 10, 13, 15, and 16.—The Right Hon. Sir John Trollope, Bart., M.P.; Sir George W. Wombwell, Bart.; Colonel Maude, C.B.; Colonel Kingscote, M.P.; Harvie Farquhar, Esq.

LIST OF AWARDS.

CLASS 1. HUNTERS—WEIGHT CARRIERS, equal to not less than 15 stone.—1st prize, 100*l*., Major Stapylton, Boroughbridge (Sprig of Nobility); 2d, 40*l*., Mr. Joseph Gilman, Birmingham (Little John); 3d, 20*l*., Henry William Deacon, Esq., Alresford (Priest).

The Judges report their regret that the quality and power of the horses exhibited in this Class are not commensurate with the very liberal Prizes that they were called upon to award.

CLASS 2. HUNTERS, without condition as to Weight.—1st, 50*l*., Mr. Henry Sanders, Northampton (Brayfield); 2d, 25*l*., Henry Spencer Lucy, Esq. (Gold Finder); 3d, 15*l*., Walter de Winton, Esq., Hereford (Springy Jack).

CLASS 3. HUNTERS, without condition as to Weight, and not exceeding 15.2 hands high.—1st, 40*l*., James Morrison, Esq., Glasgow (Countess); 2d, 20*l*., Horace Beck, Esq., Brandon (Hawk); 3d, 10*l*., Mr. R. John Moss, Wellington (Othello).

CLASS 4. HUNTERS, 4 years old.—1st, 50*l*., Thomas Gee, Esq. (Tom); 2d, 25*l*., Mr. James Topham, Welford (Rugby): a very fair class.

CLASS 5. HARNESS HORSES, not exceeding 15.2 hands high; for the Horses of the best shape with Park action exhibited in single harness with suitable carriages.—1st, 15*l*., John R. Kirby, Esq., Inverness Terrace (Violet); 2d, 10*l*., Captain Speirs, M.P., Eaton Square (Beauty); extra prize, 5*l*., Mr. Thomas Bradfield, Bishop Stortford; an excellent Class.

CLASS 6. COVER HACKS AND ROADSTERS, not exceeding 15.1 hands high.—1st, 15*l*., the Earl of Rosslyn (The Dean); 2d, 10*l*., Mr. Thomas W. Marshall, Islington (Tom); 3d, 5*l*., Thomas Daniel Hill, Esq., Piccadilly (Bismarck).

CLASS 7. PARK HACKS—WEIGHT CARRIERS, not less than 14.2 nor exceeding 15.2 hands high.—1st, 20*l*., Major Stapylton, Myton Hall (Stamford); 2d, 10*l*., Thomas Johnson, Esq., North Allerton (Greyleg); 3d, Mr. Jonas Webb, Ulceby (Brunette). Commended: Miss Henrietta Turner, Godstone.

CLASS 8. PARK HACKS AND LADIES' HORSES, of any height above 15.1 hands high.—1st, 20*l*., Mr. G. Holmes, Beverley (Deer Stalker); 2d, 10*l*., Robert Campbell, Esq., Army and Navy Club (The Peer); 3d, 5*l*., Alexander Barker, Esq., Doncaster (Sultana).

CLASS 9. PARK HACKS AND LADIES' HORSES, not exceeding 15.1 hands high.—1st, 20*l*., Mr. William Banks, Grays Inn Road (Beauty); 2d, 10*l*., John Delaware Lewis, Esq., Petersfield (Bridesmaid); 3d, 5*l*., John R. Kirby, Esq., Inverness Terrace (Violet).

CLASS 10. PARK HACKS AND LADIES' HORSES, not exceeding 14½ hands high.—1st, 20*l*., William Henry Gaunt, Esq., Kirkhammerton (Pinwire); 2d, 10*l*., Mr. John Grout, Woodbridge (Unique); 3d, 5*l*., Mrs. Spence, Otley (Black Bess). Commended: F. Penn, Esq., Lee.

HARNESS PAIRS.—Captain Speirs, M.P., extra prize, 10*l*. (Beauty and Rouen). An extra prize for extraordinary merit, "the Agricultural Hall Medal," was awarded to the White Arab Mare, exhibited by R. Chevallier, Esq.

CLASS 11. PONIES, not exceeding 14 hands, in single harness.—1st, 15*l*., James Wilson, Esq., Enfield (Polly); 2d, 10*l*., Mr. William Burton, Marylebone (Camperdown Lass); 3d, 5*l*., Captain Speirs, M.P. (Dot). Highly Commended: Mr. Phillip Potter, Bury St. Edmond's (Pea Blossom).

CLASS 12. PONIES, not exceeding 13 hands high, in single harness.—Extra prize, 15*l*., W. F. Pilcher, Esq., Russell Square (Pink); 1st, 10*l*., Mr. John W. Richardson, Willoughton (Uncle Tom); 2d, 5*l*., Mr. Lewis Myers, Myddleton Square (Ruby); a very excellent Class.

CLASS 13. PONIES, not exceeding 12½ hands high, to carry children.—1st, 5*l*., Mr. John William Richardson, Willoughton, Lincolnshire (Uncle Tom); 2d, 3*l*., W. H. Stone, Esq., M.P., Dulwich (Billy); 3d, 2*l*., Mr. J. Sykes Calthrop, Moulton (Brown). Highly Commended: Mr. John Edwards.

STALLION HALL.

CLASS 14. STALLIONS, thorough-bred.—1st, 40*l*., Captain F. Barlow, Woodbridge (False Alarm); 2d, 20*l*., J. B. Starky, Esq., Farringdon (Beckhampton).

CLASS 15. STALLIONS, not less than 15 hands high, for getting Roadsters or Hacks.—1st, 20*l*., Mr. John Grout, Woodbridge (Quicksilver Shales); 2d, 15*l*., Mr. John Grout (Sportsman); 3d, 5*l*., Mr. John Edwards, Ealing (Shepherd F. Knapp).

CLASS 16. STALLIONS, under 15 hands, for getting Hacks, Cobs, or Ponies.—1st, 15*l*., no merit; 2d, 10*l*., John Delamere Lewis, Esq., Petersfield (Golden President); 3d, 5*l*., Fergus Ferguson, Esq., Beverley (Arab Brown).

HANTS AND BERKS AGRICULTURAL.—We have rarely had the pleasure of attending an agricultural Show more successful or better sustained than that of the above Society, held at Basingstoke on Thursday last. Not being in a grazing or dairy district the non-exhibition of horned cattle was not felt so much as it would have been in other districts, and the excellent show of sheep and of agricultural horses fully made up for any deficiency. This Society, although hitherto confined to the counties of Hants and Berks, yet liberally throws open their premises to competitors from a distance; and indeed in the case of sheep, although in a short-wool district, many of the prizes were open to the Long Wools and other breeds. In sheep there were 15 classes, in which there were more than 100 competitors. In horses there were six classes, with 35 competitors, beside those for extra stock for horses and sheep. There were four classes for pigs, viz., two for the Berkshire, the favourite breed of the district, and two for other sorts. The Berkshire were very good, but other kinds not very numerous. There was a capital show of poultry as well as of implements, and the scene was enlivened by a prize being given by the President, Lord Bolton, for jumping. There were 10 good hunters entered for competition, and ridden by the owners or their friends, and the leaping was more severe and much better than at the late Horse Show at Islington.

The day's proceedings concluded with a Dinner, at which about 200 attended, the President being in the Chair. *W. C. S.*

Farmers' Clubs.

CIRENCESTER, *May 20*: *The Relative Merits of Horses and Oxen for Purposes of Draught.*—Professor Wrightson, who introduced this subject at the May monthly meeting of this Society, said:—

The question I have to introduce to your notice this afternoon is one which can be discussed better by this Club than by any other which I know of. We have among us men who have worked bullocks ever since they commenced business, and who will continue to work them as long as they live. Others have ceased to employ oxen for draught, and are prepared to argue in favour of horses; while a third select circle have gone beyond both the first named and have adopted the giant power of steam. I believe I am right in considering these meetings as intended for discussion, and that the discussion is the most important part of our proceedings, because in it we hear the opinions of many practical men who have made the question under consideration a study for years. I hope, therefore, to introduce this subject to your notice and to lay before you certain facts concerning it, and some figures which I think will be borne out by the experience of many here, and then to leave the question in your hands. One of the most important facts which may be urged against the working of bullocks is that from being general throughout the country it has become gradually restricted to a few localities. Another general objection to bullocks is that they are slow, and that they impart a corresponding slowness to those who work them. However true such objections may be, yet all must confess that they are of a very general character—that it will be difficult with such arguments to convince men who have an opinion of a contrary character, or who find bullocks to answer their purpose as animals of draught. If you show a business man that he is using an inefficient implement, or that he might use a portion of capital with better effect if he adopted a more economical method of working, he would listen to the advice, and if reasonable he would follow it; but merely to tell him that he is wrong and you are right—that all the world have adopted horses instead of bullocks, or steam instead of horses, and therefore he must follow the fashion, would be more likely to "set his back up" than to induce him to alter his practice. This kind of objection to bullock labour is well illustrated by a remark of Mr. Wilson, of Edington Mains, who, in his admirable book on "British Farming," says, "We see that duly as agriculture reaches a certain stage of progress, ox labour has been found inadequate to the more rapid and varied operations that are called for, and has been superseded by that of horses." This is no doubt true with regard to many kinds of land, many kinds of farming, and many kinds of work. Few people, however, would argue in favour of bullocks being used on every kind of soil, or even for their use to the exclusion of horses. Oxen are only used as supplementary to horses, and there are always certain kinds of work better done by the last named animal. The fact that oxen have been abandoned over large areas of this country in favour of another kind of power is not in itself a conclusive argument, because it is quite possible to conceive such changes in markets, and the relative value of animals, or the food required for their support, that the tables might again be turned, and the discarded bullock once more become the favourite. We have specially to do with the wants of the district that this Club represents, and we cannot pretend to lay down the law for the whole of England. Here on the Cotswold hills we find many of our leading farmers, men not behind the times, men who have done their part in advancing the agriculture of their county and of their country, employing bullocks and convinced that they are right in doing so. In order properly to consider this question it will be necessary to compare oxen with horses in several points. I propose to discuss first the amount and quality of the work that can be got out of both kinds of animals; secondly the cost of obtaining and maintaining them respectively, and, lastly, the money value of the mature animal in both cases. In an old book entitled "Observations on Live Stock," by George Culley, of Northumberland, a well known man, we find some statements made the worth of which can hardly vary with age. Mr. Culley worked 150 bullocks besides many horses about the beginning of this century, and gives his opinion after many years' experience "that oxen will do several kinds of work (such as ploughing, leading dung, corn, &c.) equally as well as horses," but would recommend that both animals should be kept, and the most suitable work apportioned to each. Mr. Culley used them "in carts singly," (the Northumberland carts are much lighter than those used in the South,) "and two in a plough with cords, without a driver, where they go equally as well as two horses, though not quite so swift." In the fifth volume of the Royal Agricultural Society's Journal there is a paper upon the comparative merits of horses and oxen, in which the conclusion come to is that horses are really the more economical animals to keep. I shall with the more pleasure, therefore, quote a few sentences from it about draught oxen. First, when speaking of the quantity and relative value of the work done by both animals, Mr. Cowie says "that except in frost, when the land cannot be ploughed, the amount and value of the work performed by each are equal." Mr. Cowie worked two oxen to a team, and relates that in a ploughing match where upwards of 70 ploughs started his oxen team was second off the field. Mr. Cowie further says "they work ten hours a day as steadily all the year over, except in frost, as the horses, and keep in perfectly good condition." Although this may be possible, it is a question whether it is wise, because oxen should not be worked so hard as to interfere with their growth, and a rest now and then is well repaid by an increased development of frame. The usual practice of this neighbourhood is based upon this principle, and we accordingly frequently find six oxen kept, four of which are worked every day, or 16 are kept, and 12 of them are yoked each day. Daily toil might not be injurious to five or six years' old cattle, but young bullocks broken in at two years old will grow much better if lightly worked. Four oxen are usually seen in a plough, but it has been fully proved in this neighbourhood that two will plough land of a light descripton 6 inches deep in the spring, and that three will do the winter ploughing. It is difficult to arrive at a correct conclusion as to the exact number of bullocks which will be equivalent to a certain number of horses. I think, however, we may come to a pretty near estimate of the relative power of the two animals. I have received letters from some well-known agriculturists of this district, informing me upon this point, and I will now briefly give you the result of their experience. Mr. Playne, The Downs, Chalford, considers two bullocks to be equivalent to one horse. Mr. Burnet, agent to Colonel Kingscote, worked bullocks for many years until steam power was introduced, and he informs me that two bullocks will easily do the work of one horse. He always worked the bullocks in double harness, two to a plough for half a day (five hours), and they would do their half-an-acre of ploughing in that time. Mr. Plumbe, of Ashton Fields, works Devons, and is of the opinion that this breed steps faster, stands the heat better, and have shoulders peculiarly adapted for draught. He says "a pair of good Devons will do as much ploughing and as well as a pair of horses. I took the prize at Down Ampney some years ago with a pair (of oxen) in the horse class. I do not find the work hurt them when kept properly." Mr. Plumbe works his bullocks every day, and ploughs them in double harness with reins without a driver. On one of the best managed farms in this neighbourhood (Earl Bathurst's Home Farm) 16 bullocks and eight horses are kept. The horses receive 1½ bushel of Oats and Hay in the winter, and 1 bushel of Oats and green food in the summer; and the bullocks are out at Grass all the summer, and are fed entirely on hay and straw chaff mixed, without any additional food in the winter. Here we find that two bullocks are reckoned as equal or rather superior to one horse. From these data we may look upon the fact of two bullocks being equal, if not superior, to one horse as established. The next point to be settled is the relative cost of maintaining bullocks and horses for one year. If both animals are bred upon the farm where they are subsequently to work, can there be any doubt as to which can be bred and reared at the least cost? I do not think this point needs discussion, and therefore content myself with stating that here the bullock has the advantage over the horse. In the next place, we may ask which will bring the most money at six years old? and I think here also the answer will be in favour of the bullock. It is true that horses occasionally will bring high prices, but how frequently we find them going wrong in some way, which, although apparently only slightly interfering with their usefulness, lowers their selling price considerably. We have all seen bullocks fetching 30*l*. at this age, and a farmer may look for an average price of 26*l*. if he keeps the right sort and works them judiciously. There are so many estimates as to the cost of keeping a farm horse per annum that we cannot get far wrong here. Mr. Morton, in his Farmers' Calendar, has taken pains to collect together the methods of horse-feeding in several parts of England and Scotland during both winter and summer, together with the cost per week of the diet, at a certain fixed market price. Hay is valued at 3*s*. per cwt., Oats at 3*s*. per bushel, Beans at 5*s*. per bushel, Turnips or Mangel at 4*d*. per cwt., and Carrots at 6*d*. per cwt.; straw is not charged. At these prices we find the cost per week to vary between 6*s*. and 11*s*. throughout the year. I find the cost of horse keeping is thus given upon two farms in this neighbourhood. (1) The College Farm: Here the horses are described as receiving in winter 84 lb. of Oats, and 16 lb. of Beans per week, and straw and chaff *ad libitum*, the cost being 7*s*. 3*d*. per week; and in summer 42 lb. of Oats, and cut Clover or Vetches (at 6*d*. per cwt.), the expense being 6*s*. 6*d*. per week. (2) Mr. Rich's Farm, at Didmarton: The horses, according to the same authority, received in winter 168 lb. of hay, 63 lb. of Oats, and 2 bushels of grains, with straw *ad lib*., at a cost of 10*s*. 9*d*. per week; and in summer the food is valued at 7*s*. 6*d*. per week. The average cost per week through the year in the first case may be taken at 7*s*., and in the second case at 9*s*. The average of 13 cases collected by Mr. Morton gives the winter keep as costing 9*s*. 6*d*., and the spring and summer keep as 9*s*. per week per horse. We cannot be far wrong in taking 8*s*. per week as a very fair estimate of the cost of the food of a farm horse, and we shall add to this

some other expenses connected with their management which can hardly be overlooked.

	£	s.	d.
Cost of food at 8s. per week, for 52 weeks ..	20	16	0
Shoeing	0	12	0
Deterioration in value, losses from accident and death 10 per cent., and interest at 5 per cent., on 30*l.*	4	10	0
Furnishing and repairing gear	1	5	0
	£27	3	0

Many extensive farmers would not have considered the estimate extravagant at 30*l.* per annum, but we shall take it at 27*l.* Let us now try to find the cost of keeping a bullock for one year. Bullocks are sometimes fed on straw and hay chaff in the winter, and Grass in the summer; in other cases they receive meal and straw and a few roots in the winter, and Grass in the summer. Let us suppose the bullock to be turned out from May 15 to October 15, and to be on winter keep for the remainder of the year:—

1½ acres of land, at 2*l.*	£3	0	0
6 lb. of crushed Oats or Barley meal per day, from Oct. 15th to May 15th, 212 days at 6*d.*	5	6	0
Repairs of gear	0	10	0
Risk, losses, &c., 5 per cent., and interest at 5 per cent. on 20*l.*	2	0	0
	10	16	0

In case these estimates are objected to, I have prepared another upon a different principle:

Cost of Maintaining a Farm Horse.

From Oct. 1st to May 15th, 1½ bushel of Oats, at 3*s.* per bushel (32 weeks)	£7	4	0
From May 15th to Oct. 1st, 1 bushel of Oats, at 3*s.* (20 weeks)	3	0	0
Deterioration, interest, and shoeing, as before	5	15	0
Hay, straw, green food, &c., grown on the farm, not charged	0	0	0
	15	19	0

Cost of Maintaining a Working Bullock.

6 lb. of Barley meal per day, from Oct. 15th to May 15th, at 9*s.* per cwt., 6*d.* per day for 212 days	£5	6	0
Risk, losses, &c., 5 per cent., and interest at 5 per cent. on 20*l.*	2	0	0
	7	6	0

In neither case have we estimated anything but marketable produce, yet here, as in the first estimate, the cost of keeping two bullocks is less than that of maintaining one horse; yet in the last case the bullocks would be fed better than usual and the horses worse than usual, or in other words the actual cost of the horse is under-rated and that of bullocks over-rated. We have before found that two bullocks are usually kept to do the work of one horse; we have, therefore, in the first estimate, the cost of the horse, 27*l.*, to set against the expense connected with the bullocks of 21*l.* 12*s.*: or taking the second method of estimating, we have 16*l.*, the expense of keeping a horse, to set against 14*l.* 12*s.*, the annual cost of two bullocks. In both cases we have an advantage in employing bullocks. Lastly, we have to consider the relative value of the animals after they have worked a year, or a series of years. Some fortunate men by breeding young horses and keeping them till they are six years old, may turn the usual deterioration which horse stock is subject to, to a profit. Be this as it may, I put it to this meeting whether horses should be considered as a deteriorating stock, or one which increases in value. For my part, I feel confident that in a general way horse stock deteriorates, and we know that various sums above and below 5*l.* per annum have been named as representing this annual loss. This is a point which I should like to hear discussed. There is, however, no doubt about the growth and increase in value of an ox. I have heard this increase in value placed at 5*l.* or 6*l.* per annum. I have heard it stated to be such a sum that the ox labour is absolutely obtained for nothing, and I believe this to be the opinion of many clever farmers who continue to work these animals. Bullocks may be purchased at two years old for 14*l.*, and after working until six years old or four years, they may be sold for 28*l.*, or the annual average increase will be 3*l.* 10*s.* or 7*l.* the two. Unless a similar sum can be deducted off the expenses of keeping horses, we have a right to deduct 7*l.* from the expense of keeping two oxen one year, and this would reduce the sum already named to 14*l.* 12*s.* or 7*l.* 12*s.*, according to the estimate employed. We should in this case have the expense of keeping one horse, 27*l.* or 16*l.*, and the cost of keeping two bullocks, 14*l.* 12*s.*, or 7*l.* 12*s.*, leaving a balance in favour of the bullocks of 12*l.* 8*s.* or 9*l.* 8*s.* I find then the following points of the bullock *versus* horse question to be brought out clearly:—1st. That the quality of work done by bullocks is equal to that of horses. (N.B. In cases where very deep ploughing is required, this statement may not hold good.) 2d. That two bullocks are well able to do as much work as one horse. 3d. That the cost of keeping two bullocks well is considerably less than the cost of keeping one horse well. 4th. That bullocks may be reckoned upon as profitable stock, and the sale of three or four-year-old bullocks every year will do much towards meeting that half-yearly call to which farmers are generally liable. I have still to mention two or three other points in connection with this question. Bullocks are cheapest obtained by bringing them up from calfhood. Calves can be bred, or bought for 35*s.* each, and after having been grazed in the ordinary way for two years, may be broke to harness. Thus draught animals will be obtained cheaper, and with infinitely less risk than horses. Bullocks are valuable to the last—they work four years, and are then sold to graziers, and fatten into magnificent beef, which fetches prime price in the market. On the other hand the horse after working out his strength is consigned to the kennels. It is true that some philanthropic individuals have of late years attempted to call attention to the excellence of horse beef, but I cannot help thinking that by working a larger number of oxen, a large increase in animal food might be obtained, without outraging our present prejudices against that other kind of animal food. Another important point connected with working bullocks to which I would invite discussion, is the amount to which work influences the growth of oxen. I have been often assured, and to a certain extent believe, that when lightly worked they grow quicker than when idle. Work is said to "rax them out," and I see no reason why a moderate amount of work should not increase both bone and muscle. If this could be proved, gentlemen, then it would be evident that to keep bullocks idle is prejudicial to the animals, and the case of the bullock worker over the horse worker would to my mind be as clear as the day. I have still another reason why in this and other districts similarly situated, a proportion of the tillage should be done by bullocks. This is a sheep district, as well as a corn growing one, and consequently straw is apt to accumulate. Bullocks eat and tread down a great quantity of straw, and hence are useful in a neighbourhood in which there is a superabundance of that article. Horses not only consume less straw, but the manure which they make is of a dry and heating character, and not nearly so good as that made by bullocks. Lastly, bullocks require less attention and less costly accommodation than horses. All kinds of bullocks may be worked. The best for draught are the Devons, next the Herefords, but the Short-horns will also do very well. Why, then, gentlemen, do we find that bullocks have been given up throughout the country? How is it that almost every man who writes on the subject at once condemns the ox-team as antiquated, as an indication of mediæval agriculture, as a sure sign of stupid labourers, and a symptom of farmers the reverse of go-a-head? The statement that oxen are slow seems to most men a sufficient answer to the numerous arguments that can be adduced in their favour, and yet I think the difference in speed between horses and oxen is measurable, and we find in practice that two oxen can be made to do the work of one horse. Whether bullocks or horses are really the most economical animals of draught, is still a difficult question; but I firmly believe that the present generation of British farmers cannot be said to have given up working oxen because they really have found the horse to be a better servant. The great bulk of them have never worked or seen anything worked but horses, and therefore they cannot be quoted as showing by practical demonstration that bullocks are inferior to horses. Their fathers, not they, made the change, and if ever bullock labour again becomes general it will have to force its way as a new idea rather than as a revived old one. It is quite possible, although I do not say it is the case, that our fathers may have been right in changing from bullocks to horses, and that our sons may be justified in going back again to bullocks. Was not the demand for horses during the long French war at the commencement of the present century a great inducement for farmers to increase this stock? while beef at 5*d.* or 5½*d.* per lb. was no great attraction towards keeping horned stock. The following balance sheet, which I have taken from Stone's "Agricultural Survey," published in 1800, will show the relative value of the two animals at that time, first at three years old and afterwards at six years old.

Dr. *Horses.*			
Twelve horses at 20*l.*	£240	0	0
Loss of one horse	20	0	0
Balance or profit	111	10	0
	£371	10	0
Cr. *Horses.*			
Eleven horses at 31*l.* 10*s.*	£346	10	0
One sold out at 25*l.*	25	0	0
	£371	10	0
Dr. *Bullocks.*			
Eighteen oxen at 12*l.*	£216	0	0
Extra manual labour	120	0	0
	£336	0	0
Cr. *Bullocks.*			
Eighteen oxen sold at 18*l.*	£324	0	0
Balance	12	0	0
	£336	0	0

The above is only useful as showing the relative value of horses and bullocks in the year 1800. The annual cost of maintenance is considered the same in both cases, that is, that 18 bullocks may be kept at the same cost as 12 horses. I cannot help thinking that if this Club had to draw up a similar balance sheet to-day the profit would appear on the oxen rather than on the horse side. Since Mr. Stone has brought together more arguments against oxen than any other writer I have met with, I will mention them to you in his own order:—1st, the ox is slow. 2nd, ox labour demands more manual labour. This depends on the way they are worked; if in double harness one man will work two in the morning and two in the afternoon. If four are worked in the plough, then an extra lad to drive will be required. 3rd, that the bullock eats so much more in quantity than the horse that, in spite of his provender being coarse, he costs the farmer as much as a horse. 4th, that horses are not so expensive to keep as many people make out, as they can be frequently kept without corn. 5th, that the breeding and rearing of horses is much more profitable. This no doubt was the case then, but I think times have changed. 6th, that upon the conclusion of the present unfortunate war (1800), from the enormous destruction of horses which it has occasioned upon the Continent, the demand for that animal is likely to increase to a greater extent than at any other period. These arguments are satisfactory to my mind when viewed in connection with the times for which they were written, but I by no means see the force of them now; and considering the question in all its bearings, I cannot help leaning in favour of the ox for light land, especially where the close proximity of the rock precludes the possibility of deep ploughing.

DISCUSSION.

The CHAIRMAN said they must be all deeply indebted to Mr. Wrightson for the very able and interesting manner in which he had brought this subject before them. Mr. Wrightson had shown that two oxen could be kept for about £7 a year less than one horse; but the question was whether as much work was got out of them. It was not a subject of which he had any practical knowledge; but there were gentlemen present who had tried both horses and oxen, and he hoped they would favour the meeting with their opinion of the relative merits of those animals.

Mr. W. SMITH (Bibury) concurred in the views of Mr. Wrightson with regard to oxen. If anything, he had underrated the merits of oxen as compared with those of horses. He had stated that two oxen were equal to one horse; but an opinion was held by some farmers that an ox and a-half were equal to one horse, and he (Mr. Smith) himself believed that three oxen could do as much work on light land as a pair of horses. There was one point in favour of oxen which Mr. Wrightson had not touched upon. Oxen could be bought and reared at, comparatively, little expense, and if they did not want to work them, or, the weather being unfavourable, they could not go out, they could be lying by at a trifling cost, whereas horses could not be kept by except at a great expense. Then the risks with horses were much greater than with oxen. One fell with the spavin, another went broken-winded, and so on, and they were oftener knocked down than oxen. Oxen, if worked say from two years to five, would pay 4*l.* a-year towards their keep. The lighter they were worked the more improvement they would make. He did not disapprove of steam cultivation on strong deep land, but his opinion was that oxen would do ploughing upon light land cheaper than it could be done by either steam or horses. Oxen were objected to on account of their going slowly; but he thought that if active young oxen, not more than four years old, were sent into a field for light ploughing, they would not, if narrowly watched, compare very unfavourably with horses, even in point of speed. True, they might not toss their heads about and go in that gallant style in which horses did, and they might at first sight seem to go slow, but watch them carefully, and it would be seen that they crept over the ground much faster than they appeared to do. He was strongly in favour of oxen, and he was surprised that they were not brought much more into requisition for ploughing and other draught purposes. His opinion was that, if they lived a few years longer, they would see a great deal of the steam tackle thrown aside, and oxen taking up their old position again.

The CHAIRMAN said Mr. Hulbert had tried both horses and oxen, and perhaps he would state his opinion.

Mr. HULBERT: Oxen for ever!

Mr. H. RICK had worked oxen, and he thought much was to be said in their favour. Mr. Wrightson had made some good remarks on the subject, and his address was well worthy the consideration of the Club. While admitting this much, however, he could not agree with Mr. Smith that they would go back to oxen altogether. They would be more likely to progress to steam. It might be that land could be ploughed as cheaply by oxen, but then there was the after work. Land cultivated by steam required a less number of labourers for the after work.

Mr. C. HOBBS thought that oxen could do ploughing cheaper than horses. Whether steam could do it cheaper than either remained to be proved.

The CHAIRMAN said the opinion of the meeting seemed to be in favour of oxen for ploughing—after steam, he supposed. He wished there had been a "steam-man" present. He was never more gratified than when seeing, on Saturday, Messrs. Slatter and Porter's steam plough at work. What with the smoke and the noise of the machinery, he seemed to have got into a manufacturing district. The pace at which it went was extraordinary. [Mr. HULBERT: Fifty acres a day.] He should like Mr. Smith to have seen it.

Mr. SMITH: Last year I had a steam-plough to plough a few acres on my farm. It began a field, and had to leave it because it could not get on. After the steam tackle was taken away, my oxen went and did the work.

Mr. LITTLE said the great fault in working oxen was that they were not fed high enough. If they had food in proportion to horses, three oxen would easily plough as much as a pair of horses. Consequently, oxen had an advantage over horses.

Professor WRIGHTSON, in reply, said he had listened with interest to the remarks that had been made. In making his estimates, he purposely put the oxen at a moderate figure, allowing two oxen to a horse, although he considered that one and a half oxen would be able to do the work of one horse. The figures he had quoted must only be looked upon as approximative; he had, however, endeavoured to keep them as much within the ordinary practice as possible.

A vote of thanks having been passed to Professor Wrightson, on the motion of the Chairman, the meeting separated.

—*Wilts and Gloucester Standard.*

Reviews.

Reports of the Agricultural Exhibitions at Vienna and Aarhus (Denmark). By John Wilson, F.R.S.E., &c. Presented to both Houses of Parliament. 1867.

From this small blue book we have already made some extracts which indicate its character, and our readers, especially those in dairy districts, have already learned that it is well worth their careful study. And though there is here a collection of information useful to all classes of agricultural readers—it is more especially in its account of the dairy farms of Denmark that its utility to English farmers is apparent. To this therefore and to the account of the educational institutions of Austria, we especially direct attention. Dr. Lyon Playfair, in a recently published letter on our growing deficiences as a manufacturing nation, attributes the relative advance of other countries mainly to the perfect organisation and efficiency of their means of technical and professional education, and he gives a high place to Austria in this particular. From Professor Wilson's account of Austrian agricultural schools we have already published extracts in these columns. It will suffice if now, on the eve of our great annual agricultural meetings, we ask him to tell our readers the points of difference between the Austrian management of such meetings and our own, in which, in his opinion, we ought to copy them. He says of the Austrian show at Vienna:—

"There were one or two points of difference which, I think, we may glean from them and engraft with advantage on our own. The one has reference to the issue of tickets of admission for the whole period of the

meeting; the other to the mode of distribution of the prizes.

"Many persons are willing to purchase the right of free entry at a cost far higher than they would be disposed to incur were they to be called upon to pay each time they wished for admission. It is a privilege that they are willing to pay for; and the oftener they exercise it the better, as they not only increase the number of visitors, but frequently act as inducements to others to enter, who would not have done so without some such determining agency.

"The arrangements for, and the distribution of, the prizes in the cattle classes were very effective, and together formed a very interesting and attractive ceremonial. The prizes were awarded by the juries in the usual manner, and the awards were affixed on the stalls at the head of the animals thus selected. These notices gave those interested in the matter good opportunities of inspection and inquiry on any points they wished. On the last day of their exhibition, the prize animals,—horses and cattle,—were led from their stalls up to the tribune, where the prize itself, whether in money or medals, was handed to the owner or his representative; the different classes of animals succeeding each other until all were satisfied.

"On the present occasion, the whole proceedings were not only interesting but extremely picturesque. The Hungarian and Sclavonian grooms and herdsmen, in their gay and striking costumes, followed by the dairymaids of Salzburg and the Tyrol, in their quaint and beautiful national attire, each dressed *à rigueur*, and each leading a favourite animal, produced a very striking pictorial effect, which was well set off by the serried background of eager spectators, who surrounded the ring in front of the tribune, where the owners of the animals received the prizes awarded. It was the intention of the Emperor to have been present and have distributed the prizes himself. Circumstances, however, required his presence elsewhere, and the Archduke Karl Ludwig acted as his representative, being attended on the tribune by the jurors, the committee, and the leading members of the Imperial Agricultural Society.

"Although to one accustomed to the advanced farming of this country the exhibition presented no marked novelties or improvements, either in the processes of tillage or the practices of breeding, still he could not but mark with satisfaction the estimation in which agriculture is held in Austria by the highest in the land, and be gratified by the encouragement that is given to it by the State, not only as regards its practical development, but also as regards the inculcation and diffusion of the principles upon which a sound and successful practice can alone be based."

Farm Memoranda.

CHATTERIS, ISLE OF ELY, CAMBS.—The weather during the last few weeks has been extremely variable, with a tendency to downfall. We have hitherto had but very few fine dry days in succession, hence spring tillages have been worked with great difficulty, and ofttimes very disadvantageously. On our stronger soils we have felt this particularly to be the case. Last summer and autumn were so wet, that we were unable to steam cultivate a single acre. We conveyed our tackle to the field during a wet day in harvest, hoping in a very few days to be able to start it, but rain, incessant rain, frustrated all our plans; and after the apparatus had stood there for weeks, we felt the case to be hopeless, and ashamed and tired of seeing it stand about idle so long, we at length returned it to the shelter whence it came, not having attempted its use at all. This spring we managed to steal sufficient fine days to cultivate 24 acres twice over, and 27 once over for Barley. These, after great patience, and with some difficulty, we managed to get sown, and are thankful to be able to report favourably of the appearance of the crop at the present moment; it certainly looks far better than we could have anticipated, considering how unkindly the land worked. It is quite clear to us that for steam cultivation to be employed to the greatest advantage, we must have fine weather and dry land. But the weather which has been so inauspicious for our steam cultivating lands, has just suited our gravelly fen soils, and we never saw our Wheats on these more vigorous and promising. These light fen lands like an abundance of rain and the showers frequent. We have suffered a little from slugs on our black fen lands where full of clay, and sown with Wheat after Clover, and have had to dibble some more seed in early in the spring. It is a very rare occurrence that we suffer on these soils from slugs. The severe snow storms and hard frosts which continued nearly to the end of March retarded our Oat seeding, and made us nearly a fortnight later than we otherwise should have been in completing this work. We have put every acre both of Oats and Barley in with the liquid or dry manure drill (chiefly the former) and Lawes' manure. With the exception of a few patches injured by wireworm, the Oat crop is looking extremely well, and should the remainder of the summer be suitable we may fairly expect a full crop. Beans, too, are strong and healthy, and grow rapidly. We are now busy giving them their last hoeing. We have sown 10 acres of Mangels, but they are not coming very well, and indeed complaints are very numerous, and several persons are re-sowing. We have also put in 52 acres of Kohl Rabi, which has generally planted very well, and will afford abundance of plants for filling up any vacancies there may be in the Mangels. The pastures are unusually good this spring, full of Grass, and stock appear to be thriving well. Clovers and seeds generally are very fine, and where stocked take a deal of eating and keeping down, and where intended for mowing promise an abundance, and some of them will very soon be fit to cut. The winter grazing of sheep has been a poor speculation this season; we fed 145 shearling wethers, and about a like number of ewes in the yards, upon Kohl Rabi, Mangels, Linseed, and Cotton seed cakes and Peas. The sheep were healthy and fed rapidly, the former weighing when we clipped them last month 14 stone per sheep; but they went to bad markets, making only about 6*d*. per lb., and realising very little over 56*s*. per head. They clipped from 11 to 12 lb. of wool each, which is now at market, and likely to sell as badly as the mutton. In addition to these we wintered 140 in-lamb ewes, and 150 hoggetts in the yards. The ewes have lambed well, only two having died during the lambing time. Last year we pursued a similar plan with our ewes, and both they and their lambs were unusually healthy. We finished lambing in April, 1866, with 152 lambs, and 150 of these are alive to-day. We believe in this country there is no system of sheep-breeding so healthy and profitable as keeping them in yards from December until they lamb.

We make most of our manure with sheep and horses, but this winter grazed 10 Scots, which were bought in October at 17*l*. 6*s*., and have just been sold at 27*l*. each. During the last three weeks we have had most unusual weather; first, we had the temperature of July, the thermometer marking over 80°, and then in a few days at the same hour it registered only 42°; a few days ago it was again warmer, to-day we have the cold of midwinter, with rain and N.E. wind, and 44° the temperature. We hope soon to have more settled weather, and a more uniform temperature. *A. S. R.*

Miscellaneous.

Royal Agricultural Benevolent Institution.—On Wednesday last the seventh anniversary festival of this institution took place at the Salisbury Hotel and Farmers' Club, Salisbury Square, Lieutenant-Colonel Loyd Lindsay, M.P., in the chair. The Chairman, in proposing the toast of the evening, said the institution had flourished and was continuing to flourish. It commenced in 1860, and from that date had risen into very great prosperity. Its income was large and its funded property was still larger, and he felt that their council had exercised a wise discretion in their mode of dealing with the funds entrusted to them. 16,000*l*. had been invested in government securities. He believed the income of the institution was now between 5,000*l*. and 6,000. Although at first sight that might seem to be a large income, yet when they considered the enormous amount of property in this country, and the multitude of claims upon the bounty of this institution, they must admit that it was, comparatively speaking, but a small income. They must by no means relax in their efforts. The institution commenced under the most favourable auspices. If the Prince Consort had lived he would have been one of its most zealous supporters. His son, the Prince of Wales, must be enlisted in the cause. The institution was gradually enlarging the sphere of its usefulness. In various counties in England many gentlemen were active supporters of the institution; but in many other counties that was not the case, and perhaps even the name of the institution was not known there. He hoped the institution would penetrate these counties. He hoped the friends of the institution would importune their neighbours until they became supporters of it. Mr. Charles Shaw, the secretary, read a list of subscriptions, amounting to upwards of 4,000*l*.

Cultivation of Hops.—Professor John Wilson, in his report on the agricultural exhibition held at Vienna last year, mentions that, along with the samples of Hungarian Hops was shown a plan of the method of cultivation carried out at Bellye, adapted for all other districts where wood suitable for Hop-poles is scarce. Wooden pegs or short stakes are driven into the ground, at such distances apart as it is intended to plant the Vines; and at longer distances—usually about 20 to 25 yards—light poles are erected, with a height of from 12 to 15 feet above the surface, so that there are parallel lines all over the ground of short stakes or pegs placed at certain distances, and projecting about 8 to 12 inches in height, while parallel rows of poles, from 12 to 15 feet high, cross these at right angles, and at from 20 to 25 yards distance apart. A stout wire is stretched horizontally from pole to pole all over the ground, while vertical wires or light rope, made of any suitable material, are attached to the pegs and carried up and fastened to the horizontal wires, thus offering a steady support to the Hop Vine during the period of growth. At harvest time the ropes are detached and carried to the picking stage with the Vines, and the field cleared for the usual tillage operations without the trouble and expense of shifting, stacking, and resetting the poles. This plan has been carried out during several seasons at Bellye, and has been introduced into Wurtemburg, Baden, Bavaria, and other hop-producing countries, with satisfactory results.

Notices to Correspondents.

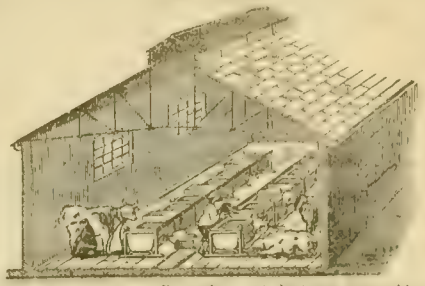
FAILING BARLEY AND OAT CROPS: *Farmer*. The failure arises apparently not only from wire-worm, but from a starved condition of the plants. They ought to have been more forward in their growth by this time; possibly the soil is in poor condition.

WHITE CLOVER. *A Constant Subscriber* has forwarded us a sample of White Clover seed, which, he says, "after several trials only grows 70 per cent., which is much too small a percentage for such a fresh-looking, well-matured-looking seed." Now, as we are asked to account for this, we take the percentage as stated by our correspondent to be correct, and should say that much, if not all, of the 30 per cent. of non germinating seed can be accounted for—1. By bright coloured but small and immature examples; 2. By dark, probably over-ripened and over-exposed, seeds; and, 3. By weavil-eaten specimens. The sample is brighter-looking than usual, as it is remarkably free from weed seeds. It may be that the darker seeds are older than the rest of the sample. *J B.*

FOWLER'S PATENT STEAM PLOUGH and CULTIVATOR may be SEEN at WORK in every Agricultural County in England.

For particulars apply to JOHN FOWLER & Co., 71, Cornhill, London, E.C.; and Steam Plough Works, Leeds.

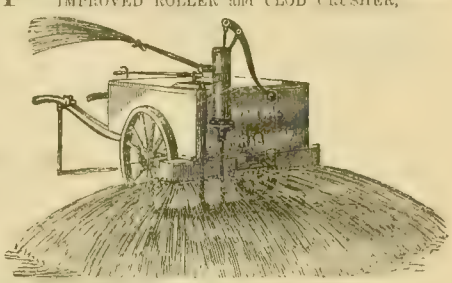
COTTAM'S PATENT PORTABLE UNITED COW FITTINGS



Their advantages are—Portability, no Fixtures, removable at pleasure, no Woodwork or Partitions to impede Ventilation or breed Vermin, Hay Rack dispensed with as unnecessary, increased width and depth of Feeding Troughs, Water Cistern, and Patent Drop Cover to prevent over-gorging. Cleanly, durable, and impervious to infection, being all of Iron. Price of Fittings per Cow, 5*s*.

Prospectuses free of COTTAM & Co., Iron Works, 2, Winsley Street (opposite the Pantheon), Oxford Street, London, W., where the above are exhibited, together with several important Improvements in Stable Fittings just secured by Patent.

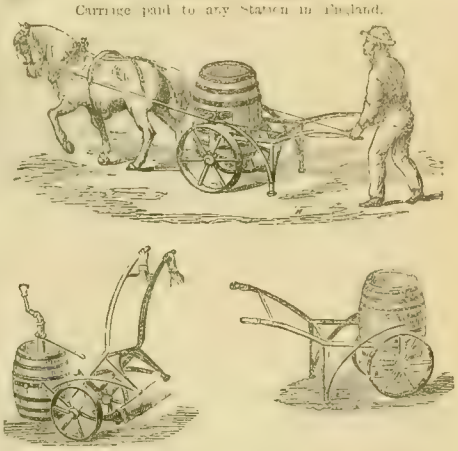
FOR the BEST LIQUID MANURE CART, IMPROVED ROLLER and CLOD CRUSHER,



Apply to I. JAMES, Tiverton Works, Cheltenham.

W. S. BOULTON'S 36-gallon SWING WATER BARROW. Price 6*l*.

Carriage paid to any Station in England.



The above is very cheap and invaluable for carrying Liquids of all kinds. No Garden, Farm, Stable, or Kitchen Yard should be without one. Two or more Tubs can be had with one Carriage at a small additional cost. A Lad can easily work it; but if required to travel long distances over rough ground a Pony can be attached. The wheels and carriage are wrought iron, and the tub oak. The following, out of many Testimonials, have been received:—

From Lord OTHO FITZGERALD, *West Park, Salisbury.*

"SIR,—You are welcome to make use of my letter recommending your Water Barrow. I find it of great use, and stronger, better, lighter, and more serviceable than one I had made in the neighbourhood, the carriage alone of which, without the barrel, cost me £3 10*s*. I unfortunately ordered it before I saw your advertisement. —I am, yours obediently, "O. FITZGERALD."

"To Mr. W. S. BOULTON."

From THOS. INGLE, Esq., *M.D., Ensworth, Hants, June* 24, 1866.

"SIR,—The Swing Water Barrow is in every respect a most admirable improvement on all I have hitherto used in my Gardens. All parties who have seen it, Gentlemen as well as Gardeners, have bestowed upon it their unqualified approval, and several said they would order them of you.—Yours truly, "THOS. INGLE, M.D."

"To Mr. W. S. BOULTON."

Rose Lane Iron and Wire Works, Norwich.

E. T. ARCHER'S "FRIGI DOMO."

Patronised by Her Majesty The Queen, the Duke of Northumberland for Syon House, His Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, &c.

PROTECTION from the SCORCHING RAYS of the SUN.

"FRIGI DOMO," a Canvas made of Patent prepared Hair and Wool, a perfect Non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all Horticultural and Floricultural purposes, for Preserving Fruits and Flowers from the Scorching Rays of the Sun, from Wind, from Attacks of Insects, and from Morning Frosts. To be had in any required lengths.

Two yards wide .. .. 1*s*. 9*d*. per yard run.
Four yards wide .. .. 3*s*. 6*d* per yard.
An improved make, 2 yards wide .. 1*s*. 9*d*. per yard.
An improved make, 3 yards wide .. 2*s*. 8*d*. per yard run. Also

"FRIGI DOMO" NETTING, 2 yards wide, 1*s*. 6*d* per yard run.

ELISHA THOMAS ARCHER, Whole and Sole Manufacturer, 7, Great Trinity Lane, Cannon Street, City, E.C., and of all Nurserymen and Seedsmen throughout the Kingdom.

"It is much cheaper than Mats as a covering."

Fumigate your Greenhouse with TOBACCO TISSUE.

—This article is acknowledged by all parties who have used it to be the best remedy for Destroying Insect Life; is entirely free from paper or rag, and will burn without the assistance of blowing.

Price 3*s*. 6*d*. per lb., carriage free. To be had of Messrs. ROBERT & SONS, Tobacco Manufacturers, 112, St. John Street, Clerkenwell, E.C., and of all Seedsmen and Nurserymen.

GREEN'S PATENT SILENS MESSOR,

OR

NOISELESS LAWN MOWING, ROLLING, and COLLECTING MACHINES.

PATRONIZED BY

HER MOST GRACIOUS MAJESTY THE QUEEN
ON TWENTY-NINE DIFFERENT OCCASIONS.
H.R.H. THE PRINCE OF WALES.

THE KING OF THE BELGIANS.
THE EMPEROR OF THE FRENCH.
THE EMPEROR OF RUSSIA.

AND MOST OF THE NOBILITY, CLERGY, AND GENTRY IN THE UNITED KINGDOM.

THOMAS GREEN AND SON, in introducing their PATENT LAWN MOWERS for the present season, beg to state that they have no Novelties to report. The fact is, that after the severe tests their Machines have been subjected to since they added their latest improvements, they have been found to meet all the requirements for which they are intended, viz.:—the KEEPING of LAWNS in the HIGHEST STATE of PERFECTION.

They are the simplest in construction, least liable to get out of order, and can be worked with far greater ease than any other Lawn Mower extant; and in proof of their superiority, 39,000 have been sold since the year 1856.

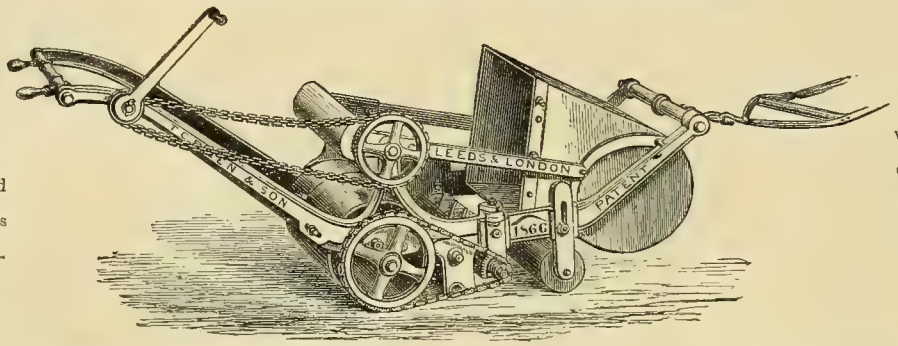
THEY ARE THE ONLY MACHINES IN CONSTANT USE AT

THE ROYAL HORTICULTURAL SOCIETY'S GARDENS, SOUTH KENSINGTON
THE ROYAL BOTANIC GARDENS, REGENT'S PARK
THE CRYSTAL PALACE COMPANY'S GARDENS, SYDENHAM
BUCKINGHAM PALACE GARDENS
MARLBOROUGH HOUSE
THE HYDE PARK GARDENS
THE WINTER PALACE GARDENS, DUBLIN
THE DUBLIN BOTANIC GARDENS
THE LIVERPOOL BOTANIC GARDENS
THE LEEDS ROYAL PARK
THE HULL BOTANIC GARDENS
THE BOTANIC GARDENS, BRUSSELS
THE SUNDERLAND PARK
THE PRESTON PARK

AND IN MOST OF THE PRINCIPAL PARKS, SQUARES, ETC., IN THE UNITED KINGDOM.

HORSE, PONY, AND DONKEY MACHINE.

GREEN'S
PATENT
LAWN MOWERS
have proved to be the best, and carried off every Prize that has been given in all cases of competition.



T. GREEN & SON
warrant every Machine to give entire satisfaction, and if not approved of can be returned unconditionally.

PRICES of HORSE, PONY, and DONKEY MACHINES, including Patent Self-delivery Box; Cross Stay complete; suitable for attaching to ordinary Chain Traces or Gig Harness.

PONY AND DONKEY MACHINES.

To Cut 26 inches	..	..	..	£13 0 0	*Leather Boots for Donkey*, 18*s*. *Leather Boots for Pony*, 22*s*.
,, 28 ,,	..	..	..	15 0 0	
,, 30 ,,	..	..	..	17 0 0	

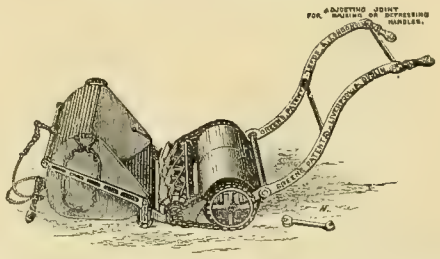
HORSE MACHINES.

To Cut 30 inches	..	..	..	£21 0 0	*Leather Boots for Horse*, 26*s*.
,, 36 ,,	..	..	..	24 0 0	
,, 42 ,,	..	..	..	27 0 0	
,, 48 ,,	..	..	..	30 0 0	

Both the Horse, Pony, Donkey, and Hand Machines possess (over all other Makers) the advantage of Self-sharpening. The cutters being steel on each side, when they become dull or blunt by running one way round the cylinder, can be reversed again and again, bringing the opposite edge of the cutter against the bottom blade, when the Machine will cut equal to new. Arrangements are made that the cylinder can be reversed, by any inexperienced person, in two or three minutes.

HAND MACHINES.

To Cut 10 inches	..	£3 10 0	*Suitable for a Lady*	To Cut 18 inches	.. £7 10 0 *Suitable for One Person*
,, 12 ,,	..	4 10 0	,, ,,	,, 20 ,,	.. 8 0 0 *Suitable for Two Persons*
,, 14 ,,	..	5 10 0	*Suitable for One Person*	,, 22 ,,	.. 8 10 0 ,, ,,
,, 16 ,,	..	6 10 0	,, ,,	,, 24 ,,	.. 9 0 0 ,, ,,



Packing Cases are charged at the following low rates, viz.:—for the 10 and 12-inch Machine, 3*s*.; 14 and 16-inch, 4*s*.; 18 and 20-inch, 5*s*.; 22 and 24-inch, 6*s*. Parties providing themselves with Lawn Mowers are recommended to purchase the cases in which to stow them away, when not in use, to prevent them from getting damaged; if returned, two-thirds will be allowed for them.

The above MACHINES are made from the best materials, and of superior workmanship; are delivered Carriage Free to all the principal Railway Stations and Shipping Ports in England.

Every Machine is warranted to give entire satisfaction, and if not approved of, can be returned unconditionally.

T. G. AND SON have to state that the demand for their LAWN MOWERS this season has been unprecedented, which is a proof of the high estimation in which they are held. The 3000 Machines they had in stock at the commencement of the season are now materially reduced, still with their present facilities they are prepared to execute Orders on the day they are received.

Having taken very extensive Premises in London, we are in a position to do all kinds of Repairs there, as well as at our Leeds Establishment.

THOMAS GREEN AND SON, SMITHFIELD IRON WORKS, LEEDS;
and 54 and 55, BLACKFRIARS ROAD, LONDON, S.

SAMUELSON & CO.'S

PATENT LAWN MOWING and ROLLING MACHINES.

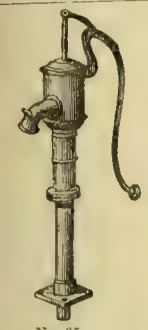
EVERY MACHINE WARRANTED.

TO BE OBTAINED OF

SAMUELSON AND CO., BRITANNIA WORKS, BANBURY.

LONDON WAREHOUSE: 10, LAURENCE POUNTNEY LANE, E.C.

AGENTS:—Messrs. TANGYE BROTHERS AND HOLMAN, 10, LAURENCE POUNTNEY LANE; Messrs. DEANE AND CO., London Bridge; Messrs DRAY, TAYLOR AND CO., London Bridge; Mr. THOMAS BRADFORD, 63, Fleet Street, E.C.; and all respectable Seedsmen and Ironmongers throughout the Kingdom.



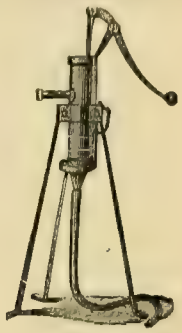
No. 35.

JOHN WARNER & SONS,

BRASS & BELL FOUNDERS TO HER MAJESTY.

HYDRAULIC ENGINEERS,

8, CRESCENT, CRIPPLEGATE, LONDON, E.C.



No. 42.

J. W. AND SONS' GOODS MAY BE OBTAINED OF THE TRADE GENERALLY AT THE FOLLOWING PRICES:—

35. WARNERS' PATENT CAST-IRON **LIFT PUMPS.**

2½ inches diameter	.. ..	£1	8 6
3 „ „	.. ..	2	1 0
3½ „ „	.. ..	2	6 0
4 „ „	.. ..	2	14 0

SHORT-BARREL DITTO,

FOR SINKS, PLANT HOUSES, &c.

No. 37.—2½ ins. diameter .. £1 1 0

Ditto, with 15 feet of 1¼-in. lead Suction Pipe attached, £2.



WARNERS' (No. 568½) AMERICAN **GARDEN ENGINE,**

OR FIRE ANNIHILATOR,

Is complete in itself, or can be used to draw from a Pond or Tank, price £2 2*s.*

6 ft. Suction Pipe and Rose, extra, 12*s.*



WARNERS' AQUAJECT.

Useful for every variety of purpose, in Watering or Washing Flowers or Trees in Gardens, Conservatories, &c.; also for Washing Carriages or Windows, Laying Dust, &c.

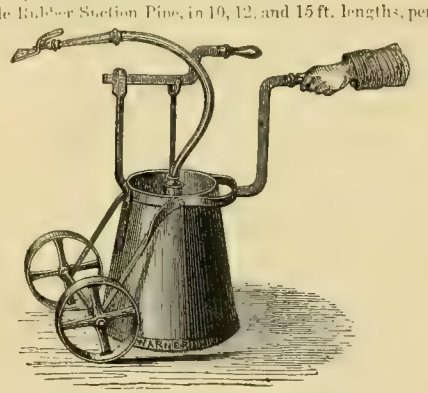
Price, complete £1 10 0

Small Size for the hand, as an ordinary Syringe, 18*s.*

No. 42. **WARNERS' PORTABLE PUMPS,**

With Improved Valves for Liquid Manure £2 15 0

2-in. Flexible Rubber Suction Pipe, in 10, 12, and 15 ft. lengths, per foot, 2*s.* 5*d.*



WARNERS' (No. 547 B) GARDEN ENGINE.

HOLDS SIX GALLONS.

Is light, portable, and easily worked by a lady or child, price £2 10*s.*

LETTER TO *The Times*, JULY 23, 1866.

FROM EARL ESSEX.

A Real Fire Extinguisher.

To the Editor of "The Times."

"SIR,—I feel sure you will kindly allot a small space in the *Times* to these few lines, as the best medium through which I would urge every householder who dreads fire to have on each floor of his house one or more small Garden or other Engines on wheels, always charged and in good order, in case of fire.

"Last night, just as I was going to bed, I was startled by that most fearful of all cries, 'Fire, fire!' I soon learned that a fire was raging in a large two-windowed unoccupied bedroom. How caused is to us all a great mystery. It is my custom to keep one of these small Engines on each floor. In two minutes I was in the room with one of them. It was like a furnace. The curtains, shutters, casements, and cornices of both windows were burning and cracking from floor to ceiling. I was quite alone at the moment, yet before assistance arrived (most of the servants having gone to bed), I had completely subdued the fire of one window without exhausting the Engine, and when assistance and more water did arrive, we very soon extinguished the other. So fierce was the fire that the lead of the casements was melted, and the casements themselves were burnt off their hinges. I will only add, that by God's mercy, the house was saved by this small Engine. Had it not been at hand and in order, most assuredly Cassiobury would be now a heap of ruins.—Yours faithfully,

"ESSEX.

"Cassiobury, Watford, July 20.

"The Engine, even when full, runs so light on the floor, that any woman might draw it, and also work it."



No. 547, in Wood. 547A, in Iron Tub.

WARNERS' GARDEN ENGINES,

WITH REGISTERED SPREADERS.

These Engines are much improved in construction, are less likely to get out of order, and more easily repaired than others.

No. 547. Best ENGINES, in Wood Tubs.

24 Gallons	..	£6 10 0	14 Gallons	..	£5 10 0

No. 547A. Strong ENGINES, in Galvanized Iron Tubs, well painted inside and out.

10 Gallons	..	£2 19 0	24 Gallons	..	£4 19 0
16 Gallons	..	3 14 0	28 Gallons	..	5 10 0

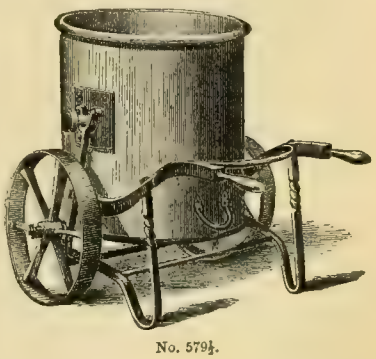
579½. WARNERS' WATER BARROW

Saves a Gardener's time in Watering with the Water Pot.

Made of strong Wrought Iron, Galvanized and painted inside and out.

To hold 20 Gallons, wheels 13 inches high			.. ..	£2	2 0
„ 30 „ „ 20 „			.. ..	2	13 0
„ 38 „ „ 24 „			.. ..	3	17 0
„ 50* „ „ 24 „			.. ..	5	12 0

* This is an extra strong article, with cross handle for two men, suitable for Nursery Grounds, &c.



No. 579½.

SYRINGES, BRANCH PIPES, INDIA-RUBBER HOSE, &c.

☞ *Estimates for any description of Hydraulic Machinery forwarded on application.*

By Royal Letters Patent.



WELLS'S PORTABLE GROUND VINERY, for Growing and Ripening Grapes without Artificial Heat.
Awarded a Silver Medal at the International Exposition of Horticulture, held at Nice, April, 1865.
Drawings and Instructions can be had of the PATENTEE, Steam Works 24, Bouverie Street, London, E.C.
AGENTS:—B. J. Edwards, 25, Bishopsgate Street Within, E.C.
J. R. Tanton, Epsom, Surrey.
Drummond Brothers, 52, George Street, Edinburgh.

AUSTIN'S ARTIFICIAL STONE, INVENTED 1826.
The entire Stock of this Manufactory comprises
180 different MODELS of VASES.
70 different MODELS of TAZZAS.
About 200 different FOUNTAINS.
74 STATUES from the Antique, and by Modern Artists, and SMALL FIGURES of CHILDREN.
22 SUN-DIAL PEDESTALS.
GARDEN SEATS.
15 BASKETS, from 12s. to Seven Guineas.
SHELLS, suitable either for WATER or ROCK PLANTS, from 18 inches to 12 feet diameter.
JARDINIÈRES, or large BOWLS for MASSES of FLOWERS.
53 FIGURES of ANIMALS and BIRDS.
ORNAMENTAL RIMS to WATER BASINS.
34 BAPTISMAL FONTS.
CRESTS and other ORNAMENTS for GATE PIERS.
BALUSTRADING, in various styles.
TRIPOD, and other ANTIQUE PEDESTALS.
Manufactured by AUSTIN, SEELEY, & Co., at Nos. 369 to 375, Euston Road, Regent's Park, N.W.



GARDEN BORDER EDGING TILES, in great variety of patterns and material, the plainer sorts being especially suited for KITCHEN GARDENS, as they harbour no Slugs and Insects, take up little room, and once put down incur no further labour and expense, as do "grown" Edgings, consequently being much cheaper.
GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, of great durability, and in great variety of design.
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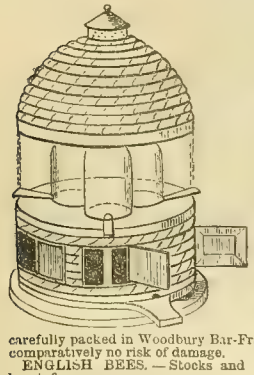


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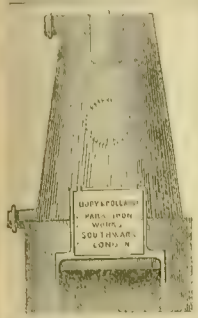
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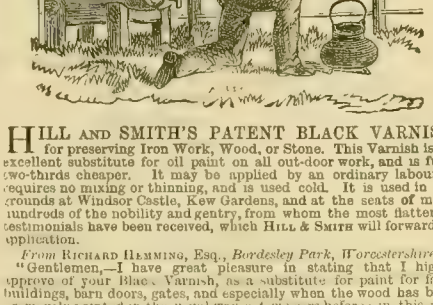
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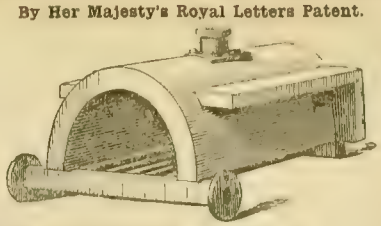
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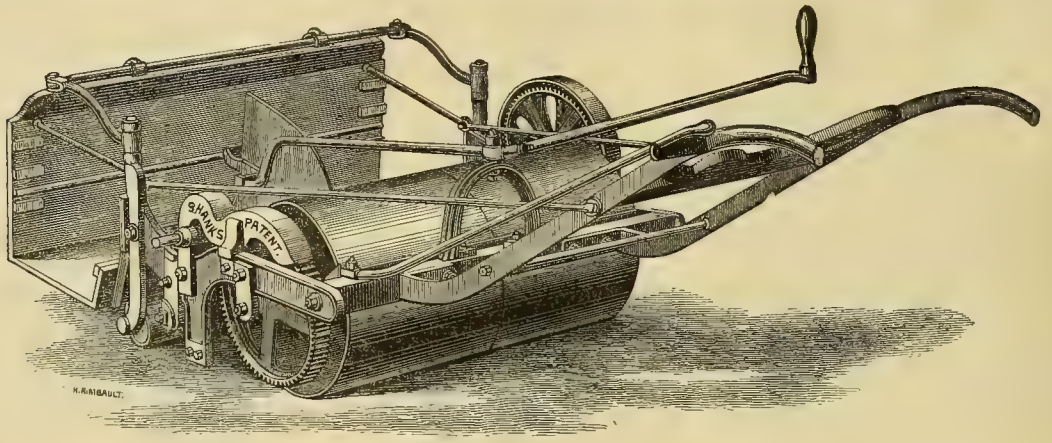
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THE MOST NOBLE THE MARQUIS of WESTMINSTER, one 42-inch
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Width of Cutter.		Easily Worked	Silent Movement.
10-inch Machine	£3 10 0	*By a Lady*	4s. extra.
12-inch Machine	4 10 0		
14-inch Machine	5 10 0	*By a Boy*	

Width of Cutter.		Easily Worked	Silent Movement.
16-inch Machine	£6 10 0	*By a Man or Two Boys*	4s. extra.
19-inch Machine	7 12 6	*By a Man and Boy*	
22-inch Machine	8 7 6	*By Two Men*	7s. 6d. extra.
24-inch Machine	8 17 6		

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Width of Cutter.		If with Patent Delivering Apparatus.
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28-inch Machine	14 10 0	30s. ,,
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Ditto for Donkey, 18s. per set.

SHANKS' NEW PATENT HORSE MACHINE.

Width of Cutter.		If with Patent Delivering Apparatus.
30-inch Machine	£19 0 0	30s. extra.
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42-inch Machine	26 0 0	40s. ,,
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The Machines are warranted to give ample satisfaction, and, if not approved of, may be at once returned.

PATENTEES AND SOLE MANUFACTURERS:

ALEXANDER SHANKS AND SON, DENS IRON WORKS, ARBROATH, N.B.

LONDON OFFICE and SHOW ROOMS, 27, LEADENHALL STREET, E.C.

☞ 27, *Leadenhall Street is the only place in London where intending purchasers of Lawn Mowers can choose from a Stock of from* 150 *to* 200 *Machines. All sizes kept there, whether for Horse, Pony, or Hand Power.*

Editorial Communications should be addressed to "The Editor;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
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THE GARDENERS' CHRONICLE
AND
AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.

No. 23.—1867.] SATURDAY, JUNE 8. {Price Fivepence. Stamped Edition, 6d.

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ROYAL BOTANIC SOCIETY'S GARDENS, Regent's Park.—SECOND EXHIBITION of PLANTS, FLOWERS, and FRUIT, WEDNESDAY, June 19. Tickets to be obtained only at the Gardens; and of the Society's Clerk, at Austin's Ticket Office, St. James's Hall; by Vouchers from Fellows of the Society, price 5s., or on the day of the Exhibition, 7s. 6d. each. Gates open at 2 o'Clock. Military Bands will play from 2 to 7 o'clock.
AMERICAN PLANTS, MONDAY NEXT, June 10. Tickets, 2s. 6d each.

THE BRISTOL, CLIFTON, and WEST of ENGLAND ROSE SHOW, at the Zoological Gardens, Clifton, TUESDAY, June 25. Schedules to be obtained on application to the SECRETARY, at the Gardens. N.B.—All Entries to be on Saturday, May 23.

ROSE SHOW, RUGBY, WARWICKSHIRE, will be HELD on FRIDAY, the 12th of July next, when a Silver Cup value £10, and Other Prizes will be offered. Entries to be made on or before July 8. Schedule of Prizes and further particulars may be obtained on sending two postage stamps to
JOHN SAVAGE or WILLIAM MASON, Hon. Secs.

Royal Botanic Gardens, Regent's Park.
JOHN WATERER'S display of Hardy, Scarlet, and other RHODODENDRONS (the only one in London) is NOW in FINE BLOOM at the above Gardens, and will continue in great perfection throughout the month of June.
☞ The Scarlet and White RHODODENDRON clumps, also the large Single Plants, which bloomed and were so much admired at Rotten Row last year, were supplied by
JOHN WATERER, American Nursery, Bagshot, Surrey.

Novelties.
WM. PAUL (Son and Successor to the late A. PAUL) respectfully solicits Orders for the NEW and FIRST-CLASS ROSES and BEDDING GERANIUMS, &c., advertised at length in this Paper in May last.
PAUL'S Nurseries, Waltham Cross, London, N.

MRS. POLLOCK GERANIUMS.—Strong established Plants hardened in the open air, 2 guineas per 100, 6s. per doz.
MAULE & SONS, The Nurseries, Bristol.

Mrs. Pollock Geranium.
T. J. BOOTH offers the above, in good Plants, at 7s. per dozen, or 50s. per 100, for cash.
Rainhill Nursery, Lancashire.

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DESCRIPTIVE PRICED CATALOGUE free on application.
W. HOOPER, New Wandsworth, S.W.

New Tricolored Geraniums.
F. AND A. SMITH beg to announce that their superb selection of the above, as per Descriptive Catalogue, will be sent out on the 24th inst. as far as the limited stock will permit.
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HUSSEY AND SON beg to offer extra fine TOM THUMB GERANIUMS, at 14s. per 100; BIJOU and SHOTTESHAM PET, 16s. per 100; STELLA and MINIMUM, 14s. per 100; and GOLDEN CHAIN, at 16s. per 100.
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THOMAS J. BOOTH, Rainhill Nursery, Rainhill, Lancashire.

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JOHN VERTIGAN, Gardener to C. Lucas, Esq., Sister's House, Clapham Common, S.

BATH and WEST of ENGLAND SOCIETY.

SALISBURY MEETING, 1867.

STAND 168.

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B. S. WILLIAMS

RESPECTFULLY INVITES HIS PATRONS AND THE PUBLIC GENERALLY

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DURING THE PRESENT MONTH.

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THE FOLLOWING NEW SPECIES,

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,, CROCATUM, 42s., 210s. for six.
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LARGE SUPPLIES OF

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ALL OF WHICH ARE ON SALE AT EXTREMELY MODERATE PRICES, WHICH WILL BE QUOTED ON APPLICATION.

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WHICH ARE OFFERED SINGLY, OR BY THE DOZEN OR HUNDRED.

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FUCHSIAS, best sorts, including the cream of last year's new Varieties, 6*s.* per dozen.
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ANTIRRHINUM, saved from splendid varieties, 6*d.* and 1*s.* per pkt. Twelve varieties, separate, of select hardy BORDER PERENNIALS, 2*s.* 6*d.*
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First-class Certificate from Royal Horticultural Society.
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LAST YEAR'S PLANTS (a few remaining).
1st Size, very choice, 8 to 12 inches, £5 5*s.* each.
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2d Size, fine, 4 to 5 inches, £2 2*s.*
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5000 plants are now plunged out-of-doors, in their respective sizes they may be safely forwarded during the summer, if desired, and orders will be executed in strict rotation.
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Post Free.

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Celery, Manchester Champion Red	0	6	Lettuce, Wheeler's Tom Thumb	0	6
Cucumber, Smith's Fine Frame	1	0	Radish, French Breakfast	0	6
Cucumber, Telegraph ..	1	0	Aster, Truffaut's Superb French, 12 vars. mixed ..	1	0
Leek, Henry's Prize ..	0	6	Aster, Victoria, 6 vars. mixed	1	0
Endive, Digswell Prize ..	0	6	Stock, improved large-flowering, 12 vars. mixed.	1	0
Onion, Nuneham Park ..	2	6	Balsam, Camellia-flowered, 6 var. mixed	1	0
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Early Orders are necessary, as the Seed is scarce.
This is one of the best if not THE BEST Swede in cultivation; the specimens exhibited at the Smithfield Club Show in London, and at Cirencester, Birmingham, and at the Great Show of Roots held in Gloucester, excited considerable admiration, not only for their size, but for their beautiful shape and excellent quality.
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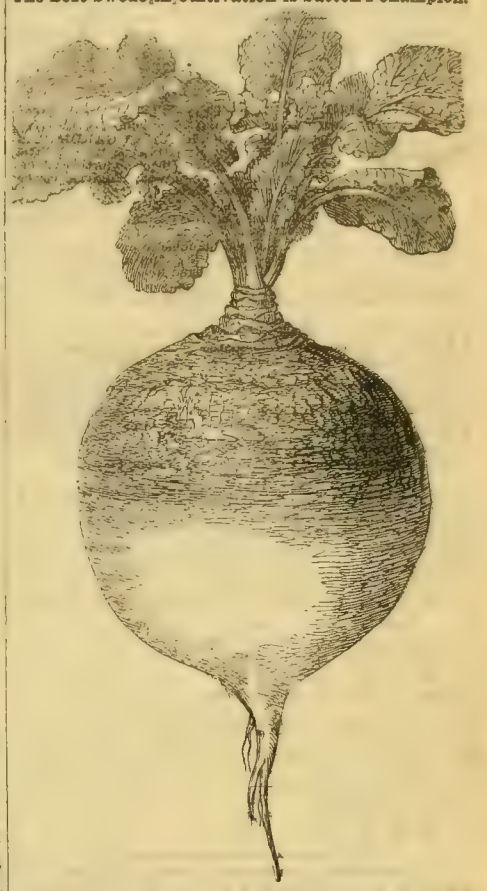
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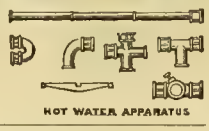
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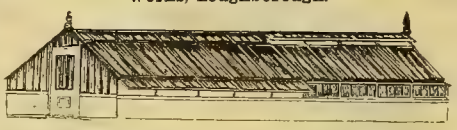
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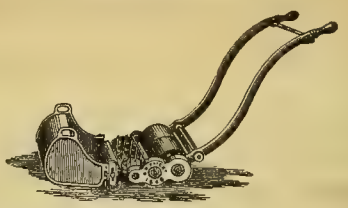
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15 BASKETS, from 12*s.* to Seven Guineas.
SHELLS, suitable either for WATER or ROCK PLANTS, from 18 inches to 12 feet diameter.
JARDINIÈRES, or large BOWLS for MASSES of FLOWERS.
53 FIGURES of ANIMALS and BIRDS.
ORNAMENTAL RIMS to WATER BASINS.
34 BAPTISMAL FONTS.
CRESTS and other ORNAMENTS for GATE PIERS.
BALUSTRADING, in various styles.
TRIPOD, and other ANTIQUE PEDESTALS.

Manufactured by AUSTIN, SEELEY, & Co., at Nos. 369 to 375, Euston Road, Regent's Park, N.W.

GRAY'S OVAL TUBULAR BOILER.

INTERNATIONAL EXHIBITION, CLASS IX., No. 2119.

MR. GRAY begs to call the attention of the Nobility, Gentry, Nurserymen, Gardeners, &c., to his

NEW OVAL TUBULAR BOILER,

Acknowledged by practical judges to be a great improvement on every form of Tubular Boiler yet introduced. It has proved itself superior to all other Boilers for quickness of action and economy of Fuel, doing its work with one-third less the amount required by any other.

Extract from Report in GARDENERS' CHRONICLE *of International Exhibition, May* 24, 1862, *page* 476.

"The upright form of Boiler is usually made on a circular plan, but the oval form given to Mr. GRAY'S variety of it is said to be preferable in consequence of its bringing the tubes in closer contact with the fire. The usual form of a furnace being a parallelogram rather than a square, it seems feasible that the Boilers on the oval plan should bring the tubes more completely within range of the burning fuel; and this being so, the change, though a slight one, is no doubt an improvement."

☞ *They are made of all sizes, which, with prices, may be had on application.*

JAMES GRAY, HORTICULTURAL WORKS,
DANVERS STREET, PAULTON'S SQUARE, KING'S ROAD, CHELSEA, S.W.

SHANKS' NEW PATENT LAWN MOWERS FOR 1867.

PATRONIZED ON FIVE OCCASIONS DURING THE SEASON OF 1864 BY

HER MAJESTY THE QUEEN,

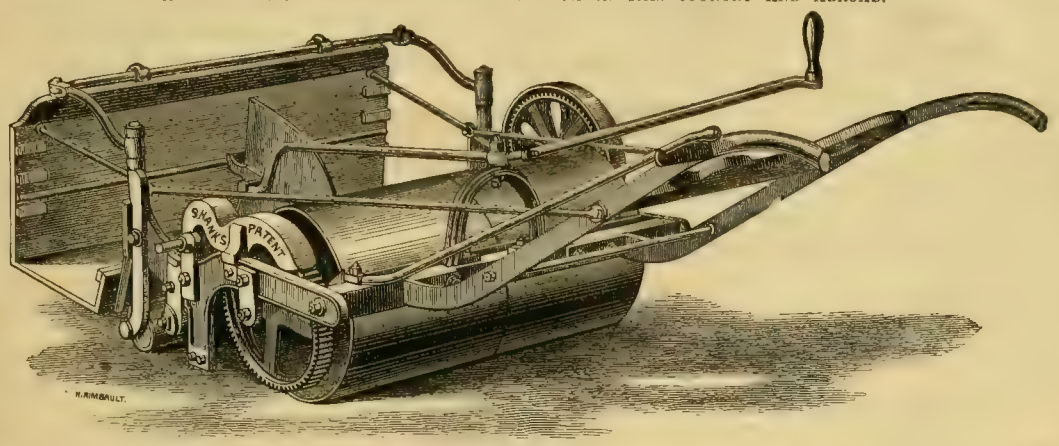
AND ONCE BY HIS MAJESTY THE KING OF SAXONY.

DURING THE SEASON OF 1865 THEY WERE PATRONISED ON FOUR OCCASIONS BY HER MAJESTY THE QUEEN.

ONCE BY HIS MAJESTY THE KING OF HOLLAND, AND ONCE BY HIS MAJESTY THE KING OF PRUSSIA.

AGAIN ON FOUR OCCASIONS DURING THE SEASON OF 1866 BY HER MAJESTY THE QUEEN,

AND BY MANY DISTINGUISHED NOBILITY BOTH IN THIS COUNTRY AND ABROAD.



HORSE-POWER MACHINE.

ALEX. SHANKS AND SON are gratified in being able to state that in the *extraordinary and increasing* demand for their celebrated Machines *this Season*, they see a further and conclusive proof that their merits are being fully appreciated by the practical Gardener. The increased demand has been more particularly for the NEW IMPROVED HAND MACHINES. The demand for the HORSE and PONY MACHINES is also on the increase; and as A. S. AND SON have devoted their attention for the last 30 years to the Manufacture and Improvement of Lawn Mowers, they are enabled to state confidently that their Machines, whether for Horse, Pony, or Hand Power, *surpass* all others for general efficiency, simplicity of construction, ease in working, and durability.

A. S. AND SON subjoin a List of a few of those whose patronage they have had the honour to receive during the past few weeks for their favourite Horse Machine. It would take many pages to contain a List of all the distinguished Patrons they have had for the other sizes.

HER MAJESTY THE QUEEN, for the ROYAL GARDENS, WINDSOR, one 42-inch
HER MAJESTY THE QUEEN, for the ROYAL GARDENS, KEW, one 42-inch
HIS GRACE THE DUKE of SUTHERLAND, one 42-inch
HIS GRACE THE DUKE of BEDFORD, one 42-inch
HIS GRACE THE DUKE of BUCCLEUCH, one 42-inch
HIS GRACE THE DUKE of ATHOLE, one 42-inch
THE MOST NOBLE THE MARQUIS of WESTMINSTER, one 42-inch
THE MOST NOBLE THE MARQUIS of STAFFORD, one 42-inch

SHANKS' PATENT LAWN MOWERS

ARE IN DAILY USE IN

ALL THE ROYAL GARDENS; IN THE HORTICULTURAL SOCIETY'S GARDENS AT KENSINGTON; CRYSTAL PALACE COMPANY'S GROUNDS IN VICTORIA PARK; HYDE PARK;

And in almost all the principal Public Parks and Gardens in the Kingdom.

These are the only Machines that can be depended on to give lasting satisfaction.

THESE ARE THE ONLY MACHINES THAT WILL MOW PROPERLY WHEN THE GRASS IS WET.

THESE ARE THE ONLY MACHINES THAT DELIVER THE GRASS WITHOUT STOPPING, THUS SAVING AN IMMENSE AMOUNT OF LABOUR.

SHANKS' PATENT LAWN MOWERS are the only Machines that have been in operation in HER MAJESTY'S GARDENS for a quarter of a century.

SHANKS' PATENT LAWN MOWER WILL MOW ON UNEVEN AS WELL AS ON LEVEL LAWNS..

PRICES, INCLUDING CARRIAGE TO ANY RAILWAY STATION OR SHIPPING PORT IN THE KINGDOM.

SHANKS' NEW PATENT HAND MACHINE.

Width of Cutter.		Easily Worked	Silent Movement.
10-inch Machine	£3 10 0	*By a Lady*	4*s.* extra.
12-inch Machine	4 10 0		
14-inch Machine	5 10 0	*By a Boy*	

Width of Cutter.		Easily Worked	Silent Movement
16-inch Machine	£6 10 0	*By a Man or Two Boys*	4*s.* extra.
19-inch Machine	7 12 6	*By a Man and Boy*	
22-inch Machine	8 7 6	*By Two Men* ..	7*s.* 6*d.* extra.
24-inch Machine	8 17 6		

SHANKS' NEW PATENT PONY and DONKEY MACHINE.

Width of Cutter.		If with Patent Delivering Apparatus.
25-inch Machine	£12 10 0	.. .. 25*s.* extra.
28-inch Machine	14 10 0	.. .. 30*s.* ,,
30-inch Machine	15 15 0	.. .. 30*s.* ,,

Silent Movement, 12*s.* 6*d.* extra; Boots for Pony, 22*s.* per set.
Ditto for Donkey, 18*s.* per set.

SHANKS' NEW PATENT HORSE MACHINE.

Width of Cutter.		If with Patent Delivering Apparatus
30-inch Machine	£19 0 0	.. .. 30*s.* extra.
36-inch Machine	22 0 0	.. .. 30*s.* ,,
42-inch Machine	26 0 0	.. .. 40*s.* ,,
48-inch Machine	28 0 0	.. .. 40*s.* ,,

Silent Movement, 20*s.* extra; Boots for Horse's Feet, 26*s.* per set.

The Machines are warranted to give ample satisfaction, and, if not approved of, may be at once returned.

PATENTEES AND SOLE MANUFACTURERS:

ALEXANDER SHANKS AND SON, DENS IRON WORKS, ARBROATH, N.B.

LONDON OFFICE and SHOW ROOMS, 27, LEADENHALL STREET, E.C.

☞ 27, *Leadenhall Street is the only place in London where intending purchasers of Lawn Mowers can choose from a Stock of from* 150 *to* 200 *Machines. All sizes kept there, whether for Horse, Pony, or Hand Power.*

VERBENAS and GERANIUMS, scarlet, &c., good and well established, supplied as follows:—VERBENAS, in variety, 16s. per 100; GERANIUM, in great variety for bedding, 18s. per 100; UNIQUE, crimson, extra strong, 30s. per 100. DESCRIPTIVE CATALOGUE of Roses in pots, Stove, Greenhouse, Soft-wooded, and Bedding-out Plants. Post free. Trade price on application.

H. & R. STIRZAKER, Skerton Nurseries, Lancaster.

CHOICE VARIEGATED GERANIUMS.—The following 12 distinct Varieties, in good strong Plants, will be sent on receipt of Post-office Order for 12s.

LUNA	ITALIA UNITA
SUNSET	QUEEN of QUEENS
MRS. BENYON	QUADRICOLOR VARIEGATA
VIRGIN QUEEN	YELLOW BELT
STELLA VARIEGATA	MISS KINGSBURY
MRS. POLLOCK	BIRD of PARADISE

SALTMARSH & SON, Moulsham Nurseries, Chelmsford.

SUPERB VARIEGATED GERANIUMS.

MRS. BENYON	BEAUTY of OULTON
BICOLOR SPLENDENS	THE COUNTESS
GOLD PHEASANT	MRS. LONGFIELD
GLOWWORM	YELLOW BELT
LUNA	LITTLE PET
TWILIGHT	ITALIA UNITA

Strong plants of the above set 15s. Package included.

CASSON & SON, Gravel Walk Nursery, Peterborough.

POA TRIVIALIS ARGENTEA ELEGANS, Silver-leaved MEADOW GRASS, 4s. per dozen.
CHRYSANTHEMUM SENSATION, white edged, 4s. per dozen.
AGERATUM PRINCE ALFRED, the darkest and dwarfest blue variety out, 3s. per dozen.
100 VERBENAS, in 50 varieties, for 16s.
100 ZONAL GERANIUMS, in 50 varieties, for 30s.

B. W. KNIGHT, Nurseryman, Battle, Sussex.

Primula New Seed, 1867.

F. AND A. SMITH'S NEW CROP of the above is now ready. Quality of flowers unsurpassed for size and colour, producing 10 per Cent. double flowers. The following colours are now offered:—

STRIPED, WHITE and PURPLE, 2s. 6d. per packet.
KERMESINA, 2s. 6d. and 5s. per packet.
WHITE, 1s., 2s. 6d., and 5s. per packet.
CRIMSON, 1s., 2s. 6d., and 5s. per packet.
FERN-LEAVED RED, 2s. 6d. and 5s. per packet.
FERN-LEAVED WHITE, 2s. 6d. and 5s. per packet.

Dulwich, Surrey, S.

New Fuchsias.

H. CANNELL is now sending out the following; they are stated to be an advance upon all existing Varieties.

ACHILLES	L'AFRICAINE
CARRY SYMES	LEONORE MULTIFLORA
DEFIANCE | EVA	NOVELTY
FREEDOM	FAVOURITE of FORTUNE
IMBRICATA PLENA	And NORA

Strong Plants of all the above for 7s. 6d., package included.

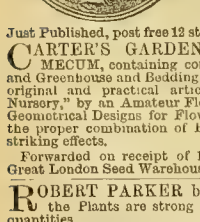
Strong rooted little Plant by post, warranted to arrive safe, fresh, and free, for 5s.

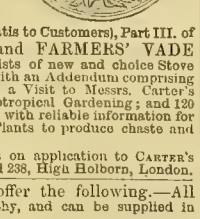
Fuchsia Nursery, Woolwich.

THE FINEST KNOWN FERN, CIBOTIUM PRINCEPS, good Plants 10s. 6d. each.
THE FINEST PALM, PHÆNICOPHORIUM SECHELLARUM (or STEVENSONIA GRANDIFOLIA). — Leaves beautifully spotted with yellow, edges elegantly fringed, and stems ornamented with long shining jet black thorns. Nice Plants, with 3 to 5 leaves, 10s. 6d. each.
MARANTA ROSEO-PICTA.—The gem of the late International Exhibition. Nice plants, 15s. each.
The above Three Plants should be added to the most select collection.

JOHN MORSE, Nurseryman, Dursley, Gloucestershire.

Bedding and other Plants.





Just Published, post free 12 stamps (Gratis to Customers), Part III. of CARTER'S GARDENERS' and FARMERS' VADE MECUM, containing complete Lists of new and choice Stove and Greenhouse and Bedding Plants, with an Addendum comprising original and practical articles, "On a Visit to Messrs. Carter's Nursery," by an Amateur Florist; Subtropical Gardening; and 120 Geometrical Designs for Flower-beds; with reliable information for the proper combination of Bedding Plants to produce chaste and striking effects.

Forwarded on receipt of 12 stamps on application to CARTER'S Great London Seed Warehouse, 237 and 238, High Holborn, London.

ROBERT PARKER begs to offer the following.—All the Plants are strong and healthy, and can be supplied in quantities.

PANSY CLIVEDEN BLUE, 6s. per dozen.
PANSY CLIVEDEN PURPLE, 6s. per dozen.
PANSY CLIVEDEN YELLOW, 6s. per dozen.
POLEMONIUM CŒRULEUM VARIEGATUM, 2s. 6d. each.
RHODODENDRON COUNTESS of HADDINGTON, 3s. 6d. each.
TRITOMA GRANDIS, 18s. per dozen.
TRITOMA UVARIA GLAUCESCENS, 12s. per dozen.
VIOLA CORNUTA, best variety, 4s. per dozen.
VIOLET, REINE DES VIOLETS, 6s. per dozen.
VIOLET THE CZAR, 6s. per dozen. [per packet.
PRIMULA SINENSIS FIMBRIATA, finest mixed seed, 2s. 6d

PRICED and DESCRIPTIVE CATALOGUES of AGRICULTURAL, FLOWER, and VEGETABLE SEEDS, GREENHOUSE, HARDY, and STOVE PLANTS, are published, and will be forwarded free to applicants.

Exotic Nursery, Tooting, Surrey, S.

Dutch Bulbs.

A. E. BARNAART, NURSERYMAN, Vogelenzang, Haarlem, begs to inform Nurserymen and the Trade generally, that he has just published his New CATALOGUE of DUTCH BULBS for the coming season, which may be had post free on application to his Agents, Messrs. R. SILBERRAD & SON, 5, Harp Lane, Great Tower Street, London, E.C.

A. E. BARNAART having extensive Nurseries at Haarlem, Overveen, and Vogelenzang, possess unusual cultural advantages, being able to select the soil and situation most desirable for perfecting the growth of each description of Bulb.

His HYACINTHS were crowned this spring at the Paris Exposition Universelle.

Genista præcox.

GEO. WHEELER, NURSERYMAN, &c., Warminster, Wilts, is prepared to send out good established young Plants of the above, now growing in pots in the open ground, at 5s. each, the usual allowance to the Trade when six or more are ordered. This new, very hardy, showy, pea-flowered shrub will be found an acquisition to any collection of shrubs. The flowers are of a light lemon colour on opening, and become paler when fully bloomed. The original plant was in full bloom on the 1st of May, having withstood the past severe winter in a very cold exposed site, sloping to the north, without the slightest protection, not losing a twig or flower bud. It is well suited for the rockery, border, or lawn.

A Photograph taken the 1st of May, from the original Plant, which is 6 feet in diameter by 4 in height, showing its graceful and drooping habit and profusion of bloom, may be had for 12 stamps.

ROYAL HORTICULTURAL SOCIETY.

GREAT FLOWER SHOW, JUNE 4, 5, 6, 7, and 8.

AWARDS OF THE JUDGES.

CLASS 1.—9 GREENHOUSE AZALEAS, distinct. (Open.)
1st Prize, Mr. C. Penny, Gr. to H. H. Gibbs, Esq., St. Dunstan's, Regent's Park, £15.
2d, Mr. C. Turner, Royal Nursery, Slough, £10.
3d, Mr. A. Wilkie, Gr., Oak Lodge, Addison Road, Kensington, £7.

CLASS 2.—6 GREENHOUSE AZALEAS, distinct. (Nurserymen.)
1st, Messrs. Glendinning & Sons, Nurseries, Chiswick, £9.
2d, Mr. C. Turner, £6.

CLASS 3.—6 GREENHOUSE AZALEAS, distinct. (Amateurs.)
1st, Mr. S. M. Carson, Gr. to W. R. G. Farmer, Esq., Nonsuch Park, Cheam, £9.

CLASS 4.—15 GREENHOUSE AZALEAS, in pots not more than 12 inches across, not fewer than 5 varieties. (Open.)
1st, Messrs. James Ivery & Sons, Nurserymen, Dorking, £7.
2d, Mr. C. Turner, £5.

CLASS 5.—9 ROSES, distinct, in pots not more than 13 inches across. (Open.)
1st, Mr. C. Turner, £8.
2d, Mr. W. Paul, Paul's Nurseries, Waltham Cross, £5.

CLASS 6.—6 ROSES, distinct, in pots not more than 13 inches across. (Open.)
1st, Messrs. Paul & Son, Old Nurseries, Cheshunt, Herts, £8.
2d, Messrs. E. P. Francis & Co., Nurserymen, Hertford, £5.

CLASS 7.—6 NEW ROSES, not sent out previous to 1864-65, in any sized pot. (Open.)
[Judgment suspended.]

CLASS 8.—9 SHOW PELARGONIUMS, distinct, in pots not larger than 8 inches across. (Open.)
1st, Mr. C. Turner, £10.
2d, Mr. J. Fraser, Nurseryman, Leyton, Essex, £6.

CLASS 9.—6 SHOW PELARGONIUMS, distinct, in pots not larger than 8 inches across. (Nurserymen.)
1st, Mr. J. Fraser, £6. | 2d, Mr. C. Turner, £4.

CLASS 10.—6 SHOW PELARGONIUMS, distinct, in pots not larger than 8 inches across. (Amateurs.)
1st, Mr. W. Nye, Gr. to E. B. Forster, Esq., Clewer Manor, Berks, £6.
2d, Mr. J. Ward, Gr. to F. G. Wilkins, Esq., Leyton, Essex, £4.
3d, Mr. J. Wiggins, Gr. to W. Beck, Esq., Worton Cottage, Isleworth, £2.

CLASS 11.—6 FANCY PELARGONIUMS, distinct, in pots not larger than 8 inches across. (Nurserymen.)
1st, Mr. J. Fraser, £6. | 2d, Mr. C. Turner, £4.

CLASS 12.—6 FANCY PELARGONIUMS, distinct, in pots not less than 8 inches across. (Amateurs.)
1st, Mr. T. Bailey, Shardeloes Gardens, Amersham, Bucks, £6.
2d, Mr. Weir, Gr. to Mrs. Hodgson, The Elms, Hampstead, £4.
3d, Mr. D. Windsor, Gr. to J. P. Ravenhill, Esq., Forest, Waltham Cross, £2.
Extra, Mr. D. Donald, Gr. to J. G. Barclay, Esq., Leyton, £1.

CLASS 13.—6 ZONAL PELARGONIUMS, distinct—Nosegay and Variegated sorts excepted. (Open.)
1st, Mr. J. Fraser, £6.

CLASS 15.—SPECIMEN PELARGONIUM, of any kind. (Open.)
1st, Mr. C. Turner, £2. | Equal, Mr. W. Nye, £2.
3d, Mr. J. Fraser, £1 10s.

CLASS 17.—4 FUCHSIAS, distinct, in pots not larger than 13 inches across. (Amateurs.)
2d, Mr. J. August, Gr. to Rev. A. Bridges, Beddington, Surrey, £3.
3d, Mr. J. James, £2.

CLASS 19.—9 HERBACEOUS CALCEOLARIAS. (Open.)
1st, Mr. J. James, £3.

CLASS 20.—3 POTS of LILIUM AURATUM, the pots not more than 10 inches across. (Open.)
1st, Mr. C. Turner, £3. | 2d, Mr. W. Bull, £2.

CLASS 22.—12 PANSIES, distinct, in 6-inch pots. (Open.)
1st, Mr. J. James, £2.
2d, Mr. H. Hooper, Vine Nursery, Widcombe Hall, Bath, £1 10s.
3d, Mr. W. Meddick, 9, St. James Parade, Bath, £1.

CLASS 25.—12 EXOTIC ORCHIDS, distinct. (Open.)
1st, Mr. C. Penny, £15. | 2d, Mr. J. Wiggins, £12.
3d, Mr. B. Peed, Gr. to Mrs. Tredwell, St. John's Lodge, Lower Norwood, £10.

CLASS 26.—10 EXOTIC ORCHIDS, distinct. (Nurserymen.)
1st, Messrs. J. Veitch & Sons, £12.
2d, Mr. B. S. Williams, Victoria Nursery, Holloway, £9.
3d, Mr. W. Bull, £6.

CLASS 27.—6 EXOTIC ORCHIDS, distinct. (Amateurs.)
1st, Mr. C. Penny, £9.
2d, Mr. G. Fairbairn, Syon House, Isleworth, £7.
3d, Mr. J. Wiggins, £5.

CLASS 28.—6 EXOTIC ORCHIDS, distinct. (Nurserymen.)
1st, Messrs. T. Jackson & Son, £9 | 2d, Messrs. J. & C. Lee, £7.

CLASS 29.—SPECIMEN EXOTIC ORCHID. (Open.)
1st, Mr. J. Sheratt, Gr. to J. Bateman, Esq., £3.
2d, Mr. G. Fairbairn, Gr., £2.

CLASS 30.—12 STOVE or GREENHOUSE PLANTS, distinct. (Open.)
1st, Messrs. J. & C. Lee, £15. | 2d, Mr. B. Peed, £12.
3d, Mr. A. Wilkie, £10.

CLASS 31.—6 STOVE or GREENHOUSE PLANTS, distinct. (Nurserymen.)
1st, Messrs. J. & C. Lee, £7.
2d, Mr. O. Rhodes, Nurseryman, Sydenham Park, £5.
3d, Messrs. Glendinning & Sons, £4.

CLASS 32.—6 STOVE or GREENHOUSE PLANTS, distinct. (Amateurs.)
1st, Mr. A. Wilkie, £7.
2d, Mr. J. Carr, Gr. to P. S. Hinds, Esq., The Lodge, Byfleet, Surrey, £5.

CLASS 33.—SPECIMEN STOVE or GREENHOUSE PLANT. (Open.)
1st, Messrs. Glendinning & Sons, £3. | 2d, Mr. A. Wilkie, £2.
3d, Messrs. J. & C. Lee, £1.

CLASS 34.—9 GREENHOUSE ERICAS, distinct. (Open.)
1st, Mr. O. Rhodes, £9. | 2d, Mr. B. Peed, £7.
3d, Messrs. T. Jackson & Son, £4.

CLASS 35.—6 GREENHOUSE ERICAS, distinct. (Amateurs.)
1st Prize, Mr. J. Ward, £6. | 2d, Mr. A. Wilkie, £5.

CLASS 36.—15 GREENHOUSE ERICAS, in pots not more than 5 inches across, not fewer than 5 kinds. (Open.)
1st, Messrs. T. Jackson & Son, £5. | 2d, Mr. R. Osborne, £4.

CLASS 37.—SPECIMEN STANDARD HARDY RHODODENDRON. (Open.)
1st, Mr. A. Wilkie, £3.

CLASS 38.—12 AMARYLLIS, distinct. (Open.)
1st, Mr. B. S. Williams, £4.

CLASS 39.—9 FINE-FOLIAGED STOVE or GREENHOUSE PLANTS, distinct, including Variegated Plants. (Open.)
1st, Mr. B. S. Williams, £10. | 2d, Mr. G. Fairbairn, £7.
3d, Messrs. Glendinning & Sons, £5.

CLASS 40.—6 FINE-FOLIAGED STOVE or GREENHOUSE PLANTS, distinct, including Variegated Plants. (Nurserymen.)
1st, Mr. B. S. Williams, £7. | Messrs. T. Jackson & Son, £5.
3d, Mr. J. Burley, Albert Nursery, Bayswater, £3.

CLASS 41.—6 FINE-FOLIAGED STOVE or GREENHOUSE PLANTS, distinct, including Variegated Plants. (Amateurs.)
1st, Mr. W. Layton, Gr. to J. Yates, Esq., Landale House, Highgate, £7.
2d, Mr. G. Fairbairn, £5. | 3d, Mr. D. Donald, £3.

CLASS 42.—6 CALADIUMS, distinct. (Open.)
1st, Mr. G. Fairbairn, £5.
2d, Mr. J. Burnett, Gr. to W. Perry, Esq., Peterborough, £3.
3d, Mr. A. Wilkie, £2.

CLASS 43.—3 ANTHURIUMS, distinct. (Open.)
1st, Messrs. J. Veitch & Sons, £3. | 2d, Mr. B. S. Williams, £2.
3d, Mr. W. Bull, £1.

CLASS 44.—1 PAIR of GREENHOUSE YUCCAS or BEAUCARNEAS, &c. (Open.)
1st, Mr. B. S. Williams, £4. | 2d, Messrs. J. Veitch & Sons, £3.
3d, Mr. W. Bull, £2.

CLASS 45.—1 PAIR of DRACÆNAS or CORDYLINES. (Open.)
1st, Mr. G. Fairbairn, £4. | 2d, Mr. B. S. Williams, £3.
3d, Messrs. J. Veitch & Sons, £2.

CLASS 46.—6 AGAVES, distinct. (Open.)
1st, Mr. B. S. Williams, £4. | 2d, Messrs. J. & C. Lee, £3.
3d, Mr. W. Bull, £2.

CLASS 47.—6 TRICOLOR ZONATE-LEAVED PELARGONIUMS, not fewer than 3 varieties. (Open.)
1st, Messrs. E. G. Henderson & Son, Wellington Nursery, St. John's Wood, £6.
2d, Mr. J. James, North Road, Highgate, £4.

CLASS 48.—The largest and finest PALM. (Open.)
1st, Mr. B. S. Williams, £5. | 2d, Mr. G. Fairbairn, £3.
3d, Mr. W. Taylor, £2.

CLASS 49.—The largest and finest PANDANUS. (Open.)
1st, Messrs. J. Veitch & Sons, £4. | 2d, Messrs. J. & C. Lee, £3.
3d, Mr. B. S. Williams, £2.

CLASS 50.—12 STOVE or GREENHOUSE FERNS, distinct. (Open.)
1st, Mr. B. S. Williams, £10. | 2d, Mr. W. Taylor, £5.

CLASS 51.—6 STOVE or GREENHOUSE FERNS, distinct. (Amateurs.)
1st, Mr. J. Carr, Gr. to P. L. Hindes, Esq., £4.
2d, Mr. C. Smith, Gr. to C. Walton, Esq., Manor House, East Acton, £3.
3d, Mr. A. Wilkie, £2.

CLASS 52.—6 STOVE or GREENHOUSE FERNS, distinct. (Nurserymen.)
1st, Mr. B. S. Williams, £3. | 2d, Mr. W. Bull, £2.

CLASS 53.—12 HARDY FERNS, species or varieties, distinct. (Open.)
1st, Messrs. J. Ivery & Son, £5.
2d, Mr. J. Salter, Versailles Nursery, Hammersmith, £3.
3d, Mr. W. Bull, £2.

CLASS 54.—1 PAIR of TREE FERNS. (Open.)
1st, Messrs. J. Veitch & Sons, £6. | 2d, Mr. B. S. Williams, £4.
3d, Mr. W. Bull, £2.

CLASS 55.—The largest and finest TREE FERN. (Open.)
1st, Mr. B. S. Williams, £5. | 2d, Mr. W. Bull, £3.
Equal 2d, Messrs. J. Veitch & Sons, £3.

CLASS 57.—12 HARDY EVERGREEN TREES and SHRUBS, distinct. (Open.)
1st, Messrs. J. Veitch & Sons, £6. | 2d, Mr. W. Bull, £4.
3d, Messrs. R. Osborne & Sons, £2.

CLASS 59.—1 PAIR of STANDARD EVERGREEN HARDY TREES. (Open.)
1st, Messrs. J. Veitch & Sons, £4. | 2d, Mr. W. Bull, £2.

CLASS 60.—20 HARDY VARIEGATED ALPINE and HERBACEOUS PLANTS, distinct. (Open.)
1st, Mr. J. Salter, £3.

CLASS 61.—6 NEW PLANTS, of any description, in or out of Flower, distinct. (Open.)
1st, Messrs. J. Veitch & Sons, Silver Medal.
2d, Mr. W. Bull, Bronze Medal.

CLASS 62.—1 NEW PLANT, shown for the first time in Flower. (Open.)
1st, Messrs. J. Veitch & Sons, Silver Medal.
2d, Mr. W. Bull, Bronze Medal.

CLASS 63.—1 NEW PLANT, in or out of Flower, not found in commerce. (Open.)
1st, Messrs. Veitch & Sons, Silver Medal.
2d, Messrs. E. G. Henderson & Son, Bronze Medal.

CLASS 64.—SEEDLING FLORISTS' FLOWER, of any kind, named. (Open.)
1st, Mr. W. Nye, Silver Medal.

CLASS 65.—NEW GARDEN VARIETY, named. (Open.)
1st, Messrs. J. Veitch & Sons, Silver Medal.
2d, Messrs. R. Osborne & Sons, Bronze Medal.

CLASS 66.—MISCELLANEOUS PLANTS, FLOWERS, or FRUITS, not specially invited in the preceding sections. (Open.)
1st, Mr. W. Paul, £5.
Messrs. Paul, Collection of Cut Roses, £3.
Mr. S. Burnett, for Collection of Medicinal Plants, £3.

GRAND HORTICULTURAL EXHIBITION
at BURY ST. EDMUND'S, in connection with the
SHOW of the ROYAL AGRICULTURAL SOCIETY,
JULY 15, 1867, and four following Days.

Amongst various Special Prizes, amounting in value to nearly £800, and exclusive of the ordinary Prize Schedule,

A SILVER CUP, VALUE £20,

will be offered by the Proprietors of the
GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE
for the best COLLECTION of FRUITS and VEGETABLES, to be made up as follows:—

Of FRUITS, any Five of the following Eight kinds, one Dish of each:—Grapes, Melons (2 fruits), Strawberries, Gooseberries, Currants, Cherries, Raspberries, or Apples (of the crop of 1866).

Of VEGETABLES, any Eight of the following Fourteen kinds, one basket or bundle of each:—Peas, French Beans (or Scarlet Runners), Broad Beans, Cauliflowers, Cucumbers (brace), Summer Cabbages, Early Carrots, Turnips, Artichokes, Onions, Spinach, Rhubarb, Potatos, or Mixed Salading.

This Cup will be open to Competition amongst Amateur or Professional Gardeners, of all grades, with Fruit and Vegetables of *their own growing*; any article otherwise obtained will disqualify the exhibitor.

THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.

The TWENTY-FOURTH ANNIVERSARY FESTIVAL will take place at the LONDON TAVERN, BISHOPSGATE STREET, LONDON, on THURSDAY, June 27.

President of the Day.

THE RIGHT HON. SIR ROBERT PEEL, Bart., M.P.

Board of Stewards.

George Child, Esq., *Chairman*
The Right Hon. Earl Ducie
The Right Hon. Lord Egerton of Tatton
The Right Hon. Lord Londesborough
The Right Hon. Lord Viscount Sandon
The Right Hon. Sir William Hutt, M.P.
The Baron Lionel de Rothschild, M.P.
Sir William Knighton, Bart.
Sir Oswald Mosley, Bart.
Sir Walter Stirling, Bart.
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W. Wentworth Buller, Esq.
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James Crispe, Esq.
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E. Easton, Esq.
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W. S. Johnson, Esq.
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Wm. J. Nutting, Esq., Jun.
Thomas Osborne, Esq.
Chas. Ratcliff, Esq.
Mr. Alderman Salomons, M.P.
W. Wilson Saunders, Esq. F.R.S.
John Spencer, Esq.
James Veitch, Esq., F.L.S.
R. S. Vivian, Esq.
Robert Warner, Esq.
Hensleigh Wedgwood, Esq.
G. F. Wilson, Esq., F.R.S.

Dinner upon Table at 6 o'clock precisely. Tickets, 21s. each.
Ladies' Tickets for the Gallery, 7s. 6d., for whom a Handsome Collation is provided.
EDWARD R. CUTLER, Secretary.
14, Tavistock Row, Covent Garden, W.C.

The Gardeners' Chronicle.

SATURDAY, JUNE 8, 1867.

MEETING FOR THE ENSUING WEEK.

MONDAY, June 10 to SATURDAY, — 15 } Manchester Great Horticultural Exhibition.

Nimium ne crede colori is one of those many aphoristic sayings which people now-a-days take the liberty of heeding or of disregarding at their own sweet will and pleasure, and wholly independently of the sayings or doings of poets or philosophers; and when the soft, velvety pile of a Pansy, or the exquisite tints of a Rose are in question, it is too much to expect one to heed the admonitions of those botanists who are apt to pooh-pooh COLOUR in PLANTS as beneath their notice, or at any rate as being insufficient to "furnish specific characters." In this latter point, indeed, we feel compelled to concur, not, however, without an impression that when more is known as to the mode of production of colour, its disposition in certain portions of the plant to the exclusion of others, and when the curious relations that exist between colour and form, as pointed out some years since by Dr. DICKIE, are sufficiently worked out, then the botanists will have to alter their opinions, and colour, like the other attributes of the plant, will furnish its quota towards the sum of characters by which one set of plants is distinguished from another. It does so now to some extent, notably so in the case of seaweeds, but by-and-by its services in this way will, we doubt not, be better appreciated. In the meantime the increasing popularity of plants with brilliantly COLOURED FOLIAGE necessarily leads to the consideration as to how these varied hues are produced, and induces the cultivator to reflect on the power that he has to produce, modify, or obliterate these tints at will. The principal facts relating to the coloration of leaves are pretty well known to our readers, or, if not, they are readily accessible. Mr. BERKELEY alluded to some of them at the last meeting of the Royal Horticultural Society, and our main object at present is to supplement his remarks by calling attention to some facts, not novel, indeed, but still worthy the consideration of the gardener, and which we have lately had the opportunity of testing by the examination of specimens kindly furnished to us by Mr. WILLS, whose remarks on the origin of the Tricolor Pelargoniums we hope shortly to lay before our readers.

We would specially call attention to the localisation of the colour in particular cells. Thus, in the Zonal Pelargoniums, not only is the colour distributed in a somewhat semicircular zone, but a microscopic section reveals that the coloured cells are almost entirely to be found just under the epidermis, especially on the upper surface of the leaf; no doubt in some cases they may be found elsewhere, but the spots mentioned are, so to speak, the head-quarters of the coloured juices, and the same thing holds good in the Red Cabbage and many other brightly coloured plants known to us.

This may be due to the more intense action of light on the surfaces of the leaf, though there are many difficulties in the way of accepting such a solution to which our space now forbids us to allude. Again, the anatomical structure of the leaf, so correctly described by Mr. BERKELEY, does not fully explain the localisation of the colour; for while it is undoubtedly true that in most cases the coloured fluids are to be found in the prismatic cells to be found just beneath the upper skin of the leaf, yet they are not confined to those cells; and some of the Pelargoniums are destitute of cells of this form. But perhaps the leaf-stalk shows the greatest peculiarities in the position of the coloured juices. On submitting to the microscope a longitudinal slice of the pink leaf-stalk from one of Mr. WILLS' seedlings we saw, what we had often seen before in other plants, that the coloured cells were arranged in longitudinal rows throughout the stalk, the rows being separated one from the other by colourless cells, so that the appearance was not unlike that of a ribbon border, so regular was the arrangement. It is very difficult to account for this arrangement, and we shall not attempt to do so at present.

There is one point upon which we should be glad to have further information, as we think probably there are more exceptions to be met with than we have ourselves encountered, and that point is as to the precise part of the cotyledons or seed-leaves in which the red tint first makes its appearance. As far as we have seen in seedling plants of red zoned varieties, while in the perfect leaves the red tint first shows itself in the median zone of the leaf, in the case of the seed leaves, and also in the case of the stipules, the red tint is first perceptible at or near the edges, and specially as regards the stipules near their points.

Other matters revealed by an examination of Pelargonium leaves, not without significance for the thoughtful cultivator, are these:—

The pure white spots are due to the entire absence of chlorophyll, hence it is no wonder that if a seedling show itself with two wholly white seed-leaves that it speedily dies, because the due production of chlorophyll or leaf-green is well-known to be intimately associated with the healthy development of the plant. Hence, as Mr. WILLS says, "if the white is allowed to have its course, the plant will do no good for itself." Indeed, specimens sent to us by Mr. WILLS show this conclusively; the green leaves having been removed and only the white ones suffered to remain, the effect has been to check the growth: and had the experiment been pursued longer, death must have ensued. This absence of chlorophyll, and attendant loss of vitality in the cells, as Mr. GRIEVE well remarked (p. 548), accounts for the puckered convex leaves of so many of the Silver Tricolored Pelargoniums. To us it has also appeared, though in this matter our experience is in some degree opposed to that of others, that the red colouring matter is not produced unless there be at least some chlorophyll in the leaf; in other words, we have never seen a trace of pink colouring matter in leaves that are *absolutely* white, though in those that have even the faintest tinge of yellow, indicating the existence in small proportion of chlorophyll, the reddish tint may very often be met with. But while we have not satisfied ourselves of the existence of red colouring juices (or we may add of starch grains) in leaves which are entirely destitute of chlorophyll, we have frequently seen clusters of crystals or "raphides" in the colourless cells of the white leaves. If this be borne out, it will furnish an additional argument to those who look on raphides as more excretions. But this is running away from the subject of colour, and in order not to weary the patience of our readers, we dismiss the subject for the present, merely adding a record of a circumstance which has been made known to us by the courtesy of Mr. BULL, and which is very significant, and that is, that a pink tint may readily be produced in the silver-edged Ivy-leaved Pelargoniums by placing the plants near to the glass, and thus exposing them fully to the action of light. In this plant the coloured juices may be seen to be contained in spheroidal or polygonal, not prismatic cells, and, in some parts of the leaf at any rate, to be as abundant on the lower as on the upper surface of the leaf.

—— THE week just ended is noteworthy in the annals of Horticulture, from the occurrence of two FLOWER SHOWS of more than ordinary interest—that of the Royal Horticultural Society, at South Kensington, in which the precedent set last year by the "International," as to the PROLONGED DURATION of the great shows, has been partially followed, and that of the important exhibition at Manchester, which was inaugurated yesterday, and is to remain open until the 15th inst. Of the former, which, horticulturally speaking, was somewhat disappointing, a full report will be found in another page; of the latter, which, from its magnitude, the ample amount to be awarded in prizes, and the length of time it is to remain open, is specially remarkable as the nearest approach to the grand floral festival of last year, we shall give a detailed account in our next issue.

—— Mr. C. HUBBARD, gardener to Lord BERNERS, has kindly favoured us with a specimen of a DOUBLE APPLE BLOSSOM similar to that figured in our columns in June, 1865 (p. 554). It is certainly more like a Rose than an Apple, being much larger than the ordinary flowers, and on a longer stalk, while it is produced subsequently to the others. Mr. HUBBARD'S flower has a calyx of five separate sepals, numerous petals, some partially changed into stamens, several perfect stamens, and five separate, superior, 2-ovuled carpels. Here then, as so often happens in Proliferous Roses, all traces of the swelling beneath the flower—all traces, in fact, of what would, under ordinary circumstances, be the Apple, are obliterated, and the five ovaries stand above, and not as they are usually, embedded within an expanded and succulent flower-stalk. Such instances are botanically most instructive.

—— Since our observations were made on the disposition of the COLOURED CELLS in the PARTI-COLOURED PELARGONIA, and the consequent modifications of colour (see p. 517), we have had an opportunity of examining the leaves of the Emperor of the French Pelargonium, one of the parents of the variety Mrs. Pollock, as stated by Mr. GRIEVE. In the very vivid coloured patches by which the variety is distinguished, we find two layers of prismatic cells filled with red endochrome. We find also two layers of the same cells in the green parts, but on examining other zonal Pelargonia we find sometimes one larger, sometimes two; the cells of the latter varying greatly in form, so as to resemble in some cases very closely the subjacent more or less rounded cells of the under part of the leaf. In older leaves of the Emperor of the French, where a great portion becomes of a vivid red, we find all the cells filled with red colouring matter, except the two layers of subcuticular cells, the one on the under, the other on the upper surface of the leaf. It appears from the above statement that scarcely any variety could have been so judiciously selected for crossing, with a view to obtain highly distinguished tints, and, as is generally the case, good practice and science coincide. *M. J. B.*

—— We have lately met with a kind of CANKER in TREE ROSES, which has not, we believe, been hitherto recorded. The base of the shoots becomes gouty, the cuticle and subjacent cells die and are cast off, while the remainder of the bark is greatly thickened, and is studded with the papillæform tips of adventitious roots. On examining a thin slice under the microscope the greater part of the tissue is found to consist of radiating cells, in many cases continuous with the medullary rays. The shoot is ultimately exhausted, and dies. The case resembles very closely one of the several forms of Canker in Apple trees, in which discs are formed studded with adventitious roots, whose tips soon die and infect the surrounding tissues. These discs occur all over the tree indifferently, and at length extend so far that scarcely a healthy portion can be found, and the tree perishes. The soil of our garden is peculiarly dry, a circumstance which may have some influence both on the Apple and the Rose. *M. J. B.*

—— We gather from circumstances which transpired at the recent Great Show at South Kensington, but which it is unnecessary here to particularise, that there is a difference of opinion amongst growers as to the chronological status of NEW ROSES. This difference materially affects the interests of exhibitors, on which ground it ought to be cleared up. We will attempt a solution, and commend the subject to the notice of the Floral Committee as a proper one for it to entertain and decide upon judicially. The question may be put in this form—What is to be understood by a Rose "sent out" in 1867? It is well known that most of our new Roses come from France, and it is also well known that they are distributed by the French growers in the autumn of the year, say in October. Now it seems clear to us that, as the trade generally can purchase these new Roses at the time just indicated, and as they are equally open to amateurs who like to give the price charged for them, they are from that date absolutely "sent out," and that a Rose sold in this way in the autumn of 1867, is a "new Rose of 1867." Custom, however, seems to have hitherto generally ruled to the contrary, and in consequence certain growers understand by a new Rose of 1867 one sold out by the raiser in 1866, and first propagated and catalogued in this country in 1867. Considering the rapidity of communication between this country and the Continent, and the general circulation of descriptive catalogues and other information respecting the coming Roses of each year, we do not think

there is the least necessity to make any such distinction between the circumstances of being "sent out," and being "sent out in England," seeing that all may share in the original dispersion, if so disposed. Practically it will make no difference what rule is adopted, so that the question is decided in some authoritative way, since the decision will of course be alike fair to all; but while the question remains an uncertainty, and is differently interpreted by different growers, it places exhibitors on unstable and therefore disadvantageous ground. From the preceding remarks it will be seen that we think "custom" is wrong in dating the new Rose for the year after it leaves the raiser's hands, and that the date assigned to it would be better determined by the fact of its having actually passed out of the hands of the raiser or original holder. But whatever verdict florists in their wisdom may arrive at, it is quite obvious that there should be a positive decision.

—— We learn from the "Journal of the Society of Arts" that the following GARDENERS have been judged worthy to receive PRIZES at the final Examinations conducted under the auspices of the Society. The first prizes for Botany and Floriculture, of 5*l.* each, were awarded to Robert Creaser Kingston, aged 20, Richmond Parochial Library and Reading-room, gardener. The second prize of 3*l.*, for Floriculture, was allotted to William Pritchard Roberts, aged 27, Bromley Literary Institute, gardener. The first prize for Fruit and Vegetable culture, 5*l.*, was adjudged to John Charles Higgs, aged 26, Southampton Athenæum, gardener; and the second prize to George Stanton, aged 26, Slough Mechanics' Institute, gardener. The Royal Horticultural Society's prizes were awarded as follows:—In Botany: 1st prize, 5*l.*, to Robert Creaser Kingston, 20, Richmond Parochial Library and Reading-room, gardener; 2nd prize, 3*l.*, Richard Lee Keenan, 23, Richmond Parochial Library and Reading-room, gardener. No other candidate qualified to receive a prize. In Floriculture: 1st prize, 5*l.*, Robert Creaser Kingston, 20, Richmond Parochial Library and Reading-room, gardener; 2nd prize, 3*l.*, William Pritchard Roberts, 27, Bromley Literary Institute, gardener. In Fruit and Vegetable culture: 1st prize, 5*l.*, John Charles Higgs, 26, Southampton Athenæum, gardener; 2nd prize, 3*l.*, George Stanton, 26, Slough Mechanics' Institute, gardener. The *Gardeners' Chronicle* Prize of 3*l.* is awarded to Robert Creaser Kingston, 20, Richmond Parochial Library and Reading-room, gardener.

—— We may remind our metropolitan readers that the FLOWER SERMON, at St. James', Mitre Square, Aldgate, will be held as usual, next Whit Tuesday evening. The young people attending this special service bring with them bouquets of flowers, and the sermon is on some floral text. The sermon will be preached by the Rev. W. M. WHITTEMORE, D.D., the rector of the parish; the musical parts of it will be sustained by members of the Cathedral choir, under the able superintendence of the Vicar Choral.

VARIEGATION—IS IT DISEASE?

THIS long-disputed question is not likely to be settled soon; there is so much to be said on both sides. The two varieties of the Sycamore, the gold and silver-striped, grow as rapidly as the species: this has been observed by Major Clarke; but then that most perfect and beautiful of all variegated deciduous trees, the variegated variety of Negundo fraxinifolia, has only about one-third the vigour of the species, for while the latter is making a growth of 15 feet, the variegated sort will scarce reach the height of 6 feet: here, then, is a great diminution of vigour from variegation.

With regard to the Holly, there is to be seen here an increase of vigour in the variegated kinds as compared with the species, for in an enclosure near a farmhouse, which was formerly the pleasure-ground of an old manor house, long since pulled down, is a group of large Holly trees, reputed to be 150 years old; some of these are of the variegated varieties—the silver-edged. On measuring the stems of these, which vary from 3 to 4 feet in circumference, and which are upwards of 30 feet in height, the stems of the variegated kinds are found to be all of larger girth than those of the common green Hollies in the same group; and if they had not been most unmercifully cropped in for the last 20 or 30 years at Christmas, their heads, which now equal in size those of the green Hollies, would have exceeded them in bulk. One of the green Hollies bears only male flowers, and has never been cropped, yet the variegated trees exceed it in size; this is certainly extraordinary, yet exceeded by the anomalous fact which I now proceed to relate.

Some years since I was struck by the enormous quantity of berries these large variegated Hollies occasionally bore, and thinking it just possible that they would reproduce themselves, I purchased some bushels of them. They were sown on beds alongside of those in which the common Holly berries were sown, and in due course they made their appearance above ground. The berries of the green Hollies, as usual, gave an abundant crop of vigorous young plants, but those of the variegated came up sparsely, and all with yellow cotyledons; my hopes were raised, for I thought I had found a cheap and easy way of raising variegated Hollies. They were treated during the summer, with regard to shading and watering, like their green brethren, but they continued to die, seemingly from weakness of constitution, so that in autumn not a plant was left; the experiment was repeated with the same result, I therefore ceased to sow the berries of variegated Hollies. This fact, that trees in vigorous growth should be incapable of producing healthy offspring, is one that I never recollect having published; it has always appeared to me interesting, and is one from the storehouse of a memory full of the byegones of a practical horticultural life—its ways pleasant and its paths not unprofitable either to body or mind.

The variegated Althea Frutex (Hibiscus syriacus) is quite equal in vigour of growth to the species. The gold and silver variegated Beeches are the opposite. The variegated variety of the Pear (Pyrus communis) is remarkable for its delicate and slow growth, showing a great want of vigour; the variegated Ash is also of slow growth as compared with the species. The variegated variety of Quercus sessiliflora, which has leaves blotched and margined with silver, is of a robust growth; the silver-edged variety of Quercus pedunculata has slender shoots, and grows very slowly; while that beautiful tree, the silver-edged Turkey Oak (Quercus Cerris) attains a size equal to the species, if the soil be favourable. I remember seeing many years since a large and vigorous tree of this variety, near Chertsey, quite as luxuriant in growth as the species. In contrast to this we see in that beautiful variegated tree the silver-striped English Elm (Ulmus campestris), a great diminution of vigour; its leaves are blotched and margined with pure white, and its habit as compared with the species (or variety) is dwarf and compact; occasionally out of the mass of variegated leaves a green shoot will make its appearance, which seems to rejoice at its escape from its variegated enthralment, for it at once takes the lead and absorbs all the food of its variegated brethren, and in the course of two or three seasons seems to starve them to death. It is to be hoped that Mr. Berkeley will examine the cells of some of our variegated trees, and compare them with those of the species from which they have diverged; the subject appears to me to be of high physiological interest.

Again another contrast,—variegation without diminution of vigour,—and also in the Elm. In a hedgerow near the entrance-gate to the Rectory at Little Parndon, Essex, near the Burnt Mill Station on the Great Eastern Railway, is a fine vigorous-growing Elm of perhaps 80 years' growth, and some 60 feet in height—in fact, a fine timber tree. This is truly a golden-leaved Elm, for towards the middle or end of June its branches from head to foot are clothed with leaves, some streaked with yellow and others bright yellow, which, when the sun shines, are like burnished gold: the tree is most beautiful and remarkable. In some seasons it is more brilliant than in others; as far as I can learn it has for very many years sustained its golden character. Some 20 or 30 years since I was inclined to pooh-pooh its fame, attributing its colour to its growing on a dry bank, and the leaves prematurely showing autumnal tints. I have, however, long since decided that it is really a variegated tree, for numerous grafts have been taken from it which have been grafted on a variety of Ulmus montana. At first they have shown no tendency to the golden variegation, but after a period of three or four years they show the character of the parent and put forth leaves, some streaked with gold, and others—about 25 per cent.—entirely golden in their hue, seeming after the first vigour of growth from the graft, to subside into the character of the parent tree, yet without any diminution of vigour. The parent tree is of the variety or species described by Loudon as the Ulmus glabra; this, a seed-bearing Elm peculiar or seemingly indigenous to a large district lying to the north-east and east of London, bears seed so freely in this neighbourhood (the east of Hertfordshire), that one is inclined to think that the whole district, if neglected, would become an Elm forest. Its leaves are of a paler green, and placed less closely on its (often pendulous) shoots than those of the English Elm (Ulmus campestris), the kind which is so common to the south and west of London, which is easily recognised by its dense dark foliage, and by its seldom or never bearing seed.

The father of our tree knowledge, J. C. Loudon, occasionally visited this place, and was always surprised at the different forms the seedlings of the Ulmus glabra took; he used half jokingly to say that more species of Elms could be found in Pishobury Park than he had noticed in his "Arboretum," *i. e.*, species according to the ideas entertained in those days, when varieties of Willows were set down as species. The Elm known as the Chichester, or, as it is sometimes called, the Huntingdon, is of this race, and came from the extreme north of France, formerly called "Flandre Occidentale." In travelling on the old diligence road from Dunkirk to Lille they may be seen in every hedge-row, and also in large groups: their large pale green leaves, and their grey smooth boles are so remarkable as to arrest the eye of any tree-observer. In Bushy Park there are rows of this variety of Ulmus glabra, many of them very large trees; they were probably imported by William the Third, and planted there in his time. The Golden Elm, which I have attempted to describe, seems to have reached the Continent, as the dealers there are now offering one for sale. From a Belgian catalogue I extract as follows:—"Ulmus campestris aurea vient de paraitre au commerce, et sera certainement la plus belle nouveauté de la saison comme plante à feuilles panachées." So much for the ways of the world: old things become new. In alluding to the pendulous shoots of some of the varieties of Ulmus glabra I may call the attention of those of your readers who travel from London to Cambridge by the Great Eastern Railway to some detached trees standing in the hedge-rows to the right of the Roydon Station, just past it; these are pendulous and most graceful. Some American friends state that they much resemble the Elms (Ulmus americana) planted so abundantly in the New England villages. *T. Rivers.*

LETTERS FROM PARIS.—No. XIII.

FRUIT TREES AT THE GREAT FRENCH EXPOSITION AND IN THE NEIGHBOURHOOD OF PARIS, AND FIFTH FLOWER SHOW.

IF there be any one thing the French grow pre-eminently well in their gardens, it is hardy fruit, especially Apples and Pears. I have before stated the extraordinary price commanded by the finer Apples in the Paris market in spring, and most readers have often had an opportunity of seeing their fine Pears in Covent Garden and at some of our own fruit shows. One of the most extensive features in the reserve garden at the Exposition is the fruit garden. I have been told by M. Barillet that this is not at all as good as might be expected; and certainly think so too, comparing it with what may be seen in private gardens and nurseries, but withal it is extensive and interesting, and will probably please the English horticulturist more than anything at the Exhibition. There are a good many things shown that are more curious than practically useful. In some of those instances the branches spring from the stem in horizontal whorls, so to speak, and being united by inarching at their points very neatly, they present an appearance something like a wheel, the outer ring of the branchlets being circular. There are many little knick-knacks of this kind, which I must not weary you by describing. Suffice it to say that apparently the most generally accepted and generally useful forms are the well-trained pyramid and the simple dwarf cordons. In some cases much pains appears to have been taken to induce the standard tree to assume a geometrical habit, the branches being brought in straight vertical lines from the main stem, four or five sets to each tree; but it may be safely said that the advantages of such trees are not sufficient to warrant general growers in taking the pains necessary to produce them. Subjects of this kind are chiefly useful in showing us how much may be done with such trees, and how tractable they are under almost any method of training. The fan form of training does not seem to be in so much favour as in England and Ireland, the main stem being allowed to rise to the top of the wall, either in a single or double state, and to give off its branches as it goes, the points being often led up to the top of the wall, each higher branch being of course shorter. In this way some pretty and fruitful trees are formed. The borders are mostly edged with a single cordon, as is the fashion in French gardens. These are trained exactly as I have before described, on galvanised wire. The most durable and best support for the cordon wires seems to be a bit of T iron with a square bit acting as a shoulder-ing support, and joining the T a few inches above the surface. For training the Vines, of which there are not many here, there is a neat method shown. It consists of iron rods, cast in imitation of rustic wood, two "sticks" being at each end, with small imitation spray and leaves between them, the wire being strained as before described, the little wheel being placed quite close to the end support. All the borders are mulched with about an inch-and-a-half of short manure. The cordons are in some cases badly grown, in others well, the best being those which have been carefully pinched so as to form close, short, and compact sets of buds. The best stock for the cordon is the Paradise, the Doucin being too vigorous. The most interesting exhibit, perhaps, in the whole of this fruit garden is that of two Peach trees, perfectly trained and in capital condition, considering their removal at a ripe age. One of these is trained in the form known to the French as *Pêcher en lyre*, and nothing can look more finished and beautiful in its way than this tree. When destitute of leaf and in flower its beauty could be best seen, and now the wood is all that could be desired. Each main stem branches into two parts a little above the surface of the ground, and as it diverges gives off two branches. Then again it approaches its centre, and again diverges, so as to leave a lyre-shaped space between the two main stems. The proportion and finish of the tree is admirable, and the wood is as firm and equal in all its parts as could be desired by the most fastidious. In the other tree the branches diverge horizontally from a simple stem. It is, or was, an equally perfect tree, but seems to have suffered more from removal than its fellow; both are trained against a white wall at the south end of the fruit garden. The mastery attained by the French over the Peach tree is certainly extraordinary, but as I have not yet visited the place where it is best exemplified, I cannot speak more fully about it.

Wishing to see some specimens of French fruit culture other than those exhibited, I have lately visited the nurseries of Jamin & Durand at Bourg-la-Reine, and the private garden of an amateur at Chatillon, both places a little to the south of Paris. The nurseries are extensive, and amongst the largest fruit-tree training ones in France. The quantity of Apples grown as cordons, and Pears as healthy dwarf pyramids, was very large, and their condition capital, especially that of the pyramidal Pears. The cordons were admirably managed, and bearing freely at two years of age. They are pretty closely pinched when the shoots attain a length of 4 inches or so, and by this means kept compactly at home. Pruning and culture there is little or none beyond this, which is simplicity itself. Supposing, however, that the cordon exhibits a bare portion with the eyes dormant: the good cultivator makes a double incision with his knife and cuts out a bit from before the said eye, pinches perhaps the strong shoot before it, and does any little thing in this way that is likely to equalise the development of the shoots. The simple cordon seems the most desirable, and the Pear is grown in this manner as well as the Apple, though not to such an extent. It may be that English cultivators are prejudiced against this mode of culture, but undoubtedly, if sufficiently meritorious to be so much adopted here, it must be equally useful for our wants. The French have a warmer sun, or rather a less cloudy clime than our own, and have (I hope) a warmer summer and autumn, but withal they find immense advantage in cultivating these dwarf and early fruiting trees near the ground, where they get more heat, light, and shelter; and therefore a judicious following of the same plan in Britain

is sure to lead to most satisfactory results. The kinds of Apples most worthy of culture in this way are such as Alexandre, Beauty of Kent, Belle Josephine, Colville Blanche, Cox's Orange Pippin, Ostogatte, Reinette du Canada, R. de Caux, R. de Granville, and several others, best of all perhaps being the Colville Blanche and the Reinette du Canada, both *blanche* and *grise*. I have to thank M. J. Durand very heartily for his courtesy and kindness in showing me this nursery and other gardens in the neighbourhood. The garden of M. Chardon, the amateur above referred to, is certainly the most interesting of the kind I have ever seen. To give a mere list of the variations of training in his garden would make a sort of catalogue. He covers bowers, chain gardens, tall trellises, walls, cordons, and all sorts of surfaces, with them. Many are curiously trained, but it is only fair to add there is a sufficiency of fruit on all the trees. He grows the Pear most successfully as a cordon, and fruits the Apricot abundantly as a sort of lyre-shaped double cordon, closely trained together on a high trellis. Some of his walks are arched over with Apples, Plums, Pears, Cherries, &c., the shoots trained longitudinally. For his tall trellises he does not employ the little tightening apparatus before described, but simply has the wires drawn very tight to the wooden posts that support them. One man draws them very tight while another nails them firmly into the wood with hooks. The owner is continually among his trees, pinching and directing their energies, and is in fact his own gardener. His pyramid Pears are very fine, as are the trees arched over the walks; but on the whole, the evidence would seem to be in favour of the dwarf style of the tree—the cordon especially. Not only are finer fruit obtained, but they are obtained almost as soon as a common garden crop, and planting with the philanthropic view of supplying one's heirs is rendered quite unnecessary.

For the past few days the weather has been clear and bright and warm, and in the evenings the Champs Elysées presented a most brilliant and animated scene: the large banks of Rhododendrons planted round most of the neatly painted and trim concert halls, restaurants, &c., helping much in the way of colour; while many fine trees, Conifers included, supply as much verdure and character to the scene as could be desired. desired. The best Orange trees to be seen about Paris are now arranged in great quantity in the Tuileries gardens. I go once a week to the Jardin des Plantes to see the hardy things open, and the last time had the pleasure of seeing a dense line, several hundred yards long, of the noble Iris pallida (a kind I have often recommended in your columns), in full bloom. As a school for teaching practical and useful botany, and displaying useful plants, it is the best I have ever met with, though as to laying-out and general appearance nothing can be more lamentable. There are several features well worth adoption in our English gardens, though not in the same positions which they occupy at the Jardin des Plantes. It would be thought perhaps that with all their success with hardy fruit the French could not make a very bad thing with indoor crops, Grapes, &c.; but the saddest sight imaginable is the structure in which they grow such things. The worst culture you meet with in the British Isles is creditable compared to it.

To come at once to the more important and distinct exhibitions. I must commence this time with the Seedling Caladiums of M. Bleu, an amateur who lives near the Jardin des Plantes. He quite fills a stove with a wonderful collection of them, all raised from seed by himself. Anything like the exceeding variety and beauty of colour in some of these it would be impossible to find in any other family of seedling varieties. Some of the noblest among them are suffused with livid red which intensifies towards the centre, the margin being quite green, while in one or two with very large leaves the central colour is of a delicate violet rose; but it is vain to hope to say anything about them in limited space—suffice it to say that a more interesting result of cross-breeding could not be seen. Many of the kinds are not named yet, but all have the names of their parents carefully attached. Doubtless many of these varieties will soon find their way into culture in Britain. The chief exhibitor of Orchids is M. Linden, who shows a very large group of good kinds, mostly well-known, and some new ones, among which the following are the best: Oncidium nubigenum, several varieties, very pretty; Oncidium serratum, distinct, curious, and vigorous; and O. holochrysum, rich and clear yellow, fine. There are three well-bloomed plants of Vanda teres in the Orchid-house, one unusually well-bloomed, while Messrs. Thibaut & Keteleer, Lüddeman, and others, show respectable groups, but as a whole a large show is not the result. The vegetables have much improved, though the salads, &c., are not as good as might be bought in many of the shops here, or, indeed, found in an ordinary *restaurant*. The Asparagus is still extraordinary, it is no nine days wonder in Paris; for many weeks past loads of it may have been seen in every street. Those in England who say—of course without having tried it—that this Asparagus is not good, totally deceive themselves, as I can safely say, from having eaten it constantly in all states during the past 10 weeks.

There are considerable quantities of Roses shown, both cut and in beds, but they do not excel us in this way. They show the cut Roses in bottles, placed in wide masses, or perhaps on a small stage. Their effect is not good when thus arranged—not so good as in our own way, which is not perfect. The herbaceous Pæony is shown in great abundance and variety of colour by Margottin, Paillet, Verdier, and other French nurserymen; they are plants which, judiciously placed, are worthy a great deal more attention in England. Pinks and Ranunculuses are shown to a considerable extent, but nothing among them merits notice—the Pinks being mostly of a weedy hybrid type. A splendid lot of cut blooms of many kinds of seedling herbaceous Delphiniums is shown, and nothing can surpass the exquisite colouring of these flowers. They will prove highly popular plants, these new and sweetly-tinted Delphiniums, being so hardy and so far removed from the weed in style. Some of the new ones in light cerulean tints, if I may so speak, are particularly pretty and chaste in their tintings—just the things to charm a lady's eye. The conservatory now contains many noble foliage plants, the most remarkable being an enormous Bromeliad—more like one of the largest Agaves than anything else, while distinct and fine in every line. It is not named. The variety of planting in the grounds is very great—now you meet a bed of Musas, the ground beneath covered with Phlox Drummondi; presently a great mass of the red London market Pelargonium, or one very like it, as bold and ugly and glaring as need be; then banks of Rhododendrons in full glow; presently a bed of Dahlias, with their first flowers well out, succeeded by Roses under ugly but necessary canopies; then a bed of Forget-me-Not, and so on with other things.

Notwithstanding all this, the prettiest things in the gardens—and about the prettiest things I have ever seen in any gardens, are numerous large beds of well-grown annuals—perhaps many dozen kinds in one bed, nicely arranged both as to colour and height. These please everybody. One bed, displayed by Messrs. Vilmorin, containing a great number of the newer kinds—the dwarfs and margined and ameliorated annuals, so much brought out of late—is very charming; and indeed all are so; they are exhibited by seedsmen, who of course display all the variety they are possessed of. These beds of annuals please everybody, simply because they are delightfully varied as well as pretty; and by-and-by when they go out of flower they can be removed in a moment, and replaced with summer or autumnal plants. The gorgeous pavilion-like tent that abuts against the central conservatory is now finished, and its floor covered with numerous beds of fancy and other Geraniums, very pretty and useful for the show, but not nearly so well grown or finished as Messrs. Turner, Bailey, and other Englishmen are wont to stage them. *W. R.*

CAMELLIA CULTURE.—No. IV.

(*Continued from p.* 378.)

Countess of Ellesmere.—This is a plant of shy growth and fickle in producing flowers that have "constancy" for a recommendation. When in character, they are of fine formation, with good shell petals, and quite imbricated, of white ground, flaked, and minutely dotted with carmine. The buds are often so large, and the petals are bound together so closely, that expansion to the centre is simply impossible. Very often the natural pressure from within is so great and so fruitless as to split the little ball of unexpanded florets in several places over its surface. The best method of avoiding the formation of large buds is by keeping the plant on "low diet," circumscribed at the root; while a low temperature during the season of rest must be maintained.

Donkelaari.—This is a semi-double sort, which no collection, however small, should be without. Its features are so undoubtedly lovely and prominent that the most captious florist, if he should "turn up his nose" and attempt to "throw cold water" upon its character, would be sharply exposed to ridicule. Get the buds of this variety set early under strong heat and a proportionate degree of moisture, and I'll engage for a display upon plants of some size which will arouse the most callous, and those most indifferent to floral pictures. Treated as above described, no Carnation is blotched and bizarred in a more lovely manner, and the colours too are so striking and so imposing. Under a sort of standstill treatment the flowers will be nearly all self-coloured—red; but when early finished up in bud formation and liberally treated, they present quite a different spectacle. Habit good, leaves somewhat small, but flowers expanding to the dimensions of an ordinary-sized Lilium auratum, and immeasurably more captivating. The difference is this—the one is an old plant, the other a new; and as the phrase goes—"far awa' fools (fowls) have bonnie feathers," which is *apropos* here, although the writer pays homage as much as any one to the advent of the splendid Lily. I need scarcely say that the variety in question is ruddy crimson, mottled and blotched with white.

Duc de Bretagne.—This is a fine grower, and yields flowers of good outline, although not quite full to the centre. It is of a ruby colour, and the substance is unobjectionable, but after expansion it is apt to become rough and tawdry-looking. Like some others, in the act of expansion it is a good flower, and taken in that state would be a fit subject for a gentleman's "button-hole." It requires to be pruned to keep it within bounds. A good flower for medium season of flowering.

Elizabeth Herbert.—This, like some other of our English introductions, is a "fickle jade." It has all the appearance of a good grower, being abundantly clothed with large noble-looking leaves, but a slight check seems to incommode it. Grown under wise laws it will succeed and merit "class distinction." It differs from many in point of colour, being of a salmon and rose, blended and suffused. It is a flattish flower of good size in outline, with the petals pretty well formed. It is only free so far as growth and bud setting are concerned when well managed, but once let it get out of order, and a multitude of troubles begin. Grafting on a good stock will improve its chances of doing well, and, if for nothing else than colour, I would place it well up in the second rank.

Emilio Campione.—This is one of a more recent introduction, but it has been under cultivation so long that it cannot be considered as belonging to the prospective list of novelties, which will eventually be submitted. It is one of those which succeed well if its buds be "well set" early in the season. That is a point which cannot be too much impressed upon the general grower, for success in many instances is mainly due to a recognition of this practice. A lengthened dissertation upon it will come in more appropriately when we are dealing with the more formal points of cultivation, but a simple mention of it here may be the means of doing some good. The habit of the variety is straggling, and it is not at all inclined to "get up" as a pyramid, assuming somewhat of the squatty formation. If well cut in, however, like the Holly and the Atlas Cedar, its appearance will be much enhanced. Flowers of a rich carmine, sometimes confused towards the centre, but upon the whole good in form, and of full average size.

Fra Arnoldo da Brescia.—This is really a very fair sample of one of the newer Camellias. It is a good grower, a good flowerer, and a good flower to boot. I don't say it is first-rate—it does not merit the character of *magnifique* from a staid sobered-down Englishman. It is a pretty ruby flower, fully imbricated, and when pressed early into flower becomes blotched with white. It has not the geometrical finish in point of outline of petal that the florist would desire, but albeit it is worth growing generally where the collection is not too limited.

Grandis is a medium flower, fully imbricated. It is of a good cast of crimson, with an undefined band of white appearing in the centre of petals. It too is fully imbricated, and having moreover a good habit, it is a desirable variety for general cultivation.

Halleyi is a variety possessing a somewhat delicate constitution, and on that account is not so desirable for general cultivation as some others named above. With good nursing it is capable of yielding an amount of bloom that will give satisfaction, and in individualising it there are not so many detrimental points as will present themselves if the culture of a collection has not been studied, and the various idiosyncrasies of individuals systematically and correctly prescribed for. The flowers are of a rich crimson and imbricated to the centre, although they are somewhat flattish and deficient in build. I have seen them produced fit for a winning stand of 12, which is no slight meed of praise. *A.*

(*To be Continued.*)

Home Correspondence.

May Frosts.—My learned friend, Mr. Alfred Smee, in his interesting letter on the late May frost, which appeared in last week's issue (see p. 574), states that "May frosts must be regarded as a phenomenon of nature unexplained, and philosophically unexplainable." Now, although loth to differ with so accurate and scientific an observer, I firmly believe that these spring frosts are explainable on simple meteorological grounds. It is now generally admitted that two opposite wind currents constantly reign on the surface of the earth—a cold, north-east current, from the poles to the equator, and a warm, south-west current, from the equator to poles. Temperature and weather depend everywhere, to a great extent, and especially in the temperate zones, on which of these currents is superficial. If the warm, south-western current is superficial, the weather is warm; if the cold, north-east current is superficial, the weather is cold. In spring the north-east current may be considered the systemic superficial one; and as long as the mountains of Norway and Sweden are covered with snow, that is until early June, this wind must be cold, dry and biting. As May advances the struggle between the cold, north-east current and the warm, south-west current, as to which shall invest the earth with its mantle, waxes stronger as the days become longer and the sun gains more and more power. The atmosphere in contact with the surface of the earth is warmed, expands, and must have a tendency to rise into the higher atmospheric regions. What more natural than that the cold, north-east current should often descend from the higher atmospheric regions, where it reigns, when the warm, south-west wind blows on the surface, especially at night. If this explanation be the correct one, the warmer the weather in early May with southern winds, the more the terrestrial atmosphere is heated, the more likely are we to have, subsequently, cold north-east down currents, bringing with them from the snows and ice of North Europe the low temperature so destructive to our spring vegetation. These meteorological facts account for the, at first sight, singular caprices of these spring frosts. Thus, during the late frost on the night of the 24th, I was even more punished at my country residence at Claybridge than Mr. Smee at Car-halton, although in a warm sheltered position. My house is situated on sandy soil, on the outskirts of a forest of Scotch Fir, with a margin of Chestnut brushwood some 10 feet high, and at the base of a hill (St. George's Hill) which effectually shelters the garden from the north-east. As an evident result of this sheltered, warm situation, the spring frosts are more severe with me than with my neighbours in comparatively bleak, exposed situations on the brow of the hill. On the night of Friday the 24th the thermometer went down to 27°, giving five degrees of frost; the leaves of the Chestnut brushwood, fully out, are totally destroyed, and the copse looks as if a fire had passed through it. The foliage of Deodars, which had escaped the severe frost of January the 3d, has been damaged in the same way, and the leaves of Oak trees in many places, for fifteen or twenty feet from the ground, have been destroyed; the lower branches of these Oak trees are now covered with burnt-up, shrivelled leaves.

Nearly all out-door fruit was destroyed. Owing to protection from north-east winds, and to the generally sheltered character of the garden, vegetation is generally rather more advanced with me than with my neighbours located on higher ground, and the warm air at night also rises, no doubt, in greater volume; the cold upper currents thus descending to fill the vacuum more freely with me than on the adjoining hilly ground. These are, no doubt, the two principal reasons why frosts are more severe and destructive in warm valleys than on bleak hills. Vegetation is more advanced, more tender, and cold down currents are more frequent and severe at night. In such situations also extreme exceptional frosts are generally more severe than on hills. Thus, on the night of January 3d my gardener on examination found the register of the minimum thermometer as low as it could go, some degrees below zero. How much lower than that it did go we know not. Our common Laurels were nearly all killed to the ground; the Portugals were only injured, they seem hardier. In such situations bedding out should be deferred until the first week in June, until the snow and ice are melted in Norway and Sweden, and the descent of the upper cold current to the earth can no longer bring with it frost and devastation. Some years ago I had all my bedding plants destroyed on the night of the 29th of May, so now I never bed out until the 1st of June, or even later. *Henry Bennet, M.D., Grosvenor Street.*

Ornithogalum pyrenaicum.—A better substitute for Asparagus could not be desired than is to be found in the immature flowering racemes of the Ornithogalum pyrenaicum, gathered from the wild plants just at this season of the year, and cooked and served in the same way as the more costly delicacy. They are very tender and have a very similar flavour to true Asparagus; indeed, were it not that they are so slender (not more than a quarter so thick as Asparagus), I doubt whether many would detect the difference in the eating. The plant grows in pastures in Somersetshire, Sussex, and Bedfordshire. In the neighbourhood of Bath it is very common, and the young shoots are collected by the poor, and sold in the market under the name of "French Asparagus." Only two other species of Ornithogalum are found in Britain, namely, O. umbellatum, L., the bulbs of which are said to be nutritious and palatable when boiled, and which have been thought by some to be identical with the "dove's dung" mentioned in the Bible; and O. nutans, L. All three species are rather restricted in their distribution. From my own experience of the merits of the West of England "French Asparagus," it would seem worth the trouble of an extended cultivation as a vegetable. Perhaps those who read these lines and have tasted the plant in question will give their opinions upon it. *J. R. Jackson.*

Potato as a Styptic.—A day or two after reading Mr. Henslow's letter I cut down two plants of Cyanophyllum magnificum. They bled most profusely. A thick Potato slice was applied to each. Within an hour it had moderated the flow of sap, and the next morning the cuts were dry, and a thin film of starchy matter spread over each. This, I presume, was simply a portion of the Potato deposited after the sap had ceased flowing, and not the cause of the cessation of bleeding. As to the fact of the Potato stopping the bleeding there can be no doubt whatever; and I desire to thank Messrs. Henslow and Trollope for directing attention to such a simple and effective styptic. *D. T. Fish.*

Orchis maculata as a Border Plant.—One day I hope to write you a short paper on hardy ground Orchids, and how to cultivate them, and merely send a word now in favour of Orchis maculata. It is usually prettily tinted in the poorest and driest soils, but a very different object in a rich Buckinghamshire meadow (where I have seen it sometimes so thick that the spikes were as plentiful as those of the Grass flowers) to what it appears on a starved Surrey heath. Now, if well grown in moist and rather stiff garden loam, it will surprise and please even those who know it well in a wild state. Obtain it at any season, and plant 12 or 20 roots in a patch; take the roots up as tenderly as possible, and plant them carefully. It is quite possible to do more damage to one of those finger-rooted Orchids in planting it than in taking it up. I always succeeded without injuring a particle of the roots by making the side of the little "cut" firm and nearly straight, and then placing the root against it, I pressed in the loose soil carefully and firmly, afterwards opening another little firm circular cut to complete the patch. I mention this from having observed some men planting things of this sort by dabbing them into a hole such as a bird would scrape out, and then pressing them with their fingers strongly and quite close to the "collar," with but very little soil intervening. By this unthoughtful method they sometimes succeed in breaking off the best part of the roots, and no plants are more likely to be injured by it than palmately rooted Orchids. Plant in a rather moist position, and if when the plants form dense patches in two or three years' time, their beauty be not higher than some poor Epidendrums and other Orchids yet grown in many hothouses, say that I have deceived you. *W. R.*

Holly Fences.—Can any of your correspondents inform me of the present state and condition of the Earl of Haddington's Holly fences at Tyningham? Selby described them 25 years ago as in length nearly 1¾ mile, in height from 10 to 25 feet, and from 9 to 13 feet in width at the base. I observed no mention was made of these fences in your Journal during the year 1861, nor in any subsequent year. Did they pass unscathed through the winter of 1860-61? *Diss.*

What is a South Wall?—I should feel much obliged to any one of your many scientific readers, or correspondents, who would kindly afford his advice on a subject which may prove of general interest at a time of so much advancement in horticulture. I am about to remove my garden. The old one, which is very large, and very ill-placed, has become unmanageable. The walls are decayed and crumbling, and surrounded with forest trees grown to maturity long since they were built. Their aspect seems to have been ingeniously adapted to catch as little direct sun, and as much north-east wind as possible; and each year seems to bring round a fresh battle with the elements of a rather costly nature, with the most ignominious results. At length therefore I am resolved to have one acre of good garden, instead of nearly three acres of bad. I may repeat with humble and literal truth, "*Hoc erat in votis modus agri non ita magnus*;" and the first thing to which I look forward is the luxury (which I have never hitherto enjoyed) of a real south wall. But before I begin to build it, allow me to say that the very word appears to have no certain definition. I have discovered that it has at least four different meanings! One of my friends interprets it as "nominally" south, but really with a slight turn to the west. I need hardly say that that other friend of mine who systematically contradicts his propositions, prefers "a slight cant towards the morning sun," and goes in decidedly for east. It struck me that my pocket compass was not a bad arbitrator between these gentlemen, being sure to "dissatisfy both parties" (the received formula of a just award): but when I was about to assign the victory to the needle (in this only following the spirit of the age, which is exactly what I wish to do), "then comes in the other"—one whose name and word would carry weight in more than one quarter of the globe, a well-known traveller in all—and in the drawing-room tones of the Athenæum Club quietly says to me—"Of course you'll allow for the 'variation?'" Now, the whole sum of these differences may, practically, not be great; but brick-and-mortar is a serious thing. There are, the Stagyrite tells us, "a thousand ways of going wrong, and one way of going right." Is it not worth while, before the foundation is dug out, to try to ascertain what is really the best that experience has decided, upon this point, before setting up 70 yards run of wall, upon the position of which will depend three times as much more, after that is finished? I can readily anticipate that some may answer, "What does it signify, inasmuch as whatever may be the arguments for a little east or a little west, those walls will themselves supplement all that is required, or that the aspects themselves can furnish. This may be true; but my reply is that in these days of much use of glass, a south wall is, or ought to be, almost in itself a fruit garden; and I am, on this ground, desirous to depend as little as possible on the others. I shall certainly postpone the building of them till I have seen what I can, with the help of glass, do with my south wall alone. It is even possible I never may build them at all; a walled-in square was formerly a necessity, for reasons quite irrespective of fruit-growing, and must always partake of the atmospheric and hygienic disadvantages of a court, intercepting the currents of the air, and the abrasive, evaporative, and alterative action (if I may so describe it) of the various winds in their season. Though I venture feebly to throw out these ideas, pray let me not be supposed to pretend to any knowledge on the subject. My object in writing this is solely to seek for information; and next to the question of aspect, the point which seems to me of most importance, and on which I am most desirous to learn, is the best use of glass in connection with walls. There are various systems existing, and recommended: the "St. Pancras" system of moveable glass panes reaching to the ground, the system of small coping panes projecting a little from the top of the walls, and many others. Has any conclusion been formed, which is the best? I have looked in vain for some disinterested—or shall I say "non-commercial?" discussion upon this question, and I cannot help thinking it is one from the practical treatment of which many of your appreciating readers may derive information and interest. "*Una Mœnia.*"* [We specially invite a response to the important questions put by our correspondent, on the part of some of our practical gardeners. EDS.]

Names of Variegated Pelargoniums.—The number of these beautiful plants is or will soon be legion, and as "R. D." very truly says, as some of the varieties are wonderfully alike, hence it is the more important that each should at least be clearly distinguished by its own name. What is needed is some high court of appeal, possessing a knowledge of all the names already applied to varieties of merit, and invested with the power of preventing names already in use from being appropriated by new varieties. I think we have the nucleus of such a court in the Floral Committee of the Royal Horticultural Society. This Committee is now endowed with the higher functions of determining merit, it might surely readily be allowed to revise names. At present it takes sufficient cognisance of names to insist that the new plants that come before it shall each have a name. Logically it is almost bound to go further, and see that the name of the new favourite is distinctive enough to make it known, and not the same as that of half a dozen other varieties, of, it may be of equal, or it may be of no merit. The present rule might continue in force with the clear understanding that the names given by the raisers were provisional only, and were not authoritative until sanctioned by the Floral Committee. The provisional names might be given through the press in italics, and the public would at once appreciate the difference between provisional and settled names. The Committee would of course keep an alphabetical registry of all names, and a clerk would be appointed to go round at all the Tuesday meetings, and note and compare the names of the new plants with the book. If the raisers happened to be present the change might be effected at once; if not, the change could be announced at the next meeting. The duties of the Committee need not probably extend beyond the simple point of preventing two plants, that had received honours at their hands, appearing with the same name. It could hardly be expected that they would take the trouble of correcting the names of worthless varieties that might never more be seen or heard of. In reference to existing varieties, it would be perhaps difficult for the action of the Committee to be made retrospective; and perhaps, as the evil has not yet gone very far, if the raiser's name were added, with the proper name of the plant, no serious mistake could occur. I may add, for "R. D.'s" comfort, that as I acted as a sort of godfather at the christening of Mrs. Grieve, it has no connection whatever with Mr. Smith's variety of that name, and indeed it has never been named Mrs. Grieve anywhere except by myself in the Journal of Horticulture. The circumstances attending the great exhibition of tricolors, and the loyalty of its talented raiser, led to its change of name, and I hope the Messrs. Smith will withdraw their name in favour of Mr. Grieve's beautiful Victoria Regina. *D. T. Fish, June* 3d, 1867.——I quite agree with "R. D." (see p. 574) as to the confusion very likely to ensue from the naming of so many Seedling Variegated Pelargoniums; and it may perhaps seem necessary for me to offer a few words in explanation as to the naming of the variety called Victoria Regina. This is only a seedling of 1866, and was never outside the garden walls here until it was sent to Kensington on the 21st of last month. Previous to that, it had on many occasions been seen and admired by various visitors; and one gentleman said that it ought by all means to be named Mrs. Grieve; but this name was never applied to it by me, and no one else was authorised to do so. But thinking, as I did, that it was the most beautiful of any that I had raised, or indeed that I had ever seen, I, like a loyal subject of Her Majesty, named it "Queen Victoria;" but, on learning that another variety had had that name already assigned to it, I merely Latinised the name, rendering it "Victoria Regina." I know nothing of the variety mentioned by your correspondent as having been shown by the Messrs. Smith, of Dulwich, at the Crystal Palace, and named Mrs. Grieve, but I read the report of that Show, and saw that the Messrs. Smith had received a First-class Certificate for a variety named "Mr. Grieve," not "*Mrs.* Grieve." And I recollected, when at South Kensington on the 21st of last month, that Mr. F. Smith very kindly said, that he considered me as the founder of the race of Tricolored Pelargoniums, and directed my attention to a variety which he said he had, or intended to name in honour of me. This honour, however, I begged most respectfully to decline. I think that the Council of the Royal Horticultural Society acted with great discretion in declining to notice, or at least in declining to assign any awards to yearlings or plants which had not been propagated from cuttings; and I likewise think that the practice of attaching names to such plants ought also to be discontinued, as it tends to add very much to the confusion of which your correspondent so justly complains. A great many such plants look promising enough when in the seedling stage, but when attempts are made to increase them by cuttings they are found to be worthless, and are no more heard of; although they have, as it were, appropriated a name which might otherwise have been assigned to an established and useful variety. Numbers, in my opinion, attached to each specimen, would answer every purpose required, and much confusion and mystification would be avoided. I quite agree with Mr. Wilson Saunders in thinking that the term Tricolor is not the correct term for these Pelargoniums. The term Versicolor would certainly be much more appropriate, and I confess that I can see little objection to the term you have yourself applied, viz., Tartan. Or to be more definite, would there be any objections to the terms Golden Variegated Zonals and Silver Variegated Zonals, Golden Margined and Silver Margined, the two latter terms to apply to the zoneless varieties, such as golden Chain and Flower of the Day, &c.? With regard to the bronze or yellow leaved varieties, such as Beauty of Oulton, &c., they are certainly very beautiful; but they cannot be classed as Variegated Pelargoniums, or if so, all the other varieties which have zoned foliage must also be considered as such. *P. Grieve, Culford.*

Tartan Pelargoniums.—Shades o' a' the Stuarts, Campbells, and M'Gregors—to ca' yon pretty things tartans! Whaur were the stripes and bands and squares, man? I ken the gairdners can do mony things gie weel, but a tartan leaf!—they'll ne'er do that. I only wish they could. We would hae the tartans in every Hieland window. The clans would come doon with a swoop, or march a' the way to London, to make a clean sweep o' a' the Tartan Pelargoniums, and carry them across the border, where they ought to hae come frae—as they will if ever you see them ava, I'll warrant ye. But jist ye ca' them by their richt names o' Variegated Horseshoe, and let the tartans be. I wish you'd be gude enough to tell us benichted bodies the meaning o' thae awfu' big words ye wrote doon just below the tartans, beginning wi' Anthoxanthin, and ending wi' chromule!!! Dinna ye read yer Bible eneuch to ken that whaur a lang word is used it is added, "which being interpreted is or means"—what it does mean? Jist ye sit doon noo, and do likewise, and no write doon ony sic tremendous jawbreakers again, and ye'll obleege *A Canny Scot.* [We thank our correspondent for his "perfervid" correction, but as he hails apparently from the vicinity of the modern "Aäthens" we are surprised that a wee bit o' Greek should come amiss. EDS.]

Ambatcha.—Observing some allusion to this in "Notices to Correspondents" of your issue No. 21, May 25, 1867, page 550, and supposing it may have reference to my mention of the plant (see paper read 12th May,

* Vide Ettm Grammar, p. 2.

1864, in the "Transactions of the Historic Society of Lancashire and Cheshire, vol. xvi., pages 107, *et seq.*), I beg to say that "Anemone mirabilis," as there stated, is a misprint; it should have been "Œdemone mirabilis." The late Dr. Theodore Kotschy, of Vienna, an eminent botanist and African traveller, informed me that it had also the name of "Herminiera elaphroxylon." That gentleman sent me an uncoloured lithographic print of a mass of the plant, a piece of the dry stem, and a coloured drawing of a branch with the flowers and seed pods. It grows in the beds of shallow stagnant rivers of the Upper Nile country, having long, bare, broomstick-like stems, rising to a height of 15 and 16 feet, with tufts of leaves and flowers at the ends of branches on their tops. It is in such thick masses that it very much impedes the navigation of those rivers; but when the stems wither and become dry they are very fragile, and are easily beaten down by the natives with their paddles, so clearing a passage for their canoes. The leaves are shaped like those of the pseud-Acacia, as well as the flowers; the clusters, however, being larger, and of a deep yellow colour, and they have a pleasant and aromatic fragrance. The Arabs call the plant "Ambatsch." *J. A. T.* [This leguminous plant is very different from the Arum, also said to be called Ambatcha. Eds.]

Vine Leaves.—Mr. Fish (see p. 519), in speaking of the "Relations of Gardening to Nature and Art," says: "Mr. Fowler has lately sent some extraordinary measurements of bunches of Grapes to the *Gardeners' Chronicle*. Might I beg of him to supplement these with the size of some of the leaves of his Vine, and I will promise beforehand to allow my argument against special monstrosities to stand or fall by their measurements." I have much pleasure in supplying the information requested. I presume Mr. Fish more particularly alludes to the White Nice Vine, the largest leaves of which measure 16 inches across, and average about 14 inches; they are very equal in size, and of good substance. Other varieties, such as Muscat Hamburgh, Black Hamburgh, Golden Hamburgh, Trebbiano, &c., average from 12 to 14 inches, and all are of a dark glossy green colour. *Archibald Fowler, Castle Kennedy, Stranraer.*

Early Peas.—In the letter on early Peas in your impression of May 25 (see p. 546), in the 25th line from the top, the word better is misprinted for taller. In reading the paragraph alluded to, if the word taller is substituted for better, the correct meaning will be given. I forward you samples, taken up just as they are growing, of Dilliston's Early Prolific and Carter's First Crop. *M. N. E.* [In their present stage of growth the two kinds seem to be in all respects identical. Eds.]

Aponogeton distachyon.—As it has been stated that this has been grown with success in the open air in the south of England, I may mention that from 1844 to 1854 it was growing vigorously in a small loch in the vicinity of Dunkeld, and that it had in the course of the period just named increased from one to about a dozen. Whether or not it is still growing there, I cannot at present say, but I may have an opportunity of doing so hereafter. *J. H.*

Royal Ascot Grape.—Some two years ago I had the pleasure of inspecting Mr. Standish's large collection of Grapes, and was much struck with the general appearance of his Royal Ascot. It is earlier than the Black Hamburgh, an abundant bearer, and good in quality. It seems in short all that a Grape grower can desire, and it is destined, before we are much older, to play an important part on the Exhibition table. *A. Henderson, Sion Nursery, Thornton Heath, S.*

Gardeners' Royal Benevolent Institution, and Gardeners' Wages.—I can endorse all that Mr. Fish has stated (see p. 574) on this subject, having been a head gardener for more than 20 years. Like Mr. Fish I will now, however, send my guinea to the Institution, and I may also state at the same time that this guinea is by no means saved out of my wages, for if I had never received anything except what I have received in the shape of wages I should certainly have no guinea to spare. But I happen to have a small independent income, "growing smaller by degrees and beautifully less" of late, however, I am sorry to say. I trust that brighter prospects may shortly dawn on the succeeding generation of young gardeners, and that they may, by strict integrity and diligent application to the duties of their position, prove themselves deserving of a happier lot than has been that of their sincere well-wisher, *An Old Gardener.*—Mr. Fish says a gardener with 80*l.* a year, and a family of five to support, cannot spare a guinea a year; and if so, how much less can I and hundreds of others, who are only blessed with 65*l.* a year! Under gardeners' wages have very much improved of late. We have to work in the busy season from daylight till dark, and our system is to pay our men overtime at the rate of 4*d.* per hour, so that they can earn 25*s.* a week. Yet I, who have the superintendence, anxiety, responsibility, and no small part of the work to do, am remunerated with 65*l.* a year, and a gate lodge of three rooms to live in, my wife having the delightful privilege of opening the gate. I therefore beg of you, and all who have the interest of the Institution at heart, not to be hard upon those who would assist but have not the means. *A badly-paid Gardener.*

Orchard House Trees.—The silence which has reigned for a long time in reference to the culture of fruit trees in pots seems somewhat ominous. For weeks during spring and autumn has your Paper been anxiously scanned for accounts from some one elated by success or depressed by failure in regard to them, or for the more sober accounts of those who have for a number of years tried the "pros and cons" of the system, and whose experience would serve as a guide to others if made known. I do not mean such cultivators as Mr. Rivers, because I suppose failure, or rather houses without fruit, with him must be unknown, for it seems reasonable to suppose that where fruit trees in pots are so extensively grown for sale as at Sawbridgeworth, and where numbers of visitors, both native and foreign, annually go to inspect and purchase, that if the constitutional vigour of a tree flags it would not be retained in a house where it would cause unpleasant questions to be asked, but would be replaced by a more healthy subject; for this reason I think information from professional gardeners or amateurs would be more valuable. If some of your readers who have orchard houses would tell us how their trees are doing after seven or ten years of cramping of their roots in 13-inch pots, and where nothing remains save roots and the 2 or 3 inches of top-dressing they annually get, we should be able to compare notes and determine with some degree of certainty how long our trees will bear such treatment. The season is now far enough advanced to be able to ascertain pretty accurately what are the prospects for the present year. Our house here, which is 120 feet by 18 feet, with one path down the centre, is filled with trees of the following sorts, viz., Peaches, Nectarines, Apricots, Plums, Cherries, and Pears, the last fill nearly half the house. The whole were potted in January, 1860, and have annually yielded excellent crops of fruit. Plums have been the admiration of all who have seen them; Pears, too, have been pronounced at my employer's table to be of first-rate quality both as to size and flavour, especially some of the earlier sorts. This year we have again had a fine show of blossom. Stone fruits have set well generally, but many varieties of Pears are entirely unproductive, they seem unable to develop the embryo fruit, showing evident signs of decay, though they have received the same treatment as in former years. Pears are emitting young roots at the base of the stem. Some of these I intend mulching with good rotten dung and loam, allowing the roots to permeate it, and then cut as much of the bottom of the ball away as possible, and repot, operations which I think will give fresh vigour to the tree. I attribute much of our success during the past seven years to giving a constant supply of liquid manure during the growing season. I hope I may not be confirmed in my opinion by the experience of others that at the age of six or seven years under pot culture the trees begin to decline. *J. H., Cheshire.*

Sleep of Plants.—That plants do enjoy a state of reinvigorating rest at night, answering to sleep, will be evident to any one who, at this season, will make a few simple observations in an ordinary Vinery. In sunshine it will be found that the footstalks of the Vine leaves are, in general, erect and straight, supporting their leaves at right angles. A few hours after sunset it will be found that the footstalks are no longer erect, but are inclined downwards, with the leaves pointing to the ground. In this latter case, had the leaves retained their sunny position, their loss of heat, by radiation during the night, would have been at its maximum; whereas, by the manœuvre of "hanging at ease," pointing to the ground, they radiate into each other, and little or no heat is lost. But probably a still greater economy of the vital force, and a corresponding restoration of vigour, results from the mechanical relaxation of the tissues, no longer held in tension. An idea may be formed of what takes place in this last respect, by holding the arms for a few minutes extended at full length, and then allowing them to "hang at ease." *An Amateur, Clapham.*

Foreign Correspondence.

Trinidad Botanic Garden: *April* 22.—I am happy to say that all parts of my department are progressing favourably, and improvements long proposed are now being carried out in the garden. In such I have the Governor's entire approbation, and his kind support, as far as it is possible for him to give it, in the most agreeable manner. In December last, by official request, I drew up a report on the garden, from the time of my appointment, including suggestions for improving the garden, with a view to render it more useful to science and to the colony. As may be expected, I did not spare myself in offering suggestions, &c., and I have the satisfaction of knowing his Excellency approved of the majority, few of which only, however, can be taken into consideration for carrying out at present, as means are wanting, and the uncertainty existing with respect to the site for the new Government House prevents one of the most desirable alterations being entered upon, viz., the doing away with the farm-yard—now occupying a central position in the garden—and extending the flower garden and shrubbery over its site; the steadings to be placed in the grounds at the back of the garden, now in "bush," and surrounding land to be occupied by plantations of useful trees, and to be used as a pasture. This suggestion has given rise to a grand project, which I am proud to say the Governor has entered into with some spirit. It is to renovate the declining forests with the best of our timber trees, and to establish plantations of useful timber trees in every wood, sufficiently large to give an abundant supply of wood for local uses. Dr. Mitchell, Mr. Devenish, and myself have been requested to report on the subject. Meantime, I have already nearly 15,000 young plants of Mimusops globosa raised from this spring's fruiting. I have already shown that the establishing of government plantations must ultimately be enormously remunerative; and as I am desirous of acquiring all knowledge possible of the management of tropical plantations, I would feel very thankful for any means of information you might be able to refer me to of the East Indian plantations, which I am informed are being carried out on a very large scale. I have lately succeeded in clearing a large extent of land, till now covered with "bush"—some 260 acres, on a spur of the Laventille Hills, quite on the confines of our botanical territory. The change has been effected in so short a time, and the result is so satisfactory, that it astonishes every one. Contrary to what is invariably done here in clearing land, I was careful to mark all useful trees standing at the proper distance from each other for preservation; and now that scarcely a year has passed, a most luxuriant pasture is brought about, regularly shaded with trees of nearly uniform size, and the whole has the appearance at a distance of a well-kept lawn or shrubbery on a gigantic scale. Here and there are magnificent clumps of Bamboos, and I need not tell you how effective they are in adding beauty to the landscape. The late dry season has enabled me to clear also about 22 acres at the back of the garden, and this is now available for planting. I shall proceed with it as with other portions of the previous season's clearing, viz., plant out my specimen trees at their proper distances, and fill up with Coffee and Indian Corn, both of which give handsome returns, the latter very readily. I think I ought to mention that since the time of Lord Harris till my arrival here, the "bush" had been gradually creeping into the garden.

You have doubtless heard of the ravine traversing the whole garden. This ravine at its lower part is occupied almost exclusively with Nutmegs. The upper portion (the larger one), however, has been till recently a rank wilderness. It is very moist, even in the dry season, and densely shaded, mainly by gigantic trees (Inga Samans). The clearing and regulating of this has been, and continues to be, a great work for us. The splendid opportunities, however, it affords as it becomes cleared for the cultivation of the more delicate and moisture-loving plants—not to be grown in any other part of the garden—as well as the many pretty features its arrangement brings about with but little effort on my part, is an irresistible inducement to have the whole thing gone through. This latter season an extra gang of convicts has been allowed, and the whole of the heavy work proceeds rapidly, and I have now the satisfaction of seeing a well-paved gutter at the bottom of the ravine in the place of a gully some 10 feet wide and 6 deep, generally more or less filled with seething filth. The slopes, too, are either turfed or occupied by Ferns, Scitamineæ, and shade-loving Cyperaceæ. We frequently get 6 feet of water in this ravine in the wet season, and to meet this the paving is carried up the sides correspondingly high; immediately above which occurs a gravel walk, following the ravine in its windings. The effect of this, as you may imagine, is extremely pretty, added to which are the enormous trunks of the Samans, loaded with the prettiest (any way parasitical) Ferns, Anthuriums, Pothos, Æschynanthus, Lycopodiums, Philodendrons, &c. In order to keep these sufficiently moist in the dry season I have run a small pipe up the trunk, and by the aid of a small stop-cock below, and a spreading jet above, a most effectual mode of irrigation is brought about. Elaphoglossum L'Herminieri is growing splendidly, also Platycerium Stemma ia, having fronds 5 feet broad and the same long. It has continued to enlarge since an unlimited supply of water has been given it. I find the smaller specimens of Palms are doing admirably in this ravine—such, in fact, as will not even live in more exposed places in the garden.

You will be pleased to know that our Amherstia nobilis has flowered for the first time. It is now about 14 feet high, 8 feet broad, with a stem girth of 9 inches. It has produced 17 spikes, flowers averaging 11 on each—other spikes are coming out. It has caused an unusual influx of visitors, who are generally full of admiration for it. I am glad to say the whole of the Conifers sent me from Kew are doing most admirably, and excite the admiration of visitors quite as much as the beautiful foliaged plants do their visitors at home. The succulents also, supplied from the same source, are similarly well. Our amateurs (amongst whom our Attorney-General ranks first) are astonished at this, inasmuch as they thought, from their experience, they could not be grown. These, however, with the Conifers and other species of difficult management here, are under my own immediate care.

I am now desirous of obtaining all Amaryllideæ that are likely to do here, and if you could favour me with roots, of whatsoever species, I shall be most thankful. All I have at present (seven species) are doing admirably, and I intend to do what I can in the way of hybridising; for I am of Mr. Duncan's opinion as to their being the "Tulip" of the Tropics. *Henry Prestoe.*

Societies.

Royal Horticultural: *June* 4 *to* 8 (*First Great Show*).—This five days' great exhibition was in many respects very successful, especially so as far as fine plants and striking effects were concerned, and judging from the large numbers of visitors which attended it, we imagine that it was equally satisfactory in a financial point of view. It was held in the Eastern Annex, in the large Rhododendron tent, which was tolerably well filled with gay flowers and fine foliage, here and there relieved by stately Tree Ferns, and other subjects of a similar description. The weather, though showery, was upon the whole favourable.

Azaleas, both large and small, were contributed in abundance by Messrs. Penny, Wilkie, and Carson among amateurs, and Mrs. Glendinning & Sons and Mr. Turner among nurserymen. In the Class of nine plants, Mr. Penny was 1st with Brilliant, a kind with vivid orange scarlet flowers of good shape and substance, and one of the latest and best of Azaleas; Chelsoni, Sir C. Napier, Formosa, and Magnet, all different shades of orange scarlet; Magnificent and Iveryana, white; and Model, rose. Mr. Turner again furnished large plants, among which Holfordi, Iveryana, and Gem were the most effective. In the Nurserymen's Class for six plants, Mrs. Glendinning & Sons took the 1st prize with the same plants as were shown at the Royal Botanic Society's late Show. In the Amateurs' Class for six, Mr. Carson, gr. to W. R. G. Farmer, Esq., Cheam, was awarded a 1st prize for fine specimens of Apollo, orange scarlet, Symmetry, Stanleyana, Sir C. Napier, Variegata, and Model. In the Class of 15 plants in 12 inch pots the best

Madame Ambroise Verschaffelt, white flushed with salmon, and heavily spotted in the upper petals with deep red; President Claeys, salmon broadly edged with white; Etoile de Gand, Gem, still one of the best of its colour; Duchesse Adelaide de Nassau, scarlet blotched with violet crimson in the upper petals; Leopold I., deep rose; Elegantissima, a fine white, flaked with carmine; and Kinghorni, the last with large rose-coloured flowers. Mr. Turner had a 2d prize for a very good collection, in which most of the sorts just named re-appeared.

Roses, as usual, formed a beautiful feature of the Show; Mr. Turner had the best nine, among which were beautiful examples of Charles Lawson, Gloire de Dijon, Madame Boll, Général Jacqueminot, Souvenir d'un Ami, Vicomte Vigier, Queen, Juno, and Comtesse de Chabrillant. Mr. William Paul, who was 2d, furnished fine plants of Juno, Paul Perras, Souvenir d'un Ami, Niphetos, Senateur Vaisse, and Comte de Nanteuil. In the Class of 6 plants Messrs. Paul & Son were 1st with Charles Lawson, Juno, Souvenir d'un Ami, Céline Forestier, Lord Raglan, and Niphetos, all excellent. Messrs. Francis, of Hertford, who were 2d, had good examples of Madame Villermoz and Souvenir d'un Ami. In a miscellaneous collection from Mr. Turner were Alba Rosea, generally a pleasing Rose; Souvenir de la Malmaison, and Beauty of Waltham, all in fine condition. Of new Roses not sent out previous to 1864-5, there were two collections, one from Messrs. Paul & Son, and another from Mr. William Paul, to both of whom 1st prizes were awarded. The former had Michel Bonnet, Duchesse de Caylus, Pierre Notting, very dark; Madame Victor Verdier, and Princess Mary of Cambridge. Mr. W. Paul had, among others, Triomphe de la Terre des Roses, large violet rose; Jean Rosenkrantz, crimson; and Dr. Andry.

Pelargoniums were exhibited in great quantities, and for the most part in excellent condition. Mr. Turner had the 1st prize for 9, among which were Desdemona, Patroness, and Fairest of the Fair; Golden Hue, Lord Clyde, Landseer; Spotted Gem, Mdlle. Patti, and Lilacinum. Mr. Fraser was 2d with Caractacus, Sylph, Festus, Empress Eugénie, Sans-pareil, Pericles, Mdlle. Patti, Lilacinum, and Rembrandt. In the Class of 6 plants Mr. Fraser was 1st with Ariel, Rose Celestial, Lilacinum, Lord Clyde, Desdemona, and Leander; and Mr. Turner was 2d with, among others, John Hoyle, a showy clouded scarlet variety, with dark upper petals edged with carmine; Mary Hoyle, a very pretty orange salmon variety with a white centre and a rather small black blotch. Among Amateurs, the best six came from Mr. Nye, gr. to E. B. Foster, Esq., Clewer Manor, who had fine specimens of Mdlle. Patti, Etna, Desdemona, Belle of the Ball, Garibaldi, and Conqueror. Mr. Ward, gr. to F. G. Wilkins, Esq., and Mr. Wiggins, gr. to W. Beck, Esq., also showed in this class. In the Class of Fancies, Mr. Fraser was 1st in the Nurserymen's Class, with beautiful examples of Ellen Beck, Roi des Fantaisies, Crystal Beauty, Lucy, Undine, and Celestial. Mr. Turner was 2d, with Acme, Ann Page, and others, none of which differed from those just named. Mr. Bailey, gr. to T. Drake, Esq., Shardeloes, had the 1st prize in the Amateurs' Class. Among specimen plants, Mr. Turner received a 1st prize for Delicatum, a Fancy variety, measuring about 3 feet across; Mr. Nye had a 2d prize for Rose Celestial, about 3½ feet across, and Mr. Fraser was equal 2d, with Desdemona, all finely bloomed well-grown plants. Among new Pelargoniums, The High Admiral, Charles Turner, and William Hoyle, were the most striking.

In the Class of six Zonal Pelargoniums Mr. Fraser was the only exhibitor; he had admirably grown and well bloomed plants of Madame Werlé, white, with a pink centre; Louis Rœseler, salmon scarlet; Rose Rendatler, Emile Lican, orange salmon; Monsieur Rendatler, white, suffused with salmon; and Clipper, brilliant orange scarlet.

Orchids were again somewhat defective as regards numbers and fine specimens. Mr. Penny showed the best collection of 12, in which we noticed a fine Cypripedium barbatum, C. Hookeriæ with a dozen blooms, Vandas, Lælia purpurata, Dendrobium macrophyllum giganteum, D. nobile, Aerides Warneri, and Cattleya Warneri. Mr. Wiggins was 2d with a collection in which there were Saccolabium præmorsum, with two fine racemes, Fox-brush and other Aerides, Cypripediums, and Cattleyas. In the Nurserymen's Class of 10 Orchids, Messrs. Veitch were 1st with Lælia purpurata, Cattleya lobata, Mossiæ superba, and McMorlandii, the last conspicuous for its orange-marked lip; Cypripedium barbatum, and Veitchii, Saccolabium guttatum, and others. Mr. Williams, who was 2d, had Cattleya citrina with a dozen blooms, Lælia elegans, Aerides crispum, and Oncidium altissimum. Mr. Bull was 3d, with among others Cypripedium caudatum with five flowers, several varieties of Cypripedium barbatum, and Cattleya citrina. In the Class of six Orchids, Mr. Penny, who was 1st, had Saccolabium guttatum with five racemes, and a fine specimen in beautiful bloom of Trichopilia crispa. Mr. Fairbairn, who was second, showed Vandas and good examples of other genera. In the Nurserymen's Class of six, Messrs. Jackson, of Kingston, and J. & C. Lee, of Hammersmith, stood 1st and 2d. In these collections were examples of Dendrobium densiflorum, Odontoglossum citrosmum, Cattleyas, Lælias, and Vandas. For the best single specimen, Mr. Sherratt, gr. to J. Bateman, Esq., Knypersley, was 1st with the rare Dendrobium MacCarthiæ; and Mr. Fairbairn 2d with Phalænopsis grandiflora.

Stove and Greenhouse plants in flower were shown in large numbers. The principal exhibitors were Messrs. Lee, Rhodes, and Glendinning, among nurserymen; and among amateurs, Messrs. Wilkie, Carr, and Peed. Conspicuous among the plants shown were specimens of Medinilla magnifica, Rhynchospermum jasminoides, Dracophyllum gracile, Allamandas, Stephanotis floribunda, Ixoras, Clerodendrons, Heaths, Azaleas, and Genetyllis; especially tulipifera, which when well flowered is really a beautiful plant. Allamanda Henderson was shown as a specimen plant, both by Mrs. Glendinning and Sons, and Mr. Wilkie; and Messrs. Lee had Dipladenia crassinoda.

Of Heaths Messrs. Rhodes, Peed, Jackson, Ward, and Wilkie, showed well grown collections, while beautifully bloomed plants in pots not exceeding 5 inches in diameter were shown by Messrs. Jackson and Osborn.

Among other subjects in bloom was a fine standard Rhododendron from Mr. Wilkie; some Fuchsias and herbaceous Calceolarias. Of the last Mr. James had as usual a beautiful group. Mr. Williams contributed a dozen Amaryllises; and Mr. Turner and Mr. Bull Lilium auratum, a plant of which from the former had 10 blooms on a spike.

Among fine-foliaged plants were Ferns, Pandanuses, Palms, Crotons, Dracænas; Alocasia metallica, Lowii, and macrorhiza variegata; Yuccas, Theophrastas, and others.

Of Caladiums, there were also some very fine plants, especially a group from Mr. Fairbairn. Messrs. Veitch had three Anthuriums, viz., A. Scherzerianum, A. cordifolium, and A. regale, all in fine condition, and for which a 1st prize was awarded. Mr. Williams also showed in this class, and for the best pair of Yuccas or Beaucarneas he took a 1st prize with two remarkable specimens of Beaucarnea recurva and B. glauca: Messrs. Veitch were 2d, with the Variegated Aloe-leaved Yucca; and Mr. Bull, 3d. Of Dracænas, Mr. Fairbairn showed a remarkably fine pair, and Mr. Williams had a 2d prize with two fine examples of D. lineata. Of Pandanus distichus, Messrs. Veitch had a remarkable fan-shaped specimen; and of tree Ferns, Mr. Williams showed a Dicksonia antarctica not less than 18 feet high; Messrs. Veitch and Mr. Bull also showed very large specimens of the same species. Chamærops humilis, of which Mr. Williams sent a large specimen, was awarded the prize for the largest and finest Palm. Among other things we also noticed a small group of Agaves.

Of hardy evergreen trees and shrubs, interesting collections were shown by Messrs. Veitch, Bull, and Osborne; and Mr. Salter, of Hammersmith, had a fine collection of variegated hardy plants. Of hardy British Ferns Messrs. Ivery had a beautifully-grown collection, in which were remarkable specimens of Athyrium Filix-fœmina Victoriæ, A. f.-f. plumosum, A. f.-f. pulcherrimum, and Polystichum angulare proliferum and plumosum.

Tricolor Pelargoniums were shown by Messrs. E. G. Henderson, Messrs. F. & A. Smith, Mr. Watson, and others.

Mr. Bull's Amorphophallus, referred to in our report of the Royal Botanic Society's show last week, was reproduced on this occasion, fully developed. Its singular Fungus-like growth appeared to interest most people. Mr. Fairbairn showed some fine Selaginellas, of which a panful of S. apoda was particularly fine.

Among subjects which came more immediately under the notice of the Floral Committee in addition to Pelargoniums, of which a separate notice is given in another column, were Silene pennsylvanica, a dwarf rock plant, covered with bright pink flowers, from Messrs. Backhouse, to which a First-class Certificate was awarded. Messrs. Ivery received First-class Certificates for Polystichum angulare oxyphyllum, Athyrium Filix-fœmina plumosum multifidum, the Axminster variety of A. Filix-fœmina plumosum, and A. Filix-fœmina Girdlestonii. Messrs. Salter had a similar award for Coprosma Baueriana variegata, a pretty plant with green leaves edged with pale yellow. Mr. Robert Veitch, Exeter, sent two fine specimens of Adiantum Farleyense and Adiantum species, the last probably a seedling from the former. Mr. Stone, gr. to J. Day, Esq., received a First-class Certificate for a magnificent variety of Cypripedium Stonei, with much broader petals than those of C. Stonei, which it otherwise resembles. He also exhibited Cattleya Dowiana, a grand species with buff sepals and petals and large violet purple lip veined with gold; Epidendrum vitellinum majus; and Oncidium Kramerianum, which was reported to be O. papilio pictum, also came from the same exhibitor.

Messrs. E. G. Henderson sent a group of plants arranged somewhat in the same way as that which they showed the other day in Regent's Park, and edged as that also was with their Pyrethrum aureum, or Golden Featherfew.

Of Fruit, Mr. Ward, gr. to T. Miller, Esq., Bishop Stortford, had Pine Apples, among which was a Queen weighing 5½ lb., and a Providence, 8 lb. Mr. Neale, gr. to R. A. Cartwright, Esq., Banbury, also had a very good smooth-leaved Cayenne. Mr. Tegg, gr. to the Duke of Newcastle, furnished Brugnon Nectarines; Mr. Sage, gr. to Earl Brownlow, Ashbridge, Peaches; Mr. Sherratt, Elruge Nectarines; and Mr. Henderson, Cole Orton Hall, a 14-lb. box of Black Hamburgh Grapes, together with other sorts. Mr. Fraser had very good Strawberries in pots; and to the Fruit Committee on the first day, Mr. Rivers, of Sawbridgeworth, sent seven varieties of Cherries from pot trees, which being very fine were awarded a Special Certificate. They consisted of Early Purple Guigne, ripe May 24; this is one of the best of the early Cherries—the tree tender. Guigne Tres Précoce, ripe May 22; small dark red, round; stalk very short, sweet and juicy, without much flavour; tree very hardy, and a great bearer. Noire Précoce de Strassé, a small black Cherry, sweet; tree hardy, and a great bearer—ripe May 30. Early Strassen, a pale red, very sweet Cherry; flesh tender and juicy, flavour rather flat. Guigne Hâtive Rose de Lyon, a large, handsome, red Cherry; not quite ripe, but with a brisk good flavour. Belle d'Orléans, a small, pale red Cherry; very sweet, but dull in flavour. Guigne Marbré, a small, dark red sort, remarkable for its turning bright red and looking ripe by the 15th or 20th of May; in that state it is sent in boxes from the South of France to London in large quantities; its stone large, and its thin covering of flesh flavourless, but it sells freely. Mr. Lydiard, of Batheaston, sent a small collection of vegetables; and Mr. Francis, of Hertford, Hill's June Broccoli, a hardy sulphur-coloured variety.

The Cups and some of the other prizes to be awarded at the forthcoming Bury Show were placed on a table in the centre of the exhibition-tent for public inspection.

GLASGOW AND WEST OF SCOTLAND HORTICULTURAL: *May* 29.—The City Hall of Glasgow was more elegantly arranged with plants than hitherto, and the great majority of them were good specimens. The public flocked in thousands to witness the display, and all appeared highly delighted. The usual 20 Guinea Prize, which was formerly awarded to a miscellaneous assortment, without any regard as to numbers, was on this occasion offered for 20 Plants, various. The change was decidedly advantageous in point of appearance, the plants appearing much more effective, showing both the skill of the cultivator, and the merits of the plants themselves for decorative purposes.

Mr. Mitchell, gr. to His Grace the Duke of Hamilton, Hamilton Palace, again was successful in carrying off the "blue riband" of the day with splendid specimens of Cibotium princeps, Croton angustifolium and variegatum, Cordyline indivisa, and Pandanus elegantissimus, forming a centre, of bold, undulating outline, flanked on either side with some very well managed plants, chief among which were Acrophyllum venosum, Bougainvillea glabra, Dracophyllum gracile; several good Heaths and Azaleas: among the former was a good Bothwelliana, and among the latter the particoloured Beauty of Europe and Duc de Nassau, both good late keeping varieties. Among others was Stephanotis floribundas, Kalosanthes coccinea, Clerodendron Balfourii, &c.

Mr. Dickson, gr. to Thomas Coats, Esq., Fergusliè, Paisley, who was 2d, had two magnificent Tree Ferns, which from their graceful frondage relieved much of the stiff formality of ordinary flowering specimen plants—Alsophila australis and Dicksonia antarctica, on either side of Latania borbonica. Chief among the others were the old but distinct and interesting Erica elegans, a good Bougainvillea glabra, which makes a fine competition plant; two or three good Heaths, Aphelexis macrantha purpurea, a very good Allamanda grandiflora, a good Cattleya Mossiæ, and a large mass of Brassia maculata.

Mr. Murray, gr. to D. Tod, Esq., of Partick, had some well bloomed plants of lesser size, the most prominent among which, a very fine plant of Ixora amboynensis, full of its showy orange corymbs; several fine Heaths, the best of which was Bothwelliana; Phœnocoma prolifera, still one of the most effective of the everlastings; the Balfour and Thomson variety of Clerodendron; a good Lælia purpurata, &c.

In the Miscellaneous Class there were several exhibitors, the best coming from Mr. D. McBride, gr. to R. Goodwin, Esq., Hazlewood; Mr. Jas. Forbes, gr., Beechwood; and Mr. Boyd, gr. to T. D. Finley, Esq., Easterhill. In Cape Heaths Mr. Neill Campbell, gr. to R. Addie, Esq., of View Park, Bothwell, had a good lot of plants. These miscellaneous subjects had the usual complement of Azaleas, Aphelexis, Tremandras, &c. The more prominent was Ixora Griffithii, with very large orange scarlet heads of bloom; Pimelea elegans, a distinct and good plant, with white trusses, conspicuous for the yellow bunches of stamens which adorn them; and Aphelandra variegata, with fine white lines radiating from the mid and inferior ribs on a pale green surface.

Orchids were contributed with success by Mr. Mitchell against several competitors, his best plants being Phalænopsis Schilleriana in excellent condition, Vanda insignis, Lælia purpurata, &c. Mr. Murray, Ironbank, had a very good Cattleya Aclandiæ, Lælia purpurata, Cypripedium barbatum, and some others. Mr. Dickson had a good lot for exhibition, comprising Cypripedium caudatum with four very fine flowers, Cypripedium Lowii, Aerides crispum, Aerides Fieldingii, &c.

The Variegated Zonal Pelargoniums were quite a show of themselves, especially those furnished by Mr. Campbell, gr. to W. Stirling Crawford, Esq., of Castlemilk, which besides being grown into pyramids were nicely arranged as to varieties and colour. The best were Flower of Spring, Cloth of Gold, Lizzie, Luna, Queen of Queens, Golden Sceptre, Countess of Tyrconnel, Kenilworth, Sunset, Castlemilk Seedling, Bronze Queen, and Italia Unita. Mr. Ingram, gr. to John Garden, Esq., of Aitkenhead, had also a good collection, comprising Sunset, Annie Williams, Luna, and Queen of Queens.

Ferns were contributed in considerable numbers, the more prominent, as engaging general attention, were Nephrolepis exaltata, Gymnogramma Laucheana, the beautiful Pteris longifolia, Doryopteris grandis, Asplenium Nidus, and many others.

Mr. Clark sent from the Royal Botanic Gardens a Collection of Ornamental Plants, including several Ferns, towering above which was Alsophila excelsa, and intermixed some good showy Orchids, and the curious Xylophylla latifolia with its inflorescence arranged on the margin of the leaflike branches. Messrs J. & R. Thyne had a good lot of plants, conspicuous among which was Phœnocophorium sechellarum, with large fronds so elegant and admirable as to enhance its value in general estimation as it progresses in growth; Anthurium Scherzerianum, and the handsome Livistona altissima. Mr. Methven contributed the same Rhododendrons full of flower as were shown and descanted upon in the report of the Royal Caledonian (p. 576). P. M'Kenzie had a good group with the still ornamental Rhododendron Dalhousiæ, &c. Messrs. Dreghorn & Aitken, Kilmarnock, had an interesting batch of herbaceous and bedding-out plants arranged in lines in square boxes, filled with moss, which had a very good effect. The purple Camassia esculenta is a good plant, so is the double-flowered variety of Ranunculus acris, the double-flowered Pæonia tenuifolia, and the handsome yellow-flowered Alpine Cheiranthus. Bedding-out plants in lines in moss were pretty as represented by Chrysanthemum Sensation, Iresine Herbstii, Mrs. Pollock Pelargonium, Centaurea ragusina, and the more handsome C. argentea with very handsome minute cut leaves, &c.

Pansies were a very select exhibition, and it was generally remarked that the 1st Prize, 24 and 12 of Mr. Matthew Todd, Newmilns, Kilmarnock, were the finest that have been exhibited in the west. The names of the best were James Dalzell, Lavinia, Miss Grieve, Wm. King, Captain Speirs, Perfection, J. B. Downie, Band of Hope, Queen of Whites, Rev. H. Dombrain, Sir Isaac Newton, Lady Hastings, Village Maid, General Justice, Mrs. Laird, Miss Williamson, Lizzie, Emily Lyle, Prince Imperial, John Bright, W. E. Gladstone, Cupid, Lord Clyde, and Perfection. Mr. Wm. Boyd, gr. to T. D. Finlay, Esq., of Easterhill, had a very good stand.

Fruit was not a large exhibition, the best Black Grapes coming from Mr. John M'Culloch, and samples scarcely less inferior from Mr. Murray, Ironbank. A very fine assortment of Strawberries came from Mr. John Barnwell, gr. to J. Fleming, Esq., of Kilkerran, the best of which were Eclipse, Sir Harry, Oscar, and Keens' Seedling. A Collection of 11 Cucumbers was also furnished by Mr. Barnwell, which deservedly received an extra award. Vegetables were a large exhibition, and many good dishes were furnished from some of the milder localities on the Clyde.

ENTOMOLOGICAL: *May* 6.—Professor Westwood, V.P., in the chair. Mr. H. W. Bates read a communication from Dr. Felder, of Vienna, on the question of priority of publication of various species of butterflies described in the Novara Expedition, and commenting very severely upon Mr. Francis Walker's Catalogues of the British Museum Lepidoptera. Mr. Stainton exhibited Coleophora excelsa, the caterpillar of which at first feeds upon the flowers of Thymus Serpyllum, of the calyx of which it forms a moveable case, but afterwards it feeds on Grasses. Also specimens of Hyponomenta egregiella, first found in Spain, and subsequently at Cannes and Fontainebleau, the caterpillars of which feed on Erica cinerea, and were then forming their cocoons. Mr. Fereday communicated a notice of the capture of Cynthia cardui in New Zealand, but Mr. Bates affirmed the specimens to be the Australian species allied to, but distinct from the European one, the Brazilian representative of which is a rosy variety of C. Huntera. Mr. Wilson, of Adelaide, sent a note of entomological observations, mentioning the capture of a species of Strepsiptera for the first time in New Holland, parasitic on a wasp which proved to be the Paragia decipiens. Professor Westwood mentioned the capture in Australia of a species of Heteroptera (Enicocephalus tasmanicus) which assembled high in the air in considerable numbers, flying like ephemeræ, and emitting a strong musk-like scent. Mr. Stainton mentioned that he had noticed the development of one of the species of Muscidæ from a Pentatoma, in which it was parasitic, and Mr. Smith stated that Mr. Haliday had observed the genus Stizus to be attacked by Strepsiptera in Italy. Mr. H. W. Bates read descriptions of new species of butterflies taken by Mr. Bell, at Maranam, 160 miles S.E. from Para, where 364 species were captured in three months. Mr. Stevens exhibited some very interesting Carabidæ and Cicindelidæ, captured by Mr. Dawell, at Cape York, New Holland.

Florists' Flowers.

A BATCH of very fine large flowering PELARGONIUMS will be bequeathed to Floriculture by the present year. At the Great Show of the Royal Horticultural Society on the 4th inst. they were again in force, but Mr. Hoyle's seedlings had suffered from the intervention of hot weather that came between the above exhibition and the one preceding it at the Regent's Park. Example, Victor, and Man of Mark have lost something of their original beauty, the flowers of the latter were very small compared with what was seen at the Regent's Park, though at best it is but a medium-sized, yet a stout, smooth, and finely marked flower. Captain John (Hoyle) is a stout and well-formed stained flower of remarkably good qualities, and very free blooming; the lower petals bright rose suffused with pale violet towards the margin, and blotched and stained with dark; the upper petals dark, rayed with bright rosy crimson, and having a smooth and regular outer edge of pink. This variety, and the two following composed the cream of Mr. Hoyle's flowers that had not been previously seen; viz., Etrennes (Hoyle), lower petals vivid deep carmine, stained with dark; rich dark top petals, with narrow edge of bright rosy crimson; striking white centre; the flowers as shown somewhat crumpled, but a showy variety; and Success (Hoyle), pale rose lower petals, heavily pencilled with dark, the white centre somewhat confused by being run into with the dark pencilled lines; top petals dark, with narrow margin of pale rose;

quite novel in character, and very free blooming. Rob Roy (Foster), and Emperor (Foster), were again shown in fine condition, the former especially, and were awarded First-class Certificates by the Floral Committee; and the same award was made to a very fine flower named Joan of Arc (Foster), deep rose lower petals, suffused with purple and stained with dark, upper petals dark, the blotch running into a vivid fiery margin, edged with deep rosy violet; a very bright and pleasing shade of colour, flowers large, stout, and bold. The Peer (Foster), had a few flowers of remarkably fine quality, but they had unfortunately become injured in some way, or a First-class Certificate would have been awarded. The Floral Committee requested that it might be sent again. The Prelate (Foster) is a very striking flower of massive build and large size, but somewhat crumpled on the edges as shown, and, though a good sized and bushy plant, no truss had more than three flowers, and some only two blooms, a radical defect; the lower petals are rosy violet crimson, stained with dark; the upper petals dark, with narrow edge of bright rosy crimson; good habit. Hermit (Foster) has fiery carmine lower petals, suffused and edged with pale violet, and stained with dark; upper petals intense dark, shaded and rayed with bright crimson, and edged with pale pink; large white centre, free, and of good habit. Autocrat (Foster) has the lower petals pale carmine rose, stained with fiery crimson, and conspicuous white centre; top petals dark margined with fiery crimson, which breaks into the dark blotch, and broad edging of pink, a very pretty flower, but having a somewhat sportive tendency. Rival Queen (Foster) is a very bright-looking flower, having veined rosy carmine lower petals, richly stained with dark, white centre, suffused with violet, and dark top petals, with narrow margin of bright crimson carmine. Firefly (Foster) is a small flower in the way of the French varieties, the colour vivid orange carmine, with small dark blotch on the top petals, very effective in point of colour, but "not enough of it," as it is termed. A First-class Certificate was awarded to Hermit (Beck), a flower that preserves its fine qualities to the very last; and a Second-class Certificate to Filomena (Beck), a somewhat novel, but beautiful shade of colour, lower petals bright rosy violet, with regular dark blotch on each segment; glossy dark velvet top petals, with narrow edge of vivid rosy crimson, white centre, good habit, and very free; a flower of good character, which, if seen again, will probably obtain a higher award, as it was only just coming into bloom. Both of Mr. Beck's new flowers, Electra and Lady of Quality improved, which have been previously described, had very much changed in character, and suggested a doubt as to their constancy. In the case of the first named, some flowers had quite lost the small crimson blotch on the delicate pink ground of the lower petals; in others, the pink had changed to bright rose; and in the case of the latter the dark crimson stains and pencillings were in some flowers almost withdrawn, in others much intensified. Darkie (Beck) had intensely dark flowers, the lower petals broken into and lit up with vivid crimson, and having a narrow edge of the same; the upper petals intensely dark; flowers small but very striking. A Second-class Certificate was awarded to Mr. Turner, for Fancy Pelargonium Madame Vilda, colour dark rosy crimson, with pure white throat, and very narrow edge of white round the flower; flowers small, but well-formed and smooth, very free blooming, and good habit.

Mr. John Mann, of Brentwood, who has obtained a very fine strain of Zonal Pelargoniums, received a First-class Certificate for Mimas, very bright orange scarlet, a pure and beautiful shade of colour, flowers of good size, very stout and smooth, and of fine outline; good dark zonate foliage, close and excellent habit. This was one of a small group of plants remarkable for their compact and yet free habit, and having a well-defined black zone on deep green foliage. Eleanore had pale orange salmon flowers, the upper petals slightly white, large and stout, but wanting smoothness; Lady Hope, pale salmon, tinted in the centre of the flowers with carmine; and Rosabel, a very bright shade of clear orange scarlet—a beautiful hue of colour. These were most promising, and will no doubt be seen again later in the season. Messrs. Downie, Laird, & Laing received a First-class Certificate for Seraph, a variety with distinct dark zonate, foliage, and orange salmon flowers, with white centre, the pips large, smooth, and stout—a fine exhibition flower. They also had Miss Catley, a half-nosegay variety, with robust plain foliage, colour rich rosy pink, the pips large and stout, but forming an irregular truss; and some nosegay kinds, of no great merit as shown. Mr. Watson, of St. Alban's, had a variety of the nosegay section, with a good bedding habit, named Excelsior, having pale orange crimson flowers, the centre slightly white, dark, well-defined zone on a dark green leaf ground.

A Second-class Certificate was awarded to Mr. James Clark, of Bury St. Edmund's, for a seedling mule Pink, named Clark's Rose Pink, which had the growth and habit of a Picotee, and which probably came from some Continental seed; the colour clear lilac rose, the centre of the flowers and base of the petals mottled with rosy crimson: the flowers slightly fragrant. Mr. Bull had Petunia Official, having small but well formed flowers of a dark rosy crimson hue, with regular bars of white; a good and showy variety for pillars in a conservatory.

A Pan of Aubrietia Campbelli, from Messrs. E. G. Henderson & Son, was charmingly attractive. Apparently grown under glass, it was of a good dark colour, and yet when the flowers were thus massed together a very lively hue prevailed.

In the class for Fancy Pansies in pots, both collections competing were disqualified, in consequence of the presence, as it appeared, of a dark self flower, named Black Sam. The judges drew a somewhat "hard and fast line," as it would appear that this variety was sent out by Mr. Kimberley, of Stoke, near Coventry, as a Fancy flower, though it seemed to have lost to some extent certain distinctive traits which more closely allied it to the Fancy flowers. Some cut blooms of very fine Pansies were shown by Messrs. Downie, Laird, & Laing, as well as cut blooms of the Fancy kinds. *R. D.*

The Apiary.

Drone-breeding Stocks.—Last season I had two Woodbury bar and frame hives stocked with very strong swarms of common bees. In the autumn I observed a good deal of intercommunication between the two, and this spring I found that one was tenantless (nothing but empty combs being left), while the other was very strong in honey and bees. I therefore concluded that it had possessed itself of the store of the other hive, and that the bees had also followed it, and inferred that it would turn out a very good honey-producing hive in consequence; but, on the contrary, it appears to have done nothing this spring; and on carefully examining the combs I can find no signs of breeding going on except of drones, of which the stock seems to be principally composed. They abound in every stage of development, but of worker grubs there is not a sign; nor can I find any queen. Can this be accounted for by supposing that the queen was killed during the contest of the two stocks, and that the drones are bred from fertile workers? Not having a spare queen available, I have endeavoured to repair the mischief by giving them a comb from a Ligurian stock, having worker and drone brood in every stage, from the egg upwards, hoping they would raise a queen from it; and that at the same time she might impart some of the Ligurian breed to the stock. Will this be likely to answer my purpose? and, if not, what course would you recommend in the absence of a spare queen or royal brood? Would you kindly give some instructions for the construction of a "Nucleus Hive," such as you have referred to in your articles on bees, as a means of providing queens in an emergency of this kind? *Arthur Maw.*

[There seems to be a great probability that your hive is without a queen; and that the drone eggs are laid by fertile workers. If so, it is a case of considerable interest; for probably no part of the bee-economy has more puzzled scientific apiarians than this peculiarity, connected with this and some other species of insects. It is, however, necessary to be very careful before deciding that this is the real state of the hive in question. Old, worn-out queens become drone-breeders, as also may those that meet with accidents, or are subjected to a great chill. Sometimes these queens become very diminutive, and are not readily discernible from the other bees on inspection of the combs. If the queen be lost it is most probable that she fell a victim to the hostile attack of the immigrants, even although there might have been no general conflict among the workers.

You have done quite right in giving a comb of worker brood. This should be examined a few days after it was put in, and if no royal cells have been commenced, it may be inferred that a queen is present in the hive. Of course it is necessary that there should be a sufficient number of workers to take the necessary steps for queen-rearing. If there be no royal cells in course of construction, search through the hive very carefully, and if a queen should be discovered, crush her at once. If no queen can be seen, and there are no signs of royal cells after the lapse of a week from the time of giving the worker-brood, add a second comb, or exchange the first for one with younger grubs or eggs. The hive may have gained a sufficient number of workers to set about rearing royal cells at once. It is possible that if there be fertile workers, the rearing of royal larvæ may be prevented, or the death of any queens that may be brought to maturity may be accomplished by them. It would be advisable to keep a sharp look-out for any aged or peculiar looking bee; which, if found, should be destroyed.

A good plan, if, as you say, workers are far from numerous, would be to drive out or brush off all the bees and drones, and destroy them utterly. With the exception of the young bees that may have emerged from the worker comb given, it is most likely that all the worker bees are very old. Give the hive a suitable brood-comb, and having removed a strong stock to another stand, place the first hive in its stead. There will then be little doubt of a queen being raised, and all danger from the presence of fertile workers is avoided. Care must be taken not to allow too many bees to leave the removed stock. This may be effected in various ways.

A nucleus box is one constructed to hold four frames only. It may be made of ⅞-inch stuff; is of the same length from back to front as the stock hives, by 6½ inches wide. No window is required. When in use the entrance may be in the lower side instead of at the ends of the frames, giving it the appearance of the front of an ordinary hive. To establish a small swarm in a nucleus box, we cannot do better than extract from the directions given by Mr. Woodbury. "In the middle of a fine day look over the combs of a stock until the queen is discovered on one of them; put this comb with the queen carefully on one side, so that her majesty may not be jeopardised or interfered with in any way, whilst another comb is selected containing worker brood in all stages, from the egg to the sealed nymph, which with the adhering bees is put in the nucleus box, into which the bees from two other combs are swept with a feather. Two spare combs being placed one on each side of the brood comb, the bees must be confined by the top of the box being covered by perforated zinc instead of the crown board, whilst the entrance is closed by the same material; and the nucleus should then be conveyed to a dark room or cellar, there to remain until evening. After dusk it must be placed in the position it is intended to occupy, the bees set at liberty (this is important, as great loss of life often takes place if the liberation be delayed until the next morning), the crown board put in its place, and all made snug for the night.

"An examination should be made on the third day, when, if the population be too scanty, it must be recruited by brushing into it the bees from one or more combs of the parent stock, the same preliminary precautions being of course taken to ensure the safety of the queen."

These little artificial swarms will frequently raise many royal cells. On the ninth or tenth day all but two of these may be extracted, and given to more recently-formed nuclei, which will thereby gain a considerable advantage in point of time. They should be cut out with a triangular bit of comb attached (apex downwards), and inserted in a similarly-shaped hole cut in the brood-comb. It is not well to put royal cells in the small box at the time of first forming the artificial swarm, as the bees are very apt, in the time of their excitement, to tear them open and destroy them.]

Garden Memoranda.

Messrs. Downie, Laird, & Laing's Nursery, Stanstead Park, Forest Hill, is but a short walk from the Perry Hill Nursery. Here I had the pleasure of inspecting the batch of Zonal and Hybrid Nosegay Pelargoniums from which had been obtained Rose Stella, to which was awarded a First-class Certificate by the Floral Committee at their meeting on May 7th. It originated in a cross between Rose Rendatler and Stella, and the result was satisfactory in the highest degree. It is a decided improvement on the Pink Stella of a year or two ago. It was one of the earliest to flower of the batch of seedlings; and was followed by two or three others very much akin to it in colour, and apparently of the same parentage, but wanting the stoutness and form of Rose Stella. Another Nosegay of the same batch had been named Mr. W. W. Brown, the leaves deep green, with a distinct narrow dark zone, flowers salmon scarlet, the upper petals suffused with violet; the petals longer and broader than those of Lord Palmerston, one of the parents; the habit excellent, the trusses of flower large and bold. The largest part of these seedlings have yet to bloom. The peculiar hue of colour of Sambo, a new zonal variety now being sent out by Messrs. Downie, Laird, and Laing, is perhaps scarcely equalled. The colour is bright dark glossy scarlet, the flowers large, well formed, and very smooth, the trusses large, compact, and globular; a very distinct and fine variety, and fully deserving the First-class Certificate awarded by the Floral Committee of the Royal Horticultural Society. It is an excellent kind for cultivating in pots.

Even under the influence of the hot sun which prevailed for a few days with a fierceness more characteristic of July than the early part of May, the new bedding Pansy, Imperial Blue, had a good depth of colour, despite the excessive heat. What gives it such a marked superiority over all the other blue bedding kinds, is its stouter and more regular build, and its large and well-defined dark blotch; it blooms freely, and its colour, under the influence of the great heat, was much better than that of the Cliveden Purple under the best circumstances. Of their new fancy Pansies several were in flower, the following are great novelties:—Orange Boven, dark orange-red, lit up with a fiery gleam passing through the colour, and having a large black blotch, flowers of stout texture, and extremely novel; Sunrise, a combination of rose and orange, with a dark shading, and large dense blotch, colour very rich and striking; Sweet Lucy, bright crimson-claret, with large black blotch, a novel and fine shade of colour; Hugh Adair, the top petals cherry crimson, lit up with a dash of orange, lower petals orange-yellow, with dense dark blotch, a very distinct and striking flower; and Miss Melville, the upper petals bright crimson, shaded with a darker crimson, under petals buff, veined and stained with black, large black blotch, distinct and fine.

A bed of Seedling Fancy Pansies had a peculiar interest for the extreme novelty in the marking of many of the flowers. The history of the improvement of the Fancy Pansy, in so far as it has been carried out by Messrs. Downie, Laird, & Laing, and Mr. Dean of Shipley, would seem to have given to the former the production of colour, to the latter form and substance, allied to soberer hues. In many of these seedling flowers at Stanstead Park might be noticed the presence of unparalleled and novel combinations of colours, to a degree approaching eccentricity; and for purely decorative purposes nothing could have been better adapted. But there was generally in this valuable batch a want of size in the lower petals of the flowers, disqualifying them from appearing on the exhibition table, where the important point of form—that great commandment of the florists' decalogue—is insisted on. One of these flowers struck me as being something very distinct. The ground colour was pure yellow, with a distinct edge of French white surrounding it, which with age appeared to get tinged with lilac; the blotch was bright bronzy crimson, as well defined and regular as could be wished, but the lower petal wanted size, and the edges of the flower smoothness. It was, however, one of the most striking forms of the Fancy Pansy I have ever seen.

I saw some plants of the broad-leaved Euonymus, from Japan, which had proved perfectly hardy out of doors during the past winter, while the common one had been completely cut up by the frost. The glossy green leaves of the new variety give it a very distinct and handsome appearance, so that on this account, as well as for its hardiness, it deserves to be widely circulated.

Both the new yellow Tea Roses, Bouton d'Or and Isabella Sprunt, were blooming very nicely indeed under glass. The former had flowers of good substance and colour; the latter not quite so deep in colour, but yet good. Phloxes, both of the early flowering, or Suffruticosa section; and the late flowering, or Decussata section, Pentstemons, Antirrhinums and Hollyhocks, are largely grown here, and of the latter a large quarter had just been planted out for exhibition and stock purposes. *R. D.*

Miscellaneous.

Bird Feeding in the Tuileries Gardens.—Some of our readers may be interested in the way in which birds are fed in the Jardin des Tuileries. It is a pretty sight, and seems to afford much pleasure to those who look on, and doubtless much more to the successful feeders. It is quite a little scene in the gardens every day, and on fine days is looked at by numbers of people, though it is an every day occurrence here. The Jardin des Tuileries is inhabited by a great number of the common "wood-queest"—those wild pigeons which flash away from man like an arrow from the bow in Britain and elsewhere, when in a wild state. In these and other gardens in Paris they seem perfectly at home, and perch at ease in the trees over the heads of the multitudes of children who play, and of people who walk on fine days. Their intimacy does not extend further except in special instances. Here is one of them. A man, evidently a respectable mechanic, comes to a certain spot, near the private garden of the Emperor—or rather detached portion, for it is quite open, and you may see him occasionally walking there with one of his staff. Presently some of the pigeons fly to their friend. He is an old one, and a bird lights on his arm and gets a bit of bread to begin with; another comes and lights on his other arm. He has previously put a few crumbs of bread into his mouth, of which the birds are well aware, and, arching their exquisitely graceful necks, put their bills into his mouth and take out a bit "turn about." Perhaps one alights on his head, and he may accommodate two or three on his right arm. There are others perched on the railings near at hand, and they come in for their turn by-and-by. A dense ring of people stand a few yards off, looking on, especially if it be a fine day, but they must not frighten the birds, and this persistent feeder looked daggers at a small boy who allowed an audible howl of delight to escape. Presently the sparrows gather round the feeder's feet, and pick up any crumbs that may fall while he is transferring the bread from his pocket to his mouth. The sparrows, sagacious creatures, do not as a rule light upon the arm, and never even think of putting their heads in the mouth of the man, but flutter gently so as to poise themselves in one spot about 15 inches or so from the hand of the feeder. He throws up bits among them, and they invariably catch them with slight deviation from their fluttering position, or at most with a little curl. It is very pretty to see them thus fed, and to see the exquisitely graceful heads and necks of the wild pigeons as they move them to extract the crumb is beautiful. In one instance we saw a sparrow or two alight on the hand of an individual, and pluckily root out crumbs that he held rather firmly between his finger and thumb. But he was an ancient and persevering one. However much we may regret it, as faithful chroniclers we must state that not one sparrow approached within 10 inches of the hand of a Gentile. Similar instances of this interesting bird-feeding would be a pleasant pastime in other places than the Tuileries gardens.

Rumelian Roses.—Mr. Blunt, the British Vice-Consul at Adrianople, in his report to the Foreign Office this year, gives an account of the Rose fields of the vilayet of Adrianople, extending over 12,000 or 14,000 acres, and supplying by far the most important source of wealth in the district. This is the season for picking the Roses—from the latter part of April to the early part of June; and at sunrise the plains look like a vast garden full of life and fragrance, with hundreds of Bulgarian boys and girls gathering the flowers into baskets and sacks, the air impregnated with the delicious scent, and the scene enlivened by songs, dancing, and music. It is estimated that the Rose districts of Adrianople produced in the season of 1866 about 700,000 miscals of attar of Roses (the miscal being 1½ drachm), the price averaging rather more than 3*s.* per miscal. If the weather is cool in spring, and there are copious falls of dew and occasional showers, the crops prosper, and an abundant yield of oil is secured. The season in 1866 was so favourable that eight okes of petals (less than 23 lb.), and in some cases seven okes yielded a miscal of oil. If the weather is very hot and dry it takes double that quantity of petals. The culture of the Rose does not entail much trouble or expense. Land is cheap and moderately taxed. In a favourable season a donum (40 paces square) well cultivated will produce 1000 okes of petals, or 100 miscals of oil, valued at 1500 piastres; the expenses would be about 540 piastres—management of the land, 55; tithe, 150; picking, 75; extraction, 260—leaving a net profit of 960 piastres, or about 8*l.* 11*s.* An average crop generally gives about 5*l.* per donum clear of all expenses. The oil is extracted from the petals by the ordinary process of distillation. The attar is bought up for foreign markets, to which it passes through Constantinople and Smyrna, where it is generally despatched to undergo the process of adulteration with Sandal-wood and other oils. It is said that in London the Adrianople attar finds a readier sale when it is adulterated than when it is genuine. *Times.*

Provincial Horticultural Societies.—The following floral and horticultural societies have announced their intention to hold exhibitions and meetings during the month of June, viz., Bristol and Clifton, 25th; Fermoy (Ireland), 25th; Grand Floral and Horticultural Fête, York, 19th and 20th; Halifax, 11th; Leeds, 13th and 14th; Maidstone, 26th; Nottingham, 26th; Royal Jersey, 19th; Royal Oxfordshire, 25th; West London Rose Show Society (Ealing), 11th; Wolverhampton, 11th; Wrexham, 26th.

Chemistry of Ripening Fruit.—Dr. Dupré has been publishing the results of his investigations into the chemical changes which occur in fruits which are passing from the green to the ripe state. In a paper lately read before the Chemical Society, he showed that although the relative quantity of acid in fruit diminishes as the fruit ripens, the absolute quantity remains tolerably constant, or, at least, diminishes but slightly. There can be no doubt, therefore, that the sugar increases in quantity, and it seems not unlikely that the development of the sugar may take place through the action of the acid in a manner similar to the production of sugar from starch by the action of dilute acids. Dr. Dupré states that a hundred average-sized Apples gathered on September 13, October 12, and November 16, were found to contain respectively 2·5 grammes, 1·9 gramme, and 1·8 gramme of tartaric acid—a result which tends to bear out his opinions, expressed above. *Medical Times.*

Garden Operations.

(*For the ensuing week.*)

PLANT HOUSES.

Orchids, which are coming into flower, may be removed to a cooler house, in which less moisture is present than in that in which they are at this time; keep them free from draughts; give them less water at the roots, and constantly shade them during intense sunshine. Keep all structures containing *Cape Pelargoniums* in flower as cool as possible, consistent with due regard to health; carefully shade the blooms at all times when necessary, and especially early upon bright sunny mornings, when much mischief is often caused through condensed moisture resting upon the petals. Give copious waterings with clear water frequently, and now and then they may receive a dose of clear liquid manure. Replace carefully any stakes which the plants may have overgrown with longer ones, of greater strength if necessary. Inattention to this matter might be the means of allowing some main portion of a specimen to fall over, from the weight of its flowers, and snap off near the root. *Auriculas* should now occupy a cool shady situation. Green-fly, to which they are subject, must be kept in check. If infested, remove the plants to a pit, in order that they may be effectually fumigated. *Balsams* and *Cockscombs* must now be encouraged to grow freely, giving them a little weak liquid manure occasionally, and accommodating them with larger pots as they may require them. Keep *Camellias* close, moist, and warm, until their growth is completed, when more air and less moisture should be given in order to cause them to form flower-buds. Let the main shoots of *Carnations* and *Picotees* be carefully tied to neat stakes. Remove dead leaves, and top-dress with fresh sweet soil. Destroy greenfly. Cut down *Cinerarias* which are out of flower to within 2 or 3 inches of the surface. Stir and top-dress with light soil. A north aspect is the best at this season. Take cuttings as soon as they can be had for early flowering plants. Keep *Dahlias* regularly watered, should the weather prove dry, and secure them to stakes as they advance in growth. Many kinds of *Heaths* and *Epacrises* may now be transferred to pits and frames, where they will thrive better, during the summer months shading them from the hot sun; any done blooming should be cut back slightly, to insure a bushy habit, and kept in a shady place till they commence to grow. Removing the young and early-blooming stock to frames will permit plants in the house to stand thin. Propagate *Pansies* whenever cuttings can be obtained They strike best on a shady border under small hand-glasses. *Roses*, showing their blossoms, will be much improved by liquid manuring; mulching, too, in a dry season is very beneficial. If the preservation of the early flowers is desirable, the Rose maggot must be closely looked after; the green fly, too, should be kept down, and where mildew shows itself, dust immediately with sulphur.

FORCING HOUSES.

Where a constant supply of *Pines* is needed, it will be well forthwith to pot a few of the largest, and best succession plants—"Queens" especially—into the proper fruiting pots. These, if pushed along kindly, will have their pots well filled with roots about the earlier part of November, and be likely to fruit well in January. The secret of getting fine fruits upon them rests mainly upon the fact, that the pots should be well filled with good healthy roots before any inducement is offered them to show for fruiting. Keep the atmosphere as moist as it is possible to make it by frequent sprinklings. In *Vineries* laden with ripening fruit a high temperature should be kept up during the day, giving as much air at the top of the house as is possible without chilling the plants. Syringe more frequently *Peach* trees which have ripened off their crops. Remove *Cherries* in pots in a similar stage into a warmer corner in the outer air, plunging the pots at all times when practicable. Syringe freely the successional crop of *Figs*, watering them copiously at the root, and pinching back all unnecessary lengthy shoots, as previously advised. *Melons*, when a crop has been set, will require a little thinning out, pinching back, &c., of the more prominently growing shoots; renewing the bottom heat by adding a little fresh litter to the linings, if the heat has decreased materially. Let old *Mushroom* beds be examined as soon as they begin to go out of bearing. If, upon removing the soil, the dung appears decayed or exhausted, the bed should be immediately renovated; but if, as often happens, the beds are found in good order, solid, and full of spawn, they should be watered moderately with tepid water, if they are found to require it, and in a day or two afterwards the surface should be covered with 2 or 3 inches of loamy soil. In hot weather the house should be kept as cool as possible, without throwing it open; in order to assist in effecting this, the paths and walls should be sprinkled frequently with cold water, and the evaporation allowed to escape at the top. Continue to collect horse-droppings, and let them be stored up to make new beds, or to renovate old ones.

HARDY FRUIT GARDEN.

Choose a favourable opportunity to go over all Fruit Trees, *Filberts*, &c., for the purpose of removing all suckers which have formed around their base. When practicable, give all *Strawberry* plants a good drenching with liquid manure at the root; after which, protect the fruit from the consequences of heavy rains, grit, &c., by placing any materials at hand around the plants, upon which to rest the fruit. Nothing is better than clean, wholesome straw for this purpose; a truss of "wheaten" goes a long way, if placed over the borders with care. Finish thinning *Peach* and *Nectarines*, and having removed superabundant shoots, as previously advised, nail the stronger of those retained neatly to the wall, using every precaution to admit of each shoot receiving the utmost possible amount of light and air.

KITCHEN GARDEN.

Stir the soil constantly and effectually amongst growing crops. Sow *Red Cabbage* for pickling next season, and a rather large and final sowing of *Cauliflowers* may now be made for autumn use. The large Asiatic, and the Erfurt, are good for this purpose. Where *Turnips* have come up unevenly, choose a wet period to transplant a good breadth of them; plant thickly in rows, and hoe frequently. They succeed well if treated in this way.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON

For the Week ending June 5, 1867, as observed at the Horticultural Gardens.

May and June.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Of the Air. Min.	Of the Air. Mean	Of the Earth 1 foot deep.	Of the Earth 2 feet deep.	Wind	Rain.
Thurs. 30	26	30.021	29.929	70	50	60.0	51	51	S.E.	.04
Friday 31	27	30.124	30.054	75	40	57.5	52	52	S.E.	.01
Satur. 1	28	30.076	30.055	76	44	60.0	52	52	S.W.	.20
Sunday 2	●	29.990	29.805	82	56	69 0	53	53	S.W.	.78
Mon. 3	1	29.819	29.587	63	43	53 0	54	54	W.	05
Tues. 4	2	29.956	29 899	68	40	54 0	55	54	W.	.00
Wed. 5	3	29.848	29.737	62	51	56 5	56	54	S.E.	.24
Average		30.007	29.866	70.8	46 3	58 5	53.2	52.8		1.12

May 30—Very fine; overcast and mild; very fine.
— 31—Uniform haze; exceedingly fine; fine at night.
June 1—Very fine; very fine throughout.
— 2—Cloudless and hot; very fine; heavy rain at night.
— 3—Overcast and warm; rain; very fine at night.
— 4—Cloudy and fine; cloudy; very fine.
— 5—Densely clouded; rather boisterous; rain; cloudy.
Mean temperature of the week, 1½ deg. above the average.

STATE OF THE WEATHER AT CHISWICK,

During the last 41 years, for the ensuing Week, ending June 15, 1867.

June.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday .. 9	70.6	47.5	59.1	20	1.48 in.	1	7	4	2	5	16	0	6
Mon. ..10	71.6	47.1	59.3	19	0.95	1	9	8	2	4	9	8	5
Tues. ..11	71.7	47.6	54.7	13	0.47	1	7	3	3	6	10	11	—
Wed. ..12	70.7	46.0	58 4	20	0.78	—	6	3	2	7	14	4	3
Thurs. ..13	71 7	47 7	59.7	20	0.56	1	5	6	1	2	12	10	3
Friday ..14	72 4	48 1	60.3	19	0.48	1	3	7	1	7	12	9	1
Satur. ..15	72 9	48.3	60 6	18	0.39	1	6	7	2	5	11	3	6

The highest temperature during the above period occurred on the 13th and 14th, 1842—therm. 90 deg.; and the lowest on the 11th, 1865, and 15th, 1850—therm. 30 deg.

Notices to Correspondents.

BULBS: *E T A.* The evil you complain of is doubtless caused by want of maturation of the bulbs, caused either by a previous wet season or by cutting off the leaves before they are matured. The leaves should never be removed till they are fully ripened.

GILL AIR-WARMER: *A Subscriber* should have addressed such an inquiry in his proper name.

HYGROMETER: *An Old Gardener, born before dew-point was invented.* By dew-point is understood that point of temperature at which dew is formed on bodies when they become colder than the atmosphere in which they are placed. It is variable, for it depends on the greater or less quantity of moisture which exists in the air. If the air is very dry the bulb of a thermometer must be cooled down some 20° or 30° before dew, or moisture from the air, is deposited upon it. If the air is comparatively moist, dew will be formed at a temperature very little lower than that of the air. That temperature, whatever it may be, when dew is visibly formed, is called the dew-point. It may be indicated by hygrometers directly or indirectly. Regnault's is now much employed for taking direct observations of the dew-point. Daniel's is perhaps more simple and more easily managed, but Mason's, or the Dry and Wet Bulb, is the cheapest. To know from it the dew-point a calculation is, however, required, or a reference made to Glaisher's "Hygrometrical Tables." By referring to them we presume your difficulty will be obviated, and nothing can be easier. For example, at the time we are writing the temperature of the air by dry bulb is 66°, by wet bulb 58°; opposite this, by Glaisher's table, is the dew-point 53° and a small fraction. By Daniel's and Regnault's hygrometer, in a similar state of the air, a ring of dew is formed when the thermometer in lowering reaches this temperature, 53°, and at once the dew-point is thus indicated by them without further reference or calculation.

MAHONIA BERRIES: *E C D.* These berries are not poisonous in the ordinary sense of the word, though no doubt they would "disagree with a child" if they were eaten green.

NAMES OF PLANTS: *R Butler.* 1, Begonia xanthina, Hook. 2, B. rex, var.? 3, B. xanthina, Hook., var. marmorea, Hort.—*P C.* 1, Berberis vulgaris, L.; 2, Pyrus (Sorbus) hybridus, L.; 3, Pyrus aria, L.; P. lanata, Don.—*J C (Bromley).* 1, Scrophularia vernalis, L.; 2, Cratægus arborescens, L.—*Forth.* 2, Lathyrus (Orobus) vernus, L.; 3, Fedia olitoria, L.; 4, Ranunculus bulbosus, L.—*Wilcobe.* Prunus (Cerasus) virginiana, D.C. (both specimens).

WHITE SCALE: *M O R.* If your Pine plants are much affected by this pest, the best thing you can do is to burn them, and start afresh with clean plants and clean houses. The insects may, however, be got rid of by persevering attention. The favourite remedy is a very moist and hot atmosphere, kept charged with the steam from fermenting stable dung.

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SUPERPHOSPHATES of LIME
PREPARED GUANO
MANGEL and POTATO MANURES.

Also Genuine PERUVIAN GUANO, and NITRATE of SODA, ex Dock Warehouse; SULPHATE of AMMONIA, FISHERY SALT, &c. E. PURSER, Secretary.

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THE LANDS IMPROVEMENT COMPANY, Incorporated by Special Act of Parliament in 1853.

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The Company advances money, unlimited in amount, for the following works of Agricultural Improvement, the whole outlay and expenses in all cases being liquidated by a rent-charge for 25 years.

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Landowners assessed under the provisions of any Act of Parliament, Royal Charter, or Commission in respect of any public or general works of Drainage or other improvements, may borrow their proportionate share of the cost, and charge the same with the expenses on the land improved.

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No investigation of title is required, and the Company being of a strictly financial character, do not interfere with the plans and execution of the Works, which are controlled only by the Government Enclosure Commissioners

Apply to GRANVILLE R. RYDER, Esq., Managing Director, 3, Parliament Street, London, S.W.

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Under this Company's Act Tenants for Life, Trustees, Mortgagees, Guardians, Committees of Incompetent Persons, Beneficial Lessees, Corporations (Ecclesiastical or Municipal), Incumbents, Charitable Trustees, &c., may effect the following Land Improvements, and charge the outlay and expenses on the estate improved, by way of rentcharge, to be paid by half-yearly instalments, viz.:—

1. All works of Drainage, Irrigation, Warping, and Embankment.
2. The Erection of Farmhouses, Cottages for Agricultural Labourers, and all kinds of Farm Buildings.
3. The Construction of Roads.
4. The Grubbing and Clearing of old Woodlands, Enclosing, Fencing, and Reclaiming Land.

The owners of Estates, not entailed, who may be desirous to avoid the expense or inconvenience of a Legal Mortgage, may also charge their Estates with an Outlay in Improvements under the simple and inexpensive process of the Company's Act.

The Term of Years for the Rentcharge is fixed by the Landowner, so as to adapt the amount of Annual Payment to the circumstances of the Tenants.

No Investigation of Title being required, and the Charge not being affected by Encumbrances, no Legal Expenses are incurred.

The Arrangements for Effecting Improvements are threefold —

No. 1. The Works may be Designed and Executed entirely by the Landowner's Agent, and the Company employed only to supply the Loan and conduct the matter through all the official Forms for Charging the Outlay on the Estate.

No. 2. The Company will supply Plans, Specifications, and Estimates for any Improvements to be executed by the Landowner's Agent as under No. 1. In each of these cases the Landowner will be solely under the control of the Enclosure Commissioners.

No. 3. The Company will undertake the entire responsibility of the Improvements, prepare the Plans, execute the Works, and finally charge on the Estate the actual amount expended, with their Commission thereon, approved by the Enclosure Commissioners.

Landowners may thus obtain what assistance they require from the Company, and no more, in effecting the objects in view.

Works of Drainage and other Improvements are also executed on Commission for Landowners, who merely require the skill and experience of the Company's Officers and a Staff in constant practice.

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SHEEP, 3s. 5d.; CATTLE, 4s. 2d.; OX, 5s. 11d.
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MANCHESTER and LIVERPOOL AGRICULTURAL SOCIETY (Established 1767).—GRAND CENTENARY SHOW MEETING at Manchester, August 27, 28, and 29, 1867.

Special Prize List and Forms of Entry are now ready to be issued.

T. B. RYDER, Secretary.

57A, Church Street, Liverpool.—April 23, 1867.

BIRMINGHAM HORSE and HOUND SHOW.—The BIRMINGHAM and MIDLAND COUNTIES EXHIBITION of HORSES, PONIES, FOX HOUNDS, CARRIAGES, HARNESS, SADDLERY, &c., will be held in BINGLEY HALL, Broad Street, Birmingham, on TUESDAY, WEDNESDAY, THURSDAY, and FRIDAY, June 11, 12, 13, and 14. Admission on Tuesday, the day of Judging, 5s.; on Wednesday, Thursday, and Friday, 1s. For Excursion Trains, see the Companies' Bills and Time Tables.

ESTABLISHED 1777. WORK & LEARN

BATH and WEST of ENGLAND SOCIETY.—For the Encouragement of Agriculture, Arts, Manufactures, and Commerce.

Patron, H.R.H. The PRINCE OF WALES, K.G.
President, JOHN TREMAYNE, Esq.

The ANNUAL EXHIBITION of SHEEP, HORSES, PIGS, POULTRY, IMPLEMENTS, WORKS of ART, and HORTICULTURAL SPECIMENS will take place at SALISBURY on the 10th, 11th, 12th, 13th, and 14th JUNE, 1867.

JOSIAH GOODWIN, Secretary.

4, Terrace Walk, Bath.

The Agricultural Gazette.

SATURDAY, JUNE 8, 1867.

MEETINGS FOR THE ENSUING WEEK.

MONDAY, June 10 to FRIDAY, — 14 } Bath and West of England Society at Salisbury.

TUESDAY, — 11 to FRIDAY, — 14 } Horse and Hound Show at Bingley Hall, Birmingham.

THE advocates of the system of "stamping out" the Cattle Plague may claim a success. During the past week no instance of the disease has been reported in the Metropolis, and no intelligence has been received of its extension beyond the boundary. The two herds at Islington, belonging to owners who had already lost a large part of their stock on neighbouring premises, were attacked at the end of last week, and were immediately slaughtered, before the disease had made any progress; in one case only two animals of 28 were affected, and in the other not more than five or six of nearly 60 succumbed to the malady; all the remaining animals, except a few which had recovered in 1865, were slaughtered healthy. Another outbreak occurred last week in Newington Green Road, and here also the disease was arrested by the prompt slaughter of all the cows in the shed directly it was ascertained that one of them was affected.

Owing to the energy which has been displayed by the Government, and also by the local authority in the Metropolis, we are happily saved from an impending calamity. Had the disease gone on unchecked, as it did in the early days of its first appearance, it could hardly have been dealt with successfully without extensive destruction of property. In reference to the necessity for the slaughter of healthy animals that have been in contact, or in the same shed, with diseased cattle, there can be but one opinion among those who have observed the progress of the disease in different parts of the country. On open commons and marshes Cattle Plague spreads with less rapidity than it does in crowded cow-sheds, but it rarely fails in time to do its work on the whole of the animals that are exposed to its influence, no matter how favourable their situation; and for this reason we would suggest that in all future cases animals which are only separated from diseased beasts by a few yards of ground should be considered as practically being in contact with them; especially if they belong to the owner of the diseased cattle, and have been attended to up to the time of the outbreak by the same men. In fact, unless it can be proved that the healthy cows have been completely isolated, it is the best policy to deal in a summary manner with all that are within reach of the virus. This is better than to prolong the duration of the disease by what experience has almost invariably proved to be a futile attempt to save a portion of the herd by isolating them after the disease has appeared among others placed at a short distance, and in constant indirect communication through the medium of the milkers, who pass from one premises to the others, until they are prohibited from so doing, after the mischief has been done.

We can hardly hope that the plague has yet been completely eradicated from the Metropolis, but it is nevertheless satisfactory to know that a very serious outbreak, comprising more than 150 attacks since the end of April, and necessitating the slaughter of nearly 240 healthy animals, has been so quickly reduced to insignificant proportions.

As the time for hay-making is near at hand, a few notes upon this important operation can hardly be considered as out of season, and we therefore proceed to discuss

1st. The nature and property of hay-herbage.

2d. The best means of securing these in our winter hay-store.

1. We may look upon good natural pasture as consisting of several species of Grasses of good feeding quality, with which are intermixed many plants of different natural orders, all of which not only add to the bulk, but tend more or less to act as correctives, and present a food of a mixed and more wholesome character. Such pastures afford the largest crop of hay, and of the most nutritious kind.

On the other hand, a poor pasture will be full of hard innutritious Grasses, approaching to Sedges in roughness and feeding properties, as well as Sedges and Rushes themselves; and the other herbage plants, such as Cowslips and Orchids, which die before the hay-making season, neither add to the weight of the rick or to its quality, but on the other hand, they occupy space which would be better taken up even with some poor Grasses. Indeed, much of such stuff is not simply innutritious, but it is to be feared it has something approaching to a poisonous action.

Now as regards the first of these, it may be considered as the only one fit for the rick; the second class require draining, top-dressing, and depasturing processes by which what may be termed pasture weeds, *i. e.*, useless herbage, are rapidly killed, and as they die their elements are appropriated to the feeding of better kinds. It hence follows that meadow herbage is at once an index to the state of the farming in a meadow as it is in an arable field, for if the required crop be smothered out with weeds, in either case the real crop is injured and the produce reduced. It is true that in the pasture we cannot get rid of weeds by the plough and the cultivator, yet experience has taught us other methods, and their success will be shown by two blades of good Grass growing where perhaps was only one bad one before.

Let us now then conclude that we have our pasture in a fit state for hay-making: in that case the taking of an occasional crop will be a positive advantage to the pasture itself, in keeping the whole in a smoother and more even state, and in getting rid of tussacks of the kinds which get "sour" when too coarse. On the other hand, too frequent haymaking positively kills out some useful species, and impoverishes the soil. If, again, we attempt to correct this by constant manuring, it is true we may take a large annual crop of Grass, as has been done by Mr. LAWES in his instructive experiments at Rothamstead; but it will be of few species, and the produce will not possess the quality (*proof*) that should belong to good hay.

In making hay it is important to consider that Grasses and other hay-herbage consist for the most part of sub-perennial species, many of which produce their seeds and then die out, but not being allowed to seed their root-stalks will be perennial. It is then of great consequence that Grass never be allowed to ripen, or indeed nearly ripen, seed, before being cut for hay, because by so doing the aftermath is much injured on the one hand, while the resulting hay crop will be more woody and less nutritious on the other; and besides, the seeds become wasted,

and if carried to the arable leave behind a colony of what, there, are weeds.

We know it is thought that over-ripe Grass adds to the bulk of the rick, but when we consider that as the seeds ripen the lower leaves wither and decay, it is certain the increase is, if not altogether doubtful, yet much less than is generally supposed.

Our own experience confirms us in the view that hay made when the Rye-grasses are in full flower is the best in quality, and gives quite as great a yield as that cut several days later. In determining this point, we have adopted the following guide:—When the Grass torn away at a node gives full evidence of the formation of saccharine matter in the young white base of the torn-off portion it is fit to cut. A short time before this it will be rather bitter than otherwise, and a short time afterwards it will consist of unflavoured woody fibre. Should there be any doubt upon this point, we would urge our readers to repeat an experiment which we have repeatedly performed, viz., that of testing the specific gravity of an infusion of a given weight of hay: this can be done by the saccharometer in the same manner as a brewer tests the amount of "extract" from malt, and whether we are testing single Grasses or their compounds in the rick we shall find that the higher the specific gravity of the sample the greater the amount of feeding matter—"proof"—and the more valuable the produce.

Of course, however timely cut, if there be much wet it will injure the sample, which will lose its extractive matter; but in timely cut, well-made hay the extractive will be in proportion to its quality. *B.*

A PRINTED correspondence between Mr. GREENING, the manager of the Co-operative Agricultural Association named last week, and one of our leading firms of agricultural machine makers has been sent to us, and as it possesses some public interest, we were about to lay it before our readers, when the words, "Private and confidential," unnoticed on a first perusal, appeared to forbid us. They need not, however, hinder us from stating the nature of the discussion. The manager of the Co-operative Association sends an order for goods to the manufacturers, and accompanies it with a cheque for the amount due on "trade terms." Mr. —— asks, in reference to this order, whether retail customers are to be supplied with the implements in question at the wholesale price. Thereupon Mr. GREENING states the case as follows:—

"Our Association is a Co-operative Trading Company, the members of which employ their own capital and their own servants, and at the end of the year or half year divide the profits amongst themselves. The difference between a Co-operative Company and an ordinary Joint-stock Company, is that the former after paying a limited dividend upon capital (5 to 7½ per cent.) returns its profits to its shareholders in proportion to their purchases, whereas a Joint-stock Company returns its profits entirely in proportion to capital subscribed. We have 650 Co-operative Companies now in Lancashire and Yorkshire, dealing in everything, or nearly so, to the great advantage of their members. Surely your firm will not be alarmed at the proposal to introduce the system into agricultural dealings.

"If ordinary Companies and private firms are founded on a sound basis, they need not fear the competition of Co-operative Associations. If they are not founded upon the best basis, then they cannot prevent us making way, and it is no use individual firms setting themselves to maintain class monopolies to the injury of those who are really their supporters, viz., the purchasing public."

To this the reply is (1) That while the Co-operative scheme may be beneficial to the members of the Company, it will be most injurious to agents and dealers in agricultural implements, who have spent time and money in urging on farmers the advantages of improved machinery, and to whom manufacturers are greatly indebted for the more general appreciation of good machinery by agriculturists—(2) That while it would be to the advantage of manufacturers if farmers bought direct of them, yet, as a rule, they buy their implements as they do their stock, through middlemen, and there is no sign of any change in the practice; and (3) That though the order is declined, it is not on the ground of any objection to Co-operative Associations, but because the interests of those on whose exertions the trade in great measure depends must be protected.

It is plain, then, that Mr. GREENING's difficulties are only those which attend the commencement of any new business. When Co-operative Associations shall, as they ultimately must, come to be regarded as benefiting "the trade," their interests, too, will be "protected" by the manufacturer. Only let them be prepared with considerable and continuous orders, and they will readily command trade terms. Individual manufacturers and old-established firms may possibly feel bound by the tie of past services as well as of present interest; even they, however, argue almost exclusively on the latter ground alone: certainly, however, if they are hampered by any such considerations, new firms will rise to meet the orders which they decline.

Agriculture as well as trade has now for many years felt the invigorating and ultimately beneficial results of that policy which in Imperial matters regards the interests of consumers only, leaving their uninfluenced demands to "protect" and encourage all kinds of trade and production in the several degrees in which the natural circumstances call for them. Certainly we shall do nothing in the limited relationship between producer and consumer here concerned, for the promotion of any other policy. Agriculturists, whether by the urgency of trade agents, or much more likely by the influence of circumstances upon themselves, are learning the need and serviceableness of good implements and machines. In particular, steam cultivators at one end of the agricultural process, and harvest implements at the other, are thus in great demand. We may be quite certain that those manufacturers who compete among each other for the business thus created, will not be slow in accepting orders of a wholesale kind, upon the usual wholesale terms, from whomsoever they may come. All the allegations to the contrary, whether illustrated by individual refusals, or, which is more proper for discussion here, on the ground of that mischief which may arise from breaking up the existing agencies by which good machinery is now supplied, we may unhesitatingly throw to the winds. The consumers whose demands have to be supplied can well take care of their own interests, and if these are best secured by banding together for the purchase of their machinery, we may depend upon it they will soon come to satisfactory terms with manufacturers.

—— ON Wednesday next an election to the annuities granted by the Royal Agricultural Benevolent Association takes place, and thus 10 or 12 out of more than 100 applicants will be removed from the ranks of entire dependence into a position of comparative comfort. What need exists for the help thus given appears not only in the small proportion of the claimants who are relieved, but in the many distressing tales with which subscribers to the charity become familiar before the day of election. Surely if it was known in how many instances a busy agricultural career has terminated in utter loss and disappointment—how many active tenant-farmers, once in extensive business, are now in poverty—how many widows and families are left destitute—a Society which aims at the relief of utter destitution in this one class, and effects its purpose at the very minimum of cost for administration, ought to have larger funds entrusted to it for distribution. Its present income is derived from comparatively few English counties; and the great body of English landowners seem to be unaware of its existence.* We should rejoice if any reader of this paragraph should be induced by it to make inquiry of Mr. SHAW, the Secretary of the Society, into the claims which it possesses, especially on the prosperous portion of the agricultural community. Tenant farmers, as well as landowners, ought universally to contribute to an income which is so usefully applied. Let us give here one of the many distressing cases seeking aid from it which have come to our knowledge during the last few weeks. The letter has been sent to me by Mr. MECHI, to whom it has been addressed by a lady, in the hope that her widowed mother might, through his intercession, obtain the help of this charity. She says:—

"My father held nearly 100 acres of farming land for certainly more than 30 years, at ——, in Surrey, but acting on the old system he could not compete with the more energetic modern style, and all things went wrong; and as the lease expired he fell back on a market garden which he had taken when a mere boy, 60 years ago. Misfortune, however, still attended him, and he died nearly heart-broken, after a few days' illness, many years since, leaving my mother, my sister, myself, and a young brother, penniless, and involved in debt of several hundreds. Until my brother was old enough to manage, we struggled on,—had a school, and did anything to maintain ourselves in respectability and pay off what was owing. I became a governess, but as I was unable to afford the education necessary in the way of accomplishments, I could only obtain a very moderate salary. Still I have always contrived to give at least 10*l.* every year to aid in our object, and people were kind, and gave us time. A railroad lately passed through our garden, and the compensation from it enabled us joyfully to clear off every penny. But the great evil, want of a little capital, quite prevented our getting on. My sister cannot leave my mother, who is 75; and my brother, who lives close by with his wife and four little children, devotes himself with unceasing patient labour to keeping a home together. The most rigid economy has ever been practised, and we hoped that this year we should reap the benefit of his toil; but the bitter east winds and severe frosts of last week have brought destruction on our prospects. The Plums, Pears, and Apples are destroyed, Gooseberries lying shrivelled under the trees, and Potatos terribly injured. Our lease will expire in two years, and it is so painful to think of my poor mother, at her age, destitute. We have nothing but the garden to depend upon, and cannot expect it to produce well if not well prepared. My brother had been so proud of its cleanliness and good prospects, when one night destroyed our hopes! I fear there are many sufferers from the same cause, but few can have struggled more bravely through trial and trouble, hoping ever that some change for the better would come. Will you, then, pardon me for the liberty I have taken?"

Then follow references in attestation of the sad tale. We insert the letter here in the hope that it may promote the interests of the charity to which it refers.

* The offices of the Society are at 55, Charing Cross, S.W.

—— There is an interesting paragraph in the last number of *Land and Water*, entitled "Milk the Life-blood of the Nation." Mr. GEORGE MANNING describes there the difficulties in both the manufacture and the carriage of milk to London. (1). To try the effect of carriage upon very small quantities of milk within a reasonable distance, 30 miles from the metropolis, he bought a quart of milk from the can of a retail milkseller, as delivered at the houses and cottages in the suburbs of the county town (Chelmsford), on the 12th of April last. The cows were milked at 2 o'clock. The sample was purchased at 4 o'clock. After testing it by the lactometer (the reading on the thermometer was 65°) he filled entirely a flat glass bottle holding about a pint. This was so filled that the milk nearly touched the cork, and scarcely any motion could take place; another pint bottle he half filled with the same sample. These bottles were packed in sawdust in a box, and sent by train to Messrs. MARSHALL & MELLIN, pharmaceutical chemists, in Titchborne Street. The box was not received until 10 o'clock on the following morning. When it was opened the milk was found to be slightly sour, and by the litmus paper considerably more so than that supplied from the country twice daily in London. The test paper showed no difference in the state of the two bottles, but the difference in the per centage of cream was great, the full bottle showing 10½ and the other 12½ per cent. of cream; from which it may be inferred that the half-filled bottle suffered most, the cream indicating a higher state of fermentation. No fatty matters had separated, and in this respect no material damage had been done in either case; deterioration in the half-filled bottle was, however, a little more advanced than in the other. The specific gravity of the milk was rather low, but the quantity of cream yielded classified it as good milk. The morning of the 12th April was frosty, and the day somewhat chilly, the reading of the lactometer on other milk in London being less than that of the previous day. (2). Again, as to the production of milk; in order to compare milk from this source with other milk sold retail in the same parish on the 10th of May, three samples were tested, the last fed on Italian Rye-grass from meadows flooded with sewage manure. These we name respectively A, B, and C, the first being from the same source as that used on the 12th April:—

		When milked.	When tested	Specific gravity.
A.	First sample	.. 5.30 a.m.	.. 8.30 a.m.	.. 27°
	Second ,,	.. 2 p.m.	.. 4.15 p.m.	.. 27°
B.	First ,,	.. 5.30 a.m.	.. 7.30 a.m.	.. 29°
	Second ,,	.. 2 p.m.	.. 4.30 p.m.	.. 28°
C.	First ,,	.. 7 a.m.	.. 8.30 a.m.	.. 29°
	Second ,,	.. 7.30 p.m.	.. 9 p.m.	.. 30°

The above shows the variable quality of milk, even in the same neighbourhood, but it gives a high preference to that fed on the Rye-grass. He adds: "The subject is becoming a matter of vital importance to the population, and will increase in importance as the tendency of the population to towns increases. With the two startling facts before us, that the cattle plague is again emptying the London cow sheds, and that country milk and cream lose their nutritive properties by carriage, we must, in the meantime, look for those artificial means by which the lost properties of milk may be restored."

—— Mr. CLAYDON writes a very vigorous letter to the *Mark Lane Express* on the subject of the Cattle Plague. He was one of a deputation of the Council of the Royal Agricultural Society, to endeavour to show the importance—if the herds of England are to be saved, and the meat-consuming population to be fed hereafter at a moderate price—of establishing a place at every port of debarkation for the sale and slaughter of foreign cattle and sheep, and he then points out how the fear and dread of Cattle Plague cuts at once at the root of the production of future supply.

I will just put two cases of A and B, calling myself A, grazing say 50 head of beasts for the London market, and B keeping a breeding herd of the like number. A has one beast taken with disease, and destroyed; the remaining 49 are ordered to be immediately slaughtered, and are fit (not then having disease) for human food, and a loss is sustained which is easily calculated, say of 5*l.* per head. But how widely different is the case of B, with his breeding herd! One animal is taken and destroyed; the others, having been in contact, are wisely ordered to be slaughtered; but how much greater is the loss sustained! B.'s animals being in breeding condition, instead of fat are worth very little as food, and the loss is immense, from future production being at once cut off, and the food for the future supply of the people entirely taken away. The case of Cheshire, as a breeding county, will fully exemplify this; and if the disaster of Cheshire should unfortunately occur in many of our breeding counties, no man living can foresee or predict the future price of meat. Is it not, then, I would ask, the duty of the Government to take every possible means of preventing such a disastrous state of things? And I feel bound, after deep and long thought on the matter, to say that the only possible remedy we have is sale and slaughter and perfect isolation of foreign stock. This only will cut at the root and core of our present difficulty.

. . . . Is, I would ask, the energetic conduct of the Irish authorities to be lost upon us? Isolation saved the cattle of that country, and gave us in the Eastern Counties, in the autumn of last year, a supply for feeding purposes which we should have looked for elsewhere in vain had not that wise and wholesome step been taken. Have we not also another example worthy of imitation in the EMPEROR of the FRENCH? Have not the most stringent measures he adopted saved to a great extent the cattle of that country, and taught our

rulers a most important lesson, and one, I trust, that they will in no case neglect? Does not the spread of the disease on the Continent prove that we have every day greater rather than less cause for fear?

THE PARIS EXHIBITION.

(FROM OUR CORRESPONDENT.)

Now that the Exhibition in all its departments may be said to be complete, although here and there workmen are engaged either in making new or in altering old arrangements; now that the great influx of visitors has at last set in, and the "season" fairly commenced, it will be well for us to give our readers as fair a notion as can be conveyed in a few sentences of what the Exhibition does show in the way of agricultural machinery and appliances, and by whom exhibited, with such brief notices as space will allow of such novelties as may be deemed worthy of special note.

Coming under the head of machinery, one would have naturally expected that all the machinery connected with agriculture would have been placed in the Great Gallery of Machinery in the main Exhibition Building; but, vast as that gallery is, it has proved too small for all the machinery that is exhibited, so that much of it has to be shown in Annexes in the Park. This is especially true in the case of agricultural machinery, by far the largest portion of which are to be met with outside rather than in the building. This is very unfortunate, for, in consequence, all the benefits of the classification, and the facilities of comparative observation which that classification was so well calculated to afford, which was adopted by the Commissioners, and which in an early paper we explained, are lost; and not only so, but from the unfortunate disposition of the machinery exhibited in the Park Annexes, it is a matter of no small difficulty to find out in what Annexe and in what part of the Park that Annexe is in which the visitor will be sure to find specimens of agricultural machinery. We shall do our best to act as "guide" in this matter; in the first place pointing out to the intending visitor where the machinery is to be met with, and in the second place of what the various collections consist.

What is contained in the Great Gallery of Machinery itself, and within what sections exhibited, will be easily enough discoverable, for the visitor has only to continue walking round the gallery, and he will come successively upon the various collections; for although we have stated above that the majority of the agricultural exhibits are out of the main building, there are not a few in it. Each department or section in each nation exhibiting is easily discovered by placards announcing the name; so that the visitor will readily enough ascertain who or what nation is exhibiting the collection he may come across. The gallery of machinery is divided throughout its whole extent into three floors, or platforms as we may call them, the largest or widest of which is in the centre, which is filled with heavy machinery and machines in motion; this part being dominated, so to say, by a gallery which is raised upon pillars, and which is reached by stairs at intervals—and by no means too numerous—and from the platform of which the visitor can look down upon the machinery below. The central platform is bounded on each side by an alley or walk, which does not reach quite up to the wall, but leaves a wide floor or space in which a variety of objects are exhibited, and above which on the walls are displayed drawings and plans, amongst which the visitor will find many connected with agricultural buildings, farm steadings and cottages, both Continental and British, although the first predominate greatly, and are greatly enriched by fine drawings of the Imperial farms. The agricultural implements and machines are to be found within the central platform or floor, while the models and drawings are to be found on the side platforms or floors. But as the gallery is of enormous dimensions, it is necessary to adopt a systematic mode of examining it so as not to lose sight of any of its objects, which one is very apt to do by running here and there over its vast surface. The best way to do, at least we found it so, is to take the central platform first, containing the heavy machinery, commencing at the point on the left hand immediately on entering the machinery gallery from the grand entrance opposite the Pont de Jena on the Seine or Champs Elysées side; this point being the commencement of the French Division—the part on the right hand as you enter being the beginning of the British Division. From this the reader will perceive that he will thus begin with the French part of the central platform of machines and end with the British—the Belgian, the next in importance to the French, so far as its agricultural machines are concerned, being exactly opposite to the grand entrance. The breadth of the central platform being great, the visitor will find it occupy him no small amount of time to examine all the machinery, even should he omit looking at any not connected with agriculture. The central platform being thus examined, he should next take the two side floors and their wall spaces, devoted to drawings, &c. Work enough for one day he will find in doing this; what he will see in doing it we shall hereafter describe, we meanwhile proceed to point out the other places in which specimens of agricultural machinery are to be met with. The first in precedence is the Annexe which contains the British and American exhibits, not only because within it are to be found the greatest number of agricultural appliances, but because they are by far our best specimens as far as both design and construction go. This Annexe is a street of large dimensions, of much greater length than breadth, and is on the side of the Park next the Seine; and on entering by the grand entrance opposite the Pont de Jena the visitor will find it on his right hand, immediately upon entering, for it is close up to the outside barrier of the Park. The British exhibitors begin at the end nearest the entrance, and the American exhibition will be found at the termination of the British machinery. If after inspecting this Annexe the visitor will continue his walk in this direction, keeping the outside barrier of the Park always on his right hand, and keeping close to it, shortly after he passes the Russian stables—which being an object of great attraction, and therefore being worth visiting, are easily recognised—he will come upon the beginning of the French Annexe, devoted, not altogether but principally, to agricultural machinery; although there is connected with it part of the Swiss Annexe, containing some agricultural implements and machinery. Continuing his walk still in the same direction, he will come to the shed which is entirely occupied with the machines of Mr. M. T. Cumming, of Orléans, one of the largest agricultural implement makers of France, and a notice of the contents of which we shall give hereafter. The other sheds or Annexes contain a variety of appliances more or less directly connected with agriculture, such as grain-drying apparatus, ditto for washing and regenerating damaged grain, dough-making machines, mill-stone dressing and other machines. His inspection of these as he passes through the Annexes will bring him up to the barrier of the Park which is parallel to the Military School, and in the centre of which the entrance to the Park is placed precisely opposite to the entrance of the school. In working his way round to this entrance the visitor will pass on his right hand a long building; this is the Working Men's Refreshment Room; and in the open space opposite to which he will find a considerable number of agricultural machines exhibited, chiefly those belonging to the field—ploughs, one or two rather queer specimens of steam ploughs, pumps for liquid manure, &c. Not far from this place, and in the direction of the main building, and still in the open air, the visitor will find a few traction engines collected; those of Aveling & Porter, and of Fowler & Co. being the principal; they may, however, be contrasted with a traction engine exhibited by Albaret & Co., of Liancourt, also close by, and in which each of the two driving wheels is driven by a pitch chain, passing over a chain pulley fixed in an intermediate shaft. These chains can be tightened as they wear by moving the chain pulleys along slots. The steering wheels are kept close together, to enable the steering to be easier done.

We have said above that a good deal of agricultural machinery is placed in the open space opposite the Working Men's Refreshment Room, and it may not be useless if we remind our readers that here, for one shilling, a very good dinner may be had, wine included. We have known of those who have dined here for this sum, who were capable of affording twenty times the amount, and yet who confessed they had dined well. The hall is 300 feet long, some 20 feet wide, and is capable of dining 800 at once. Passing this building on the right, the visitor will come on the entrance opposite the Military School above alluded to. Turning round, so as to face the main building, and approaching it, a little down the avenue he will see, on his left hand, a building with an open central gate, with the words above, "Seine et Marne," with some others, indicating that it is an agricultural exhibition of the above department of France. Entering he will find on his right and left hand stables or cow-houses, in the right hand one of which are some beautiful specimens of Continental breeds of dairy cows and bulls. The visitor will, we are sure, be pleased with the fine cow of the Swiss and of the Holland breed. In the house on the left there are some specimens of sheep, Merinos, and sheep of this breed crossed with the Leicesters. Passing out of this and going on to the inner court the visitor will find a small but very interesting collection of drain tubes and bricks, seeds, and samples of cereals, and, on one side, models of training fruit trees, and in a court adjoining a specimen of a hen or poultry house, stocked, and which is worthy of notice. Coming out of this cattle exhibition—the only one in the Champ de Mars which contains live stock—and continuing his walk down the avenue towards the main building, he will reach on his left hand a large shed or building, which is the Belgian Annexe, or rather one of the Annexes of this thriving and industrious nation. Entering it he will find several agricultural appliances which are worthy of notice, these being chiefly met with on the left-hand side as you enter—a novel cattle food-cooking apparatus in the corner nearest the entrance being worthy of notice. Turning out of this shed or Annexe, let the visitor cross the avenue over to the right-hand side of it, still however approaching the main building, and, keeping to his right hand, he will come to a large archway, supporting on either side two recumbent and gigantic figures in bronze; this is called the Porte d'Anvers or Antwerp Gate. Passing under this, and, almost immediately opposite, he will see a large isolated building, octagonal in shape; this is another Belgian Annexe, containing examples of tools, minerals, building materials, and, what is more to our purpose, agricultural machines, more especially a series of Flax machines, well worthy of notice. Passing out of this Annexe and still proceeding onwards, but keeping well to the right, the entrance of the Porte Rapp (of all the entrances the easiest and the best known) is passed; immediately after which a range of sheds is met with, forming the boundary or barrier of this side of the Park. These sheds contain a most interesting collection of machinery, amidst which are a few in which our agricultural visitors will be interested, as portable engines with boilers. When this range of sheds is gone through the visitor, continuing his walk onwards, will skirt the piece of water in the middle of which the French lighthouse raises its head, and once more intersect the grand avenue, at the foot of which is the shed of the British Annexe containing the agricultural machinery, with which he began his survey.

We have now taken the reader, or presumed visitor, round the building and the Park which contains it, and pointed out to him as best we could, unaided by a map, the *locale* of the various collections of agricultural machinery, and this, without being egotistical, is a service of some value; for before we ourselves had gone round and round the building and the Park, "and better round," as the story book says, we could scarcely say that we knew where the machinery was to be met with; and many an hour we spent in hunting it up. If the reader, therefore, will follow up the plan we have above laid down, he will at least save himself much weary walking and loss of time. In going to see a thing, it is, indeed, a great point to know where to go to look for it. Having thus pointed out the localities of the various exhibitions, as we may call them, of agricultural machinery, we shall in our next proceed to give detailed statements as to what is to be seen in these collections, and to point out what we may consider features worthy of attention, either from the novelty in design or the excellence, or otherwise—for the "otherwise" exists—of their construction.

THE PIG.

"PIGS," it is said, "are a happy people." We may talk disparagingly about living like a pig, but it is nevertheless true that to live like a pig is to live like a gentleman. Although it is not permitted by the order of Nature that a pig should laugh or even smile, he enjoys the next blessing of humanity—the disposition to grow fat. How easily he goes through the world! He has no fancy stocks to purchase—no bank notes to pay—no reconstruction meetings to attend—no political caucuses to hold! He has no occasion to take the benefit of the Bankrupt Act, or to have his estate confiscated to defray the expenses of the war—no income tax to pay. Free from all the troubles that disturb the country, he is unconcerned about national affairs, as was the man who was awaked in the earliest light of morning by being told day was breaking: "Well," said he, as he turned again to his repose, "let it break—he owes me nothing."

The pig is the personification of independence. He acknowledges no law save that of his stomach. He is no teetotaller. Give him a chance, and he will drink ale or wine unto drunkenness, and in those countries where Grapes grow, if they come into the vintage, they get drunk with eating Grapes, for which he has an intense liking, and often does terrible damage in Vineyards. The worst of the matter is, that the animal so riots and revels among the Vines that he destroys and tramples down many more Grapes than he can eat, and does irredeemable damage. If the lees of wine be mingled with their food, they will grow fat without measure.

In China they have a proverb that every gentleman works for his living except the pig. In Illinois, a few years ago, he was made to work. When a chimney was to be built, or a cabin to be daubed, a hole was dug in the earth of sufficient dimensions, and water poured into it—the hogs called, and a few grains of corn thrown into the hole, when the hogs plunged in, and soon prepared the lump of clay for the hand of the dauber.

It is rather remarkable that the Irishman and the negro hold much the same opinion of the pig. Both consider the pig as the only gentleman, for he does no work; all his meals are brought to him; eating, drinking, and sleeping are all he has to do; and the more he eats, drinks, and sleeps, the better his duty is performed. But then the motives for the opinion are widely different. The negro—that is the negro slave—thinks that the very summit of human felicity is to do no work. This is likely to be the case, for he has no motive for work, and therefore only looks upon his daily work as a terrible task, which he is bound to evade in every possible way. Therefore the pig is his ideal of enjoyment; he does no work—he eats and he sleeps.

But the opinion of the Irishman is founded on more rational grounds. The pig, in his opinion, *is* a gentleman, and ought therefore to be treated as such. Does not the pig pay the *rent*, and sure isn't he a gentleman to do that? So the pig has the full range of the cabin, and pokes his nose just where he pleases. Indeed, he is often better off than his master's children, for he is never in want of a meal, and the food which he gets is precisely that which he ought to have, namely, Potatos; while the children get the same food, which is *not* the proper food for man taken by itself. The pig has no care, and no fear for the morrow. He continues to enjoy himself until the knife is at his throat, and even then he knows nothing about his coming death until he is actually in the hands of his slayers, who probably do not inflict on him more pain than the children suffer when flogged by paternal or maternal authority, or when pummelled by larger boys.

A pig, in Ireland, is often the saving of a family, and his inquisitive snout, peeping out of a cabin door, should be considered a mark of prosperity rather than a sign of decreasing finances.

Pigs are an obstinate race, and are not easily driven. Boys generally succeed better than men in driving pigs, always excepting Irishmen, whose treatment of pigs is a perfect art. An Irishman never seems to drive a pig, but coaxes him along. A little push one way, a little pull another, a whistle, a few endearing expressions, and the pig trots comfortably along, giving no trouble "at all, at all." If a pig is very obstinate indeed, and utterly refuses to go where he is wanted, the Irishman manages him by putting his nose in the direction he is intended to take, and then pulling his tail. The result is evident. The pig imagines he is wanted to come backwards, and therefore with the perversity of a porcine nature runs forward as fast as

he can. This method is generally used in getting pigs on board ship, where they evince much dislike to the planks on which they are required to walk. The Chinese also make use of the tail-pulling process when they wish their pigs to enter the bamboo cages in which they transport them when fat.

There exists perhaps, in creation, no animal which has less justice done him by man than the pig. We see him gifted with every faculty of supplying himself, and of providing even against the approaching storm, which no creature is better capable of foretelling, and we begin our treatment of him by putting an iron ring through the cartilage of his nose. Having thus barbarously deprived him of the power of searching for and analysing his food, we then generally condemn him for the rest of his life to solitary confinement in a pen.

While his faculties are still his own, only observe how with a bark or a snort he starts if you approach him: and mark what shrewd intelligence there is in his bright, twinkling little eye. But with pigs, as with mankind, "idleness is the root of all evil." The poor animal, finding that he has absolutely nothing to eat—having no enjoyment, nothing to look forward to but the pail which feeds him, most eagerly, or, as we accuse him, most greedily he greets its arrival. Having no business or diversion, nothing to occupy his brain, the whole powers of his system are directed to the digestion of a superabundance of food. To encourage this, Nature assists him with sleep, which, lulling his faculties, enables his stomach to become the ruling power of his system—a tyrant that can bear no one's presence but his own. The poor pig thus treated gorges himself, sleeps, eats again, sleeps; awakens in a fright, screams, struggles against the blue apron, screams fainter, turns up the whites of his little eyes, and dies!

It is very amusing to watch the pigs when "ringed," as their behaviour is not at all that which ought to be expected of them. Indeed they seem to be actuated by the oriental ideas of fatalism, and after struggling as much as they can, they give up the matter as hopeless, and resign themselves to their fate. When they are about half grown, a man armed with a coil of rope, a pair of pincers, and the rings, one for each pig, enters the pen and seizes one of the pigs by the ears. The aggravated animal instantly proceeds to remonstrate most audibly at the proceeding, and sets up a series of ear-piercing screams. But screaming is of no use, and he is dragged out of the pen. A rope with a slip-knot is now thrust into his mouth, the knot is drawn close, and the pig is held in a kind of curb. He is now thrown down, the point of the ring inserted into the cartilage of his nose, and the end turned over with a pair of pincers, until it nearly meets. The ring is now complete, and when the pig tries to root or grub up the ground the pointed end curves round and pricks his nose, so that he is warned to cease. During his struggles, his cries are loud and incessant; but the moment the point enters the nostril, piggy exchanges his squeals for a series of half-satisfied grunts, and probably says to himself, "Oh, is that all? I thought I was going to be converted into pork or lard at the least, and perhaps salted afterwards. Who cares for rings?"

A pig is a more clever animal than is generally supposed; that is, if he can find a chance of exercising his abilities, and is left tolerably to himself. We remember seeing several persons engaged for half an hour in catching a pig, which had got into a small enclosure. They tried managing it by throwing in an ear of corn for the animal to engage himself with, while they crept up behind him; but the pig was much too cunning for that, and continued to keep one eye always on his foe. When a number of them came up to surround him, he picked up the ear of corn, and ran away to another spot.

Not only is the pig naturally clever, but it is capable of instruction, and has been taught to perform duties that belong to other animals. They are often sufficiently tame to permit children to mount on their backs, and one person actually put some of his pigs through a course of training for the saddle. A team of four hogs has been trained to draw a carriage, such an event having taken place at St. Alban's some years ago, when an old farmer of the neighbourhood threw the town into much excitement by driving a carriage into town drawn by four pigs. He drove round the market-place several times, and had his porcine steeds put up at a stable, and fed on corn and wash. In a few hours the pigs were again harnessed and trotted off briskly with their master.

In some respects the pig resembles man, so that there may be some ground for calling children pigs besides those generally given. The pig and the man are both omnivorous; that is to say, they both can eat vegetable or animal food—the one being an omnivorous quadruped, and the other an omnivorous biped or "omnivorous tripod," as the negro called it, on the authority of Tom Cringle, so when the trough is filled with Potatos and vegetables it will make a very good dinner upon them; if the butcher chooses to throw in some of the offal of the slaughter-house, the pig will eat the offal; if a thriftless housekeeper lets the pigs have plum pudding and slices of roast beef, the most inveterate gormandiser could not attack them with greater zest than does his omnivorous companion. If the brewer has pigs and gives them grain, they will devour enormous quantities of the sweet, soft compound, and if any ale is mixed with the grains, as is often the case, they will get gloriously drunk upon it. Many is the time that a pig has been staggering about the yard quite unable to direct himself, merely because he had taken too much of the deceptive mixture; hence the saying, "as drunk as a hog."

Among the many qualities and properties which the pig is acknowledged to possess, there are some which are not generally known. For example, 99 of every 100 pots of bear's grease are obtained exclusively from the pig, and have had no connection whatever with the bear. Bears are not quite plentiful enough, or so easily killed as to supply all the vast amount of "bears' grease" which is usually consumed in the whole world. The fact is, lard is purified, scented, put into pets, decorated with coloured labels, called bears' grease, sold at high prices, and has the double advantage of bringing in a very large per-centage to the sellers, and doing quite as much good to the buyer as if it were the genuine fat of the bear.

The pig quite revels in an Oak wood or under the Oak trees in autumn. We cannot, however, praise the good taste of the pigs quite so much in this instance, for acorns are detestable. It is true that we used to eat them at school; but then school boys, like ostriches or sharks, will eat anything. Even we, however, could not manage them till we had roasted them.

Yet this shows the degeneracy of our race, or rather it would do so in the ears of some people, for our early ancestors used to make Acorns a considerable portion of their diet. The Arcadians (happy race!) were said to live almost exclusively on that delectable food. This reminds us of an amusing print published, where a pig was represented as seated under an Oak, and exactly facing him an Arcadian also seated under another Oak. The ingenious artist contrived to infuse so much of the pig into the Arcadian, and the Arcadian into the pig, that there was some difficulty in discovering which was quadruped and which biped. *American Farmer.*

STEAM CULTIVATION.

[The following is a very abridged report of the discussion on this subject, which took place last week before the Royal Agricultural Society, and to which reference was made in a Leading Article last Saturday.]

AFTER the President, Mr. H. C. Thompson, had offered, on behalf of the Society, their best thanks to the Commissioners for the zeal with which they had undertaken a most difficult duty, for the perseverance with which they have carried it out in spite of numerous difficulties, and for the great ability and talent with which they, especially those gentlemen to whom was entrusted the work of preparation, compiled reports that will no doubt be read with interest in all parts of the civilised world, he alluded to remarks expressive of a little disappointment that they do not contain certain things which the objectors hoped and expected to find in them. He said:—

I have heard it said that the reports should have contained a statement of average results, which would have settled some of the leading features and principles of steam cultivation. This objection very probably takes some such form as this: "It is now 10 or 12 years since steam cultivation was first introduced; there are now hundreds of steam engines at work on the land, and so extensive an inquiry as that of last year ought to have settled some of the main questions affecting steam cultivation, such as giving us an average comparison of the cost of steam *versus* horses, or any other power; the kind of implements which we had best employ, and the best mode of applying the best power." Now, with reference to averages, I think we are very apt to attribute too much importance to a statement of average results. There is a sort of feeling common amongst most of us, that if a number of instances in which the average has been taken is sufficiently great, we have arrived at something like a law of nature from which there is no appeal. When considering the value of averages we ought especially to consider what the kind of results is from which the average is collected, because if the results themselves are dissimilar it is plain the average loses its value altogether. If we apply this to the case in hand, we shall see that the cost of cultivating strong clay land will always be greater than the cost of cultivating light land farms. Therefore, the average cost of cultivating the two different kinds of land would be of no value to the man who wished to obtain information as to cultivating one or the other. In endeavouring to strike an average of the cost of steam-cultivation in a certain number of cases where the soil is somewhat similar, you have to take into account the old adage that "one man will thrive where another will starve;" and if you are to consider not only the difference of soil and climate and the size and position of farms, but also what is the average of the capacities of the man who would have to conduct the operations, then I think you will perceive that if our reporters had attempted to deal with the question of averages at all, they would have been brought into great difficulties in their calculations, and would in the end have produced a result that would have been of no practical value. Then we come to the second point I mentioned—the kind of machinery to be adopted. In the early days of steam cultivation there were a great number of inventors and makers. During the last five or six years, however, many of these implements have been found unable to stand the test of every-day wear and tear, and the consequence is that the best of the inventions have been gathered up by a select few implement-makers, so that at the present time the number of those who stand as recognised manufacturers of steam-cultivators are so small that if a man intending to purchase an apparatus after an exhibition of the implements at work, and a perusal of the descriptions furnished of their different merits and capabilities by those who have worked them (and especially if these reports were considered), if he cannot after that decide which maker he should go to, and which system he should adopt, he is, depend upon it, not in a position to begin to cultivate by steam, and had better postpone altogether the introduction of a steam implement upon his farm. The third point I mentioned as an objection I had heard raised was, as to the best mode of applying steam-power, the best system of husbandry, and the best mode of bringing out the full steam-power upon certain farms. I think that here, as in the other points, so far from feeling any disappointment that we have not made greater progress in settling a definite code of steam-cultivation, we shall, if we look fairly at it, feel very grateful that so much has been accomplished. Let me tell you that, amongst the answers returned in reply to questions sent out by the Society, 178 came from owners and employers of steam apparatus; and out of those 178 how many do you think had had their apparatus at work for 10 years? Only one. There is only one who has at the present time had steam implements at work for 11 years; and out of the 178 there were 33 who had been working a steam apparatus not more than five years. Some perhaps would say that a man who has been at work so long ought to have been able to make some progress towards establishing a definite system of cultivation adapted for steam; but we must bear in mind that even going back so short a time as eight or ten years, the steam apparatus itself was by no means in the perfect state it is now. It required great and constant improvement. In fact they had not only to adapt agriculture to steam, but to adapt steam to agriculture at the same time. If that is so, I have a strong feeling that we are much indebted to those pioneers of progress who have thrown themselves heartily into this question, and have spared neither time nor money in their determination to make the cultivation of the land by steam a great and signal success. Having dealt with the objections which I have heard stated, and which I hold have no foundation, I would next ask your opinion and invite your discussion upon certain questions which I will very briefly indicate. One question I put before you is this: What in your opinion is the most useful and practical feature of these reports? I have no hesitation in saying for myself that I should assign the chief prominence to the fact that the reports are a faithful record of numerous cases where steam has been introduced for the cultivation of farms under a great variety of circumstances, soil, climate, position, and other special conditions. Indeed, there is hardly any difficulty which will occur to a man using a steam apparatus which is not here described and respecting which he will not find advice and experience to assist him out of it. A second question, which it might be useful to direct your attention to, is—"Does it appear from these reports that steam cultivation is successful as a commercial speculation?" As the solution of a mechanical problem, no doubt it is a most perfect and thorough success. That which was proposed has been accomplished, and great feats of cultivation have been performed by steam which no other power could possibly have undertaken with the same result. But then comes the question whether as a commercial speculation generally steam cultivation has been a success. Does it in the majority of cases lead to profit from a pecuniary point of view? I should be inclined to describe it as a success which a very small amount of ignorance or inattention would convert into a failure; it is a success where it has been well managed, and a failure where badly managed. No doubt upon clay land, a degree and depth of cultivation and a perfection of cultivation can be attained which could not be attained by any other way. But, unfortunately, that kind of soil is chiefly held in small occupations, and that part of the problem has not yet been solved which shows us how to apply steam to them. This is one of the directions in which progress and development are most needed. The purchase of a powerful steam apparatus by the owner of 200 acres or so of clay land, is, of course, out of the question, unless the apparatus is used on the adjoining farms as well. As yet, however, the partnership or company principle has not been sufficiently tried in agriculture for us to speak of the results with any degree of confidence. This is one of the things upon which I should be very glad to hear any suggestions, and in which it would be most gratifying to see advancement made. Another point is with respect to light lands. I believe we shall soon see steam engines very generally employed for the cultivation of light land as an auxiliary on a large farm, for cleaning stubbles in the autumn, for breaking up land for Barley in the spring, and for many similar purposes. There are various cases in which I believe a light cheap steam apparatus would be one of the most valuable things on the farm. I believe we shall soon see no farm of any considerable acreage without a steam apparatus. This is a matter, however, in which we want further progress; we want suggestions for the use and management of an apparatus for light lands, not too heavy nor requiring too much power, and to be purchased for a reasonable sum. The three questions then which I should like to propound to the meeting are these—1st, Which is the most practicable and useful feature of the report? 2d, Does it appear from these reports, or from the general knowledge of those who may speak upon the subject, that steam cultivation is successful generally as a commercial speculation? And 3d, In what direction does our present system of steam cultivation most require improvement.

Mr. RUCK, Lechlade, said he rose not to express an opinion upon the three questions asked by the Chairman. The reports must be read with general satisfaction by every member of the Society, for, no doubt, the investigations of the Commission had been carried out in a most impartial and straightforward way, both as regarded those who allowed their farms to be exhibited, and the implement-makers whose machines were tried.

The excellent address of the Chairman and the reports had suggested four questions to him rather different from those of the Chairman, but still equally important. They were—1st, What power can we get out of sixpennyworth of coals? 2d, Will work that is done by steam be equal or superior to that done by horse-power? 3d, Will the land cultivated by steam be in a superior state to that cultivated by horse-power? 4th, Will the crops produced by steam cultivation be larger than those produced by horse-power? His own opinion was that sixpennyworth of coal would give as much power as one horse in a day's work; and that two operations with steam would be worth at least three by horse-power. By steam-cultivation, clay land would be improved in the course of time, and light land almost immediately. With light land the first operation would have a decided effect, but clay land would take two or three years before it could be ameliorated and brought into proper condition. He had no hesitation in saying that, with respect to crops, steam cultivation would yield an average increase of 8 bushels an acre throughout the whole of the country.

Mr. SMITH (of Woolston) said he had read the reports very carefully, and could endorse the praise the Chairman had uttered respecting the authors. He thoroughly approved of them from end to end, and believed the Commissioners had used their best endeavours to produce faithful reports—reports which would be found full of good and ample evidence, if people would only take the trouble to read them.

The question as to how far steam cultivation was a commercial success was touched upon indirectly in the reports. Upon that point Mr. Randell said that he had bought a set of tackle in 1857, and had worked it ever since with the most successful and gratifying results; and the main advantage appeared to be that a deeper soil was produced. What better evidence could be given of the commercial results of steam cultivation than Mr. Randell's testimony that he had worked a set of tackle for nine years, and was still working it? Similar evidence was given by Mr. Stephenson, of Yorkshire, who declared that he had not spent 5*s.* upon his implements, and who pointed out that the ropes and porters were the main item of wear. Mr. Armstrong and others supported this testimony as to the wearing powers of steam implements. In two cases it was shown that heavy lands had been worked at 7*s.* and a trifle per acre, while with horse work it would have been at least 14*s.* The reports showed throughout that the drainage was greatly improved by the break-up of the under-soil. He (Mr. Smith) told the Society that years ago, having found it out on his own land. The thing had been done there for 11 years, and the land was cold clay as stiff as any in England. Never a drop of rain ran off it: it all went through the soil into the drains, leaving its fertilising properties as it passed. If land could be cultivated 8 or 10 inches deep, and the steam engine brought to bear directly after harvest, what could the result be but a complete commercial success? The most extraordinary thing in connection with steam cultivation was, that when land had been worked for some time it required but a few days every year of engine work. Farmers could then afford to let their horses be idle for a portion of the year. Since he had cultivated by steam he had never used more than

three horses, whereas before he used six at hard labour. There was no account of his farm in these reports; but he mentioned these facts to confirm the evidence that by steam cultivation horses were saved. Mr. Bomford, for instance, showed that it saved him so much in horses that he was going to spend another 1400*l.* If by steam cultivation the drainage was improved, the natural consequence in most soils must be an increase of produce. Professor Voelcker, in his Analysis of Soils, stated that there was a vast fertilising quality in our clays. He (Mr. Smith) had experienced that on his own farm, where he grew corn every year, Wheat and Beans going on regularly. He could not manure the land deep enough for Beans every year, and had occasionally to use a little artificial manure. No doubt with this kind of cultivation he could keep growing on the cold clay for ever. The great thing to do was to keep the productive quality up by artificial stimulants, and cultivating deep. The most prominent feature of steam cultivation, in his opinion, was, that it kept the land clean; while persons who had not the advantage of steam cultivation had dead fallows for four or five years, and had to use three or four operations for their fourth crop. Another prominent feature in the report was the proof it gave that a steam engine did three or four times more work in one operation than a horse. A double depth was reached, and a double effect produced. Mr. Prout said he had saved considerably by using Fowler's apparatus. Upon the question of produce, Mr. Randell, who was an excellent farmer, said he did not appear to make any increase, but he acknowledged that he got stronger straw; and Mr. Stevenson, in Yorkshire, said he got good crops before he used steam cultivators, and he got no better now. The fact was, that where a man farmed high it was a difficult matter to drive cultivation beyond a certain point; but when it was acknowledged that the straw was stronger, it was evident there must be in the end a better result with less manure. Referring to the Chairman's remarks as to an apparatus suitable for light soil, he thought we should not look to reduced prices in machines. He would not reduce the cost of his, for the machine he worked was as good now as it was ten years ago. The Commissioners said that Randell's windlass was better than his; but that was a matter of opinion. His was constructed upon sound mechanical principles, and had stood the test of ten years' work. He did not, however, wish to enhance the value of his own apparatus. It was of no consequence to him whether he sold one or not. He made them, not to sell, but to work upon his own farm.

Professor VOELCKER: Reference was made by the last speaker to Mr. Prout's farm. I paid a visit to it lately and was strongly impressed with the great improvement in drainage. That was nothing novel to me, I confess, because I had, many years before, seen the wonderful improvement in drainage effected by steam cultivation on Mr. Ruck's farm.

This recent visit to Mr. Prout's makes me say, I believe that if steam ploughs were placed on our strong clays we should not want any drainage at all. We should merely have, for a time, to carry off the surface water, and depend entirely upon steam ploughing for the drainage work. I know that in well cultivated clay land, during the greater part of the year, all the water that falls upon it is required. I have a strong impression that, after years of cultivation of our clay soils, we should require all the water that falls. It now goes through the drains simply because it runs through the cracks in the ground; it does not go through the soil. If, however, the good effects of steam cultivation could be realised, we should have an abundant store of food within the reach of the growing crop; and, like Mr. Smith of Woolston, we should only require once now and then a little artificial manure to stimulate the surface; and we could then depend upon the value of our clay soils. If this could be done, we should reap a great advantage. We should save, in the first instance, in not having to expend upon the drainage, and could throw our plans altogether upon the resources of the soil. Perhaps at the present time this is a little Utopian; but, at the same time, I think we could aim at it; and, if steam cultivation reaches a high state of perfection, we shall have made a very great step towards saving our manures. We shall not then require any looking after our drains; nor shall we have to take them up and put fresh pipes in, or furnish an increased supply of drains to carry off the water; for, as I have said before, by the constant cultivation of the heavy clay lands, we should reduce the porosity of the soil so much and improve its mechanical condition to such an extent, that every inch of rain that falls upon the land would require to be taken up and rendered useful.

Mr. THURLOW said he could not agree with the preceding speaker, that cultivation by steam would entirely do away with the necessity for drainage; but from what little experience he had had, he should say that in proportion as they deepened cultivation by using steam, they would improve the ground by enabling it to soak up more moisture.

With reference to the three questions stated by the Chairman he had not much to remark. Howard's apparatus having been alluded to, he wished to say one word with regard to it. In the concluding report of the Committee of Investigation it was stated that engines required to be driven at a uniform speed and pretty fast, by which he presumed was meant that the steam apparatus for breaking up the land ought to go at a uniformly quick pace. In that view he quite concurred; but he was afraid that with Howard's apparatus the thing could be done in all cases or in all weathers. That apparatus was worked by a leather strap, and the strap could not always be kept on in wet or windy weather. In fine weather no doubt the apparatus answered extremely well, but when wet and wind prevailed the case was different. He mentioned that defect some time ago to Mr. Howard, who then brought out a union-joint, which was fixed to the central axle of the fly-wheel, and of course being so fixed, it went at a slow pace. If by the intelligent mind of Mr. Howard anything could be devised to make the apparatus work in all weathers, they would have in that case an implement which was almost perfect.

Mr. BOMFORD wished to offer one word of explanation with regard to the double set. He had 600 acres of land where he was living, and 300 nine miles away. His reason for purchasing a second set was that he required it for those 300 acres, intending to fill up the time by letting it out. If the 900 acres were all together one set of tackle would be sufficient. As soon as his crop was off he was anxious to get his land broken up. The work could only be done in fine weather, and therefore the sooner it was done the better.

Mr. BULSTRODE (of Cookham, Maidenhead), had read with great pleasure the full and able report of the Commissioners.

There were several points to which he thought it would be well to direct attention. In the first place, he would remark that the question of outlay would always be one of primary importance to the ordinary farmers of England. The trials made hitherto were in favour of the direct system, in which the apparatus was the most scientific, but also the most expensive. If farmers were to take the verdict of that Society from the trials already made, they would be obliged to purchase at a cost of from 800*l.* to 1000*l.*, and a great many farmers would have to think a good while before they either would or could do that. When he looked at the reports he found several startling results. In the first place the trials of machinery did not appear to have been always successful. For example, there were two machines, one of which was purchased by Lord Berners, and the other by Lord Vernon. Both took prizes at the shows where they were respectively exhibited, and yet both proved failures in practice. Again, although the stationary or roundabout system had been condemned by that Society, hundreds of sets on that system had been going on for years, and they had been successful, and had yielded a good profit to persons who had used them, Mr. Smith of Woolston being among the number. The results were at first rather startling, but if they considered how the trials had been made they could not after all feel very much surprised. There were small regular plots of ground, the machines were of the best description, and the men by whom they were managed were skilled men, well up to their work. All this involved great advantage over the work on an ordinary farm, and, in some degree, accounted for a system which possessed great general utility not appearing equal to one which had special excellence. The case was something like that of a short run between a thorough bred racer and a hunter. The direct system was sure to be very creditable when it had full and free play. This, he said, fully explained why apparatus which had been almost always defeated in these trials had, nevertheless, been perfectly successful in practice, and were working to the satisfaction of their owners in hundreds of instances about the country. This was a matter which he thought should be specially brought before the farmers of this country. If they found many instances in which farmers having engines from 8 to 10 horse power were enabled by making an additional outlay of from 250*l.* to 300*l.* to adopt steam-cultivation successfully, surely that was a matter well-worthy of attention. This bore very much on one of the questions brought forward by the Chairman. Of course, had those farmers simply followed the verdict of the Society, they must have spent from 800*l.* to 1500*l.*, or let steam cultivation alone. At the same time, while speaking so positively in favour of the stationary system, he hoped he should not be misunderstood. He was perfectly convinced, and the remarks of the Commissioners bore him out in stating that the direct system was the most scientific and economical for farms which were really adapted for it, for farms of large size, and with fields in every way favourably situated. What he wished to impress upon farmers was, that on farms of ordinary size, with fields of ordinary shape, with ordinary covenants and leases, and with ordinary purses, the indirect system was generally the best, and would produce the greatest result with the least risk. Some persons might say, "Why not hire machinery on the more economical and scientific system?" He thought that the remarks of the Commissioners on the hiring system afforded a full and sufficient answer to that question. The Commissioners spoke of the two great advantages of steam cultivation—namely, a reduction of the number of horses required, and facilities for performing operations at a rapid pace. Both these advantages were to a great extent lost by persons who adopted the hiring system. Farmers could not venture to reduce their horse strength if it were uncertain whether they would be able to have an engine to cultivate their fields when they wanted it. Again, supposing a few days after ploughing they thought it would be an advantage to give the land a good drag-harrow, which was a very valuable adjunct to steam cultivation, they could not do that because the machinery was gone. They would have to fall back on their horses, letting them draw over the ground, and thus undo the very work which had just been done so carefully and at such great expense. Another objection to the hiring system was that in some cases they must pay almost double what the rate of cost would be if they had tackle at home. Then, again, the Commissioners said a good deal about the importance of judicious management. The best tackle that was made might with injudicious management be perfectly useless, while with good management even inferior tackle might be comparatively useful. As regarded management, two things ought to be borne in mind. Sometimes persons did a great deal of mischief to their tackle, tearing it very much, by doing at one operation what ought to be done in two or three consecutive operations. Under such a system as that tackle could never be kept in good order. In the next place it was most important to avoid all unnecessary hindrances. When he first began cultivating by steam himself, he had so many stoppages, there was so much loss of time from implements at one end or the other, that he soon began to study how he could reduce the hindrances to the minimum; and in this point of view it was most important that the tackle should be worked in the best manner. There was another advantage of the indirect system, which had hardly been spoken of sufficiently; he referred to the saving in the expense of water-carriage. Under the direct system there were many farms where the water carriage must involve great expense and vexation; while under the indirect system the water-carrying could be done almost for a nominal sum. His object, he wished it to be understood, was not to condemn the more scientific apparatus, which was well adapted for large and special farms, but to show the great value of the cheap and stationary apparatus. Notwithstanding all the drawbacks, he felt perfectly convinced that steam cultivation would overcome all the obstacles it had to contend with. It had needed, however, some impetus, and he was sure the thanks of the country were due to the Royal Agricultural Society of England for the money which had been devoted to the late investigation, and for the ability displayed in the valuable report which had been published.

Mr. DAVIS said, notwithstanding what had fallen from Dr. Voelcker, he would venture totally to deny that steam cultivation would produce any effect on strong land, unless it were thoroughly drained in the first instance.

Mr. EDMONDS, of Lechlade, said he could endorse the opinion of previous speakers as to the value of the steam-plough. He had had one for three or four years, and liked it extremely, and in fact he should not like now to farm without one, especially on strong land.

He could not agree with Dr. Voelcker, that with steam cultivation they could do away with drainage altogether. He hardly liked to oppose the opinion of such a scientific authority, but in practice they found that where there was a depth of 10 or 12 feet of clay, the rain that fell would either remain on the land till it was evaporated, or must run away from the surface through the drains, and he did not think it could remain long enough to evaporate without injuring the crops. His opinion was that they must continue to drain deeply on clay soil, and one advantage of the steam plough was that it would help to do away with deep furrows. With regard to light land, he thought steam cultivation was much less expensive than cultivation with horses. He was also of opinion that the implements at present employed on light land might be improved, and that special attention should be directed to the implements required for the after-working of the soil. He thought that land dug up in autumn, and left in that state in winter, might be cultivated with a simple drag, with a scarifying tine that would cut the whole of the land. There was another matter in which he was still more anxious for a change. In his neighbourhood they had to give something like a pound per ton for coals. That was a very heavy item of expense, and he should be very glad if something could be done to economise fuel. As regarded roads for Fowler's plough, he would observe that last autumn being very wet, he could not get on the strong heavy headlands when he wanted to plough round Wheat. Had there been a road there, or a patten like Boydell's on the engine wheel, it might have been done; but one of those things was essential where there was strong land:—they must either have roads for the engine on headlands, or something put upon the wheel to prevent the implement from getting stuck and not going.

Lord VERNON said:—I do not set myself up in the least as a practical farmer, although I have the great misfortune to farm nearly 2000 acres of very heavy clay land. Looking upon that at first as a hopeless task, I watched very carefully the series of trials which commenced at Leeds down to that which took place at the last show of the Society at Newcastle. I had the honour to act during almost the whole time as one of the stewards of implements connected with steam ploughing—before I could satisfy my mind that any implement had sufficient power to work my land.

It is perfectly true, as was stated by Mr. Bulstrode, that the prize set of apparatus on the direct system which I bought at Newcastle did not work so successfully on my farm as on the trial; but I am perfectly satisfied that, so far as the trial went, the judges, who devoted an immense amount of attention to the task, came to a correct decision, and chose the best implement that was exhibited; and I can only account for it not having been so successful on my own farm by the fact that the land was unusually stiff and ungrateful, and that the breakages were, in consequence, very heavy. I am glad to have this opportunity of stating that Mr. Fowler, of whom I bought that implement, supplied me with other apparatus on terms which were very creditable to him indeed; and that set, which has been on my farm for a year, has worked very successfully in every way. I might appeal to Mr. Wilson, who is present, to confirm my statement that, instead of land that was before almost unproductive, I have now got land which will produce some of the best Wheat crops in the county. It is, I think, hardly fair to lay the blame of any failure on this Society, for the successful adoption of steam cultivation has been very gradual. I have no doubt that as we go on we shall improve in details. I cannot quite agree with Mr. Smith, of Woolston, that when the ploughing apparatus is not at work there is no cost attending it. The case has been very different with me. I have worked my apparatus with an expensive staff, the manager has been paid very high wages, and I am firmly convinced that unless you employ duly-qualified men, men superior to ordinary agricultural labourers, the cost of breakages will be enormous. If the wages paid are higher than those of ordinary agricultural labourers, that should be fairly set down to the apparatus. I may add that I pay my staff on the scale which Mr. Fowler recommended me to pay, and I find from the reports of the Commissioners that it is not higher than what is generally paid elsewhere. I cannot conclude without saying how very highly the Society ought to value the labours of the Commissioners, who have travelled so far over the country, and have produced, as I understand they have, such a very able report. Having returned from abroad only a few days ago, I have not yet had the satisfaction of reading the report; but I am happy to hear that it is worthy of gentlemen who, in their capacity as judges and reporters of agricultural meetings, have been constantly before the public. I may add that, having been instrumental to some extent, together with Mr. Wilson, in impressing upon the Council the importance of these investigations, I very much regret that circumstances have not enabled me to assist my colleagues in the performance of their duties as committeemen.

Dr. VOELCKER wished to say one word in explanation. It was an accepted axiom that without drainage no improvement of land was possible, and he had not intended to express any opinion to the contrary. His remarks applied to the future. His impression was that, many years hence, after plenty of good steam cultivation, the mechanical condition of the land would have been so improved that there would not be as much want of drainage as there is now. Of course they must begin with drainage, and what he hoped for might not be realised in some cases under 10, 20, or even 50 years. He had been speaking prophetically.

The CHAIRMAN said he had hoped that Professor Voelcker, for whose scientific attainments he felt the greatest possible respect, was going to withdraw altogether what he must say was such a rank heresy that if 300 years ago he had uttered it before a meeting of a Society of that kind, he would certainly have been burnt.

Mr. SMITH (of Woolston) observed that he had worked his tackle with his ordinary farm labourers from the time he started, 11 years ago, and had found no difficulty whatever. He had experienced no breakages, and his implement was as good now as ever it was. In consequence of his windlass being made on an unsound principle, he changed it at the end of about four years, and adopted the four-wheeled windlass, which had kept in very good order. As to the cost, it was comparatively trifling, being simply the interest of money on about 180*l.* to himself, but 210*l.* to other people.

Mr. HOLLAND, M.P.: We must all feel satisfaction in having been brought together this day, and had such an opportunity of listening to the remarks of practical men.

There is this feature in connection with all professions, that you should have a knowledge of the individual with whom as a professional man you are about to act. A medical man may be the most perfect physician that ever existed; but what does he do first of all, when he has to treat a patient? Why he feels his pulse; and so with us, in the same manner we should feel the pulse of our own land, so to speak, before we apply steam power to it in any particular shape. In this volume any man who wishes to apply steam power to his land, whatever that land may be, will find all the information he needs in a condensed and handy shape. Now, in spite of what Dr. Voelcker says, I believe that you must have deep drainage in connection with steam-ploughing. I take my own country for example, in order to show this from my personal experience and practice. The heavy land in the Vale of Gloucester is all in deep ridge and furrow, the work of some unkind agriculturists in former ages; and this must all be undone by the steam cultivator before we shall make a full profit out of that land. It is thrown up in such immense high ridges, that a 5 feet 6 inch man in one furrow can hardly be seen from the next adjoining furrow. And not only is the land on the surface of that shape; but, on going down into the subsoil, you find that the under-surface has taken the same shape, and that that is a heavy clay. How, then, are you to deal with land such as that, without drainage? Again,

these furrows very seldom run parallel with one another, and are generally in the form of an S. I tried to drain them in parallel lines; but my drainage failed, and I was obliged to follow the old course of ridge-furrows, as the only mode of getting the water off the land. Through the application of steam ploughing, however, I am bringing down these high ridges on my land by degrees. I find that we need not be at the expense of putting drains in the furrows so deep as otherwise we should have to do; and now, after seven years' steam-ploughing, I have more or less done away with the ridges, and made the surface comparatively flat. I too, like Mr. Smith, find that the water does not run off the land, so as to do it damage by carrying away the fine silt and alumina into the furrows; but now that the water runs off through the drains it takes a much less quantity with it. To bring the land into this state has taken me seven years, and I admit that the drainage is not of so much consequence now as it was previously; because there is a larger flow of water through the interstices of the land into the drains, and the land is placed in such a position that it can take advantage of the water which falls from the air. I should be sorry, however, under any circumstances to begin the expensive system of steam-ploughing without the previous application of drainage to the land. We have heard a good deal of valuable information to-day respecting the practice of different gentlemen; but there is one light in which I view the system of steam-ploughing, about which I should wish to make a remark or two. I call it not only a revolution in our method of working the heavy clay lands of this country with all the advantages that have been described to us; I call it also a moral revolution, which affects every class of persons connected with agriculture. I look upon it in this light, that it is impossible for tenants in the long run to take up steam-ploughing unless the farms are put into steam-ploughing condition for them. Small fields must be done away with; hedgerows must be done away with, for I should be sorry if I had to plough with less than 200 yards of rope. But an important question now arises—Will the tenant farmer, when the advantages of steam-ploughing are well understood throughout the country, embark his capital in the enterprize where his tenancy is for a short period only? I believe that, with the capital and the intelligence which always flows with capital into any trade, and the increased education which on the part of the tenants is being applied to their holdings, we shall find these holdings cease to be yearly, and that a system of leasing will pervade the whole country. Here I connect the landlord and the tenant together in the matter of steam ploughing. Let me now connect the labourer with it, and show what will be the moral advantage to him of the steam plough. Of course you take your best labourers. Like Mr. Smith, I have not a man from my village who has not been educated as a steam-plougher. The seven years during which I have been engaged in the system have given time enough for a generation of young steam labourers to grow up, and I find that the men who are connected with the steam plough have become a species of aristocracy among the villagers, that they value the advantages of their position, and are determined to hold it, and have their children educated also, so that they in their turn shall become some of the best men in the village. All these things are going on together; and I have remarked not only at home, but in other places, that your best labourers, your steam-ploughers, or those whom you employ in connection with steam cultivation, must come out of decent cottages. In fact, you cannot make steam-plough labourers out of families who are crowded to an indecent extent under one roof. Now, all these matters upon which I have thus briefly touched are worthy of consideration. In conclusion, I would observe that, by these operations of steam-ploughing, and by sending into the world this volume, we are not only promoting a revolution in the tillage of the land, but effecting a revolution in the habits, the manners, and morals of all who are connected with the land, whether as owners, occupiers, or labourers.

Mr. STEVENSON concurred with some of the previous speakers in giving the preference to the roundabout system. He had been a roundabout man for 10 years, and quite coincided with the greater part of the remarks of Mr. Smith. With regard to draining, he agreed in thinking that all land ought to be drained before being steam ploughed.

Mr. WATTS had been working Fowler's apparatus for the past six years, and last season added another engine to the set, so that he was working upon the double-engine system; and it appeared to him that steam cultivation had now attained almost to perfection. Like Mr. Holland, he had had to encounter the difficulty of some very high-backed land, which, however, he had gradually reduced, and in every way he was satisfied with this system. As far as regarded working the machinery, the labourers in the field had been taught to work it, and did so successfully.

Mr. COLEMAN drew attention to the fact that in the statistical report the cost of working the apparatus constructed by himself was shown in a different manner to that generally adopted throughout the report. The case he referred to was in No. 23, where the cost of working was made to be 17*s.* 4*d.* per acre, whereas he believed it was under 5*s.* an acre, taking a day's work at 1*l.* 11*s.* 4*d.* for 7 acres per day. But by some curious arrangement, which he did not understand, a charge of 3*l.* 11*s.* 3*d.* was added to that, which produced the result of 17*s.* 4*d.* per acre to which he had alluded. He fancied it must have arisen from this: That the year 1865, when only 150 acres were done, was an unfortunate year for steam-ploughing, and he presumed that the whole amount of the interest on capital, maintenance, and so forth was concentrated in those few days. He mentioned this because he did not observe that there was any other case of the sort.

Mr. SMITH (Woolston) said that was a mistake, for there were a great many cases where the cost was brought up to a higher sum than it should be.

Mr. JACOB WILSON said that when Lord Vernon commenced steam cultivation he had a very small farm in hand, and had therefore to engage a special staff to work a pair of engines. Then he was simply working for the good of his tenantry; and when the men were not employed in steam operations, they were employed in the plantations and in other work.

He had himself adopted Fowler's double-set engine after much attention to the subject of steam cultivation. He might, perhaps, be peculiarly situated in having three roads running through his farm; consequently, however much he chose to enlarge his fields, he had always had crooked fences. He did not hesitate in going to Fowler for a direct set, with which he was perfectly satisfied, for he could work it at any angle in any corner, and from whatever place he chose to put the engine. He lived in a coal country where the best coal was from 3*s.* to 4*s.* a ton, and that brought expenses down considerably, in comparison with those of Mr. Ruck. It was a matter of gratification to him that he had been associated in the preparation of the report, and that it had been so well seconded by the country at large, and especially by gentlemen who used machinery in the cultivation of the land, of whatever make it might be. The desire of the Council was, that the report should not be biassed in any way in favour of or against any individual maker; and he was sure that the reporters would have the credit given them of having made a fair statement. That report would, he thought, bring out one point in a practical way which had never before been educed. There were a great many persons, whom he might term amateurs, who thought of going into steam cultivation, with the hope that it would do everything for them; but those who had had experience of its working, he was sure, would agree with him that there could be no greater fallacy. So far as he was concerned, he might state that, in the matter of manure, for instance, he did not want less, but probably more, because steam enabled him to grow a greater variety of crops. Another thing ought to be borne in mind, for which credit also should be taken. The President had told them that very few instances indeed occurred where farmers had had this means of cultivating the land for more than five years. Now, during that period they would naturally have, as he himself had experienced, a good deal of up-hill work. They probably went a little deeper than they had need. Perhaps they broke the pan, and probably some part of their implements also. It was not, therefore, until their second course through the farm that they realised the great advantage which he believed was to be derived from the system.

Mr. PEARCE BROWNE, of Burderop, said that, like Lord Vernon, he was the occupier of about 2000 acres of land, and had been in possession of one of Fowler's sets of tackle for six years. This he had kept in constant use, and he had arrived at the conclusion that it was a fine-weather implement only, and that in such circumstances it was most valuable.

A great deal had been said about the cost of working, but he did not think that that had anything to do with the question. In comparison with horse-labour, the advantage of it was, that it could be used and made to do an enormous amount of work at the right time, and that, in his opinion, was its chief advantage. As to doing without manures in consequence of the adoption of steam-cultivation, that was all moonshine. They could not do without manures, but must have them as well. One of the faults he found with the system was, that he sometimes went deeper than he wished to go. But on the whole he could speak most highly of it, and his only wonder was that it was not more widely adopted. In wet weather it was found that the tackle broke; and, in fact, he was of opinion that the time for bringing it out was when the sun shone on both sides of the hedge and they could do a good long day's work. It had been observed that the ordinary agricultural labourer was not adapted to the work; but he had installed his men into the office, and had had no difficulty whatever in working the apparatus with them. Of course their wages had to be raised, but he met with no difficulty after following the instructions given by Mr. Fowler.

Mr. JAMES WEBB had himself used steam cultivation only for a short time. He had lived in a neighbourhood, however, during the last six years, where it had been extensively carried on, and had had experience of its operations on the lands of Mr. Holland and Mr. Randell.

Within a seven miles radius of Evesham he found that there were not less than nine sets of tackle at work, so he was obliged to follow the stream, and he did not know a single case in which steam culture in that neighbourhood had been unsuccessful. Those who used it then were using it now; those who had come into the neighbourhood since had adopted it, and there was not one instance of its being given up. He mentioned this because in the vicinity of Worcester, which was not many miles off, two or three landlords had started implements which were always in the repairer's hands. Success, he believed, greatly depended on the skill of the people who worked the machines. Those in the neighbourhood of Evesham, with the exception of Mr. Holland's and one other, were in the hands of the farmers, and worked by their labourers. At first he had some doubt which he should adopt; the direct action or the roundabout. His farm was large enough to have employed the direct action; and he could get on it at all times; one portion was light land, and the other portion a strong clay; but he adopted the cheaper plan—the roundabout system—and was perfectly satisfied with the results.

Sir W. STIRLING wished to know whether there was any gentleman present with a small holding, say of three, four, or five hundred acres, who had purchased a steam-engine himself, and could state the benefit he had derived from its use. At that moment they were all, as it were, in conflict with the labourer. Whatever might be the opinion of Dr. Voelcker with respect to the drainage of lands, there could be no further question about the drainage of our labourers, who were constantly being withdrawn from the land for many and various purposes. On that account, therefore, it was that agriculturists turned to machinery with an anxious eye, and therefore he himself was most desirous of learning what course he should take from such information as might be given by practical gentlemen that day. He had come to the meeting for information in the simplest and readiest manner, by the testimony of any gentleman of practical experience who would furnish the results in a few words—*multum in parvo*, and which would be much more valuable to the farmer than any report that might be published on the subject, however admirably got up.

The PRESIDENT: Mr. Stevenson, for one, who has given his testimony, occupies a farm of about 390 acres. He is one of the early patrons of steam machinery, and speaks well of it after 11 years' experience on those 390 acres. Then there is Mr. Robert Helmsley, who also farms a small holding by steam.

Mr. WEBB observed that one of his neighbours purchased an engine last autumn for a farm of less than 400 acres, and had employed it very successfully.

Mr. HELMSLEY said that in introducing the steam engine on his farm he had first looked round to see what purposes he could apply it to besides cultivation, and he had turned it to account in grinding, threshing, and carrying on a variety of other operations. In his opinion, a man ought to have at least 300 acres of arable land if he would use the steam engine, and he certainly should not have done it himself had he not held pretty nearly that amount. The system he adopted was the roundabout, which he considered the simplest and best.

The PRESIDENT then moved, and the Earl of POWYS seconded, a vote of thanks to the Committee of Inspection, and especially to the gentlemen who had acted as reporters. The motion having been carried by acclamation,

Mr. ALGERNON CLARKE, one of the reporters, briefly acknowledged the compliment. One remark had fallen from the President which he should like to say a few words about. It was, that they could not take up a volume containing the reports, and turning to the last page or two, see a direction of this kind: "If your farm is of such and such a description, you ought to buy Mr. So-and-So's set of tackle." Now, as far as his colleagues and himself were concerned, he begged to say that they were not prepared to assume any such responsibility. They did not undertake to save people the trouble of thinking for themselves. All they undertook to do was to save people the trouble of going round the country for themselves, and they had endeavoured to collect as much information as they could with the least expenditure of their own time and the Society's money; and he could assure the meeting that his colleagues and himself had worked hard with that object before them.

Home Correspondence.

Clover fed off, or twice Mowed?—I am so often told "I get better Wheat after Clover twice mowed for hay than after Clover fed off all the season," that I was induced to search for an explanation of this apparent paradox, and it appears to me to be as follows:—Animals, especially sheep, when turned into Clover early, take the first little shoots made by the plant and continue to do so, thus preventing the full growth of leaf, without which there can be little root or stem development. If we pinch off the youngest shoots of a plant in a flower pot and continue to do so as fresh ones appear, the consequence must be very obvious. On the full development of Clover root formation depends the future Wheat crop. My practice is to mow the first growth of Clover for hay, then spread manure over the surface, and as soon as the plants are fully developed, sheep are folded upon it, eating cake and corn after this. I can safely take two good crops of Wheat, the second crop being pithy Rivelts. If Clovers were permitted to be well-grown before being fed, the difference of opinion mentioned would cease to exist. *J. J. Mechi, June* 1.

A Saturday New Moon.—In a recent letter to the *Times*, Alderman Mechi says there is an established tradition in Essex that a Saturday new moon is always followed by a flood of water, and he declares that so far as his own experience goes it is so. A Saturday new moon in 1865 before harvest was followed by a wet harvest. In like manner, Forster averred that the maxim proved true in 20 years' experience. He adds, however—"To ascribe such a phenomenon to the occurrence of the new moon on the day specially dedicated to Saturn, must, of course, obviously appear superstitious; but there may be natural causes why the conjunction of the sun and moon, happening at some such diurnal periods may, in the long run, turn out to be connected with rough weather; and these periods once falling on a Saturday would for a long time continue to do so; hence may have arisen this vulgar notion. Old shepherds, gardeners, hunters, and men of education have alike testified to the fact. Indeed, the whole doctrine of atmospheric phenomena is very little understood." So far Forster; the register, however, will only show casual coincidences in this respect, and then to be referred to the influence of the conjunction, and without reference to the particular day of the week. The new moons of the present year, although only in one instance occurring on a Saturday, have generally been followed by snow or rain; but that of the last month (May), which occurred on a Saturday, was followed by unusually hot, dry weather. If the adage be confined to the new moon before harvest, as Alderman Mechi seems to believe, then it is satisfactory to know that the new moon of September will not occur until the end of the month (the 27th), by which time it is to be hoped that the Harvest Moon will have seen the Harvest Home. *A. S.* [The phases of the moon during the present month present matter for observation with respect to the weather that may attend them. All the phases strikingly coincide with her critical positions. Thus, new moon on the 2d, in perigee (or nearest the earth), preceded and followed by heavy downpour throughout the country; in London, more than three-quarters of an inch. The first quarter will occur on the 9th, when the moon will be astride the equinoctial. Full moon on the 17th, when the moon will be in apogee (or farthest from the earth). Last quarter on the 25th, when the moon will be again astride the equinoctial. It will be curious to note if there be hot weather in the first quarter, wet with the full, and hot with the last quarter.]

Sorghum Tartaricum.—In reference to the remarks of your correspondent in the *Gardeners' Chronicle* of the 18th inst., your readers know that we have never recommended the Sorghum Tartaricum, as we have had no opportunity of testing its adaptation to this climate, but when curiosity has been raised concerning any new plant or seed it is incumbent on us to procure the article for trial. In the present instance we have already discovered that although the seed germinates freely (96 per cent.) in artificial heat, it does not yet show itself in our open trial ground where sown on 28th March, though possibly it might if sown in more genial weather—this however would materially shorten the season for maturing the plant and ripening the grain. *Sutton & Sons, Reading.*

"*A Bill to Provide for the Better Education of Children Employed in Agriculture.*"—However much we may approve the views and appreciate the motives of our philosophers and philanthropic statesmen, and

admire their laudable endeavours to benefit their fellow-countrymen, it is highly necessary to watch their movements, and the measures they bring forward for this especial purpose. The old and trite axiom, "that private interests must always give way to public good," is sometimes at fault. It is so in the case of this and similar Bills which have been this session brought before Parliament. The Earl of Shaftesbury's Bill is designed to prevent women going to field labour except at, or not to exceed, certain hours; girls not to be so employed under 18 years of age, nor children under 10 years, with various stringent regulations relative to education, &c. Now we have the Bill of Mr. Fawcett, a gentleman of high attainments, but much more versed in natural and moral philosophy than practical details of business, particularly the business of a farmer. Here is the outline of his Bill—"Children under 13 not to be employed in agriculture except on production of certificate of school attendance on alternate days." This "certificate to be handed to employer of child at the end of each month." Magistrates in Petty Sessions may suspend these certificates for terms not exceeding two months, *i. e.*, harvest time, &c. These certificates must be from schools duly approved by inspectors, magistrates may also in Petty Sessions exempt any child residing more than three miles from any school. They are further to have the power to levy a rate upon any parish destitute of a proper school, whose population exceeds 300, "for the building of a school-house, or for the due maintenance of a school." The only appeal of the ratepayers is to the Privy Council, in order to prove that they already have a school sufficiently good for the purpose. Employers are liable to a fine of 10*l.*, and not less than 2*l.*, for employing children contrary to the provisions of the Bill, and parents 1*l.*, and not less than 10*s.*, for permitting such employment of their children. Religious instruction is also provided for in the schools, "and a majority of the ratepayers shall have the power of determining the kind of religious instruction which shall be thus given." It is high time farmers took especial care to look after their own interests. Verily, the establishment of our Chambers of Agriculture is in accordance with the spirit of the times. Here are some pretty things for their discussions:—Women to be compelled by Act of Parliament to care for their families; girls under 18 years to be idling about at home rather than earning by field labour. Boys under 13 years not to be allowed to work at all, unless they can read and write. Certificates of age and competency must be shown by employers when asked for (by whom?—Policemen probably). The dignity of the bench is to be lowered to granting a child a holiday or liberty to go to the gleaning field. On the other hand, the bench is to possess the extraordinary power of establishing schools in all small parishes. Then comes the imposition of fines upon employers and parents for petty transgressions. But the best of all is the religious instruction. This is to depend for its kind upon a majority of the ratepayers. In my parish, which is purely agricultural, we have two churches, eight dissenting chapels, besides other preaching places; fancy the squabbles it would entail. Happily we have schools in abundance, and work in abundance, too. Next autumn we shall have to take up from within a radius of three miles from where I now sit writing this somewhat angry paper about 1000 acres of Potatos, and about 300 acres of Mangel Wurzel. Pray, what are we to do? It would take between 50,000 and 60,000 hands to get them up in one day; but as that is impossible, we must take 50 or 60 days to do it in, employing 1000 hands daily. Our population is not large—about 4500. Supposing women, boys, and girls to be so restricted (for we take up immediately after harvest, when the magisterial holiday must cease), we should be in a complete fix: we could not secure our crops, therefore we must curtail our growth of these valuable roots; but what a loss of food to the kingdom. Well, but look at the poor man's family—scarcely any but his own earnings to provide for them. Why the wife and children of many of our labourers earn as much as the head of the family. To curtail their earnings, to prevent their freedom to labour, to destroy their independence, their liberty to dispose as they may of their families—why, this is thraldom indeed. This may accord with very strong philanthropic notions, but it is strange philosophy. Our Parliament is certainly doing unaccountable things this session, but surely it will never pass any such undigested and impracticable measures as these—doing evil that good may come.

O. F.

Foreign Correspondence.

PARIS: *Sorghum tartaricum.*—I felt already inclined sometimes to communicate to you what I know of the much-talked-of plant, Sorghum tartaricum; but expecting to see each time in the next number full particulars about it, I never did so, and simply mentioned to your correspondent, Mr. Robinson, the fact that I had tried it last year and found it too late for cultivation. This was at the best nothing more than a repetition of many trials made before to introduce the plant in France, and the result was perfectly anticipated, as the seed received from Italy last spring has been easily identified for Holcus carnuus. Under the latter name it is well known as a cereal very extensively grown in Nubia, Egypt, Northern Africa, and I believe all the adjoining portion of Asia. It is said to be a native of India, but, as many plants which have been long under cultivation, it is very seldom if ever to be found in a wild state. In Algeria it is called Pughiffa, and perhaps is sometimes confounded with Holcus sorghum under the more common appellation of Doura. Several varieties of it are known, but the white-grained one is by far the most widely diffused. If the seed imported to England be exactly the same as the one I got from Italy (I enclose a few grains for comparison), it is a subject of wonder to me how professional seedsmen failed to recognise in it a cereal which must exist in every collection of vegetable products used for food.

The plants grown at my place last year were extremely like in appearance some late strong variety of Indian Corn. The stems were very thick, about 5 inches in circumference and 5 feet high, the leaves large and broad; it took about four months for the plant to attain that size, then the panicles made their appearance, but after a fortnight or so the rain and cold set in, and the progress was stopped altogether; not one single grain was produced, and I think that even the flowers did not come to perfection. This of course might be attributed to the cold and wet season, had the same experiment not been tried here over and over again. In hot summers it can ripen its seed in the south of France, but it gives no certain crop. As a forage plant it seems inferior to many varieties of Indian Corn, both in quickness of growth and bulk of product.

The numerous inquiries made by several of your subscribers on the subject, and the wish of sparing some persons an expensive trial, alone prompted me to send you the above statements, which I did not intend as an article in my name for the *Agricultural Gazette*, but only give for you or the agricultural editor of the paper to use in the way you think the best. Perhaps it may not be uninteresting to mention the fact that at the Universal Exhibition it is to be found in the agricultural collections of at least five countries, viz., Algeria, Egypt, Turkey, Italy, and France. *X.*

Societies.

ROYAL AGRICULTURAL OF ENGLAND.

MONTHLY COUNCIL: *Wednesday, June 5*, 1867.—Present—Mr. Thompson, President, in the Chair; the Earl of Shrewsbury, Lord Berners, Lord Vernon, Lord Walsingham, Major-Gen. the Hon. A. N. Hood, Sir J. Johnstone, Bart., M.P.; Sir E. C. Kerrison, Bart.; Sir T. Western, Bart., M.P.; Mr. Amos, Mr. Barthropp, Mr. Bowly, Mr. Cantrell, Mr. D. R. Davies, Mr. Dent, M.P.; Mr. Druce, Mr. Brandreth Gibbs, Mr. Hoskyns, Mr. Jonas, Colonel Kingscote, Mr. Lawrence, Mr. Milward, Mr. Pain, Mr. Randell, Mr. Read, M.P.; Mr. Shuttleworth, Mr. Robert Smith, Mr. Torr, Mr. Wells, Professor Wilson, Major Wilson, Mr. Jacob Wilson, Mr. Frere, and Dr. Voelcker.

The following new Members were elected:—

Bevan, Geo. James, Godmanchester, Huntingdon.
Bromley, Joseph Robarts, Gesyns, Newmarket.
Brown, William, Highgate, Holme on Spalding Moor, York.
Brown, Philip M., Fornham All Saints, Bury St. Edmund's.
Casswell, John Henry, Laughton, Folkingham.
Day, Henry Morgan, Langham, Bury St. Edmund's.
Dobell, G. C., North John Street, Liverpool.
Exeter, The Right Hon. Marquis of, Burghley House, Stamford.
Ford, Francis, Hatter Street, Bury St. Edmund's.
Gee, Thomas, Dewhurst Lodge, Wadhurst, Sussex.
Gillow, Richard Charles, Leighton Hall, Lancaster.
Goldsmith, George, Sapiston, Ixworth.
Green, Stephen, Haverfordwest.
Greening, Edward Owen, Nelson House, Broughton, Manchester.
Gedge, Charles Johnson, Bury St. Edmund's.
Hales, Frederick C., Denham Hall, Bury St. Edmund's.
Hall, George Samuel, The City of Ely.
Human, N. Harlock, Isleham, Soham.
McKenzie, William, Dawson Street, Dublin.
Marsh, John Edward, Alderton, near Woodbridge.
Mathew, William, Knettishall, Harling.
Middleton, Charles, Holkham, Wells-next-the-Sea.
Miller, John, Walsham-le-Willows, Ixworth.
Moor, Simon, Lidgate, Newmarket.
Newson, Henry, Bury St. Edmund's.
Oliver, George John, Bury St. Edmund's.
Ogilvie, Alexander, Sizewell House, Leiston, Suffolk.
Ord, John Thomas, Fordham House, Bury St. Edmund's.
Payne, George E., Badwell Ash, Ixworth, Suffolk.
Pennington, Frederick, Broome Hall, near Dorking.
Richardson, Rev. John, St. Mary's Parsonage, Bury St. Edmund's.
Roe, Rev. Charles, Sicclesmere, Bury St. Edmund's.
Southgate, Walter, Ipswich.
Sturt, Henry Gerard, M.P., Crickel, Wimborne.
Taylor, Samuel Garrod, Hartest, Bury St. Edmund's.
Tozer, Charles James, Bury St. Edmund's.
Tracy, Anthony W., Abbey Gate Street, Bury St. Edmund's.
Waddington, Harry Spencer, Cavenham Hall, Mildenhall, Suffolk.
Wade, Henry Roe, Little Waldingfield, Sudbury, Suffolk.
Waters, Benjamin, Matcombe, Eastbourne.
Westrup, John, Venston, Newmarket, Suffolk.
Whitlocke, John, Great Yeldham Hall, Halsted, Essex.
Williams, Frederick Martin, M.P., Goonvrea, Perranarworthal, Cornwall.
Wilson, John, St. Bees, Whitehaven.
Wilson, Joseph, Penrith.
Wing, Charles, Bury St. Edmund's.
Wollaston, Charles, Bury St. Edmund's.

FINANCES.—Major-General the Hon. A. N. Hood presented the report of the Committee, from which it appeared that the Secretary's receipts during the past month had been examined by the Committee, and by Messrs. Quilter, Ball, & Co., the Society's accountants, and were found correct. The balance in the hands of the bankers on May 31 was 1462*l.* 3*s.* 10*d.* The Committee recommend that the sum of 1900*l.*, now on deposit, be withdrawn.

This Report was adopted.

JOURNAL.—Mr. Thompson announced that the Judges report that in Classes IV. and VI. the Essays are not considered worthy of the prize; but that in the former the Chairman should be empowered to open the motto papers and communicate with two of the authors with a view to the insertion in the Journal of portions of each of their Essays. That Mr. Angus have the option of receiving a copy of the Journal instead of 25 copies of his paper on Statistics.

This Report was adopted.

CHEMICAL.—Sir John Johnstone, Bart., M. P., stated that the Committee recommended that the following paper, which had been drawn up by the Society's Consulting Chemist, should be immediately published:—

INSTRUCTIONS FOR SELECTING AND SENDING SAMPLES FOR ANALYSIS.

Artificial Manures.—Take a large handful of the manure from three or four bags, mix the whole on a large sheet of paper, breaking down with the hand any lumps present, and fold up in tin-foil, or in oil silk, about three ounces of the well-mixed sample, and send it to 11, Salisbury Square, Fleet Street, E.C., by sample post. Or place the mixed manure in a small wooden or tin-box, which may be tied by string, but must not be sealed, and send it by sample post. If the manure be very wet and lumpy, a larger box-full, weighing from 12 to 15 ounces, should be sent either by sample post or railway.

Samples not exceeding 4 ounces in weight may be sent by sample post, by attaching 2 penny postage stamps to the parcel.

Samples, not exceeding 8 ounces, for 4 postage stamps.
Samples, not exceeding 16 ounces, for 8 postage stamps.
Samples, not exceeding 24 ounces, for 1*s.* in postage stamps.

There must be no writing or printing in the packet or its cover, in addition to the address: Dr. Augustus Voelcker, 11, Salisbury Square, Fleet Street, E.C., and the address of the sender of the parcel, and the number or mark of the article sent.

These particulars must in all cases be given, not on loose pieces of papers but on small labels attached to the samples or packages containing them.

The samples must be sent in covers, open at the ends or in boxes, bags of linen or other materials, which may be fastened by string, but must not be sealed, so as to be easily examined. No parcel sent by sample post must exceed 1½ lb. in weight, or 2 feet in length, or 1 foot in width or depth.

Soils.—Have a wooden box made 6 inches long and wide, and from 9 to 12 inches deep, according to the depth of soil and subsoil of the field. Mark out in the field a space of about 12 inches square; dig round in a slanting direction a trench, so as to leave undisturbed a block of soil with its subsoil 9 to 12 inches deep; trim this block or plan of the field to make it fit into the wooden box, invert the open box over it, press down firmly, then pass a spade under the box, and lift it up, gently turn over the box, nail on the lid, and send it by goods or parcel train to the laboratory. The soil will then be received in the exact position in which it is found in the field.

In the case of very light, sandy, and porous soils, the wooden box may be at once inverted over the soil and forced down by pressure and then dug out.

Waters.—2 gallons of water are required for analysis. The water, if possible, should be sent in glass-stoppered Winchester half-gallon bottles, which are readily obtained in any chemist and druggist's shop. If Winchester bottles cannot be procured the water may be sent in perfectly clean new stone-ware spirit-jars, surrounded by wickerwork.

For the determination of the degree of hardness before and after boiling, only one quart wine-bottle full of water is required.

Limestones, Marls, Ironstones, and other Minerals.—Whole pieces, weighing 3 to 4 ounces, should be sent, enclosed in small linen bags, or wrapped in paper. Postage by sample post 2*d.*, if under 4 ounces.

Oilcakes.—Take a sample from the middle of the cake. To this end break a whole cake into two. Then break off a piece from the end where the two halves were joined together, and wrap it in paper, leaving the ends open, and send parcel by sample post. The piece should weigh from 12 to 15 ounces. Postage, 8*d.* If sent by railway, one quarter or half a cake should be forwarded.

Feeding Meals.—About 3 ounces will be sufficient for analysis. Enclose the meal in a small linen bag. Send it by sample post.

On forwarding samples separate letters should be sent by post to the laboratory, specifying the nature of the information required, and, if possible, the object in view.

BURY ST. EDMUND'S MEETING.—Mr. Milward reported that the Committee recommended Mr. Woodruff's (55, Southwark Bridge Road) tender be accepted for first and second class refreshments; that Mr. Elphick be engaged as Stewards' Assistant on the usual terms; that the pay of the Assistant Veterinary Inspector be increased to 3*l.* per diem; that shedding and hurdles as per entries be ordered from the contractor; that 50 large placards be placed about the metropolis, 50 about the railway stations, and 500 smaller in the country; that 8000 stock catalogues and 5000 implement catalogues be printed; that pupils from the Royal Veterinary College be permitted to attend as before; that Mr. Barthropp be requested to act as Steward of the Poultry department; that an insurance for 300*l.* be at once effected on the Wheat and Barley on the premises of Mr. Nunn, the Mayor of Bury St. Edmund's, with whom an arrangement for the supply of forage had been made, including that which would have been required for cattle, and who very liberally consented to allow the Council to take only that which will now be required.

This report was adopted.

COUNTRY MEETING DISTRICTS.—The report of this Committee was referred back to them for reconsideration.

JUDGES.—A Committee, consisting of Mr. Amos, Mr. Barthropp, Mr. Bowly, Mr. Clayden, Mr. Davies, Mr. Druce, Mr. Brandreth Gibbs, Mr. Randell, and Mr. Robert Smith, were appointed to recommend Judges of Stock, Implements, Poultry, Butter, and Cheese, whose Report would be presented at a Special Council on the 19th inst.

EDUCATION.—A Committee, consisting of the Earl of Powis, Major-General the Hon. A. N. Hood, Mr. Acland, M.P.; Mr. Dent, M.P.; Mr. Holland, M.P.; Colonel Kingscote, M.P.; Mr. Wren Hoskyns, Dr. Voelcker, Mr. Wells, and Professor Wilson, was appointed to prepare a scheme for carrying out the Educational Grant for the current year. On the motion of Lord Walsingham, seconded by Mr. Dent, M.P., a cordial vote of thanks was accorded to Mr. S. Benj. L. Druce, Honorary Secretary to the late Education Committee, for his zeal in conducting the business, and the care and attention he had bestowed on it.

Reports relating to the acreage of land under crops were received from the Board of Trade, and Reports of the Agricultural Exhibitions at Vienna and Aarhuus (Denmark), by Professor Wilson.

The thanks of the Council were ordered for the present of a Silver Medal from the United States

Agricultural Society, and it was resolved that a Silver Medal be returned to the United States Agricultural Society.

Reviews.

The Journal of Agriculture. June, 1867. 150, Fleet Street.

Ancient history—Roman and Scottish; Natural history—birds of the shores and marshes; French experience of portable hen-house, and of their feeding poultry in the field; another of Mr. Ewart's chapters on the improvement of landed estates, referring especially to the construction of embankments; the news of the month included in the farmer's note-book, and in various trade tables—these make up a magazine with less variety than usual, but with a good deal to interest the reader. The Buccleuch Estates form the subject of what may hereafter be a very instructive agricultural essay; meantime the writer confines himself to antiquarian research into the history of the family rather than of their lands. When those shall come to be described; and their history during the past two generations of occupants has been given as it ought to be, we shall have a full account of all that is most interesting in the history of English agriculture. The article on the Agriculture of the Romans is a review of Dr. Daubeny's recent lecture on the subject, or rather of the preceding work of the Rev. Adam Dickson, of Dunse, to which Dr. Daubeny expresses his obligation. We extract a portion of this unfinished essay, illustrating the existence long ago, in Italy, of the very same maxims and practices that now obtain among ourselves:—

"As to the size of the farms, the Romans had the excellent rule that 'the farm should be weaker than the farmer;' that is to say, he ought to have capital enough to manage it properly. They perfectly understood the difference between high and low farming.

"One of the old rural stories may illustrate this. A man, it was told, had a vineyard and two daughters. When the eldest was married he gave her a third of his vineyard, yet what remained produced as much wine as before. On the marriage of the second, he shared the remainder with her, yet the third that was left to him produced quite as much as the whole had originally done. Mr. Mechi would not be at a loss to explain this story.

"Nothing connected with agriculture can be more important than the condition of the labourers, the actual cultivators of the soil, the men whose daily toil produces the food we eat, and in great measure the raiment which we wear.

"In nothing have we to congratulate ourselves so much as in the profound difference which exists between the position of the modern ploughman and the ancient labourer. The latter was a slave, and a slave in a sense to which all modern slavery bears no comparison. He was not, like the African, of an inferior race. He was the victim of war, perhaps a gallant soldier taken in battle, or, even worse, a native who, from debt or some other cause, had lost his personal liberty. He was liable to be subjected to the most cruel tortures at the mere caprice of his owner, and he might even be put to death without any form of law. On one occasion a man was crucified simply because he was found to possess a boar-spear—not, we presume, for fear of his poaching, but for breaking the law that slaves should not possess arms. Such instances of cruelty and oppression were no doubt rare; but a sad view of the Roman labourer's life is derived from Cato's directions to masters as to the management of their servants. In a book where such slight affairs as recipes for tarts and puddings are duly discussed, he tells proprietors that on their visits to their estates they should see that all their old or disabled slaves were sold off, so that they might not burden the property. Poor fellows! we wonder who bought them, and what was their ultimate fate!

"In respect of lodging and food the labourer seems very much to have resembled the Scottish bothy-man of the present day. Like him, he was entirely a vegetarian. His food consisted exclusively of bread, of which he received from 3 to 5 lb. avordupois per day, according to the season of the year and the amount of work performed. He had slight additions at various seasons of Olives and suchlike. For drink he had a coarse wine called *lora*, made from the husks and skins of the grapes, of which he was allowed 74 gallons in the year, or 1·62 pints per day; but, as a rule, the quantity was not very strictly measured. Salt and vinegar were also supplied, and he had occasionally Maize, Apples, Pears, Figs, and oil. The only approach to animal food was a small quantity of salted fish. Pork is not mentioned, and as for beef or mutton, they were out of the question. Oxen were reared for their labour; and at one period it was a capital offence to kill a bullock for food. Sheep were kept for the sake of their wool and of their milk, of which cheese seems to have been exclusively made. It was also the duty of the master to clothe the slave. Mr. Dickson states that, when he wrote, a labourer in the south of Scotland received as wages 17½ lb. of oatmeal per week, being exactly the amount now given in the central districts at the present day. The ploughman was also paid 1*s.* per week; in the present day he gets 7*s.* Mr. Dickson makes no mention of milk, but surely it must have been given in his time as part of the ploughman's wages? Upon the whole, Mr. Dickson calculates that the Roman slave cost rather more than the Scotch labourer of 1770.

"It is not our purpose to attempt, within the necessarily circumscribed limits of this article, to enter into any minute detail of the various operations of Roman agriculture, and we shall only endeavour to present the reader with a sketch of its leading features. To begin at the foundation of all good farming, the Romans were well acquainted with the necessity for the land being properly drained. Drains were made from 3 to 4 feet deep, narrower at the bottom than the top, and packed with gravel or broken stones. It is probable that tile-drains, in our sense of the term, were unknown, and Dickson was of course ignorant of them; but Daubeny points out that Cato mentions tiles (*tegula*) as being used in the formation of drains; but he suggests that they were house-tiles used to prop up the sides of the drain. As regards ploughing, we say advisedly that the Romans seem to have understood its true principles much better than is done in this country, if we are to take what is called prize-ploughing as the standard of what is considered perfection.

"Prize-ploughing seems to consist in cutting the soil into equal ridges, pressing the subsoil firmly down, turning over the furrows in rigid order, and leaving them locked together in one compact mass. If the object was to prevent the action of the air, no better means could be devised. Roman ploughing, on the other hand, left the ground much in the same state as is done by the modern steam-cultivator,—loose and free, and open to the influences of the atmosphere. The plough had no mould-board, and by changing the angle at which it was held, the ground was rather torn up and loosened than turned over. The depth to which it was stirred seems generally to have been 9 inches, and the bailiff is directed to carry in his hand a measure, that, by probing the soil in many places, he might see that the labourers were executing the work in a proper manner. After a time many of the ploughs were furnished with wheels. Our ploughmen follow with praiseworthy uniformity one of the directions given to the Romans, which was to stop and rest the oxen at what in Scotland is called the 'rig-ends.' Here they were to lift the collars, and let the air cool the necks of the cattle."

On Disinfectants.—By Dr. Augustus Voelcker. W. Clowes and Sons, Stamford Street, S.

At a time when our anxieties have been rudely re-awakened, and rumours of Cattle Plague are again everywhere surrounding us, the republication from the "Bath and West of England Journal" of its paper on the subject, by so trustworthy a man as Dr. Voelcker, ought to be made known. The reader may safely rely on what he here learns of the possibilities and impossibilities of prevention, isolation, and disinfection, and on the relative values of the several means that have been recommended. The following are Dr. Voelcker's general observations on the various disinfectants here treated of:—

"1. Chlorine, nitric acid, and sulphur fumigations, in order to be efficacious, cannot be used in sheds where animals are kept.

"2. In applying disinfectants, such as chloride of lime, or carbolic acid, it should be remembered that the disinfectants must be used in quantities proportionate to the amount of matter or surface to be disinfected; a mere sprinkling of chloride of lime or carbolic acid solution does no good.

"3. When two or more disinfectants are used, care must be taken that the mode of action of one does not neutralise that of another. Oxydizing agents, that is, substances which, like chlorine or nitric acid, destroy organic matter, must not be employed simultaneously with antiseptics, *i. e.*, substances which have the power of preventing decomposition.

"Thus, chlorine or chloride of lime must not be used in conjunction with carbolic acid, nor should chloride of lime be applied at the same time with sulphur fumigations. But cow-sheds may well be fumigated with sulphur vapours, and then washed over with carbolic acid, inasmuch as both agents are good antiseptics.

"4. Before disinfecting cow-sheds, stables, pens, &c., all manure, loose straw, hay, &c., should be removed, and the place thoroughly cleansed with hot water, soft soap, or soda.

"For safety's sake, the use of artificial disinfectants should not be dispensed with, but their application should always be preceded by the free use of soft soap or soda-ash and plenty of water, and be followed up by thoroughly ventilating the place two or three days before putting healthy stock again into the premises.

"5. Air, earth, and water are the three great natural purifiers, which, when acting in mutual concert efficiently prevent accumulations of organic filth and attendant diseases. All three agencies are needed to maintain the health of man and beast. If the soil is not sufficiently porous to allow the rapid passage of water and air through its interstices, organic refuse matters, instead of becoming completely oxydized and transformed into inorganic, as is the case in well-drained thoroughly aërated soils, give rise to foul smelling and highly injurious products, which may be termed products of partial combustion. Earth may be compared to the grate or oven in which organic filth is burned, water to the person who feeds the grate with combustible materials, and air to the fire (oxygen) which destroys the combustible refuse matters. Perfect drainage, ventilation, and a good supply of water are, for these reasons, our best safeguards against nuisance and infection.

"6. Artificial disinfectants cannot properly supply the place of these essential purifiers, which are employed in Nature's economy to maintain the well-being of man and beast. Artificial disinfectants are only useful in pecial cases, or for a temporary purpose."

Farm Memoranda.

MERSE OF BERWICKSHIRE: *June* 1.—Three weeks ago it was possible to report the young corn as flourishing, although grey slugs were swarming among clay land Oats. The change, however, that then took place gave the wretches the advantage, and in the course of a fortnight of withering weather from N. and E., they have well nigh made an end of the crop in portions of fields. It is worthy of note that the destruction was most marked where the muck had been applied on the young Grass of the previous year. It was pleasing to observe the destroyers wriggling under a dressing of salt, and it may be hoped that the nitrate of soda will stimulate the remaining plants to do their best. During all this time pastures were steadily failing, and young seeds getting quite bare in all but the most favourable circumstances, and consequently store stock is duller to sell than ever. But cold winds, and comparatively dry, did something towards repairing the damage already inflicted on fallows, in the course of so troublesome and uncertain a season.

A considerable portion of Swedes were sown in middling order on free soils, and we notice the flea in attendance to-day. Since Monday's thunder and rain, little has been done on the land; but vegetation answers to the milder temperature, and the wind is fine and drying this afternoon.

We men of the Merse have now amongst us a working example of steam culture on Fowler's double engine system. With such a motive power, the grubber attains the rank of a practicable implement; and where the maker makes provision against breakages and loss of time by the excellence of his workmanship, his tackle must command the approval of practical men. *J. T.*

OVERSTONE GRANGE, NORTHAMPTON.—Mr. Wallis—occupying a home farm of 375 acres arable, with 28 of pasture, and also a large grazing farm at a distance—has had five years' experience of steam cultivation. The soil of the largest part of the farm is a clay loam, with a subsoil of calcareous clay—a drift clay, containing flint and other pebbles and small fragments of chalk; four large fields are of stiff clay; some of the land has clay and sand veins, which are noted for being "either all bricks or all mortar;" and a portion of the farm is of a lighter description, adapted for Turnip as well as Bean growing. There is very little stone to interfere with the progress of the implements or to grind the rope. The surface presents gentle slopes, without being steep or hilly in more than two or three fields, and the enclosures are large, having been squared and fences straightened some time before steam ploughing was adopted. In some fields an exchange of property has enabled a straight fence to be struck, in place of a most crooked boundary; and old parish bounds and the sites of grubbed-up hedges are seen across several of Mr. Wallis's fields by the big timber trees still left standing in line in the middle of green crops and stubbles. Were it not for these remnants of "the forest primeval," this farm would be splendidly laid out for steam tillage; as it is, we know from experience in similar situations, that many plough skifes must be broken in the course of a year against the huge roots of these field trees; and the necessity for going at a snail's pace when under their shadow, and shifting the ropes twice at each tree, must lose the engine and men a great deal of precious time. We observed, too, that while Mr. Wallis sides up his Thorn fences to perfection (topping, however, only in the winter, so as not to weaken the growth by cutting away too much green), many of the fences are over-crowded with timber—a state of things eminently mischievous, we should say, to the tenant, and of no earthly advantage to the proprietor, seeing that the trees are damaging one another, and the felling of one-half would both enhance the picturesque effect and promote the growth into profit of the remainder. Perhaps we may be permitted to name here the example of Lord Leicester, whose practice is to sell injurious hedge-row or outstanding timber to his tenants at below market price, with an order for immediate cutting down.

At the Leeds meeting, in 1861, Mr. Wallis purchased a Fowler 14-horse engine, cultivator, and plough, with drag harrow to work at the side; and added a "rope carrier," or light four-wheeled carriage, with reel upon it, made by Amies & Barford, of Peterborough, which he finds very handy in removals, and for taking care of the most costly wearing part of the tackle. Elaborate book-keeping has not been pursued with respect to the steam tillage, so that we can record only the experience and results as they appear in the long run. The engine is used entirely in field work, an old portable doing duty with the threshing machine, &c., and no steam culture has been undertaken off this one farm. The "road gear" of the engine has stood well; no difficulty or special delay has arisen with the anchorage, the implements, or "slack gear;" and only a very few new "clips" have been required on the drum. Between 300 and 400 acres have been grubbed or ploughed each year, say nearly 2000 acres in the five years, and the renewal of rope has amounted to only 650 yards: the remaining portion of old rope is still working, and the 650 yards of new is, in our judgment, about one-fourth worn. The consumption of rope due to the 2000 acres work would appear to be about 960 yards length, or say about 1*s.* per acre. The daily performance is 6 acres with the digger or the plough, and 12 acres with the cultivator, the coal burned being 15 cwt. per day, at 15*s.* per ton. The water is carted from a brook, or from the homestead, as most convenient.

To shift the whole machinery from one field to another generally occupies four horses and the steam hands for three hours.

On the principal part of the farm a five-course rotation of cropping is adopted, that is to say (1) Turnips, (2) Wheat, (3) Barley, (4) seeds, (5) Wheat; or else (1) Turnips, (2) Oats, (3) Wheat or Barley, (4) seeds, (5) Wheat. The steam work embraces "smashing up" all the Wheat stubble for the fallow crop or for the Barley—the preparation for roots consisting of "three times over" with the cultivator or the plough, while the seed bed for Barley is worked twice. When clean, the land is broken up by the "digger;" when any twitch has to be eradicated, the cultivator is the first tool employed. Then, further, a portion of the seeds

(layer or aftermath) is ploughed by the engine for Wheat; the remainder being ploughed, as usual, by horses. And Mr. Wallis makes admirable steam ploughing with the shallow furrow slices requisite for a Wheat seed bed by driving five 8-inch wide instead of four 10-inch wide furrows—thus obtaining the right proportional dimensions for neatly turning work only 5 inches in depth; and the drag harrow hung beside the plough reduces to tilth, without the trampling of horses hoofs. By a judicious application of steam power husbandry, the fallow break, at first starting, was cultivated only 6 or 7 inches deep; whereas now, the digger is put in 9 or 10 inches; and this cautious and sensible method of procedure has undoubtedly avoided many of the disappointments which have overtaken some adventurous steam ploughmen before they began to realise the wondrous profits they had expected.

Mr. Wallis's Turnip crops are certainly very fine, and his practice is to feed off about three-fourths—the other quarter being carted to the homestead. One field of Rape was shown us, part of which had been steam tilled and the other horse ploughed: the plant was small and somewhat "foxy" on the latter part, but very thick, high, and luxuriant on the "steamed" portion of the land. We had the pleasure of walking over "a good farm, well done;" the stubbles being strong and the whole farm remarkably clean, excepting only one "close," a little Grassy, and this is a Wheat stubble, the seed bed for the Wheat having been ploughed 5 inches deep by steam power, after one year's Rye-grass. On the four fields of clay soil green crops have been a gain entirely due to steam cultivation taking the place of bare fallow in a four-course rotation, which brings Beans and Clover every eighth year. Mr. Wallis has not greatly reduced his stock of farm horses, the 14 he used to work being now lessened by two or three.

The drainage of the farm was formerly accomplished by bundles of wood tied up and buried some 18 inches deep, and this sort of work stood (in some places) for 25 years. All is now well drained with pipes at an average depth of 4 feet, that is, varying from 3½ to 4½ feet; the old broad high ridges have been gradually lowered, and now "the water sinks away better" after the steam work than after horse ploughing. *From Mr. Clarke's Reports on Steam Cultivation in the Journal of the English Agricultural Society.*

Miscellaneous.

Birmingham Horse and Hound Show.—The entries for the approaching Horse and Hound Show, in Bingley Hall, closed on Tuesday last, and are of a very satisfactory character. For the horse prizes there will be about 250 competitors—amply sufficient to fill every portion of the hall which can be appropriated to them. In our next publication we shall be enabled to supply the details as to the various divisions; but we may in the meantime state that of hunters, especially, there will be a splendid collection. With regard to the hounds, we understand that several well-known packs will be represented. We may also take this opportunity of reminding our readers that the interest of the exhibition will not be limited to these two descriptions of animals, and that it will be rendered additionally attractive by a display of carriages, harness, saddlery, and stable fittings. The executive body will spare no efforts to render the arrangements within the hall as complete as possible; and, as the railway companies are making liberal arrangements for special trains to bring visitors from a distance, a successful result of the undertaking may be confidently anticipated.

Remarkable Cow.—A correspondent in the *Country Gentleman* gives an account of an astonishing yield of milk by an Ayrshire cow, bred and owned by Mr. S. Scammon, of Stratham, N.H. The writer of the communication from which we quote took considerable personal trouble to ascertain the facts of the case, and vouches for the correctness of the statements. The cow was "of a pale yellow colour, and girths 6 feet 3 inches." The year that she was six years old Mr. Scammon kept an "exact account" of the butter made from this remarkable cow, which amounted to 610 lb. Her milk weighed 14,540 lb.—being almost 40 lb. per day through the year, and nearly 12 lb. per week of butter through the year. Mr. Scammon gives his cow good hay during the winter, and generally 2 quarts of corn meal per day when she gives milk. In summer he gives her 4 quarts of meal per day till July, then decreases to 2 quarts, and after haying turns her out to Grass, and gives no meal. He also gives her green corn stalks in the season of them. He thinks the meal is principally useful in increasing the quality rather than the quantity of the milk. His two daughters, he says, milk this cow, "one on each side of her, with a large pail apiece."

House Sewage.—I have caught in cemented cesspools, for 20 years, the sewage of this establishment, consisting of upwards of a hundred persons, and I find its value may be computed at from 10*s.* to 12*s.* per head annually. I think, if the whole excreta of human beings be preserved, it would, if returned to the soil, reproduce the amount of vegetable food eaten by them, or at least but little less. The value of the excreta of 15 persons would not be more than 12*l.* annually. In erecting tanks, the water from sinks, which is valueless, ought to be separated and allowed to subside, and the return from waterclosets and bedroom slops alone ought to be taken into the cemented tanks. If the tanks be far from the house, a practical difficulty arises in the separation occasionally, as the water may be necessary to flush the drains. I have used for upwards of 20 years a Deane's cesspool cart, which is exceedingly rapid and easy in its action of emptying cesspools, and it costs me about 3*l.* annually to empty my cesspools. Their contents are best disposed of on a dung or rubbish heap, as they are too concentrated and potent to be applied directly to the soil, and a dilution or admixture of some kind must be used. I believe my cart is the only one in use; and as I have made some alterations in it since it was supplied to me by Messrs. Deane, of King William Street, 20 years ago, I shall be happy to explain its nature and use if needs be. I may add that the value of manure heaps is doubled by the application of sewage, as the crops of Wurzel will at once prove. In my experience the straw absorbs the urine of the horses, and not a drop of this most valuable liquid ought to be wasted. *J. D. M. Pearce, Cranfurd College, Maidenhead, Berks, in Field.*——I have used on Grass land the entire drainage of a household of about 13 persons for the last three years with great advantage to the land and very little trouble. Having at that time to rearrange the whole drainage of the premises, I constructed a cesspool to contain the sewage that might collect in three weeks, and carried every drain of house and stable into it, fixing a pump by which it could be easily emptied into a cart. I have used it during the time on 1¼ acres of land, which have had no other manure, and have been grazed and mown alternately. The character of the Grass has decidedly improved, and I have never found any evil result from spreading the sewage in dry weather, which has at times to be done, as I make a rule of emptying the tank once a fortnight. I have twice had the cesspool opened and the solid matter cleaned out. This produces wonderful effect on the Grass, and is done in frosty weather without nuisance. Four hours' work for a man and horse once a fortnight removes and spreads all the drainage we collect. I may add that, as we preserve all the rain collected from the roofs, there is nothing in the cesspool but pure sewage. *W. L., in Field.*

Reclamation from the Sea.—At the recent discussion on this subject before the Royal Agricultural Society—

Mr. HARDING said he had had considerable experience of the reclamation of lands during many years residence at King's Lynn. For 20 years he had had a considerable portion of the fen lands under his control, and had, in the capacity of contractor, executed nearly 200,000*l.* of work. His first undertaking was a sea embankment near Louth. It was at the entrance to the Humber, and there were undoubtedly different slopes there. The first portion of the bank was silt; then they came to a strong clay; and the slope varied from six to one to three to one, according to the position and the manner in which the bank was struck by the tide. On the Norfolk coast, between Cromer and Wells, there was a bank four miles long, and there the slopes were five to one, the material being of clay. In Norfolk and Lincolnshire they saw nothing of stone; for it would not do to go to so great an expense in reclaiming the land for agricultural purposes; 40*l.* per acre would never cover the expense. In 1839, he remembered, Sir John Rennie devised a plan for inclosing several hundred acres of land on the Wisbech river. It was a bold project; the proposition being to make an immense bank, and cut off the whole of the sea. The contract was undertaken for something like 60,000*l.* Every practical man who knew the Fen country said it was impossible to carry it out, because every time there was a spring-tide the large tract of land was covered with water. When the work was partly done it was found that the back water was so great that it was impossible to proceed, and the contractor was ruined. The way to do it would be to run across small embankments, which could be cast up by a tool instead of barrow work. This would divide the work into sections, and largely increase the chances of success, because the area of the waterway was gradually reduced. The land would thus be reclaimed piece by piece. The value of land depended of course a great deal upon what it had cost. Sometimes land could be brought from the sea at two or three pounds per acre. On portions of the Norfolk coast the land was very rich, while on other coasts it was very poor and miserable. On the Essex coast he knew a piece of land that was enclosed; all the coast was impregnated and poisoned by something that came from the oysters, and since the land had been enclosed millions of ant-hills had risen, costing about 3*l.* an acre every year to level them. The Grass did not grow till late in the season, and as soon as the hot weather came, the land began to crack. The consequence was that no tenant could pay his rent. In Norfolk it was different, because you got a sufficient quantity of alluvial soil to make the land pay well. Various reasons were given for this richness. His opinion was that the sea had nothing to do with it. There were two sources to which he looked: one was the matter washed out of the drains into the river, and the other was the animalculæ deposited. It was possible to achieve great results by judicious enclosure of land. Some time ago he was asked to make a certain embankment; but, as a practical man, he declined. A London engineer in the neighbourhood came forward, and, although he was told the work was impracticable, he said there was no difficulty, and undertook to do it in six weeks, at the moderate cost of between 400*l.* and 600*l.* The gentleman wished to make an earth embankment with brick-bats and faggots, and a wooden tunnel at the bottom. The work went on for 16 weeks, 4000*l.* was spent, and the first tide that came swept every particle of the bank away. He mentioned this to show that, after all, practical experience was the chief thing to guide those who attempted the reclaiming of lands. A great deal more might be done in improving our rivers. The chief thing was to train rivers: as a rule the back waters were not sufficiently concentrated to scour a deep channel. Faggots, if used, might be placed at a slope of about one to one; and it was astonishing how well they stood.

Notices to Correspondents.

DISEASED SKIN: *Bull Calf.* A correspondent writes as follows:—I have a valuable bull calf, which was affected by a heat or itch in its skin a few days after birth. I have rubbed it all over twice with grease and powdered sulphur mixed, but this does not seem to kill the affection. The hair comes off in large patches, and now a scurf skin is coming off. The calf is now seven weeks old, and although thriving, the constant itching must keep it back, and I know it is not vermin. [The irritation of the skin may arise from the growth of a vegetable parasite. Avoid all greasy compounds, which will aggravate the evil. Wash the calf with warm water containing 1 ounce of soft soap to the gallon, and immediately afterwards sponge the skin with a lotion composed of 2 ounces of carbolic acid (the purest you can obtain) in one gallon of warm soap and water. The same solution which is to be used for the washing will do. If the calf is kept in, thoroughly clean out the shed, and give the animal a supply of fresh litter. Repeat the washing and sponging two or three times, at intervals of a few days.]

OATS: *R. S.* Thirty-eight pounds a bushel indicates a very poor and chaffy sample. Oats will generally weigh 41 lb. or 42 lb. a bushel; and a very good sample will weigh 44 lb. or 45 lb. The so-called Canadian Oats sometimes weigh 46 lb. or 48 lb.

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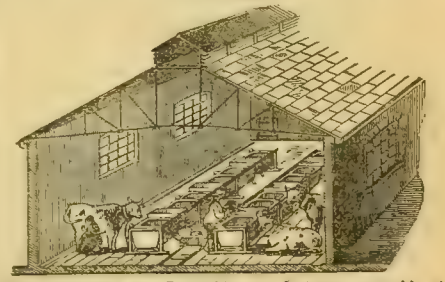
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"I have used your Black Varnish for park palings and consider it to be the most durable and best thing of the kind I have ever seen. I think it might be applied with still greater advantage to iron fencing instead of paint, and it is my intention so to employ it in future."
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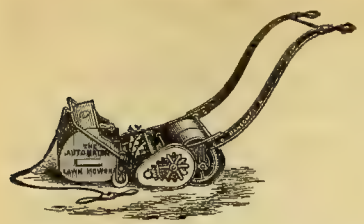
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From Lord Otho FITZGERALD, *West Park, Salisbury.*
"SIR,—You are welcome to make use of my letter recommending your Water Barrow. I find it of great use, and stronger, better, lighter, and more serviceable than one I had made in the neighbourhood, the carriage alone of which, without the barrel, cost me £3 10*s.* I unfortunately ordered it before I saw your advertisement.
—I am, yours obediently, "O. FITZGERALD."
"To Mr. W. S. BOULTON."

From Thos. INGLE, Esq., *M.D., Emsworth, Hants, June* 24, 1866.
"SIR,—The Swing Water Barrow is in every respect a most admirable improvement on all I have hitherto used in my Gardens. All parties who have seen it, Gentlemen as well as Gardeners, have bestowed upon it their unqualified approval, and several said they would order them of you.—Yours truly, "THOS. INGLE, M.D."
"To Mr. W. S. BOULTON."
Rose Lane Iron and Wire Works, Norwich.



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The peculiarities and advantages of this PAINT are that it will stand extreme Heat and Damp, and is not affected by Acid, Sea Water, Sulphuretted Hydrogen, or Ammonia. It is equally well adapted for Iron, Wood, Brick, or Cement. Every Shade of Colour ground to order. The Creamy White and Bright Stone will retain the soft delicate shades, regardless of the fumes of Gases. It has no smell, and there is an entire absence of deleterious effect.

WARNER'S ANTITERMITE COMPOSITION

Is suitable for Felt Roofing, and is a cheap Coating for Iron Work, and preserves Wood in India from the ravages of the White Ant.

Price 1s. 3d. per Gallon.

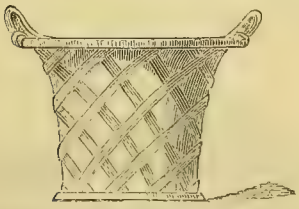
17, LAURENCE POUNTNEY LANE, CANNON STREET, LONDON, E.C.

JAMES PHILLIPS & CO.,

HORTICULTURAL GLASS MERCHANTS,

180, BISHOPSGATE STREET WITHOUT, LONDON, E.C.

JAMES PHILLIPS AND CO. HAVE THE PLEASURE TO SUBMIT THE FOLLOWING DESIGNS AND PRICES. THE FLOWER BASKETS ARE MADE OF FINE CLAY, AND SUITABLE FOR THE GARDEN, CONSERVATORY, OR SITTING-ROOM.



No. 1.

FLOWER BASKETS.

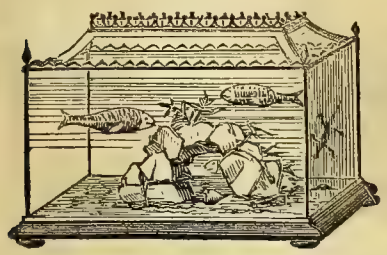
	Each.—s.	d.		Each.—s.	d.
8 inches diameter ..	2	0	15 inches diameter ..	4	6
9 ,, ,, ..	2	3	16 ,, ,, ..	5	0
10 ,, ,, ..	2	6	17 ,, ,, ..	5	6
11 ,, ,, ..	2	9	18 ,, ,, ..	6	6
12 ,, ,, ..	3	0	19 ,, ,, ..	7	6
13 ,, ,, ..	3	3	20 ,, ,, ..	8	6
14 ,, ,, ..	3	9	21 ,, ,, ..	10	0



No. 2.

FLOWER BASKETS.

	Each.—s.	d.		Each.—s.	d.
7 inch	1	6	14 inch	3	3
8 ,, ...	1	9	15 ,, ...	3	6
9 ,, ...	2	0	16 ,, ...	3	9
10 ,, ...	2	3	17 ,, ...	4	0
11 ,, ...	2	6	18 ,, ...	4	6
12 ,, ...	2	9	19 ,, ...	5	0
13 ,, ...	3	0	20 ,, ...	5	6

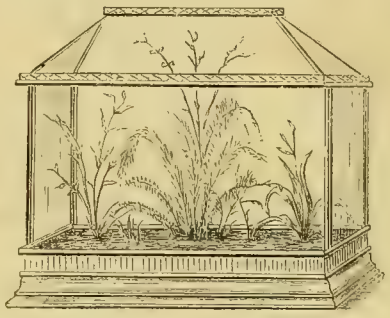


ZINC AQUARIA.

As per Sketch, Glazed with stout Sheet Glass, and Slate Bottoms.

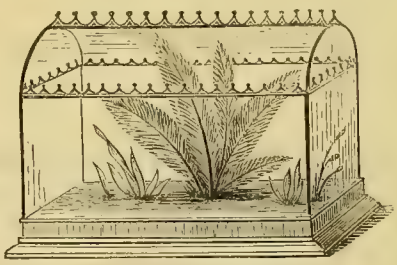
	Each.—£	s.	d.		Each.—£	s.	d.
12 inches long ..	0	18	0	18 inches long ..	1	7	0
14 ,, ,, ..	1	1	0	20 ,, ,, ..	1	10	0
16 ,, ,, ..	1	4	0	24 ,, ,, ..	1	16	0

Larger or Smaller Sizes in proportion.



FERN CASES.

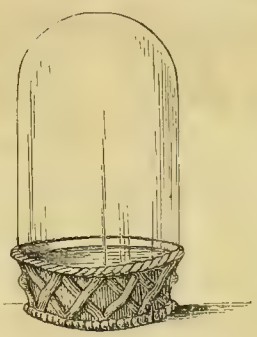
	Each.—£	s.	d.		Each.—£	s.	d.
12 inches ..	1	0	0	22 inches ..	1	18	0
14 ,, ..	1	3	0	24 ,, ..	2	2	0
16 ,, ..	1	6	0	26 ,, ..	2	10	0
18 ,, ..	1	10	0	28 ,, ..	3	0	0
20 ,, ..	1	14	0	30 ,, ..	3	10	0



FERN CASES

With Circular Tops, 3s. extra on above prices.

GLASS FERN SHADES and STANDS.



No. 3.

	Each.—s.	d.
6 inches dia. ..	3	0
7 ,, ..	3	6
8 ,, ..	4	0
9 ,, ..	4	6
10 ,, ..	5	6
11 ,, ..	6	6
12 ,, ..	8	6
13 ,, ..	10	6
14 ,, ..	13	6
15 ,, ..	17	6
16 ,, ..	22	6



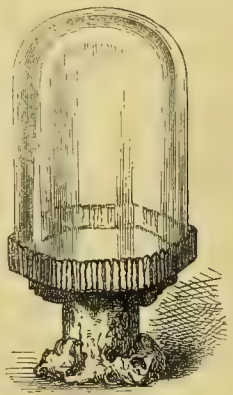
BEST ROUND AQUARIA,

With Ebony Stands.

	Each.—s.	d.		Each.—s.	d.
12 inches	5	0	17 inches	12	0
13 ,, ...	6	0	18 ,, ...	13	0
14 ,, ...	8	0	19 ,, ...	14	0
15 ,, ...	9	0	20 ,, ...	15	0
16 ,, ...	10	0	Syphons, 1s. 6d		

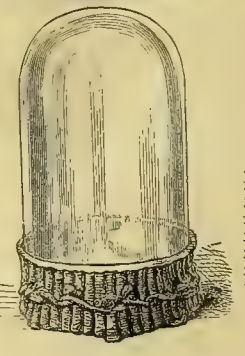
GLASS FERN SHADES.

With Rustic Stands.



No. 1.

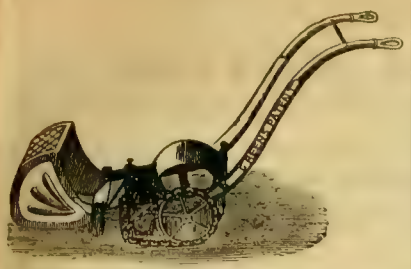
	Each.—s.	d.
8 inches dia. ..	5	0
9 ,, ..	6	6
10 ,, ..	8	0
11 ,, ..	9	6
12 ,, ..	12	6



No. 2.

	Each.—£	s.	d.
5 inches dia. ..	0	2	6
6 ,, ..	0	3	0
7 ,, ..	0	4	0
8 ,, ..	0	4	6
9 ,, ..	0	5	6
10 ,, ..	0	7	6
11 ,, ..	0	9	6
12 ,, ..	0	12	6
13 ,, ..	0	16	0
14 ,, ..	1	0	0
15 ,, ..	1	6	0
16 ,, ..	1	13	0

Glass Shades for Ornaments, Propagating Glasses, Milk Pans, Cucumber Tubes, Glass for Horticultural Purposes, Paints of all Shades, and various Miscellaneous Articles; see separate Lists.



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GREEN'S PATENT. | SAMUELSON'S PATENT.
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ORNAMENTAL WIRE WORK.

HEATING APPARATUS.

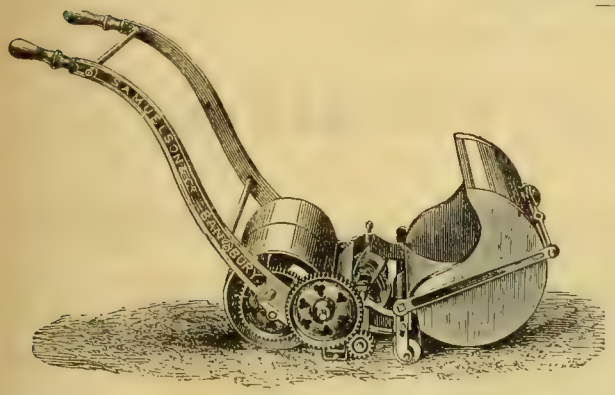
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SAMUELSON & CO.'S

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EVERY MACHINE WARRANTED.



PRICES.

Delivered Free to any Railway Station in Great Britain.

Cutting 12 inches wide	£4 10 0
Cutting 14 inches wide	5 5 0
Cutting 16 inches wide	6 0 0
Cutting 19 inches wide	6 10 0
Cutting 22 inches wide	7 10 0
Cutting 25 inches wide	12 0 0
Cutting 30 inches wide	15 0 0
Cutting 36 inches wide	18 0 0

Great improvements have been made in these Machines during the last few years, in regard to all those small but important points of superiority which the practical working of a Lawn Mower suggests; while for elegance of appearance, lightness of draft, and efficiency in working they cannot be excelled. They possess the following advantages:—

1st. Motion is given to the Cutting Apparatus by toothed gearing, which experience has proved to be by far the best method of driving.

2d, The whole of the Driving Wheels are on one side of the Machine, a point of great importance in preventing damage to Shrubs and Flowers, when mowing round the edges of beds.

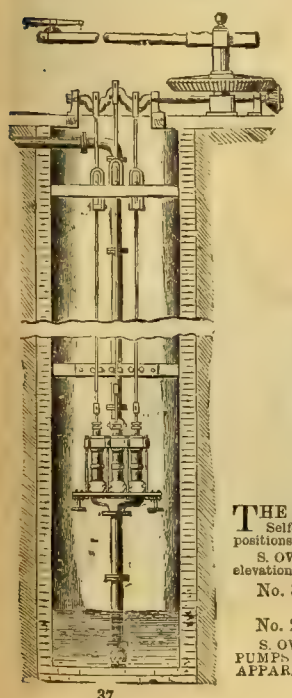
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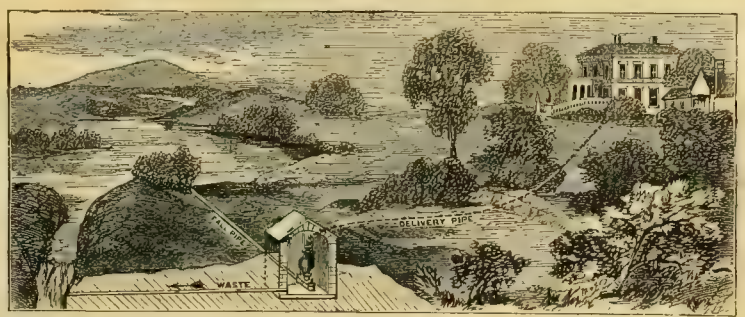
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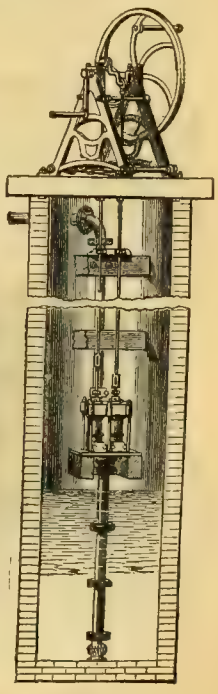
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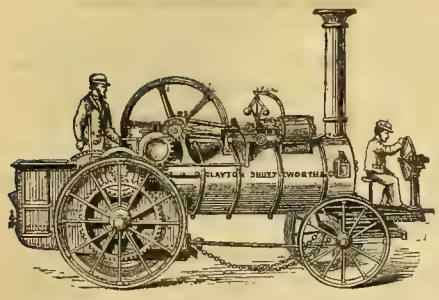
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With this compact, portable, and generally useful Engine, one man will throw from 15 to 18 gallons of water per minute to a height of 50 feet. All its working parts are of Brass, the Barrow of Wrought Iron; easy access to the valves is gained, and the workmanship throughout is substantial. Not only will it be found most useful in cases of Fire, wherever a supply of water can be obtained, but also for Watering Lawns or Fruit Trees.



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"I remain, Gentlemen,
"Yours obediently,
"EDWIN ROSE,
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Price on Barrow, with Branch Pipe, Spreader, Unions, and Suction Rose ... ... £6.

1¼-in. 2-ply Rubber Suction Pipe, per foot, 2s. 2d. 1¼-in. ditto Delivery Hose, 1s. 4d.



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WITH REGISTERED SPREADERS.

These Engines are much improved in construction, are less likely to get out of order, and more easily repaired than others.

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10 Gallons	..	£2	19	0	24 Gallons	..	£4 19 0
16 Gallons	..	3	14	0	28 Gallons	..	5 10 0

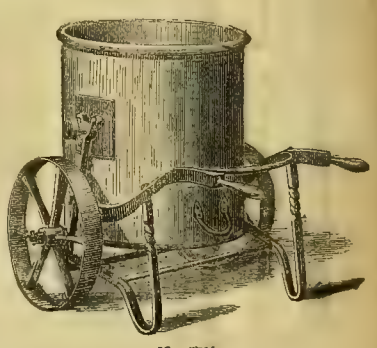
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,, 38	,,	,,	24	,,	..	..	3	17 0
,, 50*	,,	,,	24	,,	..	..	5	12 0

* This is an extra strong article, with cross handle for two men, suitable for Nursery Grounds, &c.



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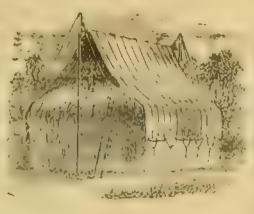
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INVALUABLE IN HOSPITALS, GAOLS, UNIONS, MILLS, ETC.
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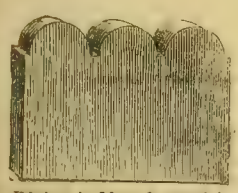
TERRA COTTA AND STONEWARE GARDEN EDGING,

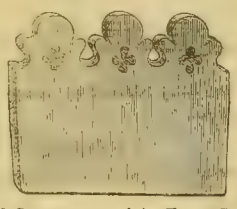
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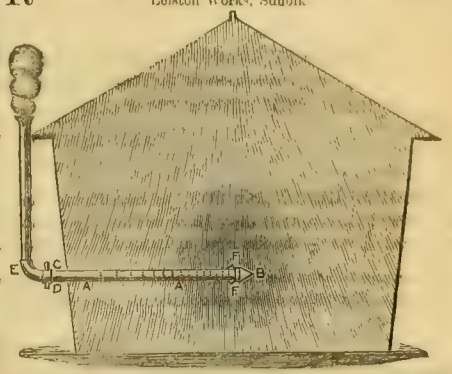
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Patent Rick Ventilator, Manufactured by
RICHARD GARRETT AND SONS,
Leiston Works, Suffolk.



The above represents a Section of a Heated Hay Stack, showing the Patent Ventilating Apparatus in operation.
This Apparatus will be found a complete and perfect means of detecting and promptly reducing Heat in Corn and Hay Stacks
Price £1 11s. 6d. each.
Full description forwarded on application to RICHARD GARRETT & SONS, Leiston Works, Suffolk (Sole Manufacturers).

MR. A. CHANDLER (of the late Firm of CHANDLER & SONS, Nurserymen, Vauxhall), HORTICULTURAL AGENT and VALUER. N.B. Horticultural Exhibitions attended, as Judge.
Address, 308, Fulham Road, S.W.

JOHN GIBSON, JUN., begs to announce that he is prepared to Furnish PLANS and ESTIMATES for LAYING OUT GROUND attached to Mansions and Villa or other Residences, or for the FORMATION of PUBLIC PARKS or GARDENS and to carry out the same by Contract or otherwise.
Address MR. JOHN GIBSON, jun., Surrey Lane, Battersea, S.W.

GEORGE F. MORRIS (of the Firm of PROTHEROE & MORRIS) undertakes SALES and VALUATIONS of FREEHOLD LANDED ESTATES, Leasehold and Reversionary Property of every description, Farming and Market Garden Produce, Household Furniture, Stock in Trade, &c.
Auction and Estate Agency Office, The Limes, Leytonstone, Essex.

To the Seed Trade.

WANTED, a PARTNERSHIP in an Established Business, by a Young Man with some Capital, and who has had seven years' experience.—S. B., *Gardeners' Chronicle* Office, W.C.

FOR DISPOSAL, a First-class NURSERY and SEED BUSINESS; or the present Proprietor would accept of a WORKING PARTNER with a Capital of not less than £1500.
Apply by letter to E., Messrs. Hurst & Son, 6, Leadenhall Street, London, E.C.

Rose Business to be Disposed of.
DEVON ROSERY, TORQUAY.

HENRY CURTIS, in consequence of nearly total loss of sight, being unable to carry on the above, wishes to meet with an offer for the STOCK, LEASE of 16 years, and GOODWILL of the same.
The Rosery, consisting of 5 acres, is delightfully and most favourably situated, and close to the Torquay Railway Station.
Address, HENRY CURTIS, Devon Rosery, Torquay.

To Florists, &c.

FOR SALE, the LEASE of a FLORIST'S SHOP and RETAIL BUSINESS—Large, handsome, and convenient Premises; situation one of the best in the West-end of London, in a wealthy and improving neighbourhood. To Growers would be invaluable for the Exhibition and Sale of Plants, and every branch in the Trade.
Apply to Messrs. PROTHEROE & MORRIS, Nurserymen and Horticultural Agents, Leytonstone.

Sales by Auction.

Imported Orchids.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on TUESDAY, June 11, at half-past 12 o'Clock precisely, Importations of ORCHIDS from New Grenada, Costa Rica, and Moulmein including many choice species.
On view the Morning of Sale, and Catalogues had.

Whitton, near Hounslow.
IMPORTANT SALE OF GREENHOUSE AND BEDDING PLANTS.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. Ferguson to SELL by AUCTION on the Premises, Whitton Nursery a short distance from Hounslow Station, on TUESDAY, June 11, at 12 o'Clock precisely, about 25,000 GREENHOUSE and BEDDING PLANTS, including large quantities of Specimen and other Pelargoniums of the choicest varieties, fine Crassulas, thousands of well-grown Zonal and other Geraniums about 7000 Calceolaria aurea, Canariensis and Kayli, with the usual Miscellaneous assortment of Plants for Bedding; Roses in pots, &c.
May be viewed prior to the Sale; Catalogues had on the Premises, and of the Auctioneers and Valuers, American Nurseries, Leytonstone, N.E.

Tottenham—Highly Important Sale.

MESSRS. PROTHEROE AND MORRIS are instructed by R. A. Simmonds, Esq., to SELL by AUCTION, without reserve, on the Premises, Grove Villa, Tottenham, on SATURDAY, June 15, at 12 o'Clock precisely, the whole of his choice Collection of GREENHOUSE and STOVE PLANTS, including some handsome specimens of Ericas, Azalea indica, Epacris, Camellias, Hydrangeas, Aphelexis, Ixias, Pelargoniums, Epiphyllum, Fuchsias, Begonias, Caladiums, Poinsettias, Gloxinias, Orchids, &c.; about 10,000 Bedding Plants, comprising all the best varieties of Scarlet and Variegated Geraniums, with the usual Miscellaneous assortment; splendid Variegated Aloes, collection of Choice Bulbs, Four Pairs of Terra Cotta Vases, and other effects.
May be viewed two days prior to the Sale. Catalogues may be had of the Auctioneers and Valuers, American Nurseries, Leytonstone.

Important Sale of Choice Plants.

MESSRS. PROTHEROE AND MORRIS have received instructions to offer to PUBLIC COMPETITION by AUCTION, at the City Rooms, 38, Gracechurch Street, on TUESDAY, June 18, at 12 o'Clock, a very valuable Assortment of fine SPECIMEN PLANTS, remarkably well grown, many of which are well adapted for exhibition, including some choice Ferns, Orchids, and fine foliage Plants, Azalea indica, Ericas, fine plants of the grand new Lilium auratum in pots, just coming in Flower; also some very thriving half specimens of Ixora, Dipladenia, Pimelia, Kalosanthos, Phænocoma, Eriostemon, Dracæna, and other desirable Stove and Greenhouse Plants, all in the best possible health, and with ordinary culture will soon become magnificent exhibition specimens.
May be viewed the Morning of Sale. Catalogues may be had at the Rooms as above, and of the Auctioneers and Valuers, Leytonstone, Essex, N.E.

GREEN'S PATENT SILENS MESSOR,

OR

NOISELESS LAWN MOWING, ROLLING, and COLLECTING MACHINES.

PATRONIZED BY

HER MOST GRACIOUS MAJESTY THE QUEEN
ON TWENTY-NINE DIFFERENT OCCASIONS.
H.R.H. THE PRINCE OF WALES.

THE KING OF THE BELGIANS.
THE EMPEROR OF THE FRENCH.
THE EMPEROR OF RUSSIA.

AND MOST OF THE NOBILITY, CLERGY, AND GENTRY IN THE UNITED KINGDOM.

THOMAS GREEN AND SON, in introducing their PATENT LAWN MOWERS for the present season, beg to state that they have no Novelties to report. The fact i that after the severe tests their Machines have been subjected to since they added their latest improvements, they have been found to meet all the requirements for which the are intended, viz.:—the KEEPING of LAWNS in the HIGHEST STATE of PERFECTION.

They are the simplest in construction, least liable to get out of order, and can be worked with far greater ease than any other Lawn Mower extant; and in proof of thei superiority, 39,000 have been sold since the year 1856.

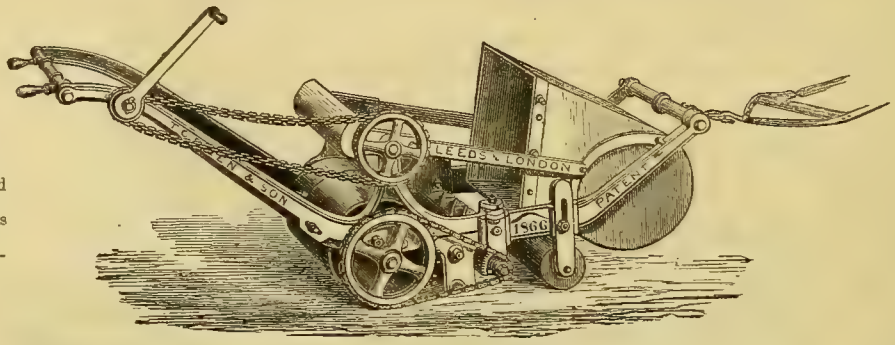
THEY ARE THE ONLY MACHINES IN CONSTANT USE AT

THE ROYAL HORTICULTURAL SOCIETY'S GARDENS, SOUTH KENSINGTON
THE ROYAL BOTANIC GARDENS, REGENT'S PARK
THE CRYSTAL PALACE COMPANY'S GARDENS, SYDENHAM
BUCKINGHAM PALACE GARDENS
MARLBOROUGH HOUSE
THE HYDE PARK GARDENS
THE WINTER PALACE GARDENS, DUBLIN
THE DUBLIN BOTANIC GARDENS
THE LIVERPOOL BOTANIC GARDENS
THE LEEDS ROYAL PARK
THE HULL BOTANIC GARDENS
THE BOTANIC GARDENS, BRUSSELS
THE SUNDERLAND PARK
THE PRESTON PARK

AND IN MOST OF THE PRINCIPAL PARKS, SQUARES, ETC., IN THE UNITED KINGDOM.

HORSE, PONY, AND DONKEY MACHINE.

GREEN'S
PATENT
LAWN MOWERS
have proved to be the best, and carried off every Prize that has been given in all cases of competition.



T. GREEN & SON
warrant every Machine to giv entire satisfaction, and if n approved of can be returne unconditionally.

PRICES of HORSE, PONY, and DONKEY MACHINES, including Patent Self-delivery Box; Cross Stay complete; suitable for attaching to ordinary Chain Traces or Gig Harness.

PONY AND DONKEY MACHINES.

To Cut 26 inches	£13	0	0	*Leather Boots for Donkey*, 18*s*. *Leather Boots for Pony*, 22*s*.
„ 28 „	15	0	0	
„ 30 „	17	0	0	

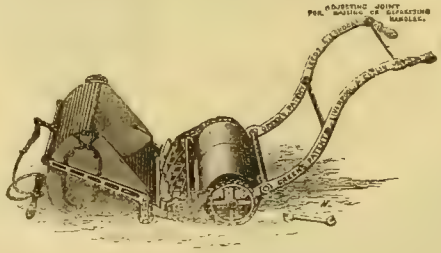
HORSE MACHINES.

To Cut 30 inches	£21	0	0	*Leather Boots for Horse*, 26*s*.
„ 36 „	24	0	0	
„ 42 „	27	0	0	
„ 48 „	30	0	0	

Both the Horse, Pony, Donkey, and Hand Machines possess (over all other Makers) the advantage of Self-sharpening. The cutters being steel on each side, when the become dull or blunt by running one way round the cylinder, can be reversed again and again, bringing the opposite edge of the cutter against the bottom blade, when th Machine will cut equal to new. Arrangements are made that the cylinder can be reversed, by any inexperienced person, in two or three minutes.

HAND MACHINES.

To Cut 10 inches ..	£3	10	0	*Suitable for a Lady*
„ 12 „ ..	4	10	0	„ „
„ 14 „ ..	5	10	0	*Suitable for One Person*
„ 16 „ ..	6	10	0	„ „



To Cut 18 inches ..	£7	10	0	*Suitable for One Person*
„ 20 „ ..	8	0	0	*Suitable for Two Person*
„ 22 „ ..	8	10	0	„ „
„ 24 „ ..	9	0		„ „

Packing Cases are charged at the following low rates, viz.:—for the 10 and 12-inch Machine, 3*s*.; 14 and 16-inch, 4*s*.; 18 and 20-inch, 5*s*.; 22 and 24-inch, 6*s*. Partie providing themselves with Lawn Mowers are recommended to purchase the cases in which to stow them away, when not in use, to prevent them from getting damaged; returned, two-thirds will be allowed for them.

The above MACHINES are made from the best materials, and of superior workmanship; are delivered Carriage Free to all the principal Railway Stations and Shipping Por in England.

Every Machine is warranted to give entire satisfaction, and if not approved of, can be returned unconditionally.

T. G. AND SON have to state that the demand for their LAWN MOWERS this season has been unprecedented, which is a proof of the high estimation in which the are held. The 3000 Machines they had in stock at the commencement of the season are now materially reduced, still with their present facilities they are prepared t execute Orders on the day they are received.

Having taken very extensive Premises in London, we are in a position to do all kinds of Repairs there, as well as at our Leeds Establishment.

THOMAS GREEN AND SON, SMITHFIELD IRON WORKS, LEEDS;

and 54 and 55, BLACKFRIARS ROAD, LONDON, S.

Editorial Communications should be addressed to "The Editor;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
Printed by JAMES MATTHEWS, at the Office of Messrs. BRADBURY, EVANS, & Co., Lombard Street, Precinct of Whitefriars, City of London, in the Co. of Middlesex, and Published by the said JAMES MATTHEWS, at the Office, No. 41, Wellington Street, Parish of St. Paul's, Covent Garden, in the said County.—SATURDAY, June 8, 1867.

THE GARDENERS' CHRONICLE

AND

AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.

No. 24.—1867.] SATURDAY, JUNE 15. {Price Fivepence. {Stamped Edition, 6d.

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ROYAL HORTICULTURAL SOCIETY, SOUTH KENSINGTON, W.

NOTICE.—A MEETING of the FRUIT and FLORAL COMMITTEES will be HELD on TUESDAY NEXT, June 18, at 1 for half-past precisely. Sir R. J. Murchison will take the Chair at 3. LECTURE on LÆLIA MAJALIS (a plant of which will be exhibited in full flower) by James Bateman, Esq., F.R.S., &c.

Band every Tuesday to June 30, from 4 o'clock.

ROYAL HORTICULTURAL SOCIETY, SOUTH KENSINGTON, W.

The GREAT ROSE SHOW will be HELD on TUESDAY, July 2. Band of the Scots Fusilier Guards from 4 o'Clock. Admission by Tickets purchased before the 2d, Fellows' Friends, 5s. 6d.; Public, 5s.; or on the day, 7s. 6d.

ROYAL HORTICULTURAL SOCIETY, SOUTH KENSINGTON, W.

ERRATA IN PRIZE LIST OF GREAT FLOWER SHOW.

Class 7.—6 NEW ROSES, Lot sent out previous to 1864-65.
1st Prize, Messrs. Paul & Son, Old Nurseries, Cheshunt, £3.
2d Prize, Mr. W. Paul, Paul's Nurseries, Waltham Cross, £2.

ROYAL BOTANIC SOCIETY'S GARDENS, Regent's Park.—WEDNESDAY NEXT, June 19, EXHIBITION of PLANTS, FLOWERS, and FRUIT. Tickets to be obtained only at the Gardens; and of the Society's Clerk, at Austin's Ticket Office, St. James's Hall; by Vouchers from Fellows of the Society, price 5s., or on the day of the Exhibition, 7s. 6d. each. Gates open at 2 o'Clock. Military Bands will play from 2 to 7 o'clock.

CRYSTAL PALACE.—ROSE SHOW will be held on SATURDAY, June 29. Schedules, with List of Prizes, on application to I. Wilkinson, Superintendent.

THE BRISTOL, CLIFTON, and WEST of ENGLAND ROSE SHOW, at the Zoological Gardens, Clifton, TUESDAY, June 25. Schedules to be obtained on application to the Secretary, at the Gardens. N.B.—All Entries to be on Saturday, May 23.

ROYAL PAVILION, BRIGHTON.—ANNUAL GRAND HORTICULFURAL and FLORICULTURAL SHOW, June 26 and 27, will be HELD in the splendid suite of Rooms and Eastern Lawn. Schedules of E. Spary, Queen's Graperies; or the Secretary, 96, St. James's Street, Brighton.
June 14. Edward Carpenter, Secretary.

BIRMINGHAM ROSE SHOW, JULY 4 and 5.—For Prize Lists, apply to Mr. A. Forrest, Secretary, Cherry Street, Birmingham. Entries Close June 29.

Royal Botanic Gardens, Regent's Park.

JOHN WATERER'S display of Hardy, Scarlet, and other RHODODENDRONS (the only one in London) is NOW in FINE BLOOM at the above Gardens, and will continue in great perfection throughout the month of June.

☞ The Scarlet and White RHODODENDRON clumps, also the large Single Plants, which bloomed and were so much admired at Rotten Row last year, were supplied by
John Waterer, American Nursery, Bagshot, Surrey.

THE ASSOCIATION of SURREY NURSERYMEN.
Temporary Offices, East Brixton.
The Committee earnestly invite the CO-OPERATION of the TRADE, irrespective of Locality.
A Copy of the Rules and every information to be obtained of Charles Young, Hon. Sec., Balham Hill Nursery, S.

Pines.

T. J. BOOTH offers clean, well-rooted Suckers of BLACK JAMAICA PINES. Any one who will take the lot, about 150, may have them cheap. Price on application.
Rainhill Nursery, Rainhill, Lancashire.

Vines, Extra Strong from Eyes.

JOHN KELLETT begs to announce that he has a large and fine stock of all the leading sorts fit for immediate Planting. Also all the best varieties of ROSES, in Pots.
Wellington Nursery, Heaton Chapel; and Green Lane Nurseries, Heaton Norris, Stockport.

Orchard-house Trees Fruiting in Pots.

PEACHES, NECTARINES, APRICOTS, CHERRIES, PLUMS, PEARS, APPLES, VINES, and FIGS.
Richard Smith, Nurseryman and Seed Merchant, Worcester.

Highly Cultivated and Regularly Transplanted Nursery Stock.

EIGHTY ACRES of the above, consisting chiefly of FRUIT TREES, ROSES, EVERGREENS, and ORNAMENTAL TREES, which for general excellence are unsurpassed.
Thomas Warner, Leicester Abbey Nurseries.

LILIUM AURATUM.—Large Consignment just received, 2s. 6d., 3s. 6d., 5s. 6d., and 7s. 6d. per Root. Extra large selected Bulbs, 10s. 6d., 12s. 6d., 15s., & 21s.
Barr & Sugden, Seed, Bulb, and Plant Merchants, 12, King Street, Covent Garden, W.C.

Retinospora filifera.

JOHN STANDISH is the holder of the stock of the above most distinct and beautiful weeping CONIFERA. It is of a pale glaucous green, with slender thread-like branches a foot long, which hang in the most graceful manner, and altogether the most distinct weeping plant ever offered to the Public. It is also perfectly hardy. Strong Plants, now ready, 31s. 6d. each.
Royal Nursery, Ascot.

Novelties.

WM. PAUL (Son and Successor to the late A. Paul) respectfully solicits Orders for the NEW and FIRST-CLASS ROSES and BEDDING GERANIUMS, &c., advertised at length in this Paper in May last.
Paul's Nurseries, Waltham Cross, London, N.

MRS. POLLOCK GERANIUMS.—Strong established Plants hardened in the open air, 2 guineas per 100, 6s. per doz.
Mantle & Sons, The Nurseries, Bristol.

MRS. POLLOCK GERANIUMS, 7s. and 9s. per doz. VERBENAS, GERANIUMS, CALCEOLARIAS UCHSIAS, LOBELIAS, &c., £1 per 100; 50 for 10s. 6d.
DESCRIPTIVE PRICED CATALOGUE free on application.
W. Hooper, New Wandsworth, S.W.

New Zealand Nursery, St. Alban's, Herts.

INTENDING PURCHASERS of TRICOLOR PELARGONIUMS will do well to see J. Watson's beautiful Tricolors MISS WATSON and MRS. DIX, previous to making their purchases. For fine foliage, excellent constitution, free growth, and brilliancy of colouring they are unrivalled. They have received two First-class Certificates. Plants of Miss Watson in August, £2 2s. each; Mrs. Dix in May, 1868, 31s. 6d. each.

TRICOLOR and QUADRICOLOR GERANIUMS.

MRS. POLLOCK, 6s. to 12s. p. doz.	SUNSET, 15s. to 18s. per dozen
ITALIA UNITA, 18s. to 30s. do.	QUADRICOLOR, 12s. to 18s. do.

Cheaper per 100.
James Dickson & Sons offer several thousands of the above; also a few extra sized Plants.
Newton Nurseries, Chester.

SUPERB VARIEGATED GERANIUMS.

MRS. BENYON	BEAUTY of OULTON
BICOLOR SPLENDENS	THE COUNTESS
GOLD PHEASANT	MRS. LONGFIELD
GLOWWORM	YELLOW BELT
LUNA	LITTLE PET
TWILIGHT	ITALIA UNITA

Strong plants of the above set 15s. Package included.
Casson & Son, Gravel Walk Nursery, Peterborough.

CHOICE VARIEGATED GERANIUMS.—The following 12 distinct Varieties, in good strong Plants, will be sent on receipt of Post-office Order for 12s.

LUNA	ITALIA UNITA
SUNSET	QUEEN of QUEENS
MRS. BENYON	QUADRICOLOR VARIEGATA
VIRGIN QUEEN	YELLOW BELT
STELLA VARIEGATA	MISS KINGSBURY
MRS. POLLOCK	BIRD of PARADISE

Saltmarsh & Son, Moulsham Nurseries, Chelmsford.

GLADIOLI BULBS, for Summer, Autumn, and Winter Flowering, 2s. 6d., 3s. 6d., 5s. 6d., 7s. 6d., 9s., and 12s. per dozen. 10s. 6d., 15s., 21s., 25s. to 100s. per 100.
Barr & Sugden, Seed, Bulb, and Plant Merchants, 12, King Street, Covent Garden, W.C.

To the Trade.

ARCHIBALD HENDERSON has a fine lot of SOLANUMS, of sorts, so beautiful for decorative purposes at Christmas time. Prices on application per 100 or 1000.
Sion Nursery, Thornton Heath; and at the East College Grounds, North End, Croydon.

NEW ROSES for 1867.—Strong Plants of all the best NEW ROSES now ready.
DESCRIPTIVE LIST, with prices, on application.
John Cranston, King's Acre Nurseries, near Hereford.

CULTURAL DIRECTIONS for the ROSE. Second Edition. By John Cranston, King's Acre Nurseries near Hereford. Free by post from the Author for 20 stamps.

Calceolaria, Cineraria, Primula fimbriata.

SUTTON and SONS can supply NEW SEED of the above, saved from choicest flowers, in packets, 1s., 2s. 6d., and 5s. each, post free.
Royal Berks Seed Establishment, Reading.

DOBSON'S STRAIN of PRIZE CALCEOLARIA, CINERARIA, and PRIMULA, the finest in Cultivation.

☞ **For Present Sowing.**

DOBSON'S INTERNATIONAL, ROYAL HORTICULTURAL, ROYAL BOTANIC, CRYSTAL PALACE, and KINGSTON PRIZE and UNEQUALLED HYBRIDISED CALCEOLARIA now ready, in Sealed Packets, with full Directions for Sowing and Growing, 1s. 6d., 2s. 6d., 3s. 6d., and 5s.
Dobson & Sons, Seedsmen, Isleworth, London, W.

Prize Cineraria Seed.

DOBSON'S UNEQUALLED STRAIN, which has taken 50 First Prizes in six years, is now ready for sending out. Fine new seed, in 1s., 2s. 6d., and 5s. packets.
Dobson & Sons, Seedsmen, Isleworth, London, W.

Extra Fine Fringed Primulas.

DOBSON'S CELEBRATED STRAIN, that has stood a ten years' test, is now ready for sending out in 1s., 2s. 6d., and 5s. packets. The quality may be depended upon.
Dobson & Sons, Seedsmen, Isleworth, London, W.

WILLIAMS' SUPERB STRAIN of PRIMULA. See large Advertisement.

PRIMULA SINENSIS FIMBRIATA.—A most superb strain, and cannot be surpassed, 6 varieties, mixed, 1s. 6d. & 2s. 6d. per packet. CALCEOLARIA and CINERARIA, extra, 1s. & 2s. 6d.
J. Scott, The Seed Stores, Yeovil, Somerset.

Russell's Pyramid Primula.
The Finest Strain in Existence.

GEORGE CLARKE has New SEED of the above unequalled varieties, 2s. 6d. per packet; also the Fern-leaved kinds, 2s. 6d.; Kermesina (scarlet), 2s. 6d.; The Fairy (a lavender colour) 1s. All of the best quality. Now is the time to sow for strong early plants.
Nursery, Streatham Place, Brixton Hill, S.; and Mottingham, Kent, S.E.

TO BE SOLD, FRUIT TREES (First Prize at the Crystal Palace two years in succession).—An opportunity seldom to be met with now offers itself to buyers of Peach, Nectarine, Apricot, Plum, Pear, and Fig Trees, well laden with fruit, in pots; the above, 120 in number, being offered for Sale, a bargain, in consequence of removal. A visit to view them will amply repay all those interested in the same.
John Vertigan, Gardener to C. Lucas, Esq., Sister House, Clapham Common, S.

Improvement of Grass Lands, at from 5s. to 10s. per acre.

SUTTON'S RENOVATING MIXTURE should be Sown after the Hay is carried. 6 to 12lb. per acre.
Sutton & Sons, Seed Growers, Reading.

King of Swedes.

SUTTON and SONS can supply TRUE SEED of the above excellent SWEDE at 1s. per lb., or cheaper by the bushel. Carriage free.
Royal Berkshire Seed Establishment, Reading.

FARM SEEDS.—All the best kinds of MANGEL WURZEL, SWEDE TURNIP, and other Farm Seeds of finest quality on moderate terms.
PRICED LISTS on application to
Richard Smith, Seed Merchant, Worcester.

SWEDE SEED.—The WORCESTERSHIRE SWEDE, NEW SEED of this excellent kind at 10d. per lb. Cheaper by the cwt. or bushel.
Richard Smith, Seed Merchant, Worcester.

To Farmers, Gardeners, and Others.

FINE DRUMHEAD CABBAGE PLANTS, 3s. per 1000.
Various CULINARY PLANTS also on offer.
Frederick Gee, Seed Merchant and Grower, Biggleswade, Beds.

To the Trade and Others.

GENUINE NEW RAPE or COLE SEED. Fine sample. For sample and prices apply to
Frederick Gee, Seed Merchant and Grower, Biggleswade, Beds.

The Forwardest Pea is Sutton's Ringleader.

SUTTON and SONS had the honour of introducing this unrivalled EARLY PEA in the year 1865, and after careful trials of it and all of its competitors, they have no hesitation in stating that it is still forwarder than any other Pea, excepting only Carter's First Crop, which was sent out the same season, and subsequently proved to be identical, which latter fact was unknown to either party at that time.
Although increased crops of Seed have been grown each successive season, the supply has not yet been equal to the demand, and Messrs. Sutton are again unable to execute Orders until the New Seed is ready in July.
Early orders or inquiries are therefore recommended.
Sutton & Sons, Seed Growers, Reading.

Agricultural and Garden Seeds.

H. and F. SHARPE'S WHOLESALE SPRING PRICED LIST of the above Seeds of 1866 growth is now ready and may be had on application.
Seed Growing Establishment, Wisbech.

Garden and Farm Seeds direct from the Growers.

CHARLES SHARPE and CO. beg to inform the Trade that their WHOLESALE SEED LIST is now ready, and will be forwarded post free on application.
Seed Warehouse, Sleaford.

Genuine Garden and Agricultural Seeds.

JAMES CARTER and CO.,
Seed Farmers, Merchants, and Nurserymen,
237 & 238, High Holborn, London, W.C.

Genuine Garden Seeds.

WM. CUTBUSH and SON'S CATALOGUE of VEGETABLE, FLOWER, and FARM SEEDS, post free on application. Highgate, London, N.

RAYNBIRD, CALDECOTT, BAWTREE, DOWLING, and COMPANY, Limited,
Corn, Seed, Manure, and Oilcake Merchants,
Address, 89, Seed Market, Mark Lane, E.C.; or Basingstoke.
Samples and Prices post free on application. Prize Medals, 1851, for Wheat; 1862, for "Excellent Seed Corn and Seeds."

EVERY GARDEN REQUISITE kept in Stock at
Carter's New Seed Warehouse, 237 & 238, High Holborn, London.

FOR SALE, a very fine Specimen of the Variegated ALOE, of many years' growth. For price apply to
Mrs. R. Barton, Bewley Villa, Lacock, Chippenham.

FERNS.—Cultivators and those interested in this beautiful class of Plants, are recommended to obtain "HOOPER and CO.'S CATALOGUE" of every estimable species and variety, British and Exotic. Post free for two stamps.
Hooper & Co., Covent Garden, London, W.C.

British Fern Catalogue.

ROBERT SIM can now send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his NEW and PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.
Foot's Cray Nursery, S.E., a mile from Sidcup Station of New North Kent Line of South Eastern Railway.

Cheap Bedding Plants.

JAMES HOLDER can supply the following:—Scarlet and Variegated GERANIUMS, VERBENAS, FUCHSIAS, CALCEOLARIAS, DAHLIAS, SALVIAS, CUPHEAS, HELIOTROPES, LOBELIAS, KONIGAS, AGERATUMS, PERILLAS, TROPÆOLUMS, CERASTIUMS, &c.—Eight dozen for 20s., or four dozen for 10s. 6d., hamper and package included.
Crown Nursery, Reading.

Choice Seeds.

WM. CUTBUSH and SON strongly recommend the following:—
PRIMULA SINENSIS FIMBRIATA, of the finest possible strain, Red, White, or Mixed, 2s. 6d., 3s., and 5s. per packet.
CALCEOLARIA, saved from James' choice strain, very fine, 2s. 6d., 3s. 6d., and 5s. per packet.
CINERARIA, from named flowers, 2s. 6d., 3s. 6d., and 5s. per packet.
SNOW'S WINTER WHITE BROCCOLI (True), Wm. C. & Son's own saving, 2s. 6d. per packet.
NUNEHAM PARK ONION, 2s. 6d. per packet.
For other Choice Seeds see CATALOGUE, post free.
Highgate Nurseries, London, N.

Dutch Bulbs.

A. E. BARNAART, Nurseryman, Vogelenzang. Haarlem, begs to inform Nurserymen and the Trade generally, that he has just published his New CATALOGUE of DUTCH BULBS for the coming season, which may be had post free on application to his Agents, Messrs. R. Silberrad & Son, 6, Harp Lane, Great Tower Street, London, E.C.
A. E. Barnaart having extensive Nurseries at Haarlem, Overveen, and Vogelenzang, possess unusual cultural advantages, being able to select the soil and situation most desirable for perfecting the growth of each description of Bulb.
His HYACINTHS were crowned this spring at the Paris Exposition Universelle.

SHANKS' NEW PATENT LAWN MOWERS FOR 1867.

PATRONIZED ON FIVE OCCASIONS DURING THE SEASON OF 1864 BY

HER MAJESTY THE QUEEN,

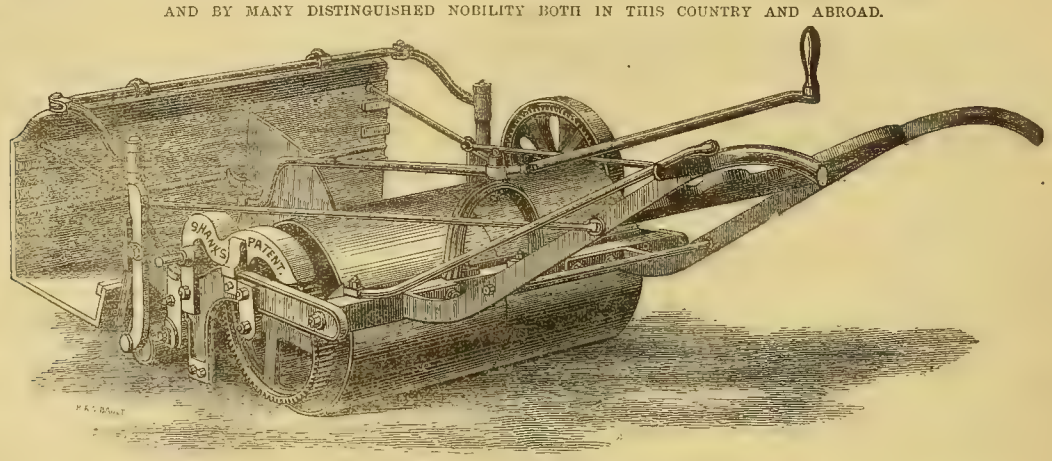
AND ONCE BY HIS MAJESTY THE KING OF SAXONY.

DURING THE SEASON OF 1865 THEY WERE PATRONISED ON FOUR OCCASIONS BY HER MAJESTY THE QUEEN.

ONCE BY HIS MAJESTY THE KING OF HOLLAND, AND ONCE BY HIS MAJESTY THE KING OF PRUSSIA.

AGAIN ON FOUR OCCASIONS DURING THE SEASON OF 1866 BY HER MAJESTY THE QUEEN,

AND BY MANY DISTINGUISHED NOBILITY BOTH IN THIS COUNTRY AND ABROAD.



HORSE-POWER MACHINE.

ALEX. SHANKS AND SON are gratified in being able to state that in the *extraordinary and increasing* demand for their celebrated Machines *this Season*, they see a further and conclusive proof that their merits are being fully appreciated by the practical Gardener. The increased demand has been more particularly for the NEW IMPROVED HAND MACHINES. The demand for the HORSE and PONY MACHINES is also on the increase; and as A. S. AND SON have devoted their attention for the last 30 years to the Manufacture and Improvement of Lawn Mowers, they are enabled to state confidently that their Machines, whether for Horse, Pony, or Hand Power, *surpass* all others for general efficiency, simplicity of construction, ease in working, and durability.

A. S. AND SON subjoin a List of a few of those whose patronage they have had the honour to receive during the past few weeks for their favourite Horse Machine. It would take many pages to contain a List of all the distinguished Patrons they have had for the other sizes.

HER MAJESTY THE QUEEN, for the ROYAL GARDENS, WINDSOR, one 42-inch
HER MAJESTY THE QUEEN, for the ROYAL GARDENS, KEW, one 42-inch
HIS GRACE THE DUKE of SUTHERLAND, one 42-inch
HIS GRACE THE DUKE of BEDFORD, one 42-inch
HIS GRACE THE DUKE of BUCCLEUCH, one 42-inch
HIS GRACE THE DUKE of ATHOLE, one 42-inch
THE MOST NOBLE THE MARQUIS of WESTMINSTER, one 42-inch
THE MOST NOBLE THE MARQUIS of STAFFORD, one 42-inch

SHANKS' PATENT LAWN MOWERS

ARE IN DAILY USE IN

ALL THE ROYAL GARDENS; IN THE HORTICULTURAL SOCIETY'S GARDENS AT KENSINGTON; CRYSTAL PALACE COMPANY'S GROUNDS; IN VICTORIA PARK; HYDE PARK;

And in almost all the principal Public Parks and Gardens in the Kingdom.

These are the only Machines that can be depended on to give lasting satisfaction.

THESE ARE THE ONLY MACHINES THAT WILL MOW PROPERLY WHEN THE GRASS IS WET.

THESE ARE THE ONLY MACHINES THAT DELIVER THE GRASS WITHOUT STOPPING, THUS SAVING AN IMMENSE AMOUNT OF LABOUR.

SHANKS' PATENT LAWN MOWERS are the only Machines that have been in operation in HER MAJESTY'S GARDENS for a quarter of a century.

SHANKS' PATENT LAWN MOWER WILL MOW ON UNEVEN AS WELL AS ON LEVEL LAWNS.

PRICES, INCLUDING CARRIAGE TO ANY RAILWAY STATION OR SHIPPING PORT IN THE KINGDOM.

SHANKS' NEW PATENT HAND MACHINE.

Width of Cutter.		Easily Worked	Silent Movement.
10-inch Machine	£3 10 0	*By a Lady*	4*s.* extra.
12-inch Machine	4 10 0		
14-inch Machine	5 10 0	*By a Boy*	

Width of Cutter.		Easily Worked	Silent Movement.
16-inch Machine	£6 10 0	*By a Man or Two Boys*	4*s.* extra.
19-inch Machine	7 12 6	*By a Man and Boy*	
22-inch Machine	8 7 6	*By Two Men* ..	7*s.* 6*d.* extra.
24-inch Machine	8 17 6		

SHANKS' NEW PATENT PONY and DONKEY MACHINE.

Width of Cutter.		If with Patent Delivering Apparatus.
25-inch Machine	£12 10 0	.. .. 25*s.* extra.
28-inch Machine	14 10 0	.. .. 30*s.* ,,
30-inch Machine	15 15 0	.. .. 30*s.* ,,

Silent Movement, 12*s.* 6*d.* extra; Boots for Pony, 22*s.* per set.
Ditto for Donkey, 18*s.* per set.

SHANKS' NEW PATENT HORSE MACHINE.

Width of Cutter.		If with Patent Delivering Apparatus.
30-inch Machine	£19 0 0	.. .. 30*s.* extra.
36-inch Machine	22 0 0	.. .. 30*s.* ,,
42-inch Machine	26 0 0	.. .. 40*s.* ,,
48-inch Machine	28 0 0	.. .. 40*s.* ,,

Silent Movement, 20*s.* extra; Boots for Horse's Feet, 26*s.* per set.

The Machines are warranted to give ample satisfaction, and, if not approved of, may be at once returned.

PATENTEES AND SOLE MANUFACTURERS:

ALEXANDER SHANKS AND SON, DENS IRON WORKS, ARBROATH, N.B.

LONDON OFFICE and SHOW ROOMS, 27, LEADENHALL STREET, E.C.

☞ 27, *Leadenhall Street is the only place in London where intending purchasers of Lawn Mowers can choose from a Stock of from* 150 *to* 200 *Machines. All sizes kept there, whether for Horse, Pony, or Hand Power.*

SAMUELSON & CO.'S

PATENT LAWN MOWING and ROLLING MACHINES.

EVERY MACHINE WARRANTED.

TO BE OBTAINED OF

SAMUELSON AND CO., BRITANNIA WORKS, BANBURY.

LONDON WAREHOUSE: 10, LAURENCE POUNTNEY LANE, E.C.

AGENTS:—Messrs. TANGYE BROTHERS AND HOLMAN, 10, LAURENCE POUNTNEY LANE; Messrs. DEANE AND CO., London Bridge; Messrs. DRAY, TAYLOR AND CO., London Bridge; Mr. THOMAS BRADFORD, 63, Fleet Street, E.C.; and all respectable Seedsmen and Ironmongers throughout the Kingdom.



No. 35.

JOHN WARNER & SONS,

BRASS & BELL FOUNDERS TO HER MAJESTY.

HYDRAULIC ENGINEERS,

8, CRESCENT, CRIPPLEGATE, LONDON, E.C.



No. 42.

J. W. AND SONS' GOODS MAY BE OBTAINED OF THE TRADE GENERALLY AT THE FOLLOWING PRICES: —

WARNERS' PATENT CAST-IRON

LIFT PUMPS.

inches diameter ..	.. £1	8 6
,, ,, ..	.. 2	1 0
,, ,, ..	.. 2	6 0
,, ,, ..	.. 2	14 0

SHORT-BARREL DITTO,

FOR SINKS, PLANT HOUSES, &c.

No. 37.—2½ ins. diameter .. £1 1 0

Ditto, with 15 feet of 1¼-in. lead Suction Pipe attached, £2.



WARNERS' (No. 568½) AMERICAN

GARDEN ENGINE,

OR FIRE ANNIHILATOR,

Is complete in itself, or can be used to draw from a Pond or Tank, price £2 2s.

6 ft. Suction Pipe and Rose, extra, 12s.



WARNERS' AQUAJECT.

Useful for every variety of purpose, in Watering or Washing Flowers or Trees in Gardens, Conservatories, &c.; also for Washing Carriages or Windows, Laying Dust, &c.

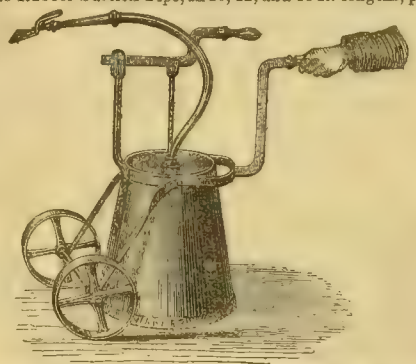
Price, complete £1 10 0

Small Size for the hand, as an ordinary Syringe, 18s.

No. 42. **WARNERS' PORTABLE PUMPS,**

With Improved Valves for Liquid Manure £2 15 0

2-in. Flexible Rubber Suction Pipe, in 10, 12, and 15 ft. lengths, per foot, 2s. 5d.



WARNERS' (No. 547 B) GARDEN ENGINE.

HOLDS SIX GALLONS.

Is light, portable, and easily worked by a lady or child, price £2 10s.

LETTER TO *The Times*, JULY 23, 1866.

FROM EARL ESSEX.

A Real Fire Extinguisher.

To the Editor of "The Times."

"SIR,—I feel sure you will kindly allot a small space in the *Times* to these few lines, as the best medium through which I would urge every householder who dreads fire to have on each floor of his house one or more small Garden or other Engines on wheels, always charged and in good order, in case of fire.

"Last night, just as I was going to bed, I was startled by that most fearful of all cries, 'Fire, fire!' I soon learned that a fire was raging in a large two-windowed unoccupied bedroom. How caused is to us all a great mystery. It is my custom to keep one of these small Engines on each floor. In two minutes I was in the room with one of them. It was like a furnace. The curtains, shutters, casements, and cornices of both windows were burning and cracking from floor to ceiling. I was quite alone at the moment, yet before assistance arrived (most of the servants having gone to bed), I had completely subdued the fire of one window without exhausting the Engine, and when assistance and more water did arrive, we very soon extinguished the other. So fierce was the fire that the lead of the casements was melted, and the casements themselves were burnt off their hinges. I will only add, that by God's mercy, the house was saved by this small Engine. Had it not been at hand and in order, most assuredly Cassiobury would be now a heap of ruins.—Yours faithfully, "ESSEX.

"Cassiobury, Watford, July 20.

"The Engine, even when full, runs so light on the floor, that any woman might draw it, and also work it."



No. 547, in Wood. 547A, in Iron Tub.

WARNERS' GARDEN ENGINES,

WITH REGISTERED SPREADERS.

These Engines are much improved in construction, are less likely to get out of order, and more easily repaired than others.

No. 547. Best ENGINES, in Wood Tubs.

24 Gallons ..	£6 10 0		14 Gallons ..	£5 10 0	

No. 547A. Strong ENGINES, in Galvanized Iron Tubs, well painted inside and out.

10 Gallons ..	£2 19 0		24 Gallons ..	£4 19 0	
16 Gallons ..	3 14 0		28 Gallons ..	5 10 0	

579½. WARNERS' WATER BARROW

Saves a Gardener's time in Watering with the Water Pot.

Made of strong Wrought Iron, Galvanized and painted inside and out.

To hold 20 Gallons, wheels 13 inches high ..	..	£2	2	0
,, 30 ,, ,, 20 ,, ..	..	2	13	0
,, 38 ,, ,, 24 ,, ..	..	3	17	0
,, 50* ,, ,, 24 ,, ..	..	5	12	0

* This is an extra strong article, with cross handle for two men, suitable for Nursery Grounds, &c.



No. 579½.

SYRINGES, BRANCH PIPES, INDIA-RUBBER HOSE, &c.

☞ *Estimates for any description of Hydraulic Machinery forwarded on application.*



GARDEN BORDER EDGING TILES, in great variety of patterns and material, the plainer sorts being especially suited for KITCHEN GARDENS, as they harbour no Slugs and Insects, take up little room, and once put down incur no further labour and expense, as do "grown" Edgings, consequently being much cheaper.



GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, of great durability, and in great variety of design.

F. & G. ROSHER, Manufacturers, Upper Ground Street, Blackfriars, S.; Queen's Road West, Chelsea, S.W.; Kingsland Road, Kingsland, N.E.

Sole London Agents for FOXLEY'S PATENT GARDEN WALL BRICKS. Illustrated Price Lists free by post. The Trade supplied.

ORNAMENTAL PAVING TILES for Conservatories, Halls, Corridors, Balconies, &c., as cheap and durable as Stone, in blue, red, and buff colours, and capable of forming a variety of designs.

Also TESSELATED PAVEMENTS of more enriched designs than the above.

WHITE GLAZED TILES, for Lining Walls of Dairies, Larders, Kitchen Ranges, Baths, &c. Grooved and other Stable Paving Bricks of great durability, Dutch and Adamantine Clinkers, Wall Copings, Red and Stoneware Drain Pipes, Slates, Cements, &c.

To be obtained of F. & G. ROSHER, at their Premises as above.

SILVER SAND (REIGATE, best quality), at the above addresses—14*s.* per Ton, or 1*s.* 3*d.* per Bushel; 2*s.* per Ton extra for delivery within three miles, and to any London Railway or Wharf. Quantities of 4 Tons 1*s.* per Ton less.

FLINTS, BRICK BURRS or CLINKERS, for Rockeries or Grotto Work. F. & G. ROSHER.—Addresses see above.

N.B. Orders promptly executed by Railway.

BOSTON'S NE PLUS ULTRA, for the Destruction of Mealy Bug, Scale, American Blight, &c., on Stove and Greenhouse Plants, Fruit Trees, Vines, &c. In bottles, with full instructions for application, price 3*s.* 6*d.*, 5*s.*, and 10*s.* 6*d.*

JAMES CARTER & Co. beg leave to state that the present time is most suitable for applying the above genuine Specific before the commencement of the growing season, thereby preventing the rapid increase of the above pests which would otherwise take place. The infallible properties of BOSTON'S NE PLUS ULTRA are rapidly becoming fully recognised, J. C. & Co. having already sold nearly 2000 bottles since its first introduction in the spring of 1866. Numerous testimonials have been received, and not a single complaint of its inefficiency.

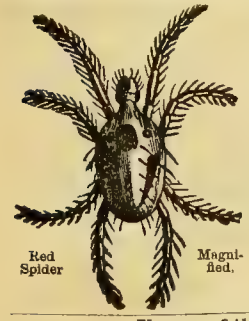
Sole Agents, JAMES CARTER & Co., 237 and 238, High Holborn, W.C.

*** The Trade supplied on liberal terms.

Fumigate your Greenhouse with

TOBACCO TISSUE.—This article is acknowledged by all parties who have used it to be the best remedy for Destroying Insect Life; is entirely free from paper or rag, and will burn without the assistance of blowing.

Price 3*s.* 6*d.* per lb., carriage free. To be had of Messrs. ROBERTS & SONS, Tobacco Manufacturers, 112, St. John Street, Clerkenwell, E.C., and of all Seedsmen and Nurserymen.



Red Spider

Magnified.

GISHURST COMPOUND.

Used by many of the leading Gardeners since 1859, against Red Spider, Mildew, Thrips, Green Fly, and other Blight, in solutions of from 1 to 2 ounces to the gallon of soft water, and of from 4 to 16 ounces as a Winter Dressing for Vines and Fruit Trees. Has outlived many preparations intended to supersede it.

Sold Retail by Seedsmen, in boxes, 1*s.*, 3*s.*, and 10*s.* 6*d.*

Wholesale by PRICE'S PATENT CANDLE COMPANY (LIMITED)

Plagues of the Garden.



SIMPLE and SAFE REMEDY.—By using the APHIS WASH, these pests of the garden, together with Ants, Scale, Caterpillars, Slugs, Earwigs, &c., are immediately destroyed. Leaves no stain, but strengthens the Trees or Plants.

"At the first opportunity use a solution of 'Aphis Wash,' prepared at the City Soap Works; it not only destroys the Aphis, but also Scale, and every other pest."—Extract from *Gardeners' Magazine*, January 5, 1867.

"For strengthening the growth and effectually destroying all forms of blight, the 'Aphis Wash' supersedes every other preparation."—See *Gardeners' Chronicle*, August 19, 1865; and *Gardeners' Magazine*, July 1, 1865.

Sold by Chemists and others, in 1*s.* bottles, and 2*s.* 6*d.* a gallon, with full directions for use.

Wholesale at the City Soap Works, Milton Street, London, E.C.

ODAMS'S NITRO-PHOSPHATE for CORN.
ODAMS'S NITRO-PHOSPHATE for ROOTS.
ODAMS'S DISSOLVED BONES.
ODAMS'S SUPERPHOSPHATE of LIME.
ODAMS'S PREPARED PERUVIAN GUANO.

MANUFACTURED BY

THE PATENT NITRO-PHOSPHATE OR BLOOD MANURE COMPANY (Limited).

Chief Offices—109, Fenchurch Street, London.
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This Company was originally formed by, and is under the direction of agriculturists, circumstances that have justly earned for it another title, viz.—"The Tenant Farmers' Manure Company."

Its members are cultivators of upwards of 50,000 acres of land which has been for years under management with Manures of their own manufacture. The consumer, therefore, has the best guarantee for the genuineness and efficacy of the Manures manufactured by this Company.

Particulars will be forwarded on application to the Secretary, or may be had of the Local Agents. C. T. MACADAM, Secretary.
Chief Offices—109, Fenchurch Street, London, E.C.

THE LONDON MANURE COMPANY (ESTABLISHED 1840),

Have now ready for delivery in dry fine condition,
CORN MANURE, for Spring Use
DISSOLVED BONES, for Dressing Pasture Lands
SUPERPHOSPHATES of LIME
PREPARED GUANO
MANGEL and POTATO MANURES.

Also Genuine PERUVIAN GUANO, and NITRATE of SODA, ex Dock Warehouse; SULPHATE of AMMONIA, FISHERY SALT, &c. E. PURSER, Secretary.

Offices, 116, Fenchurch Street, E.C.

LAWES' MANURES.—The Manures manufactured by J. B. LAWES for the present season of 1867 are now ready for delivery at his Factories, at the following prices, per ton:—

	£	*s.*	*d.*
LAWES' PATENT TURNIP MANURE and BONE SUPERPHOSPHATE of LIME	6	6	0
LAWES' SUPERPHOSPHATE of LIME from BURNT BONE or MINERAL PHOSPHATES	5	5	0
LAWES' WHEAT, BARLEY, GRASS, and MANGEL MANURES	8	0	0
CONCENTRATED CORN and GRASS MANURES	12	0	0

These Manures can be obtained of Mr. LAWES, or through the appointed Agents in all parts of the United Kingdom, at prices varying according to cost of carriage.

Genuine Peruvian Guano direct from the Importers. Nitrate of Soda, Sulphate of Ammonia, and other Chemical Manures.

American and other Cakes at market prices.

Address, JOHN BENNET LAWES, 1, Adelaide Place, London Bridge, E.C.; 22, Eden Quay, Dublin; and Market Square, Shrewsbury.

TAN, Gratis, in the immediate neighbourhood of Covent Garden Market.

Apply to W. ESSEX & SONS, 28, Stanhope Street, Clare Market, W.C.



COCOA-NUT REFUSE is becoming SCARCE, the old reserves will soon be gone. Now sold in bags, 1 for 2*s.*, 10 for 16*s.*, 20 for 30*s.*, 50 for 66*s.*, 100 for £6.

Fourpence allowed for each bag returned carriage-paid.

A Railway Truck-load (not in bags), 40*s.*

Postage Stamps or Post-office Order, payable to J. BARSHAM & Co., Kingston-on-Thames, S.W

Sutton's Grass Seeds for all Soils.



SUTTON AND SONS have still on hand some of each of the leading kinds of

PERMANENT NATURAL GRASSES and CLOVERS,

which are mixed expressly to suit the soils for which they are intended.

Price 26*s.* to 36*s.* per acre.
Carriage free.

SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.



GRASS SEEDS for PERMANENT PASTURE, of the finest quality, at moderate prices, carefully selected on a new, natural, and scientific system.

See "WHEELER'S BOOK on GRASSES," which contains Illustrations and Descriptions of the most suitable Grasses for Permanent Pasture.

J. C. WHEELER & SON,
Gloucester,
Seedsmen to the Gloucestershire Agricultural Society.

CHOICE SEEDS.

Post Free.

	Per pkt.—*s.*	*d.*
Broccoli, Snow's Imperial Winter	1	0
Albert Sprouts	0	6
Cauliflower, Early Erfurt	1	0
Celery, Manchester Champion Red	0	6
Cucumber, Smith's Fine Frame	1	0
Cucumber, Telegraph	1	0
Leek, Henry's Prize	0	6
Endive, Digwell Prize	0	6
Onion, Nuneham Park	2	6
Parsley, extra fine curled	0	6
Raphanus caudatus (new long-podded Radish)	2	6
Custard Marrow	0	6
Melon, Malvern Hall	1	6
Tomato de Laye	0	6
Cauliflower, The Mammoth	1	0

	Per pkt.—*s.*	*d.*
Moore's Vegetable Cream	0	6
Beet, Perpetual Spinach	0	6
,, Nutting's Superb Red	0	6
Lettuce, Wheeler's Tom Thumb	0	6
Radish, French Breakfast	0	6
Aster, Truffaut's Superb French, 12 vars. mixed	1	0
Aster, Victoria, 6 vars. mixed	1	0
Stock, improved large-flowering, 12 vars. mixed.	1	0
Balsam, Camellia-flowered, 6 var. mixed	1	0
Balsam, Rose-flowered, 3 vars. mixed	1	0
Phlox Drummondii, 12 splendid varieties	1	0

RICHARD SMITH, Seed Merchant, Worcester.

To Market Gardeners and Others.

RICHARD WALKER, MARKET GARDENER and SEED GROWER, offers the following:—

ROBINSON'S CHAMPION DRUMHEAD CABBAGE PLANTS, 2*s.* 6*d.* per 1000.
DRUMHEAD SELECTED STOCK PLANTS, 3*s.* per 1000.
WALCHEREN, splendid true stock, CAULIFLOWER PLANTS, 1*s.* per 100.
Fine SAVOY PLANTS, 6*d.* per 100.
Imported very fine BRUSSELS SPROUT PLANTS, 6*d.* per 100.
EASTHAM CABBAGE PLANTS, true, 3*s.* per 1000.
DICKSON'S MANCHESTER CHAMPION RED CELERY PLANTS, 1*s.* per 100.
INCOMPARABLE WHITE CELERY PLANTS, 1*s.* per 100.
IVERY'S NONSUCH CELERY PLANTS, 1*s.* per 100, transplanted.
Terms Cash.

RICHARD WALKER, Biggleswade, Beds.

THE GOLDEN-VARIEGATED WELLINGTONIA.

First-class Certificate from Royal Horticultural Society.

For Testimonials, &c., see *Gardeners' Chronicle*, October 6, 1866; *Times*, October 7, 1866; *Scottish Gardener*, November, 1866; *Gardeners' Chronicle* January 12, 1867; "Florist," February, 1867.

LAST YEAR'S PLANTS (a few remaining).
1st Size, very choice, 8 to 12 inches, £5 5*s.* each.

THIS YEAR'S PLANTS.
2d Size, fine, 4 to 5 inches, £2 2*s.*
3d Size, nice little bits, 2 to 3 inches, £1 1*s.*

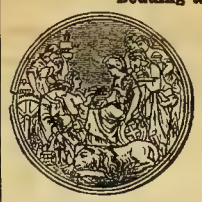
5000 plants are now plunged out-of-doors, in their respective sizes they may be safely forwarded during the summer, if desired, and orders will be executed in strict rotation.

Chromo-lithographs of the parent tree, by Day and Son (Limited), on superior cards, 10 inches by 8 inches, very faithful in outline, but deficient in representing the glorious colour of the original. These are sent free by post for 25 stamps, and one sent to each Purchaser.

It is intended to exhibit a few of the first size at the approaching Paris and Manchester Exhibitions.

R. HARTLAND, The Lough Nurseries

Bedding and other Plants.





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SUTTON'S SHORT-TOP SIX WEEKS, price 1*s.* per lb.; cheaper by the bushel.

This excellent Turnip, if sown in June and July, will produce a heavy Crop, to come off in time for Wheat Sowing.



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The following selected Strains are worthy of the notice of all growers of the most useful conservatory decorative flowers.

WILLIAMS' SUPERB STRAIN of PRIMULA.

B. S. WILLIAMS can with confidence offer his superb Strain of Primula as being undoubtedly the finest in cultivation. It is now grown in all the principal Gardens of the Nobility and Gentry throughout the Three Kingdoms, and has never failed to give the greatest satisfaction.

In habit the plants are very robust, and in the foliage differ from all other varieties; but their great beauty consists in the depth of colour in the Red, purity of the White, and beautiful fimbriated form of all the flowers, which are thrown up in large trusses well above the foliage.

As a proof of the truth of the above remarks, this Strain has taken 1st Prizes in every instance that it has been shown in the Provinces this Spring; and 1st Prize at the Primula Show of the Royal Horticultural Society, South Kensington; and 1st at the Royal Botanic, Regent's Park. It is also the favourite Strain in the Covent Garden Flower Market.

This Strain may be procured True, in Sealed Packets bearing B. S. WILLIAMS' Name and Address, from any Seedsman; but B. S. W. particularly requests that Customers will observe, on purchasing, that each Packet has his Name and Address in full printed thereon, as no others are genuine.

The Trade supplied on advantageous terms.

	Per pkt.	*s.*	*d.*		Per pkt.	*s.*	*d.*
Retail price, RED	.. ..	5	0	Retail price, WHITE	..	3	6
,, ,,	.. ..	3	6	,, ,,	..	2	6
,, ,,	.. ..	2	6	,, MIXED	..	5	0
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Retail price, MIXED, per packet, 2*s.* 6*d.*

WEATHERHILL'S EXTRA CHOICE STRAIN OF CINERARIA.

B. S. W. has purchased the entire Stock and right of Sale of this Magnificent Strain. Many of the flowers produced by this seed last season were as large as a crown-piece. This strain is well known in the London Flower Market, and is the most popular one there, a sufficient guarantee that its qualities are good.

Retail price per pkt., 5*s.* 0*d.* | Retail price per pkt., 3*s.* 6*d.*

Retail price per pkt. .. .. 2*s.* 6*d.*

JAMES'S HERBACEOUS CALCEOLARIAS.—The varieties that took the First Prize at the International Horticultural Exhibition last May were of this noted strain.

Retail price per pkt. 5*s.* 0*d.* | Retail price per pkt., 3*s.* 6*d.*

Retail price per pkt. .. .. 2*s.* 6*d.*

All FLOWER SEEDS in packets, Post free.

B. S. WILLIAMS, Victoria and Paradise Nurseries, Upper Holloway, London, N.

Genista præcox.

GEO. WHEELER, NURSERYMAN, &c., Warminster, Wilts, is prepared to send out good established young Plants of the above, now growing in pots in the open ground, at 5*s.* each, the usual allowance to the Trade when six or more are ordered. This new, very hardy, showy, pea-flowered shrub will be found an acquisition to any collection of shrubs. The flowers are of a light lemon colour on opening, and become paler when fully bloomed. The original plant was in full bloom on the 1st of May, having withstood the past severe winter in a very cold exposed site, sloping to the north, without the slightest protection, not losing a twig or flower bud. It is well suited for the rockery, border, or lawn.

A Photograph taken the 1st of May, from the original Plant, which is 6 feet in diameter by 4 in height, showing its graceful and drooping habit and profusion of bloom, may be had for 12 stamps.

DIGITALIS ALBA MACULATA SUPERBA.—We beg to call attention to this superb new variety of Foxglove, which we have this season the honour to introduce to the Public. It is much more beautiful than any variety of this showy genus that has yet come under notice; and, as it comes true from seed, will prove a great acquisition to mixed flower borders and shrubberies. The colour is pure white, heavily spotted in the throat with purple. It differs from any variety of Foxglove we know, in having much larger flowers, with heavier and brighter coloured spots, while the spik e of bloom are longer and denser than the old sorts. A number of spik e were shown at the Exhibition of the Glasgow and West of Scotland Horticultural Society in July last, when it was awarded a First-class Certificate. No hardy plant is more ornamental when planted by the sides of woodland walks, or among shrubs in the pleasure ground, than the Foxglove; and this variety will be found a highly desirable addition to already existing varieties. Should be sown in June to bloom next season. 1*s.* and 2*s.* 6*d.* per packet.

Price to the Trade on application.

ANTIRRHINUM, saved from splendid varieties, 6*d.* and 1*s.* per pkt.

Twelve varieties, separate, of select hardy BORDER PERENNIALS, 2*s.* 6*d.* DREGHORN & AITKEN, Kilmarnock, N.B.

NEW DOUBLE CRIMSON THORN (NOW READY).

WILLIAM PAUL

(SON and SUCCESSOR to the late A. Paul),

BEGS TO OFFER THE

ABOVE MAGNIFICENT HARDY FLOWERING TREE,

Which he believes to be the greatest acquisition for forcing and out-of-door culture that has been introduced for many years.

Strong healthy Plants, well established in pots, 2 ft. high, 7s. 6d. each ; 1 ft. high, 5s. each.

A First-class Certificate was awarded to him for this Plant by the Royal Horticultural Society on the 16th April last.

☞ See Coloured Drawing by FITCH, and History, in the "Florist" for June.

"We do not hesitate to advise every one who has a garden to purchase this plant at once. * * * Plants purchased in pots now may be grown and established, so as to flower well either in or out-of-doors next spring; whereas if removed from the ground in the autumn of the year, they can hardly be expected to do this."—*The Florist, &c.*

PAUL'S NURSERIES, WALTHAM CROSS, LONDON, N.

PAUL & SON'S NEW DOUBLE CRIMSON THORN.

(THE UNIQUE HARDY PLANT OF THE SEASON.)

PAUL & SON,

THE OLD NURSERIES, CHESHUNT, N.,

The exclusive introducers of this Plant, have had the honour, since they sent it out in November last, of supplying it to Her Majesty's Garden at Windsor, our leading Amateurs and Nurserymen, and those of the Continent.

First-class Certificates, Royal Botanical Society and International Exhibition.

The Reviewer of *our* Introduction in the "Florist" somewhat ignorantly and unpractically advises planting small Plants in pots, in preference to larger ones in autumn. We counsel otherwise, as we shall have ready some 3000 PYRAMIDS and STANDARDS, specially pruned to flower next spring.

Price of such Standards and Pyramids, 5s. each; Dwarfs, 2s. 6d. each.
Dwarfs in pots, for Export, 2s. 6d. each.

PAUL AND SON beg also to announce that their ROSES are finely in BLOOM, and well worthy of a visit.

Frequent Trains from 6.30 A.M. to Cheshunt Station.

FULHAM NURSERY, LONDON, S.W.

OSBORN & SONS

HAVE TO OFFER FOR SALE

A FEW PLANTS OF THE BEAUTIFUL STATICE FROSTII,

A Garden Hybrid, with elegant sinuous foliage, and flowers of a brighter blue than any other of the genus.

Price 15s. each.

ALSO THE FINE AZORIAN PORTUGAL LAUREL,

which has been uninjured by the late severe winter; 10*s.* 6*d.* each.

☞ *Both the above have received First-class Certificates.*

CATALOGUES of HARDY TREES and SHRUBS, FRUIT TREES, and HERBACEOUS PLANTS may now be had on application; and a SELECT LIST of STOVE, GREENHOUSE, and other PLANTS will shortly be ready.

NEW ORCHIDS FROM PERU AND ECUADOR.

JOHN LINDEN

OFFERS

THE FOLLOWING NEW SPECIES,

INTRODUCED DIRECTLY THROUGH HIS COLLECTORS IN PERU AND ECUADOR.

ODONTOGLOSSUM ASTRANTHUM, 31*s.* 6*d.*
,, BREVIFOLIUM, 63*s.* to 105*s.*
,, CRISTATUM, 42*s.*, 210*s.* for six, 400*s.* per doz.
,, CROCATUM, 42*s.*, 210*s.* for six.
,, HALLII, 42*s.* to 63*s.*, 210*s.* for six.
ONCIDIUM ACINACEUM, 31*s.* 6*d.*
,, AUROSUM, 18*s.*, 180*s.* per dozen.
,, ,, extra strong, 31*s.* 6*d.* to 52*s.* 6*d.*
,, CUCULLATUM MACRANTHUM, 42*s.*
,, ,, RACEMOSUM, 42*s.*
,, HOLOCHRYSUM, 25*s.* to 42*s.*
,, HYPHÆMATICUM, 31*s.* 6*d.*, 180*s.* for six.
,, MACRANTHUM, 63*s.* to 105*s.*
,, NUBIGENUM, 31*s.* 6*d.* to 63*s.*, 320*s.* per dozen.
,, ,, LINDLEYANUM, splendid, lips and petals spotted with crimson, 63*s.* to 105*s.*
ONCIDIUM NUBIGENUM MACRANTHUM, extra large variety and described as very fine, 63*s.* to 105*s.*
,, SEMELE (Rchb.), 31*s.* 6*d.*
,, SERRATUM (Diadema), 42*s.*, 460*s.* per dozen.
,, XANTHORNIS, 31*s.* 6*d.*
MESOSPINIDIUM SANGUINEUM, 31*s.* 6*d.*, 320*s.* per dozen.
NANONES MEDUSÆ (Rchb.), 147*s.*
CATTLEYA MAXIMA VAR., with glaucous leaves, described as very fine, 42*s.* to 105*s.*, 400*s.* per dozen.
,, NOVA, from Choco, very distinct, of pseudo bulb but described as being in the way of C. Warscewiczi 63*s.* to 105*s.*
BURLINGTONIA (RODRIGUEZIA) BATEMANIANA, 18*s.* 180*s.* per dozen.
,, ,, TRICOTIUM (Rchb.), quite new and very distinct, 21*s.* to 42*s.*

For other NEW and RARE ORCHIDS, see the CATALOGUE just published.

ROYAL ZOOLOGICAL and HORTICULTURAL GARDENS, BRUSSELS.

ROBERT PARKER begs to offer the following.—All the Plants are strong and healthy, and can be supplied in quantities.

PANSY CLIVEDEN BLUE, 6*s.* per dozen.
PANSY CLIVEDEN PURPLE, 6*s.* per dozen.
PANSY CLIVEDEN YELLOW, 6*s.* per dozen.
POLEMONIUM CŒRULEUM VARIEGATUM, 2*s.* 6*d.* each.
RHODODENDRON COUNTESS of HADDINGTON, 3*s.* 6*d.* each.
TRITOMA GRANDIS, 18*s.* per dozen.
TRITOMA UVARIA GLAUCESCENS, 12*s.* per dozen.
VIOLA CORNUTA, best variety, 4*s.* per dozen.
VIOLET, REINE DES VIOLETS, 6*s.* per dozen.
VIOLET THE CZAR, 6*s.* per dozen.
PRIMULA SINENSIS FIMBRIATA, finest mixed seed 2*s.* 6*d.* (per packet.)
PRICED and DESCRIPTIVE CATALOGUES of AGRICULTURAL, FLOWER, and VEGETABLE SEEDS, GREENHOUSE, HARDY, and STOVE PLANTS, are published, and will be forwarded free to applicants.

Exotic Nursery, Tooting, Surrey, S.

ROYAL HORTICULTURAL SOCIETY of IRELAND.—GRAND SUBSCRIPTION ROSE PRIZES (Open to the United Kingdom). A Silver Cup, or other piece of Plate, value Ten Sovereigns; Second Prize, do. do., value Seven Sovereigns; Third do., Five Sovereigns; Fourth do., Four Sovereigns; Fifth do., Three Sovereigns; and Sixth do., Two Sovereigns, for Stand of 48 Roses, each different, single blooms, or trusses, on single stems.

Exhibitors who are not Members of the Royal Horticultural Society of Ireland, or Subscribers, can compete on payment of an Entrance Fee of 10*s.*, to be forwarded with their notice of entry.

N.B.—The Stands must be painted green, and varnished, and of the uniform breadth (from front to rear) of 2 feet; depth in rear, 8 inches, and in front, 5 inches.

Competition for the above will take place at the SOCIETY'S SUMMER SHOW, to be held at KINGSTOWN, on THURSDAY, June 27. Schedules can be obtained on application to the Secretary, 28, Westland Row, Dublin.

GRAND HORTICULTURAL EXHIBITION
at BURY ST. EDMUND'S, in connection with the
SHOW of the ROYAL AGRICULTURAL SOCIETY,
JULY 15, 1867, and four following Days.

Amongst various Special Prizes, amounting in value to nearly £300, and exclusive of the ordinary Prize Schedule,

A SILVER CUP, VALUE £20,

will be offered by the Proprietors of the
GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE
for the best COLLECTION of FRUITS and VEGETABLES,
to be made up as follows:—

Of FRUITS, any Five of the following Eight kinds, one Dish of each:—Grapes, Melons (2 fruits), Strawberries, Gooseberries, Currants, Cherries, Raspberries, or Apples (of the crop of 1866).

Of VEGETABLES, any Eight of the following Fourteen kinds, one basket or bundle of each:—Peas, French Beans (or Scarlet Runners), Broad Beans, Cauliflowers, Cucumbers (brace), Summer Cabbages, Early Carrots, Turnips, Artichokes, Onions, Spinach, Rhubarb, Potatos, or Mixed Salading.

This Cup will be open to Competition amongst Amateur or Professional Gardeners, of all grades, with Fruit and Vegetables of *their own growing*; any article otherwise obtained will disqualify the exhibitor.

THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.

The TWENTY-FOURTH ANNIVERSARY FESTIVAL will take place at the LONDON TAVERN, BISHOPSGATE STREET, LONDON, on THURSDAY, June 27.

President of the Day.
THE RIGHT HON. SIR ROBERT PEEL, Bart., M.P.

Board of Stewards.
George Child, Esq., *Chairman.*
His Grace the Duke of Devonshire, K.G., F.R.S.
The Right Hon. Earl Ducie
The Right Hon. Lord Egerton of Tatton
The Right Hon. Lord Londesborough
The Right Hon. Lord Viscount Sandon
The Right Hon. Sir William Hutt, M.P.
The Baron Lionel de Rothschild, M.P.
Sir William Knighton, Bart.
Sir Oswald Mosley, Bart.
Sir Roderick Murchison, Bart., F.R.S.
Sir Walter Stirling, Bart.
Professor Owen

James Bateman, Esq.	Charles Lawson, Esq.
Robert Broadwater, Esq.	Henry Graham Lawson, Esq.
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John Day, Esq.	Thomas Osborne, Esq.
E. Easton, Esq.	Chas. Ratcliff, Esq.
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James Heywood, Esq.	John Spencer, Esq.
Andrew Henderson, Esq.	James Veitch, Esq., F.L.S.
Robt. Steiner Holford, Esq., M.P.	R. S. Vivian, Esq.
William Hurst, Esq., Jun.	Robert Warner, Esq.
Colonel Jenkes	Henshleigh Wedgwood, Esq.
W. S. Johnson, Esq.	G. F. Wilson, Esq., F.R.S.

Dinner upon Table at 6 o'Clock precisely. Tickets, 21*s.* each. Ladies' Tickets for the Gallery, 7*s.* 6*d.*, for whom a Handsome Collation is provided.

EDWARD R. CUTLER, Secretary.
14, Tavistock Row, Covent Garden, W.C.

The Gardeners' Chronicle.

SATURDAY, JUNE 15, 1867.

MEETINGS FOR THE ENSUING WEEK.

TUESDAY, June 18—{ Royal Horticultural (Fruit and Floral Committees), at South Kensington .. 11 A.M. / Ditto (Scientific Discussion) .. .. 3 P.M.
WEDNESDAY, — 19—{ Royal Botanic (Exhibition of Plants, Flowers, and Fruit) .. .. 2 P.M.
THURSDAY, — 20—Linnean .. .. 8 P.M.

SHALL the magnificent specimens exhibited at our flower shows be half plants or whole plants? Shall they be shams or realities? That is again becoming the question, as a glance over our recent great shows, that at Manchester in particular, will have afforded abundant evidence. Indeed, next to that of the possibility of keeping the exhibitions open long enough to make them pay, this question of what should be the form of SPECIMEN EXHIBITION PLANTS is the inquiry more particularly suggested by an attentive examination of the shows of the present season.

It is but a few years since that this same question was put to the growers, with an intimation that sham plants would not be tolerated; the hint was taken, and the evil was remedied; but old habits are again creeping out, our Rose growers and our Pelargonium growers have come to need a gentle reminder as to what is required of them, and our Azalea growers have to be told plainly that such plants as have disfigured some of the shows of this year cannot be tolerated

another season. They exhibit, not plant cultivation but plant distortion.

At the time to which we have alluded the stern voice of public opinion was raised against such things as specimens of Azaleas, Roses, and Pelargoniums trained to one face, so that they were really half-plants only, as well as against Fuchsias which presented shapeless and scraggy outlines, bearing evidence of an utter want of intelligent management. What was insisted on was this, that exhibition plants should be perfect, that is to say, symmetrical, and balanced in their growth, and presentable in every direction; such perfect development being the evidence of well-directed cultivation—evidence, that is, of the skill of the grower, and not of the mere sleight-of-hand and dubious art of the trainer.

The Roses and Pelargoniums and Fuchsias were after this remonstrance creditably reformed; they were grown so as to be furnished honestly in every direction; and public taste was satisfied. There is now just a perceptible indication of an inclination on the part of the growers of these flowers to return to the old path, an inclination which a gentle hint may perhaps be sufficient to arrest, but which, if this is not the case, must be stayed by stronger measures. To some extent the Azaleas, too, were reformed at the period to which we allude; but unfortunately crinoline-training was soon after introduced, though never favourably received by the public; and though we thus obtained well-formed plants, they soon became but as whited sepulchres, covering dead and dying limbs and all manner of deformity within. Thus, instead of growing them as well furnished plants throughout, it became the habit to train them so as to present a fair exterior, and to hide their too-well-known deficiencies. That evil would doubtless have worked its own cure, for such deficiency of foliage as soon became apparent under such training, would necessarily lead to exhaustion of the plants,—a doom which overhangs all such specimens, and which we have this year seen too palpably exemplified. The shield-formed plants, however, with every flower brought to the front, and not even a leaf to hide the hollow deficiency behind, such as were offensively prominent at Manchester, cannot for a moment be endured without protest. They would be bad enough seen staged against the wall of a greenhouse, but in an exhibition tent, where from many points a side view of them is unavoidable, they are simply execrable. We trust, therefore, that every juror and every critic will set his face against them with an unflinching determination to put an end to such an obvious falling off; while the fate of the crinoline plants will be a lesson to all those who depend on wire and twine, instead of stopping and thumb-pinching, to work out the shape of their plants.

No doubt, in regard to all kinds of exhibition plants, the mode of training adopted is far too rigid and formal. The general outline should indeed be symmetrically developed, but the plants should present as broken a surface—in other words, as much light and shade, as the particular subject under training will permit; they should never present such a continuous even sheet of colour as we often see, suggesting that they have been clipped over with a pair of shears. The topiary art is not permitted in modern plant culture, and it should not therefore be simulated by excess of training.

As to the general outline of the specimens, some diversity must be allowed. Amongst stove and greenhouse plants, for instance, some subjects, such as creepers, probably look as well when grown in the balloon shape as in any other; but some of them are better as round-headed bushes, and some certainly look best as pyramids. Pelargoniums seem to come out most effectively as flat-headed bushes; but we notice this year an inclination to carry this flatness to excess, and certainly the specimens in which this form was manifested were much less beautiful than those in which there was a moderate degree of convexity in the outline of the heads of bloom. Fuchsias are decidedly best grown as pyramids, and Azaleas also are generally so, though round-headed plants among them often come in useful, as tending to break up monotony of character. Roses, too, may be shown in both forms, though of the two we think the pyramidal the more effective and graceful; but here we must add a caution, that the pyramid must not be too much drawn out, or the furnishing of the plant will in consequence be rendered less complete, and much of its beauty of finish will be lost. In old plants here is a strong tendency to acquire the elongated pyramidal figure, which tells decidedly against them on the exhibition stage. Hard pruning would do good to such as these. A bush-formed plant of the Rose, however well furnished, is too heavy and lumpy to accord with the naturally elegant character of this flower, and the short, conical form is, we think, in every way much to be preferred.

To sum up: let us impress on jurors the importance of marking with their especial displeasure any declension from the high standard of plant growing which has hitherto been the glory of our exhibitions; above all, and as one means to this end, let them set their faces against one-sided, half-formed specimens. And let us beg cultivators to depend more on their skill as plant growers than on their dexterity as trainers; specially, let them abjure crinoline and surface training, and build up their specimens by legitimate stopping and thumb-pruning. Verily, if they do this, they will have their reward.

PROFESSOR REICHENBACH'S work on the ORCHIDS of Central America has made its appearance at an auspicious moment, the attention of collectors being now more than ever directed to the Orchid treasures of that particular portion of the world. More than 30 years ago MR. BATEMAN had already fixed his eye upon the same country as pre-eminently an Orchid-bearing region; but his muster-roll, as found in "The Orchidaceæ of Mexico and Guatemala," is left far behind by that of the German Professor; for while the latter gives us a list of about 300 species, chiefly taken from an area not extending more than 200 miles, MR. BATEMAN was not able to reckon up more than 240, although he laid the whole land under contribution, from the most northerly frontiers of Mexico to the southern extremity of the Isthmus of Panama. So rapidly during the space of one generation has our knowledge advanced! For the progress made we are chiefly indebted to German travellers, *e.g.*, WARSCEWICZ, OERSTED, WENDLAND, HOFFMANN, and WAGENER, the four first of whom placed their collections in the hands of Professor REICHENBACH for investigation. This labour—a labour of love we cannot doubt—he has discharged with his usual conscientious care and skill, the result being now before us in the work which he modestly terms a "contribution"* to the Orchidology of Central America, adding a hope—in which we heartily join—that further "contributions" of the same kind may be occasionally forthcoming. When these shall have been completed it will probably be found that the total Orchid flora of that wonderful isthmus connecting North with South America will not fall far short of a thousand species; at all events, including SKINNER'S discoveries in Guatemala and those of LEXARZA, HARTWEG, and GALEOTTI, in Mexico, we can already count up nearly 600.

These facts are the more interesting when we keep two principal facts in mind—the one that the Orchids of the countries in question are remarkable for their beauty, even in the charming family to which they belong; the other that, with the exception of some 50 "coast" plants, nearly the whole of this great multitude will be amenable to "cool" treatment, and will therefore be brought within the reach of thousands who shun the East India house as they would a lazaretto in the Tropics. Not more than 100 kinds—we speak of course of the Mexican and Central American species—are at present alive in our collections, but as new arrivals are continually announced, it is high time that we should consider the special treatment to which this important section of the family should be submitted. And this will not be hard to learn, if we remember that being the denizens of a narrow strip of territory exposed to constant breezes from two mighty oceans, the air around them can never become confined or humid to the same extent as that of the close valleys of the Peruvian Andes. Moreover, there is in Mexico, and more or less along the whole course of the Central American isthmus, a decided winter, either dry or cold, or both, which must be imitated in the houses to which our plants are consigned, if anything like their natural amount of health and vigour are to be attained.

In the neighbourhood of Quito—which may be taken as a typical example of another cool Orchid climate—there is little variation either in the temperature or in the degree of humidity all the year round. Hence the Mexican should differ from the Peruvian house in having at all times a drier, and at certain times a warmer atmosphere. These are points that are only just beginning to be appreciated, but the sooner they are fully recognised the sooner shall we see the splendid Lælias and other Epidendreæ of Mexico and the glorious Odontoglossa of New Grenada and Peru, in all the fulness of their native beauty. Already much has been done for the latter, and that even the former have made some progress will be proved at the meeting of the Horticultural Society on Tuesday next, when MR. ANDERSON intends to exhibit a splendid example of Lælia majalis (the "Flor de Maio" of the Mexicans) in full bloom.

Before we take leave of Professor REICHENBACH'S work, we must be allowed to express our regret at the great changes—they really amount to a revolution—that he has wrought in the distribution of several of the most important genera belonging to the tribe of "Epidendreæ." Thus the well-known Cattleyas and Barkerias are consigned to Epidendrum; while our long-tried friends the Lælias, Schomburgkias, Brassavolas, Broughtonias, and so forth, are all metamorphosed into Bletias! We say nothing about these changes on purely scientific grounds, because whether or not desirable from that point of view, we are convinced that their adoption generally is a simple impossibility. At all events, not until our people have consented to forego their first education and agree to spell on the phonetic system, shall we believe that Orchid-growers will cast aside the old nomenclature and adopt the new, even although it should offer them the privilege of turning Cattleya Skinneri into Epidendrum Hugelianum, &c. The Orchid-world is evidently not ripe for such an extensive scheme of "Disfranchisement" and "Redistribution," which would at once turn it upside down. Surely, if any change be necessary, it would be far better to let these unfortunate genera stand as suffragans or sub-genera, rather than attempt to extinguish them altogether.

* See our notice of this work at p. 577.

—— OF the NATIONAL HORTICULTURAL EXHIBITION opened last week at Manchester, and of which a report will be found in another column, it may be recorded that it stands second only, as to extent and merit, to the Great International Show of 1866. That alone excepted, no other flower show, metropolitan or provincial, has been of so extensive a character, nor from the horticultural point of view so thoroughly successful; and we are glad to be able to add, that like its great forerunner, which seems to have suggested it, the Manchester Show gives every promise of proving a financial success. Comparing its several elements with the constituents of the great gathering of 1866, we may say that at Manchester the display of Orchids was equal to the International, if not superior. In Stove and Greenhouse plants the Manchester display was equal in quality, though necessarily inferior in quantity; in Foliage plants the International had the advantage in quantity and size, though the Manchester plants were equally good in quality; while in Azaleas, Ferns, Roses, Pelargoniums, and hardy Trees and Shrubs, the International was in a marked degree superior. Nevertheless this Show, which closes to-day, taken as a whole, stands, as we have said, inferior only to the Great International, and its high character reflects great credit both on the managers and the exhibitors. MR. FINDLAY in particular deserves especial recognition, both for his original conception of the idea of holding a monster show in the provinces, and for the hearty and successful manner in which he has carried it out. It was a bold attempt, which has been fully justified by the display produced; and we are glad to learn that the Manchester Botanical and Horticultural Society, for whose behoof it was got up, will, if the last days are propitious, have largely benefited by the financial proceeds, and that the discredit and clog of a heavy debt will have thus been sensibly lightened, leaving it the prospect of a more prosperous future.

—— HAIR-WORMS. The violent thunderstorm, accompanied by a deluge of rain, which burst over the metropolis in the early morning of Monday, the 3d inst., was followed in the course of a few hours by a curious phenomenon but rarely observed. The Rose bushes and other shrubs in various gardens at Kennington, Brixton, and other southern suburbs, were seen to be swarming with small, slender hair-worms (about 2 or 3 inches long, and not thicker than a lace-pin). These creatures are occasionally found in the earth, but they are parasitic in the bodies of different kinds of insects. A correspondent from the neighbourhood of Carlisle, in a letter also dated the 3d inst., informs us that he had found a number of these creatures in his garden, stating that "they come out in quantities in our garden on *damp* evenings. They are long, hair-like looking worms, from 3 to 4 inches in length, rather pale in colour, and their habit is to wind half of their length round some leaf or stalk, and make a circular sort of motion in the air with the other half." Their history is very obscure, but we believe they are in no wise injurious to plants. *J. O. W.*

—— A Flower Show, in encouragement of WINDOW GARDENING AMONGST THE WORKING CLASSES, is announced to take place at Hull on Saturday, the 13th of July next. Among the general instructions

agreed on are the following:—That the exhibitors must belong *bonâ fide* to the working classes; that the plants for exhibition must be taken to certain convenient places, to be registered, together with the names, addresses, and occupations of the exhibitors; and that each plant and pot be so marked that the production of no other plants than those which have been duly registered, may be ensured. Three classes are to be formed: 1, for plants grown in courts, and neighbourhoods generally unfavourable to the growth of plants; 2, for plants grown under less unfavourable conditions; 3, for plants grown under favourable conditions. Twelve prizes at least will be given in each class, viz., three to the exhibitors who shall respectively show four, three, two, or one plant each. Three prizes are also to be given for bunches of wild flowers, and three for collections of fresh gathered Grasses, besides various special prizes. This example is worthy of imitation in other municipalities.

—— Several new or rare ORCHIDS are likely, we believe, to be exhibited at the meeting of the Royal Horticultural Society on Tuesday next, especially the glorious Lælia majalis ("Flor de Maio" of the Mexicans), which Mr. ANDERSON has flowered with his usual success, and which Mr. BATEMAN is to make the subject of a lecture. The chair will be taken by Sir R. MURCHISON.

—· We are happy to announce the safe return to this country from his second trip to Nicaragua, of Dr. SEEMANN, who has, we understand, made a very full collection of all the plants of the Chontales gold region, and amongst them has secured some very ornamental garden plants, which latter have been handed over to Mr. BULL.

PLANT PORTRAITS.

CATTLEYA WARSCEWICZII.—*Florist and Pomol.*, 1867, 69. Orchidaceæ. A beautiful cool-house Orchid, remarkable for the variety of colour presented by different plants, and especially valuable as a winter-blooming species. The colours vary from pure white to deep rosy blush, and the lip is richly stained with deep rosy-purple, finely contrasted with an orange-coloured blotch, and generally having a well-defined pale margin. Native of New Grenada, and now widely distributed amongst growers.

CORDYLINE AUSTRALIS. — *Bot. Mag.*, t. 5636. Liliaceæ. This is the handsome Yucca-like narrow-leaved greenhouse shrub which was formerly called in gardens C. indivisa, a name belonging to a broader-leaved yellow-veined plant. It grows from 12 to 20 feet high, has narrow ensiform leaves 2 to 3 feet long, and bears an erect and very much branched panicle of white blossoms, forming a dense head just emerging from among the leaves. Native of New Zealand. Flowered at Kew.

DOMBEYA MASTERSII.—*Bot. Mag.*, t. 5639. Sterculiaceæ. This is the plant described with some doubt as D. angulata at p. 14. It is a fine cool-stove shrub, with cordate-ovate velvety leaves, and axillary peduncles, bearing simple or subcompound corymbs of perfumed white flowers. Native of tropical Africa. Flowered at Kew.

DICTYOPSIS THUNBERGII. — *Bot. Mag.*, t. 5638. Smilaceæ. An elegant creeping greenhouse herb, furnished with sessile ovate-acuminate leaves, which are its chief recommendations; it has a paniculately branched inflorescence of inconspicuous white flowers. Native of South Africa. Flowered at Kew.

EUCODONIA NÆGELIOIDES.—*L'Hort. Franc.*, 1867, t. 3. Gesneraceæ. A charming stove perennial herb, raised between Eucodonia Ehrenbergii and Nægelia zebrina splendens, to which the new and inadmissible name of Eucodonopsis has been given. It is a lovely plant, with broad ovate and hairy leaves, and large Gloxinia-like flowers of a fine rose, the under side of the tube being yellow, spotted with crimson, and the face of the limb marked with bars of deeper crimson. A Belgian hybrid, raised by M. Van Houtte.

FITTONIA ARGYRONEURA.—*Flore des Serres*, t. 1664. Acanthaceæ. A charming stove perennial herb of dwarf habit, bearing a profusion of broad flat oval leaves of a bright green colour, traversed by a network of pure white veins. It is similar in character to F. (Gymnostachyum) Verschaffeltii and Pearcii, but differs in the colour of the venation. Native of Pará. Introduced by Mr. Bull.

GOMPHIA THEOPHRASTA.—*Bot. Mag.*, t. 5642. Ochnaceæ. A showy stove shrub, leafy at the apex of the stem, the leaves a foot long, elongate ovate-lanceolate, serrulate, and very shortly stalked, and the inflorescence consisting of copiously branched panicles a foot long, of golden yellow flowers. It has been called Wolkensteinia Theophrasta by Regel. Native of South America. Flowered at Kew.

LÆLIA PILCHERI.—*Floral Mag.*, t. 340. Orchidaceæ. A fine new hybrid Orchid obtained from Lælia Perrinii fertilised with L. crispa. It has narrow petaled white flowers, and a small narrow lip, the base of which is white, slightly veined with purple and rolled over the column, and the front portion, which is of a rich purple edged with white, is drawn out to an acute point. A garden hybrid, raised by Mr. Dominy, in the nursery of the Messrs. Veitch.

MYRTUS CHEKEN.—*Bot Mag.*, t. 5644. Myrtaceæ. A pretty evergreen greenhouse or half-hardy shrub, much branched and densely leafy, the leaves small, closely set, oblong-ovate, obtuse, and the flowers numerous, white, seated in the leaf axils. Native of Chili. Flowered at Kew.

NÆGELIAS.—*Flore des Serres*, t. 1671-2. Gesneraceæ. In this plate are representations of several beautiful varieties combining the zebrina habit, with pale-coloured flowers, namely:—CHROMATELLA, with clear yellow blossoms; LINDLEYANA, with yellow blossoms, finely dotted with red on the face, and with a rosy-tinted tube; CYMOSA, with whitish flowers, creamy in the throat, and flushed with rose on the tube and upper segments; ROSEA PUNCTATISSIMA, with blush white limb, finely dotted on the face as well as in the throat with crimson, while the lower part of the tube is pale yellow, and the upper strongly tinted with rosy purple. They will be very decided acquisitions. Belgian varieties, raised by M. Van Houtte.

PELARGONIUMS.—*Floral Mag.*, t. 334. This plate is devoted to two fine show varieties:—NEGRESS (fig. 1), a rich deep crimson maroon with white throat; and MILTON (fig. 2), a flower of better quality, with dark upper petals bordered with deep rose, purplish rose blotched and pencilled lower petals, and a broad white centre. The first is a remarkably dark flower of novel character. Raised by E. Foster, Esq.

SEDUM MAXIMUM VERSICOLOR.—*Flore des Serres*, t. 1669. Crassulaceæ. The plant is also called S. Rodigasii. It is a hardy perennial of the Telephium group, and has roundish oblong somewhat concave leaves, which are green in the centre and unequally margined with white, the latter colour being irregularly flushed and generally bordered with rose pink. A Belgian garden variety.

VERBENA LADY OF LANGLEYBURY.—*Floral Mag.*, t. 337. Verbenaceæ. A very handsome striped-flowered variety, which originated in a sport from Purple King. The flowers are purple with the segments broadly and evenly margined with white, so as to give them a striped character. Obtained by Mr. Cruickshanks, gardener to W. Jones Loyd, Esq., Langleybury, Herts.

PEAR PRINCESS OF WALES.—*Florist & Pomol.*, 1867, 93. A very handsome and valuable dessert fruit, of full average size, variable in shape, obtusely obovate, or sometimes with a contracted waist, smooth, pale yellow, mottled over with thin cinnamon russet; eye open, set in a rather shallow basin, the segments erect acute; stalk short, stout, inserted in a deepish cavity; flesh smooth, melting, juicy, with a highly-flavoured aroma. Ripe in November and December. Raised by the Rev. J. Huyshe, Clysthydon, Devon.

LETTERS FROM PARIS.—No. XIV.

MISCELLANEOUS JOTTINGS.

THE edgings in many of the public gardens of Paris are the best, most stable, and neatest I have ever seen. They are made after the old-fashioned pattern of bent sticks inserted in the ground, but they are of cast-iron, in fact bent iron rods, modelled evidently from bits of bent saplings. They are about 15 or 16 inches in span, strong, and about as thick as the middle finger, and of a brown colour. The points are flattened for the readier placing of the irons in the earth, and of course they are placed so as to form a cross work, just as in the little fence of bent saplings which every body must have seen. Where the rods touch each other they are tied with a bit of copper wire in most cases. In others of the same pattern that I noticed near the Louvre, a little ring or eye projects from each, and catches hold of its neighbour. These form an edging from 6 to 8 inches high, neater and firmer than any other edging whatever, and cheaper than many, while almost everlasting, and of such an aspect that no taste could be offended with them. They are decidedly the best edgings for a public garden, and no doubt much cheaper than those cement and artificial stone abominations which look so much astray in a nice garden. Here they are mostly placed about 2½ inches from the margin of the Grass or bed, so as to permit of cleaning it without in the least disturbing the firmly-set edging. I have seen a few other neat kinds, but as they do not surpass, as these "cast-iron sticks" do, any edging in use in crowded places in England, I omit notice of them.

A word or two about the Grass in Paris gardens: it is kept perfectly neat and fresh at all times, even in the heart of the city, and through the nasty spring it looked as green as an emerald. They gave it a top-dressing of fine, rich, and thoroughly decomposed manure with leaf-mould in April, a time when great activity prevailed in the innumerable gardens in the city, and when they were diligently planting the beds with Wallflowers, Arabis, Lychnis, &c. They plant out as systematically as they drill the human subject. For some weeks previous to planting, the various beds were scored with lines, and the exact spot for every spring flower indicated.

In the Jardin des Plantes I was much pleased to see a fine display of spring flowers. It is a splendid garden for hardy and medicinal plants, both kept distinct and clean. Of the earlier flowers, the old Saxifraga (Megasea) crassifolia proved one of the best, and it is very extensively used for spring gardening in Paris. They have a great spread of ground devoted to large masses of good things, several acres in fact, and in this I hope to have a rich treat by-and-by. In fact, it is the grand feature of the garden, which is, however, curious in many ways, attempting as it does to exhibit all things, from young alligators to elephants, and being surrounded by galleries containing immense zoological, botanical, anthropological and mineralogical treasures. It is not devoid of interest to the fruit gardener, for immediately to the right when you enter there is a grand collection of Pear trees in beautiful condition and training, and these I should advise every visitor to the Exhibition to see.

The Jardin d'Acclimatation in the Bois de Boulogne is a pretty one, and highly interesting to those interested in animal life. They do not do much gardening, but I was very much pleased with the arrangement of the conservatory, in what may be called the natural style, with a few rocks and a little winding stream, a fresh and verdant turf being formed of Lycopodium denticulatum, and in this beds of Chinese Primulas were plunged during the spring, the effect being very pretty. The New Zealand Flax also looked quite in place planted beside the water.

As a rule the nurseries I have seen are far from being like ours, but not a few nurserymen have left the immediate vicinity of Paris of late years, and gone to more wholesome quarters. The Pear seems particularly well cultivated in many places, even in small humble gardens; spring gardening too is carried out everywhere. Good private collections are far from being so common as they are with us, and though the people generally are very fond of flowers, yet they do not spend nearly so much money on gardening as the British. As for the making of the roads and streets it is admirable, as many of your readers may have learnt for themselves. When they have finished repairing or making a street here, the surface is level and crisp as the broad walk in the Regent's Park, so that the horses are spared much pain, and carriage movement is much facilitated. Stones of much the same size as we spread on the roads are thrown down, and then comes the heavy steam or horse-drawn roller, making but a slight impression at first, as might be expected, and indeed it has to be passed over many times ere the work is completed. But they persevere and roll away day and night, and soon the street looks as I have described. All the time, or nearly all the time that this rolling is going on, a man stands at the side of the footway in charge of a hose on little wheels, and keeps swishing the stones with water, while others shake a little gravel on them between the rollings, and so they wash and roll and grind day and night, the result being that the Parisian roads are as comfortable for locomotion as could possibly be desired. Doubtless such management as this, and the immense improvement effected in Paris gardens of late years, and their perfect keeping, will act beneficially on the horticulture of the country generally; and unless some happy change should start us on the same road to improvement, we shall soon have good reason to be ashamed of the state of our towns and cities.

Vegetables were not very plentiful here during the winter, but good salads were very abundant, Endive being perhaps the nicest, but the blanched Chicory, or Barbe de Capucin, thoroughly blanched, is good, bitter, and wholesome. Pisse-en-Lit (Dandelion) was much in vogue, but is not nice to my taste; there was a good soft Cos Lettuce in general use; and Corn Salad, or Mâche, as the French call it, was good all through the winter. It is a great pity that London and our other great towns are not better supplied with salads, but the whole subject of the supply of our cities with fruits and vegetables is in want of a complete reform. Celery mixed with Corn Salad is a popular, cheap, and capital salad, very gratefully flavoured. Every day in spring I was delighted with the most delicious young Radishes, and as for forced Asparagus, magnificent is the only word that can describe it; as I have before mentioned, each stick of the best quality is as big as a goodly-sized eel. The French grow Asparagus as well as they grow Peach trees. One day I went to the Luxembourg and heard M. Rivière deliver one of his free lectures, which was thoroughly practical, and was elucidated by the aid of a fine Peach tree brought bodily in in full flower. The lecturer went through the theory and practice of the matter before an attentive class, consisting of several hundred persons, pruned his boughs, and elucidated the matter in a way which could not fail to highly benefit the numerous amateurs who attended the class. It was a very interesting sight to me to see such a number of people here at 9 o'clock in the morning, taking a deep interest in the matter, and speaks much for the excellence of the Professor. I have heard a few lectures in England, but none so directly useful to the horticulturist as these. The fine old gardens of the Luxembourg are to a great extent destroyed, but new features are being added to compensate, and of the whole place I hope to speak at some future time. Every day is adding to the beauty of the scene around the Exposition. In the building things are now fairly in order.

My Diary for April 19 reads thus:—"Saw ripe Melons to-day at the Exhibition, grown in the pits formerly described. Also Calville Blanc, a noble large yellow Apple, selling at one and two francs, a splendid fruit for any purpose; six beautifully-coloured fruits of the Belle Angevine Pear, weighing collectively 44 lb.; Easter Beurrés were also magnificent. Cherries were ripe and good—forced, of course. In a house near the Rue St. Honoré, a great vegetable and fruit *magasin*, I measured one stick of Asparagus an inch and a half in diameter. This is grown on deep sandy ground. In this house they preserve an immense quantity of Mushrooms in tin boxes, about 14,000 boxes per annum, quantities of which are sent to England. Nearly every sort of vegetable is also preserved in great quantity in this house. They begin their preservation in the month of May, and in every case select the very best and tenderest specimens that can be had in the country." Tomatos were ripe in April and fine; they came from the warmer parts of France.

Called in at the Cemetery of Mont Parnasse on my way to M. Chantin's nursery. Saw them making a new drive, *the bottom being made with broken head-stones*, many of them bearing the date of 1860 and thereabouts. These had been placed on ground that had not been paid for in perpetuity, and were consequently grubbed up when, as I before described, they want to fill the trenches a second time. I have read and admired Lyell's illustration that all flesh is Grass, by telling about an old graveyard being undermined by the sea on the Eastern coast, and a stone inscribed to "perpetuate" the memory of somebody being knocked and ground about by the waves on the beach, but I never knew what a poor, transient, weedy kind of Grass is the flesh of the lords of creation till I came here. Chantin's nursery, from whence the Caladiums were sent out, is very rich in Ferns and handsome-

leaved plants of all kinds; and it is the place in which most of the great number of Palms used for decoration are grown. I took a list of the more desirable kinds, which I will lay before your readers in due course. *W. R.*

HARDY PICTORIAL TREES.—No. V.

Flowering Trees and Shrubs (Evergreen).

So numerous are the species and varieties of hardy flowering trees and shrubs that there is a difficulty in reducing the number within reasonable limits. Many of the old kinds which have had a name in the past, must now give place to kinds of recent introduction, which, while they serve to fill the place of the former as regards general character and foliage, excel them in the beauty of their flowers. In making a selection, the amateur will be guided by the season at which he wishes to have the greatest display; in some places this may be spring, in others summer, and in others, again, autumn. Leaving this and other special objects to be sought out and realised by the individual planter, I can but deal with the matter from a general point of view, selecting the most desirable kinds at whatever season they may flower.

Andromeda floribunda.—Height, 2 feet. This beautiful dwarf evergreen, which is covered with numerous spikes of snow-white flowers in winter and early spring, thrives best in peat or light loam. It is worthy of a special plot in every garden.

Arbutus Unedo.—Height, 15 feet. This is the type of a numerous family, all more or less interesting, thriving best in light loam. The flowers are white. Of the scarlet flowering kinds, *A. U. Croomii* is the largest and handsomest. *A. Andrachne hybrida* is also a beautiful kind, with large shining leaves, and long spikes of white flowers.

Berberis Aquifolium.—Height, 5 feet. A dark green evergreen with ample foliage, producing an abundance of yellow flowers in early spring, succeeded by clusters of purple berries in autumn. Hardy, handsome, and free thriving in any soil, this plant, on account of its beauty and cheapness, should be abundantly planted. It forms excellent cover, pheasants and birds generally feeding freely on the berries. *B. fascicularis hybrida* is also a beautiful kind of taller growth.

Berberis Darwinii.—Height, 5 feet. Perhaps the loveliest of this genus, thriving in common garden soil. The flowers are rich deep orange, often so profuse as to completely cover the plant.

Ceanothus pallidus.—Height, 6 feet. A beautiful shrub, producing spikes of sky-blue flowers; very hardy. Of other species, *azureus, dentatus, divaricatus, rigidus,* and *papillosus* are good, but not quite hardy; they are however valuable and suitable as wall plants.

Daphne pontica.—Height, 4 feet. This is a valuable hardy plant on account of the sweetness of its insignificant greenish flowers, which perfume the garden and shrubbery in the evening. *D. Cneorum* and *D. Cneorum fol. var.* are also charming plants, of trailing habit, with pink sweet-scented flowers. The latter are of less easy culture than the former and require light loamy or peaty soil. *D. Fioniana* is a pretty dwarf free-blooming kind with lilac flowers, thriving like the *D. pontica* in any soil.

Erica in varieties (the hardy Heath).—The varieties of hardy Heath are almost endless, if we include, as from the mere decorative point of view we may well do, the genera *Gypsocallis* (Moor Heath), and *Calluna* (Ling or Heather). They range in height from 1 to 4 feet, are mostly very hardy, and thrive best in peat. For a small collection take the following:—*C. vulgaris*, 6 varieties; *Erica*, 10 varieties; *Gypsocallis*, 4 varieties. The flowers are white or red.

Garrya elliptica.—Height, 8 feet. A fine evergreen, with dark shining oblong leaves, producing in mid-winter catkins resembling those of the Filbert. The plant is sometimes damaged by frost in winter, but quickly recovers. Thrives in any soil.

Kalmia latifolia.—Height, 6 feet. This is one of the chastest of what are popularly called American plants, the leaves are of a beautiful dark green, the flowers white, tinted with pink. *K. myrtifolia* is similar in character, but has flowers of a deeper colour. *K. glauca* is a lovely little plant, rarely exceeding 1 or 1½ foot in height, covering its branches with pale red flowers in April and May. All these require peat or light loam.

Ligustrum lucidum (the Chinese Privet).—Height, 12 feet. A very handsome evergreen, but scarcely hardy enough for the climate of London except in dryish soils, and sheltered situations.

Magnolia grandiflora exoniensis.—Height, 30 feet. One of the grandest of flowering evergreens, most suitable for training against mansions and dwelling-houses, where in time it will rise to the height of 30 or 40 feet. The large oval flowers are white; very fragrant; thrives best in sandy loam or peat.

Rhododendron.—Of all flowering evergreens the Rhododendrons are pre-eminent. They require peat, natural or artificial. The garden varieties are so hybridised that I shall not attempt to bring them under any one species, but simply give a list of names and colours of a few of the best. *R. arboreum, catawbiense, maximum,* and *ponticum,* are the species from which our best garden varieties have descended. White and black, variously spotted and shaded: Album elegans, Chinoides, Gulnare, Ingramii, Madame Miolan Carvalho, Minnie, Mr. Otto Forster, Mrs. Mangles, Papilionaceum, Zuleika. Lilac: Fastuosum, Maculatum superbum, Sherwoodianum. Pinkish white: Star of England. White or blush edged with rose: Bylsianum, Concessum, Comtesse de Morella, Limbatum, The Gem. Peach-colour: Standish's Perfection. Rose and cerise: Blandyanum superbum, Etoile de Flandres, Lady E. Cathcart, Madame Titiens, Mrs. John Waterer, Paxtonii. Crimson of various shades: Blandyanum, Fleur de Marie, Atrosanguineum, Barclayanum, Grand Arab, Iago, John Waterer, Robert Burns. Purplish crimson and lake: Brayanum, General Wilson, Neilsonii. Blood colour: Brebnerii. Purplish claret: Blatteum, Maculatum grandiflorum. Blueish purple: Schiller.

Spartium junceum (the Spanish Broom).—Height, 8 feet. One of the gayest of flowering evergreens; flowers yellow, thriving in common soil.

Ulex europæa flore-pleno (the double-flowered Furze).—Height, 5 feet. A compact evergreen, thriving in common soil; the yellow flowers are produced so freely in spring that it forms a complete golden bush. Very effective, but apt to suffer from severe frosts.

Viburnum Tinus (the Laurustinus).—Height, 8 feet. This is perhaps the most beautiful of winter-flowering dwarf evergreens, thriving in common garden soil. It is sometimes damaged in low, damp situations if the winter be severe, but is seldom killed. *Viburnum lucidum* (the black Laurustinus), and *V. suspensum* are also valuable and handsome evergreens. *William Paul, Waltham Cross, N.*

SALADS, AND HOW TO GROW THEM.

Celery.—This most deservedly and almost universally esteemed salad vegetable is worthy of all that can be said in its praise; though without proper cultivation, *i. e.*, if left to grow naturally, it is merely useful as a pot herb for flavouring soups, &c., its leaves growing close to the ground, and spreading similar to those of Parsley. When properly cultivated we all know how relishing its leaf stalks become. Some winters are severe enough to kill Celery outright, but this has only occurred once within the last 20 years.

The first week in March is the time to sow Celery. Make up a hot-bed for it similar to that recommended for spring-sown Lettuce; if the mould is not fine it must be sifted, as the seed being small it will not come up well without that attention. The hot-bed should be about 18 inches high. When ready, put on the boxes, and cover the dung with earth to the depth of 6 or 7 inches. Also make a sowing in some sheltered spot on light land about the middle of the month for late planting. The best mould to sow Celery in is a nice friable loam, having an admixture of leaf-mould and sand. This will induce the roots to become fibrous, which is a great point gained. Having filled the boxes with mould to the required depth, rake very smoothly, and pat the ground with the back of the spade to make it level, in order that the plants may come up more evenly. Sow and sift over the seed about half an inch of fine mould, put on the lights, and cover them with litter or mats in order to bring up the heat in the boxes. This covering must be removed on fine days and when the sun shines brightly, covering them again early in the afternoon. As soon as the plants come up, give them a little air by means of pushing the lights down about an inch, gradually hardening the plants off according to the weather, until the lights can be altogether open. The young plants will require attention in the way of watering, weeding, &c. They will be ready to prick out, about the second week in April; a slight hotbed should then be made up, say about a foot in depth, on which the boxes and lights should be put. The plants, which will be very small, must be pricked out 3 inches apart each way in rows; keep the boxes close and well-watered until the plants have struck root. They may then be gradually hardened, so that the same boxes and lights may be used for another pricking. This second lot will do very well without dung. As they progress, a small hoe must be used frequently among them, in order to keep the earth loose about them; a table-knife, bent at the point, is the best hoe for this purpose. Continue to prick out the plants as they grow large enough for that purpose, and as the spring advances beds may be made in the open ground in the following manner:—Rake the bed smooth, 4 feet wide, then mark lines out on it 1 foot apart; place a board on the bed to stand upon, and work backwards. The spaces between the lines will take two plants, and one on each line; there will thus be 16 rows on the bed, and the plants should be 3 inches apart each way. Care must be taken not to allow the plants to suffer from want of water; sometimes I find it necessary to shade the plants from the sun until they have taken root, but I give them the benefit of the dews at night.

The plants first put in the boxes may be thinned out as soon as they are large enough for that purpose, which will be about the third week in May, to a foot apart from row to row, and 6 inches asunder in the row. Give the bed a good heavy watering after thinning, and put a little earth between the plants; as this progresses continue the waterings and keep the mould well up between the rows; to do this properly two thin pieces of board, about 9 inches deep, will be required: place the boards between the rows while earthing. If properly attended to this will be ready for table in the end of July. The other beds may be treated in the same manner, allowing them a little more room. If it is desired to have small Celery all the winter, a much larger quantity can be grown by this method than by any other, but the heads will not be so large, as if the ordinary plan of cultivation was pursued. To this let us now advert.

The thinnings of the first bed should be used for the general crop. Plant in the months of February or March two rows of Cauliflowers or Cabbages, 18 inches apart by 2 feet in the row. The next row should be 3 feet 6 inches from this; then again have a double row, and so on alternately. The wide intermediate spaces may be sown with Spinach; or Radishes, or Lettuce may be grown among them; rows of Peas may also be sown 5 feet apart, and Celery grown between them; also many other things. When the Radishes, Spinach, &c., have been cleared off the ground, throw out the mould 18 inches wide and 6 or 8 inches deep, dig in a good quantity of rotten dung deeply, deep digging being one of the main things in Celery growing. The rows of Celery will then be 5 feet apart, and it should stand 10 inches from plant to plant, for early work; later in the season it will do even at 7. Give the plants plenty of water; in short, they cannot well be watered too much; if this is neglected the root becomes hard, and instead of obtaining early or large heads failure will be the result, for if Celery once stops growing it is very difficult to make it start again. Should this occur, a deep hoeing and heavy watering must be resorted to. Hoe frequently, and as soon as the Celery is 8 or 9 inches in height, put a little mould to it with the back of the spade or a broad hoe, taking care to keep the outside leaves upright, and not to smother the heart. A row of hardy green Coleworts, or a row or two of Lettuce, should be grown between the rows of the second, and after plantings, as the Cauliflowers, &c., come off. Plant for succession until the first week in August, but not later; of course I am now only speaking of March-sown Celery. When the plants have grown a foot high or more, clear anything off that may be between the rows, and dig the earth to the Celery. This is called back-spitting. Give it more earth as it advances in growth, always leaving the top of the bank broad, to allow for putting more earth on it. Top or close it as the Celery is wanted. It will take about a month after doing this before it will be ready for table. Some advise covering it over quite from the air, to make it blanch quickly, but that is a mistake. It will be found quite sufficient to close it up high with earth.

A little judgment must be used so as to keep up a succession both as regards planting and earthing. The latter must not be pushed too forward, as the early Celery will not keep good for any length of time after it is ready for table. As autumn progresses put sufficient earth to the late planted to keep the leaves upright, but not close enough to bleach it much until the end of November; or if the weather be open, leave the closing of it until the middle of December. This in ordinary seasons will last good until April.

The soil best suited for this plant is good boggy earth, not drained too dry; it luxuriates in this, and with proper attention will grow as large as could be wished. It will do well in any good soil, provided it has enough water given it. The plan of using earthenware pipes to keep it upright is a useless expense. Some of the old gardeners used to tie the leaves together with bast; this, too, I consider simply a waste of time.

The best sorts of Celery are undoubtedly the red varieties. They are more crisp and sweet than the white kinds, and keep much better in the ground. The whites, perhaps, are best for garnishing. The sorts I recommend are Solid White and Lion's Paw White, and Early Red. These varieties will not keep good after Christmas. The best Celery in cultivation is that grown by the London market gardeners, viz., a dwarf solid red, which is good for table from August till the end of April. To obtain Celery in May and June, sow Italian White or Lion's Paw in the middle of May in good open ground, and prick out in beds as soon as ready. If the plants get too long in the beds, cut off part of their tops—an operation which will not hurt them. Plant in October or November in shallow drills 3 feet apart by 6 inches in the row. This does not require the ground to be thrown out, &c., as in the case of that planted in summer; digging some good dung in in the ordinary manner, and throwing the drills out after is sufficient; do not give it any earth until the following spring, when it begins to grow. By the end of April or beginning of May it will grow very fast, and will soon run to seed, so it is not advisable to grow a large quantity.

Celeriac, or Turnip-rooted Celery, is useful only for soups. It is grown like any ordinary crop, and is tolerably hardy. *J. M. M.*

ORIGIN OF VARIEGATED PELARGONIUMS.

[The following is the paper on this subject which Mr. Wills intended, had time permitted, to have read at the Royal Horticultural Society's Meeting, May 21st.]

My intention was, had there been time, to have brought the whole of my specimens of the old Pelargoniums before the meeting. They would have illustrated the progress that has been made from the year 1710 to the present time. I have to thank Mr. Davies, gardener to Lord Bridport, for several of these curious old forms. One of them, Miller's Old Variegated, is especially interesting, as being the first Variegated Pelargonium ever seen in this country, and probably the parent of all the beautiful variegated forms we see around us on this occasion. I have also in my collection plants of two of the wild Cape Pelargoniums—namely, Pelargonium inquinans, the parent of all the plain-leaved section, and the wild Pelargonium zonale, which is the parent of all the zonate varieties. These old varieties, which have been so long cast aside as worthless, are, nevertheless, very interesting, as being the parents of the magnificent host of variegated Pelargoniums we now meet with.

I am very much inclined to think that it was not by man's agency that our first variegated kinds were obtained. My opinion is, that Nature in the first instance received no assistance from man, but that some of the earliest variegated kinds originated naturally. The first Silver Variegated Pelargonium of any note was sent out many years ago by the Messrs. Lee, of Hammersmith, and was named by them Lee's Variegated Scarlet; and I think there can be little doubt but that the origin of this variety was a sport from a green parent, which may have been naturally impregnated by the pollen of Pelargonium zonale variegatum. One of the seedlings from this natural cross, although perfectly green for several years, may have had the tendency to variegation, and many years may have elapsed before the plant had sufficiently matured itself to enable it to produce a variegated sport. In support of this view, I may quote a letter I received some months ago from Mr. Davies, and in which he says, "Many years ago I raised a quantity of seedlings from Lee's Flower of the Day. One of them produced a beautiful bright scarlet flower, the flower-truss of which was very large. The original parent, which is now about 18 feet high by 10 feet wide, continued perfectly green till about four years ago, when it occasionally threw out sports, producing variegated leaves on different parts of the plant, which are generally greatly admired." Many instances of a similar nature have come under my own observation. This, I think, will show the possibility of plants retaining variegation in their nature for many years, and only

developing it when the plant has grown to a large size, or been subjected to some peculiar treatment.

Whatever may have been the origin of Lee's Variegated Scarlet, it is certain it was the parent of some of our very best silver-margined varieties. From it Mr. Kinghorn raised Flower of the Day, a variety which is still grown very largely, and is not yet surpassed for general usefulness by any at present in cultivation. Flower of the Day was followed by Mountain of Light, and a little later Mrs. Lenox appeared; after this Bijou, Alma, and many others in the same way. Previous to the appearance of these varieties Mr. Kinghorn raised Attraction, which was the first variety ever produced with a pink zone. This was followed by Countess of Warwick, and then the appearance of Mr. Elphinstone's varieties created a sensation. Their names were - Fontainebleau, Hotel de Cluny, St. Cloud, and The Queen's Favourite. In 1863 Mangles' Silver Variegated appeared as a sport on Pelargonium heterogamum in the garden of Captain Mangles at Sunning Hill. This variety has never been of any use for cross-breeding purposes. I have never known it ripen seed but once; that was at Oulton Park during the hot and dry summer of 1865. None of the seed vegetated. The origin of Golden Chain was in a sport from P. inquinans, produced about the year 1844, in the neighbourhood of Ipswich. Some years after this Lady Plymouth also sported from P. graveolens. Osborne's Brilliant appeared in 1851; this was also a sport.

There are several claimants to the honour of having raised the first Tricolor-leaved Pelargonium. A correspondent stated in the *Journal of Horticulture* lately, that the first Tricolor was raised in the neighbourhood of Blackheath nearly 20 years ago, and that it was named Rainbow. If this statement be correct, it is strange that a variety nearly equal to Mrs. Pollock should have remained unknown so long, and that its fortunate raiser had not a keener eye to business. Mr. Elphinstone, of the Sprowston Nurseries, Norwich, appears to have exhibited the first Tricolor. In a letter which I received from him some months ago, he said, "I raised the first Tricolor Pelargonium, and exhibited it at the Horticultural Society's Rooms in Regent Street in the year 1851, and was highly complimented by the late Dr. Lindley." This variety Mr. Elphinstone sold to Mr. Veitch, who could do nothing with it, and eventually lost it. Major Trevor Clarke, I believe, was the first to discover the potency of the pollen of Golden Chain upon other varieties. To Mr. Grieve belongs the honour of having produced the first permanent Tricolor. His name will be handed down to posterity, as the sole originator of this beautiful class of plants. The advent of his Mrs. Pollock in 1861 caused quite a revolution amongst raisers and growers of bedding Pelargoniums. I have no doubt that Mr. Grieve procured Mr. Elphinstone's and Mr. Kinghorn's varieties, and with them was enabled to bring about such wonderful results. I know, from my own experience, that green seedlings from Mr. Elphinstone's varieties were produced in large numbers with very dark and partly variegated zones. The pollen of Golden Chain applied to the flowers of these would produce both Golden and Silver Tricolors. One of these seedlings, raised five years ago from The Queen's Favourite, I used last year as a female parent, because the zone was very dark and beautifully defined, and the plant showed faint signs of variegation on its stem. Its flowers were fertilised with the pollen of one of my Golden Tricolors: it has produced both Golden and Silver Tricolors, and one of the seedlings that remained perfectly green for nine months afterwards threw out both Silver and Golden Tricolors. This plant, also shown in my collection, is a living proof that both Golden and Silver Tricolors can be produced by one plant spontaneously.

I have noticed in many instances seedling plants producing a solitary variegated leaf after they had attained a height of 9 or 12 inches, and that this leaf has had sufficient power to inoculate the whole of the plant. If the variegated leaf is carefully preserved on the plant, and some of the green leaves above it are removed, the effect of inoculation will soon be observed. This will go on spreading and increasing until the whole system of the plant has become inoculated; the plant will then break out into variegation, and if any green leaves appear on the variegated sport they should be immediately removed. This will enable the variegated portions to predominate, and the future character of the plant will remain fixed and permanent, only occasionally, perhaps, showing a green leaf.

Again, small seedling-plants only showing very faint signs of variegation in the cotyledons will ultimately become permanently variegated, although no signs of variegation may be seen on any of the leaves of the plants for 9, 12, or 24 months; afterwards, if such plants be kept, it will be seen on close examination by any one that there are streaks of variegation appearing on the stem near the position of one of the cotyledons. These streaks, if the plant be freely cultivated, will extend very rapidly, and the variegation will increase month after month until the whole system of the plant becomes thoroughly impregnated; then the plant will begin pushing out variegated shoots from the base upwards. Sometimes I have found the variegated portion extend too rapidly, especially when it begins to develop itself on very young plants or in an early stage of their growth. In this case, I always pinch portions of the variegated foliage away to enable the green leaves of the plant to recruit its strength, and when it is found necessary to check the predominance of the green part, portions of the foliage on this part of the plant are picked off. To such plants as these I give the preference. I have found, after the sports they produce are fixed, that they are propagated much more easily, and grow much more freely, than do the cuttings from plants that are perpetuated from seedlings which have become very much variegated in an early stage of their growth. In these, the constitution of the plant becomes very much crippled by variegation.

A curious instance of sporting is seen in a large plant of the bronze and gold section, named Her Majesty. The female parent of Her Majesty was one of the green seedlings from The Queen's Favourite, which I have before referred to. The plant was two years old when it was used as a pollen parent, and did not exhibit the slightest signs of variegation at the time I selected it for fertilising with the pollen of Beauty of Oulton, on account of its having a very deep zone. Two months ago it threw out a white sport near the position of one of the cotyledons. I took it off, struck it, and it is now to be seen in my collection. Another white sport appeared shortly afterwards; this still remains on the plant, and may be seen by any one who will examine the beautiful specimen named Her Majesty in my collection.

The preceding, I think, abundantly shows the way in which variegation is transmitted from one generation of plants to another; also that although it may not appear in the first, second, or third generation, it may in the fourth or fifth. This, I think, goes far to prove that variegation in plants is a disease.

I think I have stated enough to show that our old Variegated Pelargoniums originated from sports, and that from them the numerous varieties now in cultivation have been perpetuated. I will now leave the subject to be dealt with by some of our scientific gentlemen, and hope they may be able to find out the causes of variegation.

[To the above we append, through the courtesy of Mr. Wills, a descriptive and genealogical list of the seedlings, many of them raised by himself, which will be considered as a valuable document by those interested in this question:—EDS.]

In the following list will be found specimens representing the earliest known varieties of Pelargoniums, also types showing the progress made from the year 1833 up to the present time. One of the varieties named in my paper (Lee's Old Variegated Scarlet) I have not been able to procure: I fear it is totally lost to our gardens. Should this meet the eye of any persons who may possess it, I should be greatly obliged if they would kindly communicate their name and address to me, as I am particularly anxious to procure it. As it was the parent of all the present race of silver-edged varieties, it is a great pity it should be lost sight of altogether:—

1. Zonale, scarlet, parent of all the zonal section, introduced to this country in the year 1710.
2. Inquinans, dyed flowered scarlet, parent of all the smooth-leaved section, introduced to this country in the year 1714.
3. Miller's Old Variegated, the first Variegated Pelargonium ever seen in this country, and no doubt the parent of Lee's Old Variegated Scarlet.
4. Golden Chain, pollen-parent of Mrs. Pollock and other tricolors; origin of this variety, a sport from Inquinans, 1844.
5. Manglesii (Captain Mangles' Silver Variegated); origin, sport, 1863.
6. Flower of the Day; parent, Lee's Old Variegated Scarlet; on or about the year 1849.
7. Cottage Maid, zonal. Female parent of Mrs. Pollock; first generation, about the year 1849.
8. Cerise Unique, female parent from which many of our best Gold and Silver Tricolors have been obtained, 1847.
9. Variegated Dandy.
10. Countess of Warwick, the first variety having a pink zone, 1854.
11. Mountain of Light | 12. Bridal Bouquet.
13. Osborn's Brilliant; origin a sport, 1850.
14. Attraction, pink zone; parent of Elphinstone's varieties; 1851.
15. Meteor. Fine silver-edged variety.
16. Alma, 1854. | 18. Mrs. Lenox.
17. Mountain of Light.
19. Mountain of Snow (Lenox), 1855.
20. Fairy Nymph (Lenox), 1855.

1857. Advent of the beautiful foliage Pelargoniums. The following five varieties, four of them raised by Mr. Elphinstone, of the Sprowston Nurseries, Norwich; and one, Culford Beauty, raised by Mr. Grieve, caused quite a sensation. It was from these fine varieties that Mr. Grieve produced his beautiful and never-to-be-forgotten Mrs. Pollock. Mr. Grieve after this period took the lead, and Mr. Elphinstone appears to have lost the thread of his previous success. Mr. Grieve has explained how he set to work for the purpose of bringing about the grand result, which afterwards crowned his energetic labour (see p. 548).

21. Culford Beauty (Grieve), 1857.
22. Hotel de Cluny, E., 1857. | 24. Lady of Loretto, E., 1857.
23. Fontainebleau, E., 1857.
25. Lady Dorothy Neville, E., 1857.
26. Emperor of the French (Grieve). Female parent of Mrs. Pollock (2d generation).
28. Bridal Wreath (Grieve), 1858.
29. Shotesham Pet, 1858. | 32. St. Cloud, 1859.
30. The Rainbow (Grieve), 1859. | 33. Baron Hugel. 34. Bijou.
31. Silver Chain, 1859. | 35. Henry de Beaudot, 1860.
36. Cloth of Gold, 1860.
37. Golden Fleece. These two varieties were the commencement of the improved race of the gold-leaved section; up to this time the old Golden Chain was the best gold-leaved variety in cultivation.
38. The Queen's Favourite (Elphinstone), 1860. This beautiful little variety attracted the special notice of her Majesty when it was exhibited at the St. James's Hall; it is scarcely surpassed by any variety amongst the Silver Tricolors up to the present time.
39. The Fairy, similar to the above variety, and very dwarf and compact in habit, 1860.
40. Lateripes, pink-flowered, variegated
41. Princess of Prussia, female parent of many of my most beautiful tricolor varieties.

1861.—Advent of Mrs. Pollock, Sunset, The Countess, and other beautiful varieties.

42. Mrs. Pollock.
43. Sport from original plant of Mrs. Pollock, showing the exact form of female parent of Mrs. Pollock.
44. Sunset (Grieve), 1861.
45. Golden Harkaway.
46. Yellow Belt, improved Gold Chain, 1861.
47. Burning Bush (Hally).
48. Spitfire, dark-zone variety; female parent of some of my best Tricolors.
49. Baron Ricasoli: female parent of Lottie Wills, Beauty of Huntroyde, and Beauty of Oulton. Sunset was the male parent of these beautiful varieties.
50. Flower of Spring.
51. Queen of Queens, origin a sport. This is one of the most beautiful of the silver-edged varieties, and is a great advance upon anything in its class; it has a very dwarf style of growth, and is a most uniform blooming variety: 1862 (Bull).
52. Rose Queen. | 54. Silver Chain.
53. Rosetta. | 55. Snow Flake.
56. Gold Pheasant.
57. Italia Unita, 1864. One of Mr. Grieve's most beautiful Silver Tricolors, and a great advance upon anything yet produced.
58. Mrs. Benyon, 1864.
59. General Longstreet, 1865; fine improvement upon Golden Fleece.
60. Beauty of Oulton. Female parent, Baron Ricasoli; male parent, Sunset.
61. Circlet. Female parent, Emperor of the French; male parent, Golden Fleece.
62. Gaiety. Female parent, Princess of Prussia; pollen parent, Mrs. Pollock.
63. President Lincoln. Female parent, Princess of Prussia; male parent, Cloth of Gold.

The above five varieties are types of a new race of bedding Pelargoniums. These varieties were raised at Oulton Park in the year 1863.

64. Bronze Queen, 1865. | 65. Neatness.
66. The Bride; the only white variegated kind having white flowers; it is a very dwarf-growing variety, and well adapted for small beds or marginal lines. It originated in the neighbourhood of Birmingham; pedigree unknown.
67. Golden Ray, 1866.
68. Lucy Grieve. One of Mr. Grieve's very best varieties; 1866
68. Queen of Tricolors (Garaway), 1866.
69. Light and Shadow, 1866.
70. Stella albo-marginatum; sport from Stella.
71. Lady Cullum. One of Mr. Grieve's latest and best Tricolors, 1867.
72. Seedling from Queen's Favourite.
73. Seedling from one of my best Tricolors (Northern Star). This plant has two distinct tricolors on it—one a Silver Tricolor, the other a Gold Tricolor,; it has also a green shoot, which is identical with its original female parent. The pedigree of this curious plant is this: a green seedling from Queen's Favourite; four years ago, it being a very dark-zoned variety, I fertilised flowers of Northern Star with its pollen. The present plant remained perfectly green for nine months, when it threw out two distinct sports. The Silver Tricolor appeared on one side of the stem, and the Gold on the other, and between these the plant produced at the same time green shoots like the original female parent. This is one of the most singular instances I have met with in all my practice, proving the contrary of what has been asserted by Mr. Grieve and others.*
74. Seedling from Baron Ricasoli. Male parent, Beauty of Oulton. This is also a singular plant; it has on it a beautiful white sport, and the plant itself does not resemble in the slightest degree either of its parents. This will lead one to look back several generations for the parentage of Baron Ricasoli, which was in all probability a green seedling from some variegated kind; this, again, shows how the germ of disease is transmitted from one generation to another, and only manifests itself under some peculiar state of development.
75. Seedling from Amy Hogg. Male parent, Queen's Favourite.
76. Seedling from Commander-in-Chief. Third generation. This plant has also a variegated sport; no pollen from any variegated flower has come near this plant.
77. Seedling from Mrs. Wm. Paul. Male parent, Queen's Favourite.
78. Seedling from Amy Hogg. Male parent, sport from Queen's Favourite.
79. Curious white variegated sport from Her Majesty. This is a most curious phenomenon; I have particularly referred to this instance of sporting in my remarks on the "Origin of the Variegated Pelargonium," in a previous column.
80. Curious seedling from Beauty of Oulton. Pollen parent, Mrs. Lenox; showing the effect produced by crossing a yellow-leaf variety with a silver-edged kind.
81. Seedling from Stella. Male parent, Queen's Favourite.
82. Matchless. Sport from a green seedling, from a cross between Sunset and Princess of Prussia, third generation; a very distinct and beautiful variety.
83. Lizzie. This beautiful variety is a sport from a green seedling raised from Auguste Ferrier, one of the double varieties. Mrs. Pollock was the pollen parent. There was no sign of variegation perceptible till the plant was two years old; the leaf is of great substance and the flower large. None of my seedlings from the double varieties have produced double flowers, but the leaves borne by them are of much greater substance, and the constitution of the plant much more vigorous.
84. Florence. Female parent, one of my darkest-zoned seedlings; pollen parent, Mrs. Pollock. This is also a sport from a green plant. The plant which this var. sported from was two years old before any sign of variegation was perceived.
85. Fanny. Sport from a green seedling, female parent of which was Cottage Maid; pollen parent, Mrs. Pollock.
86. Unique. Also a sport from a green seedling, the female parent of which was Baron Ricasoli; male parent, Queen's Favourite.
87. Female, Flower of Spring; male, Beauty of Oulton.
88. Four seedlings from one single flower. Female parent, Beauty of Oulton; pollen parent, Countess of Warwick. These prove that a single Pelargonium flower can produce three or more distinct varieties. In this instance one of the plants is just like the male parent, and the other three are quite distinct one from the other.
89. Seedling from dark-zoned seedling. Pollen parent, Lucy Grieve.
90. Seedling from a dark-zoned variety raised in 1863 from Attraction, fertilised in 1866 with pollen taken from Lucy Grieve. This plant is producing a sport the very counterpart of Attraction, showing that the pollen of Lucy Grieve had no influence on the flower whatever.
91. Sport from a green seedling. Male parent, Circlet; female parent, Attraction.
92. Perilla. Female parent, Auguste Ferrier, double; male parent, President Lincoln. This and the following varieties are magnificent bedding kinds.
93. Model. Female parent, Beauty of Oulton; male parent, Auguste Ferrier.
94. Beauty of Ribblesdale. Female parent, Circlet; male parent, General Longstreet.
95. Beauty of Caulderdale. Female parent, Gaiety; male parent, Beauty of Oulton.
96. Princess Alice. Female parent, Beauty of Oulton; male parent, Sunset.
97. Her Majesty. Female parent, a very dark-zoned variety, raised several years ago from one of the silver-edged varieties; male parent, Beauty of Oulton. This and the above varieties are quite distinct in character from anything at present in cultivation.

The varieties enumerated above are not more than half of the number represented in my collection. Amongst those not described are a large number of very interesting sports, contributed by my friend Mr. Davies, gr. to Lord Bridport; other curious sports were kindly sent me by Major Trevor Clarke: amongst the latter are two distinct sports from Mrs. Pollock and one from Golden Chain. My collection exhibited on this occasion contains upwards of 200 specimens, illustrating the manner in which sports are produced, from the earliest stage to their fixed and permanent character. *J. Wills.*

* Namely, that a Golden Tricolor will not produce a Silver Tricolor.

Home Correspondence.

Orchids in Yorkshire.—There are two collections of Orchids, which have recently been formed in the neighbourhood of Leeds, which bid fair to become celebrated amongst the Orchid collections of the country. The first is that belonging to Edward Salt, Esq., Shipley, near Leeds, and the second, that belonging to the Right Hon. Lord Londesborough, Grimston Park, Tadcaster. Both are young collections, having been brought together within a space of 18 months, and each is already very extensive, and includes a very large number of rare Orchids. Having a desire to see these collections, I recently took an opportunity of doing so, and before long shall do so again, as many very rare things will shortly be in bloom. In Mr. Salt's fine collection, I noticed in bloom the lovely Oncidium concolor, with 15 fine blooms; this is indeed a gem; it is exceedingly scarce, and this is probably the finest plant in the country. There was a very fine variety of Odontoglossum hastilabium in flower, and a superb variety of Odontoglossum luteo-purpureum, richly marked, and very large in flower and spike. Two very distinct varieties of Odontoglossum cucullatum were in bloom, one a dark purple, the other much paler, and the lower lip spotted with lilac. Both were very distinct and handsome, and the lighter coloured kind is, I think, quite new. Disa grandiflora grows here like a Willow, and was showing flower in a cool Odontoglossum-house, where plenty of air was admitted, and water freely given. Vanda

suavis, Broughtonia sanguinea, the beautiful Dendrobium Devonianum, Burlingtonia fragrans, Sobralia macrantha in superb health, and with enormous flowers, and other good things were in bloom. Dendrobium infundibuliforme, with its dark orange red centre to its white blossoms, was exceedingly pretty, and Backhouse's magnificent variety of Lælia purpurata—amabilis, very pure white, with rich violet purple blotch, was in fine condition. I noticed several very fine and distinctly marked strains of Cattleya Mossiæ, obtained, I believe, from Messrs. Backhouse & Son, as unbloomed imported plants, but believed to be fine. Some of them have proved to be so, and are very beautiful. The true Oncidium sphacelatum was in great beauty, well marked, and with enormous spikes. Cypripedium barbatum is common enough, but some strains are infinitely superior to others; Mr. Salt has one which is the finest that has yet been seen. Dendrobium Dalhousianum was also in fine character. A block of new Orchid houses, and a very pretty Fern house, are now close upon completion, as additional accommodation is needed for this fine collection. In one of the houses I noticed some exceedingly pretty rockwork, constructed with Derbyshire spar, over which Lycopods and Ferns were spreading rapidly, and from which Campylobotris refulgens in most superb health and character, and other small growing fine-foliaged plants, showed out. From one of these rocky banks an immense Clerodendron Balfourii covered a back wall, and formed a sheet of beautiful blossoms. In the conservatory I noticed two things deservedly worth general notice. These were Lapagerias growing freely up the rafters; for each plant a long box was placed at the back of the pipes, underneath the stage, and in it a compost of rough bits of peat, charcoal, and crocks; the Lapagerias were planted out, using at first only sufficient compost at one end of the box to accommodate the roots, and adding as the roots extended. Nothing could indicate greater health, and perfect success, than these plants did. The other thing worthy of notice was a beautiful collection of Ixias and Sparaxis in pots in the conservatory. Really we don't half know the beauty of these most lovely little things, and as they are so cheap, and easily grown, they are within the reach of every one. Amongst the Ixias, Nelsonii, white; crateroides, pale carmine; purpurea, pale rose; viridiflora, green and black; and magnifica, orange and red, were very distinct. They require simple treatment, merely potting in December, and keeping them in a cold frame or house. There is in connection with Mr. Salt's residence, an archery and croquet ground worth seeing. It is situated in a ravine, and is both artistical in design and beautiful in appearance. The Grimston collection now includes a very large number of rare Orchids, and additions are constantly being made. The plants are in capital health, and the collection is growing so rapidly that more accommodation must speedily be provided. Several quite rare kinds will shortly be blooming here, a notice of which shall be sent you. A few days ago I noticed in bloom there amongst many others, Aerides roseum, a wonderfully fine specimen of Oncidium ampliatum majus, O. crispum, and O. phymatochilum; Phalænopsis roseum, and P. grandiflora (Borneo); the beautiful Scuticaria Steelii, Dendrobium Farmeri, D. Griffithii, and D. eburneum; Saccolabium retusum, Aerides Fieldingii, several Cattleyas, and an extremely fine Vanda teres. *A. M.*

The Glowworm.—In Staffordshire and in some of the Midland Counties, during the calm summer nights, the grassy banks of the lanes sparkle with the pale green light of the female glowworm. The female glowworm is a very soberly-dressed insect, and destitute of wings—hence no doubt the name of 'worm,' meaning a creature that crawls, but it is the female that gives the greater part of the glow; for although the male carries a lantern, so as to be in every respect a fire-fly, his is such a feeble spark that it only serves to identify him as being in reality the mate of the female glowworm; and it may be well to remark here that hundreds of females may be gathered without ever finding a male, which being a winged insect, is not easily captured, and indeed is very seldom seen. When I have put three or four female glowworms into a common spirit-glass, I could see to read by their light; and when I have collected a number of them and placed them on a sloping grassy bank, it gave quite a new feature to the spot. As glowworms abound in Staffordshire it would be easy enough to send them in pill boxes by post to friends who know them not. In window gardening they produce a strange effect, crawling over the leaves of the plants at night when all is dark and still. Invalids confined to the four walls of a bedroom watch with intense interest the tiny lantern as it moves over the slender twig, that the lady grub may let her winged mate know that she is waiting for him—it is to be hoped in a better spirit than Tam O'Shanter's lady love, "nursing her wrath to keep it warm." Be that as it may, we may well feel proud of the glowworm, for we have no other fire-fly in our northern clime, and we could ill afford to lose the specimen of such a curious living lamp. On board ship for a short voyage the light would be of some service, and in a mine it would give the eye some aid. Then it serves to give idioms to our language, and although it may not do much to point the moral, still it adorns the tale. Sir Walter Scott seizes it in the "Heart of Midlothian," which is only a quaint name for the Tolbooth or jail of Edinburgh, and makes David Deans, the heart-broken father of the prisoner, exclaiming in true Puritan fashion, crying down good works, and comparing them to the feeble light of the glowworm, say, "it looks fair to the eye when all is dark around it, but when the morning dawns, it is but a crawling grub after all." I have given this quotation in English, as it is scarcely intelligible as Sir Walter Scott gives it, for the word "kythe" which he uses, might as well be Greek for aught that any living Scotchman ever heard. The simile is what our French neighbours would politely style "inexact," inasmuch as the male is not a crawling worm but a winged insect, and has therefore a higher and wider range than even the talented author of Waverley himself ever had. It is quite wonderful to see the consummate skill Sir Walter displays in marshalling the crude material of this tale. The heroine, Effie Deans, is charged with murder, although only guilty of bastardy, and the tales of woe of the jail of what he terms "mine own romantic town" are worked up until the novel is quite equal to the stirring original, where we are told an infuriated mob broke into the Tolbooth, and by the hot and hard arguments of fire and sword, produced the jail delivery in favour of the prisoner Effie Deans, when all other means had failed; and it is to this stirring event that we are indebted for the beautiful simile of the glowworm. It is a great mistake to imagine that there is heat wherever there is light, for we have it on the best authorities that when the moon's rays have been collected and focussed on a thermometer bulb it has not raised the mercury in the smallest degree; and the pale green light of the glowworm seems cold as marble. The light of the glowworm is decidedly its own, whereas the light of the moon is not, but, as the poet has beautifully expressed it—

"The rays she borrowed from a better star."

Alex. Forsyth.

What becomes of Showers? (see p. 437).—There is a cause for everything—the difficulty is to find it out. In the delta of Egypt the electrical state seldom alters, and it therefore rains about once in 30 years, although clouds pass over it; but these clouds meeting the mountains in Abyssinia are involved in another electrical state, give out rain in abundance, and that river falling into the Nile makes the principal source of its rise. When the earth gives out electricity, the mountains are the points, and are within a distance at which the fluid (so called) will pass, and it begins to rain. The Intrepid, 64, at anchor in the Bay of Palermo, was struck by lightning (so described) from the earth below her. *F. W. M.*

Mice and their Doings.—The last "hit" of these little pests has been to threaten the destruction of our Yuccas. Although I have known them to eat bits of the roots, and even stems that have been left about after planting, I have never heard that they kill after this fashion. They begin by making a hole in the plant under the ground and working upwards, clearing away all the pulp of the stem, but whether they eat it or not I cannot say. A plant here of Yucca recurva was thus served by them; it was 2 feet high, 3 inches through the stem; not an old plant, which one might think might render shelter or furnish material for making their nests, but a young plant full of sap and healthy. It was left a complete shell, the few unexpanded leaves fell over, the others blew out. On examination under ground the largest of its roots were also found to be hollowed out. *Hy. M., Enys, Penryn.*

Gardening in its Relation to Nature and Art.—Mr. Fish need not be alarmed; if the art has no greater enemies than your humble servant, it will long flourish. After reading his paper (p. 518), and observing the style of his reasoning, I have no right to be surprised at Mr. Fish's totally mistaking the whole scope of my remarks, and I confess that I do not know how to frame a reply, though to a great extent Mr. Fish has saved me the trouble. After characterising my argument as a "dictum," he gives us his idea of argument by setting up a dictum of his own. And such a dictum! How the acceptance of a statement that gardening is the art to do something, can be in any sense the ignoring of art, is beyond my comprehension; but not content with this, he goes on with much picturesque description and illustration, only to end with the acknowledgment that it is all beside the mark. He then finds it easy to join issue with me on every point—and as easy to answer himself; for what he calls the single exception to the perfect condition of highly developed plants, is in connection with a point that he afterwards specifies as the fundamental one—reproduction. The historical part of his argument is just as self-answering as the rest. Your printer must surely have made some great mistake, for no sane man could argue that the fact of the vegetation of a country rising and falling with its civilisation, tells against the development theory. Why, what does cause the rise of vegetation except the superior development caused by civilised cultivation? and if civilised cultivation causes development, how can this be an argument against the theory of development being caused by cultivation? Not having had the advantage of being there, I of course cannot judge of the reasonableness of Mr. Fish's faith in reference to the Garden of Eden. But I do not see any occasion to disturb it; his faith one way or other has about as much to do with our argument as he has to do with Adam—rather too far removed a relationship for one to care to reckon up. He is kinder in reference to what he calls my "surgical mistake" than you were, Mr. Editor, with your parenthetical remarks; but, both of you notwithstanding, I hold that there is no mistake about it, though I am not going to argue the matter. After such reasoning, I should be indeed surprised if Mr. Fish could trace any connection between my premises and conclusion. His paper can but have the effect of taking off our attention from the real point at issue. He harps upon the word "monstrosities," interprets it for himself apart from my meaning, and in reasoning upon his false interpretation all unconsciously supports my case. To clear the point from verbiage, I will simply re-state my position:—Our art as gardeners consists in so studying the operations of nature as to ascertain the proper balance of parts requisite to obtain a certain result. We have to ascertain how nature would proceed to produce abnormally large fruit or flowers, or whatever we especially want, and then act accordingly; and as I understand the point at issue, it is whether this abnormally large fruit, &c., is or is not the result of other abnormal circumstances when it occurs in Nature, and whether we as gardeners have or have not to artificially produce these abnormal circumstances to get this abnormally large fruit. Such is a statement of the case without using that misunderstood word—monstrosity. Mr. Fish's paper is wide of the mark, to say nothing of its self-contradiction. One might support alternately either of his apparent opinions, without having, as he evidently has not, the slightest idea of the point really at issue. *Wm. Miller, Combe Abbey Gardens, near Coventry.*

Variegated Pelargoniums. — What constitutes a variegated plant of any kind?—that is the question. How many colours must a plant have to be considered variegated? and why should white and yellow give a title to variegation while red and black do not? These questions must be speedily settled. Intending exhibitors at the forthcoming Bury Show of the Royal Horticultural Society are asking in all directions whether this, that, or the other kind of Pelargoniums may be shown for the 10 guinea cup offered for 12 Variegated Pelargoniums. One considers bronze-leaved Pelargoniums variegated; another holds that any two colours on one leaf is sufficient; some again contend for three colours; and more still that green combined with either white or yellow is all that is needed. I cannot see myself why white and yellow should be more highly favoured than red, bronze, or black, but I would rather not express an opinion, and leave the matter for the decision of you and your readers. I may just caution them, however, that there is one way of answering the question which can settle nothing and please no one, namely, the attempt the settle it by an appeal to the past. Those who do this contend that what has been generally considered variegation should still be our standard of what is to constitute a variegated plant. This is something like measuring the time occupied on a journey now by the bad roads, heavy waggons, and half starved horses of the olden time—instead of by the time-saving expedients of the present. That Mangles' is a variegated Pelargonium gives me no assistance whatever in determining whether the gold leaf with the crimson edge, without green, described by me at p. 489, is variegated or not. And if it is variegated why not a hundred others—bronze, yellow, crimson, red, brown, or black, with green, or each other in conjunction? It seems to me the question should be decided by the number, and not by the quality or kind of colour. A leaf with one colour is not variegated. There is no doubt about that. But is a leaf with two? Then that would include every horse-shoe variety. Well, then, shall we say it must have at least three colours? Perhaps this would be a safe standard. But then I understand that will keep very many collections of great beauty from Bury. Now, I wish everything of beauty to be there, and hence my appeal to you to settle, authoritatively, if possible, once for all, this troublesome and knotty point, that is constantly cropping up at great and little flower shows. *D. T. F.* [Popularly the term variegation is apt to be applied to plants which are by no means in that condition. In a strict sense variegation is a disease or defect of development, consequent on the absence or deficiency of chlorophyll. Hence, as green is the normal colour of vegetation, true variegation must show a paler hue, practically, either white or yellow, in the leaf, in combination with the green. Variegation run to excess produces an albino. Coloration, which gives the red tint to Amaranthus and the zone to the Horse-shoe Pelargoniums, is another thing altogether, though our correspondent evidently considers that and variegation to be identical. Hence it follows that a variegated Pelargonium should have leaves with a green ground colour, and with some part of the surface (usually the margin) white or yellow. The plants may likewise be zonate from coloration, but they are none the more or the less variegated from the presence or absence of a zone. Hence neither those sorts known as golden bicolors, nor "D. T. F.'s" golden variety with crimson margin, nor any ordinary zonal, come properly under the designation of "variegated." We have received other enquiries to the same effect. EDS.]

New Variegated Pelargonium.—I enclose a leaf of Pelargonium raised in this neighbourhood. The raiser tells me it is a strong grower, and the plant is two feet high. You will see it is a fine bold leaf, with a clearly defined centre of light green, something in the way of Cerise unique; then follows an irregular dark zone, spotted here and there with red. Beyond the zone, and proceeding as it were out of it, each vein feathers out into irregular masses of a green colour, much darker than the centre of the leaf, which fades into a pale yellow before it reaches the outer edge. Thus green feathers are laid upon a yellow ground over an inch wide, and give the leaf a very novel appearance. It looks as if a Fern frond was laid over a cloth of gold. Of course all the spaces not covered by the frond would be gold, and it is just so with this leaf. The veins branch out like Ferns, and cover the yellow, leaving a very singular mixture of these two colours; the leaf is nearly round, rather deeply divided, and the margin slightly serrated. *D. T. F.* [A very interesting novelty, chiefly remarkable for the green feathered veins running out into the yellow margin. The Messrs. E. G. Henderson & Son have recently sent us a leaf of a variety which is reticulated throughout with green and yellow, and has a very curious appearance. EDS.]

Aponogeton distachyum.—For the information of "J. H." (see p. 603), I may state that the Aponogeton grows like a vigorous weed in the water in the Edinburgh Botanic Garden. When I visited it, the pond was almost covered with its pretty flowers and shining handsome leaves. It may be grown in any clean water, I think, though it is soon cut off when planted

in muddy ponds, along with all sorts of strong and luxuriant water weeds. Any clean bit of water with a sandy or clean bottom would be the most likely place to establish it, and it should be planted rather deep, putting in some soil for its roots to feed upon. To firmly plant a good specimen in a little basket and sink that carefully in a likely spot would also be a good plan, and if the place suited it would soon spread about. Perhaps Mr. McNab, or Mr. Baxter, of Oxford, could enlighten us a little upon the subject. I know of nothing more worthy of naturalisation. In fountain basins it may be readily grown, and in such will be much admired. I have seen it growing in many places, even well in London houses, in comparatively small bell-glasses, but I have never seen it half so pretty anywhere as in the Botanic Gardens at Chelsea, growing in a slightly raised tank in a cool, or nearly cool, house. The heat brought the flowers to a purer colour and greater degree of perfection than they attain in the open air, and nothing could look prettier than the graceful fresh green leaves and sweet flowers upon the water. Therefore all having tanks pretty well exposed to the light in a conservatory, or indeed in any other structure, may enjoy the plant to the full. In such it is better to grow it in pretty large pots of loamy soil, with stones on the surface, to prevent its being washed out. It is also most suitable for a Fernery in which a little water basin is placed, as is sometimes the case, though it is not fond of shade. I fear ducks would be apt to destroy the roots, as they do those of the fine double Sagittaria. *Vertumnus.*

Orchard House Trees in Pots.—In reply to "J. H., Cheshire" (see p. 603), I may state that I have now had my Nectarine and Peach trees four years, and they were decidedly four years old when I had them. They are covered with fruit. It has been quite a work for my gardener to thin them out. Pears I do not grow in pots. I should say I had five times the quantity of fruit that I could possibly have under the same space of glass if the trees were not in pots. My house holds nicely 75 trees. I have 100. Twenty-five of those that may have but little fruit on I turn out in the end of May, thereby giving my gardener room to work between the trees. These 25 turned out will bear the best next year. "J. H. C." says that he only takes out about 2 inches of the old soil from the pots in the autumn. I take out fully 6 inches. Of course I destroy some of the mass of roots; but if carefully done it does little or no injury. Nectarines ought to have a house to themselves. *E. W. Fyffe, Box, Stroud.*

Early Peas.—We gathered a good dish of Sutton's Ringleader or Carter's First Crop on the 28th of May. These were sown and grown in the open ground, without any protection. Six rows of Daniel O'Rourke were sown at the same time, from which our first gathering was on the 8th June. Ringleader has also the advantage of being dwarfer, and I do not hesitate to pronounce it the best early Pea that has been grown here. No other Peas had been gathered about here at the date. *Charles Turner, Slough, June* 12.

Yellow Roses.—I beg to send you specimens of Cloth of Gold and Maréchal Niel Roses, from a south wall, which I consider to be the proper position for both sorts. M. Niel may be perfectly hardy in some districts, but it is safer in the place I have assigned to it. The specimens sent are cut from one plant of each variety. I could manage to gather at least 100 blooms of the two sorts. *Benjn. R. Cant, St. John Street Nursery, Colchester.* [The blooms and foliage were superb. EDS.]

The date of New Roses and Roses generally.—I do not think that new Roses should date from the time of transmission from France, but from the time of usual sale to the public, and that is in the spring succeeding the time they were received by the English nurserymen from the French raisers. It is plain that if the Roses are purchased (which is rarely the case) in October they cannot be exhibited that year, and the unfortunate purchaser has got to winter them. They are wretched objects even in the spring following, and rarely come out in their true form before we have had them two, or probably three years. I have new Roses now blooming beautifully, that for the last two years have done nothing. In passing, I may observe that we are too hasty in approving or condemning new productions. In dating from the fall of the year, one year is taken from the Rose as a 3-years' exhibited novelty. Roses here are blooming in abundance, especially Jules Margottin, of which there are several hundred blooms out—a famous Rose. Baronne Pelletan de Kinkelin is very beautiful. Besides these, Gloire de Dijon, Souvenir d'Elise, Devoniensis, Maurice Bernardin, Duc de Rohan, John Hopper, Charles Lefebvre, Duc de Cazes, Pierre Notting, Victor Verdier, Rubens, are doing themselves great credit. The Black Prince and Carl Coers, both apparently superior Roses of rich colour, will soon bloom. I will faithfully describe them. The sepals of Carl Coers are vine-leaved, large, and extra fine; the buds, trusses, and foliage of the Black Prince are astonishing. *W. F. Radclyffe, Okeford Fitzpaine, June* 10. [We cannot but hold that when every Rose-grower in the trade—supposing the supply limited to these, which it is not—has possession of a new Rose, it is to all intents and purposes "sent out." EDS.]

What is a South Wall?—Your correspondent "Una Mœnia" (see p. 602), asks, "What is a south wall?" Let me relate, not what it is, but what it ought to be—a thing of the past. In these days no man with brains in his head ought to build a south wall, but, on the contrary, should build glass houses instead, which are much cheaper, and much more certain to produce a crop of fruit. A common orchard house with a span roof and perpendicular sides, say 7 feet high at the sides, 12 feet high at the ridge, and 21 feet wide inside, can be built and finished well for 1*l.* per lineal foot, that is to say, a house 70 yards or 210 feet long can be completed for 210*l.* Let this house run due north and south, and let the fruit trees in it be trained to upright espaliers 7 feet high and 5 feet apart. It will hold four such espaliers, the two outside espaliers being set 3 feet from the sides, and will give 840 feet of espaliers 7 feet high, every atom of which will get every bit of useful sun, and produce three times as much fruit as a south wall 70 yards long and 10 feet high. A proper compass will give a true north and south line, as it is corrected for variation; but a simple magnetic needle, now so commonly sold, will not do so. In a compass the needle is not seen, being placed below the revolving dial. *G. A. H.*—Thirty years' experience leads me to predict that ere long fruit houses are destined to supplant garden walls, at least in the colder counties. Where good walls exist they might be advantageously covered with glass; but gentlemen who are about to form new gardens, will do well to compare the relative cost of providing inadequate protection for their fruit trees in the shape of brick walls, with that of securing certain and efficient protection in the form of fruit houses; houses, in fact, in which the trees may be placed in something like natural conditions as to soil and space for development, and not structures adapted only to some fanciful system of culture. Under a proper system of house culture, many fruits which we do not now usually get, would not only be found at table in abundance, but at seasons when they otherwise could not be had; for under the system of culture on open walls, when the utmost success crowns the gardener's efforts, the season of many sorts is of extremely short duration; whilst if cultivated under glass, and the sorts properly grouped, in houses of differing aspects, with the aid of a hot-water pipe in some, a larger or smaller admission of air, &c., in others, the season of supply would be considerably extended. How few families enjoy as a rule a supply of the delicious late-hanging Plums which might be in use up to Christmas. Again, there are various late Cherries, &c., which are rarely seen, whilst the best varieties of dessert Pears are often so imperfectly matured out-of-doors that they do not "ripen" in the fruit room. The following are I conceive a few of the advantages which would be realised in the case of indoor fruit culture—1st, The cost of a lofty brick wall would go far towards the expense of houses; 2dly, under good management, the crop would be certain, abundant, and of longer duration than if it were out of doors; 3dly, a comfortable promenade for members of the family would be secured in all states of the weather; 4thly, less of rheumatism might perchance fall to the gardener's lot, as he would be able to do the necessary dressing and training in wet and bad weather, when otherwise he would be performing his duty under the worst inflictions of the elements. Let us trust, therefore, that the subject may receive that amount of consideration which its importance demands. *H. Howlett, Mr. Ormson's Works, Stanley Bridge, Chelsea.*

Foreign Correspondence.

FROM OOTACAMUND TO MALABAR AND BACK.—Starting from Ootacamund in a south-westerly direction, the road into Malabar runs along the bottom of a shallow valley, the sides of which present the undulating surface characteristic of the Neilgherry plateaux, and being about the same elevation as Ootacamund, little diversity of vegetation exists. Native farms are somewhat more numerous here, and cultivation consequently extended; large herds of cattle are also kept up. The first stage from Ootamacund is Avalanche, so called from a large landslip occurring some time since. A good substantial bungalow has been erected, and is maintained by Government for the use of travellers. This place being lower than Ootacamund, the vegetation around is more luxuriant and somewhat different. In the forests large quantities of Calanthe Perotettii occur, growing in a loamy soil. The Tree Fern, which grows commonly over the hills at about 6000 feet altitude, is here found of large size. Saccolabium paniculatum and Æschynanthus tricolor grow in abundance on the stems and branches of trees, in company with a fine Lycopodium. Ferns are plentiful, Blechnum orientale and Pteris argyræa being among the commonest. On the protruding and exposed rocks Cœlogyne nervosa and C. corrugata grow in matted masses, generally most robust and plentiful on a northerly aspect. From this place the road crosses the Koondah mountains, and from its direction and elevation receives the full force of the south-west monsoon during its prevalence from June to September. The cold is then most intense, and when this road formed the principal way of communication with Malabar, numbers of coolies perished from the inclemency of the weather. Graves marked by rough wooden crosses are constantly met with by the roadside; indeed, one part of the road, from its situation in the direct line of the monsoon, and running along the bottom of a deep narrow valley entirely unprotected, has acquired such a fatal celebrity as to be called the "Valley of Death." The vegetation is also characteristic of its exposed situation, as beyond a few dwarfed unhappy-looking Rhododendrons the verdure consists of coarse sedgy Grass intermixed with Hedyotis verticillata. On approaching within a mile or two of the termination of this stage (18 miles), plants become much more luxuriant, thick masses of Osmunda cover the banks of streams, and the ravines are filled with a dense undergrowth of Acanthaceæ, one species being particularly distinguishable by its large hoary foliage. Sonerilas and two species of Hymenophyllum grow abundantly in moist shady places. Near the rest house a tremendous precipice exists, the depth of which I have been informed is 2500 feet. At the time of my visit the bottom was not visible, on account of clouds suspended in it, but the black perpendicular walls of bare rock had an aspect sufficiently appalling. This rest house, called Sispara, is situated at the top of the ghaut of that name, and commands an extensive view of Malabar and the western coast. Near the top of the ghaut the handsome Alsophila crinita grows, and in the woods around a slender Palm (probably an Areca) is found in considerable abundance. Though these approaches to a tropical vegetation were abundant, yet the excessive radiation, and consequent cold produced at night, was sufficient to cover the Grass around with hoar frost. On passing down the ghaut the vegetation gradually becomes thicker and more luxuriant, the trees are matted together by Calami, and the ground is covered with a small Apostasia or nearly allied plant. A pretty little Eria grows on the rocks along with a green-leaved Anœctochilus. The beautiful Hexacentris lutea is also plentiful, and on the roadside banks Begonia malabarica, Sonerilas, Sagenia coadunata, and Trichomanes rigidum, with many other Ferns, grow in great abundance. Torenia asiatica grows in tangled masses over the road, and is the worst weed the Coffee planters in this part have. In warm and moist ravines Anœctochilus elatus grows plentifully in a stiff, moist, loamy soil, and Impatiens Jerdonii grows as an epiphyte on trees. Scindapsus pertusus is common on rocky banks, in company with yellow-flowering Malvaceæ; a Marattia and an Angiopteris are also common. Fine specimens of Arenga saccharifera and Caryota urens are plentiful in the forests, which here have an undergrowth of Zingiberaceæ. Bombax malabarica and Butea frondosa form the bulk of forest trees. They were at the time of my visit (January) in full blossom, looking like so many masses of fire. Drynaria quercifolia was very common on the trees about here, its immense rhizomes extending for several feet, and the persistent querciform foliage making it very conspicuous. On nearing the foot of the ghaut the line of Bamboos is passed. The altitude of the line is generally most distinctly defined, and where the Bamboo exists arborescent vegetation in any extent is excluded. At the foot of this ghaut a rest house was built some years since by Government, but on account of the fatal nature of the malaria here, no one could be induced to remain in it, and consequently, although it was protected by strong palisades, these as well as the roof have been pulled to pieces by wild elephants. The jungle about here is very dense, with a thick matted undergrowth of Malvaceæ, Cyperaceæ, &c. The Teak (Tectona grandis) and Blackwood (Dalbergia latifolia) are plentiful; in open marshy glades thickets of Pandani and Cannas grew, and Lygodium scandens was creeping among the Grass everywhere. As the forest grew more open, Rice fields and villages enlivened the scenery, the crops in the former were rapidly attaining maturity, and it being nearly nightfall when we passed, the proprietors were busy making fires in different parts of the field on small covered stages, each fire being attended by two men, who maintain a continual shouting throughout the night to drive away wild animals from eating the Rice. The next rest house is at Wemdoor: it is a fine substantial building of laterite, and surrounded by trees of Artocarpus integrifolia. Near Wemdoor I saw several Strychnos trees in full fruit, which is very similar to a small Orange. A pale-flowered variety of Saccolabium guttatum is common on exposed trees about here, also a Cottonia, and Drynaria quercifolia grows everywhere. The road from here to Nellumboor runs through open forests alternating with Rice fields; in stony places Bryophyllum calycinum and a Plumiera were in full flower, and a small white-flowered Dendrobium is frequently found on trees. The rest house at Nellumboor is very much out of repair, but affords sufficient shelter for those who do not object to the entire want of windows and half a door. Some fine Teak plantations have been established in this place by the Government. Caryota urens is common here, and is evidently held in considerable estimation on account of the toddy it yields. This is collected in the following manner:—When the spadix bursts from the spathe, and before the flowers expand, the ends of the flowering branches are cut off level, an earthen vessel is then attached, which receives the cut ends, the whole is then closely matted to prevent evaporation, and the toddy or fluid of the growing spadix distils into the vessel, which is removed from time to time, generally early in the morning. When taken from the tree it is by no means an unwholesome or unpleasant beverage, having a taste something like new milk, with a peculiar vinous flavour. From Nellumboor to Addycara the vegetation is very similar to the last stage, but from Addycara to Nahdagahuy the road is very interesting, it being the highway from the plains of Malabar into the Wynaad plateau, the length of the ghaut being about six miles. At the foot of the ghaut (Carcoor) there are some fine Ipomœas or Argyræas; the flower of one I noticed especially, had a pure white limb, with a crimson throat, and was 4 to 5 inches across. Nelumbium speciosum grows abundantly about here, as also does Cycas circinalis. Selaginella rubricaulis is common on the road side, and Ferns, rich in numbers and species, cover the ground. The curious little Pleopeltis nummularia frequently entirely covers large trees. An Isonandra, and a resin-yielding Dammara, are found on this ghaut. Some gold diggings were formerly worked here, but the amount realised was insufficient to induce a continuance. Particles of mica from the schistose rocks which characterise this ghaut are abundant in the streams and soil. Our rest house at this stage was a mud hut. Bushes of Pandani, Cannas, &c., and a large white-flowered Eugenia, having a broad-leaved Aerides on its stems, with abundance of Ferns, among which Callipteris malabarica and Blechnum orientale were the most conspicuous, formed the principal features of the vegetation; and though these tropical forms existed, there was abundance of hoar frost in the early morning, and a thick overcoat was warmly appreciated. The road to the foot of the Neddivuttum ghaut lies over a scantily-wooded plateau with occasional tracts of Bamboo; it is the southern extremity of the great Coffee districts. On the

banks of streams an Osmunda and Acrophorus immersus grow, and on the trees abundance of Dendrobium ramosissimum. The foot of the Nedivuttum ghaut is well wooded, Bignonia xylocarpa being one of the principal trees; on rocks Scindapsus pertusus and Acrophorus elegans grow plentifully, and on shady banks an Adiantum and a glaucous Selaginella. In pastures at the top of the ghaut two handsome species of Exacum (E. trigona and E. bicolor) grow abundantly. The forests here are heavily wooded, and from the moisture of the district, the stems of the trees are entirely overgrown with Hymenophyllum exsertum, Elaphoglossum squamatum, and other Epiphytes; a Calamus also grows here, and it is at this place, Neddivuttum, that the principal Cinchona plantations are situated. *G. B.*

Societies.

MANCHESTER NATIONAL HORTICULTURAL EXHIBITION: *June 7 to* 15.—The people of Manchester have much reason to feel gratified at the success of this the first attempt that has been made in the provinces to inaugurate a Horticultural Exhibition of more than local or metropolitan interest; and that this was so, was evident from the variety of articles sent from England, Scotland, and Ireland, the majority of them reflecting credit upon the exhibitors. The Show was held under the auspices of the Manchester Botanical and Horticultural Society, in the Society's Botanic Garden at Old Trafford. Much of its success was due to the arduous and unwearied exertions of the able curator, Mr. Bruce Findlay, who ever since the success of the South Kensington Show of last year has been prompted by a laudable effort to get up something grand in the Midland Counties, so as to assist in some measure in wiping off a debt of nearly 8000*l.* which burdens the Institution. That he has been successful in getting up a grand exhibition there can be no doubt, and from the immense influx of visitors by which the garden is thronged while we write, there is a reasonable prospect of its commercial success.

The area occupied by the exhibition was very extensive, and of diversified character. The large conservatory, the usual repository for periodical displays, was reserved for the more tender and valuable plants, while the new ground for other articles consisted of an extensive L-shaped tent immediately adjoining. The principal limb of this exterior space presented a very picturesque effect from a raised mound which commanded a bird's-eye view of the whole. The parallelogram was laid out in a series of circles, forming concentric terraced platforms, and was principally occupied by Azaleas and Pelargoniums, while the sides formed a series of undulating grassy slopes, favourable as a resting place for the plants that adorned them. The Azaleas, with the exception of one lot, were more open to objection than anything else in the exhibition; they were all trained to one face appearing as if they had once formed pyramids, and had been cut up into halves, while they were completely distorted and stabbed with innumerable stakes. Indeed, all our specimen growers err in that direction, pleading as an excuse, when the thing is commented upon, that severe tying is necessary to ensure safe transit. Were they relieved during show time of many of these stakes, the plants would appear much more elegant, and would be more in keeping with their fellows of graceful habit, such as Tree Ferns and some of the more prominent foliage plants.

Taking a glance at the more meritorious things in the large conservatory, the first subjects that demanded attention were the Orchids, which are represented largely and well. Many of the specimens were unique, and reflected much credit upon the exhibitors. The first and best lot was contributed by J. A. Turner, Esq., of Manchester. Prominent among them were one or two good plants of Vanda suavis and tricolor; Saccolabium guttatum giganteum in splendid style, vigorous in growth, and yielding three fine long spikes; Aerides virens, and Dayanum, a grand form of the virens type; the curious fiddle-shaped Coelogyne pandurata, with numerous spikes, and in some cases eight flowers to a spike; a fine Cypripedium Stonei; a rich Lælia elegans, with a broad, highly coloured labellum; the best specimen Oncidium bifolium probably ever exhibited, with as many as 17 flowers to a spike; a very large and highly cultivated Saccolabium ampullaceum; and one or two good Odontoglossums, &c. These plants reflected particular credit upon Mr. Toll, the gardener.

A. Turner, Esq., of Leicester, won the 2d prize with a fine 20, some of the plants being very good. Mr. Brocklehurst, the gr., staged his plants very neatly. The better and rarer species exhibited were a unique variety of Odontoglossum cordatum, with 30 flowers to a branched flower spike! quite abnormal, so far as our previous knowledge of the species extends; Phalænopsis grandiflora, good as a plant, but sparsely bloomed; Cattleya Aclandiæ, with numerous flowers; Odontoglossum Pescatorei, in very fair condition; O. nævium and O. Uro-Skinneri, with a very good spike; a very fine form of Anguloa Ruckeri, much more highly coloured, and better spotted than usual; an old, but most lovely plant of one of the very first Orchids introduced into the country, Epidendrum cochleatum, but a splendid variety, having spikes 3 feet long, and large flowers, with a prominent labellum, adorned with two sanguineous blotches; Cattleya labata, and some others. Thomas Jones, Esq., of Manchester, had, among others, a good Vanda Roxburghii cærulea, Odontoglossum Phalænopsis, O. nævium, Saccolabium Holfordii, a very fine spotted form of guttatum; and an excellent plant of Aerides roseum superbum.

In the Class for 12 Orchids, Dr. Ainsworth reserved his strength, and beat Mr. Turner, of Manchester, by a neck and neck race. He had good plants of Vanda insignis, and tricolor, and a very fine suavis, with 16 flowers to a spike, the maximum yet arrived at by the best cultivators; Aerides Lindleyanum, in good order; a fine form of Odontoglossum hastatum; and some bearded Ladies' Slippers, &c. Mr. Turner had an excellent plant of Dendrobium chrysotoxum, numerously flowered; a fine Odontoglossum citrosmum; one of the best plants of Barkeria melanocaulon we have seen, nicely grown and flowered, it being a pale form of spectabilis.

In the Class for 8 Orchids there were two praiseworthy collections, that of Mr. John Stevenson, Larkhill, and that of Mr. Thomas Kendall. The former had a well-selected assortment full of bloom, the best plant being Dendrobium densiflorum album, literally covered with masses of its snow-white and yellow blossoms, and measuring a yard across: Aerides Fieldingii, Phalænopsis Luddemanniana, &c. The best in the second group were Calanthe veratrifolia, which seems to be taking up again, as more good plants of it have been shown throughout the country this season than for some years past. This gentleman showed, as a single specimen, the most remarkable flowered plant of Saccolabium retusum that has probably ever been cultivated. It had four spikes, each 30 inches long, and in perfect condition as to inflorescence. It had been grown, we were given to understand, in a stove, among miscellaneous plants. Mr. Thomas Jones had one of the largest and best plants of Phalænopsis Luddemanniana; and Dr. Ainsworth had a plant of Trichopilia crispa with 20 flowers.

Mr. Williams, of Paradise Nursery, London, had much the best set in the Nurserymen's group. His Dendrobium densiflorum was 4 feet across, and full of flowers; and Ladies' Slippers, both the bearded and the Hookerian varieties, were excellent plants. Mr. John Shaw had among his lot one or two good plants; and Mr. Stafford, of Hyde, had a few little bits. S. B. Callender, Esq., Whalley Range, Manchester, sent one of the best varieties of Lælia purpurata at the show. Mr. Richards, gr. to Lord Londesborough, sent an excellent variety of the rare Dendrobium Bensoni. This is an acquisition among Dendrobes, being distinct in growth, and having white flowers with a yellow blotch in the centre of the lip, and two brilliant dense crimson spots on either side.

Stove and Greenhouse plants were contributed in splendid condition by that indefatigable cultivator, Mr. Baines, gr. to H. Micholls, Esq., Bowden. His Ixoras were perfect masses of high class cultivation, and adorned with corymbs of the most captivating character; the species referred to being javanica and coccinea; nor was the Dipladenia crassinoda less meritorious. In fact, seldom do we see so fine a lot of plants so successfully brought out. His Everlastings and Franciscea confertiflora were also fine. Sir James Watt (Mr. McMillan, gr.) had some very fine plants, foremost among them being the handsome Allamanda grandiflora, the charming Azalea Etoile de Gand, and a noble bush of Pimelea diosmæfolia. Mr. Thomas Kendall, Mr. John Stevenson, and some others contributed good plants in the lesser groups. Mrs. Cole & Sons, and Mr. B. S. Williams had the best lots among Nurserymen. These collections included many of the plants common to all exhibitions.

In the matter of Fine-foliaged plants, Mr. Mitchell, gr. to the Duke of Hamilton, took first place among several good exhibitors. This has been the first attempt which any one north of the Tweed has made to carry off any of the great plant prizes, and it was creditable and plucky of Mr. Mitchell to come forward. He exhibited one of the best Thief Palms (Phœnicophorium sechellarum) in cultivation; a most conspicuous plant of Pandanus ornatus, and two very good plants of Croton variegatum, and angustifolium. Mr. Stevenson and Mr. Thomas Hobson also furnished capital groups. Mr. S. Schloss and Mr. E. Phillips had good plants in the smaller classes, the former exhibitor showing by far the handsomest Croton angustifolium in the Show, beautifully clothed with golden and green gracefully depending foliage.

Mr. B. S. Williams took a great number of prizes in the different classes, and it is due to this enterprising exhibitor to remark, that while he exhibited so largely in Manchester, and helped with his specimens to give character and variety to the Show, he also, as will be seen by last week's report of the Royal Horticultural, had a large and diversified assortment at that imposing display. As usual, he was successful with Ferns, prominent among them being several handsome Gleichenias; he also furnished groups of Azaleas, Lilium auratum, and Hippeastrums, the best of which was William Pitt, one of the finest-formed flowers we have seen of the crocea grandiflora type, larger and better every way, with fine substance; Cleopatra was also good, both in this and Dr. Ainsworth's collection.

Among New and Rare plants there were a few interesting things that merit more than a passing notice. The best group came from the Messrs. Veitch & Sons, and occupied a prominent and central spot in the conservatory on a raised circular stage. Among the taller specimens were the following:—The Striped New Zealand Flax; the charming Hoteia japonica, than which a more elegant and beautiful plant is not in cultivation, nor one which withstands a larger amount of hard work in the way of cutting up, forcing, &c.; its fine Queen of the Meadow inflorescence, of that creamy white cast so pleasing to the eye, and its fragrance, are not the least of its attractions; the Bornean Kæmpferia Roscoeana, a good thing; as is Retinospora plumosa; the parti-coloured prominent-leaved Aralia Sieboldii; Nepenthes hybrida maculata, which is a promising pitcher plant of no ordinary merit as a bloomer, and a subject that will not become leggy so soon as some others; the curious Testudinaria elephantipes; a noble plant of the Todea superba, faultless in appearance; the beautiful Maranta Veitchiana and roseo-picta, which have been often commented upon; one of the best novelties of modern introduction, Sanchezia nobilis variegata, in the way of Aphelandra Leopoldii, but a decided improvement upon that species for inflorescence, and for freedom of growth, which is of the more consequence still, when we look to the beautiful golden lines that adorn the principal and secondary venation, and which stamp it as far up in the scale of excellence; Croton undulatum, Dendrobium Bensoni; Aralia Veitchii, one of the most elegant things in the whole exhibition, having a straight hard-wooded stem carrying palmate leaves very much divided, the leaflets presenting an attenuated appearance, with wavy edges; Croton Hookerianum, which seems to be an acquisition to this beautiful genus, having handsome leaves in the way of variegatum, but the yellow somewhat regularly disposed towards the centre, and the margins and extremities pale green; Dendrobium M'Carthiæ; Athyrium Goringianum pictum, something after the cast and colour of Pteris tricolor; the velvety zebra-looking Begonia Pearcei, and some other good things. Mr. Williams had a fine Phœnicophorium; a good plant of Yucca Stokesii, which has a broad band of gold between two stripes of green; Calamus Impératrice Marie, Areca aurea, &c. Mr. Shaw, of Manchester, had several good things, among them, Cycas plumosa and some good Draccenas; one thing was conspicuous by its comparatively unattractive appearance after it has attained some size—Bertolonia margaritacea; it is most conspicuously pearl bearing in a young state under a glass. The best thing of that character yet cultivated is undoubtedly the pearl-bearing Sonerila margaritacea. M. Linden, of Brussels, showed a variety of things, which we have described before; one of surpassing excellence we have now to note in the Anthurium regale. It yields very large leathery-looking leaves of a narrowly cordate acuminate outline, and presents a beautiful finished appearance. It will undoubtedly take rank as a plant of the first order of merit. Mr. Bull had Amorphophallus nobilis, which is a curious plant, the flowers being in shape not unlike the frilled neck-collar of the Elizabethan period.

Hardy Plants and Shrubs in fifties were contributed by Mr. Shaw, Messrs. G. & W. Yates, and Mr. Stafford of Hyde, The Messrs. Yates were most successful in the Rhododendron Classes.

Mr. John Shaw had a nice group of 36 Hardy Ferns; prominent among the lot was the Killarney Fern (Trichomanes radicans), and several very fine new forms of Athyrium Filix-fœmina, some of them very dense, and finely cut, showing more and more the sportive character of this most interesting species. Mr. Robert Ashcroft, West Derby, had several good samples of Athyrium, Polystichum, Polypodium, Scolopendrium, &c. The variety Edwardsii of the Lady Fern, a dense and elegant plant, was shown by Messrs. Edwards & Son, of Nuthall. Mrs. Hampson had a pretty lot, containing the elegant Adiantum pedatum; and Mr. Wm. Pearson had also a good lot.

Zonal Pelargoniums were not remarkable, except those shown by Mr. Wills, gr., Huntroyde Park, which have been noticed, and those from Mr. Watson, of St. Albans, who had a very good form of Variegated Zonal Miss Watson, with a deep ruby shaded zone, well defined. Nosegay Excelsior is a good habited sort, with a distinct zone, and a fine warm pink truss; so is a new Ivy-leaved one, from Mr. Cunningham, with very distinct flowering trusses and good leaves. Messrs. Smith, of Dulwich, had Eclipse, fiery red zone and yellow ground; L'Empereur, and Jetty Lacy. Show and Fancy Pelargoniums were shown by Mr. Henry May, Bedale and Mr. Charles Rylance, the sorts being much the same as shown at the great London shows. Mr. R. P. Ker, Seedsman, Liverpool, showed a very fine box of cut Ixias and Sparaxis, suitable for indoor decoration.

Messrs. Paul & Son and Messrs. Lane, of Great Berkhampstead, exhibited collections of Roses; and Mrs. Cole & Sons, Sir James Watt, and Mr. Hanmer had the best groups of Azaleas.

Messrs. Dickson & Brown, Manchester, had a very fine collection of 50 Alpine plants, the best among them being the charming Silene pennsylvanica, with short flowering stems, Ramondia pyrenaica, Iberis gibraltarica, the elegant deep azure blue Myosotis rupicola, and Orchis laxiflora.

Fruit was exhibited in much better condition as to quality than is usually seen at the beginning of the season. Messrs. Lane had the best grown in pots on the orchard-house principle. Mr. P. N. Miller had a good Queen Pine, and Captain Glegg a showy well-developed Providence. Smooth Cayennes were not large, nor very high in point of merit. Black Hamburgh Grapes were furnished by numbers of exhibitors, Mr. Meredith, of Garston, having by far the largest bunches, with berries of fine size, although not quite perfect in point of finish. Mr. T. Dixon, St. Helen's, who was placed equal 1st, had medium-sized bunches perfect in point of finish; and so had Captain Glegg, and the Bishop of Manchester. The prize for any other black went to Mr. Dixon for a finely finished bunch of Bidwell's seedling. The Buckland Sweetwater was also well shown by the same grower, and so was Black Prince. The best Muscat of Alexandria came from Mr. William Chittock; Mr. Hopwood and the Bishop of Manchester had also very excellent Grapes. Peaches and Nectarines came from Mr. Hopwood and from the Duke of Leinster, while the Duke of Portland's gardens, at Welbeck, furnished a fine assortment of Strawberries. Mr. Colquhoun, Argyll Arcade, Glasgow, had also fine dishes. Mr. Hopwood showed a collection of Grapes.

Seeing that it is simply impracticable to render a great show a commercial success without holding it open for a lengthened period, it is to be regretted that several contributions of note were not allowed to remain over the allotted time. It seemed to be a grievance to the general exhibitors, and a fertile subject of comment throughout the week, the more so as all exhibitors from a distance allowed their plants to stand over, and in the majority of instances, not even excepting the Orchids, they escaped unscathed.

BOTANICAL OF EDINBURGH.—The monthly meeting of the Society was held on the 9th ult., in the histology class-room at the Royal Botanic Garden; William Gorrie, Esq., Vice-President, in the Chair. The following communications were read:—1. *On Submarine Forests and other remains of Indigenous Wood in Orkney.* By Dr. William Traill, St. Andrew's.—With the exception of the island of Hoy, where bushes of Mountain Ash, Birch, and Aspen Poplar are found in some sheltered nooks, no natural wood now grows in Orkney, nor is there any reliable account of trees having existed there in former times. Nevertheless there are submarine forests in Orkney, and while history is uncertain, we are fortunately in possession of other silent records of the past, which enable us to affirm that at some period anterior to the Norse invasion these islands were inhabited by a rude race of men who appeared to have obtained a part of their subsistence by hunting deer and other wild animals in the forests. This is clearly proved by numerous remains of human habitations, constructed of stone, found on nearly all the islands, which generally contain horns and bones of the red deer, and of a species of ox, Bos longifrons, along with bones of the hog and other smaller quadrupeds and birds, including the Alca impennis, or great auk, which has become extinct in Orkney only during the present century. The specimens of antlers and bones of red deer are interesting, not only as relics of a fauna locally extinct, but they are also valuable as enabling us to connect the period at which these forests grew with undoubted marks of the presence of human inhabitants; so that it is evident that before the epoch of the forests and their fauna had terminated, that of the human inhabitants had commenced. Most of the principal islands of Orkney show remains of trees in their peat mosses. During last summer I visited the island of Hoy, and on passing by a farm where extensive draining was going on, I observed that the surface of the ground on each side of the trench was literally lined with fragments of decayed trees that had been thrown out in the process of digging. In the island of Rousay, where I spent a few days in the summer of 1865, there were many traces of ancient forests, not only in the peat mosses towards the centre of the island, but also in two places on the coast much below high-water mark. The trees, for the most part, lay deep in the peat, within a few inches of the clay or rock. Some were prostrate, but the stumps of others appeared quite undisturbed, their root fibres being traceable in all directions through the ground. Many of the smaller branches were flattened by pressure. None of the stems that we saw exceeded 6 or 8 inches in diameter, though we were told that larger pieces are often found by the peat cutters, who dry them in summer, and add them to their winter stock of fuel. It was not easy to determine the different kinds of trees with any certainty. Birch could be distinguished by the peculiar appearance of its silvery bark; other trees had rough thick bark not unlike Pine; that Hazel was one species is evident from the extraordinary abundance of the nuts; leaves also of different shapes are occasionally found wonderfully well preserved. Some of the sites of these trees are curious enough. There is a fresh water lake in the island of Hoy, where trunks and branches of trees are found in abundance under water. I have not myself seen the place, but while exploring with my friend among the hills of Rousay we came upon trees in a somewhat similar place, viz., in a mill dam of 2 or 3 acres in extent, which, owing to the unusual heat of the summer, was perfectly dry, and its black surface was deeply fissured all over. On raising some of the cracked masses of peat, we found that the entire area was full of dead branches and roots of trees, and when we examined the sides of the dam or reservoir, we saw many stems and branches of trees projecting horizontally from the peat. Most of them were about the thickness of a man's leg, but some were a good deal larger; they were all much decayed, and in some instances were so macerated by the water that they were reduced to a pulpy mass of fibres. In the winter of 1838 there was a long-continued gale of north-east wind, which entirely cleared away the shell sand from about 50 acres of the flat surface usually left dry at low water (our rise and fall of tide is 12 feet, and sometimes as much as 15 feet). Going down one day at low tide, I was astonished to see, instead of the white sand, what appeared a wide stretch of black moss covered with fallen trees, lying with their roots sticking up, exactly as I saw trees afterwards in Canada laid prostrate by a hurricane. I went down to the moss, stepped from trunk to trunk of the trees, and found their substance, when cut into by a spade, quite the same as that of the moss in which they lay, just that of our blackest coal peat. The largest of the trees seemed not more than 2 feet in diameter, and all were lying in the same direction, from S.W. to N.E. I secured several specimens with the bark on, but they soon dried and fell into dust. On taking to a boat, I found the same moss surface, mostly denuded of sand, showing itself under the deep clear water, with trees lying along its surface, quite across the bay to Tuftsness, four miles off, where a rupture of the peat had taken place, as all over that ness, under 9 or 10

feet of blowing shifting sand, the same peat moss and tree remains are to be found as under the waters of the bay, although raised above high-water mark some 10 or 12 feet. Here my quotation ends. The present state of Orkney as regards arboriculture may be briefly described. The original woods, doubtless, supplied fuel to the inhabitants, and would thus slowly but surely disappear; and it is a well known fact that a country or district entirely denuded of trees is with difficulty restored to its former condition; young plantations are best protected by other trees, and no walls or fences can adequately supply their place. The earlier attempts at planting seem to have failed partly from the places selected for trial being too exposed, but chiefly from the trees not having been planted in sufficient numbers to shelter each other. Recent experiments in favourable situations, and where a sufficient breadth has been planted, show a more encouraging result, the trees being at present from 20 to 25 feet high; and from their healthy appearance there is every reason to expect that they will continue to increase in size. In the town of Kirkwall and its neighbourhood, where houses afford shelter, trees readily attain a height of 35 and 40 feet, and by their numbers add not a little to the picturesque appearance of the place; so much so, that, not very long ago, the Prince of Orange, who had been on a visit to Iceland and the Faroe Islands, and on his return touched at Kirkwall, remarked, much to the surprise and gratification of his hearers, that it was delightful to get back to a well-wooded country once more. The species of trees that seem to thrive best are the Sycamore or Scotch plane, the Elm, the Ash, the Mountain Ash, and the White Poplar. Larch may succeed tolerably well in sheltered spots, but evergreen Firs, and Pines in general, do not appear suitable. A remarkable exception to this is the Araucaria imbricata, or Chilian Pine, which, so far as it has yet been tried, seems likely to stand the climate, as it is there exempt from the severe frosts that are so apt to injure it here and in England. Evergreen shrubs, as a rule, are grown with difficulty, and, from a strange anomaly in the climate, those kinds commonly esteemed hardy are often the most difficult to rear, and *vice versâ*. Thus, while the Laurel refuses to grow, Rhododendrons are more tractable; common Box can hardly be kept alive, yet the Box Myrtle, or Veronica decussata, which is here treated as a greenhouse plant, grows out-of-doors there in great luxuriance, retaining its vivid green throughout the winter, and in spring producing a profusion of fragrant white blossoms. This beautiful shrub, which in Orkney grows to the height of 5 or 6 feet, is a native of the Falkland Islands, off the coast of South America, and there is little doubt that other plants from that locality might be introduced into these islands with a fair chance of success. The remarkable mildness of winter in so high a latitude as 59° north is chiefly attributable to the influence of the Gulf Stream, which perceptibly raises the temperature of the sea, and frequently casts upon these northern shores Palm leaves, pieces of Bamboo, masses of cnoutchouc or gum elastic, and seeds of various tropical plants, as Stizolobium urens, of Cowage, and Mimosa scandens, &c. Various specimens of these foreign products are on the table, including two pieces of gum elastic, one of which bears evidence of its long sea voyage by having attached to it several minute pedunculated shells allied to the barnacle which infests ships' timbers.——2. *On the Lichen Flora of Bruichcal Stones of Scotland.* By Dr. W. Lauder Lindsay.——3. *Notice of some rare British Mosses recently collected* say.——3. *Notice of some rare British Mosses recently collected near Edinburgh.* By Mr. John Sadler.——4 *Notes of an Excursion to the Forest of Fontainbleau.* By Mr. George W. R. Hay.——5. *Miscellaneous Communications.*

Notices of Books.

Jurors' Report on the Vegetable Products in the International Exhibition of 1866, *Melbourne.* 8vo, pp. 43.

Some time since we had occasion to speak of the desirability, for scientific as well as for practical purposes, of establishing in connection with our Botanic Gardens a laboratory, wherein duly trained chemists and physicists might under the most favourable circumstances pursue researches into the physiological action and chemical nature of plants, to the great benefit of pure as well as of applied science. The above pamphlet shows what has been accomplished in this way at the antipodes, mainly by the labours of that most untiring and zealous botanist, Dr. Ferdinand Müller. In the Report alluded to, we find interesting notes on the collections of timber and other vegetable substances, communicated by Mr. C. Moore, of Sydney, and Mr. Hill, of Brisbane, M. Thozet and others—notes of exceeding value and interest, to some of which we may have to refer again—notes which will be consulted by all in quest of information on Australian products. But perhaps the most interesting portions of this Report in an economical point of view are those relating to the experiments of Dr. Müller and Mr. Hoffmann on the products of the distillation of wood, the manufacture of paper, &c. Happy is it for the Australian colonies that its botanical treasures are subjected to the scrutiny of such an observer as Dr. Müller, than whom no one has contributed so much towards the knowledge of the natural history and the development of the resources of this vast continent; a continent equalling Europe in dimensions, but with no arctic regions to restrict man's operations, and with a tropical zone which enables him to cultivate numerous plants which it would be hopeless to attempt to do in Europe.

The following passage from Dr. Müller's Essay on the Vegetation of Australia, prepared on the occasion of the Intercolonial Exhibition, will show in brief what Dr. Müller, while always contributing to the advance of scientific botany, is doing towards rendering it practically useful to the colonist:—

"The Eucalypts, as now proved by extensive and accurate experiments, yield him (the colonist) tar in abundance; they will furnish fibres, even those of the stringy bark, as one of the cheapest and most extensively available paper material. By a few simple appliances he may secure, simultaneously with the tar, also wood-vinegar and wood-spirit; and these again might be at once converted into dye materials and varnishes.

"He might obtain potash from woods and volatile oils from the leaves of Eucalypts, in almost any quantity, by simple processes and at little cost. He might gather the gum resins and barks for medicinal or tanning purposes, or he might effect a trade in Fern trees. He might shake the Eucalyptus grains out of their capsules, with a view to furnish the barren tracts with trees, and might secure locally other mercantile substances far too numerous to be enumerated here. Whoever may choose these ranges as a permanent home, and may direct thoughtfully his attention to the future, will recognise that the mere scattering of the acorns of the Cork tree, or the seeds of the red Cedar over cleared and yet sheltered ground, or the planting of the Vine and Olive, will yield to his descendants sources of great riches." It must be remembered that these are the remarks of no closet botanist, but of one who has the right to say *experto crede.*

A modest but valuable contribution to meteorological literature has been recently published by the Rev. C. Clouston, under the following title:—"*An Explanation of the Popular Weather Prognostics of Scotland on Scientific Principles.* (A. & C. Black.) The various "saws" are cited at length under various appropriate headings and an explanation given of each of them. Notwithstanding that we cannot accept the author's explanations as being correct in all cases, while some of them are only of local applicability, we can nevertheless strongly recommend this pamphlet to the attentive consideration of all interested in meteorological phenomena. Referring to "prognostics" afforded by the expansion or closing of such flowers as the pimpernel, &c., the author remarks that he would rather look up to the clouds than down to the flowers for indications of the weather.

The Book of Knots, by Tom Bowling (Hardwicke), contains no less than 172 clearly executed figures, showing the manner of making every knot-tie, and splice. Failing practical instructions, this book will prove very serviceable, as there are few callings in which the art of "splicing" or tieing is not required.

Florists' Flowers.

PANSY CULTIVATION.—I am very desirous to make experiments in hybridising this interesting family of border flowers, but being quite a tyro in such matters I feel the want of some practical help. Will some of your experienced correspondents kindly assist me with suggestions for my guidance? The points on which I desire information are the following:—1. I have a very finely-formed and in every way well-habited variety of florists' Pansy, called Lucifer, and I wish to cross it with the Belgian Pansy Princess Alice, and with seedling Belgians of my own raising, in which I have delightful combinations and diversities of colour, but deficiencies of shape. How must I proceed to impart the colouring of the latter to the excellent habit and form of the first-named?

2. How can I tell when the pollen of the variety to cross with is ripe for use, for hitherto I have failed to detect its presence at all except in most minute quantities—most of the stamens I have examined seeming either abortive or nearly so.

3. Which is the most likely parent to secure form, and which colour—male or female? Or, to put the question more plainly—must I use pollen from the Princess Alice (which has the colour I admire) to fertilise Lucifer with in order to secure colour of the former in conjunction with the form of the latter, or *vice versâ*? and if so, what would be the probable result of using pollen from Lucifer—the dark self above-named—to fertilise the richly-coloured Princess Alice?

4. What is the *modus operandi* of hybridising Pansies?

A reply from Mr. Turner, Mr. W. Dean, Messrs. Downie, Laird, and Laing, or some other successful cultivators of Pansies would be greatly esteemed by me, and would doubtless prove useful to others, who may be equally desirous with myself to make experiments. *B., Worcestershire.*

The Apiary.

BEE CULTURE: RANDOM NOTES.—*Bees Killing Drones.*—A lady correspondent writes:—"On Sunday, May 26, after a chilly wet morning, we had here (Warwickshire) a genial afternoon: about 2 o'clock my bees were working well, from one hive, however, I found some two or three hundred drones expelled. The stock is a strong one, to which I gave a super in the beginning of May. How is this irregular proceeding to be accounted for? *N. E. L. L.*

A gentleman also writes on the same subject, stating that, on the 29th of May, the bees of a hive in which drones had not long been visible were already destroying them in great numbers.

To both these correspondents we may reply that to the late ungenial weather must be attributed the cause of the persecution of the poor drones. Food was very scarce, honey-gathering and comb-building almost at a standstill, so that the drones were voted a useless incumbrance to the community, the workers considering, perhaps, that they could not afford to allow them to—

> On others' toils in pampered leisure thrive,
> The lazy fathers of th' industrious hive."

The season having changed for the better, the destruction of drones by the workers will have ceased, and they will be allowed to pursue their joyous flights unmolested until a recurrence of unfavourable weather, or the cessation of the honey harvest towards the close of autumn.

Choosing a Habitation prior to Swarming.—Two years ago a strong hive which was filling a large super suddenly threw off a large swarm, which made no attempt to pitch anywhere, but at once flew across the lawn, and entered a hive, the bees of which had lately died, and which, through inadvertence, had been allowed to remain on its stand. It was curious to see the bees covering the whole outside of the hive, crushing in to the entrance, and large clusters of them tumbling off to the ground. It was a considerable time before they were all settled in. This spring the bees of an old established Langstroth hive, after dwindling away by degrees, died quite out, and I meant on the first opportunity to remove it, and break up the combs, which were about six years old. However, on the 29th of May, a cottager, who keeps bees about 100 yards distant, had a fine swarm, which was hived as usual in a straw butt, and carefully shaded from the sun. There the bees did not remain very long, but suddenly rose and flew across an orchard, and over some high trees, and precipitously threw themselves into the habitation which they had for some days, as I subsequently learned, been assiduously clearing out. When I examined the combs, two days after, I was surprised at their appearance of cleanness and fitness for use. The queen had already deposited an immense number of eggs. I have removed several of the frames, and substituted frames with newer combs. Again on the 10th of June my best stock, which had been working well in a glass super, threw off an immense swarm soon after nine o'clock in the morning. The bees at once ascended over some exceedingly high trees, which bound the old city wall behind my house, and flew across a large lawn to a hollow in an Elm tree at a considerable height from the ground in our bishop's garden, close by the cathedral and the palace. All endeavours to force the bees to leave their place of refuge have been fruitless. The above are three instances out of many which I have met with, which indicate that bees do often fix on a locality adapted for their future home. *S. Bevan Fox.*

Bees and Hives at the Great Horticultural Exhibition at Manchester.—"Among the objects of greatest interest in the exhibition were:—Two stocks of those beautiful and superior honey bees, 'the Ligurian or Italian Alp bees, at work.' These were exhibited by Mr. William Carr, of Clayton Bridge, Newton Heath, in one of his 'improved observatory revolving bar-frame bee-hives,' the four sides and the top of which are composed of glass. The bees and combs in the hive are always in view. There is a thermometer inside the hive, and Mr. Carr informed us that it is the warmest hive in the winter of any wood or straw hive that he has tried. There are about thirty thousand bees in this hive. The other stock of Ligurian bees are in Mr. Carr's 'improved unicomb observatory revolving bar-frame bee hive,' which for scientific purposes is one of the most wonderful hives ever invented, as all the mysteries of the hive are exposed to view, and it is most interesting to see the queen laying her eggs in the cells surrounded by her maids of honour, who are constantly paying her some attention; at one time feeding her, then dressing or smoothing her hair, crossing their antennæ as if in conversation, or communicating to one another by their sensitive touch, and then moving out of her way as she walks in royal dignity over the combs in search of empty cells in which to deposit her eggs. Mr. Carr informed us that a fertile Ligurian queen will lay from one to two hundred thousand eggs in a year, and that one impregnation fructifies more than half a million of eggs. In this unicomb hive the eggs and brood can be seen in the cells, and the young bees biting the cover of their cradle away and emerging into life perfect bees. The bees that have been abroad collecting can be seen unloading the pollen from the baskets in their thighs and depositing the honey in the cells. Mr. Carr also exhibited the finest bell-glass filled with upwards of 32 lb. of the most splendid honeycombs ever collected in Lancashire. They were collected at Clayton Bridge, principally from white Clover, by these superior and beautiful bees, the Ligurians. He also exhibited improved bar-frames, filled with beautiful honeycombs, weighing from 6 to 7 lb. each; and Mr. Carr informed us that any comb out of these improved humane bar-frame hives can be taken out and placed on the tea table in less than five minutes, at any time of the day, without killing a single bee. *Manchester Courier.*

Miscellaneous.

The New Double Crimson Thorn (*Cratægus Oxyacantha coccinea fl.-pleno*).—As a hardy ornamental tree for planting in the shrubbery and flower garden, we look upon this Thorn as the grandest acquisition that has been obtained for many years; and as a forcing plant it is equally desirable, for the young plants appear to flower freely when only a few inches high. This, indeed, has been sufficiently shown by the examples which have been exhibited by Mr. W. Paul at the Royal Horticultural Garden, South Kensington, and at the Royal Botanic Garden, Regent's Park, several times during the spring of the present year. As there has been some doubt created in the minds of the public as to whether there are not two new double Crimson Thorns, issuing from different establishments, under similar names, we are glad to be able to dispel the mystery. We speak advisedly when we say that the plants shown by Mr. William Paul, and the branches shown by Messrs. George Paul & Son, are identical both in leaf and flower. The variety is a sport from the double Pink Thorn, and originated in the beautiful and well-kept garden of Christopher Boyd, Esq., of Cheshunt Street, near Waltham Cross, where it still exists. It has, therefore, never been the exclusive property of any one nurseryman. The history of the sport is briefly this: About seven or eight years ago some flowers of this intense hue were observed on a plant of the double Pink Thorn, and on examination it was found that a strong branch had started up from near the centre of the tree, with leaves as well as flowers differing from its parent. The branch was encouraged, and year by year increased in size, retaining the colour and character originally observed. The parent plant is apparently about 25 years old, 30 feet high, and as much in diameter, measured from the outermost branches at its greatest width. There is

still only one stout central branch of this deep colour; the other branches, which are profusely adorned with flowers, being of the original pale pink so well known to horticulturists. When looking at the tree recently, so great was the contrast between the sport and the original, that we could not rid ourselves of the impression that the parent variety was in this instance paler than usual, and we asked ourselves whether the colouring matter had not been drawn from the larger surface and intensified in this particular branch by one of those secret processes which the student of Nature is often called upon to behold and wonder at, without being able to account for or explain. This may be fanciful, but here is certainly a *lusus naturæ* worthy of the attentive consideration of our vegetable physiologists. It may be added, to complete the history of the plant, that it has won First-class Certificates at the exhibitions of the Royal Botanic Society and the Royal Horticultural Society, and also at the Great International Horticultural Exhibition of 1866. *Florist and Pomologist.*

A New Horticultural Process.—At the last meeting of the Agricultural Society in India, the Rev. Mr. Firminger communicated a plan by which the stones of fruit may be reduced or made to disappear, and the pulp increased in size and flavour. At any time during the cold season select a branch, says the *New York Tribune*, that is to be used afterwards for inarching. Split it up carefully somewhat less than a span long. From both halves of the branch thus split scoop out clearly all the pith; then bring the split halves together again, and keep them bandaged till they have become thoroughly united. At the usual time, the beginning of the rains, inarch the branch thus treated upon suitable stock, taking for the place of union the portion of the branch just below where the split was made. Upon a branch of the tree thus produced a similar operation is performed, and so on for successive seasons; the result being that the stone of the fruit becomes less and less after each successive operation. This process has been applied likewise to the Grape Vine at Malaga; and plants thereby have been produced which bear the finest fruit, without the slightest vestige of a stone within them. [Very doubtful.]

Silk Plant.—The Department of State at Washington had received information from the United States Consul at Lambayeque, Peru, says the *Morning Post*, that an important discovery had recently been made in Peru of the Silk plant. Preparations were being made to cultivate it upon an extensive scale. The shrub is 3 feet or 4 feet in height. The silk is enclosed in a pod, of which each plant gives a great number, and is declared to be superior in fineness and quality to the production of the silkworm. It is a wild perennial, the seed small and easily separated from the fibre. The stems of the plant produce a long and very brilliant fibre, superior in strength and beauty to the finest linen thread. Small quantities have been woven in the rude manner of the Indians, and the texture and brilliancy is said to be unsurpassed.

Garden Operations.

(For the ensuing week.)

PLANT HOUSES.

Indian Azaleas, the generality of which will now be going out of bloom, should have all remaining seed-vessels, &c., carefully removed. After that has been done, any needing a shift should be potted at once into good fibrous peat and sand, as previously advised (see p. 410). Any which do not require potting, after having been gone carefully over in the way of tying, restaking, &c., had better be placed in some close warm structure, where attention can be given them, in order to induce them to make good wood, and to set abundance of flower-buds for the ensuing year. Syringe frequently, and shade constantly from intense sunshine, shutting up close at 3 p.m. daily. Be particular not to over-water them at the root at any time; giving, however, at all times when necessary a copious soaking in order that it may percolate effectually throughout every part of the material in which the plant is growing. Attend to *Stove Creepers*, and constantly tie them into vacant spaces as they continue to extend. Any which are not growing sufficiently thick to occupy the spaces allotted to them should have a few of the stronger shoots pinched back,—an operation, however, which should not be performed upon Bougainvillæas, Ipomœa Horsfalliæ, and others of similar habit. As one of the great faults in modern plant-growing is overcrowding, especially at this season when Caladiums, Gloxinias, Achimenes, &c., are speedily getting larger, I cannot too earnestly advise that a weeding out be made in regard to the inmates of most mixed structures. Some of the more hardy sorts may be placed in empty pits previously used for winter stuff, &c. They will do well in such a situation for the next two months, if kept close and moderately shaded. This will permit the air to play more freely around them, and will aid greatly in perfecting a well-developed growth. *Cinerarias* being now nearly out of flower, should be placed in a cool situation, and when the growth has acquired sufficient firmness, cut down to within 3 inches of the base; dress the surface of the soil with some light compost, and protect from too much wet. Take off cuttings when ready, and put them in pots, which place under glass in a shaded situation, potting them off when rooted, and shifting into larger pots as often as more room is required. Sow seeds for early bloom. *Hollyhocks:* Propagate as soon as side shoots can be taken off. To *Pelargoniums* give air freely, but not so as to cause draughts. Water in the mornings, but sparingly in dull weather, and do not shut up with much moisture. Before the plants are cut down, they should be kept rather dry at the root. Prolong the bloom by careful shading and watering, avoiding a close warm moist atmosphere. Fancy varieties should be struck in a cool frame.

FORCING HOUSES.

Most coverings might now be removed from Vine borders, and especially that upon the roots of any Vines which may have ripened their fruit. Continue gradually to syringe fruit less freely after it has swelled to half its size. Leave here and there a strong shoot to grow uninterruptedly at the apex of Vines swelling off their fruit, as it may be the means of preventing one or more principal buds from starting. *Pines* swelling at this advantageous season may receive more copious waterings with clear liquid manure. Any which may have ripened too quickly for the uses for which they are intended, should be removed, plant and all, into a cool dry room, where they will keep in greater perfection for a fortnight or so than in any other place. Do not omit to remove gills when sufficiently firm to be taken off, as these rob the fruit. Pines grown in vineries, or at least under Vines, and which are intended to fruit next season, should be potted at an earlier date than others in proper pineries. Pot them firmly in a good, well-decomposed turfy loam, collected with the surface herbage upon it, as previously recommended. Expose good succession stuff to an abundance of air now that a maximum summer heat may be depended upon. Do not neglect, however, early closing, which I have so constantly recommended. Gather *Peaches* by laying hold so that the fruit shall be untouched in the hollow of the hand, whilst the padded ends of all the fingers and thumb surround the base; and thus with but slight pressure equally divided among these five soft tips, the fruit, though perfectly ripe, may be removed without the slightest bruise. Give plenty of air, and if the foliage can be inured gradually to bear the direct rays of the sun, the flavour of the fruit will be greatly enhanced. As *Melons* begin to ripen give plenty of heat and air; of the latter there should be a moderate circulation both night and day, if the nights are not unusually cold. A great breadth of foliage in *Figs* should not be encouraged, nor are spongy luxuriant shoots desirable; therefore keep them in a medium condition, both as regards moisture and warmth.

HARDY FLOWER GARDEN.

Bedding-out will now have been finished sufficiently long to allow the plants to have made some progress at the root, the surface soil in the beds, encrusted through the late dripping weather, should therefore now be carefully loosened with the hoe, in order to allow air to freely enter the soil; pick off all decayed portions of the plants, and peg down all prostrate growing kinds, such as *Verbenas*, in need of such assistance. Examine the ties upon *Picotees* and *Carnations*, loosening where necessary any spindles which by elongation have become too tight, or which are in consequence bent or twisted. Continue to fasten *Dahlias* as they advance in growth, fixing the stakes to all forthwith, if not already done. Trap slugs by means of Cabbage leaves, &c. Do not neglect to remove the remains of flower-stalks from *Auriculas* immediately any show symptoms of decay. Make fresh plantations of *Arabis*, Cliveden and other Pansies, &c., needed in the autumn for the purpose of filling beds and other places set apart for early spring display; they strike readily by means of division of the roots, and by cuttings. Remove *Tulips* from the positions they have occupied during their flowering period so soon as the leaves commence to decay, and stow them away in a cool airy shed for a time.

HARDY FRUIT GARDEN.

Attend to all young trees planted last season, as these will now in most cases need assistance, in order to ensure a good preliminary shape, upon which to build the after superstructure. *Pear* trees especially, whether trained to walls, or treated as espaliers, should have one main central shoot trained upright, choosing either two or four upon either side, for the purpose of training upon the horizontal tier principle. Do not train these latter into the spaces they are to occupy yet however, but rather encourage them to make a strong growth individually, by allowing them for the present to assume a more upright and natural form. The centre shoot may be pinched back when about 14 inches in length; an operation which will be the means of affording additional support to the others which remain. Young Peach, Nectarine, Apricot trees, &c., should, on the contrary, be allowed to assume a fan-shape, in which the more central shoots will slightly take the lead, having less space to travel; these, however, must not be permitted to grow too strongly, but will need pinching back about this time, in order to duly balance the distribution of sap between them and others of less robust growth.

KITCHEN GARDEN.

Those who have followed my advice, not to make the main sowing of *Scarlet Runners* until a reasonable date, when it may be anticipated no further frosts will occur, will now have robust rows well above ground, requiring to be earthed up and staked, operations which should be performed without delay. Before earthing up, it will be well to give them a good dusting with soot, lime, or wood-ashes, either separately or mixed together. This will not only tend to destroy any insects which surround them, but will also act as a preventive in the future. Transplant into their permanent quarters the necessary breadths of such as the following in quantities sufficient to meet the demand for them, namely *Savoys, Brussels Sprouts, Cauliflower, Borecole* (Kale), *Broccoli*, &c. In every instance where practicable make several distinct plantings from each seed bed, and especially of Broccolis, such as Snow's, Osborn's White, &c., choosing upon each succeeding occasion the largest and best plants. Keeping in view the occasional severity of our winters, it will be best at all times to separate all Broccolis intended to stand till March or April as wide apart in the rows as possible, for the purpose of inducing them to form firmer growth, which they are the more likely to do, if sun and air are admitted freely around them. Sow a good breadth of *Parsley* about this date, as if sown now it may be expected to form fine plants, likely to withstand all inducement to "bolt" until the autumn, when it will be of much service for after winter use. *W. E.*

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the Week ending June 12, 1867, as observed at the Horticultural Gardens.

June.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Min.	Mean	Of the Earth. 1 foot deep.	2 feet deep.	Wind	Rain.
Thurs. 6	4	29.730	29.665	68	48	58.0	56	54	S.W.	.02
Friday 7	5	29.830	29.662	68	44	56.0	57	56	S.W	.10
Satur. 8	6	30.037	29.987	72	47	59.5	57	56	S.W.	.00
Sunday 9	☽	30.198	30.066	75	43	59.0	57	56	W.	.00
Mon. 10	8	30.242	30.227	80	45	62.5	57	56	W.	.00
Tues. 11	9	30.268	30.110	82	50	66.0	59	57	S.	.00
Wed. 12	10	30.061	29.922	83	50	67.5	60	58	S.W.	.00
Average		30.052	29.948	75.7	46.7	61.2	57.5	56.1		0.18

June 6—Cloudy; fine; cloudy at night.
— 7—Low white clouds; fine; overcast
— 8—Fine; cloudy and fine; overcast at night.
— 9—Very fine; fine, with clouds; very fine.
— 10—Exceedingly fine; very fine throughout.
— 11—Very hot and cloudless; very fine at night.
— 12—Very hot; very fine; cloudy at night.
Mean temperature of the week, 3 3-10 deg. above the average.

STATE OF THE WEATHER AT CHISWICK,
During the last 41 years, for the ensuing Week, ending June 22, 1867.

June.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday ..16	72 6	49.3	61.0	18	0.46 in.	3	4	8	1	0	7	5	3
Mon. ..17	72.8	48.1	60.4	23	0 80	2	5	4	—	7	11	6	6
Tues. ..18	72.1	50.0	61.1	21	0 84	4	3	4	3	6	7	11	3
Wed. ..19	70.8	48.9	59 9	22	0.62	2	4	3	2	4	15	8	3
Thurs. ..20	72 3	49 2	60.7	19	0.66	2	5	2	2	6	13	9	2
Friday ..21	74 3	51 3	62 8	17	0.58	1	3	4	3	2	21	4	1
Satur. ..22	73 7	50 0	61 8	16	0 59	—	4	3	1	2	18	—	—

The highest temperature during the above period occurred on the 19th and 22d, 1816—therm. 93 deg.; and the lowest on the 20th, 1865, —therm. 30 deg.

Notices to Correspondents.

BEECH TREES: *E H M.* The Cottony production on Beeches, though the work of an insect, is not American Blight. The only remedy for it with which we are acquainted is brushing the Cottony substance off, and rubbing the parts affected with a mixture of tar and grease.

DOUBLE PELARGONIUM: *E G Henderson & Son.* The double-flowered variety with undulated petals, which it is proposed to call marginatum flore-pleno, will doubtless be a very useful decorative variety, since the blossoms must be more enduring than those of the single-flowered kinds. The colour is a deep maroon crimson, passing off into a broad zone of rich crimson veined with darker lines, and the edge is distinctly though narrowly bordered with white. The salmon-coloured zonal marked with white stripes, named salmonium striatum, is very promising, and suggestive of a race of striped flowers. That with the reticulated yellow and green leaf is very curious.

FICUS STIPULARIS: *F S, Windham Club.* The fruit of this species is not reputed to be edible, and judging from appearances it can hardly be worth much in this way. Is your plant a standard? It appears from the leaf to be so. The leaves vary considerably in form according as the plant is grown against a wall or as a standard.

FUCHSIAS: *Nil Desperandum.* Mr. Cannell, who is a practical authority on the question, says, discontinue stopping ten weeks before the plants are required to be in bloom. This applies to exhibition plants that have been well furnished by means of previous stopping.

GRAPES: *J H H.* If you examine the diseased bunches of flowers in your Grapes, and compare them with healthy bunches, you will see that there is a considerable difference in the mode of development. Your diseased bunches will in all probability be entirely or partially abortive. The affection now and then occurs in cultivation, but not very frequently, and no one has hitherto, as far as we know, detected the cause. Your Vine may bear healthy bunches another season, but should it still continue diseased it would be well to replace it with some fresh individual. *M J B.*

INSECTS: *W F.* The minute animals sent from the neighbourhood of Carlisle are a species of hair-worm (Gordius) which are parasitic in the bodies of different kinds of insects. *W.*

JUSTICIA: *Nil Desperandum.* The leaves look as if they had been scalded by strong sun heat.

LITHOSPERMUM FRUTICOSUM: *W, Belfast.* You probably allude to Lithospermum fruticosum, not Lophospermum. The former is quite hardy, if the last three winters be accepted as a sufficient test. At Battersea Park it was used as an edging to one of the geothermal beds, the thorough drainage of which is no doubt the cause of its early and profuse flowering. The south side of an artificial rockwork, where its roots could penetrate some depth among stones, so arranged as to afford complete drainage to the surface soil, and where its branches could hang over a perpendicular piece of rock, would be the sort of place to bring out the real merits of this beautiful plant.

NAMES OF PLANTS: *C R.* 1, Geranium multifidum, L.; 2, Geranium pilosum, L.—*C W Strickland.* Crinum latifolium, L.—*G M.* Lupinus varius, L.; Anthericum (Hemerocallis); Liliastrum, Jacq.—*E A M.* Your Rose belongs to the Chinese or Bengal class, and is named viridiflora.—*P C.* 1, Polystichum aculeatum lobatum; 2, Polystichum angulare; 3, Myricaria germanica; 4. Berberis vulgaris.—*Nil Desperandum.* Pteris serrulata.

PEAS: *J M* will feel obliged by any one informing him how he shall manage to preserve Peas green and fit for the cook all the year round. He has been told that they can be kept in bottles, but he does not understand the process. We may add that some dry them while green in a cool oven, and hang them up in paper bags for winter use.

PYRETHRUM: *J Fleming.* The seedling from M. Vilmorin is a finely-coloured double rosy crimson, and we can well imagine that the bed of it has a very striking appearance. Some of the best named sorts are very similar in colour. We are glad to find your experience coincides with the favourable opinion we have always entertained of these Pyrethrums, because in some quarters their utility has been questioned.

ZONAL PELARGONIUMS: *Nil Desperandum.* Young plants intended for specimens are the better for not being allowed to bloom while they are being grown on.

COMMUNICATIONS RECEIVED.—J. Fleming.—J. Anderson.—C. Turner.—D. T. F.—M. Nesfield.—W. P. R.—J. W.—B. S.—W. Dean.—J. Wills (too late for this week, but your question is partly answered at p. 630).—D. Buchanan.—W. E.—E. H. Marshall.—W. D.

MANCHESTER and LIVERPOOL AGRICULTURAL SOCIETY (Established 1767). — GRAND CENTENARY SHOW MEETING at Manchester, August 27, 28, and 29, 1867.
Special Prize List and Forms of Entry are now ready to be issued.
T. B. RYDER, Secretary.
57A, Church Street, Liverpool.—April 23, 1867.

ROYAL AGRICULTURAL SOCIETY of ENGLAND.
BURY ST. EDMUND'S MEETING.
PROGRAMME.
WEDNESDAY, THURSDAY, FRIDAY, and SATURDAY, July 10, 11, 12, & 13—TRIAL of IMPLEMENTS. Admission, 5s. each person.
MONDAY, July 15—The ENTIRE SHOW-YARD OPEN from 8 in the Morning, at which hour the Judges will commence inspecting the Live Stock, and making their Awards. Admission, 5s. each person.
TUESDAY and WEDNESDAY, July 16 & 17—Admission, 2s. 6d. each person.
THURSDAY and FRIDAY, July 18 & 19—Admission, 1s. each person.
The Showyard will be cleared of Visitors at 8 o'clock each evening.
FRIDAY, July 19—GENERAL MEETING of the MEMBERS in the Showyard at 10 o'Clock.
By permission of the Officer commanding the Coldstream Guards, the Band of that Regiment will attend during the Show.
The hours at which the Exhibition of Horses in the Ring, and the performances by the Band will take place, will be notified by Placards in the Showyard.—By Order, H. HALL DARE, Secretary.
12, Hanover Square, London, W.

The Agricultural Gazette.

SATURDAY, JUNE 15, 1867.

WE are informed that the Board of Trade, as they did last year, are again immediately to place in the hands of the occupiers of land in Great Britain schedules of their crops and live stock, with the request that these tabular forms be filled up and returned on the 25th of this month. The prejudice against giving the information thus asked for is dying out; and it will ultimately no doubt altogether disappear. Every occupier who makes the desired returns must know in the first place that he is no more publishing his circumstances by this return, either to his neighbour or to the world at large, than if he kept the whole a secret to himself. His case is entirely lost in the cloud of particulars into which it enters, so that his privacy is not in any way invaded. And in the next place he must be aware that the bargain which is offered him is a very great advantage to himself. He is asked to contribute an item, and in return he acquires a knowledge of the total. This is a proposal which we have now for more than 20 years annually made to some 300 or 400 correspondents in all parts of the country, and it has always been cordially accepted. Any agricultural subject which is thus at any time exciting an interest, is made the subject of a question; and the results of the whole inquiry are promised to any one who will contribute his personal experience in connection with it. We invariably receive a large quantity of trustworthy information in this way, and every one who helps to furnish it is benefited far beyond the mere repayment of whatever labour or inconvenience may have attended his own small contribution to the whole result.

We have even issued a circular request before now to a number of large occupiers of land, asking them to furnish us with the dates, and quantities, and prices of all their grain sales during a preceding twelvemonth, when great variations in the price of corn had taken place—the object being to ascertain whether intelligent and wealthy occupiers of land had profited or otherwise by these abrupt variations in the market. Every man that was addressed frankly gave the information; and the result upon the whole was serviceable to each by showing upon the great scale, as his own experience had already done upon the smaller scale, that the ignorance out of which these abrupt alternate refusals and supplies of grain at market arise (to which the corresponding changes of market price are due) was in that year at any rate universal. The rich and able men knew no better than the poor and needy. Not a man among them had been advantaged by the short periods of excessive prices, for they always corresponded, as they always must, with the periods of minimum supplies. Everybody was selling when prices were low, and no one (so to speak) was selling when they were high, and thus the ignorance to which abrupt changes of price are due was, as it always is, mischievous to all alike.

It is the removal of this mischievous ignorance which is the object of the returns now asked for by the Board of Trade. Every one admits that the corn-dealer and the cattle-dealer are benefited by the information of our supplies which such returns afford, but few seem to remember that every farmer is himself a corn-dealer and a cattle-dealer, and will profit in the smaller sphere of his one occupation just as much as the man through whose hands the produce of many farms and occupations passes on its way to the consumer. Some individual farmers have been wise enough to make the study of our annual produce and that of other countries their particular care for many years, and we know of one instance in which this knowledge thus acquired has resulted in a profit within the past year of several thousand pounds. Of course this has not been done by learning how to dispose of the home produce merely of one's own farm. It has been by corn-dealing on a larger scale than this that such a profit has been made. But if this farmer, by his superior knowledge, could sell what he had bought at a greater profit than his neighbour in Mark Lane, no doubt he has also sold the corn which he has grown at a similar greater profit than was realised by those who occupied land all around his own in Hertfordshire.

Any how, it is certain that ignorance is mischievous, and that knowledge must be always power and wealth. The existing distinctions may be very profitable to the few who are enlightened, but the many are all this while suffering for their ignorance. If by publishing to all the result of a general statistical inquiry into our annual agricultural produce, we shall thereby only distribute over all the excessive profits at present made by only one or two, undoubtedly the many will to that extent be benefited; but this is putting the very lowest estimate on the advantages which must ensue. We can understand how a selfish man would desire to retain exclusively the advantage which the present lack of general intelligence may secure to *him;* but it is altogether impossible to defend on any general ground the prejudice which has hitherto been held by the rank and file of British farmers against the publication of information which it must be generally useful to make generally known. We hope, therefore, that an even greater success than was achieved in 1866 may this year attend the renewed attempt of the Board of Trade to collect the Agricultural Statistics of Great Britain.

IN our last Number we made some observations relative to hay-making, and we now propose to submit certain considerations, which, so far as they go, should induce us to remove the crop as early as possible—with the direct object of beneficially influencing the grain harvest.

This may seem a startling proposition; but we doubt not that the consideration of the established facts on which it is based, will induce the agricultural reader to admit that it is reasonable enough and worthy of his attention.

There is no doubt that agriculture improves a climate disposed to humidity and coldness only by reducing the quantity of evaporating surface, —in consequence of which a less cloudy sky is formed, and the solar rays are admitted to warm and defecate the earth—all which is highly conducive to salubrity as well as to profitable vegetation.

This amelioration is effected by draining morasses and felling and clearing forests, because the grain and other vegetables cultivated on the surface thus changed cause it to exhale much less aqueous vapour than it did in its previous state of superabundant wood or morass.

Now, it should be remembered that the general produce of this renovated surface exhales moisture only during a part of the spring and summer. About a seventh part is usually in a state of fallow, and if kept free from weeds, affords little moisture compared with its former state.

Perhaps we should state, in passing, that with respect to evaporation (although a most important meteorological and agricultural topic), we have at present very little trustworthy information; but, taking LUKE HOWARD'S estimate, it appears that the annual amount of evaporation is 30.46 inches, and of this there are supplied in spring 8.55 inches, and in summer 11.58 inches, whereas in autumn there are only 6.44 inches, and in winter 3.58 inches.

But to continue: we all know that the immense quantity of water that falls in rain must have "gone up" by evaporation; but we find it difficult to imagine how such enormous quantities of water can escape unseen from the surface. Long ago, however, Bishop WATSON ascertained by direct experiment that even in the fallow state land may give water to the atmosphere at the rate of 1200 gallons from an acre in 12 hours.

The mode he took to ascertain this curious fact was as follows:—He measured the mouth of a drinking-glass, and found the area to be 20 square inches; this was put on a close-mown Grass-plot after there had been no rain for a month. When the glass had remained inverted on the Grass-plot a quarter of an hour, the inside was wiped with a piece of muslin previously weighed; the muslin was then weighed again, the increase of weight showing the quantity of collected vapour. The mean between 12 and 3 o'clock, on a hot day, from 20 square inches of earth, was 6 grains. Now, as there are 1296 square inches in a square yard, and 4840 square yards in a statute acre, we find that above 1600 gallons, reckoning 8 pints to the gallon, would be raised from 1 acre every 12 hours. Two other experiments were tried after the ground had been wetted by a thunder shower the day before, and the heat of the ground, by the thermometer laid on the Grass, being at 96°, when one gave 1973 gallons in 12 hours, the other 1905. Bishop WATSON also placed the glass upon a dry foot-path, when the vapour rose from the foot-path as well as from the Grass, but not so abundantly. But, as these experiments were tried in the hottest part of the day (from 12 to 3), perhaps 1200 gallons is about the average of 12 hours.*

The inference from these experiments must be obvious. If the evaporation from the dry close-mown Grass-plot was much greater than from the bare foot-path, how much more must it be from rich pasture lands than from close-mown walks, and how much more still from luxuriant vegetable crops? Besides, the cultivated annuals do not completely cover the ground till towards the end of May, and the earth is then warmed by the uninterrupted rays of heat from the sun, which moderates the nocturnal cold and thus prevents those sudden checks which vegetation frequently receives in England from irregularity of temperature.

Thus, when lands are brought into cultivation, intersected by high quick fences, and become productive of luxuriant crops, they generate a more vaporous atmosphere; and consequently the climate undergoes a change; it actually reverts, so to speak, especially in the spring and summer, when such causes are most in action, to its earlier condition; but at the time of harvest, when the crops are removed, the soil presents a surface to the sun almost as little shaded as a field under summer fallow; and when the outward soil is dry these stubbles contribute evidently, by the dry, heated air which we see undulating over them in the day, to clear the atmosphere, and tend, in some degree, to brighten the sky. Hence the fact, which is proverbial, that our autumns are frequently the finest, the hottest, and driest part of the year. The reason is, because the heat the soil thus receives is gradually and, as it were reluctantly, given back to the atmosphere. Hence, possibly, the fact that our springs and summers are, on the average, colder, and our winters milder than of old.

Now, by the same reasoning, there cannot be the slightest doubt that when the hay harvest is early, the removal of such an immense exhaling or evaporating surface of Grass has an influence on the weather, especially if a few bright days immediately succeed, as a check is then given to the latter-math; and during this interval between the hay and corn harvest, we have fine weather for filling and ripening the grain.

This is a serious consideration; and it may be proper to suggest that on this account it may be not only advisable, but economy in the farmer, never to "haine up late." A bad or inferior harvest may be the consequence. Delay in hay-making may have had much to do with the losses in wet seasons, when our farmers have had to wait for sunny days, that never come, to rip en the grain!

Perhaps policy, both with respect to land and cattle, would—if the winter be mild—forbid sending the cattle to field after Candlemas. Fastening the gates of pasture land early may be thus the surest game: neglecting or delaying this may be hazardous in the extreme.

Practical agriculturists should impress this truth on their memories, that after a showery summer the chances are five if not six to one in favour of a dry harvest—on account of the

* Chemical Essays, iii.

enormous exhaling surface which is removed, with the hay, at that time.* *S.* [The extravagant, if not whimsical urgency with which a writer will sometimes represent a truth of very limited influence and applicability, is often a useful stimulant to independent thought; and we are glad, therefore, to give "S." a hearing in these pages. It must not be forgotten, however, while listening to his argument on this subject, how greatly our climate depends upon our insular position, and how slightly any agricultural cause can affect the influence of the winds, which sweep over our small area, after receiving their character from the great sheet of water on the one side of it, or the great stretch of land upon the other. ED.]

THE time was when Linseed cake had almost a monopoly as a cattle food, but modern invention and the art of advertising has had the effect, not indeed of removing it from the list of cattle edibles, but certainly to put it somewhat in the background. Instead however of a falling off in the imports of oil-cake, as one might suppose would be the result by the extension of the use of various advertised compounds, the returns for the past year show an increase over the former years. Other seed-cakes besides those of Linseed, Rape, &c., have recently been introduced into the markets. The advent of any new oil seed must almost necessarily lead to the production of a new oil-cake; for where the seeds are crushed for the sake of the oil, the marc or refuse seed would be sure to be used, if possible, either as cattle food or for manure. It is the oil that is of the first value and consideration, and if the marc likewise proves useful so much the better for the oil-crushers; thus it is that, Linseed and Rape-seed oils being so much in demand, a large supply of the cake is produced. The residuum of some oil-seeds, however, are of little or no value to the cattle keeper, and consequently seldom or never enter into commerce in this country.

One of the most recent introductions, which has now become an established trade both in England and at Marseilles, is Cotton-seed cake. Attempts were made to introduce it some years back, its recommendation being based, perhaps, more on account of its cheapness than any superiority in quality. The extraction of oil from the Cotton-seed has been the means of utilising a portion of that valuable plant hitherto considered useless. Perhaps not more than half of the whole crop of seed in the United States is required for sowing, consequently there is an immense quantity at the service of the oil crushers, who, it is said, obtain from every 100 lb. of seed about 2 gallons of oil—equal in appearance to that known as salad oil—and 48 lb. of oil-cake, besides a quantity of soap stock. From this it will be at once seen that the utilisation of the Cotton-seed must be of a remunerative character, especially when it is estimated that not less than a million and a half tons of seed are annually available for commercial or agricultural purposes. Cotton-seed in an unprepared state had been used for feeding cattle in the Cotton-growing countries long before its introduction into this county for a similar purpose, and in many parts of India it is a distinct and important commercial article, the cattle employed in ploughing and other agricultural work being constantly fed upon it. It is also frequently taken as food for milch cows on board homeward-bound ships. The cake is now exported to a large extent from the United States to the Mediterranean, and is also brought from several American ports into this country. Besides this, large quantities of it are made in England and at Marseilles. The English made cakes are much more neatly formed than those made at the latter port, being of an uniform thickness of about 1 inch, corrugated or waved on both sides, and of an oblong shape, wider at one end. The Marseilles cakes are usually square, with the corners cut off and about three quarters of an inch thick. The English cake is of a darker colour externally, with a brightish yellow fracture, and the seeds are more finely crushed.

The oil-crushing trade of Marseilles is a most important branch of the commerce of that port. Cotton, Arachis, Sesamum, Linseed, Cocoa-nut, Palm-nut, and Turnip-seed, are all imported in considerable quantities for the sake, principally, of their oils. The consequence is that oil-cake from all these seeds is sent out to various parts, either as cattle food or for manure. Cattle are said not to be fond of the cake at first, but they readily take to it and thrive upon it. The following analysis will show the nature of its composition:—

Water	11.19
Oil	9.08
Sugar	10.70
Albuminous compounds	24.69
Nitrogen	3.95
Ash	5.64

It is well-known that the marc or residuum of most oleaginous seeds after the oil has been expressed, contains a large percentage of nutritive matter, and is useful for the twofold purpose of feeding cattle and manuring land; thus it is that in India the Poppy-seed, after the expression of the oil, is used for this purpose, and in some parts of continental Europe, Camelina sativa and other seeds are similarly used, while Walnut cake is a common cattle food in the north of Italy. Some few years back an attempt was made to introduce into England as a manure the cake obtained in expressing the seeds of the Castor-oil plants, it however never came into general use: it is easily distinguished from ordinary oil-cake by its colour and the large fragments of the husk of the seed which it contains. In the countries where the Cocoa-nut grows the dried pulp of this fruit, after the oil has been expressed, forms a useful food for cattle, as well as a good manure for the plantations. No doubt there are many new materials of a similar nature, which, were they introduced, would prove valuable to the farmer, either for feeding his stock or enriching his land. The importations of oil seed cakes of all kinds have been gradually increasing in quantity during the past few years, the returns for 1866 showing 129,023 tons; and those of the first four months of 1867 being 25 per cent. greater than those of the corresponding period of last year. *J. R. J.*

* Williams, "Climate of England."

—— MR. W. C. SPOONER, of Eling, V. S., does not believe that the reappearance of the Cattle Plague is due to its re-importation. He believes that it is due rather to the vitality and resuscitation as it were of old poison, and he urges this view strongly upon the President of the Royal Agricultural Society of England in a letter, of which the following is an extract:—"The recent recurrence of the disease in London and the provinces must of course be owing either to the importation of diseased cattle, or to the remains of old infection. I believe the latter is the case, but the prevailing idea is that it is the former, and thus the slaughter of all animals at the ports is strongly advocated. The Government object to this strong proceeding, believing that it will greatly interfere with the supply of meat, and it appears that the Privy Council suggest a quarantine of 12 hours for fat animals. It is not likely that this will meet the views of farmers, and hardly the necessities of the case. I would beg to propose an alternative, which I think would meet the case and also the views of most people: and that is, not to compel the slaughter of foreign cattle at the Ports, but to give importers the choice of a quarantine on shore of 10 days or slaughter at any time within this period. The time will no doubt be advantageously employed in enabling the cattle to recover the effects of the sea voyage, and from the exhausted and fevered state thereby induced, and it will also serve to test the doubtful point as to whether slaughter at the ports can be adopted without injury to the importers or the public. There is one other point to which attention might also well be called, and that is the importance of having a clause in the intended Act forbidding, not merely for a time, but as a permanent measure, cattle coming out of London alive. I think amongst all precautions this would be the most effective."

A DRAINAGE RETROSPECT.

TIME tests many things. It is now more than 24 years since my draining was completed on every acre of the farm (170 acres); and as I walk over every field and examine every drain I ask myself, has this been a profitable operation, and have those 24 years of observation given me additional draining knowledge? It will be satisfactory to drainers to know that not a single drain is choked, but in spite of 24 years' use every one is in thorough working order, and all are now discharging freely.

It will be remembered that about 60 acres of my heavy clay were drained in a peculiar manner with small stones and a 2-inch pipe over them, to prevent the earth pressing in among the stones. My good friend, Mr. Morton, objected to the pipes being so placed, and I, after seeing Mr. Parkes' 4-feet pipe drainage, stated in my book that I thought I had done wrong, and subsequently in some new drainage I adopted the deep pipe principle, as less costly and more effective. Twenty-four years have elapsed, and I am bound to say that that pipe and stone drainage has been most effective, the furrow corn coming to ripeness equally with the rest, which is a certain test of perfect draining.

My men also find that the land works earlier and more friably in the spring than in the deeper and wider drainage. The drains were placed only 12 feet apart, and 2 feet 8 inches deep, filled with stones and pipes, and cost 10*l.* per acre. But, although this has been very satisfactory, I should not do it so again, but should adopt the deep pipe drainage at close intervals. A good deal depends upon climate and rainfall; where the climate is late, stones added to the pipes, and close drainage, will very much forward the crop.

I drained 45 acres of very heavy land (which I rent), with 1-inch pipes, at the following depths, distances, and cost:—

CHAPEL LAND, 45 ACRES, DRAINED IN 1846.

	£	s.	d.
9 acres, 42 feet apart, 5 feet deep, with 1-inch pipes:—			
64 rods of cutting, at 6*d.*	1	12	0
1100 rods, 1-inch pipes, at 12*s.* per 1000 (144 allowed for breakage)	0	14	6
Cartage of pipes	0	3	0
Per acre	£2	9	6
13-acre field same as above.			
11-acre field, at 28 feet apart, per acre	3	2	6
7-acre field, drained 50 feet apart, and 5 feet deep, as above ,,	2	0	0

Wages were then much lower than now.

If thought desirable, it would be easy to cut a drain between each of the others.

These have been done more than 20 years, and, although so cheaply done, they have been sufficiently effective to remove stagnant water and to permit of excellent crops; for I have several times had 7 quarters of Wheat, 7 quarters of Beans, and 11 quarters of black Oats per acre, besides large crops of Mangel, Clover, and Tares.

The land does not work so well in early spring as my own land, nor does the land walk so dry, but still the water flows to the drains and leaves the land, although not so quickly as the close drained. I can, therefore, confidently recommend tenant farmers, who desire to economise their capital, to adopt that system as an advantageous one under the circumstances. There will thus be no just excuse for non-drainage.

In very humid climates, with a heavy rain and low temperature, I must candidly admit that I believe the late Lord Wharncliffe's system of close and shallow drains, combined with deep 4 or 5 feet leaders at reasonable distances (say 50 feet), would be most effective drainage under the circumstances.

The shallow drains, not less than 3 feet, in tenacious soils, permit a more ready escape of the water, when you have successional rains at short intervals; the deeper ones drain the whole area in time, but are longer about it. For instance, as I have witnessed on a field of my own, in a very wet winter I have seen both deep and shallow drains discharging abundantly, like two taps in a full cask, one above the other: the upper drain stops running first, the lower one some time after, and, of course, the lowest drain lowers the level of the water in the soil to its own depth or level; and, therefore, deep drains should always be present, although shallow feeders may come into request for frequent or continuous rainfalls. Water will always pass a shallow drain and descend to a deep one, until it accumulates in the soil, and thus rises to or above the level of the shallow drain, and then both shallow and deep drain will run, the shallow one conducting water to the leader much quicker than it can filter through the soil. The great object of drains is to prevent delay or stagnation near the surface in winter, and thus prevent rotting of the winter roots of Wheat, Tares, and Clovers.

After a dry summer the rains will naturally pass down to the deepest drains and flow away. It is only after the ground becomes super-saturated that the shallow drains are called upon to act. All the foregoing remarks apply to tenacious birdlime-like clays, through which, when thoroughly soaked, water filtrates very slowly. On friable soils it would be absurd to have either shallow or close drains. On my mixed soil my drains are more than 4 feet deep, and 60 feet apart. All these remarks apply to surface water.

In dealing with waters rising from below, drains should never be shallower than 4 feet—5 feet is the better depth; with shallow drains capillarity would overcome gravity, and so render the drains useless. There are certain soils where the gridiron or uniform principle would be a partial failure, and it is always desirable to lay drains in the old water-way. Where there are sand-pots surrounded by walls of clay it is necessary to cut through those walls, where a mixed spring or sandy soil meets a stiff clay (as in some of my fields); great care is required in laying the pipes at the junction, surrounding them with a little hay, especially if the spring is weak and occasional; and even so, the sand, owing to the drain being occasionally dry, will accumulate and harden in the pipes, which must be taken up and cleared. There is no such danger with a constantly and full running spring. I have three very strong spring-drains discharging from 10 to 25 gallons per minute winter and summer. For 25 years one has never choked, and they all discharge white sand abundantly, especially during winter; therefore, take especial care to have a clear outlet whence the sand can be frequently removed, so that it never rises above the drain. One of my spring-drains was originally 12 feet deep, the other two 6 feet; these latter have always been perfect, except where they come into shallow ground near the outlet. In one case some singular roots, like small brown Cabbage leaves, choked it, the other, passing through a neighbour's hedge, filled at that point with roots from the fence, and his field being lower than mine soon became a quagmire.

A very watchful eye is required for all drains, more especially spring-drains, for if not immediately attended to the sand, &c., has time to settle in the pipes, and thus choke them for a very long distance, and you are put to a great cost. It is useless to put spring-drains anywhere near trees or fences; if they must pass through the latter the outlet pipes should be of iron for many yards. It is a remarkable instance of the instinct of plants and trees, that they will surely introduce their roots into constantly running drains—the most minute crevice will suffice—and then the roots multiply and expand until they choke the drains, frequently in masses as thick as one's wrist or arm, and some yards long. But they take care never to enter a drain which is alternately wet and dry for the

assage of surface or rain-water. Thistles, Mangels, c., will choke a spring-drain if near the surface.

Experience has taught me to avoid open ditches as utlets for single drains. I am letting my drains into eaders placed a foot deeper than the drains, but connected with them by stones, &c.

Open ditches get dry in summer, and the capillarity of the dry sides heads back water in the soil; besides, one outlet well exposed to view is far less likely to be neglected or overlooked than a number of them surrounded by or buried in Grass or other vegetation. Besides, we save land by abolishing open ditches.

On putting in these leaders I observe that the land, o the depth of the drains, has become more friable, but the extra spit that we take out below the drain is ike putty or birdlime, and most adhesive.

It is thus quite clear that depth of drainage, even in he very stiffest soils, is most important. Every additional foot places 1,200 tons per acre of porous earth for he use of the roots of plants; and I know that Wheat nd most plants will send down their roots four to five eet deep where the land is drained. All open ditches, s well as drains, require close supervision in dry weather: bunches of rushes, bushes, and other obstructions, should then be removed. It is too late when the flood comes, and your land gets carried away y obstructed torrents.

I know of so much neglect in this matter of clear drainage-way that it should be strictly enforced on eases.

When we have heavy rains I sally forth, in macinosh and water-boots, and see to these matters myself, having especial regard to clear troughing round the buildings, and generally clear water-ways. The protecting "cores" in ditches should be removed in dry weather.

Beware whom you trust to place your draining-pipes, or see to it yourself. A careless unprincipled fellow will put them in anyhow to save himself trouble, and thus ruin your drainage. The loss occasioned this very wet spring by non-drainage is indeed serious. It far exceeds the largest per centage that could be charged for draining.—*May*, 1867.

The following letter from Mr. Bailey Denton—acknowledged to be one of our very best authorities on drainage—is instructive and convincing:—

"Woodfield, Stevenage, June 3, 1867.

"My dear Mechi,—I have read with much interest your letter, and those of other correspondents in the *Times*, as to the present condition of the crops; and if it be at all possible to judge by appearances at this season, we may fairly conclude that the advantage in favour of drained heavy lands, compared with the same character of undrained lands, will quite equal half the cost of draining them.

"Having taken some pains to examine into facts (as far as one can form judgment now), I write you these lines, that you may, if occasion arise, refer to them with some security.

"Going back as far as five years, I find the average cost of parallel drainage, varying from 24 to 42 feet apart, has been 6*l.* 5*s.* 6*d.* an acre. I am speaking of the works of the General Land Drainage Company, from 1862 to 1866 inclusive. The average charge of the Company to repay the principal (*i. e.*, the 6*l.* 5*s.* 6*d.*, which includes all expenses), with interest, in 31 years, has been 6*d.* 1*s.* per cent., or about 7*s.* 6*d.* per acre.

"Now, the difference in the crops of this year—taking the most moderate view of the matter—cannot be less in favour of the drained lands than—

1 quarter in Wheat	=	£3	7	6
3 coombs in Beans	=	3	3	0
1 quarter in Oats	=	1	7	0
1 quarter in Barley	=	2	0	0

with seeds and Tares to match, saying nothing as to roots, which we shall know better of presently.

"The half of the average cost of draining being 3*l.* 2*s.* 9*d.*, you will see, by comparing the figures I have quoted, that the increase in the Wheat and Beans, which absorb the larger part of the cropping of the heavy lands, quite equals this moiety, let alone the difference in the cost of tillage, which has been very great.

"If we turn from this comparison to the fact that the cost of draining is repaid by 7*s.* 6*d.* per acre, it is indeed difficult to understand how occupiers can withstand the advantage of having their wet lands drained with borrowed capital. But it is true that many would rather lose their crops than pay this small annual charge, because they cannot bear the thought of their rents being raised (as they call it), and of submitting to the obligation of maintaining outfalls and outlets under the 'orders of Government.'

"All those who are obliged to grow Barley on heavy land, if they grow it at all, will do well to study the different condition of their fields. Wherever the land has been mauled by sheep or plough, they may wish in vain for a crop.

"Yours faithfully,

"J. BAILEY DENTON."

We should have the difference in the Oat and Barley crop at 1½ to 2½ quarters per acre.—*June*, 1867.

LANDLORD AND TENANT.

[Our old and valued correspondent, Mr. Peter Matthew, of Gourdiehill, Errol, forwards to us for publication the following letter to the Right Hon. the Earl of Clarendon, founded upon the excellent Address recently delivered by his lordship on the various subjects proper for discussion before the Chambers of Agriculture.]

TO THE RIGHT HON. THE EARL OF CLARENDON.

MY LORD.—I have read with much pleasure your lordship's speech, addressed to the members of the Warwickshire Chamber of Agriculture, and, with the exception of two clauses, I have seen nothing better expressed, or more to the purpose, connected with agriculture. Pardon me, I only commend what merits commendation, that I may with equal sincerity blame the two clauses referred to, the one, a not very important error, and the other very important—not so much, however, an error of commission as one of omission. Let me place this omission—no allusion to our very pernicious system of farmer land occupancy—clearly and honestly before your lordship for consideration in all its bearings, so that your lordship may judge aright. I may observe here that I have no class interest in favour of the British farmer, not having any land so occupied.

1. *The less important error.*—Your lordship is unfortunate in the ridicule of your farmer for not draining his field of rushes. It is a common belief among Scots farmers, and Scots farmers are not defective of judgment in their calling, that when rushes grow, the land, though wet, is firm, and can bear stock—that it gives often more valuable Grass than most dry grazing fields, that amongst the rushes the Grass is more abundant and sweet, and the more valuable as it stands it out in droughts; that drainage and the removal of the rushes often renders the field less valuable for grazing. If this be true in the cool and moist climate of Scotland, it must not be less true in the warmer and drier climate of England.

2*d. The very important omission.*—In your lordship's able speech touching upon several important subjects, particularly the relation between landlord and tenant, I cannot see how your lordship could avoid by far the most important subject of all—far more important than all other subjects your lordship treats of put together. Can I believe that your lordship is not cognisant that there is no protection to the farmer's capital necessary to be invested in an enrichment of the soil, and that from the want of this protection the vegetable mould, the mother of fertility, is generally being exhausted, and is already to such an extent that in most soils good crops can no longer be obtained but by the application of stimulating foreign small manures, an evil which will go on increasing till the cost of the small manures swallows up the rent. Your lordship must be aware that protection to property is necessary to the existence of property—that nations prosper or decline, are high or low in the scale of civilisation, nearly in the ratio of the protection to property—that the vast manufacturing and commercial wealth of Britain is mainly owing to the superior protection to those kinds of property, and that the great increase of our city population is owing to the same cause—and I may add, the decline of our rural population to the want of protection to farmers' capital. It is not alone what is termed personal property that requires protection. The enrichment of the land, and even the prevention of exhaustion of the natural riches of the soil, requires protection quite as much as personal property. This holds almost universally, except in the case of land of extreme fertility, such as the alluvion at the mouth of some of our rivers. By the present land tenure of the farmers in Britain, whether without or with a lease of a few fleeting years, there is, with some slight exceptions, no protection to the capital laid out in permanent improvement of the soil, at least so permanent as with good management can under protection be maintained. The consequence is, that as a general rule in the grain-producing districts, with exception of the vicinity of large towns, an exhaustion of the vegetable mould is going on; while with protection—that is, the farmer reaping the whole benefit, even should he render the land doubly productive, which in many cases he would effect—a great enrichment would take place. Nothing but this will put agriculture in its right position, and it is only to obtain this that Agricultural Chambers are worth a straw.

Man is the creature of circumstances. The farmer without lease, under his mild despotism—landlord beneficence, if your lordship prefer the term—cannot have his energies called out as he would have were he exposed to free trade under protection; as he would be were he subject to Nature's great law of selection by competition which I laid before the public nearly 37 years ago; and as a consequence he will sink in ability as many entailed landlords have themselves sunk, or if the farmer rise in ability at all it will be in the art of most completely exhausting the vegetable mould—to take out all plant matter from the soil and put little in, which it is his interest to do, and like the American farmer remove to where he can find land unexhausted. Even with a lease the land will, at the end of the lease, be fully as much exhausted as without a lease. This will to a certainty occur as a general rule, notwithstanding any form of lease that can be contrived short of protection. With his capital invested in the soil protected, having any improvement he makes to belong to himself, placed under the law of natural selection—that is, free trade—and knowing that if he raise his land to a high premium he would not likely be ejected, or if he lowered the value that he would be ejected and made pay the loss, the farmer would, as they say, move Heaven and earth to improve his land. The natural result of such a system would be that the demand for land would rise, that numbers of small capitalists would transfer their capital to the enrichment of the land of Britain as a safe investment, and farming become the most independent as well as the most wholesome and delightful of occupations. This in the course of years would tend immeasurably to increase the fertility of the British soil. With our vast importation of food the soil of England might be rapidly enriching, and the whole country, with exception of the mountains, rendered rich and productive as a garden.

In this world, generally, nothing is given for nothing, and the kindness and patronising beneficence of the landlord to which your lordship alludes is in most cases to be bought by complete vassalage in the farmer. Is then, with the growing liberties of the British people, the farmer to be the only class to remain in thrall, and to be under the will of another—at least subservient as far as the power to deprive him of home and in many cases of worldly means can render him subservient, not only to the landlord himself, but to the factor, lawyer, and not unfrequently, to every gamekeeper, valet, groom, who may have opportunity to poison his master's ear, if their patronage is not bought in some way. Your valet or your groom is in a much more independent position than your tenant. They cannot be robbed as your tenant may. The valet or the groom has not his wages lowered because he does his duties well. With the farmer something like this takes place. Should he do his task well in enriching the land, the probability is that his rent will be raised—that is, his income lowered.

Your lordship strongly commends a friendly connection between landlord and tenant; so do I, and something done to promote it. Such a friendship at present seems rather an impossibility, at least to be genuine on the tenant's part, from his very dependent position when no lease exists. Under the present land tenure it is not the farmer, possessed of the higher qualities of mind or intellect, most fitting for the companionable friend of the landlord, that will be most in favour, but the most subservient, the humble submissive drudge.

The ancient moralist has said "the descent to hell is easy." It is easy to waste the fertility of the soil by scourging, cropping, and throwing the most valuable portion of our manure into the sea. This exhaustion can also be effected in no great length of time, but it requires considerable time and skilful treatment to feed the soil into greater richness by easy cropping—crops that feed the soil by attracting much from the atmosphere or from the deep subsoil to form after manure, and by returning as much as possible of the manure of the produce to the earth, also by the application of any of the necessary constituents of plants the soil may be wanting in. To poor land, guano, sulphate of ammonia, bones, nitrate of soda, will be welcome to raise bulk in the first place, the manure of which must all be returned to the soil along with as much as possible of city manure. If Potatos or hay are sold off the farm, a double proportion of extraneous large manures is necessary. I am, my lord, your lordship's most obedient servant, *Patrick Matthew, Gourdiehill, Errol, N. B., June* 1, 1867.

CATTLE REARING IN SPAIN.

Mr. Consul Graham Dunlop gives the following account of Cattle Rearing in Spain in his Report on the Commerce of Andalusia.]

OUR system of cattle rearing may be reduced to two fundamental principles—first, the open-air system at all hours and seasons; and, secondly, the double system—viz., half the year housed, the other half in the open pastures. Constant stabling of cattle is never practised, not even in Galicia, where they stall much more than here in Andalusia. The large herds of cows destined for breeding are kept (in the south of Spain) on the first system, open-air pasturing at all times. These animals never enter stables or places of shelter; they live continually in the pasture grounds, which are uncultivated meadows and hill sides, covering a vast extent of country. They feed on the herbage and plants which are the natural produce of the earth, and their food thus depends on the seasons, on the scarcity or abundance of the pasture, and on the fertility or barrenness of the soil they are on. Nothing is provided for them by man, either in winter or summer. If there be enough for them to graze on, they live; if not, they die. These cattle have no dwellings or artificial places of shelter; they endure the rigour and the variations of the seasons entirely in the open air. They are exposed to cold, frost, snow, and (in summer) to a burning sun, with no other protection than what a bush, tree, or rock can afford them.

During the autumn, winter and spring months they are generally kept in the pasture grounds of the Sierras, on the brows and spurs of the mountains, because these pasture grounds are more sheltered than those on the coast or table-land. In the summer they go to the wide unfenced stubble lands of the plains and Vegas near the coast, and wherever there is table-land, if good watering places, especially running streams and rivers, are also found near. During the heats of summer they are most liable to common cattle ailments, and the cowherds require to be doubly careful in this season of the year. They make the cattle feed during the night, and early in the morning turn them into a species of fold or rough pen, where the animals lie down to chew the cud, and rest till about 9 or 10 A.M., at which hour they are again allowed to pasture. During the greatest heat of the day (12 to 4) they are never driven, or allowed to go for food, to a great distance; in July, August, and September this would be attended with risk of spleen-congestion, sometimes very fatal in summer. During the other season there is no danger of this kind, and the only care taken is that they go from one district of pasturage to another, as plenty or scarcity dictates. This is a rude system, and although at first sight it appears economical, is not so, but is expensive, and sometimes prejudicial to the cattle. Its only advantage is, that no outlay of money is involved, except the cowherds' wages and the rent (or value) of the pasture grounds. Its difficulties and disadvantages are—first, this system can only answer in the least-inhabited parts of Andalusia, where, from want of labourers, there is of necessity a wide extent of uncultivated land; and, secondly, by it the cattle are often obliged to endure great privations and want of food during drought and scanty seasons; they fall away in health, become weak and consumptive, *i. e.*, easily overpowered with any trifling malady (or accident), and sometimes die in great numbers, the owner thus suffering loss from want of precaution in procuring other food besides natural pasture. During the winter, also, the storms of wind and snow kill many valuable cattle; besides this, by this system, the cows are not prolific, and they breed irregularly. The increase, therefore, is small (in comparison with that obtained by other systems), and it is calculated that only one-third part of the cows in a herd calve during the year. Thus the total number of head of cattle produced under this (open-air) system is far from what could be expected. These cows are not employed in any other way, and never work, nor are they milked for yield of milk or butter, &c.; but it is also to be acknowledged that, unless in the height of summer and very depth of winter, these herds seem to suffer little from occasional disease or ordinary sickness,

The system gives them a sort of hardihood and power of resisting privations (I may almost call it abstemiousness, or Spanish *sobriedad*), which frequently stands them in good stead. It is a necessary consequence of the want or the sparseness of population in Spain, a fact too little considered by all Spaniards.

To a certain extent this open-air system is followed in the Castiles, La Mancha, Aragon, Navarre, &c.; whilst in the Asturias, Galicia, and part of Catalonia, where land and landed property are much divided and subdivided, and where the climate is sometimes very cold, this system would not do at all, and is not practised. Were it modified and improved in the south of Spain it might retain some of its crude and natural advantages; but, alas! we Andalusians are devoted to our primitive and accustomed routine; and thus we are punished, and cannot boast of half the fine herds of cattle and of pastoral wealth which we might do if we were wiser.

Ever since our *régime* and form of government was changed in 1833, when the large sales of the national and clerical properties placed a great many of the then pasture grounds and uncultivated lands (which till then had been unalienable estates) in the hands of private individuals, and when impulse was given to private interests, and, from the price of corn and grain, these lands began to be cultivated, the herds of cattle have not increased as they ought to have done, and as I hope they will do, as we improve our knowledge and our treatment of the different breeds of horned cattle.

We now come to the second system of rearing and treating cattle throughout Spain—viz., part of the year housed, and part in open pastures.

During winter, and indeed from the first days of autumn, the cattle intended for exportation or for work are always housed at night in sheds or semi-open stalls. In Galicia they are regularly stabled whenever it is cold. In Andalusia the peasants obstinately adhere to making these cow-houses or sheds far too open. The animals derive certainly some shelter from the rigour of the atmosphere; but their food gets wet with rain, and often they refuse to eat it in consequence, and thus become ill and weak, and liable to disease. The peasants are stupid and obstinate about this, and give as their reason, that if there is a shelter immediately above the cattle (afforded by a roof), the sides cannot admit too much air. It is singular how they persist in this view.

In the middle of Spain, and in the northern provinces, the houses for cattle are, on the whole, well and carefully built, with windows and openings for air; but the animals never suffer from the rain or snow beating upon them or their food. These cattle are often worked, and they are much more attended to than the semi-wild herds in our beautiful province. It is supposed to improve the northern cattle (intended for exportation), to make them labour regularly and moderately at the plough and with the cart.

In the spring, the cattle in most districts of Spain leave off going into the houses or sheds, and live and feed on the uncultivated portions of the large farms, a third portion of which is sown every year, the other two-thirds remain uncultivated or "fallow," and there the oxen intended for labour and the market, &c., &c., graze. This rotation system, as regards "fallowing," is pursued with considerable regularity throughout Spain. After the harvests are reaped, the stubble lands, on which grow also some herbage and green weeds, afford abundant pasture, and the cattle graze these districts very advantageously. They produce largely the Wheat Grass, Triticum repens, which is considered nutritious and wholesome. This second system (mixed) of treating our cattle keeps them more directly under the management of the man under whose care they are. And thus it is only when there is abundance of food in the fields that they are not supplied with it in their stalls. The cattle thus brought up are, of course, many fewer in number than under the first detailed system: they suffer fewer privations, and are much finer looking; but most of the cattle in Spain are born under the wilder system of perpetual open air pasture. I think that the second system is brought to most perfection in the provinces of Galicia and the Asturias. There they are also housed carefully during the heats of summer, so as to avoid distress from flies and insects. The cattle are cleaned carefully and groomed; and are also clothed during the rigorous nights of cold winter. They are more prolific than in Andalusia; their milk is more abundant and nourishing, and their flesh is esteemed even in England and at Madrid.*

* No "artificial" food, such as boiled roots or oil-cake, is ever given to cattle in Spain.

THE AGRICULTURAL LABOURER AND HIS FOOD.

[The following interesting paper, by Mr. R. Scot Skirving, appears in the current number of "Good Woods."]

AT one of the recent meetings of the Food Committee of the Society of Arts, the chairman, the Right Hon. H. A. Bruce, M.P., asked their scientific adviser, Dr. Thudichum, if "he looked upon meat as essential to human food?" "Certainly," was the doctor's laconic reply. And yet the fact is undoubted that throughout Europe, in every age, the agricultural labourer has subsisted almost exclusively upon a vegetable diet; and we know of no other peasant who has ever obtained so much animal food as the English ploughman.

The Roman agricultural writers leave us in no doubt as to the dietary of the slaves who cultivated ancient Italy. It was exclusively a vegetable diet. The labourer received from 3 to 5 lb. avoirdupois of bread per day, the quantity varying according to the season of the year and the amount of work done. He had also some slight additions—Olives and such like; but there is no mention of meat of any kind, or even of milk. For drink he had wine—or at least a liquor made from the skins and stones of the Grapes—of which he received about 74 gallons in the year.

Sheep were then reared in Italy for their milk and their wool, oxen for their labour, and to kill the latter for food was at one period a capital offence. Like the Saxons, the Romans had no single word for beef or mutton, and such food is never heard of amid all the luxury of their banquets and feasts.

The Sixth Report on Public Health by the Medical Officer to the Privy Council, an important and unusually interesting Blue Book, presents us with what seems an exceedingly accurate account of the nature and amount of food at present obtained by agricultural labourers in every district of England; the reporter, Dr. Edward Smith, having personally investigated 634 individual cases. Dr. Smith also reports the result of similar inquiries in several of the counties of Ireland and Scotland, and some of the conclusions of this scientific inquiry may probably be read by many persons with surprise. The first of these conclusions is, that from a scientific point of view, the Scottish farm-labourer is shown to be better fed than his brethren in the other divisions of the three kingdoms. The whole food of every description, fluid or solid, consumed by the adult male labourer, is thus summarised and chemically expressed:—

	Carbon, grains per week.	Nitrogen, grains per week.
Scotland	48,980	2348
Wales	48,354	2031
Ireland	43,360	2434
England	40,673	1594

It may render these figures more intelligible to state that Dr. Smith calculates that the lowest dietary capable of warding off starvation diseases is, for an average man, 30,000 grains of carbon, and 1400 grains of nitrogen per week; and this amount was the minimum considered necessary for the Lancashire operatives when out of employment.

We are next struck with the amazing disparity which exists between the amount of food obtained by labourers in various counties, and even in different portions of the same county, in England, as well as by the disparity which too frequently exists between the redundant meals supplied to the unmarried ploughboy in farmers' kitchens, and the scanty fare of the married labourer's family. Of the many details given we shall reproduce several examples of the two dietaries, taking the kitchen system first:—

NOTTINGHAM.—Breakfast, 6.30 A.M.: Bread and boiled milk, followed by cold boiled bacon and bread. Lunch, 10.30 A.M.: Bread and cheese in the field. Dinner, 3 P.M.: Broth, pudding, meat, hot and cold alternately, with bread, ale, and vegetables. (Sundays, hot roast beef, and Yorkshire pudding.) Supper, 7 P.M.: Cold bacon and bread.

SALOP.—Breakfast, 7 A.M.: Broth made from meat, oatmeal, and vegetables, with bread, cheese, and beer. In summer, hot and cold milk. Luneh, 10 A.M.: Bread, cheese, and beer. Dinner, 1 P.M.: Boiled meat and bacon, with vegetables, bread, and beer. Dumpling or pudding twice or thrice per week. Supper, 7 P.M.: Same as breakfast, or meat pie.

DERBYSHIRE.—Breakfast: Milk (hot in winter, cold in summer), followed by cold meat or bacon. Dinner: Butchers' meat five days in the week. Broth when there is hot meat, and pudding when the meat is cold, with vegetables and bread. Supper: Meat or bacon, new milk, bread and cheese.

DEVON.—Breakfast and supper: Bread and clotted cream, followed by fried Potatos, and boiled milk, and plum-pudding, or bread and cheese, and cider, or cold meat. Dinner: Hot meat always, with vegetables, bread and milk pudding, and 1½ pint cider.

YORKSHIRE (near Malton).—Breakfast: Beef or bacon pies, with bread and milk. Dinner: Beef, bacon, and vegetables, and broth (two or three days meat-pies and milk). The meat roasted and boiled alternately. In this case no beer.

YORKSHIRE (near Burliugton).—Breakfast and supper: Beef or bacon pies, cheese-cakes, or custard-puddings, milk and bread. Dinner: Hot boiled meat and broth, three days, hot meat pies four days, with vegetables, fruit pies, or milk pudding and bread. Beer at discretion.

From the above examples, it will be seen that young ploughmen in various English counties receive four meals per day, and that at three of these animal food is supplied, with ale, beer, or cider. All the food is given in unlimited quantity; and Dr. Smith closes this part of his subject with the following remark:—"It seems absurd to find in Yorkshire that cheese cakes and custards are given almost daily both at breakfast and dinner, the men taking a nap for an hour after swallowing the latter. So well fed are they, that they object to mutton because it is fat, and when supplied with it they only eat the lean, throwing the fat under the table."

Having looked upon this somewhat unlovely picture, let us now glance at the other side of the medal, and look into the cottage of the married labourer—the same man, perhaps, who was wont to reduce fat to lean by tossing the former away. It may be, too, he has married one of the girls who used to cook his food, and who, no doubt, would share his plenty, and both are likely now to wish that they could eat of the crumbs that fell from their too prodigal table. Let the reader remember the "clotted cream" and hot meat of the Devonshire ploughman, when he reads of his cottage fare.

DEVONSHIRE.—Breakfast: "Tea-kettle broth" (*i.e.*, bread, hot water, and one-third pint of milk, with bread and treacle). Dinner: The husband, bacon and pudding. Wife and children, tea, bread and treacle. Supper: Husband, cocoa and bread, or pudding and Cabbage. Wife and family, tea, bread and treacle, and sometimes a little butter.

SOMERSET.—Breakfast: "Bread broth" (*i.e.*, bread, milk, salt, and pepper boiled in water). Dinner: Boiled rice, salt or sugar. Supper: Tea, bread, treacle.

DORSET.—Breakfast: Husband, bread and cheese. Wife and children, dry bread. Dinner: Husband, bread and cheese. Wife and children, dry bread. Supper; Bacon and Cabbage.

WILTS.—Breakfast: Bread and butter, or water broth. Dinner: Bread and cheese. Supper: Bread and butter with Onions.

HANTS.—Husband has all the bacon. Tea is taken twice a day. Supper: Hot bacon, Cabbage, and flour-pudding.

CAMBRIDGE.—Husband breakfasts in the field on a mess composed of bread, water, butter, with pepper and salt. Dinner: Husband, meat-pudding and Onions. Wife and children, dumpling made of flour and yeast. Supper: Tea, bread and butter.

RUTLAND.—Breakfast: Coffee, bread and dripping. Dinner: Husband, broth and vegetables. Wife and children, tea and bread. Supper: Tea, bread and dripping.

These are examples of the poorest rural dietaries; and it is satisfactory to be able to say that in many counties the labourers' families are rather better off; but still it is too clear that in most districts of England the rural cottagers are under-fed, and Dr. Smith states that "in almost every county wives and growing children obtain an insufficient quantity of food." It must not, however, be supposed that there is anything brutal or savage in the male head of the family eating the most nutritive portion of the daily provisions. The family depending upon the strength of the husband, it is not selfishness, but the exigencies of his condition, that force him to consume nearly all the bacon and the beer. Potatos, it will be observed, almost never appear in the English labourer's dietary, but more Cabbage is used in broth than in Scotland. It is also to be noted that in winter, when most food is required, the southern labourer's family is worse off, the husband at that season being frequently unemployed.

Turning to Ireland, we find that agricultural labourers may be classed under two heads—those who are permanently engaged by the same employer, and those who depend upon casual employment.

Wages in all save the best-cultivated districts, do not exceed an average of 6*s.* per week. As may be supposed, with such a miserable income, butchers' meat is unknown in the Irish cabin, and bacon only rarely appears in its dietary, whilst bread, butter, and tea are luxuries which are only occasionally obtained.

Even Potatos, once the staple, and still the typical food of Ireland, no longer occupy the predominant place they so long held in the Irishman's bill of fare. In bygone times there was a period of the summer called the "July pinch." That was when the old stock of Potatos was exhausted, and the new had not come in; but now the redoubtable "murphies" are absent for the greater part of the year. Housed in a ruinous hovel—his wife and children more ragged, if possible, than himself—the Irish peasant and his family are stout and healthy, and, as we have already shown, are more substantially fed than those of the average English labourer. Milk and Maize, a patch of Potato ground, and the facilities for keeping a cow, form the secret of this mystery. The wages are spent almost exclusively on food, and that purchased food is in many parts of the country exclusively Maize. Indian corn costs from 1*s.* to 1*s.* 2*d.* per 14 lb., being less than half the price of flour or meal. Of this grain a mess called "stirabout," similar to porridge, is made and eaten with milk, or, where that cannot be obtained, with sugar. Upon this food the tall peasantry of Tipperary, the finest men in Ireland, exclusively subsist; and a gentleman farming in Mayo informed us he had known his men work full days' labour for months at a time, though sustained by nothing save one single meal of Indian corn.

Unfortunately, Maize is far from being palatable, and the Irishman longs for his feast of Potatos savoured with bacon; but no other food which he could possibly purchase is at once so economical and so strength sustaining. There is no doubt that an increase in the wages of agricultural labour would solve many of the perplexing problems of Irish social life. No population can be contented with a payment of 6*s.* a week, and no labourer will do a full day's work for half a day's wage. Ten or 12*s.* a week would change the whole character of the farm work in Ireland, and would make Irishmen better workers as well as better subjects. Fenianism is a monster which is fed by poverty and starvation, and which would itself starve if the people were better off.

In Scotland, while the price paid for agricultural labour is more uniform than in England, the form of payment varies very much, and the conditions of the ploughman's life are very different in one part of the country from what they are in others. In some districts, including the highly-cultivated south-eastern counties, every ploughman is a householder, living with his family in a cottage situated near the steading of the farm upon which he works, while the central districts, including Stirling, Perth, Forfar, and Kincardine, are cultivated under what is called the "Bothy system." To save the building of cottages, the labourers on the farms, generally young men, are lodged together in a single building, where their primitive meals are cooked in a common apartment, in most cases by themselves. Their wages consist of money, milk, and meal. The money varies from 16*l.* to 20*l.* a year, according to the age or qualifications of the ploughman, but the payment in "kind" is in almost every case identical. Of oatmeal the labourer receives 17½ lb. per week, and of new milk 12 gills per day. Some Potatos are generally added in winter; but this is properly a gratuity.

In Perthshire, which may be looked upon as in the centre of the system, the men breakfast and sup on porridge and milk, and dine at mid-day upon "brose" and milk. In all cases the whole allowance of milk is used, but in most instances a portion of the meal is sold, and we think we have ascertained that this amounts on the average to 1½ lb. per week, leaving 16 lb. as the actual quantity consumed.

Bread, tea, cheese, bacon, and herrings may no doubt occasionally enter into the dietary of the bothy-man, but, upon the whole, his fare is almost absolutely uniform. As regards milk, the only wish of the men is to get more of it; and as regards the diet as a whole, we believe a Forfarshire ploughman expressed the general opinion when he said to us that "he had lived 36 years on meal and milk, and he did not like anything else." There are many races of men whose food is as simple and as unvaried as that of the bothy-man: the South Sea Islander with his Bread-fruit and

Cocoa-nuts, the Hindoo with his Rice, the Arab with his milk and Dates, the Neapolitan with his maccaroni, the Guacho with his endless beef, and, most curious of all, the Tierra del Fuegean with his single cryptogamic plant, a tree-growing fungus, eaten raw. We doubt, however, if any other dietary could be so accurately estimated as to weight and quantity as the Scotch ploughman's uniform allowances of milk and meal.

In Aberdeenshire, while a considerable number of young men are fed in the farmers' kitchens, the bothy system is also common, and it may be remarked that the Oatmeal is generally used in a manner to which ploughmen in more southern counties are unaccustomed. Porridge is by no means so common, "brose," that is, Oatmeal merely scalded with boiling water, being substituted for it, and the mess is made so thick that men from the south say they cannot eat it. The milk, too, is frequently soured before being used. Advancing farther north, we find the labourers worse housed, but better fed. In Ross, Sutherland, and Caithness the dwellings are generally very wretched, but the diet of the men is more liberal and varied. In Perthshire a section of the ploughmen recently endeavoured to establish a legal claim to 16 in place of 12 gills of milk per day. They lost their cause, the sheriffs deciding that 12 gills was the usual and settled, though not the universal, quantity: but in the far north the coveted 16 gills are often obtained, many men having as much as 18 gills in summer, though only 12 in winter. Fish, too, caught by themselves, is a frequent article of diet, and a few Potatos are almost always given as a gratuity.

Passing from the mainland to the remote but most interesting county which comprises the two archipelagoes of Orkney and Shetland, we find a population of nearly 70,000 persons, for the most part small crofters, herdsmen, and fishers, who, though miserably poor as far as money goes, are yet rich in the means of obtaining an abundant supply of food.

In Shetland in particular nothing can exceed the abject poverty indicated by the dwellings of the people—dark, dismal, ruinous hovels filled with a heterogeneous mass of broken sticks, stones, rags, and nondescript rubbish, an indistinguishable chaos which represents furniture. But casual, careless, agricultural labour enables the cottager to procure meal; immemorial custom permits him to keep a cow, and perhaps several sheep; a patch of ground supplies him with Potatos, and the sea, nowhere distant, is affluent of fish. His cookery is peculiar. Meal, milk, and fish are each manufactured into dishes designated respectively "burstan," "blund," and "blaun." To produce the latter delicacy a vast pile of fish, generally cod or ling, is seen near the door of the cottage, in size emulating the peat stack. The olfactory nerves of a stranger tell him at some distance that decomposition has begun. A partial fermentation also takes place, and the final result is a staple article of food, highly relished by the Shetlander, but which our uncultivated taste denies us the pleasure of being able to appreciate.

The north-west of Scotland, including portions of Argyle and Inverness, as well as Skye and the Hebrides, is inhabited by a race which differs from that of the south in blood, in language, and in character.

Here only has an absolute want of food been occasionally experienced in Scotland.

The rainfall is always large, and any great increase of the ordinary amount of moisture and cold is apt to destroy the scanty crops of Oats and Potatos, and it is singular that Indian corn has never to any extent been resorted to, as it has by the analogous populations of the west of Ireland. This is the only portion of the country where we have not had an opportunity of personally inquiring into the subject of the food of the peasantry.

It consists of Potatos, Oatmeal, fish, and milk; whilst shepherds receive, as part of their wages, a certain portion of mutton, the meat of sheep that die on the farm.

This "braxy," as it is called, is also purchased by cottagers, the price being generally 50*s.* per "herring barrel." The meat is steeped for 15 hours, and the water once changed before being used, and many of those who eat it declare they prefer it to ordinary butchers' meat. Constant experience in all parts of the country has proved that this food is perfectly wholesome. It is, no doubt, due to this mutton that Dr. Smith places the food of the Argyleshire crofter so high in the scale of dietaries, and we can readily sympathise both with the doctor and the shepherds, whom he questioned, when he recounts the difficulties of the examination. "The labourers," he says, "were slow either to appreciate the object of the inquiry, or to give the required information, so that it was necessary to exercise much patience and whatever tact might be possessed, and to give as much time to each case as would have obtained the answers from three cases in England. So great was the reluctance to be personally questioned that, in some instances, the beads of perspiration would stand upon the man's brow whilst passing through the examination." We think we can understand this scene. A Highland shepherd, a splendid fellow, who, were it necessary, would confront a regiment of dragoons, is suddenly accosted by an English *savant*. For the first time in his life he is subjected to a string of interrogatories, in what perhaps, to him, is an almost unknown tongue. He is asked to state what articles he eats and drinks, and how much of these he habitually consumes. The stranger notes down his replies in a book. "What can it mean?" he asks himself. "Is it a gauger wanting to see if I keep a 'still'? Does the laird think I take too much braxy? Is he one of the Englishmen that has the game, and does he think I poach his deer or his grouse?"

Leaving this sorely perturbed mountaineer, we shall conclude our survey of the various agricultural dietaries by turning to that of the cottage ploughmen of Scotland, the householders who cultivate the south-eastern districts. These men were, until lately, paid altogether in "kind," but nearly a third of their wages is now given to them in money. The following detail of a ploughman's wages may serve to indicate his mode of living, as well as the amount of his income:—

1. A cottage on the farm, rent free.
2. A small garden, with manure for it.
3. Coals at the price of the pit mouth.
4. Leave to keep a pig.
5. A cow's Grass, or 5*l.* in lieu of it.
6. Food (porridge, milk, bread, and a bottle of light beer) for four weeks during harvest.
7. Eight hundred yards of Potato drill, with manure (he supplies his own seed).
8. Six and a half bolls of oatmeal.
9. Four bushels of Beans.
10. Twelve bushels of Barley.
11. In money, 14*l.*

The values of these wages vary of course with the price of grain, but they may be held as averaging 15*s.* per week.

With the substitution of money for a portion of the grain, and with the gradual change in the manners and habits of the people, the dietary of the hind, and still more of his wife and children, has become less primitive, and not quite so substantial. Purchased wheaten bread has taken the place of home-made bannocks of Barley and Oats and Bean flour, whilst tea has become an indispensable article of consumption.

No butchers' meat, however, crosses the ploughman's door, save on highdays and holidays, such as New Year and Hansel Monday; but pork, fed by himself, is seldom absent from his dinner-table. His daily food may be described as consisting of porridge and milk for breakfast, or tea and bread when milk cannot be had. Broth, made of pork and vegetables, with Potatos, is his usual mid-day meal, and in the evening, tea with bread and butter. No liquor of any description—beer, ale, or whisky—enters into the ploughman's diet, and, as a body, they are as thoroughly sober as any class of men in the kingdom. Extra allowances at markets may occasionally be spent on a dram, and on all festive occasions they are glad to have one, but neither health nor purse is ever impaired by strong drinks.

Having thus endeavoured to give our readers some idea of the various dietaries upon which our agricultural labourers exist, we shall now make some suggestions for their improvement, which we venture to think are practical, and such as individual proprietors and farmers might be able to carry into effect. Beginning with the simplest of all the dietaries, that of the Scottish bothy-man, we would say at once that, so long as the system itself exists, the primitive "milk and meal" is the best diet which the circumstances admit of, and the changes which we would suggest are slight. We would urge, in the first place, that a certain amount of Potatos be in every case given as wages, and that four additional gills of milks be allowed per day, making the quantity 16 in place of 12. On the other hand we suggest that the quantity of oatmeal be reduced. The whole 17½ lb. is not at present consumed, and the sale of the surplus has been declared by the Sheriff of Perthshire to have betrayed the men, in many cases, into dishonest practices.

The simplicity of these labourers' fare we need not pity. Science and practical experience have alike shown that it is amply sufficient to sustain health, and to build up stalwart frames which need not fear a comparison with any others on the face of the earth. Then as to taste, we are very sure that were we to carry a Forfarshire ploughman to the Paris Exhibition, and treat him to all the delicacies of the *Trois Frères*, he would not think the dinner an improvement upon his own. But the men, one and all, desire more milk; and we are certain their masters would not be losers if they granted them the additional quantity.

Of the lads fed in farmers' kitchens we say nothing. In Scotland they are plainly and substantially fed; in England, as we have shown, they are in many cases over-fed, and we only wish we could transfer some of their redundant fare to the scanty boards of their mothers, and little brothers and sisters, who starve upon bare bread and tea-kettle broth.

Neither do we purpose, as regards the cottage homes of England and Scotland, to advocate the introduction of any new or unusual articles of diet. It is well, no doubt, that the Society of Arts is devoting time to the question whether the overplus of animal food in Australia and South America can be made available in this country. We confess, however, that as yet the efforts which have been made in this direction have not been crowned with any marked success. The salted meat is simply uneatable, and the "extract"—the sight of which, Liebig says, "transported him with joy"—besides being expensive, is pronounced to be deficient in several essentials of food.

Horse flesh and esculent Funguses have each their earnest, and, indeed, enthusiastic, advocates; and as regards the latter, we know from practical experience that much excellent food is offered by nature and rejected by man. But all strange foods must be appreciated by peers before peasants can be induced to taste them: "Na, na, nane o' eer deed horse an' paddy stills for me!" we fancy we hear a "hind's wife" exclaim. A comparison of the daily food of English and Scottish labourers seems to us to suggest that the dietaries of both might be improved by simply borrowing from each other. The English bake, the Scotch boil. Wheat is the Englishman's staff of life; Oats, to a great extent, is still that of the Scot. The English cottager cultivates a variety of kitchen vegetables, and far too few Potatos; the Scotchman exactly reverses the mistake. Above all, the English labourer drinks beer; the Scottish ploughman drinks milk.

Taking the case of the Englishman first, we find that he has too frequently the great disadvantage of living in a village at some distance from the farm upon which he works, and that he has also the sad temptation of having an ale-house near his door, in which his evenings, and even those of his wife, are too frequently spent. We earnestly wish that milk could be given as wages in place of beer, over which its superiority as an article of food is no longer a matter of dispute. Milk, as Professor Johnston says, "is a model food." It contains the curd and butter which represent the musculine and fat of beef, and at the same time a large proportion of sugar, which represents the starch of bread. Its advantage over beer in a family where there are children cannot be expressed by chemical analyses. It represents health and strength and rosy cheeks. Oatmeal porridge and milk for breakfast would strengthen the English labourer alike in limb and brain, and alter his whole personal appearance. It would enlarge his shrunk shanks and curtail his protuberant stomach, and take from his eye that lack-lustre look which so many English writers and speakers now deplore.

Why should a labourer's family breakfast upon "tea-kettle broth," and dine upon bread and cider, amid the rich dairy pastures of Devonshire? Surely there are many kindly masters who would not refuse to keep an additional cow in order to give his servants milk for their families, in place of a quantity of cider for themselves. No Scotchman can advocate the use of porridge and milk more fervently than Dr. Smith has done in his report, and yet, like every Englishman since the days of grand old Johnson, he cannot allude to Oatmeal without having one parting fling at it. He slily remarks, that however much Scotchmen may be devoted to Oatmeal in their own country, they invariably discontinue its use when they come to reside in England.

Had Dr. Smith been lecturing on food to an English audience, we can imagine the smile he would have evoked at poor Sawney's expense; but for all that, it is the doctor who has misunderstood the circumstances of the case. Scotchmen do cease to eat porridge in England, but it is simply because they cannot procure the description of meal to which they have been accustomed. One stout Scot in Cheshire answered for the whole, when he told us, "We cannot get porridge in England; the meal is apothecary's stuff that would sicken a dog."

Notwithstanding the almost prohibitory prices of butchers' meat, exactly double what it was 30 years ago, there are still some portions of oxen and sheep which it would be well to find occasionally upon the cottager's table. The following, for example, are generally to be had at something like the affixed prices:—

Half an ox head	1*s.* 4*d.* to	1*s.* 6*d.*
Sheep's head and trotters	0	7
A pig's head and feet	per lb. 0	3
(Costing as solid food, when potted, 3*d.* per lb.)		
Tripe	per lb. 0	3
Ox liver	,, 0	1
Ox heart	,, 0	3
Ox chips (*i. e.*, bony portions of neck)	,, 0	3
Ox raw bones	,, 0	1
Calves' head at certain seasons	8*d.* to 1	0
Suet	per lb. 0	7
Sheep's pluck	,, 0	6

In Scotland the ploughman's family is in general much better off as regards a supply of milk than that of the English labourer. In several counties the excellent system prevails of the hind keeping a cow of his own, and it would be difficult to over-rate the advantages he derives from it. It costs him, in reduction of wages, only 5*l.*, whilst the value of its produce calculated in money would be very much more. Its possession induces careful and frugal habits on the part of his wife, and its milk helps to fatten his pig as well as to feed his family, and so marked are the effects upon his children that an eminent agriculturist in East Lothian said he could tell from the looks of the boys and girls whether their father did or did not keep a cow. Persons not familiar with the custom have objected that the death of the cow would nearly ruin the hind, and that his wife might be tempted to pilfer farm produce in order to better its fare.

The loss from death is, however, in a great measure met by insurance, which is universally adopted, and it would be very difficult for one of "the wives" to steal systematically without the others finding her out. If one cow got fatter than the rest, the fact would be quickly noted by a jealous female police, who would not be slow in acting the part of detectives. We would, therefore, on behalf of the ploughmen, strongly advocate the continuance and extension of this system; but where it is not followed out, the farmer ought to see that the servant has the power of obtaining an adequate quantity of milk in some other way. Dr. Edward Smith has well remarked that "the supply of milk is virtually a monopoly, and that a heavy responsibility rests upon those who have a control over that monopoly."

In the art of cookery we fear rural housewives are in Scotland very defective, and their pride or their prejudices make it a difficult task to instruct them. Most of them have ample opportunities for improvement if they would only use them. Cooks and other domestic servants are very frequently ploughmen's daughters and ultimately become ploughmen's wives, and thus, in almost every farm, there is some one of the women who has a good knowledge of cookery, and who would be flattered by being requested to instruct her neighbours. We fear they are seldom asked. We recently inquired of a ploughman's wife, whom we knew to be a thoroughly good cook, if the people living beside her ever requested any hints. Before replying, "she laughed a laugh of merry scorn," that told as plainly as words that she thought we might have known better than to ask her such a question. "They confess their inferiority by coming to her for help!"

A short, simple work on cottage cookery, specially adapted to the circumstances of a ploughman's family, would, we think, be of great use, and would soon find its way into hinds' houses. All existing works are rendered nearly unserviceable from the fact that the weights and measures are English, and that the books themselves are more fitted for villagers than for agricultural labourers. One great step in the direction of improving the dietaries, as well as the cookery of Scottish farm-servants, would be the introduction of grates furnished with ovens into their cottages, as is the custom in England. Excellent cottage grates of this description can be purchased for from 1*l.* 10*s.* to 2*l.* 10*s.*, and a good many ploughmen have provided themselves with such at their own expense; but we would suggest that each cottage should be furnished with one as part of the fixtures of the house, which the occupant should be bound to keep and leave in repair. We would also wish the Scottish ploughmen to follow the example of their English brethren as to the management of their gardens by cultivating a greater variety of vegetables, instead of planting them almost entirely with Potatos.

The hind has from the farm, as part of his wages, an amount of Potatos which is, in most cases, greater than he is able to consume, and he has therefore a surplus to dispose of; but because a larger amount of food, and of money value, is produced by this root than by other vegetables, he fills his little garden with it. He thus loses variety, in wanting various useful pot herbs; the Englishman, on the other hand, who has not Potatos from the farm, should grow more of them himself. *Robert Scot Skirving.*

Home Correspondence.

Steam Cultivation.—One little correction is needed in your report of the discussion on steam cultivation. You make me to have said, "the Commissioners say Randell's windlass is better than mine." Now, the part of the Commissioners' Report that drew from me what I did say about windlasses is to be found at p. 411 of the Royal Agricultural Society's Journal. The Commissioners say there, "The windlass made by Batlin, of Northampton" (who is a manufacturer of mine), "is on four wheels, heavy to move on wet land. It is worked by double gearing, with reversible break, carrying adjustable pressure behind. We do not think this arrangement so perfect as the blocks in Howard's apparatus." Now, you see that it was not Mr. Randell's windlass that I was speaking about, for his windlass was the first four-wheeled windlass turned out, and by it I have stood ever since. Yet it is true that I invented and patented the windlass now called Howard's; the drums framed on the axle of the travelling wheels. At the end of three years, after patenting it, I gave the invention up because it was constructed upon unsound principles—the drums revolving round their own axis, therefore wearing themselves out; whereas, in the four-wheeled windlass the drum is hung upon a shaft fixed in adjustable brasses, therefore is constructed upon sound principles, and its durability has been proved by Mr. Randell, Mr. Stevenson, and hundreds of other users of it. The break is very simple and efficient, and the weight to be moved is mainly the weight of the ropes. When the Messrs. Howard added the drop drum to the windlass they knew that I had given the invention up, therefore they had a perfect right to make the addition and use it. All I had to find fault with was that they did it upon the quiet, unknown to me, at a time when they were my special and confidential agents and manufacturers. They are welcome to it, for it matters not to me what windlass works out the roundabout system. The roundabout system is mine as well as the smasher, and all workers upon those principles are followers of mine. I ask for the insertion of this to put Mr. Randell right, and because I think myself quite as good a judge as the Commissioners are as to what is useful and needed by the farmer, and not a bit more interested, for I never receive a penny on any windlass that is sold by any of my agents. *William Smith, Woolston, Bletchley Station, Bucks, June 9.*

Foreign Correspondence.

ILLINOIS.—[Having been favoured with the perusal of a letter from an intelligent settler in one of the western counties of the State of Illinois, a few extracts are subjoined which cannot fail to interest farmers in this country and our agricultural colonies. *B. M. F.*]

Prices and Progress.—"Our farmers in the West are in much better circumstances than they were when you knew them 24 years ago; they ship a great many cattle and hogs to New York, Boston, &c. Since I came here I could buy good beef, hind-quarters, at 2 cents a lb.; now we can sell two and three-year-old cattle off the Grass, what we call stock cattle, from 4 to 5½ cents per lb. gross. Wheat used to go a begging at 50 cents a bushel, now 2 dollars, *i. e.*, 200 cents, is no unusual price, but I believe it arises from its being a very uncertain crop. I believe if all the land that is sown to winter Wheat were to be taken into account, one year with another it would not average 8 or 9 bushels. There are great lots of it ploughed up every spring, and sowed to Oats or planted with Maize; 12 or 15 bushels of Wheat per acre is considered a very fair crop. The railways and the Michigan Canal, that is between the Illinois river and Lake Michigan at Chicago, have helped things along wonderfully. We have also got a good hedge plant, the Osage Orange, which, with proper attention, will make a fence in four years that the most unruly stock is very unwilling to try itself on, having very stiff, keen thorns; even the birds appear shy of it. I have been trimming some lately, and only found one nest in a quarter of a mile of it, and that one was attached to a straggling limb well out from the fence; the fruit, or rather the arrangement which bears the seed, is a rough knotty thing, like an Orange in size and colour, which is rotted to get them out."

Societies.

BATH AND WEST OF ENGLAND.—The annual meeting of this Society has taken place during the past week. The show-yard opened on Monday, and the public award of the prizes to the comparatively small classes of horses, sheep, and pigs, was soon accomplished, in the presence of a comparatively small number of spectators. The yard has been, however, thronged nearly as hitherto during the other days of the show, and certainly it has been as well worthy as ever of inspection. The implement makers are, as usual, in great force. The long row of steam engines at work—Mr. Aveling's travelling traction engine, all the way from Rochester—as many and as full a set of sheds as ever—present the whole manufacture of agricultural machinery to the spectator. And exhibitors have displayed real public spirit in coming in such force to the same place a second year. At 2 o'clock on the opening day, after judging was accomplished, the Mayor and Corporation of the City, and the Bishop of the Diocess, were received in the yard by the President and Council of the Society, and after a walk round the sheds were entertained at luncheon, with a large number of members and their friends. And we had the pleasure of listening to a very excellent speech from the Bishop, in which he thus referred to the objects of the Society:—

"The great object of it seems to be to promote art, to promote commerce, and to promote manufactures. Now, when speaking of this I do not forget that we cannot now point, as we could some years ago, to our mills, and show you some tokens that we are the manufacturers of the very best red flannel in England. I regret to say that we can no longer do that; but I can tell you this, my friends, that we still pride ourselves upon having one manufacture in Salisbury, and that is the manufacture of cutlery. However, if we have gone back in manufactures, we have not gone back in the matter of agriculture. I believe there are no two counties in England more famous for their agriculture than Wiltshire and Dorsetshire, and I would only ask those persons who wish to get a little air upon this occasion, this very hot day, to go up to where our forefathers used to live, namely, to the top of Old Sarum, and to look around from there and see what kind of farmers we have in this neighbourhood. They will there see the land cultivated in a way which, I believe, no farmers can excel in any part of England. I will tell you, also, that our friends the farmers have quietly come to this conclusion, that in order that agriculture may flourish, art must flourish, manufactures must flourish, and commerce must flourish. And I now conclude how earnestly you endeavour that these should flourish, because I see in a note appended to your report these admirable words, "Work and learn." I cannot conceive of a society being put forward upon two better principles than those. I believe that there are no more industrious labourers, no more industrious farmers, than the members of this society—working men, men who give themselves up to the work which they have undertaken, and I believe that they are thoroughly willing to learn from that which the industry, and the skill, and the genius of others provide to help them, and to help the agriculture of the kingdom. I have, perhaps, a natural clinging to those who have gone before me. I have a most reverent feeling for all those most excellent men who have preceded us, and I believe that this is a most remarkable feature of all Salisbury men. We are great beggars here in Salisbury. All kinds of good works prosper here, and we often go about begging and getting money. On one occasion I had to do this, and I was very much struck with the admirable rooms that were in so many houses I saw in Salisbury. I asked the reason why there were so many better rooms in Salisbury than are to be seen in almost every other place, and I was told that it was because as soon as the men of Salisbury in former generations made anything out of their trade their first object was to make those around them happy, and to receive them into their own houses. Now, I believe that this is a most admirable principle. It is a principle that Salisbury men still cling to, and I do not think they intend, by any experience they have learned from others, to give up that practice. With regard to art, I believe you saw to-day what we can do, as we walked along and saw the pictures—each very good of its kind. I think, too, that everybody would say we are very famous here for music, at any rate, and I do hope that when you do me the honour of coming to see me on Tuesday and Thursday evenings you will find that my words are justified—that few cathedral towns can produce greater musical powers than we hope you may hear on Thursday evening."

From the leisurely inspection of the different classes of stock, which was afterwards accomplished without any of the inconvenience of crowded sheds, it appeared that the yard, as large and commodious as last year, is quite as satisfactorily filled.

THE LIVE STOCK classes are quite up to last year's mark.

The *Leicester* classes of sheep include 10 entries of yearling and older rams, and one pen of yearling ewes. The prizes all go to Mr. Joseph Gould, of Poltimore, Exeter, whose sheep are apparently higher bred, with less of the white face and almost Cotswold character of wool about them than the others.

The *Cotswolds*, with their magnificent frames and beautiful coats, appear in small classes, which, however, well represent the breed. The 1st and 2d prize sheep in the class of older rams, girth 5 feet 10 inches, and two prizes and two High Commendations in a class of only seven entries, sufficiently mark the opinion of the judges. Among the other Long-wool classes, the Lincolnshire breed are fairly represented.

Of the *Southdowns* there are some 16 entries, many of them of great beauty. Mr. Farquharson's comparatively short and stocky sheep have to yield the place of honour to Sir W. Throckmorton's longer and larger sheep, descended from Jonas Webb's flock, and to Lord Radnor's, also containing some of the Babraham blood. Most of the prizes have been allotted to Sir W. Throckmorton.

The *Hampshire*, or rather the improved Hampshire sheep, for there are very few representatives of the old breed now remaining, are well represented at this show. Originally a white-faced horned sheep, then some 50 or 60 years extensively crossed with the largest and darkest faced Sussex rams until the horns had disappeared, and the faces became blacker than the average of the Sussex themselves, whilst the large he ad and the Roman nose of the old breed still remained, a race of sheep was produced of a hardy character and of large size for a short-woolled sheep, and remarkable for the rapid growth made by the lambs. These sheep, crossed with the Cotswold, gave rise to the new Oxfordshire breed in one direction, and in another crossed again once with the best prize Sussex rams, produced in the discriminating hands of Mr. Humphrey and others the improved Hampshire, a valuable animal, retaining all the good qualities of the old Hampshire, free from his many defects, and completely establishing the fact that by care, vigilance, and skilful knowledge, a new and improved breed of animals can be established, well adapted for a particular district, and possessing both on the male and female side a capability of propagating the breed without the necessity of resorting again and again to the original sources. This doctrine has also been well proved in other breeds, and ought to be sufficient to upset those dogmatical opinions so perpetually reiterated that no other horse than the thorough-bred should be allowed to beget a hunter. Mr. Humphreys some five-and-twenty years ago began his improvements with two of Jonas Webb's prize rams, and ever since has used no other rams but the descendants of this cross, although he replenished his flock from time to time with Hampshire ewes from other flocks, and the result has been most successful.

Now supposing that instead of this he had continued to use Sussex rams every year, why his flock would at length have become almost entirely Sussex sheep, and the labour of years would have been thrown away. In like manner, by always using race-horses to beget hunters, the stock in the course of time become useless weeds, unfit to carry weight. The improvement becomes more distant than ever, and the game has to begin again with a violent cross, and some fresh importation from the cart tail.

Returning to the Show, we may observe that there are some fine Cotswold sheep exhibited; but with all their advantages as profitable animals, Agricultural Societies will do well to encourage as much as possible pure Short-wool sheep, having due consideration to the wants of the million, who love good mutton without too much tallow.

We have referred at this length to the Hampshire breed because they are at once the breed of the locality, and the best represented classes here. In particular the pens of yearling ewes are a remarkable feature of the exhibition; and nothing could be finer than Mr. Rawlence's pens in this class. The prize list shows that the honours have been divided between him and Mr. W. B. Canning.

The *Shropshire sheep* are well represented, and here, too, the class of pens of 5 yearling ewes has been exceedingly good. Mr. Wallis and Mr. Futcher show very good Oxfordshire Downs, and there are interesting classes of Dorsets.

The following is the Prize List:—

LEICESTER.

CLASS 19. For the best Yearling Ram.—10*l.*, and 2d, 5*l.*, Mr. Joseph Gould, Poltimore, Exeter. Commended: Mr. George Radmore, Court Hayes, Thorverton, Collumpton, Devon.

CLASS 20. For the best Ram of any other age.—5*l.*, and 2d, 3*l.*, Mr. Joseph Gould.

CLASS 21. For the best Pen of Five Yearling Ewes.—10*l.*, Mr. Joseph Gould.

COTSWOLD.

CLASS 22. For the best Yearling Ram.—10*l.*, Mr. John King Tombs, Langford, Lechlade, Gloucestershire; 2d, 5*l.*, Mr. Thomas Herbert, East Leach Turville, Lechlade, Gloucestershire. Highly Commended: Mr. Robert Lane, Cottage Farm, Northleach, Gloucestershire.

CLASS 23. For the best Ram of any other age.—5*l.*, Mr. Thos. Beale Browne, Salperton Park, Andoversford, Gloucestershire; 2d, 3*l.*, Mr. John Gillett, Oaklands, Charlbury, Oxfordshire. Highly Commended: ditto.

CLASS 24. For the best Pen of Five Yearling Ewes—10*l.*, and 2d, 5*l.*, Mr. John Gillett. Commended: Mr. Thomas Beale Browne.

OTHER LONG-WOOL.

CLASS 25. For the best Yearling Ram.—10*l.*, Mr. George Radmore, Court Hayes, Thorverton, Collumpton, Devon; 2d, 5*l.*, Mr. Clarke Hales, Manor House, Bassingbourne, Royston, Cambridgeshire.

CLASS 26. For the best Ram of any other Age.—5*l.*, Mr. George Kingdon Radmore; 2d, 3*l.*, Mr. Clarke Hales.

CLASS 27. For the best Pen of Five Yearling Ewes.—10*l.*, and 2d, 5*l.*, Mr. Clarke Hales.

SOUTHDOWN.

CLASS 28. For the best Yearling Ram.—10*l.*, Sir William Throckmorton, Bart., Buckland, Faringdon, Berks; 2d, 5*l.*, The Right Hon. the Earl of Radnor, Coleshill, Highworth. Highly Commended: Sir William Throckmorton.

CLASS 29. For the best Ram of any other Age—5*l.*, and 2d, 3*l.*, Sir William Throckmorton, Bart. Commended: The Right Hon. the Earl of Radnor.

CLASS 30. For the best Pen of Five Yearling Ewes.—10*l.*, Sir William Throckmorton, Bart.; 2d, 5*l.*, The Right Hon. the Earl of Radnor.

HAMPSHIRE DOWN.

CLASS 31. For the best Yearling Ram.—10*l.*, Mr. Robert Coles, Middleton Farm, Norton Bavant, Wilts; 2d, 5*l.*, Mr. James Rawlence, Bulbridge, Wilton. Highly Commended: Mr. W. F. Bennett, Chilmark, Wilts; and Mr. James Rawlence. Commended: Mr. J. Rawlence and Mr. W. F. Bennett.

CLASS 32. For the best Ram of any other age.—5*l.*, Mr. Jas. Rawlence; 2d, 3*l.*, Mr. W. B. Canning, Elston Hill, Devizes. Highly Commended: Mr. James Rawlence. Commended: Mr. Edmund Olding, Ratfin Farm, Amesbury.

CLASS 33. For the best Pen of five Yearling Ewes.—10*l.*, Mr. James Rawlence; 2d, 5*l.*, Mr. William Browne Canning. Highly Commended: Mr. James Rawlence and Mr. W. F. Bennett. Commended: Mr. Edward Waters, Stratford-sub-Castle, Wilts; Mr. Alfred Morrison, Fonthill House; and Mr. James Rawlence.

HAMPSHIRE DOWN,

Bred in Wiltshire, or within 20 miles of Salisbury. Prizes given by the Salisbury Local Committee.

CLASS 34. For the best five Four-teeth Ewes, with their

Lambs, and in their Wool.—10*l.*, and 2d, 5*l.*, Mr. James Rawlence.

CLASS 35. For the best five Six-teeth or Full-mouthed Ewes, with their Lambs, and in the Wool.—10*l.*, and 2d, 5*l.*, Mr. James Rawlence.

SHROPSHIRE.

CLASS 36. For the best Yearling Ram.—10*l.*, Mr. Thomas Mansell, Adcott Hall, Shrewsbury; 2d, 5*l.*, Mr. Joseph Beach, Brewood, Dudley, Worcestershire.

CLASS 37. For the best Ram of any other Age.—5*l.*, Mr. Thomas Mansell.

CLASS 38. For the best pen of Five Yearling Ewes.—10*l.*, Mr. Joseph Beach.

OXFORD DOWN.

CLASS 39. For the best Yearling Ram.—10*l.*, Mr. George Wallis, Old Shifford, Bampton, Farringdon, Oxfordshire.

CLASS 40. For the best Ram of any other Age.—5*l.*, and 2d, 3*l.*, Mr. George Wallis.

CLASS 41. For the best pen of Five Yearling Ewes.—10*l.*, Mr. Aaron Futcher, Fovant, Salisbury, Wilts.

SOMERSET AND DORSET HORN.

CLASS 42. For the best Yearling Ram.—10*l.*, Mr. Thomas Danger, Huntstile, Bridgwater; 2d, 5*l.*, Mr. Alfred J. Pitfield, Eype, Bridport.

CLASS 43. For the best Ram of any other Age.—5*l.*, and 2d, 3*l.*, Mr. Thomas Danger.

CLASS 44. For the best Pen of five Yearling Ewes.—10*l.*, Mr. Henry Mayo, Cokers Frome, Dorchester; 2d, 5*l.*, Mr. Thomas Danger. Highly Commended: Mr. Henry Mayo.

MOUNTAIN.

CLASS 45. For the best Ram of any Age.—10*l.*, Mr. Edwin Maunder, Heaselly Mill, North Molton, Devon; 2d, 5*l.*, Mr. James Quartly, West Molland, South Molton, Devon. Highly Commended: Mr. Edwin Maunder.

There is really a capital show of pigs. Mr. Duckering, of Kirton Lindsey, Lincolnshire, one of the most successful exhibitors of late years, shows a number of his large white breed, and is most successful here, taking the 1st prize for an enormous white boar, the 1st and 2d for sows of the same breed, and many other little prizes and commendations.

Mr. Stewart, of Gloucester, is successful in many of the classes with his well bred Berkshires, exhibiting more vigour and constitution than are commonly united with the precociousness of highly bred stock.

The following is the Award of the Prizes:—

LARGE BREED.

CLASS 58. For the best Boar above 1 Year and not exceeding 2 Years old.—5*l.*, the 2d, 3*l.*, Mr. Richard Elmhurst Duckering, Northorpe, Kirton Lindsey, Lincoln.

CLASS 59. For the best Boar not exceeding 1 Year old.—5*l.*, Mr. Arthur Stewart, Saint-Bridge, Gloucester; 2d, 3*l.*, Mr. Heber Humfrey, Kingstone Farm, Shrivenham, Berks. Highly Commended: Mr. Arthur Stewart. Commended: Mr. William Hewer, Sevenhampton, and Mr. John King Tombs, Langford, Lechlade, Gloucestershire.

CLASS 60. For the best Breeding Sow.—5*l.*, the 2d, 3*l.*, Mr. Richard Elmhurst Duckering. Highly Commended: Mr. James D. Allen, Tisbury. Commended: Mr. Heber Humfrey (2 pens).

CLASS 61. For the best Two Breeding Sows not exceeding 9 Months old.—5*l.*, Mr. Richard Elmhurst Duckering; 2d, 3*l.*, Mr. William Hewer. Commended: Mr. Arthur Stewart.

BERKSHIRE PIGS.

CLASS 62. Special Prizes given by the Salisbury Local Committee. For the best Boar.—5*l.*, Mr. William Yells, Highworth, Wilts. Commended: Mr. James Rawlence, Bulbridge, and Mr. John King Tombs.

CLASS 63. For the best Sow of any Age, with Pigs or in Farrow.—5*l.*, Mr. John King Tombs; 2d, 2*l.* 10*s.*, the Marquis of Ailesbury. Highly Commended: Mr. Harry Rivington, Cirencester, Gloucester; and Sir William Throckmorton, Bart., Buckland, Faringdon, Berks. Commended: Mr. Harry Rivington.

CLASS 64. For the Three best Hilts, above 4 and not exceeding 8 Months old.—5*l.*, Mr. Arthur Stewart; 2d, 2*l.* 10*s.*, Mr. William Yells. Commended: The Rev. Henry G. Baily, Swindon.

SMALL BREED.

CLASS 65. For the best Boar above 1 Year old and not exceeding 2 Years old.—5*l.*, Mr. Richard Elmhurst Duckering; 2d, 3*l.*, Captain Richard Pelham Warren, Worting House, Basingstoke.

CLASS 66. For the best Boar not exceeding 1 Year old.—5*l.*, Mr. Edmund Coles, Yeovil, Somerset; 2d, 3*l.*, Captain Richard Pelham Warren. Highly Commended: Mr. Edmund Coles and Mr. Richard Elmhurst Duckering. Commended: the Earl of Radnor.

CLASS 67. For the best Breeding Sow.—5*l.*, Mr. Richard Elmhurst Duckering; 2d, 3*l.*, Mr. Edmund Coles. Highly Commended: Mr. Edmund Coles and Mr. James D. Allen, Tisbury, Salisbury, Wilts.

The horses are named last in our list, not because they command less interest than the others, for the horse ring has been the most attractive feature of the Exhibition all the week, but because this is their place in the Catalogue. Mr. Henry Corbet, of the Central Farmers' Club, and Mr. Thurnall, of Royston, were on Monday engaged in adjudicating on the merits of comparatively small classes of hunters, hacks, and ponies; and Mr. Watts, of Melcombe, and Mr. Howard, of Temple Brewer, awarded the prizes on the behalf of agricultural classes. In the class of agricultural stallions the prizes have gone to Mr. Sainsbury, of Lavington, and Mr. Gale, of Marlborough, the former showing a very handsome dark grey horse, come of a prize-taking stock. In a very good class of mares, Mr. Holland, M.P., shows his wonderful prize-taker, distinguished also for her prize-getting progeny. She has herself taken some 30 prizes, having begun as a two-year-old 11 or 12 years ago at the Carlisle Meeting of the English Agricultural Society, and she is again 1st here. In the older class of hunters, "Voyageur," the property of Mr. T. Sutton, is 1st, as he has often been in other fields; and Captain Heygate's "Mountain Dhu" is 2d. The four-year-old hunters were represented by a small number, of considerable merit. Two dark chesnuts were placed 1st and 2d—a very handsome bay, the property of Mr. Woodcock, dividing with them the votes of the spectators. A fair class of three-year-old fillies and geldings, and a poor show of ponies, have made up the remaining attractions of the horse ring. The Prize List is given below.

HORSES FOR AGRICULTURAL PURPOSES.

CLASS 47. For the best Stallion, foaled before 1865.—30*l.*, Mr. William Sainsbury, Hunts House, West Lavington, Devizes; 2d, 15*l.*, Mr. William Henry Gale, Manor Farm, Burbage, Marlborough. Highly Commended: Mr. Robt. Jacob, Boltonsborough, Glastonbury.

CLASS 48. For the best Stallion, foaled in 1865.—20*l.*, Mr. E. Gibbs, Chitterne, Wilts; 2d, 10*l.*, Mr. Arthur Thomas Newman, West Dean, Chichester. Highly Commended; Mr. Edward Holland, M.P., Dumbleton Hall, Evesham, Worcestershire.

CLASS 49. For the best Mare and Foal, or in Foal.—15*l.*, Mr. Edward Holland, M.P.; 2d, 5*l.*, Mr. Jacob Golledge, Whaddon Grove, Trowbridge. Commended: Mr. James Lush, Winterbourne Earls, Salisbury; and Mr. A. Lavington, Poulshot Lodge, Devizes.

CLASS 50.—For the best pair of Agricultural Horses, foaled before the 1st of January, 1862.—20*l.*, Mr. Fred. Lavington, Chitterne St. Mary, Heytesbury.

CLASS 51. For the best pair of Agricultural Horses, foaled after the 1st of January, 1862.—20*l.*, Mr. Edward Gibbs, Chitterne, Heytesbury, Wilts; 2d, 10*l.*, Mr. Jas. George Simpkins, Alton Priors, Marlborough.

HUNTERS.

CLASS 52. For the best Mare or Gelding, foaled before the 1st of January, 1863.—25*l.*, Mr. Thomas Sutton, Alwent, Darlington, Durham; 2d, 10*l.*, Captain Edward Nicholas Heygate, Buckland, Leominster, Hereford. Highly Commended: Mr. Erlysman C. Pinckney, Berwick St. James; and Mr. Wm. Paull, Puddletown, Dorset.

CLASS 53. For the best Mare or Gelding, foaled in 1863.—25*l.*, Captain Edward Nicholas Heygate; 2d, 10*l.*, Mr. John Woodcock, Netherhampton, Salisbury.

CLASS 54. For the best Filly or Gelding, foaled in 1864.—15*l.*, Captain Edward Nicholas Heygate; 2d, 5*l.*, Mrs. Louisa Malcom, Beechwood, Totton, Hants. Commended: Mr. Robert Canning, Townshend Manor, Over Wallop, Stockbridge, Hants.

We shall not here give any particular comment on the implements exhibited. They make a very useful contribution to the attractions of the yard, and the implement makers deserve great praise for coming (notwithstanding the great expense which is incurred) in such full force again to the same place. Last year we had a display of steam engines, barn machinery, agricultural implements of all kinds, and contrivances for use in the farmhouse as well as in the field such as have hitherto been seen only in the show-yard of the National Agricultural Society; and this year the same space is again as fully filled, and the Catalogue is a volume of as many pages. The steam cultivating machines (though Fowler & Co. do not exhibit) are as interesting and as efficient as ever. Mr. Higgins, of Marshwood, shows through Messrs. Tasker, of Andover, a machine for cultivating, and harrowing, and sowing at the same time, which, drawn to and fro by wire rope from a drum actuated by a stationed steam engine, presents all the advantages which art is ever likely to offer to the farmer of a clayey soil in wet weather. Messrs. Howard show their plough and cultivator at work, driven by Clayton & Shuttleworth's engine, and furnished with all the devices for saving time at the headlands to which Mr. Bulstrode referred the other day at the rooms of the Agricultural Society.

The other principal feature in the implement yard this year is a number of novelties in the reaping machines exhibited by Mr. Burgess, Messrs. Hornsby, and Messrs. Turner & Fardon. In the last the oscillating knife is actuated, not by a crank but by a cam—the principle (a faulty one on the score of friction) being much the same as that exhibited some years ago in Wray's reaper and the Eagle mower. There is here also a horizontal revolving rake, coming round once in about every 6 feet, and sweeping the contents of the platform as a sheaf on to the stubble.

Messrs. Hornsby's sheaf raking apparatus is also extremely clever and effective, and it is in Messrs. Burgess's "M'Cormick" of the same class (sheafing machine) that the chief improvements which they have made appear. Opportunity has been given in fields near the yard for the display of these and other machines in operation, and the mowers and reapers, hay tedders, horse rakes, and tillage implements, seen at work, have attracted large numbers of spectators. Within the yard the usual departments of Fine Art exhibition, flowers, and poultry are as attractive as ever. In particular, the tent devoted to the very beautiful show of plants and flowers is a great addition to the charms of the place. And we cannot doubt that the Horticultural Society's meeting and exhibition at Bury during the agricultural meeting next month will greatly help to swell the crowds that may be expected. It is right to mention, that besides the agricultural implement manufacturers many other trades and interests connected with agriculture have been fairly represented. Mr. Sutton worthily represents the seed trade—the manufacture of cattle foods is largely represented, and cattle medicines, too, are shown by Messrs. Day & Hewitt in their compendious veterinary chest. The meeting has been favoured by very satisfactory weather, and may be pronounced a great success.

BIRMINGHAM: *Horse and Hound Show.*—[The following report is abridged from the *Midland Counties Herald.*] The Judges commenced their duties at nine o'clock on Tuesday morning with the thoroughbred entire horses likely to produce weight-carrying hunters, of which there are ten—only a moderate collection, the Ivanhoff of Mr. Griffiths being by far the best. He is a handsome bay, with a remarkably neat head, well set on, good neck and shoulders, as well as good loins and thighs. He is stated to have been ridden to hounds all last season, and to be so docile in temper as to be frequently ridden by young persons, who can manage him without difficulty. Tippler, from the Donington Park stables, is short in his shoulders, and without any great character to recommend him; while Mr. Bryan's Young Knight of Gwynne looks more likely to prove the sire of hacks than of hunters. The honours here were not difficult to adjudicate.

The second class of weight-carrying hunters included Master of Arts, who has greatly improved since his previous appearance in the hall, when he was placed 2d; also Mr. Westley Richards' Hobby Noble, a very useful horse; and Mr. Gilman's Little John, a nice wiry horse, 1st, 2d, and 3d.

The hunters, "without condition as to weight, five years old and upwards," are an excellent class, in which Mr. Spencer Lucy deservedly takes the lead with Goldfinder, a very handsome and blood-like chesnut, with fine shoulders, and good head and action, but falling off below the knee. Mr. Westley Richards' Freeney, a brown horse, which takes 2d prize, is also an attractive animal, though faulty about the hocks. Mr. Everitt's Redstart should have been in the preceding class, as he is evidently a weight-carrier. Metal, for which Mr. Westley Richards is highly commended, possesses great substance for a thorough-bred animal, which he is.

The four-year-old colts and fillies for hunting purposes are a strong class, as may be inferred from the fact that of the 15 who entered the lists six occupied the attention of the judges for a considerable time. Finally, after a careful estimate of conflicting claims, the blue ribbon was given to The General of Mr. Thomas Gee, an animal which promises, when thoroughly furnished, to become a valuable weight-carrying hunter. The 2d prize fell to the lot of Mr. Lynes, for The Dean, half-brother of Rural Dean, who gained a similar place last year. Though blood-like, his forelegs are by no means unimpeachable, and he certainly does not possess the qualifications of his more distinguished opponent. Mr. Millward's Nobility is a very useful style of horse, with much character.

The three-year-old colts and fillies for hunting purposes are not equal to their seniors, and do not call for any special notice beyond the remark that we liked Mr. Harrison's second prize animal better than the one which gained for Mr. Pitterton the 1st prize.

The two-year-old colts and fillies, as a whole, are only of modest pretensions. Neither Mr. Wise's Roulette nor Mr. McKnight's Maggie took our fancy. We should have placed before either of these Mr. Lynes' highly-commended Honeydew, half sister to Rural Dean, which shows considerable power for her age, and is apparently a very useful filly. Mr. Booth's British Queen is plain, with plenty of substance, however, and seems capable of growing into a very desirable mare.

The carriage horses are not numerous, probably because gentlemen who keep them are unable or unwilling to dispense with their services for so many days together as their presence in the hall would require. Notwithstanding that there are only four entries, they were considered sufficient to justify the award of both the prizes; the 1st being again carried off by Mr. Thomas Avery, of Chad Road, Edgbaston, for a well-matched pair; and the 2d by Mr. Charles James Shaw, of Greenfield House, Edgbaston.

There is a numerous array of hacks, roadsters, and cobs, the three classes appropriated to them containing some serviceable animals. For "ladies' horses" there are two classes opened on this occasion—one for hacks 15 hands high and upwards, and hacks under 15 hands, but in neither do we meet with any animals of marked excellence. In the former division, which may fairly claim the superiority, Major St. Quentin, of Woodleigh, Cheltenham, again comes to the front with his showy and highly-trained chesnut, Knight Templar.

The ponies took the field in great force. They form, as usual, a diversified and interesting display, some of them being perfect little animals for make and style.

The dray horses are a small but praiseworthy class, Mr. Brierley, of Middleton, Lancashire, being 1st, with a pair of thick-set powerful greys, and Mr. Robert Evans, of Cliveland Street, 2d, with another pair of greys, unequally matched, which took the same position last year, and have improved in condition during the interval.

The agricultural stallions are few in number but better in quality than last year. Mr. Wynn's A 1 is wonderfully developed for his age, exceeding in girth the next best competitor, Mr. Wallis's Young Sampson, which is rather more than two years older, and which, moreover, in other company would be difficult to beat. In Class 22, for geldings or mares, four years old and upwards, Mr. Brierley is again 1st with a clean-legged, active pair; and Mr. Hyla Elkington, of Selly Oak, 2d, with two useful mares of the true Suffolk type.

Much curiosity has been excited in respect to the celebrated American trotter Shepherd F. Knapp, of whose performances the circumscribed limits of the hall do not of course afford a fair test. Even here, however, his speed is extraordinary, and upon the road must be still more so.

The Fox Hounds are an interesting addition to the show, and if this department is not so efficiently filled as we hope to see it on future occasions, it is a great advance on what we have been accustomed to see at our canine meetings in Birmingham, the masters of several well known packs in the Midland Counties having responded to the invitation of the Council. The Marquis of Hastings sends three couples of bitches which, by their symmetry, uniformity, and good looks, bore away the palm; the Warwickshire taking second rank with three couples of useful working hounds, and the North Warwickshire third for three other couples, of which our old favourite Rosey was conspicuous as by far the best hound in the hall. Of the un-entered puppies there is nothing to compare with the promising couple which represent the juvenile stamina of the Shropshire kennels. For the 2d prize, however, there was a close contest between the Old Berkshire and the North Warwickshire, the former eventually carrying the day against the latter, owing to the defective feet of Dainty, one of its representatives.

The following is a complete Prize List:—

HUNTERS.

CLASS 1. THOROUGH-BRED SIRES.—1st, 30*l.*, Edward Griffiths, Esq., Marl Hill, Cheltenham (Ivanhoff); 2d, 15*l.*, the Most Noble the Marquis of Hastings (Tippler); 3d, 5*l.*, Mr.

Davies Bryan, Rhydwiman, near Montgomery (Young Knight of Gwynne).

CLASS 2. HUNTERS, equal to 15 Stones, Five years old and upwards.—1st, 20*l.*, Thomas Gee, Esq., Dewhurst Lodge, Wadhurst, Sussex (Master of Arts); 2d, 10*l.*, Westley Richards, Esq., Birmingham (Hobby Noble); 3d, 5*l.*, Mr. Joseph Gilman, 148, Lancaster Street, Birmingham (Little John).

CLASS 3. HUNTERS, without condition as to weight, Five Years old and upwards.—1st, 20*l.*, Mr. Henry Humphreys, Winchcomb Street, Cheltenham; 2d, 10*l.*, Westley Richards, Esq., Birmingham (Freeney); 3d, 5*l.*, W. E. Everitt, Esq., Augustus Road, Edgbaston (Redstart).

CLASS 4. FOUR-YEAR-OLD COLTS OR FILLIES.—1st, 20*l.*, Thomas Gee, Esq. (The General); 2d, 10*l.*, G. B. Lynes, Esq., Preston Deanery, Northampton (The Dean); 3d, 5*l.*, Walter A. Millward, Esq., Hall Green, Birmingham (Nobility, sire Hunting Horn, dam by Cervantes). Price 120*l.*

CLASS 5. THREE-YEAR-OLD COLTS OR FILLIES.—1st, 15*l.*, John Fielden, Esq., Dobroyd Castle, Todmorden, Yorkshire (Bird of Passage); 2d, 10*l.*, Mr. Anthony Harrison, Metchley Cottage, Edgbaston; 3d, 5*l.*, Captain Harrison, Norton Hall, Cannock, Stafford (Monkey).

CLASS 6. TWO-YEAR-OLD COLTS OR FILLIES.—1st, 15*l.*, George Wise, Esq., Woodcote, Warwick (Roulette); 2d, 10*l.*, Mr. George McKnight, Mossy Green, Oaken Gates, Salop (Maggie); 3d, 5*l.*, John B. Booth, Esq., Killerly Hall, Catterick, Yorkshire (British Queen).

CARRIAGE HORSES.

CLASS 7. PAIRS OF GELDINGS OR MARES.—1st, 20*l.*, Thomas Avery, Esq., Church Road, Edgbaston; 2d, 10*l.*, Mr. Charles James Shaw, Greenfield House, Edgbaston.

HACKS, ROADSTERS, AND COBS.

CLASS 8. Not exceeding 15½ hands high.—1st, 15*l.*, Mr. Joseph Gilman, 148, Lancaster Street, Birmingham; 2d, 5*l.*, Mr. Wm. Avery, Selly Place, Pershore Road, Birmingham; 3d, R. Milward, Esq., Thurgarton Priory, Southwell, Notts.

CLASS 9. WEIGHT CARRIERS, from 14 to 15½ hands high.—1st, 15*l.*, Thomas Johnson, Esq., District Bank, Northallerton; 2d, 5*l.*, Richard Wynn, Esq., Crickett, Ellesmere, Shropshire.

CLASS 10.—Under 14 hands high.—1st, 15*l.*, Captain J. Simpson Ballard, the Verlands, near Cowbridge; 2d, 5*l.*, Mr. Edward Tranmer, East Harlsey, Northallerton.

LADIES' HORSES.

CLASS 11. 15 hands high and upwards.—1st, 15*l.*, Major Quentin, Woodleigh, Cheltenham; 2d, 5*l.*, Major Richards, 30, Carpenter Road, Edgbaston, Birmingham.

CLASS 12. Under 15 hands high.—1st, 15*l.*, Henry Sparrow, Esq., Himley House, Staffordshire; 2d, 5*l.*, Mr. George Hughes, 46, Whittall Street, Birmingham.

HARNESS HORSES AND PONIES.

CLASS 13. Exceeding 15 hands high.—1st, 15*l.*, Thomas Meyrick, Esq., Bush House, Pembroke, South Wales (The Parson); 2d, 5*l.*, C. H. Hawkins, Esq., 30, Great Charles Street, Birmingham.

CLASS 14. From 13½ to 15 hands high.—1st, 15*l.*, Howarth Ashton, Esq., Polefield Hall, Prestwich, near Manchester; 2d, 5*l.*, Mr. J. Tyler, Broad Street, Birmingham.

CLASS 15. Under 13½ hands high.—1st, 10*l.*, Mr. Joseph Scott, Albion House, Carlisle; 2d, 5*l.*, Mr. George Clements, 47, New Town Row, Birmingham.

PONIES.

CLASS 16. Under 13 hands high.—1st, 10*l.*, Mr. Richard Habberfield Short, The Grove, Birmingham; 2d, 5*l.*, Mr. Edward Woodhouse, Kirton in-Lindsey, Lincolnshire.

CLASS 17. Under 12 hands high, to carry children.—1st, 10*l.*, Mr. Richard S. Simpson, 6, Bull Street, Birmingham; 2d, 5*l.*, Mr. Richard Walker, Guest Street, Hockley.

HACK, ROADSTER, COB, or PONY SIRES.

CLASS 18. HACK OR ROADSTER SIRES, not under 14½ hands high.—1st, 10*l.*, exhibitor and breeder, Captain Barlow, Castle Donington; 2d, 5*l.*, Mr. W. Robinson, Bonehill Cottage, Tamworth.

CLASS 19. COB OR PONY SIRES, not exceeding 14½ hands high.—1st, 10*l.*, the Marchioness of Hastings; 2d, 5*l.*, Mr. Charles Sheridan, Wheeler Street, Birmingham.

DRAY HORSES.

CLASS 20. PAIRS OF GELDINGS OR MARES, 4 years old and upwards.—1st, 15*l.*, Charles William Brierley, Esq., Middleton, near Manchester; 2d, 10*l.*, Mr. Robert Evans, Cleveland Street, Birmingham.

AGRICULTURAL HORSES.

CLASS 21. SIRES.—1st, 30*l.*, Mr. William Wynn, Cranhill, Alcester, Redditch; 2d, 15*l.*, Messrs. Yeomans Brothers, Pennymore Hay, near Wolverhampton.

CLASS 22. PAIRS OF GELDINGS OR MARES, 4 years old and upwards.—1st, 15*l.*, Charles William Brierley, Esq., Middleton, near Manchester; 2d, 10*l.*, Mr. Hyla Elkington, Selly Oak, Birmingham.

FOX HOUNDS.

CLASS 1. THREE COUPLES OF WORKING HOUNDS, of either or both sexes.—1st, The Most Noble the Marquis of Hastings, (The Quorn); 2d, Henry Spencer Lucy, Esq., Charlecote Park, (The Warwickshire); 3d, Oswald Milne, jun., Esq., Woodville, Leamington, (The North Warwickshire).

CLASS 2. COUPLES OF UNENTERED PUPPIES, one of each sex.—1st, The Hon. Rowland Clegg Hill, Hawkestone, Shrewsbury; 2d, John Bayntun Starky, Esq., Longworth, near Faringdon.

JUDGES.

CLASSES 1 TO 4.—The Right Honourable Viscount Combermere, Combermere Abbey, Cheshire; Sir Watkin Williams Wynn, Bart., Wynnstay, Ruabon.

CLASSES 5 AND 6.—Mr. J. Russell Cookes, Woodhampton, Stourport; Mr. Charles Millward, Hall Green, Birmingham.

CLASSES 7 TO 19.—Mr. J. C. Welby, Carlton Club, London; Mr. H. Thurnell, Royston, Herts.

CLASSES 20 TO 22.—Mr. Henry Lowe, Comberford, Tamworth; Mr. Shepherd, Coleshill. Mr. Edmund Lythall assisted in judging Class 21.

FOX HOUNDS.—Mr. Cornelius Tongue, Trysull, Wolverhampton; Mr. John Walker, Wrexham.

HONORARY STEWARD OF FOX HOUNDS.—Mr. R. L. Hunt, Hagley Road, Edgbaston.

VETERINARY REFEREE.—Mr. E. Stanley, M.R.C.V.S., 35, Broad Street, Birmingham.

SOCIETY OF ARTS: *The Water Supply of the Metropolis.*—Mr. Bailey Denton read a paper on this subject last week before this Society, from which, as reported in the Society's Journal, we make the following extracts:—

1. *Our diminished rainfall.*—I have not hitherto laid any great stress upon the diminution of the rainfall, because it has always been considered that the position of Great Britain, in its proximity to the wide Atlantic Ocean—from the surface of which evaporation takes place to an unlimited extent, increased by the warm current of the Gulf stream—is such as to make any diminution of rainfall resulting from reduced evaporation from the surface of our island a matter of very little moment. The valuable essay of Professor Ansted, recently published in the Journal of the Royal Agricultural Society of England,* however, places the matter in so clear a light, and raises its importance in the eyes of scientific men so considerably, that the subject cannot long remain one of indifference to the people at large. He shows, by very simple diagrams, formed from the records kept at Greenwich—which are reliable, I presume, and have been kept for a period extending over 50 years—that a "considerable decrease" in the amount of rain has taken place within that period. The Professor, when comparing the rainfall within the period from 1814 to 1864 inclusive, states that during the first 25 years the mean annual fall was 26.69 inches, or 1.44 inch above the general mean of the 50 years, and that during the last 25 years the mean fall was 23.75 inches, or 3 inches less than the first 25 years. He also shows that during succeeding periods of 7 and 14 years, from 1815 to 1863 inclusive, the decline in quantity has been as follows:—

Years.		Inches.	Mean of 14 years. Inches.
1815—1821.	Mean rainfall	28.7	28.3
1822—1828.	,, ,,	27.9	
1829—1835.	,, ,,	24.3	26.1
1836—1842.	,, ,,	25.1	24.7
1843—1849.	,, ,,	24.1	24.6
1850—1856.	,, ,,	23.1	24.0
1857—1863.	,, ,,	23.7	23.8

2. *Effect of Drainage.*—If we deduce from this instance that the rainfall is generally declining, we cannot reject from consideration the counterbalancing circumstance that land drainage, which is taking place all over the country, discharges into the rivers from the land a larger quantity of water than found its way to them before drainage, and more than is actually lost to the rivers by the lessened rainfall. In fact, if the whole area of the Thames watershed consisted of wet land, which would be benefited by drainage, we should in the aggregate be considerable gainers by the extension of the practice; but the wet lands form only the smaller portion of its area, and therefore we can only apply the advantage to that lesser extent. Moreover, it is hardly necessary to repeat, the water of drainage issuing from our clay lands is not constant; it is for the most part discharged in the winter months, when both soil and air are frequently in a state of saturation, and when vegetation is dormant; and ceases to flow in summer, when evaporation is active, and the demands of vegetation can hardly be satisfied. Hence it is that the underground operation of drainage, which we adopt for the amelioration of our heavy wet lands, adds to the derangement already caused by the improved cultivation of the surface and the spread of population. It extracts from the soil, in fact, the water which has hitherto been retained to moisten the air of summer and to support our rivers. Thus the floods of winter and the droughts of summer are both increased, and the hygrometric condition of the atmosphere altered so much as to make us acknowledge that England is undergoing an appreciable change of climate.

Before passing from this point, it is right to state that if drainage consisted only of subsoil drainage the tendency would be to render floods less frequent, because the water having to pass through the soil intermediate between the surface and the drains, would be seized and detained in that depth of earth on its way to the outfall, and if the rains were not repeated too quickly the sudden congregation of water would be prevented. But as the primary object of drainage is to get rid of excessive wetness as soon as possible, the outlets and watercourses are now so much improved, and are everyday becoming more and more improved, by straightening and widening, that the expected detention is more than counteracted by the facility afforded for the immediate discharge of both surface and drainage waters, which are precipitated into the valleys with a suddenness unknown 50 years back.

3. *Capabilities of Storage.*—While asserting that if storage be resorted to the excess of the driest winter will more than compensate for the drought of the driest summer by which it may be succeeded, I am content to place before you the following facts in support of the assertion:—

Out of the average mean rainfall of 26 inches due to the Thames basin, it requires only three-quarters of an inch of the surplus of winter from the whole watershed of the Thames, or 1⅓ inch of rainfall from one moiety of the watershed, to satisfy the whole population within it. Or, to put the matter more practically, as it will only be necessary to collect water for six months of the year, half an inch of rain falling upon an acre of land is sufficient to supply two persons with 30 gallons each per diem for six months, and no winter passes by in which there does not run off to the sea, without serving any useful purpose, in excess of the mean summer flow of the river, at least five times the quantity required to meet the supply of the metropolis in the dry times of summer, when the river cannot fairly part with any portion of its volume; and this, or any portion of it, may be stored for compensation to the river if reservoirs were properly constructed for the purpose. To appreciate our present position it should be understood that the water companies are continuing the unexampled practice of abstracting from the Thames 60,000,000 of gallons daily, which may be increased to 100,000,000, independent of what is now desired to be taken by the East London Water Company, without any compensation whatever, although it is acknowledged that the volume of the river (which should always be maintained, if possible, at a standard flow,—say of 450 millions of gallons per diem) is sometimes reduced, in dry summers, after the companies have abstracted their supplies, to from 300 to 350 millions of gallons.

4. *Pollution by Sewage.*—The water-closet system has now acquired such a firm place in our household arrangements, that we cannot anticipate the use of any other vehicle but water for the discharge of sewage from towns of any size, however we may modify the system in villages, and for suburban and country houses, by the adaptation of earth closets, which are most excellent expedients, and will no doubt come into extensive use where combination in sewerage is not necessary to effect the duties of the scavenger. It is the daily increasing use of water-closets in towns, and the immense growth of special trades and manufactures using and abusing our streams, that sets aside all previous provision.

It is admitted that rivers, to answer their full natural purpose, must serve as drains to receive the liquid refuse of their watersheds, as well as sources of water supply for the towns within them; and, perhaps, the most difficult problem to solve in the present day is, the obligation to maintain, at one and the same time, these two objects—reconciling, as it were, the antipodes of riparian service. The conclusion, I believe, to which the intelligence of the country has arrived is, that, abstractedly no water can be used with impunity for drinking purposes after sewage has been mixed with it. Or, to give the matter a practical bearing, it may be more truly said that, as soon as sewage can be detected by chemical analysis to exist in an appreciable degree in the water we are called upon to drink, it is a vital error so to use it.

5. *Purification of Sewage Water.*—Of all methods of purification, the application of sewage to land is the only one to which science accredits the power of arresting objectionable matter, though the mode of application is found to govern the extent to which the process succeeds. Sewage discharged from towns by gravitation, or lifted by mechanical power to high grounds, if it passes simply over the surface of land without passing through it, retains a large part of the noxious matter, and cannot be considered to be in a fit condition to mix with river water used for drinking. This view applies with increased force the nearer the irrigated lands approach the river. The absorbent powers of vegetation are doubtless very great, but they are not sufficient in themselves to appropriate the impurities held by water in suspension as well as in solution. Moreover, vegetation has not equal vital powers all the year round to seize and appropriate the fertilising elements which are its food. It has its seasons of rest as well as of growth, and at such times its extractive and retentive capabilities are very small. When vegetation, however, grows on a deep bed of free soil, through which the sewage can descend and percolate, after satisfying the vegetation, we possess the best means of purification, its perfection depending quite as much on a sufficient depth of subsoil through which the effluent water must descend as upon the action of vegetation.

We must not confuse the system of irrigation which allows the effluent water to sink into the subsoil after satisfying vegetation with the "dumb-well" or cesspit mode of disposing of sewage in its normal state. In the first case, the effluent water which would pass into the river as clarified sewage, if "run over land" sinks into the soil and replenishes the springs, after being utilised on the surface; whereas, in the second case, the sewage is dropt into holes of porous ground, which retain the solid matter to fester under foot, and allow the liquid sewage to sink into the earth without doing any good whatever to vegetation.

Where free soils affording natural drainage are not to be obtained, the nearest approach to them is land to which under-drainage has been or may be applied, the drains in such case affording artificially a means of discharge, when the level of the drains is reached, similar in character to that which takes place in a deep bed of free soil when the descending water reaches the level of the springs. But as the depth of under drainage is limited to a few feet, the extent of purification is limited correspondingly, and though to the eye, and probably to the taste in many instances, the discharged water from lands irrigated with sewage may be unobjectionable, I believe I am correctly stating the fact in saying that such water is seldom if ever free from organic matter. The question which therefore arises, when applying sewage to drained land, is whether the filtration it undergoes, in addition to absorption by vegetation, is sufficient to allow of the effluent liquid from the drains being mixed with impunity with river water used for drinking. Abstractedly, it is wrong to do so; but, as under many circumstances theory cannot always be carried to its extreme, it will probably often occur that the distance to be travelled by the mixed waters before use will be sufficiently great to effect oxidisation, and so remove all objection. Expediency may thus over-ride principle and sanction the proceeding.

As a rule, it may be assumed that the application of sewage will be profitable in proportion to the command the farmer may have over the sewage he applies. It may percolate the soil and pass away too quickly, and a sufficient breadth of land may not be covered at a dressing. The irrigated land may, in fact, be far too open and free for the farmer's profit, though not for purification. To irrigate undrained clay lands is opposed both to profit and purification, for it cannot be expected that land already suffering from excess of rainfall will benefit by double the quantity of sewage-liquid being run over it and added to the rainfall. The same lands drained will bear any amount of irrigation with an increase of produce of good quality, though the effluent water may remain polluted; but to apply sewage to land possessing no escape through the soil is to "put the compost on to make the weeds grow ranker," for the herbage can

* Journal of the Royal Agricultural Society of England, Nos. III. and V., second series.

only be coarse and very inferior in character. When we have had more experience in sewage farming—and it will doubtless become a special business, as the Rivers Commissioners have pointed out in their reports—it will probably be found that a system of drainage admitting of the plugging of the outlets, so as to hold back the water in the soil for a time, and to flush the drains, will be adopted. In some parts of England this plan is adopted for water irrigation with success.

Thus we are compelled to view the application of sewage to land in three ways:—

1st, That sewage run over a surface of land which has neither natural nor artificial drainage to assist vegetation in retaining the deleterious elements, altogether fails to secure that degree of purity which will allow of its being discharged into rivers, from whence may be taken water for drinking purposes, though the operation may serve to clarify and improve its character sufficiently to allow of its being utilised in rivers for navigation, and for many other riparian uses.

2d, That land artificially drained to a depth of a few feet affords, if irrigated, only an imperfect means, in conjunction with vegetation, of separating from sewage its objectionable elements.

3d, That where sewage can be lifted to high and fertile grounds with a free and porous subsoil, which will admit of its penetration to a considerable depth after it has fed vegetation on the surface, a perfect means of purification may be attained.

With these conclusions as to the utilisation of sewage, and the steps to be taken to exclude it from rivers when in an objectionable condition, we have to consider how far they will be acted upon or enforced by the Board of Conservators, under whose care the Thames and its tributaries are now placed; and in my remaining observations I shall content myself by bringing before you the position and duties of the Conservators of the Thames in relation to water supply, and the powers they possess of securing to the five water companies, with whom Parliament has associated them, water of unobjectionable quality.

[This subject is of comparatively insignificant agricultural interest, and we do not, therefore, continue the report. We extract also only such portions of the discussion as are interesting to the agricultural reader.]

The Rev. J. CLUTTERBUCK thought it was quite useless to make any calculations in reference to water supply founded on the average rainfalls, as the minimum only ought to be taken; and he also objected to the average which had been taken by Mr. Bailey Denton, as deduced from the observations at Greenwich. He most emphatically denied that the rainfall had decreased during the last 50 years; observations of his own for 16 years, and of others on whom he could rely for 29 years, showed rather an increase than the reverse. This seemed a principal point in the paper, and he therefore wished to remove what seemed a false assumption, which might unnecessarily frighten people. Nor did he think that anything which could be done in the way of cultivation of land, draining, or cutting down timber, would in the least appreciable degree affect the rainfall, which was due to the Atlantic and Northern Oceans. The storage of water in the Upper Thames might be very easily accomplished, as there was great power of storage in the river itself. If any one could see the miserable ruined inheritance on which the Thames Conservancy had entered, they would know that a great deal more money must be spent before the river could be restored to its proper condition, and one very great point gained would be the saving of the water by improvement in the navigation. With a little patience he believed they would see that they need not go elsewhere for water, but that Old Father Thames would be true to his great mission, and give them a good and abundant supply.

Mr. R. RAWLINSON, C.B., said he had listened with considerable pleasure and interest to Mr. Clutterbuck's remarks. The amount of rainfall was dependent upon causes of so vast a character, that he was perfectly satisfied that anything man could do would only modify it to an infinitesimal extent. Cultivation, clearing of land, and draining, would have but a very fractional influence on the fall of rain. Averages for even 50 years were not to be relied upon, but whether the rainfall had decreased or not they might take it for granted that nothing they could do would influence it either for good or evil. It appeared, moreover, that out of an average of 25 inches of rain, taking that as the datum, four-fifths of the entire volume could not be accounted for by measurement in any way, and they could only come to the conclusion that 20 inches out of the 25 passed again into the atmosphere. That result was so startling that he himself was sceptical at first until he had thoroughly investigated it. With regard to the application of sewage, that also was a speciality of Mr. Denton's, but he thought a little further inquiry would teach him that sewage was clarified by a proper application to clay land, even if not underdrained, which Mr. Denton stipulated for. He (Mr. Rawlinson) by no means said the land should not be underdrained, but he could assure Mr. Denton that some persons, practically acquainted with sewage irrigation, would prefer, from their experience, to irrigate clay-lands without underdraining, if Italian Rye-grass, which was the most profitable crop, were to be sown. In this Grass the roots were near the surface, and the silica of the clay combined with the sewage and tended to precipitate it. Experience showed that when such irrigation was judiciously carried on, although the process of assimilation did not proceed equally at all times, there was not a day in the year, winter or summer, when you could not beneficially place sewage on the land, and when that sewage would not come clarified from that land. That had been proved, and it was a very important fact. He sincerely hoped that Parliament would follow the advice given in the paper, and make sewage irrigation imperative on all towns which now tainted rivers with it, for it never would be done until the law was stringently applied.

Professor VOELCKER said he understood Mr. Denton to say that there were great difficulties in the way of sewage water that passed over land being perfectly purified. There was no doubt some truth in this statement, but if sewage farms were really properly managed the purification of sewage might be rendered perfect; inasmuch, however, as there were not these model establishments, and in many cases the water simply flowed over the land, the purification was generally very imperfect. It was far more difficult to get the water through the soil than was generally believed, especially on clay lands, where it often ran through the cracks, and did not actually go through the soil at all. Where properly managed, however, sewage water, after passing through the soil, became quite fit for ordinary uses and for drinking.

Mr. BAILEY DENTON, in reply said, Mr. Rawlinson's authority stood as high as that of any man in relation to the question of irrigation by sewage, but if he had understood him aright in saying that the drainage of such land was not necessary, he must, with the greatest respect, give a contradiction to such a statement. He considered it absolutely essential.

Farm Memoranda.

DORSET FARM.—Having so recently escaped from the blighting influence of "thick ribbed ice" in the last part of the "merrie moneth of May," we may make use of our thawed faculties in looking about us in order to understand our future prospects.

The mild weather of the last week has had a decidedly beneficial effect upon the cereals, but withal Wheat is very patchy and uneven, and what we term in Dorset a suant, *i. e.*, a level unbroken piece, is rare indeed, as much was starved in the severe winter, and in spring the wire-worm was unusually busy. The early-sown crops look the best, and these are now just bursting into ear. The later frosts at first turned the blades brown, and then they got to yellow, in which state rust was pronounced to have commenced; but more genial weather seems to so far have put matters to rights in this respect, and if we have a warm dry summer we may yet hope to avert this cause of a poor yield of light-weighing Wheat, which was so heavily felt last year. Should, however, a wet cloudy summer continue, a deficient harvest under present circumstances is certified for Dorset, as well as every other district we have wandered into.

Barley has been greatly injured by frost, and much of it looks yellow and sickly. This year Pulse promises well. Peas look uncommonly well. Some of the forward Winter Beans which were in flower in the May frosts have suffered somewhat in the bloom, otherwise we never saw them looking so well, and they will be unusually early. Spring Beans are very promising. The early sown has suffered most, as in cold spots a great part of it has perished.

Potatos were utterly scalded down to the soil, but with fine weather we hope that much apparent mischief will be righted, as the injured ones are rapidly breaking into new leaves. At the same time it is but reasonable to expect that such severe treatment will have the effect of shortening the crop.

There will be but a short crop of hay in the west, as the Grass was most severely checked by the frost, and so short was the crop of last year, and so fully used up on account of the long winter, that a great proportion of meadow and artificial pasture was obliged to be fed off early both by sheep and cattle.

The late showers are of value in bringing up and securing from the fly this year's crop of roots, so that come what may there seems every probability of plenty of Mangels and Swedes for the winter supply of stock. The mortality in wether lambs, from the operation of cutting, has been very considerable in the west, both Downs and Dorsets suffering greatly. *B.*

Miscellaneous.

Employment of Children in Fields.—Earl Shaftesbury's Bill on this subject, not yet introduced, has been thus described by himself in a letter to the secretary of the Midland Farmers' Club:—

"May 8, 1867.

"Sir,—The Agricultural Bill is not yet drawn. The main points are as follow.—No child under eight years of age to be employed for hire in field labour. No girl at and under 18 years of age to be permitted to work in gangs. No girls under 13 years of age to work for hire in field labour. Exceptions would be allowed for times of harvest. All between ages of eight and 13, when working for hire, to attend school either on the half-time, the alternate-day system, or that under the Print-works Acts, according to the convenience of the locality. Under the Print-works Acts the children have to produce a certificate before employment that they have attended school for so many hours during a preceding interval. These intervals, and the number of hours of attendance in each, would be regulated in agricultural districts according to seasons, it being provided that a certain number of hours are required for the whole year.—Your obedient servant, "SHAFTESBURY.

"Mr. John B. Lythall."

Agricultural Co-operation: Proposal for an Agricultural and Horticultural Mutual Supply Association.—There is a wider and deeper commercial gulf between the farming classes and the industries which supply them with what they require than there is between any two classes in the country having the same relationship to each other. The loss arising from this separation falls almost entirely upon the farmers. A manufacturer of agricultural machinery cannot as a rule turn over his capital more than once in a year—must spend unusually heavy sums upon travelling expenses and advertising, and is compelled to allow enormous discounts and commissions to agents who can bring him into contact with his customers. All this results from the commercial distance between the producer and his market. Adulterations of seeds and manures are carried out with a recklessness which proves how feeble is the connecting link between seller and buyer, improvements are slowly and painfully made known and agricultural engineers are thereby discouraged from introducing new implements, or making alterations in the old ones. There is, too, an utter absence of taste in the design of articles made for the agricultural community. It will not "pay" to introduce graceful ideas into farm requisites. Skilful architects, contractors, &c., fight shy of a farming market, and, in short, there is less competition for the custom of the agricultural community than there is for the custom of commercial classes which can be reached with less difficulty. I was recently staying with Mr. —— (the co-operator), of ——, Notts. I found he had just bought 2000*l.* worth of machinery for his new farm, and I know the agents' profits on that order would not have been less than 300*l.* (15 per cent.) We are all agreeably astonished at the large profits made by the co-operative stores; but there is no trade that leaves so large a margin of certain profit for a co-operative association to work upon as the trade in agricultural implements' seeds, manures, and farm requisites. The association is formed with small shares of 1*l.* each, so that every tenant farmer can join and just invest as many "pounds" as he thinks proper. All the shares will be paid up, so as to leave no liability upon them, and to make them as marketable a property as possible. Seven-and-a-half per cent. per annum will be divided on these shares as a first charge out of the profits, and this will, no doubt, suffice to tempt farmers to leave their spare capital in sufficient amount with the association. The rest of the profits will be divided amongst purchasers, being shareholders, in proportion to the profits realised on the business they have done with the association. *E. O. G., in The Industrial Partnerships' Record for April.*

Winter Management of Farm Horses.—Although the days are comparatively short during winter, yet the work which falls to be performed by the horses on the farm is by no means of a light description, and as the days lengthen out, the work, as a matter of course, becomes heavier, because it is of longer continuance. It is essential, therefore, that horses be kept in a condition rather over than under their work; and we must bear in mind that once horses have been "let down" in condition, it is difficult to bring them up to the mark again. Hay and Oats must always form the main staple of the food of farm horses; but the farmer may be assisted by good fresh Oat straw, at least to some extent, while there are other articles capable of being used as food which help to restrict the consumption of the latter. Oat straw must be sound and fresh if given to horses; and it is advisable to chaff both it and hay, and also to crush the Oats. Chaff cutters and corn bruisers—the latter in the absence of a convenient corn mill—are most valuable machines where horses are kept, much more so than many farmers appear to imagine. It is, perhaps, a little troublesome at first to get horses accustomed to long hay to use it in the chaffed state, and "trouble," as we well know, has led to the neglect of many useful things besides chaff cutters. Extra trouble is what too many farm servants mortally hate, and they will try every dodge to get a machine condemned which involves even a small share of it. But it should not be forgotten that the value of chaff cutters has been well proved, and that all who have continued to use them, and to combine crushing the Oats along with chaffing the hay, have found it decidedly beneficial and economical. A full allowance of Oats, when Oats and hay alone are used, varies from 12 lb. to 14 lb. daily, and when the work is more than usually heavy, even 16 lb. are given, divided, of course, into at least three feeds. We have always acted on the principle of frequent feeding, "little and often;" that is, as often as the arrangement of the work would allow; and we have done so because we consider it highly dangerous to allow a horse to eat a large quantity of Oats greedily, which he will certainly do if kept long at work without feeding. Long fasts, followed by heavy feeds, is a sure way to bring on colic and inflammation of the bowels, which may be entirely prevented by an opposite system of management. At one time a valuable cart horse came into our hands, which was notorious for his liability to severe fits of colic. He had been chiefly employed on the road, and the man who drove him was in the habit of working him for many hours without feeding, giving him a feed early in the morning and another at night when he came to the stable. By adopting the plan of "little and often" the horse was perfectly cured of his tendency to colic, and we never had any trouble with him on that score. Some disapprove of giving cooked food to farm horses, but our experience has long since convinced us that it is not only a useful auxiliary in the dietary of the stable, but even an indispensable article. During summer and autumn horses are chiefly, we may say wholly, fed on green food, and a sudden change to dry hay is not advisable. The plan adopted by many experienced farmers is to give each horse 6 lb. of bruised Oats at 5 o'clock in the morning, and a similar quantity at noon, with 47 lb. of steamed food at half-past seven in the evening. To make 47 lb. of steamed food requires almost 62 lb. of raw Turnips and Potatos, along with about 1½ lb. of Wheat chaff. For the latter we have substituted chaffed hay, and in each feed—that is, 46 lb. of steamed food—3 to 4 oz. of salt should be mixed. Swedes and Potatos are the best materials to make up the bulk of the steamed food, and these articles are better when mixed together than when used alone. Even should Potatos be diseased, they can be used in this way, provided they are firm and not rotten. The husks of Oats, or meal seeds, as these are called, should be studiously avoided, and other mill refuse which is occasionally mixed up with the food of horses, as the use of such leads to the formation of those balls which are sometimes found of large size in the stomach. There is one article which is very common in the north of Ireland, as well as elsewhere, the value of which as part of the winter food of horses does not appear to be sufficiently understood. We allude to whins, the young shoots of which, when properly prepared, become an excellent and particularly wholesome article of food for horses and cows. When prepared by an efficient bruising machine, 14 lb. of whins are sufficient to make a feed at night for a horse; but if the whins have been run through a chaff cutter, which is a common mode of preparation in some parts, it will take four times that quantity, owing to the greater waste. By using whins we save hay, for it has been found that horses do very well upon whins without any hay. Whenever we see the horses on a farm in poor condition, while there are plenty of whins growing on the fences, we experience a feeling of regret that their owner should think so lightly of an article which is of the greatest value to him, and ready at his hand. Whins are now extensively grown in some parts of Ireland for the express purpose of feeding horses and cows during winter, and we should be glad to see their

value better appreciated in the north. *Journal of Chemico-Agricultural Society.*

Fox-Hunting Battues.—Sir Kirkby Killemsitting—the gentleman to whom the sporting world is indebted for this most decided improvement in the noble art—has long advocated that the Battue system, which has been found to work so well and to afford so much more sport than the old-fashioned mode of shooting practised by our grandfathers, might with equal propriety and advantage be introduced as regards hunting, more particularly as he has of late remarked a growing distaste on the part of our aristocratic youths for the drudgery of the hunting field, such as drawing covers blank, riding to and from meets, &c., besides the dangers which the ordinary mode of hunting entails. Keeping this in view, the noble baronet last year gave orders to have his extensive park laid out as a fox-hunting preserve; and, considering the head of game shown at the inaugural meet, which took place on the first of April, it may be pronounced an unparalleled success. The line of run, which is enclosed by rails and wire-netting, is incomparably superior to any met with in the old cross country style; while the foxes, from being hand-fed, do not go at that unenviable pace so fatal to many of our hunting swells. *North British Agriculturist.*

Notices to Correspondents.

GRASS: *A Young Agriculturist.* We recommend sowing Rape and feeding off, and then putting in seeds and Barley next spring.

IMPORTS IN THE FOUR MONTHS ENDED APRIL 30, 1866, AND 1867: *R.*

Articles.		Quantities Imported. 1866.	1867.
I. *Articles Free of Duty.*			
Animals, living—Oxen, Bulls, and Cows	No.	42,301	43,125
Calves		6,190	5,582
Sheep and Lambs		244,792	161,523
Swine and Hogs		20,082	9,431
Bones burnt or not, or as animal charcoal	tons	19,063	19,962
Flax (dressed and undressed), and Tow or Codilla of Flax—From Russia		76,996	118,397
Holland		32,438	43,193
Belgium		59,675	74,312
Other Countries		41,459	56,397
Guano	tons	42,498	22,314
Hemp (dressed and undressed) and Tow or Codilla of Hemp—From Russia	cwt.	960	7,968
Venetia		83,525	33,987
Illyria, Croatia, and Dalmatia			10,678
British India		6,477	2,878
Philippine Islands		16,589	18,147
Other Countries		9,971	12,667
Hides, untanned—Dry—From British India		34,196	44,891
Other Countries	cwt.	21,079	15,499
Wet—From Argentine Confederation and Uruguay		21,666	12,642
Brazil		11,988	2,936
Australia		26,887	25,382
Other Countries		66,540	21,790
Tanned, Tawed, Curried, or Dressed (except Russia)	lb.	2,249,673	2,110,360
Hops	cwt.	13,617	20,041
Oil Seed Cakes	tons	29,353	39,945
Potatos	cwt.	129,745	255,794
Provisions—Bacon and Hams		225,856	135,499
Beef, salt		72,567	59,427
Pork, salt		80,662	42,370
Butter		270,945	306,360
Cheese		127,305	176,814
Eggs	No.	140,188,560	142,220,760
Lard	cwt.	106,406	54,659
Saltpetre		54,223	29,668
Cubic Nitre		414,804	301,550
Seeds—Cotton	tons	36,129	30,700
Clover		157,482	73,512
Flaxseed and Linseed—From Russia Northern Ports	qrs.	33,540	51,389
Ports in the Black Sea		83,054	91,073
British East Indies		107,673	83,959
Other Countries		59,285	57,961
Rape		112,022	128,204
Tallow—From Russia	cwt.	81,286	38,060
Australia		11,626	6,170
South America		35,074	14,455
Other Countries		54,020	28,239
Wool, Sheep and Lambs'—From Hanse Towns and other parts of Europe	lb.	7,830,229	3,743,473
British Possessions in South Africa		5,339,209	7,959,607
British India		2,516,552	2,421,598
Australia		21,934,222	32,708,929
Other Countries		4,335,563	7,840,007
Alpaca and the Llama Tribe		829,328	855,038
Yeast, dried	cwt.	32,107	37,007
II. *Articles Subject to Duty.*			
Corn*—Wheat—From Russia	cwt.	3,092,245	4,100,404
Denmark		55,578	222,582
Prussia		409,222	1,581,281
Schleswig, Holstein, and Lauenburg		39,520	57,608
Mecklenburg		82,827	262,388
Hanse Towns		87,425	276,042
France		1,740,207	259,011
Turkey and Wallachia and Moldavia		218,788	912,996
Egypt			12,988
United States		303,084	680,361
British North America		8,789	87
Other Countries		1,145,723	926,122
Barley		2,608,425	2,725,840
Oats		1,757,571	2,411,698
Peas		209,867	385,423
Beans		119,635	650,611
Indian Corn, or Maize		4,074,576	2,288,404
Wheatmeal and Flour—From Hanse Towns	cwt.	78,127	178,208
France		2,011,452	437,332
United States		162,412	78,474
British North America		6,043	6,582
Other Countries		86,374	429,867
Indian Corn Meal		7,072	2,135

* All kinds of imported Corn and Grain (malt excepted) have been entered at the Custom House, and charged with duty by weight instead of measure, since September, 1864.

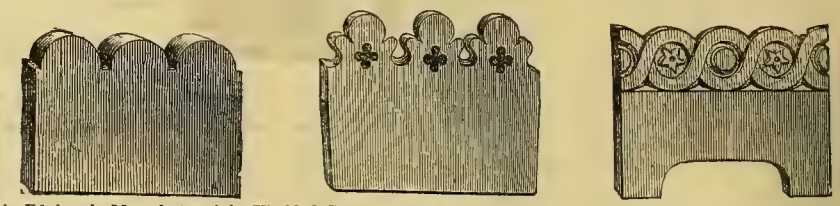
TERRA COTTA AND STONEWARE GARDEN EDGING,

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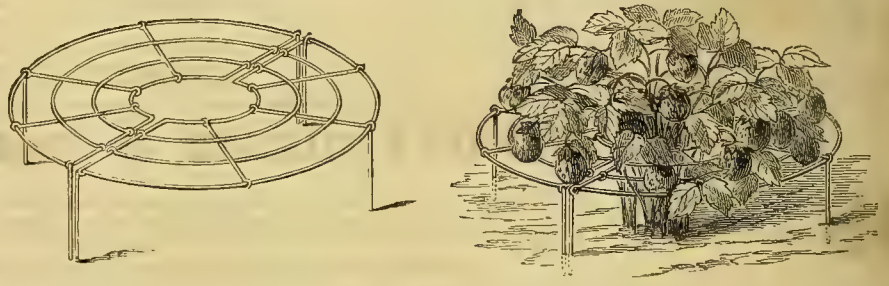
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This Edging is Manufactured in Vitrified Stoneware and in Terra Cotta, and is WARRANTED IMPERISHABLE.
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PAXTON'S STRAWBERRY CRINOLINE.



The STRAWBERRY CRINOLINE is in the form of a table, made in halves, so as to be used without disturbing the plant. It is 16 inches in diameter, and stands 4 inches above the ground, Galvanised. Its use is to preserve Strawberries from slugs, contact with the soil, superfluous moisture, and other nuisances. They are considered to last 10 years at least with care.

Price per Gross, £4.

The contrivance is by the late Sir Joseph Paxton, who, after testing them for one season in his own Gardens, Rock Hills, gave his approval of their usefulness. The right to Manufacture them was transferred to

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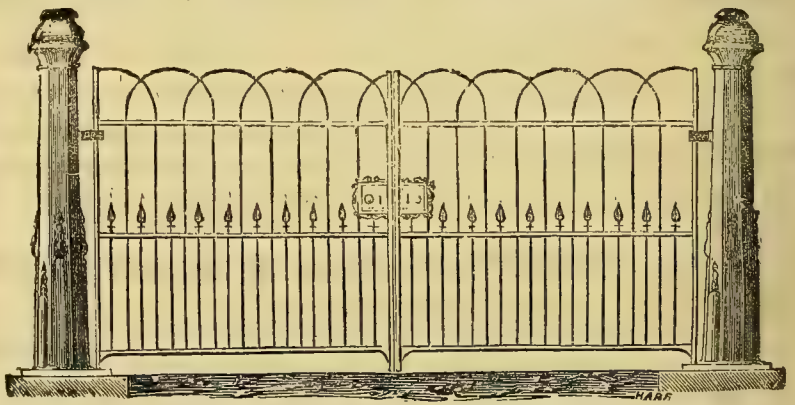
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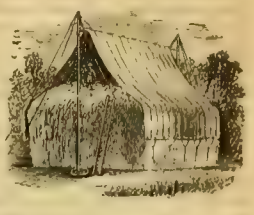
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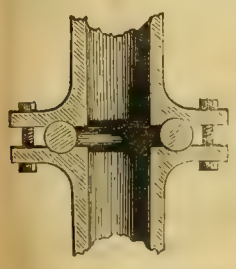


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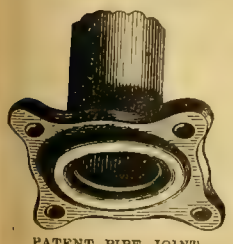


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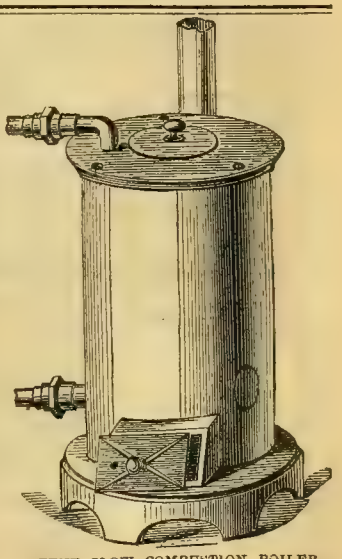
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13 „ 11	14 „ 11	..	..			
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Per 100 feet.

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11½ by 9½	12 by 10	14 by 10	14 by 11		

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16 by 10	14½ by 12½	17 by 13	24 by 16						
14½ by 11½	15 by 12	23 by 13	20 by 17						
15 by 11	15½ by 12½	18 by 14	22 by 17			14s 3d	15s 6d	18s 6d	20s 0d
15½ by 11½	16 by 12	22 by 14	24 by 17						
16 by 11	16½ by 12½	24 by 14	20 by 18						
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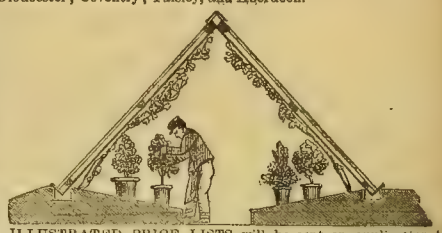
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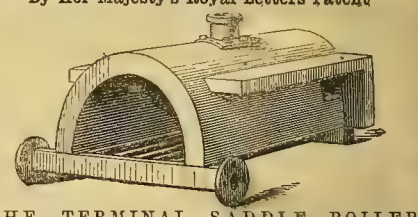
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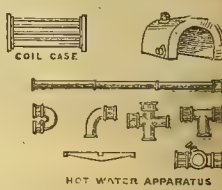
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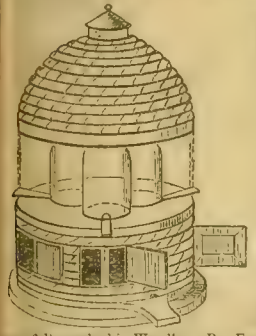
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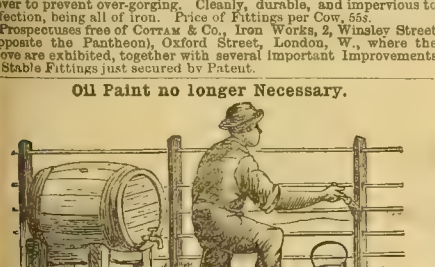
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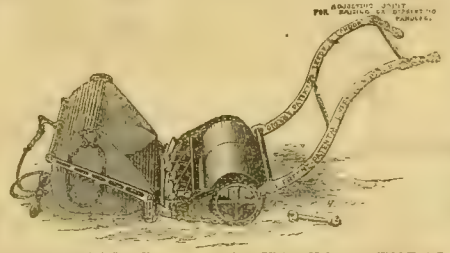
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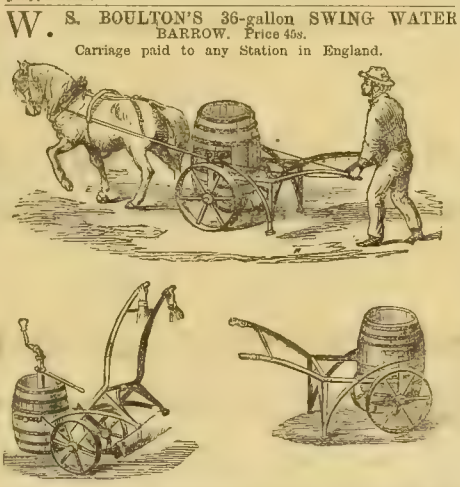
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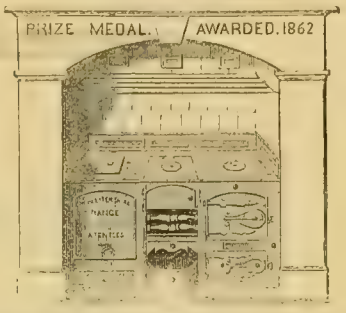
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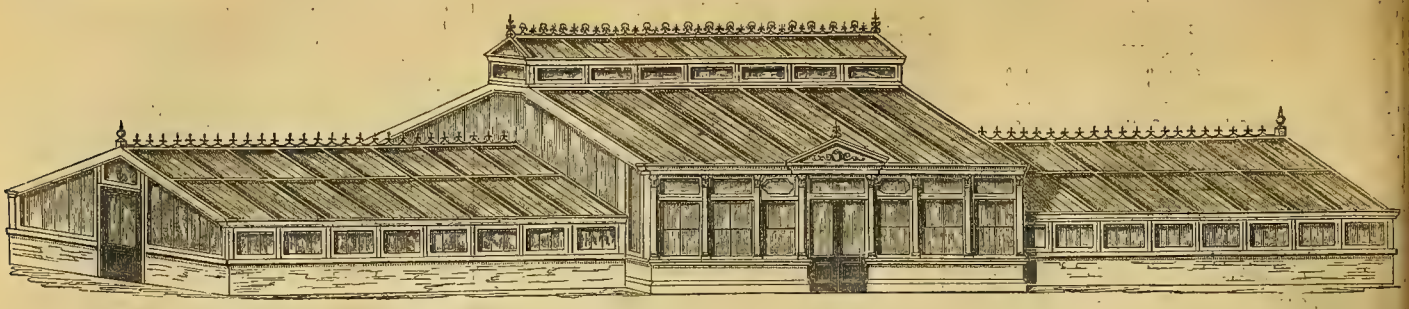
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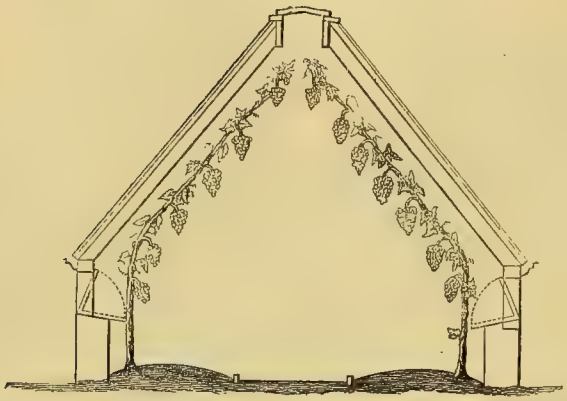
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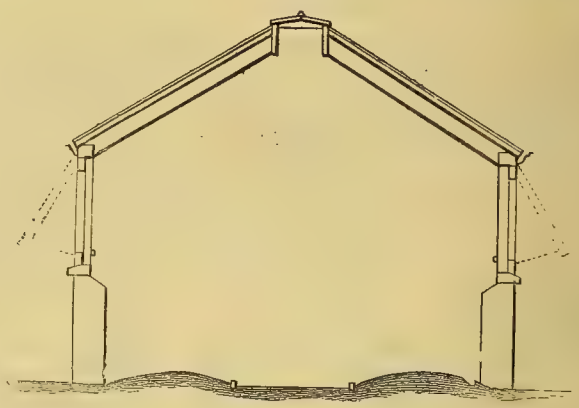


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Editorial Communications should be addressed to "The Editor;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
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THE GARDENERS' CHRONICLE

AND

AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.

No. 25.—1867.] SATURDAY, JUNE 22. {Price Fivepence. {Stamped Edition, 6d.

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ROYAL HORTICULTURAL SOCIETY, SOUTH KENSINGTON, W.

The GREAT ROSE SHOW will be HELD on TUESDAY, July 2. Band of the Scots Fusilier Guards from 4 o'Clock. Admission by Tickets purchased before the 2d, Fellows' Friends, 3s. 6d.; Public, 5s.; or on the day, 7s. 6d.

THE GREAT ROSE SHOW.—Tickets can be bought at Mitchell's; Lacon's; Ollivier's, Bond Street; Westerton's, Knightsbridge; Mellership, Westbourne Grove; or Keith Prowse, Cheapside.

ROYAL HORTICULTURAL SOCIETY. FIRST VISIT TO THE PROVINCES.

The GRAND EXHIBITION of PLANTS and FRUITS will OPEN on TUESDAY, July 16, in the VINE YARD, BURY St. EDMUND'S, in close proximity to the Royal Agricultural Show. Nearly One Thousand Pounds Prizes in Money and Cups will be offered for Competition. Tickets are now ready, and can be had either in London or Bury; for the 1st day (if purchased on or before the 15th), 5s.; 2d day, 2s. 6d.; or to admit for the four days, not transferable, 7s. 6d. each; or by Payment at the Gates—1st day, 7s. 6d.; 2d day, 3s. 6d.; 3d and 4th days, 1s. each. Band of the Royal Horse Guards daily from 2 to 6.

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Admission, Five Shillings; or by Half-crown Tickets if purchased beforehand. Guinea Season Tickets Free.

ROYAL PAVILION, BRIGHTON.—ANNUAL GRAND HORTICULTURAL and FLORICULTURAL SHOW, June 26 and 27, will be HELD in the splendid suite of Rooms and Eastern Lawn. Schedules of E. Spary, Queen's Gardeners; or the Secretary, 96, St. James's Street, Brighton.

June 14. Edward Carpenter, Secretary.

BIRMINGHAM ROSE SHOW, JULY 4 and 5.—For Prize Lists, apply to Mr. A. Forrest, Secretary, Cherry Street, Birmingham. Entries Close June 29.

WEST of ENGLAND ROSE SHOW, to be held at the SHIRE HALL, HEREFORD, JULY 9. Over 100 Guineas distributed in Prizes. Exhibitors are particularly requested to notice that ENTRIES CLOSE JUNE 29.

All Communications to be addressed to Rev. C. H. Bulmer, Honorary Secretary, Credenhill Rectory, near Hereford.

LEICESTERSHIRE FLORAL and HORTICULTURAL SOCIETY.

President—Right Hon. Earl Howe.

The GREAT SUMMER ROSE SHOW of this Society will be held on the Leicester Race Course, on TUESDAY and WEDNESDAY, July 9 and 10. A SHOW of BRITISH and FOREIGN BIRDS and PIGEONS will be held in conjunction with the above Show. For Schedules and further particulars apply to

Market Place, Leicester. William Penn Cox, Secretary.

Royal Botanic Gardens, Regent's Park.

JOHN WATERER'S display of Hardy, Scarlet, and other RHODODENDRONS (the only one in London) is NOW in FINE BLOOM at the above Gardens, and will continue in great perfection throughout the month of June.

☞ The Scarlet and White RHODODENDRON clumps, also the large Single Plants, which bloomed and were so much admired at Rotten Row last year, were supplied by

John Waterer, American Nursery, Bagshot, Surrey.

Retinospora filifera.

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Royal Nursery, Ascot.

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ECKFORD'S SIX NEW VERBENAS of 1867 for 4s.

Post Office Orders accompanying orders payable at Boston Spa.

J. C. Padman, Providence Nursery, Boston Spa, Yorkshire.

Genista præcox.

GEO. WHEELER, Nurseryman, &c., Warminster, Wilts, is prepared to send out good established young Plants of the above, now growing in pots in the open ground, at 5s. each, the usual allowance to the Trade when six or more are ordered. This new, very hardy, showy, pea-flowered shrub will be found an acquisition to any collection of shrubs. The flowers are of a light lemon colour on opening, and become paler when fully bloomed. The original plant was in full bloom on the 1st of May, having withstood the past severe winter in a very cold exposed site, sloping to the north, without the slightest protection, not losing a twig or flower bud. It is well suited for the rockery, border, or lawn.

A Photograph taken the 1st of May, from the original Plant, which is 6 feet in diameter by 4 in height, showing its graceful and drooping habit and profusion of bloom, may be had for 12 stamps.

Calceolaria, Cineraria, Primula fimbriata.

SUTTON and SONS can supply NEW SEED of the above, saved from choicest flowers, in packets, 1s., 2s. 6d., and 5s. each, post free.

Royal Berks Seed Establishment, Reading.

DOBSON'S STRAIN of PRIZE CALCEOLARIA, CINERARIA, and PRIMULA, the finest in Cultivation.

☞ **For Present Sowing.**

DOBSON'S INTERNATIONAL, ROYAL HORTICULTURAL, ROYAL BOTANIC, CRYSTAL PALACE, and KINGSTON PRIZE and UNEQUALLED HYBRIDISED CALCEOLARIA now ready, in Sealed Packets, with full Directions for Sowing and Growing, 1s. 6d., 2s. 6d., 3s. 6d., and 5s.

Dobson & Sons, Seedsmen, Isleworth, London, W.

Prize Cineraria Seed.

DOBSON'S UNEQUALLED STRAIN, which has taken 50 First Prizes in six years, is now ready for sending out. Fine new seed, in 1s., 2s. 6d., and 5s. packets.

Dobson & Sons, Seedsmen, Isleworth, London, W.

Extra Fine Fringed Primulas.

DOBSON'S CELEBRATED STRAIN, that has stood a ten years' test, is now ready for sending out in 1s., 2s. 6d., and 5s. packets. The quality may be depended upon.

Dobson & Sons, Seedsmen, Isleworth, London, W.

Lilium auratum.

CHARLES TURNER has strong Plants in Flower and in Bud, which he offers from 3s. 6d. to 15s.

The Royal Nurseries, Slough.

LILIUM AURATUM.—Large Consignment just received, 2s. 6d., 3s. 6d., 5s. 6d., and 7s. 6d. per Root. Extra large selected Bulbs, 10s. 6d., 12s. 6d., 15s., & 21s.

Barr & Sugden, Seed, Bulb, and Plant Merchants, 12, King Street, Covent Garden, W.C.

To the Trade.

ARCHIBALD HENDERSON has a fine lot of SOLANUMS, of sorts, so beautiful for decorative purposes at Christmas time. Prices on application per 100 or 1000.

Sion Nursery, Thornton Heath; and at the East College Grounds, North End, Croydon.

Novelties.

WM. PAUL (Son and Successor to the late A. Paul) respectfully solicits Orders for the NEW and FIRST-CLASS ROSES and BEDDING GERANIUMS, &c., advertised at length in this Paper in May last.

Paul's Nurseries, Waltham Cross, London, N.

MRS. POLLOCK GERANIUMS, 7s. and 9s. per doz. VERBENAS, GERANIUMS, CALCEOLARIAS UCHSIAS, LOBELIAS, &c., £1 per 100; 50 for 10s. 6d.

DESCRIPTIVE PRICED CATALOGUE free on application.

W. Hooper, New Wandsworth, S.W.

THIRTEEN SUPERB TRICOLOR GERANIUMS for 30s., or 13 STRONG CUTTINGS for 13s. Sorts and price of new ones for 1866 on application.

MRS. POLLOCK, 9s. per doz. | ITALIA UNITA, 16s. per doz.
MRS. BENYON, 16s. per doz. | GOLD PHEASANT, 14s. per doz.

G. Walkling, Seedsman, Florist, and Cucumber Grower, North Row, Lewisham, S.E.

TRICOLOR and QUADRICOLOR GERANIUMS.

MRS. POLLOCK, 6s. to 12s. p. doz. | SUNSET, 15s. to 18s. per dozen
ITALIA UNITA, 18s. to 30s. do. | QUADRICOLOR, 12s. to 18s. do.

Cheaper per 100.

James Dickson & Sons offer several thousands of the above; also a few extra sized Plants.

Newton Nurseries, Chester.

SUPERB VARIEGATED GERANIUMS.

BEAUTY of OULTON	GENERAL LONGSTREET
PRINCESS ALEXANDRA	ITALIA UNITA
BICOLOR SPLENDENS	MRS. LONGFIELD
GOLD PHEASANT	YELLOW BELT
GLOWWORM	MRS. BENYON
LUNA	SILVER STAR

Strong plants of the above set, 15s. Package included.

Casson & Son, Gravel Walk Nursery, Peterborough.

CHOICE VARIEGATED GERANIUMS.—The following 12 distinct Varieties, in good strong Plants, will be sent on receipt of Post-office Order for 12s.

LUNA	ITALIA UNITA
SUNSET	QUEEN of QUEENS
MRS. BENYON	QUADRICOLOR VARIEGATA
VIRGIN QUEEN	YELLOW BELT
STELLA VARIEGATA	MISS KINGSBURY
MRS. POLLOCK	BIRD of PARADISE

Saltmarsh & Son, Moulsham Nurseries, Chelmsford.

New Zealand Nursery, St. Alban's, Herts.

INTENDING PURCHASERS of TRICOLOR PELARGONIUMS will do well to see J. Watson's beautiful Tricolors MISS WATSON and MRS. DIX, previous to making their purchases. For fine foliage, excellent constitution, free growth, and brilliancy of colouring they are unrivalled. They have received two First-class Certificates. Plants of Miss Watson in August, £2 2s. each; Mrs. Dix in May, 1868, 31s. 6d. each.

WILLIAMS' SUPERB STRAIN of PRIMULA. See large Advertisement.

PRIMULA SINENSIS FIMBRIATA.—A most superb strain, and cannot be surpassed, 6 varieties, mixed, 1s. 6d. & 2s. 6d. per packet. CALCEOLARIA and CINERARIA, extra, 1s. & 2s. 6d.

J. Scott, The Seed Stores, Yeovil, Somerset.

Russell's Pyramid Primula.

The Finest Strain in Existence.

GEORGE CLARKE has New SEED of the above unequalled varieties, 2s. 6d. per packet; also the Fern-leaved kinds, 2s. 6d.; Kermesina (scarlet), 2s. 6d.; The Fairy (a lavender colour) 1s. All of the best quality. Now is the time to sow for strong early plants.

Nursery, Streatham Place, Brixton Hill, S.; and Mottingham, Kent, S.E.

Choice Seeds.

WM. CUTBUSH and SON strongly recommend the following:—

PRIMULA SINENSIS FIMBRIATA, of the finest possible strain, Red, White, or Mixed, 2s. 6d., 3s., and 5s. per packet.
CALCEOLARIA, saved from James' choice strain, very fine, 2s. 6d., 3s. 6d., and 5s. per packet.
CINERARIA, from named flowers, 2s. 6d., 3s. 6d., and 5s. per packet.

For other Choice Seeds see CATALOGUE, post free.

Highgate Nurseries, London, N.

Woodlands Nursery, Maresfield, near Uckfield, Sussex.

THE COLLECTION of ROSES at Woodlands, extending over an area of several acres of land, is NOW COMING INTO FINE BLOOM.

Wm. Wood & Son

NEW ROSES for 1867.—Strong Plants of all the best NEW ROSES now ready.

DESCRIPTIVE LIST, with prices, on application.

John Cranston, King's Acre Nurseries, near Hereford.

CULTURAL DIRECTIONS for the ROSE. Second Edition. By John Cranston, King's Acre Nurseries near Hereford. Free by post from the Author for 20 stamps.

Roses.

JOHN CRANSTON has the pleasure to announce that his ROSES are NOW in FULL BLOOM, and that the whole of his stock is in the finest condition possible.

The severe frosts (which proved so destructive in many parts of England throughout last winter) not having visited this locality, he is happy to say that his Roses, Conifers, and other Trees, escaped entirely unharmed.

Nurseries, King's Acre, near Hereford.

SPLENDID NEW ROSE, 1867.—COMTESSE JAUCOURT (Hybrid Perpetual) is not only the finest New Rose of this season, but it excels anything that has been introduced for several years. The flowers are large and very full; of exquisite form, imbricated, and expand perfectly. Colour, superb fleshy rose, and very distinct; habit vigorous.

John & Charles Lee are now prepared to send out strong Plants of this fine variety, at 7s. 6d. each. They also offer other fine varieties of this season at 3s. 6d. to 5s. each.

Royal Vineyard Nursery and Seed Establishment, Hammersmith, London, W.

Vines, Extra Strong from Eyes.

JOHN KELLEIT begs to announce that he has a large and fine stock of all the leading sorts fit for immediate Planting. Also all the best varieties of ROSES, in Pots.

Wellington Nursery, Heaton Chapel; and Green Lane Nurseries, Heaton Norris, Stockport.

Orchard-house Trees Fruiting in Pots.

PEACHES, NECTARINES, APRICOTS, CHERRIES, PLUMS, PEARS, APPLES, VINES, and FIGS.

Richard Smith, Nurseryman and Seed Merchant, Worcester.

Highly Cultivated and Regularly Transplanted Nursery Stock.

EIGHTY ACRES of the above, consisting chiefly of FRUIT TREES, ROSES, EVERGREENS, and ORNAMENTAL TREES, which for general excellence are unsurpassed.

Thomas Warner, Leicester Abbey Nurseries.

FERNS.—Cultivators and those interested in this beautiful class of Plants, are recommended to obtain "HOOPER and CO.'S CATALOGUE" of every estimable species and variety, British and Exotic. Post free for two stamps.

Hooper & Co., Covent Garden, London, W.C.

British Fern Catalogue.

ROBERT SIM can now send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his NEW and PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.

Foot's Cray Nursery, S.E., a mile from Sidcup Station of New North Kent Line of South Eastern Railway.

GLADIOLI BULBS, for Summer, Autumn, and Winter Flowering, 2s. 6d., 3s. 6d., 5s. 6d., 7s. 6d., 9s., and 12s. per dozen. 10s. 6d., 15s., 21s., 26s. to 100s. per 100.

Barr & Sugden, Seed, Bulb, and Plant Merchants, 12, King Street, Covent Garden, W.C.

EVERY GARDEN REQUISITE kept in Stock at Carter's New Seed Warehouse, 237 & 238, High Holborn, London.

Genuine Garden and Agricultural Seeds.

JAMES CARTER and CO., Seed Farmers, Merchants, and Nurserymen, 237 & 238, High Holborn, London, W.C.

Agricultural and Garden Seeds.

H. and F. SHARPE'S WHOLESALE SPRING PRICED LIST of the above Seeds of 1866 growth is now ready and may be had on application.

Seed Growing Establishment, Wisbech.

Garden and Farm Seeds direct from the Growers.

CHARLES SHARPE and CO. beg to inform the Trade that their WHOLESALE SEED LIST is now ready, and will be forwarded post free on application.

Seed Warehouse, Sleaford.

RAYNBIRD, CALDECOTT, BAWTREE, DOWLING, and COMPANY, Limited, Corn, Seed, Manure, and Oilcake Merchants, Address, 89, Seed Market, Mark Lane, E.C.; or Basingstoke.

Samples and Prices post free on application. Prize Medals, 1851, for Wheat; 1862, for "Excellent Seed Corn and Seeds."

CABBAGE PLANTS. DRUMHEADS and COLLARDS, 3s. 6d. per 1000.

Apply to Mr. D. Tough, Lodge Farm, Barking.

Improvement of Grass Lands, at from 5s. to 10s. per acre.

SUTTON'S RENOVATING MIXTURE should be Sown after the Hay is carried. 6 to 12lb. per acre.

Sutton & Sons, Seed Growers, Reading.

King of Swedes.

SUTTON and SONS can supply TRUE SEED of the above excellent SWEDE at 1s. per lb., or cheaper by the bushel. Carriage free.

Royal Berkshire Seed Establishment, Reading.

The Forwardest Pea is Sutton's Ringleader.

SUTTON and SONS had the honour of introducing this unrivalled EARLY PEA in the year 1865, and after careful trials of it and all of its competitors, they have no hesitation in stating that it is still forwarder than any other Pea, excepting only Carter's First Crop, which was sent out the same season, and subsequently proved to be identical, which latter fact was unknown to either party at that time.

Although increased crops of Seed have been grown each successive season, the supply has not yet been equal to the demand, and Messrs. Sutton are again unable to execute Orders until the New Seed is ready in July.

Early orders or inquiries are therefore recommended.

Sutton & Sons, Seed Growers, Reading.

GRASS SEEDS for PERMANENT PASTURE, of the finest quality, at moderate prices, carefully selected on a new, natural, and scientific system.

See "WHEELER'S BOOK on GRASSES," which contains Illustrations and Descriptions of the most suitable Grasses for Permanent Pasture.

J. C. WHEELER & SON,
Gloucester,
Seedsmen to the Gloucestershire Agricultural Society.

Sutton's Grass Seeds for all Soils.

SUTTON AND SONS have still on hand some of each of the leading kinds of

PERMANENT NATURAL GRASSES and CLOVERS,

which are mixed expressly to suit the soils for which they are intended.

Price 26s. to 36s. per acre.
Carriage free.

SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

The Forwardest Turnip known is

SUTTON'S SHORT-TOP SIX WEEKS, price 1s. per lb.; cheaper by the bushel. This excellent Turnip, if sown in June and July, will produce a heavy Crop, to come off in time for Wheat Sowing.

SUTTON & SONS,
Royal Berkshire Seed Establishment, Reading.

SUTTON'S TURNIP SEEDS FOR PRESENT SOWING.

	Per lb.—s. d.
SUTTON'S RED PARAGON	0 10
SUTTON'S IMPERIAL GREEN GLOBE	0 10
POMERANIAN WHITE GLOBE ..	1 0
GREY STONE	0 10
SUTTON'S SHORT-TOP SIXWEEKS .	1 0

Cheaper by the Bushel.
Carriage Free.

SUTTON & SONS,
Seed Growers, Reading.

To Market Gardeners and Others.

RICHARD WALKER, MARKET GARDENER and SEED GROWER, offers the following:—
ROBINSON'S CHAMPION DRUMHEAD CABBAGE PLANTS. 2s. 6d. per 1000.
DRUMHEAD SELECTED STOCK PLANTS, 3s. per 1000.
WALCHEREN, splendid true stock, CAULIFLOWER PLANTS, 1s. per 100.
Fine SAVOY PLANTS, 6d. per 100.
Imported very fine BRUSSELS SPROUT PLANTS, 6d. per 100.
EASTHAM CABBAGE PLANTS, true, 3s. per 1000.
DICKSON'S MANCHESTER CHAMPION RED CELERY PLANTS, 1s. per 100.
INCOMPARABLE WHITE CELERY PLANTS, 1s per 100.
IVERY'S NONSUCH CELERY PLANTS, 1s. per 100, transplanted.
Terms Cash.
RICHARD WALKER, Biggleswade, Beds.

Dutch Bulbs.

A. E. BARNAART, NURSERYMAN, Vogelenzang, Haarlem, begs to inform Nurserymen and the Trade generally, that he has just published his New CATALOGUE of DUTCH BULBS for the coming season, which may be had post free on application to his Agents, Messrs. R. SILBERRAD & SON, 5, Harp Lane, Great Tower Street, London, E.C.

A. E. BARNAART having extensive Nurseries at Haarlem, Overveen, and Vogelenzang, possess unusual cultural advantages, being able to select the soil and situation most desirable for perfecting the growth of each description of Bulb.

His HYACINTHS were crowned this spring at the Paris Exposition Universelle.

THE GOLDEN-VARIEGATED WELLINGTONIA.
First-class Certificate from Royal Horticultural Society.
For Testimonials, &c., see *Gardeners' Chronicle*, October 6, 1866; *Times*, October 7, 1866; *Scottish Gardener*, November, 1866; *Gardeners' Chronicle* January 12, 1867; "Florist," February, 1867.

LAST YEAR'S PLANTS (a few remaining).
1st Size, very choice, 8 to 12 inches, £5 5s. each.
THIS YEAR'S PLANTS.
2d Size, fine, 4 to 5 inches, £2 2s.
3d Size, nice little bits, 2 to 3 inches, £1 1s.

5000 plants are now plunged out-of-doors, in their respective sizes they may be safely forwarded during the summer, if desired, and orders will be executed in strict rotation.

Chromo-lithographs of the parent tree, by Day and Son (Limited), on superior cards, 10 inches by 8 inches, very faithful in outline, but deficient in representing the glorious colour of the original. These are sent free by post for 25 stamps, and one sent to each Purchaser.

It is intended to exhibit a few of the first size at the approaching Paris and Manchester Exhibitions.

R. HARTLAND, The Lough Nurseries

DIGITALIS ALBA MACULATA SUPERBA.—We beg to call attention to this superb new variety of Foxglove, which we have this season the honour to introduce to the Public. It is much more beautiful than any variety of this showy genus that has yet come under notice; and, as it comes true from seed, will prove a great acquisition to mixed flower borders and shrubberies. The colour is pure white, heavily spotted in the throat with purple. It differs from any variety of Foxglove we know, in having much larger flowers, with heavier and brighter coloured spots, while the spikes of bloom are longer and denser than the old sorts. A number of spikes were shown at the Exhibition of the Glasgow and West of Scotland Horticultural Society in July last, when it was awarded a First-class Certificate. No hardy plant is more ornamental when planted by the sides of woodland walks, or among shrubs in the pleasure ground, than the Foxglove; and this variety will be found a highly desirable addition to already existing varieties. Should be sown in June to bloom next season. 1s. and 2s. 6d. per packet.
Price to the Trade on application.

ANTIRRHINUM, saved from splendid varieties, 6d. and 1s. per pkt. Twelve varieties, separate, of select hardy BORDER PERENNIALS, 2s. 6d. DREGHORN & AITKEN, Kilmarnock, N.B.

SOUTHERN COUNTIES AGRICULTURAL ASSOCIATION.

BRIGHTON MEETING, 1867.

SEEDSMEN BY APPOINTMENT. Sutton AND Sons

SUTTON & SONS,

SEEDSMEN TO THE QUEEN, READING, BERKS,

Inform their Patrons and the Public generally that they will have their extensive display of AGRICULTURAL, HORTICULTURAL, and FLORICULTURAL SEEDS, GRASSES, FORAGE PLANTS, and ROOTS, at the above MEETING, and invite inspection of the same, which will be found well worthy a visit.

SEEDSMEN BY APPOINTMENT. Sutton AND Sons

Orders received for SUTTON'S IMPROVED VARIETIES of SWEDES and TURNIPS for Present Sowing at very moderate prices, and the Seed will be dispatched from Reading the day after the order is given.

All Goods Carriage Free, except very small parcels.

SUTTON AND SONS, SEEDSMEN TO THE QUEEN, READING, BERKS.

FULHAM NURSERY, LONDON, S.W.

OSBORN & SONS

HAVE TO OFFER FOR SALE

A FEW PLANTS OF THE BEAUTIFUL STATICE FROSTII,

A Garden Hybrid, with elegant sinuous foliage, and flowers of a brighter blue than any other of the genus.

Price 15s. each.

ALSO THE FINE AZORIAN PORTUGAL LAUREL,

which has been uninjured by the late severe winter; 10s. 6d. each.

☞ *Both the above have received First-class Certificates.*

CATALOGUES of HARDY TREES and SHRUBS, FRUIT TREES, and HERBACEOUS PLANTS may now be had on application; and a SELECT LIST of STOVE, GREENHOUSE, and other PLANTS will shortly be ready.

NEW ORCHIDS FROM PERU AND ECUADOR.

JOHN LINDEN

OFFERS

THE FOLLOWING NEW SPECIES,

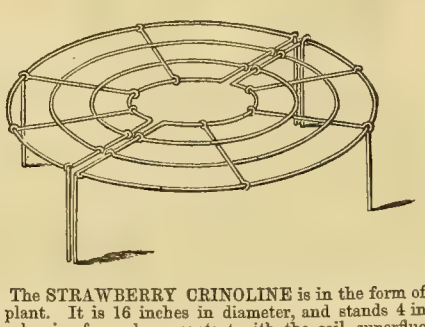
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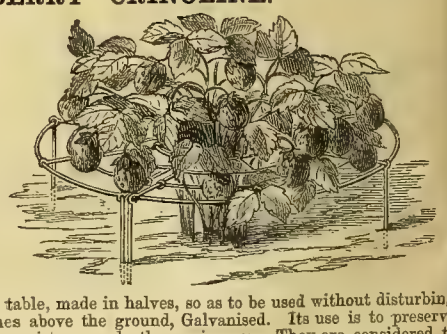
ODONTOGLOSSUM ASTRANTHUM, 31s. 6d.
" BREVIFOLIUM, 63s. to 105s.
" CRISTATUM, 42s., 210s. for six, 400s. per doz.
" CROCATUM, 42s., 210s. for six.
" HALLII, 42s. to 63s., 210s. for six.
ONCIDIUM ACINACEUM, 31s. 6d.
" AUROSUM, 18s., 180s. per dozen.
" " extra strong, 31s. 6d. to 52s. 6d.
" CUCULLATUM MACRANTHUM, 42s.
" " RACEMOSUM, 42s.
" HOLOCHRYSUM, 25s. to 42s.
" HYPHÆMATICUM, 31s. 6d., 180s. for six.
" MACRANTHUM, 63s. to 105s.
" NUBIGENUM, 31s. 6d. to 63s., 320s. per dozen.
" " LINDLEYANUM, splendid, lips and petals spotted with crimson, 63s. to 109s.
ONCIDIUM NUBIGENUM MACRANTHUM, extra large variety, and described as very fine, 63s. to 109s.
" SEMELE (Rchb.), 31s. 6d.
" SERRATUM (Diadema), 42s., 460s. per dozen.
" XANTHORNIS, 31s. 6d.
MESOSPINIDIUM SANGUINEUM, 31s. 6d., 320s. per dozen.
NANONES MEDUSÆ (Rchb.), 147s.
CATTLEYA MAXIMA VAR., with glaucous leaves, described as very fine, 42s. to 109s., 400s. per dozen.
" NOVA, from Choco, very distinct, of pseudobulbs, but described as being in the way of C. Warscewiczii, 63s. to 109s.
BURLINGTONIA (RODRIGUEZIA) BATEMANIANA, 18s., 180s. per dozen.
" " TRICOTIUM (Rchb.), quite new and very distinct, 21s. to 42s.

For other NEW and RARE ORCHIDS, see the CATALOGUE just published.

ROYAL ZOOLOGICAL and HORTICULTURAL GARDENS, BRUSSELS.

PAXTON'S STRAWBERRY CRINOLINE.





The STRAWBERRY CRINOLINE is in the form of a table, made in halves, so as to be used without disturbing the plant. It is 16 inches in diameter, and stands 4 inches above the ground, Galvanised. Its use is to preserve Strawberries from slugs, contact with the soil, superfluous moisture, and other nuisances. They are considered to last 10 years at least with care.

Price per Gross, £4.

The contrivance is by the late Sir Joseph Paxton, who, after testing them for one season in his own Gardens, Rock Hills, gave his approval of their usefulness. The right to Manufacture them was transferred to

R. HOLLIDAY, PRACTICAL WIRE WORKER, 2A, PORTOBELLO TERRACE, NOTTING HILL GATE.

ILLUSTRATED CATALOGUES OF HORTICULTURAL WIRE WORK FREE ON APPLICATION.
GARDEN ARCHES, ARCADES, VERANDAHS, ORNAMENTAL FENCING, TRELLIS WORK for CREEPERS, FLOWER STANDS, SUSPENDING BASKETS, AVIARIES, PHEASANTRIES, &c.

☞ *Every description of Wire Work for Gardens, Conservatories, &c.*

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	£	s.	d.
LAWES' PATENT TURNIP MANURE and BONE SUPERPHOSPHATE of LIME..	6	6	0
LAWES' SUPERPHOSPHATE of LIME from BURNT BONE or MINERAL PHOSPHATES	5	5	0
LAWES' WHEAT, BARLEY, GRASS, and MANGEL MANURES	8	0	0
CONCENTRATED CORN and GRASS MANURES ..	12	0	0

These Manures can be obtained of Mr. LAWES, or through the appointed Agents in all parts of the United Kingdom, at prices varying according to cost of carriage.

Genuine Peruvian Guano direct from the Importers. Nitrate of Soda, Sulphate of Ammonia, and other Chemical Manures.

American and other Cakes at market prices.

Address, JOHN BENNET LAWES, 1, Adelaide Place, London Bridge, E.C.; 22, Eden Quay, Dublin; and Market Square, Shrewsbury.

THE LONDON MANURE COMPANY
(ESTABLISHED 1840).

Have now ready for delivery in dry fine condition,
CORN MANURE, for Spring Use
DISSOLVED BONES, for Dressing Pasture Lands
SUPERPHOSPHATES of LIME
PREPARED GUANO
MANGEL and POTATO MANURES.

Also Genuine PERUVIAN GUANO, and NITRATE of SODA, ex Dock Warehouse; SULPHATE of AMMONIA, FISHERY SALT, &c. E. PURSER, Secretary.

Offices, 116, Fenchurch Street, E.C.

ODAMS'S NITRO-PHOSPHATE for CORN.
ODAMS'S NITRO-PHOSPHATE for ROOTS.
ODAMS'S DISSOLVED BONES.
ODAMS'S SUPERPHOSPHATE of LIME.
ODAMS'S PREPARED PERUVIAN GUANO.

MANUFACTURED BY

THE PATENT NITRO-PHOSPHATE OR BLOOD MANURE COMPANY (Limited).

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Thomas Knight, Edmonton, Middlesex.
Robert Leeds, West Lexham, Norfolk.
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This Company was originally formed by, and is under the direction of agriculturists, circumstances that have justly earned for it another title, viz.—"The Tenant Farmers' Manure Company."

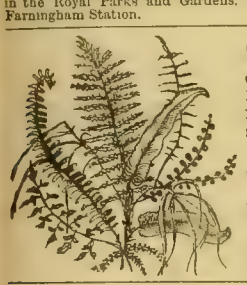
Its members are cultivators of upwards of 50,000 acres of land which has been for years under management with Manures of their own manufacture. The consumer, therefore, has the best guarantee for the genuineness and efficacy of the Manures manufactured by this Company.

Particulars will be forwarded on application to the Secretary, or may be had of the Local Agents. C. T. MACADAM, Secretary.
Chief Offices—109, Fenchurch Street, London, E.C.

TAN, Gratis, in the immediate neighbourhood of Covent Garden Market.
Apply to W. ESSEX & SONS, 28, Stanhope Street, Clare Market, W.C.

HORTICULTURAL SILVER SAND, 7*s.* per Ton, at the Reigate Town Station; the best KENT PEAT, 6*s.* per cubic yard, at the Edenbridge Station; the best SUSSEX SANDSTONE, 9*s.* per Ton, at the Wadhurst Station, in full truck-loads.
W. SHORT, Horticultural Depôt, Reigate, Surrey.

FIBROUS PEAT of first-class quality for Orchids, Heaths, American Plants, and all potting purposes, may be obtained by application to Mr. THOMAS JESSOP, Farningham Wood, near Farningham Station, Kent. It is dispatched by the London, Chatham, and Dover Railway in trucks of 16 yards, about 6 tons, to most Stations in the Kingdom, or fetched in carts from the wood. It is extensively used and appreciated in the principal Nurseries, and in the Royal Parks and Gardens. Price 5*s.* per cubic yard, at Farningham Station.



COCOA-NUT REFUSE is becoming SCARCE, the old reserves will soon be gone. Now sold in bags, 1 for 2*s.*, 10 for 16*s.*, 20 for 30*s.*, 50 for 66*s.*, 100 for £6.

Fourpence allowed for each bag returned carriage-paid.

A Railway Truck-load (not in bags), 40*s.*

Postage Stamps or Post-office Order, payable to J. BARSHAM & Co., Kingston-on-Thames, S.W.



Red Spider. Magnified.

GISHURST COMPOUND.

Used by many of the leading Gardeners since 1859, against Red Spider, Mildew, Thrips, Green Fly, and other Blight, in solutions of from 1 to 2 ounces to the gallon of soft water, and of from 4 to 16 ounces as a Winter Dressing for Vines and Fruit Trees. Has outlived many preparations intended to supersede it.

Sold Retail by Seedsmen, in boxes, 1*s.*, 3*s.*, and 10*s.* 6*d.*

Wholesale by
PRICE'S PATENT CANDLE COMPANY
(LIMITED)

BOSTON'S NE PLUS ULTRA, for the Destruction of Mealy Bug, Scale, American Blight, &c., on Stove and Greenhouse Plants, Fruit Trees, Vines, &c. In bottles, with full instructions for application, price 3*s.* 6*d.*, 5*s.*, and 10*s.* 6*d.*

JAMES CARTER & Co. beg leave to state that the present time is most suitable for applying the above genuine Specific before the commencement of the growing season, thereby preventing the rapid increase of the above pests which would otherwise take place. The infallible properties of BOSTON'S NE PLUS ULTRA are rapidly becoming fully recognised, J. C. & Co. having already sold nearly 2000 bottles since its first introduction in the spring of 1866. Numerous testimonials have been received, and not a single complaint of its inefficiency.

Sole Agents, JAMES CARTER & Co., 237 and 238, High Holborn, W.C.
*** The Trade supplied on liberal terms.

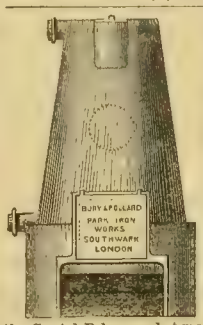
HOTHOUSES for the MILLION.—Medal, 1862.
INVENTED BY THE LATE SIR JOSEPH PAXTON.

Manufactured in London; Newton in Cartmel, Lancashire; Gloucester; Coventry; Paisley, and Aberdeen.



ILLUSTRATED PRICE LISTS will be sent on application to Messrs. HEREMAN & MORTON, 7, Pall Mall East, London, S.W.
Also, a HANDBOOK of VINE and FRUIT TREE CULTIVATION, price 1*s.*; post free, 1*s.* 1*d.*

HOT-WATER APPARATUS, of every description, fixed complete in any part of the country, or the materials, viz., Boilers, Pipes, &c., delivered to any Station.
Estimates on application.
J. JONES & SONS, 6, Bankside, Southwark, London, S.E.



Hot-water Pipes, with Elbows and Connections, supplied by BURY AND POLLARD. Contracts and Estimates given for WARMING PUBLIC BUILDINGS; latest Improvements in HEATING by HOT WATER; the Improved CONICAL BOILERS, for Heating Pineries, Conservatories, Greenhouses, Mansions, Halls, Warehouses, &c., Solely Manufactured by BURY & POLLARD. These Boilers are adapted for setting in Brickwork, or annexed Sketch shows BURY & POLLARD's improved arrangement, requiring
NO BRICKWORK SETTING.

These Boilers have for their durability and economy attained a celebrity far surpassing any other Boilers ever invented. They have been for many years past in use at many Public Establishments, Royal Botanical Gardens at Kew, at the Regent's Park, the Crystal Palace, and at most of the Nobility's and Gentry's Seats throughout the United Kingdom. References where they have been for 20 years in constant use.

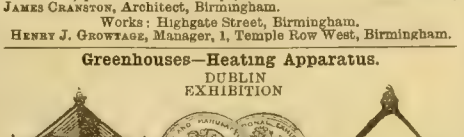
Price Lists on application to BURY & POLLARD, Park Iron Works, 7, New Park Street, Southwark, London, S.E.

CRANSTON'S PATENT BUILDINGS for HORTICULTURE.
"Dry Glazing without Putty."
"Glass without Laps."
"Ventilation without Moving Lights."
Highly Commended by the Royal Horticultural Society, South Kensington.



Plans and Estimates free on application. Descriptive Book fully illustrated, post free for 20 stamps, from the Author and Patentee, JAMES CRANSTON, Architect, Birmingham.
Works: Highgate Street, Birmingham.
HENRY J. GROWTAGE, Manager, 1, Temple Row West, Birmingham.

Greenhouses—Heating Apparatus.
DUBLIN EXHIBITION



1865.

THE ONLY PRIZE MEDAL AWARDED for Various Improvements in the Ventilation, Construction, and Application of WROUGHT-IRON to Horticultural Buildings.

OUR PATENT WROUGHT-IRON PRIZE MEDAL CONSERVATORIES are of the highest order.

OUR PATENT WROUGHT-IRON PRIZE MEDAL GREENHOUSES perfectly neutralize atmospheric conduction.

OUR PATENT WROUGHT-IRON PRIZE MEDAL VINERIES promote vigorous growth and richness of colour.

OUR PATENT WROUGHT-IRON PRIZE MEDAL ORCHID HOUSES and STOVES, with double-glazed roofs, are a complete arrangement.

OUR PATENT WROUGHT-IRON PRIZE MEDAL ORCHARD HOUSES (as supplied to Mr. Rivers), induce perfect symmetry and unfailing result.

OUR PATENT WROUGHT-IRON PRIZE MEDAL GERANIUM and PLANT HOUSES are thoroughly ventilated, and admit a maximum degree of light.

OUR PATENT WROUGHT-IRON PRIZE MEDAL CUCUMBER and MELON HOUSES are specially arranged and heated upon an improved system.

OUR PATENT WROUGHT-IRON PRIZE MEDAL PINERIES, when heated upon the improved system, are calculated to secure the growth of first-class fruit.

OUR PATENT PRIZE MEDAL FORCING HOUSES are eminently superior for all early work.

OUR PATENT WROUGHT-IRON PRIZE MEDAL STRAWBERRY HOUSES admit a complete flood of air and light.

The above Patent Houses can be glazed with or without putty.

These Houses are now protected by three Royal Letters Patent, and from the complete adjustment of their constructional parts will vie most favourably with Wood Structures in point of cost.

Designs and Estimates prepared for single or complete ranges of Houses in Wood or Iron.

Illustrated Catalogues on application to the Patentees,
T. H. P. DENNIS & A. SCRUBY, Horticultural Builders and Hot Water Engineers, Chelmsford.

Heating by Hot Water.

W. J. HOLLANDS, IRON MERCHANT, 31, Bankside, London, S.E.

HOT WATER PIPES, from Stock, per yard:—2-inch, 1*s.* 2*d.*; 3-inch, 1*s.* 10*d.*; and 4-inch, 2*s.* 4*d.* BENDS, from Stock, 1*s.* 6*d.*, 2*s.* 6*d.*, and 3*s.* each. THROTTLE VALVES, 10*s.*, 13*s.*, and 14*s.* each. Other Connexions at equally low prices, and all goods of first-class manufacture. Estimates given, and orders by post punctually attended to the same day.

COTTAM AND COMPANY,
CONSERVATORY and HOTHOUSE BUILDERS, &c.,
Iron Works, 2, Winsley Street, Oxford Street, London, W.

SADDLE BOILERS.

20	24	30 inches long.
45*s.*	66*s.*	92*s.* 6*d.* each.

HOT-WATER PIPES.

2	3	4 inch.
1*s.* 6*d.*	2*s.* 1*d.*	2*s.* 9*d.* per yard.



Materials supplied as above, or Estimates given for complete to Plan, on application to
COTTAM & Co.,
Iron Works,
2, Winsley Street,
(opposite the Pantheon),
Oxford Street, London, W.

F. A. HAAGE'S (Jun.) WOOD TRAINING STICKS and TALLIES, commended by the Royal Horticultural Society, the neatest, cheapest, and best made, can now be had of all sizes, Wholesale, of BETHAM & BLACKITH, Cox's Quay, Lower Thames Street, London E.C.; and Retail of the principal Seedsmen and Florists. Price Lists on application.

SHAW'S TIFFANY, from 7*s.* per Piece. LAWN MOWERS, SCYTHES, GARDEN ROLLERS, GARDEN SEATS, and every Garden requisite to be had at the Garden Repository, 32, James Street, Covent Garden, W.C.

TANNED GARDEN NETTING for preserving Seed Beds, Fruits, Strawberries, from Frost, Blight, Birds, &c., and as a Fence for Fowls, &c. 1 yard wide, 1½*d.*; 2 yards, 2½*d.*; 3 yards, 4*d.*; and 4 yards, 6*d.* per yard run in any quantity, may be had at CHAS. WRIGHT'S, 376, Strand, W.C.

GARDEN NETTING (at Reduced Price) for the Protection of Fruit Trees from Frost, Blight, and Birds, also as a Fence for Poultry, Rabbits, and Sheep, 1*d.* per square yard, carriage free, in quantities of 250, 500, or 1000 yards.
SCRIM CANVAS for Wall Fruit, Greenhouse Shades, Tulip Covers.
RICK COVERS, with Poles and Ropes complete, for Sale or Hire.
Several Second-hand, cheap.
Be particular, FREDK. EDGINGTON & Co., Marquee, Tent, and Flag Manufacturers, 60 & 62, Old Kent Road, London, S.E.
A liberal discount to the Trade.

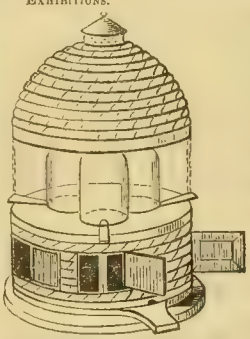
Garden Netting.

JOHN EDGINGTON AND CO. supply TANNED NETTING for the Protection of Fruit Trees, 1*d.* per square yard. Any quantity. SCRIM CANVAS, &c.; TULIP COVERS and GREENHOUSE SHADES, SUN BLINDS, &c. MARQUEES, TENTS, and FLAGS for FETES, FLOWER SHOWS, &c.
JOHN EDGINGTON & Co., (Tent Makers to the Royal Family), 48, Long Lane, Smithfield, E.C.; and 18, Piccadilly, W.

NETTING for FRUIT TREES, SEED BEDS, RIPE STRAWBERRIES, &c.—TANNED NETTING for protecting the above from Frost, Blight, Birds, &c., 2 yards wide, 3*d.* per yard, or 100 yards, 20*s.*; 4 yards wide, 6*d.* per yard, or 50 yards, 20*s.* NEW TANNED NETTING, suited for any of the above purposes, or as a Fence for Fowls, 2 yards wide, 6*d.* per yard; 4 yards wide, 1*s.* per yard; ½-inch mesh, 4 yards wide, 1*s.* 6*d.* per yard. Can be had in any quantity of
EATON & DELLER, 6 and 7, Crooked Lane, London Bridge, E.C.

Bee Hives.

PRIZE MEDAL AND HONOURABLE MENTION AWARDED TO GEORGE NEIGHBOUR & SONS, FOR BEE HIVES AND HONEY AT THE VARIOUS EXHIBITIONS.



NEIGHBOUR'S IMPROVED COTTAGE BEE HIVE, as originally introduced by GEORGE NEIGHBOUR & SONS, with all the recent improvements, working three bell-glasses; is neatly and strongly made of straw; it has three Windows in the lower Hive, with a Thermometer affixed to the centre one. This Hive will be found to possess many practical advantages, and is more easy of management than any other Bee Hive that has been introduced.

Price complete .. £1 15 0
Stand for ditto .. 0 10 6

THE LIGURIAN or ITALIAN ALP BEE being much in repute at the present time, we are in a position to supply Stocks of the pure race carefully packed in Woodbury Bar-Frame Hives, so as to travel with comparatively no risk of damage.

ENGLISH BEES.—Stocks and Swarms may be obtained as heretofore.

A newly-arranged CATALOGUE of other Improved Hives, with Drawings and Prices, sent on receipt of two stamps.
Address, GEO. NEIGHBOUR & SONS, 127, High Holborn, W.C.; or 149, Regent Street, London, W.
AGENTS:—Liverpool: James Cuthbert, 12, Clayton Square. Manchester: J. Wilson, 50, King Street. Birmingham: J. H. Cottrell, 15, Bull Ring. Dublin: Edmondson Brothers, 10, Dame Street. Glasgow: Austin & McAslan, 16, Buchanan Street.



GARDEN BORDER EDGING TILES, in great variety of patterns and material, the plainer sorts being especially suited for KITCHEN GARDENS, as they harbour no Slugs and Insects, take up little room, and once put down incur no further labour and expense, as do "grown" Edgings, consequently being much cheaper.



GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, of great durability, and in great variety of design.
F. & G. ROSHER, Manufacturers, Upper Ground Street, Blackfriars, S.; Queen's Road West, Chelsea, S.W.; Kingsland Road, Kingsland, N.E.

Sole London Agents for FOXLEY'S PATENT GARDEN WALL BRICKS. Illustrated Price Lists free by post. The Trade supplied.

ORNAMENTAL PAVING TILES for Conservatories, Halls, Corridors, Balconies, &c., as cheap and durable as Stone, in blue, red, and buff colours, and capable of forming a variety of designs.
Also TESSELATED PAVEMENTS of more enriched designs than the above.
WHITE GLAZED TILES, for Lining Walls of Dairies, Larders, Kitchen Ranges, Baths, &c. Grooved and other Stable Paving Bricks of great durability, Dutch and Adamantine Clinkers, Wall Copings, Red and Stoneware Drain Pipes, Slates, Cements, &c.
To be obtained of F. & G. ROSHER, at their Premises as above.

SILVER SAND (REIGATE, best quality), at the above addresses—14*s.* per Ton, or 1*s.* 3*d.* per Bushel; 2*s.* per Ton extra for delivery within three miles, and to any London Railway or Wharf. Quantities of 4 Tons 1*s.* per Ton less.
FLINTS, BRICK BURRS or CLINKERS, for Rockeries or Grotto Work. F. & G. ROSHER.—Addresses see above.
N.B. Orders promptly executed by Railway.

Gloxinia Madame de Smet.

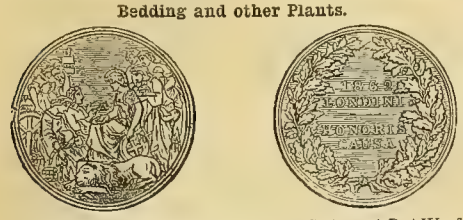
JAMES VEITCH AND SONS are now prepared to offer strong Flowering Plants of the above beautiful and distinct GLOXINIA.

The flowers are extra large and of great substance, the throat creamy white, lobes mauve, beautifully shaded.

It was exhibited at the Royal Botanic Society's Exhibition on Wednesday last, and was awarded a First-class Certificate.

Price 5s. each.

Bedding and other Plants.



Just Published, post free 12 stamps (Gratis to Customers), Part III. of CARTER'S GARDENERS' and FARMERS' VADE MECUM, containing complete Lists of new and choice Stove and Greenhouse and Bedding Plants, with an Addendum comprising original and practical articles, "On a Visit to Messrs. Carter's Nursery," by an Amateur Florist; Subtropical Gardening; and 120 Geometrical Designs for Flower-beds; with reliable information for the proper combination of Bedding Plants to produce chaste and striking effects.

Forwarded on receipt of 12 stamps on application to CARTER'S Great London Seed Warehouse, 237 and 238, High Holborn, London.

Lobelia coronopifolia.

JAS. BACKHOUSE AND SON beg to inform their friends that they have now ready for distribution well-established plants of this lovely winter-flowering LOBELIA, and that the many orders with which they have been favoured will at once be forwarded.

When grown out-of-doors during the summer months, and taken in before frost comes, it forms a dense tuft, with spreading shoots, from each of which a flower-stem rises 4 to 6 inches high, bearing large and lovely blue blossoms, which remain in perfection many weeks, so that the plant is gay throughout the whole of the winter months—a time when so much beauty has a double charm. For Conservatory Decoration and Cut Flowers it is invaluable. It was figured in the "Floral Magazine" for September, 1865. Price 5s. each. York Nurseries.

ROBERT PARKER begs to offer the following.—All the Plants are strong and healthy, and can be supplied in quantities.

PANSY CLIVEDEN BLUE, 6s. per dozen.
PANSY CLIVEDEN PURPLE, 6s. per dozen.
PANSY CLIVEDEN YELLOW, 6s. per dozen.
POLEMONIUM CŒRULEUM VARIEGATUM, 2s. 6d. each.
RHODODENDRON COUNTESS of HADDINGTON, 3s. 6d. each.
TRITOMA GRANDIS, 18s. per dozen.
TRITOMA UVARIA GLAUCESCENS, 12s. per dozen.
VIOLA CORNUTA, best variety, 4s. per dozen.
VIOLET, REINE DES VIOLETS, 6s. per dozen.
VIOLET THE CZAR, 6s. per dozen. [per packet.
PRIMULA SINENSIS FIMBRIATA, finest mixed seed, 2s. 6d.

PRICED and DESCRIPTIVE CATALOGUES of AGRICULTURAL, FLOWER, and VEGETABLE SEEDS, GREENHOUSE, HARDY, and STOVE PLANTS, are published, and will be forwarded free to applicants.

Exotic Nursery, Tooting, Surrey, S.

Seed of Choice Strains of Florists' Flowers.

The following selected Strains are worthy of the notice of all growers of the most useful conservatory decorative flowers.

WILLIAMS' SUPERB STRAIN of PRIMULA.

B. S. WILLIAMS can with confidence offer his superb Strain of Primula as being undoubtedly the finest in cultivation. It is now grown in all the principal Gardens of the Nobility and Gentry throughout the Three Kingdoms, and has never failed to give the greatest satisfaction.

In habit the plants are very robust, and in the foliage differ from all other varieties; but their great beauty consists in the depth of colour in the Red, purity of the White, and beautiful fimbriated form of all the flowers, which are thrown up in large trusses well above the foliage.

As a proof of the truth of the above remarks, this Strain has taken 1st Prizes in every instance that it has been shown in the Provinces this Spring; and 1st Prize at the Primula Show of the Royal Horticultural Society, South Kensington; and 1st at the Royal Botanic, Regent's Park. It is also the favourite Strain in the Covent Garden Flower Market.

This Strain may be procured True, in Sealed Packets bearing B. S. WILLIAMS' Name and Address, from any Seedsman; but B. S. W. particularly requests that Customers will observe, on purchasing, that each Packet has his Name and Address in full printed thereon, as no others are genuine.

The Trade supplied on advantageous terms.

	Per pkt. s. d.		Per pkt. s. d.
Retail price, RED	5 0	Retail price, WHITE ..	3 6
,, ,, ...	3 6	,, ,, ..	2 6
,, ,, ...	2 6	,, MIXED ..	5 0
,, WHITE ..	5 0	,, ,, ..	3 6

Retail price, MIXED, per packet, 2s. 6d.

WEATHERHILL'S EXTRA CHOICE STRAIN OF CINERARIA.

B. S. W. has purchased the entire Stock and right of Sale of this Magnificent Strain. Many of the flowers produced by this seed last season were as large as a crown-piece. This strain is well known in the London Flower Market, and is the most popular one there, a sufficient guarantee that its qualities are good.

Retail price per pkt., 5s. 0d. | Retail price per pkt., 3s. 6d.

Retail price per pkt. .. .. 2s 6d.

JAMES'S HERBACEOUS CALCEOLARIAS.—The varieties that took the First Prize at the International Horticultural Exhibition last May were of this noted strain.

Retail price per pkt. 5s. 0d. | Retail price per pkt., 3s. 6d.

Retail price per pkt. .. .. 2s. 6d.

All FLOWER SEEDS in packets, Post free.

B. S. WILLIAMS, Victoria and Paradise Nurseries, Upper Holloway, London, N.

PAUL & SON'S NEW DOUBLE CRIMSON THORN.

(THE UNIQUE HARDY PLANT OF THE SEASON.)

PAUL & SON,

THE OLD NURSERIES, CHESHUNT, N.,

The exclusive introducers of this Plant, have had the honour, since they sent it out in November last, of supplying it to Her Majesty's Garden at Windsor, our leading Amateurs and Nurserymen, and those of the Continent.

First-class Certificates, Royal Botanical Society and International Exhibition.

The Reviewer of *our* Introduction in the "Florist" somewhat ignorantly and unpractically advises planting small Plants in pots, in preference to larger ones in autumn. We counsel otherwise, as we shall have ready some 3000 PYRAMIDS and STANDARDS, specially pruned to flower next spring.

We are authorised to state by Mr. Boyd, in whose garden it originated, that he kindly placed the Plant at our entire disposal, and neither gave nor authorised it to be given to any other person. Thus settling the merit of our claim as its only and original introducers or senders out.

Price of such Standards and Pyramids, 5s. each; Dwarfs, 2s. 6d. each.
Dwarfs in pots, for Export, 5s. each—(priced in error last week, 2s. 6d.)

PAUL AND SON beg also to announce that their ROSES are finely in BLOOM, and well worthy of a visit.

Frequent Trains from 6.30 A.M. to Cheshunt Station.

NEW DOUBLE CRIMSON THORN (NOW READY).

WILLIAM PAUL

(SON and SUCCESSOR to the late A. Paul),

BEGS TO OFFER THE

ABOVE MAGNIFICENT HARDY FLOWERING TREE,

Which he believes to be the greatest acquisition for forcing and out-of-door culture that has been introduced for many years.

Strong healthy Plants, well established in pots, 2 ft. high, 7s. 6d. each; 1 ft. high, 5s. each.

A First-class Certificate was awarded to him for this Plant by the Royal Horticultural Society on the 16th April last.

☞ See Coloured Drawing by FITCH, and History, in the "Florist" for June.

"We do not hesitate to advise every one who has a garden to purchase this plant at once. * * * Plants purchased in pots now may be grown and established, so as to flower well either in or out-of-doors next spring; whereas if removed from the ground in the autumn of the year, they can hardly be expected to do this."—*The Florist, &c.*

PAUL'S NURSERIES, WALTHAM CROSS, LONDON, N.

SUPERB NEW LATE GRAPE.

"MRS. PINCE'S BLACK MUSCAT."

THE PUBLIC ARE RESPECTFULLY INVITED TO AN INSPECTION OF THIS REALLY FINE LATE GRAPE.

THE HOUSE IN WHICH IT IS GROWING MEASURES ONLY 24 FEET BY 13.

Beautiful bunches were cut as late as May the 4th this year. It has now 230 fine bunches, more than 200 having been taken off to lighten the Vines.

The real Muscat flavour, so rarely obtained, is unmistakeable in this valuable late-keeping Grape.

☞ *Orders, if sent now, can be executed in August next.*

LUCOMBE, PINCE, AND CO. will have great pleasure in showing the House to all who can come, or Testimonials of its merits will be forwarded by post upon application to them.

EXETER NURSERY, EXETER.—June 22, 1867.

SPLENDID NEW BLACK GRAPE, THE MUSCAT CHAMPION.

JAMES VEITCH & SONS

WILL SEND OUT, ON AND AFTER THE FIRST OF JULY NEXT, THIS

MAGNIFICENT SEEDLING VARIETY,

UNDOUBTEDLY THE FINEST YET OFFERED TO THE PUBLIC.

It was raised by Mr. Melville, of Dalmeney Park, from the Champion Hamburgh, crossed with the Cannon Hall Muscat. It is a very free setting variety, and *succeeds perfectly under the same treatment* as the Black Hamburgh. The bunches are large, well shouldered, and the berries of great size, resembling in every respect the Champion Hamburgh, but with a *most exquisite and powerful* Muscat flavour.

In the "Gardeners' Year Book" for 1862, Dr. Hogg says:—"This is perhaps one of the greatest advances in new Grapes we have yet had. It is, in fact, a Mill Hill Hamburgh with a Muscat flavour. The bunches are very large and well shouldered, the berries roundish and oblate, and the flesh firm and melting, juicy, richly flavoured, and with a fine Muscat aroma."

In the Report of the Fruit Committee of the Royal Horticultural Society for September 10, 1861, it is thus mentioned:—"The bunch in size and shape had all the appearance of one of the Mill Hill Hamburgh. It was large and well set. The berries were large, round, and oblate, shaped like small oranges, and very much 'hammered.' The flesh is firm, juicy, sweet, and richly flavoured with a marked Muscat flavour." The Committee were of opinion that it was a decided cross, a very excellent Grape, and well worthy of notice.

The Editor of the *Gardeners' Chronicle* remarks:—"Large both in bunch and berry, possessing A FINE MUSCAT FLAVOUR, and, in the opinion of many, ONE OF THE BEST GRAPES IN THE WORLD."

The "Scottish Horticulturist," in quoting the above, says:—"An opinion we can cheerfully endorse. To those who think from the term Muscat that it requires an equal amount of heat to ripen it to perfection, we can assure them that it ripens as early, under exactly the same treatment, as the Black Hamburgh."

Good established Plants, on 1st July next, 21s. each.
Extra strong Plants, for fruiting in pots, 31s. 6d. and 42s. each.

ROYAL EXOTIC NURSERY, KING'S ROAD, CHELSEA, S.W.

ROYAL BOTANIC GARDENS,

REGENT'S PARK.

EXHIBITION of PLANTS, FLOWERS, and FRUIT,

WEDNESDAY, JUNE 19, 1867.

LIST OF AWARDS.

LARGE GOLD MEDAL.

Mr. B. Peed, Gr. to Mrs. T. Tredwell, St. John's Lodge, Norwood, for 10 Stove and Greenhouse Plants
Mr. C. Penny, Gr. to H. R. Gibbs, Esq., St. Dunstan's, Regent's Park, for 15 Exotic Orchids

MEDIUM GOLD MEDAL.

Mr. J. Wheeler, Gr. to J. Philpott, Esq., Stamford Hill, for 10 Stove and Greenhouse Plants
Messrs. J. & C. Lee, Nurserymen, Hammersmith, for 8 Stove and Greenhouse Plants
Mr. D. Donald, Gr. to J. G. Barclay, Esq., Leyton, Essex, for 8 Stove and Greenhouse Plants
Mr. W. Wilson, Gr. to W. Marshall, Esq., Clay Hill, Enfield, for 15 Exotic Orchids

GOLD MEDAL.

Mr. W. Komp, Gr. to Earl Percy, Albury Park, Guildford, for 10 Stove and Greenhouse Plants
Mr. B. S Williams, Nurseryman, Holloway, for 8 Stove and Greenhouse Plants [Greenhouse Plants
Mr. A. Wilkie, Gr., Addison Road, Kensington, for 8 Stove and
Mr. O. Rhodes, Nurseryman, Sydenham Park, Kent, for 8 Cape Heaths
Mr. B. Peed, Gr., for 8 Cape Heaths
Mr. W. Gidney, Gr. to Rev. W. Ellis, Hoddesdon, Herts, for 15 Exotic Orchids [Exotic Orchids
Mr. I. Hill, Gr. to R. Hanbury, Esq., Poles, Ware, Herts, for 8
Mr. C. Turner, Nurseryman, Slough, Bucks, for 9 Pelargoniums
Mr. W. Nye, Gr. to E. B. Foster, Esq., Clewer Manor, Windsor, for 9 Pelargoniums

LARGE SILVER GILT MEDAL.

Mr. O. Rhodes, for 8 Stove and Greenhouse Plants
Mr. G. Wheeler, Gr. to Sir F. H. Goldsmid, Bart., Regent's Park, for 8 Stove and Greenhouse Plants
Mr. J. Ward, Gr. to J. F. Wilkins, Esq., Leyton, Essex, for 6 Stove and Greenhouse Plants
Mr. B. S. Williams, for 8 Cape Heaths
Mr. J. Wheeler, Gr., for 8 Cape Heaths
Mr. A. Wilkie, Gr., for 6 Greenhouse Azaleas [house Azaleas
Messrs. J. Ivery & Son, Nurserymen, Dorking, Surrey, for 6 Green-
Mr. J. Wiggins, Gr. to W. Beck, Esq., Worton Cottage, Isleworth, for 15 Exotic Orchids
Messrs. J. Veitch & Sons, Nurserymen, Chelsea, for 6 Exotic Orchids
Mr. T. Page, Gr. to W. Leal, Esq., Park Hill, Streatham, for 8 Exotic Orchids
Mr. B. S. Williams, for 10 Foliage Plants
Mr. B. S. Williams, for 12 Exotic Ferns
Mr. W. Taylor, Gr. to J. Yates, Esq., Lauderdale House, Highgate, for 12 Exotic Ferns [6 Fuchsias
Mr. J. Brockwell, Gr. to Mrs Henry, Bush Hill, Edmonton, for
Mr. J. Fraser, Nurseryman, Leyton, Essex, for 9 Pelargoniums
Mr. J. Ward, Gr., for 9 Pelargoniums

LARGE SILVER MEDAL.

Mr. R. Baxendine, Nurseryman, Guildford, for 8 Stove and Greenhouse Plants
Messrs. S. Glendinning & Sons, Nurserymen, Chiswick, for 8 Stove and Greenhouse Plants
Mr. C. Smith, Gr. to C. Anderson, Esq., Norwood Grove, for 6 Stove and Greenhouse Plants
Mr. J. Ward, Gr., for 6 Cape Heaths
Mr. B. S. Williams, for 6 Foliage Plants
Mr. J. Fraser, for 6 Fancy Pelargoniums
Mr. D. Donald, Gr., for 6 Fancy Pelargoniums
Messrs. Paul & Son, Nurserymen, Cheshunt, for 20 Roses in pots

SILVER GILT MEDAL.

Messrs. J. & C. Lee, for 8 Cape Heaths
Mr. W. Komp, Gr., for 8 Cape Heaths
Mr. G. Wheeler, Gr., for 6 Cape Heaths
Messrs. S. Glendinning & Sons, for 10 Foliage Plants
Mr. W. Taylor, Gr., for 6 Foliage Plants
Mr. J. Carr, Gr. to C. L. Hinds, Esq., The Lodge, Byfleet, Surrey, for 12 Exotic Ferns
Mr. G. Wheeler, Gr., for 6 Greenhouse Azaleas
Mr. B. Peed, Gr., for 15 Exotic Orchids
Mr. B. S. Williams, for 6 Exotic Orchids
Mr. T. Burnett, Gr. to W. Terry, Esq., Peterborough House, Fulham, for 8 Exotic Orchids
Mr. J. Weston, Gr. to D. Martineau, Clapham Park, for 6 Fuchsias
Messrs. J. Dobson & Son, Nurserymen, Isleworth, for 9 Pelargoniums
Mr. S. Crawley, Gr. to C. J. Houghton, Esq., Leyton, Essex, for 9 Pelargoniums
Mr. C. Turner, for 6 Fancy Pelargoniums
Mr. D. Windsor, Gr. to J. R. Ravenhill, Esq., Forest, Walthamstow, for 6 Fancy Pelargoniums
Mr. T. Bailey, Gr. to T. T. Drake, Esq., Amersham, Bucks, for 6 Fancy Pelargoniums
Mr. J. Mitchell, Nurseryman, Maresfield, Sussex, for 25 Cut Roses
Mr. R. Marcham, Gr. to E. Oates, Esq., Hanwell, for 25 Cut Roses
Mr. T. Bailey, Gr., for Providence Pine
Mr. G. Ward, Gr. to S. N. Miller, Esq., Bishop's Stortford, for Queen Pine
Mr. J. Hannan, Gr. to R. T. Crawshay, Esq., Cyfarthfa Castle, Merthyr Tidvil, for 1 Pine Apple
Mr. W. Hill, Gr. to R. Sneyd, Esq., Keele Hall, Staffordshire, for dish of Black Hamburgh Grapes
Mr. M. Henderson, Gr. to Sir G. H. Beaumont, Bart., Coleorton Hall, Ashby de la Zouch, Leicester, for dish of Black Hamburgh Grapes
Mr. W. Mead, Gr. to R. Currie, Esq., Miuley Manor, Farnborough, Hants, for dish of Black Prince Grapes
Mr. T. Bailey, Gr., for dish of Muscat Grapes
Mr. J. Allport, Gr. to H. Akroyd, Esq., Doddington Park, Nantwich, Cheshire, for dish of Frontignan Grapes
Mr. D. Pizzey, Gr. to Mrs. Edwards, Fulmers, near Slough, Bucks, for dish of Grapes
Mr. M. Henderson, Gr., for dish of Grapes
Mr. G. Osborne, Kay's Nursery, Finchley, for dish of Peaches
Mr. W. Allen, Gr. to E. J. Hopwood, Esq., Hopwood Hall, Middleton, Manchester, for dish of Nectarines
Messrs. E. G. Henderson & Son, St. John's Wood, for Group of Plants

SILVER MEDAL.

Mr. O. Rhodes, for 10 Foliage Plants
Mr. D. Donald, Gr., for 6 Foliage Plants
Mr. C. Smith, Gr. to C. Walton, Esq., Manor House, East Acton, for 12 British Ferns
Mr. B. Peed, Gr., for 6 Greenhouse Azaleas
Messrs. T. Jackson & Son, for 6 Exotic Orchids
Mr. J. Wheeler, Gr., for 8 Exotic Orchids [6 Fuchsias
Mr. J. August, Gr. to Rev. A. Bridges, Beddington, Surrey, for
Mr. D. Windsor, Gr., for 9 Pelargoniums
Messrs. J. Dobson & Son, for 6 Fancy Pelargoniums
Mr. S. Crawley, Gr., for 6 Fancy Pelargoniums
Messrs. Paul & Son, for 25 Cut Roses
Mr. W. Ingle, Gr. to C. G. Round, Esq., Birch Hall, Colchester, for 25 Cut Roses
Mr. W. Bull, Nurseryman, Chelsea, for 50 Lilium auratum
Mr. C. Penforth, Gr. to Viscount Folkestone, Longford Castle, Salisbury, for Providence Pine
Mr. J. Barnes, Gr. to Lady Rolle, Bicton, Budleigh, Exeter, for 1 Queen Pine [Apple
Mr. G. Gordon, Gr. to J. Sparrow, Esq., Hampton Wick, for 1 Pine
Mr. J. Douglas, Gr. to F. Whitburn, Esq., Loxford Hall, Ilford, for dish of Black Hamburgh Grapes
Mr. G. Sage, Gr. to Earl Brownlow, Ashridge Garden, Berkhampstead, for dish of Black Hamburgh Grapes
Mr. J. Allport, Gr., for dish of Black Prince Grapes
Mr. G. Osborne, for dish of Muscat Grapes
Mr. J. Douglas, Gr., for dish of Frontignan Grapes
Mr. J. Allport, Gr., for dish of Grapes
Mr. J. Miller, Gr. to Earl Craven, Combe Abbey, Coventry, for dish of Peaches
Mr. C. Allen, Gr. to Captain Glegg, Withington Hall, Congleton, Cheshire, for dish of Nectarines [6 Roses
Mr. J. Terry, Gr. to A. Fuller, Esq., Youngsbury, Ware, Herts, for

SMALL SILVER MEDAL.

Mr. W. Foreman, Gr. to G. Maule, Esq., Denmark Hill, for 6 Fuchsias
Mr. C. Turner, for 24 Pinks
Messrs. Downie, Laird, & Laing, for 36 Pansies
Mr. D. Pizzey, Gr., for 12 Pinks
Mr. G. Wilson, Dunse, for 24 Pansies
Mr. J. Fraser, for 25 Cut Roses
Mr. J. Terry, Gr., for 25 Cut Roses
Mr. J. Cranston, Nurseryman, Hereford, for 24 Cut Roses
Messrs. Carter & Co., Holborn, for Collection of Zonal Pelargoniums
Mr. C. Allen, Gr., for Providence Pine
Mr. W. Miller, Gr., for Queen Pine
Mr. H. Harvey, Gr. to J. Wroughton, Esq., Woolley Park, Berks, for Queen Pine
Mr. G. Ward, Gr., for 1 Pine Apple
Mr. H. Chilman, Gr. to Earl Normanton, Somerley, Ringworth, Hants, for Pine Apple
Mr. J. Bailey, Gr., for Green-fleshed Melon
Mr. J. Standish, Nurseryman, Ascot, for Scarlet-fleshed Melon
Mr. J. Jefferson, Gr. to J. Garside, Esq., Carlton House, Worksop, Notts, for dish of Black Hamburgh Grapes
Mr. G. Osborne, for dish of Black Hamburgh Grapes
Mr. J. Allport, Gr., for dish of Black Hamburgh Grapes
Mr. W. Lunn, Gr. to Lord Boston, Hedsor, Maidenhead, dish of Black Prince Grapes
Mr. J. Hollingworth, Maidenhead, Kent, for Muscat Grapes
Mr. J. Pottle, Gr. to B. D. Colvin, Esq., The Grove, Bealings, Suffolk, for dish of Muscat Grapes
Mr. J. Tegg, Gr. to Duke of Newcastle, Clumber, Worksop, for dish of Frontignan Grapes
Mr. J. Wilmot, Hounslow, for dish of Grapes
Mr. S. Snow, Gr. to Countess Cowper, Silsoe, Beds, for dish of Peaches
Mr. W. Linn, Gr., for dish of Nectarines
Mr. G. Miles, Gr. to Lord Carrington, Bucks, for dish of Nectarines
Mr. G. Gordon, Gr., for dish of Black Cherries
Mr. J. Enstone, Gr. to Sir J. Duckworth, Bart., Weare, Exeter, for dish of White Cherries
Mr. R. Clarke, Market Garden, Twickenham, for 2 dishes of Straw-
Mr. G. Osborne, for basket of Peaches [berries
Mr. W. Allen, Gr., for box of Nectarines
Mr. G. Mills, Gr., for dish of Figs
Mr. W. Hill, Gr., for basket of Grapes

BRONZE MEDAL.

Messrs. Paul & Son, for 24 Cut Roses
Mr. H. Hooper, Nurseryman, Bath, for 12 Carnations
Mr. H. Hooper, for 24 Pinks
Mr. W. Bragg, Nurseryman, Slough, for 24 Pinks
Mr. H. Hooper, for 36 Pansies
Mr. E. F. Kingstone, Bath, for 12 Pinks
Mr. E. F. Kingstone, for 24 Pansies
Mr. T. Young, Gr., Aberaman Park, Glamorgan, for Providence Pine
Mr. R. Smee, Gr. to W. H. Stone, Esq., Dulwich, for Queen Pine
Mr. R. Budd, Gr. to Earl Darnley, Gravesend, for Green-fleshed
Mr. J. Enstone, Gr., for Scarlet-fleshed Melon [Melon
Mr. J. Hollingworth, for Black Hamburgh Grapes
Mr. R. Peachey, Gr. to R. Hole, Esq., Queen Lodge, Loughborough, for dish of Frontignan Grapes
Mr. J. Perkins, Gr. to C. Keyser, Esq., Warren House, Stanmore, for dish of Peaches
Mr. J. Enstone, Gr., for dish of Peaches
Mr. W. Whitaker, Gr. to Lord Crewe, Crewe Hall, Cheshire, dish of Nectarines
Mr. S. Chambers, Gr. to H. Fowler, Esq., Woodford, Essex, for dish of Black Cherries
Mr. I. Hill, Gr. to R. Hanbury, Esq., for White Cherries
Mr. J. Douglass, Gr., for 2 dishes of Strawberries
Mr. C. Penny, Gr., for 4 Queen Pines
Mr. M. Henderson, Gr., for box of Grapes

CERTIFICATES.

Mr. T. Shortt, Gr. to Viscount Eversley, Heckfield, for Passiflora macrocarpa in Fruit
Mr. H. Hooper, for 24 Pansies
Mr. W. Page, Gr., for Orchis fohosa
Mr. B. S. Williams, for collection of Amaryllis
Mr. R. B. Postans, Brentwood, for 24 cut Roses
Mr. Ingle, Gr., for 24 cut Roses
Mr. C. Langley, Gr. to R. B. Wrey, Esq., Lyme Regis, Dorset, Green-fleshed Melon
Mr. A. Johnson, Gr. to Marquis of Ailesbury, Marlborough, Green-fleshed Melon
Mr. J. Wallis, Gr. to J. Dixon, Esq., Astle Park, Cheshire, for dish of Peaches
Mr. W. Fernehough, Gr. to R. O. Leycester, Esq., Loxford Hall, Cheshire
Mr. T. Perkins, Gr., for dish of Nectarines
Mr. J. Enstone, Gr., for dish of Nectarines
Mr. C. Penford, Gr., for Black Cherries
Mr. J. Enstone, Gr., for Black Cherries
Mr. I. Hill, Gr., for White Cherries
Mr. R. Budd, Gr. for 2 dishes of Strawberries

FIRST-CLASS CERTIFICATES.

E. B. Foster, Esq., for Pelargonium Sœur de Charité [Comet
Messrs. Downie, Laird & Laing, Forest Hill, for Nosegay Pelargonium
Messrs. Downie, Laird & Laing, for Nosegay Pelargonium Floribunda
G. W. Hoyle, Esq., Reading, for Pelargonium Needle Gun
Messrs. J. Carter & Co., 237, High Holborn, for Variegated Zonal Pelargonium Prince of Wales
Messrs. J. Carter & Co., for Variegated Zonal Pelargonium Princess
Mr. C. Turner, for Rose Miss Ingram [of Wales
Messrs. J. Veitch & Sons, for Dracæna regina
Messrs. J. Veitch & Sons, for Dracæna Moorei
Messrs. J. Veitch & Sons, for Begonia boliviensis
Messrs. J. Veitch & Sons, for Alocasia (hybrida) intermedia
Messrs. J. Veitch & Sons, for Dendrobium Bensoniæ
Messrs. J. Veitch & Sons, for Cattleya Brabantiæ
Messrs. E. G. Henderson & Son, for Aucuba sulphurea
Mr. W. Wilson, Gr. to Wm. Marshall, Esq., for Odontoglossum roseum
E. J. Lowe, Esq., for Athyrium Filix-fœmina umbraculæforme
E. J. Lowe, Esq., for Scolopendrium vulgare formosum
E. J. Lowe, Esq., for Scolopendrium vulgare notabile
E. J. Lowe, Esq., for Scolopendrium vulgare marginatum undulatum
E. J. Lowe, Esq., for Scolopendrium vulgare stenomenon
Messrs. Edwards & Son, Nurserymen, Nuttall, Nottinghamshire, for Athyrium Filix-fœmina Edwardsii
Messrs. Edwards & Son, for Scolopendrium vulgare Edwardsii
Mr. Fraser, Lea Bridge Road Nursery, Leyton, for Pelargonium Empereur
Messrs. Ivery & Son, Reigate and Dorking, for Polystichum angulare brachiatum cristatum
Messrs. Ivery & Son, for Scolopendrium vulgare marginatum triforme
Mr. W. Bull, for Oreodoxa sanchona
Mr. W. Bull, for Calamus adspersus
Mr. W. Bull, for Oreodoxa regia
Mr. W. Bull, for Arenga saccharifera
Mr. W. Bull, for Calamus javanica
Mr. W. Bull, for Astrocaryum niveum [Pelargonium Retaliator
Mr. J. Aldred, 22, Bridge Street, Kilburn, for Variegated Zonal
Mr. G. Smith, Tollington Nursery, Hornsey Road, for Nosegay Pelargonium First Favourite
E. B. Foster, Esq., for Pelargonium Hermit
E. B. Foster, Esq., for Pelargonium Empress

SECOND-CLASS CERTIFICATES.

Messrs. E. G. Henderson & Son, for Gnaphalium Mannii
Messrs. E. G. Henderson & Son, for Cyperus Lacouri
Messrs. E. G. Henderson & Son, for Ficus Suringarii
Mr. W. Wilson, Gr. to Wm. Marshall, Esq., Clay Hill, Enfield Middlesex, for Odontoglossum cristatum
Mr. Lawrence, Gr. to his Grace the Bishop of Winchester, for Trichopilia turialva
Messrs. Ivery & Son, Reigate and Dorking, for Scolopendrium vulgare Elworthii

GRAND HORTICULTURAL EXHIBITION at BURY ST. EDMUNDS, in connection with the SHOW of the ROYAL AGRICULTURAL SOCIETY, JULY 16, 1867, and four following Days.

Amongst various Special Prizes, amounting in value to nearly £300, and exclusive of the ordinary Prize Schedule,

A SILVER CUP, VALUE £20,

will be offered by the Proprietors of the GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE for the best COLLECTION of FRUITS and VEGETABLES, to be made up as follows:—

Of FRUITS, any Five of the following Eight kinds, one Dish of each:—Grapes, Melons (2 fruits), Strawberries, Gooseberries, Currants, Cherries, Raspberries, or Apples (of the crop of 1866).

Of VEGETABLES, any Eight of the following Fourteen kinds, one basket or bundle of each:—Peas, French Beans (or Scarlet Runners), Broad Beans, Cauliflowers, Cucumbers (grace), Summer Cabbages, Early Carrots, Turnips, Artichokes, Onions, Spinach, Rhubarb, Potatos, or Mixed Salading.

The Cup will be open to Competition amongst Amateur or Professional Gardeners, of all grades, with Fruit and Vegetables of *their own growing*; any article otherwise obtained will disqualify the exhibitor.

THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.

The TWENTY-FOURTH ANNIVERSARY FESTIVAL will take place at the LONDON TAVERN, BISHOPSGATE STREET, LONDON, on THURSDAY, June 27.

President of the Day.

THE RIGHT HON. SIR ROBERT PEEL, Bart., M.P.

Board of Stewards.

George Child, Esq., *Chairman*
His Grace the Duke of Buccleugh, K.G.
His Grace the Duke of Devonshire, K.G., F.R.S.
The Right Hon. Earl Ducie
The Right Hon. Lord Egerton of Tatton
The Right Hon. Lord Londesborough
The Right Hon. Lord Viscount Sandon
The Right Hon. Sir William Hutt, K.C.B., M.P.
The Hon. E. Parker Jervis
The Baron Lionel de Rothschild, M.P.
Sir William Knighton, Bart.
Sir Oswald Mosley, Bart.
Sir Roderick Murchison, Bart., F.R.S.
Sir Walter Stirling, Bart.
Professor Owen

James Bateman, Esq., F.R.S.	Charles Lawson, Esq.
Robert Broadwater, Esq.	Henry Graham Lawson, Esq.
J. B. Browne, Esq.	George S. Lawson, Esq.
William Bull, Esq., F.L.S.	C. N. Newdegate, Esq., M.P.
W. Wentworth Buller, Esq.	Donald Nicoll, Esq.
Colin M. Campbell, Esq.	George Warde Norman, Esq.
James Crispe, Esq.	Wm. J. Nutting, Esq., Jun.
Richard Davey, Esq., M.P.	Thomas Osborne, Esq.
John Day, Esq.	Chas. Ratcliff, Esq.
E. Easton, Esq.	Mr. Alderman Salomons, M.P.
Pierce Egan, Esq.	W. Wilson Saunders, Esq. F.R.S.
Francis Fuller, Esq.	John Spencer, Esq.
James Heywood, Esq.	Harry G. Veitch, Esq.
Andrew Henderson, Esq.	James Veitch, Esq., F.L.S.
Robt. Steiner Holford, Esq., M.P.	R. S. Vivian, Esq.
William Hurst, Esq., Jun.	Robert Warner, Esq.
Colonel Jeakes	Henaleigh Wedgwood, Esq.
W. S. Johnson, Esq.	G. F. Wilson, Esq., F.R.S.

Dinner upon Table at 6 o'Clock precisely. Tickets, 21*s.* each. Ladies' Tickets for the Gallery, 7*s.* 6*d.*, for whom a Handsome Collation is provided.

EDWARD R. CUTLER, Secretary.
14, Tavistock Row, Covent Garden, W.C.

The Gardeners' Chronicle.

SATURDAY, JUNE 22, 1867.

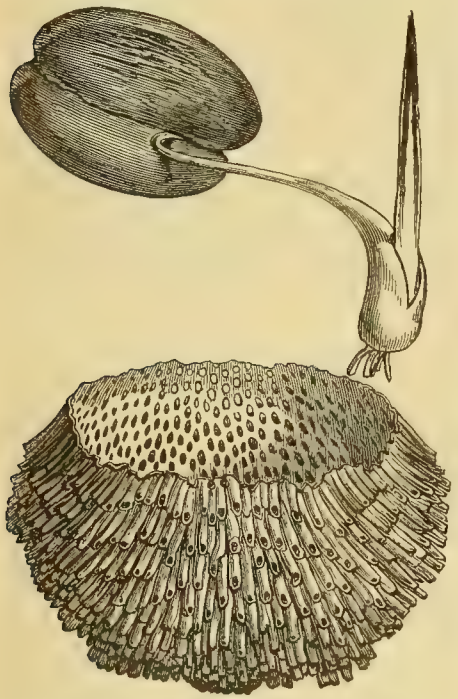
THE many curious facts connected with the history and structure of the DOUBLE COCOA-NUT PALM (Lodoicea seychellarum) have been frequently alluded to, but these, though interesting, are not novel. The newest point of interest connected with this remarkable Palm is the singular bowl or socket-like portion of the trunk, which was figured in our columns in 1865, and which figure we here reproduce. The probabilities and possibilities of the formation of this apparently abnormal appendage were much discussed at the time it was first brought into notice. The trunks of the trees were described as absolutely rocking or swaying during high winds in this natural bowl, and the fibrous roots penetrating the tubes were said to be so elastic as to "give" with the motion of the trunk. The questions naturally enough asked, in reference to this description, were "what relation can the bowl bear to the trunk?" "how could it have been first formed?" and "at what period could the separation of the two have taken place?" To these questions we had at that time arrived at no satisfactory answer, with the exception that, so far as the formation of such an appendage went, we had a clue to it in the fibrous sheathing base of the young leaves at the end of the long germ. Germinating fruits were to be seen at Kew, and by the side of them the hard, perforated socket. A link was wanting, which to our minds has now been supplied, for the Kew Museum has lately been enriched by the addition of another socket, in which the lower portion of the trunk itself remains in *situ*. To an ordinary observer there would appear to be nothing remarkable about the rooting portion of this trunk. The rootlets or fibrous bundles appear only of an adequate thickness to the rest of the tree, and the spaces between the tubes through which these rootlets pass are filled up with coarse, stony gravel. The specimen lately received is much smaller, and apparently much younger, than the socket received some three or four years back. The diameter of the trunk itself is 10½ inches, and the greatest diameter of the block is 2 feet 3 inches, the total height of the specimen being about 3 feet.

Upon cutting the block vertically down the centre, the wood proved to be very soft, until

the saw encountered the hard, dense substance of the bowl. The line of the formation of the bowl is very distinctly seen in the section, though it and the trunk are in no way detached from each other, but are firmly fixed together; indeed they appear to be part and parcel of the same.

The fibrous roots which pass through the tubes are continued into the mass of cellular tissue of which the lower part of the trunk is composed; these fibres appear very similar in form and structure to the well-known dark woody bundles which are dispersed through the cellular tissue of the Palms, and which give strength and hardness to their trunks. From an examination of this specimen it appears impossible that the trees can ever have the slightest motion below the level of the ground, even in the highest winds. We suspect that when this motion has been seen, it has been in the case of trees the lower part of whose trunks has partially decayed, and being so much softer than the bowl the latter has remained sound for a much longer period.

Though the specimen now at Kew appears to decide the question as to the absolute union of the bowl and trunk in their living state, the interest is not diminished as to the manner of formation of the former. It seems clear from an examination of the fruits which have germinated but not survived in this country, that in their youngest state these bowls are simply the fibrous sheaths before spoken of, the fibres of which,



however, are very brittle and black. May not these fibres correspond with the woody bundles of the trunk, and having become larger and more thickly placed, have, like the circumference of the trunk itself, become of much greater density? If this be so, the roots must either have grown with or penetrated the socket when very young, the tubes, rootlets, and indeed the whole mass having gone on increasing at the same ratio.

If more attention were paid to the mode of germination of the Palms, or rather their manner of rooting, we believe that the Double Cocoa-nut would not be found to be alone in this peculiar root formation. Something similar, though not of such regular form, occurs in many other Palms, particularly in Attalea, Thrinax, &c. To examine these properly, however, in the various stages of their growth, many valuable plants would have to be sacrificed.

—— We have more than once called attention to the fruit of MONSTERA DELICIOSA, as a choice occasional addition to the dessert, but the presence in the pulp of minute prickly crystals or raphides has been thought to detract very much from its merit as an edible fruit. We find however that if the fruit is thoroughly ripened on the plant the delicious juice may be sucked from the pulp with very little, if any, of the unpleasant sensation caused by eating the substance of the fruit itself in the earlier stages of ripeness; and the flavour is, as might be expected, much richer when the fruit is thus thoroughly matured. The fruits take about a year, more or less, to swell and ripen. The supply of an occasional fruit of Monstera is no chimera. We have ourselves, from a plant only some three or four years old, and confined in a half-bushel pot, gathered half a dozen fruits during the present season, and the same plant has now five other spadices just passing through the flowering stage. What we mean by thorough ripening on the plant will be understood when we explain, that though the half dozen spadices flowered in succession within an interval of three or four weeks last summer, the earlier fruits had appeared to become ripe by the end of January, while the latest has only just been gathered. This latter had been kept on the plant by supporting it with a tie to the adjoining leaf-stalk, their weight being sufficient, if they are not thus supported, to break them over at a much earlier stage, just at the top of the stalk.

—— The extraordinary establishment at LA MUETTE, near Paris, destined for the supply of plants to the public gardens, &c., of that capital, has been frequently mentioned in our columns in terms of commendation. When our first notices appeared they were received in certain quarters with some amount of incredulity. The letters of our correspondents since the opening of the Exhibition have, however, more than confirmed the original statements, and shown the extraordinary activity that is manifested in horticultural matters by the municipality of Paris. From a report before us we find that in the year 1865 there were at La Muette 101 gardeners and pupils; that the number of plants sent out for the decoration of the squares and parks of Paris during the same year amounted to 1,575,500; while from a branch establishment devoted to the growth of Conifers, 3187 plants were sent out, and from the nursery of Longchamp, 23,379 hardy trees and shrubs (not Conifers) were distributed. The actual cost per plant, taking one with another, amounted only to 13 centimes, or little more than a penny.

—— Probably the best plant of VANILLA in cultivation in this country is to be found at the present time in the Sheffield Botanic Garden. There, in the Victoria house, at the western extremity of the fine range of hothouses which that garden contains, it is growing in the greatest luxuriance, and fruiting freely under the management of the estimable Curator, Mr. EWING. It is planted in a border at the end of the house, occupying fully half the width of the structure, and is trained parallel with, and at a short distance from, the upright sashes, before which it forms a thick screen from the floor to the roof, and it would soon cover a much larger space if accommodation were afforded it. Mr. EWING's object in planting it in this situation was to secure a plentiful circulation of air about it. We believe the fine plant at Osberton, from which Mr. BENNETT exhibited ripe pods at the International Show last year, was formerly under Mr. EWING's care.

—— Those who have not yet learned how to make the most of SELAGINELLAS as decorative plants should pay a visit to the Sheffield Botanic Garden, where they may see how well Mr. EWING has turned them to account. The north wall of his Victoria house is draped with them, several species being mixed up together, and the contrast of form and colour is most pleasing. Indeed, we have never seen so pretty an effect produced by these refreshing-looking plants in any other situation. The wall is faced with a 6-inch layer of coarse peat and rubble, with a little Moss outside, the whole being held in position by strong galvanised wire netting, with rather wide diamond-shaped meshes; and the only attention required by the plants is a damping with the syringe daily.

—— Always on the look out for illustrations of the VARIABILITY of what are termed species, M. CARRIÈRE, in a recent number of the *Revue Horticole*, says that seeds of Pæonia Wittmanniana produce plants of P. officinalis, and that in the same way Cratægus linearis may be shown to be a mere form of C. Oxyacantha.

—— M. CARRIÈRE assures us that while in the case of the PYRAMIDAL ACACIA (Robinia Pseud-acacia fastigiata), if a cutting or a graft be taken from the upper portion of the tree, the fastigiate habit will be reproduced, and the branches will be furrowed and covered with short prickles; yet if the plant be multiplied by detaching portions of the root, then instead of getting a pyramidal tree with erect branches, a spreading bushy shrub is produced, with more or less horizontal cylindrical branches, destitute of prickles.

—— A correspondent has just forwarded to us from Londonderry a curious Plum, which merits a few observations. The tree which bore it, with about 30 others of the same kind, belongs to the variety called Mogul, the same, according to HOGG's "Fruit Manual," as the Red Magnum Bonum. The tree blossomed fairly, and the fruit when set swelled, assuming a broad clavate form, reminding us of a young bread-fruit, with fleshy walls, but entirely devoid of any trace of stone. A similar case is described by Dr. ROBB, in Sir W. HOOKER's "Journal of Botany, vol. iii., p. 99, with illustrative figures. The specimens there described were produced at New Brunswick, where Plum trees flower very freely, but seldom produce ripe fruit. Dr. ROBB's account is as follows:—In the summer of 1839 I had an opportunity of watching the process of destruction among the Plums, and it was as follows:—Before or soon after the segments of the corolla had fallen off, the ovarium had become greenish-yellow, soft, and flabby; as the fruit continued to increase in magnitude, its colour grew darker and of a more ruddy yellow, and at the end of a fortnight or three weeks the size of the abortive fruit rather exceeded that of a ripe Walnut. In fact, an observer might imagine himself to be walking amongst trees laden with ripe Apricots, but like the fabled fruit on the banks of the Dead Sea, these Plums, though tempting to the eye, when examined, were found to be hollow, containing air, and consisting only of a distended skin, insipid, and tasteless. By-and-by a greenish mould is developed on the surface of the blighted fruit; then the surface becomes black and shrivelled, and at the expiration of a month from the time of flowering the whole are rotten and decomposed. The flower appears about the beginning of June, and before August there is hardly a Plum to be seen. It is curious that where two flower stalks arise from one point of the branch, one will often go on to ripen in the normal way, while the other will become abortive, as above described. A case of the kind is mentioned in DE CANDOLLE's memoir on the Leguminosæ, where the Plums assumed an elongated form, and we have had abundant specimens of a similar character in the Common Sloe. In the specimen before us two distinct ovules of equal size appear close to the apex of the fruit, connected with the base by vessels running down the walls; but the fruit was so crushed in the post that we are unable to examine their structure. It should be observed that there is a worthless variety of Plum, Kirke's Stoneless, or Sans Noyau, specimens of which were exhibited last year at South Kensington, in which the kernel is not surrounded by any bony deposit. *M. J. B.*

—— Planters of HORSE CHESTNUTS would do well to bear in mind the nuisance occasioned near towns by boys in their attempts to knock down the seeds. In Paris it seems they are planting the double-flowered variety, which while it forms as fine a tree as the single-flowered kind, has the further advantage of retaining its flowers for a much longer period, and of preventing the dangerous practice before mentioned. Poor boys!

—— Drs. ANDERSON and CLEGHORN have recently issued a report on the INTRODUCTION OF THE MAHOGANY TREE INTO INDIA. From the report in question it appears that the Mahogany thrives well in India, and that its culture might profitably be extended by procuring seeds from Jamaica. As these seeds soon lose vitality, they should be packed in dry charcoal, and transmitted to India with as little delay as possible. The Report in question gives the following interesting details:—

"Several of the trees originally introduced into the Calcutta Botanic Gardens in 1795 from Jamaica as young trees were destroyed in the great cyclone of 1864, when the trees were probably 71 years of age, from the time the seeds producing them sprouted. These trees had, in that time, attained a very large size, averaging about 12 feet in girth at 4 feet above the ground. A log taken from one of these trees, and consisting merely of the trunk to the commencement of the first branches at a height of 13 feet above the ground, gave, after squaring and removal of the sap wood, 169 cubic feet of timber. This log has not been sold yet, but two offers have been made for it, ranging between 4¼ annas and 5 annas for the superficial foot 1 inch thick, or about 600 rupees for the entire log. In the Calcutta Timber Market Report which appeared shortly after the sale, the following report was given:—'Country wood refers to a public sale, held on behalf of Government, of trees blown down in the Botanical Gardens during the 1864 cyclone. The Mahogany brought extreme prices, and so did the Sissoo, both descriptions being much wanted by the trade.' I understand that the Mahogany was found by the original purchasers to be of so good quality that a considerable profit was obtained in selling it by retail."

"From 1795 until August, 1865, there were no new introductions of mahogany into India. In 1865, 183 pods containing 8235 seeds were received from the Government of Jamaica, on requisition by Dr. THOMAS ANDERSON, Superintendent, Botanical Gardens, and these were taken from trees grown in that island. The pods were packed in three boxes, two of which were ventilated, and the third air-tight. The seeds in the former (6235) were received in apparently good condition, while those in the latter (1980) were quite mouldy; all were, however, sown on the 7th August, 1865, and on the 18th of the same month they began to germinate; but in the end only 460 plants were produced, and these were from the seeds in the ventilated boxes, those in the air-tight one having entirely failed; 338 of these plants were sent to Darjeeling to be planted in the Terai, and the remaining 112 were kept in the Botanic Gardens.

"In 1864 there were 69 trees of large size growing in the Garden, besides numerous small ones, averaging upwards of 1 foot in diameter. Many of the former were blown down by the cyclone of 1864, and when they were examined the roots of the majority of them were found to be more or less decayed, owing, in all probability, to the richness and dampness of the alluvial soil in which they were planted. The dimensions of the largest tree now in the Garden are as follow:—

	Ft.	in.
Circumference at 4 feet above ground	14	3½
Ditto 5 feet ditto	14	2
Ditto 6 feet ditto	14	2
Length of bole	13	0
Extreme height of tree	150	0
Spread of branches	102	0

And the following are the dimensions of a log at present lying in the Gardens, cut from one of the trees blown down in the cyclone:—

	Ft.	in.
Length	13	9
Mean breadth	0	51
Mean depth	0	34
Cubic contents	169	2

To contrast with the above, the following are the measurements of the largest log cut in the Honduras up to the year 1830:—

	Ft.	in.
Length	17	0
Breadth	0	57
Depth	0	64
Cubic contents	430	8

—— We extract the following particulars relating to the BOTANICAL CONGRESS in Paris in August next, from the Bulletin of the Botanical Society of France:—"The International Congress will profit by the results of the London Congress and by the pacific state of Europe. M. A. DE CANDOLLE, who it is hoped will be present at the Congress, is to draw up a programme in which the different contested points as to the nomenclature, &c., of plants will be noted for discussion. Many objects of botanical interest will be exhibited, especially some fine collections of fossil plants."

—— We may remind our readers that the anniversary festival of the GARDENERS' ROYAL BENEVOLENT INSTITUTION will take place at the London Tavern, Bishopsgate Street, on Thursday next, at 6 P.M. The advertisement in another column will show how large and influential is the board of Stewards

on this occasion; and we trust not only that there will be a large gathering, but that those who have the power will contribute largely to the supply of flowers and fruit for the decoration of the table.

New Plants.

CYRTODEIRA CHONTALENSIS, *Seem. sp. n.*

Cirsuta; foliis ovatis v. ovato-oblongis acutis basi subcordatis serratis reticulatim rugosis, supra variegato smaragdino atro viridibus, subtus purpurascentibus; lobis calycinis 5 spathulato-linearibus, corolla tubo (albo) elongato, laciniis obovato-rotundatis crenatis, intus lilacinis, extus albidis, fauci flavo; ovario glabro.

This is one of the finest plants of the Chontales gold region of Central America, and was first found by my able assistant, Mr. James Griffin, at the Pavon end of the Javali Mine, where it grew in only a very small spot—shady groves on the banks of a rivulet. Although we became afterwards well acquainted with the vegetation of the district, we never met the plant anywhere but there; and after we had taken up 60 specimens, and planted them in a miniature Wardian case, fire had to be set to the very spot where the Cyrtodeira grew. The 60 specimens took root readily, and in April last a boy was engaged to carry them on his saddle before him to Leon, a distance of about 80 leagues. All went on well till one evening darkness overtook us on the immense grassy plains of Tipitapas, and the boy's mule fell into one of those wide cracks which always form in the tropics during the dry season where the ground is clayey. Down came the Wardian case with a heavy crash, and one-half of our plants were lost. The other half looked well enough till within about 2 miles of the port of embarkation, when the waggon in which, for greater safety sake, they had been placed, went into a deep hole, and turned right over. This time all but six specimens were destroyed, and these were so much injured that, when we arrived at London, and handed them to Mr. Bull, of Chelsea, only one was in a sound condition; but that one is now, I am happy to hear, doing well, and may become the progenitor of a numerous race. This little narrative shows what trouble the introduction of new plants requires, and how unforeseen accidents will interfere with well-devised plans.

Cyrtodeira chontalensis is one of the most beautiful Gesneraceous plants I have seen. The leaves are purple on the under side, and on the upper light green (like those of Begonia smaragdina), with very dark green blotches. The flowers appear in November and December, and are lilac, and as large as a crown piece, with a yellow centre, and a whitish tube. The roots are fibrous (not catkin-like rhizomes, as in the Achimenes tribe); and in habit the plant resembles the only other known species of the genus (C. cupreata, Hanstein), which has smaller and scarlet flowers, and a hairy ovary.

I may add that the climate of the Chontales gold region appears favourable to the development of plants with variegated leaves. There are some fine species of Costus (including, besides the well-known C. zebrinus and malortianus, several new ones); two beautiful species of Cissus, one with bright scarlet flowers (also introduced by me), and several Marantaceæ and Aroideæ. *B. Seemann.*

EPIDENDRUM SOPHRONITIS, *Lind. Rchb. et fil.*

(Aulizeum Hormidium) pseudobulbis abbreviatis subovatis monophyllis, folio carnosissimo oblongo acuto discolori, floribus solitariis usque ternis, subsessilibus, sepalo summo triangulo, sepalis lateralibus triangulo falcatis, petalis falcatis, labelli adnati lamina triangula utrinque nunc apicem versus unidentata, carina per discum, columna utrinque unilobata juxta androclinium.

A dwarf species introduced by Mr. Linden, and later by Messrs. Backhouse, who, as it would appear, have their collectors hunting over the same grounds. Mr. Linden's collector, who condescended to dry a single flower, remarks that the stiff leaves are covered with a whitish mealy hue. The flowers he calls greenish with violet stripes, and small glands, and the lip covered with a glandular juice. He has sent a sketch of a vigorous plant. Messrs. Backhouse's collector sent a dried specimen and a coloured sketch. This proves the leaves to be purplish on the underside, the sepals and petals white, streaked with purple, the lip purple, and the limb of the anther-bed purplish. The representation is inferior to the dried specimen. The plant is a curiosity in several points, and the largest type of those Aulizea which Dr. Lindley called Hormidia, from their being miserable objects. We scarcely think amateurs will be very desirous of making the acquaintance of this plant, provided they do not become less desirous for large Orchids after studying Mr. Saunders' "Refuge" now in preparation. *H. G. Rchb. f.*

ORCHIDS AND THEIR CULTIVATION.

No. XVI.

(*Continued from p. 77*).

ADHERING to the line of arrangement marked out in a previous paper, I propose to classify the Oncidiums into three different groups, giving a brief outline or diagnosis of the more prominent features of the plants, and appending any other practical remarks which may seem to me to be of a useful nature for advancing the interests of cultivation. The first group taken up will be the extreme cold section, comprising such plants as will live in any ordinarily managed greenhouse in summer, and can be successfully wintered in a minimum ranging between 36° and 45°. I have never sided with the parties holding extreme views in cool Orchid treatment, not because of their views being altogether erroneous, but simply because I deemed that an initiatory practice based upon such counsel, was calculated to do harm. My notions in this respect, as may be gathered from the figures above quoted, may seem to many verging on the extreme, and my counsel and leadings may be accordingly doubted. If novices in practice, in feeling their way, do not abuse these figures of temperature for the undernoted varieties, practised growers know well enough that, all other things being equal, success is a matter of certainty. To oscillate between the two extremes in cold frosty weather is safe practice, while to exceed the maximum given, by means of dry artificial heat, is pregnant with damaging results, and to transgress the minimum is equally if not more fatal. As to the summer management—in the details of which growers, in days past, were accustomed uniformly to fall into error—abundance of ventilation, and an equally abundant supply of water for a root and atmosphere supply, constitute the main heads of a successful practice. These are just the very points that were not half understood, and a little reflection will show the absolute necessity for enjoining and enforcing a rigid observance of such important particulars in cultural routine. Most of the species that we are about to treat upon are indigenous to the loftiest ranges of the world—to the Andes and Cordilleras of tropical America—where air currents and moisture play and act a very different part upon vegetation than is the case in the low countries. I said a greenhouse treatment, but by way of an auxiliary for geothermal purposes (which does not seem to impress growers half so much as it ought to do), artificial heat by means of hot-water pipes, or any of the other modes in operation, should never be wanting. It acts in the capacity of administering ground heat to the roots, as well as assisting air circulation, and may also be looked upon as a substitute for draining superfluous moisture. With a little artificial heat, then, the plants may be treated in all respects as is the case with a common greenhouse, only the house, unless on very warm nights, had better be shut up about 8 or 9 o'clock.

The members of the Oncid family are extraordinarily numerous, and it will be my object to enumerate only such as are under general cultivation, putting aside the many prominent and well certificated sorts, according to collector's notions, that have been recently introduced from Peru, until a more fitting opportunity occurs for testing their merits. This much may be said, that the whole of them, including the beautiful nubigenum coming from that alpine altitude, seem to grow to best advantage in a moderately cool house.

O. bifolium, Lindley.—Monte Video. This is one of the most elegant of the Oncidia, possessing roundly-ovate bulbs when grown in first-rate condition, fat and plump, scarcely showing the slightest corrugation on the surface. Occasionally it is to be met with a little oblong, looking variable in character of growth upon imported plants. Placed, however, under the same treatment they assume forms very similar. The pseudobulbs are mottled irregularly over the surface with black, and are adorned each with a pair of terminal leaves, as a rule, which was one of the principal reasons for naming it bifolium. I have it however, in some instances, with three instead of two terminal linear-lanceolate leaves, the one leaf generally a little broader than the other, a distinction holding good throughout. At one time it was supposed that this would not produce a branched raceme or panicle. Cultivation has dispelled that illusion, for both at the International of 1866, and in several private places since, there have been no want of branched racemes. It is capable of producing them with from 10 to 16 flowers made up of nearly uniform sepals and petals rather narrow and short, of a yellow ground-colour with brown blotches; labellum very large, of a fine deep rich yellow, about an inch across, with calli very prominent, and densely spotted and blotched with brown; the basal portion of the lip is also adorned with two small yellow wings. A plant with a single spike will remain in bloom from eight to nine weeks; period of flowering, May and June. It should neither be treated to bare block nor pot culture, but suspended near the glass in earthenware pots if possible, these being better adapted for retaining moisture than wooden baskets of any make.

O. cornigerum, Lindley.—Brazil and New Grenada. A most distinct grower, with cylindrical or conical pseudobulbs from 6 to 9 inches long, bearing elliptic lanceolate leaves, smooth, and of a very deep-coloured sombre shade of green; in point of substance the leaves are not much less fleshy than those of a Phalænopsis, and on that account it is more likely to suffer from extremes of fatigue than most others of its congeners. It emits its marbled flower-stalks from the growth in a state of maturation, and is ornamented with a gay panicle of flowers having a yellow ground and Indian red blotches and spots. Under more extended culture I have a very favourable impression of the decorative importance of this plant. Period of flowering, April and May.

O. cucullatum, Lindley.—Peru. The very fact of such an ornamental subject as this coming from the Peruvian Andes invests all its fellows with proportionate interest. Its pseudobulbs are ovate, with a short and generally solitary leaf, of elliptic acuminate form, at the extremity. The flower raceme proceeds from young growth in process of development, and produces from three to eight flowers of a highly ornamental character; inferior sepals connate, dorsal sepal and petals uniform, ovate, of a vandyke brown, tipped with indecisive yellow; the labellum is of a pale flesh ground with most prominent highly-coloured violet spots arranged densely over its surface, and running to a densely blotched base of yellow calli, its form being spreading and bifid. There are a great variety of shades of violet in this O. cucullatum, from a very pale ground and less highly-coloured spotting, to the very high coloured one above described. It flowers at different periods of the year as the young growths are finishing, but generally speaking from November to April. It is by far the most important addition that Oncidiums have received for years, and now that we are in the way of cool treatment it is to be hoped that it will never be lost to the country again. Common pot culture is well suited for it. Some plants of the variety giganteum we have received, principally through M. Linden, are making nice specimens, capable, judging comparatively, of yielding an inflorescence far in excess of the estimated number which the common sorts have produced. It is one of the hardiest of the race, and should be prescribed for, and attended to accordingly.

O. flexuosum, Sims.—Brazil. One of the oldest and brightest of the yellow division of the family. Its pseudobulbs are flat, ovate, and shining, its leaves lanceolate, and its flowers produced in terminal corymbs at the top of a very slender stem. As it is so well known it need not be minutely described. As a plant bearing cool winter treatment, it has no equal. It is better, however, to be re-invigorated with a good brisk heat during the summer and autumn months to mature its growth, which takes it a little out of the cool section.

O. incurvum, Barker.—Oaxaca, Mexico. No one who takes delight in flowers, be they Orchids or not, can fail to be struck with the quiet beauty and the general traits of elegance of the inflorescence of this species; yet it does not seem to be a plant in general cultivation. The white and violet flowers which crowd together up the flower stems are like so many elegantly dressed dolls, with pink boddices and white skirts. If it were not of the easiest possible culture one could understand its scarcity. Could the many gentlemen who are beginning Orchid cultivation be induced to try their hand with this subject as a cool plant, treated upon the principles laid down in the series of articles which have from time to time appeared in the *Gardeners' Chronicle*, I would engage that they would not be disappointed when the period of flowering came round. A large plant flowers twice a year, and it will remain in faultless condition in a cool temperature for eight weeks. The plant itself forms a handsome specimen, with ovate wrinkled pseudobulbs, which in the growing season drink up water like a pumpkin, and bearing oblong lanceolate leaves, about 2 feet in length, the terminal ones sheathing together in pairs. The flower panicles are emitted freely from the young growths in process of maturation, bearing each from 150 to 200 flowers! Judge of such a plant with 20 such panicles, as can be seen frequently in autumn. The sepals are recurved; the petals inclined forwards, nearly uniform, rosy pink, tipped with white; the labellum contracted towards the extremity, its lower portion expanded and white, its upper portion gathered a little outwards at the edges, giving it a rounded appearance, and of a pink sometimes inclining to a violet shade; flowers nearly three-quarters of an inch across. Period of blooming from June till January, rendering it one of the most serviceable plants in general cultivation.

O. leucochilum, Bateman.—Mexico, Guatemala. This variety improves more under cultivation than any other Oncid with which I am acquainted. The best imported bulbs I have ever seen can be beaten fourfold with generous treatment in our greenhouse Orchid-houses. The plant yields immense roundly ovate pseudobulbs, so plump as to appear almost conical, and very slightly grooved. The brown ochre tint which pervades the fine-finished exterior of the bulbs, shining as if polished, at once gives a character to the plant. When in vigour it very often has bulbs about 3 inches long, crowned with a pair of lanceolate leaves, very smooth, and of a nice healthy green. The flower racemes or panicles are produced from the young growths, sometimes as many as four spikes from one bulb, and each bearing from 12 to 30 flowers. Sepals and petals linear and uniform, with a long cleft or divided labellum, lilac and white suffused, some of the varieties being of a rich rosy lilac, and very prepossessing in appearance; general appearance like a bird in the act of flying, with short neck and small head, in the shape of the usual hood, which protects the apex of column; calli very much raised and pronged, with a dash of lemon pervading the base. Period of flowering from September to February, and duration of a single spike from six to eight weeks. Very easily managed as a cool plant, and certain when known to give unqualified satisfaction.

O. reflexum, Lindley.—Mexico. This bears a very round pseudobulb, fat and plump, with the central divisions prominent. Other three divisions also show up in the outline on either side, and the whole is as glossy and transparent as any sample of vegetable produce could be. The leaves are about 9 inches long, lanceolate; and the flower panicle comes from the maturing growth, bearing rich golden-lipped flowers with sepals and petals small, uniform, wavy in outline, of a bistre hue, with slight blendings of yellowish green or rather olive; labellum fully an inch across, with two short flat lobes on either side of the column, and of a nice chrome yellow. Period of flowering, June and July, and duration of each branched raceme about four weeks. This improves very much under good culture, and is upon the whole a very desirable plant to have in any collection.

O. Wentworthianum, Bateman.—Guatemala. This possesses oblong, ovate pseudobulbs, of a pale green ground colour irregularly mottled and barred with black, something in the way of bifolium as to mottling of bulb; leaves linear, lanceolate, of a lustrous hue, forming a good specimen plant. Flower panicles coming away from the young growth, and, like leucochilum, taking from four to six months to show their inflorescence. It also reaches a height of similar proportions to the variety named, and is a capital plant for contrasting with leucochilum. The flowers in this instance are of a pale lemon, barred towards the base of the sepals, petals, and labellum with vandyke brown. The lobes of the lip are large, and add much to the general appearance of the flower, while the lower portion is expansive, fully an inch in diameter, and the flower longer than broad. Period of flowering, July and

August; and duration of panicles in flowering order, from seven to nine weeks. *James Anderson, Meadow Bank.*

LETTERS FROM PARIS.—No. XV.

THE JARDIN DES PLANTES, &c.

WE have nothing like the Jardin des Plantes in the British Isles. It is half zoological, half botanical, and nearly surrounded by museums, containing vast zoological, botanical, and mineralogical collections. The portion entirely devoted to botany is laid out in the straight, regular style, while the part in which are the numerous buildings for the wild animals, has winding walks, and some trifling diversity here and there. The place is really an important school of science, and as such it is great and useful. In addition to able lecturers on botany, culture, and allied matters, there are, I believe, a dozen lecturers on various other scientific subjects, some of these gentlemen being among the ablest and most famous naturalists in Europe. Here Buffon, Cuvier, Jussieu, and many other leading men have worked; and here at the present day work, even in minor departments, many men of well-known ability.

Although the Jardin des Plantes is quite inferior in point of beauty to any of our large British botanic gardens, it contains some features which might be introduced to the latter with the greatest advantage. Its chief merits are that its plants are better named than in any British garden; it possesses several arrangements which enable the student to see conveniently, and most correctly, all obtainable useful plants infinitely better than in any British botanic garden; and it displays most fully the vegetation of temperate and northern climes, and, consequently, that in which we are the most interested, and which is the most important for us. Its chief faults are that it has a bad position in an out-of-the-way part of the town; the greater part of its surface is covered with plants, scientifically disposed; the houses are poor and badly arranged compared to those in our own good botanic gardens; and there is no green turf to be seen in its open and important parts. It has, in addition, a very bad "climate" for Pines and Evergreens, and there is a ridiculous kind of maze on the top of an otherwise not objectionable mound. Half way up this elevation stands a tolerably good Cedar of Lebanon, the first ever planted in France. It was planted by Jussieu, to whom it was given by the English botanist Collinson. Beyond this there is not much tree-beauty or tree-interest in the Jardin des Plantes. The houses are in some cases very well cared for, but are quite inferior to those in English gardens. There are fine collections of Palms and other subjects of much importance for a botanic garden, and the house collections are on the whole good, but the plants in a great many cases are very diminutive and poorly developed, therefore I will pass them by.

There is one admirable feature which I must not forget, and that is the magnificent collection of Pear trees. This is the one which Mr. Rivers mentions, and which convinced him of the fact that the French surpass us a good deal in the management of them, and it was also much admired by the late Dr. Lindley. M. Cappe has had charge of this garden for about 35 years, and is now a very old man, but still he attends to his trees, and has them in fine condition, though contending with many difficulties, because the space upon which the trees stand is really not big enough for one half the number, and thus he is obliged to keep lines of little trees between and under big ones, and so on. There are few things in our way about Paris better worth notice than this collection.

Remarking that they have a graceful way of commemorating great naturalists by naming the streets in the immediate neighbourhood of the garden after them, I will pass on to the more important feature of the garden; that is, its very extensive and well-named collection of hardy plants. They have in the first place a little reserve garden near the bear-pits, in which I found the following plants, chiefly suited for affording a good effect among hardy foliage plants, so to speak. Here I met with a dwarf and very compact species of Asparagus (from Japan) of a glistening green, and very neat in habit, which will probably make a useful plant for producing diversity of character among the dwarfer inmates of the flower garden; it is like a very close little Cypress. Here grow Heracleum latisectum, Magydaris panacina, and Gundelia Tournefortii—the latter a very remarkable and distinct plant both in marking and habit. Thapsia garganica is also here, and more beautiful than usual; it is rather fine and distinct in leaf, and by pinching the flower stems out the moment they show, might prove a useful thing among large-leaved hardy plants. Crambe juncea is also pretty good, though not quite so fine as cordifolia. The only species of Pelargonium that ventures into Europe (P. Endlicherianum) is also grown here.

The first of the principal arrangements of hardy plants is a curious and distinct one. It is simply two large and wide spaces planted with masses of first and second rate things; and at present it looks pretty well, though far from being arranged in a way to develop fully the beauty of its contents. Here I have found, from time to time, a good deal of interest, but as it is chiefly composed of rather popular plants, most of them are known in England. Edgings composed of the several varieties of Iris pumila, looked very well in early spring, and many plants are used for edging which we are not accustomed to see so employed in England. Thus the good double variety of Lychnis Viscaria has been very pretty as an edging, and so has the neat, bright, and pure white Silene alpestris, an alpine plant not half so popular as it ought to be, though I observe that some seedsmen, while not offering it, vend a pretty free proportion of the weeds that belong to its genus. An herbaceous Coronilla (C. montana) here is very fine. It is neat, free to bloom, and bright yellow, in a word A 1 as a border plant. Many of the finer-leaved things are not as yet fairly developed. Acanthus lusitanicus is very conspicuous among them. It is one of the very best things among large-leaved hardy plants. The Ferulas are also fine here, and their leaf beauty is exposed very early in spring. In addition to the kinds grown in English botanic gardens, I found here one called F. neapolitana, a magnificent species.

Then there is a tolerably large space devoted to plants used for the decoration of the parterre, all or chiefly tender plants or annuals. This is not so successful or useful as some of the other arrangements. I will pass on to a large space devoted to the culture of plants used as food, and in commerce. It is at once successful, useful, and complete. The chief varieties of all garden crops, from Radishes to Kidney Beans, are to be seen; the various species of Rhubarb, all important varieties of Lettuce—in a word, everything that the learner could desire to see in this way. It is not merely the plan of the thing that is sensible and good, but its carrying out. Here the annuals are regularly raised and put out; the ground is kept perfectly free from filth, and it is, in fact, the best place I have ever seen to become acquainted with useful plants. Such arrangements well done, and hidden off by judicious planting from the general verdant and chief area of any of our great public gardens, would be of the greatest service. The ground is thrown into beds about 6 feet wide, and each kind is allotted 6 feet run of the bed. The sweet Potato is grown here, and, indeed, all interesting plants that may be grown in the open air. Below this arrangement, and near the river end of the garden, is another very interesting division. It is chiefly devoted to edible and useful plants of all kinds, arranged in a distinct way. First we have the Sorghums, Millets, Wheats, and Cereals generally—all plants cultivated for their grains or seeds. Then come plants cultivated for their stems, from Polymnia edulis to Ullucus tuberosus. Next we have the chief species and varieties of Onion, such plants as Urtica utilis, the Dalmatian Pyrethrum rigidum, and in a word almost every plant likely to interest in this way, from Lactuca perennis to the esculent Hibiscus. Here again the plants are well named and kept clear and distinct, each having full room to develop, the general space devoted to the subject being sufficiently large. All these divisions we have just passed through cover an oblong expanse of ground, the effect of which is of course anything but beautiful from an ornamental point of view, but yet, in consequence of the ground being well kept, each subject grown well and vigorously, and all the squares bordered with Roses and summer flowering plants, the effect is better than might be expected. This great oblong space is bordered on each side by double rows of Lime trees planted by Buffon. Between these are wide walks, agreeably shady on hot days.

The second great oblong space to the north is entirely devoted to the school of botany, and this is simply a large portion of ground planted on the natural system, remarkable for the correctness of its nomenclature, and the richness of its collection. Here again everything is well taken care of and kept distinct; the aquatics are furnished with cemented troughs, in which they do quite luxuriously; and the whole is most satisfactory, with one exception—that they place out the greenhouse and stove plants in summer to complete the natural orders. These poor plants are stored pell mell in winter in a great Orangery, from which they are taken out in early summer literally more dead than alive. They make a few leaves during the summer, and are again put into their den to sicken or die. There is no medical garden special, but the medicinal and other plants for special uses are indicated by variously coloured labels.

There is a poor and very badly-managed medical garden attached to the school of Pharmacy, which is not more than 10 minutes' walk from the Jardin des Plantes. They have a good lot of Irises and Tulips, among which were several noticeable things, but particularly the charming I. nudicaulis. This is dwarf, strong in leaf and sturdy in habit, free to flower and rich in colour, in a word perfect as a spring plant. It is better than the popular I. pumila or Crimean Iris, which is saying a good deal for it. Here are several hardy Yuccas which we ought to hear more of—Y. lutescens, Y. flexilis, and Y. Treculeana. The last is in England, but not common; the others are perfectly hardy, handsome kinds, worthy of association with gloriosa and recurva. They have a pretty good collection of the genus Asparagus, among which one, A. Broussonetii, is remarkable for its great vigour and rapidity of growth. It quickly runs up with dense vigour to a height of 10 feet in spring. Its foliage is glossy and dense, and it might be used with success as a covering for bowers or to make pyramids in a highly diversified garden of hardy plants, and of course it may be used easily in such a place as the subtropical garden at Battersea Park. "Fortune's Palm," or Chamærops Fortunei is quite hardy in several parts of these gardens, as with us. Among the Grasses I noticed one perennial, graceful and ornamental, one I had not grown in England—Glyceria Michauxii. Asparagus tenuifolius is as graceful and elegant as the one before-named is vigorous and strong. Iris Monnieri, of Western Asia, is a really fine, bright yellow kind. Among the larger Compositæ are some likely to prove useful for the subtropical garden. Notably Rhaponticum scariosum, and cynaroides; Serratula pinnatifida is elegant in leaf; and particularly fine is a silvery-leaved Tanacetum (T. elegans), with finely divided and elegant frond-like leaves. Dipsacus laciniatus is magnificent in its lines when well grown, and it will prove really well worth raising annually, somewhat like the Castor-oils, for the garden where distinction is desired; it is a native of France. Sideritis syriaca is hardy here, and fairly tried might make a useful edging plant in the way of Gnaphalium lanatum, than which it is a shade more silvery. Phlomis herba-venti, a native of France, is an exceedingly pretty and distinct herbaceous plant, medium-sized, and Eremostachys iberica is a yellow species, well worthy of association with laciniata. Next there is one of the most charming dwarf plants I have ever beheld—Acantholimon venustum. It is prettier and more elegant than the admired glumaceum, the dwarf cushion of leaves being of a glaucous tone, and the large rose-coloured flowers being well thrown out on bold graceful stems. For a well-made and tasteful rockwork it will prove one of the best summer ornaments ever seen. Geranium platypetalum is very good here, and is one of the best of the family. Erodium carvifolium is so elegantly cut that I should not hesitate to place it beside Thalictrum minus, from which it is, of course, quite distinct in character. Thalictrum fœtidum is quite as delicate and pretty as the best form of minus, and forms a capital addition to the class of hardy Fern-like plants for the flower garden. Of hardy plants, seen here in unusually pretty condition, the distinct Jeffersonia diphylla, and the fine Corydalis nobilis were among the most remarkable. The Jeffersonia grows in deep peat, and forms a pretty free-flowering mass in spring.

There is a capital and remarkable collection of the very neat Sempervivum family, planted in the open air, where they do remarkably well. Seseli gummiferum is a pretty umbelliferous plant, of a peculiarly distinct and pleasing glaucous hue. Thapsia villosa is also fine, and so is Aralia edulis. Ononis fruticosa makes a charming bush here: it is a thing which one would like to see more frequently in England. Vicia tenuifolia formosa is a very handsome climber; and Orobus rosea, is one of the most elegant and pretty of its family, having arching and drooping shoots, and being well suited for a large rockwork. I only name the most important of these plants, and those most likely to meet present wants, and will now finish with a few words on hardy Bamboos, which I met with in the nursery and in various other parts. They are plants well worthy of much attention in England and Ireland, and in favoured parts of the coasts of the British Isles generally. In dry cold places they make little progress, but in moist nooks and gullies near the sea, in the south of England and Ireland, they would prove exceedingly beautiful, especially in sheltered localities. As flower garden ornaments in such places there is nothing to surpass them. I doubt if any plants exceed in grace of habit the Bamboos in the open air, when freely grown. But if the climate and position be not good enough to encourage them to grow strongly and gracefully, nothing can be more miserable. In the county of Cork, Dr. Moore states that Arundinaria falcata attains a height of from 16 to 20 feet, and I now proceed to mention Bamboos hardier than that—B. nigra, aurea, Simonsii, mitis, gracilis, and viridis glaucescens; the last is very fine, and has made shoots 15 feet long in the open air about Paris. I have seen B. Metake and A. falcata grow luxuriantly in Sussex and Devon in sheltered positions, so that there can be no doubt of the success that will attend their culture in some parts.

I am much indebted to Messieurs Neumann, Verlot, Carrière, and Houllet, for their kindness in furnishing me with information, and I wish to add, that should any visitor to the Jardin des Plantes wonder at the poor external aspect of its houses and some other features as compared with those at Kew, he would do well to bear in mind that money has a good deal to do with such things; and that the grant for museums, lecturers (the lectures are free), the expensive collection of animals, and everything else in the Jardin des Plantes, is miserably small. On the other hand, the gardens and plants of La Ville de Paris are luxuriously provided with the "needful;" the municipality of Paris often spending prodigious sums for the purchase of plants, and even for the plant decoration of a single ball. One ball at the Hotel de Ville during the recent festivities cost considerably over 30,000*l.*, while the poor Jardin des Plantes gets from the State—I am not quite sure how much, but probably not quite one third of that sum, to exist upon for a whole year. *W. R.*

NEGLECTED PLANTS.

LESCHENAULTIA FORMOSA.

IT is an inexplicable fact, but nevertheless true, that at the great International Horticultural Exhibition only one plant of this little gem was shown. Twenty years ago, to see it glinting out in the most conspicuous position in every miscellaneous collection of stove and greenhouse was not an uncommon thing, and the superb manner in which John Green, William Hunt, and others used to colour it, and at the same time retain a sparkling crispness upon the flowers, was quite enchanting. The finished and peculiar manner in which some plants, I might almost say all plants, are brought out upon the day of exhibition, constitutes a chief, if not the chief part, of their charms. It is astonishing how one man will bring a plant or a set of plants out to the day, while another with the same number and varieties will have some over—past their best—others in tolerable perfection, and the remainder not nearly in bloom. The possession of this knowledge constitutes what is considered tact in plant management, and can only be attained by studious observation and attention, carried over a series of years. As a rule it is always better to have the plants, if not up to the exact mark, coming to perfection, rather than going out of bloom. A stale plant is never pleasing to any one, as its charm is over, its day is gone; but a plant nicely sheeted with fresh flowers, and with plenty more to follow, will always please, because there is something to look forward to. The colouring, too, of flowers is quite an art. Some require

full sunlight, others a subdued light, and a third comparative shade. The plant under notice, to bring the flowers to a proper colour, requires to be shaded from the mid-day sun; but for an hour or two in the morning, and after three o'clock on a May afternoon, it may be fully exposed with decided advantage. Then, again, it must have a nice circulation of air throughout the night if the weather is favourable; but cold draughts must be avoided. Twenty years ago we used to grow L. formosa and Baxteri for bedding in the flower garden, and very nice they looked. Then we could purchase at Pamplin's Paradise Nursery, or Fairbairn's of Clapham, nice plants in 4-inch pots at 8*s.* to 9*s.* per dozen, and larger ones in like proportion, but now good plants can scarcely be procured at all, even at a price far beyond their value. Indeed many of our old friends have gone out of fashion, but whether from the want of taste, or the necessary knowledge of cultivation, it is difficult to say.

I shall not waste space by detailing the method of propagation further than to remark, that young half-ripened shoots root freely in silver sand under a bell-glass, in a gentle heat in the spring, and that cuttings of the same quality may be put in in August in a cold frame, the same as Heaths, and they will be nicely rooted and fit to pot off in January. For the few plants required in a gentleman's establishment it is never worth while to incur the trouble of propagation, as nice plants ought to be procurable at from 1*s.* to 3*s.* 6*d.* each, according to their size. For growing into specimens it is a great point to get a nice healthy start. The plants should be stiff and bushy, bright green to the extreme point of each shoot, and without any dead foliage about them. If they are not so, but on the contrary weak and lanky, avoid them, for they will never be worth the trouble of cultivation. Good plants procured, the next thing is soil, and that of suitable quality is becoming yearly more difficult to procure. That from Wrotham Heath near Maidstone is excellent, and at one time good peat could be had at Shirley Common, near Croydon. For quick growth the soft spongy peat is the best, but if you want the plants to stay with you, a mixture of the hard peat of Wandsworth or Wanstead is desirable. Soils, however, for high class plant cultivation should be duly collected and prepared for many months before they are used, or, in other words, a stock sufficient for 12 months' consumption should be got in every autumn, and be kept exposed to the free action of sun, air, and frost for at the least six months before it is used. At the time of collecting, it is a good plan to have the peat assorted, placing the good in the best situation for aëration, and putting the other aside for secondary purposes, American clumps, &c. Some years ago, when extensively engaged in plant cultivation, I had a rough rack, like a bottle rack, made for storing peat, upon the shelves of which it was placed in layers 6 to 9 inches thick, and thus the air and frost had free access to it, while at the same time it was protected from rain. Before putting it upon the rack, all sand, fine earthy particles, and extraneous matter were removed, so that every ounce stored was fit for use. Messrs. Fraser, of the Lea Bridge Road, used to treat their Wanstead peat in the same manner, by introducing strong stakes and Pea-sticks between the layers of turves as they were stacked up, and making the top waterproof. This may appear a very troublesome process, but where the best results are desidered, and plants forming a hemisphere 2 to 2½ feet in diameter are wished for, it must be taken. As many persons will be unprepared with such soils, a method of extemporising a compost may be suggested, and it is this. Take the best peat you can procure, and having deprived it of all unsuitable matter, break it into pieces about the size of a Walnut, and then place it in a thin layer under glass, where it will be fully exposed to the action of the air, but at the same time be protected from damp. Thus exposed for a week or 10 days, it will be materially improved; but if it is poor, as most peats from upland situations are, take about half of it, and placing it in sieves, put them in a hotbed frame, or upon a dunghill where the steam is rather strong. In this way after two or three days the peat will be much enriched by the ammonia absorbed, and when mixed with the remaining portion, and exposed to the air for a few days, will form a highly stimulating compost. Time was when the use of stimulants for hard-wooded plants was looked upon as being highly heterodox, and contrary to precedent, but it is those that leave the beaten track that make new discoveries, and fortunately for the progress of good cultivation there are many who have ventured to leave the "old groove" within the last 20 years. So far as has been recorded, it was the late T. A. Knight, Esq., who first ventured to give weak pigeon dung-water to Heaths. He found his account in it, and others ventured to follow the lead and practice which he had inculcated. Now guano and stimulants are used extensively for hard-wooded plants, and why should they not be? If we go to Nature, and examine plants in their native habitats, we find the voidings of wild birds and animals freely distributed amongst them, and as this is washed to the roots by the rains that fall, it is quite certain that even the plants of Alpine regions receive some stimulus in the form of manure. The first time I spoke of giving manure-water to a large and very select collection of Heaths, and other hard-wooded plants, the foreman in charge, an expert and enthusiastic plant-grower, looked upon me as being decidedly "daft." "I might if I liked, but he would not. The plants were doing well now, and it was the best to let well alone." However, unknown to him, I persisted. Regularly as the tank was filled I dropped into it a certain measure of "Potter's Liquid Guano," and so unconsciously he not only watered the plants regularly with weak manure-water, but the water for their daily ablution came from the same source. The progress made was most complete and satisfactory; the best plant growers in England pronouncing the collection, for its age, unsurpassable. From that time to this I have used weak guano-water in the growing season for plants of all kinds, but for the last 12 months I have, upon the recommendation of my old friend, and your correspondent, "Alpha," used "Standen's Gardeners' Friend Manure," and I think with superior results. This manure seems to have some peculiar influence upon the blooming principle of hard-wooded plants, causing them not only to set their flowers most profusely, but to open them with singular vigour and richness of colour. This remark applies particularly to Azaleas, Chorozemas, Pimeleas, Epacrises, Heaths, and Zichyas.

To return to the enriched peat, the value of which we have been endeavouring to show. Take for Leschenaultias two parts of the soft and one part of the hard, and without breaking it unnecessarily, reduce it so that every portion will pass through a half-inch sieve. Then to each peck by measure put a quart of silver sand, and a pint each of clean soft-burned potsherds and charcoal broken to the size of Horse Beans. Mix the whole intimately together by passing it once more through the sieve, and it will be ready for use. The size of the pots must be governed by the size and health of the plants to be put into them. If they are strong and healthy those in 4-inch may be removed into 8-inch, while partly grown specimens may go from 6 or 8-inch into 11-inch pots at once. The pots must be carefully and efficiently drained, placing some rough peat or a little Sphagnum to keep the crocks clean. The plants should be watered the day prior to potting, so as to have the ball in a proper state as to moisture, as that is a most important point. Fill the pot to the necessary height with the compost, making it quite firm. Then take the plant, and turning it out of the pot, remove loose potsherds, and with a sharp pointed stick disentangle a portion of the young fibres carefully from the side of the ball, place it in position, so that the collar or base of the plant will be upon a level with the top of the pot, and fill in the soil, making it as firm as possible by the compression of the hand, but not using the usual rammer with unnecessary force. A well potted plant, the soil being in proper condition as to moisture, should be so firm that the broad part of the thumb pressed with full force upon it will not make much impression. Plants will grow faster when more lightly potted, but they rarely live so long. The pots should be new, or if not new should be washed perfectly clean, and be dry at the time of use. I like a dry pot, as carefully watched it is an index of the due percolation of moisture through the compost. After potting give the plants a gentle watering, so as to moisten the soil in contact with the disturbed roots, and then set the plants away where they are to remain. If it can be had, a brick pit is the best place for hard-wooded plants through the growing season, as the ground if sprinkled daily gives off a congenial moisture, and is at the same time cool for them to stand upon. It has another advantage—the sashes can be quickly put on or off; and on warm dewy nights, or with warm gentle showers in the daytime, I have great faith in giving the plants the advantages arising therefrom. The pit containing the Leschenaultias should be kept to a temperature of 50° durirg the growing season, and should be freely ventilated both back and front, on all favourable occasions, but the plants must not at any season be exposed to cold draughts. The routine treatment will be: ventilate freely in the morning, increasing it as the day warms; water copiously when the plants require it, but avoid driblets. On the afternoon of warm sunny days sprinkle the ground between the plants, dew them gently over with a fine syringe a short time before the sun leaves the pit, and shut up close, but before leaving for the night give a little air at the highest point, so as to allow the steam to pass off. Stake the plants when necessary, using as few sticks as possible; remove every flower-bud directly it can be handled, and guard against insects and mildew. The greenfly is the greatest pest, but it can be removed by fumigating slightly two or three nights in succession; then place them upon their sides, and with a syringe and water wash the insects clean away. Mildew is quickly checked by sulphur dusted over the parts affected.

Manure water must not be used until the newly potted plants have filled the pots with roots, but the walls of the pit and the ground between the plants may be sprinkled once or twice a week with advantage. The plants may be kept in the pit until October, but through the winter a warm airy part of the greenhouse will be the best place for them. Plants shifted from 4 to 8-inch pots in early spring will, if properly managed, take 11-inch pots in August, but it would not be advisable to shift them later than that month. Leschenaultias grow all through the winter, therefore they must not be exposed to cold draughts, though they require a free circulation of air at all times. The subsequent treatment of specimens will be given in another paper. *An Old Subscriber, Midland Counties.*

Home Correspondence.

Acanthus lusitanicus.—As I have repeatedly said that we might produce much of the better kind of effect in the flower garden with perfectly hardy plants alone, than with many that are employed at much expense, I shall follow up that statement by recommending, from time to time, such first-class hardy plants as I have ascertained to be highly suitable for the purpose, perfectly distinct, and easily cultivated. The plant now mentioned is in all respects fine. The leaves are bold and noble in outline, and the plant has a tendency, rare in some hardy things with otherwise fine qualities, and that is, to retain its leaves till the very end of summer, or rather of the season, without losing a particle of its freshness and polished verdure. In fact, the only thing we have to decide about the subject is, what is the best place for it? Now, it is one of those things that will not disgrace any position, and will prove equally at home in the centre of the mixed border, projected a little from the edge of a choice shrubbery in the Grass, or in the flower garden; nobody need fear its displaying anything like the nastiness that such things as the Heracleums, which have often been recommended for their leaves, do in the end of summer; and, in fact, there are few things turned out of the houses that will furnish a more satisfactory effect. I should not like to advise its being planted in the centre of a flower bed, or in any other position where removal would be necessary; but in case it were determined to plant permanent groups of fine-leaved hardy plants, then indeed it could be used with great success. Supposing we have an irregular kind of flower garden, or pleasure ground, to deal with (a common case everywhere), one of the best things to do with it is to plant it in the Grass, at some little distance from the clumps, and near perhaps a few other things of like merit. It is better than any species of Acanthus hitherto commonly cultivated in botanic gardens, though one or two of these are fine. Give it deep good soil, and don't begrudge that attention, because it will not, like tender plants, trouble you again for a long time. How about a ring of it round a strong clump of Tritomas (grandis in the middle, and glaucescens surrounding it), the very dark polished green Acanthus being in its turn surrounded by that fine autumn-flowering Sedum, called Fabaria? There would be nothing finer. I should have little difficulty in suggesting a dozen equally suitable uses for this fine plant, and it is only one of many kinds which I hope to speak of in due time. It is to be had now in London nurseries, and more abundantly in those of Paris. *R.*

Variegated Pelargoniums.—As there is likely to be very spirited competition for the County Silver Cup to be awarded at the Bury St. Edmund's Exhibition for the best 12 Seedling Variegated Pelargoniums of 1866 and 1867, it is important to myself and several other intending exhibitors to know before we undertake to carry our plants so many miles—what is a Variegated Pelargonium? Mr. Grieve says (p. 602), with regard to the bronze or yellow-leaved varieties, such as Beauty of Oulton, &c., that they are certainly very beautiful, but they cannot be classed as Variegated Pelargoniums. My opinion is that they are variegated, for any departure in colour from the normal condition must be a variegation. If the fine varieties I exhibited at South Kensington on the 21st of May are not Variegated Pelargoniums, then the leaves of a new section I now enclose cannot be variegated. The Council of the R. H. S. would do well if they would state as early as possible whether collections containing Gold and Silver Tricolors and bronze and gold would be disqualified at the forthcoming exhibition; their schedule does not say that the 12 seedlings for which they offer the 10*l.* 10*s.* prize are to be confined to Gold or Silver Tricolors, but that the prize is offered for 12 Seedling Variegated Pelargoniums. I think it impossible for one raiser to exhibit 12 seedling Tricolors of 1866 and 1867, distinct in every feature. I also understand seedlings of 1866 and 1867 to mean varieties that have not been exhibited previous to the year 1866. By giving your opinion as early as may be convenient you will much oblige. I exhibited my bronze and gold varieties at the Manchester Exhibition on the 7th, and took the 1st prize for them in the class for 10 Variegated Pelargoniums. There was only one Golden Tricolor and one silver-edged variety in the collection, eight of the plants were bronze and gold; yet they were considered variegated. *J. Wills.*

[The interpretation of the Bury schedule rests with the Royal Horticultural Society or the Bury Committee. We can only refer to the general question, and on that our opinion will be found at p. 630. We must repeat that variegation proper is quite distinct from coloration; and with all deference to Mr. Fish, we think on the eve of a show it would be manifestly unfair to adopt any other than the customary explanation of the term, which is to the effect that Variegated Pelargoniums mean those varieties with leaves having the ground colour green, and a white or yellow margin, with or without a coloured zone. Your examples, marked Nos. 1 and 2, are very beautiful. The one yellow, with crimson zone; the other yellow, with brownish red zone. A different term must be used when it is desired to bring in the beautiful Golden Bicolors as they are commonly called. EDS.]

Orchard-House Trees in Pots.—I made an error last week (see p. 631) in the remarks I wrote you respecting these trees; I should have said "Apricots" require a separate house, not Nectarines, as has been printed. *E. W. Fyffe, Box, near Stroud.*

Royal Ascot Grape.—Having inspected this Grape once a fortnight since the middle of February, and being also unfortunately the person who so badly managed the Grapes for Mr. Standish last year, I ought to know a little of the quality of this variety. It certainly cracked very much on the small one-year canes in pots; that, however, was owing to the quantity of liquid manure with which it was continually watered, by Mr. Standish's order. It is a very luxuriant grower, short jointed, and I believe it to be a good Grape; but anyone who discards the Black Hamburgh for the Royal Ascot will be greatly disappointed as regards its earliness, which is said to be its great recommendation. I say that it is not so early as the Hamburgh by a fortnight under the some treatment—a fact which any one can ascertain for themselves by visiting the early Vinery at Ascot, where both are growing in the same house. The Hamburghs are now being cut, the other is not nearly ripe. Mr. Standish has also cut Muscat of Alexandria, and other varieties of Muscat long before he has cut his Royal Black, all being started on the same day. There are two rows of hot-water pipes running under each border in his Royal Ascot house, within 1 foot of the roots—in fact,

the roots are entwined round the pipes. Try a Hamburgh under the same circumstances, and see what will be the result. I should like to ask Mr. Standish if he has cut a bunch of his Grape that weighs ¾ lb., or can he do so? *Thomas Carpenter, Gardener, King's Beeches, Sunninghill, Berks.*

Proposed Experiment in Vine Pruning.—An idea has occurred to me, suggested by the discussion which has taken place in your Paper upon the various systems of pruning and training the Vine. One of your correspondents (not without reason) has designated the system in common use, of cutting off the best buds in pruning, as "barbarous;" and instead of pruning to the lowest bud, irrespective of its condition, he states that his practice is to prune to a good bud wherever he can find one. From a good bud there is every probability that he will get a much finer bunch than from a bud of inferior development, and he accepts the inconvenience of unduly extended branches. I presume, however, he would very much prefer "short spurs," provided they were furnished with suitable buds; and it strikes me that it might be possible to cause strong buds to grow in the places where they are wanted, and where, in practice, they are seldom or never found, viz., at the base or insertion of the branches in the main stem. In the month of May or June, while the Vines are in full growth, the fruit-bearing branches have perhaps six leaves, each leaf having a bud in its axil. The lowest bud to which these branches would in the ordinary course be pruned, is generally backward and insignificant in comparison with those above it, which are cut off in November under the "barbarous" short-spur system. The lowest bud on the branch is the one we desire to favour, and if all the others, with the exception of the lowest only, were now to be cut out, and the lowest left without any rivals, it would probably attain to a much better development than if all the buds were, as usual, allowed to remain. It is true that in the ordinary course the buds proposed to be cut out would be pruned off in November with the branch; but their removal in May or June would probably have a very different and a better effect, inasmuch as during the season of growth and secretion the whole of the sap belonging to the branch would be devoted to the fruit and to the development of the single bud reserved in its proper place, in or near to the axil of the branch for the succeeding year. I have myself treated several Vines in the manner proposed very recently, and I should be glad if some of your readers, of greater knowledge and experience, would favour us with their opinion upon the scheme, being myself only an *Amateur, Clapham Park.*

Cheap Glasshouses.—I should be very much obliged to your correspondent "G. A. H." (see p. 631) if he would tell me where I can get an orchard-house, "7 feet high at the sides, 12 feet high at the ridge, and 21 feet wide inside, built and finished well for 1*l.* per lineal foot." The Paxtonian greenhouses are advertised as models of cheapness, yet a Paxtonian house, 105 feet long and 21 feet wide, costs 205*l.*, so that I presume one 210 feet long and 21 feet wide, would not cost less much less than 400*l.*, or about double your correspondent's estimate, and even then there are no sides. *Amateur.*

Change of Colour in Pelargonium Leaves.—I have sent you a few leaves of Pelargonium Lady Plymouth in corroboration of Mr. Bull's observations respecting the power of light to give a pink tinge to the silver-edged Ivy-leaved Pelargoniums, and also to show how soon the change is effected. The plants from which these leaves were cut had been standing on a shelf within a few inches of the glass on the north side of a span-roofed house in a somewhat warm and moist atmosphere for the purpose of getting them on for cuttings; in that position the margins of the leaves were pure white, the green portion having a very beautiful silvery appearance. On Friday, the 7th inst., they were removed from the house in question and placed in a cold frame; the glass was left off on Saturday, and has not since been replaced. Sunday and Monday the sun shone very powerfully. On Monday afternoon, when passing the spot, I noticed that the margins of the leaves had assumed a pinkish hue, but at the time I took no particular notice of the circumstance. Your Paper did not reach me till Monday morning, and as I had not the opportunity of looking at it till the evening, I had not then read your article on the subject. On Tuesday I examined the leaves with more care, and found that not only the margins were changed, but many of the midribs and lateral veins had a pretty distinct line of colour running parallel with them. Were the whole surface of the affected leaf changed, one might readily suppose that it was simply a case of "sun-burning;" but the very distinct thread of colour running along the edge of the leaf, and also that following the ribs and veins, show that matter exists there peculiarly sensitive to the influence of the sun's rays. To-day (Wednesday), the sun has been very hot, but I do not see that there is any increase of colour since yesterday morning, showing that the change was effected in a very short period. Supposing that shade and moisture would again bleach out these tints, could it not then be determined whether or not the cells change their form under the different circumstances? *D. Buchanan, Dyrham Park June* 12. [They might change their contents, but hardly their form. EDS.]

Gishurst Compound.—I noticed two years ago the presence of a quantity of a sort of insect, with the name of which I am not acquainted, and could not obtain from any one, in a wood of 900 acres of young Fir trees, only 1, 2, or 3 feet high. These insects were then (in 1865) confined to two or three acres scattered about in the wood in several parcels, and they did some harm, destroying some hundred of trees. The insects lived through the whole year, notwithstanding the cold and the warm weather. Last year (in 1866) I noticed that they had much increased, and that they covered 20 or 25 acres, also scattered about the wood in many parcels, and at the end of the year I had to ascertain that many thousands of trees were destroyed by them. Finally, the Easter of 1867 came, and I saw with terror that (contrary to what had ever been seen in this country) all these insects were still living, although the winter had been very cold and very long, and that the trunks of the trees were literally covered with millions of nests, of 20 to 30 eggs each, so that it was feared that the whole of the wood might be overwhelmed by them and thousands of trees destroyed. I tried several things to kill these insects, but nothing succeeded; or when it really killed them it also killed the trees. I finally heard of Gishurst Compound, and used it by brushing the trunks and dipping the branches. It succeeded admirably, without doing any harm to the trees. I determined, although the cost of such work was considerable, to apply it all over the 20 or 25 acres where it was necessary. I had nearly done 2 or 3 acres when I was happily stopped, after some very extremely hot days, from continuing, by the arrival of thousands of small animals (which I think to be mealy bugs), which destroyed in a week all the insects in the nests to the last one. *A. B., Antwerp.*

Forthcoming Anniversary Dinner of the Gardeners' Royal Benevolent Institution.—The thanks of all who are friendly to gardening and gardeners are due to you for your recent earnest appeal to those whose only interest it is to subscribe to the funds of this Institution. And whilst I fully endorse all that has been since written upon the subject, I do nevertheless urge, by every possible means, those whom it personally concerns, to do all they possibly can, to place forthwith their initiatory claim upon the books of the charity. This Institution, I am happy to say, is rising, as regards its funded stock, to a good firm footing, and in proportion to the support it receives will it be enabled to meet all calls upon its funds in the future. The 24th anniversary dinner in aid of the Institution, which takes place at the London Tavern upon the 27th inst., from its goodly array of influential stewards, promises to be a success. Let us hope that there may be a fine display of flowers on the occasion, as well as plenty of fruit for dessert. The Committee invite every earnest friend of "The Institution," to aid them in this matter. Even those who are unable otherwise to assist may by the consent of their employers do much toward making this festival a success in this respect. Let us, moreover, trust that Sir Robert Peel, who presides upon the occasion, may be efficiently met by many members of the class for whose benefit the dinner is especially devised. *W. E.*

Gooseberry Wine.—I beg to inform your correspondent "J. M." (p. 547*a*), that Gooseberries for making wine should be gathered in fine weather, as soon as they are perfectly ripe. And as they sometimes appear ripe to the eye before they really are, so it is necessary to taste them, in order to ascertain whether or not they have arrived at maturity. This is an important point in the making of excellent wine. If the fruit be not ripe it will be harsh and hard, unpleasant to the palate, and more so to the stomach; and if the fruit be too ripe the wine from it will be low and spiritless. *W. D., Coventry.*

Foreign Correspondence.

Gardening in the Island of St. Michael.—The following notes have been contributed by M. E. Goeze, the curator of the Botanic Garden of Coimbra, Portugal, who has recently made a trip to the Azores, with the view of obtaining plants for the garden under his charge. EDS.]——Furnas is a charming valley, offering to the spectator a full view of volcanic phenomena in action; the most remarkable objects are the mineral waters, which have a temperature in some cases of 218° Fahrenheit, while the lowest degree measured by me was 75°. But what struck my attention particularly, while observing the temperature of these springs was that the coolest (in one case 75°, and in another 116°) were close to others whose temperature was much higher. Near Furnas, and surrounded partially by a charming lake, is an estate belonging to Signor do Canto. This estate is very large and rocky. Imagine high mountains thickly planted with different species of Eucalyptus, some of which have attained a height of 20 metres (over 60 feet) in less than eight years. It is true that the wind much injures these trees, but this may be partially obviated by planting them very thickly. Many of these trees in their native country are remarkable, not only for their great height, but also for the value of their timber, as well as of the resinous and other products derived from them; hence Signor do Canto has introduced a great number of them, and also of Melaleucas, Callistemons, and Acacias. Of these latter, Signor do Canto cultivates more than a hundred species at St. Anne, more however for the variety of their form than for their utility, since there are not more than a dozen which deserve cultivation for the sake of their timber. Some Casuarinas are also grown here for the sake of their wood. Among Conifers the Cryptomeria japonica seems to merit the most attention, as it grows with extraordinary vigour and rapidity, and seems destined to play an important part in the industry of the island; it does well at different elevations even in a poor soil. The plantations of Pinus maritima here constitute true forests, but they are suffering from a disease the cause of which is at present unknown. The wood of P. maritima is used for the fabrication of the chests in which the Oranges are packed for exportation; but as the growth of the Cryptomeria is much more rapid, and its wood is harder and more durable, I shall not be at all surprised to see it supplant the Pinus maritima. The Cryptomeria gives seeds in abundance, and is easily multiplied by cuttings; hence thousands are planted every year. Generally speaking, however, the climate does not seem favourable to Japanese or Chinese plants. Thus the Skimmia, the Euonymus, and the Aucuba, do not grow well. The Chinese Pæonies thrive no better; Dicentra spectabilis does not succeed, although the Fumariaceæ are well represented among the indigenous species of the island. Camellias and Hydrangeas do well, the latter have always blue flowers. Sikkim Rhododendrons are here planted in large masses, and thrive admirably. In fact, nothing seems to have been omitted to render the vegetation of the Island as varied as possible, and while on the mountains may be found numerous representatives of foreign floras, lower down there are plantations of Oaks, Planes, Ash, Maples, and other trees, common in Europe. Apples and Pears grow also vigorously; but the latter suffer from a little insect, which eats the cellular tissue of the leaf. (See *Gardeners' Chronicle*, July 28, 1866.) From the summits of the mountains a splendid view may be obtained, the effect of which is heightened by a cascade of about 150 metres in height; but singular to say, in the midst of this charming spot there is a desert region. There is, in fact, a plain of considerable extent almost entirely destitute of vegetation. This arises from the emission of sulphurous vapours from the earth; so strong are they, that birds are killed as they attempt to fly over these spots, while the locality is even dangerous for man. * * * * * *

At the other extremity of the island is an estate belonging to Signor Borges. Here, as at Furnas, are vast craters and immense depressions of the soil, varying much in aspect and extent. Descending the sides of one of these, the eye takes in an immense crater, surrounded by mountains, the flanks of which present many ravines filled with Myrtineæ, Perseas, Ferns and arborescent Heaths. There are no warm springs here, but numerous large lakes surrounded by high mountains. Pinus maritima is here grown by thousands. Here also I saw some fine specimens of Phyllocladus trichomanoides, 20 to 25 feet high, Dacrydium cupressinum, Dammara australis, with its branches laden with cones, several kinds of Araucaria and Cryptomeria. The Camphor tree grows with vigour, while the Bonapartea juncea, seen in Europe only in a small state, may here be seen in full beauty, producing abundance of flowers and fruit.

I must now speak of some gardens at Ponte Delgada, the principal town of the island. Signor do Canto has a very rich garden in this locality, containing at least 3000 species, and although there are numerous stoves, yet these do not strike one as so remarkable as the collections of plants out-of-doors, under the azure blue of the heavens, and in full view of the ocean. This garden involuntarily brings to recollection the fairy-like gardens of which one reads in the "Arabian Nights." Amongst the trees and shrubs with edible fruit I may mention different species of Psidium and Eugenia. Of the latter, E. Mitchelli, called in the West Indies Cayenne Cherry from its scarlet cherry-like fruit, E. cauliflora, E. malaccensis, E. bracteata, E. amplexicaulis, E. Jambosa (the Rose Apple), and E. Ugni are the most to be recommended for their excellent flavour. The Mangosteen and the Jack fruit thrive well, but have not yet fruited. In the course of my walk I was much struck with the fine foliage of some clumps of trees comprising the following kinds:—Heritiera macrophylla, Aralia quinquefolia, Brexia madagascariensis, Spathodea fraxinifolia, Chrysophyllum speciosum, Jacaranda mimosæfolia, several species of Brownea, a tropical genus of Leguminosæ, the graceful habit of which almost rivals the brilliancy of the flowers; all these are well-known plants in our stoves, but what a difference! Doryanthes excelsa, that lovely Australian Amaryllid, is equal in beauty to the preceding; its spike of flowers attains the height of 25 feet. Fourcroya gigantea, a South American member of the same family, has thrown up a spike covered with greenish flowers to the height of 50 feet. Ceroxylon andicola, the Wax Palm of South America, Phœnix plumosa, Pandanus utilissimus, several specimens of Cycas revoluta, and C. circinalis, also demand a tribute of admiration; while magnificent specimens of Strelitzia do not allow us to overlook them. The variegated Geraniums lose their beautiful colours in this climate, on account of the great heat; but this is hardly matter of regret, as their place is filled by such plants as Plumiera, various Melastomaceæ, Hibiscus sinensis, Calliandra Tweedii (the rose-coloured flowers of which diffuse a delicious fragrance in the evening), Erythrinas, Poinsettias, and many others. The walls of the garden are covered with Bignonias, Combretums, Allamandas, Dipladenia splendens and urophylla, Stigmatophyllum ciliare, Thunbergias, and Lapageria rosea. Proteaceæ, now so rare in European collections, do well here. In particular I may mention fine specimens of Leucadendron argenteum, Brabeium stelluliferum, of Rhopalas, and others. Although some of these trees suffer from the winds, yet others escape, as may be judged from the dimensions of some of the species, which are greater than are met with in Europe. For instance, Leucadendron argenteum, 35 feet in height; Banksia marcescens, 16 feet; B. littoralis, 14 feet; B. compar, 35 feet; B. integrifolia, 36 feet; B. verticillata, 14 feet. Australian Myrtaceæ are also to be seen here in great luxuriance, such as Melaleucas, Callistemons, Metrosideros, Leptospermums, &c. Among Conifers, a specimen of Cupressus macrocarpa measures round the trunk 10 feet. Here, too, are specimens of Dammara Moorei, D. Brownii, D. australis, and D. obtusa. The last-mentioned seems to grow very rapidly, as three years ago the wind broke off the trunk at a few feet from the ground, but at present the same tree measures no less than 25 feet in height. The Dacrydium Franklinii, the Huon Pine of Tasmania, promises well here as a timber tree.

Araucaria excelsa, the Norfolk Island Pine, grows here in all its beauty, attaining to as great a height as in its native clime; there are specimens here of 50 and 70 feet in height respectively, some bearing cones.

The other species of Araucaria are also well represented. Drimys Winteri (Winter's Bark) flowers and fruits here abundantly, as do also several kinds of Cinchona, which Signor do Canto is desirous of acclimatising in the mountains of Furnas.

In another communication I shall have something to say of other gardens in the island, of the Orange plantations, and other productions of interest.
Edmond Goeze.

Societies.

ROYAL HORTICULTURAL, *June* 18 (*Scientific Meeting*).—Sir R. Murchison, Bart., in the chair. After the election of five new members and the affiliation of three societies, the awards of the Floral and Fruit Committees were announced, and Mr. Shortt, gr. to Lord Eversley, at Heckfield, was called upon to offer a few remarks in reference to two fruits of what was called Passiflora macrocarpa, which he exhibited. He stated that this variety of Passion-flower was of Brazilian origin, and that he considered it to be in some respects different from P. quadrangularis, which it resembled. The plant on which the fruit in question was produced was not 10 months old, and any one who could give moderate heat and moisture could grow it, he said, in an 8-inch pot. He himself had plants in flower in 5 and 6-inch pots. When fully ripe this assumes a beautiful golden hue, and its flesh is not unpleasant to the taste, although it was stated that in that respect it is superseded by other species of this genus.

The Rev. M. J. Berkeley, in his remarks on some of the plants exhibited, first directed attention to Gordonia javanica, which belongs to the same natural order as the Tea plant. Gordonias, he said, are bog plants, the bark of which is used in North America for the purposes of tanning. Fruiting specimens of Butcher's Broom were next adverted to, and their ornamental appearance for dinner table decoration was pointed out. After noticing Limnanthes Douglasii as a pretty spring bedding plant if sown in autumn, a beautiful specimen of a fasciated Pinus Pinaster, furnished by Lady Dorothy Nevill, came under notice; in this, although not only the main stem near the top, but also the little branchlets were perfectly flat, the cones were quite normal both as regards form and size. Abnormal pressure in the bud, he remarked, would not account for this example of fasciation. In reference to Pelargoniums it was stated that a doubt had been expressed whether it was possible for a white ground to become pink, and to show that such a change may occasionally take place he exhibited two leaves of the same variety, L'Elegante, shown by Mr. Bull, the one with white, the other with pink edges, the result, he believed, solely of different treatment, the plant in the former case being subjected to ordinary treatment, and in the latter kept dry and exposed to strong light. Another curious subject for investigation was the appearance of the leaves of a hybrid between the common Zonal and the Ivy-leaved Pelargonium, in which the upper part of the leaf partook of the Zonal character, whilst the lower part had that of the Ivy-leaved Pelargonium, and the flowers were partly those of the Zonal, partly of the Ivy-leaved parent. This case could not be accounted for in the same way as the production of Cytisus Adami, by cell-grafting, and tended to show that the theory which had been formed respecting it was entirely wrong. Schleiden supposed that the end of the pollen-tube entered the embryo sac and became a new plant; but, probably, the action of endosmose and exosmose would account for the passage of the pollen influence into the sac. Mr. Berkeley then said that about a month ago he was in the grounds of Sir Frederick Pollock, at Hatton, near Hounslow, and observed that four plants of Cupressus macrocarpa, once the pride of the garden, had perished. On examining them he found that the whole of the plant was covered with the spores of a Fungus (Pestalozzia funerea), which under the microscope formed one of the most beautiful objects he had ever seen. This Fungus was not hitherto known to be British, though it was common in Carolina and Italy. It was remarked that some years ago the Camellias in one of the principal nurseries in Kent were devastated by an allied species of Fungus originally discovered in France, it was believed, by M. Guépin.

Mr. Bateman said, that though all knew the splendid specimens of Orchids which Mr. Anderson, Mr. Dawson's gardener at Meadow Bank, was in the habit of exhibiting from time to time, yet he had never sent finer than those which he exhibited on this occasion. Beautiful as his bunch of Odontoglossum Pescatorei was, it only represented a fraction of the blossom on the plant from which it was cut, and on which no less than 300 flowers were counted; but, glorious as Mr. Anderson's Odontoglossum was, even it was surpassed by the cut specimen of Aerides Fieldingii, from Lord Egerton of Tatton, which was the most magnificent example of that species which had ever been exhibited, and to which, on the recommendation of the Floral Committee, the Lindley medal had been awarded. Mr. Bateman then noticed two or three small species of Orchids, and especially the little carmine-coloured Peruvian Odontoglossum roseum, which, though beautiful *in minimis*, as now exhibited for the first time, would present a still more striking appearance when larger specimens were obtained. Miltonia spectabilis, of which his own gardener had sent a fine variety called rosea, was mentioned as having been obtained from Brazil through Messrs. Low; likewise the Mexican Epidendrum vitellinum, from Mr. Anderson, which was figured 25 years ago by Dr. Lindley, from dried specimens; but when the plant was flowered some years later by Mr. Barker, every one considered the drawing exaggerated, so poor were the blossoms then; now, however, that the cultivation of the plant, which comes from an elevation of 7000 to 8000 feet, is conducted on the cool, that is, the sensible, mode of treatment, the original representation was seen to fail in doing justice to its beauty. Beautiful, however, as Mr. Anderson's example of this Epidendrum was, Mr. Bateman said he had seen one far superior a day or two before at Mr. Day's, at Tottenham. Dendrobium Bensoniæ from Messrs. Veitch was a very promising addition to that beautiful genus.

Coming now to the immediate subject of his lecture, Lælia majalis or Flor de Maio, it was, he said, one of the few Orchids which was fortunate in having a history as well as a name—in fact, many names, the native one being Itzumaqua; besides which it had two or three Spanish, and three or four Latin names. It was all very well for old Rumphius to say that the Orchids are the aristocrats of the vegetable kingdom, but not one in a hundred of them had ever been heard of before the present century, and in classical or heroic ages they were unknown. No one, not even the Chairman, had ever found a fossil Orchid. Any Orchid, then, whose history could be traced back to the conquest of America, would hold a distinguished place. It had been said that when the French took possession of a settlement the first thing they did was to establish a *café*, just as in a like manner the Spaniards were in the custom of erecting a church. For the elaborate services of these churches the Spaniards, being ignorant of the resources of their new possessions, at first carried with them their old-world flowers; but they soon discovered the value of Orchids for church decoration. In connection with this part of the subject he might mention that his late friend Mr. Skinner had sent home from Guatemala some bulbs which proved to be no other than those of the common white Lily, which had doubtless been taken out for the very purpose, and had run wild. The value of Orchids for church decoration having been discovered, as before remarked, they were largely employed for the purpose; and the names of the saints' days and festivals for which their flowering season suited were applied to them, and of these Mr. Bateman cited a number, of which "Flor de Maio" was one. Knowing the extensive use of Orchids in church decoration, Mr. Skinner, he might remark, when he wanted to know what Orchids grew in a district, always went to the church to look at the altar decorations. To proceed with the history of Lælia majalis, the first naturalist who went to Mexico was Hernandez, who published in 1648, at Rome, a book, in the frontispiece of which two Orchids were represented, one of which was the beautiful Lælia majalis. Humboldt was the next to notice it under the name of Bletia speciosa, as one of those beautiful Orchids, the recollection of which, as he was once assured by that illustrious traveller himself, no time could efface. About the same time Lexarza, who went out to Valladolid, in the province of Mechoacan, failing to recognise the plant as described by Humboldt, called it Bletia grandiflora. His description of this and other Orchids so impressed the youthful Reichenbach, that he wanted to visit Mexico himself; but this proved unnecessary, for Mr. Barker despatched a traveller thither, who sent a number of plants of the Lælia, which arriving in mid-winter, were sent home in blankets, but none of them ever flowered, and the whole disappeared in a year or two. Next M. Deschamps, in 1837, exactly 30 years ago, brought home a cart-load, for which he at first asked enormous prices, but eventually he was glad to sell the plants almost for nothing; these too all disappeared without flowering, except one, which was purchased by Mr. Dillwyn Llewelyn, and which was figured in Mr. Bateman's work on the Orchids of Mexico and Guatemala, and by Dr. Lindley in the "Botanical Register," 1844. The drawing in the former work was made under Dr. Lindley's direction, who thought the plant produced four or five flowers; but never, except under exceptional circumstances, did it produce more than one on a scape. Just as Humboldt failed to make his description of the plant intelligible to Lexarza, so did the latter to Lindley, who called the plant first Cattleya Grahami, and afterwards L. majalis, and though Reichenbach wishes to go back to Bletia speciosa, Lælia majalis it is to cultivators, and so it ever will be. He would wish it to be noticed that while Lexarza described the flowers as a span across in their native wilds, Mr. Dawson's specimens were not a whit inferior. It should also be noticed that the Romish festival of Corpus Christi (whence the Lælia derives its name of the "Flor di Corpus") takes place this very week.

Mr. Bateman said that he approached, and not without perplexity, the subject of the treatment best adapted for this beautiful Lælia, the more so as it perhaps ought to be considered typical of the proper *régime* in what was called the "Mexican," as contradistinguished from the Peruvian and other cool houses. At present the treatment pursued with so much success by Mr. Anderson (Mr. Dawson's gardener) varied considerably from that followed by Messrs. Backhouse, of York, who had also succeeded in flowering the plant, and with whom that, if possibly, still more glorious Orchid, Epidendrum erubescens (the "Flor de San Joseph" of the natives) was likewise coming into flower. Mr. Anderson grows his plants on flat pieces of tile of the same form as the tiles of a house, only somewhat smaller, but the branch-Orchid pots would probably be found to answer the purpose still better. They are in a low span-roofed house, the temperature of which fell sometimes to the freezing point during the late winter, while in summer, when the sun is vertical, the temperature rises to 80° or more in the day, the house being moderately damp and close, especially at night, when, at this season of the year, it is kept as cool as possible. The summer treatment at Messrs. Backhouse's (which Mr. B. gave in the words of a letter from Mr. Wentworth Buller, who has lately visited their establishment) was different in many respects from that of Mr. Anderson, the temperature being lower, the atmosphere drier, and air admitted very freely indeed. Probably it may be found that the success achieved by both these eminent Orchid-growers was in a great measure due to the very decided winter, which, in each case alike, the plants were subjected to. And as regards the summer treatment, there can be no doubt that a plant which—like the Lælia—was distributed over a large portion of Mexico, had to submit to many varieties and vicissitudes of climate. Plants, as the late Dean Herbert remarked, do not always grow where they like, but where other plants will let them, and this may be to some extent the case with the Lælia. At all events there can now be no doubt whatever that this most beautiful plant is amenable to cool treatment, and with it there will soon be associated (in the Mexican house) a very extensive brigade of beautiful Orchids, which can be tended and enjoyed in a house of which the atmosphere may be as mild and pleasant as that of an ordinary greenhouse.

The Chairman, in returning Mr. Bateman the thanks of the meeting for his interesting lecture, said that though a fossil Orchid had never yet been discovered, he would endeavour to stimulate geologists to search after such, and did not despair of finding such a thing when the geology of the countries where Orchids now most abound was thoroughly investigated.

Two Orchids, presented by Messrs. H. Low & Co., were balloted for.

Floral Committee: June 18.—Gordonia javanica, above alluded to, from Messrs. Osborn, was awarded a Special Certificate. Mr. Shortt exhibited a cut specimen of the true Pentstemon Cobœa, a now nearly forgotten plant, with large blueish white flowers; also examples of Ruscus aculeatus, covered with berries, produced by careful fertilisation. Messrs. J. & C. Lee sent Hypericum (sinense) monogynum, and Carex pilulifera foliis aureis. Mr. Bull exhibited a specimen of the curious Drosera filiformis; likewise Cypripediums, Bertolonias, Podocarpus, and other plants, for which a Special Certificate was awarded. Messrs. Veitch sent Dendrobium Bensoniæ, which received a First-class Certificate. Mr. R. Warner received a Special Certificate for a very fine collection of cut Orchids. Mr. Sherratt, gr. to James Bateman, Esq., Knypersley, was awarded a First-class Certificate for Miltonia spectabilis var. rosea, a very beautiful plant, with a richly coloured lip. Mr. Anderson, whose beautiful productions are mentioned above, received a First-class Certificate for Odontoglossum roseum. W. W. Buller, Esq., exhibited Odontoglossum flavescens, for which a Second-class Certificate was awarded. A small collection of Orchids was sent from the Society's gardens, and among other objects in the room were some remarkably fine specimens of Arum Dracunculus. Some account of the seedling plants shown on this occasion will be found in another column.

Fruit Committee: June 18.—Mr. Tillery, of Welbeck, sent three dishes of Strawberries grown under glass. They were fine specimens, and Mr. Tillery stated in a letter that he had been gathering fruit of the same size and quality ever since the beginning of May. The plants were grown in pots only 5 inches wide and 6 inches deep, and the fruit was thinned out so that each plant carrried only two fruits. They were placed on shelves, which held about half an inch of soot water. The sorts were Ingram's Prince of Wales, Empress Eugénie, both excellent in flavour, and Reeves' Eclipse, which was not so rich. The Committee awarded them a Special Certificate. Messrs. J. & C. Lee exhibited "The Lady" Strawberry, the fruit of which, though large, was stated to be somewhat indifferent as regards flavour. Messrs. Wood & Ingram sent specimens of the fruit of a small oblate Apple veined with russet, which appeared to be Grange Apple, and which was perfectly sound, and of good quality. Mr. Shortt sent specimens of a hybrid Melon called Golden Eversley, which, however, was overripe, and the flavour flat. He also sent four varieties of early Potatos—viz., Paterson's Early Red Kidney, Early Handsworth, Rivers' Royal Kidney, and Old Ashleaf Kidney, all of which were planted on the 6th of March in the open ground, and the tubers exhibited of each were ten of the largest, selected from three plants. Of these Mr. Shortt stated that Paterson's was the best. Mr. Bateman sent a dish of forced Peaches. Several dishes of Strawberries were sent from the Society's Garden at Chiswick, among which the best-flavoured were President, Sir Joseph Paxton, and Napoleon III. Prince Imperial was highly-flavoured with a fine aroma; Souvenir de Kieff is a large conical Strawberry, having a solid flesh, and with a fine brisk decided flavour; La Constante was firm, solid, and with a fine flavour.

ROYAL BOTANIC, *June* 19 (*Second Great Show*).—This was in most respects fully equal to the fine display which was made here in May. Stove and Greenhouse plants were reproduced in great beauty and abundance. Orchids were decidedly finer than we have seen them before this season about London, and the same may be said of fine-foliaged plants, which filled up shady recesses with excellent effect. Azaleas and Roses in pots were over, but by way of compensation for their comparative absence there was a fine display of cut Roses, charming collections of Pelargoniums, and a beautiful exhibition of fruit.

Stove and Greenhouse Plants maintained their usual positions, and did much credit to the respective growers of them. Foremost in large collections was that of Mr. Peed, gr. to Mrs. Tredwell, St. John's Lodge, Norwood, who had among others Ixora Griffithii, a fine bright orange flowered species, also Ixora coccinea, and a lovely Allamanda grandiflora, literally one mass of canary coloured blossoms. In a second group from Mr. Wheeler, gr. to J. Phillpott, Esq., were Statice profusa, a free flowering kind, very suitable as regards size for gardens in which glass accommodation is limited; Bougainvillæa glabra, which also appeared in another collection, covered with flowers surrounded with gay mauve coloured bracts; and a charming specimen of the variety of Clerodendron Thomsonæ, called Balfourii, which, when seen in the fine condition in which this was, is one of the most effective of pot plants. Mr. Kemp, gr. to Earl Percy, at Albury Park, furnished a third group, in which were Barnes' variety of Phœnocoma prolifera, loaded with dry hard crimson blossoms; a finely-flowered Acrophyllum venosum, the Oleander-leaved Allamanda, Pleroma elegans, with round deep violet-purple blossoms, each as large as a crown piece; and the now seldom-seen blue Leschenaultia.

In collections of eight Stove and Greenhouse Plants Messrs. Lee, of Hammersmith, were 1st in the Nurserymen's Class, with large and fine plants, among which were Allamanda cathartica, their large Hederoma tulipiferum, and the Willow-leaved Ixora, the last scarcely sufficiently far advanced in bloom to be effective. Messrs. Williams, Rhodes, Baxendine, and Glendinning also showed in this class, in which we noticed Ixora aurantiaca, with beautiful deep salmon coloured heads of little star-shaped blossoms, packed together with wonderful beauty and regularity; Erica obbata, which is one of the very best of Cape Heaths; Dracophyllum gracile, the pretty little Hoya bella, and the orange-blossomed Bignonia grandiflora. In the Amateurs' Class, Mr. Donald, gr. to J. G. Barclay, Esq., Leyton, was 1st, with a fine collection, in which were Dipladenia splendens, with some dozen bunches of fine blooms; the showy Allamanda Schottii, Clerodendron Balfourii, and Statice imbricata. Mr. Wilkie, gr. to J. McHenry, Esq., Addison Road, Kensington, was 2d with Ixora javanica, covered with rich salmon-coloured heads of flowers, rendering it certainly one of the most striking plants of the day; the beautiful Dipladenia amabilis, a brilliant addition to the genus to which it belongs; also D. splendens, Allamandas, and other well managed plants. Mr. Wheeler, gr. to Sir F. Goldsmid, Bart., M.P., furnished some good Allamandas.

Among groups of six Stove and Greenhouse Plants the best came from Mr. Ward, gr. to F. G. Wilkins, Esq., Leyton, who had, among others, a fine Bougainvillæa glabra, also Statice macrophylla, Allamanda grandiflora, and Phœnocoma prolifera in good condition. From Mr. Smith, gr. to A. Anderson, Esq., Norwood, who was 2d, came an example of the old-fashioned Prostanthera lasianthos.

Plants remarkable for the beauty of their leaves, exclusive of Ferns, were plentiful. From Mr. Williams, of Holloway, came a fine collection, the chief feature of which was a magnificent specimen of Croton angustifolium, with foliage as bright as that of a golden Yew, which is not more conspicuous among its more sombre-leaved brethren of the common kind than this was among the deep green-leaved plants with which it was associated. Among other plants in this group were Anthurium magnificum, with very large leaves; Dasylirion acrotrichum, Variegated Aloe-leaved Yuccas, Alocasia Lowii, Theophrasta imperialis, Pandanus utilis, and Palms. Messrs. Glendenning, Rhodes, and others, also showed good plants, as did also Mr. Tittles, gr. to J. Marrion, Esq., Willesden. The latter contributed some fine specimens of Caladium, especially of Belleymei, Wightii, Chantinii, and marmoratum; together with Cissus discolor, and Alocasia macrorhiza variegata.

Of Exotic Ferns there were some fine collections, especially one from Mr. Taylor, gr. to J. Yates, Esq., Lauderdale House, Highgate, in which were fine examples of Davallia bullata, Adiantum formosum, Microlepia strigosa, Platycerium alcicorne, Phlebodium aureum, and others. Another good group was contributed by Mr. Carr, gr. to P. L. Hinds, Esq., Byfleet. This contained, among others, Gleichenia semivestita, a charming small-leaved species; Adiantum farleyense, and Nephrodium molle corymbiferum, with fronds so much curled and crested as to look not unlike Parsley leaves. Mr. Smith, gr. to A. Anderson, Esq., had the beautiful Pteris tricolor, also P. argyrea, and P. cretica albo-lineata, Adiantum pedatum, with handsome leaves, and a charming specimen of the Maidenhair Fern.

In the Nurserymen's Class the best collection came from Mr. Williams, who had large plants of Cibotium princeps, and other strong growing Ferns, the handsome Lomaria gibba, Gleichenia Speluncæ and dichotoma, Marattia elegans, Todea africana, and Woodwardia radicans, the last with large gracefully drooping fronds which concealed the turf banks on which it stood, even down to the gravel walk.

Of Hardy Ferns, Messrs. Ivery had as usual a charming group, the most conspicuous in which were Asplenium Adiantum nigrum incisum, Athyrium Filix-fœmina Applebyanum, A. F.-f. gloneratum, A. F.-f. plumosum, A. F.-f. Victoriæ, Blechnum Spicant crispum, Lastrea Filix-mas Barnesii, L. F.-m. grandiceps, the crested variety of Osmunda regalis, Polystichum aculeatum acrocladon, P. angulare oxyphyllum, and P. a. plumosum, all fine kinds. Messrs. Edwards & Son, Kemp, and Carr also contributed collections.

Messrs. E. G. Henderson & Son had a charming group of miscellaneous plants arranged so as to show the effect of contrast of colour, which, although on a small scale, it did in a manner at once so striking and pleasing as to make it worth consideration whether or not prizes should not be offered for tasteful arrangements of this description. It was edged with a row of Centaurea argentea plumosa, inside of which were little masses of Golden Feverfew

Tricolor Pelargoniums, Dracænas, and other coloured-leaved plants, associated with the dwarf pale blue Lobelia Erinus pumila elegans, and L. E. Indigo Blue, in patches; and with Ferns, the speckled-stemmed Sauromatum bulbiferum, Marantas, Caladiums, Jatropha multifida, with beautifully-cut leaves, the scarcely less handsome Cupania filicifolia, and other plants, all of which were objects of great attraction.

Of Orchids there was a glorious bank; conspicuous in which, both as respects skilful culture, amount, and quality of bloom, was a collection of 15 varieties from Mr. Penny, gr. to H. H. Gibbs, Esq., Regent's Park. It contained two magnificent varieties of Cattleya Mossiæ, which were efficiently backed up by Vandas, Aerides, Lælia purpurata, and the brown-flowered Oncidium crispum, while in front were Cypripedium barbatum grandiflorum, Saccolabium guttatum, Anguloa Ruckeri, a charming example of Odontoglossum nævium, the singular green and black flowered Coelogyne pandurata, Odontoglossum cordatum, and Dendrobium anosmum. Another very good collection came from Mr. Wilson, gr. to W. Marshall, Esq., Enfield. It comprised Odontoglossum Alexandræ, bearing a noble plume of delicate blossoms; Selenipedium caudatum, with eight fine flowers, furnished with tails of great length; the Mexican Epidendrum vitellinum, with no fewer than five spikes of orange-scarlet blossoms; the Bornean Cypripedium Stonei; also C. villosum, with abundance of flowers of unusually bright colour; the Madeira terrestrial Orchis foliosa, and Cattleya Warneri. These were supported at the back by fine plants of Aerides odoratum, Dendrobium Dalhousianum, Lælia purpurata, and Calanthes. From Mr. Gedney, gr. to Rev. W. Ellis, who was 3d, came Aerides Lobbii, with two branching spikes of well-coloured flowers, the white-blossomed Odontoglossum pulchellum, a fine mass of Cattleya Aclandiæ, with seven flowers carried well up above the moss-covered pan in which the plant was growing; also Vandas, Aerides, Odontoglossum hastilabium, with flowers having brown-barred sepals and petals, and pinkish-tinged lip; and the yellow-flowered Caffreland Epiphora pubescens. From Mr. Wiggins, gr. to W. Beck, Esq., came a group in which the most conspicuous plants were Epidendrum vitellinum, in luxuriant health; Cattleyas, Aerides, Saccolabiums, and Ladies' Slippers. Mr. Peed also showed in this class.

Among groups of eight Orchids the best came from Mr. Hill, gr. to R. Hanbury, Esq., The Poles, Ware. It contained a fine Cattleya Aclandiæ, bearing six flowers, Cypripedium Stonei, Vandas, Calanthes, and Odontoglossum cordatum. Mr. Page, gr. to W. Leaf, Esq., was 2d with a beautiful example of Aerides Lobbii, two good Ladies' Slippers, Phalænopsis grandiflora, Oncidium crispum and Lælia purpurata. Mr. Burnett, gr. to W. Terry, Esq., Fulham, who was 3d, sent, among others, Phalænopsis grandiflora, Aerides odoratum and crispum, Lælia purpurata, with an unusually large amount of colour in it; Cattleya Mossiæ splendens, and the little Trichopilia tortilis. From Mr. Wheeler, gr. to J. Phillpott, came Trichopilia crispa and Epidendrum vitellinum, both in good condition.

Among groups of six Orchids the best was contributed by Messrs. Veitch, from whom came Lælia purpurata, finely grown and beautifully flowered, an excellent Cypripedium barbatum majus; Saccolabium guttatum, with three charming spikes of flowers; Aerides Lindleyanum, a robust, free-flowering kind; Anguloa Clowesi, with ten bright yellow blossoms; and Cypripedium Veitchianum. From Mr. Williams, who was 2d, came the buff-flowered Dendrobium moschatum, Vandas, Aerides, a fine variety of Saccolabium guttatum, and a very fine variety of Bearded Ladies' Slipper. In a group from Messrs. Jackson, of Kingston, were Saccolabium retusum, Lælia purpurata, Phalænopsis grandiflora, and Aerides Lobbii in excellent condition.

Fuchsias were shown in unusually fine condition, more especially the collection to which the 1st prize was awarded, which came from Mr. Brockwell, gr. to Mrs. T. Henry, Bush Hill, Edmonton. This consisted of beautiful pyramidal plants, some 5 feet in height, and loaded with healthy foliage and fine flowers from top to bottom, the gracefully drooping branches in some instances even reaching the ground and completely concealing the pots in which the plants were grown. The sorts were Puritani, Madame Cornelissen, Sensation, Wiltshire Lass, Lord Elcho, and the Fair Oriana. Others from Mr. Weston, gr. to Dr. Martineau, were also good, and so was a collection from Mr. August, gr. to the Rev. A. Bridges, Beddington.

Azaleas were furnished by Mr. Peed and Mr. Wheeler, gr. to Sir F. H. Goldsmid, Bart., and Mr. Wilkie, but the best group came from Mr. Ivery, of Dorking, who had Etoile de Gand, two plants of Variegata superba, Salmonia alba cincta, and President, all still exhibiting a fair amount of bloom.

Pelargoniums as usual made a fine display. Mr. Turner, of Slough, had the best collection, in which were Miss Burdett Coutts, Guillaume Severyns, Jewess, Mary Hoyle, Lord Clyde, Viola, Royal Albert, Patroness, Regina, and formosum. Mr. Fraser, who was second, had also a good collection, in which were beautifully-managed plants of Princess of Prussia, Excelsior, G. Severyns, Ariel, Lord Clyde, Fair Rosamond, Amy, Favourite, and Inez. Messrs. Dobson also showed in this class. Among collections from Amateurs, Mr. Nye, gr. to E. B. Foster, had the best group, in which were fine plants of Pericles, International, Fair Rosamond, Lord Clyde, Perdita, Lord Chancellor, Empress Eugénie, Conflagration, and Mdlle. Patti. Mr. Ward made a good 2d with prettily-managed dwarf spreading plants. Among fancy kinds the best collection came from Mr. Fraser, who showed charming plants of Roi des Fantasies, Arabella Goddard, Miss in her Teens, Lady Craven, Hebe, and Ellen Beck, all well formed, and literally bouquets of bloom. Mr. Turner, who was 2d, had Clemanthe, Ann Page, Delicatum, Mrs. Dorling, Silver Mantle, and Sarah Turner. The Amateurs' class was well represented by Messrs. Donald, Bailey, Crawley, and Windsor.

Cape Heaths were contributed in excellent condition by Messrs. Peed, Rhodes, Glendinning, and others. Among them, however, was little novelty.

Of Roses in pots a collection of small plants came from Messrs. Paul & Son, and one of larger size from Mr. Terry. Both, however, were superseded in beauty by the fine exhibitions of cut blooms, which were shown by Mr. Mitchell, of Piltdown, Messrs. Paul & Son, Fraser, Cranston, Ingle, Marcham, Hollingworth, Postans, and others. In Mr. Mitchell's collection especially were some magnificent blooms, which were deservedly the admiration of everybody. Among them we noticed Maréchal Niel, Maurice Bernardin, John Hopper, Charles Lefebvre, Senateur Vaisse, Madame Furtado, Xavier Olibo, Madame Victor Verdier, Caroline de Sansals, and others equally fine. Messrs. Paul had Alfred Colomb, Gloire de Dijon, and Beauty of Waltham, in beautiful condition; and in the other collections were also charming blooms of most of the leading kinds. From Mr. Fraser came Monsieur Noman, a promising new pink variety; and Mr. Turner, of Slough, showed splendid blooms of a new Hybrid Perpetual Rose, stated to have been raised at the Royal Gardens, Frogmore, and named Miss Ingram. It is light-coloured, large, full, and incurved, like the old Cabbage, and therefore cannot fail to be a favourite. It gained a First-class Certificate.

Among New Plants were some glorious acquisitions, foremost among which was a magnificent Gloxinia named Madame de Smet, with large blossoms of a pure white colour having a band of rich violet inside the bell. This came from Messrs. Veitch, who also showed Cattleya Brabantiæ, a hybrid between C. Aclandiæ and Loddigesii; Dendrobium Bensoniæ, the gold variegated Dracæna regina, also D. Moorei with dark bronzy leaves; Alocasia intermedia a cross between A. Veitchii and longiloba, and other fine plants. Mr. Lowe, Nottingham, had some fine hardy Ferns, among which Athyrium Filix-fœmina umbraculæforme, Scolopendrium vulgare formosum, S. v. notabile, and S. v. stenomenon received Certificates. Mr. Edwards, Nuttall, also received similar awards for Athyrium Filix-fœmina Edwardsii, A. F.-f. Footii, a free-growing kind; and Scolopendrium vulgare Edwardsii, a finely crested sort. Mr. Ivery's varieties selected for Certificates were Scolopendrium vulgare Elworthii, Polystichum angulare brachiatum-cristatum, and Scolopendrium v. marginatum triforme. From Mr. Wilson, gr. to W. Marshall, Esq., came Odontoglossum roseum and a dark brown and white-flowered kind called O. cristatum. Mr. Bull showed, among other plants, the singular-looking Amorphophallus campanulatus and from Mr. Lawrence, gr. to the Bishop of Winchester at Farnham Castle, came a new primrose-coloured Trichopilia, with an orange-stained throat, called turialvæ.

Among Miscellaneous subjects were some beautiful Amaryllids from Mr. Williams, and a charming collection of the showy Lilium auratum from Mr. Bull. Messrs. Glendinning reproduced their Anæctochili, and Mr. Shortt his fruit of Passiflora (quadrangularis) macrocarpa, shown on Tuesday last at South Kensington.

Fruit was plentiful; but some of it, more particularly Grapes, was not in first-rate condition as regards ripeness. Three bunches of Black Hamburgh from Mr. Hill, gr. to R. Sneyd, Esq., however, formed an exception. These were beautiful, both in bunch and berry, which was well finished. Equally good bunches came from Mr. M. Henderson, Cole-Orton Hall. Mr. Pottle, gr. to B. D. Colvin, Esq., also showed fine fruit in this class; as did Mr. Sage, Ashridge; Osborne, Finchley; Jefferson, Worksop; Hollingworth, Maidstone; Allport, Douglas, and others. The best Black Prince came from Mr. Meades, gr. to Raikes Currey, Esq., who had three admirable bunches of that kind, examples of which likewise came from Mr. Lynn, gr. to Lord Boston. Mr. Allport showed good West's St. Peter's. Buckland Sweetwater in good condition came from Mr. Pottle, Mr. Hollingworth, Mr. Osborne, and Mr. Bailey; and we noticed good bunches of Golden Hamburgh from Mr. Wilmot and other growers. Grizzly and White Frontignans came from Mr. Peachey, Mr. Douglas, and Mr. Tegg; and Mr. Allport had Black Frontignan, Muscats, from Mr. Allport and others, were scarcely up to the mark as regards colour. From Mr. M. Henderson came a new Black Grape of good size, both with respect to bunch and berry, and distinct in form. This was stated to be a seedling from the Black Prince. Of its flavour we had no opportunity of judging. The best basket of Grapes came from Mr. Hill, and the second best from Mr. M. Henderson.

Pine-apples were not very numerous. The best Providence came from Mr. Bailey—a finely formed fruit, weighing some 10 lb. or more. The best Queen came from Mr. Ward, gr. to N. Miller, Esq., Bishop Stortford. It weighed 6 lb., and was altogether a good example of skilful Pine growing.

Of Peaches some very large fruit of Grosse Mignonne was shown by Mr. Miller, Combe Abbey, and others. We also noticed some finely-ripened Violet Hâtive from Mr. Snow.

The best Nectarines consisted of a dish of Violet Hâtive, from Mr. Allen, gr. to J. Hopwood, Esq., the colour of which was remarkably fine. Mr. Allen, gr. to Captain Glegg, had also good fruit of the same variety. Elruge came from Mr. Whittaker, gr. to Lord Crew, Mr. Miles, and others.

Among Melons, Mr. Meredith, of Garston, sent a fine white-fleshed sort; Heckfield Hybrid came from Mr. Budd, gr. to Lord Darnley; and Orim, from Mr. Bailey. These were the best in the green-fleshed class. Among red-fleshed sorts, Mr. Standish had a good kind called Royal Ascot, a sort resembling Gem, but more firmly netted. The last-named variety, which still stands at the head of this class, was also shown by several exhibitors.

Of Strawberries, the most remarkable, in point of size, were Sir C. Napier and Marguérite, from Mr. Clarke, Twickenham. Mr. Budd had British Queen and Empress Eugénie, in good condition, and Mr. Douglas British Queen and La Constantia. Dr. Hogg, a new kind, belonging to the British Queen section, was shown by Mr. Turner.

Black-heart Cherries, large and fine, came from Mr. Chambers, gr. to H. Fowler, Esq., Woodford; Black Circassian and Elton from Mr. Miles, Empress Eugénie from the garden of Sir T. Duckworth; May Duke from the neighbourhood of Salisbury, and Elton from Mr. Enstone and Mr. Hill,

Mr. Miles contributed a dish of Brown Turkey Figs, large in size and beautifully ripened.

Two sets of designs for the decoration of the dinner table were exhibited; but in neither of them was there any novelty, either in the way of material or construction.

We may add that Mr. John Waterer's fine exhibition of Rhododendrons is still to be seen, and that it is well worth inspection.

LINNEAN: *May* 2.—G. Bentham, Esq., President, in the chair. Mr. Howard exhibited a beautiful series of drawings by Mr. Tuffen West, of sections of the bark of Cinchona succirubra, grown under the care of Mr. McIvor, at Ootacamund, exhibiting the renewed bark after partial decortication, under the application of Moss. This is considered the most successful plan of cultivation, the renewed bark producing the alkaloids in large quantity. A portrait of the late Dr. Boott was presented by Mrs. Boott, to whom the special thanks of the Society were returned for so valuable and acceptable a donation. Carl Fischer, M.D., was elected a Fellow, and Prof. J. G. Agardh and Dr. Anton de Bary, were elected as foreign members. The following papers were read:—1. *On the genus Crescentia*, by J. Miers, Esq.——2. *Note on the characters of the genus Canna*, by G. Dickie, M.D. After adverting to the general statement that the Cannas are distinguished by having a single anther, bearing only one cell, supported on a petaloid filament, the author observed that a superficial examination of the expanded flower leads to this conclusion, but that before expansion the stamen will be found to be perfectly developed and evidently two-celled. In Canna he remarks we have one of those cases in which self-fecundation takes place, being in fact alone possible, the anther performing its function before the individual flowers expand. In the early stages the solitary stamen is much larger than any other parts more internal than the petals, and at the time of fecundation the face of the anther and that of the flattened style are in close contact, the pollen being shed before the flower opens, and being adherent to the upper part of that organ; it is in fact swept out of the anthers by the stigma, owing to the rapid upward growth of the style. The petaloid filaments he regarded as representing one of the stamens of the same series as the fertile stamen, adherent to this latter, and petaloid. A. Richard, while he regarded the anther as one-celled, stated moreover that the petaloid filament ought to be held as formed by the union of two stamens, one producing pollen, the other abortive; and Dr. Dickie regards this as undoubtedly the correct view.——3. *Fungi Cubenses* (*Hymenomycetes*), by the Rev. M. J. Berkeley and Dr. M. A. Curtis.——4. *On a new species of Umbilicaria*, by the Rev. W. A. Leighton.——5. *Note on the Spiroptera sanguinolenta, a parasite found in the heart of dogs in China*, by W. Baird, M.D.; *with an account of the occurrence of these worms at Shanghai*, by J. Lamprey, M.D.

May 24 (*Anniversary*).—G. Bentham, Esq., President, in the chair. The Treasurer read a general statement of the Society's accounts, from which it appeared that the balance in favour of the Society on the year's account was 101*l.* 11*s.* 3*d.* The Secretary reported that since the last anniversary the Society had lost by death 8 fellows, 3 foreign members, and 1 associate; and by withdrawal, 3 fellows; while 29 new fellows, 2 foreign members, and 1 associate had been elected. At the ballot which ensued, J. W. Dunning, Esq., R. Hogg, LL.D., R. Hudson, Esq., J. T. B. Syme, Esq., and E. Hart Vinen, M.D., were removed from the Council, and the following elected in their place:—Sir C. Bunbury, Bart., R. McLachlan, Esq., J. Miers, Esq., St. George J. Mivart, Esq., and S. J. A. Salter, M.B. The following officers were then re-elected, namely:—G. Bentham, Esq., President; W. W. Saunders, Esq., Treasurer; and G. Busk, Esq., and F. Currey, Esq., Secretaries. It was thereafter resolved that the President's address and the Secretary's obituary notices should be printed, and the thanks of the meeting were voted to those gentlemen for the preparation of the address and notices respectively.

June 6.—G. Bentham, Esq., President, in the chair. The President nominated J. J. Bennett, Esq., J. D. Hooker, Esq., M.D., Sir J. Lubbock, Bart., and W. W. Saunders, Esq., Vice-Presidents for the year ensuing. A note from Dr. Iliff was read, announcing the occurrence in great abundance of a thread-like worm, Mermis nigrescens, in gardens in the neighbourhood of Epsom, after heavy rain and thunder, on the 3d of June; an observation which was confirmed by several fellows of the Society who had observed a similar phenomenon in other localities about the same time (see p. 626). Dr. Cobbold exhibited specimens of Lepidium ruderale, gathered at Southall, Middlesex. T. C. Allbutt, Esq., M.B., J. Colebrook, Esq., Dr. C. Mellor, and E. Newton, Esq., were elected Fellows. The following papers were read:—1. *Further observations on Cygnus Passmori and C. Buccinator*, by the Rev. W. Hincks.——2. *Notes on the Thysanura, part* 3, by Sir J. Lubbock, Bart.——3. *Notes on some Insect and other Migrations observed in Equatorial America*, by R. Spruce, Esq.; communicated by the President.——4. *On the Mechanical Appliances by which Flight is attained in the Animal Kingdom*, by J. B. Pettigrew, M.D.; communicated by Prof. Huxley.

ENTOMOLOGICAL: *June* 3.—Sir John Lubbock, Bart., President, in the Chair. Mr. F. Pascoe exhibited a box of interesting Coleoptera from Graham's Town, South Africa. Some specimens of a Vanessa closely allied to V. Urticæ, from British Columbia, were exhibited, in which the pale markings of the hind wings were denuded of scales. Mr. Stainton exhibited specimens in various states of a large Tortrix (Earias siliquana), which is extremely destructive to the Cotton crops both in Upper and Lower Egypt, devouring the flowers. Although so abundant, a single specimen only had hitherto been known in collections. Mr. F. Bond exhibited a new species of Tortrix, from Darenth Wood, and a splendid golden-coloured variety of Adela De Geerella. Mr. F. Smith gave an account of a series of nests made by the Solitary Wasp, Odynerus quadratus, built in the open end of an old razor case. The cells, for want of space, were built very irregular. Mr. Stevens and several other members residing in the neighbourhood of London exhibited specimens of a species of hair worm (Gordius), of which vast numbers had been observed a few days ago upon Rose bushes and other plants immediately after violent rain. The President exhibited a very rare wingless species of Tipulideous insects allied to Molobrus, taken at High Elms, Kent, being apparently the Epidapus venaticus. Mr. MacLachlan mentioned the curious fact, in opposition to the general opinion that males were produced in far greater abundance than females, that of a species of a saw fly which inhabits the common Fern, thousands of females might be captured, and not a single male. Mr. Janson also stated that Tomicus vellosus, a small wood-boring beetle, might be found by thousands, without a single individual of the other sex being seen.

Notices of Books.

A Fern Book for Everybody, containing all the British Ferns, with the Foreign Species suitable for a Fernery. By M. C. Cooke. London: F. Warne & Co. Pp. 124, pl. 12.

The aim of this shilling Fern Book is described to be that of fostering the commendable taste of those who are interested in Ferns, and are desirous of cultivating them in their dwellings, and it is added that it contains nothing sensational or new. The author, however, proposes the new, and not very necessary name of Boss-fern, for the Lastreas; and it is moreover new, if true, that Ferns may be, as the writer leaves to be inferred, distinguished from other plants by the absence of midrib, and by the veins dividing regularly in a forked manner. "This regular forking of the veins of the leaf," it is added, "is a great assistance in determining whether any unknown leaf belongs to a Fern or not," and the statement is illustrated by a figure of the Maidenhair, to which indeed it accurately applies, but unfortunately to no other of the 40 or 50 true Ferns found in Britain. Of course the intention of a cheap book like this is to be popular, and we naturally look first to see if the writer has a sufficiently firm grasp of his subject, to deal with it popularly. We are, however, startled to find him describing a Plume Polypody as a species new to Britain, and then admitting that he does not even know whether this, and "the plumosum of the Lady Fern which may be had at some nurseries, is the same plant," but of which he surely should have informed himself, as any tyro might easily have done, that hundreds of seedlings from it, showing it to be a true Lady Fern, have been raised. We must express our regret at this want of sufficient care on the author's part, but we may remark that the book is a neat compilation on the popular subject of British Ferns, much better done than some we could name, although possessing no specially distinctive feature, except it be that of adding as an appendix brief notices of some 80 exotic Ferns "suitable for cultivation," but not over well selected, and many of them referred to under fanciful English names, *e. g.*, the Halbert Fern for Polypodium filipes, Brown American Fern for Cheilanthes micromera, Florida Fern for Woodwardia areolata, Hairy Maidenhair for Adiantum hispidulum, and Downy Maidenhair for Adiantum pubescens, which is the same thing; Siebold's Boss Fern for Lastrea podophyllum, L. podophyllum being in this case mistaken for L. Sieboldii, &c.

There are a dozen woodcut plates, besides smaller cuts scattered through the text, but we cannot praise either for their accuracy. In plate 8, for example, are figured Asplenium lanceolatum and Polystichum angulare, and both figures might pass readily for the

latter plant, which scarcely at all resembles the former. On the vegetable parasites of Ferns Mr. Cooke writes with authority, and this, and the chapter on structure, form the best and most novel parts of the book.

The Edible Molluscs of Great Britain and Ireland, with Recipes for Cooking Them. By M. S. Lovell. London: Reeve & Co. Crown 8vo. Pp. 207, tab. xii.

What a real blessing to gardeners it would be if only a taste for the fat, luscious, juicy snail could be engendered among our fastidious gourmands. How the now luckless amateur gazing in despair on the ravages of grey or black slugs would pluck up courage if he knew that his detested enemies would not only be destroyed but eaten. Why it would be a refinement on cannibalism, the eating of one's natural enemies and the filling of one's pockets in consequence. This would be sweet revenge indeed!

In sober earnest, however, there is no doubt that among these said Mollusca there are very many, besides the oyster, the mussel, the cockle, and the comparatively few that are made use of for food, that might profitably be turned to account.

Our neighbours across the Channel look upon "escargots" as real luxuries, the species principally used being the large Helix pomatia found in limestone districts on this side of the Channel, but not very commonly. Our author tells us that the Paris markets are principally supplied with this delicacy from Troyes at an average price of five francs the hundred, and that the animals are boiled in their shells, and seasoned with fresh butter mixed with Parsley. At Nantes, says our author, in 1862 and 1863, the escargots brought to market "on Sundays and fête days amounted in number to 996,000, producing the sum of 2490 francs."

It seems probable that the relish for snails must be acquired; in this respect snails are no worse off than are olives, for most persons complain of a "slimy, soapy, green" taste, which is, to say the least, objectionable. The Parisians don't think so, however, for they "eat about 15 or 20 for breakfast," and consider them to enhance the flavour of wine!

The Spaniards are fonder still of snails; they are said to eat all and every snail that is not too small to be cooked, while some are so esteemed that they are only to be found on the tables of the wealthy.

It is not a little doubtful whether John Bull will soon get over his prejudice against eating these creatures, but if he be inclined to try, the volume abovementioned will furnish him with full particulars, as to how to make the attempt; it will, moreover, afford him much pleasant and valuable information as to many other land and water molluscs not quite so repulsive to his prejudices. It is quite certain that many of them require only to be tasted to be generally appreciated, but it is equally certain that others mentioned in this book are more in place as bait for fish, than as dainties for man's use. We must not dismiss the volume before us without a word or two of commendation. It is a well-intentioned book, full of information which is well arranged, while the references and index are so full that it may be placed on the library shelf as a book of reference on conchological matters even by those who have not the courage to "taste and try" the delicacies recommended to notice.

Florists' Flowers.

SOME further examples of Messrs. Downie, Laird, & Laing's fine hybrid Nosegay Pelargoniums were produced at the meeting of the Floral Committee, at South Kensington, on the 18th inst. They were seedlings from a fertilised Stella, but all were of a different shade of colour to that of the parent plant. A Second-class Certificate was awarded for the Hon. G. Hardy, having immense and well-rounded trusses of vivid orange-scarlet flowers, a fine shade of colour, excellent habit, foliage pale zonate, and free-blooming. Floribundum, clear pale orange scarlet; and Comet, bright cherry crimson, are two remarkably good varieties; the shade of colour of the former is very striking, and the trusses of great size; the flowers of the latter were stout and smooth, and the habit excellent. A very free-blooming Fancy Pelargonium, named Mrs. J. W. Todd, came from the same exhibitors; it had rosy-violet upper petals, with pure white lower petals, blotched and margined with rose. Mr. Davidson, of Highfield Park, Hants, had a rosy pink variety, with zonate foliage, named Emily; the colour was soft and pleasing, but it was considered to be no advance on Rose Queen. Mr. Davidson may be taken as representing a somewhat numerous class, who even in remote districts are labouring persistently to improve this class of Pelargoniums, though as yet behind what is being done nearer London. Mr. Whitehorn had plants of one variety, and cut flowers of another, of seedlings raised from Rollisson's Unique Pelargonium; they were decided improvements, in point of colour, on the parent variety. The one represented by the plants was named Purple King—a bad name, as the flowers were of a bright and yet deep rosy crimson colour; the plants were in a somewhat indifferent condition, and it was requested that they might be seen again. Constellation was represented only by cut flowers, of a larger size than Purple King, of a vivid rosy crimson shade, suffused with violet. When well grown, these two varieties will be great acquisitions in point of colour. Mr. John Mann, of Brentwood, had Zonal Pelargoniums—Guardsman, glowing orange scarlet, small trusses, but excellent habit; Startler, clear and very bright orange scarlet, good smooth flowers, but with a fatal tendency to cup; and the Baron, bright orange crimson, a very effective shade of colour, but the trusses of flower very small. Mr. Mann has been very successful in producing rich shades of orange, which, as in the case of his fine variety, Lord Derby, he has associated with the very finest properties. Mr. H. Tirebuck, nurseryman, Luton, had plants of his pink Nosegay Pelargonium Felix, not nearly so good as when it received a Second-class Certificate last year: the plants had been badly grown, and should not have been shown in such indifferent condition; also a group of a very free-blooming bright orange scarlet variety, named Emily Moorland, having dark zonate foliage, short and stiff—a sort that will make a very effective bed; and a very useful looking golden-foliage kind, named Her Majesty, well coloured, and of a good habit, appearing as if it would be suitable for bedding out.

Mr. C. Kimberley, of Stoke, near Coventry, had some plants of a good-looking spotted Pelargonium, named Grand Arab, having light lower petals, with a medium dark spot on each floret, lit up with fiery rose; dark top petals margined with fiery rose, and edged with pale pink; flowers smooth and of good shape, and free blooming.

Mr. W. Lee, of Albion Road, Hammersmith, received a First-class Certificate for a very dwarf growing Lobelia, of the Erinus section, named Lee's Dwarf Blue; the habit very short and dense, like Messrs. E. G. Henderson & Sons' L. pumila elegans, and having a profusion of azure blue flowers, with small white spot on the centre of the flowers. It promises to be a most effective bedder. Mr. Lee also had some varieties of L. speciosa, viz., Ultramarine, dark blue with white centre; and Fawn, a loose-growing variety with pale lilac flowers. Messrs. J. & C. Lee had Sparkler, deep blue with conspicuous white centre, a seedling apparently from L. Paxtoniana, the habit very straggling and spare; and a weedy-looking variety with sickly-looking foliage, named Queen of Lobelias, was shown as a variegated foliaged plant by Mr. J. Parker, gr. to S. J. Cooper, Esq., Mount Vernon, Barnsley.

The Second Great Show at the Royal Botanic Gardens, Regent's Park, on the 19th inst., brought out a considerable group of new Show Pelargoniums of the large-flowered section. First-class Certificates were awarded to Hermit (Foster), described at page 577; to Sœur de Charité (Foster), a novel and beautiful flower, lower petals orange salmon, pencilled with dark, top petals dark, margined with bright rose, and having a white throat faintly pencilled with rosy lines, a few of the flowers a little rough on the edges, while the majority were smooth and of fine quality, habit excellent; and to Empress (Foster), salmon rose lower petals, suffused with violet, and pencilled with orange crimson, dark top petals, the blotch lit up with fiery orange, and having a narrow edge of rosy pink: flower large, very smooth, and of fine quality, good habit. Second-class Certificates were awarded to Joan of Arc (Foster), described on page 605, shown smaller on this occasion than when previously seen, though still smooth and of good quality; and to Prince Consort (Foster), carmine rose lower petals, with a just perceptible shade of violet; medium-sized blotch on the top petals, with broad fiery margin paling of to the edge, and white centre: good habit, and free-blooming.

The following varieties shown on this occasion will no doubt be sent out with the certificated flowers:—Marksman (Fraser), lower petals rosy salmon, slightly veined with dark, top petals dark, with broad fiery margin and edge of pink, flowers small but very free-blooming, and good trusses and habit: it lacks novelty of colour, but will be valuable because so free in blooming; Beauty (Beck), is something in the same way as the preceding, but having more orange in the lower petals the colour is thereby brightened and made more striking, though the hue pales with age; free-blooming and good trusses, but the habit somewhat spare; Aspasia (Beck), not quite so good as when previously described; Aurora (Beck) and Camilla (Beck) are flowers of good properties, and will probably be seen in better condition later; Bacchus (Foster), is a stained flower, with a large and bold white throat, and rich dark top petals, with bright rosy edge, of good habit, and blooming freely, but the trusses had not more than three pips on each; Troubadour (Foster), one of those taking salmon-coloured flowers, the peculiar hue of colour of which is sure to be attractive: the variety was much in the way of Mary Hoyle, but with more carmine, and consequently a brighter hue, especially on the upper petals: flowers of large size, but too thin and flimsy as shown,—a flower not good enough to receive a First-class Certificate in the condition in which it was shown, and yet too good for that sometimes questionable distinction, a Certificate of the second class. The Cardinal and Firefly, both from Mr. Foster, are two self-coloured flowers, belonging to the French class, the last very bright, having vivid rosy carmine flowers, with a small dark blotch on the upper petals: flowers small, but in plenty; the first-named had a somewhat dark colour irregularly distributed over the top petals, but was darker and duller in colour than the preceding; habit good, and very fine; will make good decorative or market kinds. Autocrat (Foster), in the way of Hermit, but not so good, still retains its sportive tendency. King of Trumps (Foster) was thin and flimsy, the flowers are large and bold notwithstanding, the lower petals orange salmon, top petals dark, with broad fiery margin and pale edging, and showy white throat. Robin Hood (Foster) is of a very pleasing hue of colour, the lower petals violet pink, slightly suffused with carmine, dark top petals with a fiery crimson margin, white throat, good habit, and free blooming. The foregoing were all shown as Pelargoniums of the second year of flowering. A few yearling flowers came from Messrs. Hoyle and Dobson & Son, to which the judges are empowered to award Commendations for any special and promising features. A Commendation was given to Needle Gun (Hoyle), a painted flower, with deep orange lower petals, stained with dark; upper petals dark, with narrow edge of fiery rose, small flowers, but of good shape, and very smooth; commended for its hue of colour. Others were Patrimony (Hoyle), a large and bold flower, very smooth and stout, that promises to make a first-class variety; lower petals pale rosy pink, dark top petals, with medium blotch, lit up with fiery orange crimson, and having a narrow edge of pale rose—a flower not without a defect or two that another year's growth may possibly do much to remove. Miss Hervey (Hoyle), a large stained flower, not in good condition, being loose and thin, but having a very striking white throat. Prince Imperial (Dobson), pale orange salmon lower petals, rich dark top petals, margined with fiery rose, medium-sized smooth flowers, and good habit, a very promising flower; and Lord Derby (Dobson), a rich coloured small stained flower, but badly shaped. Some Fancy Pelargoniums from Messrs. Dobson & Son were also shown, viz.:—No. 1, deep rose self flowers, with a purple tinge round a white throat, and narrow edge of white, flowering freely, but spare in the habit; Homer, in the way of the foregoing, but having the lower petals broken into by lines of a pale colour; and Achievement and Silver Star, two light flowers of but little character.

Messrs. Downie, Laird, & Laing, received a First-class Certificate for their Nosegay Pelargonium the Hon. G. Hardy, and Certificates of Merit for Comet and Floribundum, described above. A First-class Certificate was awarded to Mr. George Smith, Tollington Nursery, Islington, for a very handsome and valuable Nosegay Pelargonium, Grand Duke, the colour a deep but rich hue of orange scarlet; flower stout and smooth, trusses large, bold, and circular, and excellent habit. First Favourite (G. Smith), is another nosegay of a very pleasing shade of bright orange scarlet, habit and truss good. A basket of La Grande, the colour of which is highly effective, was also shown by Mr. Smith.

A splendid batch of variegated Zonal Pelargoniums was shown by Messrs. Carter & Co.; Prince of Wales and Princess of Wales, two very fine yearling plants, were Commended, the latter being very novel in character, and of an excellent habit, though somewhat rough on the leaves. Royal Standard, Aurora, and Marian are also yearling plants of very great promise, being noticeable for their large, bold, and well-rounded leaves. Egyptian Queen promises to be one of the very best bicolors for next year, and Black Prince has first-class properties also. *R. D.*

The Apiary.

BEE-CULTURE: EGYPTIAN BEES.—Having already related how I became the possessor of three stocks of this variety, I need not here revert to that portion of their history, but I have thought that a short account of how they have fared with me during the winter, and up to this period of the summer, might not prove unacceptable.

To begin with No. 14. This hive, when received from Mr. Woodbury last summer, was a well-established stock in one of his bar and frame boxes. Having to transfer the combs into frames suited to my own hives, by some accident the queen was sacrificed. As the bees seemed tardy in setting about the task of raising royal cells from their own brood, I gave them a sealed cell from a Ligurian hive, which became in due time the reigning queen. The hive is, at this time, without any trace of the Egyptian element. The bees passed through the late trying winter and spring in admirable condition. Being crowded, they were transferred into a more capacious hive on the 23d May. Since that time a large super has been given, in which they are now working nicely.

No. 3, at the commencement of the winter, was a fine stock, but being insufficiently supplied with honey, a large supply of artificial food was necessary; of this the bees stored up and sealed a considerable quantity. Soon after the break up of the second great frost, I observed that the bees were dead. On examination, it was evident that they had died from starvation and cold while in close proximity to an abundant store of food. The bees were too numerous to have succumbed to cold alone.

On the side of one of the combs, surrounded by a cluster of her subjects, who had died with her, I found the dead body of the beautiful queen: beautiful exceedingly, even in death, and easily to be distinguished by her colour and markings from either a Ligurian or an ordinary queen. I regretted the loss of this stock, as the queen had been a very prolific breeder.

Of No. 1, the stock, like No. 3, was raised from a very small nucleus, at the head of which was a young queen artificially raised a week or two before coming into my possession. As there were very few if any drones then out from any Ligurian or commoner stocks, it was hoped and believed by both Mr. Woodbury and myself that the progeny as well as the queens would be quite pure. In this supposition we were, I believe, correct. The bees have been very beautiful and uniform in their markings. This hive (No. 1) seemed to thrive better than its sister stock, and was at the close of autumn in a better condition to stand the winter.

After the break up of the second great frost, I thought the bees must, like those of the other hive, have fallen victims to its severity, as they did not show out at all for a day or two after the change; but at length the bees made their appearance in considerable numbers, and soon became more apparently active than any other stock in my apiary.

On the 18th of May the hive appeared to be so strong that I forced a swarm by driving out all the bees. These I placed in a box with a few frames of empty combs, adding one of their own brood combs. I found a considerable number of royal cells in various stages. A hive, No. 12, was now visited, all its own combs and the queen removed, and the brood-combs of

the Egyptian stock, having several royal cells, were substituted. Contrary to my expectations, and the very first time that I have ever had such an occurrence in the forming of artificial swarms, the bees, instead of accepting their situation and attempting to raise a queen, or waiting for one naturally developed to come out in due course, declined to remain, but threw themselves into the adjoining colony, where they were received without any fighting. This state of affairs I did not discover until it was too late to save the brood. I am sorry to say that the loss of brood was very large. There was a large proportion of drone-brood both in worker and in proper-sized cells.

The stock hive was very much weakened, but soon recovered a portion of its former populous condition. I have since then removed two full brood-combs, my object being two-fold: first, to prevent all possibility of the hive swarming, as I do not wish to run the risk of losing the queen; second, to force the bees to construct entirely new combs, believing that, in the course of a generation or two, the cells will be very much smaller. To explain this latter point. The Egyptians were first bred in combs constructed by Ligurian bees. The Egyptian bees thus raised are very much smaller in size even than the Ligurians, therefore it is likely that those first raised will, when comb building, make somewhat smaller sized cells; the bees reared in these will again be likely to construct smaller still, and so on until the proper dimensions suited to the very diminutive sizes of the bees may be reached.

Since this last robbery, the bees have been comparatively listless and idle; this may partly have been induced by the unfavourable state of the season. Within a few days I have been compelled to feed them, as I feared they would otherwise perish from actual starvation. The queen is small, and of a richer yellow colour than her Ligurian sisters; both the drones and workers are very beautiful. I am sorry to say that the latter still merit the character for savageness of disposition when molested that I have already had to award them. I am not, therefore, very anxious to increase their numbers in my apiary, but should be sorry to lose the variety altogether. *S. Bevan Fox.*

Miscellaneous.

Dry Earth.—Porous earth acts on putrefying animal and decaying vegetable matters on the same principle as that on which the purifying powers of charcoal depend. On account of their greater porosity and absorbing properties, wood and peat charcoal are superior to earth as disinfectants. However, dry earth is a very good absorber and destroyer of foul smells; and, as it can be had anywhere at little cost, it deserves to be used extensively, especially in the country, for preventing nuisance and loss in fertilising constituents, which is caused by the careless mode in which human excreta are usually disposed of. Earth impregnated therewith, like charcoal, has the power of purifying itself on exposure to the air; so that earth may be used over and over again for the disinfection of human excreta. It is, indeed, worthy of special notice that a mixture of earth with night-soil, after having been kept for some time under a shed, confined at one or more sides and covered by a roof to exclude rain, and become dry, has its original disinfecting powers almost completely restored, and may be used again for absorbing and retaining the manuring elements of a fresh quantity of night-soil. Earth in this way may be used three or four times over for the disinfection of human excreta, and at the same time becomes a valuable vehicle for absorbing and concentrating all the fertilising constituents which enter into the composition of liquid and solid excreta. Human urine contains from 91 to 94 per cent. of water, and fæces not less than 80 to 85 per cent.; hence the practical difficulty of converting them into a dry and portable manure. Simple evaporation or artificial drying is impracticable; because, in the first place, it creates an intolerable nuisance; and secondly, because it is attended with the decomposition and loss of the nitrogenous and most valuable manuring constituents. These practical difficulties, which are experienced in the conversion of night-soil into a portable manure, may be completely obviated, at all events in the country, by the free use of dry earth in closets. If a sufficient quantity of earth is employed to absorb completely the mixture of the excreta, the contents of the closets can be removed periodically, say once a month, in the day-time, with little or no inconvenience. They should be wheeled at once under a roofed shed, and spread out as much as the space admits, and left exposed to the drying influences of the air. According to the state of the weather, the mixture of night-soil and earth will become sufficiently dry in two or three months, when it may be used again in the closet like fresh soil, and the same process be repeated three or four times. During the drying in the shed no appreciable amount of fertilising matter is lost; and as the earth after each removal from the closets becomes charged with an additional quantity of manuring matter, a very useful manure is finally produced with little trouble and at a mere trifling expense. In country places, where proper drainage is not provided, the nuisance of open closets may be best avoided by the use of the arrangements adopted in the so-called earth-closets. *Voelcker on Disinfectants.*

Garden Operations.

(*For the ensuing week.*)

PLANT HOUSES.

Anæctochili will, now that they have re-established themselves by the formation of fresh roots, &c., after recent potting, require more frequently copious waterings overhead. I prefer doing this at this season with a very fine rosed watering-pot, so fine indeed that a continuous stream of tepid spray may be forced to enshroud the whole of the plants for a time. Remove with care all weedy accumulations attached to the surface of the soil in the pots, occasionally rinsing the bell-glasses, and keeping all as fresh as possible around them. After watering them as above, upon fine sunny days, and with a maximum moist temperature pervading the whole structure, remove any covering from around them, and by full exposure afford them every possible assistance by the admission of fresh air for at least two hours, when the glasses, being well dried, should be replaced. Any flower spikes which show are best removed as soon as they have grown sufficiently firm to withstand the damp contained in so close an atmosphere as that habitually surrounding them. Keeping this in view, it is better to keep them upon all such occasions as dry as possible until the wounds thus caused are healed over. *Heaths, Epacris,* &c., should, where convenient, now be removed to a cool, shady, northerly aspect. Be particular to place them upon either slate or coal ash bottoms, otherwise worms will prove very troublesome, besides doing likewise much injury to the roots. Be careful not to over water them in such situations; too much moisture at the roots is as injurious as the not affording them a sufficiency. Should mildew attack them—a not unfrequent occurrence at this time—dust them well over with flowers of sulphur. Look to the drainage of pots containing specimen *Auriculas,* as it not unfrequently happens that some need attention at this time. Much injury will accrue to any which are allowed through inattention to become over sodden at the ball. Divide Chinese *Primulas,* of the double-flowered and Fern-leaved sections, or any required to be perpetuated; plant them out in a cool, shady situation, in a rich, moist soil. Strike cuttings of stove plants in general, where an increase of any given sorts is needed. Attend to any *Painting* or *Glazing* necessary upon glass structures generally, as soon as any crops or plants contained within them afford an opportunity of doing so. Flood the floors of houses generally upon sunny afternoons, shutting up early when practicable for the purpose of perfecting a good summer's growth.

FORCING HOUSES.

Early ripened *Grapes,* which it is desirable to keep hanging for a time, should receive all the air possible, and should have a rather dry atmosphere. Do not allow the younger leaves, formed upon late laterals, to shade the larger original ones, but afford them all the light possible, in order duly to elaborate the ripening processes necessary to properly flavour the fruits, and to form good plump buds for next season's fruiting. Finish thinning without delay the late varieties intended for midwinter use. Pinch back the laterals which may form at this time, decisively. A maximum temperature, with abundance of moisture, will be needed throughout the day, to be moderated some degrees at night during the swelling period. Do not omit to give air at the earliest moment at which it is needed upon bright sunny mornings. Keep all *Early Vineries* denuded of their fruit, free from any signs of "spider," giving abundance of air without artificial moisture. Water copiously again all *Figs* from which the first crop has been gathered. Stop all planted-out ones in a similar stage which are forming fresh wood at the third or fourth age, and revert to constant and copious syringings. Do not allow the bottom-heat in *Melon beds* to fall below a minimum of 75°; this they too frequently do at this time without observation. When any bed formed of fermenting materials ceases to produce heat, and becomes a sodden mass of inert matter, it is of all things the most ungenial upon which tender subjects can be expected to thrive. In collecting fresh droppings for *Mushroom beds* for the purposes of successional crops, as previously advised, do not by any means collect those from horses fed upon Grass or other green food, but choose at all times droppings from stable horses fed for the most part upon dry hay, &c. Give all Mushroom beds which commence to fail in production a good soaking with water strongly diluted with salt, and with other strong fresh liquids from stables, giving all the air possible to the house by keeping any windows or doors therein constantly open.

HARDY FRUIT GARDEN.

Finish thinning forthwith the fruit upon *Peaches* and *Nectarines,* and stop all lateral shoots beyond the second bud. Many leaves in consequence of the cold wet spring are very much blistered; these should be removed wholly, and as where they exist mildew too frequently attaches itself, they should at all times when removed be placed in baskets and carried carefully away. Ply the syringe or, what is better, a garden engine throughout their whole surface as often as possible, as nothing tends to imbue them with a vigorous healthy growth more than copious sousings with pure water. Lay *Strawberry Runners* singly upon any vacancy that occurs around the plants, placing a crock or stone upon each one for the double purpose of aiding it in its efforts to attach itself to the ground by means of roots, and to keep additional moisture around them should the weather prove dry. Lay also any needed for forcing during the ensuing winter or spring months, singly upon the surface of soil placed firmly in large 60-sized pots, placing a pot-sherd firmly upon these also. Place them in fives or sixes, close together, for the purpose of watering them more readily than when they are placed athwart the bed singly. Fresh plantations of Strawberries may also be now made by planting out any old forced plants in hand in a deep, well trenched and manured border. Before planting, however, give the balls of all intended to be planted two or three consecutive soakings of manure-water, in order to moisten them. Tread the freshly dug border firmly all over, make a slight drill down where it is intended the rows should be, and fixing the base of the balls firmly at least half a yard apart. Scatter a little well decomposed manure around them, then afterwards draw the soil from between the rows well up around the crowns, and tread all firmly. Be careful in the process not to bury any of the foliage or the crowns too deeply. Afterwards another good soaking of manure-water around the plants will be of much benefit, aiding quickly in settling the soil around them. Prepare all trees of robust growth, and especially wall trees, such as young *Cherries,* &c., for heavy thunderstorms, often very prevalent at or about this date, by securing them as constantly as they become elongated sufficiently to need support.

KITCHEN GARDEN.

As the season is stealing gently onward amidst much variable and ungenial weather, with many things making little or no progress, all crops should receive every possible extra assistance by frequent hoeings and the like. So also is there greater need for constantly anticipating the requirements of the future. It may be necessary to make a few risk-sowings some fortnight earlier than is customary; hence I advise that a small sowing be at once made of *Cauliflowers, Cabbages, Carrots, Onions,* and the like, for so-called winter cropping. These, should they become too strong, may be supplemented by others sown—the weather favourable—at a later date; besides which, much good is done all such by transplanting them, thus by successive checks to harden them the better to withstand the winter. As the general appearance of the kitchen garden is so much enhanced by keeping neat and tidy walks, I cannot too heartily advise cleanliness in this wise; brush them over and roll them as frequently as necessary; the doing so is besides a great preventive of weeds and Mosses generally, so prevalent in moist seasons. *W. E.*

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the Week ending June 19, 1867, as observed at the Horticultural Gardens.

June.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Of the Air. Min.	Of the Air. Mean	Of the Earth 1 foot deep.	Of the Earth 2 feet deep.	Wind	Rain.
Thurs. 13	11	30.057	29.901	66	46	56.0	60	56	S.W.	.00
Friday 14	12	29.848	29.790	68	42	55.0	59	57	N.W	.00
Satur. 15	13	30.024	29.936	62	46	54.0	59	57	N.E.	.12
Sunday 16	14	30.090	30.051	62	42	52.0	59	56	N.	.00
Mon. 17	O	30.115	30.092	64	41	52.5	59	56	N.W.	.00
Tues. 18	16	30.032	29.978	75	59	67.0	58	56	S.E.	.00
Wed. 19	17	30.008	29.966	70	40	55.0	60	56	N.E.	.00
Average		30 025	30.002	66.7	45.1	55 9	59.1	56.3		0.12

June 13—Partially overcast: densely clouded; cloudy at night.
— 14—Fine; overcast; very fine at night.
— 15—Fine, with white clouds; cold and overcast; cloudy.
— 16—Overcast; cloudy; very fine at night.
— 17—Cloudy; overcast; fine, but cold at night.
— 18—Fine, overcast, overcast and warm.
— 19—Hazy and warm; cloudy; overcast at night.
Mean temperature of the week, 4½ deg. below the average.

STATE OF THE WEATHER AT CHISWICK,
During the last 41 years, for the ensuing Week, ending June 29, 1867.

June.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday ..23	72 6	47 3	59.9	16	0 44 in.	1	2	4	2	3	18	6	5
Mon. ..24	73.7	49.1	61.4	15	0 72	1	3	5	1	2	15	10	4
Tues. ..25	72.9	49.5	61.2	20	0 72	—	3	6	2	5	15	6	4
Wed. ..26	74 1	49.6	61 9	20	0.69	1	3	6	2	2	14	10	3
Thurs. ..27	72 3	48.2	60.3	15	0.80	4	3	9	2	3	17	9	1
Friday ..28	73 7	49.5	61 6	16	0.65	1	5	7	1	3	12	6	7
Satur. ..29	72 8	48.8	60 8	12	0 62	3	5	3	1	—	16	7	6

The highest temperature during the above period occurred on the 27th, 1826—therm. 93 deg.; and the lowest on the 26th, 1862, and 28th, 1864—therm. 34 deg.

Notices to Correspondents.

AGAPANTHUS: *H M.* Please send the specimen.

CORDYLINE INDIVISA: *Reader.* This is rather a difficult plant to grow. It does not like close heat, nor too much water at the root.

HYGROMETERS: *John Davis.* We have seen very good hygrometers, dry and wet bulbs, for general gardening purposes, showing the amount of moisture in the air, hothouses, &c., by Cassella, 23, Hatton Garden, E.C., from 13*s.* 6*d.* to 17*s.* 6*d.* At the latter price you can have porcelain scales, which we should recommend, as they are distinct and indelible. Daniel's hygrometer, and likewise Regnault's, are, we observe, very expensive, 3*l.* or 4*l.*—Will "P. W. M." please send his name and address? ‖

JUDGING PLANTS: *Reader.* It is next to impossible to give a satisfactory answer to inquiries such as yours, as the whole of the conditions cannot be presented in the compass of a short letter. At the London shows the names of the exhibitors are affixed before judgment, and therefore we see nothing objectionable in a juror seeing the same plants at home before they are brought out. If he is capable of making dishonest use of the knowledge he may have acquired, he would do so in either case, or in any case. Then as to Orchids: if two competing plants were equal as to health and bloom, we should give the preference to that which is most difficult to cultivate, because it would represent the greatest horticultural skill, and not to that which might bear the highest money value, for that would represent only the length of the owner's purse. If both were equally difficult or equally easy to grow, then the value of the plant might be considered, but it is very rarely indeed that specimens are so nearly balanced as that. Cypripedium Lowii with four flowers to a spike is well grown.

NAMES OF PLANTS: *Under-gardener.* Drosera rotundifolia.—*W D.* 1, Viola persicifolia; 2, V. cornuta; 3, Thymus Serpyllum, v. lanuginosus; 4, Goodia latifolia; 5, Geranium sanguineum.—*P E F.* 1, Thalictrum aquilegifolium; 2, Spiræa sorbifolia; 3, Sp. Filipendula; 4, Campanula Medium fl. pl.—*Nemo.* 1, Saxifraga punctata; 2, Corydalis lutea; 3, Tellima grandiflora; 4, Geranium molle.—*Ellen.* A Crinum, but too much crushed for determination.—*F M.* Geranium sanguineum.

PEACH LEAVES: *W A D.* We find neither Fungus nor insect on your Peach leaves. Their present appearance is probably due to some sudden chill. *M J B.*

THUJA AUREA: *Reader.* Plants of this 3 feet high might be considered large. We cannot give the measurement of the tallest in England.

COMMUNICATIONS RECEIVED.—W. Denning.—W. E. S.—R. D.—W. M. B.—W. R.—J. C.—G. Lowe.—P. W. M. (thanks).—P. Grieve.—Exhibitor (apply at South Kensington).—W. S. D.—J. A. Watson.

FOWLER'S PATENT STEAM PLOUGH and CULTIVATOR may be SEEN at WORK in every Agricultural County in England.
For particulars apply to JOHN FOWLER & Co., 71, Cornhill, London, E.C.; and Steam Plough Works, Leeds.

IRON HURDLES (Silver Medal of the Royal Agricultural Society).
SHEEP, 3s. 5d.; CATTLE, 4s. 2d.; OX, 5s. 11d.
List by Post. GATES and FENCING of every description.
St. Pancras Iron Work Company, Old St. Pancras Road, London, N.W.

THE IMPROVED TANNED LEATHER DRIVING STRAPS. PATENT EDGE-LAID LEATHER STRAPS, without lap or cross joints—superior to all others for Portable Engines. Prime STRAP and SOLE BUTTS.
Price Lists sent free by post.
THE TANNED LEATHER COMPANY, Tanners, Curriers, &c., Armit Works, Greenfield, near Manchester; Warehouse, 81, Mark Lane, London, E.C. Mr. H. FERRABEE, Agent.

Caution to Gardeners.—When you ask for SAYNOR AND COOKE'S WARRANTED PRIZE PRUNING and BUDDING KNIVES, see that you get them. Observe the mark SAYNOR, also the corporate mark OBTAIN WARRANTED, without which none are genuine.
S. & C. regret having to caution Gardeners and others, but are compelled to do so, in consequence of an imitation, of common quality, having been sold for the genuine one, and which has caused many complaints to be made to them of Knives which were not of their make, all of which are warranted both by Sellers and Makers.
S. & C.'s Pruning and Budding Knives are the best and the cheapest in the market.
Paxton Works, Sheffield. Established upwards of 125 years.

MANCHESTER and LIVERPOOL AGRICULTURAL SOCIETY (Established 1767). — GRAND CENTENARY SHOW MEETING at Manchester, August 27, 28, and 29, 1867.
Special Prize List and Forms of Entry are now ready to be issued. T. B. RYDER, Secretary.
57A, Church Street, Liverpool.—April 23, 1867.

The Agricultural Gazette.

SATURDAY, JUNE 22, 1867.

ON Wednesday of last week 12 or 14 candidates for the small annuities annually granted by the Royal Agricultural Benevolent Association, gained their election—and upwards of 100 candidates, many of them presenting more distressing claims than those of their fortunate rivals, were rejected. This fact alone is sufficient to prove the great need of the Institution; and if it does not prove that greater liberality on the part of contributors to its funds is required, or that greater effort should be made to secure new subscribers to so useful a charity, this is the fault of those who direct its proceedings. With what wonderful force could not any benevolent man plead for the Society if he were able to say of the mass of unrelieved distress which is annually turned away unhelped:—It is beyond our power—our income is already exhausted. The sum collected goes as far as it can, and until a larger income is placed at our disposal, we can do no more.

The fact we understand to be, that the income of the Society exceeds 4000*l.*, and not one-half of this is annually spent. Instead of doing all it can, it is accumulating a capital fund which, by making it independent of the liberality which it has evoked, must at the same time diminish and dry up the main sources from which its income has been hitherto derived.

The necessity which is the real spur of all benevolent effort must appear, not only in the objects to be relieved, but in the agency by which this relief is administered. If the agency is wealthy and already in fact sufficient, no one will feel called upon to assist it. We are persuaded that it is a very great mistake to accumulate too large a capital fund. Let us believe that our children will be as liberal and benevolent as ourselves. The duty chiefly resting upon us is, that we serve our own generation. There is great distress and misery to be met around us. If the money that has been subscribed can anyhow be made effective to remove this, it will have achieved the end for which it was contributed; and more than that no management can accomplish. We hope that the Council of the Society will be a little more confident and liberal than they have been in applying the money they have received to the purpose for which it was given. For one man who will give to ensure relief for the troubles that may arise 20 years hence, there are 100 who will lend a helping hand to those who have fallen by their side. It is the 100 whose interest and effort we want enlisted in behalf of the Royal Agricultural Benevolent Society, and we hope that we may for the future be able to urge the claims of the Institution on our readers, on the plea that every shilling they may contribute will be at once spent for the benefit of the class whom it is intended to relieve.

IF the following, copied from a Barnstaple paper, is a correct report of a County Court trial lately held at that place, then, notwithstanding the acres of printed matter which have gone forth on the subject, there appears to be still something rotten in the state of our Cattle Plague law. All the persons present, except the unfortunate cattle-dealer, appear to have considered the matter as a capital joke, and the judge's remarks and his inference as to the defective state of the law, elicited "loud laughter," we are told.

Looking at the fact that Cattle Plague has again made its appearance in London and in some parts of the country, and impressed as every one ought to be with the importance of preventive and precautionary measures, it is painful to observe the flippancy with which the matter was treated in the case before us, showing that the Devonians have not known the horrors of the plague, and showing, moreover, that they are not thankful for their immunity. "Sweet are the uses of adversity," and if our West Country friends had had a month's experience of the calamity as it raged in Cheshire, they might have come out of the ordeal sadder but wiser men. When making application for a pass, it does not appear that the plaintiff, WILLIAM STONE, was "rude in speech," nor is he charged with having been rude in manner, and on what grounds, therefore, the pass he asked for was refused it is difficult to conjecture. It appears that the defendant had given thousands of passes to others, and had given the plaintiff many on former applications, still, according to the judge's ruling, the owners of stock are entirely at the mercy of the magistrate in these cases; and if this is so, and if they—the owners—are to be subjected to anxiety of mind, serious inconvenience, and pecuniary loss consequent on the exercise of such caprice on the part of gentlemen holding HER MAJESTY'S commission, then the sooner that application is made to Parliament as recommended, and an Act to amend an Act obtained, the better. *C.*

The following is the newspaper report:—

EXTRAORDINARY ACTION AGAINST A MAGISTRATE.
BARNSTAPLE.
[*Before* Sergeant PETERSDORFF, *Judge.*]

William Stone v. *George E. Kingson.*—The plaintiff, a dealer in cattle, sued the defendant, one of H.M.'s Justices of the Peace for the borough of Barnstaple, for damages alleged to have been sustained in consequence of defendant's refusal to grant a cattle pass. According to plaintiff's statement he applied on the 24th of May for a licence. Mr. KINGSON asked him if he had had the cattle in his possession for 28 days, and he said he would swear he had and could bring 50 witnesses to prove it; if that was not enough he could bring 500. Mr. KINGSON then said, "Who are you speaking to?" and he replied, "You, sir;" upon which the defendant refused to grant him a pass. He had been put to the expense of keeping the cattle ever since, as he could not convey them to the party to whom he had sold them. His Honour said that there was not the slightest ground of action. There was no obligation on the part of magistrates absolutely to grant applications that were made to them; they were at liberty to exercise their own discretion. The plaintiff's only remedy was to make an application to Parliament. (Laughter.)

—— Mr. SANDERSON gives his opinion of the present promise of the crops as follows in the columns of the *Times*:—"The greater portion of land for autumn seeding was ploughed rather wet, and Wheat was sown in—what is really favourable—a moist and compact bed. The autumn braird generally was regular and vigorous, although not forward. On low-lying and wet soils the plants during winter were decimated by slug ravages, and it was feared that on such soils the crop would be greatly deficient. The Wheat plant was not injured by the severe winter frosts, and while many of the finer trees and shrubs succumbed, this hardy cereal remained unscathed. With the exception of that on the chalk and red sandstone formations, Wheat in the opening of spring was rather thinly planted, while not a few undrained fields presented a patchy appearance. The brilliant and forcing weather from the 1st of May till the 11th instant produced an extraordinary change on the crops, and fields which formerly looked indifferent suddenly exhibited great luxuriance. That rapid vegetation, however, was rapidly checked by the cold easterly winds and severe frosts that prevailed from the 11th till the 24th of May. Crops—autumn as well as spring sown—gradually lost their rich hues, while the upright and Grass-like blades of the plants showed unmistakeable symptoms of arrested growth. Happily that severe check was followed by even a more rapid vegetation than that which preceded it, and the glorious weather—a combination of heat and moisture—of the last three weeks has produced such a rapid progress of agricultural crops as is rarely witnessed. For the last three days the temperature has been lower and the sky overcast; but this, so far from being injurious, is favourable to the crops, inasmuch as it will give strength to the succulent stem, and fit it to nourish and carry a richly-laden ear. Excepting on badly-farmed land, which is no criterion, Wheat is remarkably promising, and although the plants in many instances are too widely apart, yet, judging from their vigorous stems and blades and luxuriant hues, the length of ear and closely-set grain will more than balance that deficiency. Barley, the least hardy of the cereals, suffered most from May frosts. It has, however, rapidly recovered during the late forcing weather, and what was early sown promises an abundant yield. The sowing of Barley on clay soils was, however, much retarded, and a considerable area, especially in Essex and Wilts, was unsown on the 1st of June. That area cannot be early cut, but the braird is strong and regular, and promises an abundant straw produce, without which there could only be a deficient yield of grain. The Oat crop, suited to a variable climate and a moist soil, looks singularly promising, being regular, vigorous, and closely planted. Like its sister cereals, it is about eight days later than in ordinary seasons. Beans are by no means promising, as they are deficient in plants, stem, and pods. From this, Herefordshire and the west of Worcestershire may claim exception, as there the Bean crop promises to be a fair average. The Pea crop, which luxuriates in a thoroughly comminuted soil and in a dry climate, has found in 1867 an unfavourable season. Slugs, May frosts, and a new enemy—an aphis, have greatly injured the Pea crop, and its produce must fall at least one-half short of that of last year. The preparation of the Turnip fallows has been, from the wet weather, very protracted, and there is still a considerable breadth of Turnip land to seed. The braird of early-sown Turnip is healthy, and is free from insect attacks. Early planted Potatos were severely bitten by the frost of last month, but they are vigorously issuing fresh sprouts, and the plants are equal and healthy. Mangels have in many districts been severely injured by frost. Hay, natural and artificial, is a full average crop. Mowing has commenced in the southern counties. Pastures suffered considerably from the cold spring winds. They have recovered, and are now yielding abundant feeds. On the whole, the harvest prospects are cheering."

—— A Council meeting of the Central Chamber of Agriculture was held on Tuesday at the Salisbury Hotel, Fleet Street, Mr. ALBERT PELL in the chair. Deputies from Oxfordshire, Gloucestershire, Berkshire, Hampshire, Kent, Leicestershire, Shropshire, Worcestershire, Warwickshire, Northamptonshire, Norfolk, and Suffolk were present. At the meeting in April, 18 chambers were reported as formed; but in two months the number has nearly doubled, and the total constituency of the Chambers of Agriculture now numbers nearly 8000 members. The Council, having transacted general business and elected new members, including the Marquis of EXETER and the Earl of LICHFIELD, proceeded to consider the subject for the day—"the employment of women and children in agriculture, and proposed legislation connected therewith;" and the following resolution was unanimously agreed to:—"That this Chamber, while strongly sympathising with any efforts for the improved and increased education of the labouring classes engaged in agriculture, considers that Mr. FAWCETT'S Bill would not accomplish this object; that the measure is impracticable in its details and totally inapplicable to the rural districts; and that no legislation on the education of children engaged in agriculture should take place until the Commission appointed to inquire into the subject shall have given in their report." We are informed that a public meeting of the members and friends of the Chambers will be held at Bury St. Edmund's on Tuesday, July 16, for the purpose of urging the Legislature to enforce the slaughtering and effectual quarantine of all imported animals at the ports of landing.

—— At the Fakenham meeting on Wednesday of the Norfolk Agricultural Society, H.R.H. the PRINCE OF WALES exhibited in both sheep and cattle classes, receiving a prize for "ewes of any age," bred from the Southdown stock of Lord SONDES, and receiving also a Commendation in extra stock for fat cattle shown. The cattle classes were of course confined to the live stock of the county; but it is satisfactory to have them once more in our show-yards, in however limited a manner; and they were a very satisfactory department of last Wednesday's Show. At a dinner held in connection with the Show the Earl of KIMBERLEY spoke at some length upon the position of labourers in the agricultural districts. He looked to an alteration in the law of settlement to produce a salutary change in the cottages of the labourers. It was becoming a matter of the utmost importance to landlords, to tenant farmers, and to all persons connected with agriculture, to place the labourer in such a position as to lessen the inducements which might tempt him to leave his employment. With respect to agricultural gangs, he referred to Mr. FAWCETT'S Bill, with which he did not altogether agree, and to a Bill of which Lord SHAFTESBURY had charge. He hoped that Lord SHAFTESBURY would propose that there should be no mixed gangs, and that the gang-master should be licensed.

—— The reappearance of the Cattle Plague amongst us has again turned men's minds towards the dreadful scourge. The information gained from the British Consuls' reports from various places on the Continent are, when compared, of some interest as showing the singular or irregular manner in which the plague has spread throughout Europe. Extracts from these reports have from time to time been given in the pages of this Journal. The most recent report, dated from Leipsig, says: "In the beginning of September the rinderpest broke out with great violence in Hungary and Moravia, and rapidly spread into Lower Austria. The provincial Government of Bohemia took active measures to arrest the progress of the evil by prohibiting the passage of cattle from Hungary, Moravia, and Lower Austria. The Saxon Government seconded the Bohemian provincial authorities in the endeavour to stop the plague by an order (issued September 10) forbidding the import into Saxony from the Austrian border of all Podolian, Hungarian, and Gallician sheep and cattle, as well as of all Bohemian cattle unaccompanied by certificates of origin. In November, all meat, tallow, hides, horns, and bones were comprised in the prohibition. In spite of all precautions,

the rinderpest appeared in Bohemia in December, which led the Saxon Government to include Bohemia in a final order, dated the 15th of that month, closing the frontier to all Bohemian sheep and cattle." *J.*

FARM NOTES.—By Mr. Mechi.

1. *Dung Heaps* are, in my opinion, breeding places for the insect tribe; not so shed manure, constantly trampled upon by cattle,—it is far too pungent for any living thing to exist or breed in it.

2. *Advertising.*—It is a singular fact that one rarely sees a farmer's advertisement of what he has to sell and what he wants to buy. The result is that he must either employ commission agents (called dealers), or sell his own stock at the neighbouring market. Many dealers are very conscientious men, but I have known some cases where 30 or 40 per cent. profit has intervened between the seller and buyer. Besides, a single market is a limited one both for buyer and seller, animals are often worn down by travel from market to market, and too frequently contract and bring home diseases. Advertisements were once dear and heavily taxed, now they are cheap, and would be cheaper still were the farming advertisements more numerous. A newspaper reaches a whole county, and probably beyond that. I find it by far the most ready way of obtaining what stock I require, and at a moderate price—especially during the prohibition of cattle markets caused by the cattle plague.

3. *My Steam-Engine.*—After 20 years of heavy wear, I still find it as efficient as on its first purchase, and likely to last for many years to come. Last year I fitted it with a new Cornish boiler, preferring perfect safety, especially as we work at a pressure of 70 lb. per inch. The old boiler was allowed for in exchange, and would still do a great deal of work at 40 lb. per inch, the water in it having always been kept at a proper level: for two years it was worked at 120 lb. per inch. I also fitted shakers instead of rakes to my old threshing-machine, and put all the machinery, engine, pumps, &c., into thorough repair,—the cost of this was 150*l.* The new boiler is 12 ft. long and 4 ft. 6 in. in diameter; the furnace is within the flue, so that all the radiating heat is applied to the boiler. There is thus no brickwork immediately in connection with the furnace but merely for the flue. We have always an abundance of steam for every purpose without much stoking, and use the dust coal, which only costs us 10*s.* 6*d.* per ton, and 3*s.* per ton cartage from Maldon. It is the screenings from the best coal, and practically we can keep up more steam with this than with the large coal, because, being in such minute pieces, it is quickly converted into flame when spread over the surface of the fire. During the six winter months our engine has daily work in threshing, grinding, pumping, chaff-cutting, cake-breaking, working Bentall's pulper and Gardener's cutter, pumping water, irrigating, and steaming for our cattle, which vary from 50 to 70 head, young and old, besides 200 sheep. It also raises all the sacks of corn to the upper floors. It earns a considerable sum annually by grinding for my neighbours, when wind or water mills are at a stand-still for want of wind or water. Our engine (fixed) is nominally of 6-horse power, but with an 8-horse boiler, and 70 lb. of steam, no 16 horse could do its work—and they would have been worn out. Its consumption of dust coal is from 8 to 12 cwt. per day, according to the severity of the work, at a cost of about 6*s.* to 8*s.* 6*d.* per day. We sometimes ask ourselves how it is possible for a farmer of 170 acres (having a regard to profit) to do without an engine, especially where much stock is kept. I paid 150*l.* for the engine and boiler 20 years ago—of course all the machines connected with and worked by it were an additional cost. When Barley was 20*s.* per quarter our mill-stones (4 feet 2 inches in diameter) ground 1500 quarters in one year for our pigs. Barley is too dear now for pig-feeding. One of our agricultural labourers has driven the engine for 20 years. One can generally find among one's men a handy labourer with mechanical tendencies; the engine soon teaches him to be a handy man, who will learn to dress the mill-stones, keep the machinery in repair, and do a number of mechanical jobs, such as rough painting, carpentering, smith's work, and even a little slating and bricklaying. It certainly does astonish me that so many large farmers, with means, are without suitable steam machinery. I quite agree with the reporters on steam cultivation, in the latest number of the Society's journal, that the farmer should himself know something about the steam-engine to use it with comfort and profit.

4. *The Difference between Ploughing and Cultivation.*—Deep ploughing may be ruinous where deep cultivation would be beneficial. This apparent paradox may be easily explained:—Where the land, just below the regular ploughed line, is undrained, panned down, and consequently has never been subjected to the ameliorating influence of aëration by exposure, it is, in too many instances, absolutely poisonous to young plants. I know of some cases where, by at once ploughing up and bringing to the surface 4 or 5 inches of raw subsoil, the land has been rendered much less productive for several years, that I warn my amateur farming friends against committing such a costly error. The young growing plants cannot thrive, in the beginning of their growth, in such unprepared mass, and, consequently, are enfeebled before their roots reach the good buried top soil. That able agriculturist, the late Mr. Smith, of Deanston, wisely recommended that the subsoil should be allowed to dry a little after being drained before even subsoiling was attempted; and that kind and enlightened man, the Rev. Sam. Smith, of Lois Weeden, ploughed his top soil together, and then worked his manure into the uncovered subsoil, leaving it bare for a time, and then re-covering it with the surface soil. When I deeply cultivate I plough the top soil, and follow in the same track with another plough (minus its breast or mould board): the next turn of the first plough then covers up this raw subsoil. In this operation a portion of the subsoil gets gradually mixed with the surface soil, and thus my staple is gradually increased, with benefit to the crops. My experience teaches me that from 10 to 20 years will hardly suffice to bring into a suitable condition some of our tenacious plastic clay subsoils. It is on these grounds that I should, in the case of using steam power, commend the use of the grubbers, or cultivators, that stir the soil deeply without bringing much of it to the surface, and that it should be a gradual deepening instead of tearing up at once great masses of the subsoil. I have never seen any implement so suited to the purpose as that which steam ploughed a portion of my Clover in 1856, in the presence of a large company. That deep cultivation showed its good effect for several years. Fowler's plough was supplemented by Cotgreave's subsoil plough. They were attached, so that as they moved along one furrow slice laid under the other, the top soil being laid on the top of the other; and yet, strange to say, I never have seen this used since. The fact is that this double ploughing takes much power and cannot be hurried over, but it is the proper and most profitable mode. Many farmers have been ruined by rashly burying their best soil, and covering it with several inches of raw subsoil. There may be some subsoils sufficiently wholesome to permit of their being suddenly brought to the surface. In many cases ploughing is objectionable, leaving long unfilled spaces obnoxious to the roots of plants. The cultivator has many advantages.

5. *Working out a Farm.*—There are certain persons always on the look-out for a farm that has been highly cultivated and in first-rate condition, with the intent of working it out, very much to the ultimate injury of the landlords. Such persons are generally very bad farmers. They will, probably, offer a higher rent than a known good farmer could afford to give; but, at the end of the term, the land will be in such a foul and exhausted condition that the apparent gain in rent will have been more than lost to the landlord, as he will find when he attempts to relet it.

6. *Agricultural Sayings.*—

> "Saturday's moon,
> And Sunday full,
> Never was good,
> And never will,"

is as old an adage as the hills (in Suffolk). It appears by the foregoing that a Sunday full moon is as likely to be a wet one as a Saturday new moon. "As May leaves the crops, so harvest finds them," is another accepted belief. *June*, 1867.

7. *Artificial Condition of Live Stock.*—The necessity for producing a much larger quantity of meat and manure per acre obliges us to obtain early development and maturity by rich and varied food, combined with suitable shelter and temperature. Fat mutton at one year old and beef at two years is the order of the day. This cannot be obtained by the natural and ordinary system of out-of-door field feeding, unaided by rich supplemental food and warm quarters. Therefore, from the very beginning of its growth the animal should be highly fed and well cared for. If we buy in lean stock, and attempt to force them by a too sudden change to rich food, disease and death will most likely follow; and I am more and more convinced that this is one of the main causes of pleuro-pneumonia in cattle. The too sudden increase in the richness and quantity of blood causes irritation and inflammation in the small and contracted blood-vessels, then suppuration follows. In covered yards or boxes, beware of using long unbroken straw too liberally. You will get fermentation and disease. The straw must be short and broken, either by the chaff-cutter or otherwise. When the bedding is in a hodge-podge condition, without heat, health is safe.

8. *Sprats* v. *Guano.*—The necessity for comparative experiments is well illustrated in this case. Several acres of Barley were manured with 30 bushels of sprats, at a cost of 9*d.* per bushel and cartage. One acre was dressed with Peruvian guano and salt at the same cost. Judging from present appearances, there will be at least one quarter more Barley on the spratted land. The soil is drained, light soil, intermixed with various other kinds of soil. The Barley is higher, thicker, and altogether visibly superior to the guanoed portion, although they were both drilled and manured at the same time. On a heavy land 7-acre field, the same comparative trial has been made with black Oats. Although the difference is by no means so striking, the balance of advantage appears to be in favour of the guanoed portion. I drill 6 pecks of Barley and 8 pecks of Oats per acre. The appearance of the crops, especially the Barley, convinces me how wrong it would have been to have put in 3 or 4 bushels of Barley and 5 or 6 of Oats, which is too frequently done. This season such sowing on good or highly farmed lands will cause a too early laying of the crop, and a very heavy loss. Sprats are much the best before spawning, which takes place at Christmas, or soon after; they then are only worth 7*d.* a bushel (about 56 lb. weight), as they contain so many drops less of oil. I shall try the same comparative experiments with "five-fingers," as they are called, better known as star-fish. These star-fish are very destructive to oysters. I am also comparing sprats with guano or mangel.

9. *Advice to Butchers.*—Hot summer weather, especially if accompanied by thunder-storms, causes heavy losses to butchers. If the meat cannot be got cool and stiff after slaughtering, it soon becomes unacceptable to the consumer. A block of Wenham Lake ice, worth a few shillings, may save many times its cost. When I gave my great agricultural gatherings, there was cooking going on for some days previously. The end of July was a time for flies and rapid decomposition. I always, however, succeeded in keeping everything sweet and wholesome. A block of ice, weighing 60 to 100 lb., was placed in the larder. The caloric of the atmosphere was employed and absorbed in melting it; the consequence was a low temperature, in which flies cared not to enter. The block of ice disappeared gradually, and if necessary was replaced by another. There were several advantages in this proceeding. The fibre of meat got nicely broken down, rendering it tender, while perfectly free from taint. Every alderman knows that buck venison is in high season in the hottest part of July. Nine times out of ten venison is then spoiled by taint; the very smell of it is disagreeable. A noble duke once sent me half a buck in July. By the plan I recommend, it was kept sweet and wholesome for nearly three weeks. Every one praised it, and the fat was like marrow. I am induced to make this suggestion because some of the best portions of a fine fat bullock purchased of me were spoiled for want of a little cool air. Blocks of ice travel cheaply by rail (goods train) packed in sawdust and old sacking. If meat cannot be got cool enough to become stiff before packing, sending it in that soft state to a market is a ruinous affair. The same remark holds good for meat that is to be salted. A number of my pigs, when ready, were divided; one-half I sold to a neighbouring butcher; and the other half, slaughtered at home, and placed in my larder, got cool and stiff: not so the others. My pigs realised in London 12*s.* per head, or 30 per cent. more than those soft, flabby ones sent up by the butcher, who thus suffered a heavy loss. I am informed that the Messrs. Harris, of Calne, in Wiltshire (who slaughter 500 fat hogs weekly, weighing from 200 lb. each upwards), import a cargo of ice from Norway, in order to get their meat properly cooled in hot weather, before they salt and convert it into bacon.

10. *Chaff Cutting.*—We are gradually arriving at the sound conviction that we must, or rather our animals must, eat our straw instead of wasting it in sopping up water in open farmyards. Science and practice have taught us that a ton of straw is worth much more as food than as litter. The only difficulty is the preparation of it as food. The main point is that it should be cut into very short lengths, say ⅛ to ¼ of an inch, that it should be clean cut, without "slivers" or long lengths or strips of straw. There is no difficulty in doing this if the knives are kept properly sharpened. Every hour and half the knives should be roughed or sharpened with a file. Every day and half the knives should be ground. The work is thus effectually done, and there is diminished strain and waste of power. Too often labourers go blundering on with dull edges, incurring useless cost and waste.

11. *Lean Stock, Lean Crops; Fat Stock, Fat Crops.*—Experience has convinced me of the truth of this axiom. Therefore those who supply us with lean or store stock must not expect heavy crops, unless they consume much cake, corn, &c., or use artificial manures abundantly. Dairy farming for cheese or milk, is exhaustive, for butter much less so.

12. *Italian Rye-grass Sewaged.*—10th June. I am now cutting for hay, Italian Rye-grass, 4 feet high, from which I calculate on 3½ tons of hay per acre. Last year we cut it on the 28th May, and on the 31st carted 15 tons off 5 acres. The stubble of the Grass is almost like that of corn. How I wish that I had the command of a sewer. How it would add to the profits of my farm. Sewaged Italian Rye-grass hay surpasses in nutrition the very best Grass or Clover hay. Surely, then, it is the duty as well as to the interest of every corporation to apply all human voidances to the production of milk or other food for the people. The law will no longer permit the poisoning of our rivers.

Burned Clay Ashes are true farmers' friends on heavy land; they descend gradually into the sub-soil beneath the ploughed lands, fertilising it and rendering it more porous and acceptable to the roots of our plants. Twenty years of experience have taught me that nothing pays better than burning our stiff tile clays in dry weather, especially where it is mixed with a hodge podge of stones. From a state poisonous to plants, it passes, by burning, into a fruitful condition. Worthless pastures ploughed lightly and burned, become fruitful and productive fields. How remarkable is the change produced in stiff clays by burning. Cold, wet, heavy, and adhesive or slippery, according to weather, they at once become friable, non-adhesive, warm, and dry. *June*, 1867.

STEAM CULTIVATION.

[The following is the conclusion of the series of reports on this subject in the Journal of the English Agricultural Society, written by Mr. J. A. Clarke.]

OUR report might be expected to close with a summary of points believed to be established by the foregoing body of evidence. But as we have, for the most part, avoided tabular synopses of averages, so we feel that a string of pat "conclusions" would be more likely to mislead than to convey a sound impression; and that the reader who will not take pains to refer to the cases where information is given upon special topics of inquiry would not be fairly treated even were we to oblige him with a number of easy generalities. A schedule of "inferences," appropriate enough had we been conducting a series of experiments or collecting evidence for or against one or two simple issues, would, in the complicated subject of Steam Cultivation, be very much like our report written over again. And the facts elicited from occupiers of the selected 140 farms, embracing 66,000 acres (probably not one-third of the whole steam-tilled area in the kingdom) will furnish matter for comment and discussion, by no means to be forestalled and settled off-hand by the present Inspection-Committees.

At the same time we have endeavoured by our

Tables at the end of the several "Sections," and by the general arrangement of the farms, to guide readers to the kind of information of which they may be in search: they can refer at once to examples of greatest acreage tilled per day, of lowest price per acre, of greatest proportion of draft-animals displaced, of least number of horses still kept; they will find the "single" and "double engine" systems discussed in the accounts of those farms which employ two engines, and so on.

Those persons who may have expected this report to pronounce decisively upon the question between a stationary or headland-moving engine, or between one engine and two, will be of necessity disappointed; we find it impossible to separate the choice of a "system" from the circumstances in which it is to work and the results demanded of it. In a general way, we might state our impression that, while advantage is derived from employing cheap light tackle for a few fundamental operations, such as autumn cleaning, greater benefit is realised from a more powerful apparatus that can drive all the heavy tillage work of the farm: we may say that, for farms of diminutive inclosures (not necessarily small occupations), if you must have only one engine, apply it in connexion with the "round-about" or stationary-engine system; but that, until the useless and encumbering fences are removed, the double-engine system is the best for such circumstances; that while on clay land the benefits of steam culture are great enough to warrant the purchase of a single-engine apparatus on a comparatively small farm, small occupations in general must depend upon "partnership" or the "hiring system;" that the tendency on large occupations is to adopt two engines instead of one, for the sake of the time saved; that "partnership" works well in several cases; that the "hiring system" under both individual and partnership proprietors, works well; that the contract business by companies has been proved remunerative; that, in ordinary steam-working, payment of hands by the day is preferable to payment by the acre; that no insuperable difficulty exists about drilling agricultural labourers to manage the steam machinery: and to this we might add many other points, such as the cost per acre being demonstrated to be of less consequence than the saving of time; that clay land can be flattened and yet drain well, that the annual cost of steam tillage on a farm is generally less than that of the horses it has displaced, and that in most cases an increase of produce, in some instances as much as 8 bushels per acre, has resulted from steam cultivation. We may state, as our general conclusion, that steam tackle, whether of Fowler, Howard, Smith, or other makers, is now so far perfected and settled in form and details that it may be classed among old-established, standard farm-machinery, and no longer among the novelties of the day: that the expenses in repair, wear of rope, &c., are now so moderate as to be amenable to the ordinary estimates of wear and tear made in the case of ordinary implements; that, as a rule, steam culture gives satisfaction to its adopters. For, while more or less of success in economy of tillage or increase of produce marks almost every instance contained in this report, the failures or cases of doubtful or neutral result are easily explainable. So that we have arrived at this general conclusion—Steam cultivation in the main answers well; and here and there, where anybody has tried it and given it up, we are quite sure from the success of so many men in all parts of the country and under every varying circumstance of soil, situation, and climate, that there must be an explanation of the fact, either in the fault of the manager or the inefficiency of those particular pieces of machinery, not affecting the credit of "steam tillage" at all.

One fact has become very patent to us, that while farmers in some neighbourhoods have largely followed the example of a successful steam-plough man, in many instances they have considered themselves warned off by the failure of an unsuccessful case. Thus we have lighted upon a large farm of between 600 and 700 acres, under an educated and intelligent manager, where, nevertheless, steam cultivation appears at a sad discount. The greasy clay, with small stone in it, was said to be deep-drained, the pipes lying in solid clay: the steam cultivator had levelled the old high-backed lands (probably much too fast); and we found the farm, during very wet weather, to be in anything but a well-drained condition, water standing in various places. The farmer maintained that that sort of land will not drain if laid flat: there may be soil too tenacious to do this, and, as our report records, we have found varying pieces of evidence on this point in different localities; but we have our doubts as to the efficiency of the drains themselves upon this particular farm, which certainly does not lie under a remarkably rainy sky. The normal force of 24 horses had been reduced to 16, which we saw at plough, very starved and weak; in fact, the occupier frankly admitted that he last year killed 10 horses with hard work. The crops were wretched; the Turnips very bad and weedy; the corn crops poor; though the ground, in general, was not particularly foul. This we felt to be an instance of farming under difficulties—a more liberal use of capital being required on a holding that, we learned, had been cursed with a bad name for generations. Is it likely that steam cultivation could earn any credit under such circumstances?

We have found on a large farm an efficient steam-plough regularly worked for years in association with a monstrous growth of Couch on heavy soil, for which no excessive wetness of the climate presented an excuse, and with any amount of inattention to Thistles and Charlock. On that farm we saw (in September) a field of two-years old seeds which had been "Bentalled" by horses both ways, foul with Grass "from the wet," and then waiting "to be burnt." Here, certainly, was a poor specimen of the advantage of keeping an expensive piece of steam-power, which, if of use at all, ought to have tilled and cleaned precisely such a field as this.

We have visited an estate farmed by an agriculturist of some eminence, in whose hands the steam-plough might be expected to shine to advantage—seeing that there was not the least sign of lack of capital. There was, obviously enough, a want of judgment in the general tillage management of this medium-soil and clay, as well as a want of appreciation of what might be done by the apparatus. The green crops were of moderate quality, most of the so-called "dead" fallows were green and lively with Couch and worse Grasses, and many of the stubbles were foul. "No wonder," we thought "if steam tillage extends very slowly, when it has to be answerable for such bad management as this, in the very circumstances where everybody looks for all the results that large farming and abundant resources can realise."

In other cases we have found too much (rather than the more common "too little") demanded of the steam-plough. Sinking men have made a desperate venture upon a costly machine that was to retrieve the condition of their farms, and, as it were, manure the land, stock the land, and do everything else, besides merely cheapening, expediting, and improving the mechanical operations of tillage; the apparatus, being unable to fulfil these delusive hopes, has not raised the prospects of such unfortunate people, and steam culture comes in for blame really attaching to general impoverishment.

It is no compliment to a steam-cultivator for its owner to keep it shut up for two or three years, from a merely local or perhaps personal cause. Yet we know farms where this is the case: one farmer telling you that he liked the steam-tackle uncommonly well, but has not cared to apply himself to its management since the death of his son, who had all the direction and control of it; and another affirming that the cultivator had answered his purpose, but now he was wanting good men to "go with it"—we suppose, after losing an engine-driver, or some everyday difficulty of the kind. Yet these very gentlemen acknowledge that neighbours, working similar "sets," got their work so forward last year, and all their land so clean, with other good results in prospect, that the merit of steam culture upon medium soil was clearly and practically demonstrated.

We met with the case of a farm-bailiff who, having saved a comfortable round sum of his wages, bought a steam-plough and went to work on the letting-out system. But, as described to us, "his men took it easy, and got muddled in the management— a wet time coming on suddenly, the engine could not be got out of the middle of a clay field, where it stood for four months, and this proved a heavy blow to the poor fellow." Need we wonder that very powerful weighty engines should get a bad name in that immediate vicinity: whereas the machine in distress was a spectacle due to inefficient management, not to the helplessness of a 12 or a 14-horse engine in a soft country; because there are numbers of such, in similar circumstances, free from like accidents and laughable ill-luck.

One reason why steam-ploughing does not spread rapidly in the vicinity of very successful examples was thus put by one good manager that we visited:— "Neighbours of mine who could buy my farm to-morrow, but have never spent 50*l.* in guano—miserly save-alls, devoted to mean savings, investing no capital in remunerative improvements, for want of enterprise and largeness of mind—are not the men to lay out hundreds of pounds in a machine which they can, nevertheless, see does me good."

We have been to a farm, expecting to see a good example, knowing it to be in the hands of a man of capital, and have been disappointed by finding the several parts of the tackle rusted-up in a back-yard—in fact, laid aside a couple of years ago; and, as far as we could make out, mainly because it began to call for a slight outlay in repairs. How is steam-machinery to make its way, if subjected to such niggardly and suicidal treatment as this?

We have seen expensive steam-tackle standing out in the rain, with not even a tarpaulin covering the windlass, the rope frightfully red-rust-coated on the drums—not in the field, where work was left off and work was to be renewed, but on the farm premises, where the rope-porters and anchors and pulleys laid there for months, were grown round with Grass, because of there being no possible shelter under which they could be put; so pitiful was the accommodation (there was little also beside a poor barn, tumble-down hovels, and ranges of the vilest thatched sheds in addition to one or two decently built houses, stables, &c.), afforded by a landowner on a farm of many hundred acres arable.

We have been surprised at the number of farmers who can afford to be careless in their treatment of machinery which cost them so many hundreds of pounds; at the common lack of a house, even on scientifically-planned and architecturally elegant premises, capacious enough and lofty enough, and with a lock-up doorway wide enough and high enough, for the lodgment of an engine or two, with heavy ironwork that requires some elbow-room; to say nothing of the frequent deficiency of a smith's shop, properly fitted and furnished with such things as ratchet-drills, tapping irons, and other handy tools wanted in manifold little jobs of home-done repair. It is hardly to be believed that the major part of the farmers are negligent of that important member of their apparatus—the rope; not only in deficient attention to portering in the field, but also in not properly dressing the rope before laying by for the winter. We have seen costly steel rope lying wet and rusting in the furrow, where rainy weather interrupted the progress of the implement weeks and weeks before. This is a piece of unconcern for which no excuse can be found; but, far worse than that, we believe that comparatively few employers of steam-tilling machinery put themselves to the slight trouble of coating the rope with a protective covering against rust before laying by for a season. A noted land agent paralleled this unthrifty appreciation of economy in minor details by the following example: he has drained 6000 acres of land, finding the tiles, but the tenants defraying the cost of cartage and the execution of the work; yet, strange to say, they allow any amount of weed or mud to seal up the outlets, so that this agent has himself to send round men to clear the drain-mouths—the farmers, contented that the pipes have been put in, never troubling themselves even for plans of the drains, in order that they might know where the outlets are.

That steam culture is to a large extent a landlord's question is very evident. An engine cannot profitably traverse the clay lanes and founderous farm roads that exist upon many estates, and the tenant cannot undertake to make, at his own risk and expense, such permanent improvements as sound hard roads. An engine cannot work in diminutive polygonal or irregular-shaped enclosures, with any of the profit which has been related in the course of this Report; and the tenant cannot undertake to clear away, at his own charge, mile after mile of straggling hedges and primeval copses and spinneys. Much less is it in his power to effect exchanges of slices of land between his landlord and abutting proprietors, in order to get straight field-boundaries, which are so conformable to the operations of tillage machinery. The engine cannot earn profit for the tenant upon land in want of drainage; and this surely is a preparation to be provided by the landlord. Steam tillage is obstructed, and the machinery damaged, by outstanding field timber, and by excessive hedgerow wood, more particularly Ash trees; and the tenant cannot fell these beauties of a bygone age without the owner's sanction. And where tenants are forbidden the use of a reaping machine, or limited to stubble of a certain number of inches' height, or, if allowed to mow, are forbidden to rake after; where the impositions of a mediæval forestry are laid upon a luckless tenantry, it is simply impossible for steam tillage to be resorted to at all—the very backbone of which is the earliest up-turning of stubbles, as well as winter tilths deeper and more lightly laid than the best blood and bone in a hunting field dare venture to plunge over. We have felt, too, in the progress of our Report, that we have been, of necessity, revealing sources of profit to the farmer, and laying open his gains to the eyes of some unprincipled men, who are ever on the watch for a chance of profiting by labours and investments which are not theirs, who have a sharp eye for a fresh excuse to "send a valuer over the estate," and who are forward enough to "urge," and "advocate," and "introduce" agricultural improvements in this fashion:—"Jones, you see, by the Royal Commissioners' Report, that Nokes is clearing at least a pound an acre by steam ploughing; you had better start, too, and so make farming pay better for both of us." It is, indeed, a bitter position for an enterprising occupier to be in, when any new thing he may discover to make a purse out of has to be held as far as possible *sub rosa;* and there would at once be an end to all agricultural progress if we were to hush up every new means of advantage for the husbandman, lest a greedy proprietary should hastily demand a share in proceeds which, after all, should be considered not as making the farmer's fortune, but as helping him to retrieve (in many districts, at least) a downcast position. Let proprietors do their part in preparing estates for the steam plough—themselves raising the value of their fee-simple; and then the tenantry will not begrudge the enhanced rent due for the use of more serviceable holdings.

THE MOIST CLIMATE OF ENGLAND.

IN an editorial protest appended to my article in the last number of the *Agricultural Gazette* on the influence of the hay crop on the humidity of the climate, I find the following averment:—"It must not be forgotten, while listening to his argument on this subject, how greatly our climate depends upon our insular position, and how slightly any agricultural cause can affect the influence of the winds which sweep over our small area, after receiving their character from the great sheet of water on the one side of it, or the great stretch of land upon the other." There can be no doubt of the first of these propositions; but the second happens to be just the point which has not been sufficiently considered by practical men, namely, to what extent any agricultural cause can influence the climate.

The primary causes of our climate are four: 1st, our insular position; 2d, our distance from the equatorial and polar parts; 3d, our having the great European continent on the east; and 4th, an extensive ocean to the west.

Now, it is certain that our geographical position on the globe has not varied materially, and we do not hear the same complaint of wet and cold seasons from our neighbours who inhabit the same parallels of latitude on the Continent. We must, therefore, infer that this increasing disposition to humidity in summer and mildness in winter, is owing to some change effected on the surface of our island. Admitting the authorities of our history to be authentic, the Vine was successfully cultivated in former ages, whereas for a long time the summers have in general been so cold and cloudy that the Grapes have seldom ripened properly, even with the advantage of a convenient wall and southern aspect. Particular lands bear the appellation of Vineyards down to the present day.

During the last 60 years or more, an opinion has prevailed that the generality of our summers are more wet and consequently colder, and our winters less frosty and milder than they were in former times. This change has been taking place since about the years 1770 or 1775, and the period coincided sufficiently with the alteration in the Calendar, in 1752, to induce superstitious people to ascribe the change to that fact,

believing that to change the style was to alter the seasons, and to this so-called "impious act of our legislature" was attributed the cloudy and ungenial weather we have more or less experienced ever since, and the years of scarcity we have frequently felt.

Now, there must be a cause for this change; and if we cannot find it in any alteration of the primary sources of climate before mentioned, it seems that we must look for it in the altered disposition of the country, as affected by man. Williams has to a vast extent established the fact that we must attribute the humidity, and consequently the coldness, of our modern summers to the increased evaporating surfaces, caused by the enclosing of the open fields and wastes; to the multifarious intersections of them by fences, especially with Hawthorn, a profusely exhaling plant; to the increased luxuriance of our crops by a general system of improvement in the agriculture of the country; to the increase of pasturage, productive of a serious disproportion between that and tillage; to the numerous plantations, more especially of foreign trees and those whose exhaling power is very great; to the immense bodies of nearly stagnant water in the numerous canals cut within the assigned period of the change; to which may, finally, be added, the prodigious quantities of aqueous vapour in the shape of steam, almost continually poured into the atmosphere by the numberless steam-engines in daily journeys of millions of miles, and in the multitudinous factories which characterise our modern advancement.

No idea is more common than that man can do as he likes with his earth in the range of appropriation. This is only true with the addition that, in meddling with the ordinances of Nature man must take the consequences. Sometimes these consequences are at once made manifest by human suffering; but there are numerous effects of such unwise action, which require experimental demonstration in order to show their results. This is certainly the case in our doings with the vegetable kingdom.

From the calm, apparently inert exterior of plants, no notion can be formed of their prodigious activity in dealing with the two main causes of climate—temperature and humidity, but especially the latter. As a universal rule, all plants radiate a portion of their daily acquired heat during the night, and are constantly exhaling more or less moisture. If to these facts we add that all plants have the power of depriving vapour of its electricity, it will be evident that their existence cannot be a matter of indifference, and that their peculiar nature or adaptations have been designed for special circumstances or situations, that is to say, best suited to the peculiar climate in which the Creator has appointed their habitation—the profusely exhaling to the hot, dry regions, those that exhale less profusely to the cold and moist—and that men have incautiously removed the former, still retentive of their original habits and capacities, into situations where the sun's influence is insufficient to dispel the vaporous atmosphere which they continually generate.

Long ago Dr. Hales made some interesting experiments on the evaporating power of vegetables, which he published in the "Philosophical Transactions." He found, by exposing a Sun-flower plant to the influence of the sun and air in a garden pot, carefully guarding against any evaporation except what arose from the process of vegetation, that a plant weighing 3 lb. perspired about 30 ounces in 12 hours during a day in the month of July, but in a warm night perspired only 3 ounces, and lost nothing in a cold night; on the contrary, it gained weight by imbibing dew. He found that when the perspiring surface was diminished by removing the leaves, the power of exhaling moisture nearly ceased; a plant so circumstanced, which before had evaporated 30 ounces in 12 hours, now only exhaled 1 ounce.

It would carry us much too far on the present occasion to enter into the interesting details of this curious topic. Suffice it to say, that according to experiments carefully conducted by Williams, the Oak leaf loses less than a third of its weight, while that of the Elm loses one-half. The Elm, therefore, gives out moisture to the air almost at a double rate. He also tried to ascertain whether the exhalation from the fences which intersect our fields might not be lessened by substituting other shrubs or plants for those now generally used, and he found that a sprig of common Hawthorn, consisting of eight leaves, exhaled seven grains out of 16, and a similar sprig of the Evergreen Thorn only lost three grains out of 16. The next comparison was the Hawthorn with the Holly; each weighed, previous to the experiment, 48 grains; the Hawthorn exhaled 19 grains, and the Holly only two grains. The loss of the Furze was only half a grain in 17 grains; and of the Scotch Fir, a grain and a half in 74 grains.

The exhalation is always least from the indigenous trees, the native Crab and Pear giving less than the cultivated varieties, and that of the Sloe and Bullace still less, compared with the Orleau and Greengage Plum.

Is not the climate on the north-east coast of Scotland more fair and dry than that of England or Ireland, that is, where the less exhaling Fir trees have been left in possession of the soil?

And now as to enclosures and luxuriant pasture. We will suppose a given portion of the surface of the country in a state of Grass, and another in an arable condition. It is certain that the vegetable surface on this island must have its greatest influence on the atmosphere from about the middle of April till the harvest, which varies according to the quantity of solar heat that the crops have experienced during that season; the difference is usually about three weeks. If there has been much sun between the vernal equinox and the first week in August, the grain in the southern and midland counties is then ripe; but if the weather during this period has been cloudy and wet, the earth, from the evaporation and the absence of the sun's rays, is rendered colder than it otherwise would have been, and the corn does not ripen till the end of that month or the beginning of September. Hence it must be evident that the spring and summer are the seasons when the local effects of our increased vegetable surface is principally experienced. After the vernal equinox, the sun's altitude being greater, its power every day to dispel the vapour, whether rising from the land or brought by the winds from the sea, continually increases; and between this period and the end of April or the middle of May we have usually some clear sunshine, which sets vegetation in motion. The Grasses, especially those which are perennial, and those on highly-manured pastures in the vicinity of cities and towns, soon throw out a dense foliage, which, like a forest in miniature, is so closely matted together that the solar influence is almost prevented from producing its effect on the soil; for the rays of light and heat falling on the leaves, the heat unites with the perspiring matter, and is given back to the atmosphere combined with it in the form of vapour.

Now, when the earth is thus covered with a luxuriant surface of Grass, there are two impediments to its becoming properly heated—first, from the close covering, and secondly, from the raised vapour, occasioning cloud, and thus obstructing the sun's rays from falling upon it.

The temperature of the cold air which descends on us in a calm night in spring is not moderated, as it otherwise would be, owing to the ground not having previously acquired sufficient heat to give out during the night to counteract the cold; so that we have often a frost in the end of April or May as severe as in January.

And now as to arable land. Suppose a surface divided into seven parts, probably one is cropped with Wheat, others with Barley, Oats, Peas, Clover or Vetches, and one uncropped, or fallow.

It will be a matter of general experience that in the beginning of spring three only of these crops would in any way cover the ground; viz., the Wheat, Clover, and Vetches. We say cover, for even these do not completely screen the earth from the solar rays until towards the end of May; and the land covered with Lent-grain then presents a considerable unshaded surface to the sun, and the fallow—if free from weeds—receives all the rays without interruption.

Taking the whole surface together, it is evident from the physical necessities already explained, that there must be much less vapour raised at this early season, less cloud formed, and the earth more heated during the day—whatever may be the mean temperature of the season—and then, like a heated wall, it gives out a part of its acquired and accumulated temperature, and thus moderates the cold (to that extent) of the succeeding night. This is not mere theoretic reasoning; actual experiment will show that Grass land is less heated than arable or less shaded surface. Williams buried tubes of water at the depth of 8 inches beneath the soil, and found, after the continuance of a few bright days, that the water contained in these tubes was more heated under the uncropped land. But, indeed, the fact is demonstrated by the appearance of the frost half an hour before sunrise, on Grass land and arable land. If the preceding day has been bright, much more hoar frost will be found on the Grass than on the arable or less shaded land.

Hence an important agricultural experience: the dryness and consequent warmth of the early part of the summer in England, is greatly influenced by the state of the atmosphere from the middle of April till the end of May; and we need not expatiate on the beneficial effect, if, during this period, the prevailing weather has been dry, with easterly winds, and a clear bright sky.

Surely, after considering all these undeniable facts, it cannot be said that "any agricultural cause can but slightly influence the winds" and climate. On the contrary, it rather seems that climate is influenced by any agricultural cause, in accordance with the general effect properly attributed to the clearing of land, cultivation, drainage, &c. In the positive absence of geographical or cosmical cause, whence the centenary increase of temperature, demonstrated by Mr. Glaisher, in England? Lastly, can any one doubt the influence of drainage on the climate of lands, and that, too, in spite of the persistence of the winds that "sweep over our area"? &c.

We venture, therefore, to repeat that by the early removal of the hay-crop we not only secure a more nutritious article, but also influence the weather for the early maturation of the grain harvest. We believe that an early hay-making throughout the kingdom would materially diminish the chance of a wet harvest, and that by directing attention to the facts and principles herein established, much agricultural loss or inconvenience might be prevented. *S.*

THE PARIS EXHIBITION.

(FROM OUR CORRESPONDENT.)

BEFORE commencing to give a detailed account of what is to be seen, and what is particularly worthy of notice in the collections of agricultural machinery and products to be met with at the various localities indicated in our last paper, it will be well to note that since that was prepared, here and there in the Park several additions in these collections, more or less important, have been made, more especially in the neighbourhood of the Working Men's Refreshment Room, on the side of the Park nearest the Military School. A large shed or Annexe is devoted to a very interesting display of agricultural products, foods of all varieties, cereals, cheeses, and plants used in the industrial arts. And not far from the Annexe in which these are shown there is another containing a small but a very interesting collection of objects connected with the Agricultural School at Grignon, consisting of plans and models of the buildings, portraits of the stock, examples of the produce grown on, and a very complete herbarium of the plants grown in the neighbourhood of, the farm; specimens of the text books used in the instruction of the students; the books of the farm, showing the complete way in which the whole operations are carried on and recorded: the whole forming an exceedingly suggestive collection, to which, in due course, we shall more fully direct the attention of our readers.

Returning, then, to our labours in recording what is to be seen in the collections at various points in the Park and the main building, we shall begin then by taking as first in point of the direct interest it has for our readers—if not, indeed, for the high class of the work displayed in it—the Annexe containing the examples of agricultural machinery exhibited by British manufacturers in the Annexe in the Park at the side nearest the Seine, and commencing at the end next the Railway Station of the Chemin de Fer Ceinture (the railway which encircles Paris, and a branch of which runs into the Exhibition, ending on the one side of Paris in the Avenue de Clichy, and on the other at the Station St. Lazare, hear the Madelaine).

At this end of the Annexe Messrs. Barrow & Carmichael, of Banbury, have their stand, and exhibit a specimen of their 8-horse power portable steam engine for agricultural purposes, the cylinder being in the centre of the boiler, and outside. Near to this engine there is a stand containing a number of specimens of different sizes of the "Needle Lubricator," or Lieuvain's Patent, and the English agents of which are Messrs. Clarke & Dunham, 48, Mark Lane, London. This is a very simple form of lubricator, by no means easily got out of repair, and its use results in a very large saving of oil. It consists of a glass globe, into the neck of which a wooden stopper is fitted, which carries a conical metal tube. In the interior of this tube a small piece of metal wire, or needle—hence the name—is inserted, so as to work easily in the tube, and is of such a length that when resting on the bottom of the globe, its upper end is flush, or nearly so, with the end of the tube at the mouth, so to call it, of the globe. When the globe is filled with oil it is reversed, and placed upon the bearing of the shaft of the machine to be lubricated, the end of the stopper fitting into the central part of the plummer block, or pedestal carrying the shaft. The needle, or wire, then falls down, and its lower end comes in contact with the shaft to be lubricated; and by the revolution of this a series of shocks, so to say, are communicated to the needle, causing it to vibrate in the tube, and disengage a small portion of oil; the quantity disengaged is in proportion to the speed of the shaft, and when this is not working no oil passes from the lubricator. This simple appliance, which is very cheap, is worthy of the notice of those using machinery, for it is too often the case that a large loss of power is brought about in their working through neglect. This is especially true of farm machinery, which, generally speaking, is allowed to get into a disgraceful condition of neglect, exposed often to the atmosphere, and allowed to become encrusted over with all manner of extraneous matter. A word to the wise here: whatever form of lubricator may be used, let the oil used with it be good; to use bad oil is "penny wise and pound foolish." Next to the specimens of these lubricators are examples of flour-dressing machine brushes and millstones, exhibited also by Messrs. Clarke & Dunham. The next stand to be noticed is that of Mr. Underhill, of Newport, who exhibits as his principal article a specimen of his traction engine. In this the driving wheels have their tires made in zig-zag fashion ≶, the object of this arrangement being to enable the tires to take a bite of the ground over which they are passing, and enable them to pass over heavy land—the soil pressing into the corners of the zig-zag give a hold to the wheel. The steering gear is worked from behind, a place at the side of the firing end of the boiler being appropriated to the steersman. We might here point out some details of this engine which we think could be improved both in point of arrangement and construction. Mr. Underhill also exhibits a horse hay-rake, in which a balance or counterpoise weight is employed to ease the lifting and working of the levers when the tines are filled, and their load is to be released. Next to the stand of Mr. Underhill is that of Mr. William Newsham Nicholson, of Newark-upon-Trent, who exhibits specimens of corn-weighing and sack-lifting apparatus, oilcake breakers, and a specimen of his hay tedding machine. We have so often had occasion to make favourable remarks, both upon the arrangement and construction of the machines of Mr. Nicholson, that we pass on, simply pointing out their locality to the notice of the visitor. Opposite the exhibits of Mr. Nicholson, T. A. Brae & Co., of Ludlow, show a small grinding mill, in which, in place of the usual steel and iron cone and grinding surface, the grinding surface and cone are made of the usual millstone; the arrangement for working the mill is simple. The portable engine next to this stand, which is exhibited by Messrs. Fox, Walker, & Co., of the Atlas Iron Works, Bristol, is characterised by its sound workmanship and its good arrangement; it is a double cylinder engine with outside cylinders. On the other side of the main alley of the Annexe, opposite to the above engine, are the articles exhibited by Messrs. Wallis, Haslam, & Co., of Basingstoke, and which consist of examples of their portable horse power threshing machine and driving gear. By a judicious arrangement of the parts the carriage, which when the apparatus is at work forms the framing of the horse driving gear, carries the threshing machine, so that the whole can be transported from place to

place. We next come to the articles exhibited by Messrs. Ashby and Jeffery, of Stamford, and which consist of specimens of their well-known horse hay rakes, hay tedding machines, and straw cutters. Opposite, Messrs. Robey & Co. exhibit a specimen of their threshing machine for power, with portable steam engine, both of which, in point of workmanship and arrangement, will sustain the high reputation this firm has already achieved for work in this department of agricultural engineering. Opposite these machines, Mr. Greer, of Rothley, near Loughborough, exhibits a specimen of his corn dibbling machine. This is somewhat complicated in arrangement, yet works easily and deposits the seed at intervals in any quantity desired.

The main feature of the machine is the employment of hollow disc wheels, in the interior of which are a number of passages which communicate with the receptacle above containing the corn to be dibbled, and with apertures at the periphery of the wheel, and which apertures are closed and opened at regular intervals by means of iron bolts or studs worked by levers, which receive their motion by the revolution of the wheel as the machine progresses. Each machine is provided with two of these hollow wheels placed at a certain distance apart on the central axis, so that two rows of dibbled corn are put in at the same time. By no means desirous to discourage any inventor, on the contrary believing that Mr. Greer has made an important step towards the solution of the problem involved in the bringing out of a corn dibbling machine, we nevertheless think that there is yet much to be done before a good and a cheap machine is produced. Mr. Bamlett, of Thirsk, Yorkshire, exhibits specimens of his now well-known reaper; Messrs. Brown and May, of Devizes, a specimen of their threshing machine, with portable steam engine; Messrs. Whitwell & Co., of London, specimens of their hand-power corn-grinding mills; Messrs. E. and G. Turner, of Ipswich, specimens of their well-known seed crushers, oilcake breakers and portable steam engine; Messrs. Riches & Watt, Duke's Palace Iron Works, Norwich, specimens of some oilcake breakers and flour grinding mills; and Mr. Sheen, Aylesbury, Bucks, specimens of chaff cutters; all of these stands being near each other.

On the stand of Messrs. Whitwell is exhibited a somewhat curious-looking apparatus, which named only in French would rather puzzle English visitors who are not acquainted with that language to divine what it was. It happens to be an artificial incubator, or shall we say a steam chicken producer? The steam to raise the temperature of the hatching compartment is produced in a small vertical boiler by the aid of a gas jet. We do not know whether the apparatus exhibited is only a large model, or a full-sized apparatus for actual use, but if the latter, the desire to make the whole compact has resulted in making it cramped and confined. For an apparatus of this kind ample room should be given, for the room required at the most is of no great extent. We rather incline to think that the day is yet far off when a chicken hatcher will form part of the regular apparatus of a farmer. Yet all honour to those who, like M. Shroeder, the inventor of the apparatus now under notice, endeavour to introduce any means of economising waste, or of adding to the general food stock of the country. There is nothing difficult in the hatching, but the rearing of the birds so hatched is quite another thing. The stand of the Reading Iron Company, (late Barrett, Exall, & Andrewes) does not comprise many articles, but what are shown are of a character in every way worthy of the reputation which the firm has for sending out first-class work. We would draw special attention to the horizontal steam engine of 12-horse power. This engine is fitted with expansion gearing—cut off, or degree of expansion, being regulated by a very simple arrangement of handwheel and graduated index; by turning the wheel the valve which regulates the degree of cut off is adjusted, and one feature is that this can be done without stopping the engine, so that according to the wishes of the engineer any amount of expansion can be given during the working of the engine. The cylinder of this engine is steam-jacketed, which still further economises the use of steam. The same firm exhibit a specimen of an 8-horse portable steam engine, which is provided with a water-heater. The water to supply the boiler is passed through a range of pipes placed in the smoke-box before it is passed into the boiler; a portion of the heat which would otherwise be wasted and passed up the chimney is thus economised. In consequence of the position of the engine, close up against the wall, we could not get the smoke-box door opened to examine this form of water-heater, but from the explanation we received of it, we do not think it will be so efficient as the plan proposed by Mr. Brown some years ago, of encasing the whole of the smoke-box with a wrought-iron case, the water being admitted into the space between the smoke-box and this case, heated, and from thence passed into the boiler. Those who have felt the temperature of the smoke-box ends of portable engines while in full work must have been convinced of this, that a large amount of heat was being wasted. We have yet a vast deal to do in the economisation of the waste heat evolved in the working of our steam engine furnaces. There are one or two points of construction in this portable engine exhibited by the Reading Iron Company worthy of notice here. The crank shaft is supported in pretty high bearings, and these are capable of being adjusted vertically or laterally by appropriately placed set screws. To give a certain degree of lateral play to the crank shaft, and thus prevent the chance of its being broken—a contingency to which all shafts are more or less subjected—the shaft from the fly wheel has no collars or ruffs on it, and only one collar or ruff is given to the end of the shaft opposite to this; under certain circumstances of extra strain, therefore, the shaft, by the lateral movement which is permitted to it, can give and take, so to speak, within a certain limit of range. The same firm exhibit also specimens of their well-known "horse gears;" the whole of the working parts of which are enclosed in an elegant iron case. The upper part of this case revolves with the action of the horses, and the annular wheel with which its interior is provided, gears with three equal diametered spur wheels, from which the power to drive the machine is taken by appropriate means. A specimen of their circular saw bench, of their hay tedders, straw cutters, and very beautifully executed models, are also exhibited by the firm.

Opposite the stand of the Reading Iron Company, Mr. Kearsley, of North Street, Ripon, exhibits his reaping machines, and Mr. Hartley, of Otley Mills, Yorkshire, his corn cleaning machine. This apparatus consists of a vertical cylindrical case, in the interior of which is a central shaft, carrying inverted cones of plain and perforated surfaced iron, these being surrounded with a perforated casing nearly in contact with the cones; a pair of fanners is placed in proper position, and in connection with the interior of the case. The corn to be cleaned is poured into the cylindrical case at the upper part, and in falling down is caught up by the revolving cones, and the smut, &c., rubbed off by coming in contact with them and with the outer perforated case, which is finally taken off by the power of the blast, the cleaned corn falling into a receptacle provided for the purpose of receiving it. Next to the stand of the Reading Iron Company, and on the same side of the Annexe shed, is that of Messrs. Fowler & Co., of Leeds, the main feature—and it is one worthy of the high position which English agricultural machinery occupies in this Exhibition—of which is the steam cultivating engine with clip drum and traction gearing. The arrangement and workmanship of this splendid machine is worthy of any of our high-class locomotive engine factories and in saying this we can give no higher praise. In addition to this engine, Messrs. Fowler & Co. exhibit specimens of their balance plough and self-acting anchor, together with various parts of their ploughing apparatus; and some very beautiful photographs of the whole at work, as well as one of their newly-introduced steam cranes, to which branch of mechanism the firm is, we believe, devoting some attention. With our notice of what is in this shed we shall for the present conclude, only remarking, however, as appropriate to the mechanism which makes up its illustrations, that there is now no likelihood of steam cultivation being practically exemplified in the field during the Exhibition. Negotiation after negotiation between the leading representatives of steam cultivating machinery and the Commissioners have been undertaken, and all with one result—nothing will be done. This is to be regretted; better, however, to have no trials than to have only those which the Commissioners were willing to allow, and which being trials only in name, as they would have been, would only have resulted in putting our systems altogether in a false position. In this view we are therefore glad that the trials of steam cultivating apparatus, promised by the programme, are not to be realised.

Home Correspondence.

Crops in Berkshire.—The Wheat I consider a most uneven crop. We have some very good, but, take the crop as a whole, there is much the greater half looking thin, and cannot be a good yield; a great deal will depend on the next fortnight; it is fast coming into ear, but none nearly out. Our Barley is promising on all good-conditioned land, and so are the Oats on upland. Hay crop, except the Sainfoin, is very good, and will in a few days more be all secured in very good order. I never remember the land so behind in preparation for the root crops. Most of the Swedes and Turnips and Rape sown early are all destroyed by the fly, and I never knew the slugs so destructive to all young plants. Beans and Peas we have not much sown, but what are, are looking well. Mangels better than last year, but not good. The Potatos, in consequence of the severe frost on the 23d or 24th May, are much cut up, and not looking near so well as last year. *Thos. Owen, Clapton, Hungerford, June* 18.

Crops in Cambridgeshire.—Wheat: On light and gravelly soils the crop is heavy, and rather long in the straw, and requires fine weather to get it well out in the ear. A little is already laid, and heavy showers are much dreaded, and would doubtless produce very serious results. With fine weather for the next two or three weeks, we might reasonably anticipate something more than an average crop. On strong clay high lands, and wet, cold fen lands, the crop is not so good, but has suffered from excessive moisture and cold, and, in many instances, has sustained serious injury from slugs. Take good and bad together, and we should estimate the crop, from present appearances, to be about an average. Oats: Partially injured by wireworm, and on cold wet lands too pale and short; on dry soils, where there is a full plant, the crop is very promising, rich in colour, broad in flag, and long in straw. The best fields might be laid and injured by heavy rains, and probably would be. Barley: This crop has suffered more than any other from the inclemency of the weather. The season has been too wet and cold, and but few fields have been able to keep their colour. But it is a crop not extensively cultivated in this neighbourhood. Beans: On good Bean soils the crop is very vigorous, and very full of blossom. It is premature to express any opinion as to what the produce may be. The flowers may or may not set well, or the fly may or may not come to injure it. At present the prospect is unusually good. Peas: The remarks made about Beans will apply in every sense to the Pea crop. Hay and seeds: A most abundant crop, requiring fine weather for its in-gathering. Potatos: Injured on some soils by frost last month. A crop not so extensively cultivated as was the case a few years ago. Carrots: Very extensively grown, a plant generally promising. Mangels: A very broken plant, many resown; others requiring to be filled up by transplanting. A good plant from the first sowing is the exception. Kohl Rabi: A crop more largely grown during the last few years. Generally looking well, and growing rapidly. Our great dread on all our corn crops is rain. *A. S. Ruston, Chatteris, June* 18.

Crops in Lincolnshire.—The present appearance of the Wheat crop in this neighbourhood is very good; excepting on some few heavy soils, it will be a full average bulk of straw; on the heavier soils to the north and east of Spalding it will perhaps be light, but is stiff in straw, and promising for a fair crop. Oats are very good in this immediate neighbourhood; on the heavy soils they have yellowed, and will not be so bulky; on the whole, I should say above an average appearance. Beans are but little grown on our fen soils; reported good in the district round Spalding. Flax, of which there is a considerable breadth sown here, is a very good crop; in common with our Wheat and Oats, it is now needing dry sunny weather, or some quantity of all the crops will lodge with the first heavy rains. Mangels are looking well here; in some districts where heavy thunder storms have fallen they got silted up, and were not able to push through the crust. Potatos are well planted. Carrots are a deficient plant. Hay is a very great crop. *Thos. Aitken, Decoy Farm, Spalding.*

Crops in Wiltshire.—This is a very early stage to give an opinion as to the growing crops, the Wheat is not yet out in ear, the weather has been so changeable that the appearance of the Wheat has changed with it—one week the appearance improved, the next not looking so well from frost and cold winds from the north: by no means a full crop on the ground; Barley and Oats at present looking very promising to be a fair crop; Sainfoin, generally speaking, inferior; Clover and Rye-grass good; the general crop of hay I think is a very fair prospect. As to roots of all kind we can say but little about. Very great difficulty in getting the land in anything like condition to receive the seed, particularly on the strong land. *George Brown, Avebury, Calne, June* 19.

Societies.

SMITHFIELD CLUB: *June* 14.—At a special Council meeting, held by order of the President,—present, Major-General the Hon. A. N. Hood, President, in the Chair; Messrs. B. E. Bennett, J. Clayden, Brandreth Gibbs (Hon. Sec.), C. Howard, J. Painter, H. Thurnall, J. S. Turner, Thos. Twitchell,—the following report of the Committee appointed to recommend as to the proposed alterations at the Agricultural Hall was received and adopted:—

REPORT.

The Committee recommend that the resolutions communicated by the Agricultural Hall Company be acceded to, with the following conditions:—

1. That the whole of the space for the small (or supplementary) pig hall be covered over, to be used either for cattle or pigs.
2. That in the event of the Agricultural Hall Company not being able to finish the new pig halls and dining room in time for the next show, the present pig hall shall not be interfered with until the new halls are ready.

RESOLUTIONS OF THE AGRICULTURAL HALL COMPANY, REFERRED TO ABOVE.

Resolved, that the Smithfield Club be informed that (subject to the consent of the shareholders of this Company) the directors are prepared to carry out alterations in the building and arrangements, as set forth in the following conditions.

1. That the Smithfield Club shall cede the present pig hall, with the exception of 25 feet wide on the north side.
2. That the Agricultural Hall Company shall build to the satisfaction of the Smithfield Club a new hall on the south side of the arcade.
3. That a dining room shall be erected over the new hall, and that the Smithfield Club shall have the free use of it for a dinner on such a day during the show as the Club shall determine.
4. That in the event of the new hall not being large enough, an additional building shall be erected by the Agricultural Hall Company on the spare ground on the north side of the arcade, sufficient to accommodate not more than 50 extra pigs, and that there shall be access left to it from the arcade and through the 25 feet left on the north side of the present pig hall.
5. That accommodation for the food for animals belonging to exhibitors shall be built by the Agricultural Hall Company to the satisfaction of the Club.

It is proposed to erect this on the vacant ground belonging to the Company on the south side of the hall.

6. That in consideration of the above, the Smithfield Club shall pay the Agricultural Hall Company 1000*l.*, in order that the galleries may be increased as proposed, for the exhibition of machinery, &c.
7. That the alterations in the galleries shall be completed by the 30th of November next; the other alterations shall be carried out by the Club in 1868.

REPORT ON SHOWS.

That 15 guineas be given for a report on the animals exhibited at the Club's Show, and that the President, Stewards, and Hon. Sec. be requested to select a reporter, and to arrange this matter.

His Grace the Duke of Marlborough was elected a member of the Club. His Grace the Duke of Marlborough and the Right. Hon. the Earl of Powis were elected Vice-Presidents, in place of Lord Feversham and C. T. Tower, Esq., deceased. The thanks of the meeting were voted to the President.

WENLOCK: *Winter Feeding Stock.*—At the late quarterly meeting of this Society a paper on this subject was read by Mr. Wickham:—

I fear, after we have as fully discussed the question as I hope after I have read this paper we shall do, we shall still find that the real difficulty in farming properly during the winter months lies in applying the principles we may all agree upon to the changes and chances of each successive year. Our primary and

most natural object in cultivating the land is to produce man's food as directly from the land as possible—to grow corn upon our tillage and meat upon our Grass. Mr. Coke, when he introduced the four-course system, taught us to look beyond this—taught us that by producing meat upon our tillage, as it were second-hand through the medium of a fallow crop, we could increase the quantity of our corn. He advocated it, not because he found so great a profit from the meat so produced, but because it enabled him upon his light and almost barren land to keep more stock, by which means more land could be manured each year, and as a consequence more corn grown. In grazing and in growing corn for sale the profit is direct, and only the actual expense of the crop itself has to be deducted from the gross value received in estimating the profits. In accusing, as we are apt to do, the system of winter feeding of being unprofitable, except in the value of the manure left us, are we not too apt to forget that there are two sets of expenses to be paid for—the cost of growing the forage and the cost of using it—and that not only the value of the manure made, but also the value of the extra crop of corn grown in consequence, must be brought in to balance the account of winter feeding? It is clear this winter feeding requires especial care and attention. Its profits or its losses are so mixed up with other departments of the farm that they do not exhibit themselves to the careless. I cannot propose to decide the exact mode in which each beast, whether store, dairy, or feeding, whether horse, sheep, or pig, must be fed in order to gain as much as possible in the extra growth of corn crop, and at the same time to gain some profit, however slight, from the means we use to obtain it—the feeding process itself. I can only propose to discuss the principles which should guide us each year to a profitable answer to the question—Here is my stock of winter forage of all its various kinds, some good, some bad, some indifferent; how can I best apply it again to the farm?

Winter Forage.

With good hay you may do almost anything; even indifferent if not bad hay is too good to waste. In summer we have comparatively little difficulty in keeping our stock in profitable condition, for Nature does our work; but when Nature stops our supply then we must use our heads. Of all our winter forage hay is the nearest approach to, if I may not say the only, natural fodder we have left us, and we cannot be too careful in our use of it. It must be economised by being only used when really wanted, by careful protection from weather or from being wastefully littered about. Whenever used it should be cut up. We are told that in this form it is much more easily assimilated and made use of by the stock, but I think the saving from waste thus gained is a much more practical and important reason. Hay is seldom so bad that we can afford to let it be trodden under foot and made into a bad substitute for straw. The question naturally arises here, what is good hay? Not merely that which grows upon good upland, or that is made well in fair weather. Of their several kinds all classes may be good, and all, even the best upland made without a drop of rain, may be worthless. We are too apt to listen to the chemist, who can supply us with artificial manures, when we have either failed or neglected to make our proper quantity of farmyard manure, and we don't pay attention enough to the natural history of the plants we grow and store away for winter use. Good hay must be well made and without too much drowning, but still all is vain if it is not cut at the right time. Nature won't wait any more than the weather. The Grass throws up a stem, and into that and through that it sends the properties to form the seed or corn, after which the stem dies and becomes a mere piece of fibre. It is while these properties are in the stem (and they are on the decrease as soon as ever the flower begins to form) that we must cut, if we wish to secure them, for the seeds are too small to give us any chance of saving a fair proportion after they are ripe enough to shed, and the remaining matter, or Grass straw, is poor fodder, and must not be reckoned as hay. In using good hay we cannot do harm, but the art of feeding lies in giving such a proportion of the different sorts of food that none may be in excess. Hay is the foundation of whatever mixture we use, without which we cannot use our green crop or our artificial food. If we waste our hay we waste our other forage—we cripple our resources by upsetting the proportions of our supply. All stock require a certain amount of bulk in their food. If then our hay is really good, if it is rich in feeding material, in order to avoid giving this matter in excess, we may make up the bulk by mixing cut straw, which is only another species of Grass which has seed large enough to be worth the trouble of collecting, and the stems of which we therefore leave uncut long enough to enable them to pass on the feeding properties they possess, when green, into the seed or corn. Inferior hay, which either has been left uncut till too late, has been drenched till it is impoverished, or is less rich in food owing to the unfavourable character of the soil it grew on, must be used upon the understanding that it will supply more nearly the required bulk of food, without that excess of those feeding properties to economise which we should mix straw with good hay. Some advocate the steaming or salting of bad hay. Doubtless it will make it more palatable to the stock, but it can never restore those feeding properties which have been lost. Salt, all stock should be supplied with, whether the hay be good or bad. Steam cannot be nourishing, even if it be forcing. We now come to our straw crops. What shall we do with them? Straw may be valuable as fodder; no doubt, if cut early, it is so to a certain extent. The naturalists explain that straw is but a stem which has discharged its function as a conductor from the root of the rich ingredients of the corn. Some small portion of those ingredients may have been left in it, but if the corn was fully ripe it is small indeed. The chemist, on the other hand, tells us, that the more vegetable matter we mix with the manure heap, the more of those volatile salts and gases shall we retain which constitute the value of the manure heap, and the loss of which the artificial manure manufacturer would persuade us he can supply. Is this economy, to waste what we want and then buy it? Surely the conclusion is that the proper place for straw is the manure heap. It may be economical to use straw as fodder, in order to save good hay or to make up a deficiency in that crop; but it is poor economy to feed an animal on good food, and to spoil the manure because you have let him eat his litter. It is not necessary to run to the other extreme—to throw the straw wastefully about the yard, and then count the value of the manure heap by the number of loads of strawy manure produced. As in feeding, so in making manure—the great art, the real economy, lies in finding the proper proportions to be used, the proportion of litter which should be mixed with the manure. On the light hungry soil, where your object is to apply little and often of well rotted manure, the proportion of straw should of course be less than on the stiff retentive clay, where the more undecayed the straw, the longer the manure when ploughed in, the better. This point each must decide for himself. He must not waste one straw, but he must not starve the manure heap. If he has too much straw, he has not got his crops so arranged as to give him the proportion of the different kinds of winter forage which he requires to enable him to keep most stock on the land. Straw can be very profitably used as fodder for all classes of stock; but it is, I believe, very false economy to so use it when it is wanted as litter. It is but a poor substitute for hay as forage, whereas there is no substitute that I know of at all equal to it as litter.

Root Crops.

These plants are biennials. In the first year they form an excrescence on the stem, as is shown more clearly in the Kohl Rabi. This excrescence, or root as we call it, is the receptacle, as is the straw in Grass or corn, of all the ingredients required by the plant to form the seed, and which we use as feeding matter while so stored up for us by Nature. As winter comes on, the store ceases to increase, and certain changes take place in the chemicals preparatory to the process which Nature will carry out at the proper season, even though you top and tail this little store-room, and deprive it of all further supplies of nourishment, viz., the growth out of these ingredients of the flower, stem, and seeds, after which you find the store-room, like the straw, a mere mass of fibre. If then we wish to apply our root crop properly, we must see that Nature does not cheat us by robbing our root. How often do we hear men congratulating themselves quite late in spring that they have still got plenty of Swedes? Go and look at them; they are not rotten, but they are growing, and are being a second time topped, proving that Nature is at work. The Swede is an early and a hardy plant. It may be sown much earlier, it may be used much earlier, and the crop should be finished up much earlier than it usually is on this side of England. The Mangel, though sown earlier, is much better adapted for keeping, as it will lie dormant in the character of a root far longer than the Swede; indeed, by the end of the following August it will show far less impatience to start its flower-stems than the Swede does at Christmas. The same may, to a less extent, be said of the Carrot. The Mangel, it is true, cannot be so carelessly or freely used as the Swede. It requires, or at least is better for, a certain amount of keeping, and should be more carefully proportioned to the other kinds of fodder used with it; but when properly used, there is no root more valuable for feeding purposes. Perhaps the best way of using it is cut up into fingers, mixed well with hay and straw chaff, and allowed to lie in a heap for 24 hours. Early in the season, or when first used, it should be mixed with Swedes, or whatever roots have been used for the stock before. On light land there is little or no excuse for hoarding the Swede too long, for there Cabbages can be grown for the ewes and lambs, besides Rye, Tares, and such other early spring green crops which can be got in upon the Wheat or Pea stubbles, and eaten off with sheep before the ground is required for the next regular green crop. Stock always thrive best not only upon a mixed but a changing diet, and it is in the root crop especially that we can obtain this variety. Our root crop may be mainly Swedes, but it should include all those green crops which will grow upon our land. If one fail from drought, blight, or the attacks of our insect foes, we have other strings to our bow. If all succeed, our cattle will enjoy, and enjoy it thoroughly, a greater change of food. As to the economy of cooking roots, I think we may look to practice for an answer. No doubt it renders the food somewhat more easy of digestion, but when we see so many an apparatus which was once to do wonders left after the first year or two to rust, I think we may presume that the benefit is not considered equal to the trouble and expense. To prevent waste of the quantity of our crop, roots should be cut up. I don't like pulping: it is done at a greater cost of labour, with no other result that I can see than that it makes a greater mess of the food. To prevent waste in the quality of our crop, roots must be used before nature robs them of their goodness. There remains only that portion of the cereal crop which we can consume upon the farm, in conjunction with cake and other artificial food. It is useless for me to attempt to lay down a general rule as to the best mixture or the proper quantities to be used. The market prices and the quality of the material must be our guide. At the same time, it is the care in proportioning this part of our forage which will mainly decide the question for us, whether it has paid us to feed at all. There is, I am sure, great waste in this respect. A majority may almost always be found at a farmers' meeting to own that feeding beef at present prices won't pay, and the excuse given to the world for the apparent insanity we are all guilty of in feeding beef for other people when it does not pay us, is—we have our profit in the increased value of the manure. How do we know this? A thorough chemist might ascertain whether all he sacrificed in the beef was present in the manure, but no farmer knows this. He knows, as a general rule, that good feeding makes good manure; but he does not know how wasteful feeding will look upon the scales. A very much smaller quantity than is usually used of corn and cake of good quality, well mixed and proportioned with our other forage, will produce quite as much and much better beef, and if the manure has not then so much corn and cake in it as where double the quantity is consumed by the animal, we can add it ourselves to the manure heap, and we then know the exact cost of our wisdom or our folly, without troubling a poor ox to pass it through him.

Mode of Feeding.

The great rule in feeding is the same as that recommended for ourselves. They should always finish a meal with an appetite. Like us, cattle vary very much—some are coarser feeders than others, and these fancies of their appetites must be attended to. Another point is, they must be undisturbed; they must know, as they soon learn by habit, when their food will be given them, and they must not be disappointed. Nothing can beat the system I used to see in Norfolk. The cattle, whether in loose boxes, or tied up, or in open yards, were fed regularly as clock-work four times a day, and each meal was divided into at least two courses, the man taking to each a feed of roots, cut up and well mixed with hay and straw chaff, and when they had quite finished that a feed of meal, cake, and chaff was supplied them. If any course in any meal was not licked up clean by any beast, what was left was at once removed and less given the next time, or if thought necessary a change made in his diet. Under this system the cattle all lay down as soon as they had finished they second course, and did not stir till they again saw their friend. Each beast was thus carefully watched and humoured. With sheep the same care and attention will be amply repaid, but to watch them properly requires the practical eye of the regular shepherd—a very rare person to find on this side of England, where the dairy is the principal class of farming. A farmer may, however, be sure that if he sees food in any rack, manger, or feeding trough, and an animal not then or there eating it, his forage is being wasted and the appetite of his stock injured. I will now only touch upon one other form in which I think we are too apt to waste our forage. How often do we see a fine lot of beasts, either store or feeding stock, in a yard up to their bellies in good straw, and on praising them as a nice useful lot of beasts, are met by the mournful reply—"Yes, but they won't pay me a farthing, they cost me too much; but I must have something to tread the straw into manure." Is this only another proof of our insanity? Is there really no other way of treading our straw into manure? What are our farm horses doing? They are shut up in the stable with as little straw wasted upon them in the way of litter as possible. Why so? There is no reason on earth why a horse should not make his legs useful when he is not actually at work. A hunter is shorn of his natural clothing and every effort made to render his skin as little susceptible of heat as possible, because he is wanted for fast work. He is fed upon nothing but dry food, for the sake of his wind. All superfluous flesh, such as green food would produce, would injure his speed. None of these points do we require in the farm horse, but just the contrary. We want him to care nothing for cold, to be able to stand about in the wet and cold, and we want all the weight he can carry to match the load which we put behind, not on him. There is no need to keep him in a hot stable at all. His coat will protect him from cold, and if confined in the extent of his ramble, a shed or even a good wall will give him ample shelter. He need not be fed on dry food—on the contrary, he should carry flesh. If roots are to be had, it is better economy to cut them up for him than for the beast bought in at such a price that feed him how we will he cannot pay. Our cart horses are the enemies of our haystacks, the most valuable forage crop we have. Like other stock, they thrive best upon a mixture of food, but they seldom get it. A waggoner will give them day after day as much uncut hay, or generally half as much again, as they can eat, and all the corn he can get. Well, they do very well—true; and it is also true that the oldest dairy cow or working bullock with plenty of hay and Turnips will in time make beef, but is it economical? Cannot the horse be made to do better? Cannot the old cow be fed quicker and cheaper by a little more care and skill in the use of our forage? In this short paper I have not attempted to go into the details of feeding either store or fattening stock. I have only attempted to point out some of the leading principles to guide us to an economical use of our winter forage. It should be harvested at a time when it contains in the greatest quantity the ingredient we want for feeding. It must be used while those ingredients are still preserved free from that deterioration which by nature comes to all sooner or later. It must be used for the purpose for which it is best suited, in such quantities only as the appetite of each animal requires (which our own eyes can tell us better than all the chemists), and in such a form as it is least liable to waste.

Discussion.

Mr. Benson, the Chairman, was perfectly satisfied that if, when he kept a farm, he could have got a waggoner to have

attended to his orders he could have kept his cart horses for one-half the money for which they had been kept. He never could get a man to cut the hay and straw properly, and give it to the horses regularly, with a little Swede, although he had found the horses eat it with greediness, that showed plainly enough how much they liked it. He had carriage horses, where a certain amount of speed was required with a certain amount of wind, and he never found anything to suit them better than this. It laid their coats, and the horses looked better than they would have done with any amount of grain that could have been crammed into their manger. Waggoners, however, were not of this opinion, nor could you persuade them to it. They believed that nothing could be done with out large amounts of grain, while hay was frequently given by them in such quantities that very often it was trodden under foot, and one-half of the bed was composed of really good fodder. He was perfectly convinced that this mode of feeding did not conduce to the benefit of the horses; and he found it so difficult to get the men to do what he wanted them that this was one reason why he had given up farming altogether. The keep of horses was a most important item in the expenses of the farm, and if they did not look to it themselves, and see that their waggoners really did their duty, this part of the work would never be done as it ought to be. He believed there was as much skill required in the feeding of cattle as in the management of farm horses; indeed, the cultivation of the soil was an easy matter as compared with the rearing and feeding of stock. In the feeding of cattle there was nothing more certain than that there should be a certain amount of bulk in the food as well as a certain amount of nutritive quality, therefore mixed food suited them best. With horses their object was to get the greatest amount of nutriment in the smallest compass. In the feeding of cattle, therefore, straw becomes a very valuable ingredient. There was another matter to which he intended to refer, but he wished it to be understood that whatever he spoke upon was open to correction. It had often struck him as surprising that in this part of the country Mangel Wurtzel should be altogether discarded. Down in Kent and Worcester it was once much used, and he might say that the root is there coming into fashion again. There were several points, he thought, in them which deserved the attention of the farmer. One recommendation was that Swedes had lost or were losing their good qualities just about the time that Mangels began to show their excellence. He was a short time ago at the house of a farmer who was a very scientific man, and he described Mangels as the most valuable things he had upon his farm. Of course he was quite willing to admit that Swedes were most valuable while sound, and that they could not be replaced by anything else, but when they got woody and stringy, which they did early in the year, Mangels afforded a very excellent substitute.

Mr. INSTONE said he found he could keep more stock on the same quantity of roots by pulping than he could before. He mixed cut straw, hay, or chaff with the pulp, and this made the roots go much further. His experience also convinced him that the cart horses as a rule thrived much better out in the yard than in the stable. Even in winter he found this to be the case. Treated in this way they looked as well, were much hardier, and did as much, if not more, work than when kept in the stable.

Mr. EVAN DAVIES said he believed that whatever money the farmer may lay out in artificial manures there was nothing like the refuse from the farmyard and stable. This was the natural "forage" of the soil, and it contained all the elements necessary for any crop they might grow upon their farms. Where there was plenty of this there was no need for the aid of the chemist or the manure vendor. Mr. Wickham, in his paper, laid great stress upon the cutting of hay at the precise time, and certainly it was a most important matter. It was a wonderful yet beautiful and valuable dispensation of Providence, that the Grasses which they made into hay did not all contain their maximum amount of nutriment at the same stages of their growth. To explain this more fully he would divide the Grasses into three classes. One of these produced its seed in the spring, another in the summer, and another in the autumn. Now, two out of these three were particularly well suited for making hay. Those Grasses which produced their seeds in the summer contained their maximum amount of nutriment just before their seeds began to ripen: while those Grasses which produced their seeds in spring, when it would be too early to cut and harvest them, did not come to their highest state of nutriment till some time after. It was consequently very necessary to mow the Grass at the proper time, so as to get as much nutriment as possible, both in the spring and summer Grasses. Mr. Wickham had stated that they did not use their Swedes off early enough—that they were used so late in the spring that their nourishing qualities were, to some extent, lessened. As a substitute for the late use of Swedes, Mangels had been recommended by Mr. Benson. As that gentleman had stated, Mangels were not much used in that part of the country, and the reason for it was a very simple one. Mangels would not grow at a greater elevation than 400 feet above the level of the sea, while there he believed they were at an elevation of about 800 feet. There was also a considerable quantity of Grass land; and what they wanted there was winter forage, not forage which would carry them far on into the summer, which Mangels would do. He had himself no doubt that a much less quantity of grain might be used in the feeding of stock than was used at present, and that with equally good results. The quantity of grain now used was immense. There were some in this room, he dare say, who give from 10 lb. to 12 lb. per day, and some whom he had asked said they do not know how much; the cowman kept the key of the granary, and he gave what he liked. Now this was not the way to go to work. That farmer could not tell whether his beasts paid him or not, nor could he benefit his fellow-farmers. He never heard before of feeding beasts four times a day, or at least of making it into eight times by giving each beast two courses. He was glad Mr. Wickham and Mr. Benson had touched upon the keep of waggon horses. There was nothing he believed in which there were greater mistakes made than in this respect, among the farmers of this country. If there was not one-half there was certainly one-third of the fodder wasted and trampled under foot, and how to prevent this was a matter that had long occupied his attention. The only way he saw, and what he thought it must come to at the last, was to do away with racks altogether. It was a matter, however, which was worthy of every one's attention, and a few tons of hay saved in this way would repay the farmer for any little extra expense he might be put to at first.

Mr. KEARY said he did not altogether agree with Mr. Instone, although he agreed with him in the main, as to the manner in which he employed the pulped food. Where roots were pulped, mixed with chaff, and where a little cake was added, he believed a large quantity of young stock might be kept very profitably. He could not, however, recommend this system for the feeding of cattle, and he did not think it would be found to answer. Animals, like ourselves, got more dainty as they got more fat, and they would have to give them better food, and in different and more dainty form. He believed, too, there was nothing like giving the food in small quantities several times during the 24 hours, and that with the greatest regularity. Get them to eat it up at once, and then lie down. This, he believed, was the great secret of feeding. As much as 12 lb. and 14 lb. of corn or cake had been given in a day, whereas he always found that he could make his bullocks fat with half the quantity with proper attention. There are many things necessary for feeding besides good food. A good bed, regularity in feeding, cleanliness, and undisturbed repose, were most essential. He approved of what Mr. Instone had said respecting horses running in the yard. He did not approve of their being let loose in the yard indiscriminately, for the weak ones and the young ones would always get pushed against the wall, and fare badly. With proper care in this respect, however, he found them do well. In the winter they never took cold, they did their work well, and made him yards-full of manure such as no bullocks could make. Bad as was the keeping of horses in stables in the winter, it was still worse to turn them out to Grass in the summer. They spoil more Grass than they eat, and there is no reason whatever why they should be let loose as they were at present. In the yard, as he had said, they provided plenty of excellent manure, while he never said the droppings of horses upon the fields did any good whatever—indeed, he considered the keeping of horses in the yards was a system that could be carried on with the greatest success. He had heard of a very valuable mixture for horses, which he believed was also very palatable to them. It was compounded of cut hay, straw, chaff, and such a quantity of corn as they may think proper, with a certain quantity of Linseed cake soaked in water and poured over the whole. He entirely agreed with Mr. Benson that a great quantity of fodder was wasted, and that a great deal might be done in this way to economise winter forage. He was afraid also that the remarks of Mr. Davies were too true, and that there was no chance whatever of growing Mangels in such an elevated country as that. He concurred also in what Mr. Wickham said, that Swedes were used too late in the spring. But if they dispensed with Swedes they must have something to supply their place, and it had been shown that this could not be done with Mangels. There was, however, another useful vegetable, which he was much surprised was not used in this neighbourhood: it was the Cabbage—the Drumhead and the Thousand-head being particularly suitable for spring feeding. By means of these, and these alone, he had been able to rear very large numbers of lambs very successfully. The seed is sown the same as the Turnip, in drills 27 inches apart; they are hoed and attended to like Swedes, and they keep good till this time of the year. No one that kept ewes should be without them. In Norfolk there was a large quantity of Cabbage grown in this way and for this purpose. If plants were purchased it would be more expensive, but where seed was sown one pound and a-half was sufficient for an acre. He recommended them as most valuable, for they were in good condition just at a time when Swedes were getting done. Severe as this winter had been he had some now as sound as possible.

Mr. GRIFFITHS said Mr. Evan Davies had attempted to throw cold water upon the use of artificial manures. But let him ask Mr. Davies how, if all the artificial manures were withdrawn from the market, the farmers were to manage? There was no doubt that much of the manure of the farmyard was at present wasted, and he thought it very strange that farmers were not more careful in preventing this waste. He thought it essential that every farmer should have on his premises a few tons of gypsum, and that he should apply some of it regularly to his farmyard and manure heap. It would keep the ammonia in the manure, instead of having it drawn away and wasted, as at present. He submitted this as a proposition that was worthy of their consideration. Ammonia was the very essence of the manure, and it evaporated very readily, and therefore in farmyards where some means were not taken to prevent it the waste must be very great. Mr. Davies had also said this part of the country was too elevated for the cultivation of Mangels. He believed the highest cultivated land was admitted to be at Sedgley, in Staffordshire, and upon that land he had seen some as fine Mangels grown as any in the kingdom. It was a medium soil, neither very light nor very hard; and he did not see why the soil of this neighbourhood would not suit them as well. He believed if more manure were worked they would get larger crops of all sorts. No doubt there was a great deal of difference between feeding horses on a farm and feeding them in towns. The draught horses in Liverpool, which were very fine animals and did a vast amount of work, were fed upon cut hay and Indian Corn, both steamed, or with farmers they might be scalded instead of being steamed. These were weighed out to each horse by the man who looked after the stables, and then steamed till the corn became soft and pulpy. The result of this mode of feeding was that those horses could do much harder work than farmer's horses were generally able to do.

Mr. EVAN DAVIES said Mr. Griffiths was not correct in saying that he wished to advocate the disuse of artificial manures. He merely wished to impress upon farmers that they should try to collect the manures themselves instead of trusting too much to the market. No one would deny that the natural manures were the best when they could be got; but it was not possible always to get them in sufficient quantities, and in such cases artificial manures were very useful. He did not agree with Mr. Griffiths in the necessity for covering the farmyard and manure heap with gypsum. Ammonia did not evaporate under 65°, and therefore so long as the atmosphere was below that temperature none could be lost, since it would, on reaching the air, be condensed and fall down again. The closeness of the manure, too, prevented evaporation, and the only loss of importance that could take place was when the manure heap and the air were above 65°, and when the manure was being turned over. If anything was lost, it would be the nitrates. He believed much more damage was done by heavy rains and by the water running from the manure heap than in any other way, and this was a matter that ought really to be looked to.

Mr. GRIFFITHS said he did not know at what temperature ammonia evaporated; but he knew this, that in London the stables were sprinkled with gypsum to prevent unpleasant smells, which consisted of nothing but the ammonia.

Mr. DAVIES said if Mr. Griffiths would go to his farm he would smell nothing that indicated a loss of ammonia.

The CHAIRMAN said he once accidentally met with a gentleman in a railway carriage who called himself a philosopher, and who denied that the peculiar smell alluded to by Mr. Griffiths was ammonia at all. He then proceeded to argue that there was nothing like good natural manures, but where enough of them could not be got, the artificial manures were very valuable. He also spoke in favour of keeping horses in the yard in summer months, instead of turning them out to Grass, suggesting Vetches, Lucerne, and Clover as good food.

Mr. KEARY said he did not see anything impracticable in what had been said about keeping cart horses up during the summer. It was true there might be some farms where it could not be done, but if they took the district between there and Bridgnorth for an example, he believed it might be done on every farm in that area. In the autumn a certain quantity of Vetches should be sown. In the spring they should sow again, or even two or three times. With a little manure and a little attention in this way, they would have an abundant supply all through the summer. By this means he thought they would be able to keep their horses for less, and would besides be able to keep more sheep.

Mr. GRIFFITHS said when guano did not sell one season it was covered over with gypsum to preserve it till the next. This was a plain proof of what he said just now relative to gypsum preventing the evaporation of the ammonia and other gases.

Mr. DAVIES: And very likely the gypsum is afterwards dug in, so as to increase the profits.

Mr. GRIFFITHS said the gypsum was removed, and the manure was left as sound as ever.

Mr. WICKHAM said what he laid great stress upon in his paper was that the amount of nutriment in Grass crops depended very much upon the time of cutting them, while in the Swede a great deal depended upon the time when it was used. The Swede and Mangel were not roots, as was commonly supposed, and as they were commonly called. They were, as the botanist would tell them, receptacles, in which all the ingredients were collected together for the formation of the seed, and where they remained for a time instead of passing on at once to produce the flowers and the seeds, as in annuals. In this state the Swede remained during the winter months, and it was very necessary that it should be used in this state before it showed the least symptoms of renewed growth, for as soon as that commenced, and indeed before it was visible, a great chemical change took place in the so-called root, which diminished its nutritive properties in a very great degree. It could not, therefore, be true economy to keep on feeding with these roots till so late a period in the year. Mr. Wickham concluded by suggesting that Kohl Rabi might form a useful substitute for the Swede in spring.

Mr. C. WADLOW said he believed he farmed as elevated a piece of land as any one in that neighbourhood, and he had grown Mangels very successfully. The only difficulty he met with was in using them in the following spring. He found that early in the season they were likely to scour the sheep and other stock; but as the weather got warmer he did not find them have that effect. He had had as much as 30 cartloads off an acre.

Mr. SPRAGUE believed he never heard a more animated and interesting discussion at any of that Society's meetings. On the subject of Mangels they seemed at any rate to be all agreed—they did not become serviceable till such a time as they did not want them.

Mr. EVAN DAVIES, in the course of a few remarks upon the resolution, said he was sure they ought all to feel much indebted to Mr. Wickham for coming some distance at much personal inconvenience and some expense to give them that paper, and especially so as he was in a delicate state of health at present. He could assure them it was no trifling task to write a paper of that kind. There was also another reason why they should feel grateful to Mr. Wickham. That Society had been in existence about 22 years, and the opinions of one member had become known to all, and he might almost say the stereotyped opinions of all. They wanted new matter and new men to come forward and enlighten them, therefore they were much obliged to Mr. Wickham. He thought the paper read that day and the discussion which had followed would prove of benefit to everyone who read them.

BATH AND WEST OF ENGLAND: *Salisbury.*—It appears that the attendance in the Society's Yard during the past week has been almost identical in number with that of last year's meeting.

The following is an official return of the number of visitors, as compared with the number last year:—

	1866.	1867.
Monday	555	578
Tuesday	1,866	1,875
Wednesday	4,867	5,049
Thursday	12,861	12,720
Friday	5,876	4,167

The receipts on Monday were 69*l.* 6*s.* 6*d.*; Tuesday, 227*l.* 0*s.* 6*d.*; Wednesday, 607*l.* 16*s.*; Thursday, 509*l.* 18*s.*; Friday, 194*l.* 14*s.*

The Annual Meeting was held during the week, when the report from the Council was read, from which we make the following extracts:—

The Council have the gratification to report that there are at present on the books of the society 65 life governors and members, 100 governors, 578 members subscribing not less than 1*l.* annually, 297 subscribers contributing 10*s.* annually; total, 1040. The financial statement for the year ending December 31, 1866, and the assets and liability account for the same period has been printed and circulated among the members. The society's funded property remains the same as at the end of the year 1865, namely, 4925*l.* 12*s.* Consols; the value of the plant was estimated at 3153*l.* 3*s.* 2*d.*; and the cash in hand was 274*l.* 18*s.* 3*d.* The result of an examination of the account of the income and expenditure of the past year is favourable, inasmuch as the balance-sheet of the assets and liabilities of the year 1866, as compared with those of the year 1865, show an increase of 210*l.* 15*s.* 10*d.* The Council deeply regret that owing to the precautions deemed necessary to prevent the spreading of the cattle plague not yet extinct in England, the society is again unable to hold an exhibition of horned cattle. Anxious to redeem their engagement with the local authorities of Salisbury and the agriculturists of the county of Wilts, a deputation, comprising, amongst others, the president of the society and the Mayor of Salisbury, waited on the Privy Council, in the hope of being enabled to obtain permission to hold an entire show; but the Lord President, after courteously receiving the deputation and carefully reviewing their representations, ultimately arrived at the conclusion that during the continuance of this visitation it would be impossible to allow any society whose operations extended over a large area to hold an exhibition at which horned stock could be shown. The Council have the satisfaction to state that, in the opinion of the judges and other persons competent to pronounce authoritatively on the subject, the show of sheep, especially that of the Hampshire or West Country Downs, for which the neighbourhood of Salisbury is so celebrated, is remarkably good. The horse show, though not large in number, contains several animals of remarkable excellence; but the Council regret that the prizes offered for pairs of agricultural horses, for which the neighbourhood of Salisbury is noted, have not produced the expected competition. The prizes offered in former years for thorough-bred stallions having failed to elicit competition, have not been repeated this year; and the practice has been gradually introduced for giving prizes for produce. The various classes of pigs are well represented; many of the entries are remarkably good. No less than 46 compartments are occupied by machinery in motion; a very large space is also appropriated to the exhibition of valuable and important implements. The implement exhibition as a whole, considering that the society had met in the same locality for two years consecutively, is highly satisfactory. The poultry show fully maintains its interest and importance, but it will be desirable to consider a suggestion offered by the judges, hereafter to adopt a different classification of foreign birds. The pleasing feature of the meeting is the very beautiful display of flowers in the horticultural department, for which the society is mainly indebted to the courteous liberality of distinguished patrons of horticulture in the neighbourhood of Salisbury. The Council refer with satisfaction to the fine collection of works by living artists exhibited in the Arts department, and desire to record their obligations to the Lord President of the Privy Council and the authorities at South Kensington for the fine collection of works in decorative art entrusted to the society for exhibition. It has been decided that the meeting for 1868 shall be

held at Falmouth. The Council recommend that Sir John Thomas Buller Duckworth be elected President for the ensuing year.

Horse-shoeing.—The competition for the prizes offered by Sir W. Miles, Bart., for horse-shoeing, came off in the yard on Wednesday, the arrangements being under the direction of Lieut.-Col. Luttrell, and the judges being Mr. Aubrey, of Salisbury, and Mr. Broad, of Bath. There were no fewer than 20 competitors, and the contest was consequently a remarkably keen one. The 1st prize of three guineas went for the second time to Eliel Warry, of Westbury-on-Trym, near Bristol, he having been fortunate enough also to win it last year. The 2d was taken by John Woodward, of Bishopstoke; and the 3d by Charles Durnford, of East Pennard, Somerset. Warry occupied 10 minutes longer time that Woodward, but the great superiority of his work influenced the judges in awarding him the 1st prize. It should be stated, too, that the foot of the horse on which he operated was not a good one.

Conversazione at the Council House.—On Wednesday evening a large party of ladies and gentlemen, members of the Society and others, accepted the invitation of Dr. Lush, Mayor of Salisbury, to a *conversazione* at the Council House.

On the Farming of the Southern Counties.—In the course of the evening a paper was read by Mr. E. P. Squarry, of Odstock, from which we take the following passages:—

Outline Picture of Agriculture about the End of the Last Century.—In the counties of Wilts, Hants, and Dorset, the farms were held for the most part in copyholds or leaseholds for lives, under the large proprietors. The area of the occupations ranged from 30 to 100 acres, and they remained for generations with singular uniformity in the same family. The renewal for comparatively moderate fines took place at intervals, and the whole burden of erecting and maintaining the dwelling-house and homestead fell with scarcely an exception upon the copyholder or lessee. The cottages of the few labourers employed were generally of similar tenure, having too frequently been built on waste spots for a nominal acknowledgment to the lord. The land was for the most part farmed under the common field system, of which a few instances yet remain, a striking example being found in the wonderful Fordington Field, near Dorchester. This tenantry or common field system appears to represent the earliest aggregation of lands for the joint and yet separate use of the tenants of a manor. The entire area of arable land in a manor thus came to be divided according to its character and quality, into the three or four field course of cropping, according to the system adopted. To each copyholder or freeholder belonged strips of arable and meadow land of various areas, dispersed at irregular intervals over the whole field, so as to secure as far as possible uniformity of quality. On the arable portion the occupier exercised his discretion in sowing Wheat, Barley, or Oats. He took the hay crop, and thereafter his lands were fed and folded over by the sheep of the whole manor, whose numbers were regulated by the old-established rights attached to each holding. To these common fields were added a large down pasturage, over which the flocks of the manor fed during the whole summer. Frequently, too, meadows formed part of this system, where each occupier took the fore share, or first cut of the Grass, whilst the after feed was consumed by the cows, horses, or oxen of the manor.

The roads of this period were, according to tradition, scarcely usable for carriages, except in the immediate vicinity of the larger towns. To illustrate this, it may be mentioned to those who know the locality, that within the last 40 years the roads between the villages of Broadchalke and Ebbesbourne were impassable except by market waggons, and that the whole intercourse of that district was carried on on horseback. It may interest some of my younger audience to know that the bells which they still occasionally see on the teams of horses were originally adopted for the purpose of giving notice of the approach of a waggon, so as to warn advancing waggoners to halt at a spot where a passing might be effected. The sheep of the period in this district was the Wiltshire Horn, although the South Down had just been introduced as fashionable noveltics. It is a strange but singular illustration of the rapid but silent changes which occur in all mundane matters, that of the breed of sheep which fed over the wide pastures of this and the adjoining counties not more than 70 years ago, there is not one single specimen left—nay, more than this, not even a single picture or engraving exists, so far as I can ascertain, by which its character and appearance can be handed down. Those of my audience who have seen Sir Edwin Landseer's picture of the Chillingham cattle in this year's exhibition will regret that the humbler but scarcely less interesting sheep of these counties should have failed to secure an artist's attention before they became extinct. It must not, however, be accepted that these sheep were swept off before the advancing tide of the Southdowns. As in most other cases, compromises were effected with the new comers, and some of the best and most highly reputed flocks of the Hampshire and West Country Downs, now the successors of the Southdowns, doubtless owe a large portion of their size and hardihood to a descent from the old Wiltshire blood. The horned Dorset ewe may be taken as the indigenous but wonderfully improved sheep of that county. Doubtless in some of its characteristics, like the old Wiltshire sheep, it has through the care and skill of its breeders been improved into its present high position. For the soil and climate of its home it is specially adapted, and a nobler or more useful animal can scarcely be found in England. The cattle, too, have undergone changes very analogous to those described amongst sheep. The Long Horn was the dairy cow of the district. This breed is still to be met with in isolated cases in the southern counties, and when the fine character and quality of good specimens of this breed is considered, one is almost tempted to regret that an imperfect adaptation of the Shorthorn and other mixed breeds should so nearly have superseded it.

The character of labour and its remuneration are singularly interesting, because at a period not long preceding that which I am attempting to describe, the line between the copyholder or leaseholder and the labourer was very faintly marked, and the character of the holdings was such as to enable a thrifty labourer to emerge from his condition into the small farmer. At this period it was the custom to board and lodge the younger men who were employed on the farm, and at certain times, such as harvest, haymaking, shearing, the whole body of labourers were fed by the farmer. But the altered condition of the farmer and his family has tended to a complete abolition of this practice, but not possibly without some loss of the good feeling which traditionally is stated to have existed between the master and his men. It is not for us to discuss the policy or otherwise which reduced a class so valuable as these yeomen to a quasi servile condition: however much we may regret this consequence, and sympathise with those affected, I cannot but believe that a largely increased power to produce food for the whole population was developed by the circumstances which I have attempted to describe. The transition state was one of acute suffering to the dispossessed yeoman and labourer, and the agricultural annals of the period are full of schemes for the relief of the distress which prevailed amongst the labourers of the agricultural districts—its prevention by emigration, or application to new sources of industry. The wages were largely subsidised by supplies of corn and other necessaries, at prices generally below the market value. An examination of the available sources of information leads to the belief that during the first increase in prices of corn, &c., incident to the war which terminated by the peace of Amiens, the condition of the labourer was worse than at any other period of our history, and from its very desperation arose the system of parish relief, which, until the recent just and sound legislation, contributed much to the demoralised and dependent condition of the present farm labourer. The implements of this period were simple in the extreme, and had but little advanced during the preceding century. The plough with two wheels (to which principle, after a multitude of trials and failures, we have now returned), the drag harrows, and a nine-share plough constituted the means by which tillage was as perfectly, though possibly not so rapidly, achieved by a good farmer as it is now. Waggons and carts were built more heavily than at present, and the use of iron for axles was quite unknown. But I have yet to touch upon the great feature which revolutionised the farming of this country. I refer to the system of enclosure, and the consequent abolition of the common field system which has been previously described at length. A reference to the journals of your society and other sources indicate that a few parishes only were enclosed prior to 1780. It would seem about that period that the advantages of enclosures, the greater economy of management, the increased quantity of stock which might be kept, and the individual benefit resulting to the farmer from improvements which he personally effected were fully recognised, and, stimulated by the increasing prices of corn, they were pushed on with great energy. Up to 1836 the number of enclosures were—in Hampshire, 21; Dorset, 18; and Wilts, 85; and it is probable that a large number of parishes were enclosed by agreement, of which no record is kept. The change in the character and position of the occupier is indicated by the fact that the rentals of farms after enclosures had taken place ranged generally from 100*l.* to 400*l.* per annum, whilst the rental of the lands held in tenantry varied from 15*l.* to 40*l.* per annum. It is obvious from this that a wealthier class was found to rent the enclosed lands, and it is equally obvious, as has been suggested, that the dispossessed and small occupier sank generally to the condition of the labourer instead of migrating to other districts to farm, or otherwise apply his powers. During this period and the subsequent 25 years the continuous high prices of grain stimulated the conversion of down pasture into arable land. In many cases this was most judicious, and profitable alike to the farmer and the nation, but often the selection of land for this purpose was indiscriminate and unwise. A terrible reaction followed, for much of this type of land, which for years remained uncultivated, until the introduction of bone dust, guano, artificial manures, and the like, at length awakened a faith (justified by practice) that these previously illtreated and starved lands might be usefully cultivated. Of the produce per acre of the corn crops of this period, and quantity of stock kept, there is no reliable information whatever. But the experience of those with whom I have conversed on these subjects leads to the belief that the yield per acre on the ordinary soils has increased very considerably, while the greater production of corn and its consequently decreased price has resulted in an equal extent from the larger area under cultivation. From one point, however, there is little doubt that on the stronger Wheat lands which underlie the chalk, the mode of cultivation for the staple commodity, Wheat, was as perfect 60 years ago as at the present time, and consequently the yield from these lands was equally large. It must, however, be borne in mind that the produce from this type of land in mutton, wool, and beef, has enormously increased, for at the date referred to the system of growing artificial food for stock was scarcely practised.

Present State of Agriculture.—Let us now glance at what has been the progress out of the mass of theories, inventions, and systems, successes and failures, which, more or less occupying men's minds, have endured or disappeared according to the good that was in them. By progress is meant those practices, those implements, and those breeds of cattle, which, without claiming for them finality, are yet intimately and inseparably welded into and bound up with the present modes of farming. During the interval which it has been attempted to bridge over, the most marked feature appears to be the enormously increased production of stock, and this increase is not only numerical, but in an equal if not larger proportion it consists in the improved quality and earlier maturity of the individual animal. Many of my audience can measure the wide difference in the size and quality of the lambs brought to Britford and Wilton fairs thirty years ago, with those which now occupy their places. The far-seeing ability of a comparatively few men, whose names will at once occur to the flockmasters of these counties, has conduced to this national benefit. Consequent upon the larger numbers and improved condition of sheep is the increased production of grain; no means are open of measuring what such increase really has been, but in the collective form of larger produce and wider area it may be estimated probably at something like 40 to 45 per cent. during the last 60 years. The application of machinery to farming operations during this period has been singularly extensive and useful. At about the commencement of the century a Scotch mechanic was struggling to develop the threshing machine, and it is marvellous to think that only 35 years ago this neighbourhood was disquieted by riots arising from the introduction of these implements. What an interval of time, human thought, and invention lies between cattle treading the corn from the outspread sheaves in the far-off Palestine, and the locomotive engine one now meets dragging its own complicated but effective threshing and winnowing machinery to the next homestead! Nor is this the only application of that giant power in the service of agriculture. After years of laborious thought and careful trials, and an immense expenditure of money, as yet pecuniarily unrewarded, Fowler, Smith, Howard, and other patient inventors have brought into the domain of practice and fact the dreams of thoughtful men — steam cultivation. Perhaps in no district has it been as yet more widely applied than in Wilts, for on the estate of one nobleman only no less than nine steam ploughing or cultivating apparatus are at work. Those who have used them constantly concur in one most valuable result, viz., that whatever doubt may exist in the economy of these operations as compared with horse power, there is no doubt of the superior excellence of their work. Every reflective man must see in their application another source of extended production for an increasing people. The legislation of the past 60 years affecting agricultural matters has been of an exciting character. During that time arose, flourished, and fell the system of protection to agriculture. More silently, but provoking grave discussion amongst those interested, was introduced and passed the Tithe Commutation Act, which more largely conduced to the increased production of England than any previous legislation, except possibly the Enclosure Acts. Lastly came the gradual enfranchisement of agricultural labour by the modifications of the law of settlement, which as a measure at once of justice and policy may be expected greatly to benefit the labourer himself, whilst its operation will undoubtedly contribute to the development of superior and more skilled labour for the farmer. A long-postponed but certain result of the enclosure system has been the erection of homesteads and residences adapted for the enlarged character of the farm and for their comparatively concentrated arrangement. A similar action has also operated on the wretched cottages which had grown up under the system before referred to, and of which too many yet remain. Looking round this neighbourhood and seeing the immense improvements effected in these directions on various estates, it is interesting to reflect that, large as the outlay has been, it is fully represented in the annual improved value of the farms, in the high character of the tenantry, and their liberal management of the land; and, lastly, by the increased comfort and happiness which it has brought home to the labourer. Of the great questions affecting the present, and to a possibly larger extent the future of farming, the supply of manual labour is almost paramount. The action of laws interfering with the natural and healthy distribution of labour in the earlier period under consideration, aggravated by other causes before referred to, tended to reduce the remuneration for farm labour to its lowest known point in these southern and western counties. This excessive supply of labour resulted in an uniformity of wages, in which the value and capacity of the most unskilled and inferior servant was too often the measure of payment to the best. The stimulants to energy, industry, and skill were thus neutralised; in too many cases a dead level of incapacity resulted. But in the tide of advancing wages, for labour of whatever character, no exception will be found in the future remuneration of the farm labourer. Such advance will probably be less abrupt than in other types of wages, because a good cottage and garden in the sweet country air, with sufficient plain food and no excessive exertion, is more attractive than iron puddling or cotton spinning, though the money wages may be double or treble in the latter cases. The influence of mother earth seems to operate alike on landlord, tenant, and labourer. They each love what has been their home—the field, the meadow, the breezy down over which they have sported or worked, and this insensible but strong influence is not to be omitted in considering the causes which have governed and will govern yet further, the future question of wages. The capital required for farming in those days is in great contrast to the requirements of the present. Considering the value and number of stock of all descriptions at that time, the mode of entry on, and the management of farms, I am disposed to think that the capital now invested in farming (partly due, of course, to the larger area under cultivation) is probably doubled. Let me conclude this outline sketch of a grand subject with a regret that its treatment has fallen into such incompetent hands. I feel that if this paper has failed to interest you, that it is due to the incomplete manner in which it is put before you, rather than from any lack of importance or charm attaching to the subject itself.

Reviews.

Cheese-making; being a Practical Explanation of the Cheddar System and other Leading Methods. By Robert MacAdam, Gorsty Hill Dairy, Crewe. New Edition. Hamilton, Adams, & Co.

Here is a pamphlet by a man who has himself made cheese in upwards of 100 dairies in different parts of the country; who has been employed to introduce improved cheese-making in many new districts, and has been thus successful in overcoming prejudices which are nowhere stronger than in the agricultural world, and nowhere stronger there than in the department of dairy management. Mr. MacAdam was, we believe, first employed by Mr. Caird on his farm at Waldon, where he succeeded in convincing the Edinburgh salesmen that good cheese could come out of Galloway, first adopting the Cheshire plan as an improvement upon the home management, and then that of the Cheddar district as turning out cheese of better quality still. Mr. MacAdam has thus ample right to speak with authority on his subject, and we recommend his pamphlet to the attention of all who are interested in the improvement of the cheese manufacture. We make two extracts, one on the value of whey and the other on extension of the cheese-dairy system:—

"1. *On the Value of Whey.*—Whey is of considerable value wherever cheese is made from full milk, and dairy managers should consider well how it can be turned to the best account. When the tender curd is broken up carefully and gently, the quantity of butter obtained from the whey is considerably less than when broken up incautiously. We find, from personal experience, that when the operations of cheese-making are carefully conducted, and the cream properly separated from the whey and made into butter, the amount obtained averages only a quarter of a pound weekly from each cow; and while the returns are so small, the making of whey-butter adds a considerable item to the labours of the dairy, and consequently renders this mode of disposing of whey by no means the most profitable. Hence, in many dairies, a quantity of cream, or the 'stripping' of the cows, which is almost identical, is added to the whey cream, probably because the parties concerned are aware that the results would otherwise appear somewhat meagre and unsatisfactory. But while this practice apparently enhances the value of the returns from the whey, it, in reality, diminishes the quantity and quality of the cheese, and ought, therefore, to be regarded as reprehensible and unprofitable. Indeed, whey butter, even when thus enriched, is only an inferior article, and does not even form an equivalent to the loss and detriment sustained by the cheese.

"It is found that pigs, fed on whey, with some kind of meal cooked and mixed with it, thrive and fatten well, and form excellent pork. At various times, we have used, in addition to the whey, Bean-meal, Indian corn-meal, Barley, and Oats, and prefer them respectively in the order in which they are enumerated. The practice of feeding pigs on whey alone is unprofitable, as it does not contain the nutritive or flesh-forming elements in sufficient quantity, except when it has been enriched by the unskilful manipulation of the cheese-maker, who may allow it to carry away part of the substance which rightfully belongs to the cheese. On the contrary, if mixed with food of a more substantial nature, and in sufficient quantity, the proper amount of nourishment is supplied, and the pigs are kept in a healthy growing condition. As the practice of the writer is to buy the pigs which he feeds, and also the meal given to them, the money value of the whey is easily ascertained, and for the last 20 years has averaged (on a stock of sometimes more than 100 pigs

annually) from one-tenth to one-eighth of the value of the cheese."

"2. *Extension of Cheese-making to other districts.*—Occasion has arisen in the foregoing pages to allude to the imperfect knowledge of the art of cheese-making possessed by those who make it their special business. And as the area over which even this limited knowledge extends is small when compared with the pastoral resources of the British islands, so the number of the cheese-producing districts is less, and their extent more limited than might be. In England, cheese-making (worthy of the name) is confined to ten or eleven of the midland and south-western counties; in Scotland to six or seven counties in the south-west; while in Ireland this department of dairy husbandry has hitherto been almost unknown. In extensive districts of England and Scotland beyond the bounds alluded to, cheeses are made in considerable numbers, but with such primitive means and appliances, and of such an inferior quality, that they can scarcely be regarded as a marketable commodity. It is not to be expected or desired that cheese-making should become the speciality of British husbandmen, but certainly it is desirable that they who make it an adjunct of their farming operations should master its details and principles sufficiently to render their labour satisfactory and profitable. And these details and principles are not by any means so abstruse or difficult but that they may be mastered by those who desire to do so, or acquired under the guidance of a skilful cheese-maker.

"In Ireland, where there are extensive tracts of excellent pasture, the principal product of the dairy is butter, the best qualities of which are disposed of at little above the price of fine cheese, while the more inferior sorts do not equal it in value. And as the respective weights of butter and cheese, obtained from a given quantity of milk, are in the proportion of 9½ to 22, it is easily perceived that the making of butter is less profitable than the manufacture of cheese. Moreover, the margin is so wide as to show a handsome surplus, even after allowing for the difference in value of buttermilk over whey for pig-feeding. These remarks are applicable, not to Ireland alone, but also, in a more or less restricted sense, to several pastoral districts in England and Scotland."

Some reference is made in this pamphlet to the dairy system of America, where the factory system prevails, the milk of adjacent farms being carried to some central depôt, where the process is carried out on the great scale, the proceeds being divided among the contributing dairies in the proportion of their several contributions of milk. The difficulty in the way of success here lies in the extremely sensitive character of milk, which will not bear long carriage without injury. Thus Mr. MacAdam says:—

"It is questionable whether the Americans, with all their enterprise, and characteristic energy and perseverance, will ever succeed in raising the products of their cheese-factories to a degree of excellence which will rival or excel the finest productions of the British dairies. For the cheese-factory system, carried on under the disadvantages of a high and variable temperature, presents obstacles to the manufacture of the finest quality of cheese which will tax the utmost ingenuity of the Americans to overcome. Besides, the factories, as at present arranged and organised, could not produce the best quality of cheese, although they were conducted with the greatest ability and skill. For the milk being massed together, and frequently carted to the factory from farms situated several miles off, it undoubtedly sustains an injury which cannot afterwards be altogether remedied. The difficulty of attaining the highest standard of quality, after thus violating the conditions essential for the production of the finest cheese, will be apparent, if rationally considered. This is not written to decry the factory system, or laid down as an unproven theory, but is simply the conviction arising from long experience and close observation of results."

Farm Memoranda.

BRITANNIA FARMS, BEDFORD.—It is not necessary here to relate the history of Messrs. Howard's reclamation and remodelling of the Clapham Park and Green Farms, and their impovement of the Hoo Farms (all now classed together as "The Britannia Farm"), in the neighbourhood of Bedford. Clearing of forest-timber and underwood, abolition of old boundaries, throwing field to field and planting new fences, the formation of direct hard-metal roads in place of winding clay lanes or across newly-opened country, the deep underdrainage of heavy soil, the laying down of new Grass and cleansing of old tillage-land, have all been executed here with an expedition and completeness which may well stand out as an example of what should be done, and how it should be done, to prepare an estate for the full development of steam cultivation. Ten miles of hedgerows have vanished before an army of workmen, all stubbing by the piece; and their removal has added just 10 acres to the area of Clapham Farm. Sound roadways enable the master-spirit of the tillage-work—the steam-engine—to perambulate where it will, uphill and down, in almost any weather, into any of the enclosures; and when there, though it is stationary with a windlass while working, it cultivates fields of 10, 20, 30, and up to 55½ acres "at one setting down." The drainage of almost every field has been designed with a view to supply the engine, a pond or open tank at almost every site occupied by the engine during the tillage of the whole estate receiving the drain water, retaining supplies at all seasons, and letting only the "overflow" pass away by the mains which ultimately conduct it to the Ouse. At the principal farmstead a reservoir has been excavated, which contains half a million gallons, the cost of digging being 50*l.*

The extent of arable is 445 acres, all heavy land. The Hoo Farm present a deep staple, 10 or 14 inches in thickness, upon homogeneous clay. Yet, before steam culture was practised, there were but a few inches of staple soil; the difference, on digging in a field and upon the headland edge, where the deep work has not reached, being remarkable—the raw tenacious gaulty clay having been obviously changed by cultivation into a brown unctuous earth, at once perceptibly better to the feel. Although the old high-backed lands have been everywhere levelled over a 4-feet deep drainage, the whole of the fields are declared to drain well in the wettest of seasons; and we found nothing like sloppiness or sponginess, though we entered almost every field in wretchedly wet weather.

One set of tackle, of Messrs. Howard's own principle and manufacture, with a 10-horse power double-cylinder engine, performs the heavy tillage labour of these farms, and is now limited to this work alone, not being let out on hire; while another portable engine is employed to do all the threshing and other yard work. Thus the expenses of steam cultivation are not mixed up with those of any other operations; and the cost of repairs, &c., has been charged against the farms, on the same scale as they would be to a complete stranger, in order to make them a thorough test and example of the pecuniary as well as other aspects of the question. Mr. James Dickson, the farm-manager, has furnished us with the following "epitome" from his account books, giving the totals of three years' experience:—

	Acres.
The extent cultivated by steam has been	2751
Cultivated for neighbours	300
Harrowed by steam, 535 acres, equivalent to cultivating (half)	267
In three years	3318

The expenses for rope, repairs, and renewal of wearing parts have amounted to 99*l.* 15*s.* 5*d.*, or say 33*l.* per annum. Divided by the acreage it comes to 7*d.* and a fraction per acre.

Interest, at 5 per cent. per annum on the cost price of 540*l.*, comes to 80*l.* 2*s.* in the three years, or a fraction under 6*d.* per acre.

Depreciation, at 5 per cent. per annum on the main portion of the engine and apparatus, but excluding rope and other wearing parts, say upon 440*l.*, amounts to 66*l.* in the three years, or a fraction over 4¾*d.* per acre. The three items of repairs, interest, and depreciation, make a total of about 1*s.* 6*d.* per acre.

We must remark here, however, that any heavy repair, such as a new fire-box next year, would materially increase this very low average, derived from an experience of three years.

To get at the total cost of any given operation, according to this statement, we have only to ascertain the daily working expenses and the number of acres done per day. Mr. Dickson gives them as follows:—

	£	s.	d.
Engine-driver	0	2	8
Four labourers, at 2*s.* 3*d.*	0	9	0
Two porter boys, at 10*d.*	0	1	8
One boy carrying water (no water-cart being used)	0	0	10
One day's manual labour	£0	14	2
Coal (for 11 acres per day of 10 hours, a rate of work to be mentioned presently), 15 cwt. at 14*s.* per ton, with carriage, 2*s.* 6*d.*	0	13	0
Oil, one penny per acre on 11 acres	0	0	11
Repairs and renewal of rope and wearing parts, at 7*d.* per acre	0	6	5
Total working expenses per day	£1	14	6
Or 3*s.* 1½*d.* per acre.			
Add—Interest, 6*d.* per acre	0	5	6
Depreciation, at 5*d.* per acre	0	4	7
Total outlay per day	£2	4	7
Or a fraction over 4*s.* per acre.			

Mr. Dickson states that, on their very heavy clay soil, the cultivator taking 3 feet breadth and smashing up the land 6 to 8 inches deep, and travelling at the pace of three miles an hour, requires a pressure of 80 lb. in the double-cylinder 10-horse power engine. There is "regularly on the move" by the cultivator from 6 to 8 cwt. of soil, the shares cutting 3 feet of width, while it is 4 feet from the foremost point to the heel of the hindermost share—the weight of soil in a square yard, 6 inches deep, being 4 cwt. 3 qrs. 14 lb. At this width, depth, and length, the rate of performance for a full day of 12 hours is 11 acres. The ordinary average of work, we were informed, was 6 to 8 acres a day (we suppose including removals), from 6 to as much as 10 inches deep—the steam working at a pressure of 50 to 70 lb., with a consumption of 9 to 13 cwt. of coal. The manager's statement refers to their highest speed, with a greater pressure and more fuel burnt. In his figures, too, he has forgotten the cost of removals, which must be allowed for, if we would get at an average instead of a full day's work. The shifting, we were told, is done by help of 7 horses (4 horses, except for great distances), and takes 2½ hours. The engine, when uninterruptedly at work, has to be moved about twice a week; so that we may add say 2*s.* 5*d.* a day to the total daily outlay, making 2*l.* 7*s.* per day. Dividing this by the lower average of 8 acres per day, the total cost of a first smashing up (without including cross-cultivating or harrowing) is within a trifle of 6*s.* per acre. Undoubtedly, heavier repairs during the next three years will tend to raise these figures, which, as they are, certainly speak well in favour of steam cultivation. In fact, the cost is "a mere nothing" compared with the "value received;" the deep tillage of strong land is not accomplished by horses for as little as twice the cost here incurred by steam.

We saw the apparatus at work, deeply breaking up a stiff piece of Bean stubble with excellent effect, though the rains had at that time (September 13th) hindered most people wherever we went from bringing out their steam-cultivators at all.* We need not describe Messrs. Howard's windlass, compensating double snatchblocks, two-way cultivator, rope-porters, anchors, &c.; but one feature in the apparatus struck our attention as a great improvement upon the old method of shifting the anchor-pulleys. This was the "Bulstrode" sling, by means of which the pulley, mounted on a boat-shaped block of wood, slides from one anchor to another, effecting a considerable economy of time. We observed that only seven or eight seconds elapsed between the implement stopping at the end and starting again. The headlands are 7 or 8 yards wide, and the practice is sometimes to finish off these by horse-labour, sometimes to break them up by steam before setting to work upon the surface of the field—the same plan is sometimes pursued with horse-grubbers not lifted out of the ground for turning.

Our remarks upon the farms in general were that everything seemed well done, and that the ground was very free from root-weeds and "vegetation;" the Mangels were particularly good and very clean. One splendid field of Mangels had been grown without farmyard manure, the artificial dressing being 5 cwt. of guano and 5 cwt. of salt. This was one of the few first-class crops we saw in all our journey. We must also compliment Messrs. Howard upon their magnificent Swedes and Turnips, upon rather kinder land than the majority of their property, though this particular piece has not been at present drained. One piece of yellow Turnips, on newly-broken-up land, was patchy and defective; while a portion of the same field, which had been longer under cultivation, bore an exceedingly good crop of the same roots, put in at the same time and in the same way. The stubbles everywhere showed well—the heaviest Wheat being after Potatos, and sown in a steam-cultivated seed-bed.

We have remarked in our tour how few employers of steam-apparatus adopt a new system of culture along with the new power. In many, or rather in most cases, the rotation of crops is altered; but in comparatively few instances (which will be found in the course of our Report) did we find anything like so great a change in the tillage operations themselves as prominent advocates of steam culture have recommended—or a revolution in husbandry like that exemplified with extraordinary success, though in a small way, at Woolston. Mr. Bignell's practice of grubbing and trenching, in place of ploughing (see farm No. 48), is one great deviation from the time-honoured track: here, on the Britannia Farms, we have it on a more important scale. Scarcely any horse turn-over ploughing is done; nor is the steam tillage limited to smashing up stubbles, or the turn-over ploughing of leas. And from the practice here we learn how mistaken is the view that a steam-cultivating tackle is to be used merely (or even mainly) as a supplementary assistant to the farm-team, and general forwarder of the heavy work of a farm. In fact, in the course of our journeys, we gradually came to classify (in our own minds) the users of steam apparatus according as they looked upon it as an "auxiliary" to horses, or as "the slave of the farm;" and when we lighted upon a man using his engine only to clean stubbles in autumn, and occasionally to "cross" again in spring, upon such land as we had seen made into seed-beds for almost all crops by men of larger insight into the powers of steam, we called it a case of "steam culture made easy to small minds." How did Messrs. Howard prepare for their Mangel crop? The Wheat stubble was not smashed up and then left for horse tillage in spring, but at once ridged by steam—the ridges 27 inches wide; this being done by a double-breasted plough-body fixed in the cultivator-frame, in place of the tines, while a subsoiling tine on the same implement rooted up the bottom of the open trenches, the ridging and subsoiling being accomplished in one operation. This lay all winter for the frosts and weather to make into the finest tilth imaginable; and in spring manure was applied, the ridges were torn down by a cross cultivation by steam, and the seed-bed was ready for the Mangels. Of course the ground must be clean to admit of cheap, quick tillage like this. Another field was done as follows:—The Oat stubble was forked over by hand to get out tufts of Couch, farmyard manure was applied, then the steam cultivator smashed up the field, and, after lying some time, the rough fallow was ridged into 27-inch wide ridges (or "drills") by horses. In spring came a cross-cultivation by steam, the land was harrowed, and the Mangel-seed drilled in. Messrs. Howard steam-grub their Clover-leas for Wheat, doing this in the summer, early enough for the land to get sufficiently firm at bottom before sowing time comes; finding that, when this point is attended to, the Wheat roots do not meet with the hollow bottom so difficult to be avoided except by first-rate and closely-tucked ploughing. In fact, this work being done in June and July makes a "bastard fallow." *Report on Steam Cultivation, Journal of English Agricultural Society.*

* This field has not been touched since, and, notwithstanding the wet season, it is now a nut-brown, mellow tilth, "like an ash-heap," ready to be drilled with Barley after no other preparation than harrowing. *F. H.*

Miscellaneous.

The Milk of Commerce.—In the Manchester County Court lately, before Mr. E. Ovens, judge, an action was brought by Thomas Rogers, provision dealer, Long Millgate, against Edward Broomhead, farmer, Medlock Vale Farm, near Ashton-under-Lyne, to recover 50*l.* damages. The particulars of claim stated that in January the defendant sold to the plaintiff a milk-round, goodwill, and shop and appurtenances in Long Millgate, Manchester, for 90*l.*; and that the defendant agreed to supply the plaintiff with good new milk at 2*d.* per dozen quarts below the market price, but had failed so to do, and had supplied instead thereof a compound of milk and water, or other fluid

or substance, whereby the plaintiff had lost the price paid by him to the defendant, together with the profits which he ought to have derived from the business; and had otherwise been injured in his business and reputation. There were also two counts for misrepresentation. Mr. Higgin, for the plaintiff, said that, soon after the plaintiff took possession of the business which he had bought from the defendant, complaints were made by his customers of the quality of the milk. At length one of the customers, named Travis, being possessed of an instrument called a lactometer, tested a quantity of the milk. The process was to get the milk to a temperature of 60°, and to place in it this instrument, the index of which showed the proportion of water in the liquid. In the instance in question the lactometer showed that there were three quarts of water in a dozen quarts of the liquid sold as milk. On the plaintiff remonstrating, the defendant's wife said her husband would not supply milk without water to the plaintiff or anyone else. The plaintiff confirmed his counsel's statement, and added that, though at first he sold a daily average of 36 dozen quarts, at the end of April he sold not more than 14 dozen daily, and he finally sold for 20*l.* the business for which he had given 90*l.* Cross-examined by Mr. Leresche: When the milk came from defendant he (the plaintiff) added water in the proportion of one quart to the dozen; but he did so only to make up the measure of 13 quarts to the dozen, which one of his customers required. He also got milk from another farmer, and in this he (witness) put three quarts of water to the dozen. He did not add any water to the milk supplied to Travis. Joseph Travis, milkseller, Cross Street, Swan Street, proved the testing of the defendant's milk. He at first denied that he had heard of annatto; but afterwards inadvertently remarked that a druggist had told him that it was a colouring matter, and on being questioned he said he had used it to give milk a rich cast. The defendant, in answer to the judge, said he did not know what was the usual proportion of water in milk sold by farmers to milk dealers. Sometimes they rinsed their cans, and then put a few quarts of water in them. The Judge: What did you mean by agreeing to supply good new milk? Witness: Milk to suit customers. The Judge: The defendant was a wholesale customer of yours, and you had no right to put in all the water: you ought, you know, to have given him a chance. Witness: He should have suited himself in that, I didn't tell him to put in any water. The Judge: Then you put in the same water for your wholesale customers as for your retail customers,—3 quarts to the dozen? Witness replied that he did not put in that quantity of water, but he would not say that in his milk there were not 2 quarts of water to the dozen. The defendant's son said that when he had delivered the milk he had seen the plaintiff take out a dozen canfuls and then put in their place a dozen quarts of water. The plaintiff's late housekeeper gave similar evidence. Of the defendant's milk, she added, the plaintiff used on every occasion to take four dozen quarts, put it in a churn, and then add 15 or 16 quarts of water, a little salt, and some annatto to colour it. Witness used to keep a milk shop, and when the milk was pale she used to add some annatto to it. Mr. Leresche: "That's my case, your Honour." The Judge: "And a very nice case it is." In giving judgment, the Judge said he had no doubt the plaintiff's real complaint was that the defendant had put more water in his milk than he ought to have done, and that thereby the plaintiff had not had a fair chance of making a further addition. As to the proportion, from the experience he had had, he did not believe that 4 quarts of water to the dozen was sufficient to prevent customers buying the milk. It was simply impossible to get at the truth in the present case. If the plaintiff had come into Court with clean hands, he (the Judge) would have awarded him the 50*l.* he claimed; but this was not the case, for, in his opinion, he put in the milk as much water as the defendant put in it. By the contract "good new milk" was to be supplied by the defendant, and he should consider the words to mean pure milk. Mr. Leresche said the words only meant the milk of commerce, which, he contended, the defendant had supplied. The Judge said he should not take it that there was a recognised practice of supplying adulterated milk. The result of his judgment would be that both parties would in effect be fined. The plaintiff had already lost considerably, as he only got 20*l.* for what cost him 90*l.*; and defendant would be a loser of 20*l.*, for which sum he now gave the plaintiff a verdict. Each must pay his own costs. He (the Judge) wished he had the power to fine the plaintiff and defendant 100*l.* each. *Manchester Guardian.*

Notices to Correspondents.

COW AFTER CALVING: *Subscriber.* The drop after calving is a not uncommon paralytic attack, generally fatal; commonly treated by the application of blistering ointment over the lumbar vertebræ.

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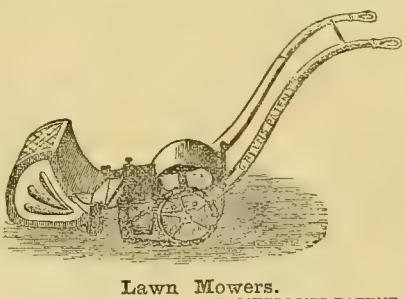
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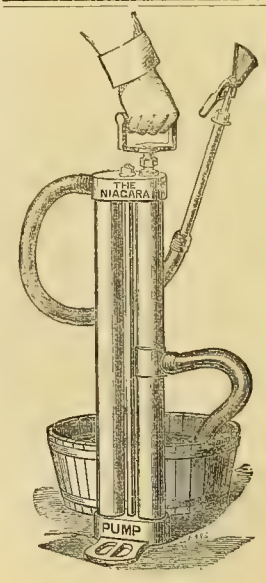
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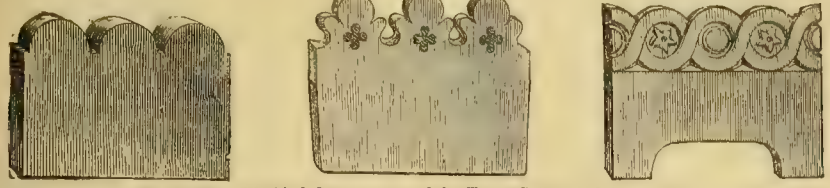
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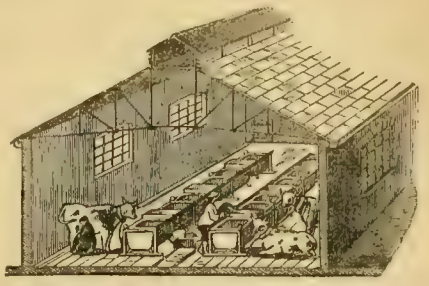
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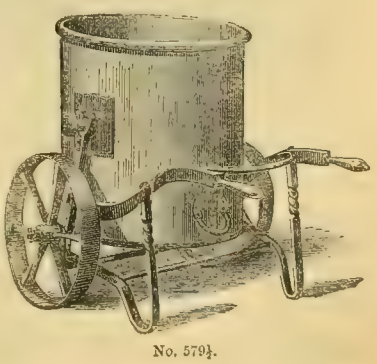
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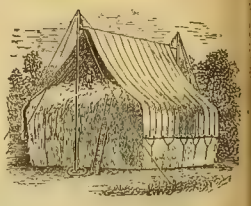
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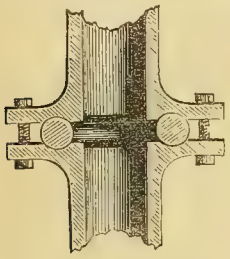
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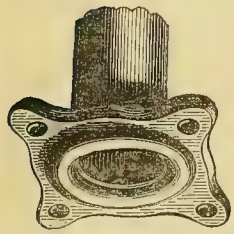
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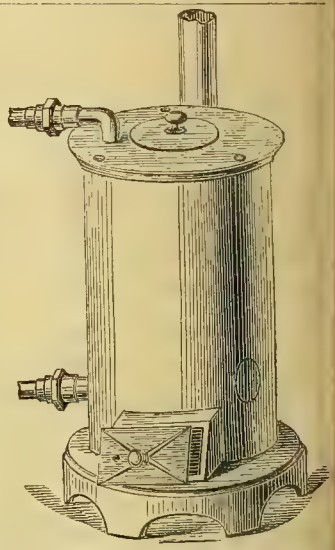
PATENT PIPE JOINT.

RIDDELL'S
PATENT SLOW COMBUSTION BOILER.

For WARMING CHURCHES, CONSERVATORIES, HOTHOUSES, SCHOOLS, &c., by the circulation of Hot Water, requires no brick-work setting, saves half the fuel usually consumed, is not liable to get out of repair, is easily regulated, will work from 8 to 20 hours without attention, and is made in sizes capable of heating from 30 to 5000 feet of 4 inch pipe.

Prospectus and Price List free.

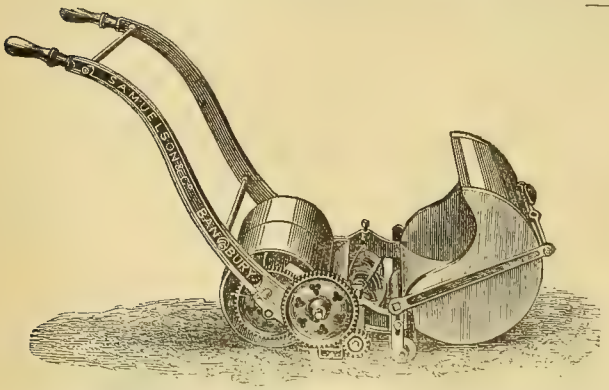
J. HADLEY RIDDELL, PATENTEE, 155, CHEAPSIDE, E.C.



PATENT SLOW COMBUSTION BOILER.

SAMUELSON & CO.'S
IMPROVED LAWN MOWING MACHINES.

EVERY MACHINE WARRANTED.



PRICES.

Delivered Free to any Railway Station in Great Britain.

Cutting 12 inches wide	£4 10 0
Cutting 14 inches wide	5 5 0
Cutting 16 inches wide	6 0 0
Cutting 19 inches wide	6 10 0
Cutting 22 inches wide	7 10 0
Cutting 25 inches wide	12 0 0
Cutting 30 inches wide	15 0 0
Cutting 36 inches wide	18 0 0

Great improvements have been made in these Machines during the last few years, in regard to all those small but important points of superiority which the practical working of a Lawn Mower suggests; while for elegance of appearance, lightness of draft, and efficiency in working they cannot be excelled. They possess the following advantages:—

1st. Motion is given to the Cutting Apparatus by toothed gearing, which experience has proved to be by far the best method of driving.

2d, The whole of the Driving Wheels are on one side of the Machine, a point of great importance in preventing damage to Shrubs and Flowers, when mowing round the edges of beds.

3d, All the smaller working parts of the Machine are made of Malleable Iron, and are not liable to break.

☞ *Illustrated Price Lists, with selections from several Thousand Testimonials, Free by Post on application.*

SAMUELSON AND CO., BRITANNIA WORKS, BANBURY.

LONDON WAREHOUSE: 10, LAURENCE POUNTNEY LANE, E.C.

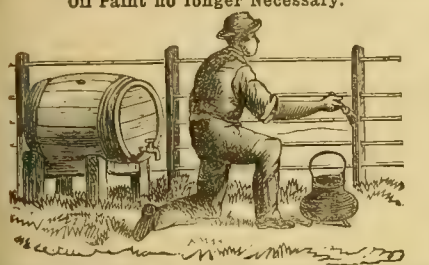
AGENTS:—Messrs. TANGYE BROTHERS AND HOLMAN, 10, LAURENCE POUNTNEY LANE; Messrs. DEANE AND CO., London Bridge; Messrs. DRAY TAYLOR AND CO., London Bridge; Mr. THOMAS BRADFORD, 63, Fleet Street, E.C.; and all respectable Seedsmen and Ironmongers throughout the Kingdom.

CARSON'S ANTI-CORROSION PAINT,
Patronised by the Nobility and Gentry, is extensively used for all kinds of OUT-DOOR WORK, and is proved, after a test of 70 years, to surpass any other Paint. It is especially applicable to Iron, Wood, Stone, Brick, Compo, and is the only Paint that will effectually resist the rays of the sun upon Conservatories, Greenhouses, Frames, &c. Is twice as durable as genuine White Lead, so simple in application that any person can use it.

	Per cwt.
WHITE, LIGHT STONE, BATH, and LIGHT PORTLAND COLOURS	30s.
LEAD, CHOCOLATE, RED, PURPLE, BROWN, and BLACK	26s.
BRIGHT GREEN, DEEP GREEN, and BLUE	42s.

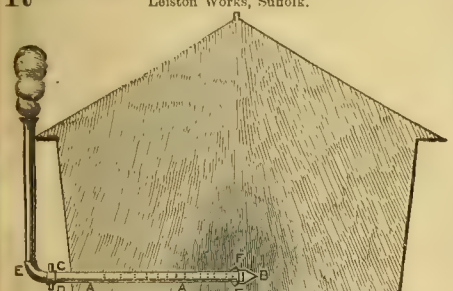
Prepared OIL MIXTURE for the ANTI-CORROSION.
OILS, TURPENTINE, VARNISHES, BRUSHES, &c.
3 cwt. Free to all Stations in England and Wales, and most Ports of Ireland and Scotland. Patterns and Testimonials sent post free.
WALTER CARSON & SONS,
La Belle Sauvage Yard, Ludgate Hill, London, E.C.
CAUTION.—All Casks should bear the Trade Mark. No Agents.

Oil Paint no longer Necessary.



HILL AND SMITH'S PATENT BLACK VARNISH for preserving Iron Work, Wood, or Stone. This Varnish is an excellent substitute for oil paint on all out-door work, and is fully two-thirds cheaper. It may be applied by an ordinary labourer, requires no mixing or thinning, and is used cold. It is used in the grounds at Windsor Castle, Kew Gardens, and at the seats of many hundreds of the nobility and gentry, from whom the most flattering testimonials have been received, which HILL & SMITH will forward on application.
From the Right Hon. Lord GREENOCK, *Wood End, Thirsk*
"Lord Greenock has seen the Patent Black Varnish made by Messrs. HILL & SMITH, applied with success, and has heard it highly recommended by friends who have tested it extensively."
Sold in casks of about 30 gallons each, at 1*s.* 6*d.* per gallon, at the Manufactory, or 1*s.* 8*d.* per gallon paid to any Station in the kingdom.
Apply to HILL & SMITH, Brierly Hill Iron Works, near Dudley, and 22, Cannon Street West, E.C., from whom only it can be obtained.

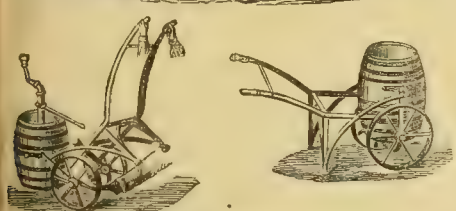
Patent Rick Ventilator, Manufactured by
RICHARD GARRETT AND SONS,
Leiston Works, Suffolk.



The above represents a Section of a Heated Hay Stack, showing the Patent Ventilating Apparatus in operation.
This Apparatus will be found a complete and perfect means of detecting and promptly reducing Heat in Corn and Hay Stacks.
Price £1 11*s.* 6*d.* each.
Full description forwarded on application to RICHARD GARRETT & SONS, Leiston Works, Suffolk (Sole Manufacturers).

W. S. BOULTON'S 36-gallon SWING WATER BARROW. Price 45*s.*
Carriage paid to any Station in England.





The above is very cheap and invaluable for carrying Liquids of all kinds. No Garden, Farm, Stable, or Kitchen Yard should be without one. Two or more Tubs can be had with one Carriage at a small additional cost. A Lad can easily work it; but if required to travel long distances over rough ground a Pony can be attached. The wheels and carriage are wrought iron, and the tub oak. The following, out of many Testimonials, have been received:—
From Lord OTHO FITZGERALD, *West Park, Salisbury.*
"SIR,—You are welcome to make use of my letter recommending your Water Barrow. I find it of great use, and stronger, better lighter, and more serviceable than one I had made in the neighbourhood, the carriage alone of which, without the barrel, cost me £3 10*s.* I unfortunately ordered it before I saw your advertisement—I am, yours obediently, "O. FITZGERALD."
"To Mr. W. S. BOULTON."
From THOS. INGLE, Esq., *M.D., Emsworth, Hants, June* 24, 1866.
"SIR,—The Swing Water Barrow is in every respect a most admirable improvement on all I have hitherto used in my Gardens. All parties who have seen it, Gentlemen as well as Gardeners, have bestowed upon it their unqualified approval, and several said they would order them of you.—Yours truly, "THOS. INGLE, M.D."
"To Mr. W. S. BOULTON."
Rose Lane Iron and Wire Works, Norwich.

Horticultural Glass Warehouse.
THOMAS MILLINGTON AND CO.,
87, Bishopsgate Street Without, London, E.C.
NEW LIST for ORCHARD HOUSE GLASS as supplied to Her Majesty, the Nobility, Gentry, Mr. Rivers, and the leading Horticulturists of the United Kingdom.

ORCHARD HOUSE SIZES.

in.	in.		4ths.	3rds.	2nds.	Best.
20 by 12		15 oz.	14*s.* 3*d.*	15*s.* 6*d.*	18*s.* 6*d.*	20*s.* 0*d.*
20 by 13	Per 100 feet					
20 by 14		21 oz.	19*s.* 6*d.*	22*s.* 2*d.*	25*s.* 6*d.*	26*s.* 6*d.*
20 by 15						
20 by 16						

SMALL SHEET SQUARES, 15 oz., per 100 feet.

in.	in.	in.	in.	in.	in.	4ths.	3ds.	2nds.	Best.
6 by 4	7 by 5	8 by 6	9 by 7			12*s.* 3*d.*	13*s.* 3*d.*	16*s.* 0*d.*	18*s.* 0*d.*
6½ by 4½	7½ by 5½	8½ by 6½	9½ by 7½						

Per 100 feet.

10 by 8	12 by 9	12½ by 10½	14½ by 10½			13*s.* 3*d.*	14*s.* 6*d.*	17*s.* 3*d.*	19*s.* 0*d.*
10½ by 8½	12½ by 9½	13 by 10	15 by 10						
11 by 9	13 by 9	13½ by 10½	13 by 11						
11½ by 9½	12 by 10	14 by 10	14 by 11						

LARGE SHEET SQUARES, 15 oz., per 100 feet.

in.	in.	in.	in.	in.	in.	in.	in.	4ths.	3ds.	2nds.	Best
15½ by 10½	14 by 12		22 by 12			22 by 16					
16 by 10	14½ by 12½		17 by 13			24 by 16					
14½ by 11½	15 by 12		23 by 13			20 by 17					
15 by 11	15½ by 12½		18 by 14			22 by 17		14*s.* 3*d.*	15*s.* 6*d.*	18*s.* 6*d.*	20*s.* 0*d.*
15½ by 11½	16 by 12		22 by 14			24 by 17					
16 by 11	16½ by 12½		24 by 14			20 by 18					
21 by 11	17 by 12		22 by 15			22 by 18					
13 by 12	18 by 12		24 by 15			24 by 18					

The above Prices are only for the Sizes stated; if a quantity of any other Size be required, a Special Price will be given.

SHEET GLASS.
In Sheets for Cutting up, averaging from 6 to 9 feet super.

16 oz.		21 oz.	
4ths quality, per 300 feet case,	38*s.*	4ths quality, per 200 feet case,	38*s.*
3ds " "	48*s.*	3ds " "	48*s.*
2ds " "	62*s.*	2ds " "	66*s.*
Best " "	92*s.*	Best " "	90*s.*

SHEET GLASS is made only in the following substances, 15 oz., 21 oz., 26 oz., 32 oz., 36 oz., and 42 oz.
HARTLEY'S IMPROVED ROLLED ROUGH PLATE in 1-8th in., 3-16th in., 1-4th in., and 3-8th in. substances.
BRITISH PLATE GLASS for Windows and Silvered for Looking Glasses, Coloured Glass, Glass Shades, Striking Glasses, &c., &c.
PAINTS, COLOURS, VARNISHES, &c.
STUCCO PAINT, 24*s.* per cwt. This Paint adheres firmly to the walls, resists the weather, and is free from the glossy appearance of Oil Paint, resembling a stone surface, and can be made any required shade. It is mixed with rain or pure river water.
WHITE ZINC PAINT, 36*s.* per cwt. One hundredweight of pure Zinc Paint, with three gallons of Linseed Oil, will cover as much as one hundredweight and a half of White Lead and six gallons of Linseed Oil. Special Dryers for this Paint.
IMPROVED ANTI-CORROSION PAINT, 28*s.* to 34*s.* per cwt. Anti-corrosion Paint is extensively used for all kinds of work in exposed situations, on Brick, Stone, Compo, Iron, Iron Bridges, Conservatories, Greenhouses, &c., and is easily laid on by any ordinary workman. Prepared Oil for ditto, 4*s.* per gallon.

	Per cwt.—*s.* *d.*		Per gallon.—*s.* *d.*
GENUINE WHITE LEAD	32 0	LINSEED OIL	3 2
SECONDS WHITE LEAD	30 0	BOILED OIL	3 8
GROUND PATENT DRYERS, 3*d.* to 4½*d.* per lb.		TURPENTINE	3 6
" OXFORD OCHRE, 3*d.* to 4½*d.* per lb.		LINSEED OIL PUTTY, 8*s.* to 9*s.* per cwt.	
" RAW UMBER, 4½*d.* to 6*d.* per lb.		Fine OAK VARNISH, 10*s.* to	12 0
" BURNT do., 6*d.* to 9*d.* per lb.		" CARRIAGE do., 12*s.* to	14 0
GREEN PAINT, all shades,	28*s.* to 60 0	" PAPER do. 10*s.* to	12 0
BLACK PAINT,	24*s.* to 36 0	" COPAL	16 0
RED PAINT ..	28*s.* to 36 0	KNOTTING	10 0
		Patent GOLD SIZE ..	10 0
		" BLACK JAPAN ..	12 0
GROUND BRUSHES, DUSTERS, DISTEMPER BRUSHES,	SASH TOOLS.	GLAZIER'S DIAMONDS and TOOLS	
		MILLED LEAD and PIPES	
		OLD LEAD Bought or taken in exchange.	

The above are Net, for Cash, and as such cannot be booked.
Lists of any of the above on application.

Glass for Garden Purposes.
JAMES PHILLIPS AND CO.
beg to submit their REDUCED PRICES as follows:—

PROPAGATING GLASSES.



	Each.—*s.* *d.*		Each.—*s.* *d.*
2 inches in diameter ..	0 3½	12 inches in diameter ..	1 9
3 " " ..	0 4½	13 " " ..	2 0
4 " " ..	0 5½	14 " " ..	2 6
5 " " ..	0 6½	15 " " ..	3 0
6 " " ..	0 8	16 " " ..	3 6
7 " " ..	0 10	17 " " ..	4 0
8 " " ..	1 0	18 " " ..	5 0
9 " " ..	1 2	19 " " ..	6 0
10 " " ..	1 4	20 " " ..	7 0
11 " " ..	1 6		

HYACINTH and FLOWER DISHES.
6 inches diameter .. .. 1*s.* 0*d.* | 9 inches diameter 1 0
12 inches diameter .. .. 2*s.* 6*d.*
Hyacinth Dishes are intended to contain a number of Roots Bedded in and covered with Moss, instead of the common Hyacinth Glass.
LACTOMETERS, for Testing the Quality of Milk.
Four Tubes .. .. 4*s.* 6*d.* | Six Tubes .. .. 6*s.* 6*d.*
With Stands complete.

HAND GLASSES, WITH OPEN TOPS.



	Each.—*s.* *d.*		Each.—*s.* *d.*
12 inches	6 6	18 inches	9 6
14 "	7 6	20 "	10 6
16 "	8 6	22 "	11 6
		24 "	12 6

Painted and Glazed with 16-oz. Sheet Glass.
London Agents for HARTLEY'S IMPROVED PATENT ROUGH PLATE.
LINSEED OIL, Genuine WHITE LEAD, CARSON'S PAINTS, PAINTS of various colours, ground ready for use.
SHEET and ROUGH PLATE GLASS, SLATES of all sizes, BRITISH PLATE, PATENT PLATE, ROLLED PLATE, CROWN, SHEET, HORTICULTURAL, ORNAMENTAL, COLOURED, and every description of GLASS, of the best Manufacture, at the lowest terms. Lists of prices and estimates forwarded on application to JAMES PHILLIPS & Co., 180, Bishopsgate Street Without, E.C.

WHITE and SOUND TEETH are indispensable to personal attraction, and to health and longevity, by the proper mastication of food. ROWLANDS' ODONTO, or Pearl Dentifrice, preserves and imparts a pearl-like whiteness to the Teeth, eradicates Tartar and spots of incipient decay, strengthens the Gums, and gives a pleasing fragrance to the Breath. Its truly efficient and fragrant aromatic properties have obtained its selection by her Majesty the Queen, and the Sovereigns and Nobility throughout Europe. Price, 2*s.* 9*d.* per box. Sold by Chemists and Perfumers.
*** Ask for "ROWLANDS' Odonto."

SHANKS' NEW PATENT LAWN MOWERS.



HAND MACHINE.
These are the only Machines in daily use in all the Royal Gardens.
These are the only Machines that will mow properly when the Grass is wet.
These are the only Machines that will last for years without requiring repair.
Illustrated Circulars with full particulars free on application.
A. SHANKS & SON, Dens Iron Works, Arbroath.
London Office and Show Rooms—27, Leadenhall Street, E.C.
☞ 27, Leadenhall Street, is the only place in London where intending purchasers of Lawn Mowers can choose from a stock of 150 to 200 Machines. All sizes kept there whether for Horse, Pony, or Hand-power.

TO BE SOLD, several CANVAS COVERINGS, in various sizes, suitable for Agricultural and Horticultural Shows, and for Rick Covers or Marquees, &c. Can be seen at Mr. MANNING'S, 251, High Holborn, London.
Also for Immediate Sale, and may be seen now in use at the Southern Counties Agricultural Show-yard, Hove, Brighton, about 500 IRON CATTLE HURDLES.
The Entrances and Portable Offices, including Turnstile Registers, Exits, Secretary's Office, &c.
For particulars, apply to BISHOP & Co., Show Yard, Hove; or Mr. MANNING, 251, High Holborn.

The Gardener's Watch.
PATENT LEVER WATCH in Engine-turned Silver Case, with all the latest improvements, jewelled, seconds hand, strong, and calculated for hard wear, 4*l.* 14*s.* 6*d.*
The same Watch in Hunting Cases, 5*l.* 5*s.*
STRONG SILVER ALBERT and GUARD CHAINS.
The above being Manufactured on the Premises, are with confidence recommended and warranted for correct performance.
Illustrated Pamphlet, and all particulars gratis, on application to GOLDSMITHS' ALLIANCE (LIMITED), 11 & 12, Cornhill, London, E.C.

Sauce.—Lea & Perrins
WORCESTERSHIRE SAUCE.—This delicious Condiment, pronounced by Connoisseurs "THE ONLY GOOD SAUCE," is prepared solely by LEA & PERRINS.
The public are respectfully cautioned against worthless imitations, and should see that LEA & PERRINS' Names are on Wrapper, Label, Bottle, and Stopper. ASK FOR LEA & PERRINS' SAUCE.
*** Sold Wholesale and for Export, by the Proprietors, Worcester; Messrs. CROSSE & BLACKWELL; Messrs. BARCLAY & SONS, London, &c., and by Grocers and Oilmen universally.

WHITE TURKEY COCK and HEN to be SOLD, of pure first-class breed, not two years old, for £3.
Apply to L. L., Bridge End Home, Ockham, Woking Station.

Farm Poultry
GREY DORKING FOWLS, of purest breed, in any numbers.
Imported TOULOUSE GEESE, the largest and most productive breed known.
Improved NORFOLK TURKEYS, large, hardy, and good breeders.
AYLESBURY and ROUEN DUCKS.
Imported BELGIAN HARE RABBITS, for size and early maturity.
BRAHMA-POUTRA, CREVECŒUR, and LA FLÈCHE FOWLS, for constant layers.
Priced Lists and Estimates on application.
JOHN BAILY & SON, 113, Mount Street, London, W.

JOHN GIBSON, JUN., begs to announce that he is prepared to Furnish PLANS and ESTIMATES for LAYING OUT GROUND attached to Mansions and Villa or other Residences, or for the FORMATION of PUBLIC PARKS or GARDENS and to carry out the same by Contract or otherwise.
Address Mr. JOHN GIBSON, jun., Surrey Lane, Battersea, S.W.

GEORGE F. MORRIS (of the Firm of PROTHEROE & MORRIS) undertakes SALES and VALUATIONS of FREEHOLD LANDED ESTATES, Leasehold and Reversionary Property of every description, Farming and Market Garden Produce, Household Furniture, Stock in Trade, &c.
Auction and Estate Agency Office, The Limes, Leytonstone, Essex.

To Market Gardeners and Dairy Farmers.
MR. SEARLE, AUCTIONEER and LAND AGENT, 2, Bond Court, Walbrook, London, E.C., solicits instructions from Market Gardeners and others, who require VALUATIONS or SALES by AUCTION of Land, Timber, Growing Crops, Cattle, Sheep, and other Farming Stock. Railway and similar compensation claims adjusted.

FOR DISPOSAL, a First-class NURSERY and SEED BUSINESS; or the present Proprietor would accept of a WORKING PARTNER with a Capital of not less than £1500.
Apply by letter to E., Messrs. Hurst & Son, 6, Leadenhall Street, London, E.C.

To Florists, &c.
TO BE SOLD, the LEASE of a FLORIST'S SHOP and SALE BUSINESS. Large and handsome Glasshouse. In one of the best and most commanding positions in the West-end of London. To a grower would be invaluable.
Messrs. PROTHEROE & MORRIS, Horticultural Agents, Leytonstone.

To Nurserymen and Market Gardeners.
TO BE LET, from Michaelmas next, a COMMODIOUS HOUSE, called POOL HOUSE, with Outbuildings, Yards, Garden, and Paddock, a Labourer's Cottage, situate on the west bank of the River Severn, near to Upton-on-Severn, and having the Turnpike Road from that Town to Malvern passing close to Pool House and through the Estate. The Arable Land is in 5 pieces, and contains 41*a.* 1*r.* 7*p.*, and is a fertile and deep loam on a bed of gravel, and well suited for conversion into Nursery and Garden Land. There is also a piece of good Meadow Land containing 14 acres, which may be had if required.
Pool House is within 1 mile of the Upton-upon-Severn Station on the Tewkesbury and Malvern Railway, and 6 miles from the Town of Malvern.
For further particulars apply to Messrs. J. CASTREE & SON, Land Agents, College Green, Gloucester.

Sales by Auction.

Clapham Common.

A number of very fine FRUIT TREES, of best varieties, in full bearing, and many of which are First Prize plants.
MR. STEVENS is instructed to SELL by AUCTION, on the Premises of C. T. Lucas, Esq., "The Sister House," Clapham Common, on SATURDAY, June 29, at 12 for 1 o'Clock precisely, about 120 Choice FRUIT TREES of superior description in Pots, and now in full bearing, and amongst which are known varieties of Peaches, Apricots, Nectarines, Plums, Pears, &c.
On view three days prior to Sale, and Catalogues had of Mr. VATICAN, the Gardener, on the Premises; and of the Auctioneer, Mr. JAMES STEVENS, Clapham Common.

GREEN'S PATENT SILENS MESSOR,

OR

NOISELESS LAWN MOWING, ROLLING, and COLLECTING MACHINES.

PATRONIZED BY

HER MOST GRACIOUS MAJESTY THE QUEEN
ON TWENTY-NINE DIFFERENT OCCASIONS.
H.R.H. THE PRINCE OF WALES.
THE KING OF THE BELGIANS.
THE EMPEROR OF THE FRENCH.
THE EMPEROR OF RUSSIA.

AND MOST OF THE NOBILITY, CLERGY, AND GENTRY IN THE UNITED KINGDOM.

THOMAS GREEN AND SON, in introducing their PATENT LAWN MOWERS for the present season, beg to state that they have no Novelties to report. The fact is, that after the severe tests their Machines have been subjected to since they added their latest improvements, they have been found to meet all the requirements for which they are intended, viz.:—the KEEPING of LAWNS in the HIGHEST STATE of PERFECTION.

They are the simplest in construction, least liable to get out of order, and can be worked with far greater ease than any other Lawn Mower extant; and in proof of their superiority, 39,000 have been sold since the year 1856.

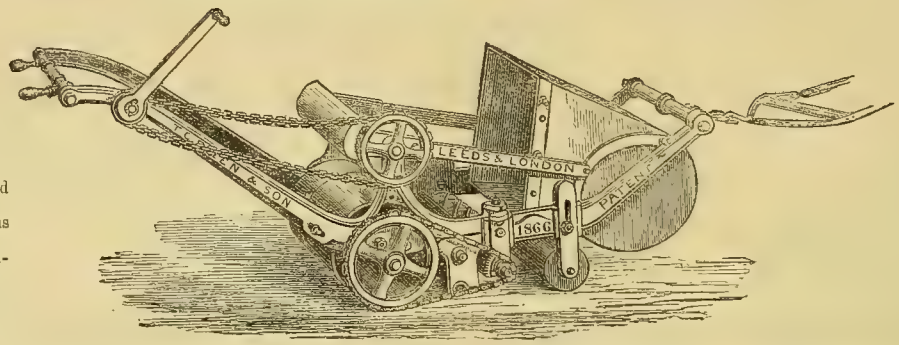
THEY ARE THE ONLY MACHINES IN CONSTANT USE AT

THE ROYAL HORTICULTURAL SOCIETY'S GARDENS, SOUTH KENSINGTON
THE ROYAL BOTANIC GARDENS, REGENT'S PARK
THE CRYSTAL PALACE COMPANY'S GARDENS, SYDENHAM
BUCKINGHAM PALACE GARDENS
MARLBOROUGH HOUSE
THE HYDE PARK GARDENS
THE WINTER PALACE GARDENS, DUBLIN
THE DUBLIN BOTANIC GARDENS
THE LIVERPOOL BOTANIC GARDENS
THE LEEDS ROYAL PARK
THE HULL BOTANIC GARDENS
THE BOTANIC GARDENS, BRUSSELS
THE SUNDERLAND PARK
THE PRESTON PARK

AND IN MOST OF THE PRINCIPAL PARKS, SQUARES, ETC., IN THE UNITED KINGDOM.

HORSE, PONY, AND DONKEY MACHINE.

GREEN'S
PATENT
LAWN MOWERS
have proved to be the best, and carried off every Prize that has been given in all cases of competition.



T. GREEN & SON
warrant every Machine to give entire satisfaction, and if not approved of can be returned unconditionally.

PRICES of HORSE, PONY, and DONKEY MACHINES, including Patent Self-delivery Box; Cross Stay complete; suitable for attaching to ordinary Chain Traces or Gig Harness.

PONY AND DONKEY MACHINES.

To Cut	26	inches	.. ..	..	£13 0 0	*Leather Boots for Donkey*, 18s. *Leather Boots for Pony*, 22s.
,,	28	,, ..	.. ..	..	15 0 0	
,,	30	,, ..	.. ..	..	17 0 0	

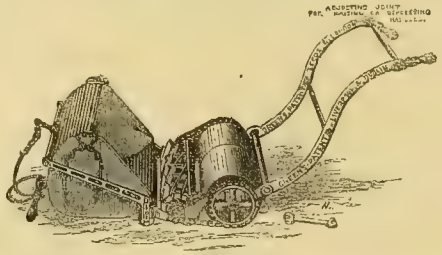
HORSE MACHINES.

To Cut	30	inches	.. ..	..	£21 0 0	*Leather Boots for Horse*, 26s.
,,	36	,, ..	.. ..	..	24 0 0	
,,	42	,, ..	.. ..	..	27 0 0	
,,	48	,, ..	.. ..	..	30 0 0	

Both the Horse, Pony, Donkey, and Hand Machines possess (over all other Makers) the advantage of Self-sharpening. The cutters being steel on each side, when they become dull or blunt by running one way round the cylinder, can be reversed again and again, bringing the opposite edge of the cutter against the bottom blade, when the Machine will cut equal to new. Arrangements are made that the cylinder can be reversed, by any inexperienced person, in two or three minutes.

HAND MACHINES.

To Cut	10	inches ..	£3 10 0	*Suitable for a Lady*	
,,	12	,, ..	4 10 0	,,	,,
,,	14	,, ..	5 10 0	*Suitable for One Person*	
,,	16	,, ..	6 10 0	,,	,,



To Cut	18	inches ..	£7 10 0	*Suitable for One Person*	
,,	20	,, ..	8 0 0	*Suitable for Two Persons*	
,,	22	,, ..	8 10 0	,,	,,
,,	24	,, ..	9 0 0	,,	,,

Packing Cases are charged at the following low rates, viz.:—for the 10 and 12-inch Machine, 3s.; 14 and 16-inch, 4s.; 18 and 20-inch, 5s.; 22 and 24-inch, 6s. Parties providing themselves with Lawn Mowers are recommended to purchase the cases in which to stow them away, when not in use, to prevent them from getting damaged; if returned, two-thirds will be allowed for them.

The above MACHINES are made from the best materials, and of superior workmanship; are delivered Carriage Free to all the principal Railway Stations and Shipping Ports in England.

Every Machine is warranted to give entire satisfaction, and if not approved of, can be returned unconditionally.

T. G. AND SON have to state that the demand for their LAWN MOWERS this season has been unprecedented, which is a proof of the high estimation in which they are held. The 3000 Machines they had in stock at the commencement of the season are now materially reduced, still with their present facilities they are prepared to execute Orders on the day they are received.

Having taken very extensive Premises in London, we are in a position to do all kinds of Repairs there, as well as at our Leeds Establishment.

THOMAS GREEN AND SON, SMITHFIELD IRON WORKS, LEEDS;

and 64 and 55, BLACKFRIARS ROAD, LONDON, S.

Editorial Communications should be addressed to "The Editor;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
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THE GARDENERS' CHRONICLE
AND
AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.

No. 26.—1867.] SATURDAY, JUNE 29. {Price Fivepence. {Stamped Edition, 6d.

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ROYAL HORTICULTURAL SOCIETY, SOUTH KENSINGTON, W.
The GREAT ROSE SHOW will be HELD on TUESDAY NEXT, July 2. Band of the Scots Fusilier Guards from 4 o'Clock. Admission by Tickets purchased before the 2d—Fellows' Friends, 3s. 6d.; Public, 5s.; or on the day, 7s. 6d.

THE GREAT ROSE SHOW.—Tickets can be bought at MITCHELL's; LACON's; OLLIVIER's, Bond Street; WESTERTON's, Knightsbridge; MELLISHIP's, Westbourne Grove; or KEITH & PROWSE's, Cheapside.

ROYAL HORTICULTURAL SOCIETY, SOUTH KENSINGTON, W.
NOTICE.—In consequence of the Great Show at Bury St. Edmunds on the 16th, there will NOT be the usual MEETING at South Kensington on that day.

ROYAL HORTICULTURAL SOCIETY.
FIRST VISIT TO THE PROVINCES.
The GRAND EXHIBITION of PLANTS and FRUITS will OPEN on TUESDAY, July 16, in the VINE YARD, BURY ST. EDMUND'S, in close proximity to the Royal Agricultural Show. Nearly One Thousand Pounds Prizes in Money and Cups will be offered for Competition. Tickets are now ready, and can be had either in London or Bury; for the 1st day (if purchased on or before the 15th), 5s.; 2d day, 2s. 6d.; or to admit for the four days, not transferable, 7s. 6d. each; or by Payment at the Gates—1st day, 7s. 6d.; 2d day, 3s. 6d.; 3d and 4th days, 1s. each. Band of the Royal Horse Guards daily from 2 to 6.
☞ NEW ROSES will date from the time they are sent out in England.

ROYAL HORTICULTURAL SOCIETY.
BURY ST. EDMUND'S SHOW.
NOTICE of ADDITIONAL SPECIAL PRIZES.—In addition to the Society's Silver Gilt Cup, value £25, a Second Prize of £15, and a Third Prize of £10, will be given.

ROYAL BOTANIC SOCIETY'S GARDENS, REGENT'S PARK.—WEDNESDAY NEXT, July 3, LAST EXHIBITION this Season of PLANTS, FLOWERS, and FRUIT. Tickets to be obtained at the Gardens; and of the Society's Clerk; Austin's Ticket Office, St. James's Hall; by Vouchers from Fellows of the Society, price 5s., or on the day of Exhibition, 7s. 6d. each. Gates open at 2 o'Clock. Military Bands from 2 to 7 o'Clock.

BIRMINGHAM ROSE SHOW, JULY 4 and 5.—For Prize Lists, apply to Mr. A. FORREST, Secretary, Cherry Street, Birmingham. Entries Close June 29.

WEST of ENGLAND ROSE SHOW, to be held at the SHIRE HALL, HEREFORD, JULY 9. Over 100 Guineas distributed in Prizes. Exhibitors are particularly requested to notice that ENTRIES CLOSE JUNE 29.
All Communications to be addressed to Rev. C. H. BULMER, Honorary Secretary, Credenhill Rectory, near Hereford.

LEICESTERSHIRE FLORAL and HORTICULTURAL SOCIETY.
President—Right Hon. EARL HOWE.
The GREAT SUMMER ROSE SHOW of this Society will be held on the Leicester Race Course, on TUESDAY and WEDNESDAY, July 9 and 10. A SHOW of BRITISH and FOREIGN BIRDS and PIGEONS will be held in conjunction with the above Show. For Schedules and further particulars apply to
Market Place, Leicester. WILLIAM PENN COX, Secretary.

RUGBY GREAT ROSE SHOW, July 12.
LAST DAY for ENTRIES, July 8.
£130 in Prizes; £10 Cup.
Rugby, June 29. J. S. SAVAGE, Hon. Secretary.

Royal Botanic Gardens, Regent's Park.
JOHN WATERER'S display of Hardy, Scarlet, and other RHODODENDRONS (the only one in London) is NOW in FINE BLOOM at the above Gardens, and will continue in great perfection throughout the month of June.
☞ The Scarlet and White RHODODENDRON clumps, also the large Single Plants, which bloomed and were so much admired at Rotten Row last year, were supplied by
JOHN WATERER, American Nursery, Bagshot, Surrey.

Orchard-house Trees Fruiting in Pots.
PEACHES, NECTARINES, APRICOTS, CHERRIES, PLUMS, PEARS, APPLES, VINES, and FIGS.
RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

Vines, Extra Strong from Eyes.
JOHN KELLETT begs to announce that he has a large and fine stock of all the leading sorts fit for immediate Planting. Also all the best varieties of ROSES, in Pots.
Wellington Nursery, Heaton Chapel; and Green Lane Nurseries, Heaton Norris, Stockport.

LILIUM AURATUM.—Large Consignment just received, 2s. 6d., 3s. 6d., 5s. 6d., and 7s. 6d. per Root. Extra large selected Bulbs, 10s. 6d., 12s. 6d., 15s., & 21s.
BARR & SUGDEN, Seed, Bulb, and Plant Merchants, 12, King Street, Covent Garden, W.C.

Foliage Plants, Edging Plants, &c.
JAMES HOLDER can supply the following at 12s. per 100, or 7s. for 50 Plants, hamper included:—COLEUS, IRESINE, CERASTIUM, LOBELIA (three varieties), PERILLA, KONIGA, TROPÆOLUM, HELIOTROPE, and CUPHEA.
Crown Nursery, Reading.

Roses.—Lea Bridge Road Nurseries, Leyton, N.E.
JOHN FRASER respectfully invites an inspection of his COLLECTION of ROSES, which he begs to announce are NOW IN BLOOM. The Collection contains numerous New and fine varieties. The Nurseries are about five miles from London, and are easily reached by Train on the Great Eastern Railway, to Lea Bridge Station.

At the Old Nurseries, Cheshunt,
PAUL AND SON'S ROSES are NOW FINELY IN BLOOM. The Show is finer than for many years past.
Frequent trains to Cheshunt, one mile from the Nurseries.

Roses in Bloom.
WM. PAUL'S ROSES are NOW IN FULL BLOOM. Inspection respectfully invited. Trains almost hourly from Shoreditch to Waltham Station, Great Eastern Railway.
PAUL's Nurseries, Waltham Cross, N.

Woodlands Nursery, Maresfield, near Uckfield, Sussex.
THE COLLECTION of ROSES at Woodlands, extending over an area of several acres of land, is NOW COMING INTO FINE BLOOM.
WM. WOOD & SON.

Roses.
JOHN CRANSTON has the pleasure to announce that his ROSES ARE NOW IN FULL BLOOM, and that the whole of his stock is in the finest condition possible.
The severe frosts (which proved so destructive in many parts of England throughout last winter) not having visited this locality, he is happy to say that his Roses, Conifers, and other Trees, escaped entirely unharmed.
Nurseries, King's Acre, near Hereford.

Roses in Bloom.
THOMAS WARNER begs to state that his COLLECTION of the above, including most of the new and fine varieties, is NOW IN BLOOM. An inspection is invited. They are seen to the greatest advantage in the morning, or from 6 to 8 o'Clock in the evening.
The general NURSERY STOCK is regularly and frequently transplanted, and affords a most extensive choice to persons contemplating Planting.—The Nurseries, Leicester Abbey.

NEW ROSES for 1867.—Strong Plants of all the best NEW ROSES now ready.
DESCRIPTIVE LIST, with prices, on application.
JOHN CRANSTON, King's Acre Nurseries, near Hereford.

CULTURAL DIRECTIONS for the ROSE. Second Edition. By JOHN CRANSTON, King's Acre Nurseries near Hereford. Free by post from the Author for 20 stamps.

Roses. Roses.
ROSES, on own roots and in pots, grown on now, will flower indoors next spring, viz.:—
6 CHOICE TEAS | 3 CHOICE NOISETTES | 2 CHOICE CHINAS
6 " H.P.s | 3 " BOURBONS |
The Collection of 20 distinct and first-class sorts for 20s.
Post-office Orders on Castle Hedingham.
DILLISTONE & WOODTHORPE, Munro Nursery, Sible Hedingham, Essex.

New Roses of 1867.
JOHN HARRISON begs to inform his Friends in the Trade that he can now supply fine Plants of all the best new ROSES at 18s. per dozen, taking the full collection; also fine extra strong Plants of MARECHAL NIEL and ISABELLA SPRUNT, at 2s. 6d. each; smaller Plants, 18s. per dozen, or £7 per 100.
LIST of the NEW ROSES can be had on application.
North of England Rose Nursery, Darlington.

SPLENDID NEW ROSE, 1867.—COMTESSE JAUCOURT (Hybrid Perpetual) is not only the finest New Rose of this season, but it excels anything that has been introduced for several years. The flowers are large and very full; of exquisite form, imbricated, and expand perfectly. Colour, superb fleshy rose, and very distinct; habit vigorous.
JOHN & CHARLES LEE are now prepared to send out strong Plants of this fine variety, at 7s. 6d. each. They also offer other fine varieties of this season at 3s. 6d. to 5s. each.
Royal Vineyard Nursery and Seed Establishment, Hammersmith, London, W.

Novelties.
WM. PAUL (Son and Successor to the late A. PAUL) respectfully solicits Orders for the NEW and FIRST-CLASS ROSES and BEDDING GERANIUMS, &c., advertised at length in this Paper in May last.
PAUL's Nurseries, Waltham Cross, London, N.

MRS. POLLOCK GERANIUMS, 7s. and 9s. per doz.; VERBENAS, GERANIUMS, CALCEOLARIAS, FUCHSIAS, LOBELIAS, &c., £1 per 100; 5s for 10s. 6d.
DESCRIPTIVE PRICED CATALOGUE free on application.
W. HOOPER, New Wandsworth, S.W.

New Zealand Nursery, St. Alban's, Herts.
INTENDING PURCHASERS of TRICOLOR PELARGONIUMS will do well to see J. WATSON's beautiful Tricolors MISS WATSON and MRS. DIX, previous to making their purchases. For fine foliage, excellent constitution, free growth, and brilliancy of colouring they are unrivalled. They have received two first-class Certificates. Plants of Miss Watson in August, £2 2s. each; Mrs. Dix in May, 1868, 31s. 6d. each.

SUPERB VARIEGATED GERANIUMS.

BEAUTY of OULTON	GENERAL LONGSTREET
PRINCESS ALEXANDRA	ITALIA UNITA
BICOLOR SPLENDENS	MRS. LONGFIELD
GOLD PHEASANT	YELLOW BELT
GLOWWORM	MRS. BENYON
LUNA	SILVER STAR

Strong plants of the above set, 15s. Package included.
CASBON & SON, Gravel Walk Nursery, Peterborough.

Retinospora filifera.
JOHN STANDISH is the holder of the stock of the above most distinct and beautiful weeping CONIFERA. It is of a pale glaucous green, with slender thread-like branches a foot long, which hang in the most graceful manner, and altogether the most distinct weeping plant ever offered to the Public. It is also perfectly hardy. Strong Plants, now ready, 31s. 6d. each.
Royal Nursery, Ascot.

Lomaria Gibba, &c.
A. VAN GEERT, NURSERYMAN, Ghent, Belgium, begs to offer fine Plants of this beautiful and decorative Fern, LOMARIA GIBBA, at 10s. per dozen, or 50s. per hundred; also fine Plants of LARIX KÆMPFERII at 7s. 6d. each.
CATALOGUES (published in English) may be obtained on application to his Agents in London, Messrs. R. SILBERRAD & SON, 5, Harp Lane, Tower Street, E.C.

Calceolaria, Cineraria, Primula fimbriata.
SUTTON AND SONS can supply NEW SEED of the above, saved from choicest flowers, in packets, 1s., 2s. 6d., and 5s. each, post free.
Royal Berks Seed Establishment, Reading.

DOBSON'S STRAIN of PRIZE CALCEOLARIA, CINERARIA, and PRIMULA, the finest in Cultivation.

☞ **For Present Sowing.**
DOBSON'S INTERNATIONAL, ROYAL HORTICULTURAL, ROYAL BOTANIC, CRYSTAL PALACE, and KINGSTON PRIZE and UNEQUALLED HYBRIDISED CALCEOLARIA now ready, in Sealed Packets, with full Directions for Sowing and Growing, 1s. 6d., 2s. 6d., 3s. 6d., and 5s.
DOBSON & SONS, Seedsmen, Isleworth, London, W.

Prize Cineraria Seed.
DOBSON'S UNEQUALLED STRAIN, which has taken 50 First Prizes in six years, is now ready for sending out. Fine new seed, in 1s., 2s. 6d., and 5s. packets.
DOBSON & SONS, Seedsmen, Isleworth, London, W.

Extra Fine Fringed Primulas.
DOBSON'S CELEBRATED STRAIN, that has stood a ten years' test, is now ready for sending out in 1s., 2s. 6d., and 5s. packets. The quality may be depended upon.
DOBSON & SONS, Seedsmen, Isleworth, London, W.

WILLIAMS' SUPERB STRAIN of PRIMULA. See large Advertisement.

PRIMULA SINENSIS FIMBRIATA.—A most superb strain, and cannot be surpassed, 6 varieties, mixed, 1s. 6d. & 2s. 6d. per packet. CALCEOLARIA and CINERARIA, extra, 1s. & 2s. 6d.
J. SCOTT, The Seed Stores, Yeovil, Somerset.

Choice Seeds.
WM. CUTBUSH AND SON strongly recommend the following:—
PRIMULA SINENSIS FIMBRIATA, of the finest possible strain, Red, White, or Mixed, 2s. 6d., 3s., and 5s. per packet.
CALCEOLARIA, saved from James' choice strain, very fine, 2s. 6d., 3s. 6d., and 5s. per packet.
CINERARIA, from named flowers, 2s. 6d., 3s. 6d., and 5s. per packet.
For other Choice Seeds see CATALOGUE, post free.
Highgate Nurseries, London, N.

Lilium auratum.
CHARLES TURNER has strong Plants in Flower and in Bud, which he offers from 3s. 6d. to 15s.
The Royal Nurseries, Slough.

CENTAUREA CANDIDISSIMA.
Wanted, 2½ dozen of the above.—Price, &c., to
WOOD & INGRAM, Huntingdon.

HUSSEY AND SON beg to offer LOBELIAS, sorts, from Cuttings; KONIGA VARIEGATA, TOM THUMB, and MINIMUM GERANIUMS, at 1s. 9d. per dozen; BIJOU, SHOTTESHAM PET, and GOLDEN CHAIN GERANIUMS, at 2s. per doz.
Mile End Nursery, Eaton, Norwich.

FERNS.—Cultivators and those interested in this beautiful class of Plants, are recommended to obtain "HOOPER and CO.'S CATALOGUE" of every estimable species and variety, British and Exotic. Post free for two stamps.
HOOPER & Co., Covent Garden, London, W.C.

DEVONIAN FERNS.—Twenty varieties of Native Ferns will be forwarded carriage paid to the Nine Elms Station, London, or any Intermediate Goods Station on the London and South-Western Railway, on the receipt of a Post-office Order for 12s., payable to THOMAS CARR, Winkleigh, North Devon.

GLADIOLI BULBS for Summer, Autumn, and Winter Flowering, 2s. 6d., 3s. 6d., 5s. 6d., 7s. 6d., 9s., and 12s. per dozen. 10s. 6d., 15s., 21s., 25s. to 100s. per 100.
BARR & SUGDEN, Seed, Bulb, and Plant Merchants, 12, King Street Covent Garden, W.C.

British Fern Catalogue.
ROBERT SIM can now send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his NEW and PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.
Foot's Cray Nursery, S.E., a mile from Sidcup Station of New North Kent Line of South Eastern Railway.

EVERY GARDEN REQUISITE kept in Stock at CARTER'S New Seed Warehouse, 237 & 238, High Holborn, London.

Genuine Garden and Agricultural Seeds.
JAMES CARTER AND CO.,
SEED FARMERS, MERCHANTS, and NURSERYMEN,
237 & 238, High Holborn, London, W.C.

Agricultural and Garden Seeds.
H. AND F. SHARPE'S WHOLESALE SPRING PRICED LIST of the above Seeds of 1866 growth is now ready and may be had on application.
Seed Growing Establishment, Wisbech.

Garden and Farm Seeds direct from the Growers.
CHARLES SHARPE AND CO. beg to inform the Trade that their WHOLESALE SEED LIST is now ready, and will be forwarded post free on application.
Seed Warehouse, Sleaford.

RAYNBIRD, CALDECOTT, BAWTREE, DOWLING, AND COMPANY, Limited.
CORN, SEED, MANURE, AND OILCAKE MERCHANTS,
Address, 89, Seed Market, Mark Lane, E.C.; or Basingstoke.
Samples and Prices post free on application. Prize Medals, 1851, for Wheat; 1862, for "Excellent Seed Corn and Seeds."

Improvement of Grass Lands, at from 5s. to 10s. per acre.
SUTTON'S RENOVATING MIXTURE should be Sown after the Hay is carried. 6 to 12lb. per acre.
SUTTON & SONS, Seed Growers, Reading.

The Best Cabbage for Spring Use is
SUTTON'S IMPERIAL, which should be Sown in June and July. Price 8d. per oz., Post free. Cheaper by the pound.
SUTTON & SONS, Seed Growers, Reading.

King of Swedes.
SUTTON AND SONS can supply TRUE SEED of the above excellent SWEDE at 1s. per lb., or cheaper by the bushel. Carriage free.
Royal Berkshire Seed Establishment, Reading.

AUSTIN'S ARTIFICIAL STONE, INVENTED 1826.
The entire Stock of this Manufactory comprises
180 different MODELS of VASES.
70 different MODELS of TAZZAS.
About 200 different FOUNTAINS.
74 STATUES from the Antique, and by Modern Artists, and SMALL FIGURES of CHILDREN.
22 SUN-DIAL PEDESTALS.
GARDEN SEATS.
15 BASKETS, from 12s. to Seven Guineas.
SHELLS, suitable either for WATER or ROCK PLANTS, from 18 inches to 12 feet diameter.
JARDINIÈRES, or large BOWLS for MASSES of FLOWERS.
53 FIGURES of ANIMALS and BIRDS.
ORNAMENTAL RIMS to WATER BASINS.
34 BAPTISMAL FONTS.
CRESTS and other ORNAMENTS for GATE PIERS.
BALUSTRADING, in various styles.
TRIPOD, and other ANTIQUE PEDESTALS.
Manufactured by AUSTIN, SEELEY, & Co., at Nos. 309 to 375, Euston Road, Regent's Park, N.W.

JAMES PHILLIPS AND CO.
beg to submit their prices as follows:—
GLASS for ORCHARD HOUSES,
As supplied by them to Mr. Rivers, to the Royal Horticultural Society, and to most of the Nobility, Clergy, and Gentlemen of the United Kingdom.
Each Box contains 100 feet. The prices only apply to the sizes stated
Squares 20 by 12, 20 by 13, 20 by 14, 20 by 15.

	16 oz. to the foot.	21 oz.
Fourth quality	15s. 0d.	.. 19s. 6d.
Third ditto	17s. 0d.	.. 22s. 6d.
Seconds	18s. 6d.	.. 26s. 0d.
English	20s. 0d.	.. 27s. 0d.

The above prices include the boxes, which are not returnable.
HORTICULTURAL GLASS.
Stock sizes, 16-oz., in 100 feet boxes, boxes included.
These prices only apply to the sizes stated.

				4ths.	3rds.	2nds.
				s. d.	s. d.	s. d.
11 by 9	12 by 9	13 by 9	14 by 9	13 6	15 6	17 0
12 „ 10	13 „ 10	14 „ 10	15 „ 10			
13 „ 11	14 „ 11	..	..			
14 „ 12	15 „ 12	15 „ 11	16 „ 11			
18 „ 12	19 „ 12	16 „ 12	17 „ 12			
16 „ 13	17 „ 13	20 „ 12	..	15 0	17 0	18 6
16 „ 14	20 „ 13	18 „ 13	..			
	17 „ 14	18 „ 14	..	16 to 17 oz. to the foot.		
	20 „ 14					

SMALL SHEET SQUARES.
In 100 feet Boxes.

6 by 4	6½ by 4½	7 by 5	7½ by 5½	.. 12s. 6d.
8 by 6	8½ by 6½	9 by 7	9½ by 7½	
		10 by 8	10½ by 8½	.. 13s. 6d.

Boxes 2s. each, returnable at full price.
London Agents for HARTLEY'S IMPROVED PATENT ROUGH PLATE.
LINSEED OIL, Genuine WHITE LEAD, CARSON'S PAINTS, PAINTS of various colours, ground ready for use.
SHEET and ROUGH PLATE GLASS, SLATES of all sizes, BRITISH PLATE, PATENT PLATE, ROLLED PLATE, CROWN, SHEET, HORTICULTURAL, ORNAMENTAL, COLOURED, and every description of GLASS, of the best Manufacture, at the lowest terms. Lists of prices and estimates forwarded on application to
JAMES PHILLIPS & Co., 180, Bishopsgate Street Without, E.C.

Horticultural Glass Warehouse.
THOMAS MILLINGTON AND CO.,
87, Bishopsgate Street Without, London, E.C.
NEW LIST for ORCHARD HOUSE GLASS as supplied to Her Majesty, the Nobility, Gentry, Mr. Rivers, and the leading Horticulturists of the United Kingdom.
ORCHARD HOUSE SIZES.

in.	in.		4ths.	3rds.	2nds.	Best.
20 by 12						
20 by 13		15 oz.	14s 3d	15s 0d	18s 6d	20s 0d
20 by 14	Per 100 feet					
20 by 15		21 oz.	19s 6d	22s 2d	25s 6d	26s 0d
20 by 16						

SMALL SHEET SQUARES, 15 oz., per 100 feet.

in.	in.	in.	in.	in	in.	in.	in.	4ths.	3ds.	2nds.	Best.
6 by 4	7 by 5	8 by 6	9 by 7					12s 3d	13s 3d	16s 0d	18s 0d
6½ by 4½	7½ by 5½	8½ by 6½	9½ by 7½								

Per 100 feet.

10 by 8	12 by 9	12½ by 10½	14½ by 10½								
10½ by 8½	12½ by 9½	13 by 10	15 by 10					13s 3d	14s 6d	17s 3d	19s 0d
11 by 9	13 by 9	13½ by 10½	13 by 11								
11½ by 9½	12 by 10	14 by 10	14 by 11								

LARGE SHEET SQUARES, 15 oz., per 100 feet.

in.	in.	in.	in.	in.	in.	4ths.	3ds.	2nds.	Best
15½ by 10½	14 by 12	22 by 12	22 by 16						
16 by 10	14½ by 12½	17 by 13	24 by 16						
14½ by 11½	15 by 12	23 by 13	20 by 17						
15 by 11	15½ by 12½	18 by 14	22 by 17						
15½ by 11½	16 by 12	22 by 14	24 by 17	14s 3d	15s 6d	18s 6d	20s 0d		
16 by 11	16½ by 12½	24 by 14	20 by 18						
21 by 11	17 by 12	22 by 15	22 by 18						
13 by 12	18 by 12	24 by 15	24 by 18						

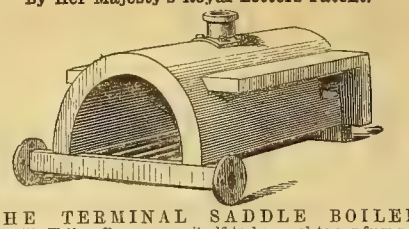
The above Prices are only for the Sizes stated; if a quantity of any other Size be required, a Special Price will be given.
SHEET GLASS.
In Sheets for Cutting up, averaging from 6 to 9 feet super.

15 oz.		21 oz.	
4ths quality, per 300 feet case,	38s.	4ths quality, per 200 feet case,	38s.
3ds „ „	48s.	3ds „ „	48s.
2ds „ „	62s.	2ds „ „	66s.
Best „ „	92s.	Best „ „	96s.

SHEET GLASS is made only in the following substances, 15 oz., 21 oz., 26 oz., 32 oz., 36 oz., and 42 oz.
HARTLEY'S IMPROVED ROLLED ROUGH PLATE in 1-8th in., 3-16th in., 1-4th in., and 3-8th in. substances.
BRITISH PLATE GLASS for Windows and Silvered for Looking Glasses, Coloured Glass, Glass Shades, Striking Glasses, &c., &c.
PAINTS, COLOURS, VARNISHES, &c.
STUCCO PAINT, 24s. per cwt. This Paint adheres firmly to the walls, resists the weather, and is free from the glossy appearance of Oil Paint, resembling a stone surface, and can be made any required shade. It is mixed with rain or pure river water.
WHITE ZINC PAINT, 36s. per cwt. One hundredweight of pure Zinc Paint, with three gallons of Linseed Oil, will cover as much as one hundredweight and a half of White Lead and six gallons of Linseed Oil. Special Dryers for this Paint.
IMPROVED ANTI-CORROSION PAINT, 28s. to 34s. per cwt. Anti-corrosion Paint is extensively used for all kinds of work in exposed situations, on Brick, Stone, Compo, Iron, Iron Bridges, Conservatories, Greenhouses, &c., and is easily laid on by any ordinary workman. Prepared Oil for ditto, 4s. per gallon.

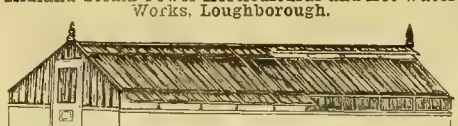
	Per cwt.—s. d.		Per gallon.—s. d.
GENUINE WHITE LEAD	32 0	LINSEED OIL	3 8
SECONDS WHITE LEAD	30 0	BOILED OIL	4 2
GROUND PATENT DRY-		TURPENTINE	3 6
ERS, 3d. to 4½d. per lb.		LINSEED OIL PUTTY,	
„ OXFORD OCHRE, 3d.		8s. to 9s. per cwt.	
to 4½d. per lb.		Fine OAK VARNISH, 10s. to 12	0
„ RAW UMBER, 4½d. to		„ CARRIAGE do., 12s. to 14	0
6d. per lb. [per lb.		„ PAPER do. 10s. to 12	0
„ BURNT do., 6d. to 9d.		COPAL	16 0
GREEN PAINT, all shades,		KNOTTING	10 0
28s. to 60	0	Patent GOLD SIZE ..	10 0
BLACK PAINT, 24s. to 36	0	„ BLACK JAPAN ..	12 0
RED PAINT .. 28s. to 36	0	GLAZIER'S DIAMONDS and TOOLS	
GROUND BRUSHES.		MILLED LEAD and PIPES	
DUSTERS. | SASH TOOLS.		OLD LEAD Bought or taken in	
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The above are Net, for Cash, and as such cannot be booked.
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THE TERMINAL SADDLE BOILER, with Hollow Bars, proves itself to be equal to any form now in use for economy and power; while the Simplicity of its Construction gives it the advantage over all others. See Testimonials.
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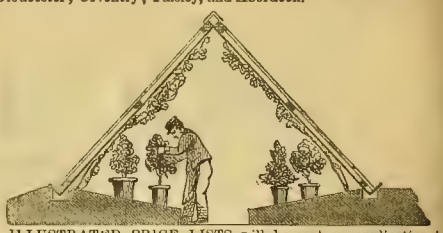
CRANSTON'S PATENT BUILDINGS for HORTICULTURE.
"Dry Glazing without Putty."
"Glass without Laps."
"Ventilation without Moving Lights."
Highly Commended by the Royal Horticultural Society, South Kensington.

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T. G. MESSENGER, Midland Steam Power Horticultural Works, Loughborough, Hot-Water Apparatus and Valve Manufacturer.
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T. G. MESSENGER, Patentee of many important improvements in Buildings and Implements connected with Horticulture, and which meet with unqualified approbation, is prepared to give reference to hundreds of works entrusted to him and pre-eminently answering the purpose for which they were constructed.
Any House Glazed single or double, with or without putty.
The mode adopted by T. G. MESSENGER for Heating and Ventilating Forcing Houses is particularly successful.
Houses are constructed by his Patented Ventilating principle to open the whole of roof and sides as though the glass were entirely removed, at once placing the plants in the external atmosphere.
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Designs and Estimates supplied for all kinds of Horticultural Works, and guaranteed to answer the purpose for which they may be intended.

Greenhouses—Heating Apparatus.
DUBLIN EXHIBITION

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OUR PATENT WROUGHT-IRON PRIZE MEDAL CONSERVATORIES are of the highest order.
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These Houses are now protected by three Royal Letters Patent, and from the complete adjustment of their constructional parts will vie most favourably with Wood Structures in point of cost.
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Iron Works, 2, Winsley Street, Oxford Street, London, W.
SADDLE BOILERS.

20	24	30 inches long.
45s.	65s.	92s. 6d. each.


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2	3	4 inch.
1s. 6d.	2s. 1d.	2s. 9d. per yard.

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HOT WATER APPARATUS

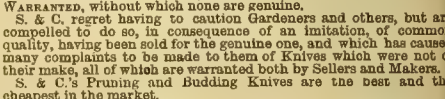


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C. & E. BEG TO DRAW ATTENTION TO THEIR SUPERIOR ARRANGEMENT AND

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ALL KINDS OF GARDEN WIRE WORK FOR RUSTIC ADORNMENTS.

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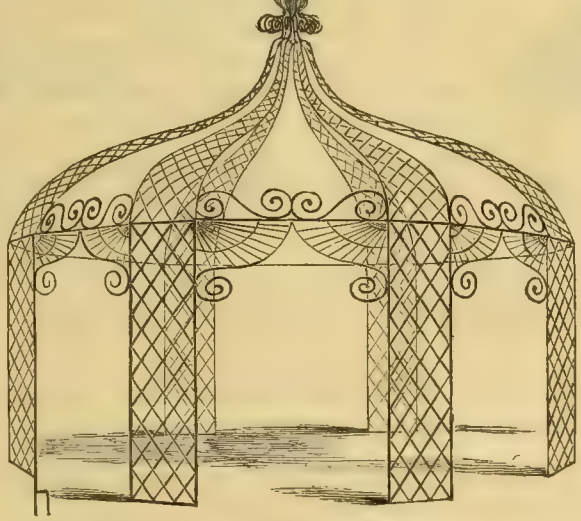
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Price per Gross, £4.

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Size.		Price.	With Pedestal.
High.	Diam.	Each.	
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"FRIGI DOMO" NETTING, White or Brown, made of prepared Hair and Wool, a perfect non-conductor of heat or cold, keeping a fixed temperature where it is applied. It is adapted for all Horticultural and Floricultural purposes, for Preserving Fruits and Flowers from the Scorching Rays of the Sun, from Wind, from Attacks of Insects, and from Morning Frosts. To be had in any required lengths.

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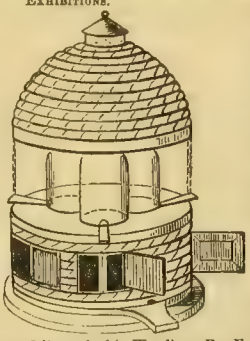
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Carriage paid to any Station in England.



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"To Mr. W. S. BOULTON.'

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GRASS SEEDS for PERMANENT PASTURE, of the finest quality, at moderate prices, carefully selected on a new, natural, and scientific system.

See "WHEELER'S BOOK on GRASSES," which contains Illustrations and Descriptions of the most suitable Grasses for Permanent Pasture.

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Seedsmen to the Gloucestershire Agricultural Society.



Sutton's Grass Seeds for all Soils.

SUTTON AND SONS have still on hand some of each of the leading kinds of

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which are mixed expressly to suit the soils for which they are intended.

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Carriage free.

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George Saville, Ingthorpe, near Stamford.
Samuel Jonas, Chrishall Grange, Essex.
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This Company was originally formed by, and is under the direction of agriculturists, circumstances that have justly earned for it another title, viz.—"The Tenant Farmers' Manure Company."

Its members are cultivators of upwards of 50,000 acres of land which has been for years under management with Manures of their own manufacture. The consumer, therefore, has the best guarantee for the genuineness and efficacy of the Manures manufactured by this Company.

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LAWES' MANURES.—The Manures manufactured by J. B. LAWES for the present season of 1867 are now ready for delivery at his Factories, at the following prices, per ton:—

	£	s.	d.
LAWES' PATENT TURNIP MANURE and BONE SUPERPHOSPHATE of LIME	6	0	0
LAWES' SUPERPHOSPHATE of LIME from BURNT BONE or MINERAL PHOSPHATES	5	5	0
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CONCENTRATED CORN and GRASS MANURES ..	12	0	0

These Manures can be obtained of Mr. LAWES, or through the appointed Agents in all parts of the United Kingdom, at prices varying according to cost of carriage.

Genuine Peruvian Guano direct from the Importers. Nitrate of Soda, Sulphate of Ammonia, and other Chemical Manures.

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Just Published, post free 12 stamps (Gratis to Customers), Part III. of CARTER'S GARDENERS' and FARMERS' VADE MECUM, containing complete Lists of new and choice Stove and Greenhouse and Bedding Plants, with an Addendum comprising original and practical articles, "On a Visit to Messrs. Carter's Nursery," by an Amateur Florist; Subtropical Gardening; and 120 Geometrical Designs for Flower-beds; with reliable information for the proper combination of Bedding Plants to produce chaste and striking effects.

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JAMES CARTER AND CO. beg to announce that they are now sending out their unrivalled Strains of CALCEOLARIA, CINERARIA, and PRIMULA, which, for fineness of form and beauty of colour cannot be surpassed.

CALCEOLARIA, saved from the finest Prize varieties.
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PRIMULA SINENSIS FIMBRIATA, dark carmine and pure white, saved from the finest fringed varieties in cultivation. Price, each packet, 2s. 6d., forwarded on receipt of Post-office Order for the amount.

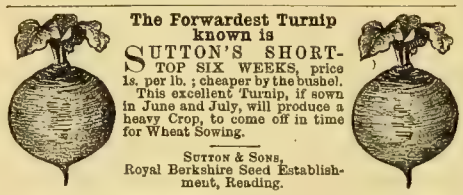
☞ PRICE LISTS gratis and Post free on application to CARTER'S Great London Seed Warehouse, 237 & 238, High Holborn, London, W.C.

ROBERT PARKER begs to offer the following.—All the Plants are strong and healthy, and can be supplied in quantities.

PANSY CLIVEDEN BLUE, 6s. per dozen.
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TRITOMA GRANDIS, 18s. per dozen.
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PRIMULA SINENSIS FIMBRIATA, finest mixed seed, 2s. 6d.

PRICED and DESCRIPTIVE CATALOGUES of AGRICULTURAL, FLOWER, and VEGETABLE SEEDS, GREENHOUSE, HARDY, and STOVE PLANTS, are published, and will be forwarded free to applicants.

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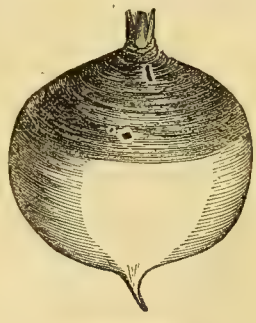


The Forwardest Turnip known is SUTTON'S SHORT-TOP SIX WEEKS,

price 1s. per lb.; cheaper by the bushel. This excellent Turnip, if sown in June and July, will produce a heavy Crop, to come off in time for Wheat Sowing.

SUTTON & SONS,
Royal Berkshire Seed Establishment, Reading.

SUTTON'S TURNIP SEEDS FOR PRESENT SOWING.



	Per lb.—s.	d
SUTTON'S RED PARAGON	0	10
SUTTON'S IMPERIAL GREEN GLOBE	0	10
POMERANIAN WHITE GLOBE ..	1	0
GREY STONE	0	10
SUTTON'S SHORT-TOP SIXWEEKS .	1	0

Cheaper by the Bushel.
Carriage Free.

SUTTON & SONS,
Seed Growers, Reading.

Seed of Choice Strains of Florists' Flowers.

The following selected Strains are worthy of the notice of all growers of the most useful conservatory decorative flowers.

WILLIAMS' SUPERB STRAIN of PRIMULA.

B. S. WILLIAMS can with confidence offer his superb Strain of Primula as being undoubtedly the finest in cultivation. It is now grown in all the principal Gardens of the Nobility and Gentry throughout the Three Kingdoms, and has never failed to give the greatest satisfaction.

In habit the plants are very robust, and in the foliage differ from all other varieties; but their great beauty consists in the depth of colour in the Red, purity of the White, and beautiful fimbriated form of all the flowers, which are thrown up in large trusses well above the foliage.

As a proof of the truth of the above remarks, this Strain has taken 1st Prizes in every instance that it has been shown in the Provinces this Spring; and 1st Prize at the Primula Show of the Royal Horticultural Society, South Kensington; and 1st at the Royal Botanic, Regent's Park. It is also the favourite Strain in the Covent Garden Flower Market.

This Strain may be procured True, in Sealed Packets bearing B. S. WILLIAMS' Name and Address, from any Seedsman; but B. S. W. particularly requests that Customers will observe, on purchasing, that each Packet has his Name and Address in full printed thereon, as no others are genuine.

The Trade supplied on advantageous terms.

	Per pkt.	s.	d.		Per pkt.	s.	d.
Retail price, RED ..	..	5	0	Retail price, WHITE ..		3	6
,,	,, ..	3	6	,,	,, ..	2	6
,,	,, ..	2	6	,, MIXED ..		5	0
,, WHITE	..	5	0	,,	,, ..	3	6

Retail price, MIXED, per packet, 2s. 6d.

WEATHERHILL'S EXTRA CHOICE STRAIN OF CINERARIA.

B. S. W. has purchased the entire Stock and right of Sale of this Magnificent Strain. Many of the flowers produced by this seed last season were as large as a crown-piece. This strain is well known in the London Flower Market, and is the most popular one there, a sufficient guarantee that its qualities are good.

Retail price per pkt., 5s. 0d. | Retail price per pkt., 3s. 6d.
Retail price per pkt. .. .. 2s 6d.

JAMES'S HERBACEOUS CALCEOLARIAS.—The varieties that took the First Prize at the International Horticultural Exhibition last May were of this noted strain.

Retail price per pkt. 5s. 0d. | Retail price per pkt., 3s. 6d.
Retail price per pkt. .. .. 2s. 6d.

All FLOWER SEEDS in packets, Post free.

B. S. WILLIAMS, Victoria and Paradise Nurseries, Upper Holloway, London, N.

Trichinium Manglesii (Lindl.).

W. THOMPSON, SEEDSMAN, Tavern Street, Ipswich, respectfully announces that he is now prepared to distribute a very limited stock of the above remarkable and handsome AMARANTAD, introduced by him from Swan River, and exhibited both at South Kensington and the Regent's Park, where it received First-class Certificates. Coloured Figures have been published in the "Botanical Magazine," also in the "Florist and Pomologist," for October, 1864; and in Verschaffelt's "Illustration Horticole," for January, 1866, where full descriptions will be found. Further particulars may be had on prepaid application. Orders will be executed strictly in rotation.

Price 10s. 6d. each. The usual Discount to the Trade.

Dutch Bulbs.

A. E. BARNAART, NURSERYMAN, Vogelenzang, Haarlem, begs to inform Nurserymen and the Trade generally, that he has just published his New CATALOGUE of DUTCH BULBS for the coming season, which may be had post free on application to his Agents, Messrs. R. SILBERRAD & SON, 5, Harp Lane, Great Tower Street, London, E.C.

A. E. BARNAART having extensive Nurseries at Haarlem, Overveen, and Vogelenzang, possess unusual cultural advantages, being able to select the soil and situation most desirable for perfecting the growth of each description of Bulb.

His HYACINTHS were crowned this spring at the Paris Exposition Universelle.

To Market Gardeners and Others.

RICHARD WALKER, MARKET GARDENER and SEED GROWER, offers the following:—

ROBINSON'S CHAMPION DRUMHEAD CABBAGE PLANTS, 2s. 6d. per 1000.
DRUMHEAD SELECTED STOCK PLANTS, 3s. per 1000.
WALCHEREN, splendid true stock, CAULIFLOWER PLANTS, 1s. per 100.
Fine SAVOY PLANTS, 6d. per 100.
Imported very fine BRUSSELS SPROUT PLANTS, 6d. per 100.
EASTHAM CABBAGE PLANTS, true, 3s. per 1000.
DICKSON'S MANCHESTER CHAMPION RED CELERY PLANTS, 1s. per 100.
INCOMPARABLE WHITE CELERY PLANTS, 1s. per 100
IVERY'S NONSUCH CELERY PLANTS, 1s. per 100, transplanted.
Terms Cash.

RICHARD WALKER, Biggleswade, Beds.

LUCOMBE, PINCE, & CO.

BEG TO CALL ATTENTION TO THEIR

MAGNIFICENT NEW SEEDLING GLOXINIAS (Upright Varieties).

THEY ARE NOW IN BLOOM, AND ARE THE ADMIRATION OF ALL WHO SEE THEM.

For abundance of flowers, brilliancy of colour, and form of flower, they surpass anything yet offered. They will be ready to send out on the 1st of August next. Sets of Six in the Set; each flower will be found distinct, and beautifully marked. One Plant will be given over where Six are taken.

Each Set of Six, 30s.

They also beg to call attention to their

FOUR NEW SEEDLING ACHIMENES.

They are the finest they have yet raised. The flowers are of average size, beautifully formed; the colour distinct, bright scarlet, pink, puce, and purple. The habit of the Plant is by far stronger than any they have before seen; when grown singly in pots they stand like little Pyramid Trees.

Price for the Set, 20s.

EXETER NURSERY, EXETER.

SPLENDID NEW BLACK GRAPE, THE MUSCAT CHAMPION.



JAMES VEITCH & SONS

WILL SEND OUT, ON AND AFTER THE FIRST OF JULY NEXT, THIS

MAGNIFICENT SEEDLING VARIETY,

UNDOUBTEDLY THE FINEST YET OFFERED TO THE PUBLIC.

It was raised by Mr. Melville, of Dalmeney Park, from the Champion Hamburgh, crossed with the Cannon Hall Muscat. It is a very free setting variety, and *succeeds perfectly under the same treatment* as the Black Hamburgh. The bunches are large, well shouldered, and the berries of great size, resembling in every respect the Champion Hamburgh, but with a *most exquisite and powerful* Muscat flavour.

In the "Gardeners' Year Book" for 1862, Dr. Hogg says:—"This is perhaps one of the greatest advances in new Grapes we have yet had. It is, in fact, a Mill Hill Hamburgh with a Muscat flavour. The bunches are very large and well shouldered, the berries roundish and oblate, and the flesh firm and melting, juicy, richly flavoured, and with a fine Muscat aroma."

In the Report of the Fruit Committee of the Royal Horticultural Society for September 10, 1861, it is thus mentioned:—"The bunch in size and shape had all the appearance of one of the Mill Hill Hamburgh. It was large and well set. The berries were large, round, and oblate, shaped like small oranges, and very much 'hammered.' The flesh is firm, juicy, sweet, and richly flavoured with a marked Muscat flavour." The Committee were of opinion that it was a decided cross, a very excellent Grape, and well worthy of notice.

The Editor of the *Gardeners' Chronicle* remarks:—"Large both in bunch and berry, possessing A FINE MUSCAT FLAVOUR, and, in the opinion of many, ONE OF THE BEST GRAPES IN THE WORLD."

The "Scottish Horticulturist," in quoting the above, says:—"An opinion we can cheerfully endorse. To those who think from the term Muscat that it requires an equal amount of heat to ripen it to perfection, we can assure them that it ripens as early, under exactly the same treatment, as the Black Hamburgh."

Good established Plants, on 1st July next, 21s. each.
Extra strong Plants, for fruiting in pots, 31s. 6d. and 42s. each.

ROYAL EXOTIC NURSERY, KING'S ROAD, CHELSEA, S.W.

SUPERB NEW LATE GRAPE.

"MRS. PINCE'S BLACK MUSCAT."

THE PUBLIC ARE RESPECTFULLY INVITED TO AN INSPECTION OF THIS REALLY FINE LATE GRAPE.

THE HOUSE IN WHICH IT IS GROWING MEASURES ONLY 24 FEET BY 13.

Beautiful bunches were cut as late as May the 4th this year. It has now 230 fine bunches, more than 200 having been taken off to lighten the Vines.

The real Muscat flavour, so rarely obtained, is unmistakeable in this valuable late-keeping Grape.

☞ *Orders, if sent now, can be executed in August next.*

LUCOMBE, PINCE, AND CO. will have great pleasure in showing the House to all who can come, or Testimonials of its merits will be forwarded by post upon application to them.

EXETER NURSERY, EXETER.—June 29, 1867.

NEW DOUBLE CRIMSON THORN (NOW READY).

WILLIAM PAUL

(SON and SUCCESSOR to the late A. Paul),

BEGS TO OFFER THE

ABOVE MAGNIFICENT HARDY FLOWERING TREE,

Which he believes to be the greatest acquisition for forcing and out-of-door culture that has been introduced for many years.

Strong healthy Plants, well established in pots, 2 ft. high, 7s. 6d. each; 1 ft. high, 5s. each.

A First-class Certificate was awarded to him for this Plant by the Royal Horticultural Society on the 16th April last.

☞ See Coloured Drawing by FITCH, and History, in the "Florist" for June.

"We do not hesitate to advise every one who has a garden to purchase this plant at once. * * * Plants purchased in pots now may be grown and established, so as to flower well either in or out-of-doors next spring; whereas if removed from the ground in the autumn of the year, they can hardly be expected to do this."—*The Florist, &c.*

PAUL'S NURSERIES, WALTHAM CROSS, LONDON, N.

PAUL & SON'S NEW DOUBLE CRIMSON THORN.

(THE UNIQUE HARDY PLANT OF THE SEASON.)

PAUL & SON,

THE OLD NURSERIES, CHESHUNT, N.,

The exclusive introducers of this Plant, have had the honour, since they sent it out in November last, of supplying it to Her Majesty's Garden at Windsor, our leading Amateurs and Nurserymen, and those of the Continent.

First-class Certificates, Royal Botanical Society and International Exhibition.

The Reviewer of *our* Introduction in the "Florist" somewhat ignorantly and unpractically advises planting small Plants in pots, in preference to larger ones in autumn. We counsel otherwise, as we shall have ready some 3000 PYRAMIDS and STANDARDS, specially pruned to flower next spring.

We are authorised to state by Mr. Boyd, in whose garden it originated, that he kindly placed the Plant at our entire disposal, and neither gave nor authorised it to be given to any other person. Thus settling the merit of our claim as its only and original introducers or senders out.

Price of such Standards and Pyramids, 5s. each; Dwarfs, 2s. 6d. each.
Dwarfs in pots, for Export, 5s. each.

PAUL AND SON beg also to announce that their ROSES are finely in BLOOM, and well worthy of a visit.

Frequent Trains from 6.30 A.M. to Cheshunt Station.

GRAND HORTICULTURAL EXHIBITION at BURY ST. EDMUND'S, in connection with the SHOW of the ROYAL AGRICULTURAL SOCIETY, JULY 15, 1867, and four following Days.

Amongst various Special Prizes, amounting in value to nearly £300, and exclusive of the ordinary Prize Schedule,

A SILVER CUP, VALUE £20,

will be offered by the Proprietors of the GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE for the best COLLECTION of FRUITS and VEGETABLES, to be made up as follows:—

Of FRUITS, any Five of the following Eight kinds, one Dish of each:—Grapes, Melons (2 fruits), Strawberries, Gooseberries, Currants, Cherries, Raspberries, or Apples (of the crop of 1866).

Of VEGETABLES, any Eight of the following Fourteen kinds, one basket or bundle of each:—Peas, French Beans (or Scarlet Runners), Broad Beans, Cauliflowers, Cucumbers (brace), Summer Cabbages, Early Carrots, Turnips, Artichokes, Onions, Spinach, Rhubarb, Potatos, or Mixed Salading.

This Cup will be open to Competition amongst Amateur or Professional Gardeners, of all grades, with Fruit and Vegetables of *their own growing*; any article otherwise obtained will disqualify the exhibitor.

The Gardeners' Chronicle.

SATURDAY, JUNE 29, 1867.

MEETINGS FOR THE ENSUING WEEK.

MONDAY,	July 1	Entomological	7 P.M.
TUESDAY,	— 2	Royal Horticultural (Great Rose Show), at South Kensington	1 P.M.
		Ditto (General Meeting)	3 P.M.
WEDNESDAY,	— 3	Royal Botanic (Exhibition of Plants, Flowers, and Fruit)	2 P.M.

No more curious or important phenomena attract the attention of the physiologist than those relating to the hereditary transmission from generation to generation of peculiarities, whether of form, structure, or physiological endowments. While certain of the facts witnessed are just what we might expect, such as the repetition of similar forms under given circumstances, the frequent occurrence of certain kinds of disease in the members of the same family, the perpetuation of particular features in the direct descendants from a common ancestor and the like, there are other anomalous cases which are a source of much perplexity.

To give point to our remarks let us allude specially to some of the facts relating to the ORIGIN OF THE VARIEGATED ZONAL PELARGONIUMS, as given in our columns during the past months. Assuming the general correctness of these facts, there are certain matters connected with them which seem to us to demand more than passing attention, as furnishing additional illustrations of the uncertainty, we can hardly call it capriciousness, which to so large an extent pervades the results obtained even by our most thoughtful and experienced cultivators.

How curious, for instance, is the case mentioned by Mr. WILLS wherein the pollen of a green seedling derived from Queen's Favourite was applied to the stigma of Northern Star. The immediate result of this cross was the production of a green seedling which retained its green colour for nine months, and then threw out two distinct "sports," the one a Silver 'Tricolor,' the other a Golden 'Tricolor.' A somewhat similar occurrence was related in our columns by Mr. GRIEVE, September, 1866, where on a seedling plant, produced by crossing Cerise Unique with the pollen of Attraction (a Silver Variegated form), three distinct varieties were obtained, known as Emperor of the French, Empress of the French, and Rainbow.

The history, too, of the variety called Her Majesty, one of the bronze and gold section, is no less singular. Here, again, we have the flowers of a green-leaved, dark-zoned variety, originally derived from a Silver 'Tricolor,' crossed with the pollen of Beauty of Oulton, a yellow-leaved kind.

These cases, with others that might be cited, seem to afford good illustrations of the dissociation of characters blended for a time by crossing, and they show how comparatively feeble is the bond that ties the mixed characteristics together; and it will be observed that when this separation of heretofore mixed elements takes place, it often happens that the "sport" presents the appearance, not of the immediate progenitors, but of some more or less remote ancestor. A parallel illustration is afforded by cases wherein the seedling resulting from the crossing of two varieties differs entirely from its immediate parents, and reverts to the characteristics of some more distant progenitor. What renders this latter class of cases the more interesting is that they sometimes offer an exception to the ordinary rule that characteristics shall become fixed and perpetuated by close or "in and in" breeding. According to Mr. WILLS, the variety called Baron Ricasoli, when crossed by the pollen of Beauty of Oulton, itself a descendant from Baron Ricasoli, has produced a seedling form which does not resemble in the slightest degree either of its parents. If only accurate records be kept of the genealogy

of the numerous varieties of these plants, there is little doubt but that before very long so large a body of facts will be accumulated, that it will be possible to draw certain inferences of high value for science, and equally valuable as a guide to the practical cultivator. At present many of the facts recorded are, or appear to be, contradictory, such, for instance, as the effect of the pollen of the variety called Golden Chain. By some this is lauded, while others unhesitatingly condemn it. Nevertheless there are already many points in which all experimenters seem to agree, for instance, that self seedlings from Mrs. Pollock scarcely ever reproduce the parent form, and are for horticultural purposes worthless.

While earnestly expressing our wish that careful registers be kept and published of successes or failures in crossing Pelargoniums and other plants, there are one or two special points to be kept in view, and which, as it appears to us, have not hitherto sufficiently been attended to. The first relates to precision in the use of words. For a history of any plant to be of value, it must be expressed in clear unmistakeable language; that this is not always the case may be inferred from a solitary instance—the loose way in which the word "seedling" is used. At present, unless by intuition or by some accidental clue to the exact meaning, it is not easy to know whether the seedling in question is the result of a cross, accidental or designed, or whether it is the product of the action of a flower's own pollen on its stigma. Then there is the question as to the nature of sports—are they, as we have assumed, the result of a dissociation of mixed elements, or are they referable to other causes? Is there any perceptible difference in the habit, or other characteristics, of a sport as contrasted with those of a crossed seedling? Would it be possible in any case to say on mere inspection—this is a sport, or this is a seedling? These are matters of great interest, as they are so intimately connected with the nature of buds as compared with seeds, and we would fain hope that the discussion which has been carried on in our columns may contribute to the solution of the questions here raised.

To LINNÉ scientific men unanimously award the merit of establishing the SEXUALITY of PLANTS. We say advisedly, of establishing the existence of two sexes amongst plants, because, as has been so often the case, *vixere fortes ante Agamemnonem*, and ages before the great Swede revolutionised botany, men had a glimmering perception that to flowers the assertion made in Scripture "male and female created He them," applied as well as to all other living creatures. Nay more, as in the case of the Date trees, they made practical application of their knowledge. In spite of this it has been generally felt that LINNÉ was the first to fix the floating conceptions of others, the first to methodise their scattered observations, and by the numerous additional illustrations that he brought forward, the arguments that he made use of to prove his case, and the practical use that he made of his knowledge, the first to establish the fact. In so saying we by no means overlook the circumstance that BOBART, GREW, RAY, and CAMERARIUS, the latter especially in 1694, had stated the same thing; that a few years afterwards SEBASTIEN VAILLANT, as LINNÉ himself says, removed all uncertainty from a matter which was previously a paradox and a mystery. LINNÉ and the older authors reasoned *à priori*, they saw such and such phenomena, and they drew their inferences accordingly.

AMICI, ROBERT BROWN, BRONGNIART, not to mention other less widely-known observers, have paid special attention to the minute details of the process which, thanks to their labours, is now at least as well, if not better understood, than any process of plant life. We may refer to an article which appeared in our columns last year (see p. 29) for a brief statement of recent researches with reference to what we may term the minute anatomical details; our present object is to call attention to those numerous contrivances which have been observed to facilitate or to impede the process of plant fertilisation as the case may be. These contrivances are astonishingly varied, and, as may well be supposed, they have excited great attention among naturalists, some of whom have studied, with special reference to this point, the form and relative position of the several floral organs, the development and mode of bursting of the anthers, the movements of the stamens and styles, the action of insects, of the wind, the phenomena of hybridisation and cross-breeding, and other cognate matters.

Of late years renewed attention has been called to these matters, so full of interest for the gardener, mainly through the publication of the extraordinary memoirs of Mr. DARWIN, which have been noticed from time to time in our columns. The researches of that gentleman have stimulated others, such as Mr. SCOTT, of the Edinburgh Botanic Gardens, to make and put on record their observations, to the great advantage of science. Hence the appearance of Dr. HILDEBRAND'S brochure, noticed in another column, is specially well-timed; and from the numerous original observations made by that gentleman, as well as from his diligence and care in utilising the labours of others, we call special attention to his pamphlet, and hope soon to see it in an English version.

SOME week or two since we took occasion to criticise the form which is springing up amongst SPECIMEN PLANTS, such as Azaleas and Roses, in the former showing a tendency to revert to the one-faced shams which but a few years since public taste repudiated, and the latter showing a tendency to lumpiness and inelegance.

We are glad to be able to point to other exhibited plants, which appear to us to be models of what specimen exhibition plants ought to be in respect to form, subject of course to such modifications as may adapt the model to different classes of subjects. We allude to the Fuchsias which have been exhibited by Mr. BROCKWELL, gardener to Mrs. HENRY, of Edmonton, at some of the great shows of the present year. They have been models of form, and also models of perfect cultivation. Pyramidal in outline, they have been at once graceful, symmetrical, and thoroughly furnished in every part; and we commend them to the study of those gentlemen who would give us Azaleas trained to imitate pancakes, and Roses to simulate currant bushes. Mr. BROCKWELL'S plants were indeed rather tall and narrow in the outline of the pyramid, but this form, which had been adopted to suit the peculiar style of growth and flowering inherent in the Fuchsia, could of course be, as it ought, modified in the case of other plants, like the Rose, for example, where the growth is erect instead of pendent.

We have lost so many fine exhibition plants from our flower shows, because their habits did not suit the convenience of cultivators, that we cannot afford to have those which we still retain spoiled by want of attention to the first elements of meritorious cultivation. We hope therefore we have seen the last of one-sided shrubby plants, and of excessive formal training. If instead of this waste of time and talent, we could fall back on a little more of the natural gracefulness and variety of habit inherent in the different races of exhibition plants, that would be a move in the right direction. At any rate, so long as we have artificial standards of high cultivation let us hold out for plants thoroughly furnished, let symmetry be our password, and let us adhere to the motto, "All round alike."

—— We may call the attention of ROSE LOVERS to the great Rose Show which is to be held in the Royal Horticultural Society's Garden at South Kensington on Tuesday next, which is always one of the choicest floral fêtes of the season; and we may further remind intending EXHIBITORS of ROSES at the ensuing Rose Show at BIRMINGHAM of the circumstance that this is the last day on which to transmit their entries.

—— Mr. BULL has sent us a very interesting set of blooms of seedlings of IVY-LEAVED PELARGONIUMS, some of which will be acquisitions for the purposes to which these plants are adapted. They vary in tint from blush-white, through many shades to deep bright rosy-lilac, and are sometimes marked with a bar or flame only along the base of the veins of the upper petals, sometimes with a bright spot in addition. One in particular, the colour of which is a kind of peach-blossom, with a bright rose spot on the upper petals, and having the base of the lower petals white, seems to be particularly attractive. We have here an indication that the Ivy-leaved section is likely to become an extensive one; a matter of congratulation, seeing that the plants are useful in many ways for decorative gardening, especially for cultivation in vases and suspended flower-baskets.

—— We may remind young gardeners and others, desirous of presenting themselves at the MIDSUMMER EXAMINATION of the ROYAL HORTICULTURAL SOCIETY, that the Examination takes place on Wednesday and Thursday, the 3rd and 4th of July, and that Monday next is the last day for entering their names in the case of application by letter, though personal applications will be attended to on the following day, Tuesday. In any case application should be made to the Assistant Secretary, JAMES RICHARDS, Esq., at the Society's offices, South Kensington.

—— Thanks to the publication of the Rev. T. C. BRÉHAUT, the mode of dealing with the premature lateral shoots of the PEACH TREE (the *bourgeons anticipés* of the French), advocated by M. GRIN, of Chartres, is likely to receive the attention it merits. In a recent explanatory article on this subject, M. CARRIÈRE thus gives the rationale of the process:—Practically the system may be stated to be this, to pinch or cut off the upper half of the first leaves of the young lateral shoot in order to allow of the development of the small buds at their base: then after the lateral has acquired the length desired for the fruit branches, the last leaves, as well as the end of the shoot, are in their turn removed by pinching. The secondary shoots are to be treated in the same manner. M. CARRIÈRE speaks highly of this method of close summer pinching for transforming a wood shoot into a fruit bearer.

—— We invite attention to a letter in another column from Mr. WATSON, of St. Alban's, offering to subscribe towards certain CHALLENGE CUPS FOR VARIEGATED ZONAL PELARGONIUMS, to be competed for at the Bury Show. This would be an excellent plan for bringing the more prominent of the new varieties into close competition, and testing their respective merits, and would moreover give facilities to many growers to take part in the contest, who could not compete for the Suffolk County Cup, in consequence of the rather large number of varieties asked for.

New Plants.

EPIDENDRUM BRASAVOLÆ, *Rchb. fil. in v. Mohl and v. Schlecht. B. Zeit.*, 1852, 738. *Beitr. Orchid. Flor. Cent. Amer.*, p. 36.

Aff. Epidendro prismatocarpo, Rchb. fil., labello longe cuneato oblongo acuminato lineis tribus per discum carinato, androclinii dentibus lateralibus triangulo semilunatis extus medio unidentatis, denti medio spatulato sursum serrulato.

The genus Epidendrum, which has so long been under a sort of cloud, is rapidly winning its way into favour even among the most fastidious cultivators, and indeed we can scarcely wonder that such should be the case after the lovely displays that have been recently witnessed of some of its species, *e. g.*, Ep. vitellinum, E. atropurpureum, and E. cnemidophorum, to which, as they become better known, E. myrianthum, E. nemorale, and E. erubescens—all of them already in the country—will undoubtedly have to be added. These, however, are but a tithe of the fine things which "cool treatment" has brought within our grasp. In Professor Reichenbach's recent work on the Orchids of Central America (see p. 577), many such are mentioned, more especially E. Warscewiczii, E. pseudepidendrum, and E. Brasavolæ, all very fine things. The last in this list, which is now flowering at Biddulph Grange (in the Mexican house) is a most remarkable plant, and entirely different from anything at present in cultivation. The habit resembles that of E. prismatocarpum, but is larger. The flowers are 4 inches across, and are borne on a scape which in its native country is many-flowered, and 2 or 3 feet long; with me, as yet, it is only a third of that size, but I have not the slightest doubt it will speedily attain to fully its native vigour. The flowers are, as the name implies, exactly shaped like those of a Brasavola; their colours, however, are very different, the sepals and petals being of a rich yellowish brown, somewhat resembling Russia leather, while the lip is half white, and half a beautiful mauve. They are very durable, and though scentless by day, are deliciously sweet by night. A figure of it is preparing for the "Botanical Magazine." Prof. Reichenbach alludes to a specimen of this plant as being densely covered with small tubercles or warts, and, moreover, says that some other Orchids are subject to a similar diseased condition. *J. B.*

THE FECUNDATION OF ORCHIDS.

IN England, I believe, our tropical Orchids seldom, if ever, bear fruit. In their native countries they do so of course, though not by any means so frequently as might be supposed. At least such is my experience of Orchids in this part of the world, where they are both specifically and individually abundant.

Our epiphytal Orchideæ (I omit the consideration now of the terrestrial kinds, as I have not sufficiently noticed these as respects their fecundation), nearly all belong to one or other of two tribes, viz.:—Malaxideæ, or Vandeæ. The distinctive feature of the former tribe is that the pollinia (pollen-masses) have neither caudicula nor stigmatic gland, while that of the latter is the existence both of an elastic caudicula and a separable stigmatic gland.

Now, the Malaxideæ rarely produce fruit: or, when they do, it is scantily. The Vandeæ generally do so. Aerides, Saccolabium, Sarcanthus, Vanda, Acriopsis, Cymbidium, and Phalænopsis (all Vandeæ), are commonly seen in that condition after flowering. Calanthe and Limatodes, however, the former epiphytal and the latter terrestrial (*i. e.*, growing in decayed vegetable mould in the clefts of rocks), though both belonging to the same tribe, Vandeæ, form exceptions—for what reason I do not at present know. I have only now and then met with the fruit of these.

On the other hand, Dendrobium, Bolbophyllum, Trias, Cirrhopetalum, Eria, &c., which belong to Malaxideæ, rarely bear fruit. I speak of these genera broadly, because there are one or two species, even of this tribe, which do fruit pretty freely, Dendrobium crepidatum and Dendrobium cretaceum for instance (with D. formosum, which fruits frequently); but then these are nearly the only species which I can mention as doing so out of some eighty species of the

genus Dendrobium which are found in these provinces.

There appear, however, to be permanent exceptions to the non-fecundating propensity of this tribe, as there are to the contrary propensity of the other. Oberonia, Cœlogyne, and Pholidota furnish these, for they, according to my observations, generally bear fruit. It is to be remarked that these three genera belong to one subdivision of the tribe, viz., Pleurothalleæ, which may possess some peculiarity of structure facilitating fecundation not shared by the other subdivision, Dendrobeæ, to which all the genera first-mentioned belong. Notwithstanding these exceptions it may be affirmed broadly that Orchids of the tribe Vandeæ are generally fecundated, while those of the tribe Malaxideæ are so but rarely.

Now this difference in the fecundation of the two tribes, Malaxideæ and Vandeæ, may perhaps be partially accounted for by the far greater number of flowers on plants of the latter tribe, and their comparative paucity, for the most part, on plants of the former. Saccolabium and Aerides will sometimes have from 60 to 80 flowers on one raceme, and several racemes on one plant; so that the chances of fecundation are greater in most Vandeæ than in most Malaxideæ. But I do not think that this will in any degree sufficiently account for the difference, especially as, in the case of the genus Dendrobium, those species which bear the most numerous flowers are not the species which are most often found in fruit. The real cause appears to be the existence of a viscid stigmatic gland in the one case, and the want of it in the other. In Malaxideæ (sect. Dendrobeæ especially), as there is neither caudicula nor gland, immediately the anther withers, or is mechanically lifted (say, by an insect), the chances are ten to one that the pollinia fall down to the bottom of the labellum, if not out of the flower altogether. As the pollinia are very dry and hard, they do not readily adhere to any extraneous object, therefore are not likely to be caught and carried away on the body of an insect. In Vandeæ, however, the viscid gland, besides making self-impregnation more easy (for when the pollinia drop at last out of the anther, they are not unfrequently detained by the gland still remaining in its place; and, through a relaxation of the caudicula, they fall over on to the stigmatic surface), affords a ready means of attachment to an extraneous body, as of an insect brushing the column, and so of conveyance of the pollinia from place to place.

In illustration of my remarks, I may mention what I witnessed a short time ago. While admiring some splendid racemes of Aerides virens, which were hanging down in great luxuriance from the branches of a Mango tree in my garden, two large bees, called carpenter bees, I believe (the same kind which makes a lodging in the Bamboo rafters of thatched houses, gaining admittance by boring a round hole through them, notwithstanding their siliceous exterior), lighted on the flowers for the purpose of extracting the honey, which lies at the extreme end of the curved horn or spur. Now, the labellum of Aerides virens, unlike that of most Orchids, presses tightly upon the other segments of the perianth, very much after the manner of a Snapdragon, enclosing the pollen masses completely. In order, therefore, to extract the sweetness from the flower, which, as I said, lies at the base of the conical spur, the bee lighted upon it, and, drawing back the labellum, thrust his head, and as much of his hairy body as he could, into the flower thus opened. In this process he necessarily brushed against the column of the flower, and, in again withdrawing himself, he lifted the anther and carried away with him the two pollen-masses, sticking fast to his thorax by the viscid stigmatic gland. The same result followed his visit to each flower in succession, until some eight or ten glands with their respective pollen-masses were seen attached to his thorax. As the number became at last apparently annoying, he gave up his search for honey, and settled on a twig and tried sedulously to brush off the annoyance, but in vain; the viscid glands stuck fast, and resisted all his efforts. It was quite amusing to watch his seemingly impatient struggle to rid himself of his freight, and those of the other bee also; for the identical accident had befallen his companion, and he, too, was engaged in similar efforts on a neighbouring twig. In vain they both swept their front legs over their thorax, for although they thus laid hold of the pollen-masses for a second, the elastic caudicula, with which the pollen-masses of all Vandeæ are supplied, eased the strain upon the gland, causing them to yield to the tug, and presently to fly back again. Wearied at last by their fruitless efforts, both the bees flew away.

Now, although, in this particular instance, fecundation could not have been assisted by the action of the bees—for, owing to the adhesiveness of the gland, the pollen masses were not transferred from one flower to another, but carried away altogether—the incident nevertheless serves to illustrate the method in which fecundation may be effected in other instances.

A bee, or any other insect, with a smooth instead of a hairy body, by parting with the gland more readily, even if it adhered to him for a while, might effect the necessary transposition or displacement of the pollen-masses; or, even the same bee might possibly do so if he were to visit the flowers a little later, when the glands have become partially dried and have lost some of their viscosity. *C. S. P. P., Moulmein.*

CHORETIS GLAUCA.

THE petals and cup of this old-fashioned flower are pure white; the former, narrow and 5 inches long, curve in a very light and graceful way; the latter 2 inches across; style long and anthers clear green, pollen bright orange. These parts stand boldly out into the air, and the whole flower, from its size and singularity, presents a very noble appearance. So good is the white that Calanthe veratrifolia does not hurt it, and the perfume is greater and more pleasing than that of Eucharis. There are 12 flowers in the scape, two or three open together, and when removed on declining with the seed-vessel leave no blemish, and the last flower is enabled to bloom in perfection. The leaves, of a shining green colour and strong substance, 2 feet long by 3 inches wide, arch on both sides of the strong flower stem.

Altogether it is a very fine thing; yet this is a neglected plant, seldom seen, and offered in few bulb lists; partly owing no doubt to some care which it demands, and partly to certain rules in print for its culture: these all direct the plant to be dried off while at rest, and to be grown in peat mixtures. It, however, blooms and looks well with the following treatment:—

Remove offsets directly they appear, at all seasons: keep always moist, much less so at the dead of winter, but never dry; grow in loam from decayed pasture-sods, not too sandy, without admixture of any other soil. Let the bulb be a little raised in planting, which facilitates removing the ever-coming offsets, and give plenty of pot room as required; warm greenhouse heat should be given when at rest; but it requires a stove in early spring; when in bloom let it be cool and well shaded.

The leaves should never disappear. The charming Griffinia hyacinthina and Eucharis amazonica, succeed perfectly under similar treatment. With all three the chief points seem to be to eradicate offsets, to use sweet pasture loam, and never to check the plants by extreme dryness. *B., Dungarvan.*

THE SELECTIVE THEORY OF COLOUR.

EVERY theory of colour brings us into contact with the eye that sees, the object seen, and the light that renders that object visible. Leaving the eye to form its perfect pictures undisturbed by prying curiosity, I purpose briefly adverting to the other two factors that complete the circle of vision, and enable us to distinguish colours. And first of the light. We note that it is not a simple but a compound influence or power. Like our air, it is capable of separation into its constituent parts. Spectrum analysis separates light, as chemical analysis resolves the air into its primitive elements; and only by such separation can we properly understand the nature of either. Knowledge of the parts leads to a comprehension of the qualities of the whole. Especially is this true in reference to light, for until it is disintegrated the great enlightener remains unseen. The first use of a spectrum, as its name imports, is to enable us to see light. It unfolds the white pencil of light before us like a half open exquisitely painted fan, and we observe a seven-coloured ribbon, the bands differing from each other in their widths, lines of road, rate of speed, distinctive powers, and specific work.

Perhaps no better illustration of this separation of a sunbeam could be given than that of Sir John Herschel's passing a mixture of Wheat, shot, sand, chaff, and feathers through a sieve across the wind, and observing where they fall. The shot would be found in one place, the Wheat in another, the sand in a third, the chaff in a fourth, and the feathers anywhere; but none of them in the straight line in which they were originally tossed. All would be deviated—the lightest most, the heaviest least; and by observing their position on the ground a kind of mechanical analysis of the contents of the sieve would appear. Had the sieve contained only sand of differing degrees of fineness, the spectrum on the ground would have been continuous. But as the materials differed so much in weight, vacant spaces would be found between each. It is just so with the spectrum of the sun's light. The colours, though they seem to us to overlie each other, do not really do so. They are separated by innumerable black bands, and these belong to the sun's light as much as any other portion of it. These bands divide the different rays of the sun from each other, just as lines are run through maps to separate counties. The colours thus separated follow a regular order of succession—red, orange, yellow, green, blue, indigo, and violet. They also vary in width, one ninth of the spectrum is occupied by the violet, $\frac{1}{18}$th by the indigo, $\frac{1}{12}$th by the blue, $\frac{1}{10}$th by the green, $\frac{1}{15}$th by the yellow, $\frac{3}{80}$ths by the orange, and $\frac{1}{12}$th by the red colour.

From the form of the dispersed beam every ray pursues its own path through space. The red at one extremity is the least bent, the violet at the other the most diverted from the straight line. It is necessary carefully to note this fact, as probably the whole phenomenon of colour may resolve itself into the angle of incidence or reflection of different coloured rays of light. But not only does each coloured ray of light choose its own route, but it also elects the speed at which it will travel. Uniform white light flashes through space at the rate of 192,000 miles per second. No sooner is it separated than each ray travels or vibrates at a distinct pace. The rays rise gradually in speed from red to violet, just like the notes of the gamut. Red has the slowest vibrations and the longest waves, corresponding to the lowest notes, violet has the quickest vibrations and the shortest waves, corresponding to the highest. And beyond each there are vibrations and waves, too rapid and short, or too slow and long, to be seen; as in music there are notes at each end of the scale which cannot be audibly expressed.

Professor Tyndall states that it requires 39,000 waves of red light placed end to end to form an inch. Multiplying the number of inches in 192,000 miles, viz., 12,165,120,000, by 39,000, gives the tremendous product of 474,439,680,000,000. All these waves enter the eye in a single second of time. To produce the impression of red in the brain, the retina must be hit at this incredible rate. The violet rays being much shorter, it takes 57,000 of them to fill an inch, and the number of shocks required to produce this colour amount to six hundred and ninety-nine millions of millions per second. Sir John Herschel's data differ from these, and show greater disparities of speed between the two ends of the spectrum. Estimating the velocity of white light at 186,000 miles—roughly, one thousand million feet per second, and reckoning 33,866 wave lengths to the inch for the extreme red, 43,197 for the soda yellow, and 70,555 for the extreme violet, the impulses on the retina per second that produce the sensation of these colours reach these numbers:—Extreme red, 399,101,000,000,000; soda yellow, 509,069,000,000,000; extreme violet, 831,479,000,000,000. This reveals a difference of more than two to one, while the figures themselves must impress us with the subtlety and inconceivable velocity of the agency with which we have to do.

But notwithstanding the rapidity of its movements the distinctive powers of light are modified by the character of the road it passes over or through, much as the limpid stream is affected by the nature of its bed. So as light flashes through space on its colouring mission it loses some of its original *purity* shall I say? and is charged with new qualities. These result in its polarisation, a change of state that endows light with something akin to magnetic properties. It would be out of place to explain the nature of this change here, but as polarisation influences the *bendable* power of light, and thus may exert a great influence on colour, and as natural light consists of confused masses of rays polarised in every variety of plane, and therefore with their refractive, reflective, and absorptive powers modified in consequence, it seemed needful just to advert to its interference. It is almost certain that each coloured beam has its own specific work. Especially is this the case with the primary colours; broadly stated, the red warms, the yellow enlightens, and the violet promotes chemical change. Neither is the power of the sun confined to its visible rays, the strongest heat is found beyond the red, the most active chemical force beyond the violet. And it may be considered certain that this threefold energy of the sun is put forth in the production of colour. Every beam speeds forth on its mission a quivering wave of light wrapped round with heat, and further enveloped in energia, or chemical force. It is a grand unity—a multitudinous diversity; and while it seems a simple, it is in reality a compound body, capable of being split up into, probably not simply seven, but seventy times seven, distinct rays. So many differences have been discovered in the qualities of light that some have contended that it consists of three distinct species, each competent in itself to excite the sensation of one of the primary colours; they assert that these colours consist of red, green, and blue; that each has a spectrum of its own, and that their superposition on the same ground, in different degrees of intensity, produces the prismatic spectrum as we see it. Space forbids any further allusion to this theory here. The fact of the ground colour of vegetation being green speaks strongly in its favour, as well as the further fact, that while the mixture of the prismatic green and red does produce yellow, the prismatic yellow and blue can no how be made to produce green.

But I hasten from the artist to his work. We have glanced at a few of his extraordinary powers; let us now advance to the unravelment of the great mystery of their application. And here the rapidity of his movements constitutes our first difficulty; their invisibility, the second; and their apparent capriciousness the third. Well, there are at least two modes of gathering instruction from a picture. One is to see the actual process of painting; the other, to examine the finished work. In both Nature and Art we must generally content ourselves with the latter. Looking, then, at a Pelargonium leaf, several facts are imprinted upon it for our instruction. The first is, that light coloured it. Of this there can be no doubt. Whatever vital or chemical forces may have been employed, they were subordinate to light, the great master-colourist. Withhold light, and its beauty will speedily fade into the white paleness of bleached death. The next fact is, that the leaf broke up or disintegrated the light as thoroughly as the parts of a glass globe would be scattered by violent contact with a block of granite. The leaf affords ocular demonstration of this startling fact. Were it not so it must either have been black or white, and no other colour. For had the whole of the light passed through the leaf it would have been black, had none of it passed through it must have been white; and as it is neither, part of it has passed through and part been retained, and therefore the light itself has been separated. The colour proves this as certainly as if we had seen it done—that the leaf has broken up the sunbeam into a many-coloured ray. All leaves and flowers then are light breakers. A third fact is, that no sooner is a pencil of white light resolved into its original elements, by contact with leaf or flower, than each of its constituents pursues its own path independent of the other. Each from henceforth acquires its own specific speed. Hence violet or yellow may penetrate where red cannot, and colour thus be influenced by thickness, form, or texture of vegetable tissue.

A fourth fact is, that when light passes from a rare medium like air into a dense medium like a leaf its direction is changed. Part of it is not simply dispersed, but the whole of it is refracted or bent out of its straight course. In this way, it is inferred, colour originates. The cellular structure of plants, like so many natural prisms, disintegrate the sunbeam, and colour is the spontaneous product of the dissolution. It is likewise certain that while the colouring power of light is largely determined by its intensity, it is also influenced to a great extent by its angle of incidence.

When the sun's rays are nearly perpendicular its colouring power is at a maximum, and when they are most oblique they descend to a minimum. Autumnal tints may seem to controvert this statement, but there is no doubt they can be also explained in harmony with it.

Here then are the broken sunbeams in contact with the plant, struggling to pass through or to escape. How is it that some pass, some are retained, and others are thrown off? Plants are doubtless endowed with the power of selecting their own colours. That they should possess such a power is not a whit more wonderful than that they should be able to break up, change the course, arrest the speed, or manufacture tissue out of a sunbeam. That they do all this is certain. It is almost equally so, that they choose their colours. Their vivid hues could only originate in some rays being selected for transmission, some for dispersion, and others for reflection. Returning for illustration to our sieve, with its varied contents, it is obvious that some of the things—the shot, for instance—would pass through readily. Others would have more difficulty, and many of the feathers would not pass at all. If these were of different colours, overlapping each other, they would afford a good illustration of how coloured rays of light may impart colour to leaves and flowers. The light that imparts colour is that which the plant refuses to pass through. The reflected light, which gives colour, is, moreover, the opposite to that which is absorbed. Thus, while the whole beam is transmitted, black is reflected; when yellow is transmitted, blue is reflected; when red, green. The colour also depends upon the number of the rays reflected back. A small bundle of violet or yellow rays will not give the same colour as a larger bundle. It is not only that the tint, but the colour itself, will be different. A thin coat of paint does not give the colour of the body of the mixture, nor a small bundle of red, orange, or blue rays impart the impression of either of these colours. Not only do leaves elect the colour they will throw back to us, but they also determine the quantity they will return, as well as whether it shall be pure or mixed. It seems also that those plants which absorb most light are the most vigorous, while those that absorb least are often the most beautiful. That they should absorb some light is essential to life. Reflecting all, they perish; for plants are not nourished by the light that gives them colour, but by that which they absorb. And hence the inherent delicacy of light-coloured leaves, and the crumpling difficulties of white-edged Pelargoniums. These edges absorb no light, and therefore they cannot keep pace with the green centres. For these reasons white-leaved plants must continue to be impossible. But all other colours are within our reach, most of them are in plants already in our endless diversities of green, and the growing desire for variegation challenges practical men to loose them and let them go forth in their primary purity and distinctive glory. With a knowledge of the agents with which we have to deal, and working in harmony with the selective powers of plants, there seems no limit to the combinations of colour that may reward our perseverance or spring forth at the bidding of our skill. *D. T. Fish, The Gardens, Hardwicke House, Bury St. Edmund's.*

LETTERS FROM PARIS.—No. XVI.

SIXTH SHOW.

THE "série," which commenced a few days since, consists chiefly of Roses, fine-leaved plants, and a few miscellaneous things. The Roses are not equal to our own in quality, and the effect they produce is not nice, in consequence of their being closely placed, without green, on wide benches. As for the plants shown as standards in the open ground, they are simply ordinary French nursery stock. The Strawberries were very good when fresh, but look badly at present, as many things do after being a few days exposed. Bulbous Irises, Ranunculus, good Shaddocks, &c., are also shown, but nothing worth speaking of, or from which one could take a hint. There are a few neat Orchids shown by Messrs. Leroy, and Thibaut and Keteleer: noticeably a nicely-flowered plant of the cærulean variety of Vanda Roxburghii; and there is also a respectable stage full of the species of Caladium and allied plants. The house for aquatic plants has been in working order for some time, but is barely worth naming here. M. Linden shows a Peruvian species of Theophrasta, with leaves of a decided dark olive green and metallic hue; but by far the best new plant in the grounds, and to me the most interesting I have seen for a long time, is Nierembergia frutescens. This, as the name indicates, is slightly shrubby. It is an exquisite plant, and luckily hardy, at least so I am told. The flowers are larger a good deal than the kinds we have been accustomed to grow, while it is perfectly neat in habit, and profuse of flower. The largest samples are about 18 inches high, and of a nice habit, while there is a bed of smaller plants flowering freely at a few inches high. I shall know more about it by-and-by. This is all that need be said about the present meeting. It is much more profitable to go into the country now and then, and also to the public gardens, &c., than to spend much time at the Exposition. I have visited the Asparagus-growing region since I last wrote, of which I shall give some particulars at another time.

The day of the grand review in the Bois de Boulogne witnessed a prodigious destruction of trees and shrubs all round the open space or race-course. Every tree was crowded, and even shrubs that were supposed capable of elevating a man a few inches were trampled into the ground, which looked in many places like Hyde Park after the Reform meeting of last year. Previous to that occasion I never saw a twig touched, but that was quite enough, for it was sad to see the last man in a blouse break the Deodar's back. As to giving any idea of the quantity of plants and flowers used both in and out-of-doors during the recent festivities, it is impossible—it would not be believed. There were hundreds of posts put up in the Tuileries gardens alone to suspend the lights, and at the base of every one of these there was a bed of flowers, but all that is as nothing to what was done inside, at other places, and at the Hôtel de Ville. They even went to Italy for plants, having exhausted home resources. *W. R.*

THE GREAT FAN PALM.

CORYPHA UMBRACULIFERA, *Linn.*; and SABAL BLACKBURNIANA, *Lodd.*

IT is recorded that Corypha umbraculifera was introduced to this country a short time previous to 1742, by Lord Robert James Petre, who was a great cultivator of rare plants, at Thorndon Hall, in Essex. I have been favoured by the present Lord Petre with a copy of a list of the Palms in Lord Robert's collection in 1736, in which nine species are named in the ante-Linnean style; I have, however, been able to identify them with known species, but I do not find any to agree with Corypha umbraculifera. It is nevertheless curious that about that time Lord Petre sent a young Palm plant to Mr. Blackburn, of Orford Hall, in Lancashire, which appears to have flourished, and was known by the name of Corypha umbraculifera, and no doubt afforded evidence for the insertion of the name in "the first edition of Aiton's Hortus Kewensis," published in 1786. Two plants at Kew, known to be the same as Mr. Blackburn's plant, were also called Corypha umbraculifera.

Mr. Blackburn's plant having been moved to Hale Hall, flowered in 1818, and produced fruit, and it was then found not to be C. umbraculifera of India, but a species of the genus Sabal, which belongs to the western hemisphere. In 1828 the stem of this plant had attained the height of 5 feet 2 inches; the length of the leaf was 15 feet, and the blade 10 feet in width; it had 30 leaves. In that year it again flowered, and produced a bunch of fruit weighing 35 lb., which contained 5640 berries.

In consequence of the rapid growth of the plant it became necessary to raise the roof of the house several times; an operation which had its limit, but not so the plant, which induced Mr. Blackburn to offer it to the Kew collection, but after much consideration it was found that it could not be easily conveyed there by rail, therefore in order to preserve it some time longer, the earth was excavated from below it, and the plant was let down several feet: an unfortunate operation, as the water rose amongst the roots, and ultimately proved fatal to this noble Palm tree, after having attained the age of 120 or 130 years.

The remains of the principal portion of the stem are now deposited in the Museum at Kew; its length is 15 feet; the base is 3 feet 6½ inches in circumference, swelling out in the middle to 4 feet 8 inches, and where cut off below the leaves the girth is 2 feet 11 inches.

With regard to the two Kew plants, I have not been able to ascertain the date of their introduction or from whence they came. Judging by their appearance in 1820 it was evident that they could not be less than from 20 to 30 years old; they were then strong plants, growing, one at each end of the old Palm-house, where it was evident they had been for a number of years; their leaves were from 12 to 14 feet in length, rising from the ground, no true stem having yet been formed.

In 1828 in order to insure the safe removal of these plants at some future time, their roots were confined within brick pits. Ten years afterwards the hitherto hypogeous axis had attained its normal diameter, and a cylindrical stem, about a foot in diameter was seen, which by the successive development of new leaves, and the falling away of old ones, showed an increase in height of about 2 inches yearly. In 1848 the brick-work was removed, and the whole mass of roots and earth of each plant was enclosed in wooden boxes, and in that state was conveyed to the present Palm house without injury, although the weight of the largest plant was 16 tons. They were placed in their present position in 1860, and were magnificent plants in 1864, the stem of one being 12 feet high and 4 feet 6 inches in circumference at 2 feet from the base; that of the other was 9 feet 7 inches in height and 4½ feet in circumference. Both have produced perfect seeds, from which young plants have been raised and dispersed to many botanic establishments. It therefore appears from their rate of growth that this Palm requires from 40 to 50 years to complete the diameter of the base before it assumes the character of a stem above ground; and calculating from data thus furnished, the Kew plants will have head room where they now are, for 100 years.

Two plants of this Palm were also in the once renowned collection of Messrs. Loddiges, at Hackney, and both Messrs. Loddiges and myself observed that the foot-stalks of the leaves were smooth, a circumstance which, coupled as it was with the flowering of the Hale Hall plant, proved that the plants at Kew and Hackney were not Corypha umbraculifera, but a species of Sabal, a genus common to tropical America. The name of Sabal Blackburniana was therefore given to it by Messrs. Loddiges, who entered it in their Palm catalogue under that name. S. Blackburniana should therefore be adopted; and I learn from Mr. Hermann Wendland, of Hanover, that he is of the same opinion. He also informs me that this Palm is a native of many parts of Central America; that he observed it in several places near villages, where the leaves were used for domestic purposes.

Let me now turn to the true Corypha umbraculifera of India. Two seeds of this Palm were received at Kew in 1824. After being planted they quickly germinated, and before being observed had made stiff tap roots about 6 inches in length; they were both carefully potted, but it soon became evident that common pots were not suitable for them, as their thick fleshy roots were continually finding their way through the holes at the bottom, penetrating to a great depth the materia. on which the pot stood; tan soil, brick rubbish, or coal-ashes being apparently equally agreeable to them. Depth, therefore, being found necessary, they were placed in deep chimney pots, in which they remained for several years, and notwithstanding every experiment these two plants grew very slowly for the first 30 years. Although making long thick roots, their leaves during that time did not exceed 12 to 15 inches in length, the plants presenting a stunted unhappy appearance, and the rubbish-heap seemed a more fit place for them than the warm corner of the tan-bed. As however I took special interest in them, they have withstood all the vicissitudes of 40 years, and during the last 10 years have assumed a more promising appearance.

In 1863 they were placed in deep cylindrical pots, made specially for them, and the longest leaf of one of the plants now measures 4 feet 2 inches in length, and the width of the blade is 3 feet 1 inch. Therefore, should they meet with no untoward event during the next 40 years, I have every reason to believe that they will then be plants of considerable size. Judging, however, from the slow growth of this Palm, and also on putting it in comparison with the long period which the diameter of the stem takes to form in Palms of this group, it may be calculated that it will be equally long before a cylindrical stem will be seen rising above the ground. Such being their slow rate of growth, it may therefore be calculated that the third generation from the present time may see these two Talipot Palms equal in height to the plants of Sabal Blackburniana, now in the Palm-house at Kew.

Much attention was paid to the growth of this Palm by the Messrs. Loddiges. A few years before their noble collection was broken up, a narrow box 6 or 7 feet high, was to be seen standing in their Palm House with a small plant on the top of it; this was, as the late Mr. George Loddiges said, the last expedient in trying to grow Corypha umbraculifera. *J. Smith, ex-Curator, Royal Gardens, Kew.*

GENTIANS.

How frequently in these days do we hear aged people inquire after some of the flowers of their youth, old-fashioned flowers of days gone by, old favourites that have been discarded for more modern introductions? Amongst old plants now fast disappearing, I am sorry to have to enumerate the beautiful Gentians, acaulis and verna, two charming spring rivals; indeed few spring flowers are more lovely than these; and I question if the spring Gentian (G. verna), which is the best and most beautiful of all the species, opening as it does its large blue dazzling flowers in April, has any equal at that season. Its dense tufts of brilliant blue flowers are indeed unsurpassed for effect, and the effect is obtained just at a time when floral display is much needed.

It is true that it is somewhat shy as regards cultivation. It is, however, perfectly hardy, and where soil and situation suit it, it flourishes and flowers most freely, which is the case here, where it is used as an edging to several diamond-shaped flower beds, in lieu of box, on two coloured designs, on either side of the conservatory. The situation is elevated and consequently rather dry, but partially shaded. I attribute the success of the plant here, however, to its being planted in lime and mortar rubbish, the same being used rather thickly on the walks to keep down worms. Into this it roots freely; indeed nothing can do better than it does here, growing as it does as freely as Couch Grass. I also find it to do well in a mixture of maiden loam, mortar, rubbish, and gravel. I generally plant divisions of the roots as soon as the plants have done flowering, but I have planted in autumn with equal success. In order to ensure a profusion of blossom the plants should not be removed too often.

In raising plants from seed it is requisite to sow as soon as the seeds are ripe (otherwise they soon lose their power of vegetating) in pans filled with rather heavy peat. Sow on the surface without covering, except a slight sprinkling of silver sand, then place the pans either in a cool frame facing the north, and kept close, or on the north side of a wall, where they are completely screened from the sun, and cover them with a hand-glass. As soon as they are large enough to handle prick them off in a bed composed of the compost alluded to above, where they can remain until their final planting. This short notice will suffice to answer some private inquiries that I have not answered by post. *Edward Bennett, Osberton Gardens, Worksop, Notts.*

Home Correspondence.

Bedding-out.—The accounts of bedding-out which appeared in your columns last year remind me of days of yore when Chiswick was in its glory—when times out of number we used to read reports of the same specimens which were well known to have been staged at these monster shows for years, and which were as well known to everybody as the vans that brought them. At last people cared little for the plants, the company and the music being the chief attraction, for who wished to be pushed about to see Messrs. Fairbairn's monster Cavendish Heath, or the late Mrs. Lawrence's huge Pimeleas, that had so often been seen before. Now in regard to bedding-out we have repetition similar to that just alluded to in every garden. Stella is extolled in some reports; Christine

looked gay; Lord Palmerston is described as one of the best of the Nosegays, while Mrs. Pollock, Bijou, and a few other things, are always spoken of in terms of praise. Go where one will, there is so much repetition and sameness that bedding-out is now as lightly looked upon as those Chiswick specimens were in days now passed away, and I believe that many who were once most enthusiastic as regards the care of their flower gardens, are certainly losing interest in them. Nor can any other result be expected. Our employers visit their neighbours' gardens, and return home to look upon a counterpart of what they have just seen. Nothing new in style or colour has been found in their travels: true, perhaps, Mr. So-and-So's bed of Stella looked better than theirs at home, but then Mrs. Pollock, or some others, were much better at home than elsewhere; and this is the fact throughout the country. Again, hundreds of yards of Cerastium, Amaranthus, Lobelias, Pelargoniums, &c., are to be met with at most large establishments, while smaller ones have the same kind of decoration in a proportionately less degree. Well, then, may lovers of flower gardens feel dissatisfied with our present style of bedding out; but surely something can yet be done to revive the love of flowers. The tyro who can furnish matchless beds of Stella, Christine, and hundreds of yards of ribboned borders, has not yet surely exhausted his skill. Let us hope that past seasons have taught us a lesson never to be forgotten. The question then is, What is to be done? this I will not venture to answer, but must content myself with directing attention to the unwise practice of too closely copying our neighbour's faults, of which we have all been more or less guilty. Nevertheless by means of skill in planting, flower-beds may be greatly varied and made very showy if not interesting, even with the materials which we now possess. Circular beds, which are best for effect, have been quartered, banded, and edged in so many different ways and colours, that this style of edging, like the use of crinoline, is now but little in favour, and has but few admirers. Panel work is pretty when not over-done, but the plan of dotting a few plants here and there on a ground-work of Cerastium, Alyssum, &c., is, to say the least of it, not tasteful. The last absurdity of which I will now speak, is making large mounds of earth similar in shape to a haycock, and filling them with plants. These have to be made and planted at the same time, and look long, naked, and ineffective. Now, as I have no wish to be unnecessarily obtrusive, let me come at once to the point, and declare that we must have more taste and skill displayed in our bedding-out system. As some of your correspondents have stated, we must have effective beds, let the season be what it may; we have colours in abundance, and we must study how best to make use of them. Now, a good result will in some measure be attained by planting mixed beds; here great skill will be required. In planting what are called self beds, with edgings, little taste is needed, but in the mixed system will be found full and ample scope for the judgment of even our most clever men. To plant a large flower garden, the greater portion of the beds to contain two or more colours, so planted and mixed with coloured foliage or flowers, that the effect will not be marred let the season be wet or dry, is the principle which I feel convinced should be adopted, and one which I would seriously recommend for consideration. It will give us a greater variety, it will prove interesting, and above all, if skilfully carried out, it will ensure beauty and striking effect, let the season be ever so unfavourable. Flower gardens then will prove interesting; our employers will inspect their neighbours' floral decorations again with pleasure, and will then certainly meet with something new and pleasing; such combinations as the Iresine and Mrs. Pollock, Viola cornuta and Mangles' Pelargonium, Flower of the Day and Coleus Gibsoni or Perilla, are such as will prove attractive and beautiful. *Edward Bennett, gr. to G. S. Foljambe, Esq., Osberton Hall, Worksop.*

Preserving Pelargoniums during Winter (see p. 492).—Some nine years ago I had all our flower beds trenched in autumn, burying their occupants, which the frost had rendered unsightly, to the depth of 2 feet. Twelve months afterwards several of the beds were again trenched, when many of the Pelargonium stems turned up appeared quite fresh. I had some of them potted, expecting to obtain variegation, but I was disappointed, for all produced fully developed green leaves. Pondering over this result, I came to the conclusion that if some 10 per cent. could retain their vitality for 12 months under 2 feet of soil, and stowed away in a most unceremonious manner, surely with care 90 per cent. might be saved. In order, therefore, to carry out this view, a pit very much like a Celery trench was prepared at the proper time, and after frost had in a great measure destroyed the tops about 1000 stems were thus stowed away, all in an upright position, with the roots downwards. Dry hay was then packed over them to fill up the trench or pit; a few sticks were laid across for support, when all were covered over with half rotten leaves sufficient to keep out frost. In March, when this trench was opened, the hay, although still dry, had become mouldy, and had evidently affected the Pelargoniums in no small degree. Still about three parts of them were alive, and after having been potted and encouraged with a little heat, the greater portion of them were planted out in May in the shape of nice stocky plants. In the following year the trench was again filled exactly as before, except that no hay nor straw was permitted to touch the top of the stems, which I considered had been injured thereby. In this instance the plants received very little harm from frost. They had been cut back, and every leaf taken off; and when they were taken out all appeared the same as when they were put in. I next tried stowing them away in boxes, packed in pine sawdust. The stems were dry when put in, and in March, when taken out, about 70 per cent. had made shoots an inch long. I have also tried ashes, soil, and dry sand for packing, an experiment which scarcely turned out to my expectation. In the autumn of 1865 I had some three light frames filled with Pelargoniums, not in pots nor in soil, but all packed as closely as possible, with the root end downwards as before. The frames were covered up with leaves during the greater part of the winter, only allowing daylight to their occupants when the sun was shining; but, whether from drip or change of temperature I do not know—perhaps both—I lost more than one-half of them. Not satisfied with this, I had the same frames filled last autumn. In this instance all the plants were potted, putting 10 or 12 in a 6-inch pot, and set as closely as they would stand. The frames were protected with mats in the usual way, and received the same attention as the others, except as regards water, which was withheld. This spring about three parts were alive. They were repotted, and now occupy their places again out-of-doors. *D.*

Orchids and their Cultivation.—By some inadvertence the descriptive note on Oncidium leucochilum (p. 655c) has got mixed up with that on O. ornithorynchum. The description, so far as leucochilum is concerned, ought to stop at the sentence finishing with "gives a character to the plant." The remaining portion of the paragraph refers exclusively to ornithorynchum. In addition to what appears with reference to leucochilum, it may be stated that it is capable of producing pseudobulbs 6 to 7 inches long, and as much in circumference, and throws a large branched panicle, yielding from 100 to 300 blossoms, an example of which I hope to be able to send, with Mr. Dawson's permission, to a forthcoming Floral Committee meeting. The flowers vary in size and colour, all having the lower portion of the lip white, and the upper portion, along with the sepals and petals, of bistre and brown, in bars and spots on an olive ground. When well cultivated it is one of the most attractive among the many Orchids, and thrives well under cool treatment, although it is not safe to risk it in an atmosphere below 40° when at rest. *J. Anderson.*

Early Peas.—In your impression of June 15 (p. 631), Mr. Turner informs us that he picked Peas at a certain date, showing that Ringleader was several days earlier than Sangster's No. 1. This was already patent to every gardener in the three kingdoms. What is wanted to be known is, is Ringleader a synonyme of any other variety? A correspondent, signing himself "M. N. E." in a previous number of your Journal, states that Ringleader, or Carter's First Crop, is only a synonyme of Dillistone's Early Prolific. If the senders out of these Peas can refute this statement, why do they not do so? If it is not contradicted, myself and many amateurs and professional gardeners will accept it as true. If these Peas are really proved to be one variety, a check ought to be put to stop old things being re-named. *H. S., Carshalton.* [The Chiswick trials settle these points conclusively. We shall report on them shortly. Many of the so-called novelties among Peas, and other vegetables, no doubt originate thus:—Under ordinary culture, the stock of a given variety deteriorates, and this may go on gradually for a few years, so as to be little noticed. Some one then selects from it the true (or, as he may suppose, a new) form, and carefully grows and seeds it; and the result is a true stock of an old variety. The service rendered by this means is as great as that of raising a new variety, but its tendency is also to multiply aliases. EDS.]

The "Silver Pine" of Table Mountain.—I have thought it may interest some of the readers of the *Gardeners' Chronicle* to know something of the so-called "Silver Pine" of Table Mountain. I therefore send a few observations which I have received from a gentleman who has been for some years resident at Cape Town. My correspondent says, when sending seeds and leaves of the tree under notice: "I add a few words on where and how the silver leaves grow. On entering Table Bay you see the city of Cape Town, situated at the foot of a large flat mountain, which rises abruptly to the height of about 3000 feet above the sea; this is 'Table Mountain.' During the stormy season a dense white cloud is often seen spreading rapidly over the top, and is a warning to sailors (who call it the 'Devil's Table-cloth'), for it is the forerunner of terrific gales. Yet, while the head of the mountain is thus awfully enveloped in raging storms, and vessels in the bay toss or flounder on the rocks, the Silver Pine sways to and fro on the mountain side a thousand feet below the line of cloud, where the trees grow over a small area of rugged rocky ground, gaily glittering under the frowning storm as the sunbeams play over their silvery leaves. The tree rises to the height of about 15 feet, having a straight, branched, shrub-like form, covered throughout with silvery down, and bearing a beautiful Pine-like cone, containing many seeds set in flossy silk. This tree would appear to be of little use, and has nothing but its beauty to recommend it." The leaves sent by my correspondent are certainly very beautiful, but they are not the leaves of any Conifer. On the contrary, they are those of a Proteaceous plant, very probably of Protea argentea. δ. [It is Leucadendron argenteum. EDS.]

Garden Walls.—I cannot help protesting against the denunciation of garden walls which occurs at p. 631. Nobody can object to your two correspondents advocating glass walls to their hearts' content, but to talk of garden-walls as things which ought to be of the past, is nonsense. What feature of a good English kitchen garden is better or more enjoyable than a well-managed, well-covered wall of fruit trees? I happen to know a few places in the south of England and Ireland where the walls are among the best features of great gardens, bearing fruit abundantly, and being as attractive a sight as one could see. I believe moreover that a cheap method of building, and good method of managing garden walls is one of our chief wants. Of course there are parts of the country where they are useless for fruit, but that is anything but a reason why they should not be made the most of in those parts where they are capable of producing the best results. Even if a garden were furnished with a dozen such houses as those suggested, the good gardener would still find it desirable to have his walls, and could moreover make good use of every inch of them, no matter what point of the compass they might face. *W.*

Sedum spectabile.—This is one of the finest autumn flowering plants introduced of late years, being at once distinct, perfectly hardy, fine in flower, and handsome in foliage. For association with the nobler hardy plants in beds, there is nothing to surpass it, and it may also be used around shrubberies, as a pot plant, a rock plant, or a first-class border plant. When specimens of it are fully exposed to the sun and air, and well-established—which they become in a year or so—it is particularly fine, and flowers till the season is just over, keeping company with the Tritomas. It begins to push up its fat glaucous shoots in the very dawn of spring, and keeps growing on all through the early summer, and continues in a perfectly presentable condition. The plant is known by the name of "Fabarium" or "Fabaria," in our gardens, and that has caused some little confusion, as the true S. Fabaria of Koch is quite distinct from, and a very poor plant compared with it. The plant was in the first place named Fabarium by M. C. Lemaire, but as this was likely to cause some confusion, M. Boreau named it spectabile, which, considering its very noble character as a Sedum, and the desirability of having a distinct name for a plant so distinct, is on the whole the best. The plant is one of the easiest to propagate and grow that has ever been introduced to this country, and deserves to rank among the very best herbaceous subjects. *R.*

Variegated Pelargoniums.—Permit me to thank you for your courteous answer to my queries upon variegation, and to add that I cannot accept your conclusions as final. I am not prepared to admit that variegation is a disease, that it is something distinct from coloration, nor that only the two colours, white and yellow, are to constitute variegation. I think it equally or more probable that variegation is a higher development than an imperfect, diseased condition of life, and would rather accept the plain grammatical meaning of the word, which is, to stain or diversify with various colours, than accept capricious distinctions between it and coloration; and see no good, nor, in fact, any reason, for excluding pink, red, orange, blue, or violet, from the category of variegation. This is hardly the time to establish hard and fast lines in such matters, when variegated plants are increasing so rapidly, and the public demand for them even outruns the supply. In reference to there being anything unfair, on the eve of a great show, in altering the usual standard of variegation, I reply that there can be no usual standard in the matter, while plants that you would disqualify as not variegated, receive the first prizes at Manchester as variegated. [This is not evidence: there may have been no competing collections, and the judges may not have thought it a question necessary for them to open. EDS.] The fact is, the rapid influx of new colours has upset the usual standards, and the sooner these standards are adapted to admit our new productions the better. Unless this can at once be done, I fall back upon the plain meaning of the word variegated, which would include every variety that is stained with different colours. It is a matter of simple justice to all the exhibitors that the question should be settled now before the exhibition. All of them will be satisfied to be fairly beaten or fairly victorious. None will be quite satisfied if certain classes are excluded from the contest on simply technical grounds. For the sake then of the exhibitors as well as to increase the richness of the Bury Show, I am anxious that the term variegated should be rendered as comprehensive as possible, and will memorialise the Council of the Royal Horticultural Society to that effect. I have much pleasure in directing special attention to the subjoined proposal for Challenge Cups for Pelargoniums at the Bury Show, received from Mr. Watson, of St. Alban's, the raiser of the beautiful Miss Watson and other fine varieties, and will be happy to co-operate with the raiser in any way to carry out his spirited proposal. Letters or remittances addressed to me will receive immediate attention, and the arrangements will be announced as soon as completed. As will be seen at once, this is a new proposal, and leaves the schedule of prizes intact. It is really a 20*l.* and a 10*l.* sweepstakes added to the already liberal prizes offered for these plants at Bury. Mr. Watson's appeal to the standard laid down in the *Chronicle* would also remove these prizes out of the regions of dispute concerning variegations, and might, if responded to, furnish an additional reason for a comprehensive explanation of the terms in the other classes. *D. T. Fish.* [The point which we must conclude Mr. Fish fails to see is this—that variegation, which is a question of vegetable physiology, has already a definite botanico-horticultural meaning, notwithstanding the imperfect notions which this discussion serves to show are abroad concerning it; and that this meaning cannot be altered or another definition given without increasing the confusion which exists, if indeed vegetable physiologists would accept it—which they would not. If it is desired or desirable to include all plants showing a departure from the normal green of ordinary leaf-colouring, or presenting a painted leaf-surface, under one designation, for the purpose of exhibition or otherwise, that is another question; but if such a course is to be adopted, a new name must be found. As regards the Bury show, it is for the Royal Horticultural Society, or the Bury Committee, jointly or severally, to define what they meant by the word "variegated;" but with

all deference to Mr. Fish, whose extraordinary and overtaxing labours in connection with this show deserve the fullest recognition, we must hold that if the word was to have had any new meaning assigned to it in this case, the definition should have gone out when the schedule was issued, and not be brought forward at the last moment, after intending exhibitors have been for some months preparing their plants. EDS.]

Variegated Zonal Pelargoniums.—There is and will continue to be great misunderstanding with these variegated, zoned, and other beautiful foliaged Geraniums until you positively adopt a settled descriptive name. I think there can be no more distinct or convenient appellation for the whole family, variegated or not, than "Handsome" or "Ornamental-foliaged" Pelargoniums. This should be well understood in reference to the coming Exhibition at Bury, as it will bring in every one. For instance, the best 12 seedling Pelargoniums (handsome or ornamental foliaged: versicolor, tricolor, bicolor, or zonal). Tricolor has been shown to be an improper term; parti-colored, marbled, variegated, tartan, &c., are indefinite. I consider the terms versicolor, tricolor, bicolor, unicolor, and zonal all that are necessary. *Jabez J. Chater, Gonville Nurseries, Cambridge.* [For ourselves we are content with, and mean to abide by, the term Zonal for the whole group, and for the so-called Tricolor-leaved we adopt that of Variegated Zonal. There would be Green Zonals, Golden Zonals, Golden Variegated Zonals, Silver Variegated Zonals, and Marbled Zonals; and there would be also Golden Variegated Marginates and Silver Variegated Marginates, as well as Concolorous Green and Concolorous Golden varieties. EDS.]

Challenge Cup for Variegated Zonal Pelargoniums.—The following letter, addressed to Mr. Fish, has been forwarded to us for publication:—I see by the *Gardeners' Chronicle* there is a cup, value 10*l.*, offered for the best 12 Seedling Variegated Pelargoniums of 1866 and 1867, for which I should be glad to compete, but under this arrangement it is impossible for me to do so, for the simple reason that as soon as I see a seedling is not likely to be useful I discard it at once; and as to Seedling Pelargoniums of this class, I see but little advantage to be derived, either by the public or private individuals, from exhibiting them in this state, as it is well known among raisers that there is no dependence on them until their character is settled, both as to habit and colouring. The object to be sought is to know who has the best kinds not yet sent out, and the only way to bring out the right kinds is to have a Challenge Cup, value 20 guineas, to be awarded to the raiser of the two best; and a second cup, of the value of 10 guineas, to the raiser of the one best kind, allowing any raiser to compete for both cups, and no raiser to exhibit less than six plants of each kind. This would show plainly who has the best to send out in the two years to come, '67 and '68; the plants to be judged according to rules laid down in the *Gardeners' Chronicle*. Now, I am willing to subscribe 5*l.* 5*s.* toward the above prizes; will you and your friends contribute the remainder? If not, an appeal through the *Gardeners' Chronicle* would no doubt be responded to at once, and the desired end would be gained. Of course it is understood that I shall be at liberty to compete for both prizes. Please let me know if my offer is accepted as quickly as possible, and I will forward you my 5*l.* 5*s.* at once. *John Watson, St. Alban's, June* 22. [Though Mr. Watson only uses the term "Variegated," it is clear that he means the "Tricolor-leaved," or, as we call them, Variegated Zonal varieties. EDS.]

New Roses.—This question may doubtless be argued on two grounds—1, that of fact; 2, that of precedent. First, as to fact. In the prize schedule of the Royal Horticultural Society for June (p. 5), are these words:—"New Roses not sent out previous to 1864-5." Now, to say that Roses sent out in France in November, 1863, are not sold or sent out in England previous to 1864, is a piece of special pleading, and, moreover, contrary to fact, as I have myself frequently sold such Roses to amateurs immediately on their arrival from France. So much for fact. Now for precedent. I discard at the outset all prize schedules which are worded differently to the one under discussion, maintaining that such are not parallel cases. As a precedent, I refer to the prize schedule of the International Horticultural Exhibition of last year, where the wording is identical with that of the Royal Horticultural Society's schedule for June. Referring to the list of varieties taking the prizes there (see report of the proceedings, p. 304), it will be seen that no Rose sent out in the autumn previous to the lowest date (1863) was shown. This, I apprehend, demonstrates that the exhibitors understood this wording of the schedule to mean that Roses sent out in the autumn of the year were Roses of that year, and not of the year following. It is important that the same definition of this question should be admitted by societies, judges, and exhibitors, as Roses of two years' growth cannot be expected to compete successfully with Roses of three years' growth. *William Paul, Waltham Cross.* [Our opinion on this point is already expressed—that, being a question of fact, it should be decided according to fact, and that the Rose sent out in the autumn of 1867 is a new rose of 1867 for any and all purposes. EDS.]

Lilium auratum.—A fine specimen of the Lilium auratum, the Queen of Lilies, is now flowering with Messrs. Kennedy & Co., Dumfries. The stalk is double, and measures 7 feet 1 inch in height. The flowers on each stalk measure from 14 to 15 inches across, there being eight on one and seven on the other, and they are not more magnificent in hue than exquisite in proportion. The variety is one of those with beautiful pearly white flowers, studded with small rich crimson spots, and having golden bars to each petal; while not the least charm of this truly glorious flower is the nice perfume which it emits. *W. Kerr.* [Larger specimens still have been recorded. EDS.]

Strawberries.—These are late here, owing to the frosts cutting off the first expanded blooms. Crops here of all kinds are still good; indeed those of Rivers' Eliza, Wonderful, and Cockscomb, are safest. Under glass, with heat only at night in severe weather, Eliza, Wonderful, and Paxton, have borne capital crops. Paxton is large, handsome, and a very good forcer. *W. F. Radclyffe, Okeford Fitzpaine.*

Small Birds.—We are eaten up—at least our crops of Peas—with hawfinches this year. *Filix-Mas, Maidenhead.*

Peach Trees Casting their Fruit.—I wish to know why the fruit in a late Peach-house keeps dropping; it is about to begin swelling the second time. The stone is well formed, but the kernel is in a partially, and in some instances completely, rotten state. Is it because the trees are too wet at the root? *W. S. D.* [Peach trees cast their fruit from various causes. Excessive vigour of growth will produce the evil, or irregularity in the flow of the sap, which may be caused by too much heat, too much moisture at the roots, or too great a degree of dryness. EDS.]

Royal Ascot Grape.—Mr. Carpenter (see p. 657) does not deny that he allowed my Vines to become smothered with mildew, but he wants to place on my shoulders the responsibility of causing the pot Vines of the "Royal Ascot" to crack. The fact is, he kept this and all my other pot Vines so miserably short of water that Black Hamburghs assumed a pink hue. I told him of this, and then he, I imagine, completely deluged them. As to whether manure-water, properly applied, causes pot Vines to crack or not, I leave to those who really know how to grow them. I did not prescribe the quantity he should have used, that of course was left to his own judgment. Mr. Carpenter's intimate acquaintance with this variety has, however, induced him fully to appreciate some of its many good qualities; he must acknowledge that it "is a luxuriant grower, short-jointed, and a good Grape." The Black Hamburgh is at present far too great a favourite for me to expect gardeners to root it up to make room for the Royal Ascot. Rome was not built in a day, nor will the Black Hamburgh be suddenly banished on the approach of even a better Grape. Mr. Carpenter disputes the claim of the Royal Ascot to earliness. I again affirm that it will stand early forcing better, and set in a lower temperature, than the Black Hamburgh; and that if grown with that variety it will be coloured and fit for market the first. As a late Grape, the Black Hamburgh cannot be compared with it. In short, many of our leading Vine growers have already seen this Grape, and have formed most favourable opinions of it. I purpose showing fruit of it at the next Regent's Park Exhibition, which takes place on the 3d of July, and I shall also submit it to the Fruit Committee of the Royal Horticultural Society at South Kensington. All who happen to attend on these occasions will therefore have an opportunity of seeing it. Mr. Carpenter is desirous of knowing whether I have cut or am able to cut a bunch of this variety ¾ lb. in weight. I am happy to say that I have done so, and that I shall do so again. I should possibly have had some 3 lb. bunches this season if the Vines had not had their constitutions impaired last year. Your correspondent is greatly mistaken in saying that the Royal Ascot is a fortnight later than the Black Hamburgh, and that I cut Muscats long before the Royal Ascot, all having been started on the same day. I sent the Royal Ascot to market as early if not earlier than any Muscats, and the latter were started six weeks before the former. *Jno. Standish, Royal Nurseries, Ascot, Berks.*

Cabbages v. *Turnips.*—In a newspaper of Saturday last, that devotes a column weekly to gardening, appears the following as an answer to a correspondent:—"Turnips blooming by the side of Cabbages will assuredly spoil the seed of both." Now I have never heard that the common Turnip and Cabbage will mix when in bloom, neither have I ever seen any hybrids between the two. In going through some of the large seed growing farms in Kent I have observed plots of Cabbage seed growing in the middle of pieces of Turnip seed, and always understood that by growing it thus the Cabbage seed would be pure. Will any of your correspondents state their experience on this subject? *J. K., Wilts.*

Vanilla planifolia.—I observe that it is stated (see p. 654) that probably the best plant of Vanilla in this country is growing in the Sheffield Botanic Garden, under the able superintendence of Mr. Ewing. I can only say that it must have made extraordinary progress, if it surpasses or even approaches in size that growing in the Pine stove at Osberton Hall, under the care of Mr. Bennett; for when I was last at the Sheffield Botanic Garden, in 1864, it was decidedly not half so large as Mr. Bennett's plant. It is, however, but fair to state, that Mr. Ewing is a most successful cultivator of this plant. *Thos. Simpson, gr. to Henry C. Wells, Esq., Broomfield Lodge, Chelmsford.*

Apples.—I think that Mr. Earley (see p. 492) will be found to be right about the failure of the Apple crop. I have 42 orchard trees. I carefully inspected them with my servant last week. They are marked in my book thus: One tree capital; 14 trees good; six trees a few; 21 trees nothing. My friend, Mr. Watts, of Tarnworth Farm, near here, made 130 hogsheads of cider last year; he says he shall make little or none this year. He has taken my landlord's, Lord Rivers', fine farm of Melcombe Park, where there is a fine orchard; he says there will be scarcely any Apples there. Okeford Fitzpaine is a parish of orchards; the account is the same. In passing, I advise persons to purchase cider from clay lands, as, if it is intended to be kept, it is better for the purpose than cider grown on chalky lands. The best cider known is the Cockagee cider, grown near Taunton. When bottled it is superb, but it is apt to blow up. *W. F. Radclyffe.*

Roses.—These are abundant and superb here this season. The following of late date are fine, viz., Marguerite de St. Amand, Duchesse de Caylus, Rushton Radclyffe, Dr. Andrey, Bernard Palissy, Madame Moreau, and Charles Margottin. Of the Roses of 1867 the following have just bloomed, and can be recommended, viz., Lady Suffield, Black Prince, and Globosa. The first is a very superior one, of perfect outline, great substance, well disposed smooth-edged petals, fine colour, and of good growth and foliage. The second is of a splendid colour, dark bright crimson, darker shaded, a fine trusser, and has the finest foliage I ever saw. The third is intensely brilliant crimson, is very fine as an infolded Rose, but when expanded it is not equal to the first. Dr. Lindley is not yet open. Its growth and foliage are fine. I saw Dr. Lindley twice in one year in London, and thought it one of the best seedlings I ever saw, and likely to be a grand Rose. The Black Prince is very handsome, but at present I must award the palm to Lady Suffield, which appears to me to be faultless. Roses have been much checked, and doubtless novelties will do yet better when we get warm nights. The three Roses above do Mr. W. Paul great credit; and I have no doubt the fourth will do the same. *W. F. Radclyffe.*

A Lovely Old Plant.—In visiting Mr. Luddeman's very prettily situated nursery the other day, I was much struck with the beauty of Agalmyla staminea, which is a very rare plant to what it ought to be in our gardens, considering its great beauty as a wall or suspending plant. With Mr. Luddeman it was crawling from and around a basket in a stove, and sending from the leaf axils sessile bunches of beautiful scarlet flowers, some open and the majority simply in the bud state, but all equally glowing with peculiarly bright and pleasing colour. Some plants in small pots in the same house had sent a shoot outside of and around the pot, and here again the fine bright trusses shone, so that its great ability as a plant for basket-work and rock-work in stove pots attached to walls, &c., is beyond a doubt. It is one of the best things I have ever seen for this purpose, if not the best. *V.*

Foreign Correspondence.

Vines in Switzerland.—"To prune, or not to prune—that is the question," says "Pomum" (see p. 573). To keep trees at a standstill, or to let them go on gradually extending themselves, keeping a due regard to the proportion of root and branch, is the question, say I. What does "Pomum" mean when he speaks of my wishing to let trees run into "riotous unfruitfulness"? If the example I gave of an old Vine producing at the rate of 300*l.* per acre be "riotous unfruitfulness," then I say, riot on. Permit me to ask "Pomum" what he thinks this fine old Vine would have been to-day had it had a quarter of the care of the Finchley or Cliveden Vines, instead of having had to fight its way among the branches of trees, with no pruning nor training of any kind, except what it gets from a passing boy or a stray donkey. Had it had the care that those Vines have had, I feel sure that it would long since had covered a space as large as the roof of the Crystal Palace at Sydenham.

Can your correspondent give me any proof that the Vine is not a larger and longer-lived tree than the Wellingtonia? I planted a two-year-old Wellingtonia in 1860. I planted a Vine eye at the same time. The former occupies the site of the old public road to Lausanne, and has some hundreds of loads of fine soil to revel in. The Vine is planted in the natural soil, which is very poor, and the top is in an old iron greenhouse badly heated and badly ventilated. The Wellingtonia is a fine young tree about 10 feet high. The Vine covers a space of 45 feet by 15 feet. When the Vine was breaking, or rather nearly in flower, Mr. Auldjo and a Staffordshire banker took shelter in the old greenhouse, and amused themselves by counting the number of "shows," which turned out to be 467. I have only left 150, and although I am not so clever an arithmetician as some, still I think I shall have about 300 lb. of good Grapes from my "seven-year-old." Now this is very fair for a badly used Vine, and permit me to ask "Pomum" what he thinks that this partly "restricted" plant would have been now if it had been planted in a well-made and well-drained border, and its branches in a well-constructed modern Vinery? The weight of the fruit alone on my seven-year-old Vine is heavier than the Wellingtonia of nine years, and if both were to be cut down this autumn, I have more fire wood in my Vine than in my Wellingtonia, and I get my Grapes into the bargain. "Pomum" kindly advises me to go to different parts of the Continent, in order to learn a lesson or two; but I may say that the places mentioned are as well known to me as Charing Cross is to a London cabman. "Pomum's" wine-merchant friend may be the "experienced and close observer" that he says he is; but other "chiels tak notes" as well as "Pomum" and his friend.

Messrs. Pancera & Guillaume, 15, Rue Neuve, Bordeaux, are proprietors of many hundred acres of Vines, as well as large exporters of wine. One of the partners has just left my office, and although he was born and bred in the neighbourhood of Bordeaux, and has been among Vines and wine from his childhood, he does not know where to find a "paying" vineyard, managed on the close-pruning system, of 40 years old, and like me would be glad if 'Pomum's" wine merchant friend would tell him where one is to be seen. "Pomum" seems to have a great horror of having to carry and afterwards mount a 40-feet ladder; but if he is unwilling to climb, that is no reason why we should limit our trees to 6 or 8 feet, as recommended by him. Climbing a long ladder after fruit, or climbing a

mountain up to the line of perpetual snow after an Alpine plant, have no horrors for me; on the contrary, they are pleasures of which I hope not soon to be deprived. *John A. Watson, Campagna Lammermoor, Geneva.*

AUSTRALIAN TREE FERNS.—A correspondent has sent us the following extracts from a letter received from Messrs. Smith & Sons, of Riddell's Creek:—"The last letter I wrote was to inform you that owing to the late great bush fires, when all the saw mills were destroyed, it was impossible to procure any Tree Ferns by that route. Since then new saw mills have been erected in the interior of the vast ranges, and new roads made in the very heart of the great Fern gullies. Therefore we are now in a position to send any quantity, of all sizes from 5 to 15 feet and upwards, and varying from 6 or 9 to 12 or 18 inches across at the crown of the plants. Some large consignments of Tree Ferns have been sent by different Melbourne nurserymen from another Fern tree district; but those sent are by no means choice specimens, as they select the narrowest and lightest in weight on account of the cost of carriage, and the quantity of plants that can be got into a case. The people in England, therefore, have no opportunity of seeing the finest specimens of our Tree Ferns, with sturdy stems, and wide-spreading ample foliage gracefully curled down and covering the stems. There are also some very beautiful forked plants. We shipped last week two cases of a new species of dwarf Tree Fern, of which we are the only discoverers." This Fern is thus mentioned in the "Australasian" newspaper:—'The Todea africana is met with in isolated patches in South Australia (Mount Barker) and in Queensland; but to Messrs. Smith & Sons, of Riddell's Creek, is due the credit of its discovery in Victoria. The fine specimens presented by them to the Horticultural Society's Gardens, are from the gullies of Mount Macedon, and are the first consignment which ever reached Melbourne. The specimen sent to Dr. Mueller weighed about half a ton, and smaller specimens have been sent to the University Gardens, and to the Fitzroy Gardens. These donations illustrate the public spirit by which our nurserymen are actuated, and deserve to be chronicled as examples for amateurs to emulate.'

"We have lately been collecting seeds of one of the largest forest trees in the world, Eucalyptus gigantea, lately measured here, and announced by the Government authorities as 436 feet high. The plant is admirably adapted to succeed in all hot, dry, barren climates, and we have great demand for the seed. The Acacia melanoxylon, or Black Wood, is a highly ornamental forest tree, and the wood is greatly used in all kinds of cabinet work."

CANNAS IN PARIS.—In rambling through an obscure part of Paris the other evening, I encountered a plant of Canna springing up strongly through and around a Box-edging—pretty good evidence that it had remained there for some years. Upon inquiry of the proprietor I found this was the case, and that he had no doubt of the hardiness of several other kinds. How deep are they planted? Not more than 8 or 10 inches. When we consider that the Cannas are amongst the most valuable plants we use for giving grace and verdure to the flower garden, this surely is worth knowing. Indeed, considering their diversity of colour and size, their graceful pointed habit and facility of propagation, we must concede them the first place. They are capable of being used by anybody who grows ordinary bedding plants, and may in fact be regarded as such now. That they may be preserved so very easily through the winter is much in their favour. The following are among the best of the hardiest kinds:—C. Annæi, musæfolia, gigantea, limbata Warscewiczii, nigricans, and zebrina. Of course they will prove equally hardy with us. As it is desirable to change the arrangements as much as possible every year, it may not be any advantage to leave them in the ground, and in that case they may be taken up with the bedding plants, and stored as simply and easily as Carrots, Parsnips, or Potatos. We may thus regard them as hardy plants, and the necessity of using expensive stove things for putting out in the open air is quite done away with. I have no experience of the behaviour of the Cannas in the open air in the north, and fear they will there be found wanting, but about London, and in the south of England, nothing can grow more satisfactorily. I should like to know how far north they may with safety be grown, and perhaps some of your readers would kindly inform us on this point? *E.*

Societies.

GARDENERS' ROYAL BENEVOLENT INSTITUTION.—The Annual Festival of this Institution was held on Thursday evening last at the London Tavern, Sir Robert Peel, Bart., M.P., in the Chair. It is scarcely necessary to state that the dinner reflected credit on this time-honoured establishment, and that the floral and other table decorations added greatly to the attractions of the Festival. The sideboard behind the Chairman's table was occupied by a magnificent display of choice stove and greenhouse plants, which, together with those which adorned the dining tables, were contributed by Mr. Charles Turner, of the Royal Nurseries, Slough; Mr. John Fraser, of Lea Bridge Road Nurseries; and Mr. Williams, of the Victoria Nursery, Holloway. Of the quality of the dessert one word to the wise will be sufficient. Much of it came from his Royal Highness the Prince of Wales, and the remainder from five distinguished patrons of the institution. Upwards of 100 gentlemen sat down to dinner, and a goodly assemblage of ladies graced the gallery. A report of the proceedings in detail will be given next week.

LEEDS HORTICULTURAL.—The Annual Flower Show of this Society, which is always on an extensive scale, was held on Thursday and Friday, June 13th and 14th. Several large tents were devoted to the exhibition, which throughout was of great excellence. One of the most striking features was the tent devoted to dinner-tables laid *a la russe*, of which there were five, each 14 feet by 6 feet, and laid for ten persons. Among those who competed in the class in which real flowers and fruit were necessary, the 1st and 2d Prizes were won by Mr. Hunt, Fruiterer, Leeds, on whose tables were fully 200*l.* worth of plate. Mr. Tiffany and Mr. Gibbons, both of Leeds, obtained the 1st and 2d Prizes for dinner-tables, under the same conditions, except the use of artificial flowers and fruits. Such a beautiful and chaste display of dinner-table decorations has never before been brought together — the dinner-table decorations at Manchester were very meagre in comparison with them. In the same large handsome tent was a most interesting display of wax and paper flowers, Fern-stands, ornamental pot covers, and various drawing-room ornaments; and the tent itself contained much greater attraction than many a flower show does. Very liberal prizes had been offered by the Mayoress of Leeds and other ladies for bouquets, and this brought out a very beautiful display of 31 well made bouquets, and, with groups of flowers arranged for dinner-table decoration, filled a centre table in the dinner-table tent.

There was a fair display of fruit, some of the Grapes, Peaches, and Nectarines, being very fine. Mr. Mitchell, gr. at Hamilton Palace, contributed, not for competition, seven superb Queen Pines, to which an extra prize of 3*l.* 3*s.*, presented by the Mayor of Leeds, Andrew Fairbairn, Esq., was given. There was a very good display of plants, Mr. Baines, gr. to H. Micholls, Esq., Bowden, near Manchester; Mr. W. E. Dixon, Beverley; Mr. Richards, gr. to the Right Hon. Lord Londesborough; and Mr. Stewart, gr. to the High Sheriff, were amongst the principal exhibitors. We noticed a very fine example of Pandanus ornatus, a very distinct ornamental plant, and a fine example of Anæctochilus Lowii, from Mr. W. E. Dixon, and from Mr. Baines some admirable Anæctochili and Sarracenias. The Pelargonium tent was the theme of general admiration. It certainly looked well, and the brilliant banks of Pelargoniums, surmounted by a row of fine Fuchsias, had a glorious effect. Amongst the exhibitors here were Messrs. May, Edwards, Stewart, gr. to the High Sheriff, and Talbot. There was also a capital bank of Zonal Pelargoniums, and the 1st Prize lot of six were wonderfully well grown. There was a small but very select lot of Orchids shown, the chief exhibitors being Mr. Richards, gr. to Lord Londesborough, in whose collections were very fine plants of Vanda teres, Saccolabium præmorsum, Dendrobium Paxtoni, and a very large Oncidium ampliatum majus; Mr. Joys, gr., who contributed a very fine Oncidium divaricatum; Mr. Baines, who had a magnificent Cattleya Mossiæ, Lælia purpurata, and other things; and the Rev. W. Richmond, who had Cypripedium Lowii, Aerides Lobbii, a very fine Aerides crispum Lindleyanum, and other things, all in good condition. We also noticed Oncidium crispum grandiflorum, with flowers fully 2 inches in diameter. Some very fine Ferns were exhibited by Mr. Baines, Mr. W. E. Dixon, and others. Many other things deserving notice were there, and Messrs. Paul & Son had a lot of fine Roses.

There was a brilliant company on the first day, and a good one on the second, but the day was unfortunately unsettled, or there would have been many thousands more. Some excellent music and other attractions, coupled with energetic management, and great courtesy from the committee, always help to ensure a good exhibition here. *D.*

GREAT HORTICULTURAL EXHIBITION AT YORK: *June* 19 *and* 20 were truly holidays for the old city of York, and the Great Yorkshire gala of 1867 brought an immense concourse of visitors from all parts of the country. It is always a great meeting place for practical horticulturists, as the York summer shows have a wide-spread reputation, and no one could this year go away disappointed. Seven large tents were well filled, and the competition in several classes was very close indeed. In the class for 12 Stove and Greenhouse Plants there were four exhibitors, and the first prize was well won by Mrs. Cole and Sons, of Manchester, with a magnificent twelve. We question if a finer lot will be ever seen, and they gained unqualified praise from all plant growers. In this lot were extremely fine examples of Allamanda grandiflora, Ixoras javanica and coccinea, Dipladenia amabilis, Aphelexis macrantha purpurea, Ericas Candolleana and tricolor coronata, and Azaleas Juliana and Mrs. Fry. Second, Mr. Baines, gr. to H. Micholls, Esq., with a fine lot, particularly Erica obbata, and Acrophyllum venosum, and Erica tricolor Wilsoni. Mr. Stewart, gr. to the High Sheriff, and Mr. W. E. Dixon, Beverley, contributed two fine lots in this class. In the class for 6 Stove and Greenhouse Plants, Mr. Baines was 1st; Mr. Kendall, gr. to T. Kendall, Esq., 2d; and Mr. Pritchard, gr. to J. C. Yarborough, Esq., 3d. For 3 plants Mr. Richards, gr. to Lord Londesborough, was 1st; the Lord Mayor of York, 2d; and Capt. Darnell, 3d. There was a fair display of Orchids, and for Mr. Williams' special prize of 10*l.* for 10 Orchids, there were four competitors, Mr. Richards, gr. to Lord Londesborough, being placed 1st. In his lot there was a capital Oncidium sessile; an extremely fine Vanda teres var. Andersoni, beautifully bloomed; Aerides Lindleyanum superbum; a large plant of Odontoglossum citrosmum; and a fine Anguloa Clowesii. Mr. Baines, gr. to H. Micholls, Esq., to whom a 2d prize was awarded, had fine examples of Cattleya Mossiæ, Lælia purpurata, Oncidium luridum guttatum, and Odontoglossum citrosmum. The Rev. W. Richmond was placed 3d with some good plants, particularly Cypripedium Lowii, Aerides Lobbii, and Aerides crispum Lindleyanum. In Mr. W. E. Dixon's lot, to whom an extra prize was awarded, were good examples of Dendrobium Farmeri, Cypripedium Veitchianum, and Phalænopsis grandiflora. Mr. Richards also contributed Dendrobium Bensoniæ in flower.

For the Nurserymen's prize of 10*l.* 10*s.*, and 2d prize of 6*l.* 6*s.*, contributed by Messrs. Veitch & Son, and others of the London trade, there was a close competition, the prizes falling —1st to Mr. Gray, gr. to the Earl of Zetland; 2d to Mr. Clark, gr. to Earl De Grey and Ripon. Several fine Melons were shown, also good Black and White Grapes. Mr. Mitchell, of Hamilton Palace Gardens, contributed five very fine Queen Pines, to which a special extra prize was given. There was, as usual, a fine display of Ferns and Ornamental Plants by Mr. Baines, Mr. Stewart, and Mr. Dixon. Mr. Richards had six fine Ericas, which took the first prize.

There was a good display of Pelargoniums, and the 1st prize for 12, 6, and 3 was well won by Henry Steward, Esq., of Bishopthorpe. It was quite evident last year that Mr. Steward was making rapid progress in the culture of these plants, but his complete success this season took all by surprise. They were a grand lot of plants, well grown and admirably finished in bloom. True, Mr. May was not a competitor this year at York, and well for him he was not, unless amazingly strong. Mr. Samuel Naylor, gr. to Mrs. Russell, Bedale, deserves special mention, as his Pelargoniums evinced a thorough knowledge of cultivation; they were beautifully done, and much admired. Mr. George Edwards was 2d for 12 good plants. Other exhibitors also showed Pelargoniums well. Some capital Fuchsias were shown in the same tent, and a very fine lot of Zonal Pelargoniums. Messrs. Martin & Son, of Cottingham, contributed 60 varieties of Variegated Zonals, not for competition, the most striking of which were Sophia Cusack and Amy. Messrs. F. & A. Smith had a batch of their seedlings, the most striking of which is probably L'Empereur. Mr. Watson, of St. Alban's, obtained Certificates for Miss Watson and Mrs. Dix, two good kinds. Mr. Cunningham's Variegated Ivy-leaf Pelargonium L'Elègante, is a very pretty thing, and a Certificate was very properly awarded to it. In the Pelargonium tent was a beautiful display of bedding plants and annuals in pots, which were very much admired; Mr. Goodwin, gr. to Miss Backhouse, being 1st with a beautiful lot; and Mr. Edwards and Mr. Dixon, 2d and 3d. Mr. Baines, of Bowden, contributed a very fine plant of Anthurium Scherzerianum, and Mr. Houghton's three Heaths were in all respects first-class. There were also several capital Azaleas for this late period of the year. Fancy Pelargoniums were not equal to previous years, but Mr. Perry's six plants were well done.

Mr. C. J. Perry and Mr. Henry Steward sent very fine cut Verbenas, and Mr. Perry obtained Certificates for the following first-rate seedlings:—Mrs. Perry, light blue, with white centre; James Birbeck, a superb rosy crimson; Emma Perry, a light flower, with very large and bright rosy red centre; Miss Turner, another light flower, with pale pink centre; and Samuel Moreton, rosy pink with dark centre, and very fine.

In the Cut Rose department of the exhibition, Messrs. Paul & Son and Mr. C. J. Perry were the largest exhibitors. Amongst Messrs. Paul's lot were fine blooms of Leopold Hausburg, Duke of Edinburgh, a seedling, but rather coarse as shown; Madame Guillot, Fisher Holmes, Francois Trevoye, Xavier Olibo, Alfred Colomb, Model of Perfection, and Princess Mary, beautiful in the bud. *D.*

Notices of Books.

Die Geschlechter-Vertheilung bei den Pflanzen, und das Gesetz der vermiedenen und unvortheilhaften stetigen Selbstbefruchtung [The Sexual Arrangements in Plants, &c.], von Friedrich Hildebrand. Leipzig, 1867.

This is a pamphlet of some 90 pages, in which the author briefly reviews all of importance that has previously been written on the interesting subject of sexual distribution in plants, by Sprengel, Darwin, and others; adding his own experience, the result of numerous careful observations, the details of which have appeared in various German periodicals. Throughout, the author endeavours to support and extend the famous Darwinian maxims, which he quotes on his title page:—"Nature tells us in the most emphatic manner that she abhors perpetual self-fertilisation:" "No hermaphrodite fertilises itself for a perpetuity of generations." The experiments undertaken to prove this theory embrace almost every family, although in many instances, as the author remarks, through the absence of a sufficient number of individuals of the same species, repeated observations will be necessary to settle points of detail, and also on other plants not accessible to him.

The facts collected belong almost exclusively to flowering plants, and are arranged according to a system here put forward, under which, with modifications, the author believes, as investigations go on, all can be classified; but Cryptogams have not been entirely neglected, seven or eight pages being devoted to them; and the author states his conviction that self-fertilisation is here also the exception. Very little, however, has been accomplished in this extensive field for experiment, so no attempt has been made at classification.

The following shows the order in which flowering plants are arranged according to their sexual relations, and under each division we give examples and explanations of some of the various contrivances for effecting foreign fertilisation, mostly extracted from the body of the work:—

A. Male and female organs separate in different flowers (diclinous), self-fertilisation impossible, foreign impregnation indispensable, accomplished by insect-agency and wind.

The male and female flowers are either on separate plants (the Linnean class Dicœcia, *e. g.* Salix), or on the same plant (the Linnean class Monœcia, *e. g.* Carex, Quercus, &c.), and either differ in shape and construction, setting aside sexual differences, as in Cannabis, Quercus, &c., or resemble one another, as in Sagittaria, Cucumis, Salix, &c., in both cases without any rudiment of stamens in the females, or of pistils in the males. The third form of diclinous flowers shows a transition from these to hermaphrodite (or *vice versâ*), namely, those in which the males have rudimentary or imperfect pistils, and the females rudimentary stamens (Rhamnus, &c.) The Linnean class Polygamia (uni- and bi-sexual flowers on the same or different plants of the same species) furnishes the connecting link.

B. Male and female organs together in the same flower (monoclinous).

1. One sex developed before the other (dichogamous).

In the majority of plants with bi-sexual flowers the sexes in the individual flowers do not attain their greatest development at the same time, and are subdivided into those in which the males reach maturity before the females (protandrous), and those in which the females reach maturity before the males (protogynous); self-dusting naturally prevented, foreign-dusting accomplished by insect agency.

A large proportion of dichogams are protandrous. When the flowers first expand the anthers are either already open or open shortly afterwards, before the stigmas have become susceptible or capable of receiving the pollen. The Umbelliferæ, part of the Gentianaceæ, the greater part of the Compositæ, Campanulaceæ, Lobeliaceæ, &c., belong to this subdivision.

The protogynous dichogams are less numerous, and only isolated genera and species can be adduced as examples, namely, Scrophularia nodosa, Euphorbia Cyparissias, Mandragora vernalis, Globularia vulgaris, several species of Helleborus and Plantago, Nardus stricta, Anthoxanthum odoratum, &c. Parietaria diffusa offers a striking example of the impossibility of self-fertilisation in a protogynous plant, for here the stigmas shrivel and fall, even before the flower expands and the anthers spring out.

One peculiarity of dichogams worthy of attention is the motion of the stamens and styles to or from one another during the development of the flower. This movement was long ago observed by Koelreuter in Ruta graveolens, where the stamens rise one after the other over the point of the style, and by Medicus in a number of plants,—1, where the stamens move towards the pistil

(Hyoscyamus aureus, Fritillaria persica, Polygonum orientale, &c.), and, 2, where the pistils turn towards the stamens (Nigella sativa, Passiflora, Hibiscus, &c.), but neither appears to have understood its real purpose. The protandrous Geranium pratense furnishes us with an instructive example of the utility of this movement. When a flower is first expanded, the stamens spread out at right angles with the styles, whose stigmas are unopened, and, according as the anthers open, their filaments rise, so that the anthers at length come to stand immediately over the still closed stigmas. By superficial observation one would naturally conclude—as has happened—that this position was intended to facilitate self-dusting, but as the stigmas remain closed until the anthers have shed their pollen, such is evidently not the case. It simply renders the transporting of the pollen by insects to older flowers much easier, as the same part of the insect which comes in contact with pollen in one flower reaches the stigmas in an older one.

Another interesting protandrous plant is Lopezia coronata, in which a certain amount of irritability is exhibited, and the one stamen and style alternately occupy the same position in the flower, to the same end as the movement of the stamens only in Geranium pratense. A further proof of foreign-dusting in dichogams—when the plants are isolated or so circumstanced that the pollen from other plants is excluded—is the abortion of the female organ in the first flower of a protogynous plant, and in the last flower of a protandrous plant, consequent on there being no pollen wherewith to fertilise them.

2. Both sexes developed at the same time.
   α. Flowers opening.
      i. Anthers distant from the stigma.
         A. Length of style on different individuals of the same species diverse (Heterostylia). Self-fertilisation not prevented, but in comparison with foreign-impregnation through insect agency, either entirely useless for fruit formation, as in Pulmonaria officinalis, or attended with but trifling success, as in Primula sinensis.

Under this head reference to Darwin's and Scott's papers on the forms of Primula in the Linnean Society's Proceedings, and Darwin's paper on the sexual relations of the three forms of Lythrum Salicaria in the same place, will be sufficient.

         B. Length of style on different individuals of the same species equal.
            Ω. Sexual organs changing their reciprocal position during the development of the flower, self-dusting avoided, foreign-dusting by insects promoted.

We have given one or two examples of the movements of the sexual organs in dichogams, and we will now extract a similar case with contrivances for the same purpose, viz., prevention of self-fertilisation in a non-dichogamous plant.

The conditions in Anoda hastata are very curious. Shortly before the expansion of the flower, the anthers form a pyramid, the filaments of the upper are straight, those of the lower are bent downwards and backwards, thus concealing the styles. After the expansion of the flower, the upper anthers open, those turned down gradually rising and opening in their turn, exposing the styles which are also turned down, and closely applied to the column of filaments. At length, when the anthers have shed their pollen, and the stigmas have attained their greatest development, the styles rise to a more or less erect position, overtopping the empty anthers, and exposing their stigmas to insect agency.

            ΩΩ. Sexual organs remaining unaltered in position during the development of the flowers.
               † Insect-agency necessary to fertilisation; self-dusting in fact impossible, foreign-dusting indispensable (Orchideæ): or self-dusting possible, but not indispensable, foreign-dusting more likely (Asclepiadeæ).

For details of the mode in which fertilisation is effected, we refer the reader to Robert Brown's "Fecundation of Orchideæ and Asclepiadeæ," and to Darwin's "Fertilisation of Orchids."

               †† Insect agency not necessary to dusting. Self-dusting possible, but foreign-dusting also performed by insects.

The possibility of self-dusting is evident—1, where the flowers are erect, and the filaments longer than the styles, as in Vitis, Chenopodium, &c.; 2, where the flowers are pendent and the filaments shorter than the styles, as in Fritillaria imperialis, Convallaria majalis, &c.; but as all these flowers are exposed to the visits of insects, cross-impregnation probably often takes place.

      ii. Anthers near the stigma, self-dusting unavoidable.
         * No fruit formed without foreign-dusting by insects.

It would scarcely have been deemed credible that a case would turn up in which self-fertilisation was impossible, in such a case as Corydalis cava, where the anthers are closely appressed to the stigma; in fact, where self-dusting appears inevitable. In his experiments the author discovered that when this plant was secured from the visits of insects, and even when the pollen of the same flower was artificially applied to the stigma, no fruit was set. To obtain perfect fruit he found it necessary to impregnate the flowers of one plant with pollen from another. Our space will not admit of giving the details of the manner in which fertilisation is effected in this plant, which, however, the reader may find in the Report of the London Botanical Congress, p. 157.

         ** Fruit formed, but foreign-dusting by insects not excluded.

Instances of undoubted self-fertilisation of individual flowers are known in the genus Fumaria, in Salvia hirsuta, Linum usitatissimum, Cephalanthera grandiflora, Ophrys apifera, &c.; but the number and quality of seed borne is less than where cross-impregnation is effected.

   β. Flowers not opening.
      Self-fertilisation alone results, every foreign-dusting being excluded; but all these plants have other flowers which open, and are thus exposed to foreign dusting.

In a considerable number of plants besides the normal spring flowers others appear in autumn, generally low down the stem near the ground, which are destitute of petals, and firmly enclose the sexual organs, securing them against all outward influences. Both male and female organs are perfectly developed, and the conditions appear particularly favourable for reproduction, the pollen often forming tubes before it has left the anther-cell, and the quantity and quality of the seed exceeding that of the spring flowers. Disregarding the normal flowers exposed to crossing, this seems antagonistic to the view that perpetual self-fertilisation is detrimental. Acanthaceæ, Campanulaceæ, Oxalideæ, Leguminosæ, Violaceæ, &c., furnish examples of this kind of dimorphism. We will now give the author's conclusions, drawn from the foregoing:

1. The arrangements in the majority of flowers are such that no self-dusting can take place, but a transport of the pollen from flower to flower is accomplished instead.

2. Insects are necessary in most cases for the conveyance of the pollen.

3. As self-dusting is prevented, so it necessarily follows that self-fertilisation is impossible.

4. In those cases where self-dusting is possible, or even unavoidable, the possibility of foreign-dusting is for the most part not prevented.

5. And in these cases insects are active, and accomplish the foreign-dusting of the flowers.

6. There is probably no flowering plant in which foreign-dusting, at least to a portion of its flowers, is impossible, and continued self-dusting alone possible; therefore there is no flowering plant which furnishes a proof against the law precluding self-fertilisation.

7. By experiments it has been found, that where unavoidable, or artificially produced, self-dusting takes place, self-fertilisation either does not follow, or when that is the case the quantity of seed is less than where foreign-dusting is accomplished.

8. A gradual progress may be traced, starting from those cases where self-dusting, and therefore self-fertilisation, is utterly impossible, to those where it is possible and evident, but not to the exclusion of the possibility of a foreign-dusting of the flowers.

9. The sexual relations and mode of fructification do not invariably tend towards the morphological affinities of the flowers. In some isolated families the sexual conditions of all members are alike; in other families, again, and even genera, they are essentially different. The sexual relations, therefore, have not developed with equal pace and in the same way as the morphological relations in the transformation and perfection of flowering plants.

In conclusion, the author calls upon others to contribute their experience, and especially to institute trials on plants with a view to ascertain how far continued self-fertilisation, or in diclinous plants relative fertilisation—Hemp, for example—carried on through generations, has an influence on the progeny, in proportion to descendants of those produced by continued foreign-fertilisation. It is to be expected, he says, that here also results will ensue that will speak for the correctness of the assertion, that the preponderating number of the flowering plants avoiding self-fertilisation has its origin in the disadvantageousness of the same for fruit-formation, and the descendants produced therefrom.

It should perhaps be observed, on account of the frequent allusions to insect agency in the foregoing, that the author, in common with Darwin, attributes comparatively little influence to wind and other causes as promoting the cross-fertilisation of plants.

Mr. Bentham's *Address to the Linnean Society*, read at the last anniversary meeting, has since been printed at the request of the fellows. The greater portion of the address consists of an account of American scientific institutions and publications, drawn up on a similar plan to the very useful report of a similar nature relating to Europe. With reference to the Smithsonian Institute at Washington, it is stated that one of the functions fulfilled by that important body is the promotion of a direct correspondence and interchange of publications, &c., between the learned institutions and scientific men of the two worlds. The Society transmits to and receives from its agents in London, Paris, Leipzig, and Amsterdam, works of a scientific or literary nature free of cost, so that the recipient has only the cost of the local charges to or from his own residence and the towns mentioned. It is greatly to be wished that some similar system could be carried out in this country. At present it is a matter of some difficulty to transmit a book, say to Germany, while the cost of so doing is often considerably more than that of the volume itself.

British Botanists will hail with pleasure the publication of the sixth edition of the *London Catalogue of British Plants* (Hardwicke). The present edition has been drawn up by Mr. H. C. Watson, and like its predecessors it will be very serviceable as an index list for marking desiderata, for noting the comparative frequency or rarity of the various species in particular districts, &c. Mr. Watson, while incorporating the results of recent research, has very ingeniously contrived to retain the same numbers as were affixed to the plants in the last edition, issued, we are startled to find, in 1857. We must congratulate Mr. Watson on his efforts to make the catalogue equally serviceable to the "aggregators" and the "segregators," or in plainer if less refined language to the "lumpers" and the "hair splitters." In a case like this, where so much has been done to suit the often conflicting views of different botanists, criticism of the author's own opinions, which he manages to maintain in spite of his concessions to others, would be out of place, and we have only to thank him for giving us at the cost of a few pence a catalogue which is *au niveau* of the present state of our knowledge of our British wild plants.

Messrs. Day & Son have issued the first part of Miss Twining's *Illustrations of the Natural Orders of Plants*, in a large 8vo. form, the plates being reduced from those in the original folio edition. In its present shape it will make a pretty table-book, as some of the groups are gracefully drawn, but it will have little value as a book of reference.

Florists' Flowers.

IN that all-embracing class that forms a part of the schedule of every great show—the Miscellaneous—there will always be found some things of special interest. Thus, at the Second Great Show at the Regent's Park, on the 19th inst., there were shown some specimens of very fine Sweet Williams by Mr. W. Bragg, of Slough. Generally they belonged to the Auricula-eyed class, but many of them had smooth edges and well-rounded flowers, as if the best qualities of the foregoing, and those known as Hunt's strain, had become happily united. Some of these flowers were fine enough to have been selected as named varieties, if they could be perpetuated as such. One had a centre of rosy violet, then a pale ring profusely spotted with the same colour; and lastly, an outer edging of rosy pink. This was a very beautiful and distinct variety, while there were many others equally as deserving of notice. Mr. Shenton, the Botanic Nurseries, Biggleswade, also had a fine strain, including some bold and showy flowers, like the varieties of the Phlox Drummondii.

That the cool and showery weather had been favourable to the cultivation of the Pansy was abundantly proved on this occasion. A stand of 36 varieties, shown by Messrs. Downie, Laird, & Laing, contained some flowers of fine quality. In the way of dark selfs, Arab; Mr. T. Graham, a rich flower margined with bright claret; Miss Carnegie, and Eclat, a very stout and circular flower, suffused and bordered with purple, were very fine. The following were also very fine:—Yellow grounds: J. B. Downie, General Young, and Perfection; white grounds: Lavinia, Attraction, Princess of Wales, and Mrs. Hopkins; Vesta, a pale primrose self; and Yellow Queen, rich gold self, a large and bold flower, though somewhat thin as shown. Messrs. Bragg, of Slough, and Hooper, of Bath, also had good stands, but lacking the quality and finish of those just mentioned. In the Class for Amateurs, a stand of 24 cut blooms, shown by Mr. George Wilson, of Dunse, a gentleman who has quite a reputation in Scotland as a successful exhibitor, were small in size, but of remarkably fine quality, clean, stout, flat, and well arranged. The varieties were—Lady L. Dundas, Attraction, Princess of Wales, Countess of Rosslyn, Mary Lamb, Lavinia, Alice Downie, Mrs. Hopkins, and Miss E. Cochrane, white ground flowers; J. B. Downie, General Lee, Perfection, Chancellor, Francis Low, John Hay, and Prince of Wales, yellow grounds; Rev. H. H. Dombrain, Eclat, Ossian, Masterpiece, and Alexander M'Hale, dark selfs; Vesta, Yellow Queen, and Miss Ramsay, a pure white self. Two or three other stands were staged, but were inferior to the foregoing. The varieties comprising Mr. Wilson's stand may be taken as representing a list of very fine exhibition flowers.

Stands of Fancy Pansies were contributed by Messrs. Downie, Laird, & Laing, and Hooper, of Bath, which were quite good enough to deserve notice, though I have been charged by a high horticultural authority as having "a depraved taste," because I have ventured to commend these Fancy Pansies to public notice. The flowers in both stands were of great size, stout, and well marked, but Messrs. Downie & Co.'s were the best. They had H. W. Adair, one of their fine new flowers of the present year, a very highly coloured variety; Miss Melville, another new flower, very distinct; Black Prince, Caffra, Cedo Nulli, Ecole, Earl of Rosslyn, Figaro, Jeannette, John M'Nab, Magnificent, Mrs. E. Dean, very fine; Mr. H. Northcote, a beautiful flower; Maccaroni, Oriana, Pacha, Princess Alice, Princess Mathilda, Striped Queen, very novel; William Moffatt, Startler, Major Mackey, Prince Napoleon, Indigo, Belle, Colleen Bawn, Prince of Wales, Annie, and others.

Mr. Turner had a stand of 24 Pinks, generally of good quality. The varieties were Attraction, broad dark purple lacing, very fine; Beauty of Bath, Excellent, a fine dark laced flower; Emily, heavily laced, a small but beautiful flower; Lord Charles Wellesley, Constance, Victory, Rev. George Jeans, a very fine rich dark laced flower; Marion, rosy red lacing, very fine; Princess of Wales, a delicate and lovely flower, though of thin substance; Nina, Device, Harlequin, Charles Waterton, bright red lacing, very fine; Mary Ann; Charles Turner, rich heavy lacing of dark purple; James Hogg, Mr. Hobbs, Helen, President, a fine dark flower; Christabel, Marginata, and Blondin, a heavily laced dark flower, of fine quality. Messrs. Bragg and Hooper, of Bath, also exhibited, but their flowers were not nearly so good as the foregoing. In the Amateurs' Class for 12 varieties, Mr. David Pizzey, gr. to Mrs. Edwards, Fulmer, Bucks, showed a stand of very clean, well laced flowers of average size, viz., Rev. Geo. Jeans, Helen, Emily, Countess of Rosslyn, Blondin, James Hogg, Mr. Hobbs, Device, Mary Ann, Minnie, Beauty, and Victory. The following seedling varieties were shown by Mr. Bragg, three blooms of each:—Rosabel, a medium-sized flower, heavily laced with rosy lilac crimson, one flower being much finer than the others; Improvement, medium lacing of

dark, the flowers small and thin; Rosabanna, light lacing, flowers too far advanced; and Disraeli, a very heavily laced flower, with well-rounded smooth petals, but small in size. Carnations were represented by a stand of 12 poor flowers, unnamed, from Mr. Hooper, of Bath. As no prize is offered for them at the Regent's Park shows, it may perhaps deter growers from sending blooms. Surely if Pinks are worth prizes, Carnations and Picotees should be recognised also. *R.D.*

The Apiary.

REMOVING HIVES BY RAIL.—Will you inform me, says "W. D.," the best method of packing a hive of bees for a journey of 150 miles by railway? Our correspondent does not say whether the hive to be removed is of straw or wood. We presume the former, and that it is to be sent without a caretaker. Place some straw in a tea-chest; wrap up the hive in a coarse cheese or open canvas cloth, tying a string tightly close to the bottom. Invert the hive in the tea-chest, and pack round with straw, leaving the cloth uncovered. Put two sticks across the box resting on the hive to prevent its shaking, fastening them by nails or otherwise. Make a few good sized holes in the cover, which nail down, and tie a good stout cord round for further security and convenience of holding. Label the box, THIS SIDE UP—LIVING BEES, and give a hint to an accommodating guard.

Supers Retarding Swarming.—Will you be kind enough to inform me whether or not putting a bell glass on the top of a hive and allowing the bees to work into it will check swarming. *A Constant Subscriber.* [A great deal depends on the size of the bell-glass or super which may be used, whether the swarming is materially checked or not. A small super, capable of containing any quantity up to 7 or 8 lb., seldom has any great influence on the swarming, though it may cause a delay of a few days. A larger sized glass or super generally checks the disposition of the bees to swarm, but is by no means certain of preventing it altogether. Strong hives, working large supers capable of holding more than 30 lb., frequently swarm even after considerable work has been accomplished. This we find usually takes place from two to three weeks after the time that the hive, if left unenlarged, would have thrown off a swarm.]

The Season.—My hives are doing but very little work this summer. They are strong in bees, and the combs are crammed with brood. Some swarms have been thrown off. Supering, and the making of artificial swarms, have prevented the rest from carrying out their natural inclinations. But my greatest cause of complaint is in the progress of the supers. Usually at this date I have been able to show several large supers capable of holding from 35 lb. upwards nearly completed if not quite filled, mine being an early district; but this season I have not a single super in anything like that desirable condition. The bees have manifested less disposition to build combs, even in stock hives, than I ever before experienced. However it seems that we are told that there is a great probability of a dry summer; if so we may expect a honey dew, and increased activity among our bees. *Apiator.*

Garden Memoranda.

THE GARDENS AND GROUNDS ADJOINING THE VICARAGE OF BISHOPSTOKE.—These celebrated gardens and adjacent grounds, which have for the last 60 years been the property of the nonagenarian Dean of Winchester, and attached to his Vicarage garden of Bishopstoke, have recently passed into the hands of Alfred Barton, Esq. They are situated about midway between Winchester and Southampton, and something less than a mile from the junction station of the South-Western Railway at Bishopstoke. The whole of the property thus alienated is about to undergo a complete metamorphosis. A handsome mansion is in process of erection on the well backed high ground of the opposite meadow, which is separated from the eastern end of the garden by a deep water-worn lane, over which a connecting bridge will be thrown, so as to continue the garden walks onwards to the broad terraces, by which the new building is supported, and which command an extensive prospect over a richly wooded country, amidst which the distant towers and spires of Southampton rise up with charming effect. Loudon visited this place during his tour in Hampshire, in the autumn of 1833, and thus describes it in the "Gardeners' Magazine," in the spring of the following year, vol. x., p. 124:—"This is a place of an acre or two, on a bank facing the south, remarkable for its wall covered with choice half-hardy plants, and its lawn ornamented with the finest American shrubs and most select trees; it is a perfect gem of botanical beauty in the foreground, heightened in effect by interesting gleams of distant scenery seen between, and over fine Oaks and Elms on the lower part of the declivity;" and in order to give a correct idea of this garden, "so exceedingly rich in choice plants," he added, a "ground plan as well as a small view of the Vicarage house." It is of a somewhat lengthened rectangular form, running from west to east; it is bounded by a conservative wall on the northern side, in front of which is a broad terrace walk, which is terminated at the western end by a neat summer-house formed of Hazel rods, and at the other end a new span-roofed conservatory, designed by Mr. Page, of Southampton, is placed on a plinth of three steps. A broad walk leads from either end of the terrace, and makes the circuit of the garden, which is also crossed by another sweeping walk through its centre. The whole is interspersed with beautiful examples of select trees, shrubs, and remarkable-foliage plants, as well as with numerous clumps of simple form, in which gorgeous flowering plants are finely displayed. Statuary, too, is present, but somewhat sparingly used, in the shape of vases and other classical subjects; the whole producing an effect of the most astonishing and delightful kind.

The conservative wall is covered with climbing plants, amongst which are good examples of Pomegranate, Camellias, and Magnolias; of the latter we noted M. conspicua Soulangeana, purpurea, and gracilis. There are also Wistarias, Bignonias, Ceanothus, &c.; amongst which Clematis and beautiful Roses have a charming effect. At the base of the wall Amaryllids, Ixias, and other bulbs, as well as sundry other dwarf plants of interest, are grown. The outer edge of the terrace walk is ornamented with handsome vases, filled with choice flowering plants. The conservatory, when we saw it last autumn, was gay with neat pot specimens of Cestrum aurantiacum, whose orange-coloured waxy-looking blossoms formed an excellent contrast with beautiful examples of Coleus Verschaffeltii and the Meteor Fuchsia; the foliage too of some of the striking varieties of Caladiums was very effective in association with Ferns, &c., together with the gorgeous flowers of Bignonias and Wistarias pendent from the roof.

Proceeding along the terrace walk we observed near its margin compact specimens of Libocedrus Doniana, Chamærops humilis, Ilex furcata and dipyrena, a handsome bush specimen of Berberis japonica, 5 feet in height; and a globular example of golden Thuja, 18 feet in circumference. Associated with these at a little distance further from the walk stood an elegant specimen of Cupressus macrocarpa, 48 feet in height; Cupressus torulosa, and a Chinese Juniper, each 15 feet in height; a noble example of Cupressus Lawsoniana, 18 feet in height, its beautiful Fern-looking branches forming a striking contrast with the delicately variegated foliage of a handsome young Taxus elegantissima, as well as with spreading bushes of Magnolia glauca and Cotoneaster microphylla,—the latter, an immense bush, 6 feet in height and 50 feet in circumference, remarkable not only from its beautiful foliage, and the multitude of coral-looking berries with which its procumbent branches are so profusely covered, but also from the circumstance of the points of its shoots pointing invariably to the north. A glorious example of Pinus insignis is 46 feet in height, and it girths 6 feet at 3 feet from the ground; the spread of its branches covers an area of 68 feet in circumference. An elegant form of Wellingtonia gigantea is 24 feet in height, and the hoary, silvery-looking foliage of a robust specimen of Picea nobilis, 14 feet in height, has a charming effect. Scattered about are many good examples of the best kinds of Rhododendrons, as well as large bushes of the White and Red Indian Azaleas; and a huge mass of Pampas Grass. Other bushes of fine plants occur as we proceed onwards, of which we noted the Royal Fern, Hydrangea japonica, and Tritoma Uvaria. The tufted head of a tall Yucca gloriosa produced a singular effect amidst this assemblage of beautiful plants. A fine weeping form of Sophora japonica furnishes an excellent contrast with good examples of Sorbus nepalensis, Scarlet Chestnut, Juglans fraxinifolia, Arbutus Andrachne and andrachnoides, Salisburia adiantifolia, and a perfect form of Pinus excelsa. A good example of Catalpa syringifolia is also here, and there are likewise scattered about nice compact specimens of Thujopsis borealis, 15 feet high, Hemlock Spruce, Juniperus sibirica and recurva, the latter 28 feet in height, Deodars, and male and female forms of Cephalotaxus Fortunei. Clumps of Roses and Azaleas occasionally occur, as well as some tall forms of Broad and Narrow-leaved Bay tree. A large bush of single Camellia seems to be nearly worn out, having withstood the severity of many a winter. A White Cedar is a very beautiful object, its rich creamy variegation producing a charming effect, in contrast with a glorious example of Picea Nordmanniana, 24 feet in height. Abies nigra, Clanbrasiliana and pygmæa, as well as other plants of dwarf habit, occasionally occur, among which single masses of the striped Iris, and the green and variegated forms of Yucca filamentosa, are very telling. A tall dark-foliaged specimen of Sequoia sempervirens has a fine appearance when seen in conjunction with elegant examples of Taxodium distichum, 44 feet high, and its lovely ally, the Taxodium distichum pendulum, more than 40 feet in height; the delicate-looking pale-coloured foliage of these latter has such an exquisite effect in association with the multitudes of handsome trees with which this favoured spot has been so prodigally adorned. We noticed, moreover, compact specimens of Pavia macrostachya, together with Garrya elliptica, growing freely within the shade of lofty Elms, unscathed alike by sunshine and frost. The pale green-coloured, finely-powdered foliage of a handsome Picea Nordmanniana, 24 feet in height, has a striking effect, associated with the ample foliage of a large Magnolia tripetala, as well as nice examples of Weeping and Golden-headed Yews, an Evergreen Beech, 13 feet high, Deutzia, &c. An unique specimen of Quercus glabra, 16 feet in height, harmonises admirably with a splendid example of the beautiful Ilex latifolia, 16 feet in height, and a large bush of Escallonia macrantha, the latter a present from the late Prince Consort to Dr. Garnier. A magnificent example of New Zealand Flax, 6 feet high, covers an area of 50 feet in circumference with its elegant, sword-shaped, delicately-tinted, pale green foliage. There are lofty examples, too, of Cryptomeria japonica and Abies Smithiana, but both are in too close proximity to some stately Elms to fully develop their graceful and elegant forms. Beneath the extended shade of a group of handsome Magnolias is placed a recumbent figure representing Piety and Patience—a memorial of the late Mrs. Garnier, as well as another figure, in remembrance of their two sons—Thomas, the late Dean of Lincoln, and Henry, who perished in India. In this interesting group are assembled some of the most remarkable species of a noble genus, amongst which we noticed grandiflora, acuminata, 40 feet high; citriodora, conspicua, Soulangeana, auriculata, 30 feet in height; purpurea, cordata, 40 feet in height; and maxima: this latter is 48 feet in height, and girths 4 feet 6 inches at 3 feet from the ground. Scattered about are nice forms of Retinospora, Ruscus horridus, Irish Yews, Diospyros, and many others. A beautiful form of dwarf Juniper is very handsome, and covers an extensive area with its compact densely covered branches. A weeping form of Juniperus oblonga pendula, too, is very attractive. There are also growing on the southern screen of the garden thriving plants of Weeping Birch and Tulip trees. Several remarkable specimens of trees have perished in these grounds within our recollection. An almost unrivalled specimen of Araucaria imbricata, which occupied a central position in the garden, was attacked by a horde of minute insects some years since, from the effects of which it soon afterwards decayed. The beautiful example of Picea Webbiana, which Loudon saw in 1833, attained a considerable altitude and produced cones; it, however, became so unsightly from the continued ill-effects of spring frosts that it was ultimately removed. A remarkably dwarf and weeping form of the Deodar Cedar, well fitted for the position it occupied in front of the terrace walk, dropped its foliage and died without any apparent cause; and these famous specimens were long missed from this notable collection of beautiful plants.

It is now something more than 30 years since we first saw this interesting garden, and we have since that period generally visited it once in every summer, watching with much attention the growth of its beautiful trees and shrubs, and admiring the simplicity of its style and high keeping, as well as the excellent way in which all was relieved by statuary and gorgeous masses of summer flowers; but above all we have been delighted in witnessing the devotedness and interest displayed by the good Dean himself in everything that pertained to his garden, and the eagerness with which he would endeavour to obtain information in regard to rare or choice plants likely to grow in the open air. The whole of those clumps, whose rich garniture used to illumine with their gorgeous flowers the handsome trees and shrubs with which they were associated, have now been turfed over, and many of the fine specimens have been dug round preparatory to their removal onwards to the space of ground which will connect the present garden with the mansion, and which it is proposed to lay out as an arboretum, ornamented with statuary and choice flowers. Mr. Barton, like his predecessor, Dr. Garnier, seems devoted to his garden and its beautiful plants; and with such materials as he has to work with, aided by the exertions of Mr. Sharpe, his young and enthusiastic gardener, a glorious future may be predicted.

The kitchen garden is situated in an enclosed space behind the conservative wall; it is well cropped, and on its walls we observed last autumn some fine examples of admirably-coloured Peaches. There were also some excellent Figs and good crops of spotless fruit of Ribstone Pippins and other Apples on the espalier trees which line the sides of the walks. A row of standard Pear trees in the centre of the garden is to be removed, and other alterations and improvements will be effected. In an open space at the western end of the garden there is a recently renewed span-roofed greenhouse, and also sundry span-roofed pits for the protection of plants, as well as a long range of water-heated pits for the production of Melons, Cucumbers, and other requisites for the use of the family. The Vicarage is a plain unpretending structure, situated in a nook adjacent to the public road. It has a wide verandah on its southern side, beneath which large bush-forms of Camellias are attached to the walls between the windows, and flower freely every season. The large Magnolia grandiflora which occupies a trellis at the western end, and which in 1833 was 27 feet high and 25 feet wide, has been cut down, but is again growing rapidly; other portions of the building are covered with Magnolias of different sorts, amongst which Roses and other gay flowering plants are effectively displayed. The Vicarage garden, properly so called, and from which the "private garden" will shortly be screened, is a small portion of ground that stretches up from the south and eastern sides of the building to the large group of Magnolias, which is situated at the western end of what will now be Mr. Barton's arboretum. In front of the verandah there is a neat garden, in which Pelargoniums, both in self-coloured and variegated masses, flower gorgeously; and these, too, are further enriched with handsome vases, which are filled with well selected choice flowering plants. The walk, leading from the entrance front to the garden, is bordered on either hand with nice specimens of the best sorts of American plants, among which we observed Veronica Andersoni in its green and variegated forms, and these had stood out during the winter without protection of any kind; the latter variety was finely in flower; its large purplish-tinted blossoms had an excellent effect in contrast with its somewhat minute and silvery-looking foliage. Scattered about on the turf are some neat specimens of Libocedrus, Dracæna, and Juniperus. There is also a very handsome specimen of the Picea Pinsapo, 15 feet in height, and a pair of tall Elms, which girth 14 feet at 3 feet from the ground. Leaving these delightful grounds, and proceeding onwards to the railway station, we observed growing on the roadside, immediately opposite the comfortable-looking church, a remarkable form of Yew tree. Its roots are elevated above the surface and boarded round, which gives the appearance of being grown in a detached box on the road. Its girth at the

surface of the ground is 18 feet, and at 3 feet high 14 feet. Closely adjoining is Admiral Keppel's snug-looking villa, in front of which are some beautiful examples of deciduous and other Cypress, Deodars, and Poplars, as well as some handsome Willows, which sweep to the surface of the crystal-faced stream which skirts the interesting village of Bishopstoke. *D.*

Miscellaneous.

New Perfumes.—Opoponax has for some time past met our eyes on covers of periodicals and on omnibuses, as if it were the most important discovery of the age. Advertisements have informed us that Opoponax was derived from Opoponax chironum, a Mexican plant. Now if we turn to Opoponax in any Materia Medica we shall find that its habitat is stated to be in sunny parts of the south of France, Italy, Sicily, Croatia, and Greece. As to the truth of its being a most delightful perfume, this we are not in a position to deny, since so many agreeable things are now obtained from very disagreeable bases. The resin itself, however, as found in the market, has anything but a pleasant odour. Opoponax, then, would seem to be the latest introduction of one perfumer; but here is another new one, furnished by another large perfumer: "Ihlang-ihlang, or the flower of flowers (Unona odoratissima)." This is stated to be the most fragrant flower of the Eastern Archipelago, yielding a delicious and permanent perfume. There is a plant growing in China and the East Indian Islands, the Artobotrys odoratissima, R. Br., which we believe is identical with Unona odoratissima, Roxb., the flowers of which yield an essential oil which can be purchased in Amboyna in almost any quantity, at a very cheap rate, as the plant is much cultivated both for its ornamental appearance, and for the fragrance of its flowers. A specimen of the oil is in the Museum at Kew, and its odour is certainly most pleasant. This, then, seems to be the origin of the name of the new perfume, and if it is actually produced from the oil in question we may conclude that the first cargo has arrived in this country, thus adding another commercial plant to the already long list of such things which we possess. In conclusion, we can only say that if it answers the perfumers' interests to import oils for the purposes of their trade from the Moluccas, it would certainly pay them to introduce some of the many essential oils furnished by the Eucalypti of Australia; this, we know, is not a new question, but it is one which appears either to have been forgotten or neglected.

The Mango in Madeira.—Mango trees are now become common in Madeira, and produce fruit abundantly when they have once come into bearing, which is not till they are 10 years old or more. The oval or roundish-oval yellow fruit (ripe in September or October) abounds in rich juice like a Nectarine, but has always somewhat more or less of a resinous or Carrot-like flavour. The flowers are fragrant, like Mignonette. The Mango is scarcely ever seen in the Canaries, and but rarely in the Cape Verdes. *R. T. Lowe, in Royal Horticultural Society's Journal.*

Garden Operations.

(*For the ensuing week.*)

PLANT HOUSES.

Camellias in need of a shift should receive one now, an operation which should always be performed when the young shoots of the current season have ceased growing, and are showing the first symptoms of forming flower-buds. By shifting at this date the young shoots, having gained moderate firmness and consistency, are not likely to be injured in the process; besides which the shoots formed are not nearly so likely to push to an unnecessary length as when the trees are potted earlier, by which they would acquire renewed vigour through the roots running into fresh soil. Do not pot any, however, unless they are really in need of larger pots, as no greater mistake exists than to suppose that constant potting is needful to keep Camellias in health and vigour. Once well potted, with proper after treatment, they will stand well for at least four years, and frequently six, without again requiring any attention of that kind. The proper soil for them is—and this is an important point in their successful culture—the thinnest possible parings from a good yellow loamy pasture, having abundance of surface herbage thereon. The life of this herbage must be destroyed quickly in any manner that will not cause decomposition, which must not be permitted. The killing process may be effected either by means of exposure to heat, or by drying sufficiently to ensure death. In this state chop the turves up only sufficiently small to ensure efficient potting, adding one part of silver sand to every five of soil. Give only moderately large shifts, and press the compost firmly around the old balls, previously prepared by the removal of any loose soil, by means of a small rammer. Do not bury the base of the plant; on the contrary, rather allow the upper roots to become slightly elevated at their juncture with the stem. Keep the plants, where convenient, in a warm moist atmosphere for a time; syringe freely overhead, and constantly shade during intense sunshine. Give seedling *Cyclamens* a further shift into large 60-sized pots should they need such attention, and keep them constantly growing for a time. Move *Oranges, Myrtles, Pomegranates*, and many of what are termed New Holland plants, such as *Cassias, Acacias*, &c., into the open air; placing them in positions where air can circulate freely amongst them; if in very enclosed positions, a slight shading may be put over them about mid-day. Under such circumstances a degree of hardihood will be acquired which will enable the plants to withstand the ills of a forced ungenial winter temperature. Continue shifting all fast-growing soft-wooded plants, such as *Fuchsias*, &c., as frequently as may be needed. *Poinsettias*, which have undergone a season of rest, should now be placed in a well shaded position for the purpose of again starting them into growth; water them freely and syringe frequently as the young shoots appear. Pot off *Primula* and *Cineraria* seedlings as soon as they show the second leaves beyond the cotyledons or seed leaves, placing three or four round the edges of small pots in a free open compost formed of peat, leaf-mould, and sand. Syringe daily the inmates of cool structures, greenhouses, &c., and well moisten floors, side borders, and other surfaces generally. Give *Achimenes* their final shift, and tie the more advanced ones neatly to small single sticks. Continue to push them on in a high moist temperature, and moisten them frequently overhead.

FORCING HOUSES.

Late Vines, upon which the Grapes, having finished their first swelling, are preparing to stone, should be permitted to grow a little by means of the main laterals. This, by encouraging the roots to push, will materially aid the Vines in their final efforts to finish off their crop, especially at a later date, when these are again stopped back. Continue potting succession *Pines*, in batches, so as to secure a good and constant supply. Induce all Pines to make a quick strong growth before the sun's influences have too much diminished, as the best growth formed in autumn is in a measure immature compared with that made now. Be particular not to overcrowd forward successions, which want at this season plenty of light and air. *Cherries* in pots should not suffer too greatly from want of water, as sudden checks may induce a return to active growth. Give them therefore a moderate and constant supply of water. This will be found a good time to turn *Pines* out of pots into a pit, in which constant bottom-heat is kept up below a properly prepared bed. Ram the soil well down before planting, and do not bury the base too deeply. Continue to syringe *Peach* and *Nectarine* trees, even after their crops have been gathered, with the view of warding off red spider and similar pests. Be particular not to let any suffer from want of moisture at the root, as much of next year's success depends upon a proper maturation, not only of the fruit, but also of the wood and buds. *Melons* upon which a sufficient quantity of female, or fruit-bearing flowers are discernibly about to expand, must have their beds kept as dry as possible upon the surface, until the process of fertilisation or setting is completed. In dull, cloudy weather it is advisable to set these artificially by means of placing a male flower deprived of its petals upon the fruitful one. Should the weather prove hot, and the bed in consequence get too dry, it will be necessary to give a watering to the roots, an operation which may be done with a spouted pot upon a sunny morning. Give a little air to all such at night, in order to allow internal moisture freely to escape. Stop all strong shoots before they begin to "feel" the sides of the frame, and all laterals at one joint beyond healthy looking fruit flowers. Keep the main stems of the plants free from leaves, in order that the sun may have free access thereto. This is needed to keep them from cankering, an evil to which they are very liable if kept wet by too dense shading.

HARDY FRUIT GARDEN.

Out-door *Vines* will now need attention. Stop all shoots bearing flower-buds one joint beyond what is to be the future bunch, except where leading shoots are needed for the purpose of filling vacancies, or extending the Vine into yet unoccupied spaces. Vines upon walls, in the open air, are very much benefited by surface sprinkling; syringe them freely therefore upon dry hot evenings. Pay proper attention to giving water at the root when needed. Strong liquid manure is very acceptable to them, and may be applied freely. Cut back all secondary side shoots upon red and white *Currants* to a third of their length, leaving the main branches as they are for a short time longer. By thinning out the bushes, as just advised, at this season, the fruit is capable of swelling to a larger size than it otherwise would do; besides which, the more free admission of light and air to the body of the trees assists greatly the formation of flower-buds for the ensuing season. Bush fruits of all kinds like a good soaking of liquid manure previous to their final swelling, an application which they amply repay.

HARDY FLOWER GARDEN.

Should the weather continue so dry that the soil contained in flower beds is not again thoroughly soaked, it will be advisable to give it a good watering; choose dull weather for the purpose, and pour the water copiously over the beds from the spout of the watering-pot, and not from the rose—a practice too frequently had recourse to, causing the surface soil to bind and cake unnecessarily. Do not keep slopping the surface of the beds over periodically; the dewy nights afford sufficient surface moisture in a general way when the roots are sufficiently moist; frequent moistening of the surface, therefore, should be avoided, and especially in hot sunny weather. Where the surface of the soil has again become moderately dry, loosen it carefully with the hoe, which will tend materially to obviate excessive evaporation. Give *Dahlias* weak liquid manure, and with a small three-pronged fork occasionally stir the surface of the soil. If the plants are required to produce flowers for exhibition, it will be advisable to disbud early, if the variety is at all under-sized, but when the variety is large and coarse, fewer buds should be removed. Should the weather be wet, *Polyanthuses* may be parted. Do not use a knife in the operation, the ivory handle of a budding-knife will be found a suitable instrument. When planted out in a shady suitable situation, do not let them want for moisture; and a temporary screen will prove highly beneficial till the plants are established. *Roses* should be again gone over, removing all gross shoots that are not likely to flower this season, as well as dead flowers, and shoots which have done flowering. Young strong growths of autumn-flowering Roses in masses should be pegged down; and those of the summer-flowering kinds, as the Moss, Provence, or Gallica varieties, should be layered; the whole surface of the beds should be forked over, and if a good soaking of liquid manure can be given, its effect will be very apparent in the greater permanency of the colours, and in the lengthened period of blooming.

KITCHEN GARDEN.

Finish thinning out *Onions, Carrots, Parsnips, Salsafy*, and all similar crops without delay. In a general way these should stand about six inches apart, plant from plant. Make sowings of *Peas*, of such kinds as the following, which will be the last of such sorts this season, namely, Victoria, British Queen, Abergavenny Marrow, &c. Should the soil be very dry, water the drills, and cover in immediately. Cease cutting *Asparagus*. If cut too late the plants will not have sufficient time to perfect a surface growth before autumn; where convenient give the beds a good surface dressing with manure, or salt, and destroy effectually all weeds before the plants have grown sufficiently to shade the soil beneath them. Look carefully through *Herb beds:* cutting the flowers off *Thyme, Sage, &c.*, should there be any. Put in cuttings of the latter in a shady situation, well watering them in, and placing a frame or handglass over them. In making them, choose strong firm shoots of the current season's growth; remove the lower leaves, and dibble them in rather deeply. Secure the necessary stock of Sage for drying for winter use as soon as it is sufficiently large for that purpose. Doing so now will make the plants to effectually re-establish themselves for the winter Transplant *Basil, Summer Savory*, &c., upon favourable occasions, and continue to sow small *Salading Radishes*, &c., and a pinch of *Endive* for early winter use. A supply of *Watercresses* for autumn and winter may be easily obtained by planting some strong young tops, about 4 inches long, in a line at the foot of a north wall. The cuttings should be of pieces which have protruding roots from the joints. *W. E.*

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the Week ending June 26, 1867, as observed at the Horticultural Gardens

June	Moon's Age.	Barometer.		Temperature. Of the Air.			Of the Earth		Wind	Rain.
		Max.	Min.	Max.	Min.	Mean	1 foot deep.	2 feet deep.		
Thurs. 20	18	30.033	29.994	65	44	54.5	60	57	N E.	.00
Friday 21	19	30.099	30.076	66	44	55.0	60	57	N.E.	.00
Satur. 22	20	30.124	30.043	72	42	57.0	60	57	N.E.	.00
Sunday 23	21	29.987	29.932	75	43	60.0	60	56	N.E.	.00
Mon. 24	22	30.025	29.947	70	44	57.0	61	58	N.W	.00
Tues. 25	23	30.237	30.179	75	42	58 5	62	58	N.E.	.00
Wed. 26	24	30.486	30.468	74	37	55 5	62	59	N.E.	.00
Average		30 156	30.091	71.0	42.5	56 7	60.7	57.4		0 00

June 20 - Overcast throughout.
— 21—Cloudy; overcast; cloudy at night.
— 22—Fine; slight dry haze; fine; overcast.
— 23—Very fine; fine; very fine at night.
— 24—Fine; overcast; fine at night.
— 25—Clear and dry; very fine throughout.
— 26—Cold and dry; very clear; very fine at night.
Mean temperature of the week, 4¼ deg. below the average.

STATE OF THE WEATHER AT CHISWICK,
During the last 41 years, for the ensuing Week, ending July 5, 1867.

June and July.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday..30	72.8	48.2	60.5	14	0.80 in.	—	6	4	1	5	11	7	7
Mon. .. 1	71.7	51.0	62.8	19	1.18	3	5	6	4	4	11	7	6
Tues. .. 2	73.3	50.9	62.1	16	0.22	2	5	3	—	5	11	10	5
Wed. .. 3	74 1	50.1	62 1	18	0.78	—	6	2	1	3	13	11	5
Thurs. .. 4	75 1	50 3	63 2	14	0.33	—	2	4	1	9	12	11	2
Friday .. 5	77.3	50 6	63 9	17	0.59	1	5	—	5	0	12	9	3
Satur. .. 6	76.3	51.1	63.7	19	0.48	1	1	4	2	7	15	7	4

The highest temperature during the above period occurred on the 5th, 1852—therm. 97 deg.; and the lowest on the 30th, 1863—therm. 34 deg.

Notices to Correspondents.

CAMPANULA: *G Lowe.* We do not know Campanula Barlowii, which you say was seen at the recent flower show at Leeds, and is of a trailing habit, the flower white, edged with light purple. Probably the plant in question was C. Barrelieri, which is a dwarf trailing species, with light blue flowers. That is an old plant, and easily procurable.

GRAPES: *G R G.* Spot on Grapes such as you have sent may arise from the roots being in bad condition, or from scald in the house. The former, according to your account, does not seem to be a likely cause. We have seen an exactly similar condition from scald. The spot which arises from Fungi has a different appearance. *M J B.*

INSECTS: *Weston.* A smashed box with a quantity of sawdust arrived, without any trace of an insect. *W.*

NAMES OF FRUIT: *Anon.* Your large Strawberry is Kitley's Goliah; small one too much bruised to identify, but apparently worthless.

NAMES OF PLANTS: *H S.* Probably leaf of an Achillea.—*Croton.* 1, Corydalis lutea; 2, Alchemilla vulgaris; 3, Geum urbanum—all British.—*John Jones.* 1, Geum urbanum; 2, Asperula odorata; 3, Epilobium montanum.—*J F.* Mespilus lobatus; Salix pentandra.—*K.* Gloriosa superba.—*W H P.* 1, Nephrodium molle; 2, Polystichum capense; 3, Asplenium bulbiferum; 4, Pteris serrulata—*A R.* 1, Acropera armeniaca; 2, Epidendrum alatum; 3, E. cochleatum; 4, an Epidendrum, which cannot be identified unless habit and habitat be sent: anyhow it is worthless; 5, E. campylostylis.—*G A.* Clerodendron Thomsonæ. The leaves are affected with a parasitic Fungus, Cystopus candidus. We have to apologise for delay in answering the question, which has arisen from the letter having been mislaid. *M J B.*

POLLEN OF PRIMULAS: *W E S.* The fact that the pollen grains of "pin eyed" Primulas are smaller than those of the "thrum" eyed varieties is well known. You will find an account of this matter in Jour. Linn. Soc. Botany, vol. vi., p. 78, from the pen of Mr. Darwin.

STRAWBERRIES: *A Moss.* The sample sent was of the Old Pine, and the fruit was of excellent quality and flavour.

VARIEGATED HORSE CHESTNUT: *M J C.* The specimen sent is very decidedly marked, and has perhaps green enough in it to make it permanent. It is certainly worth trying to perpetuate.

COMMUNICATIONS RECEIVED.—T. Kennedy & Co.—W. Paul.—D. Wooster.—J. J. Chater.—W. Bull.—D. T. Fish.—W. Dean.—W. Robinson.—J. Anderson.—Filix Mas (the address is correct).—C. D. Smith.—A. Moss.

MANCHESTER and LIVERPOOL AGRICULTURAL SOCIETY.—GRAND CENTENARY CELEBRATION SHOW, at MANCHESTER, August 26, 27, 28, and 29.
PRIZES amounting to UPWARDS of TWO THOUSAND POUNDS are offered.
ENTRIES CLOSE JULY 25. Prize Lists and Forms of Entry may be obtained from Mr. H. Whitworth, Assistant Local Secretary, Carlton Buildings, Cooper Street, Manchester; or from
57A, Church Street, Liverpool. T. B. Ryder, Secretary.

ROYAL AGRICULTURAL SOCIETY of ENGLAND.
BURY ST. EDMUND'S MEETING.
PROGRAMME.
WEDNESDAY, THURSDAY, FRIDAY, and SATURDAY, July 10, 11, 12, & 13—TRIAL of IMPLEMENTS. Admission, 5s. each person.
MONDAY, July 15—The ENTIRE SHOW-YARD OPEN from 8 in the Morning, at which hour the Judges will commence inspecting the Live Stock, and making their Awards. Admission, 5s. each person.
TUESDAY and WEDNESDAY, July 16 & 17—Admission, 2s. 6d. each person.
THURSDAY and FRIDAY, July 18 & 19—Admission, 1s. each person.
The Showyard will be cleared of Visitors at 8 o'clock each evening.
FRIDAY, July 19—GENERAL MEETING of the MEMBERS in the Showyard at 10 o'Clock.
By permission of the Officer commanding the Coldstream Guards, the Band of that Regiment will attend during the Show.
The hours at which the Exhibition of Horses in the Ring, and the performances by the Band will take place, will be notified by Placards in the Showyard.—By Order, H. Hall Dare, Secretary.
12, Hanover Square, London, W.

The Agricultural Gazette.

SATURDAY, JUNE 29, 1867.

TESTIMONIALS, they say, are now-a-days entirely worthless for any guidance they afford. Even good names appended to them have somehow come to lose their influence when attached, however disinterestedly, to any personal recommendation. No wonder, then, that the best firms in a trade, recommending that which they sell for the sake of the profit arising to themselves, do not receive unhesitating faith. And it is certainly a pity, considering the immense sums of money annually spent upon advertisements, that not only is there this presumption and *à priori* doubtfulness attaching to them, but now and then we come upon announcements issued upon insufficient grounds by even respectable houses, which are so glaringly upset and falsified by experience as directly and unavoidably to give a tone of untrustworthiness to the whole class of trade publications to which they belong.

Take the so-called Sorghum tartaricum for an outrageous example of this spring's experience. We had it announced as a new cereal of extraordinary value. "Sown on stiff land in March or April it is ready for harvest in September; the average produce is 60 bushels of 39 lb. each per acre. As an article of food it is more palatable than Wheaten bread; it contains more nourishment than any other cereal whatever, and a small loaf went four times as far as one made of Wheat flour. As a forage plant—from the sweet, succulent nature of the leaves and stems, all kinds of stock thrive on it in a surprising manner; cows will produce a double quantity of milk, and it fattens pigs in a given time as nothing else would." What more valuable plant for the English farmer could we imagine, than one of which all this should be true?

The authority on which these statements are made, is not indeed given, but the respectable firm who issued the advertisement speak of the "most reliable source" whence the seed has been obtained; and that they wish the reader to follow their example, and believe all that is stated, is plain from their own endorsement of the character which the plant has thus received, for "they have no hesitation in saying that it will become one of the most important additions to agriculture which has been introduced in the present century." And another equally respectable firm is found to give that unjustifiable corroboration of this story which the attachment of a generally trustworthy name to an uninvestigated statement necessarily affords. We shall be glad to hear of any *one* of those who purchased packets of seed on this description of the plant who now sees any prospect whatever of realising the character which, notwithstanding the "cold wet summer and autumn of 1866," it last year acquired in the hands of its intrepid introducers. And if not, then see what an injury is done, not merely to the comparatively small number who have lost their half crowns and their hopes, but (to bring it nearer home) to the whole class of men who spend their hundreds a year on advertisements. It needs but a few examples of this sort to give a colouring—we hope and believe a false colouring, but still a real tone and colouring—to the whole character and influence of the advertising columns through which tradesmen hope to meet with customers. Men are influenced by a few examples of this kind, to the discredit in a measure of the whole class of advertisements to which they belong. And the firm which commits itself in this way—*i. e.*, without personal examination and experience—to announcements which the experience of others must upset, not only hurts itself, but injures all others, its competitors for the custom of the agriculturist and gardener. Of the direct injury done to purchasers on the faith of such announcements we do not now speak, though of course that is the principal clause in the indictment; we prefer at present rather to name the indirect injury which they receive through the lack of that trustworthy guidance which really honest, straightforward advertisements would afford them.

And we have another example to quote, implicating—for, considering that announcements of this kind ought not to be made on insufficient grounds, we can use no other word—other leading houses in the seed trade. The so-called SCHRAEDER'S Bromus has now for several years been pushed by seedsmen as a valuable pasture Grass. Three years ago, when reviewing a pamphlet by M. ALPHONSE LAVALLÉE, which contained a paper praising this Bromus, read by him before the Central Agricultural Society of France, we stated that it was plain our Italian Rye-grass, under liberal cultivation, very greatly exceeds the new Bromus in its produce; and that, apart from any information on the richness of the milk, the mere quantity of the milk obtained from its consumption is a very fallacious indication of the merits of the latter as food for milch cows. We can now speak with confidence from a year's experience of this Grass over nearly two acres of land. Notwithstanding the high character given of it in the trade advertisements of first-class houses, it has been an entire failure in our hands.

It was to be especially successful on moist land, and though the land on which it was tried is naturally dry, a fair loam on gravel, yet this condition of success has not been lost sight of, and in the effort to make it yield at least as well as the Italian Rye-grass, which it was to excel, we have poured over it at short intervals about 5500 tons of London sewage per acre. Though sown at the rate of 4 or 5 bushels of seed per acre, on land in proper condition as a seed bed, a comparatively thin plant came up. Of the Italian Rye-grass, under equally favourable conditions, we have had a capital coat of Grass upon the land. Even, however, where the Bromus was thickest and best, it has been impossible to hinder it from throwing up its harsh, coarse seed-stem. We have had from three cuttings of Bromus this year 23 tons of harsh, rough Grass (which cows for the most part reject) off 1 acre, 2 roods, and 20 perches of land, or about 14 tons in all per acre, having put upon that extent of land no less than 7150 tons of sewage in all, on nine different occasions, since January 30 (or nearly 5500 tons per acre), in the vain attempt to get a satisfactory produce. The Italian Rye-grass close by, on similar land, treated with from 1200 to 3600 tons of sewage per acre, has yielded from 25 to 30 tons of Grass per acre, in two cuttings in some instances, and in three in others. The extraordinary merits of Italian Rye-grass as a sewage-grown plant is not, however, our present subject; we mention it only to show by way of contrast what a failure, even in point of mere quantity, still more in point of quality, is this highly vaunted SCHRAEDER'S Bromus. In fact, it is only the necessity of giving the plant a full year's trial that hinders us from ploughing it up at once, as being one of the worst weeds at this moment on the farm.

SCHRAEDER'S Bromus, then, is another example of a plant unduly urged on the attention of cultivators—another example of the way in which advertising seedsmen injure themselves, one another, and those with whom they deal, by those extravagant announcements to which we thus call their attention, as damaging the agency by which alone satisfactory business relations can be established between them and their customers.

—— WE are requested by Mr. MECHI to state that his farm at Tiptree will be open to inspection by agriculturists during the Bury Show, without an introduction.

—— Having seen and heard very favourable reports of the HAY SWEEP, a most useful labour-saving implement in the Grass districts at this time of the year, we give an account of it, and any intelligent village carpenter can easily make it from the following specification, even without a sketch,* at a cost not exceeding 30*s.*:—The main-beam (A B) is 9 feet by 5 inches by 2½ inches, and is best made of Ash, shod or tipt at the ends with iron straps 1⅝ inch broad by ⅜ inch thick; and stout iron pins 1⅝ inch in length, with a horizontal eye, in which a stout ring plays freely, are inserted in the front. Ten tines (D D) of good Pine, each 3 feet by 1⅜ inch square, are driven perpendicular into mortise holes in A B 8½ inches apart, the two outermost tines being within an inch or two of the iron-shod ends, and the upper corners of the points of the tines are merely rounded off. The handle (upright from the plane of A B, and its teeth D D) is carefully framed (tenon and mortise), of two side-pieces (E E), each 3 feet by 3 inches by 2 inches. One cross-bar, 23 inches by 2½ inches square, situate 11 inches above A B, and a cross-head (G), 31 inches by 3 inches square, connect them; and the whole is then mortised into the middle of A B, so as to incline slightly backwards, and is strengthened by two straps of iron, each 16 inches by 2 inches by ⅝ in front. Two auger holes are bored 12 inches on each side of the handle, for the reception of pins 30 inches long, also upright from the ground, as stout as a walking-stick; and another set of holes, 15 inches apart from the former, for pins which are 18 inches long; these pins, however, are not essential. The draught gear consists of two chains, each 18½ feet in length, easily made up from ordinary plough chains, fitted with four unwelded rings, 2½ inches in diameter, like rings for a bunch of keys, so as to facilitate the special yet temporary insertion of the end of two poles (K, L) (stretchers), one being 11 feet 6 inches, and the other 9 feet long, by 2½ inches in diameter. The pole K is laid in front of the tines (D D), 5 feet 1 inch from A B, and parallel with it, and L is laid 3 feet 2 inches in front of K. The rings are secured to the poles with staples or nails. The chains are then hooked to the harness of a horse led by a boy; and a man pulls the handle towards him so as to elevate the tines, say 6 or 10 inches, whilst travelling. Suppose that the hay is fit for ricking, and has been collected in long rows by the horse rake, or that a long row of cocks has been broken up and exposed to sun and wind, the man in charge of the hay sweep directs the boy to lead the horse amongst the hay; he easily steadies the implement on the main beams by a judicious pressure or depression, so as to keep the points of the tines about 2 or 3 inches above the surface of the meadow; the hay in due time is collected in a large mass, which is upborne and carried forward on the tines. When the implement is loaded, so to speak, the driver jerks the handle well forward, so that its cross-head strikes the ground; the implement is thus deposited on the top of the mass of hay: the driver seizes one of the central tines by the point, and throws the implement upwards and forward, so that it alights in position and is immediately at work collecting another cargo. There is no stoppage, and the whole work is performed with a rapidity and ease to all concerned, and with a simplicity and efficiency, which require to be seen to be understood. A few feet of narrow hoop iron and some flat-headed nails should be carried a-field to repair a tine or draught-pole when sprung, and it is not out of place to mention that many a fork and rake shaft may be promptly and efficiently repaired with a strip of raw hide or thin leather and a few tacks. *B. M. F.*

* The engraving cannot be prepared in time for this week; and the hay time is going by.

—— The alternative of water or earth as the proper disinfectant of house waste is, it seems, still undecided even in such a town as Oxford. We learn from the *Oxford Journal* that at a public meeting held there the other day it was unanimously affirmed "that the daily collection of human excreta by an organised arrangement of the authorities of towns is the safest plan for the prevention of disease!" Mr. CRAIG moved the affirmative of the following principles laid down by him in the Appendix to the Report of the late Sewage Congress at Leamington:—

"1. That the equivalents of food, in the shape of Wheat, beef, and mutton, taken out of the soil, must be returned to it, or the land will ultimately become exhausted and unprofitably barren.

"2. That human guano, when properly applied, is a highly useful manure for the land, as is proved by its judicious application. But, if exposed to fermentation, it pollutes the air and becomes injurious to health.

"3. That water, when polluted with sewage, is one of the best carriers of poison, and the prolific source of disease.

"4. That the evils of defective ventilation are greatly increased by the system of drainage in connection with water-closets in houses.

"5. That the collection of human excreta daily, by an organised arrangement of the authorities of towns, is the safest plan for the prevention of disease."

To the first and second of these resolutions every one agrees. The third is to be taken as true mainly, or only when it is assumed that the water thus polluted gets into the wells or reservoirs whence the drinking water is taken for use. The fourth is probably true in so far as an imperfect watercloset in a house is worse than an old-fashioned cesspool and closet in the garden. But that the fifth resolution is true in itself, or anyhow follows from the others, we altogether deny. This, however, does not hinder us from acknowledging the value of Mr. MOULE'S earth closets for separate houses or institutions in the country; and we are glad to give the following report of their successful use in the Chorlton Union, Lancashire, which has been addressed to Mr. CRAIG by the chairman of the Board of Guardians in that Union:—

"The dry closets in the Chorlton Union House are now in use on all the ground floors, except in the Hospital. They are used by over 800 persons daily and exclusively, and have been in use about six months. The plan is very plain and simple. It consists of the ordinary shaped closet, with seat and holes, with this difference, that the floor is well raised, say three feet above the ground level. There is an ordinary pit for the deposits, and a road up one side of it, with a small space at

the end of it for the use and supply of dry ashes. A man goes round these closets every morning, and throws in a little coal ashes, riddled from the cinders, that are daily made at the fires in the various parts of the house. The cinders are, of course, taken back and burned. There is no better deodoriser than these coal ashes, and they cost us nothing; but, on the contrary, they form part of the manure when so used.

"As regards the question of how have they answered, I may reply they have, and always will answer, the most sanguine expectations of all persons, if they are properly attended to; and no plan will answer without. Sometimes, towards the latter part of the day, you may smell a little offensiveness, but all our Guardians and Workhouse Master, and all the officials, heartily admit they are a great improvement in a sanitary point of view, when compared with the watercloset system.

"I estimate the value of the manure that will be conserved at over 200*l.* per annum. If we take it at 6*s.* per head per annum, it will be about 240*l.* There will also be the yearly saving of expense in opening and cleansing out the sewers into which such deposits were heretofore turned; and there is also the national advantage gained in the shape of what is secured for fertilising purposes.

We observe that the return for the manure is only "estimated"—not recorded.

—— There was a meeting held in Chester last Saturday for the purpose of organising a cheese factory after the New York plan, to save the expense to the smaller dairy farmers of keeping up machinery and paying dairymaids for a quantity of work that is too limited to be profitable. This may be the beginning of the "cheese factory" movement, and when carried out we may expect that the dairy system will spread over counties where at present this industry is unknown, and where it can never profitably be entered upon until the hitherto necessary kind of knowledge has been acquired by farmers' wives. *B. M. F.*

PRESENT APPEARANCE OF THE CROPS.

[FROM OUR CORRESPONDENTS.]

Berkshire.—With respect to the state of the crops in this neighbourhood, the Wheat, without very favourable weather, cannot be up to an average. The season has been altogether unfavourable, and I never knew such variety. We have Wheat in the parish already lodged, while we have some as bad as I ever knew it. Both are the extremes, and neither will be good at harvest unless very favourable weather should come. The ear, too, does not seem so large as usual, especially with the forward Wheat I have noticed above. Barley and Oats are beautiful in colour, and generally well planted. They promise well for a full average. Peas are a very good crop, and will equal last year's one if they continue free from blight. Hay is a very good crop, though I believe 5 cwt. to an acre less than would have been the case if we had not had those May frosts. I never saw such a prospect, as early in May. With respect to Mangel, Swedes, and Turnips, it is quite premature to give an opinion. The fallows never were so backward and so foul as this season the cold frosty nights prevent their growth where they are planted and up, and several fields have to be ploughed up and resowed, all being much eaten by fly, slugs, and small snails, which seem to abound this year. I look upon the crop on the whole as very critical, though some warm rains may send them on, as generally there are sufficient plants, though so much eaten; but we see nothing of that vigour we usually see when well done—they seem to have forgotten how to grow, and the weeds get ahead. *J. A. Williams, Baydon.*

Buckinghamshire.—The following is an account of the Vale of Aylesbury and neighbourhood:—Wheat: On the heavy clays and undrained lands this crop is very bad indeed, on well-farmed drier soils and along the Chiltern Hills the crop is excellent, on the whole much below an average. Barley: Where well farmed, excellent, but on cold soils the last frosts checked it badly; fair average. Oats: Generally good; average. Beans: Some of the worst I have ever seen, a few crops large and fine; below average. Clover: In general good average. Meadow and Upland Grass: Good fair average, the low-lying meadows, even on the finest land, were much injured by late frosts, and have never recovered. Mangels: Very good, but rather backward. Swedes; Very middling; the fly has destroyed large quantities. *Prebendal Farms, Aylesbury.*

Devon (North).—Character of weather, spring, 1867, cold and wet. Wheat: Good on all dry lands, patchy and rather thin on wet undrained fields. Barley: Fair to good on sound well-farmed land, inferior on wet cold soils. Oats: Promising, with trifling exceptions. Potatos: Early crop cut down by frosts in May, but recovered; general field crop late, but healthy and regular. Hay: Clover and Rye-grass average to very good, crop now being cut; meadow—dry, late but good; wet, inferior. Mangel: a good braird generally. Swedes: Sown, but not up. Common Turnip: Ground in preparation for. Orchards: Apples, half a crop. *P. Cowan, Tawstock Manor and Neighbourhood, North Devon, June* 21.

Devon (South).—I fear that the appearance is such as will hardly warrant our expecting an average produce, and the harvest will most certainly be late; I should say not general till August 16th. Hay is very abundant and already well on. *Samuel Cornish, Stancombe, Kingsbridge.* —— The crops generally, previous to the delightful weather, had a very unsatisfactory appearance, but since it set in the improvement is very great. Wheat in blossom and on good land bids fair for an average crop, whilst on second-class and inferior soils it must be thin and light. Barley and Oats I cannot describe better than by observing the same rule. Potatos promising, but disease is already spoken of. Swedes just making their appearance above ground. Clover, which is now fast making into hay, a fair crop. The meadows are also turning out well. Grass plentiful. Scarcely any fruit of any kind. *John Wills, South Petherwyn, Launceston.*

Dorsetshire.—The weather now being most favourable, the hay harvest progresses rapidly, and I can speak favourably both as to quality and quantity, especially with reference to the Clovers and young Grasses. Flax I think will be above an average crop, the storms in May having proved most beneficial. Wheat is not so promising, as in many places it is thin and varies considerably; but Barley is so luxuriant that unless we experience a dry summer, much of it is likely to be "laid." Oats also look well. Mangel plants are abundant, but Turnip sowing has been delayed, and we can scarcely calculate on a good winter supply of Swedes. Our pastures abound in Grass. Altogether I think I am justified in speaking favourably of the present appearance of the crops. *John Pope, Bridport.*

Gloucestershire. — Wheat, Barley, Oats, and Peas are looking well about us. On this farm Wheat and Peas are looking especially well. Our Potatos present a regular and healthy appearance; we have a good stout crop of winter Vetches, and the same may be said of the seeds, now being mown. I have been a good deal troubled with the fly on the early-sown Turnips, having been obliged to drill two sowings of 5 acres each, twice. At present the Swedes are not attacked, the first sowing showing well in the row. We have a good plant of Mangel, horse-hoed once, and fit to single. In our pastures we have an abundant supply of Grass. In conclusion I may say that my knowledge of the appearance of the various crops is almost entirely confined to my own. *H. Rivington, College Farm, Cirencester.*

Kent. — The Wheat crop at present is very promising all around here, with the exception of the ley Wheats, most of which are too thin of plant to produce two-thirds of a crop. I do think that Mr. Mechi has a disciple in Kent; there may be seen here some of the finest Wheats in all the world, drilled in with 2½ bushels to the acre, with not one grain too much seed. Beans are a great breadth, and promise well, but are attacked with the black louse, and require topping. The early Peas are nearly a failure; it is too early to form an opinion as to Grey Peas. Barleys are various, many are too strong, unless the weather proves very dry. I have one field of 12 acres, after Turnip seed, which is upwards of 4 feet high, but many after bad tilths are very yellow. But few Oats are grown here. Potatos are a short breadth. The giant Sanfoin is grown to a vast extent, for a Wheat tilth in lieu of the Red Clover. Mangel is a good plant. Swedes are sown late here to avoid the mildew. Hops are various as to bine. *Robert Matson, Wingham.*

Norfolk.—It is at all times difficult to form any very correct estimate of the growing crops, especially at this immediate season when the corn is coming into ear, but having just returned from a journey of some 70 miles through the county, in company with a friend, we were enabled to form some opinion as to the prospects of the coming harvest. Wheat will not be fully into ear—that is, fully shot—before the end of this month, or the beginning of next, and may be considered a week or 10 days later than usual. Should the prevailing north winds continue many days longer, cutting will not generally commence before the middle of August. On rich and well farmed lands the crop is pretty good, but not abundant, whilst on the secondary and inferior soils an average seems doubtful. Barley is later than usual, and on the whole not very promising. Oats, Peas, and Beans are pretty good, but not much cultivated in the neighbourhood through which we journeyed. Hay everywhere an abundant crop, and with another week of dry weather will be safely stored. The root crop promises fairly; the ground is generally well planted, and Mangel Wurzel and early Swedes are being singled. We never stood more in need of an early and abundant harvest. Stocks of English Wheat are rapidly diminishing. We travelled through many parishes without seeing a Wheat stack—indeed, we drove 35 miles in one direction, and saw but three, and more than 20 miles in an opposite one and saw none outstanding. The same scarcity is said to prevail, more or less, in almost all the English counties, nor do we believe that either millers or merchants have any quantity stored to meet an ungenial harvest; if such is the case we shall very shortly, and till the new crop comes, be almost entirely dependant on foreign supplies. *East Norfolk, June* 24.

Staffordshire.—Only on the deep loamy soils can we any longer hope to reap a full crop of Wheat at the coming harvest. A large proportion of the lighter soils has been deficient in plants, and as the root has tillered less freely during the past spring than in any previous one in my recollection, there is still an insufficient plant, and harvest is too nearly here for it to become a full crop; it must remain thin, short, and uneven. The poor and ill cultivated clays sown with Wheat cut a sorry figure, the crop growing on them being short, thin, yellow, and much later than generally. From such appearances at so advanced a period a small produce must result. Barley on soils naturally suited to its growth looks well, and will doubtless be a satisfactory crop; but on the stiffer lands, although they be well drained and cultivated, its appearance is most disappointing. It is too soon to form a reliable opinion on the Bean crops, at present however they are luxuriant and are well blossomed. Peas are generally good; perhaps they are the crop of the season. The corn all needs sunshine. The effect of a few bright hours upon it is marvellous, and a succession of really summer weather would, even yet, greatly improve it; but I fear the season is too far gone for a higher temperature even to produce an average crop. Turnip growers have been much troubled by the fly's ravages, but the plants are now more promising for a crop than they were in their younger state. Mangel is generally thick enough, but requires warmer weather to make it grow freely. There is an abundance of mowing Grass, both natural and artificial, and hay-making has just commenced. *J. C. Adkins, Milcote, Stratford-on-Avon.*

Suffolk.—I should have answered your note before, but have only now returned from the Norfolk Show. The crops in this part of Suffolk are only middling, I think. Wheat, about an average; Barley very bad, especially on the cold wet lands; Oats, very few grown, but these are looking badly; Beans, a thin plant, bloom injured, some by the late frosts; Peas, a thin plant, prospect only middling; Clover, heavy crop; Grass, very heavy; Potatos looking well, getting over the effects of the frost; Beet-root looking well; Turnips taken off by the fly as fast as they came. I hope I have been explicit enough. *Samuel G. Stearn, Brandeston, Wickham Market.*

Surrey.—The following is my opinion of the crops in this neighbourhood, so far as I have seen. Wheat, on light and medium soils, very fair plant, and with a favourable bloom: will be a good average crop; on wet clays very indifferent. Barley looks very well generally, and will be a large crop. Oats a fair appearance. Beans and Peas not grown. Potatos: early crop very indifferent, so cut by frost of 23d and 24th May; late crop never looked better. Mangel and Swedes generally a good plant, but instances of the former having been ploughed up not uncommon, owing no doubt to the seed. Hay crop very good. *James Arnot, Woodcote, Carshalton.*

Shropshire. — All cereals are suffering sadly from very low temperature of the earth below and atmosphere above. Wheat yellow even on good highly farmed lands, bad and under average on all cold middling soils. Barley, certainly, cannot give a favourable account of; a deal late planted, and look gobby and wretchedly. Peas and Beans a tolerable prospect. Turnips very backward, and those early planted growing very slowly. Altogether I look for a season on the whole decidedly under average. *Henry Smith, Shiffnal.*

Sussex. — Wheat on the light land, it is thought, will be an average crop, but on the strong land it is hardly possible, judging by present appearance. The Barley to all appearance will be good. The Oats are good also. Peas are generally looking well, but are getting very blighty. Beans are backward, and blight has made its appearance, so that the crop will be doubtful. Upland Grass is about an average crop, and forward meadows, but backward ones are very short. Tares are generally good. *Gilbert Eames, Lynch, Midhurst.*—— Hereabouts the appearance of the crops is as follows:—Wheat about an average; Oats about an average; Barley under an average; Peas under an average; Beans, few grown here; Potatos very promising; Turnip, too early to say; hay, both meadow and seed, full crop. *John Brotherston, Rose Hill, Robertsbridge.*

WAGES PAID IN AGRICULTURE.

ACCORDING to a return recently published by the Board of Trade relating to the acreage of land under crop, bare fallows, and Grass in the United Kingdom in the year 1866, the total acreage was as follows:—

	Total of Acreage under all kinds of Crops.	Total of estimated ordinary Stock of Cattle.	Total Number of Sheep.
England	22,261,833	3,420,044	15,124,541
Wales	2,284,674	546,966	1,668,663
Scotland	4,158,360	968,637	5,255,077
Ireland	15,549,796	3,742,647	4,270,027
	44,254,663	8,678,294	26,318,308

The proportion between the acreage and the number of agricultural labourers in the United Kingdom is as follows:—England and Wales, 1 labourer to 14 acres; Scotland, 1 labourer to 13 acres; Ireland, 1 labourer to 20 acres. The proportion of agricultural labourers to population is, in England and Wales, 1 in 12; Scotland, 1 in 10; Ireland, 1 in 8.

The following counties have the greatest proportion of adults employed in agriculture:—In Rutland, 33.9 per cent.; Lincoln, 32.3; Cambridge, 31.6; Hereford, 31.4; Huntingdon, 30.8; Westmoreland, 30.8; North Riding Yorkshire, 30.4; Wilts, 29.3; Suffolk, 28.7; North Wales, 27.7 per cent. of the adult population were employed in agriculture.

The number of persons engaged in agriculture include farmers' sons, grandsons, brothers, nephews, agricultural labourers, farm servants, woodmen, gardeners, and nurserymen; but there are in addition many having holdings under 15 acres who work with their own hands or employ no servant. The total number may be estimated as follows:—

	Men.		Women.		Small Farmers
	Under 15.	15 to 60.	Under 15	15 to 60.	
England and Wales ..	128,000	1,060,000	65,000	311,000	90,000
Scotland ..	42,000	146,000	2,300	100,000	20,000
Ireland ..	32,500	390,000	5,800	46,000	275,000
	202,500	1,596,000	73,100	457,000	385,000

To these we must add 385,000 small farmers and crofters.

The wages of agricultural labourers in England and Wales were given in Mr. Villiers' return for the year 1860, and its principal results were brought out in a paper on the subject read by Mr. Purdy of the Statistical Department of the Poor-law Board, at the Statistical Society.* From these documents it appears that the average wages in the half-year of 1860 were 11*s.* 7*d.* for men, and 4*s.* 2*d.* for women and children; the weekly earnings by task work being calculated at

* "Journal of the Statistical Society," vol. xxiv., p. 328 Return of the average rates of weekly earnings of agricultural labourers in the Unions of England and Wales (14 of 1861).

13*s.* 9*d.* Basing his calculation upon Mr. Tuffnell's report on Kent and Sussex, Mr. Purdy estimated the total earnings of agricultural labourers in England and Wales, at 41*l.* 6*s.* 9*d.*, or 17*s.* a week per family. The Earl of Shaftesbury, in a letter to the *Times*,* depicted the condition of Dorsetshire labourers in a very favourable manner; 14*s.* 6½*d.* being calculated to be the average earning, each having a cottage either free or at a very small rent. Although the nominal wages may in some cases be as low as 8*s.* or 9*s.* per week in money, a free house and garden, fuel cut and dried, a chain of Potato ground prepared and manured, and a bushel of Wheat worth 5*s.* per month, raise the wages 4*s.* more per week, besides the gratuity given for extra work, and allowance for harvest work, &c. The wages in the different districts differ materially. In the northern and Yorkshire counties in immediate contiguity to the manufacturing districts the wages are higher than in the eastern, western, or midland counties; yet the force of public opinion and facility of communication tend to assimilate the wages throughout the country. The wages of agricultural labour have increased as follows:—1824, 9*s.* 4*d.*; 1837, 10*s.* 4*d.*; 1860, 11*s.* 7*d.*; 1866, 13*s.*

In Scotland the wages, according to a similar return, moved for by Sir Andrew Agnew,† also commented upon in another paper by Mr. Purdy at the Statistical Society,‡ were in 1860 as follows:—In the northern counties: men, 12*s.* 2¾*d.*; women, 5*s.* 1¾*d.*; children under 16, 4*s.* In the midland: men, 13*s.* 2*d.*; women, 5*s.* 7½*d.*; children, 4*s.* 0½*d.* In the southern: men, 13*s.* 2*d.*; women, 5*s.* 11½*d.*; children, 4*s.* 9½*d.*; giving an average for all Scotland at—men, 13*s.* 1*d.*; women, 5*s.* 7*d.*; children, 4*s.* 3¾*d.* The *North British Agriculturist* published from time to time, during 1864, accounts of the wages of agricultural labour in distinct farms in the different counties in Scotland, which supported the above averages. The wages are paid half in money, half in food; 20*l.* in cash is frequently given, but the allowances vary, some having house and garden, coal and meat, some the produce of a number of sheep or cows. The small crofters, at least 20,000 in number, cannot be taken to earn more on an average than 20*s.* a week for themselves and families.

The wages in Ireland are given in an another return for 1860, moved for by Lord Dunkellin,§ and equally commented on by Mr. Purdy;‖ and according to these the wages in 1860 averaged 7*s.* 1½*d.* for men, and 3*s.* 11*d.* for women, and 2*s.* 11½*d.* for children.

Since 1860 there has been a gradual rise in agricultural wages in all counties, and it is necessary to bear in mind that farm labourers often derive assistance from other employments, as from straw work, lace work, gloving, mining, mill work, or needle making. In some cases the labourer holds a piece of land and keeps one or more cows; in other cases he earns something by carting for others. All things included, the average may safely be taken at 13*s.* a week for men, 5*s.* 6*d.* a week for women, and 4*s.* 6*d.* for children under 16 years of age, and the small farmers and crofters at 15*s.* per week. Separately, the average might be taken at 14*s.* 6*d.*, 5*s.*, and 3*s.* 6*d.* in England; 14*s.*, 6*s.* 6*d.*, and 4*s.* 6*d.* in Scotland; and 10*s.*, 5*s.*, and 3*s.* 6*d.* in Ireland; and small farmers 15*s.* in England and Scotland, and 14*s.* in Ireland.

		£	*s.*	*d.*
Men	202,500 under 15, at 4*s.* 6*d.*	2,369,000	0	0
Do.	1,600,000, 15 to 60, at 13*s.* ..	54,080,000	0	0
Women ..	73,000 under 15, at 4*s.* 6*d.*	854,000	0	0
Do.	457,000, 15 to 60, at 5*s.* 6*d.*	6,535,000	0	0
Small farmers and crofters	385,000 at 15*s.*	14,965,000	0	0
	2,717,500	78,803,000	0	0

Agricultural labour in some counties, such as Lincolnshire, Huntingdonshire, Cambridgeshire, Norfolk, Suffolk, and Nottingham, is organised into agricultural gangs, consisting of a gang-master and a certain number (10 to 40) of women and young persons; in most cases the gangs travelling great distances to perform by contract a certain amount of field labour; a practice which is attended with most injurious physical and moral results.

In a report of Dr. Edward Smith on the food of the poorer labouring classes in England,¶ it is stated that the value of the food consumed by farm labourers was, upon the average, 2*s.* 11½*d.* per adult, or 13*s.* 7½*d.* per family weekly; including in this sum the value of every article of food in the localities referred to, such as vegetables, beer, and cider, which, though it may not cost the labourer any money, yet resulted from his labour, and was therefore a part of his daily income. But to the expenditure for food we must add that for clothing and rent. If we estimate the cost of clothing at 4*d.* a week, and the rent at 2*s.*, the necessary expenditure will be raised to 16*s.* per family; but nowhere, except in the poorest district, the income of any class is as low as the minimum necessary rate of expenditure.

Agricultural labour is healthy. The rate of mortality in Westmoreland was at the rate of 1.820; Rutland, 2.046; Lincoln, 2.052; North Riding of Yorkshire, 2.071; Wilts, 2.170; North Wales, 2.214; Suffolk, 2.220; Huntingdon, 2.233; Hereford, 2.235; and Cambridge, 2.256 per cent.

The percentage of persons who signed their marriage register with marks was as follows:—Rutland, 31.1 males, 17.5 females; Lincoln, 21.2 men, 24.2 women; Cambridge, 31.5 men, 30 women; Hereford, 29.5 men, 25.6 women; Huntingdon, 30.9 men, and 28.3 women; Westmoreland, 10.3 men, 20.6 women; North Riding of Yorkshire, 27.9 men, 24.4 women; Wilts, 27.9 men, 24.4 women; Suffolk, 36.0 men, 29.3 women; and North Wales, 34.9 men, 48.7 women.

* See *Times*, January 29, 1866. † 244 of 1861.
‡ "Journal of the Statistical Society," vol. xxv., p. 425.
§ 2 of 1862.
‖ "Journal of the Statistical Society," vol. xxv., p. 425.
¶ Sixth Report of the Medical Officer of the Privy Council, 1866.

An elaborate report on the state of the dwellings of rural labourers was made by Dr. H. J. Hunter.* The general results were, that in 5375 houses examined there were 24,770 persons, giving 4.6 to a house and 2.8 to a bedroom. In 2195 single bed-roomed houses there were 4 persons, or 2.2 adults and 1.8 children. In 1851 there were 4.41 persons to a house; in 1861 the proportion was 4.87 persons.

The amount owing to depositors per head of the population, which in England and Wales averaged 1*l.* 17*s.*; in Hereford was 2*l.* 10*s.*; Wilts, 2*l.* 1*s.*; Lincoln, 1*l.* 19*s.*; North Riding of Yorkshire, 1*l.* 17*s.*; Suffolk, 1*l.* 12*s.*; Cambridge, 1*l.* 10*s.*; Huntingdon, 17*s.*; Westmoreland, 10*s.* per head.

The number of persons committed for trial in 1865, which in England and Wales averaged 0.97 per 1000 of the population, in Hereford was 1.15; Lincoln, 0.89; Cambridge, 0.84; Wilts, 0.68; Suffolk, 0.56; Westmoreland, 0.44; Huntingdon, 0.40; and Rutland, 0.23 per 1000.

In the reports of the inspectors of constabulary the following statistics were given relating to public and beer houses and drunkenness in agricultural districts in the year ended 29th September, 1866:—

	Number of Public and Beer Houses to 1000 population.	Number proceeded against as drunk and disorderly per 1000 population.
Bedfordshire	7.81	2.09
Buckingham	8.47	2.36
Cambridge	10.05	.50
Ely, Isle of	6.32	1.79
Essex, with Harwich, and Saffron Walden	9.60	.97
Hertfordshire	9.40	2.20
Huntingdon	5.92	1.51
Leicester	4.96	1.35
Lincoln	5.50	2.64
Norfolk, with Thetford	6.09	1.51
Northampton, Peterborough liberty.	8.09	.48
Oxfordshire	8.09	1.52
Rutlandshire	7.46	1.28
Shropshire, with Oswestry and Wenlock	5.36	5.89
Suffolk, East, with Beccles, Eye, and Orford	4.14	.95
Suffolk, West, with Bury St. Edmunds	5.31	1.56
Average	6.41	1.92

—*Professor Leone Levi on Wages and Earnings of the Working Classes.* (John Murray.)

PROGRESS OF AGRICULTURE.

AT the recent monthly meeting of the Yorkshire Chamber of Agriculture, held at Beverley, a paper on "The Progress of Agriculture" was read by Mr. W. R. PARK, of Catwick, from which the following is an extract:—

Could the England of 1685 be by some magical process set before our eyes, we should not know one landscape from another. Such landmarks as Beverley Minster, or some of our old churches, would be objects familiar to our eyes, but everything else would be changed. The farmer would not recognise his own fields. Many thousands of square miles, which are now rich corn-land, intersected with green hedgerows, and dotted with villages and county-seats, would appear as moors overgrown with furze, or fen abandoned to wild ducks. In the reign of Charles II. the traces left by slaughter and pillage were still distinctly perceptible many miles south of the Tweed. There was still a large class of mosstroopers, whose calling was to plunder dwellings and drive away all herds of cattle. The magistrates of Northumberland and Cumberland were authorised to raise bands of armed men for the defence of property and order; and provision was made for meeting the expense of these levies by local taxation. The parishes were ordered to keep bloodhounds for the purpose of hunting freebooters. The geography of that wild country was very imperfectly known. Even after the accession of George III., the path over the fells from Borrowdale to Ravenglass was a secret carefully kept by the dalesmen. Oxen were penned at night beneath the overhanging battlements of the residence, which was known by the name of the "Peel." The inmates slept with arms by their sides. No traveller ventured into that county without making his will. The judges on circuit, with the whole body of barristers, attorneys, clerks, and serving-men, rode on horseback from Newcastle to Carlisle armed, and escorted by a strong guard under the command of the sheriff. It was necessary to carry provisions, for the country was a wilderness, which afforded no supplies. The spot where the cavalcade was accustomed to dine, under an immense Oak, is not yet forgotten. The greatest estates in the kingdom then very little exceeded 20,000*l.* a-year. The Duke of Ormond had 22,000*l.* a-year. The Duke of Buckingham, before his extravagance, had 19,000*l.* a-year. The Duke of Albemarle had 15,000*l.* a-year. These three dukes were supposed to be the three richest subjects in England. The average income of a temporal peer was estimated by the best informed persons at about 3000*l.* a-year, the average income of a Member of Parliament less than 800*l.* a-year, the average income of a baronet 900*l.* a-year.

The fact that the sum raised by taxation in England in a time not exceeding two long lives has been multiplied thirty-fold, is strange. But those who are alarmed at the increase of public burdens may perhaps be re-assured when they have considered the increase of public resources. In the year 1685 the value of the produce of the soil far exceeded the value of all other fruits of human industry. Yet agriculture was in what would now be considered a very rude and imperfect state. The arable land and pasture land were not supposed by the best political arithmeticians of that age to amount to much more than half the area of the kingdom. The remainder was considered to consist of moor, forest, and fen. These computations are strongly confirmed by the road-books and maps of the seventeenth century, from which it appears that many routes which now pass through an endless succession of Orchards, corn fields, Clover fields, and Turnip fields, then ran through nothing but heath, swamp, and warren. In the drawings of English landscape made in that age, scarce a hedgerow is to be seen, and numerous tracks now rich with cultivation appear as bare as Salisbury Plain. At Enfield, hardly out of the sight of the smoke of London, was a region of 25 miles in circumference, which contained only three houses, and scarcely any enclosed fields. Deer, as free as in the American forest, wandered there by thousands. The last wild boars, which had been preserved for the royal diversion, and had been allowed to ravage the cultivated lands with their tusks, had been slaughtered by the exasperated rustics during the licence of the Civil War. The last wolf that has roamed our island had been slain in Scotland a short time before the close of the reign of Charles II. The fox, whose life is in many counties held almost as sacred as that of a human being, was considered a nuisance. Oliver St. John told the Long Parliament that Stafford was to be regarded not as a stag or a hare, to whom some law was to be given, but to a fox, to be knocked on the head without pity. To shoot a female with cub was considered a feat which merited the gratitude of the neighbourhood. The red deer were then as common in Gloucestershire and Hampshire as they are now on the Grampian Hills. On one occasion Queen Ann saw a herd of not less than 500, on her way to Portsmouth. The wild bull, with his white mane, was still to be found wandering in a few of the southern forests. The badger made his dark and tortuous hole on the side of every hill where the copsewood grew thick. The wild cats were frequently heard by night wailing round the lodges of the rangers of Whittlebury and Needwood. The yellow-breasted marten was pursued on Cranbourne Chase for his fur, reputed inferior only to that of the sable. Fen eagles, measuring more than 9 feet between the extremity of the wings, preyed on fish along the coast of Norfolk. On all the downs from the British Channel to the Yorkshire Wolds bustards strayed in troops of 50 and 60, and were often hunted by greyhounds. The marshes of Cambridgeshire and Lincolnshire were covered during several months in every year by immense clouds of cranes. Some of these races the progress of cultivation and drainage has extirpated, of others the numbers are so much diminished that men crowd to gaze at a specimen as at a Bengal tiger or a Polar bear. The progress of this great change can nowhere be more clearly traced than in the statute book. The number of enclosure Acts passed since George II. came to the throne exceed 4000.

The areas enclosed under the authority of these Acts exceed 10,000 square miles. How many square miles which formerly lay waste have during the same period been fenced and carefully tilled by the proprietors, without any application to the Legislature, can only be conjectured. But it appears highly probable that a fourth part of England has been in the course of a century turned from a wild into a garden. In 1848 an average crop of Wheat, Rye, Barley, Oats, and Beans was supposed to exceed 30 millions of quarters. A crop of Wheat was thought poor that did not exceed 12 millions of quarters. According to a computation made in the year 1696, by Gregory King, the whole quantity of Wheat, Rye, Oats, Barley, and Beans was something less than 10 millions of quarters; Wheat, which was then cultivated only on the strongest clays, and consumed only by those who were in easy circumstances, he estimated at less than two millions of quarters. The rotation of crops was very imperfectly understood. It was known that the Turnip afforded excellent nutriment in winter for sheep and oxen; but it was not the practice to feed cattle in this manner; it was, therefore, by no means easy to keep them alive in the winter. They were killed in great numbers and salted at the beginning of cold weather, and during several months the gentry tasted scarcely any fresh animal food, except game and river fish. It appears from the Northumberland Household Book that, in the reign of Henry VII. fresh meat was never eaten by the gentlemen attendant on the Great Earl except during the short interval between Midsummer and Michaelmas. But in the course of two centuries an improvement had taken place, and, under Charles II., it was not until the beginning of November that families laid in their stock of salt provisions, then called Martinmas beef. The sheep and the ox at that time were diminutive when compared with the sheep and oxen which are now driven to market. Our native horses were held in small esteem. Foreign breeds were greatly preferred. Spanish jennets were regarded as the finest chargers, and were imported for the purposes of pageantry and war. The coaches of the aristocracy were drawn by Flemish mares. Neither the modern dray horse nor the modern racehorse was then known. At a much later period the ancestors of the gigantic quadrupeds, which foreigners class among the wonders of London, were brought from the marshes of Walcheren—the ancestors of Childers and Eclipse from the sands of Arabia. Already, however, there was amongst our nobility a passion for the amusements of the turf, and a considerable number of barbs had been imported into this country from Tangier. Iron works had long existed in our island, but had not prospered. It was then not the practice to employ coal for smelting the ore. The rapid consumption of wood excited the alarm of politicians. As early as the reign of

* Seventh Report of the Medical Officer of the Privy Council, 1865.

Elizabeth there had been loud complaints that whole forests had been cut down for the purpose of feeding furnaces, and the Parliament had interferred to prohibit the manufacturers from burning timber. At the close of the reign of Charles II., a great part of the iron which was used in the country was imported from abroad. Whilst these great changes have been in progress, the rent of land, as might be expected, has been almost constantly rising. In 1848, in some districts, it had multiplied more than tenfold. It had on an average more than quadrupled, and, notwithstanding the free introduction of corn into this country, rents still continue increasing.

In Scotland there has been an equally rapid progress. On referring to an observation made by Mr. Henderson, at the Logie and Lecropt Farmers' Club, he says it is curious to observe how land rose in value about the end of the last century, principally from the introduction of a crop negatively forbidden by landlords. He spoke of the tenant—bound by lease to his course of cropping, with Oats after Oats on his outfield, until they would grow no longer, and Oats, Peas, and Bere on his infield—doing a good stroke of business in the Turnip line, with a penalty of so much an acre hanging over his head on every acre of Turnips grown. One farm he was acquainted with, and had seen the leases for 170 years back. Previous to 1750 the farm was let at about 2*s.* 1*d.* an acre; from 1750 to 1769 it was rented at about 3*s.* 5*d.* an acre; from 1769 to 1788 it was 8*s.* 4*d.* During the currency of this lease Turnip culture was introduced, and when it expired 15*s.* an acre was the rent up to 1804, when it rose to 45*s.*, at which it has been ever since. Sheep husbandry, in Scotland, appears to have been in no better favour with proprietors than the Turnip crop. In a lease, dated 1780, sheep, goats, swine, and asses were strictly forbidden. It would appear it was a good way into the present century before the tenants in general had full power to crop with Turnips. Parochial assessments perhaps give only a vague idea of the actual rents; in all probability, formerly, they were much beneath the rent. On referring to the Catwick parish books, I find the assessment for the whole parish, in the year 1722, amounted to 200*l.* At the present time the assessment amounts to 2323*l.* In the reign of Charles II. there were no tramways in England, except a few made with timber from the mouths of the Northumbrian coal pits to the banks of the Tyne. Hardly a single navigable canal had been projected. It was by highways both travellers and goods generally passed from place to place, and they were far worse than might have been expected from the degree of wealth and civilization which the nation had then attained.

Ralph Thoresby, the antiquary, was in danger of losing his way on the great north road between Barmby Moor and Tuxford, and actually lost his way between Doncaster and York, it being hardly possible to distinguish in the dusk the way from the unenclosed heath and fen. His diary relates he was detained at Stamford four days on account of the state of the roads, and then ventured to proceed only because 14 members of the House of Commons, who were going up to London in a body to Parliament, with guides and numerous attendants, took him into their company. In some parts of Kent and Sussex none but the strongest horses could in winter get through the bog, in which at every step they sank deep. The markets were often inaccessible during several months. It is said the fruits of the earth were sometimes suffered to rot in one place, while in another place, only a few miles distant, the supply fell far short of the demand. While Prince George of Denmark visited the stately mansion of Petworth he was six hours in going nine miles, and it was necessary that a body of sturdy hinds should be on each side of the coach in order to prop it. Of the carriages which conveyed his retinue several were upset and injured. A letter from one of the gentlemen in waiting has been preserved, in which the unfortunate courtier complains that during 14 hours he never once alighted, except when the coach was overturned or stuck in the mud. One chief cause of the badness of the roads seems to have been the defective state of the law. Every parish was bound to repair the highway that passed through it. The peasantry were forced to give gratuitous labour six days in the year; if this was not sufficient, hired labour was employed, and the expense was met by a parochial rate. Indeed, it was not in the power of the parishes of Huntingdonshire to mend a highway worn by the constant passing and repassing of traffic between the West Riding of Yorkshire and London. Soon after the Restoration, the grievance attracted the notice of Parliament. An Act—the first of our many Highway Acts—was passed, imposing a small toll on travellers and goods. On the best highways heavy articles were, in the time of Charles II., generally conveyed from place to place in stage waggons. From London to Birmingham the charge was 7*l.* a ton; from London to Exeter, 12*l.* a ton. This was about 15*d.* a mile for every ton—more by a third than was afterwards charged on turnpike roads, and 15 times what was demanded by railway companies in 1848. Coal was never seen except in districts where it was produced, or to which it could be conveyed by sea. On by-roads, generally, throughout the country north of York and west of Exeter, goods were carried by long trains of pack horses. A traveller of humble condition often found it convenient to perform a journey mounted on a pack-saddle between two baskets. The expense of this mode of conveyance was small; but the caravan moved at a foot pace, and in winter the cold was often insupportable. A coach-and-six is in our time never seen, except as part of some pageant. Gentlemen in the time of Charles II. travelled with six horses, because with a smaller number there was great danger of sticking fast in the mire. Vanbrugh, in the succeeding generation, describes with great humour the way in which a member of Parliament went up to London: all the exertions of six beasts, two of which had been taken from the plough, could not save the family coach from being imbedded in a quagmire. At Barton-upon-Humber the church-bells still ring at dusk: instituted for the guidance of travellers. The remains of a land lighthouse are still standing on Nocton Heath, by the side of the road between Lincoln and Sleaford (now one of the richest corn, Clover, and Turnip districts in the kingdom), a memento of the great stride that has been taken both in travelling and agriculture. Willow trees are yet growing on the side of the road between Hull Bridge and Beverley, planted to point out the road to travellers in time of floods.

The great criterion of the state of the labouring class is their wages; and, as four-fifths of the people were in the 17th century employed in agriculture, it is especially important to ascertain what were the wages of agricultural industry. Sir William Petty, whose mere assertion carries great weight, informs us that a labourer was by no means in the lowest state who received for a day's work 4*d.* with food, or 8*d.* without food. Four shillings a week was therefore, according to Petty's calculation, fair agricultural wages. In 1685 the justices of Warwickshire, in the exercise of a power entrusted to them by an Act of Elizabeth, fixed at their Quarter Sessions a scale of wages for the county, and notified that every employer that gave more than the authorised sum, and every working man who received more, would be liable to punishment. The wages of the common agricultural labourer, from March to September, were fixed at the precise sum mentioned by Petty—viz., 4*s.* a week, without food; from September to March the wages were only 3*s.* 6*d.* a week. The magistrates of Sussex met in the spring of 1682, to fix a rate of wages, and resolved that where the labourer was not boarded he should have 5*s.* a week in winter, and 6*s.* in summer. In 1661 the justices of Chelmsford had fixed the wages of the Essex labourer, who was not boarded, at 5*s.* in winter and 7*s.* in summer. This seems to have been the highest remuneration given in the kingdom for agricultural labour between the Restoration and the Revolution. In the year in which this order was made, the necessaries of life were immoderately dear; Wheat was at 70*s.* a quarter. Beer was undoubtely much cheaper in that age than at present; meat was also cheaper, but was still so dear that hundreds of thousands of families scarcely knew the taste of it. In the cost of Wheat there has been very little change. The average price of a quarter during the last 12 years of Charles II. was 50*s.*; bread, therefore, which is now given to the inmates of a workhouse, was seldom seen, even on the trencher of a yeoman or shopkeeper. The great majority of the nation lived almost entirely on Rye, Barley, and Oats. The produce of tropical countries—the produce of the mines—the produce of machinery, was positively dearer than at present. Among the commodites for which the labourer would have to pay higher in 1685 than his posterity pays at present, are salt, sugar, candles, soap, shoes, and generally all articles of clothing and bedding. It must be remembered that those labourers who were able to maintain themselves and their families by means of wages were not the most necessitous members of the community. Beneath them lay a large class which could not subsist without some aid from the parish. In 1848, says Lord Macaulay, the men, women, and children who receive relief were in bad years one-tenth of the inhabitants of England, and in good years one-thirteenth. Gregory, in his time, estimated them at one-quarter, and this estimate, which will scarcely prevent us from calling it extravagant, was pronounced by Davenant as eminently judicious. The poor rate undoubtedly was the heaviest tax borne by our ancestors; it was computed in the days of Charles II. at near 700,000*l.*—much more than the produce of either the excise or of the customs, and little less than half the entire revenue of the Crown. In one respect it must be admitted that the progress of civilisation and cultivation has diminished the physical comforts of a portion of the poorest class. Many thousands of square miles, now enclosed and cultivated, were marsh, forest, and heath. The peasant who dwelt there could at little or no charge procure occasionally some palatable addition to his hard fare, and provide himself with fuel for the winter. He kept a flock of geese, snared wild-fowl in the fen, cut turf amongst the Furze bushes on the moor. The progress of agriculture and the increase of population necessarily deprived him of these privileges. But against these disadvantages, advantages are to be set off. The market-place, which the peasant can now reach with his horse and cart in an hour, was 160 years ago a day's journey from him. In case of accident, should he be fortunate enough to gain admittance into our infirmaries or hospitals, he can have his limbs set and his wounds dressed free of expense, with a skill such as 160 years ago all the wealth of a great lord like Ormond, or a merchant prince like Claton, could not have purchased. He can now have his children educated in a manner the yeoman of England could not have obtained in the time of Charles II. Every class, doubtless, will have gained by this great moral change; but the class which have gained the most is the poorest, the most dependent, and the most defenceless.

CONTINENTAL AGRICULTURAL NOTES.

THE following notes bearing upon agriculture are culled from reports just received from the British Consuls at the various stations referred to. From Leipsig we learn that "between Midsummer and December, 1866, the value of corn increased to an almost unprecedented extent in the Leipsig market, and the misfortunes of war and cholera were aggravated by enhanced prices for the most necessary articles. The principal cause of this state of things may be found in the climatic changes which affected the crop of 1866. Winter-sown corn rose well, and gave promise of a plenteous yield. But in May, after several weeks of drought, heavy frosts set in and blighted the prospects of the harvest. Rye, which was just in bloom, was so seriously affected that it returned but one-third of an average crop, and less on the whole than in the proverbially bad year of 1846. Wheat suffered less than Rye, but still sufficiently to make the crop smaller than usual; and Rape was so completely killed that hardly a third of a usual harvest was brought in. Barley and Oats gave better results than Rye or Wheat. Potatos were in some places diseased, in others healthy; but the crop on the whole was little more than half an ordinary one. Beetroot, Clover, and grain were also below the average. On the whole, so bad a harvest has not been seen in Saxony for 25 years past; nor can we expect a diminution in the price of agricultural produce for the present, because, though Prussia was less severely visited than this kingdom, its harvest has been but little better than that of 1865, and it has no corn to spare for the wants of importing neighbours like the Saxons." In Oldenburgh the harvest of 1866 gave, "in all agricultural produce, a good result. The prices of cattle ruled extremely high, as well as other agricultural produce. The market price of all these productions is governed, for want of any direct communication with the interior of Germany, by the London quotations, as the greatest part thereof is exported either to London or Hull, to which places a good communication is kept up by the Nord Deutsche Lloyd, a large company running steamers there twice a week, or more, as occasion permits. Although this land is in so close a connection with England it is remarkable that the farmers here continue to work the soil according to a very ancient system; thus causing the land to produce not more than half of what it would bring if worked rationally. Government try hard to improve the system of the farming, but with only small results. Perhaps the next generation may bring an alteration; of the present little is to be hoped."

At Alexandria the cultivation of cotton has in a measure superseded that of agricultural produce. The report says:—"The present condition of the agricultural industry of Egypt has been so entirely diverted from the rotation of crops in its normal state, that any person now going through the country to take a view of the produce of the soil would be altogether misled. The enormous profits which were realised by the growth of Cotton during the American war have caused this. When the Cotton Supply Association sent out their Secretary, with Dr. Forbes (Royal), to India, those gentlemen were bearers of a memorial to the late Viceroy, Said Pasha, praying his Highness to use every possible effort to encourage the cultivation of Cotton. The reply was characteristic, and evinced a correct impression and almost a prophetic dread of the revolution that would be produced by an immoderately enhanced price for Cotton. He said, 'Prices alone will prove a sufficient stimulus without any effort on my part; but God forbid that I should ever see the abandonment of the ordinary succession of crops for the production of Cotton, to the exclusion of those products on which we subsist.' Within a short period of that time Egypt, which had ever been a large exporter of grain, of Beans, &c., had to seek food from other countries, and became an extensive importer. Grain was considerably dearer in the interior than at Alexandria; in some places absolute famine ensued.

"An undesirable change was wrought, the recovery from which will be as slow as its accomplishment was rapid. The value of land was quadrupled, wages rose in an equal ratio, labourers earned so easily sufficient for their wants that they became indolent; an excessive luxury sprung up, and that not of a nature to benefit the commercial world, being displayed in a demand for white slave girls, costly pipes, and other such appliances, which do not much benefit the industrious world without. Meanwhile the land, from the constant crops of Cotton in succession, has become impoverished: Cotton-seed has also become an important source of profit. Formerly it was not of sufficient value to justify its being sent to Alexandria, and it was used as fuel. Now it is all shipped to Europe, and from it is pressed an excellent oil, and from the refuse a cake is made which is said to be more nutritious for cattle than Linseed cake. The cattle murrain, which commenced in Egypt before it proved so severe a scourge in England, destroyed, the first year, 800,000 head of horned cattle. In lower Egypt almost every animal was destroyed, and it will take years to restore the number of animals."

At Adrianople, in Turkey, the last year's harvest was exceedingly good, and "the condition of the new grain crops is most hopeful. The weather is favouring them; and should it continue to do so, the harvest may be more abundant than the last one, especially of Wheat and Barley, of which more than the average quantity has been sown. Last year the crops in some districts of the Vilayet were so prolific that the peasants were enabled to pay all their 'bekayies' (taxes in arrear). If the coming crops also succeed, and are followed by heavy orders from foreign markets, the Government will have no difficulty to collect the taxes, and the condition of the agricultural class will very much improve. The principal farmers in this Vilayet are becoming alive to the importance of introducing on their estates improved agricultural machinery and implements. Several of them have already in use English reaping and winnowing machines. Some, also, are very anxious to introduce threshing machines worked by steam power, and have applied to me (the Consul) and other parties for particulars as to cost, and models of this machine."

At Rhodes the produce of the crops of 1866 was very unequal, there being abundance in some parts of the

island, and scarcity in others, so as to reduce some villages to utter misery.

Mr. Barker, the Vice-Consul at Theodosia, reporting on an exhibition of the products of the Crimea, held at Simpheropol, says, "There were some enormous oxen brought from Switzerland, but I heard the farmers say they have not been found to answer for the plough as well as the small Tartar breed of the country. I was present at the trials of all the ploughs, and although the soil chosen was far too light for some of them, the capabilities of the English and German ploughs were far superior to those of the old country farmers. Ransome & Sims had not a fair trial, for the men did not know how to use it, and the soil was far too light for it. But the self-acting plough, a patent English one, improved by Count Desmaisons, appeared to be the favourite, and to carry off all suffrages. In regard to the other agricultural implements they were principally British, but few of them with the modern improvements; in fact agriculture is in its infancy here, and it is to be hoped this exhibition will induce Russian proprietors and colonists to look to England for assistance in the important means of scientific agriculture."

These notes are interesting, as showing the progress of agriculture abroad, and by comparison the perfection of our system at home. *J.*

Home Correspondence.

The County Franchise.—I saw some short time ago in the public papers a fairly estimated statement of the personal property of the farmers of the United Kingdom, being the value of horses, cattle, sheep, pigs, poultry, &c., as taken from the last collection of statistics, as also of all corn, Grass, and fallow crops, Potatos, &c., implements, tenant rights, &c., in fact everything connected with the farm, but not including household furniture and the extras kept for the farmers' pleasures. The total amounted to the enormous sum of 400,000,000*l.*, and it further stated that nearly 200,000,000*l.* is the annual arable produce, and the stock breeding and feeding accounts nearly approaches it, so that nearly 400,000,000 of pounds value is produced annually by farmers for the replenishment of their farms, and for the use and sustenance of the public. I have looked into this estimate, and find it is not far from the truth. Where, then, in the United Kingdom is there a class of producers equal to this? Where is there a class of equal importance to the State? But what is their political status in the State? Why, hitherto it has been the very lowest; none but 50*l.* rental farmers possessing a vote—not one farmer in 50. This is somewhat improved in the new Representation of the People's Bill, but still a stigma is left upon the tenant farmer having a small holding. Why is a borough voter to have the franchise at a 5*l.* rental and the tenant farmer at 12*l.*? Surely one is as good as the other, and I think, with friend "Pat," a little better. What then are tenant farmers to do under the new order of things? Are they still to trust their enormous interests to their landlords? We won't say a word, to disparage landlords, of a personal character. They have well represented our counties up to a comparatively recent period, but look at their position now. Why, they are powerless for good to their class. They can't carry any one single measure through Parliament, though backed by a powerful House of Lords, if there is any tendency, not to say partial tendency, to benefit agriculture therein. The current of public opinion is set in against landlordism. They have too much power already in the general cry. I should like to see them exert it a little more. Why are the tenantry of the kingdom to be sacrificed to other minor interests of the kingdom? They are not the men they were 50 years back, as the varied and wondrous produce of their farms will testify. They have become as intelligent and as enterprising as any other class of the community. Witness the importation and manufacture of feeding stuffs, manures, &c., and the attention given to breeding and fatting of stock, to scientific culture, and to modern productions. No class of our people is more entitled to a full and free representation than the tenant farmer's class. I should rejoice to find a strong and compact body of tenant farmers in the new reformed Parliament. Their practical knowledge would be very valuable just now upon such questions as the malt tax, the education of children employed in agriculture, the gang system, middle class education, turnpike roads, cattle plague regulations, valuations, assessments, averages, &c., besides general politics, of which they possess excellent practical ideas. They would form an influential body in Parliament, and might and would (as Mr. Bright has said) bring a power to bear upon any Government which could not be resisted. It is not now as formerly. The landlord and tenant interests are no longer identical. The modern tenant now expends his thousands in scientific culture and in artificial aids and management, and his produce is proportionate. To him it is not so much a question of rent as of liberty to employ capital without restrictions. Landlords generally are acknowledging this, and not only permitting, but urging such beneficial proceedings. I should be sorry to see any good member of our higher classes thrown out next election, but I do hope there will be an effort in every county or division of counties to oust any inefficient or doubtful one, and replace him by the most intelligent farmer of the district, and where new members are given to counties I do most assuredly urge tenant farmers to put in members of their own class—yes, if possible, fill up the whole "twenty-five." *O. F.*

The Cattle Plague.—The truth about the so-called cattle plague is simply this: The disease which, in conjunction with the various methods ignorantly used for its arrest, has proved for long past so fatal to cattle, both here and on the Continent, is bronchitis. The symptoms are: first, coldness of the hoofs, horns, and nose; secondly, roughness of the coat, the hair of which stands on end; thirdly, shivering; fourthly, inability to take nourishment, either solid or liquid. The remedial agencies are warmth, stimulant, and nourishment; and if applied in time they do certainly cure. The treatment to be used is, therefore, first, to wrap up the animal very warmly in blankets; secondly, to mix a quart of thoroughly good ale, made from malt and hops only, with sufficient hot water to warm it; mix in a few spoonsful of meal, and 6 grains of opium, and administer with the horn if the animal will not drink it. Then supply the animal with plenty of water in a vessel placed so high as that it can drink without having to depress its head, and supply tempting food placed in a rack at a similar height. The reason why an animal cannot eat or drink when suffering from bronchitis, is because the inflamed state of the bronchial tubes renders it unable to stoop its head for a moment without feeling suffocated. There is not, and there cannot be, contagion in this disease. The prescribed measures for hindering the transit of cattle or hides is simply absurd. The cause of the disease is generally the blowing of a strong easterly or north-easterly gale over certain districts, and giving the cattle over which they sweep severe colds. No doubt much might be done preventively, by making the sheds much more weather-tight than they often are. This is the statement of one whose opportunities for observation and experiment have been amply sufficient absolutely to prove its correctness. *John Watkins, Surgeon, &c., 2, Falcon Square, Aldersgate Street.* [No doubt there is a disease properly called bronchitis; and it is equally certain that this is not the "Cattle Plague."]

Foreign Correspondence.

MARITZBURG, COLONY OF NATAL: *April* 30, 1867. —*The Soil of Natal.*—I have perused with much interest the lecture delivered by the Rev. E. Smythies at the Central Farmers' Club in March last, but with your permission I will make a few comments on one paragraph only. The rev. gentleman says that his hearers cannot form a very exalted opinion of the fertility of the soil of the colony of Natal, when they learn that the upset price of the common lands is only 4*s.* per acre.

I will not now enter into an argument and discuss the desirability of raising that upset price, but I trust I shall be allowed to set before your readers such a statement as will alter, in Mr. Smythies' mind, the conclusions at which he arrives. It would be idle to contend that there is no sterile soil in this colony. I know there is; but I also know that it forms a very small proportion of the cultivable area of this dependency. In and around Maritzburg there is a quality of soil which may be classed amongst the worst in the colony, but I have grown 45 English bushels per acre of the great staple of the colony, Indian Corn; whilst outside the town, where some farmers can only plough three inches, and then turn up a good deal of shale, crops of the same article are now harvesting at the rate of 30 bushels per acre. Nor is this all; 60 bushels of Potatos to the acre are considered a good average crop; and higher up the country considerable quantities of Wheat are grown, averaging 30 bushels per acre. Though an amateur farmer only, and therefore I write under correction, I can, without fear of contradiction, state that in many portions of the colony we have large tracts of land, the fertility of which cannot be surpassed on the face of the globe, land in which can be produced the cereals of temperate climates, and subtropical productions, such as Cotton and Coffee, side by side. And to this, it must not be forgotten, may be added a delightful climate throughout the whole year.

How it is that English farmers can pass by the superior advantages of this colony, which will one day be one of the most prosperous under the British crown, is a constant source of astonishment to *A Natal Colonist.*

Any of your readers can obtain my address through you, and I shall be happy to furnish them with all the information in my power.

Societies.

SOUTHERN COUNTIES AGRICULTURAL: *Brighton, June* 26.—The first Show of this Society, recently formed upon the excellent model of the Bath and West of England, was to have been held last year, but was postponed on account of the cattle plague. It has this year had the same disadvantage to contend with in the absence of all the cattle classes from its catalogue, but otherwise it has been exceedingly fortunate. A charming Show-yard, however, uncommonly well filled, clear breezy summer weather, and 50,000 people close by, have failed to produce the body of spectators we have been accustomed to see elsewhere. Twenty acres of Grass land where Mr. Rigden's farm abuts on Brighton, close by the cricket ground at Hove where Kent and Sussex have been contending for the mastery all the week, have been enclosed. Implement makers from as far as Lancashire and Lincolnshire and Suffolk, with a crowd from nearer counties, and breeders of horses, sheep, and pigs, principally from Sussex, but also from Oxfordshire and Gloucestershire and Kent, have combined to fill it with one of the best arranged displays of the live stock and machinery of the farm we have ever seen. There is a capital show of poultry within the yard, and of works of Art elsewhere, to which the one admission fee gives access, but Brighton seems indifferent, and the few spectators have had accordingly unwonted opportunity of examining the various classes both of live stock and of implements submitted to them. Any who have been attracted from a distance have, in the position of the yard, also had a good opportunity of seeing a capital specimen of Sussex farming close by. Mr. Rigden's sheep within the enclosure, and his crops outside, have been the principal agricultural attractions. There is no greater contrast in the whole agricultural scale than the splendid Talavera Wheat just outside the Show-yard, and the miserable crops we saw when passing through the Weald from London.

The *Sheep* form the principal feature of the Show. 60 entries in the Southdown class alone form a show of themselves. The older class of Southdown rams is one of the finest ever seen together, and the yearling rams are also a first-rate illustration of the breed. Mr. Rigden carries off all the prizes—his sheep being clearly at the head in point of size and quality combined. On the 2d prize yearling there was some difference of opinion, which might have found expression in the decision; but the Hampshire gentleman, who with Mr. Woods, of Merton, acted as judge, was not likely to be offended by a slight defect in the colour of the face. The Duke of Richmond's sheep came probably next in the order of merit. Those of Mr. Penfold are lighter in front, and altogether looser put together. Mr. Waters' sheep show great size and substance. The older rams are the better class of the two, and here Mr. Rigden's sheep are again victorious. The Duke of Richmond receives several commendations. Mr. Waters also is again commended: his old sheep have generally, if we remember, in previous shows elsewhere carried off more honours than his yearlings. Here they make a capital show. Mr. Hart's entries are larger and coarser woolled than Southdowns should be.

The yearling ewe pens contain a number of perfect entries. Nothing can be more beautiful in form and colour. The Duke of Richmond is here victorious.

Immediately after these exquisitely beautiful specimens of the most elegant breed of sheep in England, we come upon what, by contrast, we are forced to call the ungainly Hampshire Downs. They are, nevertheless, one of the most useful breeds we have; and though they do not make so good a display as they did at Salisbury, nevertheless a number of good and useful Rams are shown by Mr. Russell, of Dartford, and Mr. Loyd, of Addington. The yearling sheep are not nearly so forward or so ready as the Southdowns. There is no show of yearling ewes—the class in which Mr. Rawlence made so good a show at the Bath and West of England meeting. Mr. Wallis, of Bampton, and the Duke of Marlborough make up a very good class of the thick and stocky well-coated half-breds commonly called Oxford Downs; and there is a fair share of Kentish sheep, with their north country Leicester-like faces and heavy coats. Messrs. Murton, of Ashford, and Rigden, of Hythe, are the chief exhibitors; Colonel Deedes, however, taking the 2d prize in one of the classes, but with a sheep bred by Mr. Rigden.

The following is the award of prizes:—

SOUTHDOWNS.

CLASS 13. For the best Yearling Ram.—1st, 20*l.*; 2d, 10*l.* 27 entries—Mr. William Rigden, Hove, Sussex, 1st and 2d. Highly Commended: Mr. Rigden and his Grace the Duke of Richmond, Goodwood, Sussex. Commended: Mr. Rigden, his Grace the Duke Richmond, and Mr. B. Waters, of Motcombe.

CLASS 14. For the best Ram of any other age.—1st, 20*l.*; 2d, 10*l.* 26 entries—Mr. William Rigden, Hove, 1st and 2d. Highly Commended: Mr. Rigden (twice), and his Grace the Duke of Richmond. Commended: his Grace the Duke of Richmond, (twice), Mr. B. Waters, of Motcombe.

CLASS 15. For the best pen of Five Yearling Ewes.—1st, 20*l.*; 2d, 10*l.* 6 entries—His Grace the Duke of Richmond, 1st and 2d. Highly Commended: Messrs. J. & A. Heasman, of Angmering.

HAMPSHIRE DOWNS.

CLASS 16. For the best Yearling Ram.—1st, 20*l.*; 2d, 10*l.* 16 entries—1st, Messrs. Robert and John Russell, of Farningham, Dartford, Kent; 2d, Mr. Lewis Loyd, of Monk's Orchard, Addington, Croydon. Highly Commended: Messrs. Russell, Farningham (three pens). Commended: Messrs. Russell, ditto.

CLASS 17. For the best Ram of any other age.—1st, 20*l.*; 2d, 10*l.* 2 entries—1st, Mr. Lewis Loyd, of Monk's Orchard; the 2d not awarded.

CLASS 18. For the best pen of five Yearling Ewes.—1st, 20*l.*; 2d, 10*l.* No entry.

OXFORD DOWNS.

CLASS 19. For the best Yearling Ram.—1st, 20*l.*; 2d, 10*l.* 5 entries—1st, Mr. George Wallis, Old Shifford, Bampton, Oxon; 2d, His Grace the Duke of Marlborough, of Blenheim Palace. Commended: Mr. George Wallis.

CLASS 20. For the best Ram of any other age.—1st, 20*l.*; 2d, 10*l.* 3 entries—Mr. George Wallis, 1st and 2d.

CLASS 21. For the best Pen of five Yearling Ewes.—1st, 20*l.*; 2d, 10*l.* 1st, His Grace the Duke of Marlborough. No other exhibited.

KENT SHEEP.

CLASS 22. For the best Yearling Ram.—1st, 20*l.*; 2d, 10*l.* 5 entries—Mr. Henry Rigden, of Lyminge, Hythe, Kent, 1st and 2d.

CLASS 23. For the best Ram of any other age.—1st, 20*l.*; 2d, 10*l.* 4 entries—1st, Mr. Henry Rigden, of Lyminge; 2d, Lieut.-Colonel W. Deedes, of Sandling Park, Hythe, Kent.

CLASS 24. For the best pen of Five Yearling Ewes.—1st, 20*l.*; 2d, 10*l.*—Mr. Frederick Murton, of Smeeth, Ashford, Kent, 1st and 2d.

The *Horse* classes contain some very capital specimens in the agricultural classes, and in the thoroughbred and hunter classes a number reappear which we have seen at previous shows in this and other years. In a very good class of older (agricultural) stallions, the smaller, compact, dark brown horse of Mr. Sumners is preferred to the Earl of Chichester's handsome Suffolk. In a comparatively inferior class of mares and foals, the Clydesdales shown by the Duke of Richmond take the 1st and 2d prizes. Two very handsome young stallions, shown by Mr. Newman, of Chichester, and Mr. Verrall, of Lewes, take the 1st and 2d prizes in the younger class. And there are a good number of fillies, foaled in 1865, among which Mr. Atkins' dapple brown mare is easily 1st, and is, indeed, one of the most beautiful objects in the whole yard. A very good pair of Clydesdale mares, shown by the Duke of Richmond, take the prize in that class.

Among the thoroughbred stallions, Nutbourne,

shown by Mr. Wyatt, is easily first. There is a considerable show of hunting mares or geldings, and Master of Arts, shown by Mr. Gee, is 1st, and Mr. Loder's Golden Hue is 2d.

The following is the prize list:—

AGRICULTURAL HORSES.

CLASS 25. For the best Stallion above two years old.—1st, 20*l.*; 2d, 10*l.* 5 entries—1st, Mr. William Sumners, of Park Corner, Rotherfield, Sussex (Young Matchless); 2d, the Right Hon. the Earl of Chichester, of Stanmer Park (Emperor), a chestnut Suffolk.

CLASS 26. For the best Mare and Foal, or in foal.—1st, 15*l.*; 2d, 10*l.* 7 entries—1st, His Grace the Duke of Richmond (Violet), a bay Clydesdale, with foal; 2d, (Smiler), 15 years old, a brown Clydesdale, with foal.

CLASS 27. For the best entire Colt foaled in 1865.—1st, 10*l.*; 2d, 5*l.* 2 entries—1st, Mr. Arthur Thomas Newman, of West Dean, Chichester (Young Champion); 2d, Mr. Richard Rolfe Verrall, of Falmer, near Brighton (Annandale).

CLASS 28.—For the best Filly foaled in 1865.—1st, 10*l.*; 2d, 5*l.* 8 entries—1st, Mr. John Atkins, Burton, of Bishopstoke; 2d, The Earl of Chichester (a chestnut Suffolk Filly).

CLASS 29. For the best pair, Mares or Geldings.—1st, 15*l.*; 2d, 10*l.* 3 entries—His Grace the Duke of Richmond, K.G. (a pair of Clydesdale mares).

HUNTERS.

CLASS 30. For the best thorough-bred Stallion.—Prize, a Cup value 50*l.* 4 entries—Mr. John Wyatt, of Nutbourne, Emsworth, Hants (Nutbourne).

CLASS 31. For the best Mare and Foal, or in foal.—1st, 15*l.* 6 entries—Mr. Hugh Gorringe, of Southwick Green, Shoreham.

CLASS 32. For the best Hunting Mare or Gelding.—1st, 20*l.*; 2d, 10*l.* 11 entries—1st, Mr. Thomas Gee, of Dewhurst Lodge, Wadhurst, Sussex (Master of Arts, a chestnut gelding); 2d, Mr. Robert Loder, of the High Beeches, Crawley, Sussex (Golden Hue, a chestnut gelding).

HACKS.

CLASS 33. For the best Mare or Gelding.—1st, 10*l.*; 2d, 5*l.* 5 entries—the prizes were not awarded.

PONIES.

CLASS 34. For the best Stallion, not exceeding 14 hands high.—1st, 10*l.*; 2d, 5*l.* No entry.

CLASS 35. For the best Mare, not exceeding 14 hands high.—5*l.*, Messrs. Thomas Barker and James Edward Elphick, of Waterloo Mews, Hove, Brighton (Miss Teddington).

Following the horses in the catalogue, we come upon the *Pig* classes, and here Mr. Stewart, of Gloucester, and Mr. Bailey, of Swindon, with their well-coated substantial Berkshires, and Mr. Duckering, with his larger, coarser, white Lincolnshires, and the Duke of Richmond and others, with their hairless, dapper, smaller, neater, Sussex breed, compete. The Berkshire looks much the likest to be a profitable and generally useful sort. The prize list is given below.

BERKSHIRE PIGS.

CLASS 36. For the best Boar above one year, not exceeding two years old on the 1st of June, 1867.—1st, 5*l.*; 2d, 3*l.* 3 entries.—1st, Mr. Arthur Stewart, of Saint Bridge, Gloucester. The 2d prize not awarded.

CLASS 37. For the best Boar, not exceding one year old on the 1st of June, 1867.—1st, 5*l.*; 2d, 3*l.* 2 entries.—Mr. Arthur Stewart, 1st and 2d. Commended: The Rev. H. G. Bailey, of Swindon Vicarage.

CLASS 38. For the best Breeding Sow in farrow, or that has farrowed within four months of June 1st, 1867.—1st, 5*l.*; 2d, 3*l.* 5 entries—Mr. Arthur Stewart, 1st and 2d. Highly Commended: Mr. J. H. Clark, of Attwood House, Maidenhead.

CLASS 39. For the best pen of Three Breeding Sows, not exceeding 12 months old on June 1st, 1867, same litter.—1st, 5*l.*; 2d, 3*l.* 3 entries—1st, Mr. Arthur Stewart; 2d, Rev. H. G. Bailey.

OTHER BREEDS.

CLASS 40. For the best Boar above one year, not exceeding two years old on June 1st, 1867.—1st, 5*l.*; 2d, 3*l.* 4 entries—1st, Messrs. R. E. Duckering & Sons, of Northorpe, Kirton, an improved Lincolnshire; 2d, ditto.

CLASS 41. For the best Boar, not exceeding one year old on the 1st of June, 1867.—1st, 5*l.*; 2d, 3*l.* 10 entries—1st, His Grace the Duke of Richmond; 2d, Messrs. Duckering, Lincoln.

CLASS 42. For the best Breeding Sow in farrow, or that has farrowed within four months of June 1st, 1867.—1st, 5*l.*; 2d, 3*l.* 12 entries—1st, His Grace the Duke of Richmond; 2d, Messrs. Duckering. Highly Commended: Messrs. Duckering.

CLASS 43. For the best pen of Three Breeding Sows not exceeding 12 months old on June 1st, 1867, same litter.—1st, 5*l.*; 2d, 3*l.* 5 entries—1st, His Grace the Duke of Richmond; 2d, Mr. John Kent, of Goodwood, Chichester.

Turning to the implements exhibited, we have the usual display on the part of most of our largest implement makers. Messrs. Clayton & Shuttleworth, of Lincoln, show their steam engine and threshing machine. The Agricultural Association (Co-operative), to which we referred some weeks ago, have a small display of implements by other makers. The Reading Iron Works make a capital show of engines, threshing machines, &c.; and Messrs. Tasker, of Andover, show both engine and threshing machine. Messrs. Ransomes, of Ipswich, have a thoroughly well arranged and extremely full stand, illustrative of the great variety of implements manufactured at Ipswich. Messrs. Ruston & Proctor, of Lincoln, show engine, threshing machine, saw bench, &c. Mr. Samuelson, of Banbury, exhibits his Eclipse reaper, throwing the cutter across two teeth at an oscillation, and thus enabling a quicker cut with a smaller number of oscillations. There is a capital show of barn and feeding machinery at the stands of Richmond & Chandler, Woods & Cocksedge, and Picksley & Sims; and of sowing machines, horse hoes, &c., at those of Messrs. Reeves, of Bratton, and Priest & Woolnough, of Kingston. Mr. Childs, of New Oxford Street, shows his very ingenious winnower, in which the separation of light and heavy corn is very effectively managed by a well regulated draught alone, unaided by riddle. Mr. Nicholson shows his capital hay-making machines; and there is a good display of dairy and household utensils by Thompson, of Lewes; Weir, of 142, High Holborn; Lyon, of Finsbury; and Bradford, of Fleet Street.

One of the most striking stands in the yard is that of Messrs. Sutton, who seem to have lavished all the means of their large establishment on the display which they make here. It is a great pity that they and so many other enterprising men who have been to great expense in coming long distances to Brighton should receive so little attention, as, judging from the appearance of the yard when we were present, the Brighton people seem disposed to give them.

HIGHLAND AND AGRICULTURAL SOCIETY.—The half-yearly general meeting of the Society was held last Wednesday at Edinburgh, his Grace the Duke of Buccleuch, President of the Society, in the chair.

New Members.—73 new members were ballotted for, and admitted as members.

Premiums awarded for Essays and Reports.—Sir W. Elliot reported that the following awards had been made for Reports since the general meeting in January;—

1. The Gold Medal to James Purves, Lochend, Thurso, for a Report of the Reclamation of Waste Land on the farms of Lochend and Spittal in the county of Caithness.
2. The Gold Medal to Russell Swanwick, Whittington, Chesterfield, for a Report of Experiments on the Action of Different Topdressings on Wheat, Grass, and Cabbage in 1866.
3. The Gold Medal to Hary Shaw, Bogfern, Tarland, for a Report of Experiments on the Comparative Productiveness of Turnips in 1866.
4. The Medium Gold Medal to John Milne, Mains of Laithers, Turriff, for a Report on the same subject.
5. The Silver Medal to Ralph Carr, Hedgeley, Alnwick, for a Report on the Silver Alder as a nurse plant to Oak.

Glasgow Show.—The Secretary, in the absence of Mr. Kinloch, jun., of Gilmerton, chairman of the Committee on General Shows, reported that the arrangements for the show which takes place at Glasgow on the 30th and 31st of July, and 1st of August, were in a satisfactory state of advancement. He had attended, at Glasgow on the 12th, a meeting of the General Committee named by the five counties connected with the show—Lanark, Ayr, Renfrew, Argyll, Bute, and Arran—when the conveners and sub-conveners of the various committees, and two attending members for each class, and judges had been appointed. The entries were now closed, and were as follow:—

Cattle	270	Poultry	390
Horses	200	Dairy produce	130
Sheep	450	Implements	1500
Swine	80		

—besides a large number of calves, foals, and lambs, which would be shown at foot with their mothers. The magistrates of Glasgow had kindly granted the free use of the City Hall for the banquet on the 30th, in addition to the free use of the Green for the show, and a liberal donation of 200. As regards the other subscriptions, there had been intimated, from Ayrshire, 420*l.*; Renfrew, 160*l.*; Argyle, 200*l.*; Bute and Arran, 35*l.* The subscription from Lanarkshire was not yet notified, but, looking to the greatly increased expenditure attending a show, the directors had every confidence that it would not be less than on the occasion of the last show in 1857, when it gave 321*l.* The contract for erecting the show-yard had been taken by Messrs. John Watherston & Sons, Edinburgh, whose estimate was 90*l.* less than the lowest Glasgow estimate, and 180*l.* under the lowest Edinburgh offer. On this occasion there are to be two refreshment tents in the yard, and one of these had been taken by Mr. John Hamilton of the Glasgow Cattle Market, and the other by Messrs. Laurie & Scott, Edinburgh, who would also purvey the banquet. His Grace the President had intimated his intention of being present at the show, and would as such preside at the banquet. In the evening Dr. Anderson will deliver an address on a subject not yet fixed. Tickets had been sent to all members residing in the district of the show, and he begged to remind members residing in other localities that they must apply for their tickets at the office, 3, George IV. Bridge, not later than the 20th of July.

Mr. HUNTER, Blackness, said he had been requested by Lord Kinnaird to bring under the notice of the Society the show proposed to be held at Dundee, on the occasion of the visit of the British Association in September. He had no doubt the meeting would be a successful one; and though the Association devoted itself wholly to science, it was thought that—visiting a district of country which it never before saw—it would not be disagreeable to the *savants* to see a little of our Scottish agriculture and its productions on the edge of the Carse of Gowrie. The various local societies had cheerfully come forward in support, and the principal promoter was Lord Kinnaird, who is one of the largest and most enterprising agriculturists in Scotland. Considering that it was about 30 years since a show had been held in Dundee—which was so nearly connected with the Carse of Gowrie and the Valley of Strathmore, one of the most important agricultural districts of the country—he thought that the Society could not dispose of its funds better than by giving a liberal donation to the show at Dundee.

The SECRETARY said the application from Lord Kinnaird had been laid before the directors early in the summer, and they agreed to allow the united associations of Perth, Fife, and Kinross, and the Forfarshire Association, to use the sums of money voted to them in aid of the Dundee show.

Mr. SADLER, Ferrygate, said that an offer had been made by Fowler & Co., of Leeds, to show implements at the Glasgow Show, and he should be glad to hear what the directors proposed to do with regard to the subject. In a case of this kind, he thought it would not be inexpedient, and would soon repay itself, to comply with the conditions sought by Messrs. Fowler, and pay half the expenses of transit.

The Noble CHAIRMAN said the directors had considered the subject, and it was their opinion that the request could not be granted. It had never been done upon any former occasion, and if it were now done, there would be a difficulty in drawing the line when they were to refuse such applications. Therefore, he thought it was more prudent and better that the Society should not undertake the expense of bringing implements or other things to the Show.

The Testimonial to the Rev. Patrick Bell, Carmylie.—Mr. SCOT SKIRVING reported that the committee had already obtained the sum of nearly 800*l.*, of which they proposed to pay Mr. Bell 600*l.* immediately to account. It was intended, however, to keep the matter open till the January meeting, when they expected Mr. Bell would come to the Society to receive the testimonial; and it was also intended to retain a small sum wherewith to buy a piece of silver plate to be presented to Mr. Bell. The committee still entertained the hope that the sum might reach 1000*l.* At one time they contemplated extending the subscription list to England and America; but this had not been done; nevertheless, 800*l.* subscribed by 1600 of the first agriculturists in the world was a testimonial of which any man might feel proud. He felt gratified in being able to state that the directors proposed to subscribe 100*l.* to pay the expenses connected with the testimonial, and he was sure that this offer would be cordially accepted and ratified by the Society. The motion was unanimously adopted.

Agricultural Education.—Professor Balfour reported that the examinations for the Society's agricultural certificate and diploma had taken place on the 11th, 12th, and 13th of March, when the following gentlemen passed the necessary examinations:—

For Certificate and Diploma.

1. Robert Brydon, Burncastle, Berwickshire.
2. George Kent Walton, Long Compton, Warwickshire.

For Certificate.

1. James Cooper Bowstead, of Halkthorpe Hall, Penrith.
2. Thomas John Elliot, Wilton, Salisbury.

He also reported that the prizes of 6*l.* and 4*l.* annually allowed by the Society to the students who pass the best and second best examinations in the agricultural class in the University of Edinburgh, had this year been awarded to the following gentlemen:—

1. Richard George Scriven, Northamptonshire.
2. Robert Brydon, Burncastle, Berwickshire.

The Veterinary College Charter.—Mr. Swinton said that members of the Society were aware that great anxiety had been expressed for a considerable time to obtain a charter for the Veterinary College in Scotland, so that they should be kept in connection with the Veterinary College in England. Negotiations were going on with the Privy Council, and the directors of the Society had received the most cordial co-operation from the Town Council of Edinburgh, who were greatly interested in the application, on account of the charge devolved upon them by the generous bequest of the Veterinary College from the late Professor Dick. Communication had been opened up with the Privy Council, and a draft charter was in course of being prepared, which would have to be submitted to the public bodies here interested in the matter, and which, above all, would require the sanction of the Privy Council. The negotiations were in a state of very great forwardness, but were not so near completion as to warrant a detailed report. In these, as in other negotiations, the Society was under infinite obligations to the noble President for the interest he had taken in the matter, and the influence he had used with the authorities in England.

The Duke of BUCCLEUCH said, with regard to the Chamber, that he had been in communication with the Committee of the Privy Council on the subject, both in writing and verbally, and the matter was proceeding as rapidly as circumstances would permit. A draft charter was in preparation by the Town Council and the directors of the Society, and would be submitted to the Privy Council in due course.

Report on Chemical Department.—Dr. Anderson reported that the work during the last half year had been mainly confined to the performing of analyses for the members. The work in this way had been very large. They had had to consider a number of important cases of adulteration, and in some instances had thus succeeded in furthering the interest of members of the Society. They had also been engaged in arranging for field experiments. The experiments were, so far, a following out of those of last year. Seed had been sown and preliminary steps taken with a view to developing their knowledge of manuring; but the experiments, this year, would be connected with other ordinary operations of the farm in such a way as was likely to make the experiments more interesting and useful to farmers than those of last year. The results would be published in due time.

Steam Cultivation.—The Secretary read a letter from the Marquis of Tweeddale, who has charge of this subject, stating that if there had been anything to report he would have attended the meeting. The Secretary added that the Committee on Steam Cultivation had determined that their reports should cover a series of two years. No report, therefore, would be issued next year, and Lord Tweeddale had not thought it necessary to be present to make any statement till nearer the time for publishing the report.

This concluded the business, and the meeting separated shortly before two o'clock, after passing a vote of thanks to the Duke of Buccleuch for his conduct in the Chair.

THE MIDLAND: *Employment of Women and Children in Agriculture.*—A general meeting of the members was held at Nock's Hotel, Temple Row, Birmingham, lately, to discuss this question. The Chairman, Mr. R. H. Masfen, President of the Club, read the report of the Royal Commission, which went very fully into the gang system as carried on in a few of the counties of England, and the conclusions he had arrived at were that a great amount of labour was required in the fen districts of Lincolnshire and Cambridgshire, where the gang system chiefly prevailed. But no man who had read the report to which he had alluded could shut his eyes to the fact that some legislative interference was

required; and one of the glaring defects of the system was that the gang master, as he was called, is allowed to supply the labour he can obtain from distant parishes, without any regard being paid to his character. The Bill of Mr. Fawcett had been introduced very much on account of the disclosures which had been made before the Commission to which reference had been made. But that gentleman had introduced into his Bill certain restrictions upon which they, as an agricultural society, ought to express their opinion. With reference to the education of the poor they would all admit that it was much neglected; but the question was this—had Mr. Fawcett in his Bill proposed the best means for remedying the existing evils? He (the President) thought the answer must be in the negative. He did not know Mr. Fawcett, but he had come to the conclusion that that gentleman was not a practical man, for it was evident that the restrictions he proposed would require a great deal of modification before the measure could be accepted by the great body of the agricultural community. One of the provisions was to the effect that no child under 13 years of age should be employed in agricultural pursuits, unless it could produce a certificate showing that such child had attended school on alternate days. Now he was of opinion that this regulation was impracticable, because farm work was of such a nature that it could not be done on alternate days; and because in the agricultural districts school accommodation was scanty, and in many instances at a considerable distance from the homes of the children. Another of Mr. Fawcett's proposals was that no child should be employed in agricultural labour without a certificate from the inspector of schools as to the efficiency of the school such child had attended to impart a fair amount of elementary education. This was very vague, for probably half-a-dozen inspectors would give as many different opinions as to what was to be considered the standard of efficiency. Then, again, Mr. Fawcett proposed that the magistrates in petty sessions should have the power of levying a rate on both owners and occupiers of property, for the erection of schools where they did not exist—a proposition of far too arbitrary a character to be generally adopted. A subsequent clause rendered every person employing a child who was not educated in the manner prescribed by the foregoing conditions liable to a penalty of 10*l.*, which might be mitigated to 2*l.*; and any parent sending such child to work was to be fined 1*l.*, the magistrates having the option of reducing the amount to 10*s.* The President concluded by moving, "That the gang system, as in practice, is most objectionable; but that, with the exception of this, the employment of women and children in the ordinary occupations of husbandry does not require specific legislation."

Mr. T. HORLEY seconded the motion. He said that the gang system had grown up almost as a necessity in certain counties, because of the isolated position of the land, and the distance from their work at which labourers were compelled to live. He was of opinion that the system would in time die out, towards which the Union Chargeability Act would materially contribute, by widening the area of rating, and thereby removing the causes which operate in preventing the labourer from residing nearer to his work. That part of the gang system which compelled children of not more than six or seven years of age to walk seven or eight miles each day to and from their employment was bad enough, but the worst feature of the system was that it tended to debase the morals of the women and girls who were thus brought together. Therefore they must all come to the conclusion that some interference was required, but if Mr. Fawcett's Bill were to become law, it would be very unfair to other counties where the system was not in operation.

Councillor BALDWIN remarked upon the necessity of a thorough understanding of the gang system before they gave any decided opinions upon it. He spoke strongly in favour of the benefits of education for agricultural labourers, and was in favour of compulsory measures of education.

Mr. T. B. WRIGHT knew of no book which contained more affecting details than the report of the Royal Commission upon the gang system. There was one point in the resolution which he thought would lead to some misapprehension if it went before the public in its present shape. It declared that with the exception of the gang system the employment of women and children in agriculture was unobjectionable. That statement was by anticipation challenged in the report of the Commission, for it was assumed as probable that further inquiry would be instituted, and the Commissioners say that the evils they have pointed out as existing in the gang system are those alone to which their attention has more especially been drawn, yet the condition of labourers and labourers' children in other districts of England may be found to be quite as bad. The true source of this great evil was the want of cottage accommodation. He moved the following amendment:—That the gang system as at present in operation is most objectionable; but that, with the exception of this, the employment of women and children, under proper regulations, in the ordinary occupations of husbandry, does not require any specific legislation."

Mr. SEBASTIAN EVANS seconded the amendment, and said that in their present state of almost complete ignorance of the actual requirements of the country in reference to education, it would be advisable not to pledge themselves to any definite course of action.

Mr. W. FOWLER, jun., suggested that the words "under proper regulations" were inconsistent with the rest of the amendment, as it was opposed to legislative interference, which would be necessary to give effect to any regulations they might frame.

After a few remarks from Dr. BODINGTON and Mr. KING, the amendment was lost, and the original resolution was carried.

The CHAIRMAN moved "That, whilst admitting the desirability of extending the facilities for the education of the children of agricultural labourers, this Club cannot agree with the provisions of Mr. Fawcett's Bill, and disapproves of any hasty legislation on the subject."

Mr. BURBERY seconded the motion. He said it must be acknowledged that many of the small farmers were but little better educated than their labourers. Agriculturists were often reproached with being inferior to the dwellers in towns in intelligence and education, and he could scarcely see how this could be avoided until they obtained facilities of instruction as great as those possessed by people living in towns. He thought before any pains and penalties were imposed upon them for the want of education, care should be taken that the child of the agricultural labourer was enabled to obtain, within a reasonable distance, that instruction which was not, as a rule, so easy of access to him as it was in towns.

Mr. T. B. WRIGHT supported the resolution. He had lately taken the trouble to read up what had taken place in 1846-7, when a great advance was made in those educational measures which had since so much benefited this country, and although they had not done all which was required they had induced this belief—that certain modifications of the system now in operation were all that could be required. He thought the education of the children of labourers should include industrial training. He held in his hand a statement relating to the Pauper School at Quatt, near Bridgnorth, where the industrial and educational elements were combined. That institution was on one occasion visited by the late Lord Hatherton and other gentlemen, the noble lord, as chairman of the Penkridge Union, bearing the following testimony in its favour:—"We cannot sufficiently express our admiration of what we have seen. We consider the system eminently characterised by good sense and practical utility, and that its adoption by districts throughout England would confer incalculable advantages on the children of the agricultural labouring poor, by familiarising them from their earliest years with all those occupations with which their future lives must be conversant." He believed the school was carried on in precisely the same way at the present time, and there were other schools in various parts of the country under private management where the same plans were adopted, and with the most satisfactory results. As to the means whereby education was to be supplied, Mr. Fawcett proposed the principle of rating in lieu of the present system, by which private efforts were supplemented from the revenues of the country. Now the whole of the question of rating had been debated over and over again. Mr. Flint, the registrar of the late Royal Commission on Education, in his able letters which appeared in the *Times*, pointed out the unreasonableness of such a plan. He said:—"At present what is given by Government to schools to supplement the contributions of the religious bodies is given out of the Consolidated Fund, which is levied upon incomes, &c., and upon the large area of 550,000,000*l.* of property. Why the burthen of aiding education should be shifted from this large area and thrown upon rateable property only—thrown, in fact, upon the smaller area of about 86,000,000*l.*—it would puzzle an astute philosopher to explain. Perhaps this is called justice to the owners of rateable property. They are to be burthened while the general income of the country is to be relieved." It had been often said that the existing system caused extravagant expenditure, and that it helped those who did not require help, and neglected those who needed it. Mr. Flint said with regard to this:—"The Committee of Council on Education have declared the shortcomings of their own system, and brought a bill of indictment against themselves. They have published some statistics which show that as many as 11,024 parishes are not assisted by Government grants for education. These are the 'unaided' parishes, yet these are contributing to the taxation of the country, out of which the money goes to the more favoured places." There were many reasons why this should be so, but he believed the true explanation was to be found in the fact that the existing system has always been considered something so important that it could not adapt itself to the smaller parishes. He was strongly of opinion that a much more simple system of inspection should be adopted. With regard to rating, Mr. Flint said:—"A rate-supported system of schools we can never have in England, even if many persons desired it. The religious bodies, who have done and are doing so much, would not accept it, and it could not exist side by side with the voluntary system, even if such a patch-work plan were regarded with favour. The idea of the American system of common schools is as Utopian as that of the Prussian compulsory system. Both are equally repugnant to English feelings and the habits of thought in which our countrymen have been reared. This question of compulsory education is one on which most inaccurate ideas are entertained, and the wildest assertions have been made. If the main features of our own plan are preserved, and theoretical difficulties are not purposely created for us and then magnified, the subject of national education need not present the alarming, and, as some persons would have us believe, the insurmountable obstacles of which we hear so much. Our wisdom seems to lie in the calm and friendly endeavour so to modify the present Government plan as to make it equitable and truly national. At the very beginning of this endeavour I would place the recognition of the simple and natural principle of payment by the State for 'results,' without reference to the means employed for insuring them." If the Privy Council would extend their grants to schools in the agricultural districts which, though efficiently conducted, might not be in a condition to have certificated teachers, all that was required in those districts would be accomplished. But there was another point which would tend to the defeat of Mr. Fawcett's Bill in Parliament. Every one who had taken much interest in schools must in one way or other have observed the difficulties in regard to religious training, and Mr. Fawcett had hit upon a most extraordinary plan for getting rid of them. He proposed that the religious instruction to be given should only occupy half an hour each day, and that its character should be determined by a majority of the ratepayers; and further that the parents might, if they thought proper, refuse to let their children remain while such religious instruction is given. The point, however, which he (Mr. Wright) wished most distinctly to urge, was the necessity for a fair, and, he might say, honest extension to the agricultural districts of that assistance which is granted to the towns and larger parishes. If that were done, he was persuaded there would be no difficulty in providing schools sufficient to meet the wants of the rural population.

The CHAIRMAN moved "That, in the opinion of this Club, all children between the ages of 5 and 10 years should be required to attend school for a certain period in each year."

Mr. SING seconded the motion, and in doing so said he was able to confirm all that Mr. Wright had brought forward in favour of the Quatt School, which was a most useful institution.

Mr. BRAWN, in supporting it, referred to the baneful effect which the gang system has upon the morals of the young; and also to the hardships which children suffer from being under the control of the gang master. With regard to the educational part of the question, he did not think that the principle of the Factory Acts was applicable to agriculture, the operations of which, depending upon the weather, rendered the working and education of labourers' children on alternate days totally impracticable.

The resolution was passed unanimously.

Mr. BRAWN submitted the following proposition which was seconded by Dr. Bodington:—"That considering the severity with which any increase in our local rates presses upon the agricultural interest, and the national advantages to be derived from education, the expense of providing the necessary school accommodation ought to be defrayed out of the public purse."—On the suggestion of Mr. Wright, the words relating to the severity of local taxation were omitted, as not embracing all the reasons against local rating for education; and in that form the motion was agreed to.

YORKSHIRE: *Treatment of Lambs before and after Weaning.*—Mr. E. Riley, of Kipling Cote Farm, lately read a paper on this subject. He said:—According to the returns of last year, the number of sheep on the 6th of March in the East Riding was nearly half-a-million, exclusive of lambs dropped after that date, which would increase the number considerably. We all know that the loss of lambs after weaning for the last few years has been enormous—in many cases, 10, 20, and even 30 per cent. It is not the loss in death alone, but the great deterioration of the others in health, and their value reduced many shillings per head.

In a wild state sheep prefer to range at large upon open fields and plains, and display considerable sagacity in the selection of their food, which suggests to us the importance of change in their domestic management. The management of lambs from their birth is allowed by all breeders to be the most difficult task in sheep husbandry; and no animal is worthy of more attention than the sheep, it being alike valuable to the farmer and the nation. In fact, the production and general management of sheep claim to be treated as the foundation of good and profitable farming in districts like ours.

A large amount of the capital of the farmer is absorbed by his cattle and sheep. The return on his live stock will be as a rule in proportion to the skill brought to bear on its management. When diseases assail his animals the veterinary can be called in; but in relation to their daily treatment, and the keeping of them in ordinary health, he should be able to rely on himself. To have some acquaintance with nutrition, and of the intimate connection between the condition of his stock and the several kinds of food thereby consumed, cannot but materially assist him in his daily tasks, and save him from a multitude of errors. Young stock require different treatment to fattening stock. The great object, then, in rearing them is to obtain a proper development of all the organs of the body, and this can only be done by giving them suitable food.

A study of the nature of the food of animals will enable us to supply all that the animal requires. As we know the analysis of all foods, we may judge of the nutritive value; still for practical purposes that value must be corroborated by actual feeding experiments; for it is quite possible that one article of food may contain more flesh-forming material than another, and still not to be so nutritive, on account of its indigestibility, and the way it is given. We often see dry unbruised corn pass from horses, and a large amount of nutritive matter is thus wasted. The same food given in a bruised state is rendered more digestible, and consequently more nutritive. As it is indispensable that the food of a young animal should contain materials fitted for the increase of its growing frame—and as a rule the constitution of all animals is improved by being well kept when young, that is, kept in a progressing state, and as the milk of the mother is known to contain all the substances necessary to support life, we should give them a food that approaches to it as near as possible. Sheep's milk is thickish, and of an agreeable odour and taste. Its solid constituents amount to 14.38 per cent., and of these there are four of caseine, four of butter, and one of salts. As we know the different constituents of milk and of all foods, it is not difficult to compound a mixture suitable for lambs after weaning.

It is obvious that by a due mixture of articles of food we have a compound analogous to that of milk. We thus see not only the advantage, but the necessity of a mixed food for the healthy sustenance of the animal body. I have before me a sample of mixed food, the analysis of which nearly approaches to that of milk; it contains about 1-12th of malt and a small proportion of common salt, both indispensable for young stock. Salt I believe to be a valuable addition to the food of all animals; the extensive experiments of Boussingault have fully proved this. Dr. Le Saine, of Brussels, in his prize essay on the use of salt, says—"Salt increases the fertility of the male, and the tendency of the female to conceive, and doubles the power of nourishing the fœtus. During the period of suckling, the salt given to the mother renders the sucking animal stronger, and the milk more abundant and more nutritious. Salt accelerates growth, and renders the wool of sheep finer." Warden says—"In the northern districts of Brazil domestic animals died when they did not receive a fixed portion of salt."

A great deal depends on the treatment the ewes receive after tupping; until the lamb quickens they can be run off at a very light expense, then it is highly necessary to keep them well. I would advise not to let them follow other sheep, as I believe the quantity of silty and indigestible food they there get is one great cause of casting their lambs; but let them have Turnips to themselves, with plenty of dry food, as hay or cut Oat sheaves. About three weeks before lambing they should have a little of some more generous food, and a few Mangels. They will well repay the extra food in wool and plenty of nutritious milk; and remember every lamb you lose is a loss of 1*l.*, and very often as many lambs are lost, for want of proper nourishment, as would pay for all the extra food given. I believe the following to be an excellent food for ewes, and would serve 200 for the season, and the double couples till weaned:—1½ ton of Linseed cake, 1½ ton of Oats, 1 ton of Beans, 1 ton of locust Bean-meal, 1 ton of Malt coombs, 1 qr. of malt, and 1½ cwt. of common salt. I can recommend it, as it is what I used this season, and did not lose a single ewe.

Much difference of opinion exists as to the proper time for weaning lambs. We must all be guided by circumstances. Their treatment after weaning is one of the most important branches in the management of sheep. If they are not properly cared for at this critical period they soon go wrong, and then the loss s generally very great. A month before weaning it is good policy to teach the lamb to eat some easily digestible and nutritious food. The sample before you is an excellent mixture; some may think it too expensive; with the duty on malt it cannot be prepared under 12*l.* per ton. I believe Matthew's corn cake and linseed cake, mixed in the proportion of two parts of the former to one of Linseed, excellent food for lambs. I have seen them do remarkably well upon it. It is not the giving them a large quantity, so much as beginning with a little early, say quarter of a pound each per day. When weaned, I think it a good plan to leave the lambs in the pasture they are in for a few days, giving them plenty of green Tares; they remain more quiet than when removed to a strange field, do not fret so much, but disperse themselves over the pasture. They can afterwards be put to keep, which has not been eaten with sheep, or green Tares, as is now a general practice on the Wolds. I am quite aware in some situations farmers have no difficulties to contend against when weaning their lambs. On most Wold farms, however, we find it a serious matter to keep them in a progressive state, though I believe it is more mismanagement than what we generally term "bad luck" when we have had such heavy losses among them.

CHEMICO-AGRICULTURAL OF ULSTER, *May* 3: *The Manures of the Present Season.*—Dr. Hodges read a paper on this subject, from which the following are extracts:—

It is gratifying to find that in the present year the quality of the artificial compounds provided by the manufacturers of manures is in almost all cases deserving of approval. The economic manures and other fertilisers of the same class, which were so frequently in former years forced upon farmers with the love of low price and innumerable certificates of excellence, are now almost entirely banished from the markets of Ulster. Though I do not place much confidence in the description of testimonials nor on records of experiments which are so abundantly distributed by some manufacturers, yet I would be glad that some of the members of this Society would from time to time report at our meetings the results of their trials with the manures advertised in this county. We do not want to know how certain compounds succeed in Norfolk or Ayrshire, but trustworthy reports of the profits obtained from their application in our northern climate and on our Ulster soils would be exceedingly valuable.

The influence of climate upon the action of artificial manures, though of great importance, seldom receives adequate consideration. It is not sufficient, as Liebig has clearly pointed out, to enable a plant to attain its maximum development, that the soil affords it in an available form the whole quantity of all of its constituents; the cosmic conditions—viz., heat, moisture, and sunlight—must co-operate to transmute the absorbed substances into the organism of the plant. If the substances that have passed from the soil into the plant, no matter how skilfully compounded, cannot be turned into account from the want of this co-operation, the plant does not come to perfection. Whilst the artificial manures examined in the laboratory have in general been of good quality, it is to be regretted that the farmers' valuable auxiliary, guano, has not maintained its ancient character, even when sold by respectable houses. The samples received exhibit a very large proportion of comparatively worthless or adulterated materials, while in genuine guano we find a very small amount of sand and earthy matters.

COMPOSITION OF SOME SAMPLES OF GUANO LATELY EXAMINED IN THE LABORATORY.

	I. Belfast.	II. Belfast.	III. Belfast.	IV. Strabane.	V. Strabane.	VI. Strabane.	VII. Strabane.
100 parts of each contained respectively—							
Moisture	18.54	16.50	17.80	11.56	31.1	39.64	33.90
Organic and ammoniacal matters	37.62	37.05	40.02	35.12			
Phosphates	18.04	16.00	24.00	10.80	43.2	22.96	19.60
Carbonate of lime	Quantity not estimated—a large amount present.						
Sulphate of lime (gypsum)	14.63	16.38	18.88	12.73			
Alkaline salts	9.17	10.51	5.21	—			
Sand	2.00	3.56	2.09	15.58	1.7	23.30	15.74
100 parts of each	100.00	100.00	100.00	100.00	—	—	—
Capable of yielding ammonia	10.01	10.46	11.7	9.36	2.5	4.7	5.1
Estimated value per ton	£8 8*s.*	£8 13*s.*	£10 2*s.*	£7 19*s.*			

Of the samples 5, 6, and 7, only partial analyses were made. They were found to be poor in ammonia, and to contain a considerable amount of carbonate of lime (pulverised limestone), and to be worth not more than about 5*l.* 10*s.* per ton.

A glance at the above Table will be sufficient to show the large amount of comparatively worthless substances which all the samples contain, and how great their inferiority to the genuine Peruvian guano formerly imported. Yet some of these guanos are sold under the name of Peruvian; so that it behoves the farmers of the north of Ireland carefully to ascertain the real value of any sample offered for sale. I have already on several occasions considered it my duty to warn them that it is a not unusual practice for some dealers to present an analysis of a good specimen of guano, obtained sometimes five or six years ago, as representing the character of an entirely different quality of manure. This is not unfrequently done, and the purchaser is induced to buy, it may be, a Liverpool or London compound at the price of good Peruvian. Purchasers should therefore look at the date which is affixed to all analyses issued from the laboratory of the Society. With respect to the estimation of the money value of manures by chemists, there exists some difference of opinion, and by some analysts it is considered that it should be abandoned. Whilst admitting that there may be occasionally inconveniences from the difference in the systems of valuation which are adopted in different countries, yet as the method which I have always followed, and which may be found fully explained in my work on Practical Chemistry, is, I believe, based upon sound data, and adapted to the estimation of the relative money value of the fertilising compounds offered for sale in Ireland, it will serve to afford purchasers, sometimes not quite familiar with the statements of an analysis, a safe guide in enabling them to protect themselves from imposition and loss. According to my system of valuation, the estimated value per ton of the genuine Peruvian guano, such as was formerly readily to be obtained from several Belfast houses, is 13*l.* 10*s.* The best sample given in the Table, by the same method of calculation, is found to be worth only 10*l.* 2*s.* per ton.

Last week I received from Robert Gordon, Esq., J.P., Highlands, Seaforde, a sample of guano which presented all the characters of the genuine Peruvian, though not equal in quality to that some years ago offered for sale. It contained no adulterating ingredient, but the ammonia amounted to only 14 4-10ths per cent., instead of from 16 to 17 per cent. 100 parts of Mr. Gordon's sample consisted of:—

Moisture	16.86
Organic and ammoniacal matters	45.94*
Phosphates	22.12
Alkaline salts	11.58
Earthy matters	4.50
	100.00

—*Journal of Agriculture.*

* Capable of yielding ammonia, 14.4 parts; estimated value, 11*l.* 11*s.* per ton.

Reviews.

A Treatise on Harness, Saddles, and Bridles: their History and Manufacture from the Earliest Time down to the Present Period. By. A. Davis. Horace Cox, 346, Strand, W.C.

We have here 60 pages descriptive of all the pieces in the harness-room, with the history of each, and a discussion of the principles which ought to guide its manufacture. The whole is a useful pamphlet to every man who keeps a horse, and especially useful to the farmer. We are, therefore, glad to bring it under the notice of our readers. As an illustration of the style and completeness of the performance, we quote a portion of the chapter on bits. On this subject Mr. Davis says:—

"The bit is a simple machine (if one may term it so), which brings the rider and the animal into communication; it also serves to subject the horse. It is composed of many pieces, but one may define it as consisting of four different parts—viz., 1, the mouthpiece; 2, the branches or cheeks; 3, the curb chain; 4, the lip strap. I shall treat of each of these parts separately. The bits being the most important, as well as the most interesting branch of the subject, I shall consider that part first.

"Before speaking of the bits now most commonly used in this country, I will review what has been done by inventors in former times. I have gone through all the specifications bearing on the subject, and shall give here a *resumé* of most of the patents that have been taken out. I shall also notice the leading ideas of inventors on the subject, directed either to the comfort of the horse or the security of the rider. Those who read this may gather under either head some hint to guide their own ideas, and be prevented from indulging in fallacious schemes already tried and disposed of.

"The first patent I can trace was taken out in 1794, by one Samuel Palmer, who describes himself as a surgeon, living in the parish of Saint Martin's-in-the-Fields. No doubt the bit, in all its essential component parts, existed centuries previous to this. In looking at the most ancient prints, in reading very old books, one is struck with the intimate resemblance that exists between the bits of ancient periods and those of the present day. Without, however, digressing further, let me see by the specification of Samuel Palmer, surgeon, what the curer of human bodies proposes to do for the most perfect animal existing after man.

"Mr. Palmer describes five bits; I do not intend giving their details. One quotation I may make, which is a curiosity in its way:—'The part that is put in the horse's mouth is either of one entire piece, or two or three hinged or jointed; and all those, either straight or curved, are made in such a manner that the tongue is but very little pressed, for when pressed in long riding the tongue is made sore, and prevents the eating freely. In the middle of the mouthpiece are placed a roller or two to keep the tongue in play; on each side, a little below the rollers, are made two holes to insert wire, into which a piece of sponge is fastened, the intent of which is to keep the mouth moist or supple, being first wet or smeared with honey or tar.'

"We have not advanced much, humanely speaking, since Samuel Palmer offered his animals sponge, tar, and honey.

"The only other noticeable part in this most curious patent is that the reins are fastened to the bit by screws. For those interested I may say the patent may be had for one shilling, with beautiful drawings of the bit."

Then follow descriptions of patents dated 1804 and 1805.

"In 1828 a Frenchman, named Valentine Llanos, took out a patent for a bit, which, perhaps, of all patents concerning this subject, was the most successful. At this day his invention is much used by military men and others who want that desideratum, an easy and powerful bit.

"Every rider knows by name and by sight, if even he has not used it, the 'Segundo' or 'Secundo' bit. It is rather a curious reflection that one of our best bits should have been invented by a foreigner; yet it is nevertheless a fact that the Segundo bit was invented by a Frenchman. It was expressly designed of three different-sized mouthpieces to suit the varying mouths of differently constituted horses. Llanos says in his patent: 'Some horses are known to be so tender in the mouth that very easy means are found sufficient to restrain them, while others whose mouths are not so sensible to pressure require more ample means to make them obey the will of the rider.' And he goes on to describe how, by the different sized mouth piece and length of the bar of the bit below the mouth, he effects the object of suiting all horses. It would take too much space to give his patent more fully; moreover the bit is so common that anyone can see it with little difficulty. The principal other noticeable parts are his various curb chains, and a suggested folding crank, or cheek, to allow horses to eat with their bits on. The means suggested for this last I fancy excessively liable to get out of order, and likely to add much to the expense of the bit.

"In 1818 another gentleman proposed to make bits to carry water to be consumed by the animal whilst on his journey He calls it the 'Philanthropic Bridle,' and beyond the merit of its philanthropy it cannot be said to possess any. I fancy there are easier means, if such were necessary, to carry a supply of water whilst on a journey; but, at least in this country, the question arises whether it has any utility whatever. Another 'humane bit,' so called by the Baron de Thierry, follows immediately after this patent. It is taken out in 1819. His invention consists in having two mouthpieces, both with ports, the underneath one sliding on the cheek whilst the top one is a fixture. The port of the lower mouth is reversed. Two reins are attached to the one ring the one riding rein acting on the lower bar, as a bradoon, and in case of necessity, as a gag. I should imagine there was somewhat of a good idea in this bit, although I have no experience as to how it answered in practice."

Further inventions patented in 1824 are then described. Mr. Phillips, Lord Thurlow, Mr. Rea, and Mr. James, have their several patents specified:—

"Hawkins' patent bit, 1861, has several good points. The improvements consist principally in the revolving mouthpiece, made to revolve in a sliding action on the cheek. Any mouth wished for may be inserted. I believe that, if not extensively used, yet they have had sufficient trial to prove the merit of this arrangement, where horses are liable to take the bit in their teeth. For great power, on the contrary, I should fancy this arrangement to be detrimental, as the revolving mouth must lessen the immediate leverage necessary where instantaneous and effectual action is required.

"Mr. Romond, in 1862, took out a patent for cavalry bits. He professes to do away with the bradoon. His bit is of the cavalry pattern as used in France, with a straight mouthpiece and a metal palate to act on the roof of the mouth; an iron roller traverses this palate, and attaches by what seems a complicated arrangement to the reins, but the patentee claims great simplicity in the action and attachments of this bridle I have not seen them in any French cavalry stable I have been into, but they may be used. I should think there are so many screws and parts as to render it difficult to be cleaned and kept in order, besides being expensive in its make.

"Mr. Shipley's patent, 1862, is for a bit to which mouthpieces of different descriptions may be fitted, and for attaching the heads and reins to the bits by means of studs and holes instead of by the ordinary means of buckles. Where the bits are easily detached there is no great advantage nor economy in having so many mouthpieces. But in other cases this bit offers many advantages to the traveller, to whom bits of various descriptions might not be easily accessible.

"An American patent, taken out for breaking colts, proposes to effect this object by means of a bit 'formed of two bars connected centrally by a pivot, so that they may expand and open or distend the mouth of the animal either by automatic action or at the will of the rider.' It acts by means of ratchet teeth and springs.

"The anatoical bit, patented by Mr. Davis, proposed to act by pressure on the nose, applied by means of metal covered by the ordinary noseband. It did not succeed M. Auguste Balny, of Paris, in 1863, patented a bit which (though by different means) was the fac-simile in action to the anatomical bit just described. Mr. Weber, of Brussels, in

1865, patented a bit which he proposed shall act as a snaffle and curb in one. For this he makes his bit with four cheeks (two each side) and two mouthpieces. By pulling the shorter cheeks it merely acts as a snaffle, and pulling the longer cheeks causes the action of the curb bit. I should fancy a nervous rider in the moment of danger excessively likely to go on pulling at the wrong cheeks, or at both at one time.

"I will now make a few general remarks on the matter treated of, and the patents I have reviewed. First, what must unfallibly have struck every one who has gone through the patents as I have done, is the want of success attached to all of them, with few exceptions. In fact, if I exclude Llano's patent, the Secundo, I know of none which in itself could properly be termed successful. True it is that many of the ideas enunciated have led to improvements in the manufacture of bits; but the bits in use universally for riding and driving all over this country, as in most parts of the world, have evidently not been indebted for their existence to patentees.

"Let me enumerate the bits commonly used, and the fact becomes apparent at once. There are the hunting curb bit; the Pelham, with all its modifications; and the snaffle, with its variations for riding. For driving we have the four-ring snaffle, the Buxton in many shapes, and the driving snaffle. Who invented these bits? It is hard to trace. Were they ever invented at all? By that I mean, were they not the ordinary natural means which would in the earliest times suggest themselves to man for the guidance of the horse? There must be a mouthpiece, and to the mouthpiece must be attached what I have called branches or cheeks with attachments for the reins. Here are found at once the two most important elements of the bit, which exist in almost every known bit. Following this reasoning, what more natural than the piece of unshaped metal that might have formed the mouthpiece of an old bit, than to joint it or curve it in parts? In the one you have the groundwork of the Pelham or snaffle, in the other all the elements of the various degrees of port mouths for severity.

"The next reflection the perusal of the patents suggests is, what have been the leading considerations of those who have sought to improve the bit? In all these various schemes the two leading ideas are opposite to one another, although, perhaps, both converging to one point. The one idea is increased humanity; the second idea increased severity to produce easier (and consequently more humane) control of the horse. What is most strange is, that the best ideas are where one would in such a diversity least look for them—viz., to my mind in those where, by different schemes and dodges, the instantaneous action and severity of the bit is increased, and certainly not in the many philanthropic and humane bits proposed. Certainly anyone, analysing the various patentees' schemes, will find the only useful ideas that might be shaped into anything useful by avoiding the inventor's mistakes, are in the plans which, by different arrangement of the various parts of the bit, increase its efficacy, and not in those plans which tend to entirely subvert the known forms of the instrument."

Farm Memoranda.

BOWBECK FARM, NEAR BURY.—The same day that we inspected Mr. Greene's farm, we paid a visit to that which Mr. Kersey Cooper holds of the Duke of Grafton, whose agent he is. The Bowbeck Farm is in the parish of Bardwell, nine miles from Bury St. Edmund's. The land is moderately stiff, the subsoil a brick earth, lying at various depths. Upon two-thirds of good taste and convenience. They speak to the discovery on his part that a good house has something to do with a good workman. If it does not help to make him, it serves to attract him. In the centre of the block is a large room, which is lighted and warmed, supplied with papers, books, games, and coffee, hung with diagrams of machinery, &c., and opened to the farm labourers and others during the evening hours for a very small charge. With men so cared for and improved, he has brought his farm to a state of uncommon perfection. The Committee did not in the whole of their tour see one more worthy of remark, and they can but express their regret that the rain falling in torrents prevented such an inspection of it as they could have wished, to enable them to make an adequate report. Their opinion is, however, confirmed and justified by the fact that at the last distribution of awards the Eye Association not only gave the prize to Mr. Cooper for the best cultivated farm, but also gave him the cup for the best Flax crop.

The farm consists of 800 acres arable, 300 pasture, inclusive of sheepwalk. Mr. Cooper is a most decided advocate for steam cultivation. M. Bate, a thoroughly practical observer, not yet in a position to employ steam (and referred to in No. 20), expressed himself before the Eye Farmers' Club in the following language, two years since:—"Mr. Cooper informs me, after an experience of four years, that he would on no account farm without steam. He now grows on most of his fallow land an intermediate crop, such as Tares, Rye, Italian Rye-grass, Cabbages, Cole-seed, so as to enable him to keep an immense quantity of stock. He has reduced his horses, and is still able to do a great deal of claying without extra strength, which used to be done by extraneous hands at 7*d.* and 8*d.* a load. I have known his land for many years, and can bear testimony to its improvement. A large portion is of a description most difficult to keep free from Grass, more particularly with the intermediate green croppings, and this used to be a source of annoyance and hindrance; but steam has beaten, and, as far as I can see, eradicated it." After a further experience of two years, Mr. Cooper more than confirmed this statement. It has enabled him, he said, to increase his head of stock per acre, and to grow more corn. Much of this would doubtless have been done without steam, and is due to liberal manuring; but, as we have before observed, the virtue of manure, like the virtue of drainage, is educed by deep culture. The land now usually carries 700 ewes, 1000 hoggets, besides lambs in the spring, 130 neat stock, and never less than 100 pigs, of which several hundred are frequently grazed in the yards when the cattle are fatted off. This increase of stock is effected by the increased facilities for the growth of Rye as spring green food; steam has rendered it possible to get 150 acres in place of 35 acres. In place of 30 horses we found 18, or two to 90 acres arable. These animals looked in good condition, and

details, reconstructed it, and worked it with a steam engine of small power. In the hands of his engineer, a clever fellow, previously acquainted with machinery, together with a blacksmith, both guided by himself, the apparatus has undergone since that time a total revolution. The old cultivators have been abandoned for a larger one better adapted for light land, with six tines 5 feet wide. It is raised and lowered very simply, works steadily, and has required no repair. One thing is yet wanting to perfect it, and this is easily supplied, namely, an arrangement by which the tine frame may be lowered when one wheel is upon the unbroken soil. The windlass is also home made. Two drums fixed in a heavy frame, carried on wheels. A pulley on either side receives motion from the engine by means of a band. No repairs have been needed by the machine since it was made.

For some time Mr. Cooper was under the impression that he could dispense with a plough, but he has since learned the value of it, and uses one of Fowler's 4-furrow ploughs, which he borrows from his friend Mr. Greene. The engine, made by Burrell, is of 12-horse power, traction, and double cylinder. It was bought in 1861. When requested to state what was the cost of his apparatus, Mr. Cooper handed us the following:—

Engine	£400	0	0	
5 snatch-blocks from Messrs. Howard	12	10	0	
Rope (1600 yards)	80	0	0	subject to discount.
12 rope porters, 15*s.*	9	0	0	made at home.
40 standard ditto, 7*s.* 6*d.* ..	15	0	0	,,
1 cultivator	20	0	0	,,
1 windlass	40	0	0	,,
10 low porters	2	10	0	,,
Extra snatch-blocks	7	10	0	,,
8 anchors	8	0	0	,,
Total ..	£594	10	0	

N.B. Coal, "Brights," price, by contract, 17*s.* per ton; consumption, 1 cwt. per acre.

Repairs, Renewals, and Wear and Tear.—The engine repairs, owing to the ability and foresight of the engine driver, cannot be put at more than 5*l.* per annum, so we were assured. It was certainly in excellent condition. Quite half should be charged to threshing, grinding, and other farm work. As to rope, the last, from Glass, Elliot, & Co., has lasted three seasons, and will last two more. The two first are reported to have been utterly worthless.

Work done.—During a day of 10 hours, including removals, 10 acres are broken up with cultivator. The stubbles are prepared for roots by being broken up; first, 5 inches deep, and then crossed 9 or 10 inches, the steam pressure being seldom above 60 lb. The tackle is so judiciously worked, and the land is so clean, that one sound operation is often made to take the place of two. The cultivator is used generally, but all muck is ploughed in for roots, and layers for Wheat.

PARTICULARS OF STEAM CULTIVATION ON THE BOWBECK FARM, 1864, IN THE OCCUPATION OF G. KERSEY COOPER.

Names of Fields.	Condition of Field.	Extent.	When begun.	When finished.	Depth of Cultivation.	Width of Cultivator.	Number of Persons engaged.		Cost for Labour.	Coals consumed at 20*s.* per Ton.	Oil consumed at 6*s.* per Gallon	Total Cost for Labour, Coal, and Oil.	Remarks.
		Acres.			Inches.	Scarifier	Men.	Boys.					
Stanton Breck ..	After Turnips, for Barley ..	30	March 14	March 18	9	4½ feet	5	5					SPRING CULTIVATION. A common triangular Scarifier, 10 tines.
Mouse's Field ..	After Beet, for Barley	20	March 19	March 21	9	4½ ,,	5	5					Ditto (heavy land).
Stanton Field ..	After Wheat, for Beetroot ..	24	March 22	March 24	7	4½ ,,	5	5					Strong 6-tined cultivator (heavy land.
Dale Field.. ..	Ditto	19	March 24	March 28	7	4½ ,,	5	5					Ditto.
Stanton Field ..	Second Cultivation for Beet ..	24	March 30	April 1	9	4½ ,,	5	5					Ditto.
Dale Field.. ..	Ditto	19	April 4	April 6	9	4½ ,,	5	5					Ditto.
Holly Bush Piece..	After Wheat for Beet and Swedes	23	April 7	April 8	8	4½ ,,	5	5					Ditto (mixed soiled lands).
Ditto	Second Cultivation	23	April 22	April 23	10	4½ ,,	5	5					Ditto.
Gant's Close ..	For Root after Bastard Layer ..	10	May 11	May 11	7	4½ ,,	5	5					With triangular Harrow behind Cultivator (light mixed soil).
Timpson's Breck..	For Root after Rye Feed	44	May 12	May 16	7	4½ ,,	5	5					Ditto.
Ditto	Second Cultivation	44	May 18	May 21	9	4½ ,,	5	5					Ditto.
Gant's Close ..	For Root after Bastard Layer ..	12¾	May 24	May 24	7	4½ ,,	5	5					Ditto.
Lock Close ..	For Root after Feed Rye ..	22	May 27	May 28	7	4½ ,,	5	5					Ditto.
Foreman's Breck..	For Root after Layer	12½	May 31	June 2	7	4½ ,,	5	5					Ditto.
Lock Close ..	Second Cultivation	22	June 4	June 7	9	4½ ,,	5	5					Ditto.
Foreman's Breck..	Ditto	12½	June 10	June 11	9	4½ ,,	5	5					Ditto.
Part of Road Piece	For Root after Tares	8½	June 18	June 18	7	4½ ,,	5	5					
Part of Heath Piece	Wheat Stubble	17	August 31	Sept. 1	6	4½ ,,	5	5					AUTUMN CULTIVATION. Six-tined Cultivator, with triangular Harrow.
Park Road Piece..	Ditto	19	Sept. 2	Sept. 3	6	4½ ,,	5	5					Ditto.
Gospel Hill ..	Ditto	65	Sept. 5	Sept. 10	6	4½ ,,	5	5					Ditto.
Square	Ditto	42	Sept. 15	Sept. 19	6	4½ ,,	5	5					Six-tined Cultivator (showery, that Harrow was not attached).
Road Bulls ..	Pea Stubble	11	Sept. 20	Sept. 20	6	4½ ,,	5	5					Ditto.
Brick-kiln Field..	Barley Stubble	28	Sept. 22	Sept. 24	6	4½ ,,	5	5					Ditto.
1st Footpath Field	Wheat Stubble	9	Sept. 26	Sept. 26	7	4½ ,,	5	5					Ditto (heavy land).
Bowbeck Field ..	Ditto	24	Sept. 27	Sept. 29	7	4½ ,,	5	5					Ditto.
Jordan's Field ..	Ditto	14	Sept. 30	October 1	7	4½ ,,	5	5					Ditto.
Stanton Breck ..	Barley Stubble	30	October 3	October 5	6	4½ ,,	5	5					Ditto.
Ditto	Second Cultivation	30	October 6	October 8	8	4½ ,,	5	5					Ditto.
Brick-kiln Field..	Ditto	28	October 11	October 13	8	4½ ,,	5	5					Ditto.
Part of Gospel Hill	Ditto	33	October 17	October 19	7	4½ ,,	5	5					Ditto (light land).
Part of Heath Land	Ditto	11	October 20	October 20	9	4½ ,,	5	5					Ditto.
	Total	731½	—	—	—	—	—	—	£67 0 7¼	£29 14 0¾	£4 11 5½	—	

All labour done by contract, at 1*s.* 10*d.* per acre.

ROBERT KENNY, Bailiff.

of the farm a stubble furrow 6 inches deep is turned with some difficulty by two horses; on the heavier part of the land two horses will not plough more than 3 roods a day at such depth. The whole is quite level and under-drained, 3 feet deep, and laid into good-sized fields, only three less than 20 acres, but most of them over 40 acres, with straight hedges, trimmed low, and destitute of timber. This farm is particularly well situated for water supply, as in almost every field there is a water pit from which clay has been carted out, and against which the engine usually is set; a small boy is sufficient to put it into a tub. The farm has been in Mr. Cooper's possession for 20 years; on a strip of his own land adjoining he has exercised good judgment in building a block of cottages which are models are not worked so hard, we were assured, as they were formerly. Be it observed that the horse power employed before steam was equal to two horses to 60 acres, which is not greater than some men seem to think it necessary to have at command in addition to a steam engine and tackle! The farm is cultivated on the 4-course system, allowing for two crops in the fallow shift. Steam has not made much way on the Duke of Grafton's estate as yet, though we cannot imagine how, within the sphere of such an example, men who are possessed of sufficient capital can resist the temptation offered to them.

The *Apparatus.*—Mr. Cooper began in 1860 with an old set of Smith's tackle, exchanged for a cart colt. He took it to pieces, acquired a good knowledge of its

Cost of Work.—The engine driver, who receives 1*s.* 10*d.* an acre, distributes it generally as follows:—

	s.	*d.*
Engine man	0	6
Windlass man	0	2½
2 Anchor men	0	5
Ploughman	0	3
1 water cart boy and 4 porter boys ..	0	5½
	1	10
Horse with water cart	0	6
Coal	0	11
Oil	0	1½
Expenses per acre	3	4½

As some readers may like to see how a year's work looks on paper, we give a statement drawn up by

Mr. Cooper, affecting the year 1864, for distribution amongst a few friends interested in steam culture.

The labour is paid at the uniform rate of 1*s.* 10*d.* per acre; the consumption of coal and oil of course varies with the time occupied in doing the work, but these are kept in stock and used only for the steam cultivation; they also are taken upon an average of the 731 acres. The horse with water cart is omitted, and the horses employed in removals. An additional 3*d.* an acre (which under the peculiar circumstances seems sufficient), raises the total, as shown on previous page, to 3*s.* 0¼*d.* an acre.

To pursue the calculation a little further, it is necessary to refer to the statement of Mr. Cooper's capital account. It will be seen that (with the omission of any charge for Fowler's plough borrowed) the annual charge for wear and tear, allowing half that of the engine for other services, amounts to 46*l.* 1*s.* 3*d.*, for interest 20*l.* 10*s.* 6*d.*, together, 66*l.* 11*s.* 9*d.* This sum distributed over 731 acres (the year's work) gives 1*s.* 9¾*d.*, which, added to 3*s.* 0¼*d.*, the expense of labour, coal, oil, and horse, forms a total of 4*s.* 10*d.* an acre. But these figures may be looked at in another light. This sheet shows what steam has done. Suppose that the 12 horses displaced by steam would have done the same, what would have been the difference in the expense? We estimate that a farm horse costs in attendance, food, wear and tear of implements and harness, depreciation and interest, 46*l.* 13*s.* per annum. Assuming this to be fair, it will be found that horses would have done the work of the year 1864 (731 acres) at a cost of 560*l.*; steam would have done it at a cost of 184*l.* 2*s.* 10½*d.* Were every advantage to be pushed to the utmost, the comparison would be even more in favour of steam; but we are contented with an approximation to the truth.

Having reason to question the accuracy of our notes respecting the live stock, a note was forwarded to Mr. Cooper. Some extracts from his reply are here transcribed. "I find that I have increased the quantity of my sheep stock, but the great advantage to me has been holding on, or buying more sheep in the spring of the year, when farmers find a difficulty in holding hoggets on flock farms. By cultivating in the autumn I can do this. The green cropping before roots which I can thus obtain enables me to carry a much larger stock of sheep at that profitable period than I otherwise could do. I certainly grow more roots, more corn, and make more money from the land than I have ever done before, besides always being at the head instead of at the tail of my work. You may speak of the general advantages which are felt in every branch of the detail of my success from the application of steam power to the land, in doing the work when it ought to be done." He feels, in fact, that it improves the whole pace of a farm, deepens the interest of the men in their work, and impels them onward towards mental development. It may be remarked that although the price paid for labour is the same per acre, the earnings much depend on the depth of the operation and strength of the land, same days being high, the same with the consumption of coal and oil, the former varying from 1½ to 2½ cwt. per day.

Miscellaneous.

Milk Sickness.—The *Medical and Surgical Reporter* states that the affection of cattle known as milk sickness is caused by eating the white snake root, Eupatorium ageratoides. This discovery seems to have been made by three separate observers at about the same time. One of them, Mr. William Terry, of Edwardsville, Ill., in 1860 gathered this plant by mistake for the Nettle, and eat it as boiled greens. On the day following he was suddenly seized with violent trembling, prostration, and faintness, and on the next day with vomiting and violent retching. He did not fully recover in five years, and in the meantime tried the plant on domestic animals with similar results. Dr. Amos Sawyer, of Hillsboro, Ill.; Mr. R. N. Lee, of Nokomis, Dr. M'Pheeters, of St. Louis, botanist, and Mr. Enno, chemist, all coincide in the opinion that milk sickness is caused by this hitherto unsuspected plant, which animals are said to like when it is in bloom.

Calendar of Operations.

JUNE: *Rape.*—The preparation of the land for Rape is similar to that pursued for Turnips, with the exception, that on peaty soils in dry seasons the last ploughing should be completed a fortnight previous to the time of sowing, and the land consolidated as much as possible, retaining a fine tilth. The end of this month and beginning of July is the proper time for sowing it. Where the land is well drained, it may be sown on the flat, the rows being 13 to 14 inches apart. The best method is to drill it upon ridges, as in Turnip culture. About 2 qts. of seed is quite sufficient per acre.

Mangel Wurzel will require horse-hoeing this month, and the second cleaning by hand hoe will also take place.

Cabbages.—Continue transplanting into rich and highly-manured soil. If planted now or early in July, they will afford useful food for winter and spring use. The subsequent acts of cultivation they receive consist of horse and deep hand hoeings, so long as there is sufficient interval for the purpose between the rows.

White Mustard may be sown after Tares this or next month, for keep of sheep. Seven pounds per acre are sown broadcast, and the crop is eaten down in August and September, before flowering. Turnips are in every respect but one a better crop—they are later; and mustard may be preferred when an early seed time is desirable for the succeeding Wheat crop.

Grass Lands.—If the season is warm and genial, astures will frequently grow with such rapidity as to destroy a great portion of their nutritive value; we must, in that case, crowd on all the stock it will in any way carry, and must ease it in the best way we can devise afterwards. It is a provident plan on any farm to allow some one field to take its course, and become a sort of "make-shift;" if the season should subsequently become dry, and pastures decline, this field is the resource upon which to fall back, and ease the other pastures. The rough Grass will preserve it from drought, and the Grass itself, being well grown, will cause the stock to thrive. It is unpardonable to have Grass lands encumbered with Thistles or weeds, which may be so easily eradicated with common care. As a general rule, Thistles should be spudded in dry seasons, and pulled up by the roots (with "tweezers," or otherwise) in wet ones. The droppings of the beasts, horses, &c., ought never to remain unspread longer than a day or two. In districts, however, where rookeries abound, the crows will generally accomplish this operation in looking for insects. The early meadows will this month require mowing.

Dairy Farm.—This may be considered the height of the season for dairy produce. Immediately after the change of food from hay to Grass the milk was poor, and a much larger quantity was required to make the same weight of cheese. Now, at least 20 gallons less of milk will make a cwt. of best cheese than was required a month ago. Towards the end of this month hay-making commences, and if any Clover is grown, that is cut at the end of June. The cows should have as frequent a change of pasture as possible; the amount of milk will be increased by change, even though the change be not always for the better. In hot days, when the cattle are teased by the gad fly, they should be brought up to the sheds during the day, where they should receive an abundant supply of Rye-grass, or newly-cut meadow Grass. The cows are put to bull in this and the following month. Cheese-making is now at its height. The spring cheeses should be carefully attended to, kept clear of mites, by rubbing a little sweet oil over them, and regularly turned; they lie best on a plaster floor, and should at first be slightly covered. The temperature of the cheese room should be kept at 60° Fah.; this is best done by hanging wet clothes near the windows or doors. Although hay-making commences in June, the great bulk is made in July; and as on the good or unfavourable weather now, and also on the good or bad management of the farmer, depends entirely the good or bad condition of the cows during winter, that month is thus, of course, one of great importance. Half the farm is usually mown, as it requires about as many acres of hay to keep a given number of cattle through the winter, as it does acres of Grass to keep the same number through the summer. As soon as a field is cleared of the hay, the cows are immediately turned into it for a day or two, as a considerable quantity of Grass is left by the mower near the hedges, in cases where they are wide and irregular. By the end of July the early mown fields will (provided the weather has been propitious) be found to contain good after-Grass. This is greatly valued, as the cows always increase their milk on this food. Through the summer, single Glo'ster cheese is ready for consumption at about two months old; consequently, the first made will soon be fit for the factor; it is generally sold as soon as possible, as the loss of weight by keeping is very considerable. During this and the foregoing months the cows have access to the bull; this is done either by allowing the bull to run with the cows, in which case he should be tied up at night; or, which is the best and safest plan, he may be tied up, and the cows brought to him. In this, as in the other hot months, great attention must be paid to keeping the milk. For this purpose the dairy should be kept as low in temperature as possible. The milk, as soon as drawn, should be cooled by placing the pails in cold spring water, as otherwise it is apt to sour in a very short time in electrical states of the atmosphere. The greatest care, too, should be taken that the dairy be kept perfectly clean, that no meat be placed in it, that no drains open near it, and that the dairy manager remain in it no longer than is really necessary. If milk should sour, a small quantity of carbonate of soda may be added, and well mixed, to check the souring process and re-dissolve the partially-formed curd. And it is a good plan to dissolve a little carbonate of soda in the water with which the dairy utensils are washed.

Notices to Correspondents.

CABBAGE: *M R F.* Early Yorks, sown in July and August, will be ripe in May. Then pull every fourth Cabbage, and transplant Drumheads sown in February. They will be ready in November, and will keep till January; and if you sow in April again, you may have a crop which will be good food in January and February.

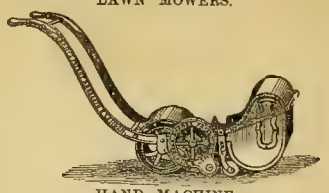
DORSET EWES: *Andrew Edwards.* They will breed twice in the year, taking the ram very early after dropping their lambs in the spring.

FOREMAN OVER DRAINAGE AND OTHER EARTH-WORKS: The Editor of this Journal can confidently recommend as trustworthy in this capacity a young man who has had some years' experience in laying out land drainage, and in directing and superintending its execution. And as he is also acquainted with farm work generally, he is well worth the 30*s.* a-week, which is, in the meantime, all he asks for.

GRASS LAND: *H S.* Pray excuse a week's delay.

HAYMAKING: *Gloucestershire.* In your county an ordinary crop may be mown, made, and put into "wind" cocks for 10*s.* to 15*s.* an acre. If carried to the rick instead, and built and thatched, add 1*s.* 6*d.* per acre. Shake the swathes abroad by 9 A.M. the first day; turn the Grass, and turn it again by 4 P.M.; then rake it in rolls at a yard apart, and put it up in small cocks for the night. Next day shake out these cocks in beds five yards wide, with intervals of three or four yards; turn, and turn again in the afternoon, and rake each bed into two rolls, dividing it down the middle; and put into larger cocks at night. These next morning must again be thrown into beds as before. Turn, and if necessary turn again; then rake each bed into a single roll, and it will probably be ready to carry that afternoon.

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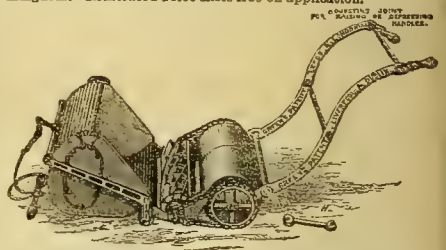
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The above Rollers possess many advantages over all others. They are made in two parts, and are free to revolve on the axis, affording greater facilities for turning, and the outer edges are rounded off or turned inwards, thus avoiding the unsightly marks left by other Rollers.

Diameter, 30 inches;	Length 32 inches,	£7	10	0
,, 24 ,,	,, 26 ,,	4	10	0
,, 20 ,,	,, 22 ,,	3	10	0
,, 16 ,,	,, 17 ,,	2	15	0

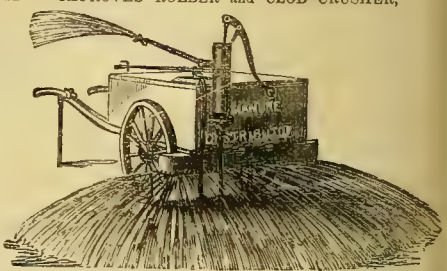
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N.B. All Orders executed on the day they are received.

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The above Lawn Mowers have proved to be the best, and have carried off every Prize that has been given in all cases of Competition.
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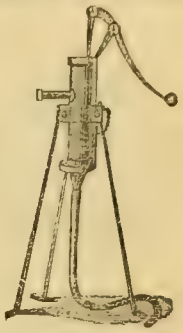
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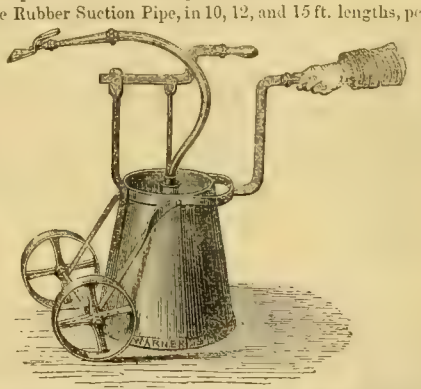
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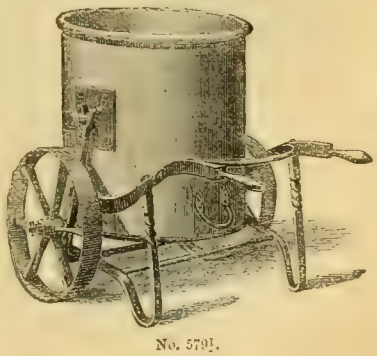
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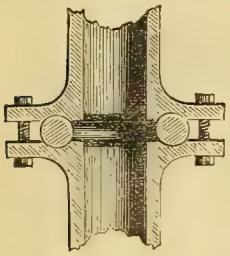


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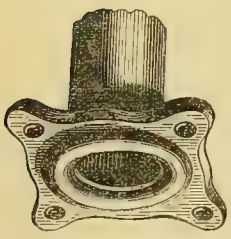


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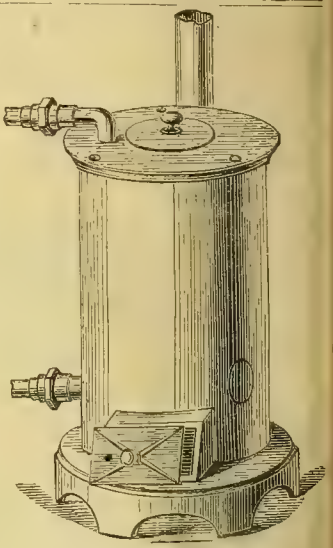
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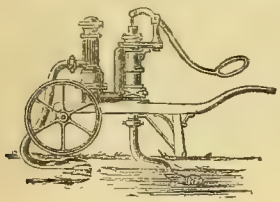
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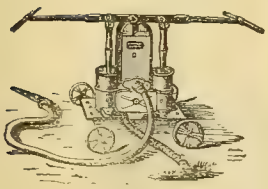
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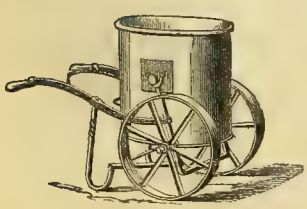
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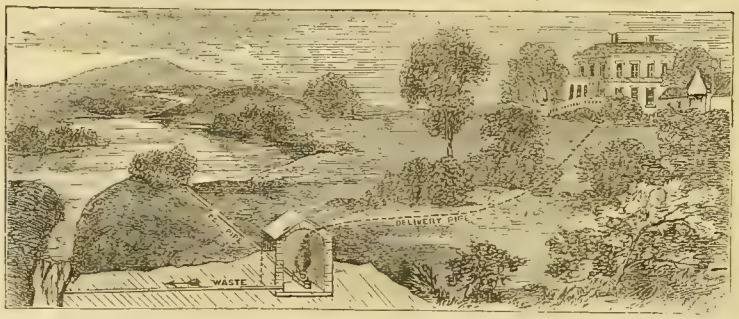
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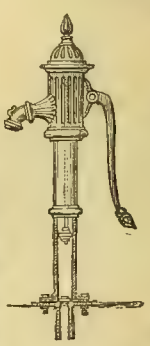
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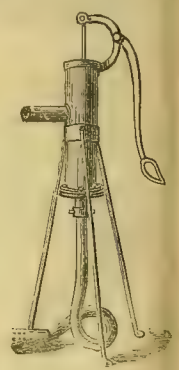
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MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on SATURDAY NEXT, July 6, at half-past 12 o'Clock precisely, an Importation from Assam of VANDA CŒRULEA, DENDROBIUM FORMOSUM, D. MOSCHATUM, D. TRANSPARENS, D. CŒRULESCENS, ÆRIDES CORNUTUM, &c., in fine condition; also a Consignment from Moulmein of SACCOLABIUM CURVIFOLIUM, S. BLUMEI, ÆRIDES LOBBII, Æ. VIRENS, &c.

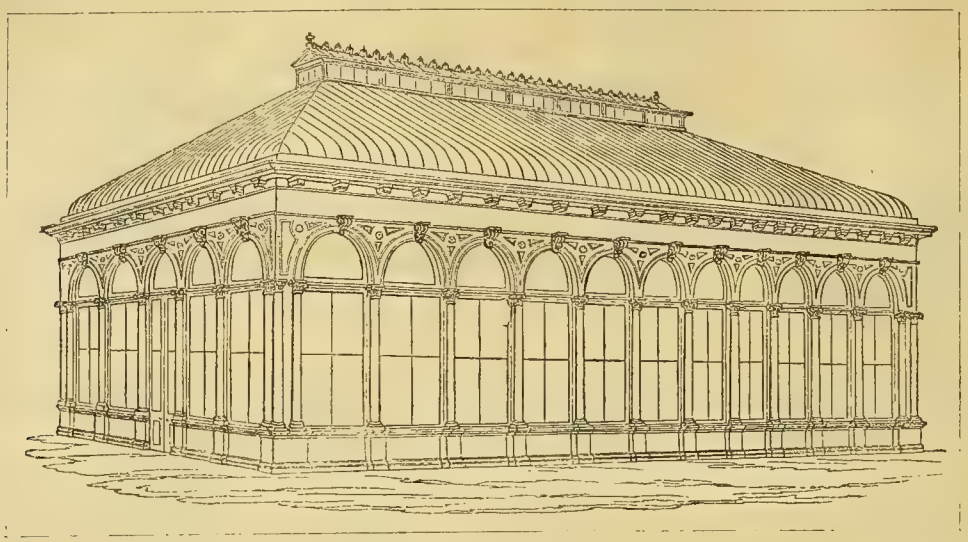
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Established Orchids.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on TUESDAY, July 9, at half-past 12 o'Clock precisely, a Collection of Established ORCHIDS, all in good health, many of them fine specimens and choice varieties.

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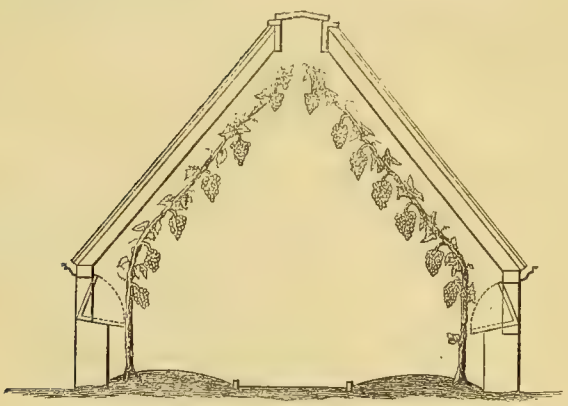
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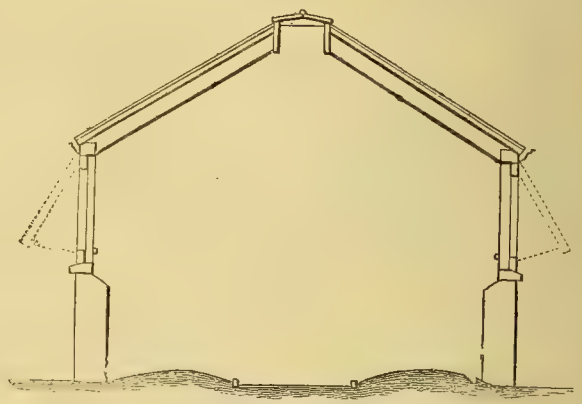


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THE GARDENERS' CHRONICLE
AND
AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.

No. 27.—1867.] SATURDAY, JULY 6. {Price Fivepence, Stamped Edition, 6*d*.

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ROYAL HORTICULTURAL SOCIETY, SOUTH KENSINGTON, W.

NOTICE.—In consequence of the Great Show at Bury St. Edmunds on the 10th, there will NOT be the usual MEETING at South Kensington on that day.

ROYAL HORTICULTURAL SOCIETY.
FIRST VISIT TO THE PROVINCES.

The GRAND EXHIBITION of PLANTS and FRUITS will OPEN on TUESDAY, July 16, in the VINE YARD, BURY ST. EDMUND'S, in close proximity to the Royal Agricultural Show. Nearly One Thousand Pounds Prizes in Money and Cups will be offered for Competition. Tickets are now ready, and can be had either in London or Bury; for the 1st day (if purchased on or before the 15th), 5*s*.; 2d day, 2*s*. 6*d*.; or to admit for the four days, not transferable, 7*s*. 6*d*. each; or by Payment at the Gates—1st day, 7*s*. 6*d*.; 2d day, 3*s*. 6*d*.; 3d and 4th days, 1*s*. each. Band of the Royal Horse Guards daily from 2 to 6.

☞ NEW ROSES will date from the time they are sent out in England.

ROYAL HORTICULTURAL SOCIETY.
BURY ST. EDMUND'S SHOW.

NOTICE of ADDITIONAL SPECIAL PRIZES.—In addition to the Society's Silver Gilt Cup, value £25, a Second Prize of £15, and a Third Prize of £10, will be given.

GRAND HORTICULTURAL EXHIBITION at BURY ST. EDMUND'S, in connection with the SHOW of the ROYAL AGRICULTURAL SOCIETY, JULY 15, 1867, and four following Days.

Amongst various Special Prizes, amounting in value to nearly £300, and exclusive of the ordinary Prize Schedule,

A SILVER CUP, VALUE £20,

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Of FRUITS, any Five of the following Eight kinds, one Dish of each:—Grapes, Melons (2 fruits), Strawberries, Gooseberries, Currants, Cherries, Raspberries, or Apples (of the crop of 1866).

Of VEGETABLES, any Eight of the following Fourteen kinds, one basket or bundle of each:—Peas, French Beans (or Scarlet Runners), Broad Beans, Cauliflowers, Cucumbers (brace), Summer Cabbages, Early Carrots, Turnips, Artichokes, Onions, Spinach, Rhubarb, Potatos, or Mixed Salading.

This Cup will be open to Competition amongst Amateur or Professional Gardeners, of all grades, with Fruit and Vegetables of *their own growing*; any article otherwise obtained will disqualify the exhibitor.

LEICESTERSHIRE FLORAL and HORTICULTURAL SOCIETY.
President—Right Hon. EARL HOWE.

The GREAT SUMMER ROSE SHOW of this Society will be held on the Leicester Race Course, on TUESDAY and WEDNESDAY, July 9 and 10. A SHOW of BRITISH and FOREIGN BIRDS and PIGEONS will be held in conjunction with the above Show. For Schedules and further particulars apply to Market Place, Leicester. WILLIAM PENN COX, Secretary.

ORCHIDS.—TWENTY POUNDS REWARD.
To GENTLEMEN, NURSERYMEN, GARDENERS, AND OTHERS.

STOLEN, from the Premises of J. DAY, Esq., Tottenham, between 10.30 P.M., June 26, and 6 A.M., June 27, about 53 very rare PLANTS, viz.:—23 Vanda cœrulea, small, from 6 to 10 leaves each; 25 Phalænopsis, of various kinds, viz.:—*P. Schillerianum*, *P. amabilis*, *P. cypripedium*, species unknown, resembling *C. cœvigatum*; 1 Odontoglossum phalænopsis, and sundry others.

The above reward will be paid by J. DAY, Esq., of the above address, to any person that shall give such information as shall lead to the apprehension and conviction of the thief or thieves.

Information to Serjeant PALMER, Detective Department, Great Scotland Yard, London.

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JOHN WATERER'S display of Hardy, Scarlet, and other RHODODENDRONS (the only one in London) is NOW in FINE BLOOM at the above Gardens.

☞ The Scarlet and White RHODODENDRON clumps, also the large Single Plants, which bloomed and were so much admired at Rotten Row last year, were supplied by JOHN WATERER, American Nursery, Bagshot, Surrey.

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Roses.—Lea Bridge Road Nurseries, Leyton, N.E.

JOHN FRASER respectfully invites an inspection of his COLLECTION of ROSES, which he begs to announce are NOW IN BLOOM. The Collection contains numerous New and fine varieties. The Nurseries are about five miles from London, and are easily reached by Train on the Great Eastern Railway, to Lea Bridge Station.

Roses.

JOHN CRANSTON has the pleasure to announce that his ROSES are NOW IN FULL BLOOM, and that the whole of his stock is in the finest condition possible.

The severe frosts (which proved so destructive in many parts of England throughout last winter) not having visited this locality, he is happy to say that his Roses, Conifers, and other Trees, escaped entirely unharmed.

Nurseries, King's Acre, near Hereford.

Roses in Bloom.

THOMAS WARNER begs to state that his COLLECTION of the above, including most of the new and fine varieties, is NOW IN BLOOM. An inspecton is invited. They are seen to the greatest advantage in the morning, or from 6 to 8 o'Clock in the evening.

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JAMES HOLDER can supply the following at 12*s*. per 100, or 7*s*. for 50 Plants, hamper included:—COLEUS, IRESINE, CERASTIUM, LOBELIA (three varieties), PERILLA, KONIGA, TROPÆOLUM, HELIOTROPE, and CUPHEA.
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LILIUM AURATUM.—Large Consignment just received, 2*s*. 6*d*., 3*s*. 6*d*., 5*s*. 6*d*., and 7*s*. 6*d*. per Root. Extra large selected Bulbs, 10*s*. 6*d*., 12*s*. 6*d*., 15*s*., &21*s*.
BARR & SUGDEN, Seed, Bulb, and Plant Merchants, 12, King Street, Covent Garden, W.C.

GLADIOLI BULBS for Summer, Autumn, and Winter Flowering, 2*s*. 6*d*., 3*s*. 6*d*., 5*s*. 6*d*., 7*s*. 6*d*., 9*s*., and 12*s*. per dozen. 10*s*. 6*d*., 15*s*., 21*s*., 25*s*. to 100*s*. per 100.
BARR & SUGDEN, Seed, Bulb, and Plant Merchants, 12, King Street Covent Garden, W.C.

Genuine Garden and Agricultural Seeds.

JAMES CARTER AND CO.,
SEED FARMERS, MERCHANTS, and NURSERYMEN,
237 & 238, High Holborn, London, W.C.

Agricultural and Garden Seeds.

H. AND F. SHARPE'S WHOLESALE SPRING PRICED LIST of the above Seeds of 1866 growth is now ready and may be had on application.
Seed Growing Establishment, Wisbech.

Garden and Farm Seeds direct from the Growers.

CHARLES SHARPE AND CO. beg to inform the Trade that their WHOLESALE SEED LIST is now ready, and will be forwarded post free on application.
Seed Warehouse, Sleaford.

RAYNBIRD, CALDECOTT, BAWTREE, DOWLING, AND COMPANY, Limited,
CORN, SEED, MANURE, AND OILCAKE MERCHANTS,
Address, 89, Seed Market, Mark Lane, E.C.; or Basingstoke.
Samples and Prices post free on application. Prize Medals, 1851, for Wheat; 1862, for "Excellent Seed Corn and Seeds."

Improvement of Grass Lands, at from 5*s*. to 10*s*. per acre.

SUTTON'S RENOVATING MIXTURE should be Sown after the Hay is carried. 6 to 12 lb. per acre.
SUTTON & SONS, Seed Growers, Reading.

WHITE MUSTARD for PRESENT SOWING.—Nett Growth of 1866, at 12*s*. per bushel (52 lb.); 4 bushels do. for 50*s*. New 4 lb. Sacks 1*s*. 4*d*. each. Remittances to accompany orders.
CHRISTMAS QUINCEY, Seedsman, &c., Peterborough.

TO the TRADE and OTHERS.—Fine RAPE or COLE SEED, a few quarters still on offer; also Genuine NEW SIX-WEEKS' TURNIP. Prices and samples on application to
FREDK. GEE, Seed Merchant and Grower, Biggleswade, Beds.

The Best Cabbage for Spring Use is

SUTTON'S IMPERIAL, which should be Sown in June and July. Price 8*d*. per oz., Post free. Cheaper by the pound. SUTTON & SONS, Seed Growers, Reading.

DRUMHEAD CATTLE CABBAGE, THE HEAVIEST of ALL AGRICULTURAL CROPS.
This should be Sown in July & August, for Transplanting in the Spring.
SUTTON & SONS can supply—
ROBINSON'S CHAMPION DRUMHEAD CABBAGE (the heaviest known), at 3*s*. 6*d*. per lb.
GOOD DRUMHEAD CABBAGE at 2*s*. 6*d*. per lb.
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Bedding and other Plants.





Just Published, post free 12 stamps (Gratis to Customers), Part III. of CARTER'S GARDENERS' and FARMERS' VADE MECUM, containing complete Lists of new and choice Stove and Greenhouse and Bedding Plants, with an Addendum comprising original and practical articles, "On a Visit to Messrs. Carter's Nursery," by an Amateur Florist; Subtropical Gardening; and 120 Geometrical Designs for Flower-beds; with reliable information for the proper combination of Bedding Plants to produce chaste and striking effects.

Forwarded on receipt of 12 stamps on application to CARTER'S Great London Seed Warehouse, 237 and 238, High Holborn, London.

The Forwardest Pea is Sutton's Ringleader.

SUTTON AND SONS had the honour of introducing this unrivalled EARLY PEA in the year 1865, and after careful trials of it and all of its competitors, they have no hesitation in stating that it is still forwarder than any other Pea, excepting only Carter's First Crop, which was sent out the same season, and subsequently proved to be identical, which latter fact was unknown to either party at that time.

Although increased crops of Seed have been grown each successive season, the supply has not yet been equal to the demand, and Messrs. SUTTON are again unable to execute Orders until the New Seed is ready in July.

Early orders or inquiries are therefore recommended.

SUTTON & SONS, Seed Growers, Reading.

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RICHARD WALKER, MARKET GARDENER and SEED GROWER, offers the following:—

ROBINSON'S CHAMPION DRUMHEAD CABBAGE PLANTS. 2s. 6d. per 1000.
DRUMHEAD SELECTED STOCK PLANTS, 3s. per 1000.
WALCHEREN, splendid true stock, CAULIFLOWER PLANTS, 1s. per 100.
Fine SAVOY PLANTS, 6d. per 100.
Imported very fine BRUSSELS SPROUT PLANTS, 6d. per 100.
EASTHAM CABBAGE PLANTS, true, 3s. per 1000.
DICKSON'S MANCHESTER CHAMPION RED CELERY PLANTS, 1s. per 100.
INCOMPARABLE WHITE CELERY PLANTS, 1s. per 100
IVERY'S NONSUCH CELERY PLANTS, 1s. per 100, transplanted.
Terms Cash.
RICHARD WALKER, Biggleswade, Beds.



GRASS SEEDS for PERMANENT PASTURE, of the finest quality, at moderate prices, carefully selected on a new, natural, and scientific system.

See "WHEELER'S BOOK on GRASSES," which contains Illustrations and Descriptions of the most suitable Grasses for Permanent Pasture.

J. C. WHEELER & SON,
Gloucester,
Seedsmen to the Gloucestershire Agricultural Society.

CALADIUMS, CALADIUMS.—The following 12, in strong Plants, package included, for 8s., viz.:—Two Mirabile, two Wightii, one each Belleymei, Newmanii, Argyrites, Gigantea violacea, Bicolor splendens, Amabilis, Bicolor, Chantinii.

ECKFORD'S Six NEW VERBENAS of 1867 at 4s.

Post Office Orders accompanying orders payable at Boston Spa.

J. C. FADMAN, Providence Nursery, Boston Spa, Yorkshire.

Dutch Bulbs.—To the Trade only.

E. H. KRELAGE AND SON, NURSERYMEN, SEEDSMEN, and FLORISTS, Haarlem, Holland, beg to announce that their NEW WHOLESALE CATALOGUE of DUTCH BULBS, FLOWER ROOTS, TUBERCULOUS PLANTS, STRAWBERRIES, &c., is now ready, and will be sent gratis to Nurserymen, Seedsmen, and Florists on application. Postage 3d. The Catalogue, a Pamphlet of 44 8vo pages, contains a greater variety than any other List.



The Forwardest Turnip known is

SUTTON'S SHORT-TOP SIX WEEKS, price 1s. per lb.; cheaper by the bushel.

This excellent Turnip, if sown in June and July, will produce a heavy Crop, to come off in time for Wheat Sowing.

SUTTON & SONS,
Royal Berkshire Seed Establishment, Reading.





The Best Swede for Late Sowing

IS

THE IMPROVED HARDY WHITE

(SUTTON'S Selected Stock),

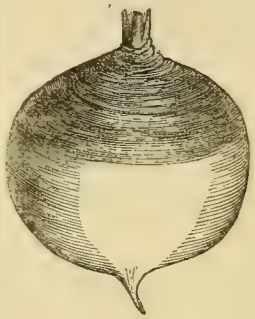
Price 1s. 2d. per lb.,

or cheaper by the bushel.

Carriage free.

SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

SUTTON'S TURNIP SEEDS FOR PRESENT SOWING.



	Per lb.—s. d.
SUTTON'S RED PARAGON	0 10
SUTTON'S IMPERIAL GREEN GLOBE	0 10
POMERANIAN WHITE GLOBE ..	1 0
GREY STONE	0 10
SUTTON'S SHORT-TOP SIXWEEKS .	1 0

Cheaper by the Bushel.
Carriage Free.

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TAN, Gratis, in the immediate neighbourhood of Covent Garden Market.

Apply to W. ESSEX & SONS, 28, Stanhope Street, Clare Market, W.C.

REIGATE SILVER SAND, 12s. per ton, at Swan Place, delivered five Miles, or to any London Wharf or Railway, 16s. per ton, or 1s. 6d. per bushel. (Sacks at cost price, or on hire.) KENTISH and HAMPSHIRE PEATS, YELLOW LOAM, LEAF MOULD, SPHAGNUM MOSS, and COCOA FIBRE REFUSE.

J. KENNARD, Swan Place, Old Kent Road, London, S.E.

FIBROUS PEAT of first-class quality for Orchids, Heaths, American Plants, and all potting purposes, may be obtained by application to Mr. THOMAS JESSOP, Farningham Wood, near Farningham Station, Kent. It is dispatched by the London, Chatham, and Dover Railway in trucks of 16 yards, to most Stations in the Kingdom, or fetched in carts from the wood. It is extensively used and appreciated in the principal Nurseries, and in the Royal Parks and Gardens. Price 5s. per cubic yard, at Farningham Station.



COCOA-NUT REFUSE is becoming SCARCE, the old reserves will soon be gone. Now sold in bags, 1 for 2s., 10 for 16s., 20 for 30s., 50 for 66s., 100 for £6.

Fourpence allowed for each bag returned carriage-paid.

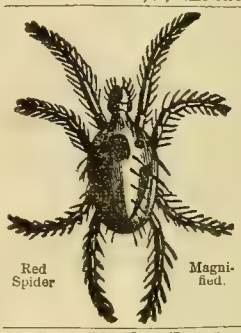
A Railway Truck-load (not in bags), 40s.

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By Authority of the Hon. Board of Customs.

POOLEY'S TOBACCO POWDER.—This preparation most effectually destroys all kinds of Blight upon Plants. To Florists and Horticulturists it is invaluable; and on account of its low price it may be advantageously used for the destruction of Hop Blight and for other Agricultural purposes. Price 42s. per cwt.; 23s. per ¼ cwt.; 13s. per ⅛ cwt.

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Red Spider — Magnified.

GISHURST COMPOUND.

Used by many of the leading Gardeners since 1859, against Red Spider, Mildew, Thrips, Green Fly, and other Blight, in solutions of from 1 to 2 ounces to the gallon of soft water, and of from ¼ to 16 ounces as a Winter Dressing for Vines and Fruit Trees. Has outlived many preparations intended to supersede it.

Sold Retail by Seedsmen, in boxes, 1s., 3s., and 10s. 6d.

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PRICE'S PATENT CANDLE COMPANY
(LIMITED)

JAPAN FLAX.—The finest Material for Tying up Plants and Flowers. The best and cheapest in the Trade is ANDERSON'S. Samples and prices sent post free on application to JAMES T. ANDERSON, 7, Commercial Street, Shoreditch, London, N.E.

FOWLER'S PATENT STEAM PLOUGH and CULTIVATOR may be SEEN at WORK in every Agricultural County in England.

For particulars apply to JOHN FOWLER & Co., 71, Cornhill, London, E.C.; and Steam Plough Works, Leeds.

IRON HURDLES (Silver Medal of the Royal Agricultural Society).

SHEEP, 3s. 6d.; CATTLE, 4s. 2d.; OX, 5s. 11d.

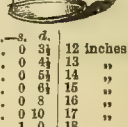
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THE TANNED LEATHER COMPANY.
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TANNERS, CURRIERS, & MANUFACTURERS of IMPROVED TANNED LEATHER DRIVING STRAPS for MACHINERY.
PRIME STRAP and SOLE BUTTS.
Price Lists sent free by post.
Warehouse: 81, Mark Lane, London, E.C.
Mr. H. FERRABEE, Agent.

Glass for Garden Purposes.

JAMES PHILLIPS AND CO. beg to submit their REDUCED PRICES as follows:—

PROPAGATING  GLASSES.

	Each.—s. d.		Each.—s. d.
2 inches in diameter ..	0 3½	12 inches in diameter ..	1 9
3 " " ..	0 4½	13 " " ..	2 0
4 " " ..	0 5½	14 " " ..	2 6
5 " " ..	0 6½	15 " " ..	3 0
6 " " ..	0 8	16 " " ..	3 6
7 " " ..	0 10	17 " " ..	4 0
8 " " ..	1 0	18 " " ..	5 0
9 " " ..	1 2	19 " " ..	6 0
10 " " ..	1 4	20 " " ..	7
11 " " ..	1 6		

HYACINTH and FLOWER DISHES.

6 inches diameter .. .. 1s. 0d. | 9 inches diameter 1 0
12 inches diameter .. .. 2s. 6d.

Hyacinth Dishes are intended to contain a number of Roots Bedded in and covered with Moss, instead of the common Hyacinth Glass.

LACTOMETERS, for Testing the Quality of Milk.
Four Tubes .. .. 4s. 6d. | Six Tubes .. .. 6s. 6d.
With Stands complete.

HAND GLASSES,  WITH OPEN TOPS.

	Each.—s. d.		Each.—s d.
12 inches	6 6	18 inches	9 6
14 "	7 6	20 "	10 6
16 "	8 6	22 "	11 6
		24 "	12 6

Painted and Glazed with 16-oz. Sheet Glass.

London Agents for HARTLEY'S IMPROVED PATENT ROUGH PLATE.

LINSEED OIL, Genuine WHITE LEAD, CARSON'S PAINTS, PAINTS of various colours, ground ready for use.

SHEET and ROUGH PLATE GLASS, SLATES of all sizes, BRITISH PLATE, PATENT PLATE, ROLLED PLATE, CROWN, SHEET, HORTICULTURAL, ORNAMENTAL, COLOURED, and every description of GLASS, of the best Manufacture, at the lowest terms. Lists of prices and estimates forwarded on application to JAMES PHILLIPS & Co., 180, Bishopsgate Street Without, E.C.





THE ROYAL AGRICULTURAL AND ROYAL HORTICULTURAL SOCIETIES' MEETINGS, AT BURY ST. EDMUND'S, 1867.



STAND, No. 195.

SUTTON & SONS,

SEEDSMEN TO THE QUEEN, READING, BERKSHIRE,

Inform their Friends and the Public generally that they will have their usual extensive display of AGRICULTURAL, HORTICULTURAL, and FLORICULTURAL SEEDS, ROOTS, FORAGE PLANTS, and GRASSES, in their growing state, &c., &c., to which they invite special attention.

MESSRS. SUTTON'S STAND (No. 195) will be found in close proximity to the SHOW of HORSES, STOCK, and IMPLEMENTS.

Orders will be received for TURNIP SEEDS, GRASS SEEDS, &c., for Present Sowing, and be dispatched with the least possible delay.

Priced Lists of all Seeds gratis and post free.

SUTTON AND SONS, ROYAL BERKSHIRE SEED ESTABLISHMENT, READING.

NEW DOUBLE CRIMSON THORN (NOW READY).

WILLIAM PAUL

(SON and SUCCESSOR to the late A. Paul),

BEGS TO OFFER THE

ABOVE MAGNIFICENT HARDY FLOWERING TREE,

Which he believes to be the greatest acquisition for forcing and out-of-door culture that has been introduced for many years.

Strong healthy Plants, well established in pots, 2 ft. high, 7s. 6d. each; 1 ft. high, 5s. each.

A First-class Certificate was awarded to him for this Plant by the Royal Horticultural Society on the 16th April last.

See Coloured Drawing by FITCH, and History, in the "Florist" for June.

"We do not hesitate to advise every one who has a garden to purchase this plant at once. * * * Plants purchased in pots now may be grown and established, so as to flower well either in or out-of-doors next spring; whereas if removed from the ground in the autumn of the year, they can hardly be expected to do this."—*The Florist, &c.*

PAUL'S NURSERIES, WALTHAM CROSS, LONDON, N.

GREEN'S PATENT SILENS MESSOR,

OR

NOISELESS LAWN MOWING, ROLLING, and COLLECTING MACHINES.

PATRONIZED BY

HER MOST GRACIOUS MAJESTY THE QUEEN
ON TWENTY-NINE DIFFERENT OCCASIONS.
H.R.H. THE PRINCE OF WALES.

THE KING OF THE BELGIANS.
THE EMPEROR OF THE FRENCH.
THE EMPEROR OF RUSSIA.

AND MOST OF THE NOBILITY, CLERGY, AND GENTRY IN THE UNITED KINGDOM.

THOMAS GREEN AND SON, in introducing their PATENT LAWN MOWERS for the present season, beg to state that they have no Novelties to report. The fact is, that after the severe tests their Machines have been subjected to since they added their latest improvements, they have been found to meet all the requirements for which they are intended, viz.:—the KEEPING of LAWNS in the HIGHEST STATE of PERFECTION.

They are the simplest in construction, least liable to get out of order, and can be worked with far greater ease than any other Lawn Mower extant; and in proof of their superiority, 39,000 have been sold since the year 1856.

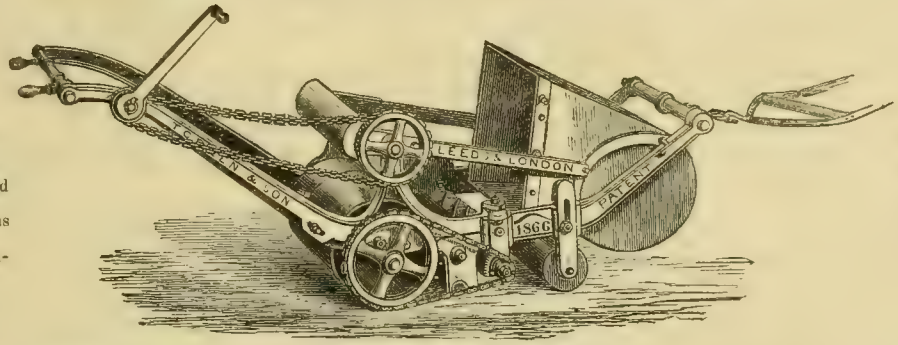
THEY ARE THE ONLY MACHINES IN CONSTANT USE AT

THE ROYAL HORTICULTURAL SOCIETY'S GARDENS, SOUTH KENSINGTON
THE ROYAL BOTANIC GARDENS, REGENT'S PARK
THE CRYSTAL PALACE COMPANY'S GARDENS, SYDENHAM
BUCKINGHAM PALACE GARDENS
MARLBOROUGH HOUSE
THE HYDE PARK GARDENS
THE WINTER PALACE GARDENS, DUBLIN
THE DUBLIN BOTANIC GARDENS
THE LIVERPOOL BOTANIC GARDENS
THE LEEDS ROYAL PARK
THE HULL BOTANIC GARDENS
THE BOTANIC GARDENS, BRUSSELS
THE SUNDERLAND PARK
THE PRESTON PARK

AND IN MOST OF THE PRINCIPAL PARKS, SQUARES, ETC., IN THE UNITED KINGDOM.

HORSE, PONY, AND DONKEY MACHINE.

GREEN'S
PATENT
LAWN MOWERS
have proved to be the best, and carried off every Prize that has been given in all cases of competition.



T. GREEN & SON
warrant every Machine to give entire satisfaction, and if not approved of can be returned unconditionally.

PRICES of HORSE, PONY, and DONKEY MACHINES, including Patent Self-delivery Box; Cross Stay complete; suitable for attaching to ordinary Chain Traces or Gig Harness.

PONY AND DONKEY MACHINES.

To Cut 26 inches	..	..	.. £13	0	0
,, 28 ,,	..	..	.. 15	0	0
,, 30 ,,	..	..	.. 17	0	0

Leather Boots for Donkey, 18*s*.
Leather Boots for Pony, 22*s*.

HORSE MACHINES.

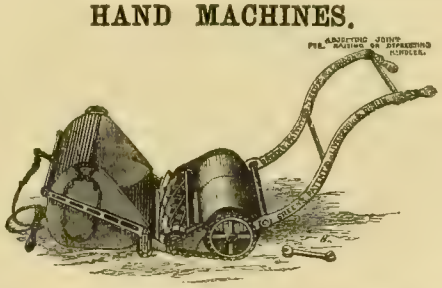
To Cut 30 inches	..	..	.. £21	0	0
,, 36 ,,	..	..	.. 24	0	0
,, 42 ,,	..	..	.. 27	0	0
,, 48 ,,	..	..	.. 30	0	0

Leather Boots for Horse, 26*s*.

Both the Horse, Pony, Donkey, and Hand Machines possess (over all other Makers) the advantage of Self-sharpening. The cutters being steel on each side, when they become dull or blunt by running one way round the cylinder, can be reversed again and again, bringing the opposite edge of the cutter against the bottom blade, when the Machine will cut equal to new. Arrangements are made that the cylinder can be reversed, by any inexperienced person, in two or three minutes.

HAND MACHINES.

To Cut 10 inches	..	£3	10	0	*Suitable for a Lady*	
,, 12 ,,	..	4	10	0	,,	,,
,, 14 ,,	..	5	10	0	*Suitable for One Person*	
,, 16 ,,	..	6	10	0	,,	,,



To Cut 18 inches	..	£7	10	0	*Suitable for One Person*	
,, 20 ,,	..	8	0	0	*Suitable for Two Persons*	
,, 22 ,,	..	8	10	0	,,	,,
,, 24 ,,	..	9	0	0	,,	,,

Packing Cases are charged at the following low rates, viz.:—for the 10 and 12-inch Machine, 3*s*.; 14 and 16-inch, 4*s*.; 18 and 20-inch, 5*s*.; 22 and 24-inch, 6*s*. Parties providing themselves with Lawn Mowers are recommended to purchase the cases in which to stow them away, when not in use, to prevent them from getting damaged; if returned, two-thirds will be allowed for them.

The above MACHINES are made from the best materials, and of superior workmanship; are delivered Carriage Free to all the principal Railway Stations and Shipping Ports in England.

Every Machine is warranted to give entire satisfaction, and if not approved of, can be returned unconditionally.

T. G. AND SON have to state that the demand for their LAWN MOWERS this season has been unprecedented, which is a proof of the high estimation in which they are held. The 3000 Machines they had in stock at the commencement of the season are now materially reduced, still with their present facilities they are prepared to execute Orders on the day they are received.

Having taken very extensive Premises in London, we are in a position to do all kinds of Repairs there, as well as at our Leeds Establishment.

THOMAS GREEN AND SON, SMITHFIELD IRON WORKS, LEEDS;

and 54 and 55, BLACKFRIARS ROAD, LONDON, S.





JAMES CARTER AND CO. beg to announce that they are now sending out their unrivalled Strains of CALCEOLARIA, CINERARIA, and PRIMULA, which, for fineness of form and beauty of colour cannot be surpassed.

CALCEOLARIA, saved from the finest Prize varieties.

CINERARIA, saved from the finest named varieties.

PRIMULA SINENSIS FIMBRIATA, dark carmine and pure white, saved from the finest fringed varieties in cultivation. Price, each packet, 2s. 6d., forwarded on receipt of Post-office Order for the amount.

☞ PRICE LISTS gratis and Post free on application to CARTER'S Great London Seed Warehouse, 237 & 238, High Holborn, London, W.C.

LUCOMBE, PINCE, & CO.

BEG TO CALL ATTENTION TO THEIR SPLENDID NEW LATE GRAPE,

"MRS. PINCE'S BLACK MUSCAT,"

TO BE SENT OUT NEXT MONTH.

THE PUBLIC ARE RESPECTFULLY INVITED TO AN INSPECTION.

The VINES have borne heavy Crops for the last four years. They are now the admiration of all who see them, and will well repay a visit.

☞ Copies of Testimonials, which are very numerous, will be forwarded upon application to them.

EXETER NURSERY, EXETER.

ROYAL BOTANIC GARDENS,

REGENT'S PARK.

LAST EXHIBITION this SEASON of PLANTS, FLOWERS, and FRUIT,

WEDNESDAY, JULY 3, 1867.

LIST OF AWARDS.

LARGE GOLD MEDAL.

Mr. B. Peed, Gr. to Mrs. Tredwell, St. John's Lodge, Norwood, for 10 Stove and Greenhouse Plants

Mr. C. Brockhurst, Gr. to A. Turner, Esq., Bow Bridge House, Leicester, for 15 Exotic Orchids

MEDIUM GOLD MEDAL.

Messrs. E. Cole & Sons, Nurserymen, Withington, Manchester, for 10 Stove and Greenhouse Plants

Mr. C. Penny, Gr. to H. H. Gibbs, Esq., Regent's Park, for 15 Exotic Orchids

Mr. W. Kemp, Gr. to Earl Percy, Albury Park, Guildford, Surrey, for 10 Stove and Greenhouse Plants

Mr. D. Donald, Gr. to J. G. Barclay, Esq., Leyton, Essex, for 8 Stove and Greenhouse Plants

GOLD MEDAL.

Mr. J. Wheeler, Gr. to J. Phillpott, Esq., Stamford Hill, for 10 Stove and Greenhouse Plants

Messrs. J. & C. Lee, Nurserymen, Hammersmith, for 8 Stove and Greenhouse Plants

Mr. A. Wilkie, Gr., Addison Road, Kensington, for 8 Stove and Greenhouse Plants

Mr. J. Fairbairn, Gr. to the Duke of Northumberland, Syon House, Isleworth, for 10 Foliage Plants

Mr. B. S. Williams, Nurseryman, Holloway, for 10 Foliage Plants

Mr. O. Rhodes, Nurseryman, Sydenham Park, Kent, for 8 Cape Heaths

Mr. B. Peed, Gr., for 8 Cape Heaths

Mr. W. Wilson, Gr. to W. Marshall, Esq., Enfield, for 15 Exotic Orchids

Mr. J. Wiggins, Gr. to W. Beck, Esq., Worton Cottage, Isleworth, for 8 Exotic Orchids

Mr. J. Fraser, Nurseryman, Leyton, Essex, for 9 Pelargoniums

Mr. W. Nye, Gr. to E. B. Foster, Esq., Clewer Manor, Windsor, for 9 Pelargoniums

Mr. J. Miller, Gr. to Earl Craven, Combe Abbey, Coventry, for Collection of Fruit

LARGE SILVER GILT MEDAL.

Mr. O. Rhodes, for 8 Stove and Greenhouse Plants

Mr. G. Wheeler, Gr. to Sir F. H. Goldsmid, Bart., Regent's Park, for 8 Stove and Greenhouse Plants

Mr. J. Ward, Gr. to F. J. Wilkins, Esq., Leyton, Essex, for 6 Stove and Greenhouse Plants

Messrs. E. Cole & Son, for 8 Cape Heaths

Mr. J. Wheeler, Gr., for 8 Cape Heaths

Mr. B. Peed, Gr., for 15 Exotic Orchids

Mr. B. S. Williams, for 6 Exotic Orchids

Mr. I. Hill, Gr. to R. Hanbury, Esq., Poles, Ware, Herts, for 8 Exotic Orchids

Mr. W. Taylor, Gr. to J. Yates, Esq., Lauderdale House, Highgate, for 10 Foliage Plants

Messrs. J. & C. Lee, for 10 Foliage Plants

Mr. I. Hill, Gr., for 12 Exotic Ferns

Mr. B. S. Williams, for 12 Exotic Ferns

Mr. Brockwell, Gr. to Mrs. Henry, Bush Hill, Edmonton, for 6 Fuchsias

Mr. J. Ward, Gr., for 9 Pelargoniums

Mr. J. Ward, Gr., for 6 Scarlet Pelargoniums

Mr. J. Catlin, Gr. to Mrs. Lermitte, Finchley, for 6 Scarlet Pelargoniums

Mr. Rawbone, Gr. to C. M. Campbell, Esq., Woolseat, Derby, for Collection of Fruit

Mr. G. Ward, Gr. to F. N. Miller, Esq., Bishop's Stortford, Hertford, for 3 dishes of Grapes

LARGE SILVER MEDAL.

Mr. B. S. Williams, for 8 Stove and Greenhouse Plants

Mr. J. Ward, Gr., for 6 Cape Heaths

Mr. J. Fraser, for 6 Fancy Pelargoniums

Mr. D. Donald, Gr., for 6 Fancy Pelargoniums

Mr. W. Nye, Gr., for 6 Pelargoniums of 1864 and 1865

Mr. B. S. Williams, for 6 Foliage Plants

Mr. A. Johnson, Gr. to Marquis of Ailesbury, Savernake Forest, Marlborough, for Collection of Fruit

Mr. G. Ward, Gr., for Collection of Pine Apples

SILVER GILT MEDAL.

Mr. R. Baxindine, Nurseryman, Guildford, Surrey, for 8 Stove and Greenhouse Plants

Messrs. J. & C. Lee, for 8 Cape Heaths

Mr. W. Kemp, Gr., for 8 Exotic Orchids

Mr. G. Wheeler, Gr., for 6 Cape Heaths

Mr. J. Mitchell, Nurseryman, Pitt Down, Uckfield, for 50 Roses, cut blooms

Mr. R. Marcham, Gr. to E. Oates, Esq., Hanwell, for 25 Roses, cut blooms

Mr. J. Burley, Nurseryman, Pembridge Place, Bayswater, for 10 Foliage Plants

Mr. J. Young, Gr. to W. H. Stone, Esq., Leigh Park, Havant, Hants, for 10 Foliage Plants

Mr. B. Peed, Gr., for 10 Foliage Plants

Mr. J. Burley, for 6 Foliage Plants

Mr. W. Taylor, Gr., for 12 Exotic Ferns

Mr. J. Carr, Gr. to C. L. Hinds, Esq., Byfleet, Surrey, for 12 Exotic Ferns

Mr. J. Guyett, Gr. to J. Perrett, Esq., Herne Hill, Dulwich, for 3 Vines in Pots

Messrs. J. & C. Lee, for 6 Exotic Orchids

Mr. J. Page, Gr. to W. Leaf, Esq., Park Hill, Streatham, for 8 Exotic Orchids

Mr. J. Weston, Gr. to D. Martineau, Esq., Clapham, for 6 Fuchsias

Mr. J. Wiggins, Gr., for 9 Pelargoniums

Mr. J. Todman, Gr. to R. Hudson, Esq., Clapham Park, for 6 Fancy Pelargoniums

Mr. D. Windsor, Gr. to J. R. Ravenhill, Esq., Walthamstow, for 6 Scarlet Pelargoniums

Mr. J. Ward, Gr., for 6 Pelargoniums of 1865

SILVER GILT MEDAL.

Mr. J. Hannan, Gr. to R. T. Crawshay, Esq., Cyfarthfa Castle, South Wales, for 4 Pine Apples

Mr. E. Sage, Gr. to Earl Howe, Gopsall Hall, Warwick, for 4 dishes of Peaches and Nectarines

Mr. J. Bannerman, Gr. to Lord Bagot, Blithfield, Staffordshire, for 3 dishes of Grapes

Mr. W. Hill, Gr. to R. Sneyd, Esq., Keele Hall, Rugeley, Staffordshire, for 12 lb. of Grapes

Mr. E. Sage, Gr., for Black Hamburgh Grapes

Mr. T. Rawbone, Gr., for Black Hamburgh Grapes

Mr. J. Pottle, Gr. to D. B. Colvin, Esq., Bealings, Woodbridge, Suffolk, for Black Prince Hamburgh Grapes

Mr. T. Bailey, Gr. to T. T. Drake, Esq., Amersham, Bucks, for Muscat Grapes

Mr. J. Turner, Gr. to B. Fitzgerald, Esq., Swymerton Park House, Staffordshire, for dish of Muscat Grapes

Messrs. Veitch & Sons, Chelsea, for Collection of New and Rare Plants

SILVER MEDAL.

Mr. B. S. Williams, for 8 Cape Heaths

Mr. G. Young, Gr. to H. Stone, Esq., for 8 Exotic Orchids

Mr. J. Fraser, for 50 Roses, Cut Blooms

Mr. A. Wilkie, Gr., for 6 Foliage Plants

Messrs. S. Glendinning, Nurserymen, Chiswick, for 10 Foliage Plants

Mr. G. Young, Gr., for 12 Exotic Ferns

Mr. J. Winter, The Elms, Golder's Green, Hendon, for 6 Scarlet Pelargoniums

Mr. C. Turner, Nurseryman, Slough, for Lilium auratum

Mr. G. Masters, Gr. to Earl Macclesfield, Tetsworth, Oxon, for 4 dishes of Peaches and Nectarines

Mr. G. Sage, Gr., for 2 dishes of Peaches and Nectarines

Mr. G. Masters, Gr., for Collection of Fruit

Mr. C. Penford, Gr. to Viscount Folkestone, Salisbury, Wilts, for 4 Pine Apples

Mr. H. Gadd, Gr. to Lord Middleton, Wollaton Hall, Notts, for 4 Pine Apples

Mr. C. Penford, Gr., for Providence Pine Apple

Mr. G. Ward, Gr., for Queen Pine Apple

Mr. G. Ward, Gr., for any kind of Pine Apple [Grapes

Mr. H. M. Kettlewell, Osborne Park Gardens, Barnet, for 3 dishes of

Mr. W. Lane, Gr. to J. Miles, Esq., Friems, Barnet, for Black Hamburgh Grapes

Mr. C. Goldsmith, Gr. to Sir W. Farquhar, Bart., Polesden, Dorking, for Black Prince Grapes [Grapes

Mr. G. Sage, Gr. to Earl Brownlow, Berkhampstead, for Muscat

Mr. J. Tegg, Gr. to Duke of Newcastle, Clumber, Worksop, for dish of Muscat Grapes

Mr. Wallis, Gr. to J. Dixon, Esq., Castle Park, Congleton, for dish of Muscat Grapes

SMALL SILVER MEDAL.

Mr. C. Turner, for Collection of Carnations

Mr. W. Bull, for Collection of Lilium auratum

Mr. J. Mitchell, for 5 boxes of Roses

Mr. B. S. Williams, for Sarracenias

Messrs. J. Ivery & Son, Nurserymen, Dorking, for 12 British Ferns

Mr. C. Goldsmith, Gr., for Green-fleshed Melon

Mr. T. Bailey, Gr., for Scarlet-fleshed Melon

Mr. J. Widdowson, Gr. to J. H. Barnes, Esq., Rickmansworth, for 4 dishes of Strawberries

Mr. E. Bennett, Gr. to J. Foljambe, Esq., Worksop, for Vanilla planifolia

Mr. G. Osborne, Kay's Nursery, Finchley, for 2 dishes of Peaches and Nectarines

Mr. T. Bannerman, Gr., for Collection of Fruits

Mr. H. Gadd, Gr., for Providence Pine

Mr. R. Smee, Gr. to W. H. Stone, Esq., Dulwich, for Queen Pine

Mr. G. Miles, Gr. to Lord Carrington, Wycombe, Bucks, for any kind of Pine

Mr. C. Tansley, Gr. to A. Moss, Esq., Chadwell Heath, for 3 dishes of Grapes

Mr. R. Pople, West Moulsey, for Black Hamburgh Grapes

Mr. M. Henderson, Gr. to Sir G. H. Beaumont, Bart., for Black Hamburgh Grapes

Mr. J. Moylam, Gr. to J. B. Capel, Esq., Wanstead, for Black Prince Grapes

Mr. C. Tansley, Gr., for Muscat Grapes

Mr. G. Osborne, for Muscat Grapes

Messrs. H. Lane & Son, Great Berkhampstead, for dish of Grapes

Mr. J. Dorylap, Gr. to F. Whitburn, Esq., for dish of Grapes

Mr. J. Wheeler, Gr., for 8 Exotic Orchids

Mr. J. Mitchell, for 24 Roses, cut blooms

Mr. C. Turner, for 24 Pinks

Messrs. Downie, Laird, & Laing, for 36 Pansies

Mr. D. Pizzey, Gr., for 12 Pinks

BRONZE MEDAL.

Mr. R. Edwards, Nurseryman, Nuttall, Nottingham, for 12 British Ferns

Mr. J. Moylam, Gr. to J. B. Capel, Esq., Little Blake Hall, Wanstead, for 24 Cut Roses

Mr. W. Bragg, Nurseryman, Slough, for 24 Pinks

Mr. H. Hooper, Vine Nursery, Bath, for 36 varieties of Pansies

Mr. Kingston, Militia Barracks, Bath, for 12 Pinks

Mr. C. Turner, Slough, for Collection of Picotees

Mr. H. Hooper, Vine Nursery, Bath, for 24 Carnations and Picotees

Mr. C. Perry, Castle Bromwich, for 24 varieties of Verbenas

Mr. Druitt, Gr. to Mrs. Cubitt, Dorking, for Green-fleshed Melon

Mr. G. Thomas, Gr. to Mrs. Child, Whetstone, for Scarlet-fleshed Melon

Mr. J. Hannan, Gr. to R. T. Crawshay, Esq., Cyfartha Castle, South Wales, for Providence Pine

Mr. John Wallis, Gr. to J. Dixon, Esq., Astle Park, Congleton, for Queen Pine-apple

Mr. J. Hannan, Gr. to R. T. Crawshay, Esq., Cyfartha Castle, South Wales, for any kind of Pine-apple

BRONZE MEDAL

Messrs. H. Lane & Son, Great Berkhampstead, Herts, for a single dish of Plums

Mr. George Miles, Gr. to Lord Carington, Wycombe Abbey, Bucks, for a single dish of Black Cherries

Mr. J. Widdowson, Gr. to J. H. Barnes, Esq., Chorley Wood House, near Rickmansworth, Herts, for a single dish of White Cherries

Mr. John Wallis, Gr. to J. Dixon, Esq., Astle Park, Congleton, for 3 dishes of Grapes

Mr. Charles Ross, Gr. to C. Eyre, Esq., Welford Park, Newbery, Berks, for Black Hamburgh Grapes

Mr. J. Turner, Gr. to B. Fitzherbert, Esq., Symerton Park, Stone, Staffordshire, for Black Hamburgh Grapes

Mr. J. B. Whiting, Gr. to Mrs. Hope, Deepdene, for 3 kinds of Grapes

Mr. M. Henderson, Gr. to Sir J. H. Beaumont, Bart., for Box of Nectarines

Mr. T. Ricord, Gr. to Lieut.-Col. Loyd, Lilleaden, Hawkhurst, Kent, for 4 dishes of Strawberries

Mr. W. Meddick, 9, St. James's Parade, Bath, for 12 Pinks

CERTIFICATES.

Mr. J. Hannan, Gr. to R. T. Crawshay, Cyfartha Castle, South Wales, for 12 lb. of Grapes

Mr. G. Thomas, Gr. to Mrs. Child, Station Road, Whetstone, for 12 lb. of Grapes

Mr. Geo. Osborne, Manager, Kay's Nursery, Finchley, for 12 lb. of Grapes

Mr. J. Carr, Gr. to P. L. Hinds, Esq., The Lodge, Byfleet, for 12 British Ferns

Mr. T. Ingram, Royal Gardens, Frogmore, for Seedling Early Bigarreau Cherry

Mr. J. R. Hall, Town Court, Copington, Kent, for 4 dishes of Strawberries

Mr. J. Enstone, Gr. to Sir J. Duckworth, Bart., Wear House, Exeter, for a single dish of White Cherries

Mr. John Pottle, Gr. to B. D. Colvin, Esq., Bealings, Suffolk, for a single dish of White Cherries

Mr. I. Hill, Gr. to R. Hanbury, Esq., Poles, Ware, Herts, for a single dish of White Cherries

Mr. C. Tansley, Gr. to A. Moss, Jun., Esq., Chadwell Heath, for 4 dishes of Strawberries

Mr. J. Hill, for single dish of Black Cherries

Mr. J. Enstone, for single dish of Black Cherries

Mr. O. Goldsmith, Gr. to Sir Walker Farquhar, Bart., Polesden, Dorking, Surrey, for Scarlet-fleshed Melon

Mr. J. Standish, Royal Nurseries, Ascot, for Green-fleshed Melon

Mr. H. Hooper, Vine Nursery, Bath, for 24 Pinks

Mr. W. Bragg, Nurseryman, Slough, for 36 Pansies

Mr. T. Bailey, Gr., for 1 Queen Pine

Mr. W. Bragg, for Carnations and Picotees

Mr. C. Turner, for 12 Cloves

Messrs. Downie, Laird, & Laing, for 30 Fancy Pansies

Mr. B. S. Williams, for Collection of Amaryllids

Mr. G. Sage, Gr. to Earl Brownlow, Ashridge, Berkhampstead for Figs

FIRST-CLASS CERTIFICATES.

Mr. C. Turner, for Pelargonium Duchess of Sutherland

Mr. C. Turner, for Pelargonium Lady Constance Grosvenor

Mr. B. S. Williams, for Athyrium Filix-fœmina Frizelliæ cristatum

Mr. B. S. Williams, for Athyrium Filix-fœmina Frizelliæ ramosum

Mr. B. S. Williams, for Athyrium Filix-fœmina Frizelliæ glomeratum

Mr. B. S. Williams, for Athyrium Filix-fœmina Frizelliæ glomeratum ramosum

Messrs. Ivery & Son, Dorking, for Lastrea Filix-mas cristata Iveryana

Messrs. J. Veitch & Sons, for Aerides affine superbum

Messrs. J. Veitch & Sons, for Phalus species

Messrs. J. Veitch & Sons, for Begonia Veitchi

Messrs. J. Veitch & Sons, for Gloxinia Prince Teck

Messrs. J. Veitch & Sons, for Gloxinia Vlaanderen

Messrs. J. Veitch & Sons, for Croton maximum

Messrs. J. Veitch & Sons, for Croton interruptum

Messrs. J. Veitch & Sons, for Croton irregulare

Messrs. J. Veitch & Sons, for Alocasia species

Messrs. J. Veitch & Sons, for Adiantum concinnum latum

Messrs. J. Veitch & Sons, for Taxus fastigiata aurea variegata

Messrs. J. Veitch & Sons, for Nierembergia rivularis

Messrs. J. Veitch & Sons, for Cattleya Dowiana

Messrs. J. Veitch & Sons, for Selaginella Poulterii

Messrs. J. Veitch & Sons, for Caladium Chelsoni

Mr. W. Bull, for Leopoldina pulchra

Mr. W. Bull, for Aucuba japonica flavescens

Messrs. Edwards & Son, for Polystichum angulare diversilobum Padleyi [Mrs. Laing

Messrs. Downie, Laird, & Laing, Forest Hill, for Nosegay Pelargonium

Mr. J. Wills, Gr. to Capt. L. G. N. Starkie, Huntroyde Park, Burnley, for Pelargonium Beauty of Caulderdale

Mr. J. Hally, Nursery, Blackheath, for Pelargonium Nimrod

Messrs. Carter & Co., Holborn, for Pelargonium Titania

Messrs. Carter & Co., Holborn, for Pelargonium Snowdrop

Messrs. Carter & Co., Holborn, for Tropæolum Crystal Palace Perfection

Mr. C. Turner, for Carnation True Blue

Mr. W. Paul, Waltham Cross, for Phlox Beautiful

Mr. Perry, Castle Bromwich, for Verbena Miss Turner

Mr. Perry, Castle Bromwich, for Verbena Splendid

Mr. Perry, Castle Bromwich, for Verbena Mrs. Mole

Mr. Perry, Castle Bromwich, for Verbena J. Birbeck

Mr. G. Smith, Hornsey Road, for Fuchsia White Unique

SECOND-CLASS CERTIFICATES.

Mr. B. S. Williams, for Masdevallia species

Mr. B. S. Williams, for Oncidium species

Messrs. Ivery & Son, Dorking, for Asplenium germanicum anomalum

Messrs. J. Veitch & Son, for Abutilon Thompsoni

Messrs. Edwards & Son, for Scolopendrium vulgare muricatum tenue

Messrs. Edwards & Son, for Scolopendrium vulgare cristatum minus

Mr. W. Bull, Chelsea, for Madame Plaisancon

ROBERT PARKER begs to offer the following.—All the Plants are strong and healthy, and can be supplied in quantities.
PANSY CLIVEDEN BLUE, 6s. per dozen.
PANSY CLIVEDEN PURPLE, 6s. per dozen.
PANSY CLIVEDEN YELLOW, 6s. per dozen.
POLEMONIUM CŒRULEUM VARIEGATUM, 2s. 6d. each.
RHODODENDRON COUNTESS of HADDINGTON, 3s. 6d. each.
TRITOMA GRANDIS, 18s. per dozen.
TRITOMA UVARIA GLAUCESCENS, 12s. per dozen.
VIOLA CORNUTA, best variety, 4s. per dozen.
VIOLET, REINE DES VIOLETS, 6s. per dozen.
VIOLET THE CZAR, 6s. per dozen. [per packet.
PRIMULA SINENSIS FIMBRIATA, finest mixed seed, 2s. 6d.
PRICED and DESCRIPTIVE CATALOGUES of AGRICULTURAL, FLOWER, and VEGETABLE SEEDS, GREENHOUSE, HARDY, and STOVE PLANTS, are published, and will be forwarded free to applicants.
Exotic Nursery, Tooting, Surrey, S.

Russell's Pyramid Primula.
THE FINEST STRAIN IN EXISTENCE.
GEORGE CLARKE has New SEED of the above unequalled varieties, 2s. 6d. per packet; also the Fern-leaved kinds, 2s. 6d.; Kermosina (scarlet), 2s. 6d.; The Fairy (a lavender colour) 1s. All of the best quality. Now is the time to sow for strong early plants.
Nursery, Streatham Place, Brixton Hill, S.; and Mottingham, Kent, S.E.

ROYAL HORTICULTURAL SOCIETY.
GREAT ROSE SHOW, TUESDAY, July 2, 1867.

AWARDS OF THE JUDGES.

CLASS 1.—72 CUT ROSES, distinct, 1 truss of each. (Nurserymen.)
1st, Mr. J. Cranston, Nurseryman, King's Acre, Hereford, £6.
2d, Messrs. Paul & Son, The Old Nurseries, Cheshunt, Herts, £4.
3d, Mr. B. R. Cant, St. John's Street Nursery, Colchester, £3.
4th, Mr. J. Mitchell, Pitt Down Nurseries, Uckfield, Sussex, £2.

CLASS 2.—48 CUT ROSES, distinct, 3 trusses of each. (Nurserymen.)
1st, Messrs. Paul & Son, £6.
2d, Mr. J. Fraser, Lea Bridge Road Nurseries, London, N.E., £4.
3d, Mr. B. R. Cant, £3. | 4th, Mr. J. Mitchell, £2.

CLASS 3.—24 CUT ROSES, distinct, 3 trusses of each. Hybrid Perpetuals only. (Nurserymen.)
1st, Mr. J. Keynes, Nurseryman, Salisbury, £4.
2d, Mr. B. R. Cant, £3. | 3d, Mr. J. Cranston, £2.
4th, Messrs. Paul & Son, £1.

CLASS 4.—24 CUT ROSES, distinct, 1 truss of each. (Nurserymen.)
1st, Mr. J. Keynes, £3. | 2d, Mr. J. Cranston, £2.
3d, Mr. B. R. Cant, £1.
4th, Messrs. J. & C. Lee, Royal Vineyard Nursery, Hammersmith, 10s.

CLASS 5.—48 CUT ROSES, distinct, 1 truss of each. (Amateurs.)
1st, Mr. J. T. Hedge, Reed Hall, Colchester, £6.
2d, Mr. A. Moffat, Gr. to Lord Rosslyn, Easton Lodge, Essex, £4.
3d, Mr. J. W. Chard, Gr. to Sir F. Bathurst, Bart., Clarendon Park, 4th, Dr. Cooper, The Limes, Slough, £2. [Salisbury, Wilts, £3.

CLASS 6.—36 CUT ROSES, distinct, 1 truss of each. (Amateurs.)
1st, Mr. J. T. Hedge, £5. | 2d, Mr. J. W. Chard, £4.
3d, Mr. A. Moffat, £3.
4th, Mr. R. Marcham, Gr. to E. Oates, Esq., Bydorp House, Han-Equal 4th, Dr. Cooper, £2. [well, £2.

CLASS 7.—24 CUT ROSES, distinct, 1 truss of each. (Amateurs.)
1st, Mr. R. B. Postans, Esq., Brentwood, Essex, £4.
2d, Rev. E. N. Pochin, Sileby Vicarage, Loughborough, £3.
3d, Rev. V. K. Child, Rectory House, Little Easton, Essex, £2. [£1.
4th, Mr. J. Skinner, Gr. to Capt. Christy, Aperfield Court, Westerham,

CLASS 8.—12 CUT ROSES, distinct, 1 truss of each. (Amateurs.)
1st, R. B. Postans, Esq., £3. | Equal 1st, Rev. E. N. Pochin, £3.
2d, Mr. W. Soder, Gr. to O. Hanbury, Esq., How Hatch, Brentwood,
3d, Mr. J. Skinner, £1. | 4th, Rev. V. K. Child, 10s. [£2

CLASS 9.—18 NEW ROSES of 1864 and 1865, single trusses, distinct kinds. (Open.)
1st, Messrs. Paul & Son, £2. | 3d, Mr. B. R. Cant, £1.
2d, Mr. J. Keynes, £1 10s. | 4th, Mr. J. Fraser, 15s.

CLASS 10.—12 trusses of any NEW ROSE of 1864. (Open.)
1st, Mr. J. Keynes, £1 10s.

CLASS 11.—12 trusses of any other NEW ROSE. (Open.)
1st, Messrs. Paul & Son, £1 10s. | 2d, Mr. B. R. Cant, £1.
Equal 2d, Mr. J. Keynes, £1.

CLASS 12.—12 YELLOW ROSES, single trusses, not fewer than 6 kinds. (Open.)
1st, Mr. J. T. Hedge, £1 10s.

CLASS 13.—The best exhibition of YELLOW ROSES, of any one or more kinds, not fewer than 24 trusses. (Open.)
1st, Mr. J. T. Hedge, £3.

CLASS 14.—12 TEA-SCENTED and NOISETTE ROSES, single trusses. (Amateurs.)
1st, Mr. J. T. Hedge, £2.

CLASS 15.—12 TEA-SCENTED and NOISETTE ROSES, single trusses. (Nurserymen.)
1st, Messrs. Paul & Son, £1 10s. | 2d, Mr. J. Cranston, £1.

CLASS 16.—12 TEA-SCENTED and NOISETTE ROSES, distinct kinds, single flowers. (Open.)
1st, Mr. J. T. Hedge, £1 10s.

CLASS 17.—DECORATED BASKET or VASE of ROSES. (Open.)
1st, Mr. W. Soder, £3.
2d, Mr. G. Mariow, Gr. to J. Wigan, Esq., Cromwell House, Mort-
3d, Mr. J. T. Hedge, £1. [lake, £2.

CLASS 18.—6 BOUQUETS of ROSES, 6 distinct kinds, 5 trusses to each bouquet. (Open.)
1st, Mr. J. T. Hedge, £3. | 2d, Mr. J. W. Chard, £2.
3d, Messrs. E. P. Francis & Co., Nurserymen, Hertford, £1.

CLASS 19.—6 MOSS ROSES, distinct kinds. (Open.)
1st, Messrs. Paul & Son, £1. | 2d, Messrs. E. P. Francis & Co., 15s.

CLASS 20.—24 ROSES in pots, not fewer than 10 distinct kinds, the pots not exceeding 8 inches in diameter. (Open.)
1st, Messrs. Paul & Son, £6.

MISCELLANEOUS, EXTRA PRIZES.

LIST OF CERTIFICATES AWARDED BY THE FLORAL COMMITTEE.

FIRST-CLASS CERTIFICATES.
Messrs. R. Edwards & Son, for Scolopendrium vulgare Edwardsii
Messrs. R. Edwards & Son, for Athyrium Filix-femina Footii
Messrs. R. Edwards & Son, for Polystichum diversilobum Padleyi
Messrs. R. Edwards & Son, for Athyrium Filix-femina Edwardsii
Messrs. E. G. Henderson & Son, for Pelargonium (Tricolor) Lady Sheffield
Mr. William Paul, for Phlox Conqueror
Mr. William Paul, for Phlox Beautiful
Mr. Charles Turner, for Seedling Rose Miss Ingram
Messrs. E. G. Henderson & Son, for Lobelia pumila elegans
Mr. J. Fraser, for Gloxinia Rose d'Amour
Messrs. James Veitch & Sons, for Phaius sp.
Messrs. James Veitch & Sons, for Begonia Veitchii
Messrs. James Veitch & Sons, for Gloxinia Madame de Smet
Messrs. James Veitch & Sons, for Gloxinia Vlaanderen
Messrs. James Veitch & Sons, for Selaginella Poulterii
Messrs. James Veitch & Sons, for Croton maximum
Messrs. James Veitch & Sons, for Croton interruptum
Messrs. James Veitch & Sons, for Croton irregulare
Messrs. James Veitch & Sons, for Dracæna Moorei

SECOND-CLASS CERTIFICATE.
Messrs. James Veitch & Sons, for Abutilon Thompsoni

SPECIAL CERTIFICATES.
Mr. Jabez J. Chater, for Collection of Pelargoniums
Mr. J. Wills, for Collection of Pelargoniums
Mr. W. Bull, for Collection of Lilium auratum
Mr. J. Hodges, Gr. to E. Wright, Esq., for Collection of Cut Orchids
Mr. J. C. Mundell, Gr. to J. C. P. Cunliffe, Esq., for Lilium auratum
Mr. James Anderson, Gr. to T. Dawson, Esq., for Collection of Cut Orchids
G. F. Wilson, Esq., for Lilium longiflorum
Mr. John Richards, Gr. to Lord Londesborough, for Vanda teres
Messrs. E. G. Henderson & Son, for Collection of New Plants

Seed of Choice Strains of Florists' Flowers.
The following selected Strains are worthy of the notice of all growers of the most useful conservatory decorative flowers.

WILLIAMS' SUPERB STRAIN of PRIMULA.

B. S. WILLIAMS can with confidence offer his superb Strain of Primula as being undoubtedly the finest in cultivation. It is now grown in all the principal Gardens of the Nobility and Gentry throughout the Three Kingdoms, and has never failed to give the greatest satisfaction.

In habit the plants are very robust, and in the foliage differ from all other varieties; but their great beauty consists in the depth of colour in the Red, purity of the White, and beautiful fimbriated form of all the flowers, which are thrown up in large trusses well above the foliage.

As a proof of the truth of the above remarks, this Strain has taken 1st Prizes in every instance that it has been shown in the Provinces this Spring; and 1st Prize at the Primula Show of the Royal Horticultural Society, South Kensington; and 1st at the Royal Botanic, Regent's Park. It is also the favourite Strain in the Covent Garden Flower Market.

This Strain may be procured True, in Sealed Packets bearing B. S. WILLIAMS' Name and Address, from any Seedsman; but B. S. W. particularly requests that Customers will observe, on purchasing, that each Packet has his Name and Address in full printed thereon, as no others are genuine.

The Trade supplied on advantageous terms.

	Per pkt.	s.	d.		Per pkt.	s.	d.
Retail price, RED ..	..	5	0	Retail price, WHITE ..	..	3	6
,, ,, ..	..	3	6	,, ,, ..	..	2	6
,, ,, ..	..	2	6	,, MIXED ..	..	5	0
,, WHITE ..	..	5	0	,, ,, ..	..	3	6

Retail price, MIXED, per packet, 2s. 6d.

WEATHERHILL'S EXTRA CHOICE STRAIN OF CINERARIA.

B. S. W. has purchased the entire Stock and right of Sale of this Magnificent Strain. Many of the flowers produced by this seed last season were as large as a crown-piece. This strain is well known in the London Flower Market, and is the most popular one there, a sufficient guarantee that its qualities are good.

Retail price per pkt., 5s. 0d. | Retail price per pkt., 3s. 6d.
Retail price per pkt. .. .. 2s 6d.

JAMES'S HERBACEOUS CALCEOLARIAS.—The varieties that took the First Prize at the International Horticultural Exhibition last May were of this noted strain.

Retail price per pkt. 5s. 0d. | Retail price per pkt., 3s. 6d.
Retail price per pkt. .. .. 2s. 6d.

All FLOWER SEEDS in packets, Post free.

B. S. WILLIAMS, Victoria and Paradise Nurseries, Upper Holloway, London, N.

The Gardeners' Chronicle.
SATURDAY, JULY 6, 1867.

THE abundance and rapacity of the insect enemies of plants are proverbial, and their depredations upon our staple food crops are frequently ruinous in the extreme, as the Hop-grower and the farmer too frequently learn to their cost. The destructiveness of these creatures, however, does not end here; it is fully as great in the case of their attacks upon the articles of use and luxury produced in gardens—the fruits and vegetables, that is to say, which form such important constituents of our daily food. Hence arises the vast importance to horticulturists of the different agents which may be employed to bring about insect destruction.

Now, of all the so-called insecticides, there is none of so much value in the gardener's hands, nor one so generally applicable, as the fumes of TOBACCO. Washes of various kinds, and other applications, such as dusting with snuff, &c., may come in as useful auxiliaries, but Tobacco smoke remains the great horticultural purifier, and safeguard against insect attacks. There are, indeed, times and seasons when these other preparations cannot possibly be used, and then but for the fumes of Tobacco the cultivator must needs submit to be vanquished by the myriads of his infinitesimal foes. Under such circumstances it becomes a question between fumigation and the destruction of a crop, and with it probably the loss of a twelvemonth's expenditure, or possibly more, which may have been devoted to its preparation.

Tobacco, unfortunately for horticulturists, is one of the luxuries of modern times, and so has come to be placed under the operation of the excise laws. To this we seek to offer no objection so far as the luxurious smoker is concerned, but the excise impost falls heavily on the horticulturist, and against this we protest. The agriculturist has been allowed to use Tobacco in a prepared state, free of duty, for washing his sheep; the Hop-grower has been permitted the use of Tobacco in a certain form, duty free, to rid his Hop plants of the all-devouring fly; and yet the horticulturist has to pay full duty for all the Tobacco he uses for the destruction of the myriads of insect enemies that prey upon the fruits and vegetables which form his contribution to the national sustenance. He ought certainly to be relieved from this. The amount of the duty can be but of small importance to the revenue, while it imposes a great burden on the gardener.

The subject of a remission of the Tobacco duty for horticultural purposes was mooted in the early part of the present year; and as it was then announced that the Royal Horticultural Society was willing to take the initiative in an application to Government for the desired relief, the horticultural body was fain to accept its action, and to leave the matter in its hands. So far as we can learn, however, little if any action has been taken. Certainly the relief has not been obtained. Hence it has become a question of importance to horticulturists to know whether the Society is unable or unwilling to help them in the matter; and should either alternative be true they must seek to help themselves.

No doubt surely can exist, that if the question were fairly laid before the Government, the required relief would be at once obtained, for the claims of the farmer or the Hop-grower having been already admitted, and a remission of the duty secured to them, those of the horticulturist, which are equally urgent and equally important, must be admitted likewise. To be of any utility to the horticultural profession, however, the relief must be granted in a shape to meet the wants of that profession. Now it so happens that burning is the only efficient mode in which Tobacco can be used for most horticultural purposes. The dirty, disfiguring washes which are of little consequence in the Hop field, could never be applied in our gardens, or greenhouses and forcing houses. Nor could Tobacco be used in gardens when it is mixed with any substance, sulphur for example, which would give off fumes destructive to vegetation on its being ignited. Hence the Tobacco prepared with sulphur, the preparation and issue of which duty free is now permitted, and which has been put forward by the vendors for garden purposes, is utterly worthless to the gardener. Mixture of some kind seems to be inevitable to prevent the duty-free Tobacco from being improperly used by smokers to the damage of the revenue, but it is absolutely necessary that the ingredient or ingredients selected for intermixture should be such as while permitting the Tobacco to burn freely, will at the same time not give off any fumes which can in the slightest degree injure the tender growing parts of plants. Without this is secured, no possible good can be realised from the concession which it is sought to obtain.

As having some analogy to the question whether NEW ROSES or other plants sent out in the latter portion of the year are to be considered as new plants of the year in which they are sent out (see p. 559), or are to bear the date of the succeeding year; and also as showing the practice of naturalists as to the question of PRIORITY of NOMENCLATURE in plants, &c.—a practice which unhappily leads sometimes to confusion, and is often misunderstood by those not familiar with scientific methods — we quote the following remarks from the annual address of the President of the Linnean Society:—"In principle * * * that name is to be retained which was first fixed by actual publication, its insertion in a work on sale, or in general distribution accompanied by diagnostic indications, or other indications intended to fix its identity." If this rule, or one similar, be acted on by horticulturists, the evidence of publication would be sufficiently shown by the insertion of the new plant in a trade catalogue, or in a horticultural journal. But then arises another difficulty, as to the date of publication. In the case of scientific periodicals, as also in the case of catalogues, the date given on the title-page is not always to be depended on. The whole of REES' Cyclopædia is dated 1819 on the title-page of the several volumes, when some of the volumes were issued nearly 20 years before. The Annales des Sciences Naturelles, as also many autumn trade catalogues, are antedated several months. A catalogue issued, say in October or November, 1866, bears often the date of 1867, so that a purchaser might readily, as in the case of new Roses, buy a plant of 1867 in the autumn of 1866. We need hardly say that no such difficulty could arise in such a journal as our own, issued at certain intervals, and each number dated accordingly.

Reverting to the practice of the scientific societies, we find that with many it is the custom

to affix the date of issue of an author's separate copies of his own contributions to any volume published by the Society, and to consider that date as the date of publication, even though the entire volume, of which the given contribution forms a part, be not issued for some time afterwards. Applying this to new plants, we should say that the date on which a new plant was first publicly exhibited, or was first brought into public notice, either by advertisement, by mention in the public journals, or otherwise, should be considered to fix the date of issue of the plant in question, provided, of course, that the plant was no mere yearling whose characteristics were not fixed. It will be said that many a plant is thus publicly brought under notice long before it is "let out" to the trade. This, which is merely a matter of commercial convenience, does not, as it appears to us, affect the question at all, while it would be unfair to the amateur or to other exhibitors to affix any other date than that of the actual publication, so to speak, of the plant in question. Tried by this standard, a new Rose sent out in the autumn of 1866 would be a new Rose of that year, and not of 1867, and the plain signification of the words would no longer be violated, as it now often is.

—— Mr. MEEHAN, the Chairman of the Committee of the PENNSYLVANIA HORTICULTURAL SOCIETY, the analogue of our own Royal Horticultural Society, has kindly furnished us with the following details of the efforts being made in Philadelphia towards the furtherance of Horticulture, Botany, and other branches of natural science:—

"We have," he writes, "just opened a new Hall for library and exhibition purposes. The Auditorium is the largest in the United States—200 feet by 75 feet, and we have endeavoured to make the whole building a first-class specimen of horticultural architecture. We have not yet commenced our interior decorations; these, with the building, will cost us probably 150,000 dollars. After we have got strengthened from our labours with the Hall, we purpose to try what we can do towards a Botanic and Horticultural Garden. We are also at work endeavouring to build a new Hall for the Academy of Natural Sciences. We have already collected about 150,000 of the 250,000 dollars we think we shall want, and shall probably commence building by the end of the year. Our present Hall is one of the ornaments of the city, and the collections in some branches are, I suppose, not inferior to some of the best European ones. In Conchology, Herpetology, and Ornithology they are particularly good. There are over 25,000 mounted specimens of birds, besides many unarranged. The botanical department is not so full as some others, although the European, Asiatic, and North American are very well represented, the weakest collections being tropical plants. If any of our European friends could help us with authentic specimens of these plants, the aid would I am sure be liberally reciprocated with North American or other desiderata."

—— The question whether or not the ZONAL PELARGONIUMS of the Luna and Beauty of Oulton type, are to be taken as Variegated Pelargoniums, was decided in the negative at a pretty full meeting of the Floral Committee held on the 2d inst., the Committee adopting a proposal that the varieties of this type should form a distinct section, under the name of Gold and Bronze Zonals. This agrees nearly with the term we had suggested for them at p. 686. We understand that the Council of the Royal Horticultural Society has since decided that the above interpretation shall be adopted in reference to the reading of the term Variegated Pelargoniums in the schedule of the Bury Show, namely that the Golden Zonals are not to be regarded as Variegated in the horticultural sense.

—— It is not generally known that MUSA ENSETE, one of the noblest plants in existence, is of a remarkably hardy constitution, and that it will grow well in a greenhouse or conservatory. Planted out in a winter garden it will grow healthfully, and we need not say what a magnificent object it is for the decoration of such a place. It also, strange to say, stands the drought and heat of a living room remarkably well, and though, when well developed, it is much too big for any but Brobdignagian halls, the fact may, nevertheless, be taken much advantage of by those interested in room decoration on a large scale, as are many of our readers.

—— Among the many pictures of interest now on view at the SPECIAL EXHIBITION OF NATIONAL PORTRAITS at South Kensington, are two which have special claims on the attention of landscape gardeners, as representing WILLIAM KENT, and LAUNCELOT BROWN, better known as "Capability BROWN." The introduction of a natural picturesque style of landscape gardening into this country is mainly due to the two artists we have named, and we can only express our regret that the formal, uninteresting, not to say ugly style which they for a time banished, is again finding favour with some of our landscape gardeners, to the detriment of really tasteful compositions. But *chacun à son gout*. The reader interested in such matters should peruse the very interesting *resumé* of the history of landscape gardening in France, as given by M. ANDRÉ in the Report of the Botanical Congress of last year.

—— We have to call attention to the grand INTERNATIONAL EXHIBITION OF HORTICULTURE, which will be held at GHENT, from the 28th of March to the 4th of April next year (1868), under the auspices of the Royal Agricultural and Botanical Society of Ghent. The recollection of former gatherings of this kind under the same auspices, no less than an inspection of the preliminary programme, affords an ample guarantee for the brilliancy of the ensuing Exhibition. Prizes will be awarded in 241 classes or *concours*, embracing all departments of Horticulture, and the competition will be open to nurserymen or amateurs of all nations. The jury will be composed of distinguished horticulturists of all countries. During the ensuing winter we are given to understand that invitations to be present at these remarkable Floralia will be sent to the horticulturists of this and other countries. Intending Exhibitors should communicate with the Secretary, M. EDMOND CLAUS, rue digue de Brabant, No. 20, Gand, Belgium, not later than February 28. When the detailed programme is issued we shall take an opportunity of alluding again to its contents.

—— We perceive that in Groups 8 and 9, Classes 74 to 88, of the PARIS EXHIBITION, comprising matters relating to HORTICULTURE and AGRICULTURE, not a single prize has been awarded to any British exhibitor. The degraded condition of Great Britain, with reference to Agriculture and Horticulture, is thus shown more plainly even than our inferiority in the Fine Arts! Those who, like ourselves, "don't seem to see it," must wait patiently for further particulars.

New Plants.

ODONTOGLOSSUM NEBULOSUM CANDIDULUM, *Rchb. f.*

This very pretty variety was, we believe, introduced by Mr. Low. The blotches are wanting both on sepals



and petals, so that the whole spike brings to remembrance the general aspect of Cymbidium eburneum, Lindl. We obtained it from John Day, Esq. *H. G. Rchb. fil.*

THE RIVAL SYSTEMS OF VINE CULTURE.

NOTWITHSTANDING this heading, there need be no rivalry whatever between the two systems. Excellent Grapes may be and are produced both on the restrictive and on the extension principle, as well as by infinite modifications of both. By eliminating all idea of rivalry, possibly the substantial merits of each system would be more apparent. At least a rivalry between growers would thus be avoided, and the subject be looked at impartially, free from the disturbing forces of personal merits, or individual predilections.

It will probably be admitted that the restrictive system places the Vines more entirely in the power of the cultivator, involves the least risk of extensive failure, and is most favourable to the production of sensation bunches. Against these advantages is placed the fact, that as a rule restricted Vines are short livers, and require more skill to keep them in full bearing condition; and their Grapes are, probably, less highly flavoured than those grown on the extended system. How far these drawbacks originate in cultural mistakes, or are incident to excessive restriction, it is difficult to say. Mr. Fowler's most sensible remarks (p. 603) point to the border as the source of these evils, and I have a strong presumption that he is right. For all Vines, either on the restrictive or extension systems, I would emphatically recommend the piecemeal-method of border-making. Begin with a yard of sound loam, and a solid brick wall in front of it, and proceed to extend the border by adding new fresh matter annually, at the rate of 6 inches or 1 foot a year; continue to use the wall during the whole process—it is the *pièce de résistance* to the roots, and a most important agent in the process of forming the border. The roots seem to have a natural affinity for the bricks; they choose them with the most extraordinary avidity and perseverance; as soon as they reach they grasp them, as drowning men might be supposed to grasp at straws, but with just the opposite result, for they hold on firmly, and I am inclined to think the bricks save the lives and preserve the health of the Vines; for observe, a peculiar modification of root takes place on the surface of the bricks. This rampant tube that was off in red hot haste, bent upon the development of a fishing rod, with a sensation prize-cluster at the end of it for next year, comes suddenly upon the solid wall; and lo! an immediate change of structure and of function is effected. The great tube breaks up into a multitude of fibres over the surface of the wall, the fishing-rod enterprise ceases, and a well-built, closely compacted, thoroughly matured rod of ordinary dimensions, appears in its stead.

When this wall is removed it will probably be covered with a network of fibrous roots; so much so that it will sometimes be impossible to remove them. Well, then, don't remove them. Get as many bricks away as possible without injury to the roots, and leave the remainder. Then pack the fresh turfy loam firmly up to the old border, replace another wall beyond, slightly top-dress the surface of the previous border with 2 inches of night soil, one year old, that has been treated with dry soil, and the border is finished for another year. Next year, and the next, and the next, repeat the same process; and by the time the border is finished, it will be so full of roots of the right kind, that probably a slight surface dressing, and the use of manure-water, will suffice to give stamina to the Vines for a lifetime afterwards. This piecemeal manufacture of Vine borders is the best receipt for curing most of the evils incident to Vine culture at the present day. It is equally adapted for large and small Vines, tending to maintain the stamina and preserve the health of both, and presents a striking contrast to the usual method so graphically described by Mr. Fowler.

I also believe that large Vines treated in this way would equal in weight of bunches those of smaller dimensions. For by the multiplication of roots each bunch has as many feeders to supply its wants on the larger Vine as on the smaller. But it is well known that because as a rule large Vines are sure croppers and easily managed, they are for these very reasons well nigh left to take care of themselves. They can do this better than those treated on the restrictive system. But if the best results of which they are capable, are to be realised, it must be by skilful management of both root and top.

The influence of size of plant upon quality of produce is one that has not yet been adverted to, unless in the most general terms. Here I wish carefully to distinguish between mere weight or colour, and quality. Not only are the two former not identical with the latter, but they often seem incompatible with it. The largest are far from being the best Grapes, and high colour seems often, as it were, totally antagonistic to piquancy of flavour. It may seem treason to say so but the best flavoured Hamburghs are seldom the largest; never, as far as my experience of 25 years Grape growing and tasting goes, the blackest. The reason of this may be difficult to explain, and cannot be entered upon at present. I venture the assertion here, however, that it may be partly owing to the shortness of the distance between the root and the bunch, and the directness of the communication between the two. It is generally admitted that the sap is modified to some extent on its journey through the stem. By constricting its limits and converting it into a short straight tube, the sap passes into the bunch almost as soon as it leaves the roots hence, I believe, one reason of the too frequent inferiority in point of flavour of very large bunches. Neither do I accept the fact that such large Grapes generally take the 1st prizes at our shows, as any proof that they have quality as well as size to recommend them. The judges on these occasions are generally practical horticulturists, who value colour above all things, size of berry and bunch next, and flavour last. This is worse than putting the cart before the horse; it is putting last first and first last with a vengeance, but so it is. I have eaten prize Grapes that were little better than huge black sloes, when Frontignans or Muscats, like honey in comparison, have been completely ignored, White Nice have beaten Muscats and huge bunches of unripe Barbarossa [Gros Guillaume] exquisitely ripened Hamburghs. The produce of large Vines is not however generally deficient in colour, and what is lost in size, I think, as a rule, where the treatment is good, is gained in quality. The sap loses its grossness in the numberless ramifications of the stem, and thus is prepared to secrete more sugar within the berry, than waxy matter, in the finely comminuted state of bloom on its external surface.

I can also confirm all that Mr. Fleming advances on the influence of extension as a renovating force. Some years ago an old Hamburgh planted outside a large Orangery was carried along over the path, right and left, to afford a partial shade. Among the Oranges themselves several Muscat Vines were planted. As it was too cold for the latter I resolved to remove them, and as the Hamburgh had seldom borne any Grapes worth eating, and was in a weak state, I resolved to apply the extension system to it. I have never been able to find a single root belonging to it. About 10 years ago I had occasion to make a deep drain within a yard of its stem, and never saw a root. Close to the wall against which it is planted outside is a paved path of hexagon tiles; beyond this for many yards is a Grass lawn, consisting of wet loam resting upon clay. This is all I know about its roots. Its age is probably 40 years. The stem at the surface is one foot in circumference. It is carried with a clear stem up from the root to the roof, a distance of 8 feet. It covers at the present time 500 square feet, and produces a fair bunch at every shoot. The most marvellous fact about it is, that even the old part, that never bore before, bears now almost as much as the newly formed parts. The

two rods over the path produce fruit right up to the old stems. Now, as in Mr. Fleming's case, this is no question of fresh borders, nor of any extraordinary care; but it is one of simple extension, and its renovating force, not only upon the newly developed portions, but upon those that seemed effete, before the extension regimen was adopted. And this is not a solitary instance. I have seen others like it, although perhaps none so striking. Therefore if any of your readers have an old Vine, endeared by family or personal reminiscences, which has partially failed in its produce, I would confidently advise them to try this system before superseding it by others. "Loose it and let it go" in quest of new vigour, by a reciprocal extension of root and top, and then if it fruits, it shall do well; if not, cut it down. *Quercus.*

LETTERS FROM PARIS.—No. XVII.

THE PEACHES AT MONTREUIL, NEAR PARIS.

I WENT to Montreuil on the 23d of June, to see the Peach trees, and have rarely found anything that better repaid a journey. Approaching the town in some directions the country is covered with good crops of vegetables and fruit to the tops of the pretty low hills in the neighbourhood. All the crops however are divided into small pieces, showing how each person has his own little portion, and has it moreover for ever if he so chooses—land being bought and sold here as simply as an overcoat in England. But getting nearer still to the village I found a great number of white walls about 7 or 8 feet high, enclosing rather small squares of land, and covered with the Peach on all sides. As these are netted over many acres in some parts, the effect is curious when you look over the walls. In the squares are small fruit trees and all sorts of garden crops.

There are numerous cultivators, M. Lepère, and M. Chevalier, being the most distinguished. M. Lepère's garden is large, and consists simply of a series of oblong spaces which are surrounded by Peach walls, both walls and ground being well covered and cropped, neat, clean, and in all respects satisfactory. Of course the Peach is the favourite subject, but neat pyramidal and fruitful Pears, and cordon Apples, are also to be seen, and the place is altogether many degrees above the ordinary type of French fruit or kitchen gardens. A very old man, dressed in a blouse, is moving along the walls nailing in the shoots here and there, and with him a dozen young men, his pupils. This is M. Lepère, who has a class twice a week. Incidentally I may say that the principle of giving a full explanation of their system of doing anything well, animates French gardeners more or less. Did anybody ever hear of an unusually successful English market-gardener or fruit-grower calling a class round him at a low fee or none at all? On the contrary, I fear we are too careful of the "secret" as a rule. The French, though proud of their success in this way, are careful to give it the fullest possible ventilation, and those who attend here cannot fail to learn the culture of the Peach as well as need be, if so disposed, for the master glides along the wall, and stops and nails in the shoots, and cuts out the foremost branches here and there that are not wanted for next year's work, and, in short, does and explains everything before his pupils. He has been cultivating Peaches here for a couple of generations, and certainly has reason to be proud of the result. He inquired as to the state of gardening in England, and I told him we could beat him in most things, but not with the Peach, and that he was indisputably the Emperor of Peach growers. Entering the garden, your eye for a moment rests upon the perfectly-covered walls, but presently the famous Napoleon Peach presents itself. It is now in good health, but looks a little weak about the central letters. It is, I need scarcely add, beautifully trained, and a striking evidence of what may be done by a good fruit grower—a variety of Adam's race much too rare at present. If wall-trees were understood generally as well as they are understood at Frogmore, and not a few other places, I think your correspondents would not write to totally condemn those useful appendages to a garden. But looking in another direction a far finer specimen presents itself, and that takes the form of the letters of the owner's name—LEPERE. It is against a high and very white wall, and at a long distance the letters stand out as clear as possible, while, upon approaching the tree, the abundance of fruit and regularity of good wood are equally satisfactory. The letters complete, a shoot is taken from the top of each, and these are united in a somewhat arching line above, and spread out again into a great crown above the name, while on each side a single tree springs up, and, forming a border for the letters, spreads out above into a trifid flourish on each side of the crown. It is a far finer object than the Napoleon, and bears a splendid crop.

The walls for the greater part run east and west; the soil is of a calcareous nature, and generally the long strips enclosed by the walls are about 14 yards across. The syringe is rarely or never used, sulphur being the remedy for spider. The ground was in all cases mulched near the trees, a wide alley being left; and for preparation of border they simply trench and manure the ground a couple of feet deep, and about 6 feet wide. On the day of my visit they were nailing in the shoots, and, as a rule, stopping them. They lay in a good many more shoots than we do, and are doubtless enabled to do so in consequence of the greater amount of sun. The trees are pruned on the spur system, and as for their shapes, they are many, in addition to the alphabetical ones alluded to above. The *Taille en candelabra* is one of the handsomest and most useful. To form it, two branches are taken to the right and left along near the bottom of the wall. From the uppermost single shoots are taken at regular intervals to the top of the wall—the lower branch simply running along to the end, and rising to the top of the wall, or, in other words, forming a great oblong frame for the interior. Then there is the *Taille à la Montreuil*, a sort of fan-tail, but with the divisions somewhat far from the base in most cases—and the *Taille en palmette à cordons horizontaux*. This seems a favourite variety, and by its means the walls are perfectly covered—if indeed one can draw any distinction between the walls here, which are all as fresh looking as a meadow in May. In this case the tree has a simple erect stem, from which straight branches are sent out, but in an alternate manner, so that the branches of one tree run between those of another, and soon. The *Pecher en lyre*, a form I spoke of as being shown at the Exposition, is also here, but not to any extent. A form in the shape of a tall narrow U is common. It is simple, readily made, and rather frequent here. There is also a variety of it which we may call the double U, in which the two branches are again branched, just as they arise from the horizontal, at say about 2 feet from the centre of the tree, and this too seems a simple and good way of covering a wall with erect branches. The *palmette* and the fan systems are the most appreciated for general work. Much as these trees please when in full health and fruit, to see them when in flower in spring must be much more beautiful. They were engaged in pruning them on the 1st of April this year, and M. Riviere took his class on that day to see the operation. I should have been there too had it not been the day of the opening of the Exposition.

The reason why the Peach is so successfully cultivated here is, it appears to me, that the cultivators pay thorough and constant attention to its wants, with which a life-long experience has made them familiar. They take great pains to have the sap equally distributed, and succeed more perfectly than we do. *W. R.*

THE NEW ROSE, "MISS INGRAM."

WELCOME as a new star to an astronomer, or a new horse to an undergraduate, or a new bonnet to his pretty sister, or a new grumble to a surly old bachelor, or a new scandal to a superpious old maid, is a new Rose to the Rosarian. I mean, of course, a Rose which is new, not in name only, but in distinctive elements of beauty; which comes to a Rose show as a new belle rides into the Park, triumphant, irresistible, as sure to receive her First-class Certificate, as the young *débutante* to have a card of invitation to the most select festivity of the season. Such is Miss Ingram. There is no controversy about her. No cynic drops his eye-glass, as we have seen cynics do in the Park aforesaid, and drawls out, "not my style;" no exhausted dandy, lifting thumb and finger by a tremendous effort to remove his choice Cabana, confides to his neighbour that she is "made up for sale." Miss Ingram has now honoured with her fair presence four large public gatherings, in the Regent's Park, at the Oxford Commemoration, at the Crystal Palace Rose Show, and at the National Rose Show at South Kensington; and she has won an admiration, not qualified like that of Madame Blaze, "who never wanted a good word from those who spoke her praise," but complete and enthusiastic as that of Mademoiselle Christine Nilsson, or even of Jenny Lind herself.

This homage, unanimous and hearty, is due to the beauty of her complexion, a very delicate white with an infusion of pink; to the exquisite formation of the flower, globular and cupped, with the petals overlapping each other, as with Madame Rivers, Madame Hector Jacquin, and others; and also to the free healthful habit of the growth generally. The writer of this eulogy has had the privilege of an introduction to Miss Ingram in the privacy of her pleasant home, and can testify to her possession of all those merits which constitute in floral phraseology, a "first-rate garden Rose." Much as the trees had been cut, for exhibitions and curious critics, they had abundance of wood, bud, and flower.

Moreover, it gladdens one's heart to know that Miss Ingram is verily an English Rose, raised in the Royal Gardens at Frogmore by the father of so many beautiful scions, and of the lady whose name it bears. It is a royal gift to the nation, which will deepen our love for the Queen of England, as well as for the Queen of Flowers, and our regret that we can so rarely express that love. "Go, lovely Rose," we shall be inclined to sing, "bid her come forth."

And the infant has a royal godfather. To the "King of the Florists," Mr. Charles Turner, of Slough, is entrusted her early training and her introduction into society. The father and the guardian may well be proud of her, for (doubtful as to the origin of Devoniensis, and with a great admiration of John Hopper) I verily believe that Miss Ingram is the best Rose yet raised upon English ground. *S. R. H.*

THE CHISWICK TRIAL OF EARLY PEAS.

THIS vexed question, upon which so much has been written, and so many conflicting statements have been made, will now, it may be hoped, be definitely settled. The Fruit and Vegetable Committee of the Royal Horticultural Society have this season gone thoroughly into the matter, having procured from the best sources all the varieties that could possibly be obtained, and grown them side by side, under precisely similar conditions. All of them, moreover, have done well, so that the trial is in every respect satisfactory.

The earliest Pea was long considered to be the Early Frame, which varied slightly, although its variations could scarcely be made out as permanently distinct. Sometimes differences were indicated by the designations of Double-Blossomed and Single-Blossomed Frames, and Early Nimble; there was, indeed, no Express in those days, but there was the Early Racehorse, a name indicative of a pea that would quickly become fit for use; and there were more than 20 others which ultimately proved synonymous. From amongst these arose the Early Kent, Early Emperor, Prince Albert, and subsequently Sangster's No. 1, or Daniel O'Rourke.

Among a number of samples, consisting of varieties with differences almost imperceptible, some in the course of repeated sowings exhibited a more luxuriant habit than others; and luxuriance militates against earliness. On the contrary, Dillistone's Early, Carter's First Crop, and Sutton's Ringleader, &c., at the expense of luxuriance have gained earliness over Early Frame and Early Emperor. Vegetables of all kinds raised from seed are liable to degeneration. Much depends on a careful selection of the plants from which to save the seed; for if the most vigorous plants are selected and grown in succession in rich soil, a more luxuriant but later progeny will result. In this way a variety which is found to be the first in point of earliness this season, may become only second, third, or fourth in the next or subsequent years.

The Committee, at their meeting held on the 25th inst., decided that Dillistone's Early, Carter's First Crop, Sutton's Ringleader, and Veitch's Early, were identical. There cannot be any doubt on that point; they were all sown on the same day, and they respectively bloomed, slatted, and became fit for use on the same day. They were, moreover, all injured by the frost more than any other, but all in an equal degree; while Sangster's No. 1, Dickson's First and Best, &c., under the same conditions, were not injured in the slightest degree. Three samples of Dillistone's Early were grown, but only one of them, that received from Messrs. Hurst & Son, proved to be true. This is the same Pea, sent to the garden six years ago by the same firm, which was then recommended by the Committee as the earliest variety. The other two samples, both false, and differing from each other, one seven days later, the other ten days, were supplied from seed said to have been received direct from Mr. Dillistone himself. How this has occurred perhaps Mr. Dillistone can explain.

Dickson's First and Best is two days later than Dillistone's; very free bearing, and a much stronger grower. A first-class selection of Sangster's No. 1.

Carter's Improved Emperor is very similar to Dickson's First and Best; free bearing, and a very excellent stock.

Sangster's No. 1 and Daniel O'Rourke are synonymous.

Taber's Perfection and Early Perfection (Brown) are identical; a day or two later, and producing more haulm than Sangster's No. 1.

Young's No. 1 (Veitch) is a capital early Pea, of about the same earliness as Sangster's No. 1, but taller and stronger; a good cropper. The ripe seed of a pale olive colour; darker than any of the others in the same class.

Washington is the same as Early Emperor.

Carpenter's Express is a run-out mixed stock of early Peas.

Hooper's Early Rival is a much mixed stock of Sangster's No. 1.

London Conqueror is a third-rate stock of the old Early Frame.

Taber's 68, appears to be a shade dwarfer, but is in other respects identical with Dickson's Favourite.

Improved No. 1 (Stuart and Mein) is identical with Dickson's Favourite.

Essex Rival (Eley) is seven to eight days later than Sangster's No. 1; a large pale-podded white marrow, with blotched foliage, about four feet high, of the old Ringwood Marrow class. The peas when cooked are of a nice green colour; it is a very productive and most excellent Pea.

Stanstead No. 1, is identical with Essex Rival.

Sutton's Long-podded Tom Thumb seems very much like the Old Spanish Dwarf.

Carter's Improved Tom Thumb shows no improvement.

Dwarf Waterloo is 10 days later than Sangster's No. 1; from 12 to 18 inches high, producing very large pods, well filled, and is an excellent Pea, earlier than, and an improvement on, Bishop's Long-pod.

Sudbury A 1, and Nutting's No. 1 wrinkled, are identical. This is a very excellent Early White wrinkled Marrow, three days earlier than Alliance, and with larger and better filled pods; about 18 inches high.

Little Gem (Turner), a blue wrinkled Marrow, is truly a little gem, coming into use but a few days after Sangster's No. 1, having very large pods, very productive, and of excellent quality. This cannot be too highly recommended.

Multum in Parvo (Nutting) resembles Little Gem, but with somewhat broader pods, and is a few days later than that variety.

Several hybrid varieties raised by Mr. Laxton, Stamford, are of great promise. Alpha, obtained by crossing Laxton's prolific Long-pod with Advancer, is a wonderful Pea, as early as Dillistone's Early, but a blue wrinkled Marrow, with immense pods curved at the point like the Auvergne; the Peas large, of a deep green colour; about 2 feet 6 inches high, not branching. Laxton's Quality, a seedling from Laxton's Prolific and Little Gem, is another wonderfully fine Pea, a second early blue wrinkled, with immense pods of a pale green colour, 4 feet high. Laxton's Manifold, of the same parentage as Alpha, is a second early green Marrow, with very large, long, deep green pods, about 4 feet high. Laxton's Supreme, seedling from Prolific and Little Gem, is a second early green Marrow, with the longest pod of any Pea in the collection, of a deep green colour, 9 and 10 Peas in the pod, about 4 feet high, and prolific. Besides these, Mr. Laxton has some hundreds of crosses proving in his grounds at Stamford, from which he expects yet grander results. These crosses all, as yet, exhibit slight variability of character, and assume various forms. I learn from Mr. Laxton that this is their second year of selection, and that it takes three, or even four years' selection, before their characters become permanently fixed; when this is accomplished, we shall have a race of the most wonderful Peas ever

yet introduced, completely banishing from our gardens all the Early White Peas, which are never used or relished in this country, excepting for want of better.

The later varieties will be noticed hereafter. *A. F. B.*

Home Correspondence.

Gardeners' Chronicle Prize Cup.—Several questions have been asked about this splendid prize, which is likely to cause a most formidable competition. First as to arrangement. It is presumed that the vegetables may be placed at the back, and the fruit in front of them. Next as to quantity. Is this to be limited, and to what extent? Will three bunches of Grapes, 50 Strawberries, &c., and 12 Apples be the rule? It seems desirable that the quantity shown should be uniform. The same queries have been put about the vegetables. Will half a peck of Peas, 25 or 50 French and Broad Beans, 6 or 12 Artichokes, 12 Onions, 6 or 12 stalks of Rhubarb, and 25 Potatos, be held to be a dish or basket. How many Cabbages, or Cauliflowers, 2 or 3, or more, can be shown? Also, what number of Carrots and Turnips may go for the bundle? Doubtless quality will chiefly determine the prize, but it would simplify the duties of both jurors and exhibitors if neither had to contend with varying quantities. These matters are well understood in London, but it is quite otherwise in the provinces; therefore an explanatory note would oblige many exhibitors. *D. T. Fish.*

[It will be an instruction to the jurors that in allotting this prize, quality shall take precedence of quantity. Moreover, as a decision can be much more satisfactorily arrived at when the quantity is defined, and as intending exhibitors seem to be in uncertainty on this point, we adopt, so far as they will apply, the definitions indicated by the schedule of the International Horticultural Exhibition of 1866, in those cases where the quantity has not been already stated. The quantities will, therefore, stand thus:—Grapes, 3 bunches; Melons, 2 fruits; Strawberries or Gooseberries, 25 fruits; Currants, 1 punnet; Raspberries or Cherries, 30 fruits; Apples, 6 fruits; Peas, ½ peck; Beans, 50 pods; Cauliflowers or Cabbages, 3 heads; Cucumbers, 1 brace; Carrots or Turnips, 24 roots; Artichokes, 6 heads; Onions, 12 bulbs; Rhubarb, 12 stalks; Potatos, 24 tubers; Salading, 1 punnet. The articles shown *must* have been grown by the exhibitor; and as to arrangement, that must be according to his own taste. EDS.]

Variegated Pelargoniums.—It *does* seem desirable that "any painted or stained leaf should compete under one designation at our great shows;" for what the public is really interested in knowing is, not what is or is not, botanically speaking, variegated, nor how these beautiful plants ought to be classified, but which of them all are the most beautiful and useful for decorative purposes. Further, the old prize was offered from a popular and not a scientific point of view; and the word variegated, so understood, comprehends all plants stained or diversified with numerous colours. It would therefore include zonals, we are told. Well, what if it does? Green leaves with black horse-shoes would have no chance against fine tricolors; but an orange leaf with a crimson zone would give even Mr. Grieve's Victoria Regina a close run. And such a leaf would probably be the most useful of the two for bedding purposes, for which object, purity, and not multiplicity of colouring, is the most telling. My object in proposing the ten guinea prize was simply to bring as many variegated plants as possible to Bury. The idea never occurred to me of limiting the word by botanical or technical boundaries, and while willing now to bow to the decision of the Council of the Royal Horticultural Society, my own conviction is most decided, that according to the schedule as it stands, all can, and all ought, freely to enter the lists, and let the best plants win. It is objected to this, that some exhibitors have prepared their plants understanding the word variegated in its limited sense. There are two ways of meeting this objection. One is, that the plants will be judged solely by their quality, and not by their size; therefore such an objection can have little weight. Any force that is left in it is at once removed by my second mode of meeting it, which is, that other growers have understood the term variegated comprehensively, and have prepared their plants accordingly. The fact is, each raiser has preserved the plants with which he thought it most probable he would win. And the question is narrowed to this: Shall some be—capriciously, I had almost said—excluded? or shall all have a fair field and no favour, and be pronounced vanquished or victorious on the basis of merit alone? I still, although I am sorry to differ from many of my friends, give an emphatic plumper for the latter course, as the most fair to all the exhibitors, more conducive to the success of the show, probably most in accordance with the wishes of the donors of the county prizes (who left the application of the money entirely in my hands), and certainly most satisfactory to the general public. *D. T. Fish.*

——I certainly think that it is somewhat unfortunate that this discussion has been delayed until the very eve of the Bury Show. And I for one certainly regret that Messrs. Wills and Fish have been so long in making the discovery that the yellow, or rather pale green zonal Pelargoniums, are variegated plants. I must now claim the same distinction for the dark green zonal varieties, for if the one be admitted to be variegated the other must certainly be considered so; and this will, I am inclined to think, quite upset the preconceived ideas which most people have formed as to what constitutes a variegated Pelargonium. My own opinion has always been that for a leaf to be considered variegated it was necessary that its margin should be either yellow or white, or at all events that some portion of its surface should exhibit a partial or entire absence of the normal or green colouring matter. Now the zone upon the leaf of either a pale or a dark green Pelargonium does not fulfil this condition, but is rather a something added to or laid upon the surface of the leaf, and the term coloration as used by yourself is in my opinion perfectly correct. Variegation, on the other hand, is a something abstracted or taken away from it. The one is coloration and the other is variegation, entirely and essentially distinct from each other. Mr. Fish says that "it is a matter of simple justice to all exhibitors that this question should be settled now." I rather think that it would have been a matter of simple justice to intending exhibitors had it been settled long ago, as, if it had, they might not have planted out their green and golden zonals into ordinary flower-beds had, they been aware that they were variegated Pelargoniums, but would have retained them in pots, and with them competed for the County Cup at the Bury Show. Mr. Fish also attaches much importance to the fact of the golden zonals being considered as variegated at the Manchester Exhibition. I must submit that I cannot see the force of this argument, for if the Manchester people consider black to be white, that is no reason that the people of Bury should do so. Mr. Wills says (p. 657), "I think it is impossible for one raiser to exhibit 12 seedling Tricolors, distinct in every feature." Allow me to inform him that they are not requested to do so; if he will refer to the schedule he will see that it says, 12 seedling variegated Pelargoniums of 1866 and 1867. The word tricolor is not used at all. Mr. W. further says, "I understand seedlings of 1866 and 1867 to mean varieties which have not been exhibited previous to 1866." It appears to me that it is only fair to allow the schedule to mean what it says; and it distinctly says seedlings of 1866 and 1867, that is, of course, plants raised from seed during one of the years named. Much has been written and said about the classification of bedding Pelargoniums, and I cannot help thinking that the sooner we discard such terms as bicolor, tricolor, quadricolor, versicolor, &c., the better, as they only lead, in my opinion, to complication and confusion. Let zonal Pelargoniums be divided into two classes, or sections, viz., green zonals and golden zonals; and let the variegated varieties be also divided into two classes, viz., golden variegated and silver variegated; nothing more, I think, is required. And if it be desired to separate the nosegay sorts from the green zonals, their flowers afford at once the means of doing so. *P. Grieve, Culford.* [We have elsewhere mentioned that the Council of the Royal Horticultural Society, adopting the decision of the Floral Committee, have ruled that the Golden Zonals are not to be included amongst Variegated Pelargoniums. EDS.]

Nierembergia frutescens.—Your readers will doubtless be glad to learn that this very interesting new species, referred to by your Paris correspondent in such favourable terms (see p. 684), promises to succeed admirably in this climate. It appears to have been introduced to Europe about four years since from the Andes of Chili, by M. Germain, an enthusiastic French naturalist, and having stood three winters at Bordeaux without any protection, will probably prove nearly, if not quite, hardy in this country. It is perfectly distinct from any species hitherto cultivated, or introduced. Though attaining a height of from 12 to 18 inches when raised from seed, and allowed to assume its natural form, yet when struck from cuttings it will flower freely in a small state. In habit it is erect, but only requires proper pinching in to make it as bushy as can be desired; and in the character and abundance of its neat linear foliage, it possesses a marked advantage over the older species. My plants are not yet fully in bloom, though showing buds, but I learn on the best authority, that its flowers are white tinged with violet, the throat being yellow with deep violet rays, so that in colour they are not very dissimilar to those of N. filicaulis, though considerably larger, as your correspondent states. Its name does not appear to be very happily chosen, as its suffrutescent habit is not so marked as to be characteristic, the well-known N. filicaulis being in fact shrubby in the greenhouse; but, leaving that question aside, it is evident that we have in the present subject a most welcome addition to garden plants, and of which one may safely predict, that but a few months will be required for its diffusion throughout the length and breadth of the land. *W. T., Ipswich.*

Cheap Glass Houses v. *South Walls.*—For the satisfaction of your correspondent (see p. 658) we would explain that the Paxtonian houses referred to by him are provided with much more ample ventilation than is used in common Orchard-houses: that they are better made, are portable, being framed, and applicable to all purposes; and, further, we can supply him with the span-roof to which he alludes, giving 22 feet inside, 28 feet over roof—say 200 feet long, for 350*l.*, including glazed ends. These span-roofs have been erected in several instances in lieu of walls, all the crops attempted on them being secured, with additional early, late, and various fruits; the latter crops amply repaying any slight extra original outlay. We share your correspondent's anxiety for "G. A. H.'s" information, and should not be surprised to learn that such an Orchard-house as that named at p. 631 is difficult to obtain alone, without other more costly structures intended to help pay for it. *Hereman & Morton, 7, Pall Mall East.*

Arundo Donax versicolor.—This is a wonderfully effective and beautiful plant, that is made little or no use of. Ere this I have spoken of several fine things for grouping together, or for standing alone on the turf and near the margin of a shrubbery border. This is as well suited for close association with the choicest bedding flowers, as an Adiantum frond is with a bouquet. It will be found hardy in the southern counties; and considerably north of London may be saved by a mound of cocoa-fibre or such, perhaps covered with an old piece of mat. In consequence of its effective and beautiful variegation, it never assumes a large development, like the green or normal form of the species, but keeps rather tidy and low, and yet thoroughly graceful and effective. Two feet, for instance, is about an average growth for a good plant in the open air, about London. It is of course suited best for warm, free, and good soils, and abhors the London clay, though it is quite possible to grow it thereon with a little attention as to preparation of the ground. But it is in all cases better to avoid things that will not grow freely and gracefully on whatever soil we may have to deal with; and it is to those having gardens on good sandy soils, and in the warmer parts of England, that I would specially commend this grand variegated subject. For a centre to a close circular bed, nothing can surpass it in the summer and autumn flower garden, while, of course, many other charming uses may be made of it, not the least happy of which would be to plant a tuft of it on the green Grass, in a warm spot, near a group of choice shrubs, to help, with many other things I shall name in good time, to fill up the gap between ordinary fleeting flowers, and the taller shrub and tree vegetation that is now nearly everywhere observed. It is better to leave the plant in the ground, in a permanent position, than to take it up annually. Protect the roots in the winter, whether it be planted in the middle of a flower bed or planted by itself in a little circle on the Grass. *R.*

The Sweet Potato.—Such of your readers as care about this root, which by the way is of very agreeable flavour when well cooked, may grow it most readily and effectively by placing it in frame or pit after the spring crop has been taken out; or, indeed, on a ridge, like the ridge Cucumber, but the pit or frame is the safest way generally—the lights being taken off. As pits and frames are frequently empty from about the 1st of June till autumn, room might be readily spared for it without loss, and perhaps a useful vegetable added to our stock, which is yet in want of variety, fine as it is. The roots may be bought in Covent Garden. The red variety is the best. The way to treat them is to pot them about the end of April; start them in a gentle heat, and have them fresh and stubby for planting out in the pit or frame about the 1st of June. They would be the better of the lights for a few days. In this way they will be found to do better than when grown in a stove, and probably prove a more grateful vegetable than the Chinese Yam in its best state. *Viator.*

A New Orchid Pest.—I noticed a few days ago, on some recently imported plants of Saccolabium giganteum, what—to me at least—were entirely new insects. They were about twice as large as a full grown green aphis, but exceedingly lively in their movements, and of a bright scarlet colour. I am sorry to add that they had already got to work on the leaves, on which they have left some ugly yellow blotches. Do any of your readers know anything of these villainous red jackets? *J. B., Biddulph Grange.* [Please send some for examination. EDS.]

Epidendrum erubescens.—This beautiful plant is now coming into flower here in the Mexican house. A rumour has reached me that it has already bloomed in some Yorkshire collection (not Messrs. Backhouse's), and, if so, I much wish the fortunate parties would send particulars to your columns. *J. B.*

Early Peas.—Mr. Charles Turner, in your Paper of June 15 (p. 631), states that he gathered a dish of our Ringleader Pea from an open ground crop on the 28th of May, being 11 days earlier than Daniel O'Rourke (or Sangster's No. 1). He says also that Ringleader "has also the advantage of being dwarfer, and I do not hesitate to pronounce it the best early Pea that has been grown here; no other Pea had been gathered about here at that date." Your correspondent "H. S.," in last week's issue (see p. 685), referring to Mr. Turner's statement, says, "the earliness of the variety was already patent to every gardener in the three kingdoms," but inquires whether Ringleader is a synonyme for Dillistone's, or any other variety. After another year's careful trial in our sample grounds, we can affirm that Sutton's Ringleader is still the most forward Pea in cultivation, except Carter's First Crop, which was sent out the same season at the same price as Ringleader, and which subsequently proved to be identical with it. Mr. Turner is a competent judge of early Peas, and we have in our possession similar communications from many others whose names would also have weight with horticulturists. The Pea called Dillistone's Early is very little if any forwarder than Daniel O'Rourke, and the nearest approach to Ringleader is Dickson's First and Best, which comes within three days of it. Without attempting to explain the difficulty that may arise when a trial is attempted by an authority like the Royal Horticultural Society, we confidently re-assert that no Pea is identical with, nor so forward as Ringleader, except its synomyne, Carter's First Crop. *Sutton & Sons, Reading.* [See an article at p. 711. EDS.]

Cabbages v. *Turnips.*—"J. K." (see p. 686) wishes to know whether or not Turnips and Cabbages cross each other. A few weeks ago, after the late severe frosts in May, I visited several cottage gardens in order to inspect the crops in them; my attention was directed to rows of Cabbages in various allotments running to seed, and in every case Turnips were mixed with them. Upon inquiry I was told that that was the only way to get Cabbage seed true; also that it was the plan annually adopted here; and of its success I have had ample proof, having seen beds of plants and large plots of full grown Cabbages as true to their kinds as they possibly could be. *B. R. D., Yeovil.*

Holly Hedges.—I observe (see p. 602) an inquiry made respecting the present state of Holly hedges at Tynninghame. I am sorry to have to inform your correspondent that the Holly hedges in question are far from being so fine now as they were when described by

Selby, 25 years ago, many plants having died since that time; a misfortune which has increased since the severe frost in 1860, causing the hedges to exhibit gaps of considerable size. About 100 yards, however, which I am told were cut down to the ground in the year 1800, and which are now from 9 to 14 feet in height, and from 6 to 10 feet in width at the base, are in great health and beauty. Not a plant in this portion has died. It may be worthy of note, that the Holly hedges here were all planted from 1700 to 1705. The part, therefore, which was cut down in 1800 must have been very nearly a century old, a fact which shows that even at that advanced age a Holly hedge may be cut down with safety. *Thomas Lees, The Gardens, Tynninghame.*

Polygonum cuspidatum, Zucc., as an Ornamental Plant.—This is a fine strong herbaceous species of a genus which, as cultivated in our botanic gardens, does not appear likely to afford an elegant or a graceful garden subject. But it is one of the best things which I can recommend for their embellishment. The growth is rapid, the size unusual, perhaps 8 or 10 feet in very good soil, and the bearing of the plant not at any season shabby. It is covered with flowers in autumn. The same plant is often called Sieboldii in gardens, I think. When planted singly, and away from other subjects, the head of the plant assumes a rather peculiar and pretty arching character, so to speak, and therefore it is not quite fit for forming centres or using in groups, so much as for planting singly in the turf, and forming a distinct link, as it were, between the low floral vegetation, and that of the shrub and low tree. In this way it would be particularly useful in the pleasure ground or diversified English flower garden. It is also good for any position in which a bold and distinct type of vegetation is desired, while of course when we come to have fine groups of hardy "foliage plants" in our gardens its use will be much extended. The deeper and better the soil the finer will its development prove. You cannot make the soil too deep and good if you want the plant to assume a fine character. As with tender plants we have no end of attention to bestow, often daily attention, the time and labour necessary to well prepare the ground for a hardy subject should never be begrudged. This plant will probably be also found useful for game cover. Mr. Standish has, I think, a large stock of it, and there is plenty of it at Kew, or used to be. *R.*

Jurors for the Bury Show.—Will you kindly permit me to state, in answer to numerous inquiries, that the Royal Horticultural Society appoint the judges. *D. T. Fish.*

Roses and Strawberries at Okeford Fitzpaine.—As I have lately visited my excellent friend, your correspondent Mr. Radclyffe, at Okeford Fitzpaine, I should be glad to say that, despite circumstances which would have baffled any one but a determined Rosarian, his Roses thoroughly bear their testimony to the correctness of his views, and the soundness of his practice. He had to move them in August last to their present quarters, many of them being plants of 14 and 15 years of age. His soil, though better than his former garden at Rushton, is not a good Rose soil. He has felt the extreme severity of the winter and spring in a cold and exposed spot, and yet withal his trees are a mass of bloom; his Yellow Teas and Noisettes, which seemed all but gone, are making shoots 6 feet and more in length, and I have nowhere seen more vigorous or healthy foliage than in every part of his garden. I am sure for such soil as his, he is right in upholding the Manetti as a stock, for I believe had his Roses been on Briars they must have all perished. Strawberries were wonderful in their foliage and promise of fruit, but the earliest bloom, and, therefore, I believe the finest fruit, had been destroyed by what is known as the "Derby frost" of May. He will have, I have no doubt, something to say on his Roses and Strawberries by-and-by, but I felt that an independent testimony would be valuable on points on which he would, perhaps, himself say but little. *D. Deal.*

White Laurel.—Mr. Fish, in his very clever article on the Selective Theory of Colour, says (p. 684), that white-leaved plants must continue to be impossible; I beg to inclose you a twig of a White Laurel (common). I cannot see in the little bit of wood from which the leaves spring the smallest trace of anything likely to give a tinge of green; but be this as it may, I feel confident of being able to produce plants in any quantity true to this character. I also inclose two leaves of a variegated or blotched Laurel shoot, and should consider such plants very useful in the winter decoration of beds, when flowers of a more tender kind had been removed to winter quarters. *W. J.* [In the one case the leaves are wholly, in the other half or three parts white. The latter may prove cultivable, but former experience is quite against your being able to perpetuate the albino form. EDS.]

Societies.

GARDENERS' ROYAL BENEVOLENT INSTITUTION (see p. 687).—After the usual loyal toasts had been duly honoured, the Chairman (Sir Robert Peel) proposed the toast of the evening, viz., "The Gardeners' Royal Benevolent Institution." In doing so he observed that in a company of gentlemen consisting of hearty well-wishers of the Institution it would be superfluous to expatiate at any length upon the advantages which belonged to it; but he trusted that there were not many present who would deem it superfluous in him to point out how necessary the Institution was, not only for the present subscribers, but for the exercise of posthumous charity. He was certain that, however unnecessary it might be, no one would deny him the privilege which he enjoyed of urging upon public notice the objects of the Institution and its claims upon public sympathy. In these days, industrial co-operative societies were being formed in every direction throughout the country, and these were largely patronised by the respective trades to which they belonged, but there could not be a society more worthy of support than the Gardeners' Royal Benevolent Institution; and for this support it appealed to those whose sphere of action especially concerned the science of horticulture. He rejoiced to learn that there was a large number of head and foremen gardeners throughout the country who contributed to the success of the charity, and were laying by a store for a rainy day, so that when old age or misfortune came upon them they might depend upon support and sustenance from this Institution, which would afford them relief under adverse circumstances such as might befall even the best conducted and most thrifty. It was impossible for any of them to foresee the circumstances in which they might be placed even 20 years hence. He rejoiced, as Chairman on this occasion, that the Society was supported by head and foremen and market gardeners, and he hoped they would let their influence operate on others who did not at present take an interest in it, and that they would persuade every member of their class to join a co-operative society of this character. They might not require its aid—he hoped none of those present ever would; but there ought to exist amongst them an *esprit de corps* which would lead them to contribute their subscriptions to support the funds of the Institution, and thereby to help those who were less fortunate than themselves. This was incumbent upon them, and he was glad to find that the subscription list included so many good names, from the Sovereign on the Throne to men who had gained their position by the sweat of their brow. The Institution clearly had a hold upon the public mind. It was usual for the Chairman of a meeting of this kind to enter into the history of the Society on whose behalf he had to plead. In the present case this was unnecessary. He would only say, that for 30 years, with perhaps many ups and downs, it had made its way, and through the excellent way in which its funds were managed, about 800*l.* a-year were distributed among the decayed members of the gardener's profession. Surely that was a great good, a most beneficent result. Let them consider the good which this 800*l.* a-year must do in many homes to those who were otherwise deprived of the first necessaries of life. This Institution, supported as it was by Royalty, and doing the large amount of good just alluded to, was, therefore, most worthy of the support it met with, and which, as the Secretary would announce, had attended it on the present occasion. When he saw the display of fruit and flowers before them he could not refrain from thinking of the charm which their skilful cultivators had diffused, and the pleasure they had infused into the life of every man in this country. For himself he took a delight in horticulture, and, although many were more competent, he believed there was not one in that assembly, very few indeed in the country, who took a deeper interest in the culture of those beautiful productions, which his friend Mr. Veitch and others sent out in such expensive abundance. When he turned with admiration, as they all must, to the exquisite fruit which graced the table, and remembered that a portion of that beautiful dessert came from his Royal Highness the Prince of Wales' establishment at Sandringham, they had a gratifying proof of the sympathy of his Royal Highness with their cause. When he (the Chairman) was at Manchester last year, where he went with reference to the great nuisance of the smoke to which the inhabitants of that great city had to submit, he had been told by many a poor man that his greatest enjoyment was his little garden; and nothing had afforded him more pleasure than the prevalence of window gardening in the third, fourth, fifth, and even sixth storeys of the lofty houses of that crowded city. The great improvement in the parks and public gardens was also a matter for congratulation, and this was especially remarkable in Battersea and Hyde Parks. His only regret as chairman of that meeting was, that he had been obliged to decline an office which would have given him, as Minister of Public Works, absolute dominion over Hyde Park. If he had accepted it, he should not have allowed 24 hours to have elapsed without sending for some eminent horticulturist to advise with him as to the best means of decorating and adorning the parks of the metropolis. Having lived a great deal abroad, he had been much gratified by the beauty and taste displayed in horticulture at the great military camps upon the Continent. What he should like to see would be that the military authorities of this country would endeavour to carry out this plan, which would be one of the best means of improving the condition of the soldier, diverting him from low and debasing pleasures, and interesting him in that charming science which had been celebrated by poets in all ages. Calling upon the company to recognise their obligations to Mr. Veitch, Mr. Turner, Mr. Fraser, Mr. Lee, and Mr. Williams, who had so generously and liberally sent such beautiful plants and flowers for the decoration of the room, the Chairman concluded by proposing "The Gardeners' Royal Benevolent Institution, and long may its prosperity prevail."

The toast was drank with enthusiasm.

SIR WALTER STIRLING, Bart., rejoiced that it was his good fortune to propose the health of the right honourable the Chairman. With a graceful allusion to the beautiful floral decorations of the room, and congratulating the meeting on the presence of the ladies who occupied the gallery, he remarked that every lady and gentleman present must feel deeply indebted to Sir Robert Peel for presiding. He had been acquainted with the first Sir Robert Peel, and with his illustrious son, as well as with the present baronet; and unbecoming as it might be in him to expatiate on the merits of either of them, he might say that there never were three men more devoted to the service of their country or the good of their fellow-countrymen than these were. The first Sir Robert Peel might be well content to have founded a line of such illustrious descendants; and the second had earned an enduring fame. With regard to the chairman of the day, he would only beg to express to him the thanks of the company for his liberal donation to the funds of the Institution, and for the feeling manner in which he had performed the duties of the occasion.

The CHAIRMAN, in acknowledging the compliment, said that nothing afforded him greater pleasure than contributing, in however humble a capacity, to the good of any class of his fellow creatures. He trusted that his present audience would rally round whoever might be his successor at the next festival, and if his presence or assistance would be of any service to the Society, he should be only too happy to render it. He begged to propose the health of the Treasurer of the Institution, Mr. Robert Wrench, whose name he was sure would not be received with less cordiality than that of the ephemeral chairman of the day. Mr. Wrench had devoted much time to establish and enhance the character and position of the Society, and his services entitled him to the cordial approbation of its friends and supporters.

Mr. WRENCH returned thanks, and in doing so acknowledged the obligations of the Institution to the Chairman and the contributors of fruit and flowers. As Treasurer he wanted to get all he could out of their pockets. It was supposed that the garden of the Hesperides abounded with golden Apples. These might be rather hard of digestion, but he should have been glad to be the treasurer of that garden, or the dragon who kept it, for the sake of the good it would enable him to do. He trusted that this was not altogether a myth, but that the fruit of the Chairman's labours might be essentially golden; and they might depend upon it that if that fruit was abundant, the Secretary and himself would act the part of dragons most effectually.

The SECRETARY then read a list of subscriptions. This included 21*l.* from the Chairman, and 10*l.* 10*s.* from Lady Emily Peel; the Duke of Devonshire, Lord Sandon, Lord Egerton, Lord Dynevor, Sir W. Hutt, Mr. Tite, M.P.; Sir Walter Stirling, Bart.; James Bateman, Esq.; R. Broadwater, Esq.; and others, 10*l.* 10*s.* each; the total amount (the largest ever received at any festival) being upwards of 500*l.*

The CHAIRMAN, after having proposed the health of the Secretary, and that gentleman having returned thanks, proposed "The Houses of Legislature," in connection with which he coupled the name of Mr. Bass, M.P. for Derby. He referred to the operation of the pruning knife upon the House of Commons, and the doubtful result of the grafting now in progress. The company were aware that Mr. Bass had recently, in the exercise of a liberality which knew no bounds, endowed the town of Derby with the magnificent gift of a large recreation ground, in which the people of that industrious locality could enjoy themselves after the toils and labours of the day. Having acquired a princely fortune, Mr. Bass knew how to spend it for the benefit of his fellow men. As Chairman, he had been anxious to secure the services of the Duke of Argyle to preside at the next anniversary, but with the caution characteristic of his country (with which he, Sir Robert Peel, had become so intimately connected by marriage), he had replied that it was at present too far before-hand for him to promise to do so. Probably the Secretary could yet induce his Grace to undertake the post, but otherwise he was sure no one could fill the chair with more efficiency than Mr. Bass.

Mr. BASS returned thanks in a brief but effective speech.

The other toasts in the programme comprised "The Amateurs and Patrons of Gardening," "The Seed and Nursery Trade," "The Stewards," and "The Ladies,"—these latter proposed by Mr. Bateman, who worthily filled the chair Sir Robert Peel was at length necessitated to vacate, in order to attend to his senatorial duties.

CRYSTAL PALACE ROSE SHOW, *June* 29.—This beautiful exhibition of the Queen of Flowers was inspected by nearly 15,000 visitors, all of whom seemed to thoroughly enjoy the rich treat which was afforded them. Among Nurserymen's classes Mr. Cranston, of Hereford, was first in that for single trusses of 72 varieties. Conspicuous among his blooms were those of Madame Brianson, bright carmine; Maurice Bernardin, Marguerite de St. Amand, François Lacharme, Madame Clemence Joigneaux, Gloire de Dijon, Charles Verdier, a splendid rose-coloured flower; Madame C. Crapelet, Madame Bravy, Madame C. Wood, Mrs. Rivers, Charles Lefebvre, and President. Messrs. Paul & Son, who were 2d, had among others their new Rose, Duke of Edinburgh, velvety deep red; Madame C. Crapelet, in excellent condition; Olivier Delhomme, Marie Baumann, a splendid crimson variety, which was also exhibited in several other stands; Exposition de Brie, Beauty of Waltham, Senateur Vaisse, Reine de Porcia, Xavier Olibo, Maurice Bernardin, Général Jacqueminot, Prince Camille de Rohan, Alba Rosa, and Rushton Radclyffe. Mr. Mitchell, of the Pilt Down Nursery, Maresfield, had charming trusses of Triomphe de Rennes, Maréchal Niel, Lamarque, Elise Sauvage, Louise de Savoie, Souvenir de la Malmaison, Madame Furtado, Senateur Vaisse, Xavier Olibo, and Victor Verdier, the last in lovely condition. Messrs. Francis, of Hertford, also showed in this class. In that for 48 varieties, three trusses of each, Messrs. Paul & Son were 1st. Among their blooms were fine examples of Comtesse de Chabrillant, Lord Clyde, John Hopper, Madame Rivers, Beauty of Waltham, La Brillante, Madame C. Crapelet, Madame Bravy, and Souvenir d'un Ami. Mr. Mitchell, who was 2d, had beautiful trusses of Souvenir d'Elise, Leopold Hausburg, Olivier Delhomme, Madame C. Crapelet, Victor Verdier, Triomphe de Rennes, Elise Sauvage, Maurice Bernardin, and Gloire de Dijon. Mr. Fraser took the 3d prize with fine examples of John Hopper, Maurice Bernardin, Senateur Vaisse, Souvenir de la Malmaison, Paul Ricaut, Comtesse de Chabrillant, Mrs. Rivers, Leopold Hausburg, and others. A 4th prize was awarded to Messrs. Francis, of Hertford. In the Class of 24 varieties, three trusses of each, Mr. Cant, of Colchester, was 1st; Messrs. Paul & Son, 2d; Mr. Cranston, 3d; and Mr. Keynes, of Salisbury, 4th. Mr. Cant had very fine trusses of Madame Bravy, Marie Baumann, Madame Victor Verdier, John Hopper, Comtesse de Chabrillant, Prince Camille de Rohan, La Rhone, Exposition de Brie, and La Brillante, the last glowing bright crimson. In the other stands were most of the varieties just named. In the Class of 24 varieties, single trusses, Mr. Cant, Mr. Keynes, and Mr. Mann, of Brentwood, took prizes in the order in which their names stand.

In the Amateur's classes, Mr. Hedge, of Reed Hall, Colchester; and Mr. Ingle, gr. to C. G. Round, Esq., Birch Hall, Colchester, took the 1st and 2d prizes in the classes for 48, 36, and 24 varieties. Among their blooms were fine examples of Coupe d'Hébé, Senateur Vaisse, Maria Baumann, Mr. Rivers, L'Enfant Trouvé, Maréchal Niel, Madame Boll, Cloth of Gold, Jules Margottin, and others. Mr. Chard, gr. to Sir F. H. Bathurst, Bart., was 3d in the Class for 48 varieties; and Mr. Moffat, gr. to Lord Rosslyn, Easton Lodge, Dunmow, 4th, the latter being also 3d in the Classes for 36 and 24. Mr. Postans, of Brentwood, and Mr. Skinner, Westerham, had the 4th in these two classes. Stands from the Rev. E. Pochin, Mr. Postans, Mr. Hedge, and Mr. Chard took the four prizes offered for 12 varieties.

Among New Roses, Marie Baumann was sufficiently bright and showy to attract the notice of everybody; as was also Mdlle. Annie Wood, a beautiful scarlet; Thorin, bright pink; Souvenir de William Wood, very dark; Hippolyte Flandrin, and Horace Vernet were also good. Mr. Turner, of Slough, was awarded a 1st prize for Miss Ingram, of which a separate notice will be found in another column. Mr. Cant, of Colchester, and Messrs. Paul & Son had equal 1st prizes for collections of new Roses, and Mr. Keynes a 3d prize for the same; and for new Roses in pots, Messrs. Paul & Son, who were the only exhibitors, had a 1st prize.

Of Yellow Roses, Mr. Hedge sent a beautiful stand, containing L'Enfant Trouvé, Enfant de Lyon, Jaune (of Smith), and Maréchel Niel. Mr. Bristow, gr. to G. Orme, Esq., Broadwater, Worthing, to whom the 2d prize was awarded, had very good blooms. Tea-scented and Noisette Roses, as shown by Messrs. Paul & Son, Mr. Hedge, Mr. Ingle, and Mr. Bristow, were also fine.

For Vases of Roses the prizes were awarded to Mr. Ingle, Mr. Marlow, and Mr. Soder, and in each case the stands were similar to those of Mr. Marsh; in each Ferns were introduced at the base and in the top dish, and in each Japanese Honeysuckle was twined up the stem.

Mr. Turner, of Slough, exhibited, not for competition, a large number of boxes filled with beautiful trusses of cut blooms. Collections were likewise shown by Messrs. Paul and Son and Mr. Hedge.

Among miscellaneous subjects was a fine specimen of Peristeria elata, exhibited by Mr. Scowen, Park Lane, Croydon. It had six flowering stems, each nearly 6 feet in height, well furnished with blossoms. To this an extra prize was awarded.

ROYAL HORTICULTURAL: *July* 2 (*Great Rose Show*).—The blooms, which were numerous, were shown in excellent condition on this occasion, considering the unfavourable weather to which they have been subjected.

In Class 1, for single trusses of 72 varieties, Mr. Cranston was 1st, with stands in which the following were particularly good, namely, Jules Margottin, Senateur Vaisse, Mdlle. Emain, white, beautifully tipped with rose; L'Esmeralda, Prince Camille de Rohan, Maurice Bernardin, Pierre Notting, Souvenir de la Malmaison, Comtesse de Chabrillant, Madame Vidot, Général Jacqueminot, Dr. Andry, Madame Victor Verdier, Maréchal Niel, Sœur des Anges, John Hopper, Centifolia rosea, Baron A. de Rothschild, Céline Forestier, and Devoniensis. Messrs. Paul & Son were 2d, with beautiful blooms of Alfred Colomb and Prince de Porcia, both brilliant kinds; Louise Magnan, white; Exposition de Brie,

Marie Baumann, Maurice Bernardin, Duc de Rohan, Gloire de Dijon, Madame Vidot, and Duke of Edinburgh, dark shaded scarlet. Mr. Cant, who was 3d, had very good blooms of L'Elegante, velvety dark red; Xavier Olibo, very large; Devonionsis, Beauty of Waltham, La Rhone, Charles Lawson, Madame Victor Verdier, Niphetos, Alfred Colomb, and Charles Lefebvre. Mr. Mitchell had, among others, charming examples of Queen Victoria, one of the prettiest of the white Hybrid Perpetuals; Triomphe de Rennes, a very beautiful yellow; Gloire de Dijon, and Fisher Holmes, the last a most useful rose. Messrs. Francis also exhibited in this class. In that of 48 varieties, three trusses of each, Messrs. Paul & Son were 1st, with beautiful trusses of Maurice Bernardin, Madame Charles Wood, a little tarnished; Prince Camille de Rohan, Pierre Notting, Marguèrite de St. Amand, Alfred Colomb, Marie Baumann, Charles Lefebvre, Maréchal Vaillant, and Fisher Holmes. Mr. Fraser, of Lea Bridge, was 2d with stands in which we noticed Madame Rivers, Maurice Bernardin, Comtesse de Chabrillant, Mdlle. Bonheur, Madame Victor Verdier, Lord Macaulay, and Prince de Porcia. Mr. Cant, who was 3d, had some excellent Tea Roses, and Mr. Mitchell had Madame Plantier, a free-blooming Hybrid China variety, with 11 blooms on the three trusses; Baron A. de Rothschild, and others, in equally good condition. In the Class of 24 varieties, three trusses, Mr. Keynes, of Salisbury, was 1st with blooms remarkable for their bright appearance. Among them were Victor Verdier, Comte Alphonse de Serenye, beautiful clear crimson; Prince Henri des Pays Bas, crimson, shaded with purple; Pierre Notting, Madame Rivers, Exposition de Bric, half expanded; Madame Moreau, also beautiful in the bud state. Mr. Cant was 2d, Mr. Cranston 3d, and Messrs. Paul & Son 4th. In the Class for Single Trusses of 24 varieties, Mr. Keynes was also 1st with John Hopper, Victor Verdier, Maurice Bernardin, Madame C. Wood, Alfred Colomb, and others. Mr. Cranston, who was 2d, had Duchesse de Caylus, very good; Gloire de Santenay, and La Brillante, very bright; and Louis XIV., remarkable for its fine deep blood red colour. In the 3d prize stand from Mr. Cant we noticed La Rhone, very rich in colour. Messrs. Lee, of Hammersmith, who were 4th, had Antoine Duchier, rose, and Madame Thérèse Levet, salmon rose: both fine.

In the Amateurs' classes for single trusses of 48 varieties, Mr. Hedge, of Reed Hall, Colchester, was 1st; Mr. Moffatt, gr. to the Earl of Rosslyn, 2d; Mr. Chard, 3d; and Dr. Cooper, 4th. For 36 blooms, Mr. Hedge was likewise 1st; Mr. Chard and Mr. Moffatt being 2d and 3d; and for 24 blooms Mr. Postans, of Brentwood, was 1st; the Rev. E. Pochin, Sileby Vicarage, Loughborough, 2d; and the Rev. V. Knox Child, Little Easton, 3d. In these exhibitions some of the best blooms were Cloth of Gold, L'Enfant Trouvé, Pierre Notting, Rubens, Comtesse de Kergolay, fine deep crimson; Marie Baumann, Vicomte Vigier, Laurent Descourt, slaty violet; Madame Hector Jacquin, Souvenir d'Elise Vardon, Madame Bravy, Victor Verdier, Madame V. Verdier, François Lacharme, and Claude Million. In the Class of 12 single trusses, equal 1st prizes were awarded to the Rev. E. Pochin and Mr. Postans for beautiful examples of Maréchal Niel, Madame Villermoz, Baron Rothschild, Madame C. Joigneaux, Madame Boll, Gloire de Dijon, Duchesse d'Orléans, Madame V. Verdier, Prince Camille de Rohan, and Charles Lefebvre, the last in most beautiful condition, in short, one of the finest and most effective blooms in the whole exhibition. Mr. Soder, gr. to O.Hanbury, Esq., was 2d; Mr. Skinner, 3d.

For 18 new Roses of 1864 or 1865, Messrs. Paul & Son were 1st, Mr. Keynes 2d, Mr. Cant 3d, Mr. Fraser 4th. Among these the most striking kinds were Marie Baumann and Alfred Colomb, both very fine; Exposition de Brie, Mdlle. Marie Rady, Pierre Notting, Madame Victor Verdier, Marguèrite de St. Amand, Mdlle. Marguèrite Dombrain, Abel Grand, and Princess Mary of Cambridge, the last four somewhat alike as regards colour.

In the Class of 12 trusses of any new Rose of 1864, Mr. Keynes was 1st with fine examples of Marguèrite de St. Amand. He also occupied a similar position in Class 11, for 12 trusses of any other new Rose, with Exposition de Brie; equal 2d prizes being awarded to Mr. Keynes for Abel Grand, and to Mr. Cant for Marguèrite de St. Amand, both beautiful kinds.

Mr. Turner reproduced Miss Ingram, which received a First-class Certificate. Other seedlings came from Mr. Laxton, of Stamford, and were named Annie Laxton, Beauty of Stamford, and Empress of India, the first two being deep rose-coloured, and the last a very dark kind.

In the Class of 12 Yellow Roses, of not fewer than six kinds, Mr. Hedge took the 1st prize, with the most beautiful examples of Triomphe de Rennes, Cloth of Gold, L'Enfant Trouvé, Narcisse, Boule d'Or, Céline Forestier, and Maréchal Niel. The prize for the best exhibition of yellow Roses was also awarded to Mr. Hedge, for a box in which he exhibited nearly the same kinds, and in which there were magnificent trusses of L'Enfant Trouvé.

Of Tea-scented and Noisette Roses fine boxfuls were exhibited by Mr. Hedge, who was 1st both for single trusses and single blooms; and in the Nurserymen's class by Messrs. Paul & Son and Mr. Cranston, who stood 1st and 2d. Among the varieties shown were examples of Niphetos, L'Enfant Trouvé, Madame Falcot, Madame Bravy, Sylphide, Alba Rosa, Gloire de Dijon, Rubens, &c.

Moss Roses chiefly consisted of the old White Bath, Lanei, Cristata, and Madame E. Ory. Messrs. Paul & Son were 1st, Messrs. Francis 2d. This class seems to stand sadly in need of improvement or abandonment.

Vases of Roses were the same as those at the Crystal Palace. Prizes for them were awarded to Messrs. Soder, Marlow, and Hedge. The best bouquets came from Mr. Hedge.

The only pot Roses exhibited came from Messrs. Paul & Son.

Among Miscellaneous subjects was a beautiful group of small plants of Lilium auratum, which, when intermixed with Ferns so as just to show the blooms above the green fronds, as was the case on this occasion, has a delightful appearance. These came from Mr. Bull. We also noticed a fine specimen of the same Lily from Mr. Mundell, gr. to J. C. Cunliffe, Esq., Hooley, Croydon. A group of pretty pot specimens of the varieties of Helichrysum bracteatum incurvum, came from the Society's Garden at Chiswick.

July 2 (*Floral Committee*).—Messrs. Veitch sent a fine collection of new and rare plants, among which the following received First-class Certificates, viz:—Croton irregulare, a little standard, with narrow green leaves, having a yellow stripe up the midrib; C. maximum, with broad pale green leaves veined with yellow; and C. interruptum, narrow leaves, having yellow midribs changing to red. The same firm had, moreover, Dracæna Moorei, with broad brownish-red leaves; the slender Selaginella Poulteri, with minute foliage; a new Phaius, with lilac-coloured blossoms, having a deeper tinted lip, ornamented with raised yellowish processes; and Begonia Veitchii, of which some account, as well as of some other flowering plants, will be found in another column. The same collection also contained Abutilon Thompsoni, which was awarded a Second-class Certificate; its leaves are blotched and spotted with yellow. Mr. Edwards, Nottingham, had First-class Certificates for the following Ferns, viz.:—Athyrium Filix-fœmina Edwardsii, A. F.-f. Footii, Polystichum angulare diversilobum Padleyi, and Scolopendrium vulgare Edwardsii.

Special Certificates were awarded to Mr. Richards, gr. to Lord Londesborough, Grimston Park, Tadcaster for a fine specimen of the variety of Vanda teres, called Anderson, which was growing on a block in a pot, and bore 11 flowering spikes; and to G. F. Wilson, Esq., Weybridge, for a magnificent specimen of Lilium longiflorum, with nine pure white blooms, each about 7 inches in length and about 5½ inches in diameter at the mouth. Mr. Jabez Chater, of Cambridge, likewise received a Special Certificate for a collection of Zonal Pelargoniums, along with which were large and showy cut flowers of Gaillardia aristata splendens. A Special Certificate was likewise granted to Mr. Anderson, Meadow Bank, for cut Orchids, among which was Saccolabium Blumei Dayanum, with a flower-spike about 18 inches long. Messrs. Lee furnished a plant with broad leathery foliage, shown under the name of Hedera catalpæfolia.

July 2 (*Fruit Committee*).—Mr. F. Dancer, of Little Sutton, Chiswick, exhibited some remarkably fine clusters of the Red and White Dutch Currants; and Mr. Merrett, gr. to H. Whiting, Esq., Battersea Rise, 11 fine Barrington Peaches, set closely together on the same branch, grown in an Orchard-house. Mr. Scale, gr. to Colonel Davis, Pentre, Newcastle Emlyn, sent a scarlet-fleshed Melon called Scale's Hybrid, which, however, was not of sufficient merit to require notice.

Seven new Fellows were elected on this occasion.

ROYAL BOTANIC: *July* 3 (*Third Great Show*).—This, the Society's last exhibition for this year, though less effective than its predecessors, owing to the absence of Azaleas and pot Roses, was nevertheless in other respects highly satisfactory. Stove and Greenhouse plants were again contributed in great numbers. Of Pelargoniums there was a brilliant display. Orchids were well represented; and there was a large exhibition of fruit.

Of Stove and Greenhouse plants, by far the finest collection exhibited was one of 8 plants from Messrs. Cole, Withington, Manchester. It consisted of Dipladenia amabilis in wonderful beauty, its bright rosy crimson flowers, with which the plant was covered, measuring nearly 5 inches in diameter. With this were associated equally fine examples of Ixora coccinea, Dracophyllum gracile, Allamanda cathartica, and grandiflora, Erica tricolor coronata, Kalosanthes and Everlastings, all as fresh and bright as if they had just been moved out of the nearest glasshouses. To this was deservedly awarded a 1st prize. Messrs. Lee, Rhodes, Williams, and Baxindine also showed in this class, and received prizes in the order in which their names stand. Mr. Donald, gr. to J. G. Barclay, Esq.; Mr. Wilkie, Addison Road, Mr. Wheeler, gr. to Sir F. H. Goldsmid, Bart., and Mr. Ward, gr. to F. T. Wilkins, Esq., showed excellent groups in the Amateurs' Class, which was well supported, in groups of 10 plants, by Mr. Peed, gr. to Mrs. Tredwell; Mr. Kemp, gr. to Earl Percy; and Mr. Wheeler, gr. to J. Philpotts, Esq. In these collections were various Ixoras, one of the most showy of which is amboiensis; Dipladenia splendens, and others; Allamandas, of which one of the most useful is grandiflora; Rhynchospermum jasminoides, the fine variety grandiflora; Rhynchospermum jasminoides, the fine variety of Clerodendron Thomsonæ called Balfouri, Stephanotis floribunda, the charming little Hoya bella, Kalosanthes of different sorts; Phœnocoma prolifera Barnesii, one mass of hard, dry, bright crimson flowers; Pleroma elegans; a fine Melastomad, of which no well-flowered specimen has been shown about London this year; Hedaroma tulipiferum, Statice macrophylla, and other equally interesting plants.

Plants remarkable for the beauty of their leaves were shown in profusion, and formed a good background to more prominent objects. Messrs. Williams, Lee, Burley, and Glendinning had good collections in the Nurserymen's class, while that allotted to Amateurs was well supported by fine contributions from Mr. Fairbairn, gr. to the Duke of Northumberland, Mr. Taylor, gr. to J. Yates, Esq., Mr. Peed, and Mr. Young, gr. to W. H. Stone, Esq., M.P. In these different collections were Caladiums, Alocasias, Marantas, Dracænas, Pandanuses, Cycads, Yuccas, and Cordylines, were contributed in abundance; and Mr. Williams' magnificent Croton angustifolium was as beautiful as it was in June, its long, narrow, drooping leaves looking like so much spray from a golden fountain. Theophrasta imperialis, of which several were shown, is a stately plant when in perfection, and scarcely less beautiful is Anthurium acaule, a noble plant of which was furnished by Mr. Fairbairn, from Syon. Of Littæa juncea we noticed one specimen, together with fine examples of Screw Pines and other plants of that description.

With these fine-foliaged plants were associated Ferns, of which some fine collections of exotic kinds were contributed by Mr. Hill, gr. to R. Hanbury, Esq.; Mr. Taylor, Mr. Carr, gr. to P. L. Hinds, Esq.; Mr. Young, and Mr. Williams. British sorts came from Messrs. Ivery, of Dorking; Mr. Edwards, Nuttall; and Mr. Carr; and among them were some wonderful fine varieties, among which the following from Mr. Edwards received Certificates, viz.:—Polystichum angulare diversilobum Padleyi, Scolopendrium vulgare cristatum nanum, and S. v. muricatum tenue. From Mr. Williams came various varieties of Athyrium, to which Certificates were awarded. Mr. Ivery had Certificates for Lastrea Filix-mas cristata Iveryana, and for Asplenium germanicum anomalum.

Fuchsias were again shown in wonderfully fine condition by Mr. Brockwell, to whose style of growth we adverted the other day (see p. 682) in terms of praise. The sorts were similar to those shown in June. From Mr. Weston, Clapham Park, also came a good collection.

Of Pelargoniums there was as usual a charming bank, in which Mr. Fraser, Mr. Nye, Mr. Ward, and Mr. Wiggins had fine groups, consisting of well-managed plants, the names of which have often been given in our columns, as have also been those of the fancy kinds contributed by Messrs. Fraser, Donald, and Todman. Of newer varieties Messrs. Nye, Ward, Frazer, and Wiggins also showed collections; and of what are termed Scarlet Zonal Pelargoniums beautiful groups came from Mr. Ward, Mr. Catlin, gr. to Mrs. Lermitte; Mr. Windsor, Walthamstow; Mr. Winter, Hendon; and Mr. Weston. Conspicuous among these was a plant of Rose Rendatler from Mr. Ward, in praise of which too much can scarcely be said. It was beautifully grown, and loaded with fine heads of rosy pink blossoms, just in perfection. The same exhibitor also showed admirable specimens of The Clipper, scarlet; Mons. Rendatler, salmon; Louis Roeseler, orange scarlet; Madame Boucharlet, salmon, shading off to white; and Sobieski, scarlet. Madame Vaucher was the best white exhibited, and we also noticed a well-managed example of Rose Unique, large and well flowered. These collections did credit to their respective growers, and exhibited a great advance in point of skilful management on exhibitions of plants of this description in former years.

Cape Heaths were contributed in admirable condition by Messrs. Rhodes, Peed, and Ward. Messrs. Cole, Lee, Williams, Wheeler, and Kemp also furnished good groups. In the different collections were beautiful specimens of jubata rubra, different varieties of tricolor, and ventricosa, Masoni, Candolleana, Paxtoni, and obbata, the last one of the finest of all Heaths.

Orchids were furnished in profusion, and in great variety. From Mr. Brockhurst, gr. to A. Turner, Esq., Bowbridge, Leicester, came a collection of 15 plants, among which were fine specimens of the charming Odontoglossum Pescatorei, Cattleya Dowiana, with two buff-coloured blossoms having a rich rosy-purplish lip veined with gold, Dendrobium Parishii, different sorts of Bearded Lady's Slippers, three fine varieties of Saccolabium, the handsome Cattleya Warneri, Odontoglossum cordatum and hastilabium, Aerides affine and Larpentæ, Lælia purpurata, and Vanda insignis. Mr. Penny, gr. to H. H. Gibbs, Esq., had also an admirable group, in which were beautiful masses of the different sorts of Bearded Lady's Slipper, a wonderfully well flowered variety of Trichopilia crispa, the pretty Odontoglossum nævium majus, a highly-coloured O. cordatum, and a fine variety of Cattleya Mossiæ, the long drooping green-flowered Dendrochilum filiforme, Anguloa Ruckeri, and the Lindley variety of Aerides crispum. In a collection furnished by Mr. Wilson, gr. to W. Marshall, Esq., were the red-eyed white-blossomed Dendrobium eburneum, the slender Phalænopsis Luddemanniana, Cypripedium Stonei, Epidendrum vitellinum, Lælia purpurata, the useful Oncidium pulvinatum, O. leucochilum, and the showy Cattleya Mossiæ. Mr. Peed also showed in this class.

The best group of 8 Orchids came from Mr. Wiggins, gr. to Walter Beck, Esq. It contained the rare Aerides Schröderi, with three spikes of flowers, as well as other fine kinds of Aerides, Ladies Slippers, and the pretty Odontoglossum hastilabium. From Mr. Hill, gr. to R. Hanbury, Esq., came the Foxbrush Aerides in beautiful condition, Cypripedium Stonei, the little Manilla Phalænopsis rosea, Vandas, and others. Mr. Page, gr. to W. Leaf, Esq., contributed among others a good Saccolabium, Trichopilia crispa, Ladies Slippers, and Aerides. Mr. Young also showed eight good plants. In groups of 6 Mr. Williams had the best collection, in which were Lælia purpurata in beautiful condition, an excellent Vanda suavis, Anguloa Clowesii, one or two varieties of Aerides, and a fine panful of one of the best sorts of Ladies Slipper. From Messrs. Lee also came six good plants.

Messrs. Veitch exhibited a tastefully arranged group of new and rare plants, several of which are noticed in another column. Among them were Leptopteris superba, with charming dense, deep green feather-like foliage; a beautiful example of Blandfordia nobilis, with Grass-like leaves and fine heads of drooping, ventricosely funnel-shaped, reddish orange coloured blossoms; Dendrobium Bensoniæ, Cattleya Dowiana, noticed last year (see p. 922, 1866), and the new Phaius alluded to elsewhere. The same firm sent, moreover, the beautiful and new Begonia Veitchii, of which we hope soon to give a description and woodcut illustration. In the same collection were included the white-blossomed dwarf-growing Nierembergia rivularis, Pitcher plants of different kinds, an Alocasia with small roundish leaves, exhibiting neatly apportioned black patches surrounded by bands of bright green, and other plants of great value and interest, around which hung continually groups of enthusiastic admirers. Mr. Bull had also one or two new plants, to which Certificates were awarded, notably an Aucuba with the young leaves of a golden hue.

Among Miscellaneous subjects were examples of Lilium auratum from Mr. Turner and Mr. Bull, and Amaryllids and Sarracenias from Mr. Williams.

Cut Roses were shown in charming condition by Mr. Mitchell, of Pilt Down, to whom the 1st prize was awarded. In this collection were Madame Hoste, a fine looking kind, occupying apparently an intermediate position between Caroline de Sansals and Madame Vidot, Maurice Bernardin, Vicomte Vigier, Triomphe de Rennes, Prince de Porcia, Marguèrite de St. Amand, La Rhone, and Alpaide de Rotalier—all magnificent blooms. From Mr. Fraser came Leopold I., Horace Vernet, a fine crimson kind; Sophie Coquerel, delicate pink; Madame Caillet, and Prince Camille de Rohan, the last very dark and fine. Mr. Turner again showed the fine new Rose named Miss Ingram.

The Gold Medal, the highest award which the Society offers for fruit, was cleverly won by Mr. Miller, gr. to the Earl of Craven, Combe Abbey, near Coventry, for the best Miscellaneous Collection, in which were Black Hamburgh Grapes, three bunches of which could not weigh less than between 14 lb. and 15 lb.; Golden Hamburgh unusually good; excellent Peaches and Nectarines, May Duke Cherries, British Queen Strawberries, two Nile Melons, and two Queen Pine Apples the last not very large, but beautifully ripened. From Mr. Rawbone, gr. to C. M. Campbell, Esq., came another good collection, in which were three beautiful bunches of Black Hamburgh Grapes, weighing together 10½ lb.; Buckland Sweetwater Grapes, fine Violet Hâtive Peaches, Melons, and Strawberries. Mr. Johnson, gr. to the Marquis of Aylesbury, furnished a third collection, in which were Black Hamburgh and Tottenham Park Muscat Grapes, a Melon, Peaches Nectarines, and Strawberries. Other miscellaneous collections came from Mr. Masters, gr. to the Earl of Macclesfield; Mr. Bannerman, gr. to Lord Bagot, and Mr. Sage. Collections of other fruits were contributed by Messrs. Ward, Hannan, Penford, and Gadd.

Pine-apples were shown in tolerable abundance. The best, Queen, a well-proportioned beautifully ripened fruit, weighing 6 lb. 3 oz., came from Mr. Ward, gr. to F. N. Miller, Esq., and other good examples of this variety were contributed by Mr. Smee, gr. to W. H. Stone, Esq. Mr. Wallis, gr. to J. Dixon, Esq.; and Mr. Bailey, gr., Shardeloes. Messrs. Penford, Gadd, and Hannan had the best fruits of Providence, none of which, however, were remarkable for great weight. Other kinds of Pine-apples came from Messrs. Ward, Miles, and Hannan.

Grapes, especially black sorts, were plentiful and good, white varieties were for the most part unripe. The best three dishes came from Mr. Sage, gr. to Earl Howe; they consisted of Barbarossa, Black Hamburgh, and Buckland Sweetwater all in excellent condition. Messrs. Bannerman, Kittlewell, Tansley, and Wallis, also showed excellent fruit in this class, as did also Messrs. Lane, of Great Berkhampstead, who had good bunches of Forster's White Seedling, Black Prince and White Frontignan. The best single dishes of Black Hamburgh came from Mr. Sage, gr. to Earl Brownlow, at Ashridge, and Mr. Rawbone; fine fruit of the same variety was, however, contributed by Mr. Lane, gr. to J. Miles, Esq.; Mr. Pople, Mr. M. Henderson, Mr. Ross, and Mr. Turner. Mr. Miller had large heavy bunches of Black Hamburgh, but they were a little deficient in colour. The best basket of 12 lb. was contributed by Mr. Hill, gr. to R. Sneyde, Esq.; and excellent basketfuls of fine Grapes came from Messrs. Henderson, Pople, Hannan, Osborn, and Thomas. The best bunches of Black Prince were exhibited by Mr. Pottle, gr. to B. D. Colvin, Esq., who had beautiful examples of that variety, which was also shown by Mr. Goldsmith. Mr. Allport contributed beautiful bunches of West's St. Peter's. From Mr. Standish came a basketful of his Royal Ascot Grape, a distinct and fine looking variety which, when better known, cannot fail to be a favourite. It was, however, somewhat unripe. Lateral branches with green fruit on them in different stages of growth accompanied this exhibition, in order to show how determined a bearer the variety is. It is stated to be capable of withstanding any amount of hard forcing, and it is evident that it will also be a good late Grape. Muscats were shown by various exhibitors, but they were nearly all unripe. The best came from Messrs. Bailey, Johnson, Sage, Tansley, and Osborn. Other sorts came from Messrs. Turner, Wallis, Tegg, Lane, Douglas, and Miller. Among these we noticed Buckland Sweetwater, three bunches of which weighed together 9 lb.; White Frontignan and Foster's Seedling, all fine, but, as has just been stated, unripe. Fine looking bunches of different kinds of Frontignan came from Mr. Whiting, The Deepdene, near Dorking. Some well fruited Vines in pots came from Mr. Guyett, Herne Hill.

Peaches and Nectarines were generally good, but some of the best exhibitions of them were disqualified, owing to their not having been shown in accordance with the Society's regulations. Messrs. Sage, Masters, Osborn, Whiting, and Allen had excellent dishes of both kinds. Peaches consisted for the

most part of Grosse Mignonne, Barrington, and Royal George, and Nectarines of Elruge and Violet Hâtive, and Hunt's Tawney.

Plums were confined to one dish—a very fine one—of Orleans, from Messrs. Lane, of Great Berkhampstead.

Some fine Figs, of the Brown Turkey kind, came from Mr. Osman, gr. to R. Holland, Esq., and Mr. Sage, gr. to Earl Brownlow.

Cherries were scarcely so fine as usual. The best Black kinds were contributed by Messrs. Miles, Hill, and Enstone; and the best White by Messrs. Widdowson, Enstone, Pottle, and Hill. Among the sorts were Black Tartarian and Elton. A branch of a Cherry called Early Bigarreau, loaded with ripe fruit, was shown by Mr. Turner, of Slough. The fruit of this new variety is of good size, thin skinned, tender, and well flavoured, and being at least three weeks earlier than the common Bigarreau, cannot fail to be a favourite.

Strawberries were neither plentiful nor very good. The best were furnished by Messrs. Widdowson, Record, and Hale, from the last of whom came the best examples of British Queen. The new Strawberry called Dr. Hogg, a fine-looking kind, of excellent quality, was shown by Mr. Turner.

The best green-fleshed Melons were contributed by Mr. Goldsmith, gr. to Sir W. Farquhar, Bart.; Mr. Drewitt, Denbies; and Mr. Standish; the best scarlet-fleshed kinds came from Mr. Bailey, Shardeloes; and Mr. Thomas, gr. to Mrs. Child. Among the best sorts were Marquis of Ailsa, M'Ewen's Hybrid, Blyth Hall, Windsor Prize, and Gem.

Among Miscellaneous subjects were finely ripened pods of Vanilla from Mr. Bennett, of Osberton; and from Mr. Fraser came a collection of fruit trees in pots loaded with fruit.

We may add that Mr. John Waterer's exhibition of Rhododendrons, though now all but over, still contains one or two very late-flowering kinds in considerable beauty. Among these are Warrior, Lady Falmouth, Duc de Brabant, Alexander Adie, Surprise, Sir William Armstrong, and Dictator.

Florists' Flowers.

THE following notes on NOVELTIES which have appeared at recent exhibitions are offered in continuation of those already published:—

At the Rose Show, held at the Crystal Palace on the 29th ult., Mr. Perry, of Castle Bromwich, Birmingham, had some cut blooms of very promising seedling Verbenas of the second year, but as they had suffered during the journey, and were shown again at the Regent's Park Show, I pass them over here with the remark that they comprised some very fine things, the pips being of great size, stout and well formed. Mr. Eckford has also, I believe, some very fine new varieties, but he is this year later than usual in blooming them.

Messrs. Downie, Laird, & Laing were awarded First-class Certificates for their new Nosegay Pelargoniums Countess of Rosslyn and Hon. Gathorne Hardy; the hue of colour of the latter had deepened somewhat since it was last seen, while in the case of the former the violet hue was much more diffused, and the rose colour deepened. A similar award was given to Rose Stella, also of a rich hue of colour, as if a day or two of hot weather had had a very beneficial effect on the flowers. A very dwarf-growing Nosegay variety, having good trusses of bright orange scarlet flowers, and named Tom Thumb Nosegay, came from the same exhibitors; the foliage is plain, the habit very close, and yet vigorous. Mr. Laing says that it beds remarkably well, and at the present time is very effective. A First-class Certificate was also awarded to the same for a stand of blooms of bedding Pansy Imperial Blue from the open ground. It appears to retain its colour remarkably well. Some interest attached to a gold and bronze zonal variety of Pelargonium with pink flowers, which was thought to be the first of this division with other than scarlet flowers; and there was also a very promising variegated sport from the Nosegay Pelargonium Cybister, having a good deal of white on the edges of the leaves. In a group of variegated and gold and bronze-zoned Pelargoniums, &c., from Messrs. Carter & Co., very nicely and effectively arranged, was a basket of their bedding Tropæolum Perfection, so much used at the Crystal Palace. It is one of the best and most striking of its class, having erect and showy orange-scarlet flowers, and blooming very freely. Cleopatra, a very fine and striking bronze-zoned Pelargonium, with a golden leaf ground, was shown by Messrs. Carter & Co., and bids fair to become a standard variety, from the quality of the leaf-marking and the excellency of the habit. Mr. Mann, of Brentwood, had a basket of small plants of his new zonal variety Lord Derby, which still maintains its excellent character, and whose praise is in every mouth. Mr. Turner, of Slough, had a basket of blooms of Mr. Ingram's new hybrid perpetual Rose Miss Ingram, which is of a delicate pink tint, the flowers of full substance. It was awarded a First-class Certificate.

A meeting of the Floral Committee was held on the occasion of the National Rose Show at South Kensington on the 2d inst., when a First-class Certificate was awarded to H. P. Miss Ingram, previously described. If a little thin in the petal, the flowers are very full, and it is so constant as "always to be had." Mr. Thomas Laxton, of Stamford, had a number of blooms of Annie Laxton, a very moderate new hybrid perpetual Rose of a pale rose colour, that did not appear to please any one. Two very pretty and striking varieties of the summer-flowering herbaceous Phlox were shown by Mr. Paul, and awarded First-class Certificates. The one, Beautiful, had stout, smooth, and round flowers of a pure white colour, with a rosy violet centre; and the other, Conqueror, was pure white, the centre rosy purple, the base of the petals round the centre being suffused with the same. They were masses of bloom, and highly attractive. A very dwarf and compact, as well as remarkably free-blooming bedding Lobelia, named pumila elegans, was shown by Messrs. E. G. Henderson & Son, and awarded a First-class Certificate. The flowers are wholly of a pale blue colour, and grown in pots as exhibited the little plants were covered with masses of bloom. Lobelia Ultramarine, from Mr. Turner, appeared to be a reproduction of Mr. Lee's variety under that name; it blooms profusely, the colour a good dark blue, but the habit is no better than ordinary seedlings of speciosa. L. White Perfection, from another source, appears to be identical with Messrs. E. G. Henderson & Son's White Queen, the flowers, like those of the latter, not being wholly white. It was of a closer habit than the ordinary strain of bedding Lobelias, and was evidently a seedling from marmorata. Some good forms of the common Foxglove were shown by Messrs. Ivery & Son, of Dorking. The two ground colours, purple and white, are still retained, the variation occurring in the marking found on the interior of the tube. Some of the white flowers were heavily and handsomely spotted with rosy crimson, and they make very showy plants for shrubbery borders.

This meeting was remarkable for some fine new varieties of Gloxinias. A First-class Certificate was awarded to Mr. John Fraser, Lea Bridge Road, for Rose d'amour, a large and bold flower of the drooping section, with pure white throat and edged with bright rose, the colour being brighter and deeper on the lower part of the flower. The same award to Messrs. Veitch & Sons for Gloxinia Madame de Smet, a very showy flower with a waxy white tube and violet purple lobes; and for G. Vlaanderen, rich rosy purple, the lobes slightly edged with violet, a fine hue of colour, and a good flower. Begonia Veitchii, from the same exhibitors, was also awarded a First-class Certificate. The flowers are large and of a vivid orange-scarlet hue, with a cluster of yellow stamens. It is remarkably showy, and said to be hardy, although the habit of the plant appears to be succulent.

Mr. Geo. Smith had a large plant of his fine new Nosegay Pelargonium, Grand Duke, described at page 661, but the trusses had become somewhat damaged in travelling, which no doubt prevented it from obtaining a similar award to that given at the Regent's Park. A hybrid nosegay from Mr. George Macintosh, of Hammersmith, had good trusses of lively rosy cerise flowers, and the habit was also good. It was named Princess Mary. Messrs. E. G. Henderson & Son received a First-class Certificate for a variegated zonal Pelargonium Lady Sheffield, a very attractive variety, the green ground colour of the leaves being broken into by flakes of pale yellow, the zone well defined and vandyked with dark and vivid rosy carmine; habit good, and the marking well retained. Mrs. Preston, Model Outline, Mrs. Andrew Henderson, and Harry George Henderson, good forms of the variegated zoned class, were also shown; the plants of the latter were small, but the leaves were well marked, and the zone contains a great deal of colour. Reticulatum pulchellum is a green-leaved Pelargonium, mottled with yellow; in its present form it is not worth much, but as a parent plant it may yet render good service to the hybridiser. Mr. J. J. Chater, of Cambridge, had a group of Pelargoniums classed according to his mode of arrangement, one too cumbrous and intricate to gain popular favour. The following were singled out by the Floral Committee as being worthy of notice, though no award was made:—Pallida, a golden-leaved variety, the ground colour greenish gold, with a centre of a deeper gold, the two colours becoming more distinct as the leaves age; In Memoriam, the leaves dark green, large, and well rounded, and having a well-defined, heavy, dark zone; and Nil Desperandum, a very novel form—the leaves bright green, with a very narrow pale zone, almost at the edge of the leaf. The popular interest centred about a group of gold and bronze zonal Pelargoniums, shown by Mr. J. Wills, of Huntroyde Park Gardens, Burnley. Some of these were very fine plants, of vigorous and yet compact habit: the leaf marking endures well as the leaves increase with age. The two darkest-zoned kinds in the group were Model, which opens a pale green leaf-ground, changing to gold with age, having a dark chestnut zone and narrow margin of golden green, a large plant and very showy; and Beauty of Calderdale, bright reddish broad chestnut zone on a golden leaf ground, and having a broader leaf margin than the foregoing, very fine and effective. Refulgens has large bold leaves, the leaf ground yellow, into which some of the reddish chestnut zone has been withdrawn; the latter is very broad and striking, the habit very strong. Painted Lady is in the same way, but has more red on the zone, the leaves also are not so large as those of the foregoing. Peeress is somewhat novel in character, but the leaves are thin, and of a bad shape, the zone reddish chestnut. The three last possessed good habits, but the leaves show a tendency to become stained as they develop, owing to the bronze of the zone being taken into the golden ground. Rosalind and Admiration have the most gold in the leaf ground, the leaves of the latter are large, well rounded, and have a very striking bright chestnut red zone. The zone of the former is of the deepest colour, being well defined and bold, and forms a very attractive plant. Fascination has large and stout yellowish green leaves, and a dark bronzy zone opening with a good deal of red in it, and is edged with pale yellow; good vigorous habit. Perilla, Model, and Firebrand may be said to represent another section; the former has a very dark zone, the leaves opening a lively golden green, but becoming darker with age. The leaves also get stained as they age. Model has a well defined medium lively chestnut zone, on a bright golden green leaf ground, changing to deep green with age, but the leaves of this variety do not become so stained. Firebrand is the best and liveliest of the trio, not changing so much in character; the reddish bronze zone is well defined, and the leaves retain their golden hue. Beauty of Ribblesdale has a distinct character of its own. The foliage is of a bright yellowish green, and a narrow dark zone, the leaves crumple very much, as if the plant was of a weak constitution. It grows very close and compact, but somewhat ungenerously as shown.

The Regent's Park Show, on the 3rd inst., brought together a considerable number of novelties, and, as usual, there were among them many inferior, in their several classes, to those already in cultivation. Mr. Bull had transferred here from the Horticultural Gardens Mr. Wills' new Pelargoniums, just described, and a First-class Certificate was awarded to Beauty of Calderdale; this variety retains its character well, the oldest leaves being as distinctly marked as the youngest. Messrs. Downie, Laird, & Laing received a First-class Certificate for a new Nosegay Pelargonium, Mrs. Laing, the colour soft crimson scarlet, with pale zonal foliage, the habit good, the trusses large and bold, and the individual flowers of good properties. Mr. Turner had baskets each of Mr. Fleming's new Nosegays, Lady Constance Grosvenor and Duchess of Sutherland; the former has a very vivid shade of crimson, and massed in this way they were strikingly effective. A very fine salmon-coloured zonal Pelargonium came from Mr. R. Windsor, gr. to — Ravenhall, Esq., of Walthamstow. It was named Pioneer, and though greatly resembling Beauty of Highgate, the flowers of the new variety were larger and stouter in texture; the zonate foliage was, however, not quite so good as in the older variety. Seraph, from Messrs. Downie, Laird, & Laing, is much in the same way, but on this occasion was not shown in good condition. First-class Certificates were awarded to Messrs. Carter & Co. for variegated zonal Pelargonium Titania, leaf ground green, broken into by the primrose edge, the zone reddish carmine and dark, and with a broad and very regular margin of primrose, the habit good; and for variegated Pelargonium Snowdrop, a very robust-growing variety, with a broad edging of white to a green leaf. The constitution of this variety appears every way first-rate. A somewhat tardy recognition of the merits of Messrs. Carter & Co's bedding Tropæolum Perfection was made at this meeting by its being awarded a First-class Certificate, though shown here in somewhat indifferent condition. It belongs to the Lobbianum section, and grows very dwarf, and blooms both freely and continuously. A First-class Certificate was awarded to Mr. John Hally, of Blackheath, for a strong-growing double-flowering Pelargonium named Nimrod, having remarkably good trusses of bright, rosy crimson flowers. Rose Queen was another double-flowering kind, also from Mr. Hally, having more rose in the flowers than the foregoing, though much in the same way, and the trusses not so large.

The tail of the new show or large-flowering Pelargoniums put in their appearance at this meeting. Prince of Orange (Foster), though a good flower, is too much in the way of John Hoyle, but has more dark colour in the lower petals, while the top petals are not so good; Archduke (Foster) is a large and somewhat coarse flower, having bright salmon lower petals, stained with dark, and a conspicuous white centre; Woman in White (Hoyle) has pure white lower petals, the top petals fiery rose shaded with dark. It is very pure in colour, but the flowers are thin.

Mr. George Smith, Hornsey Road, Islington, received a First-class Certificate for a double-flowered Fuchsia, with white corolla, named White Unique; it has a pale rose tube and sepals, and pure white corolla, the flowers of great size, and very showy. The same award was made to Mr. William Paul for his new Phlox Beautiful, described above.

Mr. Perry contributed a very fine stand of cut Verbenas, of his own raising, among which were several new varieties. First-class Certificates were awarded to the following: Mrs. Mole, a fine self-coloured flower of a deep lilac hue, pips large, stout, and of good form and forming a fine truss: a fine and novel shade of colour; Miss Turner, a very beautiful variety, with a rosy lilac centre on a white ground, the pips of great substance, smooth and circular, and forming a fine truss: a splendid exhibition variety; Splendid, a very striking and beautiful shade of colour, rich violet rose, very bright, and lemon centre, which becomes dull with age: pip and truss of fine quality; and James Bulbeck, intense cerise scarlet, with small pale lemon eye, a very handsome and striking variety; both the last named will be fine additions to the Exhibition varieties. Other new kinds not certificated were Interesting, a fine shade of salmon pink, though the opening colour is deeper and more vivid; conspicuous canary centre, pip large and of good shape; Striking, deep rose shaded with crimson, and a conspicuous white centre, the pips small, and the segments too much divided; a promising bedding kind; J. C. Ward, a dull shade of violet purple with a light centre, finely-formed pip and truss; and Emma Perry, a beautiful light kind, colour blush with lilac rose centre, very fine pip and truss. Of sorts already sent out, Mr. Perry had, of crimson shades—Meteor, Champion, and Mazeppa, a very striking flower, good for pot culture; of purple shades—Indispensable and William Dean, the last very fine; of lilac—Harry Turner; of rose—Delicata, Pioneer, and Leah; and pink—Mrs. Turner and Fairy, and some Seedlings not yet named.

Lobelia speciosa Lindleyana, from Messrs. Watson, of Edmonton, is a dwarf-growing and remarkably free-blooming variety, of a lively shade of violet blue with a white centre; the colour is somewhat confused, and in consequence detracts from its effectiveness. *R. D.*

The Apiary.

ARTIFICIAL SWARMS: LIGURIANISING AN APIARY.—Having for some years been a fortunate possessor of these very superior bees, but my stock of them having become gradually lessened and deteriorated from hybridisation and the loss of the best queens from swarming and other causes, I determined, early in the season, to sacrifice to a great extent my prospects of a honey-harvest, and to devote the chief energies and resources of my apiary to the propagation of Ligurian stocks by the successive destruction of all my common queens or those of impure Ligurian blood, and by the gradual substitution for them of pure queens of the Italian variety.

On the 10th of June, No. 10, a Ligurian hybridised stock, working in a large super, threw off a fine swarm, which, unfortunately, flew straight away to a previously selected habitation in a hollow tree (as already related at p. 633). Two days afterwards I examined all the combs in the stock hive, which was still very populous, and as I did not wish it to send off a second swarm, I carefully searched for the royal cells, removing or destroying all but one or two, so as to lessen the probability of that contingency. The combs, with the exception of one, for which a spare worker-comb was substituted, were replaced, and the super reinstated in its former position. In this last the bees have continued to work, and there is little or no doubt of a queen having in due time emerged from its cell and assumed the sovereignty. The comb mentioned as having been removed was furnished with two fine royal cells, and was destined for another hive. As soon as the operation just described was completed, No. 3 was visited; the combs were carefully examined for the queen, and after some difficulty in finding her, owing to the crowded population, she was captured and destroyed. A side-comb being removed, three or four of the adjoining combs were shifted away from the centre, and the brood-comb, with its important appendages, slipped in between two other combs well filled with brood. The frame with the cells was marked for easy recognition. On the 20th, or a week later, the queen had made her exit from one of the cells, the other cell having been broken up by the bees the same day they were given, probably in the excitement consequent on the discovery of the loss of their rightful monarch.

Thus it will be seen that the hive No. 3 is, with but little delay or loss to the stock, governed by a young queen, which, though not of quite pure blood, is still a great improvement on its predecessor—an ordinary black queen. It is my intention later in the autumn to effect another exchange for a queen of purer blood.

No. 9 was the hive next fixed on for undergoing the renovating process. Having on the 14th of June obtained a perfectly pure Ligurian royal cell, I proceeded as before, and having captured the queen a brood-comb was selected, out of the centre of which a small triangular piece was cut, the bit of comb of similar shape and size, with the royal cell attached, was gently fitted in, and the comb restored to its proper position. On the 20th the combs were all examined; the royal cell was not opened, and there were a considerable number of new royal cells in course of construction, the inmates of which were being raised from the common brood. All these latter were carefully looked for and cut away. On one or two subsequent inspections, the original inserted cell was found in exactly the same condition, while numbers of other royal cells were continually being raised. These, of course, were all cut away as soon as discovered; but it soon became very certain that the inmate of the Ligurian cell was dead. On the 25th, in the morning of a fine day, when many bees were flying in and out, I removed every brood-comb from the stock. For these I substituted empty worker-combs, reserved for such purposes from last year, and in the centre I placed a frame containing a comb of pure Ligurian worker-brood in every stage of development. The bees that were out foraging, added to those which were brushed off two or three of the brood combs, made a fine artificial swarm, which was allowed to occupy its proper stand.

The brood combs, with their clustering bees, excepting those brushed off as already mentioned, were placed

in another box, after having again been submitted to a most searching examination for royal cells, all of which, when discovered, were ruthlessly destroyed. Some spare combs were put in to fill up the vacant spaces; the bees were confined, air being given both at the entrance and at the top, and the hive taken to a dark cool position within doors, there to remain until night, when it was placed on its future stand and the bees liberated. The hive was allowed to remain undisturbed for a few days before I thought fit to inspect the interior. I then, to my great surprise, found another royal cell in course of construction, which, on being opened, exhibited a very young inmate not yet entered into the pupæ state. This was on the 28th, or *fourteen* days after the death of the queen. Even supposing that the cell was commenced on the 25th, it would be 11 days since any egg could have been deposited in the combs. It has usually been believed and asserted that the raising of queens after so great a lapse of time is quite impossible. I do not attempt to account for the circumstance, but simply relate the fact as it has come under my observation:—A large number of young bees had emerged from the brood, and having again carefully searched through the combs, and satisfied myself that there was no other cell, I paid a visit to No. 9, and on lifting out the frame containing the comb of Ligurian brood, found only three royal cells commenced. I was sorry to see that the bees had removed and probably devoured nearly all the eggs, of which there had been a large number. I now cut out a piece of the comb, about 3 inches square, containing some very young larvæ, and returning to No. 12, removed one of the brood-combs, and laying it down on its side, marked and cut out a piece of comb of similar shape, fitting in its place the small piece of brood-comb taken from No. 9, being careful not to squeeze or mutilate the cells tenanted by the larvæ, of which there were but a very small number.

On the 1st of July I again examined the two hives; the bees of No. 9 had made a few more royal cells, some of which were pendent from the edges of the comb where the small piece had been excised. This bears out what I have before discovered, that it is a good plan to cut a brood-comb supplied for the purpose of rearing queens right across where the eggs and minute grubs are thickest. Usually, hanging from the edge thus formed, a large number of royal cells will be constructed. On visiting No. 12, I was delighted to find that no less than eight royal cells, all of them containing fat and flourishing larvæ, had been started, some of which were being already sealed over. It is curious that one lot of bees should have raised, in a small piece of comb which was tenanted by a very limited number of grubs, more royal cells, and in a shorter period of time, than were constructed by a stronger population from a brood-comb of nearly full size, having many hundreds of eggs and grubs in every stage suitable for the purpose.

One of my objects in giving the foregoing description of my queen-rearing operations is to demonstrate the great loss which is sustained, both by the hive and its owner, by the destruction or removal of its fertile queen for the purpose of inducing the bees to raise another. The old queen was removed on the 14th of June. It is pretty certain that the 14th of July will have passed before the hive will possess a queen capable of laying an egg. No reigning mother should be deposed until her place can be at once supplied by a young queen, or by some in royal cells nearly approaching maturity. Diminutive swarms in nucleus boxes should be started for the purpose of raising queens some time before it is desired to effect a change of dynasty. I may have more to say on this subject on a future occasion. *S. Bevan Fox.*

BEE BOOKS: *L C.* "Bee-keeping for the Many."

Miscellaneous.

The Bury Show.—Those who propose to attend this Show, whether as exhibitors or otherwise, will find *Jackson's Guide to Bury* (Jackson & Frost, Angel Hill), a shilling pamphlet, containing a good map of the town, extremely useful. We may add, that as a siding from the railway to the Horticultural Exhibition ground could not be provided, vans containing objects for exhibition will have to be unloaded at the North Gate Street Railway Station (passenger), and come up North Gate Street, turn to the left up Mustow Street, and then sharp to the right up the Vineyard Road into the show ground, the whole distance being about three-quarters of a mile. The station-master has, we learn, promised to keep relays of horses throughout the whole of Monday and Tuesday morning, so that no delay in delivery may occur. The chief entrance for both shows will be the Abbey Gate on the Angel Hill, through the Botanic Gardens, across the River Larke, either taking the Royal Horticultural on the way to the other, or by bearing to the right at the Larke, proceeding direct to the Agricultural. From the Horticultural Show a straight, wide footpath is made across to the East Gate Street Station, right opposite to the entrance of the Royal Agricultural Show, so that every facility has been given for visitors to proceed from one to the other. It will be only a few yards out of the way to take the Royal Horticultural *en route* to the other, there being a thoroughfare right through.

Garden Operations.

(*For the ensuing week.*)

PLANT HOUSES.

Achimenes will now require to be neatly staked, an operation which should at all times be done before any flowers expand: previously however to staking, surface-dress the balls with a little finely-sifted leaf-mould; syringe the plants freely at this stage, and gradually inure them to a few degrees more sun heat than heretofore, as this will tend materially to increase their flowering capabilities. This is also a good time to turn varieties out of store pots into hanging baskets for the decoration of the conservatory or similar structures. Choose for this purpose plants which are about to expand their first flowers, and where convenient associate with them some stiff erect-habited plant, planting the Achimenes around it, so as to hang over the sides of the basket. When treated in this way they look best planted in mixed colours. Look well to conservatory and *Greenhouse Creepers* generally. Train the young growths periodically into the necessary spaces, giving each as much room and light as possible, without which they cannot possibly succeed in flowering freely. Encourage strong young shoots upon *Tacsonias*, thinning out all the weaker non-flowering spray, and ply the syringe frequently, with the view of warding off red spider. *Italian Tuberoses*, so soon as any symptoms of real flower spikes are perceived, will receive material assistance if placed in saucers kept constantly filled with water. Others not showing for flower should be starved by keeping them without water in a hot, dry position until they show indications of blooming, when similar treatment will suffice for them also. *Lapagerias*, whether planted out or grown in pots, are now very generally forming fresh shoots, and should receive abundance of water at the roots. Indeed, with good drainage, it is hardly possible to overdo this plant in this respect at its proper growing season. Pour the water copiously around it therefore upon all convenient occasions, syringing its whole surface well occasionally. This plant produces annually one or more strong shoots from the base. These will require especial guarding from slugs.

FORCING HOUSES.

Pines ripening fruit should receive no water for 12 or 16 days previously, according to the intensity or otherwise of the sun's rays. Continue to pot suckers as frequently as any are procurable in a proper state for the operation. An open soil, composed of abundance of leaf-mould with peat, suits for this, their first stage of growth. Plunge the pots nearly up to the rims in a bottom-heat of about 78°, and keep the atmosphere well charged with moisture, shading occasionally upon intensely hot days. Syringe all internal surfaces, &c., and shut up daily at 3 P.M. Since the weather has become sunny, *Vines* have made satisfactory progress, the favourable change having come at a very propitious time, and having aided much in carrying stoning and colouring crops over a very critical stage. In instances where "shanking" occurs I can but repeat my advice as regards being liberal in the use of every possible preventive of further spreading: admit freely light, heat, and air to the borders by means of surface stirring. Remove at once all sodden inert matters therefrom where such exist, and by giving abundance of air upon proper occasions to the Vines themselves, combined with an amount of heat commensurate with the intensity or otherwise of the sun's light, endeavour to imbue them with a vigour sufficient to resist the baneful malady. *Peach Houses, &c.*, entirely denuded of their fruits, should be thrown wholly open to the influences of the exterior elements. Continue, however, to water, and, what is equally important, syringe the trees during dry hot periods. Stop, by pinching back, all gross young shoots upon young *Figs* lately planted out, and in that way induce lateral shoots to form more plentifully, any of which latter, continue as before advised, to stop at the third or fourth eye. I repeat my advice as regards *Melon Pits and Frames*: see that a constant bottom-heat exists, and do not be lulled into delusive security induced by warm and more genial weather.

HARDY FRUIT GARDEN.

Newly-planted *Fruit trees*, of whatever sort, which have not been mulched, as previously advised, will, if the weather continues dry, suffer greatly from drought. Give all such a copious watering at the root, after which place a moderate thickness of moist, partly decomposed manure over the roots, and again water well, for the purpose of settling it firmly down. Young trees will be much benefited, especially pyramidal and standard Apples and Pears, by a judicious pinching back of all the weaker secondary shoots. This is best done by pinching the points off with the finger and thumb. Go over all trees of similar sorts in a bearing state, and cut back to rather less than half their length all superfluous young shoots. This, without causing them to break again and form other shoots, which they will do if wholly cut back too early, will induce the formation of flower buds at their base; the latter will now form quickly, and show themselves prominently ere long, after which the remaining portions of shoots might be wholly removed. Look to all *Grafts*, and when any have made a fair start remove the clay which surrounds them, releasing them from the ligature originally used for the purpose of fastening them to the stock. Securing them finally from wind or heavy showers must then be attended to. Give *Wall Trees*, especially Peaches, Nectarines, Apricots, and Cherries, copious syringings overhead as frequently as circumstances will admit. This operation should be performed at all times as late in the day as is convenient, with the view of retaining all the moisture possible around them throughout the night. This, independently of the vigour it gives to the trees, is an excellent preventive of red spider and of the many other pests with which gardeners have to contend. Should the weather continue dry, newly-planted wall trees, even where previously well mulched, should receive a good soaking at the root.

HARDY FLOWER GARDEN.

Roses may now be very generally budded. This operation is exceedingly simple, and is capable of affording much interesting amusement even to the most humble disciple of floriculture. Besides, well-chosen colours intermixed, especially where the varieties associated have a similarity of growth and habit, are exceedingly pleasing. The old favourites General Jacqueminot, Jules Margottin, and Géant des Batailles, budded thickly upon Ayrshires, or upon other robust climbers, such as Queen of the Prairies, Crimson Boursault, &c., make a gorgeous display in an incredibly short time. Choose the buds from firm young shoots upon which the bark parts freely from the inner wood. Insert the edge of the knife into the bark a quarter of an inch behind the leaf—after first cutting the leaf itself away, but leaving an inch of the leaf stalk still attached—and cut away a portion of the wood surrounding the bud down into the pith. This excised portion should be boat-shaped. Remove the wood from within this eye carefully without injury to the bark by commencing in front of the bud and drawing it carefully away without injury to the root, so to speak, of the bud. Without delay, make a clean diagonal cut athwart that portion of the stem where it is intended the bud should be placed. Then run the point of the knife down the stem from the centre of the previous cut in the form of a T, and into this neatly introduce the already prepared bud, which when finished should be so fixed as to replace as nearly as is possible the original bark, which now in its turn will be required to protect the adopted bud. The oldest growths in the way of stocks are not to be despised, as very frequently buds take as freely upon these as upon others at this season of the year. In placing the necessary ligature around the buds, whilst it is necessary to tie them in firmly, do not by any means cover over the eye itself—on the contrary, give it room to grow properly. As regards Briar stocks, bud as near the main stems upon the shoots of the current season's growth as is convenient. Where this has been done two or three days, stop the main shoots.

KITCHEN GARDEN.

Lose no opportunity constantly to keep the hoe at work whilst fine weather lasts, to thoroughly destroy all weeds. Sift well-decomposed manure around *Cucumbers* and *Vegetable Marrows*, after which peg them firmly down, and pinch back all leading shoots. Make a late sowing of *Dwarf French Beans* in an open sunny position. Finish cropping all spare ground with *Broccoli, Kale*, &c., upon the first favourable opportunity. Water *Cauliflowers, Lettuce*, and especially *Celery*, in whatever stage of growth. Remove *Early Peas* from which the last pickings have been made, and prepare the ground thus disengaged for other crops. *W. E.*

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the Week ending July 3, 1867, as observed at the Horticultural Gardens

June and July.	Moon's Age.	Barometer.		Temperature.					Wind	Rain.
				Of the Air.			Of the Earth			
		Max.	Min.	Max.	Min.	Mean	1 foot deep.	2 feet deep.		
Thurs. 27	25	30.522	30.419	82	40	61.0	61	59	N.E.	.00
Friday 28	26	30.502	30.474	70	35	52.5	63	59	N.E.	.00
Satur. 29	27	30.408	30.273	80	42	61.0	62	60	S.W.	.00
Sunday 30	28	30.079	29.890	82	47	64.5	63	60	S.W.	.09
Mon. 1	●	29.819	29.733	83	44	63.5	64	60	E.	.24
Tues. 2	1	29.735	29.654	71	55	63.0	65	61	W.	.04
Wed. 3	2	29.968	29.787	74	55	64.5	64	61	S.	.14
Average .		30.147	30.028	77.4	45.4	61.4	63.1	60.0		0.42

June 27—Quite cloudless, and very dry air; clear and dry; very fine.
— 28—Overcast; scattered low dusky clouds; very fine at night.
— 29—Quite cloudless, very fine; cloudy at night,
— 30—Hot; very fine throughout.
July 1—Hot, with slight dry haze; hot and dry; cloudy; rain,
— 2—Close and warm, dull and showery; fine rain.
— 3—Overcast and warm; rain at night.
Mean temperature of the week, 07 deg. below the average.

STATE OF THE WEATHER AT CHISWICK,
During the last 41 years, for the ensuing Week, ending July 13, 1867.

Juiy.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain	Prevailing Winds.							
						N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday .. 7	73 7	50 8	3 29	22	0.34 in.	2	2	4	4	6	14	7	2
Mon. .. 8	73.8	49.9	61.86	20	0.48	—	3	5	2	2	15	8	6
Tues. .. 9	74.0	49.7	61 87	18	0 82	4	2	3	1	3	10	11	7
Wed. ..10	74 7	50 4	62.57	16	0.48	2	3	2	2	4	13	7	8
Thurs. ..11	75 1	50 6	62 88	10	1.07	4	2	5	1	5	9	9	6
Friday ..12	75 9	50.4	63 19	13	1.10	1	2	7	—	6	10	9	6
Satur. ..13	76 0	51 3	63.73	14	0 92	—	4	6	—	3	23	4	1

The highest temperature during the above period occurred on the 7th, 1852—therm. 92 deg.; and the lowest on the 9th, 1863—therm. 33 deg.

Notices to Correspondents.

BURY ST. EDMUND'S SHOW: *M G R*, and others. Applications for space should be addressed to Mr. Eyles, Royal Horticultural Society, South Kensington, W.

INSECTS: *Amateur.* The insect sent is the chrysalis of the common tortoiseshell butterfly, Vanessa Urticæ, the caterpillar of which feeds on Nettles. *W.*

MEDICAL PLANTS: *West Indian* asks if any correspondent can inform him as to the cultivation and general management of the following plants used for medical purposes, viz., Atropa Belladonna, Hyoscyamus niger, and Conium; or of any work on the subject, where and by whom published?

NAMES OF PLANTS: *P C.* 1, Lastrea Filix-mas incisa; 2, L. F.-m. paleacea; 3 and 4, forms of Athyrium Filix-fœmina, not recognised as named varieties. The other specimen of Lady Fern is a case of arrested growth.—*F B.* One of the endless varieties of Saccolabium guttatum or retusum.—*A R.* For Epidendrum campylostylis in our last (see p. 690), read E. campylostalix.—*B Wortley.* Hyoscyamus niger, Henbane, a common poisonous plant.—*C H M.* Variety of Stanhopea oculata.—*C G.* Lastrea invisa; 2, Dennstædtia, *alias* Sitobolium davallioides; 3, Nephrodium molle corymbiferum.

PEAR MOULD: *J D W.* Your Pears are attacked by that very troublesome mould, Cladosporium dendriticum, which is very common on Apple as well as Pear trees this year. Unfortunately, sulphur does not seem to have the same effect on the dark coloured moulds as on those which are white. You can try it. We are not, however, sanguine as to the result. *M J B.*

VINE LEAF EXCRESCENCES: *Fred.* The excrescences on your Vine leaves closely resemble those which are so common on the leaves of Lime trees, and we suppose, therefore, that they have been caused by the puncture of some Acarus—not, however, the species known under the name of the red spider. You may possibly detect the insect if you examine the leaves with a good lens when fresh. *M J B.*

LAWES' MANURES.—The Manures manufactured by J. B. LAWES for the present season of 1867 are now ready for delivery at his Factories, at the following prices, per ton:—

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LAWES' PATENT TURNIP MANURE and BONE SUPERPHOSPHATE of LIME	6	6	0
LAWES' SUPERPHOSPHATE of LIME from BURNT BONE or MINERAL PHOSPHATES	6	5	0
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CORN MANURE, for Spring Use
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GARDEN BORDER EDGING TILES, in great variety of patterns and material, the plainer sorts being especially suited for KITCHEN GARDENS, as they harbour no Slugs and Insects, take up little room, and once put down incur no further labour and expense, as do "grown" Edgings, consequently being much cheaper.



GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, of great durability, and in great variety of design.

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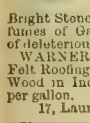
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"I have much pleasure in giving you a reply to your inquiries about the Black Varnish I have had from you for the last two years. It has answered my expectations fully, and as far as I am able to judge, it is the best material for preserving iron fencing, gates, and other wood work exposed to theair; and I can with safety recommend it as the best and cheapest article that is yet out. Wishing you every success."

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E. T. ARCHER'S "FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, and Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, &c.

PROTECTION from the SCORCHING RAYS of the SUN.

"FRIGI DOMO" NETTING, White or Brown, made of prepared Hair and Wool, a perfect non-conductor of heat or cold, keeping a fixed temperature where it is applied. It is adapted for all Horticultural and Floricultural purposes, for Preserving Fruits and Flowers from the Scorching Rays of the Sun, from Wind, from Attacks of Insects, and from Morning Frosts. To be had in any required lengths.

"FRIGI DOMO" NETTING, 2 yards wide, 1s. 6d. per yard run.

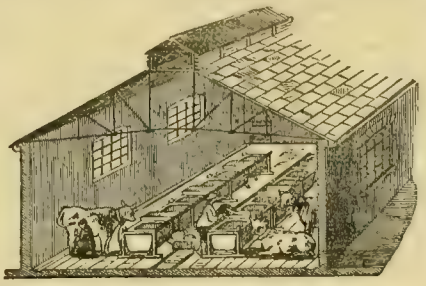
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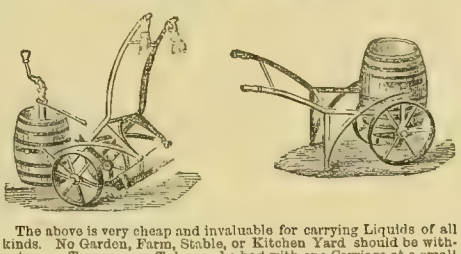
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"SIR,—You are welcome to make use of my letter recommending your Water Barrow. I find it of great use, and stronger, better, lighter, and more serviceable than one I had made in the neighbourhood, the carriage alone of which, without the barrel, cost me £3 10s. I unfortunately ordered it before I saw your advertisement. —I am, yours obediently, "O. FITZGERALD."

"To Mr. W. S. BOULTON."

From THOS. INGLE, Esq., *M.D., Emsworth, Hants, June* 24, 1866.

"SIR,—The Swing Water Barrow is in every respect a most admirable improvement on all I have hitherto used in my Gardens. All parties who have seen it, Gentlemen as well as Gardeners, have bestowed upon it their unqualified approval, and several said they would order them of you.—Yours truly, "THOS. INGLE, M.D."

"To Mr. W. S. BOULTON."

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The Company advances money, unlimited in amount, for the following works of Agricultural Improvement, the whole outlay and expenses in all cases being liquidated by a rent-charge for 25 years.

1. Drainage, Irrigation, and Warping, Embanking, Inclosing, Clearing, Reclamation, Planting, for any beneficial purpose, Engines or Machinery for Drainage or Irrigation.
2. Farm Roads, Tramways and Railroads for agricultural or farming purposes.
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Apply to GRANVILLE R. RYDER, Esq., Managing Director, 3, Parliament Street, London, S.W.

THE GENERAL LAND DRAINAGE and IMPROVEMENT COMPANY. Offices, 22, Whitehall Place.

Under this Company's Act Tenants for Life, Trustees, Mortgagees, Guardians, Committees of Incompetent Persons, Beneficial Lessees, Corporations (Ecclesiastical or Municipal), Incumbents, Charitable Trustees, &c., may effect the following Land Improvements, and charge the outlay and expenses on the estate improved, by way of rentcharge, to be paid by half-yearly instalments, viz.:—

1. All works of Drainage, Irrigation, Warping, and Embankment.
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3. The Construction of Roads.
4. The Grubbing and Clearing of old Woodlands, Enclosing, Fencing, and Reclaiming Land.

The owners of Estates, not entailed, who may be desirous to avoid the expense or inconvenience of a Legal Mortgage, may also charge their Estates with an Outlay in Improvements under the simple and inexpensive process of the Company's Act.

The Term of Years for the Rentcharge is fixed by the Landowner, so as to adapt the amount of Annual Payment to the circumstances of the Tenants.

No Investigation of Title being required, and the Charge not being affected by Encumbrances, no Legal Expenses are incurred

The Arrangements for Effecting Improvements are threefold —

No. 1. The Works may be Designed and Executed entirely by the Landowner's Agent, and the Company employed only to supply the Loan and conduct the matter through all the official Forms for Charging the Outlay on the Estate.

No. 2. The Company will supply Plans, Specifications, and Estimates for any Improvements to be executed by the Landowner's Agent as under No. 1. In each of these cases the Landowner will be solely under the control of the Enclosure Commissioners.

No. 3. The Company will undertake the entire responsibility of the Improvements, prepare the Plans, execute the Works, and finally charge on the Estate the actual amount expended, with their Commission thereon, approved by the Enclosure Commissioners.

Landowners may thus obtain what assistance they require from the Company, and no more, in effecting the objects in view.

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Applications to be addressed to HORACE BROKE, the Secretary, at the Office of the Company, 22, Whitehall Place, London, S.W.

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Applications for further information to be made to Dr. MANN, the Special Agent of the Natal Government, at the Natal Immigration Office, 15, Buckingham Street, Strand, London, W.C.

MANCHESTER and LIVERPOOL AGRICULTURAL SOCIETY.—GRAND CENTENARY CELEBRATION SHOW, at MANCHESTER, August 26, 27, 28, and 29.

PRIZES amounting to UPWARDS of TWO THOUSAND POUNDS are offered.

ENTRIES CLOSE JULY 25. Prize Lists and Forms of Entry may be obtained from Mr. H. WHITWORTH, Assistant Local Secretary, Carlton Buildings, Cooper Street, Manchester; or from

57A, Church Street, Liverpool. T. B. RYDER, Secretary.

ROYAL AGRICULTURAL SOCIETY of ENGLAND. BURY ST. EDMUND'S MEETING.

PROGRAMME.

WEDNESDAY, THURSDAY, FRIDAY, and SATURDAY, July 10, 11, 12, & 13—TRIAL of IMPLEMENTS. Admission, 5s. each person.

MONDAY, July 15—The ENTIRE SHOW-YARD OPEN from 8 in the Morning, at which hour the Judges will commence inspecting the Live Stock, and making their Awards. Admission, 5s. each person.

TUESDAY and WEDNESDAY, July 16 & 17.—Admission, 2s. 6d. each person.

THURSDAY and FRIDAY, July 18 & 19—Admission, 1s. each person.

The Showyard will be cleared of Visitors at 8 o'clock each evening.

FRIDAY, July 19—GENERAL MEETING of the MEMBERS in the Showyard at 10 o'Clock.

A Military Band will attend during the Show.

The hours at which the Exhibition of Horses in the Ring, and the performances by the Band will take place, will be notified by Placards in the Showyard.—By Order, H. HALL DARE, Secretary. 12, Hanover Square, London, W.

PUBLIC MEETING in the ROYAL SHOW WEEK.—The MEMBERS and FRIENDS of CHAMBERS of AGRICULTURE are requested to attend a PUBLIC MEETING in the ATHENÆUM or TOWN HALL, BURY ST. EDMUND'S, on TUESDAY, July 16, at 7 o'Clock in the evening, for the purpose of urging the Legislature to enforce the Slaughter, Effectual Separation, or Quarantine of all Imported Animals at the Ports of Landing; also for considering what steps can be taken to obtain a Compensation for those Persons whose Cattle were destroyed by order of Inspectors between November 23, 1865, and February 20, 1866.

JOHN ALGERNON CLARKE, Secretary.

Central Chamber of Agriculture, 11, Waterloo Place, Pall Mall, S.W.

The Agricultural Gazette.

SATURDAY, JULY 6, 1867.

MEETING FOR THE ENSUING WEEK.

WEDNESDAY, July	10	Preliminary trial days of the Great Meeting of the English Agricultural Society at Bury St. Edmund's.
THURSDAY,	— 11	
FRIDAY,	— 12	
SATURDAY,	— 13	

It will be seen by the Report in another page of last Wednesday's Council Meeting of the Royal Agricultural Society, that the resolutions of the Executive Committee are now in entire accordance with the practical and professional character of the Society, and that, altered in one or two cases at the instance of Mr. HOLLAND, they have been finally adopted. It appears then—

(1) That the first examination will take place at the Society's house in Hanover Square, during the week commencing April 20, 1868.—(2) That forms of entry will be prepared, which are to be duly filled up and returned to the Secretary, together with a certificate of general education, on or before the 29th February, 1868.—(3) That the examinations will be conducted by

means of written papers, and by a *vivâ voce* examination at which any members of the Society may be present.—(4) That every candidate will be required to satisfy the examiners in the science and practice of Agriculture, and in Book-keeping; and also in one of the two following subjects: Land Surveying, and Mechanics as applied to agriculture.—(5) That the successful candidates will be placed in two classes, and arranged in order of merit.—(6) That candidates, in order to be placed in the 1st class, must satisfy the examiners in the above-named subjects, and also in Chemistry.—(7) That any candidate may offer himself for examination in one or more of the following subjects:—Botany, Geology, Veterinary Science. Any knowledge which he may show of these subjects will be counted to his credit in the general classification, provided that he has fulfilled the foregoing conditions, and provided that the knowledge of these subjects do not fall below the standard fixed as a minimum in each of these optional subjects.—(8) That each candidate obtaining a First-class Certificate will thereby become a life member of the Society.—(9) That the following prizes will be awarded to successful candidates placed in the 1st class for aggregate merit:—1st prize, 30*l.*; 2d prize, 20*l.*; 3d prize, 10*l.*—(10) That the following additional prizes will be awarded to the candidate who shall show the highest merit in each subject respectively:—Money or books to the value of 10*l.*: Science and Practice of Agriculture, Mechanics, Chemistry, and Botany. Money or books to the value of 5*l.*: Geology. Money or books to the value of 10*l.*: Veterinary Science. Money or books to the value of 5*l.*: Land Surveying and Book-keeping.—And (11) That Certificates, to be termed First and Second Certificates, will be granted to candidates placed in the 1st and 2d classes, specifying the subjects in which they have satisfied the Examiners.

It appears to us that we have here at length a scheme which provides both stimulant and guidance to those engaged in the work of professional agricultural education—both spur and rein to those who are endeavouring to equip themselves for a successful professional career in agriculture. It is this clearly which is properly the field of work for an Agricultural Society, and Mr. HOLLAND may be congratulated on having by the patient persistence of his advocacy succeeded in convincing the Council of this fact. We hope that a large number of agricultural students, from colleges and schools and farms, will come forward next spring to claim the handsome prizes offered.

AT Lodge Farm, near Barking, Essex, the Metropolis Sewage Company have, during the present year, been pouring North London Sewage, pumped from the outfall at the Thames, over a very poor soil upon a gravelly sub-soil. That portion of the farm which is receiving the drainage water of London in this way was last year partly in Wheat and Peas, partly without crop. The land is, much of it, naturally extremely poor, with the gravelly sub-soil coming in places almost to the surface. And no manure, no sheep-fold, or fertiliser of any kind, was used to put the land in condition for the seed. The surface was laid out with carriers along the highest lines, which in some cases had to be made up artificially; and through these carriers the water runs from the tank, receiving it from the pump either into furrows along the ridge lines of wide lands, over the surface of which it thus is made to trickle, or into channels placed as concentric or contour lines at intervals of 10 or 15 yards on the natural slope. In the former case we have ordinary water-meadow irrigation, in the latter the process called catch-water irrigation. Some of the beds were sown in May last year, and they soon became covered with a capital coat of Italian Rye-grass. The sewage, however, did not come till September, and in the mean time the Italian Rye-grass was cut and made into hay. Elsewhere the Italian Rye-grass was not sown till September and October, and then the land was just covered with the plant before winter. In this way about 60 acres of land were covered with Italian Rye-grass. And a cutting of about 6 tons per acre was taken from much of it during December of last year. Unfortunately the severe frosts of January killed many patches in one considerable piece, which was latest cut; but with the exception of this the whole area was covered with a very satisfactory plant when the sewage was poured over the whole in January and February. The patchy portions were sown and harrowed, and have ultimately yielded their fair share of the produce, which, on the whole, has been satisfactory, and in some places nothing less than wonderful.

To take examples. On one piece, 8 or 9 tons per acre were cut early in April; 10 to 12 tons were cut in the middle of May, and about 12 tons again were cut in the week ending June 22. This was sown in August last year, and has received about 4000 tons of sewage per acre. This quantity has been so large owing to the desire, by copious dressings in February and March, to obtain the earliest possible cutting. Another small piece close by, which had been in Potatos, was sown in September, and did not yield its first cutting till early in May, when it produced not less than 16 tons per acre, and since then, in the week ending June 22, it has produced a second cutting of 15 tons per acre.

Over the whole of a poor gravelly slope, about 7 acres in extent, which has received about 2400 tons per acre of head-water, together with a small portion of tail-water from higher beds, there has been taken in two cuttings about 25 tons per acre—the last one, in the week ending June 29, varying from 12 to 16 tons, and being, where heaviest, one of the most extraordinary crops of succulent growth that ever, we should think, came off land so poor.

Of course the quantity and character of the produce is owing to the plant as well as to its food. Italian Rye-grass is wonderfully well suited to our climate and to this mode of growth. Where SCHRAEDER'S Bromus was sown, the produce, as we have already said, was not at all satisfactory, as regards either the quantity or the quality of it. Many other plants, however, are capable of satisfactory feeding in this way. Mangel Wurzel, grown only with sewage on Lodge Farm, is looking better than we have this summer seen it anywhere else. Potatos are most promising. Flax is, if anything, over-luxuriant. Lucerne is pretty well. These are all in comparatively small patches; large enough, however, fairly to test the fertilising power of the sewage. Experiments are also being made with vegetables—Cabbage, Strawberries, Celery. One of the most promising of the experiments is in the case of the Wheat crop. In two parts of a poor field of Wheat the plant stands strong and thick, with ears plentiful and large, and the only explanation of the difference is that here the sewage was allowed to pour three or four times during the early growth of the crop.

The Sewage Company invite the inspection of their crops; and we strongly recommend any who are interested in the sewage question to find their way to Lodge Farm. They will, no doubt, see in some instances that the management might have been improved; and the Company, as well as their officers are, no doubt, learning, like others, by experience; but it is impossible to doubt, after an inspection of the crops there, that the North London sewage, which is their property for half a century to come, is a fertilising agency of extraordinary power; and that the agricultural remedy for the nuisance which it has hitherto created is complete.

We add that the quantities, both of sewage used and of the Grass cut, are daily recorded; the former being measured at the tank by an apparatus for the purpose, and the latter, which is being consumed at the rate of about 16 tons a day, by a stock of 250 cows, being most of it passed over the weigh-bridge.

—— THE Devonshire papers of last week appear to have simultaneously copied and published the agricultural returns furnished by the Board of Trade (1866). The first crop therein specified is Wheat, and that is set down as then occupying the immense extent of 111,768 acres, and this, notwithstanding the fact that Wheat has been much less grown of late years than formerly. The above figures, therefore, may be taken to represent the minimum acreage annually under Wheat in this county, that is, according to the figures of the Board of Trade. But these figures, instead of representing a minimum quantity, will be found to represent a maximum exaggeration. On the estate of Sir B. WREY, in North Devon, several of the larger farms are held at CORN RENTS, and have been so held for many years. This tenure has involved the necessity of keeping a registry (copied from the "London Gazette") of the number of quarters of corn returned as sold in the county weekly, and when the accounts were made up annually the quantity of Wheat returned as sold was found to be an index to the quantity annually grown. Now if any one will look over the CORN TABLES for the kingdom which were published weekly up to Dec. 31st, 1864, he will find that, compared with other counties, Devon, though of great extent, is a very small Wheat grower; the yield moreover per acre is small, 20 bushels being considered the average crop on the average of years. Taking the acreage given in the returns, and taking also the low estimate named per acre, the weekly disposable quantity of Wheat for the county should, nevertheless, be 5373 quarters. Now how is this reconcileable with the fact that for many years past, up to the period before named, the average weekly quantity returned as sold did not exceed 480 quarters? Again—admitting that the quantity returned as sold did not include seed-corn retained by the grower—did not include bread-corn retained by him for consumption in his own family—did not include sales of corn made and not reported by the buyer, admitting all this, and allowing for it a quantity equal to that returned, say bushel for bushel, the yield would even then, over the extent named, be only equal to about 3 bushels per acre! Furthermore, according to the registry of quantities kept in the agent's office on the property before named, the annual Wheat produce of Devonshire is known to stand at a certain ratio to the annual Wheat produce of the kingdom. On this data, if the figures given by the Board of Trade were correct, the annual Wheat produce of England should reach to 50 millions of quarters! *C.* [The weekly sales reported are a very small fraction indeed of the weekly sales effected.]

—— We are informed that the following awards to exhibitors of Agricultural Machinery have been made at Paris:—*Gold Medals:* J. & F. Howard, Bedford; Clayton, Shuttleworth, & Co., Lincoln; J. Fowler & Co., London; Garrett & Sons, Leiston Works; Ransome & Sims, Ipswich; Hornsby & Sons, Grantham. *Silver Medals:*—Aveling & Porter, London; E. H. Bentall, Heybridge, York; Samuelson & Co., Banbury; Marshall, Sons, & Co., Gainsborough; Richmond & Chandler, Salford; Robey & Co., Lincoln; E. R. & F. Turner, Ipswich; Coleman & Norton, Chelmsford; Picksley, Sims, & Co., Bedfordleigh; Reading Iron Works, Reading; Penney & Co., Lincoln; Smyth & Sons, Peasenhall. *Bronze Medals:*—W. N. Nicholson, Newark; Ruston, Proctor, and Co., Lincoln; W. Smith, Kettering; Wallis, Haslam, & Steevens, Basingstoke; Woods & Cocksedge, Stowmarket; Ashby & Jeffery, Stamford; A. C. Bamlett, Thirsk; H. Kearsley, Ripon. *Honourable Mention:*—Amies, Barford, & Co., Peterborough; W. S. Underhill, Newport; Ball & Sons, Rothwell; Brown & May, Devizes; Fox & Co., Bristol; Parkes, Palmer, & Co., Birmingham.

FARM NOTES.—By Mr. MECHI.

1. *The Crops.—July* 1: Many days of bright sunshine and scorching dry northerly winds have carried off the surplus moisture, cracked the stiff clays, hardened their surface, and improved the colour of many crops that looked bilious and miserable. Still the difference between well-drained and well-farmed lands, and those undrained and poorly farmed is very considerable. On the former nearly all crops will be generally good. Wheat probably an average—not a superabundant crop. Barleys generally complained of, but improving. Oats improved in colour, but waiting for a shower to bring them forward. Beans an average—looking generally of a good colour. Peas in many cases very indifferent—can scarcely be an average. Potatos, having wonderfully recovered from the sharp frost, promise well. Clovers and Grasses never better, and a large breadth harvested in first-rate order, considerably over average. Wheat being now in full bloom, can hardly be ready to harvest before the second week in August (say 7th to 10th). This will be nearly 10 days later than last year, when we began on the 30th July. The severe second winter in March, with considerable rainfalls, checked Barley especially, and prevented the branching of Wheat to some extent. Taking all crops together, we may get an average supply of food. Mangels are late, and waiting for a shower. Swedes, so far as I have observed, plant well. There will soon be an outcry for rain. Winter Tares have been a good green crop.—*July* 3: A fine rain yesterday has refreshed the green and root crops, and will plump the kernels of our grain crops. Beans and Peas appear very grateful for it.

2. *Rooks.*—How annoying it appears to have an eighth or a quarter of an acre of a field of White Peas destroyed by clouds of rooks, and yet, if we reflect, how trivial is the cost compared with the advantage we, as farmers, derive from these birds during the 9 or 10 months in the year when they live upon grubs, insects, slugs, and worms, destructive to agricultural produce. Their presence at seed time should teach us to till our land well, so that the drill places the seed, especially on light land, below the reach of their bills. I measured their beaks to-day, and found them to be about 2½ inches long to the eye; so that if the corn is put in 3½ inches it would be tolerably safe. Where farmers will sow 3 bushels of Wheat, and 4 of Barley, and 5 to 7 of Oats, it would be a great benefit if the rooks could take half of it. I am daily more and more convinced that birds are the farmer's friends, especially now that the broadcast system is nearly given up, and that we are gradually resorting to deep steam tillage and drill culture. It is only in extreme dry weather like the present, when they are distressed for want of worms, &c., that they perseveringly attack the Pea crops. *July*, 1867.

3. *Asphalted Floors.*—Among the thousand and one little matters that tend to make farming profitable, are asphalted floors. In summer, when large quantities of green food, either Tares, green Beans, or Italian Rye-grass, are passed through the chaff cutter, they require to be spread out thinly or they will heat and spoil, and the cattle will not eat them, they can be shovelled up clean and free from grit on the asphalted floor. The steam-driven chaff-cutter will in two hours prepare food enough for three days, and succulent food is improved by losing some of its moisture, especially in wet weather. For dry chaff and all kinds of corn the asphalted floor presents the great advantage of perfect dryness; not so with bricked or earthern floors. Therefore all chaff bins and granaries should be asphalted when in contact with the ground. On the score of economy the advantage is immensely in favour of asphalte, for near the ground wooden floors will rot and are a harbour for rats and mice. Rats cannot gnaw asphalte. One's poultry-house floor is decidedly more cleanly and healthy when asphalted, and more secure from rats. All barn floors should be

asphalted. The cost with us is about 2*s.* per yard of 9 feet for 1 inch in thickness; where heavy carts pass over it should be at least 2 inches thick. One I have had in use for many years, and very roughly used, is still in good order. Landlords would find it most economical for their new buildings. I have not yet used it as a floor for cattle, &c., but hear that it answers well for piggeries. Where sacks of corn are placed against bricked walls, the walls should be smeared with asphalte to the height of the sacks. Where good sifted gravel and some lime are available, the cost of the concrete basis is trifling. Some dry grit or road stuff is required to mix with the asphalte and give it substance, and to prevent its cracking or melting in the sun. In our case about three barrows-full of road grit are used to each copper of asphalte. The asphalte is, I believe, the produce from gas-making. Time seems to have no effect upon asphalte, so far as weather is concerned. I once made a dung-heap on my asphalted barn floor, to enable a foreign gentleman to try his experiments. The mass heated tremendously; the floor, however, only suffered a partial abrasion of its surface, so that it would appear to be safe as an ordinary basis for cattle dung. I presume we are all gradually arriving at the conclusion that if we are to make meat cheaply, it must be by comminuting our green and root crops, and keeping our cattle and manure under cover. *July*, 1867.

4. *The Critical or Finishing-up Time.*—As the period of protusion and final development of the ear approaches, then we perceive the difference between drained, deeply cultivated, well-manured land, and others where non-drainage, weediness, shallow ploughing, and deficient manuring prevail. The money contrast must now be estimated by pounds and not shillings per acre, for this year the difference is unusually great, owing to the very wet and cold spring. There are seasons when the difference between drainage and non-drainage is not so perceptible: I mean when a very dry summer cracks the tenacious clays so widely and deeply that the moisture from below escapes by evaporation from the sides of the fissures. The non-cracking of heavy undrained clays this year is an unfortunate occurrence. Saturated mud from the bottom of a pond, when spread out and exposed to the sun, becomes full of wide fissures, and gives one an illustration of the condition of undrained clays after a wet season. *July*, 1867.

5. *Agricultural Grenadiers and Riflemen.*—Whenever I notice crops of grain on undrained, ill-cultivated, and over-seeded fields, the irregular height of the stems reminds me of an incongruous admixture of stalwart bear-skins and tiny riflemen. This is a sure indication of imperfect farming. We see near the furrows plants with short stems, small ears, and an uncomfortable greenish brown colour. On well drained and well-cultivated lands the crops about this time (end of June) present an even appearance, and when the ears are finally developed one may almost lay a rule across them, so regular are they in ample development. I am sorry to be obliged to say that the admixture which I have described is far too general and prevalent for the welfare of the country. In some cases gigantic weeds overtop even the bear-skins. *July*, 1867.

6. *Within 30 feet of the Poultry House* there is now growing on my farm a Wheat crop estimated at from 6 to 7 quarters per acre, produced by 1 bushel of seed per acre. A large number of poultry have had free access to this field, as well as to my others) from the time that it was drilled, and I quote the case to verify what I have long ago stated, that birds of nearly every kind are the farmer's friends, and that it is a great mistake to discourage them. This very field produced 7 quarters of Wheat in 1865, and 7 quarters 2 bushels of Beans in 1866,—pretty well for strong, plastic, Tiptree Heath clay. It is strange that so little poultry is reared in this country, when the price is 1*s.* per lb. live weight, and the price of mutton and beef, live weight, being only 4½*d.* It is true that poultry, like other live stock, require good food, care, and shelter, especially in winter, and that the race or breed should be suitable to the soil and climate, but while we are importing and consuming 1,000,000 of foreign eggs daily (Sundays included) we need not fear to overstock our market with home produce. Poultry, like sheep or other stock, manure where they go, and, in addition, clear off vermin. *July*, 1867.

7. *Wood's Mowing Machine.*—I have just been inspecting the working of this mower in cutting Clover. My neighbour, a young farmer, has worked it himself, and unaided has just finished 50 acres of Clover and Grass, the machine appearing none the worse for wear. It is a two-horse mower; the quantity cut, 6 acres per day. Two pairs of horses are required. My neighbour was accustomed to work these machines in the United States. He said the cost of the machine was 22*l.*, or, if hired, 11*s.* per day. It was, when I saw it, working across the furrows and stetches—the ground, a yellow clay, as hard as cast-iron; and as it dropped into a furrow every 7 feet with a sudden dip or "bounce," the machine and my young neighbour were "well shaken," to say nothing of angular and deep water furrows. I heard him complain of being somewhat tender behind. The wonder to me was that the machine could hold together under such a repetition of violent shocks—the horses walking fully 4 miles per hour. The first thing my neighbour found out was that the tool box of the machine was not half large enough, and that as it had no lid the concussions sent the contents flying into the air. These two defects he at once remedied. The maker should take a note of this. The knives are of the same kind and action as Hussey's reaper, which I used for 10 years until worn out; the work was well done. The crop was not heavy. He had cut some very heavy laid crops. It was necessary to take these in flank, or in an opposite direction to that in which they were laid. The knives had to be ground at least once a day, so that the two sets only lasted sharp one day. It would be well to have two extra sets. Filing these up won't do for Grass. We can easily appreciate the importance of a sharp edge for a clean cut, witness the constant sharpening of the scythe to correct the loss of edge. It is a great mistake to go blundering on with a dull tool, causing severe work to the horses, and an imperfect wasteful cutting. The grindstone should be of a fine grit, and a little management is required to bring the knives to the edge of the stone. Great care is required to see frequently to tighten the nuts and screws that have worked loose by the frequent concussions, or they will be lost. In this, as in all machinery, intelligent observation and attention are required. It certainly is most convenient to have such a machine when your ordinary labourers are insufficient for the work to be done. It also checks an exorbitant demand of price for labour, and renders the farmer less dependent in this respect. On level ground the work is easy, and the wear trifling—a wonderful contrast to the rocking, bumping, twisting, and jumping on the deep-furrowed, hard, undrained clays. The oil-can is frequently wanted. 1*st July*, 1867.

THE IRISH LAND QUESTION.

THE following discussion on the Tenant Right Question and Leases, chiefly from the Irish point of view, took place last week in the House of Commons:—

Sir C. O'LOGHLEN moved the second reading of the Land Tenure (Ireland) Bill. The subject with which it sought to deal was one of the utmost importance. To the present position of the land question was to be traced most, if not all, the discontent which prevailed in Ireland. He was not so presumptuous as to suppose that the present Bill would settle that question; it would, however, he thought, go a considerable way in that direction. There had been a great deal of literature published recently by noblemen connected with Ireland on the land question—Lord Dufferin, Lord Rosse, Lord Lifford, and a noble lord who wrote anonymously, had published pamphlets on the subject. The noble lord in question, whose pamphlet was entitled "The Irish Difficulty," had thought proper to denounce this Bill, and to speak of it as one of the most outrageous and unconstitutional measures that had ever been introduced in that House; and he expressed his surprise that the hon. member for Galway, whose name was on the Bill, could support such a measure, and supposed he had only done so knowing that the Bill could never pass. So far, however, from the Bill being unconstitutional, outrageous, or revolutionary, it was founded in justice and equity, and was in strict accordance with principles known by the law. Two objections were usually urged against bills of this description. It was asked, Why should there be legislation upon the subject at all? and next, Why should there be exceptional legislation in the case of Ireland? It was, he considered, a sufficient answer to the first objection, that the law which enabled a landlord to distrain and to recover rent by other means was legislation on the subject of the relations of landlord and tenant. And with respect to the second point, it had been stated by the noble lord the First Minister of the Crown, during a debate which took place in 1845, that the state of the relations of landlord and tenant in Ireland was a sufficient justification to the Government for bringing in a measure with respect to Ireland which would not be applicable to other portions of the United Kingdom. There was scarcely a member sitting for an Irish county who had not pledged himself to deal with the land question; and every Government for the last 10 years, including the present, had introduced measures on the subject. The present Bill was intended to deal almost solely with the question of land tenure, as he considered it important that the questions of tenure and of compensation should be kept separate. The two evils which the tenantry of Ireland complained of were, the want of security of tenure, and of compensation for improvements made by them on their tenancy being terminated by the landlord. The main object of the Bill was to discourage tenancies from year to year, and to substitute leasehold tenancies in their stead. It was admitted in the pamphlet published by Lord Rosse that it was not the policy of his order to grant leases, and one reason given by his lordship for the carrying out of that policy was that in counties there was an occupation franchise, and that it happened sometimes that persons unconnected by property with the counties were returned for them, and he added that if landlords had to contend for their rights, it was best that they should do so with their hands untied. This was not a policy that ought to be sanctioned by that House. On the contrary, they ought to encourage leases as much as possible, and endeavour to establish a system of leases in Ireland. Mr. Burke expressed himself very strongly in support of fixity of tenure as the only thing which would secure steady and constant industry on the part of the people; and many authorities had laid it down that the best form of tenure was a leasehold one. Among these authorities were Professor Bell of the University of Dublin, Mr. Sampson, and the Devon Commissioners. Even Lord Dufferin himself admitted that leases were favourable to agriculture, and of advantage to the tenant. One cause of the ill-feeling between landlord and tenant in Ireland was that it was only within the memory of living men that Roman Catholics had been permitted to hold the fee-simple of land in Ireland. In order to remove that ill-feeling he wished to put an end to tenure from year to year; and it was with that object that he asked the House to read this Bill a second time. The first provision was that all agreements for the letting of land should be in writing, and that if there was no written agreement it should be presumed to be a leasehold tenancy for 21 years. The term of years did not affect the principle of the Bill; and if the House desired it, he should be prepared to reduce that term to seven, five, or even three years. The next main object of the Bill was to discourage tenancies from year to year. With that view he sought to make such tenancies as inconvenient and cumbersome as possible to landlords. In the first instance, he provided that no yearly tenancy should be terminated except by a twelve months' notice; and that in all such cases half of the county cess should be paid by the landlord. Lord Dufferin had suggested that they should pay it all. Further, he proposed by this Bill that in the case of yearly tenancies the landlord should lose his right of distress for rent. The only ground for giving a right of distress to the landlord was that in the case of a lease he was bound to give credit to his tenant for a certain number of years; but that reason did not apply to a yearly tenancy. The next provision was that a yearly tenant who was ejected by his landlord should be entitled to compensation for growing crops, and for any benefit arising from any manure which he had laid upon the land, and which might be unexhausted. The principle of that compensation was recognised with regard to cottier tenants in the measure called Cardwell's Act; and in 1859 the noble lord the present Chief Secretary for Ireland proposed to extend it to all tenants. The last provision with regard to yearly tenancies enacted that where a tenant from year to year had been in occupation of land for five years, he should be entitled to compensation for his loss of occupancy or tenant right. Existing tenancies were exempted from these provisions, but would come under their operation in the year 1870. The Bill further provided that where a limited owner granted a lease for an insufficient rent, instead of the lease being void as at present, the rent should be raised, and that leases for 21 years should be exempt from stamp-duty. In order to encourage such leases he had framed the strongest possible clauses to prevent the tenant from subletting without the consent of the landlord; he had reserved the right to the game for the Landlord, and had inserted other provisions for his benefit. The Bill would not apply to demain lands, or to tenancies under 4*l.* The hon. baronet explained other provisions of the measure, and concluded by moving that it should be read a second time.

Sir H. BRUCE rose to move that the Bill should be read a second time that day six months. He declined to discuss the question whether leases were necessary in Ireland, and promised to address himself solely to the provisions of this Bill. He was no advocate of arbitrary feudal rights. The partial distress and discontent existing in Ireland owed its origin to the legislation of that House in former times, and it would require years to come to make any substantial difference in the prosperity of that country. He could not say that he altogether approved of the Bill of his noble friend (Lord Naas), because he thought it was extremely antagonistic to the landlords of Ireland, but he was ready to vote with him, because he was anxious in any way to stop an agitation injurious to the country. With respect to the present measure, he maintained that it was not one which would in any way tend to remove existing exils. The hon. baronet then referred in detail to each clause of the Bill, and concluded by moving that it be read a second time that day six months.

Mr. C. FORTESCUE supported the Bill. He thought it was highly desirable that they should endeavour by their legislation, within reasonable limits, to promote the increase of granting leases in Ireland, and thus do something towards settling the much-vexed land question. In many respects the principles of this Bill were identical with the Bill of last year which he himself had submitted to the House, and he might say that the fair and candid explanation which had been given by the hon. mover had removed any difficulty he might have felt in tendering his support.

Mr. GREENE apprehended that there were particular reasons why this Bill was proposed, and therefore he thought it would be well for the House to carefully consider the question. He could not help feeling that if men in Ireland adopted more the principles which men did in England, of looking to their own interests and making their own bargains, she would be more prosperous—there was a want of that energy and industry which the farmers of England displayed.

Mr. O'BEIRNE said that no fair comparison could be made between England and Ireland, if it were only in consequence of the total absence of mineral wealth in the latter country. Neither were agreements such as the hon. member had mentioned possible in Ireland, because so great was the competition for land in that country that the tenant was completely at the mercy of the landlord. There were many excellent landlords in Ireland, but there was a reluctance to give leases, arising out of the political differences which had too long prevailed in that country. The landlord sought to keep his tenant's vote at his command by making him a tenant at will, and the great bone of contention was the Irish Church establishment.

Sir J. GRAY denied the existence of any communistic views on the part of the Irish tenants: all they wanted was a more secure tenure for their holdings. There could be no comparison made in the management of land in England and Ireland. Mr. Caird, a high agricultural authority, showed what was the practice in England. The Duke of Bedford, for example, built farm-houses and offices, drained the land, made fences, and, in fact, presented the farm to the tenant in the most perfect condition for cultivation. The Irish landlord, on the other hand, gave the tenant the bare and neglected land, and charged him as high a rent for it as did the English landlord for his perfect farm. If things were managed in Ireland as in England, the Irish tenants would not have to come to that House for compensation, but they were managed very differently. Not only did the Irish landlord let his land entirely without improvements, but if the tenant improved, his improvements were confiscated, and he was left at the mercy of the landlord. What the Bill of his hon. and learned friend sought, was to extend to the other parts of Ireland the system of tenant-right which prevailed in the province of Ulster. The pride of the landholders of Ulster was that they did not hold their land by any tenure so vulgar as purchase—they held them by royal charter; and one of the conditions of their charter was that the land should not be let to tenants at will, but either in fee or by long leases. He begged to support the present Bill, and he hoped to hear from the Irish representatives of her Majesty's Government what they intended to do with the tenantry of Ireland. There were 8400 landholders in Ireland, and 608,000 occupiers, representing 2,500,000 people. Surely something might be done to legislate equitably between the two—something better than spending 800,000*l.* annually in police to maintain the landlord's rights.

Lord C. HAMILTON said:—If they were to probe to the bottom of the grievances which existed in Ireland, they would find that agitation had much to do with them, and that they did not arise out of the tenure of land. The principle in regard to the taking of land in England and Scotland was mutual arrangement, and it should be well known that in Ireland there existed no barrier to the same happy state of things. It was said by the hon. member for Cashel that undue competition for land in Ireland stood in the way of mutual arrangements; but how could undue competition co-exist with a large emigration of the people? What he wanted to see in Ireland was a class of sound practical farmers, who would come forward and cultivate the land in the best possible manner.

Mr. Serjeant BARRY cordially supported the second reading of the Bill. No measure could satisfactorily settle the Irish land question which did not confer upon the tenant security of tenure, and as the noble lord, himself a landowner, admitted, fixity of tenure could be conferred without any interference with the legitimate rights of property. No doubt the existing evils had their origin in the old antagonism between the settler and the native possessor of the soil, but they had been continued and kept alive by misgovernment. For years the condition of Ireland had been a source of alarm and embarrassment to the Government of this country; but whatever aspect the difficulty assumed, one of the operating causes was the state of the relations between the owners and occupiers of the soil. That was the cause of the disturbances which occurred in 1825 and 1844; and since then, the state of things, instead of improving, had become worse, leading to emigration and disaffection. It was said that the Fenian conspiracy was of foreign origin; but there were thousands of men in Ireland, natives of Ireland, and respectable, well-conducted men, who, though they had not really committed themselves to the conspiracy, heartily sympathised in the movement, because, despairing of the aid of Parliament, they looked to a violent remedy of that kind for the grievances of which they complained. The circumstances of Ireland with regard to the relations of landlord and tenant were entirely different from those of England, and therefore exceptional legislation was necessary, and the whole of the question of land tenure as regarded Ireland was one mass of exceptional legislation. In England a tenant could not be evicted for non-payment of rent unless there existed an agreement in writing;

but in Ireland a tenant at will could be evicted, not only for non-payment of rent, but even for non-payment of rates. He supported the measure, because, although it was a small one, it would show to the tenants of Ireland that their interests were not altogether overlooked, and instead of entertaining treasonable designs, they would be led to look with confidence to the action of the legislature.

The ATTORNEY-GENERAL for IRELAND said no one could be more opposed than he was to the arbitrary eviction of tenants, but such things were of extremely rare occurrence. He believed that this measure would be productive of great mischief both to the landlord and the tenant, and that the less legislative interference took place between them the better. There were few landlords in Ireland who took advantage of the insecurity which was alleged to exist by reason of tenancies from year to year; and he asked whether the House was prepared, because in Ireland as in England and Scotland there were some landlords to be found who would not be actuated by motives of justice and the consideration due to tenants, to interfere with the rights of property of all the landlords of the country? Why should not the landlord and tenant be allowed to contract freely between themselves? This was a most irritating measure, and useless for the purpose which it proposed to serve. What was meant by hon. gentlemen opposite by the land question in Ireland? In one case it was taken to mean compensation for improvements, and in another fixity of tenure; but he wanted to know whether fixity of tenure was to be confined to the 21 years' lease, or was to extend to a permanent right to the fee-simple of the land on payment of a certain annual sum. He denied that the people of Ireland were either discontented or disloyal; but if they were so, contentment and loyalty were not to be brought about by 21 years' leases. The principle of the Bill was, that, in the absence of a written agreement, the law should presume that the relation between landlord and tenant was a lease for 21 years. A more extravagant proposition was never put forward in the House. This lease was to be valid, not only against the landlord, but against every one interested in the land; and if an estate got unfortunately into the Encumbered Estates Court, the judge would have an arbitrary power to convert a tenant at will into a tenant with a 21 years' lease.

Mr. O'REILLY said the principle of the Bill was simply to encourage and enforce, in every way, written contracts between landlord and tenant, which the common sense of all nations had shown to be desirable. No matter how good the landlord might be, or how little he was disposed to disturb his tenantry, there were contested elections, at which agents made a threat of eviction in order to influence votes, and this produced a feeling of uncertainty in the minds of the tenants, and discouraged the good cultivation of the land. It was to avoid this uncertainty of tenure, which would exist so long as strong political feeling prevailed, that the Bill had been introduced.

MR. READ thought that after the mild and reasonable Bill of the Secretary for Ireland, the Bill of the hon. baronet was extraordinary and unreasonable. This Bill compelled landlords to grant long leases, or inflicted upon them certain pains and penalties. An erroneous notion prevailed as to the number of leases in England. In East Norfolk, with which he was connected, only one-fourth of the land was held under lease, the other three-fourths being held almost entirely by tenants at will, without any claim for compensation in respect of improvements which they effected. He held his land under six different owners, and he had no lease, and only one written agreement, while, in all cases, he was subject to six months' notice to quit. He did not say that was a pleasant situation in which to be placed. He would much rather have a lease—he had always upheld leases; but the absence of one did not prevent him effecting improvements, and farming the land to the best of his knowledge and ability. He believed the law of England and the law of Ireland on this subject was almost identical. If there was any difference it was rather in favour of the tenants. He willingly admitted that the landlords of England were most kind and liberal to their tenants; but still instances of injustice occurred here as well as in Ireland, although he admitted they were very few. He would mention one case which specially came under his notice. A man whose family had held the same farm for generations died, and there were no less than 17 or 18 applicants for the tenancy. Although that man had invested a considerable sum in improvements, his representative received a six months' notice to quit, and he received nothing whatever in respect of those improvements. In Ireland the incoming tenant rarely found anything on the farm, which was not the case in England. He objected to money being paid for the goodwill of a farm, which necessarily made it incumbent on the incoming tenant to make an increased expenditure to stock the farm. That was the effect of the so-called tenant-right, and he should not like to see it extended. He also noticed the change which had taken place in the cultivation of the land. Formerly it produced Wheat and Potatos, but latterly it had become a grazing country, and did not require so large a population.

Mr. T. KENNEDY pointed out that there was a great difference between the mode of treating the land in Ireland and England, because in the latter country the landlords made all the improvements, but in Ireland the tenants were called upon to pay for them. He did not object to the second reading of the Bill, but what he desired was, that all proprietary rights should be exercised in conjunction with the rights of the tenant, to obtain a living from the soil. There was no other way of redressing the evils of Ireland so effectually as by granting long leases. Why should they not adopt the suggestion of many members who represented the popular feeling of the people? The principle adopted and advocated was, that the tenants should be called upon under certain circumstances to forfeit the value of all their improvements. There ought to be no exceptional legislation for Ireland, as was the case in respect to the payment by the Government for the support of the Irish constabulary, who were kept up for the sole purpose of supporting class-interests and landlord-made laws. Why should such a large proportion of the expenses in Ireland be paid by the State? The legislation ought to be in the direction of granting leases. Let the amount be paid by those districts in which leases were not granted. It was the absence of leases that caused the necessity for the employment of so large an amount of constabulary. There was another mode of taxation, namely, the succession-duty, which was levied differently in Ireland to what it was in England. Suppose they dealt with the stranger who paid the highest duty in a different way? Let all pay a succession-duty where there was not a lease. He would take all expenses possible off property the owners of which performed their duties to the tenantry.

Mr. BRADY believed that if the relations between landlord and tenant in Ireland were more assimilated to those of England it would be better for the country, but the misfortune was that it was always considered necessary to manage the estates by means of agents, which led to the commission of the greatest acts of injustice. The whole of Ireland did not produce within one-third of what it ought to do under the present mismanagement, owing to the carelessness of the landlords. In this manner the most serious evils were perpetuated, and the best interests of the country were endangered. This was a question in which the country at large was interested, and no Government would do its duty to the state if they did not try every means in their power to ameliorate the condition of the people in that country.

THE PARIS EXHIBITION.

(FROM OUR CORRESPONDENT.)

RESUMING our detailed notice of the exhibits in the Annexe of the British Department of Agricultural Machinery, we proceed to notice that Mr. Tye, of Lincoln, exhibits a very well arranged and excellently constructed corn mill, with adjustible step, and his well-known corn dressing machine. Next to the stand of Mr. Tye is that of Messrs. Richmond & Chandler, of Salford, Manchester, in which there is a good number of the machines for which this firm has been so long and is still celebrated, as their straw cutters, oil-cake breakers, and their horse gears. Their straw cutters are, as we have often had occasion to remark, distinguished not only by neatness of design but superior excellence of finish. In this class of machinery they have recently introduced a very simple form of gear, by which the length of the cut can be altered with great ease. Opposite to the stand of Messrs. Richmond & Chandler is that of Messrs. Marshall, Son & Co., of Gainsborough, who exhibit a threshing machine for power, with a portable single-cylinder steam-engine; a very tidy, neatly made horizontal engine, together with a vertical engine with a somewhat peculiar arrangement of the cylinder. We now come to the stand of the Messrs. Ransome & Sims, of Ipswich, whose collection of implements and machinery is one of the largest displays in the British department. In this collection there is a fine display of ploughs of different kinds, threshing machines, portable steam engines, oil-cake breakers, corn-dressing machines, &c. They also exhibit a fine specimen of their recently introduced traction engine, which presents some features worthy of notice by the observant visitor. The steersman stands on the foot-plate of the engine, alongside of the engine-man, who works the engine; the supply of water is contained in a tank underneath the boiler, which is calculated to contain a supply equal to the wants of the engine for a travelling distance of 10 miles. The engine is single-cylindered, and provided with reversing gear. Opposite to the stand of Messrs. Ransome & Sims is that of Mr. Smith, of Kettering, who shows a collection of the horse hoes for which he is so well and so favourably known. Hill & Smith, of Brierly, Staffordshire, display on their stand next to this a collection of hurdles, sheep racks, root cleaners, and straw cutters. Going now to the opposite side of the alley, next to the stand of Messrs. Ransome & Sims is that of Messrs. Clayton, Shuttleworth, & Co., who exhibit an excellent selection from the implements and machines for which they are so celebrated. We would draw especial attention to the example of a horizontal steam-engine which they exhibit, which shows not only in the design, but in the execution, a knowledge and workmanlike care which would be creditable to the finest locomotive or engine works in the kingdom. The truth is, the workmanship is so superior, that, recollecting the too numerous examples of the excessive carelessness shown by farmers and farm servants in steam machinery which we have met with, we fear this style of work is far too good. How is it, we may here ask, that in nearly every other trade in which steam power is employed, a certain degree of pride is always taken to keep the engine, not only in good working order, but in perfect cleanliness, while on farms a state of matters prevails in this respect about which the less is said the better—unless, indeed, we do say what can only in the great majority of instances be said, namely, that it is not creditable to any one concerned in its maintenance? Farmers little know the loss they sustain by allowing expensive machinery to be in a chronic condition of dirt and neglect. The stand of Messrs. Hornsby & Sons, of Grantham, is next to that of the Messrs. Clayton, and is made up of examples of threshing machines, portable engines, straw cutters, corn drills, and a reaping machine, with self-acting gatherer. Opposite this stand is the collection of Woods & Cocksedge, immediately above which, on the same side, Mr. Neighbour displays examples of his well-known bee hive. The collection on the stand of Messrs. Woods & Cocksedge, above alluded to, is made up of horse-power threshing machine, with the driving gear for the same; oil-cake breakers, root cutters, corn bruisers, straw cutters, &c. And on the opposite side, next to the stand of Messrs. Hornsby, is that of Mr. Bentall, of Heybridge, who exhibits a somewhat extensive collection of his machines so well known in the trade, such as his root pulpers, oil-cake breakers, &c. The stand of Messrs. Amies, Barford & Co., of Peterborough, comes next, and is occupied by examples of corn mills, land rollers, the weight of which is increased by the addition of water placed within the roller; examples of their well-known form of cattle food cooking apparatus are also exhibited. Next to their stand are examples of stable fittings, exhibited by the St. Pancras Iron Company. On another side is a rather rude timber construction, exemplifying the mode of erecting water-closets on the "dry system," by which a manure is directly obtained. This is made, not under Mr. Moule's patent, but under that of Mr. F. Taylor, who is assisted by the British Guano Company (Limited). Next to this apparatus two stands are devoted to the display of specimens of manures, exhibited by Messrs. MacLean & Hope, of Edinburgh and Leith, and by Edward Packard & Co. Next to these manure stands is that in which examples of the atmospheric churn are displayed. This apparatus, in point of simplicity of arrangement and the consequent absence of numerous parts and complicated mechanism by which a great many churns are characterised, is worthy of special notice. It is worked on the old-fashioned plunger or piston system, the piston rod being hollow and provided with a small valve at its upper end opening downwards; when the piston is raised this valve opens and admits air, and at the same time a partial vacuum is made in the piston or plunger which is made hollow, and provided with apertures over its surface and also in the lower part of the hollow piston-rod. When the piston or plunger is forced downwards, the air, prevented from passing out of the hollow piston well by the closing of the valve, rushes with great force through the holes in the plunger, and is distributed through the mass of milk or cream. This alternate return of air passing from the milk into the hollow piston on the raising of it, and of air from the hollow piston into the milk on depressing it, causes a very large proportion of air to be passed through the milk or cream within a very short period and greatly facilitates the formation of butter. This churn has had high praise awarded to it, by a large number of parties who have used it. We confess, however, to the desire to see the whole subject of churning taken up by some competent authority, or under the auspices of our leading Society. We have had trials of every other class of implements and machines, and trials also of churns, but no trial has yet been made which justifies the title, and which affords results which can be depended upon for precision and accuracy.

Next to the exhibits of the St. Pancras Iron Company, those of Mr. Samuelson, of Banbury, are met with, comprising his self-acting reaper, oil-cake breakers, root cutters, &c. The stand next in order is occupied by Messrs. Coleman & Morton, who exhibit their well-known cultivators with lever movements, also horse gears and oil-cake breakers. Then comes the fine collection and the very handsome stand and offices of the well-known Howards, of Bedford. A feature of the collection here to be met with is the display of neatly-executed models of their steam-cultivating apparatus, &c. In addition, examples of their world-wide-famed ploughs are displayed, as well as of harrows, haymaking machines, &c. One point attracted our attention, namely, the very tasteful way in which this firm paint their machines and implements. Opposite the stand of the Messrs. Howard is a fine specimen of Aveling & Porter's traction engine, next to which is the shed of Messrs. Goulding, of Dublin, who exhibit a collection of their manures; and next to these is the stand of Messrs. Sutton & Sons, who show a collection of seeds. On the opposite side, and next to the stand of the Messrs. Howard, is that of the Messrs. Garrett. Our notes as to what is to be met with on this stand we must defer.

STEAM CULTIVATION.

THE HIRING SYSTEM.

NOT having been able to be present at the discussion of the Royal Society on Steam Cultivation on the 29th of May, in answer to the invitation I received, and not having had an earlier opportunity, I must request a space in your paper to reply to some remarks then made.

Indeed, being commercially interested to a very important extent in the hiring system—being the manager of the North Lincolnshire Steam Cultivating Company, who own three of Fowler's largest double engine sets—I feel it a duty, not only to myself, but to the public, to correct and disprove some of the assertions then made. I have read with much interest the speeches made on that occasion, and though I am about to differ from Mr. Bulstrode in several important particulars, he will not consider me as reflecting in any unfriendly spirit on his remarks. As it would make my letter considerably longer to quote his words at length, I must refer your readers for them to your Paper of the 3d inst.

And, first, I maintain that in the hiring system uncertainty does not exist where a proper understanding between employer and employed is practised. I subjoin a list of farmers, who are in the habit of hiring our steam tackle, who give their names and assurance, that they have always been able to have a tackle when they wanted it:—

Messrs. James Campbell, Gokewell, Brigg; Wm. Abraham, Civersby, Market Rasen; Thos. Bland, Wienby, Market Rasen; Math. Maw, Matham, Kirton-in-Lindsey; Chas. Nicholson, Stainwells, Brigg; J. Smith, Everby, Sleaford; J. Dickenson, Holme Hill, Market Rasen; Chas. Sharp, Swineshead, Spalding; J. Holmes, Greetwell, Lincoln; H. Nicholson, Broughton, Brigg; J. Taylor, Cockthorn, Market Rasen; J. Picars, Mere, Lincoln; Wm. Mackinder, Mere Hall, Lincoln; Thos. Morris, Ulceby Chase; and numerous others I can name.

There are also many other double sets of tackle besides ours let out in Lincolnshire, the owners of which could, no doubt, give similar testimony from many more influential farmers, large and small, who have been for years in the habit of hiring, and I regret that employers of steam tackle have not been more numerously questioned as to their opinions of the hiring system by the Royal Agricultural Society's Steam Cultivation Commission.

Then, again, why should the hiring system be more costly? Mr. Bulstrode says that the cost by hiring is almost doubled. He cannot prove it by figures, therefore I need not disprove it by that means, but I can indirectly explain that it is not so, because there is no reason why it should be so. Mr. Bulstrode admits that the double engine tackle is the most economical and scientific apparatus, but he defends the small roundabout tackle, on account of its being the best for "ordinary occupations," and I quite concur with him in the opinion that circumstances may have a great deal to do with regard to determining the system of steam cultivation, which is most advantageous.

To go into figures and state our charges I cannot do, nor is it necessary, for they vary exceedingly, as a matter of course, according to the nature of the soil. But I would ask, how can the roundabout tackle work cheaper under "ordinary circumstances," when, as Mr.

Bulstrode admits, it is neither the most scientific nor, what is quite as important, the most economical?

If we contractors, with skilled labour, good management, and powerful engines, have less working expenses by having less wages to pay per acre, we surely can afford to work cheaper than the roundabout tackle, managed by comparatively unskilled labour, by more hands, and which can only be worked with weak engines. It would become exceedingly unmanageable if powerful engines, with proportionately strong tackle, were employed.

Strong, stubborn clay land cannot be worked at all efficiently, say 8 to 11 inches deep, by an ordinary portable engine of from 8 to 10-hose power; at any rate, the amount of work done on heavy land, when in a dry and suitable state for cultivation, must always be very small in such a case, thereby losing one of the great advantages of the powerful tackle, that of being able to make the most of the season.

Where an ordinary 8 or 10-horse power portable engine, with any small windlass tackle, with five men, can work 6 or 7 inches deep, 6 to 8 acres per day; there the double 14-horse tackle, with three men, easily accomplishes from 12 to 15 acres per day, from 8 to 10 inches deep.

Does it not stand to reason that the wear and tear of tackle per acre must be considerably less by the application of implements carefully managed and superintended by thoroughly competent persons, than in a tackle managed by farmers who are for the most part unacquainted with the details of a steam-engine? The Commissioners most emphatically express their opinion, that the skill in management determines the success of any steam tackle.

Well, is not the farmer who hires relieved of this responsibility? can he afford the time spent in superintending a steam tackle in addition to his other work? And is not the risk of heavy expenses by breakages, and the consequent uncertainty as to finishing the cultivation in season, very great, with the farmer who owns a small tackle.

I believe, too, that the greater number of farmers in England (though I have no statistics to the point) are those under 200 acres, and I might say that few, if any, out of this class can afford to buy even the smallest roundabout tackle. Are, then, this class to be without the advantages of steam culture, and is it not indeed right on principle to supply a demand by letting out tackle to those who find it profitable to themselves by three to five years' experience to hire such tackle? Further, there is to my personal knowledge an immense majority of large farmers in this county who never would buy a tackle, but who gladly avail themseves of the opportunities of hiring.

In conclusion, I maintain that the hiring system is the very best medium of making steam cultivation more generally known and appreciated. I know a great many instances where large farmers in this and other counties have tested steam cultivation on their farms through hiring a tackle, and finding it answer have bought large tackle or small apparatus. Does not, therefore, the hiring system deserve every possible encouragement? *Richard Toepffer, Hibaldston House, Kirton-in-Lindsey, June* 28.

Home Correspondence.

Appearance of the Crops in Berkshire.—The crops in this neighbourhood present a most diversified appearance, in consequence of the varied changes of the atmosphere in the spring months, accompanied with an unusual quantity of rain. The autumn-sown Wheat was planted in a firm, healthy seed-bed, and showed a promising appearance as the spring came on; but the superabundance of rain in March retarded its growth, and on cold and thin lands it presented a sickly, thin, and ungenial plant. A few days of hot sunshine, as May came in, gave wonderful impetus to vegetation, and the Wheat on all good lands shot up with amazing vigour. The sharp frosty nights about the 10th checked its too rapid growth of straw, and gave strength to the stalk, which has thrown out a good broad flag and square healthy ear. On our best lands the Wheat is very good; on badly farmed lands, and cold, thin, stone-brach, much below an average. Barley is very uneven in appearance. The wet March chilled that planted early, except on warm and highly farmed lands. That also which was planted soon after the rain, on soil trodden almost to a paste, presents a yellow, stunted, uneven promise. On warm gravels those pieces which were put in well are good. The late planted has not done well. Oats are very varied, but want rain to carry them out; they cannot be an average. Rye presented a magnificent promise, but the sharp frost in May coming when in bloom, destroyed three-fourths of the young grain, so that half the ears are empty, and others partially so. Winter Beans are very promising, so are the Tares. Peas are good. The spring Beans are short in the straw, but well bloomed; they want rain to make them an average. Turnips are backward, the fallowing sadly behindhand, March (the spring month for tillage) having been lost. Grass and Clover is abundant, and now being got up in splendid condition. Potatos very backward and unpromising, having been all cut down to the ground by the late frost in May, since which they have made slow progress. On the whole there will be less straw to the corn than usual; but should the bloom not be injured by the late frosty nights, we may have an average crop of grain of fine quality, with a continuance of this hot sunshine, which has so much to do with its production. *J. Williams, Shippon, Abingdon.*

Crops in Kent.—We had a great deal of rain the first few days of June, after which there were a few days of fine warm summer weather, and all our Cereals grew very fast, so that we have the prospect of an abundance of straw; but since those warm days we have had a cold hard north-east wind, with a cloudy sky, which continues to the present time, and causes the Wheat to come into ear very uneven and irregular. Past experience proves to me that the present weather is very unkind for the blossoming of Wheat, and notwithstanding the quantity of straw, the yield of grain may be deficient. Barley, being not so liable to be injured by the present cold weather, bids fair to be a good crop. Oats look well, and at present promise a good crop. We have been less injured by wire-worm on our light lands this year than usual. Early planted Peas are good, those that were late planted will be inferior; they are infested with lice (dolphin), and must be an indifferent crop. Beans do not promise well, the strongest are smitten with blight (black lice), and cannot be a good crop. There are less Potatos planted in this district than usual; they are looking well; I hear no complaints at present of disease. Mangel generally plants well, but grows very slowly. Swedes are generally a good plant, and look well; we have just got through the first horse-hoeing, and commenced hand-hoeing: they have not been injured by fly this year. The hay crop is good, particularly all artificial Grasses, Sainfoin, Clover, &c., and most of it is now secured in good condition; rain is wanted for the second crop, but our corn requires no rain, warmer weather and sunshine is what we are now anxiously wishing for. *W. Manser, Dumpton, Ramsgate, June* 26.

Sorghum and Bromus.—We have never recommended in any way the Sorghum tartaricum, neither have we attempted to "corroborate" or even allude to the recommendations of it given by others. We are rather concerned to read the four lines near the end of the first column at p. 691 of the *Agricultural Gazette*, which we find are supposed by some of our friends to refer to our firm, inasmuch as we inserted an advertisement stating that the seed could be had from us. We can hardly believe that the paragraph in question was intended to refer to us, but as unfortunately no names are mentioned in your article, some of your readers may suppose that it does. Allow us, therefore to explain, that though we never recommend an article until we have proved it thoroughly in our trial ground, yet it is quite incumbent on us to procure every new kind of seed which is spoken well of in your Paper, by whomsoever it is recommended: and this not merely for our own trial, but also for our customers, whose curiosity has been raised; and if we did not announce that we could supply it, they would procure that and other articles with it from our competitors in business. Accordingly, whether it is "Sorghum tartaricum," "Raphanus caudatus," or "Cattle Melon," we take care to procure some seed from the original source, and inform our customers by advertisement that we can supply it; but neither in the newspapers nor in our catalogues will one word be found in commendation of either of these articles. On the contrary, when our opinion has been asked, either by our customers or by the Royal Horticultural Society, we have expressed it freely. When the Bromus Schræderii was first introduced we simply announced that we could supply the seed; but having now for several years proved in our own ground that it is very productive when sown in drills as Oats, and mowed or fed off about seven or eight times a year, we have recommended it, and do recommend it, for cultivation, as advised in our "Amateur's Guide." One peculiar merit of this Bromus is that when the Italian Rye-grass ceases to grow (November to March) the Bromus continues to sprout vigorously. The often cutting, which we recommend, renders the Grass more succulent and much more abundant. Allow us to add, that, though liable as others to be mistaken, we never state, in the form of advertisement, what we do not believe to be literally true, as we cannot recognise any less responsibility in that mode of conveying our statements than by letter or by word of mouth. We hope you will kindly insert at least some portion of this letter in your next issue, or such reference to it as will remove the impression that we had recommended, or "corroborated the story" concerning, the Sorghum tartaricum. *Sutton & Sons, Royal Berks Seed Establishment, Reading.*

Notes on Steam Cultivation, No. 1.—The late valuable reports and discussions on steam cultivation will be of great service to the whole agricultural community, offering good encouragement to intending purchasers. Many may have thought to find instructions therein to guide and direct them in their choice of the several descriptions of steam tackle now offered for their purchase, but as it will be seen, the different systems work so well under able management, that I think a far more important question arises. To large capitalists it may form a matter for consideration, whether to go in for an expensive or a moderate costly set; but to the ordinary farmer with a limited capital (who is in the large majority), the latter must be his purchase if he intends to enjoy the manifold benefits which steam cultivation will confer upon him. In my experience I have found the Messrs. Howard's roundabout system almost perfect; its easy management by ordinary farm labourers, without any danger, must commend itself, and leave no doubt of its becoming very generally used. I would remark here that if this firm could make a lighter tool, taking a lesser breadth, such as a six-horse power engine would work, the cost would then come within the reach of a great many whose amount of acreage would not warrant them purchasing the larger. Purchasers, to prevent disappointment, must first acquire that information which will qualify them to instruct their men in all the management. This point cannot be too much pressed, as success depends upon it. The cases which have come under my notice of failure or heavy breakages entailing heavy expenses, directly arise from this cause. A whole survey of the farm will also be required for the purpose of selecting the most favourable situation for setting down, whereby the largest amount of work can be accomplished without a removal. To facilitate this a readjustment will be required, taking care to throw portions of land together of such a size as to suit the system of rotation practised; this will conduce to shorter removals when necessary. An easy supply of water will also form consideration, and have great influence upon the positions selected for setting down, as where practical ponds should be made, or wells sunk; in dispensing with the water-cart we overcome a great difficulty and serious drawback. Hindrances will also give cause for personal superintendence, bearing in mind that he who performs the greatest quantity of good work in the least given time does it for less per acre, and is the most successful steam cultivator. In my experience the greatest hindrance attached to the roundabout system is the time occupied in removal. It is a great mistake to say ordinary good men can make a removal (distance not over a mile) in two-and-a-half hours; I find half a day consumed, and in some cases more. Where the soil is very hard, digging holes for dead anchors, windlass, and in some cases double snatch-block, constitute the chief delay. To obviate this in a great measure, I would suggest that permanent posts should be put in wherever dead anchors are required. The double snatch-block might be fastened on this principle; cost of post, &c., would be very trifling, not much more than the dead anchors dispensed with, and would enable us to remove in two-and-a-half hours or less. The past show trials for steam cultivators I consider quite inadequate as a test of their several merits; a great apparent superiority of one implement over another may not assume that proportion when tried on a more extensive field; longer and more extensive trials would bring the roundabout system in more repute with the ordinary or general farmer. *R. Bower*, 142, *Great Portland Street, W.*

Middle-Class Education.—Every respectable farmer and tradesman ought to give especial attention to this subject at the present time. It is a movement designed for their particular benefit. The object is to provide means whereby their sons may obtain a first-class education at a moderate cost. A Parliamentary Commission has been for some time in existence, and is assiduously engaged in ascertaining the facilities now applicable for this purpose, or that can be made so, without inflicting any serious wrong or injury upon the management and conduct of the many charity schools known as Grammar Schools throughout the country. It is notorious, and has long been a subject of public odium, that the mismanagement of many of these schools has been grossly bad, and the misappropriation of their funds has been disgraceful; in fact that little less than sinecurism and neglect have greatly prevailed. This is a sad state of things, and I rejoice that a Commission is making every necessary inquiry into these abuses and misuses, with the view of rectifying them in one sense; but its real purpose is to take a much wider and more expansive view of the whole question, so as in the end to alter the whole system of education now taking place under these charities, and to make them more general and far more efficient. Very many of these schools are purely parochial schools, designed chiefly for the education of the labouring classes; these, I believe, the Commission does not touch. It deals mainly with what are known as public grammar and district schools for the education of what are generally termed the middle classes. These, I believe, it is intended to take from their present unsatisfactory position, and combine some two or three or more of them under one trust or scheme of management. From these several means thus condensed in one, and probably supplemented by Parliamentary or parochial aid, it is in contemplation to build large district schools or school-rooms, with all necessary accompaniments of masters' residences, &c., in which to locate some 400 or 500 boys of the middle classes, with their masters, who are to teach in the various departments of ordinary and classical knowledge, so that a first-class education may be imparted for a moderate charge, *i. e.*, 25*l.* to 30*l.* per annum. This is an admirable scheme, and cannot fail to be a great boon to the middle classes, provided it be placed under an enlightened, liberal, and effective style of management. In this lies the great difficulty—they must be free and open, upon terms of equality, to all classes. Now, such is the state of parties, both political and religious, as to make this desideratum almost unattainable. Churchmen say, "We must have our children grounded in the principles of the Church," *i. e.*, the Church of England; "we must have the Church catechism taught." Dissenters and many others totally object to this; nor will they tolerate the invidious distinction of having their children set aside while their fellows are repeating their catechism. All denominationalism must be dropped. The Church must give up her impolitic presumption, and fall in cordially with the masses. Of all religious books the Bible, and the Bible only, must be used and taught in the schools, but unsectarian forms of prayer ought to be used morning and evening daily. The chief management of these schools should be vested in a responsible and authoritative board in London, aided by corresponding or consulting boards in the country districts; such boards to consist of an equal number of churchmen and dissenters. The first election for any district to be made in the same manner as the election of Local Government Boards, or of guardians, who shall hold office for three, five, or seven years, when fresh elections shall be made, all members being eligible to re-election. The appointment of masters, the general organisation of the schools, the management of the properties and all general business should be in their hands, subject to the approval of the Board above; the cost of such elections to be borne by the parishes forming the district, and be paid

out of the poor's-rate. The elections to be conducted by the overseers. School inspectors must be appointed for examination of schools, and to report upon the proper conduct of every department. Matters of detail can be easily arranged. *O. F.*

Societies.

ROYAL AGRICULTURAL OF ENGLAND.

MONTHLY COUNCIL: *Wednesday, July* 3, 1867.—Present Mr. Thompson, President, in the Chair; the Earl of Shrewsbury, Lord Berners, Lord Chesham, Lord Tredegar, Lord Vernon, Lord Walsingham, Major-General the Hon. A. N. Hood, Sir J. Johnstone, Bart., M.P.; Sir A. Macdonald, Bart.; Sir T. Western, Bart., M.P.; Sir Watkin Wynn, Bart., M.P.; Mr. Amos, Mr. Barnett, Mr. Cantrell, Mr. Clive, M.P.; Mr. Dent, M.P.; Mr. Druce, Mr. Brandreth Gibbs, Mr. Holland, M.P.; Colonel Kingscote, M.P.; Mr. Milward, Mr. Pope, Mr. Read, M.P.; Mr. Sanday, Mr. Robert Smith, Mr. Torr, Mr. James Webb, Professor Wilson, Mr. Frere, and Dr. Voelcker.

The following new Members were elected:—

Alderson, Edward Samuel, Bury St. Edmund's.
Ashton, Thomas Mason, Deeping St. Nicholas, near Spalding.
Barnwell, Rev. Q. Edward, Deeping St. Nicholas, near Spalding.
Barrett, Samuel, Hardwick, Bury St. Edmund's.
Bellyre, Edwin F., Chirk, Denbighshire.
Bond, Thomas, Pulham Mary, Harleston.
Cheere, Rev. Frederic, Ingham Rectory, Bury St. Edmund's.
Coleman, William J., Bury St. Edmund's.
Cooke, John, Bury St. Edmund's.
Cooper, Thomas White, Bury St. Edmund's.
Crawley, John, jun., Gosberton Fen, Spalding.
Dewing, Edward M., Northgate Street, Bury St. Edmund's.
Dudgeon, John, Peamlands St. Hoathly, East Grinstead.
Everard, Francis Charles, 22, West Gate Street, Bury St. Edmund's.
Fardon, Joseph Ashby, Witton House, Droitwich.
Fison, Albert James, Barningham, Ixworth, Suffolk.
Fison, Cornell Henry, Thetford, Norfolk.
Giraud, Rev. Edward A., 10, Northgate Street, Bury St. Edmund's.
Griffin, James Bowdon, Bury St. Edmund's.
Hamer, Charles M., Snitterfield, Stratford-on-Avon.
Hilliam, Captain Thomas, Willroby Hall, Spalding.
Hurrell, Henry, Horston, Cambridgeshire.
Jonas, George, Ickleton, Saffron Walden.
Jimmer, James, Bury St. Edmund's.
Mellard, Ralph, Rugeley, Staffordshire.
Newcombe, Samuel, Orsett, Romford.
Palmer, Geo., Hawstead, Bury St. Edmund's.
Phillips, J. South, Great Barton, Bury St. Edmund's.
Pulley, Joseph, Lower Eaton, Hereford.
Raven, John, St. Helen's, Maryport.
Rooke, John, Weldon Grange, Wansford, Northamptonshire.
Salmon, Charles E., Bury St. Edmund's.
Smith, Alfred Marshall, Cop House, Saltney, near Chester.
Smith, Alfred Thomas, Thurston, Bury St. Edmund's.
Sturge, Charles, Bewdley, Worcestershire.
Swinburne, George, Milbeck Hall, Keswick, Cumberland.
Thompson, George, Bury St. Edmund's.
Thompson, Harry, Great Whelwetham, Bury St. Edmund's.
Thompson, John, Bury St. Edmund's.
Tinsley, Henry, jun., Gedney Hill, Wisbeach, Cambs.
Tipper, Benjamin Clarke, Bristol Road, Birmingham.
Walter, Edward, Tangley, Wokingham, Berks.
Watling, John, jun., Bury St. Edmund's.

FINANCES.—Major-General the Hon. A. N. Hood, Chairman, presented the report, from which it appeared that the Secretary's receipts during the past month had been duly examined by the Committee and by Messrs. Quilter, Ball, & Co., the Society's accountants, and found correct. The balance in the hands of the bankers on the 30th June was 1951*l.* 5*s.* The quarterly statement of subscriptions and arrears to 30th June, and the quarterly cash account, were laid on the table. On the motion of General Hood, seconded by Mr. Pope, it was resolved that the list of members in arrear be reprinted and circulated among Members of Council, with a request that they would give their assistance in obtaining payment of the sums due. This report was adopted.

PRIZE ESSAYS.—Mr. Thompson, Chairman of the Journal Committee, announced the awards of the judges, and the motto papers having been opened by the Chairman, the names of the successful competitors were declared as follows:—

Class I. Farming of Huntingdonshire. The prize of 25*l.* to Mr. Gilbert Murray, Elvaston Castle, Derby.

Class II. Farming of Westmoreland. The prize of 25*l.* to Mr. Crayston Webster, Land Agent and Surveyor, Kendal. The Essay bearing the motto "Arvorum cultus pecorumque," is commended.

Class III. Farming Customs and Covenants. The prize of 30*l.* to Messrs. Cadle & Bubb, Land Agents, Gloucester.

Class V. Loans for Estate Improvements. The prize of 25*l.* to the paper bearing the motto "Agricola."

Class VII. Farm Poultry. The prize of 10*l.* to Mrs. Somerville, Manor Farm, Rufford, Ollerton, Notts.

Class VIII. Disease in Sheep. The prize of 15*l.* to Mr. William Edward Litt, Veterinary Surgeon, Shrewsbury.

BURY ST. EDMUND'S MEETING.—Mr. Barnett reported that the band of the Coldstream Guards being engaged in London at the festivities consequent on the visit of the Sultan, the Secretary had been instructed to secure some other military band for the Showyard. A building was to be constructed for the exhibition of the numerous plans of labourers' cottages which had been sent in competition for the prizes offered; and accommodation provided for the police and manager of the water supply. It was recommended that a free ticket be presented to each member of the Local Committee. This report was adopted.

AGRICULTURAL EDUCATION.—Mr. Holland, M.P., presented the following recommendations:—

1. That the first examination shall take place at the Society's house in Hanover Square, during the week commencing April 20, 1868.

2. That forms of entry be prepared, which are to be duly filled up and returned to the Secretary, together with a certificate of general education, on or before the 29th of February, 1868.

3. That the examinations shall be conducted by means of written papers, and by a *viva voce* examination, at which any member of the Society may be present.

4. That every candidate be required to satisfy the Examiners in the Science and Practice of Agriculture, and in Book-keeping; and also in one of the two following subjects: Land Surveying and Mechanics, as applied to Agriculture.

5. That the successful candidates be placed in two classes, and be arranged in order of merit.

6. That candidates, in order to be placed in the first class, must satisfy the Examiners in both the abovenamed subjects — Land Surveying and Mechanics applied to Agriculture, and also in Chemistry.

7. That any candidate may offer himself for examination in one or more of the following subjects:—Botany, Geology, Veterinary Science. Any knowledge which he may show of these subjects will be counted to his credit in the general classification, provided that he has fulfilled the foregoing conditions, and provided that the knowledge of these subjects does not fall below the standard fixed as a minimum in each of these optional subjects.

8. Each successful candidate obtaining a first-class certificate, shall thereby become a life-member of the society.

9. That the following prizes be awarded to successful candidates placed in the 1st class for aggregate merit:—First prize, 30*l.*; Second prize, 20*l.*; Third prize, 10*l.*

10. That the following additional prizes be awarded to the candidate who shall show the highest merit in each subject respectively:—

Science and Practice of Agriculture ..	} Money or books to the value of			£10
Mechanics		,,	,,	10
Chemistry		,,	,,	10
Botany		,,	,,	10
Geology		,,	,,	5
Veterinary Science ..		,,	,,	10
Land Surveying		,,	,,	5
Book-keeping		,,	,,	5

11. That certificates, to be termed First and Second-Class Certificates, be granted to candidates placed in the 1st and 2d classes; such certificates to specify the subjects in which the candidate shall have satisfied the Examiners.

This report was adopted.

The following noblemen and gentlemen were appointed to serve on the General Leicester Committee:—Mr. Thompson, Chairman, His Grace the Duke of Rutland, the Earl of Powis, Lord Chesham, Lord Tredegar, Lord Vernon, Major-General the Hon. A. N. Hood, Sir Edward Kerrison, Bart., the Right Hon. Sir John Trollope, Bart., M.P., Sir W. Wms. Wynn, Bart., M.P., the Mayor of Leicester, Mr. Barnett, Mr. Barthropp, Mr. Bowly, Mr. Cantrell, Colonel Challoner, Mr. Clayden, Mr. Dent, M.P., Mr. Brandreth Gibbs, Mr. Holland, M.P., Mr. Hornsby, Mr. Wren Hoskyns, Mr. Milward, Mr. Pain, Mr. Randell, Mr. Read, M.P., Mr. Shuttleworth, Mr. Stone, Mr. Wallis, Mr. Webb, Mr. Torr, Major Wilson, Mr. Jacob Wilson.

SMITHFIELD CLUB.—*Visit of the Council of the Smithfield Club to Windsor.*—The President of the Club (Major-General the Hon. A. N. Hood) having invited the Council to inspect her Majesty's farms at Windsor, the following availed themselves of this handsome offer:—Lord Tredegar, Vice-President; Messrs. Torr and Samuel Druce, Trustees; Mr. Brandreth Gibbs, Hon. Secretary; Messrs. B. E. Bennett, John Baldwin, John Clayden, Joseph Druce, Thos. Duckham, Walter Farthing, John Giblett, Charles Howard, R. Milward, E. W. Moore, E. Pope, John Painter, Wm. Rigden, Richard Stratton, Wm. Sanday, Josh. Shuttleworth, Hervey Thurnall, Thos. Twitchell, J. S. Turner.

The party was met by the General at the Windsor station, where carriages were in attendance. They proceeded to inspect the splendid Royal dairy aviaries, the show farm, with the herd of Short-horns, and the white pigs, the Royal kitchen garden, &c., thence the Royal Flemish and Norfolk farms, where the herds of Herefords and Devons are kept; also the workshops, erected by the late Prince Consort, where all the carpentry for the estate is performed. After a complete inspection of the various animals, machinery, &c., at each of the farms, they were most sumptuously entertained at a banquet at General Hood's residence, Cumberland Lodge.

The President in proposing the health of her Majesty gratified the company by stating that her Majesty had expressed her approbation of this visit of the Council. It is needless to say that the health of Lady Mary Hood (who honoured the guests by being present at dinner), and that of the President himself, were duly honoured.

Nothing could exceed the hospitality and kind attention paid to the visitors, who returned highly gratified with their trip, and all declaring it to be one of the most enjoyable gatherings in which they had ever taken part.

SOCIETY OF ARTS.—At the annual meeting last week a report from the Council was read, containing the following particulars of agricultural interest:—

Harvesting Corn in Wet Weather.—The effect of the last year's wet season upon the harvest drew the attention of the Council to the importance of something being done, if possible, to obviate or mitigate the injury which the public suffer from this cause. After consultation with, and under the advice of, a committee of gentlemen skilled in agricultural pursuits, the Council determined to offer the Gold Medal of the Society, and a Prize of Fifty Guineas, for the best Essay on the Harvesting of Corn in Wet Seasons.

The first part of such essay—after noticing the various systems at present adopted in damp climates for counteracting the effects of moisture upon cut corn in the field, and for avoiding such exposure in wet seasons by peculiar harvesting processes — should furnish a practical and analytical exposition of the best available means:—

1st. Whereby cut corn may be protected from rain in the field.

2d. Whereby standing corn may, in wet seasons, be cut and carried, for drying by artificial process.

3d. Whereby corn so harvested may be dried by means of ventilation, hot air, or other methods; with suggestions for the storage both in the ear and after threshing.

4th. Whereby corn, sprouted, or otherwise injured by wet, may be best treated for grinding or feeding purposes.

The whole to be supplemented by a statement of practical results, and the actual cost of each system described; and by authenticated estimates of any process proposed for adoption, based on existing but uncompleted experiments.

These requisitions are given suggestively; and are not intended to bind the writer to the order or to limit the treatment of the subject, provided it be kept within the scope of practical experience and utility.

The essays are to be sent in to the Secretary on or before the 1st January, 1868.

The Council reserve the power to withhold the whole or part of the prize, in the event of no essay being, in the opinion of the judges, of sufficient merit.

Food Committee.—Early in the Session the Council resolved "that a Committee be appointed to inquire and report respecting the food of the people, especially, but not exclusively, the working classes of the people: and that, having regard to the publications of the Privy Council and other documents, which illustrate the defective amount of nutritious food available for the population at large, the said Committee do report respecting the resources which are, or might be rendered available for the production, importation, and preservation of substances suitable for food, and for improving the methods of Cooking in use among the working classes." This Committee, under the chairmanship of the Right Hon. H. A. Bruce, M.P., has held many meetings, very fully attended, and has diligently prosecuted its inquiries; the evidence which has been given before it has been published from time to time in the Journal. The Committee, in their first report to the Council, state:—

By the terms of their appointment, they were "to inquire and report respecting the food of the people, especially, but not exclusively, the working classes of the people," and they were instructed "to report respecting the resources which are or might be rendered available for the production, importation, and preservation of substances suitable for food, and for improving the methods of cooking in use among the working classes." The Committee feel that much of their task remains uncompleted, owing to the shortness of the time during which they have been at work as compared with the extent of the inquiry, and they therefore beg strongly to recommend that they should be allowed to continue their labours, and should not be considered as making in any sense a final report.

After careful consideration of the points to which their investigation should be directed, they appointed four Sub-committees; one on meat, one on milk, one on fish, and one on the subject of the cooking and cooking utensils in use among the working classes, with a view to their improvement.

On the first of these subjects much evidence of various kinds has been taken, and much information received, both from scientific and practical men, but as the substance of this has appeared from time to time in the Journal, it is not deemed necessary to recapitulate it here.

The Committee divided this branch of their inquiry into—

(1) The transport of live stock and of meat in a fresh condition.

(2) The methods of preserving meat, with a view to its importation from a distance.

On the former head, they are not at present prepared to make any distinct suggestions, but they are not without hope that they may be able to do so hereafter if their inquiries are continued.

Under the latter head, they have examined various plans, but the only one by which they have as yet found that unsalted meat in a solid eatable condition has been largely imported, is that followed by The Australian Meat Company. The process is that long used for preserved provisions. The beef arrives in tins from which the air has been excluded, and, from the heat employed, is sufficiently cooked to be eaten without further dressing. It may, however, be stewed and served hot, if preferred, and is fairly palatable. The Committee would suggest that, to render it more valuable, the proportion of fat should be diminished, and the temperature of preparation kept down to the lowest limit compatible with perfect preservation. It is at present supplied to the public at the rate of 7*d.* per pound, retail price.

The extract of meat manufactured according to Liebig's process may be fitted for use in special circumstances, but does not seem suited to form a substantive article of food.

The Committee would add, however, that a specimen of dried and powdered beef from Queensland has been laid before them, prepared by Mr. Alexander, of Brisbane, in that colony; and they are taking means to obtain a larger supply for the purpose of a more complete examination. The sample, though sent over from Queensland in a common canvas bag, and thus fully exposed to variations of temperature and the action of the atmosphere, was perfectly sweet and fresh; while the analysis by Dr. Voelcker and Professor Taylor showed that it possessed, in all material points, weight for weight, four times the nutritive properties of ordinary butcher's meat. Unfortunately, no evidence is at present attainable as to the price at which it could be sent to this country, a point which would, of course, materially affect its value as an article of general consumption.

Professor Gamgee, also, has drawn attention to a peculiar method of killing animals, by which he maintains that their flesh may be preserved much longer than if slaughtered in the ordinary way. The Committee have gone into the subject with much care, and have witnessed some experiments; but they are not at present able to express any opinion on its merits. They think that further and more lengthened trials would be desirable.

The same remarks apply to Mr. Sloper's process for preserving meat by enclosing it in tins filled with a gas of particular properties. One successful example has come before them, but they cannot speak decidedly, without further experiments.

Coming to the subject of milk, the attention of the Committee has been much directed to the supply of country milk to London, which has very largely increased during the last two years, and is likely to do so still more. The chief diffi

culty arises from the imperfect means of conveyance, which are open to much improvement, and the Committee recommend the adoption of the French system in the construction of the milk cans, with corresponding alterations in the railway vans. The French cans are much smaller, and more easily moved about, and as they are quite filled with milk, and the opening is carefully closed with a close-fitting stopper, the milk is less shaken than in the large imperfectly filled cans used in this country. It would be well if railway companies could be induced to insist on the use of such cans, at all events when a new district of country begins to take part in supplying milk to the metropolis.

Could milk be supplied in larger quantities and at a cheaper rate from the country to our larger towns, a valuable means of nourishment would be open to all, especially to the young, who often suffer seriously in health from the want of it.

On the subject of fish the Committee have an important recommendation to make to the Council, on which they lay much stress. Their inquiries have of late been limited to a few points only, but evidence brought before them shows that fish forms a most important article of food, much sought after by all classes. The demand for it is sufficient to absorb any increased supply that can be obtained, and the means of distribution, although capable of great improvement, are, even at the present time, such as will place the commoner kinds of fish within the reach of the working classes at a very reasonable price. It further appears probable that the fisheries of this country might be developed very considerably if a greater amount of capital, skill, and energy were devoted to them.

Hence the Committee suggest that, to attract public attention to this subject, the same means should be used which have been employed in Austria, France, Sweden, Norway, Denmark, and Holland; and that an International Fishery Exhibition, similar to those which have been held in the countries just mentioned, should be set on foot in England. The fact that the one now taking place at the Hague is the second which has been held there, seems conclusively to show that the results have been found to be beneficial.

The unrivalled capabilities of this sea-girt country, and the importance of increasing its supply of nutritious food, seem alike to indicate that England is deeply interested in following such examples, if, indeed, she should not have taken the lead of other nations.

It would appear that the utility of such exhibitions suggested itself to the Commission on the Sea Fisheries of the United Kingdom, though they rather contemplated the promotion of them by the efforts of a special society. They say, in their Report:—"When we consider the amount of care that has been bestowed on the improvement of agriculture, the national societies which are established for promoting it, and the scientific knowledge and engineering skill which have been enlisted in its aid, it seems strange that the sea fisheries have hitherto attracted so little of the public attention. There are few means of enterprise that present better chances of profit than our sea fisheries; and no object of greater utility could be named than the development of enterprise, skill, and mechanical ingenuity which might be elicited by the periodical exhibitions and publications of an influential society specially devoted to the British fisheries."

The Committee intentionally abstain from going into any details, being persuaded that the labours and experience of the Council, in connection with the great international exhibitions, render it the fittest body in the country to originate such a design, and to suggest the proper steps for its successful execution.

In relation to the subject of cooking, there is at present but little to report. The Sub-commitee have had several meetings, but as they found that an officer of the Royal Engineers was directing his special attention to the various kinds of improved fire-places and cooking utensils exhibited at the Paris Exhibition, it was thought best not to proceed with the subject (of which they fully recognise the importance), until they were in possession of the information which will no doubt be derived from any report that he may make.

The attention of the Committee has been so taken up by these four subjects, that they have been unable to make any inquiries upon other points equally important, viz., cereals and other vegetable food generally; fermented and unfermented beverages; combinations for the preparation of food; and the very momentous one of adulterations and other frauds in the sale of food. Through the kindness of Lord Stanley, they have received documents relating to the laws of foreign countries on the last-named question, upon which further legislation appears to be needed in this country.

They desire also to call the attention of this Council to the bearing of the investigations of M. Mège-Mouries on the bread-food supply of the people. The results of his investigations into the preparation of Wheat flour, and the processes of panification, have already been given in detail in a recent number of the Journal (May 10, p. 394). An improvement upon existing practices, based on sound philosophical principles, which adds not only to the quantity, but also to the nutritive quality of the available produce of such an important article of daily food as Wheat flower, appears to the Committee to be worthy of public recognition by the Society of Arts, and of being carried out into practical existence. The separation of the true bran from the grain does not appear to present much mechanical difficulty; while any prejudice that might at first exist against the colour of bread from flour thus prepared would gradually disappear as its superior quality and economy became known.

The Council does not doubt that the great importance of the subject of the food of the people will be recognised by the new Council now to be appointed, and that they will renew the appointment of the Food Committee. With regard to the recommendation that an exhibition of Fishery Appliances should be held in this country, the Council have requested a Special Committee to consider and report what steps can be taken to practically carry it into effect.

Reviews.

Observations upon a New and Simple Process for the Preservation of Meat, Poultry, Fish, and other Varieties of Animal Food, in Temperate and Tropical Climates. W. Bailey & Son, 17, Laurence Pountney Hill.

This pamphlet tells us that 200 patents have been taken in this country for the preservation of food; that immense quantities of animal food are annually condemned; and that while 44,000 tons of meat have been lost to us by the cattle plague, twice that quantity is annually wasted for want of a certain, simple, and inexpensive process of preserving it. Ice is costly, difficult to use, and has the disadvantage that frozen meat putrifies very rapidly when melted and exposed. Salt is unsatisfactory inasmuch as it takes out the potash ingredient of the meat, the want of which induces scurvy and other diseases. Dried, and powdered, and extracted meats are costly. Meats in hermetically sealed canisters are of great value, but uncertainty and costliness and want of flavour are great drawbacks. Messrs. Medlock & Bailey have devised a plan, simple, and sufficient, and inexpensive, which they believe better than all others, and this pamphlet is issued as an advertisement.

"By its means the meat, poultry, game, fish, &c., of a large household, or wholesale establishment, can be effectively preserved for months in any weather, at a nominal expenditure of time and money; no soldered tin cases are required, no complex apparatus is necessary, no want of flavour or nutritive power is the result: and, finally, whether the edibles thus treated are eaten in two days' or two months' time, nobody, save the actual manipulator, need know anything about it.

"How is all this to be accomplished? Let the reply be in terms that may also serve as 'directions for use.'

"In the case, say of a small family who wish to keep a leg of mutton, or a sirloin of beef, for a week in sultry, thundery weather, with the thermometer at 90°, take a teacupful of 'Medlock & Bailey's Patent Bisulphite of Lime Solution,' a dessert spoonful of common salt, and about a quart of cold water, mixing the same in an earthern pan, basin, or other suitable vessel. Dip the meat in this mixture for a few minutes, taking care with the end of a cloth to wet it all over, then hang the joint up as usual. A dip night and morning will ensure its keeping sweet and fresh for any length of time. If the weather is unusually hot, a cloth soaked in the same solution may be wrapped round it with advantage.

"Can anything be easier than this?

"Game or poultry may be treated in precisely the same manner, having been first plucked and drawn. Fish, too, should be previously gutted. Eggs may be retained in the fresh or 'new-laid' condition, simply by being completely covered over with bran soaked with the same liquid mixture; while bacon can be prevented from getting 'rusty' by this simple plan, which of course can be readily modified to suit different articles of food. If the joints are large and numerous the proportions should be thus:—

Bisulphite of Lime	2 quarts.
Common Salt	1 pint.
Water	4 gallons.

"When the meat, &c., is required for cooking, all that is necessary is to lay it in cold water for a few minutes, and afterwards to dry it thoroughly in a cloth; on a close inspection no odour or other alteration whatever will be apparent—the lean will not be reddened, nor the fat changed to the deep yellow tint so often apparent with 'hung' meat, and the texture will be, as at first, firm and consistent. Nay, more, if not content with the evidence of our ordinary senses, we place a portion under the microscope, we shall observe that the general structure of the tissues has not suffered in the slightest degree; and if we went further, and delivered the whole to an analyst, his report would be that the various nutritious principles were present as usual, and had not sustained the slightest injury."

The pamphlet contains some useful statistics on the quantities of meat and fish condemned in various towns, and it refers especially to the risk of becoming tainted on its way, which is incurred by carcases sent to town from distant counties.

"It is well known that a very large quantity of meat is sent to London in the shape of 'carcases,' or entire animals, which have been killed in Aberdeen, Devonshire, Lincolnshire, Wales, or elsewhere, and instantly despatched to the metropolis. The amount is, of course, very variable, being modified by circumstances, the weather being by no means the least important. At the present time the annual quantity supplied in this way may fairly be taken as not less than 160,000,000 to 170,000,000 lb.

"Now, if anything should happen to any portion of this meat while on its way—say from a change in the weather—contact with, or proximity to manure, or other offensive matter,* or from accidental detention even—what is the consequence? Why, that every pound of the previously wholesome animal food so 'tainted,' must either be destroyed on its arrival, or is sold for next to nothing, and thus permitted to engender or develop disease in various forms among the 'half-starved poor of London.'

"Now we shall be enabled to 'change all this;' for if the country slaughterman avails himself of this patent process, and either dips his meat in the solution of bisulphite, or sprinkles the latter over it, before packing, every ounce will arrive fresh and sweet at its destination, in spite of delay, weather, or even flies. A second, rapid application by the city carcase-butcher, or meat salesman, will ensure the perfect 'sweetness' of his beef and mutton when cut up."

The pamphlet well deserves perusal; and its promises and assertions ought to be immediately tested.

Farm Memoranda.

WESTER ROSS: *July* 1.—Until within some three weeks the weather in the north of Scotland, ever since October, has been unusually severe, and peculiarly wet, so much so, that winter-sown Wheat bade fair to be drowned, the spring crops were laid down in bad condition, and strong clays could scarcely be prepared for Turnips. The weather, however, of late has been so fine that these evils have already been all but overcome. The Wheat, scarcely excepting the fields which in spring appeared so unpromising, everywhere looks well, and will be a bulky crop. With fine weather for maturing and harvesting, the crop would be a full average one. The fields sown in early autumn are only now coming into ear, whilst the later sowings are far less advanced, and showing as yet little appearance of earing. With ordinary weather the harvest cannot be earlier than the beginning of September. Barley, on all the low-lying and more friable soils, will be greatly heavier than it has been for years, and with a continuance of showery weather would be considerably laid. On cold and high-lying fields it is not so promising. The weather was too cold and wet, the healthy colour was lost, and the crop, although it may yet considerably recover, cannot be a full one. Oats, generally, have that rich, dark colour so indicative of present health and of coming fruitfulness, except where, for the present, they were eclipsed by an extraordinary profusion of Nature's beauty with which the farmer would willingly dispense. The redundance of wet has caused a more than usual display of annual flowers. The last few years with us were so very dry, that a particle of straw is not to be found about many a steading, but this year bids fair to supply us with a stock more than usually large. Turnip-sowing, notwithstanding the difficulty of sufficiently pulverising the stronger soils, was completed not much later than the usual time—about the 26th of June. Singling of Swedes has fairly commenced, and in some instances is already complete. They are closely brairded, and are sufficiently promising, notwithstanding that much of the soil has been crusted over by the continued rain. Common Turnips are coming away rapidly. The earlier sowings will soon be ready for the hoe. A large breadth of Turnips is sown in this county, and for a few years this crop has, perhaps, been more profitable than any crop that was grown. As there are so many large sheep-grazings in this county, there is a brisk demand for them at remunerative prices, for sheep wintering. Potatos have come above ground regular, and very strong and vigorous. They are now being hoed, and will soon be earthed up. They are this year pretty largely planted, as last year they were a superior crop, kept free of disease, and fetched a long price. Our hay crop was never perhaps better than it now is. With much additional rain it would become so laid and twisted that to have it properly cut would be a slow and difficult operation. Hay, from the deficiency of the crop for the last few years, became very scarce and dear, but we will now lay in more than one year's supply. Pastures are now abundant everywhere, and exhibit a profusion of beautiful White Clover. Stock of all kinds are doing well, and cattle, although lower than last year, are selling pretty satisfactorily. For nearly a year sheep have been difficult to dispose of on any terms, and could only be sold at a sacrifice, and even now there is little appearance of an increased demand, or higher prices.

* "We have known several instances of meat spoiled in this manner during transit."

Calendar of Operations.

JULY: *Arable Farm.—Wheat* and other grain crops are now in full ear, and their productiveness depends on other influences than those which the farmer exercises.

Pease will be ready for harvesting towards August. They are mown, or cut with hook and crook into bundles, and left to dry, being turned daily till ready to carry.

Beans.—The winter sown crop of Beans will also be ripe by the end of July. They may be let to reapers to cut, tie, and stook, at from 7*s.* to 8*s.* per acre, according to the crop. They are generally "bagged," as it is termed, by a heavy hook, which is struck at the standing corn in successive blows, driving a yard depth of it up against the crop, across perhaps half the width of a ridge, and then employed to gather that which has been cut into a sheaf, which is laid on a band of straw, or of Bean stalks, which had been previously prepared. The Beans should thus lie for a few days, till ready to be tied and shocked. The crop may be cut as soon as the attachment of the seed inside the pod, connecting it with the plant, has withered. This will be before the stalk is dead, and so much the better, for leafy Bean straw is good fodder. Any *Rye* that may have been left for seed, will also probably be ready for the sickle.

Carrots and Parsnips may receive their last horse-hoeing, or deep hand-hoeing in this month: and children should be employed to go over each row, singling plants that have been left double, and pulling young plants that have appeared since the first hoeing. This is necessary, for the Carrot seed sown in April keeps germinating, and sending up its shoots all through May and June.

Mangel Wurzel must be horse-hoed at intervals during this month.

Turnips must also be hand and horse-hoed. The early part of this month is the period for hoeing the bulk of this crop.

Rape should be hoed as soon as sufficiently high not to be covered during the operation, and then it should be set out as Turnips are, excepting that, in "singling," two or even three plants may be left together. You may continue sowing it during this month.

Flax is to be pulled as soon as ready, which is generally by the end of this month, before the seed bolls have ripened. The seed may be separated by rippling in the field at once, or after the Flax has dried in shock, or in the following spring, on the Courtrai method, after remaining in the rick all winter. Rape or autumn Turnips may be grown on Flax stubble after the removal of the crop.

Hay-making of the artificial Grasses, Sainfoin, &c., will conclude this month.

Tares, Lucerne, and Clover, continue to furnish abundant keep for stock.

Fallow.—Advantage must be taken of fine weather, after rain, to harrow down the fallow land, which should now work very fine; get the weeds gathered, and if lime or dung is to be applied, it should now be laid on and ploughed in.

Grass Lands.—All pastures on dry subsoils will require thinning considerably this month; but on cool

subsoils they will carry an equal quantity of stock with the preceding month, and the animals will also do far better. Fattening beasts and sheep will, generally speaking, be now fit for market; and great care will be needful to regulate the stocking, so far as to preserve the pasture good. Aftermath must not be stocked until fairly grown.

Live Stock.—Towards the end of the month the labour of the horses being easier, their allowance of Oats may be diminished. The other stock receive a continuance of past treatment. This is the ordinary month for weaning the lambs, and no better practice can be adopted than to let them remain for two or three weeks on the best of their own summer pastures, or the run of a field of aftermath during the middle of the day, taking care not to give them access to it until the dew is off the Clover. The ewes, on the contrary, must be placed for a week or two on the worst pasture, in order to cause their milk to dry up.

Notices to Correspondents.

COW SUCKING HERSELF: *Alderney.* You must give her a collar, to hinder her bending her neck to the extent required for the operation.

GUANO: *M O.* It would probably prove more immediately efficient on a light than on a heavy soil, much of its value being due to substances which require the free access of *air* and water to bring them into the condition of vegetable food.

IMPORTS IN THE FIVE MONTHS ENDED MAY 31, 1866, AND 1867: *R.*

Articles.	Quantities Imported. 1866.	1867.
I. *Articles Free of Duty.*		
Animals, living—Oxen, Bulls, and Cows .. .. No.	54,323	54,434
Calves .. .. ,,	6,699	8,192
Sheep and Lambs .. .. ,,	324,273	237,416
Swine and Hogs .. .. ,,	24,889	11,338
Bones burnt or not, or as animal charcoal .. .. tons	26,373	27,526
Flax and Tow or Codilla of Flax—		
From Russia .. .. .. cwt.	169,840	133,748
Holland .. .. ,,	37,970	52,553
Belgium .. .. ,,	69,186	90,641
Other Countries .. .. ,,	50,354	80,220
Guano, from West Coast of Africa, tons	300	475
United States .. .. .. ,,	1,330	2,181
Peru .. .. ,,	47,290	31,030
Bolivia .. .. ,,	..	3,412
British and West India Islands ,,	1,876	519
Other Countries .. .. ,,	7,845	4,947
Hemp and Tow or Codilla of Hemp—		
From Russia .. .. .. cwt.	5,057	7,968
Venetia .. .. ,, }	112,877	43,937
Illyria, Croatia, and Dalmatia ,, }		13,941
British India .. .. .. ,,	12,403	3,330
Philippine Islands .. .. ,,	27,327	31,169
Other Countries .. .. ,,	15,597	24,222
China Grass .. .. .. ,,	50	47
Jute and substances of the nature of Hemp .. .. ,,	787,576	638,530
Hides, untanned—Dry—From British India .. .. ,,	52,358	65,844
Other Countries .. .. ,,	26,375	19,084
Wet—From Argentine Confederation and Uruguay .. .. ,,	48,411	38,229
Brazil .. .. ,,	20,598	5,932
Australia .. .. ,,	34,684	32,391
Other Countries .. .. ,,	89,105	29,981
Tanned, Tawed, Curried, or Dressed except Russia) .. .. lb.	3,272,276	2,770,846
Hops .. .. cwt.	18,777	22,232
Oil Seed Cakes .. .. .. tons	45,695	42,177
Potatos .. .. cwt.	152,368	347,103
Provisions—Bacon and Hams .. ,,	365,300	181,289
Beef, salt .. .. .. ,,	103,652	75,477
Pork, salt .. .. .. ,,	110,455	58,756
Butter .. .. ,,	385,679	405,512
Cheese .. .. ,,	155,362	210,726
Eggs .. .. No.	196,955,760	190,866,600
Lard .. .. cwt.	165,924	74,680
Rice, not in the Husk .. .. ,,	266,432	169,066
Saltpetre .. .. ,,	72,266	51,955
Cubic Nitre .. .. .. ,,	501,949	527,442
Seeds—Cotton .. .. .. tons	48,834	49,392
Clover .. .. cwt.	172,829	83,289
Flaxseed and Linseed .. qrs.	332,543	315,917
Rape .. .. ,,	141,636	204,490
Tallow—From Russia .. .. cwt.	81,286	38,060
Australia .. .. ,,	13,811	8,999
South America .. .. .. ,,	49,514	25,375
Other Countries .. .. ,,	76,077	38,624
Tar .. .. lasts	1,210	342
Wool, Sheep and Lambs'—From Europe .. .. lb.	9,097,415	5,041,086
British Possessions in South Africa ,,	6,455,121	11,862,957
British India .. .. .. ,,	5,071,201	3,534,138
Australia .. .. ,,	43,817,913	51,648,900
Other Countries .. .. ,,	6,272,382	9,567,820
Alpaca and the Llama Tribe ,,	1,270,230	1,051,164
Yeast, dried .. .. .. cwt.	42,737	47,119
II. *Articles Subject to Duty.*		
Corn—Wheat—From Russia .. ,,	3,250,423	4,587,692
Denmark .. .. ,,	97,158	293,503
Prussia .. .. ,,	929,544	3,015,614
Schleswig, Holstein, & Lauenburg ,,	54,880	70,175
Mecklenburg .. .. .. ,,	202,742	448,711
Hanse Towns .. .. .. ,,	188,680	424,546
France .. .. ,,	2,287,920	321,627
Turkey and Wallachia & Moldavia ,,	244,757	1,152,682
Egypt .. .. ,,	..	26,998
United States .. .. .. ,,	315,160	858,116
British North America .. ,,	8,789	87
Other Countries .. .. ,,	1,762,525	1,304,326
Barley .. .. ,,	3,306,640	3,106,480
Oats .. .. ,,	2,660,719	3,524,912
Peas .. .. ,,	363,090	547,603
Beans .. .. ,,	197,324	800,989
Indian Corn, or Maize .. .. ,,	4,903,140	3,510,122
Wheatmeal and Flour—From Hanse Towns .. .. ,,	97,869	214,830
France .. .. ,,	2,387,055	696,462
United States .. .. .. ,,	163,712	90,495
British North America .. ,,	6,137	6,582
Other Countries .. .. ,,	104,011	510,065
Indian Corn Meal .. .. .. ,,	7,248	2,520

OROBANCHE: *D.* See past indices of the *Gardeners' Chronicle.* We will be more particular next week.

VARIEGATED LEAF: *D.* We imagine it is, so to speak, a disease, and that the seed will not reproduce the phenomenon.

MOULE'S PATENT EARTH CLOSETS AND URINALS.

PERFECT SUBSTITUTE FOR WATER CLOSETS, AVOIDING ALL BAD SMELLS.

APPLICABLE TO ANY EXISTING CLOSETS, AND ADMIRABLY ADAPTED FOR

BED-ROOMS, HOSPITALS, BARRACKS, &c.

On View and in Operation at the CAMP, WIMBLEDON; at the RIDING SCHOOL, BRIGHTON; at the BURY AGRICULTURAL SHOW; at the PARIS EXHIBITION; and at the OFFICE of MOULE'S PATENT EARTH CLOSET CO. (LIMITED), 29, BEDFORD STREET, COVENT GARDEN, W.C.

T. M. EVANS, MANAGER.

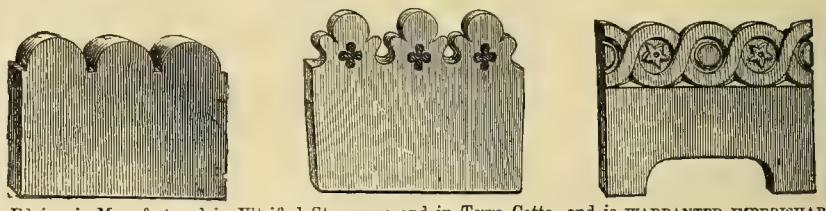
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MANUFACTURED BY

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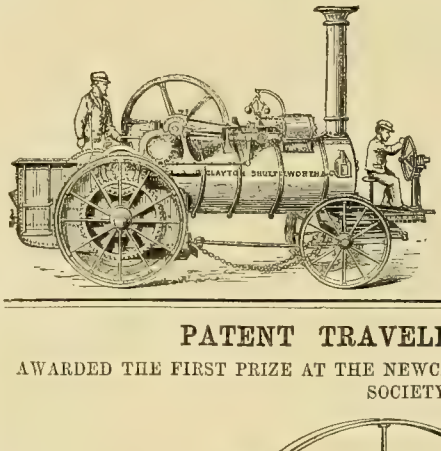
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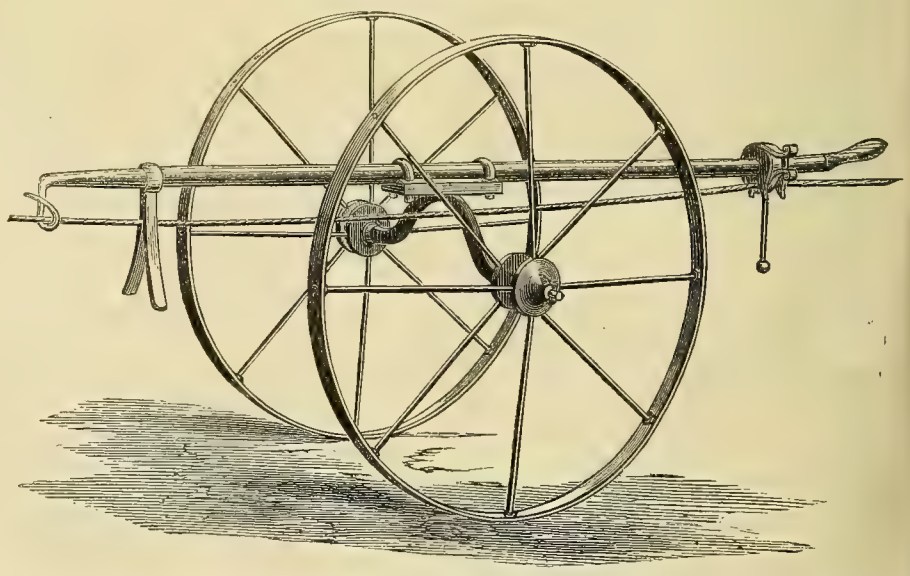
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TRACTION ENGINES for COMMON ROADS, and for STEAM CULTIVATION.

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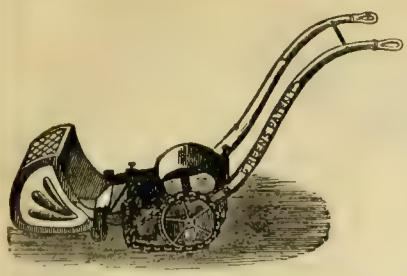
AWARDED THE FIRST PRIZE AT THE NEWCASTLE MEETING OF THE ROYAL AGRICULTURAL SOCIETY, JULY, 1864.



These ROPE PORTERS are fastened to the Rope at intervals behind the Cultivator or Plough as it leaves either headland; they travel across the field with the Rope, and are taken off as they return. They can be released from the Rope instantaneously; they are much less trouble than any hitherto in use, and they save the boys the fatigue of running with the Implement across the field. The Rope Porter, which immediately follows the Plough or Cultivator, is provided with a Steerage to prevent those following from running on the ploughed ground, and to keep the back rope clear of the furrow.

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GREEN'S PATENT. | SAMUELSON'S PATENT.
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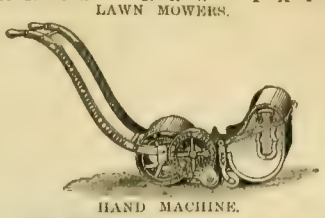
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These are the only Machines that will last for years without requiring repair.
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BRASS AND BELL FOUNDERS TO HER MAJESTY.

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With this compact, portable, and generally useful Engine, one man will throw from 15 to 18 gallons of water per minute to a height of 50 feet. All its working parts are of Brass, the Barrow of Wrought Iron; easy access to the valves is gained, and the workmanship throughout is substantial. Not only will it be found most useful in cases of Fire, wherever a supply of water can be obtained, but also for Watering Lawns or Fruit Trees.



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March 2, 1867.

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"Gentlemen,—I feel great pleasure in stating that I was present at a trial of your small Crystal Palace Fire Engine, and was much pleased with its efficiency and simplicity.

"The Pump throws out a steady jet of water to a height of 50 feet with very little labour. The Pump we have is well made, very simple in its parts, and not likely, I think, to get out of order. The advantage of this Pump is its being very portable. Besides being a good Fire Engine, it will make an excellent Garden Engine.

"I remain, Gentlemen,
"Yours obediently,
"EDWIN ROSE,
"Engineer to the Crystal Palace Co."

Price on Barrow, with Branch Pipe, Spreader, Unions, and Suction Rose ... ... £6.
1¾-in. 2-ply Rubber Suction Pipe, per foot, 2s. 2d. 1¼-in. ditto Delivery Hose, 1s. 4d.



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These Engines are much improved in construction, are less likely to get out of order, and more easily repaired than others.

No. 547. Best ENGINES, in Wood Tubs.

24 Gallons	..	£6	10	0	14 Gallons	..	£5 10 0

No. 547A. Strong ENGINES, in Galvanized Iron Tubs, well painted inside and out.

10 Gallons	..	£2	19	0	24 Gallons	..	£4 19 0
16 Gallons	..	3	14	0	28 Gallons	..	5 10 0

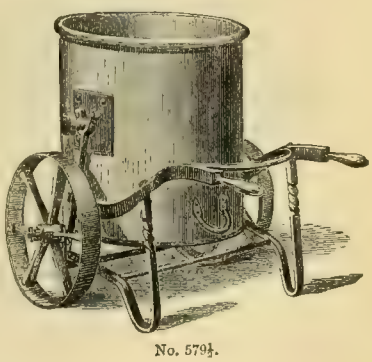
579½. WARNERS' WATER BARROW

Saves a Gardener's time in Watering with the Water Pot.

Made of strong Wrought Iron, Galvanized and painted inside and out.

To hold 20 Gallons, wheels 13 inches high						..	..	£2 2 0
,, 30	,,	,,	20	,,		..	..	2 13 0
,, 38	,,	,,	24	,,		..	..	3 17 0
,, 50*	,,	,,	24	,,		..	..	5 12 0

* This is an extra strong article, with cross handle for two men, suitable for Nursery Grounds, &c.

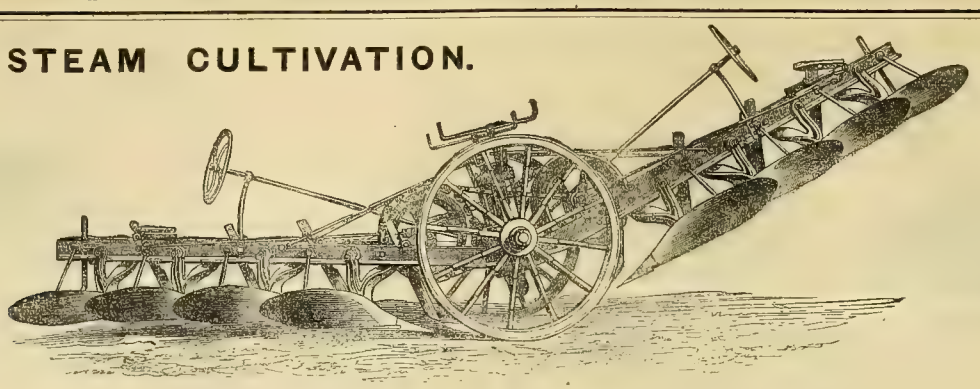


No. 579½.

SYRINGES, BRANCH PIPES, INDIA-RUBBER HOSE, &c.

☞ *Estimates for any description of Hydraulic Machinery forwarded on application.*

STEAM CULTIVATION.



JOHN FOWLER & CO.

WILL EXHIBIT AT THE ROYAL AGRICULTURAL SOCIETY'S SHOW, BURY ST. EDMUND'S, IN OPERATION, THEIR

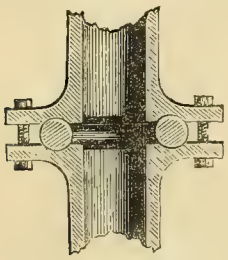
PATENT STEAM CULTIVATING AND PLOUGHING MACHINERY,

WITH THE LATEST IMPROVEMENTS,

SUITED FOR ALL CIRCUMSTANCES AND EVERY DESCRIPTION OF SOIL.

ALSO PORTABLE AND TRACTION ENGINES.

JOHN FOWLER AND CO., STEAM-PLOUGH WORKS, LEEDS, and 71, CORNHILL, LONDON, E.C.

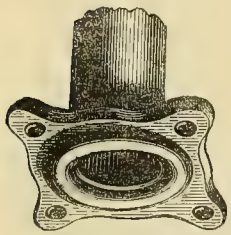


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Especially adapted for HOT-WATER PIPES for WARMING CHURCHES, PUBLIC BUILDINGS, SCHOOLS, CONSERVATORIES, HOT-HOUSES, &c., is extremely simple, perfectly watertight, saves four-fifths of the time and labour in erecting hot-water work, can be rapidly put together by an ordinary workman, and can be removed and re-erected without injury to pipes or joints.

Prospectus and Price List free.



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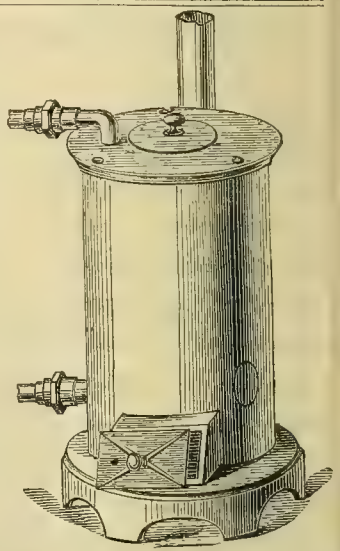
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PATENT SLOW COMBUSTION BOILER.

For WARMING CHURCHES, CONSERVATORIES, HOTHOUSES, SCHOOLS, &c., by the circulation of Hot Water, requires no brick-work setting, saves half the fuel usually consumed, is not liable to get out of repair, is easily regulated, will work from 8 to 20 hours without attention, and is made in sizes capable of heating from 30 to 5000 feet of 4 inch pipe.

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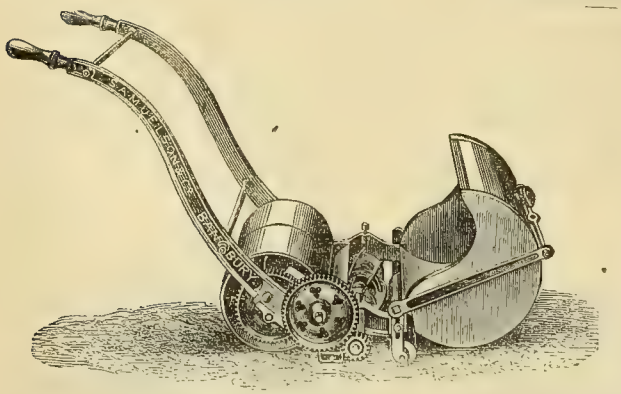


PATENT SLOW COMBUSTION BOILER.

SAMUELSON & CO.'S

IMPROVED LAWN MOWING MACHINES.

EVERY MACHINE WARRANTED.



PRICES.

Delivered Free to any Railway Station in Great Britain.

Cutting 12 inches wide	£4 10 0
Cutting 14 inches wide	5 5 0
Cutting 16 inches wide	6 0 0
Cutting 19 inches wide	6 10 0
Cutting 22 inches wide	7 10 0
Cutting 25 inches wide	12 0 0
Cutting 30 inches wide	15 0 0
Cutting 36 inches wide	18 0 0

Great improvements have been made in these Machines during the last few years, in regard to all those small but important points of superiority which the practical working of a Lawn Mower suggests; while for elegance of appearance, lightness of draft, and efficiency in working they cannot be excelled. They possess the following advantages:—

1st, Motion is given to the Cutting Apparatus by toothed gearing, which experience has proved to be by far the best method of driving.

2d, The whole of the Driving Wheels are on one side of the Machine, a point of great importance in preventing damage to Shrubs and Flowers, when mowing round the edges of beds.

3d, All the smaller working parts of the Machine are made of Malleable Iron, and are not liable to break.

☞ *Illustrated Price Lists, with selections from several Thousand Testimonials, Free by Post on application.*

SAMUELSON AND CO., BRITANNIA WORKS, BANBURY.

LONDON WAREHOUSE: 10, LAURENCE POUNTNEY LANE, E.C.

AGENTS:—Messrs. TANGYE BROTHERS AND HOLMAN, 10, LAURENCE POUNTNEY LANE; Messrs. DEANE AND CO., London Bridge; Messrs. DRAY, TAYLOR AND CO., London Bridge; Mr. THOMAS BRADFORD, 63, Fleet Street, E.C.; and all respectable Seedsmen and Ironmongers throughout the Kingdom.

Shading.

SCRIM CANVAS, 2 yards wide, 8*d*. per yard.
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ARCHANGEL MATS, 95*s*. per 100.
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AUSTIN'S ARTIFICIAL STONE, INVENTED 1826.
The entire Stock of this Manufactory comprises
180 different MODELS of VASES.
70 different MODELS of TAZZAS.
About 200 different FOUNTAINS.
74 STATUES from the Antique, and by Modern Artists, and SMALL FIGURES of CHILDREN.
22 SUN-DIAL PEDESTALS.
GARDEN SEATS.
15 BASKETS, from 12*s*. to Seven Guineas.
SHELLS, suitable either for WATER or ROCK PLANTS, from 18 inches to 12 feet diameter.
JARDINIÈRES, or large BOWLS for MASSES of FLOWERS.
53 FIGURES of ANIMALS and BIRDS.
ORNAMENTAL RIMS to WATER BASINS.
34 BAPTISMAL FONTS.
CRESTS and other ORNAMENTS for GATE PIERS.
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TRIPOD, and other ANTIQUE PEDESTALS.
Manufactured by AUSTIN, SEELEY, & Co., at Nos. 309 to 375, Euston Road, Regent's Park, N.W.

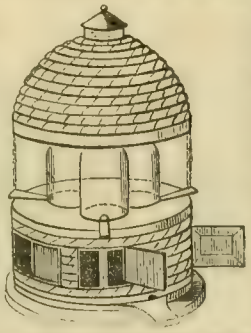
Caution to Gardeners.—When you ask for

SAYNOR AND COOKE'S WARRANTED PRIZE PRUNING and BUDDING KNIVES, see that you get them. Observe the mark SAYNOR, also the corporate mark OBTAIN WARRANTED, without which none are genuine.
S. & C. regret having to caution Gardeners and others, but are compelled to do so, in consequence of an imitation, of common quality, having been sold for the genuine one, and which has caused many complaints to be made to them of Knives which were not of their make, all of which are warranted both by Sellers and Makers.
S. & C.'s Pruning and Budding Knives are the best and the cheapest in the market.
Paxton Works, Sheffield. Established upwards of 125 years.

SHAW'S TIFFANY.
For samples and prices apply to
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Bee Hives.

PRIZE MEDAL AND HONOURABLE MENTION AWARDED TO GEORGE NEIGHBOUR & SONS, FOR BEE HIVES AND HONEY AT THE VARIOUS EXHIBITIONS.



NEIGHBOUR'S IMPROVED COTTAGE BEE HIVE, as originally introduced by GEORGE NEIGHBOUR & SONS, with all the recent improvements, working three bell-glasses; is neatly and strongly made of straw; it has three Windows in the lower Hive, with a Thermometer affixed to the centre one. This Hive will be found to possess many practical advantages, and is more easy of management than any other Bee Hive that has been introduced.

Price complete .. £1 15 0
Stand for ditto .. 0 10 6

THE LIGURIAN or ITALIAN ALP BEE being much in repute at the present time, we are in a position to supply Stocks of the pure race carefully packed in Woodbury Bar-Frame Hives, so as to travel with comparatively no risk of damage.

ENGLISH BEES.—Stocks and Swarms may be obtained as heretofore.

A newly-arranged CATALOGUE of other Improved Hives, with Drawings and Prices, sent on receipt of two stamps.

Address, GEO. NEIGHBOUR & SONS, 127, High Holborn, W.C.; or 149, Regent Street, London, W.

AGENTS:—Liverpool: James Cuthbert, 12, Clayton Square. Manchester: J. Wilson, 50, King Street. Birmingham: J. H. Cottrell, 15, Bull Ring. Dublin: Edmondson Brothers, 10, Dame Street. Glasgow: Austin & McAslan, 16, Buchanan Street.

GRAY'S OVAL TUBULAR BOILER.
INTERNATIONAL EXHIBITION, CLASS IX., No. 2119.

MR. GRAY begs to call the attention of the Nobility, Gentry, Nurserymen, Gardeners, &c., to his

NEW OVAL TUBULAR BOILER,

acknowledged by practical judges to be a great improvement on every form of Tubular Boiler yet introduced. It has proved itself superior to all other Boilers for quickness of action and economy of Fuel, doing its work with one-third less the amount required by any other.

Extract from Report in GARDENERS' CHRONICLE *of International Exhibition, May* 24, 1862, *page* 476.

"The upright form of Boiler is usually made on a circular plan, but the oval form given to Mr. GRAY's variety of it is said to be preferable in consequence of its bringing the tubes in closer contact with the fire. The usual form of a furnace being a parallelogram rather than a square, it seems feasible that the Boilers on the oval plan should bring the tubes more completely within range of the burning fuel; and this being so, the change, though a slight one, is no doubt an improvement."

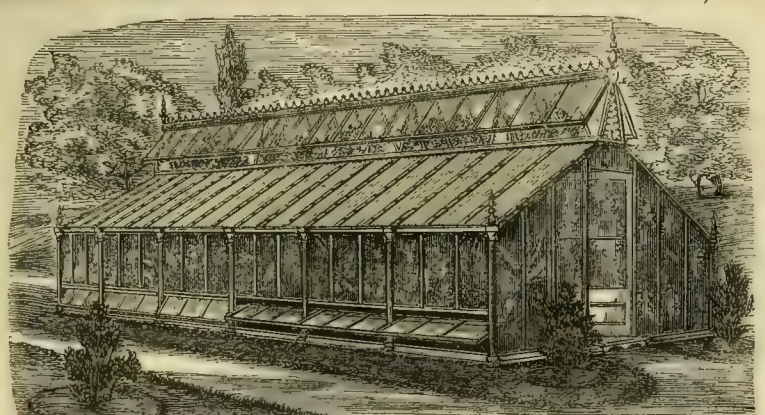
☞ *They are made of all sizes, which, with prices, may be had on application.*

JAMES GRAY, HORTICULTURAL WORKS,
DANVERS STREET, PAULTON'S SQUARE, KING'S ROAD, CHELSEA, S.W.

BEARD'S PATENT.

GREAT INTERNATIONAL HORTICULTURAL EXHIBITION AND BOTANICAL CONGRESS, SOUTH KENSINGTON, MAY, 1866.

MANCHESTER GRAND NATIONAL HORTICULTURAL EXHIBITION, JUNE, 1867.



The FIRST and ONLY PRIZE at the former EXHIBITION for the BEST METHOD of VENTILATION for PLANT STRUCTURES, and their FIRST-CLASS CERTIFICATE at the latter were awarded by the Judges to

MESSRS. SANDERS, FREWER, & CO.,
VICTORIA WORKS, BURY ST. EDMUND'S, for

BEARD'S PATENT METALLIC NON-CONDUCTING GLASS HOUSES,

Showing the Patent System of perfect Ventilation and Patent Method of Glazing, whereby breakage from expansion and contraction is prevented, and facility given for immediate reparation by any ordinary labourer.

MESSRS. SANDERS, FREWER, AND CO. beg to call special attention to the high value of these great improvements in the VENTILATION, &c., of HORTICULTURAL ERECTIONS, which are also applicable to all WOODEN HOUSES, as well as to CHURCHES, RAILWAY STATIONS, PUBLIC BUILDINGS, MANUFACTORIES, &c.; and have received the highest recommendation from many of the first Horticulturists and practical men of the United Kingdom.

The system is invaluable also for AGRICULTURAL BUILDINGS, as by it abundant Light and Air can be obtained, and the Ventilation regulated to the utmost nicety in the Tops and Roofs of all Structures, where, as is well known, Impure Air constantly accumulates, and where the ordinary system of Ventilation is impracticable.

Various Specimens of the above will be Exhibited at their STAND, No. 222, in the MACHINERY IN MOTION DEPARTMENT of the ROYAL AGRICULTURAL SOCIETY; and also on the GROUNDS of the ROYAL HORTICULTURAL SOCIETY, at the forthcoming GRAND EXHIBITIONS at BURY ST. EDMUND'S, commencing July 16, 1867.

Full particulars and descriptions may be obtained on application to the above Address.

TANNED GARDEN NETTING for preserving Seed Beds, Fruits, Strawberries, from Frost, Blight, Birds, &c., and as a Fence for Fowls, &c. 1 yard wide, 1½*d*.; 2 yards, 2½*d*.; 3 yards, 4*d*.; and 4 yards, 6*d*. per yard run in any quantity, may be had at CHAS. WRIGHT'S, 376, Strand, W.C.

Garden Netting.

JOHN EDGINGTON AND CO. supply TANNED NETTING for the Protection of Fruit Trees, 1*d*. per square yard. Any quantity. SCRIM CANVAS, &c.; TULIP COVERS and GREENHOUSE SHADES, SUN BLINDS, &c MARQUEES, TENTS, and FLAGS for FETES, FLOWER SHOWS, &c.
JOHN EDGINGTON & Co., (Tent Makers to the Royal Family), 48, Long Lane, Smithfield, E.C.; and 18, Piccadilly, W.

NETTING for FRUIT TREES, SEED BEDS, RIPE STRAWBERRIES, &c.—TANNED NETTING for protecting the above from Frost, Blight, Birds, &c., 2 yards wide, 3*d*. per yard, or 100 yards, 20*s*.; 4 yards wide, 6*d*. per yard, or 50 yards, 20*s*. NEW TANNED NETTING, suited for any of the above purposes, or as a Fence for Fowls, 2 yards wide, 6*d*. per yard; 4 yards wide, 1*s*. per yard; ½-inch mesh, 4 yards wide, 1*s*. 6*d*. per yard. Can be had in any quantity of
EATON & DELLER 6 and 7, Crooked Lane, London Bridge, E.C.

OYSTER CULTURE.—A Gentleman largely engaged, and thoroughly experienced in the Culture of Oysters, and who has most extensive and valuable Breeding and Fattening Grounds, wishes the co-operation of a Gentleman willing to bring in £4000.
Apply to Mr. F. ROUSE, 19, Craven Street, Strand, W.C.

Farm Poultry

GREY DORKING FOWLS, of purest breed, in any numbers.
Imported TOULOUSE GEESE, the largest and most productive breed known.
Improved NORFOLK TURKEYS, large, hardy, and good breeders.
AYLESBURY and ROUEN DUCKS.
Imported BELGIAN HARE RABBITS, for size and early maturity.
BRAHMA-POUTRA, CREVECŒUR, and LA FLECHE FOWLS, for constant layers.
Priced Lists and Estimates on application.
JOHN BAILY & SON, 113, Mount Street, London, W.

To Landscape Gardeners.

AN ARTISTIC DRAUGHTSMAN undertakes the PREPARATION of PLANS and DRAWINGS for the Profession; also ARCHITECTURAL DESIGNS in connection with the same.—MR. BRADE, 54, Denbigh Street, Pimlico, S.W.

JOHN GIBSON, JUN., begs to announce that he is prepared to Furnish PLANS and ESTIMATES for LAYING OUT GROUND attached to Mansions and Villa or other Residences, or for the FORMATION of PUBLIC PARKS or GARDENS and to carry out the same by Contract or otherwise.
Address Mr. JOHN GIBSON, jun., Surrey Lane, Battersea, S.W.

GEORGE F. MORRIS (of the Firm of PROTHEROE & MORRIS) undertakes SALES and VALUATIONS of FREEHOLD LANDED ESTATES, Leasehold and Reversionary Property of every description, Farming and Market Garden Produce, Household Furniture, Stock in Trade, &c.
Auction and Estate Agency Office, The Limes, Leytonstone, Essex.

To Builders and Others.

BOARD of WORKS for the POPLAR DISTRICT.—Notice is Hereby Given, that this Board will meet on TUESDAY, July 16, at 6 o'Clock in the Evening precisely, to receive TENDERS for the Execution of the undermentioned works:—
1. For the ERECTION of TWO GREENHOUSES, upon the Recreation Ground, Poplar.
2. For the CONSTRUCTION of TWO GROUND-KEEPERS' LODGES, and for the Supplying and Fixing a COMMON WOODEN SEAT, about 260 feet lineal.

The parties Tendering for the first mentioned works must furnish the Names of one responsible Person willing to enter into Bond with them in the sum of £100 for the due performance of their Contract, and will be required to immediately pay down the sum of £2 on the acceptance of their Tender, for the expense of the Contract and Bond.
A Separate Tender must be given for each set of Works.
The Board do not bind themselves to accept the lowest or any Tender; and the parties offering to Contract, or some one on their behalf, are required to be in attendance on the day, and at the hour above-named. Tenders upon the forms prepared for that purpose, sealed, and endorsed "Tender for Greenhouses," "Tender for Lodges and Seat," NONE OTHER WILL BE RECEIVED, must be delivered at my Office, on or before July 16, at 12 o'Clock noon, AFTER WHICH TIME NO TENDER WILL BE RECEIVED.
Plans and Specifications can be seen, and further Particulars and Forms of Tender had, on application at the Surveyor's Office, on the 8th and until the 15th inst., between the hours of 10 A.M. and 4 P.M.
JOHN LAYTON, JUN., Clerk to the Board.
Offices, East India Dock Road, July 6.

To Rent.

WANTED, a Small FARM, from 50 to 100 Acres, good House and Outbuildings, near London or a large Town, that would allow of part being appropriated to Gardening, and giving facilities for the Sale of Milk. Address,
W. T. B., Mr. J. Kernan's, 4, Great Russell Street, Covent Garden.

FOR DISPOSAL, a First-class NURSERY and SEED BUSINESS; or the present Proprietor would accept of a WORKING PARTNER with a Capital of not less than £1500.
Apply by letter to E., Messrs. Hurst & Son, 6, Leadenhall Street London, E.C.

TO BE DISPOSED OF, on advantageous terms, and may be entered upon immediately, an OLD ESTABLISHED NURSERY, eligibly situated, adjoining a large and important town, surrounded by an excellent neighbourhood, and having every facility for carrying on an extensive business.—Address,
G. H., Mr. Cooper, Seed Merchant, 152, Fleet Street, London, E.C.

SHROPSHIRE SHEEP.
SALE APPOINTMENTS FOR 1867.
Mr. S. Byrd, The Leese Farm, Stafford, July 30.
Willoughby Wood, Esq., Holly Bank, Burton-upon-Trent, Aug. 6.
Mr. G. A. May, Elford Park, Tamworth, Aug. 7.
The Great Central Sale at Bingley Hall, Birmingham, August 8.
Mrs. Baker, The Mount, Grendon, Atherstone, September 6.
Mr. J. H. Bradburne, Pipe Place, Lichfield, September 13.
39, New Street, Birmingham. JOHN B. LYTHALL, Auctioneer.

Sales by Auction.

SALE THIS DAY, AT HALF-PAST TWELVE O'CLOCK.

Imported Orchids from Moulmein and Assam.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on SATURDAY, July 6, at half-past 12 o'Clock precisely, an Importation from Assam of VANDA CŒRULEA, DENDROBIUM FORMOSUM, D. MOSCHATUM, D. TRANSPARENS, D. CŒRULESCENS, ÆRIDES CORNUTUM, &c., in fine condition; also a Consignment from Moulmein of SACCOLABIUM CURVIFOLIUM, S. BLUMEI, ÆRIDES LOBBII, Æ. VIRENS, &c.
On view the Morning of Sale, and Catalogues had.

Established Orchids.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on TUESDAY, July 9, at half-past 12 o'Clock precisely, a Collection of Established ORCHIDS, all in good health, many of them fine specimens and choice varieties.
On view the Morning of Sale, and Catalogues had.

Duncombe Park, Yorkshire.

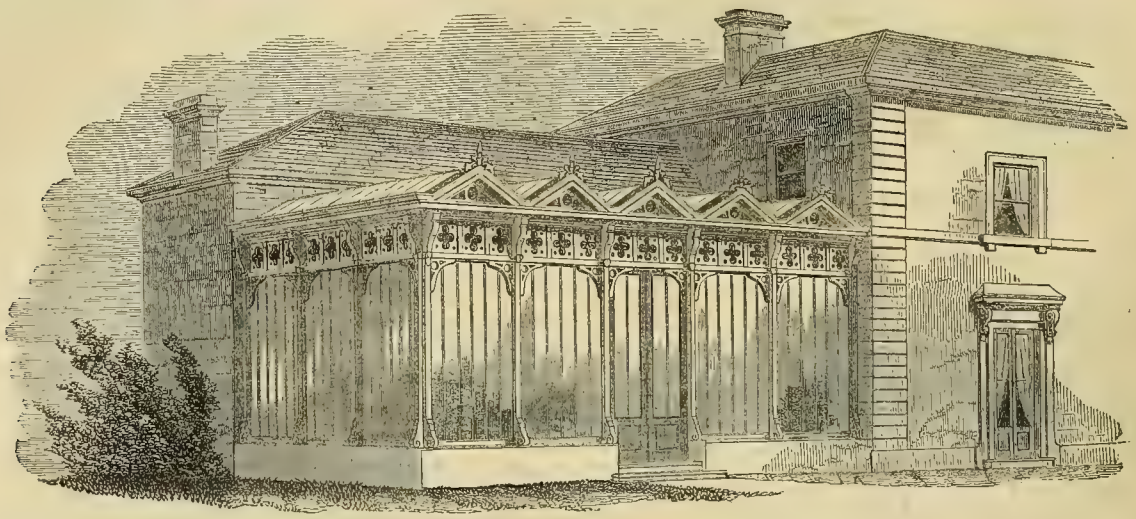
IMPORTANT SALE OF FIRST-CLASS SHORT-HORNS.

MR. STRAFFORD begs to announce that he has received instructions to offer for SALE by AUCTION, without reserve, at Duncombe Park, Helmsley, on TUESDAY, August 6 (the day previous to the Yorkshire Show at Thirsk), about 40 HEAD of SHORT-HORN CATTLE, bred by the late Lord Feversham, including several very valuable young Bulls.
Catalogues, with Pedigrees, will shortly be issued, and further particulars given in future Advertisements.
London, Euston Square, July 6.

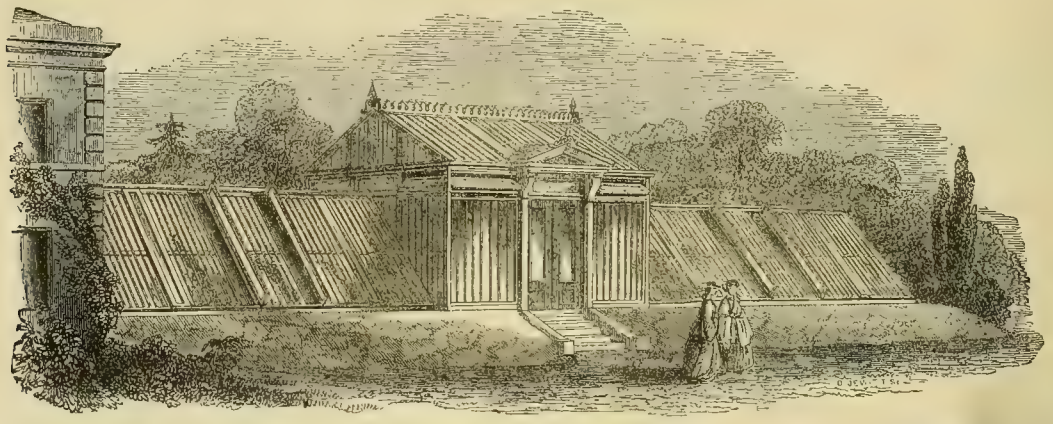
CONSERVATORIES, FORCING, AND ORCHARD-HOUSES.

MANUFACTURED in LONDON; and at GLOUCESTER, COVENTRY, ULVERSTONE, PAISLEY, and ABERDEEN, By STEAM-POWER MACHINERY, of BEST MATERIALS, and at LOWEST PRICES.

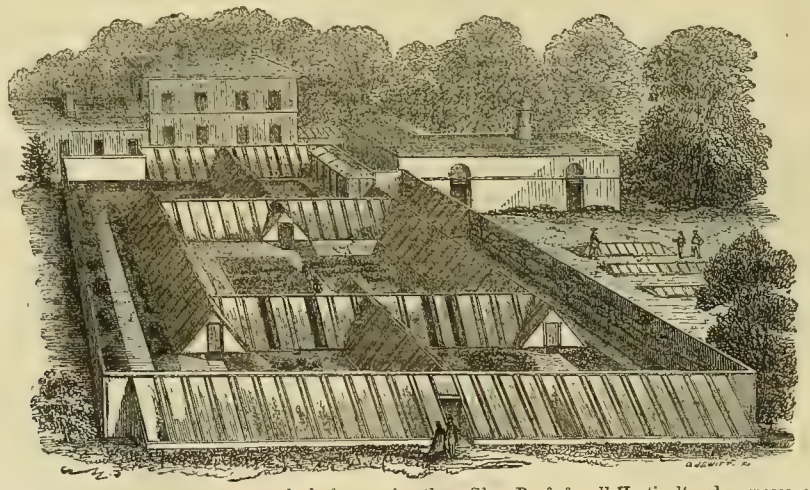
EVERY DESCRIPTION OF HORTICULTURAL BUILDING DESIGNED, HEATED, AND VENTILATED IN THE MOST EFFICIENT MANNER.



View of an Ornamental Ridge and Furrow Roofed CONSERVATORY about 30 feet by 15 feet inside, and 15 feet high from the ground to the cornice. The large front Sashes slide, and ample Ventilation is also provided in the Roof.



The above represents a range about 90 feet long; Conservatory in centre, 20 feet square; and Span-roof wings, 32 feet long, on Sir Joseph Paxton's patent principle, forming Orchard House, Vinery, &c. This system of building Span-roofs may be extended to form large WINTER GARDENS, as in the accompanying figure, which represents one erected in 1860, at Summerfield House, Birmingham. The Roofs are connected with the Dwelling House on the north; and a Wall covered with Lean-to roofs, on the same principle, on the south; the area of Glass being over 15,000 square feet.



Gentlemen about to form New Gardens can be advised the best method of arranging these Glass Roofs for all Horticultural purposes, and as Boundaries in place of Walls, combining elegance with utility. As already so erected by us, they are economical substitutes for walls, ensuring the production of much larger and better crops of fruit.

ILLUSTRATED PRICE LISTS of the PATENT ROOFS free on application. REFERENCES can be given to work executed in all parts of the Kingdom.

ESTIMATES given for ORNAMENTAL CONSERVATORIES to Architect's Plans and Specifications; also for HEATING APPARATUS for all purposes, and to any extent, fixed complete anywhere in the United Kingdom.

☞ *Plans prepared to suit different styles of Mansions, and to particular dimensions.*

HEREMAN AND MORTON, 7, PALL MALL EAST, LONDON, S.W.

The SECOND EDITION of a HANDBOOK of VINE and FRUIT TREE CULTIVATION, as adapted to the above Patent Hothouses, containing Illustrations, Hints for Heating Houses, and General Directions for Cultivation, &c., may be had of Mr. HEREMAN, post free for 13 stamps.

"The instructions given for the cultivation of the Vine and other crops are essentially practical, and are evidently written by one who has himself performed all the operations before he attempted to instruct others."—*Journal of Horticulture.*

Editorial Communications should be addressed to "The Editor;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
Printed by JAMES MATTHEWS, at the Office of Messrs. BRADBURY, EVANS, & Co., Lombard Street, Precinct of Whitefriars, City of London, in the Co. of Middlesex, and Published by the said JAMES MATTHEWS, at the Office, No. 41, Wellington Street, Parish of St. Paul's, Covent Garden, in the said County.—SATURDAY, July 6, 1867.

THE GARDENERS' CHRONICLE

AND

AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.

No. 28.—1867.] SATURDAY, JULY 13. {Price Fivepence. Stamped Edition, 6*d*.

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Bury Horticultural Meeting.

A FULL REPORT of this MEETING will be given in THE GARDENERS' CHRONICLE and AGRICULTURAL GAZETTE of JULY 20. A Single Copy sent on receipt of Six Stamps. Office for Advertisements, 41, Wellington Street, Strand, London.

ROYAL HORTICULTURAL SOCIETY.
FIRST VISIT TO THE PROVINCES.

The GRAND EXHIBITION of PLANTS and FRUITS will OPEN on TUESDAY, July 16, in the VINE YARD, BURY ST. EDMUND'S, in close proximity to the Royal Agricultural Show. Nearly One Thousand Pounds Prizes in Money and Cups will be offered for Competition. Tickets are now ready, and can be had either in London or Bury; for the 1st day (if purchased on or before the 15th), 5*s*.; 2d day, 2*s*. 6*d*.; or to admit for the four days, not transferable, 7*s*. 6*d*. each; or by Payment at the Gates—1st day, 7*s*. 6*d*.; 2d day, 3*s*. 6*d*.; 3d and 4th days, 1*s*. each. Band of the Royal Horse Guards daily from 2 to 6.

☞ NEW ROSES will date from the time they are sent out in England.

N.B.—GOLD ZONAL PELARGONIUMS will not be regarded as Variegated.

ROYAL HORTICULTURAL SOCIETY.
BURY ST. EDMUND'S SHOW.

NOTICE of ADDITIONAL SPECIAL PRIZES.—In addition to the Society's Silver Gilt Cup, value £25, a Second Prize of £15, and a Third Prize of £10, will be given. For the best Hand Bouquet for Ladies, an Extra Prize, consisting of a Silver Watch, value Three Guineas, will be given by the Ladies of Miss Partridge's School.

GRAND HORTICULTURAL EXHIBITION
at BURY ST. EDMUND'S, in connection with the
SHOW of the ROYAL AGRICULTURAL SOCIETY,
JULY 15, 1867, and four following Days.

Amongst various Special Prizes, amounting in value to nearly £300, and exclusive of the ordinary Prize Schedule,

A SILVER CUP, VALUE £20,

will be offered by the Proprietors of the GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE for the best COLLECTION of FRUITS and VEGETABLES, to be made up as follows:—

Of FRUITS, any Five of the following Eight kinds, one Dish of each:—Grapes, Melons (2 fruits), Strawberries, Gooseberries, Currants, Cherries, Raspberries, or Apples (of the crop of 1866).

Of VEGETABLES, any Eight of the following Fourteen kinds, one basket or bundle of each:—Peas, French Beans (or Scarlet Runners), Broad Beans, Cauliflowers, Cucumbers (brace), Summer Cabbages, Early Carrots, Turnips, Artichokes, Onions, Spinach, Rhubarb, Potatos, or Mixed Salading.

This Cup will be open to Competition amongst Amateur or Professional Gardeners, of all grades, with Fruit and Vegetables of *their own growing*; any article otherwise obtained will disqualify the exhibitor.

ROYAL BOTANIC SOCIETY.
LAST EXHIBITION this SEASON of PLANTS, FLOWERS, and FRUIT, JULY 3, 1867.

BRONZE MEDAL.

Mr. J. Whiting, Gr. to Mrs. Hope, Deepdene, Dorking, Surrey.

SMALL SILVER MEDAL.

Mr. M. Henderson, Gr. to Sir G. H. Beaumont, Bart., Cole Orton Hall, Leicester.

BURTON-ON-TRENT FLORAL and HORTICULTURAL SOCIETY.—The SECOND EXHIBITION of PLANTS, FRUITS, and VEGETABLES for 1867, will take place on WEDNESDAY, August 21. Extra Prizes for Dahlias, Hollyhocks, and Roses. Schedules may be had on application to the Secretary, Mr. James Atterbury, 81, High Street.

GRAND INTERNATIONAL HORTICULTURAL EXHIBITION at GHENT.

This EXHIBITION, Open to Competitors from all Nations, will be held at Ghent, from MARCH 28 to APRIL 4, 1868.

Programmes may be obtained Gratis on application to the Publisher of the *Gardeners' Chronicle*.

Orchard-house Trees Fruiting in Pots.

PEACHES, NECTARINES, APRICOTS, CHERRIES, PLUMS, PEARS, APPLES, VINES, and FIGS.
Richard Smith, Nurseryman and Seed Merchant, Worcester.

Vines, Extra Strong from Eyes.

JOHN KELLETT begs to announce that he has a large and fine stock of all the leading sorts fit for immediate Planting. Also all the best varieties of ROSES, in Pots.

Wellington Nursery, Heaton Chapel; and Green Lane Nurseries, Heaton Norris, Stockport.

Hardy and Permanent Bedding Plant.

CLEMATIS JACKMANNI, and that type, have proved themselves to be "the desideratum" for a good violet, blue, purple, or maroon bed, when pegged down like Verbenas.

The Advertisers solicit an inspection of their CLEMATIS BEDS that are in FULL BLOOM, and will continue up to the month of October. Particulars of treatment by applying to

Geo. Jackman & Son, Woking Nursery, Surrey.

NEW ROSES for 1867.—Strong Plants of all the best NEW ROSES now ready.

DESCRIPTIVE LIST, with prices, on application.
John Cranston, King's Acre Nurseries, near Hereford.

CULTURAL DIRECTIONS for the ROSE. Second Edition. By John Cranston, King's Acre Nurseries near Hereford. Free by post from the Author for 20 stamps.

Roses.

H. LANE AND SON beg to call the attention of intending Purchasers to their extensive COLLECTION of ROSES, which are NOW in FULL BLOOM, and worthy of inspection.

The Nurseries, Great Berkhampstead, Herts.

Roses.—Lea Bridge Road Nurseries, Leyton, N.E.

JOHN FRASER respectfully invites an inspection of his COLLECTION of ROSES, which he begs to announce are NOW IN BLOOM. The Collection contains numerous New and fine varieties. The Nurseries are about five miles from London, and are easily reached by Train on the Great Eastern Railway, to Lea Bridge Station.

Roses in Bloom.

WM. PAUL'S ROSES are NOW IN FULL BLOOM. Inspection respectfully invited. Trains almost hourly from Shoreditch to Waltham Station, Great Eastern Railway.
Paul's Nurseries, Waltham Cross, N.

Roses.

JOHN CRANSTON has the pleasure to announce that his ROSES are NOW IN FULL BLOOM, and that the whole of his stock is in the finest condition possible.

The severe frosts (which proved so destructive in many parts of England throughout last winter) not having visited this locality, he is happy to say that his Roses, Conifers, and other Trees, escaped entirely unharmed.

Nurseries, King's Acre, near Hereford.

Roses in Bloom.

THOMAS WARNER begs to state that his COLLECTION of the above, including most of the new and fine varieties, is NOW IN BLOOM. An inspecton is invited. They are seen to the greatest advantage in the morning, or from 6 to 8 o'Clock in the evening.

The general NURSERY STOCK is regularly and frequently transplanted, and affords a most extensive choice to persons contemplating Planting.—The Nurseries, Leicester Abbey.

Roses, Roses.

ROSES, on own roots and in pots, grown on now, will flower indoors next spring, viz.:—

6 CHOICE TEAS | 3 CHOICE NOISETTES | 2 CHOICE CHINAS
6 " H.P.s | 3 " BOURBONS

The Collection of 20 distinct and first-class sorts for 20*s*.
Post-office Orders on Castle Hedingham.
Dillistone & Woodthorpe, Munro Nursery, Sible Hedingham, Essex.

SPLENDID NEW ROSE, 1867.—COMTESSE JAUCOURT (Hybrid Perpetual) is not only the finest New Rose of this season, but it excels anything that has been introduced for several years. The flowers are large and very full; of exquisite form, imbricated, and expand perfectly. Colour, superb fleshy rose, and very distinct; habit vigorous.

John & Charles Lee are now prepared to send out strong Plants of this fine variety, at 7*s*. 6*d*. each. They also offer other fine varieties of this season at 3*s*. 6*d*. to 5*s*. each.

Royal Vineyard Nursery and Seed Establishment, Hammersmith, London, W.

EVERY GARDEN REQUISITE kept in Stock at
Carter's New Seed Warehouse, 237 & 238, High Holborn, London.

FOR SALE, a very fine Specimen of the VARIEGATED ALOE, of many years' growth. For price apply to
Mr. R. Barton, Bewley Villa, Lacock, Chippenham.

To Cultivators of Succulent and other Plants.

T. COOPER, Holmsdale Road, Reigate, has a large collection of SUCCULENT and other Plants, including 450 varieties of CACTI; also ALOES, HAWORTHIAS, AGAVES, TESTUDINARIA ELEPHANTIPES, &c.; also many new and interesting Plants raised from South African seeds.

Orders punctually attended to.

TO THE TRADE.—A large Quantity of ADIANTUM CONCINNUM, A. CUNEATUM, and A. TINCTUM. Price on application. Also 1000 other Varieties.
A. J. Illman's Nurseries, Wellington Place, Strood, Kent.

LILIUM AURATUM.—Large Consignment just received, 2*s*. 6*d*., 3*s*. 6*d*., 5*s*. 6*d*., and 7*s*. 6*d*. per Root. Extra large selected Bulbs, 10*s*. 6*d*., 12*s*. 6*d*., 15*s*., & 21*s*.
Barr & Sugden, Seed, Bulb, and Plant Merchants, 12, King Street, Covent Garden, W.C.

CAMELLIA STOCKS.—A fine batch, fit for working this Autumn.
1-yr. old, 20*s*.; 2-yr. old, in pots, 30*s*.; 3-yr. old, strong, 40*s*. per 100.
1-yr. SEEDLING EVERGREEN OAKS, 12*s*. per 100.
Charles B. Saunders, Nurseryman, &c., Jersey.

Novelties.

WM. PAUL (Son and Successor to the late A. Paul) respectfully solicits Orders for the NEW and FIRST-CLASS ROSES and BEDDING GERANIUMS, &c., advertised at length in this Paper in May last.
Paul's Nurseries, Waltham Cross, London, N.

New Zealand Nursery, St. Alban's, Herts.

INTENDING PURCHASERS of TRICOLOR PELARGONIUMS will do well to see J. Watson's beautiful Tricolors MISS WATSON and MRS. DIX, previous to making their purchases. For fine foliage, excellent constitution, free growth, and brilliancy of colouring they are unrivalled. They have received two first-class Certificates. Plants of Miss Watson in August, £2 2*s*. each; Mrs. Dix in May, 1868, 31*s*. 6*d*. each.

Retinospora filifera.

JOHN STANDISH is the holder of the stock of the above most distinct and beautiful weeping CONIFERA. It is of a pale glaucous green, with slender thread-like branches a foot long, which hang in the most graceful manner, and altogether the most distinct weeping plant ever offered to the Public. It is also perfectly hardy. Strong Plants, now ready, 31*s*. 6*d*. each.
Royal Nursery, Ascot.

CALADIUMS, CALADIUMS.—The following 12, in strong Plants, package included, for 8*s*., viz.:—Two Mirable, two Wightii, one each Belleymei, Newmanii, Argyrites, Giganteo violacea, Bicolor splendens, Amabilis, Bicolor, Chantinii.

ECKFORD'S Six NEW VERBENAS of 1867 at 4*s*.

Post Office Orders accompanying orders payable at Boston Spa.
J. C. Padman, Providence Nursery, Boston Spa, Yorkshire.

WILLIAMS' SUPERB STRAIN of PRIMULA.
See large Advertisement.

PRIMULA SINENSIS FIMBRIATA.—A most superb strain, and cannot be surpassed, 6 varieties, mixed, 1*s*. 6*d*. & 2*s*. 6*d*. per packet. CALCEOLARIA and CINERARIA, extra, 1*s*. & 2*s*. 6*d*.
J. Scott, The Seed Stores, Yeovil, Somerset.

Extra Fine Fringed Primulas.

DOBSON'S CELEBRATED STRAIN, that has stood ten years' test, is now ready for sending out in 1*s*., 2*s*. 6*d*., and 5*s*. packets. The quality may be depended upon.
Dobson & Sons, Seedsmen, Isleworth, London, W.

Prize Cineraria Seed.

DOBSON'S UNEQUALLED STRAIN, which has taken 50 First Prizes in six years, is now ready for sending out. Fine new seed, in 1*s*., 2*s*. 6*d*., and 5*s*. packets.
Dobson & Sons, Seedsmen, Isleworth, London, W.

DOBSON'S STRAIN of PRIZE CALCEOLARIA, CINERARIA, and PRIMULA, the finest in Cultivation.

For Present Sowing.

DOBSON'S INTERNATIONAL, ROYAL HORTICULTURAL ROYAL BOTANIC, CRYSTAL PALACE, and KINGSTON PRIZE and UNEQUALLED HYBRIDISED CALCEOLARIA now ready, in Sealed Packets, with full Directions for Sowing and Growing, 1*s*. 6*d*., 2*s*. 6*d*., 3*s*. 6*d*., and 5*s*.
Dobson & Sons, Seedsmen, Isleworth, London, W.

Calceolaria, Cineraria, Primula fimbriata.

SUTTON and SONS can supply NEW SEED of the above, saved from choicest flowers, in packets, 1*s*., 2*s*. 6*d*., and 5*s*. each, post free.
Royal Berks Seed Establishment, Reading.

Calceolaria Seed, 1867.

F. AND A. SMITH beg to announce that their superb STRAIN of the above is now ready.
The Nurseries, Dulwich, S.

Cineraria Seed, 1867.

F. AND A. SMITH beg to announce that their CROP of the above is now ready, saved from their whole Collection of named varieties, as well as from a few superb Seedlings selected for their superior merits. Their well-known Strain of Cinerarias is a guarantee for the quality of their Seeds.
The Nurseries, Dulwich, S.

Primula, New, 1867.

F. AND A. SMITH'S NEW CROP of the above is now ready. Quality of flowers unsurpassed for size and colour, producing 10 per cent. double flowers.
The Nurseries, Dulwich, S.

DEVONIAN FERNS.—Twenty varieties of Native Ferns will be forwarded carriage paid to the Nine Elms Station, London, or any Intermediate Goods Station on the London and South-Western Railway, on the receipt of a Post-office Order for 12*s*., payable to Thomas Carr, Winkleigh, North Devon.

British Fern Catalogue.

ROBERT SIM can now send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his NEW and PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.

Foot's Cray Nursery, S.E., a mile from Sidcup Station of New North Kent Line of South Eastern Railway.

NOW OFFERED, at the Railway Nursery, Ardleigh, near Colchester, Essex, the splendid Collection of FERNS and PLANTS, in pots, at greatly reduced prices.

CATALOGUES post free on application, with terms.

N.B.—A quantity of good BLACK GRAPES now ripe.
Address E. Abbott, Jun.

GLADIOLI BULBS,
for Summer, Autumn, and Winter Flowering,
2*s*. 6*d*., 3*s*. 6*d*., 5*s*. 6*d*., 7*s*. 6*d*., 9*s*., and 12*s*. per dozen.
10*s*. 6*d*., 15*s*., 21*s*., 25*s*. to 100*s*. per 100.
Barr & Sugden, Seed, Bulb, and Plant Merchants, 12, King Street Covent Garden, W.C.

Genuine Garden and Agricultural Seeds.

JAMES CARTER AND CO.,
Seed Farmers, Merchants, and Nurserymen,
237 & 238, High Holborn, London, W.C.

Agricultural and Garden Seeds.

H. AND F. SHARPE'S WHOLESALE SPRING PRICED LIST of the above Seeds of 1866 growth is now ready and may be had on application.
Seed Growing Establishment, Wisbech.

Garden and Farm Seeds direct from the Growers.

CHARLES SHARPE AND CO. beg to inform the Trade that their WHOLESALE SEED LIST is now ready, and will be forwarded post free on application.
Seed Warehouse, Sleaford.

RAYNBIRD, CALDECOTT, BAWTREE, DOWLING, AND COMPANY, Limited,
Corn, Seed, Manure, and Oilcake Merchants,
Address, 89, Seed Market, Mark Lane, E.C.; or Basingstoke.
Samples and Prices post free on application. Prize Medals, 1851, for Wheat; 1862, for "Excellent Seed Corn and Seeds."

WHITE MUSTARD for PRESENT SOWING.—Nett Growth of 1866, at 13*s*. per bushel (52 lb.); 4 bushels do. for 50*s*. New 4 lb. Sacks 1*s*. 4*d*. each. Remittances to accompany orders.
Christmas Quincey, Seedsman, &c., Peterborough.

The Best Cabbage for Spring Use is

SUTTON'S IMPERIAL, which should be Sown in June and July. Price 8*d*. per oz., Post free. Cheaper by the pound.
Sutton & Sons, Seed Growers, Reading.

DRUMHEAD CATTLE CABBAGE,
The Heaviest of all Agricultural Crops.
This should be Sown in July & August, for Transplanting in the Spring.
Sutton & Sons can supply—
ROBINSON'S CHAMPION DRUMHEAD CABBAGE (the heaviest known), at 3*s*. 6*d*. per lb.
GOOD DRUMHEAD CABBAGE at 2*s*. 6*d*. per lb.
Sutton & Sons, Seed Growers, Reading.

Extra Fine Quality.

COLE SEED, "1866 growth," per bushel of 52 lb., 11*s*.; 4 bushels do., 40*s* New 4-8 Sacks, 1*s*. 6*d*. each.
EARLY SIX-WEEKS' TURNIP, New Seed, very fine, 9*d*. per lb. New Bags, 6*d*. to 9*d*. each.
EXCELLENT CABBAGE SEED. See Catalogue of varieties.
Remittances to accompany Orders.
Fredk. Gee, Seed Merchant and Grower, Biggleswade, Beds.

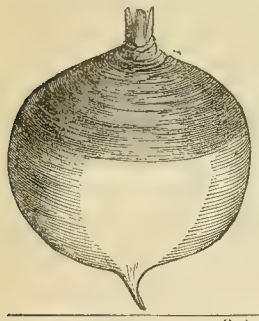
Foliage Plants, Edging Plants, &c.

JAMES HOLDER can supply the following at 12*s.* per 100, or 7*s.* for 50 Plants, hamper included:—COLEUS, IRESINE, CERASTIUM, LOBELIA (three varieties), PERILLA, KONIGA, TROPÆOLUM, HELIOTROPE, and CUPHEA.
Crown Nursery, Reading.

The Best Swede for Late Sowing
IS
THE IMPROVED HARDY WHITE
(SUTTON'S Selected Stock),
Price 1*s.* 2*d.* per lb.,
or cheaper by the bushel.
Carriage free.

SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

SUTTON'S TURNIP SEEDS FOR PRESENT SOWING.



	Per lb.—*s.* *d.*
SUTTON'S RED PARAGON	0 10
SUTTON'S IMPERIAL GREEN GLOBE	0 10
POMERANIAN WHITE GLOBE ..	1 0
GREY STONE	0 10
SUTTON'S SHORT-TOP SIXWEEKS .	1 0

Cheaper by the Bushel.
Carriage Free.

SUTTON & SONS, Seed Growers, Reading.

GRASS SEEDS for PERMANENT PASTURE, of the finest quality, at moderate prices, carefully selected on a new, natural, and scientific system.

See "WHEELER'S BOOK on GRASSES," which contains Illustrations and Descriptions of the most suitable Grasses for Permanent Pasture.

J. C. WHEELER & SON, Gloucester,
Seedsmen to the Gloucestershire Agricultural Society.

REIGATE SILVER SAND, 12*s.* per ton, at Swan Place, delivered five Miles, or to any London Wharf or Railway, 16*s.* per ton, or 1*s.* 6*d.* per bushel. (Sacks at cost price, or on hire.) KENTISH and HAMPSHIRE PEATS, YELLOW LOAM, LEAF MOULD, SPHAGNUM MOSS, and COCOA FIBRE REFUSE.
J. KENNARD, Swan Place, Old Kent Road, London, S.E.



COCOA-NUT REFUSE is becoming SCARCE, the old reserves will soon be gone. Now sold in bags, 1 for 2*s.*, 10 for 16*s.*, 20 for 30*s.*, 50 for 66*s.*, 100 for £6.

Fourpence allowed for each bag returned carriage-paid.

A Railway Truck-load (not in bags), 40*s.*

Postage Stamps or Post-office Order, payable to J. BARSHAM & Co., Kingston-on-Thames, S.W.

By Authority of the Hon. Board of Customs.

POOLEY'S TOBACCO POWDER.—This preparation most effectually destroys all kinds of Blight upon Plants. To Florists and Horticulturists it is invaluable; and on account of its low price it may be advantageously used for the destruction of Hop Blight and for other Agricultural purposes. Price 4*s.* per cwt.; 2*s.* per ½ cwt.; 1*s.* per ¼ cwt.
Bonded Manufactory, Sussex Wharf, Wapping, E.
Office, 50, Lime Street, London, E.C.



Red Spider — Magnified.

GISHURST COMPOUND.

Used by many of the leading Gardeners since 1859, against Red Spider, Mildew, Thrips, Green Fly, and other Blight, in solutions of from 1 to 2 ounces to the gallon of soft water, and of from 4 to 16 ounces as a Winter Dressing for Vines and Fruit Trees. Has outlived many preparations intended to supersede it.

Sold Retail by Seedsmen, in boxes, 1*s.*, 3*s.*, and 10*s.* 6*d.*

Wholesale by PRICE'S PATENT CANDLE COMPANY (LIMITED).

THE LONDON MANURE COMPANY
(ESTABLISHED 1840),
Have now ready for delivery in dry fine condition,
CORN MANURE, for Spring Use
DISSOLVED BONES, for Dressing Pasture Lands
SUPERPHOSPHATES of LIME
PREPARED GUANO
MANGEL and POTATO MANURES.
Also Genuine PERUVIAN GUANO, and NITRATE of SODA, ex Dock Warehouse; SULPHATE of AMMONIA, FISHERY SALT, &c.
E. PURSER, Secretary.
Offices, 116, Fenchurch Street, E.C.

LAWES' MANURES.—The Manures manufactured by J. B. LAWES for the present season of 1867 are now ready for delivery at his Factories, at the following prices, per ton:—

	£	*s.*	*d.*
LAWES' PATENT TURNIP MANURE and BONE SUPERPHOSPHATE of LIME..	6	6	0
LAWES' SUPERPHOSPHATE of LIME from BURNT BONE or MINERAL PHOSPHATES	5	5	0
LAWES' WHEAT, BARLEY, GRASS, and MANGEL MANURES	8	0	0
CONCENTRATED CORN and GRASS MANURES ..	12	0	0

These Manures can be obtained of Mr. LAWES, or through the appointed Agents in all parts of the United Kingdom, at prices varying according to cost of carriage.
Genuine Peruvian Guano direct from the Importers. Nitrate of Soda, Sulphate of Ammonia, and other Chemical Manures.
American and other Cakes at market prices.
Address, JOHN BENNET LAWES, 1, Adelaide Place, London Bridge, E.C.; 22, Eden Quay, Dublin; and Market Square, Shrewsbury.

TOBACCO TISSUE for FUMIGATING GREEN-HOUSES.—This article, which is made from Tobacco, and is entirely free from sulphur, or any other chemicals, is acknowledged by all those who have used it to be the most effectual remedy for destroying insect life; it will burn without the assistance of blowing, and not injure the most tender plants. Price, 3*s.* 6*d.* per lb., carriage free.—Sold by Messrs. ROBERTS & SONS, Tobacco Manufacturers, 112, St. John Street, Clerkenwell, E.C.; and by all Seedsmen and Nurserymen.

E. T. ARCHER'S "FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, and Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, &c.

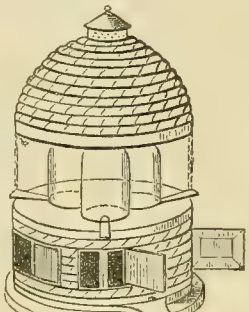
PROTECTION from the SCORCHING RAYS of the SUN.
"FRIGI DOMO" NETTING, White or Brown, made of prepared Hair and Wool, a perfect non-conductor of heat or cold, keeping a fixed temperature where it is applied. It is adapted for all Horticultural and Floricultural purposes, for Preserving Fruits and Flowers from the Scorching Rays of the Sun, from Wind, from Attacks of Insects, and from Morning Frosts. To be had in any required lengths.
"FRIGI DOMO" NETTING, 2 yards wide, 1*s.* 6*d.* per yard run.
"FRIGI DOMO" CANVAS.

Two yards wide	1*s.* 9*d.* per yard run.
Four yards wide	3*s.* 6*d.* per yard.
An improved make, 2 yards wide ..	1*s.* 9*d.* per yard.
An improved make, 3 yards wide ..	2*s.* 8*d.* per yard run.

ELISHA THOMAS ARCHER, Whole and Sole Manufacturer, 7, Great Trinity Lane, Cannon Street, City, E.C., and of all Nurserymen and Seedsmen throughout the Kingdom.
"It is much cheaper than Mats as a covering."

Bee Hives.

PRIZE MEDAL AND HONOURABLE MENTION AWARDED TO GEORGE NEIGHBOUR & SONS, FOR BEE HIVES AND HONEY AT THE VARIOUS EXHIBITIONS.



NEIGHBOUR'S IMPROVED COTTAGE BEE HIVE, as originally introduced by GEORGE NEIGHBOUR & SONS, with all the recent improvements, working three bell-glasses; is neatly and strongly made of straw; it has three Windows in the lower Hive, with a Thermometer affixed to the centre one. This Hive will be found to possess many practical advantages, and is more easy of management than any other Bee Hive that has been introduced.

Price complete .. £1 15 0
Stand for ditto .. 0 10 6

THE LIGURIAN or ITALIAN ALP BEE being much in repute at the present time, we are in a position to supply Stocks of the pure race carefully packed in Woodbury Bar-Frame Hives, so as to travel with comparatively no risk of damage.

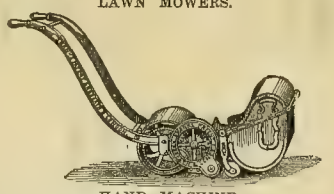
ENGLISH BEES.—Stocks and Swarms may be obtained as heretofore.

A newly-arranged CATALOGUE of other Improved Hives, with Drawings and Prices, sent on receipt of two stamps.

Address, GEO. NEIGHBOUR & SONS, 127, High Holborn, W.C.; or 149, Regent Street, London, W.

AGENTS:—Liverpool: James Cuthbert, 12, Clayton Square. Manchester: J. Wilson, 50, King Street. Birmingham: J. H. Cottrell, 16, Bull Ring. Dublin: Edmundson Brothers, 10, Dame Street, Glasgow: Austin & McAslan, 16, Buchanan Street.

SHANKS' NEW PATENT LAWN MOWERS.



HAND MACHINE.

These are the only Machines in daily use in all the Royal Gardens.
These are the only Machines that will mow properly when the Grass is wet.
These are the only Machines that will last for years without requiring repair.
Illustrated Circulars with full particulars free on application.
A. SHANKS & SON, Dens Iron Works, Arbroath.
London Office and Show Rooms—27, Leadenhall Street, E.C.
☞ 27, Leadenhall Street, is the only place in London where intending purchasers of Lawn Mowers can choose from a stock of 150 to 200 Machines. All sizes kept there whether for Horse, Pony, or Hand-power.

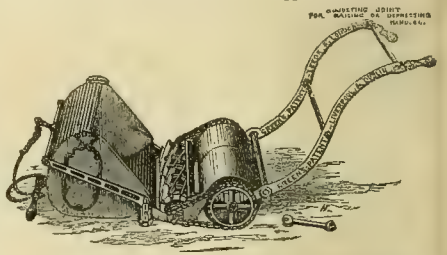
GREEN'S IMPROVED NEW PATENT GARDEN ROLLER.

The above Rollers possess many advantages over all others. They are made in two parts, and are free to revolve on the axis, affording greater facilities for turning, and the outer edges are rounded off or turned inwards, thus avoiding the unsightly marks left by other Rollers.

Diameter, 30 inches;	Length 32 inches,	£7	10	0
,, 24 ,,	,, 26 ,,	4	10	0
,, 20 ,,	,, 22 ,,	3	10	0
,, 16 ,,	,, 17 ,,	2	15	0

Prices for Rollers fitted with Shafts suitable for Pony or Horse Power, free on application.
Delivered carriage paid to all the principal Railway Stations and Shipping Ports in England.
THOMAS GREEN & SON, Smithfield Iron Works, Leeds; 54 and 55, Blackfriars Road, London, S.; and 19, Eden Quay, Dublin.
N.B. All Orders executed on the day they are received.

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INTERNATIONAL EXHIBITION, LONDON, 1862.
INTERNATIONAL EXHIBITION, DUBLIN, 1865.
The above Lawn Mowers have proved to be the best, and have carried off every Prize that has been given in all cases of Competition.
Sold by all respectable Ironmongers, Seedsmen, &c., in the Kingdom. Illustrated Price Lists free on application.



AGRICULTURAL and HORTICULTURAL IMPLEMENTS and MACHINES of every description.
IMPROVED IRON STABLE FITTINGS.
HURDLES and CONTINUOUS IRON and WIRE FENCING.
Palisading Entrance and Field Gates. Plain and Galvanised Wire Netting.
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Garden Engines, Syringes, Water Barrows, Ornamental Garden Seats, Chairs, Tables, Iron Fountains, Vases, &c.
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Washing, Wringing, and Mangling Machines.
IMPROVED SAUSAGE MACHINES and FILLERS.
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Caution to Gardeners.—When you ask for SAYNOR AND COOKE'S WARRANTED PRIZE PRUNING and BUDDING KNIVES, see that you get them. Observe the mark SAYNOR, also the corporate mark OBTAIN WARRANTED, without which none are genuine.
S. & C. regret having to caution Gardeners and others, but are compelled to do so, in consequence of an imitation, of common quality, having been sold for the genuine one, and which has caused many complaints to be made to them of Knives which were not of their make, all of which are warranted both by Sellers and Makers.
S. & C.'s Pruning and Budding Knives are the best and the cheapest in the market.
Paxton Works, Sheffield. Established upwards of 125 years.

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PERFECT SUBSTITUTE FOR WATER CLOSETS, AVOIDING ALL BAD SMELLS.

APPLICABLE TO ANY EXISTING CLOSETS, AND ADMIRABLY ADAPTED FOR

BED-ROOMS, HOSPITALS, BARRACKS, &c.

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EVERY MACHINE WARRANTED.

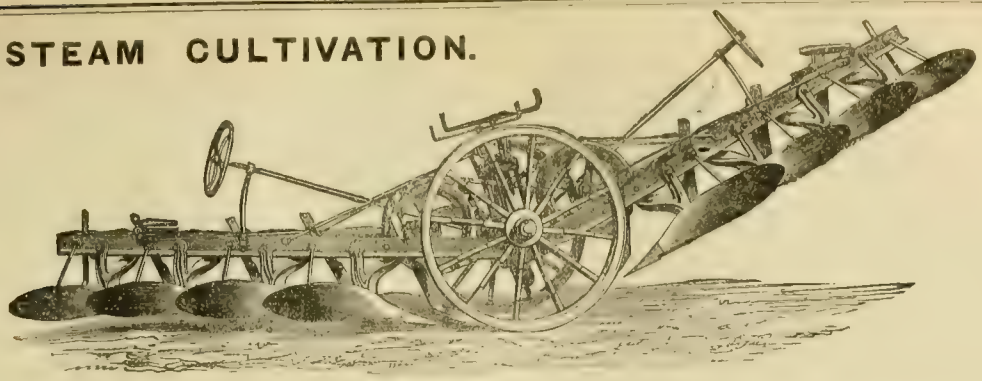
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JOHN FOWLER & CO.

WILL EXHIBIT AT THE ROYAL AGRICULTURAL SOCIETY'S SHOW, BURY ST. EDMUND'S, IN OPERATION, THEIR

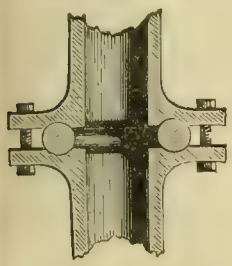
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WITH THE LATEST IMPROVEMENTS,

SUITED FOR ALL CIRCUMSTANCES AND EVERY DESCRIPTION OF SOIL.

ALSO PORTABLE AND TRACTION ENGINES.

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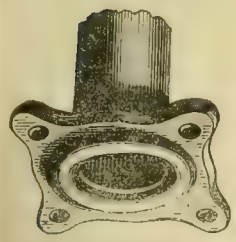


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PATENT PORTABLE ELASTIC PIPE JOINT.

Especially adapted for HOT-WATER PIPES for WARMING CHURCHES, PUBLIC BUILDINGS, SCHOOLS, CONSERVATORIES, HOT-HOUSES, &c., is extremely simple, perfectly watertight, saves four-fifths of the time and labour in erecting hot-water work, can be rapidly put together by an ordinary workman, and can be removed and re-erected without injury to pipes or joints.

Prospectus and Price List free.



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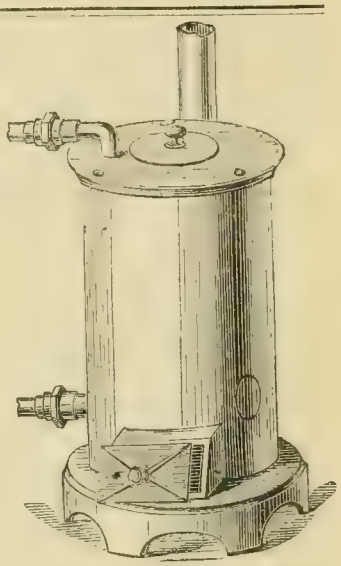
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For WARMING CHURCHES, CONSERVATORIES, HOTHOUSES, SCHOOLS, &c., by the circulation of Hot Water, requires no brick-work setting, saves half the fuel usually consumed, is not liable to get out of repair, is easily regulated, will work from 8 to 20 hours without attention, and is made in sizes capable of heating from 30 to 5000 feet of 4 inch pipe.

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BRASS and BELL FOUNDERS to HER MAJESTY, HYDRAULIC ENGINEERS.



No. 35.

35. WARNERS' PATENT CAST-IRON **LIFT PUMPS.**

2½ inches diameter ..	£1	8	6
3 ,, ,, ..	2	1	0
3½ ,, ,, ..	2	6	0
4 ,, ,, ..	2	14	0

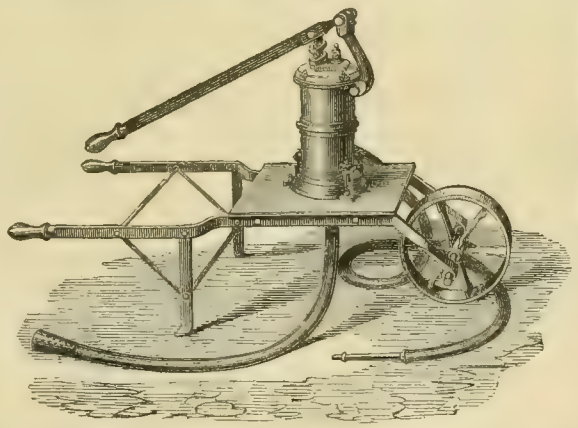
No. 37.
SHORT-BARREL DITTO,
FOR SINKS, PLANT HOUSES, &c.
2½ ins. diameter .. £1 1 0



No. 547A.

No. 547A.
GARDEN ENGINE.

28 Gals. ..	£5	10	
24 ,, ..	4	19	
16 ,, ..	3	14	
10 ,, ..	2	19	



THE CRYSTAL PALACE FIRE ENGINE and GARDEN PORTABLE FORCE PUMP.

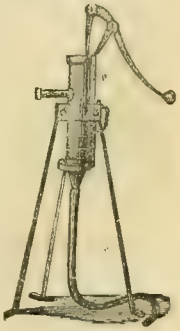
Price on Barrow, with Branch Pipe, Spreader, Unions, and Suction Rose, £6.

1¾-in. 2-ply Rubber Suction Pipe, per foot, 2*s.* 2*d.*

1¼-in. ditto Delivery Hose, 1*s.* 4*d.*

No. 42.
WARNERS'
PORTABLE PUMPS,
With Improved Valves for Liquid Manure, £2 15*s.*

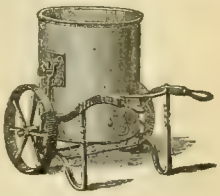
2-in. Flexible Rubber Suction Pipe, in 10, 12, and 15 ft. lengths, per foot, 2*s.* 5*d.*



No. 42.

No. 579½.
SWING WATER BARROW.

50 Gals. ..	£5	12	
38 ,, ..	3	17	
30 ,, ..	2	13	
20 ,, ..	2	2	



No. 579½.

ILLUSTRATED and PRICED LISTS of Garden Engines, Swing Barrows, Aquajects, Syringes, and Fountain Jets sent on application.

☞ *Estimates and Drawings forwarded for Deep Well Pumps, for Steam, Horse, or Hand Power; Irrigating Machinery, Water Wheels, Water Rams, and every description of Hydraulic Machinery.*

Seed of Choice Strains of Florists' Flowers.

The following selected Strains are worthy of the notice of all growers of the most useful conservatory decorative flowers.

WILLIAMS' SUPERB STRAIN of PRIMULA.

B. S. WILLIAMS can with confidence offer his superb Strain of Primula as being undoubtedly the finest in cultivation. It is now grown in all the principal Gardens of the Nobility and Gentry throughout the Three Kingdoms, and has never failed to give the greatest satisfaction.

In habit the plants are very robust, and in the foliage differ from all other varieties; but their great beauty consists in the depth of colour in the Red, purity of the White, and beautiful fimbriated form of all the flowers, which are thrown up in large trusses well above the foliage.

As a proof of the truth of the above remarks, this Strain has taken 1st Prizes in every instance that it has been shown in the Provinces this Spring; and 1st Prize at the Primula Show of the Royal Horticultural Society, South Kensington; and 1st at the Royal Botanic, Regent's Park. It is also the favourite Strain in the Covent Garden Flower Market.

This Strain may be procured True, in Sealed Packets bearing B. S. WILLIAMS' Name and Address, from any Seedsman; but B. S. W. particularly requests that Customers will observe, on purchasing, that each Packet has his Name and Address in full printed thereon, as no others are genuine.

The Trade supplied on advantageous terms.

	Per pkt.	s.	d.		Per pkt.	s.	d.
Retail price, RED	.. ..	5	0	Retail price, WHITE	..	3	6
,, ,,	.. ..	3	6	,, ,,	..	2	6
,, ,,	.. ..	2	6	,, MIXED	..	5	0
,, WHITE	..	5	0	,, ,,	..	3	6

Retail price, MIXED, per packet, 2s. 6d.

WEATHERHILL'S EXTRA CHOICE STRAIN OF CINERARIA.

B. S. W. has purchased the entire Stock and right of Sale of this Magnificent Strain. Many of the flowers produced by this seed last season were as large as a crown-piece. This strain is well known in the London Flower Market, and is the most popular one there, a sufficient guarantee that its qualities are good.

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Retail price per pkt. .. .. 2s 6d.

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Retail price per pkt. 5s. 0d. | Retail price per pkt., 3s. 6d.

Retail price per pkt. .. .. 2s. 6d.

All FLOWER SEEDS in packets, Post free

B. S. WILLIAMS, Victoria and Paradise Nurseries, Upper Holloway, London, N.

Lomaria Gibba, &c.

A. VAN GEERT, NURSERYMAN, Ghent, Belgium, begs to offer fine Plants of this beautiful and decorative Fern, LOMARIA GIBBA, at 10s. per dozen, or 50s. per hundred; also fine Plants of LARIX KÆMPFERII at 7s. 6d. each.

CATALOGUES (published in English) may be obtained on application to his Agents in London, Messrs. R. SILBERRAD & SON, 5, Harp Lane, Tower Street, E.C.

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NEW STRAWBERRY, PERPETUAL PINE.—The Undersigned begs leave once more to recommend this new and valuable Strawberry, sent out by him for the first time last Autumn. It is the greatest "desideratum" of the whole race, inasmuch as it continues in bearing until frost sets in.

It is the first real "Perpetual" belonging to the Pine family, quite different to the small-fruited Alpines, its fruit being of fair size, bright glossy scarlet, and of exquisite flavour.

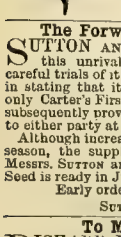
Mr. Verschaffelt, in his "Illustration Horticole," published a Coloured Engraving of this interesting novelty.

Good Plants will be ready by August 15, at the following prices:—

25 for £1 | 50 for £1 10s. | 100 for £2 10s.

Carriage paid to London.

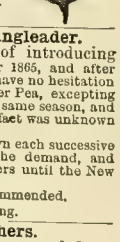
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SUTTON'S SHORT-TOP SIX WEEKS, price 1s. per lb.; cheaper by the bushel.

This excellent Turnip, if sown in June and July, will produce a heavy Crop, to come off in time for Wheat Sowing.



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The Forwardest Pea is Sutton's Ringleader.

SUTTON AND SONS had the honour of introducing this unrivalled EARLY PEA in the year 1865, and after careful trials of it and all of its competitors, they have no hesitation in stating that it is still forwarder than any other Pea, excepting only Carter's First Crop, which was sent out the same season, and subsequently proved to be identical, which latter fact was unknown to either party at that time.

Although increased crops of Seed have been grown each successive season, the supply has not yet been equal to the demand, and Messrs. SUTTON are again unable to execute Orders until the New Seed is ready in July.

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INCOMPARABLE WHITE CELERY PLANTS, 1s. per 100
IVERY'S NONSUCH CELERY PLANTS, 1s. per 100, transplanted.

Terms Cash.

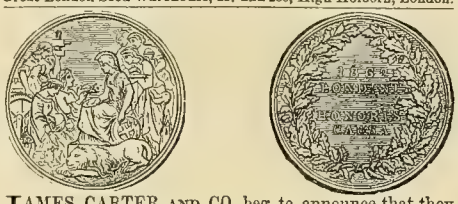
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CALCEOLARIA, saved from the finest Prize varieties.
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THE FINEST STRAIN IN EXISTENCE.

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SUPERB VARIEGATED GERANIUMS.

BEAUTY of OULTON	GENERAL LONGSTREET
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BICOLOR SPLENDENS	MRS. LONGFIELD
GOLD PHEASANT	YELLOW BELT
GLOWWORM	MRS. BENYON
LUNA	SILVER STAR

Strong plants of the above set, 15s. Package included.

CASBON & SON, Gravel Walk Nursery, Peterborough.

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BEG TO CALL ATTENTION TO THEIR SPLENDID NEW LATE GRAPE,

"MRS. PINCE'S BLACK MUSCAT,"

TO BE SENT OUT NEXT MONTH.

THE PUBLIC ARE RESPECTFULLY INVITED TO AN INSPECTION.

The VINES have borne heavy Crops for the last four years. They are now the admiration of all who see them, and will well repay a visit.

☞ Copies of Testimonials, which are very numerous, will be forwarded upon application to them.

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NEW DOUBLE CRIMSON THORN (NOW READY).

WILLIAM PAUL

(SON and SUCCESSOR to the late A. Paul),

BEGS TO OFFER THE

ABOVE MAGNIFICENT HARDY FLOWERING TREE,

Which he believes to be the greatest acquisition for forcing and out-of-door culture that has been introduced for many years.

Strong healthy Plants, well established in pots, 2 ft. high, 7s. 6d. each; 1 ft. high, 5s. each.

A First-class Certificate was awarded to him for this Plant by the Royal Horticultural Society on the 16th April last.

☞ See Coloured Drawing by FITCH, and History, in the "Florist" for June.

"We do not hesitate to advise every one who has a garden to purchase this plant at once. * * * Plants purchased in pots now may be grown and established, so as to flower well either in or out-of-doors next spring; whereas if removed from the ground in the autumn of the year, they can hardly be expected to do this."—*The Florist, &c.*

PAUL'S NURSERIES, WALTHAM CROSS, LONDON, N.

SEEDSMEN BY APPOINTMENT Sutton AND Sons

THE ROYAL AGRICULTURAL AND ROYAL HORTICULTURAL SOCIETIES' MEETINGS,

AT BURY ST. EDMUND'S, 1867.

SEEDSMEN BY APPOINTMENT Sutton AND Sons

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The Gardeners' Chronicle.

SATURDAY, JULY 13, 1867.

MEETING FOR THE ENSUING WEEK.

TUESDAY, July 16
WEDNESDAY, — 17
THURSDAY, — 18
FRIDAY, — 19
} Royal Horticultural (Great Exhibition of Plants, Fruits, and Vegetables), at Bury St. Edmund's.

BURY ST. EDMUND'S, which next week is to become Bury the busy, by reason of the simultaneous meetings of the Royal Horticultural and Royal Agricultural Societies which are to be holden there, is the chief town of the Western Division of Suffolk. It is a very ancient town, dating from Saxon times, and claiming to have been of some importance in the time of King SIGBERCHT, who began his reign in East Anglia about A.D. 630; and it is an historical town, for it claims to share with Runnymede the honour of the celebrated charter, by which the rights and liberties of Englishmen were secured. Its Abbey, the Monastery of St. Edmund's Bury, is said to have exceeded in magnificence, in decorations, privileges, and endowments, all other monastic establishments in England, Glastonbury alone excepted; and of this the visitors to the modern gathering may still see a stately relic, attesting the splendour of the establishment, in the old Abbey gate, which forms the entrance to the Botanic Garden, through which the exhibition is to be reached from the town.

This Botanic Garden was established in 1820 by Mr. N. S. HODSON, to whom a lease was granted by the noble proprietor, the Marquis of BRISTOL, whose seat, Ickworth Park, is in the vicinity. The garden is planted according to the natural system of botany. "An area of an acre is laid out in circles, similar to the Botanic Garden at Brussels, with the addition of turf paths, and surrounded by an arboretum," while spacious lawns, with circuitous walks extending to the River Larke, are amongst its further attractions. The garden is supported by subscriptions, and promenades, with music, are frequently held. Few gardens can boast of a situation possessing greater advantages. On passing under the splendid arch of the Abbey gate, the views are highly picturesque, one of them extending over the Abbey bridge to the plantations on St. Edmund's Hill, including the Vine fields. A fine old Black Poplar in this vicinity, described by STRUTT as one of the finest trees of its kind in the kingdom, is deserving of mention; it however suffered severely by the frost of 1860. In pasture ground south of the Abbey stood the Abbot's Willow, a gigantic tree, whose height was 75 feet, and circumference 18½ feet, but of which the ruins of its decayed and fallen trunk are all that remain. It is said to have contained 440 feet of solid timber.

The terms Vineyard and Vine fields, the latter of which is the site whereon the flower show is to be held, indicate that the cultivation of the Grape Vine has engaged some attention in former times, in and about Bury. We have already (see pp. 1220, 1244, 1866) given a full account of Mr. DARKIN'S great success in this department of horticulture, a success all the more easily to be accounted for when we recall the conditions of soil and climate, and the especially favourable position in which the Vines are planted. "The spot is on a sunny slope, sheltered from north winds by a wall 22 feet high, and behind that a hill extending in a gradual incline to a height of 90 feet."

These brief indications show that horticultural visitors to Bury will find something of general interest about the venerable town irrespective of the display which may be the more immediate inducement of their visit, and of the well-known gardens of the vicinity, some at least of which, as will appear from a paragraph in another column, will be freely open to persons interested in gardening. We cannot but hope that the Show itself will be as well contested between the East Anglians and their friendly invaders, as many a battle-field of the neighbourhood has been in ancient times.

WE have very much gratification in announcing that the question of presenting a substantial TESTIMONIAL TO MR. ROBERT THOMPSON, of Chiswick, which was suggested some months since in our columns, and which has met with the most favourable reception whenever it has been mentioned, has been taken up in earnest under the auspices of the Royal Horticultural Society. A preliminary meeting was held on Tuesday last, when it was agreed that the following appeal should at once be circulated amongst horticulturists. We commend it heartily to the sympathy of our readers, many of whom must have largely benefited by Mr. THOMPSON'S unobtrusive services; and trust that a sufficient sum may be raised to secure to Mr. THOMPSON every comfort and solace during the rest of his days. We may add, for the satisfaction of contributors, that the Testimonial is intended to take the money form, as being the most practical and useful :—

"The retirement of Mr. ROBERT THOMPSON from active duty in the service of the Royal Horticultural Society has been thought by his numerous friends to offer a fitting occasion on which to present him with a substantial Testimonial, expressive of their cordial sympathy with him in his declining years, and indicating also their high appreciation of the many services which he has rendered to Pomology and Meteorology during a long and active life.

"The Council of the Royal Horticultural Society, acting as the exponents of the wishes which have been expressed that Mr. THOMPSON'S services should be publicly recognised in this way, have taken the initiative by inviting several gentlemen connected with Horticulture to attend a preliminary meeting, at which a Committee was named to carry out the proposed object. [The Committee consists of the Council of the Royal Horticultural Society, the International Committee, and other gentlemen connected with Horticulture and Meteorology; the Duke of BUCCLEUCH, President; Mr. W. W. SAUNDERS, Vice-President; and Dr. HOGG and Mr. THOMAS MOORE, Joint Secretaries.]

"The many services rendered by Mr. THOMPSON both to Horticultural and Meteorological Science are well known to those actively engaged in these pursuits, but it may be proper on such an occasion as the present, to briefly recapitulate them. For upwards of 40 years, then, he has held a prominent position in the working staff of the Royal Horticultural Society. He entered the Society's service in 1824, the second year after the establishment of the garden at Chiswick, and in 1826 was appointed to the charge of the Fruit Department, which then contained the finest and most extensive collection of fruits in Europe. At that time comparatively few of the varieties were known in this country, and the whole nomenclature was in a state of confusion, requiring unwearied application and perseverance to clear it up, so that the riches of the collection might be made available to the Fellows of the Society, and to the country. In 1831 a 'Descriptive Catalogue' of these fruits was published, from memoranda taken at Chiswick, and in this valuable work, Mr. THOMPSON, with great success, succeeded in carrying out his design of indicating the good and the bad sorts, together with their synonyms, and such brief characteristics as it was thought would be most generally useful. By means of this Catalogue a knowledge of the superior kinds of fruits was much more rapidly spread throughout the country than it could have been by any other available means. The distribution of scions of new fruits was consequently carried on with assiduity, and much consideration was bestowed in endeavouring to select such kinds as were most likely to succeed in the localities for which they were destined.

"While this important work was year after year being carried out, Mr. THOMPSON was engaged in making experiments both in the Fruit and Kitchen Garden Departments, carefully reporting the results; in taking descriptions of new varieties of Fruits as they came into bearing; and in preparing another edition of the Fruit Catalogue, which was published in 1842, and a Supplement in 1853. These descriptions and records have been of the greatest practical utility. Upwards of 2000 pages of the Society's various publications have been written by Mr. THOMPSON, but the Fruit Catalogue claims prominence, as having been the standard of fruit nomenclature in this country; while his 'Gardeners' Assistant,' a work not connected with the Society, may be characterised as the best and most scientific of compendious treatises on modern gardening.

"For a nearly similar period Mr. THOMPSON has devoted much attention to Meteorology. The meteorological journal of the Society, which was commenced in 1826, and which has been carried on by him since 1830, gives the readings of the barometer (corrected for temperature, &c.), morning, noon, and night; of the thermometer, maximum and minimum, in sun and shade; and of the hygrometer; comparatively with averages of 40 years, deduced from 219,000 observations of the various instruments. Such broad averages afford what must be considered as true means with which extremes may be compared as regards heat, pressure, and moisture. The observations of 16 years have been translated from the Transactions of the Horticultural Society into those of the Royal Philosophical Society of Berlin; and up to the present time a weekly return has been published in the *Gardeners' Chronicle*. Among other papers from Mr. THOMPSON'S hands, connected with this branch of science, is a Table of Temperatures for the use of gardeners, published in the Journal of the Horticultural Society, which furnishes an idea of the climate of some 900 places, situated in different latitudes.

"With a modesty peculiarly his own, and with a degree of plodding perseverance, which cannot be too highly recommended as an example to the rising generation of horticulturists, Mr. THOMPSON has worked on at these, his favourite pursuits, with zeal and assiduity, setting before himself the object of rendering service to science, rather than that of personal gain; and now after a long and useful career, when his physical powers begin to fail him, it has been thought that an expression of public sympathy in acknowledgement of his life-long labours, would serve to gladden and solace the remaining years of his life.

"It is proposed that a subscription list be opened under the management of the Committee, and that a *money* Testimonial be presented as soon as a reasonable time for response has elapsed. Subscriptions, which will be duly announced, will be received by any member of the Committee; by the Society's bankers (London and County Bank, Kensington); by the Secretaries—Dr. HOGG, 99, St. George's Road, Pimlico, S.W.; and THOMAS MOORE, Esq., Botanic Gardens, Chelsea, S.W; or by JAMES RICHARDS, Assistant Secretary of the Royal Horticultural Society, South Kensington, W."

ON Tuesday next the ROYAL HORTICULTURAL SOCIETY inaugurates at BURY ST. EDMUND'S, an experiment, the results of which will be looked for with great interest by all classes of horticulturists.

It is certainly a bold step to institute a show of such importance in a small country town in the heart of Suffolk, a town whose historical interest and pleasant situation would of themselves furnish but slender guarantees for the success of an Exhibition on such a scale of magnitude. On the other hand, there are many features in the scheme which would appear well calculated to insure satisfactory results. There are the attractions offered by the meeting of the Royal Agricultural Society, and which will of themselves insure a goodly number of visitors to the sister Exhibition, and as a floral display there can be no doubt that the show will be a fine one.

The number and magnitude of the prizes, the stimulus given to the local cultivators to put forth their strength in friendly competition with metropolitan exhibitors, the *prestige* afforded by the Society, and the novelty and boldness of the enterprise, to say nothing of the extraordinary activity of Mr. D. T. FISH and his coadjutors, all combine to heighten the probability of the Bury Show being ranked, as it certainly deserves to be, as one of the great horticultural events of the year.

We can but share the general wish that a project evincing so laudable a desire to promote the interests of horticulture may yield an abundant and direct return to the promoters. But it is to the probable influence of this proceeding on the horticulture of the future, especially as regards the provinces, that we look forward with the most pleasurable anticipations. Successful or not in adding to the coffers of the Society, there can be no reason to doubt that an impulse of a most beneficial character will be given to horticulture in general.

We may hope likewise that the Society will derive from its provincial experience some hints which will be of service in improving their floral fêtes, and specially in introducing some elements of novelty into them, to relieve that sameness which pervades flower shows in general.

—— THE charming exhibitions of LILIUM AURATUM furnished by Mr. BULL to our metropolitan Shows this year, set up as they have been with much taste and judgment, must have placed the wonderful beauty of this Lily prominently before the public. In these collections, as well as in others which we have seen, we have noticed many variations in regard to the intensity or otherwise of colour in the bands and spots with which the flowers of this Lily are adorned; but in no instance had we seen a variety entirely free from spots. This, however, may now be found in Mr. BULL'S collection in the King's Road, Chelsea, where it forms a striking contrast with the spotted varieties with which it is associated. The flowers in question are pure white, with the exception of the yellow

rays, which are unusually brilliant, and in size they are above the average. Intermixed with other varieties, amongst Ferns, as it is here, its appearance is truly beautiful.

—— We have been favoured by the Messrs. ROLLISSON, of Tooting, with flowers of their new ACHIMENES GIBSONI, named in compliment to Mr. GIBSON, of Battersea Park, and which is of a highly ornamental character. It is a distinct-looking hybrid, of which one parent we learn was Scheeria mexicana. The flowers are nearly 2 inches across, fringed in the way of Achimenes multiflora, of a deep rich violet mauve, the tube dashed with yellow on the lower side, otherwise white, and speckled all over inside with small purple dots, white and hairy on the outside. The annulus is continuous, thickened, and obscurely lobed, and the stigma infundibuliform. The habit is said to be robust, and the plant a profuse flowerer.

—— Non-professional readers who may feel a little affright at the learned directions offered in our Calendar of Garden Operations will find some NOTES in our present issue addressed specially to AMATEURS, by an Amateur, which will, we trust, be found acceptable to them. We shall be pleased to record the successes, and equally (for the sake of instruction) the failures of those who, as our first parents did in the first instance, look upon a garden as a source of pleasure rather than as a field for labour only.

New Plants.

BEGONIA VEITCHII, *Hook. sp. n.*

Acaulis, laxe pilosa, rhizomate crasso, foliis crasse petiolatis oblique ovato v. rotundato-cordatis lobulatis crenulatis coriaceis, nervis crassis flabellatis subtus prominentibus, scapo aphyllo robusto 2-flore (fl. ♂ et ♀), bracteis 2 oblongis obtusis roseis, floribus amplis miniatis, ♂ perianthii foliolis 4 obovato-rotundatis obtusis, filamentis liberis, antheris breviter oblongis obtusis filamento brevioribus; fl. ♀, perianthii foliolis 5, ovario 3-loculari, placentis 2-partitis segmentis lobulatis undique ovuliferis, stylis 3 2-cruribus, stigmatibus fascia spirali basi continua instructis.

Hab. mountains of Cuzco in Peru. *Mr. Pearce.*

It is difficult to imagine a more vivid colour than the



flowers (2 to 2½ inches diameter) of this superb species present, which are further amongst the largest of the genus, and sweet-scented. It was flowered by its introducers, Messrs. Veitch, in the open air, having withstood the severity of last winter with perfect impunity; and hence promises to be one of the greatest acquisitions to our gardens that has been procured for many years. There are specimens of this plant in the Hookerian herbarium, collected at Sorata, by Mandon, but from no other collector.

As a species, *Begonia Veitchii* resembles *B. cinnabarina*, but is a far finer plant, of a totally different habit, and resembling a Saxifrage of the *ciliata* group in mode of growth and foliage. *J. D. Hooker.*

ASPARAGUS CULTURE IN FRANCE.

HAVING often expressed admiration of the fine Asparagus—plentiful enough too for the poorest to enjoy—that Paris is supplied with for many weeks in spring and early summer, I now send some notes on its cultivation. Asparagus is grown much more abundantly in France than it is in England. The country is half covered with it in some places near Paris; small and large farmers grow it abundantly, cottagers grow it—everybody grows it, and everybody eats it. Near Paris it is chiefly grown in the valley of Montmorency and at Argenteuil, and it is cultivated extensively for market in many other places. About Argenteuil 3000 persons are employed in the culture of Asparagus—at least so my informant told me, and he was the son of the cultivator who has taken the best prizes for Asparagus at the Exhibition. His father not being at home, I traversed a considerable portion of what may be termed the region of Asparagus with this youth, who was of the intelligent type, and understood all about this dainty vegetable. It was first seen among the Vines. The Vine under field culture, I need scarcely say, is simply cut down to near the old stool every year, and allowed to make a few growths, which are tied erect to a stick: they do not overtop the Asparagus in any way, but on the other hand the strong plants of that showed well above them. The lad told me that the Asparagus helped the Vines and the Vines helped the Asparagus. It was not in distinct close lines among the Vines, but widely and irregularly separated, say 6 or 7 feet apart in the rows, and as much or more the other way. They simply put one plant in each spot, and give it every chance of forming a capital specimen; this it generally does, and perhaps grows out of the line, so that these great tufts appear to be irregularly scattered about here and there. When they get large and a little top-heavy in early summer, they put a string round all, so as to hold them slightly together (the careful cultivator uses a stake), and the mutual support thus given prevents the "Grass" from being cut off in its prime. We all know how apt it is to be twisted off at the collar by strong winds, especially in wet weather, when the drops on every tiny leaf make it heavy. Among the Vines is a very usual mode of growing Asparagus, and a vast space is thus covered with it about here. But it is grown in other and more special ways, though not one like own way of growing it, which is decidedly much inferior to the French mode. Perhaps the simplest and most worthy of adoption is to grow it in shallow trenches. I have seen extensive plantings that looked much as a Celery ground does soon after being planted, the young Asparagus plants being in a shallow trench, and the little ridge of soil being thrown up between each. These trenches are generally about 4 feet apart. The soil is rather a stiff sandy loam with calcareous matter in some parts, but I do not think the soil has all to do with the peculiar excellence of the vegetable, and am certain that soils on which it would flourish equally well are far from uncommon in England. It is the careful attention to the wants of the plant that is so beneficial. Here, for instance, is a young plantation planted in March, and from the little ridges of soil between each shallow trench they have just dug a crop of small early Potatos. Now, in England, those plants would be left to the free action of the breeze, but the French cultivators, like the old Scotch woman who would not trust the stormy water and God's goodness as long as there was a bridge in Stirling, never leaves a young plant of Asparagus to the wind's mercy as long as he can get hold of a bit of Oak about a yard long. But when staking these young plants they do not insert the support close at the bottom, as we are too apt to do in other instances, but at a little distance off, so as to avoid the possibility of injuring a fibre; and thus each stake leans over its plant at an angle of 45°, and when the sapling is big enough to touch it or be caught by the wind they tie it to the stick as a matter of course. The ground in which this system is pursued being entirely devoted to Asparagus, the stools are placed very much closer together than they are when grown among the Vines, say at a distance of about a yard apart. The little trenches are about a foot wide and 8 inches below the level of the ground—looking deeper, however, from the soil being piled up.

They place the young plants in these trenches very nicely and carefully. A little mound is made with the hand in each spot where a plant is to be placed, so as to elevate the crown a little and permit of the spreading out of the roots in a perfectly safe manner. In fact they seem to be about as particular as regards depositing the young plants in the first instance, as a good Grape-grower is about his young Vines. They plant in March and April—using any kind of manure that can be had, I believe, but chiefly here, so far as I could see, the refuse of the town—the ashes, old vegetables, rags, and what not, that the people throw before their doors, and which the dust carts take away in the mornings. They are very particular to destroy the weeds, and they also take good care to destroy all sorts of insect enemies in the early morning, especially during the early summer. Between the lines of Asparagus they plant small growing crops on the little ridges during the first years of the plantation, but are careful not to put the large vegetables there, which would shade and otherwise injure the plant. When they plant they spread a handful or so of well-rotted manure over each root, and, so far as I could make out, they repeat this every year, taking away the soil very carefully in the autumn to the roots and putting a couple of handfuls of rotten manure over them, spreading the earth over again, so that the rain is continually washing manure to the roots. When doing this they remark the state of the young roots, and any spot in which one has perished, or has done little good, they mark with a stick, to replace it the following March. Early every spring they pile up a little heap of fine earth over each crown. When the plantation arrives at its third year they increase the size of the little mound from a *monticule* to a *petite butte*, or in other words, a heap of the finest and thoroughly ameliorated earth is placed over the stool, from which some, but not much Asparagus is cut the same year, taking care to leave the weak plants and those which have replaced others "abandoned to themselves" for another year. They would appear to cut the best of it when it is about an inch-and-a-half out of the ground—and here is the only objectionable thing about their system. The top is very good, but as a rule too short, but such a handle as they give you to it! Now, it is very desirable to have something to take hold of, but to cut it as they do here, and as we often do in England, is not wise, nor conducive to the thorough enjoyment of the vegetable; but then it is simply a matter of the amount of covering given, or of the depth at which it is cut, and therefore of the simplest management. The care and culture may be applied as described, and the Asparagus cut at pleasure. To procure it in a thoroughly blanched condition, the French pile up these little mounds of fine earth, which enables them of course to get it much longer; besides, they can pull away the soil conveniently, and get at the rising stems as low down as they like. It is not, however, the fault of the cultivator that the Asparagus is so much blanched, for I have been told by the first fruit and vegetable merchant in Paris that his customers would not buy the finest Asparagus ever grown if brought in in a green state. This is why you see it with a shaft like ivory and with the point of the shoot of a red, rose, or violet tinge. When the plantation reaches its fourth year the little mound of blanching earth is increased to 15 inches in height, for then they expect to cut something worth while, and these mounds are made in the early part of March, and even after this, as they grow stronger, the little mounds are increased, and they always keep a look-out for the feeble plants, with a view to replace them.

To have Asparagus as it ought to be, say they, you must cut every day, or every two days, according to temperature, so that it may be obtained at the right moment; indeed, if they do not do this, the shoots become too high and too green. They place great importance on obtaining strong and healthy plants; and in the establishment which I visited they have three kinds, L'Ordinaire, La Hollande tardive, improved, and La Hâtive d'Argenteuil. The first is described as *très belle*, the second very strong, and the last as the earliest, most productive, and best in the opinion of the grower whose place I visited—Louis L'Herault, of Argenteuil, a famous cultivator. Of course there are various modifications of the plan described herein, and in several instances I saw two rows placed in a rather wide trench in an alternate manner. As to the size and quality of the Asparagus produced by this method, there can be but one opinion. Mr. Veitch, and many other English horticulturists, who know what gardening is, as well as it is possible to know it, have been, with myself, surprised at it. The same difference holds good in the forced Asparagus—the slender pipe-shank productions of the English forcing-house being miserable compared to it.

To sum up: the French mode of cultivating this delicious vegetable differs from our own diametrically in giving each plant abundant room to develop into a magnificent stool, in paying thoughtful attention to the plants at all times, and in planting in a hollow instead of a raised bed, so that as the roots grow up they may have annual dressings of enriching manure. And in this way they beat us with Asparagus as thoroughly as Messrs. Meredith, Henderson, or Miller, beat them with hothouse Grapes. A man who knows how to spend two francs and a half for his dinner in Paris enjoys Asparagus much longer and of much better quality than many a nobleman in England with a bevy of gardeners. I am writing on the 28th of June, and I had given up Asparagus for some time, but just tried it again after writing the above, and had a delicious dish of it, and one moreover which, judging by the price, cannot have cost the proprietor of the restaurant more than a head of Broccoli. *W. R.* [See our volume for 1865 for a full account of M. L'Herault's system. EDS.]

THE CHISWICK TRIAL OF PEAS.

(*Continued from p.* 712.)

NUTTING'S Early Seedling, is a green wrinkled Marrow, very much resembling Multum in Parvo, 18 inches high, the pods broader and somewhat shorter than Little Gem, about the same in point of earliness. A prolific and good Pea.

Advancer (Maclean), green wrinkled Marrow, 2 feet 6 inches in height, about seven day's later than Sangster's No 1, is one of the finest and most productive Peas in cultivation, bearing a great profusion of long, not particularly broad, but remarkably well filled pods from the ground upwards. There are from seven to nine Peas in each pod, of excellent quality.

Princess of Wales is very similar in appearance to Advancer, but several days later, the pods rather smaller; very prolific. The ripe seed of a very light green colour.

Prince of Wales, green wrinkled Marrow, 3 feet in height, is very similar to the preceding; prolific; a few days earlier and with smaller pods than Veitch's Perfection.

Veitch's Perfection, green wrinkled Marrow, is a first-class Pea, about 3 feet 6 inches in height. Sown at the same time, it comes into use three weeks after Sangster's No. 1. The pods are very large, broad, of a beautiful green colour, with from seven to nine large Peas in each, of very fine quality. The leaves are large, the whole plant of a somewhat gross and succulent character, and rather tender. When this Pea succeeds well there are few to equal it; but in cold wet seasons and poor soils it is comparatively worthless.

Lord Palmerston is very closely allied to, if not the same as, Veitch's Perfection.

Hairs' Dwarf Mammoth is the stock from which Veitch's Perfection was selected. It is inferior to and somewhat later than that variety.

Pea D. (Wrench) seems a very good stock of Veitch's Perfection.

Laxton's Champion is a hybrid between Veitch's Perfection and Little Gem, but does not seem in any way distinct from Veitch's Perfection.

Maclean's Hero, green wrinkled, is a few days earlier and dwarfer than Veitch's Perfection; a prolific and very good Pea.

Dixon's Yorkshire Hero is very similar to Maclean's Hero.

Laxton's Leader is Veitch's Perfection.

Premier (Maclean's) is a green wrinkled Marrow

about 3 feet 6 inches high, a few days later than, and not of such a succulent growth as, Veitch's Perfection; a very great cropper, the pods of a large size, seven to nine Peas in each, of very excellent quality; a first-class Pea, said to be Dr. Maclean's best.

Smithies appears to be an indifferent stock of either Veitch's Perfection or Premier.

The Prince (Stuart & Mein) is a green wrinkled Marrow, with a fine vigorous constitution, about 3 feet 6 inches high, a few days later than Veitch's Perfection. It is an abundant bearer, pods large, and well filled with from seven to nine Peas in each; a most excellent Pea.

A green wrinkled Marrow Pea, sent by Messrs. E. G. Henderson & Son, is very similar to Veitch's Perfection.

Climax or Napoléon is a blue wrinkled Marrow 2 feet 6 inches high. This variety has the habit of flowering early, but does not come so soon into use as many others which flower a week later; the pods are small and very badly filled; quite superseded.

Champion of England is a green wrinkled Marrow, 5 to 6 feet in height. It is an old and well-known variety and much esteemed; when sown at the same time as Sangster's No. 1, it comes into use 14 days after it.

Fortyfold, and Fairbeard's Fortyfold, are identical, three or four days later, and with somewhat larger pods than the Champion of England; evidently selected from that variety.

Ne Plus Ultra, green wrinkled Marrow, from 5 to 6 feet in height; when sown at the same time as Sangster's No. 1, it comes into use 20 days after that variety. The pods are large, of a deep green colour; when opened they are still more vividly green, with from seven to nine large Peas in each, of a somewhat lighter shade. The flavour is excellent. Fine, hardy, vigorous constitution, and most abundant bearer. This is the best and most reliable of all the tall wrinkled Marrows.

Knight's Albert Edward, Pearce's Gardeners' Delight, and General Wyndham, are identical with Ne Plus Ultra.

Tall Green Mammoth, about the same height as Ne Plus Ultra, and coming into use at the same time, may be distinguished from that variety by the much lighter green of the pods and peas altogether. It is excellent in quality, and very productive.

The Mote Marrow, Strathmere Hero, and Competitor, are identical with Tall Green Mammoth.

Alliance or Eugénie, white wrinkled Marrow, is distinct from Climax only in the colour of the seed. It is quite superseded.

Epicurean is a white wrinkled Marrow, 2 feet high, two days later than Alliance, somewhat like it in general appearance; very profuse bearing. The pods are rather small, and do not fill very well.

Wonderful (Maclean) is a white wrinkled Marrow, about 3 feet in height, 14 days later than Sangster's No. 1. It is a wonderfully profuse bearer, the pods are large, and well filled, with from seven to eight Peas in each, of excellent quality. A first-class Pea, with a fine vigorous constitution.

Prolific (Turner) is a white wrinkled Marrow, rather dwarfer than Wonderful, about the same in point of earliness; a very abundant bearer, and of excellent quality.

Nelson's Vanguard (Sutton) is a white wrinkled Marrow, earlier than Alliance, about 18 inches in height. It is very prolific, but the pods are rather small, and not sufficiently well filled; fine quality.

Fairbeard's Nonpariel is a white wrinkled Marrow; it is a very distinct variety, about 5 feet in height, the pods are long and narrow, with seven to nine rather small Peas in each, packed exceedingly close together. The dried Peas are distinct in character, of a brownish-white colour, rather small, and look as if they had been all squared in a mould, so regular are they; it is a great bearer. *A. F. B.*

(To be Continued.)

LETTERS FROM PARIS.—No. XVIII.

SEVENTH SHOW.

LET me now advert to the seventh *série* at the great Exposition—more interesting than usual this time. M. Linden shows a choice selection from his rare and unequalled collection of medicinal plants, exotic fruits, &c. Considering the weakness which most of our botanic gardens show in this respect, and how very desirable it is for them to have well-grown examples of famous, interesting and useful plants, this should be good news to them, for before M. Linden had so successfully introduced many kinds, the getting of some of the rarer species was an utter impossibility. He shows here a large collection, among the rarest and most remarkable of which are Siphonia elastica, true; Erythroxylon Coca, Musa textilis, Cinchonas in variety, Myristica grandiflora, and others; Cedrela odorata, Hura crepitans, the true Strychnos nux vomica, and also toxifera and other species; the Butter tree (Castilloa elastica), and in fact many others of the greatest scarcity, in a living state. There is another collection shown, from a Belgian botanic garden, but it is not remarkable. Near to those medicinal plants a group of Tree Ferns is very interesting. It contains Alsophila amazonica, A. denticulata, very distinct and beautiful; Cyathea funebris, a magnificent coriaceous-looking species; Alsophila pygmæa, with the stem no thicker than the thumb, about a foot high, with five graceful fronds; A. ornata, A. elegantissima, of a dark polished green, a noble species; Dicksonia chrysotricha, fine and distinct too; Alsophila Schaffneriana, and the fine Alsophila gigantea. A capital collection of Tree Ferns, many of them large plants of well-known kinds, are also shown by M. Chantin in the great conservatory, which is now chiefly filled with Palms, many of them being Dates brought from the south. An interesting collection of distinct Colocasias, and plants immediately related to them, is shown by La Ville de Paris. They number 38 in all; among the most desirable for extended cultivation being Caladium metallicum, and Colocasia nymphæifolia. M. Barbot shows some very old and remarkable plants of Cycas revoluta, the stems being 5 and 6 feet high, and crowned with small but healthy foliage. Each time a prize is offered for collections of annuals and herbaceous plants, and this has been productive of the happiest results: many beds being filled and refilled with charmingly varied collections, grown chiefly by the several seedsmen. On each occasion the chief prize has been taken by the Messrs. Vilmorin, and nothing can be more interesting than the rich beds which they arrange, tufts of the more ornamental Grasses being used to vary them, and here and there specimens of the newest things, like Nierembergia frutescens, to give them the charm of novelty. The show of cut Roses is much more considerable this time than it has hitherto been. They are arranged in six dense rows, on a stage running about 200 feet long, four or five Roses being placed in each truss; and there are about as many Roses so placed as would cover twice the space if they arranged them as we do. To me the most remarkable of the new Roses seemed to be Prince Humbert, a magnificent and distinct rich dark variety, apparently of good habit and foliage, the flower large and well formed. Carnations are pretty freely shown, and also Petunias, bedding Pelargoniums, and Fuchsias, the last being very poorly grown. Also a host of species and varieties of Begonia, sad to look at; and a bank of dwarf plants of Oleander, beautifully flowered, at about 15 inches high. The ordinary kind, the pure single white, the white with pale pink stripes in the throat, and the rich rose with the small white streak down the petal, were all shown together. These are plants which we certainly do not do justice to in England, while the French enjoy them in all stages—from the gigantic specimens placed out with the Orange trees in the Luxembourg Gardens, to the pretty and most useful sizes I have just alluded to. M. Chantin also shows a very large collection of Pandanuses, and M. Lierval a little bed of early Phloxes, and also a large collection of those fine-leaved plants which every Parisian nurseryman, small or great, has a stock of. Among his lot I must not omit to name Leopoldina pulchra, a Palm about a foot high, which was about the most graceful thing I have ever seen. What a day it will prove for our hot-houses and dining-rooms when such things as this and the Lilliputian Tree-fern mentioned above, are to be seen therein! Among the vegetables and fruit there is little requiring remark—large egg plants and fruits of Trichosanthes anguina (described as a *tres bon legume*) are sent from Algeria; and Lettuces, Endive, &c., shown by a local Horticultural Society, and planted in the open air, at least represent how well the French grow these vegetables. The *Materiel d'Horticulture* of the whole Exposition is very extensive, and affords a good deal of useful interest, which must be examined at a future day. *W. E.*

A FEW WORDS ON CUCUMBER GROWING.

AT one time Cucumbers were not much in demand during the months of November, December, and January, most people considering them then unwholesome; but now the case is different, for winter Cucumbers are held in equally high esteem with the productions of brighter months. My employer likes to see them sent up to table whole all the year round, they are therefore expected to be straight, and otherwise good as regards shape.

When Cucumbers are required at Christmas, the seeds should be sown about the middle of August, in order to have the plants as strong as possible before short days come upon us. These plants begin to bear about the middle of December, and, if properly managed, continue in bearing fully ten months. After the plants are sufficiently large for potting out of the seed pot, *i. e.*, after they have made a rough leaf, they should be potted singly in 48-sized pots, plunged in bottom heat, and shaded from the sun until they begin to grow. After they have filled the pots just named with roots, re-pot them into 24-sized pots, and let them have all the light possible, in order to strengthen them. Plunge them into a gentle bottom heat, and keep them well supplied with water. When the pots are again pretty well filled with roots, the plants will be in a fit state for planting in any place in which it may be desired to put them. If they are to be grown on trellises do not stop them until they have reached the trellis; then pinch off the point of the shoot, in order to make it throw out laterals. I do not recommend pinching off the extremities of the shoots; on the contrary, I prefer allowing them to run, unless, as will sometimes happen, they do not throw out laterals so freely as may be desired. In that case they should be stopped, but as a general rule I do not recommend the pinching principle, I rather prefer cutting back the shoots as far as I can to where the plant was originally stopped, in order to keep up a regular supply of young bearing wood, regulating, of course, the quantity of shoots to the space to be filled, but by no means letting them become crowded. By this mode of pruning I am enabled to keep up a good supply of fruit of excellent quality.

The compost which I find to answer best for Cucumbers is rather a strong turfy loam, chopped into pieces as large as a hen's egg, mixed with about one-fourth fresh horse-droppings, and a little soot. The loam should be as fresh as possible, the fresher the better, provided the grassy part is decayed; but by no means use it unless it is so, or you will find probably to your cost that wire-worm has stolen a march upon you, and just when you expect to reap the reward of your care and attention, your plants will droop, and slip through your fingers, at a time, too, when there is no chance of replacing them.

Air and water are two most important things in connection with Cucumber culture. Air should, if possible, be admitted at all times, only guarding against its blowing directly upon the plants, a circumstance which in winter would be fatal to success. Water, if the plants are, as they should be, well drained, may be given freely; in fact, the roots should be constantly kept moist, and the plants at all times surrounded with humidity. I rarely water with pure water, liquid manure being preferable. The kind I use is made from sheep droppings and soot; this I find to answer better than anything else.

As regards temperature, the plants succeed better with a bottom heat of 80°, and a top heat varying from 65° to 70°, than in any other. If bottom heat is supplied by means of pipes, the pipes should have troughs cast upon them, as the vapour rising therefrom is very beneficial to the roots; keep the troughs constantly filled with water, I prefer doing this from the upper part of the bed, which can be done by letting some pipes pass through the bed so as to have one end in the trough, allowing the top part of the pipe to stand about 3 inches above the surface of the bed. Two supply pipes to each trough would not be too many, as the vapour passing up them does away to a great extent with the necessity of syringing. The kinds which I usually grow are the Sion House Improved and Cox's Volunteer; they are not extraordinary for length, but they are, nevertheless, of good size, averaging from 18 to 20 inches, handsome in shape, fine in flavour, and very prolific: qualities which I hold to be of much importance in Cucumbers. *T. P.*

[We have been favoured by examples of our correspondent's Cucumbers, which are in all respects excellent—long, straight, young, and finely-flavoured—in short, beautiful specimens of skilful Cucumber growing. EDS.]

Home Correspondence.

Bedding-out.—Mr. Bennett's remarks (see p. 684) on this subject will doubtless meet with a hearty response from many gardeners as well as employers. Not a few who have been in the habit of visiting some of our finest garden establishments during these last few years are beginning to confess to a latent feeling that the bedding-out system has been carried out *ad nauseam*, and that the very last possible change must surely have been rung on the dozen or so of plants which seem available for this purpose. Few, too, can have failed to perceive how grateful and refreshing it is to allow the eye to wander away from the gorgeous masses of colour which form the one characteristic feature in our flower gardens, and to rest on some well-kept lawn embellished with healthy specimens of Coniferæ and fine-foliaged shrubs. The chief objection to be urged against the present system of ornamenting our flower gardens is, that it is thoroughly artificial. The one consideration in stocking them seems to be how to procure a certain amount and variety of colour, which shall stand at a given height from the ground, and not fade till the frost comes. Red Beet, a truly excellent vegetable; curiously coloured Kale, deservedly held in high estimation by our northern neighbours, and every other imaginable and unimaginable vegetable product which Nature has been pleased to invest in a garb other than the orthodox green, have been laid under tribute to satiate this extraordinary craving for colour. Nay, not content with what the vegetable world can supply, the devotees of this terrible goddess Fashion have invaded the mineral kingdom, and have compelled it to yield up all manner of curious stones and clays, have, in short, raked up its very ashes, to lay them before her much-worshipped shrine. Now, the result of this colour mania is that we are ceasing to take any interest in individual plants. We do not care for our Verbenas, our Pelargoniums, or our Pansies, as such, but only in so far as they can contribute towards the perfecting of our bedding system. When a new variety makes its appearance, the all-important question on which its fate hangs is—"Is it likely to become a good bedder?" If it is, it will soon be scattered over the country in thousands; if it is not, whatever other qualifications it may possess, a single season will almost inevitably see the whole stock of it consigned to the rubbish heap. Another grievance with which this system is undoubtedly chargeable is the having banished from polite society that numerous and most interesting class, the herbaceous and alpine plants. If we wish to collect specimens of these, we must go to a botanic garden, or to some well-to-do farmer's garden, where the owner has not got sufficiently well up with the times to have cut up his Grass plot into those fantastic shapes whose prototypes are to be met with nowhere else except, perhaps, in a child's puzzle. As a consequence of this the young gardeners of the present day are, through no fault of theirs, almost entirely ignorant even of the names of many of the best herbaceous plants; and how can it be otherwise when they are taught to regard them merely as weeds which may possess some interest for the enthusiastic collector, but which are of no practical use in this advanced age? But while it would be far from desirable that bedding-out should be altogether abolished, its effect might be much heightened by its being modified to a considerably greater extent than Mr. Bennett recommends—although beds planted in the mixed style, he suggests, would certainly be preferable to the stiffness of the present method. Why, for example, should the beautiful varieties of Thuja and Taxus, and Cupressus, to say nothing of the large class of American plants, such as Menziesias, Heaths, Rhododendrons, Kalmias, &c.—why should these and all the rest of the beautiful foliaged shrubs be denied admittance to the summer

flower garden? If such shrubs as these were made the groundwork of the beds with bright flowering plants judiciously mixed amongst them, the effect would be as superior to that produced by the present style as a bouquet tastefully interspersed with sprigs of green is more pleasing than one composed of a mass of flowers. This, moreover, would bring out, in a way which the present system never can do, the artistic taste and ability of gardeners. The quality they are chiefly called upon to exercise now is their ingenuity to enable them to arrange the old colours in a different order from the preceding year. And in many cases they are spared even this trouble, for it is not very uncommon for gardeners to have to furnish their employers with a sketch of the flower garden annually, in order that they may paint in the colours they wish represented in the various beds; but were all the different kinds of shrubs that are suitable for the purpose freely made use of, it would give scope for endless variety of design, and lend to flower gardens an interest and charm which at present they, for the most part, certainly do not possess. This would also render them almost equally attractive at all seasons, instead of being, as nine-tenths of them now are, less interesting during eight or nine months of the year than a well-cultivated kitchen garden. For, with a good groundwork of shrubs, the beds might be enlivened during all these barren months by early-flowering herbaceous and alpine plants and bulbs, so that by skilful management there need be no day of the year ungraced by its appropriate flowers. The too common practice, in places of limited extent, of cutting out flower-beds immediately under the principal windows of the house, is very objectionable. Leaving out of the question their ugliness when bare during the winter and spring months, even when the flowers are in all their summer glory they lose much of their freshness and charm by being so continually brought under the eye: for it cannot be denied that even flowers, notwithstanding all their native loveliness, if congregated in too large masses, will inevitably pall upon the taste. It is probable that if the beds, instead of being massed to form a compact design, were broken up and introduced in such a way as to form a part of the park scenery, the effect would be much more natural and agreeable. The principal objection to this would be the difficulty of protecting them from hares and rabbits. *W.*

Midsummer Frosts.—We had one or two degrees of frost here on the morning of the 24th (Midsummer Day), which affected the leaves of Potatos, Kidney Beans, Dahlias, Balsams, Pelargoniums, &c., though not to such an extent as might have been expected from the occurrence. *Amateur, Whitland, Carmarthenshire.*

Stem Roots of Vines.—I have two Vines in my house that have thrown out a number of strong air roots along the old wood to the very top. From what does this proceed? They both appear to be exceedingly healthy, have made plenty of vigorous foliage, and bear a good crop of fruit, that promises to ripen in perfection. The Vines are planted inside in suitable soil, but are much confined at the root. Can this be the cause? and ought I now to remove the air roots, or let them remain till after the crop is gathered? Will it be advisable for me to take up the Vines and replant them in the autumn with the roots cut back? They were put in where they now grow five or six years ago, and have always done well since. *Amateur.* [Do not remove the aërial roots now: they indicate imperfect action of the true roots. Do not replant, but add something to the border. EDS.]

Is Variegation a Disease?—In all trees, shrubs, and plants which are subject to the condition of the chlorophyll becoming wholly, or in part, decomposed, and presenting a white or pale appearance, either in blotches, stripes, or over the whole surface of the foliage, the plant is more or less the subject of disease, its organs become enfeebled, and the functions of the whole system more or less disorganised; stunted and diminutive growth consequently ensues, due very much to outward causes. Albino shoots will not grow, nor will white or very pale-foliaged Pelargoniums, with a lovely pink or delicate rose zone. These are for the most part, owing to outward circumstances, much diseased. In variegated Maples, Elder, Elms, and a host of other plants, the lovely pink or almost scarlet edging, with other tints, on the margin of the foliage, is evidently only the effect of light, for the effect is transitory; and as the leaves grow old and become more exposed the colour vanishes, but yellow and white remain. Take a leaf of the white-edged ivy-leaved Pelargonium, and merely break it to stop circulation; in a day or two it will show a lovely purple tint all round, due to outward influences. But variegation is not disease! There are many outward circumstances which tend to favour the development of growth and beauty. If you pursue the course of chromulatic variegation in whatever plant you like, you may fully develop and display the same by hybridising. In some of my experiments I have laid down a law, and fulfilled it to completeness. By using the greatest care, one can truly, to a shade of colour, produce in the seedling plant that which one desires. I believe the very grain of pollen applied to the stigma, effects at once, the very positive colour and ultimate conditions *in toto* of the plant. Stunting or enfeebling the growth, picking off all the green leaves, watering with chemicals, applying this thing or withholding that, will never effect such a variegation as the Versicolor Pelargonium exhibits. The Pelargonium Emperor of the French, with other similar varieties, which are spoken of as being much disposed to produce Mrs. Pollock, are not more favoured in this respect than others of the zonate kinds. This power is inherent, and ever since the introduction of this species from the Cape it has been capable of developing this glorious disposition of its colour in the foliage. I maintain that nothing whatever has been added. The zone of the old horseshoe variety, existing ever as it has done, was never considered disease. I cannot think because this colour has been carried to another, the chlorophyll being yellow and perfectly healthy, as is all green—and green presents itself in a lighter or darker hue, yet free of disease—and because the fact of the chromule lying on a yellow ground renders the zone of a brighter tint, approaching to scarlet, therefore it is disease. Indeed, that such a condition is disease, or its result, I deny. Disease, in whatever system you find it, must naturally, in the course of generations, wear away (in the case of chlorophyllic derangement it does so), or rend asunder and break up the organs and destroy their functions, whether it be in the animal or vegetable kingdom. *J. J. Chater, Cambridge.* [If we understand our correspondent, and we are by no means sure that we do, he simply argues that coloration is not disease, a proposition which no one has questioned. EDS.]

Fruit-tree Stocks.—None of my wall fruit trees have done at all well, nor are they improving, though I give them all the care I can. They are of various ages, but I find that the young ones are following the older ones, and gradually dying off. One peculiarity I observe in all—more developed in the Apricot, Peach, and Nectarine than in the Plum—and that is, the graft is about as large again as the stock, producing a kind of collar at the joint or union, which I have often thought must prevent a proper circulation of the sap. What is the cause of this more speedy growth of the graft than of the stock? Is it, as I suspect, an inferior stock, or a kind of stock that does not do well for grafting upon? The soil is rich, and there is no superfluity of root. *Geo. A. Robins.* [Your trees are, as you suspect, worked on an inferior kind of stock, which does not swell or enlarge proportionately with the graft. The stock employed is probably that which is called the Brompton, which is a bad stock for all purposes. Very little can be done to save your trees, which will ultimately die of strangulation. You might, however, try the effect of heaping up a little turfy soil round their stems as high as the graft, in order to induce the emission of roots; or perhaps when thus buried the stock might be led to swell a little more freely than when left exposed. *B.*]

Last Winter's Frost at Malton, Yorkshire.—This place stands on a hill-side facing the south, the upper part of the hill being limestone (coralline oolite), the lower part stiff clay (Kimmeridge). Several Cupressus macrocarpa, 8 to 10 feet high, which were uninjured in 1860, are killed. These are low down on the hill. Higher up the hill, C. macrocarpa has just survived. Retinospora obtusa and pisifera are generally killed. Cupressus torulosa, half way up the hill, 6 feet high, killed all except the top 8 or 10 inches, higher up the hill, not killed. Thujopsis dolabrata, and borealis, Cupressus Lawsoniana, and all the Thujas, uninjured. A large quantity of Araucarias, 2 or 3 feet high, uninjured, as they were also by the winter of 1860. These grow on a dry stony hill-side, in which situation I believe the Araucaria to be perfectly hardy, because quite healthy; the only plants which I have ever seen injured by frost have been unhealthy from being planted in a damp situation. I have reason also to think that the Araucaria likes limestone. Taxodium sempervirens has been only slightly hurt,—about as much as in 1860. It is evidently sufficiently hardy here to be planted as a timber tree. Of commoner trees I see many Ash and broad-leaved Elm which have died during last winter, having been most probably unhealthy before that; but I do not see that the Oaks are injured at all, as they were in 1860; nor the Hollies to any great extent. In that year thousands of old trees of both these were completely killed in this neighbourhood. *C. W. Strickland.* [The Taxodium is, we believe, destined to occupy a prominent position in the future. EDS.]

Conifers.—I have so frequently heard complaints of disappointment among those who have attempted the growing of Conifers, that I am induced to send you the results of my own experience of many years in reference to them. I think one of the main causes of failure is the system on which Pine trees are mostly located. A piece of ground of a few acres is usually selected for them near the mansion. In so small an extent it would be impossible to find the various soils and localities suitable to every kind of Conifer. Where some may thrive, others will as surely fail. Moreover, in most cases, the turf is kept closely mown, exhausting the surface soil and robbing the tree. This can only be remedied by the costly process of frequent top-dressing. Even if a good growth rewards the planter, there follows the objection of a close plantation rising up in too close vicinity to the dwelling-house, necessitating, perhaps, the cutting away of some fine specimens. I fell into this error myself when I first planted Conifers. I afterwards adopted the mode of clearing considerable spaces in the woods, and then planting Conifers according as I knew the soil and particular locality to be most favourable. I have been rewarded by much success, and there is the satisfaction of seeing the trees assume their proper place among the forest trees. No doubt occasional single specimens of some sorts of Conifers are highly ornamental to the pleasure ground, but as a rule the woods are the place for them, where they may grow unchecked. In advocating this system of course I assume that it is only to be done on a tolerably extensive property, and care must be taken, in clearing off existing wood, to trench all the old roots as a preventive against fungus. *Shannon, Castle Martyr, Cork.*

Grapes.—Can you explain why my Grapes do not colour? My Vines are 14 years old, and are to all appearance in thoroughly good health; they have borne very good crops indeed these last seven or eight seasons, not very large bunches, but very fine in the berry. The rods are about 12 feet long from the first spur to the top. There are from 5 to 6 feet of bare stem between the bottom spurs and the border. The condition of the border, in the first instance, I am unable to describe, but the room for the roots is unlimited; being outside, they can consequently extend themselves to any distance. I have taken from 22 to 25 bunches from each Vine for these last seven years, each bunch averaging, I should say, ¾ lb. They never have coloured well; this season they are just now beginning to colour, and I don't like the way in which they are going on. I have always been able to keep them free from red spider and thrips. Up to the time of colouring I maintain a good moist atmosphere. When they begin to change, I withhold the moisture by degrees, giving plenty of air, back and front, during bright weather, and employing very little fire-heat. Had the weather been dull and damp I should have fired, so as to have been able to have aired the Vines freely during the day. I now close early in the afternoon with good sun-heat in the house, damp the floors and walls, and syringe the other plants in the house, but I never wet the Vines; I allow the thermometer to fall 10° during the night. This season I have kept the lateral shoots stopt closer than I usually do, in order to see if that will benefit the Grapes. *W. P., Manchester.* [In the first place, taking from 22 to 25 bunches from a 12-foot rod, year after year, is somewhat heavy cropping; 18 bunches would be enough. Vines must be in exceedingly good condition to withstand such cropping long. Your treatment up to the time of colouring is correct. When they begin to change colour give them plenty of air, night and day; if the weather is cold apply a little fire heat, but on no account shut up the house entirely. Maintain a dry atmosphere, and avoid damping the floors, &c., as much as you can. The thermometer may be allowed to fall 20° and even 30° during the night, and your Grapes when colouring will be all the better for it. What Grapes want, when colouring, is rather a cool, dry, bracing atmosphere. Encourage as much healthy foliage as you can, even on the laterals, as the colouring matter is prepared in the leaves; and in proportion to the quantity of healthy foliage is the quality of the crop produced. *B.*]

New Plant Case for Fruit Trees, &c.—This is an invention of the originator of the cylinder Vinery, and also the ground Vinery. I have at this time seven plant cases of different forms, placed round Plums, Pears, Peaches, Vines, and Figs. The frame consists of bars grooved in the angles; supposing I wish to make a circular case round a pyramidal Peach, Pear, Fig, &c., I take a dozen or so of these double grooved bars, and drive them into the ground to the depth of a foot; I then slip the glass down the grooves, and tighten the whole by means of a stout copper wire. The bars are boiled in creosote, to render them indestructible. The grooves are shaped like the letter ſ, to clasp the glass, and prevent any shaking; this form also admits of circles being turned, circular cases being suitable for pyramidal trees. These cases, together with the cylinder Vinery, glass walls, and new ground Vinery, are all patented, to prevent their getting into the hands of persons charging unreasonable prices. The cases for Plums and Pears have air-holes at the bottom, but for other plants this ventilation is merely carried on by the upward and downward currents, the cases being open at the top night and day; this latter ventilation is perfect, as can be seen by the constant motion of the leaves. The atmosphere in these cases is generally 10° higher than the external air; the plants I have encircled in them flourish in a most marvellous manner, having light, heat, and air in all directions, and they require no watering. When the fruit is ripe I shall place a hexagon woollen net on the top to keep out insects. I expect to have Jefferson Plums and Chaumontel Pears in perfection. The plants had no further protection during the frosts in May. One Plum was attacked with aphides; I shook a muslin bag with some of Pooley's Powder in it in the middle of the case, a cloud was raised, and I have seen no insects since. *An Old Subscriber.*

Summer Treatment of Old Wall Pear Trees.—Will you kindly tell me how to treat some old wall Pear trees which had all the old spurs cut clean off early this spring, and which have again broken well, and have made shoots from 2 or 3 inches to a foot long, and which seem inclined to become very vigorous? Should they be pinched back to one leaf? They did not commence growing until the beginning of June. *Old Sub.* [Pinch the shoots back to three eyes, operating first only on the most vigorous. As trees generally grow strongest, and have the greatest flow of sap in the upper branches, the best method is to begin at the top and pinch downwards, doing one-half at one time, and the other or lower portion in about a fortnight afterwards. *B.*]

Greenhouses and the Metropolitan Building Act.—Would you kindly oblige me by saying whether or not a nurseryman, living within the limits of the Metropolitan Building Act, is bound to erect his greenhouses, &c., with 9-inch brickwork, and to submit them to the surveyor of the district, or whether persons having such erections, for the purpose of trade, and on land having no dwelling-house, may erect them as they think proper? *T. E. B., Lee Green.* [Greenhouses must be erected in conformity with the Building Act, excepting "as regards the necessary woodwork of the sashes and doors." Notice must be given to the district surveyor. If built at least 8 feet from the nearest street or alley, 30 feet from any other building, and 30 feet from the ground of any other owner, a greenhouse (like any other building so placed) is exempt. EDS.]

Slugs and Snails.—Few of your readers have any conception as to the extent to which the above abound where there is a favourable harbour for them. I had some Holyhocks planted 2 feet from a hedge that had Ivy at the bottom. I found frequently at night 20 and more snails on a plant. Hand picking was a tedious

affair, so between the hedge and the Hollyhocks I had put (by means of a garden pot, through the bottom hole of which I passed a small stream of it), a line of bran 6 inches from the hedge. One night I killed 300 snails and slugs by treading on them, and in about 10 days 1500 shared the same fate; 10 o'clock at night seemed the best time for the onslaught, but a lantern was necessary to enable one to see them. They do not pass the bran; the hedge is about 150 yards long. The slugs were generally feeding on their deceased comrades. Bran so laid on the gravel near a Box-edging is equally attractive to the small slugs that abound in such situations; on one evening I killed upwards of 300 in about 70 yards. These depredators are very partial to the shoots of Lapageria rosea, as mentioned in your "Garden Operations" (see p. 716); and I have no doubt that the failure of that plant in so many places is owing to its being destroyed by them. Where it is thought there is a snail or slug, a pinch of bran will find it at night. *N.*

Tobacco for Smoking Plant-houses.—A small admixture with tobacco of ground Capsicums or Cayenne pepper would prevent its use for any other purpose than that of smoking plant-houses. The pungency of tobacco with such an admixture, is far too great for it to be used for any other purpose. Let any one try ever so minute a portion, and a feeling little short of choking will be experienced. Government may safely permit tobacco so treated to pass duty free. *N.*—With reference to duty-free tobacco for gardening purposes, I may mention that I am now conducting a series of experiments, which I have no doubt will be successful, and if so I am confident that I shall be able to offer very shortly to horticulturists a preparation of tobacco, duty free, which may be used for fumigation. In the meantime I may state that the tobacco powder which I am now preparing most effectually destroys all kinds of blight; being extremely fine, it may be diffused in the atmosphere in a manner almost resembling smoke, and it has not any injurious action on the plant itself when thus applied. *T. A. Pooley, 50, Lime Street, London.* [What is wanted is tobacco for burning, not tobacco dust. EDS.]

Grape Mildew.—Seven years ago I planted 12 young Vines in a house 42 feet in length, 20 feet in width, and 18 feet in height; they are now fruiting to the top of the house, but I am sorry to say that mildew has attacked them. It made its first appearance about a week ago; I lighted a fire at once, put sulphur on the pipes, and I am now using sulphur and soapsuds on the affected parts; but the application does not stop the mischief. I never had anything of the kind before. Its appearance is that of a little white fungus, which comes in spots on the leaves and berries. I may add that we are close to the sea here, and that we have had an easterly wind for the last two weeks, frost nearly every night, and hot sunshine during the daytime. *Thos. Dicker, Bournemouth.* [Dust all over—leaves, berries, and all—with flowers of sulphur, applied through a piece of thin gauze or muslin. Let the operation be performed, if you can, during bright sunshiny weather, keep the house warmer than it has been for a day or two, then in about a week's time syringe forcibly with clear rain-water, in order to wash off the sulphur. Do this thoroughly or your Grapes will be in a sad plight, for when sulphur has once been wetted and then gets dry, it does not come off easily. Sudden checks, or extremes of temperature, are favourable to the growth of mildew. *B.*]

Bury Show: Access to Neighbouring Gardens.—Through the kindness of Lady Cullum, of Hardwicke, and W. Gilstrapp, Esq., of Fornham, their gardens will be open free to members of the Royal Horticultural Society, to holders of season tickets, and to all practical gardeners on presentation of their name and address; Hardwicke on Thursday, the 18th, and Fornham on Friday, the 19th, from 2 to 8 o'clock. The public will be admitted to Hardwicke on Thursday, on payment of a fee (6*d.* or 1*s.*, as determined on by the Horticultural Society), the money taken to be added to the gross receipts of the Bury Show. Through the kindness of the Rev. E. Benyon, of Culford, those gardens will also be open to all, on the presentation of cards, which may be had free at the Angel Hotel, and other places in the town. Hardwicke is about one mile, Fornham two and a-half, and Culford four miles from Bury. It is probable that other gardens in the neighbourhood will also be open to practical horticulturists. *D. T. Fish.*

Mr. Watson's Sweepstakes.—I am sorry to have to state that owing chiefly to the lateness of this proposal, and the fact of Mr. Watson requiring six plants of each variety exhibited, his spirited challenge has not received that amount of support that will enable the prizes to be offered. I have therefore returned the money with which I had been entrusted, and hope that Mr. Watson may still bring his plants to Bury, where they will probably receive a special prize. *D. T. Fish.*

Variegated Pelargoniums.—As the question of what is or is not variegation is widely different from the mere determination of the relative merits of new flowers, and brings us into contact with some of the most difficult problems in science, I hope the Floral Committee will be good enough to state, through the medium of the *Gardeners' Chronicle*, the grounds of their recent decision, which was endorsed by the Council of the Royal Horticultural Society. In answer to my good neighbour, Mr. Grieve (see p. 712 *a*), I may state that I am in no wise responsible for originating the discussion at the present time. "The near approach of the Bury show" started it. Neither would it have been just to all, nor, indeed, to any of the exhibitors, to have allowed them to bring their plants—some of them 200 or 300 miles, and to have had them disqualified, as it now seems they would have been. But I hasten from these points of divergence of opinion, to accept Mr. Grieve's canon of variegation. "My own opinion," he says, "has always been, that for a leaf to be considered variegated it was necessary that its margin should be either yellow or white, or at all events that some portion of its surface should exhibit a partial or entire absence of the normal or green colouring matter." Exactly so; and the acceptance of this principle in its entirety would have admitted any plant to compete at our show that is now excluded. For it matters nothing to the point how the green is removed or hidden; that, as yet, is not certainly known. The leaf exhibits a partial or entire absence of green; that is a safe standard. I think it will be generally admitted that there is less green in a crimson than in a yellow; and I challenge your readers to give any good reason why, if a yellow blotch or edge is to be accepted as variegated, a crimson or blue is not? Neither can I understand why the term variegation, which has no meaning at all unless in its relation to colour, should be affirmed to be something distinct from coloration. Is not yellow a colour? If not, what is it? *D. T. Fish.* [We have endeavoured to show that the word "variegation" has already a definite botanico-horticultural meaning of long standing, but this meaning is not the one Mr. Fish would have assigned to it. Here the matter must rest. We may be dreadfully conservative, but we at least cannot vote for discarding the old meaning to take on with a new. Regarding a green leaf as being in the normal condition, and taking this as a starting point, variegation may be called a deficiency, something wanting or imperfectly formed, whilst coloration may be called a redundancy, something added to the green. We find no difficulty in compassing and distinguishing these two ideas. Coloration is not a new word of ours; it has, like variegation, been applied to the condition indicated above, by vegetable physiologists. Let us add, for the sake of distinctness, that we do not regard Mrs. Pollock as a variegated Pelargonium because of its zone, but because of its green disk and yellow margin. Again, we cannot admit that those who separate variegateds and zonals are giving the former any new meaning. Take up any trade catalogue of these plants, and it will be seen at once that the popular application of the terms, recognises in the varieties so designated two distinct groups, in the very sense for which we argue. The popular voice is, in this case at least, the voice of science. As "variegation" has already a definite signification, which cannot be changed without confusion, why not adopt some term such as "particolored," which, having no strictly defined meaning, would apply generally to all these cases? EDS.]

Fruit Houses v. *Fruit Walls.*—Feeling somewhat interested in the question of glass fruit houses *versus* fruit walls, and their relative advantages, I beg you will allow me to ask your correspondents, Messrs. Hereman & Morton, if the 350*l.*, mentioned by them as the cost of a house 200 feet long and 22 feet wide, includes all costs for a perfect structure, viz., fixing, and the machinery that would be necessary in so large a house for opening the ventilators? or whether, when one has obtained the house, there would be any additional charge, over and above the sum of 350*l.*, for fixing and machinery, and if so, will they please to state the amount? *G.*

A Wonder.—In your highly respectable contemporary, "The English Mechanic and Mirror of Science," I find the following extraordinary statement:—

"*A New Plant.*—Sir,—In the month of May, 1866, while on business in a colliery district in the county of Durham, I had the good fortune to make the acquaintance of a carpenter lately in the employ of Dr. Livingstone, the great African explorer, he having been sent home in consequence of losing his speech. I was lucky enough to obtain from him several very curious seeds, which he informed me the natives were in the habit of eating when on long journeys. After trying several methods I have at last succeeded in cultivating some to perfection, and I have already hundreds of people to see these wonderfully beautiful plants. As I dare not venture on your space to describe my mode of cultivation, I will, for the present, only describe the plants. In the first instance I can fearlessly say that they are unquestionably new to this country. Those I have in the ground, which are seeding, have attained the height of 6 feet 2 inches, and 14 inches in circumference. At the thickest part the stalk is of a pure crimson, with here and there large yellowish protuberances, from which spring from five to seven leaves of a dark green colour, white at the edges, similar in appearance to variegated Holly leaves. The edges of the leaves are serrated. The flowers, which are in abundance, eclipse in grandeur any I have ever seen. They are about twice the size of the Tulip. The ground colour of the petals is an azure blue, spotted with crimson, and streaked at intervals with yellowish streaks. I shall have some seeds ready very soon if the weather keeps dry, and shall be happy to let any of my brother readers have a small quantity according to number of applications. I cannot supply any large quantity. Hoping to benefit every applicant in return for kindness received through your journal, permit me to subscribe myself your well-wisher. "JOSEPH HESELTON."

"No. 4, St. Hilda Street, Hartlepool, Durham."

What can Mr. Hullett be about to allow such a prodigy as this to escape him? Seeds that are eatable, portable, and freely produced—crimson stems, with yellow protuberances, 6 feet high by 14 inches round; variegated leaves, like those of a Holly; and a profusion of blue, crimson, and yellow flowers, twice as large as a Tulip; here, if ever, we have indeed a sensational plant! Seriously, can any of your readers, who may happen to live near Hartlepool, ascertain the truth, or otherwise, of this most marvellous account? *X.*

Cibotium princeps.—You may perhaps think it worth recording that this magnificent Fern has fructified with me. I believe it to be a rare occurrence. The plant, a very large one, has 12 fronds, the largest of which is 12 feet 7 inches in length by 7 feet in width. The spores of this Fern are larger than those of any other with which I am acquainted—fully as large as Lobelia seed. The spore cases were scattered over the frond very sparingly, not more than 300 were found on a frond 10 feet in length. *H. Knight, Château de Pontchartrain, Seine et Oise.*

Culture of Tea.—In Morgan's Trade Journal of the 2d April, 1866, I observe the announcement of a "Patent Tea-Firing Engine," for the manufacture of tea. Can any of your readers kindly state the success attending the same in its practical working, and also inform me of the best practical works on the Culture and Manipulation of Tea? *R. T., Jamaica.*

Reporting Horticultural Shows.—The rubbish written by the non-gardening gentlemen of the London press in the shape of reports on the London flower shows, is invariably productive of much amusement to practical horticulturists and florists, who know how ignorant of gardening matters most of these gentlemen are. I notice in the *Telegraph* report of the last Botanic show so much that is ridiculous and incorrect, that I send you a few comments thereupon. You will at once see of what confused nonsense it is made up. "The return to a careful cultivation of the scarlet tints, identified with the earlier and never yet eclipsed Geranium, is very noticeable." What does the writer mean? Does he allude to the zonals? if so, why not plainly say so, and not indulge in all this learned obscurity? Then we are sagely told that Dipladenia splendens (!)—it should have been "amabilis"—is a greenhouse plant (!), and was an object of general regard. Of course it was an object of admiration to every one, for it was a glorious plant, but any gardening lad knows it is a stove plant. What nonsense to talk about Mr. Veitch's new plants being "symmetrically arranged as a parterre;" why not have pointed out which were the best?—and some of them are great acquisitions. This is the kind of information the public want, and not senseless observations of no use. Then we are told that Mr. Shenton's Pinks were "as fine as any ever seen here, or perhaps anywhere." Where was Mr. Turner's glorious stand of Pinks, which obtained the 1st prize, and was as superior to Mr. Shenton's lot as Curaçoa to small beer? Then Mr. Shenton's Seedling Pink "Primrose Queen" is gravely described as "heavier in bloom (!) and richer in tint (!) than when it gained so much admiration at Brighton, and was again triumphant." How was it triumphant? The judges did not, it appears, consider it worthy a prize or certificate, and I am positive no person with any knowledge of florists' flowers regarded it in any other light, or could look upon it otherwise than as being a long way inferior to that fine white Clove Carnation we are all so familiar with. We are also told that "the same horticulturist's (Mr. Shenton's) collection of 30 Pansies were also excellent." Now my name is not exactly an unknown one in connection with Pansies, and as I saw the collection there, I unhesitatingly say that the *Telegraph* reporter either knows nothing about these things, or has been grossly misled by some interested person. I leave him to explain that circumstance, and wish to know the reason why Mr. Turner's Pinks, and Messrs. Downie, Laird & Laing's very fine Pansies, also so very much superior to those praised by the *Telegraph*, are unnoticed in connection with the only two flowers specially noticed in that paper. In any department it should be the first prize collections and cultivators that should be brought before the public, and not third-rate ones. The writer's supreme ignorance of gardening is wonderfully developed. Look at his highly interesting but grossly misleading remarks in reference to the Vines in pots shown by Mr. Guyett. All will cheerfully admit they were well grown, but to say that "they were pronounced by competent authorities to be the most wonderful of the kind ever seen," is simply an insult to the host of clever gardeners we have about the country. Who are the competent authorities who posted up the *Telegraph* reporter, and who furnished him with so much elaborate information about these Vines in pots? The *Gardeners' Chronicle* report is now before me, and all it says is—"Some well grown Vines in pots came from Mr. Guyett, Herne Hill." Surely, if they had been such wonderful plants the representatives of the horticultural press would have detected it. The nonsense written about the "deceitful knack of transplantation" is too contemptible for notice. Just a word to the London daily press in general. The amateur growers about the country who take an interest in gardening, know in many instances as much of these matters as professional gardeners. When therefore they look over the London papers for a report of the great horticultural exhibitions, and find so much that is flagrantly incorrect, can it be wondered at that critiques on other subjects should excite doubt? In reference to flower shows, there are many clever gardeners who would willingly furnish a report, and an application to the Editors of the *Gardeners' Chronicle* would no doubt produce recommendations to competent persons. At all events, it would be better to do this, than that the present state of things should continue. *W. Dean, Shipley.*

Golden-veined Blackberry.—I inclose an instance of variegation in the leaves of a Blackberry picked near here. They were marked in every manner of yellow, and appeared in the hedge where they grew to glisten with bars of gold. *Brinsley Marlay, Finchden, Tenterden, Kent, June 25.* [The contrast of green and gold in the leaves was very beautiful. EDS.]

Early Peas.—The Committee appointed to report upon the Peas grown at Chiswick appear to have decided, and of course justly, that my Early Pea when obtained true is as early as most kinds, but out of three samples sent only one proved true, and I am called upon to explain how this happened. I can only say that in a trial of so much importance as that referred to, I regret not having supplied the samples myself, but as my Pea has been so often proved, I did not think doing so again this season would be of much importance. I really cannot be held responsible for the correctness of samples supplied through others, but I am glad that one sample, that furnished by Messrs. Hurst, was found to be correct; a circumstance which goes far to prove that the Pea when true still retains its character, and

holds its own against other early Peas of later introduction. I have now several acres of the true stock of this Pea growing for seed, and next year I will take care that samples are duly forwarded to the Committee, and I have no hesitation in saying that it will be found as early as any other Pea at present in cultivation. *W. Dillistone, Sible Hedingham, Essex.*——I sowed on January 28, this year, Ringleader, Sangster's No. 1, and Eley's Essex Rival. Igathered from Ringleader June 8, from Essex Rival 10 days later, and from Sangster's No. 1 a few days after Essex Rival, which is a fine Pea. These three sorts withstood the frost well, none of them being in the least injured by it. I also sowed, on February 21, Ringleader, Sangster's No. 1, and Harrison's Glory. I gathered from Ringleader about the same time as Sangster's No. 1, and Essex Rival, in the sowing of January 28. I had a very fine crop on them all, particularly Harrison's Glory, from which I am now gathering. *H. H., Searesbrick Hall, near Ormskirk, July* 10.

Foreign Correspondence.

Cinchonas in Jamaica.—It may interest you to know that Government have decided on the cultivation of Cinchona, the propagation of which is now being carried on favourably. I now possess 3000 plants, mostly from seed procured through Dr. Hooker. The introduction of the cultivation of the Assam Tea plant is also under the consideration of Government—a few acres. Comparatively extensive tracts of land exist throughout Surrey, one of the three counties into which the island is divided, eminently adapted for the above two cultures. *Robert Thomson.*

Societies.

LINNEAN: *June* 20.—Sir John Lubbock, Bart., V.P., in the chair. The following papers were read:—1. *Notes on the Anatomy and Physiology of the Tunicata*, by Albany Hancock. ——2. *Catalogue of Erycinidæ, a family of Diurnal Lepidoptera*, by H. W. Bates, Esq.; communicated by G. Busk, Esq.——3. *Supplement to the list of Australian Longicornia*, by F. P. Pascoe, Esq.——4. *On the Introduction of Maize* (Zea Mays) *into China, with notices of the plant by Chinese authors*, by W. F. Mayer, Esq., with an introductory note by H. F. Hance, Ph.D.——5. *Notes on the Botany of Mount Egmont and the Province of Marlborough, New Zealand*, by Mr. J. Buchanan; communicated by Dr. Hooker. 6. The conclusion of Dr. Pettigrew's paper *On the Mechanical Appliances by which Flight is Attained in the Animal Kingdom.*

BOTANIC OF EDINBURGH: *July* 3.—W. Gorrie, Esq., V.P., in the chair. The following communications were read:—1. *On the Arctic Cladoniæ.* By W. Lauder Lindsay, M.D. In this paper the author commenced by defining the term arctic, applying it only to those parts in Europe, Asia, and America which are situated within or northward of the arctic circle. These regions include vast level, generally treeless, barren tracts of country, whose vegetation is frequently exclusively lichenose, sometimes, indeed, consisting of a single species, the cosmopolite Cladonia rangiferina, or Reindeer Moss. The author enumerated the different species and their forms belonging to the Cladoniæ found in arctic countries, and remarked that, whether these may be regarded as consisting of many or few species, their importance to man cannot be estimated by their mere numerical relations; one species at least (C. rangiferina) is not only superior in economical and even political importance to the better known "orchella weed," but it is in this respect quite on a footing with the valuable grains, timber trees, and other phanerogams of more favoured regions. The author then, in conclusion, considered the economical value and application of the arctic Cladoniæ under the following heads:—1, as fodder or forage to animals, domesticated or wild—*e. g.*, the reindeer and caribou of the European, Asiatic, and American continent, cattle and pigs, &c.; 2, as an ingredient of man's food; 3, as medicines or ingredients thereof, in virtue of their starchy or bitter principles—*e. g.*, tonics, astringents, febrifuges, emetics; 4, in the arts—*e. g.*, perfumery and dyeing. —— 2. *Recent Regulations regarding the Forest Department of India.* By Prof. Balfour. ——3. *Recent Botanical Intelligence.* By the same gentleman.——4. *Sexual Organs of Fungi.*—Dr. Balfour referred to a paper which had been recently published by Dr. Antoine de Bary, in which the author had clearly demonstrated that in the lower class of Fungi the sexual organs greatly resemble those of other Cryptogams. In the former plants the fertilisation takes place by means of the contents of two different cells coming in contact—the one called Antheridia, and the other Oogonia, representing the antheridial and archegonial cells in Ferns, Mosses, &c. Dr. Balfour exhibited and explained coloured drawings illustrating the subject. —— 5. *On a Supposed New Species of Vellosia, or probably a New Genus in the Order Hæmodoraceæ.* By Prof. Balfour. Dr. Balfour stated that he had received from H. Fox Talbot, Esq., Lacock Abbey, Chippenham, the flowers of a plant which he had transmitted to the Royal Botanic Garden last year. It is a native of Natal, and appears to belong to the nat. ord. Hæmodoraceæ. It has not yet flowered in the Botanic Garden, but the following are some of the characters taken from the plant and from the flowers sent by Mr. Talbot:—Stems shortened, triangular, covered with brown scales at the lower part. Leaves with equitant vernation, alternate, distichous, sheathing at the base, lanceolate, about 6 inches long, margins with sharp serratures, apex sometimes split. Flowers solitary, on slender peduncles, about 6 inches long; perianth six-leaved, at first delicate lilac, afterwards becoming greenish-white, dry, and persistent, the green colour appearing particularly in the veins, which become prominent; outer leaves of perianth ovate-oblong, and somewhat acuminated; inner leaves bluntish. Stamens six, with very short filaments; anthers, two-celled, narrow, about five times longer than the filaments, opening longitudinally and laterally. Pistil about the length of the stamens. Ovary inferior (one or three-celled), style thick, stigma large, somewhat tongue-shaped, grooved. Ovules oblong, numerous, attached to a central placenta, anatropal. Vellozias are chiefly natives of Brazil. This plant seems to represent the genus in Africa, and possesses interest on that account. Dr. Balfour proposed to call it Vellozia Talboti. It may turn out to be a new genus; if so, the name Talbotia will be given to it; but the determination of this point must be delayed until the plant flowers at the Botanic Garden. —— 6. *On the Discovery of Orthotrichum phyllanthum near Edinburgh.* By Mr. John Sadler.

BIRMINGHAM ROSE SHOW.—This, the Sixth Annual Exhibition of Roses, was held in the Town Hall on the 4th and 5th inst., when the display was excellent, although not quite so extensive as on one or two previous occasions. Collections both in the Amateurs' and Nurserymen's Classes were remarkably even—scarcely a coarse or bad flower being discernible in any of them. Varieties introduced during the last few years appear to have displaced most of our old favourites, as even large collections consisted chiefly of comparatively new kinds. A pleasing effect was produced by the introduction of pretty dwarf plants of variegated Maple and Maize in pots, which ran the entire length of the tables behind the Rose boxes. The hall was nicely decorated, and the beautiful Rose pavilion, garden arches, &c., manufactured in variously-coloured wire, by Messrs. Baker & Co., of Birmingham, added much to the general effect.

The 1st prize, for a collection of 72 varieties, was awarded to Mr. Cranston, of Hereford, who had very fine examples of King's Acre, Maréchal Niel, Dr. Andry, Prince Camille de Rohan, François Lacharme, Horace Vernet, Jules Margottin, Madame H. Jacquin, Duc de Rohan, Achille Gonod, Beauty of Westerham, Maurice Bernardin, Laurent Descourt, and Victor Verdier. In Mr. Keynes' collection were fine blooms of Madame Caillat, Madame Moreau, Maurice Bernardin, Xavier Olibo, Madame Fillion, John Standish, Princess Mary of Cambridge, Charles Rouillard, and Madame Victor Verdier. In Messrs. Paul & Son's stand were good specimens of Frederic Bihorel, Alfred Colomb, Madame Clemence Joigneaux, Gloire de Santenay, Madame Vidot, Jean Lambert, Madlle. M. Rady, Alpaide de Rotalier, and Madame Victor Verdier. Mr. Cant had nice blooms of Madame Boll, Charles Lefebvre, Exposition de Brie, Charles Rouillard, La Eclêtante, Marie Baumann, Xavier Olibo, and Marguérite de St. Amand.

In the class of 48 varieties, three trusses, Mr. Keynes was 1st, with fine specimens of Madame Bertha Leveque, Madlle. M. Rady, La Tour de Crouy, Madame Victor Verdier, Marguérite de St. Amand, Madame C. Wood, Pierre Notting, John Standish, Victor Verdier, John Hopper, Charles Lefebvre, and Comtesse de Palekas. Messrs. Paul & Son also showed in this class.

Among boxes of 24 varieties, Mr. Cranston was 1st, with excellent flowers of America, King's Acre, Madame H. Jacquin, L'Esmeralda, Boule d'Or, Centifolia rosea, Beauty of Waltham, Baron A. Rothschild, Gloire de Dijon, and Dr. Andry. From Messrs. Cant and Keynes also came fine blooms.

In the Amateurs' Class for 48 varieties, the Rev. P. M. Smythe, of Solihull, was 1st, with very fine blooms of Louise Magnan, Chas. Lawson, Maréchal Niel, Beauty of Waltham, Senateur Vaisse, Chas. Lefebrve, Madame Eugène Verdier, Duc de Rohan, Caroline de Sansals, and Professor Koch. Mr. Perry had equally good specimens of Madame Fillion, Madame C. Joigneaux, Madame Victor Verdier, Madame C. Wood, Senateur Vaisse, Pierre Notting, Gloire de Vitry, Gloire de Dijon, and Gloire de Santenay. Mr. Brown, Elmdon, showed good examples of Lord Raglan, Madame Fillion, Madame C. Wood, and La Ville de St. Denis. 24 varieties (single trusses).—1st prize, Cup, Rev. P. M. Smythe, Solihull; 2d, Mr. E. Hunt, Leicester; 3d, Mr. C. J. Perry, Castle 'Bromwich. 18 varieties (three trusses).—1st, Cup, Mr. C. J. Perry; 2d, Mr. E. Hunt, Leicester; 3d, Mr. R. C. Chawner, Lichfield. 12 varieties (single trusses).—1st, Mr. W. Brown; 2d, Mr. C. J. Perry; 3d, Rev. P. M. Smythe.

In the classes restricted to residents in the counties of Warwick, Worcester, or Stafford, the awards were as follow:—(*Nurserymen*) 24 varieties (single trusses).—1st, Messrs. T. Perkins & Son; 2d, Mr. Joseph Jackson; 3d, Mr. R. H. Vertegans. 12 varieties (three trusses).—1st, Messrs. Perkins & Son; 2d, Mr. R. H. Vertegans, Edgbaston; 3d, Mr. H. Pope, Gib Heath. (*Amateurs*) 24 varieties (single trusses).—1st, Cup, Rev. P. M. Smythe; 2d, Mr. W. Brown; 3d, Mr. C. J. Perry. 12 varieties (single trusses).—1st, Mr. W. Brown; 2d, Rev. P. M. Smythe; 3d, Mr. C. J. Perry, Castle Bromwich.

A class was provided for residents within four miles of Birmingham, in which some neat stands were shown. The awards in this were:—12 varieties (single trusses).—1st, Mr. C. Cooper, Moseley; 2d, Mr. W. B. Mapplebeck, Moseley; 3d, Mr. H. Lowe, Edgbaston. 6 varieties (single trusses).—1st, Mr. C. Cooper; 2d, Mr. C. Winn, Selly Oak; 3d, Mr. W. B. Mapplebeck.

A class was also made for amateurs who have never previously won a prize for Roses. In this the awards were:—12 varieties (single trusses).—1st, Mr. J. F. Smith, Coventry Road; 2d, Mr. Jno. Parnell, Rugby; 3d, Mr. E. Sarrington, Leicester.

At all Rose shows undoubtedly the most interesting features are the collections of new Roses. In this instance they were unusually well shown by Messrs. Keynes, Paul & Son, and Cant. Most conspicuous among the varieties were Xavier Olibo, Marie Baumann, Alfred Colomb, Exposition de Brie, Madlle. Margaret Dombrain, Abel Grand, Hippolite Flandrin, Marguérite de St. Amand, Josephine de Beauharnais, Madame Hoste, Frederic Bihorel, Horace Vernet, Madlle. Thèrese Levet, Fisher Holmes, Duchesse de Caylus, Thorin, Jean Lambert, Madame Verschaffelt, Comtesse de Paris, Princess Mary of Cambridge, and Antoine Ducher. The 1st prize for the best six blooms of any new Rose was cleverly won by Messrs. Paul & Son, with splendid specimens of Alfred Colomb, a variety with immense breadth and substance of petal; the 2d went to the same cultivators for fine examples of Exposition de Brie, a dark red Rose of excellent properties; the 3d to Mr. Keynes for good blooms of Marguérite de St. Amand, a pleasing light Rose of a shade much wanted; and the 4th to the same grower for nice specimens of Princess Mary of Cambridge, also a pleasing flower, very similar to M. de St. Amand.

Several prizes were offered for Miscellaneous Roses, Bouquets, Vases, Table Decorations, &c., for which the following awards were made:—Moss Rose Buds, exhibited in various stages of growth, so as to display the distinctive peculiarities and beauties of the class.—No 1st prize awarded; 2d, Mr. R. H. Vertegans; 3d, Messrs. Paul & Son. 18 varieties (single trusses), Teas, Noisettes, Chinas.—1st, Messrs. Paul & Son. 12 varieties (single trusses).—Summer Roses, including Provence Roses (not Moss), Gallica, Hybrid China, Hybrid Bourbon, Alba, and Damask Roses.—1st, withheld; 2d, Messrs. Paul & Son. Best Vase of Roses and Rose Foliage. — 1st, Mr. Job. Cole, Birchfields; 2d, Mr. R. H. Vertegans. Best Design or Basket of Roses and Rose Foliage, arranged suitably for entrance hall or room decoration. — 1st, Mr. Lloyd; 2d, Mr. R. H. Vertegans; 3d, Mr. Cole. Best Bouquet, really suitable for the hand, entirely of Roses and Rose Foliage. The free introduction of buds of Noisette, Moss, and Tea-scented Roses being suggested.—1st, Mr. J. Cole; 2d, Miss Mort, Stafford; 3d, Mr. J. Cranston, Hereford. Best Design for Dinner Table Decoration.—Roses to be the only flowers used. Foliage not restricted to that of Roses, but left to the taste of the designer: 1st, Miss Evans, Shrewsbury; 2d, Miss Mort; 3d, Miss Cole, Birchfields.

In addition to the above prizes, First-class Certificates were granted to Mr. C. J. Perry, for four Seedling Verbenas, viz., Samuel Moreton, Miss Turner, Interesting, and James Birbeck, the whole collection being Highly Commended; and to Mr. Watson, St. Alban's, for Variegated Zonal Pelargonium Mrs. Dix, Highly Commended: Miss Johnson, paper of Roses; Messrs. T. & E. Jephcott, collection of Ferns; Messrs. Perkins & Son, collection of Verbenas; Miss Brewer, case of dried Ferns; Messrs. Mapplebeck & Lowe, collection of cast-iron vases for garden decorations and tubular flower tray; Messrs. G. Baker & Co., wire pavilion and *Ne plus ultra* garden chair; Mr. Woolley, ornamental flower glasses; Messrs. Crichley, Wilde, & Co., enamelled garden tables.

QUEKETT MICROSCOPICAL CLUB: A monthly meeting was held at University College on the 28th of June, Mr. Ernest Hart, President, in the chair. A paper was read by Dr. Robert Braithwaite on "The Organization of Mosses," which he prefaced with some remarks on the writers on Bryology. He afterwards described the distinctive characters of the spores, stems, leaves, reproductive organs, development of the fruit, sporangia, &c., as well as the habitats of Mosses, mode of collecting, examination, preservation, and uses. At a conversazione which followed, the members had an opportunity of viewing under the microscopes carefully prepared specimens of the spores, prothallia, antheridia of male flowers, leaves showing the chief forms of cell structure, and capsules showing the modifications of the peristome, &c. Four members were elected.

Notices of Books.

British Grasses; an Introduction to the Study of the Gramineæ of Great Britain and Ireland. By Margaret Plues. London: Reeve & Co. Crown 8vo. Pp. 307. 16 Coloured Plates; numerous Woodcuts.

This is a volume which is prettily got up, embellished with coloured plates from the pencil of Mr. Fitch, and with numerous woodcuts traceable to the same source. In some respects it goes beyond the promise of its title-page, inasmuch as, in addition to the British Grasses, some notice is taken of Grasses cultivated for agricultural or economic as well as for ornamental purposes. On the other hand the volume bears too evident traces of having been compiled without a sufficient practical acquaintance with the subject.

As the work is avowedly only a compilation, it would have been better for a comparatively unpractised hand, such as our authoress evidently is, to have let the authors alluded to speak for themselves, as in "simplifying the matter culled from greater and more scientific writers," she has occasionally sacrificed correctness, and certainly not attained to simplicity; as, for instance, when we are told that "the flowering glume and palea represent the corolla of other blossoms." We fear the authoress has no very clear notions as to the apparent construction of the flowers of Grasses, still less as to the explanations that have been offered of their peculiarities by "greater and more scientific writers." What a pity it is that the compilers and publishers of such books as these do not submit the proof sheets to some competent person for revision and correction, processes which, while not interfering with the "popular" character of the work, would at least insure a greater measure of correctness. As it is, the so-called popular works too often represent so much labour and pains thrown away. The present volume is not in other respects a bad sample of this class of book, being more free from errors than many, while the woodcuts — taken, we presume, from Bentham's "British Flora"—add very materially to its value.

Those who are turning their thoughts towards the important question as to where their annual holiday shall be spent, will find some useful information in *Holiday Excursions of a Naturalist* (Hardwicke). There is something more than a suspicion of twaddle in the book; but nevertheless it will serve as a pleasant reminder to those who have gone over the same ground, and it will supply the stranger with hints where to go, and what to look for.

Mr. Herbert Fry has published a fifth annual edition of the *Royal Guide to the London Charities* (Hardwicke), a small volume stored with facts and statistics of great value to the political economist, &c.

The *Orchard and Fruit Garden*, by Elizabeth Watts (F. Warne & Co.), is a fairly executed compilation from practical books on the subject — Mr. Rivers being a prominent authority. The names of fruits are not very carefully given, thus in one page we find Beurré de Amaulis, Graciali, and Boncrétien, the latter word in the opposite page being printed Bouchrétien, both forms of course erroneous.

Florists' Flowers.

THANKS to Mr. Turner for the fine blooms of CARNATIONS and PICOTEES he exhibited at the last Show of the Royal Botanic Society on the 30th inst. Enthusiastic old James Hogg spoke of the former as "one of the master-pieces of Nature;" and so beautiful were some of the flowers in this group, that one not looking below the surface of the thing might be willing to endorse the above opinion; but underlying the surface there was the skilful manipulator. There were already large stout flowers, as clean as could be desired, and the colours well traced; but the superb finishing touch comes from the dresser, and his artistic skill makes up completely "the master-piece of Nature." Of Carnations, the following were shown: Scarlet Bizarres—Fanny Gardener, Brutus, and Prince Albert; Crimson Bizarre—Young Milton; Pink and Purple Bizarres—Lord Clifton, a very fine and handsome flower, and Lady of the Lake; Purple Flakes—True Blue, Dr. Forster, Earl of Stamford, and Ruth Hannah; Rose Flakes—Flora's Garland (very fine), Duchess of Kent, John Reet, Lorenzo, and Merrimac; and Scarlet Flakes—Justice Shallow, Annihilator, and Coadley Pet. A First-class Certificate was awarded to Mr. Turner for purple flake Carnation True Blue, a full flower, the petals stout and smooth on the edges, and the colour deep and striking. Of Picotees, Mr. Turner had Forester, a striking heavy red-edged flower purple-edged Amazon, Duke of Devonshire, Eliza Finis, Mrs. Dixon, Mrs. May, Prince Arthur, and Robin Hood; and rose-edged Miss Sewell, a very beautiful light-edged flower, several blooms being shown Miss Williams and Miss Wood. A stand of splendid Pinks was shown by Mr. Turner in the class for 24 blooms, some of the flowers being remarkably fine and handsomely laced. The sorts were:—Rev. Geo. Jeans, Goliah, Aurora, Titus, Attraction, Charles Turner, John Ball, Blondin, Celestial, Annette Exhibitor, Bertram, Alma, Marion, a beautiful evenly-laced flower; President, Delicata, a very distinct flower laced with bright lilac; Purity, Device, and Invin-

cible: together with some seedlings. Messrs. Bragg and Hooper's flowers were much inferior to Mr. Turner's. Some four or five stands of 12 varieties of Pinks were contributed by amateurs. This is a good sign, as it indicates a more extended culture of this once popular flower, and points to the probability of its becoming a public favourite once more.

Of new Pinks Mr. E. Shenton, Biggleswade, had Ethel, Sultan, and Leviathan, all of inferior quality, Sultan being the most promising; and Mr. Bragg had Nonpareil, heavily laced with pale rosy lilac, but which, as shown, certainly belied its name. Some blooms of a pale primrose Pink named Primrose Queen, were also shown by Mr. Shenton. The flowers were large and full, but confused; the petals, moreover, being thin and curled, and altogether wanting in properties as an exhibition variety. It may be useful to cut from for bouquets if it blooms freely, but to demonstrate this, a plant in bloom should have been exhibited. The judges could not be induced to certificate this flower, despite the moral pressure brought to bear upon them by the display of a first-class certificate, which had been given at Brighton—a practice which ought not to be permitted. Mr. Bull received a Second-class Certificate for a large but somewhat coarse-looking double Petunia, which was received from the Continent, and has got distributed among the trade. The ground-colour of the flowers is white, and veined with violet, and it is named Madame Plaisancon.

Mr. J. George, of Stamford Hill, who has done much to improve the bedding Tropæolums, exhibited some seedlings which, in their then state at least, did not compare with his productions of the past year. The seedlings shown form a section of the Tom Thumb class, but are remarkably dwarf growing and compact, producing flowers of the same form and texture as the old scarlet Tom Thumb. The varieties were La Grande, clear deep orange, but with the taller growing habit of the Tom Thumb Nasturtium; Coccineum superbum, pale orange scarlet; Orange Perfection, much in the same way, but paler in colour; Black Prince, orange crimson, a good shade of colour, and excellent habit; and Cloth of Gold, yellow, with reddish crimson spots. All appear to bloom profusely, and some have the leaves smoothly rounded, while in the case of others the edges of the leaves are notched. For summer bedding purposes this class will be very valuable.

I omitted to notice last week that Mr. Turner got First-class Certificates for his new Nosegay Pelargoniums, Duchess of Sutherland and Lady Constance Grosvenor. Any one wishing to know their value as bedders should visit Cliveden at the present time: it is worth a journey there, if only to see the beds of these two Nosegays, of the latter especially. Pansies, both English and Fancy, were well shown by Messrs. Downie, Laird, & Laing; and indifferently by Mr. Shenton. Mr. Hooper, of Bath, held a medium position in point of quality. *R. D.*

The Apiary.

ARTIFICIAL IMPRESSED WAXEN COMB.—I beg to send you a specimen of embossed wax sheet, for conversion into bee-comb, of my own making. I have for months past been trying to discover a means of working up my spare bees'-wax, so as to return it again for the use of the bees. I think I have at length been perfectly successful. I can, with very simple apparatus, make from 20 to 30 full-sized sheets in an hour, and, being mechanical reproductions of the corresponding part of an actual bee-comb, they are more adapted for the use of the bees than those commonly sold. The specimen sent is rather too thick, but that is a point easily modified. *Arthur Maw, Benthall Hall.*

[The sample of your workmanship came to hand seemingly rather pressed in the carriage by post. One side is much less clearly defined than the other; this may, however, arise from the projections having been pressed in. We have compared your specimen of impressed sheet with some of that sold by one of the leading apiarian firms, and the conclusion to which we have come is, that while yours appears to be the most correct as regards the exact size of the hexagonal bases of the cells, the other is better in respect of being much more sharply cut, and that not on one side only, but on both equally well. The sheets with which we have compared yours seem to represent the bases of the cells of somewhat too contracted dimensions. They were, we believe, prepared from impressed plates manufactured from a pattern sent from Germany, which when we had an opportunity of inspecting them, we at once pronounced as representing too contracted a size for the bases of the cells. Yours, being constructed from a pattern taken of the actual form of the corresponding part of the true comb, is doubtless perfectly correct as to this point. But it is absolutely necessary that in this substitute for guide-combs we should have the prominent surfaces extremely sharply and accurately defined, or the bees will be very apt to work on any part of the surface, instead of following all the well-defined angles of projection. We are not very favourable to the insertion of entire sheets of this impressed wax, having seen so many failures. We prefer using it exclusively in the form of narrow strips of about one inch in width, merely for the purpose of inducing the bees to build perfectly straight combs; and we never use it, even for this object, when we can obtain a suitable piece of real worker-comb. We have, however, seen instances of very beautiful comb being worked on entire sheets of this material.]

Garden Memoranda.

MESSRS. WINDEBANK & KINGSBURY'S NURSERY, BEVOIS VALLEY, SOUTHAMPTON.—The name of the above firm has become so closely associated with the improvement of the variegated and ordinary Zonal Pelargoniums, that a visit to their nursery cannot fail to be a rich treat to any one with a taste for these popular divisions of the Pelargonium tribe. It is some 10 or 12 years ago since the proprietors of this pretty little nursery, which is really a credit to the town of Southampton, took up the zonal Pelargonium with a view to its improvement. The first experiment in this direction was made by crossing Princess Alice with Lee's Eclipse, and from this was obtained Miss Simpson, which I was informed by Mr. Kingsbury was the first of this class that appeared with a distinct zone traced on the green leaf. In 1859 they raised two scarlet-flowering zonal kinds, named respectively North Star and Rising Sun, which were purchased and sent out by Messrs. Rollisson & Sons, of Tooting. In 1861, a cross between Miss Simpson and Cerise Unique resulted in Kingsburyanum, a fine rosy scarlet flowered variety, with a dark leaf ground, and a tendency to variegation; a variety that has been largely used by Messrs. Windebank & Kingsbury, as a parent plant. After this point the work of hybridising was carried on with vigour, and many fine varieties resulted therefrom, some of which they have sent out by themselves and others by some of the leading London nurserymen. Concurrently with this, they devoted themselves to the improvement of what has been popularly termed the "tricolor-leaved" Pelargonium, and with such good results, that some of the best of the "tricolors" shown by Messrs. F. & A. Smith, at the International Horticultural Exhibition of 1866, including Jetty Lacy, Wonderful, Queen Victoria, and Princess Mary, were seedlings raised at Southampton. What they are now engaged in doing will have appeared to some extent from the group of plants they exhibited at the recent show of Variegated Zonal Pelargoniums at South Kensington; and still more will it appear to any one who may visit their nursery at Southampton. On the occasion of a recent visit I had the opportunity to inspect a large lot of seedling Pelargoniums, tricolor, bicolor, and zonate. Some had already broken into character, others were about doing so, and very fine things many promised to be. They have been very successful in developing a large quantity of rich colouring matter about the zone, and, as far as it could be seen, without detracting in the slightest degree from the vigour so much desired and so essential to a good variety.

ne house contained a number of plants undergoing the second year of probation, and the characters of which had become permanently fixed. The following promise to take the front rank among coming new kinds:—Clara, green ground, with well defined rosy pink zone, blotched with dark bronze, and having a broad leaf margin of silver, very novel and fine; Miss Wort, green leaf ground, with reddish pink and bronze zone, and very broad leaf margin of gold; Princess of Wales, green ground, with very dark bronze and rich rosy pink zone, and broad leaf margin of white; a very fine variety, with an excellent habit, the old leaves well retaining the rich marking; the result of a cross between Italia Unita and Sunray. As this variety has not yet been distributed the name should be changed, Messrs. F. & A. Smith and Carter & Co. having each a Princess of Wales. Mrs. Hugh Berners is a very fine and promising variety, ground colour dark green, with a distinct and well-defined dark bronzy zone, lit up with vivid carmine, and having a broad leaf-margin of yellow, the zone being traced more on the centre of the leaf than is usually seen. Miss Florence Summers, which was also planted out-of-doors in a bed, and had a most effective and attractive appearance, has a small leaf-ground of green, and very broad dark bronze and glowing carmine zone, with a good edging of pale yellow. The most beautiful of all among these fine things was Miss Fanny Stephens, a very novel kind, the result of a cross between Miss Caroline Day and Italia Unita, and which had received a stronger constitution than either of the parent plants. It has a very distinct and regular zone of bronze, rosy pink, and violet, with white leaf margin, and an excellent habit. Mrs. Osborn is a vigorous grower, having a leaf ground of green, with dark bronzy zone lit up with pink; it was the result of a cross between Mrs. Pollock and Kingsburyanum. Mrs. Greenfield has large and bold foliage, dark green leaf ground with broad yellow edge, and a wide dark bronze zone lit up with fiery red. The rich colour on the zone, added to the excellent habit possessed by this variety, has caused it to be largely used by Messrs. Windebank & Kingsbury as a parent plant. Arabella is another strong grower, having a green leaf ground, with rich bright carmine and deep bronzy zone, and very broad leaf margin of pale yellow.

Among the seedling variegated zonals just breaking into character was one having a zone of bright rosy crimson, a new and beautiful hue of colour, shaded with deep bronze. Should its future character be of this type, it will be a very novel and distinct kind. Of new silver or white-edged kinds, to a green-leaf ground, the following were of fine character:—Miss Bridges, a very robust-growing white-edged variety, having a pale green-leaf ground, and a dense habit. The young plants have the leaves somewhat crumpled, but they soon grow out of it; May Queen is one of the very best pale silver-edged varieties I have ever seen—the leaf ground dark green, with broad and striking edge of pure pale silver, and having strong spreading foliage, and yet compact it is a plant with a thoroughly distinct character; and Favourite, a broad band of silver forms the leaf margin, habit excellent, and makes a capital bedder. Of new golden-leaved varieties, also not yet sent out, the following three will prove valuable acquisitions:—Mrs. Simpson, yellow leaf ground, with broad dark bronze zone, well defined, and leaf-margin of green, good habit, and very distinct—a cross between Mrs. Pollock and Kingsburyanum; Mrs. Hutchinson, pale greenish gold leaf ground, with a broad and very dark bronzy zone, very distinct in character; and the Rev. A. R. Cole, raised from Richelieu and Mrs. Pollock, fine golden leaf ground, with narrow reddish bronze zone, very distinct, and well defined. Of the ordinary type of the zonal Pelargonium the following three are of first-class character:—the Rev. Dr. Carey, rich deep cherry salmon, with a just perceptible dash of violet on the upper petals, flowers very rich, stout, and smooth, dark green foliage, with a broad olive bronze zone, a very fine exhibition flower; Thomas Moore, colour rich deep salmon, dashed with orange round a white centre, the upper petals being slightly rayed with rosy purple: flowers large and very smooth, and of fine substance, very free habit, leaves olive green, with dark bronzy zone—a fine variety for exhibition; and Mrs. Annie Jackson, a strong and robust grower; leaves dark green, with very regular and well defined brownish-red zone, slightly flaked with dark bronze, very distinctive in character—a cross between Sunset and Kingsburyanum. These were the only three that had been named out of a batch of some six or eigh kinds, all of which were of first-class properties.

Of the new varieties Messrs. Windebank & Kingsbury are distributing during the present year, the Rev. W. F. Radclyffe is a good variety of the Cloth of Gold section, the leaves pure yellow, with a narrow and distinct reddish bronze zone, habit dwarf and compact. This variety was already bedded out in a very exposed situation in their Bevois Mount Nursery, and was very effective. Queen of the South is a zonal variety, having green foliage with a dark zone; colour rich salmon scarlet, shaded with pink; flowers very large, and of excellent habit. Theodore is a very cheerful shade of colour, bright rosy pink, with white centre; flower large and of fine form, good well rounded trusses.

The following comprise varieties of Messrs. Windebank & Kingsbury's raising, sent out in 1865-6, and which have the foliage more or less zonate:—Fairy Queen, white, with a circle of salmon pink round the centre, flowers and truss of fine quality; Fascination, deep rich salmon, flushed with pink, flowers and truss very large and effective; Juliette, bright rosy salmon, a beautiful shade, truss and habit good; Nyanza, rich salmon scarlet with light centre, flowers of fine form, a good exhibition variety; Annie, white, with delicate pink centre, fine flowers and truss, and excellent habit; Blushing Bride, white, with carmine centre, a good exhibition variety; Brilliant, deep scarlet, leaf deep green, with an unusually broad and deep black zone; Conspicuum, white, with a circle of salmon pink round the centre, the edge of the flowers slightly tinged with pink; Indiana, glossy dark scarlet red, flower large and finely formed, good habit; Rosebud, a beautiful flower, rosy centre, tinted, and slightly margined with delicate blush, flowers stout and of fine form; and Virgil, salmon, flushed with white, flowers of good shape, truss large. To prevent confusion, it may be stated that Annie and Rosebud were sent out by Messrs. F. & A. Smith, of Dulwich, though raised at the Bevois Valley Nursery.

Older varieties raised by Messrs. Windebank & Kingsbury, and which are still standard varieties, at least in the neighbourhood of Southampton, where zonal Pelargoniums are remarkably well grown, and have a place in the schedule of prizes of all the shows held in the neighbourhood, are—Excellent, deep salmon, shaded with pink; Lucy, bright vermilion scarlet; and Novelty, rosy pink, with white centre—three varieties sent out by Messrs. F. & A. Smith, of Dulwich. *R. D.*

Miscellaneous.

Death of Mr. George Paul.—We regret to have to announce the death of Mr. George Paul, of Cheshunt, which took place on Sunday last, the 7th inst. His health had for some time previous been in a failing condition.

Frogmore Early Bigarreau Cherry.—This Cherry is comparatively a new variety, and is as yet not much known. It was raised by Mr. Thomas Ingram, of the Royal Gardens at Frogmore, and the original tree is growing against a north-east wall in the gardens there. Unlike the class to which it properly belongs, it has a tender melting flesh. In every respect it is a Bigarreau in habit, leaf, and appearance of the fruit, and must be classified along with these varieties; but, as if to set at nought all human arrangements, it persists in having a delicious melting flesh, instead of one that is hard and crackling. The fruit is large, obtusely heart-shaped, with a very shallow suture. Skin with a brilliant red cheek, dotted with minute yellow points, and of a remarkably pale almost pure white where shaded—so susceptible is it of shade, that the point of a leaf, or the shadow of a twig, would be photographed on this brilliant red. Stalk two inches long, with a very small receptacle, and set in a shallow and narrow cavity. Flesh very delicate and translucent, perfectly tender, melting, and very juicy, with a rich sweet flavour. Stone small. The tree is a great bearer, clusters of a dozen and a half to two dozen large handsome Cherries being produced on a small spray; and the fruit ripens in the middle of June, before any of the other Bigarreaus. *Florist and Pomologist.*

Garden Operations.

(*For the ensuing week.*)

PLANT HOUSES.

Gesneras, Begonias, Tydeas, Poinsettias, and many similar plants, useful for early winter decoration, should now receive their final shift into flowering pots. To insure a successional supply of these and similar useful plants, it will be advisable to divide each of them into two or more batches, and, with this understand-

ing, pot on only the stronger plants contained in the respective batches, giving them their last pinching back forthwith. Allow them abundance of air, with only a moderate amount of shading. Old plants of *Thyrsacanthus rutilans*, which are now making good strong growth, may be induced to form more bushy heads by pinching out the point of each shoot, an operation which will also tend to induce a larger number of bright pendent flowering racemes, more compact and of less stalky length than when a few shoots only exist. Pinch back decisively now *Begonias* of the Saundersii and digsweliensis sections, in order to lay the foundation of good round bushy plants. *Anthuriums* which, as young specimen plants, are making good progress, should, if necessary, receive shifts not later than this, with the view of affording them sufficient time to properly occupy the fresh soil with roots before winter sets in. Cut back forthwith fancy and other *Pelargoniums* which have ceased flowering. This operation must be performed with considerable judgment. First with the eye master the inner framework of the plant, and cut all down to strong healthy parts, rather more extended in size than when the same operation was performed last season. Do not leave any two shoots too close to each other; on the contrary, so arrange them that each may have the full benefit of space, while all parts of the plants are uniformly occupied. In the case of young stock it may be necessary to leave greater length of wood than in old plants, and it will require regulating by being carefully drawn down over the outer edges of the pot, for the purpose of inducing a more extended framework than the plant has hitherto had. When cut in, place them upon perfect drainage in a cool frame, keeping them dry for a time, until they have pushed fresh shoots. Give all the air possible to *Ericas* and *Epacris*, without unduly exposing them to too much wet. Give thorough soakings of water at all times when needed, and do not again water until the ball has become moderately dry. Any such grown amongst mixed collections in greenhouses or conservatories, and still in flower, will need especial care. See that these do not suffer from mildew, and should symptoms of that pest appear, dust immediately with flowers of sulphur. Pinch back freely all the grosser shoots upon *Indian Azaleas*, now undergoing the extreme growing process necessary to insure the formation and setting of abundant flowerheads for next year's display. Drive them along by means of an average maximum temperature of 85°, with abundance of moisture, dashed copiously into and throughout them with the syringe, and do not omit to turn the plants round occasionally, in order to expose them uniformly to light, which, however, must be moderated while large amounts of moisture are necessary. Give all *Greenhouse plants* properly so called a constant supply of fresh air, and ply the syringe pretty freely amongst them, dashing the water well into all thickly-habited sorts. Surface-dress specimen plants, which, not having been potted this season, may be in need of such attention; do not throw it on loosely and let it lay in that state, a too common practice. First remove all unwholesomeness from the surface, when, the necessary thickness of dressing having been applied, the whole should be well pressed and rammed down, in order thoroughly to amalgamate it with the old material, after which give a good soaking of water to the ball.

FORCING HOUSES.

Withhold water for a time from any *Pines* which may not be "showing," and which are required to do so for the successional winter's supply. Do not delay further the final shift of such as are intended—and these should be nice strong young stuff now—to flower from next May onward, for the production of fruit early in the following winter. The constant foresight required in successfully carrying out all garden operations is especially necessary in keeping up a constant supply of ripe fruit. Be particular in watering "young stuff," as, if it gets too dry upon any occasion at this season, this has a tendency to stint it so that the best regulated after attention cannot overcome its ill effects. Continue stopping all secondary or lateral shoots upon *Vines*, carrying growing crops as they become too numerous and have formed one or more leaves from the stem upon which they grow. This is an essential particular in summer pruning, for it is only by encouraging freely surface growth, thus occasionally placed in check by pinching back, that a healthy and free root action is insured; without which success is impossible. Efficiently thin the bunches of Grapes intended to hang through the duller winter months, and otherwise admit air freely amongst them, by tying them widely apart at the shoulders. As this is a favourable season for red spider, dust vacant spaces over with sulphur, and wash all walls, flues, &c., therewith with greater freedom than it is possible to do earlier in the season, and when stronger and more constant fires are needed to keep up the necessary supply of heat. Do not neglect to gather *Peaches* and *Nectarines* at the earliest possible moment when ripe, as if left upon the trees longer they lose much of their flavour.

HARDY FRUIT GARDEN.

Strawberry beds, worn out, and in lieu of which others are in process of formation, should have the old plants rooted up the moment the last of the crop is gathered; unless it is necessary to depend upon them for a supply of young plants, formed, as previously advised, from "runners." In such case remove all the litter possible, and induce these latter to make a good fine growth. Choose dull weather for transplanting them, when they have made three leaves, and when they adhere firmly by the root to the soil below. Do not, as is frequently done, make plantations from divisions of the old plants. Many amateurs, who devote much time to the culture of this excellent fruit, meet with very meagre success through unwittingly making this mistake. Always plant either young plants formed from runners, or old plants recently forced. Where it may be necessary to replant Strawberries upon aspects which are suitable to them, and from which others have just been uprooted, some of the soil should be removed from the upper strata of the border to be replaced by fresh wholesome loam from some old pasture; or when this is not convenient any other soil contained within the garden, and upon which Strawberries have not before been too recently grown, placed in lieu of an equal quantity removed, will amply repay the necessary labour expended in the operation. Before doing so, however, well trench the ground; using in the operation as liberal a supply of well-decomposed manure as possible, placing at all times the shortest nearest the top. Plant in rows, 24 inches apart, and let the plants stand 18 inches asunder. Place them so that they are well above ground, having first trodden over the border, after which a good soaking of water will be needed.

KITCHEN GARDEN.

Make a main sowing of *Turnips* upon ground moderately rich, and not too recently forked over, as a firm soil is best suited to them. Transplant *Leeks* into good deep rich soil; where practicable place them in drills a foot apart, by six or seven inches in the rows; make holes with a large dibble, some six inches deep, dropping the base of the plant into the bottom, where it should be firmly fixed, leaving the necessary opening above, to allow the plant to elevate itself as it grows. Sow *Cabbage* seeds for the main winter plantation; Enfield Market is an excellent old sort. Where not previously done, let the necessary sowing of *Red Cabbage* for pickling be got in forthwith. Clear the ground of early Peas, &c., and after due preparation, by digging, &c., recrop it with the necessary winter stuffs. *Brussels Sprouts* should not be planted later than this, as time sufficient will not be afforded them to make a sufficient advance to duly form buds, which in their after formation turn quickly into the necessary "Sprouts." *W. E.*

HINTS FOR AMATEURS.

July is a month full of horticultural duties. Plants, like children, want "a deal of looking after" now, if you would not let them run wild. A wilderness is a very interesting place, so is a gipsy encampment; not so a playground of dirty, ragged, grubby, disorderly children of respectable parents; still less, an untidy garden, stocked with cultivated plants which are allowed to grow as they like. You should therefore attend carefully to such plants as grow quickly, for unless you do, the wind and rain will prostrate many favourites. *Hollyhocks*, *Dahlias*, and *Chrysanthemums* are making strong shoots now, and want frequent attention in staking and tying up. Pinching off the tops of *Chrysanthemums* where you require profusion of bloom, instead of a few large flowers, should not be continued after the end of this month; if this has been properly attended to through the spring, nice dwarf bushy plants will have been secured, which will be covered with flowers in November if no sharp frosts occur to mar their beauty. *Carnations*, *Picotees*, and *Pinks* for next season may be rooted now in two ways—either by cutting off young shoots and striking them under a hand-glass, or by layering. This latter method is more troublesome than striking the young shoots (or pipings, as they are termed), but it is less likely to fail, and requires no further attention when it is done; whereas pipings want care in shading from hot sun, watering, and giving air at times when amateurs are not always at home to attend to them. *Carnations* and their allies will not root from layers unless one of the joints or knots of the stem has been slit open. This is best done by cutting half-way through the stem below a knot, and carrying the blade up the middle of the stem until it has cut through the knot. The knife should be very sharp, and the cut should be made diagonally upwards until the edge has reached the centre of the stem of the shoot, and no further, or the shoot will break off. This divided part of the stem is to be pegged down into the mould, and well covered with it, and every shoot so treated ought to root, and form a strong plant.

No time must now be lost in transplanting seedlings which are to flower next year, such as *Rockets*, *Campanulas*, *Sweet Williams*, *Columbines*, &c., if they are not where you wish them to remain. They become much stronger plants if you can manage to let them remain where they were sown, in which case it will generally be necessary to pull up and throw away several of the smaller seedlings growing near, in order to make room for the growth of those you wish to save. Where it is necessary to transplant seedlings, the greatest care should be taken to avoid breaking or even straining the young roots. Before taking them up, the ground around and under them should be loosened, if it is very dry, while if it is wet there is much less risk of injury in transplanting. Showery weather is therefore preferable for this.

Roses are now very liable to have their young shoots covered with small green insects, some with wings, more without, designated aphides, or "green fly." Fruit trees, vegetables, and various flowering plants are liable to be attacked by different species of aphis, who, by means of a long proboscis, are able to suck the juices of plants to a mischievous extent. They seem to occur in greater profusion after easterly winds than under any other atmospheric conditions; they should then be carefully looked after, and exterminated as soon as possible. Where they attack plants in pots, you have merely to put the plants into a frame, or other enclosed space, and fill it full of tobacco-smoke for a few hours. If the first trial of this remedy does not quite kill all the insects, the second one assuredly will. You can buy coarse paper saturated with tobacco-juice, and this when smouldering gives off a great cloud of smoke. Take care however that this tobacco-paper is not allowed to burst into a flame, or you will scorch your plants. A common flower-pot is as good as the most ingenious fumigator. Put two or three red-hot cinders into it, and cover it with pieces of the tobacco-paper, taking care to be provided with a little water at hand to sprinkle over it in case it bursts into flame. With the help of a cloth or sheet nailed over a plant against a wall, or supported by sticks over a plant upon the ground, the fumes of tobacco can be similarly applied to out-of-doors plants which have been attacked by aphis.

Verbenas should be pegged down, where the branches grow long and straggling. In their case pegging has a double advantage, for it not only keeps the plants tidy, but it causes them to throw out roots where pegged down at a joint, and thus increases the strength of the plant, and induces it to bloom more freely. Where the garden is not too thickly planted, pegging is applied with good effect to *Larkspurs*, *Calceolarias*, and *Dahlias*; great care must be taken not to break the shoots when bending them down; by thus bringing them down near to or upon the ground, the earth is kept cool and moist, the roots are less liable to be affected by dry weather, and the blooms are produced lower, and at a more even height. The branches of the common Fern make excellent pegs, for those who are fortunate enough to find it growing near their residences. The pegs most commonly used are cut from the twigs of Hazel boughs, such as are sold for pea-sticks; while the neatest pegs of all are ladies' hair-pins, or pieces of wire bent in that way. *W. T.*

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,

For the Week ending July 10, 1867, as observed at the Horticultural Gardens.

July.	Moon's Age.	Barometer.		Temperature.					Wind	Rain.
				Of the Air.			Of the Earth			
		Max.	Min.	Max.	Min.	Mean	1 foot deep.	2 feet deep.		
Thurs. 4	3	29.856	29.848	72	52	62.0	64	61	S.	.02
Friday 5	4	30.072	29.979	71	41	56.0	64	61	S.W.	.00
Satur. 6	5	30.133	30.131	74	42	58.0	64	61	N.W	.00
Sunday 7	6	30.232	30.224	79	42	59.0	64	61	N.	.00
Mon. 8	)	30.245	30.158	77	42	59.5	64	61	N E.	.00
Tues. 9	8	30.305	30.114	77	44	60.5	64	61	N.E.	.00
Wed. 10	9	30.198	30.137	79	41	60 0	64	61	S.E.	.00
Average		30 118	30.084	75.1	43.4	59 2	64 00	61.00		0.02

July 4—Rain; cloudy, with showers; overcast; warm at night.
— 5—Fine, with white clouds; very fine throughout.
— 6—Fine; very fine; fine at night.
— 7—Very fine throughout; rather cold at night.
— 8—Slight dry haze; very fine at night.
— 9—Very fine throughout.
— 10—Very fine; hot and very fine; cold at night.
Mean temperature of the week, 3½ deg. below the average.

STATE OF THE WEATHER AT CHISWICK,

During the last 41 years, for the ensuing Week, ending July 20, 1867.

July.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds.							
						N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday ..14	74 3	50 5	62.4	14	0.64 in.	—	4	4	1	6	11	11	1
Mon. ..15	76.6	50.5	63 5	20	1.46	1	4	5	—	5	18	6	2
Tues. ..16	75.9	49.7	62 8	16	1 60	2	3	7	—	2	19	7	1
Wed. ..17	76.1	51.0	63 6	15	0.56	2	—	3	3	4	18	8	3
Thurs. ..18	74 6	50 0	62.3	19	1.22	—	3	1	6	19	8	6	
Friday ..19	73 2	50 0	61.6	21	0.60	2	3	1	1	9	16	8	2
Satur. ..20	72.9	50 0	61.5	22	0.72	1	1	4	—	2	19	12	2

The highest temperature during the above period occurred on the 17th, 1834—therm. 94 deg., and the lowest on the 18th, 1863, and 19th, 1866—therm. 37 deg.

Notices to Correspondents.

CALADIUMS: *Edwin.* The Caladium of which you sent a leaf, and which was too much bruised for identification when it reached us, is not used in the sub-tropical arrangements in Battersea Park, nor are any of the hybrids comprising the section to which it belongs. The following species of Caladium are, however, used there, viz., C. esculentum, cucullatum, euchlorum, and violaceum, the two first producing leaves above 3 feet in length.

MALFORMED FRUITS OF THE BIRD CHERRY: *W B, Wolsingham.* These fruits are precisely similar to those described at p. 716 (last week). We found some Fungal threads on the inner surface, but we are unable to say whether they are the cause or merely a consequence of the disease. It is singular that in most of these cases two ovules are developed; it would hence seem as if, under ordinary circumstances, the abortion of one ovule was in some way or other occasioned by the gradual pressure exercised by the stone during its formation.

METEOROLOGICAL INSTRUMENTS: *R T.* Instruments for Jamaica may consist of the following:—Standard barometer; a mountain barometer (Gay Lussac's) may be found convenient; standard maximum thermometer, on Professor Phillips' principle; Casella's mercurial minimum thermometer will be most suitable, as with great heat spirit ones are apt to get out of order; Mason's hygrometer—in a hot climate ether can scarcely be confined; rain gauge, with copper float, or with graduated glass measure; evaporating gauge; Lind's anemometer; earth thermometers.

NAMES OF PLANTS: *Old Sub.* Campanula hybrida.—*J T S.* Calystegia pubescens.—*Filix-mas.* Adiantum concinnum, a native of tropical America.

RHUBARB WINE: *Old Sub.* To every gallon of water (rain water is best) add 5 lb. of ripe Rhubarb, cut into thin slices; let it stand nine days, stirring it three times a day, and it is well to cover the pan or tub with a blanket or cloth. Strain or squeeze the macerated substance through a coarse cloth; to every gallon of the liquor thus procured add 4 lb. of white sugar, the juice of two lemons, and the rind of one; then to fine it, 1 ounce of isinglass to every 9 gallons, and this part of the operation may be thus performed:—Take about a pint of the liquor, in which melt the isinglass over the fire; be sure that it is cold before pouring it into the vessel containing the rest of the liquor. That done, cask it. When fermentation is over, bung down. Bottle in March, and in June it will be fit for use.

WED, OR WEEDED: *E R A* asks which is correct—Thomas "has wed that bed of flowers;" or, "he has weeded that bed of flowers?" Certainly Thomas may be so enamoured of his flower bed as to be metaphorically wedded to it, but if it be full of weeds the bed should be weeded forthwith; and Thomas himself should not be wed until he has weeded his flower bed.

WOODFORD GREEN MARROW PEA: *R B.* The sample sent of the new sport of the Woodford Green Marrow Pea is not so good as the original. It is a very hardy Pea, with a fine colour, but of bad quality. *A B.*

COMMUNICATIONS RECEIVED.—J. Smith.—W. Dean.—W. R.—D. T. Fish.—A. Verschaffelt.—W. F.—J. J.

FOWLER'S PATENT STEAM PLOUGH and CULTIVATOR may be SEEN at WORK in every Agricultural County in England.
For particulars apply to JOHN FOWLER & Co., 71, Cornhill, London, E.C.; and Steam Plough Works, Leeds.

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The Company advances money, unlimited in amount, for the following works of Agricultural Improvement, the whole outlay and expenses in all cases being liquidated by a rent-charge for 25 years.
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Landowners assessed under the provisions of any Act of Parliament, Royal Charter, or Commission in respect of any public or general works of Drainage or other improvements, may borrow their proportionate share of the cost, and charge the same with the expenses on the lands improved.
The Company will also negotiate the Rent-charges obtained by Landowners under the Improvement of Land Act, 1864, in respect of their Subscription of Shares in a Railway or Canal Company.
No investigation of title is required, and the Company being of a strictly financial character, do not interfere with the plans and execution of the Works, which are controlled only by the Government Enclosure Commissioners
Apply to GRANVILLE R. RYDER, Esq., Managing Director, 3, Parliament Street, London, S.W.

GREAT EASTERN RAILWAY. — ROYAL AGRICULTURAL and HORTICULTURAL SOCIETIES' SHOWS, at BURY ST. EDMUND'S, JULY 15, 16, 17, 18, and 19. FIRST and SECOND CLASS RETURN TICKETS at the usual Return Ticket Fares, issued to BURY, on MONDAY, July 15, and intervening days, will be available for the Return Journey on any day up to and including Saturday, July 20. On Thursday and Friday, July 18 and 19, Return Tickets at the ordinary Single Fares, will be issued to Bury and back, available for the Return Journey on the day of issue only. These Return and Single Fare Tickets will be issued at the Stations which usually book to Bury, and at certain other of the larger and important Junction Stations, to which passengers from the minor Stations can book locally, and there obtain through tickets to Burr.
On TUESDAY and THURSDAY, July 16 and 18, a SPECIAL TRAIN, 1st, 2d, and 3d Class will leave LONDON for BURY (Eastgate Station), at 8.30 A.M., due at Bury about 11.45 A.M., returning from Bury (Eastgate Station) at 6.30 P.M. the same day.
By Order, R. MOSELEY, General Manager.
London, July, 1867.

Entries Close July 25.

MANCHESTER and LIVERPOOL AGRICULTURAL SOCIETY.
GRAND CENTENARY CELEBRATION SHOW, at MANCHESTER, AUGUST 27, 28, and 29, on the Site of the Art Treasures Exhibition and Land adjoining (about 20 Acres in extent), at Old Trafford, and adjoining the Botanical Gardens and Grounds.
PRIZES amounting to UPWARDS of TWO THOUSAND POUNDS are offered for HORSES, SHEEP, WOOL, PIGS, POULTRY, PIGEONS, DOGS, CHEESE, BUTTER, GRAIN and ROOTS, VEGETABLES, SADDLERY, IMPLEMENTS, MACHINERY, and MISCELLANEOUS ARTICLES.
The Horned Cattle Prizes have been withdrawn, in conformity with the Cattle Plague orders of the Privy Council.
ENTRIES CLOSE on the 25th INSTANT.
Prize Lists and Forms of Entry may be obtained from Mr. H. WHITWORTH, Assistant Local Secretary, Carlton Buildings, Cooper Street, Manchester; or from T. B. RYDER, Secretary.
57A, Church Street, Liverpool, July 6, 1867.

PUBLIC MEETING in the ROYAL SHOW WEEK. —The MEMBERS and FRIENDS of CHAMBERS of AGRICULTURE are requested to attend a PUBLIC MEETING in the ATHENÆUM or TOWN HALL, BURY ST. EDMUND'S, on TUESDAY, July 16, at 7 o'Clock in the evening, for the purpose of urging the Legislature to enforce the Slaughter, Effectual Separation, or Quarantine of all Imported Animals at the Ports of Landing; also for considering what steps can be taken to obtain a Compensation for those Persons whose Cattle were destroyed by order of Inspectors between November 23, 1865, and February 20, 1866.
JOHN ALGERNON CLARKE, Secretary.
Central Chamber of Agriculture, 11, Waterloo Place, Pall Mall, S.W

Bury Agricultural Meeting.

THE GARDENERS' CHRONICLE and AGRICULTURAL GAZETTE of SATURDAY, July 20, will contain a FULL REPORT of this MEETING. A Single Copy sent on receipt of Six Stamps.
Office for Advertisements, 41, Wellington Street, Strand, London.

The Agricultural Gazette.

SATURDAY, JULY 13, 1867.

MEETING FOR THE ENSUING WEEK.

MONDAY,	July	15	Society Meeting of the Royal Agricultural Society of England, at Bury St. Edmund's.
TUESDAY,	—	16	
WEDNESDAY,	—	17	
THURSDAY,	—	18	
FRIDAY,	—	19	

THE pretty county town of Bury St. Edmund's is bedecked in flags and flowers in honour of the Royal Agricultural Society's annual meeting. Every house is gay outside and hospitable within. Set in a charming country—with such a rare addition to the attractions of the trysting place as its old Abbey, with many acres of delightful pleasure-ground lying within its ruined walls—clean as water, labour, and paint can make it—with a Mayor, too, not only instinct with hospitality, but himself an accomplished agriculturist, it will be unaccountable if the capital of West Suffolk do not gratify its many agricultural visitors during the ensuing week.

The annual gathering of the National Agricultural Society, is, indeed, still for another year bereft of one of its principal attractions. The Cattle classes are prudently omitted from its prize lists; and neither the enthusiastic advocates of the local breed, nor the "world" of Shorthorn breeders, will be represented here.

The Horse show promises, however, to be unusually good; there will be an unrivalled exhibition in the Sheep classes, a good show of Pigs, and a capital display of Poultry. Two hundred and sixty entries of Horses, of which 35 represent the Suffolk Punch; about 300 pens of Sheep, 50 Leicesters and nearly as many Cotswolds, 60 or 70 Southdowns, and nearly as many Shropshires, with fair classes of Oxford Downs and Hampshires, will contribute a capital display in these main sections of the live stock show. There are about 130 entries of Pigs, and 340 of Poultry.

It must not be forgotten, too, that among the chief attractions of the week are those offered by the Royal Horticultural Society, which this year inaugurates at Bury an entirely new course by the first of its annual Provincial Shows, of which full information will be given in the *Gardeners' Chronicle*.

Apart, therefore, from the Implement-yard of the Society, which was opened on Wednesday last, it will be seen that the prospects of the annual meeting are very good indeed. Of the details of the agricultural machinery here collected, we shall next week give a full report. The interest hitherto has been confined to the trials of steam engines and barn machinery, which commenced on Thursday. There are no field trials of any kind under official guidance, and whether any others can be undertaken does not yet appear; for it seems that the machinery exhibited, when once within the yard cannot be removed till the meeting is over. We understand, however, that Messrs. FOWLER have obtained land on the farm of Mr. GREEN, about a mile from Bury, on the Newmarket road, where a duplicate set of their steam cultivating apparatus will be shown at work during the week.* And we cannot doubt that some means will be obtained of exhibiting the other system of steam cultivation in operation also. Of reaping machines at work, and mowers, however, just now the most important, and as Mr. M'CULLOCH, of Reigate, reminds us in the *Times*, a most successful class of machines, we fear that no public exhibition will be made.

The absence of the field trials, and the concentration of judges and spectators within the yard, take off considerably from the excitement of the first days of the show, during which, however, real and useful work is being done, of which we shall see the fruits hereafter. The close competition of rival firms in the production of a steam-engine which shall satisfy the nice and narrow tests to which they are here subjected, tends, perhaps, to the manufacture rather of a showy racer than of a lasting and useful worker. There are, however, certain features needed by the latter, as well as by the former, which are thus secured; and the main test of quality relied on—namely, the quantity of work accomplished by a given quantity of coal—is one which is especially useful in countries and in districts of expensive fuel, where such aids are especially valuable and serviceable. In barn machinery, whose trial has been proceeding during the week much more satisfactorily than that of any other class, there is no lack of competition. In particular, a great variety of corn screens, many of them new and promising, are being put through their trial paces. Mr. CROWE, of King's Lynn, exhibits engine and threshing machine, packed in one, on the same four wheels on which he has come by steam power along the highway all the way from Lynn to illustrate to his customers his entire independence of the farmer's horses, both by his journey hither and his performance at its termination.

Among other useful novelties is the application of the sewing machine on the great scale to the weaving a web of pulled straw which shall serve as thatch. We may also refer, as a feature of the yard, to the number of straw and hay elevators on the plan of Mr. HAYES' well-known machine. It is a labour-saving tool, which is very much wanted during harvest time, both in Grass counties and on plough land; and a cheaper tool than any which has yet been seen ought to be provided, which shall be workable efficiently by horse-power.

As a whole, we believe we may congratulate the Society upon the Show-yard of 1867, as being at once a fuller and a more strictly agricultural display than any which it has hitherto exhibited. We understand that it will be visited on Monday next by H.H. the VICEROY OF EGYPT, who will on that day be the guest of the Society at Bury.

* On Monday, from 12 to 3, FOWLER'S double drum engines, with anchor, will work, plough, and cultivate. On the other days his various other implements will be shown at work from 10 to 3. The 6-furrow plough, deep digger, and 12 feet wide cultivator, all made for light land, will be worked on Wednesday.

—— THE *North British Agriculturist* very properly calls attention to the state of the subscription to the testimonial which the Rev. PATRICK BELL is to receive as the inventor of the reaping machine. The Editor well says:—"As a member of committee, the sum which we believed could be obtained was something between 5000*l.* and 6000*l.*; and we still hope that landlords, farmers, and others connected with agriculture will reconsider the claims which the Rev. PATRICK BELL has upon them for a substantial acknowledgment of the debt of gratitude due to him, so that the subscriptions may reach the sum we have indicated. The fact that not more than one in nine or ten of the members of the Society have subscribed to the testimonial does not speak highly of the sense entertained by them of the incomparable services rendered by the inventor of the reaping machine. Although Mr. SKIRVING considers that '800*l.*, subscribed by 1600 of the first agriculturists in the world, was a testimonial of which any man might feel proud,' he overlooked some of the facts which have an important bearing on the subscriptions. The gentleman who contributes the largest sum, namely, 50*l.*, acquired his wealth as a manufacturer. Besides this handsome subscription by Mr. YOUNG, of Limefield, other gentlemen not directly connected with agriculture, subscribe. If their subscriptions were deducted, the average sums given by agriculturists would be considerably under what many could suppose. All who have subscribed may feel satisfied that they have in this instance contributed to one of the most laudable objects ever undertaken by the Society. The fact of the Society having voted the sum of 100*l.* towards the expenses incurred in bringing the subject of the testimonial under the notice of the members is most creditable; but this vote is not to be regarded by the individual members as absolving them from their obligations to subscribe. It should rather act as a stimulus to the managers of the various agricultural societies in the United Kingdom to consider the claims which the inventor of the reaping machine has upon them, individually and collectively, as members of associations having for their object the advancement of practical agriculture. With the exception of the Logie and Lecropt Farmers' Club, none of the local agricultural societies in Scotland have subscribed." Let us hope that English landowners, farmers, and machine-makers will consider the services rendered to all of them by the invention of Mr. BELL, and join in making this testimonial a better evidence of well deserved gratitude than is at present indicated by the subscription list.

—— A correspondent informs us that having laid into Grass a few acres round his cottage, and planted the field with ornamental trees and shrubs, he finds the fencing these plantations, to protect them from cattle, to be costly, and he therefore contemplates making the Grass each year into hay. Farm-yard dung cannot be obtained, at the same time he desires to maintain the land in good condition so that the hay produced may be good in quality and sufficient in quantity. Therefore he asks what artificial manures will help him to the desired result. We recommend him to study the experiments of Messrs. LAWES and GILBERT on this subject, recorded in many past volumes of the English Agricultural Society's Journal. He will there find that a clovery pasture may be obtained by the constant annual use of bone-dust or of superphosphates and alkaline salts, and that a coarse grassy pasture will be obtained by the constant annual use of sulphate of ammonia. The grass may be mown every year, and will maintain the character it has acquired under this treatment. In neither case will the treatment be profitable—that is to say, the Grass will not pay for rent, labour, and manure constantly applied in this way. But he may, if he pleases, gradually reduce the quantities applied as at Rothampsted, and he may attain a result more profitable than was there achieved by the use of diminished quantities. It would certainly help him to this result if the aftermath were each year fed off by sheep folded on the Grass receiving cake. Let him try the annual application in March of 2 cwt. per acre of superphosphate made into a compost with a cartload of earth—afterwards folding sheep on the aftermath, and giving them a half to 1 lb. of cake or Peas daily during autumn.

—— Twenty-one mowing machines competed on Friday of last week for prizes offered by the Newcastle Farmers' Club on old land Grass, in fields between Scotswood and Swalwell. A large number of agriculturists witnessed the trial, and machines from the following makers were tried:—Brigham and Bickerton, Berwick; W. Trotter, Stocksfield; Wood's American; Joseph Sim, Newton, Stocksfield; Burgess & Key, London; Scott, Felton; Lilie, Goodlet, Elder, & Co., Berwick; Stothart, Merton, North Shields; J. Sim, mower and reaper combined; Brown, Eachwick, Ponteland; Geo. Gillies, Heydon Bridge; Hornsby & Co., Grantham; Kearsley, Ripon; Bamlett, Thirsk; Samuelson, Banbury, &c. The judges were, Messrs. John Angus, jun., Whitefield, near Morpeth; Hugh Stephenson, Throckley; and J. A. Armstrong, Wylam. After a first trial as many as seven were selected for a second. These were Sim's, Burgess & Key's, Brown's, and Hornsby & Co.'s (two machines). After a long contest, the principal prize lay between one of the Messrs. Hornsby's machines and the one exhibited by Messrs. Burgess & Key, which, despite the unevenness

of the ground, cleared the Grass in a surprisingly quick and skilful manner. Eventually the judges gave their decision in favour of the last mentioned, being seemingly guided by the object aimed at by the Committee of the Club, which was that attention should be directed to the excellence of the work performed, to the construction and capacity of the machine, and to the cost. The official award accordingly was as under:—1st prize, 10*l*., Messrs. Burgess & Key, price of machine 20*l*., with two knives; 2d, 5*l*., the Paragon, Messrs. Hornsby, 22*l*., two knives; 3d, 3*l*., Mr. Sim, 22*l*. 10*s*., two knives. Messrs. Hornsby's, price 23*l*. 10*s*., and Bamlett's, price 27*l*. 10*s*., were highly commended, and Brown's commended.

—— Mr. D. STONE, F.C.S., to whose plan of disinfection we have already referred, has published a paper, read by him before the Manchester Medical Society, on Disinfection by Euchlorine in constant and regular flow, in which he recommends "that a few grains of crystals of chlorate of potash should be dropped into a wine-glass two-thirds full of muriatic acid, of a proper strength, which is that of fuming acid. A brisk effervescence of gas, or a slow one, may be had at pleasure by choosing large or small crystals. Twice a day, morning and evening, this is to be done in all shippons [cow-houses]. Chlorine, sensible to smell and test-papers, is thus ever present day and night, for even when the effervesence has ceased in the wine-glass, the liquor is fully impregnated with the gas, and quietly gives it off to the air. On re-charging the wine-glass, the old liquor is thrown on the floor of the shippons." He adds:—"The chlorine, when generated for use in sick and infected rooms, should always be placed high up, on a shelf, in the apartment. If the chlorine vessel is put, as I have seen it in old times, under the bed of the patient, little or no advantage follows. The dense gas will float on the floor, and find its way down the stairs, and the people below will have nearly all the chlorine. Some newspaper correspondents and others sought to ridicule my instructions to put the chlorine generator on the highest point in a room, and to sneer at what they inferred was the want of a knowledge of the 'law of diffusion.' They said gases rise and diffuse. No doubt; but if a jar generating chlorine is put on the top step of the central flight of stairs in the lecture room of our Medical School, and test-papers put on every tread down to the floor, it will be seen that gravity takes precedence of diffusion, and the gas will roll down step after step, leaving its record on the test-papers. I have never found it to pass step by step up stairs."

AGRICULTURAL EDUCATION.

IN your number of Saturday last you place before your readers the educational scheme just issued by the Council of the Royal Agricultural Society, and in your remarks upon this scheme you give me the credit of having arranged it. Allow me to set you right in this matter. Several members of the former Education Committee have cordially co-operated with me in framing the present scheme, and none more so than Mr. Acland and Mr. Dent, both zealous partisans of the abandoned measure. Without their assistance (and more particularly without that of the first-named gentleman) the scheme would not have been placed before the Council for their approval in so satisfactory a shape as it now assumes. *Ed. Holland, Dumbleton Hall, Evesham.* [We rejoice to know that Mr. Holland's scheme for the promotion of professional agricultural education is receiving the support of Mr. Acland and Mr. Dent; but these gentlemen will, we presume, themselves admit that, had it not been for Mr. Holland's persistent advocacy of it, they would themselves have remained in that majority of the Council with whom, till lately, they had acted in opposition to it.]

IN SEARCH OF A COB.

"MORTON'S Almanac," one of our most interesting and comprehensive annual publications, like all human productions, is not infallible. Guided by the information which it contains, I last week bent my steps to the towns of New Radnor and Presteign, expecting to find a fair at both places. Alas! no event of the kind was even expected at either. The host of the "Eagle" at Radnor informed me that fairs had long been discontinued; and I verily believe many events advertised under all our fairs lists in England and Wales, would, upon inquiry, prove equally erroneous. Owing to the introduction of railways, and the rapid growth of towns, in hitherto isolated districts, trade, and therefore live stock, has taken different routes; and there is no longer the same inducement to accumulate animals at localities previously held convenient for sales of stock; there is yet another, and an important cause, why many fairs and country markets will from henceforth lack any importance. The restrictions imposed upon agriculturists during the existing cattle plague have slowly but surely directed the flow of live stock by new channels, and to outlets which will continue to receive the cargoes that pour into them; and it is improbable that the course trade has now assumed will ever be materially diverted. There is a general opinion prevailing that the day is approaching when most descriptions of live stock will exchange hands under the auctioneer's hammer, and any one acquainted with the usages of our fairs will admit that this method is much more agreeable and convenient to the purchaser and seller than the higgling in an open street of a country town, where dealer is allied with dealer to cause frivolous and vexatious delay. As a rule, at all fairs and markets, persons ask from 20 to 25 per cent. more than they are prepared to take, and valuable time is wasted in bartering, when two words would suffice to complete a fair deal. The introduction of railways has also aided to overthrow the customs of many districts. In place of the market at most or all of the small provincial towns we find the weekly gathering confined to one town, larger and more important than its neighbours, and monthly instead of weekly markets have been generally established at the smaller towns; at least I found this to be the case, in districts where I made these notes. But I am digressing, for my object when I took pen in hand was to relate a few incidents attendant upon a four days' visit to Mid-Wales, "in search of a cob." Nothing daunted by the error in "Morton's Almanac," I published my wants in the towns and villages through which my route lay, and found hosts of good fellows ready to conduct me to Messrs. Jones's, Thomas's, Williams's, and Evans's farms, where, of course, I was sure to see exactly the animal I had described—as follows:—14-2 high, clean head (no matter if a little large), prominent eye, full nostril, sharp ears, well set on a nicely turned pole, thin neck and plenty of crest; fine shoulders, set well back; deep girth, broad chest; ribs close together, springing roundly from a muscular back; hip-bones broad and high, to match a tail well put on, big thighs and strong gaskins, muscular arms, forelegs well forward, broad flat knees, short joints, strong clean hocks, moderately long pasterns, united to round broad feet and a high heel; lastly, the action should be even and perfect as the movements of a watch, a well-measured sound tread, and no hitting or crossing legs, if you please. Well, of course, I am joking. I hardly entered into this elaborate discussion with Taffy, but I gave him credit for a knowledge which very few possess. After toiling for miles over hill and valley, I was rewarded by the sight of animals without one feature of a cob about them. Upon remarking as much to the owners, it was ludicrous to hear their expressions of surprize. "Well, indeed! dear me! I did think the little horse perfect." These feilows certainly ask enough for their animals; in nearly every instance they named a price far beyond the value of the beast. In this respect they quite equal their brother Englishmen, although far behind him in home management, and sadly lacking energy.

The farms are small—from 80 to 150 acres in extent; about one-eighth arable, the remainder in small pastures, and in some cases an addition of some 200 or 300 acres of mountain. Such manure as can be scraped together is applied to the roots, and I must give the tenants credit for their attempts to obtain this crop. No pains are spared to clean the land, which is bouted up in good straight ridges, on which the seed is drilled after an application of 3 cwt. of superphosphate. The roots are generally hauled off, and the land is immediately prepared and sown with Wheat, then follows Barley or Oats, sown down with broad Clover, and a small proportion of Rye-grass. The seeds are invariably fed off, and dressed the following autumn with lime, about 3 tons per acre, which is ploughed in, and Wheat succeeds. It occurred to me that much labour might be saved on these hills by growing Vetches and other green crops to be ploughed in; by this course a larger extent of arable land would become productive. Hereford cattle hold a conspicuous position on all farms. In the valleys between Presteign and Builth I observed many of very superior quality. The calves have a rare charm, running alongside their dams for the best part of 12 months. This plan I found had its objections, for the young beasts scarcely rest during the hot months, being tormented by flies, which swarm in the lowlands. The sheep throughout the districts are of a mixed breed, between the mountain and long-woolled medium-sized animals, with varied countenances; in most flocks you could trace features of Shropshire and other Downs, and also of the Cotswolds. I found a prevailing feeling in favour of the Ryeland, a scarce breed, but a sheep of much merit. The custom of shearing the lambs exists still in Radnorshire and other adjoining counties. No injury appears to accrue to the animals from the loss of their jackets, which rarely exceed 1 lb. in weight. Farm-houses as a rule are roomy, and much dilapidated. One of these residences, a large two-gabled edifice, with handsome mullioned windows, was particularly interesting. In the kitchen, some 25 feet square, was a carved mantel-piece exhibiting the family arms; over it hung a cuirass and spear. Two tables, 10 feet in length, were laid for the mid-day meal—one for the farmer's family, numbering 10, the other for his servants, as the old custom still prevails of boarding and feeding the labourers, who are hired a twages varying from 10*l*. to 20*l*. per annum each.

The residence on an adjoining farm possessed all the charm of a Highland home, built on a knoll running out of a deep glen, sheltered by Larch and Oak woods. I was received by the lady of the house with frankness and hospitality; her worthy husband, though an invalid, gave me much information upon the breeding of horses, &c., in the Principality. The scarceness of good cobs and ponies is mainly to be attributed to the small remuneration which belongs to breeding; as my host and many others observed, "when we can sell a two-year-old steer for 17*l*., there is no inducement to breed a cob, to sell it for 25*l*. at four years old;" so this fact, in connection with the greater demand for cart colts, explains the mystery. The style of the entire horse which now travels throughout Wales is cobby and carty, with great bone and lots of muscle,—an animal sure of patronage on all sides. Cart, cob, and pony mares are put to him, without discrimination, and thus a progeny as varied as possible is produced and scattered throughout the land. Occasionally a fine-shaped stallion pony is met with, and a broken-down racer, but the first described beast in most cases claims the preference. It rests I believe entirely with landowners and the wealthier portion of the tenantry in the Principality, to restore the much valued and popular animal, by a resolution to retain in their localities all mares which are likely to prove of value for breeding purposes, and care in selecting stallions. Adopting these measures, the country would soon reproduce the far-famed but, alas! now nearly extinct cob or hackney of the old school. *J. L. F., June* 27.

THE PAST QUARTER.

[The following is the report given in the number of the *Quarterly Journal of Science* just published.]*

THE cattle plague is still one of the leading agricultural topics. Its reappearance in the London cow-houses within the past few weeks, after so long an interval, has startled us all; and agricultural societies, believing that it is the result of an imported poison, are urging upon Government the need of altogether forbidding the landing of live cattle from the Continent, or at least of killing all fat stock at the port of debarkation, allowing milch cattle and other stock in "store" condition to leave only after a sufficiently long quarantine. During the last weeks of May the disease, which had since January altogether left the metropolis, reappeared in many cow-houses in the east and north of London; and in several cases large herds have been swept away; the virulence of the attack being just as great as ever. No fewer than 60 cows in one herd of 95 were taken in three days from the first detection of a symptom, and the whole were then slaughtered; and the same fate has overtaken several other stocks. The whole of the cattle grazing on Wormwood Scrubs, for example, have been thus disposed of: and it is to be hoped that the severity of the measures which have been adopted may hinder the further extension of the malady. No attempt at cure has hitherto succeeded. Mr. H. Dixon, who has as large and particular acquaintance with English herds as any man, relates in the current number of the English Agricultural Society's Journal the few examples known to him of any attempt to deal with the disease. His evidence amounts to little more than that isolation has saved many a herd that was in danger, and that remedies have done hardly anything whatever. Thus, Mr. Davies, of Cheshire, had saved his herd for some months by using chlorine gas constantly in the houses, and hyposulphite of soda in the water given to the cattle; sawdust, too, was used as litter, being more cleanly than straw; but whether the safety of the stock was due to mere isolation or to this disinfection of their houses and this medication of their food cannot be certainly declared. It was not, however, until they had been turned out to the pasture field that they were attacked, and then many of them died. An iodine ointment rubbed on the chest and acting as a counter-irritant, served in two or three cases to give relief when applied early enough; but in only 9 cases out of 36 did the patient recover. Mr. Aylmer, of Norfolk, tried chloroform: of 90 head, 5 died before treatment, 6 were not attacked, and no fewer than 41 recovered. Full-grown beasts had an ounce of chloroform administered to them each time, calves a quarter of an ounce, and others in proportion to their age. A saturated handkerchief was simply put in a bag, which was hung close under the nostrils and tied by a string behind the poll. Five to seven minutes was generally enough to produce insensibility, and the cattle were kept under its influence for periods of from half-an-hour to two hours. Seven or eight doses generally effected a cure; and they seem to have been administered twice a day. The immediate effect was to sweeten the breath of the animal, the inflammation and fever were reduced, and unless these returned within the day, the case was hopeful. The result of all was that in July, the disease having appeared in April, "Mr. Aylmer found himself with a clean bill of health and with upwards of 50 per cent. of those which had been treated alive and well in their stalls." Notwithstanding, however, the few examples of treatment which seem, like this one, to have afforded some encouragement, it is still almost universally admitted that our only preventive is to be found in isolation, and our only hope of safety in immediate slaughter.

The Journal of the English Agricultural Society contains in its current number a large mass of very valuable information on the subject of steam cultivation. It has been long admitted that a tool drawn across the land and stirring the soil or ploughing it to its full depth, without trampling it and poaching it as horses do when they are the power employed, must be greatly improved in its efficiency as a tillage implement. Experience has perfectly established this wherever the thing has been put to the test on clay land; and many a clay-land farm which could not formerly be cultivated except during short intervals of suitable weather, and then only by a staff of horses which must be kept all through the year for the purpose, has since been a standing advertisement of the superiority of that cultivation by steam power, which could be thus rapidly accomplished during the short intervals when alone clay land ought to be touched, and which at the same time involved comparatively little expense when the tools employed lay idle. It was, however, still generally feared that the cost of steam cultivation was excessive, and either beyond the means of ordinary English farmers or so much in excess of the ordinary experience of horse tillage as to be dearly bought. The large number of instances collected by the Society's commissioners has now sufficiently cleared up whatever was debatable on the subject. They were instructed to investigate not only the depth and character of steam tillage and the improvements it effected in soil and subsoil, but also the detail of the expenditure incurred—the annual expenses connected with it in tear and wear and breakages, and all the other drawbacks to the system. And the conclusion arrived at is for the most part extremely encouraging, and will no doubt promote

* *Quarterly Journal of Science*, No. XV. J. Churchill & Son, New Burlington Street.

the adoption of all the rival plans of carrying out steam cultivation under the various circumstances appropriate to each. On light soil as well as heavy, the advantage of prompter, cheaper, and more thorough work done by steam power has been perfectly demonstrated.

Since the publication of the report the subject has received prolonged discussion at an unusually full meeting of the Agricultural Society; and it was declared that the advantage of steam cultivation amounted on average soils to at least eight bushels per acre in the produce of the grain crops—that arable culture is by means of it annually becoming both cheaper and better—that the drainage of clay soils is facilitated—that while the direct system of traction adopted by Messrs. Fowler & Co. is the best for large fields and large farms, yet the cheaper roundabout system with a stationed engine and windlass is perfectly satisfactory—that even when coals cost 20*s.* a ton, the power obtained from 6*d.* worth of them is equal to the day's labour of a horse—and that the system wherever it is adopted is improving all the classes interested in agriculture, and is thus establishing on a more satisfactory basis the relations amongst landlord, tenant, and labourer.

The revelations made in a recent Blue Book, of the abuses to which the gang system of employing children in the field has given rise, have excited an interest during the past quarter. In recently enclosed districts, the cottage accommodation is especially deficient. Labourers live in widely separated villages, and the labour of boys and girls in the fields being needed on arable land, they have to walk many miles to and from their work, and, being employed at particular seasons on different farms from their parents, and thus collected in bodies under gang-masters, they are liable to all the risks which association with the vicious among themselves and subjection to an unfit foreman sometimes entail upon them. So much feeling has been excited on the subject, that it is probable some legislation may ensue, limiting the age at which girls and boys shall be employed in this way, as well as the distance from their home beyond which they shall not be allowed to work. The condition of the agricultural labourers which has thus been forced upon our attention by a Royal Commission, is also being urged on public notice by themselves. At Gawcott, in Buckinghamshire, there has been a strike amongst them for higher wages, apparently a perfectly spontaneous act, which has, we believe, resulted in the men out of work being gradually drafted off to other districts at better paid employment; and at Halberton, in Devonshire, the same process has been going on, organised and carried out by the clergyman of the parish, to the great annoyance of the employers. Though, however, in these two cases, the process has obtruded itself on public attention, it must not be supposed that it is only here that it has been in operation. Almost everywhere the gradual rise of wages in agricultural districts is in progress. Young men refuse employment at the current rate, and go elsewhere for work, and employers are forced to pay a larger sum to their successors. In this way, we may hope that the improved condition of the labouring classes will gradually extend, and better cottages and greater comforts will be offered to retain the hands that farmers need. In some few instances, attempts have been made to introduce the co-operative system into agriculture. Labourers have been offered a share in the profits of the business; the capital of the employer receiving a fixed annual sum as interest, the labour of the workman receiving a fixed weekly sum as wages, and the surplus, if any, being divided according to a proportion mutually ageed upon between the two. This system is less likely to gain ground in farming (where so many risks are run, and where the surplus may be sometimes large and sometimes less than nothing) than it is in trade or manufacture, where the risks being less, the returns are much more uniform. Any attempt, however, to attach to one another the various classes interested in agriculture is praiseworthy, whether it be organised in this way or, better still, be the fruit of personal relationship and friendship between the employers and their workmen, and their families one by one.

The subject of emigration, hitherto discussed chiefly in connection with an over-population of the labouring class, has during the past quarter been the subject of a lecture before the London Farmers' Club, in connection rather with our surplus numbers in the class of agricultural employers. And the Rev. G. Smythies has thus pointed out to farmers and their families the opening that exists in the United States, in Canada, at the Cape, in Australia, and in the countries adjoining the River Plate—the opportunities for a prosperous agricultural career, where a smaller capital with the necessary industry and skill will suffice to produce a better income than can be obtained from farming here. A work by Mr. Latham, for many years resident near Buenos Ayres, in which the agricultural advantages of that neighbourhood have been impartially related, has been lately published by Messrs. Longman, and it is significant of the overflowing numbers in the upper agricultural class, that the whole edition has met with an immediate sale.

Among the agricultural publications of the past quarter, we must not forget the volume by Dr. Sellar and Mr. H. Stephens, of Edinburgh, on "Physiology at the Farm in aid of Rearing and Feeding Live Stock" (Blackwoods), which well deserves to be widely studied by the farmer, as a clear and satisfactory exposition of the Physiology and Chemistry of nutrition, and a description of the methods by which agriculturists may turn the information thus given to account in practice.

The Proceedings of the Society of Arts must not be forgotten in our chronicle. At Mr. Harry Chester's suggestion, an energetic Food Committee of that body has been employed in collecting and disseminating information on the importation, marketing, preservation, cookery, &c., of all kinds of meat—on the nature of the milk trade by which London is supplied, and on the supply of milk in country districts—also on the economical possibilities of the flour manufacture. A very useful mass of facts has been thus collected, which must ultimately exert good influence on the various departments of the trade in food. Professor John Wilson, of Edinburgh, has called attention, through this committee, to M. Mouriés' plan of dealing with Wheat, by which only the outer cuticle of the grain, containing nothing that is digestible as food, is removed. The bran, as at present taken from the flour, contains no less than 15 per cent. of useful nitrogenous ingredients, and is itself 15 per cent. of the whole grain. The cuticle which M. Mouriés removes is only 4 per cent. of the Wheat, and it is not only worthless as food but, owing to its absorbent nature, it is absolutely mischievous, by increasing the difficulty of storing and keeping the grain. The decorticated grain will pack closer, keep better, and yield a larger quantity of more nutritious flour than the whole Wheat dealt with as it is by the ordinary English miller.

Yet another matter connected with the Society of Arts has to be reported. It has offered a handsome prize for the best account of harvest process in this and other countries:—"Whereby cut corn may be protected from rain in the field; whereby standing corn may, in wet seasons, be cut and carried, for drying by artificial process; whereby corn so harvested may be dried by means of ventilation, hot air, or other methods, with suggestions for the storage both in the ear and after threshing; and whereby corn, sprouted, or otherwise injured, by wet, may be best treated for grinding or feeding purposes." The whole must be supplemented by a statement of the practical results, and of the actual cost of each system described; and authenticated estimates must be given of any process proposed for adoption, based upon existing, possibly incomplete experiments.

The probability of drying Grass artificially, except at an expense which will make the process unprofitable, is not very great; nevertheless, it seems that if the data of the books can be realised in practice, the thing is possible, and, if so, the smaller quantity of water contained in ripe grain, and the greater value of the remainder when the water has been dried off and the crop is ready for storage or for market, should make the artificial process of drying grain crops quite successful. It is probable that 100,000,000 grains of water must be driven off from Grass to make two tons of hay, or to dry a fair grain crop off four acres of land. To carry this quantity off in vapour will need 10,000,000 cubic feet of dry air, at an ordinary summer temperature; but if the air were heated artificially to 212°, and the water were thus converted into steam at the boiling point, not more than 400,000 cubic feet would be needed to carry it away. Or, supposing that the air was heated up to nearly 212° and could be removed saturated before it had cooled down below 140° in the process—thus carrying off a full load of water at that temperature, then about 1,000,000 cubic feet would be required to make ready for the rick two tons (say 8*l.* worth) of hay, or five acres (say 50*l.* worth) of a Wheat crop. We are told in books that 1 lb. of coal will boil off 6 lb. of water, and if so, we ought to be able with one ton of coal to heat (sufficiently) enough of air to carry off the water which exists in the quantities of Grass and corn respectively which have been named. It is to be hoped that the prize offered by the Society of Arts may elicit the results of some satisfactory experiments in connection with this subject.

Among the principal agricultural facts of the past quarter are the extraordinary prices which have been commanded by pure bred Short-horn cattle. Mr. Betts' small herd of "Grand Duchesses"—13 cows, bulls, and calves—descended from cows of the late Kirkleavington herd bred by Mr. Bates from "Young Duchess," a cow bought at Charles Colling's sale in 1810, have realised at a sale by auction 5759*l.* 5*s.*, or 443*l.* apiece. Other families of pure Short-horn blood have fetched from 130*l.* to 560*l.* apiece at the sales of Mr. C. L. Betts, near Aylesford, Kent, and of Mr. D. McIntosh, near Romford, Essex. Sixty-three animals of all ages at the former sale made 180*l.* 19*s.* each, and 57 animals of all ages at the latter sale made 116*l.* apiece; and thus Mr. Strafford, the auctioneer, sold on two successive days 120 animals of all ages, for 18,000*l.*, or 150*l.* apiece.

An important lecture by Dr. Voelcker before the English Agricultural Society, on the relations of food and manure, throws light on the economics of an important branch of farm practice. The various food constituents were declared to succeed one another in the order of value according to the following list:—

1. Ready-made fat, *i. e.*, oil.
2. Starch, sugar, pectin.
3. Young cellular fibre.
4. Albumen, gluten, casein, &c.
5. Mineral matter.
6. Woody matters, which are of little or no value.

But the money value of purchased food depends not only on the actual nutritiveness of the material, but also on the value of the fertilising matters which pass through the animal into the manure. Dr. Voelcker estimates that Rape-cake yields in the manure 4*l.* worth of ingredients for every ton consumed; Cotton-cake no less than 5*l.* 6*s.* worth per ton of matter in the excrement; Linseed-cake 3*l.* 15*s.* per ton; Beans and Peas about 3*l.*; while other feeding substances possess but little worth as regards their fertilising value. Rice meal, for example, yields but 1*l.* per ton to the dung-heap, and molasses hardly anything at all. It is plain that facts of this kind must for the future materially affect the judgment which will guide the choice of purchased food by the farmer.

We have to report that the English Agricultural Society has at length resolved upon confining within professional limits those educational efforts which its charter binds it to make. Hitherto the small contribution made by it in this direction has gone merely towards the granting of prizes to country boys who pass the best examination in branches of general education before the University examiners. Hereafter whatever it may grant will be devoted to the reward of professional studies alone; and some stimulus may thus be given to the work of professional agricultural education, which it has hitherto almost entirely ignored.

We must not close our record without a word upon the Paris Exhibition, to which we had anticipated devoting a large share of our space. The grand programme put forth by the Commissioners has almost entirely failed, so far as agriculture is concerned. The periodical exhibition of live stock and of implements at work, which was part of the original scheme, has not been carried out as intended. The display is confined to a mere show of implements by the agricultural machinists of this and other countries, and there is no particular novelty calling for remark. We can only report that in the agricultural department a very small contribution is made to that wonderful general effect which is now commanding such universal admiration.

STEAM CULTIVATION.

The Hiring System.

In November, 1865, "Richard Toepffer, manager to the North Lincolnshire Steam Cultivating Company," stepped into the steam plough ring to question Mr. Hutchinson's comparative statement, published in October, 1865. His letter then was mere talk, telling us that he had "worked upwards of 100 double-engine sets in Egypt," and that he was going to do something in North Lincolnshire. He now steps into the ring again to question Mr. Bulstrode's plain and practical words, given at the discussion of the Royal Society on Steam Cultivation. He tells us (in support of the hiring system) that a number of farmers can have tackle when they want it, and that in Lincolnshire there are other owners of tackle who work upon the hiring system who "could no doubt give similar testimony." That may be, but we want the particulars as to work done, with the time and cost of doing it. Here is what he says upon that point:—"To go into figures and state our charges I cannot do, nor is it necessary, for they vary exceedingly." What! after telling us nearly two years ago that he was going to do something, can he have the face to come out and question Mr. Bulstrode without being able to tell us all about what he has done? His excuse is mere trash. "Not necessary?" why, it is the very thing we want. He even "regrets that employers of steam tackle have not been more numerously questioned as to their opinions of the hiring system." Then, let him make up for this all he can by giving particulars; the more "exceedingly variable the charges" the more valuable they will be, and worth no end of "opinions."

Mr. Toepffer next asks, "How can the roundabout tackle work cheaper under 'ordinary circumstances,' when, as Mr. Bulstrode admits, it is neither the most scientific, nor, what is quite as important, the most economical?" I will tell him. Mr. Bulstrode's reference was merely to a short trial in a trial field—in "a race between a donkey and a horse," as Mr. Toepffer said in his letter of November, 1865; but the reference I will now give shall be from the Royal Agricultural Society's Journal. At page 116, Report No. 8, I read this:—"The apparatus Smith bought in 1858. . . . . The engine, 10-horse power. . . . . The total wear and tear, exclusive of interest upon the entire apparatus, is 4*s.* 6*d.* per acre. The first operation, 8 to 9 inches deep, removals included, 6 acres per day. . . . . The cost of a day's work, including men and horse, coal and oil, 1*l.* 13*s.* 2*d.*, or 5*s.* 6½*d.* per acre." The case stands thus:—

	Per Acre.
Wear and tear	4*s.* 6*d.*
Labour, &c.	5 6½
To this must be added interest	0 9
Total	10 9½

for work done the first time over from 8 to 9 inches deep on clay land, 6 acres a-day being an average day's work.

Now, turn to page 382, Report No. 117: there may be found some totals of some well kept accounts:—

The apparatus (Fowler's) bought in 1862. The engine, 12-horse power, with anchor, &c., cost 915*l.*

Totals for the year ending 1863:—

£ s. d.		Acres.
Wages, repairs, oil, wear and tear, with interest, &c. 225 5 5	Scarifying	408½
	Ploughing	21
	Harrowing	7
		436½

This gives an average of 10*s.* 4*d.* per acre.

Totals for the year ending 1864:—

£ s. d.		Acres.
Wages, repairs, oil, wear and tear, with interest, &c. 399 9 0½	Scarifying	405
	Ploughing	21½
		426½

This gives an average of 18*s.* 8*d.* per acre.

Totals for the year ending 1865:—

£ s. d.		Acres.
Wages, repairs, oil, wear and tear, with interest, &c. 384 2 8	Scarifying	512

This gives an average of 15*s.* per acre.

Here the tackle is changed for a new double-engine set, bringing the total cost up to 1450*l.*

Totals for the Year ending 1866:—

£ s. d.		Acres.
Wages, repairs, oil, wear and tear, with interest, &c. 513 1 10	Scarifying	360
	Ploughing	18½
		373

This gives an average of 27*s.* 6*d.* per acre. It is right that I should state here that on the farm where this tackle has been worked there are about 380 acres of arable land, so that some of the scarifying must have been done a second time over each year—light and heavy work together.

Now I will add the four years together, and see what the average is.

	Per Acre—	*s.*	*d.*
The average in 1863 is	.. ..	10	4
The average in 1864 is	.. ..	18	8
The average in 1865 is	.. ..	15	0
The average in 1866 is	.. ..	27	6
Total	.. ..	71	6 = 17*s.* 10½*d.* a year.

This answers Mr. Toepffer's question, and proves Mr. Bulstrode's case, that under "ordinary circumstances" the roundabout tackle is the cheaper to work with, and it is strong evidence against Mr. Toepffer's hiring system with his high-priced tackle. If he is not satisfied, let him come out with his figures.

Mr. Toepffer tells us that "strong stubborn clay land cannot be worked at all efficiently, say 8 to 11 inches deep, by an ordinary portable engine of 8 to 10-horse power," &c. (see his letter). Then let me refer him to the Royal Agricultural Society's Report No. 8, that I have already referred to, where he may learn that a 10-horse portable engine can work, from 8 to 9 inches deep, some strong clay land at the rate of 6 acres a day. Now, at p. 427 of that same Journal the Commissioners say that 5 acres a day is an average upon the hiring system; then what is the good of Mr. Toepffer's talking without a book, or rather without his figures? I will give him some further evidence upon this point. Let him look at vol. xxiv., part 2, of the Royal Agricultural Society's Journal: he may there find the report on the Worcester trials at page 485. It shows that I, with a 10-horse portable engine smashed 1 acre, 3 roods, 16 poles, in 2 hours 5.8 minutes, at a cost, including wear and tear, interest, &c., of 6*s.* 3*d.* an acre. The judges say that "the quality of the soil varied exceedingly, the top portions being quite of a light character, mixed with small pebbles, whilst the bottom part was an extremely tough and retentive clay considerably baked and cracked by the action of the sun, and that Smith, who, though taking a very narrow width, did steady, careful, and effective work."

And now I will give him some further evidence. Here is an extract from a letter of mine, dated Nov. 13, 1856, and published in the agricultural papers:—"I have since harvest ploughed by steam the whole of my farm .... I find that the implements exhibited by me at Chelmsford are perfect; that an ordinary 7-horse engine is sufficiently powerful for every useful purpose; that my cold clay, hilly, and uneven fields may be ploughed; that in ploughing my Bean and Pea stubbles at a depth of 6 inches, I did an acre in 1 hour and 13 minutes, and an average of 5 acres a day, including the time for shifting from field to field, at an average cost of 5*s.* 2*d.* per acre, exclusive of interest and wear and tear."

This shows plainly that with a 10-horse engine I could have worked from 8 to 10 inches deep easily. Then let us have no more of Mr. Toepffer's nonsense "that an 8 or 10-horse portable engine cannot work efficiently, say 8 to 11 inches deep." Neither let us hear any more of his doing with "the double 14-horse tackle, from 12 to 15 acres per day, from 8 to 10 inches deep" on an average, without a support by figures; neither let him be boastful of his "careful management," for, as yet, contract management, according to the Reports, has not been very grand. Farmers with their men can, if they will, manage tackle better than contracting men do. It is nothing but the "scientific" tackle (the "horse" as Mr. Toepffer calls it) that requires mechanics to work it: the ordinary farm labourer can work the "donkey" (as Mr. Toepffer calls it); but then Mr. Toepffer would frighten the farmer about cost, time in superintending, steam tackle, and breakages of small tackle. Why, I am a farmer who has not only found money and time to provide and superintend a set of tackle for 12 years, but have learned hundreds of others how to go to work — the Messrs. Fowler & Co., and even Mr. Toepffer himself are included in the number; and besides that I have not had a breakage of any kind during the 12 years. Besides that, Mr. Bulstrode is a farmer who appears not only to know how to manage tackle, but also how to make a plain practical statement about it before the Royal Agricultural Society; and besides that, there are many other farmers who have bought and worked tackle well. But then Mr. Toepffer will have it that 200-acre men are so poor that they cannot buy even the roundabout tackle, and that the large rich farmers are so stupid that they will not buy yet gladly hire; but then in his last paragraph he contradicts the latter part of this himself, for he tells us, "I know a great many instances where large farmers in this and other counties have tested steam cultivation on their farms through hiring a tackle, and finding it answer, have bought large tackle on small apparatus:" and I know that there are many 200-acre men who can buy small tackle, if they can be convinced of its usefulness.

I will now give a word of advice to the farmers, quoted from a letter that I published in 1858, to enable him to judge as to how he can best insure having a set of tackle when he requires it:—

"I may state that 5 acres on heavy and 8 acres on light land have been found to be an average day's work; that September, October, and March are the best months for applying steam-power to the cultivation of the soil; that after deducting Sundays and a few days for threshing and stoppages by rain, the working days for September and October may be put down at 45,—this multiplied by five for heavy land, and seven for light, gives 225 acres and 315 acres as the quantity of land that can be cultivated once over with a set of apparatus within those months. By this it is clearly seen that if steam-power is to be generally applied to the cultivation of the soil every large farmer must possess a set of apparatus of his own. Two or three small farmers may have a set between them in hire one off another, according to arrangement, for September and October will not wait, and if the work is to be done well it must be done in those months. My own experience convinces me that one operation of the cultivator in these two months does on clay land produce as good an effect as two ploughings."

My 12 years' practice convinces me that in 1858 I gave sound advice to the farmer, and it is now my excuse for republishing it. *William Smith, Woolston, Bletchley Station, Bucks, July 8.*

FARM NOTES.—By Mr. Mechi.

Small Farmers have no Chance now!—I am often told this, but I deny the correctness of the proposition. 'Tis true that if a farmer holds 150 to 200 acres of inferior land with an insufficient capital of 5*l.* or 6*l.* per acre, he is likely to succumb to competition, but if a capital of 15*l.* per acre is judiciously invested on such a farm, he may hold his own against the largest occupier. I speak practically on this point, for my own farm is only of 170 acres, and my rent is 40*s.* per acre on 130 acres of it. The fact is, we are only just awakening to the absolute necessity for intensifying farming, both by the landlord and tenant. It is not now so much a question of rent as of manure; that is the great want of British agriculture, and it is that want that keeps agricultural produce at a minimum, and agriculture poor and humble. Seeing that our farmers multiply rapidly and that our acres have no children, the question of diminishing the size of our holdings should be entertained and commended by landowners. I know so many instances where tenants have been ruined by changing from a small farm to a large one, that it is to me a painful subject. Their capital, barely sufficient for the smaller, became so thinly spread upon the larger farm, that care, anxiety, and ruin speedily followed. I am afraid we are not at all agreed as to what is sufficient capital for the proper and profitable farming of poor heavy land. This, surely, might be worth the consideration of our landowners, and no doubt does in many cases receive it, but a great mass of attachments to old customs must be broken down, and new ideas prevail, ere the proper figure per acre is arrived at either by tenant or landlord. I am not so utopian as to suppose that all this necessary change can take place at once. A nation cannot give up its former and established notions except by slow degrees, and after much examination and discussion. But mighty steam has so changed the general circumstances of the country that agriculture must really move on a little faster, or it will be, as it has been already, left in the rear of the forward rush of steam-excited progression. In another paper on "Losing Money by Farming," I shall more fully enter upon the details of this question of capital and small farms. I need hardly advert to the necessity for a concurrent action, as between landlord and tenant, on the question of draining, leases, &c.

London Horses.—The value of straw as a feeding substance was never better proved than by the following fact. A firm having a large number of heavy waggon horses had frequent occasion for the veterinary until they were recommended to mix a certain portion of fine cut straw with the Clover hay. This has been practised now for some years, and their bill for horse-doctoring is at a minimum. The partner of the firm who told me this said how advantageous it was not to be deprived, as they formerly were, of the use of several horses—to say nothing of the saving in expense and loss. The fact is, the food was too rich or too mucilaginous, for I have often been told that fine cut hay unmixed with straw chaff balls in the stomach, and thus is, I suppose, deprived of the action of the gastric juices. We know that too succulent or rich Grasses are injurious, and no doubt straw chaff mixed with it acts mechanically, if not chemically, with advantage. It would be well for our agricultural friends to know that for several thousand horses belonging to the General Omnibus Company the food is all passed through the chaff-cutter, with, I believe, a certain proportion of straw. While spring grazing our bullocks on Tares, we mix straw with it in their early growth, but as they advance to flowering and podding this is not required, because there is much Wheat and Oats grown with this, which gets intermixed on passing through the chaff machine.

POULTRY AT THE PARIS EXHIBITION.

The "Exposition d'Animaux de Basse-cour," in the Agricultural Annexe at Billancourt, offers so many points of contrast with the arrangements of an English poultry show, and illustrates so strikingly the different objects and plans of poultry-keeping in the two countries, that it is worthy the notice of English agriculturists. In our own country poultry shows, even those connected with our agricultural societies, are chiefly devoted to the encouragement of pure breeds of fowls, and the animals are prized in proportion to their approach to certain standards of form and coloration. In France, on the contrary, fowls are esteemed solely in reference to their economic value as table birds and as abundant layers of eggs of large size. It is only lately that much attention has been paid to breeding the birds to any fixed and definite standard, and even now some of the best table fowls—those known as La Bresse—would be regarded by English amateurs as veritable mongrels.

The finest fowls in the Exposition were the Crèvecœurs, the Houdans, and La Flèche. The first variety, of which many very good specimens were shown, are large-bodied, short-legged fowls, black in colour, and having their heads ornamented with a crest of feathers and a two-spiked comb. The Houdans have very much the same general characters, but they are black and white in colour, and often possess a fifth claw. Both these breeds are obviously the result of crossing the fowl with the large-feathered crest known since the time of Aldrovandus as the Paduan breed with a large farm-yard variety. La Flèche is a long-legged black fowl, with little or no crest, but with a spiky two-horned comb that gives a strange, weird, hob-goblin-like expression to the face. These three breeds are alike remarkable for their whiteness of skin and fat, their early maturity, the ease with which they fatten, and above all, the smallness of their bone. This latter is a point on which the French rearers justly pride themselves. In a good table fowl, according to their opinion, the bones should not amount to one-eighth of the weight of the flesh. By some strange infatuation remarkable in so practical a people as the English, we do the reverse, and a Dorking breeder expatiates on the bulk of the bone in the limbs of his birds as a point of merit, forgetting that all weight of bone beyond that requisite to support the animal is so much useless offal, of no value as food, though having been produced at the cost of so much nourishment.

As table fowls, the only English breed that can at all compete with these French varieties is the coloured Dorking, and this has the disadvantage of being rather delicate in constitution, an evil which is common to it and to La Flèche, and, though to a smaller degree, the Crève-cœur, but from which the Houdan is exempt.

It may not be flattering to the vanity of English poulty breeders to be told that the best market fowls of France are far superior to those of England, but the fact is undoubted. The poulardes and capons shown at the expositions of fat dead poultry that are occasionally held in Paris are far finer in skin, and firmer and finer in fat, than those seen in the best English markets. This is due in a great measure to the judicious methods of fattening, Buckwheat meal and milk being the ingredients composing the "patons" with which they are crammed. The fatty ingredients of the food are assimilated and stored up in the body without much change, and on the character of the food depends that of the fatted animal. Those who have partaken of a La Flèche pullet fattened on Buckwheat meal and well cooked know that nothing in the shape of a fowl can surpass it on the table.

The French table poultry at Bilancourt were decidedly good of their kind, and would have done credit to any show. The other breeds, such as Dorkings, Cochins, Hamburgs, game fowl, &c., were, with scarcely an exception, altogether beneath notice. Dozens of pens of half-bred mongrels were shown, possessing no merit whatever either as ornamental or useful poultry. The arrangements of the Exposition were very inferior to those of English shows. The building and pens were both inconvenient. The want of any classification rendered it difficult to compare different birds of the same variety. The great length of time the fowls were detained, and the uncertainty as to which breeds would meet the approbation of the jurors, repelled English exhibitors. The result was a small show of only 400 pens, three-fourths of which consisted of the stock in trade of four or five French poultry dealers. To establish a good show of poultry in France it will be necessary to follow to some extent the arrangements of an English exhibition, to classify the breeds, and offer separate prizes for the best specimens of each variety. At the same time, we may take a lesson ourselves. Fancy and ornamental poultry have been too exclusively regarded in this country. It is time we encouraged the best fowls for the table. At all poultry shows held during the winter prizes should be given for the best fat dead poultry.

Our agricultural societies appear to be at last appreciating the importance of poultry as a good supply. The Royal, at its next meeting at Bury, offers 200*l.* in prizes for the encouragement of farmyard poultry, including the French breeds that we have described. If the Council will avoid the error into which they formerly fell—that of employing as the judge the dealer who has sold the very birds on which he adjudicates—much good may spring from this movement.

In connection with the subject of French poultry-keeping may be mentioned the fictitious accounts which periodically reappear respecting the existence of gigantic horse-fed poultry establishments in France. These accounts are entirely fabulous. It is impossible to keep very large numbers of poultry in one spot, as disease invariably breaks out as soon as the ground becomes tainted. Moreover, the fowl is a granivorous and not a carnivorous bird, and cannot exist on flesh diet. The experiment of extensive poultry-breeding establishments has been tried repeatedly both in Europe and in America, and in every case the result has been a disastrous pecuniary failure. *Times.*

THE EARL OF KIMBERLEY ON AGRICULTURAL AFFAIRS.

[We gave some while ago Lord Clarendon's excellent address on the field open to the operations of Chambers of Agriculture. We have now to lay before our readers the speech of Lord Kimberley on a somewhat similar subject, recently given before the Norfolk Agricultural Society.]

Although I am nominally a farmer of a few acres of land, I cannot profess any opinions upon purely agricultural subjects which it would be fit that I should offer to an assembly of this kind; and there is a further reason why on an occasion of this kind a speaker finds himself undertaking a rather arduous task, and it arises from that which I not only do not regret, but which I very much rejoice in—I mean the establishment of the Agricultural Chamber in Norfolk. We are about to transfer political power in this country to a very considerable extent from you, the

middle classes, to the classes below you, and at such a moment as this—not, mind you, saying for one instant that that change is not one which ought to be accomplished, and which it is not wise to accomplish, not expressing on such an occasion as this the slightest opinion as to the manner in which it is accomplished, or as to the part either one party or the other has played in this change—yet I do think it is well that we should reflect upon our position, and that an interchange of opinion amongst the different classes should take place. It is for that reason that I rejoice in the signs of life which this county has shown in the establishment of the Chamber of Agriculture, and in the discussions which have there taken place. Let me point out to you this. The state of security which exists in such a county as this, and especially here, but to a very considerable extent throughout England, is one exceedingly peculiar, and to some extent unusual, because it is not the usual state of society that there should be great landlords, and great tenant-farmers, and that below them should be a great mass of labourers paid by the day. That is a state of things which does not exist in some of the most fertile countries in Europe. It does not exist in France; it does not exist in Belgium; it does not exist in Italy; and it does not exist to the same extent in Germany that it does here. That position of things is one which should make us reflect. Do not let us think that what has been always will be. History to a very little extent repeats itself, and changes may befall us which we might have anticipated, but which, by not anticipating, we shall not prevent. I am naturally led by these reflections to call your attention in a few words to the condition of the agricultural labourer in this country.

The Norfolk Agricultural Labourer.

Upon that subject a very interesting and instructive discussion has taken place in the Chamber of Agriculture at Norwich. I freely own that I do not agree, except in part, with the conclusions at which the Chamber arrived, and I dissent in a great part from the opinions which were expressed by the speakers upon that occasion (Oh, oh!). I know you will hear me fairly. I know I shall express an opinion which is not likely to meet with entire assent, perhaps not at all with the assent of many whom I am now addressing; but I am actuated by only one desire, namely to take advantage of this occasion to give an honest, independent opinion. Before I touch upon this particular question, allow me to say one word upon another branch of the subject, which was not considered by the Chamber, and which I can dismiss in a few words—I mean the cottages of the agricultural labourer. There can be no doubt that the proper housing of the agricultural labourer has become a practical question of great importance. I believe that a change in the law which has been recently made—I mean the establishment of a union settlement—was the only measure which could produce a salutary change in that direction, and I am convinced that, although it may take time, that measure will ultimately produce the change which we all wish to see. Under that old law it was the direct interest of many persons not to build cottages for the agricultural labourer; and whatever we may say as to philanthropic motives, unhappily human nature is such that man will be influenced to a considerable extent by his interests. And here I would say one word for the class to which I belong—the landlords. It was not the landlords alone who did not wish for cottages to be built in close parishes. The tenant farmers objected to it just as much as the landlords. It is notorious that it was not the interest of the farmers in a close parish to bring a number of cottages into that parish. (Repeated cries of "No, no!") You may say "No, no," but I have heard it repeatedly with my own ears. I have heard men say, "Do not put cottages in this parish, because they will bring a number of paupers into it." I do not attach any particular blame to gentlemen who took that view. There is no doubt that it was an ordinary selfish view, such as we all take more or less. We have, however, remedied that state of things. We have made it no longer the interest of the tenant-farmer that cottages should not be built in any parish. We have made it his direct interest that they should be built there. We have made the law such that the tenant-farmer now, when he hires a farm, can apply to his landlord for more cottages, just as he says to him—"I want more cattle-sheds, or more winnowing-houses." You will have a pressure put upon the landlord—a legitimate, natural pressure—that for persons to take their farms they must build cottages. I believe the pressure upon the landlord, and the desire which you will have to have a proper number of labourers handy for employment, will ultimately bring about the desired result, and that you will have a sufficient number of cottages for the housing of labourers employed upon your farms. It is quite obvious that the matter is of the greatest practical importance. I suppose that nothing presses more upon the mind of every employer of labour whom I am addressing than the rise in the price of labour and the tendency of the labourers to leave us. That I take to be the pressing agricultural question of the day. Well, if it be so, what is it that we are called upon to do? Why, to see that by every means in our power we place the agricultural labourer in such a position that he shall not desire to leave us. It is no use for us to talk about old days, or to say we wish they were this or that. We have no control over those who wish to go. Go they will, unless we make it their interest to stay.

The Gang System.

This brings me to the immediate subject which was discussed by the Chamber of Agriculture the other day, as to the restrictions upon the employment of women and children in agriculture, and further educational measures with regard to the children of agricultural labourers. Upon this subject the Chamber of Agriculture came to the conclusion that the employment of women and children in agriculture is desirable for their own welfare, and for the production of their meat and bread. I have not one word to say against that proposition. I think it is an unfortunate circumstance that society should be such that women are obliged to work in the field, but I recognise the necessity as existing. I am quite certain that the time has not yet arrived when the employers of labour can dispense with the employment of women in the field in the county of Norfolk; nor has the time arrived when the head of the family, the agricultural labourer, can dispense with the assistance of his wife, in field labour, for the support of his family. So far I agree with the resolution which was come to by the Chamber, though I think it would be a very salutary change if the employment of women in field labour could be dispensed with. The other part of the resolution was to this effect—I am quoting from memory—that no further restrictions as to the employment of women and children, and no further educational measures are required, except as to the employment of some of the gangs. I am very glad indeed that the resolution was passed, because it admits, at all events, one thing, and I am quite certain that no assembly of Norfolk farmers could come to any other conclusion than that some regulations are necessary with regard to the employment of gangs. I am very glad that this is admitted, and I am quite certain that no person who hears me, and who reads the report upon agricultural gangs which was presented to Parliament, would feel any doubt as to the way in which he should give his vote upon that particular part of the resolution. I am sorry to be obliged to confess, as a Norfolk man, that when I read that report I felt somewhat ashamed, and I may tell you that the feeling which the report has aroused out of the county is such that few people in this room, who have not had the opportunity of seeing persons who have no connection with the eastern counties, and who have read that report merely in an independent spirit, would imagine. There is no doubt that legislation upon this subject is certain, that it is imminent, whether you may like it or not. Therefore, I am glad that the Chamber of Agriculture came to the conclusion that some regulations were necessary. If the Chamber had not had before it the Bill proposed by Mr. Fawcett, which I do not think would be altogether practicable, they would probably have discussed the matter in a more favourable spirit to the views which I advocate. A Bill has been brought into the House of Lords by Lord Shaftesbury, which I have not seen, but a noble lord has acquainted me with its principal provisions, and I must say that I approve of it. Lord Shaftesbury proposes in the first place as regards gangs that no women shall be employed in gangs under the age of 18. Of course he will propose—at all events if he does not, I shall—that the gang master should be licensed. Next, Lord Shaftesbury proposes, which is not in accordance with what the Chamber of Agriculture desires, that no boy shall be employed in agriculture under the age of 8 years, and that no girl shall be employed in agriculture under the age of 13. I think that these are very moderate proposals. No man ought to desire that a child of the tender age of 6 or 7 years should be employed in these gangs. It is perfectly monstrous that these things should be done, but I have read it, and I believe that there have been children employed in the field of 6 or 7 years old. [A Voice: Very few.] They may be very few, and the fewer the better; but I say it should not be possible that any parent should sell the labour of a tender child of that kind. It is not merely the fault of the employers themselves. There are mercenary persons who will sell the labour of children of tender years, but who should not be allowed to do so. Can any one wish that tender girls under 13 should be employed in the field? It is very obvious that by going into the fields at such an age they acquire habits which mothers of families ought not to have, which prevent them being of use as servants, and which produce an effect upon the population such as none of us desire to see. Then, Lord Shaftesbury proposes that there should be some measures with regard to education. He suggests that you should take to some extent the Factory Act, that you should compel every child to attend school either half days or alternate days, or adopt a system requiring them to have attended so many days during the preceding six months.

Education of the Labourer.

I confess I see considerable difficulty in the application of these Acts to agricultural children, but for all that I have a strong opinion that more education is required for the agricultural labourer. What is it that we are about to see? We are about to see political power placed in the hands of the masses of the people, and do not think that that will be long confined to the towns. Every man knows that it will extend from the town to the country; and I maintain that it is a political axiom which no man can refute, that to place power in the hands of men at once ignorant and immoral is a most dangerous thing, and most certain to produce a political catastrophe such as we can scarcely imagine. It is an absolute duty for every man who values the permanency of the institutions of this country, for every man who values the permanency of the social state in which we live, to see that every man in whose hands political power will be placed before long, should be given as good an education—and by a good education I mean not merely reading and writing, but as good an education as can be afforded. It is a difficult thing to solve the problem, but we ought to give a candid hearing to those who have fair proposals to make, and receive them, not in hostility, but in a spirit of friendliness, knowing that the matter is of the utmost importance to us, the owners of the property, and the employers of labour. It is idle of men to say that the classes below them are satisfied with their position, and that everything is done to make them satisfied with the privileges conferred upon them.

The Cattle Plague.

There are one or two other topics, if time permitted, I should like to touch upon. I agree with my hon. friend on my left (Mr. Read) when he referred to the fortunate circumstance that we were enabled to hold this meeting without any restrictions as to the exhibition of cattle. He had taken the opportunity of saying a word or two with regard to the action of the Privy Council with respect to foreign cattle. I do not for a moment doubt that there may be great difficulty in arranging a change in so great a trade as foreign cattle, but I must say I agree with my hon. friend that if it can be done—and I for my part cannot but believe that it can—it would be a plain, obvious, and wise policy that all cattle brought from abroad, as long as we have any reason to apprehend any serious disease, should be slaughtered at the port or near the port of debarkation. It is a mere matter of pounds, shillings, and pence, and in the end would be the cheapest method. What would be thought of any expense that might be incurred in establishing lairs for the convenience of the slaughtering of cattle, when compared with the losses which we have experienced in our live stock? As to telling me that that is a loss which merely falls upon those particular persons who happen to be the possessors of cattle, the idea seems to me to be preposterous. Nobody for a moment supposes that when the great dearth of cotton occurred that the loss of Lancashire was not the loss of the whole country, and nobody can suppose that the losses of a large portion of meat which supply the country is not the loss of the whole country. It is obvious to me, if such a measure is practical, that it is a pity it is not adopted. The next subject to which my hon. friend alluded is one in which I agree with him in part, but not altogether. He gave some excellent advice when he said, "Fill up by all means those papers which are being sent round for agricultural statistics," but he said at the same time that he did not think they would be of much value, because it would not be possible to calculate from the acreage of crops what will be the produce. There is no doubt as to the truth of the observations which he made, but the conclusion which I draw is not that which I imagine my hon. friend would draw. My belief is that Government will not have too many agricultural statistics, but that they will not have sufficient, because it is obvious that the proper course to take is that which was taken in Ireland, namely, to take the estimate of the produce when you take an account of the acreage; and I think there could then be found in those statistics a very valuable guide in calculating the general condition of the produce in any given year. However, I shall not argue this point, because the advice given by my hon. friend is that which I should myself give, and I think there is no doubt that it will be followed, because when the statistics were called for before, the county of Norfolk was by no means backward in responding to the call.

Highways.

There is one subject which, though not strictly agricultural, you would perhaps excuse me if I briefly advert to—I mean the management of our highways. I don't at all mean to enter into any details; but I think the principle of the Act is good, and one of the reasons why I think so is because the management of highways by boards, at which owners of property meet with occupiers of land, is a more wholesome system of management than mere parish management. I don't wish to take a one-sided application of that principle, for just as I think highway boards are good things, and would work well, the same as our boards of guardians, so for my own part I never could see for what reason the management of county rates is not shared in some proper proportion by the occupiers of land with the owners of land. It is contrary to the general principles by which we are governed, that a certain portion of the rates which are levied upon property in the county should not be managed by a board partly elected by the occupiers of land, and partly composed of those who have some personal interest as owners of land. I think that is a very salutary reform—not a very large one, but one which would give a good deal of satisfaction, and which would place us all upon a more agreeable footing, and which would be more in accordance with the spirit of our institutions. I thank you for the attention which you have given to the remarks which I have thought proper to make, more particularly because I know that those remarks are not agreed in by many whom I now address. My opinion is this—the time is come when we should not fear to face any question upon which we differ, and for that reason I shall refer to one more topic before I sit down, namely, the preservation of game. I have never been a great game preserver, and therefore I am enabled to speak freely on the subject. I think it is to be regretted that the extensive preservation of game in many parts of the country has given rise to the dissatisfaction which undoubtedly to some extent exists; but what I wish to say is this, that while I recognise that that dissatisfaction may have some ground—and I am quite sure that as to that peculiar animal the rabbit, the more dissatisfaction which exists the better, and the more he is put out of the way the better; but with regard to game generally, I would venture to say this—it is very natural that gentlemen should not like to have their farms overrun by game, but you must consider what will be the result if you press the thing too far. If game preserving really ceased, probably in the first place you would not have so many resident gentlemen in the country, which I think would be a misfortune. In the next place this state of things would inevitably arise: the owner would put up his farms to the

highest bidder; they would be let by tender, and a state of things would be introduced unfavourable to the tenant, and destructive of the good understanding which now exists between owner and occupier. A state of things would be introduced than which I cannot imagine anything more dangerous. The occupiers of large farms having beneath them large numbers of men employed at daily wages, not having a good understanding with their landlords, or the support of their landlords, would stand face to face with the population. I cannot conceive a state of things more dangerous. Game is one amongst many things. My feeling is that the very old and trite motto which I now see on the wall opposite, "Live and let live," is the best state of feeling by which to be actuated. "Live and let live" has two sides. A man when he lives himself must remember that a very difficult and by far the most important part of the maxim is to let live; and no matter whether it be an employer, a labourer, or capitalist, or an artizan, or whatever may be our relationship, I believe that as it is the highest Christian duty, so it is the wisest policy, to "Live and let live." To preserve the good relationship which has so long existed between the landlords and tenants, and the tenants and labourers employed under them, in this country—the good relationship which has been maintained by a fair spirit of accommodation, forbearance, and consideration—is not only our own interests, but also the interests of others. I believe that if that spirit continue to animate us, whatever may be the changes, politically or socially, which we may have to meet, we shall be able to hand down to our posterity unimpaired the fair fabric of the constitution under which we live.

Home Correspondence.

The Hop Blight.—I have used Pooley's Powder, manufactured of ground tobacco, as now permitted to be used (for this purpose) free of duty; I find it a most satisfactory article, and in every instance where it has been used the effects have been marvellous—the plants infested with blight recovering their vigour in a few days. It is applied with the instrument used for sulphuring Hop plants, at the rate of many acres a day. It is equally good for horticultural purposes; it is generally applied while the dew is on the plants; it is very economical, the cost being 42*s.* per cwt. *An Old Subscriber.*

Agricultural Statistics.—To some remarks in your last paper on the statistics of Devonshire, you add a note to the effect, "that the weekly sales reported are a very small fraction of the weekly sales effected." I fear this is now too true, and if so, it is bad news for tithe payers. I admit that the mere number of quarters sold, whether in hundreds or thousands, makes no difference as to the resulting average price per quarter, provided the prices to be acted upon and worked out are the same in both cases; but if price is wrong, all is wrong. By the old law the average prices of corn were taken weekly from 290 towns, and under this system, and according to official tables, 5½ to 6 million quarters of Wheat were annually reported as sold; and this you will admit was a considerable fraction of the 12½ million quarters estimated as the average annual yield. Under the new law, however (27th and 28th Vict., cap. 87), things are very much changed, and it appears to me will operate very much against the tithe payer, and proportionately very much in favour of the tithe owner. Of the 290 towns from which averages were formerly collected, 141 towns—many of them of the smaller class—are now thrown out, and only 149 of the larger cities and towns retained, and where of course the price of Wheat will range much higher than in small town in remote districts. Under these circumstances it is plain that the averages must rule unfairly high, and the payers will be the sufferers. *Chat Moss.*

The Ensuing Harvest.—We are now upon the eve of another harvest, and as yet not much has been said about our prospects. Perhaps this is owing to the praiseworthy efforts of the Government in trying to obtain the long-looked-for and exceedingly valuable information which the collection of agricultural statistics will give. It will be most opportune for farmers this year, as we shall all desire to know upon what we have to depend. If the produce is likely to be a short one, there will be no need to press sales, as was done last year, when a vast quantity of good Wheat was sold under 50*s.* per quarter. If there had been a surplus of grain in any part of the world it would have found its way to our country during the past year, our prices being so tempting. There can be no doubt respecting the world's supplies. They are not superabundant. If, then, we can obtain something like a correct report of our acreage and probable yield through these returns, it will pretty nearly guide our course for the next year. Farmers cannot be too highly censured who withhold their returns. It is foolishly wrong in more senses than one; it leads to error, because some official has to give his estimate instead, which cannot be so correct, and yet the Government obtain it in that way, such as it is. Such squeamishness will surely soon be unknown. No one can derive so much benefit from the collection of agricultural statistics as the farmer. It tells him the state of his affairs, if not individually, at least collectively, by which in a great measure he may guide his business. Unhappily, there are so many of us who cannot altogether be thus guided. Circumstances are against us; exigencies to provide for, payments to make. Sales must be made. But there are, happily, vast numbers who can await their time, and by thus waiting they regulate and equalise the market. This they could not do unless from some good idea of their future prospects. It may be said, but what of foreign imports? Why, just this: there is scarcely any country upon our globe but what has long had these statistics, and our farmers have but to extend their reading a little further to grasp the whole. I look forward with much interest to the forthcoming reports. Well, but our own harvest prospects? In the first place, it cannot now be an early harvest, unless from premature ripening, which is always bad. In the next place, in the early part of May we had some very warm and forcing weather, this caused every stem to shoot upward; the consequence has been that, as respects the Wheat plant, little or no tillering took place, hence we shall have a far less number of Wheat ears. This of itself would indicate a short crop, but as the ears already out, and now almost through their blooming, have filled satisfactorily, it will in some measure compensate that deficiency, but not fully. I have been over a great breadth of country within the past two or three weeks, and do not hesitate to say that to the best of my belief the whole of the corn crops on stiff clays, flinty clays, clayey loams, chalky soils, sandy and gravelly soils, are all deficient, and in very many districts to an alarming extent. Scarcely anywhere on these soils do you see a crop retaining a healthy green, for the most part they are thin and yellow, and to all appearance cannot yield an average crop. Upon good open loams, and all open free-working fertile soils of good consistency, the crops are splendid. They are not so thick in plant as usual, but they have grown vigorously. The Wheat presents a beautiful ear. Oats are a full plant, and coming into "shag" admirably. Barley is almost too big. Beans and Peas look healthy, and have flowered surprisingly: with suitable weather these crops must yield well. Now, as these soils constitute but a small breadth of the entire kingdom, and the far larger extent of soils are so very defective, I venture to prophesy a short crop, certainly not an average one; but I think the quality will be superior, owing chiefly to a thin plant and tardy growth. The Wheat harvest cannot be general before the middle of August. Early Peas will soon be ready. *O. F.*

Hind's Cow-keeping in Scotland.—A good many farmers confine hinds' cows in the byres from Martinmas, the 22d of November, till the 12th of May. Where this is the rule the cows are loosened from the stalls to get water each day, and are immediately driven back to the byres. Such farmers keep the hinds' cows from November till March on water and straw and an occasional feed of Turnip tops. Previous to substituting Cotton-cake or oilcake for the Turnips, some farmers gave each hind four single-horse cartloads of Swedes; others gave four of Swedes and two loads of White Turnips, which kept the cows in life till turned out to Grass on the 12th of May. The subjoined is what I stated in the *Agricultural Gazette* of Dec. 5, 1857:—

> "There is a great difference of hinds' wages, owing to the following causes. Some farmers make every effort to secure the hind an abundant crop of Potatos; others do as little as possible. During the summer some farmers set apart the best Grass field for the hinds' cows; others a field which is closely eaten down by sheep. During winter some farmers allow the cows plenty of Turnips and good fodder, and turn the cows in spring out to a Clover field: others allow little else than straw. Hence the farm servants upon one farm may have the means of procuring the necessaries of life, and even luxuries, while the servants on a neighbouring farm may be almost at the starving point."

For some time after my unsuccessful essay for one of the prizes of 20*l.* and 10*l.*, offered by the Rev. John Thompson, of Hawick, for essays on the bondager system, I was twitted with a good deal of sarcastic banter that my unsuccessful essay "ought to take the conceit out of me," &c. You will conceive my reasons for reciting what you published of mine years before the prize essays were thought of. I address you at present on the blank side of my essay of 144 pages of foolscap for one of the prizes. Being a rustic by birth and education, I suppose the position of clown in a literary circus like the *Agricultural Gazette* is proper for me. I slept two nights beside hinds' cows on the 7th and 8th of May last, which gave me an opportunity of getting some additional information for you. The farmer's residence was fully occupied with company, and there being nothing but one-roomed cottages for the hinds, I got some blankets from the steward and made a bed in the straw-nook! The cows on that farm get a feed of Turnips each day throughout the winter, and, when weather permits, are turned out into the field for a few hours each day, where they have access to Turnips laid down for them and the sheep. These cows, which I slept beside, were in as good condition in the beginning of May as any farmer wishes his own cows to be in. They had a good Grass field for pasture during the day, and good Oat straw during night in the byre. You are aware that I earn my livelihood by horticulture, and thus I am in some respects isolated from the agricultural portion of the community; but I may say this: a cow, whose milk supplies the hind's household with milk and butter only, is worth the money substitute of 5*l.* to 7*l.* to the hind. I consider the hinds' wives may reckon what they realise from the sale of butter as a wage for the hind's wife's drudgery connected with milking the cow and making butter and cheese. The quantity of butter each hind's wife has for sale ranges from 2 to 12 lb. per week. A cow which gives 1 lb. per day is considered a good cow. I was much pleased to see in the *Agricultural Gazette* of June 15 that Mr. Scot Skirving puts only 5*l.* against the hind as the cost to the farmer of a hind's cow's keep for a twelvemonth. What is the estimated cost in East Lothian, where 5*l.* is the annual rental of an acre of land on a good many farms, is surely sufficient in Berwickshire, where there are very [few?] farms the rental of which exceeds 2*l.* 10*s.* per acre per annum. I may point out the advantages which the inhabitants of towns derive from so many hinds having cows as part of their wages. The provincial towns in the south-west of Scotland are so glutted with fresh butter, of the best quality, that the retail price of it in Kelso has ranged from 9*d.* to 11*d.* per lb. since May last. Tenpence has been the general price all June for butter, as good as what I paid 1*s.* 4*d.* per lb. for in 1856, when residing in Worcestershire. It would be interesting to know the present retail prices of fresh butter in those parts of England where farm labourers are not allowed to keep cows. What a jumble the different theories of reformers of farm labourers present when contrasted. For example, too many who denounce the large-farm system of management also object to yearly servants having advantages of crofters without crofters' risks. If subsidising some classes be unjustifiable, I fancy it can be proved that it is a false economy subsidising rural labourers through the medium of small farms. If the death of a cow be "a heavy blow to the hind," what is there in a few acres of land to neutralise the death of the crofter's live stock? Since it requires a tenant farmer to have a capital of 8*l.* to 10*l.* and upwards for every acre of land previous to his commencing to purchase stock and implements, to keep him afloat during the first two years of his lease, it requires little argument to refute the propositions of so many would-be friends of the different grades of farm labourers. I could furnish you with a good many practical proofs of the advantages to the country at large, derivable from tenant farmers having the requisite capital for high farming. A tenant of less than a 1000-acre farm in this district purchased 6000 stones of hay last winter in the Falkirk district, and paid the carriage by railway to Kelso station, and carted it from thence several miles, for feeding cattle and sheep. I am digressing intentionally into the comparative merits of large and small farms, to show that yearly servants who have cows are one of the servant classes who derive mutual advantages from highly-cultivated extensive farms. *T. W. Rutherford, Forest Field, Kelso.*

Rye-Grass.—We have sent you samples of four kinds of Rye-grass, cut off close to the ground all on the same soil, to show the comparative height when grown without manure. The sorts are:—Sutton's Italian Rye-grass, Pacey's Perennial Rye-grass, Common Annual Rye-grass, and Sutton's Dwarf Perennial Rye-grass,—the first being, as you will observe, much the tallest, and the last much the shortest and most slender; the use of this latter being principally for sowing with other dwarf-growing Grasses for park lawns, croquet grounds, cricket grounds, &c. The Italian Rye-grass will attain a much greater height with the help of sewage or other manure. *Sutton & Sons, Reading.* [The samples are correctly described, and we understand them to have been grown under similar circumstances. If so, they indicate the permanence of habit of growth which varieties of one species attain.]

The Moist Climate of Ireland.—In enumerating the various causes of increased damp in climate, "S." totally overlooks the existence of two or three supposed causes of damp in Ireland—our mountains, lakes, rivers, bogs, and morasses; and *per contra*, we cannot with much justice complain of any one of those causes of damp he assigns to England—the trees of woods, plantations, and hedgerows; whilst of Furze, which he says are not such conductors, we have too many of them where we least, and too little where we most, want them. Amongst our forage plants of the natural order Gramineæ, if we were to be guided by his theory in improving our climate, we should discard the Lolium italicum (Italian Rye-grass), Dactylis glomerata (Cock's-foot), and other broad-leaved plants of that tribe, and adopt such as the Cynosurus cristatus (crested Dog's-tail) and other narrow Grasses of that ilk. Amongst those of the natural order we should discard the various broad Clovers, including that now proved so valuable, the Trifolium incarnatum, and supply their places with "our own dear native Shamrock," and the very common yellow Trefoil. If we now turn to other classes of plants looked upon, by us at least, as of great importance, with the view of improving our climate, we should discard all the Cabbages, Mangels, Turnips, Parsnips, &c., and confine our green crop culture to such narrow-leaved plants as the native Carrot (Daucus carota), and its congeners, and for variety sake adopt the native Brassica napas, and any other narrow-leaved plants of that family. But notwithstanding the powerful theoretic reasoning of your learned correspondent, I suspect we must bear much longer with this damp, or devise some other means of getting rid of it, or at least of mitigating or warding off its effects, than those suggested by him. Let me now turn to another matter, having reference to the climate of Ireland, which, if my memory serves me rightly, I have long since promised to revert to, and would have done so did circumstances admit of it. The subject is of great importance to Ireland, nay, to the United Kingdom, and all classes in it. The home production of sugar, if not at the least first cost to the home consumer, is of great ulterior advantages to all. Some years ago an attempt was made to produce sugar from Irish-grown Beet and failed, because not fairly tried. The Government of the day, seeing the importance of the subject, desired to have a series of experiments tried, and the results reported by the then director of the Museum of Irish Industry, and presented to both Houses of Parliament. Having had the honour of being one of the many selected to grow the Beet in different parts of Ireland, to be analysed, I had an early copy of the report, which is now lying before me, and I may here after give you a few extracts in proof that the climate of Ireland, damp though it is, is not so inimical to the proportion of those crops which contribute both directly and indirectly to increase the food of man, and add to the wealth and strength of the nation. Twenty-four questions were answered by 25 of the most intelligent, painstaking, systematic men, whom the director of the Museum found it convenient to consult in hopes of getting correct answers. They were located in different but conspicuous place

scattered all over the island, embracing every kind of soil and subsoil, under every variety of climatic influence. And though there were, as might have been expected in 118 specimens, a great number of discrepancies, as to the acreable produce, cost of production, and other circumstances, per acre, it was really astonishing how slight those discrepancies were, compared with those noted in the analyses of the same roots, grown on the same soil, under the same climatic influences, but differing in other conditions—as to the period of sowing, time of taking up the crops, nature and quantities of manures applied, &c.; giving so many additional proofs of how very chary both scientific and practical men ever should be in presuming to become dictatorial on a limited experience of seasons, soils, and other conditions productive of such variable results as presented themselves in this case. *Edward Carroll, Albert Training Institution, Glasnevin, Dublin, 24th June*, 1867.

The Crops on the Cotswolds.—The present may be pronounced a favourable season; all descriptions of crops are looking well. The Clover, artificial Grasses, and Vetches have furnished abundant food for the live stock, and Sainfoin and meadow Grass ricks are springing up in all directions. The aspect of the Wheat plant is good; ears are bursting forth, and many fields already present an even surface of heads, which bespeak a simultaneous growth. Barley and Oats also look healthy and promising; the former is of a good colour, and strong in growth, and will soon need rain. Oats have improved in appearance since the temperature rose, but they will shortly require moisture. Beans are not much grown on these hills. Peas and Vetches are a good crop, especially the latter. Much of the arable land where the tilth is good is already striped with plants of Swedes and Turnips, but a great breadth of roots has yet to be sown. Mangel Wurzel, Cabbages, and Potatos are but little cultivated in this district; where there is sufficient soil our farmers can grow these crops as well as their neighbours. All descriptions of sheep are in good condition. The abundance and quality of spring keep has proved of benefit to the live stock, and should the cultivator be favoured with a good Turnip crop, there is every prospect of their faring as well in the winter. To sum up, the coming season bids fair to favour the agriculturists of the Cotswolds. *J. L. F., June* 27.

Landlord and Labourer.—Does the Earl of Shaftesbury sufficiently understand the agricultural question to be able to give correct estimates of the Dorsetshire wages? (see *Times*, Jan. 29, 1866). If so, would he have turned out several tenants, each farming about 600 acres, near Cranborne in Dorsetshire, by notice to quit (three months, I believe), and without assigned reason? *J. P.*

Societies.

SCOTTISH METEOROLOGICAL.—At the recent half-yearly general meeting of this Society, the Marquis of Tweeddale in the chair, Mr. D. Milne Home read the report of the Council, stating that the number of stations in connection with the Society, and from which monthly reports were statedly received, was now 87, and, among other particulars, that the Marquis of Tweeddale had placed at the disposal of the Council a sum of 50*l.*, to be devoted to the elucidation of the subject of the temperature of the soil, and that the Council had arranged to get observations with thermometers sunk in the soil at the depths of 3, 12, and 22 inches, at eight different stations, during the months of July, October, January, and April—the observations to be made 12 times in a day during those four months. The number of the Society's members was now 630.

Apparatus for Registering the Temperature of the Air and Rainfall.—The CHAIRMAN called upon Mr. Stevenson to explain the construction of an apparatus for this purpose.

Mr. STEVENSON said he had suggested to Lord Tweeddale that he should inquire of the Astronomer-Royal, "What is the simplest and best self-acting method of obtaining the constant indications of a thermometer placed in the open air?" From the answer returned it was evident that they neither had, nor knew, of any suitable instrument. From some experiments which he made immediately after Lord Tweeddale's visit in February, he (Mr. Stevenson) became hopeful of obtaining continuous thermometric registration by mechanical means, and after putting the instrument into shape, he obtained the first result with the thermometer on the 6th April. He then perceived that a second thermometer might easily be adapted to the same apparatus, and he also adapted a wet bulb; and afterwards a barometer, and a rain gauge, thus making the apparatus more complete. Mr. Stevenson then proceeded to describe the apparatus, referring first to the timepiece. When wound up, he said, the timepiece goes eight days. The requirement that it should be kept going in an exposed situation during the heat of summer and the cold of winter rendered it necessary that the timepiece should be strongly made and have a pendulum. The pendulum does not compensate changes of temperature, but the timepiece can be corrected at any time. Connected with its centre wheel by two bevel wheels and a pinion, a wheel revolves once in 26 hours, carrying round on it a brass cylinder or drum 4.14 inches in diameter by 7 inches high. This cylinder is to support the papers which receive the markings, and is so constructed that it can be removed or replaced with ease without disturbing the apparatus. The timepiece also moves a hammer, which, by a spring, is made to strike a blow once every ten minutes, or 144 times in 24 hours. A series of small dotted markings are thus given on the papers surrounding the cylinder, and the dots being 1-20th of an inch apart, represent an hour, and the dotted line of 12 inches thus represents 24 hours. The tubes of the two thermometers attached to the apparatus are large and strong. The barometer is peculiar, in so far as to have the cistern at the top of the tube instead of, as is usual, at the bottom. With this arrangement a constant level, or nearly so, is obtained at the top or cistern, and thus we get the full range of the scale of inches. At the bottom part, from whence the indications are taken, an inch of fall or rise gives an inch indication, only in this case the scale is turned upside down. The rain gauge is constructed so that an inch of rainfall causes the mercury gauge to rise an inch, and so soon as an inch has fallen the receiver empties itself by a syphon, and the mercury gauge returns to zero, and is ready to start afresh. The area of the circular mouth of the rain gauge is equal to a square foot. In concluding, Mr. Stevenson said that his own wish was to have had some practical trials made previous to laying the apparatus before the Society, but in deference to the wish of others he consented thus, prematurely perhaps, to give an explanation of it. After more experience, however, of the working of the apparatus, a supplementary communication might be made to the Society.

As Mr. Stevenson proceeded with his explanatory remarks, he illustrated the manner in which the apparatus operated by means of diagrams and by working several experiments—the successful results of which were hailed with applause on the part of the audience.

On the motion of Mr. HOME, who described the apparatus as valuable and most ingenious, a cordial vote of thanks was awarded to Mr. Stevenson.

The CHAIRMAN stated that it had been arranged that an open door experiment was to take place at the Calton Hill, at the foot of the Observatory, and that Professor Piazzi Smith would see it carried out.

Barometric Gradient in Relation to the Force of the Wind in Storms.—In the absence of Mr. Thomas Stevenson, C.E., Mr. BUCHAN read a paper prepared by him on the barometric gradient in relation to the force of the wind in storms. The object of the paper was to show the fallacy of the notion that the violence of a storm should be measured by the fall of the mercury in a barometer. The only cause of winds is an inequality of temperature producing an inequality of density in the atmosphere, and hence the measure of the intensity of a storm is proportionate to the difference between any two barometers and the intervening distance between them. The author proposed to express numerically the intensity of a storm by calculating what he termed the barometric gradient. This gradient (which was, strictly speaking, a curved line) would represent relative intensities of storms, as it embodied the difference of reading off two barometers, coupled with the intervening distance between the two stations. Examples were given of different storms, showing that the greatest velocities of the wind occurred, not where the minimum barometric readings occurred, but where the gradients were steepest. The gale of 1839 had a gradient of 1 inch of mercury to the 264 miles, while those in the tropics were often as steep as 1 inch to 50 miles; and in the case of a tropical storm at Guadaloupe, on 6th September, 1865, which was accompanied by an earthquake, barometric gradients of 1 inch to 14 miles were formed.

Importance of Meteorological Observations as an Element of Education.—Mr. HOME stated that already monthly returns of observations were received from 18 schools—six grammar and 12 elementary schools—in the country. This had originated from the circumstance that in the normal schools the teachers had been taught to make these observations and to furnish these returns monthly. It was now resolved, however, to go a step further, and it was proposed that teachers should communicate instruction to the pupils as to meteorological observations. This was already done in several schools, and in confirmation of this statement Mr. Home read a letter he had received from the Rector of Dollar Academy, stating that his mathematical scholars were instructed in meteorology; a letter from the Rector of Larchfield Academy, near Helensburgh, stating that he taught the same science to his natural science class; and also a letter from a teacher in one of the elementary schools stating that he would teach it to his pupils if he were supplied with the necessary instruments. He (Mr. Home) thought it desirable that the Society should encourage them in instructing their pupils in meteorology; and borrowing a hint from the Canadian schools, he thought that application should be made to the Board of Trade and to the Privy Council Committee, from whom instruments might be obtained to carry out the proposed object—the introduction of meteorological observation as an element of education in schools.

PENICUIK: *Management of Sheep.*—At the last half-yearly meeting of this Society a discussion took place on the Management of Sheep, which was opened by Mr. Wilson, Cross House, who confined himself to remarks upon Leicester sheep. He said:—Although Leicesters are not suited for mountain pastures, and may be said not to be the breed in a pure state, the most profitable for a great proportion even of the arable land of this country; yet the benefits derived from them by crossing other breeds are such that the successful breeding of them is of paramount importance. One thing has struck me as being of great importance in the management of Leicesters, and that is to avoid over-feeding, and, at the same time, never to allow them to be reduced to what may be termed low condition. Other kinds of breeding sheep may to some extent escape serious injury, although losing and again picking up condition with the turns of the season; but I have found that when Leicesters are not watched and kept in something like uniform condition their constitution is injured. With fair treatment, of course, the ewe stock naturally get fuller in flesh in autumn, and to make them prolific the practice is generally followed of putting them to the best pastures for a week or two before the rams are put to them, when this is done they are as a rule in highest condition about the end of the tupping season, and from that time till within a few weeks of lambing they may be allowed to slacken a little, and will lamb all the better of it; but great care is necessary to prevent this being overdone, as the result may prove anything but favourable. In my practice I give the ewes a run of the Grass fields—which are, however, too bare to support them even in fresh weather; but in place of giving them a full supply of Turnips, I supplement what they can pick up by giving as much as they like to consume of a mixture of cut hay or straw and pulped Turnips, restricting the Turnips to about one-half the quantity they would consume were they scattered on their pastures. If Turnips are scarce when the lambing approaches, I add to the mixture ground Rape-cake, or some other artificial feeding; in this way I have my ewes much healthier and producing stronger lambs than when wintered on full Turnips. I believe this way of wintering, however, cannot so well be carried out by hand labour as it can be where water or steam power is available, as the amount of labour it requires is a great drawback to its being regularly performed. On one of my farms with steam power, I cut straw and pulp Turnips twice a week, doing the quantity for three and a-half days each time. It requires about four hours per week to prepare sufficient for 200 ewes, but as I have a Turnip cutter going at the same time, I also cut Turnips for 100 hoggs, which very much economises labour. When pulped Turnips are kept under a roof they are not injured by lying a day or two before being mixed with the cut chaff, and the mixture is all the better of being made up 24 hours before being used. For breeding sheep I believe this system of wintering with mixed food will become more universal: it is economical, and, as far as I have had experience of it, the sheep keep healthy. For two winters my ewe hoggs have been treated in much the same way as the ewes; but I find that they do best when kept by themselves, as the ewes are apt to overeat them. I believe it will be generally allowed that for feeding purposes pure Leicesters are not so profitable as half-breds or crosses. One great drawback is the deficiency of the ewes as nurses, and being not so hardy as the Blackfaces or Cheviots; they can never compare with these breeds in withstanding the vigours of an unpropitious climate. The mutton of the Leicester sheep is also deficient in quality; so with these drawbacks I would only recommend the rearing of them for crossing purposes, and we have only to take a glance at our lamb fairs or fat stock markets to have some idea of the extent to which that crossing is practised. By crossing the Cheviot or Blackfaced ewe with the Leicester ram we have the offspring possessing in some measure the hardiness of the ewe, while at the same time they possess in a great degree the aptitude of the ram to fatten. We also derive the advantage of the good nursing qualities of the ewe, which is of great moment, whether the lambs are to be sent to the fat market when taken from the ewes, or kept on for feeding purposes. It is no doubt owing to the value of Leicesters for crossing that their introduction has become so general, immense numbers of rams being annually reared for crossing the other breeds. The introduction of ram sales throughout the country has given a stimulus to breeders, and the rearing of rams is now carried on to a great extent. I daresay I was one of the first who introduced Leicesters into this district, having had my small flock for 15 or 16 years. During that time I have sold my rams annually by auction; for some years on the show day in connection with this Society, till in 1858 I had them at Kelso ram sale, where they were sold by the late Mr. Fairbairn, who in the following year sold them in Edinburgh along with a few more lots, and they have been annually sold there since. The Ram Sale Association now organised is a great stimulus to breeders in the Lothians; but in our immediate neighbourhood we labour under disadvantages, our altitude being high and the climate cold. On this account we may have a difficulty in competing with breeders from more favoured localities; but we have this in our favour, that our rams are more likely to be hardy, and to improve in the hands of purchasers, than those that have had the advantage of a more congenial climate. I think at the present time that the tendency of breeders is to overfeed. It looks all very well in a sale yard to see immense animals, bulky with fat, and forced to early maturity, but if we follow them to the hill sides and moors, for which many of them are purchased, we hear their owners complaining that they are good for nothing; and if after exposure and fatigue they are reduced in condition and prove serviceable, the chances are that they die of consumption afterwards. By far the greatest number of Leicester rams reared are put to hill half-bred Cheviot or Blackfaced ewes, and when used for that purpose, size should not be overlooked, but they should be sprightly active sheep, well woolled and kindly feeders, but not too fat, so that they may be able to follow the ewes and serve their purpose at the proper season. During the last year I have heard a great many complaints of the evils attending overfed rams, and I believe many buyers will guard against this in the future in making their selection. Our aim as breeders should be to produce what is really useful, and in the long run we are more likely to be successful. I have made only a few practical remarks, gentlemen, with a view to induce discussion, as there can be no doubt that by stating our experience, and exchanging our views and opinions on subjects connected with our profession, we cannot fail to be benefited. The breeding, rearing, and feeding of sheep, is now a most important branch of our profession, and when we consider the increasing extent to which the Leicester is employed for crossing the other breeds, we need not wonder that so many have embarked in rearing rams

for that purpose. I think, however, it is being overdone; the prices are below a remunerating point, and I do believe that the purchaser for crossing purposes derives the benefit, while the breeder is often ill remunerated for his trouble.

Reviews.

The Sewage Question, being a General Review of all Systems and Methods, &c. By F. C. Krepp, Member of the Royal Institute of Engineers of the Netherlands. Longmans, Green, & Co.

This is a substantial volume, addressed to the discussion of one of the great questions of the day—which, as its opening sentence declares, "resolves itself into this: What is the cheapest and most efficient technical process for rendering human excreta useful instead of dangerous?" In answering it Mr. Krepp gives a succinct account of all the various systems hitherto employed for the purpose indicated—but the principal object which he appears to have in view is to advocate and describe Captain Liernur's plan of pneumatic sewage, and to this he devotes four of his ten chapters. In the others he gives (1) a general statement of the subject; (2) historical notes upon it; (3) an account of sewerage by water-carriage; (4) of utilisation of sewage diluted by water; (5) a discussion of the disadvantages of the water-carriage system; and (6) a description of various Continental sewerage schemes.

The general tone of the criticism and discussion which the subject receives may be gathered from Mr. Krepp's note on Dr. Varrentrapp, medical referee to the Board of Works of Frankfort-on-the-Maine. He says:—"It is really melancholy to think that a gentleman of such undoubted learning and ability should have devoted so much of his time and energy to the nefarious purpose of advocating sewerage by water-carriage, water-closets, irrigation with pestilential sewage liquid, and all, at that beautiful city, just at the very nick of time when the foremost engineering, sanitary, and agricultural authorities, both of Great Britain and the Continent, have so justly stigmatised all this as the great fallacy of the age!"

Now, we believe that Dr. Varrentrapp is right and Mr. Krepp is wrong. The water is itself the cheapest carrier of the town waste. Water-closets and pipe drainage will ensure its immediate removal, and before it has become a nuisance it may thus be distributed over the surface of the land, where all its fertilising ingredients, the seed of mischief if allowed to stagnate in or near the town, may be converted into plants, and these again into milk. We are now superintending the use of about 1000 tons of sewage daily, and its conversion in this way into about 50 cwt. of milk. Two hundred and fifty cows are being fed, with the help of a little meal and grain, off 60 acres of Italian Rye-grass, grown by sewage, on, for the most part, poor land; and 20*l.* worth of Grass are being sold weekly into the bargain. The water runs off the land virtually clean, and the fields are almost without smell—no complaint of any kind has yet been made by the neighbours.

It is in some such way, involving a minimum of labour, that the problem will be solved. No plan requiring detailed superintendence and much manual labour will succeed on the great scale here. If, nevertheless, any one wishes to understand the details of the various plans which have been proposed, and especially those of Captain Liernur's pneumatic plan, we can recommend him to peruse and read this book.

We extract the following list of places where attempts have been made to extract the fertilising matter of sewage by filtration:—

"MANUFACTURING ARTIFICIAL MANURE.—The following attempts have been made to retain some of the fertilising ingredients held in solution in sewage liquids, and at the same time to deodorise them—

"*a. Uxbridge*, a little town of about 3500 inhabitants, in Middlesex, collected its sewage in tanks and passed it through boxes filled with charcoal, a material costing, at 5*l.* per ton, some 70*l.* per annum. The boxes were emptied about every six weeks, at an expense, including other items, of about 60*l.* a year. The deposits, when partially dried, were mixed with town ashes, and put up for sale at 5*s.* a ton; and were even then only got rid of with great difficulty. Charcoal does not answer as a continuous filter, for, when saturated, its peculiar oxygenating power ceases.

"*b. St. Thomas*, near Exeter, possesses sewerage works originally laid out for working Mr. Herapath's Patent Deodoriser, in which sulphate of iron and burnt magnesian limestone were used. The process proved of no avail, and was abandoned. The Local Board then resorted to the use of lime and basket-work, which also turned out a failure, and the works were discontinued in consequence of an indictment for a nuisance.

"*c. Clifton* treated its sewage first with sulphate of iron and lime for deodorisation; but as the manure thus obtained did more harm than good to the land, the sulphate was abandoned, and lime only employed. This compound was, however, but of little agricultural value.

"*d. Leicester*, on the Soar, with about 68,000 inhabitants, deodorised its sewage upon Mr. Wicksteed's patent, the process proving commercially an entire failure. The works were erected for the manufacture of a dry portable manure, which it was hoped would sell for about 4*l.* per ton, whilst in reality it hardly brought 4*s.* This part of the works has been abandoned, nothing else being now aimed at but to disinfect the sewage-fluid before throwing it into the river.

"*e. Tottenham*, on the river Lea, with a population of some 14,000, treated its sewage under Mr. Higg's patent, in works specially erected at a cost of several thousand pounds. The object was the manufacture of dry sewage manure, which resulted, as at Leicester, in utter loss to the proprietors.

"*f. Ely*, a small town of some 7300 people, has also attempted the manufacture of dry manure out of deposits of sewage-liquid. The works were skilfully conducted by Mr. W. Burns, C.E. The process was as follows:—At the end of the main sewer, on the top of it, a tank was placed, in which clay and lime were mixed with water and allowed to run down through a pipe into the sewage. This mixture fell into a movable strainer, which when full was hoisted up, being immediately replaced by another empty one. The full strainer was now emptied on a floor higher up, where the deposits were mixed with charcoal and gypsum, at the rate of four parts deposits, two of charcoal, and one of gypsum, and then left to dry. The floor was ventilated by a chimney, which served also as a channel for the strainers to move in. The liquid portion falling below was filtered upwards through a perforated floor, overlaid with 12 inches of charcoal and 6 of ground gypsum. In this elaborate manner a manure was manufactured, which farmers declined buying, because, they said, 'it had no strong scent,' which is nothing but the unscientific expression of unsophisticated countrymen, whose practical experience supplies the want of a chemical education, at least so far as to teach them that the presence of ammonia and nitrogenous compounds—to them known only by their 'scent'—indicates the main value of a fertiliser. Considering that at least three parts of the seven (charcoal and gypsum are good fertilisers for many soils, the compound, notwithstanding the unfounded prejudice of the farmers, may have been well worth the price asked, viz., 10*s.* per ton.

"These instances are enough to prove that solids extracted from fluid sewage cannot be manufactured into dry manure, so as to pay for the trouble. Apart from this, chemical analyses, most carefully conducted, of the results of various processes of deodorisation prove, that none of them have thus far succeeded in precipitating or retaining fertilising parts held in solution, the only substances precipitated being those which are held only in suspense, and which would just as well have been retained by the mere mechanical process of filtering."

Farm Memoranda.

WEST SUSSEX, *July* 8.—Haymaking is nearly over, and has been a good crop and generally well made; there will be more good hay for the coming year than we have had for a long time. The weather has been so good that it has been made at comparatively little cost, and so far we have been fortunate, as hands have been rather short, and had it not been for machines having been used to a greater extent than usual it would have been impossible to do the work in anything like the proper time. Mowing machines are now very common, and where anything like good management prevails they do their work well. In meadows where trees prevail they will not do so well, as more will have to be done by the scythe; but they are now so generally adopted that soon they will supersede the scythe. To do haymaking as it ought to be done according to the old rules laid down, would now be impossible. We must now get it down and into rick with as little manual labour as possible, and horses must do the greater part of the work. And machines require only a fair field to answer the purpose.

The roots where up are looking well—the Mangel perhaps rather backward, owing to the cold nights, but the plant is regular; and Swedes are coming on well, though they have suffered from the fly: yet where thickly sown and well manured they have come through, and some are now being hoed. Turnip sowing is not yet finished, as little could be done to them while haymaking was about.

The corn crops perhaps never looked much better. Wheat is good, and has not yet suffered from rains; it is nearly all standing, and is thick on the ground. Barley is very good and thick. Oats are thick and healthy, but are not likely to be very long-strawed, as we have not had rains enough for them. Peas are good. The second crops of Clover and after Grass come on well, and the pastures hold out well, and lean stock are not likely to be cheap; but fat sheep and lambs have fallen very much—perhaps 1*s.* per stone—and as they were bought in very high they will not pay much; many have been kept for months and sold for what they cost, and if fatting is to pay anything the lean must be bought for less. Mutton and lamb have been nearly unsaleable in our last two or three markets.

Harvest will commence about the end of this month. Peas will not be much earlier this year. With the exception of the tendency downward in the price of both lean and fat stock, the prospects of the farmer are very favourable. *G. S.*

Notices to Correspondents.

CLOVER IN PASTURES: *R A S.* Bonedust will bring it, even more certainly than ashes. It is, of course, a dearer but a very efficient Grassland dressing.

LACTOMETER: *Ballymahon.* All you require is a wide tube, graduated downwards, and divided below zero into 100 parts. Fill with milk up to zero, and in six hours' time you can read off the percentage of cream on the scale.

SALT AND LIME: *Williams.* When the action of the one upon the other is completed, the salt is converted into a much more active substance—carbonate of soda; and of that it would not be advisable to apply more than 1 cwt. or 1½ cwt. per acre, a quantity which would be produced by rather more than its weight of common salt. But the process is not completed; only a small portion of the salt becomes thus decomposed, and therefore you may apply 2 cwt. or 3 cwt. of salt per acre, along with as much lime (within 80 or 100 bushels) as you like. Our plan would be to slake the lime with brine on a covered floor, and turn over for two or three months before use.

WARNER'S SILICATE of IRON PAINT.—The peculiarities and advantages of this Paint are that it will stand extreme Heat and Damp, and is not affected by Acid, Sea Water, Sulphuretted Hydrogen, or Ammonia. It is equally well adapted for Iron, Wood, Brick, or Cement. Every Shade of Colour ground to order. The Creamy White and Bright Stone will retain the soft delicate shades, regardless of the fumes of Gases. It has no smell, and there is an entire absence of deleterious effect.

WARNER'S ANTITERMITE COMPOSITION is suitable for Felt Roofing, and is a Cheap Coating for Iron Work, and preserves Wood in India from the ravages of the White Ant. Price 1*s.* 3*d.* per gallon.

17, Laurence Pountney Lane, Cannon Street, London, E.C.

Oil Paint no longer Necessary.



HILL AND SMITH'S PATENT BLACK VARNISH for preserving Iron Work, Wood, or Stone. This Varnish is an excellent substitute for oil paint on all out-door work, and is fully two-thirds cheaper. It may be applied by an ordinary labourer requires no mixing or thinning, and is used cold. It is used in the grounds at Windsor Castle, Kew Gardens, and at the seats of many hundreds of the nobility and gentry, from whom the most flattering testimonials have been received, which HILL & SMITH will forward on application.

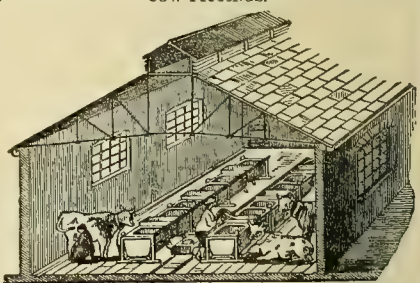
From RICHARD HEMMING, Esq., *Bordesley Park, Worcestershire.*

"Gentlemen,—I have great pleasure in stating that I highly approve of your Black Varnish, as a substitute for paint for farm buildings, barn doors, gates, and especially when the wood has been previously painted in the usual way a few years before; in this particular case it leaves a very nice glazed surface, than which nothing could be better. The same observation also applies to ironwork of every description, such as iron hurdles, &c. The Wrought-iron Barrow with apparatus for heating gas tar has been found most useful, and so great a convenience do I consider it that I shall beg you to send me another, as well as a cask of the Black Varnish, for the use of the property which I have in Warwickshire. Please to send the whole by the same conveyance as before."

Sold in casks of about 30 gallons each, at 1*s.* 6*d.* per gallon, at the Manufactory, or 1*s.* 8*d.* per gallon paid to any Station in the kingdom

Apply to HILL & SMITH, Brierly Hill Iron Works, near Dudley, and 22, Cannon Street West, E.C., from whom only it can be obtained.

CUTTAM'S PATENT PORTABLE UNITED COW FITTINGS.



Their advantages are—Portability, not Fixtures, removable at pleasure, no Woodwork or Partitions to impede Ventilation or breed Vermin, Hay Rack dispensed with as unnecessary, increased width and depth of Feeding Troughs, Water Cistern, and Patent Drop Cover to prevent over-gorging. Cleanly, durable, and impervious to infection, being all of iron. Price of Fittings per Cow, 55*s.*

Prospectuses free of COTTAM & Co., Iron Works, 2, Winsley Street (opposite the Pantheon), Oxford Street, London, W., where the above are exhibited, together with several important Improvements in Stable Fittings just secured by Patent.

W. S. BOULTON'S 36-gallon SWING WATER BARROW. Price 45*s.*

Carriage paid to any Station in England.



The above is very cheap and invaluable for carrying Liquids of all kinds. No Garden, Farm, Stable, or Kitchen Yard should be without one. Two or more Tubs can be had with one Carriage at a small additional cost. A Lad can easily work it; but if required to travel long distances over rough ground a Pony can be attached. The wheels and carriage are wrought iron, and the tub oak. The following, out of many Testimonials, have been received:—

From Lord OTHO FITZGERALD, *West Park, Salisbury.*

"SIR,—You are welcome to make use of my letter recommending your Water Barrow. I find it of great use, and stronger, better lighter, and more serviceable than one I had made in the neighbourhood, the carriage alone of which, without the barrel, cost me £3 10*s.* I unfortunately ordered it before I saw your advertisement —I am, yours obediently, "O. FITZGERALD."

"To Mr. W. S. BOULTON."

From THOS. INGLE, Esq., *M.D., Emsworth, Hants, June* 24, 1866.

"SIR,—The Swing Water Barrow is in every respect a most admirable improvement on all I have hitherto used in my Gardens. All parties who have seen it, Gentlemen as well as Gardeners, have bestowed upon it their unqualified approval, and several said they would order them of you.—Yours truly, "THOS. INGLE, M.D."

"To Mr. W. S. BOULTON."

Rose Lane Iron and Wire Works, Norwich.

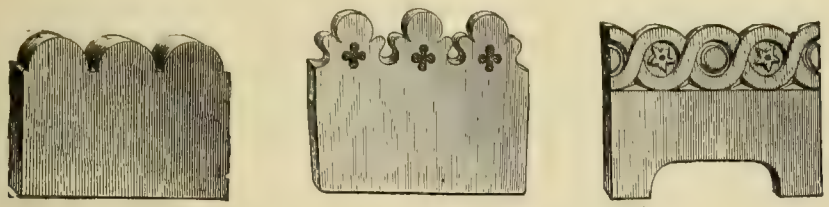
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This Edging is Manufactured in Vitrified Stoneware and in Terra Cotta, and is WARRANTED IMPERISHABLE.

DRAIN PIPES, TERRA COTTA CHIMNEY TOPS, &c.

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HORTICULTURAL WIRE WORK.

ALL KINDS OF GARDEN WIRE WORK FOR RUSTIC ADORNMENTS.

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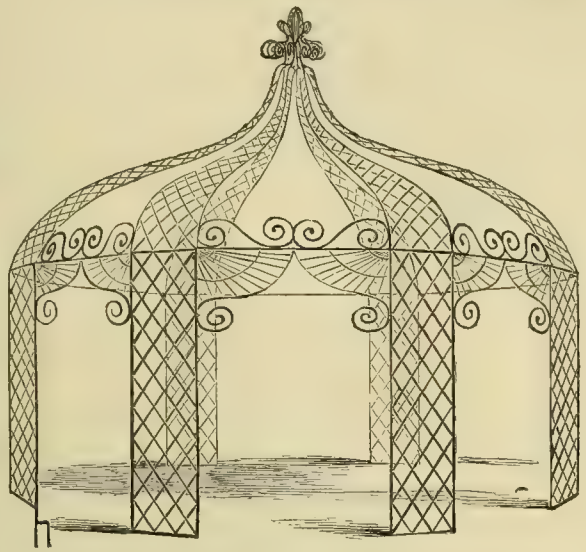
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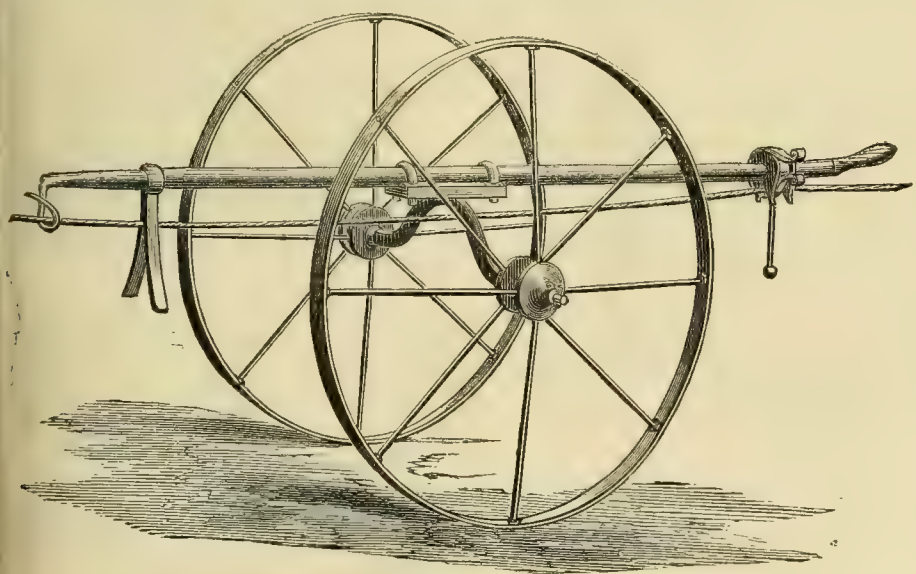
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R. HOLLIDAY, HORTICULTURAL WIRE WORKS, 2A, PORTOBELLO TERRACE, NOTTING HILL GATE, LONDON, W.

PATENT TRAVELLING ROPE PORTER,

AWARDED THE FIRST PRIZE AT THE NEWCASTLE MEETING OF THE ROYAL AGRICULTURAL SOCIETY, JULY, 1864.



These ROPE PORTERS are fastened to the Rope at intervals behind the Cultivator or Plough as it leaves either headland; they travel across the field with the Rope, and are taken off as they return. They can be released from the Rope instantaneously; they are much less trouble than any hitherto in use, and they save the boys the fatigue of running with the Implement across the field. The Rope Porter, which immediately follows the Plough or Cultivator, is provided with a Steerage to prevent those following from running on the ploughed ground, and to keep the back rope clear of the furrow.

These ROPE PORTERS, and two of AVELING'S PATENT AGRICULTURAL LOCOMOTIVES, will be Exhibited at the BURY ST. EDMUND'S MEETING of the ROYAL AGRICULTURAL SOCIETY, by the MANUFACTURERS,

AVELING AND PORTER, ROCHESTER; and 72, CANNON STREET, LONDON, E.C.

IRON HURDLES (Silver Medal of the Royal Agricultural Society).
SHEEP, 3s. 6d.; CATTLE, 4s. 2d.; OX, 5s. 11d.
List by Post. GATES and FENCING of every description.
St. Pancras Iron Work Company, Old St. Pancras Road, London, N.W.

By Royal Letters Patent.



WELLS'S PORTABLE GROUND VINERY, for Growing and Ripening Grapes without Artificial Heat.
Awarded a Silver Medal at the International Exposition of Horticulture, held at Nice, April, 1865.
Drawings and Instructions can be had of the PATENTEE, Steam Works 24, Bouverie Street, London, E.C.
AGENTS:—B. J. Edwards, 25, Bishopsgate Street Within, E.C.
J. R. Tanton, Epsom, Surrey.
Drummond Brothers, 52, George Street, Edinburgh.

JAMES PHILLIPS AND CO. beg to submit their prices as follows:—

GLASS for ORCHARD HOUSES,
As supplied by them to Mr. Rivers, to the Royal Horticultural Society, and to most of the Nobility, Clergy, and Gentlemen of the United Kingdom.
Each Box contains 100 feet. The prices only apply to the sizes stated
Squares 20 by 12, 20 by 13, 20 by 14, 20 by 15.

	16 oz. to the foot.	21 oz.
Fourth quality	15s. 0d.	.. 19s. 6d.
Third ditto	17s. 0d.	.. 22s. 6d.
Seconds	18s. 6d.	.. 26s. 0d.
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The above prices include the boxes, which are not returnable.

HORTICULTURAL GLASS.
Stock sizes, 16-oz., in 100 feet boxes, boxes included.
These prices only apply to the sizes stated.

				4ths.	3rds.	2nds.
				s. d.	s. d.	s. d.
11 by 9	12 by 9	13 by 9	14 by 9	12 6	15 6	17 0
12 „ 10	13 „ 10	14 „ 10	15 „ 10			
13 „ 11	14 „ 11	..	..			
14 „ 12	15 „ 12	15 „ 11	16 „ 11			
18 „ 12	19 „ 12	16 „ 12	17 „ 12			
16 „ 13	17 „ 13	20 „ 12	..			
16 „ 14	20 „ 13	18 „ 13	..	15 0	17 0	18 6
	17 „ 14	18 „ 14	..	16 to 17 oz. to the foot.		
	20 „ 14					

SMALL SHEET SQUARES.
In 100 feet Boxes.

6 by 4	6½ by 4½	7 by 5	7½ by 5½	.. 12s. 6d.
8 by 6	8½ by 6½	9 by 7	9½ by 7½	
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Boxes 2s. each, returnable at full price.
London Agents for HARTLEY'S IMPROVED PATENT ROUGH PLATE.

LINSEED OIL, Genuine WHITE LEAD, CARSON'S PAINTS, PAINTS of various colours, ground ready for use.
SHEET and ROUGH PLATE GLASS, SLATES of all sizes, BRITISH PLATE, PATENT PLATE, ROLLED PLATE, CROWN, SHEET, HORTICULTURAL, ORNAMENTAL, COLOURED, and every description of GLASS, of the best Manufacture, at the lowest terms. Lists of prices and estimates forwarded on application to
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Horticultural Glass Warehouse.

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NEW LIST for ORCHARD HOUSE GLASS as supplied to Her Majesty, the Nobility, Gentry, Mr. Rivers, and the leading Horticulturists of the United Kingdom.

ORCHARD HOUSE SIZES.

in. in.		4ths.	3rds.	2nds.	Best.
20 by 12, 20 by 13, 20 by 14, 20 by 15, 20 by 16	Per 100 feet 15 oz.	14s 3d	15s 6d	18s 6d	20s 0d
	21 oz.	19s 6d	22s 2d	25s 6d	26s 6d

SMALL SHEET SQUARES, 15 oz., per 100 feet.

in. in.	in. in.	in. in.	in. in.	4ths.	3ds.	2nds.	Best.
6 by 4	7 by 5	8 by 6	9 by 7	12s 3d	13s 3d	16s 0d	18s 0d
6½ by 4½	7½ by 5½	8½ by 6½	9½ by 7½				

Per 100 feet.

10 by 8, 10½ by 8½, 11 by 9, 11½ by 9½	12 by 9, 12½ by 9½, 13 by 9, 13 by 10	12½ by 10½, 13 by 10, 13½ by 10½, 14 by 10	14½ by 10½, 15 by 10, 13 by 11, 14 by 11	13s 3d	14s 6d	17s 3d	19s 0d

LARGE SHEET SQUARES, 15 oz., per 100 feet.

in.	in. in.	in.	in. in.	in. in.	4ths.	3ds.	2nds.	Best
16½ by 10½	14 by 12	22 by 12	22 by 16					
16 by 10	14½ by 12½	17 by 13	24 by 16					
14½ by 11½	15 by 12	23 by 13	20 by 17					
15 by 11	15½ by 12½	18 by 14	22 by 17					
15½ by 11½	16 by 12	22 by 14	24 by 17	14s 3d	15s 6d	18s 6d	20s 0d	
16 by 11	16½ by 12½	24 by 14	20 by 18					
21 by 11	17 by 12	22 by 15	22 by 18					
13 by 12	18 by 12	24 by 15	24 by 18					

The above Prices are only for the Sizes stated; if a quantity of any other Size be required, a Special Price will be given.

SHEET GLASS.
In Sheets for Cutting up, averaging from 6 to 9 feet super.

15 oz.		21 oz.	
4ths quality, per 300 feet case,	38s.	4ths quality, per 200 feet case,	38s.
3ds „ „	48s.	3ds „ „	48s.
2ds „ „	62s.	2ds „ „	66s.
Best „ „	92s.	Best „ „	96s.

SHEET GLASS is made only in the following substances, 15 oz., 21 oz., 26 oz., 32 oz., 36 oz., and 42 oz.

HARTLEY'S IMPROVED ROLLED ROUGH PLATE in 1-8th in., 3-16th in., 1-4th in., and 3-8th in. substances.

BRITISH PLATE GLASS for Windows and Silvered for Looking Glasses, Coloured Glass, Glass Shades, Striking Glasses, &c., &c.

PAINTS, COLOURS, VARNISHES, &c.

STUCCO PAINT, 24s. per cwt. This Paint adheres firmly to the walls, resists the weather, and is free from the glossy appearance of Oil Paint, resembling a stone surface, and can be made any required shade. It is mixed with rain or pure river water.

WHITE ZINC PAINT, 36s. per cwt. One hundredweight of pure Zinc Paint, with three gallons of Linseed Oil, will cover as much as one hundredweight and a half of White Lead and six gallons of Linseed Oil. Special Dryers for this Paint.

IMPROVED ANTI-CORROSION PAINT, 28s. to 34s. per cwt. Anti-corrosion Paint is extensively used for all kinds of work in exposed situations, on Brick, Stone, Compo, Iron, Iron Bridges, Conservatories, Greenhouses, &c., and is easily laid on by any ordinary workman. Prepared Oil for ditto, 4s. per gallon.

Per cwt.—s. d.		Per gallon.—s. d.	
GENUINE WHITE LEAD	32 0	LINSEED OIL	3 8
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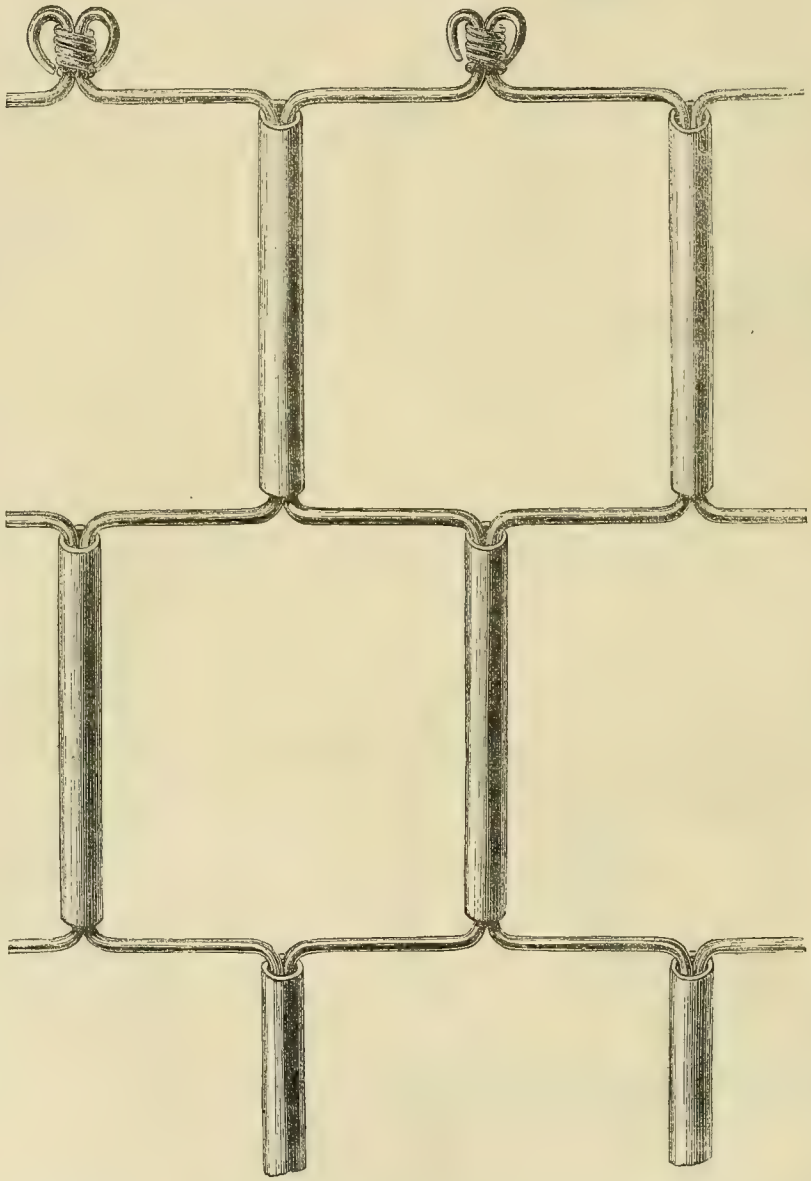
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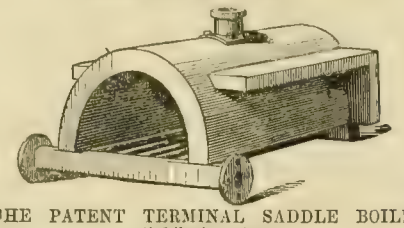
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Architect's Office, Town Hall, July 10, 1867.

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BOARD of WORKS for the POPLAR DISTRICT.—Notice is Hereby Given, that this Board will meet on TUESDAY, July 16, at 6 o'Clock in the Evening precisely, to receive TENDERS for the Execution of the undermentioned works:—
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2. For the CONSTRUCTION of TWO GROUND-KEEPERS' LODGES, and for the Supplying and Fixing a COMMON WOODEN SEAT, about 260 feet lineal.

The parties Tendering for the first mentioned works must furnish the Names of one responsible Person willing to enter into Bond with them in the sum of £100 for the due performance of their Contract, and will be required to immediately pay down the sum of £3 on the acceptance of their Tender, for the expense of the Contract and Bond.
A Separate Tender must be given for each set of Works.
The Board do not bind themselves to accept the lowest or any Tender; and the parties offering to Contract, or some one on their behalf, are required to be in attendance on the day, and at the hour above-named. Tenders upon the forms prepared for that purpose, sealed, and endorsed "Tender for Greenhouses," "Tender for Lodges and Seat," NONE OTHER WILL BE RECEIVED, must be delivered at my Office, on or before July 16, at 12 o'Clock noon, AFTER WHICH TIME NO TENDER WILL BE RECEIVED.
Plans and Specifications can be seen, and further Particulars and Forms of Tender had, on application at the Surveyor's Office, on the 8th and until the 15th inst., between the hours of 10 A.M. and 4 P.M.
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THE GARDENERS' CHRONICLE

AND

AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.

No. 29.—1867.] SATURDAY, JULY 20. {Price Fivepence. {Stamped Edition, 6*d*.

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Cattle plague ..... 770 *c*
Dendrometer ..... 760 *c*
Farm memoranda ..... 772 *a*
Farming, loss of money by .. 765 *c*
Farmers' Clubs ..... 771 *c*
Flax ..... 766 *c*
Floral decorations ..... 767 *c*
Florists' flowers ..... 763 *b*
Ghent exhibition ..... 758 *a*
Grape, Mrs. Pince's ..... 760 *c*
Harvest work ..... 771 *c*
Hollyhock disease ..... 760 *b*
Hooker, late Sir W. ..... 764 *a*
Lilium auratum ..... 760 *c*
Linden, M. ..... 758 *a*
Manure ..... 766 *c*
Paris, letters from ..... 758 *c*—766 *a*
Paxton glasshouses ..... 760 *b*
Pelargonium exhibition ..... 758 *a*
Phloxes ..... 763 *b*
Plant, wonderful ..... 758 *a*
Plant masquending ..... 757 *b*
Polemonium cæruleum variegatum ..... 760 *a*
Retinosporas, hardiness of .. 760 *c*
Rhus glabra laciniatus ..... 760 *b*
Rose shows ..... 762 *c*
Shoothorns, American ..... 772 *a*
Society, Royal Horticultural, 757 *a*—761 *a*
Statistics, agricultural ..... 771 *a*
Stephanotis floribunda ..... 760 *b*
Strawberries, culture of ..... 760 *c*
Trees, transplanting ..... 758 *a*
Tree stumps, plants for ..... 760 *c*
— measurers ..... 760 *a*
Turnips ..... 766 *c*
Weeds, Dr. Seemann on ..... 759 *b*

BURTON-ON-TRENT FLORAL and HORTICULTURAL SOCIETY.—The SECOND EXHIBITION of PLANTS, FRUITS, and VEGETABLES for 1867, will take place on WEDNESDAY, August 21. Extra Prizes for Dahlias, Hollyhocks, and Roses. Schedules may be had on application to the Secretary, Mr. James Atterbury, 81, High Street.

MANCHESTER BOTANICAL and HORTICULTURAL SOCIETY.—A GRAND EXHIBITION of PLANTS, FRUITS, and FLOWERS will be held at the Gardens, Old Trafford, on TUESDAY, August 27, and four following days, in connection with the GREAT CENTENARY CELEBRATION SHOW of the MANCHESTER and LIVERPOOL AGRICULTURAL SOCIETY.

Charges for admission:—First day, 2*s*. 6*d*. each; remaining days, 1*s*. each; Subscribers to the Botanic Gardens free each day.

Schedules may be obtained at the Gardens, or from the Undersigned. Military bands in attendance. By Order.

Cooper Street, Manchester. Henry Whitworth, Secretary.

ORCHIDS.—TWENTY POUNDS REWARD.

To Gentlemen, Nurserymen, Gardeners, and Others.

STOLEN, from the Premises of J. DAY, Esq., Tottenham, between 10.30 P.M., June 26, and 6 A.M., June 27, about 53 very rare PLANTS, viz.:—23 Vanda cærulea, small, from 6 to 10 leaves each; 25 Phalænopsis, of various kinds, viz.:—P. Schilleriana, P. amabilis, P. grandiflora, and P. rosea; 1 Cypripedium, species unknown, resembling *C. hevigatum*; 1 Odontoglossum phalænopsis, and sundry others.

The above reward will be paid by J. Day, Esq., of the above address, to any person that shall give such information as shall lead to the apprehension and conviction of the thief or thieves.

Information to Serjeant Palmer, Detective Department, Great Scotland Yard, London.

30,000 Roses in Bloom.

PROTHEROE and MORRIS'S unrivalled COLLECTION of ROSES are NOW IN BLOOM, and are particularly worthy of inspection. Trains every hour from Bishopsgate and Fenchurch Street to Leytonstone Station, which adjoins the Nursery.

The American Nurseries, Leytonstone, Essex, N.E.

Roses in Bloom.

WM. PAUL'S ROSES are NOW IN FULL BLOOM. Inspection respectfully invited. Trains almost hourly from Shoreditch to Waltham Station, Great Eastern Railway.

Paul's Nurseries, Waltham Cross, N.

Roses.

H. LANE and SON beg to call the attention of intending Purchasers to their extensive COLLECTION of ROSES, which are NOW IN FULL BLOOM, and worthy of inspection.

The Nurseries, Great Berkhampstead, Herts.

At the Old Nurseries, Cheshunt,

PAUL and SON'S ROSES are NOW FINELY IN BLOOM. The Show is finer than for many years past.

Frequent trains to Cheshunt, one mile from the Nurseries.

Their large and varied Collection of HARDY FINE-FOLIAGE TREES and SHRUBS are in good condition for selection.

Roses.—Lea Bridge Road Nurseries, Leyton, N.E.

JOHN FRASER respectfully invites an inspection of his COLLECTION of ROSES, which he begs to announce are NOW IN BLOOM. The Collection contains numerous New and fine varieties. The Nurseries are about five miles from London, and are easily reached by Train on the Great Eastern Railway, to Lea Bridge Station.

NEW ROSES for 1867.—Strong Plants of all the best NEW ROSES now ready.

DESCRIPTIVE LIST, with prices, on application.

John Cranston, King's Acre Nurseries, near Hereford.

CULTURAL DIRECTIONS for the ROSE. Second Edition. By John Cranston, King's Acre Nurseries near Hereford. Free by post from the Author for 20 stamps.

Roses.

JOHN CRANSTON has the pleasure to announce that his ROSES are NOW IN FULL BLOOM, and that the whole of his stock is in the finest condition possible.

The severe frosts (which proved so destructive in many parts of England throughout last winter) not having visited this locality, he is happy to say that his Roses, Conifers, and other Trees, escaped entirely unharmed.

Nurseries, King's Acre, near Hereford.

Roses in Bloom.

THOMAS WARNER begs to state that his COLLECTION of the above, including most of the new and fine varieties, is NOW IN BLOOM. An inspecton is invited. They are seen to the greatest advantage in the morning, or from 6 to 8 o'Clock in the evening.

The general NURSERY STOCK is regularly and frequently transplanted, and affords a most extensive choice to persons contemplating Planting.—The Nurseries, Leicester Abbey.

Roses, Orchard Houses, and Experimental Fruit Tree Culture.

THE NURSERIES at SAWBRIDGEWORTH, 100 Acres in extent, are OPEN to the inspection of Amateurs interested in the above.

The Harlow Station (1½ mile distant), G. E. R., where Flys are in attendance, is the most convenient.

Thos. Rivers & Son.

New Cherry.

CHARLES TURNER begs to announce that the NEW CHERRY, FROGMORE EARLY BIGARREAU, raised by Mr. Ingram, at the Royal Gardens, will be sent out in Autumn next. For description see *Gardeners' Chronicle* of July 13. A Drawing is being prepared by Andrews for distribution.

The Royal Nurseries, Slough.

Orchard-house Trees Fruiting in Pots.

PEACHES, NECTARINES, APRICOTS, CHERRIES, PLUMS, PEARS, APPLES, VINES, and FIGS.

Richard Smith, Nurseryman and Seed Merchant, Worcester.

Pine Plants.

THOS. PAPE can supply strong Fruiting and Succession PINE PLANTS of WHITE PROVIDENCE, MONTSERRAT, BLACK PRINCE, and JAMAICAS.

Undercliffe Gardens, Bradford, Yorkshire.

Vines, Extra Strong from Eyes.

JOHN KELLETT begs to announce that he has a large and fine stock of all the leading sorts fit for immediate Planting. Also all the best varieties of ROSES, in Pots.

Wellington Nursery, Heaton Chapel; and Green Lane Nurseries, Heaton Norris, Stockport.

VINES.—Having the best and largest stock of POT VINES I have ever grown, I can supply Fruiting Plants at 5*s*. each.

J. R. Pearson, Chilwell, near Nottingham.

Vines for Early Forcing.

F. and A. SMITH have strong FRUITING CANES of the above. Prices, with LIST of VARIETIES, on application.

The Nurseries, Dulwich, S.

Balsams.

F. and A. SMITH beg to announce that their unequalled COLLECTION of the above is NOW in BLOOM, and will well repay a visit.

The Nurseries, Dulwich, S.

Tricolored Geraniums.

F. and A. SMITH will forward by post a COLLECTION of LEAVES, from their beautiful TRICOLORED GERANIUMS, on receipt of 1*s*. 6*d*. stamps, returnable to purchasers.

The Nurseries, Dulwich, S.

Variegated Geraniums.

CASBON and SON hold a large stock of above. Prices on application.

Gravel Walk Nursery, Peterborough.

Novelties.

WM. PAUL (Son and Successor to the late A. Paul) respectfully solicits Orders for the NEW and FIRST-CLASS ROSES and BEDDING GERANIUMS, &c., advertised at length in this Paper in May last.

Paul's Nurseries, Waltham Cross, London, N.

New Zealand Nursery, St. Alban's, Herts.

INTENDING PURCHASERS of TRICOLOR PELARGONIUMS will do well to see J. Watson's beautiful Tricolors MISS WATSON and MRS. DIX, previous to making their purchases. For fine foliage, excellent constitution, free growth, and brilliancy of colouring they are unrivalled. They have received two first-class Certificates. Plants of Miss Watson in August, £2 2*s*. each; Mrs. Dix in May, 1868, 31*s*. 6*d*. each.

WANTED, BEDDING GERANIUMS and FUCHSIAS for immediate effect. Any one with surplus stock may send sizes and prices (guaranteed true to name), to Robert Bullen, Victoria Road Nurseries, Tranmere Park, Birkenhead.

CAMELLIA STOCKS.—A fine batch, fit for working this Autumn.

1-yr. old, 20*s*.; 2-yr. old, in pots, 30*s*.; 3-yr. old, strong, 40*s*. per 100.

1-yr. SEEDLING EVERGREEN OAKS, 12*s*. per 100.

Charles B. Saunders, Nurseryman, &c., Jersey.

CALADIUMS, CALADIUMS.—The following 12, in strong Plants, package included, for 8*s*., viz.:—Two Mirabile, two Wightii, one each Belleymei, Newmanni, Argyrites, Gigantea violacea, Bicolor splendens, Amabilis, Bicolor, Chantinii.

ECKFORD'S SIX NEW VERBENAS of 1867 at 4*s*.

Post Office Orders accompanying orders payable at Boston Spa.

J. C. Padman, Providence Nursery, Boston Spa, Yorkshire.

Hardy and Permanent Bedding Plant.

CLEMATIS JACKMANNI, and that type, have proved themselves to be "the desideratum" for a good violet, blue, purple, or maroon bed, when pegged down like Verbenas.

The Advertisers solicit an inspection of their CLEMATIS BEDS that are in FULL BLOOM, and will continue up to the month of October. Particulars of treatment by applying to

Geo. Jackman & Son, Woking Nursery, Surrey.

New Fern Catalogue.

W. ROLLISSON and SONS beg to announce that their NEW CATALOGUE of STOVE, GREENHOUSE, HARDY, and TREE FERNS is now ready, and will be forwarded post free on application.

The Nurseries, Tooting, Surrey, S.

NOW OFFERED, at the Railway Nursery, Ardleigh, near Colchester, Essex, the splendid Collection of FERNS and PLANTS, in pots, at greatly reduced prices.

CATALOGUES post free on application, with terms.

N.B.—A quantity of good BLACK GRAPES now ripe.

Address E. Abbott, Jun.

British Fern Catalogue.

ROBERT SIM can now send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his NEW and PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.

Foot's Cray Nursery, S.E., a mile from Sidcup Station of New North Kent Line of South Eastern Railway.

To Cultivators of Succulent and other Plants.

T. COOPER, Holmsdale Road, Reigate, has a large collection of SUCCULENT and other Plants, including 450 varieties of CACTI; also ALOES, HAWORTHIAS, AGAVES, TESTUDINARIA ELEPHANTIPES, &c.; also many new and interesting Plants raised from South African seeds.

Orders punctually attended to.

Retinospora filifera.

JOHN STANDISH is the holder of the stock of the above most distinct and beautiful weeping CONIFERA. It is of a pale glaucous green, with slender thread-like branches a foot long, which hang in the most graceful manner, and altogether the most distinct weeping plant ever offered to the Public. It is also perfectly hardy. Strong Plants, now ready, 31*s*. 6*d*. each.

Royal Nursery, Ascot.

Grass Seeds for Autumn Sowing.

SUTTON'S PERMANENT GRASS SEEDS FOR ALL SOILS.

Prices (according to sorts required and soils for which they are intended), may be had on application.

Sutton & Sons, Royal Berkshire Seed Establishment, Reading.

SUTTON'S RENOVATING GRASSES SHOULD NOW BE SOWN.

6 lb. to 12 lb. required per acre.

Price 10*d*. per lb, or cheaper by the cwt.

Sutton & Sons, Royal Berkshire Seed Establishment, Reading.

Agricultural and Garden Seeds.

H. and F. SHARPE beg to announce to the Trade that their SPECIAL LIST of HOME-GROWN SEEDS, 1867 Growth, is now ready and may be had on application.

Seed Growing Establishment, Wisbech, Cambs.

Genuine Garden and Agricultural Seeds.

JAMES CARTER and CO.,

Seed Farmers, Merchants, and Nurserymen,

237 & 238, High Holborn, London, W.C.

RAYNBIRD, CALDECOTT, BAWTREE, DOWLING, and COMPANY, Limited.

Corn, Seed, Manure, and Oilcake Merchants,

Address, 89, Seed Market, Mark Lane, E.C.; or Basingstoke.

Samples and Prices post free on application. Prize Medals, 1851, for Wheat; 1862, for "Excellent Seed Corn and Seeds."

EVERY GARDEN REQUISITE kept in Stock at

Carter's New Seed Warehouse, 237 & 238, High Holborn, London.

WILLIAMS' SUPERB STRAIN of PRIMULA. See large Advertisement.

PRIMULA SINENSIS FIMBRIATA.—A most superb strain, and cannot be surpassed, 6 varieties, mixed, 1*s*. 6*d*. & 2*s*. 6*d* per packet. CALCEOLARIA and CINERARIA, extra, 1*s*. & 2*s*. 6*d*.

J. Scott, The Seed Stores, Yeovil, Somerset.

Choice Seeds.

WM. CUTBUSH and SON strongly recommend the following:—

PRIMULA SINENSIS FIMBRIATA, of the finest possible strain, Red, White, or Mixed, 2*s*. 6*d*., 3*s*., and 5*s*. per packet.

CALCEOLARIA, saved from James' choice strain, very fine, 2*s*. 6*d*., 3*s*. 6*d*., and 5*s*. per packet.

CINERARIA, from named flowers, 2*s*. 6*d*., 3*s*. 6*d*, and 5*s*. per packet.

For other Choice Seeds see CATALOGUE, post free.

Highgate Nurseries, London, N.

Russell's Pyramid Primula.

The Finest Strain in Existence.

GEORGE CLARKE has New SEED of the above unequalled varieties, 2*s*. 6*d*. per packet; also the Fern-leaved kinds, 2*s*. 6*d*.; Kermesina (scarlet), 2*s*. 6*d*.; The Fairy (a lavender colour) 1*s*. All of the best quality. Now is the time to sow for strong early plants.

Nursery, Streatham Place, Brixton Hill, S.; and Mottingham, Kent, S.E.

Dutch Bulbs.—To the Trade only.

E. H. KRELAGE and SON, Nurserymen, Seedsmen, and Florists, Haarlem, Holland, beg to announce that their NEW WHOLESALE CATALOGUE of DUTCH BULBS, FLOWER ROOTS, TUBERCULOUS PLANTS, STRAWBERRIES, &c., is now ready, and will be sent gratis to Nurserymen, Seedsmen, and Florists on application. Postage 3*d*. The Catalogue, a Pamphlet of 44 8vo pages, contains a greater variety than any other List.

A COLLECTION of ORCHIDS, of unrivalled richness, consisting of about 1100 Specimens, is to be SOLD, if possible in one lot; Doubles may also be had. Parties inclined to buy are requested to send their address, prepaid, to

Z. E., 334, Messrs. Hanesenstein & Vogler, Hamburgh.

Calceolaria, Cineraria, Primula fimbriata.

SUTTON and SONS can supply NEW SEED of the above, saved from choicest flowers, in packets, 1*s*., 2*s*. 6*d*., and 5*s*. each, post free.

Royal Berks Seed Establishment, Reading.

INTERNATIONAL PRIZE CALCEOLARIA, CINERARIA, and PRIMULA.—These are unquestionably the handsomest in cultivation. New Seed now ready, in packets, 2*s*. 6*d*. each, free by post.

Edwin Cooling, Seed Merchant, Derby.

CALCEOLARIA, CINERARIA, and PRIMULA SINENSIS.—Seed of each, from the choicest and most beautiful flowers, in 2*s*. 6*d*. and 5*s*. packets, post free.

ROBINSON'S CHAMPION DRUMHEAD, or OX CABBAGE, 3*s*. 6*d*. per lb. (Seed of Mr. Robinson's own saving.)

DRUMHEAD, or OX CABBAGE (old sort), 2*s*. per lb.

Together with all other Seeds for present Sowing. Parcels of two pounds and upwards carriage free.

James Dickson & Sons, "Newton" Nurseries, Chester.

ROBINSON'S PRIZE DRUMHEAD CABBAGE PLANTS, 3*s*. per 1000, of A. Wilkin, Tiptree, Kelvedon, Essex. Prepaid orders only attended to.

The Best Cabbage for Spring Use is

SUTTON'S IMPERIAL, which should be Sown in June and July. Price 8*d*. per oz., Post free. Cheaper by the pound. Sutton & Sons, Seed Growers, Reading.

DRUMHEAD CATTLE CABBAGE,

The Heaviest of all Agricultural Crops.

This should be Sown in July & August, for Transplanting in the Spring.

Sutton & Sons can supply—

ROBINSON'S CHAMPION DRUMHEAD CABBAGE (the heaviest known), at 3*s*. 6*d*. per lb.

GOOD DRUMHEAD CABBAGE at 2*s*. 6*d*. per lb.

Sutton & Sons, Seed Growers, Reading.

Turnip Seeds for Present Sowing.

SUTTON and SONS can supply NEW SEED of the BEST KINDS for PRESENT SOWING. PRICED LISTS on application. All goods carriage free except very small parcels.

Sutton & Sons, Seed Growers, Reading.

Extra Fine Quality.

COLE SEED, "1866 growth," per bushel of 52 lb., 11*s*.; 4 bushels do., 40*s*. New 4-8 Sacks, 1*s*. 6*d*. each.

EARLY SIX-WEEKS' TURNIP, New Seed, very fine, 9*d*. per lb. New Bags, 6*d*. to 9*d*. each.

EXCELLENT CABBAGE SEED. See Catalogue of varieties.

Remittances to accompany Orders.

Frede. Gee, Seed Merchant and Grower, Biggleswade, Beds.

Roses, Roses.

ROSES, on own roots and in pots, grown on now, will flower indoors next spring, viz. :—

6	CHOICE TEAS	3	CHOICE BOURBONS
6	,, H.P.s		
3	,, NOISETTES	2	,, CHINAS

The Collection of 20 distinct and first-class sorts for 20*s*.

Post-office Orders on Castle Hedingham.

DILLISTONE & WOODTHORPE,
Munro Nursery, Sible Hedingham, Essex.

New and Choice Plants of 1867.

DILLISTONE AND WOODTHORPE'S

CATALOGUE of the above is now ready, and will be forwarded to all applicants on receipt of one postage stamp.

Munro Nursery, Sible Hedingham, Essex.

To Market Gardeners and Others.

RICHARD WALKER, MARKET GARDENER and SEED GROWER, offers the following :—

ROBINSON'S CHAMPION DRUMHEAD CABBAGE PLANTS, 2*s*. 6*d*. per 1000.
DRUMHEAD SELECTED STOCK PLANTS, 3*s*. per 1000.
WALCHEREN, splendid true stock, CAULIFLOWER PLANTS, 1*s*. per 100.
Fine SAVOY PLANTS, 6*d*. per 100.
Imported very fine BRUSSELS SPROUT PLANTS, 6*d*. per 100.
EASTHAM CABBAGE PLANTS, true, 3*s*. per 1000.
DICKSON'S MANCHESTER CHAMPION RED CELERY PLANTS, 1*s*. per 100.
INCOMPARABLE WHITE CELERY PLANTS, 1*s*. per 100
IVERY'S NONSUCH CELERY PLANTS, 1*s*. per 100, transplanted.
Terms Cash.

RICHARD WALKER, Biggleswade, Beds.

To Noblemen, Gentlemen, Nurserymen, &c.

IMPORTANT SALE WITHOUT RESERVE.

JAS. GARAWAY AND CO., Durdham Down Nurseries, Bristol, beg to announce that in consequence of the approaching Expiration of the Lease of the above-mentioned old-established and well-known Nurseries, their ENTIRE STOCK of STOVE, GREENHOUSE PLANTS, FERNS, &c., comprising a fine Collection of full-sized, half, and quarter specimen HEATHS, AZALEAS, CAMELLIAS, ORANGES, &c., and their splendid stock of AMARYLLIS, the largest and most varied in England, consisting of all the best named sorts; and many Hundreds of FLOWERING BULBS of splendid unnamed HYBRIDS, will be SOLD by AUCTION on the Premises (unless the whole or any portion should in the meantime be Disposed of by Private Contract), on MONDAY, August 19, and following days.

CATALOGUES will be ready a fortnight previous to the Sale, and will be forwarded post free on application.

The whole of the Plants are now lotted, and can be viewed any time between 6 A.M. and 8 P.M.

JAS. GARAWAY & Co.'s Lease expires in the Spring of 1869, and till then Business will be carried on at the present Address as usual.

JAS. GARAWAY & Co., Durdham Down Nurseries, Bristol.

Seed of Choice Strains of Florists' Flowers.

The following selected Strains are worthy of the notice of all growers of the most useful conservatory decorative flowers.

WILLIAMS' SUPERB STRAIN of PRIMULA.

B. S. WILLIAMS can with confidence offer his superb Strain of Primula as being undoubtedly the finest in cultivation. It is now grown in all the principal Gardens of the Nobility and Gentry throughout the Three Kingdoms, and has never failed to give the greatest satisfaction.

In habit the plants are very robust, and in the foliage differ from all other varieties; but their great beauty consists in the depth of colour in the Red, purity of the White, and beautiful fimbriated form of all the flowers, which are thrown up in large trusses well above the foliage.

As a proof of the truth of the above remarks, this Strain has taken 1st Prizes in every instance that it has been shown in the Provinces this Spring; and 1st Prize at the Primula Show of the Royal Horticultural Society, South Kensington; and 1st at the Royal Botanic, Regent's Park. It is also the favourite Strain in the Covent Garden Flower Market.

This Strain may be procured True, in Sealed Packets bearing B. S. WILLIAMS' Name and Address, from any Seedsman; but B. S. W. particularly requests that Customers will observe, on purchasing, that each Packet has his Name and Address in full printed thereon, as no others are genuine.

The Trade supplied on advantageous terms.

	Per pkt. *s. d.*		Per pkt. *s. d.*
Retail price, RED	5 0	Retail price, WHITE ..	3 6
,, ,, ...	3 6	,, ,, ..	2 6
,, ,, ...	2 6	,, MIXED ..	5 0
,, WHITE ..	5 0	,, ,, ..	3 6

Retail price, MIXED, per packet, 2*s*. 6*d*.

WEATHERHILL'S EXTRA CHOICE STRAIN OF CINERARIA.

B. S. W. has purchased the entire Stock and right of Sale of this Magnificent Strain. Many of the flowers produced by this seed last season were as large as a crown-piece. This strain is well known in the London Flower Market, and is the most popular one there, a sufficient guarantee that its qualities are good.

Retail price per pkt., 5*s*. 0*d*. | Retail price per pkt., 3*s*. 6*d*.

Retail price per pkt. .. .. 2*s* 6*d*.

JAMES'S HERBACEOUS CALCEOLARIAS.—The varieties that took the First Prize at the International Horticultural Exhibition last May were of this noted strain.

Retail price per pkt. 5*s*. 0*d*. | Retail price per pkt., 3*s*. 0*d*.

Retail price per pkt. .. .. 2*s*. 6*d*.

All FLOWER SEEDS in packets, Post free

B. S. WILLIAMS, Victoria and Paradise Nurseries, Upper Holloway, London, N.

SUPERB NEW LATE GRAPE, "MRS. PINCE'S BLACK MUSCAT."

TO BE SENT OUT NEXT MONTH.

AS A HIGH-FLAVOURED LATE GRAPE ITS EQUAL DOES NOT EXIST.

See former Advertisements in the leading Horticultural Journals. See "Fruit Manual," "Garden Oracle," and other Horticultural Works.

LUCOMBE, PINCE, & CO.,

To prevent disappointment, beg to inform the Public, that owing to numerous orders received, they have only very few VINES of the fruiting size to offer, but orders if sent now can be executed next month.

The public are earnestly invited to see the Vines now fruiting, or send for copies of Testimonials to them.

EXETER NURSERY, EXETER.

N.B. Their beautiful New Seedling GLOXINIAS and ACHIMENES will be sent out at the same time. See previous Advertisements.

NEW SUMMER AND AUTUMN-FLOWERING PLANT,

TRICHINIUM MANGLESII.

MR. WILLIAM BULL

BEGS TO ANNOUNCE THAT HE IS NOW

SENDING OUT THE ABOVE REMARKABLY INTERESTING PLANT,

Introduced from Swan River by Mr. W. THOMPSON, of Ipswich, and for which two First-class Certificates were awarded in the spring of 1865.

It is a Greenhouse Perennial (belonging to the Amarantads), growing from a foot to a foot and a half in height; somewhat fleshy, spreading; entire foliage varying in form from lanceolate to spathulate, and arranged in a radical tuft, from which arise several branched stems, each of which usually bears two or three flower spikes. These are of an elongated form, and composed of closely arranged florets of a pleasing rosy-amaranth colour, and which, except at their tips, are clothed with long white hairs, the contrast of which with the protruding red petal-like segments produces a singular and striking effect.

These flower heads, if cut before they are too far advanced, may be preserved for some weeks, and possess in fact the rigid texture of the "Everlastings."

Among Greenhouse Plants the TRICHINIUM MANGLESII is altogether unique, and is one of the first to catch the eye in a miscellaneous collection. It blooms during the summer and autumn months, and lasts a long time in flower.

It has been figured in the following works: "Botanical Magazine," "Florist," and "Illustration Horticole;" but is one of those plants to which it is impossible for the most skilful pencil to do justice.

Price 10s. 6d. each, or 4 Guineas per dozen.

ESTABLISHMENT for NEW and RARE PLANTS, KING'S ROAD, CHELSEA, LONDON.

NEW PLANTS.

WILLIAM ROLLISSON & SONS

HAVE GREAT PLEASURE IN OFFERING TO THE NOBILITY, GENTRY, AND THE TRADE THE FOLLOWING

NEW PLANTS, WHICH ARE NOW READY FOR DISTRIBUTION;

And feel assured, from their superior qualities, they will give entire satisfaction :—

Ixora princeps.

This really handsome Ixora is from Java, the native home of many other fine species. Cultivators may remember that we were the fortunate Importers of Ixora javanica, I. amboynensis, and I. aurantiaca, three plants of sterling merit, and which still hold their position as first-class plants at the different Horticultural Exhibitions. The I. princeps is not only dissimilar to the above-named, but superior to them, as the following remarks will show.

The foliage differs in being of a much stronger texture, and is from 6 to 7 inches long and 2 inches wide, slightly undulated on the margin, and intermediate between that of I. Griffithii and I. aurantiaca. The flowers are borne in the greatest profusion, opening of a soft buff and changing to a deep reddish orange, longer in the tube than most others. For Exhibition purposes it will prove to be a plant of first-class excellence, and while some of the recently introduced Stove Plants are not likely to be permanently cultivated, a good Ixora is always beautiful.

As the Stock of the above is very limited, those who wish to secure Plants should order at once. Plants now ready, price 42*s*. each.

Hypericum salicifolium

Is a compact-growing, free-blooming Evergreen Shrub, recently imported from Shanghai, and very suitable for the Conservatory or Greenhouse, the golden cup-like flowers being very effective. The leaves are from 3 to 4 inches long, by 1 inch broad, entire and smooth on their margins, and thickly set on the stems, which are red. The flowers are of a golden yellow, about 2 inches over, and produced in terminal bunches on every shoot, during the summer months. Good yellow flowering plants not being over numerous for Conservatory decoration, the above is a welcome addition to this class of plants.

Flowering Plants in Bud now ready. Price 10*s*. 6*d*. each.

Achimenes Gibsoni

Is a fine and distinct hybrid, raised by us. The flowers are of a lovely mauve, fringed on the margins of the petals in the way of the old "Multiflora," the tube white outside and stained with light lavender blue towards the base; the inside is white, beautifully speckled with light blue and yellow, and about 1½ inch long, and the face of the flower about 2 inches over.

The foliage is ovate-lanceolate, 1½ inch across, by 4 inches long, olive-green, with the ribs of a dark red, robust in habit, and a profuse bloomer.

Good Flowering Plants now ready. Price 10*s*. 6*d*.

Cereus crenatus sanguineus.

This superb hybrid was raised from the C. crenatus fertilised with the C. speciosissimus, by a cultivator of great experience in this showy class of plants. Most persons will remember the introduction of the C. crenatus with its long tubular creamy white flowers and flat stems, and as this possessed novelty of form, but was comparatively colourless, it was thought that if the glowing colours of the C. speciosissimus could be imparted to it, a decided advantage would be gained for the present subject; the idea has been acted upon, and this splendid hybrid is the result. In its mode of growth and flowering the plant is like C. crenatus, but has the colour of C. speciosissimus; the stems are broad, flat, and spineless, the flower tubes 7 to 8 inches long and 5 inches across the mouth, and of a rich glowing crimson, producing, when in flower, a most gorgeous effect.

Nice Plants now ready, price 21*s*.

Erica tubæformis.

A very showy hybrid, raised between E. aristata major and E. McNabiana rosea; in colour it resembles E. aristata, being of a deep glossy red, but has the free habit of E. McNabiana rosea; the flowers are abundantly produced, from 8 to 14 in each head; the divisions of the corolla are white, with a deep stain of rose on the centre of each. It will make an excellent Exhibition Heath for May.

Good plants in 48-sized pots now ready. Price 21*s*. each.

New Bedding Pelargonium Artemus Ward.

A very effective variety for bedding; raised at the Tooting Nursery. In some respects it resembles Luna, so much used at Battersea Park, but is far superior to it. The flowers are of a bright crimson, but as the plant is chiefly desirable for its conspicuous foliage, these are of secondary importance. The leaves are broadly zoned with bright reddish brown and deep chocolate, and within the zone flaked with yellow and green, the outer margin being similarly coloured. It produces a striking effect when looked upon in a mass, and is also equally well adapted for edgings; it also bears the sun well, and the more it is exposed the more intense the colours.

Good plants now ready, price 10*s*. 6*d*. each.

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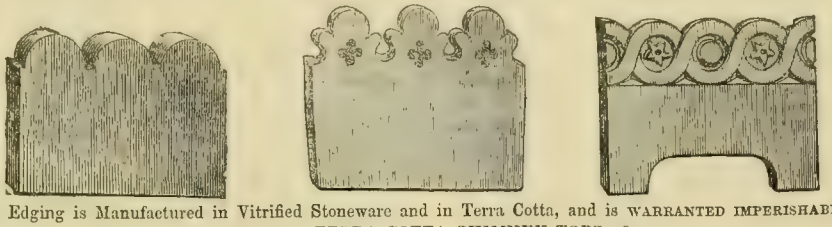
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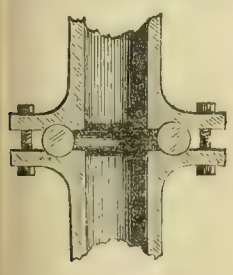
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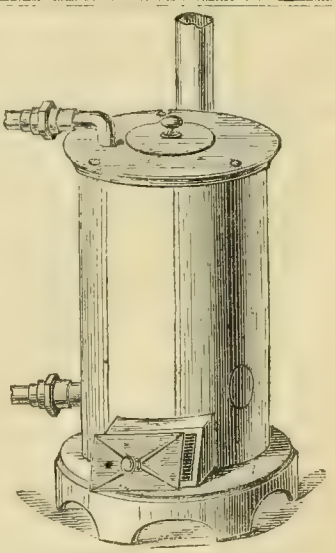

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JULY 16, 17, 18, AND 19, 1867.

AWARDS OF THE JUDGES.

Special Prizes.

Prize offered by the ROYAL HORTICULTURAL SOCIETY, SILVER GILT CUP, for the best and most effective Group of 20 PLANTS, 10 Foliage and 10 Flowering Plants.
1st Prize, Messrs. J. & C. Lee, Royal Vineyard Nursery, Hammersmith, London, W., £25.
2d, Mr. J. Baines, Gr. to H. L. Micholls, Esq., Summerfield, Bowdon, Cheshire, £15.

COUNTY CUP, for the best 9 FUCHSIAS in 13-inch pots. (Amateurs.)
Mr. D. T. Fish, Gr. to Lady Cullum, Hardwicke House, Bury St. Edmund's, Suffolk, £7 7s.

COUNTY CUP, for the best STOVE or GREENHOUSE PLANT in Flower.
Mrs. Cole & Sons, Nurserymen, Manchester, £3 3s.

COUNTY CUP, for the best 3 PINE APPLES, distinct.
Mr. Jas. Barnes, Gr. to Lady Rolle, The Gardens, Bicton, Budleigh-Salterton, Devon, £5 5s.

TOWN of BURY SILVER CUP, for the best 12 FERNS, Native or Exotic, Pots not to exceed 12 inches in diameter. (Amateurs.)
Mr. W. Nichol, Gr. to J. H. Powell, Esq., Drinkstone Park, Bury St. Edmund's, £10 10s.

TOWN of BURY SILVER CUP, for best 6 LYCOPODS, distinct.
Mr. D. T. Fish, Gr. to Lady Cullum, Hardwicke House, Bury St. Edmund's, £5 5s.

TOWN of BURY, a WATCH or CUP, for the best 3 WINDOW PLANTS, grown by a Mechanic or Labourer.
Mr. A. Tooley, 21, Hospital Road, Bury St. Edmund's, £3 3s.

Prize offered by the Rev. F. CHEERE, President of the Bury Horticultural Society, for the best 12 PELARGONIUMS, Show or French. (Amateurs.)
1st, Mr. D. T. Fish, £7 7s.
2d, Mr. H. Foreman, Gr. to Rev. F. Cheere, Ingham Rectory, Bury St. Edmund's, £3 3s.

THETFORD HORTICULTURAL SOCIETY'S SILVER CUP, for the best 2 MELONS and best Brace of CUCUMBERS.
Mr. J. Borrie, Euston Hall, Thetford, £5 5s.

THETFORD HORTICULTURAL SOCIETY'S CUP for the best 6 Dishes of OUT-OF-DOOR FRUITS, distinct kinds. (Open.)
Mr. J. Sheppard, Gr. to John Berners, Esq., Woolverstone Park, Ipswich, £3 3s.

THETFORD HORTICULTURAL SOCIETY'S PRIZE, for the best 8 distinct kinds of VEGETABLES.
Mr. W. Collins, Kilverstone Hall, Thetford

TOWN of BURY SILVER CUP, for the best 3 Groups of FRUIT and FLOWERS for the dinner table.
Mr. W. Robins, Gr. to Sir E. Kerrison, Bart., Oakley Park, Eye, £10.

The BOROUGH MEMBERS for BURY SILVER CUP, for the best HAND BOUQUET for LADIES.
1st, Mr. J. Delamere, Holm Lane, Oxton, Cheshire, £6 6s.
2d, Mr. B. R. Cant, £4 4s. | 3d, Mr. W. Robins, £3 3s.

IPSWICH TOWN CUP, for the best 6 POT VINES in FRUIT, three kinds.
Messrs. H. Lane & Sons, Nurserymen, Great Berkhamstead, Herts, £15 15s.

IPSWICH TOWN CUP, for the best 12 ORCHARD HOUSE TREES.
Messrs. H. Lane & Sons, £10 10s.

EYE HORTICULTURAL SOCIETY'S SILVER CUP, for the best 24 CUT ROSES on SINGLE STEMS.
1st, Mr. J. T. Hedge, £10 10s.

TOWN of STOWMARKET GOLD MEDAL for the 3 heaviest bunches of GRAPES.
Mr. W. Meads, Gr. to R. Currie, Esq., Minley Manor, Farnborough, £10 10s.

WOODBRIDGE HORTICULTURAL SOCIETY'S SILVER CUP, for the best 12 Cut Blooms of PICOTEES. (Amateurs.)
Mr. S. E. Buttrum, Burgh Mills, Woodbridge, £5 5s.

SUFFOLK GARDENERS' SILVER CUP, for the best 12 CUT ROSES, grown by a Suffolk Gardener.
1st, Mr. Nichol, £5 5s.
2d, Mr. R. Keen, Gr. to J. G. Sheppard, Esq., Campsey Ash, £3 3s.

COUNTY SILVER CUP, for the best 12 SEEDLING VARIEGATED PELARGONIUMS of 1866 and 1867.
Mr. P. Grieve, £10 10s.

SUFFOLK GARDENERS' CUP, in honour of Mr. D. Beaton, for best Collection of BEDDING PLANTS.
Mr. P. Grieve, £5 5s.

Mr. SAML. BARRATT'S PRIZE for the best Cropped and best kept ALLOTMENT GARDEN within the Borough of Bury.
1st, Mr. John Howard, Guildhall Street, Bury, £1 11s. 6d.
2d, Mr. G. Sizer, Nowton, Bury St. Edmund's, £1 1s.

GARDENERS' CHRONICLE PRIZE, for the best Collection of FRUITS and VEGETABLES.
Mr. J. Pottle, Gr. to B. D. Colvin, Esq., Bealing's Grove, Woodbridge, £20.

JOURNAL of HORTICULTURE PRIZES, for the best DESSERTS of FRUITS of 1867—7 kinds.
1st, Mr. T. Blair, Shrubland Park, Needham Market, Suffolk, £10 10s.
Equal, Mr. W. Carmichael, Gr. to H.R.H. the Prince of Wales, Sandringham, King's Lynn, £10 10s.

General Prizes.

CLASS 1.—9 STOVE and GREENHOUSE PLANTS, HEATHS included, distinct. (Open.)
1st, Mrs. E. Cole & Sons, the Nurseries, Withington, Manchester, £7.
2d, Messrs. John & Charles Lee, Royal Vineyard Nursery, Hammersmith, London, £5.

CLASS 2.—6 STOVE and GREENHOUSE PLANTS, distinct. (Amateurs.)
1st, Mr. Wm. Green, Gr. to Mrs. Honeywood, Mark's Hall, Kelvedon, Essex, £5.

CLASS 3.—12 FINE-FOLIAGED and VARIEGATED PLANTS, distinct. (Amateurs.)
1st, Mr. W. Nichol, £7.
2d, Mr. H. Southgate, Gr. to R. J. Pettiwood, Esq., Finborough, Stowmarket, £5.
3d, Mr. W. Green, £3. | 4th, Mr. D. T. Fish, £2.

CLASS 4.—6 FINE-FOLIAGED and VARIEGATED PLANTS, distinct. (Amateurs.)
1st, Mr. T. Baines, £4. | 2d, Mr. D. T. Fish, £3.

CLASS 5.—9 FINE-FOLIAGED and VARIEGATED PLANTS, distinct. (Nurserymen.)
1st, Messrs. J. & C. Lee, £7.

CLASS 7.—6 EXOTIC ORCHIDS, distinct kinds. (Nurserymen.)
1st, Messrs. J. & C. Lee, £5.

CLASS 8.—6 PALMS, not fewer than 3 kinds, (Open.)
1st, Messrs. J. & C. Lee, £5.

CLASS 9.—6 FUCHSIAS, distinct kinds, in Flower. (Amateurs.)
1st, Mr. D. T. Fish, £4 | 2d, Mr. Smith, £3
3d, Mr. A. Fisher, Gr. to W. Burrell, Esq., Westley, £2. | 4th, Mr. H. Foreman, £1.

CLASS 10.—6 FUCHSIAS, distinct kinds, in Flower. (Nurserymen.)
1st, Mr. J. Barrett, Cotton Lane Nursery, Bury St. Edmund's, £3.

CLASS 11.—3 STANDARD FUCHSIAS, distinct kinds. (Open.)
1st, Mr. D. Fish, £2.

CLASS 12.—6 SHOW and FRENCH PELARGONIUMS. Distinct kinds. (Open.)
1st, Mr. Fish, £5. | 2d, Mr. Foreman, £4. | 3d, Mr. W. Green, £2.

CLASS 13.—6 FANCY PELARGONIUMS, distinct kinds. (Open.)
1st, Mr. D. T. Fish, £5 | 2d, Mr. H. Foreman, £4.

CLASS 14.—12 SCARLET PELARGONIUMS, distinct kinds, of any shade, zonal or plain-leaved, but not variegated. (Amateurs.)
1st, Mr. H. Foreman, £5. | 2d, Mr. D. T. Fish, £4.
3d, Mr. P. Grieve, £2.

CLASS 15.—12 SCARLET PELARGONIUMS, distinct kinds, of any shade or colour, zonal or plain leaved, but not variegated. (Nurserymen.)
1st, Mr. J. Barrett, £4. | 2d, Mr. Jabez J. Chater, £3.
3d, Messrs. Nunn & Hobday, Nurserymen, Norwich, £2.

CLASS 16.—12 NOSEGAY or HYBRID NOSEGAY PELARGONIUMS, distinct varieties, in flower. (Open.)
1st, Mr. J. Barrett, £6. | 3d, Mr. H. Foreman, £2.
2d, Mr. D. T. Fish, £4. | 4th, Messrs. Nunn & Hobday, £1.

CLASS 17.—6 SCARLET PELARGONIUMS, including Nosegays. (Amateurs.)
1st, Mr. H. Foreman, £2. | 2d, Mr. P. Grieve, £1 10s.
3d, Mr. A. Fisher, Gr. to W. Burrell, Esq., Westley, £1.

CLASS 18.—6 VARIEGATED PELARGONIUMS, including Nosegays, distinct kinds. (Open.)
1st, Messrs. Saltmarsh & Son, Nurseries, Chelmsford, £2.
2d, Mr. H. Foreman, £1 10s. | 3d, Mr. P. Grieve, £1.

CLASS 19.—6 NEW VARIEGATED PELARGONIUMS. (Open.)
1st, Messrs. Saltmarsh & Son, £2. | 2d, Mr. P. Grieve, £1.
3d, Mr. J. Mann, Nurseryman, Brentwood, 10s.

CLASS 20.—6 ACHIMENES, distinct kinds. (Open.)
1st, Mr. W. Allen, Barton, £2.
2d, Mr. W. Smith, gr. to J. S. Crabb, Esq., Chelmsford, £1.
3d, Mr. A. Fisher, Westley, 15s. | 4th, Mr. Foreman, Ingham, 10s.

CLASS 21.—6 GLOXINIAS, distinct kinds. (Open.)
1st, Mr. Foreman, £2.
2d, Mr. W. Allen, Gr. to Sir C. Bunbury, £1.
3d, Mr. R. Keen, 15s. | 4th, Mr. Fish, 10s.

CLASS 25.—3 LILIUM AURATUM. (Open.)
4th, Mr. W. Earley, Gr. to F. Pryor, Esq., Digswell, Welwyn, Herts, 10s.

CLASS 26.—6 DRACÆNAS and CORDYLINES, distinct kinds. (Open.)
1st, Messrs. J. & C. Lee, £2.

CLASS 27. 9 EXOTIC FERNS, distinct, (Nurserymen.)
1st, Messrs. J. & C. Lee £4. | 2d, Mr. Jabez J. Chater, £3.
3d, Mr. J. Gilbert, £2.

CLASS 28.—9 EXOTIC FERNS, distinct. (Amateurs.)
1st, Mr. W. Allen, £4. | 2d, Mr. D. T. Fish, £3.
3d, Mr. R. Squibbs, Gr. to the Marquis of Bristol, Ickworth Park, Bury St. Edmund's, £2.
4th, Mr. H. Foreman, £1.

CLASS 29.—12 BRITISH FERNS, distinct. (Open.)
1st, Mr. J. Chater, £3. | 2d, Mr. J. Gilbert, £2. | 3d, Mr. Fish, £1.

CLASS 30.—1 TREE FERN, single specimen. (Open.)
1st, Mr. J. Gilbert, £1. | 2d, Mr. J. Chater, 15s.
3d, Mr. H. Harrison, Gr. to W. H. Pearse, Esq., Dedham, Essex, 10s.
4th, Mr. Fish, 7s. 6d.

CLASS 32.—6 PETUNIAS, Double Flowered varieties, distinct. (Open.)
2d, Mr. H. Foreman, £1. | 3d, Mr. P. Grieve, 10s.

CLASS 33.—6 PETUNIAS, Single Flowered, distinct. (Open.)
1st, Mr. J. Barrett, £2. | 2d, Mr. W. Smith, £1.

CLASS 34.—20 SUCCULENTS, distinct kinds. (Open.)
1st, Mr. Robert Pettitt, Botanic Garden, Bury St. Edmunds, £2.

CLASS 35.—12 CARNATIONS and PICOTEES, cut blooms. (Open.)
1st, Mr. Charles Turner, Royal Nurseries, Slough, £2.
2d, Mr. J. Hines, £1. | 3d, Mr. S. C. Buttrum, 10s.

CLASS 36.—12 Var. of ZONAL PELARGONIUMS, in Bunches of Cut Flowers, 5 trusses in each bunch. (Open.)
1st, Mr. R. Moore, Wetheringsett, £1. | 3d, Messrs. Wood & Ingram, 10s.
2d, Mr. J. Barrett, 15s. | 4th, Mr. S. Brown, 5s.

CLASS 37.—12 Var. of VERBENAS, in Bunches of Cut Flowers, 5 trusses in each bunch. (Open.)
1st, Mr. C. O. Fyson, £1. | 2d, Mr. J. Barrett, 15s.
3d, Mr. A. Southgate, 7s. 6d.

CLASS 38.—48 CUT ROSES, distinct, 1 truss of each. (Nurserymen.)
1st. Mr. B. R. Cant, St. John's Street Nursery, Colchester, £3
2d, Messrs. J. & C. Lee, £2.
3d, Mr. J. W. Ewing, Eaton Nursery, Norwich, £1.
4th, Messrs. Wood & Ingram, 10s.

CLASS 39.—48 CUT ROSES, distinct, 1 truss of each. (Amateurs.)
1st, Mr. J. T. Hedge, £4. | 2d, Mrs. H. Brooke, £3.

CLASS 40.—24 CUT ROSES, distinct, 1 truss of each. (Amateurs.)
1st, Mr. H. Ingle, £2. | 3d, Mr. R. Keen, 15s.
2d, R. B. Postans, Esq., Brentwood, £1. | 4th, Mr. J. T. Hedge, 10s.

CLASS 41.—Miscellaneous Collection of CUT ROSES. (Open.)
1st, Mr. B. R. Cant, £3. | 2d, Messrs. J. & C. Lee, £2.
3d, Mr. J. T. Hedge, £1.

CLASS 44.—24 HARDY HERBACEOUS CUT FLOWERS, distinct. (Open.)
1st, Mr. Gilbert, 15s. | 3d, Mr. J. Chater, 7s. 6d.
2d, Mr. J. T. Hedge, 10s. | 4th, Mr. E. Lovell, 5s.

CLASS 45.—PINKS, 12 Cut Blooms, distinct. (Open.)
1st, Mr. J. Hines, 10s.
2d, Messrs. Nunn & Hobday, 7s. 6d.
3d, Mr. Hooper, 5s.

CLASSES 46 to 49.—NEW PLANTS.
Special Certificate, Messrs. Veitch & Sons, for Collection of New Plants, which had previously received Certificates from the Floral Committee.
Special Certificate, Mr. W. Bull, Nurseryman, Chelsea, for Dalechampia Roezliana rosea, which had previously received a Certificate from the Floral Committee.
Special Certificate, Mr. John Mann, for Collection of Pelargoniums Lord Derby

CLASS 50.—SEEDLING FLORISTS' FLOWERS.
First-class Certificate, Mr. C. Turner, for Carnation True Blue.
First-class Certificate, Mr. C. Turner, for Carnation Eccentric Jack.
First-class Certificate, Mr. C. Turner, for Picotee Mrs. Fisher.
First-class Certificate, Messrs. F. & A. Smith, for Golden Zonal Pelargonium Criterion.
First-class Certificate, Messrs. F. & A. Smith, for Golden Zonal Pelargonium Feu de Joie. [Dennis.
Second-class Certificate, Mr. C. Turner, for Carnation Anthony

CLASS 51.—MISCELLANEOUS, for Plants not contained in Schedule.
1st, Messrs. Veitch & Sons, Royal Nursery, Chelsea, £2 10s.
Equal, Mr. T. Baines, £2 10s. | Extra, Mr. J. Jolly, 10s.
2d, Messrs. J. & C. Lee, £2. | Extra, Mr. S. Brown, 10s.
3d, Mr. J. E. Frewer, £1 10s. | Extra, Mr. J. Chater, 10s.
Equal, Mr. R. Squibbs, £1 10s. | Extra, Mr. Hooper, 10s.
Equal, Manning Prentice, Esq., £1 10s. | Extra, Mr. Grieve, 10s.

CLASS A.—PINE-APPLES, any variety.
1st, Mr. G. Ward, Gr. to F. N. Miller, Esq., Bishop's Stortford, £3.
2d, Mr. J. Barnes, Gr. to Lady Rolle, Bicton, Devon, £2.
3d, Mr. W. Green, £1.

CLASS B.—GRAPES, BLACK, single Dish.
1st, Mr. R. Squibbs, £3.
2d, Mr. G. Sage, Gr. to Earl Brownlow, Ashridge Park, £2.
3d, Mr. G. L. Rushmore, Tendring Hall, Stoke, £1.
Extra, Mr. Carmichael, 10s.

CLASS C.—GRAPES, WHITE, single Dish.
1st, Messrs. H. Lane, Great Berkhamstead, £3.
2d, Mr. J. Pottle, £2. | 2d, Mr. R. Squibbs, £1.

CLASS D.—PEACHES, single Dish.
1st, Mr. G. Sage, Gr., Ashridge Park, Great Berkhamstead, £2.
2d, Mr. Perkins, Gr. to Lord Henniker, Eye, £1.
3d, Mr. W. Robins, Gr. to Sir E. Kerrison, Bart., 10s.

CLASS E.—NECTARINES, single Dish.
1st, Mr. G. Sage, £2. | 2d, Mr. W. Carmichael, £1.
3d, Mr. G. L. Rushmore, 10s.

CLASS G.—FIGS, single Dish.
1st, Mr. Squibbs, 15s.
2d, Mr. J. Sheppard, Gr. to John Berners, Esq., Woolverstone Park, Ipswich, 10s.
3d, Mr. G. L. Rushmore, 7s. 6d.

CLASS H.—CHERRIES, single Dish.
1st, Mr. W. Green, £1.
2d, Mr. Salvage, Gr. to Captain Bennett, Rougham Hall, 15s.
3d, Mr. J. Pottle, 10s.

CLASS I.—STRAWBERRIES, 4 Dishes and Kinds.
1st, Mr. R. Squibbs, £2. | 2d, Mr. T. D. Irving, £1 10s.

CLASS J.—STRAWBERRIES. 1 Dish.
1st, Mr. G. Foreman, Gr. to T. B. Beales, Esq., Bildestone, 15s.
2d, Mr. R. Squibbs, 10s. | 3d, Mr. J. Barrett, 7s. 6d.

CLASS K.—MELON, GREEN-FLESHED.
1st, Mr. R. Webb, Culham, Reading, £1.
2d, Mr. W. Robins, 15s. | 3d, Mr. W. Earley, 10s.

CLASS L.—MELON, SCARLET-FLESHED.
1st, Mr. Fish, £1.
2d, Mr. J. Stannard, Gr. to H. R. Homfrey, Esq., Newmarket, 15s.
3d, Mr. J. Perkins, 10s.

CLASS M.—PLUMS, single Dish.
1st, Messrs. Lane & Sons, £1.
2d, Mr. Wm. Grix, Gr. to E. W. Locke, Esq., Ely, Cambs., 15s.

CLASS N.—MISCELLANEOUS, for Fruits not mentioned in Schedule.
1st, Messrs. Lane & Sons, £1 10s.
Equal, Mr. A. Henderson, Thoresby Park, Ollerton, Notts, £1 10s.
2d, Mr. J. W. Ewing. £1.
Equal, Mr. Bennett, Gr., Osberton, Worksop, £1.
3d, Mr. J. Salvage, 15s.

Cottagers' Prizes.

CLASS 1.—Best WINDOW PLANT of any kind.
1st, Mr. D. Wright, Thurston, 5l.
2d, Mr. William Denney, Eastgate Street, Bury St. Edmund's, £4.

CLASS 3.—Best FUCHSIA.
1st, Mr. William Denney, £4.

CLASS 4.—Best MIGNONETTE.
1st, John Clow, Hengrave, £3.

CLASS 5.—HAND BOUQUET.
1st, John Clow, £5. | 2d, Mr. D. Wright, £4.

CLASS 6.—Largest Collection of CUT FLOWERS grown in one Garden, one branch of each.
1st, Mr. James Chase, Croxton, near Thetford, £5.
2d, Mr. Charles Stone, £4. | 3d, Mr. John Clow, £3.

CLASS 7.—6. SWEET WILLIAMS.
1st, Mr. John Clow, £3.

CLASS 8.—6 STOCKS.
1st, Mr. D. Wright, £3 | 2d, Mr. James Chase, £2.

CLASS 9.—6 ROSES, distinct.
1st, Mr. Thomas Smith, Nowton, £5.
2d, Samuel Clow, Fornham All Saints, £4.
3d, Thomas Foulger, £3.

CLASS 10.—6 PANSIES.
1st, James Chase, £3. | 2d, John Clow, £2.

CLASS 11.—30 STRAWBERRIES.
1st, Thomas Smith, Nowton, 4s.

CLASS 12.—30 CHERRIES.
1st, D. Wright, Thurston, 3s.

CLASS 13.—50 GOOSEBERRIES.
1st, Samuel Clow, 3s. | 3d, Mr. Clutterham, 1s.
2d, Mr. C. Stone, 2s. | Equal, Thomas Smith, 1s.
Equal, Henry Stone, 1s.

CLASS 14.—12 APPLES.
1st, George Clutterham, 5s. | 2d, Thomas Smith, 4s.

CLASS 16.—Collection of VEGETABLES.
1st, John Stone, Flempton, 10s. | 2d, John Clow, 9s.
3d, Robert Carter, Hengrave, 8s.
Equal 6th, Mr. James Chase; George Sizer, Nowton Road, 6s.
Extra, Mr. Clutterham, Ingham, 4s.

CLASS 17.—SALAD.
1st, John Clow, 4s. | 2d, James Chase, 3s.

CLASS 18.—BUNCH OF CURLED PARSLEY.
1st, John Clow, 4s. | 2d, William Denney, 3s.

CLASS 19.—Collection of POTATOS, 6 of a sort.
1st, T. Foulger, 8s. | 3d, George Clutterham, 6s.
2d, John Clow, 7s. | 4th, James Chase, 5s.

CLASS 20.—12 KIDNEY POTATOS.
1st, T. Foulger, 5s. | 3d, George Clutterham, 3s.
2d, John Clow, 4s. | 4th, James Chase, 2s.
Extra, Henry Stone, 2s.

CLASS 21.—12 ROUND POTATOS.
1st, Jas. Osborne, Hengrave, 5s. | 3d, T. Foulger, 3s.
2d, John Stone, 4s. | 4th, D. Wright, 2s.

CLASS 22.—3 CAULIFLOWERS.
1st, James Chase, 4s. | 2d, John Stone, 3s.

CLASS 23.—3 CABBAGES.
1st, George Clutterham, 4s. | 2d, Thos. Smith, 3s.
3d, Henry Stone, 2s.

CLASS 24.—Half Peck of PEAS.
1st, Mr. C. Stone, 5s. | 4th, Henry Stone, Fornham, 2s.
2d, T. Foulger, 4s. | Extra, Samuel Clow } 2s.
3d, Wm. Coe, Nowton, 3s. | John Stone }
CLASS 25.—Half Peck of BROAD BEANS.
1st, Robert Carter, 4s. | 3d, John Stone, 2s.
2d, T. Foulger, 3s. | Extra, Wm. Coe, Nowton, 2s.

CLASS 27.—6 CARROTS.
1st, John Stone, 4s. | 3d, George Clutterham, 2s.
2d, James Chase, 3s. | Extra, Robert Carter, 2s.

CLASS 28.—6 TURNIPS.
1st, John Stone, 4s. | 2d, James Chase, 3s.

CLASS 29.—BRACE of CUCUMBERS.
1st, James Robinson, 94, Eastgate Street, Bury St. Edmund's, 5s.

CLASS 30.—4 Heaviest STALKS of RHUBARB.
1st, Chas. Stone, 5s. | 3d, H. Kent, 7, Cemetery Road, 3s.
2d, Thos. Foulger, 4s. | 4th, James Robinson, 2s.

CLASS 31.—12 ONIONS.
1st. J. Stone, 5s. | 4th, Charles Stone, 2s.
2d, Robert Jeffrey, 4s. | Extra, Robert Carter, 2s.
3d, G. Clutterham, 3s.

CLASS 32.—Box or Glass of HONEY.
1st, Edward Doe, 10s. | 3d, Henry Clark, 6s.
2d, John Stone, 8s. | 4th, Henry Stone, 4s.

CLASS 33.—Collection of HERBS.
1st, John Goward, Fornham All Saints, 4s.

Miscellaneous.

Robert Carter, Hengrave, Dish of Raspberries, 5s.
Thomas Foulger, Dish of Black Currants, 4s.
Chas. Stone, 6 Lettuces, 3s. | Henry Clark, Dish of Shallots, 2s.
James Osborne, Dish of Black Currants, 3s.
R. Carter, Dish of Red Currants, 3s.
James Robinson, for 4 Lettuces, 2s.

ROBERT PARKER begs to offer the following.—All the Plants are strong and healthy, and can be supplied in quantities.
PANSY CLIVEDEN BLUE, 6s. per dozen.
PANSY CLIVEDEN PURPLE, 6s. per dozen.
PANSY CLIVEDEN YELLOW, 6s. per dozen.
POLEMONIUM CŒRULEUM VARIEGATUM, 2s. 6d. each.
RHODODENDRON COUNTESS of HADDINGTON, 3s. 6d. each.
TRITOMA GRANDIS, 18s. per dozen.
TRITOMA UVARIA GLAUCESCENS, 12s. per dozen.
VIOLA CORNUTA, best variety, 4s. per dozen.
VIOLET, REINE DES VIOLETS, 6s. per dozen.
VIOLET THE CZAR, 6s. per dozen. [per packet.
PRIMULA SINENSIS FIMBRIATA, finest mixed seed, 2s. 6d.
PRICED and DESCRIPTIVE CATALOGUES of AGRICULTURAL, FLOWER, and VEGETABLE SEEDS, GREENHOUSE, HARDY, and STOVE PLANTS, are published, and will be forwarded free to applicants.
Exotic Nursery, Tooting, Surrey, S.

ADOLPH STELZNER, NURSERYMAN, at Ghent, Belgium, begs to offer the following Cheap Plants :—
CIBOTIUM PRINCEPS, 30s. per doz. ; £10 per 100.
BLECHNUM BOREALE CRISTATUM, 9s. per doz. ; £3 per 100.
LOMARIA GIBBA, 9s. per doz. ; £2 10s. per 100.
PTERIS SERRULATA CRISTATA, 6s. per doz. ; £2 per 100.
" CRETICA SERRULATA, fol. var., 9s. per doz.
CYRTOMIUM FORTUNEI, 9s. per doz ; £3 per 100.
BLECHNUM LAUIFOLIUM, 3s. per doz. ; £3 per 100.
CHEILANTHES HIRTA, 6s. per doz. ; £2 per 100.
ALOPHILA AUSTRALIS, 9s. per doz. ; £3 per 100.
DAVALLIA TENUIFOLIA STRICTA, 6s. per doz. ; £2 per 100.
GYMNOGRAMMA LAUCHEANA, 6s. per doz. ; £2 per 100.
" HYBRIDA GRACILIS, 6s. per doz ; £2 p. 100.
" SPECTABILIS, 18s. per doz.
OSMUNDA REGALIS CRISTATA, very strong, 10s. per doz. ; £3 per 100.
PANICUM VARIEGATUM, New, 18s. per doz.
NIEREMBERGIA RIVULARIS, New, 18s. per doz.
DRACÆNA TERMINALIS ROSEA, strong fine plant, 15s. per doz. ; £5 per 100.
LATANIA BORBONICA, strong fine plants, 20s. per doz.
AZALEA INDICA, SOUVENIR DU PRINCE ALBERT, fine young heads, 12s. per doz. per doz.
AZALEA INDICA, MADAME CANNAERT D'HAMALE, 12s.
AZALEAS and CAMELLIAS, with Flower buds.
HARDY FERNS, great selection, from 30s. to 60s. per 100.
First Prize at the Paris Universal Exhibition.

New Verbenas of 1867.

DREGHORN AND AITKEN have now a large stock of the above, containing all the finest sorts sent out by Turner, Keynes, Low, Henderson, &c., and beg to offer them as follows, in strong, healthy, well-rooted Plants :—
24 Varieties for 10s. | 12 Varieties for 5s.
Safely packed and delivered free of carriage to any part of Great Britain or Ireland.
The Nurseries, Kilmarnock, N.B.

The Gardeners' Chronicle.

SATURDAY, JULY 20, 1867.

THE first PROVINCIAL EXHIBITION of the ROYAL HORTICULTURAL SOCIETY must be emphatically pronounced a success, especially when viewed from the horticultural stand point. We take it to be the duty of a royal and national Society, like the one in question, to endeavour by all and every means to stir up the horticultural spirit of the country: and that this has been done in the present instance, those who know the exertions which the fact of the Society taking the initiative has stirred up among local horticulturists in aid of the movement, or those who have witnessed the meritorious productions which graced the exhibition in the Vine Fields at Bury, can have no doubt whatever. The show itself, while it may indeed be pronounced to have been a great show, must also be held to have been one of very high merit as regards the productions which it was the means of bringing together. Though not yet, at the time we write, brought to a close, yet another great fact has become assured, namely, that it will be also successful in a pecuniary sense, and this, moreover, notwithstanding the occurrence of most unfavourable weather, both immediately before and on the opening day.

We mentioned last week that the locality chosen for the exhibition was the Vine Fields as they are called, a spot which we may presume the monks of olden time knew how to turn to good account. Here Mr. EYLES succeeded in arranging a most effective exhibition: probably the best provincial show that has yet been seen. There was in the first place UNITE's great circular tent, 90 feet in diameter, forming the reception room, so to speak, from whence the visitors were conducted through the suite of tents beyond, extending to more than 200 yards in length. In this circular tent were a central stage, a broad pathway, and an exterior belt of plants set on the ground. Here were mostly arranged the collections of large stove and foliage plants, the hothouse Ferns, Palms, Arads, and such like subjects, contributed not only from the gardens of the vicinity, but many of the most choice and remarkable among them had been brought from distant Manchester and London. Leading out of this, was a tent of some 300 feet in length, devoted in great measure to cut flowers, fruits, bouquets, and special prize subjects requiring table space for their display. Parallel to this ran another tent, nearly 200 feet long, which was almost entirely filled with Pelargoniums, separated by a central line of Fuchsias. These were most effectively displayed *on the ground*—a mode of setting up all the larger kinds of exhibition plants which has many points of recommendation, inasmuch as the surface of the plant is seen, instead of the side or the lower portion, which latter is brought too much into the line of vision when massive plants are set up on elevated stages. Another tent of considerable size was devoted to implements; and others again to a variety of subjects forming the smaller classes of the schedule, including the cottagers' produce, of which there was also a good display.

Of all this vast amount of horticultural productions there was scarcely anything to be observed below the average in point of merit, and very many even of the local productions—which from want of competitive stimulus we scarcely expect to see equalling those brought to the London shows—were far above the average, rising even to the highest degree of quality, and rivalling the best of their class brought to a metropolitan gathering. Fuchsias and Pelargoniums were amongst the local productions which evinced this very high degree of excellence; while of novel features, also well developed by local exhibitors, may be mentioned the fine display of bedding plants, some groups of which proved most attractive objects. A collection from Culford Hall, set up in neat square green-painted wooden boxes, showing great merit in treatment and great taste in arrangement, may be instanced as especially noteworthy in this new and very interesting class.

There is one other matter connected with this show which we mention here with the most lively satisfaction. There can be no doubt that the successful working out, in the present instance, of this idea of holding a country flower show in association with the show of the Royal Agricultural Society, and the perfecting of such arrangements as it was necessary should be made, are mainly due to the exertions of our highly talented and much respected correspondent, Mr. D. T. FISH, of Hardwicke House Gardens. The Royal Horticultural Society was certainly under very deep obligation to Mr. FISH for the part he had taken in the matter, and we have the greatest satisfaction in stating that the Council have acknowledged this obligation in a most graceful way, and in a manner which we have reason to believe is of all others the one most agreeable to Mr. FISH's own feelings, namely, by naming him a Life Fellow of the Society of the highest grade. We trust, now that the show is over, he will take the rest needful to recruit his health, which has suffered from the exertions made in this deserving cause, and that he may long live to enjoy the satisfaction which follows from strenuous exertions in a good work, when it has been crowned with success. This act on the part of the Council was all the more appropriate from its having been carried out on the very scene, to the success of which the exertions thus publicly acknowledged so much contributed; and we are happy to append the words of the resolution adopted at a special field meeting of the Council, in which the hearty thanks of the Society were officially conveyed: — "Resolved — That the thanks of the Council of the Royal Horticultural Society be conveyed to Mr. D. T. FISH for his great services in connection with the Royal Horticultural Society's Show at Bury St. Edmund's; and that he be made a Forty-guinea Life Fellow of the Society, as a small mark of their appreciation of his services in bringing the exhibition to a successful issue." This acknowledgment does honour alike both to Mr. FISH and to the representatives of the Royal Horticultural Society.

EVERY now and then the public is startled or amused by the discovery that some more or less well-known personage does not pertain to the sex whose habiliments he or she does, or did (for the fact is often only disclosed at death) wear. We have heard recently of a medical man (?) who mixed in the first Colonial circles, quarrelled with almost everybody, even to the fighting of duels, but nevertheless managed to create and to maintain a great reputation for professional skill —a fact of which the advocates of female doctors of medicine should avail themselves, for in the case to which we allude, the testy doctor turned out to be a woman! On the other hand, there is the well-known case of the CHEVALIER D'EON, and the reader may see for himself, in the National Portrait collection at South Kensington, the *vera effigies* of Lord CORNBURY, who as Governor of New York, in the reign of QUEEN ANNE, deemed it necessary to don female attire the more thoroughly to "represent" HER MAJESTY. These cases are not always easy of detection; even SHAKSPEARE, with all his acumen, could lay down no rule of universal application in such matters: he merely says, "the apparel *oft* proclaims the man," though on another memorable occasion he makes Sir HUGH EVANS rather suspicious of the sex of a certain reputed old woman, in consequence of the Knight having "spied a great peard under her muffler."

This kind of masquerading is anything but rare among plants. In double flowers it frequently happens that the stamens present more or less of a pistillary guise, or more rarely that the pistils bear anthers, and so assume the habiliments of stamens. This may be seen commonly in double Tulips, but the further degree of this change in sexual characteristics which is manifested by the FORMATION OF POLLEN WITHIN the tissues of the OVULE has not, to the best of our knowledge, been recorded in any other case than that of a Passion-flower, observed by Mr. S. J. SALTER, and described and figured by him in the Linnean Transactions (vol. xxiv., p. 143). To this we are now enabled to add a similar illustration in some flowers of a wild Rose (Rosa arvensis), recently gathered and examined by ourselves. In these flowers the calyx was normal, the petals reduced in size, with some tendency to become foliaceous; the carpels presented nothing unusual, but the stamens showed almost every possible degree of change between their ordinary condition, and that of carpels. Perhaps the most common deformation was one in which what under ordinary circumstances would be the filament of the stamen bore in the centre an anther, below that organ, two ovules, or unimpregnated seeds, like the natural ones, but wholly uncovered, while above the pollen sacs the filament was prolonged in the form of a long, often tortuous style, terminated by a trumpet-shaped, fringed, stigma. So far, there was nothing but what may be seen very commonly in double or partially double flowers, but on examining some of the ovules, it was found that while retaining the form and semblance of ovules they had nevertheless assumed some of the characters of anthers: for instance, in many cases beneath the superficial layer of tissue there was a stratum of those spheroidal cells containing a network of thick fibres such as we expect to see in an anther, but do not expect to meet with in an ovule. Moreover, there was a considerable quantity of well-formed pollen in the substance of the ovule. Reserving for another opportunity the full details of this extraordinary case of personation, we content ourselves in this place with recording the fact, and of drawing attention to the physiological interest attaching to it. We do not at all suppose that in this Rose the pollen would have any effect upon the ovule in which it was formed, because there were, so far as we could see, no traces of embryo sac or germinal vesicle, but only a solid, cellular nucleus; on the other hand, supposing the pollen liberated in some way from the ovule in which it was formed, what is there to prevent its fertilising the stigmas of adjacent carpels or even the contiguous uncovered ovules, some of which were perfectly organised, though as far as we saw they were unimpregnated?

We may also allude to the obvious bearing that this case, as well as that of Mr. SALTER'S Passion flower, has on the alleged instances of Parthenogenesis or virgin reproduction in plants, in which, as in the Cœlebogyne at Kew, perfect seeds are formed year after year without visible stamens. Some of these cases have, however, broken down on close scrutiny, from the discovery of stamens in some of the flowers; while it is obvious from what we have related in this article, that pollen *may* be found even in the ovules themselves. Again, this case shows us how impossible it is to draw a hard and fast line in natural history; it adds one more illustration to the copious records of variability in plants and animals, and shows how arbitrary are even those "characters" on which naturalists place the most reliance. For what distinctions are more relied on than those of sex? Admitting this, however, we do not in the least wish it to be inferred that we would impugn the procedure of the botanists, because exceptional cases arise which do not admit of being classed just where, according to botanical line and rule, they ought to find a place. Our object is simply to call attention to an exceptional occurrence of the highest physiological import.

— IN the more than ordinary efforts that have been made to give a truly English welcome to the illustrious strangers now among us, FLORAL DECORATIONS have formed an important feature. Buckingham Palace has been richly furnished with them from the ample stores contained in our great national establish-

ment at Kew. Messrs. VEITCH have also been busy. They have been entrusted with the decoration of the whole of the New India House, in which a ball has been given in honour of the Sultan. It is the most extensive affair of the kind with which the firm ever have had to deal, and we need not say that their efforts to give satisfaction have been crowned with perfect success. The whole of their resources, which it is well known are not few, have been absorbed in this matter, and they have also had in addition some of the larger plants from Kew. Among the ornamentations have been cascades, a Fernery with waterfall, a parterre, flower garden, &c., besides the usual banks of evergreens, &c. All their best Tree Ferns have been employed, and throughout the building the decorations have been of the lightest and most graceful description possible, a mode of ornamenting greatly to be preferred to the heavy banks of green which are usually employed on such occasions. Mr. WILLIAMS has also been at work decorating the Guildhall and the Agricultural Hall, buildings in which plants in large quantities have been used. In the former every nook and recess, of which there are not a few, revealed floral treasures, while ribbons of different colours, in long boxes, lined the sides of the passages, and great Tree Ferns, and other fine-foliaged plants graced the Hall and other apartments. At the Agricultural Hall mirrors were prettily framed with artificial representations of the Queen of Flowers, while the recesses and the bases of pillars were ornamented with living plants, kept in their places with wire, immediately within which was turf, with the grassy side out, and on the top Moss, so placed as to hide the pots. At one end were beds of flowering plants, cut out on a Grass bank, on which were placed here and there imposing groups of fine-foliaged plants, surrounding three fountains, which from innumerable jets threw up water, exhibiting prismatic colours, which, when seen by means of lime-light, were very effective; the sides and other end of the Hall, in front of the dais, were also ornamented with beautiful groups of plants, suitable for the great occasion on which they were employed.

—— We have to call attention to the fact that PROGRAMMES of the great INTERNATIONAL HORTICULTURAL EXHIBITION at GHENT, already mentioned by us (p. 710) may now be had, *free*, on application to the publisher of the *Gardeners' Chronicle*.

—— At the distribution of awards at the French Exhibition on the 1st of this month, M. LINDEN, of Brussels, was made Chevalier of the Legion of Honour, in his capacity of delegate from the Belgian Government. The awards in the Horticultural Department will not be made until the close of the Exhibition.

—— We have received from Mr. WILLS, of Huntroyde Gardens, Burnley, the following proposal for an EXHIBITION of VARIEGATED ZONAL PELARGONIUMS, and trust that so spirited a proposal may not be allowed to fall to the ground:—

"No one seems to have taken any notice of Mr. WATSON'S challenge, which appeared in the *Gardeners' Chronicle* and in the 'Journal of Horticulture' lately; but it would be very interesting to have an exhibition of these beautiful plants this autumn. The Exhibition held on the 21st of May was too early in the season; I would, therefore, suggest that an Exhibition be held at South Kensington, in connection with the Floral meeting on the 17th of September, and that a subscription be got up among Nurserymen and raisers of new Pelargoniums. If 20 could be induced to subscribe 2*l.* each, 12 prizes could be given. This would make the Exhibition attractive, and would no doubt induce every one having few or many of this class of Pelargoniums to exhibit their productions. General satisfaction would thus be given, and the very best of the varieties sent out this season, and those that are preparing for next year, would be seen.

"I would confine the kinds in each day to those that have been distributed in 1867, and those to be distributed in 1868. By this means much confusion would be avoided. As there are several raisers who have given the same name to the plants, it could then be determined by the Floral Committee which kind was to have a certain name: at the same time other names could be given to the other varieties; this would prevent much disappointment. There are, I believe, three 'Prince of Wales' now in the field.

"I would suggest that four Classes be opened for them, and that three prizes be offered in each Class, viz.:—

"CLASS 1. For the best 12 Gold and Silver, Zonate or 'Tricolor' Pelargoniums, including those sent out in 1867 and those to be sent out in 1868, one plant of each variety, 1st, 7*l.*; 2d, 5*l.*; 3d, 3*l.*

"CLASS 2. For the best six varieties, six plants of each, same conditions as in preceding Class, 5*l.*, 3*l.*, 2*l.*

"CLASS 3. For the best three varieties, six plants of each, 4*l.*, 3*l.*, 2*l.*

"CLASS 4. For the best and most distinct 'Tricolor,' either gold or silver-variegated, 3*l.*, 2*l.*, 1*l.*

"I think this would give all a chance of competing—those only possessing one or three good kinds, or those possessing 12; and if more money than I have named should be subscribed, other prizes might be offered for the best Gold and Bronze Zonals. I would also suggest that three amateur jurors of well-known ability be appointed, and that the Council of the Royal Horticultural Society be invited to offer extra or special prizes for plants possessing superior merit that are not provided for in the above classes.

"I shall have much pleasure in subscribing for this purpose, and hope we may see a spirited competition."

—— We understand that an application to Mr. HESELTON, of Hartlepool, about the WONDERFUL PLANTS mentioned in our last issue, has brought the following reply:—"Sir, I will supply you has early has possable with specmens of my plants and seeds. W. FAWN, JUN., per J. HESELTON. I grow them at least 42 miles from my present address."

ON TRANSPLANTING TREES.

BY ROBERT HUTCHISON, OF CARLOWRIE, KIRKLISTON.

THERE is probably no department of estate management less attended to than the transplanting of large trees and shrubs. When occasion requires the removal of any large specimen for immediate effect, the operation is unfortunately too frequently performed with little regard to the general principles of phytology, far less with any special care for the individual requirements of the species. Hence it is that many failures result; and the hopes of the planter are so disappointed that in future, when similar operations are necessary, recourse is had to trees and shrubs of much smaller size. Indeed, the comparative cost and risk of removing large plants is generally considered to be so much out of proportion to the expense of lifting younger specimens, that, now-a-days, it is the exception to find proprietors removing or transplanting very large-sized trees or shrubs. Preference is given to plants of small dimensions; and seeing the ignorance so often displayed by those to whom the superintendence of this operation is intrusted, and their heedlessness of all laws of Nature, this is not to be wondered at. Yet true it is that the operation may be performed with almost equal certainty in the case of large trees, as in that of small ones, provided care be taken, and due attention be given to the habits and peculiarities of the subject—to the proper season and circumstances at the time, as well as to the nature of the soil and situation.

In considering the question of transplanting, and for the purpose of this paper applying or rather restricting that term to large-sized plants only—probably not under 3 feet, and ranging up to 40 feet in height—we shall first notice the season and circumstances best suited for the various species.

The habits of the different varieties of trees and shrubs are so various, that the same season or the same age will hardly suit any two of them for transplantation. As a general rule, however, we may state that the process may be carried on with safety and success, at the time which will least interfere with the functions of Nature in the individual species. Probably, about a month or six weeks before the sap begins to descend (provided the weather be favourable), in the case of Coniferæ and Evergreen shrubs; and as regards deciduous trees, as soon as the leaves have performed their functions, and have completely withered up, or been shed by the branches. So far as our personal experience of the newer Coniferæ goes, we have found that they should never be transplanted till the month of April has gone, and that about the middle of May is the best season for transplanting most of the species. Small plants, if it is intended to grow specimen trees, should be preferred—and they will do best if from 3 to 4 feet, or not over 6 feet high—unless, when taller, they have been previously several times removed. We have repeatedly observed that Evergreens will thrive best if transplanted during cloudy weather, at midsummer; or all the above-mentioned classes may with much certainty be transplanted about the end of September, or early part of October. In lifting deciduous forest trees, it is well to observe the different orders in which the varieties come into leaf in spring in the locality where the operation is to be conducted, and to follow that order with the various varieties, when the proper season for transplanting them arrives.

One law of nature too frequently overlooked should regulate, to a great extent, in each locality or situation, the season for transplanting, viz., the alternations of temperature in the soil, in relation to the temperature of the atmosphere. The discrepancy between these gives decided preference to the Autumn months over those of Spring for general transplanting operations. In this climate, for example, when hard frost has prevailed for a time, which is often the case in the months of January and February, we usually receive a considerable and continuous fall of rain, which chills and soaks the soil, and upon stiff land renders all attempts at trenching and digging (which should invariably precede transplantation) worse than useless. Therefore, March and April are, in our opinion, the worst months in the year for conducting the operation, for not only are the cutting frosty winds at that time very injurious to newly moved specimens—especially to Coniferæ and Evergreens—but, if planted at that season, they are placed in soil quite unprepared for them; and the dry season succeeding, draws off all moisture necessary to induce the growth of young rootlets, or cakes the already saturated clay soil around the tender spongioles, drying up their cells, and withering the very mainstays of the plant's existence. Whereas, if advantage be taken of fine weather, during March and April, to dig and pulverise the soil intended to receive the transplanted specimen, the stirred earth, open and free, absorbs the heat of the sun's rays, which, by the end of April, have begun to possess power; and by proceeding with the operations in May, a much milder temperature exists in the root-bed of the plant, and thus a more rapid propulsion of young rootlets is induced. At this period of the year, the various species of Abies, Pinus, Cedrus, Cupressus, Juniperus, and Evergreen shrubs generally, may most advantageously and successfully be moved; and, with ordinary precautions, success must follow attempts to lift plants of most of these classes of large size, say from 6 to 10 feet in height, or even taller specimens.

We have said that a very suitable season of the year for transplanting is towards the end of September, and the early part of the month of October. The temperature of the soil is, at that period of the year, in this climate, probably nearer in degree to that of the atmosphere than it is at any other season. At 2 feet under the surface, about this time, the mean temperature of the soil will be from 55° to 52°, while that of the atmosphere will average in ordinary seasons from about 55° to 48°. The soil being thus warm, and closely approximating to the mean temperature of the outer air, any injury from rupture, or cutting, which the rootlets may have accidentally sustained in removal is quickly repaired, and the formation of new spongioles is more rapidly promoted than it would be in the spring months, when the temperature of the soil would have fallen, in ordinary cases, to about 37° or 40°, at which time the temporary check sustained by the roots would prove more serious—occurring, as it would at the very season when their full progressive development is most essential to the welfare of the tree. For these reasons we prefer transplanting deciduous trees in autumn, and Coniferæ and Evergreen shrubs in May, or at midsummer.

The successful transplanting of large trees and shrubs depends not only on the season selected for the operation; the situation of the plant may greatly aid in the favourable result; the nature of the soil may also tend to ensure success; and the choice of subject upon which to operate is probably not the least important consideration in the matter. No tree should be chosen for transplanting from a plantation or thicket, for then the roots of the crowded denizens have so interlaced with one another that it is absolutely impossible to detach and clear the root-ball of any tree without inflicting considerable injury either upon itself or on the feeders of its neighbours. Nor do specimens taken from such positions afterwards form handsome plants, and they, moreover, incur the risk of suffering materially from the change of site. In a thicket the tree has been accustomed to a more regular and a milder temperature than it can experience in an isolated position. The alternations of temperature in the soil have hitherto been to it less excessive and extreme, and it has been unused to the vicissitudes of climate to which, in its new situation, it is exposed. Next to the selection of a tree for the purpose of transplantation from an open position, we recommend that choice should be made of good specimens from the margin of woodlands, or from trees growing in narrow strips of belting.

As regards soil, a strong retentive loam, tending to clay, will yield the best root-ball, and will ensure the exclusion of air from the numerous fibres encased in it during the progress of removal; but, on the other hand, such root-ball placed in free light soil, or in earth of a lighter nature than itself, is too apt to become dry and caked, its natural moisture being drained off by the change of site. Hence, while a light sandy soil will hardly afford facilities for removing specimens without very great care, and the use of machinery being necessary to hold the ball together, we would almost prefer it to a clayey loam, if the tree grown in it is to be removed to a light porous soil in its new position. These difficulties, however, as we shall afterwards show, may, by treatment at the time of removal, be overcome, or very much modified.

(To be Continued.)

LETTERS FROM PARIS.—No. XIX.

THE GREAT ROSE SHOW AT BRIE COMTE ROBERT, AND THE EIGHTH FLOWER SHOW AT THE EXPOSITION.

ALL the floral world has lately heard of Brie Comte Robert, and I had the pleasure of seeing it on last Sunday morning, on which day the great show of Roses took place. To give the reader an idea of the scene on which the show took place, I shall have to request him to imagine the mildest possible corner of Donnybrook Fair, arrange it around a grassy yard, or the corner of a field, extract all the "divilment" out of it, and place a great oblong tent at one end of the scene. The Rose Show is, in fact, held in connection with the *fête* of the place, and that is, so far as could be seen, simply an affair of little gaming tables, gingerbread, and toy-stalls, &c., with a travelling theatre, a very small establishment for telling fortunes, and various other contrivances for fooling the rustics of the neighbourhood out of their money. The entrance to the scene was by a sort of gateway in the town, and nothing could be more disappointing to an English visitor than the appearance of the affair, which had even supplied the *Daily Telegraph* with subject matter for a leading article. On the other hand, nothing could look more beautiful and fertile than the country for miles around the town, every inch being cultivated, like the slopes of the low Kent hills, with Vines and miscellaneous crops—the great spread of level land chiefly with Wheat, which arched into the roads, there being no hedges nor ditches to be seen, yet the country was quite picturesque from being dotted with fruit trees here and there. There are various large nurseries in the neighbourhood, chiefly those of M. Cochet, the owner of the great Thuja shown at the Exposition, and of the largest specimens there. He has a very extensive nursery—a fine collection of healthy Conifers, and also quantities of large and well-trained fruit trees. It is, I believe, the region in which most of the Roses are grown for the Paris nurserymen, and it is their growers who exhibit the Roses. Once in the tent the effect was distinct and good, though the display is not so vast as we had been led to expect from the statistics of previous shows. All the Roses were placed on the ground—no stages of any kind being used. First of all, there ran right round the great oblong tent a sloping bed of sandy earth, about 5 feet wide, covered with young Barley, the seed of which had been sown 8 or 10 days before. On this were thickly placed the Roses—eight rows deep, or thereabouts. They were for the greater part placed in small earthenware bottles, about 5 inches high, with long narrow necks and wide globose bases; and, placed amongst the Barley-grass, these looked very well indeed; generally three or more Roses were placed in each bottle. They were made of ordinary garden-pot stuff, and of the same colour, and looked so much better than those of glass used by some exhibitors, that their use should be made compulsory. Thus the reader will perceive that the most conspicuous thing in the tent was a dense bed of Roses around it. In the central parts of the tent there were beds of various shapes in which the Roses were generally plunged in Moss, and mostly arranged in masses; for example, a bed of 700 blooms of General Jacqueminot, edged with a line of Aimée Vibert; a bed of Madame Boll, edged

with white and red roses, all the flowers plunged singly in dark green Moss, and so on. Space prevents me giving you the names of exhibitors or going into any detail; suffice it to say that the competitors vied rather in quantity than in quality, and that one exhibitor showed as many as 600 varieties, or supposed varieties —certainly he had that number of bottles. Others showed large numbers also, but in all cases the Roses were inferior to those seen at an English show. As for the varieties, they were chiefly such as abound in England. There were quantities of that fine Rose Maréchal Niel to be seen, one bed of it being 10 feet in diameter, the blooms plunged singly in Moss. The largest exhibitor grouped his flowers very prettily by arranging wavy lines of yellow and white varieties through the long mass of rose and light-coloured tints. Each exhibitor placed his novelties, if he had any, among the large collection. Of novelties, the most remarkable was one named Clémence Raoux, a Rose quite new in colour, but reputed by the growers to have bad-blooming qualities. The petals are firm, crisp, and incurved, the flower large, and the colour nearly indescribable. We will, for convenience sake, call it a rosy pink, marbled and suffused with white, so that it furnishes an effect like some Camellias. It received a gold medal, and if it does not prove A 1 in all respects it is likely to give rise to a distinct and desirable strain. Others not so distinct, from popular kinds, but good, were Edouard Morren and Comtesse de Jaucourt, both desirable. There were very few people present except the immediate population of the neighbourhood, and not a crowd of them, though doubtless it might have been otherwise in the evening when the place was lighted up, and on the second day, when the entrance fee was very modest—25 centimes.

The most interesting thing shown at the eighth *série* of the Paris Show, which opened on Tuesday, was a large collection of extraordinary seedling Gloxinias. They are as good as they are entirely new in style, and the admiration of all who have seen them. This popular plant is in fact ennobled, and placed a step higher by their appearance. A few years ago M. Vallerand, gardener to a gentleman at Baugival, raised a seedling, spotted in a way that reminds one of Achimenes Ambroise Verschaffelt, and from this all these exquisite varieties have sprung. If I say that some of them do not look like Gloxinias at all, but like the flowers of a Dipladenia, it may seem exaggeration, but it is nevertheless a fact; and as really good things are sure to spread, there will probably be, ere long, an opportunity of seeing them in England. No choice varieties of Foxglove or herbaceous Calceolaria ever seen bears such handsome and delicate spotting, while the improvement in form is equally remarkable, the limb of some erect varieties spreading out flat and waxy, till in fact it looks, as I have before said, like a Dipladenia in some instances. This is particularly the case with varieties having a stain of rose at the base of each section of the limb, and which afterwards spreads out into a rosy suffusion towards the margin. Some varieties have the throat spotted; generally the throat is pure white, and the limb regularly spotted with rose or lilac; while a few are of a pure waxy white, and with a simple stain of a rose, or purple, or blue tint, appearing at the base of each section of the limb; or the whole suffused with blue in a peculiarly beautiful shade. But it is vain to hope to give you an idea of their beauty of colour; suffice it to say, that I have never seen it so refined and exquisite in any other plant than in some of the most recent varieties raised. When they get into commerce an increased stimulus will be given to the culture of the plant. Of the other features of the show most worthy of remark, groups of exotic fruit trees shown by M. Linden and Mr. Knight, of Pontchartrain, are most conspicuous, the former containing the true Mangosteen in a most fresh and healthy state, and both groups including very rare plants, of which space forbids the mention.

Mr. Knight, who, by the way, is teaching the French how to grow hothouse Grapes, shows by far the finest Grapes to be seen here. There are plenty of Roses shown, and altogether the place is very full of plants, those things which furnish us a hint being such only as I can touch upon. The Lantanas shown by M. Chaté belong to this class. They are perfectly well grown, about 4 or 5 feet in diameter across the head, and covered with pretty flowers, each plant having a clean stem a couple of feet high or so. The more delicately-tinted varieties of Lantana grown in this way look very well, and are worth attention as summer and autumn ornaments for the conservatory. Well grown through the spring, they may be placed in the open air in the end of May, allowed to grow away cleanly, and come into flower about the end of July, when conservatory flowers are rather scarce. Hollyhocks are pretty extensively shown; also Carnations. M. Lierval has a fine lot of his Phloxes, and Messrs. Vilmorin Andrieux & Co. a couple of beds of Lilium auratum. The Apricots are peculiarly fine and large; the Cauliflowers, Lettuce, and Endive extraordinary, particularly the Cauliflowers, which are grown in Paris market gardens to a great size. A small local or provincial society shows some good things in this way. It is a good practice this, of small societies showing their produce collectively, and must be conducive to a pleasant kind of amity among the members—more, perhaps, than competing with each other would lead to. Strawberries have been very good and cheap for weeks past. Cherries selling abundantly in barrows at 1½*d.* and 2*d.* a pound; Currants even cheaper. Good Apricots have been selling at a penny apiece, inferior ones at half that price. Excellent Figs have been, like the Apricots, hawked in wide barrows about the streets at a halfpenny apiece, or even less, and the Peach is now appearing from the South, and large purple Aubergines, or fruit of the Egg-plant, are served in all the restaurants, and, like the Tomatos, which have been plentiful for some weeks, they are very nice when served *au gratin*. *W. R.*

WEEDS AND THEIR CHARACTERISTICS.

By BERTHOLD SEEMANN, PH.D., F.L.S.

So great are the changes constantly going on in the nature and aspect of the vegetation of the inhabited globe, that it is almost as difficult to conjure up by pen or pencil the flora of a country as it was a few centuries ago, as it would be that of any former geological period. By not taking these changes into account, those who endeavour to give us vivid pictures of the past—historians, historical painters, and romance writers—often fall into the error of using, as a background for ancient historical events, the country in which they happened in its modern aspect, an anachronism as painful to a botanist, as a wrong note is to a musical ear. In a well-known print, representing Joseph sold by his brethren, the artist has carefully represented the Date Palm and other features of the desert, but he has committed the blunder of introducing the American Cactus, which did not reach Syria till several thousand years after Joseph's death. Some time ago I saw a play founded upon an incident of early Roman history. The stage accessories had been executed with pre-Raffaelitic accuracy. There was the Roman landscape in all its beauty; the melancholy Cypress, and the Stone Pine of Italy, the outline of which Pliny so happily compares with the smoke of Vesuvius as it hovered over the crater 1800 years ago, and still hovers in our year of grace; but there was also, unfortunately, the American Aloe (Agave), which at present forms such a prominent feature of many a South European landscape, but was confined to the New World before the days of Columbus.

Amongst plants a fierce though silent struggle for the possession of the soil is constantly going on. Even when no foreign elements are introduced into the flora of a country it is ever at work; but it becomes much more fierce when species from abroad appear on the field, or, at all events, from our being able to recognise at a glance the opposing elements, we are in a position to watch the struggle and its issue. A prominent example of such a battle field, if so martial a term be admissible, is the island of St. Helena, where the native vegetation is almost entirely superseded by a foreign one, some of the singular indigenous tree Compositæ and others, now existing in only one or two old specimens. In some parts of the Cape of Good Hope an equally great change is noted, and many species are in danger of becoming altogether extinct. I remember the venerable explorers, Ecklon and Zeyher, taking me to see a few Silver trees (Leucadendron argenteum), which, they assured me, were the only specimens in South Africa. Dr. Hooker, in his suggestive paper "On the Struggle for Existence amongst Plants" [reprinted in our columns from the "Popular Science Review"], has well pointed out the rapid spread of European species in New Zealand, and the displacement of the indigenous. The alterations wrought in Europe by the naturalisation of foreign plants are familiar to us all, and many other parts of the inhabited globe might be pointed out where the same phenomenon is observable. Foreign plants deport themselves towards the indigenous as an invading army does towards the inhabitants of a hostile country. Before the bulk of the army advances, outposts make their appearance, consisting of the most daring and hardy fellows. In the vegetable kingdom this office is performed by the weeds, and it is on them that I should like to make a few remarks.*

Considering that weeds are found in every part of the inhabited world, it is singular that so few languages have a full equivalent of the term "weed," and that so useful an idea as that popularly embodied in it, should not have been, long ere this, translated into science. The Latin "*herba*," or Spanish "*yierba*," certainly does include our "weed;" but whilst every weed is a herb, not every herb is a weed. What, then, is the real meaning of "weed"? Dictionary writers do not help us much by qualifying weed as a mean or troublesome herb, for the popular mind associates with the nature of a weed several other characteristics not mentioned by them. We talk of plants bearing "a weedy look," and though most of us know what that means, nobody has as yet made it clear to those who do not know. The term weedy would be misapplied to the Aloes, but fit exactly the generality of the Alsineæ. We would never say of the Heather that it had a weedy look; in fact, the term would never suggest itself in connection with that species. The vegetation of New Holland could not be described, speaking generally, as bearing a weedy look, whilst that of the lower coast region of most tropical countries could scarcely be better defined than by that phrase. One of the most essential characteristics of a weed is, therefore, that it should look weedy, or, in other words, that its stem and foliage should be neither too fleshy nor too leathery, but of a soft, flaccid, or membranaceous description.

Another important characteristic is, that a herb, to be considered a weed, should propagate itself either by seeds or buds at a rapid rate, grow fast, and overpower those plants which may check its progress. I take it to be, that this characteristic is emphatically conveyed in the etymology of the word "weed," which, through the Low German verb "*wiien*" (to weed), the Bavarian "*wiiteln*," and the High German "*wuchern*" (= to spread or multiply with more than ordinary rapidity), is connected with Wodan or Wuotan (= Odin), the name of the supreme, all over-powering, irresistible Saxon god, to whom Wednesday, or Wodensday, is dedicated.*

A third, and perhaps more important characteristic is, that a weed appears only on land which, either by cultivation or in some other manner, has been disturbed by man. Virgin lands, such as the tops of high mountains, have no weeds. I saw none in the Arctic regions, except Tetrapoma pyriforme, a Siberian immigrant, which was growing in Norton Sound, on the only cultivated patch I met with in that country. Weeds are therefore essentially intruders, colonists, foreigners, or whatever one likes to call them—never endemic children of the soil. They may have come from the immediate neighbourhood, but they have always been translated, though the distances may have been but limited. Weeds have therefore to bear up against all the prejudice which the popular mind in all countries invariably entertains against foreigners. The German contemptuously terms weed "*Unkraut*," which is the antithesis of *Kraut* (= herb), and means "no herb," or "strange herb," just as *Ding* (= thing) is the anthithesis of *Unding* (= strange thing or monster); thus clearly expressing that weeds do not belong to the herbs of the country, but are something strange, unrecognised. Sometimes national prejudices are pointedly expressed in the popular names given to newly-imported weeds. Thus the North American Indian names Plantago major, the "Footsteps of the White Man;" and the German, the troublesome Peruvian Galinsoga parviflora, "Frenchman's Weed," though the French are probably quite innocent of its having become a pest in the sandy districts of Prussia and adjacent States.

Have the plants we designate "weeds" always been weeds? is a question to be answered. If the definition of the term given, and the views taken of the nature of these plants be correct, they cannot have been weeds in their native country; and the deportment of weeds on being translated from one part of the world to another would seem to bear out this view. There are no complaints against our Water-cress becoming an impediment to our rivers and rivulets. Though assisted by cultivation, it is by no means a common or troublesome weed. But look at it in New Zealand, where it threatens to choke up altogether the still rivers, and where its stem often attains 12 feet in length, and ⅜ of an inch in diameter. Galinsoga parviflora is very local in Peru; but mark its extraordinary increase in Europe since it effected its escape from our botanic gardens!

But if weeds have to surmount the obstacles which new-comers in all countries have to face, they also benefit by the advantages derived from their organisation coming for the first time in contact with a soil to them altogether virgin. This contact acts so powerfully that, provided the climate and other conditions required for the existence of a species are fulfilled, the new-comers will invariably become the victors in the great struggle for existence which immediately commences between them and the natives. This law seems to apply to the whole of organised nature, and man's own history furnishes some of the most striking proofs of its catholicity. The light-skinned Polynesian, though a dying-out race in the Hawaiian Islands and New Zealand since the arrival of new-comers of Teutonic origin, has nevertheless managed to establish his ascendancy over the indigenous dark-skinned Papuan in many parts of the Fijis. New-comers, always provided they gain a firm footing, have ever the advantage over those species or races established in the country before their arrival. This is well known to farmers and gardeners, and induces them to procure from distant parts stock and seeds of kinds identical with those already in their possession, because they know that the newly-imported succeed better than their own. The law is further illustrated by a system of rotation of crops, in which one kind of plants is most advantageously replaced by another; and here, at last, we get at a chemical explanation of the advantages enjoyed by new-comers, and why, in a struggle for existence between them and the natives of the soil, they must ever come off victorious.

A weed, then, in our language signifies a naturalised herb, which has a soft and membranaceous look, grows fast, propagates its kind with great rapidity, and spreads, to the prejudice of endemic or cultivated plants, in places in some way or other disturbed by the agency of man. There are, in various parts of the world, trees and shrubs, though their number is not so great as at first sight might be imagined, that may be said to occupy the same position amongst woody plants as weeds do amongst herbs. Psidium Guayava, Melia Azedarach, Acacia Farnesiana, and Crescentia Cujete, may serve as instances of such trees; the Brazilian Tecomaria capensis at the Cape of Good Hope and other parts of the Old World, and Ulex europæus at St. Helena, as examples of such shrubs. In most places where we find them they are exotics, outelbowing the indigenous vegetation by their rapid growth. But in most cases we know that their geographical range has been extended by their being taken under man's fostering care. The word "Tree-fern" having gained an easy admission in our language, it might be advisable to speak of these plants as tree-weeds and shrub-weeds, without being charged with unnecessary innovations.

Whence do different countries derive their weeds? is a question that naturally suggests itself. Off-hand, one would be inclined to answer that all countries

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I may here state that this article was written on the Atlantic after reading a paper of Dr. Hooker's, "On the Struggle for Existence among Plants," in the "Popular Science Review," for April, 1867, which I found on board the Royal Mail Steamer Douro, in the Virgin Islands, West Indies. Some of the views advanced here are, as it were, a further development of ideas touched upon by Dr. Hooker.

* This view, I find, is borne out by Jacob Grimm, "Deutsche Mythologie," 2d edit., vol. i., chap. vii. Singularly enough, the High German for "to weed" is lost and replaced by the word "*jäten*," pronounced "*yaten*" in some districts. I was very much puzzled about the derivation of this word, till I remembered that "Get" was one of the names of the god "Wuotan."

indiscriminately, having a climate similar to that of Europe, would be the sources whence Europe derived its weeds. And in great measure this is true. Many European weeds have an undoubted Asiatic and African origin; but if any part of the world might be expected to have supplied its due share, it would be the temperate parts of the North American continent, where many European plants, such as Thistles, have multiplied to such an extent as to have become a perfect pest. From the constant intercourse between Europe and North America, and the number of North American plants cultivated in our gardens, one would have expected a great many North American species to be naturalised among us. But this is by no means the case. North American plants, however easily grown in our gardens, do not show any great disposition to escape from cultivation, and drive the native flora off the field. The same is true of Australian plants; and this peculiarity contrasts strangely with the extraordinary rapidity with which European plants spread in the southern hemisphere, supplanting in New Zealand, New Holland, &c., the native vegetation. "Hitherto," says Dr. Hooker, "no consideration of climate, soil, or circumstance has sufficed to explain this phenomenon." If what I have traced out, that new arrivals have always the advantage over old, be a sound law, it ought to apply to this case as well as the others; and to all appearances it does. We know, from the researches of Unger and others, that a vegetation very similar, not to say absolutely identical, to that of the southern parts of the United States, existed in Europe at the Lignite period, and that a vegetation very similar, if not absolutely identical, with that of Australia, existed in Europe at the Eocene period. But we have no knowledge of the existence of a European Flora in either North America or in Australia at any former geological period. Plants from Australia and North America would therefore not enjoy in Europe the advantage of new-comers, but would rather be like wanderers returning to a country where their part has already been played out. *Journal of Botany.*

Home Correspondence.

Polemonium cæruleum variegatum.—Being well up, *au courant du jour*, with regard to flowers and to foliage plants which are bedded out, although I must confess that I do not grow in very large masses the new "Tricolor" Pelargoniums, I feel authorised to recommend to gardeners the beautiful Fern-like, feathery, silvery Polemonium, restored to our gardens, and kindly given to me, by Mr. D. Thomson, of Archerfield. As Nature tones down her most glowing colours, and enhances their beauty a thousandfold by contact of "cool" foliage, and contrast of calm neutral tints, so should we reverently follow in our garden grounds, and strive to invite and retain the admiring eye, instead of startling, dazzling, and wearying it, by a continuous intolerable glare, which frizzles our eyelashes, and makes hot our brain. "Not a leaf to be seen," has been the unwise boast of many a florist in praise of some gorgeous specimen; but Nature is justified of her children, and never makes a maneless horse. We want foliage in all our landscapes, gardens, and plants; and for contrast with our glowing Pelargoniums, Verbenas, and Calceolarias (I allude to such colours as Italy, Victor Emmanuel), as well as with our dark foliage plants, such as Coleus, Amaranthus, Iresine, and Perilla, I know of nothing more effective or more charming than this variegated Polemonium. *S. R. H.* [We cordially endorse our correspondent's statements, general and particular. EDS.]

Tree Measurers. What is the best plan for measuring the heights of trees? In your paper for August 8th, 1863, you mention the quadrant, but this appears to require level ground. Loudon gives some plans in the *Arboretum*, vol. i., p. 206, one of which is a series of rods connected by tin tubes, which would scarcely do for a tree 70 to 100 feet high, I should think. I know a case in which the shadows of some trees were measured and compared with the shadow of a pole whose length was known, both being measured at the same time. This, of course, can only be done when the sun shines. Is it accurate? Would you also state the probable price of the instruments you recommend, and if they can be got at any mathematical instrument maker's. *P.* [A guinea instrument for measuring the heights of trees and other objects, called a dendrometer, the invention of Messrs. Sang, of Kirkaldy, is noticed in Loudon's *Gardeners' Magazine* for April, 1840. It may be briefly described as a miniature sextant fixed to measure an angle of 45°, so that a point distant from an object equal to its height can readily be ascertained. The instrument is in the form of a circular brass box, about an inch across: it may therefore be carried in the waistcoat pocket. In using it, proceed as follows: Fasten the end of a tape line to the stem of the tree at the height of the eye, usually about five feet above the ground; walk away from the tree holding the tape in the hand until it is guessed that it is as far unrolled as the tree is high, then turn round the milled edges of the instrument, which when done will disclose three openings; hold it vertically, by putting the finger and thumb between the round hole and the small square one, apply the round hole close to the eye and look through it and the small square opening towards the end of the tape line. If at the exact distance, a reflection of the top of the tree will be observed falling on the end of the tape; most likely the reflection and the end of the tape will not at once coincide, in which case move backwards or forwards until they do so, when the number of feet which the tape indicates is the height of the top of the tree above the end of the line, and the total height is obtained by adding the height at which the tape is affixed. At first with some there is a slight difficulty in using this instrument, which five minutes' practice, however, will remove. A good object for trial is the gable of a house or a tall erect pole, with the height of the observer's eye marked distinctly on it. It will be easier to bring the reflection of such an object and the mark together, than it would be in the case of the somewhat vague outline of the summit of a tree. In sloping ground the measure of course requires to go from the object in a line perpendicular to it, this is the only source of error, and to insure perfect accuracy a level would also be needed; but a little attention gives a result near enough for most practical purposes. EDS.]

Rhus glabra laciniata.—I have known this plant for about two years as a subject of much promise for garden decoration, and I am now certain of its being one of the most useful and elegant forms of vegetation ever introduced. It is a small kind, with finely cut and most elegant leaves, the strongest being about a foot long when the plants are established a year or two. When seen on a nicely-established plant, these leaves combine the beauty of those of the finest Grevillea, with a Fern frond, while the youngest unfolding leaves remind one of the dainty young ones of a finely-cut umbelliferous plant in spring. The variety observable in the shape, size, and aspect of the foliage makes the plant charming to look upon, while the midribs of the fully grown leaves are red, and in autumn the whole glow off into bright colour after the fashion of larger American subjects. During the whole season it is presentable, and there is no fear of any vicissitude of weather injuring it, In addition it is perfectly hardy, and as a Fern-like plant capable of being of more use to the tasteful flower gardener than any subject he could find indoors. Its great merit is that in addition to being so elegant in foliation it has a very dwarf habit. Plants at three years old and undisturbed for the past two years are not more than 18 inches high. The heads are slightly branched, but are not a whit less elegant that when in a simple-stemmed, and young state, so that here we have clearly a subject that will afford a charming Fern-like effect in the full sun, and add graceful verdure and distinction to the flower garden. When the flowers show after the plant is a few years old they may be pinched off, and this need only be mentioned in the case of permanent groups or plantings of it. To produce the effect of a Grevillea or Fern on a small scale, we should of course keep this elegant Rhus small, and propagate it like a bedding plant. The graceful mixtures and bouquet-like beds that might be made with the aid of this plant need not be suggested here, while, of course, an established plant, or groups of three, might well form the centre of a bed. Planting a very small bed or group separately in the flower garden, and many other uses, which it would be useless to enumerate here, will occur to those who have once tried the plant. Some hardy plants of fine foliage are either so rampant or so top-heavy that they cannot be wisely associated with bedding plants—this is, on the contrary, as tidy and tractable a grower as the most fastidious could desire. It would be a pity to put such a pretty plant under or near rough trees and shrubs—give it the full sun, and good free soil. It was, I believe, introduced from America by Messrs. Thibaut & Keteleer, of Paris, who have a good stock of it, some of which reached England a couple of years ago. It is, however, but little known with us, and probably not at all to the flower gardener, who will, I have no doubt, use such things when he knows species like this that will grow readily in the full sun, and produce such effects in the open air as we desire to see amongst flowering plants in a well-managed conservatory. *W. R.*

Paxton Glasshouses.—In reference to your Correspondent "G.'s" query (see p. 737) as to whether the price of the Paxton roof, quoted by us in a former letter (see p. 712), includes fixing and machinery, we beg to state that the total cost of erection would, of course, vary with the distance of site from the works; and if your correspondent will favour us with his address, we shall be happy to furnish him with full particulars, and a definite estimate; as we do not wish to intrude on your space with "trade details," which we have printed, with prices attached to them, for distribution. *Hereman & Morton.*

Hollyhocks.—It is a common practice among nurserymen who propagate Hollyhocks for sale, to graft a young shoot or bud upon a bit of an old root, and in this way, with the means at their command as to bottom heat, young plants are speedily produced. This plan, no doubt, often succeeds well, but, as in my own experience, sometimes at the cost of great disappointment to the purchaser. I had to cut down one of my very best plants the other day, after it had reached a height of three feet, and on examination I found that at the junction of the cutting with the root it was quite rotten. I have examined others, and I find another showing signs of disease. Would any of your correspondents kindly inform me if there is any known application that would check the spread of the evil. *R. G. Ross, Glamis, Forfarshire.*

Stephanotis floribunda.—Having failed to grow this fine plant successfully, I should much like to know the system you recommend, as to the soil, temperature, and treatment. *J. P.* [The following is the mode of treating it adopted by Mr. Donald, of Leyton, who has shown well-grown and beautifully flowered specimens of it at our great Metropolitan Shows this season. "I have," he says, "always looked upon Stephanotis as a plant which anyone having the required temperature, at command might grow; but it is not so easy to get a good crop of bloom on it. At present my plants of it are placed in an ordinary span-roofed greenhouse, in which they will continue till December, taking care that the temperature during Autumn does not fall below 45°. During the next five months they will only have sufficient water to keep them from flagging. In December I shorten the wood which they may have made this year, leaving about six eyes on the strong shoots, and two or three on the weak ones. At the same time I turn the plants out of their pots and reduce their balls about an inch and a half all round with a sharp-pointed stick, in order that the roots may not be injured, which would be the case if the operation was performed with any cutting instrument. I then repot in similar-sized pots to those formerly used, or perhaps a size larger, according to the condition of the roots. The compost employed for this shift consists of turfy loam and peat in equal proportions, and one-third silver sand. It is best not to chop or sift the turfy matter, but to pull them to pieces with the hands into lumps, say about the size of Walnuts. Having tied the plants to the trellises on which they are to be grown, they are then placed in a temperature of about 50°, where they remain till the end of February, frequently sprinkling them overhead with water having the chill off, but giving very little water at the roots. At the end of February or the beginning of March they are placed in a stove in which the temperature is about 65°. After remaining there about a fortnight they are plunged into a tan bed half the depth of the pots; the bottom heat in this must not exceed 70° at first, but it may be increased, or the pots let deeper down into the tan, otherwise the first flowers will not come to perfection, but will turn yellow and fall off. As the young shoots advance, I train them up to the glass on small string, where they get more light and set bloom more freely than they would do if otherwise situated. The string may be cut away when the blooms are set, and the shoots trained regularly over the plant trellis according to the taste of the cultivator. Liquid manure is freely given when the flowers are beginning to open, and of a temperature corresponding with that of the house in which the plants are growing. This gives quality to the blooms and freshness to the foliage.]

Lilium auratum.—I have this growing in a 5-inch pot, with a flower measuring 11½ inches across, the yellow bands being overlaid with red; it is finer than any other auratum I have seen. Please say if the red striped variety is rare. *P. M., Montrose.* [The red var. can now hardly be considered rare. EDS.]

Mrs. Pince's Black Muscat.—Allow me again to say a word or two in favour of this, the most valuable of all late Grapes. It has thoroughly proved itself to be the most prolific and the most free from disease of any Vine which we have in cultivation, and as regards quality it is quite a Black Muscat in flavour as well as in shape of bunch and berry. In order to illustrate its keeping qualities, I need only state that after Mrs. Pince had sent samples of it to different parts of the country a few bunches were left in March to hang on the Vines as long as they would. Unfortunately a rat took a fancy for them, and commenced to take them off for himself and his friends; but one bunch, left untouched, kept good until late in April, when the Vines were so far advanced as to demand much moisture; it was then cut off in as good condition as it was in November. This year the variety is again covered with long handsome bunches, and the Vines are in perfect health, notwithstanding the heavy crops taken off them last year. I am sure that Mrs. Pince's Grape will soon be seen in every establishment in which Vines are grown. *W. Craggs, Larkbeare, Exeter.*

Hardiness of Retinosporas.—Mr. Strickland states (see p. 736) that Retinosporas are not hardy at Malton, in Yorkshire. I cannot help thinking there must be some mistake about the matter; that either the plants have died from some other cause, or that they cannot be Retinosporas, as the latter are hardy here, both in winter and spring, in a very high degree. Last winter Araucarias were cut with us so as to have the appearance of being burnt; Deodars were the same; Cupressus Goveniana and C. Lambertiana were quite killed, whereas Retinosporas were as green and bright as if they were in full growth, and on May 24 last, when a great many plants were making their young growth, we had 10° of frost, which cut up nearly all young vegetation, even Spruce Firs were injured, as well as Common Yew, specimens of which I send you, but the Retinosporas were unhurt. All of the plants sent were growing side by side, and the only things that did not suffer by the frost in question were Abies nobilis robusta; Abies Lowii, a very hardy, vigorous growing Fir; and the Retinosporas. The Variegated Euonymus radicans, too, is a very hardy plant. I had a lot of small plants of it in a frame, which were planted out the day before the frost came upon us, and although they were in a growing state, not a leaf of them was injured. *Jno. Standish, Royal Nursery, Ascot.* [The specimens sent fully confirm the truth of our correspondent's statement. The Retinosporas pisifera and obtusa are in beautiful condition, while young growths on the Common Spruce are as red as a new brick. Abies Pinsapo also appears to have suffered considerably from the late spring frosts. EDS.]

Winter Decoration of Tree Stumps.—I have some very nice roots of trees on my lawn, which I want to ornament. I have thought of having their base covered with various varieties of Ivy, but this only to cover the base. As to the top parts, in summer there can be no doubt as to the decoration, but when winter comes what is to be done then? because I want the stumps not only to be attractive in the summer, but also in the winter. It will, therefore, be to me a great pleasure if any of your correspondents will inform me what plan I can adopt, so that I may have attractive stumps in winter. *Amelia.* [You can have nothing better than Ivies for covering the stumps of your trees, if they must be ornamented in winter. Of green kinds take Hedera donerailensis minor, H. poetica, H. digitata, H. palmata, H. sagittæfolia; of variegated kinds, H. canariensis aureo-maculata, H. marginata argentea, H. minor marmorata, H. latifolia maculata, H. Helix foliis aureis, H. rhombea, H. algeriensis variegata, and H. japonica.]

Strawberries.—I am anxious to make a Strawberry

bed on a dry, light, loamy soil, where Strawberries have not done well. Will you kindly inform me what I ought to use for it; also what Strawberry would suit best? *Constant Reader.* [Strawberries succeed best upon good stiff loam. Therefore, to grow them successfully, it is necessary to properly prepare a border composed chiefly of that material, mixed with abundance of well decomposed manure. Before planting the border should be well trenched; where, however, good stiff loam cannot be got, first well trench the existing border some three feet or so deep, and add thereto manure in abundance. Then remove from the surface a certain amount of the older soil, and replace it with about double the quantity of the stiffest loam that can be procured from some old pasturage. Surface dress the whole with a thick layer of rotten dung and dig it in deeply, in order to amalgamate it thoroughly with the older soil below. Tread the border thus prepared well all over, and it will be ready for planting. For this purpose choose the earliest-formed strongest runners possible, and plant them firmly, but do not bury the crowns too deeply. Let them stand at least 18 inches by 24 inches apart. A border such as yours, composed as it is of much light soil, is better not dug or forked over periodically, an operation which tends to loosen the already too light soil. Rather surface hoe occasionally. Mulch well with rotten dung as soon as the crop has been removed, and the plants cleaned. Again manure the surface well in March following with similar material. Never remove or injure more than is possible any leaves not arrived at maturity; water copiously in dry weather, and especially after the crop is removed. Of sorts take Keens' Seedling and Black Prince for early fruiting; La Constante, Dr. Hogg, Premier, and Marguérite for a general crop; and Frogmore Late Pine and Elton Pine for late fruit.—Eds.]

Societies.

Royal Horticultural (*Great Show at Bury St. Edmund's, July* 15—19.)—The Royal Horticultural Society's *début* in the provinces has been of a most gratifying character. Well supported by the local horticultural talent, and not wanting altogether in sympathy on the part of distant exhibitors—though we confess we think certain of our great growers should have done more than just put in an appearance—the show has been really a good one throughout, and the Society will leave Bury with its honour and credit well sustained.

In the Classes of Stove and Greenhouse Plants as they are usually called, the mention of the names of Baines, Cole, and Lee as exhibitors will show to those who know the character of the London and Manchester shows, that the Bury exhibition has not been without examples of first-rate plant growing. These classes have been quite up to the mark in point of quality, and the only regret in connection with them is that a larger number of exhibitors did not enter the lists. The Royal Horticultural Society's 20 guinea Cup was won by the Messrs. Lee, of Hammersmith, with a very fine lot of plants, among which occurred Allamanda Hendersoni and grandiflora, beautifully bloomed; Erica Parmentieri rosea, quite smothered in its lovely blossoms of a delicate roseate hue; Ixora javanica, full of bloom and brilliantly coloured, but rather small in the size of the heads of flowers; Phænocoma prolifera Barnesii, a large mass; good examples of Cordyline indivisa, Dipladenia splendens, Ixora coccinea, Gleichenia semivestita (microphylla), and last, but not least in effect, a splendid bush of Kalosanthes coccinea. These were well backed up by bulky foliage plants of meritorious culture. Scarcely, if indeed at all inferior to this group, stood that from Mr. Baines, gr. to H. L. Michols, Esq., of Bowdon, near Manchester. In this collection were two such plants of Sarracenia as were never before seen—one, S. purpurea, a dense mass 3 feet over, and with enormous pitchers, and the other, S. flava, fully a yard high, with the mouth of the pitchers 3½ inches across, and the broad leafy lid 4½ inches. There was an enormous Genetyllis tulipifera; a splendid bush of Clerodendron Balfourii; Alocasia Lowii, extraordinarily fine; well bloomed examples of Dipladenia crassinoda and Houtteana; a fine healthy medium-sized Cordyline indivisa; Allamanda Hendersoni and cathartica, both in good condition; Gleichenia flabellata and Speluncæ; and a fresh-looking Croton variegatum. The merit displayed in these groups was very equally balanced. A fine group of 9 plants was set up by Mrs. Cole & Sons, Fog Lane, Withington, and gained the 1st prize. This consisted of Allamanda Hendersoni and cathartica, Dipladenia crassinoda, Erica obbata and conspicua elegans, Bougainvillæa glabra, Ixora coccinea, and a very handsome Kalosanthes named Madame Celeste Winans, which has flowers of a roseate hue, white at the centre. A 2d prize group was put up by the Messrs. Lee.

The best group of 12 Fine-foliage Plants was contributed by Mr. Nichol, gr. to J. H. Powell, Esq., Drinkstone Park, who had Alocasia maculata, Maranta zebrina, Croton variegatum, Maranta regalis, Pœnicophorium sechellarum, and Caladium Chantinii in very good condition. The 2d prize fell to Mr. Southgate, gr. to R. J. Pettwood, Esq., Finborough Hall, Stowmarket, whose group included Anthurium magnificum, Caladium Chantinii and Belleymei, well coloured; Cissus discolor, and the handsome Maranta eximia, which looks as if decorated with a white feather on the surface of its leaves. Mr. Green, gr. to Mrs. Honeywood, Mark's Hall, Kelvedon, was placed 3d; he had Alocasia macrorhiza and metallica, a good Anthurium magnificum; Caladium Chantinii, pictum, and Belleymei; and a handsome Cissus discolor. A fourth group from Mr. D. T. Fish, gr. to Lady Cullum, Hardwicke House, contained a good Caladium Chantinii, Roulinia acrosticha, and a Beaucarnea.

In groups of 6 Fine-foliaged Plants, Mr. Baines was 1st, with a collection containing a splendid plant of Anæctochilus Lowii, a charming potful of Anæctochilus intermedius, Sphærogyne latifolia, with well developed foliage; and a remarkably fine mass of Dionæa muscipula. Messrs. J. & C. Lee were placed 1st, for a group of 9 fine-foliage plants, in which were Yucca filamentosa variegata, with broad effectively-striped leaves; Dracæna australis, Theophrasta imperialis, Chamærops Fortunei, Yucca quadricolor, a Croton, Anthurium acaule; and one of the finest plants of Bambusa japonica variegata ever shown, a close mass of narrow striped foliage 2½ feet over, and rising about a foot above the pot. The County Cup for the best stove and greenhouse plant in flower was won by Mrs. Cole & Sons, with a remarkable plant of Dipladenia amabilis.

Very few Orchids were shown, and this was, in fact, the weak point of the show. The 20*l.* and 7*l.* 7*s.* cups offered by the ladies of Bury were not even competed for; and the Society's prize for 6 plants was taken without competition by Messrs. Lee, with a group of small plants, the best of them being Cattleya Dowiana, Cypripedium superbiens, and a Phalænopsis. Orchid growers should have done something better than this.

Palms were shown by Messrs. J. & C. Lee, to whom a 1st prize was awarded. The group contained Pœnicophorium sechellarium, with broad serrated leaves; Geonoma magnifica, a very handsome broad-leaved Palm, with clean-looking foliage; Areca Verschaffeltii, crinita, and rubra, and Latania Verschaffeltii. They were small but handsome plants.

Ferns formed a considerable feature, and were generally well grown rather than rare specimens. In the Nurseryman's Class for 9 Exotics, the 1st prize fell to Messrs. J. & C. Lee, whose plants were generally large, the collection containing moderate-sized examples of Lomaria gibba and L. nuda. Mr. J. J. Chater, of Cambridge, was 2d, with a group of moderate-sized plants. Mr. J. Gilbert, St. Margaret's, Ipswich, was 3d, with a set of neatly grown smaller plants. The Amateurs' Class for 9 Exotic species was well contested. Mr. Allen, gr. to Sir C. Bunbury, Bart., Barton Hall, was placed 1st, and showed, amongst others, an elegant Woodwardia radicans, a fine mass of Asplenium furcatum, and a good specimen of Adiantum cuneatum. Mr. D. T. Fish was 2d, and had in his group fine large plants of Nephrolepis davallioides, and Stenochlæna tenuifolia. The 3d prize fell to Mr. Squibbs, gr. to the Marquis of Bristol, Ickworth Park, who had smaller plants, and amongst them a good Adiantum cuneatum. The 4th prize went to Mr. Foreman, gr. to the Rev. F. Cheere, Ingham Rectory. The prizes for single Tree Ferns were taken respectively by Mr. Gilbert, Mr. Chater, Mr. Penrose, and Mr. Fish, the plants being not at all extraordinary. The British Ferns, too, presented nothing very remarkable in character. The prizes were taken by Mr. J. J. Chater, Mr. J. Gilbert, and Mr. D. T. Fish, in the order in which their names stand. Some of the best Ferns shown were in the special prize groups. The Bury Cup for 12 Ferns was taken by Mr. W. Nichol, gr. to J. H. Powell, Esq., Drinkstone Park, Bury, whose plants, though of moderate size, were exceedingly well grown. Among them was a particularly handsome Adiantum concinnum; and a beautiful plant of the ever-welcome Adiantum cuneatum; a compact Gymnogramma Laucheana, and a pretty specimen of Lomaria gibba. Mr. Fish showed against these, with a very creditable group containing Adiantum tenerum, and the large form of Adiantum Capillus veneris, in excellent condition; another group, from Mr. Squibbs, contained Lomaria nuda; and Mr. Allan had a fair specimen of Adiantum concinnum, and a good Asplenium flaccidum. The Bury Cup for 6 Lycopods was won by Mr. D. T. Fish, with excellent plants trained in the form of close pyramids, and resembling well-furnished Conifers. Two varieties of Selaginella Martensii thus grown were particularly beautiful, as were one or two of the smaller growing kinds. The 1st prize for 6 Lycopods, offered by the Society, was also won by Mr. Fish with pyramidal plants; the 2d going to Mr. Allan.

A beautiful group of Sarracenias, in addition to those shown in his large collection, came from Mr. Baines, of Bowdon. They consisted of S. Drummondii alba, nearly 5 feet high, with the lid of the pitcher mottled with white and wavy at the margin; two plants of S. flava, 4 feet high, with the lid ovate and plane; S. rubra, 1½ foot high, with a red-veined ovate plane lid; S. variolaris, with the upper part of the tube mottled with white and the head recurved like a parrot's bill; and S. purpurea, very highly coloured. They formed a group such as is rarely seen at exhibitions, and received a 1st prize amongst Miscellaneous subjects.

A group of Dracænas and Cordylines was shown by the Messrs. Lee, and received a 1st prize. It contained a handsome specimen of Cordyline indivisa. Mr. Buckle, gr. to Lord Walsingham, Merton Hall, Thetford, sent two very fine cut examples of Lilium giganteum. They were about 10 feet high, and bore, the one 16, the other 17 flowers; these fine stems had been grown entirely in the open garden. Some small plants of Lilium auratum were shown by Mr. Earley, Mr. Chater, and others.

A very interesting feature of the exhibition was presented by a class for Bedding Plants shown in honour of the late Donald Beaton. The competitors were Mr. Grieve, Messrs. Nunn & Hobday, Mr. Chater, Mr. Pettitt, of the Bury Botanic Garden, and Mr. Borrie. The Cup offered for this (Suffolk Gardeners' Cup) was taken by Mr. Grieve, who showed 48 groups of well-grown plants, each kind occupying a small, square box, of about a foot square. Mr. Chater also showed well, his plants being in shallow, rectangular pans of about the same size as Mr. Grieve's boxes. Another good feature was presented in the class for cut flowers of 24 hardy herbaceous plants, which when shown in good-sized neat bunches, as were those of the 1st prize lot, are really effective. Mr. Gilbert, St. Margaret's Nursery, Ipswich, was placed 1st, and had several handsome forms of Alstrœmeria. In the 2d lot, shown by Mr. Hedge, were Lilium testaceum, Asclepias syriaca, and the double-flowered white Campanula persicifolia, all fine old things, not half enough grown. Mr. Chater, in the 3d prize lot, had Coronilla iberica and varia, two pretty things. An extra prize was given to Mr. Sorrel, Chelmsford; and in a group from Mr. Brown, Sudbury, was the rarely seen Brodiæa congesta. Mr. Brown also had a group of the old-fashioned Gladioli, which were very much admired. The prize for Succulents fell to Mr. Pettitt, whose plants were unfortunately injured through the boisterous state of the weather. A few neat groups of Achimenes and Gloxinias were shown. The prizes for the former were taken in the following order:—Mr. Allen, Barton Hall; Mr. Smith, gr. to J. S. Crabb, Esq., Great Baddow, Chelmsford; Mr. Grieve, Culford; and Mr. Foreman. The sorts in Mr. Allen's group were Ambroise Verschaffelt, Chelsoni, longiflora and longiflora alba, carminata splendens, Sir Treherne Thomas; and the best plants in the other groups consisted of Margaretta, Edmond Boissier, Carl Wolfarth, Dentoni, and Mauve Perfection. The prizes for Gloxinias went to Mr. Foreman, Ingham; Mr. Allen, Mr. Sheppard, and Mr. Fish. They were but of moderate merit.

An interesting group of New Plants was shown by Messrs. Veitch & Sons, of Chelsea, but they consisted entirely of subjects which are already familiar at London exhibitions. The following are some of the more prominent among them:—Sanchezia nobilis variegata, Croton irregulare, interruptum, and maximum, Anthurium Scherzerianum, a splendid plant of Todea (Leptopteris) superba, Acalypha tricolor, Verschaffeltia splendida, Echites rubro-venosa, Abutilon Thompsoni, Maranta Veitchii, Nirembergia rivularis, and Coleus Veitchii. This group received a 1st prize amongst Miscellaneous exhibitions. In another group was the new hybrid Alocasia intermedia, Retinospora filifera, and the fern-like R. plumosa; Begonia Veitchii, Vanda Bensoni, Adiantum concinnum latum, Alocasia Jenningsii, the Indian species with dark segments on green ground; Dracæna Mooreï and D. regina. These having already received the First-class Certificates of the Floral Committee, were now collectively awarded a Special Certificate as a present indication of their merit. The same award was made to Mr. Bull, of Chelsea, for Dalechampia Roezliana rosea, which comes into the same category. A 2d Miscellaneous prize was awarded to Messrs. J. & C. Lee, for a fine specimen of Ouvirandra fenestralis; and the same gentlemen showed Maranta Veitchii and roseo-picta; and Fittonia argyroneura and Verschaffeltii.

The show of Cut Roses was very good, Messrs. Hedge and Cant, of Colchester, having some remarkably fine flowers. The Eye Horticultural Society's prize of a Silver Cup for 24 blooms was awarded to Mr. Hedge, who had, among others, fine blooms of Comtesse de Chabrillant, Madame C. Crapelet, Madame Furtado, Souvenir de Comte Cavour, very fine; Duchesse de Caylus, Pierre Notting, Leopold King of the Belgians, a finely coloured variety; Beauty of Waltham, Madame Villermoz, Souvenir d'un Ami, Maréchal Niel, Cloth of Gold, and Triomphe de Rennes. Four other collections competed for this prize, the next best stand being one furnished by Mr. W. Nichol, gr. to J. H. Powell, Esq., Drinkstone Park, Bury St. Edmund's. In the Nurseryman's Class for 48 kinds, one truss of each, Mr. B. R. Cant was 1st with a fine lot of blooms. Among them were excellent examples of Dr. Andry, Madame Boutin, Duchesse de Morny, Maréchal Vaillant, Gloire de Vitry, Madame Victor Verdier, Beauty of Waltham, Comtesse de Paris, Pierre Notting, Madame Bonnaire, Alfred Colomb, La Brillante, Madame Verschaffelt, Madame Rousset, and John Keynes. Messrs. J. & C. Lee were 2d; Mr. J. W. Ewing, of Norwich, 3d; and Messrs. Wood & Ingram, 4th. In the Amateurs' Class for 48 varieties, Mr. Hedge was also 1st with fine examples, such as Gloire de Santenay, Rushton Radclyffe, Marie Baumann, Duc de Wellington, Mdlle. Eugènie Verdier, and Tea Reine Victoria. The 2d prize in this class was awarded to Mrs. Henry Brooke, of Witheringe-Sett, with some very good flowers badly arranged. In the Amateurs' Class for 24 blooms, R. B. Postans, Esq., of Brentwood, was 1st with some splendid flowers, among which the following were in fine condition:—François Lacharme, Marie Baumann, Peter Lawson, Senateur Vaisse, Beauty of Waltham, Duc de Wellington, Charles Lefebvre, General Jacqueminot, Céline Forrestier, and Gloire de Dijon, very finely coloured. An equal 1st prize was awarded to Mr. W. Ingle, gr. to C. G. Round, Esq., Birch Hall, Colchester, who had young and handsome blooms, the following being particularly noticeable, viz., Comte de Nanteuil, Lord Clyde, Duchesse de Caylus, splendidly coloured; Senateur Vaisse, Vicomte Vigier, Souvenir d'un Ami, Maréchal Vaillant and Souvenir d'Elise. The 2d prize was awarded to Mr. Robert Keen.

There was a sharp competition for the Silver Cup given by the Suffolk gardeners for the best 12 Cut Roses, shown by a Suffolk amateur. This was won by Mr. W. Nichol, gr. to J. H. Powell, Esq., Drinkstone Park, Bury St. Edmund's, who had excellent blooms of Madame C. Crapelet, John Hopper, La Ville de St. Denis, Jean Goujon, Charles Lefebvre, Maréchal Vaillant, Duc de Rohan, Princess of Wales, Senateur de Vaisse, Lord Macaulay, Maréchal Niel, and Cloth of Gold. Three other competitors contended for this prize.

Miscellaneous collections of cut Roses were shown by Messrs. Last, Cant, Hedge, and Wood and Ingram. Mr. Cant's lot comprised some 72 varieties, shown in bunches, and had an excellent effect.

The Woodbridge Horticultural Society's Silver Cup for 12 Carnations and Picotees, grown by an amateur, was awarded to Mr. S. C. Buttrum, Brugh Mills, near Woodbridge, whose flowers were of remarkably good quality, clean, and of good substance, but unnamed. A few other stands were contributed, the next best being from Mr. W. E. Kingston, of Bath. In the open class the 1st prize for 12 Carnations and Picotees was taken by Mr. Charles Turner, Slough, with splendid blooms of Flora's Garland and King John, rose flaked Carnations; Dreadnought, crimson bizarre; Eccentric Jack, pink and purple bizarre; Lord Clifton, scarlet bizarre; and True Blue, purple flaked. Of Picotees, Colonel Clark, and Wm. Summers, red edged; Flower of the Day, and Lucy, rose edged; Lady Elcho and Mrs. Summers, purple edged. This stand was much admired. The 2d prize was awarded to Mr. John Hines, of Ipswich. Collections of Carnations and Picotees were also shown by Messrs. Hooper, and E. F. Kingston, of Bath.

Some small but well coloured and evenly laced blooms of Pinks from Mr. Hines, of Ipswich, were awarded the 1st prize in the class for 12 cut blooms. The sorts were Blondin, Marion, Charles Turner, Bertram, Pride of Colchester, Purity, Device, Eva, Harry, Napoleon, The Rev. Geo. Jeans, and Diadem.

The Town of Bury Silver Cup for the best 9 Fuchsias was awarded to Mr. D. T. Fish, who had some splendid plants, averaging 7 to 8 feet in height, well grown and bloomed. Of dark flowers there were Herbert, an old but free-blooming kind; Sir C. Campbell, double; Souvenir de Chiswick, a splendid plant; Gem of Mariott; and the following light kinds—Rose of Castille, Guiding Star, Fairest of the Fair, and Reine Cornelissen, one of the beautiful sorts with a white corolla. The 2d prize was awarded to Mr. W. Smith, gr. to J. S. Crabb, Esq., Great Baddow, Chelmsford, whose plants were not so tall or so evenly grown as those of Mr. Fish; but they included good specimens of Rose of Castille, Souvenir de Chiswick, Pauline, and Conspicua, a fine and novel variety with white corolla. In the Amateurs' Class for 6 varieties, Mr. D. T. Fish was again 1st with plants of an excellent character; Mr. W. Smith again being 2d. In the Nurseryman's class for 6 kinds, Mr. John Barrett, Cotton Lane Nursery, Bury St. Edmund's, was 1st, with some very good plants, but the group contained nothing calling for special remark. Mr. D. T. Fish was the only exhibitor of standard Fuchsias, and splendid plants they were. The sorts were Sir C. Campbell (double), Souvenir de Chiswick, and Venus de Medici. They had excellent heads, and were well flowered.

The Rev. F. Cheere's prize for 12 Pelargoniums, Show or French, was taken by Mr. D. T. Fish, with some large and finely-grown plants, having good heads of bloom, the sorts being Rose Celestial, Crimson King, Eugène Legreau, Lampeter, and the following spotted kinds:—De Candolle, Elegantissimum, Anacreon, Lampeter, Bracelet, Spotted Pet, Beadsman, and Theodosia. The Rev. F. Cheere was 2d with a very good, but somewhat uneven lot of plants of old kinds. In the class for 6 Show and French kinds Mr. D. T. Fish was again 1st, and the Rev. F. Cheere 2d.

With 6 Fancy Kinds, Mr. Fish was also 1st, having capital plants of the following: Lady Hume Campbell, Decora, Circle, Acme, Miss in her Teens, and Princess Troubetski, though a little gone out of bloom. The Rev. F. Cheere was also 2d in this class.

In the Class for 12 Scarlet Pelargoniums, distinct kinds, the Rev. F. Cheere was 1st with some excellent plants, well grown and flowered, and in no way disfigured by being tied out of shape. The sorts were Culford Rose, Clipper, Rose Rendatler, Sir William Wallace, Madame Leomine, Roi d'Italie, Rose Perfection, Dr. Lindley, Virgo Maria, Dr. Newnham, Madame Rudersdorff, and Robert Fish. Mr. D. T. Fish was 2d with some very good plants, not so well bloomed as the foregoing, and tied into shape. Mr. Peter Grieve was 3d with some very good plants, sparely bloomed. In the Nurseryman's Class, Mr. John Barrett, a local nurseryman, was 1st, with some good plants of Marvel, Madame Vaucher, Highgate Rival, Eve, Culford Rose, Eugène Mézard, Premier, Enamel, Prevost, Dr. Newnham, Glow, very fine; and White Perfection. Mr. J. J. Chater was 2d, also with good plants.

In the Class for 12 Nosegay, or Hybrid Nosegay Pelargoniums, Mr. John Barrett was 1st, with Black Dwarf, Merrimac, Lord Palmerston, Cybister, Duchess, La Grande, Harry Hieover, Imperial Crimson, Magenta, Beaton's Pet, Lady Cullum, and Cagliostro. These plants were well grown, and had excellent heads of bloom. Mr. D. F. Fish was 2d; the Rev. F. Cheere 3d.

In the Class for 6 kinds, Mr. H. Foreman, gr. to the Rev. F. Cheere, who had good and well-bloomed plants of Dr. Lindley, Dr. Newnham, Spread Eagle, Cagliostro, Clipper, Madame Rudersdorff, was 1st; and Mr. F. Grieve, 2d.

In the section devoted to Variegated Pelargoniums, Messrs. Saltmarsh & Sons, Chelmsford, were 1st, with some very pretty and compact plants, viz., Argus, Mrs. Pollock, Countess, Sunset, Culford Beauty, and Variegated Quadricolor. Mr. H Foreman, gr. to the Rev. F. Cheere, was 2d, with Flower o Spriga, Mrs. Pollock, Bijou, Italia Unita, Emily Domville, and Beaton's Silver Nosegay. These plants were much larger than the foregoing, but were not so compact or symmetrical. Mr

P. Grieve was 3d, with White Lady, Victoria Regina, Stella variegata, Lady Cullum, Italia Unita, and Brilliantissimum.

Mr. Peter Grieve was the winner of the County Cup, for 12 seedling Variegated Pelargoniums of 1866-67. He staged two collections, all yearlings, some of which were only just breaking into character. The sorts in the winning collection were Fanny Newham, Bride of Dandelot, Victor Galbraith, Lizzie Paget, Black Adder, Hiawatha, Isabella Clay, Clemmy, Eva Fish, Rothley, Allanton, and Victoria Regina. The 2d group comprised seedlings, all under number. Messrs. F. & A. Smith had two groups of their new varieties, including some promising yearlings. Mr. J. J. Chater also exhibited two groups, and one was staged by Mr. Groom, of Ipswich.

The prize for 6 new Variegated Pelargoniums was also won by Messrs. Saltmarsh & Son, with Lady Cullum, Bird of Paradise, Sunrise, Meteor, Snowstorm, and Crown Jewel. The 2d prize was won by Mr. P. Grieve, with Lucy Grieve, Victoria Regina, White Lady, Light and Shade, Lady Cullum, and another variety, the name of which had been removed. Mr. John Mann, of Brentwood, was 3d with Miss Lescher, The Pet of the Flock, Loveliness, Medora, Bridegroom, and Lady Petre. The show of these was a very interesting one, and was well looked after by lovers of this class. We may add that Mr. Elphinstone, Norwich, sent a small group of Variegated Zonal Pelargoniums, one of which, named Annie Elphinstone, was a very promising variety. We also noticed a good Variegated Nosegay, having a smooth thick leaf, with well-defined variegation.

In the classes for Cut Flowers, the 1st prize for 12 varieties of cut flowers in bunches was taken by Mr. Robert Moore, of Withering-Sett. The sorts were not named, but were nicely shown, and were much the best of those competing. Six other stands competed, all being very good. Mr.C. O. Fyson, of Stowmarket, was first with 12 varieties of Verbenas, in bunches of five trusses each. The trusses were excellent; the flowers of fine quality.

There was a very good display of fruit, of good quality. The 1st prize for Pine apples was taken by Mr. Ward, gr. to F. N. Miller, Esq., Bishop's Stortford, who had a handsome Queen, weighing 5 lb. 6 oz.; 2d, Mr. James Barnes, gr. to Lady Rolle, Bicton, with Charlotte Rothschild; 3d, Mr. W. Green, with a Queen. Mr. Barnes also showed a Brown Antigua. The County Cup, for three Pine-apples, was taken by Mr. Barnes, with good fruit of Russian Globe, Old Globe, and Bicton Queen. Some plants of Thoresby Queen, stocky and well grown, with large but lumpy fruit unequally swelled, which seemed characteristic of the variety, came from Mr. A. Henderson, gr. to Earl Manvers, Thoresby Park, Ollerton. They were not ripe, but received a well-merited prize.

Grapes formed an excellent exhibition. For black sorts Mr. Squibbs, Ickworth Park, was 1st with moderate-sized bunches, remarkable for their fine berries and dense black colour. Mr. Sage, gr. to Earl Brownlow, Ashridge Park, Berkhamstead, was 2d, with a very similar sample; and Mr. Rushmore, Tendring Hall, Stoke, was 3d, with large clusters of finely-swelled berries, but not so well coloured. An extra prize was given to Mr. Carmichael, gr. to H.R.H. the Prince of Wales, Sandringham, for a somewhat similar sample, not quite so freely swelled. Others, inferior to these, were shown by Mr. Jolly, gr. to H. J. Oakes, Esq., Nowton Court, Bury, and by Mr. Stannard, gr. to H. R. Homfrey, Esq., Stradesball Place, Newmarket. All the foregoing with Black Hamburghs. The 1st prize for white Grapes was taken by Messrs. Lane & Son, Great Berkhamstead, for finely-grown well-ripened bunches of Buckland Sweetwater. This variety also took the 2d prize, the sample being shown by Mr. Pottle, gr. to B. D. Colvin, Esq., Bealings Grove, Woodbridge, the bunches being finely grown but less perfectly finished off. Mr. Squibbs, Ickworth Park, came in 3d, with Muscadines. Some very unripe Muscats were shown by Mr. Grix, gr. to E. W. Harlock, Esq., Ely. Mr. Standish, Ascot, received a well-merited First-class Certificate for nicely-ripened samples of his new Grape, Royal Ascot, which deserves all that has been said in commendation of it. Messrs. Lane & Son had a miscellaneous group of 8 varieties of Grapes, three bunches of each, but some of the samples were unripe. They had also some very fine pot Vines, which gained the Ipswich Cup. Other good pot Vines were shown by Mr. T. Blair, gr. to Sir G. N. Middleton, Bart., Shrubland Park; and a third group by Mr. Grieve. The finest sample of Grapes, however, consisted of three bunches of Hamburghs, shown for the Stowmarket Medal by Mr. Meads, gr. to Raikes Currie, Esq., Minley Manor, Farnborough, Hants. These were large, irregular clusters of fine berries, pretty well coloured, and weighed together 2½ lb.

Peaches were well shown by Mr. Sage, Ashridge Park, who took 1st prize with a remarkably fine sample of Royal George. Mr. Perkins, gr. to Lord Henniker, Thornham Hall, Eye, was 2d, with Grosse Mignonne. The 3d prize fell to Mr. Robins; and others were shown by Mr. Freeman, Bretenham Park; Mr. Perkins, and Mr. Irving, gr. to the Duke of Hamilton, Easton Park, Wickham Market. For Nectarines, Mr. Sage was 1st with fine Elruge; Mr. Carmichael 2d with good Violette Hâtive; and Mr. Rushmore, Tendring Hall, 3d, also with Violette Hâtive.

Cherries were shown well, eleven dishes being staged, but some of the finest fruit was disqualified from inattention to the number required to form a dish. Mr. Green was 1st with finely coloured Black Heart; Mr. Salvage, gr. to Captain Bennett, Rougham Hall, was 2d, with good May Dukes; and Mr. F. W. Cooper, Castle Hill House, Huntingdon, 3d, also with May Duke. Very fine Bigarreaus came from Mr. Sage, and good Eltons from Mr. Fish. Figs were not very abundant. The prizes went, in the order named, to Mr. Squibbs, Mr. Sheppard, gr. to J. Berners, Esq., Woolverstone Park, Ipswich; and Mr. Rushmore. Few Plums were shown, the best—Washingtons—came from Messrs. Lane & Son.

A good many Strawberries were shown, and of pretty good quality considering the season. In the class for four dishes Mr. Squibbs came 1st with Frogmore late Pine, British Queen, Eleanor, and Sir C. Napier. Mr. Irving, Easton Park, was 2d, with Frogmore late Pine, Myatt's Surprise, British Queen, and Sir C. Napier. In the class for single dishes, Mr. Foreman, gr. to T. B. Beales, Esq., Bretenham Park, Bildestone, was 1st, with Admiral Dundas; Mr. Squibbs 2d, with Empress Eugénie; and Mr. Barrett, Cotton Lane Nursery, Bury St. Edmund's, 3d with Eleanor. There were 12 dishes shown.

Some very good Melons were shown. The prizes for Scarlet-fleshed sorts were given to Mr. D. T. Fish for Mustow Hall Scarlet-fleshed; to Mr. Stannard, gr. to H. R. Homfrey, Esq., for Scarlet Gem; and to Mr. Perkins, gr. to Lord Henniker, for Scarlet Gem. The prizes for Green-fleshed varieties were awarded as follows: to Mr. Webb, Culham House, Reading, for a new variety, called The Sultan; to Mr. Squibbs, for Bromham Hall; and to Mr. Earley, for one named Dr. Hogg.

Some very good English-grown Vanilla of 1867 was shown in a well-ripened and highly fragrant condition, by Mr. Bennett, Osberton, near Worksop. Mr. Laxton showed samples of his new Peas—Achievement, Supreme, and Quality, all fine-looking varieties.

The prize offered by the *Gardeners' Chronicle* brought forward several entries, but only four collections were staged. The Cup was awarded to Mr. Pottle, gr. to B. D. Colvin, Esq., Bealings Grove, Woodbridge, whose collection consisted of 3 bunches of fairly-grown Black Prince Grapes, a Scarlet and a Green-fleshed Melon, Black Cherries, Fastolff Raspberries, and White Dutch Currants, a brace of well-grown Telegraph Cucumbers, some excellent Veitch's Perfection Pea, Syon House French Beans, Johnson's Wonderful Beans, Merriot's Scarlet Carrot, White Stone Turnip, Birmingham Prizetaker Potato, and Globe Artichokes. Other groups were shown by Mr. Squibbs, by Mr. Smalley, gr., Ampton Hill, Bury St. Edmund's; and by Mr. D. T. Fish, who furnished two collections.

The prizes offered by the "Journal of Horticulture" brought out four competitors: namely, Mr. Carmichael, gr. to H.R.H. the Prince of Wales, Sandringham; Mr. Blair, gr. to Sir G. N. Middleton, Bart.; the Lady Caroline Kerrison; and Mr. D. T. Fish. The two prizes were awarded to the two former. Mr. Carmichael showed a very effective group, consisting of six good Pine-apples, five dishes of Grapes, two dishes of Peaches and two of Nectarines, two dishes of Strawberries, Melons, and Cherries. Mr. Blair showed two Pine-apples, two dishes of Grapes, a dish of Peaches, and a dish of Nectarines, Cherries, Strawberries, Figs, Gooseberries, Currants, two Melons, and Raspberries.

The Thetford Cup for six Outdoor Fruits was won by Mr. Sheppard, Woolverstone. The Ipswich Cup for Orchard House trees was awarded to Messrs. Lane & Son, but we are inclined to think it should have gone to the much finer trees shown by Mr. Grix, the only objection to which was the preponderance of Peaches or Nectarines in the collection. Mr. Grieve also showed some very good trees. The Thetford Cup for 2 Melons and a brace of Cucumbers, was awarded to Mr. J. Borrie, gr., Easton Hall, Thetford.

Mr. R. Fenn, the Rectory Gardens, Woodstock, exhibited his Home-made Wines, which were awarded a First-class Certificate, especially a sample made from the Esperione Grape; also a series of Bee products, and a collection of Potatos, both of which received Certificates. Some British Wines far inferior to Mr. Fenn's were shown by Mr. Shenton.

There were nine sets of Dinner-table Decorations shown in competition for the Bury Cup, offered for exhibitions of this character. The cup was awarded to a rather sombre-looking group, shown by Mr. Robins, gr. to Sir E. Kerrison, Bart., M.P., Oakley Park, Eye. It consisted of an elevated centre piece made of wire, decorated with Cissus discolor, and having a broad base in which a large quantity of fruit was heaped up. The two sides pieces were low, fringed all round with the Hare's-foot Grass, filled with variegated foliage, and feathered over with Airopsis. The whole was, we think, too heavy and confused for the intended object. Some of the best designs, as always has been the case, were repetitions, or at least modifications of Mr. March's plan. Three were of this character on the present occasion, namely, those shown by Mr. Nichol, of Drinkstone Park, by Messrs. Nunn & Hobday, of Norwich, and by Mr. Harrison, gr. to W. H. Penrose, Esq., of Dedham. Another glass decoration, but with bowed standards, was produced by Mr. Green, gr. to Mrs. Honeywood, Mark's Hall, Kelvedon. The Lady C. Kerrison, Broe Hall, Scole, showed a group set up in white china stands, and Mr. Grieve, Mr. Fish, and Mr. Allen, were also competitors, but without producing anything so simple and elegant as the March design.

Of Ladies' Hand Bouquets some 40 were shown, which it is impossible to criticise, except so far as to say that we by no means fall in with the views of the judges as to the most meritorious among them. The 1st prize was given to Mr. Delamere, Holm Lane, Oxton. This bouquet consisted of pale Roses, Stephanotis, Myosotis, and Heliotrope mixed in the centre; a band of Bougainvillea, and outside of this again were Roses and mixed flowers, and a fringe of Adiantum cuneatum. The 2d prize fell to Mr. B. R. Cant, Colchester, whose bouquet was spoiled by a huge Eucharis bloom in the centre, which was out of character with the other materials. A prettier effect was produced by the 3d prize bouquet, sent in by Mr. Robins, Oakley Park, who had Rose buds, sprigs of Kalosanthes, Heaths, and Myosotis in the centre; the margin fringed with Hordeum jubatum, and the surface feathered over with Airopsis. It was spoiled by a stalk of the variegated Cyperus alternifolius at the crown, and by having too much Airopsis, but was otherwise very pretty. Several of the others showed considerable talent in the art of arranging flowers, especially one from Miss S. Goodrick. Hengrave Mills, Bury, which was the most tasteful of the whole lot.

The show of Implements was not extensive, but some very good articles were produced in several of the classes, especially among garden seats, engines, suction pumps, lawn mowers, and models of greenhouses. Among garden seats Messrs. J. B. Brown & Co., of London, had some iron-framed chairs, remarkable for their excellence and design, both as to the model or general outline, and as to the ornamental details: the seats were somewhat hollowed, and consisted of wooden bars. One especially, of the Nasturtium pattern, was of great beauty and excellence, and was, we observed, purchased for Sandringham. Another represented Lily of the Valley, and a third Fern leaves; but the most perfect in the design was the first mentioned. They are admirable seats for terraces, and are not expensive considering the workmanship. Another seat, belonging to the same exhibitors, deserves high praise; it is literally cheap, and a most comfortable seat, well suited for pleasure grounds; it has iron supports, and wooden seat and back rail. These both had First-class Certificates. There were many other models, of more or less excellence, and adapted for various situations: one especially, a folding iron arm chair, with wire seat and back, may be mentioned as being most comfortable, and appropriate for use in almost any situation. Mr. Meadows, of Ipswich, showed several forms of what was called the Ipswich garden seat, the general character of which resembled that of the wooden seat already alluded to, and they had the merit of cheapness, but the model was less perfect; in the arms especially comfort had been sacrificed to the production of elegant curves, and the front part of the arm support was in consequence thrown up too high. They, however, deserved recognition, and a Second-class Certificate was given to them.

Lawn Mowers were shown by Messrs. Green & Co., of Leeds; Messrs. J. B. Brown & Co., of London; and Messrs. Ransomes & Sims, of Ipswich. The great improvements which have been made in these most important and useful implements was well exemplified in the machines shown on this occasion, and we may expect that the minor defects which they now present will soon disappear altogether. Very excellent examples were shown both by Messrs. Green and Messrs. Brown; and as the respective machines of these makers are now well known, we may be content to indicate their general characteristics. The judges found the machines of Messrs. Green by far the more easy to work, owing in great measure, it appeared, to their having a driving wheel on each side, which is the case in the larger sizes, and to the facility of working caused by the endless chain movement, the defects which have been apparent in the latter having been well nigh overcome. Green's machines, however, were considered to need improvement in respect to the delivery of the cut Grass, which is not very conveniently managed, the plan being that of elevating the Grass box and turning it over towards the mower. Were this defect done away with, the machines would be as nearly perfect as could be hoped for. Those of Messrs. Brown & Co. have the merit of being lower in price, and of having a better mode of delivering the Grass. They are driven by malleable iron cog wheels, but this driving power being all on one side, there is a greater strain both on the machinery and on the operator, so that the working is more difficult. The Grass in this case is thrown into a box open at each end, but with a movable end which traverses the box with great facility by a sort of railway, and is connected to a lever easily worked by the person in charge of the machine. The action of this contrivance is to push out the cut Grass on one side as the machine moves on, and this is done with much more facility than by the mode of lifting the grass-box. All the machines, and none more than the smaller ones, need moreover to be improved by increasing the size of the grass-box, which should be as large as may be consistent with conveniently handling it. Both Green's and Brown's machines received First-class Certificates in recognition of their respective points of merit, the objections to them being at the same time pointed out. A very neat and well-made small-sized machine was shown by Messrs. Ransomes & Sims, but it did not present any feature of particular merit which was deemed of sufficient importance to warrant any award. Indeed, one of its movements, regulated by a spring, seemed very liable to get out of repair.

The most important Conservatory Models were those shown by Messrs. Sanders, Frewer, & Co., of Bury St. Edmund's, the proprietors of Beard's patent system of glazing. Without being prepared to admire in all cases the form given to these houses, we may describe some of the lean-to's as being particularly well contrived, and there are points about them deserving, we think, of the highest praise. In particular, we refer to the mode of glazing, which has been fully explained in our columns, and is effected with the greatest facility; and we think also very highly of the mechanical arrangements provided for the working of the ventilators, which secures perfect steadiness and the greatest ease of movement. Both these features we understand are patented, and we observe that they were fully recognised by the jurors in the award of First-class Certificates specially for these points. Under the same class, Messrs. Harrison & Bettridge, of Chelmsford, showed another contrivance for ventilation, which they call a ventilating set-ope; this appears to possess considerable merit, and was accordingly Certificated. It was shown as applied to the front sashes of a greenhouse, but was said to be equally applicable to roof ventilation. It consists of a flat bar of iron, the length of the sash, fixed to one of the central bars, to which it is also bolted at the top, and at the upper end of this bar is a vertical projecting segment or arm, furnished with cogs, which work into cogged wheels, fixed to a bar, which runs the length of the house, and is moved with much facility by a handle at the end. By turning the handle the sash is moved outwards at the bottom. The only apparent objection to this contrivance, which would no doubt hold the sash firmly in any position, is that its appearance would perhaps be rather heavy inside the house. Messrs. Cumming & Edmonds showed another mode of constructing and ventilating houses, but which, as it consisted of lifting the whole of the roof sashes (which are made in convenient lengths for this purpose), cannot be recommended as a desirable mode of ventilating greenhouses generally.

Hot-water Boilers were shown by Messrs. Harrison & Bettridge, who have Millbank's self-feeding boiler; and by Messrs. Cumming & Edmonds, who have their form of tubular boiler. The latter has been well tested at Chiswick, and found very efficient, and it was therefore awarded a Certificate. The former is also no doubt an efficient boiler, and may be described as a tall saddle boiler, with a kind of dome added; but it was not thought to possess sufficient distinctive superiority to merit an award.

An elegant form of cast-iron tazza was shown by Messrs. J. B. Brown & Co., and was Certificated; as was also a vase of the same material. Several interesting miscellaneous articles were shown by Mr. Morley, of Woodbridge. Among them some excellent seats of china ware, in imitation of the Chinese ware, which though much lower in price were equally useful and effective; some jardinières or pot stands of carved wood; various pots and vases in earthenware and china; and finally an oak-chair, so made as to have the back reversible, thus converting it into a pair of steps. This would be a very useful kind of chair for a conservatory, or in fact for any situation where a pair of low steps would be sometimes in requisition. A small hanging basket made of rattans was shown by Mr. Pettitt, of the Bury Botanic Garden. Mr. R. Sankey, Bullwell Potteries, near Nottingham, exhibited samples of his garden pots, which were well made; among them was a very useful quadrangular shallow seed pan or cutting pan, some 3 inches deep, and about 1 foot in length on the longest side: this would be useful for many purposes, and being rectangular might be used with much economy of space.

A variety of garden engines, suction pumps, and syringes, were shown by Mr. Read, of Piccadilly Circus, London. These were all of excellent quality, and the two first gained Certificates of the First Class, but the latter were considered high-priced.

Examples of the Leicester Vase, a very elegant and useful form of vase, made of separable ribs, were shown by Messrs. Sanders, Frewer & Co.; who also had a detached plant stage of simple construction, the introduction of which is almost a necessity in their patent hothouses. It consists of an iron framework, consisting of supports and rim, so made as to form bearers for ordinary roofing slates, on which shingle or spar is placed as a foundation on which to stand the pots, and as this material, whatever is used, can if necessary be kept moist, so as to assist in maintaining a damp atmosphere, it can be used with benefit to the plants. Both these articles received First-class Certificates. The former would be improved by the addition of a metal pan, fitting to, but not quite so high as the bars, there being a practical difficulty in getting the usual turf lining to keep green in the underneath portions.

THE FIRST WESTERN ROSE SHOW.—The idea of a Rose Show for the West of England, originated with the Rev. C. H. Bulmer, of Credenhill, and heartily promoted by his friends and neighbours, was realised in the Shire Hall, at Hereford, on Tuesday, the 9th ult., and was in all points—in the flowers, the arrangements, the company, and the exchequer—a very gratifying success. The orchestra and tables were tastefully decorated with a variety of greenhouse plants, among which, and as if to dispute the sovereignty of Queen Rosa, was the most beautiful specimen of Lilium auratum which has, perhaps, been seen in England, having 22 large and perfect blooms growing from a single bulb, and filling the whole hall with perfume. The Roses, which have this year won all before them, namely, those of Mr. Cranston, of King's Acre Nurseries, were shown in all their freshness, and were remarkable for their size and glowing richness of colour; but Mr. Keynes, of Salisbury, despite the disadvantage of a long journey, gallantly competed with them, and divided the honours and the spoils of victory. Mr. Cranston won the first prize for 72 (singles), and 24 (trebles); and Mr. Keynes the first for 48 (trebles), and for 24 (singles).

The chief prizes awarded to amateurs were won by Mr. Charles Perry, J. H. Arkwright, Esq., the Rev. G. Arkwright, Sir Velters Cornewall, Bart., Rev. C. H. Bulmer, Major Heywood, and others.

A new feature, and a very pleasing one, was introduced by offering prizes "for the best designs for dinner-table decoration, Roses to be the only flowers used; foliage, ferns included, left to the taste of the designer, as also the stand or vase." Seven competitors filled one side of the long central table with their graceful combinations, the first prize being adjudged to Mrs. Berkeley Stanhope.

RUGBY ROSE SHOW.—The annual Rose show held here took place under canvas in the cricket grounds on the 12th inst. A large assemblage of Roses was brought together, most of the leading growers being represented. In the Nurseryman's Class for 72 varieties the prizes were awarded as follows:—1st, Mr. John Cranston; 2d, Mr. B. R. Cant; 3d, Mr. John Keynes; 4th, Messrs. Lane & Son. In the classes for 36 varieties, Mr. Cant took the 1st prize; and in the 24's, Mr. Keynes held the first position. In these stands were superior blooms of King's Acre, Marguérite de St. Amand, Maréchal

Vaillant, Laurent Descourt, Madame Vidot, Gloire de Vitry, Xavier Olibo, Charles Lefebvre, Madame Moreau, Alfred Colomb, Clement Marot, Victor Verdier, Triomphe de la Terre des Roses, Semiramis, Hippolyte Flandrin, Princess Mary of Cambridge, Marie Baumann, Madame Caillat, Maurice Bernardin, Beauty of Waltham, Senateur Vaisse, Madame Filion, Abel Grand, Exposition de Brie, Pierre Notting, Joseph Fiala, Charles Verdier, Madame Chas. Wood, Lord Clyde, Gabriel de Peyronney, Horace Vernet, Emilie Dulac, Duke of Wellington, François Louvat, Duchesse de Caylus, Madame Verschaffelt, Dr. Andry, Rushton Radcliffe, and Professor Sedgwick.

The Amateurs' classes were well filled, and the prizes were closely contested; the majority of them fell to the lot of Mr. C. J. Perry, Mr. Paget, Mr. Thornycroft, Mr. Chamberlayne, and Mr. Ward. In these collections were superior examples of Alfred Colomb, La Ville de St. Denis, Xavier Olibo, Madame Rivers, Fisher Holmes, Gloire de Santenay, Duc de Rohan, Baronne Gonella, Jules Margottin, Madame C. Wood, Madame Julie Daran, Gloire de Dijon, Comtesse de Chabrillant, Madame Victor Verdier, La Reine, General Jacqueminot, Madame Clémence, Joigneaux, John Hopper, Madame Chas. Crapelet, Madame Boutin, and Victor Verdier.

A very fine stand of Verbenas was shown by Mr. Perry, five varieties in which were awarded First-class Certificates, viz.; Mrs. Perry, Mrs. Mole, Miss Turner, James Birbeck, and Hercules.

Notices of Books.

Monographia Salicum hucusque cognitarum auctore. N. J. Andersson. Pars I. Holmiæ. P. A. Norstedt, 1867. Quarto, pp. 180, with 9 plates. [Monograph of Willows, &c.]

This is a book for the appearance of which botanists have long waited, and which, now that it has come, will be hailed by them everywhere with a lively feeling of satisfaction. All who have meddled with Willows can endorse cordially what Linnæus said of the genus Salix, that if any one was ambitious to encounter a difficulty, here was surely one of the greatest which botany has to offer. There is, in the first place, the preliminary difficulty, that it is needful to get three different specimens, perhaps from different places, and certainly at different seasons of the year, of any particular plant, before it can be examined properly. The male and female flowers both furnish characters of essential importance in the discrimination of species and groups, and, as the genus is dicœcious, they always grow upon different trees; and besides this it is very rarely that the leaves come till the flowers have disappeared. The only safe way of getting to know which male catkins correspond to which females, is by studying the leaves, so that one has to cut notches upon the wild bushes or devise some similar means of identifying them; and when a collector fails to do this with the necessary carefulness, or his marks of identification get destroyed, he is very apt to commit grievous blunders and mix up his three kinds of specimens in an inextricable confusion. A large proportion of the forms, if we take Britain as an illustration we may fairly say half, the different varieties, are restricted to mountainous situations; and it is seldom for these that a collector can conveniently go to the same place twice in the course of a season, so that he has either to be content with his specimens in a single stage, or carry the whole bush bodily away, and plant it in his garden at home. And of course the same difficulty applies with still greater force to specimens gathered in little-known countries, and upon expeditions of exploration, so that one rarely gets them in herbaria in more than one of the three conditions which it is needful to have to understand the plant properly.

These preliminary difficulties passed over successfully, we find that Salix is a genus, like Hieracium, or Rosa, or Rubus, where we slide from one form to another very dissimilar, by exceedingly gradual intermediate stages of transition; so that the views of different botanists as to which forms ought to rank as species, and how many species any given tract of country produces, differ very widely. In Britain the genus was studied very carefully by Sir J. E. Smith and his cotemporaries, and large collections of living specimens were brought together, especially by Mr. Forbes, under the auspices of the Duke of Bedford, at Woburn; by Mr. Crowe, in Norfolk; and by that indefatigable student of critical British plants, Mr. Borrer, at Henfield. We have two excellent sets of figures of the forms with which they were acquainted in "English Botany," and the "Salictum Woburnense." The botanists of that time reckoned the number of British Willows at about 80, but we are certainly within the mark in saying that not more than 30 out of the 80 are distinct species in Dr. Andersson's sense of the term; and no catalogue of our flora published within the last 20 years, claims for our island a materially higher number of good species than the lower figure.

Dr. Andersson first wrote upon the genus more than 20 years ago, when he published a monograph of the Lapland forms. Apart from Willows he has a thoroughly established reputation as a good botanist, founded principally upon his illustrated monograph of the Scandinavian Glumaceæ. For at least a quarter of a century he has made the Willows a principal subject of his studies. He stayed in Lapland for a considerable time during three different years to unravel the northern forms, and has repeatedly visited Germany and this country to study the collections and wild and cultivated species of more southern latitudes; and besides this he has circumnavigated the world as a botanical explorer, and been a regular and intimate correspondent of the two Silesian botanists, Wimmer and Wichura, who have worked, the former at any rate, specially at the genus, for even longer than Dr. Andersson, and who have brought together at Breslau the largest living collection of the forms which has ever been made, with the especial purpose of experimentising in intercrossing them. Dr. Wimmer published last year a monograph of the European Willows, which was duly noticed in the *Chronicle* (page 8 of our present volume); and Dr. Andersson speaks of it in terms of the highest praise, and says that it treats the European species so exhaustively, that he has included them only in order to give completeness to his own account of the species of the whole world. It is intended that the present work shall be completed in another part similar to the one now issued. For the latter all general remarks upon classification and biology are reserved. We have here descriptions and plates of 105 primary types, we can scarcely call them species, because many are only considered to be of hybrid origin, and under each of these the range of variation is described, including a full account of subordinate forms named and unnamed, and of synonyms published and unpublished. It is a complete marshalling of all the author's quarter of a century's study has taught him, and is as full, and complete, and satisfactory an account of the plants as can possibly be desired.

As far as this part extends we will run through the Salictum Woburnense with it, giving the indigenous species first as they are viewed by Dr. Andersson, and then the synonyms of the Salictum, in those cases where the latter has different names for the same plant, or gives as distinct forms which Dr. Andersson joins together. He relies entirely upon the number of stamens to characterise his primary groups, of which he has three; the first including the species with three stamens or more, the second those with two stamens, and the third those with only one. Of the first group his analysis is principally a geographical one, and he divides it into a tropical and temperate sub-group, and then separates the species into four cohorts, the tropical one into East Indian, Oriental (principally Persian), African, and South American; and the temperate into divisions of which amygdalina, pentandra, and fragilis are the British representatives. The Diandrous group is considerably the largest, and is subdivided according to characters furnished by the style. A sub-group with the style very short or nearly obsolete; and a second, in which it is conspicuous, are included in this part; leaving a third sub-group of Macrostylæ, and the group with one stamen for the second part.

Group 1.—Pleiandra.

1. triandra, Anders., includes triandra, Hoffmanniana, Villarsiana, and amygdalina, Forbes.
2. undulata, including both undulata and lanceolata of Forbes, the author regards as certainly a hybrid between triandra and viminalis.
3. pentandra, includes Meyeriana, Forbes.
4. cuspidata, Schultz, without doubt a hybrid between fragilis and pentandra.
5. fragilis, Anders., includes decipiens and monspeliensis, of Forbes.
6. Russelliana, of Smith, he regards as identical with viridis, of Fries, and a hybrid between fragilis and alba.
7. alba, Anders., includes cærulea and vitellina.

Group 2. Diandræ.—Sub-group. Microstylæ.

8. aurita.
9. cinerea, including aquatica and oleifolia.
10. Caprea, including sphacelata.
11. repens, including fusca, incubacea, argentea, adscendens, parvifolia, prostrata, fœtida, decumbens, and versicolor.
12. ambigua, certainly a hybrid between repens and aurita.
13. nigricans includes cotinifolia, hirta, rupestris, Andersoniana, Forsteriana, damascena, petræa, atrovirens, australis, carpinifolia, coriacea, crassifolia, dura, firma, grisophylla, grisonensis, incanescens, lacustris, mutabilis, pannosa, rivularis, sordida, strepida and alaternoides, Forbes.
14. phylicifolia includes Weigeliana, Croweana, Dicksoniana, tenuior, nitens, Borreriana, phillyreifolia, Davalliana, propinqua, laxiflora, patens, radicans, Forbesiana (Loudon), Wulfeniana and floribunda, Forbes.
15. arbuscula, includes prunifolia, venulosa, and vacciniifolia.
16. laurina, hybrid between caprea and phylicifolia.

In conclusion, we cordially recommend the book to our readers as being one which it is needful that all who wish to study the genus scientifically should make themselves familiar with.

We have to notice the publication of another of Mr. Murray's *Handbooks*, which this time is devoted to the use of travellers in *Yorkshire*. To show how careful the editor has been not to overlook features of interest connected with this important province, for its size justifies such a designation, we may say that the reader will find an account of the original Ribston Pippin, and of the famous Cowthorpe Oak, "the true measurements of which are—circumference at 5 feet from the ground, 36 feet 3 inches; close to the ground, 60 feet; extent of the principal branch, 50 feet 6 inches; girth close to the trunk, 10 feet; height of the tree, including decayed wood, 43 feet; height of vigorous wood, 3 feet 6 inches. The tree contains 73 tons of timber, and the diameter of its hollow close to the ground is 11 feet. The trunk is quite hollow, but the branches, the largest of which are supported by props, still cover much ground and bear much foliage. The top branch fell about 180 years since. In 1718 a branch fell which extended 90 feet from the trunk, and contained 5 tons and 2 feet of wood. Before this fall, the Oak extended its shade over half an acre. In 1772 a branch fell which was 80 feet in length. The height of the tree in 1776 was 85 feet. * * * The soil in which the tree stands is a deep, rich, light loam resting on fine clay."

Messrs. Longmans have published an unabridged school edition of *Blackley's and Friedländer's Practical Dictionary of the German and English Languages*, to which we have already referred in terms of approbation.

Florists' Flowers.

To have PHLOXES in the finest possible condition, they must not be planted out in the borders, and left to their fate; but they must have some cultural attention. The following course of treatment may be recommended:—

In February, pot a few plants in light, rich, loamy soil, and place them in a greenhouse or frame. They will soon make shoots long enough for cuttings; and these can be quickly rooted in a moderate hotbed, with Verbenas or other bedding plants; and after being properly potted and hardened off, they will be fit to plant out in May.

In selecting a situation for planting out, a spot where there is a little shelter from strong winds is to be preferred, but otherwise it should be fully exposed to all the air and sunshine. The soil should be enriched with some good rotten manure, and when the plants get strong they should be liberally watered with liquid manure. They should be planted about 15 inches apart for the first season's blooming, which will commence about August, and continue till the end of September; but in the ensuing spring they should be replanted, placing them 18 or 20 inches apart, for the second year's blooming, which will begin in July, and, if the plants are prevented from seeding, will go on till the end of September. Care should be taken to have a stake to each plant, and as the shoots advance in growth they should be securely tied to it. If this is neglected, they are very likely to be snapped off close to the ground. A slight wind is sufficient to do this, and then the plant is spoiled for the season.

If a Phlox is well managed, it will be in its prime in the second year of its flowering. Early in the spring, when the shoots are 3 or 4 inches long, it is a good plan to thin them. A good two-year-old plant will generally start more shoots than are required, but five or six only should be left to go up for flowering. The spare shoots make excellent cuttings, but they can seldom be rooted early enough to flower the same year, like those obtained from plants put into a greenhouse in February. However, the plants obtained from these cuttings make fine flowering plants for the next year.

But little can be done in arranging Phloxes according to their height; indeed, in this respect, with two or three exceptions, there is very little difference between them. The first year they generally flower when about 15 or 18 inches high, but the same plants in the second year will grow 2 or 3 feet high.

A continual succession of young plants should be kept up by cuttings. Dividing the old roots is a clumsy method of increasing the stock, and plants obtained in this way seldom produce fine healthy foliage and good flowers. A Phlox should be thrown away when it gets over two years old, and a young plant put in its place. Sometimes Phloxes may be placed here and there in mixed borders or shrubberies, where they help to make a garden gay, and furnish a supply of cut flowers; but the spare plants only ought to be used for this purpose, as they never, under this treatment, produce such fine flowers as when they have a place to themselves.

Phloxes may be easily grown in pots by attending to the instructions given for growing them in the open ground, only they require more care in watering.

The variations of Phlox decussata are the best and hardiest, and have been very much improved lately. There used to be some pretty varieties of Phlox pyramidalis, but they are delicate, and have given place to the former. A selection of the best modern varieties of different colours will be found in the following:—

Madame Corbay.—White, with violet centre.
Madame Duchemin.—White, with crimson centre.
Comtesse de Turenne.—Deep purple centre, edged with pure white. [purple.
Madame Lemont.—Mauve, flamed or suffused with
Madame Rosay.—White, with rosy centre.
Monsieur de Launay.—Slate tinged with salmon, purple centre.
Monsieur Donnaud.—Violet, suffused with salmon.
L'Abbé Roussel.—Claret.
Lucien Tisserand.—Bluish violet.
Madame Devilliers.—Claret, with purple centre.
Madame Emarant.—Rose, tinged with salmon.
Madame Herbeaumont.—Brilliant rosy salmon, with purple centre.
Rêve d'Or.—Bright cerise salmon, purple centre.
Monsieur Mittivier.—Brilliant crimson, suffused with salmon.
Monsieur Paulmier.—Salmony crimson.
Liervalii.—Bright purple, each petal edged with white; this gives the flower the appearance of having a purple cross on a white ground.
Etoile de Neuilly.—White, tinged with violet; beautiful purple eye.
Mademoiselle Christine Nilsson.—White, with large carmine centre.
Prémices du Bonheur.—Rosy white, with bright cerise centre.
Roi des Roses.—Rich rosy salmon.
Vierge Marie.—Pure white, with large, rich, purple centre.
Figaro.—Fiery salmon, very bright.
Géant des Batailles.—Ash grey, tinged with orange or salmon; fine purple centre.
L'Avenir.—Brilliant crimson, tinged with salmon.
Madame Lecomte.—Bright salmony crimson.

John Fraser, in Florist and Pomologist.

The Apiary.

ON Wednesday, June 26th, I had a swarm of bees from a Woodbury bar-frame hive, but they did not settle, and returned to the hive; I quite expected them to swarm on the following day, but they did not do so. I had them carefully watched every day, and as they did not swarm I listened at the hive on the eighth day, when I heard the young queen piping; so I have concluded that the old queen was lost when they first left the hive, as no swarm took place until July 6th, two days after I first heard the piping. To prevent a second swarm, I have put on a bell-glass filled with empty combs; have I done right in so doing? I should have stated that the bees, when they swarmed, collected in a Wheat field among the standing grain; this was surely

a strange place to select. I have another box hive, which up to Thursday last had shown no disposition to swarm, and as the season was getting so late I put on a super, which would contain probably 15 lb. of honey: the bees commenced working in it on Saturday last in great numbers, and at the present time it seems about a third filled with comb. I wish to know if I have put on the super too late in the year to be attended with good success, or if I may safely rob the bees of its contents if it is filled? I notice that, in the stock hive, the combs close to the window in the back are being sealed up. *George Davis, Bowdon, Cheshire.*

[Your swarm, which made its first essay on the 26th ult., no doubt departed with the old queen at its head, which being from age or some other cause unable to fly very far, descended among the corn and was there lost. As no subsequent issues took place between the date of the second swarm (July 6th) and that of your letter (the 10th), there would be little probability of another swarm, as all the young queens just matured or in embryo would, in all likelihood, have fallen victims to the jealousy of the reigning monarch. You did no harm in putting on a bell glass, even if it did not influence the non-issue of another swarm, the bees may do more or less work in it. With regard to the super put on the second hive, it does seem rather late to expect it to be filled; but it is better to get all the work done that is possible than to allow the bees to waste their time in comparative idleness for want of additional accommodation. Empty combs for future operations are very valuable. If your super is filled you may safely deprive the bees of its contents; and whether filled and sealed, or otherwise, it must be removed early in the autumn.]

Miscellaneous.

The late Sir William Hooker.—A memorial tablet, of beautiful design, the work of Mr. R. Palgrave, inclosing a cast in "Wedgwood ware" of Mr. Woolner's medallion of the late Sir William Hooker, is about to be erected in Kew Church, near the grave of the famous botanist. The medallion occupies the centre of a composition of panels that are decorated with ferns, &c., in low relief, the fronds being arranged so that their lines harmonise with their position on the monument; the panels are divided, and mounted in mouldings of white marble. The portrait is of white, on a ground of smalt blue, the foliage of white on a delicate green; buff is used for certain minor panels which appear round the head, and, like their more important companions, are decorated with ferns. Apart from the medallion, the charm of this work is in the exquisitely delicate execution of the fronds, which have been modelled with the utmost elegance and sense of natural grace by Mr. Palgrave, whose skill has been noted before by us on account of a monument in Reigate churchyard. It would be impossible to praise too highly the subtle beauty of outline, the quiet loveliness of the curves, and the wealth of delicate contours which appear in this remarkable specimen of modelling.—*Athenæum.*

Carter's Champion Broccoli.—Last year I strongly recommended Carter's Champion Broccoli as an excellent *late* sort. My more extended experience this season enables me to recommend it still more strongly, as not only an excellent kind, but the very best *late* one I have as yet tried. It has furnished me up to the present time (the middle of June) with heads—rather small, the plants being only small; and it will last some days longer, thus continuing the supply until Cauliflowers (which are now heading), come in. It has also proved itself very hardy this season. The plants being rather small, as just mentioned, I did not get them laid down in the autumn, when I had the principal portion of my other Broccolis laid, as I thought they would withstand an ordinary winter with little or no injury. I need not mention in how unfit a condition most kinds of vegetables were, and particularly Broccolis, after the long continuance of wet open weather, to withstand the severe frosts of January last. In many gardens, especially in low situations, and where the soil was of a heavy retentive nature, the Broccolis were all killed. Here we escaped with very little injury to anything, the subsoil being gravelly, and the situation dry. Had I laid down the plants of Carter's Champion, I am certain we should not have lost many of them; even as it was, without any preparation whatever, fully one-half escaped without material injury. To all who have a large supply of vegetables to furnish, Carter's Champion Broccoli will prove invaluable, coming in as it does at a season of the year when there is such a scarcity of vegetables in the open ground. In order to have it as long as possible in use, I would recommend three small plantations of it:—The first on an open piece of ground where the plants can have all the sun and air possible; these will come in first, about the time the general stock of spring Broccolis is over. The second lot may be planted either on an east or west border; these will come in before the others are past; and the third lot should be planted on a north border to come in last, and these will in general continue to furnish a supply until Cauliflowers are fit for use. To grow them fine they should have a good deep soil. Light soils should be well manured, and either trenched or dug deeply, otherwise Broccolis will only be small and poor. Having proved the value of this Broccoli, I have again brought it before the notice of your readers, that those who have not yet given it a trial may be induced to do so, feeling confident that such as do will find it one of the best, if not the best, late Broccoli in cultivation, and a most useful auxiliary where a large supply of vegetables is required. *M. Saul, in Florist and Pomologist.*

The Right Shrubs in the Right Place.—The Rotten Rowdodendrons. *Punch.*

Garden Operations.

(*For the ensuing week.*)

PLANT HOUSES.

Victoria regia and other aquatics will now grow quickly, and will need especial attention. No aquarium should be without proper means with which to afford all surface foliage, periodically, a gentle shower of water. This may be effected by means of a small fountain, or similar appliance. A small jet of water ejected from a fine spray nozzle upon a pipe situated in the centre of the tank will be found useful for this purpose. Should the water ejected be much colder than that in the tank, it should only be applied during warm sunny weather. Tanks in glass structures or similar positions, in which it is not possible by means of a constant stream to keep down sluggish slimy formations, should receive periodically a good scrubbing and cleaning out. The best way of doing this, say in the case of large tanks such as those required for the Victoria Lily, is to enter them with brush in hand, and in that way thoroughly perform the operation in question. In the first place see that no aquatic parasite has attacked the leaves, especially their undersides, a position in which such formations are almost invariably found. In order to examine the undersides of such large weighty leaves as those of the Victoria, I have found it necessary to gradually press one side down with the open hand to the bottom of the tank, in that manner carefully pushing it upside down, and when floating upon the water to remove everything that may be injurious to the aquatic. Leave the cleaned leaves in this position, until the tank is thoroughly purified, otherwise objectionable particles will again become attached to them before the water can be run off. When the operation of scrubbing has been performed, agitate the whole of the water in the tank as much as possible, for the purpose of giving all deleterious matters buoyancy, withdraw the centre plug and run the dirty water quickly off, without unduly straining the leaf stalks. Having let off as much as possible without injury to the plants, refill, and assist the leaves to readjust themselves, lighting a fire for the purpose of warming the fresh supply of water. Look well after *Cape Pelargoniums* recently cut back; see that they do not suffer too severely from want of water; give them abundance of air and encourage by every possible means a good sound start. Some of the more forward "stuff" amongst such *Greenhouse plants* as *Camellias, Azaleas, Coronillas, Cassias,* &c., will be much benefited by being placed for a time out-of-doors. Do not however place them in too close a corner, or where the air cannot play freely amongst their branches. Moreover, it will not be judicious to place any out, however early they may have ceased to flower, if they have not yet ceased growing freely. Ripening flowering buds for next season's display is what is wanted, and not the formation of wood. The last batch of cuttings should now be put in of *Chrysanthemums* intended to form short, neat plants for front shelves or any other purpose where large plants are not admissible. Continue pinching back all specimens, shifting them into larger pots as frequently as the roots begin to crowd around the inner side of the pots.

FORCING HOUSES.

Vineries from which the crop has been gathered must not be permitted to relapse into a state of untidiness and disorder, on the contrary, keep the whole scrupulously clean. Give abundance of air by night, as well as by day, and in every other possible way encourage the wood to ripen and the buds to establish themselves for a successful issue in the ensuing season. See that no young, recently planted *Vines* suffer from want of water at the root. Do not pinch the secondary shoots or laterals in too closely, under the mistaken idea that by so doing the main shoot will the more quickly occupy the space allotted to it. Pinching back shoots, *i. e.*, summer pruning, should not be too rashly performed or without due consideration. We pinch back shoots upon trees of proper maturity, for the purpose of directing the sap into other channels in which it is likely to form fruit buds, and to assist the tree in carrying its crop to greater perfection than it otherwise would do. It will therefore be apparent that to lop off rudely at the base any portions of a plant struggling to establish itself must tend to derange the nice adjusted reciprocity that should exist between roots and branches; by thus pinching young trees in, the remaining parts become glutted with crude ill-elaborated sap, and the consequence is the foundation of lasting disease is fairly established. Do not pinch any such back therefore, but depend upon winter pruning in preference. These remarks apply equally well to all freshly-planted young trees. Should the nights continue cold, as of late, it will be advisable to keep gentle fires going in the *Fig-house,* as this assists very greatly to forward the trees, more especially at their ripening-off period. A little air along the front of the house at night, with frequent syringings just before the fruit has finished finally swelling, will likewise prove very beneficial. Continue to sprinkle *Pine-pits,* &c., upon fine sunny afternoons, and by every other proper means keep up a moist growing atmosphere. See that the bottom-heat does not fall below 85° or 90° at any time during this, the active season of growth.

HARDY FRUIT GARDEN.

This will be found a good time for budding fruit trees in general, and especially any rare sorts of Apples, Pears, &c., which have little wood formed suitable for grafting. Every individual bud upon young shoots of the current season's growth, sufficiently well ripened, will be found available for the purpose. Proceed with the operation in a manner like that advised lately in this Calendar, for Roses. When very young shoots are budded upon be careful, in tying them in, not to place the ligature too tightly around them; on the contrary, allow sufficient room for the bud to swell and grow properly.

KITCHEN GARDEN.

Make now a sowing of *Peas* of the following, or other similar kinds, namely, Champion of Paris, an excellent Marrow, which turns in quickly, and is well adapted for autumn use, Sangster's No. 1, &c. Make another sowing of *Cabbage* for a spring supply. Sowings should also be made forthwith of *Lettuce* for early winter use, for which purpose none is better than the old black-seeded Brown Cos, when true. A small sowing of *Endive* should also be made for a similar purpose. Generally these are sown between rows of Celery recently planted out, a position which suits them admirably; when well above ground thin them out to the necessary distance apart. Get all *Celery* plants placed in their winter quarters without further delay, continuing frequently to water them should the weather prove dry. Give *Asparagus* beds another liberal surface-salting, if done in rainy weather all the better. Hoe the beds well, afterwards moving the ground freely between the rows with the same implement. Those who like to have young *Potatos* late should make a sowing of old sets at once in a warm situation, such as a south border; do not plant too deeply, and give them a good width apart in the rows. Plant early sorts. *Tomatos* will now require frequent attention; fasten them firmly to the wall, and prune away all superfluous shoots immediately a crop of fruit has been secured. *W. E.*

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,

For the Week ending July 17, 1867, as observed at the Horticultural Gardens.

July.		Moon's Age.	Barometer.		Temperature.					Wind	Rain.
					Of the Air.			Of the Earth			
			Max.	Min.	Max.	Min.	Mean	1 foot deep.	2 feet deep.		
Thurs.	11	10	30.122	29.980	73	53	63.0	64	61	E.	.00
Friday	12	11	29.859	29.751	73	49	61.0	64	61	E.	.00
Satur.	13	12	29.767	29.688	72	52	62.0	64	61	S.	.26
Sunday	14	13	29.769	29.595	71	48	59.5	64	61	S.	.09
Mon.	15	14	29.589	29.352	65	54	59.5	64	61	S.	.28
Tues.	16	○	29.497	29.487	67	57	62.0	63	60	S.	.27
Wed.	17	16	29.727	29.623	70	56	63.0	62	60	W.	.32
Average.			29.761	29.641	70.7	52.7	61.7	63.4	60.7		1.22

July 11—Fine, with slight dry haze; very fine; overcast.
— 12—Overcast; fine, with dry haze; fine at night.
— 13—Overcast; showery at night.
— 14—Very fine; showery; very fine.
— 15—Rain; showers, and dense dark clouds; boisterous.
— 16—Showers, and dense clouds; very heavy showers; fine.
— 17—Boisterous; masses of white clouds in bright blue sky; cloudy.

Mean temperature of the week, 1½ deg. below the average.

STATE OF THE WEATHER AT CHISWICK,

During the last 41 years, for the ensuing Week, ending July 27, 1867.

July.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain	Prevailing Winds.							
						N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday ..21	73 6	50.6	62.1	18	0 54 in.	2	1	5	1	5	14	10	3
Mon. ..22	73.4	51.2	62 3	23	1 37	3	3	3	1	3	16	10	2
Tues. ..23	74.0	51.6	62 8	20	0 70	1	7	5	2	3	13	6	4
Wed. ..24	71 1	51.9	62 5	14	1.16	1	8	4	3	5	13	4	3
Thurs. ..25	73 8	49 1	62 5	12	0.36	2	7	3	1	2	11	12	3
Friday ..26	73 9	50 2	62.1	20	1.22	2	2	5	2	5	13	7	4
Satur. ..27	74.8	50 9	62 4	18	0 98	2	3	5	2	4	14	8	3

The highest temperature during the above period occurred on the 25th, 1844—therm. 92 deg.; and the lowest on the 23d, 1863—therm. 32 deg.

Notices to Correspondents.

APPLE TREES: *W H E.* Now is the best time for thinning out the shoots of Apple trees that have been headed down the preceding year. Doing so will allow those left to better develop themselves, and to get well matured before the end of the season.

BOOKS: *Amateur.* Thomson on the Vine.

CUCUMBERS: *Messrs. Barr & Sugden.* Your variety called International is unusually straight and handsome, measuring 24 inches in length, with the bloom still adhering to the top. It is a white spined variety, and of good flavour.

GRAPES: *H Y Z.* Yours is apparently a case of common Rust, which may arise from anything which suddenly checks growth; a draft of cold air is often sufficient for the purpose. *M J B.*

INSECTS: *H R.* Your Pear leaves are infested with the slimy grub of the saw-fly, Selandria æthiops. Lime water or powdered lime will destroy them, but it would have been better to have employed children to catch and kill the black-winged parent flies a month ago, as they are easily seen. *W.*

NAMES OF PLANTS: *W H E.* Spiræa opulifolia.—*C H D.* Ophrys apifera (white variety); Geranium pratense.—*T H B.* —1, Statice Limonium, L.; 2, Veronica spicata, L., var.; 3, Fumaria lutea, L.; 4, Lastrea (too young to determine).—*Botanico.* Hopocheæris maculata ("Spotted Cat's Ear").—*Dd.* Nicotiana glauca, Grah. (introduced to Cape).—*H Y Z.* Francoa sonchifolia.—*H E B, Woodford.* Ipomœa Quamoclit, an East Indian annual climber, known in this country since 1629. Any of the principal seedsmen could probably supply seeds, which should be sown on a hotbed, and afterwards grown in a greenhouse or stove.—*J J C.* 1, Oncidium flexuosum; 2, Æschynanthus pulcher.—*M.* The names of your plants, which have been accidentally mislaid, are—1, Campanula Trachelium, var.; 2, Allium Moly; 3, Aconitum Lycoctonum; 4, apparently Scilla verna.

SEEDLING PELARGONIUM: *C T M.* What you send is probably a seedling, as it is so marked, but it does not appear to possess any special merit. Its coarse habit would indicate that it may be useful for training to a conservatory pillar or back wall, but there are certainly many better scarlets for bedding. The flowers were fallen to pieces when they reached us.—*G A.* Your seedling from Madame Vaucher has a well-marked leaf, and the flowers are of a pleasing salmony-scarlet colour, but too small, and, in fact, it is altogether far behind many varieties already in cultivation. —*F.* Your seedling Golden Variegated Zonal named Ajax is rather a promising sort, the yellow edge being broad and very bright. The red zone, though tolerably well-defined, seems to be rather dull. Whether useful or not would depend very much on the habit of the plant. You had better send it up to a meeting of the Floral Committee.—*M D S.* A good useful variety of Golden Variegated Zonal, and apparently of vigorous habit. Send it for the inspection of the Floral Committee.

VINE LEAVES: *W J.* Your leaves have clearly been burnt by the sun, or dried from too high a temperature in the house in a night of much radiation. We feel certain that they are not diseased, though the Vines may possibly be weak from the condition of the roots, a matter which requires especial attention. *M J B.*

THE LONDON MANURE COMPANY
(ESTABLISHED 1840),
Have now ready for delivery in dry fine condition,
CORN MANURE, for Spring Use
DISSOLVED BONES, for Dressing Pasture Lands
SUPERPHOSPHATES of LIME
PREPARED GUANO
MANGEL and POTATO MANURES.
Also Genuine PERUVIAN GUANO, and NITRATE of SODA, ex Dock Warehouse; SULPHATE of AMMONIA, FISHERY SALT, &c. E. PURSER, Secretary.
Offices, 116, Fenchurch Street, E.C.

LAWES' MANURES.—The Manures manufactured by J. B. LAWES for the present season of 1867 are now ready for delivery at his Factories, at the following prices, per ton:—

	£	s.	d.
LAWES' PATENT TURNIP MANURE and BONE SUPERPHOSPHATE of LIME	6	6	0
LAWES' SUPERPHOSPHATE of LIME from BURNT BONE or MINERAL PHOSPHATES	5	5	0
LAWES' WHEAT, BARLEY, GRASS, and MANGEL MANURES	8	0	0
CONCENTRATED CORN and GRASS MANURES	12	0	0

These Manures can be obtained of Mr. LAWES, or through the appointed Agents in all parts of the United Kingdom, at prices varying according to cost of carriage.
Genuine Peruvian Guano direct from the Importers. Nitrate of Soda, Sulphate of Ammonia, and other Chemical Manures.
American and other Cakes at market prices.
Address, JOHN BENNET LAWES, 1, Adelaide Place, London Bridge, E.C.; 22, Eden Quay, Dublin; and Market Square, Shrewsbury.

Entries Close July 25.
MANCHESTER and LIVERPOOL AGRICULTURAL SOCIETY.
GRAND CENTENARY CELEBRATION SHOW, at MANCHESTER, AUGUST 27, 28, and 29, on the Site of the Art Treasures Exhibition and Land adjoining (about 20 Acres in extent), at Old Trafford, and adjoining the Botanical Gardens and Grounds.
PRIZES amounting to UPWARDS of TWO THOUSAND POUNDS are offered for HORSES, SHEEP, WOOL, PIGS, POULTRY, PIGEONS, DOGS, CHEESE, BUTTER, GRAIN and ROOTS, VEGETABLES, SADDLERY, IMPLEMENTS, MACHINERY, and MISCELLANEOUS ARTICLES.
The Horned Cattle Prizes have been withdrawn, in conformity with the Cattle Plague orders of the Privy Council.
ENTRIES CLOSE on the 25th INSTANT.
Prize Lists and Forms of Entry may be obtained from Mr. H. WHITWORTH, Assistant Local Secretary, Carlton Buildings, Cooper Street, Manchester; or from T. B. RYDER, Secretary.
57A, Church Street, Liverpool, July 6, 1867.

The Agricultural Gazette.

SATURDAY, JULY 20, 1867.

MEETINGS FOR THE TWO FOLLOWING WEEKS.

MONDAY, July 29
TUESDAY, — 30
WEDNESDAY, — 31
THURSDAY, Aug. 1
} Great Meeting of the Highland and Agricultural Society at Glasgow.

NOTWITHSTANDING the absence of one chief attraction from the Show-yard of the Agricultural Society, and despite the stormy and fickle character of the past week's weather, we believe that the annual attendant at our National Agricultural *fête* has never been more gratified than at Bury. The quaint and pretty little town has so successfully exerted itself in honour of the occasion—the visit and exhibition of the Royal Horticultural Society have been such a charming addition to the attractions of the meeting—the show of agricultural implements has been so full and admirable—and all classes of live stock (horses, sheep, and pigs) have been so unusually perfect, that the Bury meeting will be pronounced a very great success, even by those who witnessed the gatherings at Chester, Leeds, and Battersea. And even in a financial point of view, certainly to the Society, perhaps even to the town, the cost, and so to speak, the loss, will not have been so great as was anticipated. The attendance in the yards upon the earlier days has been nearly the same as it was at Plymouth, and we understand that the numbers entering on the shilling days have been very great. The expenditure, however, if the receipts have not wholly borne it, is after all the proper work of the Society: and this great gathering of agriculturists near the best cultivation in the world, and of machine makers, and of stock breeders, all customers of one another and mutually dependant, is the great service and performance of the year for which the members of the Agricultural Society club their funds and efforts. We heartily hope that the association of the gardener with the farmer—of the great horticultural with the great agricultural trophies and achievements of the year for exhibition at one place and time—will be an annual thing, and that Leicester will next year witness an even greater success on the part of the Horticultural Society than has this year attended what is at first necessarily an experiment.

For our own particular interest in the spectacle of the week, whatever may be the individual feature in it which remains longest impressed upon the mind—whether it be the very perfect classes of the Suffolk horse, or Lord WALSINGHAM'S wonderfully fine two-year-old Southdown ram, or Mr. TURNER'S Leicester sheep, or the extraordinary classes of shearling ewes under many of the breeds, as, for example, Sir W. THROCKMORTON'S Southdowns, or Mr. RAWLENCE'S Wiltshire Downs, Mr. C. HOWARD'S Oxfordshires, or Mr. H. SMITH'S Shropshires, or, perhaps, the show of large breeds and small breeds and middle breeds in the Pig classes, which were never excelled—one thing will certainly be admitted, that never before have so many whole classes, without exception, been worthy of commendation, never has there been a show of such even excellence, consisting of whole classes and even breeds without a weed which should not have been exhibited. And this is true also in the Implement yard, which has been more completely agricultural than on any previous occasion—less overwhelmed, as it once threatened to be, with noisy vendors of contrivances and implements of more domestic interest.

Whether it be a fault or merit in the management—and it no doubt partakes of both—the proceedings are, on these occasions, carried out with a minimum of official interference. There are indeed offices where information and assistance of all kinds are most readily and civilly rendered, but there is no official opportunity offered to the members of meeting either one another or the leading persons connected with the Society. This formerly existed in the great banquet which was once a leading event at the annual country meeting. Now the only opportunity of the kind afforded is a formal meeting on the Friday of the show, when all the members have left, and when either criticism or thanks, either of which may be rightly due, and both of which ought to be real and vigorous, must be little more than an empty form.

It thus happens that if any subject of great agricultural interest is urgent at the time, it has hitherto been left to energetic individual action to obtain any general expression of the opinion or will of farmers on it: and the National Agricultural Society having so far abdicated and left the field to others, we have in the recently established Chamber of Agriculture throughout the country the organisation which was needed. The question of cattle importation—one of great present urgency—was thus discussed at Bury before a very large and energetic meeting, summoned by the Central Chamber, and resolutions (reported in another column) were passed, strongly recommending that the suggestions of the Royal Commission as to slaughters and quarantine at ports of debarkation be carried out.* This, and the annual gathering of old students of the Royal Agricultural College were the only special public meetings during the week of which we heard. The thousands flocking to Bury acted each for himself, not much affected, whether in matters of business or of pleasure, by any official guidance. The Society has merely given the opportunity to spectators and exhibitors, and they, drawn or driven by personal interests, have flocked together to their mutual advantage.

THE farmer living in the southern or western counties, or he who should travel from north to south, can hardly fail to be struck with the occasional appearance, often in large masses, of a curious brown spicate plant amongst the Clover crop. In the sandy parts of Dorset, for example, no sooner has the first crop of Clover been taken than these make their appearance, and we have seen them in large quantity within a bowshot of Stonehenge in Wilts, and occasionally in the Clover crop both in the vale and hill districts of Gloucestershire. In Dorset, however, it is constant, and more especially on the sands and brashes of the inferior oolite; and only a few days since we gathered some facts upon this pest of the farm, which seem to us so interesting that we cannot resist laying them before our readers.

We would premise, then, that the plant in question is known as Broomrape, doubtless so called from taking forcible possession of Pea-flowered or Broom-like plants, which it does by growing upon a branchlet of the root of the foster parent, so becoming a parasite. Indeed, the whole life of the plant is parasitic; it has no leaves of its own, it therefore lives wholly at the expense of the plant upon which it is placed; and, as in a case now before us, to the almost total ruin of the second cut—we should say second growth, for to cut it will be impossible. So thick, indeed, is it, that we took some pains to ascertain its quantity, by which the following results were arrived at:—On the 26th June we examined the Broomrape on red Clover. Some of it was as much as 15 inches high, having as many as 60 flowers to each spike. Some specimens from uncut white Dutch Clover at the same date yielded examples as much as 20 inches in height, with 150 flowers to a single spike.

Of those in the cut red Clover over several acres we estimated as many as 11,073 plants to an acre. Now, if we consider that each flower yields 500 seeds, we have the sum of 500 seeds × 30 capsules × 11,073 plants per acre = 166,095,000 seeds sown in each acre of this Clover, an amount of reproductive power which would be perfectly marvellous for any ordinary plant, but quite required to keep up the existence of the Broomrape from the difficulty attending its finding a foster parent; for unless Clover be the crop, it seems that the seed, except in a few cases, may lie dormant in the soil from the period of one crop to that of another; and in all cases to establish itself on roots must be difficult.

Now, as regards the species of this plant it must be confessed that the matter is somewhat in confusion. In the grand new edition of SOWERBY'S "English Botany" we find, amongst others, the Orobanche picridis and O. minor, the former stated to grow on the roots of the Picris hieracioides, the other as common to Clovers; but, strange to say, the O. picridis, though here found abundantly on the Picris, is also the one so plentiful in our Clover fields, where, as described by Mr. SYME, it is "yellowish before expansion; the upper lip, which is erect, has a fold in the middle, as pointed out by the late Dr. BLOMFIELD, which gives it the appearance of being notched, although it is really entire." In every particular our Clover Broomrape answers the description of O. picridis, but at the same time there is reason to believe that two or three forms are found on Clover, though occurring also on other plants; so our O. picridis, besides finding a nidus on the Picris, does so also on several kinds of Clover and their allies, and in our greenhouse came up a specimen attached to a Pelargonium, and even our Parsley bed is not free from attacks of this species. It is found, indeed, in every lane and every Clover field of the district, and it would seem that the sandy mould, being used for gardening purposes, may introduce the pest to our gardens. It is therefore probable that it is often introduced to the farm in seeds, though it would seem that seed from infected districts does not always introduce the Broomrape to a soil not congenial to it.

Where it does occur in the quantity in which it is sometimes met with, it is a great hindrance to the growth of Clover, as the parasite is far larger than the foster parent, the juices of which latter it converts into a bitter innutritious substance which sheep do not eat—probably fortunately so; but if there be any noxious principle in the Broomrape we may congratulate ourselves that it only finds its way into the rick in very small quantity, its season for sending up its at first whitish heads being just after the first crop has been got in. If wished to be got rid of, this can easily be done by hand; it requires no force, and so a gang of boys could soon rid a field of it. At all events it would seem that the evil is increasing. Time was Broomrapes were rare in our agrarian fields, but now it is, as we have shown, sometimes very abundant; and it is therefore time that the farmer should study the history and habits of the pest, and we hope this short notice may have the effect of directing attention to a plant no less interesting to the farmer than to the botanist. *J. B.*

* We ought not to omit the recognition here of the services of Mr. C. CLAY, of Wakefield, which are apparently dropping out of mind. For to his foresight and initiation we mainly owe it that the Chamber of Agriculture had a beginning. His suggestion of this it was which, falling on a soil ready for it, has borne such abundant fruit.

LOSING MONEY BY FARMING, AND HOW TO PREVENT IT.

I SEE so many painful instances around me where an extensive acreage of arable land (over 2000 acres, in farms varying from 100 to 500 acres,) has been causing a loss to the occupiers annually of more than 1*l.* per acre, besides interest of capital, that I am induced to point out the causes, and suggest a remedy. I wish to show how it is that I, on the contrary, realize on a similar soil the improved rent of 40*s.* per acre, and, in addition, a farmer's profit of 30*s.* per acre.

It becomes time that I should speak out on this matter, for I have submitted long and patiently enough to the cuckoo cry, "Mr. Mechi, it is the business in town that supports the farm," which implied that the practice I pursued was a wrong and fanciful one, and therefore unfitted for a practical farmer.

The rent of these lands varies from 23*s.* to 28*s.* per acre, the former of the same natural quality as my own, the latter very much better than mine. It is not a question of too high a rent, for 3*s.* or 4*s.* more or less per acre will never break or make a farmer, although, of course, every man has a right to try and get his farm on the cheapest terms. The immediate cause of loss is

that the crops are too small, and in money value less than the expenses.

How is this to be altered? Clearly only by making the crops larger and more valuable. You can't reduce or avoid certain fixed expenses, however poor the crop may be. Rent, rates, tithes, taxes, tradesmen's bills, depreciation of horses and machinery, horse labour, manual labour, must be paid, and the farmer can't live without a profit to purchase his food and clothing. Therefore with such minimum crops he loses his money, and leaves his farm too often a ruined man.

The only remedy for this disagreeable state of things is increased crops of much greater value, and how are these to be obtained? Only by increased manure, aided by drainage where required, and deeper and cleaner cultivation. But how is this greatly increased quantity of manure to be got? Principally and most economically by keeping a much larger quantity of live stock, and by feeding them with a good deal of something that did not grow on your own farm, in addition to your own consumable produce. Don't be afraid to put your hands in your pockets for the wherewithal to purchase cattle food and manure. "But then, Mr. Mechi, suppose that there is no money in the pocket, but it is all already in the land, what shall we do then?" My answer would immediately be, Get rid of your farm, and take one of half or one-third its size. It is your only chance; and this brings me to the testing-point of the question,—why I succeed, while some of my neighbours fail in making a profit.

My farming capital is fully 15*l.* per acre, theirs probably less than half that amount. 6*l.* of my capital per acre is invested as an average in live stock, all well-fed, growing, and fattening, and of course I make three times as much manure as those who only have 2*l.* per acre so invested; and as a logical consequence my crops must be proportionately larger than theirs, while the only increase in my expenditure is a somewhat higher rental and the additional labour required for so much more stock and produce. This is the main weakness of heavy land arable farming, too much land in proportion to capital; and it will never be generally altered until landlords and tenants bring themselves to believe that 15*l.* per acre is a much more profitable investment on ordinary land than 5*l.* per acre.

I say 5*l.* per acre, because I am informed by a gentleman of great practical valuing knowledge in this county that the average capital of farmers of 100 to 200 acres in this county is only 5*l.* per acre. Taking the average farm capital of the United Kingdom, I believe it to be only 4*l.* per acre, and the produce 3*l.* 12*s.* per acre.

Those who do not believe in this necessity for a larger acreable capital, and will not adapt themselves to the new conditions of agricultural progress, must pass rapidly to the wall, for they have to compete with many British farmers who are keenly alive to the altered state of things, and are employing a capital in many instances of 20*l.* per acre.

It also becomes necessary to believe that an increased rental (15*s.* per acre in my case) for paved and covered yards, steam power, well-drained land, good roads, and few trees and fences, and better general accommodation for man and beast, is profitable: for all these things have a most material influence on farm profits; but I will not go into details in this paper.

The fact is that agriculture is in a transitional condition; we are passing from a large area and a small population to a large population and a consequently small comparative area. Our population was only 10 millions in 1800, now it is 30 millions. The change is rapid from pastoral to arable, and the greatly increased competition for land arising from the greater population has naturally heightened the item of rent, which, at its present high rate, will not permit of cheap and natural, or primitive farming, as in former times.

I know of several instances where farmers have passed from a small to a large farm and have been ruined by this thinner spreading of their capital. How can they hope to compete successfully with men who I know, on a farm of 1200 acres in Norfolk, buy 3000*l.* worth of Linseed cake annually to be consumed upon the farm, and thus fill it with fertility?

In another instance, of about the same extent, 120,000*l.*, or 100*l.* per acre, has, during a tenure of 25 years, been expended in purchased food and artificial manures. The farmers who only consume what they grow upon their own farms have no chance with such competitors.

My 15*l.* per acre capital is at Christmas stock-taking generally employed as follows:—

Live stock	£6	0	0
Horses	1	0	0
Tillages (including manurings)	2	10	0
Implements and machinery	2	10	0
Hay, corn, &c., unsold	3	0	0
	£15	0	0

I find the capital of 15*l.* per acre insufficient, and that 18*l.* per acre would be more advantageous in many ways.

We should never forget that when we take our corn or stock to market, every other farmer is our competitor, and if he is a cheaper producer than ourselves, we must suffer by the competition as much as any tradesman or manufacturer who is undersold by his more successful competitor. *J. J. Mechi, July*, 1867.

THE PARIS EXHIBITION.

FROM OUR CORRESPONDENT.

RESUMING our detailed notices of the implements and machines exhibited in the various streets in the British section of the agricultural department, we come to glance at that of the Messrs. Garrett, of Saxmundham. This firm exhibit at their very handsome stand a select variety of the implements and machines for which they are so celebrated, as portable engines, corn drills, corn mill, and threshing machines. A good specimen of their traction engine with pitch chain and reversing gear, is also exhibited in the stand. This is provided with one of the neat (donkey) pumps patented by Brown, Wilson, & Co., of London, and which, as a substitute for the ordinary pump and the "injector," is worthy of brief notice here. Those practically acquainted with the working of steam-engines are sufficiently, we might almost say frequently painfully, aware of the difficulties attendant upon the securing of a steady supply of water to the boiler, and of the dangers which arise to the safe working of the boiler when this is not secured. They are also aware of the diffiulties attendant upon the working of the ordinary form of pump, in which the clacks or valves are apt to get out of order. To obviate the difficulties arising in this and in other directions a vast variety of contrivances have been introduced to ensure a proper supply of water being given to the boiler—the most recent of all these, and one which has met with an extraordinary degree of patronage, is the apparatus known as Giffard's injector, in the working of which some very curious phenomena are exemplified. Ingenious as are the arrangements of this apparatus, and satisfactory in many respects as its working is, still it possesses some defects; these, mainly, are an inability to draw cold water, excepting from a very moderate depth, and its complete inability to force or draw hot water: it is therefore more to be looked upon and used as an auxiliary to the ordinary pump, than as an apparatus designed to supersede it. Among other contrivances to meet the end in view is that alluded to above, and an example of which is attached to the traction engine of the Messrs. Garrett, as exhibited in their stand. This apparatus possesses many advantages; it occupies but a very small space, can be fixed easily on the side of an engine, or made to project from a wall; it is composed of few working parts, and is therefore not likely to get out of order: these parts are very light, and they are moreover made of steel or hard gun metal, and are therefore economical in use; the apparatus is also cheap; it can draw water from a depth of 30 feet, and force the same into the boiler; while it is also capable of forcing boiling water into the boiler. Compactness of form and fewness of parts are secured by arrangements of which the following is a brief description:—The steam cylinder which works the pump, and the pump barrel itself, are cast in one piece, the pump barrel being placed below the cylinder, the piston-rod or ram of which works in an inverted form—that is, downwards—and is continued down to and forms the plunger of the pump barrel below. The cylinder and the pump barrel are bored out with a bore of the same diameter, and at the same time that all this perfect parallelism is secured, the fitting of the plunger of the pump barrel is so accurate that a very perfect vacuum is made, thus enabling, as stated above, the pump to draw water from a considerable depth. The central part of the piston-rod and plunger carries a tapered rod or slide, to which the lower end of a small connecting rod is jointed; this being carried up and jointed at its upper end to a pin secured to the face of a small wheel, which acts on a fly-wheel, and the shaft of which revolves in bearings cast on the upper side of the steam cylinder. At right angles to this shaft the valve face of the cylinder is placed, and the valve (made of hard gun metal) itself, which regulates the distribution of the steam to the cylinder, is worked in a very simple manner by means of a small eccentric roller on the fly-wheel shaft, which works between projecting snugs cast on the back of the valve. Nearly all the parts are of the best steel, the use of which enables them all to be made exceedingly light and economical in working. The whole arrangement is such that a very large capacity for doing work is concentrated in a very small space. Although but recently introduced a large number are at work, and giving, we are led to understand, a very fair amount of satisfaction. The apparatus is certainly well adapted for a variety of purposes in practical farming, and we are glad to see so well known a firm as that of the Messrs. Garrett taking it up and introducing it into agricultural circles.

Next to the stand of Messrs. Garrett is that of Picksley, Sims & Co. (Limited), of Leigh, who exhibit a large collection of their well known straw cutters, root pulper, horse gears, &c. Next to this stand is that of Smith, of Peasinghall, who exhibit examples of their corn drills, for which they have so high a reputation. Next to this stand Messrs. Ruston & Proctor, of Lincoln, exhibit two portable steam-engines and threshing machines. On the side of the alley opposite to these three last-named stands, Messrs. J. B. Brown & Co., of London; Messrs. Barnard & Bishop, Messrs. Shanks, of Arbroath; and Mr. Boyd, exhibit a number of lawn mowing machines; Messrs. J. B. Brown & Co. exhibiting also specimens of wire-netting, &c. On the opposit ‹side of the alley, and next to the Messrs. Ruston and Proctor's exhibits, is the very attractive stand of the Messrs. Musgrove, of Belfast, who exhibit examples of their now well-known stable and stock house fittings, which are distinguished alike by elegance in design, goodness and soundness in construction, and novelty in arrangement. We commend nearly every item in this stand to the careful consideration of the visitor.

I tis at this point that the English Department ends an those of other countries begin, as the American, Russian, Swedish, and French. The exhibits in these departments will not be detailed by us in the close fashion we have adopted in noticing the English Department, but we shall simply content ourselves by giving a general notice of what is to be met with in their several *locales*, picking out here and there only, for detailed description, such forms of apparatus or arrangements of mechanism as are likely to be of special interest to our readers.

Between the termination of the English and the commencement of the American department there are a number of cases and models of apparatus, which are worthy of being examined by the intelligent and inquiring visitor. First may be noticed, as they are the first to be met with upon leaving the English Department, a series of cases containing specimens of the products of the Presidency of Madras; these contain specimens of timber, of cereals, of plants, &c.; collections of seeds of nearly every form of edible met with in the Presidency; of tea, coffee, sugar, pickles, jellies, fishes, &c.; specimens of industrial plants, as silk, flax, cotton, tobacco, &c. The whole is a very comprehensive and exceedingly suggestive collection of the natural products of this rich land, and give the visitor an admirable idea of the fertility of its soil and climate. Near the cases containing this collection Shand and Mason, of London, exhibit one of their powerful steam fire engines: and further on the Special Commissioners for Irish Fisheries exhibit a series of neatly made working models of the arrangements adopted in connection with the salmon fishery. Close by these models is the entrance to the American Department, the contents of which, or at least those more especially interesting to our readers, will be described in our next paper.

TURNIPS: FLAX: MANURE.

[At a recent meeting of the Ballymahon Farmers' Club, the Hon. L. H. King Harman read a paper on these subjects, from which we extract the following passages:—]

1. *Turnips.*—The land being prepared in the proper season, which was very difficult this year in consequence of the heavy rains, the drills may be raised 27 inches from centre to centre. The practice that is generally followed in this country I have often considered most injurious, of opening all the drills in a large field, and exposing them in very dry weather to the dry winds and hot sun, until the moisture is almost gone out of the land. I much prefer to open as many drills in the morning as could conveniently be manured, covered in, and sowed the same evening; the evening being the best time to sow them. By this method, in dry weather there is more moisture retained in both the land and manure, which is necessary for the speedy germination of the crop. I may say, in passing, that it much facilitates the work when the farm-yard manure has been carted to the field and properly mixed. From 6 to 8 [3 to 4] pounds of good seed is sufficient for an acre. I have known some farmers to sow a portion of land broadcast with Turnip seed, and have no further trouble until they would cut them down like Rape, thresh them, and sell to the seed merchant at a low rate. Such seed could never produce good bulbs. If the rearing of Turnip seed in Ireland is tried, the best bulbs of the Turnip, after harvest, should be selected and transplanted deeply in a good soil; the following May or June there will be a good flower, and the seed will be ripe at or about harvest. If farmers would turn their attention to the production of proper seed they would not only find it profitable, but would as much improve the seed of the Turnip as the best breeders of sheep and cattle have improved their stock. And if year after year the best bulbs were selected and attention paid to them, it is not known how much our Turnip crop might even yet be improved. Thick sowing has been found to be much more advantageous than otherwise, as the crop grows more quickly, and consequently is not in such danger of the ravages of the fly. Some, too, have sown with the Swedes white Globe, as the latter grows more quickly than the former, and, therefore, affords food for the fly until the Swede gets into rough leaf. After the Turnip has got into rough leaf the danger of the fly is over, and if they have been thickly sown, boys and girls should be employed to go over each drill, and thin out a portion of the small ones with the hand. This will prevent them from spindling, and give them more strength for the proper spacing out to a regular distance with the hoes. This hoeing is light work for young people who require a little training, and in this process the strong and healthful plants should be left to grow at distances apart of 10 and 13 inches, according to the state of the crop. From 7 to 10 boys or girls per day should hoe an acre. A few days after the hoeing, the weather being moist, weeds and superfluous plants will make their appearance in growth between the rows; the drill-harrow or scuffle should therefore be put to work, and if the weather continue moist, it may be necessary to repeat this operation every 10 or 12 days until the second or last hoeing, which can be performed very expeditiously, little hindrance being given to the hoers from weeds. After the second or last hoeing, I have found it beneficial to the crop to run the drill harrow or grubber again once or twice through the rows, in order to destroy any weeds, and keep the soil loose around the bulbs, so that they may have liberty for extension, and lose no nutriment from the presence of their robber neighbours—the weeds. In this state the crop may be safely left until their growth is complete.

2. *Flax.*—On this I cannot speak from long experience, this being the fourth year I have sown it to any extent, varying from 3 to 5 acres each year. I am convinced that in a locality where hands can be easily procured, a command of soft water for steeping, good machinery at a convenient distance to prepare it for market, and prices as they have been for the last 3 years, it is the best paying crop I know. I will simply give my little experience, and as an old man once said, who, when lecturing on the world, was asked why he chose such a comprehensive subject, replied by saying, "that when persecuted from one subject, I may fly to another." Thus I will give the little experience I have, and like this old gentleman, when persecuted from Flax, I will fly to manure. The first year I cultivated the crop I sowed 3 acres with 3 barrels of

extra picked Riga seed; the land was in Oats the year previous, and, by adhering closely to the directions given in the pamphlets, I received 100*l.* in the gross, besides a considerable value from the bolls which I saved. The Flax that year was a more abundant crop than any year since, although the prices were not so high. By chance I had the advantage of an Ulsterman, experienced in the cultivation of the crop; and not until then did I know the value of having a good steep. After spending an hour with him examining the bottom of the open drains on the lower part of my farm, to find a good, clay soil, we got one, but in following its course a few yards we found marl. He said, further than this you cannot go preparing your steep. The part that contained the clay bottom being so small, and considerable difficulty in running soft water into it, he advised me to abandon it; but before leaving it, he said by way of experiment I might prepare all the clay bottom part, and also a portion of the marl, and he would guarantee that the Flax taken from the clay bottom would give 1*s.* 6*d.* per stone more than that steeped in the marl. In my land there is no running stream, and I have spent a good deal of time and money in trying to obtain a proper steep, which, I am sorry to say, I have not yet found, as I cannot find the water; and although I have a lake on the mearing, yet the land near it being both spongy and full of marl, I cannot avail myself of the advantage of the water by making a steep and running the water into it. I find no way so profitable as being early in the preparation of land for Flax, so that we can sow by the 1st of April. If sown by the first or middle of May, the crop may sometimes look as well when growing, yet it will not give the return at the mill equal to that sown early. We are also too late with the different processes it has to undergo, interfering with the harvesting of other crops, and bringing us into the cold, long nights, which, acting on the water, injures very much the steeping. In travelling through a portion of America, some two years ago, I saw some fields of Grass covered with the Flax, and in one field people in the act of turning it. In passing through a village in the State of Iowa I saw a scutch mill at work; I handled a few sheaves, and found them short and ill prepared. In no case did I find it so fine and long as in this country. This inconvenience arises, not so much from the want of knowing how to manipulate it as from the hot climate, which brings it too soon to perfection. In this country we have a humid climate admirably adapted to the production of the crop, and if we had the skill and industry of a Belgian farmer, the taste of a Frenchman, and the hands of an Englishman we would get for our Flax, not 100*l.* a ton for our very best crop, but even 200*l.* Therefore would I say on this, as on every other subject, but especially on this one: in all thy getting, get and apply knowledge. It has been objected to the growth of Flax that it is a scourging crop. In answer I have to say that I have looked at a field in my own neighbourhood which was poor, bare fallow; it produced a crop of Flax which gave a gross return, estimating the bolls saved at 5*l.* per acre, of 40 lb.; the next year, two crops of meadow, a good crop of Oats last year, and this season another crop of Oats, with a fine appearance, all without manure. Whilst I have looked at this field I must, however, say that it is wise to follow in rotation of crops, the Flax with green crops, as the land is in a good state for such; and it is advised, in order to make the crop beneficial to the grower and unexhaustive to the soil, not to grow in the same land oftener than every 6 or 7 years, and by following with manure, the quality which the Flax extracted from the soil is restored to it again. Moreover, it is objected that it leaves nothing behind to make manure. I am persuaded if farmers could utilise the Flax water for manure that it would be equal to that obtained from an equal breadth of Oats; but we are not yet so far advanced in our practical acquirements. I must now follow the plan of the old gentleman who took the whole world for his subject, and being persecuted from Flax I must fly to manure, and if it be a scourging crop, the sooner I am at the preparation of manure for it the better.

3. *Manure.*—Some farmers know pretty well how manure should be prepared, and in poor clay soils, where there is much tillage, this forms a particular point of the farmer's study. We have heard the proverb, that it is by the head that the cows give the milk; so the farmers in Scotland say that it is by the manure the land gives the crop. On the well regulated farm the plough will be in the field intended for green crops immediately after the harvest. The scourings of drains, raised earth from old ditches, or bog-stuff should form the base on which to lay the manure on a convenient part of the field for carting. The bottom might be from 5 to 8 inches deep, if good material can be had, varying in extent according to the quantity of farm-yard manure to be placed on it. As the year advances the manure will be increasing from the cattle in the yard; opportunities of carting to the field should then be embraced. If the roads be good, wet weather, although unsuitable for ploughing, may be taken advantage of for this purpose; but frosty weather is by far the best. The dung should be laid in layers of 12 or 14 inches; and as every layer is finished it should be covered over with earth or bog mould. The manure heap should be constructed on an inclined plane on either side, so that the horses could draw up on the one side and go down on the other, to keep the manure solid, and prevent undue fermentation. All the manure that can be collected should be placed in layers on dung-hills of this description, and well covered over with earth or bog mould, to prevent the ammonia escaping into the atmosphere. Within 10 or 12 days of applying it to the land the manure should be turned, well mixed, and broken, when a little fermentation will set in, which is considered by many well skilled in the preparation of manure an improvement. I am convinced that bog stuff is too much used in an injudicious way as manure. To draw it out of the bog and spread it on the land is only to encourage the growth of weeds; but if properly used, it becomes a valuable ingredient to the manure heap. To draw it in summer where straw is scarce, and spread it under cattle and under horses for litter; to fill or cover the yard where milch cows are passing or young stock lying, to receive the urine and the droppings, is wise and judicious, and so used it becomes very valuable manure. It is a pity to see so much valuable urine lost or carried away to the rivers, which, by chemical analysis, is found to contain so much of the fertilizing qualities necessary for the production of the crop. Manure tanks are valuable acquisitions to farm-yards, but where such cannot be constructed by the farmer, large barrels should be sunk into the earth, and the urine of cattle in the cow-house or shed should run into it by a channel formed behind them. In this way this valuable material could be saved to the farmer without much expense or trouble; and if a vessel or barrel were sunk into the earth, and a channel formed round the farmyard dung-hill, so as to run all the sippings of the yard into it, and when full to take a scoop and pour it upon the dung-heap, the manure would become exceedingly improved. I am persuaded that we as farmers are almost all too negligent in not looking narrowly after the urine of our cattle. It is our most valuable manure, and in 99 cases out of 100 it is lost. If it were carefully collected and applied either to the manure or to the land, the benefit accruing to the farmer would be immense, and I hope that my attention shall be more turned to it in future for my own benefit. In this country, however, where there is so little tillage, where there is comparatively little house feeding, and where many cattle are never housed from calves until fat, there must, even although great caution and knowledge in the preparation of manure be used, be still a large deficiency for tillage purposes, as well as top-dressing. It is necessary to supply the deficiency with the different artificial manures which are now found to suit Turnips, Grass, Oats, Potatos, and, indeed, every crop so well. The phospho guano is very good for almost every purpose, and I have found the superphosphate most excellent for all purposes. If a half of good manure, or even a third part with a sufficient quantity of superphosphate, a good crop of Potatos or Turnips can be raised. I raised upon a high hill last year a good crop of Turnips on superphosphate alone, and this year it presents the best appearance of Oats on my land. Yard and artificial manures should be applied largely to the broken-up soils; for, as crops exhaust, there must be a restoration to the soil of what is taken from it. Wherever I find bad crops I find there is little or no attention paid to the preparation of manure. Let every farmer throw his heart and soul into the work of preparing manure, saving all the urine of the cattle, and using more largely artificial, and it will be found that the crops will be improved tenfold. In farm-yards, proper attention should be paid to the dung-steading; it should be formed in such a way that none of the yard sippings could get away, and that all the washings of the rain should not escape, but be applied to it after being caught in some barrel or large vessel sunk in the ground, no tank being available, so that the land may receive what the rivers are now carrying into the sea. It is lamentable to know that our rivers are carrying away millions worth of money, and that a source of wealth is not saved to the nation. It is by the preparation and application of manure that good Turnips and Flax can and will be produced; and just in proportion as it is largely applied, so will the farmer be enriched. We have invariably found poor farmers to have poor, exhausted soil. They begin to worry the land and put nothing on it, and, as they say, to save the pocket by sparing artificial manure. Another good manure is ashes, where either the bog or clay land can be burnt without injury to the field; but in many cases the land becomes much deteriorated by the injudicious burning of land for ashes. In land, however, where the material can be had without injury, they form a very valuable ingredient to the stock of manures. My paper is already too long. Permit me, however, to say, if you want 60 tons of Turnips to the acre, prepare manure and apply it; if you want abundant crops of Flax, prepare manure and apply it; if you want large Potatos, manure; if you want plenty of Oats, good horses, well-fed cattle, manure; in a word, if you want plenty of money, and even manure itself, I would say manure; and in order to do so, you must prepare it.

ANNUAL MEETING
OF
THE ROYAL AGRICULTURAL SOCIETY AT BURY ST. EDMUND'S.

THERE has never been a meeting where better things have been shown, or a higher standard of quality been maintained throughout whole classes. This is true both of the implement yard and the live-stock yard. The weather has not been altogether propitious; and Monday, when the Viceroy of Egypt visited the yard, and when the judges were engaged during the greater part of the day, was exceedingly wet and stormy. Since then, however, we have had sufficient wind and sunshine to dry up occasional showers of rain. The yard has been nearly as well filled as it was at Plymouth. The Society has ample reason to be gratified with its excursion, and ample reason to be proud of its display. The town of Bury has perhaps been somewhat disappointed of the crowds of visitors who had been expected, and certainly having beautified and prepared itself for the occasion in a manner never equalled by any of the places where the Society has yet gone, it deserved a larger body of spectators than it has received. We are, however, writing midway of the week, before the crowds which shilling days command have appeared, and perhaps amends may yet be made.

The show-yard was opened on Monday, and a considerable number witnessed the award of prizes under very disadvantageous circumstances. The Viceroy drove round the shedding in a closed carriage.

THE HORSES.

The Suffolk breed of horses has never appeared to greater advantage, and this, indeed, was to have been expected in its own county; many other classes are, however, also unusually good, and as a whole the 260 horses here exhibited are a better show than any previously held by the Society. Twice a day the various classes have been marshalled round the ring, the morning being devoted to the various agricultural classes, and the afternoon to the thorough-breds and hunters, hackneys, roadsters, carriage horses, and ponies. The following short report attempts to describe what we saw on these occasions.

The first classes entering are Suffolk stallions.

Class 10. *Three-year-old Stallions*—five very handsome horses; the 1st prize going to a dark chestnut, with a wonderful crest, "Conqueror," exhibited by Mr. C. Boby, of Stutton; and the 2d to a bright, almost red chestnut, shown by Mr. Crisp, of Butley Abbey, a very good specimen of the breed.

Class 11. *The younger Stallions* are a remarkably even and admirable lot. Mr. Wilson, of Baylham Hall, Ipswich, takes the 1st prize with a handsome red chestnut horse, "President," and Mr. Crisp takes the 2d; several of the horses are highly commended, and the whole class commended. Mr. Grout's "Young Marquis" and Mr. M. Biddell's young stallion are both deservedly marked out by a high commendation. Mr. Fishers' "Young Captain" has rare hindquarters. Sir W. Throckmorton's "Young Briton" deserves special notice. Mr. Ward's and Mr. Badham's horses are not made up for the show like some of the others.

Then come "Stallions not qualified to compete as Suffolks"—*Classes* 15 *and* 16—the older and younger horses. The old class are six in number. Mr. Coy, of Downham, who takes the 1st prize in the ring, is a round horse in a round place; General Hood's Clydesdale, with squarer quarters, appears to us the better of the two. There is more variety here than in the Suffolks, both in size and colour. The younger stallions are 15 in number, and here Mr. Welcher takes the 1st prize with a white-faced long-bodied horse; Mr. Battcock's "Drayman 2d" is 2d. Mr. H. Overman, of Weasenham, General Hood, and Mr. Warth, of Sutton, show good bay horses, with head and crest erect—the first of the three in particular being a grand-looking fellow. The 3d prize goes to Mr. Tingey, of Attleborough, for a chestnut. The classes of 3-year-old and yearling entire Suffolk colts, brought out to compete for the Local Committee prizes, next enter the ring, and very capital classes they are. Mr. Crisp is 1st, and Mr. Biddell 2d in a small class of the older stallions; both of Mr. Crisp's entries are admirable. The splendid lot of yearlings come last, and here Mr. Wolton, of Woodbridge, takes the 1st prize with a first-rate specimen, good both in shoulders and quarters; and Mr. Tomline, M.P., is 2d with a capital colt. Mr. Patmore's colt is very handsome.

Then come mares and foals.

Class 12, *Suffolk Mares*—a lot of beauties—Mr. Sewell's as good as any one could desire to see, and yet receiving no prize, Mr. Wolton taking 1st and 2d prize with a most admirable pair, and Mr. Tomline 3d in a capital class.

There are only two mares shown in *Class* 17. Mr. Holland's "Matchless," a grand old mare, whose victories have been often recorded, is placed 1st by the judges; but we believe she is at length disqualified by some fault discovered by the veterinary referee,* after a long career of uninterrupted success. In *Classes* 13 *and* 14 we have the younger mares and fillies of the Suffolk breed, and a very beautiful show they make. Sir E. Kerrison takes the 1st prize, and Mr. King, with a somewhat short and stocky mare, takes the 2d. The older class is, though small, very fine. 1st, 2d, and 3d prizes are awarded in a small class of fillies: Mr. Wilson, of Baylham Hall; Sir W. Throckmorton, and Mr. Wolton, of Kesgrove, being placed in this order. The fillies not qualified to compete as Suffolks do not make so good a show; Mr. Warth, of Sutton, Ely, is 1st with a long dark bay, which does not partake of the quality indicated by the name of her dam, "Brisk," for she needed the whip to keep her trotting; and Mr. Fyson, of Bury, is 2d. We missed Mr. Atkins' mare, shown at Brighton. The small class of 1-year-old Suffolk fillies are among the prettiest bits of the horse show, and a wonderfully fine pair, shown by Mr. Rist, take 1st and 2d prizes. Then come Sir E. Kerrison's splendid pair of Suffolk mares, Mr. Thompson's alone competing with them, and coming off second best. A magnificent class of mares not having foaled in '67 follow, and here Mr. Keer, of Raydon, is 1st, and Sir E. Kerrison 2d.

The *Thoroughbreds* and *Hunters*, *Hackneys*, and *Ponies* form the afternoon display, and in many of the classes we see the old friends met with at many previous exhibitions. Among thoroughbred stallions Captain Barlow's "False Alarm," a chestnut, with rare shoulders, and other good points (white face and feet), takes 1st prize; Mr. Donald, of East Acton, takes the 2d with Mr. Merry's "Scottish Chief," a fine golden bay; and the Rev. W. King's "Ratcatcher" holds the reserve number. In hunter stallions (with not less than four thoroughbred crosses) no prize was given in a class of seven—"no merit" is the alleged reason: we presume that they are disqualified by inability to prove the requisite number of thoroughbred crosses.

Class 4, *Hackney Stallions*, include a large number. Mr. Beart's red roan, with lots of substance and power, is 1st; Mr. Grout's dark brown goodlooking 5-year-old, 2d; and Mr. Reed's white-footed beautiful chestnut is 3d. There are no fewer than 17 entries—a very good class.

* The disqualification has, we understand, been since overruled.

Then come mares in foal, or with foal at foot, suitable for breeding hunters and hackneys—respectively *Classes* 3 *and* 5, the one with 18 and the other with 7 entries. Captain Barlow's brown mare "Silverlock" takes the 1st prize in the former class, and Mr. Hurrell's (Harston) dark brown, with splendid shoulders and fore-arm, is 2d. The smaller class include Mr. Overman's pretty little "Jenny Lind," which takes the 1st prize (chestnut), and Mr. Biddell's dark brown "Bury Belle," 2d; with four or five others —a very pretty class.

Large classes of "weight-carrying mares or geldings, aged four and three years old respectively," follow—the two former containing a number of meritorious animals, the last, in the opinion of the judges, none. Mr. Gee's "Master of Arts," an old winner, is a winner here in the aged class—a bright chestnut, of great power and beauty; Mr. Sutton's "Voyageur," another great prize-taker, 2d. Mr. Heygate's "Mountain Dew," well-known at previous shows, is 3d. In the younger class, Mr. Gee is again 1st, with "Tom," a black-brown gelding, placed 1st in this class at Brighton; Mr. Heygate's "Denmark" is 2d, and Mr. Branwhite's "Confidence," 3d. It is a very good class.

We now come to roadsters; and Mr. Badham's beautiful white grey, 11-year-old gelding, is 1st. Mr. Harvey's long, low "Favourite" is a good 2d, and Mr. Grout's "Black Bess" 3d, in a very good class. There are small classes of carriage horses, and a few good ponies, both the prizes in the smaller class going to Mr. Milward.

The following is the prize list:—

JUDGES: Thoroughbreds and Hunters.—Henry Thurnall, William Smith, S. Oldacre. Hackneys, Roadsters, Carriage Horses, and Ponies.—C. M. Nainby, Henry Beevor, Hon. G. Lascelles. Agricultural Horses.—John Wood, David Wright, Henry Crosse.

CLASS 1. For the Thoroughbred Stud Horse, having served mares during the season 1867, which, in the opinion of the Judges, is best calculated to improve and perpetuate the breed of the sound and stout thoroughbred horse for general stud purposes, 100*l*., 50*l*.—1st, Captain F. Barlow, of Hasketon, Woodbridge (False Alarm), chestnut, 5 years old, bred by Lord Spencer, Althorpe, Northamptonshire; 2d, William Donald, of Stud Farm, East Acton, Middlesex (Scottish Chief), golden bay, 6 years old, bred by James Merry, Esq., M.P., 69, Eaton Square, London. Reserve number: the Rev. John William King, of Ashby-de-la-Launde, Sleaford, Lincolnshire (Ratcatcher), bay, 7 years old, bred by exhibitor.

HUNTERS.

CLASS 2. Stallion, with not less than four thoroughbred crosses, suitable for getting hunters, whose regular charge for serving half-bred mares during the season 1867 has not exceeded 5 guineas, 50*l*., 25*l*., 10*l*.—No merit.

CLASS 3. Mare, in foal, or with foal at foot, suitable for breeding hunters, 30*l*., 20*l*., 10*l*.—1st, Captain F. Barlow, of Hasketon (Silverlock), brown, 15 years old, bred by exhibitor; 2d, Henry Hurrell, of Harston, Cambridge, dark brown, 16 years old, bred by the Exhibitor; 3d, William Harvey, of Timworth, Bury St. Edmund's, dark brown, 13 years old, bred by the late Richard Gurney, Norwich. Reserve number: John Woodbridge, of Woodbridge, Suffolk.

HACKNEY.

CLASS 4. Stallion, not less than 14 hands 3 inches, nor exceeding 15 hands 2 inches, suitable for getting Hackneys.—40*l*., 20*l*., 10*l*.—1st, Charles Beart, of Stow Bardolph, Downham Market, Norfolk (Ambition), red roan, 4 years old; 2d, John Grout, of Woodbridge, Suffolk, chestnut, 5 years old, bred by David Ground, Esq., Whittlesea, Cambridgeshire; 3d, Thomas Lancelot Reed, of Downham Market, Norfolk (Trotaway), chestnut, 8 years old, bred by Robert Case. Commended: Elias Jolley, of Banham, Attleborough, Norfolk (Rapid Roan), bay roan, 6 years old, bred by the Earl of Albemarle, Quidenham Hall, Attleborough; John Grout, of Woodbridge, Suffolk.

CLASS 5. Mare, not less than 14 hands 2 inches, nor exceeding 15 hands 1 inch, in foal, or with foal at foot, suitable for breeding hackneys, 30*l*., 20*l*.—1st, Henry Overman, of Weasenham, Brandon, Norfolk (Jenny Lind), chestnut, aged, breeder unknown; 2d, Herman Biddell, of Playford, Ipswich, Suffolk (Bury Belle), brown, 5 years old, bred by exhibitor.

CLASS 6. Stallion, above 13 hands 2 inches and under 14 hands 3 inches, 20*l*., 15*l*.—1st, John M. Thorp, of Chippenham, Soham, Cambs.; 2d, David Lister, Westwood, Ilkley, Leeds.

PONIES.

CLASS 7. Mare, above 13 hands 2 inches and under 14 hands 2 inches, 15*l*., 10*l*., 5*l*.—1st, Jonathan Reed Cooper, of Manor House, Barton, Bury St. Edmund's (Countess), chestnut, 4 years old; 2d, George Cardinall, of Sudbury, Suffolk (Bertha), bay, 6 years old; 3d, Thomas Fulcher, of Elmham, Thetford, Norfolk (Jessie), bay, 6 years old.

CLASS 8. Stallion, under 13 hands 2 inches, 15*l*.—1st, Edmund Farrer, of Sporle, Swaffham.

CLASS 9. Mare under 13 hands 2 inches, 15*l*., 10*l*., 5*l*.—1st, Thomas Wallis, of Witchford, Ely, Cambridge, dark chestnut, 4 years old; 2d, Captain F. Barlow, of Hasketon, Woodbridge, Suffolk (Piccadilly), black, 7 years old; 3d, Frederick Branwhite, of Chapel House, Long Melford, Sudbury, Suffolk, bay, 5 years old. Reserve number and Commended: Charles Groucock, of Plumpstead Hall, Norwich (Puss), dun, 9 years old.

AGRICULTURAL HORSES.

SUFFOLK.

CLASS 10. Stallion, foaled before the 1st of January, 1865, 25*l*., 15. — 1st, Charles Boby, of Alton Hall, Stutton, Ipswich, Suffolk (Conqueror), chestnut, 8 years old, bred by exhibitor; 2d, Thomas Crisp, of Butley Abbey, Wickham Market, Suffolk (Duke), chestnut, 5 years old, bred by Mr. Bromley, Wickhambrook, Newmarket. Commended: H. E. Surtees, M.P., of Dane End, Ware.

CLASS 11. Stallion, foaled in the year 1865, 20*l*., 10*l*., 5*l*.—1st, William Wilson, of Baylham Hall, Ipswich, Suffolk (President), red chestnut, 2 years old, bred by Mr. J. A. Piggott, Buckingham Hall, Witham, Essex; 2d, Thomas Crisp, of Butley Abbey, chestnut, 2 years old, bred by exhibitor; 3d, the Executors of the late Samuel Clayden, of Little Linton, Cambridgeshire, chestnut, 2 years old, bred by the late S. Clayden. Highly Commended: John Grout, of Woodbridge, and Manfred Biddell, of Playford, Ipswich.

CLASS 12. Mare and Foal, 20*l*., 10*l*., 5*l*.—1st, Samuel Wolton, Newbourn Hall, Woodbridge, Suffolk (Moggy), chestnut, 12 years old, bred by exhibitor; 2d, Samuel Wolton, of Kesgrave, Woodbridge, Suffolk (Violet), chestnut, 5 years old, bred by exhibitor; 3d, George Tomline, M.P., of Nacton, Ipswich, Suffolk (Darby), chestnut, 7 years old, bred by Captain Barthropp, Hacheston, Wickham Market.

CLASS 13. Mare, 3 years old, 15*l*., 10*l*.—1st, Sir Edward Kerrison, Bart., of Brome Hall, Scole, Suffolk, chestnut, bred by Mr. Cross, Holbrook, Ipswich; 2d, Thomas King, of Preston, Bildeston, Suffolk (Matchett), chestnut, bred by Mr. John Nunn, Fornham All Saints, Bury St. Edmund's.

CLASS 14. Filly, 2 years old, 15*l*., 10*l*., 5*l*.—1st, Thomas Cross, of Holbrook, Ipswich; 2d, William Wilson, of Baylham Hall, Ipswich, Suffolk (Scott), chestnut, bred by Mr. Freeman: 3d, Samuel Wolton, Kesgrave (Empress), chestnut, bred by exhibitor.

AGRICULTURAL

(Not qualified to compete as Suffolk).

CLASS 15. Stallion, foaled before the 1st of January, 1865, 25*l*., 15*l*.—1st, George Coy, of Downham, Ely, Cambridgeshire (Matchless), dark bay, 4 years old, bred by S. Coy, Downham; 2d, Major-General the Hon. A. N. Hood, of Cumberland Lodge, Windsor, Berks (The Don), brown, 3 years old (Clydesdale), bred by W. Taylor, Mains of Towie, Aberdeen. Commended: Henry Overman, of Weasenham.

CLASS 16.—Stallion, foaled in the year 1865, 20*l*., 10*l*., 5*l*.—1st, William Welcher, of Upwell, Cambridgeshire (Honest Tom), 2 years old, bay, bred by exhibitor; 2d, Frank Battcock, of Hemingford Abbots, St. Ives, Hunts, (Drayman 2d), brown, 2 years old, bred by R. Bennett, Holywell, St. Ives; 3d, John Tingey, of Ellingham, Attleborough, Norfolk (Young Glory), chestnut, bred by exhibitor. Reserve number and Highly Commended: John Warth, of Sutton, Ely.

CLASS 17. Mare and Foal.—Disqualified.

CLASS 18. Mare, 3 years old.—No competition.

CLASS 19. Filly, 2 years old, 15*l*. 10*l*.—1st, John Warth, of Sutton, Ely, Cambridgeshire (Beauty), dark bay, bred by exhibitor; 2d, Edward Fyson, of Higham Green, Bury St. Edmund's, bay, bred by exhibitor. Reserve number: Henry Fyson.

[The local prize list is given on next page.]

SHEEP.

The *Leicester Breed* is well represented in large and full classes of shearling and older rams, and a small but beautiful class of shearling ewes. The younger sheep are shown by Mr. Turner, Jun., Mr. G. H. Sanday, Messrs. Borton, Creswell, Gould, and Riley, and Lieut.-Col. Inge. Mr. Creswell's long, straight and wide sheep takes the 1st prize, showing rather more wool and a whiter face than Mr. Sanday's bluer faced and perhaps higher bred stock. The 2d prize is taken by Mr. Borton with a sheep of remarkably even character, and the 3d goes to a rather leggy sheep of Mr. Creswell's. One of Mr. Turner's rams takes a commendation and the reserved number, and a high commendation is put upon a sheep of Mr. Gould's. The older sheep are an even finer class, including Mr. Turner's 1st prize ram, excessively fat and of enormous width, and Mr. Borton's 2d and 3d prize takers, thick and wide from neck to rump. The 4th or reserved number goes to Mr. R. W. Creswell. Mr. Sanday shows some very large and well bred sheep in this class, perhaps not of such even character as some of the others; No. 293 in particular, of enormous width over back and forequarter, tapers too much behind. Colonel Inge exhibits a number of good sheep in this class. There are four beautiful pens of five shearling ewes—looking perhaps older and riper than the same class does in any other breed—and there is certainly a wonderful show of shearling ewes in all the breeds.

The *Cotswolds* are represented rather by Norfolk men than by men of their own county. No breed strikes the spectator as grander or more beautiful. Their white curling wool and their great size and perfect symmetry are together a more attractive combination of qualities than any other breed exhibits. And the smaller Leicester, the trim and beautiful Southdown, the altogether inferior-looking Lincolns—which require that you lift or part the wool before you can appreciate its lustrous character,—the stocky profitable-looking Oxfordshire, the hardy Shropshire, the useful Hampshire, must all give way in the judgment of a mere spectator to the grand and handsome Cotswolds. Their home breeders, however, very rarely show them, and you need to attend the ram sales of Gloucestershire and Oxfordshire in order to get a full impression of their character. Mr. Beale Browne, who is an exception to the general rule of the Cotswold breeders, has a number of shearling rams, and two older sheep, and one pen of ewes. The 1st prizes, however, all go to Mr. Brown, of Downham Market, Norfolk, who also takes the 2d prize in both the ram classes. Mr. Hugh Aylmer, another Norfolk exhibitor, is 3d in both the classes of rams, and 2d and 3d in the shearling ewes. Mr. Gillett, of Charlbury, takes the high commendation belonging to the reserved number in the younger sheep and the ewes. Notwithstanding that the Cotswold district is so imperfectly represented, the Cotswold breed as shown at Bury is admirable. The older class of rams is full of extraordinary sheep, and the shearling ewes are wonderfully fine.

The *Lincolnshire* and other long-woolled breeds are fairly represented. Mr. Aylmer takes prizes with sheep which are, we presume, a cross of Lincoln ram on Cotswold ewes, with a better carcase than the pure-bred Lincoln, but with hardly the same character or quality of wool. Mr. Marshall, of Branston, Mr Wright, of Nocton, Mr. Casswell, of Laughton, and Mr. Williams, of Newark, show good and pure-bred Lincolns, and receive several prizes. The wool, crisp and curly, shows, when parted, wonderfully bright and lustrous above the pink flesh, which it covers much less thickly than is seen in the shorter woolled sorts. Among the pens of shearling ewes, Mr. Aylmer's pen is disqualified for imperfect shearing. This class is here not so ripe and perfectly made up as it is in most other breeds.

The *Oxfordshire Downs* are present in small but very good classes. Mr. Wallis and Mr. C. Howard are 1st and 2d in young sheep, and the former gentleman is 1st and 2d in the older class, where Mr. Howard's sheep, their only competitor, is perhaps somewhat coarser and more approaching the Hampshire type. In the class of shearling ewes, however, he makes ample amends, the 1st and 2d prizes going to sheep which are as good a specimen of a most useful breed as were ever seen, and quite one of the features of the whole sheep show. Perhaps they owe somewhat to the contrast which neighbouring pens of an altogether different stamp and style afford; Mr. Raynbird's ewes, neither in ripeness, colour, thickness, nor quality approaching them. A very good pen is shown here by Mr. H. Overman, of Weasenham.

We now come to the *Southdown* classes. This beautiful breed is as fully represented as any other. Lord Walsingham takes 1st and 3d prizes in the shearling ram classes; Sir R. Throckmorton is 2d, and Lord Sondes takes the 4th place, receiving the reserved number. Mr. Rigden's admirable sheep—1st and 2d at Brighton—receive no notice. The Duke of Richmond's, Lord Braybrooke's, Mr. Waters', and others pass without commendation. The Merton sheep are certainly wonderfully well made up for show, and building all their mutton and their wool upon frames of admirable symmetry, they certainly show to great advantage. Among the older rams his lordship stands again 1st with a sheep of rare quality, long, and true, and good everywhere, particularly thick and long, and deep in the hindquarter. A rather small and pointed head is the only defect, if it be one. Sir W. Throckmorton, of Buckland, who is rapidly acquiring reputation as a Southdown breeder, is 2d and 3d. The pens of five shearling ewes of this breed form one of the finest classes in the yard, and here Sir W. Throckmorton is 1st with extraordinary sheep for their age—long, and true, and heavy, and as ripe as Leicesters.

The *Shropshire* classes are wonderfully good. Mr. Evans, of Uffington, takes the 1st and 2d prizes in a class of no fewer than 40 shearling rams; and Mr. Mansel, of Adcot Hall, is 3d. As a whole, the class gives less the impression of maturity than the same class in the other breeds. You see a lot of profitable-looking growing young sheep. The shearing is not so close in this class as in the other, and several pens are properly disqualified on this account. Messrs. Pryce Bowen, Crane, Smith of Shiffnall, Horton, Matthews, and other well-known breeders, are exhibitors. The older sheep are even a finer class. Mr. Crane is 1st, Mr. Mansell 2d, and Mr. Evans 3d. There is a first-rate class of shearling ewes, in which Mr. Henry Smith is easily 1st with a pen of remarkable quality, certainly one of the four or five most remarkable things in the yard. Mr. Horton is 2d, with a pen of black-faced heavy ewes, and Mr. H. Matthews 3d, with a pen of more speckled faces than we take it Shropshire ought to have.

The *Hampshires* are shown in four pens in each of the three classes, and very good classes indeed they are, every one of them decorated one way or another, either 1st, 2d, with reserved number, or highly commended. Mr. Rawlence's shearling ewes are here, as they were at Salisbury, one of the most remarkable pens in any of the sheep classes. He takes 1st and 2d prizes. Mr. Canning is highly commended, and Mr. Morrison, M.P., takes the reserved number. The whole class is wonderfully fine.

The *Black-faced Suffolk*, a long-necked hardy-looking sort, adapted for poor soils, which we remember very well depicted in one of Professor Low's series of pictures on the walls of the agricultural class room at Edinburgh, is here exhibited somewhat refined and improved during the 20 generations which have elapsed since those pictures were taken. Mr. Dobito, of Lidgate; Mr. Harvey, of Timworth; and Mr. Green, of Stradishall, take the prizes. Mr. P. H. Frere shows some large sheep of the breed, hardly of the quality of the others.

The following is the prize list:—

JUDGES: Leicester Sheep.—John Buckley, George Mann, Charles Clarke. Cotswolds, Lincolns, and other Long-wool Sheep.—William Bartholomew, R. J. Newton, Edward Little. Oxfordshire and Shropshire Down Sheep.—Charles Hobbs, R. H. Masfen, A. Edmond. Southdown, Hampshire, and Blackfaced Suffolk Sheep.—Francis Budd, H. Fookes, J. H. Turner.

LEICESTERS.

CLASS 20. Shearling Ram, 20*l*., 10*l*., 5*l*.—1st, Robert Ward Creswell, of Ravenstone; 2d, John Borton, of Barton House, Malton, Yorkshire; 3d, Robert Ward Creswell, of Ravenstone. Reserve number and Highly Commended: Joseph Gould, of Poltimore, Exeter, Devon. Commended: George Turner, Jun., of Alexton Hall, Uppingham; John Borton, Barton House; and Lieut.-Col. Wm. Inge, of Thorpe Hall, Tamworth, Staffordshire.

CLASS 21. Ram of any other age, 20*l*., 10*l*., 5*l*.—1st, George Turner, Jun., of Alexton Hall; 2d, John Borton, of Barton House; 3d, John Borton. Reserve number: Robert Ward Creswell.

CLASS 22. Pen of Five Shearling Ewes, of the same flock, 15*l*., 10*l*.—1st, James and Edward Tindall, of Knapton Hall, Killington, Yorkshire; 2d, W. Browne, High Gate, Holme on Spalding Moor. Highly Commended: Joseph Gould, of Paltimore. Commended: George Turner, Jun., of Alexton Hall, Uppingham, Leicestershire.

COTSWOLDS.

CLASS 23. Shearling Rams, 20*l*., 10*l*., 5*l*.—1st and 2d., T. Browne, Marham Hall Farm, Downham Market; 3d, Hugh Aylmer, of West Dereham Abbey, Stoke Ferry, Norfolk. Highly Commended: John Gillett, of Oaklands, Charlbury. Commended: Hugh Aylmer, for 3 sheep.

CLASS 24. Rams of any other age, 20*l*., 10*l*., 5*l*.—1st, Thomas Browne, of Marham Hall Farm: 2d, Thomas Browne; 3d and Highly Commended, Hugh Aylmer, of West Dereham Abbey.

CLASS 25. Pen of Five Shearling Ewes, of the same flock, 15*l*., 10*l*., 5*l*.—1st, Thomas Browne, of Marham Hall Farm; 2d and 3d, Hugh Aylmer, of West Dereham Abbey. Commended: John Gillett, of Oaklands, for 2 sheep.

LINCOLN AND OTHER LONG-WOOLED

(Not qualified to compete as Leicesters or Cotswolds).

CLASS 26. Shearling Ram, 20*l*., 10*l*., 5*l*.—1st, Hugh Aylmer, of West Dereham Abbey; 2d, William Francis Marshall, of Branston (Lincoln); 3d, Robert Wright, of Nocton Heath, Nocton, Lincolnshire (Lincoln). Highly Commended: Robert Wright, of Nocton Heath (Lincoln). Commended: W. F. Marshall, of Branston; John Henry Casswell, of Laughton, Folkingham, Lincolnshire (Lincoln).

CLASS 27. Ram of any other age, 20*l*., 10*l*., 5*l*.—1st, Robert Wright, of Nocton Heath (Lincoln); 2d, Charles Williams, of Carlton-le-Moorland, Newark (Lincoln); 3d, Charles Williams. Reserve number: John William Richardson, of Willoughton, Kirton-in-Lindsey.

CLASS 28. Pen of Five Shearling Ewes, of the same flock, 15*l*., 10*l*.—1st, Clarke Hales, of Manor House, Bassingbourne, Royston (Lincoln); 2d, Charles Lister, of Coleby Heath, Lincoln (Lincoln). Reserve number: Charles Lister.

OXFORDSHIRE DOWNS.

CLASS 29. Shearling Ram, 20*l*., 10*l*., 5*l*.—1st, George Wallis,

of Old Shifford; 2d, Charles Howard, of Biddenham; 3d, John Bryan, of Southleigh. Commended: The Duke of Marlborough.

CLASS 30. Ram of any other age, 20*l*., 10*l*.—1st and 2d, George Wallis, of Old Shifford.

CLASS 31. Pen of Five Shearling Ewes, of the same flock, 15*l*., 10*l*., 5*l*.—1st and 2d, Charles Howard, of Biddenham; 3d, Henry Overman, Weasenham, Brandon, Norfolk.

SOUTHDOWNS.

CLASS 32. Shearling Ram, 20*l*., 10*l*., 5*l*.—1st, Lord Walsingham, of Morton Hall; 2d, Sir William Throckmorton, Bart., of Buckland, Farringdon, Berks; 3d, Lord Walsingham. Highly Commended: Lord Walsingham, and Lord Sondes, of Elsham Hall.

CLASS 33. Ram of any other age, 20*l*., 10*l*., 5*l*.—1st, Lord Walsingham; 2d and 3d, Sir William Throckmorton. Reserve number and Highly Commended: Lord Walsingham. Highly Commended: Lord Braybrooke and Lord Sondes.

CLASS 34. Pen of Five Shearling Ewes, of the same flock. 15*l*., 10*l*., 5*l*.—1st, Sir William Throckmorton, Bart.; 2d and 3d, The Duke of Richmond, K.G., of Goodwood. Reserve number and Highly Commended: Lord Sondes. Commended: Lord Walsingham, and John and Alfred Heasman.

SHROPSHIRES.

CLASS 35. Shearling Ram, 20*l*., 10*l*., 5*l*.—1st and 2d, John Evans, of Uffington; 3d, Thomas Mansel, Adcot Hall. Reserve number and Highly Commended: John Evans. Highly Commended: James and Edward Crane, of Shrawardine; Henry Smith, of Sutton Maddock, Shiffnall. Commended: James and Edward Crane, and Pryce William Bowen, of Shrawardine Castle.

CLASS 36. Ram of any other age, 20*l*., 10*l*., 5*l*.—1st, James and Edward Crane, of Shrawardine; 2d, Thomas Mansel, of Adcot Hall; 3d, John Evans, of Uffington. Reserve number and Highly Commended: George Anderson May, of Elford Park, Tamworth.

CLASS 37. Pen of five Shearling Ewes, of the same flock, 15*l*., 10*l*., 5*l*.—1st, Henry Smith, of Sutton Maddock, Shiffnall; 2d, Thomas Horton, of Harnage Grange; 3d, Henry Matthews, of Montford. Reserve number and Highly Commended: Joseph Beach, of the Hattons, Brewood, Dudley. Commended: Thomas Horton.

HAMPSHIRE AND OTHER SHORT-WOOLLED

(Not qualified to compete as Southdowns or Shropshires).

CLASS 38. Shearling Ram, 20*l*., 10*l*.—1st, James Rawlence, of Bulbridge; 2d, Robert Coles, of Norton Bavant, Warminster. Reserve number and Highly Commended: Alfred Morrison, of Fonthill House, Tisbury. Commended: James Rawlence.

CLASS 39. Ram of any other age. 20*l*., 10*l*.—1st, William Brown Canning, of Elston, Devizes, Wilts; 2d, William Brown Canning. Reserve number and Highly Commended: James Rawlence, of Bulbridge. Commended: James Rawlence.

CLASS 40. Pen of Five Shearling Ewes of the same flock, 15*l*., 10*l*.—1st, James Rawlence, of Bulbridge; 2d, James Rawlence. Reserve number and Specially Commended: Alfred Morrison. Highly Commended: William Brown Canning, of Elston.

PIGS.

The Pig classes were never before equalled. There is not a large show. Many of the classes are rather short; but there is not an animal exhibited which does not deserve a commendation.

Boars of a large white breed include only five entries; but they are a very fine class, and Messrs. Howard's "Hero" is a splendid fellow, of great width, depth, and quality, beating "Cultivator 3d," shown by Mr. Duckering, of Kirton-in-Lindsey, by whom the other also was bred. "Hero" was bought, a sucker, of Mr. Duckering at the Plymouth meeting, and after the Society's two years' vacation it comes to Bury, and beats members of its own family brought there from the old home to compete with it. The larger class of small white boars is a very fine one. There are 16 entries. Messrs. Hatton and Crisp are 1st and 2d. Mr. Sexton, Lord Wenlock, and others run them very hard, and among them is Mr. Eden, a chemical manufacturer, of Salford, who has for the last two or three years turned his attention to pig breeding, and has come to Bury and run off with a number of the prizes. His boar in this class received the reserved number. Boars of a small black breed include 14 entries: Mr. Seaton takes both 1st and 2d prizes, with perfect specimens of the Suffolk breed. The Berkshire boars are fairly represented, and here Mr. Stewart, of Gloucester, is 1st, Mr. Smith, of Henley-in-Arden, 2d, Mr. Sexton, 3d. The Rev. H. G. Baily, of Swindon, shows several of very good quality and constitution,

The Berkshire are by far, to our mind, the best and most useful breeds, looking like the well constitutioned animals they are, and good for either pork or bacon. Boars of a middle class as to size include only two entries, both of them large white; Mr. Eden is 1st and Mr. Duckering 2d.

The Sow classes are remarkably good. In sows of a large white breed we have Mr. Howard again 1st and Mr. Duckering 2d. The reserved number is given to a very handsome sow with eight rare pigs, shown by Mr. Duckering. No fewer than 23 entries appear in breeding sows of a small white breed. Mr. Duckering is 1st, and Mr. Jacob Wilson comes all the way from Northumberland to take the 2d prize, beating men from Lancashire, Yorkshire, and Lincolnshire, and a number out of Suffolk, shown by Sexton, Stearn, and others, which must have started days after him on their journey. There is a capital class of breeding sows of a small black breed, and here Mr. Sexton carries all before him; and indeed he deserves to carry off some of the honours of the meeting, for no man has contributed more largely to the interest of it as an exhibitor of horses, sheep, and pigs. Mr. Crisp takes the reserved number in this very capital class. Berkshire sows are shown by Mr. Stewart, who is 2d and 3d, by Mr. J. K. Tombs, who is 1st, by Mr. Baily, who is excellent; and by Sir W. Throckmorton, whose sow is old and lumpy. Breeding sows of a middle class are shown by Mr. Eden, Mr. Duckering, Mr. Wilson, and others. Mr. Duckering is 1st, Mr. Sagar, of Bradford, 2d, and Mr. Wilson 3d.

We come now to pens of three breeding sows of large and small white and small black and Berkshire and middle breeds. They are small classes, but very good; Mr. Duckering, Mr. Yells, of Highworth, Wilts; the Rev. H. G. Baily, Mr. Sexton, and Mr. Aylmer, take the prizes. The pigs of a small white breed are particularly good. In addition to these, the local committee of Bury have offered prizes for boars and sows of small white and small black breeds respectively. Mr. Sexton and Mr. Eden are 1st and 2d in the former class; and Mr. Sexton and Mr. Stearn 1st and 2d in the latter class. Mr. Sexton's sow and 11 pigs, declared to be of one litter, are an extraordinary pen. The following is the prize list:—

JUDGES: Samuel Druce, J. B. Slater, Thomas Trotter.

CLASS 41. Boar of a large white breed, 10*l*., 5*l*.—1st, J. & F. Howard, of Britannia Farms, Bedford (Hero), bred by Mr. Duckering, Northorpe; 2d, Mr. Duckering. Reserve number: Thomas Crisp, Butley Abbey.

CLASS 42. Boar of a small white breed, 10*l*., 5*l*.—1st, William Hatton, of Addingham, Leeds; 2d, Thos. Crisp, of Butley Abbey, Wickham Market. Reserve number and Commended: Peter Eden, of Cross Lane, Salford.

CLASS 43. Boar of a small black breed, 10*l*., 5*l*.—1st, Geo. Mumford Sexton, of Wherstead Hall, Ipswich; 2d, Geo. Mumford Sexton. Reserve number and Commended: Philip Bennet, of Rougham Hall, Bury St. Edmund's.

CLASS 44. Boar of the Berkshire breed, 10*l*., 5*l*.—1st, Arthur Stewart, of Saint Bridge House, Gloucester; 2d, Joseph Smith, of Henley-in-Arden, Warwickshire. Reserve number and Commended: Geo. Mumford Sexton.

CLASS 45. Boar of a breed not eligible for the preceding classes, 10*l*., 5*l*.—1st, Peter Eden, of Cross Lane, Salford; 2d, R. E. Duckering, of Northorpe.

CLASS 46. Breeding Sow of a large white breed, 10*l*., 5*l*.—1st, James & F. Howard; 2d, Richard E. Duckering, of Northorpe. Reserve number and Commended: Richard E. Duckering.

CLASS 47. Breeding Sow of a small white breed, 10*l*., 5*l*.—1st, Richard Duckering, of Northorpe, Kirton-in-Lindsey, Lincolnshire; 2d, Jacob Wilson, of Woodhorn Manor, Morpeth, Northumberland. Reserve number and Highly Commended: Peter Eden, of Cross Lane.

CLASS 48. Breeding Sow of a small black breed, 10*l*., 5*l*.—1st and 2d, George Mumford Sexton. Reserve number and Highly Commended: Thos. Crisp, of Butley Abbey.

CLASS 49. Breeding Sow of the Berkshire breed, 10*l*., 5*l*.—1st, John King Tombs, of Langford, Lechlade, pig bred by exhibitor; 2d, Arthur Stewart, Saint Bridge House. Reserve number and Commended: Arthur Stewart.

CLASS 50. Breeding Sow of a breed not eligible for the preceding classes, 10*l*., 5*l*.—1st, Richard Duckering, of Northorpe; 2d, J. Sagar, Lister Hills, Bradford. Commended: Jacob Wilson, of Woodhorn Manor.

CLASS 51. Pen of 3 Breeding Sow Pigs of a large white breed, of the same litter above 4 and under 8 months old, 10*l*., 5*l*.—1st, Richard Duckering, of Northorpe.

CLASS 52. Pen of 3 Breeding Sow Pigs of a small white breed, of the same litter, above 4 and under 8 months old, 10*l*., 5*l*.—1st, Hugh Aylmer, of West Dereham Abbey; 2d, John Sawyer, of Tunstall, Wickham Market, Suffolk. Commended: Samuel Geater Stearn, Brandeston, Wickham Market.

CLASS 53. Pen of 3 Breeding Sow Pigs of a small black breed, of the same litter, above 4 and under 8 months old, 10*l*., 5*l*.—George Mumford Sexton.

CLASS 54. Pen of 3 Breeding Sow Pigs of the Berkshire breed, of the same litter, above 4 and under 8 months old, 10*l*., 5*l*.—1st, William Yells, of Round Robin Farm, Highworth, Wilts; 2d, Rev. Henry G. Baily, of Swindon, Wilts, black with white points. Commended: Major John Edward Riley, Elm House, Winkfield, Windsor.

CLASS 55. Pen of 3 Breeding Sow Pigs of a breed not eligible for the preceding classes, of the same litter, above 4 and under 8 months old, 10*l*., 5*l*.—1st, Richard Duckering, of Northorpe.

SPECIAL PRIZES, AMOUNTING TO £790,

Offered by the Suffolk Agricultural Society, the Local Committee of Bury St. Edmund's, and the Royal Agricultural Society of England.

SUFFOLK CART HORSES.

CLASS 56. Three-year-old entire Colt, 20*l*., 10*l*.—1st, Thomas Crisp, of Butley Abbey, Wickham Market, Suffolk (Cupbearer), chestnut; 2d, Manfred Biddell, of Playford, Ipswich, Suffolk (Punch).

CLASS 57. Pairs of Mares, 20*l*., 10*l*.—1st, Sir Edward Kerrison, Bart., of Brome Hall, Scole, Norfolk; 2d, William Thompson, jun., of Thorpe, Colchester, Essex.

CLASS 58. Mare not having had a foal in 1867, 15*l*., 10*l*.—1st, Francis Keer, of Raydon, Orford, Wickham Market; 2d, Sir Edward Kerrison, Bart., of Brome Hall. Highly Commended: The Marquis of Bristol.

CLASS 59. Pair of Geldings, 15*l*.—1st, The Duke of Grafton, of Euston Hall, Thetford, Norfolk.

CLASS 60. One-year-old entire Colt, 15*l*., 10*l*.—1st, Samuel Wolton, of Newbourn Hall, Woodbridge, Suffolk, bright chestnut, bred by exhibitor; 2d, George Tomline, M.P., of Nacton, Ipswich.

CLASS 61. One-year-old Filly, 10*l*., 5*l*.—1st, Isaac Rist, of Tattingstone, Ipswich (Smart), chesnut; 2d, do. Highly Commended: Samuel Wolton.

CLASS 62. Foal, 10*l*., 5*l*.—1st, Sir Edward Kerrison, Bart., of Brome Hall, Scole; 2d, Alfred Frewer, of Debenham, Ipswich, Suffolk, chestnut.

HUNTERS.

CLASS 63. Weight-carrying Mare or Gelding, 5 years old and upwards, 75*l*., 50*l*., 25*l*.—1st, Thomas Gee, of Dewhurst Lodge (Master of Arts), chestnut; 2d, Thomas Sutton, of Alwent Hall, Darlington, Durham (Voyageur); 3d, Edward Nicholas Heygate, of Buckland, Leominster, Herefordshire (Mountain Dew). Reserve number: Thomas Taylor, Bury St. Edmund's.

CLASS 64. Ditto, ditto, 4 years old, 40*l*., 20*l*., 10*l*.—1st, Thomas Gee, Dewhurst Lodge, Wadhurst, Sussex; 2d, Edward Nicholas Heygate, of Buckland, Leominster, Herefordshire (Denmark); 3d, Thomas Gee, Dewhust Lodge. Reserve number: W. H. Clark, of Hook, Howden, Yorkshire.

CLASS 65. Weight-carrying Mare or Gelding, 3 years old.—No merit.

ROADSTERS.

CLASS 66. Mare or Gelding, 5 years old and upwards, not less than 14, and not exceeding 15 hands, 30*l*., 20*l*., 10*l*.—1st, George David Badham, of Bulmer, Sudbury, Suffolk (Major); 2d, Robert John H. Harvey, M.P., of Crown Point, Norwich (Favourite); 3d, John Grout, of Woodbridge, Suffolk (Black Bess). Reserve number and Commended: John Grout, of Woodbridge, (Alice), brown, 5 years old (mare), breeder unknown.

CLASS 67. Mare or Gelding, 3 or 4 years old, not less than 14, and not exceeding 15 hands, 20*l*., 10*l*.—1st, John William Scriven, of Throstlenest, Otley, Yorkshire (Lotti); 2d, William Wright, of Doddington, Cambridgeshire.

CARRIAGE HORSES.

CLASS 68. Mare or Gelding, 4 years old, not less than 16 hands, 30*l*., 20*l*.—1st, John Grout, of Woodbridge, Suffolk; 2d, George Turner, Barnham, Thetford (Hawk).

CLASS 69. Mare or Gelding, 3 years old.—No entry.

CLASS 70. Mare or Gelding, 2 years old, 10*l*., 5*l*.—1st, George Kersey Cooper, of Euston, Thetford, Norfolk; 2d, Thomas Easterson, Red House, Bawdsey, Suffolk.

PONIES.

CLASS 71. Mare or Gelding, not less than 13, and not exceeding 14 hands, 10*l*., 5*l*.—1st, Richard Milward, of Thurgarton Priory, Southwell; 2d, Richard Milward. Reserve number and Commended: James Allen Ransome, of Carr Street, Ipswich.

CLASS 72. Mare or Gelding, not exceeding 13 hands, 10*l*., 5*l*.—1st, Henry Roe Wade, of Little Waldingfield, Sudbury, Suffolk (Tomtit); 2d, Robert Gitters, of West Row, Soham, Cambridgeshire (Tommy). Reserve number and Commended: George Mumford Sexton.

PIGS.

CLASS 73. Boars and Sows of a small white breed, to have been in the possession of the exhibitor from Jan. 1st, 1867, and their offspring, which are not to exceed 12 weeks old on July 1st, 1867, 10*l*., 5*l*.—1st, G. M. Sexton; 2d, P. Eden, Salford. Reserve number: John Sawyer, of Tunstall, Wickham Market.

CLASS 74. Boars and Sows of a small black breed, to have been in the possession of the exhibitor from Jan. 1st, 1867, and their offspring, which are not to exceed 12 months old on July 1st, 1867, 10*l*., 5*l*.—1st, G. M. Sexton; 2d, S. G. Stearn, of Brandeston.

BLACK-FACED SUFFOLK SHEEP.

CLASS 75. Shearling Rams, 10*l*., 5*l*.—1st, John M. Green, of Stradishall Old House, Newmarket; 2d, George Dobito, of Lidgate. Reserve number and Highly Commended: J. M. Green. Commended: George Dobito.

CLASS 76. Ram of any age, 10*l*., 5*l*.—1st, George Dobito; 2d, George Dobito. Reserve number: William Harvey, of Timworth, Bury St. Edmund's

CLASS 77. Pen of Five Shearling Ewes, 10*l*., 5*l*.—1st, William Harvey, of Timworth; 2d, William Harvey, of Timworth. Reserve number and Highly Commended: Major Fuller Maitland Wilson, of Stowlangtoft Hall, Bury St. Edmund's.

BUTTER.

JUDGES: George John Oliver, John Denovan.

CLASS 78. Six Pounds of Fresh Butter, in One Pound Lumps, 6*l*., 2*l*.—1st, Lady Caroline Kerrison, of Brome Hall, Scole, Suffolk; 2d, Thomas Sawyer, of Hill House, Thwaite, Stonham, Suffolk.

COTTAGES.

CLASS 80. Design for a Pair of Cottages, containing three bedrooms, accompanied by a full specification and detail of quantities, with estimate of cost at scheduled prices, 25*l*., 15*l*.—1st, Messrs. Condor & Lastell, of 1, Park Lane West, Gloucester Gate, Regent's Park, for a pair of cottages costing 170*l*. 3*s*. 8*d*. [!]; 2d, Mr. J. Straw, 29, Bridge Street, Birkenhead, for a pair of cottages costing 190*l*.

THE IMPLEMENT YARD

Is as full of all kinds and classes of agricultural implements as ever. There is Mr. Aveling travelling round and round with his traction engine, full in your eye as you enter, just as he has done for many past years. There is the same row of locomotive engines all up one side of the 40-acre piece, working farm machinery of all kinds, fixed and moveable, threshing and winnowing, cleaning, crushing, grinding, and chaff cutting.

And all along the other side there is what appears to be the very same stands and displays of seeds and plants by Messrs. Raynbird, Gibbs, and Sutton. Between the two we have the same parallel shedding, this year more extensive than ever, filled with the best workmanship of nearly 300 manufacturing firms. The classes of which this year the Agricultural Society takes official cognisance include steam engines and barn machinery, but we not see that manufacturers of other implements — those of tillage, cultivation, carriage, harvest work — are any more backward to display their goods, or that manufacturers of barn machinery make any better show than they have done in other years.

And there is one other feature which is of annual recurrence, though perhaps less striking now from year to year than it used to be, and that is the exhibition of startling novelties, or of novelties of almost any kind. Among them this year is a contrivance for weaving thatch, in which the sewing machine is brought to bear upon a sheet of pulled straw, which is delivered to it through rollers, and thus tied together in a web. This is exhibited by Mr. G. O. Gooday, of Great Leigh, Chelmsford. There is also the American stone breaker, consisting of two ribbed checks or faces of iron, one of which oscillates, and then crushes whatever is between them. The oscillation is very simply effected, and they say 4 tons of stone can be broken per hour by a 3-horse power engine. It is very surprising to see flint and granite yielding thus as easily as oil-cake.

Mr. Crowe's (Lynn) combined engine and threshing machine must also be mentioned as a cleverly-packed contrivance, making very good work, and provided with a very easily managed steerage.

There is some novelty, too, among corn screens, and this is perhaps an exception to our assertion that the prizes offered by the Society don't seem to have directed the attention of manufacturers. The simple spiral wire cylinder, pulled out or shortened so as to produce a greater or less interval of the wires, is simplified in Mr. Hornsby's hands by the easy manner in which the spiral is tied, so as to insure the perfectly uniform distribution throughout its length of any elongation or otherwise. Mr. Hornsby receives here the 1st prize for corn screens. Another cylindrical screen, in which spaces offered to the grain are provided by a set of parallel metallic straps, which are acted on in a simple way, so as by their parallel motion to open or close the intervals between them, is exhibited by Messrs. Coleman & Morton, of Chelmsford. Messrs. Reeves, of Malton, again exhibit their ribbed corn screen; Mr. Roby his well-known and excellent machine; and Messrs. Ransomes their cylindrical screen, in which the interval is diminished or increased by the relative position of two wire cylinders, one within the other; also their oscillating screen, in which the grain is subject to a rubbing process as it passes over the open work surface.

Among other novelties in the yard we must mention an exceedingly cheap and excellent field gate, with double lever hinges, particularly simple and effective,

exhibited by Mr. J. Braggins, of Banbury, Oxfordshire, to whom the prize of the Society, we believe, was awarded.

Mr. Howard, of Bedford, must be named among the exhibitors of several good novelties. His boiler for fixed engines, in which the water is contained in a set of upright tubes, among which the flame and heat of the furnace play, has been already named. His American self-raking reaper shows an exceedingly simple and compendious arrangement for causing the rake to rotate without coming in anybody's way. His haymaker has an exceedingly well-packed gearing, altogether out of the way of any choking action of the Grass.

At Mr. Maynard's stand (Whitlesford, Cambridge) there is a good self-acting rake, in which the wheel itself causes the lifting of the load and its deposit, when enough has been gathered, and the catch by which this is effected is released as soon as itswork is done.

As to the trials of steam engines and threshing machines, what can we say but that, after a most careful but necessarily very short gallop upon a well-known course, this, that, and the other come out 1st, 2d, and 3d. If an extremely careful trial of a threshing machine, limited to an examination of power employed and quality of work effected, while 100 sheaves are passed through the machine, *can* warrant any men, however competent, in declaring that this machine is better than that, then such trials are useful; though even so the sort of justice which they do may be questioned, for in effect they declare that A, B, and C are worthy of high distinction, and D, E, and F deserve no notice whatever: and yet D may be but the least bit inferior to C, even upon the showing of the resultant figures at which the trial arrives. But besides all this there are qualities, as good as any tested by the judges, to which no test whatever can be applied. For a machine may do the best possible work in the first hour of its existence, which shall be shaken to pieces in a fortnight. On the whole, therefore, we believe that while the contest and rivalry of manufacturers for the Society's awards may be a necessary part of an annual exhibition of implements, in order to maintain the excitement and the life of the show, yet the whole competition partakes largely of that claptrap and humbug which public exhibitions of all sorts are apt to engender, but which their management ought carefully to avoid.

The trials of steam engines are, perhaps, less liable to error than those of threshing machines; but even here the extremely narrow limits of the trial, nice and careful as it is, make it proportionately untrustworthy; and the great test being the quantity of power extracted from a given quantity of fuel, there is the liability to favour the production of a racer instead of a worker. Certainly in no case can it be said that the judges have been in the least deficient in patience or perseverance. They have stuck to their work most laboriously, and so much has had to be done, that the awards were not made till late in the week, and even now, writing on Thursday evening, we do not know who has received the Society's prize in the steam-engine class, though we hear that it has been awarded to Messrs. Clayton & Shuttleworth.

Steam Cultivators.—The various exhibitors of steam-cultivating machinery were left to their own good guidance as to how some illustration should be given at Bury of the power and efficiency of their tools; and so we had Messrs. Howard with their engines and machinery in a field near the Show-yard, and Messrs. Fowler in a large light-land field on the other side of the town. In both cases it was light land, and it was of course the object of the exhibitors to prove to the light-land farmers of the eastern counties that steam cultivation is economical and superior to that by horses even on the lightest soils. To this end they could quote the experience of Mr. C. S. Read, M.P., who could report of the work done by Fowler's apparatus on land in his occupation, both the speed and economy of the work on his lighter soil, and the excellence of its work on his heavier land, so that every bit of the uneven edge of work along his headlands can be seen in the superiority of the crop of Wheat which has been taken after steam cultivation. To this end, also, they have exhibited wider tools than usual. Mr. Howard shows a 7 feet wide cultivator, which, travelling rapidly, got over land at the rate of 25 acres of cultivation a day; and Mr. Fowler shows a 12 feet wide cultivator with 13 tines, with a most ingenious arrangement for at once turning the tool and lifting the tines out of work at the land's end; and this travelling at the rate of 3 miles an hour is equal to working 4 acres an hour. In a racing trial which we left when it was midway done, the work—with losses varying from 20″ to 60″ when turning at land's-end—appeared to us to be proceeding at the rate of at least 4 acres an hour; and we were informed afterwards that rather more than 5 acres were got over in 60 minutes. This was a very light land, part of which had been previously grubbed. So that the trial was useful merely as an exhibition of speed. The 6-furrow plough had been at work on the previous day, and had done very excellent work; and elsewhere the 3-furrow plough had turned over the land more than a foot deep, leaving a furrow, which was a veritable ditch, 14 or 15 inches deep, and as many wide. The machines shown by Mr. Fowler at work, or in the yard, are specified in the following list:—

1. The usual 14-horse power clip drum set of tackle, with self moving anchor set suitable for well laid out farms, with tolerably square fields.

2. The double engine set of 10-horse power tackle, suitable for any condition or circumstances of soil, and intended for large farms or for letting out. It is also suitable for the cultivation of light land, when large breadths have to be got over in a day, and under these circumstances is intended to work the new wide implements for the cultivation of light land.

3. A 12-horse power engine and tackle so arranged as either to work with an anchor direct along the headland or with the engine stationary in the corner of the field, as the circumstances of the case require. This tackle is very suitable for being let out in hilly districts with irregular fields.

4. A second (10-horse power) double engine set of tackle, suitable for working for hire. The engines are arranged on the plan of the late Mr. Eddington, to work two implements at the same time, the latter either turning in the middle of the field or crossing another as may be most desirable.

5. A "roundabout" tackle, with 3-furrow plough, and 5-tine cultivator combined. This tackle is intended for holders of small farms whose position will not admit of their purchasing the large combined tackle; the price of the machine, with plough drops, being only 230*l.*

6. Cultivating implements of all classes, but the new 8-furrow plough and 12 feet wide patent cultivator deserve attention. They also show a draining plough, suitable for being worked with our double engine ploughing tackle.

7. Also an 8-horse power agricultural locomotive, very compact and easily turned in a small space, with the advantage of being sold at little money, intended to go about the country with a threshing machine.

Mr. Howard's tackle at work includes a stationed engine, with windlass, and roundabout rope and anchorage, working cultivator and plough; also double engine, with double drums, working at once two cultivators, which overlap one another in the middle of the field, and return each to its own side. The work done both by plough and cultivator was first-rate. We believe that Messrs. Coleman had their steam cultivating machinery at work in a field near the show-yard, but we did not see it.

The following is the award of prizes in the implement part of the show, to which however we shall return next week:—

JUDGES.—F. J. Bramwell, 35, Great George Street, London, S.W.; J. Brasnett, Hilboro' Lodge, Brandon; H. B. Caldwell, 11, Royal Crescent, Bath; John Coleman, Escrick Park Office, York; Henry Cantrell, Baylis Court, Slough; J. V. Gooch, Reform Club, S.W.; John Hicken, Dunchurch, Rugby; James Martin, Wainfleet, Boston; William Owen, Rotherham; Thomas Scott, Broom Close, Borobridge; John Thompson, Badminton, Chippenham; Edward Wortley, Ridlington, Uppingham; John Wheatley, Neswick, Driffield.

1. THRESHING MACHINES: *Prizes.*—Portable Threshing Machine not exceeding 8-horse power which prepares for the finishing dressing machine, Ransomes & Sims, 20*l.*; Portable Threshing Machine not exceeding 8-horse power which prepares for the finishing dressing machine, E. Humphries, 12*l.*; Portable Threshing Machine not exceeding 8-horse power which prepares for the finishing dressing machine, Nalder & Nalder, 8*l.*; Portable Threshing Machine to be worked by horse power not exceeding that of 4 horses, Wallis, Haslam, & Steevens, 12*l.*; Portable Threshing Machine to be worked by horse power not exceeding that of 4 horses, Tasker & Sons, 8*l.*; Threshing and Finishing Machine, Holmes & Sons, 20*l.*; Threshing and Finishing Machine, Clayton & Shuttleworth, 15*l.*; Threshing and Finishing Machine, Marshall & Sons, 5*l.*

2. CHAFF CUTTERS: *Prizes.*—Chaff Cutter by steam or horse power, Richmond & Chandler, 10*l.*; Chaff Cutter by steam or horse power, E. H. Bentall, 6*l.*; Chaff Cutter by steam or horse power, Picksley, Sims, & Co., 4*l.*; Chaff Cutter by hand power, Richmond & Chandler, 6*l.*; Chaff Cutter by hand power, E. H. Bentall, 4*l.* *Highly Commended:* Chaff Cutter by steam power, Carson & Toone; Chaff Cutter, Smith & Grace. *Commended:* Chaff Cutter, James Cornes; Chaff Cutter, Edward Page & Co.; Chaff Cutter, James Cornes.

3. CRUSHING MILLS: *Prizes.*—Crushing Mill, E. H. Bentall, 6*l.*; Crushing Mill, E. R. & F. Turner, 4*l.* *Commended:* Crushing Mills, Woods & Cocksedge.

4. HAND DRESSING MACHINES: *Prizes.*—Corn Dressing Machine, William Tasker & Sons, 12*l.*; Corn Dressing Machine, S. Corbett & Son, 8*l.* *Commended:* Corn Dressing Machine, Robert & John Reeves; Corn Dressing Machine, Ransomes & Sims.

5. TURNIP CUTTERS: *Prizes.*—Turnip Cutter, Richard Hornsby & Son, 10*l.*; Turnip Cutter, Ransomes & Sims, 5*l.*; Turnip Pulper, Richard Hornsby & Son, 5*l.* *Commended:* Turnip Cutter, E. H. Bentall; Turnip Pulper, E. H. Bentall; Turnip Pulper, Picksley & Sims.

6. OIL-CAKE BREAKERS: *Prizes.*—Oil-cake Breaker, E. H. Bentall, 5*l.*; Oil cake Breaker, R. & R. Hunt, 5*l.* *Commended:* Oil-cake Breaker, E. R. & F. Turner.

7. CORN SCREENS: *Prizes.*—Corn Screen, Richard Hornsby & Son, 10*l.* *Commended:* Corn Screen, Robert Boby; Corn Screen, Penny & Co.; Corn Screen, Ransomes & Sims.

8. BARLEY HUMMELLER: *Prizes.*—Barley Hummeller, Holmes & Son, 5*l.*

9. GRINDING MILLS: *Prizes.*—Grinding Mill, Smith & Grace, 6*l.*; Grinding Mill, S. Corbett & Son, 4*l.*; Bone Mills, Beverley Iron and Waggon Co., 10*l.*; Bone Mills, Beverley Iron and Waggon Co., 6*l.*; Bone Mills, Beverley Iron and Waggon Co., 4*l.*; Stone Mills, E. R. & F. Turner, 9*l.*; Stone Mills, I. Tye & Co., 6*l.* *Commended:* Stone Grinding Mill, Ruston, Proctor, & Co.

10. IRON GATES: *Prizes.*—Field Gate, James Braggins, 10*l.*

11. MISCELLANEOUS: *Silver Medals.*—Horse Gear, Woods & Cocksedge; Strong Wrought Iron Cattle Troughs and Cisterns, Burney & Co.; Assortment of Leather Machine Bands, Webb & Son; Chain Pump for Liquid Manure, Warner & Son; Draining Tools and Forks, &c., Boby, Clarke, & Co.; Patent Aspirator, A. B. Child; 4-inch double suction Pump, Tangye, Brothers, & Holman; Assortment of Garden Spring Chairs and Collection, Alfred Wrinch; Adjusting Blocks for fixing engines and threshing machines, Clayton, Shuttleworth, & Co.; Stable Fittings, Cow-house Fittings, and Piggeries, Musgrave Brothers. *Commended:* Elastic Rake, John Baker; Chain Drill, Hawkes & Spencer; Haymaker, J. & F. Howard; Improvements in Mower, R. Hornsby & Son; Improvement in Mower, Burgess & Key; Improved Horse Hoe, Wilkinson & Son; Turn Wrist Plough, Ransomes & Sims; Portable Railway and Turntable, John Grant; Guard for Preventing Accidents by drum on threshing machine, Ransomes & Sims; Lawn Mowers, Ransomes & Sims; Iron Gate, J. D. Young; Iron Gate, F. Morton & Co.; Iron Gate, Bayliss & Jones; Iron Gate, St. Pancras Iron Works Co.

POULTRY.

JUDGES: E. Hewitt, W. Trotter, J. Bailey, Sen.

We are rejoiced our Royal Society has again taken up poultry. It has always been our opinion that at an agricultural meeting all animals that come into direct contact with the pursuit should be represented; and when a thorough acquaintance has sprung up between poultry exhibitors and the Council—when they know and esteem each other, and the Royal has relaxed its rules somewhat, it may find hearty and close friends, and helpers to profitable meetings in those who cannot aspire to quadrupeds.

The classes most encouraged are those that are supposed to be the best calculated for "farm poultry." We need hardly say Dorkings were first on the list, and they made a goodly show. Thirty-three pens of adult birds, all shown in good feather and condition, and from all parts of the country, testified in response to the liberal prizes offered. The 1st prize went to Staffordshire, to Dr. Hewson; the 2nd merely crossed the border, to Mr. Parlete, of Chelmsford; the 3rd also went to Essex, to Borking, being taken by Mrs. Lingwood.

Twenty-five good pens of chickens followed the old birds. Sussex took 1st, going to Bolney; the 2nd went to Dr. Campbell, of the County Lunatic Asylum, Brentwood. This gentleman was fortunate, and deservedly so. He showed 3 pens of excellent chickens, all of which appeared on the prize list. Mr. Leamons, of Aylesbury, took 3rd. We are bound to speak highly of these classes. White Dorkings were very weak. There was an excellent show of dark Brahmas Poutras, large birds, correct in colour, in excellent condition; 28 pens competed. Mr. R. H. Boyle took the 1st prize to Ireland; the 2nd went to Mr. Jopp, of Aberdeen; and the 3rd to Mr. Lacy, of Hebden Bridge, Yorkshire. Light Brahmas came next. They were fewer in numbers than their dark brethren, nor did they spread so "far and wide." Mr. Pares, of Guildford, was 1st; Mr. Dowson, of Chelmsford, 2nd; and Mr. Crook, of Forest Hill, 3rd.

A goodly array of 37 pens of buff Cochins, shown by most of the names that have belonged, and do belong to celebrity in this class, testified to the continuing popularity of the breed. Mr. White, of Sheffield, took 1st; Mr. Mapplebeck, of Birmingham, 2nd; and Mr. Lingwood, of Barking, 3rd. Many of the birds in this class were perfect. For other colours—the Grouse, belonging to Messrs. Stevens, of Walsall; Brierley, of Manchester; and Tadman, of Whitchurch, were deservedly distinguished. The Whites did not show well. We were disappointed in the numbers of the Crèvecœurs and La Flèche, not in the quality, which was undeniable. Colonel Stuart Wortley took three out of four prizes, the other being taken by the Rev. Clement Gilbert. Houdans were more numerous, sending 13 competing pens. Mr. Heard, of Whitmoor, was 1st, and the Rev. Clement Gilbert 2d. Mr. Pigeon and Colonel Wortley showed good birds.

Spanish were excellent; Mr. Thresh, of Bradford, was 1st; Mr. Beldon, of Bingley, 2d; Mr. Walker, of Wolverhampton, 3d. Many of the cocks showed they had suffered from the strange penchant the hens have for picking their husband's faces. Game were as usual perfect in condition, shape, and feather. Messrs. Church and Houldry, of Nantwich, were 1st; Mr. Matthew, of Stowmarket, 2d; Mr. Wood, of Wigan, 3d, with a wonderful pen of chickens. In the class for any other colour the Duck-wings were very beautiful. The Golden-Pencilled Hamburghs were very good, but we cannot say as much for the Silver. The Spangled were better than the Pencilled, and some of the Golden left nothing to desire.

Sebright's Bantams seem to be giving way before the Game and others. There were 36 pens of these latter in Classes 19 and 20. The best would be the Cochin, belonging to Mr. Beldon, and the Game shown by Messrs. Causer & Pittis. We admired greatly two pens of Indian, both curious and handsome. Both were highly commended. Turkeys were very good and heavy. The same may be said of the Geese. Aylesbury Ducks were hardly up to the mark. Rouens were better, but they were not in condition.

Many excellent pens arrived too late for competition. They appeared in some classes as though they would have changed the disposition of the prizes. Spite of the more than inclement state of the weather the poultry department was crowded.

CATTLE PLAGUE AND IMPORTATION OF CATTLE.

A LARGE and influential meeting of agriculturists, summoned by the Chamber of Agriculture, assembled in the hall of the Athenæum, on Tuesday evening, under the presidency of Mr. Albert Pell, to urge the Legislature to enforce the slaughter or quarantine of all imported cattle at ports of landing, and also for considering what steps can be taken to obtain compensation for those persons whose cattle were destroyed between November, 1865, and February, 1866.

The CHAIRMAN having explained the reason for which the meeting was convened, and having apologised for the inconvenience of its being brought together at an unseasonable time, proceeded to read various extracts from the reports of the Royal Commissioners, respecting the importation of foreign cattle. The third report of the Commissioners, he said, stated that, with a view to the protection of cattle for the future, the re-introduction of the cattle plague must be guarded against, and to this end they believed that the whole system of the importation of foreign cattle must be revised. He then pointed out that no animal could be moved without being viewed by two persons, and a declaration signed by the owner; after this a licence could be obtained for its removal, such licence being signed by two magistrates. Foreign cattle were brought straight to London, and were landed after only twelve hours' quarantine, and thus disease was spread. He could assure the meeting, from his own personal observations, that the present orders of the Privy Council respecting the importation of foreign cattle were perfectly nugatory.

Mr. CLARE SEWELL READ moved—

That the cattle plague owes its introduction into Great Britain to foreign sources, and that, to guard against its continuance or recurrence, all foreign animals imported for slaughter should be killed at certain ports of landing, in places allotted to their reception, and slaughtered apart from all other animals.

Mr. READ, in the course of a few remarks, said that if cattle from abroad intended for slaughter were slaughtered on their arrival, the country would have a reliable security against the spread of the contagion.

Mr. CLAYDEN seconded the adoption of the resolution, expressing the opinion that isolation would preserve the herds of England, and that, if members of Chambers of Agriculture were united in advocating the slaughtering at the ports, they would gain what they sought.

Mr. HITCHCOCK said, if quarantine were to be recommended, the sort of inspection at present applied at the ports of entry must be different. At Harwich he saw a farrier—not a veterinary surgeon—examine the animals by the light of a candle and lantern.

The resolution was carried.

Mr. CORRANCE, M.P., reviewed the orders of the Privy Council. The first order came out on Aug. 23, 1865, when it was ordered that there should be compulsory slaughtering without compensation. An order was then issued rendering the slaughter of cattle not a compulsory but a permissive act. But this order was not duly advertised, and consequently it was not generally known; and during the period between November, 1865, and February, 1866, many gentlemen —Mr. Cooper, of Suffolk, amongst others—had cattle slaughtered because the magistrates and inspectors were not aware of the order until further legislation showed how the law stood. However, in paying compensation, Parliament allowed no compensation to persons who had had cattle slaughtered during the period for which the law had not provided that compensations should as a matter of course be paid. He should suggest that farmers at that meeting should determine what was necessary, and press their opinions upon the Government through the agency of members of Parliament. As to the course to be adopted with foreign cattle, he would advise them to affirm a resolution which he would move, for if cattle were placed in quarantine the risk of introducing contagion would be very considerably diminished. The resolution he had to submit was:—

That foreign store animals should be imported only at ports or parts of ports appropriated to their reception, apart from all other animals, and should not be removed thence except after sufficient quarantine.

Mr. MASFEN (Staffordshire), in seconding the resolution, said he believed that nothing would eradicate the cattle plague in this country but a law framed in accordance with the spirit of the resolution.

The motion was carried.

Mr. HORLEY (Leamington) moved the third resolution, as follows:—

That this meeting approves of the amendment proposed by Mr. Ayrton in the Contagious Diseases (Animals) Bill, to the effect that the slaughter of all foreign fat animals at the port of landing shall be made imperative, and shall not be left to the discretion of the Privy Council; as well as of Mr. Ayrton's proposed new clause for establishing a river-side market for the convenience of the metropolitan foreign cattle.

He pointed out that, under the existing law, we are required to keep possession of cattle for 28 days before parting with them; and we want no greater hardship put upon foreign owners and importers than we are subject to ourselves.

Mr. WILSON, of Knapthorpe, Leicestershire, briefly seconded the resolution. He was opposed to all permissive laws.

Mr. GREENE, M.P., proposed the fourth resolution:—

That copies of the above resolution be sent to the metropolitan and county members, with a request that they support the same.

What they sought was not desired on the principle of protection, but of justice. Prompt action was necessary, as the question would come before Parliament on Thursday or Monday.

Mr. SMYTHIES (Herefordshire) seconded the resolution, which was carried.

The CHAIRMAN said that if any resolution were proposed as to cattle compensations, he would receive it.

Mr. EVERETT referred to the facts spoken to by Mr. Corrance and others, and moved the following:—

The Central Chamber of Agriculture warmly sympathises with those persons whose cattle were killed by order of the inspectors between November 23, 1865, and the passing of the Cattle Plague Act in February, 1866, and from whom compensation is withheld; and this Chamber hereby respectfully invite Clare Sewell Read, Esq., M.P., to take the earliest opportunity of urging the claims of those sufferers upon the attention of Parliament.

Mr. HERMAN BIDDELL seconded the motion in a very vigorous and impassioned address, which was loudly cheered.

Mr. READ said that the Vice-President of the Central Chamber was in the House of Commons. Until he was better informed he must decline to undertake the task.

Mr. CORRANCE said the difficulties of introducing the matter to Parliament would be great, but he would do in the matter as the meeting desired.

The meeting then rose, having passed a vote of thanks to the Chairman, which terminated the proceedings.

Home Correspondence.

Agricultural Statistics.—To the remarks on the agricultural statistics of Devonshire (page 718, *Agricultural Gazette*) there is a note appended which runs thus:—"The weekly sales reported are a very small fraction indeed of the weekly sales effected." This remark was no doubt made hurriedly and inadvertently, the writer hazarding a statement which the discrepancy in the Devon figures then before him seemed to justify, but which on reconsideration he would no doubt be inclined to qualify to some extent, for if the sales reported were such a mere fraction to the sales effected, the circumstance would amount to an act of fraud on the part of the Legislature towards all the tithe-owners or tithe-payers in the kingdom. The sales of Wheat reported officially for England and Wales have hitherto stood in relation to the sales effected as 5 to 8, that is, if the published returns state 5, the actual sales are 8, and *vice versâ* if the gross sales are 8 the published returns will come out 5. Of course in years when our home growth is abundant and importations small, the weekly quantity sold and reported is much increased, just as in deficient years the weekly sales and reports are small, but the relative proportion of gross sales to sales reported is not changed thereby. It was never meant to obtain an account of all the corn sold in the kingdom, but only a quantity large enough to educe therefrom a fair average price, which price was to influence tithe and all payments depending upon the price of grain of home growth, and to attain this end it would not seem fair to deal with a less quantity than that stated. How the new law, which came into operation on the 1st of January, 1865, will affect the interests of payer and receiver remains to be seen. *C.*

Foreign Correspondence.

HOLSTEIN: SCHENEFELD, BY ALTONA, *July* 13: *German Agriculture.*—The weather, though with a few passing showers, a little delaying the Hay harvesting, has of late been warm and highly propitious to the spring-sown crops, and Oats, Barley, Peas, Beans, and Potatos promise a fair return. Wheat is also of fair promise; but Rye, the staff of life in the north of Europe, from the long-continued cold and heavy rains in May and the first half of June, will be very light. Cutting of Rye will commence in about two weeks, about a week later than average; the whole process of harvesting, as well as Turnip planting or sowing, being about a week later than usual. As yet the Potato has shown no disposition to blight, but this plant has not as yet reached the period of growth most liable to blight, and the occurrence of blight will depend upon the coming weather. Should drought prevail, there will be little or no blight, but should rain and thunder occur in a week or ten days hence, when the plant comes to exhaust its *vis vitæ* in forming tubers, blight will almost to a certainty take place. Developed electricity by loosening the vito-chemical attractions, in a manner cooks the vegetable body for the organism of the disease, or at least disposes it to a putrescent state, which may prepare the field for animalculæ or fungi. The Rye being generally much defective, renders the Potato crop a very important object.

Germany is now in its highest beauty; the meadows, lanes, and the numerous by-roads and paths, embellished with flowers of every hue, in general with larger leaves and richer flowers than we have in Britain. A few days ago I measured some Oak leaves, one 10¾ inches English in length, without the footstalk, and 5⅞ inches in breadth, a second 7⅞ inches in breadth, the length broken, a third 10⅜ inches in length, and 5½ inches in breadth. Here the seasons, both summer and winter, are more developed than in Britain, and the autumn long and very pleasant. The kinds of flowers and of grasses are also more numerous, at least more scattered than in Scotland and the north half of England. Here the wild violets are very abundant and variable in flower, some of them very beautiful in colour and form, others with no beauty whatever. I have seen a large field so covered with violets, as to appear quite blue at a distance. How comes it that Nature bestows so much beauty upon one of her creatures, and forms another of the same family quite destitute of it? The Wild Thyme is also extremely rich, and of different aromas. The Lily of the Valley perfumes the copse-woods, and the beautiful Bird's-foot Trefoil adorns almost every path with its winged rich yellow flower, often tipped with red. Many of the German hedgerows cannot be surpassed in beauty. These consist of Oak, Hazel, Hornbeam, Hawthorn, further decorated with the richest festoons of Honeysuckle, Lilac, and large white flowers of the Bower Tree or Elder. All these are allowed to rise high as Nature shapes them, hence their gracefulness and flowering beauty. These highly ornamental hedges afford some protection from the great droughts and parching winds that more frequently occur here than in Britain, and give at night danker, more abundant dew than a bare country, bare as many parts of Britain have of late become. When I first knew England more than half a century ago, there was no want of hedgerow cover, a stroll along which afforded more pleasure to the lover of Nature than the most ornate artificial garden existing. In travelling a little distance a few days ago through several agricultural villages, I perceived amongst the numerous children out at play only one with a black head of hair; all the others had flaxen or sand-coloured hair and round heads, showing the purity of the German race in this quarter. The round head form prevails also in the east of the southern half of England, showing their Saxon descent. While the long head, long from the chin to the apex or crown, and long also from the brow to the hind head or protuberance backward, prevails in the west of Britain, and more especially in the west of the Scottish Lowlands, and indeed to a considerable extent over all Britain north of the Humber. This form of head and close position of the eyes extends also to a considerable portion of the Spanish Peninsula, and seems to indicate the existence of a long-headed ancient race of Western Europe previous to the Celt or Gaul extension, the Gaul of France not being remarkable for this form. Is the round-head German, wide, but not high-towering brow, indicative of greater steadiness and industry, but of less imagination and poetical conception than the long head? In England, the Roundheads led by Cromwell, chiefly of the Saxon element, round-heads by tonsure as well as from race, crushed their aristocratic opponents, chiefly of the long-headed Normans and their Celtic or other ancient race retainers. Here the want of judgment or want of nerve of Cromwell was conspicuous. Had he divided the land of England among his party as William the Conqueror did, his party would have continued to prevail.

Strange as it may appear, the late great German revolution has been so rapidly and masterly carried out as scarcely to have affected the rapid march of rural improvement in this country. This is mainly owing to its not having operated to diminish security of property, the great requisite to improvement, but rather by rendering Germany more able to resist any attempt at foreign aggression, has rendered property more secure; and in Germany, different from Britain, there is no great amount of land let on lease under such an insecure tenure as to prevent the investment of capital in the improvement of the soil. (For a number of years back I have proved to every thinking mind that this want of protection in Britain is the greatest national evil, not only incompatible with the rational liberty of the subject, but with the mental and physical development of the British race, and with their maintaining their position as the leading nation of progress. Still nothing has been done to reform this greatest national evil. What is this to lead to?) In Germany, however, the spirit of the small-bore bullet has had good occasion to sing the child's old guessing tale—

"Through the wood, through the wood, and through the wood I ran,
An' for as little as I am I has kill'd a man!"

Notwithstanding the shortness of the war, nearly 100,000 of the *élite* of the German men have fallen, slain in fight, by fatigue, or by pestilence. *Patrick Matthew, Schenefeld, by Altona, Holstein, July* 13.

Farmers' Clubs.

AYRSHIRE: *Harvest Work.*—At a late general meeting of this Club, Mr. Cunningham, Shields, after some introductory remarks, said:—A farmer's cares, in reference to harvest, are many, and sometimes oppressive; but of late they have been wonderfully alleviated through the successful operations of the reaping machine. No invention in our day has proved so beneficial to the agricultural world as this. I look upon the time of their introduction as being quite providential. I mean the time when they became practically useful; for were we still obliged to cut our grain exclusively by scythe and sickle, there are not half sufficient hands in the land to do so in the appointed time for harvest. All honour, then, to the rev. gentleman who is acknowledged as the inventor of the first practical reaping machine. He justly merits a rich reward from agriculturists of every country. It has been said that "when a man has cast the seed into prepared ground at the proper season, he henceforth leaves it to itself. He sleeps by night, and attends to other affairs by day; often looking to it, indeed, and oftener thinking of it, but never touching it till harvest"—

"The work is done, no more to man is given,
The grateful farmer trusts the rest to Heaven;
Yet oft, with anxious heart, he looks around,
And marks the first green blade that breaks the ground."

This is so far true, still man may and can do much previous to sowing, and also during the springing of the plants, that will have an important bearing on the harvesting of the crops. The land should be thoroughly dried before ploughing, and should be ploughed dry; much mischief is often done to land, even dry land, by being wrought too wet. Then I am afraid some heavy land farmers have erred in laying their land too flat, so as to be better adapted for reaping by machinery. The best crop of Wheat I had last season was on a piece of land not too well drained, which was gathered up into ridges of 14 feet. Doubtless, it takes a little more time and trouble to reap it, but better that than sacrifice part of the crop to accommodate the machinery. We certainly ought to second the efforts of makers by putting our land in the best possible state for reaping, but there is little difficulty in cutting over ridge and furrow with the small manual delivery machines, which are mostly used in this county. Then, if the land is not manurially rich, through the droppings of sheep or cattle, a liberal application of guano or other substances would bring the crop ten days earlier to cutting, which is something considerable in this fickle climate of ours. Then if the seed has been drilled in (there is too little of that done in this county), the growth of the plants may be stimulated by horse and hand hoeing. The next point to be considered is when to commence reaping. My own opinion is that, as a rule, we allow the crops to be too far advanced before cutting. Last year I cut a few acres of Wheat in a greener state than usual (partly from having nothing else quite ready, and partly from the fear of loss through shedding), they being on the most exposed part of the farm. After we had got the plot opened up and fairly started, I could not help thinking we were doing wrong, and wasting a good crop, so I took advantage of a slight shower about mid-afternoon to call a halt, when there was 4 acres cut. I threshed this portion out of the stock, and was agreeably disappointed both with quantity and quality; it weighed then 62 lb. per bushel. The greater portion of my Wheat was cut last year rawer than usual, from which cause I was a considerable gainer in more ways than one. Perhaps some of you may have seen in the Journal of Agriculture an interesting account of experiments made by Mr. Hannam in Yorkshire as to the proper time to cut grain. He first cut a portion of Wheat a month before it was ripe; he then cut a similar portion a fortnight thereafter; and a third portion when it had become ripe. The results showed a gain of 4 per cent. in the portion cut two weeks before being ripe over the ripe portion, and this gain was all in the superior quality of the grain, it being thinner and clearer of the skin, while the ripe was thicker and rougher, giving more bran and less flour. In addition to this benefit as regards the grain, Mr. Hannam alleged the following additional advantages:—1. Straw of a better quality;

2, a better chance of securing the crop; and 3, a saving in securing it. I must say that I experienced all these advantages last season in regard to my Wheat crop. The next process after cutting is the getting of the grain stacked. I do not know but we might with considerable advantage take a leaf from the book of our brethren south of the Tweed on this head. Doubtless it is a fine sight to see a large, neat, well-filled stackyard, but I question very much whether it is the best and most economical mode to collect all the grain on the farm into one particular circumscribed place near the steading, and that place not the best adapted for having a free circulation of air. In many parts of England the grain is stacked on the field where it grew, or in some adjacent ground where it is easily got at with the portable mill for threshing. By doing so fewer hands would be required; or the same hands who are employed to carry it home to the barn-yard would secure double the quantity in the field, which is often of great consequence in fickle weather, and the grain would come much sooner into condition for threshing than when crowded together in a close place, and you get sooner quit of any extra hands, thus lessening the expense. But you may tell me that the work of taking home will have to be done some time. True; but it may be done during a tack of frosty weather, when there is little else to do for either men or horses, while the roads will be in a better state for carting.

A brief discussion followed the reading of Mr. Cunningham's paper.

Farm Memoranda.

WHITE SPRING FARM, N. Y.—The recent purchase of the Thorndale Short-horns, by James O. Sheldon, Esq., of Geneva, and the fact that, being previously in the possession of a very fine herd, he was thus placed in a position second to that of no other Short-horn breeder in this country or in England—have excited so much attention and interest, that we shall be fully warranted in devoting somewhat more than the usual space to a review of the White Spring Farm and Herd.

The 300 acres which bear the name at our head, lie on the western side of Seneca Lake, less than two miles from Geneva, spreading over the gentle slopes of two ridges of land, with the intermediate valley, and divided by a wide and well-graded road, giving convenient access to the different fields. The residence is surrounded by 40 or 50 acres in lawn and gardens, shaded here and there by grand old Elms of the original forest growth, while the view commands at a glance nearly the whole farm, springs, trout-ponds, meadow, grain-land, and pasture, with the spires of Geneva, the waters of the lake, and in the farther distance a rich farming country to the eastward, and the highlands of Cayuga beyond. The management of the fields is not neglected for the sake of Southdown or Shorthorn, but is conducted in a most systematic and practical manner—the meadows under-drained where needed, enriched by top-dressings of stable manure, plaster, gypsum, and ashes, and kept free of weeds, while the limited area under the plough (only about 30 acres annually) is equally clean and productive. Mr. Sheldon's success with Grass is quite unusual; we doubt if three tons to the acre exceeds his average, besides the after growth fed off. There are about 10 acres sown to winter Wheat, and here the average of several years has been 40 bushels per acre, and 430 bushels were taken from 10 acres in 1866. Indian corn on well-manured sod is succeeded by Oats or Barley: the stubble then ploughed twice, and the Wheat drilled in from the 20th to 25th of September, top-dressed with well-rooted manure at the rate of 30 two-horse loads per acre. Of the buildings, a part were on the place at the time of Mr. Sheldon's purchase, and a part have been added to meet the increasing demands of the crops and herd. They are well arranged for the purposes designed, and kept with scrupulous cleanliness.

It is now about 10 years since Mr. Sheldon's taste for rural pursuits and prepossession in favour of the Shorthorn, led to the foundation of the herd at White Spring Farm, whither he had at that time just removed. He began by a few purchases from Samuel Thorne, and was so much pleased with them, and found the pursuit so much to his liking, that he has been gradually extending his field of operations ever since. But fortune at first was far from propitious, as the reader will see from the following statement.

If Mr. Sheldon had not been determined to succeed, such losses, and the disappointments he met in breeding, would have resulted in an abrupt abandonment of the undertaking. On the list of the animals first obtained from Thorndale, the purchase of three Duchess cows gave him but one single female descendant, and the Oxfords for a time did little better. But their female produce have all been retained, aad have at this time reached a value which would amply cover all the losses sustained, heavy as they were, as well as their own cost, and a satisfactory margin beside. The list of the first purchases is as follows:—

DUKE OF GLOSTER (11,382).

Duchess 64th [died with her heifer calf, soon after the birth of the latter].	Duchess 71st, by Duke of Glo'ster, out of Duchess 66.
2d Duchess of Thorndale [also died when near calving].	Oxford 20th.
Glo'ster's Oxford.	Oxford by Romeo (13,619).
	Bride of Oxford [died without issue].

Duchess 71st bred Duchess of Geneva, by 2d Grand Duke (12,961) Duke of Geneva (exported to England), and no more.

Glo'ster's Oxford bred but two bulls (one of them 3d Grand Duke of Oxford, owned by D. MacMillan, Esq., Xenia, O.), and she too, died.

Oxford 20th, was for a long time barren, but fortunately bred four heifers, all of whom have turned out as fruitful as the veriest scrub cow of the streets.

Oxford 20 is a light roan, with strongly marked Bates' characteristics—a great cow, broad back, hips, and loins, horns too long and stout to suit the taste of those who fancy the more delicate ones of most Short-horn cows, but really better, for the Bates' cow seldom tosses her horns. All her offspring have plenty of size and substance at maturity, and in general appearance resemble, as she does herself, her dam, Oxford 5th, by Duke of Northumberland (1940). The most noteworthy of the descendants from Oxford 20th is 4th Maid of Oxford, by Imperial Oxford, colour red, a model head and eyes, short fine neck, and the best brisket, crops, loin, and ribs of any of the young stock here, and withal good quality, and a look of breeding to which words cannot do justice.

By the side of Oxford 20th stands Oxford by Romeo. They are both in robust health—12 and 13 respectively, which puts them past much hope of farther breeding. The latter is a red roan, large in size but short of limb, broad and deep in body, a good milker. We have known her 10 years, and never saw her otherwise than in good show condition. In fact, we have believed for a long time that this cross of Romeo has given the best results of any alien blood ever put into the Bates' stock. It did not disturb the high-bred Bates' current, but only imparted more volume and vigour. Two living calves attest the judgment of Col. Morris in breeding this cow, viz., Gem of Oxford by 2d Grand Duke (12,961), and the bull Oxford Lad (4220).

Gem of Oxford is a rich red roan, now in the full development of cowhood—heavy and full in body, broad back, hips, and rumps. When in show order, with perfect heart and crops—brisket wide, deep, and prominent, with a neat head and very short legs, as grand a beast as is her dam, Gem is a better—a trifle short-bodied, perhaps, but with this goes constitution, feeding capacity, and, in this cow, good milking. She has produced:—

Imperial Oxford (4905), mentioned later.

4th Grand Duke of Oxford, white—not so good in length of foreribs as we would like to see, but with the best style of hair, hide, crops, loins, flanks, and hind quarters. We never put our hands upon a bull whose quality pleased us better. Now owned by T. L. Harison, Esq., St. Lawrence county.

4th Countess of Oxford, also white—much like her dam, colour excepted.

Red heifer calf, by 2d Duke of Geneva—promising yet to rival Gem of Oxford in neatness, substance, and all the good points that go to make a first-class Shorthorn cow.

Oxford Lad, by Duke of Glo'ster, as a youngster, was but plain-looking, had little beside his head, quality, and breeding to recommend him. At two years old he came out strong, winning 1st prize at Rochester Meeting of the N. Y. State Agricultural Society in 1863, was soon after sold to Hon. David Christie; has proved a good getter, and winning at Provincial Show, Hamilton, in 1864, his class prize, but was beaten for the sweepstakes ribbon by his own son, out of imported Miss Butterfly (Master Butterfly, bred by Mr. Sheldon). At London, C. W., in 1865, he carried class prize, sweepstakes, and the Prince of Wales' cup—the latter prize open to bulls of all ages and breeds.

Duchess of Geneva is a grey-roan cow, quite large, long, heavy body, straight wide top, with a finer head and horns than usually fall to the lot of a Duchess. She has never been allowed to get in show order, and indeed her frequent confinements would prevent it, as at 7½ years old, she produced her sixth calf, and in the following order:—

2d Duchess of Geneva, by 3d Duke of Thorndale—a roan of great substance, but up to present time not breeding.

3d Duchess of Geneva, by Oxford Lad—in size, colour and points like her dam, whose stall she shares.

4th Duchess of Geneva, red and white—a beautiful young cow, and a study for the breeder—reproducing as she does, the colour and much of the style of Duchess by Daisy bull (186), 12 generations back in her pedigree. One who has seen Dolby's picture of the last named cow would be at once impressed with the resemblance. Fourth Duchess has given Mr. Sheldon two heifers; one of them, Duchess 6th, by 3d Lord of Oxford, white and red—now a yearling, and aside from her plain colour, without a fault, with extra good head, hair and quality.

3d Duke of Geneva—the only bull calf dropped by Duchess of Geneva.

5th Duchess, white, } Both quite young, but
7th Duchess, red, with some white. } of good promise.

Notices to Correspondents.

COWS: *J. M.* reports and asks as follows:—"A little time since our dairymaid went to milk the cows as usual, and, to her great surprise, she could get but a very small quantity of milk from one of them. The udder was quite soft, and appeared to have been milked before the maid came. The small quantity got from her was put with the other cows' milk, and after it had been in the pan a few hours, the cream which rose on the top was of a pink colour, quite different from our cream at other times. In the evening of the same day, she gave her usual quantity of milk, which was kept separate from the other cows' milk, and on examining the straining-cloth we discovered a clot or two of blood. Since that time she has given her milk all right. Last week we had another cow in the same way. This lasted a day or two, after which the milk was as good as ever. The first cow will have calf on the 6th of October, and the other will calve on the 9th of the same month. My object in stating this simple circumstance is to ascertain, if possible, from your numerous correspondents whether there is any truth in the oft-repeated assertion that hedgehogs do suck the cows, and cause the milk to be bloody. Such may be true, but I cannot believe it until I am assured by some one who has seen the animal performing the milkmaid's work. I am told by some parties here in Cornwall that hedgehogs will eat eggs, young birds, chickens, &c. I should very much like to have the opinion of such of your correspondents as may have had opportunities of proving whether or no those things are true."

GLYCERINE: *B.* It is in a certain sense a refuse of the candle manufacture, being that part of natural fatty matters the separation of which is one of the objects of the manufacturer. Its non-illuminating power renders its presence undesirable, and its uses for other purposes make its separation a doubly important consideration. Among its uses is said to be its fitness for pig feeding, which is being tested in comparison with cod-liver oil.

Caution to Gardeners.—When you ask for SAYNOR AND COOKE'S WARRANTED PRIZE PRUNING and BUDDING KNIVES, see that you get them. Observe the mark SAYNOR, also the corporate mark OBTAIN WARRANTED, without which none are genuine.

S. & C. regret having to caution Gardeners and others, but are compelled to do so, in consequence of an imitation, of common quality, having been sold for the genuine one, and which has caused many complaints to be made to them of Knives which were not of their make, all of which are warranted both by Sellers and Makers.

S. & C.'s Pruning and Budding Knives are the best and the cheapest in the market.

Paxton Works, Sheffield. Established upwards of 125 years.

Glass for Garden Purposes.

JAMES PHILLIPS AND CO. beg to submit their REDUCED PRICES as follows:—

PROPAGATING  GLASSES.

Each.—	s.	d.		Each.—	s.	d.
2 inches in diameter ..	0	3½	12 inches in diameter ..	1	9	
3 " " ..	0	4½	13 " " ..	2	0	
4 " " ..	0	5½	14 " " ..	2	6	
5 " " ..	0	6½	15 " " ..	3	0	
6 " " ..	0	8	16 " " ..	3	6	
7 " " ..	0	10	17 " " ..	4	0	
8 " " ..	1	0	18 " " ..	5	0	
9 " " ..	1	2	19 " " ..	6	0	
10 " " ..	1	4	20 " " ..	7	0	
11 " " ..	1	6				

HYACINTH and FLOWER DISHES.

6 inches diameter .. .. 1s. 0d. | 9 inches diameter 1 0
12 inches diameter .. .. 2s. 6d.

Hyacinth Dishes are intended to contain a number of Roots Bedded in and covered with Moss, instead of the common Hyacinth Glass.

LACTOMETERS, for Testing the Quality of Milk.
Four Tubes .. .. 4s. 6d. | Six Tubes .. .. 6s. 6d.
With Stands complete.

HAND GLASSES,  WITH OPEN TOPS.

Each.—	s.	d.		Each.—	s.	d.
12 inches	6	6	18 inches	9	6	
14 "	7	6	20 "	10	6	
16 "	8	6	22 "	11	6	
			24 "	12	6	

Painted and Glazed with 16-oz. Sheet Glass.

London Agents for HARTLEY'S IMPROVED PATENT ROUGH PLATE.

LINSEED OIL, Genuine WHITE LEAD, CARSON'S PAINTS, PAINTS of various colours, ground ready for use.

SHEET and ROUGH PLATE GLASS, SLATES of all sizes, BRITISH PLATE, PATENT PLATE, ROLLED PLATE, CROWN, SHEET, HORTICULTURAL, ORNAMENTAL, COLOURED, and every description of GLASS, of the best Manufacture, at the lowest terms. Lists of prices and estimates forwarded on application to

JAMES PHILLIPS & Co., 180, Bishopsgate Street Without, E.C.

Horticultural Glass Warehouse.

THOMAS MILLINGTON AND CO., 87, Bishopsgate Street Without, London, E.C.

NEW LIST for ORCHARD HOUSE GLASS as supplied to Her Majesty, the Nobility, Gentry, Mr. Rivers, and the leading Horticulturists of the United Kingdom.

ORCHARD HOUSE SIZES.

in. in.		4ths.	3rds.	2nds.	Best.
20 by 12, 20 by 13, 20 by 14, 20 by 15, 20 by 16	Per 100 feet 15 oz.	14s 3d	15s 6d	18s 6d	20s 0d
	Per 100 feet 21 oz.	19s 6d	22s 2d	25s 0d	26s 6d

SMALL SHEET SQUARES, 15 oz., per 100 feet.

in. in.	in. in.	in. in.	in. in.	4ths.	3ds.	2nds.	Best.
6 by 4	7 by 5	8 by 6	9 by 7	12s 3d	13s 3d	16s 0d	18s 0d
6½ by 4½	7½ by 5½	8½ by 6½	9½ by 7½				

Per 100 feet.

10 by 8	12 by 9	12½ by 10½	14½ by 10½	13s 3d	14s 6d	17s 3d	19s 0d
10½ by 8½	12½ by 9½	13 by 10	15 by 10				
11 by 9	13 by 9	13½ by 10½	13 by 11				
11½ by 9½	12 by 10	14 by 10	14 by 11				

LARGE SHEET SQUARES, 15 oz., per 100 feet.

in. in.	in. in.	in. in.	in. in.	4ths.	3ds.	2nds.	Best
15½ by 10½	14 by 12	22 by 12	22 by 16	14s 3d	15s 6d	18s 6d	20s 0d
16 by 10	14½ by 12½	17 by 13	24 by 16				
14½ by 11½	15 by 12	23 by 13	20 by 17				
15 by 11	15½ by 12½	18 by 14	22 by 17				
15½ by 11½	16 by 12	22 by 14	24 by 17				
16 by 11	16½ by 12½	24 by 14	20 by 18				
21 by 11	17 by 12	22 by 15	22 by 18				
13 by 12	18 by 12	24 by 15	24 by 18				

The above Prices are only for the Sizes stated; if a quantity of any other Size be required, a Special Price will be given.

SHEET GLASS.

In Sheets for Cutting up, averaging from 6 to 9 feet super.

15 oz.		21 oz.	
4ths quality, per 300 feet case,	38s.	4ths quality, per 200 feet case,	38s.
3ds " "	48s.	3ds " "	48s.
2ds " "	62s.	2ds " "	66s.
Best " "	92s.	Best " "	96s.

SHEET GLASS is made only in the following substances, 15 oz., 21 oz., 26 oz., 32 oz., 36 oz., and 42 oz.

HARTLEY'S IMPROVED ROLLED ROUGH PLATE in 1-8th in., 3-16th in., 1-4th in., and 3-8th in. substances.

BRITISH PLATE GLASS for Windows and Silvered for Looking Glasses, Coloured Glass, Glass Shades, Striking Glasses, &c., &c.

PAINTS, COLOURS, VARNISHES, &c.

STUCCO PAINT, 24s. per cwt. This Paint adheres firmly to the walls, resists the weather, and is free from the glossy appearance of Oil Paint, resembling a stone surface, and can be made any required shade. It is mixed with rain or pure river water.

WHITE ZINC PAINT, 36s. per cwt. One hundredweight of pure Zinc Paint, with three gallons of Linseed Oil, will cover as much as one hundredweight and a half of White Lead and six gallons of Linseed Oil. Special Dryers for this Paint.

IMPROVED ANTI-CORROSION PAINT, 28s. to 34s. per cwt. Anti-corrosion Paint is extensively used for all kinds of work in exposed situations, on Brick, Stone, Compo, Iron, Iron Bridges, Conservatories, Greenhouses, &c., and is easily laid on by any ordinary workman. Prepared Oil for ditto, 4s. per gallon.

Per cwt.—	s.	d.		Per gallon.—	s.	d.
GENUINE WHITE LEAD	32	0	LINSEED OIL	3	8	
SECONDS WHITE LEAD	30	0	BOILED OIL	4	2	
GROUND PATENT DRYERS, 3d. to 4½d. per lb.			TURPENTINE	3	6	
" OXFORD OCHRE, 3d. to 4½d. per lb.			LINSEED OIL PUTTY, 8s. to 9s. per cwt.			
" RAW UMBER, 4½d. to 6d. per lb.			Fine OAK VARNISH, 10s. to 12	0		
" BURNT do., 6d. to 9d.			" CARRIAGE do., 12s. to 14	0		
GREEN PAINT, all shades,	28s. to 60	0	" PAPER do. 10s. to 12	0		
BLACK PAINT,	24s. to 30	0	" COPAL	16	0	
RED PAINT ..	28s. to 36	0	KNOTTING	10	0	
			Patent GOLD SIZE ..	10	0	
GROUND BRUSHES.			" BLACK JAPAN ..	12	0	
DUSTERS. | SASH TOOLS.			GLAZIER'S DIAMONDS and TOOLS			
DISTEMPER BRUSHES.			MILLED LEAD and PIPES			
			OLD LEAD Bought or taken in exchange.			

The above are Net, for Cash, and as such cannot be booked.
Lists of any of the above on application.

THE ROYAL HORTICULTURAL SOCIETY OF LONDON,

IN CONNECTION WITH THE ROYAL AGRICULTURAL SOCIETY OF ENGLAND, AT THEIR MEETING AT BURY ST. EDMUND'S, 15TH INST., HAVE AWARDED TO

MESSRS. J. B. BROWN & CO., LONDON,

A FIRST-CLASS CERTIFICATE FOR THEIR

NEW PATENT BB PONY LAWN MOWER,

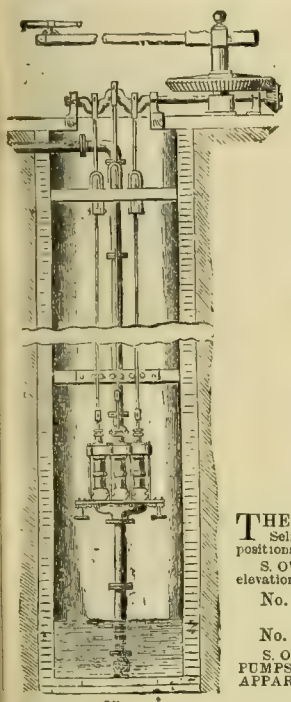
WITH SELF-DELIVERING APPARATUS.

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TWO FIRST-CLASS CERTIFICATES FOR GARDEN SEATS; and

TWO FIRST-CLASS CERTIFICATES FOR CAST-IRON VASES AND TAZZAS.

J. B. BROWN AND CO., 148, UPPER THAMES STREET, LONDON, E.C.



37.

S. OWENS & CO.

(LATE CLINTON AND OWENS),

MANUFACTURERS OF

PUMPS and HYDRAULIC MACHINERY,

WHITEFRIARS STREET, LONDON, E.C.



THE LANDSCAPE SKETCH shows an adaptation of THE IMPROVED HYDRAULIC RAM. This is a simple Self-acting Machine, suited for raising a Supply of Water for use in Public and Private Establishments. Its adoption is not confined to positions as shown, but it is suited for any situation where a Fall can be obtained from a Stream, Brook, or Spring.

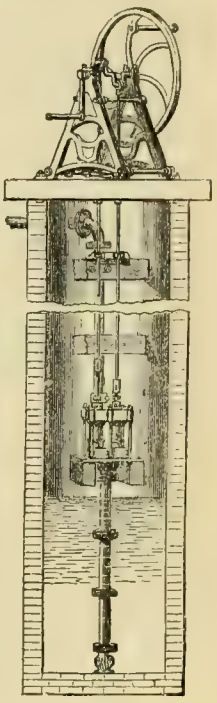
S. OWENS AND CO. have fixed a great many in various parts of the country for raising from 600 to 6000 or more Gallons per day to elevations varying from 30 to 300 feet, and forcing through Main Pipes 50 yards to several miles in length.

No. 37. IMPROVED TREBLE BARREL PUMPS, with HORSE GEARING for Raising Water from DEEP WELLS, for the supply of MANSIONS and PUBLIC BUILDINGS.

No. 28*a*. DOUBLE BARREL PUMPS for HAND-POWER for similar purposes.

S. OWENS AND CO. Manufacture and Erect every description of Engineer's Work required in Public or Private Establishments, such as PUMPS for any purpose on the largest or smallest scale, STEAM ENGINES, WATER WHEELS, TURBINES, WARMING and DRYING APPARATUS, BATHS, GAS WORKS and FITTINGS. Estimates furnished from Plans or on inspection of position.

☞ *Illustrated Catalogues Free on application.*



28*a*.

JOHN WARNER & SONS,

CRESCENT, CRIPPLEGATE, LONDON, E.C.,

BRASS and BELL FOUNDERS to HER MAJESTY, HYDRAULIC ENGINEERS.



No. 35.

35. WARNERS' PATENT CAST-IRON **LIFT PUMPS.**

2½	inches diameter ..	£1	8 6
3	,, ,, ..	2	1 0
3½	,, ,, ..	2	6 0
4	,, ,, ..	2	14 0

No. 37. **SHORT-BARREL DITTO,** FOR SINKS, PLANT HOUSES, &c.

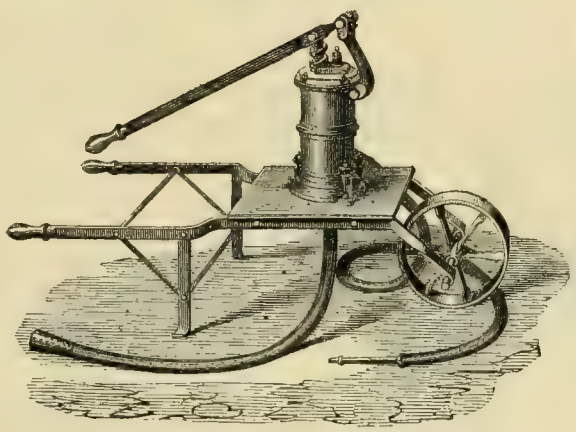
2½ ins. diameter .. £1 1 0



No. 547A.

No. 547A. **GARDEN ENGINE.**

28	Gals. ..	£5	10
24	,, ..	4	19
16	,, ..	3	14
10	,, ..	2	19



THE CRYSTAL PALACE FIRE ENGINE and GARDEN PORTABLE FORCE PUMP.

Price on Barrow, with Branch Pipe, Spreader, Unions, and Suction Rose, £6.

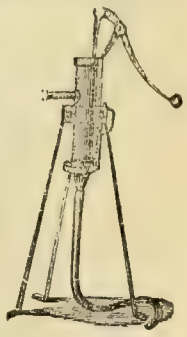
1¾-in. 2-ply Rubber Suction Pipe, per foot, 2*s*. 2*d*.

1½-in. ditto Delivery Hose, 1*s*. 4*d*.

No. 42. WARNERS' **PORTABLE PUMPS,**

With Improved Valves for Liquid Manure, £2 15*s*.

2-in. Flexible Rubber Suction Pipe, in 10, 12, and 15 ft. lengths, per foot, 2*s*. 5*d*.



No. 42.

No. 579½. **SWING WATER BARROW.**

50	Gals. ..	£5	12
38	,, ..	3	17
30	,, ..	2	13
20	,, ..	2	2



No. 579½.

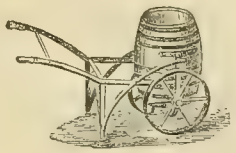
ILLUSTRATED and PRICED LISTS of Garden Engines, Swing Barrows, Aquajects, Syringes, and Fountain Jets sent on application.

☞ *Estimates and Drawings forwarded for Deep Well Pumps, for Steam, Horse, or Hand Power; Irrigating Machinery, Water Wheels, Water Rams, and every description of Hydraulic Machinery.*

W. S. BOULTON'S 36-gallon SWING WATER BARROW. Price 45s.
Carriage paid to any Station in England.







The above is very cheap and invaluable for carrying Liquids of all kinds. No Garden, Farm, Stable, or Kitchen Yard should be without one. Two or more Tubs can be had with one Carriage at a small additional cost. A Lad can easily work it; but if required to travel long distances over rough ground a Pony can be attached. The wheels and carriage are wrought iron, and the tub oak. The following, out of many Testimonials, have been received:—

From Lord OTHO FITZGERALD, *West Park, Salisbury.*

"SIR,—You are welcome to make use of my letter recommending your Water Barrow. I find it of great use, and stronger, better, lighter, and more serviceable than one I had made in the neighbourhood, the carriage alone of which, without the barrel, cost me £3 10s. I unfortunately ordered it before I saw your advertisement. —I am, yours obediently, "O. FITZGERALD."

"To Mr. W. S. BOULTON."

From THOS. INGLE, Esq., *M.D., Emsworth, Hants, June* 24, 1866.

"SIR,—The Swing Water Barrow is in every respect a most admirable improvement on all I have hitherto used in my Gardens. All parties who have seen it, Gentlemen as well as Gardeners, have bestowed upon it their unqualified approval, and several said they would order them of you.—Yours truly, "THOS. INGLE, M.D."

"To Mr. W. S. BOULTON."

Rose Lane Iron and Wire Works, Norwich.

GRAY'S OVAL TUBULAR BOILER.

INTERNATIONAL EXHIBITION, CLASS IX., No. 2119.

MR. GRAY begs to call the attention of the Nobility, Gentry, Nurserymen, Gardeners, &c., to his

NEW OVAL TUBULAR BOILER,

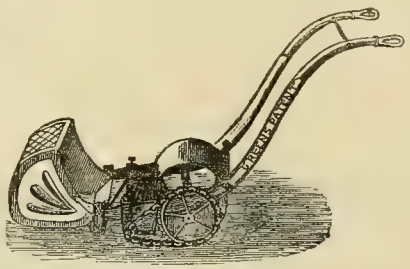
Acknowledged by practical judges to be a great improvement on every form of Tubular Boiler yet introduced. It has proved itself superior to all other Boilers for quickness of action and economy of Fuel, doing its work with one-third less the amount required by any other.

Extract from Report in GARDENERS' CHRONICLE *of International Exhibition, May* 24, 1862, *page* 476.

"The upright form of Boiler is usually made on a circular plan, but the oval form given to Mr. GRAY's variety of it is said to be preferable in consequence of its bringing the tubes in closer contact with the fire. The usual form of a furnace being a parallelogram rather than a square, it seems feasible that the Boilers on the oval plan should bring the tubes more completely within range of the burning fuel; and this being so, the change, though a slight one, is no doubt an improvement."

☞ *They are made of all sizes, which, with prices, may be had on application.*

JAMES GRAY, HORTICULTURAL WORKS,
DANVERS STREET, PAULTON'S SQUARE, KING'S ROAD, CHELSEA, S.W.



Lawn Mowers.
GREEN'S PATENT. | SAMUELSON'S PATENT.
SHANKS' PATENT. | BARNARD'S PATENT.

DEANE & CO.,

46, KING WILLIAM ST., LONDON BRIDGE.

Horticultural Tools, &c.

LAWN MOWING MACHINES, *50s.*, *70s.*, *90s.*, *140s.*
GARDEN BARROWS, Wood and Iron, *21s.* and *26s.*
GARDEN ENGINES, Galvanised Iron. Prices, *55s.*, *65s.*, *78s.*, *90s.*, *100s.*, *110s.*
GARDEN ROLLERS, *£1 10s.*, *£1 14s.*, *£2*, *£2 7s. 6d.*, *£2 12s. 6d.*, *£3 2s. 6d.*
STEEL DIGGING FORKS, SPADES, SCYTHES, &c.
GREENHOUSE SYRINGES and GARDEN PUMPS.
WIRE NETTING and ORNAMENTAL WIRE WORK.
GARDEN SEATS and CHAIRS.
FLOWER STANDS, Cast-iron and Wire.
STRAINED WIRE FENCING and IRON HURDLES.

HOT-WATER FITTINGS for GREENHOUSES, CONSERVATORIES, FORCING PITS, &c.

Deane's New Illustrated Horticultural Catalogue post free on application.

ESTABLISHED A.D. 1700.

DEANE AND CO., 46, KING WILLIAM STREET, LONDON BRIDGE, E.C.

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MESSRS. J. B. BROWN & CO., LONDON,

A FIRST-CLASS CERTIFICATE FOR THEIR

NEW PATENT BB PONY LAWN MOWER,

WITH SELF-DELIVERING APPARATUS.

ALSO A FIRST-CLASS CERTIFICATE FOR THEIR IMPROVED PREMIUM WIRE NETTING;

TWO FIRST-CLASS CERTIFICATES FOR GARDEN SEATS; and

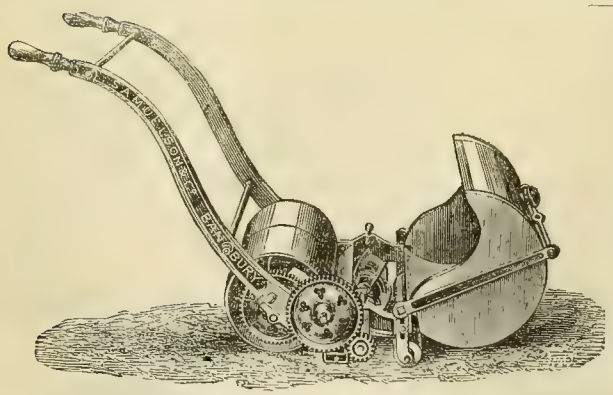
TWO FIRST-CLASS CERTIFICATES FOR CAST-IRON VASES AND TAZZAS.

J. B. BROWN AND CO., 148, UPPER THAMES STREET, LONDON, E.C.

SAMUELSON & CO.'S

IMPROVED LAWN MOWING MACHINES.

EVERY MACHINE WARRANTED.



PRICES.

Delivered Free to any Railway Station in Great Britain.

Cutting 12 inches wide	£4 10 0
Cutting 14 inches wide	5 5 0
Cutting 16 inches wide	6 0 0
Cutting 19 inches wide	6 10 0
Cutting 22 inches wide	7 10 0
Cutting 25 inches wide	12 0 0
Cutting 30 inches wide	15 0 0
Cutting 36 inches wide	18 0 0

Great improvements have been made in these Machines during the last few years, in regard to all those small but important points of superiority which the practical working of a Lawn Mower suggests; while for elegance of appearance, lightness of draft, and efficiency in working they cannot be excelled. They possess the following advantages:—

1st. Motion is given to the Cutting Apparatus by toothed gearing, which experience has proved to be by far the best method of driving.

2d, The whole of the Driving Wheels are on one side of the Machine, a point of great importance in preventing damage to Shrubs and Flowers, when mowing round the edges of beds.

3d, All the smaller working parts of the Machine are made of Malleable Iron, and are not liable to break.

☞ *Illustrated Price Lists, with selections from several Thousand Testimonials, Free by Post on application.*

SAMUELSON AND CO., BRITANNIA WORKS, BANBURY.

LONDON WAREHOUSE: 10, LAURENCE POUNTNEY LANE, E.C.

AGENTS:—Messrs. TANGYE BROTHERS AND HOLMAN, 10, LAURENCE POUNTNEY LANE; Messrs. DEANE AND CO., London Bridge; Messrs. DRAY, TAYLOR AND CO., London Bridge; Mr. THOMAS BRADFORD, 63, Fleet Street, E.C.; and all respectable Seedsmen and Ironmongers throughout the Kingdom.

HOT-WATER APPARATUS, of every description, fixed complete in any part of the country, or the materials, viz., Boilers, Pipes, &c., delivered to any Station.
Estimates on application.
J. JONES & SONS, 6, Bankside, Southwark, London, S.E.

HOTHOUSES for the MILLION, invented by the late SIR JOSEPH PAXTON.



Manufactories: London, Ulverstone (Lancashire), Gloucester, Coventry, Aberdeen, and Paisley only.
Illustrated Circulars, with revised List of Prices, will be sent on prepaid application to Messrs. HERKMAN & MORTON, Head Office, 7, Pall Mall East, London, S.W.

COTTAM AND COMPANY, CONSERVATORY and HOTHOUSE BUILDERS, &c., Iron Works, 2, Winsley Street, Oxford Street, London, W.

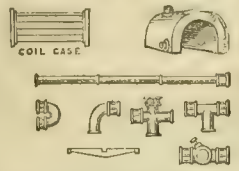
SADDLE BOILERS.

20	24	30 inches long.
45s.	65s.	92s. 6d. each.

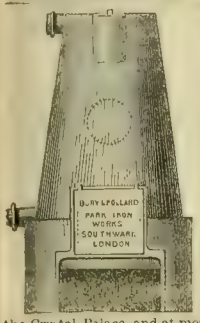
HOT-WATER PIPES.

2	3	4 inch.
1s. 6d.	2s. 1d.	2s. 9d. per yard.

Materials supplied as above, or Estimates given fixed complete to Plan, on application to
COTTAM & Co., Iron Works, 2, Winsley Street, (opposite the Pantheon), Oxford Street, London, W.



HOT WATER APPARATUS



Hot-water Pipes, with Elbows and Connections, supplied by BURY AND POLLARD.
Contracts and Estimates given for WARMING PUBLIC BUILDINGS; latest Improvements in HEATING by HOT WATER; the Improved CONICAL BOILERS, for Heating Pineries, Conservatories, Greenhouses, Mansions, Halls, Warehouses, &c., Solely Manufactured by BURY & POLLARD. These Boilers are adapted for setting in Brickwork, or annexed Sketch shows BURY & POLLARD'S improved arrangement, requiring
NO BRICKWORK SETTING.
These Boilers have for their durability and economy attained a celebrity far surpassing any other Boilers ever invented. They have been for many years past in use at many Public Establishments, Royal Botanical Gardens at Kew, at the Regent's Park, the Crystal Palace, and at most of the Nobility's and Gentry's Seats throughout the United Kingdom. References where they have been for 20 years in constant use.
Price Lists on application to BURY & POLLARD, Park Iron Works, 17, New Park Street, Southwark, London, S.E.

CRANSTON'S PATENT BUILDINGS for HORTICULTURE.
"Dry Glazing without Putty."
"Glass without Laps."
"Ventilation without Moving Lights."
Highly Commended by the Royal Horticultural Society, South Kensington.



Plans and Estimates free on application. Descriptive Book fully illustrated, post free for 20 stamps, from the Author and Patentee, JAMES CRANSTON, Architect, Birmingham.
Works: Highgate Street, Birmingham.
HENRY J. GROWTAGE, Manager, 1, Temple Row West, Birmingham.

Greenhouses—Heating Apparatus.

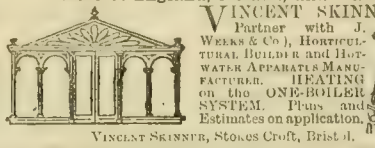


THE ONLY PRIZE MEDAL AWARDED for Various Improvements in the Ventilation, Construction, and Application of WROUGHT-IRON to Horticultural Buildings.
OUR PATENT WROUGHT-IRON PRIZE MEDAL CONSERVATORIES are of the highest order.
OUR PATENT WROUGHT-IRON PRIZE MEDAL GREENHOUSES perfectly neutralize atmospheric conduction.
OUR PATENT WROUGHT-IRON PRIZE MEDAL VINERIES promote vigorous growth and richness of colour.
OUR PATENT WROUGHT-IRON PRIZE MEDAL ORCHID HOUSES and STOVES, with double-glazed roofs, are a complete arrangement.
OUR PATENT WROUGHT-IRON PRIZE MEDAL ORCHARD HOUSES (as supplied to Mr. Rivers), induce perfect symmetry and unfailing result.
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OUR PATENT WROUGHT-IRON PRIZE MEDAL CUCUMBER and MELON HOUSES are specially arranged and heated upon an improved system.
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OUR PATENT WROUGHT-IRON PRIZE MEDAL STRAWBERRY HOUSES admit a complete flood of air and light.
The above Patent Houses can be glazed with or without putty.
These Houses are now protected by three Royal Letters Patent, and from the complete adjustment of their constructional parts will vie most favourably with Wood Structures in point of cost.
Designs and Estimates prepared for single or complete ranges of Houses in Wood or Iron.
Illustrated Catalogues on application to the Patentees,
T. H. P. DENNIS & A. SCREBY, Horticultural Builders and Hot-Water Engineers, Chelmsford.

Heating by Hot Water.
W. J. HOLLANDS, IRON MERCHANT, 31, Bankside, London, S.E.
HOT WATER PIPES, from Stock, per yard:—2-inch, 1s. 2d.; 3-inch, 1s. 10d.; and 4-inch, 2s. 4d. BENDS, from Stock, 1s. 6d., 2s. 6d., and 3s. each. THROTTLE VALVES, 10s., 13s., and 14s. each. Other Connexions at equally low prices, and all goods of first-class manufacture. Estimates given, and orders by post punctually attended to the same day.

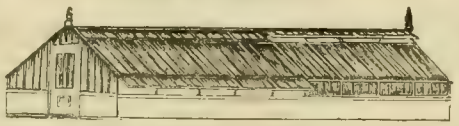
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HOT-WATER PIPES, at Wholesale Prices, with Elbows, Syphons, Tee-Pipes, and every other connection; Wrought and Cast-Iron Boilers, Saddle, Conical, Cylinder, TUBULAR, and Elliptic, from 24s. each. Improved Boilers and Iron Stands to use without brickwork, 60s. each. Valves from 10s. 6d. each. Patent Valves, Improved Furnace Doors, Furnace Bars, Supply Cisterns, and Castings of every description in stock, at
Mr. LYNCH WHITE'S Iron Wharf, Upper Ground Street, Blackfriars Bridge, London, S. Price List on application.

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VINCENT SKINNER (late Partner with J. WEEKS & Co.), HORTICULTURAL BUILDER and HOT-WATER APPARATUS MANUFACTURER. HEATING on the ONE-BOILER SYSTEM. Plans and Estimates on application.
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Midland Steam Power Horticultural and Hot Water Works, Loughborough.



T. G. MESSENGER, Midland Steam Power Horticultural Works, Loughborough, Hot-Water Apparatus and Valve Manufacturer.
Honourable Mention awarded at the International Exhibition, 1862, and at the Dublin Exhibition, 1865; also a First-class Certificate by the Royal Horticultural Society.
T. G. MESSENGER, Patentee of many important improvements in Buildings and Implements connected with Horticulture, and which meet with unqualified approbation, is prepared to give reference to hundreds of works entrusted to him and pre-eminently answering the purpose for which they were constructed.
Any House Glazed single or double, with or without putty.
The mode adopted by T. G. MESSENGER for Heating and Ventilating Forcing Houses is particularly successful.
Houses are constructed by his Patented Ventilating principle to open the whole of roof and sides as though the glass were entirely removed, at once placing the plants in the external atmosphere.
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T. G. MESSENGER'S Valve (single or double) is effective, simple, easy to work, and as durable as the pipe to which it is attached
Designs and Estimates supplied for all kinds of Horticultural Works, and guaranteed to answer the purpose for which they may be intended.

The New Furnace Bar
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THIS BAR is particularly adapted to FIRES for VINERIES, GREENHOUSES, &c., and all FURNACES worked on the principle of slow combustion. The saving of Fuel effected is very great; nearly all the Smoke is consumed if care be taken, and the fire can be so regulated that any temperature desired can be kept up for at least 12 hours without stoking or further trouble. Any Bricklayer can set up these Bars without deranging much of the brickwork. They are in use in many Conservatories, and give the highest satisfaction. Testimonials will be forwarded on application to the Proprietors,
The Ventilating Furnace Bar Company, Limited, 9, Mincing Lane, London, E.C.
Specimens of these Bars may be seen in the Eastern Arcade of the Horticultural Gardens, South Kensington.

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PATENT LEVER WATCH in Engine-turned Silver Case, with all the latest improvements, jewelled, seconds hand, strong, and calculated for hard wear, 4l. 14s. 6d.
The same Watch in Hunting Cases, 5l. 5s.
STRONG SILVER ALBERT and GUARD CHAINS.
The above being Manufactured on the Premises, are with confidence recommended and warranted for correct performance.
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GEORGE F. MORRIS (of the Firm of PROTHEROE & MORRIS) undertakes SALES and VALUATIONS of FREEHOLD LAND, or for ESTATES, Leasehold and Reversionary Property of every description, Farming and Market Garden Produce, Household Furniture, Stock in Trade, &c.
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BOROUGH of LIVERPOOL.—STANLEY PARK.—TENDERS are required for MAKING WALKS, EXCAVATING and PUDDLING LAKE, and general GROUND WORK, according to Plans, Sections, and Specifications, which may be seen at the Office of the ARCHITECT and SURVEYOR, Town Hall, Liverpool. Tenders, in accordance with the Specification, to be sent in to the ARCHITECT'S Office, Town Hall, on or before TUESDAY, July 30, addressed to the Chairman of the Improvement Committee, and endorsed "Tender for Ground Work at Stanley Park; Contract No. I. The lowest or any other Tender will not necessarily be accepted.
Architect's Office, Town Hall, July 10, 1867.

Oxford-Down Rams.
MR. DRUCE offers for SALE, by Private Contract, this Season, about 30 SHEARLINGS, and a few TWO-SHEAR OXFORD-DOWN RAMS, which may be seen at any time, as well also THE FLOCK on the Farm. The Sheep have not been housed.
Eynsham, Oxford, July, 1867.

Farm Poultry.
GREY DORKING FOWLS, of purest breed, in any numbers.
Imported TOULOUSE GEESE, the largest and most productive breed known.
Improved NORFOLK TURKEYS, large, hardy, and good breeders.
AYLESBURY and ROUEN DUCKS.
Imported BELGIAN HARE RABBITS, for size and early maturity.
BRAHMA-POUTRA, CREVECŒUR, and LA FLECHE FOWLS, for constant layers.
Priced Lists and Estimates on application.
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To Nurserymen and Seedsmen.
WANTED, a SMALL BUSINESS in the above Line.
Address A. T., *Gardeners' Chronicle* Office, W.C.

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To MARKET GARDENERS, FRUIT GROWERS, AND OTHERS.
TO BE LET, on Lease, either as a Whole or in Lots, with possession at Michaelmas next, a valuable FARM of 320 Acres of Market Garden, Hop, and Fruit Land, in a high state of Cultivation, with Cottages and Buildings, situate in the high road from Farningham and Dartford, and within a quarter of a mile of the Farningham Road Station on the London, Chatham, and Dover Railway.
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A WELL-ESTABLISHED SUBURBAN BUSINESS.—Extent of Grounds about Six Acres, with 11 Greenhouses, Forcing Pits, &c. Returns good; capable of great increase; long Lease; Rent low. For cards, &c., apply to
Mr. J. C. RICKABY, Surveyor, &c., 50, Bedford Row, W.C.

To Nurserymen, Florists, and Others.
TO BE SOLD, the LEASE of a well-stocked NURSERY, of several Acres, with Cottage, Propagating, Intermediate, and Greenhouses, Sheds, Stabling, &c., doing a good Trade. Established 25 years; present Proprietor retiring.
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FOR DISPOSAL, a First-class NURSERY and SEED BUSINESS; or the present Proprietor would accept of a WORKING PARTNER with a Capital of not less than £1500.
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WILLIAM DEAN, having determined on residing in London again, offers for SALE, with immediate possession, the NURSERY at SHIPLEY, consisting of Four Acres, with 13 extensive Glass Houses, the whole, with the Nursery well stocked, and with Dwelling House, &c., is held on Lease; also the SEED SHOP, in BRADFORD (the only one in the town), which is well fitted up, and where there is a good business doing in Fancy Articles, as well as Seeds, Cut Flowers, Flowering Plants, &c. The Nursery is 2½ miles from the Shop, on a principal road to Bradford. A half year's business is equivalent to the purchase money required, and will be a great bargain to the purchaser. It is an excellent opportunity for a large house in the South to establish a Branch Business here, as a good healthy Trade is already done, which may be very much increased. For particulars apply to
WILLIAM DEAN, Bradford Nursery, Shipley, Yorkshire.

To Noblemen and Gentlemen desiring to Possess a FINE PAVILION FOR PLEASURE GROUNDS OR EXTENSIVE GARDENS.
MESSRS. TROLLOPE desire to invite attention to the large and handsome IRON BUILDING, designed by an eminent Architect, who prepared Special Drawings and Superintended the Modelling of every part, the strength of the whole being determined and tested by Engineers mainly engaged in the production of Iron Structures. The Building is of noble proportions, and is about 80 feet long by 40 feet wide; it presents a most ornamental and pleasing object. It was originally prepared for the East, but it is highly calculated for the reception of Hardy Plants, Statuary, Bronzes, &c., and to be used as a Saloon for Déjeûners, Fêtes, or Dancing. It is to be SOLD at a considerable reduction from the cost price. It is temporarily erected by permission in the Grounds of the Horticultural Gardens.
Full particulars to be had at the Office of Messrs. TROLLOPE, Halkin Street West, where a Photograph can be seen.

Sales by Auction.

Established Orchids.
MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on SATURDAY, July 20, at half-past 12 o'Clock precisely, a Collection of ORCHIDS in the best possible condition; most of them fine specimens and choice varieties, and well worthy the attention of buyers of established plants.
On view the Morning of Sale, and Catalogues had.

Shropshire Sheep.
MR. JOHN B. LYTHALL (Secretary to the Birmingham Cattle Show) respectfully invites attention to the following important SALES of pure-bred SHROPSHIRE SHEEP, Catalogues and full particulars of which may be obtained on application at the Auctioneer's Offices, 39, New Street, Birmingham.

Shropshire Sheep.
THE LEESE FARM, STAFFORD.
MR. JOHN B. LYTHALL will SELL by AUCTION, on TUESDAY, July 30, 25 SHEARLING RAMS, 3 older RAMS, about 20 RAM LAMBS, and 25 splendid BREEDING EWES of "Patentee" blood, the property of Mr. S. Byrd, whose unrivalled reputation as a successful breeder of Shropshires will be fully maintained by the specimens shown this year.

Shropshire Sheep.
THE LEESE FARM, STAFFORD.
MR. JOHN B. LYTHALL (Secretary to the Birmingham Cattle Show) is instructed to SELL, on TUESDAY, July 30, immediately after Mr. S. Byrd's Sheep—Fifty excellent Breeding SHROPSHIRE EWES, the property of Mr. Frederic Byrd.

Shropshire Sheep.
HOLLY BANK, NEAR BURTON-UPON-TRENT.
MR. JOHN B. LYTHALL will SELL by AUCTION, on TUESDAY, August 6, 30 SHEARLING and older RAMS and 60 BREEDING and SHEARLING EWES, the property of Willoughby Wood, Esq.
At the same time will be SOLD two highly-descended young SHORTHORN BULLS.
The high and exposed situation on which these sheep are bred renders them particularly hardy in their constitution.

Shropshire Sheep.
ELFORD PARK, TAMWORTH.
MR. JOHN B. LYTHALL will SELL by AUCTION, on WEDNESDAY, August 7, 35 SHEARLING and older RAMS, and 120 BREEDING and SHEARLING EWES, the property of Mr. G. A. May.

Shropshire Sheep.
THE SIXTH ANNUAL GREAT CENTRAL SALE AT BINGLEY HALL, BIRMINGHAM.
MR. JOHN B. LYTHALL will SELL by AUCTION, on THURSDAY, August 8, SHROPSHIRE RAMS and EWES, the property of several eminent Breeders, including the Right Hon. Lord Wenlock, Charles Randell, Esq., Messrs. Braun, Briscoe, P. Lowe, Nock, Pilgrim, Steedman, Lythall, &c.
Entries should be forwarded at once, that the same may be properly advertised.

Shropshire Sheep.
THE MOUNT, GRENDON, NEAR ATHERSTONE, WARWICKSHIRE.
MR. JOHN B. LYTHALL will SELL by AUCTION, on FRIDAY, September 6, 40 SHEARLING and older RAMS, and 120 STOCK and SHEARLING EWES, the property of Mrs. Baker.
The Grendon Flock is fully up to its usual high standard of general excellence.

Shropshire Sheep.
PIPE PLACE, NEAR LICHFIELD.
MR. JOHN B. LYTHALL will SELL by AUCTION, on FRIDAY, September 13, 50 SHEARLING and TWO-SHEAR RAMS, and 120 STOCK and SHEARLING EWES, the property of Mr. J. H. Bradburne.
The Owner particularly invites an early inspection of his Sheep.

GREEN'S PATENT SILENS MESSOR,

OR

NOISELESS LAWN MOWING, ROLLING, and COLLECTING MACHINES.

PATRONIZED BY

HER MOST GRACIOUS MAJESTY THE QUEEN
ON TWENTY-NINE DIFFERENT OCCASIONS.
H.R.H. THE PRINCE OF WALES.

THE KING OF THE BELGIANS.
THE EMPEROR OF THE FRENCH.
THE EMPEROR OF RUSSIA.

AND MOST OF THE NOBILITY, CLERGY, AND GENTRY IN THE UNITED KINGDOM.

THOMAS GREEN AND SON, in introducing their PATENT LAWN MOWERS for the present season, beg to state that they have no Novelties to report. The fact is, that after the severe tests their Machines have been subjected to since they added their latest improvements, they have been found to meet all the requirements for which they are intended, viz.:—the KEEPING of LAWNS in the HIGHEST STATE of PERFECTION.

They are the simplest in construction, least liable to get out of order, and can be worked with far greater ease than any other Lawn Mower extant; and in proof of their superiority, 39,000 have been sold since the year 1856.

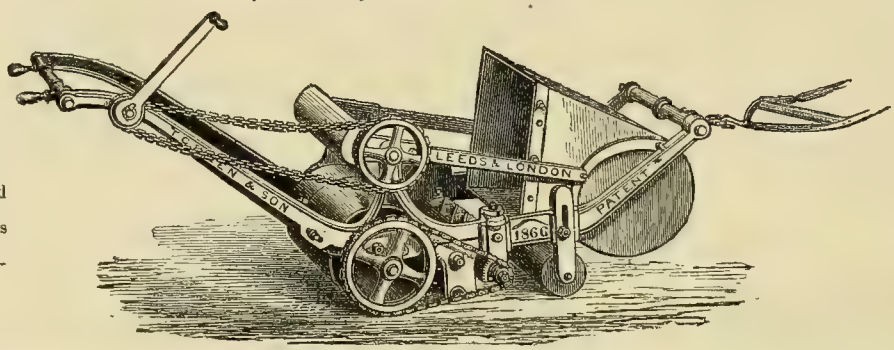
THEY ARE THE ONLY MACHINES IN CONSTANT USE AT

THE ROYAL HORTICULTURAL SOCIETY'S GARDENS, SOUTH KENSINGTON
THE ROYAL BOTANIC GARDENS, REGENT'S PARK
THE CRYSTAL PALACE COMPANY'S GARDENS, SYDENHAM
BUCKINGHAM PALACE GARDENS
MARLBOROUGH HOUSE
THE HYDE PARK GARDENS
THE WINTER PALACE GARDENS, DUBLIN
THE DUBLIN BOTANIC GARDENS
THE LIVERPOOL BOTANIC GARDENS
THE LEEDS ROYAL PARK
THE HULL BOTANIC GARDENS
THE BOTANIC GARDENS, BRUSSELS
THE SUNDERLAND PARK
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AND IN MOST OF THE PRINCIPAL PARKS, SQUARES, ETC., IN THE UNITED KINGDOM.

HORSE, PONY, AND DONKEY MACHINE.

GREEN'S
PATENT
LAWN MOWERS
have proved to be the best, and carried off every Prize that has been given in all cases of competition.



T. GREEN & SON
warrant every Machine to give entire satisfaction, and if not approved of can be returned unconditionally.

PRICES of HORSE, PONY, and DONKEY MACHINES, including Patent Self-delivery Box; Cross Stay complete; suitable for attaching to ordinary Chain Traces or Gig Harness.

PONY AND DONKEY MACHINES.

To Cut 26 inches	..	..	..	£13 0 0	*Leather Boots for Donkey*, 18*s*. *Leather Boots for Pony*, 22*s*.
„ 28 „	..	..	..	15 0 0	
„ 30 „	..	..	..	17 0 0	

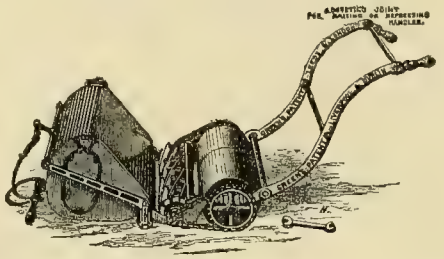
HORSE MACHINES.

To Cut 30 inches	..	..	..	£21 0 0	*Leather Boots for Horse*, 26*s*.
„ 36 „	..	..	..	24 0 0	
„ 42 „	..	..	..	27 0 0	
„ 48 „	..	..	..	30 0 0	

Both the Horse, Pony, Donkey, and Hand Machines possess (over all other Makers) the advantage of Self-sharpening. The cutters being steel on each side, when they become dull or blunt by running one way round the cylinder, can be reversed again and again, bringing the opposite edge of the cutter against the bottom blade, when the Machine will cut equal to new. Arrangements are made that the cylinder can be reversed, by any inexperienced person, in two or three minutes.

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„ 12 „	..	4 10 0	„ „	„ 20 „	.. 8 0 0 *Suitable for Two Person.*
„ 14 „	..	5 10 0	*Suitable for One Person*	„ 22 „	.. 8 10 0 „ „
„ 16 „	..	6 10 0	„ „	„ 24 „	.. 9 0 0 „ „



Packing Cases are charged at the following low rates, viz.:—for the 10 and 12-inch Machine, 3*s*.; 14 and 16-inch, 4*s*.; 18 and 20-inch, 5*s*.; 22 and 24-inch, 6*s*. Parties providing themselves with Lawn Mowers are recommended to purchase the cases in which to stow them away, when not in use, to prevent them from getting damaged; if returned, two-thirds will be allowed for them.

The above MACHINES are made from the best materials, and of superior workmanship; are delivered Carriage Free to all the principal Railway Stations and Shipping Ports in England.

Every Machine is warranted to give entire satisfaction, and if not approved of, can be returned unconditionally.

T. G. AND SON have to state that the demand for their LAWN MOWERS this season has been unprecedented, which is a proof of the high estimation in which they are held. The 3000 Machines they had in stock at the commencement of the season are now materially reduced, still with their present facilities they are prepared to execute Orders on the day they are received.

Having taken very extensive Premises in London, we are in a position to do all kinds of Repairs there, as well as at our Leeds Establishment.

THOMAS GREEN AND SON, SMITHFIELD IRON WORKS, LEEDS;

and 54 and 55, BLACKFRIARS ROAD, LONDON, S.

Editorial Communications should be addressed to "The Editor;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
Printed by JAMES MATTHEWS, at the Office of Messrs. BRADBURY, EVANS, & Co., Lombard Street, Precinct of Whitefriars, City of London, in the Co. of Middlesex, and Published by the said JAMES MATTHEWS, at the Office, No. 41, Wellington Street, Parish of St. Paul's, Covent Garden, in the said County.—SATURDAY, July 20, 1867.

THE GARDENERS' CHRONICLE
AND
AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.

No. 30.—1867.] SATURDAY, JULY 27. {Price Fivepence. {Stamped Edition, 6*d*.

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ROYAL HORTICULTURAL SOCIETY.
AWARD of JUDGES at BURY ST. EDMUND'S SHOW.
ADDITIONS AND CORRECTIONS (see p. 50).
CLASS 31.—6 LYCOPODIUMS.
1st, Mr. D. T. Fish, Hardwicke House, £3.
3d, Mr. T. D. Irving, Easton Park, £1.
CLASS 49.—NEW HARDY ORNAMENTAL PLANTS.
Special Certificate to Mr. Standish, Ascot, for Retinospora filifera.
MISCELLANEOUS.
Extra, Mr. R. Fenn, £1, for Collection of Old and New Potatoes.
Special Certificate, Mr. R. Fenn, for Wines made from Outdoor Grapes; also for Bee products.
COTTAGERS' PRIZES.
In Classes 1 to 10 the Prizes should be Shillings instead of Pounds, as printed.

MANCHESTER BOTANICAL AND HORTICULTURAL SOCIETY.—A GRAND EXHIBITION of PLANTS, FRUITS, and FLOWERS will be held at the Gardens, Old Trafford, on TUESDAY, August 27, and four following days, in connection with the GREAT CENTENARY CELEBRATION SHOW of the MANCHESTER and LIVERPOOL AGRICULTURAL SOCIETY.
Charges for admission:—First day, 2*s*. 6*d*. each; remaining days, 1*s*. each; Subscribers to the Botanic Gardens free each day.
Schedules may be obtained at the Gardens, or from the Undersigned. Military Bands in attendance. By Order.
Cooper Street, Manchester. HENRY WHITWORTH, Secretary.

BISHOP AUCKLAND FLORAL and HORTICULTURAL SOCIETY will hold their ANNUAL EXHIBITION in AUCKLAND PARK on AUGUST 30, when upwards of £350 will be awarded in Prizes. Schedules may be obtained on application to Mr. J. C. HENDY, Secretary, Bishop Auckland.

DERBYSHIRE FLORAL and HORTICULTURAL SOCIETY.—ANNUAL EXHIBITION, in connection with the Derbyshire Agricultural Exhibition, on WEDNESDAY, September 18. Prizes of £16, £10, £5, £3 10*s*., and £2 are offered for Groups of Twelve Stove or Greenhouse Plants (or both), in or out of flower, Ornamental or Variegated Foliage Plants arranged for effect (Orchidæ excluded). Schedules of Prizes and any farther information may be obtained on application to the Honorary Secretary, Mr. WILLIAM SAUNDERS, Wellington House, Derby.

ORCHIDS.—J. D. to H. J. An.—Letter dated 16th received; further information required, or a personal interview is requested; latter preferred. Strictly confidential.

A COLLECTION of ORCHIDS, of unrivalled richness, consisting of about 1100 Specimens, is to be SOLD, if possible in one lot; Doubles may also be had. Parties inclined to buy are requested to send their address, prepaid, to
Z. E., 534, Messrs. Haasenstein & Vogler, Hamburgh.

Orchard-house Trees Fruiting in Pots.
PEACHES, NECTARINES, APRICOTS, CHERRIES, PLUMS, PEARS, APPLES, VINES, and FIGS.
RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

Vines, Extra Strong from Eyes.
JOHN KELLETT begs to announce that he has a large and fine stock of all the leading sorts fit for immediate Planting. Also all the best varieties of ROSES, in Pots.
Wellington Nursery, Heaton Chapel; and Green Lane Nurseries, Heaton Norris, Stockport.

Strawberries.
CHARLES TURNER is now prepared to supply strong Plants of the best modern kinds, as well as all the leading established varieties, true to name.
A DESCRIPTIVE LIST may be had on application.
The Royal Nurseries, Slough.

New Cherry.
CHARLES TURNER begs to announce that the NEW CHERRY, FROGMORE EARLY BIGARREAU, raised by Mr. Ingram, at the Royal Gardens, will be sent out in Autumn next. For description see *Gardeners' Chronicle* of July 13. A Drawing is being prepared by Andrews for distribution.
The Royal Nurseries, Slough.

Superb New Late Grape, Mrs. Pince's Black Muscat.
LUCOMBE, PINCE, AND CO. beg to thank their very numerous supporters, and to inform them that they will commence sending out the VINES of this splendid Grape on August 1. Orders, if sent now, will be executed in strict rotation.
Their NEW GLOXINIAS and ACHIMENES, which will be sent out at the same time, are a sight worth seeing; the Public are earnestly invited to an inspection.—Exeter Nursery, Exeter.

Highly Cultivated and Regularly Transplanted Nursery Stock.
EIGHTY ACRES of the above, consisting chiefly of FRUIT TREES, ROSES, EVERGREENS, and ORNAMENTAL TREES, which for general excellence are unsurpassed.
THOMAS WARNER, Leicester Abbey Nurseries.

To Cultivators of Succulent and other Plants.
T. COOPER, Holmsdale Road, Reigate, has a large collection of SUCCULENT and other Plants, including 450 varieties of CACTI; also ALOES, HAWORTHIAS, AGAVES, TESTUDINARIA ELEPHANTIPES, &c.; also many new and interesting Plants raised from South African seeds.
Orders punctually attended to.

Calceolaria, Cineraria, Primula fimbriata.
SUTTON AND SONS can supply NEW SEED of the above, saved from choicest flowers, in packets, 1*s*., 2*s*. 6*d*., and 5*s*. each, post free.
Royal Berks Seed Establishment, Reading.

INTERNATIONAL PRIZE CALCEOLARIA, CINERARIA, and PRIMULA.—These are unquestionably the handsomest in cultivation. New Seed now ready, in packets, 2*s*. 6*d*. each, free by post.
EDWIN COOLING, Seed Merchant, Derby.

CALCEOLARIA, CINERARIA, and PRIMULA SINENSIS.—Seed of each, from the choicest and most beautiful flowers, in 2*s*. 6*d*. and 5*s*. packets, post free.
ROBINSON'S CHAMPION DRUMHEAD, or OX CABBAGE, 3*s*. 6*d*. per lb. (Seed of Mr. Robinson's own saving.)
DRUMHEAD, or OX CABBAGE (old sort), 2*s*. per lb.
Together with all other Seeds for present Sowing. Parcels of two pounds and upwards carriage free.
JAMES DICKSON & SONS, "Newton" Nurseries, Chester.

Extra Fine Fringed Primulas.
DOBSON'S CELEBRATED STRAIN, that has stood a ten years' test, is now ready for sending out in 1*s*., 2*s*. 6*d*., and 5*s*. packets. The quality may be depended upon.
DOBSON & SONS, Seedsmen, Isleworth, London, W.

Prize Cineraria Seed.
DOBSON'S UNEQUALLED STRAIN, which has taken 50 First Prizes in six years, is now ready for sending out. Fine new seed, in 1*s*., 2*s*. 6*d*., and 5*s*. packets.
DOBSON & SONS, Seedsmen, Isleworth, London, W.

DOBSON'S STRAIN of PRIZE CALCEOLARIA, CINERARIA, and PRIMULA, the finest in Cultivation.

☞ For Present Sowing.
DOBSON'S INTERNATIONAL, ROYAL HORTICULTURAL, ROYAL BOTANIC, CRYSTAL PALACE, and KINGSTON PRIZE and UNEQUALLED HYBRIDISED CALCEOLARIA now ready, in Sealed Packets, with full Directions for Sowing and Growing, 1*s*. 6*d*., 2*s*. 6*d*., 3*s*. 6*d*., and 5*s*.
DOBSON & SONS, Seedsmen, Isleworth, London, W.

WILLIAMS' SUPERB STRAIN of PRIMULA. See large Advertisement.

PRIMULA SINENSIS FIMBRIATA.—A most superb strain, and cannot be surpassed, 6 varieties, mixed, 1*s*. 6*d*. & 2*s*. 6*d*. per packet. CALCEOLARIA and CINERARIA, extra, 1*s*. & 2*s*. 6*d*.
J. SCOTT, The Seed Stores, Yeovil, Somerset.

Choice Seeds.
WM. CUTBUSH AND SON strongly recommend the following:—
PRIMULA SINENSIS FIMBRIATA, of the finest possible strain, Red, White, or Mixed, 2*s*. 6*d*., 3*s*., and 5*s*. per packet.
CALCEOLARIA, saved from James' choice strain, very fine, 2*s*. 6*d*., 3*s*. 6*d*., and 5*s*. per packet.
CINERARIA, from named flowers, 2*s*. 6*d*., 3*s*. 6*d*., and 5*s*. per packet.
For other Choice Seeds see CATALOGUE, post free.
Highgate Nurseries, London, N.

Russell's Pyramid Primula.
THE FINEST STRAIN IN EXISTENCE.
GEORGE CLARKE has New SEED of the above unequalled varieties, 2*s*. 6*d*. per packet; also the Fern-leaved kinds, 2*s*. 6*d*.; Kermesina (scarlet), 2*s*. 6*d*.; The Fairy (a lavender colour) 1*s*. All of the best quality. Now is the time to sow for strong early plants.
Nursery, Streatham Place, Brixton Hill, S.; and Mottingham, Kent, S.E.

Variegated Geraniums.
CASBON AND SON hold a large stock of above. Prices on application.
Gravel Walk Nursery, Peterborough.

Novelties.
WM. PAUL (Son and Successor to the late A. PAUL) respectfully solicits Orders for the NEW and FIRST-CLASS ROSES and BEDDING GERANIUMS, &c., advertised at length in this Paper in May last.
PAUL'S Nurseries, Waltham Cross, London, N.

IVY-LEAVED PELARGONIUM, L'ELEGANTE.
Strong Plants, 3*s*. 6*d*. each; 30*s*. per dozen.
Larger Plants, 5*s*. each; 50*s*. per dozen.
Usual allowance to the Trade. For description see former Advertisements. Cash or reference must accompany all orders from unknown correspondents.
WM. CUNNINGHAM, The Forge Nurseries, Burton-on-Trent.

New Zealand Nursery, St. Alban's, Herts.
INTENDING PURCHASERS of TRICOLOR PELARGONIUMS will do well to see J. WATSON'S beautiful Tricolors MISS WATSON and MRS. DIX, previous to making their purchases. For fine foliage, excellent constitution, free growth, and brilliancy of colouring they are unrivalled. They have received two First-class Certificates. Plants of Miss Watson in August, £2 2*s*. each; Mrs. Dix in May, 1868, 31*s*. 6*d*. each.

New Fern Catalogue.
W. ROLLISSON AND SONS beg to announce that their NEW CATALOGUE of STOVE, GREENHOUSE, HARDY, and TREE FERNS is now ready, and will be forwarded post free on application.
The Nurseries, Tooting, Surrey, S.

British Fern Catalogue.
ROBERT SIM can now send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his NEW and PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.
Foot's Cray Nursery, S.E., a mile from Sidcup Station of New North Kent Line of South Eastern Railway.

Retinospora filifera.
JOHN STANDISH is the holder of the stock of the above most distinct and beautiful weeping CONIFERA. It is of a pale glaucous green, with slender thread-like branches a foot long, which hang in the most graceful manner, and altogether the most distinct weeping plant ever offered to the Public. It is also perfectly hardy. Strong Plants, now ready, 31*s*. 6*d*. each.
Royal Nursery, Ascot.

Hardy and Permanent Bedding Plant.
CLEMATIS JACKMANNI, and that type, have proved themselves to be "the desideratum" for a good violet, blue, purple, or maroon bed, when pegged down like Verbenas.
The Advertisers solicit an inspection of their CLEMATIS BEDS that are in FULL BLOOM, and will continue up to the month of October. Particulars of treatment by applying to
GEO. JACKMAN & SON, Woking Nursery, Surrey.

Roses in Bloom.
WM. PAUL'S ROSES are NOW IN FULL BLOOM. Inspection respectfully invited. Trains almost hourly from Shoreditch to Waltham Station, Great Eastern Railway.
PAUL'S Nurseries, Waltham Cross, N.

Roses.
H. LANE AND SON beg to call the attention of intending Purchasers to their extensive COLLECTION of ROSES, which are NOW IN FULL BLOOM, and worthy of inspection.
The Nurseries, Great Berkhampstead, Herts.

At the Old Nurseries, Cheshunt,
PAUL AND SON'S ROSES are NOW FINELY IN BLOOM. The Show is finer than for many years past.
Frequent trains to Cheshunt, one mile from the Nurseries.
Their large and varied Collection of HARDY FINE-FOLIAGE TREES and SHRUBS are in good condition for selection.

Roses.
JOHN CRANSTON has the pleasure to announce that his ROSES are NOW IN FULL BLOOM, and that the whole of his stock is in the finest condition possible.
The severe frosts (which proved so destructive in many parts of England throughout last winter) not having visited this locality, he is happy to say that his Roses, Conifers, and other Trees, escaped entirely unharmed.
Nurseries, King's Acre, near Hereford.

NEW ROSES for 1867.—Strong Plants of all the best NEW ROSES now ready.
DESCRIPTIVE LIST, with prices, on application.
JOHN CRANSTON, King's Acre Nurseries, near Hereford.

CULTURAL DIRECTIONS for the ROSE. Second Edition. By JOHN CRANSTON, King's Acre Nurseries near Hereford. Free by post from the Author for 20 stamps.

Roses, Orchard Houses, and Experimental Fruit Tree Culture.
THE NURSERIES at SAWBRIDGEWORTH, 100 Acres in extent, are OPEN to the inspection of Amateurs interested in the above.
The Harlow Station (1¼ mile distant), G. E. R., where Flys are in attendance, is the most convenient.
THOS. RIVERS & SON.

CAMELLIA STOCKS.—A fine batch, fit for working this Autumn.
1-yr. old, 20*s*.; 2-yr. old, in pots, 30*s*.; 3-yr. old, strong, 40*s*. per 100.
1-yr. SEEDLING EVERGREEN OAKS, 12*s*. per 100.
CHARLES B. SAUNDERS, Nurseryman, &c., Jersey.

CALADIUMS, CALADIUMS.—The following 12, in strong Plants, package included, for 8*s*., viz.:—Two Mirabile, two Wightii, one each Belleymei, Newmanii, Argyrites, Gigantea violacea, Bicolor splendens, Amabilis, Bicolor, Chantinii.
ECKFORD'S Six NEW VERBENAS of 1867 at 4*s*.
Post Office Orders accompanying orders payable at Boston Spa.
J. C. PADMAN, Providence Nursery, Boston Spa, Yorkshire.

VIOLA CORNUTA (MAUVE QUEEN), from Stock obtained direct from the Raiser.—Rooted slips of this popular Bedder to be Sold at 2*s*. a dozen, or 6*s*. for Fifty, on receipt of stamps to the amount. Cuttings of Variegated CHRYSANTHEMUM SENSATION, at 2*s*. a doz. Apply either personally or by letter to MR. STANTON, Gardener, Chase Side, Southgate, near London, N.

EVERY GARDEN REQUISITE kept in Stock at CARTER'S New Seed Warehouse, 237 & 238, High Holborn, London.

Genuine Garden and Agricultural Seeds.
JAMES CARTER AND CO.,
SEED FARMERS, MERCHANTS, and NURSERYMEN,
237 & 238, High Holborn, London, W.C.

RAYNBIRD, CALDECOTT, BAWTREE, DOWLING, AND COMPANY, Limited,
CORN, SEED, MANURE, AND OILCAKE MERCHANTS,
Address, 89, Seed Market, Mark Lane, E.C.; or Basingstoke.
Samples and Prices post free on application. Prize Medals, 1851, for Wheat; 1862, for "Excellent Seed Corn and Seeds."

Agricultural and Garden Seeds.
H. AND F. SHARPE beg to announce to the Trade that their SPECIAL LIST of HOME-GROWN SEEDS, 1867 Growth, is now ready and may be had on application.
Seed Growing Establishment, Wisbech, Cambs.

Grass Seeds for Autumn Sowing.
SUTTON'S PERMANENT GRASS SEEDS FOR ALL SOILS.
Prices (according to sorts required and soils for which they are intended), may be had on application.
SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

SUTTON'S RENOVATING GRASSES SHOULD NOW BE SOWN.
6 lb. to 12 lb. required per acre.
Price 10*d*. per lb., or cheaper by the cwt.
SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

ROBINSON'S PRIZE DRUMHEAD CABBAGE PLANTS, 3*s*. per 1000, of A. WILKIN, Tiptree, Kelvedon, Essex. Prepaid orders only attended to.

DRUMHEAD CATTLE CABBAGE,
THE HEAVIEST OF ALL AGRICULTURAL CROPS.
This should be Sown in July & August, for Transplanting in the Spring.
SUTTON & SONS can supply—
ROBINSON'S CHAMPION DRUMHEAD CABBAGE (the heaviest known), at 3*s*. 6*d*. per lb.
GOOD DRUMHEAD CABBAGE at 2*s*. 6*d*. per lb.
SUTTON & SONS, Seed Growers, Reading.

Turnip Seeds for Present Sowing.
SUTTON AND SONS can supply NEW SEED of the BEST KINDS for PRESENT SOWING. PRICED LISTS on application. All goods carriage free except very small parcels.
SUTTON & SONS, Seed Growers, Reading.

The Best Cabbage for Spring Use is
SUTTON'S IMPERIAL, which should be Sown in June and July. Price 8*d*. per oz., Post free. Cheaper by the pound. SUTTON & SONS, Seed Growers, Reading.

Extra Fine Quality.
COLE SEED, "1866 growth," per bushel of 52 lb., 11*s*.; 4 bushels do., 40*s* New 4-8 Sacks, 1*s*. 6*d*. each.
EARLY SIX-WEEKS' TURNIP, New Seed, very fine, 9*d*. per lb. New Bags, 6*d*. to 9*d*. each.
EXCELLENT CABBAGE SEED. See Catalogue of varieties.
Remittances to accompany Orders.
FREDK. GEE, Seed Merchant and Grower, Biggleswade, Beds.

To Noblemen, Gentlemen, Nurserymen, &c.
IMPORTANT SALE WITHOUT RESERVE.

JAS. GARAWAY AND CO., Durdham Down Nurseries, Bristol, beg to announce that in consequence of the approaching Expiration of the Lease of the above-mentioned old-established and well-known Nurseries, their ENTIRE STOCK of STOVE, GREENHOUSE PLANTS, FERNS, &c., comprising a fine Collection of full-sized, half, and quarter specimen HEATHS, AZALEAS, CAMELLIAS, ORANGES, &c., and their splendid stock of AMARYLLIS, the largest and most varied in England, consisting of all the best named sorts; and many Hundreds of FLOWERING BULBS of splendid unnamed HYBRIDS, will be SOLD by AUCTION on the Premises (unless the whole or any portion should in the meantime be Disposed of by Private Contract), on MONDAY, August 19, and following days.

CATALOGUES will be ready a fortnight previous to the Sale, and will be forwarded post free on application.

The whole of the Plants are now lotted, and can be viewed any time between 6 A.M. and 8 P.M.

JAS. GARAWAY & Co.'s Lease expires in the Spring of 1869, and till then Business will be carried on at the present Address as usual.

JAS. GARAWAY & Co., Durdham Down Nurseries, Bristol.

AUSTIN'S ARTIFICIAL STONE, INVENTED 1826.
The entire Stock of this Manufactory comprises
180 different MODELS of VASES.
70 different MODELS of TAZZAS.
About 200 different FOUNTAINS.
74 STATUES from the Antique, and by Modern Artists, and SMALL FIGURES of CHILDREN.
22 SUN-DIAL PEDESTALS.
GARDEN SEATS.
15 BASKETS, from 12*s.* to Seven Guineas.
SHELLS, suitable either for WATER or ROCK PLANTS, from 18 inches to 12 feet diameter.
JARDINIÈRES, or large BOWLS for MASSES of FLOWERS.
53 FIGURES of ANIMALS and BIRDS.
ORNAMENTAL RIMS to WATER BASINS.
34 BAPTISMAL FONTS.
CRESTS and other ORNAMENTS for GATE PIERS.
BALUSTRADING, in various styles.
TRIPOD, and other ANTIQUE PEDESTALS.
Manufactured by AUSTIN, SEELEY, & Co., at Nos. 369 to 375, Euston Road, Regent's Park, N.W.

CROQUET FENCE or GARDEN BORDER.—Galvanized, 12*s.* 6*d.* per roll of 50 yards, with spikes; or in yard lengths, 4*s.* per dozen yards.
The Garden Repository, 32, James Street, Covent Garden, W.C.
Price Lists of every Garden requisite on application.



GARDEN BORDER EDGING TILES, in great variety of patterns and materials, the plainer sorts being especially suited for KITCHEN GARDENS, as they harbour no Slugs and Insects, take up little room, and once put down incur no further labour and expense, as do "grown" Edgings, consequently being much cheaper.



GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, of great durability, and in great variety of design.
F. & G. ROSHER, Manufacturers, Upper Ground Street, Blackfriars, S.; Queen's Road West, Chelsea, S.W.; Kingsland Road, Kingsland, N.E.

Sole London Agents for FOXLEY'S PATENT GARDEN WALL BRICKS. Illustrated Price List free by post. The Trade supplied.

ORNAMENTAL PAVING TILES for Conservatories, Halls, Corridors, Balconies, &c., as cheap and durable as Stone, in blue, red, and buff colours, and capable of forming a variety of designs.
Also TESSELATED PAVEMENTS of more enriched designs than the above.
WHITE GLAZED TILES, for Lining Walls of Dairies, Larders, Kitchen Ranges, Baths, &c. Grooved and other Stable Paving Bricks of great durability, Dutch and Adamantine Clinkers, Wall Copings, Red and Stoneware Drain Pipes, Slates, Cement, &c.
To be obtained of F. & G. ROSHER, at their premises as above.

SILVER SAND (REIGATE, best quality), at the above addresses—14*s.* per Ton, or 1*s.* 3*d.* per Bushel; 2*s.* per Ton extra for delivery within three miles, and to any London Railway or Wharf. Quantities of 4 Tons, 1*s.* per Ton less.
FLINTS, BRICK BURRS or CLINKERS, for Rockeries or Grotto Work. F. & G. ROSHER.—Addresses see above.
N.B. Orders promptly executed by Railway.

GIVE ME WATER, or I DIE! droopingly speak the FLOWERS.
OH! SAVE ME! SAVE ME! by RAIN-LIKE SHOWERS through INDIA-RUBBER HOSE and ROSE.
Illustrated Price Lists of SHEATH BROTHERS, Gutta Percha, India Rubber, Garden Engines, Pump, and General Manufacturers, 89, City Road, E.C.

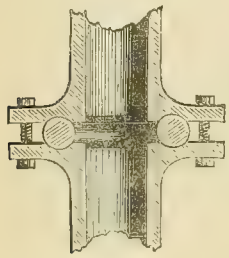
IRON HURDLES (Silver Medal of the Royal Agricultural Society).
SHEEP, 3*s.* 5*d.*; CATTLE, 4*s.* 2*d.*; OX, 5*s.* 11*d.*
List by Post. GATES and FENCING of every description.
St. Pancras Iron Work Company, Old St. Pancras Road, London, N.W.

Caution to Gardeners.—When you ask for
SAYNOR AND COOKE'S WARRANTED PRIZE PRUNING and BUDDING KNIVES, see that you get them. Observe the mark SAYNOR, also the corporate mark OBTAIN WARRANTED, without which none are genuine.
S. & C. regret having to caution Gardeners and others, but are compelled to do so, in consequence of an imitation, of common quality, having been sold for the genuine one, and which has caused many complaints to be made to them of Knives which were not of their make, all of which are warranted both by Sellers and Makers.
S. & C.'s Pruning and Budding Knives are the best and the cheapest in the market.
Paxton Works, Sheffield. Established upwards of 125 years.

By Royal Letters Patent.



WELLS'S PORTABLE GROUND VINERY, for Growing and Ripening Grapes without Artificial Heat.
Awarded a Silver Medal at the International Exposition of Horticulture, held at Nice, April, 1865.
Drawings and Instructions can be had of the PATENTEE, Steam Works 24, Bouverie Street, London, E.C.
AGENTS:—B. J. Edwards, 25, Bishopsgate Street Within, E.C.
J. R. Tanton, Epsom, Surrey.
Drummond Brothers, 52, George Street, Edinburgh.

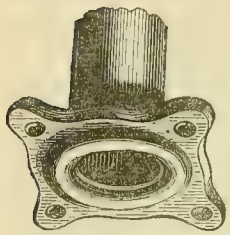


RIDDELL'S

PATENT PORTABLE ELASTIC PIPE JOINT.

Especially adapted for HOT-WATER PIPES for WARMING CHURCHES, PUBLIC BUILDINGS, SCHOOLS, CONSERVATORIES, HOT-HOUSES, &c., is extremely simple, perfectly watertight, saves four-fifths of the time and labour in erecting hot-water work, can be rapidly put together by an ordinary workman, and can be removed and re-erected without injury to pipes or joints.

Prospectus and Price List free.



PATENT PIPE JOINT.

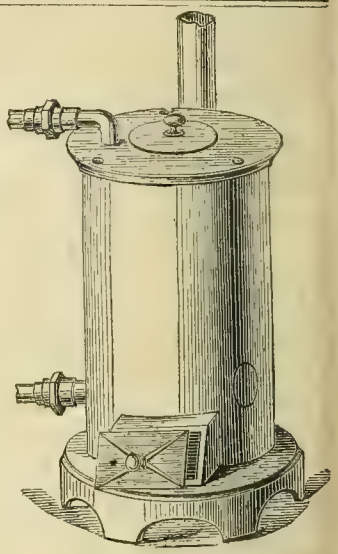
RIDDELL'S

PATENT SLOW COMBUSTION BOILER.

For WARMING CHURCHES, CONSERVATORIES, HOTHOUSES, SCHOOLS, &c., by the circulation of Hot Water, requires no brick-work setting, saves half the fuel usually consumed, is not liable to get out of repair, is easily regulated, will work from 8 to 20 hours without attention, and is made in sizes capable of heating from 30 to 5000 feet of 4 inch pipe.

Prospectus and Price List free.

J. HADLEY RIDDELL, PATENTEE, 155, CHEAPSIDE, E.C.



PATENT SLOW COMBUSTION BOILER.

JOHN WARNER & SONS,

CRESCENT, CRIPPLEGATE, LONDON, E.C.,

BRASS and BELL FOUNDERS to HER MAJESTY, HYDRAULIC ENGINEERS.

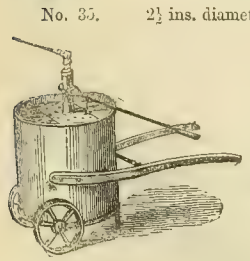


No. 35.

35. WARNERS'
PATENT CAST-IRON
LIFT PUMPS.

2½	inches diameter ..	£1	8 6
3	,, ,, ..	2	1 0
3½	,, ,, ..	2	6 0
4	,, ,, ..	2	14 0

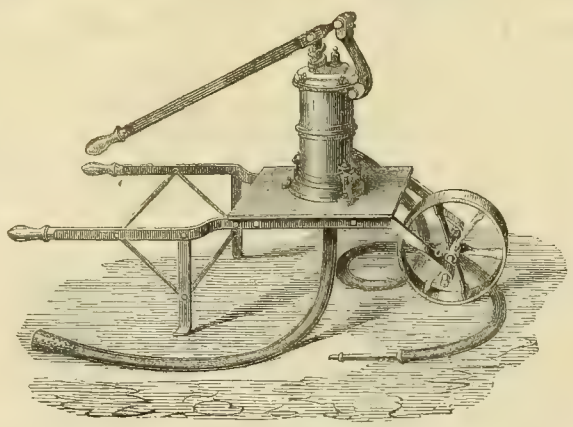
No. 37.
SHORT-BARREL DITTO,
FOR SINKS, PLANT HOUSES, &c.
2½ ins. diameter .. £1 1 0



No. 547A.

No. 547A.
GARDEN ENGINE.

28 Gals. ..	£5	10
24 ,, ..	4	19
16 ,, ..	3	14
10 ,, ..	2	19



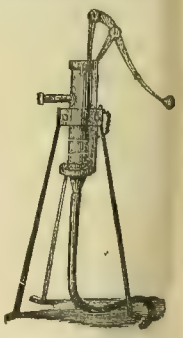
THE CRYSTAL PALACE FIRE ENGINE and GARDEN PORTABLE FORCE PUMP.

Price on Barrow, with Branch Pipe, Spreader, Unions, and Suction Rose, £6.

1¾-in. 2-ply Rubber Suction Pipe, per foot, 2*s.* 2*d.*

1½-in. ditto Delivery Hose, 1*s.* 4*d.*

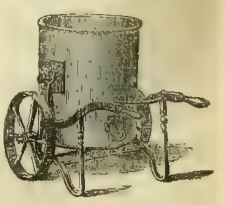
No. 42.
WARNERS'
PORTABLE PUMPS,
With Improved Valves for Liquid Manure, £2 15*s.*
2-in. Flexible Rubber Suction Pipe, in 10, 12, and 15 ft. lengths, per foot, 2*s.* 5*d.*



No. 42.

No. 579½.
SWING WATER BARROW.

50 Gals. ..	£5	12
38 ,, ..	3	17
30 ,, ..	2	13
20 ,, ..	2	2



No. 579½.

ILLUSTRATED and PRICED LISTS of Garden Engines, Swing Barrows, Aquajects, Syringes, and Fountain Jets sent on application.

☞ *Estimates and Drawings forwarded for Deep Well Pumps, for Steam, Horse, or Hand Power; Irrigating Machinery, Water Wheels, Water Rams, and every description of Hydraulic Machinery.*

SHANKS' NEW PATENT LAWN MOWERS FOR 1867.

PATRONIZED ON FIVE OCCASIONS DURING THE SEASON OF 1864 BY

HER MAJESTY THE QUEEN,

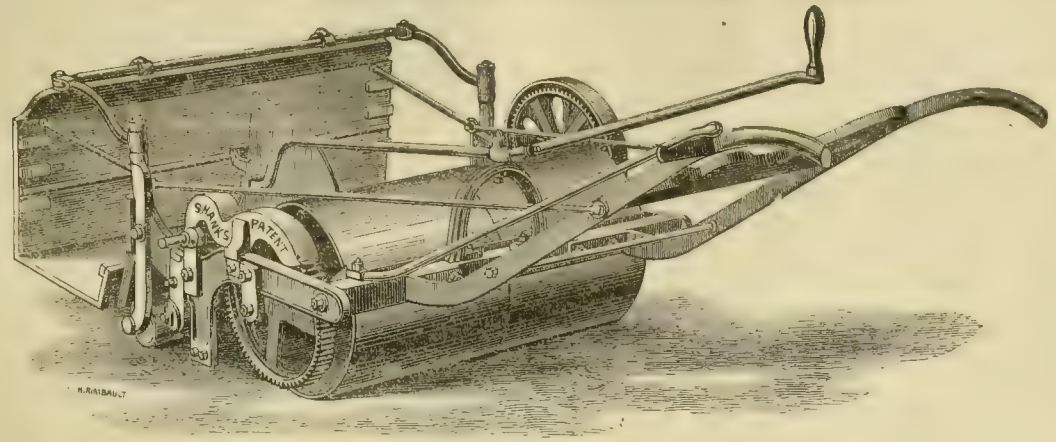
AND ONCE BY HIS MAJESTY THE KING OF SAXONY.

DURING THE SEASON OF 1865 THEY WERE PATRONISED ON FOUR OCCASIONS BY HER MAJESTY THE QUEEN.

ONCE BY HIS MAJESTY THE KING OF HOLLAND, AND ONCE BY HIS MAJESTY THE KING OF PRUSSIA.

AGAIN ON FOUR OCCASIONS DURING THE SEASON OF 1866 BY HER MAJESTY THE QUEEN,

AND BY MANY DISTINGUISHED NOBILITY BOTH IN THIS COUNTRY AND ABROAD.



HORSE-POWER MACHINE.

A FIRST-CLASS CERTIFICATE WAS AWARDED TO

SHANKS' PATENT DELIVERY APPARATUS

BY THE ROYAL HORTICULTURAL SOCIETY AT THEIR SHOW AT BURY LAST WEEK.

This DELIVERY APPARATUS has for many years been one of the peculiar features of SHANKS' PATENT LAWN MOWERS, and it is needless to say that if Machines are wanted with this Improved Apparatus for Delivering the Grass, these Machines can only be had from the original Inventors and Patentees.

A. S. AND SON subjoin a List of a few of those whose patronage they have had the honour to receive during the past few weeks for their favourite Horse Machine. It would take many pages to contain a List of all the distinguished Patrons they have had for the other sizes.

HER MAJESTY THE QUEEN, for the ROYAL GARDENS, WINDSOR, one 42-inch
HER MAJESTY THE QUEEN, for the ROYAL GARDENS, KEW, one 42-inch
HIS GRACE THE DUKE of SUTHERLAND, one 42-inch
HIS GRACE THE DUKE of BEDFORD, one 42-inch
HIS GRACE THE DUKE of BUCCLEUCH, one 42-inch
HIS GRACE THE DUKE of ATHOLE, one 42-inch
THE MOST NOBLE THE MARQUIS of WESTMINSTER, one 42-inch
THE MOST NOBLE THE MARQUIS of STAFFORD, one 42-inch

SHANKS' PATENT LAWN MOWERS

ARE IN DAILY USE IN

ALL THE ROYAL GARDENS; IN THE HORTICULTURAL SOCIETY'S GARDENS AT KENSINGTON; CRYSTAL PALACE COMPANY'S GROUNDS; IN VICTORIA PARK; HYDE PARK;

And in almost all the principal Public Parks and Gardens in the Kingdom.

These are the only Machines that can be depended on to give lasting satisfaction.

THESE ARE THE ONLY MACHINES THAT WILL MOW PROPERLY WHEN THE GRASS IS WET.

THESE ARE THE ONLY MACHINES THAT DELIVER THE GRASS WITHOUT STOPPING, THUS SAVING AN IMMENSE AMOUNT OF LABOUR.

SHANKS' PATENT LAWN MOWERS are the only Machines that have been in operation in HER MAJESTY'S GARDENS for a quarter of a century.

SHANKS' PATENT LAWN MOWER WILL MOW ON UNEVEN AS WELL AS ON LEVEL LAWNS.

PRICES, INCLUDING CARRIAGE TO ANY RAILWAY STATION OR SHIPPING PORT IN THE KINGDOM.

SHANKS' NEW PATENT HAND MACHINE.

Width of Cutter.		Easily Worked	Silent Movement.
10-inch Machine	£3 10 0	*By a Lady*	4*s.* extra.
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Width of Cutter.		If with Patent Delivering Apparatus.
25-inch Machine	£12 10 0	.. .. 25*s.* extra.
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30-inch Machine	15 15 0	.. .. 30*s.* ,,

Silent Movement, 12*s.* 6*d.* extra; Boots for Pony, 22*s.* per set.
Ditto for Donkey, 18*s.* per set.

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30-inch Machine	£19 0 0	.. .. 30*s.* extra.
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42-inch Machine	26 0 0	.. .. 40*s.* ,,
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The Machines are warranted to give ample satisfaction, and, if not approved of, may be at once returned.

PATENTEES AND SOLE MANUFACTURERS:

ALEXANDER SHANKS AND SON, DENS IRON WORKS, ARBROATH, N.B.
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☞ 27, *Leadenhall Street is the only place in London where intending purchasers of Lawn Mowers can choose from a Stock of from* 150 *to* 200 *Machines. All sizes kept there, whether for Horse, Pony, or Hand Power.*

THE LONDON MANURE COMPANY
(ESTABLISHED 1840),

Have now ready for delivery in dry fine condition,
CORN MANURE, for Spring Use
DISSOLVED BONES, for Dressing Pasture Lands
SUPERPHOSPHATES of LIME
PREPARED GUANO
MANGEL and POTATO MANURES.

Also Genuine PERUVIAN GUANO, and NITRATE of SODA, ex Dock Warehouse; SULPHATE of AMMONIA, FISHERY SALT, &c. E. PURSER, Secretary.

Offices, 116, Fenchurch Street, E.C.

LAWES' MANURES.—The Manures manufactured by J. B. LAWES for the present season of 1867 are now ready for delivery at his Factories, at the following prices, per ton:—

	£	s.	d.
LAWES' PATENT TURNIP MANURE and BONE SUPERPHOSPHATE of LIME	6	6	0
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These Manures can be obtained of Mr. LAWES, or through the appointed Agents in all parts of the United Kingdom, at prices varying according to cost of carriage.

Genuine Peruvian Guano direct from the Importers. Nitrate of Soda, Sulphate of Ammonia, and other Chemical Manures.

American and other Cakes at market prices.

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REIGATE SILVER SAND, 12s. per ton, at Swan Place, delivered five Miles, or to any London Wharf or Railway, 16s. per ton, or 1s. 6d. per bushel. (Sacks at cost price, or on hire.) KENTISH and HAMPSHIRE PEATS, YELLOW LOAM, LEAF MOULD, SPHAGNUM MOSS, and COCOA FIBRE REFUSE.
J. KENNARD, Swan Place, Old Kent Road, London, S.E.



COCOA-NUT REFUSE is becoming SCARCE, the old reserves will soon be gone. Now sold in bags, 1 for 2s., 10 for 16s., 20 for 30s., 50 for 66s., 100 for £6.

Fourpence allowed for each bag returned carriage-paid.

A Railway Truck-load (not in bags), 40s.

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Important to Florists and Horticulturists.
POOLEY'S TOBACCO POWDER, prepared under authority of the HON. BOARD of CUSTOMS, can now be obtained of Seedsmen, Nurserymen, &c., in Tins.
Prices, 1s., 2s. 6d., and 5s.
Wholesale from the Bonded Manufactory, Sussex Wharf, Wapping, E. Office, 50, Lime Street, London, E.C.

TOBACCO TISSUE for FUMIGATING GREENHOUSES.—This article, which is made from Tobacco, and is entirely free from sulphur, or any other chemicals, is acknowledged by all those who have used it to be the most effectual remedy for destroying insect life; it will burn without the assistance of blowing, and not injure the most tender plants. Price, 3s. 6d. per lb., carriage free.—Sold by Messrs. ROBERTS & SONS, Tobacco Manufacturers, 112, St. John Street, Clerkenwell, E.C.; and by all Seedsmen and Nurserymen.

Government Boon to Agriculturists and Horticulturists.
DUTY FREE TOBACCO, Sanctioned by the Lords of her Majesty's Treasury and the Honourable Board of Customs.
EXTRACT FROM THE GOVERNMENT REGULATIONS.

"The operation shall be performed under the supervision of the Surveyor, and in the presence of an Examining Officer, who shall see the Tobacco is duly mixed, and incorporated with Sulphur and Assafœtida in the following proportions:—

Tobacco finely powdered	75 parts.
Sulphur	25 parts.
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FRUIT TREES, ROSES, DAHLIAS, HOLLYHOCKS, and other Plants subject to the ravages of Insects, may be effectually protected by the use of this Powder.

TURNIPS, CABBAGES, and GROWING CROPS, may be effectually protected by the use of this Powder.

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Manufactured at the Works of the Richmond Cavendish Company (Limited), Liverpool.

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Red Spider — Magnified.

GISHURST COMPOUND.

Used by many of the leading Gardeners since 1859, against Red Spider, Mildew, Thrips, Green Fly, and other Blight, in solutions of from 1 to 2 ounces to the gallon of soft water, and of from 4 to 16 ounces as a Winter Dressing for Vines and Fruit Trees. Has outlived many preparations intended to supersede it.

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Wholesale by PRICE'S PATENT CANDLE COMPANY (LIMITED).

"I never had my Plants cleaner or looking better than they do now since using your Insecticide. It will kill anything in the shape of Plant Insects without the slightest injury to the Plants.
"J. DALE, F.R.H.S.,
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"For all purposes I consider your Gardener's Insecticide far superior to any remedy that has come under my notice. Most effectual in Destroying the Blue Fly on Plums, and the Black Fly on the Cherries. "WM. KNIGHT, Hailsham."
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"Destroys every Insect to which I have applied it, without the least injury to the most delicate Plant. "G. PARSONS, Brighton."
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FOWLER'S GARDENER'S INSECTICIDE, to which the above Testimonials refer, possesses all the requisite essentials of a complete remedy for thoroughly and effectually destroying and preventing, as it kills both Insects and Ova. It is perfectly safe, for it will not injure the foliage of the most delicate Plant. It is most easily applied, being at one strength—4 ozs. to a gallon of water—suitable for all Insects and all Plants. Will strengthen and invigorate Plants, and improve the appearance of Foliage.

In Jars with direction. Price 1s. 6d., 3s., 5s. 6d. and 10s. May be had of all Seedsmen, Nurserymen, Florists, and Chemists; or of the Manufacturers, G. & T. FOWLER, North Street, Brighton.

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TULIPS.—A Collection of from 12,000 to 15,000 Bulbs, a considerable portion of which are ROSE, BIZARRE, &c., Seedlings, never distributed, together with the select of Martin's, Storer's, and others, as well as choice named sorts, to be SOLD in ONE LOT, a decided Bargain. If not so Disposed of before August 14, they will be Catalogued at very low prices in order to effect a speedy clearance.
JOHN SLATER, Lapwing Lane, Didsbury, near Manchester.

Roses, Roses.
ROSES, on own roots and in pots, grown on now, will flower indoors next spring, viz.:—
6 CHOICE TEAS | 3 CHOICE BOURBONS
6 „ H.P.s
3 „ NOISETTES | 2 „ CHINAS
The Collection of 20 distinct and first-class sorts for 20s.
Post-office Orders on Castle Hedingham.
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JAMES CARTER AND CO. beg to announce that they are now sending out their unrivalled Strains of CALCEOLARIA, CINERARIA, and PRIMULA, which, for fineness of form and beauty of colour cannot be surpassed.
CALCEOLARIA, saved from the finest Prize varieties.
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PRIMULA SINENSIS FIMBRIATA, dark carmine and pure white, saved from the finest fringed varieties in cultivation. Price, each packet, 2s. 6d., forwarded on receipt of Post-office Order for the amount.
☞ PRICE LISTS gratis and Post free on application to CARTER'S Great London Seed Warehouse, 237 & 238, High Holborn, London, W.C.

Early Spring Feed, Trifolium incarnatum.
SUTTON'S ITALIAN RYE-GRASS,
NEW LATE RED TRIFOLIUM,
NEW LATE WHITE TRIFOLIUM.
These are invaluable articles for early Spring Feed, either grown separately or together. The proper quantity of Italian Rye-grass, if sown alone, is 3 bushels per acre, or if Trifolium alone, 28 lbs. per acre.
The New Seed is now being harvested, and we shall be pleased to send samples and lowest prices per quarter and cwt. on application. Also MUSTARD and RAPE, New Seed.
All goods carriage free, except very small parcels.
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GRASS SEEDS for PERMANENT PASTURE, of the finest quality, at moderate prices, carefully selected on a new, natural, and scientific system.
See "WHEELER'S BOOK on GRASSES," which contains Illustrations and Descriptions of the most suitable Grasses for Permanent Pasture.
J. C. WHEELER & SON,
Gloucester,
Seedsmen to the Gloucestershire Agricultural Society.

Seed of Choice Strains of Florists' Flowers.
The following selected Strains are worthy of the notice of all growers of the most useful conservatory decorative flowers.

WILLIAMS' SUPERB STRAIN of PRIMULA.
B. S. WILLIAMS can with confidence offer his superb Strain of Primula as being undoubtedly the finest in cultivation. It is now grown in all the principal Gardens of the Nobility and Gentry throughout the Three Kingdoms, and has never failed to give the greatest satisfaction.
In habit the plants are very robust, and in the foliage differ from all other varieties; but their great beauty consists in the depth of colour in the Red, purity of the White, and beautiful fimbriated form of all the flowers, which are thrown up in large trusses well above the foliage.
As a proof of the truth of the above remarks, this Strain has taken 1st Prizes in every instance that it has been shown in the Provinces this Spring; and 1st Prize at the Primula Show of the Royal Horticultural Society, South Kensington; and 1st at the Royal Botanic, Regent's Park. It is also the favourite Strain in the Covent Garden Flower Market.
This Strain may be procured True, in Sealed Packets bearing B. S. WILLIAMS' Name and Address, from any Seedsman; but B. S. W. particularly requests that Customers will observe, on purchasing, that each Packet has his Name and Address in full printed thereon, as no others are genuine.

The Trade supplied on advantageous terms.

	Per pkt.	s.	d.		Per pkt.	s.	d.
Retail price, RED	.. ..	5	0	Retail price, WHITE	..	3	6
„ „	.. ..	3	6	„ „	..	2	6
„ „	.. ..	2	6	„ MIXED	..	5	0
„ WHITE	..	5	0	„ „	..	3	6

Retail price, MIXED, per packet, 2s. 6d.

WEATHERHILL'S EXTRA CHOICE STRAIN OF CINERARIA.
B. S. W. has purchased the entire Stock and right of Sale of this Magnificent Strain. Many of the flowers produced by this seed last season were as large as a crown-piece. This strain is well known in the London Flower Market, and is the most popular one there, a sufficient guarantee that its qualities are good.

Retail price per pkt., 5s. 0d. | Retail price per pkt., 3s. 6d.
Retail price per pkt. .. .. 2s 6d.

JAMES'S HERBACEOUS CALCEOLARIAS.—The varieties that took the First Prize at the International Horticultural Exhibition last May were of this noted strain.

Retail price per pkt. 5s. 0d. | Retail price per pkt., 3s. 6d.
Retail price per pkt. .. .. 2s. 6d.
All FLOWER SEEDS in packets, Post free

B. S. WILLIAMS, Victoria and Paradise Nurseries, Upper Holloway, London, N.

Dutch Bulbs.—To the Trade only.
E. H. KRELAGE AND SON, NURSERYMEN, SEEDSMEN, and FLORISTS, Haarlem, Holland, beg to announce that their NEW WHOLESALE CATALOGUE of DUTCH BULBS, FLOWER ROOTS, TUBERCULOUS PLANTS, STRAWBERRIES, &c., is now ready, and will be sent gratis to Nurserymen, Seedsmen, and Florists on application. Postage 3d. The Catalogue, a Pamphlet of 44 8vo pages, contains a greater variety than any other List.

NEW PLANTS.

WILLIAM ROLLISSON & SONS

HAVE GREAT PLEASURE IN OFFERING TO THE NOBILITY, GENTRY, AND THE TRADE THE FOLLOWING

NEW PLANTS, WHICH ARE NOW READY FOR DISTRIBUTION;

And feel assured, from their superior qualities, they will give entire satisfaction:—

Ixora princeps.
This really handsome Ixora is from Java, the native home of many other fine species. Cultivators may remember that we were the fortunate Importers of Ixora javanica, I. amboynensis, and I. aurantiaca, three plants of sterling merit, and which still hold their position as first-class plants at the different Horticultural Exhibitions. The I. princeps is not only dissimilar to the above-named, but superior to them, as the following remarks will show.
The foliage differs in being of a much stronger texture, and is from 6 to 7 inches long and 2 inches wide, slightly undulated on the margin, and intermediate between that of I. Griffithii and I. aurantiaca. The flowers are borne in the greatest profusion, opening of a soft buff and changing to a deep reddish orange, longer in the tube than most others. For Exhibition purposes it will prove to be a plant of first-class excellence, and while some of the recently introduced Stove Plants are not likely to be permanently cultivated, a good Ixora is always beautiful.
As the Stock of the above is very limited, those who wish to secure Plants should order at once. Plants now ready, price 42s. each.

Hypericum salicifolium
Is a compact-growing, free-blooming Evergreen Shrub, recently imported from Shanghai, and very suitable for the Conservatory or Greenhouse, the golden cup-like flowers being very effective. The leaves are from 3 to 4 inches long, by 1 inch broad, entire and smooth on their margins, and thickly set on the stems, which are red. The flowers are of a golden yellow, about 2 inches over, and produced in terminal bunches on every shoot, during the summer months. Good yellow flowering plants not being over numerous for Conservatory decoration, the above is a welcome addition to this class of plants.
Flowering Plants in Bud now ready. Price 10s. 6d. each.

Achimenes Gibsoni
Is a fine and distinct hybrid, raised by us. The flowers are of a lovely mauve, fringed on the margins of the petals in the way of the old "Multiflora," the tube white outside and stained with light lavender blue towards the base; the inside is white, beautifully speckled with light blue and yellow, and about 1½ inch long, and the face of the flower about 2 inches over.
The foliage is ovate-lanceolate, 1½ inch across, by 4 inches long, olive-green, with the ribs of a dark red, robust in habit, and a profuse bloomer.
Good Flowering Plants now ready. Price 10s. 6d.

Cereus crenatus sanguineus.
This superb hybrid was raised from the C. crenatus fertilised with the C. speciosissimus, by a cultivator of great experience in this showy class of plants. Most persons will remember the introduction of the C. crenatus with its long tubular creamy white flowers and flat stems, and as this possessed novelty of form, but was comparatively colourless, it was thought that if the glowing colours of the C. speciosissimus could be imparted to it, a decided advantage would be gained for the present subject; the idea has been acted upon, and this splendid hybrid is the result. In its mode of growth and flowering the plant is like C. crenatus, but has the colour of C. speciosissimus; the stems are broad, flat, and spineless, the flower tubes 7 to 8 inches long and 5 inches across the mouth, and of a rich glowing crimson, producing, when in flower, a most gorgeous effect.
Nice Plants now ready, price 21s.

Erica tubæformis.
A very showy hybrid, raised between E. aristata major and E. McNabiana rosea; in colour it resembles E. aristata, being of a deep glossy red, but has the free habit of E. McNabiana rosea; the flowers are abundantly produced, from 8 to 14 in each head; the divisions of the corolla are white, with a deep stain of rose on the centre of each. It will make an excellent Exhibition Heath for May.
Good plants in 48-sized pots now ready. Price 21s. each.

New Bedding Pelargonium Artemus Ward.
A very effective variety for bedding; raised at the Tooting Nursery. In some respects it resembles Luna, so much used at Battersea Park, but is far superior to it. The flowers are of a bright crimson, but as the plant is chiefly desirable for its conspicuous foliage, these are of secondary importance. The leaves are broadly zoned with bright reddish brown and deep chocolate, and within the zone flaked with yellow and green, the outer margin being similarly coloured. It produces a striking effect when looked upon in a mass, and is also equally well adapted for edgings; it also bears the sun well, and the more it is exposed the more intense the colours.
Good plants now ready, price 10s. 6d. each.

☞ *The usual Discount to the Trade.*

THE NURSERIES, TOOTING, SURREY, S.

New Verbenas of 1867.

DREGHORN AND AITKEN have now a large stock of the above, containing all the finest sorts sent out by Turner, Keynes, Low, Henderson, &c., and beg to offer them as follows, in strong, healthy, well-rooted Plants:—

24 Varieties for 10s. | 12 Varieties for 5s.

Safely packed and delivered free of carriage to any part of Great Britain or Ireland.

The Nurseries, Kilmarnock, N.B.

ROBERT PARKER begs to offer the following (all the Plants are strong and healthy, and can be supplied in quantities):—

PANSY CLIVEDEN BLUE, 6s. per dozen.
PANSY CLIVEDEN PURPLE, 6s. per dozen.
PANSY CLIVEDEN YELLOW, 6s. per dozen.
FOLEMONIUM CERULEUM VARIEGATUM, 2s. 6d. each.
RHODODENDRON COUNTESS of HADDINGTON, 3s. 6d. each.
TRITOMA GRANDIS, 18s. per dozen.
TRITOMA UVARIA GLAUCESCENS, 12s. per dozen.
VIOLA CORNUTA, best variety, 4s. per dozen.
VIOLET, REINE DES VIOLETS, 6s. per dozen.
VIOLET THE CZAR, 6s. per dozen. [per packet.
PRIMULA SINENSIS FIMBRIATA, finest mixed seed, 2s. 6d.

PRICED and DESCRIPTIVE CATALOGUES of AGRICULTURAL, FLOWER, and VEGETABLE SEEDS, GREENHOUSE, HARDY, and STOVE PLANTS, are published, and will be forwarded free to applicants.

Exotic Nursery, Tooting, Surrey, S.

The Gardeners' Chronicle.

SATURDAY, JULY 27, 1867.

SYMPATHISING, as we do heartily, with the ideas expressed by our excellent correspondent "S. R. H." on the subject of NOVELTIES, we have much pleasure in inserting the following communication. For the evils therein mentioned the remedy is in the main with the purchaser: "Caveat emptor" should be his motto. The verdict of an authoritative tribunal like the Floral Committee is worth a great deal in such matters; even more valuable perhaps is patience to wait and see what the belauded "bedder" will turn out, when the first blush of novelty has passed away. An occasional "scratch with the barb" will also be of much service, on the principle that bought experience is the most valuable of all, and infinitely superior to any "advice gratis."

But our correspondent "S. R. H.," shall speak for himself:—"Some anglers say that fish pricked by the hook will return no more to the offending bait; but my own idea is that they rather like the irritation, and that they rush with new zeal at the delusive morsel. I am sure, at all events, that even if they abstain for a time, and make noble resolutions (like young gentlemen whose evening amusements will not bear the morning's reflection) never again to be led astray by tinsel and feathers, their virtuous resolutions endure but for awhile, and are soon forgotten in the seductive presence of the shining minnow, and the gorgeous fly.

"I speak of fish generally—fish young and middle-aged. I am aware, of course, that time brings experience—'multa ferunt anni venientes commoda secum;' and I am acquainted with ancient and solemn carp who simply regard with a grand disdain the piscatorial art. There are, indeed, among all classes of the finny world, from the royal salmon to the vulgar chub, cool heads and cautious eyes, for which even Limerick tempers her hooks, and Inverness dresses her flies—in vain. As a rule, notwithstanding, fish will rise and will run at the glittering bait, and will repeat the performance, though they have felt the barb.

"It is with the floral as with the finny brotherhood. Every year, in the first balmy days of spring, there are, among many beautiful realities, sham flies upon our streams. There is the Musca indica, M. japonica, M. gallica, M. belgica, M. britannica, and a swarm of others. Nurserymen and amateurs, we all rise at them—all but the calm, wise, old trout, who swims slowly round, with a keen, steady gaze, and retires with flapping tail. Even these are hooked sometimes. Said a famous Rosarian to me, 'I don't believe for a moment in this *très ravissante*, or in that *très superbe*, but still I must have the Roses.'

"The boldest of all the floral fishes is the fish called 'the bedder-out.' The long, lean, hungry pike of the community, he will go at anything, like a terrier dog. They say, that when an Oxonian sees a ringlet he goes stark staring mad, and my own recollections do not authorise me wholly to deny the soft impeachment; but my experience does confirm the assertion that the collegian in question is a sane and rational man when compared with the bedder out, who has just heard or read of something entirely new. His cheeks flush, his eyes glisten, as he sits down to order, or sets out to beg.

"Does the fly fall upon the stream in the form of a new white Lobelia? The old trout whispers, 'Remember Snowflake;' but the young trout dashes on, and unless 'Miss Murphy' does better in his garden than in mine, where it is so remarkably 'dwarf and compact' as to be scarcely visible, he tastes the hook. Is it some plant of variegated leaf, 'beautifully reticulated with bright gold?' The old trout says, 'Those sports are uncertain, they go back to the parental complexion, they lose their variegation;' but the young trout dashes on, and if his 'Iresine aureo-reticulata' is not better than mine, he tastes the hook.

"I do not blame the nurserymen. They gain for us glorious additions to our gardens, and they are as much disgusted as we amateurs, when an expensive experiment turns out a failure. It is we amateurs who are to blame, because we will have novelties before they can be proved, and simply because they are new. The question is not 'Am I buying something which is really good?' but 'Is this really something unknown to my neighbour, JENKINSON, and with which next summer I may astonish BROWN?'

"Better and wiser would it be for us all, if, once grazed by the hook, we would not only keep ourselves from further peril, but would take a benevolent swim among the weaker brethren, warning them that certain attractive insects had cruel stings in their tails."

AMONG the various forms which have been forwarded to us from time to time of CUCUMBER MURRAIN, or Chlorosis, we have never seen a worse or more hopeless case than one communicated by a correspondent who signs himself "C. H. B." The diseased fruit was grown in a house in the south of England, and had not probably to complain of deficiency of temperature such as might justly be objected in more northern districts. The disease, however, seems to be strictly constitutional, and though, like many other diseases of the same category, capable of being aggravated by climatic conditions, is dependent on them only as secondary causes.

In other cases there is a disposition simply to assume here and there, in distinct patches, a yellow tint, to die off at the apex, and meanwhile to discharge masses of gum from different parts of the surface, but here the whole fruit, after arriving at a considerable size, is more or less affected, and there is no gumming. Towards the stem a bright Indian yellow is assumed, like that of a ripe Cucumber, so that Icterus would be a more appropriate term than Chlorosis, and above this the whole fruit is marbled with paler yellow and green, the yellow very greatly predominating. Towards the tip the walls are wrinkled and contracted, and evidently ready to pass into decay. This, however, is not all. Round transparent spots are developed here and there, the surface of which soon contracts, causing slight depressions, on which we do not detect any Fungi, though they may possibly be due to Gloeosporium circinans, which is so common on Cucurbits when ripe. The fruit is pithy, and the taste slightly acid, approaching that of a ripe Cucumber, though the seeds are quite in an early stage of development. The smell is to us very pungent and disagreeable. The leaves arrived in a bad state, but it was quite clear, from their partial discoloration, that something of the same kind had taken place there also. They were covered with the pretty pinkish mould Trichothecium roseum, which is so common on morbid Cucumber leaves, where there is no indication of this peculiar murrain, and it must therefore be considered as purely accidental.

In two smaller specimens matters are still worse. There are the same features as in the larger, but in addition there are broad prominent warts, one of which is widely open at the top, discharging a sort of purulent matter, and has a very disagreeable ulcerous smell, and below these the fruit is decayed for some inches. In one specimen, besides the warts, there are unseemly contractions and furrows, with a tendency to rapid decay. There are no peculiar circumstances about the internal structure, except incipient disorganisation where decay is already indicated.

The worst is, that after years of experience we know little more of the disease than when it first made its appearance. It is not even known whether it was derived from imported seed, or whether it was generated by high manuring, in consequence of which unhealthy seeds have been widely distributed. Certain it is that it has occasionally been destructive under the best management, and that few Cucumber growers have been entirely free from the malady.

It is clear, however, if the disease is constitutional and capable of being propagated by seed, that there can be little hope of eradicating it completely, though it may be partially combated by careful selection of seed, never using any which is known to be derived from a diseased stock. It is far better to depend on neighbours with whose gardens we are well acquainted, than on strangers, and if after all we fail, we shall not have to blame ourselves for want of caution. High prices, as we know by dearly bought experience, will not always ensure all the good qualities which have been predicated, and we have seen quite as good specimens from common ridge Cucumbers as from seed sold at the rate of three or four for a shilling. Were more care used in selection in general, we should, we believe, have far fewer complaints both from the garden and farm. *M. J. B.*

WE understand that the receipts of the Royal Horticultural Society at the BURY SHOW were about 1416*l.*, which will leave the Society a satisfactory balance beyond the expenditure, and which would have been sensibly larger but for the unpropitious weather on the opening day.

The experience gained on this occasion should lead to improvements at future Shows—we say future, for we cannot doubt but that the Council will feel sufficiently encouraged to persevere in the missionary work it has so well begun. One thing which, it strikes us, should not be omitted hereafter, is the holding of a Special Meeting during the continuance of the Show, at which the special prizes—one of the most interesting and stimulating features of the whole affair—should be presented formally to the winners; at which also some interesting paper might be read; and at which, at the very least, some popular account of the most important subjects exhibited might be given. Such a meeting would certainly excite a vast amount of local interest, and, we cannot doubt, would prove most beneficial in recruiting the ranks of the Society. It was the one thing needful at Bury.

—— THE Royal Horticultural Society was honoured last Monday evening by the presence of his Imperial Majesty THE SULTAN, and several members of the Royal family, at a *conversazione* held in the Conservatory at South Kensington, which, as well as the outer garden, was brilliantly illuminated. The *conversazione* was attended by a crowded and fashionable company, in which, however, the ill-mannered, snob-like element was far too largely represented. The rude mobbing and resistance to his Majesty when he sought to re-enter the Conservatory from the garden—by which considerable damage must have been done to the plants—would have been a disgrace to a party of roughs, and the tens of thousands who are admitted to the Gardens on a free day may be noted as teaching the proprieties to their more wealthy neighbours. The selfishness, moreover, of those who, having forward seats, were not content with the proper use of them, but must stand up in them, to the detriment of every one behind, may be mentioned as a further sample of the rudeness exhibited by the genteel specimen of mobocracy above referred to. Such behaviour is disgraceful among "persons" who know better.

—— We are requested to state that the Manchester Botanical and Horticultural Society has decided to hold another GREAT EXHIBITION next year, in its gardens at Old Trafford, during the Whitsun week, nearly the whole of the Guarantors having consented to renew their Guarantee for another year. It is intended to offer about 1000*l.* in prizes, so that there is little doubt of a great show being got together; and as the "Whit week" is the only time when the Society can hope to "pull through" successfully, it is very desirable for all parties that there should be no clashing with other Shows, as happened this year.

—— The next Session of the POMOLOGICAL CONGRESS OF FRANCE will be held at Paris in the rooms of the Société Impériale et Centrale d'Horticulture, Rue Grenelle Saint Germain, 84, from the 19th to the 29th of September. Medals will be given for the most remarkable collections of fruits. It is proposed that the fruit shall be submitted to the inspection of the Congress before it is exposed to the general public in the Universal Exhibition, so that it may be seen by competent judges before it goes to form part of the great fruit "concours" at the Exhibition, which opens on the 1st of October.

——Mr. R. MOULTON, of Portumna Castle gardens, Galway, has kindly transmitted to us a fine example of a PROLIFIED ROSE, in which the swollen portion below the calyx (the hip) is entirely wanting, the calyx itself is leafy, the petals multiplied, the stamens all but absent, or replaced by petals, while the centre of the flower is occupied by a branch bearing no less than seven well-formed flower-buds. Many similar instances have, from time to time, been described or figured in our columns, but this is certainly one of the most perfect illustrations of median prolification that we have seen, even in Roses, which are so peculiarly liable to this malformation.

—— We learn that at the late EXHIBITION of ROSES at Brie Comte Robert, of which our correspondent "W. R." has made mention at p. 758, the President of the Jury was Mr. CHARLES LEE, of Hammer-

smith; and that a new seedling Rose, that flowered for the first time during the period of the show, received at once the name of our respected fellow countryman. The 'Rosieristes" of Brie Comte Robert (Seine-et-Marne) and its neighbourhood, accompanied by M. CAMILLE BERNARDIN, President of the Society of the "Rosieristes" of Brie, and Mr. CHARLES LEE, President of the Jury at the late Rose Show at Brie, had the honour of being presented on Sunday last to their Majesties the EMPEROR and the EMPRESS OF THE FRENCH, in the Salon de la Paix at the Tuileries, through the instrumentality of M. ROUHER, Minister of State, who had visited the magnificent display of Roses at Brie on the previous Sunday. There were also present at the reception the Prefect of the Seine-et-Marne, Comte DE JAUCOURT, Baron DE BEAUVERGER, the Mayor of Brie, and a deputation from the "Rosieristes" of the district. The "Rosieristes" presented to her MAJESTY a splendid "corbeille" of nearly 3000 cut Roses, which were surmounted by a large bouquet of Impératrice Eugénie. Her MAJESTY, being about to depart for England immediately, directed this "bed of Roses" to be transferred to the Exposition Universelle, where it was much admired. The deputation then repaired to the Hotel of the Comte DE JAUCOURT, in the Rue de Varennes, where they were entertained by the Comte at an elegant *déjeûner à la fourchette*.

—We have from time to time recorded the existence of some grand specimens of LILIUM AURATUM, but the finest of which we have yet heard are described in the following memoranda, for the first of which we are indebted to a Nottingham correspondent:—"A few days back I saw in the collection of Mr. ARCHIBALD TURNER, Bow Bridge, Leicester, a specimen of Lilium auratum, which surpasses all preconceived notions of its beauty. This plant was some 7 feet in height, and vigorous in proportion, so strong that the main stem had assumed what botanists call the fasciated form; that is, the flower stem had spread out flat some 2 inches wide, and upon this there were at the least 40 flowers. If the plant, which is in fine health, but rather drawn, has sufficient strength to perfect the whole of the buds that have shown, some 50 or 60 will be brought to maturity." This is, indeed, a remarkable specimen, far eclipsing any other previously recorded. We have since received the following account of another wonderful specimen of this Lily, which is now in flower in Mr. MACLEOD'S garden, at Dalvey, near Forres. Our correspondent says, "I saw this extremely beautiful Lily the other day, and may state that there are six stems from one root, the highest upwards of 8 feet. The stems bear 19, 18, 16, 8, 9, and 4 flowers respectively, making in all 74. The flowers are all fully expanded, and some of them measure 10 inches across."

— A Committee of gentlemen connected with the Manchester Botanical and Horticultural Society have inaugurated a public SUBSCRIPTION TO MR. BRUCE FINDLAY, in acknowledgment of the great pains and labour which that gentleman bestowed upon the arrangements necessary to the success of the recent National Horticultural Exhibition, the subscription being intended "as a recognition of his valuable services in the past, and as an encouragement to him in the future." The Council of the Manchester Society have signified their approval of the object for which this Committee has been constituted; and doubtless the subscribers to the Society, as well as many others who have been brought into personal contact with Mr. FINDLAY, will find pleasure in contributing to a testimonial which offers a well-merited acknowledgment of his courteous and successful superintendence both of the recent Exhibition, and of the Botanic Gardens.

— It will have been seen by our report of last week (p. 672), that the Silver Cup, value 20 guineas, offered by this Journal for the best collection of FRUITS and VEGETABLES at the late Bury Show, was cleverly won by Mr. POTTLE, gr. to B. D. COLVIN, Esq., Bealings Grove, Suffolk. In addition to what has already been stated in reference to that collection, we may just mention that the Cucumbers in it, which were of the Telegraph variety, were grown in boxes 2 feet in length and 3 inches in width, with a glass lid on the top, a contrivance which Mr. POTTLE informs us supersedes the glass tubes usually employed for keeping them straight. The glass is slipped into a groove or rabbett, and in that way can be readily removed when required. By means of this, and a piece of cork placed by the side of the fruit, which it pushes along with it as it increases in length, handsome straight Cucumbers can be obtained with an unusual degree of certainty.

New Plants.

PASSIFLORA (DISEMMA) BANKSII, *Bentham, Flor. Austral.*, iii., p. 312.

Quite glabrous. Leaves broad, usually under 3 inches long, with 3 broad obtuse lobes, rarely divided to the middle of the leaf, and each lobe occasionally sinuate or more or less distinctly 2—3 lobed, the petiole with two glands very near the summit, very rarely obscure or altogether wanting. Flowers rather large, sometimes pale when they first open, but soon assuming a brick red or dull scarlet colour, on pedicels much shorter than the leaves, with two or three scattered setaceous bracteoles at or below the middle. Calyx lobes about 1½ inches long or rather more. Petals narrow, scarcely more than half as long as the calyx lobes. Inner corona broadly tubular, slightly contracted, plicate, and shortly lobed at the orifice; outer corona about the same length, of a single row of filaments. Ovary stalk longer than the petals, shorter than the calyx lobes.

P. coccinea, Soland in herb. Banks, nec Aubl. *Disemma coccinea*, DC., Prod. iii., 333.

The number of the rings to the corona in Passion-flowers, which at one time was held to be of sufficient importance to found generic distinctions upon, is now ascertained to be too inconstant for this purpose, and hence the old genus Disemma, to which the above plant was referred, is now merged in Passiflora. The present species is a greenhouse climber, introduced from Queensland. In cultivation the flowers are hardly so large as above described; they are of a pinkish hue, and are succeeded by an oblong greenish fruit about an inch in length. Though long known to botanists, the plant does not appear to have been cultivated in this country till recently. It is nearly allied to P. aurantia, from which it differs mainly in the position of the petiolar glands and of the bracteoles. We have been favoured with flowers of this pretty species from W. K. Curtis, Esq., of Canterbury, in whose greenhouse the plant flowered for the first time in the course of the present summer.

ON TRANSPLANTING TREES.

BY ROBERT HUTCHISON, OF CARLOWRIE, KIRKLISTON.

(*Continued from p. 758.*)

THE choice of a proper subject to operate upon is another requisite to success in transplanting.

Tall, slender, "drawn up" plants should be avoided, and also such as are of flat-headed and wide-branching habit. The head of the tree is the best index to its roots; and the two extremities will generally be found to be in proportion to each other. A light well-branched top should be preferred, and due attention must be given to the choice of a clean and particularly healthy bark. Foulness, or moss covering the trunk, or inequalities of texture and appearance of the bark, are, in a tree, no less certain indications of a more or less diseased state of rootlets, or of some inherent weakness in the constitution, than are blotches and eruptions on the skin of the human species proofs of impurity of blood. A careful survey of the general dimensions of the head of the tree is likewise a very good criterion for ascertaining the probable dimensions of the earth-ball requisite to be removed with the plant; and, consequently, if the specimen be a large one, of the cost of labour, and probable expense attending its removal.

In an ordinary average soil, the general proportion of the spread of the principal fibrous roots necessary to the tree's existence, is about two-thirds of the diameter of the branches in the case of sapling trees of about 20 to 30 feet in height. When the stem has become thicker, and the whole tree has assumed a more "set" or mature appearance and habit, and in the case of old timber trees, the rootlets will be found at a much greater distance from the trunk; and it is in this respect that the chief difficulty and danger lies in removing old trees. The principal feeding rootlets in such subjects are chiefly situated at a considerable distance even beyond the spread of the branches, and, as it would be impossible to remove the tree with a root-ball enveloping these necessary auxiliaries, they must be severed from the tree, and thus many of its giant underground limbs must be cut; and, although many fibrous rootlets may still remain, the balance of power between head and root is lost for ever, so that in its new situation the old tree, like an old man who has undergone the amputation of his limbs, cannot be expected to recover from such severe treatment, or to have the same chance of surviving as a younger and more robust subject; while in addition to the loss of many of those organs which served the tree as the absorbents of moisture and nourishment, deprived of its chief moorings, how can it be expected to withstand, erect and unscathed, the storms of winter?

The methods usually employed in transplanting are various, and differ according to the nature of place and circumstances, as well as to the end in view. They may, however, be classed under two separate and distinct heads:—

1. Horticultural Transplanting.
2. Arboricultural Transplanting.

The former has reference and is applicable only to small trees or shrubs, and the usual modes of conducting operations in this case are so well known and understood, as to render it unnecessary for the present to occupy time in relating them. The latter system, on the other hand, and the proper modes of performing operations under it, require considerable notice, and this branch of the subject includes the discussion of the successful manner of removing heavy and large plants. Indeed, it is a branch of rural economy in itself a complete and distinct art, requiring much care and foresight, as well as an accurate knowledge of the physiological peculiarities of the species, and also some considerable skill in landscape gardening, not only to ensure its successful accomplishment, but to obtain such results as the increased expense involved by the process warrant the operator to expect. In prosecuting it in the case of heavy specimens, the aid of machinery is indispensably requisite, and, where unusually large trees are for special reasons desired to be removed, considerable risk and expense are incurred—more so, probably, than the ultimate advantages justify.

Passing over, therefore, the consideration of horticultural transplantation, or the removal of merely transplanted seedlings, such as are commonly used in forming young plantations, as beyond the province and purposes of this paper, we shall, in further detailing the methods employed, and the precautionary measures necessary to ensure success in transplanting, specify these merely as regards plants of some attained height, from about 3 or 4 feet and upwards, or rare and valuable specimens of recently introduced Coniferæ, or Evergreen shrubs. In the case of many of these new Pines early transplantation is productive of much ultimate advantage to the habit of several of the varieties in this climate, either by checking undue growth, or promoting the formation of strongly-fibred roots.

It is customary, before removing a large hard wood tree, to subject it to a system of preparation. This has been found very beneficial, and we think it indispensable to the success of the process of transplantation. Usually in the autumn, prior to the season in which the tree is to be lifted, or in the previous spring if the operation is to be conducted in autumn, a trench of about 2 feet in breadth is dug, about 6 feet in diameter (if the tree be not more than 12 feet in height) around the stem, care being taken, when the pit has been formed to a depth of 2 feet under the surface of the ground, to slope it inwards on all sides towards the trunk, so as to undermine the root-ball, and the numerous rootlets and fibres. Into this trench a supply of well-rotted turf, previously mixed and amalgamated with lime, is thrown and firmly beat in towards the roots. By this adventitious application, a fast and free propulsion of young roots is induced, and the task of removing is very much lightened when the period arrives for executing it.

Another mode of preparation is, however, even better adapted for attaining the end in view. By the method already described, injury is frequently done by injudiciously trenching too near the root, and this is sometimes more serious than the transplanting process itself. Instead, therefore, of cutting the roots all round the plant at once, we recommend in the autumn of one season to dig round them on one side of the tree only, and to fill in the compost referred to; and in the following autumn to dig similarly round those on the other side, thus completing the trenching process, and in the succeeding season the removal of the tree may be proceeded with. In this way a gradual and less severe interference is attempted, and the system of the tree is permitted to recover from each successive curtailment of root, prior to its final transportation to a new site.

Care is to be taken in removing a tree thus "prepared," not to dig the root-ball within the line of the trench, but outside of it, so as to include the freshly added soil, and if it be deemed desirable to lighten the ball, any loose earth should merely be picked away, a part of the operation which must be abandoned as soon as the points of the rootlets are seen protruding.

(*To be Continued.*)

THE CULTIVATED SELAGINELLAS.

SELAGINELLA is one of those genera on which gardeners and botanists have to a large extent worked quite independently of one another; and the consequence is that a considerable number of the names that are floating about in gardens are either not book-names at all, or are applied to the wrong plants. In this case the gardeners may plead, very reasonably, that it is the botanists who are to blame, and that the latter have never really given the gardeners a fair chance of making themselves acquainted with their names and species-limitations, because they have shut up what they had to say about them in Latin diagnoses, and published them only in a form in which they were never likely to find their way into the gardener's hands. Some seven years ago Dr. Braun took the matter in hand, and inserted in the annual report of the Berlin garden a synopsis of the cultivated species, which was copied into the 13th volume of the fourth series of the "Annales des Sciences Naturelles." In his "Ferns, British and Foreign," Mr. Jno. Smith used this as the basis of his enumeration of the species grown in this country; and still more recently, in the Transactions of the Edinburgh Botanical Society, Dr. Macnab has given an abstract of the paper, with notes and remarks. But what we seem to want in this country is a short synopsis of the leading characters of the species which we are growing, so that we may have a ready means of ascertaining which are the names that ought to be used, and of turning to it from time to time when we want to determine any particular specimen. I purpose, therefore, in the present paper to do best to my supply this deficiency; to pass in review the species with which I am acquainted as under cultivation, and, without entering into close detail, to group them and point out their principal characters, endeavouring as I pass along to ascertain the name which, according to the established rules of nomenclature, each should bear.

As a genus Selaginella is structurally distinguished from Lycopodium by producing spores of two different kinds. In Lycopodium all the little kidney-shaped capsules contain an indefinite number of minute, dust-like grains; but in Selaginella, although the upper capsules are like this, a few of the lower ones are larger in size, and the spores which they contain are only three or four in number, and considerably larger; sometimes, as in S. lævigata, round chalk-like pellets, from a quarter to a third of a line in diameter. In both genera the leaves in some of the species spread from the stem in all directions; but in other species the leaves are of two different kinds, the larger ones spreading from the stem in only a single flat row on each side, and the smaller ones forming two rows on the top, either quite adpressed to the stem and lower rows, or with only the tips recurved, so that they look more like stipular appendages to the large ones than proper leaves. The first we may call the Polystichous, and the second the Distichous plan of arrangement. The former prevails in Lycopodium, the latter in Selaginella; but there is a small group of distichous Lycopodia, including the European L. complanatum and a few exotic species; and there is similarly a small group of polystichous Selaginellas, to which last our indigenous S. spinosa (Lycopodium selaginoides, L.), and the not unfrequently cultivated S. uliginosa, of Australia, belong; as also the American, East Indian, and South African S. rupestris, and South African S. pumila. As these are well-known and clearly defined, I will confine my notes here to the distichous division of the genus, and give first an analytical table of the garden species, and then run over them more in detail.

The best character for use in grouping the species for my present purpose seems to be that obtained from their general habit of growth; and besides that there

are two important structural characters which perhaps it is desirable should be explained here at the outset. The first of them is in the stem. In most of the species it is quite continuous, but in a few there is a distinct joint at the base of every branch, and it is a curious coincidence that the jointed species produce their rootlets from the upper, and the unjointed ones theirs from the underside of the stem. The second good structural character is in the bracts. In a large number of the species they are all alike, small and rigid, and tiled over the capsules and one another in four uniform rows. But in a large group, of which however we have only two species under cultivation, the bracts are like a continuation of the leaves, being arranged upon the same distichous plan, the under row being considerably larger than the upper ones, and spreading from the axis like the leaves do, in one uniform plane. In speaking of the breadth of the divisions I mean the well developed ultimate branches, not the main ones, which in the compound species are often considerably broader than the final ones, which must be taken to compare fairly, the copiously with the slightly branched forms. The following is an analytical table of the species, and in my next communication I shall speak of those of the first group more in detail.

Group 1. Decumbentes. Stems wide-trailing, prostrate, furnished with rootlets nearly or quite up to the point.

1	Stems continuous	2
	Stems articulated at the joints	8
2	Stems irregularly branched, forming a densely interlaced mass	3
	Stems not interlaced, the branches short and regularly pinnated	5
3	Leaves placed wide apart, and not more than half a line long — delicatissima	
	Leaves close together, a line long	4
4	Leaves oblong, the spike with a distinct stalk — helvetica	
	Leaves round, decurved when dry, the spike sessile — denticulata	
5	Divisions a quarter of an inch broad, colour pale waxy green — Breynii	
	Divisions not more than two lines broad, colour not shining	6
6	Branches copiously pinnate — uncinata	
	Branches simple or slightly branched	7
7	Shoots whip-like at the end, colour pale green — patula	
	Shoots not elongated at the point, colour deep green — serpens	
8	Branches distant, and branched sparingly — Kraussiana	
	Branches close, and branched copiously	9
9	Branches thyrsoid, leaves pale green, rigid, blunt — Galeottei	
	Branches corymbose, leaves deep green, herbaceous, acute — affinis	

Group 2. Suberectæ. Upper half of the stem ascending, the rootlets confined to the decumbent lower half.

1	Bracts uniform in shape	2
	Bracts dimorphous (of two forms)	7
2	Divisions a quarter of an inch broad, texture firm	3
	Divisions not more than two lines broad, texture herbaceous	4
3	Colour bright green — Martensii	
	Colour brownish green — atro-viridis	
4	Producing bulbs at the end of the shoots	5
	Not producing bulbs at the end of the shoots	6
5	Leaves ciliated — ciliata	
	Leaves not ciliated — bulbifera	
6	Stems 2 to 3 inches long, leaves sub-entire — apoda	
	Stems 6 to 9 inches long, leaves toothed — ludoviciana	
7	Outer bracts all uniform and subsquarrose — suberosa	
	Upper bracts smaller than the lower ones, and scarcely spreading — stenophylla	

Group 3. Erectæ. Stems erect (but the habit not tree-like), with rootlets only from near the base.

1	Stem climbing 6 to 10 feet high, with long branches — Willdenovii	
	Stem not climbing, 1 to 2 feet high, with short branches	2
2	Rachises naked, branchlets pinnate — inæquifolia	
	Rachises pubescent, branchlets simple or once forked — Lobbii	

Group 4. Caulescentes. Habit of growth tree-like, *i. e.*, the stem erect, without any branches from the lower third or half, but copiously compound above.

1	Stems bright red	2
	Stems greenish or straw-coloured	3
2	Divisions 1-8th of an inch broad, leaves very close, ciliated — erythropus	
	Divisions 2½ to 3 lines broad, leaves not so close, not ciliated — hæmatodes	
3	Branches pubescent	4
	Branches naked	5
4	Stem flexuose, leaves half as broad as long — Braunii	
	Stem straight, leaves from a third to a quarter as broad as long — fulcrata	
5	Leaves close, spreading, and dimorphous below where the branching begins	6
	Leaves distant, adpressed and uniform below where the branching begins	7
6	Leaf ciliated, the two sides rather unequal — viticulosa	
	Leaf not at all ciliated, the two sides very unequal — Griffithii	
7	Branches regularly pinnate, with simple branchlets — Wallichii	
	Branchlets compound	8
8	Leaves imbricated, branches curling up when dry — caulescens	
	Leaves not imbricated, and branches not curling up	9
9	Leaves rigid, pale green, not close — lævigata	
	Leaves herbaceous, deep green, close — flabellata	

Group 5. Rosulatæ. Habit of growth nest-like, *i. e.*, the stem forming a dense tuft, the outer rows gradually longer than the inner ones, all curling up very much when the plant is dry.

1	Texture rigid, leaves not hair tipped	2
	Texture herbaceous, leaves tipped with a hair like point	3
2	Branching pinnate, leaves blunt — convoluta	
	Branching fan like, leaves acuminate — involvens	
3	Branching pinnate, leaves with a distinct white border — cuspidata	
	Branching fan like, leaves not white-bordered — pilifera	

J. G. B.

THE DOUBLE COCOA-NUT.

LODOICEA SECHELLARUM.

FIFTY-FIVE years ago, on visiting the museum of the College at St. Andrew's, in Fifeshire, amongst other curiosities the keeper took down from a shelf a black lumpy body about a foot in length, and nearly as much in width, and holding it in both hands told me it was a "Pomegranate." I had read of Pomegranates in the Bible when at school, and in dread of the awful words "take him down," had learned to spell the word correctly; but I then had no idea a Pomegranate was like the hulls of two toy boats fastened together by their gunwales, such being the idea to which I compared the object before me. It was not for a number of years after this that I saw or learned anything more about Pomegranates, but on gaining a knowledge of botany I became sceptical of the St. Andrew's Pomegranate being the same as those spoken of in the Bible; and I at length found it was the Double Cocoa-nut.

The principal facts relating to the structure and appearance of this singular Palm have frequently been given in your columns, where also the peculiar perforated bowl or socket in which the base of the trunk is immersed has been more than once figured and described. The following observations relating to the mode of germination of the seed may serve in a measure to explain the formation of this bowl.

In a few weeks after a fresh nut is placed in a tan bed, or other warm open material, a white body about the thickness of the finger is seen protruding from between the lobes of the nut, which quickly elongates downwards in a nearly perpendicular direction (in its native country it is said at an angle of 45°), attaining the length of about 2 feet, the end thickening and becoming fusiform. This part contains the true embryo, and may be considered the placenta, and on its bursting on one side, the growth of the embryo commences by the protrusion of the first leaf, which is succeeded by others; roots are at the same time produced. During this process of growth the nut continues to supply nutriment to the young plant through the long cord or funiculus as it may be called, and which it continues to do for several years, the plant gradually increasing in size, and the roots in number and strength, so as ultimately to become sufficient for its support: the funiculus gradually drying up, but not so the point to which the embryo is attached. All Palms germinate in the same manner as above stated, the embryo retaining its connection with the end of the funiculus, which becomes a progressing axis of development of leaves and roots, creeping on the surface of the ground, or burrowing downwards at a more or less acute angle, and becoming analogous to a rhizome. This it continues to do until the plant attains its majority (which is often not before many years), that is, when it has matured its ascending axis, the rhizome remaining in the form of a spur-like stump, even after the plants have attained many years of age. This rhizome structure may assist in explaining the manner of the formation of the socket of the Lodoicea. When I had the opportunity of observing the germination of the nuts, I was not then aware of the bowl appendage, therefore my attention was not directed to that special point, and consequently I cannot speak from direct observation as to how it originates. Seeing that the embryo of Palms continues its connection with the placenta, it would seem that in the case of the Lodoicea the connection of the embryo continues in the lower cavity of the placenta, in which it continues to grow, and through which it receives nutriment, until the seed nut is exhausted, during which time roots have been doing their duty—and the connection of the sac still being continued, it would appear that a reflow of sap from the plant into the sac takes place, which grows with the growth of the plant, and becomes penetrated with the stiff cord-like roots; and thus the holes and tubes are found. Therefore this socket may be viewed as of the same nature of growth as the rhizome of other Palms, differing only in the original growth of the plant being central instead of lateral, and retaining its attachment through life. In the large bowl at Kew the point of attachment is indicated by a few inches of rough surface in the centre at the bottom, and destitute of holes. There is much, however, yet to be learned on this subject, and which can only be obtained by examining plants at different stages of their early growth.

During the last 50 years many nuts of this Palm have come to this country, eight of which germinated at Kew under my own observation, but a want of knowledge of the early nature of the plant, and the circumstances detailed above, must be admitted as an excuse for our not having succeeded in establishing a plant of Lodoicea. This is in a great measure due to the period they take to pass through what may be called their infant state (which may be considered not less than 10 years), and to the want of proper arrangements to keep them in one position, as well as to the fluctuations of heat and moisture during that time. It is impossible, even under the most favourable circumstances, to say what number of years will be required before an ascending trunk can be formed, but certainly it cannot be less than 50.

A plant established in the Mauritius Garden, known to be 30 years old, has still the appearance of a young plant, having numerous healthy leaves rising from the ground, but none of them exceeding 5 feet in height. About 16 years ago a plant growing in a small barrel was sent from the Mauritius, the largest leaf being from 5 to 6 feet in length, but unexpanded. In this state it was forwarded to Kew, but unfortunately it had no protection during the voyage to England, the leaf not even being supported, so that it was twisted with every breeze, and on its arrival the centre of the plant was found to be completely destroyed. A nice plant, properly secured in a large case, was also sent by Mr. Duncan, the late Director of the Mauritius Botanic Garden, but the long voyage proved fatal to it. Had it not been for these untoward events, Kew might by this time have been possessed of Double Cocoa-nut plants. The only plant of it known to me in this country is one lately sprouted in the Botanic Garden, Liverpool, under the skilful management of Mr. Tyerman; and, the nature of the plant being better known, success may now be expected. *J. Smith, Ex-Curator, Royal Botanic Gardens, Kew.*

LETTERS FROM PARIS.—No. XX.

FRENCH HOTBED FORCING, BEDDING-OUT, WHITE LILACS, ETC.

IF there be one flower more than another indispensable to the Paris flower market in winter and early spring, it is the White Lilac. You may see large bunches of it in every little flower shop as early as the month of January, and it is always associated with the early Violet and the forced Rose. This Lilac is the common kind, and yet it is perfectly white. French florists have tried the white variety, but they do not like it—it pushes weakly and then does not look of so pure a colour as the ordinary Lilac one. They force the common form in great quantities in pots, and to a greater extent planted out, as close as they can stand, in pits for cutting. The plants that are intended for forcing are cut round with a spade in September, to induce them to form flower-buds freely, and they commence to force early in the autumn. They at first judiciously introduce them to a cool house, but after a little while they give them plenty of heat when once fairly started, the same time abundant humidity is supplied, both in fact, from 25° to nearly 40° C.=77°—104 F. At at the root and by means of the syringe, but the chief point is, that from the day they take the plants under glass they are not allowed to receive a gleam of light, the glass being completely covered with the *paillassons*, or neat straw mats, which are so much used here for covering frames, pits, and all sorts of garden structures in winter. Thus they get the Lilac to push freely, and gather its white blooms before the leaves have had time to show themselves. The great degree of heat—a degree which we never think of giving to anything of the kind in England, and the total shade to which they are subjected, effect the bleaching. The French commence to cut the White Lilac in the end of October, and continue the operation till the Lilac comes in in the open ground. In the same establishments enormous quantities of Roses are forced, small and pretty Roses being in great demand in Paris through the winter and early spring.

There is another feature of French forcing to which I wish particularly to call the attention of your readers, and that is—their mode of arranging hotbeds. This system, being much superior and much cheaper than our own, must eventually be adopted amongst us. Its advantages are obvious at a glance. They force most successfully with materials which an English gardener, not aware of the advantages of their method, would consider unfit for anything but the rubbish heap. For frames they employ the roughest material, cheaply knocked together; it matters not about look, as the frames are completely sunk in the dung. We, on the other hand, have presentable, painted, well-made frames, which when we make hotbeds we generally place on the top of a heap of heating material. The French use a narrow frame, say 4 feet, so that the heat of the surrounding material is more effective—we generally use a widish frame. They do not raise such piles of dung as we do, but place several rows of these narrow frames together, and plunge them all up to the very rim in heating material, so that they keep as snugly heated as could be desired. The top is the only part exposed, and the surface of the manure placed between each serves as a pathway. The lines of frames are kept rather close, say a yard between each, or even less. The lights are as neatly made as ours; the best judges prefer a wooden sash, the smaller ribs for the glass being of iron. I have been lately inquiring about the price of these little frames and sashes, and find they are very cheap. They are to be had about 4 feet 3 inches wide, and 4 feet 5 or 6 inches long, for 45 francs the three, or in other words about 15 francs each.

Of the utility of these frames there can be no doubt. By their aid the French market gardener produces quantities of nice forced products for the Paris markets, from Asparagus to great Cantaloupe Melons, and they are also used in the best French private gardens. To the English gardener they would prove equally or more useful, and I hope to see them yet employed wherever horse manure is used as a heating agent. By employing moss, leaves, and similar material between frames instead of hot dung, bedding plants, &c., may be preserved to a great extent, as they are at La Muette; but their great value is for the preservation of a warm and thoroughly genial atmosphere for winter and spring work.

I had intended to give a brief sketch of the chief beauties and blemishes of the bedding in the Paris parks and gardens, but it would not perhaps be fair to do so at present, as the sub-tropical plants are not yet, as a rule,

out of their shabby condition. I must state, however that generally the result of the planting here is a mistake. Frequently you encounter an immense mass of Cannas in one bed, and in the next a mass of something else. There is, nevertheless, a good deal to admire, and perhaps the best idea I can give of the present state of matters is by means of the following notes taken in the Parc Monceau—the best place in Paris to judge of flower-gardening—on the evening of the 20th July, a date when you would expect things to look well advanced here :—

"In this Park many subtropical things look shabby, even the Castor-oils have as yet made no progress. The great Caladiums are beginning to look a little decent. Caladiums among Mignonette are beginning to push, but are not yet in good condition. Workmen are engaged in plunging groups of the Fan Palm. Bananas are very poor as yet, but Wigandia is good and fresh. Musa Ensete is beginning to push, and is the best of the Musas for planting-out. Aralia papyrifera that has been protected all the winter is only good now and then : in some instances the plants look yellow. It is better put out young. Lantanas are poor. A large bed, having a groundwork of variously coloured Portulaccas, and dotted with Duranta Baumgartii fol. var., has a charming appearance. Another large bed of Solanum Warscewiczioides, and the scarlet Linum for a groundwork, is also good. Wigandia Vigieri, a promising kind, is on trial. Everlasting Peas are planted round many of the trees, and are tied up to their stems—rather a tasteful practice, but they look much prettier when allowed to trail on the ground over rockwork. Wide belts of one kind of thing around clumps of shrubs are not nice. In the different plantations there is great variety—the clumps of shrubs partaking of it as well as the bedding plants.

"Such plants as Crambe cordifolia and the Pampas Grass look fine isolated on the Grass near the margin of a clump of trees. The Pampas is worth growing for this purpose alone, even if it never flowered. Erythrinas are in full flower, but after all not worth the trouble which they occasion. Variegated Dahlia is pretty and useful; Coleus very poor as yet; Iresine pretty good in partial shade; Senecio platanifolia very good. Beds and borders of Hydrangeas very fine indeed, and worth more attention than they get in England. Some plants bearing blue flowers amongst the normally coloured ones, of course add much to the effect. An immense mass of Canna nigricans, with edge of variegated Ageratum, is very imposing. Clematis montana trained up the trees has a charming effect. What a nice thing it must be in flower in this position, though it would be better run over some old stumps or low common trees over which it might train itself. Beds of Ferns in shady places are nice, and lines of white Fuchsias are pretty. Ferdinanda is good. Some kinds of Begonias are a total failure. A little way off single plants of Erythrina look very striking. A bed of Abutilon vexillarium is very pretty and interesting, though not quite vigorous. Some tall tender Solanums, &c., are quite a disfigurement. Colocasia odorata is very fine and free and noble, especially when in the shape of old plants, when tall stems are employed. Isolated plants of Bambusas are beautiful and striking, as are also Acanthus lusitanicus. Delphinium pegged down amongst Phloxes is very good indeed; Arundo Donax versicolor is used, but it is very bad in consequence of not having been left in the ground over the winter. Hibiscuses are too naked to be anything but ugly, and, no matter what result they may produce in the end, no such hideousness as they present for a long time should be tolerated in any tasteful garden." *W. R.*

Home Correspondence.

Hardiness of Retinosporas (see p. 760).—Early in the spring of 1866 we got a small plant of Retinospora obtusa, which was planted out at the time along with a number of other Conifers. It made a nice growth last summer, and withstood the severe frosts of last winter and spring without protection. It has made good growth this season also, and there is no doubt that it is perfectly hardy. We got some plants of Retinospora pisifera and R. pisifera aurea this season, but of the hardiness of these I cannot yet speak. I am, however, inclined to think that they will withstand our Yorkshire winter as well as R. obtusa has done. I am convinced, from experience, that many Conifers and other evergreen trees and shrubs which are perfectly hardy are oftentimes killed, by severe frosts in winter, through their having been planted either in bad situations or in ground in bad condition. This very generally happens in small places where a great variety of trees is planted. The soil is oftentimes of good quality, and when it is not so, enriching material is added when the trees are planted. For a few years they make rapid progress. The trees begin to assume the size and character of specimens, and it is then perceived that they have been planted too closely together. Up to this period the summers have been fine and hot and the winters mild; but now comes the trial; a cold, late, unfavourable spring is followed by a cold, late summer, the trees all make late growth, the autumn is extremely wet and mild, the wood is unripened, severe frosts suddenly set in, killing many and completely disfiguring the remainder of what a short time previously were promising young specimens. Then a long list of casualties finds its way to your columns, and trees perfectly hardy are pronounced to be tender. When trees are planted in a confined situation, they grow thin and delicate, the wood rarely gets properly matured, and they suffer severely from frosts in winter. When trees are planted in heavy retentive land they make good growth in hot summers, which then gets ripened and stands the winter; but when the summers are cold, and there is a long continuance of rains in the autumn, as was the case last season, the young growth does not then get properly matured, and the soil, being retentive, holds the water, which causes the young roots to perish. When this happens, as it oftentimes does, the first severe frost in winter will seriously injure, if it does not kill, the hardiest Conifers placed under such conditions. If Conifers are sheltered from violent sweeping winds, particularly west winds, the situation otherwise for them cannot be too open, airy, and dry. Whatever the nature of the land may be, it must be thoroughly drained. This, in my opinion, is a point of vital importance as regards the well-doing of Conifers. Dryness at the root in winter is the point above all others which must not be overlooked. Trees planted in open situations and dry soil will not grow so rapidly as those planted in close situations and heavy retentive land; but the growth which they make will generally get well matured, and will stand any amount of frost in winter. Here the soil is naturally dry, the subsoil being in some places deep gravel, in others sand; and in some instances beds of clay. Of the several thousands of Conifers planted all over the park, the grounds, and plantations, only two small plants were killed last winter, and these happened to be in places rather retentive and low, when the surface water did not pass off freely. The growth and progress of all the trees is most satisfactory. *M. Saul, Stourton.*

Oleander Growing.—Your correspondent "W. R." (see p. 735), speaks of nice little plants of Oleander, beautifully flowered, about Paris. If he will give us a few plain and practical hints as to their management, he will be doing a great service to me, and to many who, like myself, have often wondered why our gardeners cannot grow these lovely plants as well as our neighbours across the Channel. *J. P.*

Orchids at Exhibitions.—I see in your report of the flower show at Bury St. Edmund's that you complain of the scarcity of Orchids exhibited on that occasion, but the explanation is very simple. After the experience gained at the International last year, owners of valuable plants will not allow them to go to a show where they remain for four or five days, no matter what amount of prize money is offered; and I presume that those gentlemen who have the organising of exhibitions will find out eventually that the longer the duration of the show the poorer the specimens. They have had pretty good proof of that this year. It may suit as a speculation, but it certainly does not suit the plants, and those who really take an interest in them will not send them. *W. Marshall, Enfield.* [If this be so, it will give a further impetus to the growth of cool Orchids, or will lead to the formation of a new class of exhibition Orchids. On the other side we may remark that some of the principal Orchid exhibitors at the International reported that their plants were not at all injured. At Manchester again, this year, some of the collections were removed, but we are informed on good authority that those which remained were not damaged in the least. EDS.]

Elymus arenarius.—This British Grass—this strong-rooting and most distinct-looking herb—is capable of adding a very distinct feature to the garden here and there, and should be quickly introduced to civilisation. Planted a short distance away from the margin of a shrubbery, or on a bank on the Grass, and allowed to have its own way in deep soil, it makes a most striking object. In short, it deserves to rank fourth among really hardy big Grasses, the Pampas and the two Arundos alone preceding it. I am not quite sure that it is not more useful than the Arundo, being hardy in all parts of these islands. In very good soil it will grow 4 feet high, and as it is for the leaves we should cultivate it, if the flowers are removed they will be no loss. It is found frequently on our shores, but more abundantly in the north than in the south. The variety geniculatus, which has the spike pendulous, is also worthy of culture, and in its case the flowers may prove worth preserving. It may possibly be useful for cover. *R.*

A beautiful Hardy Plant for Naturalisation.—I went to Fontainebleau the other day with Mr. C. Moore, of Sydney, and spent a delightful day in the grand old forest with M. Souchet, and also in his Gladiolus grounds, or rather farms. I, however, just now write to say how much we admired on the way beautiful masses of the delicate pink Coronilla varia, and to recommend it strongly to all who wish to establish an elegant and pleasing plant on rockwork, half wild bank, or among tufts of low trailing shrubs, like the common Evergreen Cotoneaster. It is a common plant about Paris, and though I have always much admired it as a first-rate border flower, I never knew what a beautiful plant it is till I saw it crawling through the long Grass and low shrubs on the railway banks, and here and there spreading out into pale roseate cushions of great beauty dotted here and there with grass blades. For a chalk bank or anything of the kind it will prove admirable. It may easily be had from seed in England. Fontainebleau is the finest Imperial place I have seen in France, but it takes about three days to get a fair idea of it. *R.*

Mrs. Pince's Black Muscat.—Being at Exeter the other day for the purpose of selecting a cane of Mrs. Pince's Muscat Grape, I beg to say a word or two regarding it. On reaching the house in which it is growing, I was surprised to find more than 230 bunches in an area 23 feet long and 13 feet wide. At first glance it was a very fine sight, but how much better would it have been if only one half had been left to come to maturity? This I suggested to Mr. Pince, who readily admitted having been too greedy, and he also promised to cut many bunches away, an operation which would be of advantage to the Vines, which are yet in a comparatively young state. *J. Hannan, Cyfarthfa Castle, Merthyr Tydvil.*

Solanum galeatum.—At the recent Horticultural Exhibition at Bury St. Edmund's I noticed the above very interesting species of Solanum ticketed as S. atropurpureum, a very distinct and much commoner species, with pinnatifid foliage, and more copiously armed with spines than the S. galeatum. The latter seems to be one of Linden's numerous importations from Brazil, but I do not know the exact date of introduction, nor to whom it is indebted for the name it bears. I see no reference to the plant in your report of the exhibition, though it was by no means one of its least attractive elements. The broad, horizontally-disposed foliage, of moderate dimensions only, is better adapted to resist high winds than that of S. robustum and some other species, and the vinous-purple tint of the under side of the leaf affords an agreeable contrast with the deep shaded green of the upper surface. I should be glad to learn whether this species succeeds well when planted out in this country; if so, it should be made more extensively known. Perhaps to the above I may be permitted to add that in a box of cut flowers from Cambridge I observed the pretty little Silene alpestris labelled Lychnis alpina. *W. T. J.*

Lilium auratum.—I have Lilium auratum in bloom in a 5-inch pot. I have measured a bloom this morning upon it, and find it is exactly 14 inches in diameter; is not this an extraordinary size? *Geo. Archer, Gardener, Finedon Hall.* [We have seen very large flowers, but none, we think, so large as this. EDS.]

Deodars.—Would you kindly advise me as to the best course to be pursued with a Deodar which stands on my lawn, and which up to the present time has been its chief ornament? It suffered greatly from the severe frost in the winter, losing all the foliage, except on the lowermost branches protected by the snow. Fresh leaves appeared, beginning to break April 20, and from the true colour I had hopes of entire recovery; but, whether from cold nights or otherwise, the tree soon relapsed, and now I regret to say that 2 feet of the top, and almost all the under branches from 3 to 5 feet from the ground (except the lowermost, as aforesaid), have gone off, and appear to be quite dead; and, unfortunately, the north-west side, facing the house, is the worst. The rest of the tree appears healthy and likely to flourish, and there is no doubt that the stock is vigorous enough. The tree, which I planted 10 years ago, has done well, the position and soil (hard sand, almost sandstone) appearing to suit it; indeed, I thought it grew too fast. The trunk at 1 foot from the ground is 1½ foot in girth, while the extent of the branches hardly anywhere exceeds 5 feet from the body. The height is full 18 feet. My principal query is, whether I should prune the tree, and, if so, when, and to what extent? Is it likely to put forth fresh wood from the trunk in those parts where the branches have died away? Deodars generally have suffered in this neighbourhood, but I have seen none so bad as mine. I had supposed it to be quite hardy. My Fahrenheit thermometer fell to zero (Negretti's patent minimum) on the night of Jan. 3, the snow lying on the lawn 7 inches deep at the time, and a depth of 2 inches more fell the same night. Next night the min. was 10°, and with 11° on the 13th and 14th, these were the lowest points. The wind was northerly, by N.W. and N.E. *S., Vale of Pewsey.* [Your Deodar may be pruned now, cutting away all that is dead. Let two of the most suitable branches be tied up to form a leader; of these, at the end of 12 months, select the best and stop the other. The healthy branches, from "3 to 5" feet from the ground, may be tied down in a pendent form, and made to cover the N.W. side as much as possible, and in time they will reach the ground. Unlike the Cedar of Lebanon, this tree does break on the trunk of such sized trees as yours when a vigorous growth is induced. Feed in summer. *W. B.*]

Variegated Zonal Pelargoniums at Bury.—I was much struck with the strange and, as it appeared to me, erroneous judgment of the 12 seedling Variegated Pelargoniums for the Bury Silver Cup. My idea is that those placed first ought to have been disqualified on account of the foul and unbroken state of several of the plants, one in particular having only two leaves clean; this on a plant with about 30 leaves, and about 18 inches high, seems a most extraordinary exposition of the clear rules laid down in the *Gardeners' Chronicle* (p. 515), both as regards clean colouring and flat foliage. If coarseness may be considered vigour, it was vigorous enough. As a frequent attendant at the Horticultural Exhibitions I have generally had the satisfaction of seeing fair decisions, with which most exhibitors seemed content; but on this occasion visitors were surprised, and exhibitors discontented, apparently not without cause. As a purchaser of Variegated Pelargoniums, and an intending competitor, I should, with many others, be glad of some explanation. *A Subscriber of many years, Cheltenham.*—I had an opportunity of taking a trip to the Bury Show, and was much struck with the beauty and extent of the exhibition, certainly surpassing all expectation. I am an amateur of many years standing, and the chief motive of my visit was to see the battle of the Variegated Pelargoniums for the several prizes. With most of these decisions I was satisfied, but one exception to the usual correct judgment of the Horticultural Society was glaringly obvious. How it was that any man with any pretension to the qualifications of a judge could place the first prize on the Bury 12 passes my comprehension. Roughly grown, not strongly coloured (with but one exception), leaves anything but round and smooth, was the general aspect of the lot; but the crowning disqualification of the exhibitor lay in the fact that three or four plants were full of unbroken or partly broken leaves. Indeed in one case there were observable but two young leaves clean. This would have assured the rejection of the collection anywhere but at Bury. There is due to the exhibitors in particular, and the public in general, some explanation of this extraordinary freak of the London Judges, otherwise we shall no longer know how to show or have respect to the Horticultural Society's authority in such matters. *Scrutator, London.*—

On visiting the Royal Horticultural Exhibition at Bury St. Edmund's, I was much struck with the splendid varieties of Variegated Pelargoniums exhibited there, but with many others could not fail to feel great surprise at the decision of the judges as to the County Cup. The 1st prize Variegated Zonal Pelargoniums had no pretensions whatever to be judged by the standard or rules published by the *Gardeners' Chronicle*. The plants had not come to their full colouring, nor were the leaves regularly variegated. I think all growers will admit that when breaking into character the colouring, being merely partial, is much more vivid than when the whole of the plant is finally variegated; there is in consequence great uncertainty as to what the prize collection will ultimately be. This objection cannot be raised in reference to some of the other collections—for instance, that of Messrs. F. & A. Smith, of Dulwich, whose plants certainly came nearest to the standard laid down by your rules. The public are deeply interested in having a clear definition of what a Variegated Zonal Pelargonium should be, and it is not too much to say that they looked to the Bury Show (in consequence of its being held by the London Royal Horticultural Society) to have this question settled; but this strange decision will certainly not make matters clearer. *George Davison, White Cross Nurseries, Hereford.* [No doubt the judges can explain their reasons. We imagine, however, that the age of the plants had something to do with the matter, for the Schedule says, "seedlings of 1866 and 1867." It is curious to observe that although all the competitors showed Variegated Zonal (that is, Tricolor) varieties, the Schedule does not specify them, but simply asks for "Variegated" seedlings. Hence, we think the judges were not bound to decide as though the prize had been specially offered for Variegated Zonals. We do not quite agree with our Cheltenham correspondent as to the merits of the Cup collection, which contained in our judgment the two best sorts yet raised (Isabella Clay and Victoria Regina), and some others (as Eva Fish) both good and distinct. EDS.]

Bury St. Edmund's Exhibition.—In the full and excellent report of this meeting in your last issue, you state "that it was well supported by the local horticultural talent, and not wanting altogether in sympathy on the part of distant exhibitors," but that you thought certain of "our great growers should have done more than merely just put in an appearance." As far as many London growers and exhibitors are concerned, this is answered by your Editorial remarks (p. 757), justly extolling what had been done—and as you observed exceedingly well done—to give *éclat* to the various receptions of our illustrious visitors, which were quite exceptional, and had to be met at a very short notice. This is a sufficient reason for the absence of many of us from Bury St. Edmund's. I may mention that I had the Paddington and Windsor stations to supply with plants, &c., as well as to decorate the Riding School at Windsor for the Belgian Volunteers, besides the meeting of the Prince Consort's Association in the Home Park, Windsor, and several minor decorations; I also sent largely to the Crystal Palace, on the occasion of the Sultan's visit. This must be the excuse, as it is the reason, why so little was sent to Bury from here. *Charles Turner, The Royal Nurseries, Slough.* [We are glad to see that Mr. Turner, in his remonstrance, has supplied some particulars as to the recent floral decorations, omitted in our brief notice last week. EDS.]

Proposed Show of Variegated Zonal Pelargoniums.—Observing in your columns a communication from Mr. Wills, in which he proposes to hold an autumnal exhibition of Gold and Silver Zonal Pelargoniums, we most cordially approve of the proposal, as a means of fixing a relative and determinate degree of merit to the best varieties of 1867 and 1868, prospectively, so far as these can be produced in a state for exhibition. We think the proposal, as it stands, suggests the inquiry, whether or not seedlings of 1867 can be shown in the whole of the classes? On this point we trust our opinion will be found to coincide with that of others, namely, that seedlings of the present year should not compete in any miscellaneous class of proved varieties, because they do not present a true and average character for opinion, either as to their habit of growth, constancy of marking, or value in commerce, such features or characteristics being only fixed and determinate in each kind when propagated irrespectively of soil or culture. Seedlings can only in fairness compete with seedlings; and we are of opinion that it is unwise to prematurely bring these forward, as in many instances they never realise the sanguine anticipations of the raiser, and only create a prejudice against varieties of proved excellence. In the very nature of the case we think the current year's seedlings are inadmissible in general competition groups, by reason of the fact that the majority of Variegated Pelargonium seedlings are progressive, and not immediate in their development of colour, average growth, and value. In other classes of flowers indeterminate and partial features of excellence would not be entertained by competent judges. For instance, a bizarre or byblömen Tulip of the finest strain by its superlative purity of ground colour and "feather," but half broken from the self-coloured breeder-flower, would assuredly be passed over or placed aside as a variety of "great promise;" and the finest Pink or Carnation, with the most exquisite "lacing" or bizarre stains upon the purest ground tint, but three parts developed, would alike stand "on trial." Such, we think, should be the case with seedlings, as ineligible for general competition until their average character is perfectly fixed. The exhibition of the current year's seedling forms may be regarded as an injury affecting the general interests of commerce, and of no real benefit to cultivators. We cordially offer the proposed subscription, or, if necessary, to subscribe a higher sum, conditionally that an equal amount be paid by each exhibitor. We further suggest that Class 4, as given by Mr. Wills, should include the best Tricolor with silver edge, and that the competition for such shall include the whole of the varieties in the several classes. *E. G. Henderson & Son, Wellington Road, St. John's Wood.* [The idea started by Mr. Wills has been somewhat extended. It has been proposed by gentlemen interested in this class of plants, to make the subscription 5*l.*, and to extend the number of classes as follows:—

1.—12 varieties of Variegated Zonal Pelargoniums, put in commerce within the last 12 months, 1 plant of each; 4*l.*, 2*l.*
2.—6 ditto ditto ditto; 2*l.*, 1*l.*
3.—6 Gold and Bronze Zonal Pelargoniums, ditto, ditto; 2*l.*, 1*l.*
4.—12 varieties of Variegated Zonal Pelargoniums, not yet in commerce, seedling plants excluded, 1 plant of each; 4*l.*, 2*l.*
5.—6 ditto ditto ditto ditto; 2*l.*, 1*l.*
6.—12 Variegated Zonal Pelargoniums, seedling plants only; 4*l.*, 2*l.*
7.—6 ditto ditto; 2*l.*, 1*l.*
8.—6 Gold and Bronze Zonal Pelargoniums, seedling plants only; 2*l.*, 1*l.*
9.—3 varieties of Variegated Zonal Pelargoniums, 4 plants of each, either in or not in commerce; 4*l.*, 2*l.*
10.—The best Variegated Zonal Pelargoniums, 4 plants; 2*l.*, 1*l.*
11.—The best Gold and Bronze Zonal Pelargoniums, 4 plants; 2*l.*, 1*l.*
12.—6 Golden (self) Pelargoniums, 1 plant of each; 2*l.*, 1*l.*
13.—The best Golden (self) Pelargonium, 4 plants; 2*l.*, 1*l.*

It has been thought that the numerous classes will compensate for the small amount of the prizes—which, however, can be raised or the number extended, if sufficient funds are subscribed; and the classes themselves are yet open to revision. We are requested to add that Mr. Moore, Botanic Garden, Chelsea, has undertaken to receive subscriptions, and to make the necessary arrangements. EDS.]

Insect Parasites.—I found the worm-like creature, of which I send you a specimen, in front of my apiary this morning (July 17) upon a stalk of Chickweed. It is about 5 inches in length, and not much thicker than a good strong horse-hair. What is it? *J. W., Gordon Castle, Fochabers.* [It is a Gordius or Mermis, of which so many have lately been found after rain on bushes. They are parasites on the bodies of various insects. *W.*]

Woodlice.—How am I to destroy these? I have them by thousands in a Melon bed, from which I have just gathered the first crop, and which I have planted again with young plants for a second crop. The woodlice eat away my plants every night. *J. B. S. S.* [Try the effect of pouring boiling water into their hiding-places round the edges of the bed, but in doing so take care not to injure the roots. EDS.]

North Wales Winters, and their Effects.—Very few of our more tender plants perished through the severity of the past winter, 1866-7, compared with what might have been expected; and I was quite suprised to find the following (although of course killed down to the ground, or nearly so) make their appearance again late in the spring, and are now (July) looking quite healthy and strong, and several are flowering freely, all in the open border, and without protection, viz.:—

Calla æthiopica.	Othonna cheirifolia.
Agapanthus umbellatus.	Jasminum Wallichianum, nudiflorum, &c.
Verbena venosa.	Ceanothus azureus,
Melianthus major.	

—though some others of the latter genus have irrecoverably disappeared. Out of above 12 species of Sempervivum (I mean those belonging to the true House-leek section), we have only lost one specimen, viz., Sempervivum Wulfenii. On the whole we have been agreeably disappointed in our apprehension as to the killing intensity of the cold, and of the great severity of North Wales winters in their influence upon vegetation in general. When we first came to this place, in 1858, I believe there was not a Vine or a Fig in the whole parish. We found one Mulberry, indeed, in the Rectory garden, but it does not at all (or at least in very few seasons) produce fruit; but the Vine, Fig, Peach, and Apricot are doing very well in our garden now against the ordinary stone walls of the country. The injury sustained in our Welsh gardens was occasioned chiefly by two especially trying sudden frosts; the first was that of October 15, 1866, and the second on the 22d May, 1867: but the most remarkable feature in this latter spring frost was its effect on our indigenous vegetation—the Common Ash and the ordinary Ferns, especially the latter, were fearfully disfigured, and yet many of the extra British hardy Ferns were untouched by it. This country affords a grand opportunity, and possesses great advantages for the lover of landscape gardening; the loveliness of the scenery, and the ease with which all its features may be brought out so as to make the most of its natural beauties, must always render it exceedingly attractive to persons of taste. *W. P.*

Orchard-house Trees at the Bury Show.—I trust that you will permit me to express my disappointment regarding the award of the Ipswich Town Cup for orchard-house trees at the Bury Show, because I am convinced (and I am corroborated by the judgment of many persons) that the trees shown by me were by far the best examples of successful cultivation there. I cannot help thinking that the judges must have misunderstood the nature of the competition, and that they have been guided in their judgment by the ripeness of the fruit, whereas in the prize list it is expressly stated, that "it is not necessary that the fruit should be ripe in this class." I observe, too, that you yourselves intimate that I lost the prize in consequence of having too many Peaches and Nectarines in my collection; but I submit, that if I complied strictly with the conditions—viz., showed "12 orchard-house trees in fruit, not less than six distinct kinds,"—the fact of my having more Peaches and Nectarines than my successful competitors ought not to have disqualified me, any more than their having shown two Apples and one Apricot should disqualify them. The Peaches and Nectarines furnished by me were all distinct sorts. The following are the names of the trees shown by me and by my competitors; your readers may therefore see exactly what were exhibited by each of us:—In my group were Ronald's Early Purple, Noblesse, and Walburton's Admirable Peaches; Hunt's Tawny, Oldenburgh, and Brugnon Montreux Nectarines; Moor Park Apricot; Summer Bon Chretien and Beurré Giffard Pears; Coe's Golden Drop and Denyer's Victoria Plums, and Late Bigarreau Cherry—altogether 12 sorts. Messrs. Lane & Son had three Peaches, one Nectarine, one Pear, two Plums, two Cherries, one Fig, and two Apples—also 12 sorts. As a practical gardener I have always understood that judges would take into account the evidence of labour and horticultural skill shown in the cultivation of competing plants, and I would suggest that orchard-house trees which had been under that kind of management, as mine had been—in pots from 10 down to 6 years (especially as the acknowledged difficulty in treating orchard-house trees is in keeping them in bearing for several years in succession)—deserved particular distinction on that account. Judged by this standard, I cannot help feeling that in this case a failure of justice has taken place at my expense; but as a man is confessedly no judge in his own cause, I would be content to rest my case on the judgment of such men as Messrs. Fish, Hogg, and Rivers: nay, more, I would even dare to appeal to the judgment of the respectable firm which has carried off the very prize to which I think I was fairly entitled. *Wm. Grix, July 22.*

Cucumbers from Cuttings.—Can Cucumbers be as well raised from cuttings as from seed; and are plants so raised as healthy, as vigorous, and as prolific as those obtained by seed? *A Grower of Cucumbers.* [Cucumbers can be grown from cuttings as well as from seed. They are perhaps scarcely so vigorous from the former as from the latter, but they are more prolific and better adapted for winter culture than seedling plants are. It is also a capital way of perpetuating a true and good variety. *B.*]

Melons.—I have this year attempted to raise Melons in a pit heated by hot water, but have met with disappointment when apparently on the verge of success. The plants flourished, and in due time showed abundance of fruit, which, alas! with scarcely an exception, refused to "swell off," the result being that I have but three Melons to five plants. Will you state the probable cause of this failure? *A Melancholy Amateur.* [Your Melons not swelling off their fruit is probably owing to over-luxuriance. The soil in which they are growing is possibly too rich and light for them, conditions under which Melons may grow and even flourish, but yet not fruit well. Melons to be productive should be grown in a somewhat heavy fresh loam mixed with a little manure, and the soil on the bed should be pressed down very firmly, so that when well watered it may retain moisture sufficient for the plants for a long time. Did you fertilise the flowers? *B.*]

Foreign Correspondence.

Orange Culture in the Azores.—The Orange tree succeeds everywhere in the Azores, even in a poor soil, but it has been found by experience that it prefers a richer soil, and that the proximity of the sea is favourable to it. The plant is propagated by layers, a process borrowed from the Chinese. The operation is effected from the 15th of May to the 15th of June, and by the following January there are generally sufficient roots thrown out. Separated from the mother plant, it sometimes produces fruit at the end of two years. Grafting on stocks derived from seedlings was originally the only mode of propagation practised; the trees, it is true, came into bearing less speedily, but produced, so I am assured, better fruits. The sweet Orange is reproduced invariably from seed, the seedlings remaining constant. The Orange trees are exposed in these islands to the danger of being uprooted by the winds; moreover, the salt atmosphere is prejudicial to the buds which form in early spring. To obviate this double inconvenience the planter commences by dividing his land into regular compartments by hedges; formerly these hedges consisted of Myrica Faya, Genista scoparia, and Pittosporum undulatum: but these plants have been replaced by Eriobotrya japonica, Cunonia capensis, Cryptomeria japonica, and Camellias. Laurus canariensis and L. indica have been used, but as these plants, by reason of their long creeping roots, exhaust the soil too much, they have been abandoned. Originally the Orange trees were not shaded, but since they have been it has been noticed that the rind of the fruit has become thicker and softer, which is prejudicial to the keeping of the fruit. Formerly, Oranges were sent with little trouble to Russia, but now considerable care is required to transport them even to England. It is possible that the shade of the trees injures the quality of the fruit by preventing it from receiving that amount of light and air necessary to bring it to perfection. Lupines are grown in the Orange plantations, and are subsequently dug in as a manure. About the tenth year the trees come into full bearing, each tree producing annually about 1500 Oranges. Generally it is reckoned that one chest of Oranges is supplied by each plant in a ten-year-old plantation, and two chests from trees of 15 years' growth. In 1815, on the property of the family of Borges do Campo, a single tree produced no less than 24,000 Oranges. The Oranges ripen towards the middle of November, but the best are gathered in January. In February all are ripe, and by May the season is past. In 1834 it was observed for the first time that the Orange trees cracked at the base of the trunk, and allowed a viscid liquid to escape, hence the term "lagrima" given to the disease. Soon afterwards the bark separated from the wood, which latter, with the roots, decayed, and the tree soon died.

The treatment adopted for this malady consisted in removing the diseased limbs, in making large incisions to favour the escape of the liquid, and in exposing to the air the roots which were considered the principal seat of the disease. A second disaster was caused by the appearance of an insect nearly allied to Coccus, a native apparently of Brazil (see *Gardeners' Chronicle*, October, 1843), first observed in 1842 in the gardens of Fayal. This insect soon spread and multiplied in the other islands, and covered the Orange trees with its galls. The vegetation of the trees became enfeebled, their foliage became yellow and dry, and many trees died in consequence. Nevertheless, this plague was not so disastrous as the preceding. I subjoin a list of Oranges cultivated in Mr. G. Brown's nursery at St. Michael's.

CITRUS AURANTIUM—SWEET ORANGES.

1. Achilles, flat at the eye, round and full at calyx, very good.
2. Acis, a seedling.
3. Bettencourt, very good, from seed.
4. Botelha, said to be very good.
5. Brazilian, rugged, quartered, said to be a superior sort.
6. Brownii, an excellent seedling.
7. Circassian.
8. Crispa, quartered fruit and curly leaves.
9. Don Luiz. | 10. Dulcis.
11. Dulcissima, said to be a very fine flavoured fruit.
12. Egg, egg shaped, or oval, one of the best flavoured fruits of St. Michael.
13. Excel. | 14. Exquisite.
15. Long, very long fruit, of excellent flavour.
16. Villa Franca, a seedling of No. 13; has not yet fruited.
17. Maltese, blood-red fleshed orange.
18. Navel, a Brazilian Orange, with a navel-like eye; fine flavour.
19. Nonpareil.
20. Partridge-eye, very good.
21. Pernambucana, said to be the best for flavour and appearance; tree very spiny.
22. Queen. | 23. Bride. | 24. Savoy.
25. Selecta, a Brazilian, large light coloured fruit, keeps long; very good.
26. Silver, oval-shaped, thin skin, very light coloured, excellent flavour.
27. Star, oval-shaped, with a large star eye; very good.
28. Do. large star-shaped calyx; very good.
29. Strawberry, said to partake of the flavour of the Strawberry.
30. Superior, thin skin and fine flavour.
31. Transit.
32. White, flesh white as in Persian Lime.
33. Citrus nobilis, Mandarin Orange.
34. ,, ,, var. minor, Tangeirine.
35. ,, ,, (?), said to be Mandarin, leaves shorter and rounder.
36. ,, japonica.

CITRUS ACRIS—ACID AND BITTER ORANGES.

37. Corniculata, horned Orange.
38. Acida, Seville.
39. Acuminata. | 42. Buxifolia.
40. Agrea, very bitter. | 43. Crispa.
41. Bigaradie Royal. | 44. Navel-eye, very acid.
45. Myrtifolia.
46. Citrus Limetta, Lime Bergamot.
47. ,, ,, small and bitter.
48. ,, ,, acris, small, rugged, very acid.
49. ,, ,, Persian, beautiful appearance, insipid.
50. ,, ,, Island, insipid, sub-acid flavour.
51. Acid, very acid.
52. Citrus decumana, Shaddock, spheroidal, lemon-coloured.
53. ,, ,, Gadii, very spiny.
54. ,, ,, grandis.
55. ,, ,, Toranga, very large.
56. ,, ,, veris.
57. ,, ,, Pear, pear-shaped.
58. Citrus dulcis, sweet Lemons.
59. ,, ,, Brazilian.

CITRUS LIMONUM—ACID LEMONS.

60. Common Lemon.
61. Silver striped, very ornamental; with striped fruit.
62. Major, very large.
63. Angularis, longangled fruit.
64. Bignetta major, very large thick spongy rind.
65. Braziliensis, very small fruit, thin skin; best fruit.
66. Galego, fruit medium size, oval, skin thin, good, very spongy.
67. Galego, long, seedling of No. 66.
68. Imperialis, spineless, large fruit.

CITRUS MEDICA—CITRON.

69. Acid. | 70. Sweet.
71. Citrus australis, fruit obovate, rugged, very likely a Lemon.
72. ,, californica, small Box-like leaves.
73. ,, mexicana.
74. ,, Paradisi, Forbidden fruit.

Edmond Goeze.

Societies.

GLASGOW AND WEST OF SCOTLAND HORTICULTURAL: *July* 17.—Although this might be considered a show *par excellence* of Roses, the prizes offered were sufficiently liberal and general to induce both plant and fruit growers to contribute their quota. Great masses of cut flowers are interesting enough, but they fail to command *per se* that attention which general collections of specimen plants in or out of flower at all times do. The miscellaneous collections gave a character to this show, held, as usual, in the large and spacious City Hall, and the Roses looked charming ranged up on either side of the tables, the centres of which were occupied by plants.

Foremost among the lots exhibited was that of Mr. William Alexander, gr. to Robert Henderson, Esq., Helensburgh, which comprised, among others, two magnificent plants of the Golden Fern, Gymnogramma chrysophylla, each of which was more than a yard across, and the fronds recurving in the best possible style; Croton variegatum, finely coloured; the somewhat ineffective Pavetta borbonica; the fine marbled-stemmed Alocasia zebrina; Cyathea dealbata; a beautiful Adiantum formosum; a good variety of the showy-flowered Vanda teres; Sphærogyne latifolia; a good Todea superba; several well-cultivated Club Mosses, which very much enhance the appearance of a general plant collection, and Dracæna Veitchii, with Poa trivialis variegata growing in the pot, and forming a very captivating ground, the narrow leaves depending gracefully over the pot edge. Messrs. J. & R. Thyne placed a large and well-assorted collection, covering some 50 feet of a table, showing how nicely a miscellaneous collection can be got up for conservatory decoration. The blending of the various groups of dwarf Palms, Heaths, foliage plants of the best decorative character, and New Holland flowering plants, assumed a very pleasing aspect. Features of this kind ought to be encouraged at all exhibitions, as they seem as much as anything to please the public generally. Mr. J. Murray, gr. to David Tod, Esq., Partick, exhibited successfully some creditable plants of a nice uniform size. His Ixora alba and coccinea, and his Allamanda grandiflora were covered with bloom, and had a freshness which it seems can never be brought out in specimens of great size. Erica Candolleana and ferruginea in this collection were superior plants. Contesting in the same class were Mr. Dickson, gr. to Thomas Coats, Esq., of Ferguslie; and Mr. James Graham, gr. to Sir A. Campbell, Garscube, who had many good plants. Cyrtoceras reflexum in Mr. Graham's lot was a finely-grown and well-flowered specimen of a plant that one does not often see, as also were a nice piece of the charming coloured Oleander, several Periwinkles, and some examples of Lilium auratum. Other exhibitors in lesser groups for specimens were Mr. James Forbes, gr., Beechwood; Mr. Alex. Walker, gr. to Thos. Hill, Esq., Merrylee, Cathcart; Mr. Archibald Stevenson, gr. to R. Addie, Esq., View Park, Bothwell; Mr. Clark, gr., Camphill; and Mr. Neil Campbell, gr., Holmwood.

Heaths were a very fair exhibition, numerous plants being staged, the best coming from Mr. Jas. Forbes, and from Mr. J. Murray, comprising such sorts as inflata, several of the tricolor and ventricosa section, ampullacea, &c.

In the Variegated Pelargonium section Mr. Wm. Campbell, gr. to W. S. Crawford, Esq., of Castlemilk, as usual, took first position with capitally-managed plants, the best by far being Lucy Grieve, Lady Cullum, Mrs. Pollock, and Sunset. Mr. John Ingram, gr. to John Gordon, Esq., of Aitkenhead, had also a good lot. Mr. Campbell's mode of encouraging these plants to grow after the pyramidal style requires only to be seen to be at once generally admired. The squatty style in which we always see these things grown, is not half so effective.

Petunias appeared to advantage on large arched flat trellises, and are the only plants we know of that are suitable for being trained "to a face." There were about a dozen of them ranged along one of the side tables, and they presented one mass of bloom. Mr. Dugald M'Dougall, gr., Ibroxhill, had the best, and Mr. John M'Nab, Trinidad Villa, and Mr. Neil Campbell followed with fine plants. The best sorts were Mrs. Richards, Excellent, and Duchess of Northumberland.

Messrs. Dreghorn & Aitken, nurserymen, Kilmarnock, had their usual complement of cut herbaceous flowers arranged in groups. The more prominent were Dictamnus Fraxinella, a capital thing; Lilium umbellatum Incomparable, one of the most vivid and best-finished of all the orange Lilies; Alströmeria aurea, a fine species; Funkia Sieboldii, Sedum kamschatica, and many others.

The Roses were a very large exhibition, contributions coming from many parts, and all in very good condition. The Irish groups were the most successful, the blooms being superb. Those from Messrs. Dickson & Sons, Newtonards, Belfast, and from Mr. James M'Laughlan, Orangefield, were most praiseworthy. Mr. Matthew Campbell, gr. to J. Hozier, Esq., Mauldslie Castle, and Mr. Stevenson, Viewpark, had also prime stands of 36. In the 24's, Mr. James Henderson, gr., Gorebridge; Mr. M'Laughlan, Mr. Baird, Boturick Castle; and Mr. George Fyfe, Kilmarnock, had each fine lots; while in the lesser groups Mr. Nevin, Laggarie Row; Mr. James Henderson, Mr. James Forbes, Mr. J. Baxter, gr. to J. M'Call, Esq., of Daldowie; and Mr. D. Campbell, gr. to G. Alston, Esq., of Craighead, Hamilton, had each a premier position. Looking to the great number of Roses that have been published already in connection with other reports, we merely give the names of the best in the whole exhibition. The best bloom of all that was exhibited was selected out of the Messrs. Dicksons' stand, and was Sénateur Vaisse. Others of note were Bernard Palissy, Lælia, Madame Moreau, Victor Verdier, Madame Charles Wood, Jules Margottin, Monte Christo, Gloire de Dijon, John Hopper, Charles Rouillard, Leopold Premier, Madame Vidot, Charles Lefebvre, Josephine de Beauharnais, General Jacqueminot, La Ville de St. Denis, Madame C. Crapelet, Belle Normandie, Pierre Notting, La Tour du Cr'y, Marie Baumann, Comtesse de Chabrillant, Souvenir de la Malmaison, Alfred Colomb, Madame Rivers, Duc de Wellington, Alphonse Karr, Triomphe de Rennes, Lord Macaulay, Charles Lawson, Duc de Rohan, Céline Forestier, Souvenir de William Wood, Marcellin, Victor Verdier, Madame Victor Verdier, Mdlle. Julie Daran, Comte de Nanteuil, Louise Peyronney, Catherine Guillot, and Louis XIV.

Fruit was not a very large exhibition, but what was contributed was up to the mark. Mr. Jas. Peacock, gr., Castledykes, Dumfries, showed 12 very excellent Queen Pines, all of uniform size, and in capital order; these were awarded an extra prize. Mr. D. Mitchell, gr. to the Duke of Hamilton, exhibited a fine box of fruit, consisting of good Pines, excellent Hamburgh and Canon Hall Muscat Grapes, the latter not ripe; very fine Peaches and Nectarines, and some of the smaller fruits; which also obtained a special award. Mr. Archibald Fowler, gr. to the Earl of Stair, Castle Kennedy, had 1st for black and white Grapes. His bunches of Hamburghs were finely-grown, consisting of large berries judiciously thinned, and finished up in good style. His Muscats are the best in point of finish we have seen this season, but they were not quite ripe, although they bore sufficient evidence of high culture to indicate what they are likely to be later on in the season. Mr. Matthew Campbell took 2d, and Mr. James Murray 3d for black Grapes, each with Hamburghs; and Mr. M'Connochie, gr., Cameron House, took 2d with by far the finest bunches and berries of the Buckland Sweetwater we have yet seen. Had they been better finished they would have beaten Mr. Fowler's Muscats, but flavour was the deciding point. Mr. Murray took 3d in this class with Muscats. Peaches in good condition came from Mr. Macmillan, gr. to Lord Blantyre, Erskine House, and from Mr. James Graham, gr., Garscube. Other fruits were well shown, but there was nothing worthy of especial record.

Vegetables were a very large display, covering some 500 feet of a table ranged round the market gallery, one of the many tributaries in connection with the City Hall.

The day was auspicious, but visitors were less numerous than we have noticed at any former exhibition, principally owing to many of them having left the town for their coast residences.

ENTOMOLOGICAL: *July* 1.—Sir John Lubbock, F.R.S., President, in the Chair. It was stated that the species of Hair-worm, exhibited at the preceding meeting by Mr. S. Stevens, which had been observed in such vast profusion upon Rose and other bushes shortly after violent rain, proved to be the Mermis nigrescens, ordinarily found as a parasite on the bodies of other insects. A new part of the "Transactions of the Society" was placed on the table. Mr. McLachlan exhibited a spider entirely covered with white mould; also living specimens of a huge flat spider, and a centipede from Manilla. Mr. Kippist communicated portions of an Orange tree from Sydney, New South Wales, greatly infested by a species of Coccus, forwarded to him by Mr. Charles Moore. Mr. Stainton exhibited an extensive series of rare Micro-lepidopterous insects, captured by himself in the South of France during the months of February and March. The Hon. Thomas de Gray exhibited an Eupœcilia, taken in Norfolk, and Hypercallia Christiernana, from Kew. Mr. A. R. Wallace read a memoir on the Cetoniidæ of the Malayan Archipelago, of which, during eight years' travels in the various islands, he had only been able to obtain 85 species, whereas of Longicorn beetles he had collected upwards of a thousand. The species agreed in their habits with the common English rose chaffer. The President communicated a memoir by Mr. Low, of Edinburgh, containing a series of observations on the reproduction of the honey bee, from which the writer was led to dispute the correctness of the Parthenogenetic theory of Dzierzon, which supposed that the male bees were produced from eggs which had received no influence from the male fluid, either in cases where the eggs had been deposited by virgin queens or by queens already fertilised by union with the male. In the course of his observations Mr. Low stated that he had obtained, from crossing different breeds of bees, males which partook of the characters both of the male and female parents.

Notices of Books.

At Home in the Wilderness, being full instructions how to get along, and to surmount all difficulties by the way. By the "Wanderer." Crown 8vo, pp. 317. Woodcuts. (Hardwicke.)

There is a curious Hibernian aspect about the title of this little book, which induces us to quote it at full length; the present participle and consequent "instructions" are associated with the opening proposition "At home" in such a manner as to recall Mr. Mark Tapley's faculty of being jolly under any circumstances, an association of ideas by no means interrupted by the most respectful dedication to H.R.H. the Duke of Cambridge, &c., &c.

The opening sentences of the introduction show the real intention of the book, which is to instruct "travellers of all denominations * * * where and when to camp; how to equip and manage a train of pack-mules; break, gear, and saddle wild horses; cross streams, build log shanties, trenail a raft, dig out a canoe or build it with bark or hide, manage dog sleighs, and tramp on snow shows; what to carry, and what to leave at home (query, which home?); or, to sum up in a few words, the way to get through a wild country as one ought, by adopting the better means of doing that which has to be done." Though not free from a taint of book-making, the author has in this volume contrived to give as much information as we suspect could well be given on a subject where what medical men would call clinical instruction must necessarily be more valuable than any book-learning. To give a sample of our author's style we quote his observations on the use of the axe:—

"To use perfectly the American wedge-shaped axe (and here let me say that it is the only axe for felling timber and doing everything with, which is worth one straw), requires no ordinary degree of skill and practice.

"Strength, of course, has something to do with it, still a man of only moderate muscular power would beat a giant into being ashamed of himself, if the weaker man did, and the stronger man did not know how to wield an axe. The axe I prefer for all ordinary purposes ought to weigh about 8 lb., and it should be carefully mounted or, 'hung,' as the term is, on a springy, rightly curved hickory handle. * * * Let us suppose you are going to fell your first tree; be careful to discover how the tree leans, and always choose that side towards which it inclines to begin on; by doing this you avoid the risk of falling the tree on yourself. Stand off from the trunk, so that the edge of your axe blade can touch the centre of it, whilst both your hands are grasping the handle before the knob at the end of it, purposely made to prevent it from slipping out of the grasp in the act of chopping. Fix your eye on a spot about 3 feet from the ground on the tree trunk, plant your feet firmly, look carefully behind you to make sure that there are no small twigs or branches to intercept the axe; then holding the handle by the extreme end, not too firmly, or it will jar your wrists, and whirling the axe at arm's length round your head, bring it obliquely down on the spot you have fixed your eye on. If you bring the edge down on the proper slant, the blade should be nearly buried in the bark and timber; if you do not it will "glance," and then look out for your legs. Repeat this cut if you can; an axe-man would, twice or three times following, in the same place. Should the tree be, for example, 4 feet in diameter, chop in the next cut you make 3 feet lower down than where you made the first cut, but, this time, horizontally, always bringing the axe round at arm's length. This will give you the 'right sized chip' to use a lumberer's phrase, or, what he means, in other words, is, that the 3-feet notch will enable the chopper to make the wedge end of the tree break in the centre of the stump; if you took a smaller notch, as nine out of ten inexperienced men would do, you would find your axe jammed before you could chop half way through the trunk; hence the length of the chop is always in proportion to the girth or diameter of the tree to be felled. Cut half way through the tree, always keeping the lower surface horizontal and smooth, as if planed; then change and begin on the opposite side to that on which you have been chopping, precisely in the same way as you began the other cut; when you are nearly through, the tree will crack off, and of course fall in the direction to which it leaned, that is away from you."

The Apiary.

FIXING COMB TO BARS.—I find that the best way of fixing large pieces of comb to bars in Stewarton hives, which are of course without frames, is to take out the bar (which, as they are all now fastened with screws, is easily done), spread a little melted wax upon it where the comb is to be attached, hold this over a slow, clear fire till the wax boils, and then immediately apply the comb with some pressure, which should be gradually and carefully relaxed or the new-made adhesion may be shaken and injured. When quite cold the comb should be tried.

This method is of course applicable to bars in any hive which admits of their being taken out. The use of heating the bar so much as to make the wax boil is that this causes the comb which is applied to it to take an exact impression of, that is, to melt to, its shape, which is essential to good attachment; and the wax boiling shows when the requisite degree of heat is arrived at.

This method is, however, applicable to combs of any size, only when they have not been bred in, as the films of the grubs in older combs prevent secure attachment of pieces more than, say, 2 inches in diameter. Indeed, with very large pieces of the best comb I often find it necessary to heat the bar twice: the first time shapes the comb flat, or concave, to suit the surface of the bar; the second melts another application of wax for fixing.

I am more successful with this plan than with

paring away the cells at each side of a piece of comb, and putting the pared part between a split bar, to be afterwards screwed together; as, independently of the trouble of the latter, some combs would occasionally break off and fall down, notwithstanding that every possible care was taken in the operation. *A. B.*

[Your plan of attaching combs to bars is a very good one, which we have frequently adopted with complete success. Even when fixing small or large pieces of guide comb in other ways, we usually make the bars more or less hot. The method which we have found the most satisfactory for general purposes is to melt in an iron vessel some ordinary bees'-wax, with a small proportion, say one fourth part, of the best rosin added to it. The comb is cut to the required shape with a warm knife. The bar is moderately warmed by being laid on the outer iron of the oven of the kitchen range. The comb is applied to a flat piece of iron plate, longer than any ordinary comb, warmed over the same (the fire cover would do, but the cook objects); a small-sized painter's brush having been dipped into the hot wax, is quickly passed over the surface of the bar, and the comb gently pressed down and retained with the hands until both bar and wax are cold. The addition of the rosin renders the attachment so secure that the comb will, when cold, break in any other part rather than at the place of union; the odour of it also being highly appreciated by the bees. The length of time required for the process is less than may appear necessary from the foregoing description: but in this operation we do not begrudge a little extra time or trouble; and whether small or large, old or new combs (provided the cells do not contain honey), are tried, we do not remember ever having had a failure.

We detest the use of split bars for the purpose of fixing either ordinary comb, or for securing the edges of the embossed waxen sheets, so useful for guide comb. Your other query must stand over until next week.]

TANGING OR RINGING SWARMS.—Being interested in the rearing and management of bees, I should feel obliged if you would answer a question concerning the tanging, or beating noise, made in some parts of the country by a key and shovel when bees are swarming. I have been told there is a bee-law in existence, and that this noise with the key and shovel is done by the owner of the swarms, so that they can follow them and claim them, let the bees go where they will. *E. K. S.* [It is believed by some authorities that the system of tanging swarms arose in the first place from its being practised as a means of informing the neighbours and others of the fact of a swarm being on the wing, and to signify the owner of it. Now, however, there is no doubt that the practice is followed simply because it is commonly fancied to have a beneficial effect in inducing the speedy settlement of the bees. The idea we believe to be quite an erroneous one, though we have heard some intelligent bee-keepers affirm that the speedy and peaceable settlement of the swarm is beneficially influenced by giving forth these sonorous sounds. It is also quite an error to suppose that any one may commit a trespass on another man's property for the purpose of following his swarm, without having previously obtained the owner's consent.]

Garden Memoranda.

AUSTIN & MCASLAN'S NURSERIES, GLASGOW.—Coplawhill is the original depôt of this firm. It is situated about two miles to the south of Glasgow, in immediate proximity to Pollockshaws on the one hand, and to the South Park, which since its formation has been distinguished by a badge of Royalty, on the other. The Park was originally designed by the late Sir Joseph Paxton, and now forms one of the most agreeable resorts for the rapidly growing population of this great commercial city. The nursery is, therefore, of convenient access, and is, or has been, so greatly patronised, that in order to meet the wants of an augmented business a farm of 80 acres has been leased as an auxiliary.

Situated as it is in a by no means hospitable climate—for if to the intense frosts that prevail, and which act with such terrible malignity and force on vegetation in the greater portion of Lanarkshire, we add the baneful influences of smut ejected in quantities from numerous tall chimneys, common to every busy seat of commerce—the wonder is that there should be any symptoms of life in evergreen vegetation. After the trying ordeal of the late rigorous winter, aggravated by the very severe early spring frosts, one may be safe to recommend to planters the objects that have survived. In the first place, Portugal Laurels, of which there is a goodly batch in this nursery, do not seem to be much incommoded, the only ones suffering being those that are grown in low-lying positions. The Bay Laurel, on the contrary, is scourged so dreadfully as to show its unfitness as a hardy individual in a general way. Irish and English Yews are in fine condition, but the former seems to be a drug in the market. Some being lifted for "order lots" at the time of our visit, showed a splendid mass of rootlets, evidencing a good foundation, and, taking root and branches together, a sound constitution. Talking of constitutions reminds us of the great breadths of Scotch Fir (Pinus sylvestris), and of the relative condition of the plants from home and foreign seed. The Haguenau seedlings were much more browned, more advanced in bud, and apparently more tender than the "native Scotch." Of this there was indisputable evidence, the two-year-old seedlings being in the same quarter of ground, and the whole being under similar conditions. The Larch, again, is open to the same objection, comparing the foreign with the home seed. The sooner there is a proper understanding about these matters the better for future success. Animated with a desire to gain information upon this point, we made inquiry of Mr. Austin, a gentleman of large and varied experience both in nursery and gardening practice, as to his experience in the matter, and his reply was to the following effect:—"I have found that the plants from foreign seed push away 10 days earlier than our 'home seedlings,' and are apt on that account to be destroyed by late spring frosts, while they are a fortnight later in autumn in maturing their growth, and consequently suffer from the effects of autumn frost; and I have not the least hesitation in saying that every one that can handle the pen should write down that arrant nonsense about the benefits of foreign seed." Larch seems this season to be a drug in the market, and this firm may consider themselves fortunate in getting rid of their stock. The system adopted in preparing the ground for Scotch Fir, Larch, and Spruce seeds, is to manure heavily and clean the ground by introducing a green crop, and after it is cleared off manure and dig again—a system pregnant with success, abundantly evident by the vigour and size of the seedlings of the species above noticed. The trade in Scotch and Spruce is so very large that upwards of one million of the former are turned by this house alone, and a number equally proportionate of the latter. Struck at the appearance of such a successful batch of Pinus Laricio we were given to understand that the one-year-old seedlings were lifted and laid (*Scoticé*, sheuched) in lines or batches, and the 200,000 of them arranged in this way were "doing" admirably; while, had they been left in the beds until they reached the age of two years, the bill of mortality would have been alarmingly great.

The trade in hard-wooded forest trees is steadily on the increase, especially as regards Oak and Beech. Of the former there were considerable breadths, the five-year-old plants—that is, "two years' seedlings and three years transplanted," in nursery phraseology—looked particularly captivating; and the Beech and Elms of sorts were cropping up in nursery lines in various directions. Horse-chestnuts were in better condition as budded plants than one often sees, having a vigour and a foundation which were particularly pleasing. There were in one quarter some 4000 of the scarlet variety, a plant which is in very great demand at the present day. As young plants, they seem to repay gross feeding—the blackish surface loam and the marly subsoil, of which the principal quarters consist. The plants were quite pyramidal, and bristling with buds, the crown bud yielding a fine head of bloom the first season after budding, which fully attests the ornamental character of this useful decorative tree. Lime stools were numerous, and layering is the order of the day for increasing the stock, thus gaining several years by this method upon seedlings, which is not an unprofitable means of "taking time by the forelock." Quicks, too, seem to be a marketable commodity in this nursery, if one may judge from the quantities grown and the numbers in course of being lifted and bundled during our visit. Along one of the north walls that bound the nursery is quite a regiment of Poplars, in the shape of decapitated pollards, which had been introduced to shade the wall border reserved for the propagation of hardy stock of all kinds—a capital arrangement, attended with the desired success. In one of the out-of-the-way corners, under shade of trees, and where the rays of sunlight could scarcely permeate, was a collection of Spiræas in unexceptionable condition, and flowering, we were told, in the greatest profusion. Hints of this kind may prove invaluable to all who may be at their "wits end" for clothing some such spots with suitable material. These, and Cotoneasters of sorts, are the very drudges of suffruticose plants, and quite as useful subjects in their way as the "all work servant."

The fruit-tree department of this nursery deserves special notice, from the generally satisfactory condition of Peaches, Plums, Apples, and Pears, the latter three particularly well managed. We are sometimes facetiously told by the self-taught successful amateur that the manure heap is the "head gardener" in Cabbage culture; and, all other things being equal, it unquestionably is so. Deep digging, or trenching from 20 to 24 inches deep is resorted to, which gives the soil a capacity for utilising both the stable-yard and artificial manures, which this firm employ for fruit tree culture. The tilth was "right" for so practising upon, and the frost had mellowed it to a nicety, so much so that the not unfrequent showers pass through it as if through gravel, and do not affect its workable condition. The boundary wall with the best "exposure" was filled with Peaches, both riders and dwarf in variety. Curiously enough the dwarfs do not succeed nearly so well as the riders, which must be owing to an invading force of slugs at the advent of bud-bursting. Notwithstanding an untoward "back end," the trees give evidence of well ripened wood, owing mainly in this instance, it is to be presumed, to the thoroughly drained aërated soil. Plums budded on the Mussel stock were really first-rate, the Green Gage, Purple Gage, Victoria, and all the leading sorts, both as dwarf, dwarf-trained, and all the other forms, were most desirable plants and remarkably uniform over the quarters, each of which contained 6000 plants. Damsons were little pyramids with good foundation, and if treated on the same principle for three or four years would make handsome bearing trees. Pears were all budded on the "free" stock, as, profiting by the fruits of experience of 1860-61, the plants so dealt with survived uninjured, whereas those upon the Quince were killed. Ever since, the latter stock has been discarded. Apples are quite at home, flourishing far more vigorously than one could suppose, budded as they are upon the Paradise Stock. Under liberal treatment in the way of food-stimulants most of the best sorts produce quantities of fruit, and are not over delicate-looking in constitution. The trade in this article is very large, and indeed in all of the kinds above enumerated, showing the healthful condition of commercial enterprise in the west. So soon as people better their condition in life they secure a country villa, and then fruits and flowers form a part of the out-door furniture. We quietly noted a capital "wrinkle" from Mr. Austin's vocabulary of practical "saws" as to Gooseberries. In their nursery routine the firm was much chagrined that they could not send out decent Gooseberry bushes, and the demand for them was such that they could ill afford to leave off their cultivation in disgust. Their want of success lay not in the matter of roots, for they were fibrous and matted, and the trees could bear transplanting uninjured. It was by reason of an army of insects that fell upon the buds in the act of bursting, and almost denuded the plants. Mr. Austin decided to treat the pruning of them as he did his Roses, and accordingly they were left untouched until May, when full of leaf. He was right, for he has been successful ever since, and no one could wish to have a better favoured lot than the thousands the writer saw in a large quarter of ground. This is a wise practice in a "north countrie," and it might be safely acted upon much further south, where pests of this kind are troublesome.

Turning our attention to the indoor department, we find a great deal of business apparently done in a general way among pot plants. No one out of the trade can conceive the growing demand of a successful commercial nation for decorative plants to feast the eye, and for the more substantial fruit to regale the appetite. It is only when one moves from place to place and picks up some idea of the trade in different articles that we really can estimate the progress of horticulture among the people. Here is a large greenhouse about 100 feet long by 22 feet wide, filled with half-specimen Heaths and Azaleas, while the suspended shelves are loaded with smaller fry, which find a ready sale. Among the Heaths are several not generally known, being seedlings of Mr. Turnbull's, of Bothwell Castle, one of the most painstaking cross-breeders and hybridisers of this class, and one of the best growers in the country. His Savileana major, which is noticeable in this house of half-specimens has a much higher-coloured and larger flower than the original, while it sends up large thyrse-like spikes; Marnockiana is one of the very best autumn-blooming Heaths; and Bothwelliana alba, which to a sturdy habit adds free-flowering properties, is also fine. In the general lot the Woodhall ventricosa is by no means a plentiful plant, albeit it is one of the most decorative of June and July plants; Massoni, too well known to need describing, and a great variety of tricolors of the coccinea breed, and of jasminiflora. Azaleas and Rhododendrons were equally numerous and diversified, but it serves no useful purpose to notify plants that are "here to-day and away to-morrow," unless they present some striking feature. Lapageria rosea is more and more popular, and a large batch of fine seedlings are moving upwards. Violets are in great demand, Neapolitan especially; Queen of Violets, and its good, not "better," half, King of Violets, are promising acquisitions. The hard-wooded plant trade in this nursery is very considerable, and notwithstanding all that is being propagated, it is but a mere moiety of what passes through the books, as could well be testified by some of our leading London houses, which furnish an annual supply. Lots of useful span-roofed houses are dotted over the block of ground set apart for plants that require the aid of a glass covering. Zonal Pelargoniums here, as everywhere else, are largely cultivated, and likely soon even to outvie the show Pelargoniums. Along with this group were a good stock of young plants of Escallonia macrantha. As a wall plant this seems to meet general approbation, the large lustrous-looking leaves, and its general hardihood, forming good certificates for general cultivation. Tropæolum tricolorum, an old and much abused bulb, seems to gain in the good grace of those wedded to flowers; and it is not to be wondered at, for the splendid masses of orange and red flowers which clothe its tiny stems, give it a high rank among decorative plants. Mr. Austin seems to think so, judging from the quantity of it which is encouraged. In the half-specimen Azalea house, which is often visited by buyers, there is a large stock of the Castlemilk Pelargonium. It has a very broad margin of white, probably broader than in any variety under cultivation; but like most of these variegations it inclines to turn inwards at the edges. Mr. Campbell, the raiser, had some beautiful leaves of it in his possession, and judging by them it merits a First-class Certificate. Camellias are growing here with leaves of the deepest green in a very dark house, and their flowering under sufferance did not seem to be at all affected thereby.

Roses are largely trafficked in. One thousand of them were grafted upon continental stocks at the end of the year, and were pushing away to be fine plants. They are grown in the house until the middle of May, then gradually hardened off out-of-doors, and are found to stand better over the following winter than sorts worked and brought in from continental sources. The frost had scourged many of the hybrid perpetuals very much. Some Rhododendrons appear also to have suffered, while the variegated-leaved Aucuba has stood out in most places uninjured.

The trade in florist's flowers here is very large, especially in Dahlias, Pentstemons, of which there are probably more sold by this house than by any other in the kingdom; Phloxes, Antirrhinums, Pinks, and Pansies. There is a splendid lot of Pentstemons and Antirrhinums in the best health, growing in low pits, with a couple of hot-water pipes running through them. Here also was a quantity of the Mule Pink, a most desirable border flower, which is gaining favour again among not a few. Quantities of seedlings of Rhododendrons and Cupressus Lawsoniana were coming away

in frames, and a few of the more choice Conifers were arranged in borders confronting some of the houses. *J. A.*

Miscellaneous.

Presentation to Mr. William Austin.—A handsome testimonial, consisting of a tea and coffee service, value 140*l.*, has just been presented to Mr. Austin, of the old established firm of Austin and McAslan, Nursery and Seedsmen, of Glasgow, as a tribute to his estimable qualities, from a numerous circle of friends and acquaintances. The testimonial was presented at a dinner in the lesser Trades' Hall, attended by upwards of 50 gentlemen, Mr. Anderson, of Meadow Bank, presiding. In acknowledging it, Mr. Austin said it was now nearly 27 years since he came to Glasgow, a young lad, from the Highlands, with not much in his purse; but, through the goodness of Providence, and the countenance of kind relatives, he soon got on. During that period he had spent many happy days, and met many kind friends, from whom he had received many tokens of respect, which were now crowned by this handsome testimonial. He had not imagined that he had done anything deserving such an acknowledgment; but since they had seen fit to bestow it on him, he would cherish it, and let it go down as an heirloom in his family—trusting that neither he nor any who came after him would do anything to disgrace the handsome token, nor the name of "Willie Austin."

A Hint to Gardeners.—If people planting orchards would give orders to mark the north side of trees with red chalk before they are taken up, and when set out to have the trees put in the ground with their north side to the north, in their natural position, a larger proportion, it is said, would live, as ignoring this law of nature is the cause of many transplanted trees dying. If the north side be exposed to the south, the heat of the sun is too great for that side of the tree to bear, and therefore it drys up and decays. *Builder.*

Garden Operations.

(*For the ensuing week.*)

PLANT HOUSES.

ENCOURAGE *Gesneras* intended for winter decoration to make robust growth, by freely exposing them to the sun, and with abundance of air imbue them with capabilities of flowering freely. Do not overpot them, as they succeed best when not too lavishly supplied with soil. Indeed they are rather partial to comparatively under-sized pots, and like to be potted firmly. Water sparingly, except when they decidedly require it, and then it should be given abundantly. Remove all gross shoots from *Poinsettias*, and strike them in a close pit or frame, in which there are about 60° of heat. Do not cut back the older shoots further than is necessary to insure cuttings of sufficient firmness. Pot on all the older specimens of this useful winter decorative plant. Keep them near the glass whilst growing, and guard them carefully from the too sudden rays of changeable sunny weather; they delight in surface sprinklings freely dashed against their bright green foliage. *Chrysanthemums*, should they require another pinching back or stopping, should receive that attention forthwith, as by so doing time will be afforded them to break and form robust divisional shoots, sufficiently well matured to produce good blooms at the proper season. Be particular not to stop after the 1st of next month, otherwise the reverse of success may be the result. Finish potting all specimens without delay, giving only small shifts, into a compost formed of more loam and a smaller amount of leaf-mould than that heretofore employed; pot also rather more firmly; sprinkle freely overhead with a rosed waterpot in dry weather, and give alternate waterings at the root with liquid manure and clear water. Earwigs do Chrysanthemums much injury at this season, often destroying the younger tips of the shoots before suspicion of their presence is aroused. Search for them daily, and destroy with the thumb and finger, and also lay traps for them of dry hay or moss. *Torenias*, lately struck, as advised, must be potted off immediately they have become sufficiently well rooted for the purpose; place them in small-sized pots only; crock well, and induce them to form fresh roots, in order to properly establish themselves before adverse winter months set in. *Liliums* (longiflorum, auratum, &c.) which have flowered, should be removed to a cool airy situation, in a cold pit, or other place, where simple protection from heavy rains can be conveniently afforded them; at all other times keep the lights off, the only attention they require being an occasional root-watering when they are likely to be unnaturally dry. Give *Tritonia aurea* an occasional soaking with weak liquid manure, and syringe the foliage frequently, for the purpose of warding off red spider, which is very partial to it.

FORCING HOUSES.

Follow up the directions given in past Calendars with late *Vineries*, in every stage of growth. Give air liberally upon fine mornings early, and withdraw it earlier in the afternoon as the sun decreases in power. Do not fail to water the inside borders of early Vineries, from which the fruit has been gathered, especially when the roots are retained exclusively therein; as, though the crop has been gathered, the Vines have not yet ceased growing: on the contrary, they are doubtless now actively storing away elaborated sap for the ensuing season's activity. As regards *Pines*, complete without delay the arrangement of winter fruiting plants, removing all superfluous gills, suckers, &c., as previously advised. Give abundance of air early in the day, but do not omit closing early in order that a maximum of about 93° may be secured from sun-heat. Syringe copiously every part of the house or pit; and by periodically stirring the surface of the tan pit, destroy all formations of a fungoid character. Plants swelling fruit, let it be remembered, like frequent waterings with diluted liquid manure, which tends materially to increase the size of the fruit. *Peaches* in a ripening state should now be afforded a free and constant supply of air, admitting it freely by night as well as by day.

HARDY FLOWER GARDEN.

Mignonette should now be sown in pots and be placed in a cool frame or other position to be protected from excessive rains. Sown now in 32-sized pots it will come in useful for early winter flowering. Single plants might also be taken carefully up from any outer border and placed singly in small pots to be grown on by means of successive pottings into specimen standards. Choose good stiff yellow loam in which to grow them; crock the pots sparingly yet efficiently, placing a layer of partly decomposed leaf-mould over the crocks. The soil should be firmly rammed, taking care not to sow the seed too deeply. Sow also *Nemophila* of sorts, and *insignis* especially, to form plants for blooming in pots in the autumn, should such be needed. Prune back and train into vacant positions *Wistarias*, *Honeysuckles*, *Climbing Roses*, &c., laying in all the young wood possible upon these latter, for the purpose of increasing their flowering capabilities. Place cuttings of choice *Verbenas* in store pots, in order that they may well establish themselves before winter. Take up *Ranunculuses* from open borders as soon as the portions above ground have become well ripened off, and have turned yellow. Layer *Picotees*, *Carnations*, *Cloves*, &c., as opportunity offers. Performing the operation thus early will afford them ample time in which to become well rooted, and form fresh divisional shoots preparatory to forming efficient plants to transplant by and by. Remove all superfluous suckers from around the base of *Violet* plants intended for flowering only, in whatever stage, by cutting them away bodily. This applies especially to the Neapolitan variety. Should the weather prove dry, run the hoe carefully around these latter where the operation just named has been performed, and give a slight mulching with well-sifted leaf-mould.

HARDY FRUIT GARDEN.

Look sharply after all kinds of insects, earwigs, &c., which are habitually so destructive to wall-fruit. Much mischief might be saved by making an active onslaught thus early, before they have commenced their depredations. I know of no better trap for them than the hollow stalks of the Broad Bean; into these, placed abundantly among the branches, they readily crawl, and may be quickly dislodged by blowing them into a pot, or other vessel, containing water. By a little extra scrutiny wasps' nests might now be detected. If they are to be sought after at all, which they should be, it is better to do it now than when the fruit is ripe, and liable to be injured by their inmates. A little gas-tar, poured into the hole from which the wasps ascend, will effectually stop all further trouble from them. Reduce the number and length of all foreright shoots upon *Pear* trees, whether trained to walls or grown as espaliers, in order that light and air may be more freely admitted to the flower buds forming at their base than otherwise would be the case, and in order that more strength may also be afforded them to duly perfect themselves. I do not advise their entire removal thus early, for should a fine mild autumn ensue, it is just possible, were they so treated, that they might be induced to grow afresh, which certainly would tend to diminish stored-up resources, besides neutralising those very flower buds which we are anxious duly to establish. Check, therefore, secondary growths which may form after this date by pinching them back as soon as perceived. In continuing to attach the younger growths upon *Peach*, *Nectarine*, and *Apricot Trees* to the walls neatly, do not fail to afford to each shoot, and indeed to every leaf, room for the full exposure of its whole surface to light, &c., in order that the sap stored away by the trees for next spring's use, may be duly elaborated. Do not therefore lay in more young shoots than are likely to be required for active use next season. Instead of fastening all young shoots by means of ordinary shreds and nails, very small sticks, some 6 or 8 inches in length, held in their places by means of the main branches, are very handy for the purpose of holding secondary fruiting spray loosely to the wall. *Strawberries*, which have been duly thinned, should receive without delay a good mulching of short manure; old mushroom beds contain the best materials in a very handy state for this purpose.

KITCHEN GARDEN.

Finish planting out into permanent quarters all "winter stuff," such as *Celery*, *Broccoli*, &c. Sow forthwith seeds of Early Horn *Carrot*. This latter, where convenient, should be sown upon a warm or otherwise sheltered south border. Make also another sowing of *Cabbages*, *Lettuces*, *Endive*, and *Radishes*. Prepare the necessary space for winter *Spinach*—an important crop where a large demand for good vegetables exists. Choose for it a light, open, dry piece of ground. Make also another chance sowing of dwarf *French Beans* in an open situation, and of Sangster's No. 1 or Champion of Paris *Peas*. These may yet afford a good late crop. Take up *Shallots*, *Garlic*, and *Potato Onions*; lay them in a dry airy situation to duly ripen off, previous to storing them away. Transplant Brown Cos *Lettuce*, should you have a sowing sufficiently large for that purpose, toward the end of the week, as these may come in useful for lifting in the autumn, as fine large stuff, fit, with frame protection, for immediate use. Late sown *Turnips* must be encouraged to grow by watering, &c., should the weather prove too dry for the seeds to germinate freely. Cut, dry, and store away the necessary supply of *Herbs*. This should be done before they are in flower. *W. E.*

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the Week ending July 24, 1867, as observed at the Horticultural Gardens.

July.	Moon's Age.	Barometer.		Temperature.					Wind	Rain.
				Of the Air.			Of the Earth			
		Max.	Min.	Max.	Min.	Mean	1 foot deep.	2 feet deep.		
Thurs. 18	17	29.577	29.487	68	50	59.0	63	60	W.	.06
Friday 19	18	29.745	29.574	65	52	58.5	62	59	W.	.01
Satur. 20	19	29.802	29.682	70	52	61.0	62	59	W.	.13
Sunday 21	20	29.843	29.605	72	51	61.5	63	60	S.W.	.02
Mon. 22	21	29.672	29.651	74	53	63.5	64	60	S.	.20
Tues. 23	(	29.612	29.598	72	48	60.0	64	60	S.	.02
Wed. 24	23	29.739	29.640	71	43	57.0	64	61	S.	.00
Average .		29.684	29.605	70.3	49.8	60.0	63.1	59.8		0.44

July 18—Rain; low white clouds; fine at night.
— 19—Cloudy and boisterous; cloudy throughout.
— 20—Clear; partially clouded, rain at night.
— 21—Cloudy; partially clouded; cloudy.
— 22—Rather boisterous; fine, with white clouds; rain.
— 23—Cloudy; showery, heavy showers at night.
— 24—Very fine; cloudy; fine at night.

Mean temperature of the week, 15·10 deg. below the average.

STATE OF THE WEATHER AT CHISWICK,
During the last 41 years, for the ensuing Week, ending August 3, 1867.

July and August.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain	Prevailing Winds.						
						N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday ..28	76 3°	51.0	63.7	20	1.39 in.	2	3	4	3	1	12	11	5
Mon. ..29	76.0	50.4	63.2	18	1.31	4	5	4	1	4	13	5	5
Tues. ..30	75.1	50.0	62.5	16	0.88	4	5	4	1	2	11	9	6
Wed. ..31	74.8	50.4	62.6	16	0.85	2	5	2	1	4	17	9	2
Thurs. .. 1	75.8	50.3	62.6	19	1.23	1	3	7	2	4	14	9	1
Friday .. 2	75.8	51.0	63.4	20	1.03	1	4	3	—	8	15	6	4
Satur. .. 3	74.7	50.5	62.6	19	0.42	4	4	3	2	4	16	7	1

The highest temperature during the above period occurred on the 2d, 1856—therm. 92 deg.; and the lowest on the 2d, 1864—therm. 31 deg.

Notices to Correspondents.

CONIFERS: *W B.* Your Conifers are, we suspect, in too rich soil. "Old Strawberry beds with rather light old garden soil" is just the very worst description of soil in which you could put them. Conifers delight in good fresh yellow loam mixed with a little peat. Plant yours in soil of that kind, and they will succeed. No guano or other manure need be given to Conifers, except the soil in which they are growing is very poor, when a little rotten stable manure might be beneficially mixed with it.

CUCUMBERS: *W G B.* Your Cucumber plant arrived in such a state of putrefaction as to give little information. From the immense amount of moisture in it, there would seem to be some over development of the tissues of the stem and root, attended by a stagnation of the juices, in consequence of which the leaves flag. If this is the case, you may possibly do something by attending to the condition of the soil. If however, as is possibly the case, it is a form of Cucumber murrain, little can be done. *M J B.*

DEODARS: *Constant Subscriber.* It is doubtful under the circumstances if you will get sound permanent leaders, but if the trees are vigorous we should recommend you to try side pruning in order to force a leader. As the situation is so much exposed we should let the winter pass before doing this very freely, but if the trees are very thick, a portion of the longest branches might be cut back now.

MYRTLES: *Reader.* You may sow your seeds of these at once in shallow pans filled with light soil. Place them in a cool frame kept tolerably close until they have fairly germinated, after which air may be freely admitted.

NAMES OF PLANTS: *F B.* Your Stanhopea was in such a flabby state as to be scarcely determinable. It would seem to be a small variety of S. Wardii.—*A G.* Callistemon lanceolatus. —*A D B.* Stanhopea oculata.

PEAS: *K J L.* The Rising Sun is a synonym of Prizetaker and Leicester Defiance, apparently selected from, and an improvement on, Bellamy's Early Green Marrow.

RASPBERRY CANES: *H R, Walthamstow.* Thin out the fruiting canes of this year as soon as the fruit is gathered, and prune back the canes that are to bear fruit next year at the fall of the leaf.

ROSE LEAVES: *Correspondent*, whose letter has been mislaid. The leaves have been attacked by the larva of the rose sawfly. You will probably still find the green larva on some of the fresher leaves, and if so they had better be carefully picked off. *M J B.*

STRAWBERRY: *G Hankin, Wolviston, near Stockton-on-Tees.* Your seedling named Princess of Wales was so much bruised and damaged when we received it that no correct opinion could be formed of its merits. The fruits are of medium size, scarlet, and all more or less deformed at the point. It must be a good cropper if you can gather from 500 to 600 fruit from each plant. Never again pack Strawberries in old tow, which is a material thoroughly unfit for the purpose.

THE WONDERFUL PLANT.—Some of our correspondents have furnished us with letters relating to this plant, and all couched in the same terms. Our readers must draw their own inferences. Meanwhile, we await the publication of the "Guide." "J. Heselton, 4, St. Hilda Street, Hartlepool. Sir,—As all applicants for seeds desire full details, I am publishing a Guide. If you desire it, seeds, guide, &c., will be sent you on receipt of 25 stamps to defray costs of same. Return reply will keep your number as per list. Excuse brevity, as answers are numerous.—I am, sir, W. Fawn, jun., pro Mr. Heselton."

VARIEGATED ZONAL PELARGONIUMS: *Constant Reader.* We can only say in general terms that there are others like yours in general character. The largest of them is very nearly perfect as sent. There is such a sameness amongst the varieties which have hitherto appeared, that it is necessary to bring them all to the test of comparison of the plant, so as to get at the best coloured and the best habited. You need not, so far as we can see, despair in respect to the largest and best-marked leaf, if it is a fair sample. The others appear to be of little worth, but we should grow them on, as they may prove better than they now appear likely to do.

VERBENAS: *Anon.* Your white seedling has clean looking trusses of full sized well-arranged flowers, and if good in habit will doubtless be an acquisition.

VINE LEAVES: *Subscriber.* The chlorophyll has been very partially produced in your Vine leaves, and consequently they are liable to suffer from several atmospheric causes. You will probably find that the fault is in the roots, especially if the Vines are planted on the outside of the house. *M J B.*

VIOLETS: *W M.* The swollen petioles of your Violets are caused by a parasitic fungus, Polycystis violæ. *M J B.*

ERRATUM.—In our account (see p. 758) of Mr. Wills' proposal to hold an exhibition of Variegated Zonal Pelargoniums at South Kensington on the 17th of September next, a slight error occurs. In col. 1, 17th line from top of small print, the word "class" should be substituted for "day." He wishes to confine the kinds in each class to those that have been distributed in 1867, and to those to be distributed in 1868.

COMMUNICATIONS RECEIVED.—Prof. Babington.—J. L. C.—W. P. —H. J. V.—C. L.—M. C. C.—C. T. W.—H. W.—R. B.— W. Rollisson & Sons—P. Grieve.

MANCHESTER and LIVERPOOL AGRICULTURAL SOCIETY.

GRAND CENTENARY CELEBRATION SHOW, at MANCHESTER, AUGUST 27, 28, and 29, on the Site of the Art Treasures Exhibition and Land adjoining (about 20 Acres in extent), at Old Trafford, and adjoining the Botanical Gardens and Grounds.

PRIZES amounting to NEARLY TWO THOUSAND POUNDS are offered for HORSES, SHEEP, WOOL, PIGS, POULTRY, PIGEONS, DOGS, CHEESE, BUTTER, GRAIN and ROOTS, VEGETABLES, SADDLERY, IMPLEMENTS, MACHINERY, and MISCELLANEOUS ARTICLES.

ENTRIES CLOSED on the 25th INST., except by Late Fee of 10s. up to August 5th.

Prize Lists and Forms of Entry may be obtained from Mr. H. WHITWORTH, Assistant Local Secretary, Carlton Buildings, Cooper Street, Manchester; or from T. B. RYDER, Secretary.

57A, Church Street, Liverpool, July 6, 1867.

MANCHESTER and LIVERPOOL AGRICULTURAL SOCIETY'S SHOW, at Manchester, AUGUST 26th to 29th.

The following Additional Prizes (not included in Prize Lists) are now offered, namely:—

For GOLDEN-SPANGLED HAMBURGH FOWLS HATCHED in 1867: Best Cockerel and Two Pullets—1st Prize, £3; 2d, £2; 3d, £1. For the Best Cockerel, £2, 2d best, £1. Similar Prizes are also offered for SILVER-SPANGLED HAMBURGHS. ENTRIES for the above CLOSE on AUGUST 5, on the ordinary terms.

The additional sum of FORTY POUNDS has also been added to the amount set apart for EXTRA STOCK ENTRIES of HORSES, SHEEP, and DOGS.—By Order, T. B. RYDER, Secretary.

57A, Church Street, Liverpool, July 22.

The Agricultural Gazette.

SATURDAY, JULY 27, 1867.

MEETING FOR THE ENSUING WEEK.

MONDAY, July 29
TUESDAY, — 30
WEDNESDAY, — 31
THURSDAY, Aug. 1
} Great Meeting of the Highland and Agricultural Society at Glasgow.

BY far the most striking agricultural event of the Bury week was the very efficient proof there given, both by HOWARD and by FOWLER, that steam power is as well adapted to the circumstances of light-land tillage as it is to those of hard and clay-land cultivation. It was mentioned last week that FOWLER'S two engines had been at work in a large field of sandy soil on the farm of Mr. GREEN, near Bury, there pulling to and fro the new 13-tine cultivator, which takes a width of 4 yards at once. Travelling between these engines at the rate of 4 miles an hour, it was accomplishing the cultivation of the land to a depth of about 6 inches, at the rate of nearly 60 acres in a day of 10 hours, while it was actually in operation; but, losing from 20 to 30 seconds at the land's end, the furrow being about 340 yards long, and the speed not so great as 4 miles an hour, the piece actually stirred and worked within the hour was close on 25,000 square yards, or rather more than 5 acres.

It is plain that these two engines of 10 and 12-horse power, consuming at most a ton of coals a day, and involving at most the wages of five hands, and the cost of a horse and cart, cannot anyhow be made to expend more than 50s. a day in current outgoings. But this is not more than 1s. an acre of the extent of land which, on the large fields of light land in the eastern counties, they will be able to get over with their cultivating tool. And we think, therefore, that the large light-land farmers of Norfolk will agree with us in saying that the proof of this afforded by FOWLER and by HOWARD is by far the most important of the agricultural events of the Bury week. By HOWARD as well as by FOWLER: for on the field where the former firm were working—which was, if not a lighter soil, at least previously untilled and therefore harder—we saw two engines, each with double drum, working at opposite sides of the land, and pulling two cultivating tools to and fro, each taking about 5 feet at a time; and, their work (overlapping in the middle of the field, each thence returning at work to the end from which it started) was thus done at double speed; and though, owing to the shorter furrow—hardly 150 yards from the end to the middle of the field—and the consequently greater loss of time by more frequent turnings, as well as by the slower movement and narrower operation of the tools, less work was got over in a given time than we saw done by FOWLER'S apparatus, yet here, too, the speed was something quite extraordinary, and more than 3 acres were accomplished in an hour.

It is plain then that on light-land farms as on clays where the area is properly laid out for steam cultivation, there need in future be no more horse power provided and kept throughout the year than will suffice for the harvesting and marketing of crops—in fact, for all work of carriage. With FOWLER'S double engines, each with double drum working simultaneously two tools, there is no reason why a square of 20 acres, or even more, of land which had been ploughed by steam power before winter, should not be grubbed or cultivated and receive a triple through harrowing all at once in a single day in spring; or why a thorough following after a winter's frost upon the autumn tillage of stiff clays should not be thus accomplished almost at a blow.

We anticipate with confidence the day when Lord CATHCART'S idea will be realised, and large areas of land, occupied by a co-operative tenancy (a small company, commanding both the quantity of capital and the variety of experience and skill which successful farming needs), will in this way be cultivated and worked mainly by steam power with an economy and efficiency of which we have no idea now.

For the rest of the Bury Show, we cannot agree with those who have so confidently pronounced it a comparative failure. Everybody admits that the Implement Department has been an unrivalled success, and as to the strictly agricultural portion of the Live-stock Show we believe there has never been a better. Sheep classes, where SANDAY, INGE, and RIGDEN have not attained distinction, cannot but be good; the Pig classes, especially those of large breeds, never were better; and the Suffolk cart-horse has never, except at local meetings in its own county, been more admirably illustrated. As regards the financial results of the week—which, however, are not the end at which the Society aims, but rather the means by which its end is compassed—they are, no doubt, not so satisfactory as they were at Plymouth. The attendance, however, of spectators has been very satisfactory. Upwards of 60,000 persons visited the yards: less, indeed, by 28,000 than appeared at Plymouth, but still a very large number from such a purely agricultural district as surrounded us at Bury; and the 4100*l.* thus contributed to the funds of the Society will leave a smaller sum to be paid out of ordinary income than the week's education of so large a number was worth.

The following figures represent the attendance at Bury and at Plymouth respectively:—

	Bury St. Edmund's.	Plymouth.
Monday ..	£227 15 0	£265 16 0
Tuesday ..	557 11 0	595 11 0
Wednesday	885 8 6	2159 0 0
Thursday ..	1657 13 0	2147 14 0
Friday ..	752 8 0	1099 12 0
Total ..	£4100 15 6	£6267 13 0
Visitors ..	60,635	80,011.

—— AT the formal general meeting of Members of the English Agricultural Society on Friday of last week, in the Show-yard at Bury, Mr. H. S. THOMPSON closed his very efficient Presidency by moving the thanks of the Society to the Mayor and Corporation for their hospitality and public spirit. The authorities of the town and the neighbourhood round Bury had spared neither their time nor their purse in striving to make this meeting worthy of the great county of Suffolk. "As to the result of this meeting," said Mr. THOMPSON, "there are some very favourable features, and some that, as far as our exchequer is concerned, are not quite so favourable; but looking at the Show itself, I may say that so far as implements are concerned, it is the largest and best Show that the Society has ever collected, and I believe the largest and best that ever was collected. There have been some difficulties in carrying out the trials because of the large increase in the number of implements exhibited in certain classes, in consequence of the length of time that has elapsed since those classes were tried before. In steam engines especially, the number was so large that it has been extremely difficult—and has involved great labour—to carry through the trials before the end of this meeting. If it had been possible to divide the labour by appointing additional judges, that would have been done; but, like a jury hearing a case, the whole of the evidence must go before the same men: we therefore found that they must work through, and they did work through most gallantly. Upon another occasion an alteration must be made, in order to have more time given for the trial of such an important class of implements, which have so much increased of late, the use of steam in agricultural pursuits having extended so much in other operations besides threshing. With reference to the horses, sheep, and pigs, we have had a very creditable Show; and though the number of visitors who have been admitted has not been so large as we have had when we have met in the neighbourhood of large manufacturing towns, I can say, from having watched very closely the way in which those visitors seemed to examine the implements and the stock, and the great interest that they took in the whole, that I never saw a more intelligent gathering, or any who were more likely to profit by what they saw, than we have had at Bury."

—— Among the more useful features of the Bury meeting, though one exciting comparatively little interest, was the show of plans for the erection of labourers' cottages in competition for prizes offered by the Suffolk Agricultural Association. The following is the report of the Committee:—

"The Committee report that there have been 63 plans sent in for competition, and the cost of carrying out each according to the designers' estimates varies from 106*l.* to 338*l.* Upon this point the Committee would remark, that having been assisted by practical builders, they have ascertained that in many cases the estimated cost is far below what the actual outlay would be in erecting the same. The Committee, after a close investigation, have unanimously arrived at the conclusion that the plan bearing the motto 'Suitability,' and costing 170*l.* 3*s.* 8*d.*, should have the first prize of 25*l.*; and that the second prize of 15*l.* should be awarded to the plan bearing the motto 'Level,' and costing 190*l.* 5*s.* The former the Committee consider would be improved by continuing the roof so as to form gable ends; also by placing fire places where the dressers are, in each of the scullories, instead of that in the bakery. In both plans more shedding outside is desirable. In the second-prize plan a pair more rafters at each end are required, and sliding casements would be preferable; a fire place is wanted in the scullery; also a window in the pantries, for ventilation. The Committee, in coming to their decisions, have kept in view the three main points—viz., lowness of cost, durability, and efficiency—laid down in the schedule of prizes issued to intending competitors. Beyond awarding the prizes they have refrained from commending any plans in particular, although there are many highly deserving of it. In the publicity given to the plans by their exhibition at the Royal Show, they are confident that the public will duly appreciate the skill and exertions of the exhibitors. In conclusion, they would suggest that some of the best plans be published. Signed, W. Biddell (chairman), E. Greene, S. Newman, H. T. Turner, G. H. Nunn, K. Cooper, L. Jackman."

The award announced last week is as follows:—1st prize of 25*l.*, Messrs. Conder & Laslett, 1, Park Lane West, London; 2d prize of 15*l.*, T. Shaw, 29, Bridge Street, Birkenhead. We only add, that it seems to us impossible that the double cottage, with the motto "Suitability," to which the first prize is awarded, notwithstanding the comparatively small size of its rooms, can be erected for the price named.

FARMERS AND THEIR SHORTCOMINGS.

[The following letter has been addressed by Mr. T. Fisher, Salter, Attleborough, "to the farmers of Norfolk."]

BROTHER FARMERS—It strikes me we are most wonderfully misunderstood. We have the credit of doing very much of that we ought not to do, and doing very little of that we ought to do, and knowing still less of our business or its requirements—hostile to landlords, dead enemies to game. What a delightful character to go to market with. I don't think the testimony is likely to create vanity in our docile brains.

I am a pure-bred farmer on both sides, and I am not ashamed to own it, and take my share of the just criticism against my class. Fair play is a jewel, and let us have it.

I know nothing of the half-bred or would-be agricultural dictators, or take any part in their sayings or doings, neither have I any faith in their extra share of superior knowledge or common sense.

I should like to know what would be said of us pure-breds if we were to attempt to dictate to either parson, lawyer, or manufacturer, on theology, the statute laws, or the intricacies of a spinning jenny. We should be justly laughed at. Yet we find gentlemen of these classes not very pleasantly digging at our ribs. I don't know what for, or how to account for it, unless it may be enlightened spirits engendered by the fruits of high-class education.

My Lord Kimberley rather tossed us about in his eloquent speech at Fakenham, and he must excuse me in taking the liberty to accord with him in stating I fear he is not thoroughly up in pure agricultural matters, and he might have added feelings, although I don't think his lordship intended to hurt ours. Perhaps he might consider we are not very sensitive, and that our mental capacities are so large we can stow away anything.

It is a satisfaction to know we have the approval of some of the aristocracy in the movement to establish a Chamber of Agriculture, and inviting all parties to participate in any good results that might accrue, but my firm and honest belief is, the true intentions of this institution are not either fully understood or appreciated, and that it is watched (being a farmer's) with most uncalled-for jealousy, and its decisions are misconstrued. Time will cure this evil, as it is doing for the increased and better cottage accommodation, upon which I must in part differ from the Earl of Kimberley's observations. My experience has shown me that farmers, as a body, never were opposed to it. There are exceptions to every rule.

The Chamber of Agriculture and its members are not opposed to educating the poor in reading, writing, and arithmetic, and subscribe ungrudgingly to do it, and there are schools established in every parish, supported by the clergy, landlords, and tenant farmers, and every unbiassed opinion must state it is wonderful what a stride education has taken the last ten years; therefore I repeat that the cry for increased and compulsory education is humbug. I have always understood that forced prayers are no good to the soul. I have no faith in forced education.

Let the popularity and sensation-seeking gentlemen take one step up the ladder of humanity and devise some great scheme for educating the small farmers' and tradesmens' children, whose proper and natural pride debars them from taking advantage of the parish school, to which they cheerfully add their mite, and who are unable to bear the additional burden of educating their own offspring at private schools, probably conducted by not even such well-educated masters.

Let the philanthropic Englishmen look this question straight in the face. Let facts guide them. There are no if's or and's in the matter.

There are first-class schools for the rich, first-class schools for the poor. The deserving and, I maintain, the hardest working class in the community, whose cause I advocate, are getting no proper share of education or public sympathy.

Let my Lord Shaftesbury and my Lord Kimberley take up this question, and let the gangs cure themselves,

and they will be doing more substantial service to their country.

The monster gangs have no advocates. The Chamber of Agriculture is dead against them, and without any Acts of Parliament their doom is sealed. They have had a chronic cough for years; they may die a somewhat tortuous death, but die they must, without parliamentary interference or abusing any particular class.

The exaggerated evidence given before the Gang Commissioners is on a par with the statements offered against poor Governor Eyre; and my Lord Kimberley might well have pocketed the shame he felt for his county, and conscientiously have stated, "It's a sorry tale of woe, but I don't believe three-fourths of the report."

I fear the remarks made by the Earl of Kimberley on game are calculated to mislead the public as to the views entertained by the Chamber of Agriculture on that subject.

Farmers (pure-breds) are sportsmen. Convert those four-legged animals properly condemned by the noble earl into vermin. (Foxes are vermin. Hares could be chased as vermin). Every occupier would become his landlord's gamekeeper, as of old, and there would be cheerful countenances on both sides in meeting.

I question very much whether my Lord Kimberley dare experimentalise on his side-winded observation as to farms being let by tender, especially if his lordship binds himself to accept the highest offer, although he is in a position to ask the assistance of the Legislature to devise requisite clauses of security.

I mention this because Acts of Parliament seem to be all the rage just now to manage agricultural matters by, and it is so unceremoniously held forth that cotton lords, merchant princes, and their followers have far greater knowledge in farm-yard matters than legitimate owners and occupiers, therefore it is fair to presume intelligible and judicious clauses would be sure to be inserted.

What a millennium to arrive at!

FARM NOTES.—By Mr. Mechi.

Ducks after a Shower.—There is nothing so good for a farmer's health and pocket as early rising. During summer I can seldom sleep after five, so from early dawn I enjoy the then exquisitely pure and wholesome atmosphere, and return to an 8 o'clock breakfast with an almost ravenous appetite. How instructive to an inquiring and observing mind are those early hours; and, looking at the ducks, how absurd it appears that man should dread the feathered tribe on his cultivated fields. They are his very best friends, and this conclusion grows stronger upon me as I watch their operations and habits. As soon as the poultry door is opened, away they go to the fields, and I now see a flock of juvenile ducklings hurrying over that portion of my Tare field from which the green Tares have been recently removed, and devouring the slugs by hundreds, probably by thousands. Their instinct teaches them the proper time and place to look for them. When we know that this spring thousands of Wheat fields have been devastated by slugs, should I not rejoice and be thankful to these ducks for appropriating the fathers and mothers of a future stock of destructive slugs? With a large stock of chickens I am spared the torment of many flies, for not a gentle or fly escapes them when within reach. Having regard to the welfare of agriculture, it is high time that agriculturists should fully understand the habits of birds, and no longer forbear to look upon them as their very best friends. I am glad to see that the Minister of Agriculture in France has issued a prohibition against the destruction of small birds, and has given sound reasons for their preservation. As I said before, several of my Wheat fields are open to the poultry, and close to the poultry house. Their abundant crops testify to the profit of a close intimacy between the fowl and the field. I am treading on tender ground when I say that I like to see ducks in a garden, as a source of profit by the destruction of slugs, &c. Thick sowers of corn, who get their crops prematurely and injuriously laid flat, would feel annoyed at the fowls and ducks walking over them; but with the proper quantity of seed, according to the state of the land, such annoyance would be avoided. Even with laid crops the loss is but trifling. I have just harvested a crop of Clover close to the duck pond, estimated at 3 tons per acre; although laid flat, it suffered no injury from the ducks. During its early growth the ducks searched it, stetch by stetch, night and morning, for slugs, but they avoided it as it grew thick and close. I find it most conducive to the well-doing of poultry to have a load or two of road sand or grit, as well as some lime, under a shed, kept dry.

The proper quantity of Seed, and why Land can never be too rich for a Corn crop.—The proper quantity of seed corn is dependent upon soil, climate, manurial condition, and period of sowing, therefore no universal rule can be laid down. Our farm this year presents many valuable illustrations on this subject. I have 50 acres of Wheat, as thick a crop as can be grown from 1 bushel of Wheat per acre, but in some places even this is too much seed, for wherever the fold remained longer than usual, there, owing to the extra manure, the crop is too thick and injuriously laid. In another field the 3 pecks withstood the storm better than the 4 pecks, which were partially laid. The perfection of a Wheat crop is a very thick and full standing or leaning crop with long and wide well-filled ears, and large kernels. When the heaps of corn were laid separately, I could at once distinguish the peck an acre from the bushel an acre by the superior size of the kernel. The straw I could detect, from its brighter appearance. The peck of Wheat per acre (on half an acre as usual) came up a full and sufficient plant, but in the spring, both it and the thick-sown adjoining were nearly destroyed by slug, and neglected to be night-limed in time. However, we left the few hopeless-looking plants that remained, not believing that they could come to much, but now on the portion so saved, there will be at least 4 quarters per acre, if not more, to our great surprise, for there could not have been left more than one-fourth of the plants that came up, or about 2 quarts of seed per acre. It will ripen about a week later than the thick sown. In districts where the harvest is naturally late, it would be desirable to consider the question of earlier sowing, or a larger quantity of seed; each farmer determining for himself by trying one-quarter or half an acre in each field, as I did, to arrive at a safe conclusion. I have a very fine field of Wheat sown in December, after White Turnips, which followed Peas picked for the London market. As it was sown so late we put in 5 pecks per acre, which was then even too much. Four pecks would have been better; the ears and kernels would have been larger. My Oats with 2 bushels, and Barley with 6 pecks are amply thick; in fact, where the land is good the Barley is too thick with 6 pecks. Fearful mistakes are made, and heavy losses incurred, by many who will continue to put in the absurd quantities—3 bushels Wheat, 4 bushels Barley, 5 to 7 bushels Oats per acre. Well may such folks say, "We get better Barley after Wheat than after Turnips fed off." The more luxuriant the soil the less seed should be put in. If I could but persuade farmers to make small comparative trials, they would soon come to sound conclusions, and we could then discuss the matter with just hopes of agreement on a proper comparison of facts, throwing mere prejudices and assumptions to the winds, and putting money in our pockets. This is the fourth year of the peck an acre—sown sometimes in October and at others in November. It produced—

In 1864, 7	quarters	2	bushels	per acre.
1865, 7	,,	1	,,	,,
1866, 4½	,,	0	,,	,,

Let observation and experiment be our guides. They are more dependable [? trustworthy] than either imagination or prejudice.

Practical Observations on Thin Sowing.—Every day appears to throw new light upon this important subject. As we approach nearer to harvest, my experiments in this direction appear to increase in value. If thin sowing was the order of the day the facts I am about to relate would excite no attention; but agriculture is, in this respect, in a transition state, passing from broadcast sowing, an imperfect deposit of seed, and poor manuring, to accurate drilling and a forcing with rich manures. The first instance is the one peck of Wheat per acre which had been three-fourths eaten by slug (in common with some thick sown adjoining), and was given up as lost. Strange to say, it has so thickened that it has been estimated, by a practical farmer who visited my farm, at five quarters per acre. I really think that it will approach that quantity. In another case, where three pecks were drilled, the acre so drilled now surpasses and overtops the four pecks adjoining it. Those have stout stems, and can stand up firmly,—the thicker sown gives way, and is partially laid. Although it is a saying that "the laid crops never ruin the farmer," I am yearly more and more convinced that it is a very unprofitable and improper state of things, and that it ought to be mitigated or averted by adapting the quantity of seed to the nature and manurial condition of the soil, having regard also to climate and usual time of harvest. It is very interesting to watch the progress of a thin sown portion of Wheat or other cereal, sown in the same field, at the same time, manured in the same way, and growing side by side with its thicker sown neighbour. At first all seems doubt and almost despair; gradually during and after spring there is a thickening and an improvement. Still, to all appearance, it can never rival its neighbour; but at length, and within three weeks of harvest, its neighbour stands nearly still, and up goes in triumph the crop which has caused us, during its growth, so many doubts and misgivings. It reminds me forcibly of the last short space between the distance and winning post. There is longer endurance and less exhaustion—the last few strides win the race. So it is with the thin sown crop,—it endures and advances longer than its neighbour, and yet there is barely four to six days' difference in the fitness for cutting. Thick sowers are generally very much out in their calculation or estimate of a growing thin sown Wheat crop. They measure it, as it were, by their own crops, which, by crowding, produce small ears and little kernels, whereas the thin sown have much larger grains and many more of them in each ear. Surely after my prolonged trials and published results, my brother agriculturists will, for their own sakes, try comparative experiments, and so put money in their pockets. It does seem indeed surprising that two quarts of seed per acre (the quantity left by the slug according to our estimate) should produce from four and a half to five quarters per acre. Whenever farmers have a new and costly sort of seed, they generally put one kernel in a hole in good garden ground, and "get the largest crop they ever grew." And this year many a slug-eaten piece that was condemned, is now astonishing its owner by its surprising promise.

The Sheepfold versus *Farm-yard Manure.*—"There is nothing like the sheepfold." How frequently we are told this by practical men. "The treading the land does so much good." Yes, if it is very light land: but if it is heavy land the sheep treading is most injurious. It is not the sheep's feet that do the good, but the sheep's tails. But I wish to show to my brother farmers in this paper that there is something like the sheepfold, and something quite equal to it, and that is the voidances of well-fed cattle on paved floors under cover, carried immediately from the shed to the field. I am going to prove why this must be equal to the sheepfold, and why the ordinary farm-yard manure is so inferior to the sheepfold, and after this I expect that both landlords and tenants will gradually, and as soon as may be, discard open and unpaved farm-yards as destructive of farm profits. We are all naturally so attached to things that have existed from time immemorial, and to which we have been accustomed from our youth, that it would be unreasonable to expect a "sudden conversion" of a whole nation of agriculturists, but I have great faith in the common sense of my countrymen when they are brought to deal with comparative facts—so I shall expect that in a generation or two (which is not a long period in the history of a nation) open farm-yards and unpaved floors will have become "the light of other days," and that the "shedfold" will be then considered equal to the "sheepfold." But let us come to the facts. When sheep are on land the whole of their voidances are at once appropriated by the soil; nothing is wasted: there is no washing, drying, mangling, or turning over, and twice moving or carting, with weeks or months of exposure. The soluble portions are all washed into the soil, and not down the ditches. There is much less manual and horse labour, and wear and tear of carting. The reverse of all this takes place with the respected old, open, unpaved farm-yard, and the untroughed buildings around it. Here it is all washing, drying, and mangling, sopping up heavy rainfalls with mops in the shape of huge waggon loads of valuable straw, which should be used as food rather than as mops. How often, and only recently, have I seen farmers letting off the strong tea into the ditches, owing to the heavy rain having rendered the farm-yard impassable or impracticable, and after all this the tea leaves are carted to what is mistakenly called a dung heap, and, after a time, duly turned over, refilled and recarted, and then spread upon the land. All this is really a bitter satire on agricultural commerciality. The real causes and objects of this mistaken, costly, and injurious manipulation were no doubt originally two-fold, viz., to keep the cattle dry, and to rot the straw. But the practice must be altered now. The time will come when farmers shall as soon think of treading their oil-cake as their straw under foot, seeing that it has a much greater value as food than as litter. There is no straw in the sheepfold, yet no farmer ever complains that his land is insufficiently manured by the sheepfold. I don't believe that farmers generally know that for every pound of solid voidance made by the animal there are 12 or 13 lb. of liquid, and that nearly all the value of the manure is in the liquid; the insoluble matter of the solid being comparatively worthless. Well may they prefer the sheepfold to the old open farm-yard, where not only so much runs away, but also where such precious fluid sinks into the floor or ground. But see how economical the covered shed, is both in time and money. The accumulated voidances of 20 bullocks (equal to 140 sheep) for two months may be placed on the land at once, and spread ready for ploughing in at a trifling cost. I am now putting it on for Cabbage after Tares, and it will beat any guano or artificial manure. It is, in fact, the cattlefold. Better still is the cattle manure from under the sparred floors without any straw; that is the stuff we want plenty of to make great crops. I claim no merit, and I make no apology for so constantly "pitching into" ancient agriculture, or rather its erroneous practices. If I had been bred a farmer, I should, no doubt, have done as other farmers do, but having been well shaken in the commercial blanket before I entered into farming, I take a commercial view of its proceedings, and come to my work free and unfettered by the trammels of antiquated customs and prejudices. I know that some agriculturists will be angry with me, but what I commend I practise; and my sole object in making public those of my views which I have found profitable, is a sincere desire to benefit British agriculture and agriculturists, and thus to provide more cheap and abundant food for my fellow-countrymen.

Slug and Wireworm.—If an accurate sum total could be made of all the damage and loss occasioned by these two pests to British agriculture, it would be a frightful amount. The moist season of 1866 produced slugs in abundance, and now another showery season threatens still further to multiply their number. They swarm in our Tare ground and Clovers, therefore we should take steps for protecting our future Wheat crops. As soon as my Clovers are folded off, I shall night-lime them—that is, sow 4 bushels of fresh-slaked lime at night, and if the first dose does not kill them shall repeat the operation—taking care to sow the lime against the wind to prevent them hearing you advance. I found this a certain remedy in the early spring. The lantern will show you that the lime falling on the slugs at once turns him up and kills him. It is of no use liming by daylight, for then they are all safely ensconced under ground, having feasted on your crops during the night. I presume they have a sense of danger, for they either die or depart after the night-sowing of lime. As to wireworm, they are also easily got rid of. Sow 6 bushels of salt per acre broadcast on the surface, and they will either die or depart, I cannot say which. It is a certain cure. In some cases of very light land it may be necessary to repeat the dose; but I have always found that quantity sufficient—wireworms never infest heavy lands. As soon as you miss a few blades of Wheat or Barley, sow the salt at once, or you will be too late, for the plants only show that their stem has been destroyed after a day or two. The early spring is generally the time of danger and mischief. Some of our light Tiptree lands are especially subject to the wireworm pest, but I never fear them now. Salt is a certain cure; so is Rape-cake—or the two combined. *J. J. Mechi, July*, 1867.

P.S. Slugs only come out of the ground in mild moist nights. On this subject I cannot do better than quote from Mr. John Large's valuable book, "Secrets of Farming." At page 40 he says, "when you are troubled with many slugs get some good fresh lime (it ought to

be in damp weather if possible), and sow it the same night, at about 2 bushels per acre. If the wind is in the west, which very likely it will be if the weather is damp, begin sowing the east side—sow up and down from north to south, and finish westward, or they will find out the lime before it reaches them strong enough to destroy them. If there are many slugs on your Clover ley intended for Wheat, you should sow the lime before you plough it, and sow again before you put in your Wheat if there are many left."

A WALK ROUND THE BURY IMPLEMENT YARD.

COMSTOCK'S rotary spader is exhibited by Messrs. Porter, of Lincoln, at the first stand. It is one of those contrivances which aim at the production of tilth directly, thinking to achieve at once a result which cannot be accomplished without time. The rows of tines by which the land is penetrated are lifted out of the soil as soon as their work is done, by a leverage and guidance applied by the machine itself, so that the whole weight lies on the tines about to enter. It did fair work on Mr. Fowler's light-land steam cultivation ground.

Stand No. 2 (Messrs. Richmond & Chandler, of Salford), contains a good show of chaff cutters, corn crushers, Turnip cutters, &c., for which this firm are well known. They have gained a further prize for chaff cutters at Bury, where their "power" chaff cutter accomplished its task of cutting 1 cwt. of straw in ⅞ths of an inch length in about 2½ minutes.

Mr. Wood, of Upper Thames Street, shows his well-known reaping and mowing machines. Mr. Baker, of Wisbech, shows a variety of barn machinery, also Samuelson's reaper. Smith's (Kettering) capital horse hoes, which took the prize at Plymouth, are exhibited at Stand 5. Samuelsons, of Banbury, exhibit their reapers and mowers, lawn mowers, &c., at Stand 6. A large and excellent stand, including engine, winnower and corn dresser, haymaking machines, horse rakes, &c., is exhibited by Mr. W. N. Nicholson, of Newark. Mr. Maynard, of Whittlesford, Cambridge, shows his well-known chaff engine, which cuts the straw as fast as it can be delivered by the threshing machine; also his self-acting horse-rake, in which the driver causes the machine itself to discharge its load at intervals as the load accumulates. Mellards, of Rugeley, show a large number of implements for preparing food—chaff cutters, root cutters and pulpers, &c.; also drills, grubbers, cheese presses, &c., in particular a two-row Turnip and Mangel seed drill, in which the quantity of seed is very easily and simply regulated; the rollers in which are made to press a V-grooved seed bed, and thereby cause a simultaneous vegetation of the seed.

Messrs. Brigham & Bickerton, of Berwick, show their well-known "Buckeye" reaper and mower. Messrs. Morton & Co., of Liverpool, have a very excellent stand illustrating their methods of wire fencing. Churns are shown by Mr. Waide, of Hunslet Lane, Leeds; also chain harrows, a Staffordshire implement, shown first at the Bristol Meeting of the English Agricultural Society, and since very largely adopted, are exhibited by H. Denton, of Wolverhampton.

Messrs. Burgess & Key, of 95, Newgate Street, have a capital stand of reaping machines, in which all their newest improvements have been introduced, effecting great reduction of the weight and bulk of the machine and draught to the horses; great reduction of friction and wear of parts; greater simplicity; greater compactness, the cut being 5 feet 3 inches, yet the machine will pass through an 8 feet 6 inch gate.

The reaping machine, with sheaf delivery, delivers the corn in sheaves at the side, leaving a clear track for the horses. The following results have been obtained by recent improvements:—great reduction of draught; great reduction of friction, and consequent wear and tear; greater simplicity of parts; greater compactness, the cut being 5 feet as usual, yet the machine will pass through an 8 feet 6 inches gate; greater perfection in the work done.

Mr. Boby, of Bury, shows his patent corn dressing machine (commended by the Judges), with either single or double screen from the hopper. A good sifter for chaff is shown here. A large number of tools suitable for the farming of Essex are exhibited by J. Warren, of Maldon. Another local firm (Messrs. Ward & Silver, of Long Melford) have a large stand of implements of all classes.

At Stand 25 Messrs. Hawkes & Spencer, of Tiverton, again bring forward their chain delivery corn drill, which has a number of contrivances facilitating the action of the chain principle of delivery, which received a good deal of attention at Plymouth, and has since received a considerable amount of success and commendation throughout the country. Carson & Toome, of Warminster, show their chaff cutters and turnip cutters and pulpers. Mr. Braggins, of Banbury, shows at Stand 27 the best field gate in the yard, costing 25s. A lodge gate has a capital double bottom hinge, which can never lose its hold, as in click-clack gates it very often does. Varty, of Royston, shows a horse hoe with circular cutting discs. Messrs. Smyth, of Peasenhall, have an admirable stand of their long-established corn drills, in which very nearly the old style of Suffolk drill maintains its position. There are, however, certain contrivances adopted by Messrs. Smyth which are new. Their seed conductors are so made as to hinder the entrance of earth, and have all the flexibility of the ordinary cup conductor. Messrs. Larkworthy, of Worcester, show their "Excelsior" easily packed harrow. J. Webb, of Clare, Suffolk, shows a Turnip cutter and mower, in which both sides of the disc are brought into work.

At Stand 34, Messrs. Turner & Fardon, of Leighton Buzzard, show threshing machines and reaping machines, in which a revolving horizontal rake, preserving its parallelism as it goes round, sweeps the platform at regular intervals. Messrs. Hunt, of Earl's Colne, have a large stand of various agricultural implements. At Stand 39, Messrs. Coleman & Morton, of Chelmsford, exhibit a new corn screen in which the varying interval for the passage of grain is obtained by a parallel motion easily impressed upon the sets of parallel strips covering the whole cylindrical surface through which the corn is passed. Messrs. Reeves, of Bratton, show their ribbed corn screen, and receive a commendation from the Judges. Near their stand is Messrs. Howard's, which is, as usual, full of useful and excellent agricultural implements—ploughs for horse and for steam, harrows, hay tedders (an uncommonly well-packed tool), and their Anglo-American combined reaper and mower, in which the rakes revolve and sweep the platform—occupying the very minimum of space, and working smoothly and efficiently. A good stand near this is occupied by Messrs. Crosskill & Sons, of Beverley, including clod crushers, carts, portable railway, &c. Mr. Clay, of Wakefield, shows his well-known cultivator. Drain pipe and brickmaking machines are shown by Mr. Whitehead, of Preston, one of the earliest prize takers of the Society in this class of machines, which used to occupy so much more attention in the Society's show-yard. Messrs. Corbett, of Wellington, Salop, here exhibit grinding mills and farm machinery. Their hand dressing machine takes the 2d prize in its class.

At Stand 57 Mr. Creasy, of Wickham Market, shows his drying machine for damp samples of grain, which can be applied also for drying malt, brewer's grains, &c.; it is so constructed that a large volume of heated air can be passed through the substance to be dried, at any convenient temperature, whilst it is being gently agitated. There is a set of blades within the cylinder arranged as in a hummeller, for the purpose of passing the grain along and breaking up small pieces of dirt, &c., the outer cylinder being perforated, allowing them to escape; the action of the blades also combined with the heat gives the grain a much brighter appearance.

Cornes, of Barbridge Works, shows his simple and efficient chaff cutter, which is commended by the Judges. Messrs. Priest & Woolnough, of Kingston-on-Thames, have a good stand of drills, manure distributors, and horse hoes.

Then comes Messrs. Fowler's stand of steam ploughing and steam cultivating machinery, to which reference was made last week, when we also mentioned the performance of some of the implements that were tried. On the Thursday we understand that their double-drum engine was tried, working two tools at the same time—a double-drum engine on each headland hauling two implements at the same time, one each way. The implements were ordinary 9-tine cultivator, 7 feet 6 inches wide, and steam harrow, 16 feet wide. This tackle got over as nearly as possible 15 acres in five hours, the work being done exactly thrice over (twice with harrow, once with cultivator). The machine worked without any hindrance, each implement passing from end to end.—Corn drills are shown by Messrs. Armitage, of Chatteris; Turnip cutters, &c., by Messrs. Howell, of Poole; a great variety of fencing by Messrs. Bayliss & Jones, of Wolverhampton; pumps in great variety by Messrs. Warner, of Cripplegate; liquid manure carts by J. James, of Cheltenham; a good cylindrical corn separator, by Messrs. Penny & Co., of Lincoln; capital corn drills by J. Coulter, of Spittlegate, Grantham; and the usual admirable and most complete set of stable fittings, by Messrs. Musgrave, of Belfast.

Messrs. Hancock, of Tipton, have added to their numerous inventions a very clever spring mattress, which seems likely to answer. It is described as the softest bed with the lightest bedding that has ever been produced.

At Stand 70, Mr. Bentall, of Maldon, exhibits a large collection of his well-known machines—chaff cutters, corn crushers, root pulpers, ploughs, &c. His chaff cutter takes the 2d prize, and accomplished the quickest work of any that was done; and his crushing mill takes the 1st prize.

The stand of Messrs. Hornsby, of Grantham, is another good exhibition of agricultural machinery including corn screens (and their very simple spiery wire cylinder takes the prize), Turnip cutters, root pulper, corn drills, reapers, and furrow ploughs, traction engine, &c. Their usual exhibition of threshing machines and steam engines is wanting this year, as they do not choose to undergo the labour and expense of preparing racing engines for the purpose of competition. They take prizes for Turnip cutters and pulpers. Messrs. Amies & Barford, of Peterborough, show grinding mills, oilcake crushers, and tillage implements. And here we come upon a straw elevator, a tool of which in a cheaper form we are much in want. Messrs. Hill & Smith, of Dudley, who have long been exhibitors at the Society's annual meeting, show fencing, hurdles, rick-stands, &c. Chaff cutters, cheese presses, sack barrows, scarifiers, &c., are shown by Hunt & Pickering, of Leicester. The St. Pancras Iron Work Company exhibit their stable fittings, and iron fencing. Mr. Sawney, of Beverley, shows his winnower. Churns, washing machines, &c., are exhibited by E. Weir, of 142, High Holborn; haymakers and horse rakes, mills, crushers, Flax ripplers, chaff cutters, &c., by Ashby & Jeffery, of Stamford.

At Stand 95 the Beverley Iron Company have a capital exhibition of their manufactures—carts and waggons, clod crushers, bone crushers, &c. Messrs. Page, of Bedford, show chaff cutters, cake mills, horse hoes, ploughs, and cultivators. At Stand 99 Mr. Le Butt, of Bury, shows a good hay tedder. Taylor & Co., of Adelaide Place, London Bridge, chaff cutters, weighing machines, churns, &c.; Whitmore, of Clerkenwell, corn crushers and flour mills. Messrs. Turner, of Ipswich, exhibit a large number of crushing mills; also steam engines, fixed and portable. They receive the 2d prize for both hand and power crushing mills. Messrs. Woods & Cocksedge, of Stowmarket, are also successful, receiving 1st prize for steam power crushing mill, and being commended for their hand-power tool. They exhibit a large and very excellent stand of implements.

A very good stand, including fixed and portable steam engines (both of them highly commended by the Judges), barley hummeller and chaff cutters, threshing machinery, &c., is exhibited by the Reading Iron Works. Another large collection of machinery is exhibited by Picksley & Sims, of Leigh. They receive prizes for chaff cutters, and are commended for Turnip cutters. We shall go through the rest of the stands next week: meanwhile, we add the perfect Award of the Implement Prizes at Bury, part of which we published last week:—

I.—STEAM ENGINES.

	First Prize.			
Fixed Steam Engine	Clayton, Shuttleworth, & Co.	£20	0	0
	Second Prize.			
Ditto	Tuxford & Sons	10	0	0
Portable Steam Engine — double cylinder.	*First Prize.* Clayton, Shuttleworth, & Co.	25	0	0
	Second Prize.			
Ditto	Ransomes & Sims	15	0	0
Portable Steam Engine — single cylinder.	*First Prize.* Clayton, Shuttleworth, & Co.	25	0	0
	Second Prize.			
Ditto	Tuxford & Sons	15	0	0
10-horse Power Horizontal fixed Steam Engine.	*Highly Commended.* Reading Iron Works, Limited			
10-horse Power Single Cylinder portable ditto.	Ditto			
14-horse Power Improved Horizontal ditto.	Tuxford & Sons			
10-horse Power Portable Steam Engine.	Brown & May			
8-horse Power ditto .	Ditto			
8-horse Power Oscillating Steam Engine.	*Commended.* Deacon & Wood			
8-horse Power Portable ditto.	Ruston, Proctor, & Co.			

II.—THRESHING MACHINES.

Portable Threshing Machine not exceeding 8 horse power, which prepares for the finishing dressing machine.	*Prizes.* Ransomes & Sims	20	0	0
Ditto	E. Humphries	12	0	0
Ditto	Nalder & Nalder	8	0	0
Portable Threshing Machine to be worked by horse power not exceeding that of 4 horses	Wallis, Haslam, & Steevens	12	0	0
Ditto	Tasker & Sons	8	0	0
Treshing and Finishing Machine ..	Holmes & Sons	20	0	0
Ditto	Clayton & Shuttleworth ..	15	0	0
Ditto	Marshall & Sons	5	0	0

III.—CHAFF CUTTERS.

Chaff Cutter by steam or horse power.	*Prizes.* Richmond & Chandler ..	10	0	0
Ditto	E. H. Bentall	6	0	0
Ditto	Picksley, Sims, & Co. ..	4	0	0
Chaff Cutter by hand power.	Richmond & Chandler ..	6	0	0
Ditto	E. H. Bentall	4	0	0
Chaff Cutter by steam power.	*Highly Commended.* Carson & Toone			
Chaff Cutter	Smith & Grace			
	Commended.			
Chaff Cutter	James Cornes			
Ditto	Edward Page & Co.			
Ditto	James Cornes			

IV.—CRUSHING MILLS.

Crushing Mill ..	*Prizes.* E. H. Bentall	6	0	0
Ditto	E. R. & F. Turner	4	0	0
Linseed and Corn Crusher by steam power.	Woods & Cocksedge	8	0	0
Ditto	Ditto, E. R. & F. Turner ..	7	0	0
	Commended.			
Crushing Mills ..	Woods & Cocksedge			

V.—HAND DRESSING MACHINES.

Corn Dressing Machine.	*Prizes.* William Tasker & Sons ..	12	0	0
Ditto	S. Corbett & Son	8	0	0
Corn Dressing Machine.	*Commended.* Robert & John Reeves			
Ditto	Ransomes & Sims			

VI.—TURNIP CUTTERS.

	Prizes.			
Turnip Cutter ..	Richard Hornsby & Son ..	10	0	0
Ditto	Ransomes & Sims	5	0	0
Turnip Pulper ..	Richard Hornsby & Son ..	5	0	0
Root Pulper by steam power.	Richard Hornsby & Son ..	6	0	0
Ditto	E. H. Bentall	4	0	0
	Commended.			
Turnip Cutter ..	E. H. Bentall			
Turnip Pulper ..	Ditto			
Ditto	Picksley & Sims			

VII.—OIL CAKE BREAKERS.

Steam Power Oil Cake Breaker.	*Prizes.* Amies & Barford	10	0	0
Ditto	E. H. Bentall	5	0	0
Oil Cake Breaker ..	Ditto	5	0	0
Ditto	R. & R. Hunt	5	0	0
	Commended.			
Oil Cake Breaker ..	E. R. & F. Turner			

VIII.—CORN SCREENS.

		Prizes.			
Corn Screen	Richard Hornsby & Son ..	10	0	0
	Commended.			
Corn Screen	Robert Boby			
Ditto	Penny & Co.			
Ditto	Ransomes & Sims			

IX.—BARLEY HUMMELLER.

		Prizes.			
Barley Hummeller ..	Holmes & Son	5	0	0

X.—GRINDING MILLS.

		Prizes.			
Grinding Mill ..	Smith & Grace	6	0	0
Ditto	S. Corbett & Son	4	0	0
Bone Mills	Beverley Iron & Waggon Co.	10	0	0
Ditto	Ditto	6	0	0
Ditto	Ditto	4	0	0
Stone Mills	E. R. & F. Turner	9	0	0
Ditto	I. Tye & Co.	6	0	0
Grinding Mill with Metal Grinders by steam	Amies & Barford	20	0	0
	Commended.			
Stone Grinding Mill .	Ruston, Proctor, & Co.			

XI.—IRON GATES.

		Prizes.			
Field Gate	James Braggins	10	0	0

XII.—MISCELLANEOUS.

	Silver Medals.
Horse Gear	Woods & Cocksedge
Strong Wrought Iron Cattle Troughs and Cisterns.	Burney & Co.
Assortment of Leather Machine Bands.	Webb & Son
Chain Pump for Liquid Manure	Warner & Son
Draining Tools and Forks, &c. .	Boby, Clarke, & Co.
Patent Aspirator	A. B. Child
4-inch Double Suction Pump ..	Tangye, Brothers, & Holman
Assortment of Garden Spring Chairs and Collection.	Alfred Wrinch
Adjusting Blocks for fixing Engines and Threshing Machines.	Clayton, Shuttleworth, & Co.
Stable Fittings, Cow-house Fittings, and Piggeries.	Musgrave Brothers
	Commended.
Elastic Rake	John Baker
Chain Drill	Hawkes & Spencer
Hay Maker	J. & F. Howard
Improvements in Mower	R. Hornsby & Son
Improvement in Mower	Burgess & Key
Improved Horse Hoe	Wilkinson & Son
Turn Wrist Plough	Ransomes & Sims
Portable Railway and Turntable	John Grant
Guard for preventing Accidents by Drum on Threshing Machine.	Ransomes & Sims
Lawn Mowers	Ditto
Iron Gate	J. D. Young
Iron Gate	F. Morton & Co.
Iron Gate	Bayliss & Jones
Iron Gate	St. Pancras Iron Works Co.

B. T. Brandreth Gibbs, Hon. Director of Show and General Arrangements.

CHEESE FACTORIES.

[Mr. G. Jackson, Tattenhall Hall, has addressed the following letter to the *Chester Chronicle*.]

"FACTS are stubborn things," and I take it that at the present time the following facts deserve the attention of the owners and occupiers of Cheshire dairy farms.

Fact 1.—We learn from the price current last Saturday of one of the Liverpool cheese merchants, that the stocks of American cheese are in excess of the two previous years—viz.:

STOCK OF CHEESE IN THIS PORT, 30TH JUNE:—1867, 11,461; 1866, 1280; 1865, 1619.

Factories.	Cwt.	*Farm Dairies.*	Cwt.
Fine Factory ..	60*s.* to 63*s.*	Very Good.. ..	48*s.* to 52*s.*
Very good ditto ..	54*s.* to 58*s.*	Good	42*s.* to 46*s.*
Good ditto.. ..	48*s.* to 52*s.*	Medium .. .	35*s.* to 38*s.*
Medium	44*s.* to 47*s.*	Ordinary	25*s.* to 33*s.*

And still more noteworthy, that the cheese made at factories are designated "fine," "very good," "good," and "medium;" while those made in private dairies are only classed below "fine" to "ordinary," and the difference of price from 12*s.* to 19*s.* per cwt. in favour of factory cheese-making as compared with private dairies

Fact 2.—The price of Cheshire cheese on Thursday last at Chester fair, as given in the *Courant*, was from 40*s.* to 53*s.*; scarcely equal to the price of American *farm dairies*, and 10*s.* under the price of the best American *factory* dairies!

Fact 3.—In the Cheddar cheese district, at the first of the meetings of the Chamber of Commerce at Swindon, they mooted in May last the question of establishing cheese factories, and from the articles signed "Progress," that have since appeared in the *North Wilts Herald*, the members of Parliament, land owners, and farmers, are entering into the subject with spirit, and have got the start of us in Cheshire.

Fact 4.—In the cheese districts of the United States and Canada, the climate is so hot in July and August as to burn up the pasturage, and necessitate the cows being fed on green Indian corn; and yet, under the disadvantages of climate and bad roads for moving milk, we find, by the introduction of cheese factories, cheese are being made and sent 2000 miles in hot steamers over the Atlantic, so superior that we are being beaten in our own markets.

Fact 5.—It is a fact that very few of the daughters of our agricultural labourers will now engage to do dairy drudgery, and the education they are getting in our national schools fits them for better service, and they find they can get better wages and more genial employment in private families and in towns, so that practically Cheshire farmers find more difficulty in getting dairy servants than in filling up their dairy stocks.

Fact 6.—The Cheshire farmers' daughters have seen so much of the dairy slavery to which their mothers have been doomed, that it is notorious they prefer for husbands tradesmen, tailors, or even cobblers, to Cheshire farmers; and so the race of dairymaids is fast dying out, and it is gratifying to find the writer in the *North Wilts Herald* stating that he devoted the energies of his youth to the liberation of the West India slaves, but that he will devote the remaining energies of his life to the liberation of dairy slaves at home.

The inference, from the facts stated, is unmistakeable: if Cheshire cheese is to maintain the character it has hitherto done, if Cheshire farmers are to pay their rents and compete with America and the Cheddar cheese districts, we must be willing to learn the lessons the American cheese factories are teaching us, and so exchange our "Rule of Thumb" and dairy slaves for science and machinery.

EGGS.

[The following article on this subject recently appeared in the *Grocer*.]

WE know of no article of consumption in the import accounts of the Board of Trade, upon which we can place our finger, that will show a greater or more continuous increase than the simple unit of the egg. Unimportant as it might have appeared some years ago, it has gone on from thousands to hundreds of thousands, and then to millions, until the quantity seems incredible, and could only be realised in extent by the measurement of tons weight. All this represents so much food required by the necessities of one portion of the population, or the luxuries of another; for the frugal and solitary breakfast of the man of letters, or to mix on the table with the more numerous viands of the social family party; or to be called into sudden requisition in aid of the housewife when the casual visitor steps in. These are the ostensible signs of consumption, but the egg appears everywhere, and yields to every turn of the culinary art—in pastry of all kinds, in confectionery, in the making of ices, sometimes in medicine; and when in a state unfit for the table it refines our sugar, or softens the leather that preserves whiteness to the delicate hands of the fair sex. All descriptions are eatable and nourishing, but it is only the egg of the domestic fowl that enters into general use. In some of the villages along the rocky portions of our coast, the season when the sea-gulls hover in swarms about the ledges of the rocks is for them a time of plenty; and there is danger and romance about the mode of their collection quite unknown to, or ever dreamed of by, the farmyard peasant or the servant of the commercial incubating establishments. Our home producers, as a class, are probably not much given to the study of figures, or they might be struck with the vastness of the importations, of a demand that never relaxes, and a supply from abroad that continually increases—so much, indeed, that our egg merchants look upon the home source as a mere trifle in the scale in satisfying the wants of their customers. We have no accounts of the numbers brought to the markets of Leadenhall and Newgate, and only the rough estimate of a French authority, who gives the value of the poultry of the United Kingdom at less than one year's supply of eggs from abroad. Thus the annual import of eggs from the Continent averaged 73,000,000 from 1843 to 1847; it averaged 103,000,000 during the next five years, 147,000,000 for the next five years, and 163,000,000 for the next five years. In 1861 we received from abroad 203,313,360; in 1864, 335,298,240; and, in 1866, 438,878,880, being in excess of one million a day, and valued at 1,097,197*l.* sterling. These are facts that might well astonish the agricultural mind. The Royal Agricultural Society is evidently alive to their importance, for at the meeting for the Eastern Counties, to be held at Bury St. Edmund's in the present month, the farmyard poultry was to form a prominent department. Prizes are offered for the best descriptions of fowls, varying from 5*l.* downwards. No similar inducements have been given by the Society since their show at Chester in the year 1858.

At the present time, although there is much attention devoted to the subject, it is principally confined to the fanciers, and upon the best description of birds, so that poultry, and their product, the egg, have not gained any general popularity amongst persons engaged in agriculture. Whether this arises from a disbelief in the profitableness of the occupation, or the difference between the tenure of the soil in England and that of France, from whence we derive our great supply, is a matter beyond our purpose to attempt any elucidation. We merely wish to place the facts before our readers, who are necessarily more interested in the sale than the production of articles. That much may be learned, both from the study of these facts and the mode in which the eggs are produced in France, we readily admit; and if the ventilation of this topic will aid in the increased supplies from at home, we shall have effected some good beyond the general readers of this journal. It is evident that more than one million sterling in value of eggs were landed on our shores that could have been raised with the greatest ease at home; and the question naturally arises, "How do foreigners thus take possession of our own markets, with all the disadvantage of having to convey a perishable cargo through the hands of shippers and commission agents, with all the risks and attendant expenses?" There has been no want of inducement in the matter of prices, as in the year 1854 the Custom House computed the real value of eggs as low as 4*s.* 6*d.* per 10 dozen; but during the last six years 6*s.* per 120 has been reckoned, which is also the wholesale price in France. Amongst the arrangements under the French treaty was the abolition of the duty charged on eggs. On August 8, 1854, there was a reduction to 4*d.* per 120, and from that time to March 6, 1860, they were entered by the cubic foot at the rate of 8*d.* This mode was found less convenient, and the previous system was adopted—that of number, called great hundreds, or 120, as a unit; and eggs were placed amongst free articles.

The countries from which we derive our principal supplies will be seen by the following table, with the exception of the year 1866, where the total alone has yet been ascertained:—

From	1862.	1863.	1864.	1865.	1866.
	gt. hds.	gt. hds.	gt. hds.	gt. hds.	gt. hds.
Hamburgh ..	6,864	3,066	3,813	5,670	..
Bremen ..	15,433	10,250	3,413	1,881	..
Holland ..	3,801	1,363	1,206	1,772	..
Belgium ..	169,462	158,526	217,067	171,853	..
France	1,501,402	1,872,753	2,393,521	2,795,899	..
Portugal ..	13,813	4,251	6,232	1,712	..
Spain	139,628	78,828	54,465	31,323	..
Channel Islnds.	85,226	94,487	113,294	21,617	..
Other countries	381	900	1,141	1,710	..
Total ..	1,936,010	2,224,414	2,794,152	3,033,444	3,657,324
Value ..	£593,813	£673,638	£835,028	£928,247	£1,097,197

In the volume of trade and navigation published by the Board of Trade, the average prices given for the computed value in the year 1865 were—Belgian 6*s.* 2*d.*, French 5*s.* 11*d.*, the Channel Islands (their own produce) 5*s.* 10*d.*, and Spanish 6*s.* 3*d.* per great hundred. It would, however, be an erroneous impression to suppose that Belgian eggs were therefore worth more than French, the mode adopted by the authorities at the Custom-house being this: to take the average prices published in the *Economist* for that year as follows, per 120:—

	s.	*d.*		*s.*	*d.*
January	7	6	July	5	9
February	7	4½	August	5	7
March	5	9	September	5	6½
April	5	7½	October	6	9½
May	5	4⅝	November	7	8½
June	5	3	December	8	7

and apply the same price to the imports of each month from all parts. The average price so applied varies from month to month, as will appear from the above quotations. Since the value attached to the importations for the entire year is the sum of the values of each month, it follows that the average value of the importations for the year varies for the several countries according to the month or months in which the bulk of those importations took place. The cargoes are shipped chiefly in steam vessels, and arrive at the ports of Southampton, London, Folkestone, Arundel, Newhaven, and Shoreham. Of the supplies from Ireland, in the absence of any positive data, it is generally supposed that they have diminished from that quarter.

The time for laying eggs takes place according to the temperature and the climate. They begin in France, and in most parts of Europe, from January to March, the forward hens laying in the earlier months, and the sluggish not until the latter. For purposes of preservation the late eggs are considered the best. April, May, and June are the months when the production is most abundant; but in July the laying slackens, to resume a certain degree of fresh activity in August and September. In October and November, which is the season of the moult, it ceases almost wholly, and is null in the month of December. To obtain eggs in this season artificial means are employed by raising the temperature of the houses, and some poulterers assert that a supply can be had in the winter by feeding the birds on Buck Wheat, which is then given whole and upon meat. In parts of France where breeding is carried on as a trade, there is a separate class of persons called *coupeurs*, or hatchers. The hen is seldom allowed to lead the chickens after being hatched; the *coupeurs* entrust this office either to capons or turkeys, the hen being more valuable for laying eggs than rearing the brood. If a similar attention to the details were giving in this country, the stock of fowls which roam about the farmyard, and gather corn from the threshing, instead of being a mere adjunct and perquisite of the servants, would return sufficient to discharge the rental of many a small occupation. Such, we have understood, has been the case where the experiment has been fairly tried, and once this becomes an established notion our home supplies will increase in a greater ratio than they do at present. According to a competent authority, at this time, what with improved native and imported varieties, we possess the best stock of egg-layers, hatchers, and table fowls in the world In no country is the management of our best poultry-yards excelled. These should serve as a model for the rest; and, to bring up the wholesale results to their true national importance, all we require is an extension of the taste for bird-farming amongst those who earn their living on the land.

To show the seasons in which the laying is most active, and the variations that take place, we give the following figures from our import tables:—

	1864.	1865.	1866.
	Number.	Number.	Number.
January	6,999,000	13,301,000	16,386,000
February	17,851,000	22,323,000	25,794,000
March	31,849,000	32,231,000	46,537,000
April	42,650,000	39,966,000	51,471,000
May	39,930,000	49,507,000	56,767,000
June	33,177,000	37,890,000	52,334,000
July	35,332,000	38,488,000	36,476,000
August	34,549,000	34,279,000	40,566,000
September	29,711,000	28,444,000	33,916,000
October	19,547,000	24,056,000	26,917,000
November	15,864,000	20,424,000	20,696,000
December	27,836,000	23,103,000	31,018,000

In connection with this subject, we paid a visit to the National Poultry Company's establishment, which is a short walk of the Bickley Station, on the South-Eastern Railway. This experiment in the production of poultry is the most important that has been made, and another is projected at Kattern Bourn, Shenley, Herts, about 14 miles from London. The plans for the houses at Bromley were made by Mr. Geyelin, but were not carried out to their original extent. The home, now under the management of Mr. Massay, consists of a principal building, sheds,

houses, yards, &c., and market gardens occupying 6 acres of dry, gravelly soil. The main building is a greenhouse-looking erection, of wood and glass, 340 feet long, 20 feet broad, and 12 feet high to the central ridge. The pens are arranged along each side of the long central passage, which has a floor of red tiling, with shafts admitting cold air in summer and warm air in chill weather, ventilation being provided from above. The pens are in two tiers—that is, a ground-floor and a storey, each occupying 12 feet of frontage, with a breadth of 3 feet from the wired front to a wall of boards, and outside the boards is a similar range of pens of the same size, having for their outside wall a framework of wood and wire. Thus, a cock and six hens have the range of an inner pen of 12 ft. by 3 ft., completely shut in from the weather, and also of an outer pen of equal size, roofed, but exposed to the open air through wire of about two-inch mesh. This was thought to be rather close confinement for all but the most inactive breed of fowls, and therefore there have been lately added to the building open runs, each of about 30 feet square, in which the different pens of birds are permitted to exercise and scratch in turn. When a hen wants to lay she creeps into a box placed outside her pen in the central passage, and her nest consists of a circular earthenware pan, 12 inches in diameter and 5 inches deep, containing some dry sandy earth. Scrupulous attention, of course, is paid to lime-whiting and to every detail of cleanliness in the pens and the vessels.

At the end of this building, which accommodates the brood stock, are the departments for fattening and hatching, and the apparatus for artificial incubation; the department for rabbits, the duck-houses and tanks, the boiling-houses, pigstyes, &c., occupy other portions of the premises. There were about a thousand head of poultry on the premises; all looked healthy, and, being the season for laying, the attendants were collecting the eggs into baskets. These, we believe, are sold to some of the hotels in town, but a great many are disposed of for the purpose of hatching, and are marked in pencil according to the different breeds. At present the Bromley Home is chiefly devoted to the breeding of what may be called "fancy" birds, and since the stocks are excellent, the diffusion of the best class of birds throughout the country will produce national benefits superior to the sale of mere quantities of eggs. The French varieties of Houdan, La Flèche, and Crèvecœur, are said to bear confinement, are hardy, good layers, and non-sitters, and they vary in price from 15*s.* to 60*s.* each bird, and for eggs, per sitting of 13, from 15*s.* to 18*s.* If we might venture to offer a word of friendly advice to this and similar establishments, in which we take the liveliest interest, it would be to reduce the price of eggs. Those disposed of for domestic use are, we believe, rendered unfit for the purpose of sitting, and high prices act as a prohibition upon all such experiments. Although opinions amongst poulterers differ respecting the use of natural means for hatching, yet for the bad sitters the invention of the incubator may prove useful. Mr. Crook, who is a fancier, has, by his firm in Carnaby Street, Regent Street, patented a very successful invention, to which we shall hereafter allude. In such undertakings as the Bromley Home we possess the source of supply. The arrangements for feeding, hatching, and fattening are open to visitors, and are interesting even to casual observers; for farmers, and others commercially affected, they should furnish examples for the proper and successful management of their own poultry-yards.

The increasing demand for eggs, although it has failed to elicit any corresponding or commensurate efforts in our own country, has not been lost upon our quick-witted and versatile neighbours across the Channel. The metropolis is almost wholly supplied from foreign sources, and new-laid eggs, as they are called, demand exorbitant prices, and only reach the tables of the well-to-do classes. Those who have the good fortune to accept the hospitalities of the farmhouse, in addition to the never-failing appetite on such occasions, will discover the superiority in this portion of the fare, and will gladly return with a contribution from the henhouse. The provincial towns, with trifling exceptions, monopolise the eggs from the surrounding neighbourhoods; the small farmers who do not sit the market sell their supply to the country shopkeepers, or give them in exchange for other articles. Many cottagers contrive to keep a few fowls, and where there is no pig these act as scavengers, consuming the scraps of the family, the outside Cabbage-leaves, peelings off boiled Potatos, &c., and if supplied with a little corn, lay a great many eggs. There are no regular agents or dealers engaged in the trade, but the grocer or the butcher of the village takes the surplus at the usual market price, deducting his commission. The consumption of an ordinary household in the country is as much as 2000 eggs per annum, so that the residue has no great effect upon the metropolis, or the large manufacturing towns. Indeed, it is but too probable that the care of poultry has retrograded; for as the small holdings have been absorbed by large farms, many an active, frugal housewife has been withdrawn from rural life who had the will and the means of supplying the market. Neither the cottager with his allotment (instead of his share in the village green or common) nor the artizan has range enough for producing eggs to advantage; therefore, in catering for the public, the wholesale merchant must occasionally pay a personal visit to the markets in France, and rely upon the foresight and activity of agents to meet the wants of his trade.

Many have entertained a belief in the existence of gigantic establishments, which, from assertions made in the public papers, and the largeness of the imports, found ready credence: but we believe that throughout France there are none more extensive than our own at Bromley. The egg business is almost exclusively confined to small farmers, by whom it is carried on in a vigorous and commercial manner, more especially in the provinces of Burgundy, Normandy, and Picardy. According to the latest agricultural returns furnished by the French Government, for 43 departments, the value of eggs and feathers produced each year was taken at 32,500,000 francs. This was considered to be much under the mark, as the consumption of Paris alone is equivalent to 12,000,000 francs; and although, per head, it would be less in the provinces than at Paris, it may be fairly set at rather more than half as great. The eggs, which at Paris are worth 60 francs per 1000, average 40 francs per 1000 in the country. We thus obtain a total of 100,000,000 francs, or, with the export, 142,000,000 francs (5,680,000*l.*), as the annual value of French eggs. At this rate the consumption amounts to 2*s.* per head of the whole population. One of the French writers on this subject gives 7,000,000 eggs as the annual produce; and if we average 60 eggs as the number that each hen would lay, there would be at least 117,000,000 fowls, and these, at 3 francs apiece, would give 14,625,000*l.* sterling as the value of the poultry stock of France. For the past year, on the same ratio of 60 per head, the eggs imported into this country represent the laying of no less than 7,300,000 eggs.

From a pamphlet published by M. de la Fosse at Goussainville, near Houdan, we select a few statistics of the trade in that immediate neighbourhood, which will give a correct idea of its importance. At the markets of Houdan, Dreux, and Nogent le Roi, there are sold annually upwards of 6,000,000 head of fat poultry, viz.:—

	Per Week.	Per Month.	Per Year.
Houdan	40,000	160,000	1,920,000
Dreux	50,000	200,000	2,400,000
Nogent le Roi	35,000	140,000	1,680,000
Total	..	..	6,000,000

This does not include the sale of chickens, poultry, and eggs, which forms a separate trade. Every village, says an eye-witness, has its weekly markets, where farmers and their wives bring their produce for sale, in preference to selling at the farmyard. The police regulations in the markets are strictly enforced. The various products are classified before the market begins. Each person is bound to keep his assigned place, and not allowed even to uncover his goods, much less to sell, before the bell rings, under the fine of 5 francs. At the ringing of the bell, the bustle to uncover, the rush of buyers, and the chattering, are worth while to witness. The dealers and merchants take up their stand outside the market, where they send all the products they purchase. The seller has a ticket given him, with the purchase price on it, and is paid on delivery of the goods at the dealer's stand. It seems almost incredible that even in some village markets, within two hours, such a vast amount of business can be transacted, with the greatest order and decorum. Some merchants will purchase from 2,000 to 3,000 lb. of butter; others 20,000 to 30,000 eggs, or 1,000 heads of poultry, &c., all of which are taken to their warehouse to be sorted, packed, and perhaps forwarded the same day to London or Paris. The current price for every commodity is fixed and known immediately after the market opens, and depends entirely on the demand and supply. At the wholesale poultry market, La Vallée, in Paris, where the poultry, dead or alive, is forwarded from all parts of France, there are a number of licensed agents, who sell by auction to the highest bidder; this market is a curious scene from four till nine in the morning, when thousands of crates of all descriptions of poultry are cleared out and disposed of.

The eggs are sold in the markets of Paris in baskets, which ought to contain 1,040 good valuable eggs. These are counted, at the wish of the buyer, by the official agent, who verifies the *déchet*, or loss; also the size, by passing them through a ring. For such there are charges from 25 cents per *mil* for counting, 60 cents per *mil* for examination, and 15 cents for passing the ring; besides these charges there are the duties collected by the Municipality of Paris. The production of eggs in France is, to a certain point, unlimited; and the attention of breeders has been drawn to the improvement of the breed by foreign additions, and modes of preservation also for long voyages. In consequence of the success which had attended the exhibition of the poultry of La Bresse (in Burgundy), a stir was created, and on the representations made to him, the Minister of Agriculture instituted a special show for fat poultry at Paris. The fowls were distributed into five classes—La Bresse, Houdan, La Flèche, Normandy, and all other breeds. La Bresse kept the lead, gaining, after a struggle with La Flèche, the gold medal for the best fowls of any class. Much of this success was due to the strenuous exertions of Count Le Hon, as no region had greater difficulties to surmount than La Bresse, which constitutes the arrondissement of Bourg, in the department of Ain, and extends from the banks of the Saône eastward to the spurs of the Jura. The fowls have certain features to distinguish them, and the hen begins to lay in February, and for a month or six weeks lays daily, then three or four times a week, till she has laid about 160 eggs, besides rearing two or three broods. On every farm poultry is fattened to a certain extent, and until lately was little known or appreciated at Paris, though for 40 years it has been exported to St. Petersburg.

The prices of eggs per 1,000 have been at different periods as follows in the Paris market:—

	fr.		fr.
1804	48.00	1850	43.79
1826	64.50	1852	45.32
1845	48.74	1853	50.19
1846	50.27	1866	60.00

And the consumption had risen from 74,000,000 in 1807, to 174,000,000 in 1853. These are collected from 10 or 12 departments which encircle the city, but more than half is furnished by Le Calvados, L'Orne, and the Somme. From the latter and the Pas de Calais are derived the English supplies. Around Houdan are the villages of Goussainville, of St. Lubin, and La Haye. Near La Flèche au Mans are Villaine and Boce; also some hamlets near St. Pierre Dive, Lisieux, Calvados, and Beauvais in the Somme—all localities abounding in poultry. The ports at which the greatest amount of activity takes place are Calais, Cherbourg, and Honfleur; at Calais the eggs are packed in cases with straw, 1,100 to the case; and at Cherbourg and Honfleur in cases of 600 and 1200.

The total value of exported eggs, of which England received the lion's share, has been as follows:—

1815 to 1835, an average of	..	2,786,000 fr.
For 1850	,, ..	7,512,000
,, 1858	,, ..	10,418,000
,, 1859	,, ..	11,340,000
,, 1861	,, ..	17,845,000
,, 1864	,, ..	27,974,000
,, 1865	,, ..	37,650,000
,, 1866	,, ..	42,384,000

How these exports have been distributed will appear by this table:—

	1864.	1865.	1866.
	kilog.	kilog.	kilog.
Belgium	46,364	84,107	130,627
United Kingdom ..	22,095,262	29,765,361	33,458,539
Germany	15,767	35,713	
Spain	34,789	52,632	
Italy	14,799	16,117	278,659
Switzerland	143,200	133,753	
United States	2,156	3,370	
Other countries ..	27,120	29,719	
Total	22,379,457	30,120,772	33,867,825

As a general definition, the districts that grow Buck Wheat produce the greatest abundance of eggs; and if we would prosecute this matter successfully at home, it would be well to ascertain whether Buck Wheat cannot be imported to any considerable extent at a cheap rate. Upon the quality and description of food egg-laying much depends.

From a review of these facts, it will be apparent how much our neighbours, the French, have accomplished; an export of one million sterling per annum in eggs is no insignificant item even in the balance-sheet of a nation. We have entered upon this subject of foreign supply as fully as the public returns and the sources of information, private and otherwise, would enable us, since we have felt its importance to our readers, especially as retailers, and also its indirect bearing upon producers. Many of the former must visit the capital city of France during the unusual attractions of this year, and they may be induced to diverge from the ordinary route. By a personal knowledge of the egg districts named, they will learn, better than by any descriptions we can give, how our admirable and talented rivals in commerce have acquired superiority in this department of business, and exemplified the saying of the great artist, and whilst imparting which maxim he probably gave to his pupils the secret to his own fame, "that by attention to trifles it is possible to arrive at perfection."

AGRICULTURAL EMPLOYMENT BILL.

[On Friday of last week the Earl of Shaftesbury moved in the House of Lords the second reading of this Bill.]

HE, in common with many others, thought the subject was sufficiently ripe for legislation, more especially that part of it which related to the working of females in gangs. Entertaining that view, he had brought forward the present Bill, the provisions of which were very simple. A great desire existed throughout the country that the principles of the Factory Acts should be applied to the agricultural districts, of course with certain modifications demanded by the altered circumstances of the case. There were, however, certain principles which were of equal value in both cases, such, for instance, as that with respect to the limitation of age. Under the Factory Acts no child under eight years of age was allowed to work, while it was laid down that no child under 13 should work longer than a certain time. The Bill provided that no boy under the age of eight years, and that no girl under the age of 13 years, should be employed in agricultural labour for hire. It also provided that no girl under the age of 18 years should be employed at all in a public gang. The next provision of the Bill related to the subject of education. Any attempt to apply to agricultural districts the half-day system, or the alternative day system, was found to be impossible, on account of the children working either singly or in parties of only two or three, at a great distance from their homes, and because of the inconvenience which would result from the constant interruption of the work. Therefore, he had adopted in the Bill the time system, which was found to work tolerably well, as established by the Print Works Act, which provided that the children should have in the course of the year so many hours for education. Dividing the year into two periods, he proposed that in one period 400 hours should be devoted to education, and 200 hours in the other period, because in agricultural labour the greatest amount of leisure time was during winter and the long nights. He knew that there was great difficulty in giving practical effect to this arrangement, as localities differed very much, not only in reference to the number of schools, but in the number of children, and, therefore, he left it to the magistrates at Quarter Sessions to make such regulations on this point as they might deem necessary on account of the circumstances of the various districts. On looking over the rates of mortality, he found that they exhibited the complete unfitness of the female constitution to be exposed to the vicissitudes

of weather as well as to hard labour. He found in all agricultural districts—in Surrey, Kent (both extra-metropolitan), Sussex, Hampshire, Berkshire, Hertfordshire, Buckinghamshire, Oxfordshire, Northamptonshire, Huntingdonshire, Bedfordshire, Cambridgeshire, Essex, Suffolk, Norfolk, and Dorsetshire—that the mortality of the girls at ten years of age and under 15 years was greater than that of boys of the same age; while in the manufacturing districts of Cheshire, Lancashire, and the three Ridings of Yorkshire the mortality of the girls working in those districts under cover, and enjoying the warmth necessary for their constitution, was less than that of the boys at the same ages. With the view of ascertaining whether the result obtained from those mortality tables coincided with the judgment of medical men, he submitted to two very eminent physicians specially experienced in diseases incident to the female sex the following questions:—

"1. Are girls of the age of 13, and a year or two afterwards, in a peculiarly delicate condition as regards their health? 2. Are girls in those early ages less able than boys to bear hard field work?"

The answer from one, and confirmed by the other, was as follows:—

"I can answer both your questions in the affirmative. Thirteen, however, is earlier than the average age of female puberty, which in this country is 15½ years. The only inference from this, however, would be that an age somewhat more advanced than 13 requires even greater care. As to the generally less ability of girls and women than boys and men to bear rough out-of-door work in all weather there can be no doubt whatever; and it may be stated absolutely, and without any qualification."

This was the reason why he was anxious to exclude girls under 13 years of age from the liability to work in agricultural labour for hire. Nothing tended so much to lower their character, and to prevent them from making in after life good wives, than their being taken away from their homes at an early age, and being brought up in ignorance of all domestic duties. The result of such a system was that the homes of the peasantry were rendered most uncomfortable and unhealthy, and the men were in consequence likely to be driven to the public-house. He knew that education in many parts of the agricultural districts was really given to a greater extent than many people supposed, but the difficulty was for the people to retain that education in after life. He would ask those who looked upon the labourers in the agricultural districts as ignorant boors in comparison with skilled artisans to go and see a good agricultural labourer engaged in digging a trench, and observe the care and skill he exhibited. Above all, let them witness the labourer at the plough, and note the intelligence and judgment with which he pursued his work, and then let them say whether that man was not to be placed in the ranks of skilled workmen. Therefore, he thought that something should be done, if only to meet the clamour which was raised against the agricultural labourers, in order to give them as much education as possible. The best thing that could be done with this view was to institute evening schools, and he trusted that their lordships would, by reading the Bill a second time, record their approbation of its principle, and thus express their opinion of the desirability of giving children employed in agriculture a sound education.

The Earl of STRADBROKE said that a statement, which he had read with great surprise, had been put forth that the gang system prevailed in the eastern districts of Suffolk. The gang system, he believed, existed in a small district between Bury and Cambridgeshire, but it did not prevail in the county at large. He certainly never could approve the system.

Lord LYVEDEN was prepared to assent to the principle of the Bill, so far as regarded the labour of children; but he could not approve its restrictions on the employment of young women in agriculture. That portion of the Bill which related to boys who were not to be employed unless they were educated opened up the whole question of education. Who was to pay for their education? If there were no means for educating them, it would be utterly monstrous to say that they should not be employed under the age of 13. He hoped this part of the Bill would be more carefully attended to before it was allowed to go through the House. He agreed with the noble earl as to the impropriety and immorality of gangs; but their lordships should not be called upon to acknowledge a principle without knowing how it was to be carried out.

The Earl of KIMBERLEY observed that the principle of the Bill, so far as the educational clauses were concerned, had been already adopted in the Factory Act. The hardship of compelling the attendance of children at school did not prevail in that instance, nor had the result of that legislation been unfavourable. The system applicable to factory labour could also be applied to work in the fields, and he thought the time had arrived when they might fairly consider whether the same principle should not be carried further. Probably the best mode in which this could be done would be by the adoption of the conditions now applicable to print works. No doubt there were difficulties connected with the question. It would be clearly unjust to require that a child should have attended school as a condition of employment if there was no school within a moderate and convenient distance of his home, or where the only day school in the neighbourhood was one where the parents of the child could not conscientiously approve the religious instruction given in it. If his noble friend who spoke last read the report carefully, he would find evidence to convince him that the proposed restriction on the employment of young women in agriculture would be most proper and beneficial. In many parts of the country the great desire was that girls should not be so employed. The case was very different with regard to boys intended for agricultural labourers. They should begin early, at the age of eight or nine, and thus become hardy and accustomed to the work. He had a strong opinion that it was a matter of urgent necessity to extend school instruction to all classes of the community. He should not allude to the question which would shortly come before that House further than to say that it had now become urgently important that the masses of the population should not be left without the means of attaining at all events elementary education. This question of educating the agricultural classes did not concern those classes, but affected the towns whose population was recruited from those classes. Under these circumstances, in order to render the lower classes as soon as possible fit for the exercise of the privileges about to be conferred upon them, he hoped that immediate legislation would take place upon the subject. The evidence that had been taken by the Children's Commission revealed such facts as might well make any Englishman ashamed, and, therefore, in order to mitigate the evils arising out of the gang system, he trusted that mixed gangs would be prohibited, that gang-masters would be licensed, and that means would be taken to prevent the employment of very young children. If these suggestions were adopted, the first step would have been taken towards a great and permanent improvement of the condition of the agricultural population of this country.

The Earl of SHAFTESBURY said that, as no member of Her Majesty's Government had deemed it necessary to express any opinion on the subject, he might be permitted to remind their lordships of the inestimable benefit the system of coupling learning with labour had conferred upon the country during the last 30 years. He trusted that their lordships would read the Bill a second time.

The Bill was then read a second time.

THE GRASSES.

THE Graminaceæ are one of the most extensive and important, and perhaps one of the most widely distributed of all the natural orders of plants, having representatives in nearly every part of the globe. In proof of the value of the Grasses we have but to point to Wheat alone, but when we include the other cereals and our forage Grasses, the fact is more particularly apparent. Of the extent and variations of the different genera few even amongst our agriculturists, who are perhaps more immediately connected with the cultivation of Grasses than any other class, have any idea. Grasses supply not only the principal food of man but also the food of most of our animals. In none other but the English pastures do we find such an abundance of rich and suitable food for the live stock of the farmer.

With economic Grasses, both cultivated and indigenous, England is highly endowed. Our island home has always prided itself upon its corn fields, for nowhere could we turn to a more soul-stirring scene silently breathing forth the echo of peace and prosperity than to an English corn-field. As to the ancient history of Wheat we have nothing to do with that at present, it has been a subject so often discussed that we will not touch upon it. The value of Wheat, we know full well from ancient writings, was as great, comparatively speaking, in those days as in the present. It is a remarkable fact that none of our important cereal Grasses—Wheat, Barley, Rye, Oats, &c.—are indigenous, but are all introduced plants, which have been so highly cultivated as to produce the abundant crops which we, happily as a rule, witness in this country. Though the cereals are the most important of all the English-grown Grasses, we derive many valuable foreign and colonial products from the same natural family, for the Sugar-cane and the Rice are familiar everyday examples of the importance of the Grasses in other climes: they have their meed of utility in all parts of the world, and they grow in almost every conceivable position. Schouw says—"Amongst the Grasses there are both land and water, but no marine plants. They occur in every soil, in society with others, and alone; the last to such a degree as entirely to occupy considerable districts. Sand appears to be less favourable to this class; but even this has species nearly peculiar to itself. The diffusion of this family has almost no other limits than those of the whole vegetable kingdom. Grasses occur under the equator; and Agrostis algida was one of the few plants which Phipps met with on Spitzbergen. On the mountains of the south of Europe, Poa disticha and other Grasses ascend almost to the snow line; and, on the Andes, this is also the case with Poa malulensis and dactyloides, Deyeuxia rigida, and Festuca dasyantha."

We have passed over Wheat, Barley, Rye, and Oats, as being so well known as scarcely to need a mention; we might almost in this category have included the Canary Grass (Phalaris canariensis, L.), and more especially as the Grass can hardly be called a native of Britain, but one which has been introduced so long as to have become naturalised in fields and on roadsides in some parts of England. We should, indeed, have disposed of this plant in like brief manner had it not been that it called for a word of note, not only for the beauty of its appearance when growing—its ovate panicle being so different to what we are accustomed to see in the cultivated Grasses—but also on account of the extraordinary consumption of the seeds as food for cage birds, the extent of which, we fancy, is but little known. Besides the Canary Grass cultivated in this country, large quantities of it were formerly imported from Spain; but Holland now supplies a considerable proportion. From the Mediterranean large quantities have also been imported.

When we are told that the annual consumption of Canary seed averages 10,000 quarters, we are inclined to think that it is put to other uses than that of feeding pet birds; but this appears to be its sole use, for which purpose alone it is grown in this country It is a remarkable fact, moreover, that the bulk of this seed is consumed in the manufacturing districts of Yorkshire and Lancashire, which clearly shows the prevailing taste for pet birds amongst the poor operatives. In Italy, however, as well as in the Canary Islands, the seeds are ground into a meal, which is used for making pastry. Silks and other woven articles are also dressed with a flour prepared from them.

The Red Canary Grass (Phalaris arundinacea, of Linn., but now referred to Digraphis arundinacea of Trin., is a strong growing, creeping, rooted perennial Grass, growing on the banks of rivers and in marshes. The Grass is somewhat coarse, but cattle nevertheless appear to be very fond of it, particularly before the flowering period. It extends throughout Europe, Russian Asia, and North America.

The cultivation of pasture Grasses in England is said to have originated at the close of the 17th century, and the Rye, or Ray Grass (Lolium perenne), to have been one of the first if not the first. A hundred years back no other Grass was grown alone for an alternate crop, and at the present time it is recommended as one of the best for that purpose, as it is capable of adapting itself to almost any soil or situation, though of course it grows most luxuriantly on a rich soil, where it produces a rich dark green foliage. Mixed with other Grasses in damp situations it also produces good crops. The plant is indigenous, and grows in abundance on roadsides and waste places. It may be known by its flowers, which appear in June and July, and which are in long, close spikes; the spikelets are six to eight flowered, and are alternate on each side of the stem. The florets are without awns. There are many varieties of this Grass known, some, as L. perenne, tennue, having such finely cut foliage as to be very suitable for lawns; the most important, however, as a pasture Grass is that known as the Italian Rye-grass, which was at one time considered by some botanists a distinct species, and was called Lolium italicum. It grows in southern Europe, and was introduced by Messrs. Lawson about the year 1832 or 1833. Mr. Bentham, in his "Handbook to the British Flora," gives it as his opinion that this plant first grew in Italy from seeds of the Lolium perenne obtained from England. It is now, however, extensively grown in most places where good farming is carried on. It is a biennial or triennial variety, flowering in May and June, and by care and good management will yield as many as three or four crops in one season. For this yield the first should be ready for cutting in April. This Grass is valuable for mixing with other seeds for sowing for permanent pastures, as it grows vigorously for the time of its duration, and when it dies out gives place to the slower-growing perennial Grasses. The common Bearded Darnel (Lolium temulentum, L.) is a close ally to these valuable pasture Grasses, but is a dangerous and poisonous plant. It grows in corn fields and waste places, as many farmers well know, and when its seeds get accidentally mixed and ground up with Wheat, the effects of eating bread made of such flour is highly injurious. Instances are not wanting in which alarming effects have ensued, chiefly among the poorer classes in the country who do not sift their Wheat before grinding, for in the act of sifting of course the smaller grains of the Darnel would pass through the sieve, while the Wheat remained. The Meadow Fox-tail Grass (Alopecurus pratensis, L.) is another excellent pasture Grass, producing early crops, and flowering in May and June. It is a common plant in meadows and pastures in Britain, and extends throughout Europe and Central and Russian Asia, and is also found naturalised in many parts of the globe. It averages in height between 2 and 3 feet, is one of the earliest and best pasture Grasses, and is found in most good meadows and pastures; it grows more freely and in greater luxuriance on a limestone soil, but it nevertheless produces good crops on almost any land. All kinds of cattle are very fond of it, and it contains much nutritive matter, as has been proved by chemical analysis. This Grass may readily be distinguished by its long straight stems, at the summits of which are close, nearly cylindrical spikes of florets, each having an awn twice as long as the glumella. There are four species of this genus natives of Britain, namely, A. pratensis, L.; A. agrestis, L.; A. geniculatus, L.; and A. alpinus, Sm. The first, however, is the only one of any economic value.

Of the meadow Grasses belonging to the genus Poa, and of which we have 15 indigenous species, the Wood Meadow Grass (Poa nemoralis, L.), the Rough Meadow Grass (P. trivialis, L.), the Smooth Meadow Grass (P. pratensis, L.), and perhaps the Annual Meadow Grass (P. annua, L.), are the best. The panicles of inflorescence in this genus are either close or spreading, the spikelets each having several flowers, the flowers without awns. P. nemoralis is one of the few Grasses that will produce a good sward under the shade of trees, and it is recommended as very superior to any other Grass for this purpose. It grows wild in woods and thickets, flowering in June and July, and is a very variable species. One of the most important varieties is that known as the Hudson's Bay Hay Grass, which has been distinguished for its rapid growth after being cut or beaten. The verdure of many of our rich meadows depends in a great measure upon the luxuriance of the Rough Meadow Grass (P. trivialis); it grows from one to two feet high, and flowers in June and July. A variety called P. trivialis argentea elegans, has lately been exhibited at the Flower Shows, and is now being advertised. The beauty of this variety is in the white, light green, and pale pink variegation of its linear leaves. Of course it is introduced as a horticultural and not an agricultural novelty, being suitable for ornamental purposes, as for drawing-room vases, conservatories, &c. The Smooth Meadow Grass

(P. pratensis), which is likewise found in flower in June and July, and is equally as abundant as the latter species, probably ranks next in value as a pasture Grass, but this has, or had, another economic use, for, along with other Grasses, it found its way into the straw-plaiting districts, where it was at one time, and is still for aught we know to the contrary, worked up into what are called "Leghorn" bonnets, imitations of the celebrated articles made in the city of that name.

The Timothy, or Cat's-tail Grass (Phleum pratense), which is a common plant in our meadows and pastures, is a valuable fodder Grass either for hay or for green food. It is more particularly suited for moist and peaty soils; it was at one time more extensively cultivated than any of the perennial Grasses, and it is still highly recommended for mixing with other seed for good meadow land. The plant grows to a height of 18 inches or more. The stem is erect, and the panicle or flower spike cylindrical.

The Crested Dog's-tail Grass (Cynosurus cristatus), which grows from 1 to 2 feet high, and which is common in dry pastures, especially on chalky or gravelly soils, is valued for permanent sheep pasture as well as for lawns, as it produces a fine turf, the roots descending so low into the ground that it requires less moisture than most of the other Grasses to keep it fresh. The straws are very fine and even, and are frequently made into hats and bonnets.

Of the genus Festuca, of which we have five indigenous species, several are valuable pasture Grasses. The Meadow Fescue (Festuca pratensis), which is now considered a variety of F. elatior, is one of the best of this genus. It produces, however, a better crop on damp soils than on dry land. It grows about 2 feet high, and abounds in moist meadows and pastures, and on the banks of rivers and streams, flowering in June and July. The sheep's Fescue (F. ovina) flowers during the same months, and is strongly recommended as a valuable fodder Grass upon elevated pastures, though it is not equal to many others in the bulk of its crop. It is likewise well suited for lawns and in situations where the Grass is required to be kept short. The variety called Festuca duriuscula is also strongly recommended as a superior sheep pasture Grass for dry situations as well as for ornamental lawns. Several other forms of Festuca, as F. heterophylla, F. tenuifolia, &c., are recommended as equal in value for similar purposes to some of those we have described.

The delightful and agreeable fragrance which is so peculiar to newly mown hay, owes its origin to the sweet-scented Vernal Grass (Anthoxanthum odoratum, L.); it seldom grows to a greater height than 6 or 8 inches, with a somewhat loose flower spike; it flowers during May and June. As a pasture Grass it is not much valued, its fragrance being its chief recommendation.

Of the seven British species of Bromus, only one is valuable to the farmer, namely, the Tall Brome Grass (Bromus giganteus, L.). It is a perennial Grass, and is distributed over the greater part of Europe and Asia; with us it is found in shady and moist woods and hedges. It grows to a height of from 3 to 4 feet, and flowers in July and August. As a fodder Grass cattle are not particularly fond of it, but it is useful for forming a good undergrowth in thick woods; the most noted plant of this genus is the Bromus Schraderi, which was introduced in 1841, and about which so much has recently been written, so that it is needless to repeat its merits here. This Grass is a native of North America, and like the Tussac Grass of the Falkland Islands, has been introduced on account of its reputed value as a fodder.

The Tussac (Dactylis cæspitosa) was found by Dr. Hooker, during his journey as botanist to the Antarctic Expedition in 1842, growing in great luxuriance, and he forthwith took measures for introducing it into Europe. The plant appears to grow well both in the Orkneys and in the western islands of Scotland, but its general cultivation has, we believe, not been entirely successful. It appears to thrive best in a peaty soil, and in the neighbourhood of the sea. It is very nutritious, and Dr. Hooker says "it abounds in saccharine matter, and when young is esculent even for man." This Grass seems to be more readily propagated by the subdivision of the roots than by sowing the seed. Space will not allow us to detail all the Grasses of agricultural value, whether British or introduced; of the former, many are useful in widely distinct situations, and, consequently, for widely distinct purposes. Amongst sand-binding Grasses, or those which have the power of firmly fixing themselves in loose sand, and so to withstand the encroachment of the sea, and preserve the adjoining land from the inroads of the driving sand and dashing waves, the Mat or Marram Grass (Psamma arenaria, Beauv.), and the Sea Lyme Grass (Elymus arenarius, L.), are perhaps the best. The underground stems of both grow so firmly in the sand as to enable the plants to withstand almost any force of wind and waves. The sand becoming bound up with the plants is prevented from drifting further over the land, large tracts of which have been preserved solely through their agency, while, on the other hand, where these plants have been destroyed, the land has frequently been encroached upon beyond recovery. The value of these Grasses for such a purpose has occupied the attention of the Legislature, and Acts have been passed to protect them from destruction. The Marram, however, is frequently collected by peasants near the coast, who make it into table mats, and similar ornamental useful articles. A very interesting paper on the reclamation of land from the sea was read at a meeting of the Royal Agricultural Society some short time since, and published in this Journal of May 25 last.

Grasses are all more or less ornamental, and when dried and properly arranged they make very beautiful bouquets. Some of the most ornamental, however, when growing, are the Pampas Grass (Gynerium argenteum), the Feather Grass (Stipa pinnata, L.), and some of the Arundos, as Arundo conspicua.

The Pampas, which takes its name from the Pampas or vast plains of S. America, where it is native, is undoubtedly the grandest of all ornamental Grasses; a well-grown tuft of this plant has a very fine effect upon a lawn or in shrubberies. It flowers in September or October, and frequently has 20 or 30 spikes of flowers at one time, and sometimes as many as 50 or 60; these, rising to a height of from 6 to 12 feet, with dense, silvery white, feather-like heads, give it a most noble appearance.

The Arundo conspicua is likewise a good ornamental Grass, similar to the last, but not so strong in its growth, or profuse in its flowering. Arundo Donax is occasionally cultivated in British gardens, growing to a height of 10 or more feet. The reeds are said to be used for the tubes of bagpipes and other wind instruments: they also make good fishing-rods.

The Feather Grass (Stipa pinnata, L.), is a well-known ornamental Grass, cultivated for the sake of its feathery appearance. The inflorescence is in loose panicles, the awns being the chief characteristic, from their great length. This is a very ornamental Grass, both growing and when dried, which can be easily effected by gathering the plants before the seeds are ripe, and hanging them in a dry room.

Amongst the troublesome Grasses, or those which are a pest both to farmers and gardeners alike, the Couch Grass (Triticum repens) is the worst. In Italy, however, the roots of this Grass are used as food for cattle, and they form a marketable article amongst the peasantry. In this country they have been used as a material for paper-making, and a company was formed a few years since at Hilkstone, near Peterborough, for working these roots, which were largely collected in the Fen districts, and fetched about 12*l.* per ton.

Amongst the Grasses used for human food in foreign countries, the Millets are the most important. The term Millet is a very indefinite one, and is applied to many of the small grained Grasses belonging to the same series, the various species of Panicum, Penicillaria, and Sorghum—none of which, however, are cultivated in this country as food plants, though they are of considerable importance in their native countries. It is estimated that a third part of the inhabitants of the globe feed upon the various species of Millet, the greater proportion of these are in Africa, Turkey, Persia, and India. Millet is cooked in various ways, but it is usually boiled with milk; it swells like rice in process of cooking. Mixed with Wheat, or alone, it is frequently used for making bread. Panicum miliacum, S. P. italicum, and other species have been cultivated from a very remote period in India and China.

Dr. Forbes Watson says in India the Millets occupy a most important position, and are the staple food of a very large number of the population, more than all the other cereals put together.

Dr. Lindley says that the Panicum spectabile grows in Brazil to a height of 6 or 7 feet, "while other equally gigantic species constitute the field crops on the banks of the Amazon." The genus Penicillaria has a wide geographical distribution in tropical countries. P. spicata, Willd., is a very important food plant on the Niger and Gambia rivers, it is in daily household use, and most of the beer of the country is prepared from it. The seeds are said to be even more nutritious than Rice. The fruiting spikes are very close and compact, and average from 18 inches to 2 feet in height; for travelling, a number of these ears are fastened together by their stalks, the ends of the stalks being placed opposite to each other, so as to bring the two opposite spikes parallel, the whole is then readily rolled up and conveyed on the backs of oxen to market. The several species of Sorghum belonging to the tribe Andropogonæ, are perhaps more important than any other Millet-yielding species. The Sorghums are very imperfectly understood in a botanical sense; those known as S. vulgare, Pers., and S. saccharatum, Mœnch, are the most valuable. These are, however, thought by some authorities to be varieties only of Sorghum halepense, Pers., which grows abundantly in a wild state in the south of Europe, North Africa, &c. The inflorescence of the Sorghums is in large dense panicles, a single fruiting panicle of Sorghum vulgare when ripe frequently weighs 6 or more ounces. The panicle denuded of its seeds make excellent brooms. There are several varieties of this species, the panicles of which are either black, white, reddish, or yellow. This plant has long been cultivated in the south of Europe, Egypt, India, &c.; in Africa it is known as Dawa Corn. Sorghum saccharatum, Mœnch, has lately been brought into notice as a sugar-yielding Grass. It seems to have been grown in Tuscany, and sugar made from it so far back as the latter part of the last century. Little, however, was known of it in Europe till the French consul at Shanghai sent some of the seeds to Paris in 1851, labelled "Sugar Cane of North of China." This plant is now largely grown in all quarters of the globe, extending from France to Algeria, Russia, N. America, the East Indies, and Australia. The seeds are much used for soups, puddings, &c. Numerous treatises have been written on the plant, chiefly in France in connection with its sugar-producing qualities. This, as well as S. vulgare, and indeed nearly all the species of Sorghum, appear useful as fodder plants. Cattle and horses are said to be fond of the stems and leaves. There are a whole host of varieties of this as well as of the last species, known only by their native names, given to them in the different districts in which they are cultivated.

There is no such species known to botanists as S. tartaricum, which has lately been puffed to such an extent, and about the value of which so much has been said. The seeds which have been sold under that name are no doubt those of S. saccharatum, which ought to be tolerably plentiful, seeing what an innumerable quantity of seeds are contained in one spike. Attempts have been made before now to grow the Sorghums in England, but they have never been completely successful; the plants require a warmer and more genial climate. Small quantities of Millet are imported into England, chiefly for feeding cage-birds and poultry. Closely allied to the Sorghums is the genus Andropogou, which includes the celebrated Kus-kus of the East Indies, and the sweet-scented Lemon-grass, both largely cultivated for perfumery purposes. A species of Poa (P. abyssinica, Jacq.) is a very important food-grain in Abyssinia, where it grows wild, and is also extensively cultivated by the natives. Eleusine coracana, Gaert, and E. stricta, Roxb., both East Indian Grasses, are largely cultivated in the East for their seeds; the first species forms the chief food of the poorer classes in many parts of India. A kind of beer is also prepared from the seeds, which are called on the Coromandel coast Natchnee grain. E. stricta is also very largely cultivated, and the seeds consumed as an article of food. Many more Grasses of economic value in their native countries might be instanced, but to do this would require much more space than we can give.

We will conclude this imperfect summary with an illustration of the wide differences in appearance which exist amongst plants of this order. To point to our meadow Grasses and then to the gigantic Bamboos, towering to 60 or 70 feet high in the dense jungle of the far East, is to point to the two extremes as to size. To one totally unacquainted with plants, it is not surprising that the Bamboo should be rather associated with Palms than with Grasses. The fruit also of Melanococca bambusoides, Trin. (Bambusa baccifer, Roxb.), is large, fleshy, and drupe-like,—more, indeed, like a large Pear than a Grass-fruit, as we usually understand it. Though the economic value of the Bamboo lies chiefly in the stems and leaves, the seeds of some species are fermented and an intoxicating drink produced from them, and in times of scarcity bread is even made from them. *John R. Jackson. Kew.*

Home Correspondence.

A remarkable crop of Vetches and Rye.—One of the most heavy crops of winter Vetches that has been known in the neighbourhood of Prestatyn for some years, was raised this spring on the Vant Farm. When measured, the piece of ground on which this crop was raised was 1 acre, 2 roods, 1 perch, 14 square yards. This comparatively small piece of ground supplied provender for 11 horses and two cows for 47 days. The Vetches were all cut, with a little hay for the first 14 days, into chaff mixed; the land was ploughed with a wheeled plough, but after sowing the plan of having it heavily compressed with heavy rollers was adopted. I feel perfectly confident that if this method were tried that crops equally as good could be raised on similar (light alluvial) or any soil. I have tried this plan on winter Wheat, and found it answer remarkably well. *William Pagan, Bailiff to J. G. Dixon, Esq., Nant Hall, Prestatyn, North Wales.*

Societies.

ROYAL AGRICULTURAL OF ENGLAND.

THE following new Members were elected at an adjourned Monthly Council held July 5th:—

Cooper, Robert, The Bank, Bury St. Edmund's.
Graham, J. W. H., Wortham Hall, near Diss, Norfolk.
Harlock, Henry, Great Thurlow, Newmarket.
Harper, Thomas, Bury St. Edmund's.
Hawkins, Charles Sidney, Over Norton House, Chipping Norton.
Mitchell, William, Northwold, Brandon.
Palmer, Walter O., Bradfield, Bury St. Edmund's.
Peacey, William, Chedglow, Tetbury.
Phipps, the Hon. and Rev. Augustus, Euston Rectory, Thetford.
Scott, Charles S., The Hill, Thorpe Moneux, Bildestone, Suffolk.
Sparke, James, Bury St. Edmund's.

Farmers' Clubs.

LOGIE AND LECROPT: At the last meeting of the Logie and Lecropt Farmers' Club, Mr. C. H. Binning Home, of Argaty, read the following paper on "The Relative Merits of Shorthorn and Ayrshire Cattle:"—

The minutes of last meeting having been read and approved of, Mr. HOME said that, not being a member of this Club, and having been asked to speak to them—as he was now about to do—on "The Relative Merits of Shorthorn and Ayrshire Cattle," he considered it a very high compliment indeed. It therefore became him to do what he possibly could to set agoing an interesting and beneficial discussion upon the subject. At the commencement, then, he thought there would be no harm in looking at

The Various Breeds of Cattle.—Having paid at all times the greatest possible attention to the different kinds of breeds, there was one thing that appeared to him quite clear, that the cattle in different parts of the country had been introduced by the different tribes of population therein now settled. When at the great exhibition at Paris, in 1856, he paid very great attention to the various breeds of cattle exhibited there. He saw, amongst others, red cattle from Flanders, with almost all the qualities which are desired in shorthorns. He might say that, with the exception of being of every colour, the cattle in Normandy resembled the shorthorns very much. The splendid butter that was to be had at Paris all the year round was produced by them. He believed that the only pure breed of cattle to be found in this country was the West Highland and the black cattle of Wales, which were much about the same—the only difference being, the Welsh had much less hair than the Highland, which might be accounted for by the difference of climate. As to the shorthorn and Ayrshire cattle, neither of them, he believed, could be strictly called a pure breed. The

population which had emigrated from Flanders into Yorkshire brought with them a fine, large, red stock, and from thence Holderness cattle were known to have been imported into the neighbourhood of Kilmarnock, by Cambell of Cessnock. Dunlop of Dunlop had introduced Dutch cows, and others had introduced cows from the Channel Islands, from all which, combined with West Highland blood, the present improved breed of Ayrshire had arisen, and were now recognised as a distinct breed, though they were neither more nor less than the result of a judicious crossing, to make them what they now were famed for — first-rate milkers. As to their West Highland blood, he remembered seeing, as a constant prize-taker, a bull named "Geordie," whose colour was nearly black, and was said to have one-eighth of West Highland blood, and with upturned horns, which was now the fashionable shape among prize-taking Ayrshires. He did not know if any improvement had been made on Ayrshire cows for many years, as he remembered, when a boy, of his father having at Auchenbowie two cows which had almost all the shapes and qualities now so much desired. He also recollected of old Lord Abercromby having some wonderfully milking Ayrshires.

Characteristics of Ayrshires and Shorthorns.—The principal object in the breeding of Ayrshire cattle had been to attain great milking properties, whilst the sole aim in the breeding of shorthorns was beautiful form combined with great feeding properties. He considered it a great mistake of the English breeders in not looking more to the milking properties, for he considered a cow that could not nourish its own calf was of very little value. He was quite certain that young heifers forced to great fatness at an early age had their milking properties completely ruined or destroyed. He considered this a great loss to the farmer, when cows were rendered unfit for breeding, owing to the great aptitude for fattening. Shorthorned cattle were not considered good milking cows, but he would mention one instance of a cow of that breed which belonged to the late Mr. Burnett of Gadgirth, and which gave 18 Scotch pints of milk and 2 lb. of butter in the day. He might say that in Yorkshire for long there was a competition between Booth and Bates—Booth's cattle going wonderfully to fat, while Bates maintained that his were excellent milkers. He recently attended a sale near Hull, where he saw a number of cows with as beautiful milk vessels as anybody could look upon, and yet it was a remarkable fact that there was not a single man in England who knew what every Ayrshire breeder looked first at in choosing a bull for getting milking stock—that was as to the position of the teats in the male. Many people said that the first cross was the only cross worth breeding. This, however, was diametrically opposite to the theory of shorthorned and Ayrshire cattle being brought to their present perfection by a great variety of crossing. He might also mention that Mr. Bates told him that at one time he had got some fine West Highland heifers from Lewis Macfarlane, from which he had bred by his shorthorned bulls some of the finest animals he had ever possessed. Whether the longish and black-tipped horns of his Wild Eyes tribe had anything to do with this cross, might be left for conjecture—parties might draw their own inferences. The celebrated Frederick the Great of Prussia thought of breeding great grenadiers by getting the largest men in his army to marry the largest women. However well this system had done in regard to cattle, it was a very different thing between men and women, who might be supposed to have certain fancies somewhat different from those in bulls and cows, and of course this project of the Prussian king turned out a failure.

Crossing.—With regard to cattle, they had sufficient evidence that great perfection could be attained by crossing the breed of those animals which had the different points required. Bakewell of Dishley proved the same as to Leicester sheep, and he believed it to be of general application in almost every respect, whether of milking, fattening, or strong constitution, fitted to contend with coldness of climate. He should be very much inclined to cross the West Highland cow with the shorthorned bull. In short, a judicious selection of the best animals to breed was the great secret in the breeding of good stock. He was of opinion that it was that, and that alone, that had made the shorthorns and Ayrshires what they now were. As to the difference of milk, he had found out by experience that the milk of the shorthorns was much richer than of the Ayrshire cows—that was, they gave a larger per-centage of cream. On testing the milk—which he had done for many years—he found that that of the shorthorns contained from 12 to 17 parts of cream, whilst the milk of the Ayrshire cows only contained from 9 to 12 parts; and, therefore, although the apparent quantity of milk might not be so great, there might be fully as much butter, and of a richer quality. He was rather puzzled to know what further to say on the matter. He believed that the great point for breeders of stock to observe was, if possible, to get a judicious selection of pure shorthorns, and cross with whatever breed they found most suitable. Climate seemed to have considerable effect on the milk-producing qualities of cattle, and he would rather buy a shorthorned cow from Cumberland or Westmoreland than from the east side of the island. As to the Ayrshire cattle and their milking properties, the average good milkers among them produced about eight Scotch pints per day. As to the shorthorns, he had not yet ascertained as to the real quantity of milk produced by them, as many of his cows suckle their calves. He hoped that what he had said might lead to some discussion on the subject.

DISCUSSION.

Mr. HOME added that, at the Paris Exhibition of 1856, there were a great many Dutch cows exhibited, having every point of Ayrshire stock except that of their colour, being all black and white without exception.

Mr. CHRISTIE then asked if Mr. Home approved of the high feeding of breeding stock?

Mr. HOME said he considered it in every way most injurious, and that those who did it were guilty of madness. Some shorthorns, however, could scarcely be kept down, although they got nothing more than straw and water. He had the misfortune to lose the use of three of his very best animals from their tendency to excessive fat.

Mr. GALLOCH, Knockhill, thought that a good Ayrshire cow with a shorthorned bull was the best breed for their district, both for breeding and other properties.

Mr. PEAT, Manor, said that Mr. Galloch had just anticipated what he was going to say. The breed betwixt the Ayrshire cow and shorthorn bull was very hardy in their constitution, and also grew to a good weight. It was very difficult, so far as his experience went, to get good shorthorns good milkers. He had always thought that the Ayrshire cows were the best milkers, and that the shorthorns were the most suitable for the cattle shed.

Mr. JARDINE said that the shorthorned cow was very apt to go wrong in the milking vessel. Their milk was richer than that of the Ayrshire cow, but they did not give so much of it. He thought that they would not go wrong in crossing two or three times. The herd he had at present was the same as that he had had for 40 years. There was one cow he had kept for 12 years; she was one of the best milkers he ever had. She had had three times twins, and four calves within one year.

Reviews.

A Dictionary of Science, Literature, and Art. 4th Edit. Longmans, Green, Reader, & Dyer.

We have to announce the accomplishment of this very complete work, in which agricultural subjects, as well as those included in all other arts and sciences, are treated, often in the form of merely elaborate definition, but generally with a full discussion of their nature and relations. The following paragraphs from the last part issued will illustrate the style in which agricultural topics are treated:—

"*Steam Cultivation.*—After years of expensive labour and experiment, steam power has been successfully applied to the cultivation of land. The two principal methods in vogue are those of William Smith, of Woolston, Buckinghamshire, who has for many years cultivated his own farm by steam power, and the late John Fowler, of Leeds, whose untimely death occurred just as he had perfected his machinery and seen it in successful operation all over the country. Mr. Smith's plan, which has been adopted by Messrs. Howard, of Bedford, and several other manufacturers of agricultural machinery, requires the use of one of the ordinary locomotive agricultural steam engines. This is planted in a corner of the field to be cultivated, and there works a double windlass, off one cylinder of which a wire rope is delivered while its farther end is being coiled upon the other. This rope is taken round the field guided by snatchblock pulleys at the angles, and lies along the furrow in which the cultivating tool, placed as it were a link in it, is working. The tool, whether a grubber or a plough, is thus drawn to and fro across the field from one side of it to the other, and the pulleys anchored at each end of the furrow are shifted backwards step by step as the work proceeds. As the tool gets over the untilled land lying between it and the engine, the shortening rope is coiled upon the windlass, only so much being at any time let out and used as is required.

"The cost of labour is rather greater on this plan than on the other; two men being constantly required at the ends of the working furrow in shifting the anchored pulley blocks around which the rope works. In Mr. Fowler's plan these men are not needed. The engine travels along the headland, and a self-travelling anchor works along the other headland, while the wire rope employed to draw the tool to and fro between them works around the large horizontal pulleys carried by each. The tool is either a framework of ploughs turning three or four furrow slices together, or a large cultivator and instead of turning at the land's end as Smith's cultivator needs to do, a double tool is balanced over a pair of wheels, and the two ends come into operation alternately. Messrs. Howard employ both ploughs and cultivators, in which a similar result is obtained in a somewhat different manner. Fowler's method is modified in some cases by the employment of double engines, one at each end of the furrow along which the tool is drawn; and a single rope being wound up alternately on the windlasses beneath these engines draws the plough or cultivator to and fro as each engine in its turn is set agoing.

"The advantage of steam cultivation over that by horses lies mainly in the avoidance of that trampling by draught animals which to a great extent destroys the tillage. A cultivator is drawn to and fro on large wheels, and the tilth effected by it is obtained with hardly any drawback. There is further, the power of accomplishing large quantities of work while the soil is in the fittest condition. In ordinary horse-power cultivation of clay lands, expensive teams have to be kept throughout the year for the sake of their services during the two or three months when alone clay land is in the right state for cultivation. On such land, therefore, a steam engine, which is inexpensive except when actually at work, is on every ground preferable to horse power for the accomplishment of all tillage operations.

"*Threshing Machine.*—A machine for separating corn or other seeds from the straw or haulm; and either impelled by horse or cattle, wind, water, or steam. The modern threshing machine was invented in Scotland about the year 1758, by a farmer in the parish of Dumblaine, Perthshire, and afterwards brought to nearly its present state of perfection by Mr. Meikle, a millwright, of Haddingtonshire, about the year 1798. Meikle's threshing machine consists of a cylinder furnished with beaters fixed on its circumference, to which the corn is presented by rollers, the ears being thus beaten in pieces; and while the grain drops through a grating into a winnowing machine, the straw is carried forward, and delivered by itself ready to be made up into bundles. Some threshing machines only beat out the corn, and separate it from the straw; while others beat it out, winnow it, and sift it, and deliver it in bags fit for market.

"The employment of threshing machines relieves the labourers from the severest drudgery incident to agriculture; they enable the work to be done at the time when there is a demand for corn; and, by doing it better, or separating the corn (particularly Wheat) more completely from the straw, they add both to the wealth of the farmer and the produce of the country; enabling the former to employ, and the latter to feed, more labourers. The latter is, indeed, a most important consideration. It is calculated, by the best informed agriculturists, that 5 per cent., or one-twentieth part, more produce is afforded by a crop threshed by machinery than by the old method; and, estimating the total product of the corn crops of Great Britain and Ireland at 50,000,000 quarters, we should, on this hypothesis, have an additional annual supply by no less than 2,500,000 quarters, if threshing machines were universally substituted for flails. So great an increase of produce in the hands of the farmers would obviously enable them to employ far more labourers than would be superseded by the use of the machine.

"All threshing machines are now driven by steam, and the work in England is generally accomplished by travelling engines and machines, the services of which are hired by the farmer.

Farm Memoranda.

KIRKBY THORE.—From Carlisle we proceeded to Liverpool, calling on the road at Kirkby Thore, to pay the Messrs. Nicholson a flying visit. We could have wished for more than a scanty two hours for this interesting case of steam as an auxiliary to horses. However, thanks to the kindness and excellent arrangements of our hosts, we were enabled to take rather more than a bird's-eye view of one of the best-managed enterprises we have seen. Situated on rising ground, 350 feet above the sea, and lying between the Crossfells (whose snow-covered sides stood out in bold relief) and the lesser ranges of the lake district, this holding presents difficulties of climate which are successfully combated; and any deficiency on this score is amply compensated for by the fertility of the soil, which may be described as a rich clay loam on the new red sandstone, interspersed with boulder stones, evidently brought down from the neighbouring mountains. The subsoil is generally strong clay with occasional beds of gypsum, which are worked both as a manure for Clover and also for commercial purposes. The Messrs. Nicholson occupy two adjacent farms—one the property of Lord Lonsdale, the other partly their own land—in all 780 acres. The former was entered upon six years since, and was at that time in a very neglected state. A field was pointed out where a great crop of Wheat—some 60 bushels per acre—had been reaped last harvest, which on entry was in such a poor state that the landlord would only charge for seed and cost of sowing. The whole farm has been drained under Mr. Parke's superintendence, and the old story holds good—the pipes are far too small. Some 18 acres of bog land have been reclaimed by the tenants, and an excellent job made of it, and very complete farm buildings erected, the haulage having been entirely done by the tenant. Besides all this, Messrs. Nicholson trade in gypsum, which is ground and led to the railway and other places. All this explains the reason why draft horses have not been put down to any considerable extent.

It is always interesting to inspect improvements so evidently profitable as those at Kirkby Thore. Without disparaging the exertions of those amateurs who often lay out largely for the benefit of the less affluent, we cannot but avow the conclusion that such a farm as this must do better service to the progress of steam culture than any amount of eccentric and often wasteful expenditure. The practical farmer (whose interests the Royal Agricultural Society must ever have in view) will be satisfied by a visit to Westmoreland that steam culture, in the hands of an intelligent man, may prove a good investment. Mr. J. Nicholson, being one of the Inspection Committee, had not filled up any schedule, and was not prepared with figures, our report is therefore shorn of statistics. Still we trust sufficient has been gathered to indicate the result, and we have only to add that as practical men we express great satisfaction at all we saw.

Messrs. Nicholson invested in Howard's tackle in May, 1863, to be worked by an 8-horse power engine (Clayton & Shuttleworth), which they already used for threshing, &c. The tackle consists of windlass, cultivator, and drag harrows.

The total cost, including the engine, may be put at 510*l*. The repairs have been trifling, and chiefly done at home; the engineer, filling up his time as farm blacksmith, looks after little failings. No rope has yet been renewed.

Hitherto cultivation or grubbing only has been attempted; but the experience of last autumn, which was too wet for such operations, has shown the desirability of adding a 3-furrow plough; and it is under consideration to make this addition, and at the same time to get more power, and probably introduce a 12-horse power traction engine. The 5 course rotation is adhered to with slight deviations, seeds being grazed for two years. There are 500 acres of arable land, consequently 100 acres of fallow crop, for which alone steam cultivation is employed. Here, again, we find experience pointing out the portion of the course for which steam culture is most suitable; the deep grubbing once in a course being found sufficient, it practically assumes the character of an auxiliary and relief to horse labour in the heaviest operations. The fields are neither rectangular nor sizable, varying from 10 to 50 acres, and are more or less undulating. The climate is very moist, and hence Messrs. Nicholson considered that a stationary engine

working a windlass would prove more suitable than the traction principle. Originally the farm was much more subdivided; miles of fences have been grubbed. We have alluded to the boulder stones; these are removed before the steam tackle is worked, the ploughmen sticking up sticks where they exist: men follow and get them up.

The labour consists of—

An engineer, who is also farm smith	3*s.* a day.
Men at windlass, cultivator, and anchors, 4 at 2*s.* 6*d.*	10*s.* ,,
Porter boys, 2 at 1*s.*	2*s.* ,,
Half time water cart, say	3*s.* ,,
	18*s.*

At the present time 6 pairs of very fine horses are kept. Messrs. Nicholson consider that the cultivator relieves the farm of 3 pairs of horses; but, for reasons detailed, this is rather an approximate estimate than an actual result. The ordinary operations on the fallows are as follow:—Autumn and spring grubbings, the drag harrows being worked a double time before and after the spring cultivation; estimating the dragging as equal to one cultivation, we have 400 acres worked—a very moderate estimate. This, at an average of 5 acres a-day, gives us 80 days as the time at work. The engine does all the threshing, chaff cutting, sawing, &c. Upon these imperfect data we may venture to make a calculation.*

Cost per day.	*s.*	*d.*
Labour	18	0
Coals and oil	7	0
Repairs	4	0
†Wear and tear and interest on 400*l.*, at 12½ per cent.	12	6
	£2	1	6

Or per acre, 8*s.* 3½*d.*—very reasonable for such work; and if 6 horses are really saved we should find a handsome balance in favour of steam merely as to first cost. Now let us see as to results. Messrs. Nicholson, having so recently drained, cannot speak positively of the effect on drainage; they find, however, that the succeeding operations by horses are decidedly lightened—an evidence of a deeper soil and more even bottom. Roots can now be fed off more easily, for two reasons: no horse treading to cause a pan, and the whole surface is moved, which is not the case with horses. We quote Mr. J. Nicholson's reply as to increase of produce,—"Yes, no doubt of it." The Clover seeds are decidedly more certain, and the produce increased. We saw a remarkably promising show of seeds. With a 3-furrow plough and a more powerful engine—extra outlay which the success of the past fully justifies—Messrs. Nicholson's steam culture will be more valuable than it has proved as yet. We may add that Mr. J. Nicholson was loud in his praises of the drag harrow, with its chisel-pointed tines, and we can readily believe that to follow the grubber it will prove a very valuable implement.

FRECKLETON MARSH, NEAR PRESTON.—The Ribble Navigation Company have reclaimed about 600 acres of marsh land by confining the river so as to make it navigable for vessels of larger size. The land was let on a 21 years' lease to a company of nine professional and commercial Preston gentlemen, under the style of the Preston Farming Company (Limited). The extent of the farm altogether is about 637 acres of land, formed by deposits of both fresh and salt water floods, many feet in depth, and which had no doubt been enriched by sewage from Preston, &c. A good breadth was grown over with Grass, but, as usual in such lands, the receding tide had left many pools, varying from shallow puddles to good sized brooks. There would be 50 to 70 acres near the embankment of recently-formed land which was quite bare of sward, and on that account much less likely for growing grain. The land might have been better prepared for arable cultivation if the first year had been devoted to levelling it and getting it drier; but the cattle plague made it quite out of the question to stock it with cattle, without the prospect of severe loss; and, as the company did not like paying rent for an idle farm, operations were vigorously begun to get as much of the land under crop as possible. The manager, Mr. Daniel Ashcroft (who is also one of the partners), set four or five ploughs (each with two horses) to work, from his own teams, and hired as many more as he could. This would be about the beginning of March, 1866. A few days after they hired from the West Riding Steam Ploughing and Threshing Co. (Limited) a set of Fowler's steam ploughing tackle. At that time there was no kind of shelter on the ground; not a clump of trees to save the workmen from "the pelting of the pitiless storm;" nor even a briar bush for a lazy labourer, who likes his wages better than his work, to cower behind, when the weather looked threatening, and his master was well out of sight; but a wooden shed was soon put up; and since then the company, in addition to the regular work, have erected a commodious farm-house and a very commodious barn, with stabling for the necessary horses. As soon as the advantage of steam ploughing was seen, the company purchased a new set of Fowler's four-furrow steam plough, with the most recent improvements, and two steam engines, of 14-horse power, to work it. On the 16th April, these two sets of steam ploughs, and about 20 horse ploughs, had a prize ploughing. Seeding operations were prosecuted with energy till far too late a period in the season, and though some considerable breadth of the crops grew well, and yielded fairly, there was much of it far too late even for an ordinary season, and, as the weather became wet in July, and worsened so much that there has only been one or two more unfavourable harvests in this century, the company have had much against them in this way, and I shall not be far astray if I say that their first harvest was never finished; but markets have favoured them; diminished stocks in warehouses and failing foreign crops made their stuff marketable at good prices, poor quality though it was. While struggling to secure the crops in such weather, it must have been sickening work for the manager to see himself left behind, and such disastrous results to the grain. Besides attending to these matters, requisite implements and machinery had to be procured. This would be no little work, as the company were desirous to have the latest and most important things. Among these I saw "Cuthbert's" reaper, and the combined threshing and winnowing machine by Clayton & Shuttleworth. Materials had to be got together for the new buildings, and attention given to getting the autumn Wheat sown, as the company had decided to try some; and even in that unfavourable weather 118 acres were sown in such capital style that few Lancashire men ever saw as large and as good a plot on one farm anywhere. The weather since July has generally been unfavourable for farm operations. Till the beginning of May it has been a succession of floods and storms, frosts and snow; but the resolute manager of the farm on Freckleton Marsh did not wish to be regularly classed with the "lag-behinds," so for several weeks the steam plough has worked night and day in preparing for the spring seeding, and though there has been far too much rain for this work on most lands, there has not been much done here in that miry, puddly state which is so impoverishing both for the crop and for the ground. Potatos were nearly all set, and the Turnip land in preparation, and, when finished, they will have about 118 acres in Wheat, 120 Beans, 346 Oats, 29¾ Potatos, 83 Carrots, 12 Swede Turnips, Parsnips, and Kohl Rabi, three sundries, including buildings and a nice new orchard and garden, the latter superintended by Mr. Thos. Masheder, formerly station-master at Broughton, who, having bought himself a small estate hereabouts, fills his time up by being time-keeper, book-keeper, and gardener on the company's farm. An undertaking like this can do much good in the district. They look like having as much produce this year as a whole township of impoverished land, and it will give the neighbouring farmers an opportunity of seeing if any of the machinery is fit to be adopted in this neighbourhood. The whole farm seems to be in the way for plentiful crops and prosperity, and I don't see why the company should not succeed, though some of the real old jog-trot farmers were so alarmed with the wild projects and expensive machinery of the theoretic company of gentlemen farmers, that they said they would "Aw breik ov a lump." *A Practical Farmer in the "Preston Herald."*

* Messrs. Nicholson state that the average quantity of work per 10 hours varies from 5 acres twice over to 8 acres once in a place, and with the harrows 15 to 20 acres have been accomplished.

† 110*l.* is deducted from outlay for value of engine for other purposes than steam cultivation.

Miscellaneous.

Strike at Grantham.—A strike occurred at the works of Messrs. Hornsby, the agricultural implement manufacturers, last week. On this occasion the strike did not originate with the Trades Union Society, but arose out of some not very distinct feeling or prejudice. It seems Mr. Hempstead, a non-unionist man, has held the office of foreman of the foundry for 13 years, and vacated his post to enter upon business for himself, his brother temporarily performing his duties. The Messrs. Hornsby decided to appoint Mr. Fleetwood as his successor. This gentleman, it would appear, is not popular, at least with some of the workmen, for on Wednesday, the 17th, the moulders, numbering upwards of 70, decided to strike work if he were appointed, and on Thursday morning sent a deputation to their employers with a letter, which stated, among other objections, that Mr. Fleetwood was an enemy to both master and men, and that they had unanimously decided not to work under him. The men were afterwards asked, we hear, individually, whether they would work under Mr. Fleetwood, and repeated their determination not to do so, and have since remained unemployed. On Monday morning about 35 moulders had been obtained from other places, and expressed their willingness to work under Mr. Fleetwood. Mr. Superintendent Sharpe and two or three police officers were present when the new hands arrived, but no molestation whatever was offered to them. The newly-arrived moulders commenced work on Tuesday morning.

Notices to Correspondents.

HEIGHT OF CART: *Farmer.* A good labourer, digging a soil of ordinary consistency, will turn over more than 200 square yards, probably 2000 square feet, in a day, from 10 to 12 inches deep; he will thus turn over from 80 to 100 tons of earth per diem. The same man, if he had to fill a wheel-barrow, could not lift more than from 16 to 20 cubic yards, while if he had to throw this earth over the side of a cart or a waggon, he could not manage more than one-fifth part of the weight he lifted in the first case; and, of course, the higher the edge over which the material has to be thrown—the higher the edge of the cart or the waggon that he is filling—the more will be the labour connected with the shifting of a given weight of material. To lower the edge and bed of the vehicle 1 foot, would lessen the labour of filling it by a fifth or sixth part: a most important difference; and when, as in Stratton's Northampton cart, compared with the waggon, the difference between the levels on which the load is to be carried amounts to nearly 2 feet, the relative merits of the two, on the score of economy, appear plainly enough.

LAND DRAINAGE: *M G B.* The following is the late Mr. Paine's description of its results:—1st. Draining obliterates poor, cold clay lands, and converts them into good, workable, and productive land. 2d. It renders the ground fit for subsoiling or deep cultivation. 3d. It removes hurtful matter, and causes a circulation of nutritious matter to the roots of the plant. 4th. It increases the temperature of the soil. 5th. The mechanical texture of the soil is improved by draining. 6th. By draining, moisture is kept in reserve for the plants in dry summers. The soil itself becomes porous and retains moisture in dry weather better than where the soil was entirely impervious.

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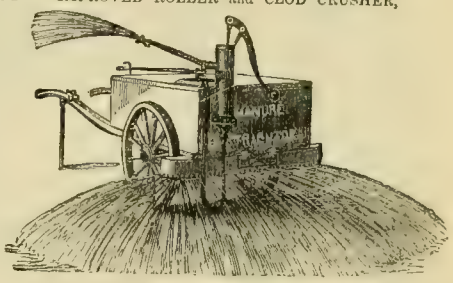
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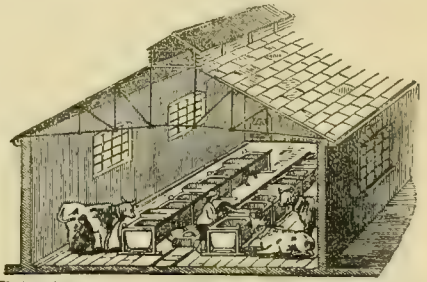
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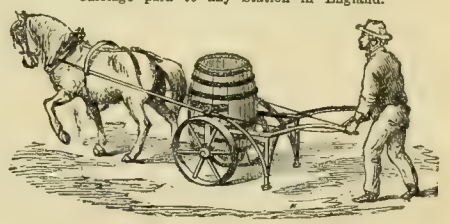
CUTTAM'S PATENT PORTABLE UNITED COW FITTINGS.

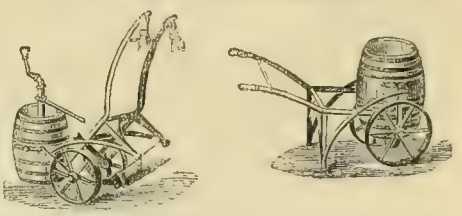


Their advantages are—Portability, not Fixtures, removable at pleasure, no Woodwork or Partitions to impede Ventilation or breed Vermin, Hay Rack dispensed with as unnecessary, increased width and depth of Feeding Troughs, Water Cistern, and Patent Drop Cover to prevent over-gorging. Cleanly, durable, and impervious to infection, being all of iron. Price of Fittings per Cow, 55*s.*

Prospectuses free of CUTTAM & Co., Iron Works, 2, Winsley Street (opposite the Pantheon), Oxford Street, London, W., where the above are exhibited, together with several important Improvements in Stable Fittings just secured by Patent.

W. S. BOULTON'S 36-gallon SWING WATER BARROW. Price 45*s.*
Carriage paid to any Station in England.





The above is very cheap and invaluable for carrying Liquids of all kinds. No Garden, Farm, Stable, or Kitchen Yard should be without one. Two or more Tubs can be had with one Carriage at a small additional cost. A Lad can easily work it; but if required to travel long distances over rough ground a Pony can be attached. The wheels and carriage are wrought iron, and the tub oak. The following, out of many Testimonials, have been received:—

From Lord OTHO FITZGERALD, *West Park, Salisbury.*

"SIR,—You are welcome to make use of my letter recommending your Water Barrow. I find it of great use, and stronger, better, lighter, and more serviceable than one I had made in the neighbourhood, the carriage alone of which, without the barrel, cost me £3 10*s.* I unfortunately ordered it before I saw your advertisement. —I am, yours obediently, "O. FITZGERALD."

"To Mr. W. S. BOULTON."

From Thos. INGLE, Esq., *M.D., Emsworth, Hants, June* 24, 1866.

"SIR,—The Swing Water Barrow is in every respect a most admirable improvement on all I have hitherto used in my Gardens. All parties who have seen it, Gentlemen as well as Gardeners, have bestowed upon it their unqualified approval, and several said they would order them of you.—Yours truly, "THOS. INGLE, M.D."

"To Mr. W. S. BOULTON."

Rose Lane Iron and Wire Works, Norwich.

HOTHOUSES for the MILLION,
CHEAP, PORTABLE, AND EASILY FIXED.
SPAN-ROOFS (over 15 feet long), glazed and painted three coats, with complete ventilation all over roof, necessary water gutters and ironwork, exclusive of ends, put on Rail in London, Gloucester, Coventry, Ulverstone, Paisley, or Aberdeen; 10 to 16 feet wide *inside*, at 16s. to 24s. per foot run. Illustrated Circulars, with *definite prices* and sizes, free on application to
HEREMAN & MORTON, 7, Pall Mall East, London, S.W.

HOT-WATER APPARATUS, of every description, fixed complete in any part of the country, or the materials, viz., Boilers, Pipes, &c., delivered to any Station.
Estimates on application.
J. JONES & SONS, 6, Bankside, Southwark, London, S.E.

Heating by Hot Water.
W. J. HOLLANDS, IRON MERCHANT, 31, Bankside, London, S.E.
HOT WATER PIPES, from Stock, per yard:—2-inch, 1s. 1½d.; 3-inch, 1s. 9d.; and 4-inch, 2s. 3d. BENDS, from Stock, 1s. 6d., 2s. 6d., and 3s. each. THROTTLE VALVES, 10s., 13s., and 14s. each. Other Connexions at equally low prices, and all goods of first-class manufacture. Estimates given, and orders by post punctually attended to the same day.

Heating by Hot Water.
HOT-WATER PIPES, at Wholesale Prices, with Elbows, Syphons, Tee-Pipes, and every other connection; Wrought and Cast-Iron Boilers, Saddle, Conical, Cylinder, Tubular, and Elliptic, from 24s. each. Improved Boilers and Iron Stands to use without brickwork, 60s. each. Valves from 10s. 6d. each. Patent Valves, Improved Furnace Doors, Furnace Bars, Supply Cisterns, and Castings of every description in stock, at
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Hot-water Pipes, with Elbows and Connections, supplied by BURY AND POLLARD. Contracts and Estimates given for WARMING PUBLIC BUILDINGS; latest Improvements in HEATING by HOT WATER; the Improved CONICAL BOILERS, for Heating Pineries, Conservatories, Greenhouses, Mansions, Halls, Warehouses, &c., Solely Manufactured by BURY & POLLARD. These Boilers are adapted for setting in Brickwork, or annexed Sketch shows BURY & POLLARD'S improved arrangement, requiring
NO BRICKWORK SETTING.
These Boilers have for their durability and economy attained a celebrity far surpassing any other Boilers ever invented. They have been for many years past in use at many Public Establishments, Royal Botanical Gardens at Kew, at the Regent's Park, the Crystal Palace, and at most of the Nobility's and Gentry's Seats throughout the United Kingdom. References where they have been for 20 years in constant use.
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CRANSTON'S PATENT BUILDINGS for HORTICULTURE.
"Dry Glazing without Putty."
"Glass without Laps."
"Ventilation without Moving Lights."
Highly Commended by the Royal Horticultural Society, South Kensington.



Plans and Estimates free on application. Descriptive Book fully illustrated, post free for 20 stamps, from the Author and Patentee, JAMES CRANSTON, Architect, Birmingham.
Works: Highgate Street, Birmingham.
HENRY J. GROWTAGE, Manager, 1, Temple Row West, Birmingham.

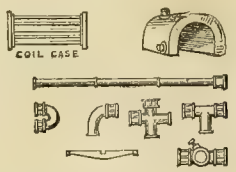
Greenhouses—Heating Apparatus.
DUBLIN EXHIBITION



1865.

THE ONLY PRIZE MEDAL AWARDED for Various Improvements in the Ventilation, Construction, and Application of WROUGHT-IRON to Horticultural Buildings.
OUR PATENT WROUGHT-IRON PRIZE MEDAL CONSERVATORIES are of the highest order.
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OUR PATENT WROUGHT-IRON PRIZE MEDAL VINERIES promote vigorous growth and richness of colour.
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OUR PATENT PRIZE MEDAL FORCING HOUSES are eminently superior for all early work.
OUR PATENT WROUGHT-IRON PRIZE MEDAL STRAWBERRY HOUSES admit a complete flood of air and light.
The above Patent Houses can be glazed with or without putty.
These Houses are now protected by three Royal Letters Patent, and from the complete adjustment of their constructional parts will vie most favourably with Wood Structures in point of cost.
Designs and Estimates prepared for single or complete ranges of Houses in Wood or Iron.
Illustrated Catalogues on application to the Patentees,
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COTTAM AND COMPANY,
CONSERVATORY and HOTHOUSE BUILDERS, &c.,
Iron Works, 2, Winsley Street, Oxford Street, London, W.
SADDLE BOILERS.
20 24 30 inches long.
45s. 65s. 92s. 6d. each.
HOT-WATER PIPES.
2 3 4 inch.
1s. 6d. 2s. 1d. 2s. 9d. per yard.
Materials supplied as above, or Estimates given for complete to Plan, on application to
COTTAM & Co.,
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(opposite the Pantheon),
Oxford Street, London, W.



SHAW'S TIFFANY.
For samples and prices apply to
J. SHAW & Co., 29, Oxford Street, Manchester.

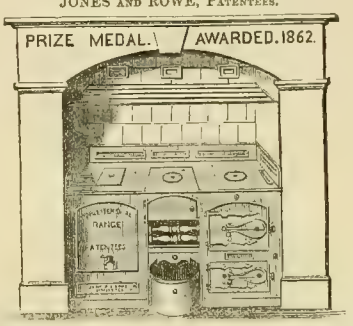
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HAYTHORN'S HEXAGON and CHISWICK GARDEN NETS are guaranteed to Protect all kinds of Fruit from Wasps, Birds, Flies, &c. They are used and recommended by all the principal Gardeners. For Testimonials, Patterns, and Reduced Prices, free by post, please direct to
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JOHN EDGINGTON AND CO. supply TANNED NETTING for the Protection of Fruit Trees, 1d. per square yard. Any quantity. SCRIM CANVAS, &c.; TULIP COVERS and GREENHOUSE SHADES, SUN BLINDS, &c MARQUEES, TENTS, and FLAGS for FÊTES, FLOWER SHOWS, &c.
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NETTING for FRUIT TREES, SEED BEDS, RIPE STRAWBERRIES, &c.—TANNED NETTING for protecting the above from Frost, Blight, Birds, &c., 2 yards wide, 3d. per yard, or 100 yards, 20s.; 4 yards wide, 6d. per yard, or 50 yards, 20s. NEW TANNED NETTING, suited for any of the above purposes, or as a Fence for Fowls, 2 yards wide, 6d. per yard; 4 yards wide, 1s. per yard; ½-inch mesh, 4 yards wide, 1s. 6d. per yard. Can be had in any quantity of
EATON & DELLER 6 and 7, Crooked Lane, London Bridge, E.C.

GARDEN NETTING (at Reduced Price) for the Protection of Fruit Trees from Frost, Blight, and Birds, also as a Fence for Poultry, Rabbits, and Sheep, 1d. per square yard, carriage free, in quantities of 250, 500, or 1000 yards.
SCRIM CANVAS for Wall Fruit, Greenhouse Shades, Tulip Covers.
RICK COVERS, with Poles and Ropes complete, for Sale or Hire.
Several Second-hand, cheap.
Be particular, FREDK. EDGINGTON & Co., Marquee, Tent, and Flag Manufacturers, 60 & 62, Old Kent Road, London, S.E.
A liberal discount to the Trade.

WORCESTER KITCHEN RANGE.
JONES AND ROWE, PATENTEES.



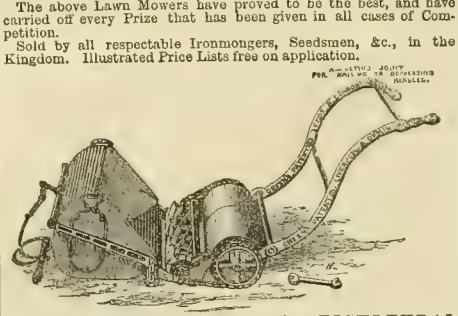
The most approved Cooking Apparatus yet introduced, combining the advantages of an open Fire Range, Hot Plate, and other appliances, adapted for small or large establishments.
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GREEN'S IMPROVED NEW PATENT GARDEN ROLLER.
The above Rollers possess many advantages over all others. They are made in two parts, and are free to revolve on the axis, affording greater facilities for turning, and the outer edges are rounded off or turned inwards, thus avoiding the unsightly marks left by other Rollers.

Diameter, 30 inches; Length	32 inches,	£7	10	0
,, 24 ,, ,,	26 ,,	4	10	0
,, 20 ,, ,,	22 ,,	3	10	0
,, 16 ,, ,,	17 ,,	2	15	0

Prices for Rollers fitted with Shafts suitable for Pony or Horse Power, free on application.
Delivered carriage paid to all the principal Railway Stations and Shipping Ports in England.
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N.B. All Orders executed on the day they are received.

PRIZE MEDALS AWARDED to GREEN'S PATENT LAWN MOWERS.
INTERNATIONAL EXHIBITION, LONDON, 1862.
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The above Lawn Mowers have proved to be the best, and have carried off every Prize that has been given in all cases of Competition.
Sold by all respectable Ironmongers, Seedsmen, &c., in the Kingdom. Illustrated Price Lists free on application.



AGRICULTURAL and HORTICULTURAL IMPLEMENTS and MACHINES of every description.
IMPROVED IRON STABLE FITTINGS.
HURDLES and CONTINUOUS IRON and WIRE FENCING.
Palisading Entrance and Field Gates. Plain and Galvanised Wire Netting.
GREEN'S PATENT LAWN MOWERS and GARDEN ROLLERS.
Garden Engines, Syringes, Water Barrows, Ornamental Garden Seats, Chairs, Tables, Iron Fountains, Vases, &c.
IRON and BRASS BEDSTEADS, in great variety.
Washing, Wringing, and Mangling Machines.
IMPROVED SAUSAGE MACHINES and FILLERS,
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E. T. ARCHER'S "FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, and Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, &c.
PROTECTION from the SCORCHING RAYS of the SUN.
"FRIGI DOMO" NETTING, White or Brown, made of prepared Hair and Wool, a perfect non-conductor of heat or cold, keeping a fixed temperature where it is applied. It is adapted for all Horticultural and Floricultural purposes, for Preserving Fruits and Flowers from the Scorching Rays of the Sun, from Wind, from Attacks of Insects, and from Morning Frosts. To be had in any required lengths.
"FRIGI DOMO" NETTING, 2 yards wide, 1s. 6d. per yard run.
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Two yards wide .. .. 1s. 9d. per yard run.
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An improved make, 2 yards wide .. 1s. 9d. per yard.
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ELISHA THOMAS ARCHER, Whole and Sole Manufacturer, 7, Great Trinity Lane, Cannon Street, City, E.C., and of all Nurserymen and Seedsmen throughout the Kingdom.
"It is much cheaper than Mats as a covering."

JAMES PHILLIPS AND CO. beg to submit their prices as follows:—
GLASS for ORCHARD HOUSES,
As supplied by them to Mr. Rivers, to the Royal Horticultural Society, and to most of the Nobility, Clergy, and Gentlemen of the United Kingdom.
Each Box contains 100 feet. The prices only apply to the sizes stated.
Squares 20 by 12, 20 by 13, 20 by 14, 20 by 15.

	16 oz. to the foot.	21 oz.
Fourth quality	19s. 6d.	
Third ditto	17s. 0d.	22s. 6d.
Seconds	18s. 6d.	26s. 0d.
English	20s. 0d.	27s. 0d.

The above prices include the boxes, which are not returnable.
HORTICULTURAL GLASS.
Stock sizes, 16-oz., in 100 feet boxes, boxes included.
These prices only apply to the sizes stated.

				4ths.	3rds.	2nds.
				s. d.	s. d.	s. d.
11 by 9	12 by 9	13 by 9	14 by 9	13 6	15 6	17 0
12 ,, 10	13 ,, 10	14 ,, 10	15 ,, 10			
13 ,, 11	14 ,, 11	..	..			
14 ,, 12	15 ,, 12	15 ,, 11	16 ,, 11			
18 ,, 12	19 ,, 12	16 ,, 12	17 ,, 12			
16 ,, 13	17 ,, 13	20 ,, 12	..	15 0	17 0	18 6
16 ,, 14	20 ,, 13	18 ,, 13	..			
	17 ,, 14	18 ,, 14	..	16 to 17 oz. to the foot.		
	20 ,, 14					

SMALL SHEET SQUARES.
In 100 feet Boxes.

6 by 4	6½ by 4½	7 by 5	7½ by 6½	.. 12s. 6d.
8 by 6	8½ by 6⅝	9 by 7	9½ by 7½	
		10 by 8	10½ by 8½	.. 13s. 6d.

Boxes 2s. each, returnable at full price.
London Agents for HARTLEY'S IMPROVED PATENT ROUGH PLATE.
LINSEED OIL, Genuine WHITE LEAD, CARSON'S PAINTS, PAINTS of various colours, ground ready for use.
SHEET and ROUGH PLATE GLASS, SLATES of all sizes, BRITISH PLATE, PATENT PLATE, ROLLED PLATE, CROWN, SHEET, HORTICULTURAL, ORNAMENTAL, COLOURED, and every description of GLASS, of the best Manufacture, at the lowest terms. Lists of prices and estimates forwarded on application to
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Horticultural Glass Warehouse.
THOMAS MILLINGTON AND CO., 87, Bishopsgate Street Without, London, E.C.
NEW LIST for ORCHARD HOUSE GLASS as supplied to Her Majesty, the Nobility, Gentry, Mr. Rivers, and the leading Horticulturists of the United Kingdom.
ORCHARD HOUSE SIZES.

in. in.		4ths.	3rds.	2nds.	Best.
20 by 12					
20 by 13					
20 by 14	Per 100 feet 15 oz.	14s 3d	15s 6d	18s 6d	20s 0d
20 by 15					
20 by 16	21 oz.	19s 6d	22s 2d	25s 6d	26s 6d

SMALL SHEET SQUARES, 15 oz., per 100 feet.

in.	in.	in.	in.	in.	in.	in.	in.	4ths.	3ds.	2nds.	Best.
6 by 4	7 by 5	8 by 6	9 by 7					12s 3d	13s 3d	16s 0d	18s 0d
6½ by 4½	7½ by 5½	8½ by 6½	9½ by 7½								

Per 100 feet.

10 by 8	12 by 9	12½ by 10½	14½ by 10½								
10½ by 8½	12½ by 9½	13 by 10	15 by 10								
11 by 9	13 by 9	13½ by 10½	13 by 11					13s 3d	14s 6d	17s 3d	19s 0d
11½ by 9½	12 by 10	14 by 10	14 by 11								

LARGE SHEET SQUARES, 15 oz., per 100 feet.

in.	in.	in.	in.	in.	in.	in.	4ths.	3ds.	2nds.	Best
15½ by 10½	14 by 12	22 by 12	22 by 16							
16 by 10	14½ by 12½	17 by 13	24 by 16							
14½ by 11½	15 by 12	23 by 13	20 by 17							
15 by 11	15½ by 12½	18 by 14	22 by 17							
15½ by 11½	16 by 12	22 by 14	24 by 17				14s 3d	15s 6d	18s 6d	20s 0d
16 by 11	16½ by 12½	24 by 14	20 by 18							
21 by 11	17 by 12	22 by 15	22 by 18							
13 by 12	18 by 12	24 by 15	24 by 18							

The above Prices are only for the Sizes stated; if a quantity of any other Size be required, a Special Price will be given.
SHEET GLASS.
In Sheets for Cutting up, averaging from 6 to 9 feet super.

16 oz.		21 oz.	
4ths quality, per 300 feet case,	38s.	4ths quality, per 200 feet case,	38s.
3ds ,, ,,	48s.	3ds ,, ,,	48s.
2ds ,, ,,	62s.	2ds ,, ,,	66s.
Best ,, ,,	92s.	Best ,, ,,	96s.

SHEET GLASS is made only in the following substances, 15 oz., 21 oz., 26 oz., 32 oz., 36 oz., and 42 oz.
HARTLEY'S IMPROVED ROLLED ROUGH PLATE in 1-8th in., 3-16th in., 1-4th in., and 3-8th in. substances.
BRITISH PLATE GLASS for Windows and Silvered for Looking Glasses, Coloured Glass, Glass Shades, Striking Glasses, &c., &c.
PAINTS, COLOURS, VARNISHES, &c.
STUCCO PAINT, 24s. per cwt. This Paint adheres firmly to the walls, resists the weather, and is free from the glossy appearance of Oil Paint, resembling a stone surface, and can be made any required shade. It is mixed with rain or pure river water.
WHITE ZINC PAINT, 36s. per cwt. One hundredweight of pure Zinc Paint, with three gallons of Linseed Oil, will cover as much as one hundredweight and a half of White Lead and six gallons of Linseed Oil. Special Dryers for this Paint.
IMPROVED ANTI-CORROSION PAINT, 28s. to 34s. per cwt. Anti-corrosion Paint is extensively used for all kinds of work in exposed situations, on Brick, Stone, Compo, Iron, Iron Bridges, Conservatories, Greenhouses, &c., and is easily laid on by any ordinary workman. Prepared Oil for ditto, 4s. per gallon,

Per cwt.—s. d.		Per gallon.—s. d.	
GENUINE WHITE LEAD	32 0	LINSEED OIL	3 4
SECONDS WHITE LEAD	30 0	BOILED OIL	3 9
GROUND PATENT DRYERS, 3d. to 4½d. per lb.		TURPENTINE	3 0
,, OXFORD OCHRE, 3d. to 4½d. per lb.		LINSEED OIL PUTTY, 8s. to 9s. per cwt.	
,, RAW UMBER, 4½d. to 6d. per lb.		Fine OAK VARNISH, 10s. to 12	0
,, BURNT do., 6d. to 9d.		,, CARRIAGE do., 12s. to 14	0
GREEN PAINT, all shades, 28s. to	60 0	,, PALE do. 16s. to 20	0
BLACK PAINT, 24s. to	36 0	,, COPAL	16 0
RED PAINT .. 28s. to	36 0	,, KNOTTING	10 0
GROUND BRUSHES.		Patent GOLD SIZE ..	10 0
DUSTERS. SASH TOOLS.		,, BLACK JAPAN ..	12 0
DISTEMPER BRUSHES.		GLAZIER'S DIAMONDS and TOOLS	
		MILLED LEAD and PIPES	
		OLD LEAD Bought or taken in exchange.	

The above are Net, for Cash, and as such cannot be booked.
Lists of any of the above on application.

The New Furnace Bar
(WARRINER'S PATENT).

THIS BAR is particularly adapted to FIRES for VINERIES, GREENHOUSES, &c., and all FURNACES worked on the principle of slow combustion. The saving of Fuel effected is very great; nearly all the Smoke is consumed if care be taken, and the fire can be so regulated that any temperature desired can be kept up for at least 12 hours without stoking or further trouble. Any Bricklayer can set up these Bars without deranging much of the brickwork. They are in use in many Conservatories, and give the highest satisfaction. Testimonials will be forwarded on application to the Proprietors,

The Ventilating Furnace Bar Company, Limited, 9, Mincing Lane, London, E.C.

Specimens of these Bars may be seen in the Eastern Arcade of the Horticultural Gardens, South Kensington.

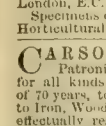
CARSON'S ANTI-CORROSION PAINT, Patronised by the Nobility and Gentry, is extensively used for all kinds of OUT-DOOR WORK, and is proved, after a test of 70 years, to surpass any other Paint. It is especially applicable to Iron, Wood, Stone, Brick, Compo, and is the only Paint that will effectually resist the rays of the sun upon Conservatories, Greenhouses, Frames, &c. Is twice as durable as genuine White Lead, so simple in application that any person can use it. Per cwt.

WHITE, LIGHT STONE, BATH, and LIGHT PORTLAND COLOURS .. .. 30s.
LEAD, CHOCOLATE, RED, PURPLE, BROWN, and BLACK .. 28s.
BRIGHT GREEN, DEEP GREEN, and BLUE .. .. 42s.

Prepared OIL MIXTURE for the ANTI-CORROSION. OILS, TURPENTINE, VARNISHES, BRUSHES, &c.

3 cwt. Free to all Stations in England and Wales, and most Ports of Ireland and Scotland. Patterns and Testimonials sent post free.

WALTER CARSON & SONS,
La Belle Sauvage Yard, Ludgate Hill, London, E.C.
CAUTION.—All Casks should bear the Trade Mark. No Agents.

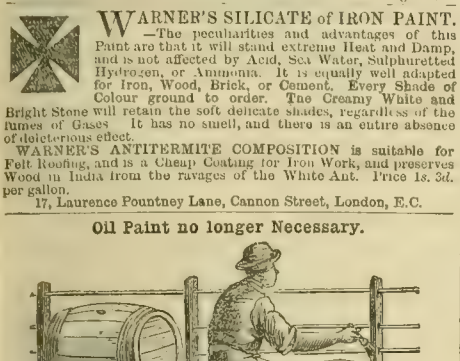


WARNER'S SILICATE of IRON PAINT. —The peculiarities and advantages of this Paint are that it will stand extreme Heat and Damp, and is not affected by Acid, Sea Water, Sulphuretted Hydrogen, or Ammonia. It is equally well adapted for Iron, Wood, Brick, or Cement. Every Shade of Colour ground to order. The Creamy White and Bright Stone will retain the soft delicate shades, regardless of the fumes of Gases It has no smell, and there is an entire absence of deleterious effect.

WARNER'S ANTITERMITE COMPOSITION is suitable for Felt Roofing, and is a Cheap Coating for Iron Work, and preserves Wood in India from the ravages of the White Ant. Price 1s. 3d. per gallon.

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BEDSTEADS, BATHS, and LAMPS.—WILLIAM S. BURTON has Twelve Large Show Rooms devoted exclusively to the separate display of Lamps, Baths, and Metallic Bedsteads. The stock of each is at once the largest, newest, and most varied ever submitted to the public, and marked at prices proportionate with those that have tended to make his Establishment the most distinguished in this country.

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	Fiddle or Old Silver Pattern.	Bead Pattern.	Thread Pattern.	King's or Shell and Thread.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.
12 Table Forks	1 13 0	2 0 0	2 4 0	2 10 0
12 Table Spoons	1 13 0	2 0 0	2 4 0	2 10 0
12 Dessert Forks	1 4 0	1 10 0	1 12 0	1 15 0
12 Dessert Spoons	1 4 0	1 10 0	1 12 0	1 15 0
12 Tea Spoons	0 16 0	1 0 0	1 2 0	1 5 0
6 Egg Spoons, gt. bowls..	0 10 0	0 12 0	0 12 0	0 13 6
2 Sauce Ladles	0 6 0	0 8 0	0 8 0	0 9 0
1 Gravy Spoon	0 6 6	0 9 0	0 10 0	0 11 0
2 Salt Spoons, gt. bowls..	0 3 4	0 4 0	0 4 0	0 4 6
1 Mustard Spoon, gt. bwl.	0 1 8	0 2 0	0 2 0	0 2 3
1 Pair of Sugar Tongs ..	0 2 6	0 3 6	0 3 6	0 4 0
1 Pair of Fish Carvers ..	1 4 0	1 10 0	1 10 0	1 10 0
1 Butter Knife	0 2 6	0 4 0	0 5 6	0 6 0
1 Soup Ladle	0 10 0	0 12 0	0 16 0	0 17 0
1 Sugar Sifter	0 3 3	0 4 6	0 4 6	0 5 0
Total	9 19 9	12 9 0	13 9 6	14 17 3

Any article to be had singly at the same prices. An oak chest to contain the above, and a relative number of knives, &c., 2l. 15s. Tea and coffee sets, dish covers and corner dishes, cruet and liqueur frames, &c., at proportionate prices. All kinds of replating done by the patent process.

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Illustrated Pamphlet, and all particulars gratis, on application to GOLDSMITHS' ALLIANCE (LIMITED), 11 & 12, Cornhill, London, E.C.

JOHN GIBSON, JUN., begs to announce that he is prepared to Furnish PLANS and ESTIMATES for LAYING OUT GROUND attached to Mansions and Villa or other Residences, or for the FORMATION of PUBLIC PARKS or GARDENS and to carry out the same by Contract or otherwise.

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GEORGE F. MORRIS (of the Firm of PROTHEROE & MORRIS) undertakes SALES and VALUATIONS of FREEHOLD LANDED ESTATES, Leasehold and Reversionary Property of every description, Farming and Market Garden Produce, Household Furniture, Stock in Trade, &c.

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MR. DRUCE offers for SALE, by Private Contract, this Season, about 30 SHEARLINGS, and a few TWO-SHEAR OXFORD-DOWN RAMS, which may be seen at any time, as well also THE FLOCK on the Farm. The Sheep have not been housed.

Eynsham, Oxford, July, 1867.

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GREY DORKING FOWLS, of purest breed, in any numbers.

Imported TOULOUSE GEESE, the largest and most productive breed known.

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AYLESBURY and ROUEN DUCKS.

Imported BELGIAN HARE RABBITS, for size and early maturity.

BRAHMA-POUTRA, CREVECŒUR, and LA FLECHE FOWLS, for constant layers.

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Reply early to A. B., 29, Charles Street, St. James's, London.

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Apply to Mr. FRINGLE, Nurseryman, Norwood, Surrey, S.

FOR DISPOSAL, a First-class NURSERY and SEED BUSINESS; or the present Proprietor would accept of a WORKING PARTNER with a Capital of not less than £1500.

Apply by letter to E., Messrs. Hurst & Son, 6, Leadenhall Street London, E.C.

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ON LEASE, an attractive compact detached RESIDENCE, beautifully situate, with Garden richly adorned with Choice Flowering Shrubberies and Foliage, two Conservatories and Outbuildings, Four Bed-rooms, Dressing-room, Dining and Drawing-rooms, excellent Offices, &c. The fine Collection of Plants in pots may be taken at a valuation.

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To Market Gardeners and Others.

TO BE LET, by Tender, from Michaelmas next, a HOUSE, BARN, BUILDINGS, and 18 ACRES, 2 ROODS, and 30 PERCHES, or thereabouts, of LAND; now in the occupation of Mr. Stephen Plumbley, at Langley. The above is near to the fast improving town of Eastbourne, and convenient by rail to the markets of Hastings and Brighton. Offers in writing to be addressed to Mr. JOHN KENNETT, Lion House, Eastbourne, Sussex, on or before the 20th of August next.—July 17, 1867.

WITH POSSESSION at MICHAELMAS NEXT, in consequence of the death of the late occupier, the old established and well-known NURSERY GROUNDS at HEDENHAM, NORFOLK, called THE ROSARY, for upwards of 30 years in the occupation of Mr. R. B. Bircham, deceased, to which are attached a good road-side Inn and Premises, doing a quiet and respectable business and about 30 Acres of Arable and Meadow Land.

The above occupation offers a rare opportunity, and is well worth the attention of Nurserymen and Florists, who will immediately enter upon the advantages of the late Mr. Bircham's old and well established Nursery business—the Nurseries being well adapted for the cultivation of Roses and other plants connected with Horticulture. For further particulars apply to

CHARLES HORNOR, Esq., Queen Street, Norwich.

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WILLIAM DEAN, having determined on residing in London again, offers for SALE, with immediate possession, the NURSERY at SHIPLEY, consisting of Four Acres, with 13 extensive Glass Houses, the whole, with the Nursery well stocked, and with Dwelling House, &c., is held on Lease; also the SEED SHOP, in BRADFORD (the only one in the town), which is well fitted up, and where there is a good business doing in Fancy Articles, as well as Seeds, Cut Flowers, Flowering Plants, &c. The Nursery is 2½ miles from the Shop, on a principal road to Bradford. A half year's business is equivalent to the purchase money required, and will be a great bargain to the purchaser. It is an excellent opportunity for a large house in the South to establish a Branch Business here, as a good healthy Trade is already done, which may be very much increased. For particulars apply to

WILLIAM DEAN, Bradford Nursery, Shipley, Yorkshire.

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FINE PAVILION FOR PLEASURE GROUNDS OR EXTENSIVE GARDENS.

MESSRS. TROLLOPE desire to invite attention to the large and handsome IRON BUILDING, designed by an eminent Architect, who prepared Special Drawings and Superintended the Modelling of every part, the strength of the whole being determined and tested by Engineers mainly engaged in the production of Iron Structures. The Building is of noble proportions, and is about 80 feet long by 40 feet wide; it presents a most ornamental and pleasing object. It was originally prepared for the East, but it is highly calculated for the reception of Hardy Plants, Statuary, Bronzes, &c., and to be used as a Saloon for Déjeûners, Fêtes, or Dancing. It is to be SOLD at a considerable reduction from the cost price. It is temporarily erected by permission in the Grounds of the Horticultural Gardens.

Full particulars to be had at the Office of Messrs. TROLLOPE, Halkin Street West, where a Photograph can be seen.

Sales by Auction.

Imported Orchids.

MR. J. C. STEVENS will INCLUDE in his SALE, at his Great Rooms, 38, King Street, Covent Garden, W.C., on SATURDAY, August 3, Imported ORCHIDS, consisting of fine masses of VANDA CRISTATA, VANDA ROXBURGHII, and SACCOLABIUM PRÆMORSUM.

On view the Morning of Sale, and Catalogues had.

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MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on SATURDAY, August 3, at half-past 12 o'Clock precisely, First-class Established ORCHIDS, comprising most of the best varieties in cultivation, many of which are fine Plants, in excellent health, and well worthy of attention, including—

Calanthe Veitchii
Cattleya exoniensis
,, labata
,, Wageneri
,, Warneri
,, labiata
Vanda coerulea
,, cristata
Odontoglossum Phalænopsis
,, Pescatorei
,, Alexandræ
,, nævium, &c.
Oncidium Krameriannm
Cymbidium eburneum
Cypripedium levigatum
,, Stonei
Pleione humilis
,, lagenaria
Dendrochilum filiforme
Barkeria spectabilis
Pescatorea cerina
Trichopilia crispa
Epidendrum sceptrum
Cattleya Dowii, &c.

On view the Morning of Sale, and Catalogues had.

New Plant.

MR. J. C. STEVENS will INCLUDE in his SALE, at his Great Rooms, 38, King Street, Covent Garden, W.C., on SATURDAY, August 3, the Entire Stock of a NEW ASTREPHIA, from Bogota, comprising five Established Plants and one Cutting. To be SOLD in ONE LOT, without Reserve.

On view the Morning of Sale, and Catalogues had.

Leytonstone, Essex.—Important Clearance Sale.

To MARKET GARDENERS, FARMERS, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS have received instructions from John Whittingham, Esq., to SELL by AUCTION, on the Premises, The Farm, Leytoustone, Essex, on FRIDAY, August 2, at 12 o'Clock (the ground being required to be cleared for building purposes), the valuable GROWING CROPS, extending over 39 Acres; also the LIVE and DEAD FARMING STOCK, comprising: 2 Cart Horses, 6 Store Pigs, and a Sow in Pig, Coleman's Wrought Iron Scarifier, Furrow Roller, 5 Tumbril Carts, Corn Dressing Machine, Sieves, and Fan, quantity of Tools, Shanks' Patent Lawn Mower, 1 and 2-light Boxes, and other Effects.

May be viewed prior to the Sale. Catalogues had on the Premises, and of the Auctioneers and Valuers, Leytonstone, N.E.

Brentford Road, Kew Bridge.

IMPORTANT SALE OF NEWLY-ERECTED GREENHOUSES, PITS, BOXES, BRICKS, HOT-WATER PIPING, &c.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. William Drewett to SELL by AUCTION, without reserve, on the Premises, The Market Garden and Nursery Grounds, Brentford Road, Kew Bridge, on MONDAY, August 19, at 11 o'Clock (the Lease expiring at Michaelmas next), 3 Newly-Built Span-roof GREENHOUSES, 90 feet by 12 feet over; 3 excellent three-quarter Span-roof GREENHOUSES, 120 feet, 60 feet, and 96 feet in length; 3 Ranges of Pits, each 90 feet long by 7 feet; sundry other Pits and Glazed Lights; also about 2000 feet 2 and 3-inch, but principally 4-inch, Hot-Water Piping; Ormson's Tubular 5-feet Boiler, 4 other Boilers, 1000 Casts of Pots, Bricks, Tiles, Drain Pipes, Sign Board, and other Effects.

The Glass Erections are in excellent condition, built of the best materials, and being many thousand feet, offer a capital opportunity!

May be viewed prior to the Sale. Catalogues had on the Premises, and of the Auctioneers and Valuers, Leytonstone, N.E.

Duncombe Park, Yorkshire.

IMPORTANT SALE OF FIRST-CLASS SHORTHORNS.

MR. STRAFFORD begs to announce that he has received instructions to offer for SALE by AUCTION, without reserve, at Duncombe Park, Helmsley, on TUESDAY, August 6 (the day previous to the Yorkshire Show at Thirsk), 35 HEAD of SHORTHORNED BULLS, COWS, and HEIFERS, bred by the late Lord Feversham. The foundation of this famed Herd was laid more than 50 years ago by purchases from Messrs. C. & R. Colling, and other eminent Breeders; for the last 20 years Mr. Bates's Bulls and their descendants have principally been used, and numerous Prizes won by it at the Royal Agricultural Society, the Yorkshire, and Local Shows.

Catalogues, with Pedigrees, may be had on application to Mr. STRAFFORD, 13, Euston Square, London, N.W.; or of Mr. MCLAUGHLIN, Duncombe Park Office, Helmsley, Yorkshire.

Shropshire Sheep.

MR. JOHN B. LYTHALL (Secretary to the Birmingham Cattle Show) respectfully invites attention to the following important SALES of pure-bred SHROPSHIRE SHEEP, Catalogues and full particulars of which may be obtained on application at the Auctioneer's Offices, 39, New Street, Birmingham.

Shropshire Sheep.

THE LEESE FARM, STAFFORD.

MR. JOHN B. LYTHALL will SELL by AUCTION, on TUESDAY, July 30, 25 SHEARLING RAMS, 3 older RAMS, about 20 RAM LAMBS, and 25 splendid BREEDING EWES, of "Patentee" blood, the property of Mr. S. Byrd, whose unrivalled reputation as a successful breeder of Shropshires will be fully maintained by the specimens shown this year.

Shropshire Sheep.

THE LEESE FARM, STAFFORD.

MR. JOHN B. LYTHALL (Secretary to the Birmingham Cattle Show) is instructed to SELL, on TUESDAY, July 30, immediately after Mr. S. Byrd's Sheep—Fifty excellent Breeding SHROPSHIRE EWES, the property of Mr. Frederic Byrd.

Shropshire Sheep.

HOLLY BANK, NEAR BURTON-UPON-TRENT.

MR. JOHN B. LYTHALL will SELL by AUCTION, on TUESDAY, August 6, 30 SHEARLING and older RAMS and 60 BREEDING and SHEARLING EWES, the property of Willoughby Wood, Esq.

At the same time will be SOLD two highly-descended young SHORTHORN BULLS.

The high and exposed situation on which these sheep are bred renders them particularly hardy in their constitution.

Shropshire Sheep.

ELFORD FARM, TAMWORTH.

MR. JOHN B. LYTHALL will SELL by AUCTION, on WEDNESDAY, August 7, 35 SHEARLING and older RAMS, and 120 BREEDING and SHEARLING EWES, the property of Mr. G. A. May.

Shropshire Sheep.

THE SIXTH ANNUAL GREAT CENTRAL SALE at BINGLEY HALL, BIRMINGHAM.

MR. JOHN B. LYTHALL will SELL by AUCTION, on THURSDAY, August 8, SHROPSHIRE RAMS and EWES, the property of several eminent Breeders, including the Right Hon. Lord Wenlock, Charles Randell, Esq., Messrs. Braun, Briscoe, P. Lowe, Nock, Pilgrim, Steedman, Lythall, &c.

Entries should be forwarded at once, that the same may be properly advertised.

Shropshire Sheep.

THE MOUNT, GRENDON, NEAR ATHERSTONE, WARWICKSHIRE.

MR. JOHN B. LYTHALL will SELL by AUCTION, on FRIDAY, September 6, 40 SHEARLING and older RAMS, and 120 STOCK and SHEARLING EWES, the property of Mrs. Baker.

The Grendon Flock is fully up to its usual high standard of general excellence.

Shropshire Sheep.

PIPE PLACE, NEAR LICHFIELD.

MR. JOHN B. LYTHALL will SELL by AUCTION, on FRIDAY, September 13, 50 SHEARLING and TWO-SHEAR RAMS, and 120 STOCK and SHEARLING EWES, the property of Mr. J. H. Bradburne.

The Owner particularly invites an early inspection of his Sheep.

BROWN AND POLSON'S

CORN FLOUR

FOR

CHILDREN'S DIET.

BROWN AND POLSON'S

CORN FLOUR.

The Best Quality at 8d. is supplied by most respectable Grocers. To obtain extra Profit by the Sale, counterfeit cheap kinds are sometimes substituted instead of BROWN and POLSON'S.

BROWN AND POLSON'S

CORN FLOUR.

REMARKS ON THE DIETARY VALUE OF CORN FLOUR.

We not unfrequently meet with persons who, with much self-complacency, affect a lofty disregard of what they eat; and who boast that, in order to keep their appetites in subjection, they systematically and on principle eat whatever is set before them, quite irrespective of its character or fitness for the circumstances under which they live, endeavouring thus to carry out the recommendation of Solomon to eat only for strength, not for pleasure. The gratification of the sense of taste, however, serves a much higher purpose than is commonly supposed, for, as a general rule, if the appetite be not blunted or perverted by excessive indulgence, our tastes and our requirements are very closely related, so that, in man's natural state, taste becomes as it were a sort of instinct, and takes rank as one of God's providences for the preservation of our health. In this way we may explain what is matter of common observation, that a man's taste varies with his age, habits, and circumstances of life. At one time he wishes for, at another scarcely bears the sight of fat; sometimes he craves for animal, at other times for vegetable food. Indeed, the feelings of hunger and thirst, which have reference to quantity rather than quality, are not more evidently instinctive than is taste, which regards only the quality of food. As a guide, it may be safely trusted both as to food and drink, if only we listen to its simple teaching, and do not abuse its confidence.

In no other way than the above can we explain the very remarkable varieties in the food consumed in different climates; witness the Laplander with his mass of blubber, or the inhabitant of the Tropics with his refreshingly cool and juicy fruit. In both these instances taste assumes the part of instinct, and guides the possessor to the selection of a diet which his circumstances render necessary. Hence taste becomes the handmaid of science, and points to a law in the dietary of individuals, telling them what they ought to eat, drink, and avoid. It suggests variation under varying conditions, and notably so in regard to temperature; for, from the two great divisions or types into which all foods are classified—namely, the nitrogenous or tissue-forming, and the calorifacient, or heat-creating—it selects instinctively that one which science demonstrates to be most necessary.

A few words on these two types of food will serve to illustrate the dietetic value of the Corn Flour, which is the subject of these remarks.

By the term *nitrogenous* is meant all foods, whether derived from the animal or vegetable kingdom, which contain nitrogen as one of the elements of their composition, in addition to carbon, hydrogen, and oxygen. These foods are also called nutritious—that is, tissue-formers—and the measure of their nutritive value is the quantity of nitrogen they contain. The reason of this is found in the fact that all the tissues of the body, fat excepted, contain nitrogen, and those wherein the nutritive changes are most active, such as muscle and nerve, contain the largest amount of nitrogen. Examples of this food are—meat of all kinds, eggs, milk, beans, peas, lentils, bran, and the inner coat of wheat and flour, or bread, though in the latter we approach nearer to the purely starchy or calorifacient group, and so get further from the nitrogenous class.

The calorifacient, or heat-producing group, are foods which contain little or no nitrogen, but only carbon, hydrogen, and oxygen. Starch and its varieties, rice, sago, arrowroot, potatos, and flour; fatty and oily substances, such as butter, cream, and all the varieties of sugar; these make up the class of heat-sustaining foods, and though they do not directly nourish tissue, except where they also contain traces of nitrogen, they nevertheless perform scarcely less important functions in the human body; for, besides assisting in the process of respiration, they develop fat for the protection of the muscles. And, above all, they principally maintain the heat of the body, which is essential for the due performance of all its functions; this they do by the union of their carbon with the oxygen of the air in the process of respiration, in the same way as in the combustion of coal—the residual oxygen and hydrogen being in the proportion to form water.

Such a desideratum, it is believed, is now supplied in the Corn Flour which we manufacture, and which, when boiled with milk, presents such a combination of animal and vegetable food as closely resembles ordinary beef and bread, while at the same time it is in so light and easily digestible a form as will keep the system fully nourished, when the stronger and more stimulating food would only weaken and depress by its indigestibility.

As a pure starch, Corn Flour is peculiarly fitted for the diet of children. Though there seems to be a general impression to the contrary, it is essentially a heat-creating food, and is also one of the most easily digested. And, inasmuch as the proper maintenance of animal heat is of vital importance to childhood, food of this class is at all times loudly demanded by nature. This is attested by the fact that in milk, the very best of infant foods, the heat-sustaining element preponderates largely over the nitrogenous or tissue-forming. The popular belief appears to be that children have a remarkable power of resisting cold. This is certainly not the case with plants, nor is it with animals, least of all is it with man. Heat, whether supplied from within by food, or without by clothing, seems almost by itself to give *life* to young organisms, whether plants, animals, or man. And according to the recent researches of scientific men there seems to be so very intimate and mysterious a connection between *heat* and *life* that some have even ventured to suggest their mutual dependence. The feeble digestive power of children, and their extreme sensibility to cold, are additional reasons in favour of such a food as Corn Flour. Moreover, its slightly alkaline reaction recommends it as especially fitting in those cases where there is any tendency to acidity, a condition which is not only very common, but sometimes very troublesome in early life, and is a frequent cause of diarrhœa and other digestive disorders. It cannot be too often insisted upon that purity, simplicity, digestibility, and the absence of any stimulating quality are, or ought to be, the essential characters in the food of children—and these are the features specially observed in Corn Flour.

But it is not in childhood alone, or even chiefly, that this preparation is so valuable as an article of diet. To the man of business, who is obliged to sit long at the desk and to all whose calling necessitates close confinement, or whose digestive organs are impaired by over-indulgence, or the use of a too stimulating diet, this simple, easily digested, and non-stimulating food will be found an incalculable blessing. It may be cooked in a great variety of ways; when well boiled with milk, with or without any sugar or seasoning, but better without, and allowed to cool in a shape, it forms a delicious *blanc-mange*, unsurpassed by any other preparation for delicacy and ease digestibility. By its bulk it favours digestion when the heavier kinds of food could not be borne, and in combination with either milk or egg it forms a meal scarcely inferior in nutritive value to a steak or chop, while it surpasses them in the fact that it is easily disposed of by even the most delicate stomach. Add to all this, that change or variety in diet is of great importance to healthy nutrition, and we have another reason for recommending this to public attention. We once heard of a man who was nearly famished on mutton chops, potatos, and bread, taken day by day without intermission; a change of diet completely restored him. The more variety we can introduce into our food, consistent with other requirements, the better, and hence the obvious importance of a new article of diet.

It has been said that he who makes two blades of grass grow where one grew before is a benefactor of his species. Sir Walter Raleigh, who introduced the potato into England, might certainly lay claim to that title. To us belongs the honour, whatever it may be, of being the first in this country to manufacture a pure starch from maize which is now so well known under the name we gave to it, viz.—Corn Flour. For those who really need a light nutritious diet we can wish no greater luxury than this addition to their meal.

BROWN AND POLSON, IRONMONGER LANE, LONDON, E.C.

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THE GARDENERS' CHRONICLE
AND
AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.

No. 31.—1867.] SATURDAY, AUGUST 3. {Price Fivepence. STAMPED EDITION, 6d.

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Examinations, gardeners'	804 c	Tortworth "Times"	814 a
Fertility, effect of tillage on	813 c	Trichinium Manglesii	804 c
Gardeners' examinations	804 c	Ventilation	806 a
Glass v. walls	804 c	Verbascum vernale	809 a
Gooseberries, standard	809 a	Verbenas	810 b
Graft sports	803 c	Vine, Thomson on the, rev.	809 b
— swellings	804 c	— in Madeira	811 c
Grape, Muscat Echolnta	808 b	Walls v. glass	804 c
— Mrs Pince's	808 c	Wheat affections	813 a
Harvest, the	813 c	Winter, effects of	804 b
Horse, search for a	818 a	Woodlice	808 c

State of the Crops, 1867.

THE GARDENERS' CHRONICLE and AGRICULTURAL GAZETTE of AUGUST 17 will contain a detailed account of the CONDITION of the CROPS throughout the Country. A Copy of this Number sent on receipt of Six Stamps, or may be ordered of any News Agent.
Office for Advertisements, 41, Wellington Street, Strand, London.

ROYAL HORTICULTURAL SOCIETY, SOUTH KENSINGTON, W.
NOTICE.—A MEETING of the FRUIT and FLORAL COMMITTEES will be held on TUESDAY NEXT, August 6, at 11 for half-past precisely. GENERAL MEETING at 3.

MANCHESTER BOTANICAL AND HORTICULTURAL SOCIETY.—A GRAND EXHIBITION of PLANTS, FRUITS, and FLOWERS will be held at the Gardens, Old Trafford, on TUESDAY, August 27, and four following days, in connection with the GREAT CENTENARY CELEBRATION SHOW of the MANCHESTER and LIVERPOOL AGRICULTURAL SOCIETY.
Charges for Admission:—First day, 2s. 6d. each; remaining days, 1s. each; Subscribers to the Botanic Gardens free each day.
Schedules may be obtained at the Gardens, or from the Undersigned. Military Bands in attendance. By Order.
Cooper Street, Manchester. HENRY WHITWORTH, Secretary.

BISHOP AUCKLAND FLORAL and HORTICULTURAL SOCIETY will hold their ANNUAL EXHIBITION in AUCKLAND PARK on AUGUST 30, when upwards of £350 will be awarded in Prizes. Schedules may be obtained on application to Mr. J. C. HENDY, Secretary, Bishop Auckland.

DERBYSHIRE FLORAL and HORTICULTURAL SOCIETY.—ANNUAL EXHIBITION, in connection with the Derbyshire Agricultural Exhibition, on WEDNESDAY, September 18. Prizes of £15, £10, £5, £3 10s., and £2 are offered for Groups of Twelve Stove or Greenhouse Plants (or both), in or out of flower, Ornamental or Variegated Foliage Plants arranged for effect (Orchids excluded). Schedules of Prizes and any farther information may be obtained on application to the Honorary Secretary, Mr. WILLIAM SAUNDERS, Wellington House, Derby.

WM. CUTBUSH AND SON beg to say that their DESCRIPTIVE CATALOGUE of CHOICE HYACINTHS, TULIPS, CROCUSES, &c., is now ready, and can be had post free on application. Highgate Nurseries, London, N.

CAMELLIA STOCKS.—A fine batch, fit for working this Autumn.
1-yr. old, 20s.; 2-yr. old, in pots, 30s.; 3-yr. old, strong, 40s. per 100.
1-yr. SEEDLING EVERGREEN OAKS, 12s. per 100.
CHARLES B. SAUNDERS, Nurseryman, &c., Jersey.

VIOLETS for WINTER and SPRING BLOOMING.—The Undersigned can supply strong healthy Plants, in 5-inch pots, of the following, which are the four best Violets in cultivation. Price 6s. to 9s. per dozen.

THE CZAR	DOUBLE BLUE
NEAPOLITAN	REINE DES VIOLETTES

FRANCIS & ARTHUR DICKSON & SONS, The "Upton" Nurseries, Chester.

TULIPS.—A Collection of from 12,000 to 15,000 Bulbs, a considerable portion of which are ROSE, BIZARRE, &c., Seedlings, never distributed, together with the select of Martin's, Storer's, and others, as well as choice named sorts, to be SOLD in ONE LOT, a decided Bargain. If not so Disposed of before August 14, they will be Catalogued at very low prices in order to effect a speedy clearance.
JOHN SLATER, Lapwing Lane, Didsbury, near Manchester.

To Cultivators of Succulent and other Plants.
T. COOPER, Holmsdale Road, Reigate, has a large collection of SUCCULENT and other Plants, including 450 varieties of CACTI; also ALOES, HAWORTHIAS, AGAVES, TESTUDINARIA ELEPHANTIPES, &c.; also many new and interesting Plants raised from South African seeds.
Orders punctually attended to.

New Fern Catalogue.
W. ROLLISSON AND SONS beg to announce that their NEW CATALOGUE of STOVE, GREENHOUSE, HARDY, and TREE FERNS is now ready, and will be forwarded post free on application.
The Nurseries, Tooting, Surrey, S.

NEW FERN, SCOLOPENDRIUM VULGARE, var. COOLINGII.—A dwarf variety between S. Wardii and S. digitatum, very distinct and beautiful. Nice Plants are now ready for distribution at 7s. 6d. each.
A Coloured Plate free by post for two stamps.
EDWIN COOLING, Mile Ash Nurseries, Derby.

British Fern Catalogue.
ROBERT SIM can now send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his NEW and PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.
Foot's Cray Nursery, S.E., a mile from Sidcup Station of New North Kent Line of South Eastern Railway.

Roses.
H. LANE AND SON beg to call the attention of intending Purchasers to their extensive COLLECTION of ROSES, which are NOW IN FULL BLOOM, and worthy of inspection.
The Nurseries, Great Berkhampstead, Herts.

At the Old Nurseries, Cheshunt,
PAUL AND SON'S ROSES are NOW FINELY IN BLOOM. The Show is finer than for many years past.
Frequent trains to Cheshunt, one mile from the Nurseries.
Their large and varied Collection of HARDY FINE-FOLIAGE TREES and SHRUBS are in good condition for selection.

Roses in Bloom.
WM. PAUL'S ROSES are NOW IN FULL BLOOM. Inspection respectfully invited. Trains almost hourly from Shoreditch to Waltham Station, Great Eastern Railway.
PAUL'S Nurseries, Waltham Cross, N.

Eltham Nursery, S.E.
THE STANDARD ROSES at this Nursery, comprising from 7000 to 10,000, are NOW in PERFECTION, and may be seen daily. The Nursery is about one mile from the Eltham Station, two miles from the Blackheath Station, from which an Omnibus constantly runs. J. W. TODMAN.—Aug. 3.

Roses.
JOHN CRANSTON has the pleasure to announce that his ROSES are NOW IN FULL BLOOM, and that the whole of his stock is in the finest condition possible.
The severe frosts (which proved so destructive in many parts of England throughout last winter) not having visited this locality, he is happy to say that his Roses, Conifers, and other Trees, escaped entirely unharmed.
Nurseries, King's Acre, near Hereford.

NEW ROSES for 1867.—Strong Plants of all the best NEW ROSES now ready.
DESCRIPTIVE LIST, with prices, on application.
JOHN CRANSTON, King's Acre Nurseries, near Hereford.

CULTURAL DIRECTIONS for the ROSE. Second Edition. By JOHN CRANSTON, King's Acre Nurseries near Hereford. Free by post from the Author for 20 stamps.

Roses, Roses, Roses.
PLANTS of all the FINEST VARIETIES in CULTIVATION will this Autumn be in magnificent order, in the CASTLE STREET NURSERIES, SALISBURY.
The frost of May 24 destroyed all the blooming buds; the consequences are that the Plants have produced the most vigorous growth.
Amateur Rose Growers may insure the finest Plants that can possibly be produced, true to name. CATALOGUES on application.
VINES, from Eyes, the finest in England, 10s. 6d. each, in October next. JOHN KEYNES, Castle Street, Salisbury.

Roses, Orchard Houses, and Experimental Fruit Tree Culture.
THE NURSERIES at SAWBRIDGEWORTH, 100 Acres in extent, are OPEN to the inspection of Amateurs interested in the above.
The Harlow Station (1¼ mile distant), G. E. R., where Flys are in attendance, is the most convenient.
TROS. RIVERS & SON.

Novelties.
WM. PAUL (Son and Successor to the late A. PAUL) respectfully solicits Orders for the NEW and FIRST-CLASS ROSES and BEDDING GERANIUMS, &c., advertised at length in this Paper in May last.
PAUL'S Nurseries, Waltham Cross, London, N.

Variegated Geraniums.
CASBON AND SON hold a large stock of above. Prices on application.
Gravel Walk Nursery, Peterborough.

IVY-LEAVED PELARGONIUM, L'ELEGANTE.
Strong Plants, 3s. 6d. each; 36s. per dozen.
Larger Plants, 5s. each; 50s. per dozen.
Usual allowance to the Trade. For description see former Advertisements. Cash or reference must accompany all orders from unknown correspondents.
WM. CUNNINGHAM, The Forge Nurseries, Burton-on-Trent.

New Zealand Nursery, St. Alban's, Herts.
J. WATSON'S beautiful BEDDING PELARGONIUM EXCELSIOR, now ready; colour of Indian Yellow; fine truss, and habit of Lord Palmerston. Price 5s. each; 36s. per doz. to the Trade
MISS WATSON, ready August 25; MRS. DIX, May 1. The Two have received 10 First-class Certificates and Extra Prize Money.
Fine New TABLE APPLE, ST. ALBAN'S PIPPIN, Ripe in April. Plants ready in November. 5s. each; 36s. per doz. to the Trade
DESCRIPTIVE LIST sent on application.

WILLIAMS' SUPERB STRAIN of PRIMULA. See large Advertisement.

PRIMULA SINENSIS FIMBRIATA.—A most superb strain, and cannot be surpassed, 6 varieties, mixed, 1s. 6d. & 2s. 6d. per packet. CALCEOLARIA and CINERARIA, extra, 1s. & 2s. 6d.
J. SCOTT, The Seed Stores, Yeovil, Somerset.

Calceolaria, Cineraria, Primula fimbriata.
SUTTON AND SONS can supply NEW SEED of the above, saved from choicest flowers, in packets, 1s., 2s. 6d., and 5s. each, post free.
Royal Berks Seed Establishment, Reading.

INTERNATIONAL PRIZE CALCEOLARIA, CINERARIA, and PRIMULA.—These are unquestionably the handsomest in cultivation. New Seed now ready, in packets, 2s. 6d. each, free by post.
EDWIN COOLING, Seed Merchant, Derby.

CALCEOLARIA, CINERARIA, and PRIMULA SINENSIS.—Seed of each, from the choicest and most beautiful flowers, in 2s. 6d. and 5s. packets, post free.
ROBINSON'S CHAMPION DRUMHEAD, or OX CABBAGE, 3s. 6d. per lb. (Seed of Mr. Robinson's own saving.)
DRUMHEAD, or OX CABBAGE (old sort), 2s. per lb.
Together with all other Seeds for present Sowing. Parcels of two pounds and upwards carriage free.
JAMES DICKSON & SONS, "Newton" Nurseries, Chester.

Hardy and Permanent Bedding Plant.
CLEMATIS JACKMANNI, and that type, have proved themselves to be "the desideratum" for a good violet, blue, purple, or maroon bed, when pegged down like Verbenas.
The Advertisers solicit an inspection of their CLEMATIS BEDS that are in FULL BLOOM, and will continue up to the month of October. Particulars of treatment by applying to
GEO. JACKMAN & SON, Woking Nursery, Surrey.

To Grape Growers.
JNO. STANDISH will SHOW his NEW GRAPE, ROYAL ASCOT, again on the 6th inst., at the Fruit Committee, South Kensington, where he will be able to let Grape Growers taste it. Royal Nursery, Ascot.

Vines, Extra Strong from Eyes.
JOHN KELLETT begs to announce that he has a large and fine stock of all the leading sorts fit for immediate Planting. Also all the best varieties of ROSES, in Pots.
Wellington Nursery, Heaton Chapel; and Green Lane Nurseries, Heaton Norris, Stockport.

PINE PLANTS, FRUITING and SUCCESSION, very fine, and never had scale. Surplus Stock Cheap.
M. ROCHFORD, Market Gardener, Page Green, Tottenham, N.

New Cherry.
CHARLES TURNER begs to announce that the NEW CHERRY, FROGMORE EARLY BIGARREAU, raised by Mr. Ingram, at the Royal Gardens, will be sent out in Autumn next. For description see *Gardeners' Chronicle* of July 13. A Drawing is being prepared by Andrews for distribution.
The Royal Nurseries, Slough.

Strawberries.
CHARLES TURNER is now prepared to supply strong Plants of the best modern kinds, as well as all the leading established varieties, true to name.
A DESCRIPTIVE LIST may be had on application.
The Royal Nurseries, Slough.

CUTHILL'S STRAWBERRY PLANTS.—On and after August 26, strong, selected for next year's bearing, at the reduced price of 6s. per 100, each sort (they have lasted in bearing 55 days this year), Early Black Prince, Early Princess Royal, Richard II., Highland Mary, Newton Seedling late, Prince of Wales, latest of all. Dr. Lindley never could depend on a crop until he had my breed. MUSHROOM SPAWN, 5s. per bushel. Five Pamphlets, &c. Write for a LIST. Post-office orders on Camberwell Green.
JAMES CUTHILL, Denmark Hill, Camberwell, S.

TEN THOUSAND FROGMORE PINE STRAWBERRY RUNNERS WANTED.—Price per thousand to W. G. T. E. BREAVINGTON, Hounslow, W.

Orchard-house Trees Fruiting in Pots.
PEACHES, NECTARINES, APRICOTS, CHERRIES, PLUMS, PEARS, APPLES, VINES, and FIGS.
RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

Highly Cultivated and Regularly Transplanted Nursery Stock.
EIGHTY ACRES of the above, consisting chiefly of FRUIT TREES, ROSES, EVERGREENS, and ORNAMENTAL TREES, which for general excellence are unsurpassed.
THOMAS WARNER, Leicester Abbey Nurseries.

Vines for Early Forcing.
F. AND A. SMITH have strong FRUITING CANES of the above. Prices, with LIST of VARIETIES, on application. The Nurseries, Dulwich, S.

Balsams.
F. AND A. SMITH beg to announce that their unequalled COLLECTION of the above is NOW in BLOOM, and will well repay a visit.
The Nurseries, Dulwich, S.

Tricolored Geraniums.
F. AND A. SMITH will forward by post a COLLECTION of LEAVES, from their beautiful TRICOLORED GERANIUMS, on receipt of 1s. 6d. stamps, returnable to purchasers.
The Nurseries, Dulwich, S.

EVERY GARDEN REQUISITE kept in Stock at
CARTER'S New Seed Warehouse, 237 & 238, High Holborn, London.

Genuine Garden and Agricultural Seeds.
JAMES CARTER AND CO.,
SEED FARMERS, MERCHANTS, and NURSERYMEN,
237 & 238, High Holborn, London, W.C.

Agricultural and Garden Seeds.
H. AND F. SHARPE beg to announce to the Trade that their SPECIAL LIST of HOME-GROWN SEEDS, 1867 Growth, is now ready and may be had on application.
Seed Growing Establishment, Wisbech, Cambs.

RAYNBIRD, CALDECOTT, BAWTREE, DOWLING, AND COMPANY, Limited,
CORN, SEED, MANURE, AND OILCAKE MERCHANTS,
Address, 89, Seed Market, Mark Lane, E.C.; or Basingstoke.
Samples and Prices post free on application. Prize Medals, 1851, for Wheat; 1862, for "Excellent Seed Corn and Seeds."

SUTTON'S RENOVATING GRASSES SHOULD NOW BE SOWN.
6 lb. to 12 lb. required per acre.
Price 10d. per lb., or cheaper by the cwt.
SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

Grass Seeds for Autumn Sowing.
SUTTON'S PERMANENT GRASS SEEDS FOR ALL SOILS.
Prices (according to sorts required and soils for which they are intended), may be had on application.
SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

Extra Fine Quality.
COLE SEED, "1866 growth," per bushel of 52 lb., 11s.; 4 bushels do., 40s New 4-8 Sacks, 1s. 6d. each.
EARLY SIX-WEEKS' TURNIP, New Seed, very fine, 9d. per lb. New Bags, 6d. to 9d. each.
EXCELLENT CABBAGE SEED. See Catalogue of varieties. Remittances to accompany Orders.
FREDK. GEE, Seed Merchant and Grower, Biggleswade, Beds.

ROBINSON'S PRIZE DRUMHEAD CABBAGE PLANTS, 3s. per 1000, of A. WILKIN, Tiptree, Kelvedon Essex. Prepaid orders only attended to.

Turnip Seeds for Present Sowing.
SUTTON AND SONS can supply NEW SEED of the BEST KINDS for PRESENT SOWING. PRICED LISTS on application. All goods carriage free except very small parcels.
SUTTON & SONS, Seed Growers, Reading.

DRUMHEAD CATTLE CABBAGE,
THE HEAVIEST OF ALL AGRICULTURAL CROPS.
This should be Sown in July & August, for Transplanting in the Spring.
SUTTON & SONS can supply—
ROBINSON'S CHAMPION DRUMHEAD CABBAGE (the heaviest known), at 3s. 6d. per lb.
GOOD DRUMHEAD CABBAGE at 2s. 6d. per lb.
SUTTON & SONS, Seed Growers, Reading.

Caution to Gardeners.—When you ask for

SAYNOR AND COOKE'S WARRANTED PRIZE PRUNING and BUDDING KNIVES, see that you get them. Observe the mark SAYNOR, also the corporate mark OBTAIN WARRANTED, without which none are genuine.

S. & C. regret having to caution Gardeners and others, but are compelled to do so, in consequence of an imitation, of common quality, having been sold for the genuine one, and which has caused many complaints to be made to them of Knives which were not of their make, all of which are warranted both by Sellers and Makers.

S. & C.'s Pruning and Budding Knives are the best and the cheapest in the market.

Paxton Works, Sheffield. Established upwards of 125 years.

Horticultural Glass Warehouse.

THOMAS MILLINGTON AND CO., 87, Bishopsgate Street Without, London, E.C.

NEW LIST for ORCHARD HOUSE GLASS as supplied to Her Majesty, the Nobility, Gentry, Mr. Rivers, and the leading Horticulturists of the United Kingdom.

ORCHARD HOUSE SIZES.

in.	in.		4ths.	3rds.	2nds.	Best.
20 by 12						
20 by 13		15 oz.	14s 3d	15s 6d	18s 6d	20s 0d
20 by 14	Per 100 feet					
20 by 15		21 oz.	19s 6d	22s 2d	25s 6d	26s 6d
20 by 16						

SMALL SHEET SQUARES, 15 oz., per 100 feet.

in.	in.	in.	in.	in.	in.	4ths.	3ds.	2nds.	Best.
6 by 4	7 by 5	8 by 6	9 by 7			12s 3d	13s 3d	16s 0d	18s 0d
6½ by 4½	7½ by 5½	8½ by 6½	9½ by 7½						
Per 100 feet.									
10 by 8	12 by 9	12½ by 10½	14½ by 10½			13s 3d	14s 6d	17s 3d	19s 0d
10½ by 8½	12½ by 9½	13 by 10	15 by 10						
11 by 9	13 by 9	13½ by 10½	13 by 11						
11½ by 9½	12 by 10	14 by 10	14 by 11						

LARGE SHEET SQUARES, 15 oz., per 100 feet.

in.	in.	in.	in.	in.	in.	4ths.	3ds.	2nds.	Best
15½ by 10½	14 by 12	22 by 12	22 by 16						
16 by 10	14½ by 12½	17 by 13	24 by 16						
14½ by 11½	15 by 12	23 by 13	20 by 17						
15 by 11	15½ by 12½	18 by 14	22 by 17			14s 3d	15s 6d	18s 6d	20s 0d
15½ by 11½	16 by 12	22 by 14	24 by 17						
16 by 11	16½ by 12½	24 by 14	20 by 18						
21 by 11	17 by 12	22 by 15	22 by 18						
13 by 12	18 by 12	24 by 15	24 by 18						

The above Prices are only for the Sizes stated; if a quantity of any other Size be required, a Special Price will be given.

SHEET GLASS.

In Sheets for Cutting up, averaging from 6 to 9 feet super.

15 oz.		21 oz.	
4ths quality, per 300 feet case,	33s.	4ths quality, per 200 feet case,	38s.
3ds " "	48s.	3ds " "	48s.
2ds " "	62s.	2ds " "	66s.
Best " "	92s.	Best " "	96s.

SHEET GLASS is made only in the following substances, 15 oz., 21 oz., 26 oz., 32 oz., 36 oz., and 42 oz.

HARTLEY'S IMPROVED ROLLED ROUGH PLATE in 1-8th in., 3-16th in., 1-4th in., and 3-8th in. substances.

BRITISH PLATE GLASS for Windows and Silvered for Looking Glasses, Coloured Glass, Glass Shades, Striking Glasses, &c., &c.

PAINTS, COLOURS, VARNISHES, &c.

STUCCO PAINT, 24s. per cwt. This Paint adheres firmly to the walls, resists the weather, and is free from the glossy appearance of Oil Paint, resembling a stone surface, and can be made any required shade. It is mixed with rain or pure river water.

WHITE ZINC PAINT, 36s. per cwt. One hundredweight of pure Zinc Paint, with three gallons of Linseed Oil, will cover as much as one hundredweight and a half of White Lead and six gallons of Linseed Oil. Special Dryers for this Paint.

IMPROVED ANTI-CORROSION PAINT, 28s. to 34s. per cwt. Anti-corrosion Paint is extensively used for all kinds of work in exposed situations, on Brick, Stone, Compo, Iron, Iron Bridges, Conservatories, Greenhouses, &c., and is easily laid on by any ordinary workman. Prepared Oil for ditto, 4s. per gallon.

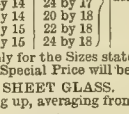
Per cwt.—s. d.		Per gallon.—s. d.	
GENUINE WHITE LEAD	32 0	LINSEED OIL	3 4
SECONDS WHITE LEAD	30 0	BOILED OIL	3 9
GROUND PATENT DRYERS, 3d. to 4½d. per lb.		TURPENTINE	3 0
" OXFORD OCHRE, 3d. to 4½d. per lb.		LINSEED OIL PUTTY, 8s. to 9s. per cwt.	
" RAW UMBER, 4½d. to 6d. per lb. [per lb.		Fine OAK VARNISH, 10s. to 12	0
" BURNT do., 6d. to 9d.		" CARRIAGE do., 12s. to 14	0
GREEN PAINT, all shades, 28s. to 60	0	" PAPER do. 10s. to 12	0
BLACK PAINT, 24s. to 36	0	" COPAL	16 0
RED PAINT .. 28s. to 36	0	KNOTTING	10 0
		Patent GOLD SIZE ..	10 0
		" BLACK JAPAN ..	12 0
		GLAZIER'S DIAMONDS and TOOLS	
GROUND BRUSHES.		MILLED LEAD and PIPES	
DUSTERS. | SASH TOOLS.		OLD LEAD Bought or taken in	
DISTEMPER BRUSHES.		exchange.	

The above are Net, for Cash, and as such cannot be booked.

Lists of any of the above on application.

Glass for Garden Purposes.

JAMES PHILLIPS AND CO. beg to submit their REDUCED PRICES as follows:—

PROPAGATING  GLASSES.

Each.—s. d.		Each.—s. d.	
2 inches in diameter ..	0 3½	12 inches in diameter ..	1 9
3 " " ..	0 4½	13 " " ..	2 0
4 " " ..	0 6½	14 " " ..	2 6
5 " " ..	0 6½	15 " " ..	3 0
6 " " ..	0 8	16 " " ..	3 6
7 " " ..	0 10	17 " " ..	4 0
8 " " ..	1 0	18 " " ..	5 0
9 " " ..	1 2	19 " " ..	6 0
10 " " ..	1 4	20 " " ..	7 0
11 " " ..	1 6		

HYACINTH and FLOWER DISHES.

6 inches diameter .. .. 1s. 0d. \| 9 inches diameter 1 0

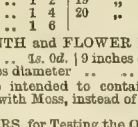
12 inches diameter .. .. 2s. 6d.

Hyacinth Dishes are intended to contain a number of Roots Bedded in and covered with Moss, instead of the common Hyacinth Glass.

LACTOMETERS, for Testing the Quality of Milk.

Four Tubes .. .. 4s. 6d. \| Six Tubes .. .. 6s. 6d.

With Stands complete.

HAND GLASSES,  WITH OPEN TOPS.

Each.—s. d.		Each.—s. d.	
12 inches	6 6	18 inches	9 6
14 "	7 6	20 "	10 6
16 "	8 6	22 "	11 6
		24 "	12 6

Painted and Glazed with 16-oz. Sheet Glass.

London Agents for HARTLEY'S IMPROVED PATENT ROUGH PLATE.

LINSEED OIL, Genuine WHITE LEAD, CARSON'S PAINTS, PAINTS of various colours, ground ready for use.

SHEET and ROUGH PLATE GLASS, SLATES of all sizes, BRITISH PLATE, PATENT PLATE, ROLLED PLATE, CROWN, SHEET, HORTICULTURAL, ORNAMENTAL, COLOURED, and every description of GLASS, of the best Manufacture, at the lowest terms. Lists of prices and estimates forwarded on application to

JAMES PHILLIPS & Co., 180, Bishopsgate Street Without, E.C.

GIVE ME WATER, or I DIE! droopingly speak the FLOWERS.

OH! SAVE ME! SAVE ME! by RAIN-LIKE SHOWERS through INDIA-RUBBER HOSE and ROSE.

Illustrated Price Lists of SHEATH BROTHERS, Gutta Percha, India Rubber, Garden Engines, Pump, and General Manufacturers, 89, City Road, E.C.

E. T. ARCHER'S "FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, and Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, &c.

PROTECTION from the SCORCHING RAYS of the SUN.

"FRIGI DOMO" NETTING, White or Brown, made of prepared Hair and Wool, a perfect non-conductor of heat or cold, keeping a fixed temperature where it is applied. It is adapted for all Horticultural and Floricultural purposes, for Preserving Fruits and Flowers from the Scorching Rays of the Sun, from Wind, from Attacks of Insects, and from Morning Frosts. To be had in any required lengths.

"FRIGI DOMO" NETTING, 2 yards wide, 1s. 6d. per yard run.

"FRIGI DOMO" CANVAS.

Two yards wide	1s. 9d. per yard run.
Four yards wide	3s. 6d. per yard.
An improved make, 2 yards wide ..	1s. 9d. per yard.
An improved make, 3 yards wide ..	2s. 8d. per yard run.

ELISHA THOMAS ARCHER, Whole and Sole Manufacturer, 7, Great Trinity Lane, Cannon Street, City, E.C., and of all Nurserymen and Seedsmen throughout the Kingdom.

"It is much cheaper than Mats as a covering."

AUSTIN'S ARTIFICIAL STONE, INVENTED 1826.

The entire Stock of this Manufactory comprises

180 different MODELS of VASES.

70 different MODELS of TAZZAS.

About 200 different FOUNTAINS.

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Manufactured by AUSTIN, SEELEY, & Co., at Nos. 369 to 375, Euston Road, Regent's Park, N.W.



GARDEN BORDER EDGING TILES, in great variety of patterns and materials, the plainer sorts being especially suited for KITCHEN GARDENS, as they harbour no Slugs and Insects, take up little room, and once put down incur no further labour and expense, as do "grown" Edgings, consequently being much cheaper.



GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, of great durability, and in great variety of design.

F. & G. ROSHER, Manufacturers, Upper Ground Street, Blackfriars, S.; Queen's Road West, Chelsea, S.W.; Kingsland Road, Kingsland, N.E.

Sole London Agents for FOXLEY'S PATENT GARDEN WALL BRICKS. Illustrated Price List free by post. The Trade supplied.

ORNAMENTAL PAVING TILES for Conservatories, Halls, Corridors, Balconies, &c., as cheap and durable as Stone, in blue, red, and buff colours, and capable of forming a variety of designs.

Also TESSELATED PAVEMENTS of more enriched designs than the above.

WHITE GLAZED TILES, for Lining Walls of Dairies, Larders, Kitchen Ranges, Baths, &c. Grooved and other Stable Paving Bricks of great durability, Dutch and Adamantine Clinkers, Wall Copings, Red and Stoneware Drain Pipes, Slates, Cement, &c.

To be obtained of F. & G. ROSHER, at their premises as above.

SILVER SAND (REIGATE, best quality), at the above addresses—14s. per Ton, or 1s. 3d. per Bushel; 2s. per Ton extra for delivery within three miles, and to any London Railway or Wharf. Quantities of 4 Tons, 1s. per Ton less.

FLINTS, BRICK BURRS or CLINKERS, for Rockeries or Grotto Work. F. & G. ROSHER.—Addresses see above.

N.B. Orders promptly executed by Railway.

"WE have TRIED it on ROSES affected with Mildew, Calceolarias covered with Green Fly, and Aucubas and Oleanders infested with Scale, and we have much pleasure in stating the plants are now perfectly clean and healthy.

"WM. WOOD & SON, Maresfield."

"Messrs. G. & T. FOWLER, Brighton."

"PERFECT FREEDOM from INSECTS, and, in many instances, more healthy verdure and foliage.

"GEO. QUELCH, Brighton."

"Messrs. G. & T. FOWLER, Brighton."

"I WASHED an ORANGE TREE that was Infested with the Mealy Bug, and on examining the plant *after*, I could not find a single insect. "D. WALKER,

"Gardener to H. Reed, Esq., Tunbridge Wells."

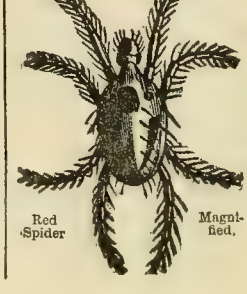
"Messrs. G. & T. FOWLER, Brighton."

Fowler's Gardener's Insecticide,

To which the above Testimonials refer, possesses all the requisite essentials of a complete remedy for thoroughly and effectually destroying and preventing, as it kills both Insects and Ova. It is perfectly safe, for it will not injure the foliage of the most delicate Plant. It is most easily applied, being at one strength—4 ozs. to a gallon of water—suitable for all Insects and all Plants. Will strengthen and invigorate Plants, and improve the appearance of Foliage.

In Jars with direction. Price 1s. 6d., 3s., 5s. 6d. and 10s. May be had of all Seedsmen, Nurserymen, Florists, and Chemists; or of the Manufacturers, G. & T. FOWLER, North Street, Brighton.

P.S.—London Agents: HOOPER & Co., Covent Garden, W.C.



Red Spider

Magnified.

GISHURST COMPOUND.

Used by many of the leading Gardeners since 1859, against Red Spider, Mildew, Thrips, Green Fly, and other Blight, in solutions of from 1 to 2 ounces to the gallon of soft water, and of from 4 to 16 ounces as a Winter Dressing for Vines and Fruit Trees. Has outlived many preparations intended to supersede it.

Sold Retail by Seedsmen, in boxes, 1s., 3s., and 10s. 6d.

Wholesale by PRICE'S PATENT CANDLE COMPANY (LIMITED).

Seed of Choice Strains of Florists' Flowers.

The following selected Strains are worthy of the notice of all growers of the most useful conservatory decorative flowers.

WILLIAMS' SUPERB STRAIN of PRIMULA.

B. S. WILLIAMS can with confidence offer his superb Strain of Primula as being undoubtedly the finest in cultivation. It is now grown in all the principal Gardens of the Nobility and Gentry throughout the Three Kingdoms, and has never failed to give the greatest satisfaction.

In habit the plants are very robust, and in the foliage differ from all other varieties; but their great beauty consists in the depth of colour in the Red, purity of the White, and beautiful fimbriated form of all the flowers, which are thrown up in large trusses well above the foliage.

As a proof of the truth of the above remarks, this Strain has taken 1st Prizes in every instance that it has been shown in the Provinces this Spring; and 1st Prize at the Primula Show of the Royal Horticultural Society, South Kensington; and 1st at the Royal Botanic, Regent's Park. It is also the favourite Strain in the Covent Garden Flower Market.

This Strain may be procured True, in Sealed Packets bearing B. S. WILLIAMS' Name and Address, from any Seedsman; but B. S. W. particularly requests that Customers will observe, on purchasing, that each Packet has his Name and Address in full printed thereon, as no others are genuine.

The Trade supplied on advantageous terms.

	Per pkt. s. d.		Per pkt. s. d.
Retail price, RED	5 0	Retail price, WHITE ..	3 6
" "	3 6	" " ..	2 6
" "	2 6	" MIXED ..	5 0
" WHITE ..	5 0	" " ..	3 6

Retail price, MIXED, per packet, 2s. 6d.

WEATHERHILL'S EXTRA CHOICE STRAIN OF CINERARIA.

B. S. W. has purchased the entire Stock and right of Sale of this Magnificent Strain. Many of the flowers produced by this seed last season were as large as a crown-piece. This strain is well known in the London Flower Market, and is the most popular one there, a sufficient guarantee that its qualities are good.

Retail price per pkt., 5s. 0d. \| Retail price per pkt., 3s. 6d.

Retail price per pkt. .. .. 2s 6d.

JAMES'S HERBACEOUS CALCEOLARIAS.—The varieties that took the First Prize at the International Horticultural Exhibition last May were of this noted strain.

Retail price per pkt. 5s. 0d. \| Retail price per pkt., 3s. 6d.

Retail price per pkt. .. .. 2s. 6d.

All FLOWER SEEDS in packets, Post free

B. S. WILLIAMS, Victoria and Paradise Nurseries, Upper Holloway London, N.

Early Spring Feed, Trifolium incarnatum.

SUTTON'S ITALIAN RYE-GRASS, NEW LATE RED TRIFOLIUM, NEW LATE WHITE TRIFOLIUM.

These are invaluable articles for early Spring Feed, either grown separately or together. The proper quantity of Italian Rye-grass, if sown alone, is 3 bushels per acre, or if Trifolium alone, 28 lbs. per acre.

The New Seed is now being harvested and we shall be pleased to send samples and lowest prices per quarter and cwt. on application. Also MUSTARD and RAPE New Seed.

All goods carriage free, except very small parcels.

SUTTON & SONS, Seed Growers, Reading.

To Noblemen, Gentlemen, Nurserymen, &c.

IMPORTANT SALE WITHOUT RESERVE.

JAS. GARAWAY AND CO., Durdham Down Nurseries, Bristol, beg to announce that in consequence of the approaching Expiration of the Lease of the above-mentioned old-established and well-known Nurseries, their ENTIRE STOCK of STOVE, GREENHOUSE PLANTS, FERNS, &c., comprising a fine Collection of full-sized, half, and quarter specimen HEATHS, AZALEAS CAMELLIAS, ORANGES, &c., and their splendid stock of AMARYLLIS, the largest and most varied in England, consisting of all the best named sorts; and many Hundreds of FLOWERING BULBS of splendid unnamed HYBRIDS, will be SOLD by AUCTION on the Premises (unless the whole or any portion should in the meantime be Disposed of by Private Contract), on MONDAY, August 19, and following days.

CATALOGUES will be ready a fortnight previous to the Sale and will be forwarded post free on application.

The whole of the Plants are now lotted, and can be viewed any time between 6 A.M. and 8 P.M.

JAS. GARAWAY & Co.'s Lease expires in the Spring of 1869, and till then Business will be carried on at the present Address as usual.

JAS. GARAWAY & Co., Durdham Down Nurseries, Bristol.

FIBROUS PEAT of first-class quality for Orchids, Heaths, American Plants, and all potting purposes, may be obtained by application to Mr. THOMAS JESSOP, Farningham Wood, near Farningham Station, Kent. It is dispatched by the London, Chatham, and Dover Railway in trucks of 16 yards, to most Stations in the Kingdom, or fetched in carts from the wood. It is extensively used and appreciated in the principal Nurseries, and in the Royal Parks and Gardens. Price 5s. per cubic yard, at Farningham Station.



COCOA-NUT REFUSE is becoming SCARCE, the old reserves will soon be gone. Now sold in bags, 1 for 2s., 10 for 16s., 20 for 30s., 50 for 66s., 100 for £6.

Fourpence allowed for each bag returned carriage-paid.

A Railway Truck-load (not in bags), 40s.

Postage Stamps or Post-office Order, payable to J. BARSHAM & Co., Kingston-on-Thames, S.W.

Important to Florists and Horticulturists.

POOLEY'S TOBACCO POWDER prepared under authority of the HON. BOARD of CUSTOMS can now be obtained of Seedsmen, Nurserymen, &c., in Tins.

Prices, 1s., 2s. 6d., and 5s.

Wholesale from the Bonded Manufactory, Sussex Wharf, Wapping, E. Office, 50, Lime Street, London, E.C.

New Verbenas of 1867.

DREGHORN AND AITKEN have now a large stock of the above, containing all the finest sorts sent out by Turner, Keynes, Low, Henderson, &c., and beg to offer them as follows, in strong, healthy, well-rooted Plants:—

21 Varieties for 10s. | 12 Varieties for 6s.

Safely packed and delivered free of carriage to any part of Great Britain or Ireland.

The Nurseries, Kilmarnock, N.B.

Roses, Roses.

ROSES, on own roots and in pots, grown on now, will flower indoors next spring, viz.:—

6 CHOICE TEAS | 3 CHOICE BOURBONS
6 " HPS | 3 " NOISETTES | 2 " CHINAS

The Collection of 20 distinct and first-class sorts for 20s.

Post-office Orders on Castle Hedingham.

DILLISTONE & WOODTHORPE,
Munro Nursery, Sible Hedingham, Essex.

TRICOLOR GERANIUMS, &c.—Parties not possessing the following, should order them at once:—

Price of the Collection, £1 1s.; or any Six may be selected for 16s.

EDWINIA FITZPATRICK
BEAUTY of GUESTWICK
TWILIGHT
VARIEGATED QUEEN of NOSEGAYS
MRS. P. F. PERRY
PRESIDENT LINCOLN
SCEPTRE D'OR
ITALIA UNITA
MRS. MAXWELL HUTTON
CRYSTAL PALACE GEM
TRICOLOR-LEAVED & other IVIES.—12 of the finest and most beautiful Ivies in cultivation, in 12 distinct sorts, for 10s.

Post-office orders on Castle Hedingham.

A 64-page CATALOGUE of CHOICE NEW PLANTS free for one stamp.

DILLISTONE & WOODTHORPE, Munro Nursery, Sible Hedingham, Essex.





JAMES CARTER AND CO. beg to announce that they are now sending out their unrivalled Strains of CALCEOLARIA, CINERARIA, and PRIMULA, which, for fineness of form and beauty of colour cannot be surpassed.

CALCEOLARIA, saved from the finest Prize varieties.

CINERARIA, saved from the finest named varieties.

PRIMULA SINENSIS FIMBRIATA, dark carmine and pure white, saved from the finest fringed varieties in cultivation. Price, each packet, 2s. 6d., forwarded on receipt of Post-office Order for the amount.

☞ PRICE LISTS gratis and Post free on application to CARTER'S Great London Seed Warehouse, 237 & 238, High Holborn, London, W.C.



GRASS SEEDS for PERMANENT PASTURE, of the finest quality, at moderate prices, carefully selected on a new, natural, and scientific system.

See "WHEELER'S BOOK on GRASSES," which contains Illustrations and Descriptions of the most suitable Grasses for Permanent Pasture.

J. C. WHEELER & SON,
Gloucester,
Seedsmen to the Gloucestershire Agricultural Society.

LADY CULLUM, TRICOLOR GERANIUM,

IS NOW OFFERED IN ESTABLISHED PLANTS AT

15s. and 21s. each; extra size, 31s. 6d. and 42s.

E. G. HENDERSON AND SON, WELLINGTON NURSERY, ST. JOHN'S WOOD, N.W.

NEW ROSES FOR 1868.

MESSRS. JOHN & CHARLES LEE

HAVE PURCHASED THE STOCKS OF

THE TWO FINEST NEW ROSES

Which have been exhibited on the Continent this season, and hope to exhibit them in London in June next, that the Public may judge of their merits before they are sent out.

LEMENCE RAOUX (GRANGER).—Blush, edged and spotted rose, of large size and perfect form; petals stout and very enduring; habit erect and vigorous.

GOLD MEDAL awarded at the Great Rose Show at Brie Comte Robert in July.

EDWARD MORREN (GRANGER).—Mons. Margottin thus describes this splendid Rose:—"It is in the way of Jules Margottin, but of a more delicate colour, of better form, more double, and much larger."

FIRST PRIZE awarded at the Exposition Universelle in Paris in July.

TO BE SENT OUT IN THE AUTUMN OF 1868.

ROYAL VINEYARD NURSERY and SEED ESTABLISHMENT, HAMMERSMITH, W.

NEW PLANTS.

WILLIAM ROLLISSON & SONS

HAVE GREAT PLEASURE IN OFFERING TO THE NOBILITY, GENTRY, AND THE TRADE THE FOLLOWING

NEW PLANTS, WHICH ARE NOW READY FOR DISTRIBUTION;

And feel assured, from their superior qualities, they will give entire satisfaction:—

Ixora princeps.

This really handsome Ixora is from Java, the native home of many other fine species. Cultivators may remember that we were the fortunate Importers of Ixora javanica, I. amboynensis, and I. aurantiaca, three plants of sterling merit, and which still hold their position as first-class plants at the different Horticultural Exhibitions. The I. princeps is not only dissimilar to the above-named, but superior to them, as the following remarks will show.

The foliage differs in being of a much stronger texture, and is from 6 to 7 inches long and 2 inches wide, slightly undulated on the margin, and intermediate between that of I. Griffithii and I. aurantiaca. The flowers are borne in the greatest profusion, opening of a pale buff and changing to a deep reddish orange, longer in the tube than most others. For Exhibition purposes it will prove to be a plant of first-class excellence, and while some of the recently introduced Stove Plants are not likely to be permanently cultivated, a fine Ixora is always beautiful.

As the Stock of the above is very limited, those who wish to secure plants should order at once. Plants now ready, price 42s. each.

Hypericum salicifolium

is a compact-growing, free-blooming Evergreen Shrub, recently imported from Shanghai, and very suitable for the Conservatory or Greenhouse, the golden cup-like flowers being very effective. The leaves are from 3 to 4 inches long, by 1 inch broad, entire and smooth on their margins, and thickly set on the stems, which are red. The flowers are of a golden yellow, about 2 inches over, and produced in terminal bunches on every shoot, during the summer months. Good and free flowering plants not being over numerous for Conservatory decoration, the above is a welcome addition to this class of plants.

Flowering Plants in Bud now ready. Price 10s. 6d. each.

Achimenes Gibsoni

is a fine and distinct hybrid, raised by us. The flowers are of a fine deep mauve, fringed on the margins of the petals in the way of the "Multiflora," the tube white outside and stained with light purple blue towards the base; the inside is white, beautifully mottled with light blue and yellow, and about 1½ inch long, and the face of the flower about 2 inches over.

The foliage is ovate-lanceolate, 1½ inch across, by 4 inches long, a fine deep green, with the ribs of a dark red, robust in habit, and a profuse bloomer.

Good Flowering Plants now ready. Price 10s. 6d.

Cereus crenatus sanguineus.

This superb hybrid was raised from the C. crenatus fertilised with the C. speciosissimus, by a cultivator of great experience in this showy class of plants. Most persons will remember the introduction of the C. crenatus with its long tubular creamy white flowers and flat stems, and as this possessed novelty of form, but was comparatively colourless, it was thought that if the glowing colours of the C. speciosissimus could be imparted to it, a decided advantage would be gained for the present subject; the idea has been acted upon, and this splendid hybrid is the result. In its mode of growth and flowering the plant is like C. crenatus, but has the colour of C. speciosissimus; the stems are broad, flat, and spineless, the flower tubes 7 to 8 inches long and 5 inches across the mouth, and of a rich glowing crimson, producing, when in flower, a most gorgeous effect.

Nice Plants now ready, price 21s.

Erica tubæformis.

A very showy hybrid, raised between E. aristata major and E. McNabiana rosea; in colour it resembles E. aristata, being of a deep glossy red, but has the free habit of E. McNabiana rosea; the flowers are abundantly produced, from 8 to 14 in each head; the divisions of the corolla are white, with a deep stain of rose on the centre of each. It will make an excellent Exhibition Heath for May.

Good plants in 48-sized pots now ready. Price 21s. each.

New Bedding Pelargonium Artemus Ward.

A very effective variety for bedding; raised at the Tooting Nursery. In some respects it resembles Luna, so much used at Battersea Park, but is far superior to it. The flowers are of a bright crimson, but as the plant is chiefly desirable for its conspicuous foliage, these are of secondary importance. The leaves are broadly zoned with bright reddish brown and deep chocolate, and within the zone flaked with yellow and green, the outer margin being similarly coloured. It produces a striking effect when looked upon in a mass, and is also equally well adapted for edgings; it also bears the sun well, and the more it is exposed the more intense the colours.

Good plants now ready, price 10s. 6d. each.

☞ *The usual Discount to the Trade.*

THE NURSERIES, TOOTING, SURREY, S.

Superb New Late Grape, Mrs. Pince's Black Muscat.

LUCOMBE, PINCE, AND CO. beg to thank their very numerous supporters, and to inform them that they commenced sending out the VINES of this splendid Grape on August 1. Orders, if sent now, will be executed in strict rotation.

Their NEW GLOXINIAS and ACHIMENES, which were sent out at the same time, are a sight worth seeing; the Public are earnestly invited to an inspection.

They also beg to call attention to their magnificent Stock of CONIFERS and other ORNAMENTAL TREES and SHRUBS. Such specimens are not to be seen in any other Nursery in the world; and from the fact of their having been yearly transplanted, they can be moved with safety to any distance.

L., P., & Co. beg to inform their Customers that their prices will be found very reasonable indeed. Plants may be marked now, and removed at any time to suit the purchaser.

Their SHOW of RARE EXOTIC PLANTS at this time is really splendid. Exeter Nursery, Exeter.

THE ROYAL BOUQUET, BROMPTON MAJOR STOCK, in three distinct colours, viz., Scarlet, White, and Purple, is exceedingly double, and produces immense flowers and extraordinary large spikes of bloom. The present is the proper season for sowing it to bloom next Spring. The Undersigned having purchased the entire stock of Seed of the above, carefully saved by an eminent grower, begs to offer it in packets at 1s. each colour, or the three colours for 2s. 6d., free by post. Remittance in stamps.

Apply to F. W. EVANS, 246, Old Kent Road, London, S.E.

CALADIUMS, CALADIUMS.—The following 12, in strong Plants, package included, for 8s., viz.:—Two Mirable, two Wightii, one each Belleymei, Newmanii, Argyrites, Gigantea violacea, Bicolor splendens, Amabilia, Bicolor, Chantinii.

ECKFORD'S SIX NEW VERBENAS of 1867 at 4s.

Post Office Orders accompanying orders payable at Boston Spa.

J. C. PADMAN, Providence Nursery, Boston Spa, Yorkshire.

ROBERT PARKER begs to offer the following (all the Plants are strong and healthy, and can be supplied in quantities):—

PANSY CLIVEDEN BLUE, 6s. per dozen.
PANSY CLIVEDEN PURPLE, 6s. per dozen.
PANSY CLIVEDEN YELLOW, 6s. per dozen.
POLEMONIUM CŒRULEUM VARIEGATUM, 2s. 6d. each.
RHODODENDRON COUNTESS of HADDINGTON, 3s. 6d. each.
TRITOMA GRANDIS, 18s. per dozen.
TRITOMA UVARIA GLAUCESCENS, 12s. per dozen.
VIOLA CORNUTA, best variety, 4s. per dozen.
VIOLET, REINE DES VIOLETS, 6s. per dozen.
VIOLET THE CZAR, 6s. per dozen. [per packet.
PRIMULA SINENSIS FIMBRIATA, finest mixed seed, 2s. 6d.

PRICED and DESCRIPTIVE CATALOGUES of AGRICULTURAL, FLOWER, and VEGETABLE SEEDS, GREENHOUSE, HARDY, and STOVE PLANTS, are published, and will be forwarded free to applicants.

Exotic Nursery, Tooting, Surrey, S.

Winter Cucumbers.

ROLLISSON'S TELEGRAPH CUCUMBER, the Best Winter and Early Spring variety in cultivation, an immense and certain cropper.—We with reluctance have to state that some parties have been supplying a spurious variety for the above; purchasers should have a guarantee of its being true, or they may fail in their crop. There are several varieties of Telegraph Cucumber in cultivation, but in no way equal to the above.

In printed sealed packets, with description, 2s. 6d. each.

PRIMULA and CINERARIA, new seed, from the finest varieties in cultivation. Packets, 2s. 6d. each.

W. ROLLISSON & SONS, The Nurseries, Tooting, London, S.

EALING, ACTON, and HANWELL HORTICULTURAL SOCIETY.

President—The Right Hon. S. H. WALPOLE, M.P.
Vice-President—Baron LIONEL DE ROTHSCHILD, M.P.

The above Society has been established for the purpose of holding an ANNUAL EXHIBITION of FLOWERS, PLANTS, FRUIT, and VEGETABLES, at which Prizes will be awarded in three distinct Classes, viz., Cottagers, Gentlemen's Gardeners, and Amateurs.

An Annual Subscription of not less than Half-a-Guinea will entitle the Subscriber to become a Member of the Society, and to two Tickets of Admission to the Exhibition, and to two Tickets for every additional Subscription of Half a Guinea.

The THIRD EXHIBITION of the Society will be held, by the kind permission of H. B. Walmsley, Esq., in his Grounds, The Elms, Acton, on THURSDAY, August 29. The Band of the Victoria R.V.C., under the direction of Mr. Sibold, will attend.

Schedule of Prizes and Form of Application to be made by intending Exhibitors may be had of the Honorary Secretary.

Admission:—By Member's Ticket from 12 o'Clock. Tickets, if purchased the day before the Exhibition takes place, 2s.; if on the day, 3s., to admit at 12 o'Clock; 1s. each if purchased the day before, and 1s. 6d. if on the day, to admit at 2 o'Clock; after 4 o'Clock, 4d. on the day, and if purchased the day before, 2d.

Tickets can be purchased at Mr. ACWORTH'S, Ealing; of Mr. BUNNEY, Acton; and of Mr. H. CARTER, Hanwell.

EDWARD WEATHERLY, Hon. Sec., 2, Singapore Villas, Ealing, W.

State of the Crops, 1867.

THE GARDENERS' CHRONICLE and AGRICULTURAL GAZETTE of AUGUST 17 will contain a detailed account of the CONDITION of the CROPS throughout the Country. A Copy of this Number sent on receipt of Six Stamps, or may be ordered of any News Agent.

Office for Advertisements, 41, Wellington Street, Strand, London.

The Gardeners' Chronicle.

SATURDAY, AUGUST 3, 1867.

MEETINGS FOR THE ENSUING WEEK.

TUESDAY, Aug. 6 { Royal Horticultural (Fruit and Floral Committees), at South Kensington .. 11 A.M.
{ Ditto (Scientific Discussion) .. .. 3 P.M.

WE have from time to time mentioned various curious instances of SPORTS obtained by the agency of GRAFTING or otherwise, and have now to direct attention to two other instances recorded in the pages of the "Gardeners' Monthly," an American contemporary.

In the first of these cases it appears that a scion of a Pear had been grafted on a stock of the Mountain Ash, and according to the description and sketch given, the tree had grown on and attained a considerable size, though its age is not mentioned. In the course of time a Pear shoot made its appearance on the Mountain Ash stock, several (7) inches below the point at which the union of the graft with the stock had taken place. The existence of this unusual growth as described, appears to be sufficiently authenticated; and seems to point to some commingling in the stem of the Mountain Ash of the qualities of both stock and graft, in which those of the latter ultimately prevailed, and became eliminated, so as to be able to burst forth and set themselves free in the form of a bud, giving origin to a genuine Pear shoot.

The second instance alluded to in the work

above quoted is the case of a Willow, and is of a different character. It is not mentioned that this tree, which was a specimen of the curled-leaved Weeping Willow, (Salix babylonica annularis,) was grafted; but when it had attained some 20 years of age, a strong and vigorous shoot of the common Weeping Willow was observed to push out from near its top. Here it would seem probable that the germ cell had been floating, so to speak, in the trunk of the curled-leaved Willow for many years, perhaps from the time of the origination of the variety, until at length set free by some agency which we cannot explain. The case is, however, analogous to those of the reversions we frequently see among such plants as Pelargoniums, where a shoot runs back to the original type from which the variegated form had at a former date been evolved. In the case, however, of a woody and enduring tree, so generally constant as this Willow, it might have been supposed that the characteristic deviation from the normal condition would have become more completely fixed than in the more rapid growing Pelargonium; and the ultimate elimination, so to speak, of the parental elements, which resulted in the formation of a bud of the common Weeping Willow, would therefore be all the less looked for.

Some time since we also quoted from the *Nova Scotian Journal of Agriculture* an account of three Apples growing on one twig, two of which had all the characteristics of the Pound Sweet, while the third was a small Russet Apple, quite different from the Pound Sweet in every particular. In a recent number of the same Journal the Editor reverts to this dimorphic Apple, and also to some remarks of our own on the subject, in the following terms, which we here quote:—

"It is obvious that in certain cases, rare though they be, the stock does exercise an obvious influence upon the graft. This much being ascertained, the real point to be determined is, how is this influence to be accounted for. The prevailing notion appears to be that such sports are produced by certain cells of the stock and of the graft having become divided, and reuniting as graft-cells. This hypothesis supposes that such a union-cell will have the power of originating half-and-half cells like itself. We doubt very much whether a half-cell, or a cell whose membrane has been ruptured, has any farther power of development. In the ordinary process of union between a graft and a stock, it is seen that this union is brought about, not by the union of half cells to half cells, but by the cohesion of one cell to another, which results from the passage of sap from the one to the other through their membranes, and the consequent formation in actual contact of new cells and of intercellular substance. Several years ago we had an opportunity of examining carefully under the microscope the grafted portions of a large number of Coniferæ that had died in the Edinburgh nurseries and gardens, and (as the disc-bearing wood-cells of these plants are remarkably characteristic, and differ widely in different species, they afforded excellent material for such an investigation. In every case the wood-cells of the graft and stock were clearly defined, and did not commingle to any great extent. Yet where there is a cavity under the bark of the scion, the wood-cells of the stock will run up to fill it, and *vice versâ*. In Apple grafting the spongy surface of the scion accommodating itself in its increase to the space allowed it in the cleft of the stock, shows this very well, even to the naked eye. Now it is not at all improbable that the young wood of the stock may sometimes run up in a more or less perfect cylinder surrounding the young wood of the graft, or a few fibres may run up in this manner and become mixed with the newly formed wood of the graft. A few wood-cells straying in this way from the stock might in time reach even the topmost branches, and would be apt to give out here and there a bud which would present, not the foliage and flowers and fruit of the graft, but of the stock. After carefully considering the whole subject, in view of all the facts that are known, we offer this explanation as the one least liable to objection, and which seems to be more in accordance with the known facts of vegetable physiology than some others that have been brought forward."

These and other instances of a similar aberrant character which from time to time transpire, and chiefly amongst cultivated plants, show unmistakeably the extreme plasticity of plant life; and we may perhaps be not far wrong in deducing from them this conclusion, that change in almost any direction and to any extent is possible under the guiding hand of the cultivator, who is often enabled to give a strong impetus to mere indications of change in a particular direction, such as would in all probability die out were they not helped forward by his fostering assistance. We are not sure that something of this sort would not have happened in the case of most of our numerous and now favourite variegated plants, if they had not been petted by the cultivator, and perpetuated by his aid; but once taken in hand by him, and through his assistance made the progenitors of others, the tainted blood, so to speak, is pretty sure to break out, and sometimes in an apparently capricious manner, in the progeny.

THE effects of the exceptionally severe FROST of the LAST WINTER can only by this time be fully appreciated. Many plants which at an earlier period seemed hopelessly dead have nevertheless managed to survive, whilst others have struggled on for a while, but have ultimately succumbed. We deem, then, the present to be an opportune moment for requesting our correspondents to be so good as to supplement their former observations on this subject by such additional information as they may kindly be able to communicate. It appears to us that, in time, from the comparison of numerous records of this nature, it may be possible to pick out a few "test-plants" which will show the effects of any particular frost at least as well as any thermometer can show its degree of intensity. There are some plants which in all situations, and apparently under all circumstances, resist frost, however severe; others succumb at some places, while elsewhere, even with a lower temperature, no ill effect is produced. Facts of this kind, dependent on exposure, soil, or individual peculiarities of particular plants, are familiar to every gardener; and we believe that if such facts were duly recorded, we should be able to fix upon the "mean capabilities" of various localities for growing certain plants with more precision than we could by a study of the climatal phenomena alone. The data would be taken from the living organisms, not from the inert mercury or spirit. We are, of course, fully aware of the difficulty of the task. Circumstances are so different and so variable, that the means of instituting an accurate comparison are at present slight; slight as they are, however, we think them fully as trustworthy as are the data furnished by meteorological instruments in the hands of amateur meteorologists. With a few notable exceptions, the meteorological records in the columns of the public journals are of little or no use for scientific purposes. Either the instruments are not perfect, or they have not been accurately tested and corrected by comparison with standards, or the observer is not sufficiently skilled in the use of his apparatus, or from whatever cause, the fact remains the same, that the majority of the meteorological records made in private establishments are all but valueless for practical purposes. Gardeners, who cannot from the pressure of other avocations be expected to become expert meteorologists, may, however, by the careful observation of their living thermometers—the plants under their charge, arrive at an estimate of the climate of their garden, an estimate which, for cultural purposes, will be found practically more valuable than any record of mean winter or summer temperature, and the like.

We have no intention to disparage meteorology or meteorological observers—far from it; we are only too glad to avail ourselves of any information they may afford us: but as horticulturists, in the matter of meteorology we are naturally more immediately concerned with effects than with causes, and we are of opinion that such information, for instance, as that a plant of Cupressus macrocarpa, of such an age, in such an exposure, and so forth, has been killed, while another plant of the same species, under similar or under different circumstances, has remained unscathed—that such information is more practically useful for garden purposes than the record that the thermometer registered so many degrees below zero. Surely a set of test plants, as nearly as possible alike in age, vigour, &c., might be planted at the same time, under as nearly similar conditions as possible, in various localities, and the effect of frost upon them recorded from time to time. In this manner a series of observations, similar to those on the flowering of plants, &c., carried on in the Edinburgh Botanic Garden by Mr. MCNAB, might be made in different situations, and we should thus in time arrive at valuable conclusions. Our public gardens, from their geographical position, as well as from other causes, would seem to offer great facilities for such observations as we are now advocating.

—— SOME doubts having been thrown on the origin of the DOUBLE-FLOWERED PELARGONIUM Gloire de Nancy, M. LEMOINE, the raiser of the plant in question, asserts in the *Revue Horticole* that it was the product of artificial fertilisation by means of the pollen of a double-flowered variety grown at Clermont, and which was placed on the stigma of Beauté de Suresnes. M. LEMOINE further gives his opinion, that spontaneous duplicature is due to the presence of a concealed or unobserved petaloid stamen which has fertilised a flower and produced a semi-double, or perfectly double, variety. This may happen sometimes, but how can it be so in such a case as Mr. LAXTON'S Double Pea, 1866 (p. 897), where a double-flowered variety was previously wholly unknown?

—— The very rare TRICHINIUM MANGLESII is now flowering in the nursery of Mr. BULL, of Chelsea, so that those who may not have seen the flowers of this really charming plant may now have an opportunity of doing so.

—— A discussion has lately been carried on in the Société Impériale d'Horticulture de France as to the cause of the SWELLINGS so often to be seen in GRAFTED plants at the junction of the stock and graft. In the case of some Pears when grafted on the Quince, the swelling is well marked, but when on the Pear stock the swelling is hardly perceptible—so a Peach on an Almond stock produces a tumescence, while the same worked on the Plum gives rise to no such hypertrophy. The formation of this swelling is due to the unequal relative growth of the stock and of the scion. When, says M. RIVIÈRE, a feebly growing variety of Pear is grafted on the Pear stock, it produces a swelling beneath the graft (*i. e.* in the stock), but when worked on the Quince the swelling is above the graft (*i. e.*, in the graft itself), because in such a case the graft is more vigorous than the stock. To remedy the unsightly appearance of these swellings, longitudinal incisions into the bark of the smaller and less vigorous plant whether graft or stock, are recommended, so as to induce in it more luxuriant growth; this process having been proved to be successful in increasing the vigour of enfeebled or stunted trees.

—— In a recent number of the *Revue Horticole* M. DELCHEVALERIE records the results of his observations on the RATE OF GROWTH of the PETALS of SELENIPEDIUM CAUDATUM, from which it appears that during the height of their development the petals lengthened at the rate of 80 millimetres a day, and that they attained 910 millimetres in length in 14 days. The growth seems to have been most active during the day, as during the 14 days the growth amounted to 340 millimetres, while during the corresponding nights the amount of growth was 326 millimetres. When the petals had acquired a length of 91 centimetres they ceased to grow in length. At the beginning of the observations, that is to say, when the flower first began to expand, the petals were 240 millimetres in length.

—— We have already (p. 600) mentioned the names of those young gardeners who were prize-takers at the last examinations of the Society of Arts, and we now supplement that information by recording the names of those who gained certificates both at the Society of Arts' and at the Royal Horticultural Society's examinations:—

SOCIETY OF ARTS EXAMINATION, April, 1867.

	Floriculture.	Fruit and Vegetable Culture.
J. M. Henry, Richmond ..	2	2
J. C. Higgs, Southampton ..	3	1
A. Jamieson, Richmond ..	2	2
R. L. Keenan, Richmond ..	2	..
R. C. Kingston, Richmond ..	1	2
T. Paul, Slough	3	3
W. P. Roberts, Bromley ..	1	..
G. Stanton, Slough	..	1
A. Stormont, Richmond ..	..	2
F. Thomson, Richmond ..	2	2

ROYAL HORTICULTURAL SOCIETY'S EXAMINATION, July, 1867.

W. Spinks, Chiswick	1	2
B. Wynne, Chiswick	1	Ext. 2
W. Stewart, Chiswick.. ..	..	3
J. M'Ardle, Chiswick	2	..
F. Hardesty, Chiswick ..	2	3
F. M. Burbidge, Chiswick ..	1	2
J. Williamson, Battersea ..	2	..

The preparation for these examinations is in itself s advantageous to young gardeners, that we urge upo them the importance of turning their attentio seriously to the matter. They should recollect tha the benefit is far beyond the mere value of th Certificate they may obtain, though even that is not t be despised.

—— It may interest some of our readers to know tha the ANNUALS in Messrs. CARTER & Co.'s Seed Farm at Dedham and St. Osyth are now in perfection Individual kinds are grown there, not in small patches but by the acre; the relative merits of the differen varieties may therefore be readily ascertained.

FRUIT HOUSES *VERSUS* WALLS.

"FINE fruit is the flower of commodities:" it is th most perfect union of the useful and beautiful wit which the earth is acquainted. "Trees full of so foliage; blossoms fresh with spring beauty; and final fruit, rich, bloom-dusted, melting, and luscious. Suc are the treasures of the garden and orchard." Frui especially the commoner sorts, has now-a-days becon a necessary article of consumption with all classe The production of an abundant supply of it at a lo price is therefore a subject deserving earnest consider tion. Fruit is so plentiful some seasons that it is dif cult for the grower to dispose of it at any price. The seasons of abundance are invariably followed by seaso of scarcity, and when the supply is less than th demand, prices are high. There is an idea, very prev lent among people, that light crops are owing to t variableness of our climate, and that late spring fros do all the mischief. It is surprising how very general this idea prevails, and yet nothing can be mo erroneous. That unfavourable weather and la

spring frosts do occasionally injure and destroy crops, I can perfectly understand; but that they are always, or generally the cause of light crops, I by no means admit.

Last year the crop of Apples in this part of the country was an extraordinary one: Apples were so plentiful they could scarcely be sold at any price. This season the crop in general is a very light one; but this is not in consequence of late spring frosts, but owing to the crop of last year being heavy; it so exhausted the trees of all their organised matter that they were unable to mature fruit buds for another crop, and required a season of rest to store up matter for another crop. But management, or rather no management at all, was the cause of all this. As with the Apple crop, so with all other fruit crops, bad management is in general the cause of failure. I do not say always, for I know they do suffer in some seasons from severe frosts, but these are exceptional cases.

The removal of the duty from glass was a great boon to the gardening world. It gave a great stimulus to the building of glass structures of every description, which are now put up so cheaply that their general use for the cultivation of even hardy fruits is advocated. The labour and expense, however, attending the culture of fruit under glass is so considerable, that the wealthier classes only can have fruit obtained by that means, it can never reach the humbler classes.

In suburban residences and in other places where, either from the nature of the soil or locality, or from the limited extent of the place, there is some difficulty in getting good crops of fruit out of doors, by means of glass structures, a quantity can be grown if the owners are willing to pay for the necessary labour and expense attending the operation. All fruit houses should be spacious, they should be provided with means of giving thorough ventilation, and they should also, to be of real use, have hot-water pipes, to be used when necessary. When these are provided, and labour and other means are allowed, then fine fruit can easily be grown; but fruit so obtained, I repeat, can only be enjoyed by the wealthy.

In the country, where land is cheap as well as labour, and where the soil and situation are favourable, fruit can be grown at so light an expense as to place it within the means of the humblest persons. I need not say that bush fruit of all kinds can be grown in any quantity, no matter what the season may be. A couple of bullfinches will do more harm to a quarter of Gooseberry bushes in two or three days than two months' hard frost in winter. Apples of the finest quality come to perfection in the open ground, and with proper cultivation good crops of fruit can in general be obtained annually. Cherries of all kinds ripen well, and very rarely fail. Many of the best kinds of Plums ripen well in open quarters; Victoria bears enormously, and so do some others. The attention of pomologists should be directed to the raising of new kinds, not only of Plums, but of Pears, Cherries, and Apples, that will be hardy and bear well. A great number of our best Pears come to the highest perfection in the open quarters. Now, with proper cultivation, an abundant supply of these fruits can in general be annually obtained, not only without glass, but even without walls, and that at a price so low as to place them within the means of every one.

Peaches, Nectarines, and Apricots, are the only fruits in general cultivation that require a wall to ripen their produce properly, and for these a wall is necessary. Peaches and Nectarines are not in very general use, except among the wealthy. Apricots are in great demand. Immense quantities are grown in this neighbourhood; farmers and cottagers plant them in favourable aspects against their houses and outbuildings; they find a ready sale for them, oftentimes at very high prices, in our local markets, which are regularly attended by buyers from our great manufacturing towns. They protect the trees whilst in blossom, and they rarely fail to get crops of very fine fruit. I know no kinds of fruit trees from which crops can be more regularly obtained than Peach, Nectarine, and Apricot trees, where they are well managed.

All gardens require a fence or protection of some kind. Walls, though expensive at first, are best, and probably the cheapest in the end. They furnish a surface on which to train fruit trees of all kinds, which, with proper management, soon repay the outlay. We hear continual complaints about crops of fruit failing; and this is, as I have said, very generally, but as I believe often wrongly, attributed to the changeableness of our climate. Bad management is in general the cause of failure. When fruit trees receive the proper amount of cultural skill which they require, there will not be such frequent complaints about the failure of crops. From my own experience, which is now pretty considerable, I believe that when crops out of doors fail, it is in general from some other cause than late spring frosts.

As an instance, I may mention that the Peach crop last year was very light in most places in this neighbourhood; that was not owing to the occurrence of spring frosts while the trees were in blossom, but from the myriads of aphides that settled on them the previous season causing the leaves to fall off before the wood had got properly matured. It was entirely owing to that, and that only, that the Peach crop last year was light. In places that escaped the attacks of the aphides, Peaches were abundant and fine.

Again, the Apple crop is light this season, not because the late spring frosts killed the blossom, for there was little to kill, but because the extraordinarily heavy crop of last year so exhausted the trees that they were unable to form fruit buds for this season. Next year, no doubt, the crop will again be a heavy one, to be followed by another light one. I could adduce more instances of this kind to show that the failure of crops occurs oftentimes from other causes than late spring frosts. Bad cultivation is not unfrequently the cause of bad crops. When fruit trees are properly managed there will be little complaint about failure. Two most essential points to be attended to in fruit tree cultivation are—1st, always to secure well-ripened wood; and 2d, never on any account to allow the trees to carry too heavy a crop. Improper borders oftentimes cause trees to make soft watery wood, which does not ripen properly in cold seasons, and in winter the roots perish in such borders. Under such circumstances it is no wonder that the crop should fail.

Fruit tree borders should be thoroughly drained. When the trees have been properly attended to, and the mechanical condition of the border also, the roots seldom suffer in winter; the trees make moderate growth, which, with timely and proper attention, gets matured; and in general the results are good crops. For the last 19 years we have had all kinds of seasons and weather, and here there has never been a general failure of the crops during the whole of that time. Some particular crop may have been light, but generally from some other cause than late spring frost. I am convinced that with good cultivation fine average crops of fruit may be had six seasons out of seven.

I may recapitulate that in the country, where land and situation are favourable, abundance of fruit of all kinds can in general be grown with proper management at so light an expense as to put it within the means of almost all people; and that in places where, from the nature of the soil, the situation, or some other cause, fruit cannot be grown well out-of-doors, by means of fruit houses good fruit can be grown in quantities according to the means allowed. *M. Saul, Stourton, Yorkshire.*

HARDY PICTORIAL TREES.—No. VI.

Flowering Trees and Shrubs (Deciduous).

As in my last paper, which dealt with Evergreen flowering trees and shrubs, I shall here select and describe only a few of the choicest of the deciduous kinds.

Æsculus Hippocastanum (the Horse Chestnut).—Height, 60 feet. One of the grandest of flowering trees, to which the avenue in Bushey Park bears ample testimony. The double-flowering kind (*Æ. H. flore-pleno*) is equally beautiful, and more suitable for many purposes, growing slowly, and seldom attaining to more than half the height of the former. The Scarlet Horse Chestnut (*Æ. H. rubicunda*) is of still slower and smaller growth, rarely exceeding 20 or 25 feet in height, and, from its symmetry and beauty, forms an admirable park tree.

Amelanchier Botryapium (the snowy Mespilus).—Height, 30 feet. This is one of the most beautiful of spring-flowering trees, growing well in common soil. The white blossoms are produced in such abundance as to completely cover the tree early in April.

Amygdalus communis (the common Almond).—Height, 20 feet. Another spring-flowering tree, of great beauty; the flowers are pink, profusely adorning the tree in March and April. Hardy, free, thriving in any soil, and apparently indifferent to the smoke and confinement of large towns. The double-flowering Almond is also a good hardy tree; the dwarf Almond (*A. nana*), of which there are both red and white varieties, is very useful and pretty in the front of shrubberies, rarely exceeding 1 foot or 1½ foot in height.

Azalea.—See *Rhododendron viscosum.*

Buddlea globosa.—Height, 12 feet. This is a very showy plant, producing numerous globes of orange-coloured flowers in the summer. It is unfortunately not very hardy, and except in sheltered situations is best placed against a wall.

Calycanthus floridus (the Carolina Allspice).—Height, 6 feet. The flowers of this plant are not striking or showy, but their delightful fragrance commends it for general cultivation. The leaves die off bright yellow. It prefers a peaty soil, but this is by no means indispensable.

Cerasus sylvestris flore-pleno (the double French Cherry).—Height, 20 to 30 feet. We have here one of the most beautiful of spring-flowering medium-sized trees, the branches in early spring being literally covered with large double white flowers. *C. vulgaris flore-pleno* (the common double-blossomed Cherry) is also a beautiful tree, usually of somewhat less vigorous growth. There is also a beautiful dwarf variety, *C. japonica fl.-pl.* rarely exceeding 4 feet in height, with double white flowers, and a double rose-coloured variety, well worthy of general cultivation for shrubberies and forcing.

Coronilla Emerus.—Height, 6 feet. This is a pretty dwarf shrub, the flowers yellow, tipped with red, produced in May and June. It is very hardy, thriving in any soil.

Cratægus Oxyacantha punicea (the Scarlet Thorn).—Height, 15 feet. No plant is more beautiful in early spring, the dark red flowers being produced in magnificent profusion. The species and varieties of *Cratægus* are almost endless, and nearly all are desirable, when space admits of their introduction. The best for ornamental planting are the double white (*C. Oxyacantha fl.-pl.*), the double pink (*C. O. punicea, fl.-pl.*), and the double crimson (*C. O. coccinea, fl.-pl.*), the last named promising to eclipse all others in point of effect.

Cytisus albus (the White or Portugal Broom).—Height, 6 feet.—This is desirable among white-flowering shrubs on account of the mass of flowers it produces in early spring. There is a variety (*C. a. incarnatus*) bearing white flowers tipped with pink, also very beautiful. The common Laburnum (*C. Laburnum*, height, 20 feet) belongs here, and there are many dwarf-growing varieties of great beauty, ranging in height from 1 to 4 feet; of these *nigricans, patens, purpureus, purpureus flore-albo, elongatus, supinus*, and *capitatus* may be regarded as the best.

Daphne Mezereum (the Mezereon).—Height, 4 feet. Both the white and pink varieties of this plant are desirable on account of flowering in mid-winter.

Deutzia gracilis.—Height, 2 to 3 feet. A pretty dwarf shrub, of free, hardy growth, thriving in any soil; admirably adapted for the front of shrubberies. The white flowers are freely produced in early spring. *D. scabra* is similar in character, although of larger growth. *D. crenata flore-pleno* is very handsome, the flowers white, often tinged with rose colour. All these are excellent for forcing.

Forsythia viridissima.—Height, 4 feet. The flowers of this plant, which are greenish yellow, appear in great profusion in winter before the leaves. Hardy, thriving in any soil. *F. suspensa* is also a good hardy climbing shrub.

Fuchsia Riccartoni.—Height, 8 feet. This plant is almost hardy, and if injured by frost will spring up from beneath the ground, and flower freely in the autumn. The same may be said of *F. virgata.* Both bear red flowers, and are very graceful.

Genista tinctoria flore-pleno.—Height, 1 foot. This beautiful little plant is profusely adorned with yellow flowers in early spring, and is well suited for the front of borders, and for rockwork. *G. purgans* is a very showy kind, and, as in the case of many species of Cytisus, forms a fine lawn tree worked on stems of the Laburnum.

Hibiscus syriacus (Althæa frutex).—Height, 5 feet. There are few autumn-flowering shrubs so handsome as these, and they grow freely in any soil. There are many varieties with red, white, purple, and variegated flowers; some are single, others double.

Liriodendron tulipifera (the Tulip tree).—Height, 60 feet. One of the grandest of park or lawn trees, but requiring considerable space. The leaves are large and curiously cut; the flowers, which are greenish yellow, of a deeper colour inside, are produced in June and July.

Magnolia conspicua.—Height, 20 feet. This plant is usually placed against a wall, but in light loamy or peaty soils it thrives well in the open garden, where the masses of large white oval flowers make it a conspicuous object in early spring. *M. purpurea* and *M. Lennè*, the latter especially, are beautiful purple-flowered kinds. *M. Soulangeana* is also a desirable variety, the flowers being white tinged with purple.

Persica vulgaris flore-pleno (the double-flowering Peach).—Height, 15 feet. We know not whether to admire these plants most as pyramids in the forcing-house or as standards out-of-doors; in both positions they are exquisitely beautiful. The double rose, double crimson, double white, and Camellia-flowered are the best. A striped variety of great beauty was introduced from China a few years since, but the variegation has in many cases that we know of disappeared.

Philadelphus coronarius (the Syringa).—Height, 10 to 20 feet. This old-fashioned plant cannot yet be dispensed with; it is indeed one of the most useful of shrubbery plants. Among other kinds, *P. grandiflorus, speciosus, verrucosus, and Zeyheri*, are perhaps the best.

Prunus domestica flore-pleno (the double-flowered Plum).—Height, 20 feet. This is a useful early-flowering tree, and the same may be said of the Cherry Plum (*P. Myrobalana*). The double Sloe (*P. spinosa flore-pleno*) is perhaps the most beautiful and useful of the Plums, flowering early, profusely, and remaining a long time in flower. It is of smaller growth than the preceding, rarely attaining the height of 12 feet.

Pyrus spectabilis.—Height, 30 feet. One of the most effective of spring-flowering trees. The flower-buds are deep red in April, changing to rose-colour on expansion in May. Very hardy and free.

Pyrus Malus Ringo.—Height, 10 feet. A beautiful medium-sized tree, covered with pink buds, expanding white, edged with pink, in early spring. Very effective.

Rhus Cotinus (the Venetian Sumach).—Height, 5 feet. The reddish feathery pedicels of this plant attract the attention of all observers, and are quite unique in appearance in the shrubbery and garden. Free, hardy, and highly ornamental. *R. typhina* (the Stag's-horn Sumach) is a singular-looking pinnate-leaved low tree, not without beauty.

Ribes sanguineum (the Red-flowering Currant).—Height, 6 feet. One of the hardiest, finest, and loveliest of early spring-flowering shrubs; there are pink, red, white, and double red varieties, all worthy of universal cultivation. There are other species interesting enough, but hardly equal to the above for effect in ornamental planting.

Robinia hispida (the Rose Acacia).—Height, 10 to 15 feet. A beautiful low tree, the branches of which are exceedingly brittle, and liable to be broken by the wind in exposed places. The flowers are rose colour, produced in loose racemes from June to September.

Rhododendron viscosum.—Height, 3 to 4 feet. Under this heading we class the Azaleas of gardens; and where peat is of ready access, the Ghent Azaleas are most desirable either in separate beds, or in the borders of the shrubbery. They are very showy and effective in early spring, the colours being mostly yellow, buff, and orange, but there are also white, pink, and scarlet varieties.

Rosa (the Rose).—Although Roses fall naturally within our scope, space will not allow of more than the briefest allusion to them. Standards in beds or lines on lawns, and dwarfs in beds or borders are equally in place. Their culture and lists of varieties are now matter of everyday discussion.

Spiræa ariæfolia.—Height, 6 feet. This is one of the best, and perhaps the best, of the white Spiræas; but *ulmifolia, Lindleyana*, and *prunifolia* are also very good. Of pink kinds we should select *S. bella, californica, callosa*, and *Douglasii.* All are hardy and free flowering, and will grow in almost any soil.

Syringa vulgaris (the Lilac).—Height 10 to 20 feet. Among common flowering shrubs the Lilac is deservedly a great favourite, and, in addition to the old-fashioned sorts, *La Liberté*, *Dr. Lindley*, and *Charles the 10th*, are acquisitions. The Persian Lilac (*S. persica*, 6 feet), and the Siberian Lilac (*S. rothamagensis*, 8 feet), of which there are both red and white varieties, are also valuable where a lower growth is required.

Viburnum Opulus sterilis (the Gueldres Rose). — Height, 10 feet. The beautiful balls of white flowers which this tree produces in spring give it a high rank among flowering shrubs. It thrives in the commonest soil, and should be planted freely, and cut into shape if it becomes straggling. *Viburnum plicatum*, of which the original tree is in these nurseries, and *Viburnum macrophalum*, are also of great beauty.

Weigela rosea.—Height, 4 feet. One of the handsomest of flowering shrubs, the flowers covering the branches with their rosy-coloured blossoms in May. There are many varieties of this plant, all worthy of general cultivation; *amabilis*, *Stelzneri*, and *Van Houttei* are perhaps the best. *William Paul, Waltham Cross, N.*

THEORY AND PRACTICE OF VENTILATION. No. XVI.

(*Continued from p.* 1165, 1866).

Heat and Light in their Relation to Ventilation.—If heat be motion and motion be heat, and if motion and change of air constitute ventilation, then it is obvious that some knowledge of the originator of the motion and the producer of the change is necessary to the comprehension of our subject. Without entering deeply into the nature and mode of diffusion of heat, it will suffice here merely to fix our attention upon some of its mechanical, chemical, or vital effects. Heat is the great repulsive force. It enters into all bodies, however hard or impenetrable they may seem. It opens up a path apparently with equal ease through the hardest granite, and the most attenuated elastic gas. It travels, indeed, at different rates of speed, but nothing can offer an effective resistance to its insinuating energy. Its effects, too, are similar on all descriptions of matter. It always runs counter to the laws of gravitation and cohesion. It exerts a repulsive separating force; it thrusts the ultimate atoms of matter further asunder. Hence, it increases their bulk. Solids, liquids, and gases all increase in size or volume by the addition of heat. It compels a displacement of atoms, and causes or becomes motion. Thus we observe that a bar of iron becomes longer and broader, a volume of water increases in bulk, as it becomes warm. The same thing happens to a hothouse full of air. Raise the temperature, and one of three things must happen. Either the air will force its way out through the glass, or the increased volume will indefinitely intensify the normal amount of pressure, or it must be permitted to escape by properly constructed and arranged ventilators. Of this we may be quite certain, that for every degree of temperature added, the air occupies more space, and that no house can be made to contain, without a dangerous increase of atmospheric pressure, all the air at 60° which it held at 40°.

Hitherto our comparatively imperfect modes of glazing has made this a matter of less consequence. Few if any roofs have been, or are, hermetically sealed. But with metallic glass roofs and improved modes of glazing, such as Beard's, which properly executed are almost air-tight, the necessity of a knowledge of these facts, and of thorough ventilation, becomes every day more imperative. Of course it would require great compression of the atmosphere to break the glass. Not but what the expansive force of heated air would quickly accomplish this, but for its escape by doors, lips, &c., as may readily be proved by holding a fully inflated bladder before a fire. The rapidity of the tightening strain, and the explosive force of the report, will afford a good criterion of the expansive energy of heated air. A similar if less violent process goes on in every well-glazed glass house. The caloric, by insinuating itself between the gaseous atoms, thrusts them farther apart, and forces them to occupy more space. If no air escapes, an increase of pressure must necessarily result. And this is no trifling matter. The smallest change of pressure might, and most probably would, prove most injurious if not ultimately fatal to vegetable life. It is astonishing to observe the extreme nicety of natural arrangements. Forces the most tremendously energetic, touch us with the gentleness of a sunbeam. Let anything counteract their natural tendencies, or change their proper relations, and we are crushed by their power. Atmospheric pressure is a case in point. Its force is marvellous. Yet its all-embracing energy enwraps the living world with all the gentleness of a mother's loving touch. Why? All this gentleness is dependent on the exactitude of the balance that is maintained between the specific gravity of internal fluids and the external support afforded by the air. Let either gain the slightest mastery over the other and disorganisation or rupture of tissue must ensue. Lessen the pressure of the atmosphere, and the sap would force its way through, tearing asunder the living tissue on its way. Increase it, and an external bruise, followed by internal derangement of function and form, must follow.

And life is peculiarly sensitive to such changes, even when and where our best instruments might not reveal an increased pressure, the more delicately sensitive indices of plant life would feel, and be injured by it. One of the less violent results of such an increase of pressure would probably be an accelerated circulation of fluids. This, however, would not arise from the mere stimulus of the higher temperature, that might at times prove serviceable, and which it is one of the chief functions of heat to provide, but from simple mechanical compulsion, if I may so express it. The confined heated air beating against its prison, striving in vain to escape, expends some of its expulsive power in forcibly pressing forward the sap. The increased speed thus obtained would be altogether unnatural, and therefore injurious.

Be it ours by skilful ventilation at the right moment in the proper manner, and to the desired amount to render any increase of atmospheric pressure, by accumulated, confined, heated air impossible. Fortunately, though heat in this respect becomes a source of danger, it also provides and reveals the path of safety. The very agent that fills close glass-houses to a dangerous tightness with confined hot air, hastens to empty them the moment a door of escape is opened. Heat, while it thus creates the necessity for, also becomes the active agent in effecting ventilation. We have only to guard the entrances and the outlets and clear the lines of road, and the great laws of fluids in search of an equilibrium of temperature will do the rest. Heat is not only the warmer, the illuminator, the quickener, the transformer, the carrier, but also the ventilator of the world. Hence, although I have in these papers complained of ventilation being looked upon *only* as a means of controlling temperature, yet it must not be forgotten that this is one of its most useful purposes. We cannot regulate temperature without it. It would be most difficult so skilfully to generate artificial heat as to dispense with the necessity of ventilation. The capriciousness of solar heat renders the use of such a regulator absolutely indispensable. By allowing the heated air to escape and by creating draughts or currents of air, an excess of heat is readily prevented or got rid of. All gardeners are familiar with this use of ventilation; there is, however, another purpose for which it may be applied, or more correctly this lowering of temperature may be carried to what may be termed excess. Ventilation may be used for the production of cold as well as for the regulation of warmth. An artificial atmosphere colder than the natural may thus be produced. At times, and for special objects, this may be equally useful, as the generation or husbanding of heat, for the retardation of crops, prolongation of bloom, preservation of fruit, a continuous supply of either these or vegetables, or a cool retreat in warm weather, a low temperature may be needed.

Skilful ventilation energised by the aid of evaporating surfaces over the openings, and further assisted by shading and a cool aspect, will place the negation of heat, or a large amount of cold within our reach. Heat may thus be expelled instead of admitted into an artificial atmosphere. The difficulty is, however, greater. In the latter case the whole volume of the external atmosphere is trying to rush into the small space and raise its temperature, and it is difficult to maintain an internal source of cold; in the other an internal supply of heat is easily generated, and the cold external air shut out. Still it is possible to secure an artificial atmosphere colder than the external air, and it may sometimes be of practical importance to know how to do it.

The question of shading introduces us to the relation of light to ventilation. This is neither the time nor place to dwell upon the nature or properties of light. Of its nature nothing is certainly known. It possesses many of the physical properties of heat. Of that property, however, most closely related to our subject, the expansive or moving power of heat; light seems altogether destitute. Bodies are neither larger nor smaller when exposed to the light than during darkness. It neither changes the bulk nor quality of inorganic matter. It is not known to have any direct influence upon the air. Being however invariably associated with solar heat, and exerting an all powerful influence on vegetable life, it thrusts itself into our subject. It is impossible to ignore it if we would. Speak of a sunbeam warming—it also enlightens; suggest shade, light flashes forth its angry protest. And well it may. For if heat is the great quickener of vegetable life, is not light the master builder of vegetable structure? Heat looses and sets free the building matter, light utilises and converts it into shape. Heat creates the demand, light supplies it; heat transports the materials, light transforms them. Heat moves the ocean of air, with its rich burden of plant food, round and round the earth; light turns it to account, and changes it into the food of man. Heat disperses dead matter, light converts it into living. Heat is the quickening energy of the sun, sent quivering through the world of life; light paints that life all over with his rich hues of glory.

I have already spoken of the nicety of the balance existing between the weight of internal fluids and the external pressure of the atmosphere. But that nicety is as nothing compared to the exactness of the balance and the closeness of the relation subsisting between a luminous and a heating ray of sunlight darting forth together to bend their great powers into harmony in the production, growth, or perfecting of vegetable products. The greatest difficulty in perfect ventilation is to hold the balance skilfully between these two subtle but powerful agencies. If the antithetical synopsis here given of a few of their respective functions be at all correct, it follows that an excessive activity of either beyond the other, must lead to the most disastrous results. Suppose for instance that more food has been imbibed in a given time than has been properly assimilated. It passes in a crude state into the system. The light cannot reach and duly influence it afterwards. The only one chance of being properly prepared has been lost, and a weak, etiolated growth, ending in constitutional debility, if not disease and death, will probably be the result. The lesson from this is obvious. During dull days and at night the lowest possible temperature, consistent with healthy existence, should be maintained. Growth should be checked rather than encouraged in the absence, or with a paucity of light. If the external atmosphere is warm during dull weather, ventilation affords the means of lowering our artificial atmospheres. Every ray of light should also be utilised where flowers and fruit, and high-coloured leaves are the objects aimed at; not that every plant will bear the direct rays of the sun, and some exquisitely coloured leaves, such as Anæctochilus, will not. But all that will bear it ought to be freely exposed to it, and those that require shading only need to have the calorific, not the luminous rays, intercepted; with plenty of light the temperature may also be freely increased. Burning, as it is termed, oftener arises from plants being placed too close to the glass, or from imperfect ventilation, than from any absolute excess of heat. Under clear glass it is not necessary to place plants nearer to it than from 2 to 4 feet. Vines and other fruits on trellises would be better 18 inches or two feet lower, than, as we often see them thrust up within 6 inches of, or actually beating against the glass. This must all be changed with thoroughly transparent roofs, which seem absolutely to increase rather than obscure the flood of light to be found in the natural atmosphere. All recent improvements in hothouse building place more of the light and heat of the solar rays at our disposal. We have so long been accustomed to a weak dilution of both, struggling through thick, dingy glass, and between heavy timbers, that we are hardly prepared to deal with the energetic action of these forces in a pure state. It is like the change from the rough roads and lumbering waggons of the olden times, to the smooth iron ways and the powerful locomotives of to-day. Life speeds forward much faster under the new conditions. With the increased speed and force applied new dangers arise, and greater skill is needed to avoid or master them.

D. T. Fish, F.R.H.S.

(*To be Continued.*)

HERBACEOUS PLANTS.—No. III.

(*Continued from p.* 406.)

There are so many good things to allude to that I must be sparing of space, and can barely do more than name what I consider the cream: to indicate the capabilities, requirements, and best positions for each I must forego for the present. Of the Hellebores, niger, niger major, abchasicus, atrorubens, colchicus, and olympicus are the best of my acquaintance. The charming genus of Columbines, or Aquilegias, is one of the most beautiful in the whole range of hardy plants; indeed, I know of no flowers, hardy or tender, that surpass in beauty well developed specimens of A. glandulosa, alpina, and cœrulea—the last of exquisite beauty, and apparently more easy to develop and increase than some of the others. What the true A. alpina is Messrs. Backhouse have shown, and A. glandulosa is of almost greater beauty; A. californica is very fine, and makes a great plant in sandy soil: this last is easily had true from seed, and so is A. canadensis. There may be and doubtless are others of merit, but I have not seen them flower; and perhaps somebody else may supplement a really good thing that may happen to be left out. The order Ranunculaceæ is a glorious one for herbaceous plants. Why, from it alone one could make a capital display of really ornamental subjects. Notwithstanding all the fine things I have mentioned, the noble Delphiniums and gorgeous Pæonies are yet to be quickly passed in review. The Delphinium is now almost elevated to the position of a florists' flower; and as new and good varieties are constantly being raised, it is not perhaps necessary to specify the first-rate here: but I venture the following names as likely to give every satisfaction :—D. Belladonna, Hendersoni, La Belle Alliance, Wheeleri, Schamyl, grandiflorum maximum, g. plenum, and William Pfitzer. There are many others, and I hope to see this fine genus cultivated extensively in many nurseries, so that a selection can be readily had anywhere. Not a few of the good kinds may be had from seed, but the newest and rare kinds must be procured as plants. There are no hardy plants more ornamental in summer, and they should be cultivated and arranged with taste in every garden. The herbaceous Pæonies are all so good that it is difficult to select. There are nearly 100 kinds of these in this country; the dwarf tenuifolia plena is fine—the sinensis, white albiflora, and officinalis breeds particularly so. As a rule they are rather too short-lived for the mixed border, but may be made good use of apart from that, in most gardens. To plant them, for instance, in the beds devoted to Dahlias or Hollyhocks would be a good plan, which indeed I have seen well applied, yielding a good show of Pæonies in the spring, and a good show of Dahlias and Hollyhocks in the autumn. Of the Aconitums, chinense, Napellus, bicolor, and eminens are about the best; though, considering their poisonous properties, they are probably better omitted from general cultivation. So much for this distinguished order of herbaceous plants.

Next we have the Poppies—bracteatum and orientale being grand here, or at all events exceedingly showy. The most vivid line I have ever seen was afforded by these at Trentham. They are probably varieties of the same species, but we must not wrangle about that. Suffice it that a thing differs: we should be thankful that somebody has given it a name whereby we may recognise it. The dwarf Alpine Poppy is very good, and so is P. nudicaule; and the Welsh Poppy (P. cambricum) is also a nice thing in its way, especially when it gets established in a half wild spot, or at the shady side of a wall. I noticed it very pretty along the bottoms of the roadsides in the lake district last autumn. But, conscientiously, I am not sure that either of them would remain as a permanent plant in the mixed border, though they might all be well utilised about rockwork and the like. I know but little of what those great Himalayan Meconopsis are going to do in our climate, and therefore had better leave them out. We have enough and to spare of known excellence, without including the dubious. Macleaya cordata is a

plant of distinct foliage and habit in this order, and Stylephorum diphyllum is a pretty yellow plant in favourable spots. I need hardly say the Epimediums are very beautiful, though it may as well be said, for they are very rarely seen developed in gardens, though distinct in habit, and beautiful in bloom. All are good, so that you can scarcely make a mistake by adding any of the genus you meet with to your collection, as you might certainly easily do by adopting a similar course with regard to many other herbaceous genera, notably Aster, Salvia, and Solidago. Do not forget E. pinnatum elegans. They usually enjoy a peaty or free soil, and slight shade. Dielytra formosa or eximia is graceful in leaf, pretty continuous in flower, and worthy of association with the universally admired D. spectabilis, the "white" variety of which will doubtless be worth adding to collections. Taking it all in all, the common Corydalis lutea is the best of its race; it keeps growing, rising, and producing its profuse flowers for such a length of time. Some rarer kinds are much larger, but a shorter time in flower, and altogether more suited for a botanic garden than any other. *W. R.*

RAPHANUS CAUDATUS, OR RAT-TAIL RADISH.

This is one of the most interesting of recently introduced plants—interesting on account of the quaint growth of its long pods, as well as in a botanical point of view. Here however praise must end, as I cannot endorse the published statements that "it is one of the most useful vegetables that has been lately introduced, or that it is of value as a salad, and still less that when boiled it is most delicious, eating like marrow, and having a most delicate flavour." I can only say that I have tried it in various ways, and in each have found it to be nauseous and disagreeable. I will now therefore simply refer to some experiments in its growth. Having obtained a shilling packet containing four seeds, these were placed in April singly in thumb-pots beneath a common glass frame. In a short time they were transferred to the greenhouse and planted in front of the house at the end of May. The plants grew but slowly for some time, but sprang up rapidly when settled warm weather came in. Three of the plants produced long pods, which grew with great rapidity; the fourth plant produced pods about half the length of the rest. The following admeasurement of a long pod, at different periods, may be interesting as showing the rate of growth:—

June 27.	Length of Pod	18½	inches.
July 1	ditto	21	,,
July 2	ditto	23	,,
July 3	ditto	24	,,
July 4	ditto	24½	,,
July 6	ditto	25	,,
July 10	ditto	29	,,

At this date, July 15, it has not increased in length, and I conclude that the seed is hastening towards ripening. Many pods on three of the plants are within a trifle of 30 inches in length, but the longest pod on one plant is only 13 inches. In growing the long purple pods are sometimes stretched at full length, like uncoiled snakes; at others, twisted in a most grotesque manner. The stem foliage and flowers of the young plant are scarcely distinguishable from those of the garden Radish or the purple form of the Raphanus Raphanistrum (wild Radish of our fields); and I venture to suggest, that notwithstanding the extravagant length of the pods in some of the examples of this new introduction from Java, that after all it is not a truly distinct species, as already I see evidence to make me conclude that I can from this strain produce examples with short pods, and in continuing the long-podded variety it is found necessary to have seeds from long pods. The long-podded form, though a native of a warmer climate, grows readily with me, and indeed the wild Radish is a weed of cultivation both in Europe, Asia, and America. My specimens offer some extraordinary forms, not to say malformations, in the development of the pod (siliqua), which I hope hereafter to be able to describe; and to this end I shall continue to grow the Rat-tailed Radish, while I repudiate the extravagant assertions that have been made as to its value as an esculent. *J. B., Dorset.*

CABBAGES FOR SPRING USE.

Practical men (says M. Saul in the last number of the "Florist and Pomologist") have no difficulty in getting a supply of Cabbages for early spring use; to them it is a very easy simple affair, no matter what the season may be. But the inexperienced oftentimes make great mistakes in the matter, and instead of having Cabbages for use in early spring, it very frequently happens that they have none ready before midsummer. A supply of Cabbages early in spring is always very useful, but doubly so in seasons like the past, when Greens of every kind were scarce in consequence of the wholesale destruction among them by the frosts in January last. A few remarks on the subject may be not altogether unacceptable to some of your readers. There are two points of much importance to be attended to—namely, 1st, The Time for Sowing the Seed; and 2d, The Time for Transplanting.

The Time for Sowing the Seed.—This is a matter of much importance, as the time that would be proper to sow in one place will not answer in another part of the country. In the south of England, the end of July or beginning of August is found to be a proper time for sowing; but here in Yorkshire, if we were to defer the sowing until then we should in vain look for Cabbages before midsummer. Taking the average of seasons, I find it is not prudent to sow later than the middle of July, in order to get Cabbages early in spring. As the seasons vary much, so also does the growth of the plants, which will be either large or small according to the weather. Instead, therefore, of depending for plants on one sowing, I have made it a rule for many years to make two sowings, the first about from the 8th to the 12th of July, and the second from the 20th to the 26th. By this plan I have always a great choice of plants, and plenty to spare for the workmen.

The Time for Transplanting.—Here in Yorkshire this should not be done later than the middle of September. I plant always the end of the first week in September, from the first sowing in July, and again about the end of the third week I plant the best plants from the second or late sowings. In general, I find those planted the end of the first week in September come in earliest in spring—sometimes, but rarely, they do get a little too forward in the autumn, and in consequence suffer a little if severe frost sets in, but in general I find they do better and come in earlier than the later-planted ones; the latter come in after the others, and continue the supply. In general, Cabbages should never be planted out later than the middle of September, when wanted early in spring. If they are planted in October, they are rarely fit for use before the following June. When planted early in September they get good roothold, and being earthed up and taken a little care of, they stand ordinary winters with impunity; but when planted as late as October they do not get much roothold; and if the weather sets in cold and unfavourable they make no progress, and many of the plants fall a prey to slugs, so that when March comes round, more than half the plants are gone, the vacancies have to be filled up, and it is generally the end of June before the Cabbages are fit for use.

General Remarks.—For early use some approved early sort should be sown. The properties of a good Cabbage are, a small short stem, and a large, compact, well-formed head of succulent leaves, surrounded with but few loose leaves. To grow them in perfection a deep rich soil is requisite.

As the young plants advance in growth, the soil between the rows should be stirred frequently with the hoe, and a little earth drawn up to the plants as they require it. Should the earth in April be dry, frequent heavy watering will be very beneficial to them, and occasionally a watering of liquid manure. Attention to the foregoing matters will ensure a supply of good Cabbages for spring use.

Home Correspondence.

The Awards of the Judges at the Bury Show.—It is always a thankless office to criticise the decisions of judges. As a rule they are accepted as final, and received in silence, and in the main they are mostly just. I hardly remember them to have been so much found fault with as in this instance. As far as the orchard-house trees were concerned, I think the jurors made a mistake. Possibly they did not pay sufficient attention to the wording of the schedule. Had they done so they must have seen that neither the number of Peaches nor the unripe state of the fruit should have affected the award. The schedule states:—"Ipswich Town Cup, value 10*l.* 10*s.*, for the best 12 orchard-house trees, in fruit, not less than 6 distinct kinds: it is not necessary that the fruit should be ripe in this class." Now, if Mr. Grix had had seven Peaches instead of three, and one of each of any five other kinds of fruit, and his trees as a whole were the best, he would have been entitled to the prize. The question of ripeness was advisedly left as stated. It was felt that trees with ripe fruit were bad travellers, and so, to encourage distant exhibitors, we were content to have the fruit green. The question is thus narrowed to this, Were or were not Mr. Grix's trees the best, leaving out of view any preponderance of Peaches or Nectarines, or any drawback from the comparatively unripe state of the fruit? Without in the least disparaging the excellent trees shown by the Messrs. Lane, I think Mr. Grix's trees were the best; in fact, the finest, upon the whole, I have ever seen. If the judges think otherwise, there the matter must rest, but if they were misled by considerations that ought not in any way to have affected the award, then I am sure they will hasten to make all the amends in their power, and as honourable men at once admit that their judgment was the result of misunderstanding the conditions of the schedule. They had no right—could possess no power—to lay down conditions of their own. In the Pelargonium seedlings I uphold the decision of the judges. The prize plants were distinguished by vigour, distinctness, and quality. Your correspondents (p. 784) may decry vigour and call it coarseness, but I contend that vigour is of the first import in all such plants. Whatever else they may or may not have, it is essential that they should possess the faculty of growth. We want no more Senior Wranglers that simply graduate, and then bury all their excellencies beneath the crushing weakness of delicacy of constitution. The prize plants showed at a glance that they meant growing. There was nothing at the show that equalled them in stamina, and I have seen no plants to equal Mr. Grieves' in constitution, unless it be some splendid specimens forwarded to me by Mr. Wills. But the prize plants were also distinct: next to vigour, this merit is the most vital. Many of the plants at the show were amazingly like each other, and bore a startling resemblance to others already in cultivation. It was proposed to me by several gentlemen on the spot that some of the largest exhibitors in these classes should be asked to remove the labels from 12 varieties, allow the pots to be re-arranged, and then be requested to replace the labels. The general impression was that the raisers would have failed to replace them correctly. The probability is that we should have had a new reading to the query of "What's in a name?" thus: all the difference between one seedling Tricolor Pelargonium and another. Now, the prize plants had more than their names to distinguish them. They were not only different from any other varieties, but emphatically distinct the one from the other. And they were, moreover, distinguished by quality. Their very faults, as dwelt on by your correspondents, spoke strongly of the excellence of their breeding and the richness of the blood that was in them. It was not the fault of the exhibitor that their characters were not fixed. If the public demand an exhibition of babies, it is preposterous to go away and decry their beauty because the babies had not the firmly set features and matured character that distinguish and adorn manhood. Whether the fleeting beauties of childhood should be publicly exhibited, or rewarded at all, or not, is quite a different question, and is not here under discussion. We asked for baby Pelargoniums—they were brought: and the duty of the judges was to judge them as such, and make their awards accordingly. But as their award affected not only the present but the future, the first question to be asked was, Is this baby plant likely to live? The second, Can it grow to any useful purpose? The third, Is it distinct enough to be distinguished from others? And the last, Is it as beautiful, or likely to become as beautiful, from the hidden powers which play sportively over its features, as any of the others present? These questions can all be answered in the affirmative, and probably (although I am not in any sense in the secret of the judges) enabled these plants to carry off the cup. I quite agree with your estimate of their merits, and doubt not but that the plants themselves will soon be in our hands, and that their strength, distinctness, and beauty, and consequently their usefulness, will confirm the award of the jurors. *D. T. Fish, F.R.H.S.*

Variegated Pelargoniums at Bury.—As the successful competitor for the County Cup, offered for the best 12 Seedling Variegated Pelargoniums at the Bury Show, I regret very much to observe some letters in your last issue, calling in question the decision of the judges in this particular case. Although I do not feel called upon to interfere, still I very naturally feel interested in the matter, and with your permission will offer a few words upon the subject, feeling the more inclined to do so from believing it quite possible that the judges may not condescend to notice the unwarrantable attack which has been made upon them. As to the letters signed "A Subscriber" and "Scrutator," the fact that these writers shelter themselves under assumed signatures will be a sufficient reason for my taking no further notice of them; but with respect to Mr. Davison, who with more manliness has appended his real name, I have a few words to say. In the first place, Mr. D. will not, I hope, be offended if I quote the homely old Scotch proverb, viz., that "Fules and bairns shudna see half-dune wark." Which simply means that self-conceited people and children should not if possible see things in an unfinished or immature condition, as, if so, they are very prone to form erroneous conclusions. Now, I have always disapproved of exhibiting yearling Pelargoniums, that is, plants under one year old, and growing upon their original roots, from their being necessarily in an imperfectly developed condition—for although Mr. Davison may not be aware of the fact, still he must allow me to inform him that variegation in the foliage of the Pelargonium is in most instances developed progressively, at least not always immediately. The schedule of the Bury Show, however, distinctly asks for 12 Seedling Pelargoniums of 1866 or 1867, and neither judges nor exhibitors are responsible for, nor had they the power to alter, this condition. As an exhibitor, I strictly complied with this requisition, not for a moment doubting that the judges appointed would be gentlemen of known ability, and possessed of sufficient knowledge of the subject to be able to form a tolerably correct opinion of the ultimate merits of the productions before them, although necessarily presented in an unfinished or imperfectly developed condition. And in this respect I have not been disappointed; their decision has, I believe, given general satisfaction, even to unsuccessful competitors, and I cannot help thinking that it amounts to something very like presumption on the part of Mr. Davison, to call that decision in question, when he evidently does not understand the subject he is writing upon—else he would never have thought of applying the code of rules laid down in the *Gardeners' Chronicle* (p. 515) to seedlings of the present year just breaking into variegation, any more than a judge of horseflesh would expect to find in a foal of similar age the various points that he might justly consider essential in the fully developed animal. I have said that the decision of the judge in this case gave general satisfaction to even unsuccessful competitors, and I believe such to have been the case; for I think that it will be admitted that if there had been a second cup to award, it would have gone to the Messrs. Smith, of Dulwich. Now, I had the pleasure of being frequently in the company of Mr. F. Smith after the decision of the judges was made known; and, although Mr. Smith is much too gentlemanly to have made any noisy demonstration, even if he had been dissatisfied with the decision, still I have every reason to think that if he had felt the least dissatisfaction or disappointment he would have quietly mentioned it to me: but he did not do so. In conclusion, I may say that there are now so many tricoloured Pelargoniums in the country, and they are so very much alike, that it is rather difficult to distinguish one sort from another. But although there are many varieties which look very pretty, and are very well adapted to fill a glass case or the like, there are but comparatively few which can be considered as bedding plants, and that after all is the purpose for which they are most required. Raisers need not be at all apprehensive of producing them coarse or over vigorous in constitution; moreover it is now necessary to aim at quality and variety of flower as well as of foliage. The mention of flowers reminds me that it is strange that Mr. Davison and his fellow cavillers could discover no merit

whatever in the cup stand. Did they not perceive Eva Fish with foliage equal to Mrs. Pollock, and flowers rivalling in form and purity those of Madame Vaucher: or in Lizzie Paget, with foliage quite equal to Lady Cullum, and flowers of excellent substance, pure white, with scarlet eye? Or what fault could they find with Isabella Clay and Victoria Regina, &c.? They might also have perceived that they all meant growing, too, which is a very desirable property, and one not possessed by all the varieties put into circulation. The opinion that I feel compelled to form respecting your discontented correspondents is that they are, like myself, getting somewhat advanced in years, and under the influence of that nervous fussiness which sometimes accompanies the advanced stages of human existence they left their homes without their spectacles, and consequently could only discover in the prize collection some unbroken and partially broken leaves. Let me assure them that it is by no means intended to perpetuate these unfortunate leaves. Or it may be that, for reasons known to themselves, they preferred to view this particular stand through green glasses. *P. Grieve, Culford.*

Conifers at Dropmore.—As there are many who wish to be furnished with the heights of some of the best sorts of Conifers here, I feel much pleasure in supplying the information. Abies Douglasii, planted about the year 1830, is now more than 93 feet in height; the girth of the trunk near the ground is 11 feet 6 inches, and 3 feet up 9 feet 2 inches; the diameter of the branches is 62 feet. This splendid tree grows on the lawn. Our finest Deodar was planted in October, 1833; its present height is 50 feet 3 inches; the girth of the trunk 3 feet up is 8 feet, and the diameter of the branches 40 feet. Picea nobilis, planted in 1835, is now 44 feet 7 inches in height, and the girth of the trunk 3 feet up is 4 feet 6 inches. Taxodium sempervirens, planted in 1845, is 40 feet in height; the girth of the trunk near the ground is 5 feet 6 inches; 3 feet up it is 5 feet 4 inches, and the diameter of the branches is 23 feet. Wellingtonia gigantea, planted in 1859, is now 18 feet 6 inches in height, the girth of the trunk near the ground is 4 feet 4 inches, and 3 feet up it is 2 feet 8 inches. Araucaria imbricata is 50 feet in height; the girth of the trunk near the ground is 6 feet 7 inches, and 3 feet up 5 feet 6 inches; the diameter of the branches is 26 feet 4 inches. Many of the branches of this magnificent tree rest upon the ground, causing it to form quite a pyramid, and, being on high ground, not a leaf has been browned by the late severe winter; indeed, the whole of the Araucarias here have escaped unhurt, a circumstance which proves that high ground suits them best, as is the case at Berkhamstead Common, where Messrs. Lane have some magnificent plants of them. They are growing in a strong loamy soil, which suits them perfectly, and they are fully exposed. A little more than two years ago I transplanted one of the original Kew plants, that was given by the late King William, to Lord Grenville. It had been kept too long in a pot before it was planted out, and consequently it has not made quick growth. It is only 29 feet 6 inches in height, and since the removal it has remained dormant until now, but it is just beginning to grow. *Philip Frost.*

Peach and Nectarine Trees.—My Peach and Nectarine trees have been very badly attacked with green-fly this spring, so badly indeed that I have no fruit on them. They are now recovering and have made shoots a foot long, and as thick as Wheat straws. I am advised to unnail them, and to tie them to stakes, 6 or 9 inches away from the wall, till winter comes. The trees are now free from any blight, but my adviser says that the wood will ripen better away from the wall than close to it. What say you? *A. Billimore, Kidderminster.* [Your trees will do best left as they are, "nailed to the wall," until they have finished growth, but expose every leaf as much as possible to the full action of the sun's rays. If unnailed they will grow more grossly, and consequently their wood will be longer in ripening than if it were weaker. After growth is finished, the young shoots might be unnailed, and allowed full exposure to the weather, a condition which might help to harden them, and give the bark that beautiful mahogany tint which is the pride of Peach growers. *B.*]

Aralia edulis (Sieb. and Zucc.)—This is a noble hardy plant, highly suited for adding distinction to the ornamental garden. It is perfectly hardy, grows 6, 7, and even 8 feet high in good soil, is of a fresh and luxurious habit, and this so early as the end of June. The leaves attain a length of nearly a yard when the plant is strong, while the shoots droop a little with their weight, and thus it acquires a desirable character. It is a little curious that plants so famous for their medicinal or other uses, as the Castor-oil, the Chinese Rice-paper plant, and the Indian-rubber, should have become so very useful in the flower garden. They are, it is well-known, among the very best tender things we can use. For this edible Aralia I claim as high a position as for a hardy plant. For planting singly few things surpass it. It is, I think, very rare in this country now, but being of easy increase may, I hope, not long prove so. I have seen it 9 feet high, but as it dies down rather early in autumn it must not be put in important groups, but rather in a position where its disappearance may not be noticed. An isolated one, or one near the margin of an irregular shrubbery, will best suit. *J. E.*

Lilium auratum.—The following are the dimensions of a specimen of this Lily which I have seen in the beautiful gardens of W. Wiltshire, Esq., The Frythe, near Welwyn. A single bulb, in a 12-inch pot, has produced two gigantic stems, measuring 7½ and 8 feet in height, respectively. The taller one has produced 20 beautiful large fully-expanded flowers, and the smaller one 16, making a total of three dozen blooms from one bulb. Besides which, this same bulb has furnished successively for these last three or four seasons a similarly fine display. Mr. Fitt, the gardener, informs me that he grows it in peat and sand only, giving it an intermediate temperature, &c., with air in abundance. *W. E.*

Muscat Escholata superba.—To my mind this is one of the best White Grapes in cultivation. The bunches are larger than those of the Muscat of Alexandria. They are generally heavily shouldered and handsome. The Berry is like that of the Muscat of Alexandria, and I think I may venture to say that it is equal in flavour to it. These are good qualities, but its greater recommendations are that it is a healthy and vigorous grower, that it sets well under ordinary treatment, and that it ripens without the amount of heat and forcing which are necessary to bring Muscats to maturity. In the spring of 1865 I planted two canes of it in the same house along with Black Hamburgh and Muscat of Alexandria. All made excellent growth, and ripened their wood well by the end of the season. Next year I ventured to take three or four bunches off each Vine, and nice bunches they were, some of them being upwards of 3 lb. in weight each. The Muscat Escholata superba produced three bunches that weighed 8 lb. 6 oz., and were ripe as soon as any of the Hamburgh. I did not give them much heat, and the consequence was that the Muscat of Alexandria did not ripen at all to my satisfaction, although it was in the hottest end of the house. This year I have ascertained from my successor that there is a most excellent crop on all the Vines, and that the Muscat in question is magnificent; it has set its fruit well, and has ripened early as before. It may also be relied on as an excellent pot Vine. *W. Bullock, Messrs. Lee's Nursery, Hammersmith.*

Variegated Pelargoniums.—Permit me to thank Mr. Wills for a most interesting collection of leaves of his variegated zonate and gold and bronze-zoned Pelargoniums. It is almost impossible to speak in too high terms of their beauty, distinctness, and vigour. I was astonished to find Mr. Wills so rich in "tricolors." They are all from sports, it seems, except Beauty of Huntroyde; this and Lotty Wills are two of the most distinct that I have ever seen. Florence is also very beautiful, like Lady Cullum, with a vigour seemingly greater than Mrs. Pollock. Northern Star is a good deal like Watson's Miss Watson, and is therefore a fine variety. Aurora Borealis is splendid. No. 9, a seedling of this year, resembles Victoria Regina, and consequently has the highest merit. There are many other beautiful varieties, but I prefer leaving them to speak for themselves at the proposed show in September. In the class which Mr. Wills has made emphatically his own, the gold and bronze section—Conquest, Success, Compactum, Princess Alice, Her Majesty, Firebrand, Admiration, Refulgens, Treasurer, and Beauty of Calderdale, are among the best. Many of these will be invaluable for bedding purposes, and, whether accepted as variegated or not, will speedily supersede many of the variegated varieties for filling the flower garden. The distinctness of their colouring is one of their chief merits, and nearly all of them have fine leaves of good substance, indicating freedom of growth. Many of this year's seedlings promise well, but I prefer seeing them again before pronouncing an opinion. They will doubtless all be forthcoming at Kensington on the 17th of September, where I hope all growers will take their best, and doubtless the best will carry off the highest honours. *D. T. Fish, F.R.H.S.*

Exhibition of Variegated Pelargoniums.—I have read Mr. Wills' proposal to hold an exhibition of Variegated Pelargoniums at Kensington in the month of September next. It may be very desirable to do so, but I fear that the time intervening will hardly be sufficient to allow growers an opportunity of preparing their plants. In addition to this proposal, however, I would suggest that a sweepstakes might be arranged for one of the Royal Horticultural Society's great shows, say in July next. This sweepstakes should be strictly confined to plants not yet sent out. The various sorts sent out during 1866, or in the spring of the present year, being already before the public, their merits are to some extent proved; and by confining it to sorts likely to be sent out ere long, the admirers of these beautiful plants would have a good opportunity of observing the progress that has been made. As, moreover, the names under which they were shown might be confirmed or altered by the jurors who decided on their merits, intending growers would be able to make their selection without incurring the risk of growing the same, or at least very similar sorts, under two or more names. To secure something like uniformity, the pots in which the plants are to be shown might be limited, each pot to contain only one plant, and that plant to have been raised from a cutting: yearlings, or plants growing upon their original roots, being strictly excluded. The raisers of these Pelargoniums are now exceedingly numerous, indeed almost every grower of them is also a raiser; and the plan I propose would, I think, give raisers of every grade an opportunity of competing with his productions, and could not, I think, fail to produce a vast assemblage of beautiful plants. I therefore suggest, first, that a sweepstakes be formed for new Variegated Pelargoniums, varieties not yet sent out by the trade. They may be either gold or silver margined, with or without a zone; but they must have been produced from a cutting, and must be shown in a pot not exceeding 6 inches in diameter; and secondly, that this sweepstakes be divided into four classes, as follows:—

1. The best 12 new Variegated Pelargoniums, distinct, entry 3*l.*
2. The best 6 do. do. do. do. do. 2*l.*
3. The best 3 do. do. do. do. do. 1*l.*
4. The best 1 do. do. do. do. do. 1*l.*

Thus, supposing that there should be 10 entries in class 1, the amount to be given in one or more prizes, as might be agreed upon, would be 30*l.*; and, in addition to this, the Royal Horticultural Society might also be inclined to give a certain sum by way of encouragement to the movement. If thought desirable separate classes could also be formed for the golden variegated zonals, or golden and bronze zonals, which latter are exceedingly beautiful, and well worthy of every encouragement. I think that if something of this sort could be decided upon, at as early a date as possible, a grand display might confidently be expected. There is now ample time for intending exhibitors to take cuttings from their most promising seedlings of the present season, and have them ready for exhibition in July next. It must be borne in mind that quality, and not quantity, is the desideratum, and this it would be well for the jurors to bear in mind. *P. Grieve, Culford.*

Herbaceous Plants at Exhibitions.—I almost wonder that the Royal Horticultural Society does not offer a prize for the largest number of herbaceous and alpine plants exhibited by one grower. It would not be difficult to show 50 in June and July, and might help to popularise them. Many might be grown in pots too. *W. T.*

Cucumber Disease (see p. 781).—I am inclined to think, from long experience, that the murrain and other diseases incidental to Cucumbers are more to be attributed to localities where improper soils have been used than to constitutional predisposition. I, however, quite appreciate "M. J. B.'s" remarks, that seed from a diseased stock will have a tendency to spread the murrain; this is quite in accordance with my experience. I purchased a packet of a new Cucumber from the south, intending to ripen the seed for sale, but owing to some of the fruit being affected with an exudation of a gummy substance, I have declined to seed it. One thing I have observed since the plants became weakened by heavy cropping, and that is, the number of diseased fruit has continued to decrease, and for the last two weeks none have been affected. May we not conjecture that overluxuriance, arising from rich composts, has a tendency, if not to originate murrain, at least to increase the disease? I have frequently seen Cucumbers diseased, particularly in frames and dung-pits, when residing near Stockport; and when questioned as to the cause, I always attributed it to over-rich, over-wet, and over-cold compost: the latter being occasioned by over-wide boxes, preventing the warmth from outside linings of fermenting materials from reaching the centre of the bed. I have now been cultivating the Cucumber in this locality for about 11 years, and I have never seen murrain except as related above, from, very probably, infected seed. My Cucumbers this season, from my own seed, were never more promising. I have a great number of fruit in all stages of growth, which I intend ripening for seed; several of them now measure from 36 to 42 inches in length, and I have no doubt that when ripe some of them will weigh 12 lb. or 14 lb. each. However incredible this may appear to some, it is nevertheless a fact, and may be accomplished by any person who will supply the roots with sweet and wholesome food. I ascribe my success in the culture of the Cucumber entirely to the porous and healthy state of my compost, which consists principally of road scrapings mixed with a little half-decomposed stable manure, weeds, and other refuse from the garden; these are thrown into a heap; a slight fermentation takes place, which destroys the vitality of the weeds, after which the material is ready for use. My advice to all who grow Cucumbers in dung-pits is, to put a quantity of tan or leaves under the compost, to prevent the roots reaching the manure, and to take care not to over-water, nor to shade the fruit with too many leaves. Under such treatment I am persuaded that the disease will disappear. *Joseph Hamilton, Wellington Place, Botcherby, near Carlisle.*

Lilium giganteum turning with the Sun.—Is it usual for this Lily to turn round with the sun? The peculiarity takes place when the first flower begins to show itself, and continues until all the blossoms are seen. The greatest distance at which I have noticed the top out of perpendicular has been 5 inches. I have found the top of the stem occupying two positions, 9 inches apart, in the space of 12 hours. In dull weather it turns around the same, although the curve is not so great. At night, even, I have found it pointing north, showing that it makes a circle in 24 hours. *H. M., Enys, Penryn.*

Mrs. Pince's Black Muscat.—My opinion has been asked in reference to this Grape, and in reply, I beg to say that I consider it to be one of the best late varieties in cultivation. I first became acquainted with it in 1865, when I saw a heavy crop of it just beginning to colour. It was growing in the house, described by Mr. Hannan (see p. 784), and I saw several bunches of the same crop hanging on the Vines, in a fresh and plump condition, in March, 1866—a year in which the Vines again bore a heavy crop of large bunches, evenly swollen, but they did not colour well: this I attribute to the cultivation. This year they are again bearing a heavy crop. It is a free setter, and has a strong Muscat flavour; it resembles Lady Downe's Seedling in bunch and berry, but I consider it to be superior to that good variety as respects keeping properties. *Thos. Toole, Gardener to Sir L. Palk, Bart., M.P., Haldon House, near Exeter.* [The merits of this Grape are now so well known that further statements in its favour seem to be unnecessary. We understand that Mr. Meredith, the great Grape grower at Garston, is about to plant a whole house with it for late use.]

Woodlice (see p. 785).—These may be effectually removed in a few hours by means of Pooley's Tobacco Powder dusted round the edges of the frame, or on the plants, as the powder does not affect the foliage. *J. Thomas, Gardener, Southover Hall, Burwash, Sussex.*

Lycopodium alpinum in Hampshire.—I gathered the enclosed specimens of Lycopodium alpinum at lower

Wagner's Wells, in the parish of Bramshot, Hants; the soil a sandy peat, the elevation not more than 600 or 700 feet, the situation sheltered, and growing near to the roots of Heath, about 18 inches high, by which it appears to be almost smothered. Has Lycopodium alpinum ever been properly described? All authors describe it with a repent stem above ground; our plant has one an inch below the surface, but it agrees in every other particular with L. alpinum, its 4-farious habit distinguishes it from L. complanatum. May it (L. alpinum) not have sometimes a running stem above ground, and sometimes under? Lastrea Thelypteris, in its native bogs, runs above the soil, but under cultivation it grows with a subterraneous rhizome *John Lloyd.* [There are some doubts as to the true name of this Lycopodium, arising from the fact that the specimens sent are the barren stems only. Professor Babington "inclines to place it under L. chamæcyparissus R.Br., a plant of the Rhine Valley." It may be L. alpinum, but the subterranean rhizome is unlike that species. Eds.]

The King Cabbage.—I send you a clipping from a Nottingham paper, which you may think worth printing:—"A specimen of this favourite variety has been grown by Mr. S. Hooley, of Wollaton, of more than usual proportions, the diameter across the leaves being 4 feet, and the gross weight 27 lb. The Cabbage is in capital condition, fresh and clean. The weight of the heaviest pair of Cabbages shown at the Whitsun show was a little over 20 lb. We doubt the policy of cultivating these enormous Cabbages. This occupied nearly two square yards of ground, and that planted at one foot apart with Atkin's Matchless, Paragon, or Enfield Market, would yield Cabbages two or three pounds each in six weeks or two months at this season, and that would be a larger and much more profitable produce. *W. A.*

Standard Gooseberries.—There are four Gooseberry trees now growing in this village, the like of which I never before witnessed. They are trained to an iron rod as standards, and the heads trained on a circle of wire, beneath which the berries hang as thickly as Grapes, and are ripening beautifully. I can assure you the trees are splendid, and a fine production of art. The first (Crown Bob) is 10 feet high, and 3 feet 10 inches across. The second (Crown Bob) is 7 feet high, and 3 feet across. The third (Victor) is 5 feet high, and 4 feet across. The fourth (Crown Bob) is 4 feet high, and 3 feet across. They belong to a family of the name of Taylor. *John Ayres, Duffield, Derby.*

The Perennial Cucumber (*Cucumis perennis*).—This has not the quality of leaf which I could desire, but it will prove interesting to many. It is perfectly hardy, and possesses—if I may so speak—great trailing power. Its leaves are strong, rough, and of a glaucous colour; and the shoots run about freely if the plant be in very rich soil. Where bold trailing plants for high trellis work, or rough banks, or shaggy rockwork are desired, it will be found distinct; but withal I cannot give it a place in the front rank, and the small select garden without any of the above-mentioned appendages will certainly be better without it. It is used here and there in France for overrunning unsightly objects, and at Cliveden for tying up to a very high trellis with Gourds, &c. It is strong and lasting when well established. *Vertumnus.*

Verbascum vernale.—Most of us know how very distinct and imposing are the larger Verbascums, and those who have attempted their culture must soon have found out what transient far-seeding kinds of things they are. Of a biennial character, their culture is most unsatisfactory: they either migrate into the adjoining shrubbery, or disappear altogether. The possession of a thoroughly noble perennial one must therefore be a desideratum, and such a plant will be found in the Hungarian Verbascum vernale. This is fine in leaf and stature, and produces abundance of flowers. The lower leaves grow 18 or 20 inches long, and the plant when in flower to a height of 7 or 8 feet when in good soil. It is a truly distinct subject for helping us to vary matters, and may, I hope, ere long be to be had in our gardens and nurseries. It is a scarce plant in England, and I am not even sure that Mr. Niven has it, though it is certainly worth all the others of the genus that we see in gardens "put together." *R.*

Crambe cordifolia.—This is unquestionably one of the finest of perfectly hardy and large-leaved herbaceous plants. It is as easily grown as the common Seakale—easier, if anything; and in heavy rich ground makes a splendid head of leaves, surmounted in summer by a dense spray of very small flowers. Doubtless if these be pinched off a larger development of the fine glossy leaves may be expected, but as the shoots are so vigorously shot up and converted into a distinct and pretty inflorescence, many will prefer to "leave the plant to nature." In planting it, the deeper and richer the soil, the finer the result naturally. It will prove a capital thing for every group of fine-leaved hardy plants, and may also be popped in one or two places where a bold though low type of vegetation is desired. There is another species, C. juncea, which is nearly but not quite so good. *W. P. S.*

Foreign Correspondence.

Vegetation of the Quitinian Andes.—After some days of preparation for a journey to the southern provinces of Ecuador, extending over nearly 6° of lat., I departed from Quito on the 23d June, 1864. My retinue consisted of my youngest daughter, two servants, male and female, besides a muleteer and three baggage mules, to carry our bedding, and other articles required for a long journey. Following the main road, we passed successively through Machachi, Latacunga, Hambato, Mocha, and Riobamba, towns or villages situated between the two main ridges of the Cordillera, and described in various books of travel published of late years. Remaining at Riobamba for a few days, in order to change our cattle, we proceeded southward, arriving in the evening at Guamote and the day following at Alansi. The distance from Riobamba to the latter town may be estimated at 60 miles, and about 10 miles further to the south is situated the Indian village of Pomallacta, constructed on a ledge of the Azaay, being the usual starting point of the traveller who proposes crossing that elevated mountain pass.

The vegetation along the line of road from Quito to Alansi, with the exception of certain localities mentioned by Mr. Spruce in his interesting "Notes," is of a monotonous character. The succulent Composite (Linn. Journ., iv., p. 179) is, I presume, Senecio tolephifolius, Medd.—a plant whose northern position is on the plain of Callao, and observed as far southward as the province of Alansi, *i. e.*, on the sandy tract of country comprised between the mountain knots of Tropullo and Azaay, and, I believe, nowhere else.

Several showy plants occur on the rocks above the town of Alansi: four species of Onoseris, a blue-flowered Browallia, Heliotropium incanum, Salvia leucocephala, Perilomia ocymoides, and two species of Iochroma; but above the cliffs the grassy slope of the hills was completely burnt up.

Having procured at Pomallacta a fresh relay of mules and a couple of intelligent Indians, to serve as guides to the village of Cañar, a distance of about 50 miles, we started before daybreak, the weather to all appearance being favourable for the achievement of the day's journey. The ascent, although gradual, proves fatiguing to the animals, caused by the difficulty experienced in breathing an atmosphere in which the barometer indicates a pressure of from 20 to 18 inches. About midway we were on the highest point of the Azaay, called "Los Cruces," from the number of crosses fastened on an accumulation of stones, indicating the resting places of many unfortunate people who have there perished through inclemency of weather. To add to the alarm of my domestic household, we experienced a severe snow-storm, rendering the narrow path scarcely visible. However, there was no alternative but to push on and reach the point where the rocky descent commences, which we at length reached after some delay. About 800 feet below we espied a grassy plain, on which we thought it advisable to pass the night, there being no human habitation within a space of at least 20 miles. Descending by a tortuous rocky path we soon arrived at the plain, and, although the air felt sharp and penetrating, we were happy in having surmounted the formidable barrier. Before dusk we had accumulated a large quantity of fuel, consisting of Chuquiragua insignis, Loricaria stenophylla, and L. monilifera, Hypericum acerosum, and a Valerian, the only woody plants we could find at this elevation. On being lighted at sunset they made a glorious blaze, and attracted a multitude of beetles. I caught two of them, which I inclose, as, being a bad entomologist, I feel incompetent to determine to what genus they belong. Their occurrence at an elevation of at least 14,000 feet is of itself a curious fact. [The smashed beetle (body and two heads) that reached us is, according to Prof. Westwood, the Platycælia lineata. It is nearly allied to our common Cockchaffer in its habits, but it belongs to the family Rutelidæ.]

We slept soundly till about daybreak, the thermometer at sun-rise indicating 34°. The weather had become fine, and while preparations were making for breakfast, I felt an irresistible desire to make a hasty exploration of the neighbouring cliffs. The first plant I met with was Collania glaucescens, Herb.; next Erigeron pellitum, Wedd.; Draba alyssoides, Senecio Humboldtianus, Cerastium floccosum, Benth.; Ranunculus peruvianus; and, on ascending to the ridge we had crossed yesterday, Draba violacea, a purple-flowered Werneria, Eudema grandiflora, Planch.; Sida phyllantha, Gentiana inflata, and Gentiana sedifolia. The last-named species has the corolla divided into 10 laciniæ, the larger alternating with the smaller. This little plant is found within a zone of 13,000 to 15,000 feet. It flowers all the year, but the corolla at the inferior limit is of a bluish-white colour, whereas at the upper region the flowers are three times larger, of a deep azure blue, and endowed with an extraordinary degree of irritability. They contract immediately they are touched by the finger. *William Jameson, Quito.*

Notices of Books.

A Practical Treatise on the Cultivation of the Grape Vine. By William Thomson. Fifth edition. Blackwood. 8vo., pp. 79.

We deviate in this case from our usual custom of not giving any extended notice of new editions for a special reason. The opinion of so successful a Grape-grower as Mr. W. Thomson, and one, too, who has written the best work on the subject in our language, has necessarily been looked for with some anxiety by those who have been engaged in the brisk controversy that has been carried on in our columns as well as in those of our contemporaries, with reference to the "extension" or "restriction" system of Vine-growing. With justifiable caution, our author remarks that there is much to be said on both sides of the question—a question to which his attention has been drawn for many years. We prefer at present to let Mr. Thomson speak for himself, reserving for a future occasion any further comment of our own.

"Theoretically, it must at once be admitted that the one-Vine or 'extension' system stands on vantage-ground. No one can deny that a tree which is largely developed, with its roots ranging over what I may term an extensive pasture-field, is likely to maintain its health and vigour for a much greater length of time than one that is by the force of circumstances restricted in its growth. But there are practical difficulties in the way of the general adoption of the former mode of culture. In the first place, all experience goes to prove that the Vine is what may be termed a rambling rooter. If the border is not carefully made, and of such materials as to induce the formation of a numerous progeny of fine branching fibry roots, the width of any ordinary Vine border will soon be traversed by them. This takes place even when the 'restrictive system' is adopted, and it will take place with infinitely greater rapidity under the other. To meet this difficulty the roots have been walled in; but this only aggravates the evil, for the moment the roots touch the wall, they descend to the bottom of the border, where they are far from the genial influences of heat and air.

"Another objection brought against this system is that one Vine takes much longer to furnish a house with fruit than a number do; but this can be met by planting supernumeraries, to be removed as the permanent one advances.

"A third objection is, that variety of Grapes is desirable in a Vinery, and that this cannot be had where only one Vine is grown. Grafting or inarching will meet this objection; and it is well known that many delicate sorts of Vines grow better on other than their own roots.

"Thus it appears that the only serious objection to the one-Vine system is the difficulty of getting a border of sufficient scope for the roots of a Vine of such proportions as will fill a good-sized Vinery with fruit-bearing wood; but where such can be had, I fully approve of the 'extension system.'"

Mr. Thomson then cites, in illustration of his remarks, the case of the Finchley Vine. Mr. Kay, the proprietor of this Vine, always maintained

"The great importance of what he called 'carrying a large amount of foliage on the Vine' as the only sure way of keeping up its stamina, and acted on this himself. I used to reply, that practically it was not expedient to allow more than two leaves to grow beyond the bunch. This, with the sub-laterals stopped at one leaf, I considered sufficient, and pointed to the example of the houses at Oakhill, near Barnet, then and for 20 years so ably managed by Mr. Davis, who produced splendid crops of Grapes, ripe in March and April, for many years in succession from the same Vines, and which he pruned to one eye, and left only one leaf beyond the bunch. I thought the system I adopted, of leaving two leaves, sufficient, Mr. Kay thought otherwise, and left from four to five. Carrying his ideas still farther, he said he believed that better still would be the plan of planting only one Vine in a large house. This I urged him to do, and in 1855 he built a span-roofed house 89 feet long, 16 feet wide, and 9 feet 6 inches in height to the apex. In this house he planted a single Black Hamburgh Vine in March 1856, the roots all outside, and the border prepared 89 feet in length by 15 broad. Beyond this border are the borders of other houses, giving it scope for its roots little if at all under a quarter of an acre. The Vine is trained with a leading stem from the centre of the north side wall up to the apex, and down to the south wall, for the house runs east and west. From this main stem five laterals are trained towards each end of the house—one at the apex, the others equidistant between the apex and the walls. The last time I saw it in company with Mr. Kay was in 1862. I saw it again in 1864, when it had a full crop of excellent Grapes, weighing, as I have since learned, 476 lb. In 1865 it bore 400 lb. of Grapes; in 1866, 300 bunches, some of them weighing 5 lb. It took seven years to furnish the house with bearing wood. The girth of the stem where it enters the house is, at this date (May, 1867) 14 inches. Mr. Osborne, an old pupil of Mr. Kay's, has ably carried out his preceptor's mode of managing this noble Vine; and I trust it may long remain in robust health, a fitting monument to the memory of one who had few equals as an enthusiastic cultivator of the Vine, and one who stands alone as having built a large house and planted it with a single Vine to test a theory which some writers of the present day are starting as a new one."

With reference to the restrictive system of Grape growing, condemned by Mr. Cannell and others, our author proceeds as follows:—

"I know many very old Vines that have been cultivated on the 'restrictive system,' and that have continued in perfect health for many years. At Oakhill, near London, Mr. Dowding planted a number of Vineries 40 years ago; I became acquainted with them in 1837, and for 20 subsequent years Mr. Davis, who succeeded Mr. Dowding, produced the most regular and finest crops of Grapes in the kingdom from these same Vines, yet they maintained their health, vigour, and fruitfulness. They were planted one Vine to each rafter, and the system of pruning was the 'close-cutting' one, by which only one eye was left at the base of each lateral.

"There is an old Vine, referred to in this work, at Wrotham Park, which is 80 years old, and has all along been cultivated on the 'restrictive system,' for it only clothes two rafters; yet I learn from Mr. Edlington, who now has charge of it, that it is in as full health and vigour as any of the younger Vines, and bears equally fine fruit, and has a stem 1 foot 7 inches in girth. True, the border it grows in has been once renewed in the time. In regard to this old Vine I make the following extract from a letter from Mr. Edlington just to hand. He writes, 'The old Hamburgh produces fruit equal to the other and younger Vines in the same house. Last year they were truly magnificent, surpassing all other Grapes on the place.'

"I might go on multiplying instances to prove that Vines neither become unfruitful nor die off in nine years, as Mr. Cannell's did, because they are not allowed to extend the area of their foliage annually, but I think such unnecessary. The fact is, that the Vine is a very docile plant; and if its foliage is kept free from the attacks of insects, if over-cropping is avoided, and the wood well ripened,—if the border is made of moderately good materials, and the drainage sufficient,—the Vine will continue in health and vigour for 50 years under any of those systems of pruning and training that are practised by gardeners of intelligence, whether that be the 'restrictive' and close-pruning system, or the 'extension' and long-spur system.

"Where it is necessary to have circumscribed borders, as is generally the case, I would plant a Vine to every 6-feet run of a Vinery, and grow two rods from each plant. This would give such vigour to the roots as would react on the branches in such a way as to yield both good bunches and berries, while at the same time a border 20 or 30 feet wide would afford them sustenance for many years.

"Where there is ample scope for the roots to run unchecked and uninjured for 150 or 200 feet, then by all means adopt the one-Vine or 'extension' system, inarching or grafting on to this patriarch all the varieties required."

We have only one remark to make at this time, and that is to express our regret that, while giving the *resumé* of this subject and his own opinions thereupon, he has not more frequently cited chapter and verse. The value of a standard book like the present is very materially enhanced by the addition of references to the principal sources of information. This has been done to a slight extent only in Mr. Thomson's volume, wherein also we miss any account of the ground Vineries, which, however unsuitable for large establishments, are likely to find much favour with amateurs.

To all engaged in the study of the lower Cryptogamous plants we recommend a useful and well got up little book, entitled *A Handy-book to the Collection*

and Preparation of Fresh-water and Marine Algæ, &c., &c., by Johann Nave, translated by the Rev. W. W. Spicer (Hardwicke). Twenty-six plates, besides other illustrations, add increased utility to the work.

Dr. Alexander Stewart, an eminent London physician, with the assistance of Mr. Edward Jenkins, barrister, has published an interesting pamphlet on the *Medical and Legal Aspects of Sanitary Reform* (Hardwicke), which should be read by all those who profess not to believe that the rate of mortality from fevers and other diseases is influenced by the state of the drainage of a town or by other sanitary arrangements. Medical men have long known and acted on their knowledge that their power for good, as regards the health of their fellow men, is far greater when exercised in the prevention of disease than when employed in its cure. In nine cases out of ten the medical man can but palliate the effects of disease, it is the quack only who pretends to cure in all cases. The general public is slow to recognise this truth, and somewhat disappointed that it should be so, as witness the statements sometimes made that medicine, compared with other sciences, makes but little progress: but surely it is more important to improve the general health of the public, to lengthen the tenure of human life, to mitigate pauperism and consequent taxation, than it is to treat, however successfully, individual cases of disease; the benefit is special and limited in the one case, it is of universal application in the other, and medical men, in spite of the shortsighted, unreasoning opposition they meet with in their labours, may look on their efforts with the proud consciousness that they have, in insisting on the carrying out of proper sanitary reforms, saved in a few years many thousand more lives than they could possibly have "cured" under any circumstances in a century. We can only regret that the authors of the present pamphlet have not in all cases applied to the most competent and trustworthy sources, and hence in some points the information they have received is meagre and insufficient. Nevertheless, we earnestly recommend its perusal, and we would ask whether the residences, not only of the labourers but of the foremen, nay, even of the head gardeners, are as a rule such as they should be, and whether in very many instances the accommodation afforded to the horses, or in some cases even to the pigs, is not better of its kind than that with which human beings have to make themselves contented. Our remarks are of course not intended to be applied indiscriminately, but it is unquestionable that a fearful responsibility rests on the proprietors in those cases where our observations are appropriate.

Florists' Flowers.

Hyacinths.—The greater part of the Dutch bulb-growers are in sackcloth and ashes, because the growth of the bulbs of Hyacinths has to some extent failed this year, on account of the extreme moisture that has been experienced during the past winter, followed by an inconstant, cold spring and continual harsh winds, which have broken the foliage of many sorts. The result, therefore, is that the bulbs in general are little more than two-thirds of their ordinary size. In a few favourably situated gardens, however, beautiful large bulbs have been produced, but these are few and far between. The English public will doubtless be disappointed at the small state of the bulbs in general, but it should be borne in mind that size alone has little to do with the flower-spikes bulbs may produce in the year in which they are sold. A close examination of the bulbs will show three, and sometimes four or even more flower-spikes, generally placed in a line running from the outside of the bulb to the centre. The spike nearest the outside is the largest, and must flower first. This is but very small when the bulb comes out of the ground, and only arrives at entire development after the bulb has made its full growth. The bad growth of this season may, however, influence the flower-spikes in future years.

In general the extra-large bulbs do not yield the best flower spikes; for example, in 1866 the bulbs of single red Lord Wellington were of enormous size, and yet the flower-spikes that year were all small. The age of the bulb has, however, great influence on the fine development of the spikes of flowers, and to that the attention of growers must be directed. This year and the spring of next will prove the truth of what has just been asserted.

This season some sorts have suffered more than others. The single whites, together with single blue Nimrod, single red Homerus, double blue Van Speyk, the mauve colours and the double whites, have suffered most. Other sorts are also more or less injured, consequently the bulbs are small, and often cracked.

Lovers of Hyacinths should have their attention directed to the following sorts, which are not in general use or catalogued, though the greater part of them are not novelties. They are, however, first-rate, and favourites with all who know them, as they constantly throw up large and good flower spikes, viz.:—

Single Blue.—Admiral de Coligny, Priestley, Pieneman, three pale blues; Leonidas, China blue; Sir Charles Napier, black; Maria, dark blue, the best of the colour, and the largest blue flower in cultivation; Lamplighter, black with white eye, extra beautiful if large bulbs are used; Czar Peter, pale blue, also an extra good double blue; Garrick, Louis Philippe, and Prince Albert, the last nearly black, a fine flower, unrivalled for glasses.

Single Red.—Pélissier, Joséphine, Mrs. Beecher Stowe, Princess Charlotte, Princess Clotilde, Goliath, Cosmos, Prince of Wales, Surpasse, Macaulay, Count Radetzki, all extra beautiful.

Double Red.—Noble par mérite and Louis Napoleon, sorts which never fail; Wieland is also beautiful.

Single White.—Grand Alexandre, unique in regard to its size of bell; Cloche magnifique, blush; La Noblesse, pure white; La Vestale, Belle Blanchisseuse, Vesta, Snowball, always one of the best whites; La Grandesse and La Neige, both beautiful new kinds.

Single Yellow.—Aurora, spike large, and of a beautiful colour; l'Or d'Australie, bells and spike large.

Among *Mauve Colours* Tolleus yields constantly good spikes.

The above can easily be had.

The Society of Bulb Growers of Haarlem intends to hold a flower show, chiefly of bulbous plants, such as Hyacinths, Tulips, &c., next Christmas. This is something new, and will prove what can be done with bulbous plants. It will also induce, I hope, other societies to get up flower shows at the same time of the year. *G. W. F. H., Haarlem, July* 25.

Perry's Seedling Verbenas.—Amongst the Verbena raisers of the present day, Charles Perry is undoubtedly the champion raiser, and to him we are indebted for many of the best Verbenas we have. Amongst kinds already out, raised by him but sent out by Mr. Turner, are—Charles Turner, Charles Perry, William Dean, Harry Law, Harry Turner, Delicata, Exquisite, Leah, Pink Perfection, Majolica, Wonderful, Meteor, Mrs. Turner, Mrs. Dean, Mauve Queen, Cleopatra, Champion, Mazeppa, Novelty, Lilac Queen, and several others. Every Verbena grower will know that in this list are some of the finest kinds known; still I am glad to say that Mr. Perry has a batch of new ones for next spring that are wonderfully fine, and will give great satisfaction. I have seen them several times this season, twice in his own garden, and also at various exhibitions, and I am sure the following remarks on them will be found correct:—

Mrs. Perry.—Rich blue purple, with large light eye; very fine form; a grand flower.

Miss Turner.—White, with very large pale rose centre; very fine pip and truss; a handsome variety.

James Birbeck.—Rich glowing light rosy scarlet, light eye; very large pip and truss; extra fine.

Emma Perry.—Blush white, with large dark rosy red centre; very fine pip and truss.

Mrs. Mole.—Deep lavender, large and finely-formed pip, and beautifully formed truss.

Samuel Morton.—Shaded rosy blush, with large dark centre; very fine pip and truss.

Shirley Hibberd.—Intense dark violet, with small white eye; a rich looking flower, of fine form and great substance.

Interesting.—Pale scarlet, with distinct light eye; finely formed pip and truss.

G. P. Tye.—Lighter than Mrs. Turner, with a deeper coloured centre; a dwarf growing kind, with very fine pip and truss. A variety named George Tye was sent in 1866, but this is distinct from it.

John Wilson.—Rosy carmine, with a violet tinted centre; very fine truss and habit.

J. C. Ward.—Light purple, with light eye; fine form and truss.

Hercules.—Rich rosy carmine, with dark centre; very fine form.

James Day.—Shaded light violet, with white eye; fine truss.

Little Clara.—Shaded pink with dark carmine centre; fine form and fine truss.

This batch should be in every grower's hands next spring, for it comprises a lot of exhibition flowers that will be valued. Mr. Perry has two span-roofed houses devoted entirely to Verbenas in pots, and his style of growing is such as I recommend for greenhouse decoration. *W. Dean, Shipley.*

The Apiary.

Artificial Impressed Waxen Comb.—I am sorry I should have sent you the sample of the wax sheets for comb, which you noticed at p. 739, before I had completed my apparatus for making them. I do not think the enclosed specimen, which I have since made, possesses any of the defects you noticed in the other. My experience does not bear out what you remark about these sheets of embossed wax. I decidedly prefer them to pieces of guide-comb, for the following reasons:—1. They produce perfectly straight combs. 2. They are attached to the frames much more easily, without the unpleasant concomitants of hot poker, &c.; all that is needed being a saw-cut through the top bar, and a couple of tacks. 3. They are far more economical, as all the waste combs can be melted up and turned into sheets, instead of only a few of the cleanest being returned to the bees. The sample last sent, although not nearly so good as that now enclosed, was by no means despised by my bees. I could show the exquisite combs made from similar sheets. In the scores of instances in which I have used embossed sheets during this and last season, I have never known the bees fail to work it up into satisfactory combs. The enclosed fragment shows the depth which I make it, and which I find most convenient. I do not find that the small-sized embossing to which you refer is any practical hindrance to the use of the sheets; and it must be borne in mind that the bees stretch them considerably in the process of converting them into comb. *Arthur Maw, Benthall Hall.* [We are sorry to say that the last sample of your embossed waxen sheets came to us even more pressed out of shape than the first, probably because it was thinner. There still remained, however, sufficient evidence of its superiority to that first forwarded. You appear to have been more generally successful in the use of these artificial sheets than some eminent apiarians of our acquaintance. These, as well as ourselves, have had reason to complain of the sheets warping or curling after being placed within the hive; of large pieces being nibbled away by the bees; and of cells being made only on one side. In consequence of these little drawbacks, we have lately limited their use to narrow strips for guides to straight comb building. We are obliged to you for again writing on this question, and shall be glad to hear further from you on this, or any other analogous subject.]

Vespa arborea.—Is there any reasonable probability of finding a nest of the tree building wasp (Vespa arborea), especially in Gloucestershire. I trouble you with this question, as for many years I have been in the habit of collecting wasps and their nests for a relation, who now, I believe, only requires a nest of the V. arborea to complete his collection. Almost every year he has said that he found Queens of this kind among those sent him, but I never identified them myself, so I am not sure where this wasp may still be looked for. *E. A. O.* [We believe that this variety of wasp is not common in the south of England. A year or two since we were shown a nest either of V. arborea or V. norvegica (stated by Smith to be the true V. britannica), which had been built either inside a bell-glass or in the crown of a straw hive, we are uncertain which. We have made inquiry of two or three good naturalists, all of whom testify to its rarity. One of these gentlemen, who possesses a nest of one of the above species, probably V. britannica, has kindly offered it for the acceptance of "E. A. O.," if it should prove to be that of which she is in search. Perhaps she will communicate with S. Bevan Fox, Esq., Exeter. Another of the gentlemen referred to agrees with Mr. F. Smith in stating that this variety is very rare, but has been found in Yorkshire and the northern parts of Britain. Perhaps some of our readers may be able to help our lady correspondent in this matter.]

Feeding for the Completion of Supers.—Can you tell me how to feed bees on the top, by means of a bottle, after the fashion of a bird fountain? Or do you know of any better way, the top of the hive being nearly covered over with bell-glasses? So many glasses are nearly filled this year that it seems a good thing to have them completed by means of a little syrup; but it is difficult to give enough at a time. At what time in the autumn would combs in supers and nadirs, which unfortunately have brood, be sure to be free from it? *Queen Bee.* [The best way of feeding would be by the bottle plan, provided you can make use of a hole in the crown-board of the hive. Take an ordinary pickle-pottle, fill it with syrup (made in the proportion of 6 lb. of loaf-sugar to 4 lb. of water, both weighed, and boiled for five minutes), tie over the mouth a piece of fine net or open muslin, lay a piece of perforated zinc over the hole in the crown-board, quickly invert the bottle, and place it neck downwards on the zinc. It is better to give the food at night, removing the bottle in the morning. It must be well covered up, so that no marauders may discover it. You must be prepared to give a liberal supply, as the bees consume a great quantity in the formation of wax, even for the sealing of the cells. It is difficult to say at what time supers and nadirs would certainly be free from brood, but most probably at the end of September. It is by no means uncommon for Queens to remain in supers all the winter.]

Garden Memoranda.

Lynford Hall, Norfolk, the Seat of Mrs. Lyne Stephens.—There is here a magnificent new Elizabethan mansion, by Burn. It was began about nine years ago, the builder being Mr. Smith, of Pimlico. The contract for the shell alone was about 44,000*l.*, and it cost altogether over 100,000*l.* It is built of red bricks, made on the spot, the dressings being of the best Thettin stone. The position is commanding; it is exquisitely finished in every respect, courtyards, stabling, and everything complete, and is the finest modern specimen of the true Elizabethan style that it has ever been our good fortune to visit. It is placed near the northern extremity of a picturesque and undulating park, and the public road from Mundford to Watton passes close by the north front entrance. One of Mr. Nesfield's gardens occupies the south front, and splendid shrubberies and pleasure grounds, with a long piece of artificial water, stretch away for nearly a mile to the west. On the east is a fine piece of natural brake, having a Grass walk, 8 feet wide, made through it, which leads to the new kitchen gardens, about a quarter of a mile distant. The offices and stabling are most commodious and splendidly finished. There are 18 horse-boxes and five stalls. The fittings are all of iron, and the floors paved with Dutch clinkers. The iron fittings of the harness-room are covered with gutta percha. The great front court is 90 feet wide, and 135 feet long. It is parted off from the park by a magnificent iron fence on the top of a low wall, and very fine chaste iron gates by Turner, of East Street, London. The house and offices are not only lighted, but part of the cooking is also done by gas. The works are placed in a valley about 400 yards to the north-east of the house. At the gas-works there is also a tank, 20 feet deep and 12 feet square, which receives all the sewage from the house and offices through a 12-inch pipe. The pure-water well is within about 50 yards of the gas-works, and the water is raised by a 3-horse power steam-engine, and distributed all over the house, garden, and offices. The sewage is also pumped up to the gardens, and hydrants are placed in different positions, so that the whole may be watered with the greatest ease. Mr. Dunn, the very intelligent gardener, speaks highly of the value of sewage as a manure for Peas, Celery, Strawberries, fruit trees, Box edgings, Cucumbers, and all soft-wooded pot plants. Experience shows that not only these, but, when wisely applied, every modern bedding plant in the flower garden is strengthened and further beautified by a draught of sewage. The water arrangements of Lynford are perfect. This is of the highest moment in most gardens, but especially so through a great portion of East Anglia, where large tracts of light soils, resting

on chalk or gravel, are found, and the rainfall only averages a depth of about 22 inches. Even with a less droughty bottom, this is not enough for the perfecting of sweet, succulent vegetables. On such a soil as Lynford these crops require, and will doubtless receive, 40 inches of water per annum.

Returning from the gas-works we pass along the Mundford Road to the beautiful Elizabethan lodge. The carriage road leaves the highway, at nearly right angles, at probably 200 yards beyond the mansion. It is a noble entrance, and the road, after proceeding nearly straight for some distance, is carried over a handsome bridge—past the site of the old Hall—beneath fine avenues of trees, and through rich shrubberies or thriving plantations, to within 3 miles of Brandon, which is 5½ miles distant. But within 160 yards of the lodge the main entrance to the mansion leaves this long carriage road at right angles. It seems a great pity that this particular line was chosen. Possibly it was to bring the new entrance readily into the long carriage road that led to the old Hall, of which this may be looked upon as a continuation. But this might easily have been managed further down; while the natural fall of the ground, a convenient bend in the public road, at the far end of a noble double avenue of Wellingtonia 660 yards long, in a straight line from the house—all provoke one beyond measure that the road did not pierce down between them in a straight line until its course was stopped by the public road. This, one would suppose, must have been the original intention of those who planted the Wellingtonias, and it is to be hoped it will speedily be carried out. It gives the massive grandeur of the house a stunted, broken-off appearance, to be brought up so suddenly in front of it, and so close to it. The Wellingtonias were supplied by Messrs. Veitch & Sons, of Chelsea, and are very fine, healthy well-shaped plants, many of them from 5 to 10 feet high. There are nearly 200 of them, and they are planted in made soil, 60 feet by 120 feet apart. Most of them are growing well, but Mr. Dunn has been much troubled with root fungus, which has at times destroyed some of the trees. He is constantly on the watch for it, and the moment it puts in an appearance on the roots or at the necks of the plants, it is treated to a dressing of a mixture of Gishurst compound, turpentine, and sulphur. This destroys the fungus, and would probably kill the tree as well, but that great care is taken only to touch the affected parts, and not to allow any of it to drop among the soil.

Turning from this intensely practical matter, we find imagination picturing the magnificent effect that this avenue of monarchs, which is to be extended, will have 500 years hence, and pull ourselves up suddenly to admire the rapid growth of the Pyracanthas at the end of the stables. From here the flower garden is reached. It is about 2 acres in extent. The retaining walls are of red brick, with a York stone balustrading and coping embellished with fine bronze vases. The walls and stone steps alone cost about 4000*l*. There is an upper terrace of gravel, forming a base to the house, 20 feet wide and 330 feet long. This is succeeded by a steep sloping bank, and a second terrace or panel walk 15 feet wide, terminating in a blue and gold-coloured iron gate at each end. Beyond these the flower garden proper begins. It is one of Mr. Nesfield's, of the usual kind, consisting of small flower beds—box-scroll work—different coloured walks or spaces of varied hues, &c.

At one end of the house there is a small Rose garden on the highest ground; at the other end, at a lower level, is an oval basin, 20 feet by 30, surrounded by pretty scroll beds. In the flower garden there are spaces for marble vases. There are also rich majolica china vases on the top terrace. But the chief feature of the flower garden is a massive group in marble of a bull fight at Rome, by Clesinger. This occupies the centre of the garden, and represents two bulls in mortal conflict, one having just pierced the other through the windpipe. The figures are three-quarter size, and the massive bulk is much increased by being elevated on large blocks of stone. It is a fine, true work of art, every part of the animals being endowed with life-like animation; but it can only have been placed here by way of contrast to the sweet repose of garden scenery, and the contrast is so violent as to ruffle one's sense of congruity.

Of course also, in harmony with the architecture, there are round-headed and other shrubs or trees, to give the whole, when they grow up, a quaint and antique character. All was in the highest keeping, and the beds were filled with the usual bedding plants. Among Pelargoniums we observed Stella, Scarlet Perfection, Punch, Christine, Golden Chain, Bijou, Cloth of Gold, Baron Hugel, and the ever-welcome Mangles' Variegated. As a relief to these we were glad to meet with some of our old favourite scented Geraniums, the best among them all being Shrubland Pet. Among Verbenas, Purple King, Sir Charles Napier, Firefly, Defiance, Lord Raglan, Ariosto improved, and a pink Seedling raised by the late Mr. Drummond, of Roehampton, were the best. Some brilliant Rose beds on the top terrace at the west end of the house were filled with General Jacqueminot, Lord Raglan, and Souvenir de la Malmaison. There were also irregular beds in the flower garden, consisting of Rhododendron ponticum and ferrugineum, Portugal Laurels, and Berberis Darwinii. The dwarf Portugal Laurels on the ground level have been killed to the ground by the severe frost, while Standards 6 feet high were not at all injured,—an important fact, worthy of the serious attention of meteorologists and gardeners.

Plants of Yucca recurva, Portugal Laurels, and weeping and gold-edged Hollies are planted singly or in masses at different points. The following single Conifers were placed among the flower beds: Cupressus Lawsoniana, Thuja gigantea, Juniperus chinensis and hibernica, Thuja Lobbii and aurea, and Abies pygmæa. Immediately through the gate leading to the shrubbery a very fine Wellingtonia, 17 feet high, was growing most vigorously; it was from a cutting. It really seems as if the cuttings of some Pinuses did better than seedlings. This is a curious fact, demanding the attention of both nurserymen and gardeners. From the flower garden the park falls towards a nice piece of artificial water, spanned by an old bridge, about a mile distant. It then rises gradually, and is bounded in all directions by large woods or lost in the distance. The water is very beautiful and very extensive, reaching altogether to nearly a mile in length. It varies from 12 to 60 yards in breadth, and is about 5 feet deep in the centre. It is supplied by a large lake, about 3 miles distant, called the Toft's watering, and becomes a large flowing stream. About 300 yards of it is visible from the flower garden. It is seen issuing through the old bridge, wending round between two artificial islands, and is lost just before it reaches the new bridge already mentioned in connection with the carriage-drive. This part of the water has lately been improved, having been widened, and new lines formed, but from the flower garden it still looks too narrow. There is a natural line pointed out for it from the terrace, which it might readily take. The house and garden are upon such a scale of magnificence and grandeur, that the water ought to conform to their princely importance, or what would be termed a noble lake (elsewhere) sinks here into a tiny pool. The islands should also be enlarged, and covered with a bolder vegetation. One of them is planted mostly with Pampas Grass, the other with Berberises and Heaths.

Leaving the flower garden and passing down some stone steps to the right, one of the finest shrub scenes ever seen reveals its charming beauty. A gravel walk, 6 feet wide and 160 yards long, leads to a tunnel which passes under the new carriage road near the bridge and waterfall. On each side of the walk bold irregular banks are thrown up, and planted with groups of evergreens, chiefly Berberises and Heaths. These were designed by the late Mr. Lyne Stephens; their banks of Laurels, &c., were laid out by Mr. Nesfield. We have always thought that much more could be made of the ground itself as the basis of varying beauty than is generally done in most gardens; but it is doubtful if the charms of an irregular surface were ever so effectively brought out as they are in this instance. Doubtless it owes much of its interest to its vegetable covering. Heaths, above and beyond most other plants, possess unique and varied charms. Only those who have seen them in masses on their native hills can appreciate their inimitable capabilities, and fascinating beauty. Planters hardly seem to be aware of the rich material for striking effects which this class of plants alone provides for them. The following sorts are admirably arranged on the Lynford Bank, which will be the parent of many others throughout the country:—Erica arborea, carnea, australis, rosea, cinerea, Mackayana, herbacea, alba, glauca, multiflora, m. alba, m. rubra, vulgaris alba, pygmæa, pumila, spicata, and stricta. Of course the Heaths require peat earth, but they richly deserve anything that will preserve their healthy luxuriance, and enable them to display their charming forms and brilliant colours. And at Lynford it is as easy to give them peat as other soil, for scarcely a shrub or tree is planted unless in carefully prepared artificial earth.

Passing from this Scotch mountain in miniature beneath the tunnel already alluded to, we proceed along a shingle walk (which we were glad to learn is to be changed for gravel—for shingle is wretched for gentlemen, and must be simply unwalkable for ladies), furnished with broad masses of Berberis Aquifolium, in robust health. Then follow perhaps 500 yards of Rhododendrons, chiefly, if not entirely, ponticum, in the natural soil. They look well, and dress up the plantation beautifully. However they are not so robust as others growing in peat in different parts of the grounds, and Mr. Dunn, who is not satisfied with merely planting, but will have everything grow freely, intends to peat them all by degrees. At irregular intervals along the side of this walk, and in other parts of these extensive shrubberies and pleasure grounds, were observed fine thrifty specimens of the following Conifers:—Abies Douglasii; Picea grandis, Pinsapo, Pichta, nobilis, Nordmanniana, and pectinata; Taxodium sempervirens; Pinus excelsa, Lambertiana, Laricio, austriaca, Cembra, and Jeffreyana; Juniperus excelsa, chinensis, virginiana, fragrans, japonica, spherica, and thurifera; Thuja gigantea, Lobbii, and borealis; Cupressus Lawsoniana, Corneyana, Goveniana, and M'Nabiana. Everywhere also there were Cedrus Deodara, Wellingtonias, Hemlock Spruce, Arbor-vitæs, and Golden and common Yews. Different parts of the grounds are also specially rich in Pampas Grasses.

Returning from this digression, and turning to the left, we pass under the boughs and close to the boles of some magnificent Beech trees, of great height and breadth, and presently the sound of running water is heard, and the sight of Ferns in a newly-formed Fernery is seen; the next moment the pool, and the long canal, 600 yards long and 12 or more wide, stretching back to the new bridge, with closely shaven turf kissing the water—the turf itself being embraced on the other side with shrubs and trees of great rarity—forming such a scene of antique beauty and stately grandeur as is seldom met with. Few changes could be more thorough and complete than such a termination to the shrubbery walk, and consequently none could be more satisfactory. The very nature of surrounding objects tends to "give us pause," and seems to satisfy and bathe the soul in liquid and umbrageous beauty. The idea of introducing Ferns here is also exquisite. But the Fernery must be regal that is to harmonise with such surroundings. The trees and bushes are giants, the water almost a river; the pool, which is now of large size, is to be extended beyond this into a lake covering several acres, and the Fernery must expand into natural mountains and dells, adorned with feathery fronds, or flit elsewhere. This fine straight piece of water terminates here with a large island and an old bridge, and at the other extremity with the new bridge and waterfall. Then follows the artificial water (already described) from the flower garden, about 500 yards in length, ending in the old bridge. Coming up on the right-hand side of the water, on a straight gravel walk, edged with a line of Roses and Yuccas alternately, and backed up by a dwarf Yew hedge, we observe some magnificent Yews kissing the water on the other side, and some waving lines of Rhododendrons, groups and masses of Pampas Grass giving a charming variety to a most enjoyable promenade. On the right, sweeping Grass glades and gravel walks proceed diagonally in the direction of the old Hall, which stood about 500 yards from the canal. The old Hall, which was famous for water-works many years ago, and was built close by the site of the old church and churchyard, was pulled down in 1863, and the kitchen garden walls, sheds, &c., built with the materials.

The exact site of the old mansion is preserved by a group of 13 family trees, planted by the present proprietors and their friends. They consist of Cedrus Deodara, Wellingtonias, and several of the Pinuses already named. Near here is also a quaint-looking Yew arbour, of considerable antiquity, which was moved bodily from West Toft Gardens. The remainder of the site is planted with evergreens. The old flower garden is converted into a sunk oval-shaped Rosery, about 50 yards by 30. In sinking the ground a few feet for the Rosery, several human skeletons were found, and within a few feet of them quantities of horse bones were also dug out. There is a fountain in the centre; eight beds of standard Roses round it, and eight sloping (Fleur-de-lis) beds on the banks of dwarf Roses on their own roots, the sorts being Souvenir de la Malmaison and General Jacqueminot alternately. These have a fine effect, and the Roses are all doing well, being protected by a rabbit-proof fence, which detracts somewhat from the enjoyment of them, by introducing the idea of danger to our favourites when nothing should distract the attention from the enjoyment of their beauty and sweetness. Returning from the Rosery we cross the new bridge, built of Ransomes' stone, which is not standing very well, and pass close to the waterfall. It has been built and planted with Ferns, &c., several times, and is surmounted on each side with bold mounds of earth, well planted with different Pinuses, Hemlock Spruce, &c., the fall itself being well furnished with Ferns. Altogether this is a very successful imitation of one of the most beautiful and difficult to imitate of Nature's scenes. Some rare and choice varieties of ducks, which are kept between the fall and the bridge, add an additional interest to the spot. Near here some of the finest Wellingtonias at Lynford are to be found. A row skirts each side of the carriage road from the bridge to the lodge, cutting the double avenue already described at right angles. Close to the bridge there is a very fine Spruce nearly 22 feet high. It was put in as a cutting in September, 1858. Several of the others are nearly as good, and many of them struck from cuttings.

Proceeding up the short carriage road, and passing through the court and stable yards to the back of the house, a deciduous avenue is seen stretching across the pastures for several hundred yards. It is formed of Limes, Poplars, Horse Chestnuts, and Mountain Ash planted alternately. To the east of the house is a well stocked tastefully planted pheasantry of about 3 acres, enclosed with high wire netting. It is filled mostly or entirely with silver pheasants, and planted about with deciduous and evergreen shrubs and trees, among which different varieties of Sweet Almonds, &c., were conspicuous. There are also abundance of double and single Furze, Periwinkle, and Ferns.

Altogether the pleasure-grounds and flower garden extend over about 23 acres. The Grass is kept in excellent condition by one of Shanks' 36-inch mowing machines and eight scythes. Mr. Dunn's charge extends over the carriage drives, nursery, lodges, &c., and 28 men are employed by him. There is plenty of room for almost any style of gardening in these large grounds.

The flower garden forms a second massive architectural base to the fine Elizabethan mansion. Skilfully designed walks tempt one in all directions to the points of greatest interest and the ever-present water, and varied scenes of loveliness are ready everywhere to welcome all with their refreshing, gladdening, sparkling smiles. We observed on going and coming some nice new cottages for the labourers or keepers on the estate, and Mrs. Lyne Stephens has built a new school at Mundford, at an expense of over 1000*l*., for the use of the inhabitants. *F.*

(*To be Continued.*)

Miscellaneous.

Death of Mr. Ivery, of Peckham.—We regret to have to record the death of Mr. William Ivery, of Peckham, after a short but severe illness. Mr. Ivery has carried on the business of a nurseryman and florist in Rye Lane for upwards of 30 years, with credit to himself and satisfaction to all who have had dealings with him. He died on the 19th ult., in the 61st year of his age.

The Vine in Madeira.—The Vine is again resuming in Madeira its proper place; and in the north of the island, especially at Porto Moniz and Seixal, the ravages of the Oidium are being fast repaired. In the south it will be longer before the culture of the Grape again supplants that of the deleterious sugar-cane, and restores alike to the Madeiran wines and climate their just character; for the atmosphere, both physical and moral, of Madeira, especially in Funchal and its neighbourhood, has not suffered less deterioration during the last 10 or 15 years from the introduction of sugar culti-

vation, with its usual train of fever-miasmata, malaria, and cheap spirits, than the wines of the island have degenerated, in consequence of the temptation to supply the deficiency of genuine Grape-juice by the substitution or admixture of all sorts of spurious compounds formed with the fruit of the Japan Medlar or Nespera (Mespilus or Eriobotrya japonica, Thunb.), Oranges, Pears, &c. In the Canaries much less progress has been made towards the reinstatement of the Vine; and the cultivation of Cochineal had become so profitable and popular, that four or five years ago no steps at all were being made in that direction. In the Cape Verdes very little wine, comparatively speaking, and that only of very inferior quality and merely for home consumption, had ever been made before the setting in of the disease; and the Vine at present exists only here and there in gardens. In one of these at Porto Praia, the capital of St. Iago, I was presented by the owner with a bunch of fine, well-flavoured Grapes, though not quite ripe, in the middle of March. The mode of cultivation in Madeira of the Vine is somewhat peculiar. Across one end of the whole breadth or length of the piece of ground or terrace to be planted, a broad deep trench is excavated by a number of men (often from 10 to 20) working side by side. In this trench, which is never less than 5 or 6, and often 10 or 12 feet deep, are planted shoots of the last year's growth from 12 to 20 feet in length, the lower portions of these being laid horizontally along the bottom of the trench when their whole length exceeds, as usually it does, the depth of the latter, the longest shoots being preferred. The trench is then filled in gradually by the men working on regularly, as it were, backwards, and filling up the first by throwing up the soil all along to the same depth, till they have formed at a few feet distant another similar trench; and so on successively till the whole soil of the plot of ground has been upturned and planted. In two or three years the plants begin to bear, and in five or six are in full bearing. Their continuance in the latter state varies excessively, according to the soil, situation, or supply of water. It is rarely less than 10 or 15, and still more rarely above 30 years. Though the roots do not usually spread below two or three feet of the surface, the long remaining part of the originally planted shoot below this depth thickens and retains a sort of vitality, and perhaps acts like the fleshy rhizomes or tubers formed by certain plants, especially in warm climates or in dry soils, to supply the roots and plant above with coolness if not moisture from the lower depth to which it reaches. The pruning-time is in February or March, according to the elevation of the vineyard. The Vines are in full leaf and flower in May; and the vintage takes place in September in the south of Madeira, and in October in the north. The vines are trained on low trellises of cane-work, formed of the Arundo Donax, to which they are tied by bands of Rushes, Sedge, or Banana-sheaths. In the best wine-districts of the south these trellises are only from 2 to 3 or 4 feet above the ground. In the north of the island the Vines are mostly trained up trees of several kinds, which are called Balseiros. *Rev. R. T. Lowe, in Royal Horticultural Society's Journal.*

Garden Operations.

(*For the ensuing week.*)

PLANT HOUSES.

As the season advances attention must again be directed to all plants required for winter flowering. It is only by duly forwarding them at this season that we can expect to have a good display of flowers in October and November, and indeed through the whole of the winter months. Look well, therefore, after such plants as Genistas, Coronillas, Croweas, Correas, &c.; encourage the most forward and most compact plants by every possible means to grow freely, and pinch back others so as to secure a proper succession of blooms. Give final shifts to those already in pots, and pot up others of the following sorts from the borders, namely, Aloysias, Heliotrope, Mignonette, Ageratums, fragrant-leaved Pelargoniums, Sweetbriars, &c. Select likewise the most forward plants from amongst winter-flowering Gesneras, Justicias, Eranthemums, Tydeas, &c., for similar earlier flowering, giving secondary plants another shift, and, if compatible with the form of the plant, &c., another pinching back also. Shift finally *Scarlet* and other *Pelargoniums* for winter flowering, and induce them to well fill the pots with roots before the season in which they are required to flower has arrived. *Eucharis amazonica* will now be benefited by another shift into a larger pot. Do not divide the bulbs or in any way loosen one from the other, but simply pot the ball on into a larger sized pot. Should a wet period set in, remove any tender *Greenhouse Plants* that may be out under shelter, before it is possible for them to suffer from too great an amount of moisture. If necessary procure a few *Dutch Bulbs* at the earliest opportunity for very early forcing. The little *Roman Hyacinth* is well adapted for this purpose, especially when grown in bunches in pots. Attend to the potting on of *Primulas, Calceolarias*, and *Cinerarias* as they become sufficiently large for that purpose. The Primulas should not be potted too firmly; put them in an open compost, formed of leaf-mould, peat, and silver sand, and set them in a warm light situation. The others prefer a more general admixture; pot them more firmly, and place them in a cool shady place, giving them abundance of moisture when once fairly started into growth, after each successive potting. Set the pots upon slates, coal ashes, or some other efficiently drained bottom, which will also keep worms from entering the pots.

FORCING HOUSES.

Remove *Pine suckers* from the parent plants, and pot them forthwith. They root best in a bottom heat of about 87°, with abundance of atmospheric moisture rather than too much water at the root, and they should be well shaded in open sunny weather. Look well to the outer linings of all pits, which are dependent upon fermenting material for the proper supply of internal heat; for as the nights lengthen, a greater need of warmth will be felt. Let air, light, and heat, be so regulated at this season of active growth as to secure an efficient well matured plant. In proportion as the days decrease, let the maximum heat maintained gently diminish in connection with a smaller supply of air upon cold ungenial days. Keep the surfaces of internal borders in *Vineries*, where ripe or ripening Grapes exist, rather drier after this period than hitherto, especially if the weather should prove at all clouded, using a gentle amount of artificial heat constantly, in the latter case with a moderate supply of air, given through the lower front lights or proper air holes. This is more especially necessary with regard to Muscats, and some other of the more tender varieties; Sweetwaters and Chasselas Musque excepted. Let *Figs* have a drier atmosphere and a greater abundance of air as they are about to ripen fruits, which under such conditions acquire better flavour. Remove the top lights from *Peach* and *Nectarine* houses, as soon as the fruit has been gathered; even in the later houses this is also essential, as it materially assists the trees in maturing fruit buds already formed. *Cucumbers*, in the earlier frames, and indeed wherever grown, will be much benefited, if kept to this time in good health, and it is desirable to continue them in a fruiting state, by a thorough good thinning out of all the older, less healthy growths. Use the knife unsparingly, retaining only such young shoots as are likely to grow away vigorously, and thereby induce the plant to make fresh roots and regain some proportion of its lost vigour. Do not permit any fruit whatever to remain upon them; encourage first the growing state only, which is best done by removing all surface rubbish, and replacing it with a layer of fine rich soil, pegging the base of the younger shoots therein, and keeping the frame rather close, constantly sprinkling the surface of the soil only for a week. After the plants have made a good start, give them a good soaking with slightly diluted water at the root, and resume the customary treatment. Be particular not to give *Melons* changing colour, and about to ripen, too much water, either at the root or upon the surface. Indeed, when once they have reached this stage, the soil cannot reasonably be too dry; whilst sufficient surface moisture will only be needed, in dry hot sunny weather, to keep around the foliage an atmosphere not too harsh or arid to injure their general vigour, or to give too great encouragement to ordinary pests, such as woodlice and red spider. Collect at the earliest possible opportunity a sufficiency of dry horse droppings with which to form a *Mushroom bed* for an early autumn supply. I have before stated that those droppings only should be used which are procurable from horses supplied chiefly with dry provender. It will be well to collect about this time a few wheel-barrow loads of cow dung from any pasturage, where it can be found well dried, and not too old or decomposed. Place it in a dry shed, and it will be ready for use when the beds are being made. A bushel or two mixed with each bed at the time when it is made up will be very beneficial in securing a good crop. Dry the droppings procured sufficiently in the outer air by spreading them about, should the weather prove favourable for the purpose. This will be found infinitely better than drying them by the old fermentive process.

HARDY FLOWER GARDEN AND SHRUBBERIES.

Do not fail, where possible, to run the hoe between all plants in beds. Thus stirring the soil assists in retaining moisture, and helps to destroy very young weeds. Continue to support the fast-extending side shoots of all *Dahlias*. These are readily wrenched off by wind and rains, rendering negative, and that quickly, the labour of months. Finish putting in pipings of *Pinks, Carnations*, and *Picotees*, whilst the weather proves more or less showery. It will be well also to proceed with layering them as expeditiously as possible. Sow seeds of the showy *Schizanthus* for flowering next spring. Sow in an admixture of peat, leaf-mould, and sand, and do not bury the seeds too deeply. Sow also 10-week *Stocks* for flowering early next spring. Prick out into their permanent winter quarters all seedling or other *Pansies, Polyanthuses*, &c., in order that they may become duly established before winter. Attend to all *Choice Shrubs* grown in mixed plantations or otherwise. See that no common shrubs or evergreens encroach upon the space allotted to them.

KITCHEN GARDEN.

Do not fail to sow the necessary breadth of *Prickly Spinach*, upon late heavy lands, between the 6th and 8th of this month; and upon light forward soils between the 8th and 10th, in properly prepared positions, as advised in last week's "Calendar." A few *French Beans*, sown now upon a south border, and in a position where it is possible to protect them slightly by mats from early autumn frosts, will be found very useful late in the season. The necessary space should be cleared and dug over for the purpose of sowing early next week autumn *Onions*, to stand the winter for early spring use. Choose a good rich quarter for the purpose, and well dung it. Procure Tripoli or White Spanish for this purpose. Take up Pickling Onions and lay them in an open situation to ripen off their tops. The main bed of Onions will be benefited by having the tops gently laid with a stick or other handy appliance, especially any coarse bottle-necked ones which do not bulb freely. Remove all side shoots, decaying and minor superfluous leaves from the earlier rows of *Celery*, and tread the soil contained in the trenches firmly down, which will be of much benefit after the late rains. Where sticks of Celery are in request at the earliest possible date, a few inches of soil should be placed at once around their base, giving them every encouragement possible as regards freedom of growth by means of liquid manure frequently applied and other waterings. *W. E.*

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the Week ending July 31, 1867, as observed at the Horticultural Gardens.

July.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Of the Air. Min.	Of the Air. Mean	Of the Earth 1 foot deep.	Of the Earth 2 feet deep.	Wind	Rain.
Thurs.	25	29.842	29.695	75	52	63.5	63	60	S.E.	1.48
Friday	26	29.860	29.575	58	47	52.5	64	60	N.E.	.40
Satur.	27	30.047	29.924	64	41	52.5	61	59	W.	.02
Sunday	28	30.061	29.130	71	40	55.5	61	59	N.	.00
Mon.	29	30.064	30.000	65	38	51.5	61	59	N.	.00
Tues.	30	30.027	29.989	72	44	58.0	61	59	N.	.00
Wed.	31	29.973	29.945	72	43	57.5	61	59	N.E.	.00
Average		29 982	29.751	68.1	43.5	55.8	61.7	59.3		1.90

July 25—Very fine; cloudy and fine; rain at night.
— 26—Constant heavy rain; boisterous, with rain; rain.
— 27—Cloudy and cold; densely clouded; very fine.
— 28—Fine, with low white clouds, fine throughout.
— 29—Hazy clouds; fine; cold at night.
— 30—Hoar frost early; rather cloudy; fine at night.
— 31—Fine; dry haze; fine.

Mean temperature of the week, 6 9-10 deg. below the average.

STATE OF THE WEATHER AT CHISWICK,
During the last 41 years, for the ensuing Week, ending August 10, 1867.

August.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday .. 4	75 6	50.6	63.1	17	0.85 in.	2	3	4	3	4	17	6	2
Mon. .. 5	74.2	51.0	62.6	18	0.88	1	4	4	2	5	14	7	4
Tues. .. 6	73.2	50.6	61.9	20	0 58	—	6	3	1	5	16	8	2
Wed. .. 7	74.6	50.7	62.6	15	0.57	1	4	3	-	6	23	4	—
Thurs. .. 8	74 5	49 2	61.8	17	0.50	2	5	2	—	3	21	5	3
Friday .. 9	74 4	49 6	62.0	16	0.56	2	7	1	—	5	17	8	1
Satur. ..10	75.0	52 0	63.5	19	1.08	1	8	2	0	6	14	8	2

The highest temperature during the above period occurred on the 10th, 1842—therm. 93 deg.; and the lowest on the 4th, 1863—therm. 35 deg.

Notices to Correspondents.

ASPARAGUS: *Sub.* In page 212 of Thompson's "Gardeners' Assistant" will be found ample information as to the best mode of making new beds of Asparagus on the plan adopted by the best market gardeners round London. †

CAMELLIA ETOILE POLAIRE: *C C.* We have not met with this variety in bloom. It is represented as a very prettily marked flower, but probably, like all striped flowers, is more or less sportive.

EPIPHYLLUMS: *C C.* You will find full particulars for growing E. truncatum at p. 318 of our volume for 1864, and p. 1191 of our volume for 1866.

INSECTS: *G C.* The larvæ so comfortably lodged in the buds of the Vetch are the orange-coloured grubs of a species of Midge, Cecidomyia.—*I S.* The insects collected on the Saccolabium giganteum are a species of field bug new to us. Although they suck plants they are not gregarious, like aphides. It is hardly likely that they will continue to breed in this country. Can you send us some carefully preserved specimens, not one of those received had an antenna.—*T M W.* It is quite impossible from your description to identify the light green grub with lines of black on the back, which has perforated your Pelargonium leaves. The description will apply to many species. No doubt, however, the insect is the young state of a moth. *W.*

JUDGING: *J V* asks what duties devolve upon him as third Judge at a Cottager's Vegetable and Flower Show about to take place. If there are three Judges, of whom "J V" is to be one, his duty will be, of course, in company with the other Judges, to examine all the articles shown in the various classes, and give an honest opinion and vote as to their relative merits. If by "third man" "J V" means that he is to act only as referee while two Judges are to make the general awards, his duties (of the same nature as before) will be confined to those subjects, or those classes, on the merits of which the other Judges disagree. It is always preferable that there should be three Judges.

LUMINOUS MOSS: *H W C* asks if any one can tell him whether there is any Moss in cultivation, quite recently introduced, which in the dark is luminous; and if so, what is its botanical name and native country, and whether it requires protection. We do not think of any luminous Moss besides the native Schistostega.

MELON BLOSSOMS: *R B, Chillingham.* Thanks for the specimen, in which one of the leaves of the calyx has become unusually large and leaf-like. A similar deviation has often been recorded, and figured in our columns.

NAMES OF PLANTS: *D.* Your three specimens are different states of Enteromorpha intestinalis. No. 3 is not a Conferva, as you will see at once under the microscope. You do not say whether it grew in fresh or salt water. It is not usual to find E. intestinalis proliferous. *M J B.—J L.* Cephalotaxus pedunculata, and Cryptomeria japonica.—*George Maw.* 1, Allium vineale; 2, Campanula rotundifolia; 3, Sempervivum tectorum; 4, Œnothera fruticosa.—*A H.* Sidalcea oregana.—*A Constant Reader.* 1, Malva moschata; 2, Potentilla Hopwoodiana, Hort.; 3, Epilobium hirsutum.—*A Subscriber.* 1, Viola cornuta.—*W G.* 1, Funkia Sieboldii; 2 (a leaf only, indeterminable); 3, Saxifraga cæspitosa; 4, Polemonium cœruleum.—*W D.* 1, Stachys germanica; 2 and 3, Helichrysum melanophthalmum; 4, Lythrum Salicaria; 5, Lysimachia vulgaris.

PETUNIA: *S C.* A large purple, with narrow green edge; similar flowers are often seen in a bed of good seedlings; it is apparently coarse, which is objectionable.

PINE TREE SEEDS: *R R.* Gather the seeds when ripe. Sow them in March or April, in pans or shallow boxes, in rather light loamy soil. Place them in a cold frame, and plant out in the open border, or pot singly into small pots when the plants have made a little growth beyond the seed-leaves. †

SEEDLING FUCHSIA: *G Fry.* Tube short, and with the broad well reflexed sepals bright red; corolla purple, very double and compact. There is a neatness and refinement about this flower which is very pleasing, and as the foliage is small and the reverse of coarse, it will form a first-class variety if the habit of growth is good, as we should judge it likely to be.

SEEDLING OF MRS. POLLOCK: *Dis.* There is no absolute certainty that the seedlings will reproduce the form of the parent plant, or will be similar one to the other, even though the seeds were all produced in the same pod and fertilised with the same pollen.

SEEDLING SHRUBBY CALCEOLARIA: *G Fry.* The flowers are large and bright yellow, but we have not materials to judge of the foliage and habit.

COMMUNICATIONS RECEIVED.—D. T. Fish.—J. Fleming.—P. Grieve.—R. W.—W. R.—A. Sammons.—T. O. D.—Novice.—J. H. Stansfeld.

LAWES' MANURES.—The Manures manufactured by J. B. LAWES for the present season of 1867 are now ready for delivery at his Factories, at the following prices, per ton:—

	£	s.	d.
LAWES' PATENT TURNIP MANURE and BONE SUPERPHOSPHATE of LIME..	6	0	0
LAWES' SUPERPHOSPHATE of LIME from BURNT BONE or MINERAL PHOSPHATES	5	5	0
LAWES' WHEAT, BARLEY, GRASS, and MANGEL MANURES	8	0	0
CONCENTRATED CORN and GRASS MANURES ..	12	0	0

These Manures can be obtained of Mr. LAWES, or through the appointed Agents in all parts of the United Kingdom, at prices varying according to cost of carriage.

Genuine Peruvian Guano direct from the Importers. Nitrate of Soda, Sulphate of Ammonia, and other Chemical Manures.

American and other Cakes at market prices.

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THE LONDON MANURE COMPANY (ESTABLISHED 1840),

Have now ready for delivery in dry fine condition,

CORN MANURE, for Spring Use
DISSOLVED BONES, for Dressing Pasture Lands
SUPERPHOSPHATES of LIME
PREPARED GUANO
MANGEL and POTATO MANURES.

Also Genuine PERUVIAN GUANO, and NITRATE of SODA, ex Dock Warehouse; SULPHATE of AMMONIA, FISHERY SALT, &c. E. PURSER, Secretary.

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TANNERS, CURRIERS, & MANUFACTURERS of IMPROVED TANNED LEATHER DRIVING STRAPS for MACHINERY.
PRIME STRAP and SOLE BUTTS.
Price Lists sent free by post.
Warehouse: 81, Mark Lane, London, E.C.
Mr. H. FERRABEE, Agent.

IRON HURDLES (Silver Medal of the Royal Agricultural Society).
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List by Post. GATES and FENCING of every description.
St. Pancras Iron Work Company, Old St. Pancras Road, London, N.W.

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COLONY of NATAL.
EMIGRATION and LAND GRANTS.
GRANTS of GOVERNMENT LAND are given to Men of good character who have some small means to start with, and experience and skill in Mixed Farming.
To Agriculturists with £500, 200 Acres of good Land in Freehold, with contiguous reserves for future purchase on easy terms.
To Men of smaller means, but who have enough to live upon until their Land can be made to yield sustenance for their Families, 50 Acres in Freehold, with contiguous Commonage, assisted Government Passages for their Families, and advice and help on landing.
Pastoral Runs of 1000 Acres, at a yearly rental of One Penny per Acre on 8 years' lease on condition of personal Residence and Stocking.
Applications for further information to be made to Dr. MANN, the Special Agent of the Natal Government, at the Natal Immigration Office, 15, Buckingham Street, Strand, London, W.C.

State of the Crops, 1867.

THE GARDENERS' CHRONICLE and AGRICULTURAL GAZETTE of August 17 will contain a detailed account of the CONDITION of the CROPS throughout the Country. A Copy of this Number sent on receipt of Six Stamps, or may be ordered of any News Agent.

Office for Advertisements, 41, Wellington Street, Strand, London.

The Agricultural Gazette.

SATURDAY, AUGUST 3, 1867.

MEETINGS FOR THE ENSUING WEEK.

WEDNESDAY, Aug. 7 } Meeting of the Yorkshire Agricultural
THURSDAY, — 8 } Society at York.
FRIDAY, — 9 }
WEDNESDAY, — 7—Royal Agricultural Society of England.

RETURNS have already been made of the amount of land occupied by different kinds of corn. But useful as such statistics may become it is plain that much more information is required, if not in respect to all kinds of grain, at least as regards Wheat, before statistical information can be of any great value. Besides the thinness or thickness of ears of corn upon the land, there are many circumstances and various affections, the effects of which must be duly estimated before we can form anything like a trustworthy estimate of productiveness.

The farmer may be able long before harvest to make up his mind as to his probable amount of straw, and but for drawbacks he can nearly foretell the quantity of grain; but soon after the flowering of the Wheat plant indications of failure of various kinds may set in, which will interfere with any conclusions that had been previously formed.

On the lighter soils of the west of England early Wheat, which flowered the first week in June, presented for the most part a greater length of ear than is usually the case, thus giving great promise; but a dry June has had the effect of causing from six to eight of the triple grain bunches to become entirely abortive, thus in many cases hopelessly despoiling an otherwise long head of Wheat of about one-third of what might have been expected.

This, then, which is either the effect of defective nutrition, or of abortion from the want of action of the pollen, or of both, is a common cause of the yield being often so much less than was expected, and it is a state of things somewhat common at the present time. Allied to this defect is that of the premature withering and drying up of the whole ear, which is sure to occur, with even a short duration of drought, in much of the corn sown on shallow soils, especially when a hard rock is the substratum, as it is on thin soils over the new and old red sandstones. The thin land on the sands of the inferior oolite (called in Dorset "Shill" (shallow) "ground") causes many defective ears, reminding us of the parable of the sower—"Some fell upon stony places, where they had not much earth, and forthwith they sprung up, because they had no deepness of earth: and when the sun was up, they were scorched; and because they had not root, they withered away."

This affection, if it does not utterly destroy the grain, will at best only grow very small withered "tail" Wheat; and we have now in our eye a field in which the yield is curtailed to the extent of 5 bushels an acre from this cause, and it is one which soon arises on the accession of drought after the period of flowering, and its effects cannot be fully made out until very near harvest.

The chaff scales of these ears are usually covered with a fungus known as the Cladosporium herbarum, which, though once looked upon as the cause of the effect we have here noticed, is itself the effect of a kind of mouldiness succeeding upon a dead and decaying structure: and this is proved by the fact that this very mould attacks in like manner those ears of Wheat which have become defective from a totally opposite cause, namely, too much wet.

During the present visitation of St. Swithin a large percentage of Wheat has become scrawled, that is prostrated, in every direction at the foot of the injured corn. On looking at the ears of this "scrawled" Wheat they will be found to be starved, and the grain, which had begun to form, is now withered and useless. If we look at the stalk and leaves we find every appearance of premature wasting away, and the whole looks decaying and dirty. The roots have rotted away, and the plant, as a consequence of this and the drying and contracting of the straw, falls down; thus making what, late in June of this year, was a promising even crop appear, at the end of July, very thin and unpromising.

This diseased state is very common this year on stiff soils, doubtless induced by a general ungenial spring; it is, however, not absent from the dry uplands, where it is clearly the result of the recent rains and cold nights.

It is this affection of the Wheat crop which Mr. MECHI has described in the *Times*. He says:—

"I fear that the Wheat crop on stiff clays, even where well drained, will this season, as last, be diminished some 10 to 20 per cent. by what is commonly called root-falling, but which is really root-rotting. Owing to so much rain, and the frequent absence of sunshine, the stem, just above its junction with the crown of the root, and where it rises from the surface, has become brown, soft, and, in fact, rotten, so that it falls at the first wind, and the ears shrivel or die according to the amount of decay or detachment. In a dry, bright season, like 1864, this portion of the stem would be hard and glossy, thus protecting the circulation, supporting the superstructure, and producing large ears and fine grains."

But besides the mouldiness in prematurely decayed Wheat, there are the so-called blights by which this crop is also affected. These are of two kinds—1st, injuries in which rusts and smuts of different species are concerned; and 2dly, injuries arising from the attacks of insects, &c.

1st. Rusts may be described as those efflorescent Fungi which discolour the stem, leaves, and chaff-scales, generally commencing just as the milk begins to form in the grain. This season the plant was remarkably free from this until the wet weather commenced, and now that Wheat which has been beaten down by the heavy rains is almost black with it. It is not to our present purpose to inquire into the true nature of this affection; it will be sufficient to say, that when the straw is seriously rusty the yield of grain is never so good or so abundant. The grains are for the most part shrivelled and immature, and sometimes the plague spot will be found even on the grain itself. Rust will be a rule this year in all late crops, and we have no hesitation in saying that should St. Swithin insist upon his 40 days of wet, the "bread stuffs" of this country will be seriously reduced from the induced smut alone.

Smuts are of two kinds, the Black Smut, which renders the flower abortive, so that it decays away in a sooty inflorescence, which, though harmless as to any effect upon the sample, of course results in so much loss to the crop. This season it has been somewhat more than usual, both in Wheat and in Barley. The Stinking Smut, Uredo caries, in effect is the filling up of the grain with a vilely smelling black powder instead of flour. This not only is a loss to the crop when it occurs, but causes the sample offered to the miller to smell most disagreeably. This too has been more abundant than usual this year, and indeed it would appear, in spite of the chemicals employed for dressings to the seed, to be greatly on the increase.

2d. The Hessian fly (Cecidomyia tritici). Wheat midge is a common insect in the Wheat crop, and is known by the minute yellow larvæ which infest the chaff-scales just before the grain begins to fill up. In this attack the grain is never perfected, but is indeed poor "tail" corn. Fortunately this has been rare this season, so that it can hardly affect our calculation of the crop of 1867.

In 1864 we became aware of the fact that the larvæ of some kind of moth were attacking our Wheat grains when growing in the ear. We did not, however, make any particular drawback from this circumstance when estimating the probable yield of the field, but it was afterwards found that the insect in question had continued its depredations in the stack, and to our astonishment we found that from a 30-acre field of Taunton White Wheat we had got no less than two sacks of the exuviæ of this larvæ. As yet we have not made out the insect, but the farmer who will diligently attend to his winnowing machine will often be surprised at finding even masses of larvæ, which, though difficult to make out, might nevertheless tend to show him that his field calculations are often open to serious drawbacks.

These are some of the more important points which we should attend to in estimating the probable amount of our crop. Insects are fortunately not in the ascendant this season, but other and even more serious checks are, and have been, in operation to lessen our probable yield of corn.

But it is not quantity alone that we have to consider. It will generally follow that a dry hot summer increases both the quantity and quality of the Wheat crop; at the same, both wet and dry seasons have their drawbacks: and only he who can examine all these is fit to estimate the probable yield of the crop. As a rule, the knowledge of the acreage under Wheat may enlighten us as to what we may expect, but carefully looking into the operations of Nature will alone tell us what we have. *B.*

—— HARVEST TIME is certainly a week later than usual—postponed by the cold wet weather of July—and we shall, therefore, not give our Annual Report of the Crops until this day fortnight. We fear that the return will give a generally discouraging account of the year's grain produce.

—— Mr. BAILEY DENTON calls attention, in the *Times*, to the wonderful effect of tillage on fertility, as illustrated by the present appearance of farms near Lewisham. On Mr. SHEPHERD'S farm, in that neighbourhood, which was reported in these columns some years ago, drainage and steam cultivation, and other good management, have produced a crop of Wheat promising more than 5 quarters per acre (which has been sadly knocked about, however, by recent heavy rains), while the land close by, naturally similar, but undrained and worked by horses, will not yield one-half so much. There is also a midway state of things on another neighbouring occupation, where the land has been drained, but is not cultivated by steam power, the crop on which—a medium between the other two—shows at once the advantage of land drainage, and the inferiority of horse tillage.

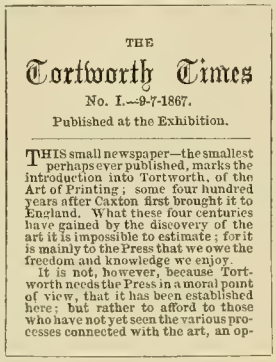
—— A report is given in another page of the discussion on Mr. FAWCETT'S Bill for enforcing education in agricultural districts. The Bill was necessarily withdrawn, after a much rougher reception, however, at the hands of Mr. HENLEY and others, than it deserved.

—— The Council of the Bath and West of England Agricultural Society, at their last meeting, adopted the following memorial to the Lords of the Privy Council:—"That inspection of Foreign Cattle on landing does not prevent the passing of infected animals into the English markets. That the sale and slaughter of all foreign animals intended for slaughter should be confined to enclosed markets, as near the water-side as practicable, at all places where foreign cattle are landed; and that no port or places should be licensed for the entry of foreign animals except such as are provided with a suitable enclosed market with the necessary lairs and slaughter-houses to the satisfaction of the Privy Council. That stringent regulations for the quarantine of all foreign store animals should be established, to prevent the further introduction of disease. Therefore we pray your lordships to consider the propriety of enforcing the establishment of separate markets of a permanent character, for the sale and slaughter of foreign fat cattle at all ports licensed for debarkation, and an efficient permanent system of quarantine for foreign store animals."

—— We hear of the formation of a "United Kingdom Association of Agricultural Labourers," whose objects are:—1stly. To promote a better system

of education. 2dly. To procure better cottage accommodation, as well as the letting of houses irrespective of farms, so that the labourer may be able to choose his employer. 3dly. To obtain the allotment of large gardens. 4thly. To secure adequate weekly wages. 5thly. To disseminate useful knowledge adapted for the class sought to be benefited, which would be done through a weekly newspaper well conducted. 6thly. To facilitate the easier acquisition of land in small portions. 7thly. To forward the institution of courts of arbitration to settle disputes between employers and employed, consisting of masters and workmen—empowered to fix the rate of wages, and other questions, in accordance with local circumstances, expediency, or custom. This is said to be the programme of the promoters, and it is plain that they have a large enough field for their operations. The Society must be an "Association" rather *for* than "of" the body whose interests it is intended to promote.

—— An Industrial Exhibition has been lately held in the park of the Earl of DUCIE, Tortworth Court, Gloucestershire. In addition to the illustrations given of all the various industries of the neighbourhood—from those of the school or of the cottage fireside to those of the various local trades and manufactures—the handiwork of other countries was brought under the notice of spectators by many valuable contributions lent for the occasion. Tortworth Park has frequently thus been the scene of very interesting local *fêtes*—horticultural and industrial exhibitions being made the occasion of useful and pleasant holidays, on which a whole countryside, in all its classes, enjoys itself together. The last Tortworth Show has attained quite the usual success; and it is well to place such a thing on record in an agricultural journal, for the wholesome influence of a good example is thus brought to bear upon a larger circle than might otherwise be influenced. Among other "industries" exhibited at Tortworth was that of Printing, and the first number of the 4-paged *Tortworth Times* we reproduce as nearly as possible in fac-simile, to show the sprightly, clever, kindly spirit which has presided over the arrangements.



THE

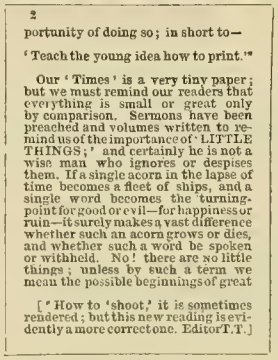
Tortworth Times

No. I.—9-7-1867.

Published at the Exhibition.

THIS small newspaper—the smallest perhaps ever published, marks the introduction into Tortworth, of the Art of Printing; some four hundred years after Caxton first brought it to England. What these four centuries have gained by the discovery of the art it is impossible to estimate; for it is mainly to the Press that we owe the freedom and knowledge we enjoy.

It is not, however, because Tortworth needs the Press in a moral point of view, that it has been established here; but rather to afford to those who have not yet seen the various processes connected with the art, an op-



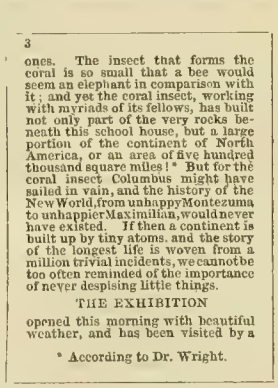
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portunity of doing so; in short to—

'Teach the young idea how to print.'"

Our 'Times' is a very tiny paper; but we must remind our readers that everything is small or great only by comparison. Sermons have been preached and volumes written to remind us of the importance of 'LITTLE THINGS;' and certainly he is not a wise man who ignores or despises them. If a single acorn in the lapse of time becomes a fleet of ships, and a single word becomes the 'turning-point for good or evil—for happiness or ruin—it surely makes a vast difference whether such an acorn grows or dies, and whether such a word be spoken or withheld. No! there are no little things; unless by such a term we mean the possible beginnings of great

["How to 'shoot,' it is sometimes rendered; but this new reading is evidently a more correct one. Editor T. T.]



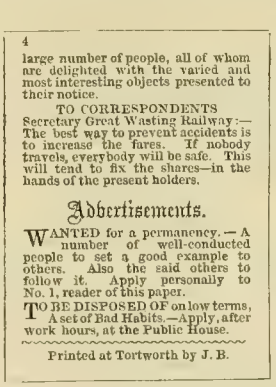
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ones. The insect that forms the coral is so small that a bee would seem an elephant in comparison with it; and yet the coral insect, working with myriads of its fellows, has built not only part of the very rocks beneath this school house, but a large portion of the continent of North America, or an area of five hundred thousand square miles! * But for the coral insect Columbus might have sailed in vain, and the history of the New World, from unhappy Montezuma to unhappier Maximilian, would never have existed. If then a continent is built up by tiny atoms, and the story of the longest life is woven from a million trivial incidents, we cannot be too often reminded of the importance of never despising little things.

THE EXHIBITION

opened this morning with beautiful weather, and has been visited by a

* According to Dr. Wright.



4

large number of people, all of whom are delighted with the varied and most interesting objects presented to their notice.

TO CORRESPONDENTS

Secretary Great Wasting Railway:—The best way to prevent accidents is to increase the fares. If nobody travels, everybody will be safe. This will tend to fix the shares—in the hands of the present holders.

Advertisements.

WANTED for a permanency.—A number of well-conducted people to set a good example to others. Also the said others to follow it. Apply personally to No. 1, reader of this paper.

TO BE DISPOSED OF on low terms, A set of Bad Habits.—Apply, after work hours, at the Public House.

Printed at Tortworth by J. B.

THE PARIS EXHIBITION.

FROM OUR CORRESPONDENT.

COMMENCING with the Foreign Departments of the class of Agricultural Machinery, we pass from the Annexe of the British Department into that of the American or United States: and here the first machine met with is a specimen of Ericsson's hot-air engine, which is designed to work Dovell's fog signal; but which, fortunately for the tympanum of the ears of passing visitors, is silent. These hot-air engines are very much used in the United States, and are well adapted for cases where but small power is required. They are easily set in work. The cylinder is placed horizontally, and the fire-box is placed at its outer end. The air to work the engine is heated by passing round the fire-box, being forced into the fire-box through the air-pump in the backward stroke of the engine. The air-pump is placed within the piston of the working cylinder, this being made on the trunk principle, to admit of the air-pump piston being placed within it. Both the piston of the working cylinder and that of the air-pump which it carries make their forward stroke simultaneously, and at the same speed; but in order to force the supply of air into the furnace to be heated for the forward stroke, the air-pump piston on its backward stroke is made to travel at a much higher speed than that of the working cylinder. This arrangement necessitates the use of a very heavy fly-wheel, in order to store up, so to say, as much force or working power as is necessary to carry, not only the working piston of the cylinder through the whole extent of its stroke, but also the air-pump in forcing its supply of air to the furnace. There is another hot-air engine in this annexe, invented by a Mr. Roper, which appears compact, but is of peculiarly rough workmanship. A good deal of attention is being paid just now to the subject of engines of this class, as they in many respects are well adapted for rural districts where work is frequently to be done in which the power of the engine is not required for a long period. The great difficulty in the bringing out an engine of this class has been the proper heating of the air; for when passed directly from the furnace in which it is heated it carried with it many of the solid products of combustion, which destroyed the working parts, and the great heat acted prejudicially on the valves; on the other hand, by heating the air in a separate chamber, which was in turn heated by a furnace, the great difficulty experienced was the heating of the air quickly enough. A form of hot-air engine in which all these defects are overcome, and which is also an invention of an American, Mr. Philander Shaw, will be found in daily work in a separate shed in the Park, not far from the famous—or infamous in point of design—English cottage.

The next machine met with in the American Annexe is McCormick's reaper, provided with an automatic sheaf delivery. Nearly opposite this is the stand of Messrs. Douglas, in which there is a pretty extensive collection of hydraulic apparatus. In many of the centrifugal pumps the arms work so freely or so loosely that they have to be driven at a very high speed in order to raise the water from anything like a fair depth. In Mr. Douglas's pump the arms as they revolve are kept perfectly packed, so that the water is lifted with comparative ease at slow speeds. The packing is secured by adopting a system of peculiar valves attached to the arms, and which are made to travel in a certain path by means of friction rollers and a curved or eccentric path. The Messrs. Douglas also exhibit various forms of hydraulic rams. Near the stand last described is a specimen of Ballard's hay-making machine. If we mistake not, this, or at least a machine very like it, was exhibited at one of our recent Royal Agricultural Society's shows. It represents a system of working which is much esteemed in many parts of the United States, but which is not esteemed here: namely, the substitution of a motion resembling the action of hand tedding with a fork, for the circular motion adopted in all our hay-tedding machines. The forks or tines are precisely those of the double-tined hand fork in use with us; they are secured to the ends of bent levers which are jointed at their extremites to the main frame of the machine, and the outer ends of which have a reciprocating up and down motion given to them by virtue of cranks and connecting rods. A very good imitation of the motion of hand-forking or tedding is thus secured, resulting in rapid lifting and tossing up of the Grass. Near this machine is a collection of ploughs useful in American work, and also of hand tools, as hoes, in which there is a specimen of a hoe so constructed as to register the number of strokes which the workman makes with it during a given time—a Yankee notion which seems more injurious than likely to be useful. We fear the invention will not be appreciated with us. We have thus glanced at the leading features of the American Annexe, from which it will be seen that they are not by any means numerous. This indeed may be said of all the American departments, still it is only right to say that what is wanting in number and variety is made up in the practical nature of the machines and objects sent, and in the quality of the work.

Passing out from the American Annexe and keeping the outer building wall of the Park to the right, we proceed to make its circuit, and in process of time come upon the Russian department of the Park, the most prominent features of which are the Russian stables, and the Russian cottage, on the left. Before, however reaching the stables, which are in themselves a beautiful specimen of wood construction, and which are well worthy of inspection, both inside and out, a shed is met with containing specimens of carriages; at the end of this is a compartment containing a small but interesting collection of Russian timber, bricks, drain tubes, &c. Opposite, or nearly opposite, is the "Isba," or Russian peasant's cottage, which should be visited, not only from the interesting nature of its contents generally, but from those in the ground apartment, which are specially interesting to those concerned with agriculture. We should note here the small threshing machine, with flat beaters. The horse gear, or power, by which this is worked presents, in its odd shape, a very marked contrast to the neat forms of apparatus which are known to the frequenters of our show-yards, and also to those of the French Department. The horse gear under notice looks very much like a bale of cotton in shape; it is made of wrought-iron plates, the wheels are all inside of what we have called the bale, the power being taken from the side. There is also here a straw-cutting machine, to which we would draw the special attention of the visitor, on account of the neat way in which the timber framing is constructed—pointing as it does to the wretchedly clumsy form adopted by our makers wherever they use this material in the construction of their framings. The visitor should also examine a very ingenious Potato-planter, a reaping machine, a corn drill (with small ploughs) to sow seed, all of which present contrasts to our machines in their classes more or less marked, and all of them suggestive.

Leaving the Russian cottage and continuing our walk round the Park, still keeping its outer boundary to the right hand, we come to the Annexe, or long line of sheds, containing a very large and interesting collection of machines and apparatus used in the arts and manufactures, of which the agricultural machines and implements form a large and important proportion. The part of the Annexe first reached is devoted to a good collection of agricultural machines, exhibited by Albarets, and consisting of threshing machines, horizontal steam-engines, root-cutters, &c. The same house exhibits a traction engine, which will be seen in the Park nearly opposite, but at some distance from the working-men's refreshment rooms or Omnibus Restaurant. Further on is the selection of implements and machines of Gérard—amongst which is the portable engine, with a form of water-heater worth notice. The lower part of the smoke-box is surrounded with a wrought-iron receptacle, which comes up in the semi-diameter of the smoke-box, and is some 5 or 6 inches in width. This is filled with water, which becomes very rapidly heated by contact with the hot plates of the smoke-box. This water, as it becomes heated, is forced into the boiler by the pump, the water passing through a wide pipe through which also the blast-pipe of the engine is passed. The heat, otherwise lost, is thus economised.

At the end of the first long Annexe or shed is a separate shed entirely appropriated to the machines of the well-known house of Cumming & Co., of Orleans, consisting of threshing machines, portable engines, and horse gears. Opposite this shed is the handsome building of the Spanish Commission, containing a very large and most interesting collection of food produce, timber, minerals, wines, oils, industrial plants, as Flax, Hemp, &c. There are also a few agricultural implements and machines, a variety of wine presses, a double force-pump. Outside the building the visitor will find a chain pump for working by hand, and another for horse or rather donkey power, the donkey who works it being the cynosure of a large and apparently much interested crowd which is generally found round it—a crowd, by the way, made up of that body (a very large one) of visitors to exhibitions who seem intensely interested in looking at and examining objects to be met with every day, but who are quite oblivious to those which are to be rarely seen.

Opposite the Spanish Annexe, and going the round of the Park, still keeping the boundary wall to the right hand, a large shed is met with. This contains a very extensive collection of machines and apparatus used in the industrial arts, and a good many more or less connected with agriculture, such as Beetroot-sugar apparatus, animal charcoal ditto, wine and other forms of presses, filters. There are several examples of corn-cleaning machines, amongst which the most remarkable is that of M. Josse, of Ormerson, Canton de Boissy—Saint Leger, Seine et Oise. It is not easy to describe this apparatus without the aid of diagrams, but the reader may form some idea of its form and action if he will suppose a triangular plane enclosed by sides, and the surface of which is filled with a series of triangular blocks, with spaces between each block, and placed in such a way that channels are formed between which the grain, admitted from a hopper appropriately placed, passes in a zigzag direction. The plane which supports these blocks is divided with a wire or perforated bottom, and a to-and-fro or vibrating motion is given to it by means of a crank and appropriate gearing. The action of this apparatus is simple in the extreme, and the grain as it passes over the vibrating perforated surface, and as it is forced to take the zig-zag channel made by the triangular blocks, is cleansed from extraneous matter, and delivered finally at the apex of the vibrating plane. Many forms of this apparatus are employed in the Government works in France, and are said to give great satisfaction. Another form of corn-cleaning apparatus to be met with in this Annexe is the invention of M. Dufour. It resembles Ransomes & Sims' corn-dressing apparatus in general appearance; the revolving cylinder has a two-fold motion given to it,—first, a revolving or rotatory one; and second, a vibratory to-and-fro motion in the direction of its length; while the outside of the revolving vibrating screen is struck at intervals with a hammer on its outer surface, to insure the removal of the seeds sticking in the meshes of the screen.

Issuing from this Annexe, and still keeping the building well to the right, we come to the Omnibus Refreshment Room, opposite to which, and nearly all of them in the open air, is a very large collection of implements and machines, chiefly composed of ploughs, rollers, and the like, none of which call here for special description, but of many of which, nevertheless, it may be said that they are worthy of study, if not for the purpose of knowing what to copy, certainly for the purpose of knowing what to avoid. In a small covered shed in this place, Renaud, of Nantes, exhibits a specimen of a portable steam engine, and a horizontal ditto, the workmanship of both of which is very good. He also exhibits a threshing machine, of which the English visitor should "take a note," as something rather unlike what we are accustomed to look upon as the arrangements of a good threshing machine.

Near the collection above named is a rather clumsy building, with the word "Roquefort" in large letters upon the side. In the interior of this will be found an imitation of the celebrated caves of "Roquefort," in the district of Aveyron, in which the well-known

cheese of that name is made from the milk of ewes of a breed of sheep peculiar to the district. In a small yard attached to the building will be found a few sheep of the breed known as the "race du Larsac." We may, in a future paper, give a description of the "King of Cheeses," as it has been called, and of some of the peculiarities attendant upon the maintenance of the flocks from which it is obtained; meanwhile we proceed to note other matters interesting to the agricultural visitor met with in the Park in the neighbourhood of the Roquefort building. Not far from it, but towards the left hand, looking to the main building, is a small building or shed containing a collection of objects from the Imperial Agricultural School of Grignan. In this will be found an interesting series of drawings of the farm buildings attached to the school, various models, photographs of stock bred and reared on the farm, a set of the "books" and records of the establishment, all of which are worthy of examination. To the right of the Roquefort building, a shed contains specimens of Merino sheep and of ewes of the pure breed de Tarentaise, together with a very interesting collection of maps and photographs illustrative of the mode of farming, houses for labourers, &c., adopted in the Department de la Savoie. Not far from the shed appropriated to the Imperial Agricultural School of Grignan, is that appropriated to the various departments of France. That containing the produce of the Northern Department is very interesting. The visitor should take special note of the specimens of Flax, &c., grown there. In the collection of the Society of Arras, there is a fine model of the farm of Rougeville of M. Edouard Hamoir, also models of poultry houses, by the Marquis of Havrencourt, in the Pas de Calais. The same nobleman exhibits a cattle shelter or shed, not far from the Roquefort building. In the department of the Meuse will be found a plan of the Cheese-making Farm, of the Maison du Val, near Revigny, in which 8000 litres a day are made into cheese. This establishment, we may here notice, is conducted upon co-operative principles, the labourers receiving a share of the profits. Approaching the main building, and keeping a little to the right, the Prussian Annexe is reached. At the entrance to this, nearest the main building, is a model with plans of cottages adapted for labourers, but which seem more adapted for well-to-do farmers than for working people. They are intended to illustrate the kind of cottages in use in Pomerania, and if they are honest reproductions of cottages as there used, we may come to the belief that the working people are particularly well off. The accommodation of each cottage consists of, on the ground-floor, large entrance lobby, kitchen, bedroom, pantry, and chamber; on the upper floor, four rooms. In this Annexe a few agricultural implements are met with, none of which call for special description. Not far from the Prussian Annexe, but a little further from the building, the Bohemian cottages for working men are met with; the same remarks we have made on the Prussian cottages above applies almost without change to these cottages.

Approaching the main avenue, which leads from the entrance opposite the Ecole Militaire, and not far from the main building, is the Belgian Annexe. This contains a fine collection of machinery—as locomotives, paper-making machines, and tools—amongst which there are a few agricultural implements and machines. A peculiar arrangement of boiler for cooking cattle forage should be examined; it is in a corner towards the left hand on entering. Outside, ranged along the side of the building next the Ecole Militaire, are a good number of implements—ploughs, cultivators, and the like. Crossing the avenue leading from the Ecole Militaire, passing the corner of the Belgian Fine Art Annexe, and through the arch of the Gate of Antwerp, the second Belgian Annexe is met with. This is easily known from its octagonal form and its conical roof. Amidst a very interesting collection of tools, machines, models, specimens of metals, coals, &c., there are a few agricultural implements, the most important of which are some Flax-dressing and breaking machines, which have a high reputation in Belgium.

We have now gone the round of the Park, and taken up in succession the Annexes therein, which contain either special collections of agricultural machines and implements, or have these placed amongst general machinery and tools. We have not of course in the foreign department noticed all which may yet be met with, but we have drawn attention to the most important, and have in all cases at any rate pointed out to the visitor, or intending visitor, the *locales* where they may be met with, so that he can examine them in detail should he so desire. It now only remains for us to notice the collections within the main building, which may be done in a brief sentence or two; inasmuch as they are mainly duplicates of the machines and implements exhibited in one or other of the localities outside the building which we have already noticed; or, being different in this respect, yet have little or nothing which calls for special notice here. In the French Department of the Great Machinery Gallery, the principal exhibitors are as follows:—MM. Pinet fils, (Indre-et-Loire,) who exhibit threshing machines, portable engines, horse gears, and a very well arranged and excellently well-constructed water elevator by horse power. Next to this stand is that of Gerard Vierzin, who has a collection much the same in character as the preceding. On the wall opposite this is a collection of drawings of working men's cottages, and in a stand in the centre of the gallery a collection of specimens of Vicat's cements, bricks, tiles, &c.

In the Belgian Department there are various implements and machinery, the most noticeable of which are some Flax machines. The collection in the Dutch or Low Countries Department is very trifling, consisting of two threshing machines and one root cutter, if we recollect aright. A very interesting collection of models of ploughs is to be met with in the Wirtemberg Department; they are arranged in cases on the wall, and have been all sold for the use of the Academy at Moscow; all the models have been made by Jas. Anselm. In the Austrian Department a little further on there is also a small but interesting collection of models, and of drawings of farm buildings, together with a few full-sized implements and machines. The Spanish Department show few, and the same may be said of the Indian Department, the most interesting features being a few ploughs. There are a few models in the Russian Department worthy of inspection; and, in conclusion, we would draw the attention of the visitor to the fine collection of drawings of farm buildings which are to be met with in the French and Belgian Departments.

AGRICULTURAL CHILDREN'S EDUCATION BILL.

The following is an abridgment of the debate on this subject in the House of Commons on Wednesday evening:—

Mr. Fawcett said the Bill of Lord Shaftesbury on the same subject provided that children employed in agriculture should attend school a certain number of hours during the year—400 hours in winter and 200 in summer; while he proposed that their attendance should be regulated on the half time or alternate day system. The result of experience, he contended, proved that the latter system had been eminently successful, and the House had but the day before agreed to extend it to almost every branch of industry in the country. It was, on the contrary, shown by experience that the system of attendance for a certain number of hours had worked badly, and the committee which sat on the subject had stated in their report that it was in their opinion desirable that the Print Works Act should be amended in that respect, inasmuch as it did not work as well as the Factory Acts. Again, there was the experience connected with agricultural pursuits which was entirely in favour of his views. A very eminent agriculturist, Mr. Paget, had tried the alternate day system, and his testimony was to the effect that he had found it eminently successful. The going from work to school, and from school to work on alternate days, formed an agreeable change, but the consequence of the adoption of the certain number of hours' system was that the children were at one time overworked and at another overschooled, and that being at school for two or three months and absent for two or three months more, they gradually forgot what they had previously learnt. As a matter of detail he might mention that of course provision was made for harvest time, so that the Bill would not interfere merely with the hours of labour on such special occasions. He next came to the most difficult part of the subject—the necessity of providing suitable schools for the children—a subject with which Lord Shaftesbury had not dealt in the slightest degree. It might be said that education in the rural districts was spreading, and why, under those circumstances, it might be asked, did he invite the House to interfere in the matter instead of leaving time to do its work, as it was doing? In 1860 an exhaustive report had been published on the educational condition of the poor, and no one who had read that report could fail to see that the state of education in those districts was anything but satisfactory. It was, in fact, most disgraceful. The result of all the agencies at work at the present time was that in many districts there were extremely good schools and teachers, but the whole evil arose from the children being removed from school at too early an age. In consequence of the active demand in agricultural districts for agricultural labour the children seldom continued at school after the age of eight years, and it might, therefore, be easily conceived that they soon forgot all that they had previously learnt. The removal of the children from school at too early an age was caused by the avarice, the ignorance, or the poverty of the parents, and if it arose from avarice the State had a right to step in and protect the children against the avarice of the parents. If it arose from ignorance, the best plan which could be adopted was to educate the rising generation, for, as a general rule, educated people appreciated the advantages of education. The poverty of the parents rendering the labour of their children of importance to them was, no doubt, the most difficult point to deal with, for, by being deprived of the labour of their children, they might be deprived of the means of obtaining some of the necessaries of life. Still, it should be borne in mind that, when the supply of labour was limited its price was enhanced, and, therefore, the loss to the parents arising from the circumstance he had just mentioned would really not be so great as many persons might at first suppose. Besides, by education, the agricultural labourers would acquire a spirit of enterprise and energy, and would quit districts such as Dorsetshire and Wiltshire, where an agricultural labourer starved on the miserable pittance of 9*s.* or 10*s.* a week, and would betake themselves to other places, where labour was better rewarded. The farmers would also gain by having educated labourers, because they would avoid the loss which must accrue to them from having labourers belonging to an ignorant class. As agriculture now required the use of expensive and complicated machinery, it was absolutely essential that the farmers should have competent labourers, to whom that machinery might be entrusted; and it should be borne in mind that increased intelligence on the part of the labourers vastly increased their efficiency, so that more wealth would be produced to be distributed in wages to them and in profit to the farmers. He admitted that it would be a serious matter for Parliament to enact that children should attend school unless a guarantee were provided that the schools should be brought within the reach of the children; and accordingly his Bill provided that no child should be compelled to attend school if it were proved that the child's home was situated at a distance exceeding three miles from any school. In order, however, to prevent the inconvenience which might arise from schools being allowed to go to decay in consequence of opposition from landowners and farmers to the proposed legislation, the Bill provided that in all parishes of a certain size there should be a school within a reasonable distance of the residence of the children; and whenever that school was built and maintained by a rate, as under the Bill it might be, it would be left to the majority of the ratepayers to determine the kind of religious instruction to be given. He confined his Bill entirely to children under 13 years of age, because he believed it would be mischievous in the case of agriculture to legislate for young persons between the ages of 13 and 18 years. The Bill also, differing in this respect from Lord Shaftesbury's, treated boys and girls alike, for agricultural work was not, in his opinion, unsuitable for females.

Mr. A. Peel seconded the motion for the second reading of the Bill.

Mr. Henley did not think that the chief reason that children did not attend schools was the apathy of their parents; on the contrary, he had been told by many parents that they could not afford to allow their children to attend school, because they earned from 3*s.* to 3*s.* 6*d.* a week, being 25 per cent. of the father's earnings. The hon. member endeavoured to meet that fact by a rather curious argument. He said if the children's labour were kept out of the market that of the parents would rise in value. This, however, was a complete fallacy, for the labour of the child and of the man did not compete with each other, and therefore by withdrawing the labour of the one that of the other would not be increased in value. The hon. member said that in some of the agricultural districts the farmers met together, and having calculated the price of the food which the labourer consumed, fixed the amount of the wages accordingly. All he could say in reply to that statement was, that he had lived among farmers all his life, but had never heard of such an occurrence. But perhaps the hon. member had mixed up two or three things together, and having read in some of the Blue books he had dug up that formerly relief to the poor was regulated by the cost of their food, he had confounded that system with the principle upon which the amount of wages was regulated. Every body knew that the amount of wages was regulated by the quantity of labour which happened to be in the market, and not by any fixed rules which the farmers might lay down. The hon. member urged the House to legislate upon the subject of the Bill at once, on the ground that it was a matter that could not wait; but he forgot that there was not the same cause for haste in legislating with regard to agricultural labour as there was with reference to factory labour, because the health of the children was not injured in the former, as in the latter case by gas and late hours,—the work being performed in the open air, and Providence shortening the hours of labour during certain seasons of the year. Then the hon. gentleman told them that another cause why they should legislate without delay upon the subject was that the agricultural labourers were so ignorant. He denied that there was any foundation for such a charge being brought against the agricultural labourers. He would admit that a certain proportion of them—but not a larger proportion than was to be found among all other classes of labourers—could not read or write, but he entirely denied that they were ignorant of their specialities or in knowledge of their duty to God and man. As a further inducement to the House to deal with this question the hon. member said that if the children were better educated they would do their work better, and so would add to the general wealth of the community. Could a lower or more sordid argument possibly have been used than this in favour of educating the agricultural children? Was there a man in that House that believed that the efforts that had been made by the right-minded people of this country for the education of these poor children had no higher motive than to get a greater amount of work out of them? Thirty-four years ago the House had been asked and prayed to check the seething mass of corruption among the lower classes by establishing a system of religious education, a system that he thought some hon. members might not object to see abolished.

Mr. Fawcett said he had attributed no such unworthy motives to the landowners; he had never defended education on the ground that it would result in material advantage, and in this instance he had alluded only to the pecuniary loss to the farmers, landowners, and labourers, which resulted from want of education.

Mr. Henley was indifferent as to which horn of the dilemma the hon. member chose to place himself on; if he did not defend education on the ground that it would result in material advantage, why did he hold out such an inducement to the farmers and landowners? But it was not true that farm labourers were uneducated. Whether they looked to ploughmen or carters, he contended that they would be found to be better educated than the lower classes of any other country in the world. Moreover, it would be found that, with the exception of Belgium, perhaps, where agriculturists were employed in almost garden farming, no country could produce more highly-skilled farmers, and certainly no country produced so much per acre as England. Yet the hon. member spoke of the brutal ignorance of the labourers, and urged that on that account it would be for our interest to pass his Bill. Unless hon. members were certain they could do good, it behoved them in a matter of this kind to pause, lest they did evil. Hon. gentlemen seemed to imply that in some cases persons were unwilling to send their children to school, but he asked them whether they thought those people would be made willing by inflicting such injuries upon them as would result from depriving them by law of their children's earnings. But did a prejudice exist against education? He believed that people were becoming more and more desirous every day of procuring education for their children, because they were becoming more sensible of its value. It would be true wisdom, therefore, to take care that no mischief was done by rudely stopping this natural growth which he believed had set in, and would gradually permeate throughout the land with most favourable results. Let the endeavour be to make the growth as smooth as possible by the removal of obstacles; let measures be adopted to enable poor people to send their children to school as much and as long as possible; let every allowance be made for the parents, but let them on no account be coerced. It had fallen to his lot more than once to distribute prizes to agricultural labourers, and among them on one occasion was a boy, of whom he asked, as he often did of others, how long he had been at school, and the answer was "Father died and mother was hard up, and could not afford to put me to school long, and I've had very little of it." Yet this boy had come from a class whom the hon. member had described as brutally ignorant. The appearance of that boy's countenance when he said he had helped his mother showed he possessed something of more value to him than reading and writing, something which had enabled him to strive hard and draw himself out from the crowd so that by his superior skill he was probably earning men's wages in order to support his brothers and sisters, whereas, under the Bill of the hon. member, he would have been prevented from doing anything of the kind. He had heard it said that agricultural labourers seldom attained excellence if they did not begin their work early. He could not give a positive opinion on that point, but he knew for a fact that those children who were kept in the workhouse rarely commenced work on the farm until 13 years of age, because there was no one who could take care of them; the consequence was, he had heard so often that he believed it, those boys never turned out as skilled as those who had gone to the field earlier. For those reasons among others he asked the House not to agree to the second reading of this Bill, which contained no principle, had no preamble whatever, and commenced with a provision which the hon. member knew had been condemned already by the Upper House. It would be better if the Bill were withdrawn so that hon. members on this side of the House might not be falsely represented as having no wish to improve the condition of the people, as it was probable they would be if they rejected the Bill from conscientious motives. The hon. member had chosen to charge upon gentlemen, who, he said, were intimately connected with the landed interest, that they had no care for their people beyond what would increase their own rents.

Mr. Fawcett was sorry to be obliged again to correct the right hon. member, but he had misrepresented him in almost every sentence he had spoken. Just now he had accused him of having charged the people with being brutally ignorant, whereas he had made use of no such expression. Now, with similar injustice, he charged him with having accused landowners of doing nothing for their labourers unless they would thereby increase their rents.

Mr. Henley asked whether the hon. member had not charged the landowners with maintaining a monopoly. He used those very words; how then could he have misrepresented the hon. member? He repudiated as utterly false the charge that landowners had not done all in their power in behalf of those over whom it had pleased God to place them. Moreover this question had never been argued in relation to the question of rent, but simply with regard to the advisability of depriving the poor of the profits of their labour, in order that their condition might be improved in the future. And he repudiated the charge more earnestly, because the hon. member did not choose to make it in a direct manner, but thrust it out by means of an insinuation which, of course, from the manner in which it was put, fell with more deadly effect. He again urged the withdrawal of the measure, which, if carried, would certainly fail in its object, and would tend rather to check education than further it, by creating a bad feeling among the people.

Mr. Read said the measure appeared to him to be based upon two propositions, one that the employment of children should be restricted; the other that education should be compulsory, and there was no doubt the Bill acted on these propositions in the most arbitrary manner. As a practical farmer, he maintained that it was impossible to carry out the provision ordering that children under 13 should not be employed in agriculture. The only instance in which it was known to be done was that of Mr. Paget, who lived near a manufacturing town, and could therefore get as many boys as he wanted on special occasions. He would not object to a Bill preventing boys who could not read and write well from working continually, but by 13 a boy had generally obtained a good elementary education, which he could easily supplement and improve by attending night schools. He confirmed the opinion of the right hon. member for Oxfordshire, that if boys were not employed in agriculture young they would not prosper. He contended that compulsory education was unnecessary; and he especially objected to an educational rate because it had become the fashion of late to put all such burdens on real property. It was also a most extraordinary proposition, in his opinion, that two magistrates sitting in petty sessions should be invested with the power of buying land and building a school, and of enforcing from the ratepayers the money to maintain the school, while, perhaps, they did not themselves live in the district. Farmers as a class did not object to education; they were, on the contrary, very much in favour of it. He had been present at a discussion on the Bill in a Chamber of Agriculture where a resolution was passed sympathising with the desire to increase the education of the labourers, but declaring that the Bill would not accomplish that object. What farmers objected to was the style of education that was sometimes imparted to labourers' children. He admitted that in order to work the improved agricultural machinery well it was almost necessary to have a thoroughly well-educated labourer; but a thoroughly educated man who knew nothing of his business was the very worst labourer one could have. He had been in workhouses where he had seen children intended for the farm going through a course of geography, when they should properly have been learning the use of the spade. Education, to be useful, should be suited to the future position of the child. This principle was followed to a great extent among the middle classes; their children could not be indulged in the higher branches of education, and this example should be followed in the education of agricultural labourers. They had been told that the education of agriculturists was disgraceful, and especial reference had been made in this spirit on a previous occasion to the state of education in Norfolk. Out of the 737 parishes in Norfolk, 147 were aided by Government in the matter of education. Eighty-three of the parishes had a population of upwards of 1000, and 46 of them got some portion of the grant. Of the 498 parishes under 500 population, 39 only were aided, and 459 received nothing from the grant. There were 212 parishes in which there were no schools, but 143 were consolidated for educational purposes, leaving 69 without schools. Of these, however, only 22 had a population of 150: several had less than 20, and one contained only six. In 525 parishes that had schools, 35,588 children were upon the books, or about one-tenth of the population. There were also more than 6,000 night scholars in the schools; and, as to quality of education, the inspector reported to the bishops that both in secular and religious education seven-eighths of the schools were in a satisfactory state. There was one point on which he especially desired to offer a remark, and that was with reference to the early age at which children were taken from school, greatly to their detriment. Upon this subject the Rev. Mr. Bowden, of the Norwich Diocesan Society, after speaking hopefully of the progress of education in a letter to him, suggested a remedy for this. He thought it would be a very good thing if employers of labour and managers of schools were to arrange that children should continue at school continuously during certain seasons of the year; to anything in the shape of coercion or interference with the rights of parents he was altogether opposed. That suggestion was worthy of consideration.

[The Bill was withdrawn.]

THE COTTAGE COMPETITION AT BURY.

A very complete and elaborate discussion of the several cottage plans exhibited at Bury in competition for the prizes offered by the Suffolk Agricultural Society is given in the *Bury Post*, from which we make the following extracts:—

That the decision of our local Agricultural Society to offer among other prizes one for the best design for a double cottage suited for Suffolk labourers was well advised, is sufficiently proved by the large number of plans and specifications (63 sets) which have been sent in, and by the very great care and trouble which has been bestowed on all, and the evident ability shown by many. It is not long since we published a report of an able and exhaustive address upon the subject by the Ven. Lord Arthur Hervey, and the discussion which followed the address showed that both landlords and tenants are generally aware how necessary for their own pecuniary interests, as well as for the social advancement of the community at large, is the improvement of landed property in this matter. But the question how it is to be done is not so easily answered, and it is highly instructive to have the answers or attempted answers of 58 practical men so well brought before our eyes in plans and sketches and folios of specifications. In the subjoined account of the plans we have given very fully the particulars of the plan by Messrs. Conder & Laskett, Gloucester Road, London, to which the judges unanimously award the 1st prize, as we think it will appear to all who examine the plans, most wisely. The 2d prize is taken by Mr. Shaw, Bridge Street, Birkenhead. A highly competent critic has pointed out the somewhat singular fact—that no designer has attempted to get the third bedroom in the roof. He also warns the public that they are apt to be misled by the want of practical arrangement and clearness in the specifications.

No. 3. "*Qui uti scit et bona.*"—A black-roofed model accompanies these designs, which are very complete, and when we look at the estimate of cost we are at first puzzled by its lowness (180*l.* 0*s.* 6*d.*), and find no means of explaining it away, inasmuch as the actual bills paid for the erection of two such cottages in this county accompany the specification. But a closer examination reveals the fact that a good deal of material on the estate was used in the work which would scarcely be used under other circumstances; such, for instance, as Poplar wood for the floors of the rooms and much of the other woodwork, and clay lump for the shedding. The design, however, is among the best. The ground-floor contains living rooms and sculleries, supplied each with a separate oven, copper, &c., store room and closet, and the estimate includes a well for the two cottages in the yard at the back. The bedrooms are of good size, and have independent access to the landing. The windows are fitted with cast-iron casements of Gothic pattern, but the appearance of the house suffers from the entire absence of eaves, the spurs being cut off flush with the wall. The walls are of 9-inch brick, the front and ends being faced with white brick.

No. 5. "*Suffolk.*"—There is a homely and at the same time picturesque look about the coloured cardboard model which accompanies the two sets of designs signed "Suffolk," which greatly takes our fancy. There is nothing of the model about the appearance of the blocks. One would admire them in a country lane as thoroughly rustic, quiet, and snug, and when he learnt that they contained all that was required for decency and comfort, he would declare they were just the kind of cottage he should like to see everywhere. The rooms are very fair sized, and include a pantry 7 feet 6 inches by 6 feet 6 inches; there is an entrance lobby from which the staircase also ascends; each tenement is provided with an oven or a copper, and a "galvanized sanitary sink;" the front room has a boarded floor, the staircase a window, and the bedrooms separate doors. The materials are 9-inch brick, and pantiles for the roof, and the cost, which seems to be fairly estimated, is only 199*l.* The two designs only vary in the position of the front door, the second having, in consequence of this difference in the plan, a longer frontage and costing 7*l.* more.

No. 8. "1867."—In this plan the doors of the cottages (which are of white brick and stand back to back) are at the side, and open into a lobby, on one side of which is the staircase to the bedrooms, on the other the larder, beyond which is a place for fuel. The living room (the door of which is immediately opposite the lobby), is 11 feet by 14 feet, and behind it is the kitchen, 11 feet by 7 feet 4½ inches, each being accessible from the lobby. Each cottage is provided with a separate oven, copper, and sink; the privies are placed at the bottom of the garden. The bedrooms are respectively 11 feet by 10½ feet, 11 feet by 7 feet 9½ inches, and 8 feet 6 inches by 8 feet. Two of them are furnished with fireplaces, and all have independent access from the landing at the head of the staircase. The roof is of simple construction, without valleys, hips, or gutters, and whilst ornamentation is avoided, the insertion of red bricks above and beneath the windows serves to prevent monotony of appearance. The water supply (beyond the provision of a water butt for the two cottages) is not taken into consideration, the expense of well-sinking depending so much upon the situation. Each cottage is entirely independent of the other except for water supply, and the cubical contents of the rooms are rather in excess of the requirements of the Committee. Estimated cost of the pair, 227*l.* 7*s.* 9½*d.* This plan might be made a very good one by opening a door from the living room to the scullery, and throwing the room thus gained into the pantry, moving the back door nearer the fireplace, and adding a window to the scullery.

No. 11. (First Prize) "*Suitability.*"—The two large framed drawings of this design, including plans, sections, and sketch of a group of blocks, exhibit perhaps no feature in the plan entirely peculiar to it. The doorways at the end, the bakehouse common to both dwellings between the sculleries, and the system of ventilation, are to be found in more than one other design, though not, as the judges have evidently thought, so well combined with other necessary qualifications, as by the author of "Suitability." In external appearance his building, though entirely without pretensions to architectural display, is far from ugly, and it would be easy for any proprietor who desired to add ornament and extra finish for the gratification of his taste to find every opportunity for doing so. The main entrances are at each end of the block, the doors to the lobbies being still further protected by simple hood porches. In the lobbies are the doors of the living rooms and staircases, the scullery opening from the living room; and out of the scullery open the pantry and a cellar or fuel closet. The dimensions of the ground floor rooms are—of the front room, 11 feet 7 inches by 12 feet; of the back room, 6 feet 2 inches by 8 feet 9 inches; pantry, 3 feet by 5 feet 6 inches; closet, 3 feet by 2 feet 10 inches. Between the two sculleries, and opening to the yard, is the common bakehouse of the two cottages, which is furnished with a large oven, kneading trough, and copper. The cottages and bakehouse are thus brought within four walls, an important requisite for economy in building and repairs. The water closets stand at the end of the common yard, their doors opening away from the house. A water butt containing 130 gallons is provided to each cottage, but no provision is made for a well, owing to the impossibility of making any estimate for a work the expense of which entirely depends upon the situation. There are windows to the staircases—an almost indispensable feature, and from the landing at the top of each independent access is obtained to the three bedrooms, whose dimensions are respectively 14 feet 3 inches by 9 feet 1 inch, 7 feet 3 inches by 11 feet 8 inches, and 8 feet 10 inches by 6 feet 8 inches. Two of the bedrooms in each cottage are furnished with fire-places, and the third is ventilated by means of a piece of perforated zinc in a framed opening in the middle of the ceiling, the air passing into a false roof terminated at each end by louvre boards. The windows of the upper floor being below the roof plate, the roof, with the exception of these breaks for ventilation, is uninterrupted, and the additional expense of gullies is avoided. The Committee, however, as will be seen by the report, recommend that even this interruption in the line of roof should be omitted. In the larger bedroom is a corner cupboard, and in one of the smaller a closet. The internal work is designed to be neatly done, the doors being pannelled and the casements chamfered. The total estimated cost is 170*l.* 3*s.* 8*d.*, an exceedingly low figure for so well planned and constructed a pair of dwellings. The prices are, however, in some particulars undoubtedly below those which a builder in this part of Suffolk would have to pay, and it is not improbable that the total cost would in actual experience prove to be nearer 200*l.* But allowing this margin of increased expense, we think the decision of the judges in awarding the first prize to this design will be generally approved of. We subjoin a full abstract of the very complete specifications accompanying the design.

In his preface addressed to the Committee of the Suffolk Agricultural Society the author says:—

"The principles acted upon in making the accompanying design for the Suffolk labourers' cottages have been strictly those laid down in the printed instructions, namely, lowness of cost, combined with efficiency and durability. To obtain the first the plan has been kept as square and compact as possible, which is evidently less costly than an irregular form, space and accommodation remaining the same. The materials specified have been confined to such as can be obtained in the neighbourhood, and the construction is all within the knowledge and ability of country workmen. The estimated cost of the pair of cottages is 170*l.*—the prices have all been gone through with a builder in Suffolk and approved by him. The exterior of the design has been arranged with a view to the picturesque, and the gables in the roof which relieve what would otherwise be monotonous, serve the purpose of securing excellent ventilation to the upper floor by communicating with ventilators in the ceilings. All the windows have been designed to open. The comfort and convenience of the tenants have been particularly provided for, and every sanitary precaution has been taken. The authors of the design have for some time given great attention to the subject of dwellings for the working classes; and this, together with a long residence in Suffolk, has enabled them to understand and provide for the requirements of labourers' cottages in this county."

In the specification of works, after directions for excavation for foundations, for a cesspool 6 feet deep, steined round with bricks laid dry, and covered with 2-inch rough York stone, for the laying of 6-inch glazed earthenware drain pipe, from water butt, sinks, and yards to join a 9-inch pipe from the water closets to the cesspool, with syphon traps where required, and for the provision of glazed air-bricks, 9 inches by 6 inches, to ventilate under the floor of the living rooms, the specification for the bricklayer follows. The bricks are well-burnt Suffolk red, worked with mortar composed of stone lime and two-thirds clean sharp sand. Flemish bond to be used throughout, and the joints of the exterior walls, as well as of the sculleries, coal cellars, bakehouse, and water closets to be neatly struck. Proper chimney bars are to be built into all the fireplaces, half-brick fenders are to be provided for living rooms' fireplaces, and trimmer arches to those in the first floor. The chimney stacks to have over-sailing courses above the roof, and brick on edge coping. The party wall is to be carried to the underside of the tiles, and the brickwork to be built up between the feet of the roof rafters. The ground floor partitions will be bricknogged 4½ inches thick, with two courses of 4 inches by 1½ inch timber. The window sills are all of splayed bricks set on edge in cement, and the front is relieved with black string-courses of bricks dipped in tar. A layer of boiling pitch is to be put on the walls just above the ground, to prevent the damp from rising. For the roof red pantiles are to be used, laid to a 10-inch gauge and pointed in mortar, and properly filleted with cement where they meet the chimneys. 1½ inch tooled York stones are used for the hearths, and white Suffolk paving bricks for floors of sculleries, bakehouse, yard, outhouses, and coal-houses. The sinks, 2 feet 6 inches by 1 foot 3 inches, are of stone, and the mantel pieces of the living rooms have slate shelves 9 inches deep. All the timber used is Norway or Baltic Fir, sound and good. No joists or rafters to be more than 13 inches apart; the lintels of the doors and windows to be of timber, 9 inches by 6 inches. The roof rafters are directed to be 4½ inches by 2 inches, hips and ridges 7 inches by 1¼ inch, purlins 6 inches by 5½ inches, wall plates 4½ inches by 3 inches, ties or ceiling joists spiked to rafters, 4 inches by 1½ inch, and the collar at each gable 4 inches by 2½ inches. The floors are to be of ¾-inch battens, laid folding, with a ¾-inch deal skirting to run 4 inches high round all the floored rooms and the landing. The staircases are well made and enclosed on the ground floor with 1½ inch rebated and beaded boarding and door. The door sills on the ground floor are of oak, and a chamfered deal fillet round the frames stops the plastering. The internal doors are of inch-and-quarter stuff, four-panelled, and having rim locks and brass furniture, with the exception of the closet, cellars, and outhouse doors, which are two-panelled, with Norfolk thumb-latch. The outer doors are four-panelled, with water bar, and two tower bolts on each, the bake-house door having two keys but no bolts. The windows have frames 4 inches by 3 inches, and 1½ inch chamfered casements, with water bars fixed on the bottom rails. The scullery window is fixed; staircase windows have the upper part fixed and the lower hung to open outwards; the larder windows are hung on pivots, with beads, cords, hooks, and bolts; and the remaining windows have one light opening outwards, with iron stays to hold them. The porch over each end doorway is a hood covering with wrought deal brackets, roofed with deal battens properly united to the brickwork. Two tiers of inch deal shelves, 10 inches wide, on deal bearers, will be fitted up in the larders. The bedroom closets are also made complete, and fitted with rails and hooks. Dwarf cupboards with a shelf will also be fitted next the fireplace in each living-room, and a shelf carried on cut brackets over the fireplaces. Water butts, holding 130 gallons each, properly fixed with taps and overflows, are included in the specification, as well as dressers, potboards, and shelves to the sculleries. The walls of the rooms are covered with lath, plaster, and whitewash, those of the sculleries and offices only whitewashed. The waterclosets to be furnished with Doulton's earthenware pans and traps, and the sinks with brass gratings and bell traps. The woodwork is painted, internally with three, externally with four coats. In the particulars of cost the red bricks are put at 25*s.* per 1000, the floor bricks at 42*s.*, the pantiles at 7*s.* per 100. The bricklayer's work is set down at 3*s.* 6*d.* a yard (9 inch) the flooring at 2*s.* 3*d.*

No. 13. "*Pioneer.*"—These cottages, which are to be built of white brick, with red quoins and dressings, are to be only one storey high, and the description is therefore much simplified. The cottages stand side by side, the front elevation of the pair showing the windows of the front bedrooms next the party wall, right and left the windows of the living-rooms, with the entrance-doors beyond them, and at each end a lean-to scullery, the window of which is also shown in the front elevation. The front door opens at once into the living-room, 12 feet by 9 feet, from which there is immediate access to the scullery, 10 feet 6 inches by 7 feet 6 inches, and to the three bedrooms; but it would be easy to cut off the latter by a lobby, and it seems strange that so obvious a convenience should have been overlooked by the designer. The scullery contains oven, copper, sinks, and an enclosed larder. The bedrooms, one of which (as we have said) is in front and two at the back of each cottage, are respectively 12 feet by 10 feet 6 inches, 10 feet by 8 feet, and 9 feet 6 inches by 8 feet: all these are provided with fireplaces, the flues of the front bedroom and that behind it being carried into a shaft in the centre of the block, whilst those of the remaining bedroom, the keeping-room, and the oven, are carried into a chimney at either end. In order to avoid the additional expense of conducting flues the fireplaces are all in the corners of the rooms. The fact that there is no back door is a serious objection. There is a water butt at the back of each cottage, but no other water supply, and no privy accommodation is shown in the plan. The plans are accompanied with drawings of details, full size. Estimated cost, 169*l.* 11*s.* 2*d.*

No. 14. "*Usui civium, decori urbium.*"—The designs are very elaborately prepared, and the arrangements are very satisfactory. The pair of cottages have their living-room windows in front, with the entrance-doors at the angles. Each opens into a lobby, through which there is access to the living-room, 12 feet square, containing a pantry lighted by a window at the side of the house. This room opens into the kitchen, 8 feet by 12 feet (with copper and sink), opening into the yard, in which there is a detached range of offices, consisting of bake-office (in the centre, common to both cottages), a shed for coals and wood, with a place for ashes, and at the back of the latter a privy. The bedrooms are respectively 12 feet by 8 feet 6 inches, 12 feet by 8 feet, and 8 feet 9 inches square,

each entered independently from a landing at the head of the stairs, which are lighted by a window at the side. The largest, which is over the living-room, is furnished with a fireplace. Space is left in each kitchen for the erection of an oven, and an outhouse might be built in an angle at the back of the house, by which means, the designer thinks, the need of a separate outbuilding might be obviated, and the cost of the cottages reduced. No ornament has been attempted in the elevations beyond a sparing use of red brick, and the roof has been constructed without gutters, so as to get an unbroken fall for the water. A rustic porch might be added with good effect. The walls are intended to be built hollow, with 14-inch header bricks, by which it is thought greater dryness, warmth in winter, and coolness in summer would be secured. The cost of the pair of cottages in the country is estimated at 189*l.* 18*s.* 2*d.*, but the designer has no doubt that the agent of an estate, purchasing or supplying his own materials, and carting them to the spot, and superintending his own workmen, might ensure their erection for 180*l.* If let by open tender the price would not exceed 200*l.*, allowing a fair margin for builders' profit. The drainage is not set out on the plans, as this would be contingent upon the site.

No. 17. "*Cottage Comfort.*"—The author of these designs states in his explanatory letter that care has been taken to insure the amount of cubical space required by the Committee, and that the estimate has been made with a view to have the cottages built in a thoroughly workmanlike manner. In Suffolk, he adds, the substitution of pantiles for slates would effect a great saving, and where extreme cheapness is required, and gravel and sand abound, a very good cottage may be built with concrete, and about 10*l.* might thus be saved in the cost of each cottage. Supposing 8-inch and 4-inch walls were adopted instead of 9-inch and 4½-inch, and hollow bricks used instead of solid ones, about the same saving would be effected, and in the latter case the brickwork would be more dry and equally hard and durable. The cost of such bricks in Suffolk is estimated at 30*s.* per 1000, and one of them is nearly double the size of the common brick.

These cottages, which stand side by side, are of red brick, the front elevation showing the windows of the living-room with those of the largest bedrooms above them. On either side of the former, separated by them, are the front doors, with hooded porches. The front door opens at once into the living-room, 10 feet 3 inches by 10 feet, furnished with a cupboard on either side of the fireplace, and with a closet at one corner. Beyond it is the kitchen, 10 feet by 9 feet, containing a large pantry, copper, and sink. There is no oven, but it is intended to supply this deficiency by placing a Leamington cooking-range in the living-room, from which there is a staircase to the chambers, respectively 11 feet 6 inches by 10 feet, 10 feet by 8 feet, and 10 feet by 6 feet. The largest only has a fireplace, and to the smallest access is only to be obtained by passing through the third. On the further side of a paved yard, to which there is an independent entrance from without, is a coalhouse, a privy with dry covered ash-pit, and a pig-stye. Estimated cost, 175*l.* 8*s.* 10*d.*; if pantiles are used instead of slates, 166*l.* 13*s.* 10*d.*

No. 40. "*For Competition. C. P.*"—The principal peculiarity in this design, which is very neat in appearance, but somewhat expensive, is that one of the bed-rooms is on the ground floor and in front of the house, the living-room being at the back. The door, which is at the side, has the staircase immediately opposite, and gives access right and left to the bed-room mentioned, 12 feet by 7 feet 4 inches, and the living-room, 12 feet by 10 feet 9½ inches. From the living-room there is an exit to the back-yard, where there is a bakehouse common to both cottages, and adjacent thereto, with a door for each cottage, on locking which all communication can be cut off on that side. Beyond these are a wood-house and privy for each dwelling. The upper bed-rooms are respectively 12 feet by 7 feet 5¼ inches, and 12 feet by 10 feet 9½ inches. Each is furnished with a fireplace, as is also that on the ground floor. The front upper bed-room has two windows, one of which is at the side of the cottage, but the latter might be dispensed with to save expense. The cottages are built with a gutter between them, running parallel with the front, and the drainage is very complete. "The external walls," says the designer, "are built hollow, to prevent damp, which cannot be prevented on 9-inch walls without they are battened; and instead of having the plastering on laths, it is now against the walls, which is much stronger." Estimated cost, 287*l.* 7*s.* 7*d.*

No. 41. (Second Prize) *Level, with initials "I. L. Z."*—In this design the front elevation shows the four windows of the living-rooms (two to each) with bedroom windows above them. The cottages form a compact square block, and the entrance doors are at the side. Each opens into a lobby, from which there is access to the staircase, the living-room, 15 feet 6 inches by 12 feet, and the scullery, 9 feet by 8 feet 6 inches. The latter is provided with oven, boiler, and sink, and has also a pantry 5 feet 6 inches by 3 feet, each cottage being entirely independent of the other. The scullery has a door opening into a back yard, at the further end of which is a privy, with its door at the side; adjacent to the latter is an ashpit common to both cottages. The staircase gives independent access to each of the bedrooms, respectively 12 feet by 9 feet, 9 feet by 6 feet 6 inches, and 9 feet by 9 feet 6 inches. Two of these have fireplaces, and there is a closet, 5 feet 6 inches by 3 feet, conveniently situate on the landing. Estimated cost, 190*l.*

No. 53. *A Square within a Circle.*—These cottages are neat and unpretending in appearance, and compact in their arrangements. An entrance porch gives access to the living room, 12 feet 6 inches by 12 feet, which is furnished with a dwarf cupboard, and opens into a passage containing the staircase and a small pantry, and leading into the kitchen. The latter, which is 9 feet by 8 feet, and contains oven, copper, store, and sink, opens by a side door into the ground surrounding the block. The space between the two kitchens is occupied by a fuel store for each cottage, entered at the back of the house, and adjacent thereto are the privies; these form a lean-to to the main building, the chambers not extending over them. The bedrooms are respectively 12 feet by 9 feet 6 inches, 9 feet 2 inches by 8 feet, and 9 feet by 8 feet; two of them have bedrooms, and all are entered independently. The designer of these plans, which deserve attention, does not give any detail of the cost of the cottages, but estimates that they may be carried out in Cambridgeshire, Suffolk, and Essex, for from 210*l.* to 220*l.* He is at the present time erecting a double cottage on the same plan in another county, and believes it will not cost more than 210*l.*, but he has not employed a master builder to carry out the work, which is done by a bricklayer and carpenter, he finding the materials himself.

AGRICULTURAL STATISTICS.

[The following letter has appeared in the *Sussex Express* from the pen of Mr. J. Dudgeon, of Pearcelands, West Hoathley, formerly of Spylaw, Jedburgh.]

I had early, and have long taken, a warm interest in the necessity of procuring complete and correct returns of the statistics of agriculture, which I trust may be considered a sufficient apology for requesting space in your valuable columns to make a few remarks on this important subject.

I believe I was the first, as long ago as 1842, to direct the attention of the Highland Society of Scotland to this matter, through whose exertions the Government were induced subsequently to take action, in so far as the experiment of obtaining agricultural returns was successfully attempted in Scotland. On that occasion I had no slight share in preparing the schedules, and in devising the machinery by which these returns and the requisite estimates were procured. It is therefore with much gratification I have seen the measure now extended to England: and I must say I feel very desirous every facility should be given—no exertions spared—to ensure its complete success.

I have not yet heard how, in the present season, the demand for these returns has been met. There has, no doubt, been hitherto much indifference, and perhaps some latent suspicion on the part of the tenantry, to prevent a ready compliance with the desire of the Government; but if those who have the most abiding interest in this matter would rightly assume their share of the duty, I cannot help thinking there would be less occasion for many of the strictures which some leading journals have, perhaps too exclusively, made on the farmers as to the obstacles which, in some quarters, have interfered with the success of this inquiry. The cause of reluctance to comply with the request of the Government appears to me to rest more upon the lukewarmness and inattention generally to the due development of the resources of the land on the part of the proprietors than to the ignorance of the occupiers. Hence it will be found that the hesitation to give the necessary returns prevails ordinarily in the greatest degree where the least interest is shown on the part of the landlord to the profitable use of his property, and where, as a consequence, agricultural improvement is most deficient. The farmer is not so ignorant, and of such limited observation as is commonly supposed, nor is he so wedded to the customs and appliances of his forefathers as to neglect altogether, as is too often said, what is taking place around him. The obstacle to progress it will be found arises, in a backward district, more from the narrow sphere of the experience of the tenant; and until those who possess a wider field of observation and superior opportunities of information, assume the duty incumbent on them—use their influence and endeavours to obtain and extend information, and to encourage the spread of approved means and processes, we cannot expect due exertion will be made to obtain such a knowledge of our agricultural position and resources as is required, nor shall we be enabled to make the full and speedy application of such information, when obtained, as is so desirable. For, after all, those engaged in agriculture have the most direct, and, above all, the proprietor of the soil has the deepest and most permanent interest in the realisation of a complete record of our agricultural wealth, and of the means of its production. When our returns are perfected, and something of a reliable estimate of our comparative annual cereal produce obtained, such observation may no doubt be of use to regulate in some measure the proceedings of the merchant; but to the agriculturist a view of the distribution of the land in the cultivation of the various crops, with an estimate of their produce, and of the number as well as the species of cattle and sheep maintained in the different districts of the country, cannot fail to be immediately available and of great practical use. It is earnestly to be desired then, even for his own sake, that every one concerned in agriculture would give every assistance, and afford all facility to the correct filling up of the forms required by the Board of Trade, as forming the beginning of a good work.

But these returns are far from being all that, for the sake of the more speedy and due development of our agricultural resources, ought to be furnished, and that cheerfully. It is desirable the information should be of such a nature as that the farmer, in one part of the country, should not only be made acquainted with the different species of crops cultivated in another part, and be enabled to see how and at what comparative expense they are produced; and it is essential that the returns, besides containing an estimate of the weight and produce of roots and cereals, should, as regards live stock, specify the precise age and variety of breed. The Government cannot fail to be aware, and every statesman knows, that for any practical purpose to the limited extent to which these returns are being given they are comparatively useless. Before any reliable estimate of the value of our agricultural wealth can be made it will be necessary, as in Scotland in 1854-5-6, that we should have an estimate of the weight and produce of our root and cereal crops (as ascertained by the average in these returns) given by practical men acquainted with the capabilities of the soil of the district, and not returnable by them until they have had an opportunity by the yield of their own crops for the year to check in some measure their opinion.

As regards live stock again it is essential, in order to arrive at any correct, even proximate, amount of the worth of our cattle and sheep, that the returns specify not only the number but the precise age and species of the different varieties. It is clear no appreciable estimate can be made by number and age alone, when the difference of value according to breed varies not less than as 3 to 10. Besides, what a lesson would a comparison of varieties of breed thence exhibited convey to agriculturists, where in some districts they may, as often happens, be maintaining a breed inferior, they will then discover, to what is reared successfully on land in no way superior to their own. The weight of beef and mutton produced in this country has wonderfully increased of late years, in great measure caused by the extension of improved breeds, and in no respect is the want of agricultural statistics in former years to be more deeply lamented than that, with the advantage of such information, an infinitely more rapid improvement could not fail to have been carried out, while we should have been furnished with data to mark the striking progress which, within a given time, has been effected in so many parts of the country, so valuable for instruction and imitation. Besides, had we possessed the advantage of correct agricultural statistics in the earlier years of the century they would have revealed a fact which would have gone far to dispel the too currently received notion, which has militated in many respects against agriculture, that it has lagged behind the other industrial interests of the country. The truth is, it has not received the full public interest and attention which it so well deserves. Something more must be done for agriculture, and we must no longer grudge the expense. Why should we not have a Minister and Board of Agriculture as well as of Trade? The returns obtained, imperfect as they are, have shown that agriculture is not the least, if not the greatest, source of our national wealth. Perhaps it may be as well in that, the first instance, in the infancy of the inquiry, no more has been demanded than what is indicated by the forms now issued; but having felt our way, it is essential, in order that we may possess such information as is necessary to arrive at the precise amount of our agricultural resources, that we should have schedules framed and issued of a more distinct and extensive character. It seems a mistake to suppose that opposition will be increased by any further minute inquiry as regards stock—which, at present, is especially deficient. It is as easy, it may be said, to fill up fifteen columns as five, when these are distinctly headed; and, as it is, to accomplish this it only requires that the occupier should take the trouble to fill as many columns in relation to cattle and sheep as is now required of him as regards crops.

But I trust the time is not far distant when it shall not be deemed irksome or inquisitorial that we go even further than this; and that for the sake of agriculture especially, we shall not be contented with returns alone of the soil, but that we shall have such full statistical information, periodically, as shall make us acquainted with the precise proportion of the population directly employed in the cultivation of the soil, the number of horses used in tillage, and otherwise raised and supported on agriculture in different districts, the nature and endurance of holdings, the extent of land thoroughly drained, and the quantity of special or foreign manures applied in those years in which such more extended returns are made. These special returns need not be made more frequently than at intervals of five or ten years, when they would be invaluable to agriculturists for practical economical instruction, as marking the periodical progress of agriculture in any specified district; and on a comparative view, exhibiting the advantage of improved systems of management and rates of employment, in order to adoption when available. Thus those deeply interested in the improvement of the land and the success of rural industry, where progress has hitherto been slow, and hence opportunities of information limited, will be enabled immediately to discover where skill and enterprise has been most successfully applied, and seek to extend the beneficent hand to their own immediate requirements. The green spots will become earlier visible, and thus prejudice and ignorance will sooner disappear.

Undoubtedly the machinery hitherto applied for obtaining our agriculture returns is not at all adequate to effect fully the whole object desired, and to give that confidence in their accuracy and completeness which is so essential to all practical purposes. A more liberal expenditure to accomplish satisfactorily so great an end must not be grudged. Little expenses which come short of the object are the worst of all economy. One of great political authority (Burke) has said, "Expense and great expense may be an essential part in true economy. It consists not in saving, but in selection of the right objects on which expenditure is bestowed. No state since the foundation of society has been impoverished by that species of profusion."

AGRICULTURAL CO-OPERATION.

The public is so deeply interested in securing fair play for Co-operative Associations, formed with the object of saving the pockets of consumers, that we make no apology for troubling you with this communication, in relation to an unfair attempt now being made to crush this Society by a trade combination.

The facts are these:—A few weeks ago we sent an order, accompanied by pre-payment, to Messrs. James and Frederick Howard, the agricultural implement manufacturers, of Bedford. Not content with refusing to supply us with their own manufactures, Messrs. Howard printed the annexed correspondence, marked it "private and confidential," and sent copies throughout the trade. The agents and middle-men, aroused by this circular, have taken alarm for their threatened monopoly, and are now endeavouring to compel other manufacturers, by threatened withdrawal of custom, to follow the same illiberal course as Messrs. Howard.

Under these circumstances we appeal to you to aid us, by publicity, to defeat the monopolists. The case between us and "the legitimate trade" is very simple. The established agents and dealers in agricultural implements, seeds, and manures, constantly declare their inability to supply the farming public with goods at a less percentage of profits than they now receive, averaging from 20 to 25 per cent. We believe we can supply the same goods to our members at a cost for distribution not exceeding the average of co-operative trading associations, viz., 4 to 6 per cent., besides giving an absolute guarantee against adulterations. By this means we hope to return to our members—after paying all expenses—a large per centage on their purchases.

We ask no favours—we want simply a fair and equal chance in competition with our "legitimate" rivals. Our success will be an immense benefit alike to manufactures and to the farming public. By the introduction of cash payments it will relieve the former

from loss by bad debts, and set free an immense amount of capital now locked up in outstanding accounts. By reducing the cost of purchases to the latter, it will help farmers and landowners to increase their stock of machinery and add to their improvements. Only the middle-men will lose; and if it be true, as they constantly declare, that they are under-paid for their exertions, they ought to thank us, for we shall relieve them from unprofitable labour. The assumption by Messrs. Howard, that farmers can only be induced to appreciate good machinery by agents, who are employed at a cost of one-fourth or one-fifth of its value to urge it upon their attention, is simply an insult to the intelligence of the agricultural public. We ask you to reprint this letter along with the correspondence.

—I am, &c., EDWD. OWEN GREENING,
July 10, 1867. Managing Director.

(*Copy.*)

"Britannia Iron Works, Bedford, May 1, 1867.

"Gentlemen,—We have this morning received your letter of the 29th ult. We have perused your circular, and before we can take the enclosed cheque to account, we must ask you whether retail customers are to be supplied with our implements on trade terms.—We are, yours faithfully,

(Signed) "JAMES and FREDK. HOWARD.

"The Agricultural Association, Limited."

"The Agricultural and Horticultural Association (Limited), 25, Parliament Street, Westminster, May 2, 1867.

"Dear Sir,—I take the somewhat unusual course of writing you personally in reply to the inquiry from your firm, as I understand from Mr. ——, M.P., that he has mentioned to you the plan of our Agricultural Association, and I need not therefore explain in such detail as I should have to do to the officials of your house. Our Association is a co-operative trading company, the members of which employ their own capital and their own servants, and at the end of the year, or half-year, divide the profits amongst themselves. The difference between a co-operative company and an ordinary joint-stock company is that the former after paying a limited dividend upon capital (5 to 7½ per cent.) returns its profits to its shareholders in proportion to their purchases, whereas a joint-stock company returns its profits entirely in proportion to capital subscribed. We have 650 co-operative companies now in Lancashire and Yorkshire, dealing in everything or nearly so, to the great advantage of their members. Surely your firm will not be alarmed at the proposal to introduce the system into agricultural dealings.

"If ordinary companies and private firms are founded on a sound basis they need not fear the competition of co-operative associations. If they are NOT founded upon the best basis, then they cannot prevent us making way, and it is no use individual firms setting themselves to maintain class monopolies to the injury of those who are really their supporters, viz., the purchasing public.

"I shall be glad to hear whether you will supply our order.

—Yours truly, (Signed) "EDWD. O. GREENING."

"James Howard, Esq."

"Britannia Iron Works, Bedford, May 3, 1867.

"Dear Sir,—Your letter of yesterday is to hand. Mr. —— has not mentioned the subject of the Agricultural Association, Limited, to me, but I have considered your plan of a co-operative trading company.

"The scheme may prove advantageous to the members of the Company, but I consider it would be most injurious to the agents and dealers in agricultural implements, who not only embark their capital in keeping a stock of implements and wearing parts, but who spend a good deal of their time in urging on the attention of farmers the advantages of improved machinery. To this class we are greatly indebted for the more general appreciation among agriculturists of good machinery.

"It would of course be to the advantage of manufacturers if farmers bought from them direct. As a rule, however, farmers buy their implements as they do their cattle, through a middle-man, and we see no sign of any change in the practice.

"In declining to execute your order, I distinctly wish you to understand that it is not on the ground of our objection to the principle of your association, but because we feel bound to protect the interest of those upon whose exertions our trade in great measure depends.

"I return you the check enclosed.—I am, dear Sir, yours faithfully, (Signed) "JAMES HOWARD.

"E. O. Greening, Esq., Agricultural Association (Limited)."

IN SEARCH OF A HORSE.

[The following is an abridgement of an instructive tale addressed to the *Saturday Review*.]

"MY father was in town not long since for a clergyman's fortnight. He required a parochial hack (not a curate); I required a brougham horse. Unfortunately for us it happened that an old college friend of my father's had some few years since purchased a very good useful horse at Aldridge's in St. Martin's Lane; so we, thinking we might possibly be equally successful, on a certain ill-fated Saturday drove to Aldridge's. On entering the premises a very curious spectacle presents itself to the uninitiated. One sees before one a busy mass of human beings with countenances quite unlike anything to be found elsewhere. The question was suggested to my mind, how can an establishment prosper when these are its principal customers? We shall presently see that some of these customers, at all events, prosper by attending the establishment. Having procured catalogues of the day's sale we retired to the most remote corner of the yard, and had no sooner taken up our position than my father was accosted by a young man who asked permission to look at his catalogue. This young man's appearance was in no way remarkable; he had the ruddy blush of health on his cheek, which had surely never been blanched by the polluted atmosphere of an overcrowded city, and he was habited in the shiny black frock-coat in which young farmers delight to worship on Sundays. Immediately that this young man commenced perusing the catalogue, he in his turn was accosted by a middle-aged man, evidently in the horse-dealing line, who spoke to him for a minute or so with the most extraordinary rapidity of utterance, and then departed. My father was so astonished at this man's volubility, that he asked the young man what the other said. He answered that he was offering him money for two horses, which he (the young man) had that morning brought to town with the intention of selling them by auction on that day, but on arriving at Aldridge's he found that all horses had to be sent two days previous to the sale. The horses belonged to his father, who had bred them, and who was only parting with them because he was giving up farming; they were in a shed close by, would he come and look at them? On my representing to my father that 'it was a plant,' I was met with 'I beg your pardon, I don't understand you.' My much-respected and dearly-beloved parent does now perfectly understand the meaning of this expression. Before we had been on the premises five minutes we quitted them in company with the farmer's son, who led the way without hurry through some narrow streets, descanting in an easy, quiet tone on the merits of his animals, and answering questions. The revolution that took place in my mind during this walk of a few minutes was so complete, that I was prepared to accept the animals without the most ordinary precautions, if they looked at all likely; for having once commenced to believe anything, the rapidity with which implicit belief follows is marvellous. The horses were in full suits of clothing, of which the farmer's son appeared to have some difficulty in making the groom divest them. They were led out into a narrow lane, the only exit from which was blocked up, or nearly so, by a waggon, so we could only see them trot for some 20 yards. The hood of the larger, or brougham, horse was never removed, and on his being put into the shed again, and the farmer's son saying he should like to make as near 30 guineas of him as he could, my father silently touched me. In a very few minutes we purchased the two horses for 53 guineas. The farmer's son remarked that the horses were not accustomed to London, and might fall on the stones and break their knees. But if this did not happen, he would, if desired, take them back within a month. I gave the groom my card, and wrote on it the number of my stables, telling him to take the animals there at once. The owner of the horses and ourselves then retraced our steps, my father remarking how exceedingly fortunate we had been in stumbling upon such a chance. 'His father bred them. They have never been out of his hands, and he is so truthful.' Not having a cheque-book in my pocket, I suggested that the farmer's son should return to my house in my brougham, which was waiting at Aldridge's, and he did so. On the way we heard the highest character of the horses, and we were informed, in answer to a sympathising question from my father, that his father had not suffered much by the cattle plague. Knowing all that I now do about this ingenious farmer's son, I cannot but admire the skill with which he played his part. When we reached my house, which is near the Marble Arch, he gazed about him, said it was rather an out-of-the-way place, and asked whether there was any chance of getting a cab. He wanted a cab, because he was in a hurry to get to Finsbury. My servant, by my desire, fetched a cab for him, and he drove away in it, being doubtless in a hurry to get cash for the cheque which I handed to him. But, before parting, we drank success to the bargain in a glass of my best sherry.

"On the evening of that memorable Saturday, I discovered that the brougham horse, which appeared to be wholly black, was not so by nature, for two white legs and a blaze had been concealed by painter's skill. Besides, he was the most fearful roarer that can be conceived. Now, the question was, what was to be done? On inquiry at Aldridge's, I was told that we had been the victims of some of the cleverest horse-copers in London, and the man who was seen going out of their yard with us was a well-known member of the society. But a gentleman employed at Aldridge's said, 'If you stick to them you'll get your money back,' and I determined that I would stick to them until either I got my money or my man. By the assistance of a detective officer I speedily ascertained that this ruddy-complexioned, simple, truthful farmer's son was the landlord of an exceedingly low beer-house in Shoreditch, and that he was absent from home. Through various channels I gained a great deal of information about this gang of horse-copers, and after I had had the horses a few days I sent a message to the head of the gang to say that, if they chose to return me 35*l.*, and take back the horses, I should say no more about it. A week elapsed, and no answer; so I sent again, saying I should not now take less than 40*l.* The farmer's son was still absent from home. I went to places where I was likely to meet horse-copers, and revisited the shed where I purchased the horses, and I stated everywhere that if the man that sold me the horses could make a living out of London, well and good, but that if he wanted to make a living in London, he must come to me. Another week passed, and still no answer to my message; so I sent again, and said that my price was now 45*l.* A few days after this last message a man, dressed like an artizan, and not in the least 'horsey' in his appearance, called on me and stated that he had heard I wanted to dispose of two horses, and offered to buy the roarer. He described it as such a bad one that if it were put into a field it would blow all the roots out of the ground in the next field. Of course he knew nothing of the people from whom I had purchased the horses. After 10 minutes' conversation, I was compelled to tell him that I thought we had been talking sufficient nonsense. I said, 'When a man is playing a game of cards, he does not throw away the best trump he has in his hand; and the big horse is my "best trump."' I added that I had been expecting his visit for some time; that he knew the price I required—viz., 45*l.*; that if he chose to give me that he might either take or leave the horses as he pleased; he said it was quite out of the question, and departed. Three days afterwards the same man, accompanied by another man of highly unprepossessing aspect, came to my house, and the result was that they paid the 45*l.*, and took away the horses. Had I insisted on having the whole 55*l.* refunded, I should doubtless have succeeded, but having said I would take the lesser sum, I did so. Those persons who have been victimised by horse-copers will doubtless recollect that they had to smile under the jeers of their friends, who patted them on the back over a glass of claret, and gave them the advice usual in such cases: 'Depend on it, my dear young fellow, the first loss is the cheapest.' I happened to have an aged friend who addressed me in this strain, and told me that some time since he had given the same advice to a friend, in consequence of which advice his friend had put up with a serious loss, the screws having been sent to the hammer, and probably bought in by the same gang who sold them. Almost the first thing I did after getting back my money was to drive to the house of my aged friend. I had the satisfaction of shaking the recovered sovereigns in his face, and telling him there were two things he had to do—first, to apologise to me for the insulting tone he had adopted in the matter; and, secondly, to send his friend a cheque for the amount he had lost by taking his bad advice. Those only who have suffered like myself can appreciate the keen enjoyment of first bringing the horse-copers on their marrow-bones; and, secondly, of convincing certain of one's friends, who know everything, that a little perseverance is more valuable than their supreme wisdom, and that a cock who makes a good fight, though he may be beaten, is a better fellow than one that shows no fight at all." Our informant adds the following note of a conversation which he held at Aldridge's with the man who bought back the horses:—

Coper: "You ought to have kept the little horse, sir; just see how many times I shall have to sell the big one to get back that 45*l.*

Gentleman: "I suppose the big horse is a useful one to you; you will no doubt make money of him."

Coper: "Well, sir, you see we live in hope."

The coper added in a feeling tone "that the gentleman had got experience and amusement 'really cheap' at 10*l.* 'It might have cost you 200*l.*, what you now know.'" The coper again said:—

"There's a young gent, sir, that lives up your way."

Gentleman: "Why don't you try him like you did me?"

Coper: "Oh! we shot him long ago."

Gentleman: "Yes! how did he get out of it?"

Coper: "We bought the horse back for 5*l.*"

Gentleman: "What did he give originally?"

Coper: "35*l.*"

Gentleman: "Then he got worse out of it than I did?"

Coper: "Yes, sir; you see he was a better plucked one than you were."

In reference to the farmer's son, he said, "Did he do it well? He mostly does. Oh! he is a clever man."

Another frequenter of Aldridge's, pretending to be above horse-coping, but really playing the game better than any man in London, remarked to our informant in reference to his horses, "What ruffians they were! I never did see such blackguards." The New Cattle Market on Friday afternoon is a usual haunt of the gang, but our informant, when he went there, found it quite deserted. His guide explained to him that "they felt a breeze"—meaning probably from Scotland Yard.

The explanation of our informant's success doubtless is that the horse-copers were fearful of being prosecuted for a conspiracy to defraud him. It was pretended that the horses had never been off the farm from which the rustic youth came, whereas the big brougham horse had been sold by copers and bought back again time after time in London. But as only the farmer's son appeared in the transaction, there would have been this difficulty, that you cannot indict a single person for a conspiracy. It is a common trick to ask the purchaser for a lock of the tail. "My sister constantly rode the horse, and we only part with him because we are giving up the farm. Please to give me a lock of the tail to take back to my sister." A prosecution was actually instituted last year at the Old Bailey, and a conviction was obtained against two horse-copers. In that case it was pretended that a pair of carriage-horses were the property of "The Hon. Mrs. Webb, of Ambleside." They had been driven by her deceased husband, and she could not bear the sight of them now that he was dead. The prosecutor stated that he was a judge of horses "to a certain extent," and he admitted that he expected, if the horses were sound, he should get a bargain. Gentlemen who have this expectation and this opinion of their own judgment are the cause why horse-copers exist. We have heard that in a recent case a gentleman who had been defrauded asked redress from the leader of the gang and received the answer, "Our position is clear. We've got the money and you've got the osses." To this the gentleman responded, "Yes, and there is only one thing more wanted to make the arrangement complete—that is, to get my man, and I've got him." In fact, the gentleman had taken the strong measure of procuring a policeman to arrest without warrant the actual perpetrator of the fraud. The money was forthwith refunded.

An elderly gentleman who visited the Repository in Barbican was accosted just outside by a respectably-dressed man with an umbrella, who remarked, "This is not a bad place to buy a horse." The next moment came up a big burly countryman, speaking the broadest Yorkshire dialect, who said to the old gentlemen, "Do you know, sir, where the Barbican is?" "Why, my man," was the answer, "this is it." "Oh! is it," responded the Yorkshireman; "I brought up a horse to be sold at the Barbican, and I will sell him for what he will fetch"—explaining that he could not deal with the expected purchaser. The elderly gentleman, after thus far narrating his adventure, added, "when I heard this I buttoned up my breeches-pocket, and ran away as fast as I could." We will only add that wise are they who, under similar circumstances, do the same thing; for many men can pay money, but only a few can get it back again.

Home Correspondence.

Disease in Sheep.—A somewhat rare disease, not fatal, but of a perplexing nature, occurred amongst my ewe flock during last lambing season, the treatment of which, if not understood, might have occasioned me heavy loss. To middle of February lambing had been highly favourable, 300 lambs were dropped in four weeks, with loss of only one ewe and six lambs. This good fortune was of short duration. An eruption, something like boils upon the human skin, appeared upon the udder, tongue and lips of the ewe, and on the lips, tongue and gums of the lambs: within a week upwards of 200 ewes and as many lambs became affected with the disease. Boils formed upon the teats, inflammation extended deep and far about, involving the whole substance of the udder; in milder cases there were one or two small pimples with redness of surrounding parts, in numerous cases the bag appeared bordering on mortification (black brown in appearance): a black scab enveloped the whole teat, which on falling off exposed a raw ragged surface; in one case, the teat sloughed away, and the milk escaped immediately from the udder. From soreness the ewe would not allow the lamb to suck, and the imprisoned milk caused garget to attack the udder, and this became more serious than the original disease. Disease extended deep into the gums of the lambs, causing many teeth to fall from the mouth. A heavy land farm, with only one cow, and it suffering from garget, and upwards of 50 lambs deprived of milk of the dams, and requiring artificial food, and as many ewes suffering acute inflammation of the teats and udder consequent upon the boils and garget! So great appeared the sufferings of both ewes and lambs that, so far as ailments of animals are concerned, I never witnessed a more pitiable sight; none but a shepherd and owner of a flock in such condition can comprehend the difficulties of my case. By the direction of Mr. Seaman, veterinary surgeon, under whose management I now placed the whole stock, the young lambs were fed with Barley, malt, sweet wort, and Linseed cake porridge. The older lambs had crushed Beans (not Bean-meal) all they would eat; and I have great pleasure in stating that so appropriate was the food and so efficacious the medicines used by the doctor, that fatality amounted to but one ewe and two lambs. Scores of ewes suffered from garget of the most painful kind, yet but one ewe lost a part of the bag. I believe it is Mr. Seaman's intention shortly to publish a pamphlet upon this (to us) new disease, which, if it contains the particulars of treatment, will be a great boon to the flockmaster. An artist has been employed to make drawings of the diseased parts for the purpose of illustration. *Daniel Emson, Wimbish, Saffron Walden, July* 23.

Crops in Perthshire.—We have now dry weather, but with very little sun, so necessary to forward the crops. Last evening a few drops of rain fell, but seemed only a proof that, with an electric condition of the atmosphere favourable to rain deposit, there remained little to be forthcoming. The crops generally, in good, well-farmed, well-drained land, offer to be an average, but in poor wet clays, under inferior management, will be an almost total failure, Grass excepted. The hay crop is large, and generally well secured. In the low Carse of Gowrie there is considerable damage to the Wheat by the yellow-fly maggot. Over all, the cereal and legume crops offer to be nearly three weeks later than of average years. I had a letter from Germany lately stating bad rainy weather, very unfavourable for securing the remainder of the hay, and giving reason to fear blight in the Potato, but that no blight had yet appeared. It is just possible that the plant, so well accustomed to moisture, may have become hardened to it, or that the organism of the disease may have been drowned. *P. M., July* 31.

Societies.

Highland and Agricultural.—We abridge the following notes of this meeting from the columns of the *Times*:—

The business of this meeting, which is the sixth held in Glasgow, the last visit having been in 1857, opened (July 29) with a lecture by Professor Anderson, at the Queen's Hotel, Major Kinloch, of Gilmerton, in the Chair. The Professor referred to the complete exhaustion of guano from the most northern of the Chincha Islands, and to the inferior quality of guano now obtained from the southern island. The farmer buys for his money a smaller quantity of fertilising matter than he formerly did; the effect, however, will scarcely be felt in the first crop, but must ultimately tell to disadvantage from the deficiency of residual fertilising matter left in the soil. As the demand for real Peruvian guano is not increasing, there is a fair prospect of its lasting for a generation to come, but at the end of that time the supply of nitrogenous manures must become a very grave question, seeing that the ammonia contained in the Peruvian guano annually imported is equivalent to about 120,000 tons of sulphate of ammonia, greatly exceeding the quantity of that substance at present derived from all other sources put together. Hope lies in the increased manufacture of ammonia in gasworks and in various processes of the arts, and also in the gradual reproduction of natural guano—of which we have an instance in the renewed supply from Ichaboe, an island exhausted about 30 years ago. The lecturer showed how analysis and the system adopted by importers have checked and almost destroyed the practice of adulteration; he then noted the improvement in quality and the diminution in price which have been latterly found in superphosphate, due in great part to the introduction of bone ash and mineral phosphates. Dissolved bones may be said to no longer exist; we now get a mixture of these with bone ash or mineral phosphate; and, by an improvement in the process of manufacture, the manure is much more finely reduced and more convenient for application than it used to be. So far as the supply of phosphates is concerned, Professor Anderson feels no anxiety, new mines of these substances being continually discovered, and often in the most unexpected geological formations. Adulteration is still largely carried on in oil-cakes and other feeding stuffs, Linseed being mixed with the seeds of many sorts of weeds. The greatest difficulty for the chemist and for the farmer is in dealing with cakes called "mixtures," as a mixture of bran and Poppy-cake with Linseed of a very high quality may give as good an analysis as a genuine cake made from Linseed of a poorer quality, and it is a fact that samples have been offered in Hull market of seed used for "reducing high quality Linseed," this seed being in reality Wild Mustard and other seeds sifted out of Linseed. The Professor stated that in many instances analyses made in the laboratory have been the means of getting back a large part of the price paid by the farmer for adulterated articles. In conclusion, he alluded to the importance of paying more attention to the purity of the water of wells, from which cattle are supplied, and which can be ascertained only by chemical analysis.

On Tuesday at 9 o'clock the Judges began their labours in the show-yard—a plot of about 25 acres, on Glasgow Green; the charge for admission to the public judging being 10*s.*, and for members and exhibitors half-price. At 2 o'clock the fee was lowered to half-a-crown; this rate continues till mid-day (of the second day), and thenceforward up to the close of the show the admission will be 1*s.*, with members and exhibitors free.

In number of entries the show is scarcely of average magnitude; there are only 286 cattle, against 361 at Inverness in 1865; the sheep number only 505, against 812 at Inverness; the horses, however, are 212, against 132 at the last show, and the pigs are 80, against 43 at Inverness; and thus, with a large increase in poultry, the total entries come to a full average, though still somewhat behind the great show of 1865.

Of course, in the "district" of Lanark, Ayr, Renfrew, Argyle, Arran, and Bute, the strength of the exhibition lies with the Ayrshire and Highland cattle, and with the Clydesdale horses. The classes of ruddy Devons and white-faced Herefords of our southern shows are absent here; and even the Shorthorns are far outnumbered by the Scotch cattle. The first place in the yard and in the catalogue is given to the Ayrshires, which number 121 entries; and no wonder that prominence should be given to this breed, or that perhaps the greatest interest dring the day should have centred round the prize stalls of these rare milkers, when we remember that the Ayrshires are exclusively the dairy stock of the counties Ayr, Renfrew, and Lanark, which comprise more than a fourth of the whole population of Scotland. A Continental writer of three centuries ago said that in Ayrshire were "cattle of great size, whose flesh is tender and sweet, and another kind which never become fat, but yield rich milk;" they may be more symmetrical in form now, and of more kindly-feeding quality, but still, in spite of all the art said to be practised in getting up the animals for show, of which intimations are revealed in the universal custom of polishing the horns, there is comparatively little flesh covering their slender frames.

The Judges were Messrs. Alexander Buchanan, John Macadam, and James Pollock; and they had to award handsome money prizes and Bronze Medals, but no distinctive honours, such as Cups or Gold Medals, singling out the best animal of a breed; in fact, throughout the whole show there are none of those extra prizes and Challenge Plates, offered on special conditions, which excite so much interest and keen competition at the meetings of some other societies. Forty Ayrshire bulls made up three good classes. Two Gold Medals are given to the cows which took 1st prizes at Inverness in 1865 and at Glasgow as far back as 1857: and two fine cows of the Duchess Dowager of Athole have come in for both medals, in classes, however, presenting no competition. There are 29 cows in three classes, and 24 heifers in two classes. Decidedly the "coo o' the shaw" is Mr. Robert Wilson's "Mearns," aged six years, having a wonderful udder, a deep frame, light in front of the shoulder, with coat, horns, ears, &c., duly according to the rule of the breed, and her colour pretty enough, being what is here called "flecked." The heifers make a remarkably pretty show, but to the eye of a Shorthorn breeder appear sadly wanting about the ribs, neck, and quarters, while the upward turned, or "stag's horns," neutralise to him all the beauty of the taper faces and "looks" not altogether placid enough to suit our south country graziers.

The Shorthorns number only 51, including but two or three animals from the south side of the Tweed. Mr. Booth, of Worlaby, would have been an exhibitor had cattle been allowed by the cattle-plague regulations to come directly out of Yorkshire, and other eminent breeders have been deterred from sending because the Green on which the show is held is the very spot where Irish and foreign cattle have been regularly landed, though, as a safeguard, this has been lately discontinued. In the aged bull class the 1st prize goes to Sir Thomas Buchan Hepburn's "Comet," a white bull of very great frame and substance, which was first at Coldstream, wanting, however, in the style and nobility of appearance necessary to take a high place at a Royal Show. Mr. James Whyte's "Prince of Worlaby," a wonderfully heavy beast from the neighbourhood of Blackburn, is 2d; and Lord Kinnaird's big bull "Oxford Louis," is 3d. In the two-year-old class Sir William S. Maxwell's "Keir Butterfly," is 1st, a very good bull, never shown before, and beating Mr. George Barclay's 2d prize "Heir of Englishman" mainly by a sweetness of head and generally grand style conferred by "Royal Butterfly" blood. Mr. Barclay's bull, also shown for the first time, has splendid quality under a fine, mossy coat, and is by many critics preferred to the 1st prize bull. He is half brother to the prize bull at the Battersea Show of 1862. Lord Kinnaird's middling white bull "Royalist" takes the 3d prize. Mr. Lawrence Drew's 1st prize yearling bull "Keir Butterfly 4" is an extremely good animal, for size, length, and height; Mr. James Geddes' 2d prize bull is well made and compact; Mr. Walter Scott's takes 3d prize; and Mr. Alexander Bell's lengthy, big, good bull "Duke of Edinburgh," which was 1st at the Melrose Show last spring, is "commended."

Lord Strathallan's cow, which was 1st at Inverness in 1865 (and so disqualified from again competing in the Highland Society's Show-yard) receives the usual Gold Medal.

A small cow class contains nothing very grand or gaudy. Mr. Francis Brown's 1st prize cow, suckling a calf, is of considerable merit; and Mr. M'Gibbon's 2d prize cow is pretty good. Mr. Andrew Longmore wins a 3d prize and a commendation. In the two-year-old heifer class Lord Kinnaird's 1st prize "Royal Helena," is very superior to Lord Strathallan's 2d prize heifer, though this is a very nice and pretty roan. Mr. David Ainslie takes a 3d prize, and Mr. Alexander Buchanan gets a commendation.

It is satisfactory to find the crack class among the Shorthorns to be that of yearling heifers. Lord Kinnaird's white 1st prize "Baroness" is a real beauty, but we should say not equal in quality to Mr. David Ainslie's 2d prize "Thistledown," an extremely beautiful roan heifer. The judges held long debate over the award of the 3d prize, ultimately giving it to a prime red "Young Cherry" of the Duke of Buccleuch, and bestowing the only "high commendation" in the cattle "sections" upon the Duke of Montrose's roan heifer "Pride of the Morning." The judges were Mr. John Grey, Mr. Robert Hardie, and Mr. Thomas Harris.

The following is the Prize List:—

CLASS I.—CATTLE.

Ayrshire.

Section 1. Bulls calved before 1st January, 1865.—1st, Robert Wilson, Forehouse, Kilbarchan (General Grant); 2d, W. A. Maclachlan, of Auchtentroig, Balfron; 3d, Wm. Buchanan, Coxithill, Stirling (Prince Charlie).

Section 2. Bulls calved after 1st January, 1865.—1st, John Dick, Shiriel, Bellshill; 2d, Robert Wilson, Forehouse; 3d, John Parker, Broomlands, Irvine.

Section 3. Bulls calved after 1st January, 1866.—1st, John Fleming, Meadowbank Cottage, Strathaven; 2d, David Forrester, Woodcockdale Cottage, Linlithgow; 3d, John Fleming, Meadowbank.

Section 4. Cows in Milk, calved before January 1st, 1864.—1st, John Jackson, Barnhill, Blantyre; 2d, James Cleland, Bellshill, Bothwell.

Section 5. Cows in Milk, calved after 1st January, 1864.—1st, James Pollock, Blackhouse, Mearns; 3d, Robert Wilson, Forehouse.

Section 6. Cows in Calf, of any age.—1st, Robert Wilson, Forehouse; 2d, David Forrester, Woodcockdale Cottage, Linlithgow; 3d, John Pender, Springhill, Motherwell.

Section 7. Heifers calved after 1st January, 1865.—1st, Lawrence Drew, Merryton Home Farm, Hamilton; 2d, James Muir, Hardington Mains, Wiston, Biggar; 3d, Alexander Campbell, Crosshill, Bishopbriggs.

Section 8. Heifers calved after the 1st January, 1866.—1st, John Meikle, Seafield, Bathgate; 2d, James Mitchell, Blackhouse, Newton Mearns; 3d, Lawrence Drew, Merryton Home Farm, Hamilton.

Shorthorn.

Section 9. Bulls calved before 1st January, 1865.—1st, Sir Thomas Buchan Hepburn, Bart., Smeaton House, Preston Kirk (Comet); 2d, James White, Little Clinterty, Blackburn (Prince of Warlaby); 3d, Lord Kinnaird, K.T., Rossie Priory, Inchture (Oxford Louis).

Section 10. Bulls calved after 1st January, 1865.—1st, Sir William Stirling Maxwell, Bart., M.P., of Keir, Dunblane (Keir Butterfly I.); 2d, G. R. Barclay, of Keavil, Dunfermline (Heir of Englishman); 3d, Lord Kinnaird, K.T., Rossie Priory (Royalist).

Section 11. Bulls calved after 1st January, 1866.—1st, Lawrence Drew, Merryton Home Farm; 2d, James Geddes, Orbliston, Fochabers; 3d, Walter Scott, Glendronach, Huntly.

Section 12. Cows of any age.—1st, Francis Brown, Mains-of-Leslie, Inch, Aberdeenshire (Lady Hay); 2d, David M'Gibbon, Inveravon, Polmont (Anna); 3d, Andrew Longmore, Rettie, Banff (Camilla).

Section 13. Heifers calved after 1st January, 1865.—1st, Lord Kinnaird, K.T.; 2d, Viscount Strathallan, Strathallan Castle; 3d, David Ainslie, of Costerton, Blackshiels.

Section 14. Heifers calved after 1st January, 1866.—1st, Lord Kinnaird, K.T.; 2d, David Ainslie, of Costerton; 3d, the Duke of Buccleuch.

Polled Angus or Aberdeen.

Section 15. Bulls calved before 1st January, 1865.—1st, The Earl of Southesk, Kinnaird Castle, Brechin; 2d, Robert Walker, Hillside House, Portlethen, Aberdeen.

Section 16. Bulls calved after 1st January, 1865.—1st, James Leslie, The Thorn, Blairgowrie (Tillyfour); 2d, Ditto; 3d, James Anderson, Newbigging, Dundee.

Section 18. Cows of any age.—1st, Colonel Fraser of Castle Fraser, Aberdeen (Mina); 2d, James Leslie, The Thorn; 3d, Robert Walker, Hillside House, Portlethen, Aberdeen.

Section 19. Heifers calved after 1st January, 1865.—1st, Colonel Fraser, Castle Fraser.

Section 20. Heifers calved after 1st January, 1866.—1st, James Leslie, The Thorn.

Polled Galloway.

Section 21. Bulls calved before 1st January, 1865.—1st, James Cunningham, Tarbreoch, Dalbeattie; 2d, William and Robert Callander, Dalquhain, Dumfries.

Section 22. Bulls calved after 1st January, 1865.—1st, William Clark, Corra, Dumfries; 2d, John Thomson, Blaiket, Crocketford, Dumfries; 3d, James Graham, Parcelstown, West Linton, Carlisle.

Section 23. Bulls calved after 1st January, 1866.—1st, James Graham, Braidlee, Newcastleton; 2d, Joseph Craik, East Glenarm, Crocketford, Dumfries.

Section 24. Cows of any age.—1st, James Graham, Parcelstown, West Linton; 2d, John Cunningham, Whitecairn; 3d, James Cunningham, Tarbreoch.

Section 25. Heifers calved after 1st January, 1865.—1st, James Cunningham, Tarbreoch, Dalbeattie; 2d, ditto; 3d, James Graham, Parcelstown.

Section 26. Heifers calved after 1st January, 1866.—1st, James Cunningham; 2d, ditto; 3d, ditto.

Highland.

Section 27. Bulls calved before 1st January, 1864.—1st, Robert Peter Urlar, Aberfeldy; 2d, Archibald Clark, Garvie, Greenock; 3d, John Malcolm, of Poltalloch, Lochgilphead.

Section 28. Bulls calved after 1st January, 1864.—1st, Donald M'Laren, Corrychrone, Callander; 2d, the Duke of Athole.

Section 29. Bulls calved after 1st January, 1865.—1st, the Duke of Athole; 2d, ditto; 3d, D. M'Arthur, Achadunan, Cairndow.

Section 30. Cows of any age.—1, John Malcolm, of Poltalloch, Callton Mor, Lochgilphead; 2d, the Duke of Athole; 3d, John Malcolm, of Poltalloch.

Section 31. Heifers calved after 1st January, 1864.—1st, John Stewart, Flodigary, Portree; 2d, Donald M'Laren, Corrychrone; 3d, John Malcolm, of Poltalloch.

Section 32. Heifers calved after 1st January, 1865.—1st, John Malcolm, of Poltalloch; 2d, ditto; 3d, ditto.

Section 33. Oxen of any Pure or Cross Breed, calved after 1st January, 1864.—1st, Arthur J. Balfour, of Whittinghame, Prestonkirk; 2d, Richard Heath Harris, Earnhill, Forres; 3d, Harry L. L. Morrison, Guise, Aberdeenshire.

Section 34. Oxen of any Pure or Cross Breed, calved after 1st January, 1865.—1st, George Syme, Couston, Aberdour, Fife; 2d, ditto; 3d, the Duke of Montrose, K.T.

Section 35. Highland Oxen calved after the 1st January, 1863.—1st, James Stewart, Newmarket, Aberdeen.

Section 36. Highland Oxen calved after 1st January, 1864.—1st, the Duke of Athole; 2d, ditto.

Section 37. Cross Heifers calved after 1st January, 1865.—1st, Alexander Bruce, Keig, Whitehouse, Aberdeen.

CLASS II.—HORSES.

For Agricultural Purposes.

Section 1. Stallion foaled before 1st January, 1864.—1st, Samuel Clark, Manswrae, Kilbarchan (Young Lofty); 2d, Alexander Galbraith, Croy, Cunningham, Kilearn; 3d, John M'Donald, Duntocher (Emperor).

Section 2. Entire Colts foaled after 1st January, 1864.—1st, William Rigg, Banks, Kirkcudbright (Young Victor); 2d, William Moffat, Shirva, Kirkintilloch (President); 3d, Robert Arkley, Philipstown, Linlithgow (Rantin Robin.)

Section 3. Entire Colts foaled after 1st January, 1865.—1st, Sir William Stirling Maxwell, of Keir; 2d, Samuel Clark, Manswrae, Kilbarchan; 3d, Robert Andrew, Allans, Paisley.

Section 4. Entire Colts foaled after 1st January, 1866.—1st, David Riddell, Kilbowie, Duntocher; 2d, J. N. Fleming, Keil, Campbeltown; 3d, Thomas Muir, Bowhouse, Lanark.

Section 5. Mares (with Foal at foot) foaled before 1st January, 1864.—1st, Jno. Watson, jun., Glencairn House, Motherwell; 2d, John Findlay, Boturich Castle, Dumbarton; 3d, Lawrence Drew, Merryton Home Farm, Hamilton.

Section 6. Mares (in Foal) foaled before 1st January, 1864.—1st, Lawrence Drew; 2d, John Hendrie, Coatbridge (Brisk); 3d, the Duchess Dowager of Athole.

Section 7. Fillies foaled after 1st January, 1864.—1st, Lawrence Drew; 2d, Alexander Buchanan, Garscadden Mains, East Kilpatrick; 3d, Robert Weir, Brownhill, Carnwath.

Section 8. Fillies foaled after 1st January, 1865.—1st, Alexander Buchanan, Garscadden Mains; 2d, Lawrence Drew; 3d, Moses Steven, of Bellahouston, Glasgow.

Section 9. Fillies foaled after 1st January, 1866.—1st, Peter Crawford, Dumgoyack, Strathblane; 2d, David M'Gibbon, Inveravon, Polmont; 3d, A. B. Yuille, of Darleith, Cardross.

Extra Sections.

Section 10. Mares or Geldings foaled before 1st January, 1863, suitable for field.—1st, Lawrence Drew; 2d, Andrew Hunter, 18, Cleveland Street, Glasgow; 3d, James Mackie, of Bargaly, M.P., Castle Douglas.

Section 11. Mares or Geldings foaled between 1st January, 1863, and 1st January, 1864, suitable for field.—1st, George Stodart, Netherton, Newton Mearns; 2d, John Newton, Chollerton, Hexham; 3d, John Hepburn, Pitcairn, Lochgelly.

Section 12. Mares or Geldings foaled before 1st January, 1863, suitable for harness.—1st, A. J. Somerville, Bothwell; 2d, Matthew Clark, Croftengea, Alexandria; 3d, William Whyte, Nether Arthurlie, Barrhead.

Section 13. Draught Mares or Geldings in harness.—1st, Andrew Wallace, West Burn, Cambuslang; 2d, David M'Gibbon, Inveravon, Polmont; 3d, John Wallace, Stonelaw, Rutherglen.

Section 14. Mares or Geldings, not exceeding 15 hands, for milk carts of heavy draught.—1st, Robert Wilson, Forehouse, Kilbarchan; 2d, James Young, Duncanridge, East Kilbride; 3d, Archibald Balloch, Milliken, East Kilpatrick.

Section 15. Mares or Geldings, not exceeding 14½ hands high, for milk carts of light draught.—1st, James Robertson, 72, Main Street, Maryhill (Tom); 2d, William Cockburn, jun., 50, Sauchiehall Street, Glasgow; 3d, James Robertson, 72, Main Street, Maryhill (Maggie).

CLASS III.—SHEEP.

Leicester.

Section 1. Tups not above 4-shear.—1st, David Ainslie, of Costerton, Blackshiels; 2d, William Ruxton, Farnell, Brechin; 3d, Thomas Ferguson, Kinnochtry, Coupar-Angus.

Section 2. Dinmont or Shearling Tups.—1st, the Duke of Buccleuch; 2d, ditto; 3d, David Ainslie, of Costerton, Blackshiels.

Section 3. Ewes not above 4-shear.—1st, George Simson, Courthill, Kelso; 2d, John Angus, jun., Whitefield, Morpeth; 3d, George Hope, Fentonbarns, Drem.

Section 4. Shearling Ewes or Gimmers.—1st, George Simson, Courthill, Kelso; 2d, William Purves, Linton Burnfoot, Kelso; 3d, David Ainslie, of Costerton, Blackshiels.

Cheviot.

Section 5. Tups not above 4-shear.—1st, James Brydon, Kinnelhead, Moffat; 2d, Herbert Brydon, Thirlestane Hope, Selkirk; 3d, James Brydon, jun., Appin, Tynron, Thornhill.

Section 6. Dinmont or Shearling Tups.—1st, James Brydon; 2d, Ditto; 3d, Charles Alexander, Easterknowes, Peebles.

Section 7. Ewes not above 4-shear. Best pen of Lambs.—1st, James Brydon, Kinnelhead; 2d, John Archibald, Glengelt, Lauder; 3d, Sir Graham Graham Montgomery, Bart., M.P., Stobo Castle.

Section 8. Shearling Ewes or Gimmers.—1st, James Brydon; 2d, John M'Gregor, Bell-ridding; 3d, Thomas Elliot, Hindhope, Jedburgh.

Blackfaced.

Section 9. Tups not above 4-shear.—1st, Thomas Aitken, Listonshiels, Balerno; 2d, John Archibald, Overshiels, Stow; 3d, John Malcolm, of Potalloch, Callton Mor, Lochgilphead.

Section 10. Dinmont or Shearling Tups.—1st, John Watson, Culterallers, Biggar; 2d, John Archibald, Overshiels, Stow; 3d, Thomas Aitken, Liston Shiels.

Section 11. Ewes not above 4-shear.—1st, John Archibald, Overshiels, Stow; 2d, John M'Laren, Corrie, Drymen; 3d, Thomas Murray, Eastside, Penicuik. Silver Medal for Lambs: John Archibald, Overshiels, Stow.

Section 12. Shearling Ewes or Gimmers.—1st, John Malcolm, of Poltalloch; 2d, John Archibald, Overshiels, Stow; 3d, Thomas Murray, Eastside, Penicuik.

Southdown.

Section 13. Tups not above 4-shear.—1st, James Bruce, Burnside, Fochabers; 2d, ditto; 3d, Robert Scot Skirving, Camptoun, Drem.

Section 14. Ewes not above 4-shear or Gimmers. — 1st, James Bruce, Burnside; 2d, Alexander Kinlock, yr., of Gilmerton; 3d, Robert Scot Skirving.

Long-Woolled other than Leicester.

Section 15. Tups not above 4-shear. — 1st, Walter Reid, Drem; 2d, John Bell Irving, of Whitehill, Lockerbie; 3d, John Gibson, Woolmet, Dalkeith.

Section 16. Ewes not above 4-shear and Gimmers. — 1st, John Gibson, Woolmet; 2d, John Bell Irving, of Whitehill, Lockerbie; 3d, Walter Reid, Drem.

Short-woolled other than Southdown.

Section 17. Tups not above 4-shear.—1st, John Gibson, Woolmet; 2d, the Earl of Strathmore, Glamis Castle; 3, John Gibson, Woolmet.

Section 18. Ewes not above 4-shear, or Gimmers.—1st, John Gibson, Woolmet.

CLASS IV.—SWINE.

Section 1. Boars, large breed,—1st, Sir Thos. Miles Riddell, Bart., of Sunart, Strontain; 2d, R. E. Duckering & Sons, Northorpe, Kirton Lindsey.

Section 2. Boars, small breed.—1st, George Mangles, Givendale, Ripon, Yorkshire; 2d, Thomas D. Findlay, Easterhill, Glasgow; 3d, R. E. Duckering & Sons.

Section 3. Boars of a breed not eligible for preceding Classes.—1st, R. E. Duckering & Sons, Northorpe; 2d, David M'Gibbon, Inveravon, Polmont; 3d, Lawrence Drew.

Section 4. Sows, large breed.—1st, R. E. Duckering & Sons, Northorpe, Kirton Lindsey, Lincolnshire; 2d, Thomas D. Findlay, Easterhill, Glasgow; 3d, Lawrence Drew.

Section 5. Sows, small breed.—1st, R. E. Duckering & Sons, Northorpe, Kirton Lindsey, Lincolnshire; 2d, Thomas D. Findlay, Easterhill, Glasgow; 3d, Lawrence Drew.

Section 6. Sows of a breed not eligible for preceding Classes.—1st, R. E. Duckering & Sons, Northorpe; 2d, Lawrence Drew; 3d, Thomas D. Findlay, Easterhill, Glasgow.

Section 7. Pens of 3 Pigs not exceeding 8 months old, large breed.—1st, Thomas D. Findlay, Easterhill, Glasgow; 2d, Lawrence Drew.

Section 8. Pens of 3 Pigs not exceeding 8 months old, small breed.—1st, George Mangles, Givendale, Ripon; 2d, Robert Philip, Royal Hotel, Bridge of Allan; 3d, Thomas D. Findlay, Easterhill, Glasgow.

Section 9. Pens of 3 Pigs not exceeding 8 months old, of a breed not eligible for preceding classes.—1st, George Mangles, Givendale, Ripon; 2d, Lawrence Drew; 3d, John M'Kay, Cross Arthurlee, Barrhead.

Reviews.

Cattle and Cattle Breeders. By William McCombie, Tillyfour. Blackwood & Son.

Two years ago a very instructive discussion took place before the Edinburgh Chamber of Agriculture on the feeding of cattle, to which Mr. Wilson, of Edington Mains; Mr. G. Hope, of Fenton Barns; and Mr. McCombie, of Tillyfour, contributed their experience. The paper written then by the last-named gentleman took the form in many particulars of a history of his general agricultural experience; and it excited great interest at the time. It is now re-presented as one of the five most readable chapters which form the contents of this book. In the first we have this reprint; the second is headed "Reminiscences," and is full of anecdote of the agriculturists and cattle dealers of the past generation; the third is an account of the cattle trade, "then and now;" the fourth is a history and description of the various breeds of cattle of Aberdeenshire, and the last contains many useful hints on the breeding and care of cattle.

No one can speak with more authority than Mr. McCombie from a larger or a longer experience on any of these topics, and the work, as a rare example of great literary skill on the part of a practical farmer, will no doubt be widely read and enjoyed. The following is an illustrative passage from its pages:—

Live-stock Carriage to London: "then and now."—"The shipping of cattle gradually and rapidly increased, and soon became a great trade from our ports, many sailing vessels as well as steamers being brought into requisition. Lean cattle were sent by sea instead of road. We had at that time no railway, and the expense was heavy. On a fat bullock it was from 2*l.* 10*s.* a head to 3*l.* by steamer; by the sailing vessels, however, it was only about 1*l.* 10*s.* a head. Sometimes they made quick passages, but this was uncertain, and I have known them a month at sea. I have seen the same cargo of cattle driven back to Aberdeen two or three times. I have been in the hold of the vessel when they were driven back, and shall never forget the scene when the buckets and water were brought forward; you would have thought the ship would have rent asunder by the struggles of cattle to get at the water. Although the loss by the deterioration of condition must have been great, it was astonishing how few deaths occurred in the sailing vessels; the proportion was greater in the steamers. A year seldom passed without the shippers having heavy losses. I was owner of part of the cattle when every beast on board the Duke of Wellington, except three (one belonging to me, and he had to be carted from the boat, and two belonging to Mr. Farquharson, of Asloun), was either thrown overboard or smothered in the hold; the sailors told that a black-horned Bogieside ox, belonging to Mr. Hay, swam for several miles after the ship. I have made inquiry of the cattle-man as to the scene in the hold of a steamer in a storm amongst the cattle. He said, "I went once down to the hold amongst them, but I was glad to get back with my life; and although you had given me the ship and all upon her, I would not have gone back." He declared that, though you had set a hundred men with heavy flails in operation at one time beating upon the side of the ship, it would not have been worse than the legs of the cattle beating on each other and all within their reach.

"The owners of the Aberdeen steamers have always been anxious to accommodate their customers; and about 12 years ago they raised an insurance fund for the protection of the shippers. They laid past 1*s.* for every beast they shipped, to meet deaths and accidents, and they have most honourably paid the losses incurred by the shippers of cattle. It is a good arrangement for both parties; it gives confidence to the shippers, and no doubt has a tendency to make the owners more careful in not sending their ships to sea if danger is apprehended. The cattle go well by sea when the weather is moderate, but in rough weather they are safer by rail. The above description will give some idea of the hardships the poor beasts endure in the hold when overtaken by a storm. I have seen my own cattle, after they were taken from the hold of the steamboat at London, so changed in appearance that I could not identify them, and could not tell whether they were black or grey. I should most seriously advise the railway company to adopt some method of insurance, to avoid the unseemly squabbles that are daily occurring with the senders of live cattle and dead meat. It is not my province to make any remarks on the late rise of the freight on cattle by the steamboat company and the railway. The matter is in their own hands, but I think conciliation, owing to the present state of feeling, might have been their wisest policy; however, we will allow them to be the best judges. It will now be our study, for our own protection, to exert our influence in the proper quarter to have our grievances removed. The method of transit is an important subject to the owners of the cattle, to the landowners and to the consumers. I have no doubt whatsoever that a legislative enactment will make all right by-and-by. I cannot leave this subject without noticing Scott, the cattle manager of the Caledonian Company at Aberdeen, a man who deserves to wear a better coat, and who has done everything in his power for the interest of the senders of cattle. I believe there is difficulty in avoiding causes of complaint at all times where there are so many servants, and the senders of cattle are sometimes themselves to blame. I have never myself lost a beast by rail; I prepare my cattle for their journey before they start from home. My heavy cattle are turned out three different times before they are sent to rail. I walk them in a lea field; the first day they are put out four hours at least; I then give them a day to rest; turn them out again on the second day, and increase the distance, and they come quite fresh out of the trucks at London. What can an owner of cattle expect but that some will go down if he take his cattle six, eight, or ten miles without their ever having left the stall for five or eight months before, and put them on to rail? Many hundreds of good oxen have been lost in this way, or crushed and bruised. Cattle when tied up are kept in an unnatural state; they often take founder when at the stall as a consequence, and sometimes paralysis; but such moderate exercise as I have described tends to bring them back to their natural state. I have often been asked the question by those who had seen my Christmas market cattle—'How is it that your beasts are so good upon their legs compared with others?' The first day after the cattle are put out for four hours they will not look so well, and will return to the stalls very much fatigued; but on the second and third days of their exercise they will recover their wonted appearance. They will walk 8 or 10 miles in a morning, and go fresh into the truck, and on reaching their destination will come out and stand well up in the market."

The chapter on the Breeding and Care of Cattle, with which the book concludes, is full of useful suggestions, some of which we may transfer to our columns hereafter. Meanwhile, we can recommend our readers to procure Mr. McCombie's work, confident that they will greatly enjoy and benefit by the perusal of it.

Farm Memoranda.

The Buccleuch Estates.—All through the count, there are excellent roads, and in the vales of Yarrow and Ettrick there are no toll bars. In public improvements the Duke of Buccleuch has borne his part. Although the leases are usually for nine years, though some have been lengthened to 15, there are few changes for the Duke has always been conspicuous for kindly treatment of a respectable and honourable tenant who was faithful to the traditions of the estate. In cases not a few the same family has held a farm for many generations, and in some instances there has been no change during a lapse of two or three hundred years. It is well known, also, that the Duke has never racked his tenants with exorbitant rents, but has acted on the principle of "live and let live." On some at least of his estates the tenant is allowed to kill hares and rabbits, and even partridges, a point on which his Grace is much more liberal than the majority of landlords. The farmhouses are not large compared with the size of the holdings, though they are perhaps not out of proportion to the rent. A gate opens into a gravelled entrance, and there is usually a green lawn, adorned, according to taste, with more or fewer evergreens; and in close proximity to the house is a small but well-stocked garden. The steading, on these pastoral farms, is of small account. There is a byre with accommodation for three or four cows and the necessary adjuncts for calves, pigs, and poultry. There is a gighouse of some sort, and a stable with room for perhaps a pair and a-half of work-horses, and one or two of a finer sort for riding or driving. There is the old-fashioned barn, where the grain is threshed with a flail, and there is hardly any necessity for a granary; but either at or not far from the steading are the indispensable requisites for dipping and sorting sheep. Some little fields there are, varying from 5 or 6 to 10 or 12 acres in extent, the chief utility of which is for early spring pasture, but after Whitsunday some of them are hained for hay. Two or three fields or patches of fields are in Oats or Barley; and there is perhaps one little patch for Turnips and Potatos. In boggy spots here and there over the farm meadow-hay is obtained for

use during a stormy winter; but for wintering hoggs, or for any extraordinary occasion, recourse must be had to the low country. There is seldom any attempt to increase the productive powers of the soil by breaking up moorland, though the excellent crops of Turnips usually grown on the little crofts might indicate the hope of great benefit in the way of green crops and Grass from an extended area of cultivation.

There is no doubt that in Selkirkshire great improvement of Grass-land is possible, and could be effected with advantage to both proprietor and tenant. The soil is good, and in the lower parts of the Ettrick and Yarrow vales it would produce excellent crops of Oats and Turnips. If proof were necessary, it is supplied by the improvements made in the same district, and in others of a similar kind. On the farm of Philiphaugh, north from Selkirk, hundreds of acres, for the most part high and steep, have been transformed within the last three or four years from dreary moorland to smiling and profitable fields of grain, Turnips, and Grass. Four or five miles farther up the Yarrow there have been changes of a similar kind. On the haughs and slopes about Yarrow Church the crops are excellent, and not later than in the neighbourhood of Selkirk. In the parish of Ashkirk, a district precisely similar, great transformation of waste land is now in progress. On one farm 100 acres of Oats are this year sown on land where Oats have not been seen within living memory, and probably not since the beginning of the world; and a like proportion of Turnips have been sown also on virgin soil, some of it very steep, but full of vital power. In Ettrick Forest much of the land is steep; but we could point to thousands of acres in the neighbouring county of Roxburgh, where splendid crops have been produced on farms equally hilly, quite as remote from lime and tiles, and with soil in many respects inferior. A proportion of Selkirkshire is, indeed, so high as to afford little prospect of successful cultivation. The vale of the Tema, for example, presents an expanse of moorland that will probably never be broken by the plough. The last remains of civilisation are left behind at Midgehope. At Glenkerry, the estate of Mr. Aitchison, Linhope, there is a neat new house, about the size of a good schoolhouse, but a small square patch of garden ground is the only remnant of cultivation. At Dalgleish we seem to have reached the world's end, where we should almost as soon think of planting a Vine as an Apple tree; but, lofty and exposed as it is, the hill of Dalgleish is one of the most Grassy and feeding hills in the south of Scotland. On the same ridge of hills dividing the counties of Selkirk and Dumfries, are the farms of Potburn and Over Phawhope, said to be the highest inhabited houses in the south of Scotland, or 1250 feet above the mean tide-mark. The highest inhabited house in England is an alehouse at the head of Kirkston Pass, in Cumberland, and is 1200 feet above tide-mark; and in the south of Scotland there is no other house higher than about 1100 feet. But these elevated regions are exceptional; and 20 miles at least above Selkirk, up both the Ettrick and the Yarrow, there is great inducement to break up and improve the land now in permanent pasture.

To the west and southward of Selkirkshire the Buccleuch estates extend in a vast, almost unbroken expanse of 25 to 30 miles in a straight line, including the valley of the Teviot, with its tributaries the Borthwick and the Allan, the vales of the Liddel and the Hermitage, all in the county of Roxburgh, and the pleasant dales of the Ewes and the Esk in the adjoining county of Dumfries. Thus the old estate of Buccleuch and Rankle Burn has become the centre of a prodigious domain of hill-land, over which the Duke of Buccleuch could travel nearly 60 miles from Bowhill to Langholm Lodge, passing only a little patch of land here and there that belongs to any other landowner than himself. The route would be up the Ettrick to Tushielaw, then up the Rankle, past Buccleuch, down the Borthwick to its junction with the Teviot, calling in at Branxholm in passing, thence up the Teviot to its source, crossing at Mosspaul into Dumfriesshire, and down the Ewes valley as far as Langholm. In the upper part of the Borthwick valley there is almost no cultivation, but lower down the valley widens, and there is a good proportion of tillage on the five-shift rotation. The soil is of good quality, but is light and gravelly on the hillsides, requiring in summer a constant supply of moisture. Toward the summit of the hills, especially in the upper district, the soil is wet and boggy, but much of it has been improved of late years with open sheep-drains. The Allan vale is almost entirely pastoral, and it leads up to a lofty ridge of hills, the highest of which is Cauldcleuch Head, 1996 feet above the level of the sea. Up the central valley of the Teviot, from Branxholm to Mosspaul, is the road traversed by the Hawick and Carlisle coach previous to the opening of the Border Union Railway; and the guide-books describe it somewhat incorrectly, as "a narrow and sinuous glen overhung by sheep-walks and solitude." For at least six miles above Branxholm the valley is neither narrow nor sinuous, nor is the district so elevated as to preclude the idea of extensive cultivation. Westward from the church of Teviot Head the vale closes in; but there are some excellent sheep-farms, including Linhope, which lies high up toward the summit of the ridge, a continuation of the hills that separate the county of Selkirk from that of Dumfries.

At Mosspaul we enter Ewesdale, and here at first the vale is narrow and sinuous, and sufficiently solitary. The first farmhouse on the Dumfriesshire side is Ewes Lees, then Burnfoot, Unthank, and Mosspeeble. On a bank at Fiddleton, just opposite Burnfoot, is a plantation containing some noble Scotch Firs, with a proportion of hardwood trees. It was planted by the good Duke Henry, with a view to supply timber to farms in the neighbourhood; and though folks call him "daft" for attempting a plantation so high among the hills, its success and its beneficial results are now so conspicuous that other plantations have been added in the neighbourhood. The conformation of the country here is such that three vales run nearly parallel to each other, watered by the Esk, the Ewes, and the Liddel, which ultimately unite their waters and drain the country into the Solway Firth. The Ewes is between the other two, and joins the Esk at Langholm, the Liddel joining the Esk lower down at Canonbie. The farmhouses are situated along the vales, at no great distance from each other; and the farms are divided by stone dykes, cutting the Ewes at right angles, and extending over the hills into the basin of the Esk on the one side and the Liddle on the other. The dwellings are neat, cottage-shaped, white-washed houses, with little gardens enclosed with stone dykes and hedges, generally kept with considerable taste.

Below Mosspeeble is a belt of land, including two farms, belonging to other proprietors than the Duke of Buccleuch; and on one of these, Arkleton, tenanted by Mr. John Jardine, and owned by Mr. Scott Elliot, is the best farmhouse in Ewesdale, with a walled garden and a conservatory, the only one in the neighbourhood. On the level haughs, all along the waterside, and extending at times slightly up the acclivity, are the little arable fields, worked usually with a single pair of horses, but on the whole very well farmed, and producing Grass so superior that we wonder these efforts at cultivation are not pushed farther up the slopes, so as to get more heart into the land. Some progress is apparent, no doubt, for even among the highest hills between Ewesdale and Liddesdale sheep-drains are cut; and the system is now common of having them straight up and down the hill-face, instead of the old oblique method. Top-dressing with lime is also common, to the extent of 20 or 30 cartloads an acre. On the steep hillsides the soil is bare and thin, so that showery weather in summer is most propitious; and in this respect the climate is suitable, as the annual rainfall is more than 60 inches. At Sorbie, three or four miles above Langholm, a cross-road leads over into Eskdale, a valley conspicuous for its rich and picturesque beauty from Westerkirk downward, and remarkable for its fine stock-farms, of which Moodlaw, 18 miles up from Langholm, has long been a well-known specimen. Among the best known farmers below Westerkirk is Mr. Borthwick, Hopsrigg. Here is situated the nice little estate of Westerhall, the property of Sir F. Johnstone, with a good residence, finely embosomed among woods, and with plantations along the upland slopes, bulging into a "belly" on the lower side, and presenting a pleasing effect when viewed from below. Here also is Burnfoot, the property of Mr. Malcolm, pleasantly situated on the Esk, and surrounded with luxuriant plantations. But the great bulk of the property belongs to his Grace, and extends below Langholm to Canonbie, including the lands of Gilnockie, once owned by the famous freebooter Johnnie Armstrong. *The Journal of Agriculture, July*, 1867.

Merse of Berwickshire, *July* 27, 1867.—We forget whether it was a wet summer or a dry one that the prophets foretold. At any rate we have suffered a good deal from both extremes. Potato Oats seem to have been unusually prone to "Tulip-root," and slugs were very destructive among them; but otherwise the white crops were looking very well about the beginning of the month. Since the 10th, a fortnight of heavy rains (measuring 6 inches), has beaten down all the best fields, and at least increased the difficulties of harvest work. The earliest Wheat was just blooming when the weather broke, and now the later pieces are trying to do their duty under a chilly north wind and cloudy sky. It is clear there can be no harvest until September. Beans were a fine-looking crop, but the upper blooms are rotted. Potatos were much too late in being planted, and the Regents are rather leggy. Bad as the Turnips of these two years have been, the present crop may be worse as a whole. On free soils, no doubt, the growth is enormous; the plants being "spindled" before thinning. On strong land all Swedes and others sown by 1st June are first-rate, extending to a full third of the entire acreage under root crop; but continued wet weather about that time lost us a fortnight of the best of the season, and delayed the sowing of Hybrids and Whites. As a consequence, one-third of our break is no more than brairded, and by no means lively, and a portion on strong clay will never braird at all, except where shaded by a planting from the roasting sun of latter June. Wool has been hard to sell at a reduction of 2½*d.* per lb., and the price of mutton creeps downward; so no wonder if lambs are down 9*s.* or 10*s.* from last year, and the demand not increasing. Pastures were much scorched, and have not yet had time to mend much after such a soaking. The crop of Clover and Rye-grass for hay was magnificent, and there was some splendid hay weather, but a good deal was hastily cocked just before the rain, and has suffered from internal as well as external influences. What remains to be mown will perhaps be got in best order, yet the wind this afternoon was well fitted to assist in repairing damage. Old parks are not ready yet, and all our watersides were flooded the other day, where we often get much useful winter food for the ewe flock.

Miscellaneous.

The Paris Exhibition.—The following is a true list of the awards for agricultural machinery:—

Class 48.—Gold Medals.

1. James & Frederick Howard, Bedford, ploughs and other agricultural machines
2. Albaret & Co., France, traction engines and agricultural machines
3. Clayton, Shuttleworth, & Co., Lincoln, portable and traction engines and threshing machines
4. J. Fowler & Co., London, steam plough
5. R. Garrett & Sons, Liston Works, Suffolk, portable engines and agricultural machines
6. C. H. MacCormick, Chicago, America, mowers and reapers
7. Ransomes & Sims, Ipswich, portable engines and agricultural machines
8. Walter A. Wood, America, reapers and mowers
9. H. F. Eckert, Prussia, agricultural machines
10. C. Gérard, France, horse gears, portable engines, and threshing machines
11. Usine d'Efverum, Sweden, agricultural machines
12. J. Pinet & Sons, France, horse gears and threshing machines
13. M. Cumming, France, portable engines and agricultural machines
14. F. R. Lotz & Sons, France, traction engine and steam ploughs
15. R. Hornsby & Sons, Grantham, portable engine, threshing machine, and reaper

Silver Medals.

1. E. Vidaer, Austria, agricultural machines
2. Aveling & Porter, Rochester, traction engines
3. E. H. Bentall, Heybridge, agricultural machines
4. Collins & Co., New York, ploughs
5. Rouffet & Son, France, portable engines
6. Samuelson & Co., Banbury, agricultural machines
7. Tilkin-Mention, Belgium, portable engines
8. Borrosch & Eichmann, Austria, hay press and agricultural machines
9. A. Dauney, France, portable engines and threshing machines
10. C. Leclercq, Belgium, portable engines and agricultural machines
11. Marshall, Sons, & Co. (Limited), Gainsborough, portable engines and threshing machines
12. O. W. Palmer, Sweden, ploughs
13. P. Renaud Mantes, France, wine press, portable engines, and agricultural machines
14. Richmond & Chandler, Salford, chaff machines and corn crushers
15. Robey & Co., Lincoln, portable engines and threshing machines
16. E. R. & F. Turner, Ipswich, agricultural machines and portable engines
17. Bruel Brothers, France, agricultural machines
18. Coleman & Morton, Chelmsford, agricultural machines
19. Picksley, Sims, & Co., Leigh, agricultural machines
20. Pinaquy, Sarry, & Co., Spain, agricultural machines
21. Reading Iron Works, steam engines and agricultural machines
22. E. Van Maell, Belgium, agricultural machines
23. E. Farkas, Hungary, ploughs
24. Lilpop & Lan, Poland, drill and reaper
25. Penney & Co., Lincoln, corn screen
26. J. Smyth & Sons, Peasenhall, drills and manure distributor
27. O. Desoer, Belgium, roller
28. J. Keelhof, Belgium, corn measure
29. A. Lecler, France, drainage works
30. J. J. Marot, France, corn screen
31. C. Peltier, Jun., France, agricultural machines

Bronze Medals.

1. W. N. Nicholson, Newark, agricultural machines
2. J. G. Perry, United States, mower
3. Ruston, Proctor, & Co., Lincoln, portable engines, threshing machines, and agricultural machinery
4. W. Smith, Kettering, agricultural machines
5. Wallis, Haslam, & Steevens, Basingstoke, threshing machines
6. Woods & Cocksedge, Stowmarket, agricultural machines
7. Ashby & Jeffery, Stamford, agricultural machines
8. A. C. Bamlett, Thirsk, reaper and mower
9. M. Kearsley, Ripon, reaper and mower

And 34 foreign exhibitors.

Liebig's Artificially Prepared Milk.—This celebrated chemist has made a communication to the French Academy of Sciences on the subject of prepared milk. He says that the composition of milk is not uniform; the proportions of caseine, sugar of milk, and butter vary, as is well known, with the nature of the mother's food. "I take," says M. Liebig, "for the base of my composition the normal form of woman's milk, after the analysis of M. Haidlen, of Giessen, and of which 1000 parts contain 31 parts of caseine, 43 of sugar of milk, and 31 of butter. The plastic and heat-giving substances in this milk amount to 10 in 38; in that of the cow unskimmed, as 10 to 30; and in the same skimmed, as 10 to 25. I employ for my preparation skimmed milk, wheat flour, sprouted Barley, and bi-carbonate of potash. It cannot be said that starch is unfit for the nourishment of infants; but it is nevertheless true that its transformation into sugar in the stomach imposes useless labour on the organisation of the suckling; this is spared by first converting the starch into sugar, or soluble dextrine. This consideration accounts for my use of germinated Barley, or malt, in my preparation; it is also important that the consistency of the mixture should be such that it can be administered by means of a feeding-bottle." The preparation of the artificial milk is thus described:—Sixteen grammes of flour are boiled in ten times its own weight of skimmed milk until the mixture is perfectly homogeneous; it is then removed from the fire, and immediately afterwards is added to it 16 grammes of the Barley ground in a coffee-mill, and mixed with twice its weight of cold water and three grammes of a solution of bi-carbonate of potash, consisting of 11 parts of water to two parts of the salt. After the addition of the Barley and bi-carbonate, the vessel is placed either in hot water or in a warm position until the mixture shall have lost its thickness, and assumed the consistency of cream. At the end of 15 or 20 minutes the vessel is again placed on the fire and allowed to boil for a few seconds, after which the milk is passed through a close linen or hair strainer, in order to clear it of its fibrous matter of the Barley. Before giving this milk to the child, it should, however, be allowed to stand at rest, so that the finer fibrous matter still held in suspension may subside. Milk prepared after this method contains almost exactly the same flesh-making and heat-giving substances as normal woman's milk,—that is to say, 10 in 38, and after being carried to the boiling point it will keep good in summer for 24 hours. *Journal of the Society of Arts.*

Calendar of Operations.

August: *Arable Land.*—Wheat, Oats, and Barley may be cut by the reaping machine, the scythe, bagging hook, or sickle. In the case of grain amongst which Clover has been sown, it may, when the straw is long,

be advisable to reap above the green Clover; the sheaves will be the sooner "won" for not having any Grass amongst them; Barley is not, however, so often high enough to admit of this. The common practice in most parts is to mow it, turn the swathes once or twice, and place it in cocks, and when dry carry it to the rick. Before harvest time men must be engaged for the whole work; it is of the utmost importance to secure sufficient and timely assistance. The cost may be from 8*s.* to 14*s.* per acre, prices at which men may earn 3*s.* or 4*s.* a-day.

Wheat should be cut before it is dead ripe. Reaping may commence as soon as the grain will give out no juice on being squeezed. Barley, on the other hand, which is required all of one degree of ripeness, in order that it shall all sprout together in malting, can only (in general) be obtained so by allowing it all to become dead ripe, a period which is indicated by the bending down of the ear. And Oats, again, must be cut almost before they have lost the greenness of the straw; as, if allowed to get ripe, they are easily shaken out by wind; and if the crop be heavy, the sickle should be preferred to the scythe to cut it with. And the more rapidly, of course, that carrying proceeds, when the grain and straw are ready, the better. From the rise of dew in the morning till its fall at night, or the failing of light (either of sun or moon), carts or waggons are to be kept at work, never leaving off, except on overtaking the work, or till one or two in the morning, provided it be light and dry. It will expedite the work to let a share of it by contract. The pitching to the cart in the field, the building on the cart in the field, and the pitching from cart to stack—the work of two men and one lad—may be let to them as one company, for from 10*d.* to 1*s.* 2*d.* per acre, according to the bulk of the crop, the farmer's own men build the rick, and his boys are employed to lead the carts to and from the field. In a hilly district, or wherever two horses are used in the cart, men will be required instead of boys to drive them.

It may be necessary, in the beginning of this month, to thresh the last of the ricks for straw, which should be immediately "leased" for thatch, and tied in bundles and soaked in water, ready for use.

Beans will be carried off the winter-sown fields early this month, and cut on the spring-sown fields towards the end of it.

Turnips should be horse-hoed again this month. On light rich soils the earlier stubbles—especially of Peas—may be scarified, harrowed, sown broadcast with the white Stone Turnip, harrowed and rolled, and left for a crop, which, if not always of bulbs, will at any rate be sure to afford a bite of greens, useful for the young lambs.

Mangel Wurzels and *Carrots*, if seeding, should be pulled and carried to the pigs.

Clovers are being folded over by the sheep, and the second cut of the mown fields is being carried home to the horses; part of it may be left for seed if considered desirable. Lucerne, the last of the Vetches, and Clover will suffice for cattle food.

Notices to Correspondents.

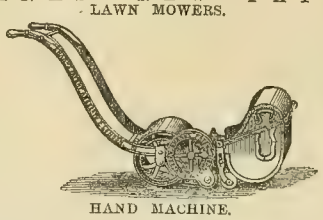
BONES AND SULPHURIC ACID: *A Subscriber.* Unbroken bones are not so easily dissolved by sulphuric acid as those that are broken. The rapidity of solution depends on the quantity of surface exposed to the solvent. The process goes on at the same rate per unit of surface, but if you break a cubic inch into cubic half-inches you just double the surfaces exposed, and thus double the rapidity of any action to which these surfaces are liable. The following is an often-published recipe, which will do for coarse bones as well as for fine, if only longer time is given for the action of the acid:—"Having dug out a space large enough for a pit 10 feet long, 6 feet wide, and 2½ feet deep, inside measurement, level the bottom, and lay down 3 inches of mill-wrought puddle, upon which place fire-brick flue-covers to form the sole of the pit; build the sides and ends with common bricks (a brick and a half thick), using no cement or plaster; puddle outside and pack with fine sand. After the pit has been once used for dissolving, the interstices between the bricks will be filled up. A pit of this size is capable of holding two tons of ground bones. Pits may of course be made of smaller dimensions if preferred. Strong wooden vats or tubs will suit equally well. In preparing super-phosphate, first throw into the pit the substance it is intended to dissolve; pour over this one-fourth its weight of water, stirring and mixing well with a wooden rake or pole; then add sulphuric acid, which may be twice the weight of the water, or half the weight of the substance to dissolve; stir and mix the mass as before. Take, for example, 2 tons of bone-ash, containing 75 per cent. of phosphates, 10 cwts. or 112 gallons water, 1 ton sulphuric acid, and allow them to remain 48 hours in the pit. The above would yield 46 per cent. of phosphates, of which there would be 24 per cent. soluble, at an average cost of 5*l.* 5*s.* to 5*l.* 10*s.* per ton." A piece of beaten clay ground, with a well trampled rim of ashes to hold in any leakage of acid, will do well in place of the pit.

COW CALVING. A Correspondent writes: "Will you give my co-readers of your paper an opportunity of throwing a little light upon some (to me) obscure cause of failure in the calving of my cows? I keep but two, and these upon a limited extent of pasture, upon which they run the greater part of the year. I have now had three disappointments in succession from three different animals, each slipping her calf at a very early period, the last under two months from her visit to the bull. There seem to be no external circumstances to account for the mishaps unless there be any plant in my old pasture herbage capable of so much energy. I am led to suspect some such cause in operation, from a like failure attending a neighbour's cows. He has discontinued keeping cows in consequence." [Ergotted Rye-grass will sometimes produce abortion; and a peaty pasture, not well grazed down, may sometimes thus prove mischievous.]

OSAGE ORANGE: *B. Joyce.* The Osage Orange, approved as a fence-wood in Illinois, is a "hardy deciduous fruit-tree, and has naturally a height of 20 to 60 feet." "The stem divides near the ground into a number of long slender flexuose spreading branches." "The tree is quite or nearly as hardy as the ordinary choice fruit-trees of the open English garden." "The wood is so very like that of Fustick as to be readily mistaken for it; it has a yellowish colour, and is uncommonly fine and elastic." All which we extract from the article "Maclura," in Wilson's "Rural Cyclopædia." For the plant itself inquiries should be made of any leading nurseryman.

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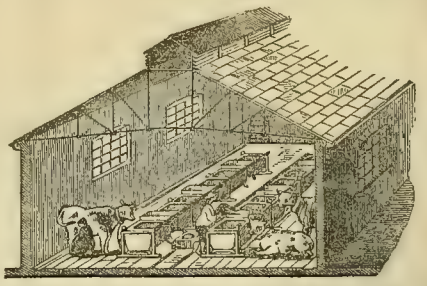
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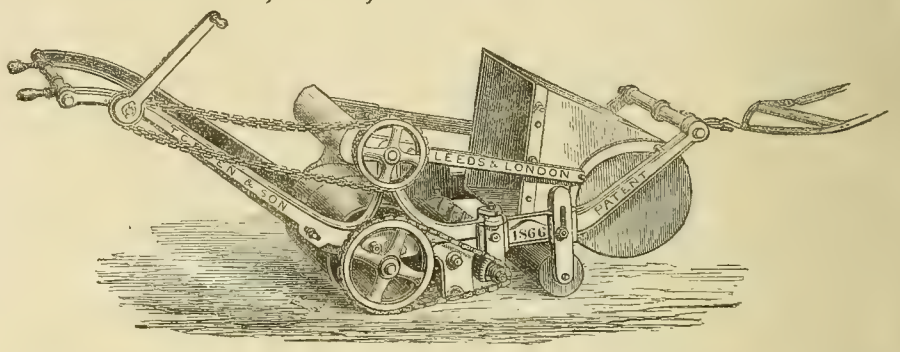
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Prospectuses free of COTTAM & Co., Iron Works, 2, Winsley Street (opposite the Pantheon), Oxford Street, London, W., where the above are exhibited, together with several important Improvements in Stable Fittings just secured by Patent.

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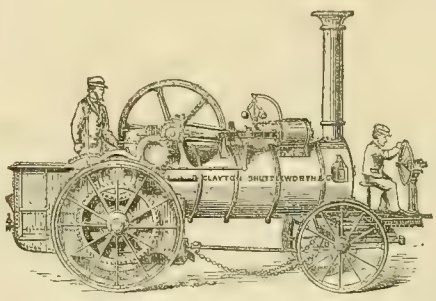
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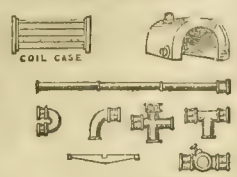
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To Nurserymen and Seedsmen.

WANTED, a SMALL BUSINESS in the above Line.
Address A. T., *Gardeners' Chronicle* Office, W.C.

FOR DISPOSAL, a First-class NURSERY and SEED BUSINESS; or the present Proprietor would accept of a WORKING PARTNER with a Capital of not less than £1500.
Apply by letter to E., Messrs. Hurst & Son, 6, Leadenhall Street London, E.C.

TO BE DISPOSED OF, a NURSERY, near the Metropolis, doing a good Business, covering an area of 2 Acres, the Greenhouses, Pits, &c., being entirely new, covering an area of from 10,000 to 12,000 superficial feet, fitted up in the best style with Slate Shelving, Hot Water, &c. The Stock consists of every requisite for a Suburban, Metropolitan, or Country Trade.
For particulars, apply to Mr. A. P., 1, George Street, Mansion House, E.C.

To Market Gardeners, Nurserymen, &c.

TO BE SOLD, by Private Contract, about 200 ACRES of very superior GARDEN GROUND, all Freehold, situate in the County of Bedfordshire, about three miles from Biggleswade Station, Great Northern Railway. The Land is divided into Lots to suit the convenience of purchasers. For particulars apply to
THOMAS FOUNTAINE, Esq., Dunton Lodge, Ashwell, Baldock.

To Nurserymen and Market Gardeners.

TO BE LET, with immediate possession, a CAPITAL BUSINESS PREMISES, near the City of Bath, with Dwelling-house, Greenhouses, Forcing Pits, and about 5 Acres of Land.
For particulars, apply to COTTERELL & SPACKMAN, 6, Terrace Walks, Bath.

Farm at Watford.

TO BE LET, a SMALL FARM of 160 ACRES, with House and Homestall, with immediate possession, and situate within a mile of Watford Station. Fit for the occupation of a man of business wishing to farm as a recreation.
Apply to Messrs. HUMBERT & Cox, Land Agents, 88, St. James's Street, W.C.; and Watford, Herts.

Nursery and Seed Business for Sale.

WILLIAM DEAN, having determined on residing in London again, offers for SALE, with immediate possession, the NURSERY at SHIPLEY, consisting of Four Acres, with 13 extensive Glass Houses, the whole, with the Nursery well stocked, and with Dwelling House, &c., is held on Lease; also the SEED SHOP, in BRADFORD (the only one in the town), which is well fitted up, and where there is a good business doing in Fancy Articles, as well as Seeds, Cut Flowers, Flowering Plants, &c. The Nursery is 2½ miles from the Shop, on a principal road to Bradford. A half year's business is equivalent to the purchase money required, and will be a great bargain to the purchaser. It is an excellent opportunity for a large house in the South to establish a Branch Business here, as a good healthy Trade is already done, which may be very much increased. For particulars apply to
WILLIAM DEAN, Bradford Nursery, Shipley, Yorkshire.

WITH POSSESSION at MICHAELMAS NEXT, in consequence of the death of the late occupier, the old established and well-known NURSERY GROUNDS at HEDENHAM, NORFOLK, called THE ROSARY, for upwards of 30 years in the occupation of Mr. R. B. Bircham, deceased, to which are attached a good road-side Inn and Premises, doing a quiet and respectable business and about 30 Acres of Arable and Meadow Land.
The above occupation offers a rare opportunity, and is well worth the attention of Nurserymen and Florists, who will immediately enter upon the advantages of the late Mr. Bircham's old and well established Nursery business—the Nurseries being well adapted for the cultivation of Roses and other plants connected with Horticulture. For further particulars apply to
CHARLES HORNOR, Esq., Queen Street, Norwich.

Sales by Auction.

Important Sale of Established Orchids, the Property of a Gentleman.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on SATURDAY, August 3, at half-past 12 o'Clock precisely, First-class Established ORCHIDS, comprising most of the best varieties in cultivation, many of which are fine Plants, in excellent health, and well worth of attention, including—

Calanthe Veitchii	Oncidium Kramerianum
Cattleya exoniensis	Cymbidium eburneum
,, lobata	Cypripedium lævigatum
,, Wageneril	,, Stonei
,, Warneril	Pleione humilis
,, labiata	,, lagenaria
Vanda cœrulea	Dendrochilum filiforme
,, cristata	Barkeria spectabilis
Odontoglossum Phalænopsis	Pescatorea cerina
,, Pescatorea	Trichopilia crispa
,, Alexandræ	Epidendrum sceptrum
,, nævium, &c.	Cattleya Dowii, &c.

On view the Morning of Sale, and Catalogues had.

Imported Orchids.

MR. J. C. STEVENS will INCLUDE in his SALE, at his Great Rooms, 38, King Street, Covent Garden, W.C., SATURDAY, August 3, Imported ORCHIDS, consisting of Masses of VANDA CRISPATA, VANDA ROXBURGHII, CYCOLABIUM PRÆMORSUM.
On view the Morning of Sale, and Catalogues had.

New Plant.

STEVENS will INCLUDE in his SALE, Rooms, 38, King Street, Covent Garden, W.C., on ..., the Entire Stock of a NEW ASTREPHIA, ...ing five Established Plants and one Cutting. ...T, without Reserve.
...rning of Sale, and Catalogues had.

Brentford Road, Kew Bridge.

IMPORTANT SALE OF NEWLY-ERECTED GREENHOUSES, PITS, BOXES, BRICKS, HOT-WATER PIPING, &c.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. William Drewett to SELL by AUCTION, without reserve, on the Premises, The Market Garden and Nursery Grounds, Brentford Road, Kew Bridge, on MONDAY, August 19, at 11 o'Clock (the Lease expiring at Michaelmas next), 3 Newly-Built Span-roof GREENHOUSES, 90 feet by 12 feet over; 3 constructed three-quarter Span-roof GREENHOUSES, 120 feet, 60 feet, and 90 feet in length; 3 Ranges of Pits, each 90 feet long by 7 feet; sundry other Pits and Glazed Lights; also about 2000 feet 2 and 3-inch, but principally 4-inch, Hot-Water Piping; Ormson's Tubular 5-feet Boiler, 4 other Boilers, 1000 Casts of Pots, Bricks, Tiles, Drain Pipes, Sign Board, and other Effects.
The Glass Erections are in excellent condition, built of the best materials, and being many thousand feet, offer a capital opportunity May be viewed prior to the Sale. Catalogues had on the Premises, and of the Auctioneers and Valuers, Leytonstone, N.E.

Parel Lodge, Upper Tulse Hill, Surrey, S.

VALUABLE COLLECTION OF PLANTS OF THE LATE H. WOOLLER, ESQ.

MESSRS. HERRING, SON, AND CLARK, are instructed by the Executors to SELL by AUCTION, on the premises as above, on FRIDAY, August 9, at 12 o'Clock, the fine COLLECTION of PLANTS, comprising Rhododendrons, Camellias, Azaleas, Fuchsias, Pelargoniums, Dahlias, &c.
May be viewed day prior to Sale. Catalogues then on the Premises, and of the Auctioneers, 169, Fleet Street, E.C., and Brixton Hill, S.

Herd of Pure-Bred Alderney Cows and Heifers, Farming and other Effects.

AT HOOKWOOD, LIMPSFIELD, SURREY.

MR. JOHN LEES has received instructions from Mrs. Leveson Gower to SELL by AUCTION, upon the premises, close to the Bull Inn, Limpsfield, about Five Miles from Caterham, Godstone, and Edenbridge Railway Stations, on WEDNESDAY, August 7, at 11 o'Clock, the FARMING STOCK, comprising useful Cart Mare, 4 Handsome Pure-bred Alderney Cows, 4 ditto Heifers and Yearlings, 4 Half-bred Alderney Cows, and 2 ditto Heifers, Sussex-bred Sow in Pig, 3 Store Pigs, Poultry, Yorkshire Cart, with extra lades, Light Van, Set of Gig Harness, Set of Thill Harness, capital Chaff-cutter, Rick Cloth with Poles, Ladder, Wheelbarrow, quantity of Hurdles and Tools, 24-inch Iron Roller, capital Garden Engine, Dairy Utensils, sundry Lots of Furniture, and other Effects.
May be viewed the Afternoon preceding and Morning of Sale.
Catalogues may be had at the Greyhound, Croydon; King's Head, Epsom; Laker's Hotel, Red Hill; White Hart, Reigate; George, Crawley; King's Head, Horsham; Red Lion, Dorking; White Hart, Godstone; White Hart, Bletchingley; King's Arms, Westerham; Royal Oak, Sevenoaks; Bull, Limpsfield; and of Mr JOHN LEES, Land Agent and Auctioneer, Reigate, Surrey.

Beddingham, near Lewes.

IMPORTANT SALE OF FIRST-CLASS SOUTHDOWNS.

MR. STRAFFORD begs to inform the Breeders and Admirers of First-class Southdowns that he has received Instructions from Mr. Thomas Ellman to SELL by AUCTION, on FRIDAY, September 6, his entire FLOCK of PURE-BRED SOUTHDOWN SHEEP, consisting of 500 EWES of various ages, and 150 EWE LAMBS, with 35 Choice RAMS and RAM LAMBS, which have been bred with the greatest care and licety for nearly 40 years, and originally from the Flock of his father, a name so renowned in the history of this valuable Breed of Sheep; they combine good size with first-rate quality of wool and mutton, and are well worth the attention of Breeders of pure Southdowns. The whole will be Sold without Reserve, as Mr. Ellman is retiring from farming.
Catalogues, with further Particulars, will shortly be issued. London: 13, Euston Square, N.W.—August 1.

Shropshire Sheep.

HOLLY BANK, NEAR BURTON-UPON-TRENT.

MR. JOHN B. LYTHALL (Secretary to the Birmingham Cattle Show) will SELL by AUCTION, on TUESDAY NEXT, August 6, at 2 o'Clock (Luncheon at 12)—
30 SHEARLING and older RAMS.
60 SHEARLING and STOCK EWES.
2 Highly-descended young SHORTHORN BULLS.
The property of Willoughby Wood, Esq.
The Flock was founded on Ewes selected with judgment from the old Packington Flock, and has been maintained by the introduction of the best blood, regardless of cost, as a reference to the Catalogue will show. The Rams possess plenty of bone and muscle, and are good wool cutters. The Ewes are a particularly nice lot.
The high and exposed situation on which these sheep are bred renders them particularly hardy in their constitution.
Conveyances will meet trains at Barton and Walton Station, Midland Railway.
Auctioneer's Offices, 39, New Street, Birmingham.

Shropshire Sheep.

ELFORD PARK, TAMWORTH.

MR. JOHN B. LYTHALL (Secretary to the Birmingham Cattle Show) informs the Breeders and Feeders of Black-faced Sheep that he will SELL by AUCTION, on WEDNESDAY NEXT, August 7, at 2 o'Clock (Luncheon at 12), 43 SHEARLING and older RAMS, and 125 SHEARLING and older EWES, the property of Mr. G. A. May. The characteristics of this Flock are Size, Constitution, and Fecundity, a large proportion of Lean Meat, and a heavy clip of Wool. It was founded in 1848, principally on Hagley blood, and has been perpetuated by the purest Rams, from the most noted breeders, several at very high figures.
Elford Park is one mile from the Haselour and Croxall Stations on the Midland, and two miles from Alrewas Station on the South Staffordshire Railway.
By permission of the Midland Railway Company, the Train leaving Birmingham at 9.25, and Tamworth at 10.17, will call at Haselour on the morning of the Sale.
Conveyances will meet the up and down Trains at Tamworth at 10.51 and 12.18, to convey parties to the Sale, free of charge.

Shropshire Sheep.

THE SIXTH ANNUAL GREAT CENTRAL SALE AT BINGLEY HALL, BIRMINGHAM.
550 GRAND SHROPSHIRE RAMS AND EWES.

MR. JOHN B. LYTHALL will SELL by AUCTION, on THURSDAY NEXT, August 8, at 12 o'Clock prompt (Luncheon at 11), 125 splendid SHROPSHIRE RAMS and 425 SHEARLING and older EWES, from the noted Flocks of:—

The Lady Willoughby-de-Broke	Mr. Nock (Winner of numerous Prizes at Birmingham Christmas Show)
The Right Hon. Lord Wenlock (Winner at Royal Agri. Show)	John Psel, Esq., M.P.
Mr. Brawn	Mr. Pilgrim (Winner of many Prizes)
Mr. Brisco	C. Randell, Esq. (Winner of many Prizes)
Mr. Coleman	Mr. Steedman
Mr. King	Mr. W. Yates (Winner of many Prizes)
Mr. W. J. Landor	And others.
W. Lott, Esq.	
Mr. P. Lowe	
Mr. E. Lythall (Winner of many Prizes)	

The above will be the largest and best lot of Rams and Ewes ever sent to Bingley Hall, and will include specimens of the true Shropshire Sheep, unsurpassed for size, quality, hardihood of constitution, and wool-bearing properties, many being worthy the attention of Ram Breeders.
Auctioneer's Offices, 39, New Street, Birmingham.

Shropshire Sheep.

THE MOUNT, GRENDON, NEAR ATHERSTONE, WARWICKSHIRE.

MR. JOHN B. LYTHALL will SELL by AUCTION, on FRIDAY, September 6, 40 SHEARLING and older RAMS, and 120 STOCK and SHEARLING EWES, the property of Mrs. Baker.
The Grendon Flock is fully up to its usual high standard of general excellence.

Shropshire Sheep.

PIPE PLACE, NEAR LICHFIELD.

MR. JOHN B. LYTHALL will SELL by AUCTION, on FRIDAY, September 13, 50 SHEARLING and TWO-SHEAR RAMS, and 120 STOCK and SHEARLING EWES, the property of Mr. J. H. Broadbourne.
The Owner particularly invites an early inspection of his Sheep.

CONSERVATORIES, GREENHOUSES, FRAMES.

THE ONLY PAINT THAT SUCCESSFULLY STANDS UPON THE ABOVE TRYING WORK IS

CARSONS' ORIGINAL ANTI-CORROSION PAINT,

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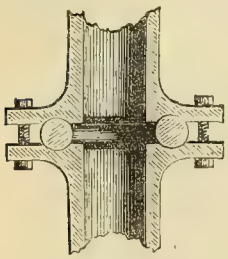


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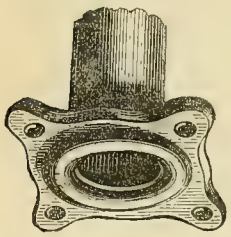


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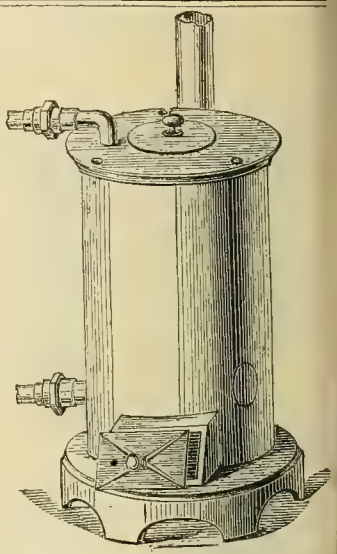
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For WARMING CHURCHES, CONSERVATORIES, HOTHOUSES, SCHOOLS, &c., by the circulation of Hot Water, requires no brick-work setting, saves half the fuel usually consumed, is not liable to get out of repair, is easily regulated, will work from 8 to 20 hours without attention, and is made in sizes capable of heating from 30 to 5000 feet of 4 inch pipe.

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PATENT SLOW COMBUSTION BOILER.



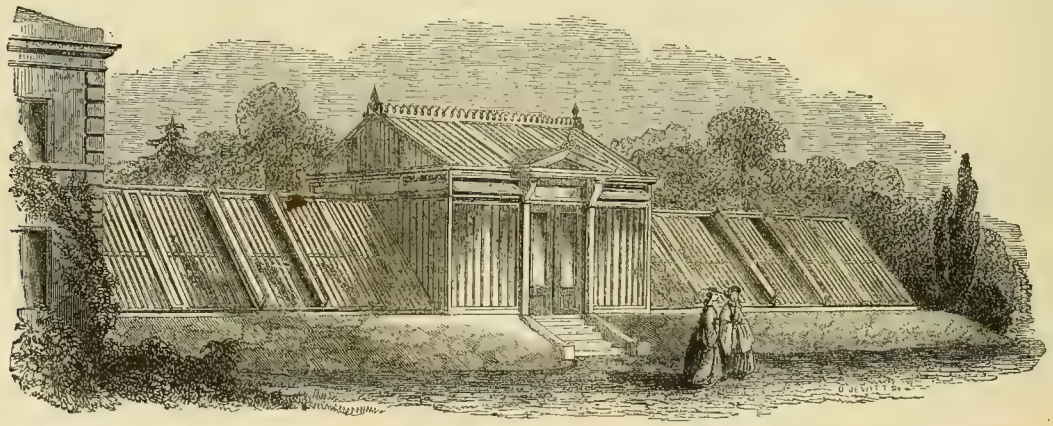
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EVERY DESCRIPTION OF HORTICULTURAL BUILDING DESIGNED, HEATED, AND VENTILATED IN THE MOST EFFICIENT MANNER.

MANUFACTORIES: { LONDON, GLOUCESTER, COVENTRY, ULVERSTONE, PAISLEY, and ABERDEEN.



The above represents a Range about 90 feet long; Conservatory in centre, 20 feet square; and Span-roof Wings, 32 feet long, on S... forming Orchard House, Vinery, &c. This system of building Span-roofs has been extended to form large WINTER GARDE... cost; the produce of which, in a few years time, would almost, if not entirely, repay the original cost.

Gentlemen about to form New Gardens can be advised the best method of arranging these Glass Roofs for all Horticul... combining elegance with utility. As already so erected by us, they are economical substitutes for walls, ensuring the pro...

ILLUSTRATED PRICE LISTS of the PATENT ROOFS free on application. REFERENCES can be given to w...

ESTIMATES given for ORNAMENTAL CONSERVATORIES to Architect's Plans and Specifications; also ... extent, fixed complete anywhere in the United Kingdom.

☞ *Designs prepared to suit different styles of Mansions, or to particular ...*

HEREMAN AND MORTON, 7, PALL MALL ...

LARGE QUANTITIES of SASHES being now in Stock, orders to any extent can be promptly ... by orders being delayed until late in autumn.

Editorial Communications should be addressed to "The Editor;" Advertisements and Business Letters to "The Publish...
Printed by JAMES MATTHEWS, at the Office of Messrs. BRADBURY, EVANS, & Co., Lombard Street, Precinct of Whitef...
Office, No. 41, Wellington Street, Parish of St. Paul's, Covent Garden, in the said County.—SATURDAY, August 3, 1867.

THE GARDENERS' CHRONICLE

AND

AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.

No. 32.—1867.] SATURDAY, AUGUST 10. {Price Fivepence. STAMPED EDITION, 6*d*.

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CRYSTAL PALACE. — The AUTUMN SHOW of FLOWERS and FRUIT will be HELD at the Crystal Palace on TUESDAY, September 10, and the two following days.
Schedules with List of Prizes may be had on application to
I. WILKINSON, Superintendent of Flower Show, Crystal Palace.

READING HORTICULTURAL SOCIETY.—The AUTUMN SHOW of this Society will be held, by permission of the Mayor, in the Abbey Ruins, Reading, on THURSDAY, August 22. By permission of Col. Fitz Wygram, the Band of the 15th King's Hussars will attend. Schedules of Prizes may be obtained of, and Entries must be made to, CHARLES COLLINS, Hon. Sec., 34, Chain Street, Reading.

MANCHESTER BOTANICAL AND HORTICULTURAL SOCIETY.—A GRAND EXHIBITION of PLANTS, FRUITS, and FLOWERS will be held at the Gardens, Old Trafford, on TUESDAY, August 27, and four following days, in connection with the GREAT CENTENARY CELEBRATION SHOW of the MANCHESTER and LIVERPOOL AGRICULTURAL SOCIETY.
Charges for Admission:—First day, 2*s*. 6*d*. each; remaining days, 1*s*. each; Subscribers to the Botanic Gardens free each day.
Schedules may be obtained at the Gardens, or from the Undersigned. Military Bands in attendance. By Order.
Cooper Street, Manchester. HENRY WHITWORTH, Secretary.

BISHOP AUCKLAND FLORAL and HORTICULTURAL SOCIETY will hold their ANNUAL EXHIBITION in AUCKLAND PARK on AUGUST 30, when upwards of £350 will be awarded in Prizes. Schedules may be obtained on application to Mr. J. C. HENDY, Secretary, Bishop Auckland.

HULL FLORAL SOCIETY.—AUTUMN EXHIBITION, SEPTEMBER 4.—Prizes to the following amounts will be given:—For 12 Variegated and Ornamental Foliage Plants, 1st, £10; 2d, £5. Best 6 Stove and Greenhouse, in bloom, £2 12*s*. 6*d*.
GEO. H. LOVELL, Secretary.

DERBYSHIRE FLORAL and HORTICULTURAL SOCIETY.—ANNUAL EXHIBITION, in connection with the Derbyshire Agricultural Exhibition, on WEDNESDAY, September 18. Prizes of £15, £10, £5, £3 10*s*., and £2 are offered for Groups of Twelve Stove or Greenhouse Plants (or both), in or out of flower, Ornamental or Variegated Foliage Plants arranged for effect (Orchidæ excluded). Schedules of Prizes and any farther information may be obtained on application to the Honorary Secretary, Mr. WILLIAM SAUNDERS, Wellington House, Derby.

Vines, Extra Strong from Eyes.
JOHN KELLETT begs to announce that he has a large and fine stock of all the leading sorts fit for immediate Planting. Also all the best varieties of ROSES, in Pots.
Wellington Nursery, Heaton Chapel; and Green Lane Nurseries, Heaton Norris, Stockport.

VINES from EYES.—Houses upwards of 700 feet in length occupied with their Cultivation—probably the largest stock in England. The Fruiting Canes are extra fine this season: 5*s*. to 7*s*. 6*d*. each. Vines from open borders for ground Vineries, 1*s*. 6*d*. each; ditto, fine Canes from pots, 3*s*. 6*d*. each. A DESCRIPTIVE CATALOGUE free per Post. Carriage paid to London.
THOS. RIVERS & SON, Nurseries, Sawbridgeworth.

Strawberries.
A DESCRIPTIVE CATALOGUE of STRAWBERRIES, Classed, free per post.
THOS. RIVERS & SON, Nurseries, Sawbridgeworth.

Strawberries.
SALTMARSH AND SON beg to offer strong Runners of most of the leading kinds at from 3*s*. 6*d*. per 100. Also a few extra strong Plants rooted in pots for forcing.
LIST and PRICES on application.
Moulsham Nurseries, Chelmsford.

Strawberries.
CHARLES TURNER is now prepared to supply strong Plants of the best modern kinds, as well as all the leading established varieties, true to name.
A DESCRIPTIVE LIST may be had on application.
The Royal Nurseries, Slough.

Orchard-house Trees Fruiting in Pots.
PEACHES, NECTARINES, APRICOTS, CHERRIES, PLUMS, PEARS, APPLES, VINES, and FIGS.
RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

Highly Cultivated and Regularly Transplanted Nursery Stock.
EIGHTY ACRES of the above, consisting chiefly of FRUIT TREES, ROSES, EVERGREENS, and ORNAMENTAL TREES, which for general excellence are unsurpassed.
THOMAS WARNER, Leicester Abbey Nurseries.

Hardy and Permanent Bedding Plant.
CLEMATIS JACKMANNI, and that type, have proved themselves to be "the desideratum" for a good violet, blue, purple, or maroon bed, when pegged down like Verbenas.
The Advertisers solicit an inspection of their CLEMATIS BEDS that are in FULL BLOOM, and will continue up to the month of October. Particulars of treatment by applying to
GEO. JACKMAN & SON, Woking Nursery, Surrey.

At the Old Nurseries, Cheshunt,
PAUL AND SON'S ROSES are NOW FINELY IN BLOOM. The Show is finer than for many years past.
Frequent trains to Cheshunt, one mile from the Nurseries.
Their large and varied Collection of HARDY FINE-FOLIAGE TREES and SHRUBS are in good condition for selection.

Roses in Bloom.
WM. PAUL'S ROSES are NOW IN FULL BLOOM. Inspection respectfully invited. Trains almost hourly from Shoreditch to Waltham Station, Great Eastern Railway.
PAUL'S Nurseries, Waltham Cross, N.

Eltham Nursery, S.E.
THE STANDARD ROSES at this Nursery, comprising from 7000 to 10,000, are NOW in PERFECTION, and may be seen daily. The Nursery is about one mile from the Eltham Station, two miles from the Blackheath Station, from which an Omnibus constantly runs. J. W. TOPMAN.—Aug. 3.

Roses.
H. LANE AND SON beg to call the attention of intending Purchasers to their extensive COLLECTION of ROSES, which are NOW IN FULL BLOOM, and worthy of inspection.
The Nurseries, Great Berkhampstead, Herts.

Roses.
JOHN CRANSTON has the pleasure to announce that his ROSES are NOW IN FULL BLOOM, and that the whole of his stock is in the finest condition possible.
The severe frosts (which proved so destructive in many parts of England throughout last winter) not having visited this locality, he is happy to say that his Roses, Conifers, and other Trees, escaped entirely unharmed.
Nurseries, King's Acre, near Hereford.

NEW ROSES for 1867.—Strong Plants of all the best NEW ROSES now ready.
DESCRIPTIVE LIST, with prices, on application.
JOHN CRANSTON, King's Acre Nurseries, near Hereford.

CULTURAL DIRECTIONS for the ROSE. Second Edition. By JOHN CRANSTON, King's Acre Nurseries near Hereford. Free by post from the Author for 20 stamps.

Roses, Orchard Houses, and Experimental Fruit Tree Culture.
THE NURSERIES at SAWBRIDGEWORTH, 100 Acres in extent, are OPEN to the inspection of Amateurs interested in the above.
The Harlow Station (1¼ mile distant), G. E. R., where Flys are in attendance, is the most convenient.
THOS. RIVERS & SON.

SUTTON'S AUTUMN CATALOGUE IS NOW READY, gratis and post free.
Royal Berkshire Seed Establishment, Reading.

NEW VERBENAS of 1867.—C. ALLEN, Jun., is now sending out strong Plants in thumb pots of the above in 36 varieties, introduced by Messrs. Henderson & Son, Turner, Keynes, and Downie, Laird, & Laing, at 3*s*. per doz., package included. Terms cash. Stone Hill, Heigham, Norwich.

VIOLETS for WINTER and SPRING BLOOMING. —The Undersigned can supply strong healthy Plants, in 5-inch pots, of the following, which are the four best Violets in cultivation. Price 6*s*. to 9*s*. per dozen.

THE CZAR	DOUBLE BLUE
NEAPOLITAN	REINE DES VIOLETTES

FRANCIS & ARTHUR DICKSON & SONS, The "Upton" Nurseries, Chester.

Novelties.
WM. PAUL (Son and Successor to the late A. PAUL) respectfully solicits Orders for the NEW and FIRST-CLASS ROSES and BEDDING GERANIUMS, &c., advertised at length in this Paper in May last.
PAUL'S Nurseries, Waltham Cross, London, N.

Over Stock.
FIFTY TRICOLOR PELARGONIUMS for Sale.—Large Plants, in 24 pots. Price and Sorts on application to
G. WALKLING, Seedsman and Florist, North Row, Lewisham, S.E.

New Zonal and Nosegay Pelargoniums.
NUNN AND HOBDAY, St. Augustine's Nursery, Norwich, beg to inform intending purchasers of the above that they have a large stock of all the best varieties sent out in 1867, from 12*s*. to 18*s*. per dozen.

Variegated Geraniums.
CASBON AND SON hold a large stock of above. Prices on application.
Gravel Walk Nursery, Peterborough.

IVY-LEAVED PELARGONIUM, L'ELEGANTE.
Strong Plants, 3*s*. 6*d*. each; 36*s*. per dozen.
Larger Plants, 6*s*. each; 50*s*. per dozen.
Usual allowance to the Trade. For description see former Advertisements. Cash or reference must accompany all orders from unknown correspondents.
WM. CUNNINGHAM, The Forge Nurseries, Burton-on-Trent.

CALADIUMS, CALADIUMS.—The following 12, in strong Plants, package included, for 8*s*., viz.:—Two Mirabile, two Wightii, one each Belleymei, Newmanii, Argyrites, Gigantea violacea, Bicolor splendens, Amabilis, Bicolor, Chantini.
ECKFORD'S SIX NEW VERBENAS of 1867 at 4*s*.
Post Office Orders accompanying orders payable at Boston Spa.
J. C. PADMAN, Providence Nursery, Boston Spa, Yorkshire.

TO BE SOLD, Cheap, a Choice Collection of EXOTIC FERNS and ORCHIDS; also about 300 Yards superior PARK FENCING, and 14 VINES in pots. Apply to
THE GARDENER, Oakfield House, Gipsy Hill, close to the Station.

NEW FERN, SCOLOPENDRIUM VULGARE, var. COOLINGII.—A dwarf variety between S. Wardii and S. digitatum, very distinct and beautiful. Nice Plants are now ready for distribution at 7*s*. 6*d*. each.
A Coloured Plate free by post for two stamps.
EDWIN COOLING, Mile Ash Nurseries, Derby.

British Fern Catalogue.
ROBERT SIM can now send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his NEW and PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.
Foot's Cray Nursery, S.E., a mile from Sidcup Station of New North Kent Line of South Eastern Railway.

Ready Next Week.
B. S. WILLIAMS' CATALOGUE of DUTCH and other BULBOUS ROOTS forwarded post free on application to any address.
Victoria and Paradise Nurseries, Upper Holloway, London, N.

WM. CUTBUSH AND SON beg to say that their DESCRIPTIVE CATALOGUE of CHOICE HYACINTHS, TULIPS, CROCUSES, &c., is now ready, and can be had post free on application. Highgate Nurseries, London, N.

Beautiful Foxgloves.
J. IVERY AND SON can now supply new Seed of their fine strain of the above, in 1*s*., 1*s*. 6*d*., or 2*s*. 6*d*. packets; likewise Plants to bloom next season at 6*s*. per doz.
Dorking and Reigate Nurseries.

High Beech, Essex.
JAMES CRAWFORD, in offering his superb Collection of RHODODENDRONS and AZALEAS, begs to state that their size and quality are well known to be first-rate for and equal to decorating the most splendid gardens in the country.

MONA'S PRIDES.—Should any of the Trade, purchasers of MR RUTLEDGE'S MONAS, visit the Isle of Man, it will gratify him by their having a peep at his Lofts and Stock.
Hague House.—August, 1867.

PRIMULA SINENSIS FIMBRIATA.—A most superb strain, and cannot be surpassed, 6 varieties, mixed, 1*s*. 6*d*. & 2*s*. 6*d* per packet. CALCEOLARIA and CINERARIA, extra, 1*s*. & 2*s*. 6*d*.
J. SCOTT, The Seed Stores, Yeovil, Somerset.

Extra Fine Fringed Primulas.
DOBSON'S CELEBRATED STRAIN, that has stood a ten years' test, is now ready for sending out in 1*s*., 2*s*. 6*d*., and 5*s*. packets. The quality may be depended upon.
DOBSON & SONS, Seedsmen, Isleworth, London, W.

Prize Cineraria Seed.
DOBSON'S UNEQUALLED STRAIN, which has taken 50 First Prizes in six years, is now ready for sending out. Fine new seed, in 1*s*., 2*s*. 6*d*., and 5*s*. packets.
DOBSON & SONS, Seedsmen, Isleworth, London, W.

DOBSON'S STRAIN of PRIZE CALCEOLARIA, CINERARIA, and PRIMULA, the finest in Cultivation.

For Present Sowing.
DOBSON'S INTERNATIONAL, ROYAL HORTICULTURAL, ROYAL BOTANIC, CRYSTAL PALACE, and KINGSTON PRIZE and UNEQUALLED HYBRIDISED CALCEOLARIA now ready, in Sealed Packets, with full Directions for Sowing and Growing, 1*s*. 6*d*., 2*s*. 6*d*., 3*s*. 6*d*., and 5*s*.
DOBSON & SONS, Seedsmen, Isleworth, London, W.

Calceolaria, Cineraria, Primula fimbriata.
SUTTON AND SONS can supply NEW SEED of the above, saved from choicest flowers, in packets, 1*s*., 2*s*. 6*d*., and 5*s*. each, post free.
Royal Berkshire Seed Establishment, Reading.

Choice Seeds.
CHARLES TURNER'S superior CALCEOLARIA, CINERARIA, and PRIMULA are now ready, in packets, 2*s*. 6*d*. each. The Royal Nurseries, Slough.

INTERNATIONAL PRIZE CALCEOLARIA, CINERARIA, and PRIMULA.—These are unquestionably the handsomest in cultivation. New Seed now ready, in packets, 2*s*. 6*d*. each, free by post.
EDWIN COOLING, Seed Merchant, Derby.

CALCEOLARIA, CINERARIA, and PRIMULA SINENSIS.—Seed of each, from the choicest and most beautiful flowers, in 2*s*. 6*d* and 5*s*. packets, post free.
ROBINSON'S CHAMPION DRUMHEAD, or OX CABBAGE, 3*s*. 6*d*. per lb. (Seed of Mr. Robinson's own saving)
DRUMHEAD, or OX CABBAGE (old sort), 2*s*. per lb.
Together with all other Seeds for present Sowing. Parcels of two pounds and upwards carriage free.
JAMES DICKSON & SONS, "Newton" Nurseries, Chester.

EVERY GARDEN REQUISITE kept in Stock at
CARTER'S New Seed Warehouse, 237 & 238, High Holborn, London.

Genuine Garden and Agricultural Seeds.
JAMES CARTER AND CO.,
SEED FARMERS, MERCHANTS, and NURSERYMEN,
237 & 238, High Holborn, London, W.C.

Agricultural and Garden Seeds.
H. AND F. SHARPE beg to announce to the Trade that their SPECIAL LIST of HOME-GROWN SEEDS, 1867 Growth, is now ready and may be had on application.
Seed Growing Establishment, Wisbech, Cambs.

RAYNBIRD, CALDECOTT, BAWTREE, DOWLING, AND COMPANY, Limited,
CORN, SEED, MANURE, AND OILCAKE MERCHANTS,
Address, 89, Seed Market, Mark Lane, E.C.; or Basingstoke.
Samples and Prices post free on application. Prize Medals, 1851, for Wheat; 1862, for "Excellent Seed Corn and Seeds."

ROBINSON'S PRIZE DRUMHEAD CABBAGE PLANTS, 3*s*. per 1000, of A. WILKIN, Tiptree, Kelvedon Essex. Prepaid orders only attended to.

Turnip Seeds for Present Sowing.
SUTTON AND SONS can supply NEW SEED of the BEST KINDS for PRESENT SOWING. PRICED LISTS on application. All goods carriage free except very small parcels.
SUTTON & SONS, Seed Growers, Reading.

SUTTON'S RENOVATING GRASSES SHOULD NOW BE SOWN.
6 lb. to 12 lb. required per acre.
Price 10*d*. per lb., or cheaper by the cwt.
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Grass Seeds for Autumn Sowing.
SUTTON'S PERMANENT GRASS SEEDS FOR ALL SOILS.
Prices (according to sorts required and soils for which they are intended), may be had on application.
SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

SUTTON'S IMPROVED ITALIAN RYE-GRASS, the BEST and MOST PRODUCTIVE IN CULTIVATION
SUTTON & SONS can supply New Seed of the above at 6*s*. per bushel, or cheaper in large quantities.
August and September are the best months for Sowing.
SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.



JAMES CARTER AND CO. beg to announce that they are now sending out their unrivalled Strains of CALCEOLARIA, CINERARIA, and PRIMULA, which, for fineness of form and beauty of colour cannot be surpassed.

CALCEOLARIA, saved from the finest Prize varieties.

CINERARIA, saved from the finest named varieties.

PRIMULA SINENSIS FIMBRIATA, dark carmine and pure white, saved from the finest fringed varieties in cultivation. Price, each packet, 2*s.* 6*d.*, forwarded on receipt of Post-office Order for the amount.

☞ PRICE LISTS gratis and Post free on application to CARTER'S Great London Seed Warehouse, 237 & 238, High Holborn, London, W.C.

DRUMHEAD CATTLE CABBAGE,
THE HEAVIEST OF ALL AGRICULTURAL CROPS.

This should be Sown in August, for Transplanting in the Spring.
SUTTON & SONS can supply—

ROBINSON'S CHAMPION DRUMHEAD CABBAGE (the heaviest known), at 3*s.* 6*d.* per lb.
GOOD DRUMHEAD CABBAGE at 2*s.* 6*d.* per lb.
SUTTON & SONS, Seed Growers, Reading.

Winter Cucumbers.

ROLLISSON'S TELEGRAPH CUCUMBER, the Best Winter and Early Spring variety in cultivation, an immense and certain cropper.—We with reluctance have to state that some parties have been supplying a spurious variety for the above; purchasers should have a guarantee of its being true, or they may fail in their crop. There are several varieties of Telegraph Cucumber in cultivation, but in no way equal to the above.

In printed sealed packets, with description, 2*s.* 6*d.* each.

PRIMULA and CINERARIA, new seed, from the finest varieties in cultivation. Packets, 2*s.* 6*d.* each.

W. ROLLISSON & SONS, The Nurseries, Tooting, London, S.



COCOA-NUT REFUSE is becoming SCARCE, the old reserves will soon be gone. Now sold in bags, 1 for 2*s.*, 10 for 16*s.*, 20 for 30*s.*, 50 for 60*s.*, 100 for £6.

Fourpence allowed for each bag returned carriage-paid.

A Railway Truck-load (not in bags), 40*s.*

Postage Stamps or Post-office Order, payable to J. BARSHAM & Co., Kingston-on-Thames, S.W.

Important to Florists and Horticulturists.

POOLEY'S TOBACCO POWDER, prepared under authority of the HON. BOARD of CUSTOMS, can now be obtained of Seedsmen, Nurserymen, &c., in Tins.
Prices, 1*s.*, 2*s.* 6*d.*, and 5*s.*

Wholesale from the Bonded Manufactory, Sussex Wharf, Wapping, E. Office, 60, Lime Street, London, E.C.



GISHURST COMPOUND.

Used by many of the leading Gardeners since 1850, against Red Spider, Mildew, Thrips, Green Fly, and other Blight, in solutions of from 1 to 2 ounces to the gallon of soft water, and of from 4 to 16 ounces as a Winter Dressing for Vines and Fruit Trees. Has outlived many preparations intended to supersede it.

Sold Retail by Seedsmen, in boxes, 1*s.*, 3*s.*, and 10*s.* 6*d.*

Red Spider — Magnified.

Wholesale by
PRICE'S PATENT CANDLE COMPANY
(LIMITED).

"I NEVER had my PLANTS CLEANER or looking better than they do now since using your Insecticide. It will kill anything in the shape of Plant Insects without the slightest injury to the Plants. "J. DALE, F.R.H.S.,
"Gardener to the Hon. Society of the Middle Temple."
"Messrs. G. & T. FOWLER, Brighton."

"FOR ALL PURPOSES I consider your Gardener's Insecticide far superior to any remedy that has come under my notice. Most effectual in Destroying the Blue Fly on Plums, and the Black Fly on the Cherries. "WM. KNIGHT, Hailsham."
"Messrs. G. & T. FOWLER, Brighton."

"DESTROYS EVERY INSECT to which I have applied it, without the least injury to the most delicate Plant. "G. PARSONS, Brighton."
"Messrs. G. & T. FOWLER, Brighton."

Fowler's Gardener's Insecticide,

To which the above Testimonials refer, possesses all the requisite essentials of a complete remedy for thoroughly and effectually destroying and preventing, as it kills both Insects and Ova. It is perfectly safe, for it will not injure the Foliage of the most delicate Plant. It is most easily applied, being at one strength—4 ozs. to a gallon of water—suitable for all Insects and all Plants. Will strengthen and invigorate Plants, and improve the appearance of Foliage.

In Jars with direction. Price 1*s.* 6*d.*, 3*s.*, 5*s.* 6*d.* and 10*s.* May be had of all Seedsmen, Nurserymen, Florists, and Chemists; or of the Manufacturers, G. & T. FOWLER, North Street, Brighton.

P.S.—London Agents: HOOPER & Co., Covent Garden, W.C.

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SUPPLIES its Members with IMPLEMENTS and MACHINES by the best Makers, and with Unadulterated SEEDS, MANURES, and Manufactured CATTLE FOOD, at Wholesale Cost Price, upon the Co-operative system. Explanatory Circulars post free, or on personal application at the Offices of the Association.

New Roses for 1868.

MESSRS. JOHN AND CHARLES LEE have purchased the Stocks of the TWO finest NEW ROSES which have been exhibited on the Continent this season, and hope to exhibit them in London in June next, that the Public may judge of their merits before they are sent out.

CLEMENCE RAOUX (GRANGER).—Blush, edged and spotted rose, of large size and perfect form; petals stout and very enduring; habit erect and vigorous.

GOLD MEDAL awarded at the Great Rose Show at Brie Comte Robert in July.

EDWARD MORREN (GRANGER).—Mons. Margottin thus describes this splendid Rose:—"It is in the way of Jules Margottin, but of a more delicate colour, of better form, more double, and much larger."

FIRST PRIZE awarded at the Exposition Universelle in Paris in July.

To be sent out in the Autumn of 1868.
Royal Vineyard Nursery and Seed Establishment, Hammersmith, W.

Roses, Roses.



ROSES, on own roots and in pots, grown on now, will flower indoors next spring, viz.:—

6 CHOICE TEAS	3 CHOICE BOURBONS
6 " H.P.s	
3 " NOISETTES	2 " CHINAS

The Collection of 20 distinct and first-class sorts for 20*s.*

Post-office Orders on Castle Hedingham.

DILLISTONE & WOODTHORPE,
Munro Nursery, Sible Hedingham, Essex.



TRICOLOR GERANIUMS, &c.—Parties not possessing the following, should order them at once:—

Price of the Collection, £1 1*s.*; or any Six may be selected for 16*s.*

EDWINIA FITZPATRICK
BEAUTY of GUESTWICK
TWILIGHT
VARIEGATED QUEEN of NOSEGAYS
MRS. P. J. PERRY
PRESIDENT LINCOLN
SCEPTRE D'OR
ITALIA UNITA
MRS. MAXWELL HUTTON
CRYSTAL PALACE GEM

TRICOLOR-LEAVED & other IVIES.—12 of the finest and most beautiful Ivies in cultivation, in 12 distinct sorts, for 10*s.*

Post-office orders on Castle Hedingham.

A 64-page CATALOGUE of CHOICE NEW PLANTS free for one stamp.

DILLISTONE & WOODTHORPE, Munro Nursery, Sible Hedingham, Essex

New Zealand Nursery, St. Alban's, Herts.

J. WATSON'S beautiful BEDDING PELARGONIUM EXCELSIOR, now ready; colour of Indian Yellow; fine truss, and habit of Lord Palmerston. Price 5*s.* each; 36*s.* per doz. to the Trade

MISS WATSON, ready August 25; MRS. DIX, May 1. The Two have received 10 First-class Certificates and Extra Prize Money.

Fine New TABLE APPLE, ST. ALBAN'S PIPPIN, Ripe in April. Plants ready in November. 5*s.* each; 36*s.* per doz. to the Trade

DESCRIPTIVE LIST sent on application.

New and Beautiful Variegated Geraniums.

F. AND A. SMITH respectfully invite the public to an inspection of their large and varied Collection of the above, which comprises every shade of colour in each class of Golden and Silver Variegation, and also Golden or Bronze Zonal, as they are grown both under glass and in the open air. A fair estimate of their qualities can easily be formed. To be seen every day except Sunday. Trains start frequently from the Ludgate Hill and Elephant and Castle Stations for Dulwich, and from London Bridge to Lower Norwood.

Dulwich, Surrey, S.

New Tricolored Geraniums.

F. AND A. SMITH are now sending out the following bright coloured and free growing varieties:—

YELLOW EDGED.	SILVER EDGED.
ANTAGONIST	IMPERATRICE EUGENIE
ENSIGN	DAWN
GRANDIS	PRINCESS OF WALES
L'EMPEREUR	QUEEN OF THE FAIRIES
LOUISA SMITH	QUEEN VICTORIA
METEOR	BRONZE ZONALS.
MONARCH	MRS. CHARLES BARRY
PRINCE OF WALES	BRONZE BELT
UNIQUE	BRONZE SHIELD
	VANDYKE, &c.

For descriptions see CATALOGUE, to be had free on application.
The Nurseries, Dulwich, S.

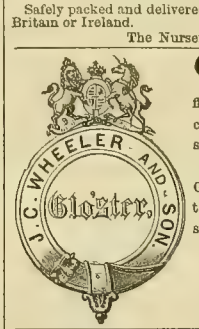
New Verbenas of 1867.

DREGHORN AND AITKEN have now a large stock of the above, containing all the finest sorts sent out by Turner, Keynes, Low, Henderson, &c., and beg to offer them as follows, in strong, healthy, well-rooted Plants:—

24 Varieties for 10*s.* | 12 Varieties for 5*s.*

Safely packed and delivered free of carriage to any part of Great Britain or Ireland.

The Nurseries, Kilmarnock, N.B.

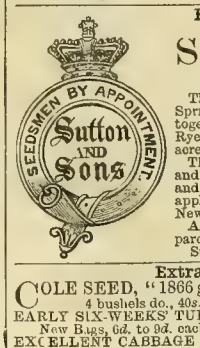


GRASS SEEDS for PERMANENT PASTURE, of the finest quality, at moderate prices, carefully selected on a new, natural, and scientific system.

See "WHEELER'S BOOK on GRASSES," which contains Illustrations and Descriptions of the most suitable Grasses for Permanent Pasture.

J. C. WHEELER & SON,
Gloucester,
Seedsmen to the Gloucestershire Agricultural Society.

Early Spring Feed, Trifolium incarnatum.



SUTTON'S ITALIAN RYE-GRASS.
NEW LATE RED TRIFOLIUM.
NEW LATE WHITE TRIFOLIUM.

These are invaluable articles for early Spring Feed, either grown separately or together. The proper quantity of Italian Rye-grass, if sown alone, is 3 bushels per acre, or if Trifolium alone, 28 lbs. per acre.

The New Seed is now being harvested, and we shall be pleased to send samples and lowest prices per quarter and cwt. on application. Also MUSTARD and RAPE, New Seed.

All goods carriage free, except very small parcels.

SUTTON & SONS, Seed Growers, Reading.

Extra Fine Quality.

COLE SEED, "1866 growth," per bushel of 52 lb., 11*s.*; 4 bushels do., 40*s.* New 4-8 Sacks, 1*s.* 6*d.* each.
EARLY SIX-WEEKS' TURNIP, New Seed, very fine, 9*d.* per lb.
New Bags, 6*d.* to 9*d.* each.
EXCELLENT CABBAGE SEED. See Catalogue of varieties.
Remittances to accompany Orders.
FREDK. GEE, Seed Merchant and Grower, Biggleswade, Beds.

Dutch Bulbs.

JOHN KERNAN has received the first importation of DUTCH BULBS, principally HYACINTHS, and advises an early application to parties fond of these beautiful Flowers; owing to the weather, the Stock of fine Bulbs is very limited. If the selection is left to J. K., he will endeavour to give the highest satisfaction, and also begs to recommend for present sowing SEEDS of the following:—

Prickly Spinach, Hardy Winter White Cos Lettuce, Victoria Cabbage do., Green Curled Endive, Nonpareil Cabbage, London Market do., Shilling's Queen do., Enfield Market do., and Ne Plus Ultra do., Lisbon Onion, Olive and Black Spanish Radish, Corn Salad, Six Week Turnip, Early Horn Carrot, Calceolaria, finest mixed; Cineraria, do.; Primula sinensis fimbriata, Intermediate and Brompton Stocks, Mushroom Spawn, Japan Flax. Garden Syringes, Fumigators, Labels and Flower Sticks, Garlic, Shalots, and Peruvian Guano, &c.

4, Russell Street, Covent Garden, W.C.

Hyacinths.

GEORGE DAVIES begs respectfully to inform the Nobility and Gentry that his PRICED CATALOGUE of HYACINTHS and other DUTCH BULBS is now ready, and may be obtained, post free, on application. He also has much satisfaction in stating that he has arranged with the growers, Messrs. J. H. Kersten & Co., of Haarlem, who supplied him with the Bulbs with which he and his numerous customers obtained so many prizes at the St. George Hall Exhibition in March last; and would take this opportunity of intimating to his kind Patrons, and those about to purchase for competition or otherwise, that early orders should be given, to secure first-class Bulbs. As an evidence of the superiority of his Bulbs, G. D. need only to refer to the List of Prizes awarded by the Horticultural Society of Liverpool, March, 1867. Out of the 19 Prizes awarded to Amateurs for Hyacinths, 13 of them were obtained by Bulbs purchased at his establishment. Also in the Nurseryman's Class, G. D. is proud to say, the first 24 and the first 12 were obtained by him in competition with Messrs. William Cutbush & Son.

Green Lane Nurseries, Old Swan, Liverpool.

ROBERT PARKER begs to offer the following (all the Plants are strong and healthy, and can be supplied in quantities):—

PANSY CLIVEDEN BLUE, 6*s.* per dozen.
PANSY CLIVEDEN PURPLE, 6*s.* per dozen.
PANSY CLIVEDEN YELLOW, 6*s.* per dozen.
POLEMONIUM CŒRULEUM VARIEGATUM, 2*s.* 6*d.* each.
RHODODENDRON COUNTESS of HADDINGTON, 3*s.* 6*d.* each.
TRITOMA GRANDIS, 18*s.* per dozen.
TRITOMA UVARIA GLAUCESCENS, 12*s.* per dozen.
VIOLA CORNUTA, best variety, 4*s.* per dozen.
VIOLET, REINE DES VIOLETS, 6*s.* per dozen.
VIOLET THE CZAR, 6*s.* per dozen. [per packet.
PRIMULA SINENSIS FIMBRIATA, finest mixed seed, 2*s.* 6*d.*

PRICED and DESCRIPTIVE CATALOGUES of AGRICULTURAL, FLOWER, and VEGETABLE SEEDS, GREENHOUSE, HARDY, and STOVE PLANTS, are published, and will be forwarded free to applicants.

Exotic Nursery, Tooting, Surrey, S.

CHOICE SEEDS in SEALED PACKETS.

THE "PRIZE" STRAIN of CYCLAMEN PERSICUM.—This splendid Strain of Seed has passed entirely into the hands of B. S. WILLIAMS. It is the seed saved from the magnificent plants grown and shown by Mr. Wiggins, gardener to W. Beck, Esq., Isleworth, at the Spring Shows in the present year; they were in each instance awarded 1st prize, and were the admiration of all the visitors. The flowers are 1 inch across, by 1½ inches in depth, the colours ranging from a bright carmine to a delicately tinted white, and pure white tipped with crimson, the leaves beautifully marbled; indeed, the leaves, apart from the flowers, possess a peculiar attraction in the diversity of their marbled surface. This seed should be sown as early in the Autumn as possible. None genuine unless the packets bear B. S. W.'s name and address. Price, per Packet, 1*s.* 6*d.*, 2*s.* 6*d.*, and 3*s.* 6*d.*

THE "PRIZE" STRAIN of POLYANTHUS.—This beautiful Strain of one of the prettiest spring-flowering plants was also exhibited most successfully by Mr. Wiggins, of whom B. S. W. has purchased the entire stock and right of sale. None genuine unless the packets bear B. S. WILLIAMS'S name and address. Price 1*s.*, 2*s.* 6*d.*, and 3*s.* 6*d.* per packet.

OTHER CHOICE STRAINS OF SEED.

JAMES'S CALCEOLARIA, 2*s.* 6*d.*, 3*s.* 6*d.*, and 5*s.* per packet.
WEATHERILL'S CINERARIA, 2*s.* 6*d.*, 3*s.* 6*d.*, and 5*s.* per pkt.
WILLIAMS' PRIMULA, 2*s.* 6*d.*, 3*s.* 6*d.*, and 5*s.* per packet.

B. S. WILLIAMS, Victoria and Paradise Nurseries, Upper Holloway, N.

THE LADY, a SEEDLING STRAWBERRY, raised by Mr. UNDERHILL, who was the originator of Sir Harry.

Plants are now ready to be sent out (in lots not less than 20).

All applications must be accompanied by a Post-office order on Birmingham. Postage stamps or cash to receive attention.

PRICES of the LADY STRAWBERRY PLANTS, from JULY, 1867, to AUGUST, 1868.

One Hundred ..	.. £2 8 0	Sixty	.. £1 12 0
Eighty	.. 2 1 6	Forty	.. 1 2 0
Twenty	.. 12*s.*		

Plants in pots (not less than 10), at 1*s.* 3*d.* each.
Packages of all the above included.

Mr. UNDERHILL'S Treatise on the Cultivation of Strawberries (either in English, French, or German), may be had through the post, price 1*s.*

Address, Mr. RICHARD UNDERHILL, Sir Harry's Road, Edgbaston, Birmingham.

N.B.—The Sir Harry being now in general cultivation, Mr. UNDERHILL intends reserving for a few years Plants for those persons who may prefer having them direct and genuine from himself, spurious varieties having been so often substituted for the original.

The permanent prices of Sir Harry for the future will be:—20 (not less), 10*s.*; 40, 18*s.*; 60, £1 6*s.*; 80, £1 14*s.*; 100, £1 18*s.* Plants in pots (not less than 10), 1*s.* 3*d.* each, packages included.

TESTIMONIALS (*inter alia*).

"Borough of Birmingham, Mayor's Office, July 25, 1867.

"MY DEAR SIR,—I beg to thank you very warmly for the dish of noble Strawberries—The Lady—you have so kindly sent me. Their beautiful appearance and exquisite flavour are equally wonderful, and the celebrity you have attained in cultivating this fine fruit is certainly fully deserved.—I am, my dear Sir, very faithfully yours,
"Richard Underhill, Esq." "THOMAS AVERY, Mayor."

"The Cedars, Castle Bromwich, near Birmingham, July 3, 1865.

"DEAR SIR,—I am sorry I cannot accept your invitation to view your Strawberries on Wednesday next, having to attend at Regent's Park on that day. I thank you for the basket of your Seedling, The Lady, which is without doubt an excellent variety; the flavour is delicate and luscious, and quite distinct from any Strawberry I am acquainted with; the perfume is somewhat extraordinary; I look upon it as a decided acquisition.—With best respects, I am, dear Sir, yours very truly, "CHAS. JAS. PERRY."
"Richard Underhill, Esq."

"Mona Cottage, Edgbaston, July 27, 1865.

"DEAR SIR,—I do not know when I was better pleased than with a view of the beds of your Seedling Strawberry, The Lady, the colour of the fruit was so light and lively, and the crop so large; as to the flavour, it was most delicious, and exceeded any Melon I ever tasted, and reminded me much of the Pine Apple. When your plants are ready, please to let me know, for I must have some.—I remain, dear Sir, yours truly. "THOS. BURRIDGE."
"R. Underhill, Esq."

At the Glasgow and West of Scotland Horticultural Society, an Extra Prize and First-class Certificate was awarded, July 11, 1866.

The Birmingham Daily Post, July 17, 1866.

"THE LADY STRAWBERRY.—We recorded on Saturday the judgment of Glasgow connoisseurs upon Mr. Underhill's New Strawberry. We are now in a position to record our own. We do not pretend to any large amount of technical knowledge on the subject, but we do lay claim to have eaten Strawberries of all kinds in our time, and having done so, our opinion is that The Lady is the most delicious fruit it has ever been our hap to taste."

The Midland Counties Herald, July 19, 1866.

"HORTICULTURE.—We have recently had an opportunity of inspecting some beds of The Lady Strawberry, raised by Mr. R. Underhill, Sir Harry's Road, Edgbaston, and sent out by him last year. It is a free-growing, prolific variety, and produces a fair sized berry, which ripens thoroughly, and in flavour is delicious and distinct."

FRESH IMPORTED DUTCH FLOWER ROOTS.

SEEDSMEN BY APPOINTMENT. Sutton AND Sons

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AUTUMN CATALOGUE FOR 1867

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and may be had Gratis and Post Free on application.

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FOR BLOOMING DURING WINTER AND SPRING.

For Pots and Glasses.				For Open Ground.			
COMPLETE COLLECTION	(Carriage Free)..	£2 2 0		COMPLETE COLLECTION	(Carriage Free)..	£2 2 0	
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DUTCH FLOWER ROOTS.

JAMES VEITCH & SONS,

ROYAL EXOTIC NURSERY, CHELSEA, S.W.,

BEG TO ANNOUNCE THAT THEIR

ANNUAL CATALOGUE OF DUTCH FLOWER ROOTS,

CONTAINING ALSO

A SELECT LIST OF VEGETABLE SEEDS FOR AUTUMN SOWING,

Is now ready and will be forwarded Post Free on application.

THE SUPERB NEW LATE GRAPE,

"MRS. PINCE'S BLACK MUSCAT."

LUCOMBE, PINCE, & CO.,

EXETER NURSERY, EXETER,

Are now sending out this magnificent Seedling, acknowledged by numerous eminent Horticulturists as undoubtedly the very best Late Grape, with true Muscat flavour.

Strong Canes, £1 1s. each; Fruiting Canes, £2 2s. each; Extra Strong Fruiting Canes, £3 3s. each.

COPIES OF TESTIMONIALS ON APPLICATION.

The Editor of the *Gardener* says (August 1, 1867), in his "Notes of a Trip to Manchester," &c.:—"We came to another handsome new house standing unoccupied, and in reply to our inquiry why it was so, Mr. Meredith said, 'I have built that house with a view to planting it entirely with Mrs. Pince's Black Muscat Grape. I went to Exeter to see it in the Spring, and my opinion is that it will supersede all our present Black Grapes for Winter use.' We concluded that if so good a judge as Mr. Meredith, and a man so much alive to his own interest, had come to this conclusion, it was the best Certificate this Grape could have."

TO NOBLEMEN, GENTLEMEN, NURSERYMEN, &c.

IMPORTANT SALE WITHOUT RESERVE.

JAS. GARAWAY & CO.,

DURDHAM DOWN NURSERIES, BRISTOL,

Beg to announce that in consequence of the approaching Expiration of the Lease of the above-mentioned old-established and well-known Nurseries, their

ENTIRE STOCK OF STOVE, GREENHOUSE PLANTS, FERNS, &c.,

Comprising a fine Collection of full-sized, half, and quarter specimen HEATHS, AZALEAS, CAMELLIAS, ORANGES, &c., and their splendid stock of AMARYLLIS, the largest and most varied in England, consisting of all the best named sorts; and many Hundreds of FLOWERING BULBS of splendid unnamed HYBRIDS, will be SOLD by AUCTION, on the Premises (unless the whole or any portion should in the meantime be Disposed of by Private Contract), on MONDAY, August 19, and following days.

CATALOGUES will be ready a fortnight previous to the Sale, and will be forwarded Post Free on application.

The whole of the Plants are now Lotted, and can be viewed any time between 6 A.M. and 8 P.M.

JAS. GARAWAY and CO.'S *Lease expires in the Spring of* 1869, *and till then Business will be carried on at the present Address as usual.*

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MR. WILLIAM BULL begs to announce that he is now sending out WILLS' SPLENDID BRONZE and GOLD, as also his superb VARIEGATED ZONAL PELARGONIUMS; names, descriptions, and prices of which will be found in MR. WILLIAM BULL'S CATALOGUE of NEW and RARE PLANTS (pages 8 and 9), which may be had on application.

Establishment for New and Rare Plants, King's Road, Chelsea, S.W.

CHEAP NEW PLANTS.

6 of the best NEW NOSEGAY PELARGONIUMS.
6 of the best ZONAL PELARGONIUMS
6 of the best NEW PETUNIAS.
6 of the best NEW PENTSTEMONS.
6 PUA TRIVIALIS ARGENTEA ELEGANS.
6 ALTERNANTHERA PARONYCHOIDES.
6 IRESINE AUREA RETICULATA.

The above collection, well rooted and established in pots, for £1, package included.

NUNN & HOBDAY, St. Augustine's Nursery, Norwich.

BANBURY HORTICULTURAL SOCIETY, 1867, will be held on TUESDAY, August 27.

Prizes open to all, whether Members or not, on payment of an Entrance Fee of 2s. 6d.

For Stove or Greenhouse Plants either in Flower or Ornamental, but not Fuchsias, Achimenes, Geraniums, or Annuals, 6 varieties, to be grown in not less than 8-inch pots, 1st, £3; 2d, £2.

For the best 24 Dahlias, 24 varieties, 1st, £3; 2d, £2.

For the best 18 Hollyhocks, 2 blooms of each, 1st, £2; 2d, £1.

For the best 12 varieties of Verbenas (5 trusses in a bunch), 1st, £1; 2d, 15s.

The Judges may withhold any Prize if the Production exhibited be not considered worthy. Intended Exhibitors must give notice to the Secretary on or before Saturday, August 24.

The Society will, if requested, convey the productions from and to the Railways.

For further particulars and Schedules apply to

E. J. HARTLEY, Secretary.

EALING, ACTON, and HANWELL HORTICULTURAL SOCIETY.

President—The Right Hon. S. H. WALPOLE, M.P.
Vice-President—Baron LIONEL DE ROTHSCHILD, M.P.

The above Society has been established for the purpose of holding an ANNUAL EXHIBITION of FLOWERS, PLANTS, FRUIT, and VEGETABLES, at which Prizes will be awarded in three distinct Classes, viz., Cottagers, Gentlemen's Gardeners, and Amateurs.

An Annual Subscription of not less than Half-a-Guinea will entitle the Subscriber to become a Member of the Society, and to two Tickets of Admission to the Exhibition, and to two Tickets for every additional Subscription of Half a Guinea.

The THIRD EXHIBITION of the Society will be held, by the kind permission of H. B. Walmsley, Esq., in his Grounds, The Elms, Acton, on THURSDAY, August 29. The Band of the Victoria R.V.C., under the direction of Mr. Sibold, will attend.

Schedule of Prizes and Form of Application to be made by intending Exhibitors may be had of the Honorary Secretary.

Admission:—By Member's Ticket from 12 o'Clock. Tickets, if purchased the day before the Exhibition takes place, 2s.; if on the day, 3s., to admit at 12 o'Clock; 1s. each if purchased the day before, and 1s. 6d. if on the day, to admit at 2 o'Clock; after 4 o'Clock, 4d. on the day, an 1 if purchased the day before, 2d.

Tickets can be purchased at Mr. ACWORTH'S, Ealing; of Mr. BUNNEY, Acton; and of Mr. H. CARTER, Hanwell

EDWARD WEATHERLY, Hon. Sec., 2, Singapore Villas, Ealing, W.

DUNDEE HORTICULTURAL SOCIETY.—GRAND FLORAL FETE (in honour of the Visit of the British Association) will be held in the BAXTER PARK, DUNDEE, WEDNESDAY till SATURDAY, September 4, 5, 6, 7.

£300 sterling offered in prize money, open to the United Kingdom, to all who shall become Members, Gardeners, and Amateurs, 4s.; Nurserymen, 5s.

The Nomination Prize List is to be kept open till TUESDAY, August 20, and all Competitors are required to specify, not later than that date, the classes in which they intend to compete.

Horticultural Builders desirous of erecting Greenhouses, &c., on the ground, by way of advertisement, are requested to communicate with the Secretary or Treasurer.

Prize Schedules and Forms of Entry may be had on application.

W. R. M'KELVIE, Secretary, 46, Reform Street.
JAMES HARDIE, Treasurer, 98, Nethergate.

The Gardeners' Chronicle.

SATURDAY, AUGUST 10, 1867.

THE exhibition at the last Tuesday meeting of the Royal Horticultural Society of the fruits of some of the edible Passion-flowers, raises the question once again as to what PASSIFLORA MACROCARPA may be. Fruits of a size amply to justify this designation, even if not quite so Brobdingnagian as they are stated to be in certain quarters, have from time to time been exhibited. In form, no less than in size, these fruits differ widely from those of the plant usually, and as we believe correctly, called P. quadrangularis. In order to get information respecting this large-fruited Passion-flower, we addressed ourselves in the first instance to M. LINDEN, through whose collector, Mr. WALLIS, the plant was a few years back introduced to our gardens. M. LINDEN was kind enough to forward us a rough pen-and-ink drawing of the leaves and flowers of P. macrocarpa, and stated that the plant "was discovered by Mr. WALLIS on the banks of the Rio Negro, between Manaos and Barcellos, four or five years ago; that the species was more vigorous in growth than its congeners, and that its fruits, much relished in their native country, attained a weight of eight pounds." M. LINDEN added, that "the species is closely allied to quadrangularis, but is perfectly distinct from it in flower, fruit, and leaves." Thus far M. LINDEN, whose opinion is very different from that of Mr. P. L. HINDS, from whose establishment at Byfleet some of the largest fruits of the so-called P. macrocarpa have been produced. In reply to our inquiries, Mr. HINDS courteously gave us the following information:—"You may feel perfectly assured that the fruit I have produced at The Lodge, Byfleet, is the true Passiflora quadrangularis of the West

Indies. I have known it for upwards of 60 years, and it has been fully described in many books—by HUGHES in his "History of Barbados," by MILLER, BROWNE, and many others; and last by J. D. MAYCOCK, M.D., in his "Flora Barbadensis," published nearly 40 years ago. The residents in the West Indies may well pity the credulity of such persons as are disposed, without inquiry, to imagine that the so-called Passiflora macrocarpa is a rare and newly imported fruit. My plants were sent to me from the West Indies some years ago, and have come into very full bearing of fruit this year (1866). The size of the fruit varies much—from 5 lb. to nearly 8 lb., and the shape is also not uniform, depending on the position of the shoots of the plants in the tropical houses."

Mr. HINDS, then, evidently is of opinion that P. macrocarpa is nothing but a form of P. quadrangularis. We have referred to the several works mentioned by Mr. HINDS, as well as to many other standard works on the natural history of the West Indies, &c., and although, of course, we find numerous references to P. quadrangularis, &c., we have hitherto not been able to find a single passage, in any writer, at all applicable to such a fruit as that now called P. macrocarpa. The fruit of P. quadrangularis is either not mentioned at all, or it is described as oval, and about the size of a swan's egg, of a yellowish-green colour—"bacca magnitudine fermæ ovi olorini, oblonga, elliptica luteo virens"—a description corresponding accurately with the fruit cultivated in this country under the name of quadrangularis, for fresh specimens of which we are indebted to Mr. FAIRBAIRN, of Syon, and others.

GRISEBACH, in his "Flora of the West Indies," describes P. quadrangularis as variable in the size of the flower and fruit, the latter of which measures, says he, 5 inches in length, and less. In SIEBOLD and DE VRIESE'S "Flore des Jardins," 1858, tab. 7, the fruit of P. quadrangularis, var. Decaisneana, is figured of the elliptical or swan's egg form, before alluded to.

It may here be remarked that P. quadrangularis has long been cultivated in the West Indies, where the wild form is hardly, if ever, met with. JACQUIN himself says he never saw it wild.

There is then clearly room for much difference of opinion, botanically speaking; and, so far as we see at present, there is as much reason to suppose that P. macrocarpa (Hort. LINDEN) from the Rio Negro is as good a species as P. quadrangularis (Linn.) from the West Indies is. On the other hand, there are ample grounds for supposing that the two forms alluded to are but varieties of one species, and have originally been derived from the same source. This, after all, is a purely botanical question—horticulturally, there can be no doubt whatever that the large square-fruited Passion-flower, is sufficiently distinct from the large egg-shaped one, so long cultivated here under the name of P. quadrangularis. The Passiflora macrocarpa splendens, with fruit weighing we are afraid to say how much, we only know from the description of the vendor; and as his statement on the point has been repeatedly challenged without reply, we may safely assume that the Passiflora macrocarpa splendens is not likely to find a permanent place in horticultural catalogues, and not even an entry into scientific registers.

WE are reminded by an inquiry as to the propriety or otherwise of CUTTING the LEAVES from STRAWBERRY PLANTS, on the part of one who owns himself to be inexperienced in practical gardening, that there may be other inexperienced readers to whom a few seasonable words of advice on this matter may be opportune. The question with our candid correspondent is as to how far he may venture to cut, in dressing up his Strawberry rows.

The Strawberry is naturally inclined to run wild, and a plantation of Strawberries would soon, therefore, become a forcible illustration of the struggle for existence, if proper means were not taken to keep the individual plants within bounds. Some cutting and trimming is therefore clearly necessary. At one time, under the plea of letting in the light to the crowns, this cutting took the form of an annual mowing off of the leaves with a scythe; but this barbarous practice, which we occasionally find there is still a desire to adopt, is universally condemned by the more advanced practitioners of the present day. But why, it may be asked, is there so much harm in thus cutting off the leaves, many of which are old and unsightly? and does not the removal of them cause the plants to throw up a fresh crop of green succulent leaves that are both pleasant to look upon, and beneficial to the plant? The answer to this involves the old old story of the importance of perfect leaf-action in the economy of the plant. Cut off the leaves thus unceremoniously, and the energy of the plant, which would be better occupied in organising the "bud" for next season, is partly used up in the effort to replace them, so that there is first a loss of that kind of force which we call the vital energy of the plant, and there is the further loss of time, in the height of summer too, while the young leaves are forming, during which nothing can be in process of being stored up, as would have been the case had the healthy leaves not been interfered with. Cultivators then should bear in mind the importance of retaining leaves to their plants, and not be tempted to adopt the rude mode of dressing them above adverted to.

We have said that some cutting and trimming is necessary, and thus the question arises, What form should it take? First of all then the runners, having from time to time been held in check, should at this period of the season be entirely cut away, so that the older crowns may not get smothered by the numerous young plants that will obtrude amongst them, and usurp the best positions, if left to themselves. Next the outer and older leaves should be cut away with a sharp knife, but in such a way that the healthy and vigorous leaves may sustain no injury, but be left to go on fulfilling the function of sap elaboration for which they were designed, for it is in this way that they store up, silently but surely, within the plant those matured products upon which the future crop depends. And, thirdly, wherever the crowns themselves of the several distinct patches of plants, have become at all crowded, they should be thinned by cutting the weakest of them clean away with the knife, and thus leaving the rest in a more favourable position to benefit by the natural action of the leaves during the remainder of the summer. This is all the cutting to which a Strawberry plantation should be subjected, and even some of this may be dispensed with, when the high-class system of very frequent renewal of the plants is adopted.

But when, it may be asked, should this work be done? As soon, we reply, as the crop is gathered, or as soon after that as may be practicable. If delayed till now, it should be delayed no longer, though there is yet time, should the season prove genial, for securing much of the benefit which results from it when carried out in an intelligent manner. When the cutting is over, the ground between the plants should be stirred with a hoe, and mulched with good rotten manure, or drenched with manure water; but it should not be dug, lest the roots be injured, and a check given to that accumulation of organisable matter, that storing up of energy, on which the success of the prospective crop so much depends.

To sum up, then: those whose Strawberry plantations are as yet undressed should lose no time in cutting away all runners, all decayed or decaying leaves, as well as some of the older ones, and the weaker crowns also if they are getting crowded. They should then hoe, and mulch, and also water freely if necessary. The new foliage which will be thus induced to grow up will continue to produce abundance of new tissue, as the uninjured leaves have meanwhile been doing, and at this season of the year, under favourable circumstances, this tissue will have time to become matured. Thus, by a sort of annual regeneration of the plants themselves, the necessity for annual or frequent renewal of the plantations becomes all the less necessary; indeed by following out this process, the plants may be kept in full bearing for many years.

ONE of the subjects which is to occupy the attention of the Botanical Congress, shortly to be held in Paris, relates to the ACTION of SOIL on PLANTS, a subject of no little interest to the horticulturist. In Nature, we frequently see certain plants thriving on certain descriptions of soil, while they are entirely absent from others. Go into a chalk or limestone district and you will find, as it were, a special set of plants very different from those which you may meet with in a marshy district. The sea-coast has its peculiar denizens, while the sandy plains are tenanted by quite a different assemblage. Watch, too, the operations of the gardener: see how minute are his instructions for the fabrication of composts, how particular he is in his selection and preparation of peat for his Orchids; with what care he prepares the borders for his Vines.

Observations of this kind, however, are likely to mislead unless checked by further investigations, undertaken for a different object. In this matter, as in most others, very much depends on the aspect under which it is seen. In view of the facts we have just alluded to, what more natural than to conclude that the nature of the soil must exert a very potent influence over plant life—and so no doubt it does, but not quite in the way in which, at first sight, it would appear to do. Take the chalk or limestone districts of our own country, for instance. There are such plants as the brilliant yellow Chlora perfoliata, the quaint Orchids which lend so great a charm to the Kentish hills, the rampant Clematis, and some others, which we constantly associate with limestone districts in this country; but when we come to compare their numbers with that of the sum total of British plants we find them to be comparatively insignificant: and, what is more to the point, the self same plants, in other countries, are not so markedly characteristic of limestone soils. Orchis militaris and Herminium Monorchis—two of our British Orchids—are scarcely ever found away from dry limestone districts in this country, and yet in Switzerland, as stated by the late Dean HERBERT, both grow in marshy places in company with Epipactis palustris. Aster Tripolium, a plant generally found on muddy sea shores, and usually within the reach of the tide, nevertheless grows in widely different stations, as, for instance, at Swanage, where it may be seen growing out of the chinks of the dry oolitic rocks, though still near the coast. Lythrum Salicaria does as well in dry garden soil as in its native ditches, and so does Acorus Calamus. Let the reader compare the lists of plants supposed to affect particular soils in DE CANDOLLE'S "Géographie Botanique," or LECOQ'S "Géographie Botanique de l'Europe," and he will find numerous instances of the same kind,—the plant that in one district is limited to one description of soil, and is hardly ever found off from it, is elsewhere generally diffused. Until the observer goes into the statistics of the matter for himself it is difficult to believe that plants are not more restricted in a state of nature to particular soils than they are. But let him compare the Floras of various countries, and he will soon find that so far only as soil is concerned, the plants that are restricted to certain soils are exceedingly limited in number, while, on the other hand, by far the greater proportion, water-plants of course excepted, must be set down as common to any description of soil.

Another fact of the same description has been made use of with much effect by Dr. HOOKER, who, in a paper printed by us, at p. 433, alludes to the fact that common garden soil is the medium in which thousands of plants that naturally grow under widely different circumstances, not only as to soil but as to other conditions also, thrive at least as well, often much better, than under natural circumstances. Dr. HOOKER also alludes to the case of an eminently "saline" plant, which nevertheless has flourished for years at Kew without a particle of salt. Yet no one will dream of denying that the soil has an immense influence on the plants that grow in it. What that influence is, and in what manner it is exerted, we propose to consider on another occasion.

—— FOLLOWING closely upon the appearance of the schedule of the great FLORAL EXHIBITION at Ghent next spring (see p. 758) is that of a similar display to be held at ST. PETERSBURGH, in May, 1869, under the auspices of the Russian Horticultural Society and of the EMPEROR, and the Grand Duke NICHOLAS. From a programme just received we learn that the Exhibition will open on the 5th (17th) May, 1869, and will terminate on the 19th (31st) of the same month, and that an International Congress of Botanists will be held at the same time. All botanists, horticulturists, amateurs, makers of garden implements, architects or mechanics employed in the construction of greenhouses and other horticultural buildings, either in Russia or elsewhere, are invited to take part in the Exhibition, either personally, or by sending plants, fruits, vegetables, garden tools, or any other object having any relation to scientific or practical horticulture. The prizes will consist of gold medals of the value of 150, 75, and 25 roubles; of silver medals of the value of 15, 6, and 2 roubles, and of bronze medals. A rouble is equal to about 3*s.* 3*d.* Any suggestion for the improvement of the schedule should be given not later than January 1, 1868. In the spring of the last-named year schedules will be issued giving full details. Arrangements will be made with the several railway and steam-boat companies to obtain a reduction in the cost of transport for

travellers or goods. These arrangements, with the necessary documents, will be communicated to those who give notice of their intention to take part in the Exhibition or Congress. Agents of the Society will be stationed at the Virballen railway station on the Russo-Prussian frontier, at Cronstadt, and at Moscow; the duty of these agents will be to forward all goods destined for the Exhibition, and to afford every assistance to travellers. At St. Petersburgh the goods will be received at the railway stations, and at the steam-boat quays, where also foreign visitors will be received, and the arrangements made for their board and lodging at fixed prices communicated to them. All goods sent to the Exhibition may be sold, but they must not be removed till the close of the Exhibition. The jury will be elected on the same principles as those followed at Brussels and at Amsterdam. The Society will do everything in its power to enable visitors to see whatever is worthy their attention in the city and its environs. All communications should be made "à la Société d'Horticulture Russe, à St. Petersbourg." The preliminary programme before us gives no less than 193 classes, embracing every department of horticulture.

— In reference to the Show of Variegated Zonal Pelargoniums, for Sept. 17, referred to on a previous occasion (pp. 758, 785), the general opinion of the growers of these plants, as expressed in their replies, is to the effect, that the higher rate of subscription suggested is more than the occasion warrants. As, however, several of them still desire that the Show should go on, and are prepared to subscribe two guineas towards making up the few necessary prizes, we are willing to facilitate the arrangements by receiving the names of those who wish to join in the competition. The number of classes will necessarily be decreased, but we think separate classes should be formed for 1, 3, and 6 "tricolor" varieties respectively, and for 1, 3, and 6 gold and bronze-zoned varieties. To avoid misapprehension, it should be understood that they are to be judged according to the rules laid down in our columns (p. 515), and the whole of the varieties shown should be taken as entered for the Floral Committee's Certificates, where they have not already won that mark of distinction. Subscribers names, with remittances, may be sent to Mr. Moore, Botanic Gardens, Chelsea, not later than the 20th inst., in order to give an opportunity for concluding the arrangements, so as to announce them on the Saturday following. This autumn Exhibition need not at all prevent Mr. Grieves's proposed Sweepstakes next July.

— We were greatly surprised, a few weeks since, at finding two flowering shoots of a Beurré Diel Pear Tree proceeding from the top of what appeared at first sight to be the stalks of a Pear of the previous year. It was clear that a Pear had fallen off from the disc, but the part below so exactly resembled a Pear stalk that we felt extremely puzzled, and the more so because after a Pear has fallen there are generally two or three successive solutions of continuity corresponding more or less with contiguous internodes. An attentive examination, however, of several bunches of flowers solved the difficulty. It not unfrequently happens that the peduncles of one or more flowers in a truss are unusually elongated, and bear one or more bracts above, showing that they are composed of two or more internodes. The flower which terminates such a stalk seldom produces fruit, though occasionally it is the privileged one of the truss which goes on to perfection. The true peduncle then is developed above the highest bract, below which the axis is perfectly cylindrical; but whether the fruit falls off soon after impregnation, as is more frequently the case, or is ultimately perfected, it leaves a disc just above this bract. If the lower portion then retains its vitality, and the bracts are very near the scar, it is quite possible that the buds in their axils may be developed, and so near to the edge as to appear to grow from the scar itself, as in the case above mentioned. The fall of the Pear itself depends on the vitality of the part below being superior to that of the part above, and in consequence an intermediate set of cells is produced, and the upper portion ultimately falls. The cells at first are seen like little particles of meal on the disc. In general the lower part does not retain its vitality through the winter, though under exceptional circumstances it may do so. We may take this opportunity of drawing attention to another case of unusual development in the common Pea. In several varieties, but more especially in Carter's Early and Laxton's Prolific, we have frequently seen this year where one flower only was produced from an axil, the second being represented by a beautiful indented cup of considerable size, instead of the seta which is usual in such cases. At first it looked like an abnormal flower, with not the slightest trace, however, of anything within the cup, but a closer examination here again determined its real nature. In most cases there will be found a trace of stipules towards the top of the seta, though generally very minute. A diligent search yielded a variety of forms assumed by these organs, and various degrees of development. Sometimes they were quite separate, and much enlarged, sometimes soldered together by one edge, and sometimes combined all round, so as to form the elegant cups above mentioned, the top of the seta or abortive flower-stalk having vanished altogether. *M. J. B.*

NOTES ON BEDDING PLANTS.

The present summer is one that severely tests the value of bedding plants in regard to their usefulness for this purpose. The bedding out season was ushered in by cold nipping winds, and these have been followed almost continuously by cold nights, and an unusually heavy rainfall. Such a season is clearly an exceptional one, and is of too severe a character up to the present time to warrant correct conclusions being drawn as to the value of bedding plants of a somewhat tender character. My own experience so far is summed up in the following results.

The new Iresine (aureo reticulata), is certainly a most miserable looking object at the present moment. It occupies the best position on a warm south border, but all the tender care possible will not induce it to change its suit of rusty drab for something of a livelier character. It drags on a miserable existence, and that is all. I fear that many persons will be the more disappointed, if not irate, inasmuch as this plant was pretty extensively advertised as having obtained a First-class Certificate from the Floral Committee of the Royal Horticultural Society, while no award whatever has been made to it by that body.

The pretty variegated Meadow Grass (Poa trivialis argentea), is a decided acquisition. It grows freely while it is also very compact, and it keeps its variegation well, as I do not observe the slightest tendency in any of the plants I have, to revert to its original character. Mr. D. Thomson, of Archerfield, has complained in the columns of a contemporary that all his plants have lost their variegation, but I have neither seen or heard of a like result happening elsewhere. On the other hand, I can do nothing with the variegated Bambusa. It has so much "fixity of character" that it declines to grow at all, and the appearance of the plant under the circumstances is suggestive of a kind of horticultural dyspepsia.

Of Mr. George's new bedding Tropæolums I have King of Scarlets and King of Spots, both of which were awarded First-class Certificates by the Floral Committee during last year. I am also trying Carter's new variety of the Lobbianum section, named Crystal Palace Perfection, which was awarded a First-class Certificate at the last show of the Royal Botanic Society. The latter has a somewhat trailing habit in common with this section, and throws its flowers, which are of a brilliant orange scarlet, well above the foliage; it also blooms freely and continuously. This variety cannot be too highly recommended as an effective and valuable bedder. King of Scarlets has the close habit of the Compactum section, with the Lobbianum style of flowers, which are a little smaller, but of a deeper hue of colour than those of Carter's Perfection. It also blooms freely, makes an excellent edging for long beds, and does well massed or intermingled in small ones. King of Spots is also of the Compactum strain, the flowers approaching in character those of the Tom Thumb section. The flowers are yellow, with dark amber spots; in cold weather some will come curiously mottled with amber. This also will make a very useful bedding kind, the habit being excellent, and blooming freely. But for massing, and for ribbon borders, as well as for mixed beds, what can compare as to effectiveness and brilliancy of hue with the Scarlet Tom Thumb and the King of Tom Thumb Nasturtiums. These two popular dwarf varieties bloom in the most profuse manner, and continue to do so; while the peculiar dark foliage of the latter forms an admirable background to the brilliant crimson flowers. In a window-box I have a back row of King of Tom Thumb Nasturtiums, and thrice the number of plants of any brilliant-coloured Nosegay Pelargoniums could not give so much colour, even could they be grouped in so small a space. Mr. Turner's variety of the dwarf Nasturtium, which he calls Compactum, though it grows taller than Mr. George's Compactum varieties, is another gem, and it could be very appropriately termed Orange Tom Thumb, the flowers being of a rich bright orange, and produced in such dense masses as almost to hide every particle of foliage. Those who saw this variety growing at the Royal Nurseries, Slough, during the summer of 1866, will not readily forget the rich line of this showy flower on the north side of the "square house," near the high road.

Nor can the praises of Viola lutea as a summer bedding plant be too highly sung or said. It has more of the habit of the ordinary Pansy than V. cornuta, and the petals of the pale bright yellow flowers are broader. It blooms profusely, and it is very effective. The hottest weather does not appear to affect its growth, as the side shoots root readily into the soil, and thus dense masses of foliage are formed. Of the two varieties of V. cornuta, that known as the Mauve Queen has the best and strongest habit, while the flowers are certainly larger. With me it even blooms more freely than V. lutea, and grows very compact and close to the ground. Purple Queen is more straggling in growth, does not flower so freely, and gets from some cause a sickly appearance. What it gains in depth of colour, which after all is not a very great deal, it much more than loses by the defects above-mentioned.

The old Campanula carpatica makes a capital plant for ribbon and mixed borders, as it grows and blooms freely, throwing out a succession of side shoots that become full of flowers. A variety of carpatica, with a darker shade of colour and a little more compact in its growth, has been named Bowoodiana, and originally came from the gardens of Bowood, near Chippenham. Though it seeds freely, the seedlings betray a tendency to sport, and it should be propagated by root divisions in the autumn. Some who grow this Campanula somewhat largely, adopt the practice of lifting the plants and replanting in the same place early in the spring just before the roots start into growth. It is said that the growth is thereby assisted.

Of the new bedding Lobelias of the past year I am trying several, all of which are now in a good state to be reported on. For depth of colour, nothing beats Indigo Blue (E. G. Henderson & Son), colour deep indigo blue, with a conspicuous white centre; apparently a seedling from L. speciosa, but not growing so straggling. The colour also stands well, but the season has been so far in favour of this, as there has been but few hot sunny days. Pumila elegans (E. G. Henderson & Son), is a very compact growing dwarf kind, blooming profusely; in colour a bright blue, but having only a very small white centre. The want of a light centre to show up the blue colour gives it a somewhat dull appearance even when fully in bloom. The habit is excellent, and it also stands well. Blue Tom Thumb is a seedling not yet sent out. It has a livelier colour than the foregoing, and has a conspicuous white centre; it is similar in habit, and blooms profusely. For edgings this variety will be invaluable. Attraction (Carter & Co.) is an excellent free-blooming variety for bedding purposes; it has the character of L. Paxtoniana, the centre of the flower being a large blotch of white, with an edging of azure blue. It is of a very desirable habit, and forms a conspicuous feature in the flower garden. Blue King (Carter & Co.) is almost a self, the flowers being of a deep azure blue colour, with a small white centre; but, like Pumila elegans, it wants more white to give life to it. The habit is good, and it blooms freely. Both of the foregoing are valuable for their compactness of growth. Beauty of Ravensbourne (Carter & Co), a valuable addition to the dwarf section, deserves all that has been said in its praise. It blooms in a most profuse manner, the flowers being of a lively lilac hue, with a conspicuous white centre. It is very dwarf growing, and should be planted thickly together, as the variety appears to branch but little. Miss Murphy, the new dwarf white variety, I neither can grow, nor have I seen it anywhere in anything like the character given of it. It appears to be incapable of making any perceptible effort in the way of growth. White Queen (E. G. Henderson & Son) is of the ordinary growth of L. marmorata, the tube being pale blue, the lip white. Seedlings of both L. marmorata and L. Paxtoniana greatly resemble and are quite as good as this, while the habit appears to be somewhat spare and thin. I hear of a dwarf white Lobelia that is shortly to be seen, which, if its character be not exaggerated, promises to be the bedding plant of the season. As any description at the present moment must be taken on trust, it shall be reserved till it puts in an appearance at a future meeting of the Floral Committee. *R. D.*

LETTERS FROM PARIS.—No. XXI.

Horticultural Implements, &c., at the Great French Exposition.

In consequence of the permanent nature of the show of horticultural implements in connection with this great Exposition, they are better represented than they ever have been in any one place before. I shall therefore endeavour to point out such things as deserve adoption with us, passing by other things, small or great, novel or ordinary, if they do not come up to this standard.

Probably the first object that catches the visitor's eye on entering the Jardin Réservé are several machines or contrivances for spreading water without the aid of an attendant. The French system of watering gardens, &c., is perfect, or at least the system generally adopted, for there are yet watering-pots at the Jardin des Plantes, made of thick copper, which are worthy of the days of Tubal Cain, but a disgrace to any more recent manufacturer, and a curse to the poor men who have to water with them. Generally Parisian lawns and gardens are watered every evening with the hose, and most effectively. The contrivances spoken of are for spreading water without the continual aid of a workman. They consist of metal noses with stop-cocks here and there, and of globes elevated 6 feet or so, from which the water emerges in a circle. I shall describe one of these machines, because an old system which I have recently observed in Baron Rothschild's beautiful garden in the Bois de Boulogne, and in other places, is so simple and so superior, that it is impossible to beat it. A metal hose, in 6-feet lengths, is stretched across a lawn—the lengths being joined together by about 1 foot of strong leathern hose, so that the whole affair is flexible, each 6 feet length of piping being supported by two pairs of little wheels. It is, in fact, the same contrivance that they have for watering the grand thoroughfares, only that in that case there is merely a pipe at one end, which is managed by a workman, who directs his stream about among the carriages with ease. But for watering a lawn they simply perforate the pipes with little holes at about a yard apart on one side, so that when the water is "laid on" a dense and gentle shower falls over about 3 or 4 feet of the ground all the length of the hose. I saw them watering the plain of Longchamps lately with this piping, and, with Mr. Smith, of Kew, who accompanied me, was delighted with it. The plain had been beaten into dust by the great review, and by numerous races, and yet they were watering it from one side to the other with one hose, a man attending it, and going gradually from one end of the line to the other, pushing the wheeled hose forward as the ground became sufficiently saturated. This is simplicity and effectiveness itself.

The only thing needing other remark about it is, that they perforate the piping simply with a bit of metal, and in a direction along the pipe, as by doing so the water spreads gently in the same line with the hose; if the nail were driven in in the opposite direction the water would play across the pipe, which they do not desire. There can be no doubt that the success of the subtropical plants depends to a great extent on the excellent system of watering adopted. In some of the drier districts of Britain there is quite as much want for a good system of watering as there is here.

To isolated beds, specimens, and general planting, they apply water with a hose—a dense heavy shower. The profuse cropping of the market gardens here is also to be attributed, to some extent, to their regular watering: the ground being always moist and friable. In the market gardens they raise the water from deep wells by horse-power, and send it to barrels and cement cisterns plunged in various parts of the garden. In each

market garden, and in many nurseries, you usually see a horse of the establishment working one of these pumps.

The next things that demand notice are the various hothouses, &c., at the Exposition. They are all of iron, usually neatly and well built, occasionally elegant, but offering very little which is worthy of adoption. The French use iron houses, and generally think our wooden ones too heavy and cumbrous. There is one house which is on the principle adopted at La Muette for the larger structures. The mode of glazing these is worth notice, and better and neater than we often see in England. The panes do not overlap, but meet evenly, a particle or so of putty being used between them if they do not meet exactly; and on the outer side a neat thin strip of lead paper, about half an inch wide, is laid over each junction. The appearance of this silvery strip is good, and it is in every way effective. It is in fact heartily adopted by M. Barillet, and is probably not surpassed, if equalled, by any mode of glazing. The house is by its use glazed hermetically, while there is not a particle of the rustiness that occurs in English houses from decaying putty, &c., to be seen. All drip is entirely prevented in this house by making every 4 feet or so of its length slightly underlap that above it, the top pane of each division projecting half an inch into the house, and catching all the drip which then escapes on the roof by the very thin slit between the panes and the bar under which they rest. There is no difficulty whatever in the repairing of such houses, which is not the case in some of our funny modes of glazing. This method is good and elegant: the best for large houses, which should generally be of iron, if we do not wish them to be intolerably ugly. The small houses of the French are of iron too, and nothing can be more useful than the very cheap, one-light, low iron houses at La Muette—which, by the way, is only in its youth, from what M. Barillet told me yesterday, namely, that they have arranged to build between 50 and 60 more houses there. The aspect of most French glass houses is spoiled by the effect of the shading they employ—laths connected together by string and little hooks, and painted dark green, and by all the houses above the small and useful low two-light ones having a gangway over the roof to arrange this shading, &c. It is a very bad, very awkward, and very expensive way. The garden is edged with the edgings I have already recommended, but they are mostly of the strongest type, suited for well-frequented avenues, &c., in public gardens. The smaller size of these, such as you see in gardens around the Louvre, are certainly the neatest and most tasteful that can be employed.

Naturally there are very many labels in the gardens, the best being some small ones exposed by M. H. Aubert, 189, Rue du Temple. These are in rather thickish zinc, and very neatly and deeply impressed and accentuated. They are of sizes suitable for Rose and fruit trees, small ones for numbering, others with stems for using with pot plants, and so on. There is a thinner type of the same style common enough in the seed-shops, and not very dear: but after you get them comes the writing, and that is the difficulty, or the stamping, or whatever it may be—usually a failure and always a labour, requiring some taste and neatness. Now you can get these labels deeply, and neatly, and plainly impressed by this M. Aubert at 3 francs per 100, furnishing him with a list of the sorts required in the first instance. As anybody who has meddled with such matters knows, to get such labels deeply and well impressed would be very cheap at 3 or even 5 francs the 100. I need, therefore, hardly say that being able to procure them ready to attach to Roses, fruit trees, &c., at 3 francs per 100 is a great advantage. Our labelling generally is a great mistake, and this surely is a step towards having plants decently labelled without incurring great expense. Small ones numbered to order are sold at 1 franc per 100.

We will next turn to chairs, of which there are numerous kinds to be seen. The kind which takes most people's attention is that which you may see in quantities in all public places in Paris, with a convex seat made of elastic strips of metal springing from the sides and joined together in a little central piece. There are many modifications of this, the best being one in which the seat made of these united bands is covered with a slight wire network. These chairs stand any weather of course, and are yet as elastic and as comfortable as any drawing-room chair. The neatest and most elegant and comfortable conservatory, pleasure ground, or summer house chair ever seen is composed of three of these seats united in one, the larger framework of the back and sides being made of charmingly rustic iron about as thick as the thumb, the smaller spray being tied to the larger by imitation osier twigs. This may be seen in the kiosque of M. Carré, the maker of the greater number of chairs in this way. It is in the Reserve Garden, just as you enter it, near the Rue de Belgique, and contains specimens of his many varieties of this elastic principle.

I have no space to say anything about the artificial flowers, which are exquisitely made, more natural-looking both in texture and finish, and more naturally associated than anything I have seen in England. But their modes for trellising trees must not be dismissed thus. The more I know of French gardening, the more I am impressed with their superiority as fruit growers, and now feel that I have not rendered half justice in this respect. However, having so many and such successful ways of training trees, they must have something to affix them to, and generally make very trim and firm trellises, &c. In some cases the galvanised wires are tightened in the T-iron by means of a long screw and winged nut to each wire; but the best is, I think, one in which double lines of wire are supported at a distance of 15 or 18 inches from each other, by means of one upright at each end. They project a bow of iron at each level, from which it is desired to run a wire (say 8 or 10 inches apart), and the wires are strung from these, tightened on each side by cheap little rack wheels fixed in the upright. Lengths of these, about 16 yards long, 6 or 7 feet high, look very neat, and with a slender bit of T-iron, armed with cross-bits half way between the main supports, as firm as could be desired. On one side of such you may see diagonal cordons, on the other palmettes, &c. Need I say that such things are most desirable dividing lines in gardens; even if be not desirable to cultivate them solely for their own sakes? Examples of very cheap narrow iron frames are also shown. Cheap iron lights for covering turf-pits would be very useful in England; with them we need nothing but the bare and neatly levelled walls of turf. A thing for entrapping flies, &c., seems effective, and of course is patented, though not new nor deeply complicated. It consists of two bell-glasses, the lower one placed upon two sticks, and narrowing to an open tube in the top. On that is placed an ordinary large bell-glass, and the thing is complete. A few bits of lean meat placed under the glass soon become sufficiently odoriferous to attract hosts of flies, who enter at the inch of space left free by the sticks, and on leaving to get the right way out and ascending through the tube, generally remain in the upper glass, to perish in quantities. The thing may be worth adopting as a counter-attraction in fruit houses. Some of the rustic erections thatched with Bulrushes look very well. They are made of both real and imitation wood. Imitation rustic work, either in cement or iron, occurs indeed rather often in the houses, from the fences or little bridges to the margins of some of the beds in the houses, and even the doors and sash bars of one.

There is no end of garden cutlery, of which I will only mention the *sécateur*, and I believe this to be an instrument that every gardener should possess himself of at once. I know well the prejudice that exists in England among horticulturists against things of this kind, and their almost superstitious regard for a good knife—a state of things quite justified by the nature of most inventions brought out for the amelioration of gardening. I believed in a good knife above all, before coming here, but when I saw how useful is the *sécateur* to the fruit-growers of this country, and how much more easily and effectively they cut with them exactly as desired, I became at once converted. A *sécateur* is seen in the hands of every good French fruit-grower, and by its means he cuts as clean as the best knife-man with the best knife ever whetted. They cut stakes with them almost as fast as one could count them; they have recently made some large ones for cutting stiffer stuff—such as the strong awkward roots of the Briars collected by the Rose growers. There are some cheap netted bags shown for protecting Grapes from insects, at from 10 to 20 francs the 100. If we can do without such things, so much the better—they seem efficient and lasting. Their simple little machines for impressing numbers on strips of lead are also useful and very handy for those who employ that mode of labelling. They have a rather useful thing for pressing stakes into the earth. It is simply an iron plate and strap for the foot, a strong bit of iron projecting from the plate, rising up a couple of inches, and bending forward a couple more, its inner edge being cut into teeth. The operator catches the stake with this, and pressing his whole weight directly upon it "drives it home" with ease and effect. It is not a thing that I can say is really used and liked, as is the *sécateur*, for I have not seen it in use.

Lastly, I will mention the *cloche* or large bell-glass, used in all French gardens. You may see acres of them at a time in the market gardens around Paris. It is simply a huge bell-glass of coarse stuff, costing about a franc, as big as a bee-hive, and the most useful thing they have for winter and early spring Lettuces and small salading. Of course the stuff under them in midwinter are deprived of air, yet it is by the aid of these that they produce the fine Cos Lettuces, &c., which you may enjoy in Paris so early in spring, and doubtless much of the stuff they send to the English market. They know nothing about handlights, but, as will readily occur to the reader, have a very ancient acquaintance with the principle of what we call the "Wardian case."

The chief feature of the show which opened on Friday, the 2d, is Gladioli, of which there is a good display, Mr. Souchet taking the 1st prize. As, however, I hope to see his grounds again before long, I shall have an opportunity to discuss this subject more satisfactorily than at present. Phloxes, shown by Lierval and others, are very fine; also the double Zinnias, which in one instance look almost like Dahlias, so large and double are they. Some specimens of a very dwarf race of Snapdragons, shown by Messrs. Vilmorin, Andrieux & Co., are very pretty, and will no doubt prove welcome for rockwork or flower garden. Another very striking and well-grown batch of seedling varieties of Gloxinia is shown, but though here and there remarkable as to the flower, they lack the beauty of shape and charming novelty of colour displayed by those noticed at the last show. I understand that Messrs. Thibaut & Keteleer have become the possessors of these last, so that they are pretty sure to soon find their way to England. In the fruit department fine specimens of the Fig Violette d'Argenteuil, both gathered and abundantly produced on branches, look the most attractive to the English fruit grower. *W. R.*

ON TRANSPLANTING TREES.

BY ROBERT HUTCHISON, OF CARLOWRIE, KIRKLISTON.

(*Concluded from p.* 782).

IN transplanting, the first care of the workmen is to dig a trench around the plant at a radius of not less than 6 feet from the stem. Having done so to a depth of about 2 feet to 2½ feet, the points of the spades may be directed inwards towards the root of the tree, and having thus disengaged the plant from its moorings, it may be carefully lifted, if the distance be short, to its new position.

Should the ball be composed of such earth as is apt to crack or break away, it should, before being lifted out of the trench, be properly secured by boards roughly nailed around it, after having been carefully tied together and sewn up in matting, and damped.

Too much attention cannot be paid to the protection, as much as possible, of the young roots from the influence of the atmosphere; and, consequently, to save unnecessary exposure, the pit intended for the reception of the plant should be previously dug and prepared for it. If the weather be dry and favourable, we do not object to this having been done, and the earth thrown up to pulverise under the action of the air for a couple of weeks prior to the operation of transplanting.

Before placing the root-ball into the pit, a little dry, fine soil should first be thrown into the hole, and if the situation be very low, or the soil heavy, it is a decided advantage to have the immediate spot well drained by means of small loose stones, or coarse gravel, laid in narrow slits radiating from the pit to a distance of about 3 yards, deepening such little runlets for super-abundant moisture at the extremities to at least a foot below the level of the bottom of the pit. By these channels the root-bed is rendered less liable to root-damp, the great obstacle to the success of newly transplanted trees, which is frequently originated by hard tramping, and over-watering at the time of removal.

Having thus placed the tree in the site, the soil is next cautiously filled in to the hole, care being taken to firm it well; but, in doing so, it is especially requisite to avoid lacerating the small roots, and when the earth is all filled in, there should be formed around the neck of the tree a trough or hollow, to prevent the operation of watering from washing away the soil, and thus exposing the rootlets near the surface of the ground.

In planting the tree in its new situation, it is sometimes customary to reverse its position, if it happens to have a weather side, or an unequally balanced head, and to turn towards the stormiest point the side of the tree best furnished with branches. In this way the habit of the plant to turn its branches from the wind is corrected, and its future appearance improved. Where much inequality exists, or where long limbs predominate too much, a little judicious pruning may be also desirable. In no case do we advocate root pruning in transplanting deciduous or other trees.

In the manner thus indicated, specimens from about three to six and eight feet in height are removed without the aid of machinery; but where a good root-ball cannot be obtained, a transplanting apparatus should be employed; and, when this is necessary, we have found the 30-inch transplanter, patented by M'Glashan of Edinburgh, at once efficient, easily wrought, and economical.

The same general rule is applicable to all methods of transplanting, whether by manual labour or by machine, namely—to disturb the functions of nature as little as possible, and when disturbed to provide for the injury a speedy remedy. Thus very large plants may be transported any distance with perfect safety. When the operation is conducted by manual labour only, and a considerable distance has to be traversed to the new site, we have found it best to place the specimen upon a handbarrow, and to have the same borne by two or more labourers, seated in a spring-cart, and, in this way, neither the jolting of the springs nor the rough unevenness of the road affects the stability of the root-ball. When placed in its new position, it is well to have the pit somewhat larger than necessary, and into the vacant space around the ball to pack closely a quantity of fresh mould, composed of well-rotted turf mixed with leaf-mould; and, after one good drenching of water, the tree may be left to its fate.

Should very dry weather supervene, it may be necessary to add more water. Yet this is rarely requisite; and we think that mischief is too often done by frequent repetitions of watering. In administering the thorough soaking when planted, it is best to apply the water overhead—that is, upon the leaves and foliage of the tree, and not merely to pour it into the roots. By this precaution, the invariable tendency to profuse perspiration which the leaves of a transplanted tree exhibit, is prevented or modified, and, consequently, any undue drain upon the system of the tree from that cause is obviated. To aid the success of transplanting, it is almost unnecessary to add that the operation should only be conducted in dull or cloudy weather.

Security against the swaying of the plant from the action of wind is the only other precautionary measure, subsequent to planting, requiring notice in this paper.

As soon as removed, all specimens should be firmly secured against the sudden attacks of gusty weather. Generally speaking, in the case of large trees, the root-ball will be found a sheet-anchor of sufficient weight (if the tree has been properly lifted) to cope with the violence of the elements.

It is well, however, to moor small or tender trees by stakes well driven into the ground, probably to a depth of three feet, or by ropes or strand-wires fastened to stakes driven into the soil around the root. Another method sometimes employed to secure steadiness of the tree in its new position, is, in transplanting, to splice to its leading roots long pieces of tree-roots, from 15 to 20 feet long and about 2 inches diameter, cut from other trees—thus the lever power, and resistance of the roots against the swaying of the head by the wind, is greatly increased, until the tree takes hold of the soil for itself, and becomes thoroughly established in its new site.

In cases where ornamental shrubs or trees are planted, with the prospect of being again, at no distant

date, transplanted, it would be well to proceed thus:—Having dug the pit for the reception of the tree, drive four stobs into the ground to the head, one at each corner of the hole; to these four corner posts nail strong boards of common Fir planking, 1 inch thick and 6 broad, or of paling rail, leaving narrow openings between the joints; in this underground frame-work the tree will expand and spread its roots, and when the time arrives for transplanting, a trench is dug round the wooden casing; the four corner posts or stobs are sawn over at the bottom; a flat shovel or spade is used to skim under the root-ball, for the purpose of cutting the downward rootlets; a rope is passed from either side under the casing, and fastened to the tree stem above, so as to keep the whole firm; and in this way, and with little expense and trouble, the plant may be transferred to its new position. This mode of transplanting has this advantage, that the delay and cost of previous preparation are avoided, time and labour are saved during the operation itself, and a certainty of success is, in ordinary circumstances, ensured. It may be prosecuted in ornamental grounds, where, at the time of laying out, it is quite obvious that in a few years many of the specimens planted will require to be removed or sacrificed, to leave room for the others.

We may notice, in passing, the ingenious but old-fashioned mode of freezing the earth around the roots for the purpose of obtaining a good retentive root-ball, but we do not recommend it. It necessitates the partial exposure of the rootlets to the weather at its most inclement season, till sufficiently hard frost sets in, and the season for the removal is limited to a period of severe frost; and although, from the process of freezing the mass of earth round the roots, these organs may sustain no injury, still the whole method is obviously clumsy, and the foregoing objections are sufficiently strong to condemn the process at the present day.

Many practical results are within our knowledge to justify the seasons and circumstances for transplantation advocated in this paper. We may observe, as instancing between the comparative advantages of Autumn and Spring, or early Summer planting, the following example, amongst many others, in favour of the latter season for Evergreens:—

At C——, soil rich loam of considerable depth, on a rather damp, clayey subsoil; elevation above sea level, 90 feet; in the month of November, 1856, a thick belting of Evergreens, chiefly Portugal Laurels, Bays, Hollies, Yews, &c., was formed. The plants were about 2½ feet to 3½ feet high, and were carefully "pitted" in the usual way. A moderately severe winter ensued, and the losses by next April were from 40 to 50 per cent. This arose not so much from the severity of the frost, as from the influence of the chilling east winds of Spring in February, March, and April, succeeding a considerable period of wet weather, acting upon the plants before they had become established in their new site. The blanks thus created were made up in the spring of 1858, from the same nursery stock, and in the same manner as before, but at the beginning of May instead of in the autumn; and the consequence was, that not only was there no case of failure, but these last removed plants are now much taller and stronger specimens than the survivors of the previous year's planting.

To notice the advantageous results of midsummer transplanting, we need only refer to the trees removed during the summer of 1863, at Goldenacres Nurseries, to test and exhibit the power and advantages of M'Glashan's Patent Transplanting Apparatus, and which are all very healthy and thriving. These trees are chiefly Coniferæ, and ornamental Oaks, such as Quercus panonica, salicifolia, pterifolia, &c., and ranged from about 4 feet to 11 feet in height when removed. The operations of transplanting them were carried out during June, July, and August, 1863, and not only had none of the plants lifted sustained any injury, but even in the following spring, and ever since, they have gone on producing vigorous shoots of young wood; several Thorns removed having, in 1864, made growths of about 3½ feet in length!

Before concluding this paper we have to notice the comparative advantages in point of cost, progress, &c., of transplanting trees from 3 to 6 feet high, instead of the larger specimens usually removed for purposes of immediate effect. When permanent results are desired, and value as well as amenity has to be added to the estate by the growth of healthy timber, there can be no doubt that the advantage is in favour of the smaller specimens. It may, no doubt, be desirable to clothe with rich foliage the barren landscape, or afford protection to weather-beaten flocks and herds, by calling into immediate existence the sheltering belt; and where the subjects can be procured, to be thinned out, or where clumps are to be found to draw from, the practice of removing large trees may be adopted with benefit and success, at no very extravagant expense; and thus enhanced value may be given at once to bare pasture lands; but the art must ever be limited, and it is not in the case of large trees applicable to the general purposes of utility. It may be argued in favour of economy of the practice of removing large specimens, that extensive tracts of ground usually occupied by young trees and nurses may be saved for other purposes, that the expenses of fencing and of maintaining plantations during years of unprofitableness, and of cleaning, thinning, and pruning, may be avoided, if trees of large growth were more generally transplanted than those usually employed, and that the difficulty of raising in some unsuitable localities and soils several of the slow-growing varieties during their tender years would be avoided; but in opposition to such specious arguments we can only remark that, while for immediate landscape effect, and for that only, the larger the tree removed the better, provided it be done successfully, and be not transplanted to its new site in a mutilated condition to pine and decay; and such means must be employed by those who desire to anticipate years of growth and progress to attain their object,—still their pleasure must be dearly bought at the price it costs, and the risks of failures they incur for a few years of merely temporary advantage. On the other hand, those who are satisfied with transplanting for the purpose of immediate effect, specimens of from 3 to 8 feet high, will be more amply rewarded, for at much less cost and trouble, and with prospects of greater certainty of success, they obtain a far more rapid and healthy growth of young wood, as well as a more enduring superiority of timber; and they consequently bequeath to their posterity a richer and more valuable gift, in the more permanently improved and enhanced value of their property.

Home Correspondence.

Pelargonium Endlicherianum.—I wish to state that this plant is perfectly hardy, and beautiful, as, since naming it in my account of the Jardin des Plantes, I have seen it in the full glow of its deep and peculiarly-striking rose-coloured flowers. It is highly-interesting as being the only Pelargonium that is native in Europe, and from being at the same time an ornamental plant. The leaves are neat, and remain pretty close to the ground, but the flowers are boldly upheld at about 18 inches from the surface, and are startlingly showy for a plant of its colour. Doubtless some day we shall be able to get hold of it; and when we do it will be necessary to give it a good but dry and sandy soil, and a warm position. A sunny nook on a good-sized rockwork would be a capital position. It was first found in Europe by that hardy and enterprising traveller Mr. Balansa. *R.*

Effects of the late severe Winter on Conifers, &c.—The plants in my collection that have suffered most were three Cupressus, which I had from the late Mr. Veitch, of Exeter, under the name of Corneyana. They were from 8 to 10 feet in height, and were all killed down to the ground; I have, therefore, had to throw them away. Macrocarpa, which grows very quickly here, and of which I have 10 or 12 specimens, has been greatly injured; two fine symmetrical plants, especially, growing in the most sheltered part of the garden have been sadly disfigured, and I fear will not recover their "good looks" for some time. Pinus insignis, which likewise grows very rapidly, has also suffered greatly; many have been killed back 10 or 12 feet, and nearly all their foliage has been destroyed; I fear those most injured will hardly recover. It is a sad pity that this noble tree will not stand our climate, as it is certainly one of the most beautiful Conifers which we possess. I have, however, a sort of hope that it may improve in regard to hardiness as it gets older, though every plant which I have is more or less injured, and many of them look more dead than alive. I was told the other day by a friend who had recently been at Mr. Barclay's, Bury Hill, near Dorking, that a very fine Pinus insignis growing there, and which I believe is one of the oldest plants in the country, has not been injured in the least. I trust therefore that my plants may get hardier as they get older, and consequently grow more slowly; for at present they grow very rapidly—two specimens, in particular, not a foot high seven years ago, are now quite 25 feet in height. I fear that my soil is too good for this Pine; a hill side, a thin soil, and a northern exposure would be the place for it. Nothing else here except Pinus australis, which was killed, and the Laurestinus and Escallonia macrantha, both of which are killed to the ground but are springing again, are hurt. Some of my Deodars have been a little injured, but I think more by snow and wind than by cold. Of Conifers not the least injured, I can report Wellingtonias, 11 specimens, the tallest about 20 feet, all doing as well as they can do. Araucaria imbricata, 18 plants, all growing very robustly, and not the least injured. Abies Douglasii, Menziesii, and Morinda, all growing very freely; not the least hurt. Abies orientalis, canadensis, and Mertensiana not hurt. Picea pectinata, nobilis, Nordmanniana, amabilis (true, received from Mr. Barron), cephalonica, Pinsapo, bracteata, Webbiana, lasiocarpa, and "nobilis robusta," all doing well, and not hurt in the least. The cold late spring seems rather to have suited P. Webbiana than otherwise. Lasiocarpa and nobilis robusta I may, I think, boast of as the finest specimens of their respective kinds in the country; I have not got Abies Douglasii 93 feet in height, but I doubt if Mr. Frost has a Picea nobilis robusta more than 9 feet 10 inches—the height of my best one. My best nobilis, and Nordmanniana too, are very beautiful plants. I purchased the former some seven years ago of Mr. John Holms, of Whittington, near Lichfield; it was then about four feet high, now it is more than 20 feet, and if it had been "made to order" it could hardly have been more symmetrical or more glaucous. The Nordmanniana is also a beautiful specimen, it has grown very quickly, and is much admired. I have nobilis (not the plant just mentioned) and Nordmanniana and Webbiana bearing cones. Of Pines I report uninjured monticola, Lambertiana, Benthamiana, Jeffreyana, and Cembra. Of Thujas uninjured, Menziesii or Lobbii, and grandis. The former does very well here. I have one, I think, as good as can be seen anywhere. Biota aurea is also unhurt. Thujopsis dolabrata and borealis are uninjured; dolabrata is a very slow grower, but it is perfectly hardy. Two plants of Cupressus Lawsoniana are injured, while five or six others are not in the least hurt. That very beautiful plant, Juniperus chinensis, is not in the least hurt. Torreya myristica, 9 feet 4 inches high, 11 feet through the branches, and very handsome, is uninjured. Saxe-Gothæa conspicua and Fitzroya patagonica are not hurt, and the same may be said of Cryptomeria japonica, and Arthrotaxis selaginoides. I may add that Berberis Darwinii is also quite hardy, and I can recommend it as a very beautiful shrub, but it grows rather too quickly for a small place; some of my plants are so big I don't know what to do with them. One plant I have just measured is 13 feet high and 16 feet through the branches; for woods or large plantations it would be a most desirable plant, for it flowers and fruits very freely, and all birds seem fond of the berries; no doubt pheasants would be equally fond of them. Berberis asiatica is also quite hardy here, but I can make nothing of Berberis japonica, Bealii, or intermedia. Will any of your subscribers, who have planted Sciadopitys verticillata, Libocedrus tetragona, and Chamærops Fortunei, kindly state how they are doing—height and size of plant, when planted, height and size then, where growing, and if hardy and robust? *C. F. P., The Grange, Kingston, near Taunton.*

Melon Growing in Kent.—I was at Maidstone on Thursday; it was worth the journey to see a house of Grapes and another of Melons belonging to Mr. Frost, formerly gardener to Mr. Betts, of Preston Hall, but now in business for himself as nurseryman and fruit grower. Well, of the Melon first. There were several sorts growing, all in good health and mostly abundant in fruit. One-third of the house exceeded all I have before set eyes on, for the Melons literally touched each other, and yet were in the most perfect state of exuberance, many of them just beginning to ripen. Not a speck of disease on the leaf, or scar where it had been. 18 inches of earth by as much in width was all they were growing in; faggot wood below that, and one hot pipe below that, and one hot-water pipe outside this raised border to warm the air. This arrangement I have before often seen, but never with such result. Now for the Vinery. It had all been planted alike; but when Mr. Frost took the premises he cut one portion down, leaving the other with the weakly stems and branches to obtain a little fruit. The other half was cut down, the border remade, and such a result has followed that few would believe the Vines were of the same age. There are no bunches in the first half, and the Vines are still weakly; in the second they are all vigour, and as for fruit the rafters seem studded with bunches at regular distance from top to bottom. The bunches are not large but regular, and the berries have been so carefully thinned that they are of equal size and equal tint of colouring, and what I call perfection of colouring, too. When a bunch was cut and put on a plate, each berry supported those above, so that no collapse was visible, the berries were as firmly placed as when hanging. This I consider proof of the highest cultivation. *W. M.*

Gay Plants for the Garden.—I have now in my garden what I think does not obtain the attention it deserves, viz., the Œnothera Lamarckiana. I have had it for the last three years, and there cannot be a more interesting sight than the unfolding of its flowers in the evening, commencing with me about one hour before sunset, the exhibition lasting from 30 to 40 minutes. Last night no less than 64 flowers were developed from about five or six stems, and this rate goes on for two or three weeks. Another plant, which is quite worth any attention the horticulturist, or rather the lover of flowers for their own sake, might bestow upon it, is the common, the very common Chrysanthemum Leucanthemum. An old friend of mine is now living at St. Ann's Heath, Chertsey. I paid her a visit two or three weeks ago, and looking out of my window, the morning after my arrival, I was much struck with one or two splendid patches of pure white flowers, half as large again as the common Chrysanthemum Leucanthemum of the fields; there were at least 100 fine flowers in each patch, and they were surrounded and set off by Delphinium formosum. It is, or it ought to be, surely worth the while of any well-wisher to his fellow-creatures, to convert that which is a pernicious weed in our corn-fields into a most desirable garden ornament. No attempt had been made to improve the plant by manure or artificial soils, but my friend had merely watered it when she watered her beds. The country people at Virginia Water call the plant "moons," and well do its flowers deserve the name. *N. B. Ward.*

Tropæolum Rose Tom Thumb.—This variety gives a new and distinct shade of colour in this useful tribe. It lacks the rich glow of the Scarlet Tom Thumb, the bright orange scarlet being withdrawn, and in its place there is a kind of dullish rosy scarlet, the rose being more perceptible as the flowers age. It blooms profusely, making a very effective display, and betraying but a very slight tendency to sport, leading one to infer that Messrs. Carter & Co. had selected it very carefully. The best plan to adopt with this variety will be to select one or two of the plants having the best shade of rose in the flowers, and propagate the same by cuttings for the following year. This variety forms one of the batch of Messrs. Carter & Co.'s new annuals for the present season. *R. D.*

Selection of Roses.—I am constantly receiving letters on this subject, and no wonder, for trade catalogues generally are enough to bewilder any one. I wish our great nurserymen would meet together, and agree, if possible, as to what should be rejected and what not. *Hybrid Perpetual: Rose colour, or shades thereof*—Anna Alexieff, Baronne Prevost, Comte de Nanteuil, John Hopper, La Duchesse de Morny, La Ville de St. Denis, Madame Boll, Souvenir de la Reine d'Angleterre, W. Griffiths, Comtesse Cecile Chabrillant, Gloire de Vitry, own roots; Victor Verdier, Josephine Beauharnais, Thorin. The two last I have seen the blooms of, and I thought them very good, the last especially so. *Crimson, red, scarlet, carmine, maroon, plum purple, or shades thereof*—Achille Gonod, Alfred Colomb, first-rate; Alphonse Belin, Baron Adolphe de Rothschild, Beauty of Waltham, Bernard Palissy, Charles Lefebvre, Dr. Andry, Lady Suffield, Duc de Rohan, Duchesse de Caylus, François Lacharme, General Jacqueminot, George Prince, Jean

Rosenkrantz, John Keynes, Jules Margottin, Gabriel Perronny, Lord Clyde Lord Macaulay; Mesdames Boutin, C. Crapelet, Charles Wood, Clémence Joigneaux, Emain, Julie Daran, Moreau, Louise Carique, good for poles, or walls; Maréchal Vaillant, Maurice Bernardin, Monsieur de Montigny, Professor Koch, Rushton Radclyffe, Sénateur Vaisse, Vicomte Vigier. The following are very dark:—Baronne Pelletan de Kinkelin, Charles Wood, Duc de Cazes, Alfred de Rougemont, Eugène Verdier, Pierre Notting, a splendid rose; Prince Camille de Rohan, most beautiful; Black Prince, Souvenir de W. Wood, Souvenir de Comte Cavour, Triomphe de Paris, Empéreur de Maroc, Jean Bart, Duchesse de Medina-Cœli, Souvenir du Dr. Jamain, beautiful; and Horace Vernet. The last I have only seen one bloom of, brought by "D." It is deep-petaled, fine red colour, and marked to be a superior rose. The four Roses preceding it are very beautiful Roses, suited chiefly to garden ornament. *Blush Roses*—Caroline de Sansal, Duchesse d'Orleans, Marguérite de St. Amand, Sœur des Anges, Madame Knorr, and Madame Fillion, the last of which is a beauty, being silvery under the petals. *Roses of a White tendency*—Madame Rivers, Madame Vidot, the two best, but they require rich loam; Madame Freeman. For ornamental purposes, Madame Alfred de Rougemont and Madame Gustave Bonnet. I have seen blooms of Miss Ingram, creamy white; it appears to be a great acquisition—the form is globular. *Yellow Roses*—Solfaterre (south wall), Triomphe de Rennes, Céline Forestier, Gloire de Dijon. For the south frontage of a house, or warm wall, La Boule d'Or. For a conservatory, or warm town garden, Maréchal Niel; I saw a fine tree of it in Blandford—here it goes blind. *Bourbons*—Acidalie, white; Baron Gonella, fine, dove pink; Marguérite Bonnet, fleshy white; Souvenir de la Malmaison, blush; and Sir J. Paxton, bright crimson, for poles. *China*—Mrs. Bosanquet, creamy white, unique. *Tea Roses*—Adam, Elise Sauvage, Rubens, Souvenir d'Elise, Madame Willermoz, Sombreuil, Vicomtesse de Cazes, Souvenir d'un Ami. Tea Roses are best suited for glass, but they may be grown under a south wall. I did not lose one of mine last winter in the front of my house. I placed litter over their roots, and a turf reversed, over the litter. They were killed to that line; but broke strongly in the spring, and have bloomed beautifully. I believe the above to be the best selection of Roses that can be made. They have been blooming transcendently, are blooming equally well now, and will continue in beauty till winter stops them. Roses would be "perpetual" if the owner did his duty by them. How can people expect Roses to bloom, without stopping, for six or seven months, with misplanting, mal-pruning, one spadeful of manure in November, want of water both on the roots and leaves in long droughts, and neglect as to aphides and the varied fungoid diseases to which they are subject? My plants are almost wholly on Manetti or on their own roots. Briars are a thing of the past, unsightly, and difficult of defence. Mr. Postans is now a convert to it, and Mr. Adolphus Kent tells me the converts to it are multitudinous in his neighbourhood. I sent a noble box of trebles to Colonel Mansel, at the Volunteer Camp at Milton Abbey, near here, on the review day, August 1, and "Steeve" says they were greatly admired. I also sent Alpine and other Strawberries; I never gathered the latter so late before. They were Cockscomb, Wonderful, and Frogmore Pines. Finally, Alfred Colomb is the best Rose that has come out of late years—a superior Duc de Rohan. *W. F. Radclyffe, Okeford Fitzpaine.*

Lilium auratum.—Our bulb of this Lily, of which you published an account last year (see p. 829), is now in a 20-inch pot, and has four stems, the highest of which measures 9 feet 6 inches from the surface of the soil, and has 19 flowers; the second stem is 8 feet 6 inches high; its top is divided into two parts, on which there is the extraordinary number of 66 flowers; the other two stems are 4 feet and 2 feet 6 inches high respectively, and are bearing one flower each—making a total of 87 flowers. The largest of them measures about 1 foot in diameter, and is on the highest stem; owing to so many blossoms being on the second stem, they are not so large as that just alluded to. *Charles Brockhurst, Gardener, Bow Bridge, Leicester.*

The Thompson Testimonial.—The Royal Horticultural Society honours itself in pensioning and proposing a testimonial to Mr. Robert Thompson. A life of such ardent toil and rare devotion merits a quiet evening of serenity, rest, and honour. The rest will also prove all the sweeter when the means of enjoying it proceeds from the Society for which he has laboured so long and so well. His life has been devoted to the advancement of its interests, and the promotion of its prosperity. By serving the Horticultural Society so effectually Mr. Thompson has at the same time placed the whole fraternity of horticulturists under the deepest obligations to him. For this reason we should all share in the honour of this testimonial. The Royal Horticultural Society is in its right place in front of the movement. By taking the initiative in such a matter it lays new claims to the support of practical men. Be it ours, therefore, to strengthen and encourage it in a course alike creditable to itself, and honourable to one of the worthiest and hardest workers amongst us. It is scarcely possible to exaggerate the value of the services that Mr. Thompson has rendered to gardening. With his strong common sense, his indomitable perseverance, his quick observation, his special knowledge, he enters the labyrinthine jungle of Pomology, in which the cleverest were apt to be lost amidst the maze of endless synonymes, and the tangled thicket of useless varieties, and after years of herculean work, he cleared and mapped it all out, so plainly in his descriptive catalogues, that any one with ordinary attention could find their way to all our best fruits, not only without difficulty, but with positive ease. These catalogues afford the best index to the minute carefulness and comprehensive grasp of his intellect. Nothing is overlooked or omitted. Beginning at the very beginning with the wood of the tree, we are led through its leaves, its glands, its flowers, its fruit, from the kernel or core, throughout every feature of it up to its flavour, size, form, embellishment; then it is compared with others, points of resemblance or diversity held up to us; and before it is laid aside its image is stereotyped on the brain so thoroughly, that when it is again met with recognition is certain, and the joyful "that's it" is the highest possible compliment to Mr. Thompson's mental photography. In fact, his descriptions are so perfect and vivid that the fruits themselves seem to rise up before one from the printed page, in all the minute nicety of the most trivial characteristics. The labour and thought expended in the acquisition of such special knowledge, so lucidly conveyed, must have been immense; and I have heard that Mr. Thompson would spend a whole day over one fruit rather than have the slightest misgiving about its identity. Doubts, in every instance, had to give place to certainties before he would be satisfied. Only those who have had the pleasure of a day with Mr. Thompson by the walls or in th orchard or fruit house at Chiswick, can truly estimate the amount of his energy or the extent of his enthusiasm. A few hours in the fruit room with Thompson was worth a year's study. On such occasions he delighted to pour his knowledge cheerfully and freely into the minds of others. To acquire it for himself was a necessity and a duty; to impart it to others was his privilege and pleasure. Pomology introduced him to meteorology; his love of trees brought him into collision with their greatest foe, the weather; and it seems that he applied the same principles to both. He could not control, but he could at least register, arrange, classify, and map out the weather. In this way data have been collected and generalisations made of the highest importance to both his favourite sciences. His meteorological tables contain the germs of truth upon the influence of temperature and aqueous vapour upon vegetation, that may yet be developed into the most valuable theories, and may largely modify and improve our practice. Nor must it be forgotten that vegetable culture owes much to his plotting experiments and painstaking care. Of Mr. Thompson as a writer I am hardly qualified to speak. His contributions to the "Journal of the Horticultural Society" and to the *Gardeners' Chronicle* are far beyond the reach of my humble criticism. His "Gardeners' Assistant" has never been equalled. It is the gardening book taken by all my young men. If books could make a gardener, this book would do it. Theory and practice are so happily blended, and both are so clearly elucidated and plainly enforced, that he that runneth may not only read, but, what is of infinitely more importance, completely master and clearly understand what he reads. Personally I scarcely know Mr. Thompson. I had the pleasure of meeting him for the first and last time at the great International Show of last June. Like all who know him I was charmed with his modesty and humility, and have learned that these qualities can only be exceeded by his gentleness and goodness of heart. I enclose a guinea, and a small contribution from my foreman and young men, with much pleasure, and my earnest wish for Mr. Thompson is that he may now rest from his labours, and carry into his retirement the pleasing memories of "duties well performed and days well spent." *D. T. Fish, F.R.H.S.*

Variegated Pelargoniums at Bury.—In consequence of the remarks of several of your correspondents, I feel called upon to express my opinion in reference to the award of the cup by the judges at the Bury Show for 12 Seedling Variegated Pelargoniums. As an exhibitor of these plants for two years past at the Royal Horticultural Society and elsewhere, I have found as a rule that green and partially broken leaves were considered a disqualification of any single plant, or any collection in which it might be placed for competition. I would also direct attention to the rules, as set forth for the guidance of exhibitors and judges, in the *Gardeners' Chronicle* of May 18, 1867; and as these were published in a leading article, they may justly be considered official. Besides this, every exhibitor at the meeting at South Kensington, on May 21, must remember the strictness with which these rules were enforced. Now, no further rules having been published, nor any alterations made known to the intending exhibitors at the Royal Horticultural Show held at Bury, either in the schedule or elsewhere, to warrant the supposition even of any relaxation of these well-known and generally received rules, most of the exhibitors selected their plants and showed them in accordance with the Royal Horticultural Society's rules. More than this: I took extra pains to be clear on this point, and, in reply to my question, as to this particular matter, was informed by the Chairman of the Floral Committee that green and unbroken leaves would most certainly disqualify the collection. With these facts before me, I now impeach the soundness of the judges' decision at Bury, and publicly protest against its correctness. In thus acting, I do so with a view to a proper and final settlement of this question, and therefore beg the favour of the judges to appoint some one of their number to be their exponent of the reasons that led them to reverse received rules, and set at nought all previous conclusions. By thus meeting me the correspondence will be shortened, and your valuable space will not be uselessly occupied by irrelevant matter. The subject to be discussed is simply this—Green leaves, and partially broken leaves, disqualify. A collection of 12 plants, containing several plants with green and unbroken leaves, was awarded the Silver Cup. It needs but few words. There were three clean collections passed over. Why? *F. T. Smith, The Nurseries, West Dulwich.* [Mr. Smith assumes that the Royal Horticultural Society and the *Gardeners' Chronicle* are one and the same, whereas they are entirely independent of each other. We, of course, uphold our own rules, which should be adopted for all future competitions of these plants. Neither one-year-old nor yearling plants should be again invited—at least not in a prominent competition of this kind. It is this limitation of date of origin which has been the cause of the misunderstanding in the present instance; young plants were necessarily shown to comply with the conditions. No doubt the intention was to bring out the most recent and promising novelties, that the public might know what was in store for it, and so far the invitation served its purpose; but such a competition in future would be better confined to fixed sorts, and propagated plants. Eds.]——In the main I agree with the logical and temperate remarks of your able correspondent, Mr. Fish; though in following his baby comparison on the variegated Pelargonium question, I think it will be admitted by all that the most perfect specimens of babyhood should take the prize. The question is, were Messrs. Smith's plants more perfect in their babyhood than Mr. Grieve's? If this is conceded, the conclusion is inevitable. I freely admit that constitutional vigour is indispensable, and that the prize collection appeared to possess it in a high degree. I also agree with Mr. Grieve, that a good flower is a great desideratum, and the better these are in shape, colour, and substance, the more acceptable. I am therefore no caviller on this head. My ordinary habits are averse to public discussion, but I have no objection to break a friendly lance with Mr. Grieve in order to arrive at a just conclusion; though I regret to say the tone of his letter promises little in this way. He begins by ignoring "Scrutator" and "Subscriber," and quoting and explaining a well-known Scotch proverb, which may or may not be relevant, but there can be no doubt of its being somewhat offensive. My presumption in calling in question the award of the judges, and a denial of my understanding the matter, comes next. The truth is Mr. Grieve has illogically attempted to answer me by confounding the statements contained in the two other letters on this subject. I never denied merit in some of the plants in the prize collection, nor found fault with their growth. The public are only interested in knowing if Messrs. Smith, in the first place, complied with the conditions in the schedule [they are simply: "Seedlings of 1866 and 1867." Eds.]; secondly, were their plants as seedlings more highly developed? and, thirdly, were they of equal merit with the prize collection? My opinion is given; it is at least disinterested. The same cannot be said of Mr. Grieve. The rules laid down in the *Gardeners' Chronicle*, if good, were worth attending to even in judging seedlings, as far as possible in the examples shown, and I ask—Did not Messrs. Smith's plants come nearest to them? This is the principle on which I raise the issue. No one will deny the first merit due to Mr. Grieve for the important part he has played in raising these beautiful plants; at the same time, as a purchaser and dealer, I claim the right to state any views I may entertain as to the relative merits of an important decision, and I trust I shall always do this with the dignity and forbearance of legitimate discussion, eschewing all personalities, the use of which generally shows paucity of ideas and not argument. *George Davison, White Cross Nurseries, Hereford.*

Gardeners' Examinations.—Can you inform me by what means I can avail myself of the opportunity of being examined by the Royal Horticultural Society, or the Society of Arts? I am a young gardener anxious to test my knowledge, and have for a long time wished to be examined by the above-named Societies, but, owing to my great distance, I am excluded. Are there no means to be adopted whereby such as myself can become the fortunate possessors of a certificate of merit, &c.? I find, by your list of the 3d inst., that the majority of students are from Chiswick, which I fear will admit of no chance for an isolated worker. *R. P., Trevince, Redruth, Cornwall.* [It is not easy to make the arrangements you desire. Surely you could come up to London once for such a matter. The Certificate, honourably won, would be worth far more than the railway fare and other expenses, though we fully recognise the difficulty which these put in your way. Eds.]

Double-blossomed Pea.—I see you allude to the double-flowered Pea I sent you last year as a matter of some interest. I have again noticed the same variation in the variety which produced the double flowers in 1866 under similar circumstances, but as I do not notice it on other varieties growing under like circumstances (although I discovered a single instance of it on another variety last year), it would seem that the exhaustion of the plant, or the check, and consequent second growth, is not the sole cause in this instance of the double flowers, for I have other varieties growing side by side with the one producing double blossoms without there being any tendency apparently in the flowers to become double, although the second growth thereon produces diminutive blooms only. The variety producing double flowers is a free-bearing seedling with long pods, called Supreme, and was raised by cross fertilising Prolific Longpod with Little Gem; and perhaps its fertility may be a combined cause of the double flowers, which are all, as last year, produced on a second growth from the lower part of the stem, the first blooms being all single and fertile. I endeavoured to save seed from the semi-double blooms last year; most of them set, but the birds, notwithstanding very numerous precautions, prevented success. As the same variety was sent to the Royal Horticultural Society's garden at Chiswick for trial this year, it may perhaps throw some light upon the obscurity attending the matter if the same result has appeared there this season. I may mention also the result of another course of experiments which I tried last year by crossing the single-flowered bedding Pelargoniums with the

pollen of the double-flowered varieties Maréchal de Chanflourd and Gloire de Nancy. All that have flowered as yet (about 20 plants from different crosses) have single flowers only, although in more than one instance the foliage and colour partake strongly of those of the male parents. I noticed also that the second blossoms produced on some Apple trees this year were partially double. I allude to the blossoms found, as is frequently the case with the Pear, after fruit is formed on the tree. *Thomas Laxton, Stamford.*

Royal Ascot Grape.—With reference to this Grape, I may say that it has a fine, bold berry, of a roundish-oval shape, set upon a good, stout, short footstalk. The flesh is firm, crisp, and rich, with a slight Muscat flavour. When grown under favourable circumstances, the Royal Ascot will, doubtless, prove to be one of the very best black Grapes known; and if, as I think it will, it turns out to be a good keeper, it will take the place of the Black Alicante and Lady Downes'. *T. P.*

Herbaceous Plants.—It is now some time since I wrote the last paper published on herbaceous plants (see p. 806), and I wish to slightly correct a few statements therein. I did not intend to recommend Aconitum Napellus, but one which is sometimes called Napellus-bicolor and versicolor (hebegynum in the Jardin des Plantes), and for which the best name is variegatum. It is a beautiful old plant, and sometimes attains a height of 6 feet in sandy soil. With it the best are Stœrkianum, a rich dark purple, eminens, and chinense. About selecting these Aconitums among herbaceous plants, Mr. James Backhouse once wrote to me:—"They are so frightfully poisonous in all their parts that I counsel against the use of one of them." As for the Pæonies, it should be remarked that an immense number of the varieties of P. albiflora (syn. edulis, fragrans, sinensis, &c.) are in France, and many of them are remarkably fine and showy, while the varieties of P. officinalis and paradoxa are also popular, though cultivated to a less extent. Corydalis nobilis, when well grown, forms a strong and handsome garden plant; of course it delights in good soil. *W. R.*

Test Plants as regards Hardiness.—Your remarks (see p. 804) on Test Plants for resistance to low temperature, seem to me to point more to test localities. I believe that on that depends most of our success in growing tender trees or shrubs. In spring frosts, we see even the hardiest of deciduous native trees suffer, if in low or moist localities, exposed to the morning sun. The same applies to winter frosts in the case of evergreens. It was remarkable this spring, after the frost of May 23d, to see the exact line drawn, where the sun had told upon the frost—the green and browned foliage divided to an inch. Experience shows us, that by adopting the sub-tropical system, as at Battersea, we can grow plants hitherto only grown in the hot-house. This points the way to such treatment of trees and shrubs. I have remarked this year, that the foliage of the Sweet Bay, so planted, has not been touched by frost. Locality, under-drainage and aspect, are the points to be attended to. With these a tree may be seen in full vigour, while the very same species, perhaps only a few yards distant, may be struggling for existence under the reverse treatment. I am much pleased to see the subject taken up, as attention to it will so much affect the future success of planters. The only tree injured here has been a large specimen of Picea religiosa; the top was browned, but it was recovering when the May frost nipped it, as it unfortunately is exposed to morning sun. It is now however coming round again. Phormium tenax was much burnt, but is shooting up; also Dracæna indivisa. Nothing else injured. I am pleased to find that Aralia Sieboldii, the beautiful New Zealand Pittosporum, and many other plants, supposed tender, are quite uninjured. I find that the White Arum quite ranks with the common Water Lily, and shoots up and blooms as vigorously after the winter. *Shannon, Castle Martyr.*

Wasps: Vespa arborea.—This wasp used to be common enough in the woods at the Earl of Mansfield's, Scone Palace, Perthshire, N.B.; and I should think an application for a nest to Mr. Halliday, the gardener there, would be at once responded to. *D. T. F.*

Orchard-house trees at Bury.—Perhaps your correspondents who wrote on the judging of orchard-house trees will explain what they consider the chief points of merit in the culture of these trees. Their opinion might be useful in the establishment of a guide to those who have rules of this sort to frame, and would also assist in settling the points to be encouraged, by societies giving prizes, by leading to a division of subjects, as, for example, a prize for trees with fruit in a state fit for table, another for fruit in a green state, and another for the largest possible trees. I, for one, consider that orchard-house trees, with fruit that will scarcely be in a state fit for table before that grown out of doors, unworthy of such prominent encouragement. All practical gardeners know that however unwieldy the tree and pot may be, there is most frequently a great difference in the quantity of fruit left upon the largest possible trees in pots, after having undergone the ripening process, simply because the more green fruit on the trees when that process commences, the fewer are likely to ripen, even under the most favourable circumstances. *Vindicator.*

Foreign Correspondence.

Disease among Fish in the Lake of Geneva.—The pleasure grounds at Campagne Lammermoor run down to the edge of the Lake, in which about a month ago I was surprised to find a quantity of fine fish dead; and continuing to find them daily in that condition, I was induced to make inquiries, the result of which has been the discovery of a very serious epidemic among the fish. One doctor bought 40 fine perch the other day, and out of the 40, 17 were diseased, a heavy percentage among fish in a lake about 40 miles long and 8 wide. I therefore hope that other inland lakes are not affected like that of Geneva. Specimens of the dead fish were submitted to Professor Revon for inspection, and the following is his account of the malady:—

"The fish in question seem to be suffering from a kind of tape-worm, which attacks the intestines, and after a short time the fish float on the surface of the water, and perish in enormous numbers—so much so, indeed, that the authorities on the borders of the lake engaged boatmen to collect and bury them, fearing that the corruption of such a number of fish in the water might create an epidemic in the human race. The species of fish that have suffered most are the perch, pike, vangeron, fera, lote, and ombre chevalier. The trout has almost entirely escaped the epidemic. I am happy to say that the disease seems on the decrease, and as soon as I get a report from the Commission of Doctors that are now studying the epidemic, I will not fail to send you a copy." *John A. Watson.*

Societies.

Royal Horticultural: *August 6.*—Rev. Joshua Dix in the chair. Several new members were elected on this occasion, and the awards of the Floral and Fruit Committees were announced. Mr. Shaw, of Manchester, and Mr. Williams, of Holloway, received First-class Certificates for three varieties of Athyrium, viz., A. Filix-fœmina Frizelliæ glomeratum, A. F.-f. ramosissimum, and A. F.-f. Gloveri. These are beautiful dwarf varieties of Lady Fern, raised by Mr. Glover, and remarkable for their dwarf crispy habit of growth, and their frequently-branched rachides. That called Gloveri forms a peculiarly dense dwarf curly mass, and is very distinct and beautiful. A boxful of magnificent blooms of Clematis was contributed by Messrs. Jackman & Son, of Woking, to which allusion will hereafter be made. The kinds to which Certificates were awarded, were Lady Bovill, lavender; Mrs. Bateman, mauve, a variety which in general produces blossoms having six petals instead of four or five; and Thomas Moore, a fine kind, having reddish purple blossoms shaded with violet, and with a conspicuous centre of white stamens; C. lanuginosa candida, in the same collection, is also a fine white sort, which when intermixed with the charming varieties just named must produce a striking and beautiful effect. From Mr. Anderson, gr. to T. Dawson, Esq., Meadow Bank, Glasgow, came admirable examples of cut Orchids, among which were Saccolabium Dayanum, Odontoglossum Alexandræ, a branched spike, particularly fine; Oncidium leucochilum, and others. Messrs. Low exhibited the little known Warzewiczella aromatica, a violet-stained whitish-flowered species, to which a Second-class Certificate was awarded.

A variety of Cattleya Wagneri came from Mr. Richards, gr. to Lord Londesborough, at Grimston Park, and the prettily variegated variety of Sempervivum aizoides was contributed by Mr. Hall, Lawn House, Holloway. G. F. Wilson, Esq., furnished a truly beautiful Japanese Lily, bearing large flowers of a bright orange red colour thickly ornamented with dark mulberry-coloured spots. Concerning this the Rev. Mr. Berkeley will doubtless have something to say hereafter; in the meantime we may however state that as it is a most profuse flowerer and possibly hardy it cannot fail to be a real acquisition. It was awarded a First-class Certificate, which it well deserved. From Mr. Wilson Saunders came an interesting group of plants, among which were a slender-growing African Pelargonium with small roundish pale green leaves on which is stamped a well-defined deep brown-coloured horse-shoe; Dendrobium Bensoniæ, white with orange-stained lip; Eranthemum igneum, with leaves traversed by flame-coloured veins; the beautiful red-veined Echites rubro-venosa; a white-flowered bulbous plant from South Africa; and an Oncidium in the way of O. triquetrum. Mr. Hilton, Dunstable, showed a variegated variety of Cupressus Lawsoniana. Mr. Earley, Digswell, near Welwyn, had the beautiful climbing Fern Lygodium japonicum, some 10 feet in height; a beautiful specimen, to which a Special Certificate was awarded: and from Messrs. Lee came the prettily cut leaved Rhus glabra laciniata, a handsome form of this useful species.

Mr. C. J. Perry, of Birmingham, contributed a stand of splendid new Verbenas, among which Miss Turner, J. C. Ward, G. P. Tye, Hercules, and Thomas Harris, received First-class Certificates. The four first-named have already been described by us, the latter is of a rich plum colour, shaded with glossy dark, and has a pure white centre, the flowers being very fine and showy. It may be regarded as an improved William Dean. Butterfly is also a new variety, shown for the first time on this occasion, it is of a delicate pink hue, with a ring of dark violet rose round a light centre, and is altogether very pretty and attractive. A Special Certificate was also awarded to Mr. Perry for a stand of 24 varieties of Verbenas, all of his own raising; among them were such fine flowers as Mazeppa, a splendid high-coloured variety; Startler, Glow-worm, Harry Law, Auricula, Blue Queen, Charles Turner, Cleopatra, Leah, Lilac King, Charles Perry, Samuel Moreton, and Majolica. Mr. Eckford, of Coleshill, exhibited six new kinds of Verbenas, which were, however, very much behind Mr. Perry's in point of quality. They were Pluto, rich deep scarlet, very bright, with a large lemon centre, which seems to get washy with age; Mrs. Bouverie, white, with conspicuous violet rose centre; Criterion, very pale lilac, with rosy-lilac centre; Hermit, white, slightly suffused with pink; George Stevenson, bright cerise scarlet, with showy white centre; and Lady M. Wilde, blush, with a dark ring round the eye. Mr. Fry, Manor Lane Nursery, Lee, received a Second-class Certificate for a Double Fuchsia named Blue Boy, a profuse flowerer and apparently a useful market variety. It is a dwarf-growing kind, the tube and sepals of which are scarlet, with a deep blue corolla. Messrs. E. G. Henderson & Son received a First-class Certificate for Fuchsia Golden Fleece, which, as shown, looked as if it would make an effective bedding variety, being dwarf and of a close bushy habit. A row of 40 plants of this variety may now be seen at the Wellington Road Nursery, where it makes a very effective display. The same firm also had a similar award for variegated zonal Pelargonium Howarth Ashton, a kind very much in the way of Lucy Grieve, but having a more vigorous habit, though this could scarcely be inferred from the plants shown. The leaves are very distinctly marked. The same award was also made to Messrs. E. G. Henderson & Son for mule Pink Napoleon III., a crimson form of the rose-coloured Dianthus hybridus multiflorus; the flowers of this sort are bright crimson scarlet, and slightly fragrant. A Second-class Certificate was likewise awarded to the same nurserymen for Fuchsia albo-coccinea, having very novel-coloured flowers, the tube being dullish red, the sepals white, and the corolla reddish violet—a very distinct sort. The same firm, moreover, received a Label of Commendation for Pelargonium reticulatum, a kind having leaves mottled green and gold, with a slight dark zone, and bright crimson Nosegay flowers. It may prove a useful kind to breed from. Verbena Harlequin, a striped variety, somewhat dull looking; and Lobelias Indigo Blue and speciosa spectabile, also came from the same; as well as some handsome yearling plants of variegated zonal Pelargoniums of considerable promise. Mr. Richard Dean, of Ealing, received a Second-class Certificate for a very dwarf-growing Lobelia named Blue Tom Thumb, the flowers of which are pale blue, with white eye, and the plant is a profuse bloomer and of stiff close habit.

Mr. George Smith, Tollington Nursery, Islington, received First-class Certificates for two splendid hybrid Nosegay Pelargoniums, viz., Eclat, a rich shade of magenta, suffused with purple, the flowers being of extra fine quality, and the trusses of an enormous size, free blooming, and the foliage slightly zonate; a great acquisition. The other was Grand Duke, another hybrid Nosegay, colour brilliant orange scarlet, a very showy and effective variety; foliage also slightly zonate. Messrs. Downie, Laird, & Laing received a First-class Certificate for a golden foliaged Pelargonium, named Countess of Kellie, a sort having a distinct chestnut zone, habit vigorous, and yet close; this promises to make a very effective and durable bedder. The same nurserymen also had another variety named Kentish Hero, a strong growing variety, something in the way of the foregoing, but having a broader zone, rather darker in colour, and not quite so much gold in the leaves. Pillar of Gold, from Mr. Fry, has a vigorous habit and greenish gold foliage without any zone. Mr. William Paul furnished a useful looking white edged Pelargonium, named Snowdrop, which, however, was considered by the Committee to be inferior to Mr. George Smith's Princess Alexandra. Mr. Bland, gr. at the Star and Garter Hotel, Richmond, showed three varieties of seedling Fuchsias, one a bold looking double variety with white corolla. They were, however, considered to be inferior to kinds already in cultivation.

As regards Fruit, Mr. Cox, gr. to W. Wells, Esq., Redleaf, sent a fine dish of Bigarreau de Mezel Cherries, which received the 1st prize for the best dish of new varieties. Mr. Earley, Digswell, sent in the class of Green fleshed Melons, Dr. Hogg, which received the 1st prize; it is of medium size, and well flavoured. Mr. Grieve, Culford, sent Queen Emma, which was over-ripe. From Mr. Rivers came fruit of the Late Black Bigarreau Cherry, a large and firm-fleshed kind, which received a First-class Certificate. He also sent fruit of a seedling from Early York Peach, with round glands on the leaves, a finely-flavoured and excellent sort which likewise received a First-class Certificate. Mr. J. Beach, gr. to C. J. Herries, Esq., Sevenoaks, received a Special Certificate for an excellent dish of Morello Cherries. Mr. Wilkie, gr., Addison Road, exhibited Lady Downes' and Black Alicante Grapes in excellent condition; and from Mr. Standish came fruit of his Royal Ascot Grape, when the decision of the sub-committee awarding a First-class Certificate to this Grape was confirmed. Mr. Henderson exhibited Thoresby Queen Pine, a large fruit, which, however, was found to be very deficient in flavour; and Mr. Forsyth, gr. to Baron Rothschild, Gunnersbury, sent a handsome fruit of smooth-leaved Cayenne. Mr. Beach sent three dishes of Gooseberries; Mr. Turner, of Slough, a dish of Black Naples Currant; and Mr. W. Nichol, gr. to T. H. Powell, Esq., Drinkstone Park, Bury St. Edmund's, fruits of Passiflora quadrangularis and edulis. Mr. Poynter, of Taunton, sent two varieties of Peas—one named Pearce's Gardener's Delight, which proved to be Ne Plus Ultra; and the other appeared to be Tall Green Mammoth: the Committee recommended that they be sent to Chiswick and proved. From Mr. Wilson, gr. to Sir Ralph Howard, Craven Cottage, Fulham, came two large Cucumbers of the variety called Lord Harris.

Northamptonshire Field Club.—The first meeting of this Society took place at Apethorpe on Monday, July 8. The members met at the Roman Villa discovered at that village in 1859, and after examining the foundations and the large pavement, which has been carefully preserved by the Earl of Westmoreland, they proceeded to Morehay Lawn to examine the old Oaks, which are certainly as old as the reign of King John. Two were measured, one of which had a girth of 28 and another of 33 feet. The parish of King's Cliffe was then visited, and the members afterwards adjourned to Apethorpe. Several interesting botanical specimens were exhibited. Some observations were made on the parasitism of the Dodder, and the following inaugural address delivered by the president, the Rev. M. J. Berkeley, incumbent of the parish. After a few preliminary remarks on the utility of such meetings, and on the bearings of natural science on divinity, Mr. Berkeley proceeded as follows:—

And first, as the point on which all local natural history must more or less depend, we must look at the geological and physical features of our county. For intimately connected with these, in conjunction with climatic considerations, is the distribution of our Fauna and Flora. Our county extends obliquely for more than 70 miles, taking Peterborough and Aynho as the extreme points, and is, I believe, situated in the line of least rain, the supply from the western and eastern seas being greatly exhausted before it reaches us. The rainfall throughout the county, on an average, probably does not exceed 22 inches, though I have no exact information on the point; and as regards its distribution through the year there is not that great disproportion, taking month by month, which is observable in some districts. The county is well supplied with drainage by the rivers which rise on our higher grounds, which at Naseby acquire a considerable elevation, though not sufficient to constitute more than gentle undulations in a table-land. At Peterborough alone and its immediate neighbourhood does it protrude for a short distance into actual fen.

The three principal geological formations are the middle and lower oolites, succeeded by the lias. The upper oolite occurs if at all only in isolated outlying patches, as the chalk does at two spots in this immediate neighbourhood, and one at Biggin, the other in the Purlieus adjoining the parish of Thornhaugh. I believe that the geology of this county, as a whole, has not been fully examined, though, in consequence of the increasing value of the ironstone, the beds of the lower oolite in Northamptonshire have of late excited much interest; and there is little doubt, from appearances patent to common observers, as well as from the glance which the distinguished geologist, Mr. J. W. Salter, who has twice paid King's Cliffe a visit, was enabled to take, that were there facilities of transport, the valuable beds would be found to extend here, as indicated by the peculiar white sand which so commonly attends them in other parts of the county. On the Huntingdon side of the Nene, at Orton Longueville, I may remark *en passant* that there are large deposits of nodules of extremely valuable iron, consisting of the protoxide, the nodules containing 90 per cent. of iron in combination with oxygen. Still less have the Northamptonshire fossils been fully examined, though a good beginning was made at the beginning of the last century by Morton, who has given many good figures of the species which he collected in various parts of the county. Very few from Northamptonshire are figured in Sowerby's Mineral Conchology. He was much pleased with those from this neighbourhood, and especially with those of King's Cliffe, from their being almost identical with those from Ancliff. There is, indeed, no reason why in the great oolite as important additions should not be made to our fossil Fauna as those by Mr. Walton, near Bath, who discovered a multitude of new forms, including several undescribed genera, in crevices amongst the Bath stone in a very limited locality. From the little which was done by Mr. Bentley in the Stonesfield slate, at Colleyweston, there is great reason to believe that any one taking up the examination of the slate pits there as an especial object, might make many interesting discoverics, and possibly be rewarded with some new marsupial. The success which Dr. Porter has had in the Oxford clay, at Whittlesea, though not strictly within our limits, is a great encouragement to research

where those beds occur in any part of our county, as for example at Deene. As regards the best oolitic beds, we have, indeed, nothing in Northamptonshire to equal those at Ketton, but a great quantity of valuable stone has been raised at Barnack, King's Cliffe, and Weldon. The pits at the latter place are, I believe still worked, and good freestone has been raised at King's Cliffe within my own experience. The yellow marble of Weldon was once in high repute, as may be seen in many of our older houses in the shape of chimney pieces, slabs, &c., and as gravestones in our churches. Good pottery clay occurs at Wakerly, and probably in other parts of the county, quite equal, as I am informed by Mr. Blashfield, to what he procures from Dorsetshire.

This notice would be incomplete without mentioning the Drift. Blocks and rounded nodules of red sandstone are scattered all over our forest, and specimens sometimes occur of the sandstone fossil vegetation. But this is far from being the only stone which has been brought from a distance. The church at Brixworth appears to have been built mainly with stones collected from the surface, a great variety of which, including slate and granite, may be seen in its walls.

Our gravel pits contain many objects of interest, but there is one especially which may some day be the object of a visit, though lying out of Northamptonshire, I mean that at Cherry Orton, which was the first pit, as Mr. Prestwich informs me, in which he found marine and freshwater shells at the same time, mingled with the remains of elephants, and amongst them an enormous tusk, in the possession of the Marchioness of Huntley. I may mention, too, the pottery pits at Water Newton, though lying just out of our county, in which quantities of fragments of Roman pottery are mixed with the bones of the red deer and bos latifrons, showing that the latter species was still abundant in the time of the Romans.

As regards the physical condition of our county, it may be remarked that the extensive woods, which characterise certan parts of it, especially in the north and south, though greatly diminished within the last 30 years, still afford an ample field for research, and though the geological formation of the county is essentially calcareous, the outcropping of some of the sandbeds in particular parishes is accompanied by more or less decided changes in the distribution of animal and vegetable life.

Though the predominance of calcium in our soil prevents the occurrence of many genera and species which are found in other counties, our Fauna and Flora on the whole will be found to be far from scanty, and if, as must necessarily be the case, our excursions have in view localities which are within a practicable distance of our places of meeting within the county, I may venture to assert that, as regards both the Fauna and Flora, though we may not hold the very first place in point of number and variety, we can take a very good second. We cannot indeed expect, within a comparatively small area, anything like the varied productions which are to be found at a place like Bath, which, within a radius of 10 miles, includes most of the principal geological formations. If, however, Wansford be taken as a centre, with a similar radius, though we have neither an Alpine nor even a sub-Alpine district, we have a list of plants and animals which may compare honourably with most circles of a like area in England. Some years since I went through the Flora of this plot with Dr. Hooker, and he was quite surprised at the comparative richness of the district as regards natural productions. Many of the localities, indeed, have since been destroyed; forests have been grubbed up, detached marshy spots drained, large portions of the fens, including the great Mere of Whittlesea, turned into productive land, with other changes; but still a great deal remains. It is not the time to enter into details now, but when I mention such rarities as Liparis Loeselii, Ophrys aranifera, Inula Helenium, Lythrum hyssopifolium, Viola lactea, and Lastrea cristata, you will at once see that I am not drawing inferences from insufficient grounds. On the outlying chalk at Biggin, Orchis ustulata used to occur formerly in abundance, and there are many isolated spots which have their own especial interest.

As the Flora is rich, there is necessarily an extensive list of insects. Those of the Soke of Peterborough and the adjacent fens have perhaps been as well worked as those of any part of England. Mr. Joseph Henderson, the late scientific gardener at Milton, made extensive zoological collections, including almost every branch, and, in conjunction with those of Mr. Simmons, his entomological cabinet, which was very rich in diptera and hymenoptera, attained a considerable importance. Many of their discoveries are recorded in Curtis' British Entomology and other works of the day, and the hymenoptera of the fen districts are so beautiful and interesting that, long before the late extensive system of drainage, dealers had carried off such quantities not merely of the insects themselves, but of the larvæ, that some of the most interesting and attractive have become extremely rare. Nothing, indeed, can withstand the incursions of the dealers; the beautiful Orion, which was in tolerable abundance a few years since at Barnwell Wold, has now become extremely scarce; and in the vegetable kingdom, where there is no chance of escape except from inaccessible rocks, matters are still worse. As an instance, I may remark by the way that Asplenium lanceolatum, which once occurred in the utmost profusion at Frenchay, near Bristol, has now vanished altogether.

There is, however, after all the changes that have taken place in the surface, plenty still to attract the entomologist. Many novelties will doubtless reward diligent research, and a keen observer will find on application to the highest authorities that he is every day falling in with something new as to insect habits and economy. In the higher branches of zoology, the naturalist cannot expect to do much. Before our forests were so dismantled, and there was such a rage for preserving game, our own county, and this neighbourhood especially, produced many objects of interest which have now vanished. Every possible and impossible enemy of pheasants and partridges has been destroyed with about as much intelligence as that with which the farmer wages war against the hedgehog. I recollect a bittern being shot in Spawood Sale, near Cliffe, and nailed up as a trophy on the keeper's walls. Within my own remembrance, many a denizen of our forests has vanished, and it would be as hopeless now to look for a kite in our woods as for a bustard on Newmarket Heath, both of which, within half a century, were still not uncommon. There is a record even of a bustard having been shot at Moulton, in this county, though possibly only a straggler, though there are sandy districts in the neighbourhood where the bustard might have bred. In some departments of zoology, besides entomology, there is still scope for the student. As many mollusca possibly are still to be met with as there were 30 years ago, and almost within that period the noble Dreissena polymorpha —which certainly did not exist previously in the island—has become almost as common in our streams, where there is a stony bottom, as the new water-weed Elodea canadensis. There is yet room for study amongst the more minute mollusca. Many points of their anatomy are still obscure, and in such familiar instances as Cyclostoma elegans, nothing has been done, as far as I am aware, beyond the imperfect memoir which I published myself 40 years ago in the Zoological Journal.

We cannot expect again to make discoveries of new or unobserved species in the higher branches of botany, though the example of Mr. Darwin, as regards the common Primrose, Flax, and familiar Orchids, shows what important truths await detection even in the most widely distributed objects. But in the lower orders, especially amongst the Fungi, there are multitudes of species which have hitherto remained unrecorded. I may mention as an instance of what may be done in this respect, that Mr. Broome and myself have added more than a thousand species to our list since we directed our attention to Fungi as an especial object of research. It was long supposed, for example, that there were only three species of Truffle in this country, Northamptonshire being once considered as the only county in which the common Truffle occurs. The researches of Mr. Broome have added more than 30 distinct species, of which half, at least, have been found in Northamptonshire, as well as about Bath. Amongst Mosses again, especially if adjacent districts be included, there is much interest, and I may remark that the neighbouring parish of Thornhaugh has produced one of our rarest British Mosses.

Amongst other matters of county interest I would call attention to the verification of the numerous species indicated in Morton's History of Northamptonshire, a work which, like that of Dr. Plott on Staffordshire, has been justly esteemed. Mr. Morton was rector of Oxenden, and published his work in 1712. His researches were not confined to his own neighbourhood, and he was by no means a mere collector, but, like his friend Ray, an original observer. The book is still valuable, and may afford matter for some interesting papers.

Notices of Books.

The Birds of Norfolk, &c. By Henry Stevenson. Vol. I. London: Van Voorst. 8vo, pp. 445.

Here is a book which may safely be recommended as a model of what a local Fauna should be. It is full of valuable information on the birds of the county, information culled from previous writers, who are duly cited, and supplemented and greatly extended by the personal research of the author.

The introduction forms in itself a valuable contribution to the physical geography of the county, and the descriptions of the scenery, as well as of the habits of the birds, show that the writer possesses not only an excellent faculty for observation, but a painter's eye and a poet's relish for the beauties of Nature. We take at random from this delicious volume some paragraphs relating to the Reed Warbler (Salicaria strepera) :—

"This species, like the sedge warbler, is an incessant songster, heard at short intervals throughout the day, except in windy weather, but saving its choicest music for the twilight hours. Its lavish notes are thus associated in my mind with many a calm summer's night on the open broads, the stars shining brightly overhead, and the soft breeze sighing through the rustling reeds, mingled with the hum of insect-life on the water. It is at such times that the song of these marsh nightingales is heard to perfection. All is still around, save those murmuring sounds that seem to lull to sleep; the barking of the watch-dog has ceased in the distance, and the hoarse croak of the coot or the moorhen harmonises too well with the scene to startle with its frequent repetition. Presently, as if by magic, the reed beds on all sides are teeming with melody; now here, now there, first one, then another and another of the reed birds pour forth their rich mocking notes, taken up again and again by others, and still, far away in the distance, the same strain comes back upon the breeze, till one is lost in wonder at their numbers, so startling to the ear of a stranger, so impossible to be estimated at all during the day. About the first week in June, should the weather be fine and still, is the best time to hear these nocturnal warblers; the sedge birds, however, as earlier breeders, have by this time almost ceased to sing during the night, their young being already hatched.

"I can imagine few things more delightful to the out-door naturalist than his first introduction to the broads by night. The mere escape for a time during the height of summer from the heat and bustle of a city life, might alone repay the trouble of a visit, were there no further attractions in those sights and sounds which have for the naturalist a peculiar charm. Never, I think, does marshy scenery look more beautiful than on a fine summer's evening, when even distant objects appear distinct against the clear bright sky. How the rich green of the rushy marshes, and the luxuriant growth of sedge by the water's side relieve the eye after the heat and glare of the day. The whole landscape, flat though it may be, is yet prettily broken by small groups of cattle in every attitude of repose; with here a marsh mill, picturesque in its roughness, or there the tall mast and sail of a wherry alone visible across the next reach of the winding river. Nor does the ear fail to share in the pleasures of the scene; innumerable sand-martins fill the air with their hurried twitterings, as they chase each other over the water in endless evolutions. Every covert seems alive with the merry notes of the sedge bird, now mocking the sand-martins in their passing flight, now pouring forth its own babbling notes, till one's head seems filled with its incessant song. Close by from the bushes on the drier marshes titlarks are rising and falling on quivering wings, and though lost almost to sight, far above all, the skylark's song still mingles with the rest, as

'Higher still and higher the deep blue he wingeth,
And singing still doth soar, and soaring ever singeth.'

Such is indeed a fitting evening to prelude a nocturnal trip, and as, wrapt in the enjoyment of these rural sounds, one glides gently down the stream towards the entrance of the broad; the soft breeze rustles amongst the feathery reed tops and the light foliage of the willows by the river side, the wide expanse of water glows with the reflection of the setting sun, whilst the rippling waves upon its surface dance and sparkle on their way, as though hastening onward to those quiet shades, where twilight stealing over the landscape speaks of sleep and rest for the weary."

There is scarcely a bird mentioned in the volume on which the author has not some observations of interest even for the most desultory of readers, while the ornithologist and man of science generally will find the book a well-arranged storehouse of facts. The history of the great immigration of the bird known as Pallas' sand-grouse (Syrrhaptes paradoxus) during the summer of 1863 is well given, and is a valuable digest on a point of much interest as regards the geographical distribution not only of birds but indirectly also of plants.

Florists' Flowers.

CLARKE'S ROSE PINK, LORD LYON. — When recently at Bury St. Edmund's, I had the pleasure of calling on Mr. James Clarke, College Street, of that place, who exhibited the above Pink, to which a Second-class Certificate was awarded at the first Great Show of the Royal Horticultural Society on the 4th of June last. When shown on this occasion, the plant had been almost entirely denuded of its foliage, for the sake of the cuttings thereby furnished, which gave it a thin and weakly appearance, and led me to think it was raised from some Continental Carnation or Picotee seed. At Bury, I found the plants to be of a most luxuriantly growing habit, so much so that one plant had at one time 110 flower-buds on it. It was freely blooming when I called on Mr. Clarke, and was also yielding plenty of "grass" for cuttings.

Mr. Clarke has also raised some other hybrid Pinks. One of the first was Claude, a very free-blooming variety, of a pleasing rose colour. The pedigree of Claude gives Anna Boleyn as the seed parent, and a laced show Pink as the pollen parent. From this variety Mr. Clarke raised Garibaldi, a much darker shade of colour than Claude, being of a crimson rose; but this flower, though blooming freely, does not force well. From Garibaldi came Lord Lyon, or Clarke's Rose Pink, an intermediate shade of colour between Claude and Garibaldi, but leaving a strong infusion of rose in the colour, the petals being also handsomely spotted with dark at the base. That the cuttings of this variety root freely was placed beyond doubt, as Mr. Clarke simply pricks out a small square of "pipings," as they are professionally termed, among his Gooseberry bushes, under the shade of a west wall, and here they root readily and freely.

Besides being a grower and exhibitor of Pinks, Mr. Clarke is also famous for Asters and French Marigolds, both of which he shows very successfully. He is also a successful grower of out-door Grapes, for which the climate and soil of Bury St. Edmund's seem to be eminently adapted; in fact, Bury St. Edmund's is famous for its out-door Grape culture, the quantity grown by Mr. Darkin, of St. Peter's Vineyard, being astonishingly large. *R. D.*

The Apiary.

SUPERS.—1. In one of your articles you state that, in a certain bad honey year, you took off a super from one of your hives, but finding afterwards that the stock was nearly empty, you returned it. Pray how did you do this?—2. Will you kindly tell me if you use smoke when putting one super beneath another, and also the other particulars of performing that operation?—3. Which of these two kinds of India-rubber gloves, mentioned in the enclosed memorandum, is it that you recommend for bee work? *A. B.*

[The super in question was an octagonal box of nearly the diameter of the stock hive, a flat-top straw hive. The queen was in the super at the time of removal, September, 1860, but was captured and returned to the stock prior to restoring the super. After this, finding the stock ill-supplied, it was decided to replace the super on the top, as it previously stood. The queen again ascended into it and remained there during the winter, commencing her egg-laying in the spring, in the upper box. About the middle of April in the following spring, the position of the stock and super was reversed, the queen had previously descended into the original stock, there being brood in both compartments. When the chief portion of the brood in the octagon box was hatched out, the latter was removed, and the stock reduced to the straw hive only. A good-sized super, subsequently put on, was nicely filled; and the stock continued to be a most prosperous one for many years, giving an unusual amount of fine surplus honey in large supers. 2. We never use smoke when putting on or enlarging supers. To insert an additional super between the one first given and the stock, first draw through a fine wire or string, to separate any attachment there may be of combs to the adapting board or top of the stock. Place three wedges of half an inch square on a table; lift off the first super quietly, and rest it on the wedges. Now carefully adjust the second super in its destined position. If the top of the hive is very much crowded with bees three wedges may be used, but are seldom necessary. Having effected this satisfactorily, lay similar wedges on the upper edge of the super, just placed *in situ*, and gently rest on them the first super; with a small turn-screw ease and remove first one wedge, letting down the upper box gradually; then do the same with the second, and with even greater care the third and final wedge. Not a bee need be crushed in the whole operation, and as a rule little resentment is manifested, provided the operation be performed quietly and gently. 3. We do not know which of the gloves mentioned would be most suitable for bee manipulation, as we have seen none from the respectable firm you have applied to. Probably the cheaper quality would answer your purpose. Have them sufficiently large to admit of a pair of ordinary gloves, kid or cloth, being worn inside.]

Garden Memoranda.

LYNFORD HALL, NORFOLK, THE SEAT OF MRS. LYNE STEPHENS (*Concluded from p.* 811). — The kitchen gardens are 5 acres in extent, two inside the walls and three outside. They lie due east from the Hall, and are approached by the Mundford Road, and also by the Grass walk, nearly 600 yards long and 8 feet wide, that sweeps away on the opposite side of the flower garden from the shrubberies already adverted to. The north wall, on which the chief range of glass is to be erected, is 275 feet long and 20 feet high. It is proposed to cover 164 feet of this wall with Vineries in four divisions of 41 feet each. They are to be 16 feet wide inside, and 18 feet high. The outside borders are to be also 16 feet. Probably the centre of this fine range will be converted into a dome-shaped plant house, and the other portions of the wall will be covered with Fig or plant houses. A space at each end of the proposed ranges, 44 feet long and 16 feet high, is left to be covered with trees. Forty feet in length of the east and west walls is 16 feet high, the other 200 feet of each being 14 feet high. The south wall is 363 feet long and 14 feet high, and is covered with a glass case 9 feet wide and 2 feet high in front, for the growth of Peaches and Nectа-

rines. A 2-foot light on the top is converted into a ventilator, and is moved with the greatest ease and dispatch with Beard's patent ventilating apparatus. The front lights are moved in the same manner, and nothing can exceed the simplicity and rapidity with which they are worked. The case is divided into two in the centre of the garden, where an ornamental iron gate leads to the central walk; and one side is devoted to Peaches and the other to Nectarines, there being 23 trees on each side. The trees are in the best health and are annually laden with luscious fruit of the highest quality. It is intended to grow fruit trees in pots in front. Hitherto these front borders have been very useful for early vegetables and winter salads. A varied and excellent collection of fruits were found in these cases. Among Peaches there were the Acton Scott, Noblesse, Barrington, George IV., Chancellor, Late Admirable, Bellegarde, Madeleine de Courson, Malta, Walburton Admirable, Salway, Old Newington, Grosse Mignonne, &c. Nectarines comprised Early Newington, Hardwicke Seedling, Pitmaston Orange, Stanwick, Roman, Oldenburgh, Downton, Hunt's Tawny, and Violette Hâtive—Hunt's Tawny and the Pitmaston Orange being decidedly the highest flavoured.

The walls are all built of white brick, finished with massive stone copings projecting on each side 3 or 4 inches, and the corners surmounted with large stone balls. The north aspect of the Peach case wall is furnished with Pears and Plums. The west aspect of west wall is devoted to choice varieties of Plums, the east side to Pears. The east aspect of the east wall is covered with Cherries; the west side with Apricots. The 44-feet spaces of the south walls at the end of the proposed ranges of glass, are planted with Peaches and Figs.

Most of the trees have been planted about three years, and look well. Mr. Dunn was careful to make a good preparation. The soil is light, resting upon gravel or sand, so that no drainage was necessary. The fruit-tree borders were taken clean out to a width of 18 feet, and to a depth of 2½ feet at the wall, running out to 1½ feet at the Box edging. This space was filled up with a good sound loam mixed with brick earth and marl, and everything seems to root in it freely. Mr. Dunn, however, attributes much of the luxuriance of his trees, and the excellence of his crops, to the sewage with which he waters everything. The whole surface of the garden was also treated to a foot thick of the above compost.

The main walk runs along in front of where the chief range of glass is to be, and is 12 feet wide and 327 feet long. A 9-feet walk starts from the centre of this, and pierces the outside wall between the Peach cases. The side and other walks in the kitchen garden are 6 feet wide. The whole of the walks are edged with Box, which does well. A 6-feet border on each side of the centre walk is devoted to flowers; 3 feet further back, or 9 feet from the Box, rows of pyramidal Pears run up on each side. The walk that runs through the centre of the garden, from east to west, is also furnished with pyramidal Pears. These trees, amounting to about 50 in number, give the garden a dressy and artistic appearance. The crops looked compact and healthy—Celery, Broccoli, Cauliflower, Peas, &c., seemed remarkably succulent and good. In addition to the usual crops a large plot of Lentils, which are much prized here, was observed. Immense quantities of salading were also seen in all stages of growth. Most of the bush and small fruits are grown outside the walls. On the east side of the garden is a space nearly 300 feet long and over 30 feet wide; it is planted with two lines of Gooseberries, two ditto of Red and White Currants, four ditto of Raspberries, and one ditto of standard Quinces, Medlars, Mulberries, and Damsons, the whole being finished off with a Holly hedge, and bounded by a plantation. There is a similar plantation on the west side of the garden, planted with two lines of Black Currants and four lines of Cob Nuts and Filberts. Beyond these there is a wide border of Berberis Aquifolium and a row of red Cedars, nearly 10 feet in height, that have a fine effect.

Returning to the back of the north wall, we notice a row of buildings covering the greater part of it. These are the usual rooms for young men, storing rooms, tool sheds, &c. There were three rooms for the men, each 16 feet by 12; a root and vegetable cleaning shed, 36 feet by 12; a fruit room, 30 feet by 12; a tool shed, 30 feet by 12; a potting shed, 40 feet by 12, and a central stoke-hole about the same size, which will probably contain the one boiler to heat the great range.

A broad gravel walk, 14 feet wide, runs along in front of the sheds, and leads to the farm-road, through a handsome iron gate, 12 feet wide and 9 feet high.

Here a very complete orchard of pyramidal trees, 150 feet long by 96 wide, is placed. There are three rows of Apples, one of Plums, and two of Pears. The trees average about 7 feet in height, and are planted 10 by 16 feet apart. Beds of Strawberries are grown between the rows of trees, which promise well, and the Alpines were fruiting splendidly. The trees are planted to line in all directions, and have a very satisfying and thrifty look. The other side of the orchard is bounded by a 3-feet grass walk, 260 feet long, then a 3-feet flower border, and the northern boundary line is a 7-feet red brick wall, furnished with dwarf Apple trees.

Mr. Dunn courteously supplied the list of the varieties planted, which may be useful to young gardeners. The Apples consisted of Reinette Madre, Sam Young, Winter Codlin, Court Pendu Plat, Royal Pippin, Fearn's Pippin, Waltham Abbey Seedling, Norfolk Beaufin, Green do., Yorkshire Greening, London Pippin, Dumelow's Seedling, King of Pippins, New Golden Pippin, Old do., Old Nonpareil, Manks Codlin, Nonsuch, Adams' Pearmain, Claygate do., Dutch Codlin, Keswick Codlin, Reinette Madox, Boston Russet, Irish Peach, Rhymer, Dutch Mignonne, Ribston Pippin, Blenheim Pippin, Devonshire Quarrendon, Hawthornden, Kerry Pippin, Alfreston, Anglesea Pippin, Gloria Mundi, Golden Nonpareil, Gravenstein, Sykehouse Russet, Emperor Alexander, Early Harvest, Margil, Court of Wick, Reinette du Canada, Early Nonpareil, Lucombe's Prince, M'Lean's Favourite, Gillyflower, Golden Harvey, and Downton Pippin. The collection of Pears is most extensive, as will be seen from the following list:—Beurré Van Mons, Thompson's, Beurré Diel, Fondante de Malines, Beurré d'Anjou, Beurré Rance, Caillot, Bon Gustave, Alexandre Lambré, Catillac, Belle du Noël, Fondante d'Automne, Louise Bonne,, Beurré d'Aremberg, Abbé Edouard, Beurré Bernicq, Bellissime d'Hiver, Beurré Capiaumont, Crassane, Passe Colmar Doré, Althorpe Crassane, Easter Bergamot, Autumn do., Van Mons Leon le Clerc, Beurré Delfosse, Marie Louise, Beurré de Amanlis, Prince Albert, Calabasse, Beurré Beaumont, Panache, Jersey Gratioli, Colmar de Scilly, Glou Morceau, Windsor, Williams' Bon Chrétien, Maréchal de la Cour, Summer Frank Réal, Dunmore, Alexandrina, St. Germain's, Broom Park, Louise Bonne of Jersey, Beurré Gris, Ne plus Meuris, Winter Beurré, Susette de Bavay, Winter Nelis, Duchesse d'Angoulême, Ambrosia, Brown Beurré, Flemish Beauty, Deux Sœurs, Passe Colmar, Forelle, Bequéne Musqué, Easter Beurré, Beurré Bosc, Gansell's Bergamot, Bishop's Thumb, Jargonelle, Chaumontel, Citron des Carmes, Knight's Monarch, Napoléon, Winter Crassane, Seckel, Josephine de Malines, Swan's Egg, Autumn Colmar, Uvedale's St. Germain, Victoria, Niel Colmar, Doyenné Gris.

The Plums consist of Fellemberg, Reine Claude Violette, Washington, Red Magnum, Nectarine, Ickworth Impératrice, Kirk's Gage, Orleans, Jefferson, Victoria, Green Gage, Downton Impératrice, Bryanston Gage, Goliath, Wine Sour, Coe's Golden Drop, Royal Hâtive. Of Cherries, all the varieties of Duke and Morellos, and the following varieties:—Knight's Early Black, Kentish Black Heart, Bigarreau, Napoléon, Florence, Downton, Black Circassian, St. Margaret's, and Belle Magnifique. The Figs include White and Blue Ischias, Brown Turkey, White Marseilles, Brunswick, and Black Genoa. The following good collection of Apricots is grown:—Roman, Moorpark, Kaisha, Royal Turkey Orange, Peach, Breda, and Hemskirk. The fruit trees are all correctly labelled and numbered as well, so that if a label gets lost a reference to the fruit book at once refreshes the memory, and restores the missing name.

Crossing over from this pretty orchard we come at once to the glass. First, three wooden houses claim our notice. Two of them are of the ordinary kind of lean-to roofs, one being a greenhouse, the other a Fernery. Both, especially the latter, were well filled with useful plants. The centre is a quaint looking structure, part of a very old conservatory roof removed here, and is to be devoted to the culture of Camellias planted out on the walls and in pots. But in striking contrast to these houses are three, or rather six, for each is divided near the centre, very elegant, highly ornamental-looking, metallic glass-houses, which at once arrest our attention. These are Beard's metallic glass-houses, erected by the manufacturers, Sanders, Frewer, & Co. The first we entered was a half span, 60 feet by 20, half being a plant stove and the other half a forcing and propagating house. Another, 60 feet by 15, is devoted to Cucumber and Melon growing. The other is fitted up with an elegant iron and slate stage, the slate being covered with Derbyshire spar, and is for the growth of specimen plants, or the exhibition of plants in bloom—a show-house in fact. The plants in all these houses were in the highest health; they were literally flooded with light, and the colour of both flowers and foliage, and luxuriant shrubbiness of the growth showed to what good account plants can turn intense light. These new houses have come admirably through the severe winter; not a square of glass broken nor displaced, nor any difficulty experienced in keeping up the temperature. Coleus and other foliaged plants were as dark-coloured as they are in the sunny flower-bed at midsummer; Cinerarias, Primulas, &c., were also of the highest colours. At whatever distance from the glass nothing draws in these houses. The two 60-feet houses would make splendid Pine houses if desirable. Mr. Dunn is delighted with the cultural merits and structural excellencies of these houses, and is anxious to have the large range on the same principle. The stage is the cleanest and most elegant plant stage that I have ever seen.

It is only justice to add that the whole of these houses, and a Mushroom house at the back, are most efficiently heated by one of Ormson's No. 4 upright tubular boilers. The surface heat is drawn from 4-inch pipes in the usual way, and 3-inch pipes are carried underneath a chamber for bottom-heat. Tanks of water are placed over the pipes at the end of the houses, so that it may get warm for use. Evaporating surfaces are also provided, so that the air may readily be charged with moisture. Altogether the internal arrangements of these houses are most complete, and they enable a skilful cultivator, like Mr. Dunn, to bring tropical produce to the highest perfection.

Turning eastward from the glass towards the gardeners' cottage, a large piece of ground, 60 by 100 feet, is devoted to the culture of Picotees. Beyond this is a small geometrical garden, used chiefly as a reserve for cutting from. The other front of the cottage is also adorned with its flower garden. The cottage is a highly ornamental and convenient Elizabethan red brick house, with stone dressings. It consists of keeping-room, parlour, kitchen, pantry, cellar, &c., with three bed-rooms. The arrangements are excellent, and adapted as much or more for comfort as ornament. A plentiful supply of both soft and hard water is provided. The cottage cost about 300*l.*, and embowered in its graceful covering of Boursault, Ayrshire, Noisette, Banksian, and Musk scented Roses, and Jasmine, is a very beautiful feature in the gardens.

The garden cottage is placed near to the public road, and a red brick wall runs along to the lodge. Inside the wall for a considerable distance a belt of Pinus Laricio and austriaca shelters the garden and hides the road. A similar belt protects the garden on the east side. The whole of the trees and shrubs do credit to Mr. Dunn as a planter. The old gardens at West Tofts are now converted into a nursery, and immense quantities of forest stuff have been raised there and planted on the estate within these few years. There is also a fine old-fashioned range of Vineries down there, most of them planted afresh about five years ago. They bear heavy crops of good coloured, finely-flavoured Grapes, and are well stocked with thorough ripened wood of large calibre. On one of the roofs a good many squares of mauve-coloured glass were seen, and several of the houses had once been glazed with this colour. The same tinted glass has been observed in several mansions in East Anglia, and it is doubtless of Belgian manufacture. It seems strange that while the influence of coloured light on vegetation is now arresting our attention, our forefathers (for this glass is very old) seem to have tried its effects years ago. Would that some of the old bones at Lynford could speak, and tell us the influence on flavour and colour of the Vinery roofs of olden times. Modern Lynford can speak with authority through its new glass houses on the superlative importance of clear uncoloured light, as well as give many useful lessons in cultural and landscape art, not the least valuable being the importance of water as an element of beauty in landscape, and of utility in productive gardening—as, in addition to the unusual supply of clean and foul procured by art, at the time of our last visit tanks were being made for the storage of over 10,000 gallons of rain water, near the different houses.

The estate comprises about 8000 acres. It was purchased of the executors of the late Sir Richard Sutton, for the late Lyne Stephens, Esq., in 1856, for about 140,000*l.* The river Wissey, a good fishing stream, forms the northern boundary for about five miles. The soil is generally light and sandy, some portions of it being peat. The best portions are a light loam resting upon chalk or a subsoil of gravel. Trees of the Fir tribe especially thrive well on large tracts of the estate; on other portions Oaks, &c., also grow well. But it is more of a game than a corn producing country, and the woods are fully stocked with game of all kinds, to the delight of the sportsmen who assemble here in the shooting season, few failing to be charmed with the delightful gardens here described.

In the remarks published last week (p. 810) the reader will please to substitute "Ketton" for Thettin stone; in p. 811, a "quarter of a mile" for a mile; and in col. *c* of the same page, near the end, "specimen" for spruce. *F.*

Miscellaneous.

Testimonial to Mr. Harry Veitch.—On Tuesday last, the 6th inst., the employés of Messrs. James Veitch and Sons, of the Royal Exotic Nursery, Chelsea, presented Mr. Harry James Veitch with a splendid dining-room clock, accompanied with an address and list of subscribers illuminated on vellum, on the occasion of his marriage. The clock was manufactured expressly for the occasion by Mr. J. W. Benson of Bond Street, and is a magnificent specimen of horological workmanship.

THE SONG OF THE EXHIBITOR.

AIR—"*The fine Old English Gentleman.*"

Oh, give me air, and syringe me with waters of Cologne!
Dry as a Hortus siccus, run to seed, and overblown,
I try to keep my head up, but down it goes again,
Just like those drooping, stooping, flowers, well named the *sickly men.*
I'm a poor, used-up exhibitor,
Knocked out of present time.

I've been to all the flower shows, north, south, and east, and west,
By rails and roads, with huge van loads of plants I love the best;—
From dusk to dawn, through night to morn, I've dozed 'mid clank and din,
And awoke, with cramp in both my legs, and bristles on my chin.
I'm a poor, used-up exhibitor,
Knocked out of present time.

Oh, my orchids look most awk'ardly—stove plants are stoved-in quite—
Like my Melon, cut up by the judge, a melancholy sight!
They've broke my Cissus all to bits, as though I had a pair;
And they've brushed in all directions my pretty Maiden's Hair.
I'm a poor, used-up exhibitor,
Knocked out of present time.

Look at Erica depressa—depressa, yes, indeed,
As though an alderman sat there, after a heavy feed;
And as for poor Propendens—'tis enough to make one say
Bad words "upon this blasted heath," like Macbeth in the play.
I'm a poor, used-up exhibitor,
Knocked out of present time.

There's my Lilium auratum, shrivelled up, and torn, and tanned,—
They may well call it "Japonicum," for it looks as though japanned;
And they've stole my pet new Tricolor, with gold and crimson ribbed;
I meant it for a "*bedder*," but I didn't want it *cribbed.*
I'm a poor used-up exhibitor,
Knocked out of present time.

Here comes my wife! Now, on my life, of Hebes she be queen
My big prize cup she's filling up with "Bass" of golden sheen—
Delicious! I'm myself once more; and all I want to know,
Is where and when we show again?—hurra for that next show!
I'm a fine revived exhibitor,
Quite up to present times.

S. R. H.

Garden Operations.

(For the ensuing week.)

PLANT HOUSES.

TENDER *Heaths, Epacris*, &c., often suffer much if left out, fully exposed, too long in cold wet autumnal weather. Therefore, should the weather prove at all unfavourable, remove them under shelter at once. Any form of structure, where entire shelter from excessive wet is attainable, such as a cold pit or frame, will afford sufficient protection for a time. *Orchids*, of the less tender kinds, such as Dendrobiums, Catasetums, Cattleyas, Miltonias, and similar sorts, having finished growing actively, should now receive an additional amount of sunlight and, during bright weather, a larger amount of fresh air than they have hitherto had. Surface sprinkle also less frequently, and with a drier atmosphere throughout encourage the growth already formed to become well hardened and properly matured. Artificial heat and superabundant moisture must likewise be studiously decreased in the more exotic houses as the intensity of sunshine diminishes and days shorten. Indeed these remarks, studiously applied, as it is necessary they should be, are applicable to all structures in which artificial heat and moisture are employed. Many *Stove Plants*, and especially pot-grown creepers, such as Dipladenias, Stephanotis, Clerodendrons, &c., will likewise be very much benefited by being placed more immediately in light and air under certain modifications. An early Vinery, from which the crop has been gathered, the leaves having in part been shed, and the atmosphere habitually dry, will be found a very desirable place for the kinds of plants just named. Here they will ripen their wood freely, and set flower buds plentifully for the following season. Such a place will be well suited for all hard-wooded stove plants which have made their final growth for the season. Some of the different varieties of *Epiphyllum truncatum*, if now introduced into a warm growing-pit or house, may be induced to flower a month or so earlier than the general batch, and that at a season when they will prove very acceptable. *Liliums* (auratum, longiflorum, &c.), which have done flowering, should be removed to the outer air. Place them upon slates or cinder ashes, in an easterly aspect. Do not give them too much water at the root, but water freely as frequently as they become too dry. This will be found a good season for securing the necessary quantity of *Peat soil*, where it is obtainable from a neighbouring common. If stacked now, it will become properly dried for use throughout the winter months, time being allowed in the meantime for the decay of the customary herbage growing thereon. *Solanums* of the ornamental berried section used for winter decoration, if successfully treated, will now be very generally in bloom. In order to get the flowers set, it will be better to place them under lights in a pit or frame, and in a position close to the glass, where, by tilting the lights, or otherwise, a constant current of air can play freely amongst them. Water sparingly until the flowers are set, when every encouragement should be given them to produce a good and showy crop.

FORCING HOUSES.

Dispense as much as possible with artificial heat in *Vineries* containing late Grapes; rather keep up a nice warmth throughout the night by closing early, thereby retaining the sun's heat instead. Some amount of caution and forethought will be necessary after this date, in regard to tender varieties finishing the ripening process, not to allow too much moisture, &c., which has a great tendency to cause cracking, especially in such varieties as Muscadines, Chasselas, Sweetwaters, and others having thin skins. Vines grown in pots for future forcing, as soon as the foliage begins to decay, should be removed into a warm, airy position out-of-doors. A good plan for duly maturing the buds is to lay the pots upon their sides under a south wall, and to cover them well with litter; after which tack the growths horizontally to the wall. Large, well-grown succession *Pines* will now have their pots pretty well filled with roots, and great care and judgment will be necessary as regards watering them. Look carefully over them three or four times a week in hot, dry weather, testing each pot in order to ascertain its proper condition, as any check caused at this period may drive the plant into an immatured fruiting state. On the contrary, however, too much root moisture often tends to the production of a too exuberant growth at the expense of really good fruit. Hence extreme moderation and due caution should be used at this season. For similar reasons it is better to make a greater distinction, from this season onward, between the rooted suckers, secondary successions, &c., than is generally necessary, as these latter require an atmosphere more in keeping with the requirements of a rapid and goodly growth. It will be well therefore to give all the smaller succession "stuff" requiring such attention, a moderate shift forthwith, and to place them separately in a nice fresh pit with a maximum bottom-heat of about 93°, plunging the pots to a third of their depth therein, and keeping up a correspondingly growing atmosphere. Be mindful of any *Figs* having their roots exclusively within the house, and especially those which have ripened off an early crop, and which are required to grow freely for the purpose of forming a goodly secondary one. Give all such a thorough good soaking of water, or indeed two equally abundant ones, where it is practicable, as it is impossible for due progress to be made without a sufficiency of moisture at the root. *Peaches* and *Nectarines*, which are not showing their wonted luxuriance, now that the crop has been removed, should the borders be old, may be assisted by taking a portion of the surface soil away, replacing it with good yellow loam and a little well decomposed manure, which should be carefully pointed into the older soil without injury to the roots.

HARDY FRUIT GARDEN.

Do not gather early Apples or Pears until they show symptoms of becoming more or less ripened by turning yellow near the stalk, giving freely to the touch, &c., as these, unlike long-keeping sorts, become very insipid if kept laying about too long before they become ripe. Attend to *Out-door Vines*. Thin the bunches out nicely in order that those chosen to remain may have room to swell, and that sun and air may have every opportunity, under existing adverse circumstances, to forward them to the best advantage. Pinch back any young shoots of secondary growth which emanate from the points of branches previously pinched in. Only just take the tips off, leaving those leaves already formed to act as additional incentives for the roots to act freely, thereby giving tone to the general fruit-bearing qualities of the tree, and aiding in the due elaboration of the necessary juices for its proper growth where convenient. Give a thorough good soaking of good strong liquid manure to the roots of all out-door fruiting Vines. In hard crusty surfaces, holes made with a crowbar or otherwise, just previously, will prove of some assistance to its more free percolation into and amongst the lower mass of soil. This is a good season for removing any remaining projections of the old stock from behind the base of grafts, lately set free from ligatures. Make a clean cut down the necessary position, as it will heal freely over at this season.

KITCHEN GARDEN.

Finish without delay sowing the necessary seeds of things required to stand the winter upon cold heavy soils. These include *Carrots, Spinach, Endive, Lettuce, Australian Cress, Onions, Chervil, Corn-salad, Cauliflower, Parsley, Turnips*, &c., which must not be delayed in non-favourable situations; though in some light warm soils, a fortnight hence might suffice. Two or three successive sowings—a pinch at a time—of each, if thereby good crops are more certainly attainable, are best as regards all such ordinary things. Place a little more soil around the base of the earlier *Celery*, not burying it too much at a time, this being preferable to banking it up at once. Fill in fresh planted trenches of *Horse-radish* by levelling the soil, pinching back to their base any flower-spikes borne by any of the newly-formed plants. Give *Globe Artichokes* a good soaking with strong liquid manure. Particularly see to the removal by cutting away at the base all stalks from which the flowers have been cut; if left they deprive the base of the necessary strength to form fresh shoots, which are necessary to keep the plant alive through winter. For a like reason cut down forthwith all flowering stalks upon stools of *Fennel*; allowing these to stand and seed causes the base to decay so readily. If cut away now, a green bush is formed, which will stand, and is fit for use the whole winter through. Bring these remarks to bear also practically upon *Tarragon*, and especially *Seakale*. Sow *Chærophyllum bulbosum*. Hoe constantly amongst all crops, and especially *Peas*, winter stuffs, &c. *N. E.*

HINTS FOR AMATEURS.

August is a busy month for those who look forward, as every amateur should, to doing something better in floral display next year. By this time he should know what the new things are worth which he is growing for the first time this season, and which to keep: he should also know what all his friends have got, and what to ask them for. If he does not yet know these facts, let him lose no time about it, for August is the best of all months for striking cuttings of Pelargoniums, and most other bedding plants. Much can be done now in this way in the open air, for which, if left till later in the year, the protection of a hand-glass or a frame will be required. The effects of a new combination of plants must be studied without delay, or the opportunity will not occur again for twelve long months. Brown's ribbon border only wants two things and it would be perfection; "If it had only had —— at the back instead of the front, and if he had pegged down blue Larkspurs instead of ——:" well, take a note of it, and do it properly yourself next year. Now also should you think about improving your collection of Perennials. Many fibrous-rooted hardy plants which have done flowering may be at once divided, or moved if their present location is not satisfactory. Heart's-ease, Polyanthus, double Daisies, Rose Campion, double Rocket, and Campanula are mentioned, just to indicate the kind of plants referred to.

The showers of July will have made weeds grow apace in the gravel walks. Pick them up without mercy to your gloves, for nothing looks much worse than a weedy path. The grass too will want well sweeping and rolling, besides occasional mowing as it gets too long.

None but those who have tried it would believe what a great improvement it is to a flower garden, if the decaying blooms are from time to time removed; brushing a schoolboy's hair and putting him on a clean collar is but a feeble comparison. It does not take long to do, and the effect is wonderful, particularly with Verbenas and Roses.

Mulching is a branch of gardening not so much attended to as it ought to be. By this is meant covering the ground about the roots of plants with litter or cocoa-nut fibre; the object of which is to keep the earth cool and damp, by preventing evaporation. Dahlias and Chrysanthemums may be mulched with dung, well rotted and black; but fibre is better for dwarf flowering-plants. Geraniums show up remarkably well with fibre covering the ground.

Seed-saving must not be forgotten. Seeds should be collected in a dry day, and exposed in a warm airy room upon paper trays. When perfectly dry, there is no better plan of preserving them than in brown paper bags, which should be hung up where neither frost nor damp can injure them. There can be no doubt that the amount of care bestowed upon the collection and keeping of seeds will materially influence the growth of the plants, and the luxuriance of the flowers next year.

If dwarf plants of Chrysanthemums are wanted, it is not too late to get them, by bending branches down across flower-pots full of earth, and pegging them down there until they throw out roots, after which the branch may be separated from the main plant and removed to a shady place in the pot in which it has rooted. Rooting is greatly facilitated by cutting obliquely half way through the lower part of the branch before bending it down; but great care is necessary to prevent its breaking off. *W. T.*

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the Week ending Aug. 7, 1867, as observed at the Horticultural Gardens.

Aug.		Moon's Age.	Barometer.		Temperature.					Wind	Rain.
					Of the Air.			Of the Earth			
			Max.	Min.	Max.	Min.	Mean	1 foot deep.	2 feet deep.		
Thurs.	1	1	29.982	29.934	62	49	55.5	62	60	N.E.	.00
Friday	2	2	29.992	29.962	57	36	46.5	62	60	N.E.	.00
Satur.	3	3	30.020	30.019	73	48	60.5	60	59	N.	.00
Sunday	4	4	29.992	29.936	76	45	60.5	61	58	S.W.	.00
Mon.	5	5	29.935	29.897	73	41	57.5	62	59	S.W.	.32
Tues.	6	6	29.935	29.717	66	44	55.5	61	60	S.	.39
Wed.	7	☽	29.762	29.670	70	53	66.5	60	59	W.	.28
Average			29.954	29.876	68.14	45.1	57.43	61.1	59.3		.99

August 1—Dry wind; overcast and cold; overcast.
— 2—Overcast; cold; very fine at night.
— 3—Overcast; fine; cloudy and warm.
— 4—Very fine; fine; cloudy, but fine at night.
— 5—Very fine; fine; densely overcast; rain.
— 6—Rain; constant rain; fine at night.
— 7—Fine; heavy clouds and showers; fine; rain at night.

Mean temperature of the week, 5½ deg. below the average.

STATE OF THE WEATHER AT CHISWICK,
During the last 41 years, for the ensuing Week, ending August 17, 1867

August.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain	Prevailing Winds.								
						N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.	
Sunday ..11	75 7	50.6	63.1	19	0.78 in.	2	1	3	1	6	16	11	1	
Mon. ..12	75.0	50.5	62.7	16	0.47	2	2	2	2	6	13	10	4	
Tues. ..13	74 2	50.0	62 1	19	1.14	1	4	3	3	5	16	4	5	
Wed. ..14	72.7	50.4	61.5	17	0.79	1	11	4	2	3	13	5	2	
Thurs. ..15	72 8	49 9	61 3	16	0.61	4	6	4	1	5	10	6	5	
Friday ..16	73 0	51 0	62.0	20	0.80	—	4	4	2	6	5	9	4	
Satur. ..17	72.9	49 8	61 3	22	1.12	5	3	1	2	6	8	14	2	

The highest temperature during the above period occurred on the 11th, 1835, and 15th, 1842—therm. 92 deg.; and the lowest on the 11th, 1864 therm 33 deg.

Notices to Correspondents.

CUCUMBER DISEASE: *W W.* We could wish that all queries submitted to us were drawn up as well as yours. It is clear that the disease is constitutional, and not dependent on any fungus. We find a little red spider on the Cucumber leaves, but not on the Melon. The only advice we can give you is to get seed from some other quarter, where you know the plants are healthy. The disease has doubtless been aggravated by the unusually cold nights. *M J B.*

GRAPES: *Inquirer.* It is difficult to reply to such questions as yours without seeing the Schedule. We understand you to quote the words "a collection of six varieties" as defining a collection of fruit, and that you wish to know if White and Black Grapes are admissible according to these terms as two distinct dishes. Undoubtedly they are, and the wording would be so understood at the London and other great shows. Good Grapes, moreover, count high in collections of fruit. The disadvantage would be, that if two collections were shown nearly balanced as to general merit, the judges would take the amount of variety into consideration, and two dishes of Grapes out of six might then—we do not say absolutely that they would, because so much depends on the judges—count adversely.

GREEN FLY: *Constant Sub.* There is no better remedy for this pest in such a situation, than syringing the trees well with tobacco juice or Gishurst Compound, afterwards washing them with clear water.

INSECTS: *An Old Subscriber.* The small grubs on your Pear leaves are the common slug-like larva of the black-winged saw-fly. They may be destroyed by powdering the leaves with lime or washing them with lime water.—*J L L.* The white secretion on your Beech-tree bark arises from great numbers of a small species of Coccus. The tree should be well scraped, and the scrapings burnt, and then washed with gas tar water and soapsuds, well mixed with lime or soot. We prefer this to washing the trees with an acid. *W.*

JUDGING AT EXHIBITIONS: *Inquirer* asks the following question: "When two exhibitions are placed equal 1st, is a third exhibition, if worthy, thereby precluded receiving the 2d prize?" Not necessarily; nor does it follow that it must take the 2d prize. The judges generally have the power, by the regulations, to give what they believe the circumstances of the case justify. Hence it depends on their opinion as to the merits of the several exhibitions whether they give 1st, 2d, and 3d prizes, or two 1st and a 3d, or one 1st and two 3d. Certainly, under the usual regulations, an exhibition to which the judges award a 3d prize does not fall into the 2d place, because they give two 1st prizes, and do not themselves fill up the 2d place.

JUDGING GRAPES: *N C.* It is a very important subject, and one which it is desirable should be settled in a way to command general assent. We shall ourselves have something to say on this question shortly, and probably also on plant-judging.

LAYERING CARNATIONS: *R T.* The particulars for which you inquire were given in our number for July 13th, p. 740.

NAMES OF FRUIT: *J.* Your earliest variety is the Grove End Sweetwater; the second, the Royal Muscadine, or Chasselas de Fontainebleau.

NAMES OF PLANTS: *J H.* It is not a fungus but an Alga, Nostoc commune. It disappears with drought and revives with the first shower. A solucion of corrosive sublimate would destroy it for a time. *M J B.*—*P S S.* Calendrinia umbellata.—*Cymrs Bach.* 1, Funkia Sieboldii; 2, Lysimachia Nummularia.—*A P, Welwyn.* Michauxia campanuloides.—*J T S.* Anthyllis Vulneraria.—*T C.* 1, Petunia sp.; 2, Acanthus spinosus. —*Farm Hill.* A fine example of the Moulmein variety of Aerides virens.—*G Maw.* Salvia Sclarea, Sedum sempervivoides.—*A Constant Sub.* 1, Begonia sanguinea; 2, Agathosma obtusa; 3, Selaginella cuspidata. —*A B.* Ptarmica vulgaris, Hyssopus officinalis.—*G F.* Colutea arborescens.—*W W.* 1, Vanda sp.? 2, Selaginella cuspidata elongata; 3, Amaryllis australasica.—*W A W.* 1, Alopecurus agrestis; 2, Phleum pratense; 3, Anthoxanthum odoratum; 5, Avena flavescens; 6 and 7, varieties of Agrostis alba; 4 and 8, next week.—*Subscriber.* 1, Begonia argyrostigma; 2, B. parvifolia; 3, Selaginella, too much crushed to determine 4, Nephrolepis tuberosa.—*Anon.* Hedychium flavum.

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The Agricultural Gazette.

SATURDAY, AUGUST 10, 1867.

A good deal of information and discussion appears in our columns to-day on harvest work—on the mischievous consequences of giving beer as harvest wages, and on the possibility of breaking through this all but universal practice. We suppose that all practical farmers will agree with our correspondents, that wages had better be paid in money only, than partly in money and partly in intoxicating drink; but it is not every one who will carry out successfully the resolution to act upon this judgment. We are glad to publish Mr. Wilson's letter, in which details are promised of a plan for providing a refreshing drink which shall not unduly stimulate, and which moreover does not intoxicate.

Our own experience is in favour of a money payment solely, on the piecework plan, for all harvest work; and even the pitching in the field to carts, the loading them, and the pitching from the carts to rick, was let at 1*s.* to 1*s.* 2*d.* per acre to companies of three—horses and leaders and rick builders being provided at day's wages, and bread and cheese and coffee being served out to all alike occasionally during the day. Beer was never given as wages, though the farm was in a district where beer or cider is given daily throughout the year to farm labourers.

The general feeling among farmers is well expressed in the following letter on the subject, with which we have been favoured by Mr. C. Howard, of Biddenham, Bedford:—

"At present little more than talking about it has been done, nor do I see a change likely to take place very soon, although I believe at some distant time the system will be altered, and the farmer, like the manufacturer, will only know of money payments. We should experience great difficulty in this locality; the men have all been brought up to the system; indeed, I may say, such has been the case for generations past: and with our short supply of labour the master cannot, in a busy time, dictate terms. Besides, we find the men will have beer, and some of us think it better to provide them with a good, wholesome article, than drive them to the beer-shop, where they would only get a vile adulterated article: by this step we prevent beer coming on the farm at any other time than we choose.

"My plan is to engage the men for the month at double the usual wages—to let the cutting to them, the carting to be done by the day, with from four to seven pints of good beer per day. Many in this locality let the harvest to cut, cart, and thatch the whole of the produce at from 12*s.* to 14*s.* per acre, with the same allowance of beer as above. This will be no year for the reaping machine, but when used, so much per acre is charged for their use. My men last year paid me 3*s.* 6*d.* per acre for it. Our wages here will be from 4*l.* 15*s.* to 5*l.* for the month during the coming harvest. Good service to agriculture will be done when a change has been effected in the drinking system of the farm; but the supply of labour has lately been so limited, that many who would gladly have tried to abolish the system have not dared to make an attempt."

The correspondence between Mr. Greening of the Co-operative Agricultural Association, and Messrs. Howard, of Bedford, published last week, is the same as was referred to a few weeks ago in these columns. Mr. Greening has now published it along with comments of his own. He is in a difficulty, out of which he thinks publicity will help him, and so far as the *Agricultural Gazette* can give him this publicity he is welcome to our help. We do not know whether the agricultural world will in the long run be better served by a "manager" acting as its own paid officer or by individual "commercial middle-men" who are sometimes spoken of as the agents of the manufacturer, though that is probably a misnomer. If we take Messrs. Downing & Co., of Swan Lane, as an example of this "agency" in the one case, and Mr. Greening, supposing him to have a considerable body of clients, as an example of the agency in the other case, the question is, whether the former, maintaining a warehouse where all the leading implements are kept in stock, and where information regarding everything made by every English agricultural implement maker is to be had, are more likely to be of service in the agricultural world than the latter, who represents himself as the managing director of a co-operative company, which proposing customers must, we presume, join as members or shareholders before it can offer them its advantages. It is plain that if Mr. Downing is both able and willing to work for as little pay as Mr. Greening, the cases must be exactly similar, so far as the bill sent in for purchased goods is concerned. The former gets tools at manufacturer's prices, and sells them to a customer at a discount as large as he can afford upon the nominal retail price. The latter, supposing him to buy at manufacturer's prices, must add on the charge for management before the implement can reach the hands of his shareholder. The former has warehouses in which to exhibit tools, and travellers to urge their value on presumed reluctant purchasers, and are therefore perhaps a better agency for customers, and unquestionably a better agency for manufacturers. The latter is not the agent of the manufacturer at all; he is merely the representative of an already desirous customer, and of course he can do his work at a minimum of cost. Our own prejudice would always be in favour of open competition, wherever any business has been long in active life, as certain to be the best and most economically conducted. Competition among manufacturers and agents will ensure the best article at the lowest prices. It is, however, as advocates of this perfect freedom of action, out of which this best result arises, that we contend for the fullest opportunity being given to the competition of any new agency. A manufacturer who appoints his agent is of course quite right to supply him exclusively with the articles which he makes. But this is a very rare case indeed. The almost universal rule is that agents (so-called) are a perfectly independent class, dealing with manufacturers, not for *their* benefit, but for their *own;* obtaining goods as cheap and as good as they can, and selling them for the most their customers can be induced to give. And we submit that manufacturers step quite out of the whole scope and field of that fair and open competition, from which the best results arise, when they treat these "agents" as an exclusive and protected class. Let them take their chance in the general arena, where the severity of the competition is the only guarantee we have that the result is as good as it can be.

We see that *Engineering* approves the view we are condemning, and recommends that commercial middle-men should be protected against co-operative agency. "It notoriously takes a long time," our contemporary alleges, "to introduce mechanical novelties, however intrinsically valuable, to the favourable notice of farmers. It requires well-informed agents, possessed of tact, patience, and generally of superior business capabilities to do so, and even those commonly find the task a long and arduous one, and of necessity costly. A co-operative association has been formed to sell farm machinery to farmers at wholesale prices, and we observe that Messrs. Howard, of Bedford, have, and we think justly, declined to sell their goods at all for this purpose, whereby a hard-working and deserving class of middle-men, to whom the trade in agricultural machinery really owes so much, would be displaced. Were it likely that the number of farmers ordering direct would be considerable, or approaching those who now buy from agents and travellers, the co-operative society would deserve encouragement, but it is practically certain that but a comparatively small number would avail themselves of this means of lessening the cost of the machinery and implements bought by them. Indeed a much less number than at present would buy at all, in the case of many of the more novel implements."

We believe that in the long run competition will generally be a better servant to desiring customers than co-operation, and it is on that very ground we hope we shall not see manufacturers co-operating to protect a particular agency against it. It is, however, plain from the concluding sentences of the quoted paragraph that, by whomsoever given, as soon as wholesale orders are received they will be executed on wholesale terms. All the fine words about "a hard-working and deserving class" of middle-men will be thrown to the winds, and they will be treated professedly as they really are at present, and always will be—a body of customers with whom, of course, it is the interest of manufacturers to keep on good terms, but with whom a bargain has to be driven, neither harder nor more easy than it is for the interest of the manufacturers to drive it.

—— The "Agricultural Gangs Bill" has just passed the Lords. It provides that (1) no child under the age of eight years shall be employed in any agricultural gang, and (2) that no females shall be employed in the same agricultural gang with males, or under a male person acting as gangmaster; that (3) no person shall act as a gangmaster unless he has obtained a licence to act as such under this Act; that (4) no such licence shall be granted to any person who is licensed to sell beer, spirits, or any other excisable liquor; that (5) licences to gangmasters granted by the Justices in Petty Sessions shall be in force for one year only, and may be annually renewed on the same proof on which an original licence was granted. There are various penalties enacted for offences against the Act, fines of 20 shillings, and suspensions of licences, &c. The Act, when passed, is to come into operation on the 1st day of January, 1869, and does not apply to Scotland or Ireland.

—— A trial of mowers and reapers took place on the Imperial Farm at Vincennes, on Tuesday, July 30, when the 1st prize for mowers was given to Wood's machine; the 1st for reapers was given to M'Cormick's, exhibited by Burgess & Key; and the 1st for haymakers, to Nicholson, of Newark. It appears that the work of many of the machines was equally good with those of the prize implements, but that the French jury felt bound to honour the exhibitors in some degree in proportion to their reputation and efforts as introducers of reaping and mowing machinery; and thus it is that in a competition where their work was unsurpassed, either for speed or quality, Messrs. Samuelson and Messrs. Howard receive only "honourable mentions." The following is the prize list as given in the *Mark Lane Express*:—

Grass-Mowing Machines.—1st prize to W. A. Wood, New York and London; 2d prize to M. Perry, Kingston, Rhode Island, America; 3d prize to C. H. M'Cormick, Chicago, Illinois, America. Honourable Mention: Samuelson & Co., Banbury, England.

Reaping Machines.—1st prize to C. H. M'Cormick (Burgess & Key); 2d prize to M. Durand, *à* Lignières; 3d prizes to Samuelson & Co., and W. A. Wood. Honourable Mention: J. & F. Howard, Bedford, England; and M. Massey, Canada.

Haymaking Machines.—1st prize to N. Nicholson, Newark, England; 2d prizes to J. and F. Howard, Bedford, and Smith & Ashby, Stamford, England; 3d prize to M. Heylandt, *à* Colmar. Honourable Mention: Silas Herring, New York.

—— It will be seen in another page that Professor Anderson stated before the Highland Society last week that a complete exhaustion has taken place of the guano in most of the northern of the Chincha Islands, and that the supply from the southern island is of an inferior quality. On this Mr. Haslewood, the broker to the last two Peruvian loans, states, in reply to inquiry:—"That the fact of the northernmost of the Chincha Islands having been exhausted of guano has been patent for nearly two years past. As to the demand for guano, I state to you authoritatively that during the past two years it has considerably exceeded the average of previous years, and that this fact is attributed in no small measure to the superior quality now furnished by the other islands now worked for export, and therefore more esteemed by agriculturists. As to the extent of supply of guano for the

future, permit me to assure you that even when the Chincha Islands shall have been exhausted, as in the course of time they must infallibly be, there exist other deposits of such extent as to secure sufficient for some generations to come."

—— The Sewage Utilization Act of 1867, for facilitating the distribution of town sewage for agricultural purposes, has just been printed, as passed by the House of Commons. Local Boards may provide any works for receiving, storing, disinfecting, or distributing sewage within their respective districts, and in districts where no local Boards exist a special authority may be created for the purpose. Such Boards or authorities may purchase any requisite lands, and for agricultural objects may lease lands for a period not exceeding seven years, or may contract to share the produce or farm it and dispose of the produce. Different districts may unite for these ends. Authorities under the Act may also agree to contribute to any outlay on the part of private capitalists or public companies for carrying sewage plans into execution, and, as regards companies, may become shareholders. All assessments under the Act are to be included in the poor-rates.

HARVEST WORK AND HARVEST WAGES.

ON the eve of another harvest, may I once more express my earnest belief that of all swindles the harvest-beer swindle is one of the greatest? In most swindles two parties are concerned—the swindler and the swindled; but in this case several parties are concerned, and the whole of them are swindled. I have been farming for thirteen years at Newlands, near Mansfield, and cut, on an average, about 400 acres of corn annually, and never gave a pint of ale or beer the whole time; never used any myself; discouraged its use, as far as persuasion could go, at all times, and prohibited it entirely in the fields and stackyard. Moreover, I have made some inquiry after those like-minded with myself on this matter, and find that there are dozens and scores of men, practical men too, in all parts of the country, who concur with me in the conviction that the work can be done not only as well but decidedly better without these drinks than with them, while the health and wealth, as well as habits and conduct, of the labourers are promoted by their disuse. Then what are they to drink? "Cold water," says the theorist, "is nature's beverage." Perhaps it may be, but as we dont happen to be in a state of nature, I find no practical man to recommend it. Tea or coffee, not too strong, is about the best thing to use, and of this we used to get through 30, 40, 50, and even sometimes 60 or 70 gallons a day. Day workers were supplied with three to four quarts a day, and piece workers had as much as they liked as the rate of 5d. a gallon for coffee, and 4d. for tea; and I venture to say not one of my neighbours got more work done at the busy time, or enjoyed the same freedom from accidents, disputes, and foul language among the men. Besides this, the men's heads were clear and their pockets heavy, for their drink only cost a third of the price of beer and ale, and they had the benefit of the difference. Like everything else, it takes a little trouble at first to manage the supply of hot tea on a large scale three times a day, as we did; but where there's a will there's a way. Practice makes perfect; and, as the advertisers say, "no one who will give it a trial will ever use any other." I had no difficulty in getting plenty of labour, even when it was scarce; the best men knew their own interests well enough to prefer money to beer. Forty, fifty, or sixty men, women, and boys found they could work hard on tea and coffee; and we finished off with a jolly harvest festival, to which the wives and little ones were always welcome. Now, on the other plan these are the parties swindled:—1st. The men who mistake stimulation for strength, who forget that only nutritious food can keep up the power of the system for continued exertion, and who deprive themselves of the best chance of laying by for the future by consuming a large proportion of each day's earnings in drink, which positively diminishes their power of working; 2d. The wives and children, who lose their fair share of new clothes, good food, and home comfort, because the head of the house has consented to receive perhaps 10 to 15 per cent. of his wages in a useless and costly beverage for his own personal and selfish consumption; and 3d. The employer, who does not realize that the constant and copious consumption of "strong drink," even when it stops short of intoxication, has always and everywhere a degrading and deteriorating influence on the drinker, and who has not perceived that a larger amount of first-class work will be done by steady application than by the alternative of "spurts" and relapses so often seen where beer is depended on as the mainspring of the system. I must stop, for the time would fail me to enter into all the details of this subject and the many aspects in which it bears favourable comparison with the beer system. The moral and religious side of the matter too, though very important, cannot be meddled with now.

Hoping that some of your readers may be disposed to try the better plan, I heartily promise them any further particulars they may wish on application, either privately or through your columns. *H. J. Wilson, Moorgate, Rotherham, 6th August*, 1867.

GLOUCESTERSHIRE.—Harvest is just begun in this district; labour being dearer, it will cost more than usual to secure. Reaping machines are only partially used, the bulk of the Wheat being either cut with the sickle, leaving the stubble, or else with scythe or bagging hook, costing from 7*s*. 6*d*. to 10*s*. per acre, besides beer, about 2½ gallons per acre; Oats cut, with scythe and tied up at 6*s*. 6*d*. to 8*s*. per acre, and beer; Barley left in swathe, at 2*s*. and more per acre, with beer; Beans and Peas bagged, the former tied, at 5*s*. upward, and beer. The labourers, from long habit, prefer beer being given them as part of their wages, else all occupiers much dislike the practice, as creating great trouble and vexation, and would gladly give more than the value of the beer (heavy as it is) in wages; but beer is generally given throughout the summer, and by some during the winter, to the hands tending live stock. In my opinion there is nothing better for the agricultural labourer than a moderate quantity of good, wholesome beer, well brewed from malt and hops; and I see no reason why the same quality of beer they now have from the farmer should not be sold to them in retail from some respectable house in each village or hamlet at a fair price, such as would cover the cost of brewing, &c., and counting the expenses of retailing, so that the labourer could buy, the same as bread, the quantity he required to take home for his daily use. The careful man would then economise his wages, and his employer get rid of a troublesome burden. But it often happens that what is right in theory is difficult to reduce to practice, consequently we find much trouble in keeping the labourers satisfied and cheerful at their work (particularly in a busy time) without supplying them with a full quantity of wholesome beer. I would remark that in some cases the men could brew their own beer, but it cannot be brewed in small quantities so cheap and good as in large; but however brewed, if the obnoxious malt tax were removed it would be a great boon. Labourers are chiefly hired by the week; the ordinary day labourers at 10*s*. per week, with a liberal allowance of beer, say three to five quarts (and more when busy) per able-bodied man per day at this season; but all, more or less, have chances to earn much more occasionally at lump work. But carters, shepherds, cowmen, &c., have higher wages, with perquisites; in fact, the increasing cost of labour is great, and in the same ratio rent, parochial and county burdens, &c., hence more difficulty for the tenant farmer to make a fair profit for his capital and skill, increased by the competition of amateur farmers. As far as I can at present judge of the corn crops in this neighbourhood, I think they will be generally on the light lands tolerably good, but much of the Barley went in middling from the wet March; early Wheat is rather straw-struck, but seems firm in head, but much is down and twisted; Oats fair, and Beans and Peas good. Grass was very abundant early in summer, and we have secured a heavy crop of hay, chiefly well made, but roots are very variable. *Stiles Rich, Didmarton.*——I may not have heretofore sent you my views on the beer subject, contained in a little address to my own labourers on that and the economy of food generally. My notions on this subject have only been confirmed by subsequent experience. I am now able to add, that I have undoubtedly greatly moderated the use of beer amongst my people. I can safely say, that since my delivery of a copy of this to every man on entering my service since the publication of it, I have only seen one man drunk on my farm, who was led away by meeting with several men in the same occupation at a large market, and who has been since ashamed at my having seen him in that condition. I know little of the practice of the ordinary farmers in this part of the country. My belief is that the allowance of beer, instead of increased pay, is the rule. Farmers generally trouble themselves very little about the economy or morals of their labourers; and as respects the allowance of beer, the cost is not so obviously before the mind as the weekly addition to the labourer in shillings and pence. *Chas. Lawrence, Cirencester.*—I have authorised the publishers to supply any gentleman who might feel disposed to distribute this little book amongst his people at 3*s*. a dozen copies, which I suppose would about cover the actual cost. [See Notice in another page.]

NORFOLK.—It has long been the practice in this county (and I believe the same prevails in Suffolk) to get in the harvest by contract. In former times the men received their board and about 2*l*. 10*s*. wages for completing the harvest. They were not fed on bacon, but fared sumptuously on roasted and boiled beef, plum pudding, and other luxuries, with beer almost *ad libitum*. It may be novel to your readers if I explain the system which existed even in my own time. The lord, or foreman of the harvest, with his company, met at the farm house at 4.30 a.m. for "dew drinkings," each man receiving one pint of beer with bread and cheese, and was expected to commence work at 5 a.m. At 8 o'clock they came to breakfast, consisting of cold beef, meat broth, alternated with milk porridge or rice milk, and one pint of beer per man. At 10 they had what was termed their "10 o'clock beer," viz., one pint each. At noon they returned to dinner, or it was conveyed to the fields in hot-water tins, embracing hot joints and vegetables, plum and plain puddings, rice puddings, dumplings (plain and with currants)—these pudding *entrées* alternating. Each man with his dinner was allowed a pint of beer. At about 2.30 p.m. another pint of beer was served round, and at 4.30 they had their "fours"—each man a small currant cake (called a harvest cake), with his pint of beer. At sun-down they came home to supper, comprising cold meat, and occasionally hot meat pies, or boiled dumplings and meat gravy—these always a great luxury to a Norfolk or Suffolk labourer. On carting days, with warm weather, beer was allowed *ad libitum*. I have known men drink two gallons each; not ale-house beer, but a nutritious and wholesome beverage, brewed at the farm houses—a practice still in use here, which would increase ten-fold were it not for the malt duties. There is no greater luxury we can offer our hard-working men than a pint of home-brewed beer; as our excellent county member tritely remarked in the House of Commons the other day, "they will do more for a wet 6*d*. than for a dry 1*s*." But as farmers with their wives and daughters grew more refined in their habits, this boarding was voted a great bore (we had the men in our houses on Sundays as well as week days), and a system was introduced called a bag harvest—the farmer entering into an agreement with a certain number of men to complete the harvest for a given amount, varying from 5*l*. to 6*l*. 10*s*., and in some districts a few pecks of malt are given in addition. Not so here; the men buy malt and beer for themselves. Harvest wages have somewhat increased during the past few years. I have known these bag harvests as low as 4*l*. 15*s*. per man, whilst in some parts of the country where labour is scarce, harvest wages have during the past year or two reached 7*l*. per man. Last year in this immediate locality we gave 6*l*. per man; this season we may probably give 6*l*. to 6*l*. 10*s*. For this amount the corn is cut, carted, stacked, and thatched, the stacks trimmed, the land raked, indeed everything completed in a workman-like manner. No beer is given (excepting by way of a treat), the only part of the farmer's contract is to find horses and carriages. At the conclusion of the harvest a supper or harvest home is given, but this is optional. The quantity of acres allotted to each man varies; for instance, on good rich loams, where the crops are bulky, 10 acres will be enough per man, whereas on lighter soils as much as 15 acres and even more are put to each man. In this neighbourhood, where the land is rich, the cost of harvesting will vary from 11*s*. to 15*s*. per acre. On my own farm last year, with bulky crops I was enabled, with the aid of a 3-horse Beverley reaper, to complete my harvest for a fraction under 12*s*. per acre. This season I fear the reapers will be almost useless here, as our crops are so much laid; indeed, we shall never be able to place much dependance on them in this district, as we never get standing crops except in very dry summers. When they can be generally used, a saving of from 10 to 20 per cent. will be effected in manual labour. In no county in England do the men work harder or longer hours in the harvest field than in this; the average duration of the harvest may be said to be a month, but with favourable weather it is often concluded in three weeks and three or four days. I think it impossible to have a better system of harvesting than our own. The only care required on the part of the farmer is to see that his corn is properly cut, and not hurried up too quickly, as the men are but anxious to make short work of it; they depend on their harvest wages for their cottage rents.

With regard to harvest prospects, I may report somewhat favourably of Wheat; the ear is larger and better filled than was expected after so cold a summer; it still holds backward, and will require forcing weather to be ready for cutting by the 20th inst., on the very forward soils it may be a day or two earlier. It is to be feared that those Wheats that were laid by the first storm will be mildewed. Many fields have already a very suspicious appearance. The Barley is improved, but must be short of an average crop, both in quantity and quality. Oats, Peas, and Beans pretty good. The hay was a great crop, and all well secured, and a good second growth is coming on. Turnips have done badly of late—the cold and wet have completely set them fast. On some farms the prospect is good, but, on the whole, I never saw them much worse in this immediate neighbourhood. All store stock are in good supply at the Norwich weekly market, and sold at reasonable prices. *W. Cubitt, North Walsham.*

RECENT LABORATORY RESULTS.

[The following lecture was given by Professor Anderson, Chemist to the Highland and Agricultural Society, at their recent annual Show.]

A science may be applied to the improvement of a practical art in two different ways. It may either be devoted to the study of the fundamental facts on which its practice depends, so as to trace their connection and establish its general principles, in which case its progress, though slow, is sure, and the art to which it is applied is sooner or later raised to the dignity of a science; or, on the other hand, it may be used to investigate individual facts, in doing which it not infrequently produces a more immediate effect, and assists in the solution of questions of great importance to those engaged in the practice of the art at the time, though they may not add much to our stock of permanent knowledge. In the lectures I have at different times given at the shows of the Society I have generally endeavoured to illustrate the former of these methods of advancing agriculture, by selecting some particular department of practice, and showing how the facts which careful observation in the field has made part of our assured and certain knowledge, when studied by the light of science, are found to depend on fixed principles, which, when rightly and fully investigated, explain all that experience teaches. To attain this result, however, practice and science must work together, which they are capable of doing, because their methods of inquiry are really identical. They are not, as the unscientific public too often imagine, opposing forces, working by different methods and in different directions. On the contrary, the very reverse of this is the case; both are founded on observation, and if equal accuracy and precision be brought to bear upon the subject of inquiry by both, their results are inevitably found to be in perfect harmony with one another. A survey of the history of agriculture during the latter part of the last and the whole of the present century, offers many striking illustrations of this harmony of science and practice, which have really assisted one another to a much greater extent than is usually supposed; and there are not a few cases in which improvements originally suggested by science have been so completely adopted in practice, that their scientific origin is now quite unknown to, and unsuspected by, practical men. It would be easy to illustrate these positions in considerable detail, but it is not my intention to do so know. My object on the present occasion is rather to direct your attention to the mode in which chemistry throws light on the individual facts of agriculture; and for this purpose I

propose to bring under your notice some of the results recently obtained in the laboratory, and I shall avoid all those inquiries which bear on general principles, and confine myself as much as possible to those more restricted questions which are of immediate interest to those engaged in practice; and my observations must necessarily be of a somewhat miscellaneous character, though I trust they will not be found unworthy of notice. They apply mainly to the manures and feeding substances at present supplied to the farmer, their quality, composition, and sources, in all of which perceptible changes occur from year to year.

The Guano Market.

I shall first direct attention to manures, among which Peruvian guano necessarily takes the first place, for it is still used in larger quantity than any other individual manure. Its annual consumption, though scarcely increasing, is certainly not diminishing, while that of other descriptions of guano is decidedly smaller than it was some years since. Many of the inferior kinds have almost disappeared from the market, merchants having found to their cost that they cannot be imported with a profit. I have been assured by a person well versed in the matter that the inferior qualities of guano, of which large quantities were imported from South America some years since, involved an average loss of at least 1*l*. per ton to the importers. Even of the better class of guanos other than Peruvian the importation is by no means large, and I am told by the agents for the importers of one of the best phosphoric guanos that the annual demand for it does not exceed 8000 tons. I do not suppose the statement of these facts is in the least degree necessary to prove the great importance of Peruvian guano (for nobody can have any doubts on that score), but they serve to show how thoroughly we depend upon it, how little chance there is of any formidable rival to it coming into the market, and how important any change in its quality and price there must be. About two years since I had occasion to draw the attention of the farmer to the importation of several cargoes of Peruvian guano containing a considerable quantity of sand and gravel, amounting in some cases to as much as 15 to 18 per cent.—a thing which had never occurred before, and which at the time I was unable to explain. The reason has since appeared, for it turns out that just at that period the supply of guano on the most northern of the Chincha Islands was on the point of exhaustion, and in some instances a quantity of sand and gravel had taken up with that which lay close to the rock. Since that time the supplies have been got from the northern island; and the quality is not equal to that imported some years since, as may be seen from the following analyses of average samples of both the old and new imports:—

	New Imp'ts.	Old Imp'ts.
Water	16.75	13.73
Organic matter and ammoniacal salts	50.05	53.16
Phosphates	23.85	23.48
Alkaline salts	7.80	7.97
Sand	1.55	1.66
	100.00	100.00
Ammonia	15.21	17.00
Phosphoric acid in the alkaline salts	1.33	1.91
Equal to phosphate of lime	2.90	4.19

It will be noticed that the samples are pretty much alike, except in the ammonia, which is 17 per cent. in the old and only 15 in the new imports. The effect of this difference, which at first sight appears but small, may be understood if we consider what the farmer must do in order to bring up the quantity of ammonia to the standard of 17 per cent. This could be most easily done by adding to the guano about one-twelfth of its weight of sulphate of ammonia, the cost of which for each ton would amount to rather more than 1*l*., and to this extent the price of guano is practically enhanced by the diminution of its quality. The farmer buys for his money a smaller quantity of fertilising matter than he formerly did, but it must not be supposed that he will necessarily, on that account, notice a proportionate diminution in the produce obtained from it; and the reason for this is, that he does not look to the total effect of such measures, but only to that produced on the crop to which it is applied, and he has at present no means of estimating the result of the residual fertilising matter in subsequent years. As far as the effect on the first crop is concerned, it is probable that a diminution of two, or even of four or five, per cent. in the ammonia contained in Peruvian guano will, in many cases, produce but little effect. To the Turnip, for example, which requires abundance of phosphates and but little ammonia, the greater part of the latter element contained in Peruvian guano is practically useless. The surplus is more or less effectually stored up in the soil for the use of subsequent crops; and though the farmer pays but little attention to this after-effect, and that mainly because he has no means of measuring it, it is self-evident that any reduction in the total quantity of valuable matters in the manures must affect it, although to what extent can only be accurately determined by often-repeated, tedious, and costly experiments devoted to that individual point. The entire consumption of the guano on one of the Chincha Islands naturally directs our attention to the probable exhaustion of the supplies of this important manure, in regard to which alarmist paragraphs occasionally make their appearance in the newspapers. For my own part, I do not think there is any ground for immediate anxiety on this point. A single island has supplied the demand for more than 20 years, and as the annual consumption is not at present increasing, it seems not unreasonable to suppose that the remainder of the Chinchas, together with the Lobos and other islands on the coast of Peru, which are known to contain abundance of guano of a perfectly serviceable kind, though inferior to that hitherto imported, will serve for at least a generation to come. At the end of that time it must be admitted that the supply of nitrogenous manures will become a question of very grave importance. The stoppage in the supply must be immediately followed by a great increase in the price of all nitrogenous manures; for the ammonia contained in the Peruvian guano annually imported, which is equivalent to about 120,000 tons of sulphate of ammonia, greatly exceeds the quantity of that substance at present derived from all other sources put together. This, of course, is putting the matter in the most unfavourable light. In the other scale must be put the increasing production of ammonia as the manufacture of gas is extended, and the greater economy of that at present produced. Not only do the newer processes used in the purification of gas save ammonia, but sulphate of ammonia is now manufactured at small gasworks where it was formerly neglected, and there is no doubt that a slight rise in price would cause it to be saved in many cases in which it is now regarded as unremunerative to attempt it. Neither must we forget that guano after it has been exhausted will be gradually reproduced, and that much more rapidly than might at first sight be supposed. We have been in the habit of speaking of the deposits in the Chincha Islands as the accumulation of thousands of years, and hence of supposing that the production of a single year must be so small as to be entirely unworthy of notice. Experience, however, in the only case in which we have had an opportunity of watching the production of guano after the original deposit had been cleared away, tells a somewhat different tale. It is familiar to all of us that, for several years, we obtained a very considerable quantity of guano from the island of Ichaboe, but about 15 or 16 years since the deposit of that island was thoroughly exhausted, and it was abandoned. Two or three years only had elapsed when a ship touching there found a new deposit, of which a cargo was brought to this country, and ever since the importation of this recent guano has been a regular branch of trade, and, so far as I have been able to ascertain, has during the last two or three years amounted to between 2000 and 3000 tons annually. This quantity is, no doubt, small, but it is not to be neglected under the circumstances to which we are looking forward. The island of Ichaboe is of small size, and it may fairly be expected that the quantity which may at some future time be collected in a similar manner from the Chincha and other islands may be not inconsiderable. It is practically a dearth of ammonia that we are here anticipating, for, as we shall presently see, there is no chance of the supply of phosphates running short, and in this point of view it is important to notice that recent Ichaboe guano is richer in ammonia than the old deposit. There are considerable differences in the quality of the cargoes now imported from that locality, in consequence of the variable amount of sand they contain, but the difference may be understood from the following analysis of a good sample contrasted with the average of the older supplies:—

	Recent Ichaboe.	Old Ichaboe
Water	17.61	24.21
Organic matter and ammoniacal salts	41.84	39.30
Phosphates	18.80	30.00
Sulphate of lime	1.70	—
Alkaline salts	3.28	4.19
Sand	16.77	2.30
	100.00	100.00
Ammonia	12.35	8.50
Phosphoric acid, or the alkaline salts	0.44	—
Equal to phosphate of lime	0.97	—

If this recent sample had only been free from sand, it would have been quite as valuable as much of the Peruvian guano now being imported. Now, it is not unreasonable to expect that a corresponding increase in the quantity of ammonia would be found in Peruvian guano, if it could be collected and used soon after being deposited. Unfortunately, we know very little regarding the composition of the excrement of sea birds, but from the analyses which have been made of that of land carnivorous birds, it may be fairly estimated that from one-third to one-half of the nitrogenous matter originally present in Peruvian guano has disappeared in consequence of decomposition, so that if it could be got in a recent state it would doubtless be much richer in ammonia than that we at present obtain. A further proof of this is offered by the composition of Angamos guano, a variety imported to some extent 15 or 16 years since, which was found on ledges of the rocks along the coast of Peru, and was collected by men who were lowered by ropes over the face of the cliffs. It was a very dry and pale-coloured substance, and contained large quantities of nitrogenous matter, average samples yielding 21 per cent. of ammonia, while cargoes containing upwards of 25 per cent., or as much as the best sulphate of ammonia, have been imported. The deposits of this guano were exhausted some 12 or 14 years since, and the localities where it is found have not since been examined, though it would be of great interest to have them inspected at the present time to see whether any considerable quantity of fresh guano had been accumulated. These considerations may induce us to hope that the supplies of ammoniacal guanos, though they must materially diminish—unless new deposits are found, of which there does not seem to be much prospect—will not altogether cease, and they even suggest the possibility at some future time of devising some plan by which this "harvest of the sea" may be more effectually economised. Little need be said as to the adulteration of Peruvian guano, which, as is well known, has been greatly checked by the system adopted by the importers but cases still occur in which loam and gypsum, with the addition, in some cases, of small quantities of inferior guanos, are used. I take two analyses out of several others which occurred during the present year, illustrating these two kinds of adulteration:—

Water	12.11	9.60
Organic matter and ammoniacal salts	37.61	26.85
Phosphates	23.75	35.15
Sulphate of lime	6.98	12.12
Carbonate of lime	0.66	1.48
Alkaline salts	6.32	4.25
Sand	12.54	10.25
	100.00	100.00
Ammonia	9.15	4.68
Phosphoric acid or the alkaline salts	0.31	0.255
Equal to phosphate of lime	0.69	0.55

Superphosphates.

Passing from guano to superphosphates, the matter which most immediately attracts attention is the decided improvement in quality and diminution in price which has taken place within the last 10 years, which is due in great part to the introduction of bone ash and mineral phosphates. The use of these substances has produced a variety of minor modifications in the manufacture of this manure, in consequence of which a superphosphate of good quality is now much more finely reduced and more convenient of application than it used to be. At the present time dissolved bones, in the sense in which that term was originally used, may be said no longer to exist. That name was at first applied to a mixture of bone-meal and acid, without any addition; but as such a mixture, owing to the gelatine of the bones, becomes damp and sticky, and cannot be brought into a dry and pulverulent form without considerable cost, manufacturers now invariably add to it some other substance, that usually preferred being bone ash, because the maker can then guarantee his product as being made entirely from bones, but coprolites, apatite, and other mineral phosphates are occasionally used. Occasionally sulphate of ammonia is added, as well as, within the last year or two, sulphate and muriate of potash; but in that case the mixture generally gets a special name, and is called Turnip or grain manure, as the case may be. Nitrate of soda also sometimes forms part of the mixture, but this is an injudicious addition, because the sulphuric acid decomposes the nitrate, and the nitric acid reacts upon the organic matter, and is destroyed, so that after the manure has been kept for some time, the quantity of nitrate is sometimes greatly diminished. Owing to all these changes very great varieties now exist, both in the appearance and composition of superphosphates, but, on the whole, there is no doubt their quality has improved. In speaking of guano, and the possibility of its being more or less completely exhausted, I stated that it was the diminished supply of nitrogenous matters which was the source of anxiety. So far as phosphates, the most important constituent of superphosphates, are concerned, there is not the slightest ground for apprehension, for their supply seems to be practically inexhaustible. Scarcely a year goes by without new deposits being discovered, some of which have scarcely as yet been worked. During the last two years a new source of these substances has been discovered in Germany, which promises to be of very great importance. It is found in the valley of the Lahn, a tributary of the Rhine, where it is met with in nests in a particular kind of dolomite, and in very large quantities. The mines of Staffel yielded last year 2500 tons, and there are many others; so that, as their working is still in its infancy, the chances are that the supplies will soon be very large. It contains from 55 to 65 per cent. of phosphates, with some oxide of iron and fluorine, and it makes a very good superphosphate. The discovery of this substance is interesting not merely on account of its affording an increased supply of phosphate, but because it is found in a new and unexpected geological formation, and there can be little doubt that by an extended search many similar deposits will be found.

Oilcakes.

Passing now to the consideration of the feeding stuffs at present in the market, I propose to refer not so much to their composition as to the extent to which their adulteration is now carried. I had occasion to point out this matter in a paper published in the Transactions of the Society about two years since, in which will be found several analyses of adulterated oilcakes. With the details of such analyses I shall not trouble you here. Suffice it to say that during the past year I have found bran, Grass seeds, carob Beans, French nutcake, and a variety of other seeds, some of which it is impossible to recognise, in oilcake of British manufacture. Many of these are undoubtedly due to the inferiority of the Linseed used, for cargoes are often met with containing not more than 60 or 70 per cent. of actual Linseed, the remainder being the seeds of weeds, and in such cases the manufacturer is able to shelter himself behind the statement that he added nothing to the Linseed; but in other cases there can be no question about the deliberate addition of the extraneous substances. This is always the case with bran, carbo Beans, nutcake, and the like; and in one case, which occurred some time since, I was able to trace the fact that French nutcake had been brought from Hull to an oil mill in one of the large towns in Scotland, where it was ground down and mixed with oilcake. The great difficulty which the chemist encounters in regard to the adulteration of oilcake is, that it is quite possible to make up a mixture containing a large quantity of foreign seeds, which shall, in point of composition, appear quite equal to the best. This is done by adding, along with bran or other similar substances, some cake, such as Poppy-cake, which is very rich in nitrogenous substances. Even with bran alone it is possible, by selecting a Linseed of very high quality, to make a mixture

which, when the analysis alone is considered, gives as good a result as that of a genuine cake made from a Linseed of poorer quality, but equally free from foreign seeds. In fact, it is generally the best Linseed that is adulterated, and the thing is practised quite openly; in proof of which I may state that I possess a sample of a seed offered for sale in the Hull market, for the purpose of adulterating good Linseed. Of course, the use was not stated quite so straightforwardly as I have done it, but the veil was a very thin one, for it was described as a seed used for "reducing high quality Linseed." It appeared to consist of wild Mustard and a variety of other small seeds sifted out of Linseed, and you may easily judge of how fully it fulfilled its purpose, when I tell you that it contained—

Water	10.49
Oil	5.80
Albuminous compounds	11.68
Mucilage, gum, &c.	57.78
Fibre	6.36
Ash	7.89
	100.00
Nitrogen	1.87
The ash contains—	
Phosphates	2·34
Phosphoric acid, combined with alkalies ..	.63
Sand	4.19

The great difficulty which besets the whole question of the adulteration of cake lies in the fact that the manufacturer does not conceal the fact that his cakes are, as he expresses it, "mixtures;" indeed, he often sells three or more kinds of cake, distinguished as Nos. 1, 2, 3, &c., at different prices, of which the first only is guaranteed as being made from pure Linseed, leaving it of course to be understood that the others are not pure; but as he does not deal directly with the farmer, but with the dealer, it rests with the latter to state whether the article he sells is pure or not; and I fear that in not in a few instances this fact is suppressed, and the farmer is left to judge for himself. In some instances, no doubt, the manufacturer palms off an inferior article as genuine, and this I think must have occurred in an amusing case which came under my notice not long since. A dealer in cakes sold an article which he stated was of the highest quality, and which he sold under the name of the Simon Pure at 11*l.* per ton. I analysed it, and found it contained bran; and since then the same dealer has supplied his customers with the real Simon Pure at 11*l.* 10*s.*; so that it will be observed that in commerce as well as in comedies there are a real and a counterfeit Simon Pure. I need not say that all these, and many other facts which must have come under the notice of most farmers, show what care is necessary in the purchase of such substances.

Drinking Water.

At the risk of occupying your time too long, I would venture, before concluding, to bring under your notice one other subject which appears to me to merit notice, and this is the quality of the water supplied to farm stock, (which I fear is sometimes by no means what it ought to be. I have within the last few months examined the water of wells on several farms, and have found some of them to contain nitrates in considerable quantity, obviously derived from the infiltration of animal matters. It is easy to understand how these reach wells which are often sunk in the farmyard at no great distance from the dungheap. Now, the presence of animal matters is well known to be extremely prejudicial to the health of human beings who use such water, and there can be no doubt that they must be injurious also to animals. The question, therefore, has occurred to me whether the outbreaks of cattle plague, which have been so virulent on some farms while others have escaped altogether, may not be due, to some extent, to the quality of the water. I have no data to enable me to decide, but the matter merits further inquiry. There are many other subjects of interest, which I might easily bring before you did time permit, and if it were possible for me to go into minutiæ. I have endeavoured, however, as much as possible to avoid details, and more especially numerical details, which are apt to be tedious, and then I am compelled to avoid some matters which cannot be treated without them. I trust I have said enough to satisfy you that chemistry can do much in tracing out facts for the benefit of individuals. In many instances the analyses made in the laboratory have been the means of getting back a large part of the price of adulterated articles; and, in this respect, the duties I have to perform often require much judgment, and are a source of considerable anxiety to any one who wishes to perform them conscientiously.

HINTS ON THE BREEDING AND CARE OF CATTLE.

My observations may be of some use to those readers who have not devoted much attention to the subject; they may prove of interest even to more experienced breeders, should I be able to adduce facts that may have escaped their notice, or in confirmation of their own observations. I can hardly speak with the same authority as a breeder, generally, that I can as a feeder; yet I have been a close observer now for many years, and devoted my earnest attention to the improvement of the Aberdeen and Angus polled breed of cattle, with respect to size, symmetry, fineness of bone, strength of constitution, and disposition to accumulate fat, sparing no expense in obtaining the finest animals from the purest stock.

Laying the foundation of a breeding stock will be the first matter under consideration. We are met here at the very outset by the advocates of blood and those of selection. Much may be said, and volumes have been written, in favour of both. My experience leads me to take a middle course between the two, and to keep in view both the one and the other. With respect to the qualifications of a successful breeder Darwin writes, "Not one man in a thousand has accuracy of eye and judgment sufficient to become an eminent breeder. If gifted with these qualities, and he studies the subject for years, and devotes his lifetime to it with indomitable perseverance, he will succeed and make great improvements; and if he wants any of these qualities he will assuredly fail." Darwin's view will be found pretty correct. Many breed with a certain success, and even rush to the top for a time in the show-yard, but it is only those described by Darwin who will finally succeed. In laying the foundation of a breeding stock there is generally one of two objects in view: either, first, to raise up a herd the best of its race, with a view to competition in the show-yard and to improve it to the utmost; or, second, to breed commercial cattle for commercial purposes with the greatest possible profit. The first requires independent means: and, to secure success, skill, perseverance, and patience under heavy disappointments. The second can be attained by ordinary prudence. If the first object be the one aimed at, the selection should be made from the most established herds, and of animals of pedigree, and possessing the characteristics of the race you intend to propagate. But my attention will be more particularly directed to the second. There are few that have hatfuls of money to expend upon the purchase of high-bred animals: nor is this necessary in order to secure a profitable return from a breeding stock.

I would recommend the following method:—I shall suppose a farmer wishes to buy 20 cows to stock his farm (Aberdeen and Angus cattle). His entry is, say, at Whitsunday. He must have a bull to serve his cows. He should be selected from an established herd and from a race of good milkers. The farmer must be a good judge, or employ one in whom he has implicit confidence to act in his behalf. In his selection he must have a certain model in his eye, such as he wishes to propagate. I assume that he has considered that his farm is adapted for the rearing of the Aberdeen and Angus breed of cattle, and is convinced of their hardihood of constitution being adapted to his soil and the climate. He ought to keep to certain ground in his selection; that, viz., where the polled breed are still in a state of purity, as in Angus, Aberdeen, Kincardine, Banff, and Moray shires. He ought to visit the Alford district, and all to the west of Alford. On the Spey he will find cattle well worth his attention. They are not of large size generally, but many of fine quality. In the neighbourhood of Dufftown, and west from Dufftown, there are many useful beasts. The Mearns and Angus he should carefully examine, visiting the farms where polled cattle are bred. The wealthy breeder, No. 1, may look to the honours of the show-yard; but No. 2, with his limited means, must have regard only to his ultimate profit.

As it is a Whitsunday entry, he ought to have the lot made up, and the bull put to them in season, that he may not lose a year. The cows he buys will give milk to the house, and the two-year old heifers will be easily kept on. I speak on the supposition that cows and heifers are bought, but the majority should be heifers. He ought to attend all the fairs in his power through spring, and be on the instant ready to pick up a suitable beast wherever it appears, which he can always do at market value. He ought to select the best heifers or cows (duly informing himself as to their breeding) from the different districts I have named. The produce, after a first-class bull, will be astonishing. The cows that throw the best calves should be retained, while those that "cry back" should be dismissed, and their places filled up with a new selection. By careful breeding for two years there will be a most useful profitable breeding stock established, and there is no doubt that even some good races may be secured. We have ample experience and proof of this in the good calves thrown by our worthless little black polled country cows, and it is on my experience of this fact that my recommendation is founded. For two-year-olds rising three, out of small cows, I have at Christmas got 40*l.* from the butcher. Purity of blood in the male will be found highly to improve inferior races. A herd of breeding stock without the risk of haphazard will be secured at a moderate cost—one that will be profitable to the owner.

The following remarks apply partly to a show-yard herd, and partly to one for commercial purposes. In the original selection, as I have already observed, the breeder must have in his eye the model he wishes to propagate. The animals selected should approach the desired type as nearly as can be obtained; and by careful and repeated selections the ideal may be reached. The selector must be well satisfied as to soundness of constitution, especially in laying the foundation of a show-yard herd. If male or female have hereditary defects of constitution, their progeny will inherit them. Show-yard stock, being pampered for exhibition, are more liable than the common stock of the country to be affected with hereditary diseases. Pedigree is of the most vital importance. We ought always to prefer a bull of high pedigree, with fair symmetry and quality, to another bull, though much superior in appearance, but of questionable pedigree. If the latter be turned to a herd superior in blood to himself, incalculable mischief may be done. Breeders have not given the subject the attention it deserves. I have paid dearly for my experience in the matter. But bulls, even from the purest herds, will not all produce stock alike. Some will give a majority of bull calves, others a majority of heifer calves; some will be famous for getting fine bulls, and others for getting fine heifers, while others produce little to boast of in the one or the other. No one can affirm that he has a first-class sire till he has been tested. If the result be satisfactory, money should be no temptation; he must not be sold. It must not be forgotten that the male has most influence in breeding; but without first-class females the descendants will not shine generally in the show-yard. Breeding for the show-yard must not be left to haphazard; nor is the breeder likely to be successful if pride and conceit be his besetting sins. Take the following by way of illustration: At perhaps a distant sale a fine cow is bought, or it may be at market. Attention to pedigree is ignored; the age is perhaps considered of no consequence. On her arrival she is examined and applauded by friends and neighbours. The inspection may cost the owner gallons of whiskey; but she is to prove a mine of wealth. Great hopes are entertained of her progeny. The calf is expected to be first-class. After days of care and nights of dreams and anxious watchings, with unnecessary aid in calving, the great calf at last sees the light of day. The owner is disgusted at the result. The cow yields little milk, either for the calf or the family. She is sent where she should have gone years before—to the butcher. The disappointed owner in future buys the cheapest animals that come to hand. If pedigree be ignored, and the sire be of doubtful antecedents, except in an accidental case, the progeny will be at the best of medium quality; but by ordinary precaution such loss may be avoided.

Breeding in-and-in has some advantages and many advocates. It is a knotty point to touch upon. At the commencement I stated that my own experience led me to adopt a middle course; that experience has not been in favour of the system. By adhering to it I found that quality was maintained, and even improved; but size was reduced, and symptoms of delicacy of constitution were manifested. It may be pursued for a time, until the type is developed, but to continue for any length of time to breed in and in, is not only against my experience, but, I believe, against Nature.

In looking over a herd of breeding cattle, I have often seen the owner or the cattle-keeper pointing out a cow that throws a good calf and never threw a bad one, and at the same time telling you how great a milker she is. It would be difficult to buy such a cow too dear. Most of the above remarks may apply alike to the home farm of the proprietor, to the large and small farmer, and to the crofter with one cow. It is well known to breeders of cattle, and I believe of sheep, that there are particular races that are celebrated, and upon which you can calculate that they will never propagate an inferior animal. Specimens not so desirable will now and again appear, but the blood is there, and the divergence will not be great from the desired type. Again, there will be one race noted for producing celebrated males, and another for producing celebrated females. A bull may be introduced that is a great getter of bull calves, yet the change may not be to the advantage of the owner, as the female calves will not be bred of so high an order. . . . .

In the selection of the male, you will have to consider the faulty or defective points in your cows with a view to correct them. As far as possible—pedigree being right—you ought to purchase the bull that is strong upon the points where your females are faulty. If this is not duly attended to, the defect or malformation may be aggravated. But although the bull selected possesses the excellence wanting in the cows, he ought, of course, not to be very deficient in other points, else the cure may be worse than the disease. If possible, he should be taken from a pasture not superior to your own. Docility of temper in male and female is indispensable. Inexpressible mischief may be done by the introduction of wild blood into the herd, for it is sure to be inherited. I have suffered seriously by this error.

To be good behind the shoulder, good in the girth, and well down in the fore-rib, are the qualifications most difficult to attain. Lightness of the fore-rib shows a tendency to delicacy of constitution, and strength and soundness are most important to the success of the breeder. Depth of rib is more important in the male than in the female. Lightness of the fore-rib may be tolerated when milk is the object (and many great milkers are so characterised), but not where the production of beef is the object. Then you must study to combine quality with weight. Quality ought to be the first consideration, but we must never forget that all must come to lbs. at last.

I have already given my opinion as to the shape and quality of a perfect breeding and feeding animal. I shall only here remark that it is indispensable in our cold climate that the animals should have a good coat of soft silky hair to defend them from the cold blasts of autumn, winter and spring.

[The above passages are taken from Mr. M'Combie's recent work on Cattle and Cattle Breeders (Blackwoods).]

CONTAGIOUS DISEASES (ANIMALS) BILL.

[Lord R. Montagu thus referred to the Bill on Tuesday evening in the House of Commons.]

Its object was to remove, as far as possible, the restrictions now placed upon the movement of cattle within Great Britain. The restrictions which had recently been in force tended to raise the price of meat, and, therefore, amounted to a tax on food; it was proposed, therefore, to relieve the people of this imposition, and to do so by means of a general instead of local restrictions. It was absolutely necessary that meat should be imported from abroad. Before 1842 the importation of cattle was absolutely prohibited; the prohibition was then removed, and a heavy duty imposed, which was taken off by Sir R. Peel in 1846. It was argued at the time that this measure would prove entirely nugatory; but the importations of cattle had gone on increasing till in the year 1865 we drew our meat supplies not only from Spain and Portugal, from France and Holland, but from Denmark, Schleswig-Holstein, Poland, Galicia, and Hungary. In 1843 little more than 1000 head of cattle

were imported; in 1844, 3600 head of cattle; in 1845, 9700; in 1846, 17,000; in 1847, 27,000; in 1857, 53,000; and in 1865, 188,000. Into London alone the importation of cattle, sheep, pigs, &c., had vastly increased. In 1858, 1840 head of cattle were imported into the metropolis; in 1866, 8000; and in 1867, 12,000. These increased imports tended, of course, to facilitate the introduction of cattle plague. Just before the restrictions were imposed which had the effect of stamping out the cattle plague, the number of attacks weekly in Cheshire amounted to 4000, and in Yorkshire to nearly 2000 cases. The Act passed on the 20th of February. In the week ending the 3d of March the attacks of cattle plague in Cheshire had decreased to 1273, and on the 31st of March to 765. It was a curious circumstance that the sanitary restrictions imposed had no effect whatever upon the price of meat either during recent attacks or during that which took place in the last century. For the average of five years from 1739 to 1744 immediately preceding the distemper the price of meat was 2½*d.* per lb.; during the 12 years of the distemper from 1745 to 1756 the price was also 2½*d.*; during the five worst years of the distemper the price was only 2⅝*d.*; and 12 years after the distemper, from 1756 to 1768, the price was 2½*d.* per lb. The same features were observable in modern times. In 1864 the price of meat ranged from 6½*d.* to 7½*d.*; in the beginning of 1865 from 6½*d.* to 7½*d.*; and in 1866, during the time that the cattle plague was very bad, from 5¾*d.* to 7*d.* In April this year the price was from 6*d.* to 6½*d.* The quantity of cattle slaughtered during the prevalence of the distemper had the effect of changing the venue of the market, the cattle, instead of being sold in London, being sold locally; but the trade adapted itself to the altered circumstances. Another consequence of the restrictions imposed on account of the cattle plague was that other diseases were almost extinguished; he referred especially to the foot-and-mouth diseases imported from Holland in 1839, and pleuropneumonia imported from Holland in 1842. In the latter year, and before the disease was imported, the average mortality among cattle in England was from 1½ to 2½ per cent. From that time the percentage rose steadily till it appeared from the reports of the Cattle Insurance Company, in 1848, that three-fourths of all their losses were due to pleuropneumonia. In 1860, 374,000 horned cattle died of disease in England, of which more than one-half was due to pleuropneumonia, and from 1854 to 1860 the average loss annually from that cause amounted to 160,000 head of cattle. But after the restrictions were imposed recently what occurred? Why, on the 12th of March, 1867, Professors Simonds and Brown reported that pleuropneumonia and the foot-and-mouth disease existed only to a very limited extent; and this, they stated, was due to the restrictions on the movement of cattle, by which they estimated that we saved annually 1,000,000*l.* worth of food. Various agricultural societies were accordingly of opinion that the same restrictive powers which had been applied to the cattle plague should be applied to other diseases as well. With that recommendation, however, he was not ready to concur, as the proposal was surrounded with a great many difficulties. Most persons looking at a Continental "Bradshaw," and seeing that the railways came straight from Hungary and Poland to Rotterdam, jumped to the conclusion that all importation should be stopped. But we might as well attempt to sweep back the tide with a broom as to keep out foreign meat. Some persons maintained that the Grass lands in the East of Europe were the home of the cattle plague, and that as long as cattle were allowed to be brought from thence we should always run the risk of introducing it; and hence, that if cattle were allowed to be imported they should invariably be killed at the port of landing. Under the present regulations cattle were killed at all the ports, with the exception of Harwich and Southampton, where the imports for London were so enormous that to attempt to enforce such a system would occasion a violent disturbance of trade, and an amount of inconvenience that would be almost intolerable. The question was really one between London and the country. In 1860 no less than 164,000 head of cattle were imported into London. The next largest importation was into Hull, where in the same year only 26,000 cattle were imported. Newcastle imported 8000, and all the other ports in that year were below 5000. Then it was contended that dead meat might be sent into the metropolis in the same way that it now came from Aberdeen and the north of Scotland. But it must be borne in mind that in that case the consignee was the loser in case anything went wrong. But with foreign meat the risk was that of the foreign owner; and if cattle were to be killed within a certain number of days buyers had only to hold back for a time, knowing that eventually the meat must come down to their price. The greatest difficulty, however, was as to the feeding of them. Two-thirds of the cattle that came to London were consumed at the East-end. But if they were all killed at Harwich or Southampton only the best joints would be sent up, for only those would pay for the carriage. The working classes fed on shins of beef and offal, yet these were precisely the parts which it would cost too much to send by railway. Then it was proposed by some that quarantine should be established at those ports. Now, store cattle were never imported from abroad, fat cattle alone being brought into this country, and if fat cattle were put into quarantine they lost considerably in value. The hon. member for the Tower Hamlets desired a separate market for foreign cattle to be established in London. If that were attempted it would be found that the expenditure for the purchase of the ground, and for the erection of the necessary buildings, would be enormous. Moreover, the establishment of two markets, one for home cattle and the other for foreign cattle, would have the effect of dividing the buyers and sellers, and would thus destroy competition. Consequently, the hon. member's proposal would prove a gigantic means of reviving protection. Another objection to the proposal was that at the time when the Metropolitan Market Act was passed, a clause was introduced expressly forbidding the erection of a new market within seven miles of the one established by that Act. Therefore, if a new market were established, the buyers would have to go seven miles to get the meat, and the price would be greatly enhanced. It was said on the side of the country gentlemen, that restrictions should be placed on the foreign trade, but removed from the home trade; while deputations from the large towns recommended quite a different course of proceeding. Thus the Government were placed between two difficulties, the only escape from which was by making the restrictions locally self-acting: and this purpose was attempted to be effected by the Bill, and still further by the consolidated order, which would soon be passed, the object being to throw the foreign trade open as far as possible, and to prevent contact between the foreign and home cattle.

Mr. J. A. Smith conceived that all these restrictions would be absolutely useless unless something more should be done. Some few weeks ago a statement appeared in the newspapers that a number of cattle had been purchased at Deane, in Scotland, and sent to Hampshire. They were from four and a half to five days on the journey, and had neither food nor water during that period. Two out of the whole number (27) died, and 19 arrived in a state of great suffering and misery. He took means to ascertain the truth of the statement, and then went successively to the noble lord the Vice-President of the Council, to the Home Office, and to the Board, and he was told by all the persons he applied to they had nothing to do with the matter, and that he had better go to the Society for the Prevention of Cruelty to Animals. This was a case which could not be a solitary or isolated one, and it clearly had some connection with the progress and communication of the cattle plague.

Mr. Pugh said he thought in this discussion the reports of the Cattle Plague Commissioners ought not to be forgotten. He wished to make some remarks in favour of slaughtering foreign cattle at the ports. There was a strong feeling in its favour in the country, and it was borne out by the reports of the Commissioners. In inquiring into the origin of the disease, they came to the conclusion that it did not arise spontaneously in this country; that it was brought direct from Holland, and indirectly from Revel, from Russian Poland, and from the Russian steppes, in which it found its constant home. They therefore recommended an inspection of foreign animals in this country more minute than any that would probably be applied to them abroad. They stated that during several months in the year this country imported from 5,000 to 10,000 animals a week, which were landed at some few ports, and thence dispersed all over the country. Upwards of six-sevenths of these were landed at the three ports of London, Harwich, and Hull. They recommended that the foreign trade in cattle, which had grown to such enormous dimensions of late years, should be subjected to proper regulations; that the cattle should be slaughtered at the ports, and that good landing places, lairs, and sheds should be provided there, by which much of the cruelty of the land transport would be avoided. He made these remarks with a view of directing attention to the subject; he believed that if the Government carried out the recommendations of the Commissioners, they might dispense with many of the restrictions now imposed inland, and give general satisfaction to the country. Those whom he represented, as practical men, had no objection to free trade in cattle as far as it was requisite to supply the necessities of the country, but they had a great objection to free trade in cattle plague brought from abroad, and to the unlimited importation of disease.

RECENT RAM SALES.

Cotswolds: *Mr. William Lane, Broadfield, near Northleach, July* 25.—There were 50 shearling rams sold, the average price being 31*l.* 19*s.* 6*d.* each; the highest price being for No. 7, bought by Mr. Broom, of Pearham Hall, Norfolk, for 127*l.* *Mr. E. Olding, Ratfin Farm.*—The autioneer commenced with the letting of 12 ram lambs, one of which was let for 25 guineas, to Mr. Coles, near Warminster. Their average letting was 14*l.* 2*s.* 6*d.* The sale of 100 ram lambs, single and in pairs, was next proceeded with. The highest single lamb sold at 16 guineas, and the highest pair at 27½ guineas. The average of the lambs let and sold was 8*l.* 1*s.* 6*d.* *Mr. C. Barton, Manor House, Fyfield.*—Mr. Acock quickly disposed of 50 very choice animals, at an average of 14*l.* 17*s.* 6¾*d.*, the total proceeds amounting to 745*l.* 18*s.* 6*d.* The highest price was 40 guineas. *Mr. Hugh Aylmer, Abbey Farm, West Dereham.*—This year Mr. Aylmer offered 100 pure-bred ram lambs, 80 shearlings, and 10 2-shear sheep to the large number of agriculturists, belonging to Norfolk, the neighbouring, and more distant counties, who attended the letting. The following is the result of the letting:—The first 10 lambs averaged 8*l.* 7*s.*, the first 40 7*l.* 10*s.* 3*d.*, the first 60 7*l.* 2*s.* 6*d.*, the first 80 6*l.* 15*s.* 4½*d.*, and the 100 6*l.* 8*s.* 9½*d.* each. The highest price given for a lamb was 12*l.* 10*s.* The first 10 shearlings averaged 10*l.* 10*s.*, the first 20 10*l.* 6*s.*, the first 30 10*l.* 8*s.* 8*d.*, the first 40 11*l.* 1*s.* 9*d.*, the first 50 10*l.* 16*s.* 1*d.*, the first 60 10*l.* 14*s.*, the first 70 10*l.* 10*s.* 4*d.*, and the 80 10*l.* 9*s.* 7½*d.* each. The highest price given was 31*l.* 10*s.*, by Mons. Amyot for the Emperor of the French. The 10 2-shears averaged 9*l.* 18*s.* 6*d.*, the highest price given being 24*l.*, to be taken to Auckland, New Zealand, by Mr. Symonds. *Oxford.*—Messrs. Paxton & Castle submitted to public competition 42 Cotswold shearling rams, bred by Mr. R. Lord, of Stanton Harcourt, sold at the average price of 9*l.* 18*s.* 6*d.* The same autioneers also sold 10 pure-bred Cotswold shearlings, bred by Mr. Joseph Stratton, of Upton, near Burford, which averaged 6*l.* They likewise offered 21 Cotswold shearling rams from the flock of Mr. T. Akers, of Black Bourton, which were all disposed of at an average of 8*l.* 3*s.* 4*d.* *Mr. J. Gillett, Minster Lovell.*—50 rams averaged 12*l.* 16*s.* 2*d.* *Mr. Fletcher, Shipton, near Cheltenham.*—50 rams averaged 14*l.* 15*s.* 9*d.*; highest price, 51 guineas. *Mr. W. Hewer, Northleach.*—50 rams averaged 20*l.* 1*s.* 11*d.*; highest price, 67 guineas. *Mr. R. Garne's Cotswold Rams.*—52 sheep were offered, four of which were only let for the season; the whole realising 1286*l.* 5*s.*, at an average of nearly 25*l.* each. The highest price was 130 guineas, which was given by an American gentleman, Mr. Loonis; and the next best, at 71 guineas, was purchased by Mr. W. Hewer. Several of the other rams made from 50 guineas to 30 guineas each. Mr. Brown, of Marham, who was so successful at Bury St. Edmund's with some of Mr. Garne's sort, was again a customer, taking two sheep back with him into Norfolk.

Shropshire: *Mr. C. R. Keeling, Yew Tree Farm.*—Mr. W. G. Preece disposed of 33 rams and 80 ewes. The first ram was secured by Mr. C. Stubbs, at 20 guineas, from which figure prices ranged for the shearlings down to 6 guineas. The interest of the day centred in Chadbury, a good 2-shear, used last year by Mr. C. Randell, and which, after a brisk competition between Mr. Lythall, Mr. C. Byrd, and others, was secured by the last-named gentleman at 34 guineas. One other 2-shear concluded the rams, the 33 averaging 13*l.* 5*s.* each. The ewes followed, and, though low in condition, realised from 65*s.* to 105*s.* each, the average being about 73*s.* *W. C. Bird, Littywood, near Stafford.*—Mr. Peake, of Lammascote, purchased the best at 30 guineas, and hired another at 20 guineas. The shearlings went low, 10 guineas being the highest price given, and a few were unsold. The average was 9*l.* 12*s.* 6*d.* *Mr. Sampson Byrd, the Leese Farm.*—Model Patentee was let for the season, after a sharp competition, at the, we believe, unprecedented sum for a Shropshire of 90*l.* 6*s.*; the hirer being Mr. Allen, who last year secured the same sheep at 47*l.* 5*s.* Four other rams were then let for the season, at from 8 to 12 guineas each; and a shearling by Pride of Weston, from a Patentee ewe, was offered for half the season, and realised 45 guineas, to W. O. Foster, Esq., M.P. The sale of the shearlings followed, and, though low in condition, readily commanded buyers at prices ranging from 6 to 25 guineas, the general average being 15*l.* 8*s.* *Mr. Horley's, The Fosse.*—Among the best prizes were Freeford, 2-shear, Mr. Keeling, 33*l.* 12*s.*; shearling, Mr. Plumley, 21*l.*; ditto, Mr. Jordan, 15*l.* 15*s.*; ditto, Mr. Hamer, 22*l.* 1*s.*; ditto, Mr. Cobb, 22*l.* 1*s.*; ditto, Mr. Swinnerton, 18*l.* 18*s.*; ditto, Mr. Canning, 26*l.* 5*s.*; ditto, Mr. Wigan, 16*l.* 16*s.*; ditto, Mr. Cooke, 17*l.* 17*s.*; five young stock ewes, Mr. Perkins, 13*l.* 2*s.* 6*d.*; five ditto, Mr. Reading, 13*l.* 2*s.* 6*d.*; five ditto, Mr. Cowper, 12*l.* 10*s.*; five ditto, Mr. Scriven, 13*l.* 2*s.* 6*d.*; five ditto, Mr. Pell, 15*l.*; five shearling ewes, Mr. Nott, 15*l.*; five ditto, Mr. Smith, 13*l.* 5*s.*; five ditto, Mr. Smith, 15*l.* 12*s.* 6*d.*; five ditto, Mr. Pell, 15*l.*; five ditto, Mr. Pell, 15*l.* 12*s.*; five ditto, Mr. Pell, 14*l.* 7*s.* 6*d.*; five ditto, Mr. Scriven, 16*l.* 5*s.*; five ditto, Mr. Loggin, 14*l.* 7*s.* 6*d.*; five ditto, Mr. Liggin, 14*l.* 7*s.* 6*d.*

Home Correspondence.

The Happy Medium in Sowing.—This must ever vary, according to circumstances of soil, climate, and manurial or natural degree of fertility. The crops on my farm afford interesting and instructive evidence on this matter. Is it not strange that agriculturists generally do not make comparative trials with a view to a better profit? Are we always to do exactly as our forefathers did, regardless of altered conditions? The results of experiments, continued for several years in various fields, confirm me in the opinion that thick sowing causes a heavy loss; that very great corn crops cannot, as a rule, be grown where corn is too thickly sown; and that thin-sowing, or, rather, proper sowing, produces not only more straw (taken by weight), but of better quality than thick-sown. Much larger crops of grain are, in my case, reliably obtained by thin-sowing, and it is brighter and of better quality than from the thick-sown. I know that this is contrary to the general belief, but that belief is too often, if not always, formed about a crop which was thinly sown, but had become thin and mildewed by want of drainage, imperfect tillage, or some defect in management. So marked is the superior quality of the thin-sown, that, when ripe, both the corn and straw are readily distinguishable from the thick-sown, viz., the straw in the sheaf and the corn in the heap. To produce extreme crops the heads must be long, thick, wide, and of course heavy, supported by a strong, reedy, glossy stem; the kernels large, plump, and bright. We cannot have these peculiar characteristics in a thick-sown crop, but the reverse. Instead of curved or leaning crops just at or before harvest, the thick-sown come to a premature standstill and an early horizontal downfall, resulting in an inferior sample both of corn and straw, and only a moderate crop. I speak now of highly-manured soil. On half-starved, ill-tilled, weedy soils no amount of seed will produce a luxuriant or laid crop. This season I shall drill three pecks per acre on my Clover leas, as I find 1 bushel too much with my farming. I shall have one or two half acres dibbled as usual with half a peck, or at the rate of 1 peck per acre, being convinced from experience that if the plant stands it will as usual yield better than any larger quantity. The piece on which only a quarter of a peck remained (a peck per acre having been dibbled and come up well, but three-fourths of it destroyed by slug) promises to yield from 4½ to 5 quarters per acre. I shall continue to drill, as usual, 6 pecks of Barley per acre, my crop of this year being very fine and bright, with long ears and large kernels, the ears from 14 to 17 kernels on each side. It is, however, in many places too thick and laid. I shall also drill, as usual, 2 bushels of Oats per acre—my regular quantity; Wheat I find more than ample. I have two fields of Rivett Wheat on heavy land, sown after white Wheat with one bushel per acre. They promise abundantly; one field was not sown until December. The ears are very large and long, most of them will contain from 80 to 100 kernels. How is it, then, that by thick-sowing we only get, as an average of the kingdom, a small portion of one ear

(nine kernels) for each kernel sown? On my thin-sown I find from 20 to 35 ears from each kernel, each ear having probably 40 to 50 kernels. I commend Revett Wheat rather than Barley for heavy land. It comes to a much greater money value, being better suited to such soils. The gain in price, arising from superior quality and thin-sowing, was illustrated in 1861 as follows:—my Barley crops, sown with 6 pecks, produced 5 quarters, and sold for 52*s.* per quarter. My neighbour's yield was the same as mine, but was of grinding quality, and only realised 37*s.* 6*d.* per quarter. He sowed 2¼ or 3 bushels. I could multiply such instances. We begin harvest on the 5th inst. On highly-manured and well-farmed drained clays, the Wheat and Barley crops are much laid; in fact, so unusually flat, that I was induced to examine into the cause, and find that it is owing to the stems, where they spring from the root, having become softened, with a tendency to rottenness or decay. This has, no doubt, been caused by the frequent and heavy rains, the absence of sun, and the shading by dense crops of straw. Where less seed was sown, or the land less highly manured, the crops stand better, the wind and sun having had more free access to dry the soil. We are cutting white Wheat to-day (Aug. 5). I feel convinced that the corn will finish up and dry better in the sheaf than lying flat upon the damp ground. My crops of every description promise to be most abundant, and in advantageous contrast with the half or three-quarter crops on undrained soils. They are also in a more forward condition. The want of drainage on certain soils will be a cause of serious loss. My harvest is let to my men at 6*l.* each man, taking 10 acres. This is 12*s.* per acre to cut (with the bagging hook), cart and stack. As I have 56 acres of Wheat (estimated at 5½ quarters per acre), 11 acres of strong Barley, and 8 acres of Oats, the job will be a heavy one, owing to so much corn having been laid and twisted by the strong winds. The Beans (13 acres) will be let separately, and our men get 3*s.* 6*d.* per acre for carting and stacking. The Bean crop will probably be 7 quarters per acre. Eleven acres of White Peas are stacked and being picked for London market. *J. J. Mechi.*

South Lincolnshire.—I have for the past few days carefully observed the state and progress of our various crops, and now give you my ideas of their present position. The Wheat crop is the heaviest and in the roughest condition I ever remember to have seen it, owing to tremendous storms and floods of rain. We have much blighted, a good deal storm-broken, and some mildewed. Cutting will commence about the 15th to 20th, if fine. Barley is all down and sorely tossed about, not likely to ripen for some time. Oats all flat on the ground, but giving a speedier prospect of ripening than Barley. Some few fields of early Peas are cut; crops fair. The general cutting of this crop will commence next week. Beans are a bulky crop, but much tumbled about; they are well podded, and tolerably free from dolphin. Potatos are in a doubtful case; the late winds have injured the haulm greatly, but that is not all, unmistakable sign of "disease" is apparent. I have dug diseased ones up this morning, and the haulm in many fields is full of "specks," and in some decaying fast. This is a serious matter for our farmers, as thousands of acres are now grown in this district. Mangels are growing admirably, and will yield capital crops. Swedes improve fairly, but the weather is too cold for hastening their growth. Common Turnips and Rape progress satisfactorily. *John Clarke, Long Sutton, Aug.* 1.

The Harvest and Harvest Work.—The coming harvest will present a class of crops the most trying and difficult to cut and gather which has been experienced for many years. Such length of straw, so tossed and tangled, such intertwining and interlocking of the Wheat crop, we never saw; it would appear impossible to gather it without great loss. The Oat crop, although not so long in the straw, is much laid; and as our terrific rains and storms have visited us from opposite quarters, it is sorely twisted and tied together. The Barley crop is chiefly laid, heavy in bulk, and much entangled. Peas are very much tumbled about, and a good deal injured. They are otherwise a good crop, with abundance of haulm. The Bean crop is sadly broken, and overlapping several ways. Both Beans and Peas are well podded, but they cannot ripen or fill satisfactorily after such strong visitations; vast numbers of pods will be defective. The cereal crops have not received that serious injury which we thought inevitable, but we cannot estimate the damage done at less than from two to three bushels of Wheat, five or six bushels of Barley, and the like of Oats, besides the depreciation in quality. The general remark, or rather inquiry, is —How are we to get our crops cut this year? We shall be short of hands, and the reaping machines will not be of much service. They cannot cut such crops in a fair and satisfactory way, neither scythe nor sickle can do it, much more the reaper. This is the constantly recurring remark, go where you will. Well, we must set our wits to work; if one course won't do we must try another: yes, and another, and another. It must be done, and it can be done—we must do it. Suppose we try the reaper, first our side-delivery one. What! in that tremendous crop? Yes. Put some scythemen in to open out a way along that lighter part. We try; we take a fair breadth, it tears it up, breaks off numbers of ears, the straw lodges, it can't deliver. We take a less breadth, we set hands to watch and remove any obstructions, and scythemen to mow any impossible places, and we get on tolerably. How could the sheaf gatherers work in such a crop? Why, not at all. The workmen cannot keep all clear while using all their vigilance and energy. But let us try the strong manual side-delivery reaper in the bottom field. Well, you may try, it is of no use; it is far worse to do than this, and our scythemen say they can't mow it, and that it must be cut with a reaping hook. Never mind what they say—get two strong horses, and we will try. I am told there never was a crop grown but it could, with care and judgment, be made to cut it. The reaper is brought, openings are made by our scythemen, and we commence work. We soon find our rakeman on the seat has more work than he can do; he cannot push off the quantity of stuff cut to keep the machine in work. What is to be done? He says, "Take off the platform, and get the hands out of the Barley field to tie after me, and I will show you that I can readily get all off behind and keep plenty of men going to tie after me." This is done, and one of the heaviest and most entangled of crops is speedily brought down. When we reach any unusually rough place or hollow we cannot safely catch, the scythemen with either scythe or hook are set to complete all. This is one of the best courses to pursue in all crops to be cut down by reaping machines. Scythemen should always be at hand to cut off corners, laid and missed places, and in any way to aid the machine. There is no difficulty in cutting down any light crop—any ordinary reaper will do that. It is a season like the present, when every crop is amazingly rough and heavy, that tests the value and applicability of every reaper. General testimony will now be of value to the various manufacturers. It should always be borne in mind that every scythemen, in the execution of his work, when like the above, has to take it in every way, turning here and there for a cut, now forwards, now backwards, according as he can best command a few cuts. It must be so with the reapers. They must turn about for a few cuts here and there and everywhere, as seems best in accordance with good judgment and the state of the crop. No doubt these immense crops are a serious hindrance to these machines. They may, however, be readily cut down by them under judicious care and management. *O. F.*

Mr. Wm. Smith and the Hiring System.—After 12 years of toil, anxiety, and indomitable perseverance, we yet find our esteemed friend Mr. Smith wedded to an old-fashioned antiquated piece of machinery, and, we might almost add, a relic of the antediluvian world; whereas his late co-partner Mr. J. Howard has made a very important step in introducing not only two engines but two cultivators to work at the same time, and thus treading on the heels of our great champions of progressive improvement, Messrs. Fowler & Co. But why has Mr. Howard left his friend and fellow-worker in a state of intransmutability? Doubtless because common sense dictated to him that steam cultivation required engines of increased power, and an increase of power required, naturally, increased size and weight, and consequently heavy engines became incapable of being moved about by horses. Mr. Howard then very sensibly followed the example of his practical pioneer, Mr. Fowler, and introduced self-moving engines, and no sane man would attempt to compare the weak and incapable engine of 10-horse to the strong and powerful engine of 40-horse power. No, it does not require figures to prove the capability of each set under proper management, for Mr. Smith knows full well the seasons will not wait for the sluggard, and the old motto, *Tempus fugit*, urges the farmer to avail himself of that set of tackle which will perform the most work in the least time, and, in some instances, irrespective of cost. But if Mr. Smith has not entirely forgotten his simple rule of three sums he will perhaps work out the following sum for his own instruction, as well as that of others:—If one engine requires the services of five men to work it, and the roundabout tackle connected therewith, and can only do five acres per day, what is the saving of two engines which only require the services of three men, and which can work very easily 12 acres per day? After doing this, and finding figures against him, let him condescend to apologise to Mr. Toepffer for abusing his "mere trash," as he politely terms it, and let him be grateful to him for his energy, his enterprise, and his industry, in introducing superior tackle to his own, and thereby giving a further impetus to agricultural improvement. If Mr. Smith fancies he can prove to the farmers of Lincolnshire that they will save both time and money by purchasing his tackle instead of hiring, let him, by all means, come and show them how to work it more economically and advantageously, for many have small sets of tackle in their stackyards actually bottled up, and are hiring the double engine sets; consequently, facts prove more than words, and the "mere trash" of Mr. Toepffer alluded to in Mr. Smith's letter, becomes sound, sensible, practical, and argumentative. Mr. Smith allows in the concluding portion of his letter two or three small farmers to have a set between them and hire one of another, according to arrangement; for he himself acknowledges September and October will not wait; and, if the work is to be done well, it must be done in those months. Sensible suggestion indeed, Mr. Smith! And, if they may be allowed to hire from each other, why should they not hire from Mr. Toepffer? inasmuch as his powerful engines can do almost as much work in one way as the "little tackle" could manage, with its constant shiftings, in a week. I fear Mr. Smith would find that his suggestion of small farmers hiring of each other would supply a constant source of squabble amongst the partners, each of whom would require its earliest application. The 12 years' practice of Mr. Smith convinces me, that in 1858; he gave most decidedly unsound advice to the farmer and my only excuse for troubling you with this reply, Mr. Editor, is, that I am satisfied that in 1867 Mr. Smith is still a victim of prejudice, and that his advice now is impracticable, as well as unsound. That he may become wiser as he grows older, and take a lesson from the school of experience, is the sincere wish of *Charles H. Sharp, The Villa, Swineshead, near Spalding.*

Substitute for Thatch.—Will no one, in these days of science and progress, hit upon some substitute for thatch, tiles, or slates, as roofing for outbuildings and walls? Can you tell me anything about a patent entitled the "Zopissa," which proposes, amongst other things, to supply such a want by utilising paper for the purpose? It is the invention of Col. Szerelmi, of Houses of Parliament notability, and the works are the Albion Works, Wellington Road, Battersea Bridge Road. I have tried felt, and have felt the uselessness of it. Any information you may be so good as to give in your *Gazette* will oblige *J. L. T., a Subscriber.*

Crops in Kent.—Our artificial Grass (seeds) crop was exceedingly good, an inferior piece being the exception. All was gathered in excellent condition. Meadow Grass generally good; some few pieces here and there fed off late into the spring not quite so good. All haymaking done up to the middle of July was gathered in excellent condition, having no rain upon it. But since the middle of last month considerable quantities of rain have fallen; and haymaking has been a long-protracted operation since that time: I fear a great quantity must be seriously injured, if not completely spoiled as food for cattle. The above remarks on the rain apply equally unfavourably in respect to our corn crops, having had but little sun, nights cold, and often frosty. All now feel anxious in regard to the present harvest. Wheat does not come forward to a ripening state so well as we would wish, many pieces changing with that dark dirty colour which denotes a disposition to root falling, "or more correctly, root rotting." Generally there is plenty of straw, but much is "laid" by the high winds and heavy rains, consequently such pieces will be more or less injured in quantity, also quality; indeed, the Wheat crop must be materially deficient in quality with a continuation of the weather such as we now have, on the cold and stiff clays, where ill-farmed Wheat is thin and poor. A good average crop will be found on some lands, while on others the yield will be below an average: barely an average generally, I should think. Oats at one time promised for an exceedingly heavy and abundant crop, but a sudden check was given them from a continuance of heavy rains; those pieces possessed of an abundance of straw are much laid, consequently will be injured considerably. Many pieces are somewhat short in the straw, but stand well, and are likely to produce the best samples, as the grain will mature better than those pieces which are much down. I think we may call Oats an average crop, with few exceptions. Barley but little grown around here. Beans are much affected with the rust—I fear in many instances to an injurious extent. On some lands they will be a good average crop, but the crop on poor cold land is poor indeed; some I have seen will grow as little as three sacks per acre. Should consider this crop generally under an average. Peas generally a poor crop; here and there a good piece when well farmed. This crop on some land is so completely overrun with weeds as to make the crop nearly worthless, such farming being a disgrace to English agriculture. Roots:—Mangel Wurzel: a good plant on some lands, but many pieces germinated so unevenly "patchy," that I should not consider this beyond an average crop; some below an average. Swedes: early plants grow and look well, but some pieces were much eaten by flea; in such cases the plant will not be a good one. Of my own Swedes (which were damaged): on a part of the field the dung was ploughed in, on the remainder of the field the dung was laid on the top of the land; in the part where the dung was ploughed in the plant was nearly destroyed by the flea, but in the other part, on which the dung was laid on the surface, I have a good even plant, and promising well for a good crop. Our land, much of it, is not adapted for this crop, being of too close a soil. The crop which engages much of our time and expense is the Hop crop. This will prove a fickle and precarious crop this year. The weather has been, and still continues, unfavourable for this plant. Its greatest enemies, the fly (Aphis humuli), have been and done their work, and the myriads of their young lice are still to be seen in countless numbers on the bulk of our Hop plantations. From its earliest attack (May) we have continued to have an uninterrupted supply of their progeny. To form an opinion of the likely yield per acre is impossible at present, as some of the bine in many grounds, which is coming well forward into burr, is so filled with lice, that unless these die soon they must materially injure the crop: indeed much lice are to be found in the burr. The above remark applies to those plantations that have shown a disposition to grow in spite of all obstacles. There are some plantations tolerably clear from lice: such appear to me to be the only plantations that will produce fruit. Much of the plantation is completely destroyed for this year's crop—"gone black." I still fear other grounds must follow. Many plantations have been washed, and have derived a material benefit from washing. To destroy all the vermin seems impossible; and taking into consideration their remarkable faculty of propagating their species in so short a time, it's not so surprising that in a few days the same plantations again become infested with lice. There are a few pieces of Wheat which are being cut. Harvest general next week. *John A. Buckland, Benenden, Kent.*

Wireworm.—Mr. Mechi, in his Farm Notes in your Paper of the 27th ult., recommends salt, 6 bushels per acre, as a certain cure for wireworm. Perhaps he can advise something in the following instance, where I have tried salt without success. In autumn 1865 we broke up a piece of old pasture, and in spring sowed with Oats, of which we had an excellent crop. The field was winter ploughed, and half of it planted with Potatos, without manure of any kind. The remainder I sowed with Turnips and Mangel Wurzel. The Mangels were drilled on the 9th of May, about 20 tons of very good farmyard manure being ploughed in in the ridges. One lot of Turnips was drilled on June 1st, and another on June 8th, the ground

being dressed with about 10 tons of farmyard manure, 2½ cwt. of guano, and 5 cwt. of salt per acre. Those sown on June 1st came up well and looked well until just before they were singled. When we singled them the men drew out as many as 20 wireworms at one stroke of the hoe. From that time until within about a fortnight they have kept going. In some instances the top died away altogether, in others it only looked sickly, and on pulling it up the root was found often as large as a good-sized Radish, eaten through about an inch and a half below the surface, and the part that was left putting out fresh rootlets. The lot sown on June the 8th appeared to be taken as they came up, only a patch here and there getting away, part of which have since been taken. Seeing there was no chance of a crop of Turnips, I had part of the ground planted with Brussels Sprouts and Broccoli for market, the remainder drilled with Yellow Tankard Turnips. The Sprouts and Broccoli appear to be quite free from attacks of the wireworm, but the Tankard Turnips seem to be sharing the same fate as the others. I should think about two-thirds of the Swedes sown on the 1st of June have escaped, and these look remarkably promising. The Mangel Wurzel has never been touched, but a neighbour of mine says the wireworm has destroyed all his Mangel and left the Swedes. In another part of the field we found they had attacked some Early Potatos we got up. The men pulled lots out of the tubers, where they had nearly buried themselves. The piece cleared I dressed with about 10 tons of manure, 5 cwt. of salt, and 4 cwt. of Rape-cake, ground small, to the acre, and drilled with Orange Jetty Turnips. This piece, together with the rest of the Potato ground, I intend to sow with Wheat. I should be glad of advice as to the best dressing I can give the ground so as to get rid of wireworm. The soil is a rich loam with a gravelly bottom. *J. B.*

Cows Slipping their Calves.—Your correspondent may find in the following a reason why his three cows have parted with their calves at a few months after their visits to the bull. There was a farm not far from Leeds, which supplied for many years that town with milk, and for a long period it proved a profitable speculation; but in course of years "luck" told against this dairyman, and his cows, nearly one and all, slipped their calves at an early period of gestation, and his losses thereby became so serious that he gave up the farm, which had acquired a bad character, and it was for some time offering in the market to be let. At last a man turned up who was possessed with a "whim" that he knew the reason why the ill success had attended the late tenant. He found upon inquiry that the calves were dropped at about a certain period of gestation, and he therefore concluded it was caused by the blood of the cows not being sufficiently rich in bone material, and therefore his first step on entering was to dress the land with dissolved bones, and to cautiously and sparingly stock with breeding cows. This proved his "whim" was right, for his cows went the natural period, and produced healthy and strong calves; and at a farmers' market dinner, while relating these facts, the table made merry at his "whim," and, after the laughter had somewhat expended itself, he made the matter clear to the company by askingif it was not the want of lime caused hens to lay soft or shelless eggs? and therefore was it not obvious that this dairy farm, by selling off milk for a long series of years, had so exhausted the land of its phosphates that the blood of the cows could not enable them to supply the indispensables to form the bone of the calves, and thus abortion was a natural result? *W. A. Wooler.*

Societies.

ROYAL AGRICULTURAL OF ENGLAND.

Monthly Council: *Wednesday, August* 7, 1867.—Present, his Grace the Duke of Richmond, K.G., President, in the Chair; the Earl of Powis, Lord Chesham, Major-General the Hon. A. N. Hood, Mr. Amos, Mr. Barnett, Mr. Cantrell, Colonel Challoner, Mr. Brandreth Gibbs, Mr. Hassall, Mr. Hornsby, Colonel Kingscote, M.P., Mr. Randell, Mr. Rigden, Mr. Thompson, Mr. Robert Smith, Mr. Stone, Mr. Torr, Mr. Wells, Major Wilson, Professor Wilson, Mr. Frere, and Dr. Voelcker.

The following new Members were elected:—

Abbotts, R. W., Burton-on-Trent
Amcotts, Colonel W. C., Hackthorn Hall, Lincoln
Beard, C., Bury St. Edmund's
Beman, Thomas, Weston sub Edge, Broadway, Worcestershire
Bevan, William Robert, Bury St. Edmund's
Bowstead, James Cooper, Hackthorpe Hall, Penrith
Brownsmith, Joseph, Bury St. Edmund's
Davey, Charles M., Witham, Essex
Davey, H. M., North Street, Colchester
Denton, Edward, Great Barton, Bury St. Edmund's
Dowsett, Herbert, Park Farm, Pleshey, Chelmsford
Edwards, Thomas Foster, Eye, Peterborough
Fothergill, William, Cefurhychdir, Tredegar, Monmouth
Freer, F. Hubert, Hampton, Evesham
Hammond, Edward, Gesnys, Newmarket
Henniker, Major the Hon. J. M., M.P., Woodlands, Ipswich
Holme, John, Parkside, Milnthorpe
Horton, William, Livermere Park, Bury St. Edmund's
Howard, Wm. N., Bury St. Edmund's
Ion, John Watling, Bury St. Edmund's
Kemp, Francis, Spalding
Kerry, S. R., Jackford, Bury St. Edmund's
Land, B. H., Bury St. Edmund's
Lofts, Jacob, Great Barton, Bury St. Edmund's
Nunn, John, Fornham, All Saints', Bury St. Edmund's
Paine, George John, Risby, Bury St. Edmund's
Partridge, C., Clyro Court, Hay, Radnorshire
Paxman, James, Bank Buildings, Colchester
Penny, Thomas, Taunton
Pettitt, Edward, 18, St. John Street, Bury St. Edmund's
Poyser, Josiah T., Burton-on-Trent
Pratt, W. B., Stradishall, Newmarket
Ravenshaw, James, Bridleway Gate, Shrewsbury
Roberts, M. Henry, Almshoe Bury, Hitchin
Robinson, James Charles, Stevington, Bedford
Rodwell, John, Bury St. Edmund's
Rolfe, James, Bury St. Edmund's
Scott, Thomas, Great Barton, Bury St. Edmund's
Sims, Reuben, Grove House, Moor Park, Preston, Lancaster
Talbot, John, Jane House, Burton, Westmoreland
Thomas, Edward Charles, Bury St. Edmund's
Turner, Jabez, Haddon Grange, Peterborough, Hunts.
Webb, G. B., Stansfield, Clare, Suffolk
Webster, Crayston, Kendal
Woollard, Joseph, Broxted Lodge, Haverhill, Suffolk

Finance.—Major-General the Hon. A. N. Hood, Chairman of the Committee, presented the Report, from which it appeared that the Secretary's receipts during the past month had been examined by the Committee, and by Messrs. Quilter, Ball, & Co., the Society's accountants, and were found correct. The balance in the hands of the bankers on July 31 was 5278*l.* 12*s.* 3*d.* Cheques to the amount of 655*l.* 8*s.* 9*d.* were ordered to be drawn, and the Committee recommended that 2000*l.* stock be sold out of the Funds. This report was adopted. The half-yearly audit of the Society's accounts to the 30th June, 1867, took place on the 6th inst.

Journal.—Mr. Thompson, Chairman, announced that the prize of 25*l.* in Class X. on the "Rise and Progress of Herefords," had been awarded to H. H. Dixon, Esq., 10, Kensington Square, W.

The Committee recommended that the application of "Agricola," the winner of the prize in Class V., to remain *incognito*, and that the money should be paid in another person's name to the Agricultural Benevolent Institution, be declined.

They recommended that the pamphlet on "Steam Cultivation" be sold at 2*s.* 6*d.*

The following list of subjects was recommended for Prize Essays for 1868:—

(1.) Farming of Middlesex, 30*l.*
(2.) Improvement of Grass land, 20*l.*
(3.) For the best Report, embodying the experience of those who are at work on the edges of cultivation on mountains, moors, and wastes, 20*l.*
(4.) The domestic economy of the agricultural labourer, with reference to his food and its cooking, 15*l.*
(5.) The preservation of timber by painting, steeping, or other methods, 10*l.*
(6.) Comparative statement of the outlay and returns on 100 acres of arable and Grass land respectively, 20*l.*
(7.) The retention of moisture in the soil of arable lands in dry climates, 10*l.*
(8.) The best mode of providing a continuous succession of green crops, including roots, 15*l.*
(9.) History of Devon breed of cattle, 25*l.*
(10). History of the Leicester breed of sheep, 20*l.*
(11.) Any other agricultural subject, 10*l.*

This report was adopted.

On the motion of Mr. Thompson, it was resolved that information of the visits of distinguished personages to the Showyard should be sent to all Members of Council.

Bury Committee.—The Earl of Powis reported the recommendation of the Committee that for the future the price of the Catalogues should be reduced to 6*d.* on the days when the admission is at 1*s.*, in order to prevent loss by their remaining unsold; and that in consequence of a suggestion from some of the implement makers, a limited number of implement catalogues be bound at 2*s.* 6*d.* The Secretary to communicate with makers, to see what number will be bespoken. That the Secretary ascertain from Messrs. Clowes on what terms they would print the judges' awards at Leicester.

This report was adopted.

Leicester Committee.—Mr. Thompson, Chairman, reported that the draft agreement with the Corporation of Leicester having been read and considered, the Committee had resolved on recommending the Council to approve it and order it to be sealed, subject to the acceptance by the contractor of the clause stating the time at which he can take possession of the Show-ground. This report was adopted, and the common seal of the Society was then affixed to the agreement.

Show-yard Contract.—Mr. Randell presented the following report from Mr. Hunt, the Society's Surveyor.

I beg to report that the whole of the works comprised in the contract with Mr. Penny were completed and ready for use by the time specified, viz., the 30th June, and I am pleased to add that everything, both as regards the time for completion of the various works and their construction, was carried out in strict accordance with the specification and contract agreement to my entire satisfaction.

The works included in the contract to be done after the close of the Exhibition comprise the collection of the whole of the Society's Plant and Portable Buildings; the packing, carting, and loading of the same into railway trucks for transit; the carting and depositing thereof at Leicester; also the removal of the contractor's material and plant from Bury, and the filling in of all holes and all reparation to the ground. These works are to be completed on or before the last day of August, and I will report thereon on the final winding-up of the account, according to the contract, on the first Wednesday in November. The cost of these works is included in the account now delivered.

The Society's original plant has been compared with the inventory, repaired, and the inventory corrected; and the whole of the portable buildings purchased of Mr. Manning requiring it have also been repaired: and these, together with the new Entrances and new Ladies' Cloak Room, are now in the possession of the contractor.

The cost of new buildings, the repairs to those purchased of Mr. Manning, and the repairs to plant will be charged on a separate account.

The fourth payment on account of the Show-yard works is now due, 15 per cent.; I therefore beg to hand in my certificate for the same.

As the question of the continuance of the contract with the present contractor will no doubt occupy your attention, I have for your information compared the cost of the Show-yard works as executed by Mr. Penny with the average prices of the five others who tendered for the work.

The total cost of Bury Show-yard will be 3618*l.* 2*s.* 9*d.*; according to the above average it would have been 4565*l.* 7*s.* Under these circumstances I strongly recommend the Committee to continue the present contractor for the remainder of the full term of five years, subject to his agreeing to any alterations of time for taking possession of the ground, commencing and completion of the work to meet the requirements of the Local Committee at Leicester or elsewhere, the mode of payment, and such other additions and alterations to the contract as the Committee or Surveyor may think desirable.

The Committee recommend that, subject to these conditions and agreement, the contract with Mr. Penny be continued for the full term, viz., four years from the present time.

The Committee recommend the following alterations and additions to the Show-yard, plant, and works:—

1. *Ladies' Cloak Room*—Accommodation to be increased.
2. *Parcels Office*—Erect temporary shed, and charge for care of parcels.
3. *Stewards' and Judges' Refreshment Room*—Add 15 feet in length, to form an office for their use.
4. *Exit Gates*—Provide padlock and chains to each.
5. *Portable Crane or Crab*—Referred to Mr. Amos.
6. *Council Room at Main Entrance*—Fix counter across Council room, and form a lobby near entrance door to prevent other than Members of Council having access to table; form a small private room out of the present lavatory with door out of Secretary's office; remove the present outer door leading to Show-yard out of Council room, and fill in the opening with similar framing to other compartments.
7. *Catalogue Boxes*—Better method of fixing signboard and iron barriers restored.
8. *Veterinary Office*—A second door leading to lunging-yard out of office; a better table, and half a dozen hat pins; the yard for examining horses to be large enough for two rings.
9. *Horse Ring*—Should be 20 yards longer than at Bury; rope and posts to be used instead of rail and posts.
10. *Horse Boxes*—The double horse boxes should be 2 feet longer and 1 foot narrower; roof same height, covered with stout canvas instead of boards; all mangers in left-hand corners; the boarded divisions of single boxes one board higher; in both an iron rod substituted for the present top rail, and a 2-inch pipe-drain to carry off water from front eaves; an open gutter at back.
11. *Open Horse Stalls*—A cattle shed is used for these stalls; the boarding of the back should be under the wall plate.
12. *Men's Sleeping Rooms* should be discontinued.
13. *Class Boards*—Sheet iron should be substituted.
14. *Directors' Office*—More shelves in each compartment, and additional keys to locks.
15. *Food Mod's Room* should have boarded floor, and the lock-up should adjoin the building.
16. *Machinery in Motion*—The Society should erect the whole of the sheds required by exhibitors and place them together in lines.
17. *Trial Yard*—an officer required at each end of trial shed, and water-closet for judges.
18. *Threshing Shed*—One centre post instead of two.
19. *Traction Engines* should be confined to certain spaces set apart for the purpose.
20. *Water Tanks* in trial yards for steam engines to be at an elevation of 16 feet.
21. *Implement Exhibitors and Purveyors of Refreshments* to have copy of so much of the Show-yard contract as concerns them.

This report was adopted.

House.—Major-General the Hon. A. N. Hood stated that the Committee recommended that the new rooms in the roof and two servant's rooms at the back of the house be papered, at a cost not exceeding 10*l.*, and the kitchen and basement whitewashed. This report was adopted.

A despatch from H.M.'s Consul at Nantes on a system lately patented on the preservation of Wheat and the destruction of Weevil was read, and referred to the Journal Committee

The Council having granted the usual leave of absence to the Staff, adjourned to their Monthly Meeting on the 6th November.

Highland and Agricultural: Glasgow, *Wednesday.*—The fine show of Ayrshires and the average show of Short-horns are not matched by equally meritorious classes of polled cattle, of which the judges were Mr. George Brown and Mr. John Graham. Of polled Angus and Aberdeen there are but five bulls and the same number of cows and heifers. Mr. M'Combie does not exhibit; and with the exception of the Earl of Southesk's exceedingly fine 1st prize bull "Jupiter," and Mr. James Leslie's 1st prize bull "Tillyfour," the animals possess only average merit. The polled Galloways number seven bulls and 12 cows and heifers. Mr. James Cunningham's 1st prize bull "Robert Bruce," Mr. William Clark's 1st prize bull "Marksman," and Mr. James Cunningham's 1st prize heifers in two classes, are admirable specimens of the breed. Mr. John Cunningham gains a gold medal for a cow that was 1st at Inverness in 1865.

The West Highland judges, Mr. John Macfarlane, Mr. Donald Stewart, and Mr. J. Lorn Stewart, found a capital lot of the horned cattle on the hills. The Duke of Athole's bull, which was first at Inverness, here comes in for a gold medal; the three-year-old bulls make a grand class; the aged cows, too, are exceedingly fine; and in the three-year-old heifer class is the gem of this part of the show, a little, dark red, shaggy-coated heifer of Mr. John Stewart, from the Isle of Syke.

The show of Clydesdale horses is, perhaps, the finest ever seen—numbering, too, no less than 153 entries. It is said that an Earl of Huntingdon imported some Dutch mares into the district of the Clyde, and these, being crossed with the native breed (probably the ancient pack-horse), became the foundation of the present Clydesdale breed. At present they are certainly models of what we require in a walking draught-horse; commonly standing 16 hands high, the better specimens have at the same time lost the tendency to long legs and light bodies. Their strength and substance are wonderful, and it is surprising to find such immense heavy horses with an activity and naturally smart pace that precisely fit them for the plough or the one-horse cart. There are so many fine horses in the yard that we cannot venture upon a list of the most meritorious. We may name, however, Mr. David Riddell's stallion, which was first at Kelso in 1863; Mr. Andrew Logan's stallion, which was first at Stirling in 1864; Mr. Samuel Clark's wonderful "Young Lofty," which was first at Haddingtonshire show as a four-year-old, 1st at Glasgow as a five-year-old, and here again 1st as an aged horse; and Mr. William Rigg's

magnificent quick-stepping "Young Victor," which was 1st at Glasgow as a yearling. Entire colts made very large and fine classes; there are some grand old mares, some with foals at foot, and a large lot of promising young fillies. Extraordinary are Sir William Stirling Maxwell's three mares, which were respectively 1st at Edinburgh in 1859, at Battersea in 1862, and at Stirling in 1864.

If the Clydesdale sections are a main attraction, and one of the greatest successes yet achieved by the Highland Society, the same cannot be said of the "extra" horse classes. Of mares or geldings "suitable for field," or, in one word, "hunters," there are 13, the best being Mr. Lawrence Drew's chestnut gelding and Mr. George Stodart's four-year-old gelding, shown for the first time, beating Mr. John Newton's old prize-taker "Gambler." In the class of mares or geldings "suitable for harness," heavy and light draught-horses are mixed up together in singular fashion, and while the 1st prize goes to a carriage-horse, two third prizes are awarded, one of them to a heavy cart-horse, and a commendation also is given to a heavy draught-horse. In the class of draught mares or geldings in harness, the 1st prize is won by Mr. Andrew Wallace's four-year-old—of immense substance and power, an old prize-taker, too, wearing prize tickets all over the bright chains of his harness and on the peaked leather housing which is here the fashion. There are two classes for mares or geldings "for milk carts," of light and heavy draught, one entry being a spry little pony about as big as a boarhound.

The pig classes are not particularly well filled, there being but 54 pens. For large-breed boars, Sir Thomas Miles Riddell beats Mr. Duckering, the great Lincolnshire breeder and prize-winner. In a fine class of small-breed boars, Mr. George Mangles, of Yorkshire, takes 1st prize with an animal of extremely good quality, beating Mr. Findlay and Mr. Duckering. In the class of "other boars," Mr. Duckering is at the head. For sows of a large breed, for sows of a small breed (and a splendid one too), and for "other sows," Mr. Duckering gains all three of the 1st prizes. Mr. Lawrence Drew, Mr. Findlay, and Mr. Jacob Wilson come in for the other honours. The classes for pens of three pigs not exceeding eight months old are rather short of entries, but the animals exhibited are particularly good, Mr. Thomas Findlay, Mr. George Mangles, Mr. Lawrence Drew, Mr. Robert Philip, and Mr. M'Kay being the prize-winners.

The show of sheep is super-excellent—at any rate, in certain of the classes. We have, in the first place, a large number of what are known in the South as Border Leicesters. Some years ago a Yorkshire gentleman introduced into Scotland a few large symmetrical heavy-woolled sheep, of mingled Lincoln and Leicester blood; and by crossing this imported sort with pure Leicesters, and also by continued selection in breeding, has been produced a variety of the Leicester possessing a large frame as compared with some of the little Leicesters, which are often bred for quality; they are capable of attaining a great weight of flesh, are of kindly-feeding quality, and yield heavy and good fleeces. The chief use of the breed, however, is for crossing with the Cheviot, producing lambs of remarkably rapid growth and of rare grazing properties. Judging by the majority of the animals exhibited, the border Leicesters have great length of frame, broad chines, loins, and backs, good square rumps, very heavy fore flanks, and clean, stylish-looking heads; but they are shallow-bodied, leggy, hollow between the hips and ribs, and generally "necky," the neck and shoulders not moulded well together as a lover of symmetry likes to see them. And occasionally they betray a little of the Roman nose, which is not handsome. Their fleeces are of medium quality, between the long, lustrous, curly, and the straight open staple, and the custom is to show them washed white and curly, in the Cotswold fashion. The Duke of Buccleuch and Queensberry, Mr. David Ainslie, Mr. William Ruxton, Mr. Thomas Ferguson, and Mr. George Hope are the winners of the honours in the tup classes, the best sheep for quality being the Duke's first prize shearling. In the "4-shear" ewe class there is a general lack of symmetry; the sheep scarcely ever match one another in the same pen, and the judges have commended ewes with shapes that would win no favour in the south. The shearling ewes or "gimmers" are better, Mr. George Simpson's 1st prize pen showing what the breed ought really to be like.

The Cheviot classes are well filled, and the best sheep manifest a decided improvement in form over the model of a few years back. In fact, while we have the characteristic white countenance, hairy head, lengthy body, square rump, and long bushy tail, we see less of the pinched forequarters and hollow back. Mr. James Brydon's 1st prize 2-shear ram has both symmetry and quality—a head with the placid, kindly expression of a quick feeder, and fine heavy wool. Among the ewes are too many long necks and narrow frames; many of the lambs exhibited with them are exceedingly fine and forward.

The grandest classes in the sheep show are those of the handsome blackfaces—the marvellously improved mountain breed on which so much of Scotch pastoral husbandry depends—with deep compact frames, short legs, light bone, long staple fleeces, and astonishing convolutions of horn. Mr. Thomas Aitken, Mr. John Watson, Mr. John Archibald, Mr. John Malcolm, Mr. James Craig, and Mr. Thomas Murray carry off the honours from a large number of competitors in the exceedingly fine classes of rams. Among the horned speckled-faced and speckled-legged ewes, and their lambs with inverted-crescent horns, are several pens of great merit, Mr. John Archibald, Mr. John Malcolm, Mr. M'Laren, Mr. Thomas Murray, and Mr. John Craig gaining the honours.

It is very clear that Southdowns have but a small field in Scotland for their economical grazing and production of choice mutton and wool. Only half a dozen rams and three pens of ewes are exhibited; and Mr. James Bruce, Mr. Scott Skirving, and Mr. Alexander Kinloch win with animals that would not merit commendation at a first-rate southern show.

Longwools other than Leicesters are not very numerous, but include some very valuable specimens. Mr. Walter Reid's 1st prize Cotswold ram is great, and a fair representative of the breed. Mr. John B. Irving's 2d prize Lincoln ram we should have placed 1st, and a long way 1st, too, this sheep passing every qualification of size, symmetrical proportion, weight, quality of mutton, very heavy fleece, and nobility of appearance. Mr. John Gibson's 3d prize Cotswold ram is heavy, with a cushion rump, but is hardly fine enough in bone to be a really good one. Both Mr. Gibson and Mr. Irving show prime pens of ewes. Six Shropshire rams and a pen of ewes do not tell well for the breed, the specimens exhibited by the Earl of Strathmore and by Mr. John Gibson possessing only a tolerable degree of merit.

For extra stock are shown some narrow, hatchet-backed blackfaces, and notable curiosities in specimens of the St. Kilda sheep. This small sheep has a black face, black legs, brown-black shaggy knotted wool, which on the older animals turns dark gray; and in form it is narrow—pinched up with about the rotundity and fulness of a dried Prune. But the striking peculiarity is in its four black horns, two shorter ones involuted downwards almost enclosing the face, and two very long ones arching upward and outward, admirable pointed weapons, which, from the fire of its black eyes, the creature is evidently ready enough to use. Originally obtained from the island of North Uist, and now gradually spreading, this breed exists in St. Kilda and other islands and some districts of the mainland in a semi-wild state—specially loving open ground abutting upon the sea, grazing the salt herbage, and at three years old attaining a dead weight of about 40 lb. the carcass. The wool is particularly fine and lustrous. The rams, shearling ewes, and ewes and lambs exhibited are from Sir John Powlett, of Kilmory, Lochgilphead.

A word must be added on the implement department, which, comprising double the number of entries of the last show, constitutes by far the greatest exhibition of the sort hitherto seen in Scotland. Prizes have been discontinued, trials during the show week are no longer in vogue, but a jury inspects professed novelties, whether new inventions or improvements upon other machinery, and recommends selected implements for trial by appointed engineers and agriculturists at any suitable time and place, the results of the lengthened and seasonable trial to be duly reported and published for the information and guidance of the public. There is no attempt at uniformity in the general appearance of the show; exhibitors may have roofed shedding by paying for it, and the consequence is that, while a small number of stands are under cover, a larger number are partly under cover and partly without, and the majority of the articles are set about the grass with number-tickets on sticks referring visitors to the catalogue. The largest collection of implements and machines is that of A. & J. Main, of Glasgow, who exhibit, besides their own manufactures, as iron and wire fencing, &c., the steam threshing machine of Ransomes & Sims which gained the chief prize at Bury St. Edmund's Royal Show. The next largest stand is that of J. Pringle & Co., of Edinburgh. Picksley, Sims, & Co., of Leigh, contributed the greatest number of machines, as corn crushers, chaff cutters, &c., shown by any maker from the south side of the Border. Bentall's well-filled stand of chaff cutters, oil-cake mills, root pulpers, &c., is notable for the excellent workmanship and moderate price of the articles. The Beverley Company exhibit some of their two and three-horse reaping machines. Samuelson's reapers also are shown. Richmond & Chandler's chaff cutters, Ruston & Proctor's steam-engine and threshing machine, John Gray's well-made field implements, Hornsby's reapers are among the articles shown by English manufacturers.

The principal novelties observed are improvements in reaping machines, the stands abounding with ingenious contrivances for self-raking, and so on: to which we must add that Peter Winton, of Thorn, Alexander Jack & Sons, of Maybole, and several other exhibitors have brought out very clever tools for raising Potatos—that is, for uprooting by a share and extracting the tubers from the loosened earth by means of revolving bands or forks. These machines require some apprenticeship in the field before they will supersede the simple Potato lifting plough, made by Ransomes & Sims, and by Howard, of Bedford. *Times.*

YORKSHIRE.—The annual meeting of this Provincial Agricultural Society was held at Thirsk on Thursday and Friday of this week. Shorn (as it also was last year) of the cattle classes, which in the home of the Shorthorns are among the most attractive features of the meeting, there has, nevertheless, been a very satisfactory show. The following table illustrates the mere quantity of the several departments of it in comparison with the corresponding sections in previous years:—

	Cattle.	Sheep.	Pigs.	Horses.	Dairy Produce.	Implements.	Wool.	Fox Hounds.
1864 ..	78	67	65	318	..	914	1	..
1865 ..	86	93	90	335	20	1326	4	27
1866 ..	..	150	83	514	17	1480	18	108
1867 ..	..	128	120	363	20	1029	15	82

And from this it is plain, that excepting last year's somewhat exceptional display, there has been quite as much as usual on which to exercise the criticism of judges and spectators.

Among the features of the exhibition this year are the excellent classes of Leicester sheep, the success of the exhibitors of Lincolns as against those of Cotswolds in the class of "Long-wools not Leicesters," and the large and capital classes of pigs. It will be seen from the prize list given below that Mr. Stamper, of Oswaldkirk, takes the 1st prize in Shearling Leicesters, against Mr. Borton, of Malton; and that Mr. Marshall's Lincolns and Lord Walsingham's Southdowns, and Mr. Dyson's and Mr. Duckering's pigs, are as successful as ever.

The following is the prize list:—

SHEEP.

LEICESTER.

Shearling Rams.—1st, 15*l.*, Thomas Stamper, Oswaldkirk, and cup value 15*l.*, given by Mr. T. S. Walker; 2d, 7*l.*; 3d, 3*l.*, and Highly Commended: John Borton, Malton.

Rams of any age.—1st, 10*l.*; 2d, 5*l.*; Commended and Highly Commended: John Borton, Malton. Class generally commended.

Pens of Five Shearling Gimmers.—1st, 15*l.*, James and Edward Tindall, Malton: 2d, 5*l.*, Samuel Wiley, York. Class Highly Commended.

LINCOLN OR OTHER LONG-WOOLLED SHEEP (not qualified to compete as Leicesters).

Shearling Rams.—1st, 15*l.*; 2d, 7*l.*; and 3d, 3*l.*, William F. Marshall, Lincoln. Highly Commended: John King Tombs.

Lechdale Rams of any other age.—1st, 10*l.*, William Abraham, Ulceby; 2d, 5*l.*, John King Tombs, Lechdale.

Pens of Five Shearling Gimmers.—1st, 15*l.*, Charles Lister, Lincoln.

SOUTHDOWNS.

Shearling Rams.—1st, 15*l.*, Lord Walsingham, Thetford, and cup, value 10*l.*, the gift of the Thirsk Local Committee.

Rams of any other age.—1st, 10*l.*, and commended, Lord Walsingham, Thetford.

Pens of 5 Shearling Gimmers.—1st, 15*l.*, Lord Walsingham, Thetford.

SHROPSHIRE DOWNS.

Shearling Rams.—1st, 15*l.*, T. Horton, Shrewsbury; 2d, 7*l.*; and 3d, 3*l.*, Lord Wenlock, York.

Rams of any other age.—1st, 10*l.*, D. R. Davies, Knutsford; 2d, 5*l.*, T. Horton, Shrewsbury.

Pens of 5 Shearling Gimmers.—1st, 15*l.*, Lord Wenlock, York; 2d, 5*l.*, T. Horton, Shrewsbury.

MOUNTAIN OR BLACK-FACED SHEEP.

Shearling Rams.—1st, 10*l.*, W. Rudsdale, Grosmont; 2d, 3*l.*, J. Peel, Clitheroe.

Rams of any other age.—1st, 5*l.*, J. Peel, Clitheroe.

Pens of 5 Ewes certified to have reared lambs in 1867.—1st, 5*l.*, J. Peel, Clitheroe.

Extra Stock.—1st, First-class Silver Medal, G. Wright, Malton; 2d, Second-class Silver Medal, W. Rudsdale, Grosmont.

PIGS.

Boars, large breed.—1st, 5*l.*, John Dyson, Leeds; 2d, 2*l.*, R. E. Duckering, Kirton Lindsey; 3d, 1*l.*, G. Chapman, Scarborough.

Sows, large breed, in pig or milk.—1st, 5*l.*, and 2d, 2*l.*, J. Lakeland, East Retford, Nottinghamshire; 3d, 1*l.*, R. E. Duckering, Kirton Lindsey.

Boars, small breed.—1st, 5*l.*, Lord Wenlock, York; 2d, 2*l.*, G. Mangles, Ripon; 3d, 1*l.*, R. E. Duckering, Kirton Lindsey. Highly Commended: W. Hatton, Leeds.

Sows, small breed, in pig or milk.—1st, 5*l.*, and Cup, value 5*l.*, given by the President of the Society, J. Dyson, Leeds; 2d, 2*l.*, Lord Wenlock, York; 3d, 1*l.*, R. E. Duckering, Kirton Lindsey. Highly Commended: G. Mangles, Ripon.

Boars of any breed.—1st, 5*l.*, J. Dyson, Leeds; 2d, 2*l.*, H. Whittaker, York; 3d, 1*l.*, J. Leeming, Bradford. Highly Commended: W. Sagar, Bradford. Commended: T. Eden, Barnsley.

Sows of any breed, in pig or milk.—1st, 5*l.*, W. Sagar, Bradford; 2d, 3*l.*, E. Akroyd, M.P., Halifax; 3d, 1*l.*, J. Dyson, Leeds. Highly Commended: J. Lakeland, East Retford, Nottinghamshire.

Three Store Pigs of any breed, and of the same litter, from 4 to 9 months old.—1st, 5*l.*, Sir G. O. Wombwell, Bart., Easingwold; 2d, 2*l.*, J. Dyson, Leeds; 3d, 1*l.*, G. Mangles, Ripon.

PIGS NOT EXCEEDING 12 MONTHS OLD.

Boars of large Breed—1st, 3*l.*, R. E. Duckering, Kirton Lindsey; 2d, 1*l.*, H. Whittaker, York.

Sow of large Breed—1st, 3*l.*, J. Dyson, Leeds; 2d, 1*l.*, R. E. Duckering, Kirton Lindsey.

Boars of small Breed—1st, 3*l.*, and Commended, Lord Wenlock, York; 2d, 1*l.*, and Commended, W. Sagar, Bradford. Commended: W. Linton, York, and John Dyson, Leeds.

Sows of small Breeds—1st, 3*l.*, W. Hatton, Leeds. Highly Commended; Lord Wenlock, York. Commended: H. Whittaker, York.

EXTRA STOCK.

1st, First-class Silver Medal, Lord Wenlock, York; 2d, Second-class Silver Medal, J. Dyson, Leeds.

DAIRY PRODUCE.

Cheese, not less than 1 cwt. in quantity, made since October 1st, 1866, the Produce of one Dairy—1st, 5*l.*, J. Pelson, Northallerton; 2d, 2*l.*, J. Hewgill, Wensleydale. Commended: E. Wells, Thirsk.

Butter, fresh, 6 lb., in single lbs.—1st, 3*l.*, A. T. Attwood, Thirsk; 2d, 2*l.*, J. E. Routledge, Northallerton; 3d, 1*l.*, J. Nightingale, Guiseborough. Commended: M. Gregg, Thirsk.

In the Implement Yard, the which was hardly so well filled as in the last two years, the following awards were made:—

Plough for light ploughing, 10*l.*, Messrs. Cooke & Co., of Lincoln; 2d, 5*l.*, Messrs. Cuthbert & Co., Leeming, Bedale.

Plough for deep ploughing, 10*l.*, Messrs. Cooke & Co.; 2d, 5*l.*, Mr. Charles Bushy, Newton-le-Willows, Bedale.

Plough for digging, 5*l.*, Messrs. Cuthbert & Co. Highly Commended: Mr. A. Ogle, Catterick, near Richmond.

Double mould-board plough, 5*l.*, Mr. C. Bushy. Commended: Messrs. Ord & Maddison, of Darlington.

Scarifier, or stubble-parer, 5*l.*, Mr. E. H. Bentall, Maldon, Essex.

Cultivator, 5*l.*, Messrs. Coleman & Morton, of Chelmsford.

Drag for three or more horses, 5*l.*, Messrs. Coleman & Morton.

Scuffler, to work between rows of roots or plants, 2*l.*, Mr. Wm. Jaques, Baldersby, near Thirsk.

Grubber, to work between rows of roots or plants, 2*l.*, Mr. B. Stead, of Barnsley.

Heavy harrows, 3*l.*, Mr. Wm. Jaques. Highly Commended: Mr. Thos. Thompson, Bagby, near Thirsk.

Light harrows, 3*l.*, Mr. C. Bushy.

Corn drill, 10*l.*, Mr. James Coultas, Grantham. Highly Recommended: Mr. John Teasdale, of Burniston, near Bedale.

Turnip drill, with manure on the plat, 10*l.*, Mr. James Coultas. Highly Commended: Messrs. R. & J. Reeves, of Westbury, Wilts.

Turnip drill, with manure on the ridge, 10*l.*, Messrs. Reeves. Water-drill, 5*l.*, Mr. James Coultas.

First-class Medals were awarded to Messrs. Clayton, Shuttleworth, & Co., Lincoln, for a two-row revolving liquid manure and drop drill (Gillyatt's patent); to Messrs. Hornsby & Sons, of Grantham, for a corn screen, and also for a Turnip cutter and Turnip pulper; Messrs. Richmond & Chandler, of Salford, for a chaff cutter; Messrs. John Fowler & Co., of Leeds and London, for a new steam cultivator; Messrs. Ruston, Proctor, & Co., of Lincoln, for a new variable eccentric importable steam-engine. Second-class Medals:—Messrs. Ransomes & Sims, of Ipswich, for a double-action Turnip cutter; Mr. George Russell, of Elstone, for improved coulter fastener; Messrs. Reeves, for a water cart; Mr Thos. Harrison, of Lincoln, for a barrel drill; Mr. A. Ogle, for a plough coulter clearer; Messrs. Vickers, Snowdon, & Morris, of Doncaster and Sheffield, for a scuffler for working between root drills; Messrs. Ord and Maddison, for patent chain corn drill; Mr. R. Puckering, Beverley, for a market cart; and Messrs. Coleman & Morton, for a corn screener.

The Sale of the late Lord Faversham's Herd of Shorthorns took place, under Mr. Strafford's guidance, at Duncombe Park, on Tuesday, when a large company assembled, partly attracted by the Show at Thirsk. The prices made were not high, only a selection of the herd being offered. Cecil, a bull calf by Orestes, dam *Cecilia*, made 115 guines, and was bought by Mr. J. H. Phillips. This was the highest price reached, the average of bulls and bull calves being about 32 guineas, and that of cows and heifers being only 31 guineas. The highest price reached in the female class was 61 guineas, for Pride of Southwick (bought by Major Stapylton), the winner of 27 prizes, and the first in her class in 1863 at both the English Agricultural and Highland Society's meetings.

Reviews.

To my Labourers: On the Economy of Food and the Real Sources of Bodily Strength, with some Suggestions for their Improvement. By Charles Lawrence. Messrs. Longman.

This little tract is now seven years old; and we are certain that those who have served their apprenticeship to its maxims will join us in recommending landowners and agricultural employers to distribute it among their labourers. The evil of paying wages partly in the form of excessive quantities of beer and cider, to the exposure of which some of our columns are this day devoted, can hardly be exaggerated. Strength maintained upon food and spent upon outdoor labour in this country and climate would be long-lived and healthy, but, constantly whipped up by stimulants, it cannot but, soon fail. The word "Economy" in the title of Mr. Lawrence's pamphlet contains indeed the whole of the argument. A man's life is *wasted* by the continual and excessive use of stimulants. And the moral consequences are even worse than the physical. Much of the gross and stupid vice which we see in country districts is due to the custom of habitual drinking in which from boyhood the labourers indulge, and to which employers, as to other customs of the country, too easily submit. We quote some of Mr. Lawrence's remarks on the subject, and strongly recommend our readers to procure the pamphlet, which may be had at half-price in quantities for distribution:—

"I have often tried to convince you of the loss you sustain in various ways by spending too much of your money upon beer. I have adopted the plan of paying you entirely in wages, instead of giving part in money, and a certain allowance of beer, to discourage expenditure in beer, so far as rested with we, and in order to give those who might have sense enough to see how much more usefully the money might be employed for other purposes, the opportunity of so using it. It has often been said to myself and other masters by labourers, that they would rather have the beer than the money. Some there are who will not work during the hay and corn harvest on farms, on which the value of their labour is given in money without beer. When I have given beer, heretofore, as much or more than could be taken without damage to the stomach, I have seen this consumed early in the day, and had pressing calls for more towards evening, under the pretence that the men could not continue their work without it, when it was plain to any one, that some of them were really incapable of exerting their natural power from the quantity of drink they had already had. . . .

"I have heard labourers talk about the liberality of a master who induces them to labour on at extra hours at night by plying them with beer. This the men suppose gives them additional strength, equal to the extra labour required. Now, you cannot labour under a greater mistake than this, nor one more injurious to yourselves. This extra quantity of beer is really a source of weakness in the end, instead of giving you real strength, as I hope to show you by and by. Your flesh or muscle is the real source of your strength. That is not increased in any sensible degree by the beer you have been putting into your stomach in the course of the day. The spirit which that contains affects your spirit; that is to say, it inflames your blood, and makes that run faster, which affects your brains, and induces you to make at the moment greater exertions than you ought to make in the course of the day. It is the permanent nourishment of the body, not the passing influence of the spirit, that is the true source of enduring strength. It is the bread, the meat, Oatmeal, Peas, Beans, and such-like articles, which build up the real strength of the body for each day's labour. Beer contains a very small portion of that material, but an amount of spirit which, when taken in quantity tends only to the improvident waste of that strength which is your main dependence. . . . .

"When the prize-fighters are in training for a battle—rowers for great rowing-matches, and men for any exertions requiring the greatest strength and power of enduring fatigue, it is found necessary to avoid beer drinking, and to live on solid muscle-forming food. We remember that during 30 years' experience in the cricket field, the best players, who had the principal work both in bowling and batting—quite as severe a day's work as ever falls to your lot—soon found that beer would not do; that it only increased thirst,—muddled their heads, and spoiled their play. They found cold tea or coffee, as a drink, suited them much better. Good tea can be bought at 3*s.* 8*d.* per pound. Three quarts of tea we have made by putting 1 ounce of such tea in that quantity of boiling water, and allowing it to stand for 20 minutes near enough to the fire to keep it hot. This will cost 2¾*d.* Good coffee can be bought at 1*s.* 4*d.* per lb.; and 3 quarts of coffee can be made by putting 2 ounces into that quantity of boiling water, and leaving it to simmer gently on the fire for 20 minutes. This should be done at night, and in the morning it may be poured gently into bottles, so as not to disturb the settlement at the bottom. This will cost 2*d.* These are really refreshing, wholesome drinks, which will satisfy thirst. The same quantity of beer will cost you 6*d.*; but the effect on the stomach is to increase thirst afterwards. The tea and coffee leave you 3½*d.* in the one case, and 4*d.* in the other, to supply you with a substantial meal of bread and cheese. If you adopt this practice during the hard work of mowing, pitching, &c., at the hay and corn harvest, you would come to work each morning in much better condition than the beer drinkers, and would have a good deal more money in your pockets at the end of it."

Farm Memoranda.

An American Farm.—The following interesting account of an extensive farm in the State of New Jersey is taken from the "Country Gentleman," published at Albany, N. Y.:—

"The traveller between New York and Philadelphia, by the Camden and Amboy line, would hardly anticipate from the first half-hour by rail, after disembarking at South Amboy, that bordering upon the uncultivated region skirting the coast there lies an estate which for size and productiveness would by no means be regarded as insignificant, even on the broad scale of Western agriculture. Its owner, Mr. James Buckelew, is one of those men of whom we have examples in various walks of life, and in farming as well as in other pursuits, who, by a happy combination of industry, intelligence, and energy, have been the architects of fortunes and the pioneers of improvement.

"This part of New Jersey was settled at an early date, and some of the land now owned by Mr. Buckelew was taken up by his ancestors a century and a half ago. But the farmers of a later day, or some of them, became dissatisfied with the returns they succeeded in getting from the soil; its first freshness was exhausted, and in these cases farms were sold at nominal prices, for the sake of emigrating to richer districts in the West. Such land was only left to grow up to timber and brushwood. But it was far from being 'worn out;' the modern system of growing Grass seed, with the necessary care and application of manure, was only necessary to render its cultivation successful and easy. More recently, the discovery of marl, which has done so much for the adjoining counties, has aided here in Middlesex; and as railroad facilities for its transportation increase, its use is constantly extending. Mr. Isaac S. Buckelew, superintendent of the Jamesburg and Freehold Railroad, told me that that company had brought upwards of 22,000 tons over the road during the past season.

"Mr. Buckelew, sen., had about 2500 acres of land improved, until, a year or two ago, 500 acres were sold for the purposes of a State institution—a reformatory for boys similar to that at Westboro', Mass., the building for which is now nearly completed. The village of Jamesburg, containing 50 or 60 houses, quite an extensive grist mill, a bank, several stores, &c., has sprung up around his homestead. Here the main barns of the whole farm are located, with water power to run threshers, corn-shellers, and other machines, and the whole operations of the farm have always been directed by Mr. B. in person from this centre. In years past he had extensive Peach orchards, the fruit of which was a very large and profitable crop, but, with that mysterious exhaustion which has since visited the Delaware Peach lands, the trees died or became unproductive, and were all removed. The experiment is now in course of trial anew, and it is said that several young orchards in the vicinity afford promise of being thrifty and fruitful.

"It may be remembered that we noticed, some months ago, the fact of Mr. Buckelew's receiving the sum of 90,000 dollars (the dollar, taken at 4*s.* 2*d.*, would give the sum of 18,750*l.*) in a single check, for a lot of 400 mules. He has for 26 years been largely engaged in towing on the Delaware and Raritan Canal, employing from 400 to 600 mules or more for the purpose, all of which he wintered on the farm, making a fine lot of manure, as well as giving a home market for the hay and corn. They are generally purchased in lots from Kentucky or elsewhere, and Mr. B. has always had a fancy for getting hold, now and then, of an extra-sized and handsome team. Those who attended the United States Society's exhibition at Philadelphia, 11 years ago, may remember well, as I do, the display then made by Mr. B. Few features of that excellent show attracted more remark than the pair of black mules, standing 18 hands high, behind which some of the Society's guests were driven about the yard, or to and from the city, during the course of the fair.

"The farm work is still done by mules, though I understood that the business on the canal had been disposed of. Sixty or 80 are kept, and for hardiness, strength, and wear Mr. B. considers them superior to horses, and is surprised that their merits are not more fully recognised.

"We had a charming drive, carrying us several miles over excellent roads, where we could get a view of the farm and its general characteristics. The soil varies, being quite sandy on some parts of the farm, gravel elsewhere, but throughout most of the fine table-land southwardly from Jamesburgh it is a stiffer loam, capable of being brought into a high condition of productiveness, the surface unimpeded by any obstacles, and with just sufficient undulation to carry off the water without artificial drainage. We stopped a moment at the intersection of the dividing fences on either side the road—for instance, where four fields were overlooked at a glance, two, of 65 acres each, were in Grass; one, containing 70 acres, was in Wheat, and one of 90 acres was in Oats, all as clear and free throughout for the operation of the mower or reaping machine as we often find on surfaces of one-tenth the size. I could not help remarking what a fine opportunity they afforded for steam culture to advantage; but Mr. B. seems to think that the mules will answer the purpose for the present. All this land, I was told, was in Peach orchards 20 years ago.

"Thirty or 40 years ago, much of it changed hands under the circumstances already referred to, at prices which now seem ridiculously low, even if there had been better reason to suppose that it was well-nigh exhausted. Farms were pointed out to us which were sold at 5 dollars or 10 dollars to the acre, and, in one case, 40 acres which was actually deeded out for the sum of 20 dollars—50 cents an acre; This same land is now farmed well and payingly, and while 75 dollars to 100 dollars per acre may be about the ordinary estimate of its value, farms that have been brought into good heart, with improvements of better character, rate considerably higher. One farm of 120 acres was mentioned as we passed it, it having been bought by its present owner at 130 dollars per acre, and some smaller farms at rather higher figures.

"This district has not yet, however, been transferred from the more ordinary purposes of farming to those of the fruit or vegetable garden, as is the case of so much of New Jersey. It is tending in that direction, to some extent, as would be expected within three hours' easy transportation to New York; and it will eventually be occupied, without doubt, either in that way, or for country residences by those who devote their time partly to other pursuits. Mr. J. D. Buckelew has just completed a beautiful residence, built of stone, in the most substantial manner, and in elegant style, on a piece of rising ground, easily accessible from the railway, where he has 50 acres in process of development into gardens and orchards. Here there are just coming into bearing a couple of Strawberry patches aggregating about 2½ acres, this year's crop from which was contracted for by the person who set them out, and who is to conduct the picking and marketing at his own cost, and pay for the whole the round sum of 360 dollars. I need hardly mention that the variety is the Wilson's Albany. The cost of the preparation and planting of the beds was about 50 dollars per acre. The plants were put out in October, and in December a handful of stable manure was put on each. A part was covered over with straw (I believe in addition to the manure), and all were looking thrifty and blooming well, with perhaps a slight advantage in favour of the latter. The straw, I might add, was not disturbed in the spring, the plants making their own way through it.

"Mr. Buckelew's main interest just now lies in the progress of the Cranberry enterprise he undertook last year. There is to be an area of 80 acres thus employed, of which 60 lie in almost exact parallelogram. Sufficient water is conveniently at hand from a stream running through, for which conduits and channels are provided, so that the whole may be flooded, either all together, or in plots of a few acres, as may be desired. The surface of the bog is first cleared of all the native vegetation, underwood, &c., with the exception of a few old stumps, which it has been thought better to leave for nature to remove by gradual decay. After next laying off and completing the necessary water-courses, with low dykes to separate it in convenient divisions, the surface is overspread with from 4 to 6 inches in depth of the poor barren sand, which, fortunately for such a purpose, is close at hand. In this the plants obtained from the natural Cranberry-bogs near by, and carefully picked over to exclude the Moss, with which they are intermingled and nearly stifled out, are set out in rows, and they soon extend over and possess the ground. Such a bog is flooded over after each crop is gathered, and the water is kept on all winter, and into May if practicable. No amount of wetting seems to injure the plants; water stands in the ditches all summer, and whenever Grass begins to intrude or the worm to show itself, a flooding is given to drown out the less amphibious invaders.

"Good progress is made in the preparation and planting, 15 or 20 acres, perhaps, being nearly or quite completed. At this stage it is impossible to state the exact cost of the undertaking, but it is believed that it will average about 300 dollars per acre. The bog when planted could easily be sold for a high percentage above this cost; but should the lowest reasonable estimate of its probable productiveness be realised, it is not very likely soon to be put in the market. It is the intention to put a considerable area of higher lands adjoining the Cranberry bog into Strawberries; and in order that the services of women and children may be obtainable for the light work required on both, several labourers' houses have been put up close at hand.

"After leaving the bog on our way to the homestead, we note in the distance an unbroken enclosure, extending as far as the eye can reach, clad in the rich green which spring brings to fall-sown grain—a single field of Rye 200 acres in extent, which was last year all in Indian Corn. Our host evidently does not believe in unnecessary fencing, and aside from the saving thus effected, both in land, material, and labour, the use of machinery is facilitated and simplified. Mr. Buckelew, indeed, desires to economise labour wherever possible, and has accustomed himself to wholesale

operations, if I may term them so, in which the lesser interest is subordinated to the greater. Thus, in haymaking, when the Grass is ready, he sets his four or five mowing machines at work, and they go on, regardless of the weather, day after day, till the hay is cut, in the belief that, on the whole, the crop is made a surer and better one than would be the case by waiting always for a clear sky and warm sun. As soon as it is dry enough, the hay is taken in; and if it gets a shower or two in the process, Mr. B. thinks it recovers from the wetting sooner and with less injury than if it were in cock. I do not know but that he is partly right, but I urged—what it seems to me would not only hasten the curing process, but better the hay by making it more uniform—the use of Ballard's excellent tedder or spreader, following the mowers as closely as possible. No mowing machine scatters the Grass, and no hand spreading can toss it about, as is done, rapidly and cheaply, by the machine. *Journal of Agriculture.*

Notices to Correspondents.

IMPORTS IN THE SIX MONTHS ENDED JUNE 30, 1866, AND 1867: *R.*

Articles.		Quantities Imported. 1866.	1867.
I. Articles Free of Duty.			
Animals, living—Oxen, Bulls, and Cows	No.	72,812	69,110
Calves	,,	9,122	11,558
Sheep and Lambs	,,	411,729	296,478
Swine and Hogs	,,	29,873	13,776
Bones burnt or not, or as animal charcoal	tons	35,959	33,323
Flax and Tow or Codilla of Flax—From Russia	cwt.	291,142	258,209
Holland	,,	40,402	56,945
Belgium	,,	79,719	101,255
Other Countries	,,	52,114	89,116
Fruit—Lemons and Oranges	bush.	1,053,934	733,499
Guano, from West Coast of Africa, tons		440	1,175
United States	,,	1,330	2,181
Peru	,,	59,469	49,810
Bolivia	,,	..	3,412
British West India Islands	,,	1,968	942
Other Countries	,,	9,145	6,325
Hemp and Tow or Codilla of Hemp—From Russia	cwt.	80,040	31,782
Venetia	,,	128,575	58,604
Illyria, Croatia, and Dalmatia	,,		20,077
British India	,,	16,558	5,156
Philippine Islands	,,	27,327	42,503
Other Countries	,,	28,412	31,086
China Grass	,,	50	47
Jute and substances of the nature of Hemp	,,	962,486	822,204
Hides, untanned—Dry—From British India	,,	65,377	78,297
Other Countries	,,	36,971	25,732
Wet—From Argentine Confederation and Uruguay	,,	103,208	65,024
Brazil	,,	42,856	19,776
Australia	,,	48,529	37,088
Other Countries	,,	99,475	39,345
Tanned, Tawed, Curried, or Dressed (except Russia)	lb.	4,093,123	3,423,483
Hops	cwt.	21,911	24,021
Oil Seed Cakes	tons	54,667	51,150
Potatos	cwt.	216,210	465,363
Provisions—Bacon and Hams	,,	451,744	230,181
Beef, salt	,,	131,621	98,493
Pork, salt	,,	123,179	78,006
Butter	,,	464,645	504,671
Cheese	,,	190,409	260,785
Eggs	No.	249,200,280	230 644,500
Lard	cwt.	193,293	103,078
Saltpetre	,,	85,667	72,531
Cubic Nitre	,,	529,475	642,416
Seeds—Cotton	tons	69,056	59,633
Clover	cwt.	174,648	86,676
Flaxseed and Linseed	qrs.	401,683	353,060
Rape	,,	162,303	250,175
Tallow—From Russia	cwt.	83,283	47,647
Australia	,,	16,519	12,786
South America	,,	86,642	48,324
Other Countries	,,	96,923	57,597
Tar	lasts	1,340	530
Wool, Sheep and Lambs'—From Europe	lb.	13,012,469	7,029,031
British Possessions in South Africa	,,	9,124,044	14,530,041
British India	,,	8,125,981	5,209,584
Australia	,,	63,787,097	78,844,374
Other Countries	,,	7,899,358	11,606,998
Alpaca and the Llama Tribe	,,	1,420,046	1,330,511
Yeast, dried	cwt.	54,887	53,440
II. Articles Subject to Duty.			
Corn—Wheat—From Russia	,,	3,649,398	5,147,296
Denmark	,,	148,615	305,412
Prussia	,,	1,663,193	3,532,054
Schleswig, Holstein, & Lauenburg	,,	73,507	83,599
Mecklenburg	,,	302,225	498,343
Hanse Towns	,,	315,701	432,281
France	,,	2,683,389	418,793
Turkey and Wallachia & Moldavia	,,	295,973	1,338,159
Egypt	,,	7,012	48,505
United States	,,	315,160	1,071,512
British North America	,,	8,789	87
Other Countries	,,	2,045,714	1,572,515
Barley	,,	3,954,929	3,336,476
Oats	,,	3,490,490	4,281,150
Peas	,,	542,637	743,118
Beans	,,	244,376	996,006
Indian Corn, or Maize	,,	6,151,931	4,563,553
Wheatmeal and Flour—From Hanse Towns	,,	130,352	238,053
France	,,	2,713,046	882,613
United States	,,	164,735	106,272
British North America	,,	6,142	6,584
Other Countries	,,	120,209	589,550
Indian Corn Meal	,,	8,376	2,967

PEAS: *Old Subscriber.* Of the two, we should prefer Peas for sheep, and the heaviest you can get for the money, whatever the colour may be.

TURN-SICK, GIDDINESS: *W.A.* The sheep is dull and moping unsteady in his motions, and moves round in a circle. If any soft place can be felt on the surface of the skull, the hydatid may sometimes be penetrated by means of a common awl; the operation of trephining has been had recourse to with success. Unless a soft place can be felt on the surface when the awl or trephine may be used, it is better to confine the sheep and fatten it.

CARSON'S ANTI-CORROSION PAINT,
Patronised by the Nobility and Gentry, is extensively used for all kinds of OUT-DOOR WORK, and is proved, after a test of 70 years, to surpass any other Paint. It is especially applicable to Iron, Wood, Stone, Brick, Compo, and is the only Paint that will effectually resist the rays of the sun upon Conservatories, Greenhouses, Frames, &c. Is twice as durable as genuine White Lead, so simple in application that any person can use it. Per cwt.
WHITE, LIGHT STONE, BATH, and LIGHT PORTLAND COLOURS .. .. 30*s.*
LEAD, CHOCOLATE, RED, PURPLE, BROWN, and BLACK 26*s.*
BRIGHT GREEN, DEEP GREEN, and BLUE .. .. .. 42*s.*
Prepared OIL MIXTURE for the ANTI-CORROSION.
OILS, TURPENTINE, VARNISHES, BRUSHES, &c.
3 cwt. Free to all Stations in England and Wales, and most Ports of Ireland and Scotland. Patterns and Testimonials sent post free.
WALTER CARSON & SONS,
La Belle Sauvage Yard, Ludgate Hill, London, E.C.
CAUTION.—All Casks should bear the Trade Mark. No Agents.

Oil Paint no longer Necessary.



HILL AND SMITH'S PATENT BLACK VARNISH for preserving Iron Work, Wood, or Stone. This Varnish is an excellent substitute for oil paint on all out-door work, and is fully two-thirds cheaper. It may be applied by an ordinary labourer, requires no mixing or thinning, and is used cold. It is used in the grounds at Windsor Castle, Kew Gardens, and at the seats of many hundreds of the nobility and gentry, from whom the most flattering testimonials have been received, which HILL & SMITH will forward on application.

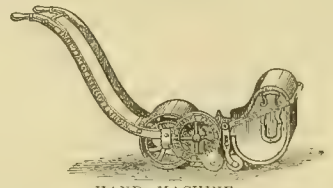
From J. A. TAYLOR, Esq., *Strensham Court.*

"In answer to your inquiries, I beg to inform you I find your Black Varnish an excellent substitute for oil paint upon iron and wood out of doors, and have found the iron Barrow with apparatus essential in applying the Varnish to lines of fencing. I can strongly recommend the Black Varnish for all out-door work as superior to anything I have yet used for the purpose, and it can be applied with great economy by careful labourers."

Sold in casks of about 30 gallons each, at 1*s.* 6*d.* per gallon, at the Manufactory, or 1*s.* 8*d.* per gallon paid to any Station in the kingdom.

Apply to HILL & SMITH, Brierly Hill Iron Works, near Dudley, and 22, Cannon Street West, E.C., from whom only it can be obtained.

SHANKS' NEW PATENT LAWN MOWERS.



HAND MACHINE.

These are the only Machines in daily use in all the Royal Gardens.
These are the only Machines that will mow properly when the Grass is wet.
These are the only Machines that will last for years without requiring repair.
Illustrated Circulars with full particulars free on application.
A. SHANKS & SON, Dens Iron Works, Arbroath.
London Office and Show Rooms—27, Leadenhall Street, E.C.
☞ 27, Leadenhall Street, is the only place in London where intending purchasers of Lawn Mowers can choose from a stock of 150 to 200 Machines. All sizes kept there whether for Horse, Pony, or Hand-power.

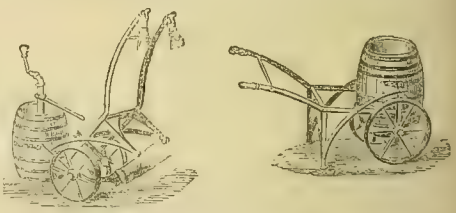
WARNER'S SILICATE of IRON PAINT.—The peculiarities and advantages of this Paint are that it will stand extreme Heat and Damp, and is not affected by Acid, Sea Water, Sulphuretted Hydrogen, or Ammonia. It is equally well adapted for Iron, Wood, Brick, or Cement. Every Shade of Colour ground to order. The Creamy White and Bright Stone will retain the soft delicate shades, regardless of the fumes of Gases. It has no smell, and there is an entire absence of deleterious effects.
WARNER'S ANTITERMITE COMPOSITION is suitable for Felt Roofing, and is a Cheap Coating for Iron Work, and preserves Wood in India from the ravages of the White Ant. Price 1*s.* 3*d.* per gallon.
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SHAW'S TIFFANY.
For samples and prices apply to
J. SHAW & Co., 29, Oxford Street, Manchester.

IRON HURDLES (Silver Medal of the Royal Agricultural Society).
SHEEP, 3*s.* 6*d.*; CATTLE, 4*s.* 2*d.*; OX, 5*s.* 11*d.*
List by Post. GATES and FENCING of every description.
St. Pancras Iron Work Company, Old St. Pancras Road, London, N.W.

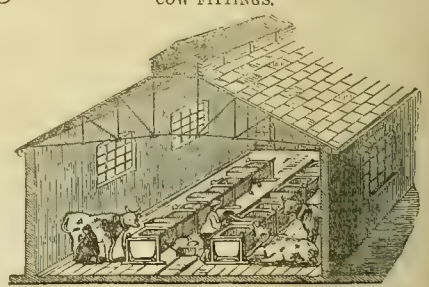
WATERPROOF CAPES for FARM SERVANTS, or to any Persons, Men, Women, or Boys, at Work in the Fields.—A useful Present. 4000 POLICEMEN'S SECOND-HAND CAPES, in perfect order, 16*s.*, 18*s.*, and 22*s.* per dozen. LARGE CAPES, lined with Blue Cloth to the Bottom, 3 feet deep, 4*s.*; and if lined within 10 inches of the Bottom, 3*s.* each.
R. RICHARDSON, 99, Euston Road, London, N.W.

W. S. BOULTON'S 36-gallon SWING WATER BARROW. Price 45*s.*
Carriage paid to the principal Stations.



The above is the best and cheapest article of the kind yet introduced. It can be used with or without a Pony, and two Tubs can be had with one Carriage.
Testimonials can be furnished from all parts of the country.
Powerful GARDEN ENGINE for the above, price 45*s.*
Illustrated Catalogue, with all particulars, sent free on application to W. S. BOULTON, Rose Lane Iron and Wire Works, Norwich.

COTTAM'S PATENT PORTABLE UNITED COW FITTINGS.



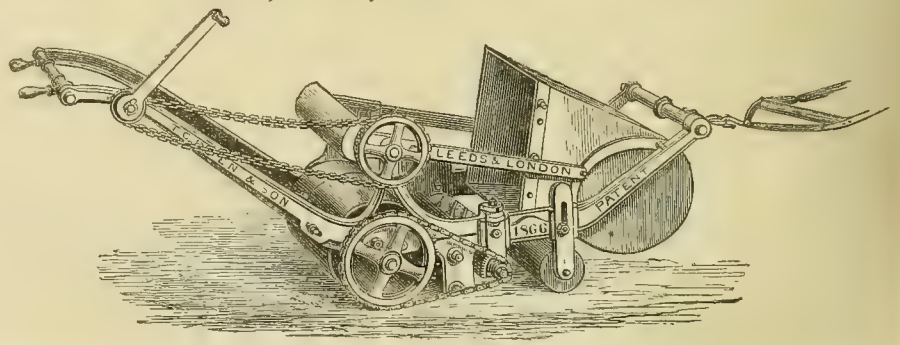
Their advantages are—Portability, not Fixtures, removable at pleasure, no Woodwork or Partitions to impede Ventilation or breed Vermin, Hay Rack dispensed with as unnecessary, increased width and depth of Feeding Troughs, Water Cistern, and Patent Drop Cover to prevent over-gorging. Cleanly, durable, and impervious to infection, being all of iron. Price of Fittings per Cow, 55*s.*
Prospectuses free of COTTAM & Co., Iron Works, 2, Winsley Street (opposite the Pantheon), Oxford Street, London, W., where the above are exhibited, together with several important Improvements in Stable Fittings just secured by Patent.

GREEN'S PATENT SILENS MESSOR,
OR NOISELESS LAWN MOWING, ROLLING, AND COLLECTING MACHINES.
FITTED WITH PATENT SELF-SHARPENING CYLINDER CUTTERS.

They are the simplest in construction, least liable to get out of order, and can be worked with far greater ease than any other Lawn Mower extant.

GREEN'S PATENT LAWN MOWERS have proved to be the best, and have carried off every Prize that has been given in all cases of competition; and in proof of their superiority, 40,000 have been sold since the year 1856.

HORSE, PONY, AND DONKEY MACHINE.



Every Machine is warranted to give entire satisfaction, and if not approved of can be returned at once unconditionally.

T. GREEN AND SON *have to state that the demand for their* LAWN MOWERS *this Season has been unprecedented, which is a proof of the high estimation in which they are held. Selections can be made from their Stock both in London and Leeds.*

☞ ILLUSTRATED PRICE LISTS FREE ON APPLICATION.

THOMAS GREEN AND SONS, SMITHFIELD IRON WORKS, LEEDS; and
54 and 55, BLACKFRIARS ROAD, LONDON, S.

E. T. ARCHER'S "FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, and Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, &c.

PROTECTION from the SCORCHING RAYS of the SUN.

"FRIGI DOMO" NETTING, White or Brown, made of prepared Hair and Wool, a perfect non-conductor of heat or cold, keeping a fixed temperature where it is applied. It is adapted for all Horticultural and Floricultural purposes, for Preserving Fruits and Flowers from the Scorching Rays of the Sun, from Wind, from Attacks of Insects, and from Morning Frosts. To be had in any required lengths.

"FRIGI DOMO" NETTING, 2 yards wide, 1s. 6d. per yard run.
"FRIGI DOMO" CANVAS.
Two yards wide .. .. 1s. 9d. per yard run.
Four yards wide .. .. 3s. 6d. per yard.
An improved make, 2 yards wide .. 1s. 9d. per yard.
An improved make, 3 yards wide .. 2s. 8d. per yard run.

ELISHA THOMAS ARCHER, Whole and Sole Manufacturer, 7, Great Trinity Lane, Cannon Street, City, E.C., and of all Nurserymen and Seedsmen throughout the Kingdom.

"It is much cheaper than Mats as a covering."

JAMES PHILLIPS AND CO. beg to submit their prices as follows:—
GLASS for ORCHARD HOUSES,
As supplied by them to Mr. Rivers, to the Royal Horticultural Society, and to most of the Nobility, Clergy, and Gentlemen of the United Kingdom.
Each Box contains 100 feet. The prices only apply to the sizes stated.

Squares 20 by 12, 20 by 13, 20 by 14, 20 by 15.

	16 oz. to the foot.	21 oz.
Fourth quality	15s. 0d.	19s 6d.
Third ditto	17s. 0d.	22s. 6d.
Seconds	18s. 6d.	26s. 0d.
English	20s. 0d.	27s. 0d.

The above prices include the boxes, which are not returnable.

HORTICULTURAL GLASS.
Stock sizes, 16-oz., in 100 feet boxes, boxes included.
These prices only apply to the sizes stated.

			4ths.	3rds.	2nds.
11 by 9	12 by 9	13 by 9	14 by 9	s. d.	s. d.	s. d.
12 „ 10	13 „ 10	14 „ 10	15 „ 10	13 6	15 6	17 0
13 „ 11	14 „ 11	.. ..				
14 „ 12	15 „ 12	15 „ 11	16 „ 11			
18 „ 12	19 „ 12	16 „ 12	17 „ 12			
16 „ 13	17 „ 13	20 „ 12	..			
16 „ 14	20 „ 13	18 „ 13	..	15 0	17 0	18 6
	17 „ 14	18 „ 14	..	16 to 17 oz. to the foot.		
	20 „ 14					

SMALL SHEET SQUARES.
In 100 feet Boxes.

6 by 4	6½ by 4½	7 by 5	7½ by 5½ } .. 12s. 0d.
8 by 6	8½ by 6½	9 by 7	9½ by 7½ }
		10 by 8	10½ by 8½ .. 13s. 0d.

Boxes 2s. each, returnable at full price.

London Agents for HARTLEY'S IMPROVED PATENT ROUGH PLATE.

LINSEED OIL, Genuine WHITE LEAD, CARSON'S PAINTS, PAINTS of various colours, ground ready for use.

SHEET and ROUGH PLATE GLASS, SLATES of all sizes, BRITISH PLATE, PATENT PLATE, ROLLED PLATE, CROWN, SHEET, HORTICULTURAL, ORNAMENTAL, COLOURED, and every description of GLASS, of the best Manufacture, at the lowest terms. Lists of prices and estimates forwarded on application to

JAMES PHILLIPS & Co., 180, Bishopsgate Street Without, E.C.

Horticultural Glass Warehouse.

THOMAS MILLINGTON AND CO., 87, Bishopsgate Street Without, London, E.C.

NEW LIST for ORCHARD HOUSE GLASS as supplied to Her Majesty, the Nobility, Gentry, Mr. Rivers, and the leading Horticulturists of the United Kingdom.

ORCHARD HOUSE SIZES.

in.	in.		4ths.	3rds.	2nds.	Best.
20 by 12						
20 by 13		15 oz.	14s 3d	15s 6d	18s 6d	20s 0d
20 by 14	Per 100 feet					
20 by 15		21 oz.	19s 6d	22s 2d	25s 6d	26s 6d
20 by 16						

SMALL SHEET SQUARES, 15 oz., per 100 feet.

in.	in.	in.	in.	in.	in.	in.	in.	4ths.	3ds.	2nds.	Best.
6 by 4	7 by 5	8 by 6	9 by 7								
6½ by 4½	7½ by 5½	8½ by 6½	9½ by 7½					12s 3d	13s 3d	16s 0d	18s 0d

Per 100 feet.

10 by 8	12 by 9	12½ by 10½	14½ by 10½								
10½ by 8½	12½ by 9½	13 by 10	15 by 10					13s 3d	14s 6d	17s 3d	19s 0d
11 by 9	13 by 9	13½ by 10½	13 by 11								
11½ by 9½	12 by 10	14 by 10	14 by 11								

LARGE SHEET SQUARES, 15 oz., per 100 feet.

in.	in.	in.	in.	in.	in.	in.	in.	4ths.	3ds.	2nds.	Best
15½ by 10½	14 by 12	22 by 12	22 by 16								
16 by 10	14½ by 12½	17 by 13	24 by 16								
14½ by 11½	15 by 12	23 by 13	20 by 17								
15 by 11	15½ by 12½	18 by 14	22 by 17					14s 3d	15s 6d	18s 6d	20s 0d
15½ by 11½	16 by 12	22 by 14	21 by 17								
16 by 11	16½ by 12½	24 by 14	20 by 18								
21 by 11	17 by 12	22 by 15	22 by 18								
13 by 12	18 by 12	24 by 15	24 by 18								

The above Prices are only for the Sizes stated; if a quantity any other Size be required, a Special Price will be given.

SHEET GLASS.
In Sheets for Cutting up, averaging from 6 to 9 feet super.

15 oz.		21 oz.	
4ths quality, per 300 feet case,	38s.	4ths quality, per 200 feet case,	38s.
3ds „ „	48s.	3ds „ „	48s.
2ds „ „	62s.	2ds „ „	66s.
Best „ „	92s.	Best „ „	96s.

SHEET GLASS is made only in the following substances, oz., 21 oz., 26 oz., 32 oz., 36 oz., and 42 oz.

HARTLEY'S IMPROVED ROLLED ROUGH PLATE in 1-8th in., 3-16th in., 1-4th in., and 3-8th in. substances.

BRITISH PLATE GLASS for Windows and Silvered for Looking Glasses, Coloured Glass, Glass Shades, Striking Glasses, &c., &c.

PAINTS, COLOURS, VARNISHES, &c.

STUCCO PAINT, 24s. per cwt. This Paint adheres firmly to the walls, resists the weather, and is free from the glossy appearance of Oil Paint, resembling a stone surface, and can be made any required shade. It is mixed with rain or pure river water.

WHITE ZINC PAINT, 36s. per cwt. One hundredweight of pure Zinc Paint, with three gallons of Linseed Oil, will cover as much as one hundredweight and a half of White Lead and six gallons of Linseed Oil. Special Dryers for this Paint.

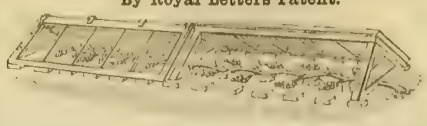
IMPROVED ANTI-CORROSION PAINT, 28s. to 34s. per cwt. Anti-corrosion Paint is extensively used for all kinds of work in exposed situations, on Brick, Stone, Compo, Iron, Iron Bridges, Conservatories, Greenhouses, &c.; and is easily laid on by any ordinary workman. Prepared Oil for ditto, 4s. per gallon.

Per cwt.—s. d.		Per gallon.—s. d.	
GENUINE WHITE LEAD	32 0	LINSEED OIL	3 4
SECONDS WHITE LEAD	30 0	BOILED OIL	3 9
GROUND PATENT DRYERS, 3d. to 4½d. per lb.		TURPENTINE	3 0
„ OXFORD OCHRE, 3d. to 4½d. per lb.		LINSEED OIL PUTTY, 8s. to 9s. per cwt.	
„ RAW UMBER, 4½d. to 6d. per lb. [per lb.		Fine OAK VARNISH, 10s. to 12	0
„ BURNT do., 6d. to 9d.		„ CARRIAGE do., 12s. to 14	0
GREEN PAINT, all shades, 28s. to 60	0	„ PAPER do. 10s. to 12	0
BLACK PAINT, 24s. to 36	0	„ COPAL	16 0
RED PAINT .. 28s. to 36	0	KNOTTING	10 0
		Patent GOLD SIZE ..	10 0
		„ BLACK JAPAN ..	12 0
		GLAZIER'S DIAMONDS and TOOLS	

GROUND BRUSHES.
DUSTERS. | SASH TOOLS.
DISTEMPER BRUSHES.
MILLED LEAD and PIPES
OLD LEAD Bought or taken in exchange.

The above are Net, for Cash, and as such cannot be booked.
Lists of any of the above on application.

By Royal Letters Patent.



WELLS'S PORTABLE GROUND VINERY, for Growing and Ripening Grapes without Artificial Heat.
Awarded a Silver Medal at the International Exposition of Horticulture, held at Nice, April, 1865.
Drawings and Instructions can be had of the PATENTEE, Steam Works 24, Bouverie Street, London, E.C.
AGENTS:—B. J. Edwards, 25, Bishopsgate Street Within, E.C.
J. R. Tanton, Epsom, Surrey.
Drummond Brothers, 52, George Street, Edinburgh.

The Gardener's Watch.

GOLDSMITHS' ALLIANCE LIMITED

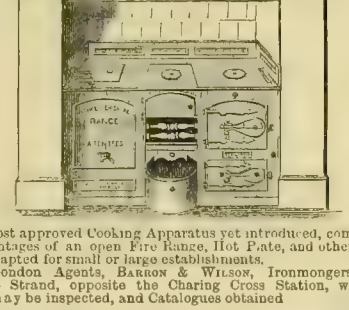
PATENT LEVER WATCH in Engine-turned Silver Case, with all the latest improvements, jewelled, seconds hand, strong, and calculated for hard wear, 4l. 14s. 6d.
The same Watch in Hunting Cases, 5l. 5s.
STRONG SILVER ALBERT and GUARD CHAINS.
The above being Manufactured on the Premises, are with confidence recommended and warranted for correct performance.
Illustrated Pamphlet, and all particulars gratis, on application to GOLDSMITHS' ALLIANCE (LIMITED), 11 & 12, Cornhill, London, E.C.

BATHS & TOILET WARE.—WILLIAM S. BURTON has ONE large SHOW ROOM devoted exclusively to the display of BATHS and TOILET WARE The stock of each is at once the largest, newest, and most varied ever submitted to the public, and marked at prices proportionate with those that have tended to make his establishment the most distinguished in this country. Portable Showers, 7s. 6d.; Pillar Showers, £3 to £5 12s.; Nursery, 15s. to 32s.; Sponging, 5s. 6d. to 32s.; Hip, 14s. 3d. to 31s. 6d. A large assortment of Gas Furnace, Hot and Cold Plunge, Vapour and Camp Shower Baths. Toilet Ware in great variety, from 16s. 6d. to 45s. the set of three.

THE BEST SHOW of IRON BEDSTEADS in the KINGDOM is WILLIAM S. BURTON'S. He has EIGHT LARGE ROOMS devoted to the Show of Iron and Brass Bedsteads and Children's Cots, with Bedding, Bell Hangings, and Bed-room Furniture, all Manufactured by WILLIAM S. BURTON, and of guaranteed quality. Portable Folding Bedsteads, from 12s.; Patent Iron Bedsteads, fitted with dovetail joints and patent sacking, from 11s., and Cots, from 15s. 6d. each; handsome Ornamental Iron and Brass Bedsteads, in great variety, from £1 13s. 6d. to £45.

WILLIAM S. BURTON, GENERAL FURNISHING IRONMONGER, by appointment to H.R.H. the Prince of Wales, sends a Catalogue gratis and post paid. It contains upwards of 600 Illustrations of his unrivalled Stock of Sterling Silver and Electro Plate, Nickel Silver, and Britannia Metal Goods, Dish Covers, Hot Water Dishes, Stoves, Fenders, Marble Chimney-pieces, Kitchen Ranges, Lamps, Gaseliers, Tea-trays, Urns, and Kettles, Clocks, Table Cutlery, Baths, Toilet-ware, Turnery, Iron and Brass Bedsteads, Bedding, Bed-room Cabinet Furniture, &c., with Lists of Prices and Plans of the Twenty Large Show-rooms, at 39, Oxford Street, W.; 1, 1A, 2, 3, and 4, Newman Street; 4, 5, and 6, Perry's Place, and 1, Newman Yard, London.

WORCESTER KITCHEN RANGE.
JONES AND ROWE. PATENTEES.



The most approved Cooking Apparatus yet introduced, combining the advantages of an open Fire Range, Hot Plate, and other appliances, adapted for small or large establishments.
Sole London Agents, BARRON & WILSON, Ironmongers, &c., 430, West Strand, opposite the Charing Cross Station, where a variety may be inspected, and Catalogues obtained

ROWLANDS' MACASSAR OIL.—This elegant and fragrant Oil is universally in high repute for its unparalleled success in promoting the growth, restoring, preserving, improving, and beautifying the Human Hair. It is patronised by Royalty and the Aristocracy of Europe, whilst its introduction into the Nursery of Royalty, and those of the Upper Classes, is a sufficient proof of its merits. Price 3s. 6d., 7s., 10s. 6d. (equal to four small), and 21s. per bottle. Sold at 20, Hatton Garden, and by Chemists and Perfumers.
☞ Ask for "ROWLANDS' Macassar Oil."

DINNEFORD'S FLUID MAGNESIA.—The best remedy for Acidity of the Stomach, Heartburn, Headache, Gout, and Indigestion: and the best mild aperient for delicate constitutions, especially adapted for Ladies, Children, and Infants.
DINNEFORD & Co., 172, New Bond Street, London, and of all Chemists throughout the World.

JOHN GIBSON, JUN., begs to announce that he is prepared to Furnish PLANS and ESTIMATES for LAYING OUT GROUND attached to Mansions and Villa or other Residences, or for the FORMATION of PUBLIC PARKS or GARDENS and to carry out the same by Contract or otherwise.
Address Mr. JOHN GIBSON, jun., Surrey Lane, Battersea, S.W.

GEORGE F. MORRIS (of the Firm of PROTHEROE & MORRIS) undertakes SALES and VALUATIONS of FREEHOLD LANDED ESTATES, Leasehold and Reversionary Property of every description, Farming and Market Garden Produce, Household Furniture, Stock in Trade, &c.
Auction and Estate Agency Office, The Limes, Leytonstone, Essex.

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GREY DORKING FOWLS, of purest breed, in any numbers.
Imported TOULOUSE GEESE, the largest and most productive breed known.
Improved NORFOLK TURKEYS, large, hardy, and good breeders.
AYLESBURY and ROUEN DUCKS.
Imported BELGIAN HARE RABBITS, for size and early maturity.
BRAHMA-POUTRA, CREVECŒUR, and LA FLECHE FOWLS, for constant layers.
Priced Lists and Estimates on application.
JOHN BAILY & SON, 113, Mount Street, London, W.

Feed for Sheep.

WANTED, to take in 160 SHEEP, from August 8 to Sept. 28; a dry good soil and excellent feed. Sheep must be warranted free from disease, foot or otherwise. Terms, 5s. a score a week. Apply to
Mr. REED, Bowling Green, Limpsfield, Godstone, Surrey.

The Exmoor Cobs and Ponies.

MR. ROBERT SMITH'S ANNUAL SALE of about FORTY EXMOOR COBS, GALLOWAYS, and PONIES will take place as usual (in the AUTUMN) at Fiedler's Repository, Bristol.—Emmett's Grange, South Molton, August 6.

Oxford-Down Rams.

MR. DRUCE offers for SALE, by Private Contract, this Season, about 30 SHEARLINGS, and a few TWO-SHEAR OXFORD-DOWN RAMS, which may be seen at any time, as well also THE FLOCK on the Farm. The Sheep have not been housed.
Eynsham, Oxford, July, 1867.

To Nurserymen and Seedsmen.

WANTED, a SMALL BUSINESS in the above Line.
Address A. T., *Gardeners' Chronicle* Office, W.C.

FOR DISPOSAL, a First-class NURSERY and SEED BUSINESS; or the present Proprietor would accept of a WORKING PARTNER with a Capital of not less than £1000.
Apply by letter to E., Messrs. Hurst & Son, 6, Leadenhall Street London, E.C.

TO BE SOLD, an old established NURSERY, two and a-half miles from Covent Garden; stands in a main road. Good Trade can be done. About Two Acres of Ground, half an Acre covered with Glass. Good stock of Hard and Soft-wooded Plants. Price about £450.
W. P., Chichester Terrace, Kilburn, N.W.

TO BE DISPOSED OF, an Old-established NURSERY and FLORISTS BUSINESS, in the neighbourhood of Regent's Park. The present Proprietor has occupied it for the last 17 years. A WORKING PARTNER would be accepted.
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TO BE DISPOSED OF, on advantageous terms, and may be entered upon immediately, an OLD ESTABLISHED NURSERY, eligibly situated, adjoining a large and important town, surrounded by an excellent neighbourhood, and having every facility for carrying on an extensive business.—Address,
G. H., Mr. Cooper, Seed Merchant, 152, Fleet Street, London, E.C.

TO BE LET, a NURSERY and BUSINESS, well stocked with all descriptions of Shrubs. Price £2000; or to be taken at Valuation. The Soil good and Loamy. Part of the money can remain if required.
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To Nurserymen and Market Gardeners.

TO BE LET, with immediate possession, a CAPITAL BUSINESS PREMISES, near the City of Bath, with Dwelling-house, Greenhouses, Forcing Pits, and about 5 Acres of Land.
For particulars, apply to COTTERELL & SPACKMAN, 6, Terrace Walks, Bath.

To Market Gardeners, Nurserymen, &c.

TO BE SOLD, by Private Contract, about 200 ACRES of very superior GARDEN GROUND, all Freehold, situate in the County of Bedfordshire, about three miles from Biggleswade Station, Great Northern Railway. The Land is divided into Lots to suit the convenience of purchasers. For particulars apply to
THOMAS FOUNTAINE, Esq., Dunton Lodge, Ashwell, Baldock.

Nursery and Seed Business for Sale.

WILLIAM DEAN, having determined on residing in London again, offers for SALE, with immediate possession, the NURSERY at SHIPLEY, consisting of Four Acres, with 13 extensive Glass Houses, the whole, with the Nursery well stocked, and with Dwelling House, &c., is held on Lease; also the SEED SHOP, in BRADFORD (the only one in the town), which is well fitted up, and where there is a good business doing in Fancy Articles, as well as Seeds, Cut Flowers, Flowering Plants, &c. The Nursery is 2½ miles from the Shop, on a principal road to Bradford. A half year's business is equivalent to the purchase money required, and will be a great bargain to the purchaser. It is an excellent opportunity for a large house in the South to establish a Branch Business here, as a good healthy Trade is already done, which may be very much increased. For particulars apply to
WILLIAM DEAN, Bradford Nursery, Shipley, Yorkshire.

Estate in the Cumberland Lake District.

FOR SALE, that very desirable and valuable FREEHOLD ESTATE of LITTLETHWAIT and MIRE GILL, in the Township of Whinfell, in the County of Cumberland, and lately the property of the late Sir Wilfred Lawson, Bart., consisting of 140 ACRES or thereabouts of Arable, Grazing, Meadow, and Wood Lands, with Apple and Plum Orchards, and a good Farmhouse, with Outbuildings.
LITTLETHWAIT is well watered, and in a good state of cultivation. The Plantations are healthy, and contain Partridges, with a sprinkling of Black Game. There is Trout Fishing in the River Cocker, which flows through the Estate.
LITTLETHWAIT is beautifully situated in the Vale of Lorton, between Lowes-water and the important Market Town of Cockermouth, from which it is distant only five miles by turnpike road, and where there is a first-class Railway Station.
LITTLETHWAIT'S high ground affords a lovely view of Crummock Lake.
LITTLETHWAIT would well repay a little further outlay. The property will be shown at any time on application to the Tenant, Mr. Henderson, Littlethwait, near Cockermouth.
For further particulars apply to WILLIAM LAWSON, Blennerhasset Farm, Cumberland.

Sales by Auction.

Brentford Road, Kew Bridge.

IMPORTANT SALE OF NEWLY-ERECTED GREENHOUSES, PITS, BOXES, BRICKS, HOT-WATER PIPING, &c.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. William Drewett to SELL by AUCTION, without reserve, on the Premises, The Market Garden and Nursery Grounds, Brentford Road, Kew Bridge, on MONDAY, August 19, at 11 o'Clock (the Lease expiring at Michaelmas next), 3 Newly-Built Span-roof GREENHOUSES, 90 feet by 12 feet over; 3 excellent three-quarter Span-roof GREENHOUSES, 120 feet, 60 feet, and 96 feet in length; 3 Ranges of Pits, each 90 feet long by 7 feet; sundry other Pits and Glazed Lights; also about 2000 feet 2 and 3-inch, but principally 4-inch, Hot-Water Piping; Ormson's Tubular 5-feet Boiler, 4 other Boilers, 1000 Casts of Pots, Bricks, Tiles, Drain Pipes, Sign Board, and other Effects.
The Glass Erections are in excellent condition, built of the best materials, and being many thousand feet, offer a capital opportunity.
May be viewed prior to the Sale. Catalogues had on the Premises, and of the Auctioneers and Valuers, Leytonstone, N.E.

Bedford Street, Strand.

LEASEHOLD PROFIT RENTAL OF £80 A-YEAR, AMPLY SECURED ON THE PREMISES, No. 13, BEDFORD STREET.

MESSRS. DEBENHAM, TEWSON, and FARMER will SELL, at the Mart, near the Bank, on TUESDAY, August 27, at 2 o'clock, the capital PREMISES, No. 13, Bedford Street, Covent Garden, W.C.; comprising Four Floors and Basement; held for about 17 years unexpired, at £50 a-year, and underlet for the full term (less a few days), at £130 per annum, but now worth considerably more.
Particulars of M. BOYCE, Esq., Solicitor, 48, Cannon Street, E.C.; and of the Auctioneers, 80, Cheapside.

Shropshire Sheep.

THE MOUNT, GRENDON, NEAR ATHERSTONE, WARWICKSHIRE.

MR. JOHN B. LYTHALL will SELL by AUCTION, on FRIDAY, September 6, 40 SHEARLING and older RAMS, and 120 STOCK and SHEARLING EWES, the property of Mrs. Baker.
The Grendon Flock is fully up to its usual high standard of general excellence.

Shropshire Sheep.

PIPE PLACE, NEAR LICHFIELD.

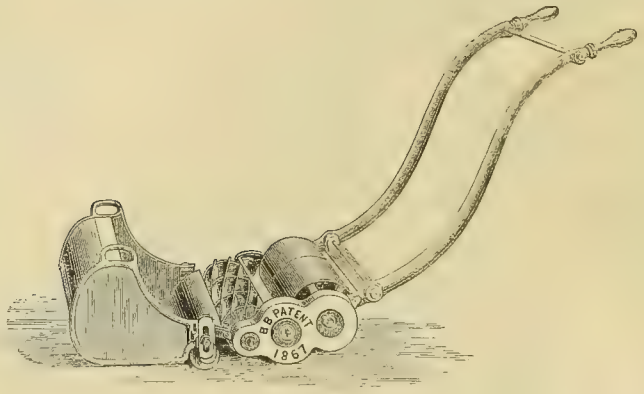
MR. JOHN B. LYTHALL will SELL by AUCTION, on FRIDAY, September 13, 50 SHEARLING and TWO-SHEAR RAMS, and 120 STOCK and SHEARLING EWES, the property of Mr. J. H. Bradburne.
The Owner particularly invites an early inspection of his Sheep.

PATRONISED BY HER MAJESTY THE QUEEN, HIS ROYAL HIGHNESS THE PRINCE OF WALES.

J. B. BROWN & CO.'S

NEW PATENT BB LAWN MOWER.

AWARDED A FIRST-CLASS CERTIFICATE BY THE ROYAL HORTICULTURAL SOCIETY OF LONDON, AT BURY ST. EDMUND'S, JULY 16, 1867.



This NEW PATENT LAWN MOWER combines all the latest improvements in Lawn Mowing Machines, being simple in construction, very light, silent in movement, easily worked, and so strong and durable as to be literally unbreakable—an all-important feature in Machines of this class; the ordinary Cast-iron being entirely done away with, and Malleable Iron substituted in all breakable parts, and every part being numbered and accurately made to standard gauges. The workmanship and finish are also of a superior character; the entire Machine being quite equal to a revolution, so to speak, in Lawn Mowers. The Machines are all guaranteed to give perfect satisfaction in every respect.

TESTIMONIAL FROM THOS. INGRAM, ESQ., THE ROYAL GARDENS, WINDSOR, AUGUST 11, 1866.

"GENTLEMEN,—I have much pleasure in stating that your New Patent BB Lawn Mowing Machine [a 24-inch] has had a good trial, and has proved quite satisfactory. The work done is of the first order, leaving the Lawn like a piece of velvet.

"I am, Gentlemen, yours faithfully,

"Messrs. J. B. BROWN & Co., London." "THOS. INGRAM."

NEW PATENT BB HAND MACHINE.

PRICES—including Carriage to any Railway Station or Shipping Port in England, with the necessary tools and directions for use.

10-inch Machine	£4 0 0	*Easily Worked by a Boy.*
12-inch Machine	5 0 0	
14-inch Machine	5 10 0	
16-inch Machine	6 10 0	*Ditto by a Man.*
18-inch Machine	£7 10 0	*Easily Worked by a Man.*
20-inch Machine	8 0 0	*Ditto by Two Men.*
22-inch Machine	8 10 0	
24-inch Machine	9 0 0	

PATENT BB HORSE MACHINE.

PRICES—complete, without extras, including Carriage to any Railway Station or Shipping Port in England, with the necessary Tools and directions for use.

48-inch Machine	£32 10 0	*Drawn by a Horse.*
42-inch Machine	28 10 0	
36-inch Machine	24 10 0	
30-inch Machine	21 10 0	*Drawn by a Horse or Strong Pony.*

PATENT BB PONY AND DONKEY MACHINE.

PRICES—complete, without extras, including Carriage to any Railway Station or Shipping Port in England, with the necessary Tools and directions for use.

30-inch Machine	£17 10 0	*Drawn by a Pony.*
28-inch Machine	16 10 0	
26-inch Machine	14 10 0	*Drawn by a Donkey.*

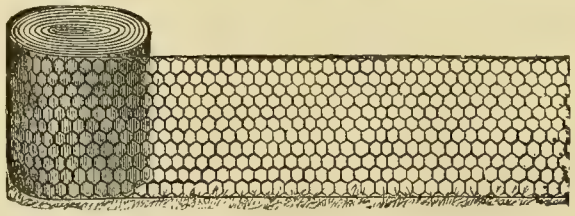
☞ Every Machine sent out is warranted to give ample satisfaction, and, if not approved of, may be at once returned.

J. B. BROWN & CO.'S NEW IMPROVED PREMIUM WIRE NETTING.

REDUCED PRICES, FEBRUARY, 1866.

AWARDED FIRST-CLASS CERTIFICATE BY THE ROYAL HORTICULTURAL SOCIETY OF LONDON, AT BURY ST. EDMUND'S, JULY 16.

GREAT IMPROVEMENT, WITH REDUCED PRICES.



AND GALVANIZED AFTER MADE.

PRICES PER LINEAL YARD, 24 INCHES HIGH.

Size of Mesh.	Mostly used for	Light.		Medium.		Strong.		Extra Strong.	
		Japanned.	Galvanised.	Japanned.	Galvanised.	Japanned.	Galvanised.	Japanned.	Galvanised.
2¼ inch	Hares, Dogs, Poultry	2¾d.	3¾d.	3½d.	4½d.	4d.	5¼d.	5d.	6¼d.
2 inch	Game or Poultry Netting	3½d.	3¾d.	3¾d.	4½d.	4½d.	5¾d.	5¾d.	7d.
1⅝ inch	Small Rabbits, Hares, &c.	3¾d.	4½d.	4¼d.	5½d.	5d.	6¾d.	6¼d.	8d.
1½ inch	Smallest Rabbits	4½d.	5½d.	5¼d.	6½d.	6¼d.	8d.	8d.	10d.
1 inch	Pheasantries, &c.	8d.	10d.	9½d.	1s. 0½d.	1s. 1½d.	1s. 4d.	1s. 7d.	1s. 10d.
¾ inch	Aviaries, &c.	11d.	1s. 1½d.	1s. 1½d.	1s. 4d.	1s. 4d.	1s. 7d.	..	..

*** Quantities of 100 Yards or upwards delivered Free at all the principal Railway Stations in England; and 200 Yards or upwards delivered Free to all parts of Scotland and Ireland.

☞ *Every description of Netting warranted to give satisfaction, and if not approved will be exchanged, or may be returned unconditionally.*

J. B. BROWN AND CO., OFFICES, 90, CANNON STREET, CITY, LONDON, E.C.;

WAREHOUSE AND MANUFACTORY, 148, UPPER THAMES STREET, E.C.

Opposite the City of London Brewery, and close to the London Bridge Steamboat Piers.

Editorial Communications should be addressed to "The Editor;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
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THE GARDENERS' CHRONICLE

AND

AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.

No. 33.—1867.] SATURDAY, AUGUST 17. {Price Fivepence. STAMPED EDITION, 6*d*.

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State of the Fruit Crops, 1867.

THE GARDENERS' CHRONICLE and AGRICULTURAL GAZETTE of AUGUST 24 will contain an account of the CONDITION of the FRUIT CROPS throughout the Country. A Copy of this Number will be sent on receipt of Six Stamps, or it may be ordered of any News Agent.

Office for Advertisements, &c., 41, Wellington Street, Strand, London.

ROYAL HORTICULTURAL SOCIETY, SOUTH KENSINGTON, W.

NOTICE.—A MEETING of the FRUIT and FLORAL COMMITTEES will be held on TUESDAY NEXT, August 20, at 11 for half-past precisely. GENERAL MEETING at 3.

READING HORTICULTURAL SOCIETY.—The AUTUMN SHOW of this Society will be held, by permission of the Mayor, in the Abbey Ruins, Reading, on THURSDAY, August 22. By permission of Col. Fitz Wygram, the Band of the 15th King's Hussars will attend. Schedules of Prizes may be obtained of, and Entries must be made to, CHARLES COLLINS, Hon Sec., 34, Chain Street, Reading.

MANCHESTER BOTANICAL AND HORTICULTURAL SOCIETY.—A GRAND EXHIBITION of PLANTS, FRUITS, and FLOWERS will be held at the Gardens, Old Trafford, on TUESDAY, August 27, and four following days, in connection with the GREAT CENTENARY CELEBRATION SHOW of the MANCHESTER and LIVERPOOL AGRICULTURAL SOCIETY. Charges for Admission:—First day, 2*s*. 6*d*. each; remaining days, 1*s*. each; Subscribers to the Botanic Gardens free each day. Schedules may be obtained at the Gardens, or from the Undersigned. Military Bands in attendance. By Order.
Cooper Street, Manchester. HENRY WHITWORTH, Secretary.

BISHOP AUCKLAND FLORAL and HORTICULTURAL SOCIETY will hold their ANNUAL EXHIBITION in AUCKLAND PARK on AUGUST 30, when upwards of £350 will be awarded in Prizes. Schedules may be obtained on application to Mr. J. C. HENDY, Secretary, Bishop Auckland.

HULL FLORAL SOCIETY.—AUTUMN EXHIBITION, SEPTEMBER 4.—Prizes to the following amounts will be given:—For 12 Variegated and Ornamental Foliage Plants, 1st, £10; 2d, £5. Best 6 Stove and Greenhouse, in bloom, £2 12*s*. 6*d*.
GEO. H. LOVELL, Secretary.

Roses in Bloom.

WM. PAUL'S ROSES are NOW IN FULL BLOOM. Inspection respectfully invited. Trains almost hourly from Shoreditch to Waltham Station, Great Eastern Railway.
PAUL'S Nurseries, Waltham Cross, N.

At the Old Nurseries, Cheshunt,

PAUL AND SON'S ROSES are NOW FINELY IN BLOOM. The Show is finer than for many years past. Frequent trains to Cheshunt, one mile from the Nurseries. Their large and varied Collection of HARDY FINE-FOLIAGE TREES and SHRUBS are in good condition for selection.

NEW ROSES for 1867.—Strong Plants of all the best NEW ROSES now ready.
DESCRIPTIVE LIST, with prices, on application.
JOHN CRANSTON, King's Acre Nurseries, near Hereford.

CULTURAL DIRECTIONS for the ROSE. Second Edition. By JOHN CRANSTON, King's Acre Nurseries near Hereford. Free by post from the Author for 20 stamps.

New Roses.—To the Trade.

JOHN HARRISON has still on hand a fine stock of the best NEW ROSES, also a fine stock of ROSE MARECHAL NIEL, fine healthy plants, in small pots, 12 to 15 inches, just now requiring repotting, at 12*s*. per dozen, or 90*s*. per 100; stronger plants, in 6-inch pots, 18*s*. per dozen. ISABELLA SPRUNT, a new Tea of the present season, 6*s*. to 9*s*. per dozen.
North of England Rose Nursery, Darlington.

Roses, Orchard Houses, and Experimental Fruit Tree Culture.

THE NURSERIES at SAWBRIDGEWORTH, 100 Acres in extent, are OPEN to the inspection of Amateurs interested in the above.
The Harlow Station (1½ mile distant), G. E. R., where Flys are in attendance, is the most convenient.
THOS. RIVERS & SON.

WANTED, some dozen Plants of the Small-leaved VARIEGATED IVY. State price.
Answer to A. Z., Post Office, Ampthill, Beds.

SUTTON'S RENOVATING GRASSES SHOULD NOW BE SOWN.
6 lb. to 12 lb. required per acre.
Price 10*d*. per lb., or cheaper by the cwt.
SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

Grass Seeds for Autumn Sowing.

SUTTON'S PERMANENT GRASS SEEDS FOR ALL SOILS.
Prices (according to sorts required and soils for which they are intended), may be had on application.
SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

SUTTON'S IMPROVED ITALIAN RYE-GRASS, the BEST and MOST PRODUCTIVE IN CULTIVATION.
SUTTON & SONS can supply New Seed of the above at 6*s*. per bushel, or cheaper in large quantities.
August and September are the best months for Sowing.
SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

Dutch Bulbs.

J. SCOTT'S CATALOGUE of DUTCH FLOWER ROOTS, GARDEN REQUISITES, &c., is NOW READY, and will be sent post free on application.
J. SCOTT, The Seed Stores, Yeovil, Somerset.

WM. CUTBUSH AND SON beg to say that their DESCRIPTIVE CATALOGUE of CHOICE HYACINTHS, TULIPS, CROCUSES, &c., is now ready, and can be had post free on application. Highgate Nurseries, London, N.

BELLA DONNA LILIES.—These free-blooming flowers should be planted as soon as possible, as they come over with the flower bud showing. Price 5*s*. 6*d*. per dozen, forwarded on receipt of Post-office order on application to CARTER'S Great London Seed Warehouse, 237 & 238, High Holborn, W.C.

VIOLETS for WINTER and SPRING BLOOMING.—The Undersigned can supply strong healthy Plants, in 6-inch pots, of the following, which are the four best Violets in cultivation. Price 6*s*. to 9*s*. per dozen.

THE CZAR	DOUBLE BLUE
NEAPOLITAN	REINE DES VIOLETTES

FRANCIS & ARTHUR DICKSON & SONS, The "Upton" Nurseries, Chester.

CAMELLIAS and AZALEAS.—Eighteen extra fine and large Plants, also some large DRACÆNAS ORCHIDS of sorts, CRETONS, &c., to be DISPOSED OF in Cheshire, and offering a most favourable opportunity for those furnishing new Conservatories, &c. For particulars as to where situated, &c., apply to JAMES DICKSON & SONS, Newton Nurseries, Chester.

Superb Double Hollyhocks.

WILLIAM CHATER respectfully invites the attention of the Public to his unrivalled Collection of the above, which are NOW in FULL BLOOM and may be viewed any day, Sundays excepted. Also a fine Collection of other FLORIST FLOWERS. Nurseries, Saffron Walden.

TREE MIGNONETTE.—Now is the time to Sow Seed, from Plants exhibited at International Show.
In packet, 13 stamps, post free.
KARSLEY TANTON, Nurseryman, Epsom.

NEW VERBENAS of 1867.—C. ALLEN, Jun., is now sending out strong Plants in thumb pots of the above in 36 varieties, introduced by Messrs. Henderson & Son, Turner, Keynes, and Downie, Laird, & Laing, at 3*s*. per doz., package included. Terms cash. Stone Hill, Heigham, Norwich.

Novelties.

WM. PAUL (Son and Successor to the late A. PAUL) respectfully solicits Orders for the NEW and FIRST-CLASS ROSES and BEDDING GERANIUMS, &c., advertised at length in this Paper in May last.
PAUL'S Nurseries, Waltham Cross, London, N.

MRS. POLLOCK GERANIUM.—Strong plants of the above can be supplied at 36*s*. per 100, or £16 per 1000, for cash. Very strong plants, struck early in the open ground, will average three cuttings each by spring.
Apply to JOHN SCOTT, Nurseryman and Florist, Battlford, Bath.

For Present Sowing.

CHOICE ZONAL GERANIUM, FROM A COLLECTION OF 150 VARIETIES.
R. WHITE can supply NEW SEED of the above, saved from the choicest flowers, in packets, 1*s*. 6*d*., 2*s*. 6*d*., 3*s*. 6*d*., and 5*s*. each, post free.
Poole Nurseries, Dorset.

New Zonal and Nosegay Pelargoniums.

NUNN AND HOBDAY, St. Augustine's Nursery, Norwich, beg to inform intending purchasers of the above that they have a large stock of all the best varieties sent out in 1867, from 12*s*. to 18*s*. per dozen.

Variegated Geraniums.

CASBON AND SON hold a large stock of above.
Prices on application.
Gravel Walk Nursery, Peterborough.

Botanic Nurseries, Biggleswade, Beds.

LUCY GRIEVE, ITALIA UNITA, HER MAJESTY, MRS. POLLOCK, CRYSTAL PALACE, and all the best TRICOLOR GERANIUMS—carefully impregnated seed, in sealed packets, 5*s*. to 10*s*. each. Terms cash.
EDWARD SHINTON.

New Plants.

H. CANNELL begs to inform his Customers that his NEW CATALOGUE is NOW READY, and sent free for two stamps. It contains a full description of all the NEW FUCHSIAS, VERBENAS, PETUNIAS, LOBELIAS, &c., and a number of the NEW GERANIUMS, and all the NEW BEDDING GEMS of the year; and also a new and valuable idea in the arrangement of Bedding Plants. Fuchsia Nursery, Woolwich.

Calceolaria, Cineraria, Primula fimbriata.

SUTTON AND SONS can supply NEW SEED of the above, saved from choicest flowers, in packets, 1*s*., 2*s*. 6*d*., and 5*s*. each, post free.
Royal Berkshire Seed Establishment, Reading.

Calceolaria and Cineraria.

WHEELER'S CALCEOLARIA is of the finest Strain, and second to none; 1*s*. 3*d*., 1*s*. 6*d*., and 2*s* 6*d*. per packet.
The CINERARIA is saved from the finest varieties; 1*s*., 1*s*. 6*d*. and 2*s*. 6*d*. per packet.
G. WHEELER, Nurseryman, Warminster, Wilts.

Choice Seeds.

CHARLES TURNER'S superior CALCEOLARIA, CINERARIA, and PRIMULA are now ready, in packets, 2*s*. 6*d*. each. The Royal Nurseries, Slough.

Extra Fine Fringed Primulas.

DOBSON'S CELEBRATED STRAIN, that has stood a ten years' test, is now ready for sending out in 1*s*., 2*s*. 6*d*., and 5*s*. packets. The quality may be depended upon.
DOBSON & SONS, Seedsmen, Isleworth, London, W.

Prize Cineraria Seed.

DOBSON'S UNEQUALLED STRAIN, which has taken 50 First Prizes in six years, is now ready for sending out. Fine new seed, in 1*s*., 2*s*. 6*d*., and 5*s*. packets.
DOBSON & SONS, Seedsmen, Isleworth, London, W.

DOBSON'S STRAIN of PRIZE CALCEOLARIA, CINERARIA, and PRIMULA, the finest in Cultivation.

For Present Sowing.

DOBSON'S INTERNATIONAL, ROYAL HORTICULTURAL, ROYAL BOTANIC, CRYSTAL PALACE, and KINGSTON PRIZE and UNEQUALLED HYBRIDISED CALCEOLARIA now ready, in Sealed Packets, with full Directions for Sowing and Growing, 1*s*. 6*d*., 2*s*. 6*d*., 3*s*. 6*d*., and 5*s*.
DOBSON & SONS, Seedsmen, Isleworth, London, W.

SUTTON'S AUTUMN CATALOGUE IS NOW READY, gratis and post free.
Royal Berkshire Seed Establishment, Reading.

Strawberries.

CHARLES TURNER is now prepared to supply strong Plants of the best modern kinds, as well as all the leading established varieties, true to name.
A DESCRIPTIVE LIST may be had on application.
The Royal Nurseries, Slough.

Strawberries.

SALTMARSH AND SON beg to offer strong Runners of most of the leading kinds at from 3*s*. 6*d*. per 100. Also a few extra strong Plants rooted in pots for forcing.
LIST and PRICES on application.
Moulsham Nurseries, Chelmsford.

Strawberries.

A DESCRIPTIVE CATALOGUE of STRAWBERRIES, Classed, free per post.
THOS. RIVERS & SON, Nurseries, Sawbridgeworth.

CUTHILL'S STRAWBERRY PLANTS.—On and after August 26, strong, selected for next year's bearing, at the reduced price of 6*s*. per 100, each sort (they have lasted in bearing 55 days this year), Early Black Prince, Early Princess Royal, Richard II., Highland Mary, Newton Seedling late, Prince of Wales, latest of all. Dr. Lindley never could depend on a crop until he had my breed. MUSHROOM SPAWN, 5*s*. per bushel. Five Pamphlets, &c. Write for a LIST. Post-office orders on Camberwell Green.
JAMES CUTHILL, Denmark Hill, Camberwell, S.

VINES from EYES.—Houses upwards of 700 feet in length occupied with their Cultivation—probably the largest stock in England. The Fruiting Canes are extra fine this season: 5*s*. to 7*s*. 6*d*. each. Vines from open borders for ground Vineries, 1*s*. 6*d*. each; ditto, fine Canes from pots, 3*s*. 6*d*. each. A DESCRIPTIVE CATALOGUE free per Post. Carriage paid to London.
THOS RIVERS & SON, Nurseries, Sawbridgeworth.

Orchard-house Trees Fruiting in Pots.

PEACHES, NECTARINES, APRICOTS, CHERRIES, PLUMS, PEARS, APPLES, VINES, and FIGS.
RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

ORANGE TREES.—Just arrived, with fruit on, from 18 inches to 5 feet high, 2*s* 6*d*., 3*s* 6*d*., 7*s* 6*d*., and 10*s*. 6*d*. each; also some large bushy Trees with 20 and 30 Oranges on each, 42*s* and 52*s*. 6*d*. each; and many rare kinds of FERNS, PALMS, DRACÆNAS, &c
R. GREEN, Bedford Conservatories, Covent Garden, W.C.

Highly Cultivated and Regularly Transplanted Nursery Stock.

EIGHTY ACRES of the above, consisting chiefly of FRUIT TREES, ROSES, EVERGREENS, and ORNAMENTAL TREES, which for general excellence are unsurpassed.
THOMAS WARNER, Leicester Abbey Nurseries.

Hardy Trees and Shrubs.

PAUL AND SON beg to invite intending planters to inspect their Collection of Fine-foliaged and Ornamental-leaved Trees, as well as their large Stock of general Hardy, Evergreen, and Deciduous Plants, to the culture of which in quantity they devote some 40 Acres of their Nurseries. The Autumn Bloom of Roses is exceptionally good.
The Old Nurseries, Cheshunt, N.; one mile from Cheshunt Station, G. E. R.

To the Trade.

A CHOICE COLLECTION of SEEDLING FERNS, in thumbs and store pans, consisting of choice Adiantums, Asplenium palmatum, Athyrium goringianum, tricolor, Polystichum Conchitis, and many other choice varieties. Also fine SPECIMEN FERNS, of various sizes, from 48's to No. 1 pots.
Price on application.
J. ILLMAN'S Nurseries, Stroud, Kent.
N.B. Intending purchasers would not regret a visit to Stroud.

NEW FERN, SCOLOPENDRIUM VULGARE, var. COOLINGII.—A dwarf variety between S. Wardii and S. digitatum, very distinct and beautiful. Nice Plants are now ready for distribution at 7*s*. 6*d*. each.
A Coloured Plate free by post for two stamps.
EDWIN COOLING, Mile Ash Nurseries, Derby.

British Fern Catalogue.

ROBERT SIM can now send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his NEW and PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.
Foot's Cray Nursery, S.E., a mile from Sidcup Station of New North Kent Line of South Eastern Railway.

To the Trade—Rhododendron Stocks.

PAUL and SON have to offer selected RHODODENDRON STOCKS, fit for immediate working, 12*s*. 6*d*. per 100; for quantities over 1000, special prices.
The Old Nurseries, Cheshunt, N.

Beautiful Foxgloves.

JIVERY AND SON can now supply new Seed of their fine strain of the above, in 1*s*., 1*s*. 6*d*., or 2*s*. 6*d*. packets; likewise Plants to bloom next season at 6*s*. per doz.
Dorking and Reigate Nurseries.

RAYNBIRD, CALDECOTT, BAWTREE, DOWLING, AND COMPANY, Limited,
CORN, SEED, MANURE, AND OILCAKE MERCHANTS,
Address, 89, Seed Market, Mark Lane, E.C.; or Basingstoke.
Samples and Prices post free on application. Prize Medals, 1851, for Wheat; 1862, for "Excellent Seed Corn and Seeds."

Agricultural and Garden Seeds.

H. AND F. SHARPE beg to announce to the Trade that their SPECIAL LIST of HOME-GROWN SEEDS, 1867 Growth, is now ready and may be had on application.
Seed Growing Establishment, Wisbech, Cambs.

Genuine Garden and Agricultural Seeds.

JAMES CARTER AND CO.,
SEED FARMERS, MERCHANTS, and NURSERYMEN,
237 & 238, High Holborn, London, W.C.

EVERY GARDEN REQUISITE kept in Stock at
CARTER'S New Seed Warehouse, 237 & 238, High Holborn, London.

Turnip Seeds for Present Sowing.

SUTTON AND SONS can supply NEW SEED of the BEST KINDS for PRESENT SOWING. PRICED LISTS on application. All goods carriage free except very small parcels.
SUTTON & SONS, Seed Growers, Reading.

STRAWBERRIES.

DR. HOGG.—Very large, extra fine Pine flavour, and a good bearer. One of the finest in cultivation.
THE LADY.—All the fruit of a good equal size without thinning; immense cropper for forcing, as we proved last spring; flavour highly perfumed.
BRITISH QUEEN, PRINCE ARTHUR, KEEN'S SEEDLING. CRIMSON QUEEN, SIR CHARLES NAPIER.

Prices—Established in large 32 pots for forcing, from 75s. to 100s. per 100. Strong layers in 60 pots, from 25s. to 50s. per 100. Strong runners from 5s. to 21s. per 100. A large collection of other varieties, strong, well-rooted runners, 5s. per 100.

JOHN & CHARLES LEE, Royal Vineyard Nursery and Seed Establishment, Hammersmith, London, W.

CHEAP NEW PLANTS.

6 of the best NEW NOSEGAY PELARGONIUMS.
6 of the best ZONAL PELARGONIUMS.
6 of the best NEW PETUNIAS.
6 of the best NEW PENTSTEMONS.
6 POA TRIVIALIS ARGENTEA ELEGANS.
6 ALTERNANTHERA PARONYCHOIDES.
6 IRESINE AUREA RETICULATA.

The above collection, well rooted and established in pots, for £1, package included.

NUNN & HOBDAY, St. Augustine's Nursery, Norwich.

New Zealand Nursery, St. Alban's, Herts.

J. WATSON'S beautiful BEDDING PELARGONIUM EXCELSIOR, now ready; colour of Indian Yellow; fine truss, and habit of Lord Palmerston. Price 5s. each; 36s. per doz. to the Trade

MISS WATSON, ready August 25; MRS. DIX, May 1 The Two have received 10 First-class Certificates and Extra Prize Money.

Fine New TABLE APPLE, ST. ALBAN'S PIPPIN, Ripe in April. Plants ready in November. 5s. each; 36s. per doz to the Trade

DESCRIPTIVE LIST sent on application.

Botanic Nurseries, Biggleswade, Beds.

ONE of the FINEST COLLECTIONS of NEW ZONAL GERANIUMS in the Trade, 24 to name, hamper included, 12s. Seed of the above, carefully impregnated for raising exhibition flowers, 2s. 6d. to 5s. per packet. EDWARD SHENTON can confidently recommend this, as no better can be obtained.

SWEET WILLIAM SEED, saved from prize flowers, packets 1s.

Terms cash.

EDWARD SHENTON.

Botanic Nurseries, Biggleswade, Beds.

GENISTA CANARIENSIS.—Fine plants for winter work, 1 foot to 18 inches, in 48-pots, per doz, 6s. to 9s.; 2 feet to 3 feet, 30s. and upwards per doz.

PANSIES.—All the finest exhibition varieties 20s. per 100. Now is the time to make beds for early spring.

BORDER CARNATIONS.—All colours, 20s. per 100.

All the New FUCHSIAS, double and single, 4s. per doz. Selection left to EDWARD SHENTON. Terms cash.

EDWARD SHENTON.

CHOICE SEEDS in SEALED PACKETS.

THE "PRIZE" STRAIN of CYCLAMEN PERSICUM.—This splendid Strain of Seed has passed entirely into the hands of B. S. WILLIAMS. It is the seed saved from the magnificent plants grown and shown by Mr. Wiggins, gardener to W. Beck, Esq., Isleworth, at the Spring Shows in the present year; they were in each instance awarded 1st prize, and were the admiration of all the visitors. The flowers are 1 inch across, by 1½ inches in depth, the colours ranging from a bright carmine to a delicately tinted white, and pure white tipped with crimson, the leaves beautifully marbled; indeed, the leaves, apart from the flowers, possess a peculiar attraction in the diversity of their marbled surface. This seed should be sown as early in the Autumn as possible. None genuine unless the packets bear B. S. W.'s name and address. Price, per Packet, 1s. 6d., 2s. 6d., and 3s. 6d.

THE "PRIZE" STRAIN of POLYANTHUS.—This beautiful Strain of one of the prettiest spring-flowering plants was also exhibited most successfully by Mr. Wiggins, of whom B. S. W. has purchased the entire stock and right of sale. None genuine unless the packets bear B. S. WILLIAMS'S name and address. Price 1s., 2s. 6d., and 3s. 6d. per packet.

OTHER CHOICE STRAINS OF SEED.

JAMES'S CALCEOLARIA, 2s. 6d., 3s. 6d., and 5s. per packet.
WEATHERILL'S CINERARIA, 2s. 6d., 3s. 6d., and 5s. per pkt.
WILLIAMS' PRIMULA, 2s. 6d., 3s. 6d., and 5s. per packet.

B. S. WILLIAMS, Victoria and Paradise Nurseries, Upper Holloway, N.

DRUMHEAD CATTLE CABBAGE,

THE HEAVIEST OF ALL AGRICULTURAL CROPS.

This should be Sown in August, for Transplanting in the Spring.

SUTTON & SONS can supply—

ROBINSON'S CHAMPION DRUMHEAD CABBAGE (the heaviest known), at 3s. 6d. per lb.
GOOD DRUMHEAD CABBAGE at 2s. 6d. per lb.

SUTTON & SONS, Seed Growers, Reading.

Extra Fine Quality.

COLE SEED, "1866 growth," per bushel of 52 lb., 11s.; 4 bushels do., 40s. New 4-8 Sacks, 1s. 6d. each.
EARLY SIX-WEEKS' TURNIP, New Seed, very fine, 9d. per lb. New Bags, 6d. to 9d. each.
EXCELLENT CABBAGE SEED. See Catalogue of varieties.

Remittances to accompany Orders.

FREDK. GEE, Seed Merchant and Grower, Biggleswade, Beds.

TREMBLE'S NEW SEED WAREHOUSE,

Devonshire House, 1, Market Square, Penrith.

With pleasure we inform our Patrons that our New and Extensive Building is now opened out for Seeds and every Garden requisite.

OX CABBAGE, very fine, 2s. per lb.
RAPE, Broad-leaved, 4d. per lb.
RENOVATING GRASSES, 9d. per lb.
ITALIAN RYE-GRASS, 40s. per quarter.
Choice PRIMULA, CINERARIA, and CALCEOLARIA, 2s. packets. Every attention to the Seed department of our business.

JOSEPH TREMBLE & SONS.

Winter Cucumbers.

ROLLISSON'S TELEGRAPH CUCUMBER, the Best Winter and Early Spring variety in cultivation, an immense and certain cropper.—We with reluctance have to state that some parties have been supplying a spurious variety for the above; purchasers should have a guarantee of its being true, or they may fail in their crop. There are several varieties of Telegraph Cucumber in cultivation, but in no way equal to the above.

In printed sealed packets, with description, 2s. 6d. each.

PRIMULA and CINERARIA, new seed, from the finest varieties in cultivation. Packets, 2s. 6d. each.

W. ROLLISSON & SONS, The Nurseries, Tooting, London, S.





JAMES CARTER AND CO. beg to announce that they are now sending out their unrivalled Strains of CALCEOLARIA, CINERARIA, and PRIMULA, which, for fineness of form and beauty of colour cannot be surpassed.

CALCEOLARIA, saved from the finest Prize varieties.
CINERARIA, saved from the finest named varieties.
PRIMULA SINENSIS FIMBRIATA, dark carmine and pure white, saved from the finest fringed varieties in cultivation. Price, each packet, 2s. 6d., forwarded on receipt of Post-office Order for the amount.

☞ PRICE LISTS gratis and Post free on application to CARTER'S Great London Seed Warehouse, 237 & 238, High Holborn, London, W.C.



TRICOLOR GERANIUMS, &c.—Parties not possessing the following, should order them at once:—

Price of the Collection, £1 1s.; or any Six may be selected for 10s.

EDWINIA FITZPATRICK
BEAUTY of GUESTWICK
TWILIGHT
VARIEGATED QUEEN of NOSEGAYS
MRS. P. J. PERRY
PRESIDENT LINCOLN
SCEPTRE D'OR
ITALIA UNITA
MRS. MAXWELL HUTTON
CRYSTAL PALACE GEM

TRICOLOR-LEAVED & other IVIES.—12 of the finest and most beautiful Ivies in cultivation, in 12 distinct sorts, for 10s.

Post-office orders on Castle Hedingham.

A 64-page CATALOGUE of CHOICE NEW PLANTS free for one stamp.

DILLISTONE & WOODTHORPE, Munro Nursery, Sible Hedingham, Essex.

ROBERT PARKER begs to offer the following (all the Plants are strong and healthy, and can be supplied in quantities):—

PANSY CLIVEDEN BLUE, 6s. per dozen.
PANSY CLIVEDEN PURPLE, 6s. per dozen.
PANSY CLIVEDEN YELLOW, 6s. per dozen.
POLEMONIUM CŒRULEUM VARIEGATUM, 2s. 6d. each.
RHODODENDRON COUNTESS of HADDINGTON, 3s. 6d. each.
TRITOMA GRANDIS, 18s. per dozen.
TRITOMA UVARIA GLAUCESCENS, 12s. per dozen.
VIOLA CORNUTA, best variety, 4s. per dozen.
VIOLET, REINE DES VIOLETS, 6s. per dozen.
VIOLET THE CZAR, 6s. per dozen. [per packet.
PRIMULA SINENSIS FIMBRIATA, finest mixed seed, 2s. 6d.

PRICED and DESCRIPTIVE CATALOGUES of AGRICULTURAL, FLOWER, and VEGETABLE SEEDS, GREENHOUSE, HARDY, and STOVE PLANTS, are published, and will be forwarded free to applicants.

Exotic Nursery, Tooting, Surrey, S.

Roses.

JOHN CRANSTON has the pleasure to announce that his ROSES are NOW IN FULL BLOOM, and that the whole of his stock is in the finest condition possible.

The severe frosts (which proved so destructive in many parts of England throughout last winter) not having visited this locality, he is happy to say that his Roses, Conifers, and other Trees, escaped entirely unharmed.

Nurseries, King's Acre, near Hereford.

Roses, Roses, Roses.

PLANTS of all the FINEST VARIETIES in CULTIVATION will this Autumn be in magnificent order, in the CASTLE STREET NURSERIES, SALISBURY.

The frost of May 24 destroyed all the blooming buds; the consequences are that the Plants have produced the most vigorous growth.

Amateur Rose Growers may insure the finest Plants that can possibly be produced, true to name. CATALOGUES on application.

VINES, from Eyes, the finest in England, 10s. 6d. each, in October next. JOHN KEYNES, Castle Street, Salisbury.

New Roses for 1868.

MESSRS. JOHN AND CHARLES LEE have purchased the Stocks of the TWO finest NEW ROSES which have been exhibited on the Continent this season, and hope to exhibit them in London in June next, that the Public may judge of their merits before they are sent out.

CLEMENCE RAOUX (GRANGER).—Blush, edged and spotted rose, of large size and perfect form; petals stout and very enduring; habit erect and vigorous.

GOLD MEDAL awarded at the Great Rose Show at Brie Comte Robert in July.

EDWARD MORREN (GRANGER).—Mons. Margottin thus describes this splendid Rose:—"It is in the way of Jules Margottin, but of a more delicate colour, of better form, more double, and much larger."

FIRST PRIZE awarded at the Exposition Universelle in Paris in July.

To be sent out in the Autumn of 1868.

Royal Vineyard Nursery and Seed Establishment, Hammersmith, W.

New Verbenas of 1867.

DREGHORN AND AITKEN have now a large stock of the above, containing all the finest sorts sent out by Turner, Keynes, Low, Henderson, &c., and beg to offer them as follows, in strong, healthy, well-rooted Plants:—

24 Varieties for 10s. | 12 Varieties for 5s.

Safely packed and delivered free of carriage to any part of Great Britain or Ireland.

The Nurseries, Kilmarnock, N.B.

Hardy and Permanent Bedding Plant.

CLEMATIS JACKMANNI, and that type, have proved themselves to be "the desideratum" for a good violet, blue, purple, or maroon bed, when pegged down like Verbenas.

The Advertisers solicit an inspection of their CLEMATIS BEDS that are in FULL BLOOM, and will continue up to the month of October. Particulars of treatment by applying to

GEO. JACKMAN & SON, Woking Nursery, Surrey.

CALCEOLARIA, CINERARIA, and PRIMULA SINENSIS.—Seed of each, from the choicest and most beautiful flowers, in 2s. 6d. and 5s. packets, post free.

ROBINSON'S CHAMPION DRUMHEAD, or OX CABBAGE, 3s. 6d. per lb. (Seed of Mr. Robinson's own saving.)

DRUMHEAD, or OX CABBAGE (old sort), 2s. per lb.

Together with all other Seeds for present Sowing. Parcels of two pounds and upwards carriage free.

JAMES DICKSON & SONS, "Newton" Nurseries, Chester.

NEW ENGLISH ROSE.

PAUL & SON, OLD CHESHUNT NURSERIES,

Have the pleasure to announce that they will send out early next Season the SEEDLING ROSE (raised at Cheshunt)

HYBRID PERPETUAL DUKE OF EDINBURGH.

It is a fine bold flower, of good average shape, very vigorous free-flowering habit, and the Plants standing uninjured by the past winter very hardy; of a bright scarlet crimson self, it is unique in the vividness of its colouring and distinct effect.

Exhibited last season as Seedling No. 1, and twice this year under its present name. We learn it was noted by several distinguished Amateurs as distinct and good.

Autumn Flowers of it may be seen here, as well as occasional Blooms of several interesting Seedlings.

Probable price, 7s. 6d. each.

PAUL AND SON'S NEW ROSE CATALOGUE READY BY SEPTEMBER 1.

NOTICE.—SPIKES OF GLADIOLUS BRENCHLEYENSIS.

TO NOBLEMEN, GENTLEMEN, THE TRADE AND DECORATORS.

YOUELL & CO.

Beg to inform them that they can be supplied with the above, which is universally acknowledged to be unsurpassed for any decorative purposes in giving a most gorgeous display. They having this Season upwards of THREE ACRES to cut from, have the pleasure to offer them in any quantity at a moderate price, which can be had on application. YOUELL & Co. have great pleasure in stating that their STOCK of ROOTS this Season is finer and larger than ever, for which they are daily booking orders, and solicit early commands, as all orders will be booked and sent out in rotation. Prices Post Free on application.

ROYAL NURSERIES, GREAT YARMOUTH.

DUTCH FLOWER ROOTS.

HUGH LOW & CO.

HAVE NOW READY FOR DISTRIBUTION THEIR

CATALOGUE OF DUTCH FLOWER ROOTS,

WHICH WILL BE FORWARDED ON APPLICATION, AND ORDERS ARE RESPECTFULLY SOLICITED.

CLAPTON NURSERY, LONDON, N.E.

NOW READY,

B. S. WILLIAMS'

PRICED AND DESCRIPTIVE CATALOGUE OF DUTCH AND OTHER BULBOUS ROOTS.

It will be forwarded to all Customers in the course of a few days, and may be had Free upon application.

B. S. WILLIAMS,
VICTORIA AND PARADISE NURSERIES, UPPER HOLLOWAY, LONDON, N.

DUTCH ROOTS.

JOHN & CHARLES LEE

WILL BE HAPPY TO FORWARD THEIR

CATALOGUE FOR 1867 OF NEWLY-IMPORTED HYACINTHS AND OTHER ROOTS,

POST FREE ON APPLICATION.

ROYAL VINEYARD NURSERY AND SEED ESTABLISHMENT, HAMMERSMITH, LONDON, W.

DUTCH FLOWER ROOTS.

JAMES VEITCH & SONS,

ROYAL EXOTIC NURSERY, CHELSEA, S.W.,

BEG TO ANNOUNCE THAT THEIR

ANNUAL CATALOGUE OF DUTCH FLOWER ROOTS,

CONTAINING ALSO

A SELECT LIST OF VEGETABLE SEEDS FOR AUTUMN SOWING,

Is now ready and will be forwarded Post Free on application.

CARTER'S DUTCH BULBS.



JAMES CARTER & CO.'S

AUTUMN SUPPLEMENT

TO THEIR

GARDENER'S AND FARMER'S VADE MECUM,



Containing Original Articles on the Culture of Bulbs and Spring Gardening, also a List of Vegetable Seeds for Autumn Sowing, is now ready and will be forwarded immediately on receipt of 12 Stamps (Gratis to Customers), on application to

CARTER'S GREAT LONDON SEED WAREHOUSE, 237 & 238, HIGH HOLBORN, LONDON, W.C.

FRESH IMPORTED DUTCH FLOWER ROOTS.

SUTTON'S

AUTUMN CATALOGUE FOR 1867

IS NOW READY,

and may be had Gratis and Post Free on application.

SUTTON'S COMPLETE COLLECTIONS OF FLOWER ROOTS

FOR BLOOMING DURING WINTER AND SPRING.

For Pots and Glasses.				For Open Ground.			
COMPLETE COLLECTION (Carriage Free)..	£2	2	0	COMPLETE COLLECTION (Carriage Free)..	£2	2	0
DITTO (Carriage Free)..	1	1	0	DITTO (Carriage Free)..	1	1	0
DITTO..	0	10	6	DITTO..	0	10	6

LIST of CONTENTS of the above on application.

SUTTON AND SONS, ROYAL BERKS SEED ESTABLISHMENT, READING.

Hyacinths.

GEORGE DAVIES begs respectfully to inform the Nobility and Gentry that his PRICED CATALOGUE of HYACINTHS and other DUTCH BULBS is now ready, and may be obtained, post free, on application to him. He also has much satisfaction in stating that he has arranged with the growers, Messrs. J. H. Kerstan & Co., of Haarlem, who supplied him with the Bulbs with which he and his numerous customers obtained so many prizes at the St. George Hall Exhibition in March last; and would take this opportunity of intimating to his kind Patrons, and those about to purchase for competition or otherwise, that early orders should be given, to secure first-class Bulbs. As an evidence of the superiority of his Bulbs, G. D. need only to refer to the List of Prizes awarded by the Horticultural Society of Liverpool, March, 1867. Out of the 19 Prizes awarded to Amateurs for Hyacinths, 13 of them were obtained by Bulbs purchased at his establishment. Also in the Nurserymen's Class, G. D. is proud to say, the first 24 and the first 12 were obtained by him in competition with Messrs. William Cuthbush & Son.

Green Lane Nurseries, Old Swan, Liverpool.

BANBURY HORTICULTURAL SOCIETY, 1867, will be held on TUESDAY, August 27.

Prizes open to all, whether Members or not, on payment of an Entrance Fee of 2*s.* 6*d.*

For Stove or Greenhouse Plants either in Flower or Ornamental, but not Fuchsias, Achimenes, Geraniums, or Annuals, 6 varieties, to be grown in not less than 8 inch pots, 1st, £4; 2d, £2.

For the best 24 Dahlias, 24 varieties, 1st, £3; 2d, £2.

For the best 18 Hollyhocks, 2 blooms of each, 1st, £2; 2d, £1.

For the best 12 varieties of Verbenas (5 trusses in a bunch), 1st, £1; 2d, 15*s.*

The Judges may withhold any Prize if the Production exhibited be not considered worthy. Intended Exhibitors must give notice to the Secretary on or before Saturday, August 24.

The Society will, if requested, convey the productions from and to the Railways.

For further particulars and Schedules apply to

E. J. Hartley, Secretary.

EALING, ACTON, and HANWELL HORTICULTURAL SOCIETY.

President—The Right Hon. S. H. Walpole, M.P.
Vice-President—Baron Lionel de Rothschild, M.P.

The above Society has been established for the purpose of holding an ANNUAL EXHIBITION of FLOWERS, PLANTS, FRUIT, and VEGETABLES, at which Prizes will be awarded in three distinct Classes, viz., Cottagers, Gentlemen's Gardeners, and Amateurs.

An Annual Subscription of not less than Half-a-Guinea will entitle the Subscriber to become a Member of the Society, and to two Tickets of Admission to the Exhibition, and to two Tickets for every additional Subscription of Half a Guinea.

The THIRD EXHIBITION of the Society will be held, by the kind permission of H. B. Walmsley, Esq., in his Grounds, The Elms, Acton, on THURSDAY, August 29. The Band of the Victoria R.V.C., under the direction of Mr. Sibold, will attend.

Schedule of Prizes and Form of Application to be made by intending Exhibitors may be had of the Honorary Secretary.

Admission:—By Member's Ticket from 12 o'Clock. Tickets, if purchased the day before the Exhibition takes place, 2*s.*; if on the day, 3*s.*, to admit at 12 o'Clock; 1*s.* each if purchased the day before, and 1*s.* 6*d.* if on the day, to admit at 2 o'Clock; after 4 o'Clock, 4*d.* on the day, and if purchased the day before, 2*d.*

Tickets can be purchased at Mr. Acworth's, Ealing; of Mr. Bunney, Acton; and of Mr. H. Carter, Hanwell.

Edward Weatherly, Hon. Sec., 2, Singapore Villas, Ealing, W.

State of the Fruit Crops, 1867.

THE GARDENERS' CHRONICLE and AGRICULTURAL GAZETTE of AUGUST 24 will contain an account of the CONDITION of the FRUIT CROPS throughout the Country. A Copy of this Number will be sent on receipt of Six Stamps, or it may be ordered of any News Agent.

Office for Advertisements, &c., 41, Wellington Street, Strand, London.

The Gardeners' Chronicle.

SATURDAY, AUGUST 17, 1867.

MEETING FOR THE ENSUING WEEK.

TUESDAY, Aug. 20 { Royal Horticultural (Fruit and Floral Committees), at South Kensington .. 11 A.M. / Ditto (Scientific Discussion) .. .. 3 P.M.

For some time past the expediency of providing duly trained candidates for service in the Forests of India has been under the consideration of the Government, and various proposals have been made by Dr. Brandis and others interested in the matter; but although some preliminary and tentative steps have already been taken, it can hardly be said that any definite plan has yet been adopted. The main features of the scheme as proposed by Dr. Brandis are such as are intended to secure in the candidate, first of all, a sufficient general education, to be followed by a more special training. The general education, it is conceived, can be carried on thoroughly well in this country. The elements of mechanics, of meteorology, of chemistry, botany, geology, or any other science bearing on forestry, can no doubt be as well and as efficiently learnt in this country as elsewhere. On the other hand, a doubt has been raised as to whether the more technical education would not be better pursued in the great and excellently organised forest schools of Germany or of France. British forests, it must be admitted, are of very trifling extent as contrasted with the enormous area occupied by Continental forests. Neither have we in Britain anything like the regularly organised systematic course of training for forest pursuits, such as our German and French friends possess.

The general plan pursued in the Continental establishments is pretty much as follows:—First a superior general education, including instruction in the elements of the various sciences mentioned above, is provided for. After passing through this preliminary curriculum, the pupils in some cases, but not in all, pass a few months with a forest officer, partly with a view to familiarise themselves with the details of forest management, and partly with a view of testing their physical powers, or their inclination for the profession. If either fail, but little time is lost, and the pupils can easily enter some other profession more suited to their powers, or to their incli-

nations. Supposing the would-be forester to have passed this period of probation, he then commences his regular forest education by attendance on courses of lectures on the general management and improvement of woods, on planting, on surveying, on estimating the probable yield of timber—indeed, on all topics connected with the proper conduct of forests. At the same time instruction in mathematics and science, the elements of which have already been mastered, is continued with special reference to their practical application to forestry. Forest legislation and police also receive attention. At the close of these courses, which last, with intervals, nearly three years, an examination is held, and those who then are deemed competent are drafted off to serve an apprenticeship of two years in the woods; so that before the pupil can become a full-fledged forest officer, he must undergo at least five years' training, half of which time is spent in the forests. There are minor variations in the regulations of the several schools, but at all of them it is obvious that provision is made for a thorough education in the theory and practice of forestry. The professors in these Institutions are many of them of first-rate reputation as men of science, and have enriched the literature of their profession by works which are acknowledged as standards of reference on the subjects on which they treat.

In this country, although we have thoroughly competent and experienced foresters: though we are not deficient in mathematicians, botanists, or geologists: though we have, or might have, the materials for organising, on a scale commensurate with the limited extent of our forests, a forest school, yet no such institution exists at present, and a young man desirous of studying this profession is thus placed at a great disadvantage as contrasted with his German or French *confrère*. Whether it be desirable, with a view to our own home forests or those of India, to establish such a school in Britain, is a point which, with some other cognate matters, we propose to discuss at some future time.

WE have on previous occasions invited attention to the beautiful forms of HYBRID CLEMATIS originated by Mr. G. JACKMAN, of the Woking Nursery, and we revert to them again for the purpose of pointing out, in the first place, how admirably they are suited for pleasure ground decoration, and secondly and more especially of recording how well they have behaved when used for "bedding out."

As pillar plants dotted about here and there on picturesque lawns, or forming avenues in more formal flower gardens, it is almost impossible to over-estimate the gorgeous effect which these plants are capable of producing—and, what is most important, of maintaining, for a very considerable period of the summer, extending from about the end of June onwards to the end of October, the height of bloom occurring about the middle of August. We know of nothing more enchanting as a floral picture than that presented by a fine group of these plants, at almost any time during the interval just named. To bring out their best effect as "pillars" they should be grown in "hills," like Hop plants, each hill being furnished with three stakes standing some 7 or 8 feet above ground. The plants, which are to be annually cut down nearly to the base, in the early part of winter, and should be liberally manured, cover these supports with their rapidly extending stems by the month of June, and they then begin to branch out freely, so as literally to clothe the whole mass with a sheet of glowing purple, differing in hue according to the particular variety, from an intense violet purple, to a deep reddish plum colour on the one hand, and to a soft mauve or greyish-blue on the other. In this state we have seen no finer flowering plant for lawn decoration, no more gorgeous subject for garden avenues, not even excepting pillar Roses. Hundreds of the magnificent richly-coloured blossoms are borne successionally by every plant. It is this profusion and continuity of bloom which is the distinctive feature of these hybrids.

It is an ill wind that blows no one good, and so it has proved in the case of these Clematises. The supports in some instances gave way before the stiff breezes of Woking Heath, and the plants lay prone upon the earth; but as the plantation was an experimental one, Mr. JACKMAN did not just then renew the stakes, but rather watched the behaviour of the recumbent individuals, and it was found that they grew on and blossomed at least as freely, when in contact with the mother earth, as when supported in mid-air. This circumstance suggested to Mr. JACKMAN that he had found here a new bedding plant, and putting this idea to the test he has succeeded, without the slightest difficulty, in clothing some large beds most perfectly with the rich violet hues for which these plants are so remarkable, the branches interlacing and forming an even sheet of colour some 8 or 10 inches above the surface, and the gorgeous mass of flowers requiring only some marginal colour, as with other bedding subjects, to fully bring out its beauty.

The plants are no doubt best adapted for beds of considerable size, and it would, we think, be an advantage to raise the centre of the bed, or at least to elevate the plants in that part of the bed, as might easily be done by some temporary trellising. There is not the least difficulty in covering the surface. The plants, which, when strong and established, are certain to bloom profusely, are put in at about 18 inches apart over the bed, and are then pegged down in the same direction one over the other; and treated in this way there is by the blooming period just enough of foliage shown amongst the flowers to set off the colours to the best advantage. Here, then, has been found a new sensation in bedding-out.

The materials, as to colours, are now considerably varied. There is the deep violet-purple of Jackmanni, one of the finest of the series; the deep pucy plum colour, varying in shade, of rubro-violacea, Prince of Wales, and rubella; and the more novel tints of light mauve and greyish blue presented by the new varieties, Mrs. Bateman and Lady Bovill, which were so much admired at South Kensington the other day, and promise to come in admirably as colours supplementing and contrasting with those of the sorts previously mentioned. There is also a novel feature presented in one which has been called Thomas Moore, and which with the other new varieties named above, gained a First-class Certificate on the 6th inst., namely a more profuse development of the staminal filaments, which form a broad whitish tuft in the centre of the very large reddish purple flowers, giving them at a short distance much the appearance of huge Passion-flowers. We have seen blooms of this variety which measured 8 inches across.

—— WE have received, at the moment of going to press, a pamphlet from M. ALPHONSE DE CANDOLLE, entitled "Lois de la nomenclature Botanique," which has been drawn up at the request of the Committee of the International Botanical Congress now sitting in Paris. The object of this pamphlet, and of the discussions which are to take place on it, is to establish a reformed code of Botanical nomenclature. Horticulturists, says M. DE CANDOLLE, are no longer able to keep pace with the hosts of new names or synonyms, and demand to be released from the chaos they themselves have induced in the nomenclature of cultivated varieties. All we can do at the moment is to announce the publication of the pamphlet; of its contents we shall have occasion to speak more fully hereafter.

—— At a time when it is seriously proposed to omit BOTANY from the curriculum of MEDICAL EDUCATION, it is interesting to observe the following, which we extract from the Medical Journals:—"His Highness the Maharajah of Jeypore, RAM SING BAHADUR, G.C.S.I., has through his physician, Dr. COLIN S. VALENTINE, offered the following valuable prizes to the Botanical and Natural History Classes in the University of Edinburgh, viz., to the Botanical Class, 20*l.* for the best and approved collection of Scottish flowering plants and Ferns, and 5*l.* for the best collection of Scottish Mosses and Lichens, or of Scottish Seaweeds; and to the Natural History Class, 20*l.* for the best collection of Scottish shells. The prizes are to be awarded at the conclusion of the Summer Session of 1868 to students attending the classes during that Session. The prize collections are to become the property of the Maharajah, and are to be deposited in the Museum of his Highness, at Jeypore."

—— We have already mentioned (p. 264) that the Dundee Horticultural Society proposes to hold a FLORAL FETE in connection with the visit of the British Association for the Advancement of Science, to that town, next month; and to this we may now add that schedules are issued, and that the prize-list amounts to 300*l.*, in sums varying from 10*l.* downwards. Notice of intention to compete must be given by Tuesday next, the 20th inst. Further particulars, and printed forms of entry, may be had on application to the Secretary, Mr. W. R. M'KELVIE, Reform Street, Dundee.

PLANT PORTRAITS.

AGAVE XYLONACANTHA.—*Bot. Mag.*, t. 5660. Amaryllidaceæ. One of a group of highly-ornamental plants requiring greenhouse cultivation, which possesses in a striking degree the varied features of plant-nobility, and are now happily rising in popular estimation, and taking up the position once held by mere colour-beauty. This species is stemless, and has its thick succulent spreading ensiform-lanceolate leaves marginate, the margin beset by compressed, simple or lobed, irregular, often uncinate spines, which have a woody appearance. The scape is erect, ten feet high; the lower part beset with long subulate bracts, and bearing the greenish flowers in a dense elongated raceme, three to four feet long, at the upper end. Native of Mexico. Flowered at Kew.

AMARYLLIS PARDINA.—*Bot. Mag.*, t. 5645. Amaryllidaceæ. A very handsome stove bulb of the Hippeastrum group, and "the most striking species of the genus." It has a stout bulb, bifarious broadly-linear obtuse leaves appearing with the blossoms, and large widely expanded flowers, with broad ovate-oblong segments, which are straw-coloured, and marked all over with vermilion spots, that become variously confluent, like the markings on a spotted Calceolaria; the base of the very short tube is fringed, and is coloured green, with a purple band. What purports to be the same plant is most inaccurately figured in *Floral Mag.*, t. 344.* Native of Peru. Cultivated by Messrs. Veitch & Sons.

BILBERGIA SPHACELATA.—*Bot. Mag.*, t. 5647. Bromeliaceæ. A large growing stove herb, producing a fine crown of Pine-apple-like, spiny leaves, in the axis of which is almost hidden a dense head of pale rose-coloured flowers, succeeded by sweet pulpy fruits, called Chupones, which are freely eaten by children. Also called Greigia sphacelata. Native of temperate Chili, near Conception. Cultivated at Kew.

CESTRUM ELEGANS.—*Bot. Mag.*, t. 5659. Solanaceæ. A well-known greenhouse climbing shrub, more familiar under the name of Habrothamnus elegans. It is very ornamental, producing its purplish red tubular flowers in great profusion, and these are succeeded by magnificent grape-like clusters of deep purple globular berries one-third of an inch in diameter, as referred to at p. 432. Native of Mexico. Fruited by Messrs. E. G. Henderson & Son.

COLEUS VEITCHII.—*Floral Mag.*, t. 345. Labiatæ. A fine coloured-leaved plant, with the stout habit of C. Gibsoni, but more attractively coloured. The whole centre of the broad ovate leaves is of a rich blackish purple, while a narrow portion at the edge is of a bright green more or less breaking into the purple, the contrast of colour being very decided and very pleasing. Native of the South Sea Islands. Introduced by Mr. J. G. Veitch.

DENDROBIUM BULLERIANUM.—*Bot. Mag.*, t. 5652. Orchidaceæ. A very pretty stove epiphyte, with slender, striated, suberect stems, bearing ovate-lanceolate, acute leaves, the flowering ones leafless, and having the flowers in pairs or threes at the nodes; they are white, tipped with rose, the lip cordate, with a large, well-defined, roundish yellow blotch in its centre. Native of Moulmein. Flowered by Mr. Wentworth Buller.

DENDROBIUM MACROPHYLLUM VEITCHIANUM.—*Bot. Mag.*, t. 5649. Orchidaceæ. This, which is the D. macrophyllum of Richard, must not be confounded with the D. macrophyllum of gardens, with which it has nothing whatever to do. It is the plant formerly called D. Veitchianum, which is said to differ from the type only in its smaller leaves. It has clavate two or 3-leaved stems, and long, erect racemes of showy, curiously-coloured flowers, with greenish-yellow sepals, whitish petals, and a yellowish-green, three-lobed lip, marked with radiating purple streaks. Native of the hot jungles of Java. Introduced by Mr. Lobb to the collection of Messrs. Veitch.

EPIDENDRUM COOPERIANUM.—*Bot. Mag.*, t. 5654. Orchidaceæ. A rather pretty stove epiphyte, with rigid erect stems, bearing distichous lanceolate acute leaves towards the top, and terminating in a drooping raceme of moderate-sized flowers, of which the sepals and petals are green, and the lip broad and rose-coloured. Native of Bengal. Flowered by Mr. Cooper, of Old Kent Road, and Mr. Dawson, of Meadow Bank.

GOODYERA MACRANTHA.—*Gartenflora*, t. 533, fig. 2. Orchidaceæ. A very pretty dwarf and nearly hardy Orchid, with ovate acute leaves, which are bordered with yellow, and in the central parts are of a dark green reticulated with pale green lines like an Anæctochilus. The flowers, two or three in number, are large, pale rose-coloured, borne at the end of the shoots. M. Maximowicz refers it to the section Georchis. Native of Japan. Flowered in the St. Petersburg Botanic Garden.

GOODYERA VELUTINA.—*Gartenflora*, t. 533, fig. 1. Orchidaceæ. A stout dwarf-growing and nearly hardy Orchid, with ornamental foliage, the leaves being ovate acute, and of a deep velvety purplish green with a white costa on the upper, and with a violet tint on the under side. The flowers are pinkish, and grow about 10 together in a terminal spike. In its easy growth, dark green leaves, and silvery markings, Dr. Regel states that this species compares favourably with the old and well known Goodyera discolor. Native of Japan. Flowered in the St. Petersburg Botanic Garden.

LAMPROCOCCUS WEILBACHII.—*Gartenflora*, t. 539. Bromeliaceæ. A stove perennial herb, with lingulate entire leaves, dilated and sheathing at the base, and with a single panicle of flowers the calycine lobes of which are bluish-violet, and the petals flesh-coloured. The bracts and rachis are scarlet. It is also known as Æchmea Weilbachii. Flowered in the St. Petersburg Botanic Garden.

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* In reference to this figure, the following criticism, from a very high authority in these matters, has been put into our hands:—"Some notice ought to be taken of a drawing which has appeared in the 'Floral Magazine' of Hippeastrum pardinum; it is entirely unlike the plant in form and colour, and important characteristics. The publication of such a plate is absolutely mischievous to science, and merits severe reprehension. The flower and perianth segments are not only altogether differently shaped and coloured, but the base of the tube is all wrong, and the leaves are represented as strongly veined! The plate does not even agree with the description, and that is bad enough. Do, pray, use your editorial authority in the interest of science, or we shall get into a dreadful mess."

Nægelia fulgida.—*Gartenflora*, t. 538. Gesneraceæ. A very beautiful stove perennial, closely related to N. cinnabarina, but differing in its bright green velvety leaves, and its cylindraceo-campanulate, subtetragonal, not ventricose, corolla, not tapered at the base, and in the spreading subtriangular lobes of its limb. The flowers are bright scarlet, with a white throat spotted with red. Native of Vera Cruz. Flowered in the Zurich Botanic Garden, and transferred thence to M. Van Houtte.

Primula luteola.—*Gartenflora*, t. 541. Primulaceæ. A fine hardy herbaceous perennial, with oblong leaves, 6 inches to a foot long, narrowed towards the base and toothed at the margin; the flowers are numerous, in roundish heads, elevated on tall flowering stems, and are of a pale or sulphur yellow, deepening to a golden yellow about the throat. It is allied to the P. auriculata of Meyer. Native of the Caucasus, in moist springy localities, at a considerable elevation. Flowered by Mr. Peter Buck, of St. Petersburg.

Prostanthera nivea.—*Bot. Mag.*, t. 5658. Labiatæ. A greenhouse evergreen shrub, more curious than showy, having linear leaves, and numerous small grayish flowers. Native of New South Wales. Flowered at Kew.

Rudgea macrophylla. — *Bot. Mag.*, t. 5653. Cinchonaceæ. A noble hothouse evergreen shrub, with very large deep green obovate-oblong leaves, 1 to 2 feet long, and large densely-flowered globose heads of fleshy creamy-white flowers. It is the plant frequently called Rudgea leucocephala. Native of Brazil. Flowered by Messrs. Henderson.

GRAPE JUDGING.

At last justice is to be done, though the heavens should fall. A great friend has spoken: his words are weighty; they are based on common sense; they carry authority. He says—hear it, O ye fanciful Grape growers and mighty exhibitors who cut us green, and then run about with us from place to place, until at last we are fit for nothing but to be thrust, oh horrible degradation! into sour tarts—he says, I repeat, that Grapes are grown to be eaten! only think of that; and that the palate—yes the palate, and not the eye, nor the scales, nor the bloom, is to be the final court of appeal. Well done, Thomson! that's what I call sense. My delight is to store up quality for appreciative and gratified palates; but these exhibitors won't let me. Talk of cruelty to animals; it is as nothing to the cruelty to which I am subjected. One says you must produce a bunch weighing a stone. Another says that each berry must become a black plum. Another, that I must wear a black coat like a rook. A fourth that I must have a dusty, mouldy surface—bloom they call it—like a sloe. The eye, the fancy, the whim must be satisfied, whatever may become of quality. And for what purpose? The eye cannot eat Grapes; the mouth cannot crunch a huge bunch at a snap; and bloom is rather a nuisance than not, having something a little fungus-like about it. Quality is the one thing needful; that appeals to the palate—the only sense or organ concerned. Its enjoyment, however, cannot be weighed out by pounds; its taste is insensible to the finest coating of black varnish; its craving cannot be satisfied with intangible Grape bloom. Very large berries, too, are rather a bore. Any ordinary-sized Grape is enough for a single mouthful. It spoils their flavour to cut them, even with a silver knife; it is a messy business to tear them; and to bolt them whole is almost as vulgar an operation as that of the Irishman, who puffed out his lean cheeks with a couple of hot Potatos.

I return to quality as the one thing for the palate. Mr. Thomson's rules, published elsewhere, are good, but quality might still stand higher. He suggests that flavour should have 3 marks; colour, 2; size of berry, 2; size of bunch, 1; shape of bunch, 1; bloom, 1; in all, 10 marks to constitute the highest relative excellence.

This, I repeat, is a good standard, but the following would be still better:—Flavour, 6 marks; quality of flesh, fineness of texture, 2; colour, 2; size of bunch 1; shape of bunch, 1; in all, 12 marks—discarding bloom, and size of berries, the one as useless, and the other as a positive nuisance to the palate. Size, form, and colour, are rewarded out of compliment to the eye; but flavour and quality of flesh are the essential points in everything grown for the delectation of the palate. *Vitis vinifera, August* 12.

THEORY AND PRACTICE OF VENTILATION.
No. XVII.

(*Continued from p.* 806.)

Artificial vegetable life, like our own, is subject to higher pressure than it used to be. It partakes of the prevailing excitement; greater rapidity of growth, and heavier and better produce are demanded in a shorter period of time. Hence a more prompt and skilful application of natural forces is needed. Heat, light, cold and shade, drought, moisture, air, and food, must be better understood; and the supply of each utilised, controlled, or measured by ventilation. These, and indeed all the energies of Nature, form links in the endless chain of causation that runs round the universe. Each is related to each, and to the whole, and thus it becomes impossible intelligently to comprehend almost any subject without knowing something of its relationship to others. The interception of part of the heating rays of the sun by partial shade, for instance, lessens the amount of air admitted, of moisture expended, and probably of food consumed. Another very difficult problem also claims solution here. A proper shade should only exclude the heating rays of the sun. In this climate most tropical produce, such as we generally grow under glass, can seldom or never have an excess of light. The best coloured shading, so as to exclude the most heat, and permit the passage of light, is still a desideratum. Much also depends upon the position of the shading material. In no case should it be fixed to the glass, therefore all smearings or paintings with whiting and milk, &c., are to be avoided. The usual mode of rolling canvas, &c., down the surface of the glass is almost as bad. Arrangements should be made for raising the shading material a foot or two above the glass. In such a position it would be more efficient in breaking the heating power of the sun, while it would admit more of its light. It should also be borne in mind that the shade which may be so serviceable occasionally in keeping heat out, may become equally useful in keeping it in. Glass, as is well known, is a powerful radiator of heat; by reason of this quality single glass roofs become of themselves efficient ventilators. If even so close as not to allow the passage of heat through their crevices, the heat, nevertheless, passes rapidly through their substance. In this way, as well as by their loss from actual contact with the external air, single-glazed, uncovered glass roofs become sources of cold or losers of heat. And this coldness is a cause of motion throughout the whole area of a hothouse atmosphere. The heated air rushes up against the roof to be either radiated into space, or sent back again from whence it came by its own weight, chilled by its journey. Thus while the air is kept in motion, it is at the expense of an immense loss of heat and of moisture also, as we have already seen at page 1165 a. It seems, therefore, that the movement of the air induced by a cold roof may be purchased too dear. Hence double glazing and shading or night coverings have been recommended or adopted. Their value as conservers of heat will be the more apparent when we bear in mind that the energy of radiation is largely dependent upon the difference of temperature between any two bodies, and the transparency (to heat) of the medium between them. The warmer a ray is the greater is its power of penetrating through any medium. Media opaque to the passage of heat at low temperatures are quite pervious to heat at high temperatures. The necessarily great disparities between the internal and external atmospheres of forcing houses and plant stoves must therefore stimulate the energies of radiation to the utmost. Glass itself is also a powerful radiator. It offers little or no resistance to the removal of heat. Whatever the effect of double glazing may be on radiation, the stratum of 2 or 3 inches of inclosed air saves the outer surface from being cooled by conduction. It thus prevents a great loss of heat. But a thin screen or shade of tolerably opaque material, such as canvas, &c., placed a few inches above the glass, would almost entirely intercept radiation, and maintain the roof at a higher temperature. Thus the largest drain on the moisture of the inside air would be stopped, a great loss of heat prevented, and the maintenance of an equable temperature rendered easy and cheap.

Another vital question remains to be noticed. Recent experiments have revealed new facts concerning the changes effected upon light and heat by their passage through different media. The character and density of the medium influences the direction, quality, and colours of the calorific and luminiferous rays. In passing out of air, into water, for instance, or *vice versâ*, the ray is bent out of its previous course. The same thing happens on its passage through glass. I think it has too readily been taken for granted that a change of line is all that takes place. Certain difficulties, almost peculiar to the setting and maturation of fruits under glass, seem to intimate that the quality may also be changed. While more or less of direct sunlight seems needful at all periods of growth, it is especially essential during the fructification of flowers and the maturation of fruits. Hence the difficulty of setting or imparting piquancy of flavour to fruit in dull weather. Even hardy plants, such as Wheat, refuse to set well or ripen thoroughly in the shade; and we know that no amount of artificial heat or shaded light can successfully set or perfectly finish fruit, or bring out the full brilliance of flowers or leaves in the absence of direct sunlight. The experiments of Professor Tyndal on the powerful absorbent action of vapours, gases, and even perfumes, seem to throw a new light on this subject. He proves, by direct experiment, that the following perfumes are endowed with the extraordinary powers of intercepting terrestrial radiation. Taking the atmosphere as unity, the following table gives the absorbent power of the substances named in it:—

Perfumes.

Names	Absorption.	Names	Absorption.
Patchouli	30	Portugal	67
Sandal-wood	32	Thyme	68
Geranium	33	Rosemary	74
Oil of Cloves	33.5	Oil of Laurel	80
Bergamot	44	Camomile flowers	87
Neroli	47	Cassia	109
Lavender	60	Spikenard	355
Lemon	65	Aniseed	372

The number of atoms of air present in the tube in which the experiments were conducted must be considered as almost infinite, compared with those of the odours, thinly scattered as they were. Yet in the case of Patchouli they do 30 times the execution of the air; attar of Roses upwards of 36 times; Thyme, 68 times; Spikenard, 355 times; and Aniseed, 372 times. It would be idle to speculate, continues Tyndall, on the quantities of matter implicated in these results. Probably they would have to be multiplied by millions to bring them up to ordinary air. Thus

> "The sweet south,
> That breathes upon a bank of violets,
> Stealing and giving odour,"

owes its sweetness to an agent which, though almost infinitely attenuated, may be more potent as an intercepter of terrestrial radiation, than the entire atmosphere from "bank to sky."

To these experiments, made on essential oils, others were made on dry bunches of herbs, rendered still drier by artificial means, obtained from Covent Garden market.

Thyme thus experimented on gave an action of 33 times that of the air which passed over it, Peppermint 34, Spearmint 38, Lavender 32, Wormwood 41, and Cinnamon 53 times the action of the air.* These facts are sufficiently startling to demand the most serious consideration. Others, upon ozone and aqueous vapour, are equally or more important. I purpose returning to this subject soon in connection with the radiation of heat, and the destructive energy of ground frosts. My chief object here in adverting to these facts is to show the magnitude of the issues that seem suspended upon these minute causes, and to base upon such facts an argument in favour of the most thorough or complete ventilation. Even subtle perfumes may need to be driven forth, unless we are content to lose much of the heating power of the sun, and to have the quality and colour of his light modified and weakened. Impossible as it may seem, these facts have also a utilitarian aspect. Tyndal elsewhere asserts it as almost certain "that the quantity of volatile matter removed from a hartshorn bottle by any person in a room by a single inhalation would exercise a more potent action on radiant heat than the whole body of oxygen and nitrogen which the room contains." He also establishes by experiment that while the absorption of air—oxygen, nitrogen, and hydrogen—at the common pressure of the atmosphere is unity, or 1, that of carbonic acid is 20, and of ammonia 1195. Now, as the power of absorbing caloric and of generating caloric are equal, what say practical gardeners to a little hartshorn, attar of Roses, or carbonic acid gas in hothouses, as husbanders of heat on a winter night. In this way science might save our coals, and render our night duties easier. Certainly Tyndal's experiments seem conclusive, and coincide with the teachings of Nature. Carbonic acid gas is generated and perfumes are most abundantly distributed at night. It is quite possible that all this is ordered so as to husband solar heat. And they may be dissipated in the morning, to allow the solar rays a free passage to our earth. Whether all this can be established or not, we cannot be wrong in imitating Nature's example, and freely opening our glass houses as early as possible in the morning, to allow free dispersion to the air, which may be either exhausted, or overstocked with heat, odours, or aqueous vapours. Thus much I can add from actual experience, that early ventilation is, from some cause, of the first importance. As a rule, in mild weather, and during the whole summer, to open the ventilators an inch or two is the first labour at 6 o'clock A.M., if indeed they have not been partially open all night.

At times the copiousness of ventilation is of more moment than continuity. During dull, severe weather, glass houses may occasionally be kept closed for days or even weeks together with impunity, provided a low temperature is preserved. Then, when a change does come, fires may be put on, and the mild outside air freely admitted, so as to renew the entire atmosphere and sweep every nook and corner clear of perfumes, exhausted gases, or stagnant air. Again: when the weather permits, ventilation ought to become constant. Thus, summer and winter ventilation will be regulated on somewhat different principles. The stages of growth, the state of the external air, the measure of light and heat at command, and the objects aimed at by our culture, will all exert a modifying influence on our practice. In fact ventilation may be defined as a lock, of which these and probably other yet more subtle influences, are the different keys, and a knowledge of when to use them, and how wide to open the outlets and inlets, and when and why we should keep them shut, may be said to constitute the theory and practice of our subject. In winter the necessity of internal warmth, and of conteracting the external cold, renders copious ventilation difficult, if not impracticable. And if vegetation is well nigh dormant, so much fresh air will not be needed. But in forcing houses, when spring or summer growth is expanding under our leaden wintry skies, or fruit is setting or being pushed on to perfection, then ventilation demands our utmost skill, and becomes the first condition of success. By generating more heat than we need we can afford to allow some of it to escape, and thus get rid of exhausted air. The obtaining of a fresh supply is a more difficult matter. The openings must be carefully guarded, or connected with drains in the back walls, or the cold air will be apt to rush in in dangerous excess. In very cold weather sufficient cold air will come in by the top openings to renew the inside atmosphere, without any being admitted in front. In moderate weather the front ventilators may also be opened. Those for early forcing should consist of a series of drains proceeding from the surface and terminating in a main drain within the house, enclosing the return hot-water pipes. On this main drain the ventilators should be placed. I hope to give plans, showing how this can be done, in succeeding papers, on the modes and places for the admission of air. It will be obvious that by such an arrangement a copious stream of fresh warm air may be enjoyed at pleasure. The point of admission is of the first moment. By entering so low down it will become further warmed as it ascends, and can hardly fail to be genialised before it reaches tender vegetation.

In summer all these precautionary measures ought to be dispensed with. The more freely the direct heat and light of the sun are admitted the better. But for the trouble and expense of removal, I believe many of our plants would thrive better if partially or wholly unroofed during the summer months. Some of them would be benefited by the full blaze of the sun; more would

* Heat as a Mode of Motion, pp. 366, 367, and 368.

profit by the invigorating balmy zephyrs, and dews of night. But as this is mostly impracticable, let us open them as freely as possible to the free ingress of light, heat, and air. Unprotected ventilators are dangerous in winter. Muffled ones are, perhaps, equally injurious during the summer. Even perforated wire coverings to exclude wasps have been thought to affect the quality of the air admitted. All summer ventilators should open up, so as to allow the air and the light to dart down vertically into the house. It would be well for us to look upon both as something that could be partially shut out by the projecting glass—and it is not certain but that they can be. Of this we may rest assured, that the more closely our artificial atmospheres resemble Nature, the better will our plants thrive; and the more of the outside air, with its perfect light and solar heat, we can get into our houses the closer shall we tread in the footsteps of Nature. One caution needs however to be given. Hothouse nature is not our nature. It may be Indian, South American, or African climate we need, not English; therefore, while utilising to the utmost every ray of light and every sunbeam of warmth, as a rule much more moisture and often more heat will have to be given, than our climate at its best can afford. Fickleness and change will also have to be guarded against, and hence the importance of prompt and efficient mechanical contrivances for opening and shutting ventilators, and therefore this will appropriately form the subject of concluding papers. *D. T. Fish, F.R.H.S.*

SALADS, AND HOW TO GROW THEM.

CUCUMBERS.—Lovers of salads always take an interest in the cultivation of Cucumbers, which afford a fine relish at all seasons of the year. Cucumbers, as we all know, are intimately associated with salmon and some other kinds of fish; and I never consider a salad complete without one at any season of the year. With good accommodation and proper management, Cucumbers may always be obtained. Where they can be grown by means of hot water, I prefer pits to houses, as the former are more easily kept moist than the latter—and this is one of the chief points as regards Cucumber growing. In cultivating Cucumbers in houses or pits, the plants should be trained on trellises, and the fruit allowed to hang down.

Let us commence with their propagation. First of all, obtain a good sort from some respectable grower. The best for general forcing is Champion of England, but there are some other good varieties for winter work. The Old Syon House is as good a kind as is cultivated, but it is not so handsome as some others. Sow in January, February, and March, and in October and November for winter-forcing. The plants should be raised in some other pit or box as the case may be, or be kept near the glass in the same pit in which they are to be grown.

The seed bed should be made after the following manner:—If it is intended to use dung-heat, get together a good heap of stable manure three or four weeks previously to sowing; and turn it over regularly two or three times at intervals of seven or eight days. If it is dry, give it a thorough soaking with water, so as to get up a good state of fermentation. When the heat has moderated a little throw out the earth on a space 2 feet wider than the box, and about 2 feet deep, in a sheltered situation, facing south or south-east, so as to obtain the morning sun; upon this foundation the bed should be made 2 feet 6 inches high, beating it down firmly with a dung-fork. Put on the boxes and lights, allow the steam to pass off freely for two or three days, then turn the dung over a few inches deep (the heat should vary from 70° to 80° Fahrenheit), cover slightly with fine mould, and sow the seed in shallow pans, protecting it from mice, which are very fond of it.

Where hot water is employed the treatment must be as nearly like the foregoing as possible. As soon as the young plants have two leaves, pot them off into 4½ inch pots, two in a pot, into good mould not sifted too finely. Let the soil be a little below the rim of the pot in order that the latter may hold water, and be careful not to crowd the plants. Let them have as much of the morning sun as possible, and cover them up early in the afternoon, sprinkling them with water, in order to keep the atmosphere moist When they have made two leaves, in addition to the seed ones, pinch off their leading shoots, they will then throw out two main stems, which should not be allowed to run above three joints; stop again and peg down from the glass, which should not be more than 9 or 10 inches from the earth, inside the boxes. The beds should be made as has already been directed, with the addition of 9 or 10 inches of mould upon the top, for the plants to grow in. This should be a good strong loam, if it can be obtained, though that kind of soil is by no means indispensable. Put out the plants without breaking the ball round the roots, and give them a little water, warmed to the same temperature as the bed; indeed, warm water should always be used until June. After the plants have made three joints on the leading shoots before spoken of, they will again push at each of these joints, and in all probability these laterals will show fruit at the first joint. These should be pinched off to the fruit, but if none appears leave them a joint or two to make wood. Continue to pinch back to the fruit as often as they break, and thin out all superfluous leaves; this must be well followed up during the summer. Afford a lining of hot dung when the beds begin to cool—a condition which may be ascertained by putting a stick into the bed, leaving it there for a few hours, and then pulling it out. On feeling the stick, it will reveal the amount of warmth in the beds; if they are too hot, defer putting out the plants for a few days. Push the sashes down a few inches about 8 in the morning if favourable, but this must be arranged according to the weather, for if the winds are cool or rough when the plants are young, they will not be able to bear them. A good plan is to give the plants air, and cover the apertures with a bast mat. See that plenty of water is supplied during April, May, and June. Shade the frame from the heat of the sun from 11 till 3 during April, May, and June, after which the plants ought to be strong enough to bear it. If they are to be grown in a house or pit, allow the plants to reach the glass without stopping them, that is, if they are strong; should they be otherwise, they must be topped, in which case keep them to one stem. When they have reached the glass stop them, and train along the trellis, stopping them as before directed for frame culture.

There are two other methods of growing Cucumbers, viz., under hand-glasses and in the open ground.

In order to grow hand-glass Cucumbers, sow the seed the first week in April in a slight hotbed; pot the plants off three in a pot, stop them back to two rough leaves, keep them near the glass, and give them plenty of air. The first week in May put out the plants in the following manner—viz., in rows 6 feet by 4 feet apart; but first take out a barrowful of earth at one end of the row, and wheel it to the other end. With this fill up when you have finished making up the row. In the hole thus formed put a barrowful of good hot dung, and throw the earth out of the next station over it, covering the dung at least 8 inches: this will make a hole for the next barrowful of dung; and so on to the end of the row. Make the mould fine, and put out the plants, covering them with hand-glasses, and leaving them, with the exception of watering, until they have filled the glasses. Mulch with straw, raise the glasses upon three bricks, and lay out the plants, which will now only require plenty of water.

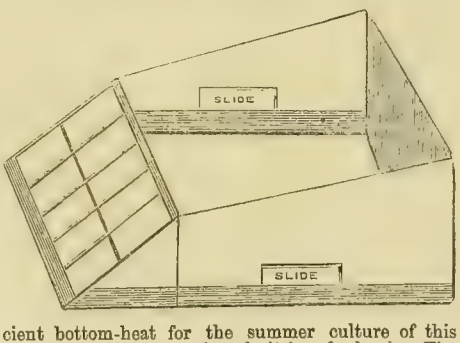
In the open ground they should be treated in a similar manner to those grown under hand-glasses, except that they should be sown where they are to remain, giving them as much shelter as possible during their early stages of growth. Some sow early Rye in every alternate row. There are numbers of acres of Cucumbers grown in this way in Bedfordshire, and in the surrounding districts.

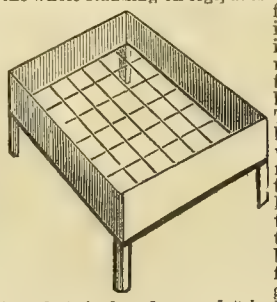
Gherkins are sown during the first week in May, between other crops, two seeds being put into a hole 4 feet by 2 feet apart. Their after-culture merely consists in keeping them free from weeds; they will cover the ground as the other crops come off.

Out-door Cucumbers are quite a distinct variety from those grown in frames; they are known by the names of Ridge Cucumbers and Gherkins. *J. M. M.*

A SUMMER MELON FRAME.

HAVING grown Melons without artificial heat for some years, I venture to furnish an outline of a frame which I can recommend for this purpose. The chief things to secure are warm air, and warm earth and water. I will presume a common frame to be at hand, either double or single. Knock out the front of it, add 6 inches to the part left, and let the portion added extend 2 feet out in the front. I would have a sash made to fit the front, as is represented by the annexed woodcut. This sash will give in a degree sufficient bottom-heat for the summer culture of this fruit. The slides are for admitting fresh air. The top sash of this frame ought to be hinged in front, and tilted at the back, according to the heat of the air in the frame. I would next recommend another frame, 1 foot less in length and breadth, and about 8 inches deep; the bottom to consist of bars, nailed on crosswise, the whole standing on legs, as is here represented. This frame is to be placed inside the larger one indicated above, and may be called the earth frame, the larger one being the air frame. The next essential to be provided is warm water. I would therefore recommend a trough to be made as long as can be got into the frame; hang it on two cramps at the back of the large frame, and as near the glass as possible. A trough 5 inches deep and 5 inches wide would hold enough water both for watering and syringing the plants. I would further recommend these troughs for all pits in which Melons or Cucumbers are grown. I have used them myself with great advantage. I always find the water to be of nearly the same temperature as the house in which the troughs are placed. Galvanised wire is best for training the plants on. Fasten some on the inner frame, and on the sides of the outer frame; it will form a capital trellis for the plants. *H. Mills, Enys, Penryn.*





SPRING GARDENING.

IT may be well to remind those who may intend to try a little Spring Gardening, that the present is a good time to sow many of the annuals that bloom so beautifully in the spring months. I have been sowing in the course of the past week such subjects as Silene pendula, both red and white; Saponaria calabrica, red and white; Limnanthes Douglasii and grandiflora; Erysimum Perofskianum, Lasthenia californica, &c. These are for beds, but we sow also for baskets or mixtures such things as Collinsia bicolor and verna. Lupins have a fine effect in situations where there are no rabbits, and where the soil is not wet in winter. For Nemophilas a later period is better. I am also sowing a long list of likely annuals, to try if there are any others that may prove useful.

Although it is a little late for Myosotis, still it would bloom if sown immediately. I find the best time to sow it is with the Wallflowers and Brompton Stocks in spring. There is no fear of its running, and the larger the plants the more bloom they will produce. I believe it is a perennial, but with us, when old, it becomes subject to mildew, which generally carries it off. There is also still abundance of time for propagating the different sorts of Pansies, which will make fine plants by autumn; also for dividing Daisies. Beds or ribbons of these latter, are nothing if not planted thick and full.

It is quite surprising to find how rich we are getting in foliage for winter decoration, and how very effective beds and borders can be made with foliage alone. Suppose any one to have a circular bed which it is wished to convert into a Catherine wheel: we have Ajuga orientalis for cross bars, and Arabis variegata and mollis, with aucuba-leaved Daisy, Aubrietia variegata, Cerastium, &c. Or is it desired to mix them with flowers? Then suppose we take a yard and a half from the front of a ribbon border, and introduce along this part beds resembling in shape a pair of spectacles, adding a bridge to the opposite side. Then fill the back part with a mass of Arabis mollis variegata, and the front with A. lucida variegata, and into all the ovals put blue Pansy or blue Aubrietia grandiflora, and into all the circles red Daisy. The white sets off the red and blue to the very best advantage. If variety is the object, it is only necessary to keep to low things. We are more rich in variety for spring than summer—that is, of good things. The Ajuga is something like the Perilla, but low growing, and the winter brings out the colour, the same as cold brings brightness to the leaves of the variegated Daisy. There are besides these the Polemonium variegatum, and the yellow-leaved Pyrethrum, but not having tried them in beds, I cannot as yet recommend them for winter or spring. *J. F., Cliveden.*

HERBACEOUS PLANTS.—No. IV.

(*Continued from p.* 807.)

IN Cruciferæ, the finest plants are Cheiranthus alpinus and Marshallii, the fine old double yellow Wallflower, Arabis albida, the Aubrietias (more properly alpines perhaps, but still, from their thorough hardiness and capability of flourishing in any soil, among the very best things that can be used for the low front edges of the mixed border), Alyssum saxatile and its variety compactum, Iberis saxatilis, I. Tenoreana (for light sandy soils and rockwork), I. Garrexiana, and particularly one called gibraltarica in botanic gardens and "correæfolia" in nurseries, but to neither of which names it belongs, or rather neither of them belong to it—it is quite a distinct species, and comes in later than the common evergreen Iberis; Hesperis matronalis pleno (the fine old double Rocket, yet plentiful in many cottage gardens), and Crambe cordifolia for a grand fine-leaved subtropical subject. You cannot overdo such fine things as the Iberises, Aubrietias, and Alyssums in this order. Associated with a few other things, like Erica carnea, they are almost sufficient to stock the spring garden with beauty, though it would be spiritless management that would confine it to any one family or any one set of plants simply because they bloomed as freely as do these. Depend upon it, variety combined with excellence is the soul of good ornamental gardening; and that we can have abundant variety without a single weedy or gawky plant there can be no doubt whatever, to any person who reflects upon our resources in this way.

But there is no room to discuss the ethics of the subject or make the thing lively, so I will fall again upon the names. Datisca cannabina is worth growing for its habit, and the Helianthemums in variety, will be found suitable for many a spot on rockwork or borders. Viola cornuta and "montana," obliqua, striata, and pedata, are worthy of association with the various fine kinds of the sweet violet; though, be it remarked, that some of these are not first-rate as herbaceous plants. Any of the Parnassias, well grown in pots of peat, or in a moist spot, will give much pleasure, and such Gypsophilas as repens, sibirica, and dubia are good for rockwork.

With the exception of the Pinks and Carnations, it is perhaps better to treat the Dianthuses as alpines, but I have found D. petræus so thoroughly useful a plant as an edging, so free to grow where other species invariably perished from wireworm, &c., that I must highly recommend it here. It produced masses of the handsomest deep rosy flowers with me, so much so as to be conspicuous at a long distance off, though quite a low earth-biting plant. Of course a variety of those fragrant and beautiful Pinks, Carnations and Picotees is indispensable to every collection of hardy plants. How fine they are, either arranged alone or intermingled with other subjects! It is a poor garden which does not present a lot of these flowers which combine colour, lacing, fragrance, hardiness, and beauty

of form in as high a degree as we can find them elsewhere, either indoors or out. There is a heap of dirty Pinks going about under various names, none of which I can specify either for culture or condemnation, because they are evidently all chips of the same block. My advice is, get hold of a bit of such kinds as petræus, cæsius (which grows so pretty on the old walls at Oxford and other places), and alpinus, and make the most of them. One good tuft of the last is worth a field full of such as you see offered in seed catalogues and enumerated in botanic garden lists. D. superbus is a distinct and elegantly fringed species, worth a place. Tunica Saxifraga is a neat little thing for rock-work and the front of borders, so are Saponaria ocymoides, o. major and pulchella, Silene Schafta, Lychnis coronaria plena, white and red double chalcedonicas, dioica alba and rubra plena, and fulgens; the double varieties of Viscarias are also good in this state, and so too are Arenaria montana, and a few of the Cerastiums, the best of which are the well known two used for edging, and grandiflorum, also a slightly silvery or tomentose species.

We do not often see the Linums in cultivation, but they are really far more worthy of it than scores of things that may be seen grown in this way. They are neat in habit, never fall into a fit of raggedness, the flowers are always of a pleasing colour, and the plants are easily raised and grown. One of the prettiest herbs I have had the pleasure to grow was a mass of L. narbonense, which, planted in rich moist soil, kept expanding its charming blue flowers the whole season round, so much so as to make me suspect it might prove useful as a bedding plant. With me it did not seed, and that, of course, tended to prolong the bloom. L. perenne, and p. album, monogynum, and alpinum, are all good, and admirably suited to the mixed border.

Malva campanulata is a decumbent plant, of great delicacy and beauty of colour; I wish it were oftener seen, though I am not sure if it be hardy except in favourable soils and districts, but it is a plant of peculiar and decided beauty when well developed; and Callirrhoe involucrata, of the same order, is a good thing. Of the Geraniums, lancastriense, pratense florepleno, sanguineum, striatum, and affine are the best, and Erodium Manescavi is a large and beautifully-coloured plant, well worthy of association with the best of its allies, the Geraniums, if not better worth growing than any of them. Probably the British G. sanguineum is the best of them, in consequence of its prolonged bloom and tidy habit. Dictamnus Fraxinella and albus, though they do not make much show on some soils, are occasionally seen in a showy condition under more favourable circumstances. *W. R.*

FRUITS ETC., DRIED OR PRESERVED.

The following report on the fruits, &c., exhibited in the Paris Exhibition has been drawn up by Dr. Hogg. The notices of the Oranges will form an appropriate supplement to the information recently given in our columns with reference to the Oranges grown in the Azore Islands:—

Those who are interested in the study of these subjects will find throughout the various departments of the Exhibition ample opportunities of gratifying their taste and of extending their information; but it is much to be regretted that in too many cases the collections of foreign countries are not so useful and instructive as they might otherwise have been, if the objects had been more generally named, and pains had been taken to furnish such information as would have enabled visitors to distinguish between the various objects exhibited. In the Portuguese and Italian departments, for example, there are immense collections of Haricots, many of which are not generally known; but each variety is simply labelled "Haricots," and no means are available for ascertaining the names by which to distinguish one from another. This is also particularly the case in the Algerian department, where there are collections of Oranges and dried Figs, not any of which are distinguished by names by which they might be identified.

Of the fruits in their natural condition the collection which is the most attractive and interesting will be found in the Greek department. It consists of 53 distinct varieties of Oranges, many of which are of great size and beauty, while others are peculiar either from their form or colour. The cultivation of Oranges having of late years become a prominent feature in English horticulture, and the facility with which they may be ripened in the cheap glasshouses now so general in the country, a description of the leading varieties in this collection will prove highly useful, as there are few if any of them that already exist in our gardens.

The different kinds of Oranges are divided into, 1, sweet Oranges, or those of which the St. Michael's may be taken as the type; 2, bitter Oranges, called by the French Bigaradiers, and of which the Seville Orange is an illustration; 3, Lemons; 4, Citrons; 5, Bergamottes, or Limes; 6, Shaddocks, or Pampelmous; and, 7, Forbidden Fruit. Among the sweet Oranges, there are the St. Michael's, the blood Orange of Malta, and the elliptic, or egg-shaped Orange, all of which are familiar varieties. But there is a variety which surpasses them all, and is called China Orange, or *πρωτοκαλλιον της καλλαμάτας*, a large, handsome fruit, 3½ inches in diameter, of a deep orange colour in the skin, which is smooth, like that of the St. Michael's. In flavour this is the finest of all. Then there are the Genoa, a variety similar to the St. Michael's, but with a coarser surface, and the sweet Orange of Candia, both which are very excellent varieties. There is also a variety with a singular bossed surface, from which circumstance it is called gibbosum. The small flat variety, which we call in the fruiterers' shops in London the Tangierine, is here called the Mandarine, or *Μανδαρινον*.

There is a great variety of the Bigaradiers, or bitter Oranges many of which are singularly curious and ornamental. Of these the most striking is one called *Κεφτικο νεραντζι*, in Chios; *Φακουρα*, in Candy; and *Φρατουρεραι-ζο*, in Peloponnesus. It is from 4 inches to 6 inches in diameter, of a rich deep orange colour, and has a very rough, warted surface. The other is called umbilicata, and is also of large size, being 3½ inches to 4 inches in diameter, of the flat shape of the Mandarine, and with the stalk and the apex deeply indented. A very beautiful variety of this class is a medium-sized fruit, finely striped, some being of a pale lemon colour, with deep orange longitudinal bands; and others of a deep orange ground, with pale lemon-coloured stripes. This is called "Hermaphrodite de Genois." There is a curious variety called Corniculata, or Horned Orange, from horns growing out all round the upper part of the fruit. These horns are the points of the carpels, or "the quarters," of the fruit which have become detached, and grown out, and departing from the normal form, assume this singular appearance. There is a large fruit which, though it belongs to the class of bitter Oranges, has a sweet flesh, and is called *Γλυκονεραντζια* and *Νεραντζια της Κας*, but one of the most remarkable is a very large pear-shaped variety, 6 inches to 8 inches long, with a rough, warted surface and uneven outline. It is called Bigaradier à gros fruit.

Of Lemons there are not so many varieties, and those most worthy of notice are the Greek Lemon *Σκαραμανικας της χαϊουστου*, an immense variety, 4½ inches to 6 inches long; the "Deux Mammelons," also a large oval variety, with two great nipples, one at each end. The Lemonier-bigarade is a hybrid between a Lemon and a bitter Orange, some being nearly round, with an orange colour, while others are oval, and of a pale lemon colour. There is a small egg shaped variety, which has red flesh and variegated leaves, and this is called *λεμονι κοκκινον*. The Naples Lemon is a very small variety, about the size of a pigeon's egg, and is principally used for confitures. Then there is a sweet Lemon, which is about the size of an ordinary Lemon, but with a sweet flesh, and very agreeable.

The Citron de Leonide is a large, rough, warted variety, and is the only one of that kind exhibited.

The Bergamottes or Limes are more numerous. They are of the colour of a pale Lemon, and rounder than that fruit usually is. The most remarkable in this class are two kinds of sweet Lime—one called *Ζαχαροελιμονον*, which is a small, round, and rather oblate fruit, lemon-coloured, and with a large nipple at the end like a lemon; and the other *Γλυκολιμονον*, which is quite round, and of a deeper and more orange colour, and with not so large a nipple. The common Bergamotte is that which furnishes the perfume known by that name, and which forms one of the principal ingredients in eau de Cologne, and other compounds of that class. There is also the aromatic Lime of Chio, a small fruit of the size and shape of the Mandarine Orange, and has the same aromatic odour which that variety has, but is distinguished from it by being of a pale lemon colour, and having an acid flesh. There are several specimens of the Shaddock and the Forbidden Fruit, the latter being distinguished from the former in being Pear-shaped, the former being round.

Oranges occur also in the Algerian and Italian departments, but as they are not distinguished either by names or numbers, no reference can be made to them. Some of the specimens are very good, and among them may be observed a large Fingered Citron, the development of which is on the same principle as the Horned Orange, already noticed in the Greek department.

The Dates in the Algerian department will form a good subject of study, particularly a collection of 14 varieties in boxes, all carefully named, and which come from the pepinières of Biskra. These vary in size, form, and colour, the last character varying from a pale brownish cream-colour to an almost black. The variety usually met with in the shops of Britain attached to the rachis, or stalk, in strings, is called "Beglet nour de Souf." These are generally covered with a saccharine glaze, as is also another and a much larger variety, also common in the grocers' shops, and not attached to the stalks, called "Stima de Biskra." From the Algerian Government Garden of Acclimatisation there are no less than 55 varieties, and from the "Pepinières de Biskra" there is another collection of 54 varieties. These, for the most part, are small, dry, and farinaceous, many of them not larger than an Olive; and it is these that form the staple of the food of the Arab population. All these varieties, it may be well to know, are varieties of Phœnix dactylifera, which is as fertile in producing varieties of fruit as our Apple and Pear are. In the Egyptian department there are also many varieties of Dates, among which will be observed two varieties which form the large dry-skinned Dates of our shops. These are called "Dattes de Dongolab," and "Dattes Hamry de Belbeis et Salanieh." There is also a variety which has no stone, and is called "sans noyau," and, if imported into commerce, would doubtless prove acceptable from that circumstance.

Dried Figs are an important feature in the Algerian, the Italian, the Portuguese, and the Turkish departments. Here, again, it is much to be regretted that no names or numbers are attached to the different varieties, so as to afford some index as to the sorts that are usually employed for drying; and the persons in charge of these departments are perfectly ignorant on the subject. It will, therefore, be permissible only to observe the various forms in which they are made up. Some of these are sufficiently curious—as, for example, those impaled on wooden skewers, like larks for the spit. Some are pressed into shallow frames made of Arundo donax; others are squeezed in masses, like thick sections of a Stilton cheese; while others are made to resemble squares of Windsor soap, or German sausages. There is a mode of making up Figs exhibited in bottles, which consists in cutting two fruits longitudinally as far as the stalk, then spreading them out and applying the two inner surfaces to each other; in this form the fruit is dried, and in drying the two surfaces adhere, and they are then mounted on skewers or strung on a cord. The same fancies in the way of packing may be observed in the other collections; but in no case are there any exhibitions of those large, handsome Figs which are to be obtained in the shops of the United Kingdom.

Almonds are well represented in the Italian, Algerian, and Portuguese departments. The Jordan Almonds may there be seen under the names of "Sultana" and "Della Dama;" while the other sweet and bitter kerneled varieties will be found under their various names.

The other kinds of dried or natural fruits that are exhibited are dried Apples, Raisins, Mulberries, Pistachios, and Pignons, the latter being the kernel of the seed of the Stone Pine (Pinus Pinea). In most of these countries the Jujube is also shown. This is sold in Covent Garden Market under the name of "Japonicas," and with what reason it is impossible to tell, it being the fruit of the Zizyphus vulgaris, a tree extensively grown in the south of Europe, where its fruit is dried, and serves as a winter dessert. It is from this fruit that the confection called "jujubes" receives its name, and which should consist of gum arabic and sugar dissolved in the decoction of this fruit and then evaporated to its proper consistence; but, as made in this country, the fruit forms no part of the ingredient. In the Algerian department may be seen specimens of the Lotos of the ancient Lotophagi, and which is the fruit of Zizyphus Lotus; they are about the size of a Cherry, and of a purplish colour. In the interior of Africa these are pounded in a mortar, and made into cakes, which are eaten by the natives.

Preserved Fruits.—In the Algerian collection are good specimens of the fruit of Carica Papaya or Papaw. This, when young, is used for sauce; and water impregnated with the juice acquires the property of rendering all sorts of meat steeped in it tender. The flesh of old fowls or other animals becomes tender when fed on the leaves and fruit, and joints of meat are prepared for cooking by being hung in the upper branches of the tree. There are also examples of Sechium edule, or Choko, which is now considerably grown in Algeria as a substitute for the Potato. The only other fruits that are preserved are Mandarine Oranges, Peaches, and Loquats, or Japanese Medlars. In the Dutch department there are excellent examples of Apricots, Peaches, Plums, Cherries, and Mulberries. Similar collections may be seen in the Bavarian department, and a very extensive collection is sent by the United States of America, consisting of Pine Apples, Peaches, Cherries, Gooseberries, red and yellow Tomatos, Plums, Grapes, Pears, Siberian Crab, Lawton Raspberries, Barberries, Whortleberries, Quince, Currants, and Sweet Corn. These are all preserved in spirit. Russia exhibits dried Apples, Pears, Prunes, and Melons cut in slices. *Illustrated London News.*

Home Correspondence.

Effects of the late Winter in Buckinghamshire.—Your correspondent "C. F. P." the Grange, Kingston, near Taunton (see p. 831), would oblige me by stating if he is quite certain that his two plants of Cupressus Lawsoniana were injured by frost. In Lawson's "Pinetum Britannicum" it is said that out of 79 places from which returns of the effects of the winter of 1860-1 had been received, this species was only injured at two. The names of the places are not given, but one was Singleton, near Swansea, Glamorganshire, where the lowest temperature was only +16°, but in this case the plant had been wintered in a cold frame previous to its being planted out in the autumn of 1860, and was then very yellow from having been much pot-bound. A few years ago I planted a small plant each of Sciadopitys verticillata and Libocedrus tetragona in my father's garden at Stewkley Grange, near Leighton Buzzard, Bucks, in very good soil, about 1 foot from a south-west wall. The Sciadopitys was about 2 inches high when planted; it has gradually got sickly, and last autumn was nearly dead. The Libocedrus tetragona also got worse and worse; last autumn I transplanted it, and it is now dead. Chamærops Fortunei, planted in heavy soil, south-east aspect, in December, 1862, was killed about 12 months afterwards. Are "C. F. P.'s" plants of Berberis japonica much exposed to the sun? The best plant at Stewkley Grange is in a very shady place. The following short account of the effects of the past winter at Stewkley Grange, Buckinghamshire, may not be without interest:—The elevation above the sea is said to be 500 feet. The lowest temperature is not known. During the frost of January the snow was about 4 inches deep, in March rather deeper. Pinus Loudoniana, 1 foot 5 inches high, grafted, sheltered situation—killed. Quercus sclerophylla, 2 feet high, open situation—killed. Quercus sp., from Pekin, bought at Stevens' sale of Mr. Fortune's plants, May 26th, 1864, 1 foot 4 inches high—killed down to 5 inches (about the snow level); has made shoots 1 foot 3 inches long this summer; it is in heavy soil, drained, and open situation, but was slightly protected by a few Laurel branches; it died down a little in the winter before last. Quercus glauca, 1 foot 5 inches high, soil light—last years' shoots of 5 inches killed; has grown 4½ inches this year; Quercus serrata, 8½ inches high—last year's growth (1 inch) killed, has grown 1 inch this year, but is not looking healthy. Cupressus macrocarpa, 7 feet 9½ inches high, exposed to north-west winds, tips of some shoots dead. Planera acuminata, 6 feet 10 inches high, exposed situation, ends of the young shoots dead. This was planted from a pot in November, 1864, in the garden, close to where the Sciadopitys, mentioned above, is, and was then about 3 feet high; in November, 1865, it was 7 feet 10 inches high, and looked like a vigorous growing young Wych Elm; it was then removed to its present site, when nearly 2 feet of the top died; in 1866 it made rather weak shoots, less than 1 foot in length. Juniperus chinensis, male and female, 2 feet 9 inches and 2 feet 2 inches high, the ends of some of the side shoots killed; these were planted in their present exposed situation in November, 1865, and did not grow vigorously last year. Laurus nobilis, two male bushes, 9 feet and 11½ feet high, some leaves and young shoots killed, which is rather less injury than in 1860-1 (*Gardeners' Chronicle*, 1865, pp. 868, 1132). Common Aucuba, male (7 inches high) and female, and green-leaved Aucuba, all not hurt. Common Laurels slightly injured; flowers all killed. Portugal Laurels not hurt. Laurustinus nearly killed. Thea viridis, 1 foot high, in an angle of the house, facing the east, young shoots slightly injured; this was planted out in November, 1865. Bambusa Metake, slightly hurt. Arbutus Croomii, 1 foot 5 inches high, leaves hurt a little. Jasmin[illegible] nudiflorum, on a south-east wall, young shoots al[illegible]led. The following were not hurt: Pinus Lambertiana, 9 feet high, grafted; P. Benthamiana, P. macrocarpa; P. insignis, 2 feet 6 inches high, planted November, 1865, grew 10 inches last year, consisting of two distinct growths, and has also grown 10 inches this year up to the present time; Picea Pinsapo; P. Lowiana, 9½ inches high; Cupressus Lawsoniana; C. nutkaensis, grafted; Wellingtonia gigantea, Sequoia sempervirens, Thujopsis dolabrata, 11 inches high, grew 1½ inch in 1865, and 1½ inch also in 1866; Retinospora obtusa, 2 feet 10 inches high; R. pisifera, 1 foot 7½ inches high; Thuja gigantea, Juniperus sphærica; Araucaria imbricata, was transplanted last November; Quercus Lucombeana, 2 feet 7 inches high; Yucca gloriosa; Leycesteria formosa, 3 feet 8 inches high, in the open border; Magnolia grandiflora exoniensis, 2 feet 3 inches high, in the open border; and a Deciduous Oak, called Q. serrulata, which I had from Messrs. Osborn, of Fulham. The Sequoia sempervirens mentioned above has lost its top, probably from wind or spring frost, but is making another; it has twice before suffered in the same way: in May, 1864, apparently by spring frost, and in the summer of 1865 by wind. The heights given are those of the plants last November. I should be much obliged if you or some of your correspondents would say if I had better remove the Quercus sp. from Pekin, mentioned above, into a lighter and warmer soil, and a rather shady situation. As it has partially died down more than one winter, I fear it will not grow into a tree in its present situation, but if it is likely to do so, I would not run the risk of its dying by transplanting it. I do not know if it is the Q. chinensis of Bunge, mentioned in Loudon's "Arboretum," vol. 3, p. 1936. Its leaves are something like those of the Spanish Chestnut, rather glaucous underneath; they had not fallen off in the middle of last November, but it had lost

them all on January 9th, perhaps by frost. This and many of the other trees are surrounded by high wooden fences to keep the cattle off, and which may have protected them slightly from the frost. *Charles Palmer, Manchester, Aug.* 12.

Vine Mildew.—As the Oidium has again appeared in some places on the Vine, I may mention that a very convenient method of applying sulphurous acid where the disease has extensively committed its ravages, is by burning the bisulphide of carbon in a spirit lamp. The gardener can move it about, and distribute much or little, as he may desire, and regulate the dose to a nicety. He must, however, remember that he is dealing with a potential agent, and not overdo the dose. For that reason everything should be removed from the house before he applies the remedy. I only recommend the application for bad cases; for a little flowers of sulphur on the hot-water pipes is preferable as a preventive, or for eradication on the first appearance of the disease. Where the Oidium is strongly pronounced on the Grapes, the crop may be considered as practically lost for the season; but the use of the bisulphide of carbon will so far preserve the Vines as to secure a crop the next season. *Alfred Smee, 7, Finsbury Circus.*

Cutting off Strawberry Leaves.—This is a dangerous operation. I did it in 1860. There was no autumn. The winter set in upon the summer, and the plants had no leaves to withstand it. The whole were ruined. It is contrary to physiology to deprive a plant simultaneously of all its lungs. In Strawberries it may produce canker; in Roses, if the sap is rising in any quantity, it will produce "chlorosis." Indeed, if the leaves are not removed, but much stopped up by mildew or other moulds, the effect will be the same. The unpurified sap will return to the roots and sicken the tree. A few leaves that lop on the ground may be removed; the others should not be touched until the new foliage is well up. Permit me to add that I have succeeded at last in making a plant (received three years ago from M. Verdier, and hitherto blind) of Maréchal Niel Rose produce nine buds. I treated it as follows: I kept on cutting it back as often as it went blind this summer, and dressed it round the roots with fresh cowdung. Outside the radius of the roots I dug down deeply, and kept the ground there constantly stirred, and the crop just named is the result. The cow manure was of course well washed in. Add Devoniensis to the Tea-roses named in my last communication (see p. 832). *W. F. Radclyffe, Rose Hill, Okeford Fitzpaine.*

Manuring Conifers.—I would not use manure for Pinuses; what I do here is to top-dress with old potting soil, the refuse of the flower-garden when well rotten, or some mixture of waste soil. This I do occasionally, and the trees are greatly improved by the application. In planting I have always dug the hole in which the tree is to be put 3 feet deep, filling up 3 feet above the ground level; there is, therefore, 6 feet of soil, which leaves the plant on a knoll, and by supplying material for top-dressings, in time the knoll gradually slopes off to nothing. The subsoil here is a rock of gravel, and before planting we often remove as many as 50 cart-loads from one hole; and replace them with double that quantity of rough sods, obtained from the roadsides or elsewhere, the rougher the better; under these conditions our trees are in exceedingly fine health. I have planted Conifers at all times of the year; but I should prefer October, or early March planting to any other period, for all kinds of evergreens: some say August for Hollies, and I have planted them successfully at that season. *Philip Frost, Dropmore.*

Busby's Golden and Snow's Muscat Hamburgh Grapes.—At Dancsbury, near Welwyn, these occupy the same house, and each is heavily laden with a most excellent crop. Busby's, a truly "Royal Grape," is a picture of luxuriance, having from 16 to 18 bunches upon a Vine, each averaging some 4 lbs., the berries being of that pale yellow colour which is so suggestive of crackling lusciousness. Snow's Muscat Hamburgh is if anything more heavily laden than Busby's Golden; individual bunches weigh upon an average from 3½ to 4 lbs. In form the bunches are short, but they are widely shouldered, and the berries are so freely separated as to suggest a capacity for long keeping. The Muscat aroma is as distinctly appreciable to the palate as the berries are otherwise "Black Hamburgh" like in appearance; and the Vines are capable of bearing a very heavy crop, with no sign of exhaustion. *W. Earley.*

Centigrade v. *Fahrenheit.*—My friend, M. Naudin, of Paris, has addressed to me a letter on the subject of the adoption of the Centigrade scale in thermometer readings, which calls for the consideration of horticulturists, whether on account of M. Naudin's high standing as a scientific man and practical horticulturist, or of the importance of the matter itself. I therefore hope that you will open your pages to a discussion of this subject, and that many of your readers will join in it. The following is the substance of M. Naudin's communication:—"Apropos of the effect of frost on vegetation, there is, in my opinion, a grand reform wanted in the meteorology of English horticulturists, and you would render great service if you would initiate it. This reform consists in the substitution of the Centigrade for the Fahrenheit scale thermometer readings. This latter is so faulty in principle, that even those who are accustomed to use it often fail to make themselves intelligible. I feel the effects of this in every number of the *Gardeners' Chronicle*, wherein I read the articles on the effects of the late frosts; for the horticulturists, not using a common formula for indicating the degree of cold, adopt arbitrary modes of expressing themselves, often leading to great confusion. This confusion would disappear if all would adopt the Centigrade scale, in which zero marks a natural phenomenon, viz., the temperature of melting ice, which is neither hot nor cold. Every one can understand — 6, — 2, + 3, and so forth; and, with regard to subdivisions, the scale being decimal, the subdivisions may be read as millegrade without chance of error." The subject of the adoption of the Centigrade scale is not a new one to me; it is now fully 15 years since I had occasion to join in a discussion on its merits with a body of scientific men, who advocated its adoption by English meteorologists, physicists, and chemists, and by some of them the Centigrade scale is now used, and finds favour; and if this movement gains ground, there is little doubt it will lead to the extinction of the Fahrenheit scale. I am far from saying that it will come about: I know too little of the state of feeling amongst medical men and other large classes who make great use of the thermometer. What we now have to do with is, to ascertain how far the movement could be introduced amongst horticulturists and find acceptance with them. In favour of the Centigrade may be urged its simplicity, the advantage of having a natural zero, and the facilities afforded by a decisive notation; against it are the great amplitude of the centesimal degree (equal to 1.8 of Fahrenheit's), hence the necessity of always subdividing it in practice, even for horticultural purposes; the being obliged to use the minus sign for all temperatures below 32° Fahr., and the fact that the Fahrenheit scale is still used all over the United States, and in our colonies. As regards the force of these objections, they are all real: for ordinary horticultural purposes no subdivision of the Fahrenheit scale is required; the use of the minus sign for degrees below the freezing point, in a climate where the temperature is for months often above and below the freezing point ofttimes during the day, is likely to lead to error; and if America and our Colonies with their multiplying populations do not follow our example, we shall lose by the change. There remains the possibility of having our thermometers made with both scales, and familiarising ourselves with the use of them both; and this is, I believe, the only course open to us, for—1, we shall never induce our Continental neighbours to adopt the Fahrenheit scale; 2, we shall not probably in our lifetimes induce the Americans to adopt the Centigrade; 3, we shall not habituate ourselves to the Centigrade scale under some considerable time and practice; and 4, it will be admitted that every accomplished horticulturist should be familiar with the Centigrade scale, whether he uses it or not. Granting, then, that we should have the Centigrade scale, how is it best done? I believe that the best and only way in practice is to have good cheap thermometers made with a double scale; the Fahrenheit to the left of the tube, the Centigrade on the right; not *vice versâ*, as is usually the case in such instruments as have both now, and which, by the way, are too expensive for our purposes. The only alternative is to carry in one's head, or have printed on the top of the instrument, the formula for the conversion of the Fahrenheit scale into the Centigrade, and apply it as occasion requires. Before concluding, let me remark, that good inexpensive garden thermometers are still a desideratum; those of box-wood warp and do not last, and they retain the temperature of the wood far too long; the metal ones with spirit in the tube are excessively sluggish; and the ranges of temperature useful for a greenhouse or hothouse are useless for out-of-door purposes. The house thermometer need not register above 100° Fahr., or below 35°; whereas the out-of-door one, for common use, need not register from below 10° Fahr. or higher than 100°. Higher temperatures than these would burst such instruments, and can only be obtained by exposing the thermometer to the sun; and as no gardener should put his instrument where the sun can get at it, the certainty of its bursting would prove a useful check. In good establishments, where really careful registers are kept, an out-of-door instrument registering below 10° Fahr. is of course essential; but, as everyone knows, the records of very high and very low temperatures made by common instruments and by unskilled observers are useless. The scales should be printed on white porcelain, and I cannot see why such should not be even cheaper than the cast-iron scales with raised figures now in common use. In the case of these cast-iron scales, the whole scale and frame is cast in a mould, and the tube fitted to it. In the case of the porcelain scale, the figures could be printed by transfer from a copper plate, as crests and coats of arms are upon table services of china. *Jos. D. Hooker, Royal Gardens, Kew, Aug.* 15.

Acanthus lusitanicus.—This name has puzzled me much, the more so as it is kept up in the Jardin des Plantes. I cannot help thinking that the plant is wrongly named, and both M. Machado, a gentleman now engaged in the publication of a Flora of Portugal, and Dr. Antonio Carvalho, professor in the University of Coimbra, who has for several years investigated the Botany of Portugal, inform me that the only indigenous Acanthus is the old and well-known A. mollis. Hence the name A. lusitanicus is either a mistake, or it may be applied to a cultivated form of A. mollis. I should feel obliged if any of your correspondents can give me any information on the subject. *Edmond Goeze, Coimbra.* [We find no such name as A. lusitanicus in any book or herbarium. EDS.]

Notes on Bedding Plants.—Your correspondent "R. D." last week speaks of Poa trivialis argentea as a decided acquisition, and my small experience of it induces me to endorse that opinion. But although neither he nor I can charge it with "going green," Mr. Rucker, of Wandsworth, told me this spring that all of his had lost the variegation, and become no more ornamental than Couch Grass. He obtained his from Henderson—mine came from Carter. Where did "R. D." get his? Out of 24 kinds of bedding Pelargoniums that I have, nothing has stood the late heavy rains so well as Crystal Palace Gem, and Excellent, the former a cerise raised by Gordon, the latter an orange-red by Smith, of Dulwich, both being compact zonals, with large well-formed flowers. In our uncertain climate it is important to note those plants which are least injured by such drenching showers as we have had this month, and I hope larger growers will give their greater experience on this qualification for a "good bedder." Might not the Floral Committee be furnished with "something temporary," in the form of (not a teapot, but) a shower-bath, and insist upon submitting to this ordeal every floral aspirant to certificate honours? *W. T.*

Muscat Escholata superba Grape.—In Dr. Hogg's "Fruit Manual," 4th edition, I find mention made of a Grape, having the name just alluded to, set down as a synonym of the Old Muscat. I am therefore under the impression that your correspondent, Mr. Bullock (see p. 808), has in reality grown the old Canon Hall. Two years ago I had to plant two Vineries at this place rather late in spring. I procured plants for them from a celebrated Vine grower, and as the season was rather far advanced I was compelled to purchase several kinds, which I otherwise would not have done, could I have made my own selection. Amongst the lot one Vine bore the name of Muscat Escholata superba, which proved to be the true Canon Hall. Some years ago I forwarded to the late Dr. Lindley a bunch of Canon Hall, which he pronounced to be in every respect perfect. The Canon Hall is without doubt a noble Grape when well grown; nevertheless it is a precarious one, and not in the least adapted for pot cultivation. Some 15 years ago it was popular with Grape growers, but we seldom meet with it now, even in places where Grapes are extensively grown. *John Edlington, Wrotham Park, Barnet.*

Viola cornuta var. Purple Queen and Others.—My experience with this Violet is extensive, and differs from that of "R. D." (see p. 829). Locality, however, should always be mentioned when the merits of bedding plants are discussed, as some do well in some parts, while in others they absolutely refuse to grow. I cannot account for the disparity between the two Violets adverted to by your correspondent. Were they both raised from cuttings, from seed, or from division?—conditions which for a time have much to do with habit and profusion of blossoms. With me this Violet is truly charming; it grows freely, and flowers most profusely: indeed, it is matchless and invaluable for the decoration of spring and summer flower gardens. I have many thousands of it planted, and therefore I am well able to judge of its merits. I have also the variety called Mauve Queen, and the two grow so much alike, that it would take a clever person to distinguish any difference between them. Purple Queen flowers more freely than Mauve Queen, and has larger blossoms; but I account for this through having stronger plants to pick from at planting-out time; words, however, are quite unequal to all I could say in its favour. I have the permission of my worthy employer and that of the Viscountess Milton, to invite any of your correspondents interested in the Violet question, to visit Osberton, and judge for themselves. A chain of this Violet and Beaton's Variegated Nosegay Pelargonium, is not to be surpassed by any combination of colours to be met with elsewhere in the country. With respect to Viola lutea, although very useful and attractive, it does not flower so freely with me as Viola cornuta, although I consider it a gem, and certainly indispensable to the flower garden. Of this there are certainly two varieties, one having much larger flowers than the other. *Edward Bennett, Osberton Hall, Worksop.*

Golden-leaved Mint.—I am surprised that this Mint is not more extensively grown than it is for decorative purposes. When fully exposed in rather poor soil it is equally as effective as the Cloth of Gold Pelargonium. It may be grown by the million, and propagated to any extent in spring like common garden Mint. It forms an admirable line, and although common it has by no means a common appearance. Weather has no effect on it; on the contrary it appears to flourish when its companions suffer. *John Edlington.*

Woodlice.—I have discovered that these pests are fond of oatmeal. Therefore in order to trap them I got some glass bottles, and after breaking the necks off them, I let them down into my Cucumber bed, pressed the soil firmly round them, and then sprinkled a little meal round the edge of the necks of the bottles, which must be made level with the surface of the bed. I also put a little in the bottom of the bottles, the result of which has been that next morning I had trapped some hundreds, and I continue to do so every night. *J. B. S. S.*

Pelargonium Cultivation.—It may be worth knowing to many who have any small bed failures or thin places in their beds, that many Pelargoniums, as Mrs. Pollock, Golden Chain, Stella, &c., make excellent beds as cuttings, stuck in and left free to the sun, with only a little damping each night or morning; if put in close they are effective at once. For example, a bed of Mrs. Pollock put in 10 days ago, with an edging of Bijou, are now beautifully rooted, and, what is of more importance, they form an exquisite bed, finer than old plants, as the rich leaves pave the ground. For ribbons in spring, where one runs short of plants, they answer quite as well. Cuttings of Stella, taken off as long as can be spared, will form a showy bed in 14 days. *F.*

Orchids at Exhibitions.—Do you suppose that cool Orchids could be made to bloom in sufficient variety at exhibition times? My own notion is that if four-day shows are insisted on Orchids will disappear from them, unless heated tents, without cold draughts of air, are provided. The Royal Horticultural Society should have either a tent expressly for Orchids, which it could take about the country, or a movable conservatory. *R. W.*

Macleaya cordata.—This is a fine plant in good soil, but comparatively poor in bad or very stiff soil. It is quite distinct in habit and tone, and sometimes goes beyond 6 feet high when in good soil. The flowers are

not in themselves pretty, but the inflorescence when the plant is well grown has a distinct and pleasing appearance. It will prove a good thing for associating with other fine hardy plants suitable for making bold groups. With some of the plants recently named, and with others, perfectly hardy plants, which I shall in due course deal with, I would guarantee to produce as bold and striking groups of vegetation as any ever seen produced either with us or in Paris, with costly and tender exotics requiring winter protection. *R.*

Vanilla aromatica and planifolia.—Some few years ago I bought plants of each of these, which have grown very well, but my gardener fails to fruit them. I am therefore almost inclined to consign them to the rubbish heap. My gardener informs me that Mr. Bennett, of Osberton, has succeeded in fruiting them. If this, therefore, should meet the eye of Mr. Bennett, or that of some other successful cultivator, I should be greatly obliged if they would state in full the means adopted whereby that result is ensured, which of the two is the most prolific, and how many pods may grow on one plant. I am informed that both are shy fruiters. *J. Broomfield.*

Shanking of Grapes.—My Grapes have shanked much more this season than usual, but I cannot think that any blame can be attributed to the border, which is outside, and is 50 feet long and 16 feet wide. It is flagged, and below the flags is an open space 14 inches deep. The flags, which rest on pillars, are left 1 inch apart. Above them are 3 inches of broken bricks, each about an inch square. In making the border I used 15 cwt. of crushed bones and two loads of lime from old buildings. Not having been able to get fresh soil I took the best that came out of the old border, which had been used for Vines before with no result. I replanted the same Vines that were in before. They have now been planted five years. The Black Hamburghs have not shanked before this season, but Muscats have shanked more or less all the time. Not having a greenhouse, and having a large conservatory to keep gay with flowers, the Vineries are full of plants all the year round. I may state that the crop of Grapes on the same Vines last year was very fine, and not one of the berries shanked. This season I had a fine crop, which looked well up to the time of colouring. About one quarter of the whole crop of Black Hamburghs have shanked. The border is 3 feet deep at back, and 2 feet deep in front. *Puzzled.* [The cause of Grapes shanking is owing either to an insufficiency of good roots, to a want of good leaves, or to an over-heavy crop; in other words, the feeding organs of the plant are not equal to the work which they have to perform. If, when you observed the first symptoms of shanking, you had reduced the crop considerably, the probability is you would have seen little of the evil in question. The Muscat of Alexandria and the Frontignan class of Grapes, being more tender than many others, cannot stand so much rough treatment, and are always more subject to shanking than the Black Hamburgh, which has, perhaps, the hardiest constitution of all Grapes. Without personal inspection it is impossible for us to say what may have been the primary cause of the mischief; but we suspect that the border has a good deal to do with it, owing to its having been made with old soil in which Vines had been previously growing, and in which they did not succeed. The brick rubbish added ought to have improved it, but Vines have a great dislike to, and never succeed well in, old soil. They may grow in it, and that rankly, but they never bear good crops. Is the border in a soddened state? The drainage seems good, but can the superabundant moisture pass quickly enough away between the flags? Last autumn, being cold and wet, was unfavourable for ripening the wood of Vines properly; perhaps yours were not sufficiently well-matured, which might account for their weakened condition this year, and their inability to bring the same quantity of fruit to perfection this year as last. *B.*]

Mignonette Dying.—Not liking to trust to the chance of my predecessor (who seems to have put in plenty of good soil) having grown any Mignonette which might come up self-sown, I sprinkled some seed broadcast over the borders this spring; and notwithstanding that some of this seed came from the Royal Horticultural Society, under the designation of Reseda odorata grandiflora, not one seed in 50 produced a plant. Those few that did come up—and there are still some plants quite young—no sooner got into good blooming than they began to flag, look sickly, turn brown, and die; and this occurs with every plant that arrives at maturity. *Post mortem* examination revealed absence of fibrillæ, decortication of the root, and disintegration of its fibrous tissues. I fail to notice anything else unusual. Can you account for it? *W. T.*

Lilium auratum.—I bought a lot of bulbs of Lilium auratum at a spring importation, and all but two, which I planted out of doors, have bloomed, and are very handsome and distinctly marked with a deep blush of lake over the yellow, and very profusely blotched with red points. I suppose many, from other coloured Lilies growing near them, have got touched with their pollen, and hence this sport. I shall try the old Tiger Lily, though I may not live to see the product of any seed I may save, having some while since passed my three score and ten seasons and most of my hybrids disappearing as they approach maturity, some of them have been advertised at one guinea per plant by the nurseryman to whom I traced them, and who purchased them in entire ignorance of their having been stolen from me. *T. I.*

Herbaceous Anemones.—I have just seen in the flower garden of an old mansion in this locality, some wonderful examples of what I take to be the ordinary Anemone japonica, growing in a mixed herbaceous border in a rather low position on a Grass plot under the shade of some large trees. Some of the clumps were fully a yard in diameter, and the height of the plants from the ground to the top of the flower stalks about 3½ feet. There were two varieties; the colour of the flowers of the one a delicate rose, the other much deeper in colour, and of a lilac-rose hue. A great many flower stalks sprang from each clump, and there being a large number of expanded flowers at one time, they had a very striking appearance; in fact, the clumps formed the most interesting feature in the flower garden. Is not the growth unusually tall? I learned that the plants had not been disturbed for a considerable period. *R. D., Ealing.*

The Weather.—As we write (August 14, from 3 to 4 o'clock, P.M.) the thermometer stands at 95° in the shade, on a north wall, where the sun has not shone. On Monday, the 29th of July, the young shoots of Kœlreuteria paniculata were killed by frost at Isleworth on a hill. These facts exhibit the dangerous extremes of our English climate. *J. & C. Lee, Hammersmith.*

Orchids.—I saw at Dr. Ainsworth's the other day a remarkable plant of Aerides Schröederi, with about 30 leaves and 2 spikes of bloom, one having 8 branchlets, and bearing no fewer than 75 flowers; the other spike had 20 blossoms—forming altogether a grand sight to any one fond of Orchids. A. Lobbii was also strong, one plant having 2 spikes measuring 4 feet from tip to tip. Associated with these was also a magnificent specimen of Cattleya labiata pallida, with nearly 20 breaks just showing flower. Others were likewise doing well in pans suspended from the roof, a style of growth which Mr. Mitchell thinks is to be preferred to bare blocks and rotting baskets. Oncidium leucochilum had a flower spike measuring 12 feet, with between 300 and 400 blooms on it; another spike being nearly 10 feet in length. Pleiones were maturing some fine bulbs, while, as though resting after its exertions, was the lovely Trichopilia that was in such excellent condition at the late Manchester show. Odontoglossums are grown here, plunged in a sand bed in a Vinery. Dendrobiums are kept in an adjoining house, where fire heat for a time is altogether withheld. I noticed, moreover, Disa grandiflora coming into flower in a small greenhouse. *J. T.*

Mrs. Pince's Black Muscat Grape.—Pardon me for again troubling you. All that has been said of this most excellent of all Black Grapes is not enough to convince those of its merits who have not had an opportunity of seeing it; for many of late years, after having received new Grapes with high characters, have been disgusted at finding them after a time inferior to the good old Alexandrian Muscat, Black Hamburgh, or Lady Downes' Seedling. I can assure all who may be in doubt about this variety, that when it is once planted in a house it will afford them satisfaction. I cannot see how Mr. Toole (see p. 808) could have made such a mistake as to say that it resembles Lady Downes' Seedling in bunch and berry, as the bunch of this variety averages from 10 to 14 inches in length; has shoulders of medium size, with a stout stalk; berries purplish black, with a thin bloom, middle-sized, perfectly oval, set on stout, short, rigid fruit-stalks; flesh very firm, sugary and vinous, with a strong Muscat flavour; whereas Lady Downes' Seedling has shorter bunches, with shoulders more branching, giving the clusters a more chubby appearance. The berries of Lady Downes' are purplish black, with a copious bloom, and the flesh is rather firmer than that of the Black Hamburgh. *W. Cragg, Gr. to J. C. Bowring, Esq., Larkbeare.*

Musas.—In passing through the houses of the Oxford Botanic Garden the other day I observed a plant of Musa with a stem about 12 feet high, which had produced a bunch of fruit last year (1866), and from the same stem a second bunch of fruit has appeared this summer. The second bunch of fruit is 9 or 12 inches above the previous one, and is on the side of the stem opposite the old fruit. As it is rare for a plant of this genus to fruit a second time, the fact may be worth recording. *Thomas Shortt.*

Judging Orchard-house Trees at Bury St. Edmund's.—The disappointment expressed by Mr. Grix (p. 785) at his orchard-house trees not gaining the Bury cup is easily understood. Every person considers his own products, whether it be fruit or plants, superior to any others; but it is rather novel to find a person explaining that he had broken the first rule, but was still entitled to the prize. It is easy for an exhibitor to twist a rule to meet his own case. But when Mr. Grix insinuates that the other exhibitors were equally out of rule, he commits an error, which is, I hope, unintentional. Before he thinks proper to asperse in a public paper the judgment of such practical men as my co-judges, he might at least go to the same trouble in trying to be correct as they did in judging. That a great amount of horticultural skill is necessary to grow large trees in large pots, and keep them alive for ten years, is quite new to me, and if six years is the minimum and ten the maximum of orchard-house tree life, this mode of culture may be an expensive luxury, but the circumstance can never be taken as a rule by which to judge them. At p. 807 Mr. Fish takes up the cudgels for both his neighbours: it was neighbourly and kindly of him to do so, and no one who knows him will be surprised, but he might have dealt out a little more fair play. Does the indulgence given by the rule to admit green fruit, by any means lessen the value of ripe fruit, or debar it from taking the prize? I hope my friend is not so enamoured of huge Jacks-in-the-green as to overlook the many points a collection of ripe fruit brings to bear against a collection at least apparently six weeks later. Is there not something to be allowed for ripeness? I take the rule to mean this: "Anyone not having sufficient ripe fruit would not be disqualified by making up the number with trees bearing fruit in an unripe state." And a very liberal rule it is. Something similar occurred in other classes; for example, in one class of Scarlet Pelargoniums the rule said that Nosegays were not excluded from the class: but that was very different from saying that the prize could not be taken without them. I saw many ladies wistfully eyeing those little bushes of ripe fruits, and no doubt some of them subscribed to the Cup. Suppose my friend could have formed from among them a tasting jury, he would have found their faces lighting up and becoming more beautiful, if that were possible, as they felt the influence on the palate of a luscious Royal George, or the rich aroma of a Louise Bonne of Jersey. But before getting through the other, it would have been *O miserere!* I have not the pleasure of knowing either party, but if the fruit on Mr. Grix's trees had been ripe, the amount of fruit might have led to a different result. Let us try to judge them again. Mr. Grix, by his own showing, had three Peaches, three Nectarines, one Apricot, two Pears, two Plums, and one Cherry. In the 1st prize lot was one Royal George Peach, one Barrington, one Murray Nectarine, one Elruge, one Louise Bonne of Jersey Pear, one Celina Apple, and one Early Margaret, one Mayduke and one Morello Cherry, two Plums, and one Fig. The first point in the last lot was compliance with the entry rule; fruits true to name and ripe, two points; good crop and dwarf Trees, average 3 feet high and through, one point; healthy, clean condition, free from insects, one point; small pots, all 9 or 10 inches, one point; or six points in all. I can only make one point for Mr. Grix, namely, a good promising crop. Large trees in large pots are easier to bring to perfection than trees in pots half the size. A lady might pick one of the others up, and placing the pot below the table in the middle division, have a much finer object for table decoration than any that were exhibited at Bury. We should have made a mistake had we judged differently. I trust, however, that this discussion will bring out some definite rule as to what constitutes perfection in an orchard-house tree, as evidently there is a difference of opinion on the subject. We—I mean the judges at Bury—are perfectly agreed that if the prize had been ten times the amount, and we had had the opportunity, it would have been awarded in the same way again and again. *One of the Judges and a F.R.H.S.*

Bambusa Fortunei.—As the reference to this plant by "R. D." in your last may create a prejudice against it, I am tempted to enclose you a shoot from a plant growing in a border of the most ordinary but friable garden soil. It resisted perfectly the severe winter, and is now a nice tuft with 20 to 30 shoots like that enclosed. Further, it increases fast: my small purchase last year having multiplied fifty-fold. I feel little doubt that many of your readers can give equally favourable evidence in its favour. In tenacious soils, or very dry ones, it may possibly not flourish. *W. T.*

Foreign Correspondence.

Volcanos in the Camaroons Mountains.—It may interest you to hear that the Camaroons mountain, whose volcanic fires have long lain dormant, is again in a state of active eruption. On the night of the 15th inst. the lava seemed to rush with tremendous force out of the east side, a few hundred feet from the top, then pour over in a grand cataract of fire, and flow off E.S.E. in a crooked fiery stream down the mountain side. The molten lava poured out, from sunset, when it was first seen, till after midnight, increasing in volume. Clouds obscured the mountain next morning, but it has been seen burning thrice since. It is apparently quiet now. There was no thunder for several days preceding, but we had a gale of wind from the E.N.E.—an unusual direction—coming an hour before sunset on the 14th inst.: a tornado in fact, without thunder or rain, except a few drops. *Extract of a Letter from C. Livingstone, Esq., H.B.M. Consul, Fernando Po, to Dr. Hooker, F.R.S.*

Vegetation of the Quitinian Andes.—At the conclusion of my last letter (see p. 809), I stated a curious physiological appearance displayed by the flowers of Gentiana sedifolia, as observed at two distinct elevations—between its usual range of 11,000 to 14,465 feet—the latter number being the extreme height of the path traced across the ridge of the Azuay. But to proceed with my narrative. By the side of the narrow path, on a rocky declivity, grew abundantly a species of Fern, the Jamesonia canescens of Kunzo, perhaps the only one belonging to that tribe sufficiently hardy to withstand the rigour of the climate. The same species I had previously seen on two different occasions, once at the mine of Condorasto, near Riobamba, at 14,496 feet, and subsequently within the crater of Pichincha, the brink of which is 15,676 feet above the level of the sea. Another species, J. cinnamomea (Kunze), scarcely distinct from the former, grows on Cotopaxi and Cayambe, very near the snow limit.

To make a complete exploration of these aërial ridges, it would be requisite for the traveller to provide himself with a tent, warm clothing, and a supply of provisions calculated to last for at least 15 days; for he must be prepared to take advantage of any brief interval of sunshine; because he may experience a week of stormy weather during which he must necessarily remain inactive. Where the two chains of the Andes unite to form what is technically called a knot, I have always found the flora of such localities more rich and varied. The culminating heights of the Azuay form the line of division between two provinces, Alacisè and Cuenca, and although many plants are common to both, still there is a marked difference between their respective floras.

July 8.—We continued our journey over a moorland country, on which grew in patches a dwarf Gentian, with flowers of a light purple, and in the ruts that constitute the main road, Hedyotis hypnoides in profusion. Towards evening we arrived at the farm of San Pedro, consisting of a number of low thatched tenements, encompassing a quadrangular courtyard of

very ample dimensions. The rooms we found locked, the keys, we were told, being in possession of the proprietor, who had gone to Cuenca. We were, therefore, under the necessity of passing the night in the open corridor, where, fortunately, there had been accumulated a provision of straw, on which we slept very comfortably.

Next morning we departed at an early hour. The first half of our journey was accomplished with comparative ease, the road traversed being an elevated plateau, clothed with a dense vegetation of Plantago rigida, to the exclusion of almost every other plant. But the southern descent, towards Cuenca, is exceedingly miry and precipitous, consequently our progress was much retarded by the frequent falls of the beasts of burden, the delay of extricating them and readjusting the load giving rise to an apprehension of having to pass the night in a situation so very uncomfortable. However, by sunset we had struggled through the worst part of the path, and, continuing our journey in the dark, we reached at a late hour a small farmhouse, called the Hacienda del Salto, where we remained the day following to recruit our baggage animals. My intention was to enjoy a few days' rest at the little town of Gualaseo, situated on a considerable stream that flows eastward to join the Amazon. The distance is about 30 miles. We mounted at an early hour, and arrived at Gualaseo about mid-day. The climate is dry and temperate, the thermometer ranging between 56° and 64°. The river flows over a flat country, on which there are extensive plantations of Sugar-cane and Maize, the view being circumscribed by the ridge of the eastern Andes capped with forest. An article, though not strictly agricultural, claims attention; the rearing of the cochineal insect. The Cactus on which it feeds grows spontaneously on the walls enclosing the farms, and presents on its surface a cottony or spider web-like integument protecting the insect. The whole is scraped off with a blunt knife and reduced to a paste, which is dried by exposure to the sun.

On the 17th, which happened to be Sunday, I remarked that the whole population had mysteriously disappeared, and was told they had gone to the neighbouring village, called Chordoleg, to witness the exhumation of articles of wrought gold. I was aware that, 10 years ago, the discovery was made by a labourer engaged in ploughing, having turned up a piece of gold fashioned in a peculiar shape. Presuming that more might be obtained, excavations were undertaken, and gold to the value, it is said, of about a million of dollars, was brought to light. For the last two years however it was supposed that the deposit had been exhausted.

The novelty of the affair induced me to proceed to the scene of operations, being distant about a mile. On my arrival I found several hundred individuals congregated round a pit, having a diameter of about 3 yards, and of a nearly equal depth. On the present occasion they had been rather successful, having disinterred during the night articles of gold weighing collectively about 25 lb. The more curious articles were ear-rings, made of hammered gold, 9 inches in length, each weighing somewhat more than 3 ozs., and a gold breast-pin of nearly equal weight with the ear-ring. These several articles were skilfully manufactured, and indicate proficiency in the art of working the precious metals, and a more advanced state of civilisation than the present race of Indians possesses. Several staffs, made of the slender stems of a Palm, were discovered in the excavation. They were inlaid with hammered gold, and surmounted by a bust of the same metal, representing the head of an Indian. The same description of staff is borne by the Indian alcalde of the present day, and is considered a badge of authority, but, instead of gold, it is capped with silver, or more generally with brass. The duties of these functionaries consist in attending to and supplying the wants of the traveller, but they are principally under the control of the parish priest, who on Catholic holidays obliges them to assemble within the precincts of the church the whole Indian population, to repeat the "Christian doctrine," which I am sure is beyond their comprehension. And should it be discovered that any of the flock are missing, the Indian alcalde receives a fresh order to assemble the defaulters by force, who being pent up within the walls of the convent, are individually subjected, men and women, to a process of flagellation which it is truly painful to witness. It is no wonder, then, that people so degraded should be reduced to a level with the beasts of the field. They have been often ranked as such by the military. When I first visited this country at a period previous to the conclusion of the War of Independence, the civil authority was frequently ordered to provide, for the transport of troops and military accoutrements, so many "bagages mayores," and so many "bagages menores." On asking for an explanation of these terms, I was told that the former meant horses and mules, and the latter asses and Indians! To use a harsh term, the poor Indians have become completely brutalised by their intercourse with the Spaniards.

On the 26th July, being provided with the requisite number of mules, I left Gualaseo, following for some miles a road traced along the banks of the river, and terminating at a little village named San Bartolomè. Here the climate is too cool for the cultivation of the Sugar-cane, but instead of that semi-tropical production, the fields presented plentiful crops of Maize, Wheat, and Barley, variegated with bright green patches of Lucerne. Of the three cereals just mentioned, the Maize or Indian Corn is considered the most important, not merely on account of the quantity of food yielded by it, but because it has the additional advantage of being available for cultivation within a zone extending from the sultry climate of the coast to the cool table-land of the interior, as high as 1000 feet above the sea-level. Moreover, its preparation as an article of food requires little trouble, being merely boiled in water with the addition of some salt. Throughout the province of Cuenca it is consumed by all classes, a quantity of boiled Maize, called *mote*, accompanying the other dishes placed on the table.

We were comfortably lodged in the parish house adjoining the church; but early in the morning I was aroused by the discordant sound of music, and hastening to the place from which it proceeded, I saw, within the church, a party of Indians dancing opposite the altar, on which were placed emblems of the Crucifixion and other saintly accompaniments. The Indians were dressed in the most fantastic style, and decorated with articles of jewellery, "with rings on their fingers and bells on their toes." It was a strange scene, and I should think by no means calculated to impress a zealous Catholic with the solemnities usually attached to his creed; but such abuses are tolerated, because it is asserted that the Indians, previous to the conquest, were in the habit of dancing for days and nights together in their temples dedicated to the worship of the sun, and, as a matter of policy, they are permitted, under certain restrictions, to continue their heathenish practices, in order to be reconciled to the adoption of the Catholic faith. It is also to be understood that the curate derives nearly the whole of his revenue from contributions laid on the Indians, and he, of course, feels an interest in gratifying their natural propensities. I recollect, many years ago, witnessing the same scene enacted in the Cathedral in Quito; but such ceremonies are now suppressed by order of the ecclesiastical authorities.

To avoid the tumult and confusion, augmented by the immoderate indulgence in spirituous potations, I was glad to be off as early as possible; my servant, on crossing the square, having been nearly capsized by the mule on which he rode taking fright by meeting with some of these disguised objects of humanity. *William Jameson, Quito.*

Notices of Books.

Australian Vegetation, Indigenous or Introduced; considered especially in its bearings on the Occupation of the Territory, and with a view of unfolding its Resources. By Ferdinand Müller, Ph.D., F.R.S., Director of the State Garden, Melbourne.

The title of this essay will serve to convey only a partial idea of its contents, for in addition to a general sketch of Australian vegetation, with special reference to its applications for economic purposes, Dr. Müller has here given us a complete list of the Australian trees, with their distribution, in the several colonies of that vast island. The list comprises no less than 950 trees, arranged in sequence, according to their botanical affinities. Such a list is likely to be valuable for many purposes, and it is greatly to be wished that we had, for purposes of comparison, similar lists of Indian or even of European trees. Victoria rivals California in the altitude of its trees, for even the gigantic Sequoia (Wellingtonia) is matched in height by some of the Eucalypti. One of these latter, E. amygdalina, was found on admeasurement to have attained a height of 420 feet, and another of 480 feet—the height of the great Pyramid! In another instance the trunk measured 295 feet from the base to the first branch, the girth of the stem at 3 feet from the base being 41 feet. It is not necessary to cite further details respecting the enormous size of these Australian gum trees. In many respects they bear the palm from their Californian rivals, especially so in the quality of their timber. Eucalyptus marginata is, says Dr. Müller, absolutely impervious to the ship-worms, which play such havoc in piers or other works of naval architecture.

For hardness and durability also, the timber of the Eucalypti can hardly be surpassed; while some of the species are sought after for the beautiful markings of their wood, which renders them of great value to the cabinet maker, all of them furnish tar and wood spirit in abundance, and from their bark paper may be prepared. The immense importance of these Eucalypts has led to their being introduced not only into India, but into Portugal, the Azores, the shores of the Mediterranean, and other places. Some of the species might even be grown in the southern counties of England. In Devonshire and in the Scilly islands there are, we believe, already large specimens of Eucalypts. E. globulus at Kew suffered severely during the last winter, but is recovering; but of course in our climate the cultivation of these trees would be merely a matter of curiosity. Far otherwise would it be in other districts, and Dr. Müller is hardly chargeable with immoderate enthusiasm when he suggests the scattering of the seeds of the drought-resisting Eucalypts and Acacias after the hot season along any watercourse, or even along the the crevices of rocks after rain. "Even," writes our author, "the rugged escarpments of the rocky desolate ranges of Tunis, Algiers, and Morocco; even the Sahara itself, if it could not be conquered and rendered habitable, might have the extent of its oases vastly augmented, fertility might be secured again to the Holy Land, and rain to the Asiatic plateau, or the desert of Atacama, or timber and fuel furnished to Natal and La Plata." This short extract will suffice to show the spirit in which this most interesting and valuable essay is written. We say no more respecting it at present, as we shall from time to time avail ourselves of its contents.

The Constellation Seasons, an Easy Guide to a Knowledge of the Stars. By R. A. Proctor, B.A. Longmans.

This book consists of a set of 12 maps, designed to represent the relative position of the stars at the different hours throughout the year. We express no opinion as to the value of these maps for professed astronomers, but they will be of great service to the mere star-gazer, who only desires to know what stars are above the horizon at any hour in any night, or who, watching the heavens at any time, wishes to know what are the constellations he is witnessing. An explanatory table greatly facilitates the use of the maps, which would otherwise prove somewhat bewildering to the novice. Possibly the marking each constellation by a separate shade of colour would increase the utility of the maps so far as facility of reference is concerned, while some fuller explanation than that given is required by the non-professional observer as to the reasons why the west side of the map is placed to the right hand of the spectator, contrary to the general custom in maps terrestrial. Having tested the maps, we can safely recommend them for the use of the amateur.

Florists' Flowers.

Double Pyrethrums.—Probably, among recent additions to the flower garden, no plants have shown so rapid and marked an improvement as have the varieties of the Double Pyrethrum; while the single varieties also show an advance in a corresponding ratio. So far has the improvement of the double-flowering kinds extended, that they may be said to bid fair to rival both the Aster and the Chrysanthemum, for in the variety and intensity of the colours, and in the perfection of their form added to size and substance, they are closely reaching to the requisite "properties" which form the standard of excellence of what are denominated "Florists' Flowers." In addition, they are generally of a robust habit, and easily cultivated; they also bloom profusely and continuously, in colours very attractive and some even brilliant—qualities which place them in the front rank of hardy herbaceous plants.

The rudimentary form of the Pyrethrum, as it came to the hands of Mr. John Salter, Versailles Nursery Hammersmith, some 10 years ago, from M. Themisterri, of Belgium, who for some time had been trying experiments with a view to improve several kinds of wild flowers, was that of a large single flower of a distinct shade of bright rose in colour, and having the yellow centre common to most other composite flowers. M. Themisterri had brought the single Pyrethrum up to the point at which it had passed into Mr. Salter's hands, the first break showing a slight infusion of a delicate pink colour; the second break being the flower above described, which M. Themisterri sent to Mr. Salter. The next generation of flowers showed a tendency on the part of the small yellow florets in the centre of the flower to lengthen and become quilled, as in the case of the German Aster; and by seeding from these again, the work of improvement was carried on until it has reached the point indicated at the opening of this paper. The first double variety sent out by Mr. Salter was named Roseum album, having several rows of florets of a lively violet rose, with a white centre. It should, however, be stated that on the Continent the improvement of the Double Pyrethrum is also being carried on with success, though Mr. Salter appears to be drawing ahead of other raisers, in France and elsewhere.

A large majority of the plants which have flowered in Mr. Salter's nursery during the present summer were planted out previous to the frost in the early part of the present year; this fact will help to give some idea of their hardihood of constitution. Nor does excessive moisture appear to affect them injuriously; but in wet weather the slugs will feed upon the plants if they are planted near anything else that will afford a harbour to these pests.

There is a certain amount of difference noticeable in the arrangement of the florets of some of the flowers. A few of them have a tendency to assume a more raised or semi-conical shape: these Mr. Salter terms Ranunculus-flowered kinds, as in the centre of the flower-heads the florets are flat rather than quilled. One of the new varieties of the present year is in this way; the flowers are high and full, and of a pale rosy lilac colour, with a light centre, a very beautiful shade of colour. This has been named Miss Plinkie. Another with pale yellow flower-heads, having a centre of a deeper hue of the same colour, is named Luteum plenum; it is a remarkably free-blooming kind, and dwarfer in habit than is usually observed. Another new variety is very appropriately named Nobilissimum, it is an enormous flower, having very broad guard florets of a bright pink hue, with a white centre; it is one of the most distinct kinds, and very attractive. Mr. Salter also had other seedlings of great promise, which have not been named.

Some varieties not yet in Mr. Salter's catalogue, and comprised in the main of new flowers from the Continent, are very well worthy of notice:—Yolande, a dwarf-growing variety, colour rosy pink, very double; Emile Lemoine, a new continental variety, colour deep rosy carmine, with bronzy centre; Modèle, a fine shade of carmine red, in the way of Eximium, but unfortunately both these sorts, though large and of a fine hue of colour, are very apt to come single; Lischen, rosy purple, with paler centre, a continental variety; Madame Calot, deep rosy purple, a good shade of colour; and Nancy, another continental variety of a creamy sulphur colour, and very promising. The plants of the majority of these were small, and consequently the flowers did not appear in their best form. Of older kinds (the white, however, comprising flowers sent out in 1865-66), the following may be noted as the most attractive:—Alfred Salter (Salter), a fine flower, colour vivid rose; Annie Holborn, white with a deep blush centre, very good; Ariadne, rosy peach, the centre lighter, a very distinct and pretty flower; Barral, a very fine and double crimson purple flower, one of the best of the dark colours; Belle Gabrielle, a fine flower, pure white, with delicate peach centre; Boule Souffre, a flower very like an Anemone-flowered Chrysanthemum; Carneum plenum, blush, flowers

large and full; Carminatum plenum, dark carmine; Cerito, clear rosy peach with sulphur centre, a fine flower; Fascination, a very pleasing shade of deep pink; Fulgens plenissimum, dark red, a large and handsome flower; Gustave Heitz, pale rosy pink, with bronzy centre, a fine flower, but a somewhat tall grower; Imbricatum plenum and Rose Perfection, both of a carmine shade, the last deeper, having more rose in it, the flowers of both varieties fine and handsome; Iveryanum, bright rose, the flowers very large and full, the habit somewhat dwarf: Lady Blanche, blush, with a distinct rosy tint, very fine; Miss Talfourd, bright rosy pink, a pretty and pleasing shade of colour; Mrs. Dix, blush, shaded with pale rose, very fine; Nemesis, dark glowing rose, showy and fine; No plus ultra, blush white, a fine and bold flower; Paul Journu, soft rose with pale centre, a dwarf-growing variety; Pet, a very pretty flower, of a clear rosy peach shade; Pompon Rose, a small but good flower, of a lively dark rose shade; Princess Alexandra, white, with a slight tint of cream, a very fine flower, of great depth and substance, and somewhat dwarf growing; Prince of Wales, dark carmine, shaded with red, large and fine, a rich and striking shade of colour; Sulphureum, sulphur, with a deeper centre, one of the most distinct flowers of this colour; and Wilhelm Kramper, a tall-growing variety, but of a good shade of colour, namely, lively dark rose.

Mr. Salter will soon be able to form a distinct section of Pyrethrums under the head of Tom Thumb varieties, as occasionally a seedling variety comes of an unusually dwarf character. It is, however, somewhat singular to note that a batch of seedlings raised from seed saved from these Tom Thumb varieties will produce but five or six of the same style of growth, all the rest being tall-growing plants. Nor have the single varieties been altogether overlooked, for there has been a steady improvement here also; the long lanceolate florets have become broader and more rounded, and the lilac and pale rose tinted flowers have become intensified into deep carmine and crimson. These single flowers are by no means to be despised as ornamental flowering plants, as they make a very effective display either massed in beds or planted on sbrubbery borders. Their somewhat lanky growth is an objection urged against their use, but there is nevertheless a charming novelty about them, and they also bloom profusely and remain a long time in flower. A few of the best of the single varieties are Giganteum rubrum, chestnut red, large and bold flowers; Kleinholtz, bright crimson, fine and distinct; Mars, glowing crimson, a fine shade of colour, the flowers large and fine; Prince Alfred, purplish crimson, flowers large and bold; and Sparkler, bright reddish crimson, flowers very showy, and a fine shade of colour.

These Pyrethrums can be readily propagated by cuttings put in a cold frame, or under a hand-glass on a shady border. The plants can be placed in their blooming quarters in the autumn or early spring, using a rich soil in which to plant them. As the slugs are apt to attack them, these should be looked after when the plants show signs of having been eaten by them. Mr. Salter would do well to exhibit a stand of cut blooms occasionally at the summer exhibitions, and thus lead the public to appreciate the charming things he has in the way of Pyrethrums. *R. D.*

The Apiary.

Removing Hives.—I have four hives of bees—one stock of 1865, one ditto of 1866, and two swarms, one from each of the above. I am leaving my present home in Warwickshire at Michaelmas, and going into Lancashire, and should like to take one hive of bees with me. The swarm from the stock of 1865 came a fortnight later than that from the stock of 1866, but I suppose it contains a younger queen. Which is the best to select? Please state also the best mode of conveying safely such a hive of bees. I propose breaking up the remaining three hives for their honey. What is the best mode of so doing in common straw hives, and how soon? Would you advise my joining the bees from one of these to the lot I decide to take away? Is it true that bees injure the flowers at which they suck? *A. M. H.* [If your stock of 1866 is a strong and prosperous one, we should choose it for keeping. It will bear removal better than the swarm, and has, in all probability, a younger queen. You will also be likely to obtain more honey, and of a purer quality, from the younger stock. If you particularly desire to retain either of the swarms, we should fix on the one most populous and well supplied with stores, regardless, in this case, of the supposed age of the queens. For conveying such a hive we cannot do better than quote a reply given to a correspondent a few weeks ago:—"Place some straw in a tea-chest; remove the hive from its floor-board, and wrap it up in a coarse cheese or open canvas cloth, tying a string tightly close to the bottom. Invert the hive in the tea-chest, and pack round with straw, leaving the cloth uncovered. Put two sticks across the chest, resting on the hive, to prevent its shaking, fastening them by nails or screws. Make a few good-sized holes in the cover, which nail down, also tying a stout cord round for further security. Look after the railway officials, and see that the case is carefully placed in the luggage van, standing steadily on the floor. To break up stock, drive out the bees, and cut out the combs with a curved comb-knife. The latter end of August would be a very good time. We should hardly, under the circumstances, advise your uniting the bees of the condemned stocks to the one kept. The brimstone pit will be the kindest treatment. If possible save the brood and give it to the hive on top, covered over with a small box, for hatching out. If there is no hole in the hive, cut one. We do not think that, as a rule, bees injure the flowers. In some bad seasons, following the perforations of the humble bee, Fuchsias, and some other flowers, suffer considerably.]

Garden Memoranda.

Kilgraston House, Perthshire, the Seat of John Grant, Esq.—This delightful residence is situated in the midst of an extensive park, in the centre of the lovely valley of Lower Strathearn, rather more than 4 miles due south from Perth, and one mile distant from the Bridge of Earn station of the North British Railway. The house is placed in a somewhat low situation, on a broad expanse of gravel, from which a well-kept lawn stretches out on all sides, and on which no tree or shrub of any kind appears. It is a noble quadrangular building of three storeys, in the modified Roman style of Grecian architecture. It was erected for the late Francis Grant, Esq., during the first decade of the present century, and consists of a deep red-tinted enduring sandstone found on the estate. Its principal front has the addition of a portico, and it is further enriched by mural and other ornaments in Portland stone. Its walls on this side are sparsely covered to nearly half their height with Pyracantha, Ceanothus, Cotoneaster, and other winter-berried, everclothed shrubs, amongst which Jasmines, Clematis, and Roses flower abundantly, and produce a charming effect.

The park, which is of considerable extent, was encircled by a stone wall soon after the mansion was completed, and the whole interior was belted in Brown's style; the present proprietor, however, has long since removed a portion of the wall and the belt on the southern side, and has extended the park onwards to a considerable distance on the slope of the Ochill Mountains, the whole being enriched with healthy trees, which now blend admirably with the fine groups and masses of Oaks, Limes, Ash, Chestnut, Elm, and Planes, with which the other portion of the park is so well embellished; it also contains some majestic forms of ancient Pear trees, heavily laden with fruit, several of which girth 8 feet in circumference at 3 feet from the ground. A rivulet meanders through the grounds, and sweeps the lawn on the south and eastern sides.

The principal approach from the Great Northern Road, after passing a beautiful Grecian lodge and triumphal arch of freestone, is led in a direct line—bordered on either hand with many noble examples of Oaks and other trees, crossing the water by a neat bridge, to the southern side of the mansion, where the main entrance is situated. Another excellent carriage drive is led onwards to the northern side of the park, passing on the left the stables and other buildings, which are screened from view by a large assemblage of stately trees; its course, too, is indicated by many magnificent forms of Limes, Oaks, and Planes before reaching the extremity of the park, where the egress is by a simple lodge and gate. A broad walk conducts from the southern front of the mansion to the gardens, which are situated at some considerable distance off at the south-western corner of the park. Near the house are some noble examples of variegated Sycamore and Turkey Oaks. On the opposite side of the water is a mass of ancient forms of Chestnut trees. On the right are some good examples of Swedish and other Junipers, which contrast well with the hoary leaves and coral berries of the Mountain Ash. The circular beds of a well-managed Rosery contained a good selection of excellent sorts. A good example of Weymouth Pine has a fine effect, associated as it is with many excellent forms of deciduous trees. Near here are two interesting groups of Cypress, of some 5 or 6 feet in height; the seeds of one group are said to have been obtained from near the site of "Solomon's Temple," the seeds of the other from trees growing in the "Garden of Gethsemane." Near here, too, are scattered about some excellent examples of Wellingtonia gigantea, Arbor-vitæ, Black Spruce, and upright Yews. A white Willow, which has been planted 35 years, is 60 feet in height and 10 feet in girth at 3 feet from the ground; it covers a vast area with its pensile silvery-leaved branches—a glorious object, contrasting admirably with exalted forms of Spruce Fir, a good example of Purple Beech, as well as sundry other fine specimens of the broad-leaved variety of Douglas Fir, with which it is associated. Crossing the "burn" by a neat bridge, we observed that the roots of some lofty Poplars growing on its banks had taken possession of the stream with their reddish-coloured thickly-matted spongioles. About here the masses of plantation are thick with undergrowth of Yews, fringed with Rhododendrons. Another walk is led along the southern bank of the stream, and is ornamented on either hand with many remarkable examples of Spruce Fir and other trees, interspersed amongst which are some beautiful forms of the broad-leaved variety of Douglas Fir, upright and other Yews, Picea Nordmanniana and nobilis, whose beautiful forms and finely-powdered foliage have a fine appearance. Re-crossing the brook by another bridge at the end of a broad walk at some considerable distance in front, is the entrance to the garden. This walk is margined on either side by a broad expanse of turf, on whose well-shaven surface masses of Rhododendrons and fine-foliaged plants are displayed to advantage, backed up as they are on either hand with good examples of Purple Beech and hoary Cedars, amongst which stately forms of Silver and Spruce Firs, as well as exalted Poplars, are freely distributed.

The garden is situated on an elevated portion of ground which slopes considerably from the north and also from the centre to the eastern and western sides. It contains an area of something more than 3 acres of excellent land, of a sandy loamy character, and is surrounded by red sandstone walls. On either side of the principal entrance is the gardeners' house and the fruit rooms—both two-storeyed erections. A broad excellent road extends the whole length of the eastern side of the garden; the wall borders are kept gay in summer with flowering plants, and its opposite side has a broad margin of turf fronting a mass of trees and beautiful shrubs. It is entered through a pair of noble open-latticed doors, and the walk proceeds onward to the centre of the garden, ornamented on either side with diamond-shaped beds, formed with broad bands of Cerastium tomentosum, the whole being backed up with Hollyhocks, Dahlias, and Roses. On the southern aspect of the north wall the forcing houses are situated, and the long borders in front are not only gaily adorned with beautifully disposed plants, but a portion of ground immediately in front of the glass erections is also laid out in beds, which are well filled with faultlessly arranged flowering plants, amongst which the glorious flower spikes of the Gladioli are conspicuous. The range of houses is in four divisions; it is rather lofty, and is 100 feet in length, and 9 feet in width; the glass roof, which is fixed, rests on a dwarf, powerful wall, in which there are ventilators, as well as under the apex of the roof, for the purpose of aëration, and the whole range is heated by smoke flues. The house at the western end is occupied by a Black Hamburgh Vine, the stem of which at some little distance from the ground girths 18 inches, and it annually bears a multitude of medium-sized bunches, the berries of which are well swelled and beautifully coloured. The second house is filled with two Vines—one a Black Hamburgh and the other a Grizzly Frontignan. These, too, bear heavy crops of well-swelled, medium-sized bunches. The next two divisions are occupied with one Vine; the eastern portion had at one time been devoted to the growth of Peaches, a shoot from the stem of the Vine, however, had been introduced, which gradually superseded the Peach trees, and both houses are now filled with excellent Grapes, the produce of a single Vine, the stem of which girths some 16 inches. These Vines have been planted 50 years, and during that period they have produced crops of no ordinary character in every season, nor have they had much to depend on except the deep-moulded, naturally drained soil of this excellent garden. These Graperies are a copy of the houses erected for the late Earl of Mansfield at Scone, by the late Mr. Atkinson, and they are well adapted both for the production of late and early Grapes. The walls that enclose these gardens are well covered with neatly trained fruitful trees; several of the ancient Pear trees that were removed from the old garden 50 years ago still continue in a healthy bearing state. The lower walks of the garden are lined on either side with admirable examples of dwarf standard Apple-trees, which produce excellent crops of unrivalled spotless fruit. Gooseberries and Currants are grown somewhat extensively, being much in demand for the table in the latter part of the season; and they, too, have been heavily laden with fruit.

The vegetable portion of the garden is well filled with crops of the most satisfactory kind, which are at once well sheltered and free from shade. On the terrace walk and ornamental ground in front of the houses, handsome seats are placed from which an excellent view of the Ochill range of mountains in the foreground is obtained. Their lofty tops are in this direction everywhere covered with wood, and their sloping sides, having lately been converted into pasture, enrich the scene. On the western side of the garden is a range of flue-heated pits, 80 feet long and 12 feet wide, in several divisions, in which Melons, Cucumbers, and Pelargoniums, and other plants in pots are successfully grown. A range of sheds extends the whole length of the forcing houses behind the northern wall of the garden, and in one of these Mushrooms are cultivated. The fruit room occupies a site on the eastern side of the garden; it is a spacious two-storeyed erection, and is excellently fitted up.

Broad walks proceed from the eastern and western sides of the garden, and are led onwards through the woods by which the Park is encircled. In an enclosed space of ground on the northern side of the garden is situated a mausoleum, representing the ruin of an ecclesiastical building; it was erected by the late Mr. Grant soon after the garden was formed; it has since been supplemented by his son, the present "Laird," and although of but comparative recent formation, it is already the depository of many sad mementos, relating to Balaclava, India, Borneo, St. Helena, &c. At its entrance is a pair of noble Silver Firs, 100 feet in height and 9 feet in girth; a broad avenue of majestic Limes leads from here to the extremity of the park, and is continued onwards to some considerable distance by lines of ancient green trees, Closely adjoining is the far-famed mineral wells of Pitkeathly, the property of Mr. Grant.

In the grounds of a neighbouring villa is an excellent example of Tulip tree; it is 58 feet in height, and its straight trunk, which is 20 feet in height, girths 8 feet at 3 feet from the ground; the spreading branches cover an area of 120 feet in circumference. A Black Gean, or Wild Cherry, growing a few yards off, girths 9 feet at 3 feet from the ground, and the spread of its branches is 162 feet in circumference.

In a field abutting on the park walls is a noble Spanish Chestnut, some 50 or 60 feet in height, the spread of its branches being 102 feet in circumference; its trunk is 25 feet in height, and its girth 15 feet at 3 feet from the ground. A noble Oak, of which many are scattered about here, girths 10¼ feet, and the spread of its branches is 156 feet. A lofty form of Elm, too, girths nearly 15 feet at 3 feet from the ground. The estate of Kilgraston stretches onwards to the summit of the Ochill Mountains, and at a point immediately opposite the gardens, where "Wallace's Road" first enters on it, is the famous spot on which Sir Walter Scott paused to view the magnificent scene he so graphically describes in the "Fair Maid of Perth." He had, without knowing it, deviated from

the main road, which descends into the valley some miles further eastward, and from which no view of the kind he describes could by any possibility be obtained; from here, however, Perth is seen beyond the gorge of the opposing mountain, and is finely backed in the well wooded distance by the lofty Grampians. Far down beneath, and onwards to the right, is the lovely valley of Lower Strathearn, with its winding river gliding onwards, until it merges with the broad waters of the Tay, which crosses the valley on its onward course to the German Ocean. It is screened on either hand by lofty, well clad mountains, and its banks are studded with comfortable-looking villages aud farm steadings. In its extreme distance the towns of Dundee and Arbroath are effectively brought out by the powerful rays of the meridian sun — a glorious scene, which, when once seen, is not readily forgotten. *D.*

Miscellaneous.

The late Mr. John Nitchell.— Mr. Nitchell, who died on the 17th ult., at Enville Cottage, Addlestone, Surrey, was 83 years of age, and had been connected for more than half a century with the Royal Gardens of Kensington and Kew, and lastly with the Royal and Cumberland Lodge Gardens, Windsor. He had served George III., George IV., William IV., and our present Queen, who as a reward for his long services, about 10 years ago allowed him to retire, at the same time granting him a liberal provision for life. After that he settled down on his freehold, Enville Cottage, Addlestone. He served his apprenticeship at Enville, from whence he came to London, and worked for some years in the then celebrated gardens of the Earl of Tankerville, at Walton-on-Thames. He then entered the Royal Gardens at Kew, from which place he was selected to conduct the improvements then in progress at the Royal and Cumberland Lodge Gardens. The island, too, on which the fishing temple at Virginia Water is erected, was embellished under his direction; and the celebrated ruin there, the pretty lake, and magnificent drives in the locality of that enchanting spot, were all carried out under his superintendence. He was interred in Addlestone Churchyard on the 23d ult., followed by many friends, among whom rank some of the best gardeners in the country.

Garden Operations.

(*For the ensuing week.*)

PLANT HOUSES.

Now that bright weather may possibly set in give abundance of air, which will not only prevent the foliage from being scorched, but will also tend towards ripening the wood efficiently, and bringing flower-buds previously formed to proper maturity. Give encouragement to "stove plants," which show symptoms of secondary autumnal flowering, such as *Allamanda grandiflora, Pleroma elegans,* &c., removing all decayed flowers as soon as they are perceived, and encouraging secondary growth. Keep *Cacti* generally, which have ceased flowering, much drier. Induce *Blandfordias* to perfect a good summer growth, by giving a surface dressing to the ball, sponging the grass-like leaves, &c. Water *Disas,* which have flowered sparingly, removing the flower-stalks forthwith, and encouraging the younger growths around their base to grow. Should any symptoms of green-fly exist, remove the plants at once into the outer air, where, by blowing a little tobacco smoke into the heart of the plant, the pests may be dislodged. Never allow the plants to remain in any structure in which fumigation is about to be carried into effect. Induce plants intended for future forcing to well fill the pots with roots, without which it is impossible for them to flower freely; on the other hand, let established hard-wooded plants have a season of rest, especially such as are intended for early spring flowering, among which may be classed Combretums, Aphelandras, Francisceas, Clerodendrons, Ixoras, Plumbagos, &c. Dry the balls of Pancratiums, Zingiber, &c., by slow degrees, as soon as the current season's foliage indicates decay. Except the weather continues very bright, afford rather less water to plants in general, and withhold liquid manure altogether, except in the case in which plants are in flower, or that of soft-wooded stuff intended shortly to come into bloom. Remove decayed and decaying flowers at the earliest possible moment from aquatics, which frequently over-exhaust themselves by bearing seed.

FORCING HOUSES.

In *Late Vineries* Grapes will now be commencing to colour, and it is to be feared that in consequence of the moist state in which most out-door borders, and especially ill-drained ones, are almost sure to be, accompanied with the want of solar heat, both inside and out, that the colouring will not be very perfect unless considerable skill is employed. Do not then resort to the too frequent practice, in dull untoward seasons, of giving an additional amount of heat internally; on the contrary, rather keep the house cooler if anything, encouraging a reciprocity of action betwixt roots and branches, which, though it will cause the ripening process to be carried on slowly, will nevertheless insure a better crop than could otherwise be attained. Give abundance of air without undue exposure to draughts; and should the weather become dull, keep the internal surfaces of the houses as dry as practicable without having resort to much artificial heat. Just a little warmth in the pipes during the time in which air is given is all that is needed. Stop without reserve all laterals, but do not remove any of the larger leaves of earlier formation, unless the Vines have been improperly finger-pruned at first; and even in that case only a few should be taken off in instances where they are too densely packed together. *Pines* intended for winter fruiting will now be very generally in flower. Be careful not to allow any water to settle upon the blossoms until they are well set, and, once the fruit begins swelling, commence giving waterings with weak clear liquid manure. See also to the bottom-heat, which just at the swelling period should be brisk, without being too warm. Do not, however, exceed a maximum of 86°. Should it be possible to devote a structure wholly to the growth of late fruit producers, as soon as they are set give them a liberal amount of atmospheric moisture, constantly giving air only early in the day. Commence gently to afford growing "young stuff" less heat and moisture. Give rather more air instead, and in that way harden the growth already made ready for winter. Finish as soon as convenient potting any plants requiring that attention from amongst the general stock; and with foresight procure shortly the necessary supply of tan, &c., to be used freshly when needed, for plunging in permanent winter quarters. With good management, *Peach* and *Nectarine Trees* denuded of their crops need no further attention as regards pruning. Should they have been left too dense, however, it will be better to remove any useless foreright shoots, and with a pair of scissors cut in two diagonally some of the larger leaves, which emanate from gross wooded shoots, in positions where the foliage is so thick as not to afford light and air freely in all directions. This operation slightly impoverishes gross shoots, often inducing flower-buds to form, where previously wood-buds only could be expected.

HARDY FRUIT GARDEN.

Remove all secondary foreshoots which form upon wall fruit trees generally after this date, an operation which will be more needful in places where, from any cause, too early pruning and laying in have been had resort to. Expose more freely to the sun's direct rays the earlier sorts of Peaches, Nectarines, &c. Do not in the operation, however, remove any more good healthy leaves than is absolutely necessary. These remarks apply equally to the removal of all growths of recent formation from espalier and other *Pears,* &c. Remove wholly, by cutting away down at the base, any of the current season's shoots which have been allowed to remain for a time. Do not fail to eject each morning such earwigs as may have entered the bean-stalk traps during the previous night. Incalculable mischief is occasioned by these pests in cool wet seasons like the present, through the manner in which they puncture the fruit long before it is ripe.

HARDY FLOWER GARDEN.

It will be well now, taking time by the forelock, to commence propagating some of the rarer varieties of "bedding-out stuff," especially *Pelargoniums,* of the zonal and variegated sections, and indeed any others upon which cuttings are obtainable, and of which large quantities are needed. Sow seeds of *Myosotis, Silene, Nemophila,* &c., intended to stand in the open borders during winter for flowering early next spring. Sow these under a south wall or other fully exposed position, in order to harden them better for the purpose of withstanding the winter's severity. Where a large quantity is needed, sow at two different dates, at a week or so apart, as the later sown ones do best for planting around the outer edges of flower beds, reserving the larger ones for the centre. Sow *Hollyhock* seed in a similar situation. Do not sow too thickly, as it will be advisable to let the plants stand over the winter where they come up, to be transplanted in the spring. This will also be found a good time for propagating any of the rare varieties of these. Cut any shoot of moderate age and size off just below the lowest flowering bud, when those which remain may be cut up into single eyes. Neatly finish off the base below the eye, leaving an inch or so of the stalk above it; press each portion so made firmly into the soil in such a manner that the side on which the eye exists may not be unduly buried; where practicable it is best to prepare a light in some cold pit for their reception, placing upon a good bottom drainage about 2 inches of light sandy soil, into which the cutting so formed should be firmly pressed neatly in rows. In such a position they enjoy greater immunity from frosts and other fluctuating reverses than when placed around the inner edges of small pots, which is the customary mode of increasing them. Plant out into the borders where it is intended they should flower, all hardy perennials, such as *Pansies, Wallflowers, Antirrhinums, Dianthus, Brompton Stocks,* &c. Put in cuttings without delay of *Linums, Linarias, Dianthus, Saponaria ocymoides, Cistus,* and dwarf-growing *Phloxes,* of the beautiful prostrate Nelsoni and frondosa sections. *Centaureas,* of the silvery modern sorts, used for bedding purposes, will strike freely at this season, pricked out under hand-glasses. Abundance of small cuttings may be found upon all thriving plants. Put them in with a small "heel" if procurable. Do not deprive the cuttings of too many leaves, nor leave a ragged base to them; on the contrary, neatly remove all irregular surfaces from the base with a keen-edged knife. Sever early layered *Carnations,* &c., from the parent plant, when properly rooted. Also part and transplant *Polyanthuses, Daisies,* &c. Give *Auriculas* sufficient water, should warm weather continue; for, if neglected in that respect, they suffer much at this season. Those who require miniature-blooming plants of *Chrysanthemums* might have them by layering the points of growing shoots in the open ground, making an incision in the part pegged down, and carefully treading the soil firmly when the operation has been performed.

KITCHEN GARDEN.

It will be necessary about this time to prepare a bed for *Winter Cabbages,* well digging and manuring the space selected. Upon light soils, no better site for this purpose can be found than the present "Onion bed." Get the Onions off in good time, when the surface should be well hoed over, all loose stones and litter raked off, &c.; drills should then be drawn of the necessary width, and the plants dibbled in. Cabbage beds with me are of constant local repute, being invariably good, yet in the above alone lies the secret of success. Take up *Early Potatos,* placing them without delay in long narrow clamps, without any straw. No better preserver than mother earth is to be found. Continue the use of the hoe; it is at once a great fertilising agent, giving free admittance to air, and also a destroyer of weeds. *W. E.*

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the Week ending Aug. 14, 1867, as observed at the Horticultural Gardens

Aug.	Moon's Age.	Barometer.		Temperature.					Wind	Rain.
				Of the Air.			Of the Earth			
		Max.	Min.	Max.	Min.	Mean	1 foot deep.	2 feet deep.		
Thurs.	8	29.687	29.670	74	56	65.0	60	59	W.	.03
Friday	9	29.732	29.748	70	43	56.5	62	59	W.	.00
Satur.	10	30.080	29.946	70	45	57.5	64	60	W.	.00
Sunday	11	30.006	29.935	79	53	66.0	64	59	S.W.	.00
Mon.	12	30.069	29.958	84	50	67.0	64	59	S.	.00
Tues.	13	29.959	29.922	86	54	70.0	65	60	S.E.	.00
Wed.	14	29.948	29.736	91	61	76.0	66	62	S.	.18
Average		29.934	29.845	79.1	51.7	65.4	63 5	59.7		0.21

August 8—Densely overcast; cloudy, with showers; fine.
— 9—Fine; very fine throughout.
— 10—Clear and exceedingly fine; very fine at night.
— 11—Very fine throughout.
— 12—Very fine; clear and hot throughout.
— 13—Very fine; cloudless and hot; fine at night.
— 14—Very fine; hot and cloudless; overcast; moonlight, with misty haze.

Mean temperature of the week, 3 deg. above the average.

STATE OF THE WEATHER AT CHISWICK,
During the last 41 years, for the ensuing Week, ending August 24, 1867.

August.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain	Prevailing Winds.							
						N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday ..18	70 2	50.4	61.8	15	0.38 in.	4	6	5	3	4	9	9	1
Mon. ..19	73.1	48.8	60 9	19	0 42	2	4	4	2	3	12	10	4
Tues. ..20	72.7	50.5	61 6	20	0.45	3	3	3	—	5	11	12	6
Wed. ..21	72 4	49.6	61.0	14	0.62	3	3	1	1	4	8	15	5
Thurs. ..22	71 7	49 6	60.6	16	0.67	2	2	4	—	4	12	12	2
Friday ..23	71 8	49.1	60.4	21	0.95	5	4	4	2	3	10	12	4
Satur. ..24	71.5	47.8	59.6	16	0.24	—	7	4	—	6	10	10	4

The highest temperature during the above period occurred on the 18th, 1843—therm. 92 deg.; and the lowest on the 18th, 1866—therm. 36 deg.

Notices to Correspondents.

Fuchsia cylindracea: *T J* asks where this plant can be obtained. Probably an application to some respectable nurseryman would be successful.

Grapes: *E H Anthony.* Your diseased Grapes have not yet reached us.

Grape Spot: *J J.* We do not see any Fungus on your Grapes. The disease seems to be a common case of spot, arising probably from the condition of the roots. There is no fructification in the little specks, which have a fungoid appearance. *M J B*

Insects: *H W.* We could not discover, even with a magnifying glass, any trace of insects among the earth and stone which you sent. *W.*

Labels: *E August.* There is nothing special about your labels. Similar ones are made in various materials, and for ourselves we much prefer a rounder shape.

Malformed Potato: *R W & Son.* The appearance of small tubers in the axils of the leaves is not an uncommon occurrence, but is important as showing the real nature of the tubers, which are thus shown to be swollen branches.

Mealy Bug: *R P.* A fluid sold under the name of Ne plus Ultra is very effective. It is merely necessary to touch the insect with a camel's hair pencil moistened with it. Perhaps gas water would do as well. Cleanliness and care in the first instance will prevent its gaining a head. *M J B.*

Names of Fruit: *X Y, Perthshire.* Your Apple resembles Coe's Golden Drop, but we are not quite sure that it is that sort.

Names of Plants: *A C.* Your Aerides is A. quinquevulnera. The little Dendrobe, D. aduncum; and the larger Dendrobe a variety of D. Calceolaria, with flowers much smaller than usual.—*W D.* 1, Solidago floribunda; 2, Epilobium angustifolium; 3, Linaria purpurea.—*R D S.* Tilia argentea.—*H P.* 1, Pedicularis palustris; 2, Pinguicula vulgaris.—*B & M'C.* 1, Epilobium angustifolium, var.; 2, Lychnis (Agrostemma) Githago; 3, Silene pendula; 4, Lysimachia sp.; 5, Lathyrus sativus.—*Cowan.* Acer glabrum.—*G M'G.* Eriophorum polystachyum.—*W A W.* 4, Agrostis alba; 8, Festuca pratensis.—*F C.* Francoa ramosa.—*Westerham.* 1, Buplerum fruticosum; 2, Liquidambar styraciflua.—*H H C.* 1, Lastrea Filix-mas; 2, 3, and 4, Athyrium Filix-fœmina.—*J Jones.* 1, Senecio Jacobæa; 2, Achillea Millefolium; 3, Polygonum Persicaria.—*M F.* Diplacus glutinosus grandiflorus.—*J L, Glasnevin.* Your Cattleya puzzles us, and may be new. What is its native country? has it long or short, thick or thin stems? and how many leaves do the latter bear, and how many flowers? All these particulars should have been sent. We should like to see a fresh flower.

Peas: *J M.* Your Pea is the "Pois turc ou couronné" of the Bon Jardinier, the Crown or Cluster Pea, a variety remarkable on account of its having the haulm swollen or enlarged near the top, from whence are produced all the pods in bunches or clusters, forming a sort of crown at the top of the haulm, which is about 4 feet in height. The Pea is a round white kind of average quality, a fair bearer, worthy only of cultivation on account of its singular appearance while growing. There is also a purple-flowered variety which used to be grown in many private gardens in Aberdeenshire for the beauty of its flowers alone. It was known there under the names of the Crown, Cluster, and Mummy Pea. This variety is sold in France under the name of the Pois Paquet. *B.*

Pelargoniums: *W B.* A scented-leaved variety, very much resembling the old Fair Helen in the leaf, and in the general character of the flower, but apparently more suffused with rose. It had, however, fallen to pieces.

Poplar: *C G, Tay Bank.* The leaves are nicely blotched and pale green, forming, no doubt, an effective variegation when seen fresh on the tree.

Rose Leaf Fungus: *R P.* The Fungus on your Rose leaves is Aregma mucronatum. It is so universally prevalent that all precautions against it are useless. *M J B.*

Seedling Pelargonium; *Usher.* A large clear golden leaf, with broad bright red zone, very effective, and, so far as an opinion can be formed without comparison, distinct from anything which has yet been brought forward. You should exhibit the plant in London, at the proposed show on September 17th.

Tropæolums: *W B.* Tropæolum flowers do not travel well, and yours had all more or less perished before they reached us, so that it was quite impossible to recognise their peculiar features. And after all, little can be said of such subjects without seeing the plants.

WIRRAL AGRICULTURAL SOCIETY.—The ANNUAL SHOW of the Society will be held on SEPTEMBER 26, when PRIZES will be awarded for HORSES, SHEEP, PIGS, POULTRY, PIGEONS, and FARM PRODUCE. There will also be a HORTICULTURAL EXHIBITION in connection with the above.

All persons intending to exhibit in either department of the Show must send in particulars of their Entries on or before Sept. 12. For Lists of Prizes or any further information apply to William Henderson, Secretary, 2 Market Cross, Birkenhead.

ROYAL AGRICULTURAL SOCIETY of ENGLAND, 12, Hanover Square, London, W.

EDUCATIONAL PRIZES.—APRIL, 1868.

Form of Application for Candidates.

To be returned filled up on or before February 29, 1868.

Name of the Candidate at full length .. ..

Date of his Birth .. ..

Branch of Business followed by his family ..

Business intended to be followed by himself ..

Residence of Parents or Guardians .. .. ..

The Names of the Schools at which the Candidate has been educated, stating the number of years spent at each; accompanied by Certificates of general Education .. .. ..

The Candidate has to state whether he will be examined in Land Surveying, or in Mechanics as applied to Agriculture, or in both subjects.

He must likewise state in which of the following optional subjects he desires to be examined, viz.:—

Botany .. ..

Geology .. ..

Veterinary Science.. .. ..

Copies of the above Form may be obtained on application to H. Hall Dare, Secretary.

State of the Fruit Crops, 1867.

THE GARDENERS' CHRONICLE and AGRICULTURAL GAZETTE of AUGUST 24 will contain an account of the CONDITION of the FRUIT CROPS throughout the country. A Copy of this Number will be sent on receipt of Six Stamps, or it may be ordered of any News Agent.

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The Agricultural Gazette.

SATURDAY, AUGUST 17, 1867.

Our pages are to-day filled with reports of the current harvest. It must be remembered that these reports are already one week old; and that since last Saturday we have had some of the characteristic fickleness of this year's weather—a change from extreme summer-heat and drought to almost cold and very heavy rain. Whether the storm of Thursday may have been general or not, it has no doubt done some mischief over just those counties where harvest-work is already general, and most corn was nearly ready to be carried. And we have to add, as still more seriously affecting the proper reading of these returns, that from several of our correspondents we have received corrections of their first impressions, stating that, on further examination, they have found the injury by blight and weather to be greater than they at first supposed.

The following Table gives the number of returns under the headings "Over Average," "Average," and "Under Average," respectively; and a comparison may, at the same time, be made in it with the corresponding reports of the two previous harvests, both of which were considerably below the average productiveness:—

Crop.		Over average.	Average.	Under average.	Total.
Wheat	1865 ..	29	90	76	195
	1866 ..	21	96	63	190
	1867 ..	21	76	112	209
Barley	1865 ..	28	112	40	180
	1866 ..	45	102	22	169
	1867 ..	32	116	53	201
Oats	1865 ..	2	27	154	185
	1866 ..	29	84	60	173
	1867 ..	46	105	48	199
Beans	1865 ..	4	58	64	126
	1866 ..	19	65	29	113
	1867 ..	36	94	30	160
Peas	1865 ..	6	58	64	128
	1866 ..	47	59	3	109
	1867 ..	18	85	51	154

It will be seen from this table that Wheat promises a less satisfactory yield than even 1865 and 1866; but it will be necessary that the reader should correct the impression gathered from these totals by an examination of the detailed reports, especially in our great corn-growing districts in the eastern and southern counties. Barley is probably an average crop as regards quantity of yield, but much of it must be of very inferior quality. Oats are a better crop than they have been for the last two years. Beans are generally remarkably good; but Peas are considerably inferior to last year's crop, which was unusually good. For the rest, there is generally a fair promise of green crops, Mangels, and Turnips; Potatos exhibit more than usually abundant signs of the disease; and there has been a very heavy crop of hay, most of it well got in.

The cattle plague has unfortunately attacked the stock on the Sewage Company's Farm, at Barking. For some months the disease has existed within a few miles, or more practically within a few minutes of it; recently it has destroyed animals in the immediate neighbourhood, and considering that the Sewage Farm is necessarily a public place, open at all convenient times to visitors from all parts, it is remarkable that it should have enjoyed an immunity from the pest so long as it has.

It may not be possible to trace the course of the affection, step by step; the progress of an infectious disease does not necessarily afford a series of consistent illustrations of the operation of a fixed law. Certain prominent points are established, and remain unquestioned, but in matters of detail there is room for difference of opinion, not merely in reference to the pathology of the disease, but in regard to its character, origin, and mode of propagation. Some time back England was comparatively, and the metropolis positively free from the plague, when an outbreak was recorded at Islington in February last, on the premises where it had first been detected in June, 1865. No positive evidence of the precise source of the infection was obtained; but the disease is admitted to be foreign in its origin, and foreign cattle were constantly kept in the lairs on the same premises. By prompt and energetic action the affection was eradicated—in fact, by the efficacious if unscientific method of destroying all the animals that could by possibility become its victims. Alarm was naturally excited by this sudden re-appearance of the pest, and the presence of an unwonted number of cows, many of them in full milk, in the Metropolitan market, demonstrated the existence of a panic, which, however, was of temporary duration. Confidence was restored in a few weeks, only to be violently and seriously shaken by the discovery of the disease among some dairy cows at Limehouse in April, not on premises where foreign cattle were kept in lairs, although not far from them, but in the line of the foreign cattle traffic. From this time the cattle plague continued to appear, at short intervals, in the north, east, and west of London; following no regular course, but presenting itself in Islington, Newington, Dalston, Paddington, Wormwood Scrubs, and Chelsea; obeying no law but the one which regulates the movement of bodies from place to place: existing in those situations to which it was actually, and not the less so that it might be unintentionally, transplanted. During this period infected cattle were constantly being sent to the Metropolitan market. The appearance of disease among the cows in a shed was the signal for the removal of the rest of the stock. Animals seemingly in good health, but bearing within them the seeds of a plant rivalling the Upas in death-dealing power, were thus disposed of in large numbers. That all these animals ought to have been rendered harmless by being slaughtered according to law, is true: equally true it is that they were not so slaughtered; and thus the disease travelled about, always within certain limits, until at length it overstepped the boundary in one of several possible ways, and commenced its ravages in Essex in the vicinity of the Metropolis Sewage Company's farm, where some 240 cows were kept in commodious sheds, and fed on sewage-grown Grass, on which they had flourished for some months, and promised to flourish still.

In the middle of last June cattle plague was reported to exist among some cows at Ripple Hall: then the malady appeared at East Ham, and again in the middle of July we heard of it at Damper Dock Marsh. Meanwhile some of the animals in the Company's farm were taken ill, and the fear of cattle plague was at once established; but the matter righted itself—the sick animals recovered. In the beginning of August a second attack of a disease, which resembled in its general features the one which first appeared, excited no apprehension until one or two animals died, and others were attacked; an investigation was made, and the special signs of cattle plague were discovered.

The usual preliminary symptoms—increase of temperature, loss of milk, dulness, discharge from the eyes, diminished and irregular appetite—were supplemented in the most marked cases by the peculiar congestion of the mucous membrane of the vagina, with the existence of an abundant viscid secretion, and the characteristic eruption in the mouth, and the presence of numerous excoriations. Cattle plague assumes various forms, but in every outbreak where a number of animals have been attacked we have invariably observed in some of the cases all those indications which are generally held to belong to the disease, but which, nevertheless, do not present themselves in every instance. Information of the existence of the cattle plague at the Lodge Farm was sent to the authorities as soon as the fact was discovered; and the slaughter of the diseased cows, and of those which had been exposed to infection, was at once commenced. At present more than a hundred cows in two of the sheds have escaped the disease, and if the liberal use of disinfectants and presumed prophylactics will avail anything they may be saved, but the occupants of five sheds will have been disposed of by the time the information is before our readers.

The cause of the outbreak will afford matter for much speculation, and the metropolis sewage is already quoted as a presumed cause of the catastrophe. If there were any evidence to support this presumption it should be seriously considered, but setting aside probabilities, the fact of the animals remaining for months free from disease while it was raging in the metropolis and close to them, added to the circumstance of the malady appearing first in the sheds most distant from the sewage, and not having yet appeared in the situation most exposed to its influence, is sufficient to upset such speculative reasonings. Something more tangible than emanations from the metropolis sewage has been at work to cause cattle plague at Barking, but being there it is not difficult to understand how it extended from one farm to another, checked it may be but not arrested by well-intended, and in a great degree beneficially acting restrictions.

The malady first presented itself in the home sheds, the first six cows attacked having been placed in a small shed previous to being sold as fat stock for slaughter. One of these animals died after a short illness, and the remainder were immediately killed. Other animals in two adjacent sheds were next attacked, and then the disease appears to have been carried, by the attendants most probably, to the more distant sheds on the farm before its nature was suspected. It will be observed, that the infection was first communicated to animals which were most exposed to the danger of contact with the virus that can be conveyed on the hair of a dog, or in the clothes of a butcher or other intending purchaser. This circumstance is in itself very suggestive.

For numerous reasons the outbreak of the disease upon this farm is unfortunate; it must temporarily prevent the development of an important movement, the establishment of a large extra-metropolitan dairy for the supply of London, or a portion of it; and in some degree it may interrupt an experiment which promised satisfactory results, and which it is to be hoped will yet be fully carried out, difficulties notwithstanding.

To this we add the following memorandum from Mr. Morton, who has had charge of the farm since its tenancy by the Metropolis Sewage Company:—

In addition to the very good shedding for cows at the homestead, which accommodates 74 in three places, four cowsheds have been erected in different parts of the farm—a small one, to hold 24, at the entrance to the farm, which we called our quarantine shed, and where newly-purchased cows were received for a few weeks before taking their place elsewhere; and three large ones, holding 60 each, which were placed as far from one another as possible, and as near to the home-grown food as might be, so as at once to diminish the risk of any infectious disease spreading from one to another, and to diminish the labour of carting Grass and Mangels to them, and manure from them. Of these, two were at the ends of two parallel roads, 400 yards long, projecting from the main farm road across the irrigated field, and 250 yards from one another. The third was by the side of a bridle road belonging to the estate, and it stood at one side of the sewaged Grass, some 300 yards from the homestead, and as far from the nearest of the new sheds.

The disease appeared first in the homestead, next in the quarantine shed, and lastly in the third of the new sheds. The two sheds, each isolated at the end of its own special cross road, and each surrounded by the

sewaged Grass, are, while I write, free from the disease; and though the chance of saving the cows in them is very small, yet by laying hot lime along the roads of access—by free use of carbolic acid and chloride of lime—by administering occasionally small doses of hyposulphite of soda in the water of the cows—by imprisoning the men in attendance and forbidding all access to them—by stopping all imported food, and setting apart men and horses, and cattle for supplying them with Grass, which (none of them) ever come near the infected houses—by the most careful arrangements for taking the milk and returning clean and empty cans, and by as far as possible destroying the infection at its source, constantly using carbolic acid in the other sheds and slaughter-houses—it is sought to make as much of our small chance as possible. At present there are 111 cows in the two healthy sheds, and since Wednesday of last week 127 cows have been condemned in the others, and most of them have been already slaughtered.

Ever since the first case of cattle plague, five weeks ago, which occurred on the immediately adjoining farm, whatever precautions occurred to us as possible were adopted to hinder the spread of the disease. In the meantime we were declared an infected place, and no fat stock could be removed alive; and the inconvenience to which we were put in slaughtering at home animals that were ready for the butcher, had the effect of keeping our risk before us. One Sunday, three or four weeks ago, a small shed of cows at the homestead nearly all fell ill—were attacked with a colic, attended with excessive pain and diarrhœa. The veterinary surgeon disliking the responsibility of pronouncing it to be cattle plague, desired another opinion, and his colleague, who was called in, declared that if required at once to decide he must certify the case as cattle plague. In 24 hours these cows were all upright again and well! An experience of that kind made us slow to commit ourselves to the tender mercies of the inspector, who might, and probably would, pronounce confidently, and land us in a great calamity, where the hesitating fears of another might, as in this case, prove to be unfounded. Accordingly when, on reaching the farm on Tuesday, August 6, I heard of a cow having been attacked by diarrhœa and dying suddenly before the doctor could reach her, it was attributed to some sudden attack of inflammation of an ordinary kind; and neither the symptoms of the living cow nor the *post mortem* appearances pointed to anything else. There had been hardly any affection of the eyes or nose, no ulceration of the mouth, no foul breath, and the inflamed appearance of the stomach and the intestines indicated rather the effect of poison than anything else. Two or three other cows, however, in the home sheds were off their food, and two in the so-called quarantine shed; and on Thursday, two others having died, Professor Brown was at once called in, and after a second visit he had no hesitation in pronouncing it the cattle plague. The Inspector of the Local Cattle Plague Committee at once took charge of the infected sheds, and some 120 cows in them were handed over to him.

It must be added, as entirely exonerating the management of any responsibility whatever for this calamity, either as regards the introduction of the disease or the susceptibility of the cattle to it, that—

(1) *As regards the introduction of the infection*—not a cow has been brought on to the farm since the middle of May. The freshest cow we have has been 12 weeks upon the farm, and the first cows attacked have been with us since January, and were in good condition, rapidly shrinking their milk, and nearly ready for the butcher; and—

(2) *As regards the food they were receiving*—the cows attacked at the homestead had been receiving half a bushel of distiller's grains, 3 or 4 lb. of Barley meal, 5 or 6 lb. of hay, and nearly 1 cwt. of Grass daily, the cows in the third of the new sheds, which had been on the farm since May, were receiving no grains, but a little hay, 2 or 3 lb. of meal, 2 or 3 lb. of cotton-cake, and about 1½ cwt. of Grass daily apiece. The cows in the two sheds still free had been receiving, some of them, hay and meal, with full allowance of Grass, and some of them Grass alone—about 1½ cwt. daily apiece. These are now all on Grass alone, and they eat about 1½ cwt. daily. These cows have been on the farm in one shed since February and March, and in the other since April. They have been thus all that time surrounded by the sewaged Grass. The men, four to each shed, have all that time slept in bedrooms provided for them in the "tallet" over each, and there has been no illness either of stock or of attendants. The Grass given to them is fully grown and thoroughly wholesome, green to the ground—not blanched, or soft as it is often in the sewaged old Grass meadows near Edinburgh, but thoroughly well ripened and developed, and it is eaten greedily and readily. On one occasion, when there was not a full supply, we cut over a piece of old unsewaged meadow, full of Clover leaf and blossom, and gave it in place of the sewaged Italian Rye-grass; but the cows tossed it over, and bellowed over it, dissatisfied; nor did the row in the houses cease till the sewaged Grass was restored.

The misfortune which has befallen us may prove a greater loss to the Metropolis Sewage Company than the mere money fine which it in the meantime inflicts upon their scheme, because it may lead to the impression that the Grass grown by sewage is unwholesome. Such an impression is undoubtedly contrary to the fact, and it ought not to arise out of our experience on this farm. For (1) unwholesome food cannot produce the cattle plague; and (2) until the place became infected in some unknown way from the neighbouring cases, our cows had been extremely healthy. In calving down about 120 cows we have only lost one by paralysis, and the two or three other deaths which have occurred have been owing to inflammation caught during the severe and sudden changes of weather in April and May. Our milk produce has fallen latterly from 11 to 9½ quarts daily per cow, over a number varying from 270 to 230, but that has been owing to the drying off of cows as they became ready for the butcher; and this produce is quite equal to the average experience of London cowkeepers. And (3) rapidly as the Grass grows under sewage, so that we have had 9 tons grown on an acre in 22 days, yet cut as it is with the seed-stem coming through, and with the plant green to the ground, it is impossible for any one to doubt that such substantial and thoroughly developed Grass is as wholesome as it is palatable. We are now cutting, over most of the irrigated land upon the farm, our fourth crop this year, and on some of it we have already cut our fifth. There are several acres off which we have already cut 50 tons per acre of well ripened Grass, and I do not in the least doubt that from them we shall have cut at least 70 tons of Grass per acre before November; while from land extremely poor, thin, and gravelly, on a gravelly subsoil, sown last October, and just green before winter, we are about to take a fourth crop, the three previous ones having been 9, 14, and upwards of 10 tons respectively per acre. Mangel Wurzel, grown wholly with sewage, without any other manure whatever, is one of the finest pieces I have seen anywhere this year. Lucerne, Flax, and Potatos in small plots show its applicability as a manure for them; and I believe we shall prove that it is even more valuable to the market gardener than it is to the general farmer. Any person interested in the successful application of sewage to agriculture is welcome to visit the farm, which lies a mile and a half from Barking Station on the Tilbury line from Fenchurch Street; and he can inspect the crops and judge for himself without going near the cowsheds.

—— The Contagious Diseases (Animals) Bill was got through Committee in the House of Commons last Wednesday, read a third time, and passed, the Government agreeing to revoke the Harwich and Southampton orders, so that all foreign cattle imported into this country shall be slaughtered at the ports of entry.

—— An important trial of reaping machines, announced to have taken place on the Duke of Bedford's estate, Thorney Fen, on Thursday, has been interfered with by the weather. Messrs. Burgess & Key, Hornsby, Samuelson, Crosskill, Cuthbert, Baker, Amies & Barford, gave one turn each to show strangers the working of their machines; and Bamlet, Wood, Brigham & Bickerton, Kearsley, &c., were in attendance with their machines. The judges are—Mr. G. Martin, Hubbard's Bridge, Boston; Mr. Scarson, Deeping; Mr. Wm. Shepherdson, March, Isle of Ely; M. Edwards, Esq., Peterborough. The field is nicely set out, part for preliminary trials, the remainder for prize work. The crop is not heavy enough for a decisive trial for the public, but it is heavy enough to test the lighter machines. The trials will take place as soon as weather allows, and the final tests will be upon the heaviest crops grown, both Wheat and Oats. A considerable number of visitors from distant districts attended, and the exhibitors were numerous. Many minor improvements in the various reapers are shown, but none of importance. Had the day been fine, a satisfactory trial would have been the result. Many farmers had provided excellent teams. Mr. Goodman, upon whose extensive holding the trials take place, gives every facility, and all would have gone off well but for the continuous rain.

THE WEATHER AND THE HARVEST.

[We take the following very instructive article from the *Daily Telegraph* of last Monday, where it appears under the weekly heading, "The Field and the Homestead."]

Practical men have not much faith in those bird's-eye-view estimates of the harvest which invariably appear in print about the time of earing. In fact, judging crops in June and July out of a railway-carriage window, from a dog-cart cushion or a nag's saddle, is comparable to guessing the wealth of a man's cellar by the number and bulk of his beer barrels. If his normal stock ought to consist of a dozen twenty-seven-gallon casks each partially filled, and we observe only that number of "eighteens," we might suppose his total of mild, stout, or bitter to be "less than an average;" and if instead of the "twenty-sevens" we found a dozen big "thirty-sixes," we could say that there was a possibility of his stock being "over an average." But the mere appearance of the barrels would not reveal the actual quantity of good liquor contained; and for anything we could tell, the dozen "eighteens" quite full might be holding as much as the "twenty-sevens" partly filled; or, on the other hand, the 12 "thirty-sixes," in spite of the outward promise, might be containing in reality less than the quantity in the full "eighteens." Nor are the reports of the farmers themselves, flowing in from all parts of the country a few weeks before the corn is ripe, much more reliable. For, granting that the growers take pains to go thoroughly into their crops, and minutely examine the condition of the ears after flowering, what is this but equivalent to sounding the barrels, and measuring the ullages this week in order to tell how much ale will be found in the cellar next week—after some casks have been replenished, and others abstracted from? Valuing a crop, even when ripe or in the sheaf, is no easy matter; experts are satisfied if they can guess within an eighth or a tenth of the actual quantity declared by the threshing machine; and farmers are continually deceived by the bushel measure telling so very differently from the result they had anticipated. But reckoning green corn by the quarter and bushel, is precisely analogous to counting chickens before they are hatched. You can say for certain, whether you will reap an overplus or short bulk of straw; and you may say that, "with everything favourable, I shall get such and such a yield of grain." No matter how fine the ears at flowering time, they are but the shells, husks, and cases in which bold kernels may and may not be deposited; and the chances of abortion, root-failing, premature ripening, moulds, rusts, insect enemies, and, more than all, the presence or absence of a propitious season after earing, render futile any expectations based upon the mere promise of the crop at that period.

However, there does exist a means by which we can announce beforehand the general character of our harvest, subject, of course, to deductions on account of unforeseen damage during the time of ingathering. This is the meteorological test, now reduced into something like a system; and to learn our present prospects for home-grown corn we have only to examine the season passing over us, and to look at the latest reports from localities where reaping has begun.

Now, by help of physiology and the weather science together, we know that Wheat flourishes best where there is a temperature of about 54° during the year, and for two months a temperature of 63°; and as these conditions are not fulfilled in the British Islands, we are here cultivating the grain at a disadvantage. Wheat, scarcely flowering at a lower temperature than 57°, requires after flowering time a greater heat than that in order to come to proper maturity; and the average summer heat of England being only 60° to 62°, according to locality—so very close to the minimum necessary for ripening Wheat—a fall of 2° or 3° in the thermometer through a chilly summer is a sure presage of an imperfectly developed crop and a scanty harvest. Thus, in the West of England, where the average summer temperature is 60°, a deficiency of 2° of summer heat is always followed by a great deficiency in the yield of Wheat; and correspondingly, it has been found there by lengthened observation, that Wheat generally fails to reach that perfection which justifies its cultivation at an altitude of 600 feet above the sea—which, allowing for elevation, leaves 58° as the necessary summer temperature. By a comparison of the meteorological observations of the Royal Society, with Tooke's "History of Prices," and a House of Commons return on the price of Weeat, it has been shown—by Mr. Whitley, in the *Royal Agricultural Journal*—that, for 65 years, that is 1775 to 1836, a fall of 2° below the mean summer temperature of 60° has invariably brought a lamentable harvest, and that a fall of 3° or 4° below brought almost dearth and famine, while the abundant harvests were those in which the summer temperature rose above the average. The minimum summer heat required for Wheat in the south, middle, and east of England is believed to be 58°, and for Scotland somewhat less. All our improvements in drainage and manuring have not enabled us to alter the constitution of the Wheat plant, and defy those conditions of aerial and terrestrial temperature. "In the summer of 1860," says Mr. Spearing, in the *Central Farmers' Club Journal*, "the temperature of the soil in the valley of the Thames reached 64°. Our Wheat ripened well, and we had a fair average crop of good quality, but I went over much land where the temperature never reached 62°: here the Wheat was by no means good either in quantity or quality, and there was a great deal of strong land in high and cold situations where the temperature of the soil never reached 60°, and it is needless to say that here the Wheat was miserably bad, and it cannot be said that it ever ripened at all, for when cut in a withered state it was still green." The only instances of a medium or average summer heat producing a superior harvest, are those in which the season was at the same time particularly dry—so much depending upon absence of clouds that arrest the ripening sunbeams. Thus, in 1840, the summer temperature in the south-west of England was 59°, or 1° below the average; but not much more than half the usual rain fell. The Wheat crop was above an average, and the yield excellent. Yet, while England can produce a good harvest under a summer heat at the average point, or even 1° lower, provided there is a scanty rainfall, Scotland is more sensitive to the least depression of the thermometer, and an average or low summer temperature there brings disaster.

To exemplify the soundness of the foregoing general principle, take the weather and the Wheat crop of 1866. Spring growth commenced in a not unfavourable March; for the first half of the month was dry, though cold, and the rainfall of the whole month was little above an average. June was wet, the amount of rain being nearly double the usual average; and the temperature was a little below the average, the days being warmer and the nights colder than usual. July, the critical month, was cold, the mean temperature of the third week being 5° below an average, and of the last week 3.5° under an average, chiefly owing to the excessive chilliness of the nights. But it had not the further disadvantage of being particularly wet, though rain fell on 13 days. August, however, was both wet and cold, rain falling on 19 days, with a total quantity exceeding the average. The mean temperature of the first week in August was 5° below an average; for the second week it was 4.75° below, and for the third week 2.2° below an average. This unfortunate season retarded ripening, and gave us a defective harvest. That is, a yield considerably less than an average was the actual result of a season theoretically pronounced to be of low Wheat-producing capability.

What, then, are our expectations from the season of 1867? After an autumn seeding interrupted by floods of rain, with young Wheats ravaged by slugs, and loss of plant in winter upon wet, cold soils, the prospects of the crop in spring were anything but cheering. On all hands it was admitted that, with crops so patchy and backward in very many districts, only a very favourable summer could be expected to raise a full produce. "The weather in March," says Mr. Spear-

ing, "is of the utmost, I may say vital, importance to the Wheat plant. Usually, as the land becomes dry in March, the roots keep penetrating deeper and deeper into the soil to obtain moisture, and by their so doing ample provision is made for the plants to extract that nourishment and support which are necessary for their future well-being and development. But, on the contrary, if we have a wet March, accompanied as it generally is by a high temperature, then the plants grow above ground, and the roots being supplied with moisture on the surface are not induced to penetrate sufficiently into the soil to be able at the required time to draw that amount of nourishment from the land which alone can enable them to produce a heavy crop. Nor would they be able to do so if the summer afterwards should prove to be more than usually dry and propitious." What was the actual weather of March, 1867? The mean temperature was 37.5°, or 3.9° below the average, and the rainfall was within a trifle of 2 inches, or nearly one-half more than the average of 90 years. The middle of the month, too, brought a return of winter, with frost and a deep snow-blast, interrupting all spring sowing, chilling the ground, and putting the growth of the Wheats very backward. Happily, with a growing April come quick recovery from sickliness of plant; but the Wheats, which sprang up with a surprising rapidity, next received a sudden and severe check by intense cold, with frost and snow, following the few tropical days of early May. Moisture and warmth were needed for the development of a stalk and flag that should not be deficient in fibre, and hope still lay in the weather that June might bring. A smiling and yet showery opening of the month wrought wonders, threatening to force more straw than corn, except upon that very considerable proportion of the Wheat lands on which a thin plant prevailed. The rainfall was only about three-fourths of an average, and there were nine rainy days, which is two fewer than the average number. The mean temperature of the first two weeks of June was 2.4° above the average; but the latter half of the month was cool, with a special absence of sunshine. The mean temperature was only 56.3°, or 4.5° below an average, and Wheat came late and slowly into ear. During that critical period, from the time of the Wheat's coming into ear to the time when the blossom is fully set, the temperature of the air is of more importance than at any other stage of the crop's growth. Extreme heat is not desirable, but a medium temperature. "The most productive harvests," wrote Mr. Plant in the *Mark Lane Express* of July 15, "have been when hot weather of appreciable duration did not set in until after the summer solstice. In 1859, 1863, and 1864 there was no summer weather before July, and excellent harvests followed. If great heat prevails in June, as in 1826, 1846, and 1858, the grain does not arrive at its proper growth. The ripening is premature; the yield then becomes small. What hot weather we have had in May or June was of short duration. There is every reason to expect, in the event of a fine hot July and August, that we shall be blessed with a good and bountiful harvest."

That was the turning point in the fate of this year's crop. If the temperature should rise throughout July, or if, with only moderate heat, the weather should continue drier than usual, the fields of green stems and blooming ears then looking well upon good loamy soils might yield more than their common average, while the thin and defective crops upon the clays and light lands might ripen a medium produce—together amounting to about an average harvest. On the other hand, the alternative of six weeks' inclement weather would inevitably bring only a moderate or poor yield of grain from the best crops, and at the same time do nothing toward retrieving the condition of the thin, backward, and inferior; the result, in other words, would be a very deficient harvest.

The sequel is soon told. For crops that were early in ear the bright skies have never come. In the week ending June 19th the mean temperature (as observed at Chiswick) was only 55.9°, or 4.5° below the average of the same week for 41 years. The mean temperature of the week ending June 26th was 56.7°, also 4.5° below the average. For the week ending July 3 it was 61.4°, or .07° below the average. For the week ending July 10 it was 59.2°, or 3.5° below the average. For the week ending July 17 it was 61.7°, or 1.5° below the average. For the week ending July 24 it was 60°, or 1.5° below the average. Neither have the later blooming crops been favoured. The mean temperature of the week ending July 31 sank to no more than 55.8°, or 6.9° lower than the average of 41 years. And the mean temperature of the week ending August 7 was but 56.05°, or 6.8° below the average. Thus, while the mean temperature has never once reached the standard average in any one week, the general mean for the eight hot-weather weeks, namely, from the middle of June to the close of the first week in August, has been only 58.34°, which is no less than 3.66° under the average of nearly half a century. The significance of the fact may be learned, not only from the deductions of all past experience, but also by a comparison with the bad season of last year, when the mean temperature of the corresponding eight weeks was 2° higher; for it was 60.3°, or 1.64° under the average. And the mean temperatures of the two weeks ending August 7, 1866, were 59.5° and 58.2°, or 3.7° and 2.15° respectively higher than for the two corresponding weeks in the present year.

Now, if an invariable repetition of phenomena is in course of time to be regarded as a law, and if the recorded uniform connection between a low thermometer and a failing harvest is not going to be falsified this year for the first time, these figures threaten certain disaster to our hopes, and bid us expect nothing else but a defectively ripened and miserably-yielding harvest. Had the plant everywhere been full and luxuriant up to June, the result could but have been poor; but, with deficient bulk of straw on the major part of the Wheat lands in Britain, the "prospect" now is a total production very much lower than the common average.

Moreover, the evils of a low temperature have not been mitigated by the compensating favourable circumstance of an unclouded sky and little rainfall. There fell in July no less than 4 inches of rain; whereas the average July downfall for 90 years is but 2.7 inches; the greatest known, 6 inches; and the smallest less than an inch. And the number of rainy days was 18, equalling the greatest number in 90 years—the average being 12. The last week in July was, for the most part, cloudy by day and cold at night, with hoar-frost early on the 30th. One curse accompanying a low temperature appears at present to have nearly, though not altogether, spared the crops. To ripen Wheat well there must be not only a high average heat in July and August, but also the least possible "daily range" of temperature. Mr. Spearing says, "I have never observed red gum rust or mildew to any extent, unless there had been a difference of from 32° to 35° between the mean maximum or heat of the day, and the mean minimum or cold at night; and these blights prevail to a greater or less degree, just in proportion as the range of temperature increases or diminishes." A daily range of 35° was attained in the week ending July 12th; there was a range of 32° in the week ending July 3d; for the week ending 10th, it was the same; but in each week since then it has been rather less. So that the conditions favourable to the destructive parasites and blights of the Wheat did not long continue. And we have as yet heard few complaints from the growers concerning disease among the crops.

But against this partial escape must be set what we may call the mechanical damage inflicted by storms—additional, because not necessarily an accompaniment of low summer temperature. And, unfortunately, the rains and winds this year have beaten down our crops very early in the season before the grain was properly set in the ear; they have not only prostrated the heavier, but also twisted and broken the lighter crops: and this violent visitation has been well-nigh universal wherever fertile ground or good husbandry has grown bulk enough to admit of such injury.

Readers will expect us to confirm these unfavourable anticipations by actual evidence from all quarters of the kingdom; but having occupied so much space with a subject that has not hitherto received sufficient attention, we must reserve the practical commentary on our deductions until next week. It is observable that, in unfavourable seasons like the present, the reports from the corn districts always read promising at first; then, as the crops begin to yellow, though under a small measure of solar radiance, the reports partake the aspect of the harvest and are still hopeful; by-and-by a more intimate examination reveals the poverty of the ears and the lean quality of the grain; sample threshings disappoint expectant farmers; and ultimately the public become apprised of the result—that the harvest in reality turned out much worse than it appeared to be. This is precisely what is taking place at the present moment: the published "harvest prospects" alter from week to week, and grow more and more discouraging. The most comprehensible and reliable testimony, however, will be in the "Annual Report" from a host of correspondents of the *Agricultural Gazette*, which will appear on Saturday; and even this collection of professional opinions will, of course, only approximate to the truth, and be liable to correction later in the year, when the marketing of a considerable proportion of produce has proved the relation of the actual to the apparent yield.

HARVEST WORK AND WAGES.

[The following are the answers to questions relating to—*a*, "wages by the month or day during harvest time;" *b*, "the prices for cutting Wheat, Barley, and Oats per acre;" *c*, "the quantity of beer or cider given daily or per acre;" *d*, "the mode adopted of harvesting Wheat, Barley, and Oats." The address of the author of each set of items will be discovered upon reference being made to the same name in the Harvest Reports in another page. The letter heading each clause indicates the particular question which is answered.]

SCOTLAND.

Aberdeen: *a*. We engage our harvest hands for the period of cutting and harvesting the crop, however long or short it may last. Men from £3 5s. to £4 5s.; women from £3 to £3 5s., with victuals. *b*. Price for cutting Barley and Oats, from 7s. to 9s. per acre. *c*. No beer allowed if contracted to be cut by the acre. Harvest hands here get a good allowance of beer (W. M'Combie).—*a*. Harvest hands are engaged to work until everything connected with harvest is finished, at so much money. Men to cut with the scythe and build stacks, £4; women to gather into sheaves, £3 3s.; men to bind, £3 3s.; men to rake, £3 3s. They also have their food and an allowance of two or three bottles of beer each daily. *b*. When the crop is contracted for to cut, gather, bind, stook, and rake, it is done for 7s. 6d. to 10s. per acre, according to the weight of the crop. No food or drink is given. *c*. No cider; their food is oatmeal, milk, vegetables; the meal is made into cakes, pottage, brose; no butcher meat but at harvest home. *d*. 20 to 25 acres is the usual allowance per scythe, a man will cut 2 acres of a fair standing crop daily; a woman to gather and a man to bind and stook; a man can rake to three or four scythes; stacks contain 10 to 20 qrs. according to the state of the crop and the size of the farm. Breakfast at half-past 5, begin work at 6, and give over at 7 in the evening, two hours allowed during the day for meals and rest (A. Cruickshank).

Moray: *a*. Men per day, 2s. 6d. to 3s.; women, 1s. 6d. per day. Beer twice a day. A common practice is to engage women for the harvest of six weeks for 40s. with victuals. *d*. The reaping machine has become general throughout the county (J. Grigor).

Perth: *a*. Men's wages from 20s. to 25s. a week; women's do., 2s. 6d. to 3s. a day. *b*. Prices for cutting per acre, from 8s. to 12s. an acre imperial. *c*. Bread and beer to the value of 6d. a day given to the yearly servants on the farm when at harvest work. *d*. Mode of harvesting on the low grounds—by reaping machines principally; on the high—by scythe; and to some extent by the sickle (D. Edie).

Stirling: The general wages of good men during harvest is from 17s. to 21s. per week, with victuals; for ordinary harvest men, say 2s. 6d. less; for women useful in the field, &c., from 14s. to 18s. per week without victuals. Piecework is the exception and less in practice since reaping by machine became general; but about 10s. per acre for cutting, and 2s. 6d. more for binding and stooking was about the price. The greater portion of crop is cut by the reaping machine or scythe, the hook being almost in disuse except for laid and twisted portions (A. Buchanan).

Fife: *a*. From 2s. 6d. to 3s. per day including bread and beer at morning, noon, and night: for harvest, men, £2 10s.; women, 36s., with bread and beer. *b*. About 10s. per acre imperial. *c*. English half pint of beer forenoon, do. 2 pints dinner (J. Pitcairn).—*a*. Men, 2s. 4d. a day; women, 2s.; with food. *c*. All cut by machinery (R. Russell).—*a*. Men, 3s.; women, 2s.; with food. *b*. With hook, 12s.; with reaping machine, from 6s. to 7s.; with scythe, from 8s. to 9s. *c*. Beer, 6d.; bread, 4½d.—daily (J. Morton).

Haddington: *d*. Almost wholly by reaping machine (G. Hope).

Mid-Lothian: *d*. Wheat and Oats will be cut with reaping machines. Barley, being much laid and twisted about, will be cut with the hand (Dalkeith). —*a*. Wages cannot be stated, but they generally range from 12s. to 16s. per week, with victuals and bed. Victuals consist generally of oatmeal porridge with milk for breakfast and supper, and bread and beer for dinner. *d*. Sickle, scythe, and reaper. Most farmers of any extent in the district have now reapers, with which they cut the greater part of their crops of Wheat, Barley, and Oats (J. Hislop).

Ayr: *a*. 2s. 6d. to 3s. per day. Good hands engaged for four weeks at 15s. per week with board. *b*. Wheat, 12s. or 13s.; Oats, &c., 10s. to 12s. per acre, when let to be cut by hand. *c*. None. *d*. Almost all the crops are cut by reaping machines, at a cost of about 6s. per acre (not including horse-work). Wheat is put up in stooks of 10 sheaves, with two riders or capes; Oats generally in stooks of six or eight sheaves, as also Barley; and when ready for stacking put up in stacks containing 10 or 12 quarters (A. W. Ralston).

ENGLAND.

Northumberland: *a*. From 2s. 6d. to 3s. per day, with food. *c*. None. *d*. The ordinary method of cutting with hook or reaper: stooking (D. Wright). —*a*. Best men, 4s. per day without victuals, or 3s. 2d. per day with victuals; women 3s. per day without victuals; Irish reapers, from 1s. 8d. to 3s. 4d. per day with victuals. Corn seldom cut by the acre. *c*. Bottle of beer per day to each man when reaping; when carrying corn, about two bottles each. *d*. Cut with reaping machines or sickles. Set up in stooks or shocks of eight or ten sheaves; carried as soon as possible, and stacked in round stacks of 4½ to 6½ feet in diameter (G. Laing).

Cumberland: *a*. Men about 18s. per week for a month; day labourers, from 2s. 6d. to 4s.; lads, 1s. and rations. *b*. Wheat 12s., Barley 10s., Oats 8s. per acre. *c*. Three pints of beer each man: one in the morning and two in the afternoon, at a cost of about 10d. per gallon. *d*. The machine is driving scythe and hook out of the field; all the large farmers have machines (R. Harrison). —*a*. £4 per month, with their food (T. Wilson).

Westmoreland: *a*. About £1 per week, with victuals, beer, and lodgings. *b*. Wheat, 14s.; Barley and Oats, 11s. to 12s. 6d. per acre. *d*. Generally mown by the scythe (W. Key).—*a*. 3s. per day, with beer and victuals. *b*, 8s. to 10s., without victuals or beer. *d*. It is principally cut with scythe or machine (J. Robinson).

Yorkshire: *a*. Men, 2s. 6d. to 3s. 6d. per day; women, 1s. 6d. to 2s. per day; sometimes men a pint and women a gill of ale per day, but frequently no liquor allowance whatever. *b*. Wheat from 6s. to 12s. per acre; Barley from 5s. to 8s. per acre; Oats from 5s. to 10s. per acre. *d*. Cut by machine, scythe, and sickle (H. J. Turner).—*a*. By month, £4, with victuals; inferior lands, £5, without victuals. *b*. 8s. to 12s. *c*. Beer, from 1 to 3 pints per day. *d*. By machine chiefly, rest by scythe, all bound in sheaf (P. Stevenson).—*a*. Most of the farmers in this locality hire young men into the home, and pay their board and lodging at about an average of from £16 to £20 per annum, or, if they have cottages on the farm, engage a man and his family for 12 months, at, on an average, about 14s. per week, cottage rent-free, his wife and daughters getting 1s. per day for all work except harvest, when they get 2s. per day. As the reaping machine is employed to cut the crops, there is very little, if any, now let to cut, every farmer having a reaping machine of his own. *c*. There is no beer or cider given here; the farmer may give a little beer if the weather is hot—it is quite optional. *d*. All corn is tied up in sheaves, and 12 of these are set up together and called a stook; some farmers put 2 sheaves on the top of the other 10, spreading them over each end to meet in the centre to shoot off the water, this is called hooding; when carted it is generally put into round stacks, about 100 stooks in each (R. Bell).—*a*. Men 24s. females 9s. per week. No piecework done. *c*. Beer, 2 pints per day. *d*. All cut by reaping machine J Outhwaite).

(To be Continued.)

THE PRESENT PROMISE OF THE HARVEST.

FROM OUR OWN CORRESPONDENTS, AUGUST 10, 1867.

COUNTY.	WHEAT.	BARLEY.	OATS.	BEANS.	PEAS.	POTATOS.	ROOT CROPS.	HAY.	WHEN WILL HARVEST BE GENERAL?	NAME AND ADDRESS.
SCOTLAND.										
BANFF	Average	Under average	Average	None	None	Over average	Good promise	Over average	Middle of September	John Barclay, Braes of Enzie, Fochabers
ABERDEEN	None in my neighbourhood	Full an average	Below an average	None	None	Below an average	Turnips a fair appearance	Great crop	Sept. and Oct.	William M'Combie, Tilly four
	....	A full average	A full average	No Beans grown	No Peas grown	Under average	Average	Much above average	End of Sept.	Amos Cruickshank, Sittyton
PERTH	Average	Average	Under average	Above average	....	Under average	Very poor and late	Above average	Sept. 6 to 8	David Edie, Bridge of Earn
MORAY	Over average	Over average	Average	None grown	None grown	Average	Over average	Over average	About a month hence	J. Hamilton, Forres
	Average	Over average	Over average	....	....	Over average	Over average	Much over average	Middle of Sept.	John Grigor, Forres
FIFE	Above average	Average	Rather under average	Above average	Above average	Under average	Under average	Above average	September 10	John Pitcairn, Kinnaird
	Above average	Above average	Average	Above average	....	Under average	Very backward	Above average	September 15	R. Russell, Leven
	Full average	Bare average	Much under average	Under average	None	Much under average	Late and deficient	Above average	Second week in September	John Morton, by St. Andrew's
STIRLING	About average	Under average	Under average	Above average	....	Above average	Very late and very bad	Average	About Sept. 10 to 15	Alex. Buchanan, Stirling
	Thin on the average; head rather larger than usual, with full length of straw; near an average	Is likely to be under an average; got a late bad tid, and so many fields are very thin	As a whole a thin crop; shortish straw, with an average head; under average	A good crop; tall and strong—promising a good yield on the average	Not grown as a crop (in a few cases grown in mixture with Beans)	On light soils look well and promise a good yield; on stiff soils deficient; blanky	Likely to be generally a failure in all our stiff soils; many fields ploughed up	Good crop generally; in late districts has got a little weathered; over average	Will not be general till second or third week of September.	W. Drummond & Sons, Stirling
HADDINGTON	Average	Above average	Average	Above average	....	Average	Under average	Above average	September 5	Patrick Shirreff, Haddington
	Over average	Over average	Average	Over average	....	Average	Under average	Over average; 1-6th damaged	Not until first week of September	George Hope, Drem
MIDLOTHIAN	Under an average	Over an average	Average crop in the best district	Few sown; average crop	None sown	Under average; no disease as yet	Turnip early sown on dry soil; good	Above an average	September	—, Dalkeith
	Average	Over average	Under average	Average	....	Average	Turnips under average	Full average	September 15	James Hislop, Mid Calder
RENFREW	Under average	Average	Average	Good	....	Under average	Under average	Average	6 weeks	Geo. Boyd, Renfrew
AYR	Average	Average	Good average	Over average	....	Under average	Late	Average	September 16	And. W. Ralston, Lagg
PEEBLES	Average	Over average	Under average	Average	None	Average	Average; late	Over average	September 24	Wm. Orr, Beith
	....	Full average	Full average	....	....	Very promising, but late	Turnips over average	Much over average	Middle of September	James Lyle, Innerleithen
ROXBURGH	Average, but very small breadth sown	Above average—laid	Above average—laid	Average	None	Average	Below average at present	Above average	2d week in September	William Scott, Spylaw, Kelso
BERWICK	Average	Over average	Average	Average	....	Average	Under average	Over average	Middle of September	George Logan, Humehall by Stitchill
ENGLAND.										
NORTHUMBERLAND	Hardly an average, and late	Full average; partially lodged	Under average, except on well-farmed lands	Good, but not much grown	Good, but late	Promising, and without disease	Very forward, and healthy	Full crop; partially damaged	Not till into September	John Grey, Lipwood
	Average	Average	Under average	Average	Over average	Average	Average	Over average; spoiled by wet	Middle of September	David Wright, Beal
	Fully average	Over average	Fully average	Few grown in this neighbourhood	Few grown	Good	Promising	Large crop, but badly got	First week in September	George Laing, Cornhill
* Tyne Valley	* Over average	Average	Average	None	Few	Over average	Over average	Over average	1st week in September	Thos. T. Dods, Anick Grange, Hexham
† Higher land	† Under average	Under average	Under average	....	....	Under average	Under average	Average	September 15	Ditto
	Under average	Average	Under average	....	Good	Good	Promising	Good	Second week in September	Marshall Stephenson, Fourstones
CUMBERLAND	Above average	Good	A full crop	None	None	Looking well	Very promising	A heavy crop	In a month	Richard Harrison, Penrith
	Average	Average	Over average	....	....	Average	Early sown good; late sown very bad	Over average	About middle of September	Thos. Wilson, Ullswater
	Average	Average	Under average	Good	None	Average	Under average	Good	About September 1	Thos. Gibbons, Burnfoot, Esk
WESTMORELAND	Fair average	Fair average	Generally light, & under average	Generally good	None sown	Under average	Very good, and promising	An average crop	About September 10	William Key, Kirkby-Lonsdale
	Over average	Average	Average	None	None	Average	Under average	Over average	September 10	Jon. Robinson, Warcop
DURHAM	Average; little sown	Average	Average	None grown	Bad	Very good, except strong soils	Very good, except strong soils	Over average	Late in September	George Crofton, Kimblesworth
	Average	Over average	Average	Over average	Average	Average	Good	Under average	August 24	R. B. Dixon, Darlington
YORKSHIRE	Nearly an average	Average	Under average	Average	Average	Promise well	Swedes capital	An abundant crop	End of August	H. J. Turner, Richmond
	Below the average	Above an average	Average	Above average on good land	Below average	Average; part diseased	Turnips very good	Early got very good	About August '20	John Clark, Hessle, Hull
	Average; small breadth sown	Average; much laid	Full average	Very good	....	Good	Promising	Heavy crops; mostly well secured	September 1	Peter Stevenson, Thirsk
	An average	Above an average	Below an average	Below an average	An average	An average	Early sown good	Good, part not well got	Second week in September	R. Bell, Caldwell, North Riding
	Under average	Average	Under average	Over average of straw	Average	Under average	Over average	Over average	The end of September	James Wilkinson, Whitby
	Good average; requiring fine weather	Good average; requiring fine weather	Very promising	Promising, but late	Little grown; promising.	Very promising, and little disease.	Very promising	Very good crop	End of Aug.	Henry Briggs, Outwood Hall, near Wakefield
	Thin; below an average	Good on dry lands	Good	Not good	Good	Good	Good	Good; well secured	End of Aug.	B. Nicholson, Sturton Grange, Leeds
	Average	Over Average	One-third below average	Average	Below average	Average	Early sown full average	One-third over average	First week in September	John Outhwaite, Bainesse, Catterick
	Good	None	Good	Average	Good	Splendid	Very good	Good, well got	September	William Irvine, Halifax
	Two bushels under average	Full average	Under average	Above average	Full average	Very few grown	Very healthy, but backward	Great crop; bulk of it well got	Fully a fortnight, unless the weather is more sunny	Edmond Riley, Beverley
	Average	Average	Below average	Very moderate. Not a Bean district	Average	Average	Early sown Swedes good	Early mown heavy and well got	Middle of September	R. Kay, Richmond
	Not heavy, but average	Good	Light	Thin in places	Moderate	Good	Good	All in	About Aug. 24	Thos. Taylor, Dorrington, Pomfret
	Scarcely average	Under average	Average	Average	....	Over average	Over average	Much over average	Will partially commence about Aug. 26, general Aug. 30	John Hannam, Kirk Deighton, Witherly
	Under average	Barely average	Full average	Average	Variable	Promising	Good plant; suffering	Best crop for years	August 26	John Coleman, Escrick
	Light in the straw, but well fed, and will be an average yield	Above average, both in straw and corn	On good land look well, but on cold clay soils only poor; about average	Winter Beans look well; spring sown are well grown, but have got covered with lice	Very few are grown in this neighbourhood	A fair crop	Turnips: early sown are good, late sown indifferent	Good crop; the earliest part was well got	About August 20	James Knowles, Wetherby
LANCASHIRE	Average	Over average	Under average	....	....	Good	Very promising	Good, and well secured	August 25	George Drury, Holkham Grange

THE PRESENT PROMISE OF THE HARVEST—(*Continued*).

COUNTY.	WHEAT.	BARLEY.	OATS.	BEANS.	PEAS.	POTATOS.	ROOT CROPS.	HAY.	WHEN WILL HARVEST BE GENERAL?	NAME AND ADDRESS.
ENGLAND.										
LANCASHIRE	....	....	....	....	....	Very few grown; looking well	....	Fair average crops, in good order	....	Geo. Storey, Burnley
LINCOLNSHIRE ..	Barely average Average	Full average Under average	Not average Over average	A full average Under average	.... Under average	Very promising Diseased	Turnips good Variable	Above average Good crop, and most of it well got	Next month August 26	R. Robinson, Garstang W. Fancourt, Aslackby
	Barely an average	Average	Average	Good	Very few grown	Diseased	Good	Good	About August 19	Francis Sowerby, Aylesbury, near Grimsby
	Under average	Under average	Average	Average	Under average	Average	Over average	Over average	August 26	Henry Dudding, Panton House, Wragby
	Average; heavy straw, much laid	Average, but not much sown here	Average	Average	Average	Over average; but signs of disease	Mangels average; Turnips average	Much over average	Third week in August	John Algernon Clarke, Long Sutton
	Average; but very late	Average	Under average	Fair	Fair	Diseased	Good	Very good	September 1	Croft Sharply, Acthorpe, Louth
	Average	Average	Below average	Winter below average	Good, if well got	Good, but great complaints	Average; complaints of wire worm	Large crops; well got	August 31	William Wingate, Market Rasen
	On strong land, under average; on cliff land, an average crop; in the Fens, a failure	On strong land, an average; on cliff land, quite an average	On strong land, an average; on sand or light land under average; in the Fen, average	On strong land, an average; in some places rather filthy	An average	Under average, and inclined to go to bad	Mangels very good; Swedes and Turnips good; especially where water drill used	The best crop for many years	August 17	William Francis Marshall Branston
	Above average on best soils; some blight on weak	None	Above average	Much damaged with fly	As Beans	Disease spreading very much	Mangels fair; Rape poor	Large crop	Oats, Aug. 12; Wheat, 19	Thomas Aitken, Spalding
	Under average; late sown bad quality	Good crop, promise well	Small breadth sown; average	Good, but few grown	Much injured with the fly	Very doubtful, disease appearing	The wireworm very injurious	Good crop	Not till the middle of September	Jas. G. Dixon, Caistor
	Light	Good	Good	Average	Average	Very good	Very promising	Abundant	About August 24	R. E. Duckering, Northorpe, Kirton, Lindsey
DERBYSHIRE	Below average	Below average	Average	....	....	Average	Average	Average; generally well got	Last week in August	John Parkin, Idridgehay
	....	.. .	Over average	....	....	Very good; no disease	Average	Above average; well got	September 10	Benjamin Swaffield, Hartington
NOTTS	Fair on light soils, very thin on clay	Only few good pieces	Fair	Middling, but dirty	Bad	Fair	Good	Splendid	August 20	William Chowler, jun., Newark
	Fair crop	Very good	Looking badly	Looking well	Very middling	Bad crop	Fair crop	Very good	End of August	Richard Palmer, Wiseton, Bawtry
	Very variable; bad on the clays, fair on good land	Bad on wet land, on the best soils very good	....	Good	....	Pretty good: disease just showing	Mangels thin; Turnips promising	Very good	About August 24	Wm. Sanday, Holm Pierrepoint
	Under average, many ears	Average	Average	Average, but covered with aphis	Under average	Very promising	Good; some complain of wireworm	Over average	About August 20	Charles Doncaster, Riddings Hill, near Southwell
* Good dry land	* Fair	Good	Good	Good	Injured by fly	Good	Good	Extraordinary good	August 20	Charles Paget, Ruddington Grange
† Heavy wet land	† Bad	Bad ‡	....	....	. ..	....	....	....	....	Ditto
CHESHIRE.....	Under average worse than last year	None grown	Average	Average	None grown	Over average	Over average	Under average	About August 14	W. B. Burnham, Spital
	Under an average	Average; much laid	Average; much laid	Quite an average	Good; few sown	Tolerably free from disease	Variable, some excellent	An average; one half well secured	End of August	William Palin, Tarvin
	Scarcely average	But little grown	Good; part laid	But few grown	But few grown	Good crop	Good	Good; after-Grass light	About August 20	H. W., Warrington
	Under average	....	Over average—laid	Average	....	Under average	Average	Over average	August 21	—, Knutsford
SHROPSHIRE ..	Thin on the ground, under an average	Average	Heavy in places; full average	Few grown; sickly	Few grown; badly blighted	Good; but rumours of disease	Early Turnips and Mangels good	Heavy crop, and well got	August 20	W. D. Green, Market Drayton
	Under average	Average	Average	Average	Under average; blighted	Under average	Under average	Average	August 20	John Rawlings, Tenbury
	Average	Good	Capital	Average	Bad	....	Bad	Very good and well got	About August 19	P. W. Bowen, Shrawardine Castle
	Under an average	Average	Average	Very little grown	A complete failure	Not an average; disease showing	Late, but promising	Good	About Aug. 26	Evan Davies, Much Wenlock
	Under average; spring Wheat looking well, but late	Much knocked about	Very few grown	Small breadth; doing pretty well	A wretched failure	Signs of disease	Very favourable	Great crop; well secured	August 20	Henry Smith, Shiffnal
	Good, but much laid	Good on warm soils	Good	Good	All blighted	Good	Very bad	Good	August 12	Thos. Mansell, Orcal Park, Wellington
	Much under average	Under average	Average	Full average	Very bad	Diseased in places	Early sown good, later middling	Good; well got	About August 19	Richard Shirley, Baucett Munslow
LEICESTERSHIRE	Average	Under average	Average	Average	Little grown	Little grown	Very various	Above average	End of August	R. W. Creswell, Ashby-de-la-Zouch
	Under an average	Under an average	Good	Good	Good	Promising	Very promising	A good crop	In about a fortnight	George Turner, Alexton Hall
STAFFORDSHIRE	Under average	Under average	Good average	Good average	A failure	Average	Mangels good; Turnips uncertain	Average; well harvested	August 19	Thomas Byrd, Mytton
NORFOLK	An average crop. The Talavera not well set	Under an average crop	An average crop. Not many grown	An average crop	An average crop	Not very good—diseased	Swedes not average; late Turnips good	An abundant crop, except on low meadows	Harvest generally begun	G. Kersey Cooper, Thetford
	About average—much laid §	Under average	Average	Average	Average ‖	Few grown here	Some very good; some wireworm	Good; well secured	On the 12th	John Hudson, Castle Acre Lodge, Brandon
	Above average	Average	Over average	Average	Under average	Over average; diseased	Average	Above average	Middle of August	Hugh Aylmer, West Dereham Abbey
	Rather under average	Fair average	Very good	Good	Under average	Good, so far	Very good	Good crop, and well got	About 10 days	Thos. Brown, Southery
	Good-sized ears; plenty of straw; knocked about by the wind and rain; barely an average	Various; improved of late; barely an average	Affected by cold weather; about average	Good crop	Full average crop	Various on some soils; the bulbs are shot again	Indifferent Mangels and Swedes; Turnips improved of late	Superabundant and well secured	August 19	W. H. Taylor, Wymondham
	Average on well-farmed lands	On poor, badly farmed land, below an average.	Same as Barley	Very few grown	Generally good	Generally good	Mangels good, Swedes good, where sown early	Very good	In about a week	—, Watton
	About average	Under average	Good	Good	Good	Not good	Variable, and not generally promising	Very good	September 26	William Cubitt, Bacton Abbey
SUFFOLK	Average	Average	Average	Average	Average	Many pieces diseased	Under average	Average	Middle of August	G. D. Badham, Bulmer
	Heavy in the straw; about an average in corn, but very much laid, and some blighted	A fair average crop	None	A good crop	An average crop	The disease has appeared, and daily increases	Very backward, but improved lately; cannot be good	Abundant, very good, and well secured	About the 12th	Fred. Nunn, Rougham
	Good average as far as straw, but very deficient in the ears	Under an average; short in straw on heavy land	None grown	Average; very various	Under average; thin plant	An average; disease just appearing	Under average	Abundant and good	August 20	Samuel C. Stearn, Brandeston
	Average	Under average	Average	Average	Average	Not much grown	Mangels under average; Swedes failure	Abundant, and well secured	About the 15th	William Horn, Brome Farm, Eye

‡ I never saw so great a difference in favour of good dry land, and I fear the inferiority of the clays will make the whole crop below an average.
§ The light crops in this county are very much broken down and shackled, and a deal of damage done by wind and rain, and will be under an average in this county.
‖ Stacked last Monday. Land sown with Turnips, and will be hoed out next week. These Peas are an early sort, and sown the first week in December, on a Wheat stubble.

THE PRESENT PROMISE OF THE HARVEST—(*Continued*).

COUNTY.	WHEAT.	BARLEY.	OATS.	BEANS.	PEAS.	POTATOS.	ROOT CROPS.	HAY.	WHEN WILL HARVEST BE GENERAL?	NAME AND ADDRESS.
ENGLAND.										
SUFFOLK	Under average	Full average	Not many grown	Average	Not many grown	Not many grown	Good average	Good crop	About the 14th	George Debito, Lidgate Newmarket
	Average	Under average; good quality	None grown scarcely	None grown scarcely	Under average	Average; diseased	Hardly average	Above an average	Now general	——, Bury
	Healthy, but scarcely an average	Under average	....	Over average	Average, but very few grown	....	Mangels backward	Over average	August 20	George Edwards, Framlingham
	An average crop	An average on light and mixed soils	Very good	Over average	Barely an average	Good	Mangels under average; Swedes failure; Turnips various	Clover splendid; marsh hay short	August 19	J. Chapman Whiting, Beccles
	Average	Below average	Average	Under	Average	Late sown; are promising	Not good	Over average	About August 16	Thomas Crisp, Batley Abbey
	An average on the good mixed soils; very light on the poor lands	Varies very much; a large acreage; not an average	About an average crop, but short acreage	Not many grown; not an average	About an average in crop and acreage	Healthy at present	Mangels small—not very healthy; Turnips growing well	A large crop; got well	August 13 and 14	G. M. Sexton, Wherstead Hall
	Nearly average	Under average	Average	Average	Average	Average	Beet average; Turnips under	Over average	August 10	Henry Edwards, Woodbridge
HUNTINGDON	Over average	Average	Over average	Average	Under average	Over average, but diseased	Late	Over average	August 14	Peter Purves, Brampton
	Perhaps a little short of an average	Below an average	Quite an average	An average	Much below average	Bad	Above average	Above an average	August 15	Robert Barton, St. Ives
CAMBRIDGESHIRE	Under average	Average	Average	Over average	Under average	Average; little diseased	Over average	Good crop	August 12	——, Bassingbourn
	Fearfully laid; mildewed; yield doubtful	Not heavy generally	A very good crop; more than average	Plenty of straw, and apparently well podded	Like Beans	Average	Kohl Rabi good; Mangels all going on well	Abundant; a heavy crop	August 12	Alfred S. Ruston, Chatteris
	Average	Under average	Average	Average	Average	Under average	Average	Over average	August 12	Serjeant Wallis, Grantchester
NORTHAMPTON ..	Under average	Average	Under average	Winter good; Spring bad	Under average	Average; a little diseased	Late, and under average	Good	August 15	Peter Love, Northampton
	Under average, particularly on heavy land	Average crop on light land	Average	Under average	Light land average, heavy land failure	Diseased	Average	Over average	End of August	——, Brackley, Northampton
	Much under average	Under average	One-third under average	Good, full average	Bad, under average	Good	Turnips good, Mangels bad	Very good, well got	First week in September	John Booth, Smecton, Naseby
WARWICKSHIRE..	Not an average	Average	An average	More than an average crop	Good; few fields blighted	Very good crop, no disease at present	Very good; an average	Great crop, and well got	Middle of August, or days later	John Baldwin, Luddington
	A very inferior crop	Very good; late	An average crop	Thin, and much blighted	Inferior	Look very promising	Turnips and Mangels good	Heavy, and well harvested	August 20	William Dester, Seckington, near Tamworth
	Not an average	Barely an average	....	Above an average	A good crop	Very good	Generally promise well	Above an average	About August 15	J. C. Adkins, Milcote, Stratford-on-Avon
	Under average	Early grown average	Good	Average	Under average	Diseased	Good	Over average	August 20	J. H. Burbery, Kenilworth
	Thin on this ground, good headed; about an average	Average, and some fit to cut	Not many grown	Average	Bad crop; under average	Not many grown	Good average	Above average, and well got	Middle of August	Joseph Smith, Henley-in-Arden
	Under average	Average	....	Average	Average	....	General good plant	Over average	August 10	William Gibbs, Alveston, Stratford
	Under average	Under average	Under average	Very indifferent; full of rust	Very bad	Very good	Thin, late, and poor	Good crop; well harvested	August 15	John Ford, Morton Hall
WORCESTER.....	Barely an average; much thin of plant, on clay soils with stunted growth	A full average crop; less than an average breadth	An average crop, but few planted	Above average, and likely to be fine in quality	Rather under average crop; very variable	Early sorts full crop, late ones uncertain	A good plant generally, and good weight expected	A full average crop; low meadow crops spoil'd	About August 12	William Woodward, Tewkesbury
	Varies, having lost plant and ripening irregularly	Good	Good	The crop of the season; excellent	Good	Generally good in the fields	Very good	Large crop, and well secured	August 14	Joseph Matthews, Great Malvern
	Below average	Over average	Average	Over average	Average	Average; but showing disease	Average	Over average	August 12	C. Randell, Chadbury, Evesham
	Average; but below it on poor clays	Average	Average	Average	Average	Blooming and promising; little disease	Mangels good; Swedes very promising	Large crop, but damaged by flood	Middle of August	Henry Hudson, Wick, near Pershore
HEREFORDSHIRE	Under average	Average	Average	....	Average	Very badly diseased	Over average	Over average; very large	August 12	T. Duckham, Ross
	Over average	Average; laid	Good	Average	Not quite average	Very good, but diseased	Very good	Much over average	August 12	Dearman Edwards, Brinsop Court
	Over average	Average	Average	Over average	Under average	Average crop, but blighted	Over average	Over average	August 20	Henry Pride, Monmouth
MONMOUTH	Light and under average	Average	Average	Good	Average	Good; slightly diseased	Average	Good and heavy	August 20	——, Monmouth
	Good land full average; poor land miserable	A full average	Rather light	Average	Average	Early diseased; late promising	Never more promising	Heavy crops; well ended	August 16	G. R. Greenhow-Relph, Uske
GLOUCESTERSHIRE	Average crop; much laid	Good, but very much down	Few grown	Good, but much mildew	Moderate	Light	Moderate	Good	8 to 10 days	C. G. Clarke, Dumbleton
	Average	Barely average	Nearly average	About average	Heavy crop	Fair crop, but diseased	Variable	Abundant; well made	August 10 to 12	Stiles Rich, Didmarton
	Under average; blighted	Average	Average	Good	Good	Bad	Good	Good	August 12	Giles Edmonds, Lechlade
	Under average	Good	Good	Good	Good	Good	Never better	Good	End of next week	John Cobban, Berkeley
	4 bushels below average	Good	Good	Over average	Good.	Diseased	Mangels good	Heavy crop, well made	August 12	R. Shillon, Walls Court
	20 per cent. below average, and much laid	20 per cent above average	Average	Excellent	Average	Promising	Excellent	Quantity and quality good	August 12	John F. Peacey, Winchcomb
	Average	Average	Average	Over average	Over average	Average; not much disease	Very good	Much over average	This week	Professor John Wrightson, Royal Agricultural College, Cirencester
OXFORDSHIRE ..	Under average	Average	Average	Average; blighted	Average	Looking well, but diseased	Promising	Over average	August 10	Sam. Druce, Eynsham
	About average; much laid	Average	Average	Full average	Good on the light soils	Good, but blighted	Full plant, late	Above average	August 19	Matthew Savidge, Sarsden, Chipping Norton
	Under average and somewhat blighted	Very good on the lighter land	Generally indifferent	Good; over average; showing blight	Good	Considerably diseased	A fair crop	Heavy crop; various quality	Middle of August	George Wallis, Bampton
	Over average	About average	Under average	Over average	About average	Over average	Under average	Over average	About Aug. 15	John Gillett, Charlbury
	Varies very much; barely up to average; thin and uneven on cold, wet land; on the lighter soils a fair crop	Thin crop generally; some of the early fields promise a good average quality, but the bulk of the crop late	Less straw than usual; below an average, but likely to be very good in quality	By no means a good crop; some pieces much blighted	On some of the cold land not worth harvesting, but on warmer soils very good crop indeed	Very promising in appearance up to now; but reports of disease prevalent of late	Later than usual; generally a very good plant, and much improved within the last week	Good fair crop, and mostly well secured	In about a week	George Garne, Churchill Heath, Chipping Norton
	Average	Average	Over average	None	Average	None	Average	Over average	Now, Aug. 12; Wheat nearly all cut	——, Kirtlington
	Under average	Average	Under average	Good; average	Average	Average crop; diseased	Average crop, but late	Over average	August 20	John Bryan, Southleigh
BEDFORDSHIRE..	On the light soils a full average; stiff clays hardly average	The same may said of the Barley on the two sorts of soil	Not many grown in this county; but what few a good crop	In many places a failure; hardly an average	Very various; on the whole, under an average	Present appearance good	Very promising	A large crop; the meadows of little worth	Very late on the clays	Charles Howard, Biddenham
	Good average crop	Good crop; too much down	None	None	None	Very promising hitherto, but diseased	Not good	Very good, and well got	Not before August 12	Thomas Edward Pawlett, Beeston

THE PRESENT PROMISE OF THE HARVEST—(*Continued*).

COUNTY.	WHEAT.	BARLEY.	OATS.	BEANS.	PEAS.	POTATOS.	ROOT CROPS.	HAY.	WHEN WILL HARVEST BE GENERAL?	NAME AND ADDRESS.
ENGLAND.										
BEDFORDSHIRE..	Not average	Not average	Average	Average	Average	Blighting fast	Good	Good	August 14	W. Lavender, Biddenham
BUCKS	One third under average; blighted	Under average	Under average	Under average	Under average	Diseased	Average	Has been abundant	August 15	W. G. Duncan, Bradwell
	Nearly an average	Under average	Under average	Average	Various	Not grown	Bad	Good	August 17	W. Smith, Woodston,
	Below average; partially blighted	About average	Average	Below average, much blighted	Average	Promising; but showing disease	Late; but generally a fair plant	Average crop	About Aug. 19	Alexander Fraser, Clagden Winslow
	Not full average	Average	Over average	Average	Good average	Much diseased	Indifferent	Above average	August 16	J. K. Fowler, Prebendal Farms, Aylesbury
	Barely average; ears very light	Over average	Under average	Average	Average	Under average	Over average	Over average	In less than a week	Edward Evans, Boveney Court, Windsor
HERTS	Under average	Under average	Over average	Winter over average; spring under	Under average	Under average	Swedes under average; Mangels average	Over average	About Aug. 15	John Prout, Sawbridgeworth
	Where the plant is good, a full crop; average	About an average crop	Over an average	....	Over an average	....	Mangels good but late; Turnips late	Excellent; well secured	August 12	George Webb, Redbourn
	Under average	Under average	Average	Under average	Average	. ..	Under average	Above average	August 14	John Bennet Laws, Rothamstead, St. Alban's
MIDDLESEX	Under average	An average	An average	Under average	An average	Tubers small	Very good	Rather under average	Now	Thomas Hewett, Crawford Park Farm
ESSEX	I think an average	Rather light in places	Rather light in places	Good, excellent	Light crops	Diseased	Mangels various	Large crops	Harvest is now here general	George Wilkins, Wix Parsonage
	Much knocked about; will be an average where well farmed; on bad land very poor	Like the Wheat much twisted and laid; an average crop; but the quality will be very various	A full average crop; the good ones very much laid and twisted about	Winter generally good; springin many cases affected with the black aphis; generally a fair crop	Quite an average	Not many grown; and you occasionally see a slight attack of disease	Mangels, where well cultivated and sown early, good; the late not average	A capital crop, and generally very well got	Later than usual	John Clayden, Saffron Walden
	Not average; white varieties not well filled	A fair average; not likely to be good	Barely average	Promised an average, but lately blighted	Average	A full crop, disease on heavy soils increasing	Mangels half a crop; Turnips good where sown early	All sorts abundant	Middle of August	Henry Dixon, Witham
	Average crop, but a good deal laid	Under an average crop	Under an average; laid early	Average crop	Not good	...	Good; but not much grown	Average Clover, Grass good crop, but hurt	August 5	——, Foulness
	Light and drained land full average; heavy ditto under average	Under average	Average	Average	Average	Less than usual; in a critical state	Good	Good	August 12	S. W. Squier, Horndon-on-the Hill
	An average	About average	About average	An average	Variable	Scarcely average	Promising	Abundant	August 15	A. Barfield, Dunmow
	Over average; heavy in straw	Average	Over average	Average, except where attacked by lice	None	Average	Will be over average	Over average	General now	P. Mitchell, Rainham
	Rather under average	Rather under average	Average	Good; but in places blighted	Average	Average	Late and doubtful	Average	August 12	Collinson Hall, Nave stock
	Under average	Under average	Under average	Average	Average	Average	Mangels under average; Turnips good	Much over average	August 12	J. J. Mechi, Kelvedon
	Under average; much laid and deteriorated	Average	Average	Under average —black bug	Under average —slug, frosts	As much diseased as 1845	Turnips and Swedes unusually good	Good, and over an average	August 12	Abraham Hardy, Sen., Maldon
	Average, but much laid	Slightly over average	Under average	Average	Much under average	Over average, but diseased worse than last year	Very good	Over average, and well got	Now	——, Romford
	Under average; not an average breadth, in consequence of slug	Average	An average crop	Over average	Under average	The appearance has been good, but the blight has set in	Average crop	Over average	August 12	W. T. Allen, Rochfold
	A full average	Average	Over average	Over average winter, under average spring	Under average	Average, but getting very much diseased	Average	Over average	Next week, or by August 14	William Impey, Broomfield Hall, near Chelmsford
SURREY	About an average; laid flat	An average; much laid	Above an average; much laid	Very fine grown; blighted	Above an average	Good; no symptom of disease	Very good	A good crop; spoiled by overheating	August 5	William Willis, West Moulsey
	Considerably blighted; under average	Good; over an average	Over an average	Early, good average; late, blighted; under average	Good; over an average	Good crop, but considerably blighted	Very good	Good crop, and well secured	August 5	Edward Hilder, Hoe Midge, Woking
	A full average, but very late	Average	Above average	....	....	Promise well, but rather backward	A good plant; made great progress lately	Above average	August 13	James Arnot, Carshalton
BERKS.....	Under average	Average	Under average	Much blighted	....	Average; some diseased	Under average	Good	August 10	James Brebner, Windsor Great Park
	Under average	Average	Average	Under average	Average	Diseased	Good	Over average	August 12	John Adnams, Thatcham, near Newbury
	Would have been an average had it not been so much damaged by heavy rains	Full average, but much laid	Over an average, but like the Barley	Not many planted; about an average	Full average	Promises well, but considerable complaint about the disease	A more general plant I never remember	One of the best crops ever grown	Commenced August 3	Thomas Owen, Hungerford
	Under average	Average	Average	Average	Under average	Good, but diseased	Backward, but growing	Above average	Now	James Williams, Abingdon
	Average; much straw, but a great deal of blight	Rather above average	Average	Average	Average	Not much diseased at present	Mangels good; Swedes and Turnips late	Over average, and well secured	August 3	W. Bulstrode, Cookham Dean
	Under average	Average	Average	Over average	Average	Average, but diseased	Good, though late	Splendid crop; well harvested	August 15	E. W. Moore, Coleshill, Highworth
	Average	Average; variable	Rather over average	Badly blighted	Average	About an average crop, but diseased	Average	Very good	August 12	——, Reading
	Rather under average	Average	Over average	Blighted, but improved; average	Average	Under average	Doing well; average	Over average	Now	Jas. Hulbert, Streatley, near Reading
	Average	Over average	Under average	Average	Under average	No disease till within few days	Mangels under average; Turnips average	Over average	About the 12th or 14th	Martin Hopo Sutton, Reading
SOMERSET..	Over average	Average	Average	None grown	None grown	Badly diseased	Good	Over average	September 1	J. B. Collyns, Dulverton
	Average	Average	Average	Over average	Average	Very bad	Good	A good crop; well secured	Now	Walter Farthing, Stowey Court, Bridgwater
WILTS	Under an average	An average	Above an average	....	Above an average	Average, but blighted	Generally good	A heavy crop	August 15	William Spearing, East Kennet, Marlborough
	Under average	Under average	Under average	Under average	Under average	Under average	Under average	Over average	August 13	Edmund Ruck, Cricklade
	Various; under an average	Various, scarcely average	Good average crop	Various; average	Above average	Showing disease	Good plant, but late	Above an average	August 12	Thos. Arkell, Pen Hill Farm, Swindon
	Under average	Over average	Over average	Average	Average	Under average	Over average	Average	About Aug. 15	Cyrus Combes, Tisbury
	Under average	Above average	Above average	Good	Good	Fair prospect	Very good prospect	Good; made well	August 19	George Brown, Avebury, near Calne
KENT	Much lodged; ears small; yet may be average	A very partial crop; too wet a spring	Good average crop	Good average crop	Good average crop	....	Swede very deficient	Very good crop	August 7	Robert Matson, Wingham
	A good average until the recent rains	Average crop	Good crop	Looking badly	Barely an average crop	Blight just showing itself	Mangels good, Turnips various	A heavy crop	August 19	Mark Sandford, Martin, near Dover
	Under average; blighted	Average	Above average	Good straw; mildewed	Good	Good, but blighted	Late	Average crop	About the 14th	——, Pensburst
	Average; with much more straw than usual	One-sixth above average; good in quality	Above average	Winter Beans good; spring not half average	Average	Look well at present; a little disease at places	Good in general	A fair crop, got up in good condition	General now, August 12	Wm. Mansell, Dumpton, Ramsgate

THE PRESENT PROMISE OF THE HARVEST—(*Continued*).

COUNTY.	WHEAT.	BARLEY.	OATS.	BEANS.	PEAS.	POTATOS.	ROOT CROPS.	HAY.	WHEN WILL HARVEST BE GENERAL?	NAME AND ADDRESS.
ENGLAND.										
SUSSEX	Good, but much laid and injured	Good	Good	None	Good	Very good	Moderate	Very good	August 12	William Rigden, Hove, Brighton
	Average	Average	1-7th over average	Not grown	....	Average	Over average	Average	August 12	Fred. F. Hallett, The Manor House, Brighton
	Dreadfully beaten down, but nearly average	Good; quite an average crop	Much laid and damaged; probably an average	Not good; under an average	Good; much over the average	Very bad; nearly all diseased	A good plant	A very large crop and made well	Beginning of August	——, Arundel
	Under average	Average	Over average	Average	Average	Average	Average	Over average	Already general	J. Scott Hayward, Folkington, Willingdon
	Under average	Under average	Average	Very few grown	Under average	Good; a little blighted	Late; promising	Over average	About Aug. 1	John Brotherston, Robertsbridge
	Barely average	Average	Average	Below average	Below average	Diseased	Promising; but rather late	Good	Now	James Eames, Midhurst
HANTS	Bare average	Average	Over average	Over average	Over average	Average	Over average	Most abundant; well made	August 7	Joseph Blundell, Southampton
	A doubtful average; blighted	Average	Average	....	Average	Over average	Over average	Over average	Now	Jos. Lancashire, Micheldever
	Light bulk; symptoms of blight; under average	Much laid; coarse; about average	Good; over average	Few grown; blighted	Average	Indifferent; disease appearing	Well planted, but grow slowly	Large crop; good quality	About the 12th	John T. Twynam, Winchester
	Under average	Average	Over average	Average	Over average	Not much grown as a field crop	Improving.	Over average; well made	August 12	Hugh Raynbird, Basingstoke
DORSETSHIRE ..	Average; laid	Average	Average	Not much grown	Over average	Much diseased	Very promising	Great crop	August 12	R. Damen, Dorchester
	Under an average	Large crop, but more thin Barley than last year	Good	Good	Great crop	More diseased than for many years past	Promising	Good crop, and well secured	Next week	John Pope, Symondsbury, Bridport
	Full of rust; much laid; average crop	Much straw; nearly all laid	Average crop; full of rust	Not grown about here	Good crop	Partially blighted	Generally very good	Good crop, mostly well made	August 10	T. H. Saunders, Watercombe Farm, Dorchester
DEVON	Fully a quarter under average	Under average	Average	Average	Average	Very much diseased	Very good	A light crop, damaged	In a few days	George Turner, Cadbury, Tiverton
	Under average	Average	Average	None grown	None grown	Diseased	Very good	Early hay good; late hay injured	August 15	R. H. Watson, Dorsely, Totnes
	Over average	Over average	Over average	None	None	Average; diseased	Partial	Good, and well saved	Ten days	George Langdon, Barnstaple
	Average	Average	Average	....	....	Much diseased	Promising	Crops abundant	August 15	P. Cowan, Tawstock Manor, Barnstaple
	Over average	Over average	Over average	Not much grown	Not much grown	Much diseased	Very good; over average	Heavy crop; over average	About a week hence	Lamoureux, Clark & Co., Plymouth
	Decidedly under average	Decidedly under average	Decidedly under average	....	....	Very bad indeed	Likely to be over average	Over average; but in low lands much sanded	Now	——, Poltimore
CORNWALL	Over average	Average	Over average	...	. ..	Much diseased	Average	Average	August 12	T. Davey Simmons, Killiganoon
	Average	Various; not an average	Average	....	....	Diseased	Good	Good	August 12	Jno. Wills, Launceston
WALES.										
CARMARTHEN...	Average	Good	Good	. ..	. ..	Looking well	Fair	Good crop	About 10 days	John Burnell, Llanelly
IRELAND.										
LONDONDERRY ..	Full average	None	Average	None	None	No blight as yet	Promising	Over average	End of Sept.	Charles Pollock, Magheramafelt.
DOWN	20 cwt. per acre	....	15 cwt. per acre	20 cwt. per acre	15 cwt. per acre	Abundant crop; 200 bushels per acre	15 cwt. per acre	Good; 4 cwt. per acre	About September 1	Wm. M'Cleery, Portaferry
KILKENNY	Average	Average	Average	....	....	Good	Average, but backward	Good	August 25	D. A. Milward, Tullogh
	Average; injured by rust	Average	Good	....	....	Very good appearance	Average	Average	August 20	P. Grace, Uppercourt Freshford
KERRY	Good	None	Middling	None	None	Best since 1845	Middling	Short	August 20	J. O'Sullivan, Kenmare
	Average	Average	Under average	...	....	Over average	Under average	Average	August 20	John Creagh, Tarbert
CORK	Over average	Average; little grown	Over average	None	None	No appearance of disease	Much under average	Average	August 20	Francis A. Twiname Kanturk
	Less sown here this year, but very good	....	More productive than for years past	....	....	Large and good	Very backward	A bad crop	End of August	John D. Clanchy, Charleville
	Under average	....	Average	.. ..	....	Average	Under average	Under average	August 20	James Byrne, Wallstown Castle, Shanballymore
	Good	Light	Good	None	None	Good	Not so promising	Fair	September	Sam. Piddell, Kildorry

Home Correspondence.

Harvest Work.—My Wheat crop suffered much prostration from the past winds and rain. I have been somewhat perplexed as to the best mode of cutting it. I read, therefore, with some interest, the observations of correspondents in the last *Gazette*, especially those of one who seemed to have been influenced by the right sort of resolution, Notwithstanding two years' experience of the performance of Wood's machine, in the hands of a careful and observant carter, I had great doubts of its capabilities in the tangled corn of this year, and anticipated the necessity of reverting to the scythe or the hook. Having made a careful survey of the field in which we proposed to commence operations yesterday morning, and inspected the cut round which had been previously made by the scythe, it was clear that implement would not do. I waited to hear the carter's impression. "Well, master, if you'll leave it to me and my mate, with the machine, and a change of 'osses in the middle of the day, we'll make a tidy job on it; we baint going to cut 12 acres a day as we has done, because we must go out o' gear one way; we shall want four hands to tie and stook, and we will put the other four with the hooks round towards the fences, where 'tis worse bazzled, and we'll leave the ground (10 acres) tidy to-morrow night." I have been this evening to see the result. The only dissight in the field was where the scythe and the hook had been at work: the machine work was perfect. I found the people at work in another field, having completed that computed to last them till night about 2 o'clock P.M. A good machine is indispensable, but a sensible resolute manager, not to be scared by difficulties, is equally so. I have been induced to give these particulars, because I have often seen and heard of such machines being cast aside, solely from the ignorance or incapacity of those put in charge of them. Prior to the purchase of this machine, I asked the agent whether I could cut corn as well as Grass with it. He observed that a machine for mowing Grass, and another expressly adapted for corn, would no doubt answer best; but as my farm consisted of but 200 acres of arable land, and about 40 of pastures, he thought I might find the combined machine answer my purpose, at any rate for Barley and Oats as well as Grass. I think it due to the maker to say that this machine has cut all my Grass and corn for two years, and has commenced its third season as I have described, with no other change than the substitution of an Ash pole for a deal one, and the purchase of two extra knives, but it has always been handled by the same man. *Chas. Lawrence, Cirencester, Aug.* 13.

Harvest Work and Harvest Wages.—With regard to harvest work and wages in this neighbourhood, I think the general practice is to cut by the acre without, and to carry by the day with, beer. All regular hands, such as horsemen, shepherds, yardmen, &c., receive their usual wages, with from four to six or eight pints of beer per day, and at the finish of harvest have 20*s.* or 30*s.* extra each. Brewing for themselves is seldom or never done. I have this season begun the practice of paying for all overtime, and allowing the men 9*d.* per day, and boys and women from 4*d.* to 6*d.* each, instead of giving beer. It has answered very well throughout the hay time; much less beer is drank, they are much better off with the money, and upon the whole I think more satisfied. I hope, and think it will work well. The weather has been so unsettled that we have done but little (except cutting) in the harvest, but I intend to continue the money payment instead of beer, and I quite think we shall find it the better plan for both master and men. The cost, I think, will be considerably more to the master, but I believe the practice to be right. The Grass (both Clover and meadow) has been cut by the mowing-machine both this and last season, and that, with the hay-maker and horse-rake, have been of incalculable use in helping in a good crop of hay very quickly, and in fine order. The reaper will be much more used this season, but the work will be bad for hand or machine, as the corn is much laid and twisted about. I cut most of mine last year with Burgess & Key's combined, and have to-day begun with one of their side sheaf and self-delivering reapers. I am afraid the work will be rather trying for it. *Edward Hilder, Woking.*

Mr. Wm. Smith and the Hiring System.—"Charles H. Sharp, The Villa, Swineshead, near Spalding," has warmed himself up a bit at my reply to Mr. Toepffer. Let me have a few words with him. He first has a fling at my 12 years' practice and tackle, and then sets to work to crack up Howard and Fowler—especially the former, by telling us that he has "introduced self moving engines, and no sane man would attempt to compare the weak, and incapable engine of 10-horse power to the strong and powerful engine of 40-horse power. No; it does not require figures to prove the capability of each set under proper management, for Mr. Smith knows full well the seasons will not wait for the sluggard." Yet he asks me to do a "sum for my own instruction, as well as that of others." Well I will do one, by reference to page 398 of the Royal Agricultural Society's Journal:—

No. 123. The Market Drayton Steam Cultivation Company, Limited. . . . . A Company was formed in the summer of 1865 for the purpose of working Howard's double engines. . . . . The tackle was purchased August 25, 1866. . . . . The amount of apparatus will be seen from the following list—

Two engines, rope, and cultivator.. ..	£1302 10 0
One plough, complete	84 0 0
Lamps, anchors, snatch-blocks, rope porters, &c.	65 4 6
Water-cart, 21*l.*, house on wheels, 45*l.* ..	66 0 0
Duplicates	72 10 8
	£1590 5 2

Up to the present time the journal presents us with a melancholy chapter of accidents—principally in consequence of repeated breakages of the coiling-screws attached to and working the windlasses and the clutches connected with the road-gear; and it is quite evident from a careful study of the facts that these portions of the apparatus were defective in construction. They are now materially altered and strengthened. Mr. Gower (the manager) thinks the engines would move better and not stick fast so much if running on four wheels instead of three. . . When the apparatus first started there was plenty of work to do; but farmers got tired of waiting and set to work with their horses. . . . No accounts have as yet been published, but the following abstract conveys some idea of the present condition of the Market Drayton Cultivation Company, Limited:—

Working Accounts from Sept. 1, 1865, to Feb. 1, 1867.

Dr.	£	s.	d.	Cr.	£	s.	d.
To cash for 346 acres cultivated ..	173	0	0	By wages	145	4	0
96 acres ploughed	52	16	0	Oil and cotton waste	14	13	0
Balance representing loss	180	11	6	Wearing parts ..	10	0	0
				Other repairs ..	22	15	6
				Coals	2	10	0
				Manager's salary, at 40*l.* a year ..	60	0	0
				Sundries and carriage	1	5	0
				Depreciation, at 10 per cent., say	150	0	0
	406	7	6		406	7	6

These accounts may appear very rough, as far as they go, yet the word "interest" does not show in them, neither does coal, except for shifting from place to place: 2*l.* 10*s.* is all that is set down for it. Well, then, we will make these additions:—

Total cost given	£406	7	6
Interest at 5 per cent. on 1590*l.* for a year and a half	119	5	0
A price for coal found by the farmer, 4 cwt. to the acre, at 9*d.* per cwt. on 442 acres of work done ..	66	6	0
This gives a total of	£591	18	6

for 442 acres of work done, or an average of 26*s.* 9*d.* per acre. Even at this price the manager (Mr. Gower) would not cut much of a shine if he got only 40*l.* a year to live upon. My carter gets more than that. Now, Mr. Sharp, I have done my sum, and it is odd to me if it does not sharpen your "sanity" a bit by finding that my "old-fashioned antiquated piece of machinery" is not so far behind as you would have us believe; and I will test your "sanity' by "comparing" your high-driving 40-horse power tackle with my old-fashioned chap. Look back to my reply to Mr. Toepffer in the *Gazette* of July 13, 1867. You may there find that the old fellow, my 10-horse tackle, can do it well from 8 to 9 inches deep for 10*s.* 9½*d.* per acre; and, what is more, can do the work when work ought to be done, not requiring a year and a half to do 442 acres in. Your talk has given me a good chance of showing up this tackle that you are trying to puff off before the public. By this sum of mine Mr. Sharp may learn that if my tackle is "antiquated," it is useful, and can do work at much less cost than his high driver can. What is the good of his talking about "seasons not waiting," when his high-driving tackle can do only 442 acres in a year and half? The "farmers got tired of waiting" for the "sluggard," and well they might, for by it the work progressed at a snail's crawl. He will find that my "figures are (not) against me," but that he is now in the shade with Mr. Toepffer. My "sound, sensible. practical" facts prove more than his words only. Let Mr. Sharp sharpen his sanity by studying the Royal Agricultural Society's Journal before he writes again. He may then give facts instead of "trash." I will not trouble you with any more of it, for my sum must have convinced your readers that his high-driving tackle is a regular stick-in-the-mud. *William Smith, Woolston, Bletchley Station, Bucks, Aug.* 12.

Hybrid Oat.—I send you the results of a cross between the wild Oat and the Black Tartar. Owing to late sowing and dry weather, they are not so good as they were last year. In fact, I had quite forgotten them till the first week in May. *W. B., Everton Farm.* [A one-sided head, full of heavy grain, with long coarse awns.]

Societies.

North Lincolnshire: *Aug.* 7—Barton-upon-Humber, the extreme northern point of the county, was this year selected as the place at which to hold the annual show of the North Lincolnshire Agricultural Society. The exhibition was fully equal, in point of attendance and entries, to that of any previous year. A large collection of implements occupied the yard, and the following received prizes:—

Portable threshing machines: the prize of 10*l.* equally divided between Messrs. W. Foster & Co., Lincoln; Messrs. Marshall, Sons & Co., Gainsborough; Messrs. Robey & Co., Lincoln; and Messrs. Hornsby & Sons, Grantham. Ploughs for light land: Messrs. Hornsby & Sons, Grantham, 3*l.*; ditto for heavy land: Messrs. Hornsby & Sons, 3*l.* Drags or cultivators: Mr. W. Ashton, Horncastle, 3*l.* Scarifiers, or stubble-paring ploughs: Mr. Alexander Thompson, Kealby, 3*l.* Drills for general purposes: Mr. Wm. Barton, Boston, 6*l.*; Ridge Drills: Messrs. Vickers, Snowden, & Morris, Doncaster, 3*l.* Liquid manure drills: Mr. Wm. Watkinson, Louth, 3*l.* Horse hoes for corn: Messrs. Hornsby & Sons, 3*l.*; ditto for Turnips: Messrs. Amies, Barford, & Co., Peterborough, 1*l.* Grubbers: Mr. Watkinson, 3*l.* Harrows for light land: Mr. W. Ashton, 3*l.*; ditto for heavy land: Mr. Wm. Ashton, 3*l.* Chain harrows: Messrs. T. Simpson & Co., Lincoln, 2*l.* Waggons for general purposes: Mr. John Thompson, South Ferriby, 4*l.* Two-horse carts: Messrs. Hy. Hayes & Sons, Stamford, 2*l.* One-horse carts: Hy. Hayes & Sons, 2*l.* Clod crushers: Messrs. Robinson & Neave, Barton-on-Humber, 2*l.* Rollers for general purposes: Messrs. Amies, Barford, & Co., 2*l.* Dressing machines: Mr. T. Corbett, Shrewsbury, 3*l.* Corn blowers: Mr. James Clarke, Lincoln, 2*l.* Chaff cutters: Amies, Barford, & Co., 3*l.* Turnip cutters: Messrs. Hornsby & Sons, 2*l.* Cake breakers: Messrs. Amies, Barford, & Co., 1*l.* General mills for crushing agricultural produce: Amies, Barford, & Co., 3*l.* Steaming apparatus for general purposes: Messrs. Amies, Barford, & Co., 3*l.*

Special prizes were awarded as follows:—Messrs. Amies, Barford, & Co., 3*l.* for their straw elevator, 1*l.* for their food-preparing machine, and 1*l.* for one of Moule's earth closets; Ashby & Jeffery, 1*l.* for their set of hay-makers; Mr. T. Ashby, Louth, 3*l.* for his straw elevating machine; Mr. W. Barton, Boston, 1*l.* for his cooking stove and range; Mr. Jas. Coultas, 10*s.* for his stand for sharpening reaping knives; Mr. S. Gibson, Barton, 1*l.* for his stand; Mr. T. Harrison, Lincoln, 1*l.* for his small seed distributor; Messrs. Hornsby & Sons, 1*l.* for their patent corn screen; Mr. T. Ades, Sheffield, 1*l.* for his stand; Mr. H. Smith, Winterton, 1*l.* for his hay-making machine, No. 1; and Mr. W. Watkinson, Louth, 1*l.* for his elevator.

On Thursday, the principal day of the meeting, although the weather was gloomy, upwards of 9000 persons visited the ground. Although shorn of one of its principal attractions, the cattle classes, the deficiency was made up by the excellence of the stock.

The show of *Horses* was one of the best the Society has ever had, both as regards the number and quality of the entries. The Stallion Classes were well filled. The class which excited the greatest amount of interest was that for 4-year-old hunting geldings and fillies, which competed for the prize of 50*l.* offered by H. Chaplin, Esq. The judges had no difficulty in awarding the prize to a magnificent black brown gelding, by Serenader, d. by Augur, exhibited by Mr. Thos. Geo, of Dewhirst Lodge. The whip given by the Earl of Yarborough for 3-year-old hunting geldings or fillies was competed for by upwards of 20 horses, the prize being carried off by a bay gelding, by Cavendish, d. by Phœnix, belonging to Mr. R. Toynbee, of Bracebridge. The class for 2-year-old hunting fillies was exceedingly good, and some highly meritorious animals were shown in the yearling classes. The pair of draught horses exhibited by Mr. Battersby, of Scotherne, which took the prize in Class 100, were much admired for their size and beauty.

The Classes for *Sheep* were better filled than usual, and the animals had evidently been selected with great care. The prize of 20*l.* for the best ram of any age was awarded to a magnificent 3-shear, shown by Mr. Charles Clarke, of Scopwick. The largest entry was in the shearling class, the 1st prize of 15*l.* being carried off by an animal exhibited by Mr. F. Marshall, of Branston. The same sheep took the 2d prize at the recent Royal show at Bury, the 1st being awarded to a Cotswold, which late in the year generally show better than pure-bred Lincolns, the time when the latter are at their best being before shearing. At Barton, Mr. Marshall's shearling was much admired, and was considered by many breeders present to be one of the best ever shown.

In Class 19, for the best pen of 10 ewes, Mr. Toynbee, of Bracebridge, gained 1st honours with a pen which would do credit to any exhibition, and shearling gimmers were also well represented.

The show of *Pigs* was not quite so large as in some previous years, but the prize animals would have taken honours at any show. The principal premiums were divided between Mr. Dyson, of Leeds, and Mr. Duckering, of Northorpe.

At the annual dinner, presided over by Mr. Rowland Winn, the Hon. A. L. Melville, speaking with regard to sheep, said while visiting the Royal Agricultural Society's show recently held at Bury St. Edmund's, it had been suggested that it was desirable that Lincoln should have a distinct class at the Royal show. It was thought unfair that Lincoln and other Long-wool sheep should be put together. What sheep was it that carried off the 1st prize? Why, a cross between the Lincoln and the Cotswold. He had always been of opinion that Lincoln sheep never showed so well as at Lincoln April Fair—that they could not show their sheep to the same advantage when they were shorn, and thus deprived of their principal beauty. He complained of the limited show of Lincoln sheep which was generally made at the Royal Society's exhibition. It was not the quality he was ashamed of, but the quantity. It was not because there was a scarcity of sheep in Lincolnshire, for he found from statistics that the county had half the number of sheep there was in the whole of Ireland. He had urged upon the Society to have distinct classes at Leicester next year, and if there were not a good show he would never speak on their behalf again. There was a good show of sheep to-day, and one of which they could not be ashamed. Referring to the premiums which had been awarded to Lincolnshire farm servants and labourers, for length of service, &c., the speaker observed that they might well feel proud of them. In what other county could they find 31 entries for the premium offered to the man who had served one master the longest? One servant had been 54 years with one master, another 51, a third 49, a fourth 43, a fifth, 40, a sixth 36, and so on. Where could they find that except in Lincolnshire? The labourers in that part of the country liked their employers, and the good feeling was reciprocated. Mr. Melville concluded by again congratulating the Society upon the success it had attained.

Mr. Torr, referring to Mr. Melville's remarks about the Lincoln sheep at Bury, said that if breeders would show more of them at Leicester, he would promise that they should have a separate class. Indeed, they deserved it, for they travelled further north and south than any other distinct breed.

Mr. E. Turnor proposed "the Chairman," who was the pioneer of a new interest among them, inasmuch as he had opened out some mines of iron ore.

The Chairman, in responding, said he could not take great credit for having developed certain mineral products in North Lincolnshire, to which Mr. Turnor had alluded, because, in doing so, he had been actuated purely by mercenary motives. At the same time he believed that in benefiting himself he should also benefit that part of the county. He congratulated the Society upon the excellent show which they had had, especially upon the splendid exhibition of implements. It was a very satisfactory circumstance in connection with that exhibition, that out of something like 77 exhibitors no less than 52 belonged to North Lincolnshire. The town of Barton had two of the largest exhibitors. He coincided in the opinion which had been expressed that there were no better labourers in the country than the Lincolnshire labourers. He called attention to the Commission which had been issued to inquire into the condition of the agricultural labouring classes, and more especially the women and children. In certain parts of Lincolnshire no doubt very great abuses connected with the public gang system had crept in, but he was happy to say they were free, on the whole, from those abuses. In North Lincolnshire there was no such thing known as public gangs. Private gangs, however, might exist to some extent. In a short time the Commissioners would require them to furnish certain information, and he wanted them to consider how the law could be best altered with the least interference with farmers. He believed that the condition of the labouring class, especially that of women and children, could be considerably improved, with great advantage to all.

Mr. R. G. F. Howard, alluding to the gang system, wished to know how a poor man could support 15 children up to the age of 13 years, without sending them out to work, unless Government made an allowance. *Abridged from the "Lincolnshire Chronicle."*

Farm Memoranda.

Bowes Farm, Fence Houses.—Until this winter the apparatus has consisted of Fowler's 14-horse engine and anchor, with the 4 and 2-furrow ploughs, 7-tined cultivator, and drag-harrow. Now the use of double engines, with winding drums, dispenses with the anchor; and, looking at past results and the favourable character of the land, we think that this change is likely to prove advantageous. The original purchase made in 1862 came to 875*l.*, additional implements have since cost 170*l.*, making a total outlay of 1045*l.* It is a proof of superior management that no serious accidents have occurred, almost the only breakage on record being that of a driving wheel. Repairs, when necessary, have been done by the engineers of the collieries, and the "stitch-in-time principle" has no doubt often prevented more serious delays. These are advantages not generally enjoyed by the ordinary occupier; but we would urge on all the importance of securing as engineer a man who is a thorough mechanic, perfectly acquainted with the mechanism of the apparatus, and capable of executing all minor repairs, even though considerably increased wages be necessary to secure such a man.

The soil at Lambton is a strong loam on a clay subsoil, tolerably free from stones, overlying the coal-measures. The home farm consists of 750 acres, of which about 400 are arable; the apparatus is also employed on two outlying farms about two miles from Lambton, which together contain as much more arable land. The fields are much cut up by the working of the collieries, and are not so symmetrical as is desirable for steam culture; they run about 15 acres and upwards; no alteration has been made in their size, and no new roads have been required. The quantity of work per day has varied, according to depth, from about 3 acres, at the greatest depth (13 inches), done by the 2-furrow plough, to 7 acres at 6 to 7 inches. The cultivator (7-tined) has averaged about 10 acres. The average time consumed in moving tackle is half a day; the labour required in addition to the ordinary staff being two men and four horses. The work of the engine has until lately been entirely confined to cultivating the soil; recently it has been employed to drive a stone-breaking machine. No work has been done for hire, but in a few instances land has been worked for tenants, a liberality which is duly appreciated. The engineer fills up his time with carpenter's work or repairing machinery. Mr. Steward has not found the drainage of strong soils improved, or the consumption of the root crop on the land facilitated; it must be remembered, however, that very deep horse culture was practised previous to the introduction of steam. The crops generally are decidedly increased and improved, but no accurate information on this point was produced. The exception is in the case of Clover, which is found uncertain and difficult to grow once in five years. This may arise either from too much of the subsoil being brought up or, as we incline to believe, from the mechanical condition being too loose. The Clover after harvest is generally abundant and forward, but it dies away during winter and spring, and we should recommend folding over with sheep, and thus consolidating the surface, more especially as the headlands, which are cultivated by horses, and more or less consolidated, generally produce a good plant. No journal having been kept, we were unable to find out the number of days during which the steam is employed, and can only arrive at an approximate result by reference to the system of cropping and the average amount of work done per day.

The land is farmed on the 5-course shift, seeds remaining down two years. Steam culture is now entirely confined to the fallow, for when, in some instances, the Clovers were ploughed for Oats experience proved that horse-labour is more advantageous. We have then 160 acres of fallow. This receives a deep furrow in autumn, with either the common or the digging-breast, and is twice cultivated in spring, the drag-harrows, going a double-tine, between the cultivations. Assuming 1-16th of the area to be head-

lands which are worked by horses, we have the following results:—

150 acres of deep ploughing or digging in autumn.
300 acres cultivated in spring.
300 acres dragged a double-tine.

Calculating that 4 acres can be dug and 10 acres cultivated or double-dragged, we find the number of days during which steam is employed, including removals, averages 164.

The expenses per day are as follow:—

	£	s.	d.
*Labour	0	17	2
Coals, at 8s. a ton	0	6	0
Oil	0	1	6
Wear and tear and interest on original outlay at 12½ per cent. (1045l.)	1	5	1
Repairs, estimated at 50l. per annum, about	0	10	0
	£2	19	9

We thus arrive at an annual outlay of 310l. 14s. Against this we have the cost of eight horses knocked off—14 horses now doing the work of 22 before. Each pair of horses with their driver, on such land and with such deep ploughing, would cost 100l. per annum; consequently, for the above outlay, we have a saving of 400l. in horse-labour, showing a balance in favour of steam of 89l. 6s. on outlay, independently of the many advantages appertaining to steam culture on strong land. The character of the operations we saw in progress, the excellent condition of the apparatus, and the evident signs of good management everywhere visible, prepared us to anticipate a favourable result, which our figures, fairly representing the case, bear out. Improvement of produce, ability to perform important operations at the proper season, are important items which may be variously estimated, but must be placed to the credit of the apparatus, and we may fairly conclude that we have in Lord Durham's case evidence decidedly favourable to steam culture, and it only remains for us to point out the causes which have led to this success. Good management, on the part of the employer and the workmen, must occupy the first place; sufficient area to be worked to allow of a reduction of horse-labour commensurate to the cost of the apparatus, should come second; and favourable conditions as to soil and surface complete the list.

We would, in passing, call attention to a simple improvement in the engines, consisting of small conducting pipes from the steam-cocks of the cylinders, which convey the steam to the ground so that the driver's sight is not obscured by a volume of steam, the noise of the rushing steam is much deadened, and the risk of frightening cattle, when on the road, materially diminished. *Mr. Coleman, in the Report on Steam Cultivation, Agricultural Society's Journal.*

Miscellaneous.

Reports from the Hop Market.—(1). The first pocket of Hops of this year's growth reached the Borough on Friday last, and is reported to have been sold at 31l. 10s. per cwt. It was of inferior quality, the hops being small and undeveloped, and to all appearance ought not to have been picked for at least a fortnight. In about an hour after a second pocket was consigned to the Hop Planters' Company, from Coles Child, Esq., of the Palace, Bromley, of really good quality and capitally managed. This pocket was sold to Messrs. W. A. White & Co., at 20l. per cwt., and resold by them to Evan Evans, Esq., Vale of Neath Brewery, Neath. (2). The first pocket of 1867 growth, weighing 1 cwt. 2 qrs. 21 lb., was this morning sent into the market, consigned to Messrs. Austen and Sweet, Hop Factors, Borough, and sold by them to Messrs. Whitworth, Grafham, & Co., Hop Merchants, Borough, at 30 guineas per cwt., by whom it has been resold to Messrs. John Jones & Co., Oswestry. The grower is J. R. Thomson, jun., Esq., of Moatlands, Brenchley, Kent (from whose plantation the first pocket of Kentish Hops was produced last year). Taking into consideration the early period of its arrival, this year's pocket is allowed to be a very fair sample, and is from the stock of Mr. T. Guest's now well-known Early Prolifics.

The Harvest Weather has at last set in so suddenly that the farmers in many districts are sore beset for want of hands, the action of the reaping machines being impeded by the condition of the crops, which have in many places been prostrated by the severity of the weather. Some weeks ago we revived a suggestion which had more than once been made in our columns that the difficulty might be met, or at any rate mitigated, by the employment of soldiers on furlough for the occasion. We are glad to see that the Horse Guards have adopted the idea. The following general order has been issued by his Royal Highness the Field-Marshal Commanding-in-Chief:—August 10: Harvesting (home stations only).—There will be no objection on the part of his Royal Highness the Field-Marshal Commanding-in-Chief to commanding officers permitting a certain number of men to assist in the harvest, on being applied to for such assistance, provided that the employment of the population is not thereby interfered with.—By command, W. PAULET, A.G. *Pall Mall Gazette.*

Notices to Correspondents.

BOOKS: *A Weekly Reader.* The "best book on agriculture" is one of two or three which stand in the first rank—as Stephen's Book of the Farm, Morton's Cyclopædia of Agriculture, &c. But if you want only "Tables of Quantities," you should get Blackie's Agriculturist's Calculator.

LAND STEWARD. The Editor of this Journal can confidently recommend to any one contemplating estate improvement, whether agricultural, horticultural, landscape gardening, building, &c., a man capable of carrying out such operations.

WARTS—FOWLS: *F.* Will you wait a week?

* Engineer, 3s. 6d.; ploughman, 3s.; anchor-man, 2s. 8d.; 2 boys, at 1s. 4d., 2s. 8d.; man with water, 2s. 4d.; horse, 3s.; total, 17s. 2d.

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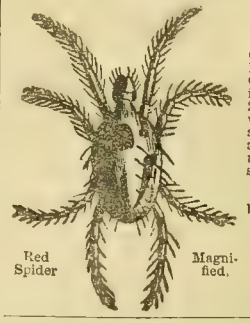


COCOA-NUT REFUSE is becoming SCARCE, the old reserves will soon be gone. Now sold in bags, 1 for 2s., 10 for 16s., 20 for 30s., 50 for 66s., 100 for £6.

Fourpence allowed for each bag returned carriage-paid.

A Railway Truck-load (not in bags), 40s.

Postage Stamps or Post-office Order, payable to J. BARSHAM & Co., Kingston-on-Thames, S.W.



GISHURST COMPOUND.

Used by many of the leading Gardeners since 1859, against Red Spider, Mildew, Thrips, Green Fly, and other Blight, in solutions of from 1 to 2 ounces to the gallon of soft water, and of from 4 to 16 ounces as a Winter Dressing for Vines and Fruit Trees. Has outlived many preparations intended to supersede it.

Sold Retail by Seedsmen, in boxes, 1s., 3s., and 10s. 6d.

Wholesale by PRICE'S PATENT CANDLE COMPANY (LIMITED).

PAINTED SHREDS, the Disperser of Insects. To be had from any Seed Warehouse in the Kingdom. Manufactory, No. 99, East Street, Walworth, London, S. Post-office orders payable to W. LERRO, Walworth, S.

GIVE ME WATER, or I DIE! droopingly speak the FLOWERS.

OH! SAVE ME! SAVE ME! by RAIN-LIKE SHOWERS through INDIA-RUBBER HOSE and ROSE.

Illustrated Price Lists of SHEATH BROTHERS, Gutta Percha, India Rubber, Garden Engines, Pump, and General Manufacturers, 89, City Road, E.C.

GRAY'S OVAL TUBULAR BOILER.

INTERNATIONAL EXHIBITION, CLASS IX., No. 2119.

MR. GRAY begs to call the attention of the Nobility, Gentry, Nurserymen, Gardeners, &c., to his

NEW OVAL TUBULAR BOILER,

Acknowledged by practical judges to be a great improvement on every form of Tubular Boiler yet introduced. It has proved itself superior to all other Boilers for quickness of action and economy of Fuel, doing its work with one-third less the amount required by any other.

Extract from Report in GARDENERS' CHRONICLE *of International Exhibition, May 24, 1862, page 476.*

"The upright form of Boiler is usually made on a circular plan, but the oval form given to Mr. GRAY's variety of it is said to be preferable in consequence of its bringing the tubes in closer contact with the fire. The usual form of a furnace being a parallelogram rather than a square, it seems feasible that the Boilers on the oval plan should bring the tubes more completely within range of the burning fuel; and this being so, the change, though a slight one, is no doubt an improvement."

☞ *They are made of all sizes, which, with prices, may be had on application.*

JAMES GRAY, HORTICULTURAL WORKS,
DANVERS STREET, PAULTON'S SQUARE, KING'S ROAD, CHELSEA, S.W.

GREEN'S PATENT SILENS MESSOR,

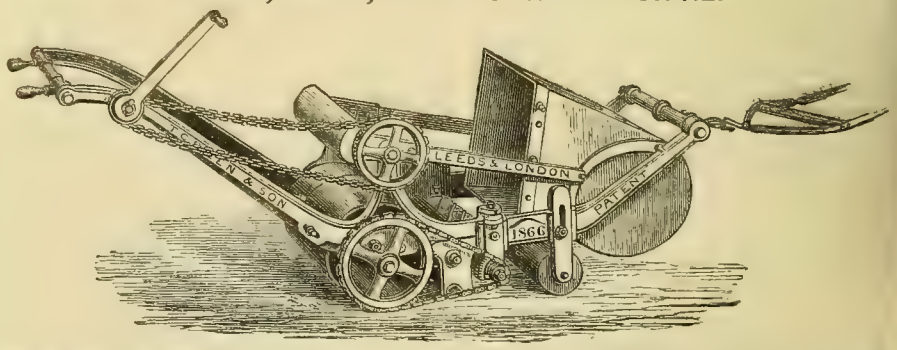
OR NOISELESS LAWN MOWING, ROLLING, AND COLLECTING MACHINES.

FITTED WITH PATENT SELF-SHARPENING CYLINDER CUTTERS.

They are the simplest in construction, least liable to get out of order, and can be worked with far greater ease than any other Lawn Mower extant.

GREEN'S PATENT LAWN MOWERS have proved to be the best, and have carried off every Prize that has been given in all cases of competition; and in proof of their superiority, 40,000 have been sold since the year 1856.

HORSE, PONY, AND DONKEY MACHINE.



Every Machine is warranted to give entire satisfaction, and if not approved of can be returned at once unconditionally.

T. GREEN AND SON *have to state that the demand for their* LAWN MOWERS *this Season has been unprecedented, which is a proof of the high estimation in which they are held. Selections can be made from their Stock both in London and Leeds.*

☞ ILLUSTRATED PRICE LISTS FREE ON APPLICATION.

THOMAS GREEN AND SONS, SMITHFIELD IRON WORKS, LEEDS; and
54 and 55, BLACKFRIARS ROAD, LONDON, S.

LAWES' MANURES.—The Manures manufactured by J. B. LAWES for the present season of 1867 are now ready for delivery at his Factories, at the following prices, per ton:—

	£	s.	d.
LAWES' PATENT TURNIP MANURE and BONE SUPERPHOSPHATE of LIME..	6	0	0
LAWES' SUPERPHOSPHATE of LIME from BURNT BONE or MINERAL PHOSPHATES	5	5	0
LAWES' WHEAT, BARLEY, GRASS, and MANGEL MANURES	8	0	0
CONCENTRATED CORN and GRASS MANURES ..	12	0	0

These Manures can be obtained of Mr. LAWES, or through the appointed Agents in all parts of the United Kingdom, at prices varying according to cost of carriage.

Genuine Peruvian Guano direct from the Importers. Nitrate of Soda, Sulphate of Ammonia, and other Chemical Manures.

American and other Cakes at market prices.

Address, JOHN BENNET LAWES, 1, Adelaide Place, London Bridge, E.C.; 22, Eden Quay, Dublin; and Market Square, Shrewsbury.

THE LONDON MANURE COMPANY
(ESTABLISHED 1840),
Have now ready for delivery in dry fine condition,
CORN MANURE, for Spring Use
DISSOLVED BONES, for Dressing Pasture Lands
SUPERPHOSPHATES of LIME
PREPARED GUANO
MANGEL and POTATO MANURES.
Also Genuine PERUVIAN GUANO, and NITRATE of SODA, ex Dock Warehouse; SULPHATE of AMMONIA, FISHERY SALT, &c. E. PURSER, Secretary.
Offices, 116, Fenchurch Street, E.C.



GARDEN BORDER EDGING TILES, in great variety of patterns and materials, the plainer sorts being especially suited for KITCHEN GARDENS, as they harbour no Slugs and Insects, take up little room, and once put down incur no further labour and expense, as do "grown" Edgings, consequently being much cheaper.



GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, of great durability, and in great variety of design.

F. & G. ROSHER, Manufacturers, Upper Ground Street, Blackfriars, S.; Queen's Road West, Chelsea, S.W.; Kingsland Road, Kingsland, N.E.

Sole London Agents for FOXLEY'S PATENT GARDEN WALL BRICKS. Illustrated Price List free by post. The Trade supplied.

ORNAMENTAL PAVING TILES for Conservatories, Halls, Corridors, Balconies, &c., as cheap and durable as Stone, in blue, red, and buff colours, and capable of forming a variety of designs.

Also TESSELATED PAVEMENTS of more enriched designs than the above.

WHITE GLAZED TILES, for Lining Walls of Dairies, Larders, Kitchen Ranges, Baths, &c. Grooved and other Stable Paving Bricks of great durability, Dutch and Adamantine Clinkers, Wall Copings, Red and Stoneware Drain Pipes, Slates, Cement, &c.

To be obtained of F. & G. ROSHER, at their premises as above.

SILVER SAND (REIGATE, best quality), at the above addresses—14s. per Ton, or 1s. 3d. per Bushel; 2s. per Ton extra for delivery within three miles, and to any London Railway or Wharf. Quantities of 4 Tons, 1s. per Ton less.

FLINTS, BRICK BURRS or CLINKERS, for Rockeries or Grotto Work. F. & G. ROSHER.—Addresses see above.

N.B. Orders promptly executed by Railway.

Iron Cisterns.

F. BRABY AND CO. having laid down extensive and Improved Machinery in their new range of buildings, Ida Wharf, Deptford, are now prepared to supply WROUGHT-IRON TANKS, BLACK, GALVANISED, or PAINTED, of superior quality, at reduced prices, and of every Smith's make.



F. BRABY & Co., Limited, Fitzroy Works, Euston Road, London.

WARNER'S SILICATE of IRON PAINT.—The peculiarities and advantages of this Paint are that it will stand extreme Heat and Damp, and is not affected by Acid, Sea Water, Sulphuretted Hydrogen, or Ammonia. It is equally well adapted for Iron, Wood, Brick, or Cement. Every Shade of Colour ground to order. The Creamy White and Bright Stone will retain the soft delicate shades, regardless of the fumes of Gases. It has no smell, and there is an entire absence of deleterious effect.

WARNER'S ANTITERMITE COMPOSITION is suitable for Felt Roofing, and is a Cheap Coating for Iron Work, and preserves Wood in India from the ravages of the White Ant. Price 1s. 3d. per gallon.

17, Laurence Pountney Lane, Cannon Street, London, E.C.

Oil Paint no longer Necessary.



HILL AND SMITH'S PATENT BLACK VARNISH for preserving Iron Work, Wood, or Stone. This Varnish is an excellent substitute for oil paint on all out-door work, and is fully two-thirds cheaper. It may be applied by an ordinary labourer, requires no mixing or thinning, and is used cold. It is used in the grounds at Windsor Castle, Kew Gardens, and at the seats of many hundreds of the nobility and gentry, from whom the most flattering testimonials have been received, which HILL & SMITH will forward on application.

From CHAS. E. B. SMEDLEY, Esq., *The Grange, near Boston.*

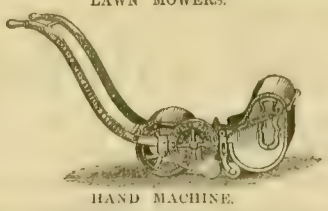
"I have much pleasure in giving you a reply to your inquiries about the Black Varnish I have had from you for the last two years. It has answered my expectations fully, and as far as I am able to judge, it is the best material for preserving iron fencing, gates, and other wood work exposed to the air; and I can with safety recommend it as the best and cheapest article that is yet out. Wishing you every success."

Sold in casks of about 30 gallons each, at 1s. 6d. per gallon, at the Manufactory, or 1s. 8d. per gallon paid to any Station in the kingdom.

Apply to HILL & SMITH, Brierly Hill Iron Works, near Dudley, and 22, Cannon Street West, E.C., from whom only it can be obtained.

SHAW'S TIFFANY.
For samples and prices apply to
J. SHAW & Co., 29, Oxford Street, Manchester.

SHANKS' NEW PATENT LAWN MOWERS.



HAND MACHINE.

These are the only Machines in daily use in all the Royal Gardens. These are the only Machines that will mow properly when the Grass is wet.

These are the only Machines that will last for years without requiring repair.

Illustrated Circulars with full particulars free on application.

A. SHANKS & SON, Deus Iron Works, Arbroath.

London Office and Show Rooms—27, Leadenhall Street, E.C.

27, Leadenhall Street, is the only place in London where intending purchasers of Lawn Mowers can choose from a stock of 150 to 200 Machines. All sizes kept there whether for Horse, Pony, or Hand-power.

JOHN GIBSON, JUN., begs to announce that he is prepared to Furnish PLANS and ESTIMATES for LAYING OUT GROUND attached to Mansions and Villa or other Residences, or for the FORMATION of PUBLIC PARKS or GARDENS and to carry out the same by Contract or otherwise.

Address Mr. JOHN GIBSON, jun., Surrey Lane, Battersea, S.W.

GEORGE F. MORRIS (of the Firm of PROTHEROE & MORRIS) undertakes SALES and VALUATIONS of FREEHOLD LANDED ESTATES, Leasehold and Reversionary Property of every description, Farming and Market Garden Produce, Household Furniture, Stock in Trade, &c.

Auction and Estate Agency Office, The Limes, Leytonstone, Essex.

The Exmoor Cobs and Ponies.

MR. ROBERT SMITH'S ANNUAL SALE of about FORTY EXMOOR COBS, GALLOWAYS, and PONIES will take place as usual (in the AUTUMN) at Fielder's Repository, Bristol.—Emmett's Grange, South Molton, August 6.

TO BE SOLD, a well-bred COW, with her SECOND CALF, Calved on the 4th inst. The Cow was bred by the present owner.

Apply to the GARDENER, Sunbury Lodge, Sunbury-on-Thames.

Farm Poultry.

GREY DORKING FOWLS, of purest breed, in any numbers.

Imported TOULOUSE GEESE, the largest and most productive breed known.

Improved NORFOLK TURKEYS, large, hardy, and good breeders.

AYLESBURY and ROUEN DUCKS.

Imported BELGIAN HARE RABBITS, for size and early maturity.

BRAHMA-POUTRA, CREVECŒUR, and LA FLECHE FOWLS, for constant layers.

Priced Lists and Estimates on application.

JOHN BAILY & SON, 113, Mount Street, London, W.

BEES.—The Advertiser wishes to Dispose of about a dozen strong HIVES of BEES, six in Woodbury Frames, and remainder in Straw Cottage Hives. Also a quantity of EMPTY HIVES, and Apparatus suitable for a Scientific Apiary. Very Cheap.

Address, JOHN HUNTER, Esq, New Malden, Surrey.

To Nurserymen and Seedsmen.

WANTED, a SMALL BUSINESS in the above Line.

Address A. T., *Gardeners' Chronicle* Office, W.C.

Covent Garden Market.—To Growers of Water Cresses

TO BE LET, for 7, 14, or 21 years, 25 ACRES (more or less) of LAND especially adapted to the growth of WATER CRESSES, abundantly supplied with Water, close to a Station, and within one hour of London. Apply, giving name and address, to X. Y. Z., Post Office, Sevenoaks.

Estate in the Cumberland Lake District.

FOR SALE, that very desirable and valuable FREEHOLD ESTATE of LITTLETHWAIT and MIRE GILL, in the Township of Whinfell, in the County of Cumberland, and lately the property of the late Sir Wilfred Lawson, Bart., consisting of 140 ACRES or thereabouts of Arable, Grazing, Meadow, and Wood Lands, with Apple and Plum Orchards, and a good Farmhouse, with Outbuildings.

LITTLETHWAIT is well watered, and in a good state of cultivation. The Plantations are healthy, and contain Partridges, with a sprinkling of Black Game. There is Trout Fishing in the River Cocker, which flows through the Estate.

LITTLETHWAIT is beautifully situated in the Vale of Lorton, between Lowes-water and the important Market Town of Cockermouth, from which it is distant only five miles by turnpike road, and where there is a first-class Railway Station.

LITTLETHWAIT'S high ground affords a lovely view of Crummock Lake.

LITTLETHWAIT would well repay a little further outlay. The property will be shown at any time on application to the Tenant, Mr. Henderson, Littlethwait, near Cockermouth.

For further particulars apply to WILLIAM LAWSON, Blennerhasset Farm, Cumberland.

TO BE LET or SOLD, together or separately, WESTBOURNE NURSERY, BAYSWATER; and CAMPDEN GROVE NURSERY, KENSINGTON. For terms, &c., apply Mr. J. REEVES, Son., Acacia Villa, Ladbroke Road, Notting Hill.

FOR DISPOSAL, a First-class NURSERY and SEED BUSINESS; or the present Proprietor would accept of a WORKING PARTNER with a Capital of not less than £1500.

Apply by letter to E., Messrs. Hurst & Son, 6, Leadenhall Street London, E.C.

FOR SALE, a FLORIST, SEED, and FRUIT BUSINESS, in a first-class situation, and with a good connection, in the South of England. Coming in, about £250. Rent of Premises, £60.

L, *Gardeners' Chronicle* Office, W.C.

To Market Gardeners, Nurserymen, &c.

TO BE SOLD, by Private Contract, about 200 ACRES of very superior GARDEN GROUND, all Freehold, situate in the County of Bedfordshire, about three miles from Biggleswade Station, Great Northern Railway. The Land is divided into Lots to suit the convenience of purchasers. For particulars apply to THOMAS FOUNTAINE, Esq, Dunton Lodge, Ashwell, Biddock.

TO BE LET, a FAMILY RESIDENCE, GARDENS, STABLES, LAWN, and PLANTATIONS, situate on a very pleasant part of the Norfolk coast, within a mile of the sea, and four miles of a market town, from which a railway is in course of construction to Norwich. The House contains Entrance Hall, Dining, Drawing-room, and Library, with seven Bed-rooms and commodious Attics, and commands charming sea and land views. The Gardens are tastefully laid out, and are planted with choice Shrubs. Eight acres of Grass and thirty acres of fine Arable Land can be let with the House. Shooting may be had, and a Pack of Harriers is kept in the immediate neighbourhood. Any Gentleman, desirous of giving his son a practical and scientific education, may make very advantageous terms—the owner of this property occupying 600 acres of fine arable land, by which this house is surrounded.

Apply to W. CUBITT, Bacton Abbey, North Walsham, Norfolk.

Nursery and Seed Business for Sale.

WILLIAM DEAN, having determined on residing in London again, offers for SALE, with immediate possession, the NURSERY at SHIPLEY, consisting of Four Acres, with 13 extensive Glass Houses, the whole, with the Nursery well stocked, and with Dwelling House, &c., is held on Lease; also the SEED SHOP, in BRADFORD (the only one in the town), which is well fitted up, and where there is a good business doing in Fancy Articles, as well as Seeds, Cut Flowers, Flowering Plants, &c. The Nursery is 2½ miles from the Shop, on a principal road to Bradford. A half year's business is equivalent to the purchase money required, and will be a great bargain to the purchaser. It is an excellent opportunity for a large house in the South to establish a Branch Business here, as a good healthy Trade is already done, which may be very much increased. For particulars apply to

WILLIAM DEAN, Bradford Nursery, Shipley, Yorkshire.

Sales by Auction.

Imported Orchids.

MR. J. C. STEVENS will SELL by AUCTION at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, August 22, at half-past 12 o'Clock precisely, an importation of ORCHIDS from Guatemala, Chiriqué, and other parts of the world. Also a collection of FRUITING and SUCCESSION PINES.

On view the Morning of Sale, and Catalogues had.

Brentford Road, Kew Bridge.

IMPORTANT SALE OF NEWLY-ERECTED GREENHOUSES, PITS, BOXES, BRICKS, HOT-WATER PIPING, &c.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. William Drewett to SELL by AUCTION, without reserve, on the Premises, The Market Garden and Nursery Grounds, Brentford Road, Kew Bridge, on MONDAY, August 19, at 11 o'Clock (the Lease expiring at Michaelmas next), 3 Newly-Built Span-roof GREENHOUSES, 90 feet by 12 feet over; 3 excellent three-quarter Span-roof GREENHOUSES, 120 feet, 60 feet, and 96 feet in length; 3 Ranges of Pits, each 99 feet long by 7 feet; sundry other Pits and Glazed Lights; also about 2000 feet 2 and 3-inch, but principally 4-inch, Hot-Water Piping; Ormson's Tubular 5-feet Boiler, 4 other Boilers, 1000 Casts of Pots, Bricks, Tiles, Drain Pipes, Sign Board, and other Effects.

The Glass Erections are in excellent condition, built of the best materials, and being many thousand feet, offer a capital opportunity.

May be viewed prior to the Sale. Catalogues had on the Premises, and of the Auctioneers and Valuers, Leytonstone, N.E.

Upper Mitcham, Surrey.

MESSRS. BLAKE will SELL by AUCTION, at The Firs, on TUESDAY, August 23, at 2 for 3 o'Clock, a Collection of STOVE and GREENHOUSE PLANTS, including specimens of Australian Palms, Tree and other varieties of Fern, Camellias, Azaleas, Heaths, and Orange Trees; Garden Utensils, including Lawn Mowing Machines, Iron Roller, Cucumber Boxes, Hand Lights, Seats and Ladders, Tumbril Cart and Harness, Stack of prime Hay, Stump of old Hay, Manure, Cord Wood, and Effects; also three handsome Cows.

May be viewed the day before the Sale; and Catalogues had of the Gardener on the Premises; at the Inns in the neighbourhood; and of Messrs. BLAKE, Croydon, S.

Bedford Street, Strand.

LEASEHOLD PROFIT RENTAL OF £80 A-YEAR, AMPLY SECURED ON THE PREMISES, No. 13, BEDFORD STREET.

MESSRS. DEBENHAM, TEWSON, and FARMER will SELL, at the Mart, near the Bank, on TUESDAY, August 27, at 2 o'clock, the capital PREMISES, No. 13, Bedford Street, Covent Garden, W.C.; comprising Four Floors and Basement; held for about 17 years unexpired, at £50 a-year, and underlet for the full term (less a few days), at £130 per annum, but now worth considerably more.

Particulars of M. BOYCE, Esq., Solicitor, 48, Cannon Street, E.C.; and of the Auctioneers, 80, Cheapside.

TO NOBLEMEN, GENTLEMEN, NURSERYMEN, &c.

IMPORTANT SALE WITHOUT RESERVE.

JAS. GARAWAY & CO.,

DURDHAM DOWN NURSERIES, BRISTOL,

Beg to announce that in consequence of the approaching Expiration of the Lease of the above-mentioned old-established and well-known Nurseries, their

ENTIRE STOCK OF STOVE, GREENHOUSE PLANTS, FERNS, &c.,

Comprising a fine Collection of full-sized, half, and quarter specimen HEATHS, AZALEAS, CAMELLIAS, ORANGES, &c., and their splendid stock of AMARYLLIS, the largest and most varied in England, consisting of all the best named sorts; and many Hundreds of FLOWERING BULBS of splendid unnamed HYBRIDS, will be SOLD by AUCTION, on the Premises (unless the whole or any portion should in the meantime be Disposed of by Private Contract), on MONDAY, August 19, and following days.

CATALOGUES will be ready a fortnight previous to the Sale, and will be forwarded Post Free on application.

The whole of the Plants are now Lotted, and can be viewed any time between 6 A.M. and 8 P.M.

JAS. GARAWAY AND CO.'S *Lease expires in the Spring of* 1869, *and till then Business will be carried on at the present Address as usual.*

JAS. GARAWAY AND CO., DURDHAM DOWN NURSERIES, BRISTOL.

CONSERVATORIES, GREENHOUSES, FRAMES.

THE ONLY PAINT THAT SUCCESSFULLY STANDS UPON THE ABOVE TRYING WORK IS

CARSONS' ORIGINAL ANTI-CORROSION PAINT,

TRADE MARK.



ENTERED AT STATIONERS HALL.

AND IS CONSEQUENTLY LARGELY USED BY THE NOBILITY AND GENTRY, ALSO THE LEADING HORTICULTURISTS.

IT IS EQUALLY ADAPTED FOR ALL DESCRIPTIONS OF EXTERNAL WORK.

Three Cwt. Free to any Station in England and Wales, and most Ports of England, Ireland and Scotland.

PREPARED OIL MIXTURE FOR THE ANTI-CORROSION PAINT.

OILS, TURPENTINE, VARNISHES, BRUSHES, &c., &c.

TRADE MARK.

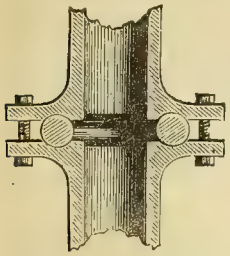


ENTERED AT STATIONERS HALL.

Before Painting, send for PATTERNS, PRICES, and TESTIMONIALS, which can be had Post Free on application to

WALTER CARSON AND SONS, LA BELLE SAUVAGE YARD, LUDGATE HILL, LONDON, E.C.

CAUTION.—All Casks bear the Trade Mark, or are not Genuine.

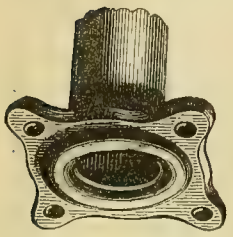


RIDDELL'S

PATENT PORTABLE ELASTIC PIPE JOINT.

Especially adapted for HOT-WATER PIPES for WARMING CHURCHES, PUBLIC BUILDINGS, SCHOOLS, CONSERVATORIES, HOT-HOUSES, &c., is extremely simple, perfectly watertight, saves four-fifths of the time and labour in erecting hot-water work, can be rapidly put together by an ordinary workman, and can be removed and re-erected without injury to pipes or joints.

Prospectus and Price List free.



PATENT PIPE JOINT.

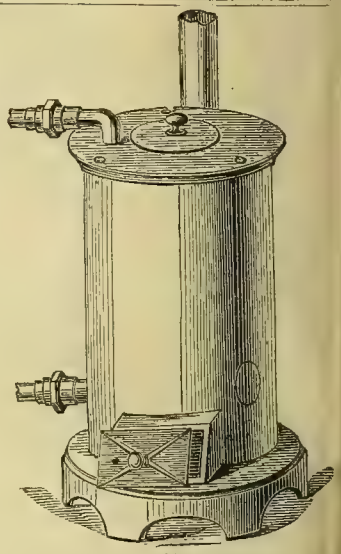
RIDDELL'S

PATENT SLOW COMBUSTION BOILER.

For WARMING CHURCHES, CONSERVATORIES, HOTHOUSES, SCHOOLS, &c., by the circulation of Hot Water, requires no brick-work setting, saves half the fuel usually consumed, is not liable to get out of repair, is easily regulated, will work from 8 to 20 hours without attention, and is made in sizes capable of heating from 30 to 5000 feet of 4 inch pipe.

Prospectus and Price List free.

J. HADLEY RIDDELL, PATENTEE, 155, CHEAPSIDE, E.C.



PATENT SLOW COMBUSTION BOILER.

JOHN WARNER & SONS,

CRESCENT, CRIPPLEGATE, LONDON, E.C.,

BRASS and BELL FOUNDERS to HER MAJESTY, HYDRAULIC ENGINEERS.



No. 35.

35. WARNERS' PATENT CAST-IRON **LIFT PUMPS.**

2½	inches diameter ..	£1	8 6
3	,, ,, ..	2	1 0
3½	,, ,, ..	2	6 0
4	,, ,, ..	2	14 0

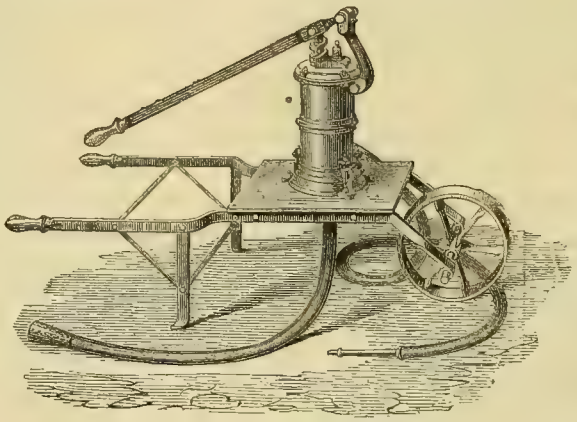
No. 37.
SHORT-BARREL DITTO,
FOR SINKS, PLANT HOUSES, &c.
2½ ins. diameter .. £1 1 0



No. 547A.

No. 547A.
GARDEN ENGINE.

28	Gals. ..	£5	10
24	,, ..	4	19
16	,, ..	3	14
10	,, ..	2	19



THE CRYSTAL PALACE FIRE ENGINE and GARDEN PORTABLE FORCE PUMP.

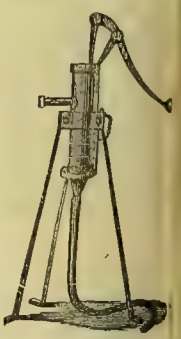
Price on Barrow, with Branch Pipe, Spreader, Unions, and Suction Rose, £6.

1¾-in. 2-ply Rubber Suction Pipe, per foot, 2*s.* 2*d.*

1¼-in. ditto Delivery Hose, 1*s.* 4*d.*

No. 42.
WARNERS' **PORTABLE PUMPS,**
With Improved Valves for Liquid Manure, £2 15*s.*

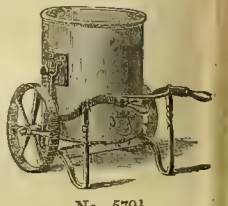
2-in. Flexible Rubber Suction Pipe, in 10, 12, and 15 ft. lengths, per foot, 2*s.* 6*d.*



No. 42.

No. 579½.
SWING WATER BARROW.

50	Gals. ..	£5	12
38	,, ..	3	17
30	,, ..	2	13
20	,, ..	2	2



No. 579½.

ILLUSTRATED and PRICED LISTS of Garden Engines, Swing Barrows, Aquajects, Syringes, and Fountain Jets sent on application.

ROYAL AGRICULTURAL SHOW, held at BURY ST. EDMUND'S, 1867.—A SILVER MEDAL was Awarded to JOHN WARNER AND SONS' CHAIN PUMP. This Pump, from the entire absence of Valves, is especially adapted for the use of Builders, Contractors, and Farmers.

Editorial Communications should be addressed to "The Editor;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
Printed by JAMES MATTHEWS, at the Office of Messrs. BRADBURY, EVANS, & Co., Lombard Street, Precinct of Whitefriars, City of London, in the County of Middlesex, and Published by the said JAMES MATTHEWS, at the Office, No. 41, Wellington Street, Parish of St. Paul's, Covent Garden, in the said County.—SATURDAY, August 17, 1867.

THE GARDENERS' CHRONICLE

AND

AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.

No. 34.—1867.] SATURDAY, AUGUST 24. {Price Fivepence. {Stamped Edition, 6d.

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CRYSTAL PALACE.—The GREAT AUTUMN SHOW of FLOWERS and FRUIT on TUESDAY, WEDNESDAY, and THURSDAY, September 10 to 12. Schedules on application to I. Wilkinson, Crystal Palace.

MANCHESTER BOTANICAL AND HORTICULTURAL SOCIETY.—A GRAND EXHIBITION of PLANTS, FRUITS, and FLOWERS will be held at the Gardens, Old Trafford, on TUESDAY, August 27, and four following days, in connection with the GREAT CENTENARY CELEBRATION SHOW of the MANCHESTER and LIVERPOOL AGRICULTURAL SOCIETY. Charges for Admission:—First day, 2*s.* 6*d.* each; remaining days, 1*s.* each; Subscribers to the Botanic Gardens free each day. Schedules may be obtained at the Gardens, or from the Undersigned. Military Bands in attendance. By Order. Cooper Street, Manchester. Henry Whitworth, Secretary.

BISHOP AUCKLAND FLORAL and HORTICULTURAL SOCIETY will hold their ANNUAL EXHIBITION in AUCKLAND PARK on AUGUST 30, when upwards of £350 will be awarded in Prizes. Schedules may be obtained on application to Mr. J. C. Hendy, Secretary, Bishop Auckland.

BRIGHTON and SUSSEX FLORICULTURAL and HORTICULTURAL SOCIETY. The FOURTEENTH ANNUAL AUTUMN EXHIBITION will be held on WEDNESDAY and THURSDAY, September 11 and 12, in the Grand Assembly Room, and the Western Lawn and Grounds of the Royal Pavilion, on the same grand scale as former years. Schedules of Prizes on application to the Secretary, 96, St. James's Street; or E. Spary, Superintendent, Queen's Graperies, Brighton. Sept. 24. Edward Carpenter, Secretary.

SUTTON'S AUTUMN CATALOGUE IS NOW READY, gratis and post free. Royal Berkshire Seed Establishment, Reading.

Strawberries.

A DESCRIPTIVE CATALOGUE of STRAWBERRIES, Classed, free per post. Thos. Rivers & Son, Nurseries, Sawbridgeworth.

Strawberries.

CHARLES TURNER is now prepared to supply strong Plants of the best modern kinds, as well as all the leading established varieties, true to name. A DESCRIPTIVE LIST may be had on application. The Royal Nurseries, Slough.

CUTHILL'S STRAWBERRY PLANTS.—On and after August 26, strong, selected for next year's bearing, at the reduced price of 6*s.* per 100, each sort (they have lasted in bearing 55 days this year). Early Black Prince, Early Princess Royal, Richard II., Highland Mary, Newton Seedling late, Prince of Wales, latest of all. Dr. Lindley never could depend on a crop until he had my breed. MUSHROOM SPAWN, 5*s.* per bushel. Five Pamphlets, &c. Write for a LIST. Post-office orders on Camberwell Green. James Cuthill, Denmark Hill, Camberwell, S.

Vines for Early Forcing.

F. AND A. SMITH have strong FRUITING CANES of the above. Prices, with LIST of VARIETIES, on application. The Nurseries, Dulwich, S.

VINES from EYES.—Houses upwards of 700 feet in length occupied with their Cultivation—probably the largest stock in England. The Fruiting Canes are extra fine this season: 5*s.* to 7*s.* 6*d.* each. Vines from open borders for ground Vineries, 1*s* 6*d.* each; ditto, fine Canes from pots, 3*s.* 6*d.* each. A DESCRIPTIVE CATALOGUE free per Post. Carriage paid to London. Thos. Rivers & Son, Nurseries, Sawbridgeworth.

PINE PLANTS.—Thos. Pape begs to state that he can supply strong Fruiting and Succession PINE PLANTS of WHITE PROVIDENCE, BLACK PRINCE, MONTSERRAT, and JAMAICAS.—Undercliffe Gardens, Bradford, Yorkshire.

Orchard-house Trees Fruiting in Pots.

PEACHES, NECTARINES, APRICOTS, CHERRIES, PLUMS, PEARS, APPLES, VINES, and FIGS. Richard Smith, Nurseryman and Seed Merchant, Worcester.

Highly Cultivated and Regularly Transplanted Nursery Stock.

EIGHTY ACRES of the above, consisting chiefly of FRUIT TREES, ROSES, EVERGREENS, and ORNAMENTAL TREES, which for general excellence are unsurpassed. Thomas Warner, Leicester Abbey Nurseries.

ORCHIDS.—A Small Collection of the best varieties for SALE, on account of owner's ill health. For particulars, &c., address H., Post Office, Retford, Notts.

SPECIMEN PLANTS WANTED.—A large Conservatory, 130 feet long, and 30 feet high, has been erected at the Royal Park, Leeds. PLANTS or SHRUBS are WANTED. Must be large, good, and cheap. Thomas Clapham, Royal Park, Leeds.

Hardy Trees and Shrubs.

PAUL AND SON beg to invite intending planters to inspect their Collection of Fine-foliaged and Ornamental-leaved Trees, as well as their large Stock of general Hardy, Evergreen, and Deciduous Plants, to the culture of which in quantity they devote some 40 Acres of their Nurseries. The Autumn Bloom of Roses is exceptionally good. The Old Nurseries, Cheshunt, N.; one mile from Cheshunt Station, G.E.R.

Superb Double Hollyhocks.

WILLIAM CHATER respectfully invites the attention of the Public to his unrivalled Collection of the above, which are NOW in FULL BLOOM and may be viewed any day, Sundays excepted. Also a fine Collection of other FLORIST FLOWERS. Nurseries, Saffron Walden.

Dutch Roots.

JOHN AND CHARLES LEE will be happy to forward their CATALOGUE for 1867 of newly-imported HYACINTHS and other Roots, post free on application. Royal Vineyard Nursery and Seed Establishment, Hammersmith, London, W.

Dutch Bulbs.

J. SCOTT'S CATALOGUE of DUTCH FLOWER ROOTS, GARDEN REQUISITES, &c., is NOW READY, and will be sent post free on application. J. Scott, The Seed Stores, Yeovil, Somerset.

Suttons' Collections of Hyacinths.

SUTTON AND SONS have now received their first consignment of the above, which includes all the varieties so much admired at the Spring Shows. For particulars see SUTTONS' AUTUMN CATALOGUE for 1867, which may be had gratis and post free on application. Sutton & Sons, Reading, Berks.

New Catalogue of Plants, Dutch Bulbs, &c.

ROBERT PARKER begs to announce that his NEW CATALOGUE, containing Select, Descriptive, and Priced Lists of New, Rare, and beautiful Greenhouse, Hardy and Stove Plants, Azalea indica, Fruit Trees, Grape Vines, Rhododendrons, Roses, Sweet Violets, &c.; Amaryllis, Crocuses, Cyclamens, Gladioli, Hyacinths, Liliums, Narcissus, Tulips, and other Bulbs, is now published and will be forwarded to applicants. Exotic Nursery, Tooting, Surrey, S.

WM. CUTBUSH AND SON beg to say that their DESCRIPTIVE CATALOGUE of CHOICE HYACINTHS, TULIPS, CROCUSES, &c., is now ready, and can be had post free on application. Highgate Nurseries, London, N.

BELLA DONNA LILIES.—These free-blooming flowers should be planted as soon as possible, as they come over with the flower bud showing. Price 5*s.* 6*d.* per dozen, forwarded on receipt of Post-office order on application to Carter's Great London Seed Warehouse, 237 & 238, High Holborn, W.C.

VIOLETS for WINTER and SPRING BLOOMING.—The Undersigned can supply strong healthy Plants, in 5-inch pots, of the following, which are the four best Violets in cultivation. Price 6*s.* to 9*s.* per dozen.

THE CZAR	DOUBLE BLUE
NEAPOLITAN	REINE DES VIOLETTES

Francis & Arthur Dickson & Sons, The "Upton" Nurseries, Chester.

Beautiful Foxgloves.

J. IVERY AND SON can now supply new Seed of their fine strain of the above, in 1*s.*, 1*s.* 6*d.*, or 2*s.* 6*d.* packets; likewise Plants to bloom next season at 6*s.* per doz. Dorking and Reigate Nurseries.

Camellias, Azalea indica, Otaheite Oranges, &c.

JEAN VERSCHAFFELT begs to solicit early orders for the above, the stock, although very fine, being rather limited this year, especially as regards Camellias, which are not so well set as usual. All orders to be addressed to Jean Verschaffelt, Nurseryman, 134, Faubourg de Bruxelles, Ghent, Belgium.

Roses in Bloom.

WM. PAUL'S ROSES are NOW IN FULL BLOOM. Inspection respectfully invited. Trains almost hourly from Shoreditch to Waltham Station, Great Eastern Railway. Paul's Nurseries, Waltham Cross, N.

To the Trade.

MARSHAL NIEL ROSE, from own roots, in pots, by the 100 or 1000, at £5 per 100. G. Baker & Son, American Nursery, Bagshot.

NEW ROSES for 1867.—Strong Plants of all the best NEW ROSES now ready. DESCRIPTIVE LIST, with prices, on application. John Cranston, King's Acre Nurseries, near Hereford.

CULTURAL DIRECTIONS for the ROSE. Second Edition. By John Cranston, King's Acre Nurseries near Hereford. Free by post from the Author for 20 stamps.

Roses.

JOHN CRANSTON has the pleasure to announce that his ROSES are NOW IN FULL BLOOM, and that the whole of his stock is in the finest condition possible. The severe frosts (which proved so destructive in many parts of England throughout last winter) not having visited this locality, he is happy to say that his Roses, Conifers, and other Trees, escaped entirely unharmed. Nurseries, King's Acre, near Hereford.

Roses, Orchard Houses, and Experimental Fruit Tree Culture.

THE NURSERIES at SAWBRIDGEWORTH, 100 Acres in extent, are OPEN to the inspection of Amateurs interested in the above. The Harlow Station (1¼ mile distant), G. E. R., where Flys are in attendance, is the most convenient. Thos. Rivers & Son.

Ferns from New Zealand.

FOR SALE (just arrived from New Zealand), TWO CASES of GROWING FERNS. May be seen at Messrs. Levy Brothers, Southwark Street, Borough.

NEW FERN, SCOLOPENDRIUM VULGARE, var. COOLINGII.—A dwarf variety between S. Wardii and S. digitatum, very distinct and beautiful. Nice Plants are now ready for distribution at 7*s.* 6*d.* each. A Coloured Plate free by post for two stamps. Edwin Cooling, Mile Ash Nurseries, Derby.

British Fern Catalogue.

ROBERT SIM can now send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his NEW and PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7. Foot's Cray Nursery, S.E., a mile from Sidcup Station of New North Kent Line of South Eastern Railway.

To the Trade.

A CHOICE COLLECTION of SEEDLING FERNS, in thumbs and store pans, consisting of choice Adiantums, Asplenium palmatum, Athyrium Goringianum tricolor, Polystichum Lonchitis, and many other choice varieties. Also fine SPECIMEN FERNS, of various sizes, from 48's to No. 1 pots. Price on application. J. Ilman's Nurseries, Strood, Kent. N.B. Intending purchasers would not regret a visit to Strood.

Tricolored Geraniums.

F. AND A. SMITH will forward by post a COLLECTION of LEAVES, from their beautiful TRICOLORED GERANIUMS, on receipt of 1*s.* 6*d.* stamps, returnable to purchasers. The Nurseries, Dulwich, S.

Variegated Geraniums.

CASBON AND SON hold a large stock of above. Prices on application. Gravel Walk Nursery, Peterborough.

MRS. POLLOCK GERANIUM.—Strong plants of the above can be supplied at 36*s.* per 100, or £16 per 1000, for cash. Very strong plants, struck early in the open ground, will average three cuttings each by spring. Apply to John Scott, Nurseryman and Florist, Bathford, Bath.

New Zonal and Nosegay Pelargoniums.

NUNN AND HOBDAY, St. Augustine's Nursery, Norwich, beg to inform intending purchasers of the above that they have a large stock of all the best varieties sent out in 1867, from 12*s.* to 18*s.* per dozen.

For Present Sowing.

Choice Zonal Geranium, from a Collection of 150 Varieties.

R. WHITE can supply NEW SEED of the above, saved from the choicest flowers, in packets, 1*s.* 6*d.*, 2*s.* 6*d.* 3*s.* 6*d.*, and 5*s.* each, post free. Poole Nurseries, Dorset.

Novelties.

WM. PAUL (Son and Successor to the late A. Paul) respectfully solicits Orders for the NEW and FIRST-CLASS ROSES and BEDDING GERANIUMS, &c., advertised at length in this Paper in May last. Paul's Nurseries, Waltham Cross, London, N.

To the Trade—Rhododendron Stocks.

PAUL AND SON have to offer selected RHODODENDRON STOCKS, fit for immediate working, 12*s.* 6*d.* per 100; for quantities over 1000, special prices. The Old Nurseries, Cheshunt, N.

Calceolaria, Cineraria, Primula fimbriata.

SUTTON AND SONS can supply NEW SEED of the above, saved from choicest flowers, in packets, 1*s.*, 2*s.* 6*d.*, and 5*s.* each, post free. Royal Berkshire Seed Establishment, Reading.

Choice Seeds.

CHARLES TURNER'S superior CALCEOLARIA, CINERARIA, and PRIMULA are now ready, in packets, 2*s.* 6*d.* each. The Royal Nurseries, Slough.

Calceolaria and Cineraria,

WHEELER'S CALCEOLARIA is of the finest Strain, and second to none; 1*s.* 3*d.*, 1*s.* 6*d.*, and 2*s.* 6*d.* per packet. The CINERARIA is saved from the finest varieties; 1*s.*, 1*s.* 6*d.* and 2*s.* 6*d.* per packet. G. Wheeler, Nurseryman, Warminster, Wilts.

Sow in August.

DOBSON'S PRIZE CALCEOLARIA SEED, the finest strain in the world: per pckt., 1*s.* 6*d.*, 2*s.* 6*d.*, 3*s.* 6*d.*, 5*s.* Dobson & Sons, Woodlands Nursery, Isleworth, W.

New Seed of 1867, choice quality.

DOBSON'S PRIZE CINERARIA, 1*s.*, 2*s.* 6*d.*, 5*s.* DOBSON'S PRIZE PRIMULA, 1*s.*, 2*s.* 6*d.*, 5*s.* DOBSON'S PRIZE BALSAM, 1*s.*, 2*s.* Dobson & Sons, Woodlands Nursery, Isleworth, W.

CALCEOLARIA, CINERARIA, and PRIMULA SINENSIS.—Seed of each, from the choicest and most beautiful flowers, in 2*s.* 6*d.* and 5*s.* packets, post free. ROBINSON'S CHAMPION DRUMHEAD, or OX CABBAGE, 3*s.* 6*d.* per lb. (Seed of Mr. Robinson's own saving.) DRUMHEAD, or OX CABBAGE (old sort), 2*s.* per lb. Together with all other Seeds for present Sowing. Parcels of two pounds and upwards carriage free. James Dickson & Sons, "Newton" Nurseries, Chester.

To Private Growers.

TO BE SOLD, in consequence of alterations, a very choice Assortment of STOVE, GREENHOUSE, and SPECIMEN PLANTS, some excellent FERNS, &c. Also a few POT TREES, such as Peaches, Nectarines, Oranges, Lemons, &c.; and a neat FOUNTAIN KERB, with 4 COPÆAS, containing handsome vase in centre. Apply to The Gardener, St. Matthew's Lodge, Norwich Road, Ipswich.

EVERY GARDEN REQUISITE kept in Stock at Carter's New Seed Warehouse, 237 & 238, High Holborn, London.

Genuine Garden and Agricultural Seeds.

JAMES CARTER AND CO., Seed Farmers, Merchants, and Nurserymen, 237 & 238, High Holborn, London, W.C.

Agricultural and Garden Seeds.

H. AND F. SHARPE beg to announce to the Trade that their SPECIAL LIST of HOME-GROWN SEEDS, 1867 Growth, is now ready and may be had on application. Seed Growing Establishment, Wisbech, Cambs.

RAYNBIRD, CALDECOTT, BAWTREE, DOWLING, AND COMPANY, Limited, Corn, Seed, Manure, and Oilcake Merchants, Address, 89, Seed Market, Mark Lane, E.C.; or Basingstoke. Samples and Prices post free on application. Prize Medals, 1851, for Wheat; 1862, for "Excellent Seed Corn and Seeds."

Grass Seeds for Autumn Sowing.

SUTTON'S PERMANENT GRASS SEEDS FOR ALL SOILS. Prices (according to sorts required and soils for which they are intended), may be had on application. Sutton & Sons, Royal Berkshire Seed Establishment, Reading.

SUTTON'S IMPROVED ITALIAN RYE-GRASS, the Best and Most Productive in Cultivation. Sutton & Sons can supply New Seed of the above at 6*s.* per bushel, or cheaper in large quantities. August and September are the best months for Sowing. Sutton & Sons, Royal Berkshire Seed Establishment, Reading.

Extra Fine Quality.

COLE SEED, "1866 growth," per bushel of 52 lb., 11*s*; 4 bushels do., 40*s* New 4-8 Sacks, 1*s.* 6*d.* each. EARLY SIX-WEEKS' TURNIP, New Seed, very fine, 9*d.* per lb. New Bags, 6*d.* to 9*d.* each. EXCELLENT CABBAGE SEED. See Catalogue of varieties. Remittances to accompany Orders. Fredk. Gee, Seed Merchant and Grower, Biggleswade, Beds.




JAMES CARTER AND CO. beg to announce that they are now sending out their unrivalled Strains of CALCEOLARIA, CINERARIA, and PRIMULA, which, for fineness of form and beauty of colour cannot be surpassed.

CALCEOLARIA, saved from the finest Prize varieties.
CINERARIA, saved from the finest named varieties.
PRIMULA SINENSIS FIMBRIATA, dark carmine and pure white, saved from the finest fringed varieties in cultivation. Price, each packet, 2*s.* 6*d.*, forwarded on receipt of Post-office Order for the amount.

☞ PRICE LISTS gratis and Post free on application to CARTER'S Great London Seed Warehouse, 237 & 238, High Holborn, London, W.C.

HARDY CLIMBERS and PERMANENT BEDDING PLANTS.—Eleven First-class Certificates awarded to Messrs. GEO. JACKMAN & SON, by Royal Horticultural and Royal Botanic Societies of London.

The Advertisers solicit an inspection of their CLEMATIS JACKMANNI, and varieties of that type NOW in FULL BLOOM, which have proved themselves to be the "desideratum" for a good violet blue or purple maroon bed. See Editorial remarks in *Gardeners' Chronicle*, August 17, page 852, inviting attention to the beautiful forms of their Hybrid Clematises as a "new sensation in bedding out." Particulars of treatment by applying to

GEO. JACKMAN & SON, Woking Nursery, Surrey.

Notice of Partnership.

JOHN SANDY begs to inform the Trade, his Customers, and the Public generally, that he has taken his Son, HENRY SANDY, into PARTNERSHIP; and that in future the Business will be carried on under the name of SANDY AND SON.

Nursery and Seed Warehouse, Stafford.—August, 1867.

NOTICE IS HEREBY GIVEN, that the PARTNERSHIP carried on for some time past at Northampton, Holcot, Kingsthorpe, Wootton, Collingtree, Kettering, and elsewhere in the County of Northampton, by the Undersigned, JOHN MARSH and THOMAS PERKINS, as Nurserymen, under the Firm of "MARSH AND PERKINS," was on the 27th day of July instant DISSOLVED by mutual consent. The said JOHN MARSH will receive and settle all Debts due to and by the Partnership, and the Business will henceforth be carried on by the said THOMAS PERKINS alone.

Dated this Thirty-first day of July, 1867.

Witness to the Signatures of the said John Marsh and Thomas Perkins—
THOMAS GREEN, Solicitor, Northampton.

JOHN MARSH.
THOMAS PERKINS.

Important to Gentlemen engaged in Planting, Landscape Gardeners.

SALE BY AUCTION OF HIGHLY VALUABLE NURSERY STOCK.

JOHN CRANSTON begs to say that from the greatly increased demand for ROSES during the last two or three years he finds it absolutely necessary to very considerably extend their Cultivation, both out-of-doors and under glass. To enable him to accomplish this in a manner fully and satisfactorily to meet the demand, he feels compelled to clear a very large portion of his Nurseries, now stocked with valuable collections of Fruit Trees, Conifers, Evergreens, Deciduous Ornamental Shrubs, Forest Trees, &c.; likewise a fine Collection of Camellias, Azaleas, Geraniums, and Miscellaneous Greenhouse Plants, now occupying several large houses.

He will, therefore, in future be able to devote at least the one-half of his Nurseries, which extend over 50 Acres, solely to the cultivation of Roses, as well as five or six large Houses for the propagation of Ten-scented and other tender sorts in pots.

The fact of his having on every occasion during the season taken the First Prize for the large Collection of Roses at the Metropolitan and other Rose Shows, coupled with the regular increase of orders which has been going on for years, convinces him of the necessity of losing no time in taking the course he herein proposes.

Instructions will be given to SELL by AUCTION, on the premises, at the King's Acre Nurseries, during the first week of October, 1867, a large portion of the GENERAL NURSERY STOCK, comprising—

25,000 Dwarf-trained, Pyramid, and Standard Peaches, Nectarines, Apricots, Pears, Plums, Cherries, and Apples, all well grown and finely trained—the greater portion are large-sized bearing trees.
1,000 Peaches, Nectarines, Pears, Plums, Cherries, and Figs in pots.
300 Grape Vines.
16,000 Common Laurel, 2 to 3 feet.
30,000 Coniferæ, including beautifully grown plants of Cedrus Deodara, Cedrus atlantica, Cupressus Lawsoniana, Thujopsis borealis, English Yew, Pinus austriaca, Pinus insignis, Araucaria imbricata, &c., varying in height from 2, 3, 4, and 6 to 8 feet, and many of them fine specimen trees.
2,000 Wellingtonea gigantea, from 2 to 3 feet, beautifully grown plants, all regularly transplanted.
3,000 Rhododendrons, 2½ feet.
Several thousand Berberis Darwinii, variegated Holly, Arbutus, &c.
A quantity of the New Japan Aucubas, &c.
A large quantity of Deciduous Ornamental Trees and Shrubs, including 1000 Standard Double Pink, Scarlet and other Thorns, Weeping Ash, Beech, Oak, Elms, &c.
2000 Deutzia gracilis, suitable for forcing.
Climbing and Wall Plants, all the leading kinds of Clematis, Lonicera, Ceanothus, &c.
300,000 Transplanted Forest Trees, including Ash, Spanish Chestnut, Larch, Scotch, English Oak, Spruce Fir, Thorns, &c., varying in height from 2 to 4 feet.
1500 Indian Azaleas, 500 Camellias, miscellaneous Greenhouse Plants, &c.

The whole of the above Stock is in the finest condition possible, having been thoroughly well grown, and regularly and carefully transplanted, neither were any of the Trees injured in the least during the last severe winter.

Further particulars are given in circulars now published, and will be forwarded on application.

Catalogues, which art now in course of preparation, will be distributed early in September.

Nurseries, King's Acre, near Hereford.—Aug. 1, 1867.

FIBROUS PEAT, of first-class quality for Orchids, Heaths, American Plants, and all potting purposes, may be obtained by application to Mr. THOMAS JESSOP, Farningham Wood, near Farningham Station, Kent. It is dispatched by the London, Chatham, and Dover Railway in trucks of 16 yards, to most Stations in the Kingdom, or fetched in carts from the wood. It is extensively used and appreciated in the principal Nurseries, and in the Royal Parks and Gardens. Price 5*s.* per cubic yard, at Farningham Station.



COCOA-NUT REFUSE is becoming SCARCE, the old reserves will soon be gone. Now sold in bags, 1 for 2*s.*, 10 for 16*s.*, 20 for 30*s.*, 50 for 66*s.*, 100 for £6.

Fourpence allowed for each bag returned carriage-paid.

A Railway Truck-load (not in bags), 40*s.*

Postage Stamps or Post-office Order, payable to J. BARSHAM & Co., Kingston-on-Thames, S.W.

New and Beautiful Variegated Geraniums.

F. AND A. SMITH respectfully invite the public to an inspection of their large and varied Collection of the above, which comprises every shade of colour in each class of Golden and Silver Variegation, and also Golden or Bronze Zonal, as they are grown both under glass and in the open air. A fair estimate of their qualities can easily be formed. To be seen every day except Sunday.

Trains start frequently from the Ludgate Hill and Elephant and Castle Stations for Dulwich, and from London Bridge and Victoria Stations to Lower Norwood.

The Nurseries, Dulwich, S.

The New Tricolored Geraniums.

F. AND A. SMITH are now sending out the following bright coloured and free growing varieties:—

YELLOW EDGED.	SILVER EDGED.
ANTAGONIST	IMPERATRICE EUGENIE
ENSIGN	DAWN
GRANDIS	PRINCESS OF WALES
L'EMPEREUR	QUEEN OF THE FAIRIES
LOUISA SMITH	QUEEN VICTORIA
METEOR	BRONZE ZONALS.
MONARCH	MRS. CHARLES BARRY
PRINCE OF WALES	BRONZE BELT
UNIQUE	BRONZE SHIELD
	VANDYKE, &c.

For descriptions see CATALOGUE, to be had free on application.
The Nurseries, Dulwich, S.

New Zealand Nursery, St. Alban's, Herts.

J. WATSON'S beautiful BEDDING PELARGONIUM EXCELSIOR, now ready; colour of Indian Yellow; fine truss, and habit of Lord Palmerston. Price 5*s.* each; 36*s.* per doz. to the Trade

MISS WATSON, ready August 25; MRS. DIX, May 1. The Two have received 10 First-class Certificates and Extra Prize Money.

Fine New TABLE APPLE, ST. ALBAN'S PIPPIN, Ripe in April. Plants ready in November. 5*s.* each; 36*s.* per doz. to the Trade DESCRIPTIVE LIST sent on application.

CHEAP NEW PLANTS.

6 of the best NEW NOSEGAY PELARGONIUMS.
6 of the best ZONAL PELARGONIUMS.
6 of the best NEW PETUNIAS.
6 of the best NEW PENTSTEMONS.
6 POA TRIVIALIS ARGENTEA ELEGANS.
6 ALTERNANTHERA PARONYCHOIDES.
6 IRESINE AUREA RETICULATA.

The above collection, well rooted and established in pots, for £1, package included.

NUNN & HOBDAY, St. Augustine's Nursery, Norwich.

New Verbenas of 1867.

DREGHORN AND AITKEN have now a large stock of the above, containing all the finest sorts sent out by Turner, Keynes, Low, Henderson, &c., and beg to offer them as follows, in strong, healthy, well-rooted Plants:—

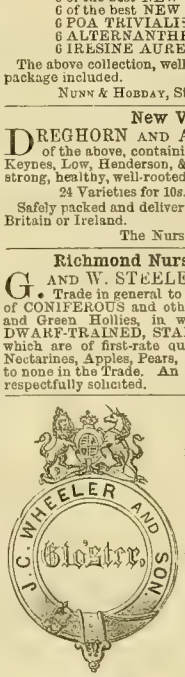
24 Varieties for 10*s.* | 12 Varieties for 5*s.*

Safely packed and delivered free of carriage to any part of Great Britain or Ireland.

The Nurseries, Kilmarnock, N.B.

Richmond Nurseries, Richmond, Surrey.

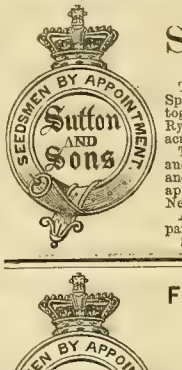
G. AND W. STEELE beg to call the attention of the Trade in general to their valuable and very extensive Stock of CONIFEROUS and other EVERGREENS, particularly Striped and Green Hollies, in which they abound; and also to their DWARF-TRAINED, STANDARD, and SPIRAL FRUIT TREES, which are of first-rate quality, consisting of Apricots, Peaches, Nectarines, Apples, Pears, Plums, Cherries, &c., which are second to none in the Trade. An inspection by Travellers this Autumn is respectfully solicited.



GRASS SEEDS for PERMANENT PASTURE, of the finest quality, at moderate prices, carefully selected on a new, natural, and scientific system.

See "WHEELER'S BOOK on GRASSES," which contains Illustrations and Descriptions of the most suitable Grasses for Permanent Pasture.

J. C. WHEELER & SON,
Gloucester,
Seedsmen to the Gloucestershire Agricultural Society.



Early Spring Feed, Trifolium incarnatum.

SUTTON'S ITALIAN RYE-GRASS,
NEW LATE RED TRIFOLIUM,
NEW LATE WHITE TRIFOLIUM.

These are invaluable articles for early Spring Feed, either grown separately or together. The proper quantity of Italian Rye-grass, if sown alone, is 3 bushels per acre, or if Trifolium alone, 28 lbs. per acre.

The New Seed is now being harvested, and we shall be pleased to send samples and lowest prices per quarter and cwt. on application. Also MUSTARD and RAPE, New Seed.

All goods carriage free, except very small parcels.

SUTTON & SONS, Seed Growers, Reading.

CHOICE SEEDS in SEALED PACKETS.

THE "PRIZE" STRAIN of CYCLAMEN PERSICUM.—This splendid Strain of Seed has passed entirely into the hands of B. S. WILLIAMS. It is the seed saved from the magnificent plants grown and shown by Mr. Wiggins, gardener to W. Beck, Esq., Isleworth, at the Spring Shows in the present year; they were in each instance awarded 1st prize, and were the admiration of all the visitors. The flowers are 1 inch across, by 1¼ inches in depth, the colours ranging from a bright carmine to a delicately tinted white, and pure white tipped with crimson, the leaves beautifully marbled; indeed, the leaves, apart from the flowers, possess a peculiar attraction in the diversity of their marbled surface. This seed should be sown as early in the Autumn as possible. None genuine unless the packets bear B. S. W.'s name and address. Price, per Packet, 1*s.* 6*d.*, 2*s.* 6*d.*, and 3*s.* 6*d.*

THE "PRIZE" STRAIN of POLYANTHUS.—This beautiful Strain of one of the prettiest spring-flowering plants was also exhibited most successfully by Mr. Wiggins, of whom B. S. W. has purchased the entire stock and right of sale. None genuine unless the packets bear B. S. WILLIAMS's name and address. Price 1*s.*, 2*s.* 6*d.*, and 3*s.* 6*d.* per packet.

OTHER CHOICE STRAINS OF SEED.

JAMES'S CALCEOLARIA, 2*s.* 6*d.*, 3*s.* 6*d.*, and 5*s.* per packet.
WEATHERILL'S CINERARIA, 2*s.* 6*d.*, 3*s.* 6*d.*, and 5*s.* per pkt.
WILLIAMS' PRIMULA, 2*s.* 6*d.*, 3*s.* 6*d.*, and 5*s.* per packet.

B. S. WILLIAMS, Victoria and Paradise Nurseries, Upper Holloway, N.

STRAWBERRIES.

DR. HOGG.—Very large, extra fine Pine flavour, and a good bearer. One of the finest in cultivation.

THE LADY.—All the fruit of a good equal size without thinning; immense cropper for forcing, as we proved lasts pring; flavour highly perfumed.

BRITISH QUEEN, PRINCE ARTHUR, KEEN'S SEEDLING, CRIMSON QUEEN, SIR CHARLES NAPIER.

Prices—Established in large 32 pots for forcing, from 7*5s.* to 100*s.* per 100. Strong layers in 60 pots, from 25*s.* to 50*s.* per 100. Strong runners from 5*s.* to 21*s.* per 100. A large collection of other varieties, strong, well-rooted runners, 5*s.* per 100.

JOHN & CHARLES LEE, Royal Vineyard Nursery and Seed Establishment, Hammersmith, London, W.

THE LADY, a SEEDLING STRAWBERRY, raised by Mr. UNDERHILL, who was the originator of Sir Harry.

Plants are now ready to be sent out (in lots not less than 20).

All applications must be accompanied by a Post-office order on Birmingham. Postage stamps or cash to receive attention.

PRICES of THE LADY STRAWBERRY PLANTS, from JULY, 1867, to AUGUST, 1868.

One Hundred	£2 8 0	Sixty	£1 12 0
Eighty	2 1 6	Forty	1 2 0
Twenty	12*s.*		

Plants in pots (not less than 10), at 1*s.* 3*d.* each.

Packages of all the above included.

Mr. UNDERHILL'S Treatise on the Cultivation of Strawberries (either in English, French, or German), may be had through the post, price 1*s.*

Address, Mr. RICHARD UNDERHILL, Sir Harry's Road, Edgbaston, Birmingham.

N.B.—The Sir Harry being now in general cultivation, Mr. UNDERHILL intends reserving for a few years Plants for those persons who may prefer having them direct and genuine from himself, spurious varieties having been so often substituted for the original.

The permanent prices of Sir Harry for the future will be:—20 (not less), 10*s.*; 40, 18*s.*; 60, £1 6*s.*; 80, £1 14*s.*; 100, £1 18*s.* Plants in pots (not less than 10), 1*s.* 3*d.* each, packages included.

TESTIMONIALS (*inter alia*).

"Borough of Birmingham, Mayor's Office, July 25, 1867.

"MY DEAR SIR,—I beg to thank you very warmly for the dish of noble Strawberries—The Lady—you have so kindly sent me. Their beautiful appearance and exquisite flavour are equally wonderful, and the celebrity you have attained in cultivating this fine fruit is certainly fully deserved.—I am, my dear Sir, very faithfully yours,

"Richard Underhill, Esq." "THOMAS AVERY, Mayor."

"The Cedars, Castle Bromwich, near Birmingham, July 3, 1865.

"DEAR SIR,—I am sorry I cannot accept your invitation to view your Strawberries on Wednesday next, having to attend at Regent's Park on that day. I thank you for the basket of your Seedling, The Lady, which is without doubt an excellent variety; the flavour is delicate and luscious, and quite distinct from any Strawberry I am acquainted with; the perfume is somewhat extraordinary; I look upon it as a decided acquisition.—With best respects, I am, dear Sir, yours very truly, "CHAS. JAS. PERRY."

"Richard Underhill, Esq."

"Mona Cottage, Edgbaston, July 27, 1865.

"DEAR SIR,—I do not know when I was better pleased than with a view of the beds of your Seedling Strawberry, The Lady, the colour of the fruit was so light and lively, and the crop so large; as to the flavour, it was most delicious, and exceeded any Melon I ever tasted, and reminded me much of the Pine Apple. When your plants are ready, please to let me know, for I must have some.—I remain, dear Sir, yours truly. "THOS. BURBIDGE."

"R. Underhill, Esq."

At the Glasgow and West of Scotland Horticultural Society, an Extra Prize and First-class Certificate was awarded, July 11, 1866.

The Birmingham Daily Post, July 17, 1866.

"THE LADY STRAWBERRY.—We recorded on Saturday the judgment of Glasgow connoisseurs upon Mr. Underhill's New Strawberry. We are now in a position to record our own. We do not pretend to any large amount of technical knowledge on the subject, but we do lay claim to have eaten Strawberries of all kinds in our time, and having done so, our opinion is that The Lady is the most delicious fruit it has ever been our hap to taste."

The Midland Counties Herald, July 19, 1866.

"HORTICULTURE.—We have recently had an opportunity of inspecting some beds of The Lady Strawberry, raised by Mr. R. Underhill, Sir Harry's Road, Edgbaston, and sent out by him last year. It is a free-growing, prolific variety, and produces a fair sized berry, which ripens thoroughly, and in flavour is delicious and distinct."

FRESH IMPORTED DUTCH FLOWER ROOTS.

SUTTON'S

AUTUMN CATALOGUE FOR 1867

IS NOW READY,

and may be had Gratis and Post Free on application.

SUTTON'S COMPLETE COLLECTIONS OF FLOWER ROOTS

FOR BLOOMING DURING WINTER AND SPRING.

FOR POTS AND GLASSES.				FOR OPEN GROUND.			
COMPLETE COLLECTION	(Carriage Free)..	£2	2 0	COMPLETE COLLECTION	(Carriage Free)..	£2	2 0
DITTO	(Carriage Free)..	1	1 0	DITTO	(Carriage Free)..	1	1 0
DITTO..		0	10 6	DITTO..		0	10 6

LIST of CONTENTS of the above on application.

SUTTON AND SONS, ROYAL BERKS SEED ESTABLISHMENT, READING.



CARTER'S DUTCH BULBS.

JAMES CARTER & CO.'S

AUTUMN SUPPLEMENT

TO THEIR

GARDENER'S AND FARMER'S VADE MECUM,



Containing ORIGINAL ARTICLES on the CULTURE of BULBS and SPRING GARDENING, also a LIST of VEGETABLE SEEDS for AUTUMN SOWING, is NOW READY and will be forwarded immediately on receipt of 12 Stamps (Gratis to Customers), on application to

CARTER'S GREAT LONDON SEED WAREHOUSE, 237 & 238, HIGH HOLBORN, LONDON, W.C.

ALL the FIRST PRIZES for HYACINTHS, TULIPS, CROCUSES, &c.

AWARDED TO

WM. PAUL'S COLLECTIONS

IN MARCH LAST,

At the ROYAL HORTICULTURAL and ROYAL BOTANIC SOCIETY'S SPRING SHOWS.

FIRST IMPORTATION JUST ARRIVED IN EXCELLENT CONDITION.

PRICED DESCRIPTIVE CATALOGUE FREE BY POST ON APPLICATION.

☞ *Early Orders respectfully solicited.*

PAUL'S NURSERIES AND SEED WAREHOUSE, WALTHAM CROSS, LONDON, N.

NOW READY,

B. S. WILLIAMS'

PRICED AND DESCRIPTIVE CATALOGUE OF DUTCH AND OTHER BULBOUS ROOTS.

It will be forwarded to all Customers in the course of a few days, and may be had Free upon application.

B. S. WILLIAMS,

VICTORIA AND PARADISE NURSERIES, UPPER HOLLOWAY, LONDON, N.

DUTCH FLOWER ROOTS.

JAMES VEITCH & SONS,

ROYAL EXOTIC NURSERY, CHELSEA, S.W.,

BEG TO ANNOUNCE THAT THEY HAVE RECEIVED THEIR

ANNUAL SUPPLY OF BULBOUS ROOTS FROM HOLLAND,

AND ARE PLEASED TO SAY THAT THEY ARE IN EXCELLENT CONDITION.

CATALOGUES are NOW READY, and will be forwarded Post Free on application.

J. V. AND SONS desire to impress upon those who patronise them the great advantage of giving them their orders early, as the successful Cultivation of Bulbs depends in a great measure upon their being planted early in the season.



DUTCH BULB CATALOGUE.

DILLISTONE & WOODTHORPE

WILL HAVE MUCH PLEASURE IN FORWARDING THEIR

DESCRIPTIVE AND PRICED CATALOGUE

OF

FRESH-IMPORTED DUTCH BULBS AND OTHER FLOWER ROOTS.

ALSO THEIR

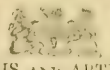
CATALOGUE OF NEW AND CHOICE PLANTS

FOR THIS AUTUMN,

Containing a SELECT LIST of all the NEW and BEST STAWBERRIES in cultivation. Both forwarded Post Free upon application.

MUNRO NURSERY, SIBLE HEDINGHAM.

Dutch Flower Roots.



MESSRS. FRANCIS AND ARTHUR DICKSON AND SONS have received from the most celebrated Growers in Holland their first large importation of the above, and have the satisfaction to say that the BULBS are this season sound, well ripened, and of excellent quality. Early orders respectfully solicited.

DESCRIPTIVE PRICED CATALOGUES post free upon application.

100, Eastgate Street; and the "Upton" Nurseries, Chester.

Hyacinths.

GEORGE DAVIES begs respectfully to inform the Nobility and Gentry that his PRICED CATALOGUE of HYACINTHS and other DUTCH BULBS is now ready, and may be obtained, post free, on application. He also has much satisfaction in stating that he has arranged with the growers, Messrs. J. H. Kersten & Co., of Haarlem, who supplied him with the Bulbs with which he and his numerous customers obtained so many prizes at the St. George Hall Exhibition in March last; and would take this opportunity of intimating to his kind Patrons, and those about to purchase for competition or otherwise, that early orders should be given, to secure first-class Bulbs. As an evidence of the superiority of his Bulbs, G. D. need only to refer to the List of Prizes awarded by the Horticultural Society of Liverpool, March, 1867. Out of the 13 Prizes awarded to Amateurs for Hyacinths, 13 of them were obtained by Bulbs purchased at his establishment. Also in the Nurseryman's Class, G. D. is proud to say, the first 24 and the first 12 were obtained by him in competition with Messrs. William Cutbush & Son.

Green Lane Nurseries, Old Swan, Liverpool.

Richmond Nurseries, Richmond, Surrey.

TO NOBLEMEN and GENTLEMEN making large PLANTATIONS, or PLANTING ORCHARDS or WALLS with FRUIT TREES, and requiring quantities of superior Coniferous and other Evergreens, Ornamental Flowering Trees, Shrubs, &c., or Dwarf trained, Standard, or Spiral Fruit Trees. Special prices will be given on applicat on to

G. & W. STEELE, of the above Nurseries.

EALING, ACTON, and HANWELL HORTICULTURAL SOCIETY.

President—The Right Hon. S. H. WALPOLE, M.P.

Vice-President—BARON LIONEL DE ROTHSCHILD, M.P.

The above Society has been established for the purpose of holding an ANNUAL EXHIBITION of FLOWERS, PLANTS, FRUIT, and VEGETABLES, at which Prizes will be awarded in three distinct Classes, viz., Cottagers, Gentlemen's Gardeners, and Amateurs.

An Annual Subscription of not less than Half-a-Guinea will entitle the Subscriber to become a Member of the Society, and to two Tickets of Admission to the Exhibition, and to two Tickets for every additional Subscription of Half a Guinea.

The THIRD EXHIBITION of the Society will be held, by the kind permission of H. B. Walmsley, Esq., in his Grounds, The Elms, Acton, on THURSDAY, August 29. The Band of the Victoria R.V.C., under the direction of Mr. Sibold, will attend.

Schedule of Prizes and Form of Application to be made by intending Exhibitors may be had of the Honorary Secretary.

Admission:—By Member's Ticket from 12 o'Clock. Tickets, if purchased the day before the Exhibition takes place, 2s.; if on the day, 3s., to admit at 12 o'Clock; 1s. each if purchased the day before, and 1s. 6d. if on the day, to admit at 2 o'Clock; after 4 o'Clock, 4d. on the day, and if purchased the day before, 2d.

Tickets can be purchased at Mr. ACWORTH'S, Ealing; of Mr. BUNNEY, Acton; and of Mr. H. CARTER, Hanwell

EDWARD WEATHERLY, Hon. Sec., 2, Singapore Villas, Ealing, W.

The Gardeners' Chronicle.

SATURDAY, AUGUST 24, 1867.

THANKS to the courtesy of our correspondents, we are this week enabled to present to our readers, in a tabular form, a record of the past condition and present prospects of the FRUIT Crops of 1867, in the several counties of England. What a commentary it affords upon the meteorological records! How eloquent it is as to the effects of the May frosts! Ranging the counties into districts, it is evident from our reports that Apples are all but universally deficient, the deficiency being due in most cases to the injury done to the blossoms or to the young fruits by spring frosts; in some cases where the trees have not borne for many years, however, a crop has been produced, and in many market gardens round the metropolis a fair crop of Apples may be seen. Pears are also, generally speaking, below average everywhere. Plums, with the exception of Damsons, which are reported as unusually abundant, are short in quantity. The crop of Strawberries has been on the whole good, though the blossoms suffered from the May frosts in some localities. Cherries may be estimated at about average, but of comparatively indifferent quality. Peaches, Nectarines, and Apricots, the latter especially, under average; and Figs, as might have been expected, are very scanty. On the other hand, small fruits, such as Currants and Gooseberries, have been unusually abundant, while Raspberries have suffered from the frosts. Nuts supply an average crop, but Walnuts are all but a complete failure. Fruits generally are found to be deficient in flavour, owing doubtless to cold nights, and absence of sunshine. Such, in brief, is the general result of the census which we are enabled to give through the kindness of our correspondents. We invite special attention to the valuable remarks that are interspersed in the columns of the report, and to which we can do no more than allude at this time, though they may form the subject of comment hereafter. In addition to frosts, the leaves have been much injured by easterly winds, which have caused them to blister. Other trees have suffered from green fly or from black fly. The influence of locality, too, is well shown; low or damp valleys having almost invariably suffered more than high and dry places. The prospect for the coming year, so far as it can be

guessed at now, is not very encouraging. The cold, wet weather must prevent, in a great measure, the due ripening of the wood, and the formation of fruit buds. This will not be wondered at, when we state, that as late as the 19th of July, Ridge Cucumbers were killed by frost in some of the southern counties, and that most kinds of garden vegetables are late in flowering. In many places the foliage of the Beech and the Oak is still brown from the effects of the spring frosts. Another moral to be drawn from all this points to the necessity for glass structures if we wish to ensure a crop under adverse circumstances.

ONCE again we are called on to abandon our old THERMOMETERS and adopt the CENTIGRADE ones (see p. 856). Now all those whose duties or inclinations lead them to compare the records of the thermometer, as given in this country, with the observations made on the Continent—nay more, all those who have to compare the various statements made in our own country—need no telling, still less from such influential men as M. NAUDIN and Dr. HOOKER, that for scientific purposes the Centigrade thermometer has immense advantages over that of Fahrenheit. Slowly but surely chemists, physicists, and medical men are adopting the Centigrade scale.* For scientific purposes, then, it is certain that the Centigrade thermometer will at no very distant date be exclusively used. This being so, we cannot but believe that its employment by the general public must follow as a matter of course. The number of amateurs, or of persons who take an interest in scientific pursuits is so large, the hosts of "practical" men who, whether they will or no, must become more or less familiarised with scientific methods and scientific usage, are so great, that, once let the men of science set the example, the rest must follow. It is simply a question of time. We Britons were a long while before we adopted the calendar as we now have it; but as the nation has survived that change, and has assuredly vastly increased in prosperity since, so we see no reason to believe that it will cease to flourish even if the Centigrade thermometer, and the decimal system in general, be introduced.

Among working gardeners there are some who need to be told that the Centigrade thermometer is, after all, not in itself different from any other instrument, but that it is in the scale that the difference consists. The universal adoption of thermometers marked with the two scales would of course tend to obviate the difficulty to which this difference is likely to give rise—a real one to some, though to M. NAUDIN or Dr. HOOKER it might seem fanciful. Of the two alternatives proposed by Dr. HOOKER, the introduction of the double scale is infinitely preferable to the plan of affixing to the thermometer the requisite formula for the conversion of Fahrenheit to Centigrade, or *vice versâ*. What busy gardener would ever find time to do this, every time he looked at his thermometer? Some years since we knew a young horticulturist who, when perusing DE CANDOLLE'S "Géographie Botanique," took the trouble as he went along of converting the Centigrade degrees therein recorded, to Fahrenheit's scale; but the object in this case was to gain a facility in working arithmetical computations. Assuredly had he been in possession of the table prepared by Mr. ROBERT THOMSON, and originally published in our columns, from which it has been reprinted, he might have saved himself an infinitude of trouble and time. The mention of this table, wherein a comparison of the several degrees of the Centigrade and Fahrenheit thermometer is given, suggests to us, that one plan by which the general adoption of the former might be promoted, would be to have the thermometers all made with the Centigrade scale, and to have hanging up in the house, but at some little distance, a similar table to the one to which we have referred.

By this means both young and old gardeners would get familiarised with the new scale, and they would have near at hand the table to refer to in case of need; or the same object might be obtained by having two thermometers, one Fahrenheit, one Centigrade, and to place the former in some comparatively inaccessible position. We incline to this plan, because if the two scales are given on the same thermometer, the temptation to take the old and familiar reading in preference to the new would be too great to be always resisted. It is of course to the coming generation of gardeners that we must mainly look for the general introduction of this most desirable change; and we suggest to Dr. HOOKER, as the head of the largest and most important botanical garden in the world, that means should be taken by him to introduce into every house at Kew, either the double-scaled thermometer, or preferably, as we think, two thermometers as just mentioned. If this plan were followed out at Kew, at Chiswick, at Edinburgh, and other public gardens, where large numbers of young gardeners are gaining instruction, private establishments would sooner or later follow the example, the old generation accustomed to Fahrenheit would in due course die out, the new generation would be as wedded to the Centigrade as we are now most of us addicted to Fahrenheit, and so the fate of the latter would be sealed.

Among the many subjects that were incidentally treated at the London Botanical Congress, of 1866, the reform of our thermometric scale was one, but as far as we recollect, the discussion assumed somewhat of the "*tu quoque*" form, for there were some among the speakers, as may be seen by the Report of Proceedings, who employed Reaumur's thermometer. We have, however, no wish to screen ourselves; convinced as we are of the superior convenience of the Centigrade system, we are glad to advocate its adoption for general as well as for horticultural purposes. To this end, in addition to what we have before said, we repeat a suggestion that has been frequently made by others, that, in order to avoid confusion, the divisions of the Centigrade thermometer should be called "grades," those of Fahrenheit's scale still retaining their name of "degrees." In this way there would be less chance of confusion. The men of science, and with them the horticulturists of the future, would advance by grades, while the partisans of Fahrenheit would get less and less numerous by "degrees!" As to the necessity that exists for inexpensive but serviceable thermometers for garden use, we can only endorse Dr. HOOKER'S statement, and commend it to the notice of the instrument makers.

—— WE are glad to have to record that the Floral Committee on Tuesday last adopted, for the Royal Horticultural Society, the very sensible and matter-of-fact rule that NEW ROSES should date from the year in which they are actually put in commerce—a rule for which we have already contended, as the only one which does not admit of being misunderstood, and which is, that a Rose sent out in 1867, though it be in October, is to be regarded as a New Rose of 1867, and not of 1868. It was indeed argued that some temporary inconvenience might be felt by those growers who had been accustomed to date from the year in which blooms are exhibited in England; but even if this be so it must soon pass away when the opposite custom becomes general; and we therefore counsel all other Societies, as well as the compilers of schedules throughout the country, to adhere in future to this common-sense conclusion, which, once fairly understood, will do away with many quibbles and disputes.

—— As regards WINDOW GARDENING IN LONDON, the "Builder" says that the Inspector of Nuisances to the Holborn District Board of Works has given formal notice in his district to those having flower-pots in their windows to remove them immediately, otherwise proceedings will be taken to compel their removal. It is right that such flower-pots should be secured, for the public safety, and we have not only urged this, but pointed out plans for the purpose; but the safety of the public does not require their removal; and we hope that the District Board will withdraw the order given, and substitute another, ordering the securing of all window-gardening apparatus, so as to ensure the public safety.

—— The first two evening meetings of the BOTANICAL CONGRESS now sitting in PARIS were occupied with the formation of a Committee; and among the papers read was one by M. RIVIÈRE, on the "Hybridisation of Lælia crispa by the pollen of L. cinnabarina." M. GELEZNOFF, of Moscow, treated of the influence of cold and frost on the change of position of the branches of trees. He observed that the pith is not usually quite central, so that the annual zones of wood are thicker on the one side than on the other, the convexity of the curve being, in consequence, on the side where the zones are thickest. Sig. CARUEL contributes a paper on the plants found on serpentine rocks in Tuscany. Dr. MOORE, Glasnevin, is to read two papers on cultivated pitcher plants, of which he is to exhibit specimens. A Committee has been appointed to study M. DE CANDOLLE'S paper on "Botanical Nomenclature," to which we adverted last week; and their report is to form the basis of the discussion on this point. Among the botanists present are Prof. DE CANDOLLE, Prof. GŒPPERT, Dr. SCHULZ SCHULZENSTEIN, M. DUMORTIER, Prof. SANTI GAROVAGLIO, Prof. GELEZNOFF, MM. DUCHARTRE, PLANCHON, COSSON, DURIEU DE MAISSONNEUVE, Dr. MOORE, Prof. E. MORREN, and many others.

—— We have been requested to announce that the Show of VARIEGATED ZONAL PELARGONIUMS, suggested by Mr. Wills (p. 758) will take place at the meeting of the Royal Horticultural Society, on September 17th, by permission of the Council of the Society. The prizes which are offered have been subscribed by gentlemen who take special interest in this class of plants, namely, Mr. Wills, Mr. Turner, Messrs. Downie & Co., Mr. Mann, Messrs. Garaway & Co., and Messrs. Carter & Co., 2*l.* 2*s.* each; Messrs. Perkins & Sons, 1*l.* 1*s.*; and Mr. Bull, and Messrs. E. G. Henderson & Son, 5*l.* each. This amount will be distributed in prizes as follows:—

1. The best 6 Variegated Zonal Pelargoniums, not yet in commerce, seedling plants excluded, one of each, 50*s.*, 30*s.*
2. The best 6 Gold and Bronze Zonal Pelargoniums, do., do., do., 50*s.*, 30*s.*
3. The best 3 Variegated Zonal Pelargoniums, do., do., do., 30*s.*, 20*s.*, 15*s.*
4. The best 3 Gold and Bronze Zonal Pelargoniums, do., do., do., 30*s.*, 20*s.*, 15*s.*
5. The best Variegated Zonal Pelargonium (golden or silver), not in commerce, the seedling plant excluded, 20*s.*, 15*s.*, 10*s.*
6. The best Gold and Bronze Zonal Pelargonium, do., do., 20*s.*, 15*s.*, 10*s.*
7. The best Golden Self Pelargonium, do., do., 20*s.*, 15*s.*, 10*s.*
8. The best Variegated Zonal Pelargonium, in commerce, two plants of the variety to be shown, 20*s.*, 15*s.*, 10*s.*

Should other subscriptions be sent in, other prizes can be added. Among the suggestions already made it is proposed to restrict Class 5 to Golden Zonals, and to add a separate class for Silver Zonals; and to add a class for 6 Nosegay Pelargoniums in flower, to be sent out next spring. The Regulations adopted are as follow:—The prizes to be open to all who signify their intention to exhibit, to Mr. MOORE, not later than Saturday, September 14. The Floral Committee, at its meeting on September 3, to be requested to appoint censors to award the prizes. The Variegated Zonal varieties to be judged according to the rules laid down in the *Gardeners' Chronicle* (p. 515). The whole of the varieties shown in the several classes to be considered as individually entered for examination by the Floral Committee, and to be eligible for the Certificates granted by that body.

THE FERNS, ETC., OF AUSTRALIA.

PROGRESSING from the Victorian promontories easterly and thence northerly, we find that the Eucalypts, which still preponderate in the forest of the southern ranges, gradually forsake us, and thus in Eastern Gipps'-land commences the vast assemblage of varied trees, which so much charms by its variety of forms, and so keenly engages attention by the multiplicity of its interest. Bathed in vapour from innumerable springs or torrents, and sheltered under the dark foliage of trees very varied in form, a magnificent display of the Fern trees commences, for which further westerly we would seek in vain the climatic conditions. Even isolated sentries, as it were, of the Fern tree masses are scattered not further west than to the craters of extinct volcanoes near Mount Gambier, and although colossal Todea-ferns, with stems 6 to 10 feet high, and occasionally as thick, emerge from the streamlets which meander through the deep ravines near Mount Lofty, on St. Vincent's Gulf, we miss there the stately Palm-like grace of the Cyatheæ, Dicksoniæ, and Alsophilæ, which leave on the lover of nature, whoever beholds them, the remembrance of their inexpressible beauty. These Fern trees, often 20 to 30, occasionally 50 to 70 feet high, and at least as many years old, if not older, admit readily of removal from their still mild and humid haunts, to places where, for decorative vegetation, we are able to produce the moisture and the shade necessary for their existence. Of all Fern trees of the globe that species which predominates through the dark glens of Victoria, Tasmania, and parts of New South Wales, the Dicksonia antarctica (although not occuring in antarctic regions) is the most hardy and the least susceptible to dry heat. This species, therefore, should be chosen for garden ornaments, or for being plunged into any park glens: and if it is considered that trees half a century old may with impunity be deprived of their foliage and sent away to distant countries as ordinary merchandise, it is also surprising that a plant so abundant has not yet become an article of more extended commerce.

A multitude of smaller Ferns, many of delicate forms, are harboured under the shade of the jungle vegetation, amounting in their aggregate to about 160 species, to which number future researches in North-East Australia will undoubtedly add. The circular Asplenium Nidus, or great Nest-fern, with fronds often six feet long, extends to the eastern part of Gipps'-land, but the equally grand Stag's-horn-ferns (Platycerium alcicorne and P. grande) seemingly cease to advance south of Illawarra, while in Northern Queensland Angiopteris evecta counts amongst the most gorgeous, and two slender Alsophilæ amongst the most graceful forms. The transshipment of all these Ferns offers lucrative inducements to traders with foreign countries. Epiphytal orchids, so much in horticultural request, are less numerous in these jungle tracts than might have been anticipated, those discovered not yet exceeding 30 in number. Their isolated outposts advance in one representative species—the Sarcochilus Gunnii—to Tasmania and the vicinity of Cape Otway, and in another—Cymbidium canaliculatum—towards Central Australia. The comparative scantiness of these epiphytes contrasts as strangely with the Indian orchid-vegetation, as with the exuberance of the lovely terrestrial co-ordinal plants throughout most parts of extra-tropical Australia, from whence 120 well-defined species are known. Still more remarkable is the almost total absence of orchids, both terrestrial and epiphytal, from North and North-West Australia, an absence for which in the central parts of the continent aridity sufficiently accounts, but for which we have no other explanation in the north but that the species have as yet there effected but a limited migration.—*Müller's Australian Vegetation.*

REPORT ON THE CONDITION OF THE FRUIT CROPS.

FROM OUR OWN CORRESPONDENTS, AUGUST 19, 1867.

COUNTY.	APPLES.	PEARS.	PLUMS.	STRAWBERRIES.	CHERRIES.	PEACHES AND NECTARINES.	APRICOTS.	FIGS.	SMALL FRUITS.	NUTS.	NAME AND ADDRESS
NORTHERN COUNTIES											
NORTHUMBERLAND	Under average	Plentiful and good	Almost a failure	Most abundant	Average	Very defective	Very good	Not grown	Very plentiful	Very few	R. Bowie, Chillingham Castle
	Keswick Codlins are the best, which are about half a crop	Are a failure, with the exception of two or three trees, which are fair crops, and upon the wall trees	A great failure, excepting a few Greengage trees, which are middling fair crops	All sorts abundant crop, and fruit large	A very heavy crop until the 25th of May, which suffered from 7° of frost, that caused the better half to fall off	Good crops	....	No out-door trees	Gooseberries, Currants—Black, Red, and White,—also Raspberries, all in great abundance	In the woods appear to be a good crop	Anthony Hedley, Wallington
CUMBERLAND..	Below average	Plentiful, but small, and late	Full average	A fair crop, but suffered from heavy rains	Average	A light crop	...	But few grown	Currants an average crop, Gooseberries good in some places, in others very light	But few grown	Joseph Williamson, Castle Gardens, Whitehaven
DURHAM	General failure	Fruit and crop both small and uneven	Generally good	Crop good; fruit small	Good	Not much grown in this part in the open air	....	Too far north	Good crops of all kinds; fruit small, and the bushes much blighted	General failure	Richard Westcott, Raby Gardens
	Under average	Under average	Average	Good	Good	Failure	....	....	Average; damaged by green-fly	Good	John Stevenson, Lambton Castle
	Very spare crop; trees much infested with fly	Thin crop; trees also unusually infested with fly	None; easterly winds and frost spoiled the blossom	Heavy crop, later than usual	Morellos a good crop; early Cherries none	Very scarce out-of-doors; trees making late unsatisfactory growth	....	None	Plentiful; but never saw so much aphis before	None in this quarter	William Dick, Wynyard Park, Stockton
YORKSHIRE ..	Average	Over average	Abundant and fine	Over average; fine	Average	Excellent	....	....	Abundant	Under average and blighted	W. Lee, Thirsk
	Below the average	Average, some trees much eaten with grubs	Average	Above the average; much eaten with small snails	Above the average	Below average; trees infested with fly early in the season	....	Average, but late	Above the average; Gooseberries and Red Currants much infested with fly	Above the average	G. Clifton, Bretton Hall, Wakefield
	Poor crop	Very uneven but moderate crop	Under the average	Abundant	Average	Average; will not be ripe before September	Fair crop; nearly ripe	Plenty fruit on the trees, but not likely to ripen	Abundant	None	J. McIndoe, Bishopthorpe Palace
	Crop very light; fruit very small, and very backward	Good crops rare exceptions; late, and likely to be small	Set a good crop; a great many dropped off owing to the cold nights	Have been a full crop of extra fine fruit	Morello Cherries very abundant and fine	Very thin on walls; very late, and likely to be small	Same as Peaches	....	Currants, Raspberries, and Gooseberries very abundant and fine	....	R. Taylor, Byram, Sou...t Milford
	In this district much below an average crop; some kinds, such as Cockpits, &c., are heavily laden	Nearly an average crop in general	Above an average crop; some kinds are a very heavy crop, such as Orleans	A most abundant crop, and very fine	A very heavy crop	An abundant crop; the trees also look in good health	....	A large tree of the White Ischia here, which is covered in winter with straw, has a nice crop	All kinds most abundant	Abundant	M. Saul, Stourton, West Riding
	Very thin crop	Plentiful on walls; thin on standards	Excellent on walls and standards	Have been plentiful and good	Average	Below average	Very good crop	None grown outside	Fair average	Plenty in the woods; Filberts scarce	George Sutherland, Castle Howard
WESTMORELAND	Below average	Good crop, and looks well	Large varieties, poor crop; Damsons very heavy crop	Very good	Fair crop	Below average	Good crop and looks well	....	Currants very good; Raspberries average	In the woods very plentiful	David Leslie, Appleby Castle
	Are good as to quantity, but are rather small	Good, both as to quantity and quality	A very heavy crop indeed	Only moderate	On the whole pretty good	Very light	....	....	Very heavy	Very abundant	A. Dodds, Sizergh Castle, Milnthorpe
LANCASHIRE .	Very partial crop, destroyed in most places by the May frosts	Crop abundant, but fruit generally small	Very abundant crop	Very good; we are now, August 17, gathering very fine Sir C. Napier and Premier	Very abundant, and generally good	Nearly all cut off by the frost on the 25th of May	....	Very poor crop on the open walls	Gooseberries, Raspberries, and Currants of all sorts, are an abundant crop	Very few	John Wills Hauntroyde, Burnley
	Below average	Average on walls	Average on walls	Good crop	Good crop	Good crop	....	None grown	Good crops of all kinds	None grown	James Freeman Knowsley, Prescott
CHESHIRE .	Early kinds abundant; late sorts generally scarce. The young fruit was injured by the frost in the end of May, there having been 9° one night	Very good crops on standard trees, but only moderate on walls	Very few on walls, but Damsons, some standards have heavy crops. Damsons are largely grown in this district, and the crop this year is very abundant	Scarcely an average crop, our land being light, and the weather very dry and hot at the time of the fruit swelling. Eclipse and Sir Harry bore best	An average crop; Morellos an abundant one	Scarcely an average crop; the previous autumn having been wet, and the winter a severe one. The trees were much attacked by aphides	A very good crop on a wall with a south aspect; both these and Peaches and Nectarines are protected in spring at night by canvas covers	....	Heavy crops of all kinds of small fruits; the leaves, having been well expanded at the time the last frost in May occurred, afforded shelter to the fruit	Average crop of Filberts, but Walnut trees have been without leaves since the May frosts, until just now they are putting out a few, but no fruit	William Whitt ker, Crewe Hall
	Very few	Average crop; sound kinds	Great abundance	All the first blooms killed by the frost.	Average crop	Not half a crop; trees doing well	....	....	Great abundance	....	Charles Allen, Withingham Hall, Congleton
	Rather under an average	Great crop	Average	Showed well, but were small, in consequence of dry weather	Very great crop	Average	....	....	Gooseberries and Currants most plentiful, and fine quality	Great crop	J. Allport, Doddington Park, Nantwich
SHROPSHIRE ..	An average crop, except some trees that were very heavily cropped last year	A good crop	A very heavy crop	Have been a good crop	Rather light, except the Morellos	A goo crop	A very heavy crop	Very light crop	Gooseberries, Currants, and Raspberries, very heavy crops	A good crop	G. Pearson, ham, Shre
	Next to none; I have a few Ribston Pippins	Comte de Lamy, Passe Colmar, and the Seckel are all that we have worthy of notice, and they, like the Peaches, have not made much progress	Light crop, save of Denyer's Victoria. Hard as a brick wall. They are against an east wal	Crop various, as the frost killed the early blossoms	A fair crop, but the trees were attacked by the slimy grub, and the leaf-mining insects, which did considerable injury to the trees	Good crop, the fruit is late and small, the atmosphere having been so cold (save the last few days, which have been warm) that the fruit could not swell	.. .	A thin crop, late	Crop abundant and clean. Black Naples Currant attracts notice from its high finish	Various, the wild Nut good in favoured places	John Pearson, Kinlet Gardens

CONDITION OF THE FRUIT CROPS—(*Continued*).

COUNTY.	APPLES.	PEARS.	PLUMS.	STRAWBERRIES.	CHERRIES.	PEACHES AND NECTARINES.	APRICOTS.	FIGS.	SMALL FRUITS.	NUTS.	NAME AND ADDRESS.
MIDLAND COUNTIES.											
STAFFORDSHIRE	Scarce	Hard sorts plentiful; fine sorts scarce	Very few	Plentiful crop	Good crop	Good crop	....	None out-of-doors	An abundant crop	Plentiful	J. Ballingall, Drayton Manor, Tamworth
	Very few	Average	Good	Good	Very good	Full average	....	....	Very good	Average	William Chapman, Hawkesyard Park, Rugeley
	Chiefly below average; orchard almost a failure†	Fair crop	Good	Bad	Fair crop	Very good, but late	....	Very unsatisfactory here without the aid of glass	Good	....	Edwin Simpson, Wrottesley, Wolverhampton
	Much below the average†	Good crops‡	Good‡	Fair crop‡	Good‡	....	....	....	Good‡	Very abundant‡	Ditto
	Below average in quantity; quality superior	Above average in quantity; quality inferior; late varieties worthless	Full average; fruit medium sized; Greengages good; also Coe's Golden Drop and Victoria. Damson crop not equalled since 1864	Partial in some places; good both in quantity and quality; in others a failure	Most varieties average crop; Morellos full and good	Locality unsuitable except under glass; and from the long-continued rains of last autumn wood did not ripen; crop nearly a failure	....	Not grown except under glass; crops there, good as usual	Very full average crop, of good quality of Gooseberries, Currants, of all varieties.	Not much grown	William Moore, Alton Towers
	Very few; injured by frost in the end of May	Average crop where grown	Crop good; especially Damsons	Moderate crop; early bloom destroyed by frost in May. Over; but have been abundant	Crop above an average one	Climate not adapted for their growth out-doors	....	Do not succeed grown out-doors	Gooseberries and Currants; crop a moderate one	Few grown; a failure	James Stanton, Biddulph Grange
DERBY.....	Plentiful	Partial	Rather partial; Damsons a fair crop	A good crop, especially Morellos	Suffered much from green-fly in spring, a fair crop	Plentiful and good	....	Very plentiful and fine	Promising a fair crop	Andrew Dick, Sudbury Hall Gardens	
	Plentiful, but small	Not good	Not good	Very good and fine	Good	Not very good	Not very good	Good	Very good	Good	Chas. Keetley, Osmaston Hall
	A light crop; fruit small; many falling, the best blossom killed by the frost in May	A light crop from some cause, but this not a Pear district	Few, and very late; Damsons are generally plentiful but late; good crop of Plums under glass	Fair crop; all the early bloom killed by frost	Few grown in this district	None grown outside; good under glass	....	....	Gooseberries and Currants plentiful; Black Currants fine; Raspberry much injured by May frosts	....	James Taplin, Chatsworth, Chesterfield
LEICESTERSHIRE	Very few; almost a general failure	Good crop	Good crop on wall trees; a failure on standards	A good full crop	Excellent	Plentiful	....	Good	Abundant	A large crop	Montgomery Henderson, Cole Orton Hall, Ashby-de-la-Zouch
	Very few trees have any fruit on; heavy crop last year, hurt this spring by frost	Good crop in the garden here, but not in the neighbourhood generally	Crop very light indeed; I believe everywhere in the district	Good crop but late, the early blossoms being cut off by the frost	Not very good; this is not a good district for Cherries	In the garden we never miss a crop; suffered from green-fly in spring; in the district crop light	....	Good with us, and I have heard no complaint; but of course not much grown in the midland counties	Very good crops	....	Emanuel Sage, Gopsall Hall, Atherstone
NORTHAMPTON	Very scarce	Plentiful; fruit small	Average crop	Plentiful; flavour inferior	Rather scarce	Very scarce	....	Plentiful; too late to ripen	Plentiful	Plentiful, but small	Robert Collins, Welton Place, Daventry
	About one-fourth of a crop	A fair crop on walls; standards not quite half a crop	Abundant both on walls and standards	Not very good; plenty of bloom, which, however, did not set well, owing to the May frosts	Abundant and fine; Morellos particularly so	Average crop of both	Not quite average	Pretty good, but rather late in ripening	Gooseberries and Currants very plentiful; Raspberries below average	....	John Brown, Bockingham Castle
	Apples are quite a failure with us; large orchards here, but with very little fruit	Pear crop is better; but not at all an average crop	Plums are very fair; better than last year	Abundant crop; the wet spring just suits our dry soil	Good half crop	Very good	....	Many large trees with a fair sprinkling of fruit	Never had so good a crop	Plentiful	George Archer, Finedon Hall
	Failure; out of 70 varieties grown here, only six are bearing any fruit at all	Failure	Failure	Failure, except a small kind grown here for preserving, under the name of Scarlet Gem	Average crop	Medium crop	Average crop	....	Red, Black, and White Currants, also Gooseberries of kinds, plentiful	Average crop	George Beech, Castle Ashby
NOTTS	Blighted; scarce	Blighted; scarce	Blighted; scarce	Large and plentiful	Very plentiful	Trees young, with good crops	Rather better than half a crop	Good crop	Large and plentiful	Fair	John Miller, Worksop Manor
	Poor crop; a fine show of bloom, but the severe frost at the end of May proved fatal to this fruit	The same as Apples	A moderate crop; on walls very fair crops; standard trees not so good	One of the finest shows I ever remember; many of the early blooms destroyed by frosts; plenty for use	A very good crop on walls; standard trees not so good	A fine crop, but very backward; unless a fine autumn, doubtful of coming to maturity	A good crop, but small	Not many grown out-of-doors, but two very old trees, well matted up in winter, are swelling a few good fruit	Gooseberries and Currants excellent crops, Raspberries likewise	The same as small fruits	Jas. Tegg, Clumber, Worksop
	Very partial many orchards a total failure	Good crop generally	Plentiful; in some places crops very heavy	Abundant	Abundant; heavy crops in some orchards	Very plentiful in some places; in others light; severely injured by blight in the spring	....	Nice light crop generally	Very plentiful	A good crop in most places	Edward Bennett, Osberton Hall, Worksop
	Crop very thin, small fruit, and very late	Wall trees almost a failure; pyramids, half a crop; fruit good	Wall trees good crop; standards a failure; ditto pyramids	An excellent crop	An excellent crop, and fine fruit, Morellos especially	A very thin crop and late; much troubled with green fly in the early spring	....	None outdoors	Gooseberries, Currants, and Raspberries a full crop; fine and good	Very plentiful crops indeed	Thos. Speed, Berry Hill, Mansfield
RUTLAND	A very bad crop, having borne heavily last year, therefore not much bloom this, except on such sorts as Keswick Codlin, or Hawthornden	In general a scanty crop	Very few, although plenty of blossom, except Damsons, which are plentiful	Abundant, and quality good	Fair crop	Very thin, trees having suffered greatly in the spring; all the early leaves being terribly blistered, owing to the prevalence of cold easterly winds	....	A fair crop, even where not protected. In fact I find they stand the winter better without	Abundance	Not much grown about here; Woodnuts plentiful, Walnuts thin, having suffered in the spring	J. Grey, Normanton Park
	Plenty of Hawthornden, Blenheim Pippins, Ribston Pippins, and Wellingtons; other sorts scarce	Very poor crop	Greengages, Victoria, Orleans, Coe's Golden Drop, and Damson in abundance, other varieties scarce	Have been remarkably plentiful, particularly Grove End, Keens' Seedling, Elton Pine, and Frogmore late Pine	Morellos very fine, other sorts have been scarce	Plentiful and fine	Scarce	Good	An abundant crop	Filberts good	James Maxwell, Exton Park

* This applies to the garden, &c., under my charge.

† I do not attribute this to the season, but to the great crop last year.

‡ This applies to the district in general, as far as I have been able to ascertain.

CONDITION OF THE FRUIT CROPS—(*Continued*).

COUNTY.	APPLES.	PEARS.	PLUMS.	STRAWBERRIES.	CHERRIES.	PEACHES AND NECTARINES.	APRICOTS.	FIGS.	SMALL FRUITS.	NUTS.	NAME AND ADDRESS.
MIDLAND COUNTIES.											
OXFORDSHIRE	Very scarce, owing to a scarcity of bloom, as well as the late frosts	A fair crop on walls, but standards and espaliers all cut off by the frost on the 24th May	An excellent crop on walls, and on standards on dry ground; but all cut off on damp soils with late frosts	A fine crop of the early and late sorts, but those sorts in flower on the 24th May had the blooms all killed	A very good crop of both late and early sorts	The same may be said as in the case of Plums—an excellent crop where the land is high and dry	....	Very much cut up in the winter with the severe frost, but a fair crop on what was left of the trees	Excellent of all sorts but Gooseberries; something uncommon; many of the trees breaking down	Filberts a small crop; Walnuts none, the young wood having all been cut down by the frost on the 24th May	Jas. Stewart, Nuneham Park
WARWICKSHIRE	Under average	Under average	Under average	Excellent	Excellent; very fine	Thin crop	Plentiful and very fine	....	Very plentiful and fine	Average	W. Miller, Combe Abbey, Coventry
	Failure on standards; some sorts on dwarfs fair; on the whole, Apples are quite a failure	Fair; generally Pears are not a good crop	Failure; I never had worse in the 14 years I have been at Elmdon	Good; a great many of the first blossoms were injured, but plenty left for a crop	Good	Fair; not many grown	Very good, yet not a heavy crop	None	Very good; but Gooseberries are not a heavy crop	Very good; common Nuts are abundant in hedges and plantations	Wm. Brown, Elmdon Hall, near Birmingham
	Crop very partial; with us dessert kinds are plentiful	Crop very fair with us, very good on east aspect walls	Crop very fair with us, very good on east walls	Very plentiful and fine	Very plentiful and fine	Crop good on south walls	....	Very few, and those not likely to ripen	Very plentiful and fine	Filberts very plentiful and fine, Walnuts scarce and late	S. Elworthy, Stoneleigh Abbey, Kenilworth
EASTERN COUNTIES.											
LINCOLNSHIRE	Scarcity	But few	A failure	Plentiful	Few	Fair crop	....	Very good	Abundant	Not any	W. Stockwell, Holywell Hall, Stamfd.
	Scarce, very small, late, trees blighted, full of white aphis and white bug	Thin crop, fruit good, trees healthy, rather late	A great crop, standards healthy. Wall trees very much infested with blue fly	A good crop; Keens' Sir Harry, Reeves' Eclipse, and Trollope's Victoria best	A fine crop: a deal of black fly	A good crop, trees healthy	A thin crop, trees healthy	None, all killed in winter	Abundant and good; no caterpillar	Thin crop	George McBey, Sudbrooke, Holme
	Will be scarce; are falling off before ripening, and will not keep; trees blighted by late frosts	Under the average; the early blooming varieties destroyed by late frosts	A good crop on walls where protected from spring frosts; scarce on standards	An abundant crop of all varieties	A good crop; fruit good	A good crop on walls where protected from spring frosts	An abundant crop where covered up from late spring frosts	Scarce	Very abundant; more so than I ever saw	An average crop; trees very much infested with aphis	David Lumsden, Bloxholm Hall, Sleaford
	Very few; trees show signs of weakness; the little fruit on our pruned trees injured by maggots. The few good and healthy examples in orchards	Abundant; both summer, autumn, and winter Pear trees equally prolific in fruit	Heavy crops of Victoria, Golden Drop, Magnum Bonum, and Jefferson	Exceedingly good crops of early and late varieties; gathered from June until August	Good crops of Kentish, May Duke, and Morello	Much checked by frost in the spring, and injured by aphis: not much fruit	Thin on south walls; good and abundant on east and west aspects. On cottage walls a very great crop	Fair promise of fruit	The largest crop of Currants I ever saw; Gooseberries and Raspberries, fair average crops	Filberts thin; a sprinkling of Cosford Cob Nuts	William Ingram, Belvoir Castle
NORFOLK	Very short	Plentiful	Short, except Damsons	Plentiful	Scarce	Plentiful	Short	Plentiful	Short	Short	Hugh Girvan, Holkham
	About one-fourth of a crop, but very irregular; some trees full, others none	Not half a crop; very irregular	Very few of any kind	Good crops	Good crops	Bad crop; trees much injured by winter frost	....	Bad; and trees much injured	Good crops	Very thin	William Smythe, Elmham Hall
	Almost a failure	One-third of the usual crop	Deficient	Excellent	Good	Very good	....	Very few grown in this neighbourhood	Excellent	Very good	William Carmichael, Sandringham, King's Lynn
SUFFOLK	Only a few trees that have any at all; hundreds of trees have not got an Apple on them	Not more than half crop generally	None on the standard wall trees; only a few where protected	Not more than half a crop; nearly all the first bloom was lost by the frost of May	Only about half a crop in places, all much hurt by the frost	A good crop where protected, but it is fully a week or 10 days late	....	A good crop, but late; will not ripen if we do not get some fine weather	A short crop at most places, but where a little sheltered an average crop	A good crop everywhere	John Pottle, Bealings Grove, Woodbridge
	Scarcely half a crop; a few sorts are an exception, chiefly early culinary varieties, such as White Codlin, Hawthornden Improved, &c.	Less than half a crop; I have seen, however, a few trees loaded, but these chiefly non-keeping varieties, such as Green Pear of Yare, &c.	A fair crop of some sorts, more particularly Greengages; and Damsons on standard trees are in great abundance	All sorts were very plentiful	In Orchard-houses abundant; Morellos on walls less than usual; trees unhealthy	In Orchard-houses planted-out in abundance; on walls in open air also plentiful, but will be late; trees not looking well	....	On walls in the open air will be late, under glass in great abundance, fruit of great size, and of fine quality	All sorts have been very plentiful and very good	Less than half a crop	P. Grieve, Culford, near Bury St. Edmund's.
	Failure; very few	Partial; pyramids, generally thin, walls, occasionally full crop, but, as a rule, much below an average	Nearly an average	Good; all the early blossoms injured; side blossoms came up well; still gathering Elton Pine, north border	Good average crop	Partial; thin; occasionally a very full crop, best on high grounds where protected	Fine crop, large in size, and of fine flavour	Good, protected and unprotected, especially Lee's Perpetual	Gooseberries very fine; Currants: Black a failure, White and Red half a crop; Raspberries hardly an average	Extraordinary fine crop	D. T. Fish, Hardwicke House, Bury St. Edmund's
	A failure: the blossom seemed to want vigour	A partial crop; maggots were very troublesome on the blossom and young fruit in the early part of the season	Under an average crop	Plentiful; Queens generally a light crop	A good crop	Plentiful, both under glass and on walls	....	Rather a light crop; injured by late frosts	Most abundant, Raspberries excepted	Plentiful	Thomas Blair, Shrubland Park
ESSEX	Very bad crop; I think I never knew them so scarce	Pretty fair crop, but not so good as last year	Rather scarce about this neighbourhood; about half a crop	A very good crop	Rather light crop, Morellos better, but not so good as last year	Not quite half a crop	A middling crop, although not nearly so good as last year	I may say none, as the trees were very much hurt last winter	Gooseberries and Currants were a good crop; Raspberries were cut by the frost in May.	Is a very light crop about here	Geo. Young, Audley End
SOUTHERN COUNTIES.											
HERTFORDSHIRE	Very poor crop, especially standard trees	Moderate crop on walls, very thin for pyramid trees	Moderate crop; abundant show till killed by May frost	Thin crop, and very indifferent; those that escaped being killed by frost were so injured as to cause deformity and lack of flavour	Good where sheltered; thin where exposed to north and north-east	Good	Moderate	Moderate where warm and dry	Abundant, except Raspberries; the early bloom being killed by frost caused a succession of fruits	Moderately abundant in hedgerows	Richard Ruffett, Brockett Hall, Welwyn
	A few in high situations; none here	Very few on standards; good on walls	A few on standards in high situations; heavy crop on walls	First blooms killed by frost; middling crop	A light crop on standards in high situations; good crop on walls	Light crop in high situations; none in these gardens	....	Very few; trees much injured last winter by frost	Good crop	A very good crop	George Sage, Ashridge Gardens

CONDITION OF THE FRUIT CROPS—(*Continued*).

COUNTY.	APPLES.	PEARS.	PLUMS.	STRAWBERRIES.	CHERRIES.	PEACHES AND NECTARINES.	APRICOTS.	FIGS.	SMALL FRUITS.	NUTS.	NAME AND ADDRESS.
SOUTHERN COUNTIES.											
HERTFORDSHIRE	Very poor crop; one orchard only in N.W. district has a fair show	A moderate crop	Partial; pretty good in some places	Fluctuating, owing to late frosts; crops heavy in places where they escaped injury in the way named	Good; but rather partial	Generally good where protected from spring frosts	Fine crop at Digswell; generally only middling	A moderate crop	Abundant, except Raspberries, which in some places were injured by late frosts	Good, especially hedgerows	William Earley Digswell
	With me and generally very thin; but in a market garden close by of 50 acres there is more than an average crop, and was the same last year	A heavy crop generally	A very heavy crop with me; but in some of the gardens much injured by the May frost	A very heavy crop with me	Good crop	Not an average crop; trees much injured with the late spring frosts	....	None; trees nearly killed, but are, however, making plenty of wood again	Gooseberries and Currants heavy crop; Raspberries half crop	Average crop	Ambrose Sanders, Theobald's Park, Waltham Cross
	On some trees very heavy, others none	Plenty; require a deal of thinning	Abundant	Good	Never more	Heavy crop	....	Middling	Never so good before	Breaking down	A. Parsons, Danesbury, Welwyn
	Good	Poor crop; frosted May 24	Poor crop; frosted May 24	Would have been an abundant crop, but frosted May 24	Fine crop of Morellos	Abundant, protected by canvas	....	Trees killed January 2	A fair crop; escaped the frost	Abundant; this is remarkable, as the Catkins were killed in May by frost	D. Buchanan, Dyrham Park
KENT	Very plentiful, and promise to grow out fine	Good kinds not grown extensively about here; common sorts abundant	Average; like the Cherries, some orchards heavy crops, others close by very thin; Damsons abundant	Generally bad	Spotty, some orchards abundant, others more exposed very thin; Reds bad, run down after late frosts	Very thin in places, much injured by May frosts; fruit does not swell out satisfactorily	....	Trees mostly killed to the ground; where uninjured very good	Raspberries slight; Black Currants do.; Red and White Currants very good	Filberts excellent; Cobs not so good	T. F., Maidstone
	Crop deficient; trees healthy, and many flower buds forming	Blossom abundant; set well for a heavy crop; early in June they nearly all dropped	Very deficient; trees infested with fly all the summer	Very abundant crop	Moderate; points of young wood completely killed by black fly—early kinds in particular	A fair crop; trees have suffered much all the summer from fly	Blossom, which was in great abundance, killed by early frost; trees much injured; very deficient crop	Young wood killed in many places, hence a failure	In great abundance	....	D. H., The Gardens, Quex Park, Margate
	Very partial indeed; in some parts none, in others great crops; on the whole, I should say below average considerably	Partial crop in many parts, in others most abundant; above the average: fruit small, and the early sorts deficient in flavour	A very abundant crop of all sorts; rather deficient in flavour	All over; crop has been very partial; not up to the average; quality pretty good	Nearly over, but the crop has been most abundant, and the quality good	A good fair crop in most places; fruit rather small, and deficient in flavour	Very scarce indeed, owing to the severity of the frosts in May	None; trees all killed down last winter	Abundant and fine	Fair average crop; looking strong and healthy	John Cox, Redleaf, Penshurst
	Very partial, and much under an average	Not more than half a crop, and small	Very short crop	Over an average crop	Considerably under an average crop	Average crop, but smaller and later than usual	....	Where unprotected none	Gooseberries and Currants good and plentiful; Raspberries under an average	Walnuts nearly all destroyed by frost on May 24; Filberts an average crop; Woodnuts in great abundance	——, Bifrons, Canterbury
	Average crop	Heavy crop	Slight crop	Had abundance, and fine fruit	Average crop	Excellent crop	....	Slight crop	Heavy crop	Heavy crop	W. Street, Bettershanger, Sandwich
	Only a moderate crop; better at some places that don't usually take. Quality good	Good crop of common Pears, but very short of all good wall Pears, or the better class; quality good	Half a crop of common sorts. Damsons good; Gages bad; fruit good	Excellent crop everywhere; fruit rather flavourless	The finest crop of the Bigarreau on record; Blacks moderate; other sorts very fair. Little flavour	Very moderate crop; fruit is improving in quality	....	Very short crop indeed	Grapes much injured by the late frosts. Crop bad.	Cob Nuts, a great crop. Filberts fair; Walnuts good	G. Webb, Jun., Tunstall
	Slack	Very short	Good	Good	Some good; others bad	Short	....	None	Good	Cobs good	Wm. Wilson, Staplehurst
MIDDLESEX ..	A very partial crop; of some varieties an abundance, but in general much under average, and much infested with grubs	Partial crop; under average	Partial crop of Orleans; Prince of Wales, Gisbornes, &c., an immense crop; fine varieties scarce	Crop above average; extraordinary show of bloom, one-third destroyed by frost on May 26	Dessert kinds very scarce; Morellos plentiful	Good crop; very late, but promise well; just beginning to gather on open walls; mildew prevalent	....	None	Of Currants and Gooseberries an immense crop; much above average; Raspberries very poor crop, much injured by frost in May	Walnuts very scarce; Filberts plentiful	A. F. Barron, Royal Horticultural Society's Gardens, Chiswick
	Early kinds an abundant crop. Late keeping kinds under average	On the walls under average. On Standards an average crop	Considerably over average; a groaning crop	Never saw such a glorious crop. Good in all points	A wonderful crop in all respects. Good	Average crop.	Under average	None	Gooseberries heavy crop; Currants heavy; Raspberries average	Barely an average; Quinces a poor crop	John Edlington, Wrotham Park, Barnet
	Good average crop	Good crop	Thin	Abundant crop	Good crop	Good average crop	....	Fair crop	Gooseberries and Black Currants very heavy crop; Red and White Currants good	Good crop	Frederick Rutland, Bentley Priory, Stanmore
	Very few; trees very healthy	Moderate crop	Very thin; much blighted	Abundance, but much injured in places by late spring frosts	Thin crop	Plentiful	....	....	Tolerably plentiful	....	W. W. Constantine, Hillingdon Court near Uxbridge
BEDS	Partial crop; middling prospect	Half crop; much injured by hail	Plentiful; much blighted	Moderate crop; injured by hail and frost	Pretty good	Fair crop; promise well	....	....	Plentiful	Moderate	S. Snow, West Park, Ampthill
BERKS	Very partial; a crop upon trees that have not fruited for several years	Below an average	Medium crop	Good crop, except where the May frost caught the early blossom	Good average crop, both walls and standards	Good every way	Good crop where well protected from May frost	Failure; mostly killed down by severe winter	Excellent; as Gooseberries, Currants, &c.; far above an average	Thin from the May frost	——, Cliveden
	A very light crop with the exception of the following kinds:—Rosemary Russet, Cox's Pomona, Scarlet Russet, Frogmore Prolific, and Small's Admirable	An excellent crop, both on walls and standards, and promise to be of first-rate quality	Many kinds are plentiful, such as Washington, Orleans, and Greengage; Damsons destroyed by spring frost	Greatly injured by spring frost, Sir J. Paxton Improved Elton, Prince Arthur, and Frogmore late Pine were by far the best	May Dukes and standards were all killed by spring frost; Bigarreau, Napoleon, Black Eagle, plentiful; the crop on walls was generally good	A good crop of all kinds	....	Trees mostly killed to the ground by the severe frost in winter	Currant crop light, injured by spring frost; Raspberries almost a failure from the same cause; Gooseberries were a heavy crop	Walnuts much injured by spring frost; Filberts a moderate crop	Thomas Ingram, Royal Gardens, Windsor

CONDITION OF THE FRUIT CROPS—(*Continued*).

COUNTY.	APPLES.	PEARS.	PLUMS.	STRAWBERRIES.	CHERRIES.	PEACHES AND NECTARINES.	APRICOTS.	FIGS.	SMALL FRUITS.	NUTS.	NAME AND ADDRESS.
SOUTHERN COUNTIES.											
BUCKS	One-third of a crop	Below average with us, Louise Bonne of Jersey the most productive	The crop on standard trees mostly destroyed by the frost on the 24th of May; Greengage the best crop on walls	Not so fine as we have had them, owing to the May frost	On the hills a good crop; destroyed by the frost in the valleys	A fine crop, the trees looking well	....	Half a crop	Abundant and fine	A good crop	Thos. Bailey, Shardiloes Gardens, Amersham
	Scarce; one orchard, however a splendid crop, but for 15 years previously no crop	Moderate crop	Middling; Damsons scarce	Moderate crop; were hurt by May frosts	Middling	....	....	....	Very plentiful, especially Gooseberries and Currants	Walnuts scarce, others more plentiful	J. H. Bird, Orchard Villa, Burnham
SURREY	In the valley along the banks of the river Mole, killed entirely by May frosts; on most of the hills around here, a good crop	A few in places; generally bad	On standards nearly all killed by frost in our valley; on some of the hills close by they have good crops; Plums on walls are a very excellent crop	Never was a better prospect until the May frost swept them all away	On standard trees all killed by frost; good crops on the walls	A fair crop generally	....	In most cases killed by frost; very scarce	A fair crop; quantities on each tree killed by frost, but enough left for a crop	Walnuts in this neighbourhood are all killed by May frost; Filberts are very scarce; common wood Nuts are plentiful	H. Downing, Norbury Park, Dorking
	Thin crop in most places, and the fruit small and late	A profuse blossom, but did not set well, and the young fruit was greatly damaged by late May frosts; cuticle injured, and in consequence fruit does not swell	Young fruit to a great extent destroyed by the frosts in May; Victoria the only sort producing a full crop; this invaluable kitchen Plum ought to have its correct name restored	Less fruit than ever was known in this district; a beautiful bloom all cut off by 9° of frost on the morning of May 24, many blossoms having been killed by two previous frosts	Morellos on north wall much injured here by frost; judging by the quantity in the markets, fruit from standard trees must have been plentiful	Crops fair, but trees have not made good wood, in consequence of the want of warmth	A fair crop, but small and unkind generally, owing to the ungenial weather in the end of July	Large wall trees at least 50 years old killed to the ground in winter	Gooseberries and Currants plentiful and good; all the earliest flowers of the Raspberries frozen and killed; crop consequently short	Filberts thin here; Walnuts all cut off by the frosts of May; a few are to be found in very sheltered situations only	J. B. Whiting, the Deepdene, Dorking
	Very partial here; some orchards in this locality great abundance	Very partial; small and inferior in quality	Fine and plentiful	Very scarce; cut off from frost 24th May	Mayduke, Morellos, Bigarreaus, very good and plentiful	Both mildewed and blighted very much, and are very scarce in this district	....	Cut off by hard winter down to old wood, notwithstanding good covering	Raspberries cut off by the frost 24th May; both have been scarce	None grown in this district	Steph. Smith, Portnall Park, Staines
SUSSEX	Very good in gardens, otherwise very middling	Heavy crop	Fair crop	Good and plentiful	Good crop	Very good	....	Fair crop	Abundant	Middling	J. W., Arundel
	Under average; fruit small and a great number falling; most trees do not seem to have done so well as usual this season	Few trees on the walls are well loaded, but standards on the whole are very thin	Trees on the walls thin; some standards good; taking altogether under average	Good crop, but of short duration; want of rain during the time the fruit was swelling; foliage good	Average crop; trees made some good shoots	Finest crop for the last few years; trees clean and healthy; gathered fruit on the 16th inst.; White Nectarine and Double Montagne Peach out-of-doors	....	Wall trees very deficient; Standards suffered from last winter's frost, which was 5° below zero	Gooseberries good crop; Mulberry Standard, fine crop; Currants, good crop; Medlars, average; Raspberries, under average; some of last year's canes killed by the frost	Filberts under average; Walnuts under average	Thomas Jones, Petworth House, Petworth
	A partial crop in some localities: where sheltered from the north-west wind, a heavy crop; where exposed to the same quarter, a total failure	Small; half a crop, and ripening prematurely	A very heavy crop; quality not first-rate	A good average crop, with the exception of those which took the morning sun, and these were a total failure	A good crop, but injured very much in stoning by the spring frosts	Promise to be an excellent crop, with the exception of a few old trees that suffered much from the spring frosts	....	A total failure from frost after the crop was well advanced	Excellent, and all of first-rate quality	Filberts an excellent crop where well sheltered, but where exposed a failure	George Cameron, Goodwood
HANTS	Very thin in places; not an average	Thin on standards, better on walls, scarcely an average	Thin on standards, generally good on walls, about an average	Not an average; thin in many places	Generally good	Very partial; thin in many places	....	Very little fruit; plants suffered very much	Generally good	....	Wm. Meads, Minley Manor, Farnborough
	Thin crop; fruit fine	Very good	Good	Good	Good	Very thin	....	Trees all killed to the ground	Very good	Half a crop	Thomas Shortt, Heckfield Place
	Trees bloomed and set well, but nearly all the young fruit were killed by frost on the night of May 24. In higher and drier places some trees are well massed	The remarks on Apples will apply to Pears, except those on walls, which are nearly an average crop; fruit small	Very thin on walls; scarcely any on standard trees	All the young fruit and blooms open were killed here on May 24. I have, however, seen fine crops in the neighbourhood. Sir C. Napier seems to bear with most certainty	A crop on walls; promised well on standards, but entirely destroyed by frost	Abundant crops of fine fruit where trees are in good condition and saved from the frost by coverings; many failing trees killed by the winter frost	Abundant, and of fine quality, especially Moorparks; carefully covered in spring	Trees, where grown, all killed to the ground	Gooseberries, though many dropped, are plentiful; Currants abundant; Raspberries very scarce	...	James Bell, Strathfieldsaye
	A great many orchards with scarcely any fruit in them; the blossom injured by the frost in May. A fair crop in the orchard at Cranbury	A good general crop, and in good condition	Very scarce, and were injured by the frost in May; were all frosted, and fell off the trees after they were set, and about as large as Peas	A good general crop here; at Brambridge House in this neighbourhood, were all killed by the frost in May; all the bloom was destroyed on the 24th May	Were a very good crop	My trees on south wall were nearly all killed by the May frost; and at a good many places in this neighbourhood were much injured. Nectarines are a pretty fair crop, and look very well	....	Very much injured by the frost in May, and where not protected, fruit all destroyed; trees look well, and have recovered nicely	Gooseberries, Currants, and Raspberries were a most abundant crop	An abundant crop, and in good condition	Alexander Campbell, Cranbury Park, Winchester
WESTERN COUNTIES.											
WILTS	Light crop; an abundance of blossom: the greater part set, but the young fruit fell after the severe frosts; the remainder of the crop very inferior in quality	Partial crop; majority of the fruit deformed; many sorts cracked open to the core, and much eaten by maggots	Very scarce crop; an abundance of blossom	Early sorts a fair crop; late ditto very light; the crop of early sorts was abundant, owing to the fruit being set, and protected by the foliage from the severity of the weather in May	Light crop; I never saw a better prospect of fruit than the trees presented on the 1st May	Good crop where protected; unprotected, nil	....	Very bad crop the young shoots killed by the winter frosts	Average crop	Light crop	Thos. Challis, Wilton House Gardens

CONDITION OF THE FRUIT CROPS—(*Continued*).

COUNTY.	APPLES.	PEARS.	PLUMS.	STRAWBERRIES.	CHERRIES.	PEACHES AND NECTARINES.	APRICOTS.	FIGS.	SMALL FRUITS.	NUTS.	NAME AND ADDRESS.
WESTERN COUNTIES.											
WILTS	Bad	Bad	Good	Very good	Good	Very bad	A complete failure	Bad	Very good	Bad	Geo. Wright, Longleat, Warminster
	Not an average crop	With the exception of a few trees, fruit destroyed by late frost	Generally trees are bare of fruit, excepting where securely protected	Early varieties very good, late varieties destroyed by frost of the 22d and 23d May	Generally good	Very scarce	....	First crop nearly all destroyed	Gooseberries and Currants very good crop; Raspberries one-third of crop destroyed	In some localities a fair crop	—, Bowood Park
DORSET	A good few but under average, and in the cider orchards in this neighbourhood crops are very poor indeed	Average crop	Generally a poor crop, but some sorts have done well—as Morocco, Coe's Golden Drop, Mitchelson's, and Victoria	Thin at first, but continued much longer than usual in bearing, so that we had a fair supply	Best crop for several years	....	....	....	Currants of all kinds good; Gooseberries the same; Raspberries thin at first, but have had a fair supply, and still have fine fruit	....	T. C. Elliott, Melbury House
	Scarce; very little cider will be made. Blossom was destroyed by a severe frost early in May	Below average	Thin crop	Below average, but good in quality	Fair	Very fair	....	....	Full crops of Gooseberries and Currants; Raspberries below average	Plentiful	Henry Munro, Clevelands, Lyme Regis
DEVON	The early kinds thin; late blossoming kinds a very heavy crop; trees obliged to be propped, to save their breaking down with weight of fruit; clean, fine foliage, and strong healthy growth; a large quantity of cider will be made this year	A good half crop; some of the sorts a good deal crippled, and hidebound by cold and frost; some varieties, since the more genial weather, cracking open	About one quarter of a crop; set well; got the size of Filberts; cut off by frost; the ground covered with yellow crippled fruit	But little above half a crop, and those not the usual size, owing to all the early first blossom being killed by frost	Abundant; the Morello crop very fine and clean indeed	With us most abundant and fine, both in and out of doors, but not a general crop out-of-doors in this locality; the foliage of many trees was in May and June extensively blistered, and young wood sadly cankered	Scarcely any out-of-doors	Abundant under glass; late out-of-doors owing to the May and June frost cutting off all the first fruit formed.	Gooseberries and Currants of every variety a heavy crop of large clean fruit, free from blight, caterpillar, or aphis. Raspberries half a crop, owing to frost cutting off first blossom.	A very heavy crop of large clusters in all the hedges, copses, &c., also of Filberts and Cobs in gardens, but no Walnuts; those were all cut off by the severe June frosts	James Barnes, Bicton
	In some orchards the crop is abundant; in others a complete failure	Are generally very scarce	Are a very partial crop	In some gardens the crop has been very good; in others scanty	Have been a partial crop; Morellos very fine	Are generally scarce; very few ripe; many sorts promise to be fine	....	Promise a very scanty crop; much cut by late spring frost	Gooseberries and Currants very fair crops; Raspberries are a partial crop	Common Hazel Nuts in woods are plenty; of Filberts, but few are grown	Wm. Burner, Combe Royal, Kingsbridge
SOMERSETSHIRE	Is a very partial crop, owing no doubt to the frost on May 25, when we had 5° of frost; the fruit is fine	Tender kinds none, the flower buds being much injured by 10° of frost and 7 inches of snow in March; hardy kinds are a fair crop, but small	Better sorts very scarce, common sorts are more plentiful; fruit fine; these also suffered from the same cause as Pears	Has been a good crop, with the exception of the late flowers, which were injured by the May frost, causing the crop to be of short duration	Has been a good crop on walls, but on standard trees the crop was much injured by the frost in May	Are very scarce, some trees have been killed, others much injured, but I fear the wood will not ripen well, the growth being so late	The trees were very much injured by the frost and cold rain in spring to such a degree that they were denuded, as well as the Peaches and Nectarines	Are a good crop of all kinds, but late	There has been plenty; these, of course, were in flower after the March winter, and were well set before the May frost	Filberts and Kents are a good crop here; Walnuts are very scarce in general, owing to the frost in May	Charles Elworthy, Nettlecombe, Taunton
	Quite a failure, scarcely an Apple to be seen	Very poor crop, so far as my observations go	In some places pretty good on walls, very few on standards	Has been very good	Very partial crop	A failure, except in places where well protected	....	Round here an average crop	Has been very good	....	Wm. Dods, Ashton Court, Bower Ashton
GLOUCESTERSHIRE	Very deficient; in our orchard of 3 acres there is scarcely a bushel of fruit	About half a crop, and confined principally to the early kinds	Nearly a complete failure, whether as regards trained or standard trees	Abundant, but small, owing to the sharp frosts during the middle of May, which injured the flowers	Plentiful, particularly the earliest kinds	A full crop of the early varieties; the latter kinds are deficient—about one-third of a crop	....	....	Abundant	Abundant	Alexander Cramb, Tortworth, Wotton-under-Edge
HEREFORDSHIRE	An average crop	Plentiful, but apparently small	Abundant	Small, and deficient in flavour; considerably inferior to last year	Good	Plentiful, but small and late; leaves blistered; consequently late growth and unripened wood	....	....	Plentiful and good; no caterpillar	Walnuts scarce; Filberts plentiful	John Campbell, Downton Castle, near Ludlow
	Very few; Ribston Pippins good	Half a crop	Good	Good	Good	Very few, trees nearly killed by blister	....	....	Good	Good	Samuel Wells, Holme Lacy
	Below the average; an abundance of blossom in the spring, but did not set	Average; some of the coarser perry kinds very abundant	Good crop, looks well; Damsons good	All kinds have borne remarkably heavy and well-flavoured crops	Average	Below the average; but suffered much from the effects of sharp frosts in May	....	Average; though small and bad flavoured	Gooseberries, Currants, Raspberries very good; Currants particularly fine	Filberts, Cobs, average; hedge do., abundant	William Browne, Shobdon Court Gardens, near Leominster
WORCESTERSHIRE	Very scarce	Fair crop	Good crop	Good	Fair crop	Trees suffered much from cold spring; crop very thin	....	Fair crop	Abundance	Good crop	Robert Dalrymple, Hadzor House, Droitwich
	Crops partial; best where sheltered from east winds. Trees healthy	An average crop of perry Pears; best kinds light	An average crop, trees in some situations much blighted	Very light: much injured by frosts while in bloom. Picking generally finished	Standard trees a partial crop; wall trees generally a fair crop; Morellos very good	Good where protected. Aphis very troublesome early, but trees now clean; crops late	....	Very few; trees in some places nearly destroyed to the ground	Currants fine, clean, and abundant; Gooseberries light; Raspberries a good average crop	Very light; much injured by May frosts	William Cox, Madresfield Court, Great Malvern
CORNWALL	Considerably under the average	Inferior crop; small; and a great deal of fungus growing on them	Scarcely any	Very fair crop	Early Cherries very indifferent; late, better, but not good	Below the average, and very late in ripening	....	None whatever, the young wood being killed last winter	Average crop	Filberts but little grown; common in woods, average	H. M., Enys, Penryn

Home Correspondence.

Peaches and Nectarines on the same tree.—Instances have not been unfrequent of Peaches and Nectarines being naturally produced on the same tree, and upon the same branch, and occasionally of the two fruits being united in one; such instances, however, are, I believe, sufficiently rare to make it worth while to record them when they occur, and I therefore take this occasion of troubling you to state that I have now growing in my garden here a Peach tree, having several specimens of this irregularity of production. On one branch is a Peach and a Nectarine, and a fruit partly one and partly the other; on another a Peach and a Nectarine, and on a third a Peach and Nectarine combined, besides other fruit. The first mention I find of such instances is in a paper by R. A. Salisbury, F.R.S., read at a meeting of the London Horticultural Society, on 3d May, 1808. *Geo. R. Marten, Marshal's Wick, St Alban's.*

Grape Judging.—"At last justice is to be done though the heavens should fall." What an expression of power! What a sensational idea, too, this of dressing black Grapes in red clothing! Our friend Thomson, I presume, has, as it were, thrown down the gauntlet for some other than "Vitis vinifera" to take it up; if not, shallow indeed would be our knowledge of what good Grapes are and ought to be. I still hold there is no need of tasting Grapes to know their flavour. An experienced eye can always tell a good, ripe black Grape without using either of the senses—touch or palate; if not, it is high time we were all put down sa

know-nothings. I am glad I was the originator of the discussion at the Manchester show, when Mr. Thomson asked me whether I should know what colour a Grape was if I ate it in the dark. Rather a lame argument, I think. However, we are all indebted to him for bringing this vexed question before the public; but I think Mr. Thomson's standard can be altered. I should prefer leaving flavour out. Every man in the profession ought to know that a good, ripe Grape, plump and sound, has a good flavour; a good bloom will be sure to accompany the foregoing qualities if the Vines have been properly managed, having no affinity to mildew, which, I am sorry to say, many gardeners deal in. I should have, for colour, 3 marks; shape of bunch, 3 marks; evenness of berry, 3 marks; size or weight, 3 marks; bloom, 3 marks; total, 15 marks. I think with this standard old or new judges could make no mistake; and all the criticisms after (if the Grapes were impartially judged) could not alter their decision. If this ratio be fixed on, we may then thank a great friend for speaking; but if you allow redness in Grapes to have any weight in the decisions, you form a loop-hole for inferior cultivation. *Charles Penny, Gr. to H. H. Gibbs, Esq., St. Dunstan's, Regent's Park, Aug.* 19.

The Weather at Bournemouth.—The following is an account of the weather here during the week ending August 17th. The instruments used were Negretti & Zambra's standard: 4 feet 6 inches above ground, 80 feet above sea-level:—

August.	Barometer reduced to 32° and sea level.	Thermometer in shade.		Humidity of day.	Rain.	Wind.	Ozone.	
		Max.	Min.				Morn.	Aft.
11	30.193	73.5	45.7	58	..	N. & S.	2.	0.
12	30.093	77.	51.2	69	..	S.E.	5.5	6.5
13	30.029	83.	62.2	54	..	S.E.	8.	8.5
14	30.006	82.	59.7	74	..	N.E. & S.W.	3.5	4.5
15	29.753	66.2	58.2	84	.09	N. & S.	2.5	1.5
16	29.758	73.	55.	59	.01	N.W.	4.	3.
17	29.937	68.7	59.	78	..	N.W. & S.W.	9.	9.

R. C. C. Lippincott, Bournemouth, Aug. 19.

Mrs. Pince's Black Muscat Grape.—In consequence of Mr. Cragg having stated (see p. 857) that he could not see how I could have made such a mistake as to say that this varietyresembles Lady Downes' Seedling, I must beg permission to encroach again on your space. For three years in succession, previous to my coming to this neighbourhood, I saw this latter variety grown in a lean-to house, devoted to its culture, 60 feet long and 13 feet wide, with due west aspect, and the bunches averaged each year from 10 to 15 inches in length, with shoulders of medium size, well proportioned throughout; berries oval, jet black, set on short, stout fruit-stalks; flesh firm, sugary, and vinous. If this is not a true delineation of Lady Downes, I hope some of your more able correspondents will set me right. Perhaps Mr. Wills, of Huntroyde, who I know has grown this variety, will decide the matter. That excellent cultivator, with a splendid basket of this fruit, grown whilst he was at Oulton Park, took an equal 2d prize with Mr. Henderson, at the Crystal Palace Show in the autumn of 1864. Mr. Cragg, whilst writing on Mrs. Pince's Grape (see p. 1221, 1866), says that he saw a Vine of this variety which was producing fine bunches jet black. And, again, whilst writing about the same Grape (see p. 857), he describes the colour as purplish-black. Why does he assign these two different shades of colour to this Grape? My opinion is, that Mrs. Pince's Muscat, when well cultivated, will be as black as any variety we have in cultivation, and when better known it cannot fail to be appreciated. *Thomas Foote, Gr., Haldon House, near Exeter.*

Poa trivialis argentea.—In answer to "W. T.," I have to state that my plants of Poa trivialis argentea came from Messrs. Carter & Co. There is not the slightest sign of departure from the variegation in any one of them. I may take this opportunity to reply to Mr. Bennett's query respecting the two varieties of Viola cornuta. My plants of Mauve Queen, or Mr. Wills' variety, were raised from cuttings, and the plants of Purple Queen came direct from Mr. Bennett to a friend of mine, from whom I obtained them. *R. D.*

Carter's Ash-top Fluke Potato.—I purchased of Messrs. Carter & Co., High Holborn, some of their Ash-top Fluke Potatos in April last, and set them by the side of the Ash-top Potato. I find them nearly as early as the Ash-top, and they grow large and plentiful. *Fryer Richardson, Horseway House, Chatteris.*

[Along with this came a sample of the Potato in question, and specimens of the same variety have also been sent to us by Messrs. Carter & Co. It is a white medium-sized Kidney, very smooth in the skin, and furnished with few eyes, which are nearly level with the surface—altogether a finely-shaped and excellent Kidney Potato. Eds.]

Spring Cabbages.—As this is about the time when plantations of Cabbages are made which are intended to stand through the winter, for the purpose of a supply of good-hearted early material, I may perhaps be permitted to make a few remarks, which may be of use to some, as regards their culture, and especially to those who have light or moderately light soils on which to operate. Few things are more partial to a good firm bed than Cabbages are, or delight and prosper better under such conditions in a soil with good heart, as opposed to one loosened and mixed with fresh, ill-decomposed manure; for that reason, freshly dug and manured ground should never be used for the purpose specified, unless the soil be very heavy and bad. The best possible place for the purpose is an old "onion bed," upon which onions are at present ripening off. Remove this crop at the earliest moment when ripe, then, having first raked off all loose litter, stones, &c., thoroughly hoe the bed over. This operation must be performed with due regard to the habitual stiffness or consistency of any given soil, and also with due regard—even in the lightest soil—to the proper destruction of everything in the shape of weeds. The heavier or stiffer the soil, then, the deeper and more thoroughly penetrative must be the hoeing. Should the weather be favourable, it should receive two or three consecutive rakings over, the more thoroughly to destroy seed-weeds, &c. The soil will then be ready for the plants, when the necessary drill rows have been drawn in which to transplant them. I find it better here, again, to make two or more separate plantings, selecting the strongest plants in the bed for the first operation; a week's interval or so having elapsed, the secondary seedlings will be of sufficient size to take the next division. It will be seen how much more likely plants grown firmly in such positions are to stand severe frosts than are others which push forth leaves strong and sappy from freshly dug and manured ground. One other thing I would remark, and that is, when from any cause it is desirable to plant under such conditions, be particular at all times to thoroughly tread the ground over first, even along the drill rows after they have been drawn out. Cabbages, if grown at all, are surely worth growing well. *William Earley, Digswell.*

Foreign Correspondence.

The Paris Congress.—I think our Congress in London was as well arranged with reference to practical uses as any, although we had had no experience in such matters. I think it is a mistake inviting people to these Congresses who are not pure botanists, unless they may go into subjects they may think themselves acquainted with. Thus to my mind, the first question proposed, viz., the influence of soil on the distribution of plants, is more of a subject for nurserymen than for botanists.

One must wait until the end before one can judge fully; but I am clear on one point, and that is, that these disjointed Congresses do little more good than enable people to meet, and when not conducted as that was at Amsterdam, where they appointed a hotel, or café, at which to meet at a certain hour in the evening, then that benefit is lost. That was the great fault of our London meeting, and here it is still worse.

What I should like to see is an International or Universal Botanical and Horticultural Association, which shall hold Congresses annually in different capital cities (that may offer to receive it), in the same way as our Agricultural Society and the British Association meet at different towns in Great Britain; and that every member of the Association shall pay a certain sum per annum, which shall go to pay expenses of printing and distributing the proceedings. This I call a practical plan, and I should be glad to see it adopted. I cannot, in a brief letter like this, even shadow out the advantages of such an Association; but they will be patent to every practical mind. The rules could be framed afterwards. I should like the head-quarters to be in England, therefore I would add that the Linnean Society should undertake it; but if the Society will not, then let it be an independent Association. *R. Warner.*

[We have not much hope of the Linnean Society moving in the matter, after the cold reception given to the Congress of 1866: but as that was successfully carried out, an independent Association, such as Mr. Warner suggests, could doubtless be organised.—Eds.]

Societies.

Royal Horticultural: *April* 19. (*Floral Committee.*) This was a meeting at Chiswick, held for the purpose of examining the bedding plants which were sufficiently advanced, chiefly Pelargoniums, and for determining their respective merits. Many of the sorts were as yet not sufficiently advanced, owing to having been received in a small state, and the season having been ungenial, but the following, which are either novelties or sorts not previously tried out-of-doors, were awarded First-class Certificates as Bedding Pelargoniums:—Madame Werle, free blooming, fine shape, white, with delicately-tinted rosy-pink eye; leaf zoned. Fairy Queen, a free and useful sort, with bright rosy crimson flowers, and lobed leaves. Dr. Hogg, very showy, a semi-nosegay with large broad petals of a rosy crimson hue, the lower petals, especially in some stages, being more strongly suffused with rose. Sambo, dwarf compact habit, and faintly zoned leaves, the flowers rather small but of a very rich crimson scarlet. Madame Martha Vincent, free blooming good white, the white a little tinted, and the flowers in good trusses. Purity, free and bearing good trusses, the flowers pure white. This and the foregoing are the two best of the many white-flowered sorts in the collection, the first having slightly the advantage in freeness and size of truss, and the latter in pureness of colour. Crystal Palace Gem, a large, red, and very showy flower with small white eye, something in the way of Roi d'Italie, and with dark zoned leaves. Lady Constance Grosvenor, a very effective flower, and probably the best, as far as yet developed, of the present season; the leaves are of a peculiarly lively green, and elegantly marked with a dark zone, and the flowers (of the Nosegay class) are of a very bright scarlet, and produced in large trusses; it is a decided beat upon Cybister. Violet Hill Nosegay, which had formerly been voted a Second-class Certificate, was now given a First; it is remarkably dwarf and compact, with a full head of salmon-red flowers, and has lobed leaves; and if a continuous bloomer, will make a pretty edging variety. Gloire de Nancy, with large plain green leaves, and rosy-tinted flowers, was selected for reward as the best of the double-flowered varieties yet obtainable. Rebecca, a semi-nosegay, with zoned leaves and fine trusses of large rosy-red flowers, having glowing upper petals. Warrior, a strong-growing sort, with plain green leaves, and large trusses of finely-shaped bright scarlet flowers. Princess Alexandra, a silver variegated sort, of compact growth, with large flat leaves, broadly edged with white. Castlemilk, a white-edged variety, of rather erect free growth, with the leaves inclined to cup. Snowdrop, the counterpart of Princess Alexandra, as to compactness and flatness of leaf, but with the broad margin of a creamy tint. Second class Certificates were given to the following:—Alldon's Cliffs, a silver edged, much in the way of Castlemilk, but more vigorous in growth, and somewhat less white in appearance; a good useful sort, nevertheless. Oberon Nosegay, with yellowish green leaves, marked by a dull zone, and large scarlet semi nosegay flowers; it is bright in colour, but thin. Emily Maitland, a zonate scarlet Vulcan, a free growing sort, with green lobed leaves, and semi nosegay flowers of a clear scarlet.

In addition to the foregoing First class Certificates were given to Messrs. E. G. Henderson & Son's Pyrethrum Golden Feather, and to Mr. Chater's dwarf, compact growing, orange-scarlet Tropæolum called Advancer.

August 20.—W. Wilson Saunders, Esq., in the chair. One or two Fellows were elected. From Mr. Bull, King's Road, Chelsea, came an interesting collection of plants, among which Calamus javanicus, *C. adspersus*, two handsome kinds of Palms, and Alsophila Leichardtiana, a promising tree Fern, received First-class Certificates. Among others in the same collection were Echites rubro venosa, with beautiful rosy veined foliage; Lomaria falcata from New Zealand; Ophiopogon spicatum, from Japan, with leaves striped with creamy yellow; charmingly blomned little plants of Lilium auratum; the white-stemmed Dieffenbachia Baraquiniana, panfuls of Vallota purpurea and its variety eximia, both of which rank amongst the most showy of wfnter blooming plants; a small but unique example of Yucca quadricolor, Dracæna Cooperi, from New Caledonia; Cycas Riumininana, from the Philippines, and the large, glossy-leaved Ficus Portcana, a kind which deserves to rank high among fine-foliaged plants. From Mr. Brockhurst, gardener to A. Turner, Esq., of Leicester, came a handsome unnamed Cattleya; Messrs. E. G. Henderson had a variety of Ixora crocata called rutilans, to which a First-class Certificate was awarded; and from the same firm also came Crinum giganteum, producing two robust flower stems, surmounted by clusters of large white blossoms. Mr. Parsons was awarded a First-class Certificate for an interesting variety of Lady Fern called Athyrium Filix-fœmina ceratophyllum. A boxful of blooms of Maréchal Niel Rose was shown in admirable condition by Mr. Keynes, of Salisbury, who was awarded a Special Certificate for them.

One of the most interesting features connected with this meeting were some seedling Hollyhocks, from the Rev. E. Hawke and Mr. Chater, of Saffron Walden, the latter contributing a fine lot of spikes as well as cut blooms. First-class Certificates were awarded to Ruby Queen (Hawke), brilliant ruby red, flowers large and full, and Gem (Hawke), deep salmon rose, flowers large, and of full substance. These were shown in the form of cut blooms. The same award was also made to the following, which were shown in the shape of spikes, viz., Alba superba (Chater), pure white, large and full; and a Second-class Certificate to Walden Queen (Chater), pinkish salmon, the flowers somewhat small, and loosely set on the spike. Other new kinds shown by Mr. Chater were Whitley King, not so good as Hawke's Gem; Queen of Yellows (Chater), a very good shade of colour, but wanting colour in the guard petal, which was also too large; and Moonlight (Chater), a glossy, dark kind, wanting quality. A fine collection of cut blooms was also shown by Mr. Chater. Seedling Dahlias were shown by Messrs. Keynes, Hopkins, & Pope. Second-class Certificates were awarded to Mrs. Dodds (Keynes), white ground, tipped with lilac, the centre deeper in colour, good form and outline, and high close centre; and to Caroline Tetterell (Keynes), something like the foregoing in character, the lilac being, however, of a deeper hue, and distributed more over the ground, good form, and high close centre. Mr. Keynes also had Miss Sarah Turner, pale ground, heavily tipped with rosy purple; Royal Purple, rich rosy purple; Lady Derby, pale ground, heavily tipped with dark purple; Snowball, white, large, but low in the centre; Duke of Edinburgh, rosy violet, a nice shade of colour; and the Hon. Mr. Bouverie, orange buff, with a dark tip. Dahlia Ruth (Pope) is a small light ground flower, edged with rosy purple; and Excellent (Hopkins) is a small flower of a pretty shade of colour, best described as orange maroon.

A First-class Certificate was awarded to Mr. John Standish, Ascot, for a free-blooming perpetual Picotee, Ascot yellow, bright yellow ground, edged with rosy red, the habit excellent, a capital variety for cutting from. The same award was likewise made to Mr. Eckford, Coleshill, Berks, for Verbena. The Cure, rose suffused with purple, having a well-defined centre of bright crimson; pips stout and large, and very attractive. From the same raiser came Isa Key, rosy lilac, with white centre; Lady Folkestone, and Mrs. Bouverie, both in the way of Perry's Miss Turner, but not so good; Novelty, pale lilac; Emperor, violet, with white centre; and Mrs. Hay, pale pink with lemon eye.

Messrs. E. G. Henderson & Son had a double-flowering French Pelargonium, which appeared to bloom but sparingly; Messrs. Downie, Laird, & Laing furnished a bright-looking Nosegay Pelargonium, named Magnum Bonum, the trusses of which are remarkably fine, but the flowers individually are small and somewhat rough; Mr. Bull had also some very promising yearling zonal and plain-leaved Pelargoniums, of different shades of scarlet and cerise, together with one or two of the salmon coloured division.

Various prizes were offered on this occasion for fruits. The best dish of Peaches grown on an open wall came from Mr. Lynn, gr. to Lord Boston; for Peaches grown in an orchard-house, Mr. Douglas, gr. to F. Whitburn, Esq., Loxford Hall, Ilford, was first with very good Early York. In the class for Apricots grown on an open wall there were three exhibitors—namely, Mr. Lynn, Mr. Earley, gr. to F. Pryor, Esq., Digswell, and Mr. Cox, Redleaf. The 1st prize was adjudged to Mr. Earley, whose Moorparks were large, handsome, and delicious. As regards Nectarines there was no competition. Mr. Lynn exhibited Hunt's Tawny from the open wall, and took a 2d prize, and Mr. Douglas received a first prize for orchard-house fruit. Mr. Tegg, gr. to the Duke of Newcastle, Clumber, sent a dish of very fine Grosse Mignonne Peaches, and was awarded a Special Certificate. A 1st prize was awarded to Mr. Cox for three dishes of Plums, consisting of Huling's Superb, Jefferson, and Greengage.

Mr. Webb, of Calcot, near Reading, sent a seedling Plum, which, however, was considered unworthy of a Certificate. Mr. Whalley, gr. to the Bishop of London, sent two Melons. Mr. Earley contributed two fruit of Dr. Hogg Melon, an excellent green-fleshed kind. Mr. Perkins, gr. to Lord Henniker, Thornham Hall, Suffolk, sent a dish of Queen Anne's Pocket Melon; and from Mr. W. Cox, gr. to Lord Beauchamp, came a seedling Grape raised from Black Alicante crossed by Muscat of Alexandria. In shape the bunch resembles that of Muscat Hamburgh, but is rather more tapering. The berries are large and oval; skin jet black, with a fine bloom; berry-stalks short, stout, and warted; flesh firm, juicy, rich, sugary, brisk and vinous, and possessing a distinct Muscat flavour. It deservedly received a First class Certificate.

Mr. Bradley, of Elton Manor Gardens, Nottingham, sent a seedling Apple from Keswick Codlin; Mr. Jackson, Blakedown Nursery, Kidderminster, another early Apple, which was past its best, and the Committee could not form a judgment on its merits. Mr. R. Webb, of Calcot, also sent a seedling Apple, which, however, had not sufficient merit to entitle it to a Certificate. From G. R. Marten, Esq., Marshall's Wick, St. Alban's, came Peach and Nectarine fruits on the same bearing shoot, to which reference is made in another column.

Mr. Tegg sent a dish of Guava (Psidium Cattleyanum), in fine condition; and Mr. Evershed exhibited, through Messrs.

Wrench & Sons, of London Bridge, two new Peas, which, however, did not seem to differ much from Ne Plus Ultra.

Messrs. Stuart & Mein, of Kelso, sent specimens of Australian Spinach (Chenopodium auricomum), which were ordered to be cooked and a report to be made to the next Meeting of the Committee. Mr. Gadd, gr. to Lord Middleton, Wollaton Hall, Nottingham, sent fruit of the Cherry Tomato, which had been received from California, and from Messrs. A. Henderson & Co. came fruit of a seedling Cucumber, called Champion of St. Alban's.

The Chairman remarked that it had occurred to him, on seeing the specimens of Lilium auratum which had been exhibited, that it would be desirable to try what could be done by hybridising it with other species, with the view of uniting to its fine form other colours. The French had worked upon Lilies to a considerable extent, and had succeeded in raising numerous varieties, and he thought English horticulturists ought to see if they too could not make a step ahead. Success, he believed, only required patience and a little investigation, and he was sure that among all the beautiful tribes of plants the Lilies were one of the most worthy of such a trial.

The Rev. Joshua Dix remarked that the Meeting on the 17th of September would be rendered interesting by a competition of Variegated Zonal Pelargoniums (see p. 876).

The Apiary.

Artificial Queen-raising, (*Continued from p.* 715).—In my last communication on this subject, I gave an account of my proceedings up to the early part of July. It may be remembered that several hives had been deprived of their queens, for which suitable brood-comb or royal cells had been substituted. I now propose to relate the result of these attempts at queen-raising. I may premise that I am not a novice in this matter, having practised the rearing of queens, and the formation of artificial swarms, with great success for many years. When the first of the papers on this subject was commenced I could not say what might be the result of the various operations, but I had no reason to suppose that less success would attend my efforts during the present season than usual. But I have to acknowledge that this summer has been a singularly unpropitious one for me, both as regards honey collecting and queen raising. It often happens that, in the pursuit of any science, we may learn almost as much by our failures as by our successes. I think it right, therefore, to give an account of both. We are too apt to impart, ourselves, as well as to hear from others, only the successful and bright side of the results of all these and similar manipulations, while our failures are too frequently allowed to pass unnoticed, and to be consigned to oblivion.

No. 3. From this hive, as previously related, the old queen was removed, and a brood-comb, with two sealed royal cells, was inserted. With but little delay a young queen assumed the functions of sovereignty and maternity; the stock is populous, and, so far as the season goes, prosperous. A super was put on which would probably have been filled if the honey season had been more propitious.

No. 9. This stock was operated on the next in succession to No. 3 so early as the 14th of June. The queen having been removed, a pure Ligurian royal cell, the inmate of which ought to have been almost on the point of arriving at full maturity, was inserted. This cell, however, becoming abortive, great numbers of royal cells were started from the original brood. These were persistently removed as fast as begun. At length I resolved on removing every particle of brood, and forming an artificial swarm therewith. A comb of pure Ligurian brood and eggs was given to the bees of No. 9. Some cells were raised, but at the end of a month, on examination, the hive was found to be without any queen. Most probably one was hatched in due time, but may have been lost in her matrimonial excursion. On the 25th of July a sealed royal cell, removed from an artificial swarm just in time to be saved from destruction by a slightly older rival who had come out but an hour or so previously, was fitted into one of the combs of No. 9. The inmate of this cell was out by the 27th; she proved to be the most diminutive queen I ever saw: she was so small, being scarcely longer than an ordinary bee, that it was a considerable time before I could distinguish her from her subjects. She soon afterwards disappeared without having laid an egg. Cells are being raised in another stock, from which I hope to obtain a queen for this at present queenless and broodless colony. *S. Bevan Fox.*

Miscellaneous.

Gardens of the Royal Horticultural Society at South Kensington.—These will be open free to the public on Monday next, August 26, by command of her Majesty the Queen, in commemoration of the birthday of the late Prince Consort. The cascades and fountains will play during the day, and military bands will perform both morning and afternoon.

What Caterpillars, and what other insects?—A plan has recently been successfully adopted at Auxonne, France, of preserving crops against the ravages of caterpillars and other insects by placing artificial nests of wood or pottery about the farms or vineyards.—*The Press and St. James's Chronicle.*

Garden Operations.

(*For the ensuing week.*)

PLANT HOUSES.

Perhaps no time is better for undertaking repairs, such as painting, whitewashing, mending, or altering hot-water pipes, sweeping flues, &c., than August. Let all such operations, where needed, therefore, be done forthwith. *Pelargoniums*, struck from cuttings about April last, should now receive their last shift, if in need of another before winter approaches. Should the weather continue fine, free exposure to the outer air will suit them admirably. Continue to pinch back all soft-wooded stove plants, such as *Pentas carnea*, *Begonias*, &c., intended for flowering after those which are beginning to show symptoms of blossoming are past their best. Cut back all *Kalosanthes* which have ceased flowering. Do not cut them down too severely; they break better with a moderate piece of young wood for a base than when severed in two down close to the old wood of the previous summer. Make the necessary quantity of cuttings, chosen from amongst the youngest wood upon the prunings. Remove sufficient leaves from around the base to properly insert the cuttings in the soil, and a few from the apex of the cutting also, as this tends to make them break more freely. Keep the old plants so cut-in rather dryer for a time; affording them abundance of air, with free exposure to the sun. *Statices*, likewise, which have done flowering, must be gone over individually, removing all decayed leaves, old flower-stalks, &c., and potting any which need a shift into a free, open, sandy peat. Crock the pots well, and press the soil firmly around the balls. Any which are not in need of a larger pot, should receive a surface dressing. After having removed a little of the soil from the top of the old balls, press the dressing down firmly, and finish off neatly, so as not to allow loose soil to lay about the surface; as this is retentive of moisture, to an excess of which these plants have a dislike during the duller winter months. Any which are wanting in healthiness or vigour—when the operation just named has been performed—might be placed in any structure, where a nice genial warmth can be maintained. If kept here for six weeks, time will then be left to properly inure them to their more natural temperature before the approach of actual winter.

FORCING HOUSES.

Vineries intended for very early forcing will shortly need especial attention. Those upon which the wood has become properly matured—which is indicated by the uniform decay of the foliage, &c.—might be pruned at once. Do not cut-in too severely, but rather select good prominent eyes, where these are attainable without causing an undue elongation of the "spurs." Should more eyes push than what may be requisite in consequence, it will be easy to rub them off, after having chosen the stronger ones. Also prune *Pot Vines* intended for early work. Do not shorten them too much, though it will be necessary to remove from the points all wood which has not become thoroughly well matured. Protect the borders of Vineries intended for early work from wet. This is best done by covering them over with any spare lights which are at hand, a process by which they are not only protected from excessive wet, but solar warmth is collected and retained, and thus assists in more thoroughly ripening the Vines. Prepare an admixture of two parts good rotten dung, one of rich mellow loam, and one of old mortar débris and road scrapings; and when this compost is well mixed up together, place it in a position sheltered from rains. This will shortly be required, as a dressing to the Vine borders aforesaid after the removal of a portion of the spent surface therefrom.

HARDY FRUIT GARDEN.

Strawberry Runners laid in pots, for the purpose of forcing in the ensuing Winter, must be shifted without further delay into the pots in which it is intended they should fruit. Picked large-sized 32's alone are fit for this purpose. Pot them into about two-and-a-half parts of good rich fibrous loam, and one of thoroughly decayed spit-manure. One good crock alone, properly placed, will be necessary for drainage; upon that place a slight layer of manure, as above. Do not bury the crowns too deeply, and pot moderately firm. When potted, do not omit the precautions necessary to secure them against worms, which enter the pots readily, where these are not placed upon ashes or some similar material with which they dislike to come in contact. Place them in a fully exposed situation, where the sun can shine fully upon them from early morning until past noon. Do not, as is too frequently the case, commence giving manure-water to them until the roots begin to "feel" the inner sides of the pots, as too much liquid has a great tendency to sour the soil where no gross-feeding roots are present in an active state. Other "runners" layered in the ground and intended for the purpose of making fresh plantations with, should have the connecting link with the parent plant severed in two. This will give them a full opportunity of establishing themselves quickly, with no need of further parental support. No time should be lost, and especially should moist showery weather prevail, in forming fresh beds as quickly as possible when the plants have once arrived at this stage. They have need of all the "stored up" resources possible, to enable them efficiently to meet the demands which are in anticipation respecting the forthcoming spring crop.

HARDY FLOWER GARDEN, BEDDING PLANTS, &c.

Choose a favourable opportunity to go thoroughly into the subject of "Bedding out," with the view of attaining greater success next season than has been arrived at this. Untiring attention to the several merits of individual plants, whether as regards form, colour, or habit, will be needful where a proper blending of plants—whether grouped sparingly, or placed *en masse*—is desired. Bear in mind that every garden, of any pretension, should have some change from what it was last season. The present style of "bedding-out" is sufficiently monotonous in itself, without too great a repetition of old blendings, &c. Of *Pelargoniums* some decisive choice must be made from amongst the many varieties, of every hue and colour, now in existence, choosing those only which for certain merits are best adapted for the purpose for which they are to be used next spring; for to store away, a few weeks hence, numberless varieties, with no settled plan of action, will entail throughout the winter a vast amount of useless labour. Where gardeners do not, as a rule plan out their own ways of planting, but are required to follow those of their employers, they should not fail to point out the great necessity there is that some understanding as to what is required next season should be arrived at forthwith, in order that all may have equal opportunities of preparing for the emergency. As regards Zonal Pelargoniums, Tricolors, &c., of the Mrs. Pollock section, I may remark that though good strong cuttings will strike freely at this season, the plants are likely to survive the winter's many drawbacks better if taken up from the beds at a later date whole as they are. They take up less room in the aggregate; are decorative during the winter, in the shape of fine bushes; and the cuttings root readily in the earlier part of April; quickly forming far healthier plants with proper treatment than other not over robust autumn-struck ones.

KITCHEN GARDEN.

Do not delay taking up any *Potatos* which show symptoms of ripening slightly. If left, beyond what is absolutely necessary, in the soil, they become still more liable to the attacks of the "disease," which is likely to be very prevalent this season. Do not let them lay out in the open air longer than is needful; light has a deteriorating influence upon them. Look well after seeding weeds at this season; they too frequently raise their heads amongst growing crops, and shed innumerable seeds quickly, if not sought after. Pull them all up, and burn them. The hoe will be needed more frequently than ever at this season, amongst crops upon all favourable occasions, as weeds quickly "get a head" if the soil be not frequently stirred. Make the final sowing of *Lettuce*, *Cauliflower*, and *Cabbage*, upon very light lands. Sow *Endive* for the final crop, also; that called the Digswell Prize receives general recommendation for its hardy and other good qualities. In transplanting earlier sowings which are intended to stand through the winter, plant the crowns deeply; they heart so much better, and are not near so likely to be injured by severe frosts as when dibbled out in the ordinary shallow way.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the Week ending Aug. 21, 1867, as observed at the Horticultural Gardens

Aug.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Of the Air. Min.	Of the Air. Mean	Of the Earth. 1 foot deep.	Of the Earth. 2 feet deep.	Wind	Rain.
Thurs. 15	○	30.031	29.887	84	54	69.0	67	63	S.	.27
Friday 16	16	29.800	29.615	75	54	64.5	66	63	W.	.00
Satur. 17	17	29.850	29.842	70	54	62.0	66	62	S.W.	.00
Sunday 18	18	30.000	29.986	73	53	63.0	65	61	S.	.00
Mon. 19	19	30.071	30.044	80	58	69 0	65	61	S.	.81
Tues. 20	20	30.073	29.990	81	51	66 0	66	62	W.	.00
Wed. 21	21	29.985	29.969	82	53	67.5	65	63	W.	.00
Average		29 973	29.899	77.8	53 8	65.8	65.7	62.1		1.08

August 15—Rain; showery, slight rain at night.
— 16—Densely overcast; fine throughout.
— 17—Cloudy; partially overcast and fine; cloudy.
— 18—Overcast; cloudy; very fine at night.
— 19—Very fine; exceedingly fine and hot; continuous storm of thunder, lightning, and heavy rain.
— 20—Densely clouded; very fine, clear.
— 21—Clear and fine, exceedingly fine throughout.

Mean temperature of the week, 4 4-10 deg. above the average.

STATE OF THE WEATHER AT CHISWICK,
During the last 41 years, for the ensuing Week, ending August 31, 1867.

August	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday ..25	74 2	49 7	61.9	16	0 62 in.	2	3	2	7	5	16	7	5
Mon. ..26	72.8	48.2	60 5	13	0.51	3	3	4	—	8	9	9	4
Tues. ..27	73.5	49.2	61 4	12	1 32	2	2	4	—	3	11	10	9
Wed. ..28	72 9	49 7	61.3	19	0.22	3	6	3	—	6	12	7	4
Thurs. ..29	71 3	47 6	59 4	15	0.58	4	5	4	11	2	3	8	4
Friday ..30	74 3	48.0	61.2	11	0 92	3	6	3	—	6	9	11	4
Satur. ..31	71 5	47 1	59 3	17	1 31	3	7	3	2	2	10	9	5

The highest temperature during the above period occurred on the 25th, 1859—therm. 89 deg.; and the lowest on the 26th, 1861—therm. 31 deg.

Notices to Correspondents.

Apples: *J Jackson.* Your seedling is high-coloured, and on that account has a fine appearance, which is its chief merit. It is deficient in juiciness, becomes mealy, and soon decays. It may, however, be worth growing where very early Apples are a desideratum.

Celery Leaves: *A C, Bromley.* The parasite on your Celery is the same species of Puccinia which was so destructive last year. We fear that there is no mode of eradicating these pests when young. Your case is clearly beyond remedy. If you suffer another year you may try sulphur, but it is doubtful whether it has any effect on such dark-coloured Fungi. *M J B.*

Insects: *A.* Your insect is a young larva of one of the lace-winged flies, Hemerobius sp.; it feeds on Aphides, and should not be injured.—*Old Dublin Subscriber.* Your Pear leaves are infested with the slimy grub of the black-winged saw-fly, Tenthredo æthiops. Dust the leaves with powdered lime, or syringe them well with lime water. *W.—W J.* The small beetles which have attacked and gnawed holes in your Peaches are a species of weevil belonging to the genus Apion (A. flavipes or an allied species). The fact is quite new, and it is certainly not the usual habit of the species. We can suggest no other plan than hand picking for their destruction. *W.*

Names of Plants: *A B L.* Pancratium littorale, found plentifully on sandy shores of South America, and introduced to other places.—*R R Cheney, Esq.* 1, Dendrobium densiflorum; 2, Aerides odoratissimum; both flowering out of season.—*C A T.* Can you kindly furnish us with another specimen?—*W H E.* The smaller Lycopodium seems to be the same as the larger, which is the common species of gardens. We do not understand your other question. If it be whether the proliferous varieties of Polystichum angulare are always silvery scaled, as in the piece sent, we answer no; that must be the result of the circumstances under which they are grown.—*Rev J H.* The very beautiful New Holland Tecoma jasminoides.

Pelargoniums: *H Cannell.* The striped flowered sort is pretty and we think different from the striped sorts we have previously seen, having more white, and a larger blotch. The Ivy-leaved seedling has a broader and more defined margin of white than we have before seen.

Communications Received.—A. Forsyth.—J. Carter & Co.—Midlothian Lady Gardener.—J. H.—W. Lerro.—W. Cross.—A.—T. S.—W. R.—C. Clissold.—Country Resident.

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The Agricultural Gazette.

SATURDAY, AUGUST 24, 1867.

MEETINGS FOR THE ENSUING WEEK.

Tuesday,	Aug.	27	Meeting of the Manchester and Liverpool Society at Manchester.
Wednesday,	—	28	
Thursday,	—	29	
Wednesday,	—	28	Meeting of the Royal Agricultural Improvement Society at Dublin.
Thursday,	—	29	
Friday,	—	30	

Mr. Wilson, whose letter on harvest work appeared at page 838, has sent us the following details of his plan for providing a substitute for ale and beer in the harvest field. These must always vary with the habits of the district and the circumstances of each farm, such as the position of the farm-house, the contiguity of the various fields; but, subject to these, he recommends that tea should be made three or four times a day, and carried out to the men in the fields. If the farm is small and the distance short, the trouble is nothing; in his own case a boy with a donkey was entrusted with this duty.

The proportions of the materials were an ounce of tea and six of sugar to the gallon, with milk according to taste, but it was by some preferred without milk. The cost will be barely 5*d.* a gallon; and, in a case in an adjacent parish, where the men were on money wages only, they tried the tea plan, using less than half the quantities mentioned, and saved their money of course.

Where only a few gallons a day are required any housewife will know how to make it at the kitchen fire, but if 20, 30, or 40 men are to have a gallon a day each, then a boiler or copper will be found needful, as well as a few large puncheons, or milk-coolers of earthenware, or, as in Devonshire, of tinware. The tea-leaves may be separated from the liquid by a milk "sile," or horsehair sieve. Sometimes the tea is boiled in the water and sometimes the water is merely poured on to the leaves; either way will do, but if the boiler be iron the tea must not be boiled, as it acts on the iron, and makes the infusion as black as ink; indeed it is ink. In several instances where men have had a money payment only for their work, they have voluntarily adopted tea, coffee, or the like in preference to beer, as a simple question of economy, and even with a preference for beer as a matter of *taste;* but all found they could do their work just as well, or better, while their pockets soon told which was the best plan for poor men with large families.

Indeed, this question lies with the masters rather than with the men; for if an employer proposes a change which is known, or believed to be, for the benefit of his own pocket, he is certain to be opposed; but let him show an interest in the social and moral well-being of those he employs, and make it clear that the change is not for his pocket's sake, but for theirs, then with care and patience all difficulty will vanish, and the employer himself will be rewarded in the greater regularity and steadiness of his labourers and their work.

The general carelessness about the quality of seeds sown on farms induces us to refer to the following experiments in the growth of—1. Vetches, both wild and cultivated; 2. Oats; 3. Barley; 4. Wheat.

1st. Our first trials with Vetches were made with the seeds of Vicia angustifolia, a small hedgerow species, which we hold to be the parent of our larger cultivated sorts.

Now, if we take seeds of this truly wild plant we find that they are tolerably even in size, and weigh on an average about half a grain each in the dry state; but if we sow that seed in manured ground, after collecting it and keeping over the winter, we shall find a large proportion of the seeds of our now cultivated plant to weigh as much as two grains each: and by rejecting the smaller seeds and sowing only the larger ones, a still larger majority the second year will have attained to that and even a greater weight.

Following out this method of selection we were enabled to get plants of Vetches from the original seed of V. angustifolia rivalling the common cultivated Vetch in length of stem, size of foliage, and size and weight of seed.

Seeing then that in such experiments the larger seeds give the best results, it was to be expected that experiments with large and small seeds of the common Vetch would bring out some interesting facts. Accordingly in 1865 we sowed some plots of Vetch seed as follows:—

Plot 1. Small seeds, of which 100 weighed 70 grains.
„ 2. Large seeds, of which 100 weighed 192 grains.
„ 3. Small seeds, equal in weight to Plot 2.

An equal number of seeds were sown in Plots 1 and 2—in rows 8 inches apart and 4 inches apart in the row. In Plot 3, a bulk equal to that of 2 being made up, they were sown proportionately thicker. The result was that Plot 1 afforded much the best crop; Plot 2 the next; but in Plot 3 the plants were small, and, though from triple the number of seeds of 2, did not yield more than one-third the produce.

Last year we repeated the like experiment, with three plots of different sized seeds, as follows:—

Plot 1. Small seeds, of which 100 weighed 105 grains.
„ 2. Middle-sized seeds, of which 100 weighed 175 grains.
„ 3. Large seeds, of which 100 weighed 432 grains.

In these experiments an equal measure of each was sown, with the object of testing the common observation at market—"Yes, they are small; but you get the measure." Our results show that although you sow the same measure of large and small seeds—and consequently the latter might be three times as many seeds as the former—yet the crop from the large seeds may be expected, as it has proved with us, to be nearly double that of the small ones. To us, then, it is perfectly clear that even in this crop the best seed is the cheapest; though if used for feeding, the argument, "You get the measure," may better apply.

2. In experimenting upon the derivation of our crop Oat from the Avena fatua, or the wild Oat, it was observed that improvement was marked by the production of a plump seed and a large increase in weight, while the wild seed is very light indeed. And by selecting our seeding examples, and sowing only the heavier seeds, we got from these insignificant wild seeds a sample weighing nearly 40 lb. per bushel.

Reasoning then upon this subject, we obtained in 1844 some of the heaviest seed we could find for our main farm crop, and succeeded in getting a sample from Canada weighing 48 lb. per bushel, and from these we obtained a good crop of Oats of the same weight. The following year we tried a few acres of black Tartarian Oats in a field, with a few acres of our own seed of the white Canadian Oats; the result was as follows:—

The seed of the white Canadian Oats, 1845, weighed 48 lb., the crop, 47½. The seed of the black Tartarian Oats weighed 40 lb., the crop 38 lb. It was a bad Oat season, but on light sandy loam the better sort did not materially depreciate, while the poor seed of the black Tartarian gave a still poorer result.

Our crop for the present season was obtained from seed of White Potato Oats, weighing 48 lb. per bushel. This is just harvested in fine condition, and we estimate the crop at 12 sacks an acre, and the corn has every appearance of weighing equal to the seed.

Facts of this kind have determined us always to sow the best seed we can procure, for although it is true that poorer seed may sometimes improve by change, yet it is quite certain that the best results—other things being equal—are obtained where the better seed has been employed.

3. Barley being a crop for which our farm is celebrated, and for which we usually get the best price of the market, we have never yet sown such poor samples as we have sometimes seen used, such as English tail Barley or French feeding Barley; we usually sow a good plump seed, and if it be found as the result of trial to germinate freely and well to the extent of from 90 to 95 per cent., we do not care about the sample being a little stained. By choosing good seed it is found that it improves even upon a second year's sowing; in this case not always getting larger, but of a finer skin and grain the second year. This year we have good promise from a heavy seed of Chevalier Barley, and with the cold spring and the absence of sunshine of the summer, we incline to think that a poor skinny seed would have been destructive to our hopes.

4. Our Wheat crop of the present year is good, and from seed of our own growth. Our best crop is of white Conservative Wheat, and curiously enough it was deemed that the sample of last year, which will be recollected as a bad Wheat year, was too small in the berry for good seed. This smaller seed was accordingly separated from that sown for the main crop, but by way of experiment two acres in a Wheat field were sown with the small seed alone, and both it and the main crop of the field at the rate of 7 pecks *per acre.* Now we have not measured the result, but a careful estimate leads to the supposition that the crop of the larger seed is as much as 32 bushels an acre, whilst that of the smaller seed cannot be more than 26 bushels. We have thus reason to be satisfied that this small seed was employed upon only two acres.

In May of 1866 we sowed a plot of a spelt Wheat, which, after standing the winter of 1866-7, is a little over-ripe at the time of our writing. This is exceedingly interesting, in that being over-ripe its rachis or ear readily breaks into bits, like that of the Egilops, while its grain is closely enveloped by the chaff scales. A close observation of this trial is to us conclusive proof of the fact that Wheat is in reality derived from Egilops, and that the spelt Wheats are very nearly related to the wild Egilops.

As a rule, then, our experiments, founded for the most part upon facts obtained in the ennobling of species, tend to show that the best results are to be obtained from the best seeds. The practice, then, of using almost any refuse for seed is therefore utterly vicious. We find that by selection of seed we can get a finer selected strain, whether for the garden or for the farm. Nor is this to be wondered at, as the laws of vegetable breeding are much the same as many of the same in the breeding of animals; but in the latter case no man in his senses would expect to obtain the finest specimens of any race by choosing small half-starved parents. We have always maintained the importance of attending to breed and to quality of seed in farming: a fact which, though fully recognised by the nurseryman and gardener, has not yet been half appreciated by the farmer; but both experiment and reasoning tend to convince us, that fine crops are to be obtained from good well-developed seed, as much as good stock from strong, handsome, well-grown parents. *B.*

We are happy to say that the preventive measures adopted during the past week on the sewaged farm near Barking, have hitherto saved the cows in the two outlying sheds, to which reference was made last week. Three cows taken from these sheds as soon as they were off their food, which it was feared betokened an attack, were placed in the quarantine shed where the disease had first appeared. That shed had, however, been thoroughly cleansed and disinfected, and these three cows remain healthy. The whole clearance of the infected stock has now been completed, and the sheds in which they stood have been scraped, washed, and wetted with dilute carbolic acid, sulphured, and lime-washed. They will remain empty for a month

or two, and after being again subjected to a cleansing and disinfection may be safely re-used for cows or other cattle.

The attack in those instances at Lodge Farm which were allowed to run their course has in no case presented those very loathsome features which writings on the cattle plague had led us to expect. Except in one or two instances, and then it appeared only in an incipient stage, there was hardly any inflammation, still less any sloughing of the inner skin of mouth or tongue. There was very little watering from the eye or nose; there was, however, considerable diarrhœa, and evident inflammation *there;* and a *post mortem* examination showed an inflamed and congested state of the intestines. The raised temperature of the blood was observed. Instead of 102°, the thermometer rose to 105° and 106° long before any other symptom of illness appeared. Four cows died and were buried before the disease was pronounced cattle plague, and 10 other cattle immediately afterwards were condemned as being diseased, killed, and buried: all the other stock condemned because of their neighbourhood to the diseased beasts were slaughtered and sold as healthy meat. Their value as meat was in the majority of cases much more than 25 per cent. below their value as milking cattle, and thus a loss has fallen upon the locality even heavier than that which has fallen upon the farm itself.

—— SEVERAL corrections have reached us of last week's harvest reports:—Mr. HALLETT, of Brighton, alters his report of Wheat from "Average" to "Under average." At Kirtlington, Oxfordshire, Barley should have been stated "Under average and rather thin." The Fen crops are stated to be below their former promise. Both Wheat and Oats are less weight than were anticipated, and there will be a good deal of tailing corn. Other reports are given in another page. We must also make two corrections in the totals of the returns of the two last years' harvests given at p. 861—those of the Wheat crop for 1866 make 180 instead of 190, and those of the Oat crop for 1865 make 183 instead of 185. Adding to the returns given last week those which have been since received, we find the per-centages of the whole reports in the three successive years to be as follow—"Over average," "Average," and "Under average" respectively:—

Crop.		Over Average.	Average.	Under Average.	Total.
Wheat	1865 ..	15	46	39	100
	1866 ..	11	53	36	100
	1867 ..	10	38	52	100
Barley	1865 ..	15	62	23	100
	1866 ..	27	60	13	100
	1867 ..	17	57	26	100
Oats	1865 .	1	15	84	100
	1866 ..	17	48	35	100
	1867 ..	23	54	23	100
Beans	1865 ..	3	46	51	100
	1866 ..	17	57	26	100
	1867 .	21	60	19	100
Peas	1865 ..	5	45	50	100
	1866 ..	43	54	3	100
	1867 ..	12	55	33	100

It will be seen from these per-centages that the promise of the Wheat crop is not so good as it was last year.

—— At a mowing-machine trial at Millbrook, under the auspices of the Athy Farmers' Club, HORNSBY'S, SAMUELSON'S, and other mowers competed, and the following discussion is reported to have taken place on the merits of implements made for trial, not for sale:—

Mr. WILLIAM O'NEILL referred to the great demand for these machines, but was sorry to say that certain makers had sent machines to the ground that day specially made for the occasion. Their machines cut low—a matter that soon took the fancy of the looker-on; but the every-day machines of these makers, and those being sold as theirs, would not cut so low by any means. He could prove this; for he had these very makers' machines in his yard, and they would not cut so low as those they had seen on the ground at Millbrook. — Thereupon Mr. BULWER remarked:—These matches, which they attended at a loss of time and money, were either worth something or nothing—either valuable or a sham. Now, Mr. O'NEILL had made a statement of the deepest importance to them; and if it were true, they had had a trial of show machines made for racing, but not to be had for sale. He thought a matter of such importance should be thoroughly investigated, and it remained for them to say whether the three machines which had been in everybody's mouth all day were *bonâ fide* working machines.—Mr. O'NEILL said he had referred to the machines exhibited by SAMUELSON and HORNSBY.

Mr. BULWER now requested the representatives of these gentlemen to come forward, and make some reply.

Mr. HORNSBY'S agent said the machine they had worked all that day had been taken out of their stock, and was the *bonâ fide* machine they proposed to sell. He called on a gentleman who had purchased his machine some time past to state his knowledge of that fact.—Mr. ROBERTSON said he had purchased a Hornsby some three weeks ago, and it was in all respects the same as that exhibited that day. He fully corroborated the agent's statement. He had cut old meadow with three to five tons per acre with the machine, and it did capital work.—Mr. SAMUELSON'S agent said his machine was the same as the one exhibited, which had, however, been made to cut a quarter of an inch lower. They were making experiments, which, if they proved successful, would be adopted and brought out next year. It was an improvement, and they had thought of adopting it; in all respects else the machines were similar.

Mr. BULWER stated as an individual that he thought Samuelson's machine did the best work in the field that day. If that were so, it remained with Mr. Wood and Mr. Hornsby to improve their machines, and compete with Mr. Samuelson. —Mr. BAGOT, the hon. Secretary of the Club, proposed that at the next match they should take a machine of each maker from the farmers in the neighbourhood, and have a trial of them. This would do away with all race machines. They would not have any from the agent or direct from the maker at all. Of course, he did not at all mean to have a machine made in 1866 competing in 1867, so as to preclude trying an improved machine by the same maker; but let them appoint a sub-committee to get a machine recently made, but some time in the farmer's hands, and thus prevent any more show machines from being present.

FARM NOTES.—By Mr. MECHI.

The Willing Agricultural Slave.—Feed it well with coals and water, and oil its joints, and it will never tire or complain. What a mental, moral, and physical effect it is producing on the British agricultural labourer, and how it awakens and sharpens the farming intellect. The flail and the other mechanical operations of the farm, that once reduced the labourer to a mere mechanical machine and destroyed his physical energies, sending him, a consumptive patient or a deformed cripple, to the Union House before or during his old age, will have become soon and very generally "the lights of other days." This slavery is reduced some 50 per cent., and he has transferred fully that balance to the agricultural steam-engine, which is neither sick nor sorry, which is never hungry nor thirsty when out of work, and whose frame (under Dr. Engineer), is of long and profitable endurance. Who has not noted, as I have during my agricultural observation, the young but broken-down married labourer with a large young family converted into a permanent pauper by threshing by piece-work in the barn, month after month, until Nature gave way! And the same results have been often produced by the chaff cutter (piece work). But leaving alone the philanthropic, let us appeal to self-interest and the breeches pocket. I have asserted and I here repeat my conviction, that every farm of 150 to 200 acres of arable land (not Grass) should have a steam engine with its necessary accompaniments. I speak of course of a highly tilled farm, on which much live stock is kept and much corn and other produce grown; in fact, a farm on which much business is done—and, of course, on which a profit is annually made. Take my own case as an example. Here are 170 acres—landlord's measure—of naturally poor land, all arable, except 14 acres in permanent pasture. Let us see what work we have for an engine, on an average of years:—

600 quarters of corn to thresh and dress.
200 tons of straw to cut into chaff.
25 tons Clover hay to cut into chaff.
25 tons Grass hay to cut into chaff.
100 tons of green Tares, green Clover, Italian Rye-grass to cut into chaff.
400 tons of Mangels, Swedes, Cabbage, and Carrots to pulp or to pass through gardener's cutter.
600 sacks of corn to grind for our own consumption.
800 ditto for hire.
30 tons of Rape, Cotton, and Linseed cake to break.
1400 sacks of corn to hoist.
Many sacks of Linseed to be crushed.
The grindstone to be turned.
350 tons of water to be pumped for stock.
6000 to 10,000 tons of water and sewage force-pumped on the Grass land.

I think that after this list my brother agriculturists will admit that some business is done on the farm, and that there is something for my fixed engine to do. My willing agricultural slave has an active employment. Yet this is what really ought to be done on every poor farm of the same extent as mine, in order to convert them into profit-making concerns. It is true that this sort of management necessitates a concentration of capital on a limited area—say a tenant's capital of 16*l.* to 20*l.* per acre, and a large investment of landlord's capital in the necessary conveniences for such an amount of business. The tenant would really be in a much better position, paying an increased rental of 40 to 50 per cent. as interest for the necessary improvements. I know of many thousands of acres of poor heavy land that are almost starving and robbing the tenant for want of drainage and of such improvements and conveniences as I have described. My object in so frequently calling the attention of business men to the profitableness of such operations is to stimulate a great improvement and change in our ordinary application of capital. Spread it thicker on the land. The land is grateful, as I know by experience—there is plenty of money in the country. It only wants tempting out of the pockets in which it is so comfortably ensconced. There is scarcely a parish in the kingdom where you cannot find one or more quiet and economic individuals with their many thousands at command. Let their juvenile successors learn to believe that money spread thickly on the land is the true way to make a good profit, but that a mere sprinkling, as is too commonly the case now, means low rents and miserable profits. This wet season the difference between highly farmed and well-drained cornfields is, in many cases within my knowledge, quite 7*l.* per acre, or more than the entire cost of perfect pipe drainage. It is just in such seasons as these that the high improved farmer gets such an enormous advantage, and consequently large profit, as compared with the non-improver. White Wheat is at 75*s.* or more per quarter; two extra quarters per acre gives us 7*l.* 10*s.* advantage, besides extra straw. The first cost of a fixed steam engine and boiler is not great. I paid for mine, 19 years ago, only 150*l.*, or 25*l.* per horse-power; and the engine is likely to last many years longer. I exchanged the old boiler for a new and larger one (Cornish) in 1865. Of course the fixing, riggers, straps, and various machines are all at additional cost. The cost of working for a full day may be taken as—

	s.	*d.*
10 cwt. dust coal, at 10*s.* 6*d.*	5	3
Cartage	1	6
Engine driver	2	6
Oil, wear and tear, &c.	1	9
	11	0*

Sixteen horses could not do an equal quantity of work. We use the engine as many times in the year as would represent about 170 full days. If we ask what has made England so great and so rich, the answer must be "steam power;" and are we not justified in concluding that agriculture must look to the same power to increase its wealth and dignity? Let landlords and tenants, too, ponder well this question, and look upon steam as their best friend. Our astute Scotch friends have been beforehand with us in the matter of steam in agriculture. Even the showmen at fairs and *fêtes* work their round-about of wooden horses by a neat portable steam-engine, which they find infinitely more effective and profitable than the old system. Surely, then, it must soon become general on every arable farm of 150 acres upward. P.S. I am almost daily more and more convinced that my brother agriculturists have not sufficiently devoted their attention to the great advantages they would derive from the more general adoption of steam power. A striking instance of this inattention occurred a day or two ago. A wealthy farmer of 800 acres of arable land in this county (much of it his own) visited me, and in the discussion of various matters I expressed my astonishment at his not using steam power for preparing food for his horses and cattle. "Well," he said, "I do pay a great deal of money for the hire of a steam threshing machine; but how could I cut up green food enough for my 40 horses?" I smiled at the singular indifference or want of attention that prevented his seeing that the power that could thresh 70 quarters of Wheat in one day would make child's play of comminuting enough green food for 40 or 400 horses. I laboured hard to convince him that he not only must have a fixed steam-engine for the various purposes that I have described in this paper, but also gigantic engines for cultivating his 800 acres of good but stiff soil. There could be no excuse on the score of capital, with which he is well furnished; he only lacked the conviction that such machines would be profitable to him. He never cuts up any straw, hay, or green food!

The Causes and Consequences of Laid Crops.—If I am not mistaken, we shall have to regret the present laid and twisted condition of our corn crops. It is a common saying that "the laid crop never ruins the farmer," because it is an evidence of rich manuring, and plenty of forcing power in the soil. A Lincolnshire farmer, the other day, walking over my farm, regretted that my crops were not laid enough; his own had been, for some time, as flat as if a roller had passed over them. The important question, however, is, how, or rather, in what way is a crop laid? In a fine dry season, when the heads are long, broad, thick, heavy, and nearly ripe, and the straw like reeds, I delight to see them "bowed" over, the stems forming a succession of arches, but that is a very different affair from the laying of the present season. In the former case the lowest portion of the stem, from its junction with the crown of the root to the first knot (about 2 to 3 inches) would be hard, stiff and glassy—a sort of erect abutment for the reedy, arched superstructure; but this year that portion of the stem will be found in an exactly opposite condition, viz., soft, spongy, weak, and brown with rottenness or partial decay; so that the stems fall horizontally flat (not arched), and this takes place prematurely, and before the ear has become full and weighty: consequently the kernel will be so imperfectly developed as to become shrivelled, lean, and in many cases worthless. In fact, by the softening and rotting of the stem the circulation of the juices in the plant is impeded or suspended, and the crop partially destroyed. I am afraid this is the case over a very extensive area. This rotting has been caused, no doubt, by the excess of moisture and a low temperature. The heavy soil remained too long in a soaked condition

* It will be seen by my farm balance sheets for 1865 and 1866, at pp. 111 and 112 of my new book, that my expenditure for engine coals was for those two years a total of 82*l.* 17*s.* 11*d.*, and my receipts for grinding for hire during the same period 104*l.* 0*s.* 7*d.*, so that all my own work, as above described, was done without any cost for coal, and only 10*l.* 12*s.* 6*d.* annually for engineer's labour, because the balance of grinding for hire (22*l.* 2*s.* 8*d.*) more than paid the engine-driver's wages of 2*s.* 6*d.* a day for 170 days=21*l.* 5*s.* So I had only to pay for my own work (for a whole year)—

	£	*s.*	*d.*
Balance of engine-driver's wages	10	12	6
Interest on engine, boiler, and driving gear, 200*l.*, at 5 per cent.	10	0	0
Wear and tear, oil, repairs, &c., at 10 per cent. ..	20	0	0
Total annual cost ..	£40	12	6

—or about the annual keep of one horse and a-half. What would 16 horses have cost in original purchase-money, depreciation, keep, attendance and saddler's and smith's bills, veterinary, &c.? There will no longer be any occasion to ask, after this statement, "Will a steam-engine pay on a farm of 170 acres?"

around the stem of the plant where it issues from the surface. The air was not warm enough to absorb the moisture from the surface of the earth. Light porous soils suffer much less. It is especially with thickly-sown crops that the mischief is greatest. A rush of Grass-like close-packed stems and leaves, thin, weakly, and early sloping, formed a canopy, and shut out the action of the sun's rays and passing winds, and prevented the evaporation of water from the soil; not only, therefore, was the surface kept wet, but the atmosphere between the surface of the earth and the under portion of the closely packed flag or dense canopy of plants was like the air of a damp cellar, where mildew or fungus finds the proper condition for its growth. Therefore I am not at all surprised to hear of suffering by mildew, which is this season a common complaint. The pasture-like appearance of a thick sown corn crop in its early growth exposes it to a tremendous risk in a wet season on stiff soil; and even with 1 bushel of Wheat, 6 pecks of Barley, or 2 bushels of Oats, some of my crops, especially Wheat, are too thick where I manured heavily. The great advantage of thin sowing is, that while you have a greater weight of straw and larger quantity of corn, the stems and heads are large, few, and strong and reedy, leaving room for the circulation of air and consequent drying of the soil. Especially is this necessary on heavy tenacious clays. The air and surface of the ground are thus permitted to come into contact instead of being separated by a flaggy, weak, crowded, trembling mass of stems. As I mentioned in a former paper, where folks will not sow thin, they should, if they farm high, do like my Suffolk friend, that is, "flag," or rather cut off the flag leaves of their Wheat, Oats, and Barley, and thus permit the circulation of air among their crops. This question of thinner sowing is, like the sewage question, gradually forcing its way to a happy consummation. The sooner the better. Holders of non-drained lands have got a severe dressing this wet season. The plant pot has been so continually full and running over, owing to there being no hole in the bottom, that plants have languished and rotted. The difference in several Wheat crops under my observation will be something like two quarters per acre in favour of the well-drained soil. At present high prices the money difference is therefore from 7*l.* to 8*l.* per acre. The drained land crops are nearly a week forwarder than the undrained, a matter of great importance this late season. While Wheat stems soften and suffer from so much moisture the Bean stalks, as hard and thick as a walking-stick, rejoice in such moisture. We commenced Wheat cutting on the 5th. My crops were all standing and as level as a rule a fortnight ago, therefore, although now partially laid, they will suffer little, because the kernel was well formed and nearly matured. Where the Wheat stands, the stem between the crown of the root and the first knot will be found dry, hard, stiff, and glassy. *J. J. Mechi, August*, 1867.

THE PRESENT PROMISE OF THE HARVEST.

FROM OUR OWN CORRESPONDENTS, AUGUST 10, 1867.

[*The following Reports were received too late for last week's publication.*]

COUNTY.	WHEAT.	BARLEY.	OATS.	BEANS.	PEAS.	POTATOS.	ROOT CROPS.	HAY.	WHEN WILL HARVEST BE GENERAL?	NAME AND ADDRESS.
SCOTLAND.										
ROXBURGHSHIRE	Above average	Above average	Average	....	....	Under average	Under average	Above average	About September 12	Geo. Ballingall, Clarilaw, by Selkirk
GALLOWAY	Average	Average	Under average	Few planted	....	Good	Good	Fair	The beginning of September	A. H. M'Clean, Auchneal
BERWICKSHIRE..	Average	Over average	Average	Average	....	Average; blight appearing in gardens	Under average	Average	About September 1	John Wilson, Edington Mains, Berwickshire
ENGLAND.										
NORTHUMBERLAND	Fully an average	Over average	Average	Variable	Average	A large crop	Early sown, heavy; late sown, unequal	Over average; much spoiled	Early in September	Jacob Wilson, Woodhorn Manor
LANCASHIRE	Under average	Average	Average	Under average	....	Over average	Under average	Over average	End of August	John Croudson, Urswicke, near Ulverston
LINCOLN	Not an average	Fully an average	An average	Good	....	Looking well	Early sown very good, and late sown not good	A very high crop	August 20	W. Torr, Aylesby
HUNTINGDON	Much storm broken; 5 bushels per acre under average	Rather below an average	A good average	About an average	Blighted; not good	....	Late; look healthy	Very good	August 12	Geo. Armstrong, Graffham
BEDFORDSHIRE..	Not average	Average	Average	Under average	Under average	Bad	Good	Good	August 14	James Ross, The Hoo Park Farm, Luton
SUSSEX	One-fourth below average	Above an average	Very good	Average	Average	Blighted; below average	Not good	Clover good; meadow good, but caught some wet	August 7	R. H. Ellman, Landport, Lewes
WILTS	An average crop if we keep free from blight, which is doubtful with the backward Wheat	A large crop of straw, but ripening too fast, and not a good quality	Above an average	Nil	Over an average	A good crop, but going off fast with disease	An average crop	Over an average	Not general till Aug. 19	J. A. Williams, Baydon
DEVONSHIRE	Under average	Under average	Over average	....	....	Very bad	Never finer	Abundant, and well saved	August 19	Samuel Cornish, Stancombe, Kingsbridge
DORSETSHIRE....	Under average	Average	Average	....	Above average	Under average	Average	Above average	Now general	—, Wareham
WALES.										
CAERMARTHEN ..	Average	Under average	Average	....	....	Average	Under average	Average	August 16	H. H. Muscott, Langharne
IRELAND.										
TIPPERARY	Good	....	Good	....	....	Good	Middling	Good	August 26	Wm. Ryall, Cashel

RECENT RAM SALES.

Oxfordshires: *Mr. Treadwell, at Winchendon.*—The following are the prices realised for the different lots, with the purchasers:—No. 1 was a two-year-old shear sheep, knocked down to Mr. Bryan, of Southley, near Witney, for 15½ guineas. No. 2, also a 2-shear, was let for the season to Mr. Pell, near Wellingborough, for 7 guineas. No. 3, a shearling, was let for the season, at 11 guineas, to Mr. Roberts, of Casswell, near Witney. These gentlemen are two of the most eminent Oxfordshire Down breeders, and the hiring of these tups by such good judges must have been gratifying to Mr. Treadwell. No. 4 fell to the bid of the auctioneer for 11 guineas, who is starting an Oxfordshire flock. No. 5 went for 12½ guineas, to Mr. Smith, near Rickmansworth. No. 6, for 6½ guineas. No. 7, for 8 guineas. No. 8, for 9½ guineas. No. 9 fell to the bid of Mr. Sanders, of Bletchley, for 12 guineas. With No. 10 in the ring, it soon became evident that high prices would now be the order of the day, and he was quickly knocked down to Mr. Day, of Brickhill, for 20 guineas. This was the first of 10 very large, grand, heavy-woolled shearlings, for which Oxfordshire, Sussex, Bucks, Beds, Herts, and Northamptonshire breeders spiritedly competed. The other lots fetched the following prices:—11, Warr (Lenborough), 20 guineas; 12, Bennett (Hillesden), 16½ guineas; 13, Stilgoe (Adderbury Grounds), 20 guineas; 14, Wright (Sussex) 15½ guineas; 15, R. Mumford (Chilton), 18 guineas; 16, Edey (near Northampton), 16½ guineas; 17, Edey, 14 guineas; 18, Everett, 13½ guineas; 19, Edey, 20 guineas; 20, Warr, 18½ guineas; 21, Day, 14½ guineas; 22, Brett (Waddon), 14 guineas; 23, Claske (Iver), 16½ guineas; 24, Linnell (near Towcester), 14 guineas; 25, Kimble (Wormingshall), 15 guineas; 26, Bennett (Dr. Lawford, Linslade), 12 guineas; 27, Attenborough (Wing), 12½ guineas; 28, Day, 13½ guineas; 29, Day, 10½ guineas; 30, Lines, 12 guineas; 31, Perkins (Winchendon), 12 guineas; 32, Watts, 11 guineas; 33, Maydon (Salden), 11 guineas; 34, Guy (Whitchurch), 9½ guineas; 35, Watts, 11½ guineas; 36, Newitt (Wappingham), 8 guineas; 37, H. Parrott (Whitchurch), 10 guineas. The whole 37 sheep averaged 14*l.* each within a fraction, a figure never before obtained, we believe, in Bucks. The 12 ram lambs were soon disposed of at an average of about 5 guineas each—they being in only store condition, in fact only the draught lambs from the flock. The following is a list of the prices: Ram Lambs—Lot 38, Partridge (near Luton), 5 guineas; 39, Jones, 4½ guineas; 40, Horwood (Drayton Beauchamp) 3½ guineas; 41, Stevens (Lodge Hill), 4 guineas; 42, Day, 6½ guineas; 44, Cooper (Milton), 5 guineas; 45, F. Denchfield (Aston Abbotts), 4½ guineas; 48, Thorn, 4 guineas; 49, Smith, 5 guineas.

Shropshires: *The Bingley Hall Sale.*—The sale opened with Mr. E. Lythall's rams, the first a 3-shear, "Double X," bred by Mr. G. A. May, being let at 25 guineas, the others following at from 6½ to 13 guineas. —Mr. W. Yates' rams were very young, and the prices were from 5½ to 11 guineas.—Mr. Pilgrim's lot were in low condition; an average of 7 guineas only was obtained.—Mr. Nock, who has recently risen into notoriety as a Shropshire breeder, let to Mr. Eyke of Stanton, the first at 9 guineas, and others went at from 10 to 25 guineas, the average being over 15*l.*—Lord Wenlock's rams were extremely moderate, ranging from 5 to 12 guineas.—Mr. Yates's yearling ewes made from 42*s.* to 50*s.*; Mr. Lort's, 42*s.* to 70*s.*; Mr. Nock's 52*s.* to 82*s.*, the highest price given for ewes; Mr. Briscoe's, 40*s.* to 46*s.*; Mr. Pilgrim's, 55*s.* to 57*s.*; Mr. Coleman's, 36*s.* to 44*s.*; Mr. P. Lowe's, 50*s.*; Mr. Steedman's 41*s.* to 49*s.*; and Mr. Osborne's, 37*s.*—*Mr. C. R. Keeling, Yew Tree Farm.*—The first ram was secured by Mr. C. Stubbs at 20 guineas, from which figure prices ranged for the shearlings down to six guineas. The interest of the day centred in Chadbury, a splendid 2-shear used last year by Mr. C. Randell, and which, after a brisk competition between Mr. Lythall, Mr. C. Byrd, and others, was secured by the last-named gentleman at 34 guineas. One other 2-shear concluded the rams, the 33 averaging 13*l.* 5*s.* each. The ewes followed, and though low in condition, realised from 65*s.* to 105*s.* each, the average being 73*s.*—*Mr. Sampson Byrd, Leese Farm.*—Mr. J. B. Lythall auctioneer. Twenty ram lambs, being very young, and having being brought direct from their pasture, without the assistance of any other food to develop their points, showed to much disadvantage, and realised but low prices, the average being 3*l.* 15*s.* each. The rams followed, commencing with Model Patentee. He was let for the season, after a sharp competition, at the (we believe) unprecedented sum for a Shropshire of 90*l.* 6*s.*, the hirer being Mr. Allen, who last year secured the same sheep at 47*l.* 5*s.*; four other rams were then let for the season at from 8 to 12 guineas each, and a shearling by Pride of Weston, from a Patentee ewe, was offered for half the season, and realised 45 guineas, to W. O. Foster, Esq., M.P. The sale of shearlings followed, and, though low in condition, readily commanded buyers at prices ranging from 6 to 25 guineas, the general average being 15*l.* 8*s.* A few pens of choice old ewes were offered, which made from 100*s.* to 62*s.* 6*d.* each.—*Mr. Charles Byrd, Littywood.*—Mr. Peake, of Lammascote, purchased the best at 30 guineas, and hired the other at 20 guineas. The shearlings, though strong

and as a rule with good fleeces and colour, went low, 10 guineas being the highest price given, and a few were unsold. The average was 9*l.* 12*s.* 6*d.* Some very useful breeding ewes followed, which ranged from 70*s.* downwards; and the wethers and wether lambs realised satisfactory prices. Mr. Preece, of Shrewsbury, conducted the sale.

Elford Park Sale of Shropshires.—Mr. May called his neighbours and friends together the other day to display their judgment over 40 sheep, two 3-shear and 38 shearling. Great Eastern, one of the former, and which was the reserved number at the Bury Royal meeting, let for 35 guineas to Mr. German for Lady Edith Hastings' flock, for whom another was also taken at 30 guineas. Mr. Negus bought one at 29 guineas and another at 15 guineas, while Mr. Webb, of Elford, took one at 29 guineas. The remainder sold at good average store breeding prices, for which purpose we have seldom seen a lot better adapted. Mr. May deserves success, for he does not spare his pockets, having this year again taken Mr. Evans' 2d prize at Bury at a high price.

Freeford Sale of Shropshires.—The announcement by Mr. Coxon of the Duke of Newcastle for unreserved sale, and of Novelty, another winner at Newcastle, some days since attracted a large company. This assembly included all the leading Shropshire men, among whom were Messrs. Keeling, Horley, Masfer, May, Willoughby Wood, Crane, and others. Altogether there were about 150 visitors and purchasers present. The Duke of Newcastle was the 1st prize shearling at the Northumberland Royal Meeting, and he is therefore a 4-shear. As a shearling he was generally allowed to be as fine and handsome a sheep with dark points as was ever shown. He was bought of Mr. Thornton, his breeder, by Mr. Coxon, at a high figure. His character, as a matter of course, made a great demand on his services, and consequently, although he still retains his fine countenance and level straight back he has gone a good deal to wind and bowels, but there is no doubt a deal of work in him yet. He was bought by the Messrs. Crane at the good sum of 50 guineas. Novelty, a remarkably thick, straight, and heavy fore-quartered sheep, made 25 guineas, and Conservative let for 52 guineas to Mr. Davis (near Old Hall.) The remainder, making 36 in all, although there were five sheep we should have sold privately, sold at good prices, the average amounting to upwards of 16 guineas. Sixty ewes, five of which were show sheep and made 7*l.* 10*s.* each to Mr. Davis, sold at corresponding high figures.

HAMPSHIRE DOWNS: *Mr. E. Waters, Stratford-sub-Castel.*—This sale took place on Aug. 14th, under the hammer of Mr. John Waters, of Salisbury, and attracted a large and influential company of agriculturists. The biddings were exceedingly quick and spirited, and prices ranged as under: Mr. Thomas Ferris (who also bid 40 guineas for the two-teeth ram bought by Mr. Blake) hired a single lamb for the season at 40 guineas. Mr. F. Long hired another lamb at 26 gs., Mr. Olding, Mr. Lunn (Whitchurch), Mr. W. Taunton, and Mr. Melsome taking the other let lambs. Nine of the single lambs sold for 26, 25, 23, 22½, 21 (two), and 20 (three) guineas respectively, the purchasers being Mr. J. Long, Mr. Lyne (of Compton), Mr. Melsome, Mr. Olding, Mr. Rawlence, Mr. Ford, and Mr. Lunn. The remaining single lambs realised 18½, 18, 17½, 17, 16½, 16, 14, 13½, 13, 12½, 12 guineas, &c. For pairs the prices reached were 33 gs., Mr. Hayter; 32 gs., Mr. Courtney, for Mr. Coordery; 21 gs. Mr. Phillips; 30 gs., Mr. Stubb; two at 28 gs., Mr. Robertson and Mr. Allen; 25½ gs. Mr. Hoddinott; 24 gs., Mr. Fookes; 23½ gs., Mr. Brake; 22 gs., Mr. Line; three at 20 gs., Mr. Robertson, Mr. Porter, and Mr. Parnam; (two) 19½, 18½, 18, and 15 guineas; 16½ gs., Mr. Earle, &c. The two-teeth rams realised as under: 42 gs., Mr. Brake; 17 gs., Mr. Rooke; two at 13 gs., Mr. Fookes and Mr. Lunn; and 11 gs., Mr. Nockolds. The average of ram lambs was 14*l.* 8*s.* 10*d.* per head, and of the whole stock 14*l.* 15*s.* 3*d.* per head.

COTSWOLDS: *Mr. Cother, Middle Aston.*—The 37th annual auction of Mr. Cother's Cotswold rams came off on Tuesday. The sheep were of the usual Middle Aston quality and condition, strong of constitution, heavy of fleece, and, without being over-fed, in thoroughly good working order. There were 80 in all, either for sale or letting, and they realised an average price of 10*l.* 17*s.* 6*d.*, thehighest being 25*l.*

MR. GREY, OF DILSTON, AT GLASGOW.

THE following is a report of the remarks made by Mr. Grey at the banquet of the Highland Society, on the evening of Tuesday in the show week:—

In proposing the health of the judges, Lord KINNAIRD said, that "it gave him great pleasure to see among them one whose name was well known to all agriculturists in Scotland and England and to many in foreign countries, bearing his age and laurels so well. He alluded to Mr. Gray, of Dilston, and proposed his health and the other judges."

Mr. GREY rose to reply, and was received with much applause. He said, that although he saw himself surrounded by many younger and abler men, as it had pleased the noble lord who had proposed the toast to place his name in the foreground it became his pleasing duty, in the name of his colleagues and his own, to return their earnest thanks for the very kind manner in which the toast had been proposed, and for the very cordial reception it had experienced from that numerous assembly. When he received the invitation of the Society through their worthy Secretary, to act as one of the judges on this occasion, his first impression was respectfully but decidedly to decline it, pleading the wear and tear of eighty-two years in this busy world as his apology and disqualification for the office; but, on second thoughts, some secret impulse roused the recollection of former years, and inspired a wish to see once again the meeting of that interesting and influential Society, which he had often termed the "Parent Society"—as the Royal English and Irish Societies, and all those more recently established, had been framed upon its model. And now, he must be allowed to express the great gratification he had had in seeing the exhibition of that day so well sustained in its various branches, although to him accompanied by some painful impressions, from the fact that those who were his colleagues and companions in former years were not here now. On the last occasion, he believed, on which he had acted in that capacity, Captain Barklay and Hugh Watson were his coadjutors, names familiar to the members of that Society. But he was not there to talk to them of anything so insignificant as himself or his own feelings. With regard to the show of that day, and especially of the department in which he had been engaged (that of the Shorthorned class), he must not say, that though highly respectable he had never seen individual specimens of a higher character in former times. Indeed, he believed that such specimens might be found 50 years ago which had never been surpassed, but then they were in the hands of only two or three of the earliest improvers of the breed, while now they are spread over the length and breadth of the land, wherever soil and situation are suitable for their support. It was not, however, in producing the most perfect specimens for a show, however desirable it was to see what perfection could be attained, that the benefit which the country had derived from that breed of animals consisted. It was with Shorthorns in the case of cattle, as with Leicesters in that of sheep, that crossing the females of almost any breed and district with well-selected males of these breeds contributed so greatly to the increased produce of butcher's meat, which we still found, with all our efforts, was incapable of keeping pace with the demands of an ever-increasing population. In such crossing it is desirable to select males of the finest quality of flesh, because it is from them that is communicated that tendency to heavier produce and early maturity which is the great object of the breeder, and hence the necessity of maintaining the breed of the sires as pure and perfect as possible. There is no subject of more importance to the farmer in a breeding district, or on which his judgment can be more beneficially exercised, than the selection of the description of stock, whether of pure breeds or crosses, which his soil and situation are best suited to maintain. It was well remarked by the honourable chairman of last evening (Mr. Kinloch), that the benefits of this Society are not confined to those which emanate from the show, but are derived also from chemical instruction and publications. The two good objects connected with agricultural progress and improvement are, by good cultivation of the land, and judicious application of manures, such as are best suited to the kind of soil and of crops, to increase its produce in corn, roots, and Grass. And having obtained that object, to apply to the consumption of our roots and Grass the description of live stock which will be the most profitable—that is, which will yield the greatest amount of butcher's meat for the quantity of food consumed. These objects the teaching and exhibitions of your Society essentially embrace. Lord Kinnaird had spoken kindly of the services of the judges. He (Mr. Grey) hoped if his lordship had been an exhibitor on the occasion—which he was not aware of—that he had found substantial reason to approve of their decisions. That the decisions of the judges should give universal satisfaction is not to be expected. Where there are many candidates for one prize there must be many disappointments; and so long as it is natural for man to be partial to what is his own, and to what he has looked on with satisfaction from day to day, at his own house, on the one hand; and so long as fallibility attaches to all human judgment, on the other, there will not be wanting ample grounds for censure and dissatisfaction. We cannot presume to say that in every case, where the merits of animals are so nearly balanced, we may not have made wrong awards. But this I may honestly say, that we spared no pains to do what was right to the best of our judgment. He begged again to thank the company for their cordial reception of the toast, and for the indulgent hearing which they had accorded to himself.

HARVEST WORK AND WAGES.

(*Continued from p.* 863.)

[The following are the answers to questions relating to—*a*, "wages by the month or day during harvest time;" *b*, "the prices for cutting Wheat, Barley, and Oats per acre;" *c*, "the quantity of beer or cider given daily or per acre;" *d*, "the mode adopted of harvesting Wheat, Barley, and Oats." The address of the author of each set of items will be discovered upon reference being made to the same name in the Harvest Reports last week. The letter heading each clause indicates the particular question which is answered.]

SCOTLAND.

BANFF: *a.* Cutters for harvest from £3 15s. to £4; gatherers from £2 10s. to £2 15s.; bandsters, from £2 5s. to £2 15s.; all with their victuals and beer. *b.* According to weight of crop; from 7s. to 9s., without victuals. *d.* Mostly by the scythe (J. Barclay).

AYRSHIRE: *a.* 2s. 9d. to 3s. per day for a woman; 4s. to 5s. per day for a man. *b.* 15s. to 16s. per acre for cutting and setting up. *c.* None. *d.* Mostly cut with the scythe; two women for each scythe to tie it up. Some others shear with the hook; only a few have machines. Some men are engaged by the month at 20s. a week, with keep (W. Orr).

PEEBLES: *a.* Harvest not having yet begun, wages for the present year cannot yet be stated. For the last year or two wages for scythemen or mowers have averaged about 20s. per week, with victuals; women, as lifters, either from scythe or reaping machines, 15s., with victuals. Most of the crop is cut by scythes or reaping machines. *b.* There is little or no Wheat grown in the district. The rate per acre for Barley or Oats varies from 7s. to 8s. 6d., with victuals, according to the quality of the crop and the supply of reapers. *c.* Reapers get a quart bottle of beer or milk to dinner, and a loaf of about 18 oz.; the breakfast and supper consisting of porridge and milk. The general hour for breakfast is 8, for dinner 1, and supper 6 o'clock; three meals being given a day. *d.* As soon as the grain is dry it is carted to the barn-yard and put up in stacks, with a small ventilator up the middle. Sometimes the stacks are placed upon a wooden stand, raised about a foot above the ground, and sometimes the bottom consists of a little straw. In wet seasons it is not uncommon to stack part of the crop in the field in order to expedite the work (J. Lyle.)

ROXBURGH: *a.* 3s. per day, or 18s. per week, with victuals, consisting of porridge and milk for breakfast and supper, and bread and beer for dinner. *b.* From 7s. to 8s. 6d. per acre, with victuals, and 9s. 6d. to 11s. without victuals. *d.* Mostly cut by machines when the crop will admit, and by the hook when laid and twisted (W. Scott).

BERWICK: *a.* 18s. and 19s. per week, or 3s. to 3s. 2d. per day. *c.* one bottle of beer at dinner time. *d.* By reaping machine and reaping hook (G. Logan).

ENGLAND.

NORTHUMBERLAND: *a.* Men, 24s. to 30s. per week, without food or drink; women, 15s. to 18s. per week, without food or drink. *b.* For cutting, binding, and stooking, I have paid as low as 8s. per acre, and as high as 16s., according to the crop. The cost of cutting per acre by the sickle with Irishmen, and of mowing, taking up, &c., with the scythe, is very little different. *c.* It is not the custom to give any, but to pay all in money, except when men are hired into the farmer's house for the harvest, when they get 18s. or 20s. per week and their food: this is common in the district. *d.* Till within the last few years the cutting was done chiefly by scythe or sickle, at so much per acre. Reaping machines are now almost universally used, and crops of every kind cut by them. The carrying is done by the farm labourers with one-horse carts, frequently a man forking, and a strong lad loading in the field, and boys driving between the stacker, and a good forker being in the stackyard. In this way a set of carts (3, 4, or 5, according to distances) will get in from 35 to 40 loads per day, going from 6 A.M. till 8 or 9 P.M. (T. Dods).

CUMBERLAND: *a.* 18s. per week, with food. *b.* Reaping Wheat, 10s. per acre; mowing Oats, 6s. per acre. *c.* None (T. Gibbons).

YORKSHIRE: *a.* Mowers, &c., 18s. to 20s. per week; gatherers and binders, 15s. to 17s. per week. All boarded in the house at a cost of 8s. per week, and 1s. per week in ale. *b.* Mostly cut with reapers; costs about 2s. per acre the gathering, and for tying, stooking, and raking, 4s. to 5s. per acre. *c.* Each man one gallon of ale per week. *d.* Cut with reapers, put in stooks of 12 sheaves, led home with 2-horse pole waggons, stacked in round pikes of from 18 to 24 loads (E. Riley).—*a.* During harvest, 15s. to 20s. per week for extra men; but married men and their families principally employed—engaged by the year, with cottages found and 15s. to 16s. per week. *b.* Principally cut by back delivery machines, with the usual labourers upon the farm, their wives and families having their double wages, say 2s. per day, cutting 6 to 8 acres per day, costing 3s. to 5s. per acre (R. Kay).—*a.* Contract harvest work to mow, stook, and rake, 10s. per acre for full crops; no beer or other allowance; light crops, 8s. to 9s. per acre. A great deal is done in this district in this manner. My own mode of harvesting is as follows:—To cut about 200 acres of corn I use two reapers, two men in charge of each reaper at 4s. 6d. per day each, with beer and cheese and bread at 10 A.M. and 4 P.M.; one man stooks, keep knives in order, and changes with the other; five strong boys or young men and five women complete the set, men 3s. 6d. and woman 2s. each, bread and beer same as the others. This makes the cost of labourers to one reaper 36s. 6d., and we average, including stoppages, 8 acres per day. In the evening and early morning the binders assist in stooking the corn. I have also four scythe men who mow with the scythe any Barley that has seeds in it, and give over as soon as carting begins. These men stack and thatch, &c., and work any length of day, carting till 10 or 11 o'clock at night, and even later if necessary. These men have food found—beef and bacon, *ad libitum*, morning, noon, and night; cheese and beer 10 A.M. and 4 P.M.; beer in the evening at supper. The beer is ale and porter mixed, at 1s. per gallon, from the best brewers we can find. In addition, these men have £1 to £1 5s. per week for a month and in some instances for five weeks (J. Hannam).—*a.* About 20s. to 21s. a week for five weeks, with meat, three meals a-day, and beer, at 10 and 4, and later if busy, 2 quarts a day. *b.* Vary from, Wheat mown and laid, 8s. to 12s.; Wheat reaped, 14s. to 16s., by Irish only; Barley, mown and tied, 7s. to 10s.; Oats, 7s. to 10s. *c.* Beer is given with day-work, and not as a rule, when the work is let, though very often it is. *d.* Manual reapers have become more common lately; formerly the scythe was most used. Reaping is confined to the Irish. Barley and Oats are either cut with machine or mown and tied (J. Coleman).

LANCASHIRE: *c.* Nearly all the grain is now cut by machines, and not many extra hands are required. When the men are boarded in the house they have extra food as well as during harvest. When day labourers are employed, the foreman, in some cases, finds machines and horses, and gives 7s. or 8s. per acre for cutting and setting up. In this case no beer is given, except when the grain is being carried, when

the men have what they require, which depends upon the hours they work and the weather. *d.* The grain is all tied up when it is cut, and set up in "hattocks" of ten sheaves; sometimes it is hooded. All the machines are on the hand-delivery principle. The present rate of wages is, for labourers, 18s. a-week; for same boarded in the house, from £20 to £30 a-year each (G. Drury). —*a.* From £3 to £4 per month, the farmer finding all meat and beer. *b.* Price for cutting Wheat per statute acre is from 16s. to 17s. per acre. *c.* As much as is required, no stated quantity (R. Robinson).

Lincolnshire: *a.* 4s. 6d. and 2 quarts of beer a day to each man. *b.* Mowing and tying Wheat, Barley, Oats, and Beans, 11s. per acre and no beer (W. Fancourt).—*a.* About 28s. per week for six weeks. *b.* About 10s. per acre all round. I gave 12s. last year, but it was an exceptional year. *c.* Very little given. *d.* With the scythe principally. A few machines are in use. (F. Sowerby).—*a.* Team men hired for four weeks, at 18s. to 25s. and 30s. per week, with 3 or 4 quarts of beer when at harvest work, or £1 for the month in lieu. *b.* 10s., 12s., to 18s., including raking. *c.* No beer on piecework. Hired men have 3 or 4 quarts, but £1 for the month, instead, is becoming more general. *d.* Chiefly by scythe, a small portion by hook or sickle, leaving the stubble knee high, the straw being very long in this district. Carting generally done by the day, but a portion put out by the acre—a "set" consisting of four men, who pitch, load, "team" (or unload), and "take away" on the stack, at 6d., 8d., or 10d. per acre for each man (J. A. Clarke).—*a.* 30s. per week for six weeks to those not hired by the year. *b.* From 8s. to 12s. per acre. *c.* None, excepting 10 gallons of beer to each man hired by the year (C. Sharpley).—*a.* £6 per month, without board; £4 per month, with board. *b.* Wheat about 9s., Barley about 10s., Oats from 9s. to 15s. *c.* Beer per day, each man, 3 quarts. *d.* What corn is not cut by the reaper is let to the labourer at per acre. All the Barley is tied up and stooked, and allowed to remain till quite ripe before cut. Oats are cut green, owing to the loss there might be from wind (W. F. Marshall).—*a.* Very few by the month; carting generally done by the acre, men earning 4s. to 5s. per day. *b.* Wheat from 12s. to 17s. per acre; Oats from 11s. to 14s. *c.* None, excepting to hired servants, or the men who take the carting. *d.* Very generally cut by scythe; mown up to the standing corn; tied up at once (T. Aitken).—*b.* I use the reaper to great advantage—nett cost, 6s. per acre: the men want from 8s. to 10s. per acre. *c.* Give malt. say 4 bushels for the season. *d.* Chiefly by reaper (J. G. Dixon).

Derbyshire: *a.* 18s. per week for one month in hay harvest, with board and lodging, and a liberal quantity of beer. *d.* Oats mown and tied in sheaf at 2½d. per threave of 24 sheaves; a good crop would be about 16s. per acre (no liquor of any kind), set up as soon as cut in stacks of 12 sheaves—two in the middle, four on each side, and two on the top: the butt ends meet on the top, and both sheaves tied together, which generally secure it well until fit to cart (B. Swaffield).

Notts: *a.* About 4s. per day. Some are engaged by the month at £1 per week, and victuals. *b.* From 8s. to 12s., according to crops. *c.* None allowed per acre; about 3 pints per day. *d.* Generally by the scythe, and the reaping machine is being introduced (Richd. Palmer).—*a.* 21s. per week for five weeks. *b.* Wheat, from 10s. to 15s. for reaping; Barley from 10s. to 14s. for mowing and tying, without any beer or cider. (W. Sanday).—*a.* About 25s. per week. *b.* From 7s. to 11s. for mowing with scythe, and that includes tying up in sheaves, raking, &c.; and from 12s. to 20s. for shearing. *c.* From 3 to 4 quarts of beer per acre, and about 2 quarts when by the day. *d.* Generally mowed with scythe, and then tied up in sheaves; but many farmers now use reaping machines (C. Doncaster).

Cheshire: *c.* About £1 per week while the harvest lasts. *b.* Wheat cut by scythe, from 10s. to 15s. per acre; ditto cut by sickle, 12s. to 16s. per acre. Oats cut by scythe, 8s. to 12s. 6d. per acre, bound in sheaves and raked. No Barley. *c.* Beer from 2 to 3 pints per day. No beer on some few farms. *d.* Much of the Wheat and Oats cut by machine where crops are suitable. Scythe as much used as sickle for Wheat. Oats all cut by scythe, and all bound up in sheaves (W. B. Burnham).—*a.* By the day, with the whole of their food—viz., breakfast, dinner, bread and cheese at 4 o'clock, and supper—2s., or 18s. per week without food, excepting bread and cheese; in each case they are allowed 2 pints of ale per day, and sometimes 3 pints. *b.* 10s. per statute acre, or 20s. per Cheshire, as agreed upon, for each kind of grain, without any allowance for beer, &c. *c.* 2 pints of ale per day, and 3 pints when carrying corn in very hot weather. *d.* Reaping Wheat with the sickle and binding up into small sheaves is the prevailing custom, set up in "hattocks" of 10 sheaves, including the two hooders, which are carefully put on the top. Mowing Wheat is more practised than formerly. Barley and Oats are invariably mown and gathered into small sheaves; if very ripe, it is tied up as soon as mown; if otherwise, it is left for a day or two, according to circumstances, and then bound up and put into small "hattocks" of eight sheaves (W. Palin).—*a.* 3s. per day, with beer. *b.* 15s. to 17s. per acre. *c.* Beer, 2 quarts per day each man, with bread and cheese. *d.* Mowing, generally (——).

Shropshire: *a.* Usual farm labourer's wages, 12s. per week, and constant hands during the whole year have meat and drink during the harvest; carriage of coals and Potato ground free. Extra farm labourers during harvest, 2s. 6d. to 3s. per day, with meat and drink. *b.* According to the crop. Oats and Barley mown about 3s. per acre, without meat or drink. Wheat from 6s. to 12s., including binding and setting up in mow. *c.* Where beer allowed, seldom any stated quantity, but the bottles filled when empty, and generally 5 or 6 quarts a day given. *d.* Mowing and reaping machines are coming into more general use, but more than half is still mown with the scythe. The greater part of Barley and Oats is left loose on the field, and so packed, but all Wheat is bound, and set up in 8, 10, or 12 sheaves in what is called a mow; and if the weather is doubtful two of the sheaves are placed (the ears downward) at the top of the mow for covering, or, as locally termed, hooding it (W. D. Green).—*a.* Most of the corn is set to cut, therefore the wages vary. Where machines are used the men generally work by the day at from 2s. 6d. with rations, up to 5s., finding their own. *b.* Depends of course a good deal how they stand, whether laid or twisted about. I have heard of a large farmer setting both Wheat and Oats to his men, to tie and stick up at 4s. per acre, he undertaking to cut it, and finding them what cider they require at 6d. per gallon. *c.* In this neighbourhood they generally have from 3 to 6 quarts per day. *d.* The Wheat is mostly cut with broad hook or machine, tied up not too large, six sheaves to the stook. Barley and Oats have been generally cut into swath, but the plan of tying up as Wheat is fast coming into favour, as there is so little trouble afterwards and less damage in bad weather. Some prefer styching Barley and Oats, as Beans are usually done. I had a field of Barley machine cut, and tied up last year, which was out in all the bad weather, and when threshed last spring was nearly equal to that secured without rain. The piles seem to keep off the rain; there was a little sprouted under the bands, but the blower took that out, making it a capital sample (J. Rawlings).—*a.* 12s. per week for a month, and 15s. to 18s. for shorter time, with food and beer. *b.* From 10s. to 12s., find themselves; and from 5s. to 6s., food, beer, and lodging. *c.* 5 to 6 quarts of beer. *d.* Wheat and Oats bound, Barley not. (P. W. Bowen).—*a.* 70s. per month, with dinner each day, and beer. *b.* Cutting Wheat by manual labour, 7s. per acre, with board and lodgings. If by machinery (which is coming much into use) considerably less. All other grain cut by day work. *c.* 6 quarts per day. *d.* Cutting, binding, and putting the Wheat up in shocks, generally set to Welsh or Irish reapers; but our advanced farmers cut with machine and tie up, &c., with their usual staff of labourers. All other description of grain is cut and secured by the usual labourers on the farm (E. Davies).—*a.* About 20s. per week, without meat. 6 quarts of beer per day when in full work. *b.* Wheat, 10s. to 12s. if laid. Barley, 3s. *c.* Some cases 10 quarts per acre; generally 6 quarts per day. *d.* Reaping machine certainly where practicable for Wheat and Oats. The scythe generally in use for the Barley (H. Smith).—*a.* 30s. per week for four weeks. *b.* Wheat, from 10s. to 15s. per acre; Barley, from 3s. 6d. to 5s. per acre. *c.* Nothing found. *d.* Wheat cut with reaping machine if not laid; otherwise with scythe. Oats the same (T. Mansell).—*a.* 2s., with five meals, and about 6 quarts of cider, daily. *b.* Wheat from 6s. to 8s., with meat and drink as above; Barley and Oats are cut by the day. *c.* Generally about 6 quarts per day (R. Shirley).

Leicester: *a.* 14s. a week and beer, or 16s. without beer. *b.* For mowing and binding, from 9s. to 12s. per acre (R. W. Creswell).—*b.* Wheat, from 16s. to 18s. without beer; Barley, from 8s. to 10s.; Oats, do. do. *c.* Where beer is given, 2 quarts per day in harvest. *d.* Reaping machines not much used; Wheat principally reaped, although a good deal is mown (G. Turner).

Norfolk: *a.* Wages are paid per acre for securing the corn. In this district a man expects to earn £7 to £7 10s. for about a month's work. They take so many acres each to cut, load, and stack. If the weather were fine they could do the work in a month; but the earnings are regulated by the weather. *b.* Prices are very various in this neighbourhood, from the variety of the soil and management. The Wheat varies from 6s. to 12s. per acre; Barley, 3s. to 4s. 6d.; Oats, 3s. to 5s. *c.* Beer and cider are not given as part of wages, but only as an encouragement for hard work; in some instances malt is given in lieu of part of wages. I prefer giving money, that the men may expend it as they please. *d.* The mode of harvesting is that the corn is generally cut by a machine, when it can be used, and the corn tied up by the men. This year it will be the exception. I never remember the corn more laid, or so difficult to harvest (G. K. Cooper).—*a.* £6 10s. for the harvest, done in about 20 working days if the weather is fine. *c.* One pint of ale each person at 4 o'clock P.M., and 1 pint at 6 o'clock P.M., if they work well. If they begin to cart the corn early in the morning, then a pint each at dinner-time, but no bargain made to give the beer—all is given extra. *d.* I give my men, 24 in number, £6 10s. each to cut, pitch, load, and stack the crop of corn, here 200 acres Wheat, 200 acres Barley. I find drivers, rakers, and thatchers. I have also some helpers besides, and pay 2s. 6d. an acre for tying the Wheat, and 6d. per acre for gathering the Barley; also about 6 barrels of ale during the time of carting the corn (J. Hudson).—*a.* Some few by the month at £6 or £6 10s., but in most instances so much for the harvest, from £6 to £7. *b.* From 8s. to 14s. per acre, and some a little more, according to the supply of hands. *c.* No beer or cider, except the master gives any extra in a long day's carting. *d.* Several different ways in this county, some mow and tie all their corn, others cart the Barley loose. Wheat, and most of the Oats, are tied by all, and Beans are all tied (T. Brown). *a* Farmers generally hire the men to cut and get up the corn; the price given this year is £6 to £6 7s. 6d.—say, £6 10s. The reapers were likely to have been more general this season in use, had it not been for the corn being laid and beaten down; and now, it is said, on some farms they will be of little use. Beer or cider is given by a few of the good old sort of farmers during the harvest, but that is not binding, only optional. Many give beer or cider when carting, and a few oftener. Wheat: very little reaped by hand, principally mown, and the rest cut with reaper. Barley, &c., mown; Beans tied in sheaves; Peas gathered in heaps. The gangs of gleaners, composed of many large girls and strong lads, having been so troublesome of late years in breaking fences, using bad language, &c., many of the farmers confined the gleaning to the harvestmen's families. This is hard for widows and orphans, and we wish some means could be adopted for including them. (W. H. Taylor).—*a.* 30s. per week, or 5s. per day. *b.* From 12s. to 13s. per acre, and from 10 to 12 acres each man without extras. *d.* Wheat, Barley and Oats are generally either mown with a scythe or cut with a reaper (G. D. Badham).

Stafford: *a.* 3s. per day. *b.* 12s. and 6 or 8 quarts beer; 2s. 6d. to 3s., and 4 quarts beer per acre. *d.* Wheat, straight crops by machine and tied up in sheaves, others cut by scythe or reap and tie up; Barley and Oats generally cut by scythe (T. Byrd).

Suffolk: *a.* I consider the cost per acre, including boys, reaper and thatcher, about 13s. for Wheat and Barley. *c.* No agreement for either; but beer is given carting, and on long days. *d.* I give my men £7 each to harvest 14 acres. Lads hired by the week assist the men when wanted in tying, &c., free of expense to the men. I allow them the use of Burgess & Key's reaper, wherever it can be used, free of all expense, I finding man to drive its horses. This year they will not be able to cut much Wheat, but most of the Barley, the former being too much laid. The harvest lasts generally rather over a month. (F. Nunn).—*a.* £5 per month, with 10 pecks malt, 2 lb. Hops, 10 lb. meat. *b.* Cutting and carting, 8s. 6d., with 10 pecks malt, 2 lb. Hops, 10 lb. meat, or 10s. 6d. clear of everything, to cut and clear (S. G. Stearn).—*a.* When by month, from £6 10s. to £7; but mostly done by piece. *b.* Prices for cutting and harvesting, all crops included, from 11s. to 12s. per acre; they average about 12 acres per man. *d.* Wheat and Oats mown and tied up. Barley mown and carted loose. Reaping machines are being introduced, but labourers do not like them; however, they must become general. (W. Horn).—*a.* By the month or harvest, £5 10s. and 3 bushels of malt, 1s. hiring money, and a harvest supper, or 2s. 6d. in lieu of it. *c.* Malt given in place of beer. *d.* Reaping with machine is becoming general for Wheat, but cutting with the scythe still the most usual for this crop. Barley and Oats mown with scythe and swathed, not sheaved or shocked as in other districts. Talavera Wheat is much grown in this district; new nearly all cut, and some threshed and offered in the market. The yield much injured by the late frost (——).—*a.* About £5 in money; 7s. 6d. per acre to cut and clear, the farmer furnishing teams and driver in addition; 1 stone of pork, 2½ bushels of malt, and 2½ lb. of Hops. Second math Clover included, if not fed, Turnips twice hoed, Mangel cleaned before harvest; thatching not included. *d.* Wheat mown and sheaved or stocked. Barley mown and turned before carting (G. Edwards).—*a.* 11s. to 12s. per acre, 10 to 12 acres to a man, 1s. earnest, and 2s. 6d. harvest supper (which is equal to £6 or £6 10s. for harvest); seldom or never done by the month. *b.* 11s. to 12s. per acre to cut, cart, and stack whatever corn is grown on the farm. *c.* No beer. *d.* Wheat mown and tied, Barley mown down, Oats mown down, seldom or never tied (T. C. Whiting).—*a.* Generally by the acre, to cut and stack from 10 to 12 acres of Wheat, Barley, and Oats per man, at 10s. per acre, and 2 bushels of malt. *c.* Malt found, or beer, per acre, about 8 pints. *d.* The Wheat is generally mown and thawed. Machines getting general. The Barley is mown and left in swath. The Oats are mown and tied up (G. M., Sexton).—*a.* From 3s. to 3s. 6d. per day, and beer *b.* Reaping, Wheat from 9s. to 14s. per acre; mowing Barley, 3s. 6d. to 4s. 6d.; ditto, Oats, 3s. 6d. to 5s. with beer. *c.* 4 to 6 pints per day (——).

Cambridge: *a.* By the day; generally pay carting hands harvest wages five weeks from beginning to end, allowing them to reap by the acre the first seven or ten days, and then give them 3s. 6d. per day for the remainder of the time. *b.* From 10s. to 15s., probably average about 12s. *c.* Carting hands three pints per day of beer, nothing to reapers. *d.* Reap and mow by manual labour at per acre; cart by the day, giving man that pitches 4d. per day extra, and that stacks 6d., except he be a foreman, when nothing extra is given; wages paid for wet days as well as fine. Where farms are conveniently situated some farmers cart their corn by the acre (A. S. Ruston).—*a.* 6s. for the day, £5 for the month. *b.* 15s. per acre, including carrying, stacking, and thatching. *c.* Beer included in above wages. *d.* By reaping machines and the scythe (P. Purves).—*a.* 3s. 6d. per day, and four pints of beer per day, or money equal to it. *b.* About 10s., no beer. *d.* Mown and tied; Beans reaped and tied. Some farmers put the carting out to the men at about 3s. per acre, the farmer providing carts and boys to drive; no beer (R. Barton).

Northampton: *a.* £4 per month, with 28s. worth of beer. *b.* Reaping Wheat from 8s. to 16s. per acre, and two gallons of beer; mowing, tying, and shocking Barley and Oats, from 7s. to 12s. an acre, two gallons of beer. *c.* One gallon a-day. *d.* Wheat-reaping is fast being superseded by the machine and scythe; Barley and Oats are mown and carted loose generally, but many first-class farmers tie and shock theirs (P. Love). —*a.* Corn cut by the acre. *b.* Say Wheat 9s. to 11s., and Barley, &c., 2s. 6d. *c.* Three to four quarts of beer generally per day in addition. *d.* Reaping and mowing machines will soon become general (——).—*a.* By the month, at £5 4s., without beer. *b* .From 10s. to 15s. per acre. *d.* Wheat chiefly reaped, some mown and tied up; Barley mown and carried loose; Oats partly tied up, and some carried loose (J. B. Smeeton).

Warwick: *a.* By the month for labourers generally employed, double wages and a gallon of fresh beer and quart of ale, except when carrying—then almost

unlimited. *b.* Wheat from 9s. to 15s. *d.* Reaping and fagging and mowing, many reaping machines now used (J. Baldwin).—*a.* By piecework, from 4s. to 5s. per acre for cutting hay. *b.* From 12s. to 14s. per acre for reaping Wheat, 4s. for mowing Barley, and 3s. for mowing Oats, and 4s. more for tying up. *c.* A gallon of strong beer to the acre, and a gallon of small beer. *d.* Wheat, chiefly cut with the sickle; Barley, mown with the scythe; Oats the same, and tied up afterwards. Reaping machines are becoming more general (W. Dester).—*a.* By the month, double the usual price per day. *b.* Impossible to state any price, as it entirely depends on the crop and supply of hands. *c.* Beer allowed. *d.* Wheat generally reaped with sickle, or cut close to the ground with hook; Barley generally mown, and carried without tying (J. C. Adkins). —*a.* A few farmers have one or two men at the most by the month, at £1 and maintenance, but most are by the day, from 2s. 6d. to 3s. *b.* Wheat, from 10s. to 12s. per acre; Barley and Oats, from 2s. to 3s. per acre. *c.* 6 quarts per day. *d.* Very few reaping machines, most of the Wheat being reaped by hand, and not so much capped (hooded) as formerly. A few farmers the last year or two have taken to fagging, and it becomes more general every year. Barley mown by scythe; never tied up. Oats, a few reaped and tied up (J. Smith). — *a.* If by the month, 72s. to 80s. *b.* Wheat, with reaper, 5s. 6d. to 6s. per acre, without beer; ditto reaping and fagging, about 11s. or 12s. per acre; no beer. Barley, mowing, 3s. 6d. to 4s. per acre; no beer. Oats, mowing, 3s. 6d. to 4s. per acre; no beer. *c.* Beer and cider generally given per acre. *d.* Wheat chiefly reaped. Fagging, and with reaper, getting very much in use. Barley and Oats generally cut with the scythe, and laid loose (J. Ford).

WORCESTER: *a.* From 15s. to 18s. per week, and cider 4 to 5 quarts per day. Corn principally cut and tied up by the acre, and carried and stacked by the day or week, and beer and cider given to all. *b.* Wheat, 8s. to 12s. per acre, and beer and cider for cutting and stooking; Barley and Oats generally mown, at from 2s. 6d. to 4s.; Oats reaped, 7s. to 10s.; Beans and Peas, part cut and sheaved, part mown and cocked, at 6s. to 10s. per acre—beer and cider also. *c.* Part, 8 to 12 quarts per acre for Wheat and Beans; for most part, 5 quarts per day. *d.* Wheat, a small part cut by machine where not badly laid, as much is this month; the greater part by broad hook, close to ground, and tied in sheaf and stooked up, till carried. Barley, mown and cocked in heaps when dry. Oats, part reaped, &c., as Wheat, part mown, &c., as Barley (W. Woodward).—*a.* £3 12s. to £4 by the month for men not employed in cutting corn. *b.* Wheat, cutting, binding, and stooking, 9s. to 16s.; Barley, mowing, 2s. 6d. to 4s.; Oats, carting, binding, and stooking, 7s. to 10s. *c.* 5 quarts per day. *d.* We use waggons with two horses, and pay the men by the day (C. Randell).— *a.* Men from 2s. 6d. to 3s. per day with 5 quarts of beer and cider; women, 1s. per day with 2 quarts of beer and cider; generally half of each to men and women. *b.* Wheat cutting from 10s. to 12s. per acre, with 5 quarts of beer and cider per day. Barley mowing from 3s. to 5s. per acre, with the same allowance of beer and cider per day as with Wheat cutting. Bean reaping from 9s. to 10s. per acre, with the same allowances. (It is poor economy to mow Beans.) Oats, do., from 8s. to 10s. do.: seldom cut with the scythe, but when done so the same price per acre according to crop; but as Oats generally stand up pretty well, the price seldom exceeds 2s. 6d. or 3s. per acre; but there is often great waste in mowing, particularly if the weather should be unsettled. *d.* Wheat usually cut with the broad hook and stick. Six sheaves put opposite to each other, from north to south, and one at each end, and in this position little damage occurs from wet, the bloom on the corn is retained, and the sample is generally fine. Plenty of field room is allowed. This mode is far preferable to cutting or reaping with the sickle, as the Wheat stands more off the ground, the straw is longer, and the grain will keep best in stormy weather, and is in better condition than when the top sheaf is reversed or hackled. I cannot too strongly recommend the broad hook and stick for cutting Wheat. After many years' experience I have found this plan so very superior to the cutting or rather reaping with the sickle that I always adopt it. Barley is usually cut with the scythe, and after being once turned is put into good sized cocks, which preserves the colour and clears the ground. If there is much Clover the Barley is turned twice before it is cocked, and the ground raked. Oats are generally cut with the broad hook, the same as the Wheat, and allowed plenty of field room. Sheaves at the end, only six, put opposite each other. Peas are cut in the same way, and rolled up in small wads and turned every other day. Beans are also cut with the broad hook and stick and placed on the ground in reaps until the haulm is withered, and then tied round the top with some of the Bean haulm, which is drawn upwards by the hand, which is far better than tying round the middle. In cutting the Beans with the broad hook and stick, each gathering or reap is put on the ground and allowed to remain until it is well withered, then two men gather up the reaps with their sticks, put three together, and another man or two men follow, clear out a handful a little above the stetch or stealch, twist it, and tie the top, and then put a band of Bean straw round the top about a foot down the stetch as it is called. In this position the Beans may remain in the field a month without injury. Burgess and Key's improved Grass mower, which has been used this season in this neighbourhood, is a first-class implement. Nothing can cut the Grass better. It matters not whether the Grass is down or up, for it cuts its swath evenly, and gives the greatest possible satisfaction (H. Hudson).

HEREFORD: *a.* 10s. per week, with 20s. extra for the month, or 2s. 6d. per day, with dinner on hauling days; cider almost *ad libitum*—usually 6 quarts per day. *b.* 10s., cut, tie, and stook Wheat, men finding their own drink, which is usually cider, supplied on the farm at 4d. to 6d. per gallon. Barley is usually mowed and harvested in the swath; 2s. per acre is given for mowing, with 5 to 6 quarts of cider per day. Oats same as Wheat, or nearly so. *c.* 10 quarts of cider per acre is allowed for Wheat when found by employer. *d.* The Wheat and Oats are tied in sheaf and stooked, the Barley harvested in swath (T. Duckham).— *a.* From 16s. to £1 per week, with drink. *b.* Wheat, to cut, tie, and stook, from 10s. to 12s. per acre, without drink. Barley, to mow, from 2s. 6d. to 3s. 6d. per acre. *c.* From 4 to 6 quarts per day, but often no allowance is made, and they have what they require. Cutting Wheat, about 10 quarts per acre. *d.* Wheat is generally set to cut, tie, and stook, though a great deal is now cut with machines. Oats cut and tied. Barley mown and harvested loose, the regular workmen getting it together (D. Edwards).—*a.* The usual labourers on farms get an allowance of from 10s. to 20s., in addition to their wages, for the harvest month; and extra hands 2s. 6d. per day with cider. *b.* Wheat, 7s. to 9s., to cut, tie, and set up; Barley, 2s. to 2s. 6d., to mow; Oats, 2s. to 2s. 6d., to mow; but if reaped, the same price as Wheat. *c.* 10 quarts per acre for reaping; 3 to 4 quarts for mowing; 6 quarts for day work. *d.* Wheat is generally cut with reap-hook and wooden crook to gather it against the standing corn; tied and stooked without capping or covering with an inverted sheaf, and allowed to stand in the field till dry enough to carry to the rick. Oats are often treated in the same manner, but as often mowed and allowed to dry in swaths. Barley always mowed. Mowing or reaping machines but little used (H. Pride).

MONMOUTH: *a.* There is much loose hiring here, viz., for harvest time at so much per week and victuals, and the terms this year run, I understand, from 7s. to 15s. per week. The time being indefinite, the engagement very frequently ends in a dispute. *b.* Wheat is generally cut, bound, and stooked at per acre; as yet the price scarcely quotable. Barley and Oats are mown at from 4s. to 5s. per acre, and a gallon of cider per acre with the lower figure. *c.* Generally a gallon of cider per acre when cutting by the acre; when working by the day or week cider all but *ad lib.* *d.* Cradle scythe for Wheat; also bagging, known as "hook and crook;" very little reaping done. Barley and Oats, scythe. Reaping machines are gaining ground (G. R. Greenhow-Relph).

GLOUCESTERSHIRE: *a.* 4s. per day for harvest month. *b.* Wheat, £1 per acre for cutting with machines, 6s. per acre, tying and stooking; Beans, 5s. 6d. per acre, ditto; Barley, 4s. 6d. per acre, ditto. *c.* None. *d.* Cut with machine, the whole being tied up (C. G. Clarke).—*a.* The few ordinary day men, 1s. 8d. to 1s. 10d. per acre, besides 4 to 5½ quarts of beer per day. *b.* Wheat, 7s. 6d. to 10s. 6d. per acre, besides beer; Barley, 2s. to 2s. 4d. per acre, besides beer; Oats, mowed and tied, 6s. 6d. to 8s. per acre, besides beer. *c.* About 4 or 5 quarts per man per day (S. Rich).—*a.* By the day, 2s. 2d. *b.* From 10s. to 14s. per acre. *c.* Beer or cider for day work. *d.* Some cut by machinery and some by hand (G. Edmonds).—*a.* 2s. 6d. a day, and no beer. *b.* From 8s. to 14s. for Wheat; Barley and Oats, when cut and tied, 9s.; when mowed, 3s. to 4s. *c.* 1 gallon per acre. *d.* Wheat, reaped and tied up; Barley and Oats, mowed and left in swath to dry, and carried loose like hay, only tied up in a few cases (J. Cobban). —*a.* Since hay time 13s. weekly, with beer. *b.* About 10s. an acre, with beer. *c.* 1 gallon daily, beer. *d.* Wheat, with heavy hook close to the ground; Oats, Wood's machine (R. Shillon).—In this district reaping is much done by machines, and the afterwork of tying, stooking, and raking is let for 4s. to 4s. 6d. per acre. When Wheat is mown, tied, stooked, and raked, the work is let for from 8s. to 9s. per acre. Barley is mown for 2s. to 2s. 3d. per acre, and is carted loose to the stack. Peas are pulled with the hook for 6s. per acre. Most of the work is done by piece, but in cases where daily wages are continued through harvest, 2s. per day with beer and payment for overtime is usual (Prof. J. Wrightson).—*a.* Average, 15*s.* per week. *b.* Average, 11s. per acre. *c.* 5 quarts per day. *d.* Wheat about one-fourth cut by machine, two-fourths by scythe or hook close to the earth, one-fourth reaped by sickle. Barley and Oats mown with scythe (J. F. Peacey).

OXFORD: *a.* 2s. 6d. per day with an allowance of malt or beer. *b.* 10*s.* to 15s. per acre for Wheat; 8s. to 10s. for Barley, tied up in sheaves; 8s. to 10s. for Oats, ditto; 2s. 3d. to 3s. 6d. if mowed and not tied—all exclusive of beer. *c.* The carting and stacking men only have an allowance of malt or beer. *d.* The Wheat is all tied in sheaves, and latterly the Barley and Oats have also. All the harvest is done by a regular staff of men, who are employed summer and winter; being near a large village, some few small tradesmen turn out and assist in cutting the corn for two or three weeks during the busy season. Reaping machines are used but little at present in this neighbourhood (S. Druce).— *a.* All at piecework as much as possible. When carting commences the best men receive 18s. per week. *b.* Most of the crops are now fagged at various prices, from 10s. to 14s. per acre; if Barley is mown, 2s. 6d. *c.* Where cider is made the quantity consumed is enormous; on this estate no drink is given as part payment. The best men receive 20s. for hay time, and again 20s. for the harvest; the rest of labourers—men, boys, and women—at what they are worth. *d.* Fagging has become very general in this part, and many good hands are to be found; the last wet harvest has made the farmers anxious to sheaf all their corn, if possible, either by hook or machine; when properly done it will stand much wet without damage (M. Savidge).— *a.* Generally 2s. per day, with beer; about a gallon, and sometimes more, to a man, when at day work amongst corn. *b.* Always cut by the acre, from 8s. to 13s. per acre for the fagging or reaping. Fagging most general. A considerable quantity of the Barley is fagged, and nearly all the heavier crops of Oats. For mowing Barley or Oats about 3s. per acre, sometimes more. Reaping machines are becoming thicker *c.* We give no beer or cider with the piecework (G. Wallis).— *a.* The men employed by the day during the whole time of harvest have from 20s. to 25s. extra, and 2 bushels of malt each: those who have the chance of piecework, and are occasionally employed by the day, have 3s. per day and an allowance for beer. *b.* From 8s. to 14s. per acre for fagging. *c.* Without beer or cider. *d.* Mostly by fagging. I tie up all I can. The few fields that are not laid will be cut with Samuelson's sheaving reaper, and tied by the acre; but mine being mostly heath land, the corn grows very frothy, and rather weak in the straw, so that it is difficult to cut by machinery (G. Garne).—*a.* 3s. 4d. per day; no drink or extras. *b.* 10s. for fagging Wheat, Barley, and Oats; 5s. for Peas. *c.* None. *d.* All corn sheaved, and carried by one-horse carts; the pitching and ricking, &c., all day work, at 3s. 4d. (——)

BEDFORDSHIRE: *a.* Generally the men are engaged for the month at from £4 16s. to £5, with 4 to 7 pints of beer per day, besides "small beer;" the cutting is let by the piece; the carting done by the day. Some farmers let the whole of the harvest to cut, cart, and thatch at from 11s. to 14s. per acre. *b.* Reaping Wheat, 9s. to 12s. per acre, and beer; mowing Wheat, 8s. to 10s. per acre, and beer; mowing Barley, 3s. 6d. to 4s. per acre, and beer; mowing and tying 7s. to 9s. per acre, and beer (C. Howard).—*a.* 96s. per month, and 5 pints of beer a day. *b.* From 9s. to 14s. per acre, and 4 pints of beer a day. *c.* Generally mown and tied. It is a custom with some, and saves a great deal of trouble to the master, to have a sufficient number of men, and let the harvest to complete (that is, to cut, cart, stack, and thatch it) at per acre—say from 12s. to 14s., and beer; others let the cutting, and cart by the day (W. Lavender).

BUCKINGHAMSHIRE: *a.* Reaping and mowing, per acre. Carters, shepherds, and stock men, £4 4s. and upwards for the month, with beer. *b.* Wheat, from 9s. upwards; Barley, from 3s. upwards; Oats, from 7s. 6d. upwards. *c.* 4 pints of ale and some small beer, daily, for the month's men. *d.* Wheat is reaped, fagged, and mown, according to circumstances; tied, and set in shocks. Barley is mown and carried loose. Oats generally fagged and tied, or mown and tied. Beans are mown and cocked or fagged and tied, according to length of straw and bulk of crop; a great many Bean crops this year cannot be tied (W. G. Duncan).—*a.* 3s. a day. *b.* Wheat, 6s. to 16s.; Barley, 3s. to 5s.; Oats, 3s. per acre. *c.* No beer for contract work, 4 pints per day for day work. *d.* Some reaped, some mown, some cut by machine, and some fagged (W. Smith). —*a.* £4 for the month, or by the day 3s., with beer. *b.* As the crops are so variable, so must the price be; a good upstanding crop of either Wheat or Oats, 12s. per acre; Barley, fagged and sheaved, 10s. per acre; but layered crops vary from 14s. to 25s. per acre. *c.* Four pints per day when not working by the piece. *d.* Fagging has now become prevalent, especially where steam culture is used. There are not many reaping machines in use in this neighbourhood. Farmers are looking out for the best class of reaper before they order, and none have been seen yet that will cut a layered crop perfectly (J. K. Fowler).

HERTFORDSHIRE: The general custom for harvest work in this neighbourhood is to let to the labourers on the farm, joining in one company, the whole corn crop, varying from 11s. to 13s. per acre, according to crop, for cutting, carting, and stacking; Wheat, reaped or mowed, and shocked; Barley and Oats generally carted loose, the farmer finding horses, carts, and boys to drive, and reserving to himself the power of carting when he thinks it desirable. Farmers and labourers both prefer this, as the labourers in this case supply themselves with everything, and it relieves the farmer from all complaints about bad beer, cider, &c. (J. Prout).—*d.* The greater part of the Wheat cut with reaping machine or scythe; a small part reaped; Barley generally mown or cut with reaping machine, and carted loose; a small part tied in sheaves. Oats the same (——)

MIDDLESEX: *a.* 2s. 6d. to 3s. per day. *b.* 15s. the average price for Wheat and Oats; 12s. for Barley, if fagged. *c.* Day-men, 5 pints during hay-making and harvest work. *d.* Nearly all fagged and shocked in the usual way (T. Hewitt).

ESSEX: *a.* Men hired to cut, cart, carry, and stack, about 10 to 12 acres each man, at 9s. to 10s. per acre, with beer; without, about 2s. per acre extra, or 3 bushels of malt. *d.* Wheat is generally mown and tied, Barley generally mown and carted from swath, Oats the same; but tying them is becoming more general (J. Clayden).—*a.* Harvest generally let; 10 acres to be cut and harvested by each man at about 11s. 6d. to 12s. 6d. per acre, master finding 3 bushels of malt, and 3 lb. of Hops per man, or his own brewed beer. Cutting Wheat by odd men, 10s. to 15s. per acre, master finding beer. *c.* Beer per acre or per day, 6 to 8 pints. *d.* Wheat mostly bagged or mown; Barley and Oats by scythe; not much use for reaping machines this year, all cereal crops being much lodged by heavy storms (H. Dixon).— *a.* 5s. per day. *b.* Wheat, at 12s.; Oats, at 11s.; Barley, 8s. 6d. *c.* Six quarts a day. *d.* Mow everything. Some farmers let everything to cut and cart at about from 12s. to 15s. per acre (——).—*a.* Average £6 for a month's work; 5s. per day. *b.* 12s. to 18s., including carting. *c.* Beer to the value of 3s. 6d. in the pound (*i.e.*, we suppose, one-sixth of their wages). *d.* Cut close by scythe or bagging hook; Wheat and Oats sheafed; Barley generally carted loose. On outlying farms the work is undertaken by a company at from £7 10s. to £9 per man (S. W. Squier).—*a.* About £5

per month and beer, or 5s. per day without beer. *b.* Wheat from 10s. to 12s. 6d. per acre; Barley about 4s.; Oats about 3s. 6d. *c.* Beer from 6 to 8 pints per day. *d.* Much is now cut with machinery. The general mode is mowing, but in consequence of the laid condition of many pieces, reaping of Wheat must be resorted to (A. Barfield).—*a.* £7 a month. *b.* Cut by reaper, 3s. 6d. per acre, and bound up by the month men (P. Mitchell).—*a.* 2s. 4d. per day; good men, 3s. *b.* Average crops: bagging, 12s.; mowing, 8s.; Oats, cutting, binding, &c., 7s. to 9s. *d.* Bad season for the reaper; Wheat bagged, mostly; Barley and Oats, mowed. Each man hopes to earn between £6 and £7, finding his own beer, contracting to cut, cart, stack, and drag. They earn most if we can cut by reaper, and with less fatigue (C. Hall).—*a.* £6 for harvest month, 10 acres per man where the crops are strong; 12 or more where they are light. My crops are 56 acres strong Wheat, 10 Barley, 8½ Oats; 10 acres to each man. *b.* When let by piece, according to strength of crop, 11s. to 16s. merely for cutting; ordinary wages before harvest were 12s. per week and beer; horsemen, 1s. to 1s. 6d. extra; engine-driver, 14s. and beer. *c.* Six pints of beer (4 bushels to hogshead), and as much small beer as they like (1 bushel to hogshead): an extra pint of strong beer when carting. *d.* Wheat bagged, Oats mowed and sheaved. Barley mowed—not sheaved (J. J. Mechi).—*a.* By the month for horse-keepers and regular hands, £6 to £7, and £1 each for beer; cutting nearly all done at per acre. *b.* From 8s. to 10s. per acre, and 4 to 8 quarts of beer, according to weight of crop; 4s. 6d. for Barley, if not tied up. *d.* Wheat nearly all cut with the bagging-hook; Barley and Oats mostly mown, and now our practice is to tie all up if the Barley straw is long enough (——).—*a.* If by the month, from £5 to £5 10s., and if by the day at about same rate, exclusive of beer. *b.* Wheat from 10s. to 14s. *c.* From 6 to 8 pints per day ale, but the plan is becoming very general to allow money instead—about 1s. per day during the month. *d.* Some Wheat reaped, but most mown or cut by machines; Barley and Oats mown or cut by machine; Wheat and Oats tied, and Barley not. Most farmers et a large portion of Wheat, all the Barley and Oats nd Beans, to a company of men, at from 11s. to 13s. er acre, to do all the operations except thatching, xclusive of beer; and pay the same men from 2s. 6d. o 3s. per acre to carry and stack the Wheat cut by trangers. N.B. The price is higher than usual this ear, in consequence of the corn being very much laid (W. Impey).—*a.* Gangs of men take the harvesting of ach farm. Price according to circumstances, but in eneral each man of the gang is supposed to harvest bout 11 acres. *c.* Beer *ad libitum*, except ale, which is easured out twice a day, but more when heavy cartng. *d.* Wheat mostly cut by the scythe, hook, or ickle; Barley and Oats chiefly by the scythe. Very ew horse reapers are used here (G. Wilkins).

Surrey: *a.* All cutting done by the acre and carting y the day. *b.* Wheat and Oats, and sometimes Barley, fagged (or hagged) tied, and shocked. Average, 10s. per acre, without beer. If tied after eaper, 5s. per acre. Barley, if mown, 4s. to 5s. *c.* Beer, when carting, about 5 to 7 or 8 pints (E. Hilder). —*b.* This year, hands being plentiful and Wheat twisted bout, I will cut about 24 out of 160 acres of Wheat y hand, at 11s. to 12s. an acre; remainder, and all Oats and Barley, cut by machine. I supply horses. Men cut it at 3½d. an acre, and earn good wages. *b.* Finding the beer system work very bad indeed after hree years' trial, I give an equivalent in money. The verage was a gallon per man per day, at 1s., which he ets. I am not only against it, in the time they take to rink it, but I maintain I get more work done, and the en at any hour of the day are fit to be spoken to and lways civil. *d.* Having (with the exception of those ho are this year cutting by hand) as many hands on ne farm throughout the year as managed my arvests, I take them off their regular wages (12s. and 3s. a week, with house and garden, 2s. 6d.), and allow all o tie by the piece behind the machine, where they earn bout double their regular wages, or more. I find this ystem suits admirably, as it gives all a chance of earning omething extra; besides, all my harvest expenses are, s it were, kept on the farm. The horse-drivers, I may y, clean their horses in lieu of their rent, having en a boy to tend them and take them out at regular ntervals for the machines. I have adopted that plan ow for 10 years, and have not had a changed hand on ne farm (J. Arnot).

Berkshire: *a.* From 18s. to 22s. per week; beer n carting days. *b.* Wheat, cutting, tying up, and ocking from 10s. to 15s. per acre; Oats and Barley, mowed, say from 2s. to 3s. per acre, without beer. Corn is cut by the acre at a given price, without beer . Adnams).—*a.* From 2s. 8*d.* to 3s. per day. *b.* Fagng Wheat from 11s. to 16s. per acre; fagging Oats om 9s. to 14s. per acre; fagging Barley generally about s. per acre; mowing Barley from 3s. 6d. to 5s. per re. *c.* From six to eight pints of beer per day when rrying, according to the length of the day; none hen at taskwork. *d.* Corn is all cut by taskwork, id carried by daywork; reaping machines very little ed; nearly all corn cut with the fagging hook, except arley, which used to be all mown: fagging this is, owever, becoming more general every year (W. ulstrode).

Somersetshire: The general mode of harvesting heat in this neighbourhood is to cut with the scythe, e and stook up, at a cost of from 7*s.* to 8s. per acre, and ne quarts of cider per acre; Barley and Oats are cut t and lie at 2s. per acre, and four quarts of cider: a w reaping machines are used. We carry and ok by the day, at wages about 3s. per day, and as uch cider, in moderation, as they like (W. rthing).—*a.* Generally about 2s. per day for a onth or five weeks; beer (W. Spearing).—*a.* 2*s.* 6*d.* r day and drink. *b.* Wheat, 8s. to 11s. per acre; Barley, 2s. to 2s. 6d. per acre; Oats, 2s. 6d. *c.* One gallon per day whilst cutting and harvesting Barley and Oats; no drink while cutting Wheat; one gallon per day whilst harvesting Wheat. *d.* Wheat is first reaped, chopped or mown by hand or machine, then directly tied up into sheaves and hiled, or clumped, and, after a day or two, it is carted into ricks and thatched in; Barley is mown by hand or machine, and laid in swaths, which in two or three days, after being once or twice turned over by men and women with prongs, is hauled into ricks or barns; Oats are sometimes harvested in the same manner as Wheat, but generally like Barley (C. Combes).

Wilts: *a.* 2s. per day during harvest; beer when at harvest work. *b.* Not commenced: from 9s. to 10s. per acre; Wheat and Oats, from 8s. to 9s. reaped; Barley, 2s. per acre, mown. *c.* 1 gallon per day. (G. Brown).

Kent: *a.* Corn cut by the acre. The farm servants carrying the corn are paid their wages by the year, of course contemplating overtime in harvest. Where the labourers are employed by the day in harvest, their wages are usually about 3s. 6d. per harvest day, viz., from 4 A.M. to 8 P.M., allowing an interval of two hours for meals, with an allowance of about 2 quarts of beer per diem. *b.* Wheat, 8s. to 15s. per acre, mowing, binding, and shocking up; Barley and Oats, cutting and binding afterwards, 5s. to 8s. per acre. *c.* None included in the price. The farm servants are allowed about 2 quarts of beer per diem. *d.* The Wheat is usually mown, struck in, and tied up at once. The Barley and Oats are generally thrown out, and afterwards collected with binding rakes, and tied up, the master finding either yarn or bonds for the purpose (M. Sandford).—*a.* This part of Kent does not import labourers for harvest, consequently the men employed during the year do the cutting of corn with the same wages, a few cases only where more is given. *b.* Wheat about 10s. to 14s.; Barley mowing, 3s. to 3s. 6d.; Oats the same, but where strong and bagged from 8s. to 11s., without beer. *c.* About 1s. to 2s. an acre allowed for Wheat cutting, and less for other corn; some give beer, and others do not. *d.* Sheaves, in shocks of about 10 sheaves, which when tied loosely will stand a great amount of rain without injury. The usual rate of wages for agricultural labourers is 14s. per week, with employment during the year, but a great portion of work is done by the piece, when considerably more is carried by a strong and active man (——).—*a.* At 5s. per day; we do as little as possible by the day in harvest. *b.* 15s. per acre is about the average price for cutting Wheat; 10s. for Barley and Oats; we have more than an average quantity of straw this year. *c.* Men that work by the day are allowed about three quarts of beer per day, those that work by the piece have about 6d. per acre in addition for beer. *d.* Wheat, Barley, and Oats are mown with scythe and cradle, and all bound in sheaves for the price named above (W. Manser).

Sussex: *a.* From 3s. to 3s. 6d. per day. *b.* Wheat, about 12s. to 14s. per acre, in some cases as much as 20s. has been paid; mowing Barley and Oats, about 3*s.* 6d. an acre; when the Oats are bound in sheaves, 9s. to 10s. per acre. *c.* 2 quarts of beer daily (W. Rigden).—*a.* Monthsmen receive about £5, carters, £5 10s. for the month; the reapers, after they have finished reaping, from 3s. 6d. to 4s. per day. *b.* Wheat, from 15s. to 25s., average fully 18s. per acre; Oats, from 12s. to 17s.; Barley, about here chiefly mown, about 3s. per acre. *c.* Where allowed, about 10 pints a day of beer (——).—*a.* 3s. per day, beer when hauling, *b.* 12s. to 16s. for Wheat; 2s. 6d. to 3s. for mowing Barley and Oats. *c.* None except when hauling. *d.* Wheat, by swapping; Barley, by mowing; Oats, by mowing or swapping (J. S. Hayward).—*a.* Day workers get 3s. 6d. to 4s. per day, with 3 quarts of beer or sometimes more. Monthly workers, such as carters and shepherds, &c., £4 10s. to £5, with same allowance of beer. *b.* Wheat from 10s. to 15s. per acre; Barley and Oats from 9s. to 12*s.* per acre. *c.* None allowed when men work by the piece. *d.* Mostly fagged with the hook, some mown with scythe, some with machine; tied in sheaves and set up in stooks or shocks till fit for carting. I always put my stooks on the middle of the land (*i. e.*, the highest ground) with eight sheaves in each shock thus: 1 and 2 are first put up, then 3 and 4, so as to form a square, then 5, 6, 7, and 8, all brought together at the top as much in a cone as possible; each side of the shock should present, when well up, a straight line of three sheaves. Stooks set up thus will seldom blow down if pains be taken to do it well, and will resist the wet better than any other I know of (J. Eames). —*a.* Per day, 2s. 6d. *b.* Wheat, reaped, per acre, 12s. to 14s.; Barley and Oats, mown, per acre, 2s. 6d. to 3s. *c.* None allowed. *d.* Wheat, reaped and tied up in sheaves; Barley and Oats, mown and carried loose, and stooked, as above (J. Brotherston).

Hants: *a.* Wages this year have been 11s. per week for the ordinary labourer; double pay is given during harvest of four weeks. *b.* 8s. per acre for Wheat, 3s. for Barley and Oats; if cut by machine, Wheat is gathered at half price, but men do not rake the ground. *c.* No beer is given when at piecework; during harvest from 4 to 6 quarts are given daily, depending on the strength of the beer; those who do not give beer pay 8d. per day instead. *d.* The bulk of corn here is still done by the scythe, and it is to me a surprise that machines are not more used. To those who understand the proper working of them they are invaluable. Much of the corn here is stacked in the field (J. Lancashire).—*a.* From 18s. to 21s. per week, with 1 gallon of beer per man per day. *b.* Wheat, from 9s. to 12s., and 15s.—the latter price where much laid; Barley, from 3s. to 4s.; Oats from 3s. 6d. to 6s. *c.* None generally. *d.* By the day, the carters, boys, and women helpers having double pay and beer during the harvest (J. T. Twynam).—*a.* Most of the day work is done by the team men, who are hired by the year. If day men are employed, their pay is about 4s. per day in money and beer. For cutting and tying Wheat, 10s.; ditto Barley, 8s.; ditto Oats, 8s. per acre. *c.* Beer is given to the men employed at cart only. The allowance varies from half a gallon to three-quarters of a gallon per day. *d.* On the clay lands the bagging-hook is used, on the hills the scythe and reaping and mowing machines; the tying after which is paid for at the rate of 5s. per acre for Wheat (H. Raynbird).

Dorset: *a.* By the acre. *b.* Price for cutting Wheat, 7s. 8d.; Barley, 2s. 6d.; and Oats, 2s. per acre. *c.* Wheat, 10 quarts of cider per acre; Barley and Oats, 5 quarts. *d.* Reaping, binding, stitching, and mowing (J. Pope).

Devon: *a.* About double wages during harvest. *d.* Reaping machines are now very general, and labourers are paid double wages and double allowance of cider (G. Turner).—*a.* 3s. 6d. per day. *b.* Machines generally used for cutting. *c.* Unlimited cider. *d.* Tied and stood up. Ricked in the fields (R. H. Watson).—*a.* Men, £1 a week and beer or cider (no food), or 20d. to 2s. per day and board in farmer's house. Women, 10d. to 1s. per day and board in farm house; beer or cider allowed. *b.* Wheat, 6s. per acre, and 1 gallon of cider, to reap, bind, and set up. Barley, 2s. per acre, and ½ gallon of cider, to mow outwards. Oats, 2s. 3d. to 2s. 6d. per acre, and ½ a gallon of cider to mow inwards and gather. Reaping machine, and man 2s. (Wheat) per acre. More in the case of extra heavy crops. *c.* 2 quarts per day per man in harvest, but no stint generally; as much is given as the men ask for, short of making them heady. *d.* In round or oblong stacks. Some placed near the ground, only a base of faggot wood interposing; others on raised stands or "staddles;" usually, Wheat on staddles, spring corn on the ground (P. Cowan).—*a.* 10s. per week, as usual, with a douceur of 30s. each at the end of harvest. *b.* Principally cut by machine. *c.* We are not particular about a gallon per day each (——).

Cornwall: *a.* From 2s. to 2s. 6d. per day, with meat and liquor. *b.* Wheat, 10s.; Barley, 2s. 9d.; same for Oats, with a gallon of beer or cider. *c.* From a gallon upwards. *d.* The Wheat is chiefly cut with the reaping machine (we have 10 in this parish); it is then put up in shooks, remains in the field from five days to a week, according to the weather, it is then taken to the stack and thatched (J. Wills).—*a.* Farmer's steady men have their meat and drink in addition to their usual pay during harvest, the average weekly wages being from 12s. to 13s. *b.* Taking one with the other, about 10s. per acre. *c.* Varies very much. *d.* On most farms the reaping machines do the work. The Wheat is made into shocks, and the Barley and Oats into Irish mows, about 250 in a mow (T. D. Simmons).

WALES.

Carmarthen: *a.* Wages all the year round by day, average from 10s. to 15s. per week. *b.* Generally done by the day. *c.* A little beer, but no regular quantity. *d.* All cut with scythe and cradle attached, then secured in hand mows till all is fit for the rick (J. Burnell).

IRELAND.

Londonderry: *a.* No monthly engagements. Wages by the day very fluctuating, owing to the season. *b.* 12s. 6d. per acre. *c.* None. *d.* Tied up in sheaves, stooked for a short period, then carted to the stack-yard (C. Pollock).

County Down: *a.* 1s. 6d. or 2s., without food or drink, per day. *b.* All done per day as above. *c.* None, teetotallers. *d.* Reaping machines general, and by reaping hooks as formerly by small farmers (W. M'Cleery).

Kilkenny: *a.* 3s. a day for men, 1s. 6d. to 2s. 6d. for women. *c.* None. *d.* All corn here is reaped with sickle, or mown with cradle-scythe, or with machine. Tied in sheaves and put up in capped stooks till dry enough to stack (D. A. Milward).—*a.* Average of men, 2s. per day, without diet, to 2s. 6d. Average of women, 1s. 6d. per day to 2s. 6d. When boarded in the house, 6d. per day less. When boarded, usual food is bread and milk. *b.* Average of 16s. to 18s. per Irish acre, for cutting and binding into sheaf. *d.* Generally, wheat is cut by the sickle; Barley and Oats by the scythe. Some few are beginning to use the reaping machine. If we were farming as of old, we all should use them, as labour is getting scarce and wages rising steadily; but stock prices paying the farmer doubly, he cultivates only for the use of his stock (P. Grace).

Kerry: *a.* Mowers 3s., reapers 1s. 6d. per day. *b.* Hay only cut per acre, at 7s. per Irish acre. *c.* None in this district, milk used instead; mowers and reapers are in some cases fed with common labourers' food. *d.* Cut with reaping hooks at 1s. 6d. per day; cut with corn scythes at 2s. to 3s. per day; cut with horse machines, then bound into sheaves, then stooked for some days, then carted into hay-yard, and made into stacks or ricks. All this done by common labourers, paid at the rate of 1s. to 1s. 6d. per day (J. Creagh).—*a.* 1s. 6d. per day. *c.* No beer or cider, but a luncheon of bread and milk or tea sometimes. *d.* Cut with a sickle, then made into stooks for, say a fortnight, and then into stacks (J. O'Sullivan).

Cork: *a.* 2s. to 2s. 6d. per day for men, 1s. 4d. to 1s. 8d. per day for boys and women. *b.* Never let the cutting of corn per acre; but by calculating at the above rate of wages, to mow, bind, and put in stooks, costs about 6s. 6d., or 7s. 6d. per statute acre. *c.* None. *d.* Corn is generally cut down with scythes, reaping-hooks for the last four or five years being rarely used, and as yet only very few reaping-machines employed; the corn bound (without delay) into sheaves, and placed in hooded stooks, and should the weather be otherwise than fine, corn is often made small field stacks of, before being taken to the haggard (F. A.

Twiname).—*a.* Reapers 2s. per day with two meals, or 2s. 6d. without meals; mowers 3s. 6d. per day with two meals, or 4s. without meals; women as binders, 1s. 6d. per do., or 2s. do. *b.* Scarcely ever let by the acre; no gangs here. *c.* No beer or cider to men engaged by the day; the ordinary labourers if engaged mowing get either 2 pints of porter, or if they prefer it 4d. per day in lieu thereof. Some parties give a few shillings in a lump, some at the end of the harvest to each regular worker by way of gratuity. *d.* Nearly all are either cut down by scythe or reaping machine; the latter is becoming pretty general, and in a few years will supersede the scythe. The sheaves are bound, stooked, hooded, and in most cases are temporarily stacked in the field before being removed to the corn-yard. A few parties here have their corn-yards permanently covered in (J. Byrne).

Home Correspondence.

Tenant Farmers in the House of Commons.—It has long been my opinion that owing to the vast improvements made in British agriculture, the enormous acquisition of wealth made and held by tenant-farmers, and their intelligence and social position, they are fully entitled to a more influential representation in the House of Commons than they now possess. In this I am strongly borne out by the debates which have taken place in reference to the Cattle Plague and the Contagious Diseases (Animals) Bills. Mr. Corrance, a practical man (who may perhaps be a remove above the tenant farmer), and Mr. C. S. Read, a true British yeoman and real tenant-farmer, have done themselves great honour by the course they took and the ability they have shown in carrying an amendment or the purport of it into force, against the Government, and for the protection and advantage of every owner of live stock. For this the tenant-farmers owe them a debt of gratitude. It was for them they worked, and I believe they pride themselves upon being more especially the representatives of that class. Through their successful efforts we are now made comparatively safe from the introduction of cattle plague from abroad. All ports for the landing of foreign stock will be named and set forth, with their regulations and conveniences, "so that all cattle landed shall be slaughtered at the ports of landing, and none allowed to leave the ports alive." Mr. Read supplemented another clause by which compensation will be given for suspected cattle slaughtered by order of an inspector to ascertain the nature of the disease. Now these are items in legislation effected for our good by tenant-farmers. If one or two can be so useful, what might an united body of 25 or more be able to effect? I say 25—that is the number of new members given to the counties under the new Bill, but that number is insufficient. I should like attempts to be made to return an intelligent tenant-farmer for every county and for every division of a county. Look at the present social position of the tenant-farmer of the United Kingdom? Where do you find men of more sterling worth,—men who have done so much to increase a nation's welfare—men who have grown more in intelligence and public usefulness? Look at their wealth! for if they were all sold up to-morrow at present prices, the produce of the sale would go near to extinguish the National Debt; and yet this powerful body of men have only one real and true tenant-farmer in the "House." And are we to rest satisfied under this order of things? It is proverbial that farmers are of all others the slowest to take up any important movement, but it is also equally proverbial that when once fully aroused they can, and do, carry all before them. They have been partially aroused during the past year, and have formed themselves into county and district associations, or rather "chambers," for their own protection, and to make themselves heard in the senate. Why not follow this up, and make these Chambers of Agriculture the means by which these exceedingly important changes are to be brought about? We have also many Farmers' Clubs, why not suspend their "standing orders," and take up the question of political influence for tenant-farmers? Could there, by possibility, be any question so important upon which Chambers of Agriculture and Farmers' Clubs might unite, and, together with the agricultural public, exert all their power to place once more the agricultural interest in its legitimate place in the Commons House of Parliament? The landed interest have failed to uphold it in its proper place: let us try what the tenant-farmers in conjunction with the country gentlemen can do. For this purpose county and district organisations must take place, funds must be raised, men selected; tenant-farmers may give their time, but it would detract from the tenant-farmers' high position to allow their representatives to be at one penny cost for their especial benefit. *O. F.*

Societies.

Thorney.—*Trial of Reaping Machines.*—The following full report of the trial of reaping-machines here, to which we referred last week, we take from the *Mark Lane Express*:—

"If you can cut the Fen crops, you can cut anything; and when we say 'cut,' we mean cut and deliver too:" this is a maxim of the heavy Wheat growers on the rich alluvial lands of the Bedford Level. And the proposition will be disputed by nobody who is acquainted with the tremendous weight of the Wheat and Oat crops there: often having straw 5 and even 6 feet long (we ourselves have measured Oat-straws more than 8 feet in length), generally laid by wind and wet as if a roller had crushed all down flat, or twisted and "shocked up" in all positions, often "thorough-grown;" sometimes matted together by bindweed and other vegetation. This kind of crop, in which neither scythemen nor sicklemen can make straightforward work, but have to drive "breeds" in all directions (according as they can get the scythe-point under, or can get at the back of the straws for a handfull), has been supposed to be beyond the power of any reaping-machine; and the makers themselves admit that crops may be found presenting difficulties too great to be overcome by the "horse-power scythe." The fen-men do employ these mechanical reapers to some extent; but there has hitherto been no public exhibition of what the various machines now before the world really can accomplish in excessively-laid and "touselled" crops; and accordingly a number of gentlemen on the Duke of Bedford's estate, at Thorney, near Peterborough, have just provided an occasion for bringing the matter to a test, handsome prizes being given by the Duke and by his tenantry.

The trial came off upon Mr. Alexander Goodman's Willow Hall Farm, about three miles from Thorney railway-station; not, however, upon Fen peat soil, although upon perfectly flat land, the soil being a gravelly loam; and the crop was not exactly the heaviest and roughest that could have been procured had the contest been postponed for a week or 10 days, till the black-land Wheats were ripe. However, the time had been publicly advertised, the weather kept back the ripening later than was expected, and the managing committee could not do better than accept the spirited offer of Mr. Goodman, who placed a field of 65 acres of Wheat at their disposal, and himself opened out the crop in 2-acre and 3-acre plots by his own Croskill machine. The crop was of Nursery Wheat, with 3½ to 4 feet straw, heavy enough to yield 40 bushels per acre, remarkably free from weeds and without Clover, prostrated so that nearly all was flat, the ears lying within a few inches of the ground, the "lays" being so far in one direction that about one-fourth of the straws overlaid other straws in cross bunches, while only occasional bunches leaned in the opposite direction. To describe the condition and posture of the crop is not very easy; but it will be understood when we say that the machines could "throat," that is, meet the stuff one way, without finding very much corn sloping away from them, and the chief difficulty was in "dividing" the cut stuff at the side from what we may call (by courtesy) "the standing." The crop being laid out in rectangular, long, and narrow plots, all the machines were obliged to work one side only, returning empty after each "breed," or half-bout. The land was quite level, smooth, with a few small stones, and owing to the thunder-storm and rain of Thursday, moist and, for part of the time, "soapy," quite wet enough for the machines to work on, and the crop was damp and clammy, and by no means in a good condition for slipping easily off the rakes or platforms. In fact, the state of the crop may be judged from the circumstance that pouring rain on Thursday (the first day of the trial) prevented anything further than a false start, in which several of the machines cut a woeful figure trying to deliver stuff wet as thatch; and the crop being so flattened, was only just dry enough for the renewal of proceedings at noon on Friday. The judges were Mr. William Shepperson, of March; Mr. George Martin, of Hubbert's Bridge, near Boston; Mr. Searson, of Deeping St. James; and Mr. Edwards, of Eye, near Thorney; and the prizes they had to award were as follow:—Class 1. For the best self side-delivery reaper, 1st prize, 20*l.* (offered by his Grace the Duke of Bedford); 2d prize, 10*l.* (offered by the tenantry). Class 2. For the best manual back-delivery reaper, 5*l.* Class 3. For the best manual side-delivery reaper, 5*l.* Semi-manual machines were not allowed to compete in these classes, but an extra prize was placed in the hands of the judges to be awarded if they found sufficient merit. It will be seen that "swathers" and "sheavers" were classed together, thus obliging the judges to decide between "sheaving" and "swathing" for such crops as that at Willow Hall, as well as to pronounce upon the relative performances of the different machines. "Class 1" consisted of five swathers, namely, those of Bamlett, Hornsby, Burgess & Key, the Beverley Company, and Mr. Goodman's "Croskill;" and four sheavers, namely, those of Hornsby, Samuelson, Baker, and Brigham & Bickerton. Turner & Fardon had entered a new machine, but it could not be completed in time. Messrs. Howard did not make an entry.

Hornsby's swathing machine is worked by two horses with a pole (which is placed outside the main wheel); it takes a 5-feet cut, measures 8½ feet from out to out, and weighs about 14 cwt. The main wheel is in advance of the knife-bar, and the small off-side wheel follows the knife-bar. The platform is inclined at an angle of about 45°, and delivers the swath by endless chains; and the reel of 8 feet diameter has six blades or "fans." A peculiarity is in the fingers, and the smooth-edged knives pointing more downward than in other machines. This machine made a beautiful cut, and deposited what we thought was, upon the whole, the best-laid swath; but the reel occasionally carried over, and littered considerable quantities of corn.

Burgess & Key's improved screw-reaper (the machine which won the Cup at the Peterborough trial last year) is worked by two horses with a pole, which is placed outside the main wheel; it takes a cut of 5 feet 4 inches, measures 8¼ feet from out to out; it has smooth-edged knives, the delivery-screws are driven directly by spur-gearing, and its four-bladed reel is driven by a chain. A peculiarity is that the knife-bar is a line with the main-wheel axis, (the off-side small wheel following the knife-bar), so that the main wheel and the cutting-bar rise over elevations or sink into hollows together The driver's seat is placed so as to nearly balance the platform, and thus relieve the off-side small wheel of weight. This machine cut splendidly, delivered a very good swath considering the awkward state of the crop, and the reel carried over very little stuff; and the revolving conical divider (recently improved) effected a perfect separation of the stuff, appearing to pick up the lodged and twisted corn in a wonderful manner; but this machine showed a somewhat greater amount of side-draught than the others.

The Beverley Company's machine is worked by three horses following behind; it takes a cut of 7½ feet, measures 8¾ feet from out to out, and weighs about 16 cwt. It has a six-bladed reel, and delivers by means of a chain and two studded belts on a slanting platform. It had sickle-edged knives, but works with plain-edged knives when there is green stuff among the crop. In the trial, this machine delivered particularly well, but it worked at great disadvantage, because the plot, being only 22 yards wide, did not allow the machine to work in such a direction as to cut both in going and returning—a peculiarity of the machine being its ability to deliver the swath from either side of the platform.

Mr. Goodman's machine is an old Crosskill, worked by two horses following behind, and Mr. Goodman has added a dividing-roller to each side of the slanting platform. That this machine is quite capable of dealing with almost any crop, no matter how rough, was fully shown by its having "set out" the work in all directions on the day before the trial, but the cutting was not super-excellent.

A novelty was Bamlett's new swath-delivery machine; remarkably light in construction: but the platform (delivery by a chain and two belts) too short and set too upright for dealing with long-strawed crops.

The sheaving machines included Hornsby's "Governor," self-raker, taking 5½ feet cut, and measuring about 8 feet breadth from out to out, and weighs about 11½ cwt. It delivers by two rakes, revolving on a centre, placed 18 inches in advance of the cutter-bar, so that the far-end of each rake enters the stuff first, and, the axis being vertical, the rake-teeth are always vertical also. This machine cuts exceedingly well, and made an admirable division; but the sheaf-bunches were so spread as to measure 9 feet in length upon the ground.

Samuelson's self-raking reaper takes a cut of 5 feet, weighs about 10½ cwt., and it delivers by two rakes and two gathering-boards, balanced. The cutting was good; but the sheaf-bunches were open to the same objection as those of the preceding machines. A man would be longer in tying them than he would be in gathering and tying a swath.

Baker, of Wisbeach, competed with a Samuelson's self-raker, improved in sundry details of dividing-irons and so on, and fitted with Baker's patent elastic rakes which are constructed with springs, allowing the teeth to bend backward upon encountering an immoveable obstacle upon the platform. The work done was very fair, with the exception of the shapeless form of the delivered bunches.

The other machine in this class was Brigham & Bickerton's "Excelsior" self-raking reaper, which also cut and divided pretty well.

The judges could not possibly sanction such untidy delivery as all the sheaving machines made of this crop and the two awards to the swathers it was not difficult to foretell; Burgess & Key's "improved screw" swath delivery reaper obtained the 1st prize, and Hornsby's swather took the 2d prize.

The manual back-delivery machines were those of Hornsby (with tipping slat platform); Cuthbert (improved in detail of gearing and framework, a remarkably strong and serviceable machine); Kearsley (with wrought-iron framing and tipping platform) Samuelson's "Eclipse" (with single lever-gear motion for driving the crank); Bamlett's (with drop slat platform); Brigham & Bickerton's "Buckeye Junior" (with tipping platform); and Wood's left-handed machine, with tipping slat platform. The plots of work had been so laid out that this machine found the lay of the corn entirely the wrong way for it, and good work was not made until the latter part of its trial Cuthbert, in our opinion, did the best work, taking a full 5-feet breadth at once, and the bunches were well laid for tying. Hornsby's machine took 4½ feet breadth at once—the cutting exceedingly well done, and the sheaf bunches well laid. The judges awarded the prize to Hornsby, and highly commended Cuthbert.

In the class of manual side-delivery machines, the prize was awarded to Hornsby's "Universal Harvester," which has a tipping skew-shaped platform, and a sort of mould-board for shunting the cut stuff to the side behind the horses. A high commendation was given to Cuthbert's machine fitted with quadrant platform.

An extra prize of 2*l.* 10*s.* was awarded to Messrs. Hornsby's "semi-manual" reaper (which has a tipping slat platform, and also chains for delivering the sheaf-bunches at the side) as being a good machine for its purpose.

The trial may be taken as conclusive in favour of swathing and against sheaving machines, for heavy and flat-laid crops; for though the swathers were not of the neatest description, the sheaf-bunches were not business-like, either for tying or lying to be weathered And the manual-delivery machines left their work in better trim, and easier for binding than did any of the self-delivery machines.

Reviews.

An Account of the Island of Jersey. By the Rev. Halle. Public Library, St. Helier's.

The occupation and cultivation of the Channel Islands afford many points of interest even to English farmers, who have the credit for being more progressive. Perhaps it is because English farmers have been making great and rapid strides or changes during the last 30 or 40 years, that more primitive systems of occupation, culture, disposition of productions, and social habits and relations, become just now more than ever important. We have been going at a racing pace

in England, without stopping to consider whether we were running in the correct path. We have been much struck with the practical culture of these islands, for it has long been our opinion that we have been too contemptuous of small matters, and too anxious to reduce our national agriculture to a system or succession of gigantic schemes, that could be worked with the order and precision of a cotton-mill, or any other large manufactory; and if we now look at our situation from a national point of view, we may perceive that we have many vital points of a country's interest in anything but a healthy and promising condition. In fact, from our standpoint, they require the most searching and grave consideration, for it is a great question whether the proportion of the material and necessary comforts of the great bulk of the people of this country may not tend rather to decrease as they (the people) increase in numbers. Here we refer more particularly to such articles or productions as milk and cheese, butter, meat, and, indeed, excepting bread, to every necessary of life. Corn is a highly concentrated material of nutrition, and therefore it is readily portable; and so long as we can find the money to go down into Egypt and elsewhere with, we shall no doubt be able to command a full supply of the food corn yields. But in this climate, and under the order and habits of civilization which we have contracted, we shall be neither contented with plain bread, nor will it be good for our physical health and mental power; nor, therefore, for our national prosperity.

The cry has been—on the one hand among some influential authorities, and on the other among some who have had influence from the position which accident, it may be, gave them—that "Small farmers and small farms must disappear before the tide of science, as developed in the practice of chemical knowledge and engineering skill." This may not have been the exact form of the standing proposition of these authorities, but the substance of their meaning is thus tersely conveyed. The principles here involved, however, are, we believe, likely to prove most detrimental to our national interests. In saying this, it will of course be understood that we are not deprecating scientific inquiries and knowledge, nor the application of engineering arts to the machinery of farms. That our views may not be doubted on this point, we will recall the fact, that in the more limited practice, as regards acreage, of horticulture and market gardening, and even in the hothouse and greenhouse, scientific knowledge of soils and fertilisers are the elements of success in making the greatest money profit, as well as in producing the greatest amount of human comforts with the least expenditure of manual force.

These reflections we will not pursue in this place; but we shall have to recur to them occasionally as we proceed, and in our concluding remarks. They have been induced and revived partly by our own observations, as embodied in our note-book, and partly by the records of an old and quaint writer on the Island of Jersey, some extracts from whose history we have taken, and shall shortly transcribe.

The produce of the Channel Islands consists in two main classes, viz., Agricultural and Horticultural. The first is principally composed of cows and the butter yielded by the parent stocks, and the latter is made up of early Potatos, Peas, and Carrots, and such fruit as Pears and Apples, the well-known Jersey Pears being a leading feature. There are some Grapes also grown, but they only come to great perfection under glass. We have some most interesting observations to relate on hothouse Grapes and the culture pursued in respect to them, but we fear we shall have to devote a separate article to this branch of our subject, as the points of agriculture before us are numerous, and will extend to the limit of our space on this occasion. We take agriculture first, as we look upon this art as our speciality, while in the matter of fruit generally, and hothouse and greenhouse culture particularly, we can only claim an instinctive admiration for the art, and profess to have but an amateur's knowledge of it.

We will first take Jersey, as it is the larger island. As it happened, we did not discover, and then only by an incident, till the evening before we left St. Helier's that Jersey possessed a valuable institution in the shape of a Public Library. Here we found the History above referred to, and we may say we rejoiced that its author's views and conclusions, although somewhat rudely expressed in some instances, were greatly in harmony with our own, as previously taken and come to. But we will come to our notes as then made.

In the Public Library in St. Helier's, which strangers are courteously permitted to enter, we found an Account of the Island of Jersey," which was in part probably conceived nearly 200 years ago, as it was written about the end of the 17th century. This was by the Rev. Philip Halle. In a sketch of the life of this author we find, in the second paragraph, this interesting reference, looking from our present position:—"Philip Halle was descended from an ancient agricultural family, who, according to his own account, belonged to that happy class of substantial freeholders, who are not sufficiently elevated to excite envy, but who enjoy enough of the necessaries and even comforts of life, to be independent, and to preserve their integrity unsullied by the temptation of avarice or ambition. His ancestors may, therefore, be said to have for ages excelled in that respect the happiness of Claudian's old man of Verona."

To this are appended two notes, one an extract and the other the sentiments of the first rendered into English versification. They are as follow:—

"Felix qui propriis ævum transegit in arvis!
Ipsa domus puerum, quem videt ipsa senem."
Claud. de Sen. Veron.

Who the author of the English translation was we could not learn:—

"How blest the man, who never sought to roam
Beyond his acres of paternal soil!
Whose age has still that cottage for his home
That saw the efforts of his boyish toil."

The Editor of this edition was the Rev. Edward Darell, M.A., rector of St. Saviour's; and as the Rev. Philip Halle was minister of the same parish, that care and warmth of feeling which succession to a worthy man inspires, evidently pervades the history before us.

In the "Preface of the Editor," the Rev. E. Darell begins:

"The Rev. P. Halle's 'History of Jersey' has always been considered as the most valuable account of that island, and from which all subsequent publications on the subject have borrowed their most important information. Nor has it been uncommon to quote him in our Royal Court in a kind of semi-official authority, to whose honesty and veracity it was equally safe to appeal."

Many other references are made, but we have not space for entering into particulars, further than will suffice to raise an interest in and assure us of the trustworthiness of the author of the passages which bear more particularly on our subject. We may however add that in the second paragraph of this Editor's preface it is said: "The first edition of his History was published in 1694, while he was yet rector of St. Saviour's in Jersey," and that he is there also referred to as being, in 1734, "a very old man, and possessed of a stall in Durham Cathedral."

The Rev. P. Halle, it appears, entered vigorously into the political turmoil of his day, and as he was fortunate enough to be on the winning side, he was rewarded with the above ecclesiastical honour, and the sweets which it conferred. Under the topic of agriculture, and while commenting on its ramifications through other interests, and its influence over the welfare of a people, we found the following pertinent remarks. Modern political economists would probably ridicule such notions, but in these days, when English and Irish villages are being deserted by their native peasantry; when store cattle are but seldom reared by small farmers, for being supplied at a fair price to the more opulent grazier; when milk is difficult to be got in abundance in towns, and the quality generally is of a doubtful character; and when—to take a more comprehensive but suggestive glance—our large towns are getting so over-crammed that many sagacious citizens begin to tremble before the prospect of increased pauperism—when these palpable anomalies and their relative but minor influences are recalled and kept in view, our author's reflections on the condition of the people of his small sea-girt island two hundred years ago, are certainly curious and worthy of consideration, if not of being exactly and fully followed. Human nature and human wants are the same in the main now as they were then, and they will remain about the same in times to come. How far, therefore, we have been wise in treating the agriculture of this country as of far less importance to the bulk of the population than are our manufactures, commerce, and trade, we have yet to see practically demonstrated. The Rev. Philip Halle says:—

"When Dr. Heylin came into this island he found the people more addicted to tillage and husbandry than to manufacture, and navigation, and accordingly in his 'Cosmography' (published in 1656, 28 years after the doctor had visited the Channel Islands) he say that the island is generally very fruitful of corn, whereof the inhabitants have not only enough for themselves, but some overplus to barter at St. Malo's with the Spanish merchants. The matter is much altered since the doctor was here, and the island does not now produce the quantity sufficient for the inhabitants, who must be supplied from England, or (in time of peace) from Bretagne in France. They have often gone as far as Dantzic in the Baltic, invited thither by the cheapness of the market.

"This decay of tillage among us has sprung from a coalition of such causes as these:—1. From the improvement of navigation and foreign commerce, which took away many hands employed before in working at the ground, and brought us corn from outlandish markets, cheaper than the husbandman could afford it at home. 2. From the increase of the stocking manufacture, which (to speak truth) has rendered the generality of our poorer people lazy and idle, giving them an aversion to husbandry work as a more painful [*e. g.*, laborious] occupation. 3. From the conversion of the best arable lands into gardens and orchards for the growth of cider, a commodity with which we are now overstocked, whilst we now want the more necessary support of life. Though it must be confessed that since the present war,* which has ruined our trade, our people, sensible of this error, and pressed by the evident necessity of the thing, have applied themselves with more industry to an employment they had neglected, and have begun to put their hands again to the plough; so that we may soon grow up to a condition of subsisting, if not wholly from ourselves, yet with a little help from England."

On these views we will not comment further than to say it is not our intention to argue that we should forsake manufactures, commerce, and trade for agriculture, in the hope—as it would surely be hoping in vain—that we could supply our large population with corn as well as other food, but have we not been carried away by the more dazzling prosperity which artificial business, when pampered, may display for a time, and, like the people of Jersey in the 17th century, are we not finding ourselves with a superabundance of manufactures and a decreasing proportion of cattle and sheep, and particularly of the products of the dairy? These questions will have some light thrown on them, by the practical notes we now have to give.

A leading feature in the practical culture of Jersey is the collection and use of sea-weed. On this point we will also give the views of the Rev. P. Halle, for his quaintness is interesting, and his account of the rules for gathering, and the manner of using the weed, hold good to the present day. But his conclusion about its effects being similar to lime, chalk, and marl, or "with what answers the end of them," is not quite in harmony with modern data:—

"We have in Jersey a method of agriculture differing in sundry particulars from that of England. But so in England itself, the way of managing land is not everywhere alike. I shall mention one thing only relating to that subject, which Mr. Camden, in describing this island, did not think below his notice, viz., that Nature having denied us the benefit of chalk lime, and marle, has fully supplied us with what answers the end of them in husbandry. It is a sea-weed, but a weed more valuable to us than the choicest plant cultivated in our gardens. We call it Vraic, in ancient records Veriscam, and Wreccum, and [it?] grows plentifully on the rocks about the island. 'Tis gathered only at certain times appointed by the magistrate, and notified to the people by a public crier on a market-day. There are two seasons of cutting it, the one in summer, the other about the Vernal Equinox. The *Summer Vraic* being first well dried by the sun on the shore, serves for kitchen fuel in country houses, and makes a hot glowing fire; and the ashes, which are carefully preserved, serve for manure. We hold them equivalent to a like quantity of lime. The *Winter Vraic*, being spread on the green sward, and after buried in the furrows by the plough, 'tis incredible how, with its fat, unctious substance, it meliorates and fertilizes the earth, imbibing itself into it, softening the clod and keeping the root of the corn moist during the most parching heats of summer. In stormy weather the sea does often tear up from the rocks vast quantities of this useful weed and cast it on the shore, when the glad husbandman gathers it, and proper officers attend to see it distributed in just proportions."

To this we append the following, as it is suggestive in regard to the source of an increased supply of a most valuable fertiliser. The question it suggests is—is there not a supply of sea-weed on some of the coasts of the globe that could be profitably secured and burned for the purpose of sending the ashes to this country?

In a note the Rev. Mr. Darell said, in 1837, "The ashes of Summer Vraic are particularly valuable for the Cultivation of Wheat, and there are many poor people along the coast who get their living by collecting drift Vraic and burning it into ashes, which they sell to the farmers usually at the rate of one quarter of ashes for a cabot (32 lb., or half-a-bushel) of Wheat, or eight parts of the former for one of the latter."

There is but little gathering for sale in Jersey, as the farmers are so careful to exercise their right that the gatherers are generally greater than the supply. So much is this the case that the rent of land varies considerably, according to the facilities which may exist for taking advantage of the Vraic harvest.

(To be Continued.)

* The war with France in King William's reign, when this was written.

Miscellaneous.

Sale of Artificial Manures: Action for Libel.—At Queen's County Summer Assizes, Maryborough, on Friday, the 26th ult., the case of Patrick Dowling *v.* Edward Purdon was heard in the Record Court. This was an action brought by the plaintiff, who is a shopkeeper, residing in this town, against the defendant, who is the proprietor of the well-known paper, the *Farmers' Gazette*, for an alleged libel published in that newspaper. Damages were laid at 1,000*l*. The alleged libel was in the following terms:—"The active honorary secretary of the Queen's County Agricultural Society, F. Macdonnell, Esq., has written to us stating that a party is selling the so-called phospho-Peruvian guano at £12 10*s*. a ton, which Dr. Cameron has pronounced to be worth only £7. Since we received Mr. Macdonnell's letter Dr. Cameron's official report has come to hand, fully bearing out the statement. This is a gross swindle upon farmers, and every means should be taken to hunt down the scoundrel who would attempt to plunder unsuspecting farmers by vending such stuff, after the cautions we gave respecting it. This way he commits a fourfold robbery. The highwayman who takes your purse is a gentleman compared to the fellow who induces the farmer to purchase a worthless manure; for he is first robbed of the money he pays for it; secondly, he is robbed of his time, trying to raise his crop; thirdly, he is robbed of his crop and the rent of his ground; and lastly, he is robbed of the winter's keep he expected to have for his stock. We therefore, say it behoves every man to expose and hunt down the fellow who engages in such a nefarious trade. We strongly advise those who have been thus imposed upon not to pay for it if on credit, and when paid for, proceedings should be taken against the vendor to make him refund the difference between the price paid and the price set upon the so-called phospho-Peruvian guano by the chemist. Landlords and land agents should look to this matter; it is of far more importance to them than most of them are aware of. There are other valuable manures in the market, and landlords and land agents could easily procure a supply for their tenants on advantageous terms, and thus save them from being victimised, and materially serve themselves." The defendant pleaded several defences, denying, 1st, the publication was a libel; 2dly, the defamatory sense; 3dly, a plea of privilege, to the effect that for several years before the publication of the alleged libel he was one of the proprietors of the *Farmers' Gazette*, which had a very wide and general circulation through Ireland, and was for the most part devoted to the discussion of agricultural subjects, in which the farming classes took, or were believed by the defendant to take a great interest, including the subject

of artificial and natural manures used and applied in the cultivation of land in producing green and other crops in Ireland, and that the farming classes looked to and relied on the advice and assistance they got through the columns of said newspaper relative to the quality of guano vended to them by dealers and agents throughout Ireland, and the farming classes and the public looked to the said newspaper for assistance and guidance as to the purchase of good and useful guano, and relied on the columns of said newspaper for information to enable them to avoid the sellers of such spurious and useless manures; and that the defendant, as proprietor of said newspaper, had a duty towards the farming classes and public, who were largely his subscribers, and *bonâ fide* and honourably believing the statements therein to be true, he published the alleged libel in good faith and without malice. The defendant also pleaded a plea of justification. The jury found for the plaintiff, damages 100*l*. *Irish Farmers' Gazette.*

Turnip-fly.—As different insects prey, in the larva state, upon the leaves of the growing Turnip, the most destructive, and consequently the most important and interesting of these, will be noticed under the present head. They are the Turnip-flea, as it may be called from its power of agile leaping (Haltica nemorum), and the Turnip-fly (Athalia centifolia). The Turnip-flea belongs to a genus (Haltica) of minute Coleopterous insects, of the section Tetramera, and family Galerucidæ; in which genus the species are all remarkable for the large size of the femora or thighs of the hindmost pair of legs. The species in question does not exceed the twelfth of an inch in length; it is of an oval form, with the elytra of a greenish tinge, each ornamented with a broad longitudinal stripe of a pale brimstone colour; but there are other species of the same genus, perhaps equally destructive, and not characterised by the longitudinal elytral bands. The perfect insect shelters itself in the rough uncultivated margins of fields, feeding upon the hedge weeds; and appears to be ready at any time, provided the weather be warm, to commence the work of destruction on the young Turnip shoots. Late sowing of the Turnip seed does not therefore obviate the attacks of the Haltica. The first precaution obviously is to clear away all the weeds in the neighbourhood of the Turnip grounds that may afford food or shelter to the little enemy. When the Turnip-flea has made its appearance in the crop, the ground should be dusted with quicklime, and this should be repeated as often as rain or wind beats it off, and the flea reappears. The other enemy to the Turnip (Athalia centifolia) belongs to the order Hymenoptera, and family Tenthredinidæ, or saw-flies.

Discussion on Harvest Work before the Ayrshire Agricultural Society.—Mr. YOUNG, Dundriff, concurred generally in all that Mr. Cunningham had said (see page 772). Something had been said about making preparation for the harvest by getting ropes ready; these could be dispensed with now, owing to the cheap rate at which they could procure cocoa-nut fibre ropes, which were of great assistance to farmers. In regard to the time of cutting the grain, he thought no farmer could have any difficulty in knowing when to cut, provided the grain ripened all at one time, but there must be great difficulty where one part came to be ripe before another portion, owing to its being late of brairding. In regard to the reaping of Wheat, he thought it was ready for cutting when it showed from 4 to 6 inches of yellow under the head. He would not mind though the other part of the straw was not coloured.—Mr. DALGLEISH, Cumnoch, though more a dealer in than a grower of seed, entirely approved of Mr. Cunningham's remarks. In regard to that part of the country from which he came it was impossible to use reaping machines, the land being so soft that it was necessary to raise it into ridges in most cases. So far as he was concerned he did not cultivate to any great extent, but what he did grow he was good to it, and attempted always to raise as large a crop as possible, and it was impossible for him to use anything but the sickle, the grain was so strong and lay in different directions. He thought the sickle in the hands of one able to apply it made the best job, and that farmers ought to teach young people the use of it more than they now did. He thought Mr. Cunningham was right in regard to the cutting of grain, as he believed it to be at maturity though perfectly green. When cut green it made better fodder, and more lasting thatch than when fully ripened. In regard to the ripening of Rye-grass, he thought it was a great error for farmers to have over-ripened hay for the sake of heavy seed, for such a system destroyed the nourishing qualities of the fodder, and the perennial qualities of the seed. He thought it should be the aim of farmers, notwithstanding the whims of seed merchants, to have the seed light, as it would be more profitable. He had found seed weighing 12lb. per bushel grow seed equally well with seed 30lb. per bushel.—Mr. YOUNG, Dundriff, asked if Mr. Dalgleish would be willing to give farmers the same price for seed weighing 12lb. per bushel as they got for heavier.—Mr. DALGLEISH replied that so far as it was for his own use he would.

Notices to Correspondents.

BOOKS.—"The Ox and its Diseases," by J. Dobson, V.S., (Longmans); "The Sheep," by W. C. Spooner, V.S. (Eling, Southampton); or, Blaine's "Outlines of the Veterinary Art," edit. 1865 (Longmans).

POULTRY: *F.* Baily's little book (113, Mount Street, W.) will tell you all you need to know. A recipe is given at p. 350 in our Vol. for 1848, which we will repeat next week.

SUPERPHOSPHATE: *Ross Subscriber.* The London Manure Company, 116, Fenchurch Street, E.C., sells coprolites, bone ash, &c. As to the manufacture, we know of no publication that will inform you fully on the subject. One of Richardson's rural shilling handbooks may contain what you want.

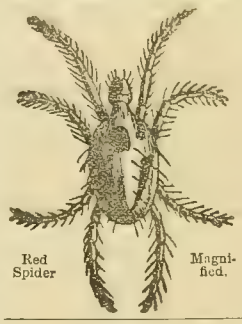
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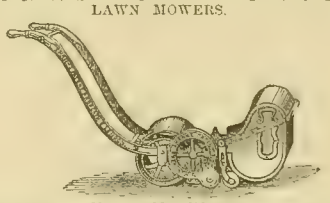
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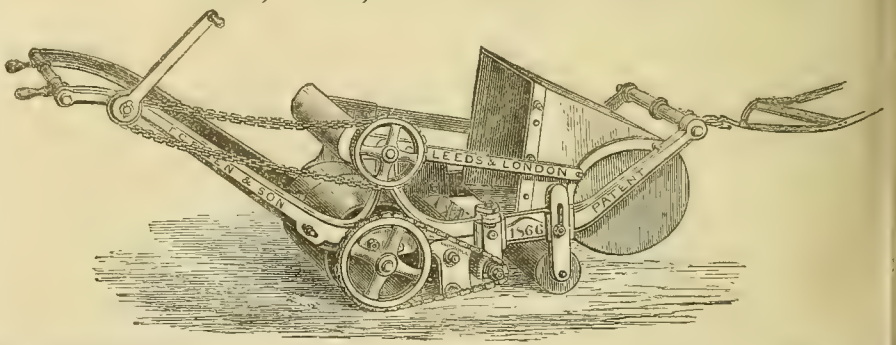
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Herman & Morton, 7, Pall Mall East, London, S.W.

HOT-WATER APPARATUS, of every description, fixed complete in any part of the country, or the materials, viz., Boilers, Pipes, &c., delivered to any Station.
Estimates on application.
J. Jones & Sons, 6, Bankside, Southwark, London, S.E.

Heating by Hot Water.

W. J. HOLLANDS, Iron Merchant, 31, Bank side, London, S.E.
HOT WATER PIPES, from Stock, per yard:—2-inch, 1s. 1½d.; 3-inch, 1s. 9d.; and 4-inch, 2s. 3d. BENDS, from Stock, 1s. 6d., 2s. 6d., and 3s. each. THROTTLE VALVES, 10s., 13s., and 14s. each. Other Connexions at equally low prices, and all goods of first-class manufacture. Estimates given, and orders by post punctually attended to the same day.

Heating by Hot Water.

HOT-WATER PIPES, at Wholesale Prices, with Elbows, Syphons, Tee-Pipes, and every other connection; Wrought and Cast-Iron Boilers, Saddle, Conical, Cylinder, Tubular, and Elliptic, from 24s. each. Improved Boilers and Iron Stands to use without brickwork, 60s. each. Valves from 10s. 6d. each. Patent Valves, Improved Furnace Doors, Furnace Bars, Supply Cisterns, and Castings of every description in stock, at
Mr. Lanch White's Iron Wharf, Upper Ground Street, Blackfriars Bridge, London, S. Price List on application.



Hot-water Pipes, with Elbows and Connections, supplied by Bury and Pollard.
Contracts and Estimates given for WARMING PUBLIC BUILDINGS; latest Improvements in HEATING by HOT WATER; the Improved CONICAL BOILERS, for Heating Pineries, Conservatories, Greenhouses, Mansions, Halls, Warehouses, &c., Solely Manufactured by Bury & Pollard. These Boilers are adapted for setting in Brickwork, or annexed Sketch shows Bury & Pollard's improved arrangement, requiring
NO BRICKWORK SETTING.
These Boilers have for their durability and economy attained a celebrity far surpassing any other Boilers ever invented. They have been for many years past in use at many Public Establishments, Royal Botanical Gardens at Kew, at the Regent's Park, the Crystal Palace, and at most of the Nobility's and Gentry's Seats throughout the United Kingdom. References where they have been for 20 years in constant use.
Price Lists on application to Bury & Pollard, Park Iron Works, 7, New Park Street, Southwark, London, S.E.

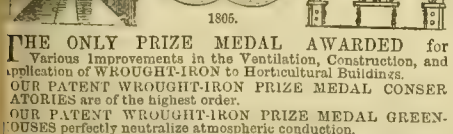
CRANSTON'S PATENT BUILDINGS for HORTICULTURE.
"Dry Glazing without Putty."
"Glass without Laps."
"Ventilation without Moving Lights."
Highly Commended by the Royal Horticultural Society, South Kensington



Plans and Estimates free on application. Descriptive Book fully illustrated, post free for 20 stamps, from the Author and Patentee, James Cranston, Architect, Birmingham.
Works: Highgate Street, Birmingham.
Henry J. Growtage, Manager, 1, Temple Row West, Birmingham.

Greenhouses—Heating Apparatus.

DUBLIN EXHIBITION



THE ONLY PRIZE MEDAL AWARDED for Various Improvements in the Ventilation, Construction, and Application of WROUGHT-IRON to Horticultural Buildings.
OUR PATENT WROUGHT-IRON PRIZE MEDAL CONSERVATORIES are of the highest order.
OUR PATENT WROUGHT-IRON PRIZE MEDAL GREENHOUSES perfectly neutralize atmospheric conduction.
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OUR PATENT PRIZE MEDAL FORCING HOUSES are eminently superior for all early work
OUR PATENT WROUGHT-IRON PRIZE MEDAL STRAWBERRY HOUSES admit a complete flood of air and light.
The above Patent Houses can be glazed with or without putty.
These Houses are now protected by three Royal Letters Patent, and from the complete adjustment of their constructional parts will be most favourably with Wood Structures in point of cost.
Designs and Estimates prepared for single or complete ranges of Houses in Wood or Iron.
Illustrated Catalogues on application to the Patentees,
T. H. P. Dennis & A. Scrubey, Horticultural Builders and Hot-water Engineers, Chelmsford.

By Royal Letters Patent.

G. SHREWSBURY'S NONPAREIL GAS BOILER.
No. 1, for 30 feet; No. 2, for 90 feet; No. 3 for 200 feet of Pipe.
A HOT-WATER APPARATUS complete, to Heat a Small Conservatory, for 2½d. per day, for 5½s.—G. Shrewsbury, Lower Norwood, S.

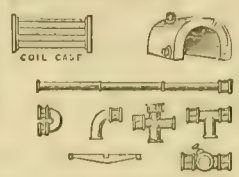
COTTAM AND COMPANY,
Conservatory and Hothouse Builders, &c.,
Iron Works, 2, Winsley Street, Oxford Street, London, W.
SADDLE BOILERS.

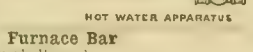
20	24	30 inches long.
46s.	66s.	92s. 6d. each.

HOT-WATER PIPES.

2	3	4 inch.
1s. 6d.	2s. 1d.	2s. 9d. per yard.

Materials supplied as above, or Estimates given fixed complete to Plan, on application to
Cottam & Co.,
Iron Works,
2, Winsley Street,
(opposite the Pantheon),
Oxford Street, London, W.

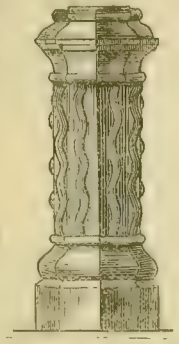




HOT WATER APPARATUS

The New Furnace Bar
(Warriner's Patent).

THIS BAR is particularly adapted to FIRES for VINERIES, GREENHOUSES, &c., and all FURNACES worked on the principle of slow combustion. The saving of Fuel effected is very great; nearly all the Smoke is consumed if care be taken, and the fire can be so regulated that any temperature desired can be kept up for at least 12 hours without stoking or further trouble. Any Bricklayer can set up these Bars without deranging much of the brickwork. They are in use in many Conservatories, and give the highest satisfaction. Testimonials will be forwarded on application to the Proprietors,
The Ventilating Furnace Bar Company, Limited, 9, Mincing Lane, London, E.C.
Specimens of these Bars may be seen in the Eastern Arcade of the Horticultural Gardens, South Kensington.



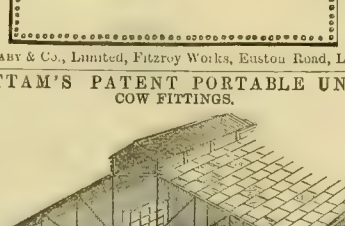
G. W. RILEY'S
PORMENTEL CHIMNEY TOP.
A certain cure for Smokey Chimneys;
and a certain cure for that unhealthy
nuisance, Descending Smoke from other
Chimneys, when no Fires are in those
Rooms.
G. W. Riley,
3, Gunnersbury Place,
Turnham Green,
Middlesex, W.



W. S. BOULTON'S 36-gallon SWING WATER BARROW. Price 45s. Carriage paid to the principal Stations.
This is the best and cheapest article of the kind yet introduced. It can be used with or without a Pony. Two Tubs can be had with one Carriage, and a Spreader if required.
Testimonials can be furnished from all parts of the country.
Powerful GARDEN ENGINE for the above, price 45s.
Improved WATER and LIQUID MANURE CARTS.
Illustrated Catalogue, with all particulars, sent free on application to
W. S. Boulton, Rose Lane Iron and Wire Works, Norwich.

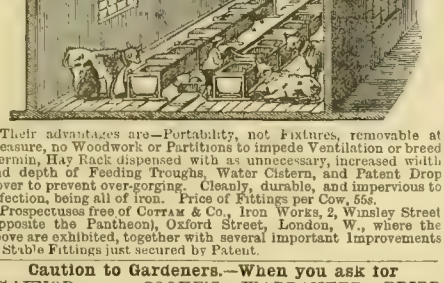
Iron Cisterns.

F. BRABY AND CO. having laid down extensive and Improved Machinery in their new range of buildings, Ida Wharf, Deptford, are now prepared to supply WROUGHT-IRON TANKS, GALVANISED, or PAINTED, of superior quality, at reduced prices, and at very short notice.



F. Braby & Co., Limited, Fitzroy Works, Euston Road, London.

COTTAM'S PATENT PORTABLE UNITED COW FITTINGS.



Their advantages are—Portability, not Fixtures, removable at pleasure, no Woodwork or Partitions to impede Ventilation or breed Vermin, Hay Rack dispensed with as unnecessary, increased width and depth of Feeding Troughs, Water Cistern, and Patent Drop Cover to prevent over-gorging. Cleanly, durable, and impervious to infection, being all of iron. Price of Fittings per Cow, 55s.
Prospectuses free of Cottam & Co., Iron Works, 2, Winsley Street (opposite the Pantheon), Oxford Street, London, W., where the above are exhibited, together with several important Improvements in Stable Fittings just secured by Patent.

Caution to Gardeners.—When you ask for SAYNOR AND COOKE'S WARRANTED PRIZE PRUNING and BUDDING KNIVES, see that you get them. Observe the mark Saynor, also the corporate mark Obtain Warranted, without which none are genuine.
S. & C. regret having to caution Gardeners and others, but are compelled to do so, in consequence of an imitation, of common quality, having been sold for the genuine one, and which has caused many complaints to be made to them of Knives which were not of their make, all of which are warranted both by Sellers and Makers.
S. & C.'s Pruning and Budding Knives are the best and the cheapest in the market.
Paxton Works, Sheffield. Established upwards of 125 years.

GEORGE F. MORRIS (of the Firm of Protheroe & Morris) undertakes SALES and VALUATIONS of FREEHOLD LANDED ESTATES, Leasehold and Reversionary Property of every description, Farming and Market Garden Produce, Household Furniture, Stock in Trade, &c.
Auction and Estate Agency Office, The Limes, Leytonstone, Essex.

Farm Poultry.

GREY DORKING FOWLS, of purest breed, in any numbers.
Imported TOULOUSE GEESE, the largest and most productive breed known.
Improved NORFOLK TURKEYS, large, hardy, and good breeders.
AYLESBURY and ROUEN DUCKS
Imported BELGIAN HARE RABBITS, for size and early maturity.
BRAHMA-POUTRA, CREVECŒUR, and LA FLECHE FOWLS, for constant layers.
Priced Lists and Estimates on application.
John Baily & Son, 113, Mount Street, London, W.

Covent Garden Market.—To Growers of Water Cresses

TO BE LET, for 7, 14, or 21 years, 25 ACRES (more or less) of LAND especially adapted to the growth of WATER CRESSES, abundantly supplied with Water, close to a Station, and within one hour of London. Apply, giving name and address, to
X. Y. Z., Post Office, Sevenoaks.

To Nurserymen, Florists, &c.

TO BE LET, a FLORIST'S SHOW and SALE BUSINESS, or the LEASE to be DISPOSED OF.—Grand premises, position first-class, in one of the most healthy and improving neighbourhoods round London, well worthy the attention of large growers and others.
Messrs. Protheroe & Morris, Nurserymen, &c., Leytonstone, Essex.

FLORIST and SEED SHOP, Old Established, position undeniable.—The Goodwill, Fixtures, &c., with a good Jobbing Connection, price £200. Every inquiry courted. To an active Man this offers a rare opportunity.
G D, *Gardeners' Chronicle* Office.

FOR DISPOSAL, a First-class NURSERY and SEED BUSINESS; or the present Proprietor would accept of a WORKING PARTNER with a Capital of not less than £1500.
Apply by letter to E., Messrs. Hurst & Son, 6, Leadenhall Street London, E.C.

FOR SALE, a FLORIST, SEED, and FRUIT BUSINESS, in a first-class situation, and with a good connection, in the South of England. Coming in, about £250. Rent of Premises, £60.
L., *Gardeners' Chronicle* Office, W.C.

To Fruiterers, Green Grocers, Florists, and Others.

TO BE DISPOSED OF, a GENUINE BUSINESS in a first-class neighbourhood, doing a good family and ready-money Trade, and where the FLORIST'S BUSINESS might be added with great advantage, as there are two Forcing Houses in Garden at rear, and room for a third if required; also Stable and Coach-house, with Rooms over. Particulars to be had of
J. R., 45, Queen's Road, Bayswater, W.

To Market Gardeners, Nurserymen, &c.

TO BE SOLD, by Private Contract, about 200 ACRES of very superior GARDEN GROUND, all Freehold, situate in the County of Bedfordshire, about three miles from Biggleswade Station, Great Northern Railway. The Land is divided into Lots to suit the convenience of purchasers. For particulars apply to
Thomas Fountaine, Esq., Dunton Lodge, Ashwell, Baldock.

Nursery and Seed Business for Sale.

WILLIAM DEAN, having determined on residing in London again, offers for SALE, with immediate possession, the NURSERY at SHIPLEY, consisting of Four Acres, with 13 extensive Glass Houses, the whole, with the Nursery well stocked, and with Dwelling House, &c., is held on Lease; also the SEED SHOP, in BRADFORD (the only one in the town), which is well fitted up, and where there is a good business doing in Fancy Articles, as well as Seeds, Cut Flowers, Flowering Plants, &c. The Nursery is 2½ miles from the Shop, on a principal road to Bradford. A half year's business is equivalent to the purchase money required, and will be a great bargain to the purchaser. It is an excellent opportunity for a large house in the South to establish a Branch Business here, as a good healthy Trade is already done, which may be very much increased. For particulars apply to
William Dean, Bradford Nursery, Shipley, Yorkshire.

To Buyers of Highland Scots.

THERE will be OFFERED for SALE at Mr. John Duckworth's Farm, close to the Sheep Fair, Barnet, on WEDNESDAY, September 4, 140 WEST HIGHLANDERS, in Lots to suit purchasers. The Cattle having been on the Farm 28 days, Licences will be procured to move them anywhere. Full particulars on application to
John McTurk, Market Harboro', Leicestershire.

Sales by Auction.

Bulbs from Holland, Ornamental Greenhouses, Plant Rustic Seats, &c.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, August 28, at half-past 12 o'Clock precisely, a Consignment of HYACINTHS, TULIPS, CROCUSES, GLADIOLI, and other BULBS from Holland; Stove and Greenhouse CLIMBING PLANTS; a Collection of BRITISH FERNS, ORNAMENTAL PLANTS, &c.; also a quantity of RUSTIC GARDEN SEATS, TOOLS, VASES, BOXES, &c.
On view the Morning of Sale, and Catalogues had.

Beddingham, near Lewes.

Important Sale of First-class Southdowns.

MR. STRAFFORD begs to inform the Breeders and Admirers of First-class Southdowns that he has received Instructions from Mr. Thomas Ellman to SELL by AUCTION, on FRIDAY, September 6, his entire FLOCK of PURE-BRED SOUTHDOWN SHEEP, consisting of 500 EWES of various ages, and 150 EWE LAMBS, with 40 Choice RAMS and RAM LAMBS, which have been bred with the greatest care and nicety for nearly 40 years, and originally from the Flock of his father, a name so renowned in the history of this valuable Breed of Sheep; they combine good size with first-rate quality of wool and mutton, and are well worth the attention of Breeders of pure Southdowns. The whole will be Sold without Reserve, as Mr. Ellman is retiring from farming.
Catalogues, with particulars, may be had on application to Mr. Strafford, 13, Euston Square, London, N.W.; or of Mr. Ellman, Beddingham, near Lewes.

Elmham Hall, Norfolk.

Second Annual and Unreserved Sale of 440 Southdown Sheep, 20 Norfolk Red Polled Cattle, and Letting of 40 Southdown Rams.

MESSRS. F. AND E. BECK are honoured with instructions from the Right Hon. Lord Sondes to offer for SALE, on MONDAY, September 9, next, 70 PURE-BRED SOUTHDOWN SHEARLING EWES, 60 DRAUGHT EWES, 100 SOUTHDOWN EWE LAMBS, and 170 WETHER ditto; 40 SHEARLING and 2-SHEAR RAMS for LETTING, upon the Babraham plan; 17 very handsome NORFOLK RED-POLLED IN-CALF HEIFERS (but some with calf at foot), and 3 YOUNG BULLS.
The Sheep have been carefully bred from the Flocks of the late Jonas Webb and Henry Overman; more recently Rams from the Flocks of the Earl of Radnor and Sir William Throckmorton.
The Heifers are singularly well bred, and are of the most promising description.
The Stock can at any time be inspected upon application to Mr. Fulcher, Elmham Park, distant 1 mile from the Elmham Station on Wells branch of the Great Eastern Railway; and Catalogues may be obtained of the Auctioneers, Oxwick, Fakenham Norfolk.

Trains from London at	8 0 A.M.	Trains from Norwich at	12 Noon.
,, Cambridge at	10 5 ,,	,, Lynn at	12 2
,, Peterboro' at	6 50 ,,	Due at Elmham at	1 33
Passenger Carriage will be attached to Goods Train leaving Norwich at	8 30	Arrives at Elmham about	11.

Conveyances will meet all Trains at Elmham during the day.

SPECIAL NOTICE.

CLAYTON, SHUTTLEWORTH, & CO.,

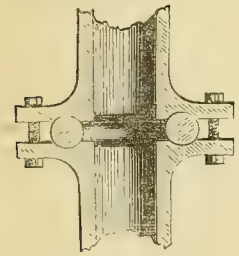
AT THE BURY MEETING OF THE ROYAL AGRICULTURAL SOCIETY OF ENGLAND, RECEIVED THE FOLLOWING AWARDS—

EVERY FIRST PRIZE FOR FIXED AND PORTABLE STEAM ENGINES;

AND THEY WERE ALSO AWARDED THE

PRIZE OF £15 FOR THEIR PORTABLE FINISHING THRESHING MACHINE.

CLAYTON, SHUTTLEWORTH, AND CO., LINCOLN; and 78, LOMBARD STREET, LONDON, E.C.

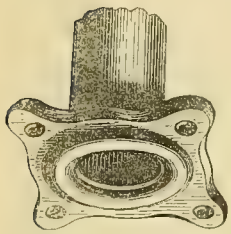


RIDDELL'S

PATENT PORTABLE ELASTIC PIPE JOINT.

Especially adapted for HOT-WATER PIPES for WARMING CHURCHES, PUBLIC BUILDINGS, SCHOOLS, CONSERVATORIES, HOT-HOUSES, &c., is extremely simple, perfectly watertight, saves four-fifths of the time and labour in erecting hot-water work, can be rapidly put together by an ordinary workman, and can be removed and re-erected without injury to pipes or joints.

Prospectus and Price List free.



PATENT PIPE JOINT.

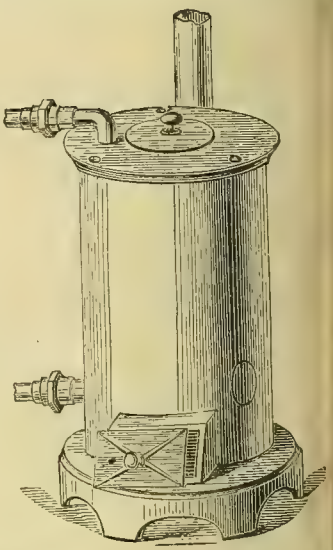
RIDDELL'S

PATENT SLOW COMBUSTION BOILER.

For WARMING CHURCHES, CONSERVATORIES, HOTHOUSES, SCHOOLS, &c., by the circulation of Hot Water, requires no brick-work setting, saves half the fuel usually consumed, is not liable to get out of repair, is easily regulated, will work from 8 to 20 hours without attention, and is made in sizes capable of heating from 30 to 5000 feet of 4 inch pipe.

Prospectus and Price List free.

J. HADLEY RIDDELL, PATENTEE, 155, CHEAPSIDE, E.C.



PATENT SLOW COMBUSTION BOILER.

JOHN WARNER & SONS,

CRESCENT, CRIPPLEGATE, LONDON, E.C.,

BRASS and BELL FOUNDERS to HER MAJESTY, HYDRAULIC ENGINEERS.



No. 35.

35. WARNERS' PATENT CAST-IRON **LIFT PUMPS.**

2½ inches diameter ..	£1	8	6
3 ,, ,, ..	2	1	0
3½ ,, ,, ..	2	6	0
4 ,, ,, ..	2	14	0

No. 37. **SHORT-BARREL DITTO,** FOR SINKS, PLANT HOUSES, &c.

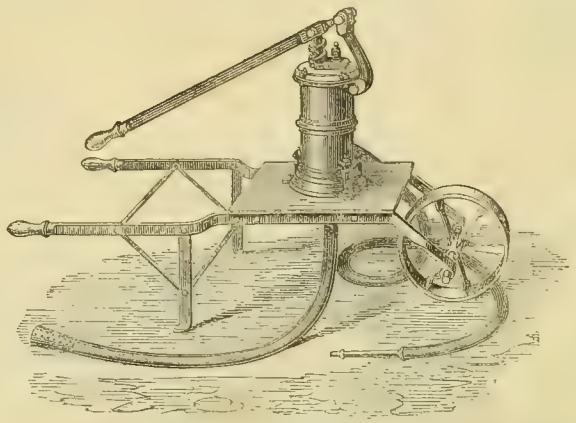
2½ ins. diameter .. £1 1 0



No. 547A.

No. 547A. **GARDEN ENGINE.**

28 Gals. ..	£5	10	
24 ,, ..	4	19	
16 ,, ..	3	14	
10 ,, ..	2	19	



THE CRYSTAL PALACE FIRE ENGINE and GARDEN PORTABLE FORCE PUMP.

Price on Barrow, with Branch Pipe, Spreader, Unions, and Suction Rose, £6.

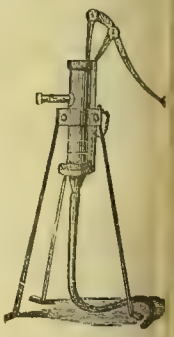
1¾-in. 2-ply Rubber Suction Pipe, per foot, 2*s.* 2*d.*

1¼-in. ditto Delivery Hose, 1*s.* 4*d.*

No. 42. WARNERS' **PORTABLE PUMPS,**

With Improved Valves for Liquid Manure, £2 15*s.*

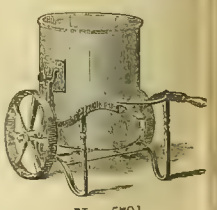
2-in. Flexible Rubber Suction Pipe, in 10, 12, and 15 ft. lengths, per foot, 2*s.* 5*d.*



No. 42.

No. 579½. **SWING WATER BARROW.**

50 Gals. ..	£5	12	
38 ,, ..	3	17	
30 ,, ..	2	13	
20 ,, ..	2	2	



No. 579½.

ILLUSTRATED and PRICED LISTS of Garden Engines, Swing Barrows, Aquajects, Syringes, and Fountain Jets sent on application.

ROYAL AGRICULTURAL SHOW, held at BURY ST. EDMUND'S, 1867.—A SILVER MEDAL was Awarded to JOHN WARNER AND SONS' CHAIN PUM This Pump, from the entire absence of Valves, is especially adapted for the use of Builders, Contr actors, and Farmers.

Editorial Communications should be addressed to "The Editor;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
Printed by JAMES MATTHEWS, at the Office of Messrs. BRADBURY, EVANS, & Co., Lombard street, Precinct of Whitefriars, City of London, in the Co. of Middlesex, and Published by the said JAMES MATTHEWS, at the Office, No. 41, Wellington Street, Parish of St. Paul's, Covent Garden, in the said County.—SATURDAY, August 24, 1867.

THE GARDENERS' CHRONICLE
AND
AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.

No. 35.—1867.] SATURDAY, AUGUST 31. {Price Fivepence. {Stamped Edition, 6d.

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Flax	913 c	— Quekett Microscopical	906 a
Frost, last winter's	903 c	— Dublin Agricultural	913 c
— lessons taught by	904 a	— Liverpool Agricultural	914 b
Funkias	905 b	Steam cultivation, Philips-Smith's	910 a—912 b
Grape, Madresfield Black	902 c	Stonelegh Abbey	907 b
— judging	902 a	Tomatos	903 b
Harvest prospects	910 b	Town gardening	899 c
Haymaking	910 b	Tropæolums	906 c
Hippeastrum pardinum	905 a	Veratrum nigrum	905 a
Mignonette	904 a	Vines, Garston	901 a
Oleanders	904 c		
Orchard-house trees	904 a		

ROYAL HORTICULTURAL SOCIETY, SOUTH KENSINGTON, W.
NOTICE.—A MEETING of the FRUIT and FLORAL COMMITTEES will be held on TUESDAY NEXT, September 3, at 11 or half-past precisely. GENERAL MEETING at 3 o'clock.

CRYSTAL PALACE.—The GREAT AUTUMN SHOW of FLOWERS and FRUIT on TUESDAY, WEDNESDAY, and THURSDAY, September 10 to 12. Schedules on application to I. Wilkinson, Crystal Palace.

BRIGHTON and SUSSEX FLORICULTURAL and HORTICULTURAL SOCIETY.
The FOURTEENTH ANNUAL AUTUMN EXHIBITION will be held on WEDNESDAY and THURSDAY, September 11 and 12, in the Grand Assembly Room, and the Western Lawn and Grounds of the Royal Pavilion, on the same grand scale as former years.
Schedules of Prizes on application to the Secretary, 96, St. James's Street; or E. Spary, Superintendent, Queen's Graperies, Brighton.
Sept. 24. Edward Carpenter, Secretary.

Novelties.
WM. PAUL (Son and Successor to the late A. Paul) respectfully solicits Orders for the NEW and FIRST-CLASS ROSES and BEDDING GERANIUMS, &c., advertised at length in this Paper in May last.
Paul's Nurseries, Waltham Cross, London, N.

Variegated Geraniums.
CASBON and SON hold a large stock of above. Prices on application.
Gravel Walk Nursery, Peterborough.

New Zonal and Nosegay Pelargoniums.
NUNN and HOBDAY, St. Augustine's Nursery, Norwich, beg to inform intending purchasers of the above that they have a large stock of all the best varieties sent out in 1867, from 12s. to 18s. per dozen.

For Present Sowing.
Choice Zonal Geranium, from a Collection of 150 Varieties.
R. WHITE can supply NEW SEED of the above, saved from the choicest flowers, in packets, 1s. 6d., 2s. 6d. 3s. 6d., and 5s. each, post free.
Poole Nurseries, Dorset.

WANTED, CUTTINGS of CHRISTINE, MADAME VAUCHER, and LITTLE DAVID GERANIUMS.
Please state price per 1000 to C. M., Post Office, Esher, Surrey.

SUTTON'S COLLECTIONS of FLOWER ROOTS. For particulars, see SUTTON'S AUTUMN CATALOGUE, gratis and post free on application.
Sutton & Sons, Reading, Berks.

EVERY GARDEN REQUISITE kept in Stock at
Carter's New Seed Warehouse, 237 & 238, High Holborn, London.

Hanover Nursery, Peckham, S.E.
M. A. IVERY, Widow of the late Mr. William Ivery, begs to state that the BUSINESS will be carried on as usual, and trusts to receive that support so long given to her late husband, which shall at all times have prompt attention.
A Select AUTUMN CATALOGUE for 1867 can be had post free on application.

Notice of Partnership.
JOHN SANDY begs to inform the Trade, his Customers, and the Public generally, that he has taken his Son, HENRY SANDY, into PARTNERSHIP; and that in future the Business will be carried on under the name of SANDY and SON.
Nursery and Seed Warehouse, Stafford.—August, 1867.

Genuine Garden and Agricultural Seeds.
JAMES CARTER and CO.,
Seed Farmers, Merchants, and Nurserymen,
237 & 238, High Holborn, London, W.C.

Agricultural and Garden Seeds.
H. and F. SHARPE beg to announce to the Trade that their SPECIAL LIST of HOME-GROWN SEEDS, 1867 Growth, is now ready and may be had on application.
Seed Growing Establishment, Wisbech, Cambs.

RAYNBIRD, CALDECOTT, BAWTREE, DOWLING, and COMPANY, Limited,
Corn, Seed, Manure, and Oilcake Merchants,
Address, 89, Seed Market, Mark Lane, E.C.; or Basingstoke.
Samples and Prices post free on application. Prize Medals, 1851, for Wheat; 1862, for "Excellent Seed Corn and Seeds."

Extra Fine Quality.
COLE SEED, "1866 growth," per bushel of 52 lb., 11s.; 4 bushels do., 40s New 4-8 Sacks, 1s. 6d. each.
EARLY SIX-WEEKS' TURNIP, New Seed, very fine, 9d. per lb. New Bags, 6d. to 9d. each.
EXCELLENT CABBAGE SEED. See Catalogue of varieties.
Remittances to accompany Orders.
Fredk. Gee, Seed Merchant and Grower, Biggleswade, Beds.

Dutch Roots and Spring Gardening Plants.
PAUL and SON invite attention to the very COMPLETE LIST of the above, free on application.
The Old Nurseries, Cheshunt.

Dutch Bulbs.
J. SCOTT'S CATALOGUE of DUTCH FLOWER ROOTS, GARDEN REQUISITES, &c., is NOW READY, and will be sent post free on application.
J. Scott, The Seed Stores, Yeovil, Somerset.

Dutch Roots.
JOHN and CHARLES LEE will be happy to forward their CATALOGUE for 1867 of newly-imported HYACINTHS and other Roots, post free on application.
Royal Vineyard Nursery and Seed Establishment, Hammersmith, London, W.

WM. CUTBUSH and SON beg to say that their DESCRIPTIVE CATALOGUE of CHOICE HYACINTHS, TULIPS, CROCUSES, &c., is now ready, and can be had post free on application. Highgate Nurseries, London, N.

Hyacinths.
WILLIAM ROLLISSON and SONS beg to announce that their CATALOGUE of DUTCH and ENGLISH BULBS is now in the hands of their Printers, and WILL BE PUBLISHED IN A FEW DAYS, when it can be had free upon application.

New Catalogue of Plants, Dutch Bulbs, &c.
ROBERT PARKER begs to announce that his NEW CATALOGUE, containing Select, Descriptive, and Priced Lists of New, Rare, and beautiful Greenhouse, Hardy and Stove Plants, Azalea indica, Fruit Trees, Grape Vines, Rhododendrons, Roses, Sweet Violets, &c.; Amaryllis, Crocuses, Cyclamens, Gladioli, Hyacinths, Liliums, Narcissus, Tulips, and other Bulbs, is now published and will be forwarded to applicants.
Exotic Nursery, Tooting, Surrey, S.

VIOLETS for WINTER and SPRING BLOOMING.—The Undersigned can supply strong healthy Plants, in 5-inch pots, of the following, which are the four best Violets in cultivation. Price 6s. to 9s. per dozen.

THE CZAR	DOUBLE BLUE
NEAPOLITAN	REINE DES VIOLETTES

Francis & Arthur Dickson & Sons, The "Upton" Nurseries, Chester.

Beautiful Foxgloves.
JIVERY and SON can now supply new Seed of their fine strain of the above, in 1s., 1s. 6d., or 2s. 6d. packets; likewise Plants to bloom next season at 6s. per doz.
Dorking and Reigate Nurseries.

Strawberries.
A DESCRIPTIVE CATALOGUE of STRAWBERRIES, Classed, free per post.
Thos. Rivers & Son, Nurseries, Sawbridgeworth.

Strawberries.
CHARLES TURNER is now prepared to supply strong Plants of the best modern kinds, as well as all the leading established varieties, true to name.
A DESCRIPTIVE LIST may be had on application.
The Royal Nurseries, Slough.

Orchard-house Trees Fruiting in Pots.
PEACHES, NECTARINES, APRICOTS, CHERRIES, PLUMS, PEARS, APPLES, VINES, and FIGS.
Richard Smith, Nurseryman and Seed Merchant, Worcester.

Highly Cultivated and Regularly Transplanted Nursery Stock.
EIGHTY ACRES of the above, consisting chiefly of FRUIT TREES, ROSES, EVERGREENS, and ORNAMENTAL TREES, which for general excellence are unsurpassed.
Thomas Warner, Leicester Abbey Nurseries.

Richmond Nurseries, Richmond, Surrey.
TO NOBLEMEN and GENTLEMEN making large PLANTATIONS, or PLANTING ORCHARDS or WALLS with FRUIT TREES, and requiring quantities of superior Coniferous and other Evergreens, Ornamental Flowering Trees, Shrubs, &c., or Dwarf-trained, Standard, or Spiral Fruit Trees. Special prices will be given on application to
G. & W. Steele, of the above Nurseries.

ECHIVERIA METALLICA. — Fine Plants of this beautiful Greenhouse Plant at 8s. per dozen.
Dillistone & Woodthorpe, Munro Nursery, Sible Hedingham, Essex.

Winter Blooming Plants.
F. and A. SMITH have a large and clean Stock of well-grown plants to offer of the following:—AZALEAS, ACACIAS, CAMELLIAS, EPACRIS, ERICAS.
LISTS, with prices, on application.
The Nurseries, Dulwich, S.

HOTHOUSE and GREENHOUSE PLANTS for SALE.—A private Collection, about 300. Apply to Mr. Abbott, Abbott's Nursery, Belsize Road, Finchley Road.

ORCHIDS.—A Small Collection of the best varieties for SALE, on account of owner's ill health.
For particulars, &c., address H., Post Office, Retford, Notts.

A COLLECTION of ORCHIDS, of unrivalled richness, consisting of about 1100 Species, is to be SOLD, preferentially undivided, but a single plant may be also obtained. Parties inclined to buy are requested to send their address to "F. G. 668," Messrs. Haasenstein & Vogler, Hamburgh.

WANTED, MYRTLES, strong Plants, in Pots.—State price per dozen and hundred to
J. Luff, Nurseries, Battle, Sussex.

SPECIMEN PLANTS WANTED.—A large Conservatory, 130 feet long, and 30 feet high, has been erected at the Royal Park, Leeds. PLANTS or SHRUBS are WANTED. Must be large, good, and cheap.
Thomas Clapham, Royal Park, Leeds.

THIRTY THOUSAND HERBACEOUS and ALPINE PLANTS, in pots, now ready. An inspection respectfully requested. CATALOGUES early in September, sent on receipt of postage stamps.
Thos. S. Ware, Hale Farm Nursery, Tottenham, N., adjoining the Railway Station.

To Private Growers.
TO BE SOLD, in consequence of alterations, a very choice Assortment of STOVE, GREENHOUSE, and SPECIMEN PLANTS, some excellent FERNS, &c. Also a few POT TREES, such as Peaches, Nectarines, Oranges, Lemons, &c.; and a neat FOUNTAIN KERB, with 4 COPPERS, containing handsome vase in centre. Apply to
The Gardener, St. Matthew's Lodge, Norwich Road, Ipswich.

Calceolaria, Cineraria, Primula fimbriata.
SUTTON and SONS can supply NEW SEED of the above, saved from choicest flowers, in packets, 1s., 2s. 6d., and 5s. each, post free.
Royal Berkshire Seed Establishment, Reading.

Sow in August.
DOBSON'S PRIZE CALCEOLARIA SEED, the finest strain in the world: per pckt., 1s. 6d., 2s. 6d., 3s. 6d., 5s.
Dobson & Sons, Woodlands Nursery, Isleworth, W.

New Seed of 1867, choice quality.
DOBSON'S PRIZE CINERARIA, 1s., 2s. 6d., 5s.
DOBSON'S PRIZE PRIMULA, 1s., 2s. 6d., 5s.
DOBSON'S PRIZE BALSAM, 1s., 2s.
Dobson & Sons, Woodlands Nursery, Isleworth, W.

Choice Seeds.
CHARLES TURNER'S superior CALCEOLARIA, CINERARIA, and PRIMULA are now ready, in packets, 2s. 6d. each. The Royal Nurseries, Slough.

Calceolaria and Cineraria.
WHEELER'S CALCEOLARIA is of the finest Strain, and second to none; 1s. 3d., 1s. 6d., and 2s 6d. per packet.
The CINERARIA is saved from the finest varieties; 1s., 1s. 6d. and 2s. 6d. per picket.
G. Wheeler, Nurseryman, Warminster, Wilts.

Roses in Bloom.
WM. PAUL'S ROSES are NOW IN FULL BLOOM. Inspection respectfully invited. Trains almost hourly from Shoreditch to Waltham Station, Great Eastern Railway.
Paul's Nurseries, Waltham Cross, N.

ROSES ON OWN ROOTS.—These young Plants, in Pots, are now Ready, of the several leading sorts. Just now is the best time for planting. Our Selection, 12s. per doz., 75s. per 100.
Paul & Son, The Old Nurseries, Cheshunt.

To the Trade.
MARSHAL NIEL ROSE, from own roots, in pots, by the 100 or 1000, at £5 per 100.
G. Baker & Son, American Nursery, Bagshot.

NEW ROSES for 1867.—Strong Plants of all the best NEW ROSES now ready.
DESCRIPTIVE LIST, with prices, on application.
John Cranston, King's Acre Nurseries, near Hereford.

CULTURAL DIRECTIONS for the ROSE. Second Edition. By John Cranston, King's Acre Nurseries near Hereford. Free by post from the Author for 20 stamps.

Roses.
JOHN CRANSTON has the pleasure to announce that his ROSES are NOW IN FULL BLOOM, and that the whole of his stock is in the finest condition possible.
The severe frosts (which proved so destructive in many parts of England throughout last winter) not having visited this locality, he is happy to say that his Roses, Conifers, and other Trees, escaped entirely unharmed.
Nurseries, King's Acre, near Hereford.

Roses, Roses, Roses.
PLANTS of all the FINEST VARIETIES in CULTIVATION will this Autumn be in magnificent order, in the Castle Street Nurseries, Salisbury.
The frost of May 24 destroyed all the blooming buds; the consequences are that the Plants have produced the most vigorous growth.
Amateur Rose Growers may insure the finest Plants that can possibly be produced, true to name. CATALOGUES on application.
VINES, from Eyes, the finest in England, 10s. 6d. each, in October next. John Keynes, Castle Street, Salisbury.

Roses, Orchard Houses, and Experimental Fruit Tree Culture.
THE NURSERIES at SAWBRIDGEWORTH, 100 Acres in extent, are OPEN to the inspection of Amateurs interested in the above.
The Harlow Station (1¼ mile distant), G. E. R., where Flys are in attendance, is the most convenient.
Thos. Rivers & Son.

Ferns.
WILLIAM ROLLISSON and SONS also beg to intimate that their DESCRIPTIVE CATALOGUE of FERNS, LYCOPODS, &c., is being distributed, and will have much pleasure in forwarding the same, free of charge, to all applicants.
William Rollisson & Sons, The Nurseries, Tooting, London, S.

NEW FERN, SCOLOPENDRIUM VULGARE, var. COOLINGII.—A dwarf variety between S. Wardii and S. digitatum, very distinct and beautiful. Nice Plants are now ready for distribution at 7s. 6d. each.
A Coloured Plate free by post for two stamps.
Edwin Cooling, Mile Ash Nurseries, Derby.

British Fern Catalogue.
ROBERT SIM can now send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his NEW and PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.
Foot's Cray Nursery, S.E., a mile from Sidcup Station of New North Kent Line of South Eastern Railway.

To the Trade and Large Purchasers.
PONSFORD and SON have to offer the following FERNS, in strong plants, cheap. Prices on application:—

BLECHNUM CORCOVADENSE	
NOTHOCHLÆNA NIVEA	
PTERIS CRITICA ALBO-LINEATA	PTERIS LONGIFOLIA
	„ SERRULATA CRISTATA
	„ TRICOLOR (fine)

Brixton Place, Brixton, Surrey, S.

Ferns from New Zealand.
FOR SALE (just arrived from New Zealand), TWO CASES of GROWING FERNS. May be seen at Messrs. Levy Brothers, Southwark Street, Borough.

Grass Seeds for Autumn Sowing.
SUTTON'S PERMANENT GRASS SEEDS FOR ALL SOILS.
Prices (according to sorts required and soils for which they are intended), may be had on application.
Sutton & Sons, Royal Berkshire Seed Establishment, Reading.

SUTTON'S IMPROVED ITALIAN RYE-GRASS, the Best and Most Productive in Cultivation.
Sutton & Sons can supply New Seed of the above at 6s. per bushel, or cheaper in large quantities.
August and September are the best months for Sowing.
Sutton & Sons, Royal Berkshire Seed Establishment, Reading.

STRAWBERRIES.

DR. HOGG.—Very large, extra fine Pine flavour, and a good bearer. One of the finest in cultivation.
THE LADY.—All the fruit of a good equal size without thinning; immense cropper for forcing, as we proved lasts pring; flavour highly perfumed.
BRITISH QUEEN, PRINCE ARTHUR, KEEN'S SEEDLING.
CRIMSON QUEEN, SIR CHARLES NAPIER.
Prices—Established in large 32 pots for forcing, from 75s. to 100s. per 100. Strong layers in 60 pots, from 25s. to 50s. per 100. Strong runners from 5s. to 21s. per 100. A large collection of other varieties, strong, well-rooted runners, 5s. per 100.
JOHN & CHARLES LEE, Royal Vineyard Nursery and Seed Establishment, Hammersmith, London, W.

New Perpetual Pine-apple Strawberry (Gloede), and Liliums.

A. VAN GEERT, NURSERYMAN, Ghent, Belgium, begs to offer the above STRAWBERRY, good plants, which will be ready in a few days, at £1 5s. for 50, and £2 for 100 plants.

		Per 100—£	s.
LILIUM LANCIFOLIUM	PUNCTATUM, very strong roots,	8	0
" "	RUBRUM, ditto	2	10
" "	ALBUM, ditto	3	0
" "	ROSEUM, ditto	2	10
" EXCELSUM, ditto		8	0
LONGIFLORUM, ditto		1	10
" THUNBERGIA GRANDIFLORA		8	0
" " AUREUM		4	0

Important to Gentlemen engaged in Planting, Landscape Gardeners.

SALE BY AUCTION OF HIGHLY VALUABLE NURSERY STOCK.

JOHN CRANSTON begs to say that from the greatly increased demand for ROSES during the last two or three years he finds it absolutely necessary to very considerably extend their Cultivation, both out-of-doors and under glass. To enable him to accomplish this in a manner fully and satisfactorily to meet the demand, he feels compelled to clear a very large portion of his Nurseries, now stocked with valuable collections of Fruit Trees, Conifers, Evergreens, Deciduous Ornamental Shrubs, Forest Trees, &c.; likewise a fine Collection of Camellias, Azaleas, Geraniums, and Miscellaneous Greenhouse Plants, now occupying several large houses.

He will, therefore, in future be able to devote at least the one-half of his Nurseries, which extend over 50 Acres, solely to the cultivation of Roses, as well as five or six large Houses for the propagation of Tea-scented and other tender sorts in pots.

The fact of his having on every occasion during the season taken the First Prize for the large Collection of Roses at the Metropolitan and other Rose Shows, coupled with the regular increase of orders which has been going on for years, convinces him of the necessity of losing no time in taking the course he herein proposes.

Mr. SUNDERLAND has received instructions to SELL by AUCTION, on the premises, at the King's Acre Nurseries, on September 30, 1867, and following days, a large portion of the GENERAL NURSERY STOCK, comprising—

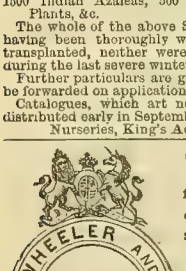
25,000 Dwarf-trained, Pyramid, and Standard Peaches, Nectarines, Apricots, Pears, Plums, Cherries, and Apples, all well grown and finely trained—the greater portion are large-sized bearing trees.
1,000 Peaches, Nectarines, Pears, Plums, Cherries, and Figs in pots.
300 Grape Vines.
15,000 Common Laurel, 2 to 3 feet.
30,000 Coniferæ, including beautifully grown plants of Cedrus Deodara, Cedrus atlantica, Cupressus Lawsoniana, Thujopsis borealis, English Yew, Pinus austriaca, Pinus insignis, Araucaria imbricata, &c., varying in height from 2, 3, 4, and 6 to 8 feet, and many of them fine specimen trees.
2,000 Wellingtonea gigantea, from 2 to 3 feet, beautifully grown plants, all regularly transplanted.
3,000 Rhododendrons, 2½ feet.
Several thousand Berberis Darwinii, variegated Holly, Arbutus, &c.
A quantity of the New Japan Aucubas, &c.
A large quantity of Deciduous Ornamental Trees and Shrubs, including 1000 Standard Double Pink, Scarlet and other Thorns, Weeping Ash, Beech, Oak, Elms, &c.
2000 Deutzia gracilis, suitable for forcing.
Climbing and Wall Plants, all the leading kinds of Clematis, Lonicera, Ceanothus, &c.
300,000 Transplanted Forest Trees, including Ash, Spanish Chestnut, Larch, Scotch, English Oak, Spruce Fir, Thorns, &c., varying in height from 2 to 4 feet.
1500 Indian Azaleas, 500 Camellias, miscellaneous Greenhouse Plants, &c.

The whole of the above Stock is in the finest condition possible, having been thoroughly well grown, and regularly and carefully transplanted, neither were any of the Trees injured in the least during the last severe winter.

Further particulars are given in circulars now published, and will be forwarded on application.

Catalogues, which art now in course of preparation, will be distributed early in September.

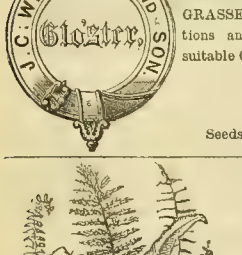
Nurseries, King's Acre, near Hereford.—Aug. 1, 1867.



GRASS SEEDS for PERMANENT PASTURE, of the finest quality, at moderate prices, carefully selected on a new, natural, and scientific system.

See "WHEELER'S BOOK on GRASSES," which contains Illustrations and Descriptions of the most suitable Grasses for Permanent Pasture.

J. C. WHEELER & SON,
Gloucester,
Seedsmen to the Gloucestershire Agricultural Society.



COCOA-NUT REFUSE is becoming SCARCE, the old reserves will soon be gone. Now sold in bags, 1 for 2s., 10 for 16s., 20 for 30s., 50 for 66s., 100 for £6.

Fourpence allowed for each bag returned carriage-paid.

A Railway Truck-load (not in bags), 40s.

Postage Stamps or Post-office Order, payable to J. BARSHAM & Co., Kingston-on-Thames, S.W.



GISHURST COMPOUND.

Used by many of the leading Gardeners since 1850, against Red Spider, Mildew, Thrips, Green Fly, and other Blight, in solutions of from 1 to 2 ounces to the gallon of soft water, and of from 4 to 16 ounces as a Winter Dressing for Vines and Fruit Trees. Has outlived many preparations intended to supersede it.

Sold Retail by Seedsmen, in boxes, 1s., 3s., and 10s. 6d.

Wholesale by
PRICE'S PATENT CANDLE COMPANY
(LIMITED).





JAMES CARTER AND CO. beg to announce that they are now sending out their unrivalled Strains of CALCEOLARIA, CINERARIA, and PRIMULA, which, for fineness of form and beauty of colour cannot be surpassed.

CALCEOLARIA, saved from the finest Prize varieties.
CINERARIA, saved from the finest named varieties.
PRIMULA SINENSIS FIMBRIATA, dark carmine and pure white, saved from the finest fringed varieties in cultivation. Price, each packet, 2s. 6d., forwarded on receipt of Post-office Order for the amount.

☞ PRICE LISTS gratis and Post free on application to CARTER'S Great London Seed Warehouse, 237 & 238, High Holborn, London, W.C.

Dutch Flower Roots,



ARCHIBALD HENDERSON begs to announce that he has received a large Consignment of Dutch and other Roots, carefully selected from the most celebrated growers.

DESCRIPTIVE and PRICED CATALOGUES are now ready, containing practical directions for their successful cultivation on all the various systems now adopted.

Also a CHOICE and SELECT LIST of VEGETABLE and HARDY FLOWER SEEDS for Autumn Sowing. Catalogues gratis and post free upon application.

Sion Nursery, Thornton Heath, Surrey, and at the East Surrey Seed Warehouse, College Grounds, North End, Croydon.



Hyacinths for Exhibition.

MESSRS. SUTTONS' COLLECTIONS include the varieties so much admired at the spring shows, and they are now prepared to receive orders for the same at the following prices:—

The Choicest 100 Sorts, £4 4s., carriage free.
The Choicest 50 Sorts, £2 2s., "
The Choicest 25 Sorts, £1 1s., "
The Choicest 12 Sorts, £0 12s.

Cheaper Roots, 6s. to 9s. per dozen.

HYACINTHS for Beds and Open Borders, 3s. per dozen, 21s. per 100, carriage free.

SUTTON & SONS, Importers, Reading, Berks.



Early Spring Feed, Trifolium incarnatum.

SUTTON'S ITALIAN RYE-GRASS.
NEW LATE RED TRIFOLIUM.
NEW LATE WHITE TRIFOLIUM.

These are invaluable articles for early Spring Feed, either grown separately or together. The proper quantity of Italian Rye-grass, if sown alone, is 3 bushels per acre, or if Trifolium alone, 28 lbs. per acre.

The New Seed is now being harvested, and we shall be pleased to send samples and lowest prices per quarter and cwt. on application. Also MUSTARD and RAPE, New Seed.

All goods carriage free, except very small parcels.

SUTTON & SONS, Seed Growers, Reading.

Camellias, Azalea indica, Otaheite Oranges, &c.

JEAN VERSCHAFFELT begs to solicit early orders for the above, the stock, although very fine, being rather limited this year, especially as regards Camellias, which are not so well set as usual.

All orders to be addressed to JEAN VERSCHAFFELT, Nurseryman, 134, Faubourg de Bruxelles, Ghent, Belgium.

VARIEGATED PELARGONIUMS.

SOPHIA DUMARESQUE	ITALIA UNITA
MRS. BENYON	COUNTESS
GOLDFINCH	ELEGANS
LUNA	THE FAIRY
BEAUTY of OULTON	PRINCESS ALEXANDRA
NEATNESS	BICOLOR SPLENDENS

The above forwarded on receipt of Post Office order for 21s.
ALFRED FRYER, Nurseries, Chatteris, Cambridgeshire.

New Plants.

H. CANNELL begs to inform his Customers that his NEW CATALOGUE is NOW READY, and sent free for two stamps. It contains a full description of all the NEW FUCHSIAS, VERBENAS, PETUNIAS, LOBELIAS, &c., and a number of the NEW GERANIUMS, and all the NEW BEDDING GEMS of the year; and also a few and valuable idea in the arrangement of Bedding Plants. Fuchsia Nursery, Woolwich.

New Zealand Nursery, St. Alban's, Herts.

J. WATSON'S beautiful BEDDING PELARGONIUM EXCELSIOR, now ready; colour of Indian Yellow; fine truss, and habit of Lord Palmerston. Price 5s. each; 36s. per doz. to the Trade.

MISS WATSON, ready August 25; MRS. DIX, May 1. The Two have received 10 First-class Certificates and Extra Prize Money.

Fine New TABLE APPLE, ST. ALBAN'S PIPPIN, Ripe in April. Plants ready in November. 5s. each; 36s. per doz. to the Trade.

DESCRIPTIVE LIST sent on application.

CHEAP NEW PLANTS.

6 of the best NEW NOSEGAY PELARGONIUMS.
6 of the best ZONAL PELARGONIUMS.
6 of the best NEW PETUNIAS.
6 of the best NEW PENTSTEMONS.
6 POA TRIVIALIS ARGENTEA ELEGANS.
6 ALTERNANTHERA PARONYCHOIDES.
6 IRESINE AUREA RETICULATA.

The above collection, well rooted and established in pots, for £1, package included.

NUNN & HOBDAY, St. Augustine's Nursery, Norwich.

HARDY CLIMBERS and PERMANENT BEDDING PLANTS.—Eleven First-class Certificates awarded to Messrs. GEO. JACKMAN & SON, by Royal Horticultural and Royal Botanic Societies of London.

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The Gardeners' Chronicle.

SATURDAY, AUGUST 31, 1867.

MEETING FOR THE ENSUING WEEK.

TUESDAY, Sept. 3 { Royal Horticultural (Fruit and Floral Committee), at South Kensington .. 11 A.M.
{ Ditto (Scientific Discussion) .. .. .. 3 P.M.

HOWEVER excellent we may be as a nation of GARDENERS, it is a lamentable fact that our superiority in this way is not to be found where it is most likely to be of service to the greatest numbers, *i. e.*, IN OUR TOWNS AND CITIES. In the suburbs of nearly every town and city in the United Kingdom, green, fresh and beautiful gardens may be found; but enter the towns themselves, and how rarely do we find any attempt made to bring fresh green trees or other vegetation near the dense haunts of men! Our present state of trade and civilisation leads men to congregate more and more in towns and cities —these are every day growing bigger and extending, but without, we are sorry to say, exhibiting the corresponding indications of presenting anything to the eyes of the busy,

weary crowds of men who inhabit them, but piles of black and sooty bricks, depressing as depressing can be in winter, and worse, if that be possible, when the summer's sun illumines the sooty surfaces, and shows their ugliness without reserve. Should this be so? Are the designers and managers of our towns justified in persevering in this peculiarly British mode of depriving the more important part of our population from even a trace of vegetable beauty? Surely this is not creditable to the "capital of the world," and the other cities which are spreading fast to keep up with it. Is it enough to create parks and squares at great distances apart in our towns, and leave square miles of densely packed human beings to breathe a vitiated atmosphere all their lives?

The partial good that is effected by fine parks here and there, and in or towards the outskirts of a city is as nothing compared with what may be effected by so planting and planning streets and roads, as that the air in which the people work and sleep may day and night be comparatively pure and free, and the eye refreshed with green at almost every point. It is so in many continental cities much smaller than many of ours, and whose population cannot be said to want it so much as our hard-working people, engaged so much indoors from day to day. It may be said that the ground is too precious in our more important cities to permit of this; but that this is not the fact is proved by the vast areas which are covered by miserable shanties of houses — occupying ground that might more healthfully accommodate six times the number of persons. It is the will and the governing power, that we want. We have been going on for long years congratulating ourselves upon our free system of government, by which everything regulates itself—theoretically, at all events, and so also everybody and everything is about as it ought to be. Nevertheless, the way in which we have been surpassed in this direction by our neighbours, is patent to all who visit Paris, and calls for a general protest against the management of London and our great towns generally. In Paris vehicles roll, not grind, over crisp, level roads; horses and men do not describe "lines of beauty" in the streets while endeavouring to avoid the last deposit of sharp broken rock; every new boulevard or street is wide enough for the breeze to "feel its feet" therein, and remove impurity almost as freely as in the open country; there is hardly a street more than five minutes' walk from healthy lines of trees; the streets are watered most conveniently and regularly in summer. Unfortunate navvies do not pound away with mallets so laboriously that they are an object of pity to the passer-by, but heavy steam and horse-moved rollers move along steadily day and night, crushing into the pleasantest of surfaces, the *débris* which we in England leave the poor horses to trample down.

It is obvious that if some change does not start us on the same happy road to improvement, the condition of London and other cities will soon be a reproach to the nation. The remedy is obvious. It may be said that trees would not flourish if planted in London, as they do in Paris, but from an examination of the soil of the two places we have no doubt whatever that they would do better in London of the two, and there are a sufficient number of deciduous trees which we know to flourish freely here; indeed, if there were none but the noble common Plane, it would be sufficient for our purpose. Some may object to the drip of trees in our moist climate, but there is but a very slight difference between the climate of Paris and that of London, and in any case the trees and footways are so arranged in Paris that if it rained there every day in the summer, the drip would be no inconvenience; while the plan of having wide footways and streets is more wanted in our cities where traffic and crowd are so much denser. Let us be distinctly understood not to advocate expensive annual gardening more than it is at present pursued in our cities, but the planting abundantly of fine hardy trees, the opening up of our towns by wide breezy roads, and their planning so that pestilential crowding may be impossible, with not a few minor improvements which we may indicate at some future time. Nobody can be better aware than ourselves of the difficulty of making any alterations of this kind in the older parts of our cities, or of the inertia that has to be moved before we can do any good in the matter; but we also know how very easily the thing may be done if public attention is once sufficiently attracted to the matter, and of the splendid opportunities which occasionally occur for carrying it out—the Thames embankment to wit. Imagine how beautiful our noble river and magnificent bridges would look if flanked by lines of trees, and how well their verdure would tell when seen from the river behind the massive and highly suitable stone work of the greatest improvement ever effected in London. Let us hope the opportunity will not be lost. In Paris every spot for miles along both sides of the river is planted, not only the edges of the quays but the paved banks of the river itself, wherever they are sufficiently exposed. If, as we trust, those large and excellent dwelling-houses for the working-classes, originated through the generosity of Mr. Peabody and the thoughtful philanthropy of Alderman Waterlow and other gentlemen, become as prevalent as they ought, another excellent opportunity for tree planting will be had, for of course it would be unwise to place those large buildings along narrow streets; but unless a total change comes over our system of arranging these matters, it is hopeless to expect a radical improvement. Come when it may, we trust it must come some day, assured that it will effect more for our cities, from both a sanitary and æsthetic point of view, than almost any other improvement whatever.

A ramble through the Flower Garden at Battersea Park, where the arrangements are always so admirably carried out by Mr. Gibson, is one of the annual floral treats of the metropolis, and one to which we always look prospectively with confident anticipation of seeing something good, and retrospectively with the most lively recollections of pleasurable anticipations fully or more than fully realised. This year we must confess to having started on our ramble with some misgivings about Subtropical Gardening, at least in certain of its phases, but they were soon dispelled by the bright pictures of exotic beauty which met the eye in every direction.

Subtropical gardening has indeed this season been put to a severe trial, but it has firmly held its ground. The moist sunless summer, and especially the chilly and often frosty nights, have been all against it; but notwithstanding these, and other adverse climatal conditions, we were glad to see that the effects produced are very little different from, and, as it appears to us, scarcely at all inferior to, those which have been realised in the more favourable seasons which have occurred since the movement was first inaugurated. Ferdinandas, Polymnias, Wigandias, Uhdeas, and such-like grand-leaved things, are growing freely; and though they have not attained the stature of other years, they have still sufficiently advanced beyond the range of growth presented by the ordinary vegetation of flower beds to yield the full general effect of which their stately forms are capable; while, on the other hand, the dripping season seems to have suited certain things, such as Palms, Tree Ferns, Dracænas, and Aralias, exceedingly well, and charming indeed is the effect presented by one or two specimens of Seaforthia, as seen springing from the velvety turf, and by a grove of Tree Ferns in a secluded nook, where the Bird's-nest Thamnopteris is scattered about beneath, as if it had sprung up self-sown. Cannas are this year in all their glory, and in a group of the variety known as "limbata," the roots of which have passed two winters in the beds where they are now growing, they cannot measure less than 12 feet in height, presenting a grand mass of its broad and healthy foliage, waving with every breeze, and lit up with a profusion of its characteristic flowers.

Amongst the bright gems of former years, which this season must somewhat suffer by comparison, may be mentioned the charming setting of the ruby Coleus Verschaffeltii, in its border of silver Centaurea, a group which has usually been no less remarkable for its chaste and quiet loveliness, than for its perfectness of finish. The group is, indeed, there again, and the colours are very fairly developed; but Coleus has proved intractable as to growth, and the finish of perfectly balanced development is wanting. But then, to compensate for the less perfect condition of a few groups of tender subjects such as these, there are new groups and new effects brought out; and one of these is so startling in its quaintness, that we give it a foremost place amongst the happiest of Mr. Gibson's ideas. It seems hardly possible at first sight to realise that one is looking upon a group of living plants, so strange and unfamiliar do their forms appear in this new association. Let the reader picture to himself a circular raised bed of moderate diameter, 5 or 6 feet perhaps, having a large plant of Echeveria metallica in the centre, and six smaller ones standing at a little distance round about it. Then, close to the central plant, and fitting in beneath its leaves, a ring of single-stemmed plants of Sempervivum arboreum, other plants of which again alternate with the smaller Echeverias, but stand a little nearer the circumference. These quaint-looking fleshy forms of foliage, the green of the Sempervivum contrasting strongly with the glaucous, coppery-tinted, metallic hue of the Echeveria, stand up on little elevations in prominent relief, and the surface of the bed is hollowed out between them, and entirely clothed with the little close-growing Sedum glaucum, the circle being neatly margined with a broadish line of Sempervivum montanum, and outside that with one composed of a small, tufted-growing, encrusted Saxifrage. The bed thus filled presents a marvellous appearance, so original is it in conception, so perfect in design and execution, wanting altogether the elegance we are so apt to demand in flower-garden groups, and yet most fascinating in its entire novelty of character and its striking associations of form and colour. It is the crowning effort of 1867 at Battersea.

— M. De Candolle's code of regulations concerning the Nomenclature of Plants brought before the Botanical Congress at Paris, of which we have previously made mention (see p. 852) was referred to a Committee consisting of MM. Dumortier, Eichler, Weddell, Cosson, Bureau, Planchon, and the author. The Committee discussed each paragraph separately, in four consecutive meetings, and the result, we learn, has been the adoption of the code with some slight modifications. A few other alterations were subsequently made at a general meeting of the members, when the entire code was read. No essential point has been changed. Certain points on which opinions were divided were left as open questions. Thus, for the "Cohorts" M. De Candolle had proposed a uniform termination of "ales" as used for the corresponding "Alliances" by Lindley. Some of the members, however, seemed to prefer the varying form used by Endlicher, as the termination "ales" does not always accord well with the word to which it is affixed. It was decided that the words "opsis" and "oides," which were proposed to be omitted after words derived from the Latin, should be retained, as not being so contrary to the genius of the Latin language as had been supposed. The code, as thus revised, will shortly be printed in the Transactions of the Congress, and it will probably be translated into English and German. The discussion was brought to a close by a unanimous resolution of the botanists assembled in Paris at the International Botanical Congress of 1867—"That the Congress having taken into consideration the pamphlet of M. Alphonse De Candolle on the Laws of Botanical Nomenclature (previously referred to a special sub-committee), adopt the report of the sub-committee, and recommend that the rules laid down by M. Alphonse De Candolle, with the amendments made in Committee, be henceforth adopted as the best guide to be followed in the matter of Botanical nomenclature." More than a hundred botanists, representing France, Germany, Belgium, Great Britain, Russia, Italy, Brazil, New Grenada, &c., were present. M. De Candolle, as already stated, was the President of the Congress; but during the discussion of the subject of his pamphlet, the chair was taken by M. Dumortier.

This is a practical result of a gratifying character, and assuredly no tribunal is more competent to decide on such matters than a general International Council, like those that have within the last four years assembled at Brussels, Amsterdam, London and Paris. We shall return to the subject shortly.

— The following note has been transmitted to us by Dr. John Edward Gray, of the British Museum, who, as it will be seen, has just executed a graceful and "pious" act, in causing to be erected a tablet to the memory of Sir Joseph Banks, a man to whom horticulturists, the Horticultural Society especially, are under great obligations. It is not creditable that the grave of such a man should have been left so long unmarked by a memorial tablet. This is not the only graceful act of this nature performed by Dr. Gray. The trustees of the British Museum have lately been presented by him with a portrait, from the brush of Mr. Carpenter, of Sir Henry Ellis, the principal librarian, under whose reign the Museum was so essentially reformed. It is not long since that we had to record another act of regard to the memory of a deceased friend on the part of Dr. Gray, who published a portion of Salisbury's "Genera Plantarum" (see p. 686, 1866), a fragment full of curious information. Dr. Gray's note, above referred to, is as follows:—

"Mr. John Smith, the late curator of the Kew Gardens, having mentioned to me that he believed he was the only person now living who knew where Sir Joseph Banks was buried, not finding it mentioned in 'Weld's Biography,' I wrote to the Rev. E. Spooner, the vicar of Heston, near Hounslow, the place Mr. Smith indicated, to make inquiry, and received the following reply:—

"'Sir Joseph Banks was buried in Heston Church,

in 1820. During the late rebuilding it was found necessary to open the vault, his coffin was found there, with the name on it, in a very good state of repair. There is no tablet of any sort put up to his memory.'

"I have caused a white marble mural tablet to be put up in the church, inscribed:—'In this Church is buried the Right Honourable Sir Joseph Banks, Bart., C.B., President of the Royal Society from 1778 to 1820. Died at Spring Grove, 19th of June, 1820, aged 77.'

"Sir Joseph Banks was a rare, I may say an unique, example of a country gentleman of large fortune, devoting it and his time and energies to the promotion of science, making his house the rendezvous of the scientific men of all nations. I owe much of my success in life to Sir J. Banks' kindness and liberality. Dr. Leach introduced me to him in 1816, and he allowed me to have the free use of his library and collection, thus enabling me to study Botany and Zoology, and to become acquainted with the scientific men of the period."

New Plants.

Dendrobium Gouldii, *sp. n.*

Ceratobium mento extinctoriiformi, sepalis ligulatis obtuse acutis, tepalis spatulatis, longioribus bene tortis, labello cuneato dilatato trifido, laciniis lateralibus acutangulis prope rectangulis, lacinia media spatulata obtusa, carinis ternis a basi in disco laciniæ anticæ, ibi apice abrupto triangulo evanescentibus, columnæ auriculis anticis argute bidentatis erectis,

β. acutum: Floris tela tenuiori, labelli lacinia antica cuneato ovali acuta.

This appears to be a very handsome plant. Its flowers are in the way of those of Dendrobium taurinum, Lindl., apparently whitish, with yellow and some purplish veins in the typical plant, and much more delicate, with beautiful purple on the anterior part of the lip, in the var. acutum. The shape of the flowers is very elegant, and we believe they may last a long time in bloom—at least the flowers of the type have a very firm substance. It is one of the numerous Polynesian discoveries of Mr. John Gould Veitch, the adventurous and successful traveller. In dedicating it to this gentleman we do so with the intention of connecting all his names with the Dendrobia—Johannis, Gouldii, and Veitchianum, and we feel pleased to pay our excellent friend this probably novel compliment.

Cœlogyne Rhodeana, *sp. n.*

Affinis Cœlogyni flaccidæ, Lindl., pedunculo pluriflovo, densifloro, bracteis spathaceis ovaria pedicellata excedentibus, sepalis lateralibus carinatis, labelli oblongo acuto, obscure trilobo limbo anteriori subserrulato, carinis serrulato plicatis ternis a basi apicem usque, columnæ limbo apice denticulato.

This is a pretty Cœlogyne, much like C. flaccida, but with a pleasant smell. The sepals are ligulate acute, the petals linear lanceolate, and the lip dark brown. It is probably a native of the Molucca Islands. We were indebted for the first specimens to Consul Schiller. Later we obtained it from England, from Mr. Low. It is named in compliment to G. Rhode, Esq., of Leipsic, the most zealous lover of plants we have met with, whose drawing-rooms are decorated with innumerable splendid flowers. But when frost forbids the introduction of these rarities into his house, then a formidable army of artificial zinc flowers, prepared with artistic skill, takes the place of the true flowers.

Odontoglossum vexillarium, *sp. n.*

Affine Odontoglosso Phalænopsidi, sepalis oblongis apiculatis, tepalis latioribus obtusis, labello basi angusto sagittato, dein expanso in laminam amplam flabellatam emarginato-bilobam, carinis elevatis lgeminis acutis basi, sepala interposita, columna aptera brevi.

This is a dangerous rival of the old Odontoglossum Phalænopsis itself, bearing a larger, more delicate white flower, with rosy petals, and a rosy lip, yellow at its base. The sagittate lip presents a form which is quite new among these plants. The plant is reported to be small, and the leaves are said to be fine and delicate.

Where does it grow? We are not allowed to say. Who has discovered it? We do not know. Who possesses the specimen? Impossible, too, to say. How do you know it? *Infandum, regina, jubes renovare dolorem.* A friend of ours, Mr. S——t L——, of U——r Cl——n, near London, got the flower for six days' space, in order to lend it to us, after having given his promise, 1, not to show it to anybody else; 2, not to speak much about it; 3, not to take a drawing; 4, not to have a photograph made; 5, not to look oftener than three times at it. We were indiscreet enough to take a description of it, and hope the wonderful beauty will one day appear at South Kensington. *H. G. Rchb. f.*

VINE CULTURE AT GARSTON.—No. I.

Grapes and Vine growing in these days are assuming such a degree of importance as to call forth the best devices and ingenuity of the practical horticulturist. No half measures can be tolerated in the journey through life, travelling as we do in the heat of competition, at a wonderful speed, towards the realisation of any given aim. Given a man of energy, possessed of a discriminating turn of mind, who is not easily upset by intervening obstacles, and it is amazing what he can accomplish if he is not crippled in his resources, by the "needful" not being provided him. Gardening as generally practised, can scarcely be looked upon as a remunerative investment; were it so, its place and position would be vastly elevated. If there be one thing, however, more than another that is capable of yielding a fair return it is Vine-culture, and that unquestionably is one of the principal reasons for the rapidly-extending popularity of Grape-growing under glass.

The majority of horticultural readers, it may be inferred, are personally concerned, some to a greater and some to a less degree, in the cultural routine of Vine management; and I may therefore anticipate engaging some attention when treating upon the practice of one of the most successful cultivators of modern times. To do so profitably, it will be better to avoid mere formal description, and rather to detail the operations involved in border making, houses and their management, sorts in cultivation, and general management throughout. By so doing facts will be brought out, and notes can be compared on points of practice.

Border Making at Garston is like border making everywhere else, in so far that it consists in providing in the first place a system of adequate drainage, next, rubble bottoming, and then, the usual compost for root producing and feeding. It has a charm of novelty about it, nevertheless, which is worth noting, and acting upon. Instead of digging down into the earth, and clearing out everything that comes in the way to a depth of from 4 to 6 feet, so as to square the operation of border-making with the general surface of the ground, Mr. Meredith raises the foundation of his house at least 4 feet above the general ground level, so that there is a corresponding depth of foreign border material, standing high and dry, so to speak, and uninfluenced by weather inclemency. The wisdom of the operation suggests itself to every thoughtful mind. It was only on looking at the elevated position of the houses that one could reconcile one's mind to the idea that these long stacks of houses, filled up in the usual preserving fashion, running parallel with the span-roofed houses, and appearing in the distance like a dwarf retaining wall, were veritable Vine borders. Mr. Meredith, who is fond of a dry joke, whiffed his cigar voluptuously, and the depth of his silence, and the truly bewitching character of his gaze, told more eloquently than words, how vastly he enjoyed the writer's amazement and incredulity. These borders are increased by layers, as the Vines increase in growth, which induces the roots to ramify; and, instead of coming to the front, like a few skirmishers in advance, they come rank and file, like a most determined foe, every representative bristling with life and vigour. When the limit is reached, a brick retaining wall is built, and the whole comfortably circumscribed. By this arrangement there is far less danger of the roots permeating into unprofitable quarters, and the whole border is more at the command of the grower—indeed, it is not too much to say that a border so provided for, in any locality, is equal to a change in climate, and offers unusual facilities for aëration, while, geothermally speaking, it is no less efficacious, leaving less room for the need of artificial heat. Let the reader therefore understand that Mr. Meredith only takes about 2 feet off the surface of the soil; in this space he places broken débris, and then his compost, which measures from 4 to 4½ feet in depth. This might be considered extremely and unnecessarily deep by many growers, who, of course, practise very differently themselves; but if an objection be raised, it will vanish in most minds when the elevated character of the border, and how completely it must be under control, are taken into consideration.

The importance of limited occupancy in the case of Vine roots, and absolute control over them, can scarcely be overrated, when one knows, as all growers do, their tendency to permeate into inhospitable subsoils, macadamised walks, and even through solid brick partitions. A very good illustration of the latter I saw at Garston. Mr. Meredith has hitherto always first made good his border inside, and as the plants grew he stacked up his turf walls in about 4 feet layers periodically outside. A press of business, and a laudable desire to extend his Vineyard as a covered garden, to be one of the wonders of horticulture, together with the considerable difficulty under which he has to labour in securing suitable turfs, interposed some obstacles to his reinforcing certain borders at the nick of time. When he did so in early summer, judge of his surprise, and mine too, to find that the roots had not only gone through the layer of brick in all directions, but had actually forced themselves through the centre of solid bricks. Of course, the continual moisture under the surface had somewhat softened the charred particles, but that the spongiole of a Vine could bore its way through a mass of solidity, like a fine steel chisel in the hands of a skilled artisan, seems almost incredible.

The compost heap, which I examined, was composed of three distinct materials, which are in turn charged with numerous organic and mineral substances. These are turfy loam, crushed bones, and oyster shells. There is such a difference in the composition and nature of turfy loam, that the term can only be used as a general expression, implying that something of the kind is wanted as possessing substances favourable for the development of roots, and together with the bones and chalk to provide stamina, the better to induce large bunches and good-flavoured berries, highly-finished in all respects. To give the qualitative determination of any soil, one would require to have studied for some time in the chemist's laboratory, and however accurate an analysis may have been taken and promulgated, it is questionable, in the hands of border makers, how far it would prove practically useful. The soil appeared to be what in gardening phraseology is termed a maiden loam, neither wholly calcareous nor clayey, but of a sort of friable and yet plastic tendency. The introduction of the broken shells, and crushed bones, in moderate quantities, while adding to the stability of the compost, would modify its mechanical texture, and counteract a cohesion of the particles as the organic substances gave way. Mr. Meredith lays great stress upon, and provides accordingly for the conservation of his borders, and the upholding of their material condition, so that in the one case ammonia shall be utilised while passing through its numerous pores, and in the other aëration shall be unimpeded. The heavy rains of Lancashire are often very uncomfortable, and the Vine rods of Garston have hitherto proved that it is a wise economy to have outside borders as much under control as possible, and they can only be made so by providing in all respects against the inclemency of the weather. *A.*

LETTERS FROM PARIS.—No. XXII.

Botanical Congress and Tenth Show.

Dr. Moore, of Glasnevin, read at one of the meetings an extract of a paper on Pitcher plants, and presented to the Society a most complete collection of these interesting subjects. His paper will be found very interesting, as it treats of the culture of the plants, as well as of their structural peculiarities and other matters of interest. Afterwards commenced a discussion on the pamphlet of M. De Candolle on the laws of Botanical Nomenclature. As *rapporteur* of the Committee appointed to investigate the subject, he read his *brochure*, with the alterations that were suggested by the Committee. These were very few, and their general tendency was to make the proposed laws somewhat less stringent, and to give more latitude to the individual botanist. About half the article was read, and all the laws adopted, nearly all without discussion. The chief point upon which the botanists present did not agree entirely was the propriety of giving a place in scientific nomenclature to the sub-varieties, variations, and sub-variations of plants. This was opposed by some, but the most distinguished men and the whole of the Special Committee adopted it. It was put to the test of a division, and adopted by at least 40 or 50 against 20.

The members of the Congress visited various interesting gardens from time to time, one of the interesting excursions being to Verrières, the country house of Madame L. Vilmorin, situated in a very pretty district, about 12 miles from Paris. There a magnificent *déjeûner* was prepared for them, their appetites being sharpened by the morning air, and by a pleasant walk over the closely-cropped and very pretty country. The tables were laid in a circular space in a grove. A bed of flowers and plants was in the centre, with plenty of that fine tall Grass, Panicum altissimum, to give it grace; around this the tables were placed, and a prettier spot, or more happy *réunion*, could not be found. We were of all parts, from St. Petersburg to the Cape of Good Hope; spoke a variety of tongues, from musical Italian, to our own "hoarse northern guttural;" had widely diverse ways of saying our prayers, and yet each one said that the day was one of the most agreeable he had ever spent. Verrières is a sort of botanist's home. I have been there a good many times now, and never yet found it without several botanists enjoying the interesting gardens and cordial hospitality of Madame Vilmorin, and M. H. Vilmorin; but it was particularly agreeable to meet so large a portion of the botanical family there united without the slightest trace of the "struggle for life" betraying itself. After breakfast we had a long walk through the large wood in the neighbourhood, and then returned to an equally *recherché* luncheon, the company visiting the cultivated fields and gardens of the neighbourhood afterwards. The botanical and horticultural interest of the visit was considerable, for there are fine trees, and a great number of miscellaneous plants, at Verrières. But I think we should have seen a little more in this way, had our reception not been so cordial, and the wines and fruits and other viands, not so particularly good. Mr. Grœnland showed 60 or 70 living species of very rare German and Swiss Mosses, &c., in a cool room in the house, but (and I grieve to state it) they had very small attention compared to such tangible subjects as good specimens of the smooth Cayenne Pine, and other fruits on the breakfast table. Even botanists are human.

However there are big trees at Verrières that do not permit themselves to be passed by, and one of these is the finest specimen of Pinus Pinsapo that we strangers had ever seen. There is a glaucous variety of the Cedar of Goa there, which for grace and a pleasing silvery tone is unrivalled. Of its effectiveness for good among the usual dark colour of Pines, we formed a decided opinion. It is one of the most exquisite pleasure-ground things in existence, drooping most gracefully, and of a lively silvery tone. There are many other interesting Pines and deciduous trees worthy of notice, but space is short, and therefore I will turn for an instant to their humbler neighbours.

Of Æthionema cordifolium—one of the best and sweetest rock and alpine plants I have met for some time, there was a bed about 10 feet long in flower, looking like a well-flowered mass of the charming Androsace lanuginosa, and not rising more than three inches. The flowers are most abundantly produced, and the plant quite hardy and perennial, as it has been here fully exposed to the elements for a long time. Nothing can be more suitable to the rockwork or front edge of a choice mixed border. I always feel satisfied if I discover one perfectly hardy and beautiful plant in a day, and I immediately relaxed my efforts after seeing this. It seeds freely, and therefore nobody will have any difficulty in procuring it. It shall form one of my selection of beautiful easily-grown alpines by-and-by.

The next beauty was Nierembergia frutescens, which I have mentioned as so well shown at the Exposition. There are two plants of it at Verrières, which have been out all the past vile winter, and are now flowering freely, though not so luxuriantly as the plants which were kept indoors. This is a plant which will please all classes of cultivators, being a beautiful object for the summer garden, quite as profuse in flower as the little Nierembergia, and with much larger and equally sweetly-coloured flowers. But it rises when well grown to a height of 18 inches or more, while it may also be employed in as dwarf a condition as could be

desired. In the taller state it will be found quite a distinct thing for the flower garden, and as it has stood out near Paris, it may do so even more successfully in the south of England. It was first introduced into the fine Botanic Garden at Bordeaux, from whence M. H. Vilmorin brought four plants last October. Two of these were the plants that stood out, and as they were planted only in the first week of November, they, of course, had not a very fair trial. The other two were propagated and cultivated in-doors, and from them have been raised the fine stock shown at the Exposition, and 2000 plants in all, before the 1st of June. That is perhaps sufficient proof of the capability of the plant.

Of other plants seen here I would particularly call attention to Dianthus dentosus, a distinct and singularly pretty species. Though it varies considerably from seed there is yet a distinct family likeness amongst the plants, which do not grow more than 4 inches high, and are masses of the richest dark violet crimson. Some of the flowers resemble a dark form of Dianthus alpinus, and altogether the plant is better than most of the species of its tribe. Then the hesperidifolia variety of Iberis amara is not so much grown with us as it ought to be. The French are fond of it, and it is really a fine annual, making a truss 5 inches high. But the prettiest little annual I have seen for a long time is a fringed variety of Agrostemma cœli-rosa; it is delicate in colour and nicely distinct. Chrysocephalum apiculatum is also a fine perennial thing; and Panicum virgatum, a free-growing hardy Grass, flowering late, and useful also for its flowers. Tripsacum dactyloides also makes a good strong Grass here. As for the Sorghum tartaricum, it is now tall, without any hope of fruit. The pretty little spring-flowering plant that I saw here last spring is Arabis arenosa; it is worth a trial in the spring garden, being very neat and distinct.

Finally, a line to cordially acknowledge the warm and graceful reception given to us all by Madame Vilmorin, and her son. Go where he will, the botanist or horticulturist will find none more genially agreeable. Another word on a matter not horticultural, yet so tasteful and so much in accordance with every principle of true art, that I am sure my readers will like to hear of it. A number of dessert plates might be noticed, each bearing a different design of flowers and leaves. These had been painted by Madame Vilmorin, and beautifully painted they were. This was, of course, done before the baking. One bore a wreath of choicest everlasting flowers, true in every line and tint; another a charming batch of Primroses around the margin, another spring bulbs, another Daisies, or Pansies, and so on. This kind of thing is the antithesis of "Brummagem;" it is real taste.

M. Linden shows at the 10th show, a new species of Alloplectus and several interesting Gesneraceous plants. The best of the group is Lasiandra macrantha. The flower is, as regards colour and form, like the Pleroma; but in size it is extraordinary, one produced on a poor little plant with eight leaves being 6 inches across, and remarkably beautiful. This, I think, will prove a grand acquisition to plant growers. He has also some new Orchids, the best of them being a good plant of Cattleya Wallisii. Very distinct and very dwarf too, is the Nanodes cinnabarina, in colour like the Sophronites. Mesospinidium sanguineum, in the same group, is a graceful-looking thing, of quiet colour, though hardly good enough for general culture in Orchid collections.

There is a little bed of the splendidly-variegated form of the Japan Privet in the garden, which is looking pretty well, but is disappointing. Arads come from Mr. Kellerman, of Vienna. He says they are hybrids, which is perhaps doubtful, as there are but few indications of hybrid origin, except in one plant between Alocasia Lowii and macrorhiza. It is large and fine. The Gladioli are plentiful; the 1st prize being again taken by M. Souchet, whom I have seen lately, and of whose magnificent collection I shall soon have something to say. *W. R.*

JUDGING GRAPES.

THE rules laid down by your correspondent who signs himself "Vitis vinifera" (see p. 853), appear to me to need some little amendment to suit them to the present advanced state of the art of Grape growing. The theory of giving so many points for one good quality, and so many more for a better quality, is quite new in horticulture; and is evidently borrowed from the school of musketry at Hythe and Wimbledon, where it is found to answer admirably with fire-arms. The rifleman having carefully studied the "way of a bullet in the air," arranges its parabolic course for the furlong or for the 800 yards, and makes bull's-eyes and centres as best he may; and near, nearer, and nearest might comprehend all the points. He must hit the mark—that admits of no arguing, for outside the target it is all "amiss."

There is, indeed, a target for Grape growers, and it has to be steadily aimed at. There is also a marker—a just and faithful one—taking down the hits, and occasionally doing a broad grin over the well-meant endeavours that have missed the mark; and it is this gentleman's way of thinking on these matters that I mean to put into words, and lay before my readers, in order that we may arrive at just judgment in the matter. A Welsh judge is said to have remarked, that he could judge very well when he had heard but one side of the question, but when he heard the other side it confused him; and we read in the fable that the song of the thrush, and that of the cuckoo, were referred to the ears of an expert (animal) in music, to decide which of the two birds sang best. The judge praised the thrush by saying that he sang very well, but for being true to the air he must say the cuckoo surpassed him. With this style of judging, no amount of merit could avail the client at the bar.

Without going over all the points referred to by "Vitis vinifera," I will confine my remarks to the two which he thinks might be left out. He thinks bloom of no importance, and size of berry no matter. No one ever saw Grapes grown to perfection where bloom was wanting, and had it not been an important mark to aim at, it would not have been there at all, depend upon it; for be it observed the Grape is exceedingly beautiful as well as useful, and the bloom is one of its chief ornaments. The size of the berry, and the style of its finish, makes all the odds, or hits with the marker above mentioned, whom I must now call up and question.

Hothouse Grapes grown at Southgate, in the county of Middlesex, of the Black Hamburgh variety, were taken to Covent Garden Market and sold for 1*s.* 6*d.* per lb. The writer of this note saw them, and knew their history; they were really good Grapes, and black as sloes, quite ripe, and well flavoured. The Vines on which these Grapes were grown had been struck from eyes obtained from the celebrated Hampton Court Vine. On the same fine summer morning hothouse Grapes, grown at East Barnet in Hertfordshire, just one mile from Southgate, were taken to Covent Garden and sold for 16*s.* per lb. Now the talented author of Hudibras sagely says, "the value of a thing is just as much as it will bring," and those who have to cater for the Court *fêtes* and State dinners get at the marker's idea quite cleverly, for the English nobleman has bright ideas about the size and finish of the berry; he marks the colour as a hit, the bloom perfect as a bull's-eye, and the surface hammered like that of a copper cauldron as a centre; and he no doubt judgeth justly. It is this marker that gives the tone to the market, for had the size of berry and superb bloom been wanting, the Grapes would have found their level, and realised perhaps 1½*d.* an ounce, or 2*s.* per lb., which was just one-eighth part of their market value as they were.

It must never be lost sight of that Grapes have to adorn the table. Nice, sweet Grapes can be grown with little trouble, for the Vine, like the Wheat plant, accommodates itself to very ordinary treatment, and does well; moreover, sensible people may sit under the shade of their Vines, and eat the fruit thereof at home, and such fruit will add to the enjoyments of that home: but take the Grapes to market, and when they have been freely handled, and have lost their bloom, the marker will grin all over his honest face, for he will know full well that you have not made a hit. *Alex. Forsyth.*

JACKMAN'S HYBRID CLEMATISES.

IF I step forward to endorse your remarks at p. 852, it is because I consider you have stopped short in pointing out the full value of these extraordinary plants, as additions to our summer bedders. They have in their several varieties the very colours of which our summer flower gardens are in a great measure deficient; and if we take the only exception I know of, namely, Purple King Verbena, there is not the least comparison beyond the general hue of purple, for the Verbena is dull in the extreme by comparison with Clematis Jackmani; and there is besides the additional drawback of uncertainty, and, at the best, the prospect of six weeks' colour, if we can keep off thrip, &c., for so long, while the Clematises are never likely to be affected by insects, on account of the firm hard character of their leaves. Besides, they range from the rich purple of Jackmani to something nearer a light blue than any Verbena—tints that will lighten up the distance of a various-coloured garden, and also bear the close inspection of a skilled florist: very different, in fact, to the horned subjects that have been butting about of late, filling with terror every one who doubted their merits, and bearing a strong resemblance to the ears of a runaway costermongers' friend. There is one seedling not named, the flowers of which consist of four petals only, perfect in shape, having a creasy appearance up to the middle of the petal, and with the outside smooth, forming as it were a flower within a flower, although single, the outer portion shining as if some fairy had blown diamond dust over it in the dew of the morning.

I saw these Clematises after the severe storm of the night of the 19th and morning of the 20th, which was as severe here as anywhere; but it had not affected these plants so much as the general bedding about London. It will be found, I think, that some varieties will be more prolific as low beds, while others will be better adapted to different purposes. For example, one fine strong flowered seedling was cleared out of a low bed on to the Grass, and although there was not much difference between that and the others, it proved that the shoot of this had begun, at about 1 foot from the root, to break at each eye, for 5 or 6 feet in length, the eyes being opposite, and from 4 to 6 inches apart, according to vigour. These shoots were just tufts of bloom, with some open, others opening, and others latent, that is to say, there was a succession up to the time when frost comes. When the plants are trained on a flat low bed, these flowering shoots take an upright form, hence the mass of blooms. I must differ with you as to a trellis for the low beds. It will be better to raise the beds, and edge them with some plant that would bring them out, as variegated Chrysanthemums; for if on a trellis a strong wind might topple over the heavy head of bloom.

It will be seen from the foregoing description, that the plants by the middle of August form a free-flowering fringe, of from 5 to 6 feet of successional bloom, commencing in June. Suppose we take one of Mr. Gibson's long rectangular borders, and try to bring out the colours. We find that a great practical knowledge of habit has led to intersecting these beds with plants that will make a distinct division, but will yet harmonise with the whole. If we take C. Jackmani in a fringe, like the aforesaid, and peg it into sectional lines, and fill the diamonds with Pelargoniums Princess Alexandra or Mangles' Variegated, leaving a few blooms, and edge all round with any good yellow leaf, as Pyrethrum, &c., it will prove a mixture much richer than any I know, with our present plants. I see nothing to prevent the winter arrangement of this also, as the Clematis plants at the angles would allow of filling the diamonds with Pansy, &c., and the Clematis might remain for several years. So also beds of purple or violet, with light leaves mixed, would always be charming, or ribbons pegged to any shape. Suppose we make one row of Arabis lucida, one of Alternanthera, one of blue Lobelia, one of Mrs. Pollock, one of Clematis rubella, one of white Centaurea, &c. The Clematis will also help in forming festoons, and be valuable for raising objects in otherwise flat gardens; it will be a real acquisition either as a pyramid or column. We already have the former, made up with C. Flammula, mixed with the rich, strong growing Denmark Tropæolum. If we take a small garden, it may be raised up by a simple contrivance to form one bed above another; or it may come in alternately with standard Roses, training it to a shape at the top. I shall have more to say, with your leave, on this subject, at another time. *J. F., Cliveden.*

MADRESFIELD COURT BLACK GRAPE.

THIS splendid new Grape was exhibited to the meeting of the Fruit Committee of the Royal Horticultural Society on the 20th inst., and was most deservedly awarded a First-class Certificate. The bunches exhibited weighed from 1½ to 2 lb. each; they were beautifully and regularly grown, and quite of the same form as those of the Muscat of Alexandria, *i. e.*, long and tapering and well-shouldered. The berries are large, longish oval, like those of the Muscat, jet black, and covered with a fine bloom like that on the fruit of Black Alicante. The stalk of the bunch is rather fine, erect, and of a reddish purple; that of the berry is stout and warted. The skin is tough and membranous; the flesh is firm and very juicy, rich and excellent, and has a distinct Muscat flavour. The leaves, which are bristly, deeply lobed, and serrated, have reddish stalks and midribs, like those of the Esperione.

This fine seedling was raised by Mr. Cox, gardener at Madresfield Court, Great Malvern, who has kindly furnished the following information respecting it:—"The Grape in question," says Mr. Cox, "was raised some five years ago, and was the only one of a quantity of seedlings which, after fruiting, I considered worth saving. The parents were Muscat of Alexandria, and Black Alicante, crossed both ways. I am therefore in doubt as to which kind produced the seed from which the present seedling was raised. The plant is of robust growth, and short jointed; the eye is prominent, and rather more pointed than that of the Muscat. The fruit sets as freely as that of the Black Hamburgh, and ripens a fortnight later than that variety, and a like period earlier than that of the Muscat of Alexandria."

Judging by specimens of this seedling which have been exhibited during the past two seasons, it promises to be one of the finest Grapes yet introduced. For flavour it is nearly if not quite equal to the Muscat of Alexandria; in appearance, size, colour, and form, it is all that can be desired; and there is a freeness about the bunch, like that which belongs to the Black Hamburgh, that betokens a fine constitution, and capability of being grown to a large size. The stout stalks of the berry, and its tough leathery skin, are also sure indications of its good keeping qualities. Of all Grapes in cultivation, Mrs. Pince's Black Muscat comes nearest to it. *A. F. B.*

THE CULTIVATED SELAGINELLAS.

GROUP 1. Decumbentes. Stems wide-trailing, prostrate, furnished with rootlets nearly or quite up to the point. (See p. 783.)

1. *S. delicatissima*, A. Braun, Revis, No. 8. S. microphylla, Hort. non Spring:—Stems continuous, slender, wide-creeping, densely interlaced, branched irregularly and distantly, the branches with a few distant or forked spreading branchlets; ultimate divisions a line or rather more broad, the larger leaves, except at the very point, with at least their own breadth between them, spreading, roundish, oblong, blunt, slightly ciliated towards the base, the two sides nearly equal, both rounded at the base, the smaller leaves ovate, adpressed to the stems; spikes unknown.

The native country of this still remains unknown. Mr. Smith quotes S. microphylla, Spring, as a synonym, and it is often cultivated under that name, but the true plant of Spring (a native of South America), is very different, having rigid stems not more than 2 or 3 inches long, and subuniform, rigid, nerveless, imbricated leaves. From the other interlaced decumbent species this may easily be known by its more delicate texture, and smaller and more distantly-placed leaves. The colour is pale green, with sometimes a tinge of red in the older stems, and the texture is so delicate that the plant soon curls up and spoils when gathered. The midrib of the leaf is white, and very distinctly visible, but ceases below the point. The radicles are very slender and copious, white or reddish.

2. *S. helvetica*, Link, Fil. Hort. Berol., p. 159. Spring, Monog. 2, p. 83. A. Braun, Revis. No. 6. Lycopodium helveticum, Linn. Sp. Pl., p. 1568:—Stems continuous, moderately wide-creeping, and intermatted; the branches distant, irregularly and subdichotomously forked; divisions 1½—2 lines broad, the larger leaves spreading, with usually a small space between them, ovate-oblong, bluntish, very slightly toothed, the two sides nearly equal, the smaller leaves ovate-acute, slightly spreading; spike 1—2 inches long, very loose, with a distinct stalk.

A well-known plant, long clearly distinguished, ranging from Switzerland eastward to Amur-land. It comes nearest to denticulata, but differs materially in

the spike, and it is not so much matted in habit, the leaves are paler green, narrower, and not so close to one another.

3. *S. denticulata*, Link, Fil. Hort. Berol., p. 159. Spring, Monog. 2, p. 82. A. Braun, Revis, No. 7. Lycopodium denticulatum, Linn. Sp. Pl., p. 1569:—Stems continuous, wide-creeping, densely intermatted, copiously branched with dichotomously forked branches; divisions 1½—2 lines broad, the larger leaves spreading, close or imbricated, decurved when dry, nearly as broad as long, pointed, denticulate throughout, the two sides nearly equal, both rounded at the base; the smaller leaves adpressed to the stem, or slightly spreading, ovate-aristate; spikes lax, sessile, the leaves passing upwards into bracts without any abrupt transition.

Well marked by its prostrate growth, interlaced habit, and lax spike, so different from the close, rigid, tetragonous one of most of the others. When specimens are allowed to dry, the decurvature of the leaves is conspicuous. The colour is dark green, with often a reddish tinge. The radicles are copious and moderately firm, the nerve green, and only faint. From Madeira and Teneriffe it ranges through the south of Europe and Barbary states, eastward to Asia Minor. A Madeiran specimen before me has a stem 15 inches long, with six branches on each side 5 or 6 inches in length. What appears to be the same plant was gathered by Menzies at the Cape, and a closely allied species, or perhaps a variety, was obtained by Welwitsch, in Angola.

4. *S. Breynii*, Spring, Monog. 2, p. 119. A. Braun, Revis, No. 12:—Stems continuous, firm, zigzag, wide creeping, not interlaced, with numerous close spreading subdichotomously forked branches. Divisions 3 lines or more broad, the larger leaves densely imbricated, nearly spreading, linear-oblong, blunt, subentire, slightly ciliated below, nearly equal on both sides, the smaller ones suborbicular, cuspidate, connivent; spikes dense, slender, tetragonous.

This has the most robust habit, and broadest divisions, of all the decumbent species. The colour is a pale shining waxy-green. It is most like some of the forms of Martensii in general aspect, but the habit is quite decumbent, and the leaves are much closer and more glossy, with the two sides nearly equal. It is a native of Brazil and Guiana. Braun mentions it as being in cultivation in English gardens under the name of Lycopodium panamense, but it is not in the Kew collection, and I have not met with it elsewhere.

5. *S. uncinata*, Spring, Monog. 2, p. 109. A. Braun, Revis. No. 11. Lycopodium uncinatum, Desv. Enc. Bot. Suppl. 3, p. 558. L. cæsium, Hort.:—Stems continuous, elongated, wide-trailing, the point lengthened out into a runner, the lower part pinnate with numerous distant thyrsoid branches having simple or forked branchlets; divisions 2—3 lines broad, the larger leaves close, spreading, oblong, entire, the two sides equal, the smaller leaves ovate-acuminate, falcate; spikes close, tetragonous, with rigid erecto-patent bracts.

Well-known in gardens for its iridescent hues, deep green in some lights, with a strong blue tinge in others, which quite disappear in dried specimens. Usually grown under the name of cæsia. The habit is quite peculiar. There are two forms, one less branched and very tender, soon shrivelling when gathered, and the other with a firmer stem, and more compound and longer branches. A native of China.

6. *S. patula*, Spring, Monog. 2, p. 96. Griseb. Fl. Brit. W. Ind., p. 645. Lycopodium patulum, Swartz, Syn. Fil., p. 184. S. sarmentosa, A. Braun, Revis. No. 14:—Stems continuous, slender, flaccid, with a few short distant simple or sub-pinnate branches, the point lengthened out into a runner. Divisions one-eighth of an inch broad, the large leaves erecto-patent with a space between them, decurved when dry, ovate-acuminate, the edges ciliated and denticulate, the two sides nearly equal, the smaller leaves ovate-acuminate, sub-falcate; spikes short, close, rigid, tetragonous.

A native of the West Indies. In identifying it with the L. patulum of Swartz I follow Dr. Grisebach. It is nearest to serpens, which it resembles in its distant sparingly-branched branches, but may be readily recognised by its paler colour and elongated whip-like shoots, with the leaves growing gradually smaller and laxer upon them to the end. Both this and serpens grow freely, but the fruit is only produced rather sparingly.

7. *S. serpens*, Spring, Monog. 2, p. 102. A. Braun, Revis. No. 9. Lycopodium serpens, Desv. Enc. Bot. Suppl. 3, p. 553:—Stems continuous, wide-creeping, straight, pinnate, with numerous regular short sparingly-branched erecto-patent branches; divisions 1½—2 lines broad, the larger leaves spreading, close, or the lower ones subdistant, broadly cordate-oblong, blunt, the two sides nearly equal, and both cordate at the base, slightly ciliated downwards, the smaller leaves obliquely ovate, cuspidate, convergent; spikes short, close, rigid, tetragonous.

A native of the West Indies; grown under the names of varians, mutabilis, and jamaicensis, especially the former, given no doubt an account of the peculiarity which it presents of being deeper in colour at night than during the middle of the day. It is well marked by the thyrsoid arrangement of its closely adpressed stems. The colour is deeper than in the preceding, and the leaves are very different in shape. A closely allied plant, lately received at Kew from Montserrat, is probably S. albo-nitens, Spring. The stems are less branched, and not so regularly pinnate, the colour is paler, and the leaves are ligulate, and placed edge to edge.

8. *S. Kraussiana*, A. Braun, Revis. Suppl. 2. Lycopodium Kraussianum, Kunze, Linnæa vol. 18, p. 114. Pappe and Rawson, Syn. Fil. Afric. Aust., p. 50. S. hortensis, Mett. Fil. Hort. Lips. p. 128. A. Braun, Revis. No. 28. J. Smith, Ferns Brit. and For., p. 278:—Stems articulated at the joints, very wide creeping, flaccid, with copious sparingly branched assurgent branches; divisions 2—2½ lines broad, the leaves close in the upper part, spreading, ovate-oblong, subacute, scarcely denticulate, the upper half the broadest and more rounded at the base, the smaller leaves ovate-acuminate, adpressed to the stem, but the points recurved; spikes short, close, rigid, tetragonous.

This is the species most commonly grown in gardens, usually under the name of denticulata, to which it has no right whatever. It is a much larger and laxer plant than the Linnean species, and the jointed stem and character of the spike furnish good marks of distinction. I have seen wild specimens from the Azores (Guthnick, Watson, Godman, Baron Paiva), Natal (Krauss, 738, Pappe, Gerrard, and M'Ken), and Cape Colony (Uitenhage, Sir F. Grey), and it is reported by Braun from Sicily.

9. *S. Galeottei*, Spring, Monog. 2, p. 220. A. Braun, Revis. No. 29. S. Schottii, Hort.:—Stems articulated at the joints, procumbent or slightly ascending, copiously pinnate, the lower branches elongated and again copiously branched, the branchlets arranged on a thyrsoid plan. Divisions, 3 lines or more broad, with the larger leaves erecto-patent, close or with a small space between them, ovate-oblong, unequal-sided, rounded at the base, especially on the upper side, slightly ciliated downwards, the smaller leaves obliquely ovate, convergent; spikes short, dense, rigid, tetragonous.

A native of Mexico, with about an equal claim to rank in the decumbent and suberect groups. The stem is angular, very pale (straw-coloured in the dried plant), and firm, with the articulations very distinctly marked. The leaves are pale green in colour, very rigid in texture, with a keel below reaching nearly from the base to the point.

10. *S. affinis*, A. Braun, Annales, 1865, p. 296. S. Poppigiana var. guyanensis, Spring, Monog. 2, p. 218:—Stems articulated at the joints, firm, wide-trailing, the branches distant, elongated, assurgent, corymbose; divisions 3 lines or more broad; the larger leaves close or imbricated, oblong-lanceolate, subfalcate, the point subacute, the upper side dilated below and more rounded at the base than the other, the lower edge rather upcurved, slightly toothed, the smaller leaves obliquely ovate-acuminate, convergent; spikes short, dense, rigid, tetragonous.

A native of Guiana, nearest Kraussiana, from which it may be known by its more compact habit, deeper green colour, and compound level-topped branches. There is another closely allied decumbent, articulated, South American species in cultivation on the Continent, S. sulcata, Spring (Lycopodium, Desv.) from Brazil. This has a stem with two deep grooves in front, straighter and less pointed leaves, and is paler in colour, with the branches not corymbose. *J. G. B.*

COMPARATIVE TRIAL OF TOMATOS.

The great interest which appears to be taken in America in the cultivation of Tomatos, and the numerous varieties mentioned in their garden publications, suggested that it would be desirable to institute a trial of the different varieties at Chiswick. Accordingly, in the spring of the present year a large collection of varieties was procured from Messrs. Thorburn & Co., of New York, and grown for comparison with the sorts heretofore known in England. They have all been grown and fruited in pots under glass, and are really very handsome and ornamental when cultivated in this manner, the Cherry and small-fruited sorts especially making really beautiful decorative plants.

The earliest variety is the Red Cherry (syn. Cherry-formed), the fruits of which are round, red, about the size of Cherries, and borne in clusters of from 6 to 10 fruit in great abundance. It forms a very handsome plant. The Yellow Cherry (syn. Small Yellow) is the same as the Red Cherry, except that the fruits are yellow.

The Pear-formed (syn. Pear-shaped) has the fruits from 1½ to 2 inches in length, red, of the form of a small Pear, and borne in clusters, in great abundance. It is very handsome.

The Yellow Plum (syn. Plum-formed) has the fruits small, yellow, oval in shape like a Damson, and very handsome.

The Round Red (syn. Extra Early Red, and Sims' Mammoth) is a few days later than the foregoing; the fruits are red, roundish, ovate, and smooth, about the size of a Washington Plum. It is very prolific.

The Large Red Italian (syn. Orangefield) is the earliest of the large fruited sorts; it is very dwarf and prolific, bearing fine fruit within 6 inches of the ground; the fruits are very large, red, corrugated, or ribbed. It is an excellent variety, and one of the best in the collection.

Kaye's Early Prolific is a tall-growing variety, with the leaves much more entire, and of a lighter colour, than in any of the other sorts. The fruit is medium-sized, pale red, corrugated, somewhat later than the Orangefield, and very productive. It is altogether a first-class variety.

The Grosse rouge hâtive is later than the Orangefield, and a stronger grower, but a fine and true variety.

The Great Mammoth (syn. Large Red) has smaller and more finely-cut leaves.

The Large Smooth Red is synonymous with Powell's Prolific.

The Filden (syn. Red Valencia Cluster, Lester's Perfected, New Giant, and Fiji Islands) is a strong-growing variety, much praised in America. The leaves are deep green. It is late, and not so prolific as the others.

The Large Yellow is the same as the Common Large Red, except that it has yellow fruits.

The Tomato de Laye (syn. Grenier, Upright or Tree Tomato) is of a stiff erect habit of growth, and will stand without stakes. The leaves are deep green, and the fruits are large, and slightly corrugated; but it is very late, and not suited for cultivation in this country, excepting in exceptionally warm seasons.

The Whortleberry Tomato proved to be nothing more than the little black-fruited Solanum nigrum, a weed of our gardens.

THE FERULAS.

I wish it were not necessary to write in praise of such very fine plants as these, so noble in aspect and beautiful in leaf. If you grow 2000 kinds of herbaceous plants, the first things that show clearly above the ground in the very dawn of spring (even in January) are the deep green and most elegant leaves of these Ferulas. In good garden soil they look like large editions of Leptopteris superba, or the most elegant of Ferns. Their chief charm will probably be found to consist in their furnishing masses of the freshest green and highest grace in early spring. The leaf is apt to lose some of its beauty and fade away in early autumn, but this may to some extent be retarded by cutting out the flower-bearing shoots the moment they appear. Not that these are ugly; for, on the contrary, the plants are fine and striking when in flower. It is indispensable that the Ferulas, like some other hardy foliaged plants, be planted permanently and well at first, as it is only when they are thoroughly established that you get their full effect. At a first view, the best way to treat them would appear to be, so to arrange them that they would be succeeded by things that flower in autumn, and only begin their rich growth in early summer; but equally wise will it be to plant them near the margin of a shrubbery, where it is desired to have a diversified and bold type of vegetation. In the rougher and more solid ground, so to speak, near large rockwork or rootwork, they would, of course, prove grand. The Heracleums, so often recommended in garden literature for planting near water, &c., are mere coarse rags compared to the Ferulas, while the Ferulas may be used in the places recommended for Heracleums. I look forward to a day when a far greater variety of form will be seen in English gardens than is at present the case, and believe these Ferulas to be thoroughly well worth growing for their superb spring and early summer effect. The best species are F. communis, tingitana, and neapolitana. Probably a few others, including sulcata, Ferulago, and glauca, may with advantage be added where variety is sought, but the effect of any of the first three cannot be surpassed. Among "aspects of vegetation" which we may enjoy in these cold climes, I know of nothing to equal their grand leaves, pushing with the Snowdrop. In semi-wild spots, where spring flowers abound, it will prove a most tasteful and satisfactory plan to drop a Ferula here and there, in a sunny spot, and leave it to nature, and its own good constitution ever afterwards. *R.*

Home Correspondence.

Manuring Conifers.—I see (p. 856) that Mr. Frost says "he would not use manure for Pinuses." He may be right, but I have seen, or fancy I have seen, good well rotted dung do Conifers a deal of good. Some three or four years ago I transplanted a large Silver Fir, 10 or 12 feet or more in height. I did not take any personal trouble about it, but left the operation to my gardener (who is only a common labourer) and to another labourer. The plant was moved, and grew, but looked very shabby and miserable all the next summer, when I had two barrow-loads of old Cucumber frame dung pricked in over its roots, and gave it a good soaking of water, and I was surprised the next season to see how vigorous it became. I had an Araucaria and a Cryptomeria which did not grow or look as they ought, and I gave them a similar dose, and had every reason to be satisfied with the result. I never hear the question of using manure for Conifers discussed, without thinking there is a wide difference between the use and the abuse of everything. In growing timber I would discard the use of all artificial stimulants, but in growing garden trees, the judicious use of them now and then saves time, if it does nothing else. *C. F. P., The Grange, Kingston, near Taunton.*

Acanthus lusitanicus (see p. 856).—The plant best known by this name is also known under the name of A. latifolius. Both are garden names, the last the best. It came into cultivation in the neighbourhood of Paris about six or eight years ago, and has since spread about a good deal. Nobody seems to know from whence it came. I think it is a variety of Acanthus mollis, a striking one of course. The plant itself varies a good deal; I have seen specimens of it about a foot high, with leaves comparatively small, and stiff, and rigid, as if cast in a mould, by the side of others of thrice the development, and of the usual texture. If either of its two garden names be allowed to remain with it, the last is of course the best and most characteristic. *W. R.*

Cucumbers.—I observed some time ago a notice in your paper respecting Rollisson's Telegraph Cucumber. I procured a packet of its seed, and have given it particular attention, growing my plants thoroughly well, and I do not find it to bear out in any way the description given of it by two different correspondents—one in January and the other in March last. It has been seen by two or three persons, who say that what I have got is a spurious variety, and certainly not Rollisson's variety of Telegraph. I am quite certain that the kind I have got, would not produce Cucumbers in winter. I should like to know from some of your readers if they have been deceived in the same way. I did not obtain my seed from the person whose name it bears, but from a London house. I think it anything but business-like to send out such rubbish as I have got, for an article which I am assured is really first-class, if procured true. I intend to get my next supply from the senders out of it, and hope to be more successful. *J. L., Lewisham.*

Pink Claude.—Mr. James Clarke, Bury St. Edmund's, informs me that I am mistaken in crediting him with being the raiser of the above Pink, it having originated with Mr. R. Dalton, of Bury St. Edmund's. He also informs me that in saying Garibaldi Pink did not force well, he meant—did not force so freely as Claude. *R. D.*

Last Winter's Frost.—Mr. C. Palmer asks in a recent Number (p. 855) whether Cupressus Lawsoniana was injured by frost. I can answer that two young plants, that had, however, only been transplanted in the previous spring, were severely injured by frost; Sciadopitys verticillata, on the other hand, was uninjured, having been nearly entirely covered up with snow. Cupressus macrocarpa quite killed; Cherry Laurels killed to the ground; Portugal Laurels slightly injured; common Laburnums, recently planted, killed

nearly to the ground: Laurustinus killed to the ground; Araucaria imbricata severely injured; Laurus nobilis much hurt. *Heston, Middlesex.*

Lessons taught by Severe Frosts.—Some useful lessons may be learned in reference to this subject by noticing the position of trees and shrubs that have succumbed to the winter's cold. It is worth while to inquire whether or not in may instances death has not been accelerated through erroneous notions about shelter and high cultivation. The disappointment experienced through the death of many favourites is often brought about by over-feeding at the root, causing a prolonged growth in the autumn, when there is no time left for hardening the wood made. If I were now asked, for instance, where I would plant a Magnolia grandiflora, or questioned as to soil for its growth out-of-doors, I should reply—Plant it where it would either have the first rays of the rising sun throughout the year, or where the sun would never shine on it from October to May; soil rather poor than rich; situation rather dry than damp. Screening may stay the blighting force of the east wind, yet it allows what is much worse, viz., Jack Frost, to hold his victim in tight grasp until he is driven off by the rays of the mid-day sun, when sudden release is oftimes sudden death. What preparation is necessary for a tree or shrub to withstand great cold? Is it not well-ripened wood? How is this to be brought about? Not by shelter or high cultivation, but by exposure and early and stinted growth. Some Conifers which have come under my notice since last winter fully bear out this assertion; those that were sheltered, and which had made late long shoots, are killed, the frost having easy access through the unripened wood, while those which were exposed are unhurt. I believe there are many things that would not stand such high cultivation, or so much food as they receive in this country, even in their native climate. *H. M., Enys, Penryn.*

Mignonette Dying.—If "W. T." will first ram his ground as hard as a brick—which is a common saying, but in this case means something less—his Mignonette will not go off or fail to come up. It is the same in pot culture. The soil should be made as hard as the pots will bear. The finest plant I have seen is now growing in the middle of an old Pear wall, and hangs down to a length of 3 feet, the seed having accidentally been blown into a crevice by the wind when I was sowing the border. It cannot receive any moisture, and is even more healthy than the border plants. *F.*

Variegated Pelargoniums at Bury.—I feel in some measure called upon to apologise (as I now do) to Mr. F. Smith, for having stated in my former letter on this subject that I believed that he was satisfied with the decision of the judges in the matter of the County Cup. The only excuse I can offer is, that Mr. Smith's manner and conversation induced me to suppose that such was the case. Mr. Smith wishes to know why the set of rules laid down in the *Gardeners' Chronicle* (p. 515) was not adhered to. I must reply that these rules had nothing whatever to do with this matter; and I should say that they were never intended to apply to yearling plants. This cup was a special prize, offered by the county of Suffolk, for the best 12 seedling variegated Pelargoniums of 1866 and 1867. And, may I ask, does it appear at all unreasonable to suppose that parties interested in the production of these beautiful plants should entertain a desire to see collections of them exhibited in their transitional state, or, in other words, in the early stages of their development? I willingly admit that Mr. Smith's plants had no green leaves upon them, while my plants had; but what does this amount to? The green leaves were not taken into consideration at all; nor ought they to have been, the judges no doubt knowing that their position was merely transitory, and that they neither added to nor diminished the ultimate value of the variety. In short I showed my plants in strict accordance with the requisition or spirit of the schedule. And now allow me to ask Mr. Smith if he did so also, were his plants really seedlings of 1866 and 1867, or was there a single seedling or plant growing upon its original roots, not having been propagated, in his collection? I trust that Mr. Smith will answer this question. Nearly all the plants that I showed at Bury I also showed in May at South Kensington, where Mr. Smith showed a much larger collection. Now if he will refer to the *Gardeners' Chronicle* of June 1 (p. 571) he will find that I was awarded a "Silver Flora Medal" for my collection, while he was awarded a Medal of less value for his collection. Was he satisfied or dissatisfied with this decision? The unfortunate Bury judges, at all events, were not to blame for this. I now take leave of the subject. I have won the cup fairly and honestly; I am proud of it, and mean to keep it; and the next time Mr. Smith calls at Culford he shall drink out of it; or if he refuses to do so, I shall then think that he really considers the judges made a mistake, a conclusion in which I cannot now think he seriously believes. *P. Grieve, Culford.* [This letter has been delayed by the pressure on our space last week. EDS.]

Orchard-house Trees at Bury.—Knowing much of the undoubted talent and ability of the judges on this occasion, I confess to a feeling of surprise at the defence of their award made by one of them at p. 857. The introductory remarks are altogether beside the question. Neither is it true, as matter of fact, that every exhibitor thinks his own productions the best; nor that Mr. Grix broke any rule; nor that he is a neighbour of mine. I do not even know Mr. Grix, and I presume that Ely is as far from me by rail as Berkhamstead. But had the exhibitor been my own brother, that fact would not have influenced my judgment one hair's-breadth, as those who know me best will readily admit, and a knowledge of who the judges in this case were, will abundantly confirm. The fact that ladies prefer ripe fruit to green, or the influence that the luscious aroma of Peaches or Pears exercise upon their judgment, should not have determined the award in a class where ripe fruit was not demanded, and in which, consequently, neither of the senses of smell and taste need have been called into exercise. But it seems that not only were two of the ladies' senses to be gratified, but their strength was also to be tested by the size of the pots in which the trees were grown. And a chief merit of the prize trees, as specified by "One of the Judges," was that a lady might pick one up and have a finer object for table decoration than any that were exhibited at Bury! If so, why were not these trees shown as table decorations, and not in a class where few exhibitors would have expected to meet with judges in quest of handy table decorations, or in search of pots of any size whatever? Trees were asked for, but the schedule was silent about pots; and had the trees arrived in tubs or beer-barrels, they would still have been according to rule. One of the judges admits "that had the fruit on Mr. Grix's trees been ripe, the amount of fruit might have led to a different result." This is just the rock, as I have already pointed out, upon which the judges foundered. The schedule says distinctly, in reference to the whole 12 trees, that "it is not necessary that the fruit should be ripe in this class." The judges explain this to mean that as many of them as possible must be ripe, and that green ones may be added to make up the number. There is no warranty in the words of the schedule for such an interpretation; and hence, according to "One of the Judges" own showing, Mr. Grix was entitled to the prize. Further, I think the one point which Mr. Grix's trees are admitted to have possessed, viz., a good promising crop, is worth all the six claimed for the prize trees. Both collections were shown according to rule. Both, as far as I observed, were true to name, and alike clean and healthy. So far they may be said to be equal, and if these characteristics are to have a mark, then each up to this stage will receive four. I discard the three points of ripeness, size of trees, and pots; the first in this case was not asked for, the other two are not in themselves merits to be rewarded. The value of size either way can only be correctly assessed in its relation to the quantity of fruit found on a given area. In this case the largest trees had the most fruit per square inch or foot of surface. The form of the trees is also a subordinate point. However, the prize trees might in this case claim one point for their nice shape. The vital merit remains to be assessed. If orchard-house trees are to hold their own, they must be grown, not as amusing toys for ladies to lift off and on to their dinner tables, but for the quantity and the quality of their fruit. Produce alone must mainly determine the award. The condition of that produce, or rather its state of maturity, is a difficult point. At local exhibitions it might be asked for nearly ripe; but at large shows, such as the one held at Bury, fruit might be accepted if it had passed through the stoning period. Beyond this crisis ordinary skill can generally carry it on to maturity. One thing is certain, it cannot be carried to great distances in a ripe state. Neither is it at all difficult for practical men to assess the worth of the quantity, healthfulness, and size of partially ripened fruit. I would give for an extra good promising crop six points. The two lots of trees would then stand probably as follows:—

	Prize Trees.	Mr. Grix's Trees.
Fruitfulness (quantity and prospective quality of fruit)	3	6
Form of trees	1	0
Quantity of fruit in proportion to size of trees	1	2
Shown according to rule	1	1
True to name	1	1
Cleanliness	1	1
Healthfulness	1	1
Points	9	12

I trust my friends, the judges, will pardon my temerity in challenging their decision in this important matter, and that this discussion may lead to some rules being adopted for the future, safer than the fanciful points with their sustaining reasons, advanced in reference to the Bury award. *D. T. Fish.*—Referring to the letter signed "One of the Judges at the late Bury Show" (see p. 857), I beg to say that, in common fairness, it always ought to be stated, that ripeness of fruit is to be taken into consideration by the judges. I always understood orchard-houses and late forcing-houses to differ from each other. Orchard-houses were, I believe, first started by Mr. Rivers, according to whose system it is impossible to get the fruit at all approaching to ripeness in June. Besides, how can ripening be considered skill in gardening. As far as regards myself I should only have to tell my gardener to turn the hot water on every night, and I could easily have fruit nearly quite ripe in June, but of course there would be little or no flavour. As far as I have always understood, the utility of orchard-house culture was to insure a crop, and to be quite independent of spring frosts. As the "Judge," who writes does not consider so, why could not each Society, before a show, name what are to be the conditions as to ripeness? and as each Society will most probably have different ideas on this subject, let the judges be bound down to give the prize according to such Society's prospectus. *E W. Fyffe, Box, near Stroud.*

Peas.—I have had for several years Peas exactly answering the description of "J. M.'s" Peas, as given in your columns of the 17th inst. (see p. 860)—the haulm being much enlarged and flattened, instead of round, towards the top, and the pods in clusters of 8 or 10, forming a sort of crown upon this flattened top. These were brought to England about eight years since by a nephew of mine, who had taken them out of the skeleton hand of an Egyptian mummy. Having sown them in every successive year, their distinctive character is lessening, and now they give out branches from the main stem, having single blossoms after the manner of common English Peas. From the circumstance just mentioned, they have been always called by me (and my friends to whom I have given them) the Mummy Pea. *Chas. Lane, Westham, Kent.*

Oleander-growing in France.—Oleanders are grown about Paris in small pots, say 48's, in sandy soil, and these pots they of course soon fill with roots. They are plunged all the summer in the open air, and grown at all other seasons near the glass in those low houses so much in vogue in Parisian nurseries and gardens. The large plants you see in some of the public gardens are in great tubs, evidently undisturbed for long periods. They flower profusely, and get about the same treatment as Orange trees as regards housing in winter. The little plants of Oleander are however most likely to be useful with us. They are allowed to rise with an undivided stem for about 3 inches, and then break off into several branches. There should be no difficulty in growing them wherever there is a sunny shelf in the greenhouse, by securing a clean, while discouraging a soft or luxuriant, growth. *R.*

Effects of Rain on Bedding Pelargoniums.—The showers which fell during the severe storm on the 19th inst., though not perhaps so trying to blooms as if they had been accompanied by wind, were nevertheless so exceedingly heavy, that I deemed it worth while to examine their effects upon some large collections in a tolerably exposed situation; for which purpose I visited, on the following evening, Carter's nursery ground, near Forest Hill, and I was much indebted to their superintendent, Mr. Boston, for the assistance which he rendered me. The information I wished to obtain was not so much which sorts looked best after such rough treatment as the clouds had inflicted, but rather which had had the smallest number of petals washed out of them in proportion to the number of expanded pips which the plant had. In short, I wanted to know which kinds would stand the greatest amount of punishment; and, considering that the collection contains nearly 300 named sorts, you may be surprised at the large number that were completely "knocked out of time." You will remark that nearly all the Pelargoniums to which I shall have to refer belong to the Nosegay section; while (as if to show that there is no rule without exception), Stella and Harry Hieover looked as miserable as any on the ground. Those which had been least injured were Waltham Seedling, Cybister, Jackson's Variegated Nosegay, Lord Palmerston, Excellent, Carminatum Improved, Rattazzi, Crystal Palace Gem (Gordon), Amy Hogg, Black Dwarf, Indian Yellow, Rubens Improved, Scarlet Gem, Conqueror of Europe, Rebecca—these only could I put into the first-class. The following are the very few to which I can give a second place:—Madame Vaucher, Magenta, Spread Eagle, Pink Pearl, Duchess, Christine, Leona, and Volcano; everything else in bloom was nearly, if not quite, knocked to pieces. The perpendicular direction of the showers was evident in many instances from the absolutely uninjured trusses which had been protected by the friendly foliage of sundry Castor-oil plants. *W. T.*

Conifers.—Your correspondent, Mr. Palmer (see p. 855), asks if I am quite certain that my two plants of Cupressus Lawsoniana (see p. 831) were injured by frost. I must admit, in reply, I am not quite certain that all the mischief which they have sustained arises from that cause only, as early in the spring of last year the walk close by where they grow, was salted to destroy weeds, and some of the salt was blown over them, and did them a great deal of harm. But I fancy the effect of the winter following upon this, has increased the injury. They will, however, I have no doubt, get all right again in time. From your Correspondent's remarks about this plant in connection with Lawson's "Pinetum Britannicum," a work which I have not yet seen, I presume that he knows more about the various specimens of it in the country than I do. Has he ever met with one which has borne out a tenth part of the flourish of trumpets with which it was introduced to public notice. It was then very generally said to rival the Cedrus Deodara. Of all the specimens I have seen, not one can be said with any regard to truth to do this, any more than a Privet can be said to rival an Oak. I do not say that Cupressus Lawsoniana is not a very "pretty" thing, but I have not yet met with one which has assumed an arborescent character. They all look to me like shrubs rather than trees, and I class those I have seen rather with Arbor-vitæs than with that noble tree the Deodar. I omitted in my former communication to mention my plant of Pinus patula. I planted two of this species eight years ago, small seedling plants, 4 or 5 inches high. They grew very well, and became very handsome, but last winter killed one of them and killed back the other some 6 or 8 feet. I am, however, glad to say that it is not dead, and that it will, I hope, still make a plant and recover its beauty. I went a few days ago to visit one of my neighbours at a house near here, where there is a very interesting collection of trees and shrubs, and I was sorry to find that two very large and beautiful plants of Benthamia fragifera, which have been objects of admiration to every one who has seen them for some years, have been killed. It is a great pity this plant is not hardier, as when in fruit it is interesting and ornamental. In the same grounds is a lot of Cryptomerias, well worthy a visit. They are by far the finest specimens of the species I have ever seen. Many of them must be nearly 30 feet high, perfect cones in form, very dense in habit, and very robust. They are truly beautiful, and were to me particularly interesting, as most, I may say all, the Cryptomerias which I have seen elsewhere, except my own, are very shabby, brown, scraggy-looking things. I am sorry that your correspondent cannot give a more favourable account of Sciadopitys verticillata, Libocedrus tetragona, and Chamærops Fortunei. A hardy Palm would be a great acquisition. *C. F. P., The Grange, Kingston.*

Clarkia integripetala, new Double White.—This is one of Carter's batch of new annuals for 1867, very pure in colour; but I find only a small proportion of the flowers came double. For a pure white colour it is probably unsurpassed, if even equalled by any other white annual; but the fault lies in that it does not come double. Perhaps others have succeeded better with it. *R. D.*

Winter Cropping.—I have a garden of about a quarter of an acre, of which I try to make the most. A considerable space is occupied by Raspberry canes, and it seems to me that the space between them is wasted during the autumn and winter months, when the canes are bare. Can I plant Savoys or winter greens between the canes? or can you tell me any other way of employing the space? How am I to exterminate ants from Peach and Plum trees on the wall? I am overrun with them. *E. E. H., Edmonton.* [You may plant winter greens in the manner you mention, and they should be put out at once, especially Savoys. There are other things which will likewise succeed in such a position, such as Lettuces and Endive, transplanted from the seed-beds in another week or so, and which will come in for spring use. Late Turnips might be sown, or what is better, as it is getting rather late, transplant any already up, if of sufficient size. A better crop of them might in that way be secured. Leeks might also be transplanted from seed-beds, dibbling them in deeply with just the crowns in sight. In all such efforts at severe cropping, however, do not omit an extra supply of manure. This might be applied to Raspberries in the shape of spring mulchings, which encourage surface rooting. Have you not upon your fruit trees even a greater enemy than the ants themselves, viz., scale? Wherever that exists, ants are certain to follow. Be that as it may, however, pour gas-tar freely into their real abodes, and syringe the trees well over with a strong decoction of Elder leaves, any nauseous remains of which might be syringed off again before it is allowed to dry on. *W. E.*]

A Word on Roses.—As I have again had the opportunity of visiting Mr. Radclyffe's Roses at Rose Hill, Okeford Fitzpaine, I am very glad to be able to bear my testimony to their excellence; for on the principle that he who kills fat oxen should himself be fat, so one who is a teacher of Rose-growing, and so strong an advocate of the Manetti, ought to be able to show that his words are sacred words, exemplified in his own practice. Nothing could exceed the vigour of his plants, and Hybrid Perpetual was not a fallacy there, while not an aphis was to be seen, orange mildew very little troubling him, and white mildew still less. This is entirely the result of good cultivation: the sheet-anchor being, I believe, in such dry weather as we have had, thorough soaking over-had, and at the roots. His Roses had recovered their growth, and were all plump and vigorous, and I believe that he will not have a failure amongst them. While on the subject of Roses, I am glad to find all parties coming round to what I have long maintained—though, I believe, single-handed—as to what are new Roses. If I recollect aright, some two years ago I put forward the view as adopted by the Floral Committee, and upheld by the *Gardeners' Chronicle*, viz., that Roses of 1865 were those sent out, no matter where, at any time in that year. At that time I had my friend Mr. Radclyffe against me, but I felt convinced it must ultimately come to this. *D. Deal.*

Hippeastrum pardinum (see p. 852).—No one could have been more astonished than I was, on opening the number of the "Botanical Magazine" containing the figure of this plant (Amaryllis pardina) to see the immense difference there was between the two plates; and although even if a gross blunder had been committed, the cause of science ought hardly to suffer, as the "Floral Magazine" claims only to be a popular and not a scientific work, yet I could not be satisfied without investigation. I at once went to Mr. Veitch's, but the plant had gone out of flower. I, however, saw there a drawing of Mr. Chandler's (Mr. Veitch's own artist), which very strongly resembled Mr. Andrews', and not at all Mr. Fitch's; my own recollection of the plant which I saw at Kensington being that it resembled both in form and colour the drawing in the "Floral Magazine." And whatever faults have been charged on my friend Mr. Andrews—and many groundless attacks have been made on him, I have never heard him accused of inexactness; while Mr. Fitch is so accomplished an artist that I could hardly conceive he had made a blunder, and so I was content to wait for another season. However, on the appearance of the critique, I forwarded it to Mr. Andrews, who, in his reply, informed me that on making the sketch he showed it (his invariable practice) to Mr. Harry Veitch, who was satisfied with it. What then is the explanation? I can only think of one, and that is one which Mr. Andrews himself suggests—viz., that there are two distinct varieties. He says, "I am confident that Mr. Dominy pointed out to me two varieties—the one a short-petaled one, of a light straw colour, with rusty markings; the other a cream colour, with crimson markings." And he adds: "I know I am right, and I believe Mr. Fitch to be the same." It may then be, perhaps, after all, the old story of the gold and silver shield. *The Editor of the "Floral Magazine."*

Veratrum nigrum.—Some ten years ago I saw a fine clump of this in bloom in a border at Forest Hill, not many inches away from the original lawn of Spergula pilifera. The noble bold foliage charmed me so much that I was at once promised a division of the root, which I received the same autumn. It came out of a stiff clay soil, and has therefore been so treated ever since. I have had it three years at Forest Hill, four years at Bayswater, and again three years at Forest Hill, and I can make nothing of it. It has never once offered to flower, and its leaves, instead of preserving their peculiar form, split up, turn black at the edges, and look very miserable. I expected to have added on interesting fine-foliaged plant to my collection. Will you tell me how to grow it as it ought to be done? *W. T.* [It usually grows freely enough in strong soil. EDS.]

Funkia lanceolata and F. subcordata.—The former of these two species flowers freely with me every year, but the latter has never given me a bloom, although I have watched for it for nine long years. What can be the reason? It is planted in common garden soil, and looks in perfect health and vigour. I have tried it in three different positions, leaving it four years in one and three years in another. I am now trying it as a pot-plant, to see what can be done with it in that manner, *W. T.*

Foreign Correspondence.

NOTES FROM DAMASCUS.—There are, I think, few people in the world who love flowers and bright colours more thoroughly than the people of Damascus do. Everywhere, throughout the year, among Moslems, Jews, and Christians, evidences of these tastes are to be seen.

In the early spring time numbers of little boys traverse the streets, dressed in crimson, purple, or brown and white, carrying reed baskets or trays filled with bunches of wild flowers, which they offer for sale. As the little fellows make their way through the motley and picturesque crowds in the long arcades, the delicate odours of the Hyacinth and the Narcissus are diffused. Many of the passers by, delighting in their fragrance, utter the words: "God is bountiful."

The cries with which the boys seek to attract attention to their flowers are very curious; they are always indirect, and in some cases quite enigmatical, as indeed, are all the street cries of the East. For instance, the little seller of the Narcissus calls out in a loud and wailing minor key, or in a quavering shriek: "O food for the soul! O food for the soul!" This is in allusion to the well-known ancient precept: "He who has two cakes of bread, let him dispose of one of them for some of the flowers of the Narcissus; bread is food for the body, the Narcissus is food for the soul!" The Narcissus odorus, the sweet-scented, starry, yellow Narcissus, has narrow leaves, and a tall, erect stalk, from the envelope at the head of which four or five flowers, on an average, protrude. It is called *narjis* and *ronjis*, and in some parts of Syria *nisrin.*

The Narcissus Tazetta, the fragrant white Narcissus, is also called *narjis*, but more commonly *bahar*, a Persian word for perfume. It is extremely beautiful. I have found as many as 15 flowers clustered on one stalk; eight or nine is the usual number. The chalice is generally of a bright yellow colour, but it is sometimes of a deep purple, the petals surrounding it being always pure white. To the latter variety, Arab poets have often compared the eye of a maiden. In a fanciful couplet, written by the famous Harîri, early in the 12th century, the simile occurs thus:—

> "From the Narcissus she rained pearls, and watered the Roses; and bit the Jujube with hailstones."

This is a description of a beautiful maiden in tears, who in her distress bites her lower lip. The Narcissus represents her dark eyes, the pearls are her tears, the Roses are her cheeks, the fruit of the Jujube tree ('annab) is her bright red lower lip, and the hailstones are her pure white teeth.

The Arabs are extravagantly fond of this enigmatical style of poetry, and of the use of indirect expressions in general. They are introduced in sermons as well as in ordinary conversation, and the street cries, as I have shown, are of this character. The boys who have the sweet wild Hyacinth to sell, call out, "Odours of Paradise! Odours of Paradise! Refresh yourselves with odours of Paradise!" The Arabic name for the Hyacinth is *sinbul.*

The red, white, purple, and lilac Anemones which carpet the plains and cover the hill-sides of Syria in the early spring time, are eagerly welcomed; and when the little Damascus boys proclaim them, they cry, "O flowers of the king! O flowers of the king!" The Arabic name for the Anemone is *shakik.* The above definition refers to the fact that Naaman, King of El Hireh, in the time of Mohammed, had such an extraordinary passion for the *adharyoon*, a blood red anemone, that he monopolised it for his especial enjoyment, and gave it his name. All Anemones, without distinction of colour, are now called Shakik *Naamany*, or Shakik *en Naaman.* Is it not possible that Anemone is a corruption of the name of its royal Arabian admirer? and that when we, in the West, speak of this flower, we unconsciously echo the almost forgotten name of Naaman, Ibn el Mundhir, King of El Hireh? I have never felt quite satisfied that the true origin of the word could be found in the Greek ανεμος (wind), for there seems to be no especial connection between the wind and the Anemone in any of its stages.

Pliny speaks of a flower, so called because its blossoms only opened when the wind blew. If our Anemone is identical with the one he refers to, I am guilty of an anachronism in attributing the origin of its European name to a contemporary of the Prophet Mohammed. In any case, however, the *Shakik en Naamany* may justly be allowed to revive the memory of an extremely interesting race of Pagan and Christian kings, many of whom were called Naaman. They reigned over a flourishing district in Irak Arabia, called El Hireh, or Hira, and their dynasty lasted about 600 years. The country was conquered, and its last king was slain, by the victorious Khaled, during the khalifate of Abu Bekr, the immediate successor of Mohammed.

Violets are always in great request. Conserves and sherbets are prepared from them, and of the dried flowers a decoction is made, and taken in the form of tea to allay fever. The Moslems say: "The excellence of the Violet, *banafsaj*, is as the excellence of El Islam above all other religions."

These, and many other wild flowers, of which I shall speak hereafter, grow on the neighbouring hill-sides, in the broad green meadow of the Barada, and in the wonderful gorge beyond. The boys gather them at or before sunrise, and have no difficulty in finding willing and liberal customers for them. Their baskets are soon empty, and the flowers brighten, and perfume the little shops or stalls of the various bazaars, whose turbaned and tarbûshed occupants sit at their case, working, or reading, or smoking, or selling their wares.

I well remember a pleasant morning in February last, when I strolled through some of my favourite bazaars, attended only by Mohammed, our trustworthy Indian kawass, who glories in being an English subject. He led me to the Sûk el Miskîyeh, where the Moslem booksellers and bookbinders have established themselves. This bazaar is wide, lofty, and well built, and forms the avenue of approach to the Great Mosque, El Amwy, the largest in Syria. Here flowers were plentiful, and the atmosphere was like that of a conservatory. What a contrast to Paternoster Row! *Mary Eliza Rogers, H. B. M. Consulate, Damascus.*

(To be Continued.)

Societies.

BOTANICAL OF EDINBURGH: *Aug.* 14.—This, the last meeting for the session (31st), was held in the Royal Botanic Gardens—William Gorrie, Esq., V.P., in the chair. The following communications were read:—1. *On the Discovery of Buxbaumia indusiata near Aboyne.* By Prof. Dickie. Dr. Dickie reported that he picked, on 29th June last, ten specimens of this rare Moss near Aboyne—being the third time it has been met with in Britain. The plants were growing on rotten timber, on the north slope of the hill of Craigendinnie. ——2. *Botanical Intelligence.* By Prof Balfour. 1. *A new Hæmodoraceous Plant.*—Dr. Balfour placed on the table a flowering specimen of the plant sent by H. Fox Talbot, Esq., and which was described at the last meeting under the name of Vellozia Talboti. Dr. Balfour thought that, although the plant was very nearly allied to Vellozia, yet it possessed certain characters in which it disagreed with that genus. He proposed, therefore, that it should be made a new genus, and in the meantime he would name it in honour of his friend Mr. Talbot, and designate it Talbotia elegans. 2. *Gases found in Plants.*—Messrs. Faivre & Dupré have recently examined the gases found in the Mulberry and Vine, the parts which contain them, and the changes produced in them by the process of growth and development. They have arrived at the following conclusions:—1. The presence of gases in the interior of the root of the stem, and of the branches in the Mulberry and Vine, is a normal and constant fact. 2. The composition of these gases changes with the epochs of vegetation. 3. During the period of inactivity, carbonic acid is in very small proportion, and is scarcely appreciable. Oxygen is present to the same extent as in atmospheric air. During the phase of activity the contrary takes place, and the changes are more marked in proportion as the vegetation is more energetic; with the progress of vegetation, the proportion of oxygen diminishes. 4. In the roots, during the epoch of vegetation, the quanity of oxygen is not so great, while that of carbonic acid is greater than in the branches examined under the same circumstances. 5. In the branches, as in the roots, there is an inverse relation between the oxygen and the carbonic acid; by adding to the normal oxygen that disengaged under the form of carbonic acid, we obtain a number which is scarcely above the proportion of oxygen in the air. 6. In the Mulberry and the Vine, injections do not penetrate the pith or the bark, whether in the branches or roots. The ligneous layers are alone permeable to mercury. The more the formation of vessels increases, the easier and more complete are the injections. The injections are fuller in the roots than in the branches; they are also more in the branches than in the young herbaceous shoots. In the old stems of the Mulberry, the central layers cease to be permeable. 7. Microscopic examination proves that the injection specially penetrates the pitted and reticulated vessels, and also the spiral vessels in the young herbaceous shoots. 8. The pitted vessels show distinctly the mercury in the areolæ, as if in so many little pouches formed by thin portions of the wall; the same observations have been made in regard to the reticulated vessels. 9. The contents of the vessels expelled by the mercury is variable. Sometimes gas only is sent out: this is the case in winter and after dry weather. Sometimes the gas is mixed with sap, which is more or less abundant according to the epoch of vegetation and external temperature. These two latter conditions regulate in a certain degree the contents of the vessels. 10. The contents are so variable that in plants the root vessels of which contain gases and sap, the stem vessels contain only gases, or inversely. 11. The presence in the vessels of animals of oxygen and carbonic acid mixed with the blood, constitutes one of the best established facts in animal physiology; the presence of the same gases mixed with the sap in the vessels of plants, and the modifications which they there undergo, seem to establish an interesting correspondence between these two kingdoms. 3. *Nature and Structure of the Pod of Cruciferæ.*—In a paper in the "Liverpool Naturalists' Journal," Dr. J. Birkbeck Nevins gives what he considers a new explanation of the nature and structure of the pod of the Cruciferæ. He states that the replum is merely the thin elongated axis of the plant, ending in a point called the stigma, and that the carpels are leaves attached near the apex of the axis, and bending downwards, so as to be fixed slightly to the lower part of this thin axis or replum. In process of time the attachment below gives way, and the leaves separate from below upwards, and finally fall off by an articulation at the upper part of the axis.—— 3. *On the Palm Trees of Old Calabar.* Extracted from the MS. Journals of the late Mr. W. Grant Milne. By Mr. Sadler. The Ata ukot, Wine Palm or common Mimbo, is apparently an undescribed species of Raphia. It yields a very pleasant beverage, which is much appreciated by all classes of people who have the fortune, or rather misfortune, to touch the western shores of Africa. It has been cultivated by the natives for ages for its watery fountain. The trees are generally seven years old before they are tapped. At this age they are from 30 to 40 feet in height. The natives ascend the trees, and pierce a hole to the centre of the stem immediately below the growing point; a small pipe is then inserted into the hole and led into a vessel which is fixed to the tree. In this way it is drained from time to time, which causes the tree to die, and it is then cut down to make room for others. The mimbo thrives best in damp situations, and such localities are generally chosen for its cultivation; at the same time, I have seen avenues of mimbo trees on high sandy places leading to towns. The people employed to tap the mimbo are Ebebo slaves, which are purchased by kings and chiefs at public slave marts. The Calabarians are not a climbing race. The Ebeboes are in practice superior in the art of "speeling." The liquid, when taken from the tree, has somewhat the colour of cream, and has a pleasant sweetish taste. This only

lasts a few hours, when it becomes tartish. The natives have certain barks which they bruise and mix with the liquid, which renders it intoxicating. It is sold in the public markets; and in the Ebebo country there are mimbo public-houses, similar to our beer-shops. It is used by the missionaries' wives for making bread, being very subject to fermentation; the bread made with it is excellent. The young leaves of the plant are split up into threads and made into fine bags. 2. The Iya, or Bamboo Palm, is another species of the same genus (Raphia). Its petioles are used for house building at Calabar, and all along the coast. These petioles are generally from 20 to 30 feet long. The fruit is used as an article of food, which is not the case with the last-named species. Many of the trees are from 50 to 60 feet high. In the Uwet country the natives do not cultivate the Wine Palm, consequently they tap the Bamboo; but the wine is strong and harsh and unpleasant, and is very intoxicating. I once saw the King of Uwet as tipsy from its effects as any man under the influence of brandy. The inland kings and chiefs indulge themselves to excess in drinking Bamboo wine, and consequently are always in a state of stupidity. The tree is tapped in the same way as the mimbo, at the base of the growing point. In the Qua country, at the foot of the Qua mountains, they use the wine of the Oil Palm (Elais guineensis), which is inferior to that of the Bamboo, being much harsher and stronger. In this case the trees are tapped about 2 feet from the ground, in the same way as already described. I never saw any of the natives intoxicated by this wretched fruit, but I have no doubt that they can supply ingredients to it for this purpose. Another species is the Afea oku ukot, or the white rod mimbo. The petioles of this Palm are white, while that of the Ata ukot are red. Its wine is equal in quality to that of the Ata ukot. The scales of the fruit are, however, much thicker than those of that species and the Bamboo. The Idim ibum is perhaps the most important Palm of all at Calabar. Idim signifies water, and ibum great. It occurs on the banks of the main branch of the Calabar river, but confined to the district of Ikorioffong. The quantity of wine which this plant produces is astonishing. An ordinary tree will yield a puncheon of a most delicious beverage, which is deservedly a great favourite with the people. In colour it resembles cream, which is sold in large quantities at the mimbo public-houses. When the tree is once tapped it invariably bleeds itself to death. This is not the case with common mimbo; it can be tapped from time to time till the fluid is exhausted, and then it dies. Such is also the case with the Idim ibum, the Iya or Bamboo, the Afea oku ukot, and the Oil Palm. The last of this class of Palms, belonging to Raphia, met with at Calabar, is the Iya asiakia nditto, which signifies children. The base of the fruit is surrounded by numerous scales similar to those produced at the base of bulbiferous plants—these are called by the natives children. This Palm is not common. Another nearly allied species which is plentiful upon the south coast, sends up numerous shoots, similar to the plantain, covering a great space of ground. On the south coast a species of Date is abundant on the sea shore, but not inland. The fruit is small, and of an oval shape. In taste the pulp is similar to that of the Date of commerce. Its foliage also resembles that of the common Date, and might easily be mistaken for it were it not for the fruit. A Fan Palm is plentiful at Citia Camma, but I have not seen the plant, never having been so far south. Captain Kirkwood has two plants raised from seed collected at Citia Camma, where he states it is abundant.——4. *Notice of Two Species of Mosses New to Science.* By Dr. Buchanan White. Dr. White gave descriptions of two species of Hypnum, which he had collected in 1865, on Ben Lawers, in Perthshire, and which had been ascertained to be as yet undescribed in any work. The one he proposed to call Hypnum breadalbanense, and the other H. montanum. Drawings of the plants were exhibited. ——5. *On a Fungoid Disease affecting the Human Hair.* By John Bishop, Esq. Under the microscope the hair presents a remarkably jointed appearance at each of the specks, and if the speck is large the whole substance of the hair is seen to be split into its component fibres, and a mass of something which appears to be fungus is found to protrude from the centre of the hair. The fungus has evidently broken the continuity of the hair, by rupturing it from within outwards, thus giving rise to the fibrous appearance, and also to the bending and fracturing which are so characteristic. If the end of a broken hair be examined, it will be found to have a brush-like appearance, and the fungoid growth will again be visible. The fungus appears to be of a low type, and to consist of an aggregation of cells, with occasionally sporules and mycelium branching amongst the broken fibres of the hair. —— 6. *Miscellaneous Communications.* 1. Mr. M'Nab laid before the meeting a specimen of a Cratægus which was raised from seed collected, during 1828, by the late Mr. Thomas Drummond, in the Rocky Mountain district, during the second land expedition under command of the lamented Captain Franklin, late Sir John. The peculiarity of this tree is that it never flowers before July, and generally about the middle of the month, and during dull moist seasons flowers have been seen as late as the beginning of August. The tree is now about 20 feet high, having a somewhat pendulous head, and bears black fruit. It was many years before it bloomed, but now it flowers annually. 2. Mr. M'Nab also placed on the table flowering plants of Goodenia amplexans and Selliera radicans, which were sent to the Botanic Garden last year from Australia by Dr. Mueller.

Quekett Microscopical Club.—A monthly meeting was held on the 23d inst., Mr. Arthur E. Durham, President, in the Chair. Mr. R. T. Lewis read a paper on "Mermis nigrescens," in the course of which he gave some interesting particulars of the remarkable appearance of large numbers of these hair-worms which were found suspended from the leaves of Apple trees and shrubs in the morning following a thunderstorm which passed over the southern counties on the night of June 2d, similar appearances having been noted in the month of June, 1791, 1832, and 1845, on each occasion after a thunderstorm. In length they varied from 2 inches to 4½ inches, but were not more than about 1-20th of an inch in width. For the most part they were of a pale yellow colour, except when charged with ova, which gave a brown line. They closely resembled Gordius aquaticus, being a genus of the order Gordiacea, in the class Entozoa; but they differ from Gordius in the position of the oviduct, and also in habitat, Gordius being generally found in water, whilst Mermis inhabits damp earth. The ova in their free state exhibit two fine filamentous appendages, delicately fringed at their free ends. Numerous specimens were exhibited at the meeting, and their structure demonstrated under the microscope. Twelve new members were elected.

Notices of Books.

Flora Orientalis, etc., auctore. Edmond Boissier. Vol. i., royal 8vo., pp. 1017, Basileæ, 1867. Williams and Norgate.

Here is the first volume of a book, which will be received by acclamation by all those who have any concern with the plants of the East, that is to say, of Greece, European Turkey, the Crimea, part of Egypt, Northern Arabia, Asia Minor, Persia, and Western Asia generally. The body of the work consists of a technical description of the various genera and species arranged in their proper order. As M. Boissier has studied the plants of these countries for many years, and his publications have rendered him widely known as an accurate observer, and a most faithful delineator of species, the fact of his having collated his previous observations, so as to bring them into one collected whole, will be sufficient to ensure the volume a place in every botanical library. Of the purely technical portion of the book we need only say that it will be referred to henceforth as the standard work on Eastern plants. The introductory chapters, however, demand fuller notice in this place, devoted as they are to a brief sketch of the botanical geography of the various districts into which the Flora is divided. These are (1) the mid-European region, characterised by the occurrence of rain throughout the year, with a moderate summer heat, and of a winter temperature often below freezing point, without being of extreme rigour. The presence of a moist atmosphere throughout the year favours the growth of deciduous trees and Conifers. In the mountainous district of Pontus, where rains and fogs prevail with a mild uniform temperature, a very rich Flora is observed, including the Rhododendrons, Azaleas, Vacciniums, &c. On the southern shores of the Caspian Sea, a somewhat similar climate exists, with a colder winter and a hotter summer. Most of our fruit trees grow wild in this district, and together with Ivy, Wild Vine, and Smilax excelsa, form almost impenetrable forests. Higher up, Oaks, Maples, Ashes, and Lime trees abound; and at a still higher level, in a moister region, the Myrtle, the Olive, Paliurus aculeatus, &c. The Mediterranean region has milder winters, and hot dry summers, while the rain falls in autumn and spring only, rendering the atmosphere at those times very moist. Evergreen trees and shrubs predominate in this district. Next comes the Oriental region proper, characterised by an extreme climate, cold winters, hot rainless summers, clear skies, and rain only in spring and autumn. Trees are comparatively rare in this region, and forests are entirely wanting. In this district are included the plateaus of Anatolia, Armenia, Syria, Persia, Affghanistan, Mesopotamia, Tibet, the Western Himalaya, &c. It admits of subdivision into provinces dependent on altitude and other conditions. In the more lofty districts trees are scarce, but spiny plants, many Caryophylleæ, Astragali, Composites, Plumbagos, and similar plants, grow in hemispherical tufts or hummocks, which give a special physiognomical appearance to these countries. Saline plants—Statice, Lepidium, Salsola, &c.—are also found here and there, so that the flora of these elevated plateaus is, on the whole, the richest and most varied in the East. The deserts of Turkestan, Eastern Persia, and Western Affghanistan belong to a district of lower general elevation than that last mentioned, to which the climate presents many analogies. In spring time these wastes are covered with a great variety of small annual species, with few trees, unless it be Willows and Poplars, which are found along the watercourses. Saline plants abound here also, together with large shrubs of Tamarisks, Nitraria, &c.

The vast alluvial plains forming the valleys of the Tigris and Euphrates constitute another sub-district characterised by burning summers, abundant autumnal and winter rains, and comparatively mild winters. Here may be found large Crucifers, Umbelliferæ, Cynareæ, &c. Lastly, there is the region of the Date Palm, characterised by scanty autumnal and winter rains, which indeed are wanting in the southern and lower regions; the summer is burning hot, the winter for the most part mild, but not without frosts. This is the desert region *par excellence*, comprising a belt of 6°—10° in width, stretching from the Cape de Verd Isles and Western Africa to Scinde and the Punjaub. Towards the south it merges into the tropical region with its summer rains. The plants growing in this district are often widely spread, so that the same species may be met with in Africa, and in Scinde. The Date Palm is the characteristic tree, and is frequently associated with the Doom Palm, Ficus Sycomorus, and a host of annual and perennial plants, often spiny, and frequently either provided with a very thick fleshy rind or with a dense coating of woolly hairs. Saline plants also abound in certain portions of the district.

Turning from these climatic details, it is interesting to see what M. Boissier's ideas of species are. It will be recolleeted that hitherto he has been noted for his subtle and acute discrimination of forms, which other botanists with less analytical views would be disposed to group together rather than to separate as distinct forms. His present views, then, are all the more worthy of being adverted to, and we do so nearly in his own words. Alluding to the difficulties that must ever be met with in attempting to define species, he says that experiments made with a view to determine this point must be more or less uncertain or unsatisfactory. Thus hybridisation gives results the more indefinite in direct proportion to the closeness of affinity between the species operated on. Cultivation moreover must not be depended on, for plants are removed from their natural conditions, and grown under circumstances that have no parallel in Nature. The results of experiments on this head are capricious, and are usually found to accord pretty closely with the preconceived ideas of the experimenter; thus, some botanists say that they derive from seeds of the same plant in cultivation forms distinct enough to be ranked as species: while others, disposed always to look to the smallest points of difference, say that these forms are immutable under cultivation. M. Boissier says on this head that he has cultivated plants from all sources for 20 years, and has never observed anything of the kind, either in the way of permutation from one specific form to another, or in absolute fixity of characters, but he has been struck with the facilities with which hybridisation is effected in gardens between species of the same genus but of widely different geographical habitat, as in Aquilegia, Antirrhinums, &c.

M. Boissier declares himself an upholder of the old doctrine of the permanence of specific forms, endowed, however, with a more or less closely limited range of variation; and he considers it a lesser error to separate forms than to combine them improperly, the former error being more easy to detect, and also more easy to correct. Nevertheless, it will be found that acting on his enlarged experience M. Boissier has in this volume reduced very many of what he had previously described as distinct species to the rank of varieties.

The present volume contains the series of Thalamifloral orders; that it may soon be followed by the remainder is the earnest wish of every working botanist.

Florists' Flowers.

The comparatively new race of the Tom Thumb compactum Bedding Tropæolums promises to become both very useful and attractive in the summer flower garden. They originated in an attempt on the part of Mr. J. George, of Stamford Hill, to cross the varieties of the trailing Lobbianum section with those of the ordinary Tom Thumb section, the object sought to be accomplished being that of getting rid of the trailing habit in the one case, and of reducing the somewhat gross-growing properties in the other. Mr. George considered that if he could improve the habits of the plants, with a view of rendering them (the Tom Thumb section more especially) better adapted for general use as bedders, he could well afford to leave the flowers to take care of themselves, feeling certain that were the form of the flowers of the Lobbianum section, or the larger and more expansive blooms of the Tom Thumb section assumed, in either case he could reasonably look for breaks from the original types that would not fail to carry with them a certain amount of improvement also.

The first attempt was made by crossing the old T. Lobbianum Crystal Palace Scarlet, with a good form of the ordinary Tom Thumb scarlet. Some plants of this popular variety occasionally come more compact in the habit than is usually seen, and there is sometimes allied with this a greater preponderance of scarlet over orange in the flowers. From the first experiment in cross-breeding came T. compactum coccineum, which showed a manifest contraction of the habit of the one parent, and a greater infusion of scarlet into the flowers of the Lobbianum parent. The colour of the flowers was of a very rich hue, and they also retained the Lobbianum shape. By crossing the new variety with a yellow flowering seedling, T. compactum luteum was produced, the flowers being yellow and spotted with pale amber. This was a weakly growing variety, though it flowered profusely, but it required greater vigour in the habit. With this also came a seedling possessing a shade of crimson deeper and richer than any form of the crimson Tom Thumb that had been seen. This proved a useful variety to seed from. The next batch of seedlings produced several varieties of considerable promise, a few of which were distributed during the past spring. The more noticeable were Luteum-improved, a considerable advance on Luteum, the habit much stronger, the flowers larger, the colour golden yellow, the spots on the lower part of the flower crimson, on the upper part amber. This is a very striking and effective kind for ribbon borders. King of Spots, bright yellow with bright amber spots, dwarf-growing and very free blooming; in damp and sunless weather the flowers will come heavily suffused with amber, though it is by no means unattractive in that character; King of Scarlets, a somewhat dullish hue of cerise scarlet, a very dwarf-growing variety that blooms profusely, and is very suitable for small beds; Scarlet Gem, in character very like the foregoing, but having more orange, but a very indifferent grower; the colour is very bright, and it also blooms freely. Both of these partake of the nature of the Lobbianum varieties in regard to the build of the flowers rather than of the Tom Thumb character, like Luteum-improved, King of Spots, and others; and they appear, in consequence, apparently to lack vigour of constitution. Another variety, named The Moor, is of a very compact habit, but yet robust growing; the colour rich velvety maroon of a bright shade, the upper part of the throat pencilled with black. The colour is very showy, but this, and King of Spots also, buries its flowers as it were beneath the surrounding leaves to a great extent. Mr. George has readily acknowledged this defect, and his seedlings of the present year actually show considerable improvement in this respect. From a goodly number of these Mr. George selected the following, the most of which will probably be sent out next spring: Orange Perfection, rich bright orange, very showy, habit compact and dwarf, and free blooming; a striking shade of colour for bedding purposes. A bright crimson scarlet, as yet unnamed; this Mr. G. Smith, of Islington, will distribute; it is a good strong growing and yet compact variety, very free blooming, but on the seedling plant the flowers show a tendency to come crumpled. Le Grand: this I take to be an improvement on the foregoing, though the hue of colour plainly differs, as it has more orange and less of crimson, and there is the presence also of a strong dash of purple; the flowers are large and very smooth, and the habit all that could be desired. This is the best variety yet raised by Mr. George. Scarlet Perfection is in the way of Le Grand, though there is a clearly perceptible difference in the hue of colour; the flowers are smaller, but it is an astonishingly free bloomer, and very showy. Cloth of Gold is a decided advance among the yellows, there being more gold, and consequently the hue is deeper; but it has the same defect as Luteum-improved, regarded from the florists' point of view, as the spots

on the lower segment of the flower are paler than those on the upper portion. Black Prince shows an advance on The Moor, the colour is deeper without losing the richness, and just above the throat, on the upper portion of the flower, is a rich band of a dark colour; habit very fine and free.

Mr. George is evidently on the right track, though much remains to be done. The scarlet flowers up to this point appear to adhere closely to the form of the Lobbianum section, but in the seedlings of the present year there is a manifest departure from this seen in the high-coloured flowers, and they are assuming the larger and more expanded shape of the Tom Thumb varieties. To have these thrown well above the foliage is most requisite. Next, dwarfness with compactness of growth must be also developed. There is no doubt but that the present damp season has caused some of these compactum varieties to grow beyond ordinary bounds, in common with many other bedding plants; therefore this year's conclusions, drawn from a trial of them, will have to be qualified by another year's experience. In Luteum-improved to a large extent already, and in Cloth of Gold yet more, can be seen the coming substitute for the uncertain Yellow Calceolaria. For ribbon borders, and for large beds these Tropæolums can be highly recommended; they simply require to be seen used as such in order to be appreciated. For small beds the high-coloured kinds will prove the best. They certainly possess advantages over some other kinds of bedding plants, which to persons having restricted accommodation for wintering bedding-stuff are of some importance; they are easily cultivated, strike readily from cuttings, will winter in store pots, and take but little room. Their somewhat wiry habit in the cutting pots keeps them free from the ravages of damp, while it also preserves them uninjured under a considerable amount of exposure to cold. *R. D.*

The Apiary.

Ligurianising an Apiary: Artificial Queen-Raising (*continued from p.* 881).—The artificial swarm (No. 12) formed by the majority of the brood-combs, with a due proportion of bees taken from No. 9, had been from the 25th to the 28th of June without a queen; on the latter day I discovered another queen cell, tenanted by a very young larva. This was extraordinary, as it was then 14 days since the queen had been removed, and, consequently, since any egg had been deposited among the combs. This cell, like all the others, was at once destroyed; a small piece of comb, containing a few suitable grubs and eggs, cut out from the brood-comb previously given to No. 9, was inserted in one of the combs, a piece corresponding in size being cut away for that purpose. As many as eight royal cells were quickly started; some of these were cut out, and given to another queen-raising stock. From one of the rest allowed to remain the eldest princess came forth, and lost no time in securing her rights of succession to the sovereignty by ruthlessly dispatching her less fortunate rivals. She did not exhibit any great amount of beauty of colour. In this respect I have often known that, after the lapse of a few weeks, queens become so much improved in appearance as to be hardly recognisable.

No. 7 was the hive next operated on. On the 4th of July the combs were searched for the queen, and when found, the comb on which she was, with the bees, and another equally well filled with brood, were placed in a nucleus-box. After being confined in a dark room until evening, the small swarm was located on its permanent stand, and the bees liberated. The queen has continued to lay eggs, but the little stock will not be sufficiently populous, or well supplied with food, to survive the winter unaided. It is therefore my intention to unite the bees and combs, after securing the person of the old queen, to one of the stocks which have raised young artificial queens. The now queenless stock, No. 7, was supplied with two royal cells cut out from No. 12. Neither of these came to anything, therefore on the 5th of August a new comb, well filled with eggs and larvæ of suitable age, was given to the hive. One or two royal cells were soon started, but subsequently made little progress, and on the 24th of August I discovered that this stock was the subject of that very mysterious phenomenon, the presence of Fertile Workers. With the assistance of a clever apiarian friend every bee was examined, and we were both fully satisfied that no queen existed, and that none had been raised. The worker cells contained drone larvæ, some of which was lately sealed. In a few cells mere newly-deposited eggs, which, instead of being attached to the bases of the cells, were fastened to one or other of the sides, most probably owing to the fact of the egg-laying bee being unable to reach the end of her cell with her abdomen. This circumstance will, in a great degree, account for there having been but little attempt made at raising queens after the last brood-comb was given. This stock has become so much weakened, that I do not intend to supply it with a queen, but will unite it to some other.

No. 8 was treated in the same manner as No. 7; that is, the queen and one brood-comb with sufficient bees to form a swarm were placed in a nucleus-box and carried within-doors until night. The parent stock was also supplied with two royal cells cut out from No. 12. In proper course, a young queen emerged, became a mother, laid a considerable batch of eggs, and then mysteriously disappeared. The bees started one or more royal cells from her brood. These I cut away, inserting instead thereof a royal cell of pure Ligurian brood. In one of the royal cells which I destroyed, there were *three* eggs. Query, were they laid there by the queen, or conveyed there by the bees? It seems very doubtful if the queen could have deposited them, as in all probability these cells were not thought of until the death or loss of the young mother. The other cell was quite sealed, while this particular cell was not half formed. I believe this hive also is in the indescribable predicament of having Fertile Workers. The royal cell last inserted remained unopened, and on inspection, after more than sufficient time had elapsed, I found a dead larva, about half grown. The brood laid by the young queen, who was for so short a period at the head of the colony, was all either hatched or hatching out; nevertheless, there were many young drone-larvæ in worker cells both sealed and unsealed, and several eggs only just deposited. The bees having become very few in number were very easily scrutinised, but no queen could be discovered amongst them. If this should be the real state of the case—and I can see no reason to doubt it—it is rather remarkable that two such instances of what is usually considered a very rare circumstance, should have occurred at the same period in my apiary. As usual, no bee presents any unnatural appearance which might induce the observer to attribute to her the power of exercising the functions of maternity. *S. Bevan Fox.*

(*To be Continued.*)

Artificially Impressed Combs.—I should feel much obliged to Mr. Maw if he would kindly furnish us with some more details of his process for manufacturing the embossed sheets. The greatest difficulty with me, and with others who have similarly experimented, has been in the preparation of the wax itself into plain, thin, and even sheets, of sufficiently large size. The dies I have used for pressing the wax have been metal ones, but I fancy that they could be almost if not quite as efficient if made of plaster of Paris. Many apiarians would doubtless, as well as myself, be glad to know Mr. Maw's plan. *S. Bevan Fox.*

Garden Memoranda.

Stoneleigh Abbey.—This, the seat of Lord Leigh, Lord-Lieutenant of the county of Warwick, is about three miles distant from Kenilworth, and is pleasantly situated on the banks of the Avon. The main portion of the mansion is a noble pile, in the semi-Italian, or what is better known as Louis Quatorze style of architecture. The two principal fronts face south and west, and owing to their fine elevation have an imposing appearance. The north, or carriage entrance, forming a portion of the old abbey, is in the Gothic style. In front of this is a long grass enclosure for cricket, croquet, &c. Upon the opposite side of this grass from the front doorway, is a long, winding, irregular ribbon, composed of five rows of the usual ribbon plants; but its principal feature consists in its forming a coloured fringe to, and lightening up, the evergreen banks behind, which are formed to rise with the same line and irregular curves up to the trees behind, which adds much to the meaning of what are termed ribbons. At the west corner of this line is the carriage entrance to the enclosure, consisting of a fine Gothic arch and gateway, in connection with which are some interesting antiquarian remains of the ancient abbey. A portion of this ancient pile forms the residence of the gardener, and a very pleasant one it is, except that it may be a little too near the mansion.

The garden on the east front is divided from the north front by a low balustraded wall with vases, meeting another wall at the end of the garden, which runs from the archway entrance to the river, thus separating the garden from the park. The flower garden on this front is laid out in the old-fashioned style of half a century ago, and consists of mixed Box and Grass, with some of the beds near the house still retaining the old mixture of Roses, &c. Most of the beds, however, in the centre of the garden have given way to modern innovation, and are decorated with the bold colours of our present summer favourites. In front of this are extensive park views, rich in noble trees, and green vistas. A little beyond the balustrade are two trees, to which much importance is evidently attached, owing to the careful way in which they are protected—one is a Wellingtonia, the other an Oak, planted by Her Majesty and the Prince Consort upon their visit to Stoneleigh in 1858, when on their way to open the Aston Park at Birmingham.

The lower or south front is reached from this point by two flights of steps, one at each end of the broad front walk. The slopes, terraces, and walks on this front run east and west, and finish by means of a balustrade along the river side, having square projections at intervals, running a few feet into the water. The *tout ensemble* here is singularly pleasing, great harmony existing between the mansion, and the broad flights of steps, terraces, and balustrading, which form one grand whole, proportionate to the river, which is here widened out to lake proportions. Beyond is a gently rising hill, of park-like character and treatment, fringed in the distance with the irregular outlines of trees, except in one place, where a little stiffness occurs from an attempt to make a break, which has much the appearance of a huge letter A, without the bar.

The designs on this grass terrace are detached and modern. The centre is the old double harp outline, so popular with Le Notre two centuries ago, and still remaining in many places; this is laid out in Box, with spaces for coloured material. The broad end of the harp lies next the house, and the more contracted portions come harshly against the long, straight lines of the slopes and walks, with an evident want of three others, if space would admit, to make a complete figure—losing, in short, what is a good opportunity of making a pleasing, continuous, imposing design. Spring gardening forms a feature here, and every autumn many thousand Pansies and other spring plants are turned out, by means of which a fine display for the spring months is obtained. The summer bedding will bear favourable comparison with that in other places. At the end of this terrace is the conservatory, an architectural structure, with light stone front harmonising with the mansion, and a glass roof; it is planted out in beds with material of the usual description, has seats formed into alcoves, a walk all round, and front shelf containing an excellent collection of flowering plants.

The walks along the river side, beyond this, are rendered interesting by means of waterfalls and islands raised up to give the width noticed above, and rustic bridges are thrown across, from which fine views of the water and terraces are obtained. One noticeable feature on reaching the woods is the treatment of the Laurel, which is made to form a close, rich green covering, without having a stiff clipped appearance, allowing the fine stems of the trees to stand out in bold relief. Woodland walks and small pretty gardens may be found here, and it may be mentioned *en passant* that Pinuses and all other trees and shrubs have escaped the severity of the winter, which has punished so many things in other places.

The kitchen garden commences on one side by a wall near the conservatory going round to the north entrance, and enclosing about 6 acres. A pair of fine iron gates open from the pleasure ground into the central walk, on each side of which are a large flower garden and fountain; but though the walls flank one side as it were of the pleasure grounds, they are completely hidden by a fine old rustic covered Ivy walk, so dense that not even the border is seen in passing. The houses have all been modernised, and heated on the most approved principle. In an excellent late Vinery one division is all Black Hamburgh, the next Lady Downes', Black Alicante, &c. In the centre are 9 feet of flags, and the house is a broad, sharp, high, span-roofed one, of the very best form for late keeping Grapes.

Next to this is a long Fig house with a central pit, in which all the plants are in pots, which is much the best method of growing Figs, except in cases where an old tree has become established, and its roots cramped. In ranges of half-span Pine pits are excellent fruits of Smooth Cayenne, Queen, &c. Over the pathway and down the back span are Melons in pots, plunged in the leaf-beds of the Pines. It may not, perhaps, be generally known that this is the best practice for Melons, if not grown in frames. They should be planted either in pots or along the wall of the pits, letting them fall down. In a No. 1 pot, there were, at the time of my visit, from 9 to 12 fine fruit of what Mr. Elworthy, the gardener, named Seymour's Green Perfection, a kind which he prefers to all others.

Stephanotis, Cucumbers, &c., occupy the other half span, and these, as well as long shelf ranges of stove and other plants, are in excellent condition—the plants, pots, paths, and everything else being scrupulously clean. Grapes are fine, both in bunch and berry. In the Early Muscat house a little of the extension system crops out, a long rod of fresh wood being allowed to extend itself every season, the old being alternately taken out. In this way Mr. Elworthy gets not only better bunches but better berries. Peach houses, &c., are equally satisfactory. On the walls are fair average crops of Pears. Plums are not so plentiful. Gooseberries trained to trellises will be found a great success, a plan of treatment which should be more frequently followed than it is.

Ice is kept here under mounds of straw with great success, and comes into use after that in the ordinary ice-house is over. Let us hope that Mr. Elworthy will kindly furnish some account of these ice-mounds, by which persons having no ice-houses, may secure a supply of this useful article sufficient for all ordinary purposes. *J. F.*

Miscellaneous.

Hammonton Strawberry Show.—Every student of English history has read of the king who died through a surfeit of "Strawberries." In our youth we were noted for a tendency to unbelief unless in very straightforward stories, and we never could understand how any one could surfeit of such "good things as Strawberries." There might be "too much of a good thing" once in a while thought we, but not of Strawberries. But since we have seen these Hammonton Strawberries we think even a king might die of too much of them. The people here (United States) talk of nothing but Strawberries, grow nothing but Strawberries, eat nothing but Strawberries, can see nothing but Strawberries, and all they have to sell is Strawberries. They sleep on Strawberries, and in short the Strawberry is food, drink, and raiment to them. One thousand acres of Strawberries, and only 3000 inhabitants! can any place beat this? But they grow good Strawberries, that is some excuse for their enthusiasm. We have seen heavy crops in our time, and we should judge from what we saw there, 150 bushels to the acre was not an uncommon crop, and this not bad for a plot of land which 10 years ago would have been passed over as "barren" sand. The average size of the berries was equal to what we have seen on the best Strawberry: land, and as to varieties it was remarkable to note that though they had experimented largely with most of the new varieties, no kinds were popular but Wilson's Albany and Triomphe de Gand. We heard a veteran pomologist, filling no less a position than Vice-President of the National Pomological Society, say to some friends, after thoroughly examining Hammonton, and comparing all the kinds he saw, with those in his own State, "there are but two Strawberries worthy of the name—Wilson's Albany and Hovey's Seedling." *Gardener's Monthly.*

Pyramidal Silver-striped Holly.—The height which this Holly attains is something remarkable. On Clinton Terrace, Nottingham Park, may be seen a single specimen, a perfect column of health and luxuriance, little short of 30 feet in height, and not more than 30 inches in diameter at the base. At Castle Donnington

also, near the Moira Inn, may be seen three specimens 30 to 50 feet in height, and about 6 feet in diameter at the base. Of course we are speaking of diameter of foliage, not of stem, and we speak of this Holly to show its adaptability to certain purposes where a formal style of planting is indulged in.—*Nottinghamshire Guardian.*

Garden Operations.

(*For the ensuing week.*)

PLANT HOUSES.

As the days shorten admit sunlight freely, in order that what growth has been made may be well hardened and ripened. Look to all hard-wooded greenhouse plants which have been hitherto freely exposed, and provide them with shelter from cold wet weather, should such ensue, without however in any way depriving them of light. Many subjects in the conservatory or greenhouse will need frequent waterings with clear liquid manure, especially Fuchsias, Tritonias, Liliums, Feathered Cockscombs, Balsams, &c. Do not keep *Indian Azaleas* in a high temperature after they have finished growing, and begin to show just slight symptoms that a crop of flower-buds is setting. At such a stage gradually inure them to the outer air—exposure for a week or two to which will be of great benefit to them, before storing them away for the winter. Thin *Mignonette* out to some seven or nine plants in a 32-sized pot, as soon as it is well up, and it can be ascertained which are the most robust plants. Do not water too freely for a time. Give seedling *Cyclamens* their final shift before winter arrives; let them have a good rich loam, with a moderate supply of well-decayed cow-dung. Shift the earlier-struck batch of *Poinsettias* singly into 48-sized pots, giving them afterwards frequent syringings over-head. Finish drying off *Gloxinias* by freely exposing them to the sun upon a dry shelf, and without affording them any more water.

FORCING HOUSES.

Protect Grapes from wasps, &c., by tacking on all openings thin scrim, or "Haythorne's Hexagon Netting:" No. 1½ is a serviceable cheap sample. This is preferable to putting individual bunches in bags. A temporary framework might be so fixed to the doorway as to admit air freely, should fine weather ensue. Protect ripe Grapes from damp, &c. Pinch back freely all shoots or laterals which may emanate from any of the *Vines;* after this time of the year any wood formed cannot be over well matured. As has been before intimated, be very careful with late Grapes which are about to colour, in houses having but indifferent borders, which are likely to be cold or over-sodden with wet. Do not by any means maintain a too high temperature inside the house; on the contrary, let it be somewhat in conformity with that outside, and once the colouring process has commenced keep the inner air studiously dry—even by the aid of fire-heat by day, whilst air can be given. Any spare lights at hand might be placed over these borders, for the double purpose of warding off heavy rains which might set in, and for aiding in every possible way the retention of any sun-heat with which we may be favoured, for I fear the best of borders will not be over plentifully supplied with good roots this season. *Pines,* when they cease flowering, and commence to swell fruit perceptibly, might be assisted with a good surface dressing of rich soil. Give *Peach* and *Nectarine* houses, previously forked over, surface-dressed with fresh soil, &c., a thorough good dressing with soot.

HARDY FLOWER GARDEN.

Sow Ten-week and Intermediate *Stocks* for early spring flowering. Pot any *Auriculas* requiring that attention without further delay. A good, thoroughly decomposed surface-loam, with a fourth of well decomposed cow-dung, a little well-washed road driftings, and silver sand, will suit them well if the pots are well crocked. Be careful not to bury the crowns too deeply, and pot just sufficiently firm to ensure a not too retentive capacity to hold moisture. Remove all old flowers from *Dahlias,* upon the first symptoms of decay, and this will be especially necessary with *Hollyhocks* also; always in performing this latter operation, when seed saving is not intended, be particular to remove the seed-pods, as allowing them to remain greatly impoverishes the plants, and tends to destroy the beauty of the later blooms at the apex of the shoots. Prick out seedling *Pansies* and plant out into their permanent beds, where it is intended they should flower, all properly struck cuttings. The beds properly prepared, as I have before advised, must be well mixed up with partly decayed leaf-mould, good loam, &c. Sow *Sweet William* seed for spring planting.

HARDY FRUIT GARDEN.

Remove the old fruiting canes from "Raspberry stools" as soon as they have done fruiting, which, by affording a greater amount of light and air to the young growths, will aid in more efficiently hardening them to stand through the winter. Finish budding various "Stone Fruits" where possible this week, in order that the worked parts may have time to properly heal over before adverse weather sets in. This operation is more easily performed than that of grafting, while the result is about equal as far as success is concerned.

KITCHEN GARDEN.

Make a small sowing of *Spinach.* This will come in nicely to follow that coming up in the spring, as it will be fit for picking at a time when the earlier sown has run to seed. Sow also a similar quantity of *Lettuce* and *Endive* seed, which should be allowed to remain in the seed-bed until spring. Pricked out then, it will prove an acceptable succession to those transplanted into beds in autumn, when they have also run to seed. These remarks will apply equally to *Cabbages,* which, if sown now in a similar way, will eventually prove very serviceable as early spring Coleworts. Take up, dry, and store away *Onions* without further delay. If left standing until they have become thoroughly ripe, the top having decayed, they do not keep nearly so well as when they are pulled up before the green tops have quite decayed. Continue to plant out Lettuces and Endive as frequently as any successional sowings become sufficiently large for the purpose. These are sure to be useful, with slight protection during early winter months. Where seeds are being saved, of course this will need attention in the ordinary way. Remove all decaying substances from Cabbage plantations, from which the first crop has been taken, and which are intended to stand for the purpose of giving a supply of winter greens. Continued attention to successive plantings of *Celery* will be the more needful as the cooler long nights of autumn approach. Continue to earth them up, as they grow, a little at a time in a general way. The earlier lot might now be pretty generally earthed up, for the purpose of thoroughly blanching it for use. Finish earthing up *Cardoons,* where this has not already been done, as previously advised. *W. E.*

HINTS FOR AMATEURS.

Early in September, those who have the misfortune to be obliged to move at Michaelmas begin to look out for a new location, and not a few have no choice but between houses built upon new ground. Now, we all know too well what new ground round London means; it means clay—stiff, back-aching, unmitigated clay—fit only for making bricks. The surface generally presents some few inches of useful soil; but this is commonly buried beneath the clay which is wheeled out from the depths of the foundations, and which is so heavy that the workman is obliged to use a long spade of only half the ordinary width, and so sticky that he must wet his tool in a pail of water each time before using it. Out of such unkindly soil as this do metropolitan amateurs, by dint of constant perseverance and attention, succeed in growing some very nice flowers—after how many failures we will not mention. So many of these failures have mainly arisen from not having had the ground properly prepared in the first instance, that we propose to say a little on this matter. There are but few plants that will survive being planted in such stuff as this, if the autumn should prove wet, and the winter severe. It would be much more prudent to abstain from planting anything until the spring, and meantime to subject the soil to a proper course of treatment. The usual plan is to trench the ground. By this is meant digging down to the depth of about 2 feet, and casting up the clay into long, raised, rough ridges, so as to expose as great a surface as possible to the air and frost. It is very desirable that these ridges should run north and south, for then one side of each ridge gets the full influence of the morning sun, while the other side gets its turn in the afternoon. Probably the effects of frost upon this rough material are more beneficial than any other influence, as it cracks and breaks it up, causing it in the spring to crumble to pieces. Then is the time to take advantage of its disintegrated condition, by covering it 3 or 4 inches deep with sifted, burnt brick-earth, and digging it all up together. By so doing a good, useful garden soil is obtained, which will grow most hardy plants and shrubs excellently.

Some years ago a scientific friend strongly commended to us the expediency of a mixture which he scattered broadcast over the ground, before trenching it. It consisted of 1 lb. saltpetre, 2 lb. soda, and 3 lb. common salt. He stated that these 6 lb. were sufficient for a quarter of an acre of ground (or 1 ounce for a border 20 feet long by 5 feet wide), and that it would be found easier to distribute it evenly if the quantity were increased (which it might be indefinitely) by the addition of brick-dust or dry road scrapings, only taking care that it be all thoroughly and uniformly mixed. He assured us that if we trenched one piece of ground with this mixture, and another without it, that we should find a marked difference the following spring in the greater lightness of the soil where this mixture had been used, besides the advantage—which these salts undoubtedly effect—of manuring the ground. Never having tried it, we will not pledge ourselves to the results here indicated; but we may safely say that no harm can accrue from the use of such small quantities of these three salts, and if any one will give it a fair trial, we should be glad to know the result.

Bulbs must now be thought about. We wonder that Crocuses and Snowdrops are not oftener grown upon Grass plots. Planted about 6 inches from the border or gravel walk, they have then sufficient green around them to show off their charming colours in all their purity with an effect to which they can never attain with a background of earth. It is true that the scythe ought to be passing over the sward before the leaves have died down, and must not intrude here just at first. But what matter; a strip of long Grass all round your neatly-mown lawn will not be a very untidy margin to it, and will only be of very short duration. Probably the second, certainly the third mowing, may remove all traces of the lovely flowers that have jewelled your Grass plot. They might also be used to grow up through Grass edgings in large gardens with good effect. Of the large Crocuses, a succession of yellow, white, and blue would look well, while the dwarf yellow Crocus would alternate with the Siberian Squill charmingly.

Have you noticed, at a neighbour's, some fine strong Hollyhocks, which would look well in your garden next year? If so, explain to him the advantages of dividing the root, show him how to do it, taking care to wait till the plant has done blooming, and also that each division when made has a good shoot and some strong roots; you will of course recommend him to cut off all the biggest leaves, and to plant these divisions in some shady place away from the drip of trees in a good free soil, where they may remain until the spring, when they must be transplanted to those places which they are to ornament with their stately flower-spikes. If, after taking all these pains to enlarge his collection for him, he does not offer you a plant or two, his acquaintance will scarcely be worth further cultivation on your part.

There is a plant just now coming into bloom, which is so rarely met with in the gardens of amateurs, and has such a beautiful flower, that we strongly recommend its being inquired for. It is the double-flowered variety of the Autumn Crocus or Meadow Saffron. Its bloom most resembles a pale Oleander flower, while it has the egg-shaped form of a half-blown bud of a good Tea Rose. Its colour is a delicately pale purple or pinkish, and it lasts a long time in a vase of water. *W. T.*

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the Week ending Aug. 28, 1867, as observed at the Horticultural Gardens

Aug.		Moon's Age.	Barometer.		Temperature.					Wind	Rain.
					Of the Air.			Of the Earth			
			Max.	Min.	Max.	Min.	Mean	1 foot deep.	2 feet deep.		
Thurs.	22	☾	30.049	29.998	73	48	60.5	65	61	S.W.	.00
Friday	23	23	30.051	30.009	75	49	62.0	64	62	W.	.00
Satur.	24	24	30.088	30.038	74	55	64.5	64	62	S.W.	.00
Sunday	25	25	30.027	30.003	75	57	66.0	64	61	S.W.	.00
Mon.	26	26	29.971	29.956	69	48	58.5	62	60	N.E.	.14
Tues.	27	27	30.040	30.000	67	48	58.0	62	60	N.W.	.00
Wed.	28	28	30.118	30.088	70	51	60.5	62	60	S.W.	.00
Average			30.049	30.013	71.8	50.8	61.3	63.3	61.0		0.14

August 22—Fine; very fine; clear at night.
— 23—Cloudy; exceedingly fine; clear, with starlight.
— 24—Fine; very fine throughout.
— 25—Cloudy and hot; very fine; overcast at night.
— 26—Overcast; heavy showers; slightly overcast; rain.
— 27—Partially overcast and fine; overcast; cloudy at night.
— 28—Fine; cloudy; clear and fine at night.
Mean temperature of the week, ½ deg. above the average.

STATE OF THE WEATHER AT CHISWICK,
During the last 41 years, for the ensuing Week, ending Sept. 7, 1867.

Sept.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain	Prevailing Winds.							
						N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday .. 1	70.7	47.7	59.2	21	1.50 in.	3	5	3	4	4	13	4	5
Mon. .. 2	70.9	47.3	59.1	18	0.44	7	5	2	7	4	8	11	3
Tues. .. 3	71.3	47.6	59.5	18	0.49	3	7	3	7	6	10	8	3
Wed. .. 4	70.7	46.6	58.6	18	0.58	5	7	4	4	3	8	4	6
Thurs. .. 5	70.0	47.2	58.6	17	0.30	3	9	5	—	4	6	8	2
Friday .. 6	69.8	46.6	58.2	19	0.70	1	10	4	—	1	17	7	1
Satur. .. 7	70.0	47.6	58.8	19	0.55	1	6	6	1	6	14	5	2

The highest temperature during the above period occurred on the 1st, 1843, and 7th, 1865—therm. 85 deg.; and the lowest on the 6th, 1850—therm. 30 deg.

Notices to Correspondents.

BALSAMS: *J Carter & Co.* The flowers are large, very double, and finely varied in colour. One especially, a deep purple, is remarkably beautiful.

BOOKS: *T G.* There is no better book on the practice of gardening than Thompson's "Gardener's Assistant," which costs about 30*s.* If a book more specially devoted to explaining the principles of Horticulture is required, then Lindley's "Theory and Practice of Horticulture," at about 21*s.*, would be found more useful.—*Subscriber.* Bentham's "Handbook of the British Flora," which you can have either with woodcut figures or without.—*W Miller.* Thompson's "Gardener's Assistant" is the best work we know of for amateur as well as for professional gardeners.

DACTYLIS GLOMERATA VARIEGATA: *P M.* It is quite hardy, and very constant.

FIGS: *O T.* We never intended to offer any remarks on the cultivation of Figs, but only on the particular malady with which yours were affected. The disease has not, however, since come under notice as we expected, so no supplement has been sent to the note published last April. *M. J. B.*

GARDENERS' ENGAGEMENTS: *Subscriber.* Your question being a legal one, can only be fully answered on investigation by a solicitor. In general terms, if a gardener is hired and paid by the week, he would only receive a week's notice to quit, but if engaged and paid monthly or quarterly, a longer term of notice, or the equivalent in wages, would be claimable. Individual cases, however, would be ruled by the terms of hiring. We cannot answer you more explicitly, and indeed if we attempted to do so without knowing both sides of the question we might lead you astray.

GLADIOLI: *Youell & Co.* Your spikes of brenchleyensis, though perhaps scarcely so large as those you sent last year, are magnificent, and fully entitle this deservedly favourite variety to still hold a foremost place against all competitors.

LILIUM AURATUM: *E M R.* Keep the bulbs moderately watered after flowering, while the leaves continue fresh; but as soon as they show signs of ripening off, reduce the water gradually till the stems are quite dead, when the bulbs can be stored away in the nearly dry soil till they are potted early next spring; or they may be potted as soon as they ripen off. See an article at p. 102 for particulars of culture.

MELONS: *J T.* Your Melon was not first-rate, a circumstance doubtless attributable to a want of bright sunlight.

NAMES OF PLANTS: *B B.* 1, Woodwardia orientalis; 2, Gymnogramma ochracea; 3, Selaginella Martensii; 4, Pteris bastata; 5, Campanula Rapunculus, or something closely allied to it.—*P E F.* 1, Sagittaria sagittifolia; 2, Alisma Plantago; 3, Butomus umbellatus; 4, Artemisia vulgaris; 5, Monarda didyma.

PETUNIAS: *C J Barker.* Your seedlings are excellent, both as regards quality and substance. Among them are selfs of all shades of colour; while some are beautifully striped, and not a few of them are double, large, and showy.

PLUMS: *Charlton.* Your Plums are infested with a salmon-coloured caterpillar. By all means gather the bad Plums at once and burn them, and you will prevent many a moth from appearing which might lay multitudes of eggs. It is curious that a disease is prevalent this year which to the outward eye exactly resembles yours, but there are no caterpillars; and the evil arose, we believe, from cold affecting the ovules or some other portion of the pistil, but not destroying it utterly. *M. J. B.*

VENTILATION: *Subscriber, Marlow.* In ventilating your pit in which you grow Pines and pot Vines, do not remove the lights during the middle of the day, but tilt them more or less at the back or sides, according to the temperature required.

COMMUNICATIONS RECEIVED.—Diss.—E. B. (thanks).—Tilia (under consideration).—J. Meredith (next week).—W. R.—J. Fleming.—R. Warner.—A. F. Barron.—H. G. R.

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(ESTABLISHED 1840),
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CORN MANURE, for Spring Use
DISSOLVED BONES, for Dressing Pasture Lands
SUPERPHOSPHATES of LIME
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The Company advances money, unlimited in amount, for the following works of Agricultural Improvement, the whole outlay and expenses in all cases being liquidated by a rent-charge for 25 years.
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Landowners assessed under the provisions of any Act of Parliament, Royal Charter, or Commission in respect of any public or general works of Drainage or other improvements, may borrow their proportionate share of the cost, and charge the same with the expenses on the lands improved.
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No investigation of title is required, and the Company being of a strictly financial character, do not interfere with the plans and execution of the Works, which are controlled only by the Government Enclosure Commissioners
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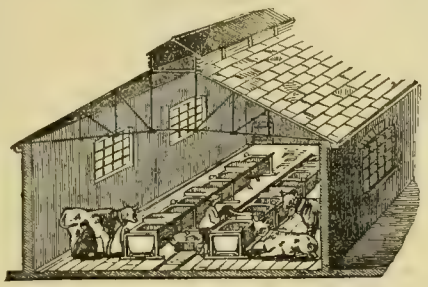
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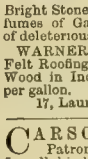


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The Endowments amount to £150, and there is reason to believe that the fees and practice may be about £120 additional.
Testimonials to be lodged, on or before the 14th September, with F. N. MENZIES, Esq., Secretary of the Highland and Agricultural Society, 3, George IV. Bridge, Edinburgh.

The Agricultural Gazette.

SATURDAY, AUGUST 31, 1867.

THE RIVERS COMMISSION have completed their third report—relating to the pollutions caused by the woollen and worsted manufactures in the district of the rivers Aire and Calder, but containing much also of general and agricultural interest. Thus, they give it for their opinion that all pollution of rivers, whether by trade and manufacture or by sewage, ought to be prevented at the cost of the community causing such pollution. At Croydon, Norwood, and elsewhere, injunctions have been obtained, forbidding the passage of sewage into the running waters below a certain definite standard of purity; and, there, after all other systems have failed, a clarification of such sewage by irrigation has been effected, which is successful not only for the avoidance and abatement of nuisance, but for the attainment of a certain amount of profit from the operation. And in any case the Commissioners believe that if there be any immediate loss consequent upon the expense of dealing with sewage, the advantage of the operation to the whole community—of the perfect abatement of a serious mischief, more than overrides it.

It is, however, hardly to be doubted that in the great majority of instances an immediate as well as indirect profit arising out of sewage irrigation is possible. Where immense quantities of rain-water, as well as of sewage, have to be pumped any considerable height before land capable of turning the whole to account can be commanded, most likely the cost will be excessive; but wherever no great expenditure is needed for pumping, and still more, of course, where no pumping whatever is required, the experience of several places shows that the produce obtainable is a good repayment of the cost.

On turning over the Grass account of the several beds or panes, in which the irrigated land near Barking is worked, we find that Plot No. 6, which is 3 roods and 26 perches in extent, yielded 18 tons 3 cwt. of Grass in two cuttings before May 25 this year; on June 26, it yielded close on 10 tons; on July 20, close on 10 tons; on August 24, 9 tons 13 cwt.; or 47 tons 16 cwt. in five cuttings before the 24th of August; which is upwards of 50 tons per acre.

On Plot No. 8, which is 3 roods and 16 perches in extent, there were cut in the weeks ending April 20, May 25, June 22, July 20, and August 17 respectively—9, 10, 7¾, 10¼, and 9 tons, or 45 tons 19 cwt. in all, which represents a still larger quantity per acre. On Plots Nos. 18 and 19, 2 acres 3 roods 30 perches in extent, there were cut, in the weeks ending April 6 and April 13, 18 tons 10 cwt.; on May 18, 37 tons 9 cwt.; on June 15 and 22, 28 tons 11 cwt.; on July 13, 27 tons 1 cwt.; and on August 10, 26 tons 3 cwt., or 137 tons 14 cwt. in all, which is about 45 tons per acre. These figures certainly prove that enormous produce is obtainable from the use of sewage, and we should be glad to show this Grass to Mr. ALEXANDER FORSYTH, to whose interesting paper on hay-making in another page we direct our readers, certain that he would admit, notwithstanding what he has there said of Sewage Grass, that it is possible to grow Italian Rye-grass, green and hard, and well-developed, ripe and wholesome, on beds irrigated thus. We believe, then, that in this one crop alone—and many others are being proved available—riverside and inland towns have an easy and satisfactory escape from all the difficulties which the water-closet system and impending legislation are about to bring upon them.

—— WE have received from Mr. HUGH SMITH, of Much Hadham, Herts, a letter descriptive of an experiment in sheep-feeding, in which dried Mangel Wurzel was pitted against good oil-cake. The root contains in its natural state eight-ninths of water to one-ninth of dry substance, and Mr. SMITH, remembering that it is generally consumed when the temperature is low, that the animal has to eliminate this one-ninth of dry food from the remaining eight-ninths of water, that it has to raise this large

quantity of water from this low temperature to the natural temperature of its body and then to expel the superfluous water from the system—it occurred to him that the carbon required to perform all these operations might be more economically supplied from extraneous sources than from the physical constitution—that, in short, carbon in the shape of coal at ½*d.* per lb. might be an economical substitute for mutton or beef fat at 9*d.*

Acting upon these convictions, he took eight tons of Mangel, and, having passed them through the pulper, he put them on the kiln to dry. When the water was entirely expelled, he found he had as residue one ton of dry pulverised matter, extremely sweet and palatable. Such a substance ought to have high feeding powers. The next point was to ascertain this by the test of practical experience.

To effect this object he placed the ton of dry food in the hands of his neighbour, Mr. HENRY KNIGHT, one of the most considerable tenant farmers in the parish, and requested him to ascertain practically its feeding value. For this purpose he selected two lots of sheep of five each, and put them on to Grass divided by hurdles, giving one lot oil-cake, the other lot the prepared roots, commencing with half a pound, and, by degrees going up to a 7 lb. cake for the five sheep, and 7 lb. weight of prepared Mangel for the other lot per day; this has been their allowance for the last two months. The oil-cake was the very best that could be purchased, costing in April last 11*l.* 10*s.* per ton.

The result of 12 weeks' feeding has far exceeded his most sanguine expectation. Prejudiced at the commencement of the experiment in favour of oil-cake, he has come slowly to the conviction that prepared Mangel has a superior feeding value to that justly-estimated article.

The two lots of sheep of five each were put up on May 25. They then weighed exactly alike, viz., 603 lb. each lot of five. After monthly weighings, indicating a slower progress at first on the part of the Mangel-fed lot, they were again weighed on August 17, when the five on cake weighed 770 lb., or 154 lb. apiece, and the others 787 lb., or 157 lb. apiece. This has been the result of the rapid progress made by those fed on dry Mangels during the last month of the trial. Mr. SMITH adds:—The sheep are still being fed in the same manner, and I shall be happy to show both the sheep and the food to all who may be interested in the matter.

It appears that the expense of manufacture, *i.e.*, pulping, kiln-drying, and pressing into cakes, amounts to 2*l.* per ton.

For those who may wish to further investigate the matter, it is added that the place is 26 miles from town, and a branch station on the London and Hertford line.

A DESCRIPTION of Mr. PHILLIPS-SMITH'S system of double tool steam cultivation, to which, according to *Engineering*, he has an exclusive patent right, is extracted in another page from the columns of our contemporary. The drawings which accompany the description represent two long frames on wheels carrying engines, with vertical drums at either end, which are thus far enough apart to allow of the tools they severally actuate passing one another without interference on their journeys to and fro across the field. It is hardly possible to doubt that the superiority of steam cultivation must so commend itself, even in cases where the capital needed for the purchase of steam-cultivating machinery does not exist, that the practice of hiring must ultimately at least be frequent. And in that case it is certain that double engines, working double tools in this way, will excel all others. In the engines patented by Mr. PHILLIPS-SMITH the cylinders and working parts are bolted, not to the boiler, but to the framework by which the boiler is carried; and the strain upon the fastenings is thus directed where it is less likely to be mischievous than, under the ordinary plan of bolting cylinder and boiler together, it is. This is pointed out by *Engineering* as an improvement much required; and especially important in a class of engines which, numerous as they at present are, must be largely increased in number before the immense field for steam cultivation in England is anything like sufficiently overtaken.

Our contemporary informs us that the old-fashioned 8-horse portable engine, with a pair of 6-inch cylinders, worked at 40 lb. boiler pressure, sustains a strain of about 1 ton alternately to and fro at the point where the cylinders are fastened to the boiler. The 12-horse ploughing engine, with a pair of 7½-inch cylinders worked at 120 lb., sustains, at the same point, a strain four and a-half times greater. It is not so long ago when we had railway locomotive engines taking the whole draught of the train from a plate rivetted to the firebox casing, but it is now generally admitted that the boiler has quite enough to do without throwing extraneous work upon it. Where traction and ploughing engines are put, as they now are, to hard work, the bolts fastening the cylinders, brackets, and other parts of the boiler are often, if not constantly, leaking, and to make good a steam-joint of this kind is always attended with difficulty. We find sufficient evidence, after a somewhat extended inquiry, to convince us that the practice of bolting all the machinery of a powerful traction engine to the boiler must be abandoned, and the sooner the better. Locomotive engineers now make the boiler quite distinct from everything else, so that both the boiler and machinery (or, technically, the "engine") may be worked quite independently of each other.

These remarks of *Engineering* represent the technical and mechanical merits of Mr. PHILLIPS-SMITH'S engines. The more directly economical and agricultural merits of his plan of steam cultivation hinge, of course, on the advantage of keeping two tools constantly at work—one, perhaps, a plough, and the other following it either a harrow or a cultivator; or the one a cultivator, going 6 inches deep, and the other a grubber, stirring the land 2 or 3 inches deeper. The advantages of two engines in place of one in facilitating the moving of the apparatus from field to field, and from farm to farm, are so great as to have justified the greater cost, even when only one tool was driven by the two engines in the field. Certainly the combination of double efficiency when at work, with double rapidity of movement from place to place, of which the double engine plan is now made capable, must hasten the progress of steam cultivation, whether on large farms by purchase, or on small occupations by hiring.

— Mr. TURNER, of Richmond, sends to the *Times* his annual estimate of harvest prospects, founded this time upon observations during a journey through Cheshire, Leicestershire, Warwickshire, Oxfordshire, Herts, Hants, Wilts, Dorset, Devonshire, and Cornwall. His general impression has been favourable. In the Midland Counties he was struck with the boldness and brightness of the ear and straw, and in the south the crops are as good, and in as good condition as could reasonably have been expected. We fear that the character of the crops along Mr. TURNER'S route is not sufficiently indicative of our harvest prospects as a whole to give his annual letter to the *Times* its usual importance. Had he travelled through the eastern instead of mainly through the western counties his opinion would have been valuable. We hear from an extensive occupier in Suffolk, that the threshing-machine is giving a worse account of the Wheat crop than had been already given to us in the estimates of resident farmers in various parts of Norfolk and Suffolk.

A NEW SYSTEM OF HAYMAKING

WITH REMARKS ON THE CULTURE OF GRASS.

IT is easy enough, as the old adage hath it, to "make your hay while the sun shines," and I have nothing to offer that can supersede the bright sunshine for haymaking; but when clouds have obscured the sun for many days and rain has fallen I can still save the crop, as this system works best when there is moisture in the Grass, and I should have no more difficulty in drying the herbage in March or September than at Midsummer. In drying the leaves of the Tea plant it is very questionable whether the grower would ever get his Tea into marketable condition by any system of air drying such as we practise for hay. In drying medicinal herbs and pot-herbs, which is only haymaking on a small scale, it is no easy matter to preserve the medicinal qualities of the herbs for distillation and the colour of the pot-herbs; and in this matter we have the evidence of the Chinese as well as that of our own experience, that drying them in the sun is not the best way to accomplish these ends. Herbs dried in the shade and by artificial heat are superior to sun-dried herbs, and although meadow Grass with all its mixture of field herbs may be sun-dried in the field and afterwards fermented in the haystack so as to smell quite sweet as hay after the genuine orthodox system of haymaking as by use and wont established, it could not compare in flavour with Tea leaves artificially dried as the Teas of commerce are dried by the Chinese, nor with Camomile flowers white as snow done by the herbalist, nor with Parsley, green and full-flavoured, done by the housekeeper; all of which had been done hastily, and by artificial means, as one would dry linen before a fire or else on a kiln as one would parch corn. In the case of haymaking in our day hands can hardly be got to do it as formerly, and this difficulty is likely to increase; and moreover hay will not pay for making at high wages, therefore the mowing machine must be used to save the costly scythe labour, just as the threshing machine has been used to supersede the flail; and means must needs be devised to dry hay by artificial means in this uncertain climate of ours, instead of helplessly looking on until we see the half-dried herbage rot in the hay-cocks. In the Exhibition of 1851 there was to be seen a coffee-drying machine, it looked like a chest of drawers, and the wet berries were put in the shallow trays or drawers, and each drawer was made to slide on rails, and was run out on castors, so as to look when open like a stair, each tread being a layer of coffee corns drying; and in case of dew or rain all the drawers could be run into the chest, and were thus for the time housed from wet. The principle is a good one, and may be used by us as well as by them, for the coffee-planter rejected the foul weather and made the best of the fair weather. It is a well-known fact, that wet linen will dry in a thorough draught in a gallery or shed, where air is fully admitted and rain kept out; every postage stamp and receipt stamp wetted and put on is a case in point of the action of air-drying: all the paste used in paper-hanging is air-dried, it has simply a house over it, and yet every room, passage, and garret gets duly dried in a few days at most. Where yarns are manufactured, and particularly in the bleach crofts, this air-drying process may be seen going on at any time; but the ugliest sample of drying which manufacturers have to deal with in this country is that of drying bricks so as to get a lump of clay-puddle, hard and dry, ready for baking in the brick oven or in the clamp. The brick moulder has been taught by experience that if he leaves his batch of wet clay exposed to the air it will assuredly very soon get dry on the surface, hence we see it carefully covered over with matting to keep the air from it. If we take a week of changeable weather at any time, we shall find that three-fourths of it has been such that a lump of wet clay or a web of wet linen would have dried very considerably—the clay having been in an open shed, and the linen hanging on a line under cover—even although rain had been falling for three days out of the seven. The bleacher and the brick-maker are necessarily well versed in the power of air-drying, and, next to seafaring men, may be said to have "their weather eye open." If bricks had to be wholly dried, as they are first laid flat on the ground like hay the risk of their being damaged by rain would be greater than it is now, and the cost would be increased by the extra space and time required: but when bricks are just hard enough to be built up into low open walls and roofed over, the brickmaker considers them nearly out of danger from wet. There really appears to be no end to the millions upon millions of tons of clay puddle that have been air-dried, and that are now being air-dried into bricks ready for burning, and yet with the exception of frosty weather we never hear at any other time of a brickmaker that could not dry his bricks. Therefore let no one despair, for if the greater evil has been already got over, and clay-puddle has been air-dried, hay can be air-dried also; but for this end we must borrow—as I am doing now—ideas from mechanism applied to other manufactures already in good working order; and for our encouragement in this line, let us bear in mind that when gardening was enslaved to the scythe, as it has been in my time, and men had to mow very early in the morning, or, to speak more plainly, had to labour a good part of the night in the heat of the Grass-growing season to keep the lawn and flower garden neat (and this under the ancient pretence—quite true—that the Grass cuts best about 3 or 4 o'clock in the morning) in due time the machine maker borrowed the revolving shears from the manufacturer of velvet, and by engrafting that shears upon something like our garden-roller, gardening got the tool that was invented and used to shear velvet to cut Grass neatly, and thus do the lawn-mowing, and that not in the morning only, but all day long; and it was not long after this that the reaping-machine came upon the stage, not as a revolving shears, but a real go-a-head tailors' "snip"—a shears, or rather a scissors of the simplest and most ancient type, the chief invention in both cases being the application of the clipping principle: and all the other items, such as traction-delivery, &c., were merely auxiliaries. The one-blade system of scythe and sickle, wielded by men, is now on its trial against the two-bladed reaper drawn by horses.

One of the greatest practical difficulties to be encountered with haymaking is its bulky character, and if the bulk could be reduced that alone would make haymaking much more manageable than it is now. When the Staffordshire potter packs his ware in the crates the straw is laid so evenly, and packed so tightly with the ware, that after all the goods have been got out of the crate it can hardly be made to hold the loose straw that has come out of it, and wagers are said to have been laid by good packers that a countryman could not cram all the loose straw into the crate that had held goods and straw both; but when "Hodge" twisted the straw into ropes, it was soon found that they occupied only about one-third of the crate, and so the countryman won the wager.

Now the brick croft, or rather the tile croft, is just my idea of what a hay croft ought to be, and when hay has been spun into ropes, and wound upon a bobbin or centre, two rows deep, and the centre has been taken out, it will leave the hay cylinder with a hole all through like a drain pipe. I have called the centre piece a cylinder, but, accurately speaking, it is the frustrum of a cone, with a diameter of 4½ inches at one end and only 4 inches at the other, and when a wall of these hay cylinders has been set up like a wall of drain pipes, the first process will be inaugurated, and all the tossings, turnings, rakings, &c., of haymaking will be laid aside, and the open wall of unburnt bricks will be the model to work by, and the pipe tile will be the pattern of the hollow ware. Hay spins best when damp, and after the Grass has fallen from the crisp state it gets tougher than before, as well as more pliable. Flax is wetted in spinning: it is, therefore, nothing new to damp the staple, or to spin it in a damp state. When once hay has been spun, and thus

tightly pressed into shape on a bobbin, it has entered upon a new phase in its "making;" reduced in bulk, firm and compact to handle, yet open like a stook to the air, it can now be kiln-dried, if necessary, as well as air-dried. I have elsewhere stated how hay has been kiln-dried by scientific men and ground into meal, and made into biscuits, but for our present purpose we only want it milled, not baked, to enable the farmer to feed stock with it without waste, and to add water and such seasoning as he sees fit; for although the horse has a mill in his mouth, it is cheaper for the owner to pay for the milling than to employ the mouth of the horse to do it. Buonaparte I. is said to have allowed only 20 minutes for his staff officers to dine, and Mr. Brassey, the railway contractor—following, no doubt, such a celebrated leader—allowed the same time to his fine teams of waggon horses for their midday meal, and they generally finished in the time allotted, and lay down to rest for the remainder of the hour. French etiquette saved the officers' time, as it is the servants that carve in France, and not the gentlemen; and Brassey's horses in like manner had their bait ground or otherwise prepared for them before it got into the manger. The cow and other ruminating animals grind their food wet by chewing the cud, after the fashion that colour-grinders make paint; whereas the horse grinds dry, and his corn gets but one offer, and unless every grain of Oats gets crushed by his teeth into meal, it is as good as lost, in proof of which we see the Oats germinate after being eaten, and many a lean horse would wear a better coat if the miller were to give him a hand to grind both hay and Oats.

Mr. Smee, the celebrated physician, made biscuits of hay bleached, and also of straw, to show what could be done, after the Potato failure, with Grass as food for man. Should any one be at a loss in learning to spin hay, let him go to the nearest rope-walk, and see several people spinning whilst one turns the wheel for all the rest; and if this does not satisfy him he might look in at the princely establishments in the province of Ulster, where they spin fine linen, and take a lesson there; or if the woollens were more in his way, the Vale of Stroud has the yarn for her broadcloth spun to perfection; and lastly, let him look at the way they do it in Lancashire, for the Cotton lord has taught thousands how to "toil and spin." There is a small tool called a hand-wrench or twister, for making straw ropes, and whether neat or clumsy, the tool is to be found in some shape at every farmhouse in Aberdeenshire: it is called the thrack-thruck. Now let any one take this hand-gear, and make himself a rope of half-dried hay, and wind it two threads deep on a piece of wood, 4 inches in diameter and 18 inches long, and when the wood is removed let this Grass cylinder be suspended in an open shed till it is air-dried, not troubling himself about the consequences, but confining the experiment to the question—Can hay be well dried in this way? and when this has been answered, further issue in the matter can be taken. Fifty blunders in trying would be no evidence of the thing being impracticable. There has always been a link awanting in the chain of haymaking; it never could be piled or set up because it was loose, not pressed; and it could get no help in drying because it was so clumsy you could not house it; it was apparently made to be trampled upon, and when carted and stacked it seemed like some great accumulation of loose litter gathered into an immense cottage-shaped rick, differing only from a dunghill in having something like a roof over it, but in no case giving one the idea that it was worthy of respect as a valuable article of food, to be kept clean and dry.

Unless hay is made up on bobbins, or otherwise twisted and pressed, it cannot be kiln-dried. Hay thus dried is greener and lighter than ordinary hay, and is old hay at once, and all ideas about fermentation are, of course, quite out of the question; it is too dry for that.

The doctrine that horses and cattle are beasts of taste, and that they like their fodder with some flavour, is only of recent promulgation among farmers, as witness the "food for cattle" men "doing the chemistry" with Fenugreek and ginger, and charging accordingly. Where tillage with the rotation of crops is practised, and credit taken for good farming, the kind of Grass grown for hay is often of the lowest order; I allude to the Rye-grass and Clover of the Scottish husbandry, the "Clover and Eaver" of the Devon farmer. Rye-grass, or Ray-grass, in all its forms is certainly one of our heaviest Grasses, and it is indigenous to the land we live in; it is therefore a free grower, but a coarse plant, and it is just the sort of Grass that when dried should certainly have a trifle spent upon it in the way of salt, Fenugreek, and ginger. The way that Ray-grass is cultivated or grown is such that no fine or tender Grass could endure. The seeds of this Grass are heavy, and it is therefore easily sowed as compared with the extremely light seeds of some other Grasses. When a crop of Oats or Barley has been sowed, and has begun to braird, the ground is over-sowed with this "Clover and Eaver" broadcast, much after the fashion we imagine that the Arch-Fiend did in the good man's field when he sowed the cockle "while men slept." Where a crop has got well established you cannot grow tender seedlings of the finer Grasses by over-sowing, for they can only be grown well where the land is like a flower garden, and every part of their culture needs the greatest care and nicety. I have often seen costly mixtures of Grass seeds sowed, but when I came to look for the plants in the Grass field they were not forthcoming; the seeds of the finer Grasses are so small in size and light in weight that extraordinary care is needed to sow them and cover them in, for they must neither be buried nor left above ground. And where are the farms, where the land in spring could be brought to such a fine tilth as to receive them properly, and how are they to be covered in? and with what? Those who are in the habit of sowing fine seeds in-doors know what delicate handling they require, yet, notwithstanding all this, if we are to have good hay we must have high quality in the Grass; and as all the economical Grasses are accurately figured and described in books, there can be no excuse for growing "Clover and Eaver," as if there were no other kinds of Grass in cultivation. I would advise all who are interested in Grasses to study well the living specimens to be found in gardens such as the Botanic Garden at Kew, and in the native habitats, hill and dale. Since the era of cheap literature the straw that formerly was so much wasted has found an outlet, and is now sold to the paper-maker, who cuts it and sorts it in such a systematic way that the growers of hay and straw may well take a lesson from him. The straw is digested in a strong alkaline ley to separate its flinty coat from its woody fibre, which latter article is what the paper-maker wants. The vegetable tissue, along with the spent ley, is generally wasted, and, although unquestionable as a manure for Grass, yet being so abundant and unmanageable, it froths in torrents, drugging the stream that carries it away.

Besides the botanical character of the Grasses to be grown for good haymaking, we must not forget that the welfare of the Grass plants will generally depend upon the materials supplied to them, for vegetables must feed upon what is set before them. The caustic alkaline ley above mentioned, when diluted with water until it scarcely tastes soapy, is a cheap and very efficient manure; indeed all the forms of soda sensibly affect Grass crops, even when the dose seems quite infinitessimal. Salt is one of the cheapest Grass manures, and greatly improves the quality of Grass, if I may use the expression, for the table; for the "salt lick" tells truly without speech how cattle long to have their portions seasoned with salt. Sulphuric acid (or oil of vitriol) is perhaps the cheapest stimulant we have for Grass, as it has to be diluted with not less than 500 times its weight of water, or 900 times its bulk of water, to make good acid manure water. Wood ashes are nearly a good as guano for Grass land, and the ash of the rank Bracken Fern (Pteris aquilina), formerly used as wash balls, is better even than wood ashes. Lime, guano, and bone-dust, are all so well understood in the culture of cereals, that the farmer who would essay to grow Barley, for example, without lime, would be black-balled as unworthy of the fraternity to which he belongs. Farm-yard manure and night-soil, or town manure, are staple articles, and need not be named if it were not that they are all chords on the same instrument to be sounded, and there has already been too much "fiddling upon one string." There is, perhaps, no greater bubble afloat in the agricultural world now than the value set upon dirty water as manure for Grass. Water and manure are both so clearly right for Grass that no one questions their efficacy, but every swill is not manure water; and when Grass has been grown under certain conditions, such as the shade of trees and certain forms of irrigation, although it may be tall and thick—a regular "fill basket"—it is not rich Grass; and experienced dairy people can tell what pasture-fields their cows have been in by the flavour and richness of their milk: and this test must ever be respected, as it is the golden one, the ring of the Californian metal that no one dares to despise. On leaving Edinburgh for the north and west by rail, we see sewage irrigation under the very best circumstances, but to me the Grass looked dull as the ditch-water that had set it up, and its green was not the light Grass green, but had the leaden hue, like the green of Solanums, and the land was not red earth, and had not the healthy look of land warped by the sea, but seemed such earth as Cobbett got his ideas of muckworms from; and unless the finer Grasses were grown in such a place by themselves they could not be grown at all, as the rank kinds would ruin the weaker growing ones.

To an ordinary observer the world seems to have been sown with Grass from a random mixture of species, but on closer examination we soon see how beautifully Nature has suited the Grasses to the sites they occupy. Look, for instance, at the wiry bundles of that Storm Grass, the common Sheep's Fescue (Festuca ovina) thriving on the bleak hillside in a thin layer of vegetable mould: its hair-like foliage exposes neither length nor breadth to the storm, which from the situation is its "constant and familiar guest." I have no hesitation in saying that this Grass does work that no other sort of Grass could do better, if so well; and it is by studying Grasses where they are at home that we see their true characters and what they are capable of doing for us. The Wheat being a true Grass and so well known, may be quoted to show the culture of Grass; its seeds have been measured, numbered, and weighed, and an acre has been planted with the dibbler with a gallon of Wheat, and as the crop has been satisfactory, we have the clearest evidence that the work had been done accurately as to distances between the lines and spaces; but fortunately Wheat is one of the largest Grass seeds we possess.

About 1824 there was growing in the parish of Old Meldrum, on the Meldrum House estate, belonging to James Urquhart, Esq., acres of native and foreign Grasses in flat drills, just as the Wheat is grown in England. He employed women to weed his Timothy Grass and his Foxtail Grass, &c.; but to sow the light and small seeds, and to cover them in, was the work of his gardeners' men, and it was done neatly; and I cannot see why we should always mix Grass seeds. The Scottish squire grew them separately, and when I saw them they were luxuriating on land that only a year or two before had been a worthless swamp, and they were sowed after the same fashion that wheat is dibbled: and by this treatment the finest Grasses can be successfully cultivated; and as it is wisely laid down in the cookery book that you must "first catch your hare" before you proceed any further with your cookery, so in haymaking we must first of all provide ourselves with plenty of rich Grass. When the Scottish housewife coloured her butter, she grated carrots and put the pulp into the churn in a linen bag; but when I wanted yellow butter, I also grated the carrots and gave them to the cow, and the effect produced in both cases as to colour was the same, but the milk as well as the cream and butter in the latter case was greatly improved by the carrots: and I cannot too often repeat that we must first feed the Grass and then feed the beeves with it. How very slowly agricultural intelligence travels even on the best of roads! I recollect perfectly the heaps of dry bones and unburied offal that lay bleaching on the common around our village before we had learned the value of such a manure, for the "Cannie Scot" had pinned his faith to the bulky midden, made up in great part of wet straw, and could not believe in bone-dust at first, and was altogether incredulous on the use of guano; and the leading articles in the Scottish newspapers jibed and jeered about "essence of manure in a bottle, and the kilted Highlander brushing the fields with a feather." But a reformation of manners soon set in, and the dry bones disappeared as if by magic from the common, and found graves in the parallels of drill husbandry, or were ground to powder and the treasured dust sowed on the green sward to enrich the Grass, which it did most effectually. I may here state that I first became acquainted with Grasses sorted and grown separately in my youth. Mr. Urquhart's Grass plantations looked quaint, and the names were odd, and many of them then, as well as now, had a tail to them—as Cat's-tail Grass, Mouse-tail Grass, Fox-tail Grass, and Dog's-tail Grass; and a child must be dull indeed that could forget the Quaking Grass, with its trembling spikelets, like so many palpitating hearts, or the beautiful Feather Grass of the gardens, with its silky beard, like the downy plumage of some rare bird.

About 30 years ago I went from London to Bedfordshire, a distance of 40 miles, on foot, to see the Grass garden at Woburn Abbey, belonging to his Grace the Duke of Bedford: the Grasses were arranged in small squares like a quilted scroll, and each square neatly edged with Grass. I have paid many a visit to the long narrow neatly-kept beds allotted to the Grasses in the Kew Botanic Garden—it is such a treasure to find the specimen accurately named; and speaking from long experience, I wonder at the little interest taken by most of my companions in horticulture in the subject of Grasses. I could find plenty of enthusiasts who have scoured the straths of Scotland, the orchards and sea cliffs of Devon, and the wilds of Westmoreland for Ferns, when the search seemed very much like a wild goose chase; but with the exception of our leading nurserymen, who deal in Grass seeds and grow patches of each kind for trial and experiment, I know of very few people who trouble themselves about the true Grasses. Clover, Lucerne, Sanfoin and the like, although cultivated either along with Grasses or by themselves, as substitutes for Grass, have nothing to do with the true Grasses, any more than a field of Tares grown for fodder should be called Grass, or that the poisonous Crowfoot should be raised to the same dignity because when it is in flower it makes the meadow shine like a sheet of gold by its unwelcome presence. The system of haymaking and haygrowing, as practised over the greater part of the country, seems better suited to the patriarchal time when they harvested hay and provender for cattle, than to the settled tiller for profit, with all our modern means and appliances. I complain of growing only Ray-grass when there are so many other choice sorts in the market. I complain of Grass being grown in a slough of dirty water. I complain of slovenly haymaking and the want of resources to do it well, and I complain of good hay being wasted and trodden under foot when it should have been not only gathered into barns duly as cattle food but cut and ground as if it were not only cooked for the cattle but actually chewed for them. When the field is clothed with Grass I want to arrest it when it is at the best and bake it hard dry at once. The usual rule is to cut the Grass when in flower; this is not a safe rule, for some Grasses are past their prime when in flower, the rich flower-stalk of the common Cauliflower is quite worthless as food when the plant is in flower; and this clumsy example is clear enough in its way to show what I mean, and there is a beautiful allusion to the rapid drying, or rather baking of hay in Holy Writ, where St. Matthew quotes his Blessed Master's sermon on the Mount, that "The Grass of the field to-day is, and to-morrow is cast into the oven," as if the transition should be accomplished in something less than a day. *Alex. Forsyth.*

SHROPSHIRE SHEEP.

The following notes on the history of this valuable breed are taken from *Eddowes' Shrewsbury Journal*, of the 31st ult.:—In these days of high farming, when science and skill are brought to bear advantageously not only on the cultivation of the land, but also on that important adjunct to good farming, the propagation of the various animals which afford us the means of food and clothing, it may, perhaps, not be unacceptable to our readers, especially those connected with agriculture, to offer a few remarks on the history, past and present, of that important and valuable breed of animals, now known as Shropshire sheep. It is only within the last twenty years that the Shropshires have been, so to speak, fashionable; but many years previously several of the leading agriculturists of this county had turned them to good account, and with a far-sighted wisdom taken advantage of their hardy, produotive, and meat and wool-producing qualities. So far back, indeed, as the year 1343, history records that Shropshire was famous for the quality of its wool, which fetched a higher price at that time than

any other description quoted. From the *Journal* of the Royal Agricultural Society we learn that the prices of wool in that year were, for Shropshire, 9*l.* 6*s.* 8*d.* per sack; Oxford and Staffordshire, 8*l.* 13*s.* 4*d.*; Leicester Hereford, and Gloucester, 8*l.*; and Cornwall, the lowest quoted, 4*l.* Amongst the breeders of our own day we may mention especially several who are now passed away—Mr. Meire, of Berrington; Mr. Gittins, of Shrawardine Castle; Mr. George Adney, of Harley; Mr. Juckes, of Tern; Mr. Stephen Matthews, of Montford; and Mr. F. Lee, of Rowton. These gentlemen, as well as many others now living, well understood the value of the breed, and spared neither pains nor expense in improving them by the judicious selection of breeding ewes as well as of sires. The first public recognition of the "Shropshires" as a distinct breed was at the meeting at Gloucester, in 1853, of the Royal Agricultural Society of England, when 30*l.* was offered by the late Hon. Robert Henry Clive, M.P. for South Shropshire, as special prizes for "Shropshire or other grey and black-faced short-woolled sheep." On this occasion a prize was awarded to Mr. Thomas Horton, of Harnage Grange. In 1854, at the Lincoln R. A. S. E., there was no mention of them; but at the Birmingham show of the same year they were classed as at Gloucester, the prizes being awarded respectively to the late T. C. Whitmore, Esq., of Apley, and Mr. Stephen Matthews, of Montford. In July of the same year, Mr. W. G. Preece, to whose exertions the recognition of the Shropshire sheep by the Council of the R. A. S. E. as a distinct class is wholly due, announced the great Shropshire ram sale, at which 80 rams and 92 ewes were offered, and sold at prices varying from 6 guineas to 32 guineas, which latter sum was given by Messrs. Crane for a ram from the flock of Mr. Juckes, of Tern, whilst 60 ewes, belonging to Messrs. Crane, sold for nearly 6*l.* a head, a price hitherto unparalleled. Mr. Hilditch on the same day sold 34 rams belonging to Messrs. S. & J. Meire, Mr. John Evans, and Rev. C. P. Peters; one of Mr. S. Meire's rams was let for the season at 51 guineas: those sold averaging 12*l.* each. It now became a subject of much discussion as to whether the Shropshires were really a distinct breed or not; and much interest was excited among sheep breeders thereby. The *Birmingham Herald*, in December, 1854, in an article wherein the merits of Shropshire sheep were freely canvassed, arrives at the conclusion that they are; it says:—"The questions which purchasers have to consider, and which have no doubt attracted their attention, are these—have the breeders of this stock succeeded in obtaining purity of type? and can its present characteristics be perpetuated? These questions, we think, can be, and have been, conclusively answered by the great uniformity which is to be found in large flocks in various quarters, no less than in the satisfactory reports of more recent purchasers. It may also be safely assumed that the many experienced agriculturists from all parts of the country, who have attended the leading sales this season, would not have been present to pay high prices unless they were perfectly satisfied that they were securing the means of establishing a distinct breed of sheep on their own farms."

The breed now rapidly advanced in public favour fully maintaining their high reputation at the Birmingham and other provincial shows. It was not, however, till the year 1860 that the Council of the Royal was induced to grant them the dignity of a separate class, and fully recognise them as a distinct breed. This distinction, to which they were undoubtedly as much entitled as any other breed of sheep in the kingdom, was not achieved without a considerable amount of dogged perseverance on the part of our townsman, Mr. W. G. Preece, who, in recognition of his services, was presented with a valuable testimonial by the flockmasters of this and the adjoining counties, breeders of Shropshires. Previous to this, however, we find them again occupying a most important position in the Royal showyards at Salisbury, Chester, and Warwick. At these meetings prizes were offered "for short-woolled sheep, other than Southdowns;" and at the two latter places special prizes were also announced to be given by the local committees for Shropshires exclusively.

It is, however, in the open classes that we recognise more especially the superiority of the breed. At Salisbury, in 1857, the entries in the class of yearling rams of any short-woolled breed, not Southdowns, numbered 58, the post of honour being assigned to the late Mr. George Adney, of Harley, with the 1st prize of 25*l.* In the aged ram class, comprising 42 entries, the 1st prize was taken by Mr. S. Meire with "Magnet," the 2d by Mr. G. Adney with "Patentee," whose blood is so highly prized at the present day.

At Chester, in 1858, in the open classes, as at the previous show, the Shropshires were again victorious, under similar conditions, only that this year they took first and second prizes in the shearling class, Mr. Foster winning 1st, and Messrs. Crane 2d honours. In the aged ram class, the 1st prize was won by Mrs. Baker, of Grendon, whilst Messrs. Crane, for shearling ewes, monopolised both 1st and 2d places. The special prizes above alluded to were, of course, allotted to the winners in the open classes. At the Warwick meeting of 1859, the 1st prize for shearling rams, in the open class, was won by Mr. J. Coxon, of Freeford, the winning sheep being afterwards sold for a hundred guineas. The prizes for aged rams were awarded as follows:—1st, Mrs. Baker; 2d, Messrs. Crane; 3d, Mr. Adney; and for ewes, 1st, Mr. Holland; 2d, Messrs. Crane. The special prizes also fell to the above-named winners, Messrs. Sheldon & Horley being placed respectively 2d and 3d for shearlings.

In 1860 we find them, as previously mentioned, receiving the tardy recognition of the Royal Society as a distinct breed of sheep—a recognition which, after their performances at Salisbury, Chester, and Warwick, where their acknowledged superiority over all other breeds which were brought into competition with them, could no longer be withheld—1st and 2d prizes only of 15*l.* and 5*l.* respectively being given for each of the three classes of shearling rams, aged rams, and shearling ewes. This injustice was, however, soon removed; for in the following year we find the Shropshires placed on a perfect equality, as regards prizes, with the Southdowns, Leicesters, and other recognised breeds. We here append, in a tabular form, the names of the winners of all the Royal prizes from 1860 to 1867 inclusive:—

Year and Meeting.	Prize.	Shearling Rams.	Rams of any Age.	Shearling Ewes.
1860. Canterbury.	1	T. Horton.	E. Holland, M.P.	J. & E. Crane.
	2	J. & E. Crane.	T. Horton.	J. & E. Crane.
1861. Leeds ..	1	T. Horton.	E. Holland, M.P.	W. O. Foster, M.P.
	2	J. & E. Crane.	T. Horton.	J. & E. Crane.
	3	Mrs. Baker.	T. Horley.	J. Evans.
1862. Battersea	1	T. Horton.	T. Horley.	J. & E. Crane.
	2	T. Mansell.	P. W. Bowen.	J. & E. Crane.
	3	H. Matthews.	T. Horton.	H. Matthews.
1863. Worcester	1	J. Stubbs.	P. W. Bowen.	J. & E. Crane.
	2	T. Horton.	Colonel Dyott.	J. & E. Crane.
	3	T. Horton.	J. Coxon.	H. Matthews.
1864. Newcastle	1	E. Thornton.	J. Coxon.	H. Matthews.
	2	H. Matthews.	P. W. Bowen.	H. Smith.
	3	J. Coxon.		E. Holland, M.P.
1865. Plymouth	1	T. Mansell.	Colonel Dyott, M.P.	J. & E. Crane.
	2	J. & E. Crane.	E. Thornton.	E. Holland, M.P.
	3	T. Mansell.	S. Bryd.	Lady Willoughby de Broke.
1867. Bury ...	1	J. Evans.	J. & E. Crane.	H. Smith.
	2	J. Evans.	T. Mansell.	T. Horton.
	3	T. Mansell.	J. Evans.	H. Matthews.

Our space will not permit of particular reference to provincial shows during the last 10 years; but we are fully justified in asserting that the Shropshires have not in the least degree degenerated since the period of the open competitions at the Royal Shows: they having repeatedly gained open prizes at Birmingham during that period. On the other hand, the breed has been greatly improved and widely extended, and they have found homes not only in the fertile meads of the Emerald Isle, and in the northernmost recesses of the Highlands of Scotland, but also in the vast plains of Australia and North America. Their extreme hardihood of constitution fits them alike for all climates, and this, coupled with their superior size, their extraordinary prolificacy, their quality of wool, and aptitude to fatten, constitutes their real value. The estimation in which Shropshire sheep are now held may be judged from the demand for them in the present day as compared with that of a few years ago.

In July, 1854, we find, on reference to advertisements of that date, Mr. Preece offering for sale by auction 80 rams and 92 ewes, whilst, in 1866, 250 rams and 2000 ewes were brought together for the second great sale of the year. This, as well as the high prices obtained, proves incontestibly the progress that Shropshire sheep have made in public favour, a result due entirely to their own inherent merits. In plain words, the breed has become fashionable, because it has been found profitable.

MR. J. PHILLIPS-SMITH'S SYSTEM OF STEAM CULTIVATION.

While a set of steam ploughing or cultivating apparatus can get over from 10 to 20 acres daily, and, in some of the lighter operations, on light soils, even more than this, it is not to be expected that farmers can afford to sink 1500*l.* or so in engines and tackle, and to engage men, available for no other service, to be employed, at the outside, for but three or four weeks in the year. As we long ago pointed out, the extension of steam cultivation depends greatly upon the multiplication of steam ploughing companies, and of these but few have yet been started. In the hands of a company, whose business it is to hire out engines and tackle, and to look to their constant employment, no investment can pay better, and we have the evidence of the Herefordshire Steam Cultivating, Threshing, and General Implement Company, whose reports show a net revenue, over all expenses, of 26¼ per cent. since its formation, two or three years ago. A set of engines and tackle, costing 1500*l.*, and worked by six men, whose wages amount to not more, perhaps, than 6*l.* weekly, will let readily at 5*l.* per day, and at this rate will do an amount and quality of work which will well repay the hirer. There are many hundreds of thousands of acres of land in England of which the annual value would be increased, as abundant experience has already shown, to the extent of more than 10*s.* an acre by thorough steam cultivation, costing at the outset, perhaps, twice that sum, but of which the effects are visible for years, during which the land has many times repaid the original cost of the improvement. If of the 33,000,000 acres of land in England we suppose even but one-third to be arable, and worth, say, 18*s.* yearly an acre, there is good evidence to show that the annual value of this land might be increased by more than one-half by steam cultivation, or say by more than 5,000,000*l.* sterling annually, representing, when capitalised, an addition of more than 100,000,000*l.* to the permanent wealth of the country. As the cultivation of land is also attended with extra expenses for sowing and harvesting, it will not be too much to say, speaking in the light of the late report of the Royal Agricultural Society on Steam Cultivation, that the annual value of the crops would be increased by at least 2*l.* per acre (repsesenting but 5 bushels of wheat at 8*s.*), and which would alone return far more money than the net profits of our whole system of British railways.

We saw, last week, in Staffordshire, a large farm of the stiffest clay, which had well nigh ruined its former tenants, and which had been again let at a very low rent, but of which 200 acres were being well broken up and harrowed, sometimes to the extent of five operations on the same area. On Saturday last Mr. J. Phillips-Smith, secretary of the Hereford Steam Cultivating Company, accompanied by Mr. Zerah Colburn, waited upon the Earl of Shrewsbury and Talbot, at Ingestre, who, with Captain Talbot, of the Guards, and Captain Talbot, R.N., drove over with them to the Birchwood Park farm, on Lord Shrewsbury's estate, and about 12 miles from Stafford. Here Mr. Smith had at work a pair of Howard's transverse boiler engines, driving a five-tine cultivator at a depth of 12 inches in a stiff lumpy clay soil already ploughed. Nothing but steam could properly touch such ground. It was not only cold, cloggy, and obstinate, but the surface was foul with Couch, Wire-grass, Rushes, and Thistles. The cultivator was getting through a good 10 acres a day, although, taking, as it did, a 5 feet 2 inches breadth at the rate of 3½ miles an hour, its rate in motion was equal to nearly 2¼ acres an hour. The distance between headlands was, however, but 280 yards, and as, at full speed, this was traversed in less than three minutes, the proportion of time lost in stoppages and reversing was considerable.

An immense improvement, however, upon the present double-engine system of cultivation has been made by Mr. Smith. A Mr. Tulloh Osborn, more than 20 years ago, patented a scheme wherein two engines were to work two separate but similar implements to and fro across a field, the traction being effected by chains, wire ropes being then hardly known. On the introduction, however, of the modern system of steam ploughing no advantage was taken of this plan, and the roundabout system with a single engine and its great length of outlying rope was adopted. Then came the double engine system, the advantages of which are now everywhere recognised, although it has the great disadvantage that while either engine is working the other is standing. Early last year, Messrs. Howards, of Bedford, endeavoured to remedy this defect something after the manner of Tulloh Osborn, although his plan was well nigh impracticable, from the difficulty of removing the implements, at each bout, into fresh ground. The Messrs. Howards employed two implements of the same sort, and drew each one alternately to and fro halfway across the field. This plan requires, of course, that the engines shall be reversed twice as often as if they drew the implements at the same rate across the whole width of the field. At the Bury Show, Messrs. Fowler & Co. showed an improvement upon this, their double engines drawing two implements, either unlike in kind (as a cultivator and a harrow), or two of the same kind working at different depths, say the leading cultivator to 6 inches and the following one to 12 inches. In this way both engines are made to do their full work without stopping, except at the headlands to reverse the implements. Without, as we have the best reason to believe, any knowledge on the part of Messrs. Fowler, Mr. Smith had patented this important improvement but a little time before them, and they are now excluded from using it. The whole idea of this system of working, as distinguished from Tulloh Osborn's, consists in the use of different implements, the one following the other, or in the use of two implements of like construction, the following implement going so many inches deeper than the leading one. It will need but little reflection to perceive that this forms one of the most important improvements in the mechanism of steam-cultivation yet made, as it will greatly cheapen the cost of the work, keeping both engines always going, and peforming two consecutive operations at the same time.

This improvement was clearly explained to Lord Shrewsbury on Saturday, and he fully realised its great importance. He remained upon the field for several hours, and all the operations of cultivating, mould draining, harrowing, and working the engines over the fields and in the roads were exhibited to him, his lordship and both Captains Talbot mounting the engines and riding upon the cultivators, and otherwise acquainting themselves with all the details of working.

Mr. Smith had in operation a cheap yet effective mould-draining plough, forming a channel 4½ inches in diameter at a depth of 2 feet, in a soil almost like pressed brick clay. In the operations of the Hereford Company, Mr. Smith employs his engines at draining in wet weather, and he often finds it more than the engine can well do to bring the plough through to its work. He has devised therefore the simple and excellent expedient of hauling the plough by a snatch-block at half the speed of the engine-drum, and with but half the strain on the rope. With improved moulds he expects to go to a depth of 2 feet 6 inches in stiff clays, and this is even now being attained by first ploughing a furrow 6 inches deep and running the drain plough along this.

Mr. Smith has assisted in the formation of a new Steam Plough Company at Bury St. Edmund's, and it is not unlikely that another will soon be organised at Stafford, and it would be most desirable that the Earl of Shrewsbury and Talbot should be its chairman. *Engineering.*

FLAX CULTURE IN IRELAND, 1867.

Return, showing in statute acres the extent under Flax in each county and province in 1866 and 1867, compiled from information obtained by the

constabulary and metropolitan police, who so efficiently act as enumerators; also the number of scutching mills in each county and province in 1866.

Counties and Provinces.	Extent of Land under Flax. 1866.	1867.	Difference between 1866 and 1867. Increase	Decrease	Number of Scutching Mills in 1866.
Ulster.	Acres.	Acres.	Acres.	Acres.	
Antrim	27,879	22,687	..	5,192	180
Armagh	27,245	27,820	575	..	132
Cavan	13,557	16,369	2,812	..	20
Donegal	25,840	24,736	..	1,113	295
Down	51,762	48,000	..	3,762	269
Fermanagh ..	7,225	8,008	783	..	23
Londonderry ..	30,388	26,673	..	3,715	202
Monaghan	23,563	24,561	998	..	64
Tyrone	37,888	35,637	..	2,251	199
Total of Ulster ..	245,356	234,491	Acres. 10,865 Decrease in 1867.		1,393
Munster.					
Clare	1,082	878	..	204	4
Cork	1,496	1,197	..	299	20
Kerry	772	548	..	224	2
Limerick	239	140	..	99	2
Tipperary	428	363	..	65	8
Waterford .. .	153	124	..	29	3
Total of Munster ..	4,170	3,250	Acres. 920 Decrease in 1867.		39
Leinster.					
Carlow	48	27	..	21	2
Dublin	12	25	13	..	1
Kildare	21	6	..	15	..
Kilkenny	184	77	..	107	2
King's .. .	691	442	..	249	6
Longford	1,150	1,336	186	..	4
Louth	2,704	3,840	1,136	..	7
Meath	1,050	1,342	292	..	9
Queen's	674	158	..	516	5
Westmeath ..	342	233	..	109	8
Wexford	379	562	183	..	5
Wicklow	7	2	..	5	..
Total of Leinster ..	7,262	8,050	Acres. 788 Increase in 1867.		49
Connaught.					
Galway	996	599	..	397	7
Leitrim	1,819	2,045	226	..	4
Mayo	1,876	2,252	376	..	8
Roscommon ..	1,172	1,785	613	..	5
Sligo	856	633	..	223	8
Total of Connaught	6,719	7,314	Acres. 595 Increase in 1867.		32

Total Acreage under Flax in Ireland in 1866 and 1867:—1866, 263,507 acres; 1867, 253,105 acres. Total decrease in 1867, 10,402 acres.

Total number of scutching mills in 1866, 1513.

Total extent of Flax grown in Ireland in each of the following years:—

	Acres.		Acres.
1851 ..	140,536	1860 ..	128,595
1852 ..	137,008	1861 ..	147,957
1853 ..	174,759	1862 ..	150,070
1854 ..	151,403	1863 ..	214,099
1855 ..	97,075	1864 ..	301,603
1856 ..	106,311	1865 ..	251,433
1857 ..	97,721	1866 ..	263,507
1858 ..	91,646	1867 ..	253,105
1859 ..	136,282		

This return, which exhibits a decrease of 10,402 acres in the area under Flax in 1867, compared with 1866, is published, as in former years, in anticipation of the general abstracts, which will give the acreage under the various crops, and also the number of live stock, by counties and provinces,—they will, I trust, soon be ready for publication.

I do not apprehend that any difference of importance will be found between the acreage under Flax here given, and that which will appear in the tables of the general abstracts of the crops now in course of compilation. *William Donnelly, Registrar-General, Agricultural and Emigration Statistics Office, 5, Henrietta Street, Dublin, August* 14, 1867.

WINTER DAIRY.

Fresh butter of prime quality, made through the months of December, January, February, and March, will always command a price high enough above the summer-made article to pay for the extra cost of the food required. By having the cows bring forth their young in November, the calves can be raised by hand better than in summer, because the milk will not go sour, and the cows will continue to give a large flow when Grass comes, right on to August. The food best adapted for forcing milk and giving the butter a delicious flavour has been repeatedly tried; consequently there is no mistake, no supposition, and no over-estimate.

The hay should be made from Grass cut early in June, and the Grass should be from seeds sown when it was laid down, somewhere about the following proportions:—Rye-grass, 1 peck; White Clover, 6 lb.; Red do., 4 lb.; Timothy, 2 quarts. Other kinds can be substituted according to the land, and a greater variety introduced, for the thicker the herbage is, the finer and more tender the stems, which causes the cattle to relish it better, and a nice sweet fibrey forkful of hay must not only be more nourishing to an animal, but will certainly produce more and sweeter milk than the same quantity of coarser, dead, brown-looking stuff, such as is cut in July and August, when it is nearly or quite ripe, and be preferable, too, to any very large rough hay, even should it be mowed in good season.

The best roots are Carrots and Mangels, and if meal is given, a few Turnips can be mixed without imparting any unpleasant flavour. The meal will be better, if corn and grain are ground together, and if good fresh bran is mixed with the meal it will be a still greater improvement.

The following was the way in which a winter dairy of cows was managed and fed with very satisfactory results:—In November and December the cows were turned out during the day on Grass which had been growing from the preceding July and August, in small fields, which they grazed in succession. They had then put ready for them every day about half a bushel of sliced roots; being about equal proportions of Carrots, Mangel Wurzel and Turnips, with two quarts of meal on the roots, which was the allowance for each cow. They then had hay for the night—just as much as they could eat up clean. In the morning each cow received her half bushel of roots and the meal similar to the evening feed. Thus they prospered till the snow interfered, when they had hay just the same for the night, but first in the morning they had corn-stalks, which had been put in a tight box, and about a quart of meal per cow mixed up, and boiling water poured on, and the chaff, which was cut fine, soaked and steamed from night till morning, when it was given to them. After they were milked, they received cut roots, as previously described, and ranged about the yard till noon, when they came into the stable again, and had a feed of hay chaff, and also a feed of roots, going into the yard, if not very cold, till evening, when they were fed the same as in the morning, corn-stalk chaff having been steamed all day for them. Every fair day all winter, when they could get at the ground, they went into one or the other of the fields according to the wind and which lay the best sheltered, and when out in the field the noon feeding was omitted, without any diminution of the milk, though there was a slight depreciation in the quality, but which was very trifling; however, while they could go out, they ate so much of the Grass that less hay was used in the night.

The quantity of butter made from these cows varied very much, because they differed so in the quality. Their milk, every now and then, was kept separate and set in pans; when skimmed, some cows' milk of equal measure produced double the cream others did—and this is a point demanding much more attention than it generally receives, for a cow giving very rich milk will influence her offspring in this respect, and any dairyman who not only looks into these distinctions in his cows, but investigates the milking qualities of the dam of a bull before purchasing him, may soon have all his cows good for quantity and quality; for the cows above alluded to were treated alike, and yet there were some making as little as 7 lb. per week, while others produced upwards of 12 lb.

Before I came to this country, I kept a lactometer, which, having many glass tubes, was very convenient to prove the milk of different cows, and by having charge of a large herd the calves were all reared with a view to their milking qualities, and in three generations the same number of cows made more than double the quantity their predecessors did. Those cows, or at least the portion of them used for the dairy in the winter, had several acres of cabbages grown for them, and when grain was cheap I had barley grown for them, which swells and jellies similar to flaxseed, and is one of the best feeds in every respect I ever gave to milch cattle at that time. Barley, weighing 52 lb. per bushel, would sell under a dollar, and as it increases in bulk threefold by being boiled, and prevents cabbage or roots giving an unpleasant taste to the butter, it is excellent for the purpose.

Previous to the war, while in the South, I had cows lying out all winter, which I gave boiled corn to with satisfactory results. Morning and evening, at milking time, they had a bundle of fodder and a gallon of boiled corn each, and they increased their milk twofold and the butter nearly threefold, making 5 lb. of butter each per week, which was considered great for the diminutive grades which prevailed in that locality, especially as the family was very large, and new milk and cream was used freely, which made a difference of a third, so that it was equal to 7½ lb. per week each cow.

If cows have meal, roots, and hay, or corn-stalks instead of hay, they will do well without a change from that food, because there is sufficient variety to make them healthy. It requires care in changing the feed of milch cows, for if the milk is checked by doing so, they will not thoroughly get over it, for it is the same as if checked by bad milking; either failing to drain the last half-pint, or going two hours beyond the usual time, will soon ruin any cows.

Some people say if roots are given after milking, the fact of their being eaten then will prevent the butter tasting. What can that have to do with it? The flavour is not conveyed instantaneously; the Turnips, &c., have to be digested first—therefore the way to allay this evil is to give an antidote in the share of good meal, &c. Where they are given in a preponderating proportion to other food, the only remedy I know of is to scald the milk, which is always done in Devonshire, England. *G. G., in Albany (U.S.) Cultivator.*

Home Correspondence.

Crops around Bicton, Devonshire.—Wheat, that looked tolerably promising and well at earing and blossoming time, has sadly altered for the worse since, owing to mildew and rust, caused by the prevalence of cold frosty nights, heavy rains, dark cloudy weather, and heavy foggy morning in July; it is now to a great extent, at cutting time, black straw, crisp and rotten, and the men cutting or binding smothered with dust, looking like chimney-sweeps. Barley: the early sown, and that on the best land—that looked all one could wish for till just previous to its shooting into ear—was so seared and crippled by severe morning frosts that it never shot into ear properly or together, and was a good while and irregular in producing short, unnatural, weakly ears. The later sown amongst the poor afternoon managers, and such as are behind both at seed-time and harvest, really seems this season to do the best of the Barley, owing no doubt to its never lacking moisture: a good deal of the strongest is laid, and growing up through, green again, so that the samples this season must naturally be very variable. Oats: not much grown: those of the winter, tawny colour, that I have seen, are pretty good in crop and quality, 40 to 44 lb. per bushel. Beans: not much grown; those that I have seen went off in a very short time with the red gum and black aphis, or black dolphin as called by some: pods short, curved, and crooked. Peas: not largely grown; they were very good, strong, and commenced flowering, or blooming, and podding well; all at once the tops of their shoots, for three or four joints, were crippled and seared-up; blossoms and the last-formed young pods, all seared by the late frost no doubt, commenced growing again a fortnight after this severe check, and were in full bloom, growing freely, when the first pods were ripe. Potatos: crop variable, planted late, came up irregular; the early garden kinds grew away well in May, till we got stormy weather and severe frosty mornings; those that caught the late evening storms, and those in close or damp spots, were sadly crippled and seared up; those on dry open spots were to some extent checked: the weather soon becoming favourable they grew away, and generally produced an abundant crop of good-quality tubers, and as early as any previous year. Out-of-doors garden Potatos were plentiful at midsummer, the disease though was, by close inspection, always visible. By the second week in July it began to spread rapidly in foliage, stalk, and tuber; by the end of that month, in some dampish, close garden spots, the whole of the tubers were affected and useless. Two-thirds and half the crop diseased was very general. For the past 10 days or fortnight the disease has made but little progress. The crops on dry healthy land, and in the open fields, are growing away well, and at present likely to be a good crop. The frosty, foggy, cold mornings in July caused the disease to advance astonishingly. Should we in this month get frosty or foggy mornings, the late main store-crops will suffer most severely. Last season fully one-half of the abundant late store-crop was lost in a very few days through the same kind of weather, just before being ripe. *James Barnes, Bicton.*

Crops near Salisbury.—Wheat, under average, and much blighted; Barley, under average, quality bad; Oats, over average, quality good; Beans, average; Peas, average; Potatos, fair crop, but much diseased; Root crops, good; Hay, good. Wheat and Oats nearly finished, and some Barley carried. *James Rawlence, Bulbridge, Wilton, Salisbury, Wilts.*

Societies.

Royal Agricultural of Ireland Cattle Show.—The exhibition of cattle, horses, sheep, pigs, poultry, and flax, annually held under the auspices of the parent "Irish" Society, came off on Wednesday, in the very centre of the Irish capital. Last year, owing to apprehensions regarding the spread of the cattle plague in Ireland, the holding of the usual annual exhibition was wisely postponed. This year, owing to the total absence of this and other contagious epidemics, the Society determined on having the show held, as per the conditions of the Royal charter, in the province of Leinster, and after due deliberation on the part of the Council, the site selected was St. Stephen's Park, which is centrally situated in the most respectable part of the city, and covers a space of about 26 acres of highly ornamental grounds, used exclusively for pleasure and recreation by the inhabitants of the adjoining square. Fifteen years have now elapsed since the city of Dublin was favoured with a similar exhibition, and the site on which the cattle and implements were then staged has been recently transformed into the Winter Palace Gardens, in which the recent Irish International Exhibition was held, and which proved such an attraction to the lovers of the beauties of nature and the treasures of art.

During a decade and a-half of years the labours of the present Agricultural Society have been signally successful in the promotion of improved breeds of cattle and the introduction of approved agricultural machinery. No country required the aid of agricultural enlightenment among the farming community more, and very few similarly circumstanced can lay claim to such visible omens of progress in the departments of stock, tillage, and implements, as the Emerald Isle can. Her herds and flocks can, and have, successfully competed with those of her sister country, and even at continental shows. This, in itself, is gratifying and highly creditable to the vigorous labours of the Society. Unlike other countries, the agricultural element must preponderate in Ireland. On this alone their prosperity depends, and hence it is that the owners of pure stock and superior produce pride themselves in their possessions. The varying tendency of the climate, and its unforeseen variations, would almost have justified the remarks of the late Earl of Carlisle when Viceroy of Ireland, when he stated at one of the banquets that the country was admirably suited to become the "fruitful mother of herds and flocks." Indeed, the prognostications of the noble Earl would seem to have been well received by the breeders of the improved stock who so largely exhibited at Wednesday's show.

The local Committee, headed by the Lord Mayor of Dublin, left nothing undone to render the exhibition a success. They incurred a responsibility of about 3000*l*.

in its advancement, and they succeeded in the project. The prize list offered was the largest in every sense yet offered by the Society. These consisted of—1st, Shorthorn class, 132*l.*; Herefords and other breeds, 133*l.*; tenant farmers' class, 45*l.*; sheep, 253*l.*; swine, 199*l.*; dairy produce, 72*l.*; poultry, 134*l.*; farm implements, 50*l.*; and in horses, which is the national one, 260 being entered, there are in prizes 385*l.*, irrespective of challenge cups and medals, which would swell the awards to about 1700*l.*

The shedding erected—and which, to say the least of it, was well designed and strongly put together—would consist of 170,000 square feet of sheeting, 52,000 lineal feet of scantlings, and about 70,000 lineal feet of deals and planks. The erection of such an extent of shedding, the hewing and moulding of the timber, its carriage, and the tools, nails, &c., required for its completion, must have been a source of money circulation among the vendors of goods.

The stock having been placed in their proper sections on Tuesday, implements being previously deposited according to order, and all other preliminaries having been carefully arranged, the Judges, accompanied by the Stewards, entered on the duties of adjudication on Wednesday morning, and though the task was not free from criticism, yet their decisions gave general satisfaction.

As usual, the great attraction of the show fell to the lot of the Shorthorns, of which 85 splendid representatives were placed side by side. In this lot the thorough-bred bulls were really magnificent, and nearly to a shade equally symmetrical and respectable in lineage.

The Challenge Cup of 50 guineas for the best Shorthorn bull was won by Mr. Smith's "Racknoodeman," calved April, 1864, and got by "Baron Warlaby," out of "Wood Nymph."

In the yearling heifers, of which a good number were entered, the Challenge Cup of 50 guineas was won by Mr. Welstead, County Cork, for his excellent Shorthorn heifer, "Bridesmaid," calved April 10th, 1866.

The Croker Challenge Cup of 50 guineas for the best thorough-bred stallion was awarded to Mr. James Crockin, Yorkshire, for "Roman Bee," whose breeding is matchless; and a similar piece of plate for the best mare or filly was won by Mr. Thomas Butler, Golden, County Tipperary. The Cork Cup of 50*l.*, for the best Leicester ram, was won by Mr. Seymour, Mawbroy, Queen's County; and a Cup of equal value, for the best shearling ram, was adjudged to Mr. Meade, County Cork. All these Cups must be won three years in succession before they become the property of the winners.

The young stock, both males and females, were brought out to full perfection. Their majestic stand, well-turned rib, mellowness of touch, and nicely proportioned shape, were all indicative of great care in breeding, rearing, and management. The aged cattle, too, were on the whole of respectable descent. Many of them were familiar with exhibition purposes, and appear still very little the worse of the wear. Their immense size, high condition, and intrinsic value, would bear a singular comparison with the characteristics of the old Irish cow, at one time so prevalent throughout the country. The enterprise of some of the Irish gentry, in importing thorough-bred animals, possessing the blood of the Booths, Bakewells, and other eminent breeders, has so revolutionised the character of the stock in Ireland, that the most inexperienced must be struck with the magnitude of the change.

As regards implements they were extremely creditable, and represented the products of the workshops of some of the leading English, Scotch, and Irish manufacturers. The Messrs. Howard sent over their steam-ploughing tackle, which was publicly set to work in the neighbourhood of the city on Tuesday, on the home farm of Mr. Hamilton, M.P. for the County Dublin. Neither the constitution of the soil nor the area of the field rendered the site a favourable one for the exhibition of the machine's usefulness. Up to the present the number of sales effected in the supplying steam-tackle to Ireland consists of only four orders; the pecular constitution of the Irish soil, the expense of purchasing the machine, and the growing disposition on the part of the resident gentry to turn the land into pasture instead of being arable, will tell against Mr. Howard's speculation as far as this country is concerned. This is candid, but obvious to the writer of this notice. Amongst the other agricultural exhibitors from this side of the Channel, we were glad to notice the elaborate stands of our friends the Messrs. Hornsby, who fully sustained the well earned reputation of their manufactures; Mr. Bentall, whose extensive display of hay, straw, and chaff cutting machines commanded such attention, both from their capacity for work, lubricating bearings, and cheapness of price; Bradford, of Manchester, whose machines for washing, mangling, and promoting the work of the laundry were nicely staged and considered of great value; Croskill's clod crushers were also sent forward by his representatives; and the Messrs. Rumbellow and Kendall exhibited a very useful and practically important lot of agricultural implements of sorts. The threshing mills from Messrs. Garrett & Co., which in Ireland are the favourites amongst the farmers, and the productions of the other extensive English exhibitors, merited universal attention.

The amount of sales effected amply repaid the enterprise of the manufacturers in sending them forward, and pity it would be otherwise when such manufacturers come forward with accustomed spirit to advance the agricultural implement and mechanical enlightenment of the cultivators of the soil, and the owners of the local workshops in the capital of the Sister Isle.

The horses have constituted a creditable feature in the Show, particularly hunters. There were 160 entries in this section, and many of the animals possessed more than average merit, and all had to undergo the inspection of the surgeons. The farmer's section was well filled up, and the brood mares exhibited in this class were of the right sort.

In sheep the competition was sharp, as the animals were of the most superior class. Indeed, year by year, the sheep department has been gaining in quality and numbers, owing principally to the suitability of the soil and climate for sheep rearing. The competition lay between the Border Leicesters (a class of sheep which have proved themselves very well suited to the soil of Ireland), Leicester and Shropshire Downs.

The display of butter, flax, and poultry were of the ordinary sorts, but not so numerous as at previous exhibitions. As regards quality, the dairy produce was creditable, but as regards quantity or quality in roots and grain, the display was rather limited for a Royal Show.

As usual, the show of swine was extremely good, and represented some very superior specimens of the Yorkshire, Berkshire, and Oxford breeds. The breeding sows with their young, showing such excellence in breeding and propensity to early maturity, was a very attractive feature. Lord Claremont won the chief prizes with his matchless Berkshires, and the Lord Mayor of Dublin with the Yorkshire breed.

The Judges, members of the Society, and others, dined together in the Dublin Exhibition Palace, Lord Talbot de Malahide presiding. His Excellency the Lord-Lieutenant, with other illustrious personages, attended. The evening was most agreeably spent in discussing various agricultural subjects.

It may be remarked that all the prize animals will be faithfully photographed, and the likenesses added to the library of the Society.

Manchester and Liverpool.—A three days' show of live stock and farm produce, under the auspices of this Society, was opened on Tuesday, on the site of the Art Treasures Exhibition, Old Trafford. Originally a one-day show, it was in Manchester that the experiment was first made, nine years ago, of keeping it open for two days. Since that time the Society has made greater progress than during its previous 90 years, judging by the main test—the showyard receipts. This year another extension of time has been made, and if Tuesday's attendance constitutes a fair basis of calculation, we believe that this, the longest show, will prove the most profitable. It is well that the century should end thus, and a good stimulus will also be furnished to the years yet to come. The plan upon which the ground is laid out is admirable, and a sketch of it in the catalogue enables a visitor to comprehend it at a glance. But the details were not carried out with that punctuality which should characterise such an undertaking. The yard was not fully prepared even on Tuesday morning for the valuable animals that had been entered, and many complaints were made on this score. Although Mr. Parrington, of Yorkshire celebrity, was engaged as director of the horse department, his presence was not requested until Saturday, and hence he was helpless in the matter. At a recent Committee meeting some irregularities were disclosed in connection with the engagement, or rather the neglect to engage, this gentleman; and we fear that the feeling then made public has continued to operate, even to the risk of injuring the show.

Under these circumstances it is a wonder that the horse show is so particularly good. The entries, very large in some classes, in others are singularly small; the quality for the most part is excellent. There are several remarkable specimens of heavy horses; but the closest competition is among the light ones, of which many are so nearly equally first class, that the judges had no little difficulty. In short, all the best horses from the shows at Bury St. Edmund's (the Royal Agricultural Society), Islington, and Thirsk (Yorkshire Society), are here. In the Class of Hunters, carrying not less than 14 stone, there were 24 entries, and 18 came into the trial ring. They were severally trotted and cantered round and round the paddock. Then a selection of eight or nine was made, which were unsaddled, walked and run before the judges. Next the number was reduced to four or five, which were tested again and again, by the exhibitor's representative and by the judges. In this way a long time was occupied, and only after a more thorough examination than we have ever seen in a showyard was the 1st prize awarded to Captain Heygate, of Leominster, for a dark brown five-year-old, which he bred himself. All this judging, in this and other classes, was watched by some 2000 occupants of the stand, and certainly not a smaller number was crowded round the hurdles. The entries of horses number 282, and they are from all parts of the kingdom, from Darlington to Kent.

Under the operation of the cattle plague orders of the Privy Council no horned cattle could be exhibited. As no show was held last year, in 1868 three years will have elapsed since cows have competed for this Society's prizes. We hope it will be found that the interval has been employed in improving the breed of cattle which best suits this locality. In other classes the entries are as follow:—Sheep, 172; wool, 9; pigs, 82; poultry, 220; pigeons, 114; dogs, 216; cheese, 25; grain and roots, 91; vegetables, 33; saddlery, 5; implements, machinery, and miscellaneous articles, 1549, arranged on 114 stands.

The prevalence of the rinderpest in this district has driven many a farmer to what is always the safest course, viz., the distribution of his capital among several sources of profit instead of confining it to one, which, if it fails, ruins him. The Cheshire agriculturist, whose unquestioned maxim it was that farming in that county meant cheese-making, now raises flocks of sheep. It is, therefore, no matter of surprise that sheep are in greater force than ever before in the history of this Society, and some of them are as fine as were ever seen. The Shropshire Downs surpassed those shown at the Thirsk exhibition of the Yorkshire Society.

The show of pigs, especially of the large breeds, is very good; but both boars and sows are too heavy for the purposes for which the prizes were intended. Indeed, with the ideas which now seem to prevail, in order to get prizes nature's functions are totally disregarded, and in nine cases out of ten, after the porcine monster has gone the round of the shows, he is destroyed by the treatment resorted to in order to reduce him or he is at once consigned to the butcher. The consequence is that the money spent upon him, so far as breeding purposes are concerned, is thrown away.

The poultry are numerous: the pigeons include a large contribution by Mr. R. Fulton, of Deptford.

Dogs are many and noisy, of all sizes and degrees of nobleness, from the St. Bernard to the poodle. The bulldogs, eminent for their ugliness and breadth of breast, with lithe and narrow hind-quarters; the massive Newfoundland, the useful sheep dog, the best of whom singularly enough comes from London; hounds, spaniels, pointers, harriers, retrievers, terriers, and mastiffs—all are well represented, and having tired themselves with unavailing protests against the strangeness of their quarters, lie asleep most of the day, while the fear of them keeps visitors from stirring them to uprightness.

The exhibitors of cheese cannot be complimented. The show is most unsatisfactory; but if, as we suppose, this is owing to the cattle plague, we presume that it will be the only time that this remark will have to be made about a show of cheese from South Lancashire and North Cheshire. Some few samples of butter are inferior, the remainder are very good. Two samples are of such good flavour that one of the judges said he had never tasted English butter to equal it; and the 1st prize fell to Mr. Neild, of Worsley (for the second time). Four or five extra prizes were distributed in this class. The grain and roots shown include samples from as far as Oxfordshire, which shows the growing importance of this Society; and in every respect this class is most creditably represented. For the time of year the roots are wonderful, and as a test of tenant farmers' excellence, this department of the Show must be very satisfactory to landlands. The 1st prizes for horses are as follow:—

Hunters.—Best weight carrier, under 10 stone, Mr. T. Gee, Wadhurst, Kent; best jumper, under 10 stone, Mr. C. Wilson, Polefield House, Prestwich. *Four year-old Filly*, for road or field, Mr. T. Barcroft, Waterfoot. *Three-year-old Gelding*, Mr. N. Ellison, Sutton, near St. Helen's. *Two-year-old Filly*, Mr. J. B. Booth, Catterick, Yorkshire. *Yearling Colt*, Mr. Jonathan Peel, Knowlmere. *Extra Stock:* Mr. H. Platt, Bangor, bay mare; Mr. John Brogden, Sale, grey pony; Mr. W. Murray, Broughton Mews, gelding and cob (two 1sts).

Sheep.—*Leicesters:* For Shearling Ram, 10*l.* and 5*l.*: 1st and 2d, E. Riley, Kipling Cote Farm, Beverley. For Ram of any other age, 8*l.* and 4*l.*; 1st, J. Simpson, Spofforth Park, Wetherby. 2d, J. Borton, Barton House, Barton-le-Street, Malton. For pen of Three Shearling Ewes, 10*l.* and 5*l.*: 1st and 2d, E. Tindall, Knapton Hall, near Rillington. For pen of Three Ewes of any age, 6*l.* and 4*l.*: 1st, the Right Hon. Lord Penrhyn: 2d, J. Simpson, Spofforth Park. For Ram Lamb, 3*l.* and 2*l.*: 1st and 2d, the Right Hon. Lord Penrhyn. For pen of Ewe Lambs, 3*l.* and 2*l.*: 1st, J. Simpson, Spofforth Park; 2d, T. H. Miller, Singleton, near Kirkham.—*Lincolns, or other Long-woolled:* For Shearling Ram, 10*l.*: J. Simpson, Spofforth Park, Wetherby. For Ram of any other age, 8*l.*: J. Simpson. For pen of Three Yearling Ewes, 10*l.* and 5*l.*: 1st and 2d, S. Allen, Acton Station, Weaverham. For pen of Three Ewes of any age, 6*l.*: E. Holmes, Keighley, Yorkshire. *Shropshire Downs:* For Shearling Ram, 10*l.* and 5*l.*: 1st, D. R. Davies, Mere Old Hall, Knutsford; 2d, the Right Hon. Lord Penrhyn. For Ram of any other age, 8*l.* and 4*l.*: 1st, D. R. Davies, Mere Old Hall; 2d, S. Byrd, Lees Farm, Stafford. For pen of Three Shearling Ewes, 10*l.* and 5*l.*: 1st, J. Coxon, Freeford Farm, Lichfield; 2d, D. R. Davies, Mere Old Hall. For pen of Three Ewes of any age, 6*l.* and 4*l.*: 1st, J. Coxon, Freeford Farm; 2d, R. Barton, Caldy Manor, Birkenhead.—*Lambs:* For Ram Lamb, 3*l.* and 2*l.*: 1st, S. Byrd, Lees Farm, Stafford; 2d, T. Mansell, Adcott Hall, Shrewsbury. For pen of Three Ewe Lambs, 3*l.* and 2*l.*: 1st and 2d, T. Mansell, Adcott Hall. *Ewes:* For pen of Three Ewes of any age, 6*l.* and 4*l.*: 1st and 2nd, the Right Hon. Lord Sondes, Thetford.—*Extra Stock:* Shropshire Down Ram, 2*l.*: the Right Hon. Lord Penrhyn, Bangor. Pen of Southdown Ewes, 2*l.*: the Right Hon. Lord Sondes, Elmham Hall. Southdown Rams, 2*l.* and 1*l.*: the Right Hon. Lord Sondes. Rams, 2*l.* and 1*l.*: the Right Hon. the Earl of Derby.

Wool.—For five fleeces of Long Wool, 5*l.* and 2*l.*: 1st, T. Morris, The Chase, Ulceby, Lincolnshire; 2d, F. Lythall, Spittal Farm, Banbury, Oxfordshire. For five fleeces of Short Wool, 5*l.* and 2*l.*: 1st, T. Mansell, Adcott Hall, Shrewsbury; 2d, T. Morris.

Pigs.—For Boar of large breed, 8*l.*, 4*l.*, and 2*l.*: 1st, J. Dyson, Adelphi Hotel, Leeds; 2d, H. Neild, Worsley, near Manchester; 3d, T. Jones, Agden, Whitchurch, Salop. For Boars of middle-sized breed, 8*l.*, 4*l.*, and 2*l.*: 1st, P. Eden, Cross Lane, Salford; 2d, J. Dyson, Adelphi Hotel, Leeds; 3d, W. Hatton, Addingham, near Leeds. For Boars of small breed, 8*l.*, 4*l.*, and 2*l.*: 1st, W. Hatton, Addingham, near Leeds; 2d, P. Eden, Cross Lane, Salford; 3d, T. Atherton, Chapel House, Speke, near Liverpool, For Boars of Berkshire or Essex breed, 8*l.* and 4*l.*: 1st, T. Atherton, Chapel House, Speke, near Liverpool; 2d, H. Humfrey, Kingstone Farm, Shrivenham, Berks. For Sows of large breed, 8*l.*, 4*l.*, and 2*l.*: 1st, J. Lakeland, Moorgate, Retford; 2d, P. Eden, Cross Lane, Salford; 3d, J. Dyson, Adelphi Hotel, Leeds. For Sows of middle-sized breed, 8*l.*, 4*l.*, and 2*l.*: 1st, P. Eden, Cross Lane, Salford; 2d, W. Parker, Golden Lion, Leeds Road, Bradford; 3d, R. E. Duckering, Northorpe, Kirton Lindsey. For Sows of small breed, 8*l.*, 4*l.*, and 2*l.*: 1st, G. Mangles, Givendale, Ripon, Yorkshire; 3d, P. Eden, Cross Lane, Salford. For Sows of Berkshire or Essex breed, 8*l.* and 4*l.*: 1st and 2d, T. Atherton, Chapel House, Speke, near Liverpool.

Cheese.—Sample of Cheese, made on exhibitor's farm, 20*l.*, 15*l.*, 10*l.*, and 5*l.*; 1st, G. Gibbons, Tunley Farm, near Bath, Somersetshire; 2d, S. Hornby, Ashton Park, Northwich; 3d, J. Robinson, Lee Green Hall, Church Minshull, Cheshire; 4th W. Jones, Pistill Farm, Hope, near Mold.

Butter.—Butter, 4*l.*, 3*l.*, 2*l.*, and 1*l.*: 1st, H. Neild, Worsley near Manchester; 2d, J. and A. Taylor, Higherfold Farm, Middleton, near Manchester; 3d, E. Turner, Gooden Gate, near Hopwood, Heywood, Lancashire; 4th, J. Worrall, Valley Farm, Bardsley, Ashton-under-Lyne. Additional awards: 1*l.* each to R. Mason, Greenhirst, Samlesbury, near Blackburn; S. Whitehead, Crosby's Farm, Blackley; and G. Haworth,

Lower Darwen, near Blackburn; 10*s.* each to J. Goolden, Clay House, Hale, near Altrincham; and W. Hough, Mere, near Knutsford, Cheshire.

Grain and Roots.—*White Wheat, grown in* 1867, 3*l.*, 2*l.*, and 1*l.*: 1st, J. K. Fowler, Prebendal Farms, Aylesbury, Bucks; 2d, R. Atherton, Mount Pleasant, Speke, near Liverpool; 3d, F. Lythall, Spittal Farm, Banbury, Oxfordshire. *Yellow or Red Wheat grown in* 1867, 3*l.*, 2*l.*, and 1*l.*: 1st, T. Lowe, Calveley Hall, Handley, near Chester; 2d, J. Cornes, New Farm, Hurleston, Nantwich, Cheshire; 3d, G. D. Badham, the Lawn, Bulmer, Sudbury, Suffolk. *White Oats, grown in* 1867, 3*l.*, 2*l.*, 1*l.*: 1st, T. Lowe, Calveley Hall, Handley, near Chester; 2d and 3d, F. Lythall, Spittal Farm. *Yellow Oats, grown in* 1867, 3*l.*, 2*l.*, 1*l.*: 1st, T. Lowe, Calveley Hall, Handley, near Chester. *Black Oats, grown in* 1867, 3*l.*, 2*l.*, and 1*l.*: 1st, H. Neild, Worsley, near Manchester (for the ninth time successively); 2d, G. D. Badham, the Lawn; 3d, Sir H. De Trafford, Bart. *Any variety of Barley grown in* 1867, 3*l.*, 2*l.*, and 1*l.*: 1st, G. D. Badham, The Lawn; 2d, J. K. Fowler; 3d, R. Atherton, Mount Pleasant, Speke, near Liverpool. *Any variety of Beans grown in* 1867, 3*l.*, 2*l.*, and 1*l.*: 1st, F. Lythall, Spittal Farm, Banbury; 2d, F. Lythall; 3d, J. K. Fowler. *Six roots of Swedish Turnips, of any kind, grown in* 1867, 3*l.*, 2*l.*, and 1*l.*: 1st, E. Kennerley, Hale, Altrincham, Cheshire; 2d, J. Cornes, New Farm, Hurleston; 3d, T. Brocklehurst, Altrincham, Cheshire. *Six roots of Turnips, of any kind, grown in* 1867, 3*l.*, 2*l.*, and 1*l.*: 1st, E. Hall, Kingsley, Frodsham, Cheshire; 2d, H. Neild, Worsley, near Manchester; 3d, R. Watson, Timperley, Altrincham. *Six roots of Long Red Mangel Wurzel, of any kind, grown in* 1867, 3*l.*, 2*l.*, and 1*l.*: 1st, R. Atherton, Mount Pleasant, Speke, near Liverpool; 2d, E. Kennerley, Hale, Altrincham, Cheshire; 3d, J. Parry, Bridge End Farm, Davenham, near Northwich. *Six roots of Yellow Mangel Wurzel, grown in* 1867, 3*l.*, 2*l.*, and 1*l.*: 1st, J. K. Fowler; 2d, E. Kennerley, Hale, Altrincham, Cheshire; 3d, J. K. Fowler. *Six roots of Globe Mangel Wurzel, of any kind, grown in* 1867, 3*l.*, 2*l.*, and 1*l.*: 1st, F. Lythall, Spittal Farm; 2d, F. Lythall; 3d, E. Kennerley, Hale, Altrincham, Cheshire. *Six roots of Scotch Cabbage, grown in* 1867, 2*l.* and 1*l.*: 1st, E. Kennerley, Hale, Altrincham, Cheshire; 2d, T. Brocklehurst, Altrincham. *Any variety of Round Potatos, grown in* 1867, 3*l.*, 2*l.*, and 1*l.*: 1st, T. Statter, Stand Hall, Whitefield, near Manchester; 2d, W. Whitlow, Crouchley Farm, Lymm, near Warrington; 3d, T. Statter. *Any variety of Flat Potatos, grown in* 1867, 3*l.*, 2*l.*, and 1*l.*: 1st, T. Jainson, Lymm, Altrincham; 2d, H. Neild, Worsley, near Manchester; 3d, T. Statter, Stand Hall.

The Dinner took place in the exhibition house of the Botanical Gardens. The Right Hon. J. Wilson Patten, M.P., presided, and there was a very small attendance. Sir H. Mainwaring gave the health of the Chairman. He said that the Society offered no more prizes, considering that land was now 5*l.* an acre where it was then 1*l.*, than when it was first founded. The prizes were in fact nearly the same, except for jumping horses, of which he had that day seen some very bad ones, and for useless machinery. There were no prizes for hay or for irrigating meadows, or for encouraging the particular culture of the district. He hoped that the Committee would offer prizes for some of the articles which they at present neglected.—In responding to the toast, the Chairman said he believed the Committee were fully alive to the wants of the district, and that Sir Harry Mainwaring was in error with regard to the nature of the prizes that were offered to the Society. Sir Henry Mainwaring had said that the Society had made little or no progress during the last 100 years: why, the highest prize that was then given was two guineas, and the prize list was most meagre as to variety compared with the list of the present show. There could be no doubt at all about it that the Society, and in fact agriculture generally, had gone on improving *pari passu* with all other things. He believed theirs was the oldest agricultural society in England, so that the district might claim to lead in agriculture as well as commerce. It might be well to ask themselves in what they had improved during the past century. Though, as was evident from the prize list, there was a system of draining when the Society was started drain tiles were not known, and many breeds of cattle which now formed the staple of many agricultural societies, were not known. In fact the standard produce of many of the fields was rushes—of which, perhaps, at least one gentleman [Sir Harry Mainwaring] might not be sorry to hear—and the making of chair bottoms very probably formed a very important duty among the cultivators of the soil a hundred years ago. Even in the recollection of many persons who were present improvements had been effected in the breeding of cattle, which had been copied throughout Europe. The present system of deep-draining had its origin on a farm near Bolton; as a breeder of sheep, Colonel Townley was known to the utmost parts of the earth, and a Mr. Boulden, in the north of the county, though, perhaps, not so well known, could sell some of his bulls for 1000*l.* each. There was another point with regard to agriculture itself, that though the deep clay soil of the district and the climate were unfavourable to white crops, they could boast a rivalry with most other counties in England. He was recently at a show in the south of England where a prize was given for a yield of Turnips to the extent of 25 tons to the acre, whereas in Lancashire the prize crops were sometimes 40 or 42 tons. It was also to the credit of the county that so much of the thin crust over Chat Moss was under cultivation, the management of which was no small triumph. He thought that in all those improvements and achievements that Society might fairly claim to have contributed its share. He could not say much with regard to that exhibition. About 2830 articles had been shown, and he was assured that the day's receipts exceeded the receipts of any day since the Society was in existence. He regretted the absence of horned cattle, but hoped that after a continuance of the present orders for a little time longer, cattle might again be permitted to move. *Abridged from Manchester Guardian.*

Farmers' Clubs.

Galashiels: *Parasites of the Sheep.*—Dr. Sommerville read a paper on the "Parasites of the Sheep and the best way of destroying them," of which we give the following abstract:—"The parasite animals which infest the skin and wool of the sheep of sufficient importance to merit the attention of the flockmaster are three in number. 1. There is first of all the 'tick.' It is reared in dry woods, Ferns, and such like, and whenever presented with a favourable opportunity transfers itself to the skin of any animal which may happen to come near. When it forms a lodgment with its proboscis in the skin it remains rooted to the spot until it has increased from the size of a grain of Linseed to that of a small Horse Bean, and any attempt to dislodge it before it falls off of its own accord is followed by severe inflammation of the parts. The second of these noxious animals is the 'scab mite,' a much more troublesome one than the tick, but which in this neighbourhood is fortunately rare. These creatures bore underneath the epidermis or superficial skin, and there lay their eggs, from which the young appear after a term of from 11 to 18 days. Every one knows that the scab is very infectious. The third of these pests is what we call in Scotland the 'ked.' This insect lays what appear to be eggs, but in reality the young animal in the proper state, enclosed in a horny covering similar to that in which the butterfly is found immediately before it takes to flight. These so-called eggs are oval shining ovides, which are attached to the wool, and are most abundant in the early part of summer. As to the means of destroying the 'tick,' it has been asserted that merely causing the sheep to swim through water would remedy it, but farmers do not believe it. As compared with rubbing, I imagine dipping to be the more easy and more effective plan. It has certainly this important advantage, that it will serve at the same time for the 'keds' if there be any. As the best materials for dipping for the 'tick' are very much the same as those for the destruction of the sheep louse, I shall notice it in its proper place. As to the treatment of scab, when the disease is very bad the wool should be shorn off to allow the applications to be rubbed in. You may then rub in M'Dougall's composition, or, if you like a mixture, 1½ oz. of creosote and ¾ pint spirit of wine, with enough of water to make up the mixture to three pints. Two or three applications of either of these agents will be sufficient. But in most cases shearing will not be required.

2. *Scab.*—If, for the cure of scab, you have recourse to pouring, I cannot fancy a better application than the Hollylee composition, the active ingredients of which are turpentine and spirits of tar. Obstinate cases could be further treated by pouring on tobacco liquor of the strength of one pound of the tobacco to the quart and a half, or by pouring on M'Dougall's composition sufficiently diluted. But a more thorough method of cure, and the one that in many cases must be adopted, where, as in Australia, it is important to pay much attention to each individual sheep, is dipping; and in using baths for sheep affected with scab, I think the mineral poisons—arsenic and corrosive sublimate—are inadmissible. For if they do not reach the scab mites under the cuticle, they will do little good, and if they do not penetrate so far, they will be absorbed into the system of the sheep and poison it effectually. For the cure of scab I would have nothing to do with them. A bath that has done good service in Australia is one containing a pound of tobacco and a pound of sulphur to five gallons of water—a little soda is also added. In this bath, which is kept at a temperature of 100 degrees Fahrenheit, the sheep is allowed to swim about. The sulphur is said to prevent the tobacco from colouring the wool. Another suitable bath is made with sulphur and oil of tar (so active a principle), and having also added to it soft soap and quicklime. The soap and the lime serve not only to mix the spirit of tar with the water, but they tend to dissolve the scurf skin and assist the remedies permeating to the seat of the disease. For the latter purpose, it is highly beneficial in bathing or pouring for scab to have the liquid at a high temperature, as a hot liquid finds its way much easier under the cuticle than a cold one. There is some reason, however, for thinking that this heat alone may have a destructive effect upon the parasites, and I rather incline to the opinion that repeated baths of hot water, at a temperature of say 125° or 130°, would effectually cure scab in sheep. Before having done with the cure of scab in sheep, I ought to allude to another practice. Mercurial ointment is rubbed into the skin on the inside of the legs, and the mercury is absorbed. The system of the animal is brought under the influence of the remedy, as is evidenced by the solution. Mercury is exhaled from the pores of the skin, and as it comes out it kills the scab mites. This is a very efficient mode of killing the parasites; but unfortunately ruminants, and especially sheep, are more easily poisoned by mercury than any other of our domestic quadrupeds, and it often happens that in curing the disease you destroy the sheep.

3. *Lice.*—I come now to getting rid of 'keds.' After remarking that smearing with tar, which had long been in use, would soon be numbered among the things that were, Dr. Sommerville proceeded—But tar, at least some of its constituents, may be applied to the fleece by other and more efficient methods. The brown spirit of tar is a most useful substance, whether used in pouring or dipping, and it is far less apt to stain the wool than is the smearing compound. When poured into the fleece, it ought to form a thirteenth or fourteenth part of the pouring mixture. It is made to mix with the water by means of the soft soap. When put into a bath, a quart goes to ten gallons of the bath. It is usually conjoined with other powerful substances, though I have no doubt that for the killing of 'keds' it would of itself be sufficient. Generally the external employment of spirit of tar is safe, but it has been known to poison. But the brown spirit of tar is destined to be entirely superseded by a substance obtained from tar,—carbolic acid—the active principle of M'Dougall's Dip. This substance does not stain the wool, which the oil of tar does to some extent; and it has the great advantage, as compared with some other dips, to be presently considered, of not being easily washed off by rain; also, it is not a very powerful poison, and though it were, its smell is sufficient to prevent its being partaken of at all. In M'Dougall's bath the carbolic acid is suspended in water by a mixture of potash and animal fat, on the same principle as the oil of tar is. I have no doubt that the members of the club will agree with me in thinking this the best bath for the destruction of 'keds' that has yet been tried. Another substance is used for killing the sheep louse, which is tobacco. This is a powerful and effectual agent, but it colours the wool somewhat, although sulphur is said to protect the fleece from any material injury. For the purpose of pouring, a pound of tobacco is boiled in water, so as to produce a quart and a half of liquid. For dipping, the same quantity is sufficient for five gallons. The high price of tobacco is against its free use. It might be lessened if the liquid was prepared in bond, but the risk of adulteration is against this being carried out. Turpentine is used, and with good reason, in the killing of 'keds.' Though poisonous to the parasite, it does not injure the sheep. It is used in the Hollylee composition. Arsenic has been very extensively used, and, until of late, was the favourite application—the danger to its use arises from contact with any broken surface. To dissolve arsenic in water it is necessary to add to the water some soda ash, and soft soap is used in addition. Soda ash or potash acts as a caustic if it be strong, and burns the skin so as sometimes to make a raw wound, particularly if applied hot. The arsenic gets the credit of burning, while probably it belongs to the substances administered along with it. The liquid containing arsenic should be weak—a quarter of a pound of arsenic to twelve or fifteen gallons of water. Biggs' dip, containing arsenic, has been very extensively used, and has not proved very dangerous. Most of the members of the club would know something of Elliot's dip, also containing arsenic. In the famous case of Black *v.* Elliot it was conclusively shown that the sheep had eaten of the pasture saturated by the drippings from the wet fleeces. In using arsenical preparations for dipping, care should be taken to have it done in dry weather, so that none of the arsenic may be washed off on the Grass. If the operation be properly conducted, no arsenic, or almost none, will find its way into the system; and even though a small quantity were to be absorbed, yet, from the action of arsenic when given as a medicine, and from what we know of its effects on the arsenic eaters of Styria, I cannot think that any harm would accrue. I wholly condemn the use of corrosive sublimate. Instead of using poisons, olive oil has been recommended, and by smearing the wool with oil, the parasites would be suffocated. In the human subject the itch insect can be suffocated by perseveringly rubbing in oil or lard. Such a thing it is impossible to do with sheep. I cannot think that the use of oil or of glycerine either, uncombined with any more active substance, is likely to be of much benefit. The great difficulty in sheep dipping or pouring is, not to kill the 'ticks' or 'keds' on the sheep at the time, but it is to leave so much of the poisonous substance on the wool as will serve to poison some future generations of them. By no substance you can reasonably apply will you succeed in penetrating the horny covering in which the young 'ked' is enclosed. Therefore you must leave sufficient on the wool to which he adheres as will prove fatal the first day he comes out of his shell. Hence the advantage of dipping in dry weather when the poison is allowed to day on the wool, and the advantage of using substances not easily soluble in water. In regard to the relative advantages of dipping and pouring, farmers have generally made up their minds that the former is the best method, and that pouring ought to be entirely discontinued. In the choice of materials for bathing be sure to employ nothing the constituents of which you do not know. In the case of carbolic acid you cannot obtain it in any other way than by buying it as M'Dougall's composition; but, with this exception, if I were a farmer, I would have nothing to do with any composition I did not make up myself, and which I did not thoroughly understand.

Reviews.

An Account of the Island of Jersey. By the Rev. P. Falle. Public Library, St. Helier's.

(*Continued from p.* 893).

The farms of Jersey vary in size from 10 to 30 acres in a general way, there being but few above the latter quantity. There are a few 50 and 60 acre farms, but these are quite exceptional. It is from these facts that we get the practical illustrations of our introductory remarks. It is astonishing how profitable these small patches are, although there is much room for improved fertilisation, and greater care in regard to cleanliness and culture in a great majority of instances.

The area of the island is about 28,717 English acres, its form being about 11 miles long by 5½ miles wide. The population (about which we shall have to make some general remarks by-and-by) was, in 1861, 55,613. Thus there are, as nearly as possible, two persons to the acre; but as these people sell the greater part of what they produce, and buy a greater part of what they consume, this is not an important element for our consideration. Of the value of their land, however, much is to be said. Around St. Helier's, on the south shore, it will make 9*l.* per acre rent; two or three miles distant, 6*l.* to 7*l.*; while skirting the more distant coast it makes 4*l.* to 6*l.* This will probably make some of our English and Scotch, and even Irish landlords and proprietors and farmers open their eyes in astonishment, particularly when we add that the produce grown is principally sent to the English market. When we quote these high rents we do not give them for the purpose of striking an average to cover the whole area

of the island, for there are large plots of it where the rock, which forms the base of the whole, so crops out that it is perfectly sterile as regards its capacity for producing cereals, or any other domestic crop; while other large plots are mere sand-banks, which in days gone by have been blown up by gales during low tides.

Before giving our brief notes on each principal kind of agricultural produce grown, we will tabulate the quantities of those exported and imported during the two preceding years:—

Exports.	1865.	1866.
Apples .. .. bush.	81,212	170,687
Butter .. .. lb.	106,288	125,776
Cider .. .. gal. imp.	72,466	33,995
Cows and Heifers .. .. .. head	2,487	1,467
Bulls .. .. ,,	23	6
Grapes .. .. lb.	1,373	382
Pears .. .. bush.	1,234	373
Potatos .. .. tons	3,216	4,080
Fruit not specifically described, including Apples, Apricots, Grapes, Peaches, Pears, and Plums .. .. bush.	14,784	18,216
Imports.		
Beer .. .. gals.	186,840	191,484
Bullocks .. .. head	3,477	3,602
Cows .. .. ,,	1,048	786
Butter .. .. cwt.	3,783	2,311
Calves .. .. head	1,763	1,379
Eggs .. .. No.	6,840,600	6,569,760
Flour .. .. cwt.	40,132	57,243
Pigs .. .. No.	10,949	11,433
Poultry (dead) .. .. .. cwt.	310	360
,, (living) .. .. .. No.	91,211	103,676
Potatos .. .. tons	1,867	2,326
Sheep and lambs .. .. .. No.	16,543	18,376
Oats .. .. qrs.	14,850	10,529
Wheat .. .. ,,	11,956	12,595
Barley .. .. ,,	3,590	4,055
Buckwheat .. .. cwt.	2,516	5,196
Bran .. .. tons	219	292

We have given these agricultural statistics in full (first) because they afford a singular instance of a regular importation and exportation of the same or similar articles of food; and (secondly) because the several items make good starting points for our practical remarks. As a whole, no definite conclusion can be based on them, as much of some of the articles is merely purchased from the small French ports, as St. Malo, Portbail, and Granville, for sending in a more suitable form to the London markets. But this we shall explain under the head of each article.

Cattle and their produce are the more interesting from our present point of view, and we therefore take them first. Jersey cattle in England are known as Alderneys, the general term given to the breeds of the Channel Islands. The females of these breeds are proportionately valuable above all other breeds, for two main reasons, one of which is natural, and the other the result of training or attention. The first consists in the fine rich colour and quality of their milk, and the second in their remarkable docility and tractability. The native size of these cattle, too, makes them more valuable, if we contrast them with other breeds, and estimate them at per stone, for as they are small they eat accordingly, and one or more can therefore be kept by a family in or near a large town, where the same number of our English breeds would require not only a less domesticated kind of management, but also a supply of food that would make the small quantity of milk which will suffice for a family a very expensive necessary daily diet, so much so that it would have to be classed, in regard to cost, under the head of luxuries. We may here adapt an old saw by giving it a suitable variation:—

> The first market price of a thing
> Is no rule for the costs it will bring.

On this simple ground a family man, who has a small paddock or two, and a spare stall in a stable, or a wall against which a lean-to shed may be built, can afford to give half as much more per stone, live weight, for a small cow to supply his children with milk, than he could for one which would add almost a branch of business to his domestic affairs.

In regard to the great profitableness of the Jersey cows over other kinds, in consequence of the richness of the milk they give, we believe that this is altogether a misapprehension, which arises from the encouraging vanity with which nature seems to have endowed her sons and daughters all the world over; and which is a gracious gift, as it permits us to enjoy a far greater sum of human happiness by the way we cheerfully follow the labours of civilised life. We of course refer to the amiable delusion that our own geese are in all points superior to other people's swans. That these cows have the capacity for giving milk which yields a greater quantity of butter per gallon than larger kinds, and than some smaller sizes also, we do not dispute; but that they are more profitable than other breeds on that account, we are so far from being convinced that we hold a totally different opinion. However, be our opinion correct or not, the value of the Channel Islands cows will not be lessened in the least degree. If, too, the merit of Jersey dairying all emanates from the natural character of the Jersey cow, the management which Jerseymen pride themselves in, and which we commend above all other systems, is simply a delusion as regards its asserted and accredited superiority. We take up this point on vegetable and animal physiological grounds. This is our argument.

The Jersey cow no doubt has some peculiar organisation, whereby she elaborates and secretes the liquid taken into the system in the form of food and drink in a much more perfect manner than do some other kinds of cows. But this is because her skin is more porous, whereby more moisture is exhaled in that direction: or because the proportion of her lungs to her whole frame is greater, and more breath, the same being largely charged with vapour, is thereby expended: or another channel may be more free in discharging the liquid waste of the body. Be this, however, as it may, apart from the colouring matter which is blended with the milk of the Jersey cow, the only difference between her milk and that of a Shorthorn, Hereford, Welsh, or Scotch cow is, *its proportion of water is less.* If an average cow be taken from each breed, and each animal be kept according to the habits which may have been imposed on it, and a ton of turnips, grass, or anything else be allotted to each, the same amount of marketable produce would be derived from that food, although the larger breeds might produce this in a form which would be one-fourth or one-third more in quantity in the first instance than that produced by the Jersey animal. The effect of climate also is as great on cows as it is on any other animal. Hence Jersey cows require housing nearly all the year round when they are first imported into this country; but when they have bred here they gradually become acclimatised, or, otherwise, their organisation—so wonderful a nurse is Dame Nature—becomes adapted for the new conditions under which they are placed. Their milk then differs in quantity, and therefore in quality.

The artificial or trained character of these animals is even more interesting than their natural traits, for while the one cannot be imparted—albeit it may be improved—by the hand of man, the other can everywhere be accomplished. There is nothing about the Jersey cattle to indicate that they are naturally more tameable than other bovine breeds—indeed, if physiognomy be any guide, they are more than any others like the animals about which much has been sung by bold sportsmen; the line—

> "A-hunting the wild deer and a-following the roe"

will convey our meaning. There is no reason, at any rate, why Jersey cows, with their deer-like heads and legs, should be pets as regards docility when compared with other breeds. This is the result of the treatment they receive from calfhood upwards. In the first place, they are generally reared by hand, suckling them at all being uncommon—and this weaning is generally done by the hand of a woman, who, as a rule, is naturally more gentle towards young dumb creatures than is a man or a boy. Besides, as the wife of a farmer or cowherd does the greater part of this work, the gentleness she practises towards the animals she in part owns or has under her charge is instinctively impressed on the minds of her children, and all the rising generation who may come in contact with her and her bovine charges. What puppies and kittens are to children in this country, calves are to the juvenile peasantry in Jersey; not that there are no dogs in Jersey, for in the absence of a dog-tax these animals have become so numerous that the States are about to decrease their number by imposing a 5*s.* duty. But calf-petting is an additional domestic amusement with Jersey children. In this country, however, the boys and hobble-de-hoys frequently, if not as a rule, seem to be actuated by an eleventh Commandment, which appears to be—"Never forget to kick or hit an animal when thee can, and with all thy might." The result of this is, our animals retain their natural fear of man instead of being trained to that gentleness and tractability, and the comfort which follows, which would be equal to a meal of food per diem.

Jersey cattle never know they have naturally the love of wild pranks. They are tethered from the birth. Calves are haltered, by which they are tied to rings around the wall of an unfurnished building, or they are fastened two in a stall. Thus they are fed with milk one by one. When they are fit to be turned, or rather led, out to grass, they are tethered in an orchard, so that they can choose, if they prefer it, the shady side of a tree; or if it be cold, the shelter of a fence or wall is selected for them. When their horns grow long enough to receive and hold a chain, this and three or four yards of cord are substituted for the calf-halter. So they are led, by the two, three, or half dozen, at home; and so they are taken to the market, fair, or on board ship for a passage to this country. If these leading-strings be taken off the yearling or full-grown cattle, they will follow their owner in the same way as Saxony, Hungarian, and some other continental sheep and cattle follow their shepherd and herdsman. In the markets there there is none of the barbarity which belongs to 6 feet of ground-Ash furnished with a goad for special torture, as seen in English fairs and markets, and particularly in the streets of London and other populous cities. In this, we think, there is a lesson from which many of us may learn, and having realised it, teach our swineherds, herdsmen, shepherds, and drovers. In too many cases, the first duty of a British aspirant in the art of animal tending is to secure a pliable stick with a good knob at one end, for giving it a ready fall, and the legitimate use to which it appears to be thought this weapon should be put, is to hit a horse, cow, or sow, as hard as possible across the snout as often as the chance can be made available. We are well aware that there are many instances where masters and stockmen effectually inculcate different and better sentiments into the boys whom they may have under them, but our extensive range of observation has also assured us that the contrary is also in more cases the fact, and in several instances where we have had a master's responsibility we have had no alternative but to peremptorily order boys not to carry a stick of any kind; and to make this order effective, we added the condition that if they did so, they would be made sensible of its punishing powers by having a smart taste of it on their own back. Under this rule the animals were far less trouble, and their habits were also much more after the character of animals which are required to yield a profit.

In Jersey, where there is no town interest to be jealous of the landed interest, and where, therefore, there has been no fear that any exposition of agricultural yields would be used for political purposes, and turned against the men who made the return—a system of returns of live stock has been effectually established. The following is the "Aggregate Return of Live Stock in the Island of Jersey on the 5th of March, 1866":—

Cattle.	
Milk cows	5815
Two years old and upwards	1845
Under two years of age	4377
Total	12,037
Sheep.	
One year old and above	404
Under one year old	113
Total	517
Pigs.	
Ages not specified (total)	6382
Horses.	
Ages not specified (total)	3227

We have given these returns of all kinds of stock, as it is thus shown that cows, the produce of them, and pigs for eating dairy and other refuse, are the animals on which the Jersey farmers rely for profit. Sheep, as will be judged, are thought nothing of, the 517 returned for the whole island being probably, in greater part, sheep which had recently been imported from the French ports aforesaid, and were either being kept till wanted by butchers, or were in the enclosed grounds of English residents, who have property independent of the profits on their land. Sheep are not to be seen on farms. This is perhaps because they cannot be conveniently tethered. Nothing runs loose in Jersey. Horses are tethered, donkeys ditto, and even if a chance goat be imported or bred in the island, no sooner does he or she begin to show his or her natural propensities for mounting and scaling stone walls and banks than the days of his or her wild liberty are numbered, for a rope and chain are applied to a pin at one end, and neck or horns at the other; describing a circle is henceforth the utmost liberty of his or her goatship in Jersey. Pigs are never seen otherwise than in a walled pound, sty, or cart on the way to market or the shambles. It is probable, too, that from the same habit of keeping animals confined and tied up but fowls are kept in the best cultivated parts, and, therefore, that 6,000,000 and more eggs, and the number of fowls, live and dead, given in the Table, are imported annually. In many places there are no fences to divide the land of neighbours, and most of the small farms are in one or two fields, or imperfectly divided plots, so far as fencing off fowls go; and in almost every field there is the patch of Wheat, Barley, or Rye, or perhaps a patch of each side by side, or intermixed with the greensward on which cows are tethered, and Grass for hay is growing. Fowls, therefore, would do more mischief than the profit on them would be. Fences are cultivated, and we think wisely, for shelter to the fruit and crops, but, for the foregoing reasons, there is no pretension to confine animals by means of them aided by banks. So free from roaming animals is the island, that many orchards and fields, and gardens in front of cottages and houses, have only a stone facing level with the soil, from which the roadway may have worn down a foot or so. This speaks in favour of the general respect the inhabitants have for their neighbours' goods, at the same time that it accounts for a large importation of eggs and fowls, where the climate and cottage farming are so suitable for the production of both. After our first observations on tethering we certainly expected to have seen cocks and hens under this arrangement, but we were not gratified. Probably it has been found that a tethered cock is not a lively bird, and would not therefore crow at the end of his own tether in the same way that every cock is conventionally said to be disposed to do when on his own dunghill.

The cattle may be further considered with advantage, for we have to relate the practice of one or two of the leading breeders and dairymen in the island. These we found out from recollecting their names as exhibitors at the International Cattle Show, under the auspices of the Royal Agricultural Society of England at Battersea, in 1862. We refer more particularly to Mr. Le Gallais and Mr. Le Feuvre. Before briefly taking up their stock and farms, however, we have a general remark or two to make on the facts as given in the above Tables.

The difference of 2532 calves, or animals less than a year old, over those above a year old and under two years, is a fair average number of the two-year-old heifers and a few cows annually exported. In 1865 the number was 2487; for the year ending in 1866 the number was about a thousand less; but this was owing to the restrictions imposed in this country on account of the cattle plague, and the total prohibition of European cattle entering into America, for the same reason. Americans are great and excellent customers for Jersey cows. This exportation of two-year-olds is admissible from the fact that Jersey heifers are early in the propensities which, when gratified, lead as a rule to an increase of the species. And as a family quantity of milk is, as we have explained, a greater consideration than the ultimate size of the cow, the almost invariable practice with the Jersey farmers is to let nature have its course, whereby their heifers are far advanced in calf, or on the point of calving, by the time they are two years old. The prices of these heifers vary from 11*l.* to 16*l.*, according to size, form, and colour. The average now, we are informed, is, including the few cows sold, about 13*l.* At this price the sum realised, on the average, for cows and heifers, would be 32,500*l.* per annum, a good item for a place not larger than an average hundred or township of English counties. A great trade has been done during the present year, both on account of the accumulation

of stocks last year, and the high prices which cows in milk have been making in London from the losses by the plague during 1865 and 1866.

Here we may relate a gratifying result of our inquiry. Before we made any exploration of the island beyond St. Helier's and the shores of the adjacent bays, we saw several lots of heifers being led on their way to a boat. From the general beauty in symmetry and colour of these animals, a suspicion at once arose in our mind to the effect that the Jersey farmers were tempted to do as the silly Welshmen have done for years, viz., to sell their best grown heifers because they commanded an extra price by a pound or two "down on the nail." But on mentioning this to reliable men, Mr. Le Gallais being one of them, we were assured that our impression was groundless. Mr. Le Gallais, for example, said, "There is quite enough public spirit in our farmers to induce them to keep the best for improving their home stock." This is honourable pride and meritorious self-interest in happy combination. The many observations we afterwards made enable us to confirm this, by saying we saw quite as fine and beautiful animals in a general way in the cottier's paddock and on the farmer's Grass plot of his one or two fields, as we saw being led through the streets or held on the quay of St. Helier's. As further evidence, Mr. Le Gallais said he recently wanted to buy several good cows, and he could not induce the owners of such as he required to part with them on any terms which, as regards their marketable value, would have been within reason.

(To be Continued.)

Farm Memoranda.

Steam Cultivation in East Lothian.—Within a few miles of Drem, in Haddingtonshire, five sets of steam tackle are at work. We had not time to visit Mr. Walter Reid, of Drem, whose apparatus is that of Messrs. Coleman & Morton, of Chelmsford, in which a headland engine with a couple of winding drums works two one-way implements, these being always in work when going toward the engine, and returning toward the anchor backward without working. It was reported to us as giving him satisfaction in every way. We were also obliged to pass by the Fowler "set" of Mr. Todd, of Castle Mains, Dirleton, near Drem.

Mr. Hope met us at Drem Station, on Saturday morning, November 17th, our first call being upon

No. 95. Mr. Thomas Begbie, of Queenston Bank, Drem, Haddingtonshire, who has worked a 14-horse Fowler engine since 1862. His farm is on the trap rock; the soil partly light, but portions making heavy pair-horse ploughing. He uses the 6-feet cultivator for autumn and spring tillage, does all the heavy work for Turnips, and prepares some of the seed furrows for Wheat, by the steam tackle. The main advantages found are in the greater expedition and the increased depth of the work, as compared with horse-ploughing and grubbing. Mr. Begbie considers that his root crops show a considerable augmentation of produce, though he has not tested steam against horse work in the same field. One palpable result has been attained—the displacement of one-fourth his former number of farm horses.

Our next call was upon

No. 96. Mr. William Sadler, of Ferrygate, Dirleton, near Drem, Haddingtonshire. Eastward of Drem, and not far from the new "watering place" of North Berwick, Mr. Sadler occupies 409 acres of arable mixed soil, lying in 50 and 60-acre fields, on a gentle rise of bleak unwooded country, which looks northward over the wide Firth of Forth.

A Fowler 10-horse engine was tried here in 1862, but, wanting in power, was changed for a 12-horse engine, which has done all the heavy work for roots, and also ploughed the land for Wheat, Barley, and other crops. And now the big boulder stones have been got out, Mr. Sadler finds that he can accomplish his steam tillage for much less than the price that horsework used to cost, and his former force of 14 horses has been reduced to nine—a fact from such a place and from such an authority as should tell more in favour of steam culture than a dozen reports from ordinary practitioners. We walked over some magnificent tilths, torn up 12 or 14 inches deep; and when Mr. Sadler declared to us that not only was his tillage expenditure so much less than formerly (and this, remember, under the best Lothian management of teams, which has become proverbial for its exactness and rigid economy in every detail), his crops were also better, we could readily recognise the correctness of his judgment on this point, for we never beheld more wonderful Swedes and hybrid Turnips than those which, in huge bulbs for hundreds of yards together along the rows, had just been pronounced by a local Society's official judges to weigh 30 to 36 tons per acre.

Another important circumstance is that Mr. Sadler, feeling the loss of time involved in taking up and setting down the anchor, and the difficulty of the action of the "slack gear" in fields not perfectly rectangular, has purchased a "double-engine set." Of course this tackle (which we believe has made a good beginning since Christmas) will do duty on several other farms besides Ferrygate.

No. 97. Mr. George Hope, Fenton Barns, Drem, Haddingtonshire, occupies 670 acres arable, with 2 only of old pasture; a medium loam soil, in places more clayey. High-backed lands were at one time adhered to, but in the early days of under-draining the farm was tile-drained at 2½ feet depth, and flattened, and now it is always sufficiently dry. A Howard apparatus, with 10-horse engine, was purchased in September, 1863, has done more than 1200 acres of tillage since that time, and, excepting the rope, appears as sound and good as ever, and has incurred no expense in repairs. All the work has been grubbing,* and in consequence of this aid all operations are so forward in autumn and in spring, that Mr. Hope "wonders how he ever got on before." He has parted with three horses, and would be able to sell more, if he had not so much carting of Potatos, besides a new farm, distant 2½ miles, at which many improvements are being made. He finds that he can do a 30-acre field at one setting-down, and by simply turning the engine and windlass round, does 60 acres from one position. All his steam work is done with inferior coal, costing 10*s.* a ton with the cartage.

Mr. Hope considers that he is well repaid for his investment by the deeper and better tillage, and by the winter-exposed land being sooner ready for sowing in spring. Then the yield of cropping is greater, from the fact of the crops being more equal. This is due to the more timely sowing, instead of having some fields too early and others too late. Mr. Hope's root crops are "a treat to see," and every square foot of ground wonderfully clean, the Turnips growing up to the very stems of the Quick hedges; and there, instead of weeds and Grass, Rape shoots out from the hedge-bottoms. The hedges are cut once a year, and the bottoms dug every time a crop is put in.

It was not part of our embassy, however, to make notes of Scottish husbandry; we had simply to form an impression as to the value or uselessness of the steam plough on farms where everything had been about perfection already; and the impression we brought away with us is, that the heavy investment of a steam tackle is found to pay well, even upon the neatest and best-managed occupations, where first-class farming has been practised for generations. *J. A. Clarke, in the Journal of the English Agricultural Society.*

West Sussex: *August* 27.—We are now in the middle of harvest; the greater part of the Wheat is in, but very little Oats or Barley is yet carted, and a great part of these is not cut, and is suffering a good deal, as it is very much down and over ripe, and the Clover has got up through it, in some cases hiding it completely. Barley will be very much injured on this account, and as there is so much Clover in it, it will have to remain cut for some time before it is fit to carry; and the land is so damp, that unless we have very fine weather it will be much injured. Oats are in the same state, and will come out very freely if they have to remain long in the field. We have never seen the young Clover get so much the advantage of the Corn. Respecting the state of the crops we can now speak with some confidence, as there have been several lots threshed hereabout, and the yield on the whole is not good, probably two sacks an acre less than an average crop for Wheat. Barley is very light in the straw, and the yield of corn will not be good, either in quantity or quality. Oats, though not heavy in straw, are a fair crop, and if well harvested will be of good quality. Roots now promise to be good, though they came slowly on at first; they have grown very rapidly of late, and there is every prospect of a good crop of Mangel and Turnips. Of course the pastures are good, and lean stock are likely to be wanted, and not to be got any cheaper—although dearer they are not likely to be, as they will pay little or nothing at the present prices of buying in.

The Potato disease has set in pretty severely, and half of them are likely to rot; they are as good a crop as we have had for some years.

Harvest hands have not been very numerous, and, as the corn has been much laid, higher prices have had to be given for reaping—as much as 20*s.* per acre; and as there has been much wet, men have not done so well even at that, except where they have been employed during the wet times at other work.

The samples of new Wheat in the market are hardly equal in quality to last year's; some has been sold as high as 76*s.* per quarter, but 68*s.* has been more common: there is not much old left, and straw is also nearly all used up, so that the new crop must come into market at once. Peas have been a fair crop, but suffered a good deal from the wet weather we had as they were being cut, and a good many were lost on the ground. Where they have been grown the land has got in a very foul state, and will require a good deal of work to fit it for Wheat.

Altogether we have had a strange and variable season, great extremes of heat and cold, of wet and dry weather, but all the weather prophets have been right, whatever they may have foretold about it, and we may still retain our faith in these Delphic oracles. *G. S.*

Miscellaneous.

Reaping Machines.—It has been seen from the short reports of harvest work given last week, how general the use of reaping machines is becoming. There are, however, many counties where the ordinary methods are still in practice, and where the reaper is not yet believed in. For such we reprint part of a report which appeared last year from a Committee of the Morayshire Farmers' Club, which have in their time taken the lead in many agricultural improvements, and who here declare the entire success of the reapers made by local manufacturers, many of which must be pronounced inferior to those of best English make. They inspected 20 machines at work on 15 different farms in the county, and report as follows:—"All the machines cut well, almost all equally well, after making allowance for variety of soil and the difference in the preparation of fields. The great distinction in the work lay with the person who tilted the sheaves from the manual delivery; so also in the self-delivery, as much depended on the completeness and adaptation of the delivering apparatus. The reapers examined may be divided into three classes; 1st, The one-horse manual; 2d, The two-horse manual; and 3d, The two-horse self-delivery. As to the one-horse reaper, although the work done by it is equal to that of any of the others, yet, from the less breadth cut, the heavy draught, and its requiring a driver and man for tilting the same as a two-horse machine, the difference in price is not sufficient to recommend its extensive use on the larger farms. As to the two-horse manual delivery machine, the work done was very satisfactory; and from the care and workmanlike manner in which some of the men turned off the sheaves, the most perfect work was done by this class of reapers. Everything was done in a very neat and superior manner, and such as left nothing to be desired. One thing recommends itself very strongly in the management of this machine. A hand is exclusively employed in walking before the machine along the edge of the uncut corn to lift up any stalks which may have fallen over in a different direction from the general lay of the corn, the effect of which quite perfectly prevents any straggling of stubble. The cutting with the two-horse delivery machine is equal to the others, and the delivery into sheaves very fair, and, with a little further improvement in the delivery arrangement, will very probably come into general use. From the superior work done by all the classes of reaping machines, we do not hesitate to recommend the employment of them on all farms. At the same time, to do full justice to both machine and crop, a careful preparation of the land is necessary, broad ridges, thorough harrowing, furrows well filled up, large stones carted off, and the land well rolled. It is also of the utmost importance to have the knives regularly and properly sharpened, and the gearing of the machine frequently oiled. Your Committee must not, however, omit to mention that this has been a favourable year for the trial of reapers, crops being generally light. Notwithstanding this advantage, we inspected several fields where machines were at work in heavy crops, and the work done was sufficient to recommend their general use. Some disadvantage attending the use of reapers is caused by occasional breakages; and, from the closeness and compactness with which the stalks are put together in a sheaf, it is more difficult in a harvest like the past to get the crop into condition for stacking than when it was cut with the scythe; but it is more than compensated by the neat, clean, and tidy way in which the crop can be lifted. The sheaves should be of a small size. While your Committee hope that improvements on reaping machines may be effected by the makers, they would urge on farmers and their servants to see as to the proper preparation and culture of the land, and the working of the machines, so that they may be more extensively used throughout the country. For this end, your Committee would recommend that prizes of a fair value should be given for competition to servants in charge of machines, who would excel in the management and keeping of them in repair, as well as in the tilting of sheaves a proper size, and that arrangements should be made by another harvest for this purpose." This report was signed by three of the leading farmers of the district.

Rats.—A heartless ruffian, much patronised by rats having tried in vain nux vomica, phosphorus paste, and improved rat-traps, has at last hit upon a plan which has relieved him of his unwelcome visitors, and has had the inhumanity to publish the expedient in the papers for the benefit of other householders afflicted as he was. "You fry," tersely wrote the inhuman barbarian, "a number of bits of sponge in dripping, and place the savoury morsels in the rats' runs. By-and-by you will not be troubled with rats any more." Our magniloquent contemporary has brought the tremendous force of its eloquence to bear upon this discredit to the human race in a leader, in which a condemning public is invited to—"Look at the frightful barbarity of the plan! The sponge attracts moisture from the stomach and intestines of the miserable creature, swells into an immovable mass, and the animal dies. But how? Of enteritis—in tortures inconceivable—worse probably than if the creature were flung into a slow fire. A burning internal inflammation sets in, the hapless brute rolls and writhes in unspeakable agony; it thirsts, it vomits, is convulsed, frantic, fevered with an anguish which lasts all the while that mortification is preparing; and not till many hours, perhaps days, after the sponge is swallowed does the gentler hand of Death arrest the piteous pain and dismiss the tortured life. Let us kill what we must kill, but if we hope for mercy from the Power higher than ourselves, let us avoid such devilish cruelty." We cannot doubt that if the devilish agriculturist who has thus ruthlessly freed himself and his stacks from rats happens to read the *Telegraph* he will fry no more sponge, and will resignedly hand over his store to the harmless little rodents in which our contemporary takes such a tender interest. *Pall Mall Gazette.*

Rents in Forfarshire.—A parliamentary return has been issued which shows for a series of years the land rental—that is, the valuation on which farmers' profits are assessed—for each county of Great Britain separately. By means of this document the amount and the rate of increase in rent during the 10 years terminated with 1865 can be computed. A longer interval for comparison might have been taken from the paper, but the term chosen will sufficiently demonstrate that the landed interest has participated in the general prosperity of the kingdom. In the property tax returns the gross assessment under Schedule B and the gross assessment under that part of Schedule A which represent "lands" only, are the

* Since the visit of the Committee, Mr. Hope has purchased a Fowler's 4-furrow balance plough, which he works with his Howard's apparatus, and finds lighter in draught than the cultivator. He can now easily and certainly regulate the depth of the work; this he formerly failed to attain where strong clay and sandy soils alternated in the same field.

same; the one may be used for the other. The gross land rental of England and Wales in 1854-5 was 41,068,000*l.*, and in 1864-5 it had risen to 46,404,000*l.*, or by an increase in the latter over the former year of 5,336,000*l.*—that is, 13 per cent. The gross land rental of Scotland in 1854-5 was 5,745,000*l.*, and 10 years subsequently 6,830,000*l.*, being an increase of 1,085,000*l.*, or 18.9 per cent. This exceeds the English rate for the same interval by 5.9 per cent. To save space, the next Table has been restricted to 12 of the principal agricultural counties of Scotland—seven in the southern and five in the northern division of that country:—

Amount of Farmers' Rent assessed under Schedule B of the Property Tax in 1855 and in 1865, compared for undernamed Counties of Scotland:—

Assessment under Schedule B.

Counties.	1855.	1865.	Increase.	Increase per Cent.
Southern—	£	£	£	
Dumfries	281,949	342,287	60,338	21.4
Ayr	420,690	511,704	91,014	21.6
Lanark	320,809	386,010	65,201	20.3
Edinburgh ..	240,764	276,173	35,409	14.7
Roxburgh ..	244,043	284,053	40,010	16.4
Haddington ..	213,737	224,713	10,977	5.6
Fife	408,108	455,281	47,173	11.6
Northern—				
Perth	529,216	618,763	89,547	16.9
Forfar	295,664	401,351	105,687	35.8
Aberdeen ..	474,233	570,020	95,787	20.2
Argyle	232,937	279,030	46,093	19.8
Inverness ..	183,664	191,881	8,217	4.5

Seven Southern Counties.—Four are much below the Scotch average, and three above it. Lanark, which is the great manufacturing county of Scotland, is one of those in the group that seems to have made the most advance in agricultural wealth—namely, 20.3 per cent.; whilst the progress of Haddington has been remarkably small, only 5.1 per cent. *Five Northern Counties.*—The diversity of fortune appears to have been greater in this section than in the former; the increments rising from 4.5 per cent. in Inverness to 35.8 per cent. in Forfar. The contrast which the two Highland counties present is noteworthy. Argyle has increased its rental by 46,093*l.* or 19.8 per cent., while the increase was only 8217*l.* in Inverness, or 4.5 per cent., measured proportionately, less than a fourth of the Argyle rate. The Forfar rate, 35.8 per cent., is nearly twice the average ratio for Scotland, and far in excess of any percentage recorded in this Table. *Pall Mall Gazette.*

The Harvesting of Crops.—In your impression of Saturday last is a communication from a correspondent recommending a new plan for securing the harvesting of crops, viz., "decapitating the stalks, and taking the ears of Wheat into the barns and spreading them out, so that the wind blowing through the open door should dry them." Thanks to your correspondent for his suggestion, but I think a more efficacious plan would be to get half-a-dozen blacksmith's bellows put up in a barn, and from a stage erected above the line of bellows suspend by means of cheap twisted Hemp the sheaves, and from the gusts of wind proceeding from the different bellows, so powerful a blast would be created as would soon dry the sheaves. Adjoining the barn should be an enclosed drying house, with half-a-dozen of Messrs. Hardy and Padmore's iron stoves; around these should be placed the sheaves as they come from the blast-house, and in a little time the corn would be hard and fit for grinding. Excellent as all this may appear on paper, I fear it would bother many of our old farmers, who would rather go on in the old-fashioned jog-trot way, and leave these new inventions to our amateur farmers; but your correspondent's mode of harvesting corn reminds me of a friend of mine, who, on going to the sea for a little change of air, told his servants to mow the lawn and make it into hay, but to take care it did not smoke, or it would be spoiled. The servants put it together, but alas! it smoked, and they pulled the rick to pieces and dried it before the stove in the laundry, put it again into stack, and made a rick of it. I am afraid the ears of Wheat dried as your correspondent recommends would smoke when put together like my friend's lawn Grass, and that the trouble would not be worth the expense. I farm a large tract of corn and Grass land, and harvest a large quantity of corn, but I always leave the corn to the wind and sun to dry it, never resorting to artificial help, such as wind instruments, &c. To the best of my recollection I have never had any corn injured by the weather; but by carrying it too soon, or by inattention in turning it, or by some fault of my own, I have sometimes injured it, but not through the weather. Farmers should exercise patience—trust an overruling Providence, and there is a promise, "seed time and harvest shall never fail." *Agricola, Pershore, August* 21, *in "Berrow's Worcester Journal."*

Notices to Correspondents.

BRETON COWS: *W M A.* Mr. Baker, of the Pheasantry, Chelsea, used to advertise. Perhaps this answer may bring us the names of other salesmen, either native or English.

CAPONISING: *Cor.* The reference given last week is, we find, mistaken. We will endeavour to obtain a recipe for you.

MANGEL WURZEL: *A Constant Reader* writes:—My Mangel Wurzel is running to seed this year much more than usual. I have a capital crop, many upwards of 2 feet in circumference. I have taken up from 3 acres more than five good cartloads of dressed roots (some weighing 7 lb.), and many more are running. What can be the cause? early sowing, the season, or the seed? I sowed on the 6th April; it came up rather irregular, commencing on the 24th April. My bailiff sowed some in his garden a month later, and it runs in the same proportion. The seed, "Orange Globe," I get from a first-class house. The roots I take up are not a dead loss, as the pigs and cows enjoy them. [Early sowing and a growing season are probably the causes of this unusually general complaint.]

NEW FORAGE PLANT: *Messrs. Carter & Co.* Our opinion must be postponed for a week.

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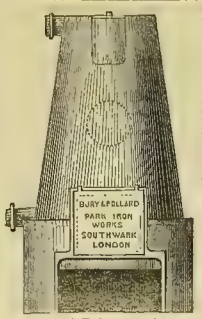
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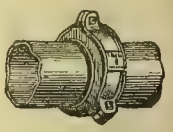
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40 feet by 15 feet ..	15 0 0 ..	2 15 0	100 feet by 15 feet ..	26 0 0 ..	3 5 0

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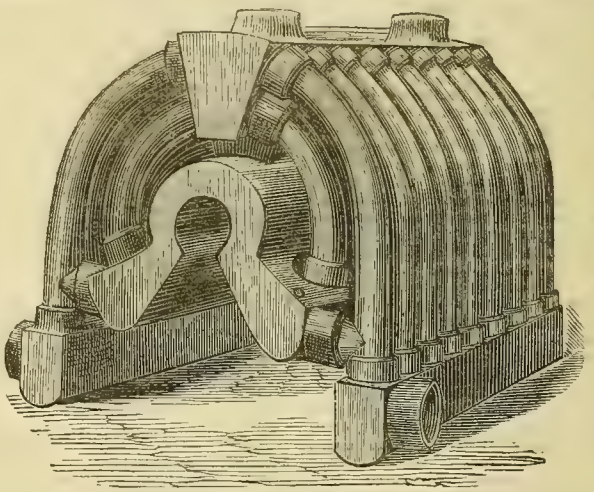
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PATENT TUBULAR ARCHED SADDLE BOILER.

AWARDED THE ONLY FIRST-CLASS CERTIFICATE FOR HOT-WATER BOILERS AT THE



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We have received numerous and flattering Testimonials of the efficiency of this Boiler, and in a report of the Directors of the Royal Horticultural Society, April, 1867, it is specially mentioned as "*working very efficiently, and maintaining the heat at stove temperature with a very small consumption of fuel.*"

We beg to draw attention to our superior designed CONSERVATORIES and HOTHOUSES of every description, and especially to our

NEW ORCHARD, STRAWBERRY, AND PLANT HOUSES,

which are "very cheap," and "ventilated" on a principle very much approved by all practical judges.

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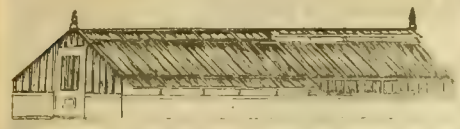
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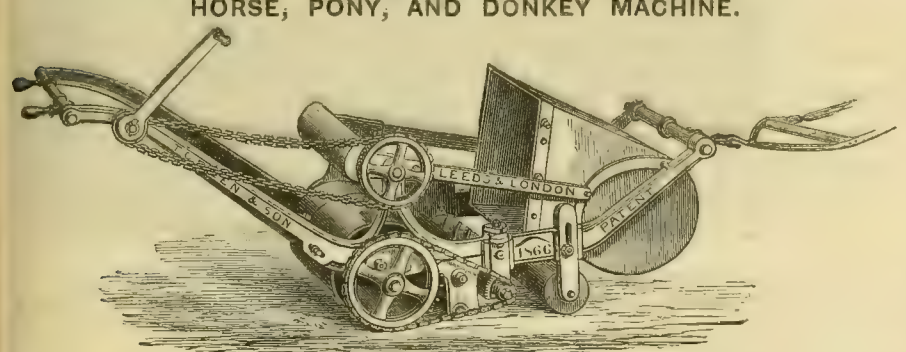
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Every Machine is warranted to give entire satisfaction, and if not approved of can be returned at once unconditionally.

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To Nurserymen and Others. Ranges of Greenhouses, Horse, Van, Harness, &c.

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The Sheep have been carefully bred from the Flocks of the late Jonas Webb and Henry Overman: more recently Rams from the Flocks of the Earl of Radnor and Sir William Throckmorton.

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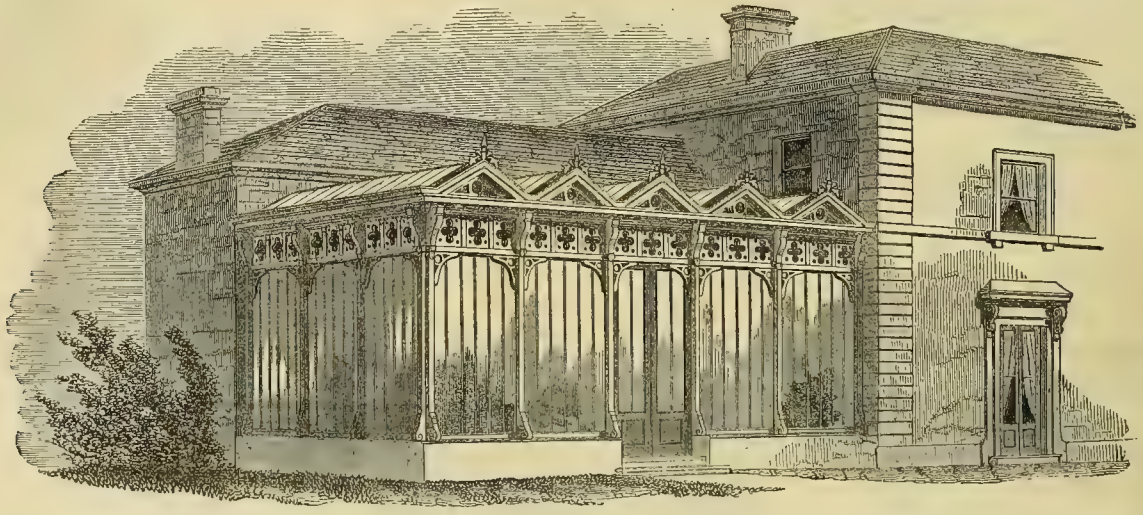
Trains from London at 8 0 A.M.	Trains from Norwich at 12 Noon.
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,, Peterboro' at 6 50 ,,	Due at Elmham at 1 33
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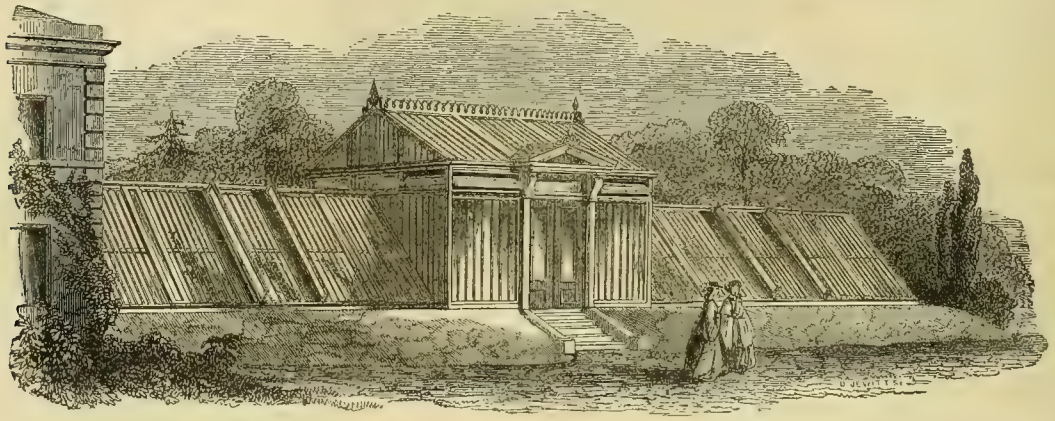
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MANUFACTURED in LONDON; and at GLOUCESTER, COVENTRY, ULVERSTONE, PAISLEY, and ABERDEEN, By STEAM-POWER MACHINERY, of BEST MATERIALS, and at LOWEST PRICES.

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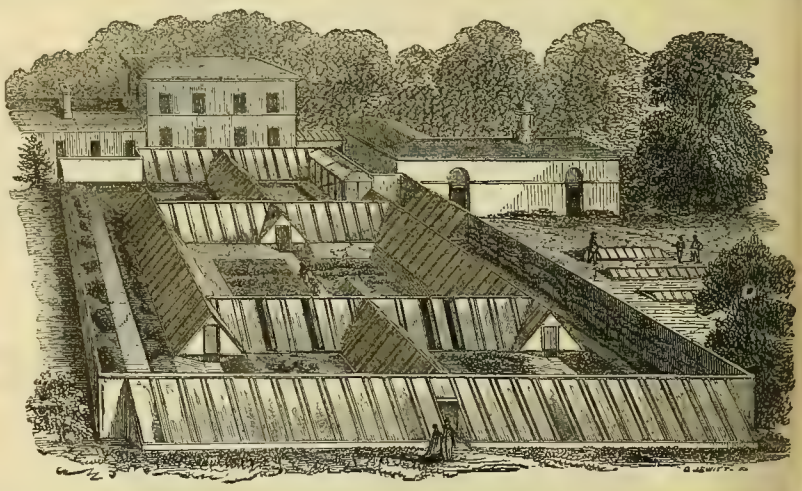


View of an Ornamental Ridge and Furrow Roofed CONSERVATORY about 30 feet by 15 feet inside, and 15 feet high from the ground to the cornice. The large front Sashes slide, and ample Ventilation is also provided in the Roof.



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ESTIMATES given for ORNAMENTAL CONSERVATORIES to Architect's Plans and Specifications; also for HEATING APPARATUS for all purposes, and to any extent, fixed complete anywhere in the United Kingdom.

☞ *Plans prepared to suit different styles of Mansions, and to particular dimensions.*

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The SECOND EDITION of a HANDBOOK of VINE and FRUIT TREE CULTIVATION, as adapted to the above Patent Hothouses, containing Illustrations, Hints for Heating Houses, and General Directions for Cultivation, &c., may be had of Mr. HEREMAN, post free for 13 stamps.

"The instructions given for the cultivation of the Vine and other crops are essentially practical, and are evidently written by one who has himself performed all the operations before he attempted to instruct others."—*Journal of Horticulture.*

Editorial Communications should be addressed to "The Editor;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
Printed by JAMES MATTHEWS, at the Office of Messrs. BRADBURY, EVANS, & Co., Lombard Street, Precinct of Whitefriars, City of London, in the Co. of Middlesex, and Published by the said JAMES MATTHEWS, at the Office, No. 41, Wellington Street, Parish of St. Paul's, Covent Garden, in the said County.—SATURDAY, August 31, 1867.

THE GARDENERS' CHRONICLE

AND

AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.

No. 36.—1867.] SATURDAY, SEPTEMBER 7. {Price Fivepence. STAMPED EDITION, 6d.

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ROYAL HORTICULTURAL SOCIETY, SOUTH KENSINGTON, W.
SHOW of ZONAL PELARGONIUMS, TUESDAY, Sept. 17.
Admission 1s. Promenade and Band every Saturday at Three, Admission, 2s. 6d.
For Schedule of Prizes see *Gardeners' Chronicle* of August 31.

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Sept. 24. EDWARD CARPENTER, Secretary.

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CHARLES TURNER is now prepared to supply strong Plants of the best modern kinds, as well as all the leading established varieties, true to name.
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PEACHES, NECTARINES, APRICOTS, CHERRIES, PLUMS, PEARS, APPLES, VINES, and FIGS.
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Highly Cultivated and Regularly Transplanted Nursery Stock.
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THIRTY THOUSAND HERBACEOUS and ALPINE PLANTS, in pots, now ready. An inspection respectfully requested. CATALOGUES early in September, sent on receipt of postage stamps.
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SPECIMEN PLANTS WANTED.—A large Conservatory, 130 feet long, and 30 feet high, has been erected at the Royal Park, Leeds. PLANTS or SHRUBS are WANTED. Must be large, good, and cheap.—THOMAS CLAPHAM, Royal Park, Leeds.

Nierembergia frutescens.
W. THOMPSON, SEEDSMAN, Tavern Street, Ipswich, begs to offer good Plants of the above valuable introduction, recently described by the Paris Correspondent of the *Gardeners' Chronicle*, at 1s. 6d. each. A few very strong Plants can be had at 2s. 6d each.

Collinsea verna.
W. THOMPSON, SEEDSMAN, Tavern Street, Ipswich, begs to intimate that New Seed of the above Spring Bedder can now be supplied, post free, for seven stamps Amateurs are respectfully reminded that it is perfectly useless to sow this Seed in Spring, and for the best results it is important to sow early in September. Trade prices on application.

Notice of Partnership.
JOHN SANDY begs to inform the Trade, his Customers, and the Public generally, that he has taken his Son, HENRY SANDY, into PARTNERSHIP; and that in future the Business will be carried on under the name of SANDY AND SON.
Nursery and Seed Warehouse, Stafford.—August, 1867.

Hanover Nursery, Peckham, S.E.
M. A. IVERY, Widow of the late Mr. William Ivery, begs to state that the BUSINESS will be carried on as usual, and trusts to receive that support so long given to her late husband, which shall at all times have prompt attention.
A Select AUTUMN CATALOGUE for 1867 can be had post free on application.

Dutch Roots.
JOHN AND CHARLES LEE will be happy to forward their CATALOGUE for 1867 of newly-imported HYACINTHS and other Roots, post free on application.
Royal Vineyard Nursery and Seed Establishment, Hammersmith, London, W.

WM. CUTBUSH AND SON beg to say that their DESCRIPTIVE CATALOGUE of CHOICE HYACINTHS, TULIPS, CROCUSES, &c., is now ready, and can be had post free on application. Highgate Nurseries, London, N.

Hyacinths.
WILLIAM ROLLISSON AND SONS beg to announce that their CATALOGUE of DUTCH and ENGLISH BULBS is now in the hands of their Printers, and WILL BE PUBLISHED IN A FEW DAYS, when it can be had free upon application.

Dutch Roots and Spring Gardening Plants.
PAUL AND SON invite attention to the very COMPLETE LIST of the above, free on application.
The Old Nurseries, Cheshunt.

Bulb Catalogue.
BUTLER, McCULLOCH, AND CO.'S CATALOGUE of Choice DUTCH and CAPE BULBS is now ready. Sent free and post paid.—Established upwards of a Century.
South Row, Covent Garden Market, W.C.

Dutch and Other Flower Roots.
JAMES DICKSON AND SONS have received, in excellent condition, a large Importation from the most eminent growers. PRICED DESCRIPTIVE LIST post free on application.
102, Eastgate Street, and "Newton" Nurseries, Chester.

Dutch Bulbs, and other Flower Roots.
CHARLES TURNER'S CATALOGUE of the above is now ready, a copy of which may be had on application.
The Roots have arrived in splendid condition, and early Orders are respectfully solicited.
The Royal Nurseries, Slough.

Dutch Bulbs and other Flower Roots.
THOMAS SAMPSON, The Preston Road Nurseries, and Hounstone, Yeovil, Somerset, begs to announce that he has imported a large assortment of the above, in excellent condition, and is now ready to supply orders at the lowest prices. See CATALOGUE, free on application.
Strong GRAPE VINES, from Eyes.—All the leading varieties, at unequalled low prices.

New Catalogue of Plants, Dutch Bulbs, &c.
ROBERT PARKER begs to announce that his NEW CATALOGUE, containing Select, Descriptive, and Priced Lists of New, Rare, and beautiful Greenhouse, Hardy and Stove Plants, Azalea indica, Fruit Trees, Grape Vines, Rhododendrons, Roses, Sweet Violets, &c.; Amaryllis, Crocuses, Cyclamens, Gladioli, Hyacinths, Liliums, Narcissus, Tulips, and other Bulbs, is now published and will be forwarded to applicants.
Exotic Nursery, Tooting, Surrey, S.

For present Sowing.
DOBSON'S PRIZE CALCEOLARIA SEED, the finest strain in the world: per pckt., 1s. 6d., 2s. 6d., 3s. 6d., 5s.
DOBSON & SONS, Woodlands Nursery, Isleworth, W.

New Seed of 1867, choice quality.
DOBSON'S PRIZE CINERARIA, 1s., 2s. 6d., 5s.
DOBSON'S PRIZE PRIMULA, 1s., 2s. 6d., 5s.
DOBSON'S PRIZE BALSAM, 1s., 2s.
DOBSON & SONS, Woodlands Nursery, Isleworth, W.

DOBSON'S PELARGONIUM MAGNET.
NOTICE.
In answer to numerous inquiries, we beg to announce that the above splendid decorative variety will be sent out in OCTOBER, Price 15s. each. Full particulars next week.
JOHN DOBSON & SON, Woodlands Nursery, Isleworth, London, N.

SUTTON'S COLLECTIONS of FLOWER ROOTS. For particulars, see
SUTTON'S AUTUMN CATALOGUE, gratis and post free on application.
SUTTON & SONS, Reading, Berks.

Special Notice.
CATALOGUES of the SALE to be held at the King's Acre Nurseries on SEPTEMBER 30 and following days, are NOW READY, and may be had on application.
The Lots, comprising upwards of 3500, are now on view.
Address JOHN CRANSTON, Nurseries, King's Acre, near Hereford.

TO BE SOLD CHEAP, a quantity of large double-flowered CAMELLIAS, AZALEAS, &c. Prices on application to Mr. TEMPLE, Gardener, Bill Hill, Wokingham, Berks, two miles from Wokingham Station, South-Eastern Railway, four from Twyford, Great Western Railway.

ORCHIDS.—A Small Collection of the best varieties for SALE, on account of owner's ill health.
For particulars, &c., address H., Post Office, Retford, Notts.

A COLLECTION of ORCHIDS, of unrivalled richness, consisting of about 1100 Species, is to be SOLD, preferentially undivided, but a single plant may be also obtained. Parties inclined to buy are requested to send their address to
"F. G. 668," Messrs Haasenstein & Vogler, Hamburgh.

FERNS, Stove and Greenhouse, and Coloured-leaf Plants.—A good collection, many in large pots, suitable for furnishing a Stove or Conservatory, must be SOLD.
Apply to HY. MOSES, Gardener, 2, Suter's Cottages, Diamond Terrace, Greenwich.

Ferns.
WILLIAM ROLLISSON AND SONS also beg to intimate that their DESCRIPTIVE CATALOGUE of FERNS, LYCOPODS, &c., is being distributed, and will have much pleasure in forwarding the same, free of charge, to all applicants.
WILLIAM ROLLISSON & SONS, The Nurseries, Tooting, London, S.

NEW FERN, SCOLOPENDRIUM VULGARE, var. COOLINGII.—A dwarf variety between S. Wardii and S. digitatum, very distinct and beautiful. Nice Plants are now ready for distribution at 7s. 6d. each.
A Coloured Plate free by post for two stamps.
EDWIN COOLING, Mile Ash Nurseries, Derby.

British Fern Catalogue.
ROBERT SIM can now send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his NEW and PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.
Foot's Cray Nursery, S.E., a mile from Sidcup Station of New North Kent Line of South Eastern Railway.

Roses in Bloom.
WM. PAUL'S ROSES are NOW IN FULL BLOOM. Inspection respectfully invited. Trains almost hourly from Shoreditch to Waltham Station, Great Eastern Railway.
PAUL'S Nurseries, Waltham Cross, N.

ROSES ON OWN ROOTS.—These young Plants, in Pots, are now Ready, of the several leading sorts. Just now is the best time for planting. Our Selection, 12s. per doz., 75s. per 100.
PAUL & SON, The Old Nurseries, Cheshunt.

To the Trade.
MARSHAL NIEL ROSE, from own roots, in pots, by the 100 or 1000, at £5 per 100.
G. BAKER & SON, American Nursery, Bagshot.

NEW ROSES for 1867.—Strong Plants of all the best NEW ROSES now ready.
DESCRIPTIVE LIST, with prices, on application.
JOHN CRANSTON, King's Acre Nurseries, near Hereford.

CLARKE'S ROSE PINK, LORD LYON.—The best Pink for Forcing in Cultivation, to which a Certificate was awarded at the Great Show of the Royal Horticultural Society, on June 4, 1867. Strong Plants, now in a fine state for potting, 5s. per pair. Orders, accompanied by Post-office order or stamps, to
J. CLARKE, 42, College Street, Bury St. Edmund's.

CULTURAL DIRECTIONS for the ROSE. Second Edition. By JOHN CRANSTON, King's Acre Nurseries near Hereford. Free by post from the Author for 20 stamps.

Roses, Roses, Roses.
WITTY AND SON have to offer for Forcing next Spring strong plants of MARECHAL NIEL ROSES, true. The plants will average from 18 inches to 2 feet high, with side branches from top to bottom. Also all the leading sorts of TEA-SCENTED ROSES in strong plants. The NEW ROSES of 1867 in strong plants. Price may be had on application, by the dozen or 100.
The Nurseries, Cottingham, near Hull.

Novelties.
WM. PAUL (Son and Successor to the late A. PAUL) respectfully solicits Orders for the NEW and FIRST-CLASS ROSES and BEDDING GERANIUMS, &c., advertised at length in this Paper in May last.
PAUL'S Nurseries, Waltham Cross, London, N.

Variegated Geraniums.
CASBON AND SON hold a large stock of above. Prices on application.
Gravel Walk Nursery, Peterborough.

For Present Sowing.
CHOICE ZONAL GERANIUM, FROM A COLLECTION OF 150 VARIETIES.
R. WHITE can supply NEW SEED of the above, saved from the choicest flowers, in packets, 1s. 6d., 2s. 6d. 3s. 6d., and 5s. each, post free.
Poole Nurseries, Dorset.

Calceolaria, Cineraria, Primula fimbriata.
SUTTON AND SONS can supply NEW SEED of the above, saved from choicest flowers, in packets, 1s., 2s. 6d., and 5s. each, post free.
Royal Berkshire Seed Establishment, Reading.

Choice Seeds.
CHARLES TURNER'S superior CALCEOLARIA, CINERARIA, and PRIMULA are now ready, in packets, 2s. 6d. each. The Royal Nurseries, Slough.

Calceolaria and Cineraria,
WHEELER'S CALCEOLARIA is of the finest Strain, and second to none; 1s. 3d., 1s. 6d., and 2s 6d. per packet.
The CINERARIA is saved from the finest varieties; 1s., 1s. 6d. and 2s. 6d. per packet.
G. WHEELER, Nurseryman, Warminster, Wilts.

SPRING FLOWERS.—Plant now for a good effect in the Spring. CATALOGUE on application.
Thos. S. WARE, Hale Farm Nursery, Tottenham, N., adjoining the Railway Station.

AUTUMN BEDDING.—For Winter and Spring Decoration of the Flower Garden, this month and the next is the time for Planting in order to get well-established Plants.
CATALOGUE on application to
THOS. S. WARE, Hale Farm Nursery, Tottenham, N.

Notice.
NOS. 1 to 10 apply only to DILLISTONE AND CO.'S LITTLE LISTS, which will be sent post free to all applicants.
Address, DILLISTONE & Co., Nurserymen, &c., Sturmer, near Halstead, Essex.

Grass Seeds for Autumn Sowing.
SUTTON'S PERMANENT GRASS SEEDS FOR ALL SOILS.
Prices (according to sorts required and soils for which they are intended), may be had on application.
SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

SUTTON'S IMPROVED ITALIAN RYE-GRASS, the BEST and MOST PRODUCTIVE IN CULTIVATION.
SUTTON & SONS can supply New Seed of the above at 6s. per bushel, or cheaper in large quantities.
August and September are the best months for Sowing.
SUTTON & SONS, Royal Berkshire Seed Establishment, Reading

EVERY GARDEN REQUISITE kept in Stock at
CARTER'S New Seed Warehouse, 237 & 238, High Holborn, London.

Genuine Garden and Agricultural Seeds.
JAMES CARTER AND CO., SEED FARMERS, MERCHANTS, and NURSERYMEN, 237 & 238, High Holborn, London, W.C.

Agricultural and Garden Seeds.
H. AND F. SHARPE beg to announce to the Trade that their SPECIAL LIST of HOME-GROWN SEEDS, 1867 Growth, is now ready and may be had on application.
Seed Growing Establishment, Wisbech, Cambs.

RAYNBIRD, CALDECOTT, BAWTREE, DOWLING, AND COMPANY, Limited.
CORN, SEED, MANURE, AND OILCAKE MERCHANTS,
Address, 89, Seed Market, Mark Lane, E.C.; or Basingstoke.
Samples and Prices post free on application. Prize Medals, 1851, for Wheat; 1862, for "Excellent Seed Corn and Seeds."

To Wholesale Dealers and Manufacturers of Articles used in Horticulture, &c.
AN ESTABLISHED SEEDSMAN, having a good connection and Corner Shop, situated in the best part of a County Town where a first-rate Market is held, is OPEN to a COMMISSION.—SEEDSMAN, 18, Holloway Street, Exeter.

Roses.

JOHN CRANSTON has the pleasure to announce that his ROSES are NOW IN FULL BLOOM, and that the whole of his stock is in the finest condition possible.

The severe frosts (which proved so destructive in many parts of England throughout last winter) not having visited this locality, he is happy to say that his Roses, Conifers, and other Trees, escaped entirely unharmed.

Nurseries, King's Acre, near Hereford.

Roses in Pots.

DILLISTONE AND CO.'S Collection of ROSES in POTS for 21s., package, &c., included, contains—
6 of the best new HYBRID PERPETUALS of 1867,
2 " " TEAS of 1867, viz., MADAME MARGOTTIN, and ISABELLA SPRUNT. Also 1 each of the following:—

MARECHAL NIEL	SOUVENIR DE LA MALMAISON
CLOTH OF GOLD	CELINE FORESTIER
AMERICA	SOLFATERRE

Post Office Orders to be made payable at Haverhill, Suffolk.

DILLISTONE & Co., Nurserymen, &c, Sturmer, near Halstead, Essex.

To the Trade and Large Purchasers.

PONSFORD AND SON have to offer the following FERNS, in strong plants, cheap. Prices on application:—

BLECHNUM CORCOVADENSE

NOTHOCHLÆNA NIVEA	PTERIS LONGIFOLIA
PTERIS CRITICA ALBO-LINEATA	" SERRULATA CRISTATA
	" TRICOLOR (fine)

Brixton Place, Brixton, Surrey, S.

VARIEGATED PELARGONIUMS.

SOPHIA DUMARESQUE	ITALIA UNITA
MRS. BENYON	COUNTESS
GOLDFINCH	ELEGANS
LUNA	THE FAIRY
BEAUTY of OULTON	PRINCESS ALEXANDRA
NEATNESS	BICOLOR SPLENDENS

The above forwarded on receipt of Post Office order for 21s.

ALFRED FRYER, Nurseries, Chatteris, Cambridgeshire.

New Zealand Nursery, St. Alban's, Herts.

J. WATSON'S beautiful BEDDING PELARGONIUM EXCELSIOR, now ready colour of Indian Yellow; fine truss, and habit of Lord Palmerston. Price 6s. each; 36s. per doz. to the Trade

MISS WATSON, ready August 25; MRS. DIX, May 1 The Two have received 10 First-class Certificates and Extra Prize Money.

Fine New TABLE APPLE, ST. ALBAN'S PIPPIN, Ripe in April. Plants ready in November. 5s. each; 36s. per doz to the Trade.

DESCRIPTIVE LIST sent on application.

New Fuchsias, Verbenas, Lobelias, Petunias, Tropæolums, &c.

H. CANNELL has a fine stock of all the above, and will offer them to the Trade at a reduced price.

CATALOGUE, &c., on application.

Fuchsia Nursery, Woolwich.

Extra Fine New Tulips.

GEORGE LIGHTBODY, Falkirk, will LET OUT several of the Splendid Seedlings raised by Richard Headly, Esq., of Stapleford, near Cambridge, at very moderate prices. These flowers have been successfully exhibited at the Principal Shows in the Kingdom, and are warranted the finest Tulips now extant. A description of them, by Shirley Hibberd, Esq., F.H.S., was published in the "Gardeners' Magazine" for 22d June. A list of names and prices supplied on application.

Richmond Nurseries, Richmond, Surrey.

TO NOBLEMEN and GENTLEMEN making large PLANTATIONS, or PLANTING ORCHARDS or WALLS with FRUIT TREES, and requiring quantities of superior Coniferous and other Evergreens, Ornamental Flowering Trees, Shrubs, &c., or Dwarf-trained, Standard, or Spiral Fruit Trees. Special prices will be given on application to

G. & W. STEELE, of the above Nurseries.

HARDY CLIMBERS and PERMANENT BEDDING PLANTS.—Eleven First-class Certificates awarded to Messrs. GEO. JACKMAN & SON, by Royal Horticultural and Royal Botanic Societies of London.

The Advertisers solicit an inspection of their CLEMATIS JACKMANNI, and varieties of that type NOW in BLOOM, which have proved themselves to be the "desiderantum" for a good violet blue or purple maroon bed. See Editorial remarks in *Gardeners' Chronicle*, August 17, page 852, inviting attention to the beautiful forms of their Hybrid Clematises as a "new sensation in bedding out." Particulars of treatment by applying to

GEO. JACKMAN & SON, Woking Nursery, Surrey.

New Perpetual Pine-apple Strawberry (Gloede), and Liliums.

A. VAN GEERT, NURSERYMAN, Ghent, Belgium, begs to offer the above STRAWBERRY, good plants, which will be ready in a few days, at £1 5s. for 50, and £2 for 100 plants.

		Per 100—£	s.
LILIUM LANCIFOLIUM PUNCTATUM, very strong roots..		8	0
" "	RUBRUM, ditto	2	10
" "	ALBUM, ditto	3	0
" "	ROSEUM, ditto	2	10
" EXCELSUM, ditto		8	0
LONGIFLORUM, ditto		1	10
" THUNBERGIA GRANDIFLORA		8	0
" " AUREUM		4	0

STRAWBERRIES.

DR. HOGG.—Very large, extra fine Pine flavour, and a good bearer. One of the finest in cultivation.

THE LADY.—All the fruit of a good equal size without thinning; immense cropper for forcing, as we proved last spring; flavour highly perfumed.

BRITISH QUEEN, PRINCE ARTHUR, KEEN'S SEEDLING, CRIMSON QUEEN, SIR CHARLES NAPIER.

Prices—Established in large 32 pots for forcing, from 7s. to 10s. per 100. Strong layers in 60 pots, from 25s. to 50s. per 100. Strong runners from 5s. to 21s. per 100. A large collection of other varieties, strong, well-rooted runners, 5s. per 100.

JOHN & CHARLES LEE, Royal Vineyard Nursery and Seed Establishment, Hammersmith, London, W.

CHOICE SEEDS in SEALED PACKETS.

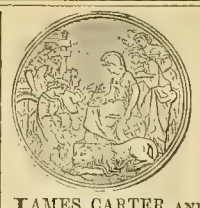
THE "PRIZE" STRAIN of CYCLAMEN PERSICUM.—This splendid Strain of Seed has passed entirely into the hands of B. S. WILLIAMS. It is the seed saved from the magnificent plants grown and shown by Mr. Wiggins, gardener to W. Beck, Esq., Isleworth, at the Spring Shows in the present year; they were in each instance awarded 1st prize, and were the admiration of all the visitors. The flowers are 1 inch across, by 1½ inches in depth, the colours ranging from a bright carmine to a delicately tinted white, and pure white tipped with crimson, the leaves beautifully marbled; indeed, the leaves, apart from the flowers, possess a peculiar attraction in the diversity of their marbled surface. This seed should be sown as early in the Autumn as possible. None genuine unless the packets bear B. S. W.'s name and address. Price, per Packet, 1s. 6d., 2s. 6d., and 3s. 6d.

THE "PRIZE" STRAIN of POLYANTHUS.—This beautiful Strain of one of the prettiest spring-flowering plants was also exhibit 1 most successfully by Mr. Wiggins, of whom B. S. W. has purchased the entire stock and right of sale. None genuine unless the packets bear B. S. WILLIAMS's name and address. Price 1s., 2s. 6d., and 3s. 6d. per packet.

OTHER CHOICE STRAINS OF SEED.

JAMES'S CALCEOLARIA, 2s. 6d., 3s. 6d., and 5s. per packet.
WEATHERILL'S CINERARIA, 2s. 6d., 3s. 6d., and 5s. per pkt.
WILLIAMS' PRIMULA, 2s. 6d., 3s. 6d., and 5s. per packet.

B. S. WILLIAMS, Victoria and Paradise Nurseries, Upper Holloway, N.





JAMES CARTER AND CO. beg to announce that they are now sending out their unrivalled Strains of CALCEOLARIA, CINERARIA, and PRIMULA, which, for fineness of form and beauty of colour cannot be surpassed.

CALCEOLARIA, saved from the finest Prize varieties.
CINERARIA, saved from the finest named varieties.
PRIMULA SINENSIS FIMBRIATA, dark carmine and pure white, saved from the finest fringed varieties in cultivation. Price, each packet, 2s. 6d., forwarded on receipt of Post-office Order for the amount.

☞ PRICE LISTS gratis and Post free on application to CARTER'S Great London Seed Warehouse, 237 & 238, High Holborn, London, W.C.

Dutch Flower Roots,



ARCHIBALD HENDERSON begs to announce that he has received a large Consignment of Dutch and other Roots, carefully selected from the most celebrated growers.

DESCRIPTIVE and PRICED CATALOGUES are now ready, containing practical directions for their successful cultivation on all the various systems now adopted.

Also a CHOICE and SELECT LIST of VEGETABLE and HARDY FLOWER SEEDS for Autumn Sowing. Catalogues gratis and post free upon application.

Sion Nursery, Thornton Heath, Surrey, and at the East Surrey Seed Warehouse, College Grounds, North End, Croydon.

Hyacinths for Exhibition.



MESSRS. SUTTON'S COLLECTIONS include the varieties so much admired at the spring shows, and they are now prepared to receive orders for the same at the following prices:—

The Choicest 100 Sorts, £4 4s., carriage free
The Choicest 50 Sorts, £2 2s., "
The Choicest 25 Sorts, £1 1s., "
The Choicest 12 Sorts, £0 12s.,

Cheaper Roots, 6s. to 9s. per dozen.

HYACINTHS for Beds and Open Borders, 3s. per dozen, 21s. per 100, carriage free.

SUTTON & SONS, Importers, Reading, Berks.

Early Spring Feed, Trifolium incarnatum.



SUTTON'S ITALIAN RYE-GRASS,
NEW LATE RED TRIFOLIUM,
NEW LATE WHITE TRIFOLIUM.

These are invaluable articles for early Spring Feed, either grown separately or together. The proper quantity of Italian Rye-grass, if sown alone, is 3 bushels per acre, or if Trifolium alone, 28 lbs. per acre.

The New Seed is now being harvested, and we shall be pleased to send samples and lowest prices per quarter and cwt. on application. Also MUSTARD and RAPE, New Seed.

All goods carriage free, except very small parcels.

SUTTON & SONS, Seed Growers, Reading.



GRASS SEEDS for PERMANENT PASTURE, of the finest quality, at moderate prices, carefully selected on a new, natural, and scientific system.

See "WHEELER'S BOOK on GRASSES," which contains Illustrations and Descriptions of the most suitable Grasses for Permanent Pasture.

J. C. WHEELER & SON,
Gloucester,
Seedsmen to the Gloucestershire Agricultural Society.

Azaleas and Camellias (English grown).



YOUELL AND CO. beg to offer fine healthy plants of the above leading kinds to name at the following prices:—

CAMELLIAS, 1st Size, with bud, 30s. per dozen.
CAMELLIAS, 2d Size, with bud, 24s. per dozen.
Nice Healthy Stuff, without bud, 20s. per dozen.
AZALEAS, 1st size, beautiful bushy stuff, in 6-inch pots, with bud, 24s. per dozen.
AZALEAS, 2d Size, in 5-inch pots, 15s. per dozen.

Usual allowance to the Trade.

Royal Nurseries, Great Yarmouth.

Violets, Violets, Violets.



YOUELL AND CO. can supply good strong Plants of the undermentioned beautiful varieties for Winter and Spring Blooming, at the following prices, package included:—

DOUBLE PURPLE VIOLET, 4s. per dozen
DOUBLE PURPLE TREE VIOLET, 4s. per dozen
NEW CALIFORNIAN Species, 9s. per dozen
DOUBLE RED, very fine, 9s. per dozen
CZAR, very fine, 6s. per dozen
GIANT, very fine, 6s. per dozen
KING of VIOLETS, extra fine, 12s. per dozen
QUEEN of VIOLETS, extra fine, 12s. per dozen
NEAPOLITAN, true, scarce, 6s. per dozen
DERMIENSIS, one of the best, 4s. per dozen
WHITE TREE, 4s. per dozen
DAISIES, a choice collection to name, 4s. per dozen.
HELLEBORUS NIGER, strong, 9s. per dozen
DOUBLE LILAC PRIMROSES, 6s. per dozen.

Royal Nurseries, Great Yarmouth.



Special offer to the Trade.



ROYAL NURSERIES, GREAT YARMOUTH

GREENHOUSE PLANTS, ERICAS, EPACRIS, &c.

YOUELL AND CO. beg to offer several Thousand of fine, healthy, and well-grown plants of the above, at the undermentioned reduced prices. In consequence of the increased demand they have had for AZALEAS and CAMELLIAS they are anxious to enlarge their stock of the same, to meet the requirements of their Customers; and to enable them to accomplish this object they are desirous to dispose of several thousand of the following, to make room for their young stock of the above now coming on.

The following prices are for cash:—	Per doz.—s.	d.
ACACIAS, of sorts, in 48-sized pots	7	0
APHELEXIS, do., do.	9	0
BILLARDIERA SCANDENS, in 48-sized pots ..	8	0
CHOROZEMAS, of sorts, do.	6	0
CORRÆAS, do., do.	9	0
DAPHNE INDICA RUBRA, in 48-sized pots ..	9	0
DIOSMA ERICOIDES, do.	6	0
JASMINUM POICTOU, do.	6	0
KENNEDIA, of sorts do.	8	0
OLDENLANDIA DEPPIANA, in 48-sized pots ..	8	0
PHILESIA BUXIFOLIA, very scarce	15	0
MYRTLES, of sorts, in 48-sized pots	6	0
PASSIFLORAS, do., do.	6	0
TACSONIA, do., do.	8	0
TETRATHECA ERICÆFOLIA, in 48-sized pots.	8	0
ERICA GRACILIS AUTUMNALIS, do.	6	0
" " " (per 100)	40	0
" " VERNALIS, in 48-sized pots	7	0
" HYEMALIS, in 48-sized pots (per 100, 40s.)	6	0
" of sorts, do. (per 100, 45s.)	7	0
" VENTRICOSA, of sorts, in 48-sized pots..	9	0
RETINISPORA ERICOIDES, PISIFERA, and OBTUSA, 12 to 15 inches, in 60-sized pots.. ..	9	0
CHAMÆCYPARIS GLAUCA, 9 to 12 inches, do.	9	0

The above are all well worthy the attention of the Trade.

YOUELL & Co., Royal Nurseries, Great Yarmouth.

Richmond Nurseries, Richmond, Surrey.

G. AND W. STEELE beg to call the attention of the Trade in general to their valuable and very extensive Stock of CONIFEROUS and other EVERGREENS, particularly Striped and Green Hollies, in which they abound; and also to their DWARF-TRAINED, STANDARD, and SPIRAL FRUIT TREES, which are of first-rate quality, consisting of Apricots, Peaches, Nectarines, Apples, Pears, Plums, Cherries, &c., which are second to none in the Trade. An inspection by Travellers this Autumn is respectfully solicited.

Extra Fine Quality.

COLE SEED, "1866 growth," per bushel of 52 lb., 11s.; 4 bushels do., 40s New 4-8 Sacks, 1s. 6d. each.
EARLY SIX-WEEKS' TURNIP, New Seed, very fine, 9d. per lb. New Bags, 6d. to 9d. each.
EXCELLENT CABBAGE SEED. See Catalogue of varieties.

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TRICOLOR PELARGONIUM "MISS WATSON,"

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The following are strong Plants in pots, established for winter flowering:—

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QUEEN of VIOLETS, the most magnificent double variety grown—per doz.		9	0
KING of VIOLETS, extra fine, double blue	"	9	0
NEAPOLITAN, double lilac	"	6	0
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A CATALOGUE of CHOICE NEW PLANTS, with LIST of upwards of Twenty other Choice VIOLETS; SELECT LIST of best STRAWBERRIES grown, and DUTCH BULB CATALOGUE, free upon application.

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ALL the FIRST PRIZES for HYACINTHS, TULIPS, CROCUSES, &c.,

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IN MARCH LAST,

At the ROYAL HORTICULTURAL and ROYAL BOTANIC SOCIETY'S SPRING SHOWS.

FIRST IMPORTATION JUST ARRIVED IN EXCELLENT CONDITION.

PRICED DESCRIPTIVE CATALOGUE FREE BY POST ON APPLICATION.

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DUTCH AND OTHER BULBOUS ROOTS.

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HAS RECEIVED HIS FIRST IMPORTATIONS IN EXCELLENT CONDITION, AND RESPECTFULLY SOLICITS EARLY ORDERS.

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All Roots of the first quality only.

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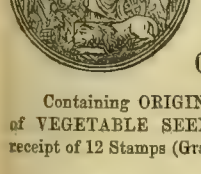
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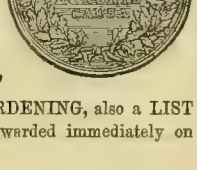
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FRESH IMPORTED DUTCH FLOWER ROOTS.



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FOR BLOOMING DURING WINTER AND SPRING.

FOR POTS AND GLASSES.				FOR OPEN GROUND.			
COMPLETE COLLECTION (Carriage Free)..	£2	2	0	COMPLETE COLLECTION (Carriage Free)..	£2	2	0
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Dutch Bulbs for Exhibition.

J. SCOTT has received his annual supply of DUTCH FLOWER ROOTS from Holland; extra fine in quality and true to name.

12 very choice exhibition HYACINTHS, 10*s*.
12 extra choice " " 12*s*.
Other very fine sorts, 6*s*. and 8*s*. per dozen.
A complete list of the above sent free on application to
J. SCOTT, The Seed Stores, Yeovil, Somerset.

HOOPER AND CO.'S AUTUMN CATALOGUE of BULBS, &c., is about to be issued, and can be obtained by application. Price 1*s*., postage free (presented to Customers).
It is copiously illustrated, and describes a larger collection of rare and choice Bulbous Plants than probably any other in the Kingdom. It includes also Coloured Drawings of their celebrated Etruscan Hyacinth Vases and Horticultural Elegancies.
HOOPER & Co. Covent Garden Market, London, W.C.

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DREGHORN AND AITKEN, Kilmarnock, N.B., beg to intimate that their CATALOGUE of HYACINTHS and other BULBS is now Published, and will be forwarded Post Free to any Address. It contains valuable Descriptive and Cultural Notes, and will be found a useful guide to Purchasers.
PRIZE HYACINTHS.—D. & A.'s PRIZE DOZEN for 18*s*. The best value in the Trade—viz., Macaulay, Ornament de la Nature, Von Schiller, Grandeur a Merville, Lord Wellington (double), Alba maxima, Mont Blanc, Queen of the Netherlands, Baron Von Thuyll, Charles Dickens, Grand Lilas, and Prince Albert.
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Dutch and Cape Bulbs.

BUTLER, McCULLOCH AND CO. have received their usual consignment of the above, and beg to offer the following carefully assorted collections.

FOR CONSERVATORY DECORATION.

No. 1	No. 2	No. 3	No. 4	No. 5	No. 6
100*s*.	50*s*.	25*s*.	21*s*.	15*s*.	10*s*.6*d*.

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No. 7	No. 8	No. 9	No. 10	No. 11	No. 12
100*s*.	60*s*.	40*s*.	25*s*.	21*s*.	10*s*.6*d*.

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No. 13	No. 14	No. 15	No. 16	No. 17	No. 18
105*s*.	52*s*.6*d*.	42*s*.	21*s*.	15*s*.	10*s*.6*d*.

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MESSRS. FRANCIS AND ARTHUR DICKSON AND SONS have received from the most celebrated Growers in Holland their first large importation of the above, and have the satisfaction to say that the BULBS are this season sound, well ripened, and of excellent quality. Early orders respectfully solicited.
DESCRIPTIVE PRICED CATALOGUES post free upon application.
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Camellias and Indian Azaleas, with Buds.

An extensive Stock of their very best varieties is ready for Sale at LOUIS VAN HOUTTE'S Establishment, Ghent, Belgium. The goods are delivered, carriage-paid, by LOUIS VAN HOUTTE; but, per contra, 5*s*. are charged in account for every case or basket sent.
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VIOLETS for WINTER and SPRING BLOOMING. —The Undersigned can supply strong healthy Plants, in 5-inch pots, of the following, which are the four best Violets in cultivation. Price 6*s*. to 9*s*. per dozen.

THE CZAR | DOUBLE BLUE
NEAPOLITAN | REINE DES VIOLETTES

FRANCIS & ARTHUR DICKSON & SONS, The "Upton" Nurseries, Chester

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HUNTINGDONSHIRE HORTICULTURAL SOCIETY.—OPEN PRIZES.
The AUTUMN SHOW of this Society will be held at the Corn Exchange, St. Ives, on WEDNESDAY, SEPTEMBER 18, when, besides the PRIZES offered in the Schedule for Members, the following will be given by the Inhabitants of St. Ives, Open to all England:—
For the best 24 Show Dahlias, 24 varieties, £5.
For the best Dessert, arranged for the Table, and consisting of not less than Seven kinds of Fruit, combining quality with taste in arrangement, such Fruit to be *bona fide* grown by the Exhibitor, £5.
N.B. The Prizes offered for 24 Show Dahlias, Class 31 in the Schedule, will now be awarded for 12 instead.
Intending Exhibitors must give notice to Mr. ARMSTRONG, Huntingdon, on or before Saturday, September 14.

The Gardeners' Chronicle.

SATURDAY, SEPTEMBER 7, 1867.

MEETING FOR THE ENSUING WEEK.

TUESDAY, Sept. 10 } Crystal Palace Autumn Show of Flowers
WEDNESDAY, — 11 } and Fruit.
THURSDAY, — 12 }

WE have, curiously enough, before us two papers, the one the *Allgemeine Zeitung*, of July 28, the other the *Australian Weekly Age*, of May 24, 1867, in both of which there is an earnest recommendation that some officer should be appointed whose particular duties should be to collect and communicate information respecting the PREVALENT DISEASES of our CULTIVATED PLANTS. From time to time, as happened when the Potato disease was first prevalent, a Commission for special investigation is appointed in our own country; but the members generally consist of persons who, however acute and well versed in some particular branches of science, bring no practical information with them, the result of patient investigation bearing on the particular subject. Whereas if there were a regularly appointed officer, whose sole business should be the study of Vegetable Pathology in all its branches, and especially the conduct of illustrative experiments, there would be some chance of a well-appointed Commission arriving at least at some negative, if not at some positive result.

The misfortune is, both as regards animal and vegetable pathology, that there is seldom any

intimate acquaintance with the peculiar vegetables on which the diseases depend. In consequence every form or variation is marked with a separate specific or generic name, without any attempt on really scientific grounds to assign the substance its proper place in the vegetable kingdom, or to ascertain the connection of different forms with each other. One takes an easy line, asserting that all are modifications of one or two species, without an attempt to show that they really are so, while another, without even tracing the connection of the fruit with the threads which bear it, makes the wildest and most untenable assertions as to affinity. Nor is this a matter of no importance. If Algæ are confounded with Fungi, as is so often the case, what chance is there that a proper remedy will be suggested; or if parties are ignorant of such simple facts as that the parasites of Hops and Vines, which are so destructive, but which yield so readily to proper treatment, are essentially superficial, while the Potato mildew is as essentially intercellular, there will be no distinction made as to the probable effects of any particular treatment.

The duty of the Vegetable Pathologist would be to diffuse information in an easy form, accompanied by clear and good illustrations, extensively, through the length and breadth of the land. Our popular departmental journals rarely have editors who are even slightly acquainted with the subject, and even in our leading metropolitan papers we are often startled with assertions which the most superficial pupil ought to be able at once to refute. The notion that the cattle plague might arise from the common Stinkhorn (Phallus impudicus), as though it were a new Fungus, instead of being a most widely distributed one in the neighbourhood of London, and occurring frequently in profusion, could not otherwise have been entertained for a moment. Were a farmer, for example, aware that the frequent miscarriages of his cattle may arise from Ergot in Grass, he would be cautious how he trusted his stock in pastures where every bent has two or three ergoted grains, if, indeed, Ergot has been brought before his notice. The gardener, again, would not be dusting his Vines with sulphur in many cases where there is not a particle of mildew about them, in his utter ignorance of what mildew is, and often forgetting that the white appearance on the shoots is the result of some dressing that he has himself applied. It is, however, quite certain that if good information were supplied, though it would require time for it to be properly appreciated, it would gradually make its way, much to the benefit of all parties. The Hop growers in general at first set their faces against the use of sulphur; but a few, wiser in their generation, made fortunes, while others were groaning under their discomfiture; and the opposition which was first made by the Hop buyers has now subsided, and the use of sulphur is a *fait accompli*. This, however, was not arrived at without diligent study, arising from long acquaintance with the subject, and similar ends might be attained more speedily and surely by persons who had nothing else to occupy them, than by the desultory efforts of mere lovers of science for its own sake. We cannot help thinking, therefore, that there is much sense in the suggestion above alluded to.

We have already a most useful institution in the Medical Department of the Privy Council, and the appointment of a Vegetable Pathologist might be of essential service, not only as regards the immediate objects of his researches, but in connection with disease in general.

We accordingly give in the present Number a translation of the article in the *Allgemeine Zeitung;* while the substance of that in the *Weekly Age* appears in the Agricultural portion of our Journal, with which it is more immediately connected. *M. J. B.*

THE difficulty of imitating successfully the conditions under which ALPINE PLANTS naturally grow, necessarily precludes our gardeners, in many cases, from growing these beautiful little denizens of the mountain to perfection. For what conditions can well be more diverse than those offered by the lofty mountain side, with its pure air, clear light, and diminished atmospheric pressure, abundance of moisture at times, and warm almost scorching sun at others? What can be more unnatural in fact than the placing the poor unfortunates in "cool frames," where they get abundant moisture, perhaps with a modicum of drainage, but wofully little sun! As to the soil, that is often reduced to a minimum; the little plants push boldly out from the deep chinks and cracks of the rocks, leaving their roots to penetrate these narrow channels, where, though water may freely percolate, there is often but a small proportion of soil—though, sooth to say, that is little and good, and yet the brilliancy and large comparative size of the flowers in such situations is matter of common observation.

Familiar as we were with these facts, and with the difficulty in the way of cultivating many of these gems, we were hardly prepared for the very singular fact related by Dr. JAMESON in his interesting letters from Quito (see p. 809), from which it appears that a small Gentian, G. sedifolia, growing in the lofty plains of New Grenada, Ecuador, and Peru, at an elevation of 11,000 to 15,000 feet above the sea, and flowering nearly all the year round, produces in the lower regions comparatively small flowers of a diluted blue colour; while the same species, at a higher elevation, not only developes much larger flowers of a more intense blue, but which are also endowed with a peculiar sensitiveness to touch entirely absent at lower levels. The slightest contact, says Dr. JAMESON, causes them to contract. The fact is confirmed by other observers. If the plant in question grew at the lower part of the mountain, we could the better understand its increased luxuriance and sensitiveness at the height of 11,000 to 14,000 feet, but when we are told that it does not come lower than about 11,000 feet, it is difficult to understand how this increased vitality should be made so remarkably manifest in so comparatively limited a range. The plant is not, as far as we know, in cultivation at present, but were it so we should fear that it would not exhibit its sensitive properties here.

As to this point, the testimony of Dr. WELWITSCH is important. That gentleman informs us that some species of Oxalis which are exceedingly sensitive in tropical Africa, are scarcely at all so when grown in our European hothouses and conservatories, as indeed any one may observe for himself. As it seems highly improbable that we shall ever be able to imitate successfully the ordinary conditions under which these phenomena are manifested, either on tropical plateaux or mountain side, the question arises as to whether, by using other means, a similar result may not be obtained. Judging from analogy, the thing seems feasible, and with the increasing fancy for Alpine plants, we doubt not that improved methods of cultivating them will sooner or later be discovered, and we refer the reader with much pleasure to an article of Messrs. BACKHOUSE, reprinted in the last number of the "Florist and Pomologist," for some excellent practical remarks on the culture of these veritable gems.

— AMONG papers most interesting to horticulturists read at the Paris Botanical Congress on the 29th ult. was one by M. WEDDELL, on Cinchonas, a subject upon which he is so well entitled to speak. He showed specimens of the first importation of bark from India, gathered of course from the plantations made there by Government, and stated that the bark was gathered three times, the tree being mossed over after the first flaying; how a second bark of even more valuable qualities replaced the first; he also described the cultivation and propagation of the trees. As this memoir, with all the others, will be printed in full, it is needless to enter into the subject more at present. Mr. R. WARNER, our great Orchid grower, placed a paper on the table of much interest in connection with his favourite subject, which will be found in another column. One of the most interesting of the purely botanical papers read was that by M. FAVRE, "On the Development of the Reproductive Organs in the Flower of Agave." It was illustrated by photographs taken at intervals of four and six hours, and showed conclusively that self-fertilisation was impossible in these flowers. The growth of the anthers was much more advanced than that of the pistil; the former had done their work ere the pistil was ready, and so on up the flowering spike. The pistils were fertilised by the pollen of flowers above them, the pistils of which latter flowers were yet unready for impregnation. Such are briefly the facts of his interesting paper, which agree so fully with the observations of Mr. DARWIN and others among ourselves on plants far removed from Agaves. On Friday M. DE CANDOLLE showed a new Oak, recently discovered in America, and the discussion on his paper on nomenclature was concluded. Some consideration was given to the mode of forming the plural of botanical names, the general opinion being that the word ought not to be added to, to express the plural. Finally, and most important of all, M. DE CANDOLLE's suggestions, alluded to last week, toward a more satisfactory botanical nomenclature, were approved of with modifications, all botanists not present were earnestly requested to give their consideration to the matter—one of very great importance to both horticulturists and botanists; and lastly, M. DE CANDOLLE was enthusiastically thanked, as he certainly deserved to be, for his lucid and philosophical attempt to settle this heretofore unsettled question. So ended the Paris Botanical Congress. The plan of settling on some distinct object to work at, as adopted beforehand in this Paris Congress, is a great improvement. There was an object, and it was not let out of sight throughout, whatever the interest presented by miscellaneous matters. All future Congresses would do well to adopt this system, and if in addition matters are so arranged that members could meet each other conveniently apart from the regulation sittings, as at Amsterdam, it would much improve such gatherings.

— Liverpool is well provided with PUBLIC PARKS, the Corporation having adopted arrangements by which the town has been surrounded by a cordon of these health-recruiting spots. At the extreme north is the Stanley Park, 160 acres in extent, purchased of the Earl of Derby, and now being laid out by Mr. Kemp. Shiel Park, named after a member of the Council, has been completed; and then follow on the east the Newsham House Park, the Wavertree Park, and the Botanical Gardens. To the south-east is the Prince's Park, provided by the munificence of the late Mr. R. V. Yates; and near this comes in the new Sefton Park, the competition of designs for laying out which we have recently noticed. Our contemporary, the *Builder*, has published a good bird's-eye view of the proposed arrangements for this latter, and sketches of some of the residences and other erections, which seem commodious and tasteful. Of the 400 acres of which the Park consists, 113 are devoted to building sites; 19 to a Botanical Garden, 14 to water, and 64 to roads and drives, leaving 190 to be planted and laid out in walks, &c. The staking out of the roads and drives is being rapidly proceeded with. We notice that our contemporary, like many others perhaps who are not familiar with the subject, fails to distinguish between what is called "gardening" and "landscape gardening," for he speaks of Mr. NESFIELD, to whom the competition designs were referred, as "the distinguished metropolitan gardener"—a title under which, we apprehend, he would fail to recognise himself. The truth is, that gardening and landscape gardening, though occasionally and to varying degrees carried out by the same individual, are really and essentially distinct, the one being devoted to the culture of plants for use or ornament, the other entirely to the creation of tasteful and beautiful scenery—in a word, to the disposition of the ground, and the arrangement of the living materials by which it is decorated, which latter it is the gardener's business to tend with a loving hand.

— We noticed some year or two since a fine strain of HERBACEOUS LOBELIAS, of which flowers had been sent to us by Mr. BULL. Some of these varieties proved to be remarkably fine things. We may especially refer to three—called respectively Ruby, a rich deep ruby crimson; Efficient, a bright orange scarlet; and Excellent, a bright rosy purple—as specially fine, in a batch where all are good. We have now before us another series from the same source, comprising, in addition to the more familiar scarlets and crimsons, varying shades of less common colours, as carmine, rose, magenta, rose purple, and puce. From amongst these a very choice selection may be made. We really hope to see these fine things speedily taken up and done justice to, for, well cultivated, there is no finer set of hardy herbaceous plants in existence.

CENTIGRADE *v.* FAHRENHEIT.

AT p. 856 Dr. Hooker invites a discussion on the subject of the adoption of the Centigrade instead of Fahrenheit's scale in thermometer readings, as suggested by M. Naudin. The characters of both these gentlemen stand high as scientific men and as horticulturists, and both are of course anxious for improvement and to elicit facts relating to the subject, to which horticulturists will doubtless very willingly give the results of their unprejudiced consideration. Dr. Hooker himself is well qualified to take the lead in such discussion. When young he took temperatures in the Antarctic regions, but there under the British flag. Afterwards he visited India as high as the limits of perpetual snow; and in the course of his journey still taking meteorological observations, often under difficulties, and even when a prisoner, at the precarious mercy of native tribes, and cut off from communication with the British officials. Still he kept on making valuable observations, as doubtless M. Naudin will consider them to be, although recorded in terms of Fahrenheit's scale, just as we value Humboldt's, although in the Centigrade scale.

As information on the practical working of a change of scales is desired, perhaps I may be allowed to briefly state the results of some years' experience on the subject.

It was suggested many years ago by some members of the Chiswick Garden Committee that the observations should be taken by the Centigrade thermometer. This was accordingly done for three years; but as the temperature according to Fahrenheit's scale was at the same time often inquired after, the precaution was taken to have thermometers with both scales. By means of conversion tables extending to three places of decimals, the monthly averages were given in terms of the Centigrade, Reaumur's, and Fahrenheit's scales, so as to obviate as far as possible any difficulty as regards the comparison of temperatures recorded in previous journals.

Professor Daniell, the author of "Meteorological Essays and Observations," and who had been consulted respecting the journal kept by the Society, said, when the substitution of the Centigrade scale was mentioned to him, "I am very sorry; it will render your observations in a great measure useless and not comparable." And as he thought of it he could scarcely avoid waxing wroth. However, the observations were taken as

ordered for three years, when it was thought advisable to resume the use of Fahrenheit's scale, giving only the table of averages in the Centigrade.

Practically the degrees of the Centigrade are found to be too widely apart, one of them being equal to nearly 2° of Fahrenheit. It is true, in what the French term *thermomètres de précision* this objection is got over; but at the same time another objection is started, for in such thermometers the degrees are subdivided into tenths, and this in ordinary cases would be very inconvenient, for two reasons: a glass would be required to read off the divisions, and the columns for the observations would be confused with decimals. The error of making the Centigrade divisions too large is a radical one, and I cannot imagine on what pretext these wide divisions were attempted to be established; for there was no necessity to make them so wide as to be inconsistent with accuracy; and why the French *savans*, so celebrated for their brilliant scientific attainments, should have agreed to adopt a scale so liable to cause error in daily practice is difficult to be accounted for: and why the measure between the fixed points, freezing and boiling, should be divided into 100 parts instead of some greater number of divisions that could be referred to with greater accuracy. Was it done in consequence of the predilection then prevalent for the decimal system? Surely not, for the Académie des Sciences is a body especially notorious for no predilection except for the truth. The decimal system generally in France, and by many of late in this country, is considered perfection, and its adoption is wished to be rendered universal, even if it should require compulsory means to do so. The denary or Hindoo system of notation has certainly proved a most useful introduction to Europe, and gives a great command of numbers generally; but there is no reason why it should be pressed into every service whether it may be particularly adapted for such or not. Convenient as is the base of 10, it does not surpass other figures in all cases. As regards exactitude and convenience, can it be compared with the number 2 for example? No numbers can be more simple than the latter; none so useful or convenient. Weights and measures based on the binary scale can be halved continually, and without a remainder. But we can only halve 10 once, and for the rest employ fractions.

The objection as regards the too great distance between the degrees appears to be insurmountable, and to bear hard upon the very name of the Centigrade scale, for such could not be claimed for it if we are obliged, for the sake of sufficient accuracy, to divide it, not into 100 parts, but into at least 200 or 500 parts. Where accuracy is concerned there seems no necessity for adopting the particular number 100 in preference to all others, and then have to divide these Centigrade divisions.

As these are objectionable, cannot a scale be devised agreeing in principle with the Centigrade as regards its extension between two fixed points, but with graduations sufficiently close to be considered accurate enough for general use and for all ordinary purposes? This, I think, is quite possible, and its adoption might be effected without very great difficulty.

It might be called (unless a more appropriate and shorter name can be suggested), the Bicentigrade scale. It would have its zero point at freezing; but from that to boiling, instead of 100° it would have 200°, so that one of the Centigrade would in this be exactly two; and it would count from 0, the freezing point, upwards to 200, and from the same point downwards; in short, it would be similar to the Centigrade scale in that respect. Of course to convert the degrees of the Centigrade into those of the Bicentigrade, it would only be necessary to multiply by two; and, *vice versâ*, divide by two to reduce the Bicentigrade to the Centigrade. Fahrenheit's would be as 18 to 20.

It may be said that the descending portion of the scale would not be readily understood, and would consequently be objectionable. From what we have observed, reckoning from a fixed point downwards is more natural than proceeding uniformly upwards, as in Fahrenheit's, from an arbitrarily fixed zero.

In precarious springs, from the occurrence of late frosts, when garden crops are liable to be cut off, and labourers are interested in the weather, they often ask such questions as — How low were you last night? If the reply was "down to 20°," they cannot readily form an idea of the temperature; but if it be told them it was "12° below freezing," or "12° of frost," they at once understand. It therefore appears that the reckoning downwards from freezing would not be a difficulty, but rather a boon to the public; and as for scientific men, they would readily enough accommodate themselves to this change. During a great part of the year (—) signs prefixed would not be necessary, and in case of any mistake from their omission, columns could be allotted for temperatures below freezing, and in summing up these the amount of cold below freezing would at any time be readily seen. Again, the registers kept by the Centigrade scale could be easily compared with this, which we would at present distinguish by the Bicentigrade one, for by doubling the number of degrees in the former the thing is done.

I have considered this subject years ago, and have again reconsidered it, and can only come to the conclusion that something on the plan of the Bicentigrade thermometer would be most advantageously adopted; but let those that have any doubts express them. *R. T.*

VINE DISEASE IN FRANCE.

THE year 1867 cannot be marked with a white stone in the Vine-grower's almanack, for it is many years since so much damage has been done to Vineyards by the weather. After the late frost the plants were broken by hail, and the heavy and constant rains have caused the berries to crack, and the Oidium has prevented the proper development of the fruit.

A Vine-grower in Condrieu, a district celebrated for its white wines, has sent us (*Revue des Jardins*, from which this paper is a translation) the following letter on the subject:—

"Our Vines, particularly those of the plains, are nearly all infected with Oidium; the loss of white Grapes from Ampuis to Condrieu is very serious; fortunately the hill Vines have not suffered so seriously as those of the plains.

"The only remedy against Oidium is sulphur dressing, but the dressing should be applied with timely skill, I have always succeeded, and my method is as follows:—I sulphur the Vines immediately they begin to flower: I apply it the second time after the flowering, and a third time about 15 days after the second dressing. Sulphur has no effect as soon as the berry has attained a certain size. I give the dressing very early in the morning; after 8 or 9 A.M. the sulphur is powerless. I recommend this method for next year, for the Oidium will remain for some time with us. The plants are not constitutionally affected, the disease being produced by an anomalous condition of soil. We are now passing through the same phase as in 1851."

"This method of applying sulphur," says the Editor of the *Revue des Jardins*, "is really good. We have ourselves," he states, "operated in the same manner upon our trellised Vines with great success, but we are not equally certain that the disease is present in the soil, and not in the plant. We prefer to believe that the morbid principle, the germ of the malady, is present but latent in the plant, and that a peculiar condition of the atmosphere will cause its development. It has been noticed that the Oidium acts upon the Vine as certain epidemics do upon animals, as the cholera does upon men—certain plants in a Vineyard are seized with the disease, others growing in the same plantation will escape: if the disease were present in the soil this difference would probably not exist. The Vines which have been injured by frost are the most affected. We do not, however, deny absolutely that the soil does not exercise an injurious influence upon a morbid condition of the Vine. One of our correspondents, a skilful cultivator, has sent us the following letter on the subject:—'Hail has a most positive influence upon the soil, of which I have this year had a sad experience; the earth is suddenly cooled by the fall, and a deleterious principle is left, the presence of which I cannot explain, but the effects are plainly perceptible; this is felt throughout the year by certain plants.'" *T. F. R.*

THE CHISWICK TRIAL OF PEAS.

(*Concluded from p.* 735.)

BRITISH QUEEN is a white wrinkled Marrow, an old, well-known, and general favourite. When sown at the same time as Sangster's No. 1 it comes into use three weeks after that variety. It is very prolific, and continues bearing for a long time in succession, so that a great many gatherings can be had from the same row. It grows from 6 to 8 feet in height; the pods are very large, full, of a pale green colour, containing from seven to nine large Peas in each, of very fine quality. Hooper's Incomparable, Wonder, and Cattell's Wonder are identical with it. Tall Mammoth very much resembles British Queen, but is a few days later, and has smaller pods than that variety.

Knight's Tall White Wrinkled Marrow is a few days later than British Queen; grows from 4½ to 5 feet high, and is very prolific; the pods are pale green, rather flat, with an exceedingly thin inner lining; they contain from seven to eight Peas each, which are remarkably sweet and tender; and this, it may be noted, is the case with all of the late Mr. Knight's seedlings.

Spider Pea (Stuart & Mein) is a white wrinkled Marrow, about 3 feet high; pods small, but well filled, containing from six to eight Peas in each, of good flavour. The dried seed is small, much wrinkled, and compressed like Fairbeard's Nonpareil.

Lynn's Prolific Wrinkled is a white wrinkled Marrow, about 3 feet high; when sown at the same time it comes into use one month after Sangster's No. 1, the latest of all the varieties grown; the pods are small, but well filled. It is very prolific, with a fine hardy constitution, standing against the summer droughts well. The dried seed is of a brownish white colour, small, much compressed, almost square, with a small black spot on each. Owing to this characteristic it is sometimes called Black-eyed Susan.

Auvergne is a second early white Marrow, an old well known and general favourite where quantity, not quality, is desired. Sown at the same time it comes into use about a fortnight after Sangster's No. 1. The pods are long and rather narrow, much curved at the point, containing from 7 to 10 Peas in each. It has a very vigorous hardy constitution, grows from 4 to 6 feet high, and is very prolific.

Dickson's Favourite is a selection from the Auvergne; the pods are larger, broader, and not nearly so much curved; it is the better variety of the two, and is very often substituted for it. Torwoodlee is a synonym of it, and Taber's 68 and Stuart & Mein's Improved No. 1 are good selections from it, a shade dwarfer and perhaps a little earlier, but in other respects the same.

Princess Royal is a second early white Marrow, from 2½ to 3 feet high, 18 days later than Sangster's No. 1, and a first-class Pea. The pods are large and broad, with from seven to eight large Peas in each, of excellent quality. It is of a fine vigorous constitution, and an abundant bearer. The ripe seed is large, round, smooth, slightly indented, of a very clear whitish appearance. Cattell's Kent Rival is identical with it.

Paradise Early Marrow is 10 days later than Sangster's No. 1, about 4½ feet high. The pods are large, full, and broad, of a rather whitish appearance, containing from seven to eight large Peas in each, of very good quality. It is a very prolific and good Pea; Mein's Paradise, Giant Early Marrow and Excelsior Marrow are identical with it.

Somersetshire Early Prolific, is very similar to the old White Prussian. It is a small, round, white Pea, about 2 feet high, prolific, with small but well filled pods.

Peabody is of the same class, about 18 inches high, a good bearer, but not of any particular merit.

Harrison's Perfection is a second early white Marrow, about 3½ feet high, eight days later than Sangster's No. 1. The Peas are of large size, but the pods do not fill well. It is quite superseded.

Waterloo Marrow is about 6 feet high; sown at the same time, it comes in three weeks after Sangster's No. 1; the pods are very large, full, slightly curved, containing from seven to eight large Peas in each, of very good quality. Victoria Marrow is identical with it.

Garbutt's Amazon is a very strong-growing blue Marrow, about 6 feet high, three weeks later than Sangster's No. 1; the pods are large and full, containing from seven to nine large Peas in each, of poor flavour. The dried seed is large, white, and light blue, or green mixed. Invicta Marrow very much resembles this variety, but is a few days later.

Prizetaker is a second early green Marrow, from 4½ to 5 feet high, about a fortnight later than Sangster's No. 1; the pods are large, full, rounded, curved, remarkably well filled, of a deep green colour. It is a very prolific free bearing variety, and very handsome in appearance, always commanding a high price in market. It is, however, not very sweet in flavour; indeed this class of Peas is altogether much inferior in flavour to the wrinkled varieties. The ripe seed is of a mixed character, white and olive green. Laxton's Prolific Longpod is very similar to this, but is frequently mixed with a white variety, the same in general appearance. Green Prolific and Grotto are identical with it. Hannaford's Favorite is a much mixed stock of green Marrow Peas. Green Marrow (Wrench) is a somewhat stronger grower, a larger sample with broader and larger pods than the old green Marrow or Prizetaker.

Blue Excelsior and Knight's Blue Emperor are identical; a second early green Marrow, about 5 feet high, with fair sized pods, of a pale green colour, prolific. It resembles while growing, the Champion of England; ripe seed of an olive green colour. Early Surprise is somewhat larger than, and an improvement on, Blue Excelsior; a very good Pea.

Scimitar is a well known variety, and much esteemed for general purposes; it is much used for field culture as it is very hardy, and does well without staking. It grows about 3 feet high, and comes in three weeks after Sangster's No. 1. The pods are large, curved or sword-shaped, rather flat, well filled, with from seven to nine Peas in each, of a nice green colour, and fair quality. Carter's Improved Scimitar is no improvement.

Flack's Imperial belongs to the same class; it grows about 3 feet high, and is earlier than Scimitar. It is hardy and prolific, the pods fair-sized and well filled; ripe seed bluish green. Banksian Marrow is an improvement on this variety. Carter's Surprise is a Blue Imperial of the same style of Scimitar, with straighter pods, and a few days later. Harrison's Glory is of the same class, about 3 feet high, 8 or 10 days later than Sangster's No. 1. The pods fill badly, containing only from four to six Peas in each; it is quite superseded.

Blue Prussian is an old well-known variety, a very prolific bearer, about 3 feet high; pods rather small, but well-filled; peas small, deep green, poor flavour; ripe seed light bluish green.

Woodford Green Marrow is of the Prussian class, about 3 feet high; pods medium sized, well filled, deep green; peas small, of a deep green colour, but poor flavour; the ripe seed is of a very deep green colour, greener than in any other variety. Batt's Wonder is from four to five days later than Woodford Green Marrow, rather larger, and an improvement on it.

Imperial Sugar (edible-podded).—This is one of the class of Peas called by the French "*Pois sans parchemin*" or "*Mange tout*." It grows from 7 to 8 feet high; the flowers are purple; pods very large, broad, flat, 7 to 8 inches long, twisted and crooked like a ram's horn; the sides of the pods exhibit prominent marks where pushed out by the seeds.

Sugar (edible-podded), a white flowered variety, about 6 feet high; pods from 4 to 6 inches long, crooked. Dwarf Sugar is about 3 feet high, pods much smaller, and later than the taller varieties, and more prolific. Vilmorin's edible-podded and Knight's dwarf white edible-podded Marrow, are very nearly allied to Dwarf Sugar. These edible-podded Peas are used in the same way as Kidney Beans. The pods when young are very tender, having no inner lining to them, so that they readily snap in two like a young Kidney Bean; they are then fit for use, and make a very good and excellent dish. *A. F. B.*

GRAPE JUDGING.

As an old exhibitor of Grapes I must confess that I think there is much that is really unnecessary, recommended and said about Grape judging. I can recollect when Messrs. Fleming Glendinning, Frost, and other veterans, had no difficulty in coming to a right conclusion as to who was entitled to the first prize for their Grapes. Why? because they, as a rule, used to stick to four cardinal points of quality. 1st, a jet black colour, with a good bloom; 2d, size of berry; 3d, compactness of bunch; 4th, size of bunch. In my opinion, if there is any deviation from the above rules, we shall none of us know what to expect in the way of a decision, notwithstanding that we may have had many years' toil and study in growing the Grape. I am of opinion that a Grape should be shown, if possible, of its natural colour, that is to say, a Black Hamburgh

should be black, and with a beautiful bloom; the composition of which is next of course. This, there is no doubt, is the first point of quality, and the other three points, as stated above, must, I think, be the next consideration. This is sufficient, in my opinion, to satisfy the most enthusiastic in Grape growing.

There are many who will recollect that years used to pass by when the Shows were held at Chiswick, without any dissatisfaction of importance being manifested as to the judging of Grapes. This arose from the fact that the judges never considered there were more than four points of quality, which, as a rule, it was necessary to discuss. As to the tasting of Grapes, I consider this perfectly ridiculous. Who would feel safe in the hands of judges who had a berry or two from, say, 100 dishes of Grapes to taste! It would be like the toss up of a shilling as to who would be placed first. Fancy a man whose heart and soul are in Grape-growing being subjected to such ridiculous nonsense, and, after toiling night and day through a hard winter—watching his Grapes until his eyes nearly dropped out of his head—finding, though he had obtained the four points of quality alluded to above, that his Grapes were thrown aside because the palate of the judges had become so cloyed that they were not able to satisfy themselves which samples were the best! Besides this, if I were a nobleman or gentleman who allowed my gardener to take the best Grapes out of the Vinery to an exhibition, I should certainly not like them to be fingered and pulled about by the judges. How often it happens that they are required for presentation, or for the owner's own dinner party.

There is nothing so trying to a man's temper, after going to the trouble and expense of growing first-class Grapes, and after travelling with them several hundred miles to an exhibition, to find them judged by judges who have never been successful in Grape-growing.

Nothing would give greater satisfaction than that the committees of horticultural societies should secure for Grape judging men who have been thoroughly successful as exhibitors. Where this is done, there will be little cause for dissatisfaction. Only imagine a man getting a 1st prize for badly coloured Grapes! This I have seen more than once, and I have myself many times experienced the annoyance arising therefrom. *J. Meredith, The Vineyard, Garston, Liverpool.*

[When a good bunch is presented to the Fruit Committee at South Kensington, it is a difficult matter for our reporter to find a good berry to look at, much more to taste! The proof of the pudding is in the eating. EDS.]

THE PRINCIPLES OF ORCHID CULTURE.

A PAPER READ AT THE INTERNATIONAL BOTANICAL CONGRESS AT PARIS, AUGUST, 1867.

IT will be evident to those who have made the culture of Orchids their especial study, that the general principles laid down in the following remarks have in some cases to be modified. It is, moreover, certain that such deviations can only be made by those who have had considerable experience in growing Orchids.

It is equally certain that any one following well defined rules, when commencing any particular study, will be able to experiment with a fairer prospect of success than if he had begun without any settled plan of action.

It is indispensable that the Orchid houses should be of a size and shape suitable for the sections proposed to be cultivated. For the northern countries of the continent of Europe, double-glazed houses are almost a necessity. In England they are not so essential, for the cold of its winter is less intense. In Italy they are not required, there the difficulty to contend with is the heat of summer, rather than the cold of winter. The width of the houses should not be less than 10 feet or more than 18 feet clear inside, the former should have one path 4 feet wide down the middle, and the latter should have a stage in the centre of 5 feet, with a path on each side 3 feet 6 inches, and side stages each 3 feet wide.

Houses for Orchids should be low rather than high. The narrow house should not exceed 7½ feet in height in the centre, and the wide one not more than 10 feet 6 inches. Plenty of ventilation should be provided, both at top and bottom, but chiefly at top, and all openings should be fitted with perforated zinc, to keep out flies and bees, and also to perform the office of respirators. Good but not too thick shading is necessary. The heating power of the boilers and pipes should be 50 per cent. more than is wanted for everyday use. All rain-water falling on the roofs should be collected into tanks within the houses, which tanks should be so placed that the water may soon become of the same temperature or even 10° warmer than the air of the houses.

For ordinary collections it will be generally sufficient to build two houses, one for the East Indian and another for Mexican and Brazilian species; for those requiring cooler treatment will do well in any low Grapery where only sufficient fire-heat is used to keep out frost—the Vines being trained rather thinly, so that only one layer of leaves shall come between the glass and the Orchids. The details of cultivation of particular species are best described in Mr. B. S. Williams' "Orchid Manual."

I now come to the time when purchases are to be made, and the first rule I lay down for beginners is,—never buy a diseased or weakly plant.

The second rule is, let all Orchids, like other plants, enjoy warmth and some moisture during their growing season. It is quite a mistake to suppose that what are termed cool Orchids are any exception to this rule—the chief difference being that they require a longer season of rest than others.

This brings me to the third rule, which is one of the most important, viz., let all Orchids have a good season of rest. The cooler the climate of their natural habitat the longer season of rest they require. Some of the East Indian Orchids require but little rest, but even these must have some, if plenty of flowers are wanted. The way of resting Orchids varies considerably. With some coolness of temperature induces rest, in others the comparative absence of moisture; and, again, there are some that cannot be made to flower unless nearly burnt up by the direct rays of the sun.

The fourth rule is, let plenty of air be given,—a circulation of air at all times is desirable, even in winter; whether the air given should be hot, or merely warm, depends on the section grown, but in all cases draughts of cold air must be avoided.

The fifth rule is, let the utmost care and attention be given to keep the plants free from all insect enemies, whether they attack the leaves by suction, or eat the roots, young growths, or flowers. Orchids are not more attacked by insects, than the Rose, and some other beautiful garden flowers.

If the above rules are well followed success is certain, and in many cases the bulbs and leaves will be larger and stronger, and the flowers better and more numerous than in their native countries. It must, however, be borne in mind that Orchids will sometimes die in spite of every care. The members of the human race who can tell the doctors how and where they suffer do not live long, and even an Oak tree, though it may live a thousand years, dies at last. *Robert Warner, 8, Crescent, Cripplegate, London, and Broomfield, Essex.*

HARDY PICTORIAL TREES, ETC.—No. VII.

CLIMBING PLANTS.

WHAT garden is so fortunately circumstanced as to have green hedges on all sides for boundaries, and within no buildings the walls or boards of which left bare are anything but sightly? But the ugliest walls and buildings may be covered—may be converted into breadths of beautiful foliage and flowers by the use of climbing plants. Various are the objects to which these climbing plants may be applied, as for instance to cover trellis-work and pillars, to be trained in a recumbent position, or to be clipped to form edgings to flower beds; but my object now is not so much to suggest uses for them as to enumerate and describe the best. Of climbing plants valuable for the beauty of their leaves in winter, the different kinds of Ivy, green and variegated, stand pre-eminent, and almost alone. Of the 40 different kinds cultivated here, the following are considered the most desirable:—

Hedera canariensis aurea maculata.—A plant of rapid growth; leaves large, well clouded with gold.

Hedera marginata argentea.—Leaves green, broadly margined with silver; growth free and rapid; the best of the white-leaved Ivies.

Hedera donerailensis minor.—Leaves small, dark green, deeply cleft; shoots numerous and slender; growth rapid.

Hedera minor marmorata.—Leaves small, beautifully marbled with white; growth rapid; exceedingly pretty.

Hedera poetica.—Leaves of medium size, pale green, almost entire, very glossy, the whole plant looking as if varnished; growth very rapid.

Hedera latifolia maculata.—Leaves large, marbled, and clouded with gold and silver; growth rapid; very handsome.

Hedera digitata. — Leaves dark green, long and pointed at the apex, broad at the base, deeply cleft; growth rapid, but shoots less numerous than most others.

Hedera palmata.—Leaves dark green, of medium size, very broad and deeply cleft, veins unusually prominent; very vigorous.

Hedera sagittæfolia.—Leaves medium size, dark green, very distinct.

Hedera Helix foliis aureis.—Leaves small, green and gold, some wholly of each colour, others finely blotched; growth rapid, very beautiful.

Hedera rhombea.—Leaves broad, dark green, narrow, but regularly margined with silver; very distinct and elegant.

Hedera japonica.—Leaves small, regularly and clearly margined with white; growth dense and moderate; very pretty.

Hedera walthamensis.—Leaves very small, green; growth very rapid. The prettiest of all small-leaved Ivies.

Hedera canariensis foliis aureis. — Leaves large, some entirely green, others blotched, or entirely gold; growth vigorous, very handsome.

Hedera algeriensis variegata.—Leaves large, broadly margined with white; growth rapid; one of the handsomest.

Hedera canariensis nova (the new Irish Ivy):—Leaves larger and of a paler green than the common Irish Ivy, also of more rapid growth.

Hedera algeriensis.—Leaves pale green, large, entire; a very handsome sort, of rapid growth.

Hedera Rœgneriana.—Leaves dark green, large, thick and leathery; growth rapid; very handsome. This and the two preceding are the best kinds for covering a large surface quickly.

Of Evergreen shrubs, suited for placing against walls, I recommend *Jasminum revolutum* (flowers yellow), *Ceanothus* of sorts (flowers blue), *Cratægus Pyracantha* (flowers white, berries orange red), *Escallonia* of sorts (flowers red or white), *Photinia serrulata* (fine large glossy leaves), *Rhamnus Alaternus* (the green, the gold, and the silver varieties).

The following are amongst the best of climbing plants, selected for the rapidity of their growth or the beauty of their flowers: they lose their leaves on the approach of winter:—

Ampelopsis hederacea (the Virginian Creeper).—Very hardy, very rapid in growth; leaves dying off scarlet in autumn.

Aristolochia Sipho.—Also a rapid climber; best against a wall, where the splendid large round leaves are protected from the wind and displayed to great advantage.

Clematis Amelia.—Flowers lilac blush. This variety is very hardy, flowers freely, and grows rapidly.

Clematis azurea grandiflora.—Flowers fine purplish blue.

Clematis Flammula sempervirens—Flowers white, very sweet. This plant is of very rapid growth, and sub-evergreen.

Clematis Fortunei.—Flowers white, double, large and fine.

Clematis Helène.—Flowers pale blue, almost white, very hardy and free.

Clematis Jackmani.—Flowers dark purple, hardy, and free. Very beautiful.

Clematis lanuginosa.—Flowers light blue; one of the best.

Clematis montana.—Flowers white, small growth, very rapid.

Clematis odorata azurea.—Flowers blue, small, very sweet; a beautiful sort.

Clematis Sophia flore-pleno.—Flowers pale blue, whitish towards the centre, double.

Clematis Standishii.—Flowers deep blue, free, hardy and good.

Clematis Viticella venosa.—Flowers reddish-purple, striped, very handsome. There are also other varieties of Clematis well worthy of culture.

Jasminum nudiflorum.—Very hardy, of rapid growth, the branches covered with bright yellow flowers in midwinter.

Jasminum officinale (the common Jasmine).—Flowers white, very sweet, growth rapid.

Lonicera aureo-reticulata.—Leaves green and gold, beautifully marbled, the gold colour usually predominating, very handsome; growth rapid; sub-evergreen.

Lonicera brachypoda.—A rapid-growing climber, the shoots well-clothed with beautiful green leaves, invaluable on account of the masses of foliage it produces; sub-evergreen.

Lonicera flava nova (the yellow trumpet Honeysuckle).—Hardy, free, but of moderate growth only; flowers pure yellow.

Lonicera flexuosa.—A beautiful sort, producing fine masses of foliage and clusters of red and yellow flowers late in the year. Of rapid growth, sub-evergreen, but not very hardy, therefore should be put in a sheltered situation or against a wall.

Lonicera Magnevillea.—A hardy free-growing kind, producing an abundance of large trusses of flowers.

Lonicera grata (the evergreen Honeysuckle).—Flowers yellow, red, and white, sub-evergreen, hardy, and free.

Lonicera Periclymenum belgicum (the Dutch Honeysuckle).—A capital variety for common purposes, hardy, and free.

Lonicera Brownii.—This is perhaps the best of the scarlet trumpet Honeysuckles.

Passiflora cœruleo-racemosa.—A good plant for a wall in a sheltered situation. Of other hardy Passion-flowers, *P. Colvillii* and *P. Neumanni* are the best.

Rosa.—Of climbing Roses the best for arches and like purposes, where a rapid growth is required, are the "Boursault" and "Sempervirens;" for walls or fences, the vigorous kinds of "Noisette" and "Tea-scented;" for pillars, the vigorous kinds of "Hybrid Perpetual" and "Hybrid Bourbon."

Tecoma radicans major (the Trumpet flower).—Flowers yellowish red; growth, when established, very rapid. A magnificent plant for a south or east wall. Of other hardy Tecomas, *T. atrosanguineum* (dark crimson), and *T. flava speciosa* (yellow) are the best.

Vitis. (The Vine).—Where masses of broad handsome foliage are required there are no plants more beautiful than certain kinds of the Vine: Coussi Noir, Castello de Donello, and Muscat Noir de Jura, are among the best, the leaves changing in autumn to crimson, yellow, and scarlet. *Vitis apiifolia laciniosa* has beautifully cut leaves, *Vitis labrusca foliis purpureis* has leaves of a purple tint, and *V. heterophylla variegata*, leaves green, marbled with white.

Wistaria sinensis.—This is the queen of climbing plants; the growth is often slow for the first two or three years, but when the plant becomes established the growth is very rapid, often covering enormous spaces. The flowers are pale blue, produced in clusters in the way of the Laburnum. *William Paul, Waltham Cross, N.*

VEGETABLE PATHOLOGY.

All organised beings—men, beasts, and plants, are subject to various weaknesses, diseases, and malformations, and more so when domesticated than in free nature. In all these organisms diseases are subject to similar laws with respect to locality and nature, their original condition and diffusion. In all these circumstances there is in part an affinity, in part a conformity. We see, for example, that individuals are affected either locally or generally, and that diseases occur in isolated cases only, or in numerous ones at the same time; that they are or are not contagious, that moreover they originate in conditions of soil or climate, in nutriment, in atmospheric relations, or even from parasitic plants and animals of greater or less size. Organised beings, therefore, have their common diseased conditions, but each kingdom (human, animal, or vegetable,) has not only its peculiar forms, but the different genera and species of plants and animals are subject to their own particular diseases. The general therapeutics, therefore, of organised beings may be referred to three divisions — human, animal, and vegetable pathology—each of which has to treat of the maintenance of health, the promotion of increase, but especially the protection from disease, and its expulsion when it occurs. Great progress has already been made

in the knowledge of the nature, the diagnosis, and cure of human and animal maladies, but with respect to plants we can only speak of a fair commencement. If we regard the development of human and animal therapeutics, we shall find that the pursuit commenced with mere empiricism, that it was gradually raised into a science after talented and thinking men had entered upon the study, after memoirs had been published and instruction given, and especially after numerous men previously educated had devoted themselves to particular branches with reference to the investigation and practical bearings of their peculiar biological conditions. Vegetable pathology is yet in the vestibule of science, as is natural, when we consider the relations of other organised beings or the practical requisitions which have hitherto existed. Fair beginnings with respect to the investigation of the diseases of vegetables, in connection with their causes and mode of operation, have already been made (the names of Meyen, De Bary, Schacht, Kühn, &c., occur at the moment), but the knowledge has been only slightly diffused; and as regards the prevention and cure of disease* it seems almost comfortless. The attempts have been left to gardeners, foresters, woodreeves, proprietors or wandering quacks, and, as a rule, have led to no useful result, because not sustained by the requisite knowledge, or in the case of widely-spreading contagion because unsupported by societies and governments.

These and similar considerations, and more especially the fact that cultivated plants, in consequence of the increase of population, attain a greater importance, while the consequent artificial attempts to obtain a greater produce seem to induce more frequently an unsound and weak condition, have for some time made the author of this article feel the necessity that something useful ought to be done for the practical side of the question, while in some measure the scientific side might obtain some advantage. Hence arose the idea that States, in proportion to their size, should appoint one or two men prepared with the requisite botanical, zoological, and field and forest knowledge, to investigate the diseases and injuries of plants, as also the remedies and mode of application for the prevention and removal of these abnormal conditions, to whom the views above stated, and the proposition of the necessary rules, should be entrusted. Such State vegetable-pathologists would not be difficult to find in the higher agricultural colleges, polytechnic schools, or universities, and who would be ready to undertake such an office for a proper remuneration. Should they not already possess the necessary knowledge of the diseases and injuries incident to cultivated plants as well as of the weeds which impede their culture, and the means of their hindrance or eradication, they would soon attain this from their scientific habits and tendencies, and reach the requisite point for the investigation of vegetable pathology. They would naturally enter into organic connection with practical men, and inquire of them what is necessary for the proper development of their office, and especially to enable them to acquire such technical knowledge as may facilitate instruction, and the proposal of positive rules by the Governments. Order, profit and success will then, and then only, be achieved—when the idea, which I have indicated, or something similar, shall be brought to bear on the matter; whereas, under present circumstances, an injurious confusion prevails, and in consequence we frequently read in country journals the most opposite views on the diseases of plants, their prevention and eradication, and so the old do-nothing and know-nothing system prevails; all is left to Providence, and one comforts oneself with the notion that natural evils are followed by natural remedies.

My plan is well supported by an article which lately appeared in this Journal on Zoological Observations, by Dr. Jäger. The two articles have the same tendency. The latter, however, goes further in its demands perhaps, also is the more practical as to the consequences which may be expected. May something be done in either direction, whether in the way of State Vegetable-Pathologists or Zoological Observations. *Dr. Fuchs in the Allgemeine Zeitung.*

* This is scarcely borne out by facts. Witness what has been done with respect to Bunt, Grape and Hop Mildew, and other instances that might be mentioned. EDS.

BRITISH ASSOCIATION.

THE Thirty-seventh Meeting of this Association was inaugurated on Wednesday last at Dundee, by an address from the President, his Grace the Duke of Buccleuch, the President of the Royal Horticultural Society. The following are some of the more important passages:—

"I feel that, whatever bold deeds my ancestors may have done, or may have attempted, perhaps in one sense I have attempted the boldest of them all. If it were only a question of physical endurance, or of dashing enterprise, I should not have felt abashed, nor shy, nor disinclined for the encounter. I think the old spirit of the Borderer would have carried me through. I have been told, and perhaps with reason, that it is better and more usual upon such an occasion as this for the President to prepare his address with care beforehand, to commit it to writing, and give an opportunity of having it put in print for the convenience of the members of the Association, and also of those whose particular vocation and duty it is to communicate to the public that which passes at public meetings. Unfortunately, perhaps, for myself, and still more unfortunately for you, I have not done so. I never in my life attempted to pen an address or to prepare a written speech to be delivered. If I had done so, and had had recourse to the productions of the pens and heads of others, I might have read an address to you in flowing language—full of science, full of information; but I could not have pretended that what I read came from myself. I preferred rather to fail by speaking what I had to say direct from myself, as it came from my heart and from my head, than to have recourse to the assistance of the thoughts and pens of others. Their pens and their thoughts have been well employed. You may read their productions in the Transactions of this Association. You may hear them at the different sections, which you will be invited to attend. Why, then, should I rob them of the fruits of their labour and toil. Whatever I may say, I alone am responsible.

"When I consider the nature and intention of this great Association—for great it is, powerful for good, and if ill-directed, I fear powerful for evil, although I trust such never can be the case—I cannot but feel, and I am sure you will all agree with me, that one of the greatest gifts which Providence has bestowed upon man is great intellectual power. I do not mean the ordinary faculty of reasoning which is given to man, and which he possesses above all the other living works of the Creator—I do not mean that—but that to some in a greater degree, and to others in a lesser degree, intellectual power is given not to be idly used or vaunted of, but as a sacred gift, and one to be made much of. It is a talent of the highest price; it is a talent vouchsafed to but few. There may be many more who possess it unknowingly, but who unfortunately either have not had the opportunity or the will to avail themselves of it. Happy are those men themselves, and blessed is it for this country and for the world, when they who have the intellectual power have also the will to exercise it, the power to exercise it and to direct it aright. It varies in different persons. With some you will see it take the form of the great statesman; the great warrior, or the mariner; the great discoverer, or traveller. You see it in all great branches of science. You will rarely see that any one man possesses the full intellectual power to make himself master of the whole. But then we see these great minds seizing each upon that particular topic or branch which is most congenial to his spirit. He will work it out assiduously, continuously, and with a will, not for the purpose solely of aggrandisement to himself, or acquiring to himself, or keeping for himself, a great amount of knowledge in that particular branch, but of communicating it to the public for the general benefit of the Commonwealth."

After a graceful allusion to the loss sustained by the death of Professor Faraday, his Grace went on to say that "the acquirement of science, and the diffusion of science are, and ought to be, closely connected with religion. If there is anything that has often struck me, it is this: that the involuntary admission and confession of the ignorance of men is in no way more strongly manifested than it is in the great desire to acquire knowledge—that the inquisitiveness of man indicates previous ignorance of that which he inquires into. Now, what do men of science do? They search the Heavens. They cannot make the stars—they know not when, nor where, nor how they are made. But from their experiments and theories they deduce certain results, and we are satisfied that they may be right. I am here talking of faith. Surely, in no instance is faith more tried than when we are called to believe in what science teaches us. Those of us who are uninitiated, who have not studied it, cannot understand this or that thing which a man who has studied that particular branch of science looked upon as a thing as natural as that the child should learn its alphabet; and we trust in them—we believe in what they state. But what is it they do? They do not create these things. Their great object, as I can perceive, is this—they try to interpret the great Maker's works—to make them patent to all—to let all understand and reverence the Creator, they only attempting to be the interpreters. Some men may say I put too low an estimate upon their position. I trust I do not—it is not intentional if I do; but at the same time I cannot put discoverers of that which exists in a higher position than that which is discovered. I quite agree that science should be taught at our public schools—that it should form a portion of the curriculum of study in every school; but I think you must not, at all events in the first instance, attempt to push it too far. If you do, you will frighten people, and the thing will stop. They will say you want to convert all the boys into juvenile philosophers. Now, you may attempt that, but I defy you to succeed in doing it. I think it of great importance, however, to teach the elements of science in our schools. Give the youth a taste for it, and when they have acquired this taste, those who have an aptitude for the sciences will each be very much inclined to follow a particular science for himself. You can no more drive science down a boy's throat than you can teach mathematics to a horse. If he has a turn for it he will take it in, if he has not a turn for it he will say it is a greater bore than Latin or Greek; but to teach him the elements of science is of great importance. What do we see every day? This is an age of progression. In every relation of life a knowledge of science is becoming more and more necessary. I need not go further than the town in which we are at present assembled. Where would the prosperity of this town have been had it not been for science? You will say we have got a certain amount of manufactures of Flax, Hemp, Jute, and things of that sort; there is not much science in that. Well, go to the cultivation of these plants—go on to the preparation of these plants after they are cultivated, and bring them to this country. Do we not require some amount of science to build those ships, and to navigate them? and when those vessels come to port, do we not require some science to produce the docks and harbours in which these vessels are to lie? Then, again, when you come to the manufacture of the raw material, do we not require some science in chemistry and in mechanics; and in mechanics, we require mathematics to begin with? Then, these inventive faculties are necessary to produce the machinery by which all these raw materials are to be made into useful articles of commerce. Is it not also the case when we come to the cultivation of the soil? What do people do now? It is not the rule of thumb process—the old story, that you must put lime here and farm manure there. You ask, why? The answer is, 'it stands to reason—because the soil requires that.' 'Standing to reason' is a very good answer; but the man who gives it goes by the rule of thumb. We want a man of science and chemistry to tell us why we do these things—why we apply one description of manure to one soil, and one to another; and why, if we apply this description of manure to one place and not to another, we apply it to the wrong place. I was talking a little while ago of scientific education in schools. We want scientific education in our universities. We want to have natural and physical science taught in our universities. It is not many months ago since a powerful effort was made to get an endowment for a geological chair in Edinburgh, which, we may say is the cradle of geology—where it took its rise, and flourishes particularly; and not only that, but Edinburgh happens to stand on a peculiar geological formation, where almost every remarkable phenomenon is to be found connected with geology. Unfortunately that attempt was simply snuffed out. We met with a very cold reception. We were told—"Oh, if you want to endow a chair in Edinburgh, endow it yourselves." In vain did we say that endeavours had been made to endow the University of Edinburgh, which happens to be very poorly endowed; but the efforts and contributions of almost all those who responded to the application have been directed to founding scholarships and bursaries to enable poor students who thirst for knowledge to avail themselves of the knowledge which might be afforded there; and we thought the public purse might well afford a professor to teach that which was really of national importance.

"I cannot pretend to go through all the different points and sections which are taken up by this Association. I will only call your attention to one which I take some interest in—namely, meteorology. There, great efforts have been made, and with signal success, by the British Association, more particularly at Kew Observatory. What I and others have urged on the Government of the day is the great importance of having renewed and carried on what were called the storm signals at our different ports. I do not mean that we have asked the Meteorological Department of the Board of Trade to turn themselves into weather prophets—to give us forecasts of weather—but, as they have the power of ascertaining the prevailing winds and storms by telegraphic communication over the whole of this country, and I fear the Continent of Europe—over all its shores, at least, and to very distant parts—they can inform us where there is great disturbances of the elements prevailing. This is of immense value and importance, and I believe much valuable property has been saved, and many valuable lives preserved, by the timely hoisting of the drum signifying bad weather; and those interested can easily by application ascertain where that bad weather is. I must, in conclusion, be allowed to thank the gentlemen of the British Association for the honour they have done me in placing me in this chair. I know it is no slight honour. I feel it is no slight honour; I also feel it is no slight responsibility, but so far as in me lies I will endeavour faithfully to perform my duties; and I hope these duties will not be so performed as to show that you have been entirely deceived in having selected a person for this high position who was totally unfit to be your choice."

M. SOUCHET'S GLADIOLI.

M. SOUCHET has been cultivating the Gladiolus for more than 30 years; it was cultivated also here by his father. The Gladiolus is the most noble of our autumnal flower garden ornaments, and one comparatively neglected by us. There is no flowering plant so well calculated to improve the aspect of the autumnal garden, of no matter what style, than this, and M. Souchet is the best grower of it in the world, and has the largest collection. He grows it in gardens, or rather fields, surrounded by white stone walls. In fact, his ground was for the most part formerly occupied by market garden cultivators, &c., and these usually surround their gardens by such walls. He altogether occupies from eight to nine hectares of land with the culture of his favourite, or say about 20 acres English.

Now the first thing noticeable in this ground is that about half of the land is unoccupied for the current year. That bare portion is ploughed, and manured, and cultivated throughout the summer as well as in winter, and thus he has fresh land in beautiful condition for his bulbs every year. Besides, the fact that the ground is bare for a year helps to counteract to some extent the particularly vicious enemies with which he has to contend, as, having no food on the ground for the summer, they are not attracted; and when the ground is rolled between the ploughing and manuring the tracks of the mole cricket are readily seen, and it may be readily destroyed. This idle ground is thoroughly tilled, ploughed, or in some way disturbed six or seven times during the season, and they would like to do it a dozen times if time or labour would permit. The ground planted this year will of course be empty next, and so on. Now, in all the extensive piece of ground planted with Gladioli you cannot notice a decayed leaf, and all are in the rudest health, some of the varieties growing as much as six feet high. It was a fine sight at any time of the year to see the magnificent stretch of varied bloom; but the days about the time of my last visit were very hot, as they were in England at the same time (Paris is under almost exactly the same climatal influences, and any decided change in England occurs in Paris as well), and we were obliged to get up very early in the morning to see them at their best. Although very showy at noon, yet the hot sun had caused the most open flowers to flag a little. But in the early morning, when the dew hung upon the bloom, and every petal was braced with its freshness, they were fine indeed. But if fine here, when seen in great quantity unrelieved by a particle of verdure except that of their own pointed leaves, how much finer would plants of the same quality be in a graceful pleasure ground or garden judiciously associated with other things of beauty, and pushing up their bold spikes amidst and near refreshing verdure!

The insect enemies of M. Souchet would prove enough to deter and defeat most men. He makes ceaseless war against them, and if they do succeed in destroying a bulb now and then, it generally forms the guide to their detection and destruction. Your readers may know the mole cricket, but his ravages in England do not go very far. If allowed his own way for a fortnight in these grounds, I fear some of the great bulb houses would suffer from their want of Gladioli this autumn. Now when this strong and well armed little brute gets into a bed of choice Gladioli, you cannot well dig him out as you could if he happened to be in a kitchen garden. The way he is killed here is so interesting and effective, that I must relate it. M. Souchet explained it to me, but so many "cures" and dodges for exterminating vermin are not worth the trouble of trying the second time, that probably I should not have noticed it had he not called a man and given me an illustration on the spot. When the mole cricket goes about, he leaves a little loose ridge, like the animal after which he is named: and when they detect his presence in a closely planted bed of Gladiolus at Fontainebleau, they generally press the ground quite smooth with the foot, so that his track and halting place may be the more distinctly seen the next times he moves about. This had been done in the present instance in the case of a young bed of seedlings. I saw his track, and a workman who brought with him a rough jar of water and one of common oil, opened a little hole with his finger above the spot where the enemy lay. Then he filled it with water twice, and on the top of the water poured a little oil. The water gradually descended, and with it the oil, which, closing up the breathing pores of the mischievous thing, caused it to perish of asphyxia, and in about 20 seconds we had the pleasure of seeing it put forth its horns from the water, go back a little when it saw us, but again come forth, to die on the surface, hindered for ever from destroying valuable bulbs. Being of large size, and very strong and well armed, even one of these can do a deal of damage in a bed of Gladiolus, and therefore

the moment the workmen of M. Souchet see a trace of the pest they take means to catch it as described, jars of water and oil being always kept at hand. That is only one enemy—*vers blancs* are worse. Of what a vile opponent this is some idea may be formed, when I relate what precautions M. Souchet is obliged to take against it, even for the sake of enjoying a few Rhododendrons. He has built a nice private house near his Gladioli grounds, and wishing to have a couple of beds of these shrubs within view of the windows near the garden, he has had to build strong cemented walls deep into the earth around each bed, and fill in the bottom with a deep bed of fine sand so as to guard against the entrance of this dreaded worm into the bed. But it is among his Gladioli that most is to be feared. It is simply the larva of the cockchafer, dangerous here in its perfect state also. He employs a great number of people to gather them at the egg-depositing season, has the larvæ picked up after the plough, and one way or another clearly avoids their ravages, though at great cost of time and money.

The soil is a very sandy one, not a fluffy one observe, but one with some holding power, and yet when you get a dry bit of a clod of it, and crumble it fine on a silk glove you find that most of it sinks through to the palm of your hand, in the form of nearly impalpable sand. I have seen somewhat the same kind of soil in many places in England, and always noticed its great superiority in the growth of bulbs, alpine, and rare herbaceous plants, &c. It is well-manured, and pretty rich and deep, from having been long used as kitchen-garden ground. They prefer horse manure, and that as well rotted as possible.

The time of planting is, perhaps, one of the most important things to be acquainted with, and they do it here from April till the early part of June. This late time is not often resorted to however, though I believe the bulbs may then be planted with safety. They prefer the beginning of May for the general and the safest planting. The medium-sized bulbs give the best flowers as a rule, the biggest bulbs often breaking into several heads. Of course, to plant at various times will lead to a succession of bloom, another great point in favour of this fine ornament of our gardens. The seedlings flower in their third year. The time of taking up is October, and from the great quantity that they have to store this sometimes goes on to the beginning of November. The plants are mostly in beds, about 4 feet wide, placed in rows across the bed, from 15 to 18 inches apart. The beds are all mulched, and a little alley runs between each of course. In very hot weather they are well watered. Each kind is numbered, the bits of lead on which the numbers are stamped being wrapped round bits of Vine prunings, stuck in the earth. The beds are also carefully examined during the blooming season, so as to destroy all "rogues." Such are the chief points upon which information is wanted—next for a selection of the varieties.

There are altogether between 250 and 300 varieties in cultivation here. The best of the new varieties of the present year, or rather the new varieties ready to send out this year—for one which only flowers this year will not be ready to send out for a long time—are Princess Alice, with very large, fully opened flowers, good shape, and charming lilac colour, faintly striped with rose and white: this is of the finest quality; Semiramis, also another very large flower, of fine form, rosy carmine in colour, with carmine stripes and a fine white throat; Uranie, a large flower, with a pure white ground, and decidedly striped with bright rose, a distinct and brilliant variety; Bernard de Jussieu, a dark purplish toned variety, quite new in colour; Stella, a flower with white base and rosy red margins; and E. Scribe, a large flower, of a delicate rose, flamed with carmine red. But a selection of all the other kinds he cultivates is of greater importance, and I give the following, selected by M. Souchet and myself from the several hundred varieties he cultivates. We in the first case selected the undermentioned varieties, and then went over them again, marking the best of the best. The second or prime selection is indicated by an asterisk to all those so chosen:—

Achille
Anaïs
Belle Gabrielle
Charles Dickens
Cherubini
*Dr. Lindley
*Duc de Malakoff
El Dorado
Fulton
Galilee
*Impératrice Eugénie
*James Veitch
*John Waterer
Lady Franklin
Laquintinie
*Le Poussin
*Le Titien
Linné
*Lord Byron
*Madame Furtado
Madame Leséble
Madame de Sévigné
*Madame Vilmorin
Maréchal Vaillant
*Marie Dumortier
Mazeppa
Météore
*Meyerbeer
*Milton
*M. Ad. Brongniart
*Napoléon III.
Newton
Ophir
Oracle
*Pénélopé
Prince of Wales
Princess of Wales
*Princesse Clotilde
*Princesse Marie de Cambridge
*Reine Victoria
Réverénd Berkeley
Roi Léopold
Rubens
*Shakespeare
Sir William Hooker
Stephenson
Stuart Low
Thomas Moore
*Sir Joseph Paxton
Vesta
*Walter Scott

So that there is an ample field from which to select, and a sufficient variety to please the most fastidious. M. Souchet grows almost exclusively for the trade, and a large proportion of the bulbs of these attractive autumnal flowers, which are met with in the stores of the Paris and London nurserymen or seedsmen, are derived from the grounds of this successful cultivator.

I cannot close this without acknowledging the great kindness of M. and Madame Souchet, both being as amiable and excellent in private life as M. Souchet is distinguished in horticulture as a Gladiolus grower. *W. R.*

Home Correspondence.

Cupressus Lawsoniana.—In answer to "C. F. P.," The Grange, Kingston (see p. 904), I may state that the tallest Cupressus Lawsoniana that I have heard of is one at Holkham, Norfolk, and mentioned in Mr. Hutchison's paper "On the Introduction and Cultivation of the Newer Coniferæ," &c., in the "Transactions of the Scottish Arboricultural Society," vol. iii., parts 2 and 3, which was 25 feet high in or about 1864; the probable age is therein said to be 13 years, but it could not have been more than 10 years old. I have always fancied that there must be some mistake as to the height or the species of tree at Holkham. A specimen at Fairlawn, Kent, planted in 1859, was 16 feet high, and 1 foot 8 inches in girth at the base, in February, 1867. Another plant at Manby Rectory, near Louth, was 10 feet high last spring. There is a tree 18 feet high at Bishopstoke (*Gardeners' Chronicle*, 1867, p. 689). Amongst other large specimens mentioned in Mr. Hutchison's paper are Easton Park, Suffolk, 15 feet; Halston Hall, Shropshire, 14 feet; Kew, 13 ft.; Welbeck, 12 feet; Eggesford, 12 feet; Ems Park, Ireland, 12 feet, all taken in or about 1864. The specimen at Stewkley Grange, mentioned in my former letter, was planted in November, 1859. It was measured in November, 1861, when it was 4 feet 5 inches high. Its growth since is as follows:—1862, 1 foot 7 inches; 1863, 1 foot 2 inches; 1864, 7 inches; 1865, 1 foot 2½ inches; 1866, 2 inches only. I should observe that in the autumn of 1865 a trench was dug round it at about 2 feet off, and the stiff clay thrown out to be exposed to the winter's frost, and was put back again about March. The ends of a few of the roots were laid bare. This plant certainly looks more like a bush than a tree, so far as I have seen. I observe from the account of it in the "Pinetum Britannicum," that it was discovered by Mr. Wm. Murray in 1854, growing near the brink of a waterfall, and that it is usually found on the banks of streams. Has it been tried in similar situations in this country? In Mr. Hutchison's paper above referred to mention is made of an imported plant of Sciadopitys verticillata at Osborne, Isle of Wight, which was then 15 inches high and vigorous. Perhaps Messrs. Veitch can give some information about Libocedrus tetragona? I believe it was introduced by that firm. I saw a nice little plant of it at Biddulph Grange, Staffordshire, in January, 1863, which had been planted out in 1861. I may add that the injury sustained by the Cupressus Lawsoniana, at Heston, which had been transplanted in the previous spring (see p. 903), reminds me of the Thujopsis borealis mentioned in your leading article, March 2, 1861, and of another Thujopsis at Aldenham Abbey (see p. 98, vol. 1861), which I am told had been planted a year or so. *Charles Palmer, Manchester.*

Allamanda Hendersoni.—I should be glad to know if any of your correspondents who have flowered Allamanda Hendersoni and Allamanda Schottii have found any difference between them, either in habit or growth, or in the shape, size, or colour of their flowers. They are both in flower here at present, and I cannot discover the slightest difference in any respect between them. *W. Whitaker, Crewe Hall, Cheshire.* [Are your plants true? The same question was raised some time since, and it seems generally admitted that the plants were sufficiently distinct, the one being an earlier bloomer than the other, besides other differences. EDS.]

Pipe Flues.—I should be glad to know if any of your correspondents have tried sewer pipes for a fire-flue, and if so, to be told how they act. *J. H., Cheadle.*

Santolina chamæcyparissus as a low Hedge Plant.—This bears clipping well, and forms a dense and distinct little silvery hedge. It is particularly desirable to use such a plant as this where a small dividing line is desired—say around compartments for hardy florists' flowers, or between such; around formal clumps of choice shrubs, or for several similar uses in the geometrical garden. It bears the square shape under the shears well, but of course generally it would be better to make it slightly narrower towards the top. For a silvery hedge from a foot to 15 inches high there is nothing to equal it among hardy plants. *Viator.*

Hibiscus roseus.—This is a very noble hardy perennial, growing from 4 to 6 feet high in our latitudes, and having the upper part of each of its abundant shoots set thickly with buds which produce flowers fully 6 inches across, of a showy rose, with straight deeply coloured veins running from the rich dark crimson base of the petals, and gradually becoming lost towards the margin. I have reason to think it thoroughly hardy, and recommend it strongly for trial in good soil in the southern and milder parts. The show it makes in autumn is really very fine, and it will probably be found a grand thing for association with noble autumn flowers, as the Tritoma and Pampas. *W. R.*

Judging of Grapes: The Effect of Colour on Quality.—A few weeks ago, when writing upon the influence of Vine extension upon fruitfulness, at p. 710 *c* the following remarks occur:—"Here I wish carefully to distinguish between mere weight or colour and quality. Not only are the two former not identical with the latter, but they often seem incompatible with it. The largest are far from being the best Grapes, and high colour seems often, as it were, totally antagonistic to piquancy of flavour. It may seem treason to say so, but the best flavoured Hamburghs are seldom the largest; never, as far as my experience of 25 years' Grape growing and tasting goes, the blackest. . . I have eaten prize Grapes little better than Sloes, while others, like honey in comparison, have been completely ignored." My object in repeating these words is to buttress them up by additional facts of quite recent date. A short time since a party of ladies and gentlemen were enjoying their dessert. It consisted chiefly of two lots of Grapes, from different growers. Both were Hamburghs. One were of medium size and imperfectly coloured. The others were large, fine Grapes, well coloured, and laden with bloom. In fact, they were sensation bunches, and created a stir accordingly. All were eager to taste the fine Grapes. The result of tasting was quite a study. Satisfaction of the highest kind gave place to a surprised look of disappointment, and this was again succeeded by wry faces. What! not finished, nor quite ripe? They looked both, and had been eaten daily for the past six weeks. But—well, the flavour was nowhere. They were decidedly harsh and acid. Some one suggested a trial of the others. The taster was not sanguine. A berry was taken with doubt. It settled the matter. "Exquisite" was the verdict; and the small Grapes were at once set upon and devoured with a real relish, and as "who would have believed it!" whilst the others were left to please the eye and deceive the uninitiated for another week. Nor is this a solitary instance: I have met with hundreds like it, and as a rule I boldly affirm that medium sized, imperfectly coloured Hamburghs are distinguished by the highest flavour. Neither would I confine this statement to Hamburghs; I believe it extends to most other black Grapes. Notably, I have found it true in reference to that splendid Grape, the Muscat Hamburgh. For some years past an excellent grower of this Grape has forwarded a specimen bunch; the berries are larger, but in colour and redundancy of bloom it equals or excels a perfect Black Prince. No Grape could look finer; but the flavour is *nil*. These large bunches, so superbly coloured, are altogether destitute of the rich aroma that is the distinguishing merit of this Grape—and it is so from the same grower every year. Another grower, who is afflicted with shanking to such an extent that he seldom finishes a perfect or complete bunch, constantly secures the highest flavour. None but those who know the Grape well could believe they were the same variety. The same thing happens with other Grapes. It is astonishing how much they vary in flavour in different localities. Soil and situation have doubtless something to do with it, culture perhaps more. But the fact that I am anxious to establish here is that neither colour, bloom, nor size are certain nor indeed any criteria of flavour in Grapes, any more than in any other fruits. And hence the reasonableness and necessity of making the palate, and not the eye, the final umpire in all such matters. It would be a safe rule for all fruit judges to taste and try before they either praise or decry, and it is utterly impossible for them to judge righteously without doing so. Flavour cannot be placed too high. *Quercus.*

Lilium auratum.—The plant of Lilium auratum, of which I sent you an account last year, at the same time stating my belief that we knew but comparatively little of the magnificence of this Lily, is just about to burst into blossom, and has somewhat exceeded my expectations. The bulb pushed two stems, one of which was rather flat, and when about a foot high it divided into two. The three stems grew away vigorously, and are now about 8½ feet in height, and bearing 100 flowers. A small growth from the bottom, which I take to proceed from a small offset, has four flowers on it, making a total of 104. I regret to say that this plant, like others of which you have given particulars, is flattened at the upper part of its stems, a circumstance which causes the flowers to be set too closely together, and when expanded to be quite crowded. When the growth remains round, the flowers have each their proper distance apart, and are therefore much more handsome. This large bulb yielded five young ones last year, and now I notice that several are formed as high as a foot up the stem. *William Cross, Gardener to the Right Hon. Louisa Lady Ashburton, Melchet Park, Romsey, Hants.*

Lime Trees.—Mr. Bentham, in his "Handbook of the British Flora," remarks:—"The truly indigenous form in Northern Europe is always a small-leaved one. The larger-leaved variety, which we commonly plant (T. grandifolia, 'Eng. Bot.' Suppl. t. 2720), is of south European origin," &c. Now, the specific character given by Sowerby to the fruit of T. grandifolia is "turbinate, with prominent ribs;" and so far from this being the variety which we commonly plant, I have seldom met with it in plantations, and never at a nurseryman's. I shall be much obliged to any of your correspondents who will inform me where I can get young trees of this species characterised by the presence of three flowered cymes, downy turbinate fruit, with five prominent angles. *Tilia.*

Variegated Pelargoniums at Bury.—In reply to Mr. Grieve, I beg to say that I still maintain the correctness of my statement—that as it was the Royal Horticultural Society's exhibition, so also the rules of the Society were in force, and that such would be the case I had the assurance of the respected President of the Floral Committee of the Society. I must still express my preference for clean plants over those partially broken, as it is evidently the safest to conclude that clean plants have developed their character, while of the others there must remain considerable doubt as to what their future value may be; every grower, I presume, must admit this is as a truism. In reply to Mr. Grieve's question, whether my plants were of the required age, I beg to inform him that there were none of a greater age than 21 months, the oldest being raised from seed gathered in the summer of 1865. I am thus explicit, as I maintain that seed saved and sown in the autumn of 1865 is essentially the crop for 1866, while seed sown in the autumn of the latter year produces the crop of 1867. I am aware that some growers sow only in the spring following the harvesting of the seed, but that makes no difference as to the age of the crop, in a competitive point of view. As to the next question of Mr. Grieve, I can assure him that all mine were seedling plants, although the schedule of the Show does not particularly insist on seedling plants. I left at Dulwich some good things that would have materially enhanced my collection rather than create a dispute on this point. As to the third question, respecting the award of the judges at the May Show at Kensington, I

can say that I never demurred to that decision, being satisfied with having obtained three First-class Certificates and a Silver Medal for my collection, and I was the only person who obtained so great a number of Certificates on that occasion. As an exhibitor of 35 years' standing I never before disputed an award. If Mr. Grieve still wishes to try conclusions as to the superior quality of the 12 varieties shown by each of us, I am quite willing to exhibit them at any of the Royal Horticultural Shows in 1868, three plants of each variety; and, as this is a private matter, the terms can be arranged through the usual channel of the post-office, afterwards to be made public in the *Gardeners' Chronicle*. *F. J. Smith, Dulwich.*

Apple Decay.—I have noticed in my garden this year Apples quite rotten hanging on trees which to me seem apparently in good health, as on the same trees are some most beautiful fruit. What is the reason of this? I may mention that I have not noticed any insects in the fruit, but to me it seems remarkable that rotten ones should be in the middle of a spray of good sound fruit. *N. M.*

The Rhubarbs for the Subtropical Garden.—In a day when we grow variegated Cabbages for the garden, there need be no excuse for introducing such very noble plants as the Rhubarbs to your readers. I do so chiefly in consequence of having seen some of the ordinary garden kinds used in Hyde Park and elsewhere, while several of the species are much nobler and better. What a pity it is, by-the-by, that we have not Rheum nobile to begin with! The singular towering aspect it presents, and the curious and delicate colouring of its leaf-like bracts, make it a thing to be longed for. But we have Rheum Emodi, and that is certainly a noble plant, quite distinct from our ordinary kinds, and with reddish veins. It comes up much later than the others and remains a little later; all the better for our purposes. The leaves grow very large and coarse; we can the better direct the energies of the plant in the desired direction by pinching out the flower-stems as soon as they are noticeable. R. palmatum, freely grown, will also be worthy of a place from its distinctness. It is rather scarce, but no doubt to be had here and there, for I have seen small gardens near Dublin in which it was the only kind used. It requires a lightish rich soil to do well, and of course it is highly desirable to give all the species a deep one, in which their great roots may find full room and nourishment. Rheum Ribes is also a thoroughly distinct kind, rare, but worth looking after; R. Rhaponticum, hybridum, and rugosum may also be mentioned. *R.*

Centaurea babylonica.—No collection of hardy fine-leaved plants—no place where subtropical gardening is attempted, should be without this. The flowers are poor and yellow, so much so that they would be better out of sight; but nothing can be more distinctly noble than the great silvery leaves when the plant is in good soil. It is thoroughly hardy. The stem rises to a height of 8 or 10 feet when the plant is in good deep loam, and in any soil it is large. The inflorescence assumes a pyramidal outline, looks like a slender pyramid of yellow, in fact, and those with no objection to comparatively poor-looking yellow flowers may let it flower, but generally it will be found better to pinch out the stems in their earliest infancy, and thus encourage a grand growth of leaves. I have a slight objection to any plant that requires pinching or any other attention to make it assume the character we admire, but this is really so distinct and fine that we must admit it to the front rank of hardy fine-leaved plants. Of course it would prove fine for the group of hardy fine-foliaged plants, its immense silvery leaves contrasting finely with the glistening green ones of the Acanthus and other good green things, which I hope to soon see used in this way. *W.*

Grape Bloom.—What is this? Whence comes it—from the substance of the Grape inside, or is it formed on the outside? Has it any flavour? Is it any test of quality? Is it a secretion or a parasite? Does it tend to keep or decompose fruit? What influence has aqueous vapour, or heat or cold, on its formation? Is there any known reason for its varied colours. *Beta.* [The bloom is a secretion or exudation, of a waxy nature, formed in the cells of the epidermis covering the berry. We should be glad to have the opinions of some of our practical correspondents on the other questions raised in this letter. EDS.]

Plantago major, var. paniculata.—I send a specimen of a variety of Plantago major. I saw it growing in a garden at Albury, near Guildford. It was transplanted from a neighbouring field, where its singularity was such as to attract the notice of a lady who was not a botanist. I shall be at Albury shortly, and will endeavour to secure seeds, should they ripen. *H. B Makeson, Hythe.* [The variety sent is Plantago major, var. paniculata, mentioned by Gerarde in the following terms:—"This Plantain must not be forgot; his leaves, roots, and stalks, are like those of the ordinarie; but instead of a compact spike it hath one much divided," &c. Gerarde gives a figure of it. Ray speaks of it as the "Besome Plantain, with spoky tufts." We should be glad to know whether it comes true from seed. It seems to produce but few perfect flowers, indeed we never saw perfect flowers on any but the specimen you sent. EDS.]

Strawberries.—The Strawberry season here has been the longest that I ever remember. The last of the common Strawberries were picked the 1st of August. The crops of the sorts which I keep, and recommend, have been great, I may almost say a trouble to pick. I recommend the following sorts as the best, upon the whole, in their lines:—Rivers' Eliza, Dr. Hogg, Mr. Radclyffe, Cockscomb, Frogmore Pine, Wonderful, Bicton Pine, Royal Hautbois, Red and White Alpines (which I am now picking). Most of the above are generally known, but there are two not so well known, viz., Dr. Hogg and Mr. Radclyffe. Of these two (as one relates to me) I will give Mr. Turner's catalogue description, which I can truly endorse. I have seen them succeed in chalky land at Rushton, and also in deep sandy loam here. He says of Dr. Hogg (Bradley), "it resembles the British Queen, but it is very large and a better grower, and will become a favourite, and be generally grown." He might have said "universally" grown. It has dense green foliage, is quite hardy against a winter, and does not burn in summer—a fault of the Queen. The Queen suffers from chlorosis in chalky land, but neither of these two are affected by it. Both are strong and quick growers and good setters. He says of Mr. Radclyffe (Ingram). This fine Strawberry was originated at Frogmore; the fruit is large, of a bright red colour, and ripens to the point. As regards quality, it quite equals the British Queen—in fact, it is a Queen with a robust constitution, which is quite sufficient to recommend it; and its excellence has been attested by competent judges." The leaves of this Strawberry are light green, very healthy and strong. In fact, you would think it to be the Queen in an extreme state of health and vigour. Neither of these Strawberries were mulched, and yet they stood the severe winter perfectly well. I have re-introduced M. de Jonghe's excellent seedlings, La Constante and Lucas, as I think they will succeed here. They are distinct and first-rate in flavour, and are the best shaped and most level berries of any Strawberries known to me. They did not like the chalky land at Rushton. I have had only novelty (novelty means excitement, which is the condiment of Rosarian and Fragrarian life) here this last season. The Lady,—of her I will speak justly. It is a strong plant, a quick rooter, hardy, a great cropper, very late, is in pick a long time, and when thoroughly sunned is very distinct in flavour and good. In wet seasons, or in sunless situations, it would not be bearable. The leaves must be penned back to let in the sun, and an Apricot flavour will be quite perceptible; and the colour, otherwise too pale, will be nice. The plants must be 3 feet apart every way, or the sun and light (the colourer), unless the leaves are penned back, will not be able to act on the berries, so as to eliminate its flavour or colour its berries. I shall keep it another year without the responsibility of a decided recommendation beyond what I have said. I cannot conclude without thanking Mr. Ingram for the honour he has done me, and also for the benefits he has conferred on Fragrarians by raising such noble Strawberries as the Frogmore late Pine, Mr. Radclyffe, Cockscomb, and John Powell, which, if more are wanted than I have recommended, may be added to the others. *W. F. Radclyffe, Rose Hill.*

Mrs. Pince's Black Muscat Grape.—I am aware that I called Mrs. Pince's Black Muscat "jet black," just as Mr. Foote has called Lady Downes' Seedling "jet black;" but when I wrote again of Mrs. Pince's Grape, I gave it its true colour, viz., purplish black, which is also the true colour of Lady Downes', and not "jet black." Mrs. Pince's Grape, like Lady Downes', begins to colour with a purplish tint, which grows deeper and deeper until fully ripe, and if well done it is purplish black, with perfectly oval berries. The berries of Lady Downes' are roundish oval, the flesh nothing like so firm and sugary, nor is the bunch so tapering as that of Mrs. Pince's seedling. The latter has already been sent to all parts of the kingdom; it will, therefore, soon prove to all who have the good fortune to possess it, whether it is an Alexandrian Muscat in bunch and berry, or Lady Downes; as regards flavour there is no doubt of its being Muscat, and in respect to constitution, few Grapes can equal it. *W. Craggs. Larkbeare.*

Foreign Correspondence.

BUSACO, *July 26th.*—*Cupressus glauca.*—I have just come back from a trip to Busaco, a small but beautifully situated Pine forest, a few thousand feet above the level of the sea, justly famed for the luxuriant growth of the Cupressus glauca, but a place which I am sure will be well known to the majority of your readers for the battle which Wellington fought there against Massena in 1810.

Busaco was originally a monastery, the buildings of which have been partly preserved; and it appears, according to the statistics which I was able to procure, that the monks obtained in 1622 a few small plants of this fine Coniferous tree from the Azores. Further investigation tells us that this species is a native of Goa, a Portuguese possession in India, whence it was first introduced to the above-mentioned group of oceanic islands. During my last year's voyage to St. Michael I felt much interested at the sight of some very large pieces of wood, which M. Antonio Borges da Camara had extracted from about 100 metres depth of the soil, and which immediately proved to belong to the Coniferous family. As these islands have at present only one indigenous species of this group, namely, the Juniperus oxycedrus, growing there as a very small tree, or rather as a large shrub, the question naturally arose, if its vegetation had formerly taken much larger proportions, or, which seemed more probable, if the specimens of wood came from a species entirely extinct there—owing, very likely, to volcanic eruptions. This led me to examine small slices of the wood of Cupressus glauca which I got at Busaco, and to compare them under a compound microscope with a thin slice of the wood extracted from such a depth. I know very well how difficult it is to arrive at any safe conclusion from such an examination, but still I feel inclined to think that the wood found at St. Michael is the remains of the trees of Cupressus glauca originally introduced from Goa; where people who have resided there a long time inform me it is not now to be met with, as is also the case in the Azores. M. Antonio Borges has kindly sent me some good specimens of this wood, measuring from 3 to 4 feet in diameter, and I feel most happy in forwarding one of them to Kew, whence I hope to obtain the solution of this rather puzzling question.

I am sorry to say that little attention is paid at Busaco to propagating this fine Cupressus (Cupressus Lusitanica, *Tourn.*; Juniperus ex Goa, *Herm. Hort. Bat.* 346; Cupressus glauca, *Brot.*). It is true that the large trees abound there, some of them measuring from 4 to 5 metres in diameter, and are, generally speaking, in a splendid condition; but still they cannot last for ever, and it would be requisite to make new plantations of it every year. Coniferæ seem to do well here; some fine Deodaras, a few pretty large Araucarias—excelsa, Cunninghamii, imbricata, and brasiliensis, and some more—are to be found here; but as room is not wanting, provided the extensive thickness of Arbutus, Ilex, Rhamnus, Persea indica, &c., were partly to be cut down, I think Busaco would be the proper place for the acclimatisation of a great many foreign forest trees, especially those of Australia, as for instance the Eucalyptus and Acacias. Some nurseries here on a regular system would prove of great service to the country, as they would enable one to replant, by and by, all the surrounding mountains, which at the present time are mostly quite bare of arborescent vegetation. *Edmond Goeze, Coimbra.*

NOTES FROM DAMASCUS *(Continued from p. 905).*—In some of the shops I saw among the books, or on the tool chests, boughs of the Almond tree in full blossom; in others there were branches of the glossy-leaved Myrtle, and small cups filled with Violets. I approached the workshop of a certain man named Et Tayyib ebn esh Sheikh el Embârak, which being interpreted literally is "The good or agreeable one, son of the Sheikh, the fortunate or blessed one." We have our corresponding "Virtue & Co., of Ivy Lane." Et Tayyib is one of the best bookbinders in the city, and had frequently worked for my brother and for me. He was kneeling down on the floor of his little shop, and was separating with great care the leaves of an old M.S. copy of the Koran, preparatory to rebinding it. On the black marble slab, fitted on to the top of a small Walnut-tree chest, which served as his bench, there stood a glass, filled with flowers of the Narcissus. As I drew near Et Tayyib recognised me, and with a pleasant greeting offered me one of the flowers, saying, "Behold, O lady, the *narjis* has awakened from its winter sleep!" I replied, "How welcome is its awakening!"

A Moslem gentleman, who wore a long lilac cloth pelisse lined with fur, and a large white turban, was sitting on the floor opposite to Et Tayyib, and was engaged in reading in a murmuring undertone a commentary on the Koran. He presently looked up from his book, and asked me if the Narcissus, "the food for the soul," grew in my country, and he congratulated me when I informed him that in our gardens it arrived at perfection. He then asked me if we had groves of Palm trees, but he made no comment when I replied in the negative. It is said, that "God created the Date Palms for the Moslems, and He has decreed to them all the countries where these trees are found." Perhaps my interlocutor was thinking of this prophetic tradition.

Et Tayyib allowed me to examine the exquisite illuminations of the manuscript which he was repairing, and showed me the cover, of crimson and purple and gold, which he had prepared for it. Pieces of purple leather were cut and inserted, as centre pieces and corner ornaments, into the crimson leather, and enriched with gold arabesque designs. The joints were exceedingly neat and close, so that the cover appeared to be formed of one piece of leather. He showed me some old book-covers of the same description of workmanship; some were green and gold, others brown and green; the pieces of inserted leather were quite firm and undisturbed, though the covers had evidently been much used. I asked him what kind of paste he employed to produce so good and durable an effect. He showed me a little basin filled with a stiff yellowish paste, inodorous, and of great adhesive power. I said, "What is this made of?"—"Of meal and water."—"What kind of meal?"—"The meal of a root that grows at Palmyra, in the desert."—"What is it called?"—"Sarras." Et Tayyib could not enlighten me further, for he had never seen the root in an unground state, and had no idea what kind of flower sprang from it.

I took a small portion of the dry meal away, and pursued my walk. I had several other flowers, both wild and cultivated, given to me by the shopkeepers in the cotton and silk bazaars, where Manchester goods and silks of native manufacture are displayed. Even in the butchers' shops which I happened to pass, there were branches of evergreens and Almond blossoms.

A short time afterwards I visited the shoemakers' bazaar, a very much more extensive and busy one, by-the-by, than that of the booksellers. Here I saw a great number of men and boys making yellow morocco slippers and socks and over-shoes for women, and red leather shoes and high boots for men. I noticed that they were using the same kind of paste as that which Et Tayyib had shown to me. On inquiring of one of the workers the nature of the meal, he told me that it was the powder of a root brought from Palmyra and the Hauran, and then he good-naturedly sent a little boy with me to show me the way to a shop, not far off, where the meal was sold. Here I saw an old man, wearing a pair of large clumsy silver spectacles, a green turban, and an old brown and white camel-hair cloak. He sat on the floor of his little shop, in the midst of a number of well-filled sacks. He was smoking a narghilé, and fingering a rosary made of Olive stones. One of the sacks close to him was open, and on the surface of the

fine yellow Sarras powder which it contained, there was a beautifully embossed brass basin, or measure, with an inscription from the Koran round it.

The descendant of the Prophet—for such I knew him to be, by his green turban—seemed greatly amused at my inquiries concerning the Sarras, and he asked me why I wanted to learn its history. He did not put this question impertinently, but simply because he was really puzzled to know why a woman should trouble herself about such things. I explained to him that the paste made of the Sarras seemed to me to be so excellent, that I wished to know what plant produced it, that in case it did not grow in England, my country, I might introduce it there if possible. "O wonder of wonders!" he exclaimed. "The daughters of England are wise." He then opened a small camel-hair sack, and took out some samples of the root. He handed them to me saying, "Take what you will, O Lady, they are all yours, and everything that I possess is at your service." I selected three of the most perfect of the roots, and then continued my questions.

From the old man, and from one of his neighbours, also a dealer in Sarras, who joined us, I obtained the information that the roots are gathered late in the autumn, in the Desert of Palmyra, and in the neighbourhood of Homs, the ancient Emessa. The Bedouins and peasants bring camel-loads of it to Damascus every year. There is a water-mill just outside the city, which is used solely for grinding the Sarras. The root is beaten with sticks into pieces of about half an inch long before it is put in the mill. When I asked the old man what kind of flower grew from this root, he said, "God knows, the roots only reach our hands, we have never seen the flowers."

Before I went away he took off his great spectacles, and asked me to look at his eyes, and to tell me if I thought he should become blind, and whether I had any English medicine for the sight. I suggested to him, what struck me immediately, that the fine dust of the Sarras was injurious to his eyes. His spectacles did him very little service in this respect, for I observed that he took them off when he measured the meal, and he admitted that he did so always.

On my return home I carefully examined the roots. I found that they were attached to the base of a bulb, and consisted of reddish brown, shrivelled and slightly tapering woody fibres from 7 to 10 inches in length, and about a quarter of an inch in diameter at the base. A brown silky skin encased each fibre, and was easily rubbed off. About 10 or 12 fibres were attached to each caudex, which is on an average about three-quarters of an inch in diameter, and very regular in form. No portion of the bulb remained attached to any of the specimens I have seen. I asked a great number of people for information, but no one had ever seen the flower. Not even my old friend Dr. Meshakah, the cleverest native doctor and herbalist in Damascus, could help me in this matter. He said that the name Sarras was no guide, for this was simply a corruption of the Arabic word for root, *sharash;* and in this corrupted form it was used to designate not only the root, but the paste, and the meal prepared from it.

Shortly afterwards Dervish Pacha, the chief Military Governor of Syria, called at the Consulate, attended by Dr. V., the chief military doctor of Damascus. I showed to the latter one of the roots, but he could not identify it. His Excellency Dervish Pacha, however, recognised it immediately, and said, "It is called in Turkish *Tcherish;* I saw it at Montenegro. The people there grind the roots and use the powder not only for making paste, but in time of scarcity—that is to say, in time of war—they make bread of it, using equal parts of Wheat and of this root powder." The leaves, he added, are very mucilaginous, and a thick gelatinous soup is prepared from them. He could not describe the flower; he had never observed it.

I mention these details in order to convey an idea of how difficult it is even for a resident foreigner to obtain anything like exact scientific information on such subjects from the natives. However, in the course of my researches in this city I have always met with extreme courtesy from people of all creeds and classes, and I have found them always willing to take any trouble to serve me. This may be partly for my brother's sake; but still more, I think it is because the Damascenes are naturally kind and courteous. *Mary Eliza Rogers, H. B. M. Consulate, Damascus.*

[The "Sarras" root is evidently the root of Asphodelus ramosus, apparently in general use in the East for the purposes mentioned in our correspondent's letter. EDS.]

Societies.

ROYAL HORTICULTURAL: *Sept.* 3 (*Floral Committee*).—The Rev. Joshua Dix in the chair. Foremost among the subjects exhibited was a large quantity of Seedling Dahlias, some critical notes on which are given on another page. Mr. G. Rawlings, Bethnal Green, had Hebe, which was awarded a First-class Certificate. Mr. C. Turner had Yellow Perfection, awarded a First class Certificate; Mrs. Dorling, awarded a Second-class Certificate; Mutabilis, Liberty, and Madame Nillsson, three Fancy kinds. Mr. Hopkins, of Brentford, had Yellow Gem, Excellent, and Master Robert; Mr. W. R. Bragg, of Slough, The Hon. G. Wellesley and Commander; Mr. G. Wheeler, of Warminster, Flag of Truce and Chameleon, awarded Second-class Certificates: and Mrs. Burgess and Mrs. Adams; Mr. Eckford, the Gardens, Coleshill, Velvet Cushion, The Hon. Mr. Bouverie. Earl of Radnor, and Mrs. Brunton; and Mr. Keynes, of Salisbury, Sir Greville Smythe, Lady Derby, Viceroy of Egypt (Fancy), and Leopardess (Fancy), all awarded First-class Certificates; Wonderful (Fancy), awarded a Second-class Certificate; Rosy Queen, Chameleon, Emma Newman, Snowball, Purple Gem, Miss Sarah Turner, Yellow Boy, Mrs. Dodds, and Duke of Edinburgh. Mr. Eckford, the Gardens, Coleshill, exhibited six varieties of new Verbenas, viz., Bravo, awarded a Second-class Certificate; Lord Derby, Beauty, pale rosy pink, with orange crimson centre; Mrs. Laing, dark rosy crimson, with pale centre, pips large and rough; the Bride, a white flower, with small ring of pale rose round the eye; and Helène Matilde, deep pink, with a darker ring round a lemon eye, A bedding variety, named Queen of Bedders, was shown by Mr. W. Walker, gr. to J. A. Rose, Esq., Wandsworth Common, the colour violet crimson with pale eye, very dwarf habit, and free blooming: appears to keep its colour well, but its flowers are very small. A collection of cut Verbenas from the open ground was shown by Mr. H. Cannell, Woolwich, and awarded a Special Certificate.

Some seedling Gladioli were produced by Mr. J. Stevens, the Gardens, Malvern Hall, Solihull, one being a crimson form of G. brenchleyensis, the flowers small and of poor form; this was named Wigley Williams; Annie Stevens, bright orange rose, with white and lemon throat; and Margaret Booth, salmon rose, striped and suffused with pale crimson.

A single bloom of Cattleya sp. came from Mr. Brocklehurst, gr. to A. Turner, Esq., Bow Bridge, Leicester, a supposed variety of C. labiata. It was referred to Mr. Bateman for his opinion as to whether it is a distinct variety. A fine collection of cut Orchids came from Mr. J. Anderson, gr. to T. Dawson, Esq., Meadow Bank, Uddingstone, and was awarded a Special Certificate. They consisted of an Oncidium sp., from Peru, thought to be O. excavatum; Epidendrum sp., from Trinidad; two fine spikes of Odontoglossum grande, Bletia Sherratiana, Cattleya Aclandiæ, Oncidium leopardinum (?), sweet-scented; Saccolabium Blumei Dayanum, and Odontoglossum hastilabium. Messrs. J. Veitch & Sons, Chelsea, had Aerides Huttoni, from Java, with rosy violet flowers, standing erect on a pendent stalk; a small plant, but very free blooming; awarded a First-class Certificate. Messrs. T. Jackson & Sons, Kingston, had an Aerides sp., from the East Indies, apparently allied to conspicua and Drosera dichotoma in bloom.

A golden-foliaged Euonymus, named flavescens, was shown by Mr. W. Paul, Waltham Cross, having four shoots, some 3 or 4 inches of each of which was of a clear golden hue, the other leaves mottled with green and gold. It was considered by the Committee to be a great acquisition, but they recommended that it should be propagated, and a few plants shown at a future season to show its constancy.

Some leaves of a Seedling Variegated Zonal Pelargonium were sent by Mr. John Mogford, of Wells. It appeared to be a Seedling of considerable promise, and Mr. Mogford was recommended to send plants of it to the Floral Committee.

Fruit Committee.—Geo. F. Wilson, Esq., in the chair. A collection of Tomatos grown in pots came from the Society's Gardens at Chiswick, of which we have already given some account. A First-class Certificate was awarded to Grosse Verte, a large green Fig, from the Gardens of the Society. Though not new, it is but little known, the skin pale green, the flesh deep red, the flavour juicy, rich, and altogether excellent. A very interesting collection of Apples grown on the Doucin stock, amounting to about 60 varieties, came from Mr. W. Paul, Waltham Cross. The fruits appeared to be generally of excellent quality. Mr. A. Spary, Chailey, Lewes, sent some very large but coarse-looking pods of what appeared to be the Scarlet Runner Bean, which was named Spary's Premier; and some large pods of Pre-eminent Wrinkled Marrow Pea, the pods very large, the Peas hard, and of very indifferent flavour, in a green state. Mr. G. Edgerton, gr. to Countess Waldegrave, Strawberry Hill, sent a large Green-flesh Melon, of indifferent character; and from Mr. N. Cole, the Gardens, Orton House, Hammersmith, came some small branches of a Peach, the fruit hanging in very thick clusters, but suggestive of the injurious effect on the bearing properties of the tree for another year.

DUNDEE HORTICULTURAL: *Sept.* 4.—The grand Floral Fête held by this Society in honour of the visit of the British Association, opened on Wednesday last, and continues till this day. The show is held in the Baxter Park, and is on an extensive scale, the schedule consisting of no fewer than 153 classes. It is comprised in a large, oblong central tent, from which six others radiate. There is also, in a large circular tent close at hand, a separate show, consisting of flowers and vegetables, got up by working men. The general show may be designated a good one for this season of the year. Its weak point was in the specimens of stove and greenhouse plants; its strength lay in Ferns, both hardy and tender, with some very good foliage plants and Fuchsias, a fine display of vegetables and bouquets, and a considerable exhibition of fruit of general good quality. Of this latter there are four collections of 10 dishes; four collections of Grapes; 23 bunches of Grapes, among them some well-swelled Hamburghs, but deficient in colour; several dishes of Peaches, some especially good, coming from Mr. Brown, Kilmaron Castle, and Mr. Ewing, Castle Menzies. The first prize for black Grapes was given to Mr. Morrison, Inchmatun, for a well coloured bunch of Lady Downes, and the second to Mr. Murray, Brycedale, for a fine bunch of Hamburghs. There was the usual complement of Melons, Apples, Pears, &c., and 127 dishes of various small fruits. Of baskets of vegetables, some containing six and others 10 kinds, there were 29 exhibited, the quality of these, as well as of the Cabbages, Savoys, and other exhibitions in the separate vegetable classes, being remarkably good. There were nine additional collections of vegetables shown for a special prize, and 10 collections of six plants of Curled Parsley also for a special prize. Cut flowers were very numerous and varied. There were 24 sets of hand bouquets containing three each, 14 larger table bouquets, and 10 very interesting bouquets of wild flowers; 52 spikes of Hollyhocks, and 22 stands of single blooms, Messrs. Downie, Laird & Laing showing very finely in this class; 27 stands of Dahlias, 18 of Pansies, 14 of Roses, and 14 of Gladioli, among which latter the finest group was contributed by Messrs. Downie & Co. In another tent were 20 sets of Pentstemons, 8 of Phloxes, and 11 of herbaceous plants, but the specimens of these were too long, and set up in anything but a neat and effective manner; 24 stands of Asters, indifferent in quality; and 25 of Marigolds, among which latter some very finely striped blooms of the French sort came from Mr. Marshall, Invergowrie. Some well flowered Liliums came from Messrs. Stewart & Son, of Dundee, who had one tent entirely to themselves, in which they exhibited various Conifers and other Evergreens, and a miscellaneous collection of tender plants. A few good orchard-house trees came from Mr. Halliday, Scone Palace.

Among the Conifers shown was Abies Greigii, an interesting plant, said to be new, and apparently distinct. It had pale green, blunt, linear leaves, set equally on all sides of the stem, and bore a Picea-like aspect. There were, finally, some very remarkable floral devices, in the shape of dragons, shields, pyramids, &c., unnecessary and certainly not ornamental objects, the production of which must have been a sheer waste of much valuable time.

One of the most interesting objects shown was a case of Hymenophyllums, containing a pair of hassocks of our two British species, from plants which had been gathered in Arran in 1865. These were shown by Mr. Moir, the Vice-President of the Society, and had been grown by simply binding the natural tufts with incorrosive wire on the outside of inverted flower-pots, and keeping them afterwards moist. They were in a most vigorous state of growth, and highly creditable examples of Fern cultivation.

Among the many Ferns exhibited are several new varieties, which received Certificates of Merit. They were shown for the most part by Dr. Lyell, of Newburgh, and Mr. E. J. Lowe, of Beeston, both well known Fern growers, and comprised the following, which are all desirable varieties:—Scolopendrium vulgare coronare, formosum, Hookeri, notabile, stenomenon, Morgani, triforme, and Moorei; Athyrium Filix-fœmina apioides, Edwardsii, and pulcherrimum; Blechnum Spicant ramosum brevilobum, kalon, and imbricatum Cliftii, and Polystichum angulare Buckleæ.

Some very ingenious rustic seats, of vitrified pottery, were shown by Messrs. Hudspeth & Co., Wishaw. They represented the stump of a tree cut off to form the seat, with portions of the erect branches left to form the back or elbows, the branches being hollow and having apertures in various parts in which Ferns and other plants are to be planted. The openings were so arranged that they appeared to be formed by the cutting off of a branch. Still more useful were some erect stands with receptacles for several plants; these might be used in a greenhouse to economise space, as well as to expose the smaller and more delicate species more fully to the influence of light and air.

Our northern friends will forgive us for indicating that they have something to learn in regard to the organising of great Flower Shows. For instance, it is a most inconvenient arrangement for competing collections to be set, as they were here, across a stage facing in two directions, half looking one way and half the other—ineffective as regards the display, since the plants cannot be set to the best advantage, and most inconvenient for the judges, who have to examine the two sides of a collection separately. Then again, the practice of marking the collection by placing on it the address of the exhibitor, sealed up in an envelope, and only to be opened, when the award is made, is a most tedious process, rendering it difficult for the judges to note their awards, and one which is quite behind the age. These, together with some other minor matters, are worthy the serious consideration, with a view to remedying them, of the spirited Committee and its indefatigable Secretary.

Notices of Books.

Mushrooms and Toadstools. By W. G. Smith. Pp. x. and 64; with two large sheets containing figures of Edible and Poisonous Fungi. London: Hardwicke, 1867.

This little volume, with its two sheets of characteristic drawings, is published with the laudable endeavour of making generally known the distinctive marks and aspects of some of our more generally diffused, useful, and deleterious Fungi. It is not only desirable that this should be done because amongst certain persons there is a passion for making experiments amongst many doubtful species, from an impression that there are really very few which are dangerous, but because a great deal of useful and nutritious food is suffered to lie waste from mere ignorance. The large sheets of drawings, after the manner of some which appeared a short time since in Denmark, are made with a view of their being suspended in schoolrooms, cottages, entrance halls, and libraries, that people may become familiar with some of the leading forms. By themselves alone they would be scarcely sufficient, though the differences between Marasmius oreades and M. urens are clear enough when they are once pointed out, the species are at first sight so like each other that they may easily be confused, and mere figures without recourse to the text will scarcely indicate the real distinction; and the same may be said of Agaricus gambosus and A. crustuliniformis, for though no one could well make a mistake who had ever seen the two together, the smell being alone a sufficient distinction, when figured they are so alike that any one attending to the figures alone might easily confound them; and, indeed, Sowerby's figure of A. gambosus, under the name of A. graveolens, was mistaken for one of the forms of A. crustuliniformis till we had an opportunity of examining his original drawing, and the pencil notes upon it. The drawings and the book should therefore be taken as two parts of a whole, and there will then be no chance of error.

Mr. Smith has good reason to give a serious caution, having very nearly lost his life by eating a portion of Agaricus fertilis (*Bull*), the interesting account of which we subjoin, premising that different species of Agaric, like some other articles used as food, are dangerous to some individuals, while to others they are quite harmless. Mr. Salter, who was attached to the Geological Survey, on one occasion, when it was difficult to procure fresh meat, consumed indiscriminately every species of Boletus with which he met, without the slightest inconvenience. Those which turned blue when cut, amongst which are some very dangerous species, were used as fearlessly as the others; and we have just heard from a friend that he lately ate by mistake a specimen and a half of A. muscarius without suffering from more than a slight tipsiness. Mr. Smith shall, however, speak for himself of Agaricus fertilis, which grows sometimes to a great size.

"Without doubt, this is a furiously poisonous plant, for I once cooked a very small piece of a specimen for luncheon, and was very nearly poisoned to death thereby. I did not eat a twentieth part of the specimen gathered, I am sure not so much as a quarter of an ounce, and the taste was by no means disagreeable. But mark the result (It must be borne in mind that though I fell so dangerously ill, I never till the last moment *suspected the Fungus*. Such a confirmed toad-stool-eater was I, that I laid my symptoms to anything but the true cause).

"About a quarter of an hour after luncheon I left home, and was immediately overtaken by a strange nervous, gloomy, low-spirited feeling quite new to me. Soon a severe headache added its charms to my feelings, and then swimming of the brain commenced, with violent pains in the stomach.

"I had now great difficulty to keep on my legs at all; my senses all appeared leaving me, and every object appeared to be moving with death-like stillness from side to side, up and down, round and round.

"More dead than alive I soon returned home and was horrified to find two others, whom I invited to partake of my repast, in exactly the same condition as myself. At this moment, and not before, I thought of Agaricus fertilis. These two had suffered precisely as I had done, and we all three were apparently dying fast. They, however, were attacked with fearful vomiting, which I imagine helped to hasten their recovery, for after a few days of sickness and nausea (with medical assistance) they got well. But it was not so with me, for I had not the strength left to vomit,

During the latter part of the day I was so continually and fearfully purged I really thought every moment would be my last, and it was not till a fortnight had elapsed that every bodily derangement had left me."

It is well therefore to hasten slowly in these culinary experiments. Dr. Badham suffered severely from simply eating the spores of Lactarcus vellereus, and his village schoolmaster was nearly dying from mistaking Agaricus emosmos for Agaricus ostreatus, the former of which smells strongly of Tarragon and has pink spores, characters which do not exist in the latter.

The case above mentioned was not Mr. Smith's only misadventure. Marasmius urens let him off more easily, but he paid the penalty of a day or two's serious illness from eating it mixed with M. oreades. The two grow together in great profusion in the sandy pastures in the Kew pleasure grounds, and figures were in consequence given in the "Outlines of British Fungi," as a caution to the admirers of the best of all British Fungi, the Champignon. The broad cream-coloured gills will always distinguish it, whereas those of M. urens are narrower and darker.

We are glad to see Mr. Smith give so good a character of the Horse Mushroom, which is rejected by most cooks because it turns yellowish when bruised. The Rev. R. T. Lowe some years since convinced his neighbours in North Lincolnshire, where it grows in profusion, of its excellence, and it is now carried to the Yorkshire markets in cart-loads, having been previously entirely neglected. Indeed it is almost the only species to be met with in Covent Garden Market, except in the punnets of the leading fruiterers, whose specimens are all of artificial growth.

Mr. Smith's talents as a draftsman are well known to the frequenters of the South Kensington Museum, from whence his drawings were sent to the Paris Exhibition. Characteristic as the two sheets are, and excellent in point of drawing, the colouring scarcely does him justice. We would point more particularly to Agaricus muscarius and Lactarius deliciosus, the tint of the first being not sufficiently scarlet, and that of the latter not enough orange. It was, however, requisite to make the price moderate, and in consequence diversity of tint has perhaps in some measure been sacrificed. We would not, however, say anything to depreciate the real usefulness of the work, and we should be glad with the publisher to see the illustrative sheets suspended largely in our schools and houses. That the effect of so doing would ultimately be extremely beneficial we have no doubt, though like every useful project it may make its way but slowly.

British Butterflies and Moths: an Introduction to the Study of our Native Lepidoptera. By H. T. Stainton, F.R.S., F.L.S. 8vo. Plates. Reeve & Co. 1867.

Science always has had, and always will have, two different kinds of votaries, the deep and the superficial; and as a necessary consequence, every subject, no matter how abstruse, must have books provided for the respective classes of inquirers and readers. For some years past entomological literature has made but small advances in England. The publishers of the work now before us deserve credit for bringing out a series of small books upon some of the principal groups of English insects, written in a style which will be much appreciated by those who desire to obtain a general knowledge of the subject. We recently noticed another of this series on the British Bees, and it is with much pleasure that we call attention to the present volume. The author is possessed of a combination of qualifications rarely met with in the world of science, viz., profound knowledge of his subject, ample time and means for pursuing it, and the power of communicating the information he possesses as freely in language that will fix the attention of a schoolboy, as in that sterner phraseology for which science is too often blamed.

The object of the book is to give a general idea of the British Lepidoptera, which for convenience may be roughly divided into butterflies, large moths, and small moths. Of the first, there are 66 species, of which Mr. Stainton here describes 38, and figures nine. Of the large moths 740 species are known, of which 137 are here described, and 52 are figured; while of the 1170 recorded kinds of small moths, descriptions will here be found of 62, and figures of 36 species. The selections have been judiciously made, and not more than a due preference shown for the more generally-interesting larger insects.

It is just 10 years ago that Mr. Stainton published a manual of 800 pages, containing a short description of every British butterfly and moth then known. Since that time the number has been increased by 74 species, but this conveys only a small notion of the advance that has been made in our knowledge of this group of insects, and especially of the transformations of the smallest kinds. In this last field of inquiry much still remains to be investigated.

It would be foreign to our pages to transfer to them any of the strictly scientific portions of the descriptions, but we may illustrate our author's style of general remarks by the following, taken at random:—

"Gonepteryx Rhamni (the Brimstone Butterfly).—This pretty species is common in the south of England, and generally distributed; in the midland counties it is scarce, and disappears entirely before we get as far north as Scotland, the northern limit of its food-plant, Buckthorn, not extending to the Tweed. * * * * The perfect insect emerges from the pupa at the beginning of August, and it tends to enliven the woodland scenery during many an autumn ramble, now sitting on the purple flowers of the Thistle, now on the blue flowers of the Devil's-bit Scabious. On a warm sunny day in October, we may still see stragglers of this species, after which they retire into outhouses, hollow trees, woods, stacks, &c., where they remain dormant during the winter; but the first warm sunny days in February and March entice it from its winter retreats, and when we see these butterflies threading their way along some sheltered lane they seem to us the happy harbingers of spring."

In this extract we notice some tautology and irregularities in grammatical construction, which will, doubtless, be corrected in another edition, and which would not have escaped the author if he had had occasion to treat this work as he is doing his elaborate monograph of the smallest moths, viz., to print it in four languages in parallel columns.

The figures which are given are perhaps a little too highly coloured, making the illustration (to those who are well acquainted with the insects) appear rather as diagrams than as accurate representations, to which view we are also led by the engravings being sometimes larger and sometimes smaller than the insect depicted; nevertheless the details of the markings are in each case so carefully and correctly rendered, that no one can doubt for an instant which species is referred to. In every respect the book is a useful addition to our entomological library, and will, we believe, induce many to take an interest in this branch of natural history who have never done so previously.

CATALOGUES RECEIVED.—The accumulation of Trade Lists on our table is a reminder that the busy season for gardeners is again coming round, and that those who would keep pace with the times in the acquisition of new flowers, fruits, &c., will find it necessary to study this branch of garden literature somewhat closely. We have now to invite attention to the following:—*W. Rollisson & Sons' Catalogue of Ferns*, a full and carefully-prepared list, arranged under popular heads; *Jean Verschaffelt, Catalogue des Plantes*, a general prix-courant; *Ambroise Verschaffelt, Palmiers Cycadées, Pandanées; Haage & Schmidt, Bulb Catalogue*, containing a great variety of subjects, many of them illustrated by slight woodcuts. There are upwards of 60 kinds of hardy Terrestrial Orchids offered, including many of the beautiful European Ophrydeæ, some 20 species of Orchis, and 14 of Ophrys. Of Home Bulb Lists we have:—*James Veitch & Sons' Bulb Catalogue*, also *Descriptive Fruit Catalogue, and List of Strawberries; Suttons' Catalogue of Bulbous Flower Roots; W. Paul's Bulb Catalogue; W. Cutbush & Son's Bulb Catalogue*, also *General Descriptive Catalogue; F. & A. Dickson & Sons' Dutch Flower Roots; B. S. Williams' General Bulb Catalogue*, also *New Plants* for 1867; *Archibald Henderson's Bulbous and other Roots; Litch & Ballantyne's Dutch and French Flower Roots; Dreghorn & Aitken's Catalogue of Bulbs; Smith & Simons' Dutch Root List.*

Florists' Flowers.

THE meeting of the Floral Committee at South Kensington on September 3d brought together a goodly number of Seedling Dahlias from Messrs. Turner, Keynes, Pope, Rawlings, and other well-known raisers. The flowers shown comprised some blooms of fine quality, and the following may be taken as representing varieties that will very probably appear in the front rank as exhibition flowers:—Hebe (Rawlings), a light-ground flower, very regularly and evenly tipped with rosy lilac, deepening to purple, the blooms of medium size, centre close and high, good outline, and fine form of petal. Yellow Perfection (Turner) marks a great stride in the improvement of the yellow flowers, the colour rich golden yellow, of a beautiful hue, centre close and high, good outline, plenty of substance, and said to be very constant. Sir Greville Smythe (Keynes) is of a bright orange-red shade, the centre suffused with purple, a flower of good properties, but not perfect in form, the centre petals being too upright. Lady Derby (Keynes) will make a very pleasing popular flower, though not perfectly first-class from the florist's strict point of view: the colour pale ground, heavily tipped with bright rosy purple: good petal and outline. Viceroy of Egypt (Keynes) is a somewhat large and flat flower, yet of good qualities as a fancy kind, the ground colour suffused rosy-lilac, with crimson stripes; a fine exhibition variety. Leopardess (Keynes), is another large and bold fancy flower, of the same build as the previous one; the ground colour lilac, spotted and striped with bright crimson, the petals of fine form—a bold and showy flower. The foregoing may be taken as representing the very cream of the new flowers shown on this occasion. Flowers of the next stage of quality were represented by Mrs. Dorling (Turner), pale fawn ground, edged with rosy purplish-lilac, a good-sized flower, which will be a useful exhibition kind; Flag of Truce (G. Wheeler) appears to be a wonderfully constant flower, the colour white, slightly suffused and striped with pale lilac: the petals are large and somewhat coarse, but yet it is a very taking variety, and it will always be found when wanted; Chameleon (G. Wheeler) has a yellowish-buff ground, with a kind of rosy-orange tip, heavier in some than in others: a very pretty flower; Wonderful (Keynes), another fancy flower of the same build as Viceroy of Egypt and Leopardess, the colour pale lilac ground, with purple flakes and stripes. They also will prove a very useful exhibition kind. Of other new flowers, the best were Yellow Gem (Hopkins), a small pale yellow flower, perfect in form and outline, but considerably undersized, the centre, though close and high, appears to get somewhat stained; Excellent (Hopkins) is also a small flower, but of a very lively shade of orange buff, and will no doubt be seen better as the season advances; The Hon. Gerald Wellesley (Bragg), shown in 1866, a deep bronzy buff flower, that looks as if it would prove very useful, though wanting in size as shown; Mrs. Burgess (Burgess), rosy crimson, flaked with purple, the flowers small in size but novel in character; The Hon. Mr. Bouverie (Eckford), buff, slightly streaked and pencilled with rosy violet; Rosy Circle (G. Wheeler), a bright shade of orange rose, suffused with purple, a very pleasing colour, and having a rich bloom; Purple Gem (Keynes), purplish ruby, a very bright and striking shade of colour; Miss Sarah Turner (Keynes), a flower of considerable merit, though not first-rate, a pale ground flower, somewhat heavily tipped with rosy lilac; Yellow Boy (Keynes), a large flower, wanting smoothness of petal and outline, yet of a good hue of colour; and Duke of Edinburgh (Keynes), deep purplish rosy crimson, some coarse, but promising. A considerable number of other seedling flowers were shown, but generally too young; some of these will, no doubt, be seen better at the next meeting.

Mr. Eckford, of Coleshill, produced a stand of his new Verbenas, though somewhat behind the fine quality of Mr. Perry's new varieties of the present year. The most striking flowers of the batch were Lord Derby, brilliant deep orange scarlet, with a conspicuous lemon eye, but the pips were cupped so much as to give it an unsightly appearance; and Bravo, cerise, changing to pale rose with age, with a small lemon eye, the pip of good form and stout, though a little rough, and the ultimate loss of the bright cerise hue gives it a somewhat washy appearance. *R. D.*]

The Apiary.

HONEY DEW.—I have taken off some honeycomb in two supers of a particularly dark colour, the honey being nearly as black as ink, and having a very peculiar taste. I am inclined to attribute this to honey-dew, which was very abundant about a fortnight previously, and which, being deposited principally on the Lime tree leaves that had become thoroughly ingrained with soot, was the cause of the very dark colour of the honey stored in the supers.

I may add that several of my apiarian neighbours have had to complain of the same peculiarity in the colour and taste of their honey taken at the same period. However, on the 22d ult. we had a heavy thunderstorm, since which the bees have been very busy collecting large quantities of honey. One hive increased in weight to the extent of 5 lb. 10 oz. in the course of 24 hours. This supply, I have no doubt, was obtained chiefly from honey-dew on the Sycamore trees; and I am pleased to observe that it is of a bright pale yellow colour—a great contrast to that previously noticed. We have usually prided ourselves on the beautiful pale, almost transparent, colour of our honey, and were both astonished and disappointed on discovering the quality and appearance of that taken by us this year. *D. D.*

[We are of opinion that the dark colour of your honey arose from the cause to which you attribute it. But in the south of England we have heard of no such honey-dew as that you describe as having taken place so late in the season. We should have been very glad if our bees could have had such a chance of laying in stores for winter consumption. Many hives are in a very bad plight in this respect, and we have no doubt that an immense number of stocks will be lost before another spring comes round.]

Garden Memoranda.

MOUNT MERRION, ONE OF THE SEATS OF THE EARL OF PEMBROKE.—This is situated about five miles from Dublin. The demesne, which is about 300 acres in extent, is charmingly located in the rich undulating plain which stretches from Dublin Bay to the Dublin mountains. The whole country around is studded with villas and mansions, in every style of architecture. The house is approached from the south-east by a broad straight avenue a quarter of a mile in length. On either side of the carriage-drive fine old trees are placed sufficiently distant to leave a very wide margin of Grass. It is however to be regretted that the drive was not kept a few yards further south, so as to have been in a line with the road called Mount Merrion Avenue. The whole would then have formed a noble avenue nearly two miles in length, and a good view of the sea and neighbouring mountains would have been obtained. The residence is a plain old building of no architectural pretensions, but large and comfortable looking, embosomed in trees and shrubs. Leaving the house to the right, a broad serpentine walk leads to the gardens, between which and the house a Pinetum is in course of formation. The trees planted last year are all looking healthy, and all passed through the winter frost unscathed. Mr. Welsh, the gardener, informed me that nothing was injured. The elevated position of the grounds, and their proximity to the sea, sufficiently account for this.

The garden is square, and contains 4 acres within the walls, which are 10 feet high, and covered with young healthy fruit trees. It is divided into two compartments by a wall running east and west. Th half next the mansion is in Grass, and forms what may be called the flower garden proper; the other half is devoted to fruit and vegetables. A 12-feet border and 8-feet walk are carried round the entire garden. The west, south, and east borders are filled with flowers. A 9-feet walk runs up the centre of the flower garden, parallel with the division wall. A high Beech hedge, running north and south, cuts the flower ground into two distinct halves.

Entering the garden at the north-east corner by the serpentine walk already mentioned, the eye runs along a border 300 feet long, planted from end to end with Pelargoniums, Lobelias, Centaureas, and Perillas. The arrangement is in circles and squares, alternating, set in a frame of Cerastium tomentosum. Every third square is planted with Perilla in the centre, next that Centaurea candidissima, then Lobelia. The circles are alternately scarlet and pink Pelargoniums. The principal Pelargoniums employed in this border are

Baron Ricasoli, Christine, Golden Chain, Perfection, Trentham Rose, Silver Chain, and Rival Nosegay.

The south border is also 300 feet long, and terminates at both ends in a mount of flowers. A broad belt of Pelargonium Stella runs up the entire length of this border. Next to this central belt, both back and front, is a line of Christine, and outside of all a line of Flower of Spring Pelargonium. But the belt of Stella is broken every 12 feet by a fine plant of Centaurea gymnocarpa.

The east border, which is of the same length as the others, has a broad central band of Purple King Verbena, edged with Alyssum variegatum. Every 12 feet of this border, like the others, is broken by a clump of Pelargoniums. It will thus be seen that while the borders are all planted in a totally different manner, there is a variety of design in the whole. This is effected by means of the central clumps of Perilla, Centaurea, and Pelargoniums. But these central plants do more than preserve a general unity—they relieve the masses of colour, and break and relieve the flatness of the outline. Several beds of Viola cornuta on one of the borders were blooming in great perfection, but Mr. Welsh says that they require constant watering, to prevent them from flagging.

Returning to the lower or eastern end of the garden: on either side of the central walk are charming ribbon borders, both borders being exactly alike in every respect. They are 12 feet wide, and 180 feet long. They are planted as follows:—Next the walk, Mrs. Pollock Pelargonium; 2d line, Iresine herbstii; 3d, Christine Pelargonium; 4th, Flower of Spring Pelargonium; 5th, Purple King Verbena; 6th, Perfection Pelargonium; 7th, Centaurea candidissima; 8th, Cybister Pelargonium—the whole backed by a line of Hollyhocks and Standard Roses. No mere list of names can give any idea of the beauty of these borders, whose soft mellow glow of colour reminded one of the pictures of Rubens. If ribbon borders required any vindication, it might be found here. The plants are remarkably fine, some of the leaves on Mrs. Pollock being 6½ inches in diameter, and the colour all that could be wished. The Iresine is equally good—the foliage dark and crisp. Indeed, were the Centaurea and Iresine taken out of the borders it would be difficult to supply their place; they are the lights and shadows of the picture. About 600 plants of Mrs. Pollock are employed in these borders. The smooth and well-kept Grass on both sides of the ribbon borders are adorned with single specimens of Conifers, among which is a fine Araucaria imbricata, 15 feet high; also Cedrus deodara, 18 feet; Irish Yews, &c. On the opposite side of the Beech hedge already mentioned, a number of flower beds of moderate dimensions have been cut out on the Grass. These beds are chiefly filled with Verbenas, edged with some other material. Mr. Welsh believes it to be necessary in every case to have an edging between the principal colour and the Grass. Particularly fine among the Verbenas were Firefly, Foxhunter, and Le Grand Boule de Neige—the latter having very large trusses of pure white flowers.

There are two principal ranges of glass within the garden. Each range is divided into three compartments, which are devoted to the culture of Grapes and Peaches. Many of the Grapes were cut, but one house had a fine crop of Black Hamburghs, as black as Sloes, and covered with bloom. In one of the houses were some nice Vines in pots, with nine or ten small but well-coloured bunches on each Vine.

Leaving the garden at the south-west corner, and immediately outside the wall, there is an artificial mound erected for the purpose of obtaining a better view of the surrounding scenery. From its summit is seen a part of Dublin Bay and the Wicklow and Dublin mountains. Conspicuous among the Wicklow mountains the Sugarloaf lifts its conical top above all the others. But leaving this mound and traversing a walk in a north-westerly direction, we come to a still finer prospect. This walk is carried within a sunk fence, enclosing about 30 acres of pleasure ground, most of which is planted with forest trees, such as Oak, Elm, Ash, and Scotch Fir. At the extreme north-west point of the enclosure is about a quarter of an acre of natural rockery, planted with Ferns, Alpines, Hydrangeas, &c. Close to this is a sort of temple or tower, from the summit of which a magnificent view is obtained—the whole of Dublin Bay, with its shipping and fortifications, the Hill of Howth, Ireland's Eye, Lambay, and Dublin city, stretching from the head of the bay to the Wellington Monument and the Phœnix Park. There are seven broad walks radiating from a shell-house in the centre of the wood, each walk opening up a view of some interesting object, such as the Pigeon House Fort in the bay, the Dublin mountains, Kingstown harbour, &c. One of these radiating walks leads straight back to the mansion.

The whole of Mount Merrion is admirably kept, and all is under the charge of Mr. Welsh, who acts as steward as well as gardener. *J. D., Kildare.*

Miscellaneous.

Death of Mr. Chapman.—We have to record with regret the death of Mr. Wm. Chapman, which took place on the 3d inst., in the 50th year of his age. He was lately chief gardener to H. H. Halim Pacha, Shobrah, Egypt, and was previously 15 years gardener at Eaton Hall, Rutland. While in Egypt he was an occasional contributor to our columns.

The late Mr. Thomas Dawson.—Mr. Dawson was buried on the 24th ult. in the pretty parish churchyard of Hertinfordbury. He was for many years head gardener at Earl Cowper's, Panshanger, Herts, and will be long remembered by gardeners as an exhibitor of forced fruits, and occasionally of pot Roses, in the cultivation of both of which he was most successful. He had been long subject to an internal affection, under the influence of which his naturally robust constitution at last gave way, after having nearly reached the advanced age of three score and ten years.

An Objectionable Old Man.—Young Ladies. "Going to make a flower bed here, Smithers? Why, it 'll quite spoil our croquet ground!" *Gardener.* "Well, that 's yer Pa's orders, Miss! He 'll hev' it laid out for 'orticultur, not for 'usbandry!!" *Punch.*

Garden Operations.

(For the ensuing week.)

PLANT HOUSES.

Stove and *Intermediate* Houses must now, as the days shorten, be allowed rather less air than they have been having. A little given about ten in the morning, and taken off again soon after two in the afternoon, will suffice, in a general way. Let me enforce the fact upon those who may not be able to afford time to study these matters, that during dull intervals which may occur at this season, a maximum artificial heat is more injurious than otherwise to plants. With a gentle fire, give just a slight amount of heat, sufficient only to insure a night temperature of 60° to 66°. Air may also be given at one or two of the openings at the apex of the house. Air given carefully at this season has many advantages, one among which is altering the inner sluggish atmosphere and stagnant damp, which is so injurious to wood ripening. Cease syringing all plants in cold structures. Expose *Lantanas* freely to the sun's rays as they show the first symptoms of colour. Water them freely upon hot days, giving an occasional supply of clear liquid manure. Give such *Cyclamens* as are intended for spring flowering a shift into fresh soil. They like a compost formed of one part peat, three parts good fibrous loam, and one part thoroughly decayed manure and silver sand. Pot them moderately firm, just half burying the corm below the surface, and fixing it firmly in this position. Place them in a gentle heat for a time, until they have made a slight start. Be very moderate, comparatively, in supplying atmospheric moisture to *Orchids* after this date, as these must be gradually induced to again resume a season of rest. All *Dendrobiums* will be much benefited, after having finished their growth, by being placed in an open, airy vinery, where, kept perfectly dry, they may mature the young pseudo-bulbs, and be induced to flower more freely than when retained in the Orchid-house, or any similar position, where only a slight amount of humidity is kept up.

FORCING HOUSES.

Openings will periodically occur about this season in *Pineries*, through the removal of plants which have ripened their fruit. This will afford increased opportunity for the necessary re-arrangement of the whole stock, preparatory for winter treatment. These autumnal arrangements should not now be long delayed. If a thoroughly successional stock exists, it will be well to divide it into three sections, namely, plants in any of the various fruit-bearing stages, larger successionals intended for spring fruiting, and younger stock. These, to treat them efficiently, should have separate compartments, whether in pits or houses. The first two will appreciate constantly a slight amount of artificial heat, and especially at night, and when dull, sunless weather prevails. This will be best given to them at all times when air can be admitted pretty freely. Give rooted suckers, and young plants generally, air pretty freely also whilst any moderately favourable weather lasts. The strongest succession stock will likewise be benefited by similar treatment, without, however, allowing so much atmospheric moisture as it has hitherto been accustomed to. This will aid more surely in maturing the summer's growth which has been made. Syringe *Figs* less after this date, and cease watering so plentifully at the root. Keep slight fires in the houses where the crop is ripening. I have lately been asked, "When are *Melons* ripe? How do you tell?" A subject doubtless of interest to many "amateurs," whose wants I am anxious to meet. When they assume a lighter or more yellow tint it may be surmised that they have arrived at their full size, and that they are commencing to ripen. At that stage keep them drier than previously. In time they will be found to diffuse a slight smell, and at this stage a distinction should be made between "hard" and "melting fleshed" ones. As soon as the latter begin to crack between the base of the fruit-stalk and the upper rind of the fruit they may be cut, and removed to a cool, airy place. They will be ripe in a day or two from the time of severing them from the plant. Allow the hard-fleshed ones, on the contrary, to remain attached to the plant until they are nearly loosened therefrom, when they likewise should be taken into an airy, rather more sunny situation, they will be fit for use in three or four days afterwards. Some amount of observation is really needed to detect the merits and peculiarities of individual varieties. This is why new Melons, even of merit, are so slow in making way with the public, and especially hard-fleshed ones. Thickness of flesh, weight, &c., in relation to the ripening process, are, however, the basis upon which to judge them.

HARDY FLOWER GARDEN.

Admit of no further delay as regards the propagation of all "bedding stuff." The season quickly advances from early September, to the cold first signs of winter. Besides, the sooner all plants are struck and have become established the better opportunity there is to harden them off by due exposure before storing away for the winter. *Pelargoniums* might be kept safely, in any quantity, placed thickly in store pots, 16-sized, or shallow pans, with a good drainage and abundance of gritty road drift, or clean silver sand, mixed with the loam into which they are dibbled. Remove all the larger leaves in making the cuttings: do not cut them too short, as the longer they are the better they withstand the effects of damp; hence, also, it is best to select such as are most hardened and exposed. When the cuttings are made, lay them upon their sides in any open shed for a day, when they are fit for dibbling into the pots. Do not water for a day or two, and place them in an exposed situation in full sunshine. Pot up *Picotee* cuttings or layers where shelter through the winter can be afforded them. Place two in each pot at opposite sides. Gritty loam is most suited to them. Give thorough soakings of liquid manure to *Dahlias*, and continue to support the branches as they grow. Destroy earwigs by placing Bean-stalk traps amongst the branches. These are not nearly so unsightly as pots elevated upon thick protruding stakes.

HARDY FRUIT GARDEN.

Peaches and *Nectarines*, which are generallly late this season, will be ripening fast now. As regards the injury accruing from the attacks of insects, it will be best to gather the fruit before it is quite ripe. Go carefully over it, and remove all showing first symptoms, placing them when gathered in a cool, airy shed or fruit room, upon sheets of soft paper: here they may remain until sufficiently ripened for use.

KITCHEN GARDEN.

The *Winter Spinach*, sown about the 10th ult., will now be well above ground, and will need hoeing and thinning out if too thick. Transplant into permanent winter quarters *Lettuces*, *Cabbages*, and *Endive*, as frequently as any of the late sowings become sufficiently large for handling. The Endive and Lettuces should be planted very thickly after this date, in rows; say 6 inches apart. Cabbages should be 2 feet apart in the rows, by about 18 inches between the plants. Continue to earth up *Celery*, which at all times should be done with the hands, holding each plant separately in one hand whilst the soil is put to it with the other. Sprinkle flowers of sulphur over late *Peas* which show any symptoms of mildew upon the foliage. *W. E.*

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the Week ending Sept. 4, 1867, as observed at the Horticultural Garden

Aug. and Sept.	Moon's Ages.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Of the Air. Min.	Of the Air. Mean	Of the Earth 1 foot deep.	Of the Earth 2 feet deep.	Wind	Rain.
Thurs. 29	●	30.150	30.088	72	48	60.0	62	60	S.	.13
Friday 30	1	30.084	29.924	73	49	61.0	63	60	S.	.00
Satur. 31	2	29.858	29.812	78	65	71.5	63	60	S.E.	00
Sunday 1	3	29.919	29.818	80	45	62.5	65	61	S.E.	.00
Mon. 2	4	30.072	30.041	78	59	68.5	64	61	S.E.	.20
Tues. 3	5	29.982	29.868	74	53	63.5	65	61	S.E.	.22
Wed. 4	6	29.835	29.807	74	54	64 0	64	61	S.W.	.10
Average		29 985	29.908	75.5	53.3	64.4	63.7	60.5		0.65

August 29—Cloudy; very fine; cloudy at night.
— 30—Fine; exceedingly fine; clear at night.
— 31—Fine; exceedingly fine; overcast.
Sept. 1—Overcast; very fine and hot throughout.
— 2—Very fine; clear and fine throughout.
— 3—Violent thunder-storm and heavy rain, 6 A.M., warm and overcast; low fog at night.
— 4—Overcast; cloudy; clear and fine at night.
Mean temperature of the week, 4 9-10 deg. above the average.

STATE OF THE WEATHER AT CHISWICK,
During the last 41 years, for the ensuing Week, ending Sept. 14, 1867.

Sept.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday .. 8	69.4	48.0	58.7	19	0 65 in.	3	5	2	2	4	18	3	3
Mon. .. 9	69.0	48.2	58.6	18	1.09	—	6	2	4	5	15	8	2
Tues. ..10	69.5	46.9	58 2	20	1.27	2	4	4	1	7	10	11	2
Wed. ..11	68 4	46.6	57.5	11	0.63	2	8	1	3	5	8	11	4
Thurs. ..12	69 0	44.7	56.3	16	0.49	4	6	1	4	2	10	13	1
Friday ..13	68 2	45 8	57.0	19	0.42	2	3	6	2	5	9	10	5
Satur. ..14	67.0	46 1	56 6	21	0.84	1	4	8	4	3	10	8	3

The highest temperature during the above period occurred on the 13th, 1865—therm. 88 deg.; and the lowest on the 11th and 12th, 1860—therm. 28 deg.

Notices to Correspondents.

BOOKS: *E Fenzi Florence.* We have only seen the proof sheets of the work you mention. It has, however, been reprinted (except the list of trees) in the recent numbers of Seemann's Journal of Botany.

CINCHONAS IN INDIA: *C P.* So far as it is possible for us to judge at this time, we should certainly not adopt the views of the writer in the *Times* to whom you refer.

DAHLIA: *J Grieve.* We do not remember to have seen any variety similar to that which you send, and which is remarkable for having the florets more or less completely divided into their component petals, so that in place of the ordinary ligulate or quilled petal, there are four or five petals, one larger than the rest. This is a reversion to the primordial or typical form of the flower.

FRENCH HORTICULTURAL JOURNAL: *Enquirer.* The "Revue Horticole" will probably answer your purpose.

INSECTS: *M J B.* The small moths, of which the caterpillars make little movable cases, in which they reside on Cherry leaves, belong to the Tineidæ, and are the Coleophora hemerobiella.—*A B, Melrose.* You have surely confused two different things. The Gooseberry grub is the caterpillar of a sawfly half an inch long. We suppose you allude to the harvest bug, a very minute mite, which is probably in the earliest state; it burrows into the skin. We know no means of escaping from its attacks.—*T R, Llanfair.* The insect which has stung the young ladies is an Ichneumon (Ophion luteum). It lays its eggs in caterpillars, and its attack must have been accidental. *W.*

LOBELIAS: *Essex.* Brilliant scarlet, large and beautiful. What is wanted among herbaceous Lobelias, to which yours belongs, is, however, variety of colour. Of scarlets—and good ones—there are plenty already in cultivation.

MELONS: *G R A.* The spots on the Melon leaves are of two kinds, the larger arising probably from the air on some occasion having been too dry; the smaller from thrips. It is, of course, very difficult to form any judgment from two or three leaves crushed in the post. We have, however, seen similar effects from the causes just stated. *M J B.*

NAMES OF PLANTS: *P H G.* 1, Selaginella Martensii: 2, S. Kraussiana; 3, S. sulcatosa; 4, S. Braunii.—*W.* Noisette Desprez à fleur j'aime.—*Faber.* Solidago lanceolata.—*S R.* Francoa ramosa.—*C A T.* Mesembryanthemum laeve.—*S T.* 1, Stachys Betonica; 2, Mentha sativa; 3, Myosotis collina; 4, Hypericum perforatum: 5, Stachys sylvatica; 6, Lamium incisum.

PANSY: *J Grieve.* The Pansy seedling does not appear to be at all affected by the supposed cross with Viola cornuta.

COMMUNICATIONS RECEIVED.—S. R. H. (Erica, with thanks).—J. M. M.—C. C.—T. M.—J. P.—W. F. R.—T. S.

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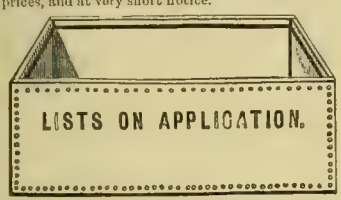
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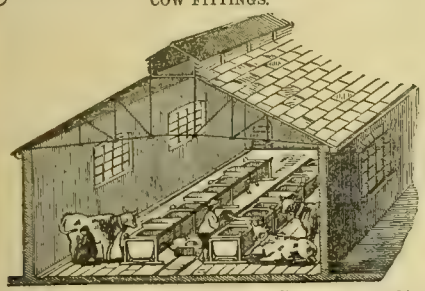
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The PROFESSORSHIP of NATURAL HISTORY being VACANT, in consequence of the appointment of Dr. Tragair to the Chair of Zoology in the New School of Science at Dublin, Candidates are requested to communicate with the PRINCIPAL.

SMITHFIELD CLUB FAT CATTLE SHOW.—The ANNUAL SHOW of FAT CATTLE, SHEEP, and PIGS, will be held at the AGRICULTURAL HALL, ISLINGTON, on MONDAY afternoon, December 9, and Four following Days.

Intending Exhibitors are requested to apply for Certificate Forms by the reference letters as under.

CATTLE.—Form A.		For an OX or STEER (in any Class).
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	C.	For a BEAST in Extra Stock.
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	E.	For a SINGLE SHEEP in Extra Stock.
PIGS.	F.	For a PEN of 3 PIGS (in any Class).
	G.	For a SINGLE PIG in Extra Stock.

ENTRIES for LIVE STOCK CLOSE NOVEMBER 1.

Prize Lists, Forms of Certificates, and all information, may be obtained on application to Mr. DAVID PULLEN, Assistant Secretary, at the Office of the Honorary Secretary, corner of Half-Moon Street, Piccadilly, London, W.

N.B. All communications respecting the Show must be addressed to the Assistant Secretary, as above, and should bear outside the words "Smithfield Show."

SMITHFIELD CLUB SHOW. AGRICULTURAL HALL, ISLINGTON, DECEMBER 9 to 13, IMPLEMENT DEPARTMENT.

The LAST DAY for receiving Applications for Space for Implements and Machinery, &c., is OCTOBER 1.

Printed Forms of Application, with the Rules and Regulations, may be obtained of Mr. DAVID PULLEN, Assistant Secretary, at the Office of the Honorary Secretary, Corner of Half Moon Street, Piccadilly, London, W.

The Agricultural Gazette.

SATURDAY, SEPTEMBER 7, 1867.

MEETING FOR THE ENSUING WEEK.

TUESDAY, Sept. 10 } Staffordshire Agricultural Society at
WEDNESDAY, — 11 } Lichfield.

WE have just received a copy of the *Australian Weekly Age* for May 24, 1867, which contains a long article from the *South Australian Register*, consisting of the most interesting portions of a prize essay by the Rev. JAMES MAUGHAN on the Diseases of Wheat. There is, of course, a good deal in it which has no pretence to novelty, but not only is there an account of a disease known under the name of Take-all, which is not without interest, but a suggestion is made in it which accords so nearly with the article in the *Allgemeine Zeitung* to which the attention of our readers is called in the horticultural portion of this Journal, that we at once present them with an extract:—"It is impossible for the Government of this colony to see fine districts, once covered with smiling sections of Wheat, being blighted year after year, and their owners falling into financial ruin, without some effort, though it may be ever so abortive, being put forth to retrieve the disaster. Probably the Government of South Australia is at the present moment the only agricultural Government in the world that does not provide scientific facilities of one kind or another for promoting the development of its agricultural resources. It is to be hoped that the day is not far distant when this reproach shall have been wiped away. It is vain to hope for any discovery unless the Government can be induced to take up the investigation. No one can be expected to devote himself to such a purely national object without the authority and appliances of the Government to sustain him. In such a colony as this, where so much of our commercial prosperity depends upon the proper development of our agricultural resources, our farmers ought to have placed at their command by the Government a properly-equipped agricultural chemist, whose province it should be to investigate such questions as the present, from whom they could obtain advice as to the nature of their soils, and the character and purity of the manures they need to employ."

It is obvious, unless the chemist is equal to the physiological and structural investigations which the case involves, that he must have some competent botanist associated with him, a point which should on no account be lost sight of.

We have already in our notice of the article in the *Allgemeine Zeitung* stated our views on the subject, we shall not, therefore, dwell upon it at greater length here, but call attention to the peculiar disease which appears to be so injurious in Australia, and which, we believe, is not altogether unknown at home. The disease, in fact, appears to be identical with what is sometimes called blight in this country; a disease which is not confined to any especial part of the plant, but, commencing apparently in the root, affects the whole plant, ultimately causing sterility or absolute death. "On subjecting to careful examination a plant of Wheat, the growth of which has been prematurely arrested by the 'take all,' there is not the slightest indication of any kind of disease on any portion of the plant, until we come to the examination of the root." In one case, on a piece of 40 acres, the ears, which were in other respects well developed, were entirely empty, though on an adjoining patch, the soil of which was of a less friable nature, not a single ear was affected. Samples of both were communicated to Mr. MAUGHAN, and the cause of mischief was at once found to be in the roots, which, in the diseased plants, were enlarged and distorted. The root fibres were coated with fine soil, traversed by woolly-looking threads, which were given off by them in every direction. On examining the tissues, fungous spawn was distinctly observed amongst the cells, from which the woolly mould had sprung.* The most luxuriant plants frequently fall a prey to the disease. An instance is mentioned of one with 50 strong stalks, the ears being six inches long, which entirely failed. It appears, however, not uncommonly before a single stalk is thrown up. It is in several districts equally severe on manured, unmanured, fallowed, and unfallowed lands, though in others the fallowed lands suffer least. The early sown wheat suffers most. No remedy has at present been found, but supposing the cause of rust to be a Fungus attacking the roots, the suggestion of the application of sulphur in some form or another is very good as far as it goes: the difficulty is in determining how and when to apply it, for if the roots are once attacked by a destructive mould it will probably be too late.

There is another matter in the paper which deserves notice, though it is not quite clear what is meant by the black rust, which is spoken of as something distinct from smut, bunt, and mildew. "Most of the farmers on the Lake Plains have entirely relieved themselves from the curse of black rust by simply changing their seed and their time of sowing." If smut were more prevalent in this country than it is, the suggestion might be of great value, for it is clear that the smut does not exist on the seed before it is sown, and it is probable that the spores, which are blown away long before the seed is ripe, have some more especial time for germination, and, consequently, variation in the time of sowing may be extremely useful. *M. J. B.*

IT is told us in the Bible that the surplus—a fifth of the annual crop of Egypt—preserved in store during seven plenteous years, was sufficient to support the population of the country during seven successive years of famine, and at the same time to allow of exportation, so as to afford considerable relief to the neighbouring nations, subjected to a similar scarcity. And in the seven plenteous years the earth brought forth by handfuls, and Joseph gathered corn as the sand of the sea, very much, until he left numbering. Have astronomers, who have calculated the dates of so many phenomena vaguely mentioned by the ancients, made any attempt to account for these wonderful years of plenty in Egypt, followed by as many of disastrous scarcity—in a country exposed to no vicissitudes of climate, and irrigated by an eternal river, fed by the everlasting mountains?

Coming nearer home, we discover a fact which, if not so astounding, is still very remarkable and worthy of consideration. Eighty years ago, that is from 1743 to 1748, the sum of 8,007,948*l.* was received by England for grain exported to other countries ("CHALMERS' Estimate"). The average price of Wheat in England during those six years was, respectively, 22*s.*, 22*s.*, 24*s.*, 34*s.*, 30*s.*, 32*s.* In the year preceding, that is, 1742, the price was 30*s.*; and these averages, being the lowest of any throughout the entire "Price of Wheat Record," from 1641 to the present time, must be taken to signify seven years of plenty in the land—the more so as they follow what seem to have been years of scarcity, for in 1741 and 1742 the prices were, respectively, 45*s.* and 41*s.*, the average price of Wheat being in none of the other years of the seven less than 30*s.*

Various are the causes which have tended to

* In the text this is said to be almost identical with Penicillium armeniacum, or Peronospora infestans, which differ so much from each other that there is clearly some confusion. EDS.

necessitate that importation of corn which we have required during the last 90 years. There is first of course that which proves the prosperity of the nation—an increased population; secondly, an increase of pasturage beyond the former proportion of tillage; and thirdly, the coldness, cloudiness, and humidity of our climate, which render it less favourable to the ripening of corn and fruits than it used to be. Our crops appear, it is true, more luxuriant to the eye than ever, and they really are so, from the improvements in agriculture; and if we could but have sufficient sun to ripen them, we should be as satisfied with the produce as we are flattered by the appearance.

As seasons vary in all climates, so they do in ours, and the local causes which have such an unfortunate effect on our climate are sometimes counteracted by adventitious circumstances; in which case we have a temporary abundance. For instance, your true Wheat lands—the clays—yield a more abundant produce in dry warm seasons than in moist, and, consequently, cold ones. This fact is too notorious to admit of a question. The ancient agricultural proverbs, handed down from our ancestors, attest it abundantly:—

> "When the sand doth feed the clay,
> Oh then, oh then, a-lack a day!
> But when the clay doth feed the sand,
> Oh then 'tis well for old England."

The meaning is that, in cold damp seasons, the light gravelly soils yield the best crops, but yet insufficient to supply the wants of the nation; whereas in warm, dry summers, the produce of the clays are so much more abundant that there is no danger of scarcity, although there may then be a deficiency on the gravelly and lighter soils. Again: "England never took hurt from drought;" the meaning of which is very clear if we consider its application to an undrained country. It is obvious that in the case of wet clays, undrained, a drought must have been a god-send in the olden time, since even now, with extensive drainage, we can bear the effects of drought much more cheerfully than those of excessive wet.

In the present year, when opinions of harvest produce differ more than we have ever known them, "the Wheat crop," according to Mr. JAMES EDWARDS, of Northallerton, "will be a full average, excepting on wet, undrained lands, which are sure to be very late with the harvest, and of a small yield. Oats and Barley suffered very much from the wet spring, and excepting on dry lands, the crop will be found deficient. The whole of the cereal crops this year have shown a marked difference between the good and inferior lands, perhaps more than in any season of late years; and unless by thorough drainage the strong land can be made to a certain extent to shed the water, it is impossible it can be remunerative to the farmer."

A controversy has arisen as to the practice of sowing too thickly, and Mr. MECHI is decidedly against it, giving his reason as follows:—"An early and Grass-like vegetation of crowded plants compete injuriously for their food in the soil, like an unthinned plantation of Turnip crop, and thus weaken or destroy each other. So dense a vegetation shuts off communication between the air and the soil, culminating in a prematurely laid crop, with all its evil consequences."

But here, again, an important distinction must be observed. Though drill husbandry and reduction of the quantity of seed Wheat have great advantages over the broadcast system, yet on poor lands it is absolutely necessary to sow abundantly, because more plants will on such lands be cut off in the winter; nor do the plants branch out ("stool" or "tiller" as it is called) in the way they are found to do on more generous soils. An immense quantity of the seed committed to the ground must either perish or be destroyed by insects, devoured by birds and vermin, or not fructify to advantage, owing to unfavourable weather. A great number of plants are too weakly to withstand the rigour of winter and the sudden changes of weather. Therefore, to guard against these casualties, it is necessary to have a superfluity of stock plants in the first instance as a reserve against irremediable accidents.

A single grain of Wheat, cultivated in a garden, with every assistance that art can give it, has been known to produce a thousand grains; but the return of our fields scarcely exceeds *thirteen for one*. Hence, a variety of circumstances must co-operate to secure the advantages of diminished seed-Wheat, and, among the rest, generous manuring. The effect of manures in enabling plants to support a vigorous vegetation in unfavourable weather is evident when cold rain, snow, or hailstorms occur towards the latter end of the month of April. The young Barley plants turn yellow, and many perish, while those growing in parts of the very same field where manure has been more liberally bestowed, retain their verdure and brave the inclemency of the weather. When the Barley thus turns yellow from cold it does not recover its green hue till some time afterwards, when the rain comes from the south-west, and the thermometer rises to about 54°. Now, in light gravelly soils the plants recover and assume a healthy complexion in 48 hours; but in cold clays they continue to look sickly much longer, and in some situations never become healthy any more. The reason why Barley plants are so soon restored to a state of health during warm rains in gravelly soils, and not in clays, may be that in the former case, the soil, being loose and pervious to water, sooner admits the warm rain-water to the roots, and by the combined humidity and warmth the vitality of the plant is quickly brought into action. The warm rains cannot so soon produce their effects on the roots of Barley rooted in clays,—not only from the natural impenetrability of the soil, but from the preceding cold winds having hardened the surface; so that when the rains, accompanied by warmer winds, fall upon them, while the upper part of the plants are enjoying a genial temperature, the roots are still paralysed with damp and cold.

The Wheat crops in this country suffer much from humid weather experienced in July and in the beginning of August. This is a very critical period with the Wheat; for if we have not favourable weather during the expansion of the bloom, all the previous industry will be of little avail. A continuance of wet, or cold high winds, happening at this season, causes the pollen to be blown or washed away; the consequence of which is, that the ears are not filled, or are deficient in well-formed grain.

Unfortunately the evil does not stop here. As each ear contains a number of imperfect seeds, a portion of these are too often committed to the ground for the production of the succeeding crop; and as the imperfect ones do not germinate, there is a deficiency of stock plants the following season. It is on record that the scarcity which succeeded the wet summer and bad harvest of 1799 was followed, in the autumn, by a bad seed time, rainy weather continuing till the frost set in; a large portion of the seed committed to the ground that season being imperfect, the quantity of stock plants in the spring was very deficient, and this was the principal cause of the scanty produce of the harvest of 1800, the price of Wheat in the following year running up to 119*s.* 6*d.*, nearly double of what it had been, though already high on account of the war. Now, that summer was highly favourable for the fructification of the Wheats, but there had not been a sufficiency of plants on theground, owing to the cause above-mentioned.

Now, this is an important matter. After wet and bad seasons—such as that of last year—the greatest care should be taken to commit only the best and most trustworthy seed to the ground. If there be a deficiency in the harvest of this year, it will have been due as much to the cause we have mentioned as to the general untowardness of the weather during the growth of the crop; and it will be well if farmers follow this advice, in order to secure the utmost yield of which their land is capable, and so make up next year for two years' deficiencies.

Barley does not require the same degree of sunshine, and the crops, though they require more watering than Wheat, yet if they are sown early, so as to possess root fibres at some depth in the soil before a drought sets in, will, in a dry summer, yield a more abundant crop, and of infinitely superior quality than in a moist season. It has been asserted by a long experienced and observant agriculturist that, in the course of 40 years' experience, he grew more Barley per acre in peculiarly dry than in wet summers.

It has been observed that the air of Wales is too humid for the growth of Wheat; and if the moisture and cloudiness of our summer months continue to increase, it will be the same with England. It is too frequently the case that the prospect in the field has been more flattering than the granary receipts justify. Vegetation has to proceed for months with but a very small portion of aid afforded by the sun, so that every blade of corn is extended to its utmost limit to enable the plants to produce their fructification; and the efforts of the weaker plants are abortive, from being covered by the shade of their overpowering and oppressive neighbours. These produce ears, it is true, but few that are equal to the expectation of the farmer. William of Malmesbury says that the yield of corn in the 11th century, in the Vale of Gloucester, was a hundredfold; this may be an exaggeration, as even Camden, so much nearer his time, remarked. And yet it seems certain that England, at the time when Malmesbury wrote, had a less exhaling surface of pasturage, &c., than at the present time, and so the additional genial heat and light of the sun, with a less clouded and humid atmosphere, would enable the arable lands to support a much greater number of Wheat plants per acre, and perfect their seeds, than can be effected under the usual state of our present atmosphere at the critical periods of bloom and maturation. This remark was made by Williams 60 years ago, and the lapse of time seems only more and more to confirm it.*

More than one-half the country, or at any rate fully one-half, is in pasture, and considering that bread can never again be absolutely dear, and that meat will never again be cheap, it would seem the better course to turn our attention more generally to grazing. The humidity of our climate promises a perpetuity to the success of Grass.

It is to be feared that not only the uncertainty of the seasons but the growing practice of our speculators in corn will ultimately bring about this change in England. For ages man has been endeavouring to discover the means of prognosticating the weather, and counting on the probability of the harvest; and now that we have attained a certain degree of foresight, as regards at least the possibility of a good harvest, this knowledge is turned to account against the interest of the consumer. It has been established that a diminution of 2° in the average summer heat—when that heat does not exceed 60°—is fatal to the Wheat, which flourishes best when there is a temperature of about 54° during the year, and for two months 68°. In other words, should a difference of 5° or 6° below the standard obtain for two or three months in succession, the crops prove a failure, and bread is enhanced in value from 1*d.* to 2½*d.* the loaf.

Mark Lane speculators wisely endeavour to obtain the necessary records of temperature throughout the country, and they act in the market accordingly. Why should not the advantages they obtain be more generally distributed? We have a Meteorological Office endowed with more than 10,000*l.* of public money, and a Royal Agricultural Society having the interests of the grower intimately at heart. Why does not the Home Office see to this important matter?

The inference to be drawn from our desultory remarks is that if we must continue to cultivate the cereals in spite of our adverse climate, we must have an eye to meteorology, and gratefully accept its warnings. The subject commends itself especially to the Royal Agricultural Society; and we trust that it will be authoritatively mooted at the meeting of the British Association, and secure a recommendation to the Government to give effect to the above suggestion. *A. S.*

— Mr. A. STEWART, of Saint Bridge, Gloucester, whose name is familiar to visitors at the Royal and other agricultural meetings as the exhibitor of remarkably fine Berkshires, has announced the whole of his now celebrated herd for sale. The merits of these swine, which have never been surpassed in size, quality, and form, will be best understood by a reference to the list of their performances, as seen in the advertisement. The Saint Bridge family have their origin in sows from all the most popular and celebrated breeders of Berkshires in the kingdom. The boars have likewise been selected with good judgment, and "Tim Whiffler," the sire of the present herd, is without doubt one of the finest pigs in England; stock by him, out of the grand sow "Snowdrop," have realised as much as 12*l.* 12*s.* per head at two months old. This celebrated sow and boar, with a large number of the same breed, are to come under Mr. TOMPKINS's hammer at Reading upon the 24th inst. It is barely four years since Mr. STEWART first appeared in the lists of competitors, and from that period to the present wherever his pigs have been shown they have achieved an almost unprecedented success. We strongly recommend all who take an interest in these matters to visit the repository at Reading on the 24th inst.; they will then have an opportunity of observing what can be done by an amateur possessed

* See *Gardeners' Chronicle* for June 22, 1867, p. 665, "The Humidity of our English Climate."

of capital, judgment, and perseverance, for it is to these qualifications, added to a natural taste and liking for the creature, that Mr. STEWART'S prosperity must be attributed.

HARVEST EXPERIENCES.

IF the harvest seasons of '65, '66, and '67 have merely presented to farmers occasions in which skill and patience were tried, and opportunities for study were unused, it would be a matter for regret. If the experiences of comparatively adverse times are allowed to pass away, having only provoked unavailing regrets, and without having perfected an educational mission, then indeed might we be disposed to question the uses of adversity. But it cannot be said that the agricultural mind is altogether stationary. Doubtless there are many who have reaped advantages by their losses through the late difficult harvests, and it would perhaps be expecting too much of human nature if we imagine that all our farmers would be so far improved by their experience that they will not commit many mistakes. Whilst we write rain is coming down in torrents. From the windows may be seen a field in which a waggon stands partly laden with Oats; half of the field contains a number of shocks badly made. It has been raining all day, and a falling barometer indicates a probable continuance of wet weather. The corn of this field was cut more than a week ago, and was fit for carrying three days since.

Again: the picture of two farms is presented to us. On one the corn is safely stacked, and on the other side of the hedge we find in the stackyard stacks partially made, and in the fields, corn in all stages of harvesting. Why is there such a difference here, if the circumstances of the farms are equal? On one, promptness of action was the spirit actuating the farmer; on the other, there was dilatoriness and an adherence to old-fashioned views.

What are our results? What have we been taught during these three seasons? To commence with generalities, we have learned that those who have delayed carrying their corn after it was properly seasoned have been invariably caught by bad weather. Farmers will say they will "depend on Providence," but Providence does not work miracles for those who will not be taught by experience. We have had a crop in considerable danger in consequence of "putting off 'till' to-morrow." It may be laid down as a general rule, that whenever corn is fit for carrying it ought to be at once secured against bad weather. It may be that sufficient help cannot be found to carry to the stackyard; the corn may then be stacked in large or small stacks in the field, and now, in the days of portable engines and threshing machinery, we may without loss have our corn threshed in the field.

As regards the time for cutting grain, we are strenuous advocates for cutting before the period of dead ripeness. If the weather should promise to continue fine, we would cut at this period; but on the contrary, if nasty weather should occur, then the reaping ought to be delayed, as ripeness is retarded by wet weather, and by allowing the corn to stand the danger of sprouting in the sheaf is avoided; so that those who are not prejudiced against what is called "reaping corn green," can in a great measure select their harvest weather. Farmers have often to bear with a deal of sneering at the introduction of new-fangled notions. Having lately read of a novelty in stooks or shocks adopted on the Continent, we found considerable difficulty in getting our men to try how half-a-dozen would suit on our farm. Our agriculturists ought to be reasoning men. It would not be well to have all our farms devoted to the carrying out of experiments, but it will be found advantageous occasionally to try what would be the result of the adoption of new systems and what are styled innovations.

In the harvest of 1866, by carrying out this view we saved a valuable crop of Barley in the manner following:—The Barley was rather short in the straw. It was cut "high," that is above the Clovers, and as the crop was dead ripe we had it bound and immediately made into small stacks, called provincially "cobs," "field stacks," or "hand stacks." By this means, at the risk of being thought "odd," we brought our Barley out perfectly safe.

Whether ought corn to be bound into sheaves or carried from the swath? "Never no more shall I swath my corn" was the emphatic ejaculation of a neighbouring farmer during the harvest of 1866, when he found his Oats beaten out by the rains and frequent turnings and "stirrings" of his labourers. There can be no doubt that in dry weather corn is fit for carrying earlier from the swath, but in a dropping season sheaves are more easily moved about, and means for saving from wet may be adopted, which would be impracticable for corn in the swath. Stacks may be hooded, and field stacks may be made when the corn is sheaved, so that on the average of seasons we would give the preference to binding the corn in sheaves.

As already hinted, we have derived considerable advantage from making field stacks when the weather was doubtful, and before the corn was fit to bring to the stackyard. The making of these stacks is advisable under the following conditions:—Weather threatening rain; or if the area of corn is so great that the available labour is barely sufficient to reap the corn as it ripens, then, by putting the corn into small stacks, it is secured against rain, it becomes dry, and the farmer may avail himself of a fine day for carrying it to the stackyard.

We have found the reaping machine to be of immense service, and with a Burgess & Key's reaper we have this year made very good work when, in consequence of the corn being laid, many imagined that even the scythe could scarcely work.

In conclusion, we cannot do better than call attention to the fact, when corn crops are caught by wet weather in the process of harvesting farmers generally regret that "they did not know rain was coming. If they had known they would have acted differently; they would have made certain fields secure," &c. The prudent course is—and it is worthy of general attention, "Always treat your corn to-day as you would if you were sure there will be rain to-morrow." *C.*

THE PARIS EXHIBITION.

FROM OUR CORRESPONDENT.

IN again drawing the attention of the reader to what is to be seen in this great gathering of the world's products, for embodying objects from all parts, from the remotest East to the countries best known in the West—it is really this—we purpose devoting the present and possibly another paper to pointing out the localities where the exhibitions of objects connected with seeds and food produce are to be met with, doing thus for this department what we have already done for that connected with implements and machines. There is this obvious difference, however, between the two, so far as our labours are concerned, that while in going over the exhibits of machinery pretty frequent opportunities were presented us of giving descriptions of objects met with in the course of our examination, in the present paper we have to treat of objects which do not admit of much special description, objects which are not so much to be described as seen and personally examined. We shall therefore fulfil the object of this paper if we note generally what is, and where it is, to be seen.

Commencing with the British Agricultural Annexe, which runs parallel with the Avenue Suffrein near the Station of the Chemin de Fer Ceinture, we find very little to note in it in the department at present under our hands; two or three stands only being taken up with a collection of seeds. Of these, by far the most important is that of the Messrs. Sutton & Sons, of Reading. This firm has a pretty large case, the three lower compartments of which are devoted to the exhibition of samples of dried Grass; the centre compartment is devoted to samples of Grass seeds. Full justice is not done to the examples of Grasses, as the space in which they are placed is so confined that they are crushed and crowded together. A much better arrangement would have been that which is met with in other departments of the Exhibition, where each specimen of Grass is placed in a separate case, with a specimen of the seed; or perhaps better still, the Grass attached to and spread out upon a card, with enlarged drawings of the orgaus. This is done with admirable effect in the Austrian department, which contains a very large—by far the best in the Exhibition—collection of Grasses and seeds. To return to the stand of Messrs. Sutton: the upper part of the case contains a very large and carefully arranged selection of agricultural seeds, which are worth studying, but here again more justice would have been done had space been larger; crushed together as they are, the collection is dwarfed into an apparent insignificance, which it does not possess, for it is in reality large and complete, and would have looked as imposing as several other collections, which have all the advantages of abundance of space. A little further up the Annexe, a small stand is devoted to the exhibits of Messrs. M'Lean & Hope, of Edinburgh, and another to the Messrs. Goulding, of Dublin. In addition to a few samples of seeds, a few of manure are also to be met with. When we state that, with the exception of a few samples of Hops met with in the main building (British department), these are all the exhibits of seeds by well-known seedsmen, our readers will quite understand how it was that one of the jury felt, as expressed to us, that his duty was next to none—at least, that his work in connection with this department was very light. It certainly is matter of regret that we should be so weak in a department in which we are in reality so strong. We are free to confess, however, that although we have named all the British exhibits in this department, we may yet have overlooked some which may be stowed away in some out-of-the-way corner, not patent to the public eye; for although with a system or theory of classification which leaves nothing to be desired, it certainly is not the least provoking feature of this exhibition that the classification is not adhered to; and the result is that every now and then the visitor comes across something or other that he does not expect to find, and, if all was done *en règle*, would not be there. Thus the only exhibits of British seedsmen which we have noticed are in the Annexe devoted to the machinery of agriculture, where they ought not to have been, and are not in the Zone devoted to natural products, where they ought to have been, and where the exhibits of other nations in this department are. This, however, has its exceptions, for many of these collections fill up the spaces in this Zone, and flow out, as it were, into the great machinery gallery, where the visitor with dreams of a closely adhered-to classification is surprised to find them. But more of this as we proceed through the main building—we having now to concern ourselves with what is to be seen in the Annexes of the Park.

Before leaving the British Annexe of Agricultural Machinery, the visitor should walk to the end of it, where he will find a number of cases containing the exhibits of the Committee of the Madras Presidency (East Indies), amongst which are many specimens of seeds and of food produce. There is here a very fine collection of Teas, Tobaccos, Rices, Sago, and textile plants. The visitor should note two very interesting cases, containing examples of Rice plants, and the Holcus Sorghum. There are also many specimens of woods, several of which are very beautiful. Further on is the American Annexe, but as they exhibit no seeds or food produce in it, the visitor, whom we suppose only interested in this department, should step across the walk towards the main building, and enter one of the two Italian Annexes here placed, which contains a large collection of rural and industrial objects, and which has only been recently opened. Amongst a series of models of farm buildings, oil mills, and of agricultural machines and hand implements, the visitor may spend a short time with pleasure, if not with profit. On the wall are photographs of the various breeds of cattle and of the sheep of Italy. In a small apartment of the Annexe a collection of agricultural seeds and plants is to be met with. The Flax specimens are particularly good, and have had justly awarded to them prizes. Several of the specimens of plants are arranged in cases, one case to each variety, the seed being placed in the same case. In this room are two trophies very tastefully made up with various specimens of cereal and industrial plants and Grasses. A large case is devoted to the silkworm processes. Opposite the entrance is the model of the farm building designed by Professor Louis, of Cremona, which is worthy of notice.

Passing from this Annexe, we skirt the boundary of the Park till we come to the Annexe of the Portugal colonies. We pass previously the Russian Isbah, in which there are a few specimens of plants, and the end of the French Annexe, containing agricultural machinery and a few specimens of cereals grown by the aid of phospho-guano, but which tell little or nothing. In the Portugal Annexe there is a small collection of agricultural seeds and products; but a much finer one is to be met with in the Spanish Annexe, a few steps further on. Indeed, the collection here met with is probably by far the largest and most complete in the Exhibition. In the gallery there is a very fine collection of seeds and food produce, in glass vessels, well arranged, together with numerous specimens of the plants. The glass jars containing the examples of Wheat, Barley, and Maize which obtained the prize medal should be examined. In addition to the seeds and plants, it may be as well to notice that there is a fine collection of samples of oils, wines, Tobaccos, and fruits. Altogether this is one of the best collections of natural products in the Exhibition.

Not far from this Annexe—within a few yards, in fact, and in the direction of the main entrance of the Ecole Militaire, is the French Annexe, containing the examples of agricultural produce of the various departments. Undoubtedly the most interesting and instructive is that of the Department du Nord, of which Lille is the chief city. The country round this well-known place—the Manchester of France, and with not a little of the dust and the smoke of its prototype—is famous for its cultivation of what is now known as the industrial plants, as Flax, Hemp, Beet-root (for sugar-making and distilling), oleaginous plants, and Tobacco. The part of the Annexe devoted to this rich and fertile district is, therefore, as might be expected, peculiarly instructive. The specimens of agricultural produce of the kinds chiefly grown are both numerous and fine, many of them remarkably so, such as the cereals, Flax, Hemp and Beet-root. Of the cereals there is one specimen worth examining, the Wheat called "Napoleon the Third." The same remark applies to some samples of Oats at the end of the building. The samples of Flax are very fine, and much information can be derived from the placards attached to many of the specimens, as to the actual cultivation of the various branches of agriculture in the districts. From the exhibits of the department of the Nord the visitor passes to those of the Agricultural Society of Arras. Facing the entrance to this is a fine model and drawing of the tannery of M. Edouard Hamoir, at Rougeville, St. Saulve (Nord). A variety of specimens of seeds and plants are also in this department and in that of the Bas Rhins, a little further up the same room. In the latter department there is a fine collection of Hops and wools. There is not much in the way of seeds in the next room, the department of Savoie, but the visitor should be careful to examine a novel and instructive collection of the stomachs of birds and their contents, the result of the labours of M. Florent Prévost, naturalist, carried on for several years, and which had for aim the determination of what class of birds were destructive, or otherwise, of farm produce.

In the Annexe of the Agricultural School at Grignon, which is a few steps from the Annexe above described, there is a small but well arranged collection of seeds and produce, amongst which a number of Potatos are well worthy of notice. Passing from this Annexe is that of the department of Allier—a shed open at one side—containing in the centre a small collection of seeds and produce, and at the back a number of maps, illustrations of stock, and the like. We have now taken the run of the Annexes in the Park, and shall, in our next, take up what is to be seen in the main building.

THE BEST WHEAT FOR SEED.

IN an article on the selection of grain for seed, in last week's *Agricultural Gazette*, the writer is anxious to make out that the heaviest samples should be chosen for that purpose. There exist, however, abundant reasons to doubt the soundness of the practice so ably advocated. If there is a limit beyond which the cultivator cannot push the quality and weight of grain per bushel, then it would seem the part of wisdom to aim at attaining that point, but not to strain at an impossibility; and how, it may be asked, is this *ne plus ultra* to be arrived at? Not, I submit, by sowing grain which has already attained that distinction, but grain which is only advancing thereto. Here is the boundary wall; if you come up to it gradually and quietly, well; but if you are foolish enough to run against it, in the hope of breaking it down, the suffering and loss will be yours. If "B." says there is no such limit as I refer to, then I shut up at once; only in that case I would ask him to satisfy me on the point, by growing Oats from 48 lb. one year, to say 50 lb. the next, and 55 lb. the next, and so on. In

his own case "B." failed to maintain his starting point of 48 lb., and only a few pages further on (p. 894), Mr. Dalgleish shows that "B." might have been more successful had he adopted a lower standard. Of course, as "B." says, no man of sense would use "any refuse" for seed, because that would be going to the other extreme; I expect a farmer following "science with practice" would no more think of sowing refuse Oats than he would those weighing 48 lb. per bushel. With permission I submit the following remarks as bearing on the subject:—

There appears to be a limit set by climate, cultivation, situation, and local circumstances, to the quality of the produce of the soil. All cultivated vegetables have a tendency to degenerate, but this tendency is more than counteracted by the cultivation bestowed, until they arrive at a degree of perfection beyond which it does not appear possible by any cultivation to push them; and if this is attempted, a recoil is induced, and a degree of degeneracy and inferiority in the produce appears to be inevitable. This is perhaps particularly the case in annual and biennial plants. Suppose a very prime sample of Wheat is presented to us, such as might induce a farmer or corn factor to pronounce it one of the best he had ever seen: the presumption in this case is, that this fine grain grew on land of the best quality, which was prepared in the best possible manner for it; that the circumstances attending its growth, ripening, harvesting, &c., had been particularly favourable; and that it had, in fact, arrived at the utmost perfection which it was capable of attaining. Now, if this fine grain is used as seed what will be the result? of what quality will be the produce? Will it not be found to have degenerated—to be much inferior to the seed used? Improve it cannot; that it will remain stationary is just possible, but that it will go back is almost certain. When grain is used which has reached the maximum—Wheat weighing, say 66 lb. per bushel, Barley weighing 58 lb. per bushel, Oats weighing 48 lb. per bushel—is the produce reaped equal in quality to the seed sown, or is it not always a few pounds, and often a considerable number of pounds, lighter? The plants appear to be constitutionally incapable of producing an equal to that grain from which they sprung, because it had attained that degree of perfection beyond which it could not possibly go, and therefore retrograde it must for a season; but having now room it will advance again the following season, if climate, soil, and circumstances, are favourable; should these be unfavourable, it will continue to retrograde.

If this doctrine is correct, it follows, that to raise a first-rate article as produce, we must use an article of lower quality as seed.

Public opinion has hitherto been opposed to using any but the finest samples of grain for seed, judging that the finer the seed is, the better is the produce likely to be; that, as vegetables incline to degenerate, the best plan, it is said, is to sow the best seed of them which can be got; avoiding degeneracy, and aiming at perfection. This would be all very well if the principle were a correct one, which it evidently is not; if it were, we should by this time have had Wheat as large as Beans. Grain of the weights I have mentioned, or approaching them, is about the limit fixed by our climate for their attainment; and if we sow them with a view of raising a better, or even so good, we shall find to our mortification that instead of going forward we have been going backward. Change of soil and situation have no doubt an invigorating influence on plants subjected to them; but no change of soil or situation can add improvement to a production which has already attained perfection.

Agricultural societies offers premium for the best samples of "seed Wheat." Many competitors come forward with splendid samples, bright, heavy, plump, and beautiful. The superlative best—if I may so speak—are selected for the prizes. The superiority in point of quality being thus settled, it is resolved, before awarding the premiums, to test the productiveness of the selected sorts; and for this purpose several agriculturists receive a portion of the seed, to sow on their respective farms. It is sown, reaped, harvested, and threshed, and by-and-by out comes the judges' report, in something like the terms following--

"We find the quantity and quality so inferior that we cannot recommend the Wheats for the Society's premiums"—just what was to have been expected.

Is this principle or law confined to the vegetable world? By no means. It pervades all Nature, following it to the lower animals. How happens it that when we have a first-rate stud horse or bull the progeny is not always superior to the sire? Why is not this race superior to the last, and the next to this, and so on? simply because Nature has decreed that when her productions attain perfection their reproductions shall degenerate. Stop we at the lower animals? No; go to man himself, and to his mind and intellect. How many names illustrious for extraordinary talent in their various professions could be mentioned—great men who have passed away, but whose inspiring mantles have not fallen upon their sons? *C.*

NEW ORDER IN COUNCIL.

THE following Order in Council, dated the 20th ult., has been lately issued:—

PRELIMINARY.

1. This Order may be cited as "The Consolidated Cattle Plague Order of August, 1867."

2. Except as in this order expressly otherwise provided, this order shall take effect from and immediately after the 15th day of September, 1867 (which time is in this order referred to as the commencement of this Order).

3. The Orders of Council or provisions thereof described in the first schedule to this Order, Part I., are hereby revoked; but this revocation shall not affect the past operation of any of those Orders, or the validity or invalidity of anything done or suffered, or any appointment made, or any license granted, or any right, title, obligation, or liability which may have accrued thereunder before the commencement of this Order; nor shall this order interfere with the institution or prosecution of any proceeding in respect of any offence committed against, or any penalty or forfeiture incurred under, any Order hereby revoked.

4. Nothing in this order shall affect the Orders of Council or provisions thereof described in the first schedule to this Order, Part II., and the same shall be in force and continue to operate as if this Order had not been made.

5. Every license for the movement of cattle or for any other purpose granted before the commencement of this Order by a local authority or any of their officers on their behalf, or by any other person authorised to grant the same, and in force at the commencement of this Order, shall continue in force thereafter as if this order had not been made, and shall be available in like manner to all intents, for the purpose for which it was granted, as if it had been granted under this Order.

6. Every place which before the commencement of this Order has been declared to be an infected place, under the Order of Council of the 24th day of March, 1866, and has not been declared to be free from cattle plague, shall continue to be an infected place after the commencement of this Order, as if this Order had not been made, subject to the power of the local authority to declare such place free from cattle plague and thereby to cause the same to cease to be an infected place; and the rules of "The Contagious Diseases (Animals) Act, 1867," with respect to infected places shall, from and after the commencement of this Order, apply to every such infected place, in lieu of the rules in that behalf of the Order in Council of the 24th day of March, 1866.

7. Every licence granted by the Privy Council for the holding of a market, exhibition, or sale before the commencement of this Order, and in force at the commencement thereof, shall continue in force thereafter as if this Order had not been made, subject to revocation by the Privy Council, and as if the conditions, provisions, and regulations applicable under this Order to such market, exhibition, or sale, had been referred to in such license, instead of the conditions, provisions, and regulations of any former Order in Council therein referred to.

8. This Order extends to England and Wales (save as far as the metropolis is expressly excepted), and to Berwick-upon-Tweed, and also to Scotland or Ireland where the same is expressly mentioned, or where any Order revoked by this Order extended to or affected Scotland or Ireland.

9. In this Order words have the same meaning as in "The Cattle Diseases Prevention Act, 1866;" the term "foreign cattle" means cattle brought by sea from any place out of the United Kingdom; the term "sale" includes auction; the term "infected place" means a place declared such under the Order of Council of the 24th day of March, 1865, or under "The Contagious Diseases (Animals) Act, 1867."

OFFICERS, ETC., OF LOCAL AUTHORITIES.

10. Each local authority may from time to time appoint such officers as they think necessary for executing this Order, and may assign to them such duties and award to them such salaries and allowances as the local authority think fit, and may revoke any such appointment. Officers appointed by local authorities under Orders relative to cattle plague, and holding office at the date of this Order, shall continue in office with the same duties, salaries, and allowances, and on the same terms as if this Order had not been made; nothing herein shall affect the power of the local authority to revoke the appointment of any such officer.

11. A local authority may provide and supply, without charge, printed copies of documents or forms requisite under this Order.

12. Every regulation made by a local authority under this Order shall (where no other provision is made for the publication thereof) be published by advertisement in a newspaper circulating in the district of the local authority.

13. Expenses incurred by the Court of the Lord Mayor and Aldermen of the City of London (as the local authority for the City of London and the liberties thereof) in executing this Order shall be defrayed by them out of the consolidated sewers rate.

LEGAL PROCEEDINGS.

14. A local authority may appear before Justices, or in any legal proceedings under this Order, by their clerk, or by any agent authorised by them in writing under the hands of two of their members. A railway company or other body corporate may appear before Justices, or in any legal proceeding under this Order, by their secretary, or by any member of their Board of Directors or Management, or by any agent authorised by them in writing under the hands of any two members of such Board.

PRIVY COUNCIL INSPECTORS.

15. A person for the time being appointed by the Privy Council an inspector for the purposes of this Order shall have, wherever the operation of this Order extends, all powers which an inspector appointed by a local authority has within his district; and a direction of the Privy Council shall, in case of an inspector appointed by them, be deemed equivalent to a direction of a local authority in case of an inspector appointed by them.

ANIMALS AFFECTED WITH CATTLE PLAGUE.

16. Every person having in his possession or under his charge any animal affected with cattle plague shall observe the following rules:—1. He shall, as far as practicable, keep such animals separate from animals not so affected. 2. He shall with all practicable speed give notice to a police constable of the fact of the animal being so affected. Such police constable shall give notice thereof to the inspector appointed by the local authority. If any person required by this article to give notice fails to do so, he shall be deemed guilty of an offence against this Order.

17. The following rules shall have effect with respect to animals affected with cattle plague and to animals that have been within 28 days in a shed or stable, or in the same herd or flock, or in contact with an animal so affected, that is to say:—1. No such animal shall be placed or kept on any common or unenclosed land, or in any field or other place insufficiently fenced. 2. No such animal shall be sent or brought to a market, exhibition, or sale, or be exposed for public sale. 3. No such animal shall be driven along or allowed to stray on any highway or the sides thereof. 4. No such animal shall be sent or carried by a railway, or by a canal, river, or other inland navigation, or by a coasting or sea-going vessel. 5. No such animal shall be removed alive from the field, stable, cowshed, or other place where it is; provided that where such animal is not actually affected with cattle plague it may, subject and according to the foregoing provisions of this article, and with a license from the local authority, be removed thence to some place within the district of the same local authority, where it can be conveniently slaughtered, or where it can be kept apart from all other animals until the local authority are satisfied that there is no reasonable probability of its propagating cattle plague. If any animal is dealt with or removed in contravention of this article, the person so dealing with or removing the animal, and also the person causing or permitting such dealing therewith or removal thereof, shall each be deemed guilty of an offence against this Order.

18. Where an offence is committed with respect to an animal under Articles 16 and 17 of this Order, or either of them, the local authority may by themselves or their officers cause such animal to be slaughtered and buried, and may recover from the owner in a summary manner all expenses so incurred.

19. All animals affected with cattle plague, whether they have been slaughtered or have died of cattle plague, shall be buried by the owner as soon as practicable in some proper place, with their skins slashed in such a manner as to prevent their being made of any use, and with a sufficient quantity of quicklime or other disinfectant, and shall be covered with at least 6 feet of earth, or shall be otherwise disposed of in such manner as may be directed by any regulations made by the local authority and approved by the Privy Council. If any animal is not buried or otherwise disposed of in pursuance of this article, the owner of such animal shall be deemed guilty of an offence against this Order, and the local authority may bury or otherwise dispose of such animal, and may use any convenient place on the premises of the owner for that purpose. The local authority may recover from the owner in summary manner any expenses incurred by them under this article.

20. It shall not be lawful for any person, except with the license of the Privy Council, to dig up, or cause to be dug up, an animal that was affected with cattle plague, or part of such an animal. If any person acts in contravention of this article he shall be deemed guilty of an offence against this Order.

21. Where the local authority exercise the power of causing premises to be cleansed and disinfected, conferred on them by Section 14 of "The Cattle Diseases Prevention Act, 1866," the occupier of such premises shall give all facilities for that purpose, and if he fails to do so he shall be deemed guilty of an offence against this Order.

22. No fresh animal shall be admitted into any yard, shed, stable, field, or other premises in which an animal affected with cattle plague has been kept while so affected, or has died, or been slaughtered, until the expiration of 30 days after the cleansing and disinfecting of such premises. If any fresh animal is admitted into any yard, shed, stable, field, or other premises in contravention of this article, the occupier of such yard, shed, stable, field, or other premises shall be deemed guilty of an offence against this Order.

23. The dung of an animal affected with cattle plague, and all hay, straw, or litter, or other article that has been in contact with or used about such an animal shall be destroyed, or with the sanction of the local authority shall be disinfected and dealt with to the satisfaction of the inspector to either case, by and at the expense of the occupier of the premises on which the same is found. If the same is not so destroyed or disinfected and dealt with, the local authority may cause the same to be destroyed or disinfected, and may recover in a summary manner all expenses incurred by them from the occupier of the premises on which the same is found, and in addition thereto such occupier shall be deemed guilty of an offence against this Order.

24. No such dung or other article shall be removed from the premises where an animal affected with cattle plague has been, except for the purpose of being so destroyed or disinfected and dealt with, and with a license of an inspector specifying the place at which it is to be destroyed or disinfected and dealt with, nor shall any such dung or other article be removed beyond the limits of the district of the local authority in which such premises are situate without the consent in writing of the local authority into whose district it is moved. If the same is removed in contravention of this article, the occupier of the premises from which it is removed, and also the person removing the same, shall each be deemed guilty of an offence against this Order, and the local authority may cause the same to be destroyed or disinfected, and may recover from the occupier in a summary manner all expenses incurred by them.

MARKETS, EXHIBITIONS, AND SALES.

25. No market, fair, exhibition, or sale of cattle shall be held, except as follows:—1. Cattle belonging to the owner or occupier of premises not in an affected place may be sold on those premises if the cattle are not affected with cattle plague, and have been on those premises in possession of the owner or occupier thereof not less than 28 days immediately before the sale. 2. Markets, exhibitions, and sales may be held under licence of the Privy Council. If any cattle are sold, or exposed or put up for sale, or exhibited, in contravention of this article, the seller and the purchaser thereof, and the auctioneer putting the same up for sale, or the person exposing the same for sale or exhibiting the same, shall each be deemed guilty of an offence against this Order; and if any person holds a market, exhibition, or sale, in contravention of this article, or fails to comply with any of the conditions, provisions, or regulations of any license for the holding of a market, exhibition, or sale, he shall be deemed guilty of an offence against this Order.

26. Cattle exposed for sale in a market or at a sale, the holding whereof for the sale of cattle for immediate slaughter is licensed by the Privy Council, may be kept alive for a period of six days after such exposure, and no longer. If any person keeps any cattle alive in contravention of this article, he shall be deemed guilty of an offence against this Order.

MOVEMENT OF ANIMALS.

27. Cattle may be moved in accordance with the provisions of this Order, but not otherwise.

28. No cattle shall be moved on a highway between sunset and sunrise in the months of March to September, inclusive, or between the hours of 6 P.M. and 6 A.M. in the other months; but nothing in this article shall restrict the movement of cattle within the limits of any city or town.

29. Licences for movement of cattle shall be of three kinds:—1. A licence for movement generally, to be called a movement licence. 2. A licence for removal to a licensed market, exhibition, or sale, to be called a market licence. 3. A licence for removal from a licensed market, exhibition, or sale, to be called a market pass.

30. The forms in the second schedule to this Order, or forms to the like effect, signed as in that schedule directed, should be used in the cases to which they refer, with such variations only as circumstances require, and when used shall be deemed sufficient.

31. No cattle shall be moved out of the district of a local authority in which they are, except with a licence of the local authority; and if that licence is not signed by a justice of the peace, then there shall also be requisite a licence of the local authority of the district into which they are to be moved, indorsed on or referring to such first-mentioned licence; but such second-mentioned licence, shall be necessary in the case of movement from lands to other lands in the same occupation situate in the district into which the cattle are moved within 500 yards of the boundary of the district out of which they are moved.

32. No cattle shall be moved within the district of a local authority without such licence as the local authority prescribes in that behalf; provided as follows:—1. The conditions of any such licence shall not be more stringent than the conditions of the licences, forms whereof are given in the second schedule to this Order. 2. No regulation of a local authority shall authorise the owner or purchaser of any cattle, or his bailiff or agent, to consent by his signature or other act to the movement of such cattle. 3. No licence shall be necessary for movement within the district for a distance not exceeding 500 yards from land to other lands in the same occupation.

33. Each local authority shall, as soon as may be after the commencement of this Order, send to the Privy Council a list of all persons appointed by such local authority to grant licences for the movement of cattle, with the addresses of such

persons, and shall afterwards from time to time send to the Privy Council notice of any addition to that list within seven days after such addition is made; and the Privy Council may, if they think fit, at any time, direct the removal from such list of the name of any person, and thereupon that person shall cease to be authorised to grant any licence for the movement of cattle under this Order.

34. Cattle may be moved to a market, exhibition, or sale, licensed by the Privy Council, with a market licence, or a market pass, but not otherwise; and the person bringing any cattle thereto shall deliver the licence or pass to an officer of the market, exhibition, or sale, or to some other person appointed in that behalf by the holders of the market, exhibition, or sale, and the same when so delivered shall be retained, numbered (for identification), and carefully preserved by such officer or person, and shall be produced on demand to an inspector of the Privy Council, or an inspector or other officer of the local authority, or to any police officer; and any person refusing so to produce the same shall be deemed guilty of an offence against this Order. Provided that in case of an exhibition or sale such a licence or pass shall not be given except for movement from places or parts allowed in the licence of the Privy Council for the holding of the exhibition or sale.

35. Cattle which have been sold or exposed for sale, or exhibited in or at a licensed market, exhibition, or sale, shall not be removed therefrom, except with a market pass, to be given by an officer of the market, or exhibition, or sale, or other person appointed in that behalf by the holders of the market, exhibition, or sale, to the owner or purchaser desirous of moving the same.

36. Where a licence for the movement of cattle has been granted, and an error is afterwards discovered therein, any two justices may, by writing under their hands subscribed to or indorsed on the licence, correct the error, and thereupon the licence shall be and be deemed to have been as valid and effectual as if the error had not been made.

37. If any cattle are moved in contravention of any provision of this Order, the owner thereof, and the person directing or permitting their removal, and the company or person removing or conveying them, shall each be deemed guilty of an offence against this Order.

38. Nothing in Articles 27 to 37, inclusive, extends to the metropolis.

39. Cattle may be removed from Scotland into England with a movement or market licence, but not otherwise.

40. A local authority may, from time to time, with the view of preventing the spread of cattle plague, make regulations prohibiting or regulating the movement of animals on, to, from, and through, and the keeping thereof on, commons and wastes whereon there exists a right of common, and may revoke any such regulation. If any person acts in contravention of any such regulation, he shall be deemed guilty of an offence against this Order.

41. No person shall drive cattle under his charge, or allow them to be driven, or to stray, into an enclosed field, without the consent of the owner or occupier thereof. If any person acts in contravention of this article he shall be deemed guilty of an offence against this Order.

FOREIGN ANIMALS.

42. From and after the 13th day of September, 1867, foreign cattle shall not be landed elsewhere than at parts of ports defined by special Orders of the Privy Council (made or to be made) for the several ports as places where foreign cattle may be landed, and, notwithstanding anything in this Order, all regulations relative to the landing of foreign cattle at any port in force at the commencement of this Order shall remain in force until the 1st day of October, 1867.

43. The owner, consignee, or other person landing foreign cattle shall, before or within 12 hours after landing them, at his own expense mark them by clipping the hair of the end of the tail, and in such other manner as the Privy Council from time to time direct. If any foreign cattle landed are not so marked the person landing the same, and the owner or consignee thereof, shall each be deemed guilty of an offence against this Order.

44. Notwithstanding anything in this Order respecting movement of cattle by licence or otherwise, foreign cattle shall not be moved alive out of the limits of the defined part of the port at which they are landed except as allowed by and in accordance with the provisions of an Order of the Privy Council relating specifically to that port.

45. The following cattle are hereby excepted from the operation of Articles 42, 43, and 44 of this Order, namely, cows brought from the Channel Islands or any of them, or from the Isle of Man, in vessels plying or sailing between those islands respectively, or one or any of them, and England, and not having touched since last leaving England, or one of those islands (as the case requires) at any port or place elsewhere than in one of those islands or in England, and not having on board any cattle except cows born in one of those islands and not previously removed from those islands; and the following provisions shall apply to such cows:—1. In order to entitle any person to the benefit of this article in respect of any cows, the master of the vessel in or on board of which the same are so brought, shall, on his arrival in such port or place, deliver to the person appointed by the local authority of such port or place for the purpose, or, in default of such appointment, to the officers of her Majesty's customs there, a clearance docket under the hands or hand of the principal officer and controller of her Majesty's customs at the port or place in one of those islands from which cows are exported, describing the same as *bond fide* the produce of, and as having never previously been removed or exported out of, the Channel Islands, or one of them, or the Isle of Man (as the case may be); together with a certificate in writing under the hand of the governor or lieutenant-governor of such island, certifying that the shipper of such cows has made proof before a magistrate within such manner required by the laws relating to the customs, that such cows are actually the produce of and were born within the Channel Islands or the Isle of Man (as the case may be), and have never previously been removed or exported therefrom; and also a certificate under the hand of some veterinary surgeon practising within such island, and countersigned by a magistrate having authority within the same, to the effect that to the best of his knowledge and belief such cows are free from cattle plague, and from every symptom commonly supposed to indicate the presence or approach thereof, and from contagious disease of any kind, and that to the best of his knowledge and belief cattle plague never has existed and does not at time of granting such certificate exist in such island. 2. No such cows shall be removed from such port or place alive without a certificate from the local authority that they have been examined by some officer appointed by the local authority for that purpose, and that they are free from cattle plague. 3. Such certificate shall not exempt such cows from any other regulation of this Order with respect to the movement of cattle or otherwise; save that the same may be accepted in the case of a movement licence by the person authorised to grant the same, as sufficient for the purpose of the granting thereof, and in the case of a market licence, by the justice, or other person authorised to grant the same, as equivalent to the declaration of the owner or his agent. Provided that the exception made by this article shall not extend to any such cows landed at a part of a port defined as in Article 42 provided.

46. Sheep, goats, and swine brought in the same vessel with foreign cattle shall be subject to the provisions of this Order respecting foreign cattle.

REMOVAL OF HIDES, WOOL, HORNS, ETC.

47. No hide, skin, hair, wool, horn, or hoof of animals shall be carried by or on a highway, railway, canal, or river, or by other mode of conveyance, unless effectually covered. If any such thing is carried in contravention of this article the person sending the same and the person conveying the same shall each be deemed guilty of an offence against this Order.

48. The last preceding article shall not apply to the following things:—1. Hides, skins, hair, wool, horns, or hoofs imported into the United Kingdom from India, Australia, South Africa, or America. 2. Hides, skins, hair, wool, horns, hoofs, or glue pieces that have been effectually limed for manufacturing purposes. But proof that any hide, skin, hair, wool, horn, hoof, or glue piece is such as to come within any exception made by this article shall lie on the accused.

POWERS AND DUTIES OF OFFICERS RESPECTING MOVEMENT OF ANIMALS, HIDES, ETC.

49. An officer authorised in this behalf by a local authority, or any constable or police officer, may stop and detain any animal which is being moved, or which he has reasonable grounds for suspecting is being moved, in contravention of this Order, and may apprehend, without warrant, the person in charge thereof, and bring him before a Justice, who shall inquire into the case in a summary manner, and may, if satisfied that there are good grounds for suspecting that such animal was being moved in contravention of this Order, by writing under his hand direct the animal to be detained, and the person in charge thereof to be brought before two Justices as soon as practicable, and the same may be done accordingly. On such person being brought before two Justices they shall adjudicate on the case in a summary manner, and, if satisfied that the animal was being moved in contravention of this Order, may direct it to be slaughtered and buried, or to be otherwise disposed of as they think most expedient for preventing the spread of cattle plague.

50. Any officer authorised in this behalf by a local authority, or any constable or police officer, may inspect any railway truck, cart, boat, or other vehicle used by land or by water, in which animals, hay, manure, litter, straw, and other articles used for or about animals are usually or at the time of such inspection carried, and may examine the person in charge thereof, with a view to ascertain whether any animals or articles are being moved or carried in contravention of this Order; and such officer may, if he has reasonable grounds for suspecting that such animals or articles are being moved or carried in contravention of this Order, apprehend, without warrant, the person in charge thereof, and bring him before a Justice, who shall inquire into the case in a summary manner, and such Justice, if satisfied that there are good grounds for suspecting that such animals or articles were being moved or carried in contravention of this Order, may, by writing under his hand, direct the same to be detained, and the person in charge thereof to be brought before two Justices as soon as practicable, and the same may be done accordingly. On such person being brought before two Justices, they shall adjudicate on the case in a summary manner, and if satisfied that the animals or articles were being moved or carried in contravention of the Order, may direct the same to be destroyed or otherwise disposed of as they think most expedient for preventing the spread of cattle plague.

51. If any person having charge of any animal or thing that is being moved or carried on a highway, railway, canal, navigation, or river, for the moving whereof a licence is requisite, is required by an officer of a local authority authorised in this behalf, or by a constable or police officer, to produce the licence (if any) for the moving or carrying of that animal or thing, and fails to do so, he shall be deemed guilty of an offence against this Order.

52. Any constable or police or other officer detaining any animal under this Order shall cause it to be supplied with requisite food and water during its detention, and any expense incurred by him in respect thereof may be recovered in a summary manner from the person in charge of the animal or from its owner.

53. Any inspector or other officer empowered to carry this Order into effect may, if authorised in this behalf by general or special order in writing of the local authority, enter any field, stable, cowshed, or other premises within his district, where he has reasonable grounds for supposing that cattle affected with cattle plague have been buried or otherwise disposed of, for the purpose of carrying into effect the provisions of this Order. If any person refuses admission to, or obstructs or impedes, or aids in obstructing or impeding, such inspector or other officer, he shall be deemed guilty of an offence against this Order.

CLEANSING AND DISINFECTING OF PENS, TRUCKS, ETC.

54. Every pen, carriage, truck, horse-box, vehicle, or boat required to be cleansed and disinfected shall be cleansed and disinfected once in every 24 hours during the time when it is used for any animal in manner following:—By sweeping out and effectually removing all dung, sawdust, or other matter from the pen, carriage, truck, horse-box, vehicle, or boat, and then by thoroughly washing the same with water, and then by applying to the floor and to all parts above the floor of the pen, carriage, or truck, and to the sides, floor, and ceiling of the hold of the boat, and to every other part of the boat with which animals or their droppings come in contact, a coating of limewash made up by mixing good freshly burnt lime with water, and containing in each gallon of limewash either one-fifth of a pint of carbolic acid, or one-fifth of a pint of cresylic acid, or four ounces of fresh dry chloride of lime, such limewash to be prepared immediately before use. The sweepings shall be well mixed with quicklime and effectually removed from contact with animals.

DOGS.

55. A local authority may make such orders as they think expedient for preventing the propagation of disease by means of dogs, and may order stray dogs to be destroyed or otherwise disposed of.

Home Correspondence.

The Thunderstorm of August 19th-20th.—It is very remarkable that this storm occurred exactly a week behind a spell of deluging rain in the United States, from the Maine frontier to the Rocky Mountains. According to a Washington correspondent to one of the papers, people began to think about furnishing steam arks. Railways were washed away, rivers overflowed their banks, a vast extent of land was inundated; great damage to property and to standing crops ensued everywhere. At Washington 6 inches of water fell during the 98 hours ending at noon of Sunday, the 18th, the day preceding the occurrence of the storm in England. At Albany, in New York State, and at other places, the showers were attended by various phenomena—small shells and portions of decomposed tropical plants, with gelatinous matter, being found in the pools caused by the rain. In several of the Southern States the crops were very seriously injured. It is obvious that the great Atlantic Telegraph might warn us of many an impending storm by announcing daily the state of the weather in America. The consideration of the following facts will show the utility of this suggestion. Let us suppose, for example, the northerly current to be prevailing in America, and the southerly one in Europe; the latter will have a tendency to swerve from the point of contact, and allow the former to encounter it as a north-west wind. If, on the other hand, the northerly current is in Europe, and the southerly one in America, the latter will have a tendency to impinge on that from the north in a more westerly direction than that of its original course. This effect will be caused by the greater density of the polar current in the upper regions of the atmosphere. If, however, the polar current makes too great a resistance, a whirlwind will be produced in the equatorial current in the direction S., E., N., W. If we knew the weather that prevailed in the rest of the globe—as we may, certainly, by means of all the telegraphs—we might prognosticate that which might be expected. We ought to know, when the barometer is low with us, whether the cold is intense in America or in Asia. If in America, then the west winds will bring rain; if in Asia, the east winds will bring cold. Such a matter-of-fact method would be invaluable to all who are exposed to loss by sudden storms of wind or rain. *A. S.*

The Slug Pest is this year in full vigour, especially in our Clovers, so that there is danger again for our Wheat plants. They suffered much last season. I cross-ploughed my Clovers just after harvest, and again ploughed them for Wheat: so there was no slug; but on 5 acres of one of the same fields not ploughed twice, a large portion was slug eaten. As this twice ploughing appears to be a certain cure, I communicate it for the benefit of my brother agriculturists. I suppose the drying of the furrow-slice and the Clover within it starves them to death. The first ploughing should be early, and in dry weather. The crop was better where twice ploughed. Liming at night is also beneficial. An intelligent farmer who visited us lately told the bailiff that he never suffered from slug. He well harrowed the Clovers in dry weather with sharp harrows, which pulled out the slugs from their hiding-places around the stem of the Clover, and the roller, following immediately, crushed them. My young Cabbage plants, after a heavy crop of Tares, were literally covered with them. With a lanthorn, about 10 P.M., I counted as many as 14 on a single leaf; so I sowed about 4 bushels of fresh-slaked lime per acre, and found them, the next day, as a shrivelled and dried-up chrysalis. A second dressing was also necessary, and my 40 ducks early in the morning gorged themselves with any escaped slugs. On the dry earth their trail or track would shine with dried silvery slime. But for these arrangements our crops would be partially destroyed. *J. J. Mechi, Sept.* 4.

The price of Grain and Pulse during the ensuing year.—The British nation is deeply indebted to the *Agricultural Gazette* for the earliest and most trustworthy information relative to the harvest and the prospects of our home grain supplies for the ensuing year. They are very valuable, and should form a rule for the guidance of our farmers in their sales of grain. In the face of such returns it would appear unreasonable for our farmers to thresh so freely as to overstock the market even at the present prices. There is every probability that all kinds of grain will realise very satisfactory prices throughout the year, and that Wheat more especially will command a high price. We have already passed over two years of short crops, and this, the third year, is still less productive than the two preceding years. The consequence will be very serious unless ample supplies are forthcoming from foreign ports, of which there is great doubt. We don't read of any of the large exporting countries holding stocks, or being blest with an abundant harvest. On the contrary, all our reports are unsatisfactory. There is no superabundance anywhere. The chief ground for satisfaction and hope to our consumers is in the knowledge that all our colonies, and many countries not habitually exporters, are growing corn for the British market. This is highly reassuring, but any large supplies from these sources must not be looked for. Suppose these new providers can supply us with something like a million quarters, which is a very high estimate, where is the remainder to come from? We imported in the year 1864, of Wheat, 23,196,793 cwt.; other corn, 18,793,562 cwt.; Wheat meal and flour, 4,512,391 cwt. In the year 1865 the imports were, Wheat, 20,962,963 cwt.; other corn, 24,370,164 cwt.; Wheat meal and flour, 3,904,471 cwt. In the year 1866 the imports the first six months were, Wheat, 11,508,676 cwt.; other corn, 14,284,373 cwt.; Wheat meal and flour (six months), 3,134,448 cwt. In the year 1867 the imports the first six months were, Wheat, 14,448,556 cwt.; other corn, 13,920,303 cwt.; Wheat meal and flour, six months, 1,823,072 cwt. These figures suffice to show that our imports are pretty regular: no enormous excess of imports has been brought forward of late years to swamp our markets. The high prices of last year induced an extra import of about 3,000,000 cwt. of Wheat in the six months ending June 30, as against the corresponding six months in 1866, but there was a falling off of 1,311,376 cwt. of Wheat meal and flour. The difference is, comparatively, not great for a large importing country like ours. We have, then, these facts: the two preceding harvests were considerably under average, the present harvest is still more deficient; our imports do not keep up with our wants, our population is greatly on the increase,—what is there to fear, then, as respects prices? Our farmers should, therefore, be cautious and patient. They may, by their hurry to secure present tempting prices, force down the market for a time, to their own great disadvantage, and for the sole benefit of importers. It is universally known that a single shilling per quarter difference in

the price of Wheat in the British market has its influence over the whole exporting world. Importers take advantage of this, and if we force down our market, their orders go forth, and in due time large importations take place, and keep them down; or the other alternative is, that for the first six months after harvest we have depreciated prices, and in the course of the next six months a considerable advance, as in the past year. This is chiefly owing to two causes: ignorance of the country's resources, and over-anxiety to realise sales of grain. We are this year to be favoured with agricultural statistics, which, with the information already before us, will no doubt greatly enlighten us as to our resources. We shall also learn in a short time what other countries have to spare for us. It would, therefore, be foolish and precipitate, according to this showing, to force sales. It would be much better to await the result of our intercourse with exporting countries, and our own country's returns: we shall then be in a position to judge as to the right course to follow. *O. F.*

Harvest of 1867.—I have been very much surprised this morning on reading your observations on my letters to the *Times* on the agricultural crops of 1867. I think in common fairness you ought to have waited until you had seen the whole series of those letters before you gave your opinion as to their value. If you had done so, you would not have fallen into the mistake of accusing me of giving an opinion about the crops of the whole country when, as you affirm, I had only seen one side of it. As one of the oldest supporters of, and contributors to, the *Gardeners' Chronicle*, I think I am entitled to ask you to correct the unfair impression which your remarks are calculated to convey. *H. J. Turner, Richmond, Sept.* 2. [We are not aware of having done Mr. Turner any injustice. His letter was less serviceable towards the formation of a sound opinion of this year's produce than others which he has in previous years sent to the *Times* newspaper. If he shall give the result of any further examination he may have made, we shall be happy to state the results at which he has arrived.]

Crops in Forfarshire.—Wheat, average, but quality doubtful. Barley, average. Oats, over average. Beans, average. Potatos, average, except on heavy soils. Root crops, good on easy soils, very bad on clays. Hay, above average. Harvest general the middle of September, consequently all the cereals are in a precarious state. Wages, during harvest time, say—scythemen, 25*s.* per week; bandsters, 20*s.* do.; uptakers (women), 18*s.* do. Prices for cutting Wheat, Barley, and Oats, per acre, an average of 10*s.* One bottle of beer for each hand per day. Mode of harvesting Wheat, Barley, and Oats: about one-half by the reaping machine and half by the scythe. *Thos. Smith, West Drem.*

Crops in Nottinghamshire.—You have made a mistake in printing my report in your Number of August 17. Instead of "Wheat under average, many ears," it should be "Wheat under average, many deaf or blighted ears." Since I last wrote you, several farmers have threshed Wheat, but I am sorry to inform you that the yield is much worse than was estimated before cutting. I will give you the result of Wheat threshing on four farms, all well cultivated, and various qualities of soil:—A. (very light sandy soil), about three quarters per acre. B. (good sand land), about three quarters per acre. C. (black moor soil), two and a-half quarters per acre. D. (clay land, of rather weakish quality), two and a-half quarters per acre. I have not threshed any corn yet. Several farmers complain of finger-and-toe amongst Swedes. Potatos are bad, diseased. Cabbages and Mangels growing fast. *Charles Doncaster, Riddings Hill.* [We shall be very glad to have the occasional reports which you kindly offer.]

Societies.

THE ROYAL IRISH SOCIETY'S NATIONAL HORSE AND CATTLE SHOW.—The animation which prevailed in the Irish capital during the past week, by reason of the holding of the great agricultural event in its central park, has now disappeared, and the site in which the display came off is now bare. In the hurry of drawing up his report on Wednesday last (the day of the adjudication on the part of the Judges, whose decisions in some instances were not fully confirmed till late in the evening), our correspondent committed an inaccuracy; for we find that in the horse section the Croker Challenge Cup was awarded to Robin (late Robin Hood), bred by Baron de Rothschild, and not to Roman Bee, as previously decided. The Judges in this department were Henry Thurnall, G. A. Boy, and Thos. Clayton, Esqrs.

The adjudications in the different departments having concluded—and which, we are happy to say, gave general satisfaction—the members of the Society, its officers and friends, dined together in one of the halls of the Winter Crystal Palace Exhibition. The chair was taken by Lord Talbot de Malahide, President of the Society, who gave "The Health of his Excellency the Lord-Lieutenant, and Prosperity to Ireland," and made a graceful allusion to the intimate acquaintance with the country which his Excellency possessed, and the esteem in which he is held as a landlord.

His Excellency said: I should be doubly unworthy—unworthy both of the high office which I have now the honour to hold, and of the national position which I enjoy as one of the largest proprietors in this country, if there were any one in this assembly or elsewhere to whom words could convey a deeper import, or impart a more thrilling sympathy, than they do to myself. There have been reasons during the last two years since you met—reasons both social and political—which might seem to indicate a possibility that the farming interests of Ireland might not show so strong a front as in apparently more favourable years; but I think that a walk through your showyard and a calculation of the numbers in your entries will show that such a presumption was totally unfounded, and that your Society, after its enforced slumber of two years, has risen with renewed freshness and vigour to resume its important functions, whether these functions be to extend the improvement and progress of agriculture in your own country or to compete in friendly rivalry with the titled aristocracy of the herds of the sister kingdom. Gentlemen, with regard to the show of this morning, I think the display of horses was pre-eminently good. I believe it is undoubtedly the best show of horses that has ever been seen in this country. The Shorthorns also were well represented to-day, especially the yearling heifers, some of which had considerable merit. I must not omit also the very great number and variety of implements and machinery, and I am glad to say that Irish manufactures hold a prominent place. Gentlemen, I think the evidences we have seen, both of the success of your Society, and of the progress of agriculture which it indicates, are so far satisfactory; but I think it may be useful to go somewhat more minutely into the ramifications and details through which the sources of wealth well up to the prosperity and advantage of nations, before we come to any accurate conclusion as to what the comparative state of the prosperity of Ireland may be at this moment. In considering this question we must not omit to notice the fact that this country has for two years undergone political disturbances which have materially affected the outward prosperity of the country, have locked up his own capital, and diverted that most easily frightened of all visitors—I mean external capital—from taking any footing on our shores.

THE CONDITION OF IRELAND.

I confess that, while I have a great dislike to anything which seems like taking an extravagant or imaginary view of what may be presumed to be the prosperity of this country, I hold it to be an evidence of equal weakness to take a despondent view of temporary obstructions. Therefore, with your permission, and even at the risk of somewhat wearying you by a dry compendium of figures, I will place before your judgment a true and reliable statement of some of those details of internal finance and economy, the reaction of which operates most powerfully upon that which more immediately concerns your Society—the agricultural wealth of the country. There is, perhaps, no more effectual test of what the comparative state of prosperity of the agricultural labouring classes may be than the number of persons receiving Poor-Law support during the year. We must acknowledge that, tried by this test, the present season has been one of unusual distress for the poor. We find that the year ending February, 1867, shows the number of 78,000 persons receiving Poor-Law relief, both in-door and out-door; a greater number than has ever been since 1855, when it was about the same amount; while the four previous years to 1866 only show an average of 72,000. Nor do we find, as is usual, that as the season advances there is a proportionate decrease in the numbers, for I regret to say that on the 4th of August we still find 63,000 persons receiving Poor-Law relief. This is not altogether a pleasing picture, but there is much to be said on the reverse side of it. This, it appears, was caused by an exceptionally severe winter and an inclement autumn, and not by permanent causes. We have had, from the same cause, to regret a considerable amount of distress in Connemara, and the Government have taken means to give employment, as far as lay in their power, in some districts there, in the hope of enabling the population there to get through their difficulties till the harvest, which is of good promise, shall have further relieved them. And we have done this with very considerable success, I am happy to say. But I must remind you that if the number of persons receiving Poor Law relief has been in this last year in excess of previous years, yet, as compared with former years—for example, with 1852 and 1853—the amount in the present year is not one-half of that in those years, and is 40,000 less than in either of the years 1854 and 1855. We may, therefore, while acknowledging and regretting a temporary depression, yet come to the conclusion that the position of the agricultural labouring classes is more prosperous now than it was 14 or 15 years ago—namely, in 1852, 1853, 1854, and 1855; and we may also confidently hope that a good harvest may completely reinstate them in their former amount of comfort. I will now enter upon some other financial details not altogether connected with your Society, but yet not less vitally important as evidences of a country's wealth. If we begin with the amount of Bank stock in the Bank of Ireland, we find the return for the half-year ending June, 1867, to amount to 18,900,000*l.*, being about 170,000*l.* in excess of the whole year's returns of 1866. And we also find that, with the exception of the year 1865, which was 328,000*l.* in excess of the present year, the present year, 1867, is higher than any previous year whatever. In another important subject—the deposits in the Post-office savings banks—we find a progressive increase since their first establishment in 1862, the amount for the present year, ending June, 1867, being set down at 280,000*l.*, or 40,000*l.* more than the whole year's returns of 1866; while we find in every succeeding year since 1862 a progressive increase averaging about 35,000*l.* a-year. In another still more important subject—namely, the amount of deposits in joint-stock banks—we find that the amount of deposits, or rather the actual wealth in the hands of the people of this country, is larger at this moment than it has ever been known to be before. The return for the half-year ending June, 1867, shows 18,900,000*l.*, being 200,000*l.* in excess of the whole year's returns for 1866, while the year 1866 is in excess of 1865 by 1,600,000*l.*, and in excess of 1864 by no less a sum than upwards of 4,000,000*l.* Nor is this the only satisfactory result to be deduced from these returns, for on going back to a succession of years—from 1844, when the amount was only 5,500,000*l.*—we find the return for the half-year ending in 1867—certainly the highest that has ever been made—is 3,000,000*l.* higher than any year antecedent to 1864. There is another return connected with property that may be worth your notice, as certainly evidencing no decrease of means in the country—I mean the amount of property passing under probate and administration. We find for the year ending February, 1867, the amount set down as 5,948,000*l.*, being 1,000,000*l.* more than the amount in any four previous years, and by 450,000*l.* more than in any previous year whatever, the highest previous amount being 4,600,000*l.* in 1858-59. My lords and gentlemen, I have gone somewhat fully into these details because I thought it might be interesting to you to know the precise details of some of these branches of internal finance and economy; and with the exception of a depression in relation to the number of those receiving Poor-Law relief, we have clear evidence of a larger amount of wealth existing in 1867 than has ever been known in the same form in the country before. If, then, we have this amount of capital in the funds of the country, why do we hear of stagnation of trade, and of a certain slackness in commercial proceeds, and of a certain amount of general depression? Well gentlemen, I think that an amount of capital may be compatible with an indisposition or a mistrust in applying it. We have evidence of a larger amount in Bank stock, in joint-stock banks, and in Post-office savings banks than has ever been known in the country before. We have also evidence of an indisposition to apply it in mercantile or speculative projects. I leave the fact in your hands, premising only that I believe that while the designs of the insane and mischievous men who have disturbed the peace of Ireland for the last two years have been unable to affect the monetary wealth of the country, they have yet been the means of materially locking up the issues of that wealth, of diverting it from its natural occupation, and of paralyzing to a great extent the beneficial effect it might have had on the progress and advancement of the country.

AGRICULTURAL STATISTICS.

I will now revert to some subjects more immediately, though perhaps not more vitally, connected with your Society. The returns for the present year show no material difference as regards the breeding of stock and cultivation, except in the item of sheep. We find a small decrease of about 60,000 acres in the amount of land under rotation of crops, making altogether a decrease of 500,000 acres of land under rotation of crops, including about 200,000 of green crops, since 1860; while we find an increase of cattle to the amount of 500,000, and of sheep to no less an amount than 1,500,000, of which 500,000 are in the present year. I find this decrease since 1863. This large increase in cattle, with a decrease of the winter means of feeding them, is a subject which, in the presence of so many more experienced than I am in agricultural economy, I will not venture to enter further upon than to say that it is a subject which appears to be worthy of the serious consideration of the practical and skilled members of your Society. Connected with this increase in cattle there is one point which is undoubtedly highly satisfactory—namely, the large increase of exported cattle during the present year as compared with former years. We find the number of cattle exported during last year to be 579,000 as compared with 345,000 in 1863, and to go further back, to 1850, as compared with 195,000. If the average of the exported cattle be taken at somewhat less than 15*l.* per head, which, I am informed by competent judges, is not much over the mark, we shall find the difference in the exported value between this year and 1865 to come really to three millions of money. In flax we have a decrease in the whole of Ireland of 10,000 acres; but if we look into the returns we shall find the decrease to be wholly confined to Ulster, while in the rest of Ireland there is a slight increase of about 500 acres. Now, I question much whether this decrease in Ulster may not be a very beneficial one, for it is possible that the cotton famine years may have over-stimulated the growth of Flax in that province, and that the present decrease is merely a return to a more healthy amount of production; and I think that a comparison of the number of acres grown in Ulster last year—namely, 263,000 acres—as compared with the number of acres grown in 1861, before the Cotton famine—namely, 147,000—very much bears out that view of the case. On another highly important subject—important both to the working powers of the farming interest and to the wealth of the whole country,—I mean that of emigration, the returns are comparatively satisfactory. I say comparatively, for though we have to regret still the departure of a large number of our population for Transatlantic regions, yet the returns of the first six months of the present year show a palpable decrease from the corresponding returns of last year; the amount for the first six months of 1867 being 48,000 persons, as compared with 66,000 persons in the corresponding months of last year—a decrease of 18,000, or nearly one-third of the whole amount.

RAILWAY COMMUNICATION

is yet another subject which has been much discussed in Ireland during the past year, and which I can hardly omit to mention. I believe the advantages that a better system of railway traffic would confer on this country are almost incalculable. I believe that those advantages would be felt down to the pettiest trader and the smallest farmer in the remotest districts, and that a stimulus might then be given to enterprise, and capabilities developed which are now in their infancy. I might instance among

others the sea fisheries of the south and west of Ireland, which I believe might be made a source of national profit and employment, now nearly thrown away. The consideration which the Government, looking to this matter, have given this subject, has resulted in the determination to appoint a committee of inquiry, which it is confidently hoped may produce results highly advantageous in this respect. My lords and gentlemen, I have already trespassed too long upon your patience, but I think the view we have been able to take, both of the financial condition of the country and of its agricultural progress, has been one of no despondent nature. It is true that this country has been but just delivered from one of the most insane and unmeaning attempts at insurrection ever recorded in history. It is equally true that the consequences of the attempt are still pressing heavily on the commercial enterprise and spirit of all classes of the community; but while we have this in the background, we have yet much that is hopeful in the future. We have seen that the monetary wealth of the country is undamaged, although its application may have been hindered and delayed. We have also the cheering fact that, notwithstanding the political disturbance of the last two years and the demoralisation which might have been expected from it, the amount of crime, as indicated in the return of indictable offences not summarily disposed of, and including political offences, is very much less this year than it has been in previous years, the total amount of cases for the year 1866 being 9009, as compared with 9800 in 1865, and with 10,800 in 1864. Whatever may be the misguided feelings of some portions of the population, we cannot but feel that it is highly satisfactory that so large a diminution should have taken place in general crime; and I must pay this just tribute to the Irish people, that whatever may be the errors of some portions of them, whatever may have been the crimes which have defaced some portion of the Irish calendar, and that fortunately is but a small one, we have been spared anything like the cold-blooded atrocities which have made Sheffield and some trades' unions hideous in the sight of humanity. I rejoice that Ireland, in the midst of insurrection, of poverty, and of social disturbances, has had no reproach of that nature cast against her. My lords and gentlemen, it would ill become any one to prophecy as to the times before us, but I believe that, though some clouds still hang over the horizon, any storms they engender will pass away harmlessly, and that the loyalty of the great bulk of the people, and a return of good sense even to some of those who have been misled, will result in that which all but the enemies of Ireland must wish to see, the increased prosperity of its people, the improved development of its resources, and a return of social confidence and all those advantages which it alone is able to confer."

Lord Talbot de Malahide, in acknowledging the toast of his health, which was cordially received, referred to the character of the show, and observed that they had been placed in peculiar difficulties in getting good representatives of cattle, and the show was a manifestation of what could be done by people who were thrown upon their own resources, and who were determined to exert themselves to the utmost. They were not indebted to England nor any other country for the show of cattle; they were all the produce of Irish soil. His lordship then offered some remarks on the subject of Irish agriculture, premising that he would not trench upon the rule which had kept the Society together—namely, the rule which prevented them from entering upon political questions. He proceeded to say:—

I do not conceive that those who are connected with the landed interests of Ireland have been fairly and honestly treated. I contend that it is not fair to assert that there is an antagonism between landlord and tenant in Ireland. I deny that to be the case. Of course, among a large community there will be isolated cases where there may be disagreements, but I contend that the intercourse between the landlord and tenant in Ireland, in the general run of cases, is as friendly as it is in any other part of the United Kingdom. I am myself slightly connected with property both in England and Scotland, and I may fairly say that, from what I know of tenure in this country, I am sure there are quite as frequent causes of dissension and misunderstanding in those countries as in Ireland. I will just mention another matter which will prove the case, and which will enable us to consider the subject. I ask any person who has a practical knowledge of the three countries—I do not mean parties who deal in generalities, but those who really have a knowledge of the countries—to consider whether it is not more common for tenants to remain in possession of their farms for centuries and for many generations in Ireland than is the case in England or Scotland. I could say, and any person acquainted with the countries could tell you, that it is more common for the whole tenantry upon an estate to have been the original tenants for ages than in either England or Scotland. I do not mean to say that there may not have been hard cases—and these will occur in all countries—and I do not mean to say that English or Scotch landlords are harsh or cruel to their tenants; but the circumstances of the countries are such that, from various causes, there have been more cases of changing of tenantries in England and Scotland than in this country. The question, I think, admits of no dispute. I thought it my duty to urge this point, because the reverse might be taken for granted if it were not alluded to. I can say, so far as I am personally concerned, that I never had the slightest cause of complaint from any of my tenantry towards myself, and, in fact, I have had more trouble in attempting to settle disputes between themselves than any complaint they could have against me. I have felt it my duty to enter into this short defence, particularly of the landlords, as affecting the tenantry of Ireland, and I do not mean to say that I do not think that, in many respects, it would not be advantageous to both parties if there was a different system pursued.

Reviews.

An Account of the Island of Jersey. By the Rev. P. Falle. Public Library, St. Helier's.

(*Continued from p. 917*).

Mr. Le Gallais' residence and farm are situated on the southern side of what may be termed the western point of the island. This point is mainly composed of the drift sand we have previously referred to as existing at places. But towards the south the rocks are high and very abrupt, being generally nearly perpendicular. It is owing to this fact, no doubt, that the strip of cultivatable land which Mr. Le Gallais farms exists, for the sand from the shore could not be carried up these rocks, even had they been exposed to the open channel, and the drift from the western and northern edges of this miniature peninsula has been blown backwards and forwards till it formed into wavey mounds, or in its passage to the south it became lodged and sheltered in the rough herbage before it reached the southern edge. Nine-tenths of this peninsula is as poor and sterile as pure sand in a temperate climate can be found. For some distance too, inland, eastward towards St. Peter's, the soil is not much better, although it is cultivated. The ripe Wheat as it stood, as we passed across, was no more than 2 feet high, and in some instances not more than 18 inches. How little an acre these crops would yield, our experience would not enable us to make a satisfactory guess. While this was so, however, as regards Wheat and other cereals, there were decent Potatos, Parsnips, Mangels, Carrots, and "seeds," which are generally composed of that species of Clover known as "Cow-grass," Pacy, or Percey's Grass, and Italian and natural Grasses. This, however, is the worst cultivated part of the island—we refer to the part that borders the sand-drift—but this is probably because it has not substance or bottom enough to make an expenditure of money on it profitable. But as there is clay in the neighbourhood, if this earth could be found within an easy distance, or by sinking a pit an easily ascended depth, to adopt the Norfolk and Lincolnshire practice of applying 80 or 100 cart loads per acre would double and treble its present value. In a case, however, of this description, the disadvantage of small ownerships is insurmountable, for there is no money or means to enter into a heavy work of this kind.

Mr. Le Gallais has a somewhat better soil to deal with, and it is naturally better sheltered, while belts of trees and high trimmed fences add increased security to his crops and cattle, as against the marine gales. Mr. Le Gallais' main productions are similar to the small farmer's, viz., heifers and butter. He engages to send, during the sitting of the British Parliament, 200 lb. of butter per week to a West-End dairyman. A relay of cows and much skilled management are obviously required to admit of this being done off this high ground without the assistance of any moist bottom luxurious pasturage. Artificial feeding and other means, which we did not inquire into, have also occasionally most likely to be adopted. But the management here is as near perfection as anything we have ever seen.

The herd altogether numbers generally between 60 and 70. The object of Mr. Le Gallais is to breed good and profitable cows in preference to animals that would take the eye of amateurs, and the owners of some pedigree cattle which we will not name. Roomy hind-quarters, straight backs, and gently tapering long rumps, of course with light shoulders and long thin necks, are the leading characteristics at which Mr. Le Gallais aims. All such features as arched ribs, and bag and teats hanging in the well-known best position, are of course also studied; but in cattle breeding these points are generally subservient to, or naturally follow, if the main outline be correct. Another essential quality in a Jersey cow, Mr. Le Gallais considers, is a deep yellow or orange-coloured skin, as this is almost a certain indication of great dairy-serving capabilities. The first animal which particularly attracted our attention was a fine handsome—from our point of view—16 years old cow. She was described as being a very regular milker, having given about 3 gallons a day for 9 or 10 months in the year, and yielding from 10 to 12 pounds of butter per week, from her milk being equal to one-fourth more, or 4 gallons of that given by the generality of cows. This argues in favour of our previously-expressed opinion, about different breeds of cows, and greater and smaller quantities of milk. Her colour was fawn, and the exposed parts of her skin were of a deep yellow. Here we venture a question that may be worth further observations and discussion. Does this peculiar deep colour arise from an unusual amount, and the particular quality, of exhalations from the skin being acted on by sun and light? One person's skin becomes "tanned" by the effect of the sun more than the skin of other persons, which undoubtedly arises from peculiarity of organisation, and therefore the character of the cutaneous secretions. This is merely a question for scientific discussion, and does not lessen the value of the practical experience which has found, that the deeper the yellow colour of the skin of a cow is the richer is her milk. Another very attractive cow is of, as we termed it, a silver fawn colour; she cost 20*l.* as a two-year-old. This is a colour which is very rarely bred, and for this reason the novelty-loving Americans will give almost any price for an animal with this shade of hair. Mr. Le Gallais has two or three other young animals with coats which nearly approach it, and with these means he intends doing what he can to reproduce and establish a race of this colour. The 2d prize heifer of the Jersey Agricultural Society was among the rest, and a more perfect animal in form we have seldom seen. Indeed all the cows we saw were admirable; 10 were tethered in one field, 9 in the next; and the two's and three's in paddocks near by made up the usual stock. Their form was everything that could be desired, and the rich colour of their bags not to be surpassed.

Of the tethering system as here seen, we need only say that the fields behind the cows looked as if they had been regularly mown in quantities for a daily supply of food for stalled animals. The great economy of this system cannot be questioned, while the cows, which have never known any other mode of life, are always easy, comfortable, and cheerful in appearance.

The young stock were all housed in the heat of the day; eight heifer calves and seven bulls, seven or eight months old, being in two houses, and all of them most promising for size and form. Their colour, however, seemed so different to the older cows that we could not do less than ask a question or two respecting it, when Mr. Le Gallais informed us that they change colour so much when about a twelvemonth old, that till then it was impossible to tell what it would be. Thus these bovines have a singularity similar in this respect to foals.

Of fertilisers, guano has been used pretty considerably, in addition to Seaweed, but superphosphate has not been much patronised. This year, however, Mr. Le Gallais has applied a ton as an experiment, but the crops are not sufficiently advanced to admit of a fair conclusion. Carrots and Mangels are admirably kept, the latter crop being the finest, perhaps, that we have ever seen. In a usual way in the island Carrots and Parsnips are grown together, by way of taking a double chance; an occasional row of Beans is often added; and if the two former roots miss, each open patch is filled in with Mangels, which often happens, and therefore these patches have a singular appearance. Mr. Le Gallais, however, has this year been successful—as his skilled practice would usually be—in securing full plants, and his green crops would do credit to the farm of any man. This practice undoubtedly, as in other cases, is the base of his general success. Guano is now used instead of Seaweed for early Potatos, as their long-keeping qualities are of no consequence.

Mr. Le Feuvre, of Les Nièmes, St. Peter's, farms about 30 acres. This is about 3 miles east, we believe, from Mr. Le Gallais, and 5 miles north-west from St. Helier's. The soil varies here from sound mixed qualities to deep and loamy strata. Its value to rent is from 5*l.* to 6*l.* per acre.

The usual number of cows kept on this farm is seven. Mr. Le Feuvre has taken great care in securing well-bred animals, and his present stock is of a first-class character. Where they are all good it would be superfluous to particularise. The seven cows this year had all heifer calves, and very beautiful fawn-like creatures they are. As we saw them they were all tied to rings in the wall of a cool building, neatly bedded down with straw, and as they lay chewing their cud, or stood eating a pinch of green fodder, they were a picture of animal comfort and contentment. These little creatures are tethered out in suitable places and at suitable times. Here there are some low cool slips of pasturage at the bottom of a dell, formed of rock and débris, on which are growing Heather, Ferns, and other wild plants, and an occasional clump of trees. According to British notions, these would have been calf-weaning places to perfection, but the feed of them is reserved for yearlings. Calves are never turned out in such a place, for the cool rill which runs at the bottom, and forms an important element in the comfort of the dell, is considered to be dangerous to calves or very young animals, on the ground that they have no discretion in drinking, and frequently injure themselves by taking too much. These young animals have a regular allowance of drink when the quantity of milk they have is not considered sufficient. Thus scouring is prevented, and "pot-bellies" are seldom seen. While we were inspecting these animals a commission agent called and purchased a two-year-old heifer, which was within a few weeks of calving. The price was 15*l.* This is a large as well as quick return. She was very handsome, and promising as a milker, so far as form of bag was an indication, but she was very small, not for the Jersery breed, but for the price. She was bought for taking to the mail boat for Southampton at 6.45 the next morning; thus with commissions, passage money, keep, and the profit of the London dealer, she would not probably be placed in a gentleman's family under, or not much under, 20*l.*

We have omitted to say that all the male calves, excepting the few required for bulls, are disposed of as quickly as possible, and generally between a month and six weeks of age, when they would make small, and what Londoners would look upon as very poor, veal. Butter is more profitable than veal. Feeding anything for the butcher, excepting pigs, as we have said, is now almost unknown in Jersey. After learning the above prices for two-year-old heifers, which require no more food than a couple of good store sheep, and not so much as is given to one Lincoln, Cotswold, and Shropshire ram, our own graziers and stall-feeders will not be in the least disposed to raise a question as to which is the more profitable—rearing in-calf heifers or fatting steers. Excepting the few barren cows and heifers that may happen, all the animals required by the Jersey butchers are brought over from the French ports, which trade is indicated in the previously given Table of Imports.

Some excellent Wheat was just ripening off on this farm when we were there, that time being July the 31st. A field of Chidham Wheat was very fine, the yield of which Mr. Le Feuvre estimated at 5 quarters to the acre; and if the yield, according to straw, be similar to the produce of English fields, we should say

this was not an over-estimate. The value of straw here is high, in consequence of green crops, and what we should term market gardening, being thought more of than growing cereals; Wheat straw now makes the usual price of 3*l.* 10*s.* per ton, so that an acre of Wheat, taking straw and corn, would generally be worth 15*l.* to 16*l.* Now it is worth 20*l.*, if of a fair average. Mr. Le Feuvre's acres of Wheat referred to, would of course be worth far more at present prices.

Potatos we have said are an important crop in Jersey. A small portion of each man's land only can, however, be thus cropped. As it is, the Potato harvest imposes night and day work on nearly all hands. There are fertilising considerations also, as well as the feed for the profitable cows and heifers. We make these relations preliminary to an extraordinary statement. From a piece of land, in size barely an acre, and which is a steep side-hill at the head of the dell previously mentioned, Mr. Le Feuvre took up Potatos enough this year to clear him 125*l.* Much of this, of course, was incidentally owing to the fact that a snow storm occurred in England on the Derby day, and the preceding nights being cold enough to cut most of our forward Potatos nearly close to the ground. Nevertheless, this was a great crop for a piece of land that was a few years ago a side-hill of what we should call "heath" or common." The main fertiliser used was guano. A full crop of white Turnips is now growing.

Potatos usually vary from 50*l.* to 80*l.* per acre, according to the soil and the manner in which it is cultured and dressed. The quantity grown by each occupier is, as far as we could judge, about a twentieth of his arable land. These of course would be disposed of for the London market, and the bulk of the supply for consumption in the island is obtained, like the butcher's meat, from the ports of Normandy and Brittany.

We have some more general remarks to make, and arguments to use, on such topics as machinery, population, national interests, the general appearance of the Jersey people, &c., but as the above notes have extended far beyond the space we thought they would, we will reserve these till after we have given our observations on the other islands. As the agricultural and horticultural practices and the social habits and position of the people are similar in all the Channel Islands, this plan of a general review and summary in the form of a concluding article will save both time and space, and, we trust, fully meet the wishes of the readers of the *Chronicle* and *Gazette*.

Farm Memoranda.

MERSE OF BERWICKSHIRE: *Aug.* 31.—Harvest time draws near, and the weather continues more favourable to the growth of Turnips than to the ripening of corn. The rainfall scarce exceeds an inch, but it has been pretty constant, and the sun rarely visible. Reaping has begun with the light crops of Barley in the "How of the Merse," where alone fine quality can be looked for. Our stronger crops are badly laid and twisted; much that has been flat since the middle of last month will yield little but light grain, and the best is very unequal, but we must take it as it is within a week's time. Our richer hollows of Wheat are in a similar condition, liable to the depredations of pigeons, wild and tame, but the general crop is standing fairly, and will come forward when we are ready for it. Oats are yet as green as Leeks, but will not be such a very light crop as was expected. Swedes are very good, and even Turnips are beginning to spread a little, though it is much too late for anything like a crop. We have a considerable piece with only a plant here and there; and side by side a splendid crop of Vetches. These are being consumed where they grow by lambs, to the manifest advantage of the stock; and, grown without manure or labour, will probably make the land as fit for Wheat as the adjoining break, where heavy work and manure have produced nothing. This seems a good plan for clay lands, but will not do unless they are perfectly clean to begin with. This is now the third deficient Turnip crop in succession; and the enforced use of cake and corn spoils our Barley following, besides swallowing up all profits. The Potato disease is general. *J. T.*

FARMING NEAR CINCINNATI.—We visited Mr. J. T. Warder, who has a farm of about 600 acres but a short distance from the town. The soil about here rests on a limestone formation, and generally possesses excellent drainage, owing to the gravelly subsoil beneath. The bottom lands along the creek, which are sometimes kept year after year in Indian Corn, Mr. Warder prefers for pasturage. Kentucky Blue Grass is natural everywhere here, and the longer the sod is undisturbed, the better apparently the return. The rotation adopted on the ploughed land is to turn over the sod for corn, which is followed by Wheat, and then seeded to Clover and Timothy, and either mowed or grazed for two years. There are four fields of 70 or 80 acres each, subject to this system as a general rule.

In putting in Wheat on corn ground in the fall, it is not the custom, as in the vicinity of Frederick (Md.), to leave the entire length of the strips of land occupied by the corn shocks, without seeding them—the drills here being run close up to and between the shocks. Mr. Warden would not recommend following corn with Wheat on thin land, but for his rich soil finds it not only less expensive, but actually more productive, than when a fallow year is made to intervene between the two grain crops. In about 30 years he has lost four Wheat crops—in two instances from rust, and twice from freezing out. The crop of 1866 was a total failure, from the latter cause, through almost the whole of this part of Ohio. Owing to unusual circumstances, Mr. W. happened to have an area in Wheat exceptionally large, and on 175 acres he did not cut a single sheaf! Land, labour, and seed were a total loss. The three largest Wheat crops recorded in his books averaged respectively 31, 33, and 37 bushels per acre, and he estimates the average of all seasons, good and bad, at 20 bushels.

In putting in the Wheat, the land is harrowed across the corn rows to level them, and the seed drilled in. A man and team will either harrow or drill 8 acres a day. Allowing 3 dollars per day as the cost of each, this area can thus be put in for 6 dollars, or at the rate of 75 cents per acre, while in the case of a fallow there is the loss of one year's use of the land, and it takes about 5 dollars per acre to cover the two ploughings and harrowings then required, and cost of drilling. The cultivation given to corn is an excellent preparation for Wheat, and all the crops Mr. W. has made of over 30 bushels per acre have been obtained in this way. The Wheat is quite frequently ploughed in with the shovel plough and with good success, but drilling is preferable.

Mr. Warder plants Indian corn in rows, in preference to hills—putting large corn 4½ feet apart, and 9 to 12 inches in the row; and the small variety 3½ feet, and 5 to 7 inches in the row. This gives a larger number of stalks than when grown in hills, and the ears are also more numerous. They are, perhaps, smaller in size, but Mr. W. is convinced that the quantity of grain is considerably greater. The average of his corn crop is about 60 bushels per acre, one year with another, but there are few years when a single acre could not be selected somewhere in his fields, which would yield 100 bushels! With most of the farmers of this part of Ohio, Wheat is rather the main dependance as the source of income, though there are many who turn their crops into stock of one kind or another. Thus, in the eastern part of the county (Clarke) there is a large wool interest, and many valuable flocks of fine-woolled sheep. Others feed hogs, and others still graze beef cattle.

Mr. Warder has long been engaged with another class of domestic animals—the mule—and in this respect his practice is not very common in Southern Ohio. He has had some valuable Jacks himself, and has encouraged the breeding of mules among those who chance to have mares suitable for the purpose. He has been in the habit of buying six months old mule colts at from 50 dols. to 60 dols per head, which is more than any other ordinary stock would be worth at that age, and therefore gives a good return to the breeders. He purchases say from 50 to 75 per year (and they cost, on the average, 52 dollars each in 1865), and 57 dollars in 1866), at weaning time—about October 1st. They are fed a little more than two years, going off in the months of December and January. Last year the sales made averaged in the vicinity of 150 dollars per head, which, on the price paid for the animal, would be equal to a return of nearly 4 dollars per head per month, for the time they were in hand, and it is not likely that the corn and Grass they consume could be turned to much better account in any other way. The risk of life among them is found very small—not over 1 per cent. Just now the market is dull, and the prospect is that a lower price will rule for the next sales. But such oscillations are not uncommon in any branch of enterprise.

Mr. W. buys nearly all the mule colts raised about him, and sometimes a good many from a distance, and, as I said, can annually fit 60 or 70 very nicely for market without straining his land. He sometimes has had 250 or 300 on hand at a time, and at others has kept considerable other stock to make up for a short number in the mule barn. Last year 130 mules and 100 hogs were wintered wholly on the product of 65 acres of Indian Corn, and they had it before them all the time. The foddering season is usually about five months in length.

The principal mule barn is 75 by 80 feet, and the corn is fed from the shocks, unhusked, in troughs 5 feet wide and 18 inches deep, raised a proper height from the ground. There is very little waste of the corn, and both fodder and ears are eaten closely. Wheat straw, of which they are also fond, is supplied in liberal quantities, and used as a bedding and absorbent. The barn referred to will accommodate about 100, and may require a fresh supply of straw under foot every third day—or often enough, at least, to keep them dry and comfortable. There is never any trouble from the heating of the manure, as it thus accumulates during the winter, nor does it emit an unpleasant odour, or in any way affect the health of the animals. By spring the quantity thus made will be very great, averaging probably 18 or 20 inches in depth over the whole, and very compactly packed. Last year, as there was no Wheat to make straw, sawdust was used as a substitute with good satisfaction.

Mr. Warder hauls out from 350 to 450 four-horse loads of manure a year, on to the farm. This is a very expensive job, and he does not observe that the expense is counterbalanced by an apparent gain in the crop, taking any single year into the account. But he is obliged to confess that the farm is getting into better heart all the time, and that its productive capacity, on the whole, was never so great as at present. The manure is carried out from the barns on to the wheat stubbles as rapidly as possible after harvest, giving a heavy dressing over from 30 to 50 acres of the higher and most clayey knolls—stimulating and protecting the young grass, and acting as a mulch for the next season. And though it is thus liberally applied (for Mr. W. does not believe in what is called a "lick and a promise," but carries out thoroughly what he undertakes at all), it is quite impossible, he finds, to distinguish manured spots from the rest of the land, when it comes to be put in corn and Wheat, from any difference in the apparent growth and promise of the whole. Careful comparison, however, convinces him that there is some difference in the number of ears and the thickness of heads, and in actual quantity and quality of grain.

The hog farmers generally divide up their stock in lots according to condition, giving the fattest ones the first choice. They are fed in the corn-field, confined to five or ten acres of it at once, and when the best have had their pick, a poorer lot follows as gleaners, and so on. It is computed that a bushel of corn adds 8 lb. to the weight of the animal, though possibly careful feeders, who husk the corn and pen the hogs, may make 10 lb. But this mode of feeding the corn without husking to any stock is more economical than it would be to spare less labour and more corn—except when there is an unusual scarcity, and the price gets above say one dollar a bushel.

More is got out of an acre of Indian corn for the food of stock than can be obtained in any other way. A comparison with hay Mr. W. thought to be much to the disadvantage of the latter, and he considers it the most expensive food he raises, though he says that with the modern improvements in mowing and stowing away by machinery, he can make hay at a cost of not over a dollar a ton for the labour required. He can obtain from land, which would average a ton and a half, an average of the same weight of corn fodder, with 60 bushels of the grain into the bargain—and he thinks corn fodder well cured worth as much, weight for weight, as the hay is for his stock. He, therefore, uses most of his Grass land for pasturage, cuts only 30 or 40 acres of hay, and depends on corn fodder, straw, and grain for other feeding materials in winter. *Albany (U. S.) Country Gentleman.*

Miscellaneous.

Game Laws.—The following form of a petition was recently sent to the Editor of *Bell's Messenger*: "To the Honourable the House of Commons in Parliament assembled. The humble petition of the undersigned tenant farmers and others showeth, That the game laws, as at present constituted, are detrimental to the interests of the country, morally, socially, and materially. Morally: Because the encouragement they give to the excessive preservation of game interferes with the employment of labour in the proper cultivation of the soil, and thus constant temptation, held out to enforced idleness, leads on to crime. Socially: Because this excessive preservation of game engendered by the game laws breeds discontent where good will would otherwise prevail, disturbs the relation between landlord and tenant; in short, separates at heart one class from another. Materially: Because, under the influence of these laws men reap not where they sow, and sow not where, under other circumstances, they might reap. Your petitioners, therefore, deeply impressed with the necessity of a legislative remedy for these evils, humbly importune your honourable House to pass a law which shall have the effect of removing hares and rabbits out of the category of game, and of securing to the tenant farmers, on lands they occupy, the entire control over such animals. And your petitioners will ever pray," &c. &c.

Dog Law.—The law was that whenever any injury was done by a dog it was necessary to prove "*culpa*" by showing what was called a "*scienter*," or knowledge, on the part of the owner, of the bad disposition of the dog. Thus, in the case of "Fleming *v.* Orr," in the House of Lords, it was held that the owner of a fox-hound which had killed 18 sheep was not liable to damages, because there was no *culpa* on the part of Major Orr. Lord Cockburn had ridiculed the rule of the English Court which gave a dog the privilege, once in its life, to worry a flock of sheep; but the House of Lords held that the rule in England and Scotland was the same. A similar rule prevailed in Ireland. Then came the Act of the 25th and 26th of Victoria, cap. 59, in 1862, making the owner of every dog in Ireland liable in damages "for injury done to any sheep by his dog," and that "it shall not be necessary for the party seeking damages to show a previous mischievous propensity, or the owner's knowledge of such propensity, or that the injury was attributed to neglect on the part of the owner." In 1863 the Act of the 26th and 27th of Victoria, cap. 100, was passed, which enacts that in any action brought in Scotland against the owner of a dog for damages on account of injury done by such dog to "any sheep or cattle" it shall not be necessary to prove a previous propensity in such dog to injure "sheep or cattle." So the Act for Scotland goes a little further than the Act for Ireland. In 1865 the 28th and 29th of Victoria, cap. 60, was passed making the owner of every dog in England liable in damages for injury done to "sheep or cattle," without showing a previous mischievous propensity on the part of the dog or neglect on the part of the owner. In 1866 a Bill passed the House of Commons making the owners of dogs liable on account of injury to human beings, without proving the mischievous propensity of the dog. It was opposed by Lord Cranworth in the House of Lords, and on a division 37 voted against going into Committee on the Bill, and 14 in favour. The Marquis of Clanricarde is reported to have said—"The learned Lord would not think so lightly of this subject had a child of his been worried by a savage dog." Now, this very evening I saw a child bleeding from a severe bite on the nose from a dog that had attacked it. The dog was one of those numerous ones which are permitted to prowl about, and which the owners do not think it to be necessary to keep on their own premises. Not very long since a dog bit on the thigh a labourer who works occasionally for me, and the bite caused a very large abscess to form. He had to submit to two severe surgical operations. The surgical attendance was costly, and for 14 weeks he was unable to earn wages. He could prove no *scienter* against the dog's owner, who neither inquired after him nor gave him relief of a farthing. Shortly afterwards, in a town not far off, a woman was suffering from an abscess in the ankle-joint from the bite of a

dog. These persons would have been thankful to have been protected as if they were Irish "sheep," or English and Scotch "sheep and cattle." *T. F.* (*Aug.* 26), *in Times.*

Cattle Plagues.—Professor Gamgee, in the course of a recent address before the Liverpool Veterinary Medical Association, adverted to the cattle plague, and remarked that it had somewhat changed the ideas entertained both by the public and the Legislature. When the first statistics regarding the ravages of disease amongst cattle appeared in print, there was a perfect storm of indignation at the supposed exaggerated nature of the statements. It was thought impossible that the value of horned stock alone lost in six years ending in 1860, amounted to 25,934,650*l.*, and of this about 12,000,000*l.* sterling had been swept off by pleuro-pneumonia. Including the losses amongst sheep and pigs with those of cattle, we suffered to the extent of 6,000,000*l.* sterling per annum, and, in addition to this direct money loss, we had a deterioration of stock, the export of capital, and last, though not least, a manifest prejudicial influence on human health. It was the duty of the Association to prove that under a proper organisation, and acting under their advice, three or four millions sterling could be saved to the country every year. Thousands of acres of land could be rendered fruitful which were now lying waste; animal life could be economised so as to render this country quite independent of the importation of live cattle from abroad; and a system could be devised whereby a national and unrestricted free trade in animal produce, rather than in the animals themselves, could be inaugurated and sustained. What had been the position of veterinarians since the cattle plague appeared in 1865? Every suggestion made for years back had been slowly but surely adopted. He hoped it would be asked in Parliament why so little information concerning the existence of many diseases among cattle had not been laid at this important period before the House of Commons. He hoped it would be asked what investigations had been made to confirm or refute the statements which had been made that pleuro-pneumonia in cattle could be prevented by inoculation. As a good work could never be commenced too soon, he proposed recommendations should be sent to the Government from that meeting which could not in the public interests pass unheeded. Let the recommendations go forth as emanating from a profession which might have done much, perhaps more directly than any other, for the pressing wants of a great community, had it been aided and encouraged, instead of being assailed at all hands as incompetent and weak. The time had come when the profession should demonstrate that the accumulated experience of ages enabled veterinarians to discharge with effect the important duties which devolved on them. In conclusion, he asked those present to vindicate the position of their calling amongst the learned professions, and to work incessantly as men of science entrusted with a high commission.

Calendar of Operations.

SEPTEMBER.—The work of autumn cultivation is proceeding. The cultivator, drawn by horses or by steam, is busily at work, and light lands are getting cleaned, and clays are getting aërated and fertilised for next year's growth. The work of cultivation will proceed also for autumn sowing; Bean and Clover stubbles are being ploughed for Wheat, and other stubbles for Beans or winter Tares and fallow. Lime may be properly applied now where it is desired, on the stubbles, broadcast, at the rate of from 50 to 150 bushels per acre. Marl, and chalk and clay, may be hauled out this month on land where it is intended to apply them. Manure, too, may be carried out to the lands intended for Wheat. It is a good plan in districts where the harvest is early and autumn moist, and where weeds thus have time and opportunity to grow, to pare the stubbles, harrow them well, gather the rubbish together, and burn it.

Clover for seed will be ready to cut towards the end of this month. The ploughing of Clover lea for Wheat may be proceeded with this month. Wheat and winter Beans should be threshed out in September for seed. Fallow Wheat may be sown towards the end of the month. The earliest portion of winter *Tares* should be sown some time in September: and *Rye* should be sown in the commencement of it—both upon some corn stubble that has been prepared for them. Italian Rye-grass, too, may be sown this month.

Canary Seed will be ready for the sickle generally after Wheat harvest. It should be cut as soon as the top ears are ripe: and it may be laid in handfuls on the land till all are equally ripe; and then bound in sheaves, and carried to the rick.

Hemp.—The leaves are withering, and the seed capsules are getting brown. The whole crop is now pulled, tied in bunches, and set up on end to dry: the sheaves are then threshed to separate the seed, and they are then carried to the steeping pool, and in a few days removed to a field, in which dewretting is carried on for some weeks.

Rye, of the winter sort, may be sown 3 or 4 bushels per acre, broadcast, on a corn-stubble, which has been prepared by ploughing and harrowing; and the crop will be ready for use early in June.

Mustard may be harvested this month; reaped, tied in sheaves, and left in the field for a few days, till ready for carrying.

Grass Lands.—All pastures will require still further thinning; breeding ewes and ordinary grazing sheep may be put on stubbles, and as many fields as possible laid in, ready for them when put to ram; this being an important matter respecting the fall of lambs, as good keeping, at this season, is essential both for rams and ewes. Care should be taken that all rough Grass be eaten off.

Live Stock.—This may be called the transition month with the grazier. The pastures will still afford tolerably good fare to store stock; but for fattening animals the provident farmer will endeavour to have an adequate portion of his Turnip crop fit for use early in this month, knowing that meagre pastures and chilly dews will soon take from his bullocks what they had previously gained. Uncompleted harvest work will probably hinder their immediate removal to the feeding yards; and so it will be well to give a supply of Turnips daily on the pasture, taking care to spread them thinly and regularly over it. Feeding sheep, for like reasons, should share the same treatment. Hoggets will be much the better for getting some aftermath or Clover stubbles to keep them growing, and prepare them for going on to Turnips. Coleseed suits admirably for this purpose: and some farmers provide it by growing it, mixed with the Turnips, on the piece which they intend to use first. The cast ewes are usually disposed of now. As much depends on using good rams, care must be taken to select them in time from flocks of known purity.

Notices to Correspondents.

AGRICULTURAL IMPORTS IN THE SEVEN MONTHS ENDED JULY 31, 1866, AND 1867: *R.*

Articles.	Quantities Imported. 1866.	1867.
I. *Articles Free of Duty.*		
Animals, living—Oxen, Bulls, and Cows .. .. No.	86,177	84,769
Calves .. .. ,,	10,957	15,014
Sheep and Lambs .. .. ,,	472,545	343,387
Swine and Hogs .. .. ,,	33,899	19,554
Bones burnt or not, or as animal charcoal .. .. tons	43,633	42,979
Flax and Tow or Codilla of Flax— From Russia .. .. .. cwt.	506,196	379,840
Holland .. .. ,,	43,433	60,462
Belgium .. .. ,,	86,122	114,989
Other Countries .. .. .. ,,	55,644	93,986
Guano, from West Coast of Africa, tons	580	1,775
United States .. .. .. ,,	1,330	2,181
Peru .. .. ,,	64,611	71,670
Bolivia .. .. ,,	..	4,967
British West India Islands .. ,,	1,968	1,692
Other Countries .. .. ,,	10,188	6,356
Hemp and Tow or Codilla of Hemp— From Russia .. .. .. cwt.	180,094	81,241
Venetia .. .. ,,	139,701	54,498
Illyria, Croatia, and Dalmatia ,,		27,469
British India .. .. .. ,,	19,666	5,456
Philippine Islands .. .. ,,	28,312	49,538
Other Countries .. .. ,,	56,074	35,370
China Grass .. .. .. ,,	50	584
Jute and substances of the nature of Hemp .. .. ,,	1,070,228	874,237
Hides, untanned—Dry—From British India .. .. ,,	74,883	90,533
Other Countries .. .. ,,	42,594	30,702
Wet — From Argentine Confederation and Uruguay .. .. ,,	170,531	124,371
Brazil .. .. ,,	60,770	26,975
Australia .. .. ,,	58,408	44,324
Other Countries .. .. ,,	106,548	54,965
Tanned, Tawed, Curried, or Dressed (except Russia) .. .. lb.	4,924,964	4,174,185
Hops .. .. cwt.	25,312	25,886
Oil Seed Cakes .. .. .. tons	63,992	62,610
Potatos .. .. cwt.	346,712	704,993
Provisions—Bacon and Hams .. ,,	486,988	271,827
Beef, salt .. .. .. ,,	140,803	110,336
Pork, salt .. .. .. ,,	131,681	94,787
Butter .. .. ,,	545,480	613,006
Cheese .. .. ,,	271,128	331,980
Eggs .. .. No.	285,765,960	271,377,120
Lard .. .. cwt.	205,530	118,097
Saltpetre .. .. ,,	110,011	93,739
Cubic Nitre .. .. .. ,,	562,936	673,721
Seeds—Cotton .. .. .. tons	75,407	70,249
Clover .. .. cwt.	176,785	88,993
Flaxseed and Linseed .. qrs.	445,181	408,566
Rape .. .. ,,	185,673	282,178
Tallow—From Russia .. .. cwt.	142,838	61,434
Australia .. .. ,,	17,012	14,985
South America .. .. .. ,,	142,624	91,568
Other Countries .. .. ,,	112,013	73,494
Tar .. .. lasts	2,713	636
Timber and wood, sawn or split .. loads	592,699	454,431
Staves, not exceeding 72 inches long .. .. ,,	31,602	24,433
Timber or wood, not sawn or split ,,	473,874	358,233
Wool, Sheep and Lambs' — From Europe .. .. lb.	17,439,552	9,193,377
British Possessions in South Africa ,,	10,348,498	17,141,413
British India .. .. .. ,,	9,639,823	7,201,721
Australia .. .. ,,	76,520,499	97,265,777
Other Countries .. .. ,,	11,304,165	15,228,526
Alpaca and the Llama Tribe ,,	1,476,762	1,598,808
Yeast, dried .. .. .. cwt.	64,536	64,843
II. *Articles Subject to Duty.*		
Corn—Wheat—From Russia .. ,,	3,988,969	6,464,815
Denmark .. .. ,,	244,952	330,305
Prussia .. .. ,,	2,450,902	4,071,707
Schleswig, Holstein, & Lauenburg ,,	117,530	90,869
Mecklenburg .. .. .. ,,	455,222	552,821
Hanse Towns .. .. .. ,,	489,720	454,615
France .. .. ,,	3,162,206	501,301
Turkey and Wallachia & Moldavia ,,	300,973	1,523,421
Egypt .. .. ,,	8,738	204,124
United States .. .. .. ,,	323,160	1,408,736
British North America .. ,,	8,789	87
Other Countries .. .. ,,	2,233,274	2,141,287
Barley .. .. ,,	4,368,306	3,668,160
Oats .. .. ,,	4,506,807	5,660,515
Peas .. .. ,,	709,397	1,013,687
Beans .. .. ,,	280,446	1,087,043
Indian Corn, or Maize .. .. ,,	7,653,850	5,599,750
Wheatmeal and Flour—From Hanse Towns .. .. ,,	160,477	258,559
France .. .. ,,	2,974,122	1,013,526
United States .. .. .. ,,	168,949	141,709
British North America .. ,,	6,166	9,276
Other Countries .. .. ,,	143,108	633,451
Indian Corn Meal .. .. .. ,,	9,979	3,567

WARTS: *F.* They are best removed by tying a ligature around them, or, with scarcely any pain, by applying every day with a camel's hair pencil a small portion of strong acetic acid. When they are strong, with roots larger than their heads, apply once a day a paste made of sulphur moistened with sulphuric acid. *Blaine.*

E. T. ARCHER'S "FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, and Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, &c.

PROTECTION from the SCORCHING RAYS of the SUN.

"FRIGI DOMO" NETTING, White or Brown, made of prepared Hair and Wool, a perfect non-conductor of heat or cold, keeping a fixed temperature where it is applied. It is adapted for all Horticultural and Floricultural purposes, for Preserving Fruits and Flowers from the Scorching Rays of the Sun, from Wind, from Attacks of Insects, and from Morning Frosts. To be had in any required lengths.

"FRIGI DOMO" NETTING, 2 yards wide, 1*s.* 6*d.* per yard run.

"FRIGI DOMO" CANVAS.

Two yards wide .. .. 1*s.* 9*d.* per yard run.
Four yards wide .. .. 3*s.* 6*d.* per yard.
An improved make, 2 yards wide .. 1*s.* 9*d.* per yard.
An improved make, 3 yards wide .. 2*s.* 8*d.* per yard run.

ELISHA THOMAS ARCHER, Whole and Sole Manufacturer, 7, Great Trinity Lane, Cannon Street, City, E.C., and of all Nurserymen and Seedsmen throughout the Kingdom.

"It is much cheaper than Mats as a covering."

JAMES PHILLIPS AND CO. beg to submit their prices as follows:—

GLASS for ORCHARD HOUSES,

As supplied by them to Mr. Rivers, to the Royal Horticultural Society, and to most of the Nobility, Clergy, and Gentlemen of the United Kingdom.

Each Box contains 100 feet. The prices only apply to the sizes stated.

Squares 20 by 12, 20 by 13, 20 by 14, 20 by 15.

	16 oz. to the foot.	21 oz.
Fourth quality	15*s.* 0*d.*	19*s.* 6*d.*
Third ditto	17*s.* 0*d.*	22*s.* 6*d.*
Seconds	18*s.* 6*d*	26*s.* 0*d.*
English	26*s.* 6*d.*	27*s.* 0*d.*

The above prices include the boxes, which are not returnable.

HORTICULTURAL GLASS.

Stock sizes, 16-oz., in 100 feet boxes, boxes included.

These prices only apply to the sizes stated.

				4ths.	3rds.	2nds.
				s. d.	*s. d.*	*s. d.*
11 by 9	12 by 9	13 by 9	14 by 9	13 0	15 6	17 0
12 ,, 10	13 ,, 10	14 ,, 10	15 ,, 10			
13 ,, 11	14 ,, 11	..	..			
14 ,, 12	15 ,, 12	15 ,, 11	16 ,, 11			
15 ,, 12	19 ,, 12	16 ,, 12	17 ,, 12			
16 ,, 13	17 ,, 13	20 ,, 12	..	15 0	17 0	18 6
16 ,, 14	20 ,, 13	18 ,, 13	..			
	17 ,, 14	18 ,, 14	..	16 to 17 oz. to the foot.		
	20 ,, 14					

SMALL SHEET SQUARES.

In 100 feet Boxes.

6 by 4	6½ by 4½	7 by 5	7½ by 5½	.. 12*s.* 6*d.*
8 by 6	8½ by 6½	9 by 7	9½ by 7½	
		10 by 8	10½ by 8½	.. 13*s.* 6*d.*

Boxes 2*s.* each, returnable at full price.

London Agents for HARTLEY'S IMPROVED PATENT ROUGH PLATE.

LINSEED OIL, Genuine WHITE LEAD, CARSON'S PAINTS, PAINTS of various colours, ground ready for use.

SHEET and ROUGH PLATE GLASS, SLATES of all sizes, BRITISH PLATE, PATENT PLATE, ROLLED PLATE, CROWN, SHEET, HORTICULTURAL, ORNAMENTAL, COLOURED, and every description of GLASS, of the best Manufacture, at the lowest terms. Lists of prices and estimates forwarded on application to

JAMES PHILLIPS & Co., 180, Bishopsgate Street Without, E.C.

Horticultural Glass Warehouse.

THOMAS MILLINGTON AND CO., 87, Bishopsgate Street Without, London, E.C.

NEW LIST for ORCHARD HOUSE GLASS as supplied to Her Majesty, the Nobility, Gentry, Mr. Rivers, and the leading Horticulturists of the United Kingdom.

ORCHARD HOUSE SIZES.

in.	in.		4ths.	3rds.	2nds.	Best.
20 by 12						
20 by 13	Per 100 feet	15 oz.	14*s* 3*d*	15*s* 6*d*	18*s* 6*d*	20*s* 0*d*
20 by 14						
20 by 15		21 oz.	19*s* 6*d*	22*s* 2*d*	26*s* 6*d*	26*s* 6*d*
20 by 16						

SMALL SHEET SQUARES, 15 oz., per 100 feet.

in.	in.	in.	in.	in.	in.	4ths.	3ds.	2nds.	Best.
6 by 4	7 by 5	8 by 6	9 by 7			12*s* 3*d*	13*s* 3*d*	16*s* 0*d*	18*s* 0*d*
6½ by 4½	7½ by 5½	8½ by 6½	9½ by 7½						

Per 100 feet.

10 by 8	12 by 9	12½ by 10½	14½ by 10½			
10½ by 8½	12½ by 9½	13 by 10	15 by 10			
11 by 9	13 by 9	13½ by 10½	13 by 11	13*s* 3*d*	14*s* 6*d*	17*s* 3*d* 19*s* 0*d*
11½ by 9½	12 by 10	14 by 10	14 by 11			

LARGE SHEET SQUARES, 15 oz., per 100 feet.

in.	in.	in.	in.	in.	in.	4ths.	3ds.	2nds.	Best
15½ by 10½	14 by 12	22 by 12	22 by 16						
16 by 10	14½ by 12½	17 by 13	24 by 16						
14½ by 11½	15 by 12	23 by 13	20 by 17						
15 by 11	16½ by 12½	18 by 14	22 by 17						
15½ by 11½	16 by 12	22 by 14	24 by 17	14*s* 3*d*	15*s* 6*d*	18*s* 6*d*	20*s* 0*d*		
16 by 11	16½ by 12½	24 by 14	20 by 18						
21 by 11	17 by 12	22 by 15	22 by 18						
13 by 12	18 by 12	24 by 15	24 by 18						

The above Prices are only for the Sizes stated; if a quantity of any other Size be required, a Special Price will be given.

SHEET GLASS.

In Sheets for Cutting up, averaging from 6 to 9 feet super.

15 oz.	21 oz.
4ths quality, per 300 feet case, 38*s.*	4ths quality, per 200 feet case, 38*s.*
3ds ,, ,, 48*s.*	3ds ,, ,, 48*s.*
2ds ,, ,, 62*s.*	2ds ,, ,, 66*s.*
Best ,, ,, 92*s.*	Best ,, ,, 96*s.*

SHEET GLASS is made only in the following substances, 15 oz., 21 oz., 26 oz., 32 oz., 36 oz., and 42 oz.

HARTLEY'S IMPROVED ROLLED ROUGH PLATE in 1-8th in., 3-16th in., 1-4th in., and 3-8th in. substances.

BRITISH PLATE GLASS for Windows and Silvered for Looking Glasses, Coloured Glass, Glass Shades, Striking Glasses, &c., &c.

PAINTS, COLOURS, VARNISHES, &c.

STUCCO PAINT, 24*s.* per cwt. This Paint adheres firmly to the walls, resists the weather, and is free from the glossy appearance of Oil Paint, resembling a stone surface, and can be made any required shade. It is mixed with rain or pure river water.

WHITE ZINC PAINT, 36*s.* per cwt. One hundredweight of pure Zinc Paint, with three gallons of Linseed Oil, will cover as much as one hundredweight and a half of White Lead and six gallons of Linseed Oil. Special Dryers for this Paint.

IMPROVED ANTI-CORROSION PAINT, 28*s.* to 34*s.* per cwt. Anti-corrosion Paint is extensively used for all kinds of work in exposed situations, on Brick, Stone, Compo, Iron, Iron Bridges, Conservatories, Greenhouses, &c., and is easily laid on by any ordinary workman. Prepared Oil for ditto, 4*s.* per gallon.

Per cwt.—*s. d.*	Per gallon.—*s. d.*
GENUINE WHITE LEAD 32 0	LINSEED OIL 3 4
SECONDS WHITE LEAD 30 0	BOILED OIL 3 9
GROUND PATENT DRYERS, 3*d.* to 4½*d.* per lb.	TURPENTINE 3 0
,, OXFORD OCHRE, 3*d.* to 4½*d.* per lb.	LINSEED OIL PUTTY, 8*s.* to 9*s.* per cwt.
,, RAW UMBER, 4½*d.* to 6*d.* per lb. [per lb.	Fine OAK VARNISH, 10*s.* to 12 0
,, BURNT do., 6*d.* to 9*d.*	,, CARRIAGE do., 12*s.* to 14 0
GREEN PAINT, all shades, 28*s.* to 60 0	,, PAPER do. 10*s.* to 12 0
BLACK PAINT, 24*s.* to 36 0	,, COPAL 16 0
RED PAINT .. 28*s.* to 36 0	KNOTTING 10 0
	Patent GOLD SIZE .. 10 0
	,, BLACK JAPAN .. 12 0
GROUND BRUSHES.	GLAZIER'S DIAMONDS and TOOLS
DUSTERS. | SASH TOOLS.	MILLED LEAD and PIPES
DISTEMPER BRUSHES.	OLD LEAD Bought or taken in exchange.

The above are Net, for Cash, and as such cannot be booked.

Lists of any of the above on application.

HOTHOUSES for the MILLION,
CHEAP, PORTABLE, and EASILY FIXED.
SPAN-ROOFS (over 15 feet long), glazed and painted three coats, with complete ventilation all over roof, necessary water gutters and ironwork, exclusive of ends, put on Rail in LONDON, GLOUCESTER, COVENTRY, ULVERSTONE, PAISLEY, or ABERDEEN; 10 to 16 feet wide *inside*, at 16*s.* to 24*s.* per foot run. Illustrated Circulars, with *definite prices* and sizes, free on application to
HERLMAN & MORTON, 7, Pall Mall East, London, S.W.

Heating by Hot Water.
W. J. HOLLANDS, IRON MERCHANT,
31, Bankside, London, S.E.
HOT WATER PIPES, from Stock, per yard:—2-inch, 1*s.* 1½*d*; 3-inch, 1*s.* 9*d.*; and 4-inch, 2*s.* 3*d.* BENDS, from Stock, 1*s.* 6*d.*, 2*s.* 6*d.*, and 3*s.* each. THROTTLE VALVES, 10*s.*, 13*s.*, and 14*s.* each. Other Connexions at equally low prices, and all goods of first-class manufacture. Estimates given, and orders by post punctually attended to the same day.

CRANSTON'S PATENT BUILDINGS for HORTICULTURE.
"Dry Glazing without Putty."
"Glass without Laps."
"Ventilation without Moving Lights."
Highly Commended by the Royal Horticultural Society, South Kensington.



Plans and Estimates free on application. Descriptive Book fully illustrated, post free for 20 stamps, from the Author and Patentee, JAMES CRANSTON, Architect, Birmingham.
Works: Highgate Street, Birmingham.
HENRY J. GROWTAGE, Manager, 1, Temple Row West, Birmingham.

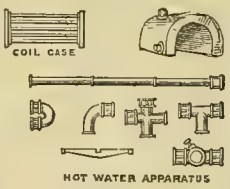
Greenhouses—Heating Apparatus.
DUBLIN EXHIBITION



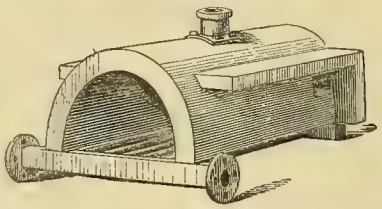
THE ONLY PRIZE MEDAL AWARDED for Various Improvements in the Ventilation, Construction, and Application of WROUGHT-IRON to Horticultural Buildings.
OUR PATENT WROUGHT-IRON PRIZE MEDAL CONSERVATORIES are of the highest order.
OUR PATENT WROUGHT-IRON PRIZE MEDAL GREENHOUSES perfectly neutralize atmospheric conduction.
OUR PATENT WROUGHT-IRON PRIZE MEDAL VINERIES promote vigorous growth and richness of colour.
OUR PATENT WROUGHT-IRON PRIZE MEDAL ORCHID HOUSES and STOVES, with double-glazed roofs, are a complete arrangement.
OUR PATENT WROUGHT-IRON PRIZE MEDAL ORCHARD HOUSES (as supplied to Mr. Rivers), induce perfect symmetry and unfailing result.
OUR PATENT WROUGHT-IRON PRIZE MEDAL GERANIUM and PLANT HOUSES are thoroughly ventilated, and admit a maximum degree of light.
OUR PATENT WROUGHT-IRON PRIZE MEDAL CUCUMBER and MELON HOUSES are specially arranged and heated upon an improved system.
OUR PATENT WROUGHT-IRON PRIZE MEDAL PINERIES, when heated upon the improved system, are calculated to secure the growth of first-class fruit.
OUR PATENT PRIZE MEDAL FORCING HOUSES are eminently superior for all early work.
OUR PATENT WROUGHT-IRON PRIZE MEDAL STRAWBERRY HOUSES admit a complete flood of air and light.
The above Patent Houses can be glazed with or without putty.
These Houses are now protected by three Royal Letters Patent, and from the complete adjustment of their constructional parts will vie most favourably with Wood Structures in point of cost.
Designs and Estimates prepared for single or complete ranges of Houses in Wood or Iron.
Illustrated Catalogues on application to the Patentees,
T. H. P. DENNIS & A. SCRUBY, Horticultural Builders and Hot-Water Engineers, Chelmsford.

HOT-WATER APPARATUS, of every description, fixed complete in any part of the country, or the materials, viz., Boilers, Pipes, &c., delivered to any Station.
Estimates on application.
J. JONES & SONS, 6, Bankside, Southwark, London, S.E.

COTTAM AND COMPANY,
CONSERVATORY and HOTHOUSE BUILDERS, &c.,
Iron Works, 2, Winsley Street, Oxford Street, London, W.
SADDLE BOILERS.
20 24 30 inches long.
45*s.* 65*s.* 92*s.* 6*d.* each.
HOT-WATER PIPES.
2 3 4 inch.
1*s.* 6*d.* 2*s.* 1*d.* 2*s.* 9*d.* per yard.
Materials supplied as above, or Estimates given fixed complete to Plan, on application to
COTTAM & Co.,
Iron Works,
2, Winsley Street,
(opposite the Pantheon),
Oxford Street, London, W.



Great Flower Show, Manchester, June, 1867.
FIRST-CLASS CERTIFICATE TO



THE PATENT TERMINAL SADDLE BOILER,
with following note:—
"The Judges consider this one of the most powerful and useful Boilers for general purposes."
Gardeners' Magazine.—"This Boiler possesses the rare merit of sucking all the heat from the fire, so that it furnishes a maximum of power for a minimum of outlay in respect of fuel."—*S. H.*
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Journal of Horticulture.—"T. Jones's Terminal Boiler was considered by the judges the best of all exhibited on this occasion."—*J. Wills.*
J. IRELAND, Edward Street, Broughton Lane, Manchester.

Heating by Hot Water.
HOT-WATER PIPES, at Wholesale Prices, with Elbows, Syphons, Tee-Pipes, and every other connection; Wrought and Cast-Iron Boilers, Saddle, Conical, Cylinder, TUBULAR, and Elliptic, from 24*s.* each. Improved Boilers and Iron Stands to use without brickwork, 60*s.* each. Valves from 10*s.* 6*d.* each. Patent Valves, Improved Furnace Doors, Furnace Bars, Supply Cisterns, and Castings of every description in stock, at
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JAMES WATTS AND CO., HOTHOUSE BUILDERS and HOT-WATER APPARATUS MANUFACTURERS, 353, Old Kent Road, S.E.
TWO HUNDRED CUCUMBER and MELON BOXES and LIGHTS, and from 400 to 500 LIGHTS for PITS of all SIZES kept in STOCK, Glazed and Painted complete, ready for immediate use. Packed and sent to all parts of the kingdom. Public and Private Buildings, Warehouses, &c., heated on the most approved scientific and economical principles. References to the Nobility, Gentry and Trade in most of the Counties in England.

TO BE SOLD, Cheap, an IRON DOME CONSERVATORY, 52 feet 8 inches long, 9 feet 4 inches wide. Would make an excellent Peach House or Covered Way. Also an ORNAMENTAL CONSERVATORY, 25 feet 6 inches by 18 feet 6 inches, with Iron Dome; and all other descriptions of Horticultural Buildings to be seen at
J. LEWIS'S Horticultural Works, Stamford Hill, Middlesex.

The New Furnace Bar
(WARRINER'S PATENT).
THIS BAR is particularly adapted to FIRES for VINERIES, GREENHOUSES, &c., and all FURNACES worked on the principle of slow combustion. The saving of Fuel effected is very great; nearly all the Smoke is consumed if care be taken, and the fire can be so regulated that any temperature desired can be kept up for at least 12 hours without stoking or further trouble. Any Bricklayer can set up these Bars without deranging much of the brickwork. They are in use in many Conservatories, and give the highest satisfaction. Testimonials will be forwarded on application to the Proprietors,
The Ventilating Furnace Bar Company, Limited, 9, Mincing Lane, London, E.C.
Specimens of these Bars may be seen in the Eastern Arcade of the Horticultural Gardens, South Kensington.

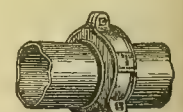
THE TANNED LEATHER COMPANY.
Armit Works, Greenfield, near Manchester.
TANNERS, CURRIERS, & MANUFACTURERS of IMPROVED TANNED LEATHER DRIVING STRAPS for MACHINERY.
PRIME STRAP and SOLE BUTTS.
Price Lists sent free by post.
Warehouse: 81, Mark Lane, London, E.C.
Mr. H. FERRABEE, Agent.

PORTABLE AND FIXED HOT-WATER APPARATUS,

FOR HEATING CONSERVATORIES, HOTHOUSES, CHURCHES, PUBLIC BUILDINGS, PRIVATE RESIDENCES, ETC., WITH



Truss's Patent Universal Flexible and Leakless Pipe-Joints.



T. S. TRUSS

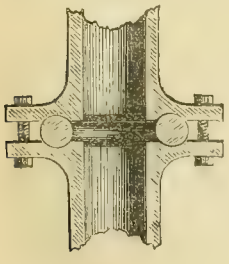
Begs to state that the immense number of APPARATUS annually Designed and Erected by him in all parts of the kingdom, and for the ROYAL HORTICULTURAL SOCIETY at SOUTH KENSINGTON and CHISWICK, with unrivalled satisfaction, is a guarantee for skill of design, superior materials, and good workmanship; while the great advantages obtained by his IMPROVED SYSTEM cannot be over-estimated, consisting of perfectly tight joints with neatness of appearance; EFFECTS A SAVING OF 25 PER CENT. on cost of Apparatus erected compared with other systems; facility for extensions, alterations or removals without injury to pipes or joints; can be erected by any gardener; an ordinary size apparatus erected by one man in a day, and PERFECTNESS OF DESIGN SUPPLIED, INSURING NO EXTRAS. Complete Apparatus, of the best materials, with Saddle Boiler, delivered to any Railway Station in England, and Erected at the following prices. Erection beyond 25 miles off London, railway fare for one man additional. Considerable reduction on large works.

TWO FOUR-INCH PIPES ALONG ONE SIDE AND ONE END OF HOUSE.

Size of House	Apparatus Complete.	Erection.	Size of House.	Apparatus Complete.	Erection.
20 feet by 10 feet ..	£9 0 0 ..	£2 0 0	50 feet by 15 feet ..	£17 10 0 ..	£3 0 0
30 feet by 12 feet ..	11 15 0 ..	2 10 0	75 feet by 15 feet ..	20 0 0 ..	3 0 0
40 feet by 15 feet ..	15 0 0 ..	2 15 0	100 feet by 15 feet ..	26 0 0 ..	3 5 0

Bath and Gas Work erected in town or country. The Trade Supplied.
Horticultural Buildings of every description from 1*s.* 9*d. per foot superficial.*

Price Lists, Plans, and Estimates forwarded on application to
T. S. TRUSS, C.E., CONSULTING HORTICULTURAL ENGINEER, &c., SOLE MANUFACTURER,
FRIAR STREET, BLACKFRIARS ROAD, LONDON, S.
Observe — The City Offices are now Removed to the Manufactory, Friar Street.

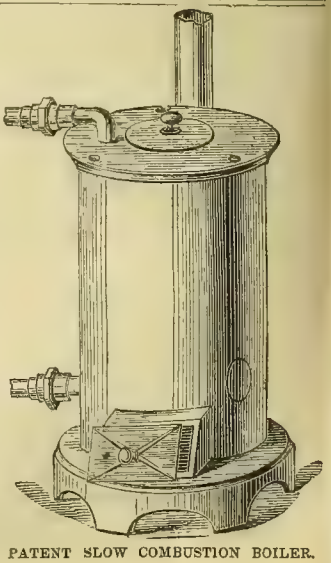


PATENT PIPE JOINT.

RIDDELL'S
PATENT PORTABLE ELASTIC PIPE JOINT.

Especially adapted for HOT-WATER PIPES for WARMING CHURCHES, PUBLIC BUILDINGS, SCHOOLS, CONSERVATORIES, HOT-HOUSES, &c., is extremely simple, perfectly watertight, saves four-fifths of the time and labour in erecting hot-water work, can be rapidly put together by an ordinary workman, and can be removed and re-erected without injury to pipes or joints.

Prospectus and Price List free.



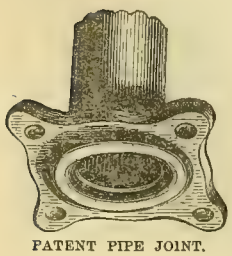
PATENT SLOW COMBUSTION BOILER.

RIDDELL'S
PATENT SLOW COMBUSTION BOILER.

For WARMING CHURCHES, CONSERVATORIES, HOTHOUSES, SCHOOLS, &c., by the circulation of Hot Water, requires no brick-work setting, saves half the fuel usually consumed, is not liable to get out of repair, is easily regulated, will work from 8 to 20 hours without attention, and is made in sizes capable of heating from 30 to 5000 feet of 4 inch pipe.

Prospectus and Price List free.

J. HADLEY RIDDELL, PATENTEE, 155, CHEAPSIDE, E.C.



PATENT SLOW COMBUSTION BOILER.

Caution to Gardeners.—When you ask for SAYNOR AND COOKE'S WARRANTED PRIZE PRUNING and BUDDING KNIVES, see that you get them. Observe the mark SAYNOR, also the corporate mark OBTAIN WARRANTED, without which none are genuine.

S. & C. regret having to caution Gardeners and others, but are compelled to do so, in consequence of an imitation, of common quality, having been sold for the genuine one, and which has caused many complaints to be made to them of Knives which were not of their make, all of which are warranted both by Sellers and Makers.

S. & C.'s Pruning and Budding Knives are the best and the cheapest in the market.

Paxton Works, Sheffield. Established upwards of 125 years.



WARNER'S SILICATE of IRON PAINT. —The peculiarities and advantages of this Paint are that it will stand extreme Heat and Damp, and is not affected by Acid, Sea Water, Sulphuretted Hydrogen, or Ammonia. It is equally well adapted for Iron, Wood, Brick, or Cement. Every Shade of Colour ground to order. The Creamy White and Bright Stone will retain the soft delicate shades, regardless of the fumes of Gases. It has no smell, and there is an entire absence of deleterious effect.

WARNER'S ANTITERMITE COMPOSITION is suitable for Felt Roofing, and is a Cheap Coating for Iron Work, and preserves Wood in India from the ravages of the White Ant. Price 1s. 3d. per gallon.

17, Laurence Pountney Lane, Cannon Street, London, E.C.

CARSON'S ANTI-CORROSION PAINT, Patronised by the Nobility and Gentry, is extensively used for all kinds of OUT-DOOR WORK, and is proved, after a test of 70 years, to surpass any other Paint. It is especially applicable to Iron, Wood, Stone, Brick, Compo, and is the only Paint that will effectually resist the rays of the sun upon Conservatories, Greenhouses, Frames, &c. Is twice as durable as genuine White Lead, so simple in application that any person can use it. Per cwt.

WHITE, LIGHT STONE, BATH, and LIGHT PORTLAND COLOURS ... ... 30s.

LEAD, CHOCOLATE, RED, PURPLE, BROWN, and BLACK 26s.

BRIGHT GREEN, DEEP GREEN, and BLUE ... ... 42s.

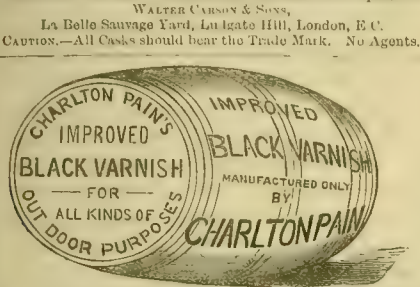
Prepared ready MIXTURE for the ANTICORROSION. OILS, TURPENTINE, VARNISHES, BRUSHES, &c.

3 cwt. Free to all Stations in England and Wales, and most Ports of Ireland and Scotland. Patterns and Testimonials sent post free.

WALTER CARSON & SONS,

La Belle Sauvage Yard, Ludgate Hill, London, E.C.

CAUTION.—All Casks should bear the Trade Mark. No Agents.



IMPROVED BLACK VARNISH, an excellent Substitute for Oil Paint, for Coating and Preserving all kinds of Iron and Wood Fencing, Gates, Roofing, and every description of out-door Wood or Stonework, Steam Boilers, Pipes, Tanks, Carts, Waggons, Farm Implements, &c.

It is an excellent substitute for Oil Paint, and is not one-fifth the cost! It requires no mixing, and can be applied in a cold state by any ordinary labourer.

Sold in Casks of about 30 gallons each at 1s. 3d. per gallon (casks included). Carriage paid to any Railway Station in Great Britain or Scotland. Extra strong Iron-bound Varnish Brushes, 5s per pair.

The following Testimonial has just been received from W. C. HAIGH, Esq., of Ashfield, Bradford.

"DEAR SIR,—I have used your Black Varnish both on Wood and Iron, and find it far superior to any Paint, both as to colour and durability, and so cheap that any one that can do with the colour will find it far superior to anything they can use. I shall recommend it wherever I have the opportunity. It is as easy to lay on as paint, and dries a beautiful bright colour.—Yours truly, W. C. HAIGH."

CHARLTON PAIN, 10, Richard's Villas, Lavender Grove, Dalston, London, N.E. (from whom it can only be had), Manufacturer of Continuous Iron and Wire Fencing, Hurdles, Gates, Tree Guards, Garden Arches, Rosarics, Netting, and every description of Wire Work.

Oil Paint no longer Necessary.



HILL AND SMITH'S PATENT BLACK VARNISH for preserving Iron Work, Wood, or Stone. This Varnish is an excellent substitute for oil paint on all out-door work, and is fully two-thirds cheaper. It may be applied by an ordinary labourer, requires no mixing or thinning, and is used cold. It is used in the grounds at Windsor Castle, Kew Gardens, and at the seats of many hundreds of the nobility and gentry, from whom the most flattering testimonials have been received, which HILL & SMITH will forward on application.

From Major RT. BELL, *Sandhoe, Northumberland.*

"I have much pleasure in saying I have known your Black Varnish to be used for some time by friends of mine, and they all speak highly of it, which has induced me to get the quantity I have from you. That I have used looks remarkably well."

Sold in casks of about 30 gallons each, at 1s. 6d. per gallon, at the Manufactory, or 1s. 8d. per gallon paid to any Station in the kingdom.

Apply to HILL & SMITH, Brierly Hill Iron Works, near Dudley, and 22, Cannon Street West, E.C., from whom only it can be obtained.



COCOA-NUT REFUSE is becoming SCARCE, the old reserves will soon be gone. Now sold in bags, 1 for 2s., 10 for 16s., 20 for 30s., 50 for 68s., 100 for £6.

Fourpence allowed for each bag returned carriage-paid.

A Railway Truck-load (not in bags), 40s.

Postage Stamps or Post-office Order, payable to J. BARSHAM & Co., Kingston-on-Thames, S.W.



Red Spider — Magnified

GISHURST COMPOUND.

Used by many of the leading Gardeners since 1859, against Red Spider, Mildew, Thrips, Green Fly, and other Blight, in solutions of from 1 to 2 ounces to the gallon of soft water, and of from 4 to 16 ounces as a Winter Dressing for Vines and Fruit Trees. Has outlived many preparations intended to supersede it.

Sold Retail by Seedsmen, in boxes, 1s., 3s., and 10s. 6d.

Wholesale by PRICE'S PATENT CANDLE COMPANY (LIMITED).

JOHN GIBSON, JUN., begs to announce that he is prepared to Furnish PLANS and ESTIMATES for LAYING OUT GROUND attached to Mansions and Villa or other Residences, or for the FORMATION of PUBLIC PARKS or GARDENS and to carry out the same by Contract or otherwise.

Address Mr. JOHN GIBSON, jun., Surrey Lane, Battersea, S.W.

GEORGE F. MORRIS (of the Firm of PROTHEROE & MORRIS) undertakes SALES and VALUATIONS of FREEHOLD LANDED ESTATES, Leasehold and Reversionary Property of every description, Farming and Market Garden Produce, Household Furniture, Stock in Trade, &c.

Auction and Estate Agency Office, The Limes, Leytonstone, Essex.

Farm Poultry.

GREY DORKING FOWLS, of purest breed, in any numbers.

Imported TOULOUSE GEESE, the largest and most productive breed known.

Improved NORFOLK TURKEYS, large, hardy, and good breeders.

AYLESBURY and ROUEN DUCKS.

Imported BELGIAN HARE RABBITS, for size and early maturity.

BRAHMA-POUTRA, CREVECŒUR, and LA FLECHE FOWLS, for constant layers.

Priced Lists and Estimates on application.

JOHN BAILY & SON, 113, Mount Street, London, W.

TO BE LET, or SOLD, CAMPDEN GROVE NURSERY, Kensington; and WESTBOURNE NURSERY, Denbigh Road, Bayswater.

Apply to Mr. REEVES, Sen., Acacia Villa, Notting Hill, W.

To Rose Cultivators and Nurserymen.

TO BE DISPOSED OF, the LEASE, STOCK, and GOODWILL of a BUSINESS in one of the best localities in the south of Devon, with Five Acres of deep, rich, well watered, and sheltered land, adjoining a railway station.

Apply to Mr. W. D. MANN, Share Broker, 3, Fleet Street, Torquay.

To Market Gardeners.

TO BE LET, from the 29th of September next, a capital KITCHEN GARDEN, containing Vineries, Melon Pits, &c., and enclosed by a high wall, furnished with Fruit Trees: also a productive ORCHARD and comfortable Residence, situate within one mile from a station on the South-Eastern Railway, and about 25 miles from London.

For terms apply to Messrs. NASH, Land Agents, Valuers, and Auctioneers, Reigate, Surrey.

To Market Gardeners, Nurserymen, &c.

TO BE SOLD, by Private Contract, about 200 ACRES of very superior GARDEN GROUND, all Freehold, situate in the County of Bedfordshire, about three miles from Biggleswade Station, Great Northern Railway. The Land is divided into Lots to suit the convenience of purchasers. For particulars apply to THOMAS FOUNTAINE, Esq., Dunton Lodge, Ashwell, Baldock.

FOR DISPOSAL, a First-class NURSERY and SEED BUSINESS; or the present Proprietor would accept of a WORKING PARTNER with a Capital of not less than £1500.

Apply by letter to E., Messrs. Hurst & Son, 6, Leadenhall Street London, E.C.

Nursery and Seed Business for Sale.

WILLIAM DEAN, having determined on residing in London again, offers for SALE, with immediate possession, the NURSERY at SHIPLEY, consisting of Four Acres, with 13 extensive Glass Houses, the whole, with the Nursery well stocked, and with Dwelling House, &c., is held on Lease; also the SEED SHOP, in BRADFORD (the only one in the town), which is well fitted up, and where there is a good business doing in Fancy Articles, as well as Seeds, Cut Flowers, Flowering Plants, &c. The Nursery is 2½ miles from the Shop, on a principal road to Bradford. A half year's business is equivalent to the purchase money required, and will be a great bargain to the purchaser. It is an excellent opportunity for a large house in the South to establish a Branch Business here, as a good healthy Trade is already done, which may be very much increased. For particulars apply to

WILLIAM DEAN, Bradford Nursery, Shipley, Yorkshire.

The Exmoor Cobs, Galloways, and Ponies.

MR. ROBERT SMITH'S next ANNUAL SALE of about 40 of these LITTLE HORSES will come off at Fielder's Repository, Bristol, on WEDNESDAY, September 25, next, at 1 o'clock. On view the day previous to the Sale.

They are warranted sound, and chiefly bred from renowned sires and Exmoor Pony Mares. Descriptive Catalogues may be had, 10 days prior to the Sale, at the Stud Farm, Exmoor Forest, South Molton, Devon.—Emmett's Grange, August 20.

Lincolnshire Long-woolled Rams.

MR. JNO. CLARKE, of Long Sutton, Lincolnshire, will have pleasure in forwarding to Sheep-breeders, in any part of the kingdom, SHEARLING RAMS of excellent quality, at very moderate prices. These Rams have been found to answer exceedingly well as a cross with Merinos and other Short-woolled Ewes of any Breed. The difficulties in railway transit are very slight. The Rams will be ready for delivery after Wednesday, September 11th, or earlier if required.

Long Sutton, August 24.

Sheep.

MR. BURNHAM has on SALE some SHEARLING SHROPSHIRE DOWN RAMS, of superior quality and large size, at his Farm, near Spital Station, Chester and Birkenhead Railway.

For particulars by Post, address Spital, Sutton, near Chester.

Sales by Auction.

Highly Important Sale of Shorthorns and Choice Leicester Sheep.

MR. THOMAS WETHERELL, having received the patronage of Marshall Stephenson, Esq., of Fourstones, near Hexham, Northumberland, will SELL by AUCTION, without reserve, on THURSDAY, October 3, a Valuable HERD of 30 SHORTHORNS, including 19 Females and five Young Bulls in close alliance in blood with the Kirklevington Duchess. Red Darlington—the foundation of this herd—was purchased from Mr. Bates by Mr. Burnett, of Black Hedley, Northumberland; since which crossed by 2d Cleveland Lad, 2d Earl of Beverley, Lord George Bentinck, Disraeli—all bred by Mr. Bates; and by Short Tail and the Duke of Northumberland—all renowned Duchess Bulls. Voltigeur, Ivanhoe, Fieldmaste, Silver Medal, and Royal Butterfly 16th, have been used in this Herd with great success, as many of the Butterflies are grand specimens of the Shorthorns. The LEICESTERS are bred from the flocks of Messrs. Grey, Douglass, Borton, Lord Polworth, &c.

Catalogues are ready, and may be had of Mr. STEPHENSON, Fourstones; and of Mr. WETHERELL, Durham.—32, Claypath, Durham, August 21.

Dutch Bulbs.

MR. STEVENS' SALES of HYACINTHS, TULIPS, CROCUSES, and other BULBS, just imported from Holland, will take place every WEDNESDAY and SATURDAY, and frequently on MONDAY, at the Auction Rooms, 38, King Street, Covent Garden, London, W.C.

Bulbs from Holland.

MR. J. C. STEVENS will SELL by AUCTION at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, Sept. 11, at half past 12 o'clock precisely, an assortment of Tree-Loss HYACINTHS, TULIPS, CROCUSES, NARCISSUS, and other Bulbs just arrived from Holland

On view the Morning of Sale, and Catalogues had.

Dutch Bulbs.

MR. J. C. STEVENS will SELL by AUCTION at his Great Rooms, 38, King Street, Covent Garden, W.C., on SATURDAY, Sept. 14, at half-past 12 o'Clock precisely, several cases of BULBS from Holland, in lots to suite private buyers and the Trade; and a few lots of RUSTIC SEATS, STOOLS, VASES, BASKETS, &c.

On view the Morning of Sale, and Catalogues had.

Very Important to Noblemen, Gentlemen,

PUBLIC COMPANIES, NURSERYMEN, AND OTHERS ENGAGED IN PLANTING

PRELIMINARY NOTICE OF FORTHCOMING SALES BY

MESSRS. PROTHEROE AND MORRIS.

TUNBRIDGE WELLS, October 16, 17, and 18.
CLEARANCE SALE of VALUABLE EVERGREEN, CONIFERÆ, and DECIDUOUS SHRUBS, ORNAMENTAL and FOREST TREES, in the finest condition.

ACTON, HOPGOOD'S NURSERY, October 21, 22, and 23.
CLEARANCE SALE (the Lease having expired). Thriving NURSERY STOCK, including, with the usual assortment, some remarkable fine LIMES, PLANES, FRUIT TREES, &c.

KINGSTON, SURREY.—Clarence Street and Park Road, Nov. 5, and following days The excellent NURSERY STOCK, in the best state of cultivation, EVERGREEN, CONIFERÆ, and DECIDUOUS SHRUBS in great variety, varying all sizes, which has been constantly removed, and will incur no risk from Transplanting.

GODALMING, SURREY, November 11, and following days, by order of Charles J. Barker, unless previously disposed of in one lot by Private Contract, the whole of the GREENHOUSE PLANTS, GREENHOUSES (newly erected), and other Effects, at Godalming Nursery; also the Valuable NURSERY STOCK, growing in Terrace Gardens, Shady Hangers; within five minutes' walk of the Godalming Railway Station.

WOKING, SURREY, November 18, and following days.
Clearance Sale of the whole of the unrivalled COLLECTION of EVERGREEN, CONIFERÆ, and DECIDUOUS SHRUBS, ORNAMENTAL, FRUIT, and FOREST TREES, extending over 100 acres, or the reabouts, to be SOLD, without reserve, in consequence of the death of Mr. Robert Donald. The Stock is particularly worthy the attention of the Trade.

To Noblemen, Agriculturists, and Others.

AN IMPORTANT UNRESERVED SALE OF PRIZE BERKSHIRE PIGS, WILL TAKE PLACE AT READING, BERKS, ON TUESDAY, SEPTEMBER 24, COMMENCING AT 12 O'CLOCK.

MR. TOMPKINS is favoured with instructions from Arthur Stewart, Esq., of Saint Bridge House, Gloucester (who is retiring from breeding and exhibiting for prizes), to SELL by AUCTION, at his Mart, close to the Railway Station, Reading, without the slightest reserve, the entire and Valuable HERD of about 60 head of the CHOICEST PIGS perhaps ever seen together. Mr. Stewart's Berkshire Pigs took the 1st and 2d Prizes in the Breeding Sow Class, and the Silver Medal in the Boar Class, at the Royal Agricultural Show at Newcastle in 1864. Mr. S. also obtained at the Royal Agricultural Show at Plymouth in 1865, 1st and 2d Prizes, and reserved number in the breeding Sow Class, and 1st Prize in the Boar Class. In 1866 there was no Show At the Royal Agricultural Show at Bury St. Edmund's this year, Mr. S. secured the 1st Prize in the Boar Class, and 2d Prize and reserved number in the Breeding Sow Class: Mr. Stewart's best sow died, leaving seven young in the pen, before the Judges were admitted into the show yard.

N.B.—The Auctioneer earnestly solicits the attendance of the Public to the above unreserved Sale, and would remark that Mr. Stewart has gained many Prizes, both at the Bath and West of England Shows, and elsewhere. These Pigs will be found of great size, length and depth; the fine strain of blood is solely confined to the above herd, Mr. Stewart never allowing any subscription to be taken for his Boars.

Full particulars will appear in Catalogues, which can be obtained a week prior to the Sale, on application being made to the Auctioneer. See Vol. No. 2 of the *Agricultural Journal* for 1865, in reference to this Herd.

Important to Gentlemen engaged in Planting, Landscape Gardeners.

SALE BY AUCTION OF HIGHLY VALUABLE NURSERY STOCK.

JOHN CRANSTON begs to say that from the greatly increased demand for ROSES during the last two or three years he finds it absolutely necessary to very considerably extend their Cultivation, both out-of-doors and under glass. To enable him to accomplish this in a manner fully and satisfactorily to meet the demand, he feels compelled to clear a very large portion of his Nurseries, now stocked with valuable collections of Fruit Trees, Conifers, Evergreens, Deciduous Ornamental Shrubs, Forest Trees, &c.; likewise a fine Collection of Camellias, Azaleas, Geraniums, and Miscellaneous Greenhouse Plants, now occupying several large houses.

He will, therefore, in future be able to devote at least the one-half of his Nurseries, which extend over 50 Acres, solely to the cultivation of Roses, as well as five or six large Houses for the propagation of Tea-scented and other tender sorts in pots.

The fact of his having on every occasion during the season taken the First Prize for the large Collection of Roses at the Metropolitan and other Rose Shows, coupled with the regular increase of orders which has been going on for years, convinces him of the necessity of losing no time in taking the course he herein proposes.

Mr. SUNDERLAND has received instructions to SELL by AUCTION, on the premises, at the King's Acre Nurseries, on September 30, 1867, and following days, a large portion of the GENERAL NURSERY STOCK, comprising—

25,000 Dwarf-trained, Pyramid, and Standard Peaches, Nectarines, Apricots, Pears, Plums, Cherries, and Apples, all well grown and finely trained—the greater portion are large-sized bearing trees.
1,000 Peaches, Nectarines, Pears, Plums, Cherries, and Figs in pots.
300 Grape Vines.
15,000 Common Laurel, 2 to 3 feet.
30,000 Conifers, including beautifully grown plants of Cedrus Deodara, Cedrus atlantica, Cupressus Lawsoniana, Thujopsis borealis, English Yew, Pinus austriaca, Pinus insignis, Araucaria imbricata, &c., varying in height from 2, 3, 4, and 6 to 8 feet, and many of them fine specimen trees.
2,000 Wellingtonea gigantea, from 2 to 3 feet, beautifully grown plants, all regularly transplanted.
3,000 Rhododendrons, 2½ feet.
Several thousand Berberis Darwinii, variegated Holly, Arbutus, &c.
A quantity of the New Japan Aucubas, &c.
A large quantity of Deciduous Ornamental Trees and Shrubs, including 1000 Standard Double Pink, Scarlet and other Thorns, Weeping Ash, Beech, Oak, Elms, &c.
2000 Deutzia gracilis, suitable for forcing.
Climbing and Wall Plants, all the leading kinds of Clematis, Lonicera, Ceanothus, &c.
300,000 Transplanted Forest Trees, including Ash, Spanish Chestnut, Larch, Scotch, English Oak, Spruce Fir, Thorns, &c., varying in height from 2 to 4 feet.
1500 Indian Azaleas, 600 Camellias, miscellaneous Greenhouse Plants, &c.

The whole of the above Stock is in the finest condition possible, having been thoroughly well grown, and regularly and carefully transplanted, neither were any of the Trees injured in the least during the last severe winter.

Further particulars are given in circulars now published, and will be forwarded on application.

Catalogues, which are now in course of preparation, will be distributed early in September.

Nurseries, King's Acre, near Hereford.—Aug. 1, 1867.

BROWN AND POLSON'S CORN FLOUR.

REMARKS ON THE DIETARY VALUE OF CORN FLOUR.

We not unfrequently meet with persons who, with much self-complacency, affect a lofty disregard of what they eat; and who boast that, in order to keep their appetites in subjection, they systematically and on principle eat whatever is set before them, quite irrespective of its character or fitness for the circumstances under which they live, endeavouring thus to carry out the recommendation of Solomon to eat only for strength, not for pleasure. The gratification of the sense of taste, however, serves a much higher purpose than is commonly supposed, for, as a general rule, if the appetite be not blunted or perverted by excessive indulgence, our tastes and our requirements are very closely related, so that, in man's natural state, taste becomes as it were a sort of instinct, and takes rank as one of God's providences for the preservation of our health. In this way we may explain what is matter of common observation, that a man's taste varies with his age, habits, and circumstances of life. At one time he wishes for, at another scarcely bears the sight of fat; sometimes he craves for animal, at other times for vegetable food. Indeed, the feelings of hunger and thirst, which have reference to quantity rather than quality, are not more evidently instinctive than is taste, which regards only the quality of food. As a guide, it may be easily trusted both as to food and drink, if only we listen to its simple teaching, and do not abuse its confidence.

In no other way than the above can we explain the very remarkable varieties in the food consumed in different climates; witness the Laplander with his mass of blubber, or the inhabitant of the Tropics with his refreshingly cool and juicy fruit. In both these instances taste assumes the part of instinct, and guides the possessor to the selection of a diet which his circumstances render necessary. Hence taste becomes the handmaid of science, and points to a law in the dietary of individuals, telling them what they ought to eat, drink, and avoid. It suggests variation under varying conditions, and notably so in regard to temperature; for, from the two great divisions or types into which all foods are classified—namely, the nitrogenous or tissue-forming, and the calorifient, or heat-creating—it elects instinctively that one which science demonstrates to be most necessary.

A few words on these two types of food will serve to illustrate the dietetic value of the Corn Flour, which is the subject of these remarks.

By the term *nitrogenous* is meant all foods, whether derived from the animal or vegetable kingdom, which contain nitrogen as one of the elements of their composition, in addition to carbon, hydrogen, and oxygen. These foods are also called nutritious—that is, tissue-formers—and the measure of their nutritive value is the quantity of nitrogen they contain. The reason of this is found in the fact that all the tissues of the body, fat excepted, contain nitrogen, and those wherein the nutritive changes are most active, such as muscle and nerve, contain the largest amount of nitrogen. Examples of this food are—meat of all kinds, eggs, milk, beans, peas, lentils, bran, and the inner coat of wheat and flour, or bread, though in the latter we approach nearer to the purely starchy or calorifient group, and so get further from the nitrogenous class.

The calorifient, or heat-producing group, are foods which contain little or no nitrogen, but only carbon, hydrogen, and oxygen. Starch and its varieties, rice, sago, arrowroot, potatos, and flour; fatty and oily substances, such as butter, cream, and all the varieties of sugar; these make up the class of heat-sustaining foods, and though they do not directly nourish tissue, except where they also contain traces of nitrogen, they nevertheless perform scarcely less important functions in the human body; for, besides assisting in the process of respiration, they develop fat for the protection of the muscles. And, above all, they principally maintain the heat of the body, which is essential for the due performance of all its functions; this they do by the union of their carbon with the oxygen of the air in the process of respiration, in the same way as in the combustion of coal—the residual oxygen and hydrogen being in the proportion to form water.

It is obvious that the effect of a diet in which one or other of those classes is in excess will be to overburthen the digestive organs with a portion of food which is not required. This is especially injurious when the nitrogenous class is in excess, because a greater effort is required for its digestion than is the case with farinaceous food.

The real practical difficulty hitherto has been to find such a mixed diet wherein the nitrogenous and farinaceous (or calorifient) elements are in such proportions as to meet the healthy requirements of the system, especially in cases where the habit of life is sedentary or the digestive organs feeble, in all such cases the farinaceous element should preponderate.

Such a desideratum, it is believed, is now supplied in the Corn Flour which we manufacture, and which, when boiled with milk, presents such a combination of animal and vegetable food as closely resembles ordinary beef and bread, while at the same time it is in so light and easily digestible a form as will keep the system fully nourished, when the stronger and more stimulating food would only weaken and depress by its indigestibility.

As a pure starch, Corn Flour is peculiarly fitted for the diet of children. Though there seems to be a general impression to the contrary, it is essentially a heat-creating food, and is also one of the most easily digested. And, inasmuch as the proper maintenance of animal heat is of vital importance to childhood, food of this class is at all times loudly demanded by nature. This is attested by the fact that in milk, the very best of infant foods, the heat-sustaining element preponderates largely over the nitrogenous or tissue-forming. The popular belief appears to be that children have a remarkable power of resisting cold. This is certainly not the case with plants, nor is it with animals, least of all is it with man. Heat, whether supplied from within by food, or without by clothing, seems almost by itself to give *life* to young organisms, whether plants, animals, or man. And according to the recent researches of scientific men there seems to be so very intimate and mysterious a connection between *heat* and *life* that some have even ventured to suggest their mutual dependence. The feeble digestive power of children, and their extreme sensibility to cold, are additional reasons in favour of such a food as Corn Flour. Moreover, its slightly alkaline reaction recommends it as especially fitting in those cases where there is any tendency to acidity, a condition which is not only very common, but sometimes very troublesome in early life, and is a frequent cause of diarrhœa and other digestive disorders. It cannot be too often insisted upon that purity, simplicity, digestibility, and the absence of any stimulating quality are, or ought to be, the essential characters in the food of children—and these are the features specially observed in Corn Flour.

It has frequently been remarked to us by physicians and others that in cases of children's ailments our Corn Flour has been retained upon the stomach when almost all other kinds of food (arrowroot included) had been tried in vain, and by this means the turning point towards recovery has been gained.

But it is not in childhood alone, or even chiefly, that this preparation is so valuable as an article of diet. To the man of business, who is obliged to sit long at the desk, and to all whose calling necessitates close confinement, or whose digestive organs are impaired by over-indulgence, or the use of a too stimulating diet, this simple, easily digested, and non-stimulating food will be found an incalculable blessing. It may be cooked in a great variety of ways; when well boiled with milk, with or without any sugar or seasoning, but better without, and allowed to cool in a shape, it forms a delicious *blanc-mange*, unsurpassed by any other preparation for delicacy and easy digestibility. By its bulk it favours digestion when the heavier kinds of food could not be borne, and in combination with either milk or egg it forms a meal scarcely inferior in nutritive value to a steak or chop, while it surpasses them in the fact that it is easily disposed of by even the most delicate stomach. Add to all this, that change or variety in diet is of great importance to healthy nutrition, and we have another reason for recommending this to public attention. We once heard of a man who was nearly famished on mutton chops, potatos, and bread, taken day by day without intermission; a change of diet completely restored him. The more variety we can introduce into our food, consistent with other requirements, the better, and hence the obvious importance of a new article of diet.

It has been said that he who makes two blades of grass grow where one grew before is a benefactor of his species. Sir Walter Raleigh, who introduced the potato into England, might certainly lay claim to that title. To us belongs the honour, whatever it may be, of being the first in this country to manufacture a pure starch from maize, which is now so well known under the name we gave to it, viz.—Corn Flour. For those who really need a light nutritious diet we can wish no greater luxury than this addition to their meal.

BROWN AND POLSON, IRONMONGER LANE, LONDON, E.C.

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THE GARDENERS' CHRONICLE

AND

AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.

No. 37.—1867.] SATURDAY, SEPTEMBER 14. {Price Fivepence. {Stamped Edition, 6d.

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ROYAL HORTICULTURAL SHOW of ZONAL PELARGONIUMS, TUESDAY, September 17. Admission 1s. Promenade and Band every Saturday at Three. Admission, 2s. 6d. For Schedule of Prizes see *Gardeners' Chronicle* this day (p. 948).

ROYAL HORTICULTURAL SOCIETY, SOUTH KENSINGTON, W.

NOTICE.—A MEETING of the FRUIT and FLORAL COMMITTEES will be held on TUESDAY, September 17, at 11 for half-past precisely. GENERAL MEEFING at Three.

DERBYSHIRE, FLORAL and HORTICULTURAL SOCIETY.—ANNUAL EXHIBITION, in connection with the Derbyshire Agricultural Exhibition, on WEDNESDAY, September 18. Prizes of £16, £10, £5, £3 10s., and £2 are offered for Groups of Twelve Stove or Greenhouse Plants (or both), in or out of flower, Ornamental or Variegated Foliage Plants arranged for effect (Orchidæ excluded). Schedules of Prizes and any farther information may be obtained on application to the Honorary Secretary, Mr. WILLIAM SAUNDERS, Wellington House, Derby.

Roses in Bloom.

WM. PAUL'S ROSES are NOW IN FULL BLOOM. Inspection respectfully invited. Trains almost hourly from Shoreditch to Waltham Station, Great Eastern Railway. PAUL'S Nurseries, Waltham Cross, N.

To the Trade.

MARSHAL NIEL ROSE, from own roots, in pots, by the 100 or 1000, at £5 per 100.
G. BAKER & SON, American Nursery, Bagshot.

CULTURAL DIRECTIONS for the ROSE. Second Edition. By JOHN CRANSTON, King's Acre Nurseries near Hereford. Free by post from the Author for 20 stamps.

CLARKE'S ROSE PINK, LORD LYON.—The best Pink for Forcing in Cultivation, to which a Certificate was awarded at the Great Show of the Royal Horticultural Society, on June 4, 1867. Strong Plants, now in a fine state for potting, 5s. per pair. Orders, accompanied by Post-office order or stamps, to J. CLARKE, 42, College Street, Bury St. Edmund's.

Roses, Roses, Roses.

WITTY AND SON have to offer for Forcing next Spring strong plants of MARECHAL NIEL ROSES, true. The plants will average from 18 inches to 2 feet high, with side branches from top to bottom. Also all the leading sorts of TEA-SCENTED ROSES in strong plants. The NEW ROSES of 1867 in strong plants. Price may be had on application, by the dozen or 100.
The Nurseries, Cottingham, near Hull.

Agricultural and Garden Seeds.

H. AND F. SHARPE beg to announce to the Trade that their SPECIAL LIST of HOME-GROWN SEEDS, 1867 Growth, is now ready and may be had on application.
Seed Growing Establishment, Wisbech, Cambs.

Calceolaria, Cineraria, Primula fimbriata.

SUTTON AND SONS can supply NEW SEED of the above, saved from choicest flowers, in packets, 1s., 2s. 6d., and 5s. each, post free.
Royal Berkshire Seed Establishment, Reading.

Choice Seeds.

CHARLES TURNER'S superior CALCEOLARIA, CINERARIA, and PRIMULA are now ready, in packets, 2s. 6d. each. The Royal Nurseries, Slough.

To the Trade.

CHARLES TURNER can now supply—
CALCEOLARIA (JAMES) | PANSY | PINK
CINERARIA | PRIMULA KERMESINA
In Trade Packets, at 20s., 10s., or 5s., all of which are saved from the most extensive and unrivalled collections.
The Royal Nurseries, Slough.

Novelties.

WM. PAUL (Son and Successor to the late A. PAUL) respectfully solicits Orders for the NEW and FIRST-CLASS ROSES and BEDDING GERANIUMS, &c., advertised at length in this Paper in May last.
PAUL'S Nurseries, Waltham Cross, London, N.

Variegated Geraniums.

CASBON AND SON hold a large stock of above. Prices on application.
Gravel Walk Nursery, Peterborough.

For Present Sowing.

CHOICE ZONAL GERANIUM, FROM A COLLECTION OF 150 VARIETIES.

R. WHITE can supply NEW SEED of the above, saved from the choicest flowers, in packets, 1s. 6d., 2s. 6d. 3s. 6d., and 5s. each, post free.
Poole Nurseries, Dorset.

New Zealand Nursery, St. Alban's, Herts.

J. WATSON'S beautiful BEDDING PELARGONIUM EXCELSIOR, now ready; colour of Indian Yellow; fine truss, and habit of Lord Palmerston. Price 5s. each; 36s. per doz. to the Trade
MISS WATSON, ready August 25; MRS. DIX, May 1. The Two have received 10 First-class Certificates and Extra Prize Money.
Fine New TABLE APPLE, ST. ALBAN'S PIPPIN, Ripe in April. Plants ready in November. 5s. each; 36s. per doz. to the Trade.
DESCRIPTIVE LIST sent on application.

Special Notice.—Dutch Bulbs.

MR. STEVENS' SALES of HYACINTHS, TULIPS, CROCUSES, and other BULBS, just imported from Holland, take place every WEDNESDAY and SATURDAY, and frequently on MONDAY, at the Rooms, 38, King Street, Covent Garden, London, W.C.

SUTTON'S GUINEA COLLECTION of BULBOUS FLOWER ROOTS, for Pots and Glasses, or Open Ground Cultivation, carriage free.
SUTTON & SONS, Reading, Berks.

Bulb Catalogue.

BUTLER, McCULLOCH, AND CO.'S CATALOGUE of Choice DUTCH and CAPE BULBS is now ready. Sent free and post paid.—Established upwards of a Century.
South Row, Covent Garden Market, W.C.

Dutch and Other Flower Roots.

JAMES DICKSON AND SONS have received, in excellent condition, a large Importation from the most eminent growers. PRICED DESCRIPTIVE LIST post free on application.
102, Eastgate Street, and "Newton" Nurseries, Chester.

Dutch Bulbs, and other Flower Roots.

CHARLES TURNER'S CATALOGUE of the above is now ready, a copy of which may be had on application.
The Roots have arrived in splendid condition, and early Orders are respectfully solicited.
The Royal Nurseries, Slough.

WM. CUTBUSH AND SON beg to say that their DESCRIPTIVE CATALOGUE of CHOICE HYACINTHS, TULIPS, CROCUSES, &c., is now ready, and can be had post free on application. Highgate Nurseries, London, N.

Hyacinths.

WILLIAM ROLLISSON AND SONS beg to announce that their CATALOGUE of DUTCH and ENGLISH BULBS is now in the hands of their Printers, and WILL BE PUBLISHED IN A FEW DAYS, when it can be had free upon application.

Dutch Roots.

JOHN AND CHARLES LEE will be happy to forward their CATALOGUE for 1867 of newly-imported HYACINTHS and other Roots, post free on application.
Royal Vineyard Nursery and Seed Establishment, Hammersmith, London, W.

IMPORTED DUTCH and CAPE FLOWERING BULBS.—We beg leave to intimate that our PRICED DESCRIPTIVE CATALOGUE and AMATEUR'S GUIDE of the above is now ready, and will be sent post free on application.
FERGUS FARRELL & SON, 119 and 120, Capel Street, Dublin.

Dutch Bulbs for Exhibition.

J. SCOTT has received his annual supply of DUTCH FLOWER ROOTS from Holland; extra fine in quality and true to name.
12 very choice exhibition HYACINTHS, 10s.
12 extra choice " " 12s.
Other very fine sorts, 6s. and 8s. per dozen.
A complete list of the above sent free on application to
J. SCOTT, The Seed Stores, Yeovil, Somerset.

HOOPER AND CO.'S AUTUMN CATALOGUE of BULBS, &c., is about to be issued, and can be obtained by application. Price 1s., postage free (presented to Customers).
It is copiously illustrated, and describes a larger collection of rare and choice Bulbous Plants than probably any other in the Kingdom. It includes also Coloured Drawings of their celebrated Etruscan Hyacinth Vases and Horticultural Elegancies.
HOOPER & Co Covent Garden Market, London, W.C.

Dutch Bulbs and other Flower Roots.

THOMAS SAMPSON, The Preston Road Nurseries, and Houndstone, Yeovil, Somerset, begs to announce that he has imported a large assortment of the above, in excellent condition, and is now ready to supply orders at the lowest prices. See CATALOGUE, free on application.
Strong GRAPE VINES, from Eyes.—All the leading varieties, at unequalled low prices.

New Catalogue of Plants, Dutch Bulbs, &c.

ROBERT PARKER begs to announce that his NEW CATALOGUE, containing Select, Descriptive, and Priced Lists of New, Rare, and beautiful Greenhouse, Hardy and Stove Plants, Azalea indica, Fruit Trees, Grape Vines, Rhododendrons, Roses, Sweet Violets, &c.; Amaryllis, Crocuses, Cyclamens, Gladioli, Hyacinths, Liliums, Narcissus, Tulips, and other Bulbs, is now published and will be forwarded to applicants.
Exotic Nursery, Tooting, Surrey, S.

The Autumn Catalogue of

H. LAURENTIUS' Horticultural Establishment, Leipzig, containing BULBS and TUBEROUS-ROOTED PLANTS, VARIEGATED and COLOURED-LEAVED PLANTS, Prices for the Trade, &c.; also a SELECT LIST of NOVELTIES and RARE PLANTS; is now ready, and may be had gratis and post free on application to
Messrs. BETHAM & BLACKITH, Cox's Quay, Lower Thames St., London.

PANSY SEED of 1867, and of the finest strain, at 1s. per packet; sent free for 13 stamps.
H. HARMAN, Denham, near Uxbridge.

Notice.

NOS. 1 to 10 apply only to DILLISTONE AND CO.'S LITTLE LISTS, which will be sent post free to all applicants.
Address, DILLISTONE & Co., Nurserymen, &c., Sturmer, near Halstead, Essex.

Special Notice.

CATALOGUES of the SALE to be held at the King's Acre Nurseries on SEPTEMBER 30 and following days, are NOW READY, and may be had on application.
The Lots, comprising upwards of 3500, are now on view.
Address JOHN CRANSTON, Nurseries, King's Acre, near Hereford.

Camellias and Indian Azaleas, with Buds.

An extensive Stock of their very best varieties is ready for Sale at
LOUIS VAN HOUTTE'S Establishment, Ghent, Belgium. The goods are delivered, carriage-paid, by LOUIS VAN HOUTTE; but, per contra, 5s. are charged in account for every case or basket sent.
☞ The Camellias are from £6 10s. to £8 per hundred; the Indian Azaleas from £5.

New Plants.

H. CANNELL begs to inform his Customers that his NEW CATALOGUE is NOW READY, and sent free for two stamps. It contains a full description of all the NEW FUCHSIAS, VERBENAS, PETUNIAS, LOBELIAS, &c., and a number of the NEW GERANIUMS, and all the NEW BEDDING GEMS of the year; and also a new and valuable idea in the arrangement of Bedding Plants. Fuchsia Nursery, Woolwich.

STRAWBERRIES.—All the leading Varieties in strong Plants. PRICED DESCRIPTIVE LIST on application.
JAMES DICKSON & SONS, "Newton" Nurseries, Chester.

Strawberries.

CHARLES TURNER is now prepared to supply strong Plants of the best modern kinds, as well as all the leading established varieties, true to name.
A DESCRIPTIVE LIST may be had on application.
The Royal Nurseries, Slough.

THE THREE MOST USEFUL STRAWBERRIES in cultivation either for forcing or the open ground.
PRESIDENT, strong layers, in 60-pots, 15s. per 100
SIR CHARLES NAPIER, strong layers, in 60-pots, 15s. per 100
KEEN'S SEEDLING, strong layers, in 60-pots, 15s. per 100
Runners of most other sorts, true to name, from 3s. 6d. per 100
F. R. KINGHORN, Sheen Nursery, Richmond, S.W.

CUTHILL'S STRAWBERRY PLANTS.—On and after August 26, strong, selected for next year's bearing, at the reduced price of 6s. per 100, each sort (they have lasted in bearing 55 days this year), Early Black Prince, Early Princess Royal, Richard II., Highland Mary, Newton Seedling late, Prince of Wales, latest of all. Dr. Lindley never could depend on a crop until he had my breed. MUSHROOM SPAWN, 5s. per bushel. Five Pamphlets, &c. Write for a LIST. Post-office orders on Camberwell Green.
JAMES CUTHILL, Denmark Hill, Camberwell, S.

Orchard-house Trees Fruiting in Pots.

PEACHES, NECTARINES, APRICOTS, CHERRIES, PLUMS, PEARS, APPLES, VINES, and FIGS.
RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

Highly Cultivated and Regularly Transplanted Nursery Stock.

EIGHTY ACRES of the above, consisting chiefly of FRUIT TREES, ROSES, EVERGREENS, and ORNAMENTAL TREES, which for general excellence are unsurpassed.
THOMAS WARNER, Leicester Abbey Nurseries.

Richmond Nurseries, Richmond, Surrey.

TO NOBLEMEN and GENTLEMEN making large PLANTATIONS, or PLANTING ORCHARDS or WALLS with FRUIT TREES, and requiring quantities of superior Coniferous and other Evergreens, Ornamental Flowering Trees, Shrubs, &c., or Dwarf-trained, Standard, or Spiral Fruit Trees. Special prices will be given on application to
G. & W. STEELE, of the above Nurseries.

THIRTY THOUSAND HERBACEOUS and ALPINE PLANTS, in pots, now ready. An inspection respectfully requested. CATALOGUES early in September, sent on receipt of postage stamps.
THOS. S. WARE, Hale Farm Nursery, Tottenham, N., adjoining the Railway Station.

ORCHIDS.—A Small Collection of the best varieties for SALE, on account of owner's ill health.
For particulars, &c., address H., Post Office, Retford, Notts.

Cephalotus follicularis.

W. E. DIXON has to offer fine Plants, 5s. to 7s. 6d. each. Price per dozen to the Trade on application.
Norwood Nursery, Beverley.

WANTED, MINIATURE PLANTS, in the Trade.—The West London Flower and Seed Establishment, 9, Queen's Road, Bayswater, W.

SPECIMEN PLANTS WANTED.—A large Conservatory, 130 feet long, and 30 feet high, has been erected at the Royal Park, Leeds. PLANTS or SHRUBS are WANTED. Must be large, good, and cheap.—THOMAS CLAPHAM, Royal Park, Leeds.

TO the TRADE or GARDENERS.—A large quantity of PELARGONIUMS, FUCHSIAS, CRASSULAS, and other Plants, to be SOLD, a Bargain.—The West London Flower and Seed Establishment, 9, Queen's Road, Bayswater, W.

Ferns.

WILLIAM ROLLISSON AND SONS also beg to intimate that their DESCRIPTIVE CATALOGUE of FERNS, LYCOPODS, &c., is being distributed, and will have much pleasure in forwarding the same, free of charge, to all applicants.
WILLIAM ROLLISSON & SONS, The Nurseries, Tooting, London, S.

Hanover Nursery, Peckham, S.E.

M. A. IVERY, Widow of the late Mr. William Ivery, begs to state that the BUSINESS will be carried on as usual, and trusts to receive that support so long given to her late husband, which shall at all times have prompt attention.
A Select AUTUMN CATALOGUE for 1867 can be had post free on application.

EVERY GARDEN REQUISITE kept in Stock at
CARTER'S New Seed Warehouse, 237 & 238, High Holborn, London.

Genuine Garden and Agricultural Seeds.

JAMES CARTER AND CO.,
SEED FARMERS, MERCHANTS, and NURSERYMEN,
237 & 238, High Holborn, London, W.C.

RAYNBIRD, CALDECOTT, BAWTREE, DOWLING, AND COMPANY, Limited,
CORN, SEED, MANURE, AND OILCAKE MERCHANTS,
Address, 89, Seed Market, Mark Lane, E.C.; or Basingstoke.
Samples and Prices post free on application. Prize Medals, 1851, for Wheat; 1862, for "Excellent Seed Corn and Seeds."

To Market Gardeners and Seed Merchants.

FIRST-CLASS MUSHROOM SPAWN for SALE.—Apply to C. SHEPHERD (late Pearson), 83, Chalk Farm Road, Haverstock Hill, N.W.

DICKINSON'S NEW ITALIAN RYE-GRASS SEED is now ready to be delivered, and may be had by Agriculturists at 34s. per quarter, or 30s. per quarter for 5 quarters for prompt payment. New Park, Lymington, Hants.

PAMPAS GRASS.—Many Thousands of fine Plants, in pots. Price according to number taken.
SUTTON & SONS, Reading Nurseries.

Grass Seeds for Autumn Sowing.

SUTTON'S PERMANENT GRASS SEEDS FOR ALL SOILS.
Prices (according to sorts required and soils for which they are intended), may be had on application.
SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

SUTTON'S IMPROVED ITALIAN RYE-GRASS, the BEST and MOST PRODUCTIVE in CULTIVATION.
SUTTON & SONS can supply New Seed of the above at 6s. per bushel, or cheaper in large quantities.
August and September are the best months for Sowing.
SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

CHOICE SEEDS in SEALED PACKETS.

THE "PRIZE" STRAIN of CYCLAMEN PERSICUM. — This splendid Strain of Seed has passed entirely into the hands of B. S WILLIAMS. It is the seed saved from the magnificent plants grown and shown by Mr. Wiggins, gardener to W. Beck, Esq., Isleworth, at the Spring Shows in the present year; they were in each instance awarded 1st prize, and were the admiration of all the visitors. The flowers are 1 inch across, by 1¼ inches in depth, the colours ranging from a br ght carmine to a delicately tinted white, and pure white tipped with crimson, the leaves beautifully marbled; indeed, the leaves, apart from the flowers, possess a peculiar attraction in the diversity of their marbled surface. This seed should be sown as early in the Autumn as possible. None genuine unless the packets bear B. S. W.'s name and address. Price, per Packet, 1s. 6d., 2s. 6d., and 3s. 6d.

THE "PRIZE" STRAIN of POLYANTHUS. — This beautiful Strain of one of the prettiest spring-flowering plants was also exhibited most successfully by Mr. Wiggins, of whom B. S. W. has purchased the entire stock and right of sale. None genuine unless the packets bear B. S. WILLIAMS's name and address. Price 1s., 2s. 6d., and 3s. 6d. per packet.

OTHER CHOICE STRAINS OF SEED.

JAMES'S CALCEOLARIA, 2s. 6d., 3s. 6d., and 5s. per packet.
WEATHERILL'S CINERARIA, 2s. 6d., 3s. 6d., and 5s. per pkt.
WILLIAMS' PRIMULA, 2s. 6d., 3s. 6d., and 5s. per packet.
B. S. WILLIAMS, Victoria and Paradise Nurseries, Upper Holloway, N

Extra Fine New Tulips.

GEORGE LIGHTBODY, Falkirk, will LET OUT several of the Splendid Seedlings raised by Richard Headly, Esq., of Stapletord, near Cambridge, at very moderate prices. These flowers have been successfully exhibited at the Principal Shows in the Kingdom, and are warranted the finest Tulips now extant. A description of them, by Shirley Hibberd, Esq., F.H.S., was published in the "Gardeners' Magazine" for 22d June. A list of names and prices supplied on application.

CUTTINGS.—The following Cuttings from a Private Garden, to be SOLD, as long as they last, at the prices affixed. Stamps to accompany orders by post.

GOLDEN CHAIN, AMY HOGG, QUEEN of QUEENS, CYBISTER, ROSE KENDATLER, 2s. a dozen.
STELLA, SCARLET PERFECTION, LONICERA AUREA RETICULATA, CHRISTINE, 1s. 6d. a dozen.
MANGLESII, GOLDEN-EDGED IVY LEAF, 9d. a dozen.
VIOLA CORNUTA, 2s. for 50.

Apply to Mr. STANTON, Gardener, Southgate, near London.

Important to Gentlemen engaged in Planting, Landscape Gardeners.

SALE BY AUCTION OF HIGHLY VALUABLE NURSERY STOCK.

JOHN CRANSTON begs to say that from the greatly increased demand for ROSES during the last two or three years he finds it absolutely necessary to very considerably extend their Cultivation, both out-of-doors and under glass. To enable him to accomplish this in a manner fully and satisfactorily to meet the demand, he feels compelled to clear a very large portion of his Nurseries, now stocked with valuable collections of Fruit Trees, Conifers, Evergreens, Deciduous Ornamental Shrubs, Forest Trees, &c.; likewise a fine Collection of Camellias, Azaleas, Geraniums, and Miscellaneous Greenhouse Plants, now occupying several large houses.

He will, therefore, in future be able to devote at least the one-half of his Nurseries, which extend over 50 Acres, solely to the cultivation of Roses, as well as five or six large Houses for the propagation of Tea-scented and other tender sorts in pots.

The fact of his having on every occasion during the season taken the First Prize for the large Collection of Roses at the Metropolitan and other Rose Shows, coupled with the regular increase of orders which has been going on for years, convinces him of the necessity of losing no time in taking the course he herein proposes.

Mr. SUNDERLAND has received instructions to SELL by AUCTION, on the premises, at the King's Acre Nurseries, on September 30, 1867, and following days, a large portion of the GENERAL NURSERY STOCK, comprising—

25,000 Dwarf-trained, Pyramid, and Standard Peaches, Nectarines, Apricots, Pears, Plums, Cherries, and Apples, all well grown and finely trained—the greater portion are large-sized bearing trees.
1,000 Peaches, Nectarines, Pears, Plums, Cherries, and Figs in pots.
300 Grape Vines.
15,000 Common Laurel, 2 to 3 feet.
30,000 Conifers, including beautifully grown plants of Cedrus Deodara, Cedrus atlantica, Cupressus Lawsoniana, Thujopsis borealis, English Yew, Pinus austriaca, Pinus insignis, Araucaria imbricata, &c., varying in height from 2, 3, 4, and 6 to 8 feet, and many of them fine specimen trees.
2,000 Wellingtonea gigantea, from 2 to 3 feet, beautifully grown plants, all regularly transplanted.
3,000 Rhododendrons, 2½ feet.
Several thousand Berberis Darwinii, variegated Holly, Arbutus, &c.
A quantity of the New Japan Aucubas, &c.
A large quantity of Deciduous Ornamental Trees and Shrubs, including 1000 Standard Double Pink, Scarlet and other Thorns, Weeping Ash, Beech, Oak, Elms, &c.
2000 Deutzia gracilis, suitable for forcing.
Climbing and Wall Plants, all the leading kinds of Clematis, Lonicera, Ceanothus, &c.
300,000 Transplanted Forest Trees, including Ash, Spanish Chestnut, Larch, Scotch, English Oak, Spruce Fir, Thorns, &c., varying in height from 2 to 4 feet.
1600 Indian Azaleas, 500 Camellias, miscellaneous Greenhouse Plants, &c.

The whole of the above Stock is in the finest condition possible, having been thoroughly well grown, and regularly and carefully transplanted, neither were any of the Trees injured in the least during the last severe winter.

Further particulars are given in circulars now published, and will be forwarded on application.

Catalogues, which are now in course of preparation, will be distributed early in September.

Nurseries, King's Acre, near Hereford.—Aug. 1, 1867.

THE LONDON MANURE COMPANY
(ESTABLISHED 1840),

Have now ready for delivery in dry fine condition,
CORN MANURE, for Spring Use
DISSOLVED BONES, for Dressing Pasture Lands
SUPERPHOSPHATES of LIME
PREPARED GUANO
MANGEL and POTATO MANURES.

Also Genuine PERUVIAN GUANO, and NITRATE of SODA, ex Dock Warehouse; SULPHATE of AMMONIA, FISHERY SALT, &c. E. PURSER, Secretary.

Offices, 116, Fenchurch Street, E.C.

LAWES' MANURES.—The Manures manufactured by J. B. LAWES for the present season of 1867 are now ready for delivery at his Factories, at the following prices, per ton:—

	£	s.	d.
LAWES' PATENT TURNIP MANURE and BONE SUPERPHOSPHATE of LIME	6	6	0
LAWES' SUPERPHOSPHATE of LIME from BURNT BONE or MINERAL PHOSPHATES	5	5	0
LAWES' WHEAT, BARLEY, GRASS, and MANGEL MANURES	8	0	0
CONCENTRATED CORN and GRASS MANURES	12	0	0

These Manures can be obtained of Mr. LAWES, or through the appointed Agents in all parts of the United Kingdom, at prices varying according to cost of carriage.

Genuine Peruvian Guano direct from the Importers. Nitrate of Soda, Sulphate of Ammonias, and other Chemical Manures.

American and other Cakes at market prices.

Address, JOHN BENNET LAWES, 1, Adelaide Place, London Bridge, E.C.; 22, Eden Quay, Dublin; and Market Square, Shrewsbury.

Caution to Gardeners.—When you ask for

SAYNOR AND COOKE'S WARRANTED PRIZE PRUNING and BUDDING KNIVES, see that you get them. Observe the mark SAYNOR, also the corporate mark OBTAIN WARRANTED, without which none are genuine.

S. & C. regret having to caution Gardeners and others, but are compelled to do so, in consequence of an imitation, of common quality, having been sold for the genuine one, and which has caused many complaints to be made to them of Knives which were not of their make, all of which are warranted both by Sellers and Makers.

S. & C.'s Pruning and Budding Knives are the best and the cheapest in the market.

Paxton Works, Sheffield. Established upwards of 125 years.

STRAWBERRIES.

DR. HOGG.—Very large, extra fine Pine flavour, and a good bearer. One of the finest in cultivation.
THE LADY.—All the fruit of a good equal size without thinning; immense cropper for forcing, as we proved last spring; flavour highly perfumed.
BRITISH QUEEN, PRINCE ARTHUR, KEEN'S SEEDLING.
CRIMSON QUEEN, SIR CHARLES NAPIER.

Prices—Established in large 32 pots for forcing, from 75s. to 100s. per 100. Strong layers in 60 pots, from 25s. to 50s. per 100. Strong runners from 5s. to 21s. per 100. A large collection of other varieties, strong, well-rooted runners, 5s. per 100.

JOHN & CHARLES LEE, Royal Vineyard Nursery and Seed Establishment, Hammersmith, London, W.

New Perpetual Pine-apple Strawberry (Gloede), and Liliums.

A. VAN GEERT, NURSERYMAN, Ghent, Belgium, begs to offer the above STRAWBERRY, good plants, which will be ready in a few days, at £1 5s. for 50, and £2 for 100 plants.

		Per 100—£	s.
LILIUM LANCIFOLIUM PUNCTATUM, very strong roots		8	0
" "	RUBRUM, ditto	2	10
" "	ALBUM, ditto	3	0
" "	ROSEUM, ditto	2	10
" EXCELSUM, ditto		8	0
" LONGIFLORUM, ditto		1	10
" THUNBERGIA GRANDIFLORA		8	0
" " AUREUM		4	0

VARIEGATED PELARGONIUMS.

SOPHIA DUMARESQUE	ITALIA UNITA
MRS. BENYON	COUNTESS
GOLDFINCH	ELEGANS
LUNA	THE FAIRY
BEAUTY of OULTON	PRINCESS ALEXANDRA
NEATNESS	BICOLOR SPLENDENS

The above forwarded on receipt of Post Office order for 21s.

ALFRED FRYER, Nurseries, Chatteris, Cambridgeshire.

Richmond Nurseries, Richmond, Surrey.

G. AND W. STEELE beg to call the attention of the Trade in general to their valuable and very extensive Stock of CONIFEROUS and other EVERGREENS, particularly Striped and Green Hollies, in which they abound; and also to their DWARF-TRAINED, STANDARD, and SPIRAL FRUIT TREES, which are of first-rate quality, consisting of Apricots, Peaches, Nectarines, Apples, Pears, Plums, Cherries, &c., which are second to none in the Trade. An inspection by Travellers this Autumn is respectfully solicited.

British Fern Catalogue.

ROBERT SIM can now send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his NEW and PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.

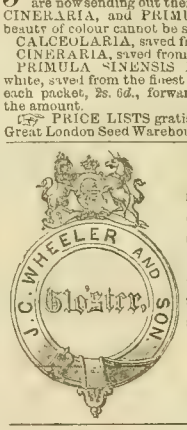
Foot's Cray Nursery, S.E., a mile from Sidcup Station of New North Kent Line of South Eastern Railway.



JAMES CARTER AND CO. beg to announce that they are now sending out their unrivalled Strains of CALCEOLARIA, CINERARIA, and PRIMULA, which, for fineness of form and beauty of colour cannot be surpassed.

CALCEOLARIA, saved from the finest Prize varieties.
CINERARIA, saved from the finest named varieties.
PRIMULA SINENSIS FIMBRIATA, dark carmine and pure white, saved from the finest fringed varieties in cultivation. Price, each packet, 2s. 6d., forwarded on receipt of Post-office Order for the amount.

☞ PRICE LISTS gratis and Post free on application to CARTER'S Great London Seed Warehouse, 237 & 238, High Holborn, London, W.C.

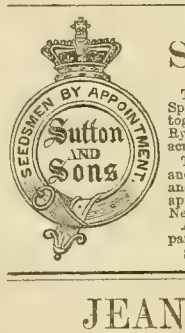


GRASS SEEDS for PERMANENT PASTURE, of the finest quality, at moderate prices, carefully selected on a new, natural, and scientific system.

See "WHEELER'S BOOK on GRASSES," which contains Illustrations and Descriptions of the most suitable Grasses for Permanent Pasture.

J. C. WHEELER & SON,
Gloucester,
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The New Seed is now being harvested, and we shall be pleased to send samples and lowest prices per quarter and cwt. on application. Also MUSTARD and RAPE, New Seed.

All goods carriage free, except very small parcels.

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MESSRS. FRANCIS AND ARTHUR DICKSON AND SONS have received from the most celebrated Growers in Holland their first large importation of the above, and have the satisfaction to say that the BULBS are this season sound, well ripened, and of excellent quality. Early orders respectfully solicited.

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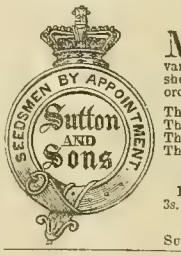
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No. 13	No. 14	No. 15	No. 16	No. 17	No. 18
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CATALOGUES containing details of above Collection sent free and Post-paid Orders amounting to 21s. sent, carriage paid, on receipt of Post-Office Order.—Established upwards of a century.

Covent Garden Market, London, W.C

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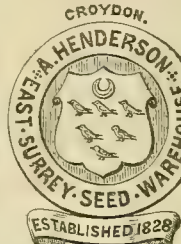
The Choicest 100 Sorts, £4 4s., carriage free
The Choicest 50 Sorts, £2 2s., "
The Choicest 25 Sorts, £1 1s., "
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Cheaper Roots, 6s. to 9s. per dozen.

HYACINTHS for Beds and Open Borders 3s. per dozen, 21s. per 100, carriage free.

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ARCHIBALD HENDERSON begs to announce that he has received a large Consignment of Dutch and other Roots, carefully selected from the most celebrated growers.

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Also a CHOICE and SELECT LIST of VEGETABLE and HARDY FLOWER SEEDS for Autumn Sowing. Catalogues gratis and post free upon application.

Sion Nursery, Thornton Heath, Surrey, and at the East Surrey Seed Warehouse, College Grounds, North End, Croydon.



Choice Bulbs.

STEPHEN BROWN'S

ILLUSTRATED CATALOGUE

Cultural and Descriptive,

Free for 6 stamps, gratis to customers.

THE DUTCH ROOTS

Have arrived in splendid condition.

Seed and Nursery Establishment,

Sudbury, Suffolk.

Hyacinths, Hyacinths.

DREGHORN AND AITKEN, Kilmarnock, N.B., beg to intimate that their CATALOGUE of HYACINTHS and other BULBS is now Published, and will be forwarded Post Free to any Address. It contains valuable Descriptive and Cultural Notes and will be found a useful guide to Purchasers.

PRIZE HYACINTHS.—D. & A.'s PRIZE DOZEN for 15s. The best value in the Trade.—Viz., Macaulay, Ornament de la Nature, Von Schiller, Grandeur a Merville, Lord Wellington (double), Alba maxima, Mont Blanc, Queen of the Netherlands, Baron Von Thuyll, Charles Dickens, Grand Lilas, and Prince Albert.

ROMAN HYACINTHS.—Fine Bulbs of these beautiful early flowering Hyacinths, 3s. 6d. per dozen. Free by Post or Rail.

HARDY CLIMBERS and PERMANENT BEDDING PLANTS.—Eleven First-class Certificates awarded to Messrs GEO. JACKMAN & SON, by Royal Horticultural and Royal Botanic Societies of London.

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AZALEA INDICA, fine plants for winter blooming, choice varieties, £5 per 100; stronger, £8 to £10, and upwards.
AZALEA INDICA SOUVENIR DU PRINCE ALBERT, £1 4s. per dozen.
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CAMELLIAS, fine plants, beautifully set with buds, choice named varieties, £6 per 100; stronger, £8, £10, £12, and upwards.
CAMELLIA STOCKS, fit for grafting, £1 8s.
OTAHEITE ORANGES, full of fruit, £1 4s. per dozen.
" " stronger plants, extra, £1 9s.
JASMINUM GRANDIFLORUM, grafted, flowering all through the winter, £1 per dozen.
TEA ROSE, MARECHAL NIEL, grafts in pots, 3s. per dozen.

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COLLECTIONS of BULBS carefully put up to suit Gardens of various sizes.

The CHOICEST HYACINTHS for Pots or Glasses, 24*s.*, 18*s.*, 12*s.*, 9*s.*, 8*s.*, and 6*s.* per doz.
HYACINTHS for Bedding, assorted, in colours, 3*s.* 6*d.* per doz.
All Roots of the first quality only.

B. S. WILLIAMS,
VICTORIA AND PARADISE NURSERIES, UPPER HOLLOWAY, LONDON, N.

ALL the FIRST PRIZES for HYACINTHS, TULIPS, CROCUSES, &c.,

AWARDED TO

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IN MARCH LAST,

At the ROYAL HORTICULTURAL and ROYAL BOTANIC SOCIETY'S SPRING SHOWS.

FIRST IMPORTATION JUST ARRIVED IN EXCELLENT CONDITION.

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CARTER'S DUTCH BULBS.



JAMES CARTER & CO.'S

AUTUMN SUPPLEMENT

TO THEIR

GARDENER'S AND FARMER'S VADE MECUM,



Containing ORIGINAL ARTICLES on the CULTURE of BULBS and SPRING GARDENING, also a LIST of VEGETABLE SEEDS for AUTUMN SOWING, is NOW READY and will be forwarded immediately on receipt of 12 Stamps (Gratis to Customers), on application to

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FRESH IMPORTED DUTCH FLOWER ROOTS.

SEEDSMEN BY APPOINTMENT Sutton AND Sons

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FOR BLOOMING DURING WINTER AND SPRING.

FOR POTS AND GLASSES.				FOR OPEN GROUND.			
COMPLETE COLLECTION (Carriage Free)..	£2	2	0	COMPLETE COLLECTION (Carriage Free)..	£2	2	0
DITTO (Carriage Free)..	1	1	0	DITTO (Carriage Free)..	1	1	0
DITTO..	0	10	6	DITTO..	0	10	6

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SIBLE HEDINGHAM & BRAINTREE D&W

VIOLETS.

The following are strong Plants in pots, established for winter flowering:—

QUEEN of VIOLETS, the most magnificent double variety grown—per doz.	9*s.*	0*d.*
KING of VIOLETS, extra fine, double blue .. .. ,,	9	0
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A CATALOGUE of CHOICE NEW PLANTS, with LIST of upwards of Twenty other Choice VIOLETS; SELECT LIST of best STRAWBERRIES grown, and DUTCH BULB CATALOGUE, free upon application.

DILLISTONE AND WOODTHORPE,
MUNRO NURSERY, SIBLE HEDINGHAM, ESSEX.

JOHN CRANSTON'S CATALOGUE of SELECTED ROSES is now ready and will be forwarded on application.

J. C. respectfully directs attention to the following LIST of FIRST PRIZES which have been awarded to him at the principal Rose Shows of the present year, proving beyond a doubt that the soil and climate of his Nurseries are unrivalled for the Cultivation of Roses.

Royal Botanic Society, Regent's Park, London.
June 19.—24 Varieties, Cut Roses, one truss each, FIRST PRIZE
Cirencester.
June 19.—36 Varieties, Cut Roses, three trusses each, FIRST PRIZE
Clifton.
June 25.—24 Varieties, Cut Roses, one truss each, FIRST PRIZE
Crystal Palace.
June 29.—72 Varieties, Cut Roses, one truss each, FIRST PRIZE
Royal Horticultural Society, South Kensington.
July 2.—72 Varieties, Cut Roses, one truss each, FIRST PRIZE
Birmingham.
July 4, 5.—72 Varieties, Cut Roses, one truss each, FIRST PRIZE
24 Varieties, Cut Roses, three trusses each, FIRST PRIZE
Hereford.
July 9.—72 Varieties, Cut Roses, one truss each, FIRST PRIZE
24 Varieties, Cut Roses, three trusses each, FIRST PRIZE
Rugby.
July 12.—72 Varieties, Cut Roses, one truss each, FIRST PRIZE
Nurseries, King's Acre, near Hereford.

Roses in Pots.

DILLISTONE AND CO.'s Collection of ROSES in POTS for 21*s.*, package, &c., included, contains—
6 of the best new HYBRID PERPETUALS of 1867.
2 ,, ,, TEAS of 1867, viz., MADAME MARGOTTIN, and ISABELLA SPRUNT. Also 1 each of the following:—

MARECHAL NIEL	SOUVENIR DE LA MALMAISON
CLOTH OF GOLD	CELINE FORESTIER
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Post Office Orders to be made payable at Haverhill, Suffolk.
DILLISTONE & Co., Nurserymen, &c, Sturmer, near Halstead, Essex

Roses, Roses, Roses.

PLANTS of all the FINEST VARIETIES in CULTIVATION will this Autumn be in magnificent order, in the CASTLE STREET NURSERIES, SALISBURY.
The frost of May 24 destroyed all the blooming buds; the consequences are that the Plants have produced the most vigorous growth.
Amateur Rose Growers may insure the finest Plants that can possibly be produced, true to name. CATALOGUES on application.
VINES, from Eyes, the finest in England, 10*s.* 6*d.* each, in October next. JOHN KEYNES, Castle Street, Salisbury.

HUNTINGDONSHIRE HORTICULTURAL SOCIETY.—OPEN PRIZES.
The AUTUMN SHOW of this Society will be held at the Corn Exchange, St. Ives, on WEDNESDAY, SEPTEMBER 18, when, besides the PRIZES offered in the Schedule for Members, the following will be given by the Inhabitants of St. Ives, Open to all England:—
For the best 24 Show Dahlias, 24 varieties, £5.
For the best Dessert, arranged for the Table, and consisting of not less than Seven kinds of Fruit, combining quality with taste in arrangement, such Fruit to be *bonâ fide* grown by the Exhibitor, £5.
N.B. The Prizes offered for 24 Show Dahlias, Class 31 in the Schedule, will now be awarded for 12 instead.
Intending Exhibitors must give notice to Mr. ARMSTRONG, Huntingdon, on or before Saturday, September 14.

The Gardeners' Chronicle.

SATURDAY, SEPTEMBER 14, 1867.

MEETING FOR THE ENSUING WEEK.

TUESDAY, Sept. 17 { Royal Horticultural (Fruit and Floral Committees), at South Kensington .. 11 A.M.
Ditto (Scientific Discussion) .. .. 3 P.M.
Ditto (Show of Zonal Pelargoniums)

SOME little astonishment was created when JOHN HUNTER engrafted the spur of a cock upon the comb of the same bird, though in truth "the learned TALIACOTIUS," as the author of "Hudibras" tells us, had long before been in the habit of performing analogous operations on the human body when comeliness or comfort demanded a new nose in place of one destroyed by disease or accident. Every gardener, too, is familiar with the more or less apocryphal stories of wonderful GRAFTS, or "*greffes des charlatans*," as our neighbours across the water term them. It is well known that many of these marvels are altogether legendary and mythical, while others are merely clever tricks but not grafts. In the whole history of genuine, *bonâ fide*, grafting, however, we doubt if there is a more curious instance recorded than that published by M. B. VERLOT in the last number of the *Revue Horticole*, from which it appears that the following curious experiment was made by M. CARILLET, of Vincennes, in the month of April, 1866. Two Pear trees, about four years old, both worked on the Quince, of a pyramidal form, and each from 4 to 5 feet high, were chosen. The one, a Beurré d'Aremberg, was made to serve as the stock; the other, a Beurré de Charneu, was dug up with the greatest care in order to avoid injury to its roots. It was then grafted by approach on the Beurré d'Aremberg, but in such a way that the roots were allowed to be in the air, and the extremity of the leader directed towards the soil. The graft was made at about 30 centimetres (10—11 inches) from the top of each stem, so that when the operation was completed there were two Pear trees united by their leaders, but the upper one was reversed in position, with its roots completely exposed to the atmosphere.

At first the graft grew but little, it only developed a few leaves of small size and it did not flourish, but during the course, of the summer the body, and main divisions of the root, threw out several buds of the Quince, which attained

a length of from eight to ten centimetres (3—4 inches).

The stock, on the other hand, grew with tolerable vigour, even produced flowers, but did not ripen its fruit. The leaves fell in autumn at their usual time. The roots of the graft were entirely unprotected against the inclemency of the winter of 1866-7. Thus the graft has not only grown and produced leaves, but its roots, although exposed to the drying influences of the air, have not only retained their vitality, but they have even pushed forth shoots. This year, 1867, the stock has grown vigorously, flowered abundantly, but has produced no fruit. The graft developed its buds, flowered, and set two fruits, which now (19th August) are perfect in size and shape, and bid fair to be equal to those of other trees at their usual period of ripening in October. Furthermore, the branches of the Quince, which are developed on the roots, have grown to a length of from 20 to 30 centimetres. It should be remarked, that the branches, whether produced from the root or from the stem, after having sprouted horizontally, have speedily assumed a vertical direction. M. CARILLET has added to the strangeness of the fact that we have just mentioned by grafting on the extremities of the four principal branches of the root of the Quince different varieties of Pear. Of these four grafts, two have taken perfectly, and have pushed out shoots 4 to 5 centimetres long, terminated by a rosette of well-formed leaves. At present therefore the plant is made up as follows:—Its base consists of a Quince stock, whose roots are in the soil. On this stock is a Beurré d'Aremberg Pear; grafted on this latter and in a reversed position is a Beurré de Charneu, itself terminated by a stock and roots of the Quince, on which again have been inserted two new varieties of Pears. Such is the account given by M. VERLOT of this curiosity of grafting, and it is very significant in many ways. It shows, for instance, that the currents of the sap, whatever be their natural course, are quite independent of the mere direction of the tissues; the ascending sap, for instance, must have passed as well through the inverted stem of the Beurré de Charneu and its attached Quince stock, as through the erect growing Beurré d'Aremberg. Again, it shows how the roots of the inverted graft, although exposed to the air, yet managed to live and to throw out buds—assumed, in fact, as roots so often do under similar circumstances, the functions of branches.

It is interesting also, especially in these days when the question of graft-hybrids is exciting attention, to see how each portion of this composite structure retains its own individuality. There seems in this case to be simply adhesion of one part to another, without perceptible intermixture of characteristics, though the sap in its course from the soil to the topmost grafts passes through no less than six different organisms, first through the Quince, then through the Beurré d'Aremberg; from that, thirdly, into the inverted Beurré de Charneu; in its fourth stage it re-enters the Quince; and, lastly, it passes into *two* Pear-grafts.

THE TRANSMISSION OF PLANTS TO DISTANT COUNTRIES has necessarily long occupied the serious consideration of all those connected with practical horticulture or agriculture. Setting aside for the moment the Wardian case, the merits of which for introducing small numbers of soft-wooded or other plants in an active condition need not be reiterated, we would now specially allude to the plans that have been followed with more or less success for the transport of plants of a size or in quantities so large as practically to preclude the use of the Wardian case, and which do not demand the same attention on board ship, the same exposure to light on deck—in other words, the same expense and trouble, as do the contrivances for which horticulturists and the public in general have to thank Mr. WARD.

Supposing the plants to be properly selected at the right season and with all due care, the methods of packing them for transport, that have hitherto been adopted, all depend for their success on the more or less perfect way in which the plant is kept at rest on the voyage; an equable temperature, exclusion from light, an amount of moisture sufficient to prevent desiccation, but not sufficient to induce either growth or decomposition, are the conditions to be complied with. That it is not in all cases easy to do so with all plants is evident on a moment's consideration, but it is equally certain that, in proportion as those conditions have been fulfilled, success has been obtained. The Messrs. LODDIGES packed their plants just after the wood had ripened, and as they were entering upon their resting stage, between layers of sphagnum tightly pressed down and enclosed within a wooden chest. They further remarked (see Lindley's "Theory of Horticulture," p. 258) "that it would be an improvement if the chest of plants were guarded by another case, the space between the two being filled with charcoal, and the whole enclosed in a polished tin cover; for by these means the variations of temperature would be most securely guarded against." We allude to this as an illustration of the methods adopted, with slight variations, by exporters of plants. A contrivance invented by Mr. THOS. CHRISTY (155, Fenchurch Street), and which has now been in extensive use in India and China for the last three or four years, is constructed on the same principles. It consists of an ordinary wooden packing case, lined with a double lining of zinc and felt; the interior is divided into three compartments, separated by moveable wooden bars.

The roots of the plants are placed in the two side compartments, the stems, &c., occupying the central space. The divisions between the compartments are formed of moveable bars or frames of wood, in which grooves or notches are made to receive the stems of the trees, &c., which are thus kept fast, pretty much in the same way as the legs of delinquents in former days when confined in the stocks. Mr. CHRISTY has had for his associate in this important experiment Mr. JOHN WATERER, of Bagshot, and reports in sundry Indian papers now before us show the success that has hitherto attended their attempts to introduce fruit trees, Vines, Roses, &c., into that country. Dr. HENDERSON, the Secretary of the Punjab Agricultural and Horticultural Society, gives very favourable testimony on this point, but adds the caution to have the plants landed in India by the middle or end of January. We insert an extract from one of Dr. HENDERSON'S letters from Lahore, as given in the *China Telegraph*, which shows that the plan answers as well for "eyes" or cuttings as for fruit trees:—

"Very few of the plants sent out to me in December have died; both boxes seem to have been opened at the Calcutta Custom House. The Vine cuttings were planted as 'eyes,' and I don't think a single one has failed to strike. Vines will probably degenerate here very quickly, as the heat in May, June, and July is much too great for them, and if we are to grow first-rate Grapes on the plains it will be necessary to import cuttings every four or five years. 'Eyes' will fruit here the third summer; the rate of growth is quite wonderful. A Peach bud put in in March will in November be 6 feet high, and the stem an inch in diameter, and will be covered with flowers in March. Forest trees will grow 16 feet from seed in nine months."

No special care is taken of the packages *en route*, as they are treated exactly as ordinary merchandise, and conveyed at the same rate of freight. We should hope that Mr. WATERER will make further experiments with these cases, as to the transmission of Evergreens, Rhododendrons, &c., as well as of grafts, seeds, and bulbs in large quantities.

—— IN another part of the paper (p. 956) we copy one of those lamentable accounts which so frequently occur of POISONING BY DELETERIOUS FUNGI. Unfortunately, in these cases the particular kind which has proved destructive is rarely if ever ascertained, either because there is no one at hand acquainted with species, or there is uncertainty as to which especial kind amongst several proved poisonous, or because no specimens remained out of those which were eaten. The specimens in the case recorded were gathered in a wood, and the danger of eating Mushrooms from such a situation almost amounted to an axiom so long since as the days of HORACE. Indeed, no one should venture to dress any from such a locality without some accurate knowledge of the subject; for though our woods produce many excellent species, the distinctions are often so nice between good and bad kinds that the utmost caution should be used. Indeed, we should ourselves be sorry to venture on such species as Agaricus rubescens, one of our commonest forest kinds, though many pronounce it excellent. PAULET, whose work would be inestimable were the figures as good as the text, speaks only doubtfully of it, and it may very easily be confounded with some closely allied species which bear a bad character. Even with the practical knowledge, the result of long experience, which is possessed by the peasants in the South of France, who consume the different species largely, fatal mistakes are not unfrequent; and so strong is the feeling on the subject that at Paris only two or three universally approved kinds are admitted into the market. We have already called attention to the two tables of esculent and poisonous Fungi published by Mr. HARDWICKE, and we would also recommend the useful and cheap books on the subject lately published by Mr. M. C. COOKE and Dr. HOGG. With the guidance of Mr. W. G. SMITH and the two gentlemen just mentioned, it will be difficult with due attention to commit fatal errors, but without such guidance experience may be bought too dearly. *M. J. B.*

—— We learn from the *Revue Horticole*, that among the persons who were honoured on the occasion of the Emperor's *fête* were MM. BAILLON, Professor of Botany to the Faculty of Medicine at Paris; FÉVRE, Professor of Botany in the Faculty of Science at Lyons; TRÉCUL, member of the Academy of Sciences; and BOURGEAUD, "botaniste collecteur,"—who were all made Chevaliers of the Legion of Honour.

—— A "Viticultural Society" is about to be established in Paris; such a Society being called for by the great importance of Vine culture in France.

—— It has been decided that the next meeting of the BRITISH ASSOCIATION shall be held at Norwich, under the Presidency of Dr. JOSEPH DALTON HOOKER, the Director of the Royal Gardens, Kew.

—— Mr. W. MILES, gr. to R. GRAVES, Esq. Ludwell, Salisbury, sends us a "TWIN CUCUMBER." Such instances arise from the juxtaposition and subsequent union of two flowers, and are not of infrequent occurrence.

—— In reference to the Show of VARIEGATED and OTHER PELARGONIUMS to be held at the Royal Horticultural Society's Gardens, South Kensington, on Tuesday next, we have to state that several additional subscriptions have been received since our last statement (p. 876), and that some slight alterations have in consequence to be made in the Schedule, which will now stand as follows:—

1. The best 6 Variegated Zonal Pelargoniums, not yet in commerce, seedling plants excluded, one of each 50*s*., 30*s*.
2. The best 6 Gold and Bronze Zonal Pelargoniums, do., do. do., 50*s*., 30*s*.
3. The best 3 Variegated Zonal Pelargoniums, do., do., do. 30*s*., 20*s*., 15*s*.
4. The best 3 Gold and Bronze Zonal Pelargoniums, do., do. do., 30*s*., 20*s*., 15*s*.
5. The best Variegated Zonal Pelargonium (golden), not in commerce, the seedling plant excluded, 20*s*., 15*s*., 10*s*.
6. The best Gold and Bronze Zonal Pelargonium, do., do. 20*s*., 15*s*. 10*s*.
7. The best Golden Self Pelargonium, do., do., 20*s*., 15*s*., 10*s*
8. The best Variegated Zonal Pelargonium, in commerce two plants of the variety to be shown, 20*s*., 15*s*., 10*s*.
9. The two best Golden Variegated Zonal Pelargoniums, in commerce or not, two varieties, three plants of each to be shown, 25*s*., 15*s*.,
10. The best 6 Gold and Bronze Pelargoniums, put in commerce within the last 12 months, 25*s*., 15*s*.
11. The best Silver Variegated Zonal Pelargoniums, not in commerce, the seedling plant excluded, 20*s*., 15*s*., 10*s*

A MEETING "ON THE HEATH."

IN consequence of numerous and loud complaints as to the manner in which Heaths are trained, and the way in which they are shown at the London and large provincial shows, together with the neglect of many of the good old sorts, the leading members of that beautiful family resolved to hold a meeting, for the purpose of taking into consideration their present depreciated condition, of devising means if possible for their thorough restoration to public favour, and also of preventing the loss of many an old favourite to the world. This meeting lately took place, on a day which need not be named; and the following was, according to our own reporter, the order of proceeding

Mr. Cavendishii was unanimously, and amid general acclamations, called to the chair, and *Mr. Massoni* was requested to act as Secretary. The chairman, on rising to address the meeting, said—He felt some difficulty in presiding over so august an assemblage, and all the more so, from the fact of his being comparatively a young man among them; but as their kindness had placed him in an important pot—he begged pardon—post, he would use all the influence that a first-rate constitution and a great share of public favour had placed at his disposal. (Hear, hear). He was happy, indeed, to have leisure on his hands to attend to the wants and wishes of his brother Heaths, for, having been born to a good place among them, he had not had to labour under the disadvantage of fighting for a position. As he had no personal complaint to make, he would not take up more of their time in talking, but would feel deeply interested in listening to all complaints and suggestions on this, and perhaps on many a future occasion. As no programme could, of course, be issued as to the proceedings of a preliminary meeting, he threw himself on their indulgence, and, as he was happy to see nearly every section of their great family represented, he would, with their permission, call on a member of each division to state grievances, and suggest remedies. He would call first on his old and valued friend, *Mr. Aristata major*; and he sat down amid a ringing cheer which was kept up for several seconds, during which *Mr. A. M.* was looking attentively to his 'headings."

Mr. A. M., on rising, was loudly cheered by all his old acquaintances; but some little jealousy was shown by a few of his section of more modern introduction and popularity, at their great-grandfather being selected to take precedence; the feeling, however, was only transient, and the sun breaking through the clouds at the moment, away it went. *Mr. A. M.* began by thanking all his friends, who had come, some of them at great inconvenience, to state wrongs and demand redress; and as he had less ill-usage to complain of than some of his friends, he had the more chance of helping to redress the wrongs of others. (Hear, hear. His principal grievance was, that people were afraid of him. Nineteen out of twenty young hands who profess plant growing would like to have him in their collection, but they would as soon engage in a tussle with a gorilla as attempt to grow him, and why this

was so he could not understand. He could not help owning that, so far from submitting to be coddled up with a thick shading when the glorious sun was shining, he would rather be thrown on the rubbish heap (that last home of many pretensions); and as to thinking that a plant with wood as hard as his own would stand a lot of fire heat, rather than 2° or 3° of frost, was about as sensible a proceeding as bolting the street door with a boiled carrot. His forefathers had, he knew, very properly refused to suffer all sorts of indignities at the hands of would-be Heath growers, and had died straight out of hand; but he would tell the world, through the meeting, that a family who had furnished so many martyrs—martyrs to imbecility—would one day rise and take a terrible revenge. As more mature ideas must grow out of such an assemblage as the present, and as he might have something to say on a future occasion, he would not take up more time in talking, but promising his ready obedience to any call for their present purpose, he would, with the chairman's consent, ask his old friend *Mr. Propendens* as a member of a very different section, but whose company he had many times enjoyed in days gone by, to step forward and state what he could for their guidance.

The speaker sat down amidst general and continued cheering, during which *Mr. Propendens* came to the front, and when the cheering had subsided, he said: "He appeared before them in a more drooping state than he ought—as all present could see—a state brought about from several causes, partly from the death of some of his old admirers, and partly from the neglect of those who pretend to succeed them. Sulphur and stupidity had had a great deal to do with torturing him, and it was a painful fact that he was hardly ever met with out of the nurserymen's catalogues. He did not know what to suggest as a remedy for his forlorn condition, unless he could persuade the youngsters who run about with what he might call apologies for Heaths, to remember how he used to be turned out from a place not a hundred miles from Beckenham; and though after the shows he, at that place, used to be very tenderly pruned with the hand-shears, he rather liked it than otherwise, and well knew that when he put on his next year's coat he would be as much prized as ever. He had a deal more which he should like to say, but from weakness and want of air he feared his lungs were affected, and, as he felt somewhat faint, he begged leave to sit down." This abrupt termination rather surprised some of his old friends, but it was evident he was not in health, and all present felt a deep sympathy for his sad condition.

The Chairman next called on *Captain Intermedia*, who at once responded, and stepped forward in his usual upright form. He said that he felt justified in saying he had as little to complain of as any one present, for, though he was not admired by every one, most people who spoke of him called him by far the best white Heath out. (Pooh, pooh.) Who dared pooh pooh him in such a shameless manner. (Order, order.) They might well call order, if he could only discover the cause of the *dis*-order he might be disposed to put a few sticks about him to keep him in his place. (No threats.) The Chairman here mildly interfered and said he could feel for their friend, who for the time had possession of the platform, and also thought he had discovered the cause of the little disturbance, in the person of their diminutive friend, *Perspicua nana, Esq.*, who had taken shelter in the branches of *Sir Vestita Coccinea, Bart.*, and under that shelter had, more from caprice than malice, made use of the expression which had given offence to the friend then speaking. He hoped their small, but useful, brother would see the impropriety of such conduct on such occasions, and avoid it in future.

The meeting took the same view, and all was peaceably settled. *Captain Intermedia* resumed: "In saying as much of himself as he had said, he meant to convey to the meeting that he could push along under all the difficulties that came in his way, not from any merit of his own making, but from his good constitution, and his determination to be jolly under all circumstances. People who took him in hand might lop off his long growths and welcome; he could throw up more as fast as they could cut them off; and so far from fearing a Heath-torturer, or any other such being, he defied them all to do their worst, if they would only let him have plenty of water. As he felt rather warm now, and consequently thirsty, he thought he had better stop short, at least for this time;" and he dropped into the shade accordingly.

The Chairman next asked *Mr. Ventricosa Coccinea Minor* to give the meeting his opinion of their state in general, and of his own family in particular. The request was no sooner made than responded to by the worthy old gentleman coming forward with a face redder than ever, and evidently not in the best of tempers. "Whatever, I wonder, is Heath growing coming to next? Are we not all tortured and twisted about enough, but any fellow that likes to take it into his head must set to work and coil us—us—Ventricosas round a lo tof sticks in a way that would not disgrace that popular weed Dracophyllum gracile? Did I not see at the last blessed show as ever was at 'the Park,' one of my own brothers twisted round and round, till his own mother would not have known him his poor limbs no stouter than fine lacing wire, yards together without a leaf, and not bloom enough on the top to cover the most fashionable bonnet in the show. (Here the old man was obliged to pause for breath.) There was only one conclusion to come to, and that was, the person who brought such an object there must have been appointed perpetual chairman of a 'free and easy' held all day long, and twice all day long sometimes; and must have got the wiry twigs of his unfortunate brother ready by the yard, for the purpose of clearing the stems of 'churchwardens' that had got foul from long smoking by the company over which he presided. I think I have stated enough of our wrongs; now for the remedy. I hold that the judges have the power in their hands to put a stop to such cul—no, not cultivation, but mutilation, by withholding the prize offered for any subject which in their opinion is unworthy; and I appeal to them to use their earnest endeavours to check the recklessness lately evinced among those who aspire to the name of plant growers: and with these few remarks I beg to sit down."

Some one in the body of the meeting here suggested an adjournment till a future day, and the Chairman agreeing to hold his post on any occasion when called on, the hearty thanks of all present, for his kindness brought the meeting to a satisfactory conclusion. *Erica Nigra.*

GRAPE JUDGING.

Some 25 years ago I was about to be introduced into a baronet's garden on the east coast, when the following incident occurred: A young gardener was submitting his list of varieties to his employer, when several, among which were the Syrian, White Nice, and Wilmot's Hamburgh, were objected to, as being "gardeners' Grapes." This puzzled me and the young gardener exceedingly. The gardener looked as if he were accused of proposing sorts for his own eating, and I could not comprehend why some of us should be turned over specially to the gardener, while the baronet had procured comfortable quarters for us all alike. There was a painful suspense. At last, the usual "I beg your pardon, Sir Philip, I don't quite understand about 'gardener's Grapes,'" elicited this explanation, which satisfied two of the parties concerned, while it set the gardener a thinking:—"Why, you know, gardeners grow large Grapes to look at for show, but I want Grapes for eating." And so the list was cut down to common Hamburghs, Muscats, Frontignans, and St. Alban's, much to the chagrin of the young gardener at the moment, but to his entire satisfaction ever after.

Of late years the gardener's Grape has developed into the exhibitor's Grape, until at p. 882 it culminates in ignoring quality altogether, and in making colour, shape, evenness, size, and bloom the end of all perfection in Grape-growing. Those who do not admit this are to be put down as know-nothings, and in the teeth of the strong asseverations to the contrary made by some of the best Grape-growers, and which I can abundantly confirm, Mr. Penny declares that good bloom will be sure to accompany good flavour if the Vines have been properly managed. Rather a clever saving clause that *if*, &c., is it not? From this standard —that ignores quality, and forbids testing for it by tasting—there is to be no appeal, for if flavour dissociated from colour is to have any weight in the decisions, "you form a loop-hole for inferior cultivation." If so, better a loop-hole than an open door, 15 feet (or marks) wide, for the admission of sour (or coarse) Grapes, which Mr. Penny's points—totally ignoring flavour—would certainly lead to. For it can be established by the most certain of all tests—that of experience—that there is no certain or necessary connection between form, colour, bloom, or size and quality. These are not only not synonymous, but they seem, as recently pointed out by "Quercus," in an article advocating more freedom for me, to be probably antagonistic. Will you Editorial gentlemen, or your able coadjutor, "M. J. B.," kindly explain what bloom is, and how colour is laid on, in order that exhibitors may see that they have little or nothing to do with quality. This is well recognised in reference to other fruits. A Damson has a splendid colour, and a thick coat of bloom; has it therefore a higher flavour than other Plums? Assuredly not. And why should qualities that are well nigh ignored among other fruits be so highly exalted among Grapes? Simply because exhibitors have worked for the eye and not for the palate; and the sooner these capricious standards are pronounced out of fashion the better for the Grape eaters.

But almost before the battery of common sense has time to affect the exhibitor, the market standard of merit is held aloft by our respected veteran, Mr. Alex. Forsyth, who lays down the law thus—"the value of a thing is just as much as it will bring." Rather a sweeping statement that, and, withal, rather damaging. Good things will assuredly sell; but goods made up expressly for sale are often of doubtful merit. Two elements, at least, will affect the bringings in, or returns—the skill of the producer and the wisdom of the purchaser; sometimes, too, as in the case before us, the interest of the seller is different and distinct from both. The first necessity of market Grapes is that they should look well. They are grown to be sold, and purchasers are, in the first instance, attracted and appealed to through the eye; they must also keep long, carry safely, and bear some rough handling, or moving about, with the least possible injury. All this is essential to their being sold. But these requisites are no proofs of quality; they are, in fact, evidence of the want of it. Toughness and thickness of rind are of the highest market value. Partial unripeness is a market necessity, colour a market hit, bloom a market "bull's-eye;" and the hard, hammered surface a market "centre of attraction," a real convenience. But what then?—has it come to this, that the ladies and gentlemen of England are to come down and accommodate their tastes to the commercial necessities of a public market? As well ask them to furnish their drawing rooms at the Lowther Arcade, or a public fancy fair. No. After all, most of the Grapes grown in England are eaten at home; and I send the commercial pointsman back to Covent Garden, and contend, that in judging Grapes, or indeed any other fruits, quality should be, as indeed it always is, by those who actually eat them, the chief, I had almost said the only, consideration. I also know that it is more difficult to secure high quality, than either size, colour, or bloom, which often come of themselves without any special skill whatever.

Since writing the foregoing I have carefully read Mr. Meredith's letter (see pages 925 and 926). Weighty as his authority is, it in no sense modifies what I have here advanced. He contends wholly for a judgment by appearances, and by exhibitors, and ridicules the idea of tasting Grapes as a test of their quality. Yet colour, a large berry, a compact bunch, and a heavy one, exhaust his four points of merit. Doubtless all these are very useful to an exhibitor and a grower for sale, but neither of them are of the first importance to consumers. What they desire are quality and flavour. A jury of bakers would advance the very same points in favour of an eye-fascinating quartern loaf. Snowy white, a large bulk, and a pretty shape would complete their points of merit. But the great consuming public demands quality in their bread as well as in their Grapes; and outside ornament or show can only be a very secondary consideration in regard to either. It is easy for Mr. Meredith to conjure up a hundred-power tasting difficulty: but it is doubtful if a hundred dishes have ever competed together; and if they had, the tasting test would speedily reduce them to half a dozen, and among them the sensitive palate would be quite as likely to detect flavour as the discursive eye to assess the relative value of endless shades of varying colours. Besides, Grapes should be arranged into classes, which, would much simplify the process of judging. Prizes might also be offered for distinctive features; one, for instance, for weight, another for colour, a third for form, a fourth for quality—that is, the best flavour. The different varieties of Grapes should also compete only among themselves. For instance, the best Hamburghs, best Muscats, best Frontignacs, and the best of any other sort,—in these and all general prizes for Grapes quality and flavour to be the first merit, and to have at least twice as many marks as any other feature. *Vitis vinifera.* [We share the opinions of our tendrilled correspondent, and as to the nature of bloom refer him to p. 929. Eds.]

THE DATE PALM.

The Date Palm (Phœnix dactylifera) is one of the most important of Palms, and if not an article of very great consumption with us, to some nations it affords their chief support. It is difficult to tell why this fruit is not more largely consumed in this country than it is, for it is not only very delicious, but is likewise very nourishing.

The cultivation of the Date Palm extends through Southern Europe and Western Asia, but more especially in Northern Africa, where the tree is a most invaluable one to the desert tribes. In the South of Europe, where it has been introduced, it seldom or never ripens its fruit in perfection. The cultivation of the Date can be traced to a very remote age, and it seems tolerably certain that where the Palm tree is mentioned in Scripture the Date is implied; and from this belief the custom in Roman Catholic countries of carrying branches of the Date Palm on Palm Sunday, and on some other festivals of the Church, has had its origin. In places where the Palm will not ripen its fruits it is largely cultivated solely on account of its leaves, which constitute a regular article of trade. In some parts of the Continent, however, where Palm leaves are not to be had, leaves of Cycads are used in churches instead, these plants being largely grown for that purpose—a better substitute, our readers will say, for a true Palm leaf than the Willow, which in many parts of this country is called "Palm." Besides being a valued symbol amongst Christians of ancient and modern times, the Jews also carried Palm branches in their festivals commemorating the possession of the Promised Land. The Palm tree was a type of Judæa, and as such was represented on the coins of Vespasian and Titus. Valuable, however, as Palm leaves may still be, in an ecclesiastical point of view, by far the most important production of the Date Palm is its fruit, which is the chief support of the settled tribes of North Africa, as well as the staple product of many other districts. In the Turkish portion of the district of Bussorah the yearly produce amounts to about 33,000 tons, half of which is consumed in the district, and the other half exported to the Persian Gulf ports, India, and England. Nor are Dates consumed by the natives alone in those countries in which they are plentiful. Camels, horses, and other animals are said to be exceedingly fond of them.

Three or four varieties of Dates are known in British commerce. Of these Tafilat is always considered the finest. In their native countries, however, there is scarcely any limit to the kinds known, and their names are derived from their size, shape, quality, &c. These varieties vary considerably in the prices they fetch. In the valleys of the Hedjaz it is said that more than 100 kinds are grown. So large is the value of the Date crops to the different tribes, that the gathering is looked forward to with as much interest as the vintage in the South of Europe, or our own Wheat harvest in England. If the crop fails or is destroyed by locusts, as it sometimes is, a general gloom prevails throughout the entire district. The cultivation of the Date, though so general, is nevertheless an operation requiring some care, as, the plants being dicœcious, the female flowers have to be artificially impregnated with the pollen of the male flowers; for this purpose the male flowers are first gathered, and then men climb the female tree and scatter the pollen over the female flowers. About four or five months after this operation the fruits begin t grow, and when they have nearly attained to maturity they are carefully tied up to prevent them from falling, or from injury by the wind. This process of fertilisation appears to have been well known to the

ancients, it is mentioned both by Theophrastus and Pliny. In "Delile's Egyptian Flora" a circumstance is related which occurred in the year 1800, when the Date trees in the neighbourhood of Cairo yielded no crop. It would seem that, the land being completely run over by French and Turkish soldiers, a serious check was given to all branches of husbandry and agriculture. The Date Palms flowered but the artificial fertilisation was omitted, and the result was that no fruit was produced, the pollen of the male flowers, though scattered by the winds, did not reach the female flowers in sufficient quantities to ensure fertilisation.

Dates, as we see them in this country, are the fruits that have been gathered and dried in the sun before becoming quite ripe; for if they are allowed to hang upon the trees till fully ripe they are unfit for keeping, as they soon turn acid or ferment. The Arabs make a kind of Date cake by pressing the fruits in baskets, and this forms their principal subsistence at such times when fresh Dates are not to be obtained; similar cakes are made and cut into slices and sold to travellers by the monks of Mount Sinai. When Dates are fully ripe they contain a large quantity of thick syrup, which the natives express and collect to preserve the Dates themselves and other fruits in; a strong spirit is also distilled from them. Besides these varied uses of the fruits, the trunk, leaves, and indeed the entire plant is valuable for various economic purposes. Baskets, crates, walking-sticks, and a multitude of other articles are made from the petiole. Cordage, and a kind of coarse cloth is made from the sheathing bases of the leaf-stalks, and from the trunks themselves are hewn posts, beams, &c., indeed the huts of the natives are almost entirely composed of parts of this Palm, and even the hard stones or seeds are boiled or ground as food for cattle. Date Palms are not unfrequently objects of exchange or barter, a single tree being often given over from one person to another in payment of a debt. A bridegroom also pays the price of his bride in Date trees to her father. The trees, which grow to a height of 60 or 80 feet, live to a good old age; 100 to 200 years is not at all uncommon, and they bear fruit abundantly all that time. The consumption of Dates in this country is, as we have said, very small, the yearly imports upon an average perhaps do not exceed 14 or 15 tons.

Whether the Wild Date (Phœnix sylvestris), which grows abundantly all over India, is a distinct species, is a question on which botanists have disputed. Unlike the cultivated Date, its value does not depend on its fruits, but on the quantities of Palm wine, or toddy, and the amount of sagar which are obtained from it. In India large quantities of both are made, and the average yield of a single tree is said to be from 120 to 240 pounds of juice. *J.*

THE CULTIVATED SELAGINELLAS.

(*Continued from p.* 903).

GROUP 2. Sub-erectæ. Upper half of the stem ascending, the rootlets confined to the decumbent lower half.

11. *S. Martensii.* Spring, Monog. 2, p. 129. Mett. Fil. Hort. Lips., p. 124. A. Braun, Revis, No. 13.:—Stems 6—12 inches long, continuous, firm, sub-erect, with copious pyramidally-pinnate spreading or erecto-patent branches; divisions three lines or more broad; the larger leaves spreading, twice as long as broad, oblong, scarcely pointed, slightly ciliated below, the upper side the broadest, rounded at the base, the smaller leaves ovate-acuminate, oblique, more ciliated, the apex divergent; spikes slender, square, rigid.

A native of Mexico, very common in gardens, under a number of different forms, which are called stolonifera (the true stolonifera is a different plant, not known in cultivation), formosa, robusta, divaricata, dichotoma, compacta, ramosa, and flexuosa. It is excellently figured by Hooker in "Filices Exoticæ," t. 56, under the name of S. Pöppigiana. From every other species, except atroviridis, it may be known by its robust sub-erect mode of growth. The leaves are light green, with the lower side cut away at the base and the upper dilated and rounded, and the nerve distinct, nearly or quite up to the point. The radicles are strong and copious, those at the base issuing from below, but those of the branches open from the angles. A. Braun describes five varieties, which he calls normalis, flaccida, compacta, divaricata, and congesta.

12. *S. atroviridis*, Spring, Monog. 2 p. 124. Lycopodium atroviride, Wall. Hook. and Grev. Ic. Fil., t. 39:—Stems often a foot long, continuous, firm, sub-erect, with close, copious pyramidally-pinnate, erecto-patent branches; divisions 4—5 lines broad; the larger leaves erecto patent, oblong, twice as long as broad, close, blunt, rather curved upwards, the upper side denticulate, dilated and rounded at the base: the smaller leaves ovate-aristate, convergent; spikes slender, square, rigid.

A native of Penang and Peninsular India, very near Martensii, but more erect, the colour brownish-green, the branches and leaves closer, the latter longer, and the nerve broad and falling conspicuously short of the point.

13. *S. ciliata*, A. Braun, Revis, No. 14. Lycopodium ciliatum, Willd. Sp. Pl. 5, p. 38. L. Novæ-Hollandiæ, Swartz. Syn. Fil., p. 184. S. Novæ-Hollandiæ and increscentifolia, Spring, Monog. p. 106 and 208. S. Warcewicziana, Klotzsch:—Stems 6—8 inches high, continuous, sub-erect, slender, copiously branched; the branches flaccid but close, the lower ones sometimes 3 or 4 inches long, with slightly compound branchlets; divisions about one-eighth of an inch broad, only the very uppermost leaves close, the larger ones broadly ovate-acuminate: the upper side broader and more rounded at the base, the margin ciliated: the smaller leaves ovate-acuminate; spikes rather lax, the copiously ciliated bracts with a slight tendency to dimorphism.

Annual, propagated by bulbs from the ends of the branches, which, after producing them, die away. A native of Columbia and Peru, reported from New Holland by mistake. The ciliation is principally on the upper side of the leaf, low down. The colour is light green, sometimes rather reddish.

14. *S. bulbifera*, Baker. S. increscentifolia, A. Braun, Revis, No. 15, non Spring:—Stems 6—9 inches high, continuous, sub-erect, slender, copiously pinnate; the branches irregular, flaccid, with short simple branchlets; the shoots flagelliform and bulbiferous; divisions under 2 lines broad; the larger leaves close upwards, erecto-patent, ovate-acuminate, slightly toothed on the upper side, which is considerably the broadest, and rounded at the base; the smaller leaves ovate-acuminate, denticulate; spikes short, often passing off into bulbs.

Not known in a wild state, as the examination of Spring's original specimens of increscentifolia in the Hookerian Herbarium shows them to belong to ciliata, from which this differs by its toothed—not ciliated—leaves, lower branches whip-like at the end, the shoots dying down in autumn, and only the bulbs lasting through the winter.

15. *S. apus*, Spring, Monog. 2, p. 75. A. Braun, Revis, No. 4. Lycopodium apodum, Linn. Sp. Pl., p. 1568. S. densa, Hort.:—Stems 2 to 3 inches high, continuous, flaccid, thread-like, densely tufted, sub-erect, sparingly branched; divisions under 2 lines broad; the larger leaves close or with a space between them, spreading, ovate-acute, sub-entire, much dilated and rounded on the upper side at the base, the smaller leaves ovate-acuminate, adpressed, the point recurved; spikes lax, thick, the bracts equal, erecto-patent.

Well marked by its small size, densely-tufted habit, and very tender pale green leaves, and slender white thread-like stems. In general habit it is very like some of the Hepaticæ, especially Jungermannia bidentata and heterophylla. A native of the United States and West Indies. Lycopodium brasiliense of Raddi, from Brazil, united with the more northern plant by Spring and J. Smith, is now considered by Braun to be a distinct species.

16. *S. ludoviciana*, A. Braun, Revis, No. 5:—Stems 6—9 inches long, continuous, sub-erect, sparingly branched; divisions about 2 lines broad; the larger leaves distant, spreading, broadly ovate-oblong, acute, toothed, dilated and rounded at the base on the upper side, the smaller ones ovate-acuminate, adpressed to the stem, the points recurved; spikes lax, irregular, the bracts equal, erecto-patent.

Very near S. apus, of which it was placed as a variety in Spring's Monograph, but the stems are longer and not so much intertangled, both the stems and leaves are firmer in texture, and the latter are a deeper green and finely toothed. A native of the Southern United States, discovered by Drummond.

17. *S. suberosa*, Spring, Monog. 2, p. 252. S. rubricaulis, Hort.:—Stems 6—9 inches high, continuous, herbaceous, copiously branched, the branches loose, copiously pinnate, with simple or forked branchlets; divisions 2 lines or more broad; the larger leaves moderately close, spreading, linear-oblong, broader on the upper side than the lower and the base more rounded, the edge sub-entire or faintly denticulate, the smaller ones minute, erect, lanceolate-acuminate; spikes lax, the larger bracts, like the leaves, spreading, the smaller ones ovate-acuminate, adpressed.

Stems thick but fragile and herbaceous in texture, straw-coloured or reddish. It is the only cultivated species except the next, which belongs to the section with dimorphous bracts. In general habit most like S. ciliata, but the leaves are much narrower and not ciliated, with the lower edge upcurved, if the plant is at all dry. A native of the East Indies and Malaccas, which yield a large number of closely-allied species not yet known in this country in a living state.

18. *S. stenophylla*, A. Braun, Revis, No. 31:—Stems 6—9 inches high, continuous, assurgent, moderately firm, rather copiously branched, the branches ascending, bipinnate, the branchlets lax, distant; divisions 2 lines or more broad; even the upper larger leaves with a space between them, linear-oblong, slightly upcurved, the upper side dilated and rounded at the base, the edge denticulate, the smaller ones minute, ovate-acuminate, adpressed; spikes short, lax, the lower outer bracts larger than the upper ones, lanceolate, all erecto-patent: the inner rows ovate-acuminate, adpressed.

Very near the last, but firmer in texture, with the bracts less distinctly dimorphous, more pointed, and all erecto-patent. Colour pale-green, the radicles sometimes reaching two-thirds of the way up the stem. Nerve of the leaf pale-green, raised beneath, distinct from the base up to the point. A native of Mexico.

GROUP 3. Erectæ. Stem erect, but the habit of growth not distinctly tree-like, with rootlets only from near the base.

19. *S. Willdenovii*, Baker. Lycopodium Willdenovii, Desv. Bot. Suppl. 3, p. 525. Hook. and Grev. Ic. Fil., t. 57. S. lævigata, Spring, Monog. 2, p. 137. A. Braun, Revis, No. 17. Lycopodium lævigatum, Willd. non. Lam.:—Stems continuous, climbing to a height of 6—10 feet, with lax spreading branches 1—2 feet long, and pyramidal branchlets, bipinnate below; divisions 2—3 lines broad; the larger leaves close, linear-oblong, deep green, nearly spreading, blunt, entire, square or auricled at the base, the upper side more dilated, the smaller ones adpressed, similar; spikes short, dense, slender, square.

The only large climbing species, often grown in gardens under the name of cæsia arborea. A native of Malaya and the East Indies. It agrees with cæsia in its iridescent hues and blunt entire leaves, but the two sides are not quite equal. The primary stem in well grown plants is quite woody and as thick as the little finger, and the leaves of the main branches are very distant and not far from uniform. It is the Lycopodium lævigatum of Willdenow, but Lamarck had previously given that name to another species, shortly to be described.

20. *S. inæqualifolia*, Spring, Monog. 2, p. 141.. A. Braun, Revis, No. 16. Lycopodium inæqualifolium, Hook. and Grev. Bot. Misc. v. 2, p. 391:—Stems continuous, erect, 12—18 inches high, the branches reaching down nearly or quite to the base, but the lower ones sparingly compound, the upper ones spreading, close, copiously bipinnate with elongated ultimate divisions, which are 2—2½ lines broad; the larger leaves close, erecto-patent, oblong, the point acute, the upper side rather narrower than the lower, but more rounded at the base, the smaller ones obliquely ovate-aristate, adpressed; spikes close, rigid, slender, square.

The general habit of this plant will readily distinguish it from any of the other species. The colour of the leaves is dark green, and the nerve is continued from the apex to the base. The divisions are conspicuously narrowed upwards beneath the base of the spikes. A native of the East Indies and Malaya.

21. *S. Lobbii*, Hort.:—Stems continuous, 1½—2 feet high, the branches reaching down nearly or quite to the base, the lower ones sparingly compound, the upper ones pubescent regularly pinnate, the branchlets close, elongated, usually simple, or the lowest once-forked; divisions ⅝ inch broad, the larger leaves erecto-patent, sub-falcate, a line broad, the edge entire, the lower side rather the broadest, both rounded at the base, the smaller ones ovate-falcate, aristate, convergent; spikes not seen.

A very fine plant, brought from Borneo by Mr. Lobb. We have not anywhere seen a description of it, and have only a single specimen at our command. The regular pinnation of the branches reminds one of Wallichii, but the general habit, judging from our material, is that of inæqualifolia. *J. G. B.*

COLOUR OF FRUITS IN RELATION TO THEIR QUALITY.

THE present discussion on the judging of Grapes has suggested the importance of inquiring into the probable influence of colour upon flavour. If fruits can be correctly judged by the eye, without any appeal to the palate, it follows that colour must be the most important factor in the assessment of quality. For no one can seriously contend that symmetry of form or largeness of size can impart sweetness or piquancy of flavour. These characteristics may be worthy of reward in themselves, but as tests of eatable excellence or meritorious flavour they are wholly worthless. This is generally recognised in reference to all other fruits, and there seems no valid reason for exempting Grapes from such a salutary rule. Thus the advocates of judgment at, or by sight merely, are thrown back wholly upon colour as their revealer of quality.

Our ignorance of the true nature and properties of colour, of the mysteries of its production, of its true relation to ripeness, and the impossibility of discriminating between colour merely coinciding with quality or becoming an active or passive agent in its production, indicate merely a few of the rocks ahead upon which it is very easy to founder. Still, believing that difficulties were made to be mastered, and that by discussion part of the truth at least may be evolved, I now proceed to inquire into the worth of colour as a test of quality.

The first objection I urge against accepting it as a safe test, is the limited extent to which it has been applied. Colour sways a wide sceptre; it bears rule, in a less or more decided manner, over all fruits; and consequently, if it affects the quality of any, it must affect the quality of all. Therefore, it is as applicable to Pines, Melons, Peaches, Apples, Pears, Plums, &c., as to Grapes. Is it proposed, then, to extend the colour test to all fruits alike? And if not, which are to be exempt, and on what grounds?

The great variety of colour is the next difficulty. Among fruits they cover almost the whole range of the spectrum, with the exception of decided blues. Now, is each colour supposed to exert the same influence upon quality? Or are some endowed with more potency than others? If the former, such a fact would well nigh abolish all faith in a colour test by rendering its application impossible. If the latter, how are the varied influences of the different colours to be measured? Colour appeals to the eye only, and that organ, though endowed with the most marvellous power, cannot take cognizance of flavour. Upon what principle, then, are colours to be assessed? Are the brightest colours to be assigned the highest place? This would be opposed to experience. Well, then, shall we assign the place of honour to the dullest? This would do the same. Let us turn to black, red, or white; we are confronted by the same difficulty. It is rendered obvious at once that no one colour possesses a monopoly of quality. We also lack any sense that can discriminate between the flavour of rival colours. They are all alike tasteless? We have no proof that one conveys any more quality than another. Black has been highly extolled; but no one can seriously believe that the blackness itself is the cause of the flavour. If so, how is it that Mr. Rivers' new *white* Nectarine is the sweetest of them all, and the Grizzly Frontignac the highest flavoured Grape, or that the Muscat of Alexandria is at least equal if not superior to the Muscat Hamburgh or any black Grape whatever? It may be, and indeed is, contended that each fruit has its own specific shade of colour, and that this colour perfectly displayed is a safe index to quality. But who is to paint the exact shade of colour that testifies to perfection of flavour? and what is to be done when quality is developed, as it often is, independent of its outward and visible sign? It is well known that locality, soil, aspect, weather, and culture exert a powerful influence on colour, and that the same fruits may be equally good, though their colours be widely varied. The Noblesse Peach, for instance, is often nearly white; at other times it is much streaked with the most delicate pink; but I have never found that its pink cheeks improved its flavour. I must also affirm, with Mr. Thomson and others, that the best Hamburgh Grapes I have ever eaten have not been the blackest. The Mill Hill and Wilmot's Hamburgh are generally a denser black than the common Hamburgh, but will any one contend that they are higher flavoured? Are they not, on the contrary, well known as coarser varieties? But after all I do not believe there is any such thing as an absolute judgment of fruit by appearances. The eye looks upon it, and discovers red, black, white, violet, gold, or green, and that is all. It can discern nothing more. From the very nature of its functions it can go no further. To arrive at anything like a rational decision, it must appeal to previous experience, and consult another sense. And thus it comes to pass that different colours are associated with certain qualities that have been revealed by others, or at other times, by the aid of the palate. In this way a roundabout appeal is made to the sense that eye judgment professes to ignore. At best eye judgment becomes only a second-hand appeal to the palate, subject to all the

errors of such a mode of procedure, and possessing no possible advantage over a direct reference on the spot to the only sense, that of taste, that can assess the value of quality. And to this standard it must be brought. For it may be confidently affirmed that colour cannot be safely accepted as an index of flavour. It attracts and gratifies the eye, that is its mission. Other two sentinels, taste and smell, were appointed as the guardians of our safety, and assessors of enjoyment in eating. Colour makes no appeal to either. Being odourless and tasteless, it ignores both. Probably it is well for us that it does so, for our ignorance of the nature and properties of colour renders it a most unsafe guide. Those who follow its lead may speedily be landed in suffering or death. It is a mere Will-o'-the-Wisp, a fatal or deceptive guide, revealing no safe data concerning quality. No one can say with certainty what it is. It may be only a bundle of sunbeams travelling on a given line with inconceivable velocity, impinging against, rebounding from, or passing through a beauteous flower or luscious fruit. How then are we to appraise its influence on flavour? Fruits may be, most likely are, endowed with the power of manufacturing their colour from these subtile influences, but the human palate must be created anew before it can discriminate between the flavour of such swift-winged messengers. (See Selective Theory of Colour, page 683, *c.*)

Or assuming colour to be a substance, part of the quality of a fruit, and not a flashing, fleeting, raylet of disintegrated light, it certainly is not a substance appreciable by the palate. Each sense has its own appropriate stimuli. It cannot be affected through any other media. The eye takes cognisance of colour, the ear of sound, the finger of touch, and the palate of flavour. And it would just be as reasonable to appeal to the palate for a verdict upon the merits of a musical performance as to expect the eye to pronounce truly upon the quality of fruit. From the very nature of the case, the thing is absolutely impossible. For this very reason Judge Palate was raised to Nature's high court of justiciary. Before him all our fruit must appear, and his decisions are final and irresistible. By that judgment alone the question of quality must stand or fall. While fruit continues to be grown expressly that it may be eaten, judgment by colour is an appeal to the wrong sense, and is consequently worthless. Nevertheless, I have no intention of disparaging colour. It is valuable in its proper place, but until we know much more about it, it can never be accepted as a true index to high flavour, nor a safe test of quality. *D. T. Fish, F.R.H.S., Sept.* 10.

NOTES ON THE ART OF GROWING ROSES, OUT-OF-DOORS.

THE love of Roses is universal. There is a richness, a perfection about a fine Rose that raises an admiration of a higher kind than the beauty of any other flower. An opening Rose-bud is full of the most lovely sentiment; so sweet, so perfect in form, giving such promise of riper beauties, yet so modest and retiring. It has often been a matter of surprise to me that the art of cultivating so charming a flower should not be more universally understood than it is. It is surprising that many of those who profess themselves gardeners are really very poor hands at growing Roses.

The simple directions about to be given are from one who has found in their cultivation the greatest relaxation and amusement, who has searched the hedges for his own stocks, dug the ground and manured it with his own hands, budded and pinned every plant himself, and gathered the seed, sown, and raised his own seedlings. Year by year he has learned something by experiences of success or failure, and by these he flatters himself he has secured the right to be the teacher of other amateurs like himself. For professed gardeners these are not intended, nor yet for him who is the master (or servant) of a professed gardener; but for that not less happy being, who, with a man and a boy under him, keeps a horse, a couple of cows, and a dozen pigs, and looks after his Roses himself.

It is not intended, therefore, to introduce anything of history or science. For these higher branches of the subject, the reader is referred to such works as "Paul's Rose Garden," or "Rivers' Amateurs' Guide."

Section I. *Classes of Roses, and their adaptation to different soils.*—In these (modern) days there are but three classes of Roses which the amateur will care to cultivate. They are the Hybrid Perpetual, the Tea-scented Rose, and the Noisette. It is not necessary in this place to describe them. A single visit to a Rose garden or a nursery will make their distinctive characters apparent. Suffice it to say that the Hybrid Perpetuals vary in colour from a purplish-crimson, through all shades of crimson, scarlet, carmine, and pink, to a light flesh colour—white is yet a desideratum. They are never of a yellow tint. They flower in June and July, and again in the later part of August, September, and October, and a few blossoms may, under favourable circumstances, be gathered until Christmas. Examples: Jules Margottin, Charles Lefebvre. Tea-scented Roses vary from a bright pink, through shades of fawn, yellow, and lemon colour, to almost pure white. They have a peculiar scent, and some of them slightly that of snuff. They flower nearly at the same time as the Perpetuals, but commence a few days earlier. Examples: Adam, Devoniensis. The Noisettes are most of them climbing Roses, suited to the wall. They bear their flowers in clusters, and their colours vary from deep golden to pale straw colour, almost white. They are exceedingly fragrant, and flower at the same time as the last. Examples: Maréchal Niel, Lamarck.

The Rose grower is to a great extent the slave of his soil. Some soils are so decided in their character that art is almost powerless to alter them. There are the heavy clays and the thirsty gravels, and between these every intermediate variety. Probably a hot, chalky soil is the worst of all. Now, it is a happy circumstance for the Rose grower that Roses differ much in their suitableness to different soils. By one treatment also a sort may be induced to flourish, where by another it would not.

To be more particular, a plant, as is well known, consists of the root below, and the branches, leaves, and flowers above the soil. By what is technically called "working" we may cause the root to be of one variety (the stock), and the branches of another (the scion), or else both the root and branches, as in plants raised from cuttings, may be of one kind. Now, at first sight it might be supposed that, if we had a particular kind of soil, we needed only to use a kind of stock whose roots are suited to it. But that is not the case. The plant must be looked at as a whole. Its growth depends as much upon the leaves as upon the roots. Indeed, its substance is almost entirely elaborated by the leaves. The consequence of this is, that we must look as much, or more, to the accordance between the soil and the scion, as to that between the soil and the stocks. The stocks generally useful for most kinds of Roses are the Dog Rose or common Briar (of which there are several sorts), and the Manetti—a stock raised from seed about 30 years ago in Italy. The Dog Rose flourishes best in a strong clayey loam. The Manetti flourishes well in the same, and it flourishes better than the Dog Rose in a light soil. But it would be a mistake to suppose that the Dog Rose is an unsuitable stock for all kinds of Roses in a light dry soil. On the other hand, it is the best possible stock for the Tea-scented Roses on light soils. The Dog Rose is an excellent stock for the Perpetual Roses on a strong soil. On a light soil they succeed better as dwarf plants on their own roots, or on the Manetti stock. The Dog Rose seems to be the stock best suited on all soils to the Noisette Roses. They also do well on their own roots raised from cuttings. If worked on the Manetti, and properly planted, burying the junction of the stock and scion, they throw out roots from the scion, and become ultimately established on their own roots. If then the soil is heavy it will be found best adapted to Perpetual Roses worked upon the Dog Rose or Manetti. Tea-scented Roses will require especial preparation of their beds to succeed well here.

If on the other hand the soil is of a dry sandy or dry gravelly nature, the amateur must not expect to grow Perpetual Roses in perfection. He may get them in very tolerable condition in the early period of the summer, but when hot weather sets in they will lose their leaves and look miserable. He should therefore turn his attention to the cultivation of Tea-scented Roses and Noisettes. These flourish better in a hot soil than in a cool one; and though it is sufficiently provoking to be unable to succeed well with Perpetuals, it is some consolation to remember that the Tea-scented are the rarer kind, seldom to be seen growing well, and requiring more skilful management to preserve them. *An Amateur.*

(*To be Continued.*)

HERBACEOUS PLANTS.—No. V.

(*Continued from p.* 875.)

IN the Leguminous order the first plants of any note are the Baptisias, but as to the specific differences of such kinds of these as are in cultivation I cannot speak, only knowing the ordinary strong-growing one to be worth a place in the choicest collection from its great Lupin-like spikes of blue flowers. Seeds of B. australis and exaltata are offered, I observe, and in this way the plants may be raised abundantly. Genista sagittalis is a charming plant in this order, and has also singular leaf-like stems. Fresh clean plants of this on a rockwork or border are charming, and perhaps with it I may associate Genista tinctoria, which so often makes a low mass of clear bright yellow. The common Ononis, or one of its forms, is worth a place in a full collection, and so is "spinosum albiflorum," as I observe it catalogued. Medicago falcata I have found a great plant on heavy bad soil, spreading out into luxuriant decumbent masses on the ground, and flowering for a long time in profusion.. The mass of flowers afforded by one single plant of it was both showy and pretty. Therefore I think it a fine plant, particularly for falling over a ledge in a large rockwork, where its luxuriant spreading habit would not interfere with any other things. Galega officinalis, and its white variety, G. orientalis, Astragalus vaginatus, and monspessulanus, Coronilla varia, Vicia Cracca, Lathyrus rotundifolius and grandiflorus are fine in this order, in addition to the white and common form of the Everlasting Pea. The white is not half sufficiently grown. In rich soils I have never seen anything to surpass the effect produced by this herb: it does not seed freely like the common one, nor seed at all sometimes, and this prolongs the bloom most desirably. I have never seen it finer than when planted on the Grass in a glade among Conifers and evergreens, and allowed to describe an irregular circle of its own. The effect of the mass of white flowers among the surrounding green is very fine. Of course it should not be staked, but allowed to have its own way, and it will look much the better for it. L. grandiflorus is superb, and cannot be too much grown. One of the best of all plants for running up medium-sized trellis works, is Lathyrus tuberosus, smaller than any of these, but very good. I have seen it capital when planted against a wall, and allowed to trail itself up inside a small wirework placed against that. Orobus vernus, flaccidus, and angustifolius are good and worthy of the choicest collection. Lupinus polyphyllus and its varieties will of course obtain a place among Leguminous herbaceous plants.

Spiræa venusta, japonica, and Filipendula plena; Geum montanum, chilonse, and atrosanguineum, and a lot of Potentillas are the best in the Rose order. There are a great number of Potentillas now to be had in this country, and some of them are surprisingly large and double. As new varieties are continually being raised there is the less necessity to specify any particular kinds, but such as William Rollisson, Rose d'Or, Hopwoodiana, Hamlet, grandiflora coccinea, and densiflora will give satisfaction to your readers. M'Nabiana is also good, so is maculata superba, and alpestris and calabrica are distinct, the last having silvery leaves.

Though a common, and it may be a course plant, we must not omit Epilobium angustifolium and its white variety from a good collection. The first makes such a capital show in summer. I noticed that a lot of it had been intentionally planted behind the late Sir Joseph Paxton's house at Chatsworth, in the shrubbery around the enclosure at its back. Such is the place for it, though many others may be provided. It makes a fine thing for the third or fourth rank in a mixed border. There is a good and a bad variety—a narrow and a full-flowered one; one is worth growing, the other not. The evening Primroses afford a few indispensable things, particularly the large, sweet-smelling, evening-blooming kinds in the way of Œnothera Lamarckiana, the splendid yellow free-blooming macrocarpa, the large sweetly-tinted acaulis; the white, erect, and free-blooming speciosa, with fruticosa major, and anisoloba. Free easily-grown plants in almost any soil, they should be grown by every cultivator of hardy plants; Œ. Lamarckiana is sometimes called grandiflora, and macrocarpa is sometimes called missouriensis. Lythrum roseum superbum is one of the most useful and really good herbaceous plants—good for mixed-border flower garden, and capital for the margin of water, for of course it is but a variety of the common water side Loose-strife. The colour is both beautiful and effective.

Rhexia virginica is one of those plants which one seldom sees in beauty or even alive, and wishing to avoid these I should not name it here were it not that it is a really beautiful and distinct plant when grown in a little bog or bed of moist peat. Messrs. Osborn of Fulham, have a good stock of it, and they are the only people that have, so far as I know. Calandrinia umbellata is perhaps best included with the alpines, but it is a thing of such extraordinary brilliancy and effectiveness that it should be "included" with no one class, but made generally useful in the garden. It is hardy enough to survive in the open ground on sandy soils, and nicely as a true alpine in chinks of rockwork; but for all practical purposes a batch of it is best raised annually and kept in small pots, in dry frames or pits near the glass, or in the greenhouse during winter, and then planted out in April or May; it likes a peat or fine sandy soil best, but is not very fastidious. The colour being quite distinct from any other usually seen in gardens, and of the most vivid character, it should be tastefully used in every garden. I was about to pass over the Sedums for the present, but must stop to strongly recommend the one known as S. Fabarium in gardens, but for which the best name is S. spectabile. Where an autumnal display in the flower garden is a consideration, this Sedum should be grown. It does well in any ordinary soil, but best in the full sun, and this I say in consequence of many placing things of this sort in half-shady spots and the margins of shrubberies, &c., thereby preventing them from ever exhibiting their full beauty.

Among the Umbellates Eryngium amethystinum will be found a beautiful and distinct thing, with a span or so of the stem under each flower-head of a rich dark blue—of the colour of blue ink, in fact. Others are good, as Bourgati, planum, cœruleum, and alpinum. No subjects among hardy plants afford more beauty of leaf than the Ferulas: they are well suited for use in the subtropical department in the flower garden, and unlike many other herbs do well in the margin of a shrubbery, which indeed is their best position as they "die down" rather early. F. communis, neapolitana, and tingitana are among the best of the sorts. The British Meum athamanticum has very graceful leaves, and being rather concise in habit, should be tried for the sake of its much cut leaves. The great Heracleums are only fit for roughish spots, or woodland or river bank scenery. They are of extraordinary dignity of habit, it is true, but retire to their roots too early in the season. *W. R.*

(*To be Continued.*)

ECONOMIC USES OF THE ASPHODEL.

THE mention of this plant by Miss Rogers in your last number induces me to send you the following additional information concerning its economical uses:—In the last Paris Exhibition in 1855, in the Tuscan collection, was a series of specimens illustrative of the production of alcohol, paper, and cardboard, from the roots, stems, and foliage of the Wild Asphodel (Asphodelus ramosus). A pamphlet of 72 pages, by M. de la Bertoche, accompanied the specimens, from which we learnt that a society was then forming in Tuscany for the manufacture of similar articles on a large scale. The author of the pamphlet asserted that the roots of the Asphodel contain upwards of 27 per cent. of alcoholic principle, which is more than double the quantity found in Beet-root. We were told that the fasciculated roots, after cleansing and crushing, were mixed with water, and the fluid exposed to heat, so as to facilitate fermentation. The alcohol which it yields is pure and colourless, perfectly transparent, and has the smell of alcohol itself. It contains neither acid, salt, nor oily matter; it burns without leaving any residue, and the flame is remarkably bright. But it was to the fibre chiefly that the author pointed as the probable source

of extensive operations in the manufacture of paper. The asphodel abounds in a mucilaginous or gummy substance, which the native bookbinders and shoemakers use in their respective trades. This gum, it was said, would prove most valuable for giving a gloss to the surface of card-board or writing paper, as well as for strengthening the paper itself. So sanguine of its success as an economic plant were the promoters of this new manufacture, that it was said at the time if "even the enormous tracts of land which are covered with Asphodel should in time be exhausted, the culture of the plant would be by no means difficult. It has been the subject of experiment in the Royal Botanic Garden at Florence, where it increased by runners and tubercles only too fast; for the very moving of the soil to eradicate the plant causes it to spread and multiply four or five-fold. The manager of the Grand Duke's domain at Albarese offered, a few years ago, 40,000 francs for the extirpation of the Asphodel in a comparatively limited territory, and no person was found to undertake the next to impossible task. The noblest specimens are seen in the forests of the Apennines, and on the sea shore. The plant grows abundantly in meadow land also, and is not rejected by sheep, nor injured by their tread." Though so much was expected in 1855 from the Asphodel, we have never heard that these "great expectations" have been realised. Since then, however, the Asphodel has been brought to notice as an article of food, and about three years since the farina from the roots was introduced to the notice of the authorities at the War Office by a German in Dresden, with a suggestion that it might be adopted for use in the army. It was said to be 2½ per cent. more nutritious than Salep arrowroot, and considerably cheaper. A few ounces dissolved in water, with a small quantity of wine or milk, was said to form not only an agreeable drink but a nutritious food, and sufficient to support an adult person for a whole day. This farina was so far considered an article of commerce that it could then be obtained of certain agents both in Dresden and Alexandria. *J. R. Jackson, Museum, Kew.*

Home Correspondence.

Lime Trees.—The variety of Lime named by your correspondent (see p. 928) "Tilia grandifolia," is, I take it, the Tilia europæa of Loudon. The common Lime of our nurseries, the Tilia e. grandifolia, is a very distinct variety, with enormous leaves, and is generally grafted on seedling varieties of T. europæa, when planted in a sheltered place, so that its leaves are not wind-riven; this rather scarce variety is very ornamental, being far superior to T. americana latifolia. Tilia parvifolia, or microphylla, seems to be the original species. I have seen it in one of its habitats in England, the trees so old and decayed as to be quite interesting; the seeds of the Lime imported from the Lime forests of the north of Europe produce trees of this species, and the seeds of T. microphylla now sold by the German seedsmen do the same, in the first generation varying but little, whereas the seeds of T. europæa, the "T. grandifolia" of your correspondent, give endless varieties, some with large leaves—rarely, however, so large as the sort I have above described—and others so like the species T. microphylla as to convince me that no specific difference can exist. My grafted trees of T. e. grandifolia have not borne fruit. I have only T. europæa and T. e. alba in fruit, neither of them agrees with Sowerby's description; but it is quite possible that many seedlings raised from T. europæa may give turbinate and ribbed fruit, varying as they do in their habit, twigs, and foliage. The seeds of T. europæa have given me two with green, yellow, red, and crimson twigs, and leaves varying in size to an incredible extent. *T. R.* [From a recent extended examination of Limes living and Limes dead, we are in a position to state that the differences said to exist as to size of leaf, form and ribbing of fruit are by no means absolute. We shall have more to say of this hereafter. EDS.]

Curiosities of Prize Schedules.—Such a study as this opens up so many little facts connected with the compilation of prize schedules, as to make one wonder who could have entered on the task. An amateur Dahlia grower of considerable repute put into my hands a few days ago a schedule of prizes to be awarded at a horticultural exhibition, which was to be held in connection with the Warwickshire Agricultural Association, at Sutton Coldfield, on the 17th inst. Prizes are to be awarded respectively to 36, 24, and 12 blooms of Dahlias, *selfs*. The qualification is given in italics in the schedule. As my friend intended exhibiting, and being anxious to know exactly what was intended to be implied in the term *selfs*, he wrote to the secretary, and the following was the definition of the term forwarded to him:—"The word *self* is to be taken in its literal sense, that is, without tip, or any colour, except the self colour." Verily, we are progressing in horticultural matters, but in this instance it is in a sideway, if not in a backward direction. A stand of Dahlias, selfs, will be a novel spectacle; but are we to understand that the horticulturists of Sutton Coldfield are determined to put down, with a Mrs. Partington-like energy, all tipped flowers but such as are actually Fancies? Excepting that superb piece of pleasantry that appeared in the schedule of prizes of the recent Bury Show—"12 Scarlet Pelargoniums, any shade of colour," among which were found exhibited Rose Rendatler and Madame Vaucher—the above from the Sutton Coldfield list of prizes is as curious an illustration of schedule compilation as anything I have ever seen before. *R. D.*

Echeveria metallica.—As a foliage plant this stands pre-eminent, wherever small compact plants of "tropical" aspect are needed for decorative purposes. Grown in 48-sized pots to a size of which it is capable, in abundance of sun and air, the metallic lustre upon its thick and characteristic leaves is very beautiful. Independently of the uses to which it may be applied as a drawing-room or dinner-table plant, I doubt not that it will likewise become a prominent favourite as a bedding plant when sufficiently known. One great merit belonging to it is that it will thrive perfectly under any ordinary greenhouse treatment. It is therefore well adapted to meet the wants of such amateurs as may be fond of plants of this description. *William Earley, Digswell.*

Poa trivialis argentea.—I beg to bear testimony to the truthfulness of "R. D.'s" remarks (see p. 883) respecting this Grass, which is certainly one of the loveliest of plants, and I cannot account for Mr. Rucker's specimens losing their variegation. I have to-day closely examined some hundreds of it growing here in soil of nearly every description, from light sand to black bog earth, and I cannot find a single green leaf among them; and the stronger the plant the more silvery it is. Might I recommend another most beautiful silvery-leaved plant, viz., Achillea Clavennæ, to the notice of your readers? it is one of the most compact, hardy, and efficient plants grown for ribbon borders or edgings for large beds. *T. S., Hope Nursery, Bedale.*

Peas.—No portion of your paper is more prized by readers, like myself, seeking practical information, than such articles as those with which you favour us from time to time after the manner of that in your last, headed "The Chiswick trial of Peas." The catalogues of the seed shops bewilder a country gardener, and therefore your articles, reducing scores of varieties of every vegetable to a few synonyms, with a few reliable remarks upon each, are of great assistance to us in the country. As to Peas, we read how many days earlier the variety sold by one seedsman is than any other; I believe that the computation as to this is now made in hours, no doubt it will soon be reduced to minutes. But there are other qualities as to Peas of more consequence than such speed in podding, and which might perhaps be attained by attention. Now, I do not observe any notice in your description of varieties of Peas, as to the degree in which they can resist the ravages of small birds. In my garden it is impossible to grow Marrowfats; I have netted them as as close as possible, trapped tom-tits and sparrows by scores, but have become weary of my attempts. Now and then I obtain permission from some farmer to sow a row of Marrowfats in the middle of a large field, and stick them with tallest and strongest rods, and thus I obtain some of that most splendid of all Peas, Knight's Tall Marrow, "so remarkably sweet and tender," but, as you also describe it, "with exceedingly thin inner lining." The little winged vermin eschew the long flight between this row and the hedgerows. The "Blue Prussian" is more impregnable against birds, but, as you describe it, is of "poor flavour." Instead of the French Pea *sans parchemin*, the *desideratum*, or rather the *desiderandum*, is a Pea *avec parchemin*, and as good as Knight's Marrows in flavour. *W. M. R., Bishop's Castle Vicarage, Salop.*

Fruit Growing.—Some of your readers may recollect the attempt made in 1865 to form a fruit-growing company, which, owing to the shares not being taken to a sufficient extent to satisfy the directors, who would not countenance any loan transactions—rather warmly recommended in those borrowing times by sanguine London men—failed in forming itself into a corporation. The idea, however, did not perish, for Mr. T., the owner of the 100 acres of magnificent soil which the company intended to rent from him, formed in the spring of 1866, under my directions, a plantation of 3 acres of Apple and Pear trees, with a few Plums. A short time since, feeling interested both in the land and the trees, I paid a visit to Mr. Green, the manager of the estate, living at Clements (the name of the farm at Ilford), and I confess that I never saw a plantation of pyramidal fruit trees in the second year only of its growth so perfect, so well managed, and so gratifying to the planter. *Thos. Rivers.*

Perpetual Pine Strawberry.—Ever since the hoax of the Délices de l'Automne Strawberry, plants of which some years since were sent from Belgium in October covered with fruit, the English public has been sceptical with regard to autumnal Strawberries, except the Alpine varieties. The sort above named is of very recent introduction, and as I have a fine row of about 50 plants, which were planted last autumn, and are now in the most vigorous growth, I am enabled to give a tolerably safe opinion of its autumn-bearing quality. I yesterday (September 10) gathered some half-a-dozen fruit; they were below medium size, bright red in colour, and of the true Pine flavour—in short all that could be wished for in that respect: but, whether owing to the cool season or not I cannot say, its crop is very scanty. I could find no more ripe fruit on my plants, but some 15 or 20 are now putting forth flowers, a weakly truss to each. This Strawberry seems a step in the right direction, and if seedlings can be raised from it with the same quality of fruit and a stronger tendency to bear in September, we shall owe thanks to the raiser of the Perpetual Pine. It is quite possible that the warm autumnal sun of France may have induced this sort to bear more freely there. *Observer.*

Perennial Digitalis.—The varieties of the common Foxglove are beginning to receive the attention which they merit; at the flower shows this year some good specimens have been exhibited. But how is it that we never see any of the dwarfer perennial species of this genus? The dictionaries speak of nine yellow species, three yellow and red, one orange, two brown, two purple, one pink, and one white; and nearly all of them are European. Is there nothing amongst them worth growing? *W. T.*

Clematis Jackmanni, rubro-violacea, and others.—In some gardens may be found beds upon the lawns, which are margined with Ivy. Is there any good reason why varieties of these lovely climbers should not be planted near the edge of these beds, and be allowed to trail over the Ivy? In a mild situation Clematis lanuginosa and C. monstrosa might be introduced to vary the effect. *W. T.*

Pipe Flues.—In reply to "J. H.," Cheadle, I may state that when living near London a few years since a friend of mine had a small greenhouse heated with sewer pipes, which answered the purpose very well. In constructing a flue with them it is best to have a brick flue, say a yard from the furnace, as probably they might be liable to crack if the fire had direct action on them. They should be gradually raised from the fire to the bottom of the chimney, to cause a draught, and should be kept clear from the floor beneath, as they are liable to become damp when not in use, and when wanted it takes some time to expel it before the fire can burn freely. *R. H., Edgeley, Stockport.*—I have had a pipe flue in operation here with the best results this season. The size of pipes used was 9-inch sockets, earthenware. Care must be taken to carry the flue a distance of, say, 2 yards from the fire, as the heat will probably crack the pipes if closer. It is quicker in action than even hot water. *John Holman.*

Phalænopsis Schilleriana.—A plant of this Orchid, which I have had for two or three years, has this season furnished a young plant, the largest leaf of which now measures 10 inches. Not having heard of this Phalænopsis reproducing itself in this country, and there being no opportunity of ascertaining the fact in this part of the kingdom, would you have the goodness to inform me whether or not such a matter is of common or rare occurrence. *Robert Masson, Gr., Viewfield House, Arbroath, N.B.* [The formation in question is not of rare occurrence in the case of P. amabilis; but we have not ourselves seen it take place in that of P. Schilleriana. EDS.]

Lilium auratum.—I have four very distinct varieties of this truly glorious Lily; first, one has the clear yellow ray and distinct crimsonish spots on a pure white ground. This I take to be the original L. auratum. The second has a ray of dark yellow at the base of each petal, which changes into a reddish brown flushed with yellow towards the extremities. The spots of this variety have a broader base than those of the former, giving the flower a much darker and altogether richer appearance than the last. The third is in all respects like a cross between the two kinds just named, having less of the yellow of the one and less of the dark hue of the other. The fourth is very distinct from any I have seen or heard of. It has a broad ray of green, very rich and deep at the base of the petals, but diluted, or rather suffused with yellow towards the extremities, the spots are rosy crimson, very distinct, and set in a pure white ground. This I consider to be the most desirable of all. The flowers of all the above were large, the unexpanded bud of one measuring 7¾ inches in length. If those distinctions are permanent (and there is no reason for doubting it) the sooner we begin to distinguish them by name the better. I have already christened the ones here for my own convenience, but if every gardener were to do the same we would soon get different names for the same sort. I would, therefore, suggest that the Floral Committee of the Royal Horticultural Society be appointed to collect information on the subject, and affix names to the different varieties of this fine Lily. *J. P., Shotley Hall Gardens.* [Let them be English, not Latin names. EDS.]

Foreign Correspondence.

GERMANTOWN, NEAR PHILADELPHIA, *August* 21.—*Propagation of Variegated Plants.*—Some months ago I read with much interest an account of some experiments made on propagating variegated-leaved plants from root cuttings. The result was that the plants so raised returned to their original green-leaved state. Some four years ago I made the same discovery with Cornus mascula variegata, the root cuttings of which produced the normal form, while plants raised from layers have never shown any tendency to revert to their original. I communicated these facts to Professor Asa Gray, and was by him encouraged to continue my experiments. I found, as your correspondent did, that this was the case with most variegated plants, and expected to establish it is a general rule; but on trying it with the Pyrus japonica variegata, I found these roots produced the same variegated forms as the parent, and I have not been able, therefore, to establish any theory of variegation from the facts that ought not to apply as well to the Pyrus as the others.

We often envy you the luxury of variegated trees. Very few endure the dry air of our summers. The white parts of the leaves of such beauties as Negundo fraxinifolia variegata absolutely burn out in a few days of hot sun, and make a blemish of what with you is a beauty. There is a division of variegated plants, however, which does pretty well, namely, that which produces the leaf at first wholly green, the white variegation not appearing until the leaf is well developed. I do not know whether you have noted this division in Europe. Fraxinus acuminata aucubæfolia and Maclura aurantiaca variegata—the last a most lovely thing—are of this class. Not until the leaf has been two weeks expanded do the silver lines appear. All of these do pretty well. *T. M.*

Vegetable Products in the Azores.—The Vine is universally cultivated in the Azores, but only three islands yield sufficient wine for exportation, that is to say, Pico, St. George, and Graciosa. The plant generally cultivated is the Verdelho, which is very abundant, but it is more valued for the excellence than for the quantity of its produce. It is likewise the Grape that has been longest in cultivation. Generally speaking, the Vine is grown in a good aspect, and a stony soil little able to produce anything else. The plants have but a short duration, so that it becomes

necessary to renew them often. The stones extracted from the soil are used in the construction of walls 1 metre in height, and which afford shelter against the west and north-west winds. The Vine is pruned in February, and the ground is dug over in July to destroy weeds. At San Miguel the vintage does not take place before the first fortnight in September. No red wine is produced in the islands. In 1853 the Oidium showed itself for the first time in the Azores. It spread rapidly, so that in 1856 there was scarcely a Grape to be had; but for some years the disease has been declining. For the last few years the culture of Tea has been attempted, and with considerable success, by MM. Ernest do Canto and José Correa. The culture of Tea in these islands offers an exception to the rule laid down by M. Alphonse De Candolle in his inaugural discourse as President of the International Botanical Congress in London in 1866. It will be remembered that the learned Professor, after alluding to the similarity in the situations in which the two plants are naturally found, went on to say that the two plants required a temperate climate; that the Vine required heat without summer rain, whereas, on the other hand, Tea required but little summer heat and a considerable amount of rain: whence he concluded that the culture of the two plants in the same climate was hardly possible—Vine-growing countries would not be able to produce Tea, and *vice versâ*. Be this as it may, in the island of San Miguel the Tea succeeds admirably well by the side of the Vine, and I would fain hope that the two plants may be successfully grown in some parts of Portugal. If the Vine and the Tea are of vast importance with reference to the social and commercial state of nations, I may now speak of another plant which has become, if not more important, at least as much so as the two I have mentioned—I speak of Tobacco. This baneful weed! with its acrid taste and repulsive odour, is nevertheless the subject of enormous commerce. Its culture spreads with even more rapidity than that of more useful plants. It furnishes to Government a most productive tax; hence it is not to be wondered at that some of the great cultivators in the islands have done all they could to obtain from the Portuguese Government permission to cultivate Tobacco. Thanks to this permission which has only been acted on for the last few years, the growth of the plant has already assumed considerable proportions, and although experience has not yet shown which varieties are best adapted for the soil and climate of the Azores, there can be no doubt that Tobacco is destined to form some day an important element of commerce. The varieties cultivated belong to Nicotiana Tabacum, N. rustica being no longer grown; I venture to suggest that N. persica, so much esteemed for the fragrant odour of its leaves, should be established there. I was considerably surprised not to find any Cotton grown in the island, where the volcanic soil so favourable to the growth of the plant exists in such abundance: I was told that the fruits did not ripen there in ordinary summers; but earlier varieties obtained by hybridization might be grown so as to overcome this objection. *Edmund Goeze, Coimbra.*

CHATEAU D'ELEGHEM, SEMPEL, WEENDE, MALINES, BELGIUM: *Strawberries.*—"The last of the common Strawberries were picked the 1st of August." I quote from your paper the words of Mr. W. F. Radclyffe. It may be of interest to your readers to hear that Strawberries in large numbers continue to be gathered in the garden of the Count de Baillet, near Malines. They are a kind of wild Strawberry, of the Alpine or Hautbois nature. *H. D. Ryder, jun.*

Societies.

CRYSTAL PALACE: *Sept.* 10, 11, and 12. (*Autumn Exhibition of Fruits and Flowers.*)—This exhibition was scarcely as good as that of last year, as far as fruits were concerned; but there was a large and fine display of Dahlias, Roses, Gladioli, Asters, and other cut flowers.

Pine-apples.—These, though shown in considerable numbers, were not very remarkable as regards heavy weights. Mr. Bailey, gr. to T. T. Drake, Esq., had however some good fruit, as had also Messrs. Rattray, Page, Rockford, and Davies. Mr. Penny likewise showed well in this class.

Grapes.—Mr. Sage, Gopsall Hall, contributed four remarkably fine bunches of Barbarossa, which competed for the prizes offered for baskets of 12 lb. They were large, well formed, and covered with a beautiful bloom. The best 3 bunches of Black Hamburgh came from Mr. Norris, gr. to A. Bosanquet, Esq., and Mr. Sage and Mr. Osborne also showed excellent examples of good Grape growing. Mr. Laing, gr. to P. W. Flowers, Esq., furnished some good Canon Hall Muscats, and we also noticed some well-ripened Buckland Sweetwater. The prize for the heaviest bunch of Grapes was awarded to a badly-coloured, large-shouldered cluster of Black Hamburgh, which weighed 5 lb. 1 oz. Of Grapes in Pots magnificent examples came from Messrs. Lane, of Great Berkhampstead. They consisted of Foster's Seedling, Alicante, and two Black Hamburghs, on each of which were upwards of 20 beautiful bunches of well-ripened Grapes. Mr. Wells furnished ripe fruit of two varieties from his patent ground Vineries.

Peaches.—The dish to which the 1st prize was awarded was altogether excellent. It came from Mr. Page, gr. to W. Leaf, Esq. A few others were also good: but a considerable proportion of the fruit exhibited was below the average as regards size.

Nectarines.—The remark just made applies equally to these. Mr. Frost, of Bower Nursery, Maidstone, however, showed a beautiful dish of Elruge, to which a 1st prize was deservedly awarded.

Melons.—The best came from Mr. Beech, Kingswood Warren, Epsom, and Mr. Alliston, gr. to M. Portal, Esq., of Overton.

Cherries.—These were confined for the most part to Morellos, of which good dishes were shown. The best were contributed by Mr. Bailey, Shardeloes.

Plums.—These were furnished in considerable quantities, and generally in excellent condition. The best came from Mr. Webb, Reading, and Mr. Sage, Ashridge. Among the different varieties we noticed good fruit of White Magnum Bonum, Goliah, Coe's Golden Drop, Prince of Wales, Washington, Denyer's Victoria, Jefferson, Pond's Seedling, Green Gage, Kirkes' Reine Claude de Bavay, and Coe's Golden Drop.

Apples.—Among kinds for dessert, the best were contributed by Mr. Grover, Hammersmith, and Mr. Webb, Reading, while among varieties for culinary purposes, those to which 1st and 2d prizes were awarded were contributed by Mr. Mortimer, gr. to A. Smee, Esq., Wallington Bridge, and Mr. Newman, Lavender Hill. In these and other dishes were good fruit of Emperor Alexander, Blenheim Pippin, Red Astrachan, Stone Pippin, Lord Suffield, Cellini, Lord Derby, Chancellor, Catshead, Nelson's Glory, Hollandbury, New Hawthornden, Keswick Codlin, Kentish Fillbasket, Wellington or Dumelow's Seedling, Alfriston, Northern Greening, Gloria Mundi, Yorkshire Greening, and Monstrous Leadington. Dessert kinds consisted of Red Pearmain, Red Astrachan, Colonel Vaughan, Reinette du Lauk, Ribston Pippin, Cox's Orange Pippin, Quarrenden, Scarlet Nonpareil, Fearn's Pippin, Cellini, Bull's Golden Reinette, Kerry Pippin, Lemon Pippin, Ashmead's Kernel, King of the Pippins, Yellow Ingestre, Early Strawberry, Early Red Margaret, Early Crofton, and Pearson's Plate.

Pears.—The best three dishes came from Dr. Cooper, Slough, and G. F. Wilson, Esq., Weybridge. The 1st prize in the class of single dishes for weight was won by Mr. Goldsmith, gr. to Sir W. Farquhar, Bart., the sort being Uvedale's St. Germain, while for flavour Louise Bonne of Jersey won both 1st and 2d prizes. These were furnished by Mr. Bailey, Shardeloes, and Mr. Thornycroft, Floore, Weedon. Among other varieties shown we noticed good examples of Duchesse d'Angoulême, Beurré Clairgeau, Beurré Diel, Easter Beurré, Gansel's Bergamot, Marie Louise, Beurré d'Amanlis, and Jargonelle.

Fruit Trees in Pots.—Of these excellent collections came from Messrs. Lane, Great Berkhampstead, and from Mr. John Fraser, Lea Bridge Road. The last consisted of Pears, Apples, and Plums. Messrs. Lane had three Figs, five Pears, four Apples, and a Morello Cherry. Peach trees in pots came from Mr. Waller, gr. to G. Lake, Esq., Watford, and Mr. Fraser. Both groups were well furnished with ripe fruit, of good size and colour.

Miscellaneous Collections of Fruit.—Of these an excellent collection came from Mr. Bailey, Shardeloes. Mr. Webb had large quantities of Nuts; Mr. Bennett, Osberton, Vanilla; and Mr. Sage, Ashridge, a fine bunch of Banana.

Dahlias.—These were numerous, but, as a whole, apparently smaller in size than those shown last year. In the class of 48 varieties prizes were awarded to Messrs. Keynes, May, Walker, and Kimberley, in the order in which the names stand. In the different stands were good blooms of Golden Admiration, King of Sweden, Matilda, Queen of Primroses, Delicata, Edward Spary, Baron Taunton, Lord Shaftesbury, Chairman, James Backhouse, Miss Henshaw, Flossy Gill, George White, Leah, Paradise Williams, Mrs. Wyndham, Andrew Dodds, Umpire, John Wyatt, Charlotte Dorling, Annie Austin, Disraeli, Anna Keynes, British Triumph, Lady of the Lake, Freemason, Lady Mary Wylde, George Wheeler, Miss Herbert, Bob Ridley, Stella Colas, Criterion, Lady Palmerston, Hugh Miller, Ellen Potter, Lilac Perfection, Lady Gladys Herbert, Lord Derby, Princess, Norfolk Hero, Lilac Queen, Sam Bartlett, Peri, Earl Pembroke, Fanny Purchase, Vice-Chairman, Golden Gem, Jenny Austin, and others.

In the class of 24 blooms Mr. Keynes was again the most successful exhibitor. Among his kinds were Queen of Primroses, Lady of the Lake, Chairman, James Backhouse, Lord Derby, Charlotte Dorling, Lady G. Herbert, Golden Admiration, Bob Ridley, Norfolk Hero, Earl of Pembroke, Anna Keynes, George Wheeler, Mrs. Wyndham, Queen of Lilacs, George White, Lady Palmerston, Edward Spary, Vice-President, Miss Henshaw, Delicata, Harriet Tetterell, Leah, and Miss Herbert. The next best collection came from Mr. May, Bedale; and Messrs. Kimberley, Legge, Walker, and Draycott, also showed in this class.

In the Class of 12 Fancy Dahlias, Mr. Keynes took the 1st prize, Mr. Kimberley the 2d, Mr. Legge the 3d, and Mr. Perry the 4th. Among the varieties were good blooms of Chang, Formidable, Regularity, Lightning, Octoroon, Remarkable, President Lincoln, Lord Warden, Messenger, Butterfly, John Salter, Ebor, Leopard, Pauline, Countess of Bective, Harlequin, Queen Mab, Lady Paxton, Nora Creina, Fanny Sturt, Le Domino Noir, Glory, and Queen of Sports.

In the Amateurs' Class of 24 kinds, Mr. Perry was 1st, Mr. Thornycroft 2d, Mr. Pelfield 3d, and Messrs. Heldred and Hopkins 4th and 5th. Among the varieties were Chairman, Arthur, Phidias, Anna Keynes, Andrew Dodds, Master of Arts, Bob Ridley, Delicate Pink Seedling, Model, Leah, Delicata, Donald Beaton, Miss Henshaw, Messenger, Lady G. Herbert, Lord Derby, Alexandra, Hugh Miller, George Brown, British Triumph, Juno, Criterion, Charlotte Dorling, Pauline, Volunteer, Startler, and Willie Austin.

In the Class of 12 blooms (amateurs) Mr. Thornycroft was the most successful exhibitor; and Messrs. Perry, Petfield, Glasscock, Lakins, and Steer, received prizes in the order in which their names stand. Among the different varieties were good examples of Lord Palmerston, Volunteer, Fanny Purchase, Lord Derby, Model, International, Willie Austin, Juno, Miss Henshaw, British Triumph, Matilda Keynes, Goldfinder, Chancellor, Andrew Dodds, Jenny Austin, Garibaldi, Bird of Passage, Delicata, Mrs. Belton, Norfolk Hero, Comet, Earl Pembroke, Lady Popham, Leah, Lottie Atkins, Peri, Golden Admiration, and Charles Turner.

In the Class of 12 Fancy kinds (amateurs) Mr. Perry had the best blooms; and Messrs. Glasscock and Thornycroft were 2d and 3d. Among the sorts were J. Bunn, Sam Bartlett, Queen Mab, Octoroon, Pauline, Queen of Sports, Harlequin, Garibaldi, Triomphe de Robaix, Regularity, Artemus Ward, Ebor, Angelina, Frank Tiffin, and Messenger.

Seedling Dahlias.—Of these there were flowers from Messrs. Turner, Keynes, Rawlings, Hopkins, and others. First-class Certificates were awarded to Mr. Turner for Buttercup, Adonis, Mrs. Dorling, and Master Johnny, a Fancy flower; and a Second-class Certificate to High Sheriff. Mr. Keynes received First-class Certificates for Mr. Dodds, Rosy Queen, Yellow Boy, and Leopardess (Fancy); and a Second-class Certificate for Chameleon, also a Fancy. Mr. Rawlings received a First-class Certificate for Hebe. Other seedling flowers not Certificated, were Vidette (Turner), Constancy (Rawlings), Miss Sarah Turner (Keynes), Princess Mary of Cambridge (Keynes), Caroline Tetterell (Keynes), Duke of Edinburgh (Keynes), Wonderful (Keynes), and Grand Sultan (Keynes), two Fancy flowers. A few other flowers were staged, but not of sufficient merit to deserve notice. Some notes on these new Dahlias will be found in another page.

Hollyhocks.—No spikes of these were shown, but instead of them there were some large and fine single blooms, especially those in the collections from the Rev. E. Hawke, Willingham, Gainsbro'. Mr. Minchin, Hook Norton, also contributed good blooms. Seedling Hollyhocks were produced but very sparingly. Mr. H. Minchin received First-class Certificates for the Rev. Charles Garrett and Alypius, both noticed in another place.

Verbenas.—Of these Mr. Perry showed some charming sorts, chiefly seedlings of his own. Among the latter were J. C. Ward, Miss Turner, Hercules, Interesting, and G. P. Tye, all of which received First-class Certificates; and Mr. Perry had also Samuel Morton, Mr. Mole, and other new kinds. The same award was made to Verbena Constance, from Mr. Knight, nurseryman, Battle, Sussex.

Roses.—Large numbers of boxes of these were shown, even thus late in the season. Among exhibitors of them were Messrs. Paul & Son, Mr. Keynes, Mr. Fraser, Mr. Hollingworth, Mr. Draycott, and others. Boxfuls of Maréchal Niel were furnished by Messrs. Paul & Son and Mr. Keynes. Among other varieties we noticed Maurice Bernardin, Gloire de Santenay, Maréchal Vaillant, Dr. Andry, Victor Verdier, Oliver Delhomme, Madame Boutin, Pierre Notting, Mrs. C. Wood Comte Vigier, Lord Herbert, Baron Adolphe de Rothschild, Princess of Wales, Prince Camille de Rohan, Rubens, Gloire de Dijon, and other fine kinds.

Asters.—Both German and French kinds were shown in good condition. The last, especially, were large and fine, and the colours bright and clear, while the German varieties were not less remarkable for their compactness and neatness. The best exhibitions in both classes came from Mr. Benham and Mr. Sandford.

Gladioli.—Cut spikes of these were shown in fair condition by Messrs. Kelway & Son, Langport, Somerset, and by Messrs. Bunyard & Son, Paul & Son, Sladden, Plester, Minchin, and others. In these exhibitions were good spikes of Lord Byron, Cassandra, James Veitch, Shakespeare, Emperor Napoleon, Prince of Wales, Leonardo da Vinci, and others. Seedlings were in strong force, inasmuch as Mr. Sladden's stand of 24 varieties was composed mainly of 3 new kinds, though they were not set up for Certificates. Messrs. Kelway & Son, nurserymen, Langport, received First-class Certificates for Charles Turner, Refulgens, Mr. Robinson's "Seedling," and Snowflake.

Miscellaneous Subjects.—Foremost among these was a charming group of different flowering and other plants from Messrs. Carter & Co., High Holborn. It consisted of Gladioli of different colours, variegated Zonal Pelargoniums of the best description, ornamental foliage plants, Ferns beautifully disposed among the more prominent specimens of other things; a collection of Tomatos in pots, ornamental Gourds, Japanese Maize, Indian Shot, and a conspicuous centre group of the useful Tritoma uvaria. Messrs. Downie, Laird, & Laing, also contributed a fine collection of Solanums, intermixed with flowering specimens of Lilium auratum, and other plants. From Mr. Tanton, Epsom, came a beautiful specimen of Allamanda cathartica, and various plants of Vallota purpurea in beautiful condition. A finely flowered plant of Clianthus Dampieri was shown by the Crystal Palace Company.

Notices of Books.

The Silkworm Book; or, Silkworms Ancient and Modern, their Food, and Mode of Management. By W. B. Lord, R.A. 8vo. Cox. 1867.

Although sericulture has been practised by the Chinese for more than 4000 years, there is nothing to indicate that any other than a Mulberry-feeding larva has ever occupied their attention. We have become acquainted, within the last few years, with a silk-producing larva, which feeds on the Ailantus in China, on the Coriaria in Northern India, and on other plants elsewhere; and we have still more recently obtained eggs of a species which feeds on the Oak in Japan; but regarding the antiquity of these we have at present no information.

Inasmuch as these three insects are capable, under certain management, of being reared in England, it is to their history that our author devotes the principal part of his book, in which we find much that is interesting regarding the habits, and mode of feeding and cultivating those various larvæ. If his object in publishing this information had been merely the amusement and edification of rising young entomologists, who want a change after breeding Puss moths, Drinkers, Oak Eggars, and Hop Dogs, we might have been spared any other than a favourable notice of it, but as it aims at higher views, we cannot pass them without comment.

It is perhaps not generally known that there is a very large and natural group of moths, one of the most prominent peculiarities of which is that the larva changes to a chrysalis in the interior of a silken cocoon. Before the classification of insects was so much attended to as it has been of late years, every moth coming from such a cocoon was considered to be a species of Bombyx. The great number of these moths now known and described has necessitated their subdivision into many genera, founded chiefly upon the form of the larvæ, and with the differences in the larvæ are associated, as might be expected, differences in the cocoon.

The form of the cocoon of the Mulberry silkworm (Bombyx mori) is oval. Now, the cocoon of the Ailantus silkworm is not oval, but pointed at each end; and when Mr. Lord speaks of it as Bombyx cynthia, he evidently is not aware that it belongs to the genus Attacus, and is not a true Bombyx at all. Again, when devoting a page to the notice of "some miscellaneous silk spinners," he refers to the "Arrindy worm of India (Saturnia arrundi);" which is only another name for the Ailantus silkworm (Attacus cynthia).

So much for our author's acquaintance with entomological nomenclature. Nor is his botanical knowledge much more extensive, if we may judge from the Castor-oil plant being called Recinus, and the insect feeding on it Bombyx recinus, by which is meant Attacus ricini. Xanthophyllum hostile is a plant with which we are unacquainted, unless it should be another way of spelling Xanthoxyion hastile. He surely cannot mean either Xanthorrhœa hastilis, a New Holland plant, or some species of Xylophylla, which is a West Indian genus, since he is referring to an East Indian insect.

The attempt to supersede the produce of the Mulberry silkworm by that of some other animals is by no means a recent idea. One sanguine individual expected to succeed by the use of the byssus or silvery threads with which mussels attach their shells to the rocks. So long ago as the beginning of the last century a Frenchman started an establishment for growing spiders, whose silken egg-bags (such as we see under ledges and on walls), were to be manufactured into a material far surpassing silk; but apart from the two difficulties of providing them with flies and of preventing their indulging in their partiality for their own brothers, in preference to any other food, the notion was seen to be useless when it was shown that one silkworm could produce as much silk as 280 spiders, and that its silken thread could bear four times the weight that the thread of the spider would.

Of the Ailantus Silkworm Mr. Lord says:—"There are, we think, substantial grounds for ranking this silk-producing insect high amongst the hardy workers whose labours bid fair to afford healthy and profitable employment to vast numbers of the inhabitants of Great Britain, Ireland, and the Channel Islands."

Of the Japanese Oak silkworm, he asserts that "no silk-producing insect ever introduced into this country promises more fairly to become a source of national wealth, as the climates of both England and Ireland appear especially well adapted for its successful cultivation."

In opposition to these views we submit the following:—

There is no other cocoon yet known besides that of the Mulberry silkworm, from which a skein of 1500 yards can be reeled off. All other silk must be carded, after the manner of cotton, before it can be manufactured. The silk produced by the Mulberry silkworm in England is of very little value compared with that brought from China, Japan, and Italy, of which the values of the best qualities are now about 30*s.*, 35*s.*, and 42*s.* per lb. respectively. The quality of silk depends chiefly upon the combination of strength and lustre with fineness of thread. English-grown Mulberry silk is very deficient in strength. The silk of the Ailantus and Oak worms is also very weak, and cannot be reeled.

The worms of all silk-producing larvæ are liable in England to great destruction by ichneumon flies, which it is next to impossible to keep from attacking them. The eggs of the Ailantus insect hatch before the trees are in leaf with us. Silk comes only as yet (and we believe it will always be so), from countries where labour is cheap. The rearing of silk-worms on anything approaching a remunerative scale would involve the employment of many hundred persons, and there is no part of the British islands where labour can be had upon terms to compete with the Chinese.

Enough, we imagine, has now been brought forward to induce any one to pause and make further inquiries before allowing himself to be deluded, by anything that Mr. Lord may have written, into the belief that silk can ever be grown in England for manufacturing or any other purposes, except that of an amusement for children.

British Conchology, Vol. IV. Marine Shells in continuation of the Gasteropoda as far as the Bulla family. By John Gwyn Jeffreys, F.R.S. 8vo. Pp. 488, tab. 8, and a coloured frontispiece. Van Voorst. 1867.

We have great pleasure in welcoming the publication of another volume of a work which we have already taken occasion to notice on the appearance of the former volumes. One only is wanted to complete the original design, which will contain those beautiful animals the Mollusca with naked branchiæ, the Cuttle fish, and other interesting families, and will appear as soon as may be consistent with the care which has been taken in the preparation of all that has already been published. Besides the eight plates containing figures of a type of each family there is a coloured frontispiece showing the singular appearance of Ianthina and its float, an appearance which, though familiar to travellers on the wide ocean, will be new to many of our readers. Live specimens of at least one species are occasionally wafted in great numbers to our coasts, though it can scarcely be considered as a true inhabitant. The shell is of a purplish blue or violet, and is very delicate. The float, which is of a considerable size, and looks like a mass of soap-bubbles, is formed by the foot, vesicle by vesicle, a bubble of air being inclosed in a pellicle of mucus by a curious process described two years ago by Lacaze-Duthiers in the "Annales des Science Naturelles," but which cannot be easily understood without reference to the figures. When accidentally detached from the float the animal at once sinks. It has little or no power of directing its course, but is carried in whichever direction the wind or current may bear it. It is curious that such a southern form as Spirula is sometimes brought in by the winds on the Irish coasts with Ianthina.

There are some interesting observations in the volume on the dye produced by several Mollusca, and amongst others by Purpura lapillus, though the purple of the ancients was derived from a species of Murex, a common Mediterranean shell. It is secreted by an organ which seems to be the kidney, as urea has been detected in the secretion by chemical analysis. When extracted from the living animal it is of the consistency of cream, and is at first colourless or more or less yellowish. Exposed in a moist state to the light of the sun it passes through all the different shades of green to violet, then to a beautiful purple, and ultimately becomes crimson.

Every one who frequents the coast is acquainted with the bladdery masses which are thrown up by the tide, and with which many are familiar under the name of whelks' eggs. It is not however to be supposed that only a single embryo is contained in each egg. As the phenomena presented by the eggs of Purpura lapillus are very similar, we give a description of what takes place in the course of their development, the liquor contained in whose egg-capsules is also purpuriferous. Each capsule is at first hermetically sealed, and filled with a liquid, which is as transparent as water, viscous, and resembles the white of a bird's egg; in this liquid are enveloped a mass of eggs, 60, or even more, in process of growth; these eggs agglomerate, and form from 20 to 40 embryos, the shell taking the shape of a Nautilus. At the end of the ninth or tenth week, and not before, the fry quit the capsule. They soon assume the peculiar habit of their parents, by getting out of the water, where they remain for hours till the tide covers them.

Purpura lapillus, though eaten by some of the inhabitants of St. Michel-chef-chef, is scarcely, if ever, used as food in this country. It is, however, found in the sites of the so-called Pict's houses in Scotland, with the shells of other Mollusca.

The next genus, Buccinum, however, together with that of Fusus, yields a large supply of food, which is eagerly consumed by the lower classes in London. The muscular proboscis, with its spiney tongue, is first extracted. Its appearance does not seem very inviting, and the food must be rather tough eating, though possibly not more so than the retractor muscle of a large rock oyster when cooked. The shells of Buccinum undatum occur occasionally amongst oyster shells on the sites of old Roman towns or villas. Fusus antiquus is known at Billingsgate by the name of the almond, or red whelk, and the part within the upper whorls of the spire, consists mainly of the liver, which is thought to be peculiarly good and tender. We have never, however, had the courage to taste it.

The animals of this group are carnivorous, and perforate shells by means of the rasp in their proboscis, and are occasionally very injurious in oyster beds. They are frequently taken in lobster pots, a dead fish being placed as a bait. The animals are themselves also used extensively as baits, especially for cod, in whose stomachs they are sometimes found in great numbers.

As in former volumes not the least valuable part is the table showing the geographical and geological distribution, and it is to be hoped that when the work is complete all the tables will be united.

It would be easy to point out other matters of general interest contained in the volume, but we have already reached our usual limits.

Two parts of the *Journal of the Linnean Society.* (Botany), Nos. 40 and 41, have recently been issued, containing Dr. Anderson's Enumeration of Indian Acanthaceæ; Notes on the Papayaceæ, by J. Correa de Mello and R. Spruce; Notes on Malvaceæ, with a Description of a new Genus of Buettnerieæ (Scaphopetalum), by Dr. Masters; on Nutmeg Cultivation in Singapore, by Dr. Collingwood; Notes on the Genus Canna, by Dr. Dickie; and other papers, to which attention has already been called in these columns. Some new Magazines—the *Broadway*, *Tinsley's Magazine*—do not call for more than mention in this place; but we may allude, with a word of congratulation and commendation, to a new weekly low-priced periodical called *Country Life*, devoted to rural pursuits—the Garden, the Cottage Farm, Angling, and Natural History, edited, in so far as the gardening part is concerned, by Mr. Richard Dean: a sufficient guarantee that this portion of the journal will be efficiently conducted. Associated with him are Professor Rymer Jones, Rev. J. A. Johns, M. C. Cooke, Esq., and other well-known names. The numbers of Seemann's *Journal of Botany* for August and September contain a paper on Aphyllostachys, a Fossil Calamaria, by Professor Gœppert, in the course of which the author expresses his opinion that the theories of Lamarck and Darwin receive no support from the fossil flora. Other memoirs relate to systematic botany, notably the continuation of Dr. Seemann's revision of the order Hederaceæ. Mr. Andrew Murray's description of a new Conifer from Arctic America, Abies arctica, nearly allied to A. alba, and described as the most northerly tree that has been met with on the North-west Coast of America, and Dr. Hance's valuable communications on Chinese Plants. Mr. Ernst's papers on the cultivated or naturalised plants of Caraccas are interesting, the more so as a meteorological table, prepared according to the metrical system as well as according to that used in this country, is given.

The Handbook for Travellers in Scotland (Murray) is a new guide to the "North countrie," which at this season will be found very useful by tourists. It is written pleasantly, without exaggeration, and so far as we have yet been able to test it, with truthfulness. The plan of laying out routes is a very convenient one for travellers. Here and there a slip occurs, as for example, one day's work of a two month's tour is set down thus—"To Balloch, Loch Lomond, Rowardennan; ascend Ben Nevis, and sleep at Tarbert"—for Ben Nevis read Ben Lomond. Such slight inaccuracies will no doubt be eliminated from future editions.

Florists' Flowers.

THE exhibition at the Crystal Palace on the 10th inst. was so essentially a Show of Florists' Flowers, that some Seedling Dahlias, Hollyhocks, Gladioli, &c., would naturally be looked for on such an occasion. Happily for the raisers, these new flowers were passed in review by the judges comparatively early in the day, as at noon the sun had begun to tell on them so markedly that by the evening a few were nearly shrivelled up. The usual awning overarching the flowers exhibited along the length of the nave was removed on this occasion, and had the hot weather of Tuesday last continued, there would have been but little of flower remaining by the close of the Show on Thursday. Seedling Dahlias were in strong force, the largest contributor being Mr. Keynes, whose flowers were in better condition than when shown at South Kensington on the 3d inst. Yellow Boy (Keynes) promises to be a very useful yellow flower, being a fine and bold-looking variety, of good form and substance, and apparently very constant. Buttercup (Turner) is another excellent addition to the yellows, being of massive build, and it looks as if it will make a fine exhibition variety for the back row of a stand. It is of a bright shade of pure yellow, not quite so deep in hue as the foregoing, and very constant. Adonis (Turner) is an exquisite light ground flower, almost white, slightly suffused with soft lilac. It is singularly delicate in appearance, and it is allied with very fine form and high quality of petal and centre. The blooms, as shown, are of a medium size. Mrs. Dorling (Turner) had considerably improved in quality since seen at South Kensington, and deserved the high award it received. It is a flower that changes somewhat in character, as, like most suffused flowers, the colour will be more heavily distributed on some flowers than in others. The petals have a tendency to reflex, though it appears to give a nice appearance to the flower. High Sheriff (Turner) is a small glossy black crimson flower, having a fine full high centre, though the petals round it have a tendency to quill. The hue of colour is something striking, and it is a flower that promises to be much better than it appeared to be on this occasion. Hebe (Rawlings) was still very fine indeed, and is certainly one of the leading new flowers of the year. Constancy (Rawlings) is a strong-looking flower in the way of Charles Turner, but darker; but the flowers were small and somewhat flat. Rosy Queen (Keynes) had improved since seen at South Kensington, though the petals about the centre showed a tendency to quill. It is a fine full flower, the colour bright rose, the edges of the petals tinted with lilac. Leopardess, Chameleon, and Wonderful, Mr. Keynes' flowers, are three Fancy varieties, somewhat akin in appearance, being pale lilac green flowers, flaked and striped with crimson and scarlet. They are notwithstanding quite distinct, and look as if they will make very useful exhibition flowers. All these lilac ground Fancy flowers appear to have a confused dull look about them. Miss Sarah Turner (Keynes) is a good constant flower, very attractive in appearance, but wants refinement. There is a coarseness about it that detracts from its merits. Grand Sultan (Keynes) is a large and showy fancy bloom, but is flat and coarse looking. It will nevertheless make a good exhibition variety when it can be caught in good condition. Princess Mary of Cambridge (Keynes) is a large but somewhat coarse flower, in colour pale soft violet. Caroline Tetterell (Keynes), a light tipped rosy lilac flower, and Duke of Edinburgh (Keynes), a rosy crimson bloom suffused with purple, will be two useful kinds, without possessing first-rate properties. Violette (Turner) is a novel-looking flower, small in size, but having a full high centre and good outline, the colour rose suffused with violet, which is heavier towards the edges of the petals and almost forms a tip. Verbena Constance (Knight) was represented by a boxful of good trusses, said to be from the open ground. It is of a bright dark scarlet colour, with a small lemon eye, in the way of Perry's Mazeppa, but darker in hue, and quite distinct; the pips are large and very fine, and it is altogether a first-class flower, having the additional recommendation of being a fine bedding variety. Mr. C. J. Perry had an excellent lot of seedlings, some of them in the finest condition; Hercules and Miss Turner were especially striking, and G. P. Tye had deepened into a wonderful richness of colour round the eye. Mrs. Mole was especially noticeable also; the soft lilac self flowers are both novel and handsome. Of the two new Hollyhocks shown by Mr. H. Minchin, Alypius, a salmon buff flower, large and full, was the best. There is already an abundance of fine buff and salmon flowers, but this one appeared to have got an infusion of clear rose into the guard petal, which imparted to it a pleasing novelty. It will make a fine exhibition flower. The Rev. Chas. Garrett may be described as of a claret crimson colour suffused with purple, the flower quite flat, but close and full of stuff.

Messrs. Kelway & Son's new Gladioli were fine spikes, as pure in colour as could be desired, the flowers all forming an excellent face, and two or three of the spikes had as many as 10 and 12 expanded flowers at one time. Snowflake is a capital addition to the whites, pure white, having a lemon throat, pencilled with violet; flowers of good form and bold. This spike had 12 expanded flowers. Mr. Robinson's "Seedling" (badly named, as it may prevent recognition when the flower gets into commerce) is of a pale pink colour, flaked with rosy pink, the throat pencilled with lilac. Charles Turner is a most pleasing flower, and will tell well on the exhibition table; colour bright salmon pink, with conspicuous white throat, very showy and bold spike. Refulgens forms a bold and striking spike; the ground colour is rose, the petals feathered with dark crimson, the throat slightly white, pencilled with violet. The way in which Messrs. Kelway & Son and Hadden, the former especially, had staged their flowers was an admirable lesson to exhibitors of this splendid summer flowering plant. *E. D.*

The Apiary.

ARTIFICIAL EMBOSSED WAXEN COMB.—My only reason for not sending you a description of my process for making embossed wax sheets has been the fear that I might be doing an injury to those who have taken as much trouble about them as myself, but with the object of profit. If, however, Mr. Fox will give me his address, I shall be happy (privately) to tell him how he may, with very simple apparatus, make enough sheets in an hour or two to last him a season, of a quality better than those commonly sold, and without any other limit as to size than the proportions of the apparatus. The cost is only the first expense of the apparatus, which is trifling, and the bare value of the wax used. *Arthur Maw, Benthall Hall, Salop.*

[We have forwarded your letter to Mr. Fox, who will doubtless be glad to avail himself of your kind offer. We appreciate your motives for withholding the publication of the particulars of your process, but we do not think that you would, by making them known, be doing any injury to any English maker, as we believe all the impressed waxen sheets that are sold in this country are imported from Germany.]

REMOVING BEES.—In your answer to my query, respecting removing a hive of bees, you say "invert the hive in a tea-chest;" would it not be better to keep it right side up as it stands on the board, which, in the way the combs are always built, seems the only plan of

preventing the honey in any unsealed combs from escaping. I can either give air through the hole in the adapter board, or else have two pieces of wood nailed at the bottom of the chest, so as not to let it stand quite close on the floor, and thus let air reach the bees through holes in the bottom. My hive has no sticks through the combs, and a friend has advised my having a small iron rod, made with a sharp point, and running it gently through the hive as a support to the combs in travelling. Should you think this to be a good plan? *A. M. H.*

[There are many objections to removing stocks in common hives any considerable distance in the way you propose. Should some of the combs become detached, they would slip down to the bottom board, and probably choke up the lower apertures for ventilation; or if any bees became suffocated or drenched with honey, they, when fallen, would also effectually prevent the free admission of air. If carried in its usual position, a tea-chest is quite unnecessary, as, unless the bottom of the hive rested on straw, there would be no medium for lessening the shock of any concussion; while if it did rest on straw, the providing of ventilation from below would be difficult and uncertain. Running an iron bar through the hive and combs would be useless, as the attachments would soon be severed by the shaking. There is no fear of the honey running out from the unsealed cells by inverting a hive, except perhaps in the case of very young swarms. We have known a great many hives to have been lost from endeavouring to convey them in their usual position. Two years ago we purchased a fine young stock in the country, which we removed with the greatest care in an easy carriage, giving the bees ample ventilation below. We had not travelled above half a mile on the road before we felt one of the combs fall, and this was quickly followed by the whole in succession. By inverting the stock the combs rest on a firm basis, and have not their own weight, in addition to the vibration, to bring them down. The open texture of the cheese cloth admits plenty of air, and the bees are kept in a cool and comfortable condition as to temperature.]

Garden Memoranda.

FRENCH PRIVATE GARDENS.—I have before described the excellent system adopted at PONTCHARTRAIN for covering walls. That is a great step in advance of our English way of doing it, and must eventually be generally adopted by us, unless something better should turn up, which is scarcely possible. The French formerly employed, and to a great extent still use, a dirty wooden trellis on their walls, but that must pass away. The other feature of the place that is most worthy of remark is the fine collection of foliage plants. The conservatory is magnificent with such things as Cibotium princeps, Sterculia mexicana, Crescentia regalis, a plant with graceful and splendid leaves; Cedrela odorata, with elegant arching pinnate foliage, 4 feet long; and Calea Commersoni, which is so truly noble a stove plant. I have never seen a better or more thoroughly diversified collection of fine foliaged plants in any garden. This, like all other French conservatories, distinctly shows the difference between French and English taste in this matter. Wherever you see a conservatory in France it is sure to be presentable at all seasons, from the abundance of handsome-leaved plants that occur; whereas, so miserable is the aspect of English conservatories in many cases from the want of these plants, that I have known gentlemen to express abhorrence of having any form of conservatory near the house,—and quite right, too, if beauty of form and refreshing verdure are not to be found in it in the winter, when people most frequent such structures, and when there is little or no interest out-of-doors. There are numbers of conservatories and "show-houses" in the British Isles without a single plant distinguished by beauty of form or graceful verdure, except, perhaps, what is now and then afforded by Ferns. On the contrary, everywhere the French grow a few tender plants some of them are sure to be of the graceful type; and though they do not grow them as well as we do, they deserve credit for so preserving the true beauty of vegetation. I have seen thousands of young Palms in small nurseries in obscure parts of Paris—a sufficient evidence of the popular taste.

Pontchartrain is distinguished among all French gardens by its Grape-growing; in fact, Mr. Knight has shown the French how to grow hothouse Grapes, and has taken the Emperor and Empress' prizes for them at nearly all the shows during the past few years. I hope they will profit by the example, and am informed that the Paris Horticultural Society has sent Commissioners to report upon his work and his system (the best English one). The Vine in a French glass-house looks more like a weed than anything else. Perhaps this arises to some extent from the fact that it is grown as a field crop in the open air; and they do not appear to treat it as a respectable crop in the hothouse, but on the contrary, somewhat as we do Mustard and Cress or a tuft of forced Mint—leave it, in fact, to Nature, as she displays herself in a dirty hothouse. There are a lot of noble Graperies and forcing houses after the best English types at Pontchartrain—and well managed too they are as houses can be. Here are also interesting medicinal plants—good fruit growing on the cordon and dwarf system, and many rare plants in the hothouse way. It is situated in a diversified country, the views from many parts of the place to the distant surrounding hills being varied and beautiful. Strawberries are very extensively forced—Eclipse being the best for those purposes, and good for the open air also. A hedge composed of several hundred plants of the neat and always pleasing Thuja aurea is a distinct and charming feature. Would it not be well occasionally in the more ornamental parts of a garden to form hedges or lines of plants like this that do not require perpetual clipping and wall-like surface? Of Yucca aloifolia variegata, a fine specimen, has stood out all the last winter at Pontchartrain. There are fine pieces of water, and one long side of the château was overlaced with the blue flowers of the Wistaria, while the court of the château, or rather the oblong gravelled space surrounded on the three sides by it, was beautifully embellished with long stone-margined beds, containing a fine lot of glistening evergreens, both variegated and green—the Irish Ivy, as usual in Paris, being made a fine feature of, both as edgings and for going up rails, walls, and balconies. But the one thing at Pontchartrain that I liked best was the capital and most suitable gardener's house. It is roomy and well fitted, somewhat in the Châlet style, and well situated to overlook both kitchen and pleasure gardens, though not objectionably visible in either. Like many French houses, it is excellently built on cellars—their floor being 4 feet below the level ground, with little windows just above it. There are, so far as I remember, six cellars underneath, a central passage running down the middle, and doors opening into each. They are perfectly dry and equable in temperature, cool, cut off the house quite from damp, &c., and make the most excellent stores for roots, fruits, &c., that can be desired. One is devoted to a wine cellar, and not empty either, as good wine may be had in the neighbourhood cheaper than good beer in London. In these cellars Kidney Beans, Cucumbers, fruits, &c., that the judicious gardener cuts at the right moment, and wishes to keep till they are wanted, may be preserved excellently. Being isolated, capable of being ventilated, shut up, completely darkened, and most conveniently visited, they have many other uses which I need not suggest to the practical man. Mr. Knight has adopted the French mode of growing Asparagus, and also the French mode of growing salads for winter; these circumstances, combined with his excellent English garden and the good disposal of the many fine Conifers in the garden, the ornamental water, &c., make the establishment more than usually interesting.

BARON JAMES ROTHSCHILD'S GARDEN IN THE BOIS DE BOULOGNE.—One of the most tastefully-disposed and satisfactory gardens I have seen for a long time is that of Baron Rothschild, near the race-course of Longchamps. The large forcing and reserve garden is cut off entirely from the ornamental portion of the place. They force and grow plants to a great extent for room decoration, as well as for house work, and many houses are filled with good plants in capital health; while in front of the forcing-houses there is a large space of ground, devoted to plants for cutting young stuff, &c. Space forbids me to say much about the houses, but it may be remarked that here, as elsewhere in French gardens, there are evidences that French gardeners work successfully with materials which English gardeners would consign to the rubbish heap. This is a place in which there is evidently no lack of expense. A magnificent Camellia house was only erected last September, and yet it is now as full of large and established specimens as if 20 years old; but within a few feet of it you find a "structure" (I think I had better not call it a house) devoted to forcing Grapes, which would materially destroy the peace of mind of any English gardener who happened to be placed in charge of it. It is simply a frame of rough wood, with a very high back and low front, in which Grapes and other things are forced. But it is not in this instance alone that this obtains, and had I not better evidence than the Grape forcing, I should say nothing about it, because the house Grapes in France are very inferior to our own. However, the French say this is the best and cheapest way they can force, and doubtless they know best. There are copper hot-water pipes in the frame, and all the sides are banked up with hot dung. The practice of covering a considerable extent of ground with such things as Carnations and Picotees for cutting is also a wise and desirable one. The Azaleas were very neatly trained in the almost flat-headed Belgian fashion, but this they explained to me was desirable, as in decorating with such plants they could insert the pot in a grate or throw it back in some way so as only to present the head of the plant to the observer. But let me say a word or two about the beautiful French garden, which really quite surprised me from its beauty and chaste character. It is not, like most straight-laced gardens, so to speak, placed immediately against the house, but gradually isolated from it, and on nearly every side it is surrounded by a dense green wood, so that a capital relieving agent is close at hand. There is but one terrace, and that not high, the wall being covered with a dense glistening sheet of Irish Ivy. This wall of white stone does not project above the terrace, as with us in general, but merely shows above it, and then, on the terrace side, there is a wide margin of rich green Ivy, so that, looking sideways, you see the slab rising between the rich green of the Ivy. There is an abundance of bedding plants, but the spreads of fresh Grass and graceful borders, wide Ivy edgings and Thuja aurea, small green Lilac bushes, and surrounding mass of wood serve to neutralise and render them tolerable. Happily there were few or no subtropical plants of tender character. At the time of my visit (end of June) the aspect of Bananas and other tender plants in some of the Paris parks was enough to give a sensitive person a fit of temporary palsy. A charming feature in this quarter was the quantity of Standard Fuchsias which formed large and rich heads of bloom, and quite relieved the gay flowers beneath. These Fuchsias are of course taken up in autumn and put out in spring. Roses, Lilacs, and a few later things were alternated with them, so that the centre of all the borders was green and pleasingly varied. A sort of raised fountain, formed of wood in the centre, will perhaps illustrate the character of the garden as well as anything. In the centre is a statue in bronze, which stands on a pedestal completely covered with glistening Ivy. The whole elevation is probably about the same size as the great bed at the end of the broad walk at Kew. Around the Ivy pedestal there is a bed of mixed summer flowers, and that is edged with the large leaves of a free-growing Funkia. Then we have the water, which falls over two of the four halves into which the lowest circle is divided, the two being simply spaces for great beds. Instead of making a blaze in these divisions they simply plant in early spring a lot of a strong rich growing Andropogon, and such verdant material, in them; and between these here and there place plants in flower; so that the affair is as fresh and pleasing to look upon as one could desire. But what we may call the English portion of the grounds is even more tastefully disposed; indeed it would be well if examples equally satisfactory were common with us. No English pleasure-ground could furnish more grateful walks, the water was also treated in a masterly way. One side is made rocky, and the way that they have planted the bald bank above this with trees of various shades of foliage is admirable. By the way the variegated Acer is seen in a much larger condition here and about Paris, than in England. That it is of extraordinary beauty when it becomes large and vigorous, I need hardly say. The rocky edge of the lake is worked out in a distinct and beautiful way by leaving a lot or brood of very small islets near the bank, as if they, being of hard rock, had withstood the denudation of the water. They are covered with wild flowers, and you can step from one to the other—the overarching rocks of the margin being lined underneath with rock Ferns, and the whole looking as natural and *à propos* as if the hand of man had never approached it. The easy yet bold and natural treatment of the lawn on the lake side of the château, and the beautiful grouping of the trees—the most important point in the laying-out of grounds—was here very remarkable; in fact, the best specimen I have seen in France of the happiest mode of laying-out grounds. The Orange trees on the terrace are much finer than even those in the Tuileries, though far from being so numerous. Even the very kitchen—a neat building isolated from the château—is seamed over with Wistaria and Irish Ivy, while a foam of White Roses spring from its roof. The same is nearly true of the gate lodges at this portion of the Bois de Boulogne. They are models of neatness and convenience, and beautiful from being covered in all directions with hardy climbers. Even some of the railings are clothed with the rose variety of Convolvulus sepium—a capital thing of course, as it dies down in winter, and leaves no filth, while no member of the family can look more beautiful when in flower. It simply shows us what may be made of cheap hardy plants—or even of wild plants, by putting them in a fitting situation.

There was a low and cheap wire fence near one of the houses—say about 2 feet high—which was covered with a plant, the seed of which cost originally probably about a solitary sou—with varieties of Convolvulus major, or Pharbitis hispida more correctly. Doubtless this old favourite is known to many as a simply coloured poor thing; but of late years there have appeared such a variety of exquisite colours in it, from crimson to richest violet, and to blue and scarlet stripes on white ground, that the plant becomes of great importance, though it has not yet been used much with us. On this dwarf railing the plants had been placed separately, so that the variety and richness of the colour was fascinating. Thus we see that one may be "as rich as Rothschild" without finding the simplest and least costly things less beautiful than those for which a small fortune must be spent.

MADAME FURTADO'S GARDEN is a few miles from Versailles, and being one of the most famous about Paris, it is desirable to say a few words about it. It is good as a *potagerie* or kitchen-garden, and a plant place, particularly in the Palm and "fine-foliaged" way. Pines are grown, planted-out in iron houses, and very well indeed, most of the fine-leaved plants being in iron houses also. They look as well as could be desired, and the success attained here and at La Muette with low iron houses would not seem to justify the prejudices that exist in England against them. Instead of staging the plants as we mostly do, they have them placed on irregular banks, with winding walks between, and the effect is very charming indeed. It shows conclusively that we may get rid of a great deal of the stiffness that exists in our plant-houses without sacrificing anything of importance. The conservatory has a central part planted with a bold and beautiful mass of tropical vegetation, and two wings with specimen Camellias and cool-house plants, with little rivulets and a carpet of Lycopodium as green as the greenest Grass. A noteworthy feature is the abundance of very small propagating and other houses, which branch off from the more important ones, and are entered from them—rather a distinct but thoroughly useful system. The kitchen garden is, like the French market gardens, very well cropped; lines of Pear trees bordering all the walks, and the Celery being grown in beds of very rich ground. I believe they take it up in autumn, and put it in trenches to blanch; certain it is that they cannot well blanch it where it now is. Out-of-doors there are many good features, and some immense spreads of colour; also some nice beds of subtropical plants—Hexacentris mysorensis was magnificent, depending from the roof of naturally arranged stoves, and the succession Pines in narrow frames, such as I have before described, very fine. In this case the frames were not, as they generally are, nearly flat, but with rather high backs, and a system of closely plunging them in dung was carried out. Briefly, the thing most impressively shown at Madame Furtado's

is the good result to be attained by arranging the interior of hothouses in a more natural manner, a method which renders them very much more interesting and beautiful.

Miscellaneous.

Seven Persons Poisoned by Mushrooms.—An inquest of a very important character has been held by Mr. S. F. Langham, deputy-coroner for Westminster, touching the death of Miss Annie Warton, aged 17, who fell a victim, as believed, to the poisonous effect of mushrooms of a certain class. Six other persons were also poisoned, including Mr. Alfred Warton, the father, an Italian warehouseman, of 13, North Audley Street, Grosvenor Square, who is still suffering from the effects. Mrs. Ann Warton, the mother of the deceased, said her family of six, including herself and husband, accompanied by one of their servants, went to Chislehurst for a short time, and on Friday last her now deceased daughter gathered some Mushrooms in Slade's Wood. Some were selected by her daughter as being good and wholesome, and were grilled; others were submitted to the judgment of a neighbour, and were condemned. Some, very small, were pronounced by him to be good to eat. Some eight or ten were fried in an ordinary pan with butter, of which the whole seven partook at supper. The next morning they were all taken ill, and the deceased daughter was so alarmingly bad that they at once came to town, calling upon their medical attendant in Spring Gardens, Charing Cross, on their way home. He most promptly attended, but her daughter died on Sunday afternoon. Dr. Robert Cross deposed to attending the deceased. He found her vomiting incessantly, and in a state of general prostration, undoubtedly from poisoning by a vegetable alkaloid. He had examined the contents of the stomach, and found no signs of mineral poison. She died from eating Mushrooms of a very poisonous character found in the wood in question. He might add that she had suffered from chronic gastritis and sub-acute inflammation of the stomach, which rendered her more susceptible to the effects of the poison than the other six, who were slowly progressing towards recovery. A verdict of "Accidental death by eating poisonous Mushrooms," was returned. *Daily Paper.*

Poisoning with Laburnum Seeds.—The other day some children, ranging from three to ten years of age, living in Castle Lane, Totnes, were at play, and seeing on the ground some Laburnum pods which had fallen from the garden of Admiral Mitchell, they indulged in eating a few of the seeds. These seeds being highly poisonous the children were soon very ill, and their mothers finding out what they had been eating, took them to a medical man, who prescribed for them; and after a course of physic, with the exception of one, they soon recovered. That one remained very dull for some time, but eventually got better. *Country Paper.*

Pruning Fruit Trees.—My experience and observation has shown me that June, of all months, is preferable [to March] for the pruning of fruit trees; that when pruned in this month the limbs heal over more readily and quickly, leaving no unsightly ends of limbs partially covered with new bark, as is too generally the case with March pruning; and, further, requiring no solution of gum or other substances to cover the limbs, as is required and advised by those who prune in March. There is a something about a tree and its circulation of sap in the month of June, that evidently fits the tree for pruning: for it is not generally known, that during a certain portion of this month the bark may be entirely stripped from the trunk of a tree with entire impunity, and a new bark will be formed, without the wilting of a leaf or the dropping of any fruit. If any of your readers who have any old Apple trees that refuse to bear anything but knotty or gnarly fruit, will, upon any of the three longest days of the year, (the 20th, 21st, and 22d days of June,) with a drawing knife, or any other sharp instrument, cut through the bark of an old Apple tree, and raise the bark so that they can insert their fingers, and strip off the bark (for it then easily runs) as far up as they can, and as low down as it will peel, they will find that a new bark will have formed within 60 days, with no injury to the tree, and without the wilting of a leaf or the loss of any fruit. In my own experience the effect of this plan has been to secure a crop of fair and handsome fruit in old trees, which, before, had proved to be knotty and gnarly; and some varieties of Apples which had of late years apparently run out—for instance, the Rhode Island Greening—by this course have yielded crops of large and fair Apples, which keep good during the winter, while the same trees, prior thereto, yielded a small crop of unmarketable fruit, and they even rotted upon the trees before gathering. *New York Correspondent of Gardener's Monthly.*

Garden Operations.

(*For the ensuing week.*)

PLANT HOUSES.

ALL such plants as *Heliotropes*, *Pelargoniums*, of the scented-leaved and scarlet sections, or any other variety of plant employed for furnishing pillars or back walls in cool structures during winter, should now be cut back decisively, in order that they may have time to break and form fresh flowers before the dull season arrives. The Heliotropes should be spurred back to the old wood. Hard-wooded plants generally will have finished active growth by this time, but where this is not the case cease giving water so freely as has been done; admit air daily between 10 o'clock in the morning and 2 o'clock in the afternoon during fine sunny weather, and water at all times early in the forenoon. A slight fire-heat in pipes or flues will always be advantageous on mornings during which thorough waterings are given. The keeping of stoves and similar houses rather drier during the past and ensuing few weeks, for the purpose of hardening recently formed wood, will have been very favourable to the spread of red spider. It may be well, therefore, to paint a little sulphur upon any moderately warmed surfaces in such structures, an operation which will have a tendency to obviate any ill effects that may present themselves. Plants in flower in conservatories, &c., must receive the least possible amount of excitement at this season. Keep the internal warmth as even as possible. Shift into pots a size larger than those they are now in all *Cinerarias*, *Calceolarias*, *Primulas*, &c. Put the two former under cover without further delay, if not already done. The latter should be changed into a position due south, where, by receiving more light they will not run the risk of being unduly "drawn." Thin out *Mignonette* sown last month if not already done, and remove it likewise away from any too shady position. See that *Gloxinias* are ripened off gradually, giving a little water occasionally if they become too dry. Forward by every possible means all plants intended for winter flowering, such as *Stocks*, *Heliotropes*, *Chrysanthemums*, &c.; these latter should now have abundance of good strong manure water given them. Some of the more tender *Tea Roses* intended for winter blooming should also be seen to; place them under shelter where heavy rains cannot reach them.

FORCING HOUSES.

Most Grapes should be properly coloured by this time, but especial attention will now be necessary as regards keeping all *late Vineries* as dry as possible internally. The dry atmosphere which is desirable acts in a twofold manner, it endows the berries with good keeping qualities, and it assists materially in ripening the wood formed by a somewhat later growth than ordinary. Should symptoms of "shanking" exist, remove at once all affected berries. Sever the part cleanly in twain, leaving as little of the diseased portion or ragged edge to the wound as possible, in order that no incentive to further spreading may remain. Do not omit to have all necessary repairs done, whitewashing the back walls, &c., of Vineries, the foliage in which is dying off. Continue also to stop useless laterals should they present themselves. Give every attention to such *Pines* as may show fruit during this or the next month. Place them in the most favourable position possible, where they may receive the greatest amount of sunlight, and not be subjected to too moist an artificial heat. Gently and with uniform gradation reduce the heat around the most forward next following successions, letting it fall to a minimum of about 64°, with a few degrees rise by day. Doing so will inure them to the temperature which must be more or less forced upon them at the time they show flower in or about December. A rise to a higher temperature at that time will be more appreciated by them than if no depression in the warmth had taken place. Heat had better be slightly reduced also in the case of Pines of all stages from this date. Those swelling fruit should, however, have a high moist stimulating heat, which should be continued until the first symptoms of ripening show themselves. Drive the thermometer upon fine afternoons up from 94° to 98°, taking care to have all other accessories therewith equally proportioned.

HARDY FLOWER GARDEN.

Bulbs, such as *Hyacinths*, *Tulips*, *Narcissi*, which for convenience may be classed together as regards treatment, if they are to be flowered early and well, should be procured and potted without delay. Any, however, intended for late forcing, or which are wanted in flower from February to April, need not be potted for another month or so. Always select where possible solid bulbs, with the apex fully ripened off. It is not necessary that they should be finely-formed ones. Some of the ugliest amongst them ofttimes produce the finest spikes. They all delight in a rich, well decomposed maiden loam, two parts, thoroughly rotted spit manure one part, with a dash of silver sand, all being carefully amalgamated. Crock well, but not too plentifully. Press the soil evenly and firmly into the pot, filling the latter to within an inch of the rim; place a little silver sand upon the centre of this, upon which the bulb—now held between the fingers without injury—should be placed, and pressed firmly down to rather more than half its depth; press a little more soil around it for the purpose of fixing it more firmly, finishing off the surface evenly, to admit of future waterings draining uniformly throughout the ball; afterwards place them in an open situation, and afford them, if possible, an opportunity to become nicely dried upon the surface, when a thorough soaking with clear water may be given them without there being any danger of caking the soil upon the surface; a too frequent occurrence, caused by early watering plants which have been potted in rather moist soil. If convenient, moreover, let the surface of the soil and the apex of the bulb become moderately dry again before they are covered over. A layer of coal ashes or Cocoa-nut refuse placed over each bulb, about 6 inches deep, will then be all that is needed; this is for the purpose of keeping them firmly fixed in their places during the process of rooting, without which the force of the roots as they emerge from the base quickly upraises the bulbs. One other remark: procure good bulbs; even though they cost a trifle more, they are cheaper in the end. In the case of Hyacinths, single flowering ones are as a rule more showy, and indeed more graceful than double ones. For potting single bulbs, 32-sized pots are best. Do not keep *Indian Azaleas* in a high temperature after they have finished growing, and begin to show just slight symptoms that a crop of flower-buds is setting. At such a stage gradually inure them to the outer air—exposure for a week or two to which will be of great benefit to them, before storing them away for the winter.

HARDY FRUIT GARDEN.

Prune away all young shoots, and any leaves which overhang and shade fruit upon *Tomatos*, an operation which will materially aid the process of ripening. Remove all laterals as frequently as they show themselves upon *Peaches* and *Nectarines*, and snip some of the larger leaves in two, in order that air and light may be freely admitted to the wood.

KITCHEN GARDEN.

Sow *Dwarf French Beans* in pots, and place them in an open situation, there to grow strong and robust for ultimate removal to the forcing pit. Commence blanching *Endives* for early winter use; as these are intended probably for removal eventually into pits or frames, it will be better to forward this process by tying them up in the way followed for blanching Lettuces. Finish earthing up *Cardoons*. Sow small salading rather more frequently as the weather becomes cooler. Set about transplanting the main stock of winter *Cabbages* intended for spring use, and while sunny weather lasts do not omit the proper use of the hoe. Continue to earth up *Celery*, which at all times should be done with the hands, holding each plant separately in one hand whilst the soil is put to it with the other. Still sprinkle flowers of sulphur over late *Peas* which show any symptoms of mildew upon the foliage. *W. E.*

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the Week ending Sept. 11, 1867, as observed at the Horticultural Gardens

Sept.		Moon's Age.	Barometer.		Temperature. Of the Air.			Of the Earth		Wind	Rain.
			Max.	Min.	Max.	Min.	Mean	1 foot deep.	2 feet deep.		
Thurs.	5	)	29.821	29.798	73	42	57.5	63	61	W.	.02
Friday	6	8	29.773	29.725	69	52	60.5	62	61	S.W.	.12
Satur.	7	9	30.000	29.851	72	40	56.0	63	60	S.W.	.00
Sunday	8	10	30.030	29.848	73	40	56.5	62	60	S.	.00
Mon.	9	11	29.856	29.731	74	50	62.0	62	60	S.W.	.82
Tues.	10	12	29.887	29.785	73	41	57.0	62	60	S.W.	.30
Wed.	11	13	29.941	29.854	72	56	64 0	62	60	S.	.21
Average			29 901	29.799	72.3	45.8	59.0	62.3	60.3		1.47

Sept. 5—Rain; fine; clear, and very fine at night.
— 6—Fine; heavy showers; fine.
— 7—Overcast; fine; clear at night.
— 8—Very fine; cloudy; very fine.
— 9—Very fine; overcast; excessively heavy rain.
— 10—Clear. fine: thunder and heavy rain, 5 P.M.; clear.
— 11—Hazy; cloudy; overcast; rain at night.
Mean temperature of the week, 6-10 deg. above the average.

STATE OF THE WEATHER AT CHISWICK,
During the last 41 years, for the ensuing Week, ending Sept. 21, 1867.

Sept.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E	S.	S.W.	W.	N.W.
Sunday..15	67.6	46.2	56.9	21	0.63 in.	1	5	6	3	8	5	6	5
Mon. ..16	68.4	47.1	57 8	17	0.61	3	7	5	1	10	6	7	2
Tues. ..17	69.1	44.6	56 9	16	0 90	1	6	6	3	3	13	0	4
Wed. ..18	68 2	46.5	57.4	19	0.84	3	9	3	1	3	11	6	5
Thurs. ..19	67.3	45.0	56 2	20	0.64	4	10	4	1	6	9	4	3
Friday ..20	67.3	44 0	55.6	19	0.45	3	5	5	4	5	9	6	4
Satur. ..21	66.3	45.2	55.7	23	0.50	2	6	6	2	6	10	7	2

The highest temperature during the above period occurred on the 15th, 1865—therm. 87 deg.; and the lowest on the 17th, 1840—therm. 29 deg.

Notices to Correspondents.

NOTICE TO CORRESPONDENTS.—Specimens which are sent for inspection so often arrive in a state unfit for examination, that a hint about the proper mode of transmission may not be superfluous. Nothing should be sent in a mere envelope, which can be injured by stamping. Succulent leaves, for example, have their characters completely obliterated. Specimens of diseased fruit should not only be sent in a little stiff box not likely to be injured, but each fruit should be wrapped in a piece of soft paper, which should be perfectly dry, and the whole so firmly packed that no shifting can take place, yet not so firmly as to cause any exusion of the juices. Damp Moss or paper is sure to cause decomposition, and where disease has really been caused by Fungous growth, the original Fungus will be quite overrun with common mould, so as to make any correct diagnosis impossible. With proper packing, specimens will bear three or four days' imprisonment without undergoing any material change. Soft Fungi, for example, often reach us from Wales or Scotland in excellent condition where the mode of packing above suggested is adopted. *M J B.*

ANTIRRHINUMS: *J C.* Among your seedlings are some pretty varieties, which, however, are little improvement, if any, on kinds possessing the same colours already in cultivation.

GRAPES: *R D B.* Your berries arrived in a dreadful state of decomposition. We can, however, just see the puckered condition you mention at the stalk, though the top of the berry is even more decayed. In both we find abundant mycelium, but whether the cause or consequence of disease cannot be ascertained from the specimens. *M J B.*

NAMES OF PLANTS: *East York.* 1, Cyperus alternifolius; 2, Pilea serpyllifolia; 3, apparently Sanseviera carnea variegata.—*A W.* Leycesteria formosa.

PELARGONIUMS: *J G.* Your leaves having a well-defined narrow red zone, with a broad yellow margin, are pretty; but the disc on the centre is not dark enough, and it is somewhat broken by the yellow, which runs into it. Therefore, unless the variety is distinguished by quality of bloom or habit of growth, it must be inferior to kinds already in cultivation.—*M & Son.* There is apparently little or no fixity of character in the large leaves which you have sent. The margins are yellow, the zones red, but very irregular, and in the centres there is more yellow than green, making the variety, we are afraid, of little value. In your small leaves the zone appears to spread or diffuse itself over the entire centre of the leaf, a circumstance not unusual with some varieties, more particularly at this period of the year, but it is doubtful if it will prove permanent.

RED SPIDER: *W H.* Your leaves are swarming with red spider, and there is besides a small kind of scale on them. When red spider once gains admission it is very difficult to drive it out. A thorough cleansing, frequent syringing, and the extirpation of all affected plants, is all we can suggest, except that should the house be capable of having everything removed, and be detached from other houses, a fumigation with burning sulphur would be desirable. Should any plants, however, be left behind, they would certainly be killed with the fumes of the sulphur. Proper caution, therefore, must be used. *M J B.*

COMMUNICATIONS RECEIVED.—T. M.—D. O.—C. E. F.—D. F. (Your letters have been sent to the proper authorities).—Inquirer.—H. P.—H. M.—S. and M.

TO FARMERS in Healthy Localities.—A Gentlemanly Boy, about 13 years old, of delicate constitution, to be placed with a Farmer's Family, Farm life being recommended by the Doctor. Please state what would be done, nearness of a Physician if needed, with family religious denomination, and name and address of their clergyman or minister, to E. F., 7, St. Paul's Crescent, St. Paul's Road, Camden New Town, London, N.W.

HIGHLAND AND AGRICULTURAL SOCIETY.
AGRICULTURAL EDUCATION.

The NEXT EXAMINATIONS for the SOCIETY'S CERTIFICATE and DIPLOMA will be held in MARCH, 1868, in the Society's Chambers, No. 3, George IV. Bridge.

Candidates for the Certificate must be 18 years of age; those for the Diploma must be 21.

Candidates for the Certificate must be acquainted with Farm Accounts, Mensuration, and Surveying, and must possess a good knowledge of Practical Agriculture, and a general acquaintance with the elements of Botany, Chemistry, and Natural History.

Candidates for the Diploma must have previously obtained the Certificate, and must possess a thorough knowledge of the theory and practice of Agriculture; of Mechanics and Mensuration; of the Physiology and treatment of domesticated Animals; and of the applications of Botany, Chemistry, and Natural History to Agriculture.

Further information in reference to the Examinations to be had on application to the Secretary of the Society, at No. 3, George IV. Bridge, Edinburgh. F. N. MENZIES, Secretary.

ROYAL AGRICULTURAL COLLEGE, CIRENCESTER.

The PROFESSORSHIP of NATURAL HISTORY being VACANT, in consequence of the appointment of Dr. Traquair to the Chair of Zoology in the New School of Science at Dublin, Candidates are requested to communicate with the PRINCIPAL.

ROYAL AGRICULTURAL SOCIETY of ENGLAND.

EDUCATIONAL PRIZES.

APRIL, 1868.

FORM OF APPLICATION FOR CANDIDATES.

To be returned filled up on or before February 29, 1868.

Name of the Candidate at full length .. ..
Date of his Birth .. ..
Branch of Business followed by his family ..
Business intended to be followed by himself ..
Residence of Parents or Guardians .. .. ..
The Names of the Schools at which the Candidate has been educated, stating the number of years spent at each; accompanied by Certificates of general Education .. .. ..
The Candidate has to state whether he will be examined in Land Surveying, or in Mechanics as applied to Agriculture, or in both subjects. ..
He must likewise state in which of the following optional subjects he desires to be examined, viz.:—
Botany .. ..
Geology .. ..
Veterinary Science .. .. ..

Copies of the above Form may be obtained on application to H. HALL DARE, Secretary.

THE NATIONAL EXHIBITION of SPORTING and OTHER DOGS.—The EIGHTH GREAT ANNUAL EXHIBITION will be held in the CURZON EXHIBITION HALL, BIRMINGHAM, on MONDAY, TUESDAY, WEDNESDAY, and THURSDAY, the 2d, 3d, 4th, and 5th of December next.

Copies of the Prize Lists and Regulations may be obtained from the Secretary, Mr. G. BEECH, Temple Row, Birmingham.

The ENTRIES CLOSE on NOVEMBER 1.

SMITHFIELD CLUB FAT CATTLE SHOW.—The ANNUAL SHOW of FAT CATTLE, SHEEP, and PIGS, will be held at the AGRICULTURAL HALL, ISLINGTON, on MONDAY afternoon, December 9, and Four following Days.

Intending Exhibitors are requested to apply for Certificate Forms by the reference letters as under.

CATTLE.—Form A. For an OX or STEER (in any Class).
" B. For a COW or HEIFER (in any Class).
" C. For a BEAST in EXTRA Stock.
SHEEP. " D. For a PEN of 3 WETHERS (in any Class).
" E. For a SINGLE SHEEP in Extra Stock.
PIGS. " F. For a PEN of 3 PIGS (in any Class).
" G. For a SINGLE PIG in Extra Stock.

ENTRIES for LIVE STOCK CLOSE NOVEMBER 1.

Prize Lists, Forms of Certificates, and all information, may be obtained on application to Mr. DAVID PULLEN, Assistant Secretary, at the Office of the Honorary Secretary, corner of Half-Moon Street, Piccadilly, London, W.

N.B. All communications respecting the Show must be addressed to the Assistant Secretary, as above, and should bear outside the words "Smithfield Show."

SMITHFIELD CLUB SHOW, AGRICULTURAL HALL, ISLINGTON, DECEMBER 9 to 13, IMPLEMENT DEPARTMENT.

The LAST DAY for receiving Applications for Space for Implements and Machinery, &c., is OCTOBER 1.

Printed Forms of Application, with the Rules and Regulations, may be obtained of Mr. DAVID PULLEN, Assistant Secretary, at the Office of the Honorary Secretary, Corner of Half-Moon Street, Piccadilly, London, W.

The Agricultural Gazette.

SATURDAY, SEPTEMBER 14, 1867.

MEETINGS FOR THE ENSUING WEEK.

TUESDAY, Sept. 17—Warwickshire.
WEDNESDAY, — 18—Buckinghamshire (Aylesbury). Derbyshire (Derby).

DURING the last 12 months a series of letters have appeared in the *Times* newspaper, from the Rev. EDWARD GIRDLESTONE, Canon of Bristol and Vicar of Halberton, respecting the wages and treatment of agricultural labourers. Urged by the condition of the labouring population of his own Devonshire parish, he has practically endeavoured to apply the best remedy to the evil as it exists near himself, having, as he states in a recent letter to the *Times*, sent no less than 90 labourers from his neighbourhood to other parts of the country—30 of whom are married and with families—almost all of them doing well, and still in their own vocation of agricultural labourers, the married men earning from 12*s.* to 1*l.* a week, with a cottage and garden rent free, together with, in some cases, fuel and other privileges; the single men board, lodging, washing, mending, and from 6*s.* to 8*s.* per week. Mr. GIRDLESTONE further says:—"The result of this movement is very encouraging. Among the labourers—up to this time a rather sleepy, untravelled, and immovable body—a spirit of inquiry and enterprise has been roused. Many besides those towards whose removal I have been instrumental, have of themselves found better wages in distant places. Those who remained have learnt that a removal to better-paid districts is not by any means as difficult a matter as they once supposed. The farmers in every part of this neighbourhood have raised wages from 7*s.* to 8*s.*, 9*s.*, and, in some cases, even to 10*s.* a week. They have begun to treat their labourers with more kindness and consideration; and much to their own advantage, as well as ultimately to that of the labourers, they have begun to make more general use of mowing, reaping, and other machinery. In other parts of the country farmers short of hands have learnt how easy it is by means of the penny post and penny-a-mile trains to enlist the services of those at a distance, and have discovered that it is well worth their while to do this, at the cost of giving part and advancing the remainder of the expense of removal, to be repaid gradually out of wages. Thus, the influence for good has been much more extensive and important than could have been anticipated from the means employed."

In consequence of this success, the rev. gentleman has, with the co-operation of several influential persons, established an institute and office for the registration of the wants of both employers and to the employed, at 18, Serjeant's Inn, London.

In connection with this a circular will be issued, at present monthly, containing a list of the above wants—the price of labour in various agricultural districts—and other appropriate information. District agencies are likewise being gradually established in various parts of the country, both to collect and supply information, and to make known the wants of all parties concerned.

The probable result of this movement cannot be better described than in the words of the founder. "It will practically establish what is imperatively wanted—free trade in all kinds of labour:" It will tend to bring employers and the employed more together, improving the tone of feeling between them, and lessening that bane of the present day—the desire for unions and strikes. It must have the effect of rousing the energies of the agricultural labourer, the most dependent of all the working classes, and by facilitating the removal of *his* capital (labour) to the best market, improve his condition and character by the hope of rising in the social scale. Indeed, there is no knowing what good may ultimately result from this move in the right direction, both with regard to the employer and the employed. The former may have the means of securing the best men by bidding for them; and the latter will have a substantial motive for endeavouring to come up to the mark in all the requirements. These are the prime motives which lead to success in our social state, whatever may be our avocation; and it is high time that they should be set in action among the labourers in rural districts. For these constitute a class which must be considered the very bone and sinew of the country, having hitherto been the chief source of the nation's defenders all the world over, in the army.

The outlines of the enterprise will, doubtless, be sufficient to attract attention to it from all concerned in agricultural pursuits; but, of course, it will need the advice as well as the co-operation of both sections of the labour market—the employers and the employed—to raise the institution from its present beginnings to the ideal of its founders. Mr. GIRDLESTONE'S letter is given in full in another page.

THE same week has brought us two extremely different criticisms of Mr. MECHI and his farming. The reputation of so energetic a public man is certainly a matter of public interest, and we have not hesitated therefore to give our correspondents the opportunity of laying their very opposite estimates of his services to agriculture before our readers. We cannot fully agree with either, for in neither case, as it appears to us, is justice done—Mr. MECHI is not always absolutely right, as "MILES" believes him to be, nor, if he misleads, is he himself misled by any unworthy motive as an "Old Farmer" or his friend insinuates. His sanguine and demonstrative nature cannot avoid pouring forth the thoughts which a fertile brain and keen agricultural tastes and observation suggest. That is the true theory of the phenomenon. And so our readers have, almost weekly, quantities of very readable and interesting agricultural discussion, for which to thank him. And they are benefited, occasionally by the sound practical advice, often by the thought-compelling criticism, of a man who probably does not carry out his own sound teaching, or realise his own ideal of an agriculturist, half so well as many a plodding, careful, clever farmer, who, after all, may be benefiting hardly any person but himself. We hope it may be long before our agricultural periodicals shall cease to publish Mr. MECHI'S thoughts on agriculture, or our agricultural meetings shall miss his hearty face and fluent tongue. He is serving his generation with efficiency by his constant iteration of many an old agricultural truth, for which the point and fire of his good English often obtain a lodgment where duller efforts hitherto had failed; and we represent the large majority of English agriculturists in offering him our thanks.

—— LAST year we made some remarks and suggestions on the progress of ram breeding, as it had developed itself in Lincolnshire. The strictures we then made have been verified, and the predictions have already come to pass. In the first place, we may at once say, the demand at this fair was far beneath the supply, although there were only 582 on the ground against 867 in 1865. Last year the number was no criterion, as the regulations on account of the cattle plague prevented the sheep shown under certain conditions from passing out of the county in which they were exhibited. This excess has arisen from too many men, who were hitherto only store breeders, having given way to the temptation to save rams. The high price of long wool constituted this temptation, which caused breeders of cross-bred sheep to flock to Lincolnshire and give 12*l.* or 15*l.* for any form of sheep, providing he had a heavy fleece. But this is not the worst result which we said must ensue if the practice which was pursued by many of the smaller breeders was continued. From the character of many of the sheep that were brought to the various fairs, it was clear that every principle essential to successful sheep-breeding was being sacrificed for two objects, viz., apparent size, as it was shown by the height of sheep, and a great weight of wool. The additional result of this practice is, that the flocks which have been so selected have lost, not only form and substance, but wool also. And now that long wool has fallen in price from 30 to 40 per cent, the great temporary demand in question has departed also, leaving with it, we fear, more than a temporary defeat for the breeders of first-class improved Lincolnshire sheep. For not only is there a disposition to change among breeders, who look only to stores, particularly when there is no more inducement to produce wool than mutton, but there are now spread about the country many yearling sheep that do anything but credit to their breed; and many others have had their throats cut from pure disgust on the part of their owner at their ugliness after they had been sheared. Thus our strictures and advice might have been advisedly circulated, and, where practicable, enforced. For it will have been seen that the rams of many of the first-class flocks have declined very much in price, and in some cases but little more than half the averages of previous years have been realised. This simply constitutes an injustice to men who aim at good animals regardless of expense, and it inflicts on the breed an injury that is solely due to the indiscretion of those who are most interested in that breed standing well in the eyes of the public. The blow, however, this year is so severe, that it will effectually clear the atmosphere, and thereby allow, by next year or the year after, the good breeders, who have thus been injured by inconsistent interlopers, to have the fair chance in the field of competition with other breeds which they merit.

To promote this restoration, there is one thing the Lincolnshire men ought to adopt, viz., to take advantage of any public shows, and there make a greater exhibition of their sheep than they have done. Lincolnshire sheep have been but meagrely represented as regards numbers at the Royal, West of England, and Scotch and Irish shows; and the best specimens of the breed have scarcely been represented at all. In the interest of this fine breed, as regards the production both of an abundance of meat and of so large a value of wool, we need scarcely say this neglect ought no longer to continue. Whatever may be the short-comings, from a practical point of view, of the biassed judgment which governs many public agricultural meetings, this much is certain—the breeders of any particular county, or of many counties, are impressed and influenced in their opinions and decisions by the great or small comparative show which is made by different classes of animals.

Every regular annual buyer of rams has not explored Lincolnshire, and if Leicester, Cotswold, and other white-faced breeds be shown in long "strings" at National County, and Fat-stock Shows, and Lincolns be exposed but in a limited way, the breeders of them,

however much they may be appreciated on their own ground, must, in competition with the whole county, be placed at a disadvantage.

Beyond one lot at Peterborough last Saturday, the prices were far beneath the usual average. The successful ones were Mr. TOM CASSWELL'S, of Pointon. These made an average, for 50, of 15*l.* 10*s.* each. This good result was due to the consistent treatment of these sheep by making fine and true character the first object. Mr. W. KIRKHAM, of Warkby, has greatly improved his flock, and he was rewarded by an average of upwards of 12*l.* Mr. CHARLES CLARKE, of Ashby, undeservedly suffered from an excess of sheep over customers. Mr. WILLIAMS, of Carlton-le-Moorland; Mr. GREAVES, of Bloxham; Mr. WRIGHT, of Nocton Heath; and Mr. CARTWRIGHT, of Dunstan Pillar, also brought their rams in capital form, but they shared the fate of the day. Some of the petty breeders of two or three years' standing have already declared their intention to leave this branch of business to other and, we need not add, better hands. This is wise, as it will enable them to spread over their whole flock that time, trouble, and food, which has been devoted to a few rams; and it will at the same time make room for those flockmasters who do not presume in vain to be worthy of the name of ram breeders.

—— The sale of Mr. THOMAS ELLMAN'S Southdown flock took place at Beddington, near Lewes, last week. Five hundred ewes averaged 3*l.* 19*s.* 4*d.* each; 150 lambs averaged 2*l.* 11*s.* 6*d.*; 25 ram lambs fetched 14*l.* 4*s.* 9*d.* apiece; and 15 rams 24*l.* 18*s.* 5*d.* each. The amount realised was 3094*l.* Most of the flock remains in Sussex. Some of the highest priced animals, however, were purchased by Sir J. SEBRIGHT, who gave 25 and 43 guineas each for ram lambs, and 48 guineas for a full mouthed ram. On the other hand Mr. RIGDEN gave 10*l.* apiece for a lot of full mouthed ewes, and other lots of five fetched 5*l.* and 6*l.* apiece. The sale is a satisfactory testimony to the value of well bred Downs.

—— The reappearance of Cattle Plague in Cheshire, reported last week, has been since denied. A *post mortem* examination on the farm of Mr. HOLLAND, Green Bank, Hartford, near Warrington, had revealed what were believed to be symptoms of the disease, and 30 head of cattle upon the farm were all to be slaughtered. We learn, however, that a meeting of the Central Cattle Plague Committee for the county has been convened for this day (Wednesday), at the Crewe Arms Hotel, Crewe. Of course there is no afternative but to declare the district an infected place. This is just the time of year that the disease broke out two summers ago. *Chester Courant.* With reference to the above paragraph Professor BROWN, the Government inspector, has since reported that these cases are not cattle plague, but a non-contagious disease dependent entirely upon local causes.

WHERE IS MR. MECHI WRONG?

I HAVE lately read most carefully Mr. Mechi's book, "How to Farm Profitably," and candour compels me to say, if it is not the best agricultural work, as to details, I have ever read, it is the most original, and, in many respects, certainly one of the most practical.

I have heard many men who call themselves good farmers condemn Mr. Mechi's system; but I can see nothing, absolutely nothing, in it repugnant to what I have always understood to be the foundation of good and profitable farming. So far as I can see, he originates no new theory in agriculture. He is loud in proclaiming the stern necessity for the introduction of more capital into the business; but surely this does not really touch the business itself—it is simply a means to do better that which was inadequately done before. Will any of his opponents tell us *seriatim* to what they object in his system? Is it to drainage, sewage manure, subsoil, ploughing deep, clean cultivation, the absence of unnecessary trees and fences, green crops, house-feeding stock, &c., &c.? for I dare to say all these things had their advocates before Mr. Mechi adopted them. Then why were these not attacked before? The truth is, Mr. Mechi is a bold man; he exposed and denounced prejudice in its stronghold, and it is for this he is condemned.

I consider him an honest, devoted, enthusiastic friend to agriculture, in its broadest and best sense; and he has done more, spent more money and more time in the cause of agriculture than any living man, so far as I know: and he has at last succeeded in thrusting its wants and its importance steadily before the public; and had he done nothing else, he is for this entitled to the lasting gratitude of landlords and tenants. I honour and admire the man for his courage, candour, honesty, and consistency. I avow myself a humble disciple of his system, though he is personally hardly known to me. I mean to try, on a small scale, to do what he has so largely carried out. But I cannot purchase and improve bad land, as he has done, nor have I any wish to face the obloquy that was heaped on him; but as a mere tenant farmer I shall most certainly try to follow him and others of his class as soon as I can find a proprietor of the right sort, one who is really anxious to develop the steady, profitable progress of agricultural pursuits, and who is ready to do the landlord's work in this most noble and most necessary pursuit; for they are blind indeed who cannot see the time is rapidly coming when two blades of Grass and two ears of Corn must be made to grow where but one is now seen.

As a class the farmers of England sadly need education, enterprise, energy, and emulation. To seek for all these, as well as for profitable farming, we must travel north o' Tweed, and try to do as they do at Auchness and Canning Park farms. Talk of these things to English farmers, and they will laugh at you for a fool! Why? because they will not try to do the same themselves; they don't succeed, only because they won't try—of course, using the proper means, the first of which is capital, the powerful lever on which Mr. Mechi depends; and what, may I ask, in any pursuit, can be accomplished without the command of adequate capital?

My profession obliged me to live a considerable time in the Channel Islands, when having some little knowledge of such things, and being an ardent admirer of them, I paid much attention to the cows, as well as to the mode of feeding and treating them, and the consequent superiority of the dairy products of those islands. Why, Sir, English dairy farmers have very much to learn from the natives of Jersey and Guernsey. The ordinary winter food for those cows is the Parsnip, the Carrot, and the sweetest hay; no grains, no wash, no rubbish. Where in England do Parsnips and Carrots enter largely into farm cultivation? For these you must have deep, nay, the deepest, cleanest cultivation, liquid and good rich solid manure. You must have good houses, and you should cook all cattle food. Does not Mr. Mechi insist on all these things? If so, wherein is he wrong? For my own part, I should much prefer to pay 3*l.* to 4*l.* per acre for the richest land in England, to farming a poor, undrained, worthless clay or sandy soil gratis. If I only knew the landlord and the land of the right sort, I would cheerfully pay the highest price for the best land: and if the landlord would erect buildings to save labour in feeding stock (a daily saving), most gladly would I pay interest on his outlay, as likewise on his outlay in enabling me to manure the land in the most economical way, which is unquestionably by sending it out enriched with golden guano, blood manure, &c., &c., in a liquid form. I never yet heard a farmer dispute this.

Who will point out in detail where Mechi is wrong? I am really very anxious to know this. *Miles.*

THE PARIS EXHIBITION.

FROM OUR CORRESPONDENT.

IN our last we described the many places in which collections of seeds and agricultural produce can be seen, and which are situated in the Park; we now take up what is to be seen within the main building. We enter from that part where the zone intersects the main avenue leading from that facing the Ecole Militaire, and which will easily be known by the small gold trophy or obelisk which stands in the centre of the avenue. Looking towards the central garden, we turn into the zone on our right hand, and the first collection we come to—is the section devoted to Algerian produce. In the zone devoted to the natural products, in which those objects we are at present interested in are naturally placed, the claimants for space have been so numerous, that the exhibits have overflowed, so to say, their natural boundaries; and in order to keep up as much as possible the order of classification, in place of carrying away the surplus of exhibits to some altogether distant or separate place, they have portioned off a strip from the side of the machinery gallery.

The seeds shown by Algeria are not very numerous, but are worthy of examination; to the Potatos and other roots, and the collection of fruits, the same remark applies. A little further on in the zone is the collection of produce of the French colonies other than Algeria. This, as might be supposed, is rather an important one in point of extent and value, and there is much in it which will well repay a close inspection; all the more if the visitor happens to be one interested in our own colonies. The collection of agricultural seeds is not very large, but this cannot be said of the sugars and the coffees; these, with the Cottons, are really very interesting. Although only in the most indirect manner connected with the subject, we cannot pass this without noticing the collection of life-size figures which are placed in a department next to the one under description, illustrating the costumes of the peasants of the different departments of France. This is really a very interesting and a very suggestive little exhibition,

In walking along the zone a long stretch of flooring will have to be traversed by the visitor before he comes upon any object or collection of objects within our present subject. If he is interested in metals, he will find, however, in the course of his walks, much that will arrest his attention and give rise to reflections suggestive enough when he sees how closely the Continentalists are treading upon our heels in a walk which we have for long looked upon as exclusively our own. The department or apartment next come to contains a large collection of seeds and plants which are exhibited by the leading seedsmen of Paris. Amongst the collections we would specially draw attention to that of Paul Tollard, 20, Quai de la Megisserie, Paris. This seedsman has a large collection of agricultural and garden seeds, and he exhibits a goodly number of specimens of Grasses. Messrs. Vilmorin, Andrieux & Co. (4, Quai de la Megisserie, Paris), have perhaps the largest collection of seeds and specimens of agricultural produce. The samples of Maize, Peas, cereals, are both numerous and good. The next apartment, further on, is devoted to specimens of woods, and here will be found a number of albums containing drawings.

In the British section of the zone devoted to natural products there are no collections of seeds, although there are some to be met with in the part of the machinery gallery opposite, to which we shall hereafter refer when we go through that part of the building. Continuing our walk, therefore, in the zone proper, we next come to the section devoted to the Australian Colonies, where the first collection met with is that sent by the Queensland Committee, in which there are a few samples of cereals and a very complete collection of wools and woods, showing the wealth of the colony in these two important departments of its rural economy. South Australia shows samples of flour, of cereals, and of wools, woods, and fruits (in wax). The wools, like those of the Queensland colony, are numerous, and there is also a very interesting collection of insects peculiar to the colony.

The South American collections come next, amongst which the United States of Venezuela shows some seeds of various kinds, as also the Argentine Republic Confederacy. Next come the United States of America, which exhibits a very interesting collection of Cottons, Flax and Hemp, but no seeds, these being in the machinery gallery opposite, of which more hereafter. Next comes the Turkish collection, which is made up of a large and most interesting assortment of seeds of all kinds, fruits, and various food produce. The Cotton samples are both numerous and good, and altogether the exhibits show very clearly how rich this country is in natural products, and how much it might contribute to the wealth of peoples if its resources were properly cultivated, and all the aids of improved cultivation and good government were brought to bear upon and assist the exertions of the population. It remains to be seen whether the now much talked of reforms and improvements said to be shortly to be inaugurated, will be in reality so; if so, we may anticipate a large increase in the food supplies of this country from Turkey.

In the Italian department a collection of seed Flax, and a very interesting and complete exhibition of Maize or Indian corn will be met with. An interesting series of samples of silk fibre is to be met with in the Russian department, next in order. Manures, varieties of flour and meal, are also here exhibited; and the smoker will find in the very large collection of Tobaccos and cigars much to interest him. There is in the Swiss department, next arrived at, no seeds or food produce, but an interesting collection of Mosses. The Grecian department has a small but most suggestive collection of seeds, of silk fibres, cottons, fruits, and oils, which show what this fine country can produce. The remarks we have made upon the Turkish department, with reference to the effect of good government upon the increase in the amount of the products of food, apply as forcibly to Greece.

The Portuguese department has a fair collection of specimens of Flax, of bees' wax, Tobaccos, nuts, oils, wines, and cheeses. In the Spanish department is a very fine collection of wools, Flax, and silks, and a variety, not numerous, of seeds; but this is atoned for in the splendid collection in the Annexe of this country in the Park, and to which we drew attention in our last paper. Austria has a collection of Flax, Teazles, and silks, and a few seeds. Bohemia exhibits perhaps the best collection of Hops met with in the Exhibition. Further on still, in the Austrian department, a most interesting collection of Maize will be met with; the heads are arranged on the wall in the form of a scroll. Here is the collection of Grasses to which we have before alluded as presenting an excellent specimen of the way in which Maize can be exhibited to the best advantage. Each specimen is spread out upon a card, with the scientific designation given, and large scale drawings of the organs. In this same department the samples of wool are very numerous, and altogether there is much in it to interest the agricultural visitor. In that of Hesse, the next met with, there is a small collection of seeds of Flax plants and of the prepared produce.

As this finishes the exhibits in the zone devoted to natural products, we walk a little further on till we reach the gold obelisk or trophy, which marked the place where we commenced our survey we cross over the machinery gallery to the right; until we come to the opposite side, and here, in an apartment the entrance to which is next that of the large entrance by which, from the avenue leading from the Ecole Militaire, the main gallery is reached, will be found a very interesting and extensive collection of seeds and food produce belonging to Algeria, which is the supplemental exhibition to that met with in the zone of the natural products opposite, and which we have already described. The collection of plants and food produce is very interesting and complete. Issuing from this, and continuing our walk around, through the machinery gallery, keeping always its exterior wall or boundary to the right, the main collection of machines being to the left in the centre of the gallery, we next come to a long side gallery, so to call it, which belongs to Belgium, and is devoted to a very large collection of seeds, manures, models and drawings of agricultural buildings, &c. The examples of cereal plants are very numerous; and, as might be expected, the exhibits of industrial plants, as Tobaccos, textile plants, sugar-producing Beets, &c., are both extensive and interesting.

On this side of the machinery gallery France has no supplemental exhibitions of food produce—this stretch of wall being continuous, having no apartments or galleries in it, and is occupied with small machines, cases of tools and models, and drawings of various kinds. Passing on, we come to the British department of the machinery gallery, which, on the right is provided with a series of side galleries or apartments in which a few collections of food produce and seeds are to be met with. The first on entering is a collection of Hops, exhibited by Messrs. Baker, White, and Morgan, Hibernia Chambers, London Bridge; and by Messrs. Woollin & Sons, 246, Borough, London. In the same gallery, to the left and a little further on, the visitor will find a selection of the well-known analytical samples of food which have for a good many years graced the galleries of the South Kensington Museum. They are here placed in such a wretchedly lighted corner, that we have no doubt hundreds of visitors will pass them without being made aware of their existence. The collection here comprises also a series of drawings of British Funguses, both edible and poisonous. Mr. Isaac Rickett, of Hull, exhibits

samples of his new food, which he calls Sagolina, prepared, as we presume the name imports, from Sago.

Further on in this side gallery the South American Republics, as Peru, Chili, and Paraguay, exhibit a collection of seeds and food produce. And still further on we come to the exhibits of the United States of America, which comprise samples of Maize, and corn-meal or flour produced from this plant. Mr. Geo. A. Seaverns, of Chicago, exhibits a number of samples of what is called the "broom corn," the straw of which is very peculiar, and well adapted for making brooms or household brushes; hence we suppose the name. The Richard City Mills Company of Iowa exhibit a large collection of Maize, of flour produced from it, and also samples of Wheat. The Wisconsin Agricultural Society exhibit a very fine collection of seeds, Cotton, and Maize plants.

Further on is the collection of seeds and roots in the department of Tunis; and the same in that of Japan; together with a splendid display of insects, reptiles, &c., found in this most interesting country. The Viceroy of Egypt, in another department, shows a collection of seeds; while in that of Roumania there is an odd way of showing seed—a species of fountain being made, the centre spout of which issues a continuous stream of Wheat, Maize being poured out from the two others, the wall above being decorated with a festoon of Indian corn heads.

In the centre of the machinery gallery, and in the part devoted to Russian exhibits, there is, supplemental to those in the zone opposite, a collection of seeds and food produce. This is very large, and arranged with great taste and care in a series of glass jars.

We have now concluded our rapid survey of the contents of the Exhibition, so far as seeds and food produce is concerned. From what we have said in connection with it the reader will perceive, that although by no means approaching what ought to have been the standard of efficiency, still there is very much that is interesting and suggestive. Our space has not enabled us to give more than a mere passing glance at the features of this important department; but if our remarks will tend to make the visitor's own inspection in any way easier than it would be without a guide, we shall be well satisfied with the results of our labour.

MR. MECHI AND HIS REPORTS.

As I have lately been in Essex, and in the immediate neighbourhood of the world-renowned Tiptree Hall, perhaps yourself and the readers of your excellent journal will like to be informed of what I heard of Mr. Mechi's farming, and of his reports of his crops from farmers who reside near him. I was at a market town within six miles of Tiptree Farm, and I purposely arranged that I should be there on a market day. Being myself a farmer, and in other ways connected with farming pursuits, I easily introduced myself to the farmers in the market, especially as I had a business object in view, as well as to obtain the information I am now about to impart to yourself and readers. I had in my pocket the *Agricultural Gazette*, as well as a newspaper sold in the place, and which I had just bought. In both of these was Mr. Mechi's reports of his farm and farming, dated "August," and hence I concluded it was the last report he had published, and in which he states that Tiptree Hall Farm is "naturally poor land;" that the farm is 170 acres, 14 of them being laid down with permanent Grass; and I afterwards learned from a solicitor, whom I met at the inn, that full 10 acres more were taken up with the dwelling-house, homestead, yards, stackyard, garden, lawns, plantations, shrubberies, fish-ponds, brooks, hedges, roads, &c.; and these 10 acres being added to the 14 of permanent Grass, leave 146 only for cultivation by the plough.

Now, Mr. Mechi's report states that he has 600 quarters of corn, 25 acres of Clover hay, 25 acres of Grass hay, 100 tons of green Tares, Clover, &c., and 400 tons of Mangel and other roots, &c. I suppose, also, that he has horses and other cattle, and sheep and pigs to keep, the food for which he does not take into account, since I conclude the 25 tons of Grass hay grew on the 14 acres of permanent Grass land.

Being, as I have said, a farmer myself, and much among farmers, and having in former years read accounts by Mr. Mechi similar to those lately put forth, and knowing pretty well what land could be made to produce under the most skilful cultivation yet known, I confess, but I am sorry to do so, that I never had placed any confidence in the marvellous reports Mr. Mechi sends out to the world of the wonderful results of his system of cultivating his land, and especially when he adds, as I have said above, that his land is naturally poor. But as to this statement about the poorness of his soil. Some years ago, when I attended one of his great annual gatherings, I had an opportunity of seeing his land. I learned then that the farm had been enclosed for at least 200 years or more, that it had kept several respectable farmers in succession on it, that the last who occupied it as a tenant had done so for full 40 years, and that his crops per acre were equal, or nearly so, to any that have been grown there since he left it. The land also was divided into fields for the same length of time, and had a respectable homestead upon it; the dwelling-house was called Tiptree Hall, signifying that the first owner of it was a person of some note in the country, and that the house was the chief one in the parish. It is certain, therefore, that the Tiptree Hall Farm had been in existence, as a farm, for at least 200 or 300 years or more, and that it had been cultivated according to the custom of those times, and had borne excellent crops before Mr. Mechi became the proprietor of it. This information being obtained from persons living in the immediate neighbourhood of Tiptree some dozen or more years since when I attended one of the gatherings there, and which I believe may be strictly relied upon, I have thought, Mr. Editor, that it ought to be made generally known, as a corrective of the reports that the land composing the farm when Mr. Mechi purchased it formed a portion of a barren heath, and that it was enclosed and formed into an occupation, and brought into the present state of cultivation by him alone. It is true, however, that the present aspect of the farm gives some colouring to this report; the ancient trees and Pollards and hedgerows, and the hall and farm buildings, having been demolished, give it all the appearance of a recent enclosure, but there is no doubt whatever that the account I have given above is the correct one, and I found it corroborated by a solicitor whom I the other day met at the inn in the town to which I have above referred.

I found my companion a very intelligent man, and well acquainted with that part of the country. I told him the object of my journey, which was to see some crops of corn not then cut in Norfolk, which I had learned from the proprietor of them were unusually good. He was a young man, and I had helped him into his farm. My friend replied that he also held a little land, and asked me to accompany him to his home, remain the night, and see his little doings in the morning; but his road was only a few miles towards the way I was going, and so I thanked him and said it was out of my power to do so, as my wish was to have gone to Tiptree, but not having been able to procure a conveyance, I must move on at least as far as Ipswich that evening, as I had engaged to see Messrs. Ransomes' foundry works in the morning. As we chatted on, I found I had fallen in with the very man of all others whom I could have wished to have seen, who knew Mr. Mechi well and every foot of his land, and he corroborated to the very letter every word I had learnt about the history of his farm, his farming, and his reports, and he went somewhat further. "He gave," he said, "Mr. Mechi credit for two things—namely, for making more land of his farm by grubbing up old and worse than useless fences, and in part for felling old Pollard trees; but as a genuine measure this," he said, "might be carried too far; for were all farms denuded of trees and shrubs as Mr. Mechi had served his, nothing could be more injurious to the general welfare of the country, for the time might come when England might not be able to import timber from abroad, and, besides, timber added greatly to the salurity of the country, and the philanthropist ought to plant and preserve it for future times rather than destroy it. And in part, also," he said, "but only in part, he gave Mr. Mechi credit for his drainings, for it is certain again that any country might be rendered barren and uninhabitable were land-draining to be carried to the ruinous extent that Mr. Mechi advocated. Providence provided natural reservoirs of water in the earth to be given out gradually as it is required for man, beasts, and vegetables; but Mr. Mechi, in the eagerness of his sanguine imagination, never halts to turn his thoughts to consequences, and thus might empty every well, and brook, and spring, in the country, in order to carry into effect any favourite project he may get into his head. Thus, benevolent man as he is, I have myself heard of his making a drain which emptied the wells of poor cottagers at a distance, thus thoughtlessly forgetting the trouble he was inflicting on others in his aim at benefiting his property. The grubbing up of ruinous hedges is a positive good; the felling of old and useless Pollard trees is also a good; and draining corn-growing land to a limited extent is a partial good; but a farm should never be without beautiful and sky-kissing timber trees, if not in hedges, certainly in corners of fields; nor should one man be permitted to carry his draining mania so far as to injure his neighbours. This, Sir, is my opinion of Mr. Mechi. Mr. Mechi's heart may be right, but his head is wrong; he acts by impulses, and fancies that the volubility of his tongue and the rapid movements of his pen over sheets of paper, will induce thinking, business-like men to receive all he talks and writes about and publishes without reflecting upon it: but no such thing; not but that he sometimes drops upon a truth long ago promulgated, and which he dresses up in fresh language, and thus, as the Scotch peasant's wife made old clothes look like new, and as a cobbler fresh vamps old shoes, so Mr. Mechi in old books drops upon practices forgotten only to a few, which he patches up, darns, and vamps, and then sends them into the world through the printing press as new articles and inventions of his own."

Thus went on my friend, when I interrupted him, and asked if he did not think Mr. Mechi's crops (an account of which he has lately published) marvellous — wonderful — considering the comparatively few acres upon which they are grown? (146 only, the rest of his 170 acres being taken for permanent Grass, house, homestead, yards, garden, lawns, shrubberies, fish ponds, brooks, roads, &c.) "I should, indeed," he said, "consider those crops marvellous—wonderful—if I believed they were grown; but this I do not, nor does any farmer or gentlemen connected with farming here believe they were."—"Why," I replied, "you astonish me! How can you, then, account for Mr. Mechi's publishing such flaming accounts?"—"Oh, easily enough. The enigma, if it be one, explains itself; and it does so in one single word, and that is, 'estimated.' I have such and such crops, he writes, which are 'estimated,' and one was a crop of Wheat, among which 200 or 300 poultry had fed, and yet it was 'estimated' that 6 or 7 quarters an acre were left; and hence, you observe, my dear Sir, the whole mystery lies in the word 'estimated.'"—"And who are the persons who make the estimates?"—"Himself, of course, assisted by his farm bailiff, who is only another self, or what may be called his shadow. And as to the 600 quarters of corn, 400 tons of roots, 50 tons of Clover and Grass hay, and 100 tons of green Tares, &c., they again are only estimated, and by the same wise parties."—"Surely, my dear Sir, it cannot be so," I replied.—"But it must be so," he continued, "and it cannot be otherwise. What man, be his wits whatever they may, can tell what yield crops may give whilst they are standing in the fields and not half grown? No one upon earth can accomplish such a feat. The corn must be cut, and threshed, and measured before the cleverest man can tell how much there is of it, and the roots must be pulled and weighed for the same; and had this been done before Mr. Mechi had made up his account, the old lady we hear of would not have been followed who 'estimated' her chickens before they were hatched, and found that she had only 9 when she had expected 15." And thus my intelligent and agreeable friend was proceeding when the waiter entered the room, and announced that the cab was at the door to take him to the train, when my friend called for his bill, and having settled it, hurried to the door, where I followed him, and where we heartily shook hands and hoped at no distant time to meet again, and he was driven away.

As the next train would do equally as well for me, I returned to my room, and committed to paper what I had heard, the above being the substance of it. I then, having more time yet to spare, opened the market room door, and asked if the company had any objection to a stranger and brother-farmer joining their company, and being at once politely invited to enter I took a chair, and being pressed for time, I at once said what had brought me to their neighbourhood from a far county, and which was to learn from those who were able to inform me, on account of their vicinity to the favoured, famed Tiptree Hall, what their opinion was of Mr. Mechi's farm, and of his farming, and of the reports he published about his crops and profits. Upon which a respectable looking and plainly dressed gentleman replied "that they all respected Mr. Mechi, but as to his reports about his wonderful crops, and his farming, and his enormous profits, no farmer in Essex gave any credence to them. Why," he continued, "he states that he has 600 quarters of corn this year, 400 tons of roots, 50 tons of hay and Clover, and 100 tons of green Tares and Vetches, besides keeping his horses, bullocks, cows, sheep, pigs, and 200 or 300 cocks and hens! But, Sir, his whole farm is but 170 acres landlord's measure, and not 160 that he can cultivate! Why, here are better farmers in this room than Mr. Mechi ever will be, and they make more produce off their land, acre for acre, than ever he did, and they know very well that he does not grow two-thirds the crops he states he does; and as to the Wheat he grows, it is always of a coarse quality, coarse red Wheat and bearded Wheat, which generally yields well; but still, were he to wait and measure even these crops in the presence of witnesses, as he had been asked to do, his 600 quarters of corn, and all his other crops, would wofully dwindle down; and I appeal to every one here if I am not speaking within the mark?" when they all shouted out that he was—that he was; and "Why does he not measure his corn and weigh his hay and roots and other things," they asked, "before he flourishes about what they are?" "The reason," replied the gentleman who first spoke, "is clearly this: Mr. Mechi wants the world to believe that he is making large profits by his farming, and so he is led to estimate his crops above their quantity and value, in order—before he can tell what they are—to make the balance lie on the right side of the sheet; and this he can only do by estimating them whilst they are growing, instead of waiting to measure and weigh them, as all farmers do." At this point the waiter informed me that the cab was at the door to take me to the train, and so I arose and heartily thanked the company for the valuable information they had given me and for the kindness with which I was received by them, paid my bill and was driven away, and in two hours afterwards was drinking coffee and reading the *Times* at the White Horse, Ipswich. *An Old Farmer and Agent.*

COUNTRY LIFE IN THE OLDEN TIME.

I HAVE already described the daily fare of a farmer of the common class, and this very fairly represents the diet of families in the same rank. That of labourers and the poorer class of tradesmen was even plainer. They had not such store of rich milk, and seldom indulged in the luxury of beef or ham. The shopkeeper, again, and better class of villagers had more beef; but to none probably, under the rank of the parish clergyman, was it an article of daily food. Our butcher seldom killed a "heifer" excepting in harvest and about Martinmas; and he scarcely ventured on the purchase till he saw his way to the disposal of nearly all the carcase. Thus the poor animal was being disposed of piecemeal when it was unsuspiciously grazing in some park at the foot of the Lowthers. The "heifer" was generally some old cow which had gone "yell" in harvest, or it was an old bull whose beef was as tough as "ben-leather." Mutton was somewhat more common, the poorer classes occasionally buying the "head and harrigles." Families of better means sometimes in the beginning of winter united and bought a small West Highlander and divided it; this was our "mart." The price of beef and mutton was from 3*d.* to 4*d.* per lb.

Nearly every one in our village, save the poorest, had a park, on which were raised sufficient meal, milk, and Potatos for the family. Every one, too, kept a pig, and although the carcase was commonly sent to market, the offal was used at home. From our plain way of living, raising our own food and manufacturing our own clothing, very little coin was circulated. Labouring men, indeed, had little to expend, as wages scarcely exceeded an average of 1*s.* per day. Loaf bread (Wheaten bread) was a luxury rarely seen. Tea cost 8*s.* a pound, and sugar 8*d.* to 1*s.*; it was held,

therefore, as disgraceful for a woman of the common class to be given to the use of tea as for her modern representative to be addicted to dram drinking, and the vice was indulged in as surreptitiously. The teapot, if she had one, was carefully concealed from husband and prying neighbours alike, and she seized on any favourable moment to "mask" and swallow a cup. It was a luxury to be enjoyed legitimately only on special occasions, as marriages and christenings, and offered to friends who came on a visit. In the latter case tea was made at whatever hour you called, and stood for dinner. Loaf-bread, too, was sent for, and there was an unfailing saucer of "carvies" (confected Carroway seeds), in which you dipped your buttered "scone."

Many stories were rife in reference to the introduction of tea. It was first brought into our district by Galloway smugglers, who had "run" it from the Isle of Man. They used to leave a pound or two (along with a bottle of brandy) in the barn or shed belonging to the farmer in whose premises they got shelter for the night. Some of the wives, it was said, boiled the whole quantity in a pot, pouring off the "broo," and serving up the leaves dressed with butter. One wife after such a feast remarked that "were it no for the name o' the thing she would ha'e preferred a cof o' buttered kail." I well remember an old man, a servant of my teacher, who on his return from Dumfries informed his neighbours that he had "gotten a breakfast on the new fangled tea, and although he drank but six 'dishes,' with 'shaves' of bread conformable, he 'had to pay his lily white sixpence for't.'" Later, three cups was recognised as the statutory quantity. A simple-minded bachelor minister had a man-servant of the old school,—faithful and devoted, but most opinionative. On one occasion when the Doctor had gone to assist a neighbouring clergyman he received information that his sister, to whom he was intensely attached, had been seized with sudden and severe illness. He instantly sent orders to David to have the gig yoked without delay. "Tell the Doctor," said David, "that its clean onpossible to gang eennow, for I'm only at my second cup yet."

Our entertainments were few; yet fifty years ago theatrical representations were more common than now. I have heard an old medical man say that Edmund Kean made his *début* in our village: he had been engaged as property man at the Dumfries theatre. The season had been poor, and in consequence the company split up into parties of three or four and made their way on foot by different routes to Ayr, performing at the various villages on the road. Kean was attached to the party that came our way, and was required on the stage—when in the middle of a highly wrought passage he was shocked by seeing his audience burst into laughter. He persevered, piling the agony yet higher, but the laughing did not cease. In wrath he turned to leave the stage, and then he perceived the cause of the merriment by which he had felt himself insulted. The sheet which did duty for the back scene had fallen down, and disclosed one of the actors standing half dressed with his back to the audience, painfully endeavouring to introduce his legs into a pair of silk stockings, the fragility of whose texture, and the number of whose openings, rendered the operation one of extreme care and peril.

Our girls encountered no such difficulties, as their feet were encumbered by neither shoes nor stockings, except when they went to church, and on occasions of equal importance. Clothes used to be "tramped" by them on the street, before the door, as the Vines were pressed by the Tuscan maidens when—

> "The must did foam
> Round the white feet of laughing girls
> Whose sires had marched to Rome."

It was thus, doubtless, that Peggy and Jenny did their washing at Habbie's Howe. Dr. Johnson saw in this an evidence of barbaric indelicacy; was it not rather proof of that unsuspecting simplicity which "thinketh no evil?" We were, it must be owned, *un peu sauvage*, yet the maidens whom the Doctor saw thus engaged could read their Bibles, and many of them could at least sign their names, feats beyond the reach of their more sophisticated English compeers.

This reference to writing suggests the change introduced by the penny postage scheme. A London letter then cost us thirteenpence halfpenny, and the smallest enclosure, as a supplementary scrap of paper, doubled the cost. Peers and members of Parliament enjoyed the privilege of "franking," and great interest used to be made with their upper servants to get a "frank." I have known a box of game "franked" through the post-office. There were no money orders in those days; so cash, whether notes or coin, used to be enclosed in the letters, and in consequence was often lost. Lord Palmerston, when foreign secretary some 40 years ago, paid a visit to our Duke. A box covered with green baize containing despatches came to him daily. Upon one occasion the servant got drunk in the village, and let the box fall from his horse into the Nith, which he required to ford—when he arrived at the Castle he was perfectly unconscious, and could not even tell whether he had received the box. The country was raised, and the important package was found more than a mile down the river. A letter in those days took 50 hours to reach London: it now arrives in 12.

On the whole we were a ruder but a more natural people than we are now. One of our worst traits was indifference to inflicting pain on animals. On Shrove Tuesday we tied a cock to a post and fired at it with ball; and, worse yet, sometimes hurled sticks at it, at a penny a shot. Animals were made to undergo much torture too with the view of improving their quality, which is now avoided. But we did not affect a refinement which was not genuine. We did not pinch ourselves to make a greater display before the public. The line of demarcation between the gentry and the common people was sharp and precise, and few tried to pass it. Our married women were seldom called Mrs., but continued to bear their maiden names. Our girls, such even now as would be at boarding schools, were all brought up to work; and if a guest came to us, we openly laid our neighbours under contribution to assist in entertaining him. I do not think, however, that anything more clearly demonstrates the change that has come over us than the difference between the character of the books we read then and those devoured now. Our secular reading used to consist of weighty, solid works, often of two or three octavo volumes, one such furnishing us with occupation for a winter.

But to attempt to enumerate all the points of difference would protract this paper to a length altogether immoderate. In one word, I may say that there was a quietness and repose about the old times unknown to us of the present day. We walked quietly and softly amid the familiar scenes, knowing not, and scarcely wishing to know, what lay beyond the encircling hills. Our uneventful lives gave us unshaken nerves. We did not live in a constant flutter of excitement, rushing hither and thither from haste to make rich or mere love of change, and our faith was troubled by no unsettling doubts.

But we were undoubtedly more boisterous in our enjoyments, less refined, less cleanly even, fared harder; were, to a great extent, insensible to the beauties of nature and of art; while we were free from doubt, very much because we never troubled ourselves to inquire. "*Quinquagenarian*" *in the Dumfries Courier.*

THE ARAB HORSE.

[THE following letter (a translation of which appears in the current number of the "Monthly Journal of Agriculture") was written by the Arab, Emir Abd-el-Kader. It was addressed to his friend General Daumas after the publication of his work on the "Horse of the Sahara, or Great Desert:"—]

> Praise to the One God,
> His kingdom alone is eternal!

To our friend General Daumas, whom may God protect. Amen.

Here is my reply to the questions you have put to me regarding Arab horses. In my opinion it is the exact truth.

Know, then, that God created the first horses in the country of the Arabs comprised between the Mediterranean, the Sea of Aden, the Persian Sea, the Red Sea, and the Euphrates. Therefore these animals are called "Irab," pure blood. They were then wild and unapproachable—they all fled from man; but Ishmael, son of Abraham, was the first who, about 2000 years after Adam, had the courage to mount and the skill to subdue them. From what goes before, it follows that all the horses now scattered over the whole earth originated in Arabia.

Of all animals, the Arab horses are the best in disposition, and in character and fine qualities the likest to man. Like him, they know honour and pride; a horse of pure breed will not eat what has been left by another horse.

The horses known among us under the name of "beradine," animals with heavy bodies and slow paces, and "kedchane," animals for the saddle or for draught, did not exist formerly. The first degeneration of the pure race was owing to the negligence and bad proceedings of a Persian king. He introduced the "beradine" and the "hadjine," breeds characterised by a bad head, limbs common and thick, as well as little graceful in their whole formation. The posterity of these first bastards produced the "kedchane," which have narrow nostrils and coarse manes. At this we should not wonder; gold, in order to be pure, rejects all alloy.

Alexander the Great was the first who brought together asses and mares; from these were born mules. Later, by crossing horses and asses he obtained a smaller species of mules with a broad nose and a short head; and that is intelligible, as the ass has the belly and barrel narrower than the mare.

If certain horses, though descended from the pure race, have notwithstanding degenerated in quality and appearance, that is to be attributed to fortuitous causes or accidents, going back to the paternal or maternal sources. Then, these same influences being reproduced, the constitution of animals has been affected by them, and in the course of time other species, more or less debased, have been formed.

Do we not see the same results among men? A native of a temperate climate, of mild and civilised manners, goes to Soudan, and there marries a negress. Generation after generation their descendants are transformed; they gradually lose type, colour—in short, all the moral and physical qualities of their first progenitor. The skin will be black, the hair crisped; they will have the passionate and savage character; their intelligence will be limited, and their morals light; and, in short, like the negroes, they will not be long before they are remarkable for extreme dissipation and excessive love of dancing.

There are then, we clearly see, two very distinct classes of horses:—

1. A class of pure Arab horses, which have preserved all their worth, because in them nature has not been modified by any injurious cause.

2. A class which is no longer pure, because it has undergone profound changes, moral and physical. If, to make ourselves better understood, we resort to a comparison, we may say that the horses of the perfectly noble race are in the same relation to the "beradine" and the "kedchane" that the gazelle is to the goat. The muscles and bones of the "beradine" and the "kedchane" are apparently larger than those of the pure "irab," but in reality they are lighter, weaker, and, above all, less resisting. Amongst us it is admitted that the noble horse excels all animals, even beasts of burden, in patience and vigour. It is at once the most agile, the lightest, and the strongest of creatures. Besides, it may be considered as the animal most easily fed and watered during the dusty days of our long journeys in the desert.

The principal causes of alteration in the breeds are the following four—climate, food, drink, labour. We proceed to speak of them:—

1. *Climate.*—In excessively hot countries, like Nigritia and those near it, the horses are of a feeble constitution; their limbs are not well proportioned, and you would say that their hair had been burnt. They are deficient in intelligence, and of a restive temper.

In cold or very moist countries the horses are generally tall, heavy, and apathetic; their proportions are far from agreeable and regular; they have in general massive forms, long hair, and bones thick, but not resisting; whereas the horses of temperate countries are of middle size, neither too big nor too little, of a well-poised character, a beautiful exterior, very agile, with the hair shining and short.

The influence of climate, who can deny it? It even makes itself felt on horses of the same country, according to its different regions. Thus, only to speak of the Arabian peninsula, the horses of Hedjas (Arabia Petræa) have fine black eyes, long ears, a deep chest, small mouth and lips, the ankle bones fine, and the hoofs hard.

Those of Nedjed (the plateau of Arabia) have the shoulder longer than any other Arab horse; the head short, without hair on the cheeks, the rump large, the belly capacious, the legs lean, the articulations well knit together, and the thighs strong.

The horses of Yemen have the body round, the rump narrow, the thighs, however, furnished with muscles, the tendons well separated, well detached from the bones, and the shoulder short in comparison with other Arab horses, but still long if we look at those of other countries.

The Syrian horses are all of a fine colour; they have large eyes, the corners of the mouth very open, the hair fine, and the head bald. Their body pleases the eye, but they have not the bottom and the endurance of the horses of Arabia properly so called.

That which will always give a great superiority to the horses of those countries is the air, the light, and the sun, those grand life-givers. Assuredly, they are not reared in stables.

2. *Food.*—Our forefathers have observed that in parched countries, where straw, Grass, and grain are scarce, the horse is much superior than when living in well-cultivated countries, where he has abundance of forage. He is better made; he has leaner limbs, stronger tissues, a brighter colour, hair silkier, and the best health, with inexhaustible bottom. Why? Because more abundant food, always generating in the horse hurtful humours, and developing only certain parts of the body, gives rise to that want of proportion in the *ensemble*, and to that dull hue which renders the exterior of the animal so ugly. It produces, moreover, fat, heaviness, deformity, and, above all, those defects of respiration which are the sure signs of unfitness for labour and fatigue.

The Arab horses of the Sahara furnish new proof of what I have just stated. They are the most intelligent, the lightest, the most teachable, and they endure fatigues, miseries, long journeys, hunger, and thirst much better than their brothers equally Arab, but which have been less soberly reared elsewhere. In order to maintain their superiority, all that is needed is to drink camel's milk, when it can be got, pluck certain perfumed shrubs incapable of corrupting the blood, or browse on certain vegetables which contain, it is true, tonic and very nutritive principles, but in very small volume. They are almost unacquainted with grains, though subjected to perpetual training.

Moreover, the horse of the desert is no exception to the general law. Look at the gazelle, the ox, and the sheep in their wild state, the giraffe, the wild ass, &c. They live in dry and barren countries, and, notwithstanding, are very superior to their tame congeners, however fully fed on fertile soils.

The ignorant man believes that the modified species is of another family than that which has preserved its primitive nature. It is a mistake. The goat is the gazelle's sister, the wild ox and sheep are the brothers of the domesticated ox and sheep, the camel is the giraffe's brother, and the ass likewise is the brother of that which we know. Only the one has remained in conformity with its primordial type, whereas the others have changed their aspect either from lack of exercise, or, which is yet more certain, from excess in eating and drinking. They have become thick, have contracted vicious humours, the body has become habituated to unhealthy secretions, and these results of servitude have in the end reacted on the physical and the moral.

Eating little, so as never to be completely satisfied, and always feeding on aliments not of a nature to alter the blood, such are the conditions which have such a beneficial influence on the horses of the desert. To these are they indebted for their purity, vigour, fleetness, beauty, and admirable character.

If a horse make a constant abuse of food, the least privation weighs him down, and he rapidly deteriorates. That explains how his intestines have been enlarged beyond measure: diminished food leads to their contraction; they are deficient in moisture; they dry up, inflammation occurs, and the animal is lost.

The contrary happens with horses which, to appease their hunger, confine themselves to the shrubs I have mentioned—Kuetoff (Atriplex kalimus), those Grasses which we call Alfa (Lygeum spartium), Diss (Arundo festucoides of Desfontaines), Doum (dwarf Palm),—in one word, everything on which they can lay their teeth. They never eat to excess, preserve the stomach free, and the bowels in a natural condition. These delicate organs do not enlarge, accommodate themselves to all

natural aliment, and are not liable to be impaired any more than to be dried up or inflamed.

All grains are not beneficial to horses—Barley alone exercises a salutary influence on their health. It has in particular the special property of nourishing without heating the animal. If it be well formed, it derives from it an extreme speed. In the country of the Arabs Barley is, therefore, excellent food. To give Beans to horses, as is done in Egypt and elsewhere, is actually useless. In so doing you spoil them completely.

The horses of Hedjaz are fed on Barley, Millet, Dates, and Date kernels. Milk is their habitual drink. In Hedjid it is not uncommon to see horses eating salt meat (kadid), and Locusts sometimes. They are cooked in a stove. They also soak them in milk. They make them browse on the leaves of certain shrubs, among these the Chihhé Tamarind (Artemisia judaica), the Gandoul (Spartium spinosum), and they graze on the Anagallis, whose seeds are very nutritious.

To finish as to food, I repeat that among all the Arabs, when they require or have required considerable exertions from a horse, they never make him eat soon before starting, nor soon after arriving. Serious accidents may result from non-observance of this rule.

3. *Drink.*—The drink exercises an equally marked influence on the nature of the horse. If great attention be not paid to it, it may lead to troublesome accidents, which in the end will become chronic and change its constitution.

The horses of the Sahara only drink once a day when they find water, otherwise they easily do without drinking for two or even three days. The best time for giving them drink is the middle of the day.

In tribes possessing many sheep and camels, they give by preference the milk of the camel. It is the most strengthening and wholesome drink. Where there are only sheep they are careful to give them milk, at least in spring. The colts are invariably turned out at the time when the mare's milk can be replaced by that of camels or sheep.

Milk has the property of strengthening the muscles by depriving them of useless fat, of facilitating respiration, and thus rendering the horse not susceptible of fatigue. That of the camel above all possesses the advantage of strengthening the backbone and maintaining the health, which is always perceptible in good spirits, brilliancy of the skin, and suppleness of the hair.

The Arab horse likes to drink muddy water only. If it be clear and fresh he muddies it with his feet. If he cannot do that he drinks with evident apprehension.

The inhabitants of towns and fertile countries are quite wrong in making their horses drink twice or thrice a-day. The absorption of too much liquid softens the muscles, enlarges the body, and swells the flesh. It often brings on shiverings, and unfits the horse for running. His constitution is also ruined by making him drink immediately or shortly after exertion.

Water coming from a distance, and which has passed through lead pipes or plastered conduits, is highly injurious. Experience has proved this. It is maintained that in the long run it is capable of altering the original constitution so that the posterity becomes long-shanked.

In certain tribes, when a horse has been fatigued by long hunting or racing, they make him drink mutton soup diluted with very cold water. This regimen sets him up again speedily.

The more a horse has worked, the more cautious should one be in giving him water; this is the way to avoid chilling the body and suppressing perspiration. Often, on the day of a very long race, he gets no drink at all.

In short, the Arabs hinder their horses drinking much. They say that excess in drinking swells the body, softens the tissues, and lessens his ardour for work.

4. *Work.*—The horse being by nature and temperament more impressionable and more subject to modification than any other animal, it cannot be questioned that work also exercises a great influence upon his constitution. If, for example, we accustom him to carry heavy loads, like a camel, he will infallibly become a beast of burden. If we make him drag the plough or thresh grain, he will become like the ox and the mule. God has created the ox to till the earth, the camel to carry burdens, and the horse for swift running; hence, to employ him in work for which he was not made is to humble him, destroy his qualities, and subject him to constraint in small conformity with his nature. All violence to the laws imposed by God Himself is unworthy of those who practise it, while it is at the same time disastrous to those who endure it. Look at what the gazelle, the cow of desert regions, and the wild ass become when they submit themselves to the dictation of man, and abdicate into his hands the power of their savage state. They lose their strength, their energy, their gait, as well as their noble and beautiful appearance.

The horses of the desert regions of the Sahara are the most beautiful and the finest in the world. To what do they owe their brilliant qualities? To a very simple cause: here it is—they are never used except for riding, for long and rapid journeys; after which, without imposing on them any other work, they are returned to their natural habits, so that, while perfectly tamed, they yet preserve the advantages of the wild state.

There will always, therefore, be a great difference between the horses of rich countries, where they eat much, and are subjected to debasing labours, and those of desert countries, where they are extremely hardy, and do nothing from their earliest youth, save hunt, attack, pursue, or flee from an enemy. Does not the like hold true with men? Take Arabs, Bedouins, half savages, inhabiting arid regions: they are brave, hardy, insensible to misery, to hunger and thirst, broken in to every fatigue; transplant them to fertile countries, condemn them to idleness and abundant diet, their strength will diminish, their courage will be enfeebled, their endurance will no longer be the same, soon you shall not recognise them. I conclude the horse is not himself when inactive and fat; but he is in perfection when working and temperate.

And when you require from him excessive labour, increase his usual food a little; you will then obtain unheard-of efforts. What, on the contrary, will be the benefit of this increase to a horse constantly accustomed to excessive abundance? It will be nothing; you will only run the risk of killing him, and, if his stomach resist it, which shows that he has always had too much, he, for that reason, can exhibit no more speed or endurance.

But enough on this subject: let us proceed to breeding, upon which you wish my advice.

The Arabs have a horror of incestuous connections, never allowing the daughter to be covered by the father, the mother by the son, the sister by the brother. It is averred that in such cases a pure Arab stallion feels no desire. The people of Hedjaz lately told me that one of their stallions, son of a bay mare, would never cover mares of that colour. When he saw them, whether owing to their recalling his mother, or some other reason, he went away from them without showing any desire.

Moreover, by uniting father and daughter, mother and son, sister and brother, we should run the risk of having in a posterity thus continued only feeble and degenerate animals, incapable of service.

It is advantageous, on the contrary, according to experienced Arabs, to unite together the members of the same family when quite differently related, especially when the constitution which they have derived from a faultless father and mother has not been modified or altered by external causes foreign to their origin. They assert that by thus constantly transmitting the good qualities and not the defects, we can more certainly preserve a noble race free from all mixture.

You tell me that certain persons in France, whose opinions are of weight regarding horses, believe that, the pure Arab blood having degenerated, it might be possible to restore it to primitive purity by judicious crosses with English stallions, whose reputation extends all over the world. In my opinion, that is a grave error, because all the horses of Europe, like all those of fertile countries where they have degenerated through over-feeding (and with them I comprehend those of Syria, Egypt, Irak, and Moghreb), have, besides, original defects, either from sire or dam, and sometimes from both, so that they can no longer be considered animals of pure blood. On this principle, nothing would induce the Arab possessor of a really noble mare to allow her to be covered by the finest English horse. In his eyes it would be a complete *mésailliance*. This may explain to you the words of a celebrated Arabian poet:—

> "The ignorant pretend there are many pure horses,
> But they are scarcer than true friends."

You tell me that the ruler of Egypt has had pure Arab mares covered by English stallions. If such be the fact, I am sorry, for his sake, for deficient acquaintance with horses can be his sole apology. As for myself, I know that if undoubtedly pure Arab mares be covered by English horses, there can only be obtained from them that kind of horse which we term "Monkueref"—that is, the progeny of a perfectly noble mare and of a horse whose pedigree is tainted. They are in all respects even worse than the progeny of a pure-blood sire and of a dam of mixed blood ("Hadjine"). Their descendants must degenerate at last; for, however much the produce of these irrational unions may be apparently beautiful, they never will, in bottom and good qualities, equal those produced from a noble sire, much less those from a race confirmed on both sides, both by blood and by antiquity. I sum up and say:—

The "Horr," or, which is the same, the "Aatik," which means of the highest degree of excellence, passes among us as the purest race.

After it comes the "Hadjine," the incomplete, the imperfect—the sire being pure, and the dam of inferior origin.

After the "Hadjine" comes the "Monkueref," the dam noble, the sire of base extraction.

And at last we arrive at the "Berdonne" (the singular of "Beradine"); we think nothing of them, both sire and dam being humble.

You see, then, as I have already told you, that the value of the horse depends on his race.

In fact, the colt generally resembles the sire in his principal organs—the head, the brain, the lungs, the heart, the liver, the bones, the nerves, the tendons. He takes the rest from the dam. It has, moreover, been proved that the sire transmits to his progeny most of his moral or physical defects. Therefore we carefully avoid the diseases which in the stallion are inherent in the bones, the veins, the tendons; and for covering we reject bad characters and restiveness.

I do not know much about English horses, and nevertheless, from all that I have seen, read, or heard, I am confident that they are very far from being as valuable as Arab horses. English horses, I admit, beat Arab horses and make brilliant running on a race-course, for a few minutes, or even for an hour, which is owing to their height, their elevated croup, their long legs, and the training which they have to undergo; but if, like our horses, they had to run seven or eight hours without stopping, they would not maintain their reputation. The greater the distance, and the more accidental the ground, the more quickly would their superiority disappear. Their organisation, whatever may be said of it, does not permit them long to support the column of air which a rapid race always displaces.

The Arab horse, in consequence of his deep chest, his vigorous respiration, his big nostrils, the size of his flank and back, his legs of iron, and his hardy education, and likewise in respect to abstemiousness and power of enduring fatigue and bad weather—the Arab horse, I say, can run without regular training (for he is always being trained) over all kinds of soil and during all weather, for half a day without halting.

We call the horse which comes in first and gains the prize at the races "Modjelli," the one after him "Mossaly," and the last of all "Sokeit" (the silent one). We see vexation in his eyes and humiliation in his face.

Whenever, anywhere, you see a horse remarkable for pride, agility, grace, and uncommon qualities, you may be certain that he has Arab blood in his veins. From whom does he get it? From his sire, his dam, or his ancestors.

Among the Arabs such importance is attached to purity of race, that even to this day the inhabitants of Nedjed and Hadjaz would not have for their mares a horse, however beautiful or famed for speed, if they did not know his pedigree. They always prefer a horse of less pleasing form, but of undoubted origin, even though seemingly of ten times less worth. The reason is that, in their opinion, if the colt often resembles his sire or dam, he also often derives his qualities from his grandsire or great-grandsire. Instead, then, of thinking so much of the beauty of a horse for breeding, it is especially necessary to know precisely about the purity of his origin and his race.

After this I must confess that it is very rare and very difficult to find primitive Arab horses—that is, those which are perfectly pure, and whose nature is in no respect modified either by work, or by food, or by injurious alliances with strangers. We might not so term those which, habitually over-fed, carry loads, till the soil, thresh grain, and which from an early period have not been trained to long journeys and fatigues, as well as to endure hunger and thirst.

The only country where we can find the pure blood of which I speak, is in the true desert among the wandering Arabs, particularly among the great tribes Zenata and Senhadja. There from time immemorial the race has not been altered by any injurious mixture, and every one there knows the parentage of his horses, father, mother, sisters, uncles, paternal and maternal aunts, grandfather and grandmother, great-grandfather, &c.

Formerly the Arabs had very little intercourse with strangers, and then it was easy to preserve their races; but since they have been mixed with the neighbouring Persians, Egyptians, Turks, and others, they have undergone very important changes. Now it is said that with our horses, such as they are, no grand exploits can be undertaken, I am of a different opinion, and am induced so to be from what I have seen during my long warlike career. I have often seen, not a single horse—that would prove nothing—but collections of from one to two thousand horses, carry their riders enormous distances under the most deplorable circumstances.

In 1845, from Morocco, where I had established my headquarters, not far from the mouth of the Moulneya, I set out on a campaign with numerous cavalry, for the purpose of making a foray in Djebelaamoure, whose tribes had betrayed me, and given me the greatest reasons to be displeased. Success crowned the enterprise, and marching night and day, and only resting for a little at long intervals, we returned laden with booty, after having thus travelled 546 miles.

On our arrival at our camp, most of us were still able to perform the *fantasia* before our wives and children, who uttered cries of joy as a salute to us on our happy return.

During this long journey we had only given our horses eight feeds of Barley; they generally drank only every second day, and yet only a few of them were left behind. How then were they supported? Only on the plants and shrubs scattered over the Sahara. This proves that if among us the blood of our horses has undergone changes, there yet remains enough to perform astonishing things.

In short, if it be impossible to form a pure race from a mixed, it is admitted, on the contrary, that by judicious alliances we can restore to primitive nobility a race which has not been impoverished by excessive privations, by want of attention, or by too much work. Here, above all, is what should induce the Arabs to consent to no *mésalliance*, and rigorously to follow the wise methods of rearing transmitted by our ancestors. The horse himself says,

> "Rear me as if I were thy brother,
> And ride me as if I were thine enemy."

May you be safe at the end as at the beginning of this letter.—Written by the servant of God, *Sid-el-Hadj Abd-el-Kader Ben Mahhi-ed-Dine: Damascus, 10th May*, 1866.

Upon this singular epistle of the gallant Emir, General Daumas remarks—"In reference simply to the saddle-horse, I believe he is right. In fact, the Arab horses, as well as the Barb horse, as I have had frequent opportunities of observing in Algiers, are from birth obliged to live in the open air, and endure the dews of the night and the scorching heat of the day. They are early accustomed to man, to see surrounding objects, to hear the strangest sounds, such as the *you you* of women and children, on all occasions of joy, the frequent explosion of firearms, the frightful growls of the lion prowling round the tents, the ferocious jerked howls of the hyena, the endless yelps of the jackal, the dull grunts of the resting camels, the hurried barks of watch-dogs, and the beating of drums and tambourines on festive days. One almost always sees them saddled and bridled, and when they march, whether to war or to pasture, they constantly travel long distances by difficult roads full of inequalities and not constructed, through regions covered with dwarf Palms, mastic trees, and thorny bushes. This life strengthens their lungs, invigorates their joints, and renders robust their backs and muscles; so that, without injury to health, they can undergo journeys

and hardships which could not be endured by horses with less blood and differently reared. I am sure of this. Why? Because I can truly declare that I have seen it as well as heard it."

HOME FARM DOMESTIC POULTRY.

"WILL poultry pay for its keep in this country?" is a question often asked by rich and poor. The labourer's wife in the country, the coachman's in a London mews, the farmer, the land-steward, my noble lord and lady—all are alike interested in this question, which I shall at once endeavour to answer by means of the following reports of loss and gain, the result of five years' practice as a poultry keeper upon a home farm in Bedfordshire. It will be seen that more depends upon attention to little matters of detail bestowed on poultry than upon the kind of yard, house, or breed to which they belong. I shall therefore try to show what can be done by means of small beginnings, by which I have had abundance of eggs and poultry for the supply of my employer's table, and some to sell.

Rearing poultry with success requires more attention than is generally supposed, and many difficulties belong to the practice, but with due care they may be overcome. In other articles I shall give some account of the way in which we managed each kind of fowl, but on this occasion I shall content myself with furnishing an abstract of accounts, which I hope will be sufficiently clear to speak for themselves in reference to profit and loss.

I commenced operations with the stock which I found on the property. It consisted of 23 hens and three cocks of the common barn-door breed, and with the hens in question and three new white Dorking cocks I endeavoured to cross the fowl of the district. The circumstances under which operations were begun were, however, far from being favourable. The poultry yard was about 500 yards from the dwelling of the attendant, enclosed with walls 12 feet high; the house was cold, damp, and badly ventilated, and very little sun could shine into the interior. After arranging to reserve 10*l.* per year for attention, we commenced on May 14, 1847, with the following stock:—

23 Hens and 3 Cocks, value	£1 17 0	
3 Turkeys, 2 Cocks and 1 Hen ..	1 15 0	
2 Guinea Fowls	0 4 0	
		£3 16 0

These prices are only such as could have been obtained from the poultry hawkers of the district.

Abstract of Accounts from May 9 to December 31, 1847.

December 31, 1847—		
60 Fowls	£6 0 0	
20 Chickens	1 10 0	
8 Turkeys	3 10 0	
12 Guinea Fowls	1 10 0	
		£12 10 0
Increase in value of Stock	8 14 0	
113½ Eggs sold or used	3 16 4	
17 Chickens killed	1 4 6	
12 Turkeys do.	2 11 0	
12 Fowls	1 7 6	
		17 13 4
41 produce		
Expenses.		
29 bushels of Barley	7 10 0	
6 bushels of Barley Meal	1 8 0	
14 lb. of Rice	0 4 8	
Wages for attendant for the year ..	10 0 0	
		19 2 8
Loss in year 1847		1 9 4

Abstract of Accounts from January 1 to December, 1848.

January 1, 1848—Value of stock		£12 10 0
December 31, 1848—		
80 Fowls	£6 0 0	
20 Chickens	1 10 0	
14 Guinea Fowls	1 15 0	
9 Turkeys	3 16 0	
		13 1 0
123		
Increase in value of stock	0 9 0	
3590 Eggs	12 16 6	
18 Fowls		
95 Chickens		
23 Turkeys	22 0 3½	
6 Guinea Fowls		
24 Wild Ducks for sale ..		
		35 5 9½
166 Produce.		
Expenses.		
41 bushels of Barley	9 4 11	
19 bushels of Barley-meal	3 15 9	
6 bushels of Tail Wheat	1 3 6	
Poultry attendant's wages ..	10 0 0	
Boy's do. to assist	1 18 0	
	26 2 2	
Gain in 1848	9 3 7½	
		35 5 9½

Abstract of Accounts from January 1 to December 31, 1849.

January 1, 1849—Value of Stock		£13 1 0
December 31, 1849—		
12 Turkeys	£4 4 0	
16 Guinea Fowls	2 0 0	
80 Fowls	8 0 0	
20 Chickens	1 10 0	
		15 14 0
128		
Increase in value of Stock	2 13 0	
4100 Eggs sold	12 5 3	
22 Turkeys sold		
55 Fowls		
44 Chickens	21 18 0½	
15 Guinea Fowls		
41 Wild Ducks		
		36 16 3½
177 produce		
Expenses.		
51 bushels of Barley	15 8 2	
18 bushels of Barley-meal		
10 bushels of Tail Wheat		
Rice and Groats		
Wages for attendant and boy ..	11 17 3½	
	27 5 5½	
Gain in 1849	9 10 10	
		36 16 3½

Abstract of Accounts from January 1st to December 31st, 1850.

January 1, 1850.—Value of Stock		£15 14 0
December 31, 1850—		
14 Turkeys	£4 16 0	
100 Fowls	10 0 0	
15 Chickens	0 15 0	
62 Guinea Fowls	7 15 0	
		23 6 0
191 produce		
Increase in Value of Stock	7 12 0	
4500 Eggs sold, and	12 10 5½	
40 Turkeys		
67 Fowls		
24 Chickens	28 16 5	
73 Ducks		
12 Guinea Fowls		
		48 18 10½
216 produce		
Expenses.		
80 bushels of Barley		
42 bushels of Barley-meal ..		
11 bushels of Tail Wheat ..	37 15 9	
7 bushels of Pollard		
Rice and Groats		
Boy's wages and attendant's salary		
Gain in 1850	11 3 1½	
		48 18 10½

Abstract of Accounts from January 1, to December 31, 1851.

January 1, 1851—Value of Stock		£23 6 0
December 31, 1851—		
14 Turkeys	£4 13 9	
16 Chickens	0 16 0	
100 Fowls	10 0 0	
65 Guinea Fowls	8 2 6	
		23 12 3
195		
Increase in Value of Stock	0 6 3	
4500 Eggs sold	12 10 0	
44 Turkeys		
136 Fowls	38 7 9	
58 Wild Ducks		
56 Guinea Fowls		
		51 4 0
294 produce		
Expenses.		
87 bushels of Barley ..		
52 bushels of Barley-meal ..		
13 bushels of Pollard ..		
5 bushels of Tail Wheat ..	42 18 3½	
5 bushels of Beans		
Rice, Groats, and sundries, Attendant's and Boy's Wages		
Gain in 1851	8 5 8½	
		51 4 0

These results may not be considered great, but still they show that poultry pay. To do so, however, they must have as much food as they require—that is, as much as they will eat up at a time when it is given them. Neither must they be allowed a certain measure per head, for some will lay more freely than others, and on that account they will require more food. They cannot produce good eggs on short allowance, or poor food; and in addition to this they require a comfortable domicile. From experience I advocate the adoption of glass, or partly glass houses, in preference to the kind of house generally employed.

Damp kills poultry in a variety of ways; therefore they should not be subjected to it. Warmth, light, and cleanliness, are at all times essential to their productiveness and health. Cold air and dirty food generate innumerable diseases in their case, as well as in that of the human race; and if these remarks only induce greater care than is usually bestowed on their management, they shall not have been made in vain.

In my next paper I shall advert to the treatment of the common fowl generally kept for domestic use. *Land Steward.*

Home Correspondence.

Superphosphates, &c.—In your impression of August 24th a correspondent asks for information on this subject; a pamphlet by Alfred G. Lock, Redbridge Vitriol Works, Southampton, printed by Gutch, 154, High Street, Southampton, price 2*s.* 6*d.*—may be of use to him. I have one, and intend to work by it. Would "Agricola, Pershore," who writes in a recent *Agricultural Gazette*, enlighten us a little more as to the make and use of Hardy & Padmore's iron stoves, giving the full address, as they might be found useful for other purposes than are mentioned by him? Various suggestions have been made from time to time, and new plans for securing the harvesting of our crops are submitted to the thoughtful consideration of our farmers, still I cannot agree with "Agricola" that they would bother our old farmers, who would rather go on in the old-fashioned jog-trot way, as I am not quite sure our landlords would either put up (or consent to its being done) an enclosed drying house, with stoves, bellows, &c., as "Agricola" recommends. And why does "Agricola" ask us to use "the new inventions of our amateur farmers" if, as "Agricola" says, "I farm a large tract of corn and Grass land, and harvest a large quantity of corn; but I always leave the corn to the wind and sun to dry it, never resorting to artificial help, such as wind instruments, &c.? (Qy., what about the bellows and stoves?) To the best of my recollection I have never had any corn injured by the weather; but by carrying it too soon, or by inattention in turning it, or by some fault of my own, I have sometimes injured it, but not through the weather. Farmers should exercise patience, trust an over-ruling Providence, and there is a promise that 'seed time and harvest shall never fail.'" Most excellent advice! Now "Agricola" admits that by common attention, leaving the corn to the wind and sun to dry it, his large quantity of corn can be got up uninjured; if so, on what ground does he come forward and recommend "half-a-dozen blacksmith's bellows," and "half a dozen of Hardy & Padmore's iron stoves," and taunt our farmers with their want of common sense and energy? Does "Agricola" himself believe in the above appliances? Does he consider his plan feasible? If so, with his large quantities of corn at stake, he seems to be one "who would rather go on in the old-fashioned jog-trot way, and leave these new inventions to our amateur farmers." Quite right; and he might add, "see that they (the farmers) have a proper written agreement, in which the landlord's and tenant's interests are fairly and reasonably protected. Drain the land, stock well, use cake and manures freely but judiciously, use the hoe and other pulverising and cleaning implements as often as you can, so as to keep the straw free from Twitch and other weeds. Do not talk too much of what you can, or ought to do; but set to work to be attentive to turning and carrying of the crops in proper time." Farmers certainly require patience, and let them trust in an over-ruling Providence, and leave these new invention" to "Agricola," and our amateur farmers. Preaching and practice best go hand-in-hand. *West Indian.*

The Wheat Harvest.—I fear the subjoined extract represents too truly the condition of our Wheat harvest. In this county I have ascertained from various sources, especially from the travelling threshing machine owners, that there is a general disappointment in regard to the quantity of Wheat grain, while the straw is frothy and superabundantly disproportionate. In a former letter to you I calculated the loss by stem-rotting or root-falling as from 10 to 20 per cent. I fear that it is even more than that, especially where the land is highly farmed and thickly sown. The latter is a serious evil this year. No field of Wheat on this farm will yield less than 5 quarters per acre, the quantity sown being only 1 bushel per acre; 6 acres have yielded 6 quarters per acre, and 16 acres over 5 quarters per acre. With the quantity of straw we have this year on this farm the Wheat grain should (as in 1865 it did) yield 7 quarters per acre, but the season has caused it to fall short from 1 to 2 quarters per acre. It is evidently very difficult to arrive at a correct estimate as to the yield of our growing crops, and quite impossible to do so by a flying survey by rail. On close examination, especially of laid crops, the kernels will be found small, in many cases shrivelled, and densely encased by chaff. The ears, too, are small. We hear nothing this season of corn shelled out by the wind, or bursting through its chaff, as was the case in the abundant year of 1865. It certainly appears now clear to me that our Wheat harvest must fall short of an average. *J. J. Mechi, Tiptree Hall, Sept. 7.*—"In South Bucks, where the land is well cultivated and the crops of straw are very large, the yield will be very deficient, owing, I believe, to the late frosts and to the wet weather in July; the Wheat was beaten down and much blighted, and the straw, which to us is an important article, is of a dirty-brown colour, instead of being bright; there are a few exceptions where the soil is light and gravelly, and where the corn stood up. I have threshed by my steam power 12 acres of what in June I considered my best crop of Wheat, and which I estimated would produce four loads of straw and from 44 to 48 bushels of white Wheat per acre; requiring about 12 trusses of straw (36 lb. each) to yield a sack of Wheat. I am greatly disappointed at the result, having only 3¾ loads of straw (very bulky and very light) and 24 bushels of Wheat per acre; and this I fear is the case generally in this neighbourhood; all the farmers who have threshed Wheat report the yield as very bad."

Thin Sowing.—Wishing well to British agriculture, and looking to the production and economy of our food as a paramount principle, I feel bound and justified, on public grounds, to protest against a practice in British agriculture which annually, and this year particularly, causes a loss and deterioration of food to an enormous extent—I mean the practice of sowing too thickly. If this rule had been deduced from a comparative trial of various quantities suitable to the peculiarities of soil, climate, and manurial conditions, there need be no objection, but I know that too generally it is not so; but we are following an old custom, established when broadcasting was the only mode of sowing, very imperfect and uncertain as compared with the new and accurate deposit of seed by drill. This and the modern high-farming system of draining, deeper cultivation, and forcing great growths by cake feeding and artificial manures, demands and necessitates a much more limited quantity of seed, especially as the modern dressing and blowing machines separate and withdraw all light and imperfect kernels. See what has taken place this year. Tens of thousands of acres of corn crops have been prematurely laid flat to the ground, weeds and Clover growing through them and tying them, as it were, to the damp earth, thus producing mildewed and imperfectly developed kernels, and deteriorating the sample so much as to diminish its value 10*s.* or more per quarter. The loss thus entailed is probably 2*l.* to 3*l.* per acre in quality alone, and in quantity an equal amount. The straw is also seriously damaged and diminished in value. I speak practically in this matter, for during 23 years I have, by comparative trials, established, as regards this farm, quantities of seed suited to its peculiar circumstances. The result is a return or increase of from 40 to 56 for each kernel sown, with a perfect quality of grain and straw, while the average of England gives, according to one of our best authorities (Mr. James Caird), a return of only nine for one. The cause is obvious—an early and Grass-like vegetation of crowded plants compete injuriously for their food in the soil, like an unthinned plantation or Turnip crop, and thus weaken or destroy each other. So dense a vegetation shuts off communication between the air and the soil, culminating in a prematurely laid crop, with all its evil consequences. The quantities of seed suited to this farm are 1 bushel of Wheat per acre, 6 pecks of Barley per acre, and 2 bushels of Oats per acre. The average quantity of England is, according to Mr. Caird (p. 522), Wheat 3 bushels, Barley 4 bushels, Oats 5 bushels per imperial acre. With high farming I find even my

quantities too large in certain seasons, and I am gradually diminishing them. Independent of quality and produce, the mere saving of seed is worthy of national consideration, for according to Mr. Caird's reliable statistics (p. 522), the quantities of grain used annually as seed on the 14,000,000 arable acres of England alone (leaving out Ireland, Scotland, and Wales,) are—

	Qrs.
Wheat	1,281,281
Barley	708,375
Oats and Rye	1,250,000
	3,239,656

At present prices these would be worth about 6,500,000*l.*, and certainly half that amount might be saved, and an enormous increase in produce be additionally obtained. British agriculture is so vast, and of such paramount interest, than when we deal with the 60,000,000 of acres of the United Kingdom a single shilling per acre amounts to 3,000,000*l.* sterling. Taking the landlord's capital as only 20*l.* per acre and the tenant's capital as 4*l.* per acre, here is a vast grand total of 1,440,000,000*l.*, or twice the amount of our National Debt. There is much to be saved and more to be gained by treating such a vast interest on commercial principles, and emancipating it as much as possible from the shackles of old customs and prejudices no longer suited to this age of steam-excited progress. *J. J. Mechi, Tiptree Hall, Aug. 23 (in the Times).*

P.S.—This season, so far as this farm is concerned, will be a very profitable one. We have just threshed 6 acres of white Wheat; the produce, 6 quarters per acre, sold yesterday at 64*s.* per quarter. Fifty more acres are estimated to produce from 5 to 6 quarters. Barley of malting quality from 6 to 7 quarters; Oats, 9 to 10 quarters; and Beans, 7 quarters—thus proving the propriety of the quantity of seed previously named for this farm.

Foreign Correspondence.

VICTORIA: *Sheep Farming in Australia.*—There has been a great deal of hasty legislation in this as in all new countries, especially those that have grown into such magnitude in so short a space of time. Thirty-two years ago there was not a white man where now cities flourish, railways are formed, and industry receives the rewards of enterprise and perseverance. Before the gold discoveries it was exclusively a pastoral country, but with the large influx of population occasioned thereby, and after the time had passed when men had in many places only to put their spades into the ground and they found wealth almost on the surface, numbers turned their attention to the cultivation of the soil; and as the difficulty of getting gold increased, in just a proportionate ratio more attention was paid to agriculture, until the demands of the people required a change in the laws which had previously placed the lands almost entirely under the control of the squatters, or the large station-owners. An Act was then passed opening the lands for selection, at an upset price of 1*l.* per acre. Also, after survey, in 1862, a further Act was passed by which land could be taken up, on deferred payments, at 2*s.* 6*d.* per acre for six years, and then they had the fee-simple at 1*l.* per acre. But it was thought that many who had paid such large sums for their land originally were not in a fair competition with those who had paid only such a comparatively small price. So it was enacted that certificates should be granted to such original purchasers, entitling them to choose more lands on certain conditions, at an upset price of 1*l.* per acre; and the Act also provided that land in various quantities could be selected by others than the holders of certificates, under similar conditions and regulations. These lands were all surveyed, and supposed to contain a great portion best suited for agriculture. In this manner large areas, in different parts, say from 5000 up to 15,000 acres, were declared open for selection, and each certificate-holder had a right to select fresh lands in proportion to the number of acres held by him. I may say, parenthetically, that it was not necessary for a certificate-holder to confine his right of selection to any one place. The certificate gives him right to choose any part of the colony open for selection. In the first place, no person could select more than 320 acres, it being the object of the Legislature to get a large number of people on the lands: and as some of the areas declared open contained land of extraordinary richness, it followed that there would be a great rush to get those parts. Consequently a regulation was issued which notified that on a certain day, duly advertised, a land officer would attend at a place stated, where certificate-holders should appear and hand their names to him. The names were placed in a lot, and, when all had been deposited in and well shaken up, a name was drawn, and this person had the first chance of choosing the best land up to the amount his certificate represented, and so on until the whole of the land then open was selected, and the certificate-holders remaining over and not drawn would have to go to fresh districts for their chance. An arrangement of this sort was necessary, for at some places as many as from 2000 to 3000 persons assembled. The selections were fixed at different times to prevent clashing. A condition was attached to each—viz., that the land selected should be improved within a certain time, by residence, fencing, &c. Nor had they power to sell for a certain number of years, thus ensuring settlement. Evasions, however, were made by capitalists, in this way: though the land could not be sold, the certificates could, and they were sold up to as much as 1*l.* per acre, and the purchasers of these certificates attended on the day for selection, some with as many as 40 or 50 persons, termed "dummies," to whom the certificates bought were handed and their names given in, but they had to sign a transfer in blank first to the real parties behind, so that if their names were called, and they selected, the description had only to be filled in, and they got sums varying from 5*l.* to 20*l.* for their trouble. No doubt they could turn round on their employers and stick to their selection if they chose, and great amusement was occasioned at times by some actually doing this; but the great bulk behaved honourably, so far as the word honourable can be associated with such a gross abuse of the Act. By this means a very large area of country has been brought into cultivation, and the people are rapidly settling on the lands in all directions; and, as a consequence, we have become a self-supporting country, and, ere long, we shall be exporting the staff of life, as South Australia (from Adelaide) is doing this year, to England. It will give some idea of the effect of this settlement on the lands when I mention that two years ago we imported from 70,000 to 80,000 tons of corn, &c., and now we grow all we want ourselves.

Another branch of industry is greatly on the increase, namely, cultivation of the Vine. Thousands of acres are devoted to this purpose, and some of the wine is pronounced equal to any made in France or Germany. In some districts it is drunk in preference to beer, and in a few years I have no doubt Victoria will ship a hogshead to England for every glass of wine she ships now.

I will now advert to the pastoral tenants, who have stations varying from 20,000 to 200,000 acres, and even more. One firm of three or four brothers, the Messrs. Wilson, shear about 400,000 sheep. Their income from wool alone is said to be upwards of 80,000*l.* per annum. The common extent of stations is from 15,000 to 30,000 sheep. The wool of a sheep averages say 2¾ lb., which, at 1*s.* 6*d.* for washed wool, would give a yield of over 4*s.* per sheep, and this would give, for a station of 20,000 sheep, 4000*l.* for wool alone. It is always considered that the increase pays expenses, including rent and living; the latter is not much on the station, and the rent is about 8*d.* per sheep; thus, with an outlay of 20,000*l.* a man has 4000*l.* a-year to put by. This, in 10 years, adding the accumulating interest—colonial interest is 10 per cent.—will make him worth 50,000*l.*, independent of his original outlay. The wool grows and the sheep increase without our labour; all that is required is careful superintendence. There is no life like the squatter's; but in the year 1870 there will be a material change made, for in that year all the pastoral leases will fall in, and it is thought that these large runs or stations will be cut up, and instead of one man realising a gigantic fortune, openings will be made for men of moderate capital to step in, and that ten will occupy the place of one. This will double the produce of sheep, and consequently wool, in the colony; for it is well known that 10,000 acres will carry a much larger quantity of sheep when properly paddocked off into twos and threes of thousands of acres, and letting the sheep scatter over them, than by feeding, as at present, in flocks. They generally number from 1500 to 2500 in a flock, and thus destroy more Grass by treading it down than by eating it. 10,000 acres of moderately fair land thus paddocked will feed 6000 sheep, which will cost about 10*s.* each, or 3000*l.*; building house, fencing, and other *et ceteras*, will cost about 1500*l.* more, making 4500*l.* capital required. Of course, when I name 6000 sheep, that is only to show results from that number; there will no doubt be smaller runs, to suit persons with lesser means. The returns would be: wool, 4*s.* 6*d.* per sheep—for with only 6000 sheep more attention can be paid to them, and thus make the wool better—1350*l.*; the increase will yield as much more, or say for certain, 1150*l.*: total, 2500*l.* Cost: rent, 300*l.*; shearing, 14*l.* per 1000, 84*l.*; wool packs, carriage to market, &c., 100*l.*; two shepherds, being all that are necessary, 100*l.*; expenses, head station, and brokerage, 500*l.*—1084*l.*; leaving 1400*l.* per annum to put by. This is a fair calculation, for with that number of sheep no overseer is required; the squatter can do all that is required himself, and 500*l.* per annum is amply sufficient to secure all the comforts of life in moderation. This is a matter well worth the attention of capitalists at home. I know of no mercantile business to compare with it, so free, comparatively, from care, and reduced almost to a certainty. Of course, adverse seasons will come, but the above calculation gives a fair average.

I will only just add that no person, unless he has been here, has an idea of the fineness of the climate. Sunshine is in the ascendant, and with an air so pure and dry that, with care, a man's span of life might be increased from three score and ten to five score! [The above appears in the *Inverness Courier*, from Mr. H. Macdonald, a native of Ross-shire, who has settled in Victoria.]

Societies.

STAFFORDSHIRE: *Meeting at Lichfield.*—After two blank years, from the dangers of the cattle plague, this association has again come before the public with all the renewed vigour which a season of rest imparts. And there was a good show of horses, an unusual collection as regards numbers of sheep, and the ordinary muster for a county of pigs, while a large tent of fine flowers and exotics, another of fruit and vegetable garden produce, another of cheese and farm roots, and yet another of poultry, made altogether a capital exhibition. Then there was the usual machinery in motion as well as in dumb show.

The renewed vigour we have referred to displayed itself in the energy with which the stewards and other officials endeavoured to make every arrangement that would attract visitors to the Show-ground, and entertain them when they had entered. The most attractive feature thus arranged was the trial ground for horses, but more particularly for the hunter classes, for there was a good pasture of 4 or 5 acres to gallop round, and at each side was a row of hurdles well topped with furze for trying the leaping capacity of horses required to go across country. These trials were made in a set form before the judges, and afterwards individual exhibitions were made at frequent intervals, and the hunter classes were taken out again collectively in the afternoon.

The horses, cobs, and ponies were altogether a very respectable show. The 1st class was composed of entire horses for agricultural purposes, 10*l.* being awarded to Mr. Yeomans for his "Black Prince," a short, thick, poddy and fat but active horse; and 6*l.* to Mr. Wallis, of Tamworth, for "Young Sampson," a very clean legged, round barrelled, active 7-year-old grey. Tastes and opinions, we need scarcely say, are numerous about horses; but if there be nothing the matter, as regards soundness, with the grey more than an off-hand inspection could detect, we should unhesitatingly have given the 1st to him instead of placing him second to the "Black Prince." Geldings in pairs were useful, but there was nothing crack about them; 10*l.* was given to Mr. Whitgrave, Barton Manor, Stafford, and 6*l.* to Mr. Dean, Rugeley. Mr. Joseph Beach, The Hattons, Breewood, also exhibited a fine working pair. Mares and foals were three only, Mr. Selby, Lichfield, getting the prize of 8*l.* The 2-year-old fillies were a plain class, Mr. Nadan's 5*l.* prize, and Mr. Coxon's commended animals being exceptions. The yearling geldings or fillies were not handsome.

The strength of this Show lay in the hunter and other lighter classes. There were 16 entries in Class 6—hunting horse or mare, without restriction to age (open to all England)—the prizes for which were: 1st, 20 guineas, given by the tradesmen of Lichfield; and 2d, 10*l.*, by W. Holland, Esq. The 1st was taken by Captain E. V. Heygate, of Buckland, Leominster, for a 5-year-old "black brown" gelding, with great reaching powers, much strength, and fine hunting movements. The 2d, Lieut.-Colonel R. H. Fitzherbert's, of Uttoxeter, is a most elegant and beautiful moving bay for a flat country, or with a very light weight across enclosed fields. Mr. Gilman, jun., brought out a 7-year-old gelding, of great power and excellent capacity. This horse was said to be Irish, but he had the stamp of a Clydesdale dam, his sire being, according to his entry, Tom Steel. He was highly commended, as was another of Capt. Heygate's, the brother of the 1st prize, but a year younger, the sire of them being the Erd. For "4-year-old geldings or fillies" two prizes were offered, 15*l.* and 10*l.*, by the gentlemen of Mr. Mynell Ingram's Hunt." Mr. G. B. Keeling, of Penkridge, took the 1st with a very fine and beautiful-moving weight-carrying bay, 16 hands 1 inch high. The plate and shoulder of this animal are excellent, and his legs almost everything that can be desired. A slight plainness about the under jaw prevents this horse from being altogether beautiful as well as excellent. Mr. Stirrup, of Cheadle, took the 10*l.* These prizes were not to be awarded "unless the animals were considered to be worth 70 guineas."

In harness horses or mares, Mr. Tyler, of Birmingham, took 7*l.*, with an uncommon neat hackney; and Mr. John Coxon the 2d, 4*l.*, with his good old brown mare.

Mr. G. Cheetham, of Lichfield, took the 7*l.* prize for a very clever 13 hands 3 inches bay cob; and John Hardy, Esq., M.P., 5*l.*, for an equally meritorious aged grey pony; Mr. Roberts, of Lichfield, taking 3*l.* as 2d in the pony class.

The entries in the above classes were 94. The judges in the Hunter and Hackney classes were Mr. Randall, of Chadbury; Mr. Congreve, Rugby; and Mr. Cartwright, of Wolverhampton. Messrs. F. Hopwood and J. W. Ladkin were judges of the agricultural horses.

The sheep were a great show, there being 103 pens, besides the novel collection of 100 ewes from the flock shown by Mr. Brown, Sandhills; and 20 most excellent ones by Mr Coxon, of Treeford. For both these lots Silver Medals were given by the Society.

The long-wool classes were not much of a show, for there is but little long-wool breeding in the Midland Counties, and but little crossing. The sheep that were shown were principally Lincoln, or largely impregnated with that more thrifty breed. There were only a few pure Leicesters. The 1st for rams was taken by Mr. Foster, Alkmonton, Derby, for a sheep bred by Mr. C. Clarke, Ashby, Lincolnshire; Mr. Johnson, Kirkinton, taking the other prize. Mr. Johnson also took both prizes for Lincoln lambs in a long-woolled class. The females, both ewes and lambs, in these classes were both few and mean.

The "Shropshires and black or grey-faced sheep" were a strong show of 64 pens. Mr. Way, Elford, took the 1st prize and Silver Medal for the best animal, which is an enormous sheep with great character for flesh and wool. Had the poll of this sheep been sufficiently covered, he would have made a great price for ram breeding. Mr. Bradburn's 2d is also a big sheep, with a good head. The shearling rams were a weak class, the only sheep worth notice being Mr. Holland's, of Lichfield, the 1st, which he bought at Mr. Coxon's sale, and Mr. May's highly commended sheep. The value of this sheep to a black-faced flock would probably not be appreciated by very offhand judges, as his merits consist more in what he is likely to do, than in what he really is, although his appearances are anything but insignificant: hence he was only highly commended by men who did not know his character. The ram lambs were numerous, but not super-excellent. Mr. Stubbs, of Stockton, Stafford, took both prizes with highly fed lambs that are not likely to be heard much of hereafter. Mr. Coxon sent a good lamb, that only wanted a better covered and less sour head to have been in a better position. Mr. W. Yates, Grindle, sent two that were deserving of a verbal compliment.

The breeding ewes were excellent as a whole. Mr. Coxon could not be beaten on this ground, and he was

1st; Mrs. Baker, of Grendon, taking 2d, and a highly commended; while Mr. Bradburn was fairly commended.

In shearling ewes Mr. Coxon was again 1st with an extraordinarily good pen, as he was in ewe lambs for a very promising lot. In the shearling ewes Mr. Joseph Beach's were scarcely inferior to Mr. Coxon's, and Mr. Beach, who was here also 2d to Mr. Coxon, was again as meritoriously beaten. An interesting feature here was the offer of a cup for pens of 10 lambs; there were six entries, but, excepting Mr. Way's, of Elford, to which was awarded the cup, they were all more or less weedy. There were some fat wethers, too, and Mr. Beach's prize pen are so fine of character, with dark long faces and good tufts on their poll, and so well fed, that they will probably be heard of in a conspicuous position about Christmas.

Some prizes were offered for the best sheep not trimmed, but if this question were worth discussing, it could be easily shown that the temptation to "touch up" points is too great to be resisted. More than one animal had evidently been "improved." An animal in this class had been trimmed from head to tail. It is only fair to say, however, that this was an erroneous entry. We ventured to make a suggestive remark about trimming a sheep's head in the way this was done, which was met by the shepherd with the reply, "He be our'n, an' we do'n as we likes with'n." Good! and a very good imitation of an escaped "gaol bird"—the sheep we mean—he was. What everybody else is trying to get this sheep had cut off because it was there! In these classes Mr. Bradburn took four prizes, Mr. Coxon one 1st, Mr. Joseph Beach another 1st, and Colonel Dyott one 2d. There were some single sheep also, in which Mr. Beach and Mr. Coxon were again successful. Six pens of 20 lambs of any breed finished up this department. These were all Shropshires, all commended, the 5*l*. and 3*l*. prizes being awarded respectively to Mr. Grindley and Mr. Green.

The judges of sheep were Mr. John Woods, Mr. Lythall, and Mr. Thomas Horton; and Messrs. W. Tomlinson and J. A. Beale were entrusted with the other long-woolled sheep, and pigs.

Among the pigs there were some very neat and good animals, but the production of this branch of agricultural produce is now so well understood that individual criticism would be superfluous and suggestions almost invidious. Mr. Tomlinson, of Rugeley, took the 4*l*. prize for a boar of a large breed; and Mr. M. Walker, of Anslow, Burton-on-Trent, for a sow of the same. The latter gentleman was also 1st with "boars of a small breed," "sows of a small breed," and with "four pigs of the same litter under six and not less than three months of age." The Marquis of Anglesea was 2d in both the classes for small breeds with a very neat boar and sow, and Colonel Dyott and Mr. Walker deservedly received high commendations.

The cheese generally were not of fine quality; Mr. Chadderton's 1st prize Staffordshire "lumps," and Mr. Carrington's thin ones, however, were good.

The roots, and particularly the Potatos, were excellent, both for size and quality.

In the tent for garden produce and hothouse fruits and plants there were some magnificent Muscat Grapes, sent by the Earl of Lichfield, who also lent some rare plants for adding to the interest of the stands.

The machinery department was almost unnoticed. Mr. Underhill, however, created some attention occasionally by running his locomotive engine, to show the effect of his patent zig-zag wheel tyres, or rims. Mr. Joseph Beach, of the Hatton's Farm and Dudley Mills, had a large stand of his appetising and stimulating food. The remarkable increase of the use of this food is shown by the fact, that upwards of 2000 agents are selling it in London and the provinces.

Farmers' Clubs.

PENRITH.—*The Game Laws.*—The proceedings were opened by Mr. THOM reading the motion he had drawn up on the paper he had recently read. The resolution was as follows:—

"That it is the opinion of this Club that the Game Laws and the Assessed Tax Acts relating to game certificates should be repealed, the ordinary law of trespass being amply sufficient to protect the owners and occupiers of land against trespassers (where such owners and occupiers devote their land to the preservation of game)."

After some conversation Mr. THOM agreed to withdraw the latter clause of the resolution, which is within parenthesis.

Mr. JAMIESON altogether dissented from the proposition for the total repeal of the game laws. The game laws were directed against only one class that he knew of, and that was the common poacher, who had no right or claim to go upon any man's land for any purpose whatever. Poachers made it their business not to kill game in the daytime, but in the dead of night when nobody knew or saw. It might be said that persons could go upon land not to kill game, but they were liable to an action for trespass. Nineteen-twentieths of those persons who had land would not go on to the other people's land to kill game without leave, but the common poacher did, and if they did not provide against that class the consequence would be that there would soon be no game in the country. Was that a state of things, he asked, that Mr. Thom would like to see introduced? He contended that a law should be maintained for the protection of those who preserved game against the class of persons he had mentioned. He submitted that the law of trespass was not sufficient, and said if there was not a law to punish poachers who committed their depredations by night they might bid farewell to game altogether, and it would become a matter of history. He explained the difference between the Scotch and English laws on this subject, and said with regard to assessed taxes he agreed with Mr. Thom that they should be repealed so far as they relate to a man killing game on his own farm, but if he went beyond his own farm he ought to pay for a licence like other people. He pointed out that when a man took a farm he had the making of one-half of the bargain, but perhaps a little tincture of the Scotch law might be useful if introduced. In conclusion, he said on the whole he could see very little to amend in the game laws. The small landowner was in the worst position, because the common poacher preyed upon him, and he had not the means to prosecute him. The only amendment he could see was that if a landlord was a determined and inveterate game-preserver, there ought to be some limit beyond which he should not go, and if a farmer could make out any case against him he should have some redress against over-stocking.

Mr. HOGARTH said it was clear that if a man had a few heads of game he could not keep them if poachers were allowed to go about in the night time and destroy them; but there was another expense to which the ratepayers were subjected, and that was for the prosecution of poachers. Who were the men who were now the mainstay of the poachers? The police had now the right to search any man they might find upon the road at an unseasonable hour, and they did so sometimes when they had no reason. In proof of this, he instanced the case of one of his own men who was out rather late on Sunday night on a sweetheart-ing expedition. The policeman, who knew the man very well, pounced upon him and searched his pockets to see if he had any snares or nets, but not finding any he then searched for picklocks. Now he wanted to know whether policemen had that power. They were sufficiently troubled with police-rates and poaching without being troubled by a man meeting them on the public highway and searching them. If the police had that power the sooner that law was modified the better. If Mr. Thom had taken a little advice and just introduced the thin edge of the wedge, and said that the common funds of the county were not for keeping men to prosecute poachers, he would have been doing more good than by trying to upset a law that had been and would be beneficial. Those who paid the rates should have something to say in the disposal of them.

After a short general conversation,

Mr. THOM said he had never himself suffered from game, but he had read and seen by experience the great ravages committed by game, where excessively preserved, and he thought it was the duty of the Penrith Farmers' Club to express their opinion on the subject. It was calculated that the farmers of England and Wales suffered more from the ravages of game than they paid in taxes of all kinds, and in a great many counties it was an ascertained fact that one-fourth of the produce of those counties was destroyed by the game. Every farmer knew that he had the same difficulty and expense in rearing a bad crop as a good one, and they paid the same amount for rent, taxes, and labour, and if the crop was destroyed by game they could calculate their loss. Some members might object to his wishing to do away with the game laws, but he had read them over and considered them, and he had come to the conclusion that any attempt to mend them was quite out of the question. They were good for nothing, and the only way to deal with them was to repeal them altogether. Mr. Thom next referred to a case heard before the Committee of the House of Commons about 20 years ago. One witness told the Committee that in the season he employed 20 men for taking pheasant and partridge eggs, and rabbits to stock gentlemen's preserves. He would like Mr. Jameson to tell him the difference between the receiver of stolen goods and the thief. He thought the gentleman who bought them from the poacher was 50 per cent. worse than the thief, and yet that gentleman had the audacity to sit in judgment upon those men who robbed other preserves to stock his own. He pointed out that whilst the aristocratic poacher got off scot-free, the poor labourer perhaps received three months' imprisonment for his offence, and contended that it was a class law, and a remnant of the old feudal system. He was quite sure they would have more game in the open country if every person was allowed to shoot game on his own estate. He did not think that winged game did any harm, but rather good. Unless a candidate would promise to vote for the repeal of the game laws and the malt tax—one of the most unjust taxes a farmer had to pay—he would not vote for him. In conclusion, he moved his resolution.

For some time Mr. Thom failed to find a seconder to his motion.

Mr. HOGARTH thought an amendment such as he held in his hand would be more like the mode of proceeding. It was as follows:—

"That the expense of prosecution of all poachers and the cost of the preservation of game, as at present worked by the county police, is unjust to the ratepayers; and that such expense should be paid only by the game preservers."

The CHAIRMAN ruled that this motion could not be discussed that day.

Mr. THOM's resolution was then put, but only one hand was held up in its favour, and that was his own.

The proceedings then terminated.

Reviews.

The Journal of Agriculture. September, 1867. 26, Cockburn Street.

The current number contains many interesting papers, one of which, or nearly the whole of it, containing the letter of Abd-el-Kader on the Arab horse, we have transferred to our columns. There is also the vigorous address of Professor John Gamgee on cattle plagues in general, and on the influence of the veterinary profession, from which we make the following extract:—

"It is our duty as a body to prove that, under a proper organisation, and acting under our advice, three or four millions sterling every year can be saved to the community. We can render fruitful thousands of acres of land which are lying waste; we can economise animal life so as to make ourselves quite independent of the importation of live cattle; and we can devise a system whereby a rational and unrestricted free trade in animal produce, rather than in the animals themselves, can be inaugurated and maintained.

"What has been our position since the cattle plague appeared in 1865? Every suggestion made for years back has slowly but surely been adopted. But by what process? Having stated long before the rinderpest appeared how it would reach our shores, when it came we were laughed at, and the foreign dealers were believed when they said that the filthy cow-sheds of the metropolis were responsible for all the mischief. Our recommendations to isolate, slaughter, and disinfect were characterised as barbarous and unscientific. The Government adopted them, and in order to shift its great responsibilities on to other shoulders, appointed a Royal Commission. How were we represented there? One veterinarian, and that one the representative of that important section of our profession who never professed to know anything except concerning the diseases of horses. A veterinary department was created, and instead of initiating measures with that courage and determination which springs from fulness of knowledge and competency, it has always been behind the times.

"We must not expect the Government, and much less the veterinary department of the Privy Council as at present constituted, to take the initiative in anything: and it appears to me that veterinary associations throughout the country should combine to organise a committee which might watch the interests of the public and of our profession, and insist on the proper utilisation of knowledge, and reasonable limits being placed on red-tapism and official reticence. From the continued prevalence of the cattle plague, the absence of information concerning the origin and extent of cattle diseases of all kinds, the ever-increasing price of beef and mutton, and what is more, from the recent revelations regarding the probable connection between certain malignant diseases of animals and man, we must not be astonished if the influence of our profession be not permanently injured unless some very decided movement is made from within our ranks.

"A good work never can be begun too soon; and this very evening I beg to propose that we should address to the Government recommendations which cannot, in the public interest, pass unheeded. Let these recommendations go forth to the world as emanating from a profession which might have done much—perhaps more directly than any other—for the pressing wants of a great community, had it been aided and encouraged, instead of being assailed at all hands as incompetent and weak. We can turn to the pages of our veterinary journals—we can quote the assaults of infuriated agricultural editors—we can unearth the victims of a raging pestilence—in testimony of the wisdom and foresight for which we deserve credit, and of the stupid blindness and obduracy of those who thought we worked from selfish motives in uttering timely words of warning and advice. It is the duty of our profession to unfold the pages of a few years' history. It is due to themselves that the blame should be heaped on the right shoulders, and our interests must suffer if we lack that *esprit de corps* and pluck which are essential to our protection against injuries sustained and revilings continued.

"It is no phantom we are fighting with when we speak thus. There is a deep-rooted prejudice against our calling which is most dangerous to progress and damaging to the world at large. We are so often told that the veterinary profession is not what it should be, that we are compelled in self-defence to look round and ask what is done for our advancement. If any one will read the debate in Parliament on the recent proposal to establish scholarships with the fund bequeathed by Mr. Brown for a hospital for animals, he cannot but read with amazement how little is thought of the cultivation of a science which, apart from its influence on the development of a new philosophy, is of the most direct practical bearing in relation to the comfort and prosperity of mankind.

"Where are the endowments of colleges, the scholarships for students, the prospects of moderate support to unselfish workers in the all-important field of veterinary science? So long as we prescribe balls, draughts, and powders for sick horses and plethoric lapdogs, the means of existence are not denied us; but if we contemplate increasing the rent-roll of Scotch lairds by putting an end to scab and braxy—if we offer the Cheshire landlords immunity from the disasters which befell their tenants and themselves a few months since—if we propose to work for the Irish peasant, and rid the country of foul diseases which attack animals first and then shorten human life—who is there, what is there to encourage us in undertakings so great, so urgently called for, and so thankless? The cry which met us in 1863, the efforts of agricultural associations in 1864, are too fresh in our memories for us to forget that for the moment the less they have or hear of us the better."

The History of the Rise and Progress of the Killerby, Studley, and Warlaby Herds of Shorthorns. By William Carr. W. Ridgway, 169, Piccadilly.

There is at present a larger number of educated men and women in this country who take a direct and personal concern in agricultural matters than ever there has been till now. And of those who are thus stimulated by a new interest, and guided by some amount of new knowledge, much the larger proportion of our amateur agriculturists are attracted by their pleasure in the fold and feeding-ground rather than in the tillage

operations of the land. It is the live stock—the horse, the cow, the sheep—that is the great attraction of the farm to them. Undoubtedly, therefore, Mr. Carr—himself a well-read man and master of good English—has a large public, to whom his extremely interesting book will be heartily welcome.

But it is not by the amateur alone, nor even chiefly, that his work will be received. If the great body of amateur farmers has increased of late years, and the number of admirers of the Shorthorn has been recruited largely from without the bounds of agriculture altogether, there can be no doubt that within those bounds the number who are directly interested in pure bred stock has quadrupled or many times increased. Mr. Strafford's herd book has a circulation which the original editor, Mr. Coates, could not have anticipated. And it is this large body especially whom Mr. Carr expects to interest. The work itself is well qualified to excite this interest. Though professedly confined to a history of the herds connected with the name of Booth, it is really a discussion, illustrated by their examples, of the whole art and policy of the breeder. And in no better field could the author seek his illustrations of such a subject than in the lives and achievements of a family who stand among the highest of those to whom we owe the present position of the Shorthorn breed. We make but one extract at present from Mr. Carr's pages:—

"There are not a few who, disregarding the evidence of facts that no cattle are more robustly organised than those of Warlaby, have jumped to the conclusion that they must be bred from too close consanguinities. It is but fair to hear what was Mr. Booth's own opinion on this subject, and his reasons for it. Some time ago, accepting the then prevalent notion that the Warlaby herd would derive benefit from fresh blood, I ventured to suggest to Mr. Booth the expediency of adopting a cross, when I was met by arguments to the following effect: 'Have any of the evils which are usually attributed to in-and-in breeding manifested themselves in my herd? Is there any degeneracy in size, substance, or vigour in the animals? any tendency to premature age? any lack of milking or thriving disposition in the cows, or of capacity of frame, or hardiness of constitution? Are the bulls (with one or two exceptions, such as must occur in every herd) deficient in masculine character and efficacy, or the sires of a puny or feeble offspring? or do they early become worn-out and unfruitful? And lastly, is there any tribe of Shorthorns that attains a higher or even the same degree of condition on the same food?' All of which questions it being impossible to answer otherwise than in the negative, Mr. Booth added, 'Because, if not, it is clear that the only consideration that would justify me in having recourse to a cross, would be the discovery of a tribe which, besides possessing in an equal degree with my own the qualities we have mentioned, are superior to them in utility and symmetry.' 'Granted,' I replied. 'Where is it?' was the pertinent but perplexing rejoinder. 'The result of the last three crosses upon which I ventured,' continued Mr. Booth—'Water King, Exquisite, and Lord Stanley—has made me distrust the policy of any further step in that direction; nor have the results I have witnessed of the experiments of others in crossing animals of my blood with the most fashionable bulls of other strains tended in any instance to remove that distrust.'"

Miscellaneous.

The Rev. Canon Girdlestone on Agricultural Wages.—During the last 12 months you have been kind enough on several occasions to insert letters from me about the wages and treatment of agricultural labourers. I have to thank you, also, for having yourself noticed favourably my efforts in behalf of that class of labourers. Will you permit me, after a long interval, again to report that I have now sent away in all no less than 90 labourers from this neighbourhood to other parts of the country? Of these 30 are married and with families, almost all are doing well, and, still in their own vocation of agricultural labourers, are in their new homes earning—the married men from 12*s.* to 1*l.* a week, with a cottage and garden rent free, together with in some cases fuel and other privileges; the single men board, lodging, washing, mending, and from 6*s.* to 8*s.* a week. The result of this movement is very encouraging. Among the labourers—up to this time a rather sleepy, untravelled, and immovable body—a spirit of inquiry and enterprise has been roused. Many besides those towards whose removal I have been instrumental have of themselves found better wages in distant places. Those who remained have learnt that a removal to better-paid districts is not by any means as difficult a matter as they once supposed. The farmers in every part of this neighbourhood have raised wages from 7*s.* to 8*s.*, 9*s.*, and, in some cases, even 10*s.* a week. They have begun to treat their labourers with more kindness and consideration. And much to their own advantage, as well as ultimately to that of the labourers, they have begun to make more general use of mowing, reaping, and other machinery. In other parts of the country farmers short of hands have learnt how easy it is by means of the 1*d.* post and 1*d.*-a-mile trains to enlist the services of those at a distance, and have discovered that it is well worth their while to do this, at the cost of giving part and advancing the remainder of the expense of removal, to be repaid gradually out of wages. Thus the influence for good has been much more extensive and important than could have been anticipated from the means employed. This success, though on a limited scale, has induced me to invite the co-operation of several influential persons in an attempt to give a more comprehensive and permanent character to my own hitherto unassisted and consequently partial efforts. We have established, at 18, Serjeant's Inn, London, an institute and office for the registration of the wants of both employers and employed. In connection with this a circular, of which I enclose a copy of the first number, will be issued monthly, containing a list of the above wants, the price of labour in various districts, and other appropriate information. District agencies, with a liberal commission, are likewise being gradually established in various parts of the country, both to collect and supply information, and make known the wants of all parties concerned. If this institute succeeds, of which there is fair promise, it will practically establish free trade in all kinds of labour. It will do much towards bringing employers and employed more together, improving the tone of feeling between them, and lessening the desire for unions and strikes. It will have the effect of rousing the energies, and, by facilitating the removal of his capital to the best market, improving the character and position of the most depressed of all the working classes—namely, the agricultural labourer. The introduction of some of this class to new scenes and spheres of action, made much more easy by the institute above described, will leaven the whole mass. The agricultural labourer will become a wholly different sort of man, will acquire new tastes and habits, become more active and intelligent, will demand and obtain better accommodation and wages, and learn to value them and make good use of them; will himself be happier as well as more useful to his employer; will, in short, keep pace with the times, instead of being, as now, half a century behind them. The large number of this class, the fact that they are in reality the very bone and sinew of the country, the certainty that they must before long be admitted to the franchise, make it an object of paramount importance that their energies should be roused and their character and position improved. I do, therefore, most earnestly invite all those who have sympathised with me in my personal endeavours to better the condition of this class to co-operate heartily with those who are endeavouring, by the establishment of this institute and circular, to advance on a much larger scale the same important object. *Edward Girdlestone, Canon of Bristol and Vicar of Halberton: Halberton Vicarage, Tiverton (in the Times, Sept. 9.)*

Freeford (Wolverhampton) Annual Sale of Shropshires.—This was Mr. Wasfen's 14th annual sale, and as evidence of the turn the trade has taken in favour of mutton in preference to wool, there were buyers here from 15 counties. Lord Chesham, of Latimer, Bucks, was one of the company and one of the principal buyers. The leading Shropshire breeders were also present, as were several influential men of the above town, among whom were Sir John Norris, Mayor; Mr. J. Hartley and Mr. T. Evans. The sale was conducted with Mr. Preece's usual skill, and the prices realised made the good averages of 14*l.* 8*s.* 6*d.* for 50 rams, and 3*l.* 8*s.* 5*d.* for 75 draught ewes. No 1 made 21 guineas to Mr. Dale; 2, 30 guineas to Lord Chesham, who bought also No. 3 at 20 guineas, Mr. Dale buying the next at 25 guineas. Mr. Grimstone, No. 16 at 25, and a 3-shear at 30 guineas. Mr. Sharpe, agent to Lord Aylesford, bought Pride of Pendford, 2-shear, for 40 guineas, and Mr. Wardell, of Burton-on-Trent, bought the third 2-shear at 32 guineas. A larger complimentary and friendly company we have never seen together in the midland counties, which says much for the respect in which Mr. Wasfen is held by his neighbours. Everything passed off in a manner which did great credit to our hostess as well as host.

Trial of Reapers at Dublin.—Thirteen reaping machines, including those of Burgess & Key, Hornsby, Samuelson, &c., were tried during the recent Show upon a 15-acre field of Oats—not a very favourable crop, from the quantity of Grass, which formed a severe test. No racing was attempted, the object being simply to exhibit the mode of performance of each machine at intervals throughout the day, rather than to test its capabilities against time. A great concourse of persons, apparently of all ranks in society, took the greatest interest in the work—following up the machines very closely, and freely commenting upon the respective merits of the self-delivery swathers and sheavers and the manual rake-delivery reapers. Harvesting machines are being introduced into many parts of Ireland, the trade in Grass-mowers being already very large; in fact, one firm alone has imported no fewer than 500 American Grass-mowers during the last hay season; and it is a matter of significance to those whom it may concern that these labour-saving implements should have met and passed on the Atlantic cargoes of emigrant labourers from this land. Equal interest was shown by the Irish agriculturists and other spectators in the performance of Messrs. J. & F. Howard's steam-cultivating apparatus. A 10-horse portable-engine, with "roundabout" tackle, broke up a piece of lea ground by means of a three-share cultivator, the shares being armed with prong stirrers, which raised, tossed, and shattered the up-turned soil in a most effective manner. With the three-furrow plough some exceedingly neat work was turned over, and at different depths, to show the ability of the steam plough to prepare land for Wheat seeding as well as for deep fallowing. Steam tillage was exhibited a second time, the operations including cultivating, digging, turn-over ploughing, and harrowing. Messrs. Howard have already four sets of steam tackle at work in the counties of Dublin, Kildare, Waterford, and Cork.

Notices to Correspondents.

CIDER MILL: *H W C* asks if any of our readers can tell him which is accounted, by the best cider-makers of the day, the best mill for making cider.

GRASSES: *M A.* Your Grasses are—1, Poa (Glyceria) aquatica, the reed Poa of brooks and watercourses; 2, Bromus mollis, soft Brome, called "Lop," from its heavy seeds; 3, Alopecurus pratensis, Meadow Foxtail; 4, Aira cæspitosa, Hassock or Tussac Grass, tall Hair-grass, sometimes called "bull-pates."

FOWLER'S PATENT STEAM PLOUGH and CULTIVATOR may be SEEN at WORK in every Agricultural County in England.

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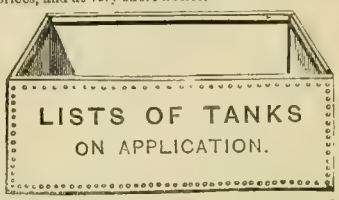
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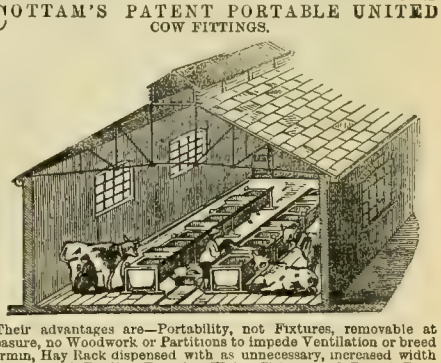
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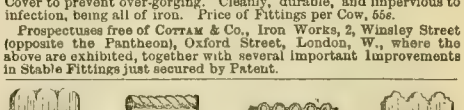
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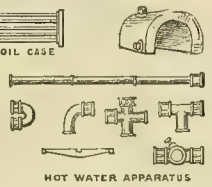
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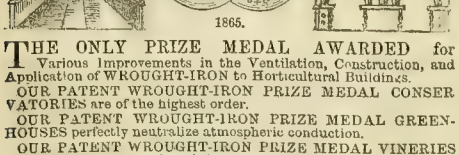
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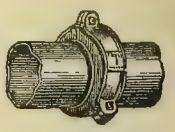
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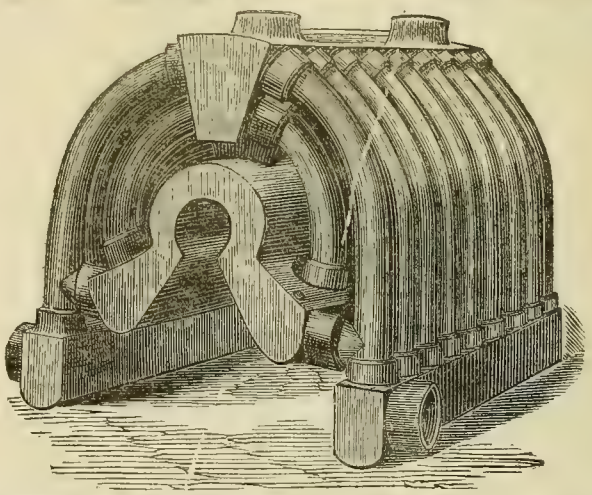
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Used by many of the leading Gardeners since 1859, against Red Spider, Mildew, Thrips, Green Fly, and other Blight, in solutions of from 1 to 2 ounces to the gallon of soft water, and of from 4 to 16 ounces as a Winter Dressing for Vines and Fruit Trees. Has outlived many preparations intended to supersede it.
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MR. JOHN BIRCH, ARCHITECT
(Author of the Society of Arts' Prize Cottages),
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JOHN GIBSON, JUN., begs to announce that he is prepared to Furnish PLANS and ESTIMATES for LAYING OUT GROUND attached to Mansions and Villa or other Residences, or for the FORMATION of PUBLIC PARKS or GARDENS and to carry out the same by Contract or otherwise.
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GEORGE F. MORRIS (of the Firm of PROTHEROE & MORRIS) undertakes SALES and VALUATIONS of FREEHOLD LANDED ESTATES, Leasehold and Reversionary Property of every description, Farming and Market Garden Produce, Household Furniture, Stock in Trade, &c.
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WANTED, a quantity of GOLD and SILVER FISH, in the Trade.—The West London Flower and Seed Establishment, 9, Queen's Road, Bayswater, W.

WANTED, a SMALL MARKET GARDEN or FLORIST BUSINESS near London, or any large Provincial Town.—Address, stating particulars, to
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FOR DISPOSAL, a First-class NURSERY and SEED BUSINESS; or the present Proprietor would accept of a WORKING PARTNER with a Capital of not less than £1500.
Apply by letter to E., Messrs. Hurst & Son, 6, Leadenhall Street London, E.C.

To Florists, &c.
TO BE LET, on Lease, near the Crystal Palace, about HALF an ACRE of LAND, with a newly-erected GREENHOUSE and STOVE, 70 feet long by 16 wide. The situation is most desirable, and a large Jobbing Business may be calculated on.
Address A. D., 12, Penge Place, Penge, S.E.

To Market Gardeners, Nurserymen, &c.
TO BE SOLD, by Private Contract, about 200 ACRES of very superior GARDEN GROUND, all Freehold, situate in the County of Bedfordshire, about three miles from Biggleswade Station, Great Northern Railway. The Land is divided into Lots to suit the convenience of purchasers. For particulars apply to
THOMAS FOUNTAINE, Esq., Dunton Lodge, Ashwell, Baldock.

Nursery and Seed Business for Sale.
WILLIAM DEAN, having determined on residing in London again, offers for SALE, with immediate possession, the NURSERY at SHIPLEY, consisting of Four Acres, with 13 extensive Glass Houses, the whole, with the Nursery well stocked, and with Dwelling House, &c., is held on Lease; also the SEED SHOP, in BRADFORD (the only one in the town), which is well fitted up, and where there is a good business doing in Fancy Articles, as well as Seeds, Cut Flowers, Flowering Plants, &c. The Nursery is 2½ miles from the Shop, on a principal road to Bradford. A half year's business is equivalent to the purchase money required, and will be a great bargain to the purchaser. It is an excellent opportunity for a large house in the South to establish a Branch Business here, as a good healthy Trade is already done, which may be very much increased. For particulars apply to
WILLIAM DEAN, Bradford Nursery, Shipley, Yorkshire.

The Exmoor Cobs, Galloways, and Ponies.
MR. ROBERT SMITH'S next ANNUAL SALE of about 40 of these LITTLE HORSES will come off at Fielder's Repository, Bristol, on WEDNESDAY, September 25, next, at 1 o'clock. On view the day previous to the Sale.
They are warranted sound, and chiefly bred from renowned sires and Exmoor Pony Mares. Descriptive Catalogues may be had, 10 days prior to the Sale, at the Stud Farm, Exmoor Forest, South Molton, Devon.—Emmett's Grange, August 20.

Lincolnshire Long-woolled Rams.
MR. JNO. CLARKE, of Long Sutton, Lincolnshire, will have pleasure in forwarding to Sheep-breeders, in any part of the kingdom, SHEARLING RAMS of excellent quality, at very moderate prices. These Rams have been found to answer exceedingly well as a cross with Merinos and other Short-woolled Ewes of any Breed. The difficulties in railway transit are very slight. The Rams will be ready for delivery after Wednesday, September 11th, or earlier if required.
Long Sutton, August 24.

Sales by Auction.

Public Sale by Auction at Ghent, Belgium.
132, Rue de la Caverne.
MR. FERD. VERHULST will SELL by AUCTION, under direction of Mr. Jean Verschaffelt, on WEDNESDAY, the 18th inst., and following days, the very rich and renowned Collection of PLANTS of the late Mr. Auguste Fonel, and consisting especially of a rare collection of CACTI, AGAVES, &c., and a great number of specimen INDIAN AZALEAS, all choice varieties.
Catalogues may be had free on application to MR. JEAN VERSCHAFFELT, 134, Faubourg de Bruxelles, Ghent, Belgium.

Preston Hall, Maidstone.
The remaining portion of the valuable LIVE STOCK and AGRICULTURAL IMPLEMENTS on the Home Farm, comprising 15 powerful Cart Horses, a Trotting Cob quiet to ride and drive, two Nag Horses, 27 Shorthorned Cows, Heifers, and Bulls, principally pure bred, being the remaing portion of the renowned herd of first-class Shorned-horned Cattle, known as the Preston Hall Herd; 480 Sheep, Rams, and Lambs, including the Kent Half-bred and Cotswold Breeds; 40 fat Down and Kent Ewes; several Sows, Pigs, and Boars; numerous head of Dorking and other Poultry, Pigeons, &c. The implements comprise numerous Scotch and other Carts on iron arms, Hop-pole Carriages, capital Road Waggon, double cylinder iron Land Rollers, Timber Carriages, two patent Manure and Corn Drills, a patent Haymaking Machine, Dressing Machines, Turnip Cutters, Bentall's patent Broadshares, Iron and Wood Ploughs and Harrows, numerous sets of Thill and other Harness, Sheep Hurdles, two sets of Rick Clothes, Poles, and Ropes, Dairy Utensils, a Waggonette and a Dog Cart on Steel Springs, neatly painted, with Cushions, Lamps, &c., and numerous miscellaneous and useful Implements and Effects; also a Steam Power Double Press and other Brick-making Machines, the Machinery of a Flour Mill, a Tubular Iron Boiler, and a stock of Bricks, Copings, Tiles, &c., at the Aylesford Pottery.
MESSRS. DANIEL SMITH, SON, AND OAKLEY have received instructions to SELL by AUCTION, on the Premises, at the Home Farm, the above valuable LIVE STOCK and IMPLEMENTS, on WEDNESDAY, September 25, and following day, at 12 o'Clock precisely each day. Catalogues may be obtained of Mr. FREEMAN, at the Home Farm; the Bull Hotel, Rochester; the Star, Maidstone; and of Messrs. DANIEL SMITH, SON & OAKLEY, Land Agents and Surveyors, 10, Waterloo Place, Pall Mall, S.W.

Araucaria imbricata Seed.
MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, September 18, at half-past 12 o'Clock precisely, 80 lbs. of clean SEED of ARAUCARIA IMBRICATA, in good condition, just arrived.
On view the Morning of Sale, and Catalogues had.

Bulbs from Holland for Autumn Planting.
MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, September 18, at half-past 12 o'Clock precisely, an importation of Double and Single HYACINTHS, TULIPS, CROCUSES, NARCISSUS, and other Bulbs, just arrived, in capital condition, from Holland.
On view the Morning of Sale, and Catalogues had.

Under a Bill of Sale.—Enfield Highway.
To Nurserymen and Others.
MR. A. RICHARDS will SELL by AUCTION, on the Premises, one mile from Ponder's End Station, on MONDAY, September 16, at 1 o'Clock, without reserve, Four nearly New SPAN GREENHOUSES, 30 feet, 52 feet, 65, and 80 feet; several PITS and LIGHTS; 300 dozen PLANTS, including CAMELLIAS, AZALEAS, FUCHSIAS, &c.; EVERGREENS, FRUIT TREES, &c.; also a SPRING VAN, HORSE, HARNESS; 150 CASTS of POTS; large HEAP of MANURE, &c.
View on Saturday. Catalogues obtained on the Premises, and of the Auctioneer, Tottenham.

Preliminary Notice.—Important Sale.
MR. A. RICHARDS will SELL by AUCTION, on the Premises, Edmonton, on WEDNESDAY and THURSDAY, October 2 and 3, the valuable NURSERY STOCK, GREENHOUSES, &c. (the Lease having expired and the Ground being required for building purposes), including 3000 home-grown Camellias of the best varieties, 3000 Calceolarias, 2000 Hydrangeas, 2,000 Wellingtonia gigantea 3 to 6 feet high, 1500 Cupressus Lawsoniana 3 to 5 feet, Red Cedars, Aucubas, Araucaria imbricata, &c., nearly the whole transplanted in the spring and autumn of 1866. Also 8 capital Greenhouses, 100 Lights, large common Boiler, Pipes, Spring Van, &c. On view two days previous. Catalogues obtainable on the Premises, and of the Auctioneer, Tottenham.

To Noblemen, Agriculturists, and Others.
AN IMPORTANT UNRESERVED SALE OF PRIZE BERKSHIRE PIGS, WILL TAKE PLACE AT READING, BERKS, ON TUESDAY, SEPTEMBER 24, COMMENCING AT 12 O'CLOCK.
MR. TOMPKINS is favoured with instructions from Arthur Stewart, Esq., of Saint Bridge House, Gloucester (who is retiring from breeding and exhibiting for prizes), to SELL by AUCTION, at his Mart, close to the Railway Station, Reading, without the slightest reserve, the entire and Valuable HERD of about 60 head of the CHOICEST PIGS perhaps ever seen together. Mr. Stewart's Berkshire Pigs took the 1st and 2d Prizes in the Breeding Sow Class, and the Silver Medal in the Boar Class, at the Royal Agricultural Show at Newcastle in 1864. Mr. S. also obtained at the Royal Agricultural Show at Plymouth in 1865, 1st and 2d Prizes, and reserved number in the breeding Sow Class, and 1st Prize in the Boar Class. In 1866 there was no Show. At the Royal Agricultural Show at Bury St. Edmund's this year, Mr. S. secured the 1st Prize in the Boar Class, and 2d Prize and reserved number in the Breeding Sow Class: Mr. Stewart's best sow died, leaving seven young in the pen, before the Judges were admitted into the show yard.
N.B.—The Auctioneer earnestly solicits the attendance of the Public to the above unreserved Sale, and would remark that Mr. Stewart has gained many Prizes, both at the Bath and West of England Shows, and elsewhere. These Pigs will be found of great size, length and depth; the fine strain of blood is solely confined to the above herd, Mr. Stewart never allowing any subscription to be taken for his Boars.
Full particulars will appear in Catalogues, which can be obtained a week prior to the Sale, on application being made to the Auctioneer. See Vol. No. 2 of the *Agricultural Journal* for 1865, in reference to this Herd.

The late W. Fisher Hobbs, Esq., Boxted Lodge, near Colchester, Essex.
MR. CLEAR is instructed by the Executor, H. TRETHEWY, Esq., to SELL by AUCTION, on THURSDAY and FRIDAY, September 26 and 27, upon the Premises, without any reserve, the Farm being Let, all the Valuable LIVE and DEAD AGRICULTURAL STOCK, comprising the Entire Herd of his celebrated improved ESSEX PIGS, which consist of 40 Sows with Pigs and in farrow, 20 Boars of various ages, and 70 Store Pigs; the whole of the FLOCK of highly-bred pure SOUTHDOWN SHEEP; bred from the flocks of the Duke of Richmond, Mr. Jonas Webb, and Mr. Penfold, which includes 180 Ewes, 170 Ewe and Wether Shearlings, 160 Ewe and Wether Lambs, 5 very large and superior Rams, 11 Shearling Rams, 6 Ram Lambs; the choice selection of 9 ALDERNEY COWS and CALVES, and 4 BULLS, which are exceedingly handsome and profitable, being all bred from prize stock; 100 couple of pure Dorkings, bred from the late Mr. Hobbs's celebrated prize stock; and 10 couple of Golden-Pencilled Hamburghs; 10 Aylesbury Ducks and 6 Turkeys; 10 Suffolk CART HORSES.
Enfield Farm, Boxted.
ARRANGEMENT OF SALE.—The herds of Cows and Swine, flock of Sheep, Poultry, and Steam Threshing Machine, on THURSDAY, September 26. The Horses and Agricultural Implements, on FRIDAY, September 27. Sale to commence each day at 11 for 12 o'clock.
Enfield Farm is 4 miles from Colchester, a first-class station on the Great Eastern Railway. Conveyances will meet the train that leaves London at 9.15 and arrives at Colchester at 10.57; also the train that leaves Colchester at 6.45, arriving in London at 8.45.
Catalogues may be obtained, on application to WM. HOBBS, Esq., Boxted Lodge; at the Cups Hotel, Colchester; and of Mr. CLEAR, Maldon Essex.

To Market Gardeners and Others.
MR. W. T. ATWOOD will SELL by AUCTION, on the Premises, Culvert Road, near the Half-way House, Battersea Fields, S.W., on THURSDAY, October 3, at 12 o'Clock precisely, the property of Mr. S. POUPART, who is relinquishing business, the LIVE and DEAD STOCK and IMPLEMENTS of TRADE, and CROPS of GLOBE ARTICHOKES, RHUBARB, and BEET ROOTS. The Stock comprises—3 powerful Cart Horses and Chaise Horse, 5 Spring Market Vans, Dung Cart, Market Cart, Block Waggon, Wash Bed, 4-wheel Chaise and Dog Cart, Thill Truce and Chaise Harness, Corn Bins, Ploughs, Harrows, Rollers, Box and Long Barrows, Patent Chaff Machine, Fruit and Step Ladders, Seed Sieves, Winnowing Machine, Sack and Seed Cloths, Watering Pots, Garden Tools, 80 3-light Boxes and Lights and Bell Glasses; heaps of excellent Manure, Litter, and Packing Hay; quantity of useful Boards, Scantling, Kerb and Paving Stones, Firewood, Iron Hurdles, and sundry useful effects.
May be viewed Day before and Morning of Sale; Catalogues had on the Premises, Inns in Covent Garden Market, and W. T. ATWOOD, Mortlake, Surrey.

Desirable Freehold Estate.
ROCK NURSERY GARDENS WASHINGTON, SUSSEX.
MR. JAMES MOASE begs respectfully to announce that he has received instructions from the Proprietor (who is retiring from business on account of ill health) to SELL by AUCTION at the Chequers Inn, Steyning, on THURSDAY, October 3, at 2 o'Clock in the afternoon (unless previously disposed of by Private Contract, of which due notice will be given), all the before-mentioned most desirable FREEHOLD PROPERTY, comprising eight Acres of productive Land, stocked with choice Fruit Trees, Nursery Stock, Brick Wall on North side 648 feet long, well stocked with trees now in full bearing; Cucumber House, 50 feet by 11 feet; Peach House, 50 feet by 10 feet; Grapery, 50 feet by 10 feet, with Hot-water apparatus to each house, together with comfortable eight-roomed Dwelling House, large Stores, Cart Lodges, Piggeries, Stable, &c. The above property is most delightfully situate about 5 miles from the Steyning and 6 miles from Pulborough stations, is well adapted for building purposes or for carrying on an extensive Nursery Business.
To view, apply on the Premises, for printed particulars and conditions (which will be ready seven days before the Sale) apply to JOHN INGRAM, Esq., or to the Auctioneer, West Chillington, by Steyning, Sussex.

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It is now generally admitted that BUILDINGS of any kind can be more effectually WARMED by HOT WATER than by any other means; but as so much depends on the way in which the Apparatus is fixed, it is of the greatest importance that it be done by experienced Men.

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It is admirably adapted for DWELLING HOUSES, as coils of pipes can be placed in any part, for warming the various rooms. One or more Baths may be heated from the same Boiler, and a constant supply of hot water obtained in any part of the house.

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J. JONES AND SONS,

IRON MERCHANTS and HORTICULTURAL ENGINEERS, 6, BANKSIDE, SOUTHWARK, LONDON, S.E.

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THE GARDENERS' CHRONICLE

AND

AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.

No. 38.—1867.] SATURDAY, SEPTEMBER 21. {Price Fivepence. {STAMPED EDITION, 6d.

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Hair, vegetable	980 a	Strawberries at Vichy	977 b
Harvest experiences— 981 b, 985 c,	986 b	Wasps' nests	977 c
Heating, furnace bars for	980 a	Window gardening, camp	973 a
Jardin des Plantes	977 c		

1868.

THE TENTH ANNUAL GRAND FLORAL FETE will be held at YORK, on WEDNESDAY and THURSDAY, June 17 and 18, 1868. Schedules will be published early in January next, and may be had on application to JNO. WILSON, Sec.
15, New Street, York, Sept. 14, 1867.

Standard Apples.

WOOD AND INGRAM offer to the Trade and others 20,000 splendid STANDARD APPLES, with 5 to 6 feet stems and magnificent heads. Price on application.
The Nurseries, Huntingdon.

Orchard-house Trees Fruiting in Pots.

PEACHES, NECTARINES, APRICOTS, CHERRIES, PLUMS, PEARS, APPLES, VINES, and FIGS.
RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

STRAWBERRIES.—All the leading Varieties in strong Plants. PRICED DESCRIPTIVE LIST on application.
JAMES DICKSON & SONS, "Newton" Nurseries, Chester.

Strawberries.

CHARLES TURNER is now prepared to supply strong Plants of the best modern kinds, as well as all the leading established varieties, true to name.
A DESCRIPTIVE LIST may be had on application.
The Royal Nurseries, Slough.

THE THREE MOST USEFUL STRAWBERRIES in cultivation either for forcing or the open ground.
PRESIDENT, strong layers, in 60-pots, 15s. per 100
SIR CHARLES NAPIER, strong layers, in 60-pots, 15s. per 100
KEEN'S SEEDLING, strong layers, in 60-pots, 15s. per 100
Runners of most other sorts, true to name, from 3s. 6d. per 100
F. R. KINGHORN, Sheen Nursery, Richmond, S.W.

CUTHILL'S STRAWBERRY PLANTS.—On and after August 26, strong, selected for next year's bearing, at the reduced price of 6s. per 100, each sort (they have lasted in bearing 55 days this year). Early Black Prince, Early Princess Royal, Richard II., Highland Mary, Newton Seedling late, Prince of Wales, latest of all. Dr. Lindley never could depend on a crop until he had my breed. MUSHROOM SPAWN, 5s. per bushel. Five Pamphlets, &c. Write for a LIST. Post-office orders on Camberwell Green.
JAMES CUTHILL, Denmark Hill, Camberwell, S.

Highly Cultivated and Regularly Transplanted Nursery Stock.

EIGHTY ACRES of the above, consisting chiefly of FRUIT TREES, ROSES, EVERGREENS, and ORNAMENTAL TREES, which for general excellence are unsurpassed.
THOMAS WARNER, Leicester Abbey Nurseries.

THIRTY THOUSAND HERBACEOUS and ALPINE PLANTS, in pots, now ready. An inspection respectfully requested. CATALOGUES on application.
Thos. S. WARE, Hale Farm Nursery, Tottenham, N., adjoining the Railway Station.

To the Trade.

AUCUBA JAPONICA, well-rooted Cuttings, by the 100 or 1000. Price (according to size) on application to
THOS. S. WARE, Hale Farm Nursery, Tottenham, Middlesex, N.

Cephalotus follicularis.

W. E. DIXON has to offer fine Plants, 5s. to 7s. 6d. each. Price per dozen to the Trade on application.
Norwood Nursery, Beverley.

LIBONIA FLORABUNDA.—One of the most beautiful winter blooming Greenhouse or Conservatory Plants grown, blooming profusely from November to April. Strong Plants, 1s. each; 8s. per dozen.
FREDERICK MARTIN, Nurseryman, &c., North Bridge, Hull.

Azaleas, best sorts, with buds.

F. AND A. SMITH have to offer to the Trade a large clean STOCK of the above—every Plant a specimen. Price (moderate) on application.
The Nurseries, Dulwich, S.

ORCHIDS.—A Small Collection of the best varieties for SALE, on account of owner's ill health.
For particulars, &c., address H., Post Office, Retford, Notts.

A VALUABLE PRIVATE COLLECTION of STOVE FERNS to be SOLD, having become too large for the Proprietor's Houses.
Apply to A. MILFORD, Sandridge Park, Melksham, Wilts.

NEW FERNS.—Lastrea Filix-mas, var. Crispa Cristata, a fine crested form of L. F.-m., var. Crispa, and Athyrium Filix-femina var. Pulcherrimum, both of which have recently received First-class Certificates, can be had at 3s. 6d. each, or 6s. for the two, from J. CLARK, Gardener, Newburgh, Fife. Other sorts also very cheap.

British Fern Catalogue.

ROBERT SIM can now send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his NEW and PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.
Foot's Cray Nursery, S.E., a mile from Sidcup Station of New North Kent Line of South Eastern Railway.

SUTTON'S GUINEA COLLECTION of BULBOUS FLOWER ROOTS, for Pots and Glasses, or Open Ground Cultivation, carriage free.
SUTTON & SONS, Reading, Berks.

The Successful Cultivation of Hyacinths.—See

SUTTON'S AUTUMN CATALOGUE for 1867, which may be had gratis and post free on application.
SUTTON & SONS, Reading, Berks.

Bulb Catalogue.

BUTLER, McCULLOCH, AND CO.'S CATALOGUE of Choice DUTCH and CAPE BULBS is now ready. Sent free and post paid.—Established upwards of a Century.
South Row, Covent Garden Market, W.C.

Dutch and Other Flower Roots.

JAMES DICKSON AND SONS have received, in excellent condition, a large Importation from the most eminent growers. PRICED DESCRIPTIVE LIST post free on application.
102, Eastgate Street, and "Newton" Nurseries, Chester.

IMPORTED DUTCH and CAPE FLOWERING BULBS.—We beg leave to intimate that our PRICED DESCRIPTIVE CATALOGUE and AMATEUR'S GUIDE of the above is now ready, and will be sent post free on application.
FERGUS FARRELL & SON, 119 and 120, Capel Street, Dublin.

WM. CUTBUSH AND SON beg to say that their DESCRIPTIVE CATALOGUE of CHOICE HYACINTHS, TULIPS, CROCUSES, &c., is now ready, and can be had post free on application. Highgate Nurseries, London, N.

Dutch Bulbs and Plants for Spring Gardening.

PAUL AND SON'S very complete and suggestive LIST is NOW READY.
The "Old" Nurseries, Cheshunt, N.

Dutch Roots.

JOHN AND CHARLES LEE will be happy to forward their CATALOGUE for 1867 of newly-imported HYACINTHS and other Roots, post free on application.
Royal Vineyard Nursery and Seed Establishment, Hammersmith, London, W.

WILLIAM ROLLISSON AND SONS' CATALOGUE of DUTCH, ENGLISH, and CAPE BULBS, NEW PLANTS, and those of RECENT INTRODUCTION; ROSES, GRAPE VINES, &c., is now ready and will be forwarded post free on application to
WILLIAM ROLLISSON & SONS, The Nurseries, Tooting, London, S.

Special Notice.—Dutch Bulbs.

MR. STEVENS' SALES of HYACINTHS, TULIPS, CROCUSES, and other BULBS, just imported from Holland, take place every WEDNESDAY and SATURDAY, and frequently on MONDAY, at the Rooms, 38, King Street, Covent Garden, London, W.C.

HOOPER AND CO.'S AUTUMN CATALOGUE of BULBS, &c., is about to be issued, and can be obtained by application. Price 1s., postage free (presented to Customers).
It is copiously illustrated, and describes a larger collection of rare and choice Bulbous Plants than probably any other in the Kingdom. It includes also Coloured Drawings of their celebrated Etruscan Hyacinth Vases and Horticultural Elegancies.
HOOPER & Co Covent Garden Market, London, W.C.

Dutch Bulbs for Exhibition.

J. SCOTT has received his annual supply of DUTCH FLOWER ROOTS from Holland; extra fine in quality and true to name.
12 very choice exhibition HYACINTHS, 10s.
12 extra choice " " 12s.
Other very fine sorts, 6s. and 8s. per dozen.
A complete list of the above sent free on application to
J. SCOTT, The Seed Stores, Yeovil, Somerset.

Bella Donna Lilies.

SUTTON AND SONS can supply the above beautiful LILY, at 6s. per dozen.
Reading, Berks.

To Gardeners, Seedsmen, &c.

HENLEY, BROTHERS, MERCHANTS, Holbeach, have still on hand a quantity of SNOWDROPS, which they beg to offer. Samples and price on application.

EVERY GARDEN REQUISITE kept in Stock at
CARTER'S New Seed Warehouse, 237 & 238, High Holborn, London.

Calceolaria, Cineraria, Primula fimbriata.

SUTTON AND SONS can supply NEW SEED of the above, saved from choicest flowers, in packets, 1s., 2s. 6d., and 5s. each, post free.
Royal Berkshire Seed Establishment, Reading.

For present Sowing.

DOBSON'S PRIZE CALCEOLARIA SEED, the finest strain in the world: per pckt., 1s. 6d., 2s. 6d., 3s. 6d., 5s.
DOBSON & SONS, Woodlands Nursery, Isleworth, W.

New Seed of 1867, choice quality.

DOBSON'S PRIZE CINERARIA, 1s., 2s. 6d., 5s.
DOBSON'S PRIZE PRIMULA, 1s., 2s. 6d., 5s.
DOBSON'S PRIZE BALSAM, 1s., 2s.
DOBSON & SONS, Woodlands Nursery, Isleworth, W.

Choice Seeds.

CHARLES TURNER'S superior CALCEOLARIA, CINERARIA, and PRIMULA are now ready, in packets, 2s. 6d. each. The Royal Nurseries, Slough.

To the Trade.

CHARLES TURNER can now supply—
CALCEOLARIA (JAMES) | PANSY | PINK
CINERARIA | PRIMULA KERMESINA
In Trade Packets, at 20s., 10s., or 5s., all of which are saved from the most extensive and unrivalled collections.
The Royal Nurseries, Slough.

Hanover Nursery, Peckham, S.E.

MR. A. IVERY, Widow of the late Mr. William Ivery, begs to state that the BUSINESS will be carried on as usual, and trusts to receive that support so long given to her late husband, which shall at all times have prompt attention.
A Select AUTUMN CATALOGUE for 1867 can be had post free on application.

Richmond Nurseries, Richmond, Surrey.

TO NOBLEMEN and GENTLEMEN making large PLANTATIONS, or PLANTING ORCHARDS or WALLS with FRUIT TREES, and requiring quantities of superior Coniferous and other Evergreens, Ornamental Flowering Trees, Shrubs, &c., or Dwarf-trained, Standard, or Spiral Fruit Trees. Special prices will be given on application to
G. & W. STEELE, of the above Nurseries.

PAUL AND SON'S NEW ROSE CATALOGUE for 1867, Priced and Descriptive, may now be had post free from The "Old" Nurseries, Cheshunt, N.
The Advertisers venture to call attention to their large stock of fine Plants, and to solicit early orders.

Roses in Bloom.

WM. PAUL'S ROSES are NOW IN FULL BLOOM. Inspection respectfully invited. Trains almost hourly from Shoreditch to Waltham Station, Great Eastern Railway.
PAUL'S Nurseries, Waltham Cross, N.

To the Trade.

MARSHAL NIEL ROSE, from own roots, in pots, by the 100 or 1000, at £5 per 100.
G. BAKER & SON, American Nursery, Bagshot.

CLARKE'S ROSE PINK, LORD LYON.—The best Pink for Forcing in Cultivation, to which a Certificate was awarded at the Great Show of the Royal Horticultural Society, on June 4, 1867. Strong Plants, now in a fine state for potting, 5s. per pair. Orders, accompanied by Post-office order or stamps, to
J. CLARKE, 42, College Street, Bury St. Edmund's.

CULTURAL DIRECTIONS for the ROSE. Second Edition. By JOHN CRANSTON, King's Acre Nurseries near Hereford. Free by post from the Author for 20 stamps.

PINKS.—These should be planted at once, when fine well-laced Blooms will be obtained. Strong Plants of the best named varieties at 9s. and 12s. per dozen pairs.
CHARLES TURNER, Royal Nurseries, Slough.

Novelties.

WM. PAUL (Son and Successor to the late A. PAUL) respectfully solicits Orders for the NEW and FIRST-CLASS ROSES and BEDDING GERANIUMS, &c., advertised at length in this Paper in May last.
PAUL'S Nurseries, Waltham Cross, London, N.

FORCING GERANIUMS.—MRS. LEWIS LOYD, SPOTTED ALMA, and MRS. BRADSHAW (JACKSON)—Good Plants of these unequalled Forcing Geraniums, 1s 6d. each, or 15s. per dozen.
T. JACKSON & SON, Nurseries, Kingston, S.W.

Variegated Geraniums.

CASBON AND SON hold a large stock of above. Prices on application.
Gravel Walk Nursery, Peterborough.

For Present Sowing.

CHOICE ZONAL GERANIUM, FROM A COLLECTION OF 150 VARIETIES.

R. WHITE can supply NEW SEED of the above, saved from the choicest flowers, in packets, 1s. 6d., 2s. 6d. 3s. 6d., and 5s. each, post free.
Poole Nurseries, Dorset.

Gloire de Nancy Geranium.

CHARLES BUTLER, Wellington Nursery, Salop, begs to offer to the Trade a fine lot of the above at 75s. per 100; extra large picked plants at 12s. per dozen.

24 CHOICE TRICOLORED and other GERANIUMS, in 60's and 48-pots.—A leaf of each sent on receipt of 18 stamps, with price and sorts.
G. WALKLING, Nurseryman, Lewisham, S.E.

Notice.—Fruits, Flowers, Bulbs.

BEFORE PURCHASING, PLEASE SEND FOR

DILLISTONE AND CO.'S LITTLE LISTS, post free to all applicants.
Address, DILLISTONE & Co., Nurserymen, &c., Sturmer, near Halstead, Essex.

Special Notice.

CATALOGUES of the SALE to be held at the King's Acre Nurseries on SEPTEMBER 30 and following days, are NOW READY, and may be had on application.
The Lots, comprising upwards of 3500, are now on view.
Address JOHN CRANSTON, Nurseries, King's Acre, near Hereford.

Genuine Agricultural and Garden Seeds.

JAMES FAIRHEAD AND SON, SEED GROWERS and MERCHANTS, 7, Borough Market, and Braintree, Essex.

Genuine Garden and Agricultural Seeds.

JAMES CARTER AND CO., SEED FARMERS, MERCHANTS, and NURSERYMEN, 237 & 238, High Holborn, London, W.C.

Agricultural and Garden Seeds.

H. AND F. SHARPE beg to announce to the Trade that their SPECIAL LIST of HOME-GROWN SEEDS, 1867 Growth, is now ready and may be had on application.
Seed Growing Establishment, Wisbech, Cambs.

RAYNBIRD, CALDECOTT, BAWTREE, DOWLING, AND COMPANY, Limited,
CORN, SEED, MANURE, AND OILCAKE MERCHANTS,
Address, 89, Seed Market, Mark Lane, E.C.; or Basingstoke.
Samples and Prices post free on application. Prize Medals, 1851 for Wheat; 1862, for "Excellent Seed Corn and Seeds."

DICKINSON'S NEW ITALIAN RYE-GRASS SEED is now ready to be delivered, and may be had by Agriculturists at 34s. per quarter, or 30s. per quarter for 5 quarters for prompt payment.
New Park, Lymington, Hants.

PAMPAS GRASS.—Many Thousands of fine Plants, in pots. Price according to number taken.
SUTTON & SONS, Reading Nurseries.

SUTTON'S IMPROVED ITALIAN RYE-GRASS, the BEST and MOST PRODUCTIVE in CULTIVATION.
SUTTON & SONS can supply New Seed of the above at 6s. per bushel, or cheaper in large quantities.
September is the best month for Sowing.
SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

New Grass Seeds for Autumn Sowing.

SUTTON'S PERMANENT GRASS SEEDS FOR ALL SOILS.
Prices (according to sorts required and soils for which they are intended), may be had on application.
SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

New Grass Seeds for Exportation.

SUTTON AND SONS, having received their supply of NEW GRASS SEEDS of the present Season's Growth in fine condition, will be happy to forward lowest price per ton or cwt. on application. All Seeds perfectly packed and delivered free to ship's side at any English Port. CATALOGUES gratis and post free.
SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

DOBSON'S NEW DECORATIVE PELARGONIUM MAGNET.—This splendid variety will be sent out in October, 1867. It received a First-class Certificate at the Royal Botanic Society's Exhibition on Wednesday, May 27, 1867, and it has been the admiration of all who have seen it in bloom the last two seasons. We can therefore very strongly recommend it as a most attractive variety, worthy of general cultivation whether as exhibition plants, or for decorating, or for market purposes. It is also a good forcing variety for any of the purposes above named. It is unequalled, having a fine habit, profuse bloomer, and most striking colour. A single stem has produced from 18 to 20 large trusses of bloom. The following remarks appeared in the *Gardeners' Chronicle* of June 1, 1867, page 577 :—"If it had been in the province of the judges to grant a Certificate to what has an excellent character both for decorative and market purposes, it should have been given to DOBSON'S PELARGONIUM MAGNET. A large quantity of small plants literally covered with bloom were grouped together, and a most striking effect they had. The colour is very bright purplish crimson, the habit good, and it has the appearance of forcing well."

Strong plants, 15*s.* each.

DOBSON & SONS, Woodlands Nursery, Isleworth, W.

VARIEGATED PELARGONIUMS.

SOPHIA DUMARESQUE	ITALIA UNITA
MRS. BENYON	COUNTESS
GOLDFINCH	ELEGANS
LUNA	TRY FAIRY
BEAUTY of OULTON	PRINCESS ALEXANDRA
NEATNESS	BICOLOR SPLENDENS

The above forwarded on receipt of Post Office order for 21*s.*

ALFRED FRYER, Nurseries, Chatteris, Cambridgeshire.

New Zealand Nursery, St. Alban's, Herts.

J. WATSON'S beautiful BEDDING PELARGONIUM EXCELSIOR, now ready; colour of Indian Yellow; fine truss, and habit of Lord Palmerston. Price 6*s.* each; 36*s.* per doz. to the Trade.

MISS WATSON, ready August 25; MRS. DIX, May 1. The Two have received 10 First-class Certificates and Extra Prize Money.

Fine New TABLE APPLE, ST. ALBAN'S PIPPIN, Ripe in April. Plants ready in November. 5*s.* each; 36*s.* per doz. to the Trade.

DESCRIPTIVE LIST sent on application.

The New Sensation in Bedding-out.

JACKMAN'S HARDY HYBRID CLEMATISES.

AWARDED ELEVEN FIRST-CLASS CERTIFICATES, AND ONE SPECIAL.

MESSRS. GEORGE JACKMAN AND SON are desirous of drawing the attention of those who intend using their HARDY and HYBRID CLEMATISES for a PERMANENT BEDDING PLANT, that the present time is most favourable for planting them to secure good vigorous growth and flower next summer.

See Editorial remarks in *Gardeners' Chronicle*, August 17 :—"The new Sensation in Bedding." Also in August 31, 1867, in which "J. F." (Cliveden), endorses the former statement, and adds, that Messrs. G. J. & SON have in their several varieties "the very colour" of which our summer flower gardens are in a great measure deficient.

Varieties that flower together in May and June :—

CLEMATIS AZUREA GRANDIFLORA, violet, stamens deep purple.
" STANDISHI, beautiful violet blue.
" FORTUNEI, fine large double white.
Besides several other good old summer sorts.

Autumn varieties, flower from July to October :—

CLEMATIS JACKMANNI (G. J. & SON), large, intense violet purple, rugose and veiny.
" RUBRO-VIOLACEA (G. J. & SON), maroon, shaded reddish violet.
" RUBELLA (G. J. & SON), rich velvety claret (new)
" PRINCE OF WALES (G. J. & SON), deep violet purple, with red bars, (new).
Also a large Stock of other autumnal kinds.

An Engraving from a Photograph, showing the flowering qualities of their Hybrid Clematises, can be forwarded shortly by enclosing a stamped envelope.

Woking Nursery, Surrey.

The Autumn Catalogue of

H. LAURENTIUS' Horticultural Establishment, Leipzig, containing BULBS and TUBEROUS-ROOTED PLANTS, VARIEGATED and COLOURED-LEAVED PLANTS, Prices for the Trade, &c.; also a SELECT LIST of NOVELTIES and RARE PLANTS; is now ready, and may be had gratis and post free on application to

Messrs. BETHAM & BLACKITH, Cox's Quay, Lower Thames St., London.

Camellias and Indian Azaleas, with Buds.

An extensive Stock of their very best varieties is ready for Sale at

LOUIS VAN HOUTTE'S Establishment, Ghent, Belgium. The goods are delivered, carriage-paid, by LOUIS VAN HOUTTE; but, per contra, 5*s.* are charged in account for every case or basket sent.

☞ The Camellias are from £6 10*s.* to £8 per hundred; the Indian Azaleas from £6.

JOHN CRANSTON'S CATALOGUE of SELECTED ROSES is now ready and will be forwarded on application.

J. C. respectfully directs attention to the following LIST of FIRST PRIZES which have been awarded to him at the principal Rose Shows of the present year, proving beyond a doubt that the soil and climate of his Nurseries are unrivalled for the Cultivation of Roses.

Royal Botanic Society, Regent's Park, London.

June 19.—24 Varieties, Cut Roses, one truss each, FIRST PRIZE
Cirencester.
June 19.—36 Varieties, Cut Roses, three trusses each, FIRST PRIZE
Clifton.
June 25.—24 Varieties, Cut Roses, one truss each, FIRST PRIZE
Crystal Palace.
June 29.—72 Varieties, Cut Roses, one truss each, FIRST PRIZE
Royal Horticultural Society, South Kensington.
July 2.—72 Varieties, Cut Roses, one truss each, FIRST PRIZE
Birmingham.
July 4, 5.—72 Varieties, Cut Roses, one truss each, FIRST PRIZE
24 Varieties, Cut Roses, three trusses each, FIRST PRIZE
Hereford.
July 9.—72 Varieties, Cut Roses, one truss each, FIRST PRIZE
24 Varieties, Cut Roses, three trusses each, FIRST PRIZE
Rugby.
July 12.—72 Varieties, Cut Roses, one truss each, FIRST PRIZE
Nurseries, King's Acre, near Hereford.

CHOICE SEEDS in SEALED PACKETS.

THE "PRIZE" STRAIN of CYCLAMEN PERSICUM.—This splendid Strain of Seed has passed entirely into the hands of B. S. WILLIAMS. It is the seed saved from the magnificent plants grown and shown by Mr. Wiggins, gardener to W. Beck, Esq., Isleworth, at the Spring Shows in the present year; they were in each instance awarded 1st prize, and were the admiration of all the visitors. The flowers are 1 inch across, by ½ inches in depth, the colours ranging from a bright carmine to a delicately tinted white, and pure white tipped with crimson, the leaves beautifully marbled; indeed, the leaves, apart from the flowers, possess a peculiar attraction in the diversity of their marbled surface. This seed should be sown as early in the Autumn as possible. None genuine unless the packets bear B. S. W.'s name and address. Price, per Packet, 1*s.* 6*d.*, 2*s.* 6*d.*, and 3*s.* 6*d.*

THE "PRIZE" STRAIN of POLYANTHUS.—This beautiful Strain of one of the prettiest spring-flowering plants was also exhibited most successfully by Mr. Wiggins, of whom B. S. W. has purchased the entire stock and right of sale. None genuine unless the packets bear B. S. WILLIAMS'S name and address. Price 1*s.*, 2*s.* 6*d.*, and 3*s.* 6*d.* per packet.

OTHER CHOICE STRAINS OF SEED.

JAMES'S CALCEOLARIA, 2*s.* 6*d.*, 3*s.* 6*d.*, and 5*s.* per packet.
WEATHERILL'S CINERARIA, 2*s.* 6*d.*, 3*s.* 6*d.*, and 5*s.* per pkt.
WILLIAMS' PRIMULA, 2*s.* 6*d.*, 3*s.* 6*d.*, and 5*s.* per packet.

B. S. WILLIAMS, Victoria and Paradise Nurseries, Upper Holloway, N.

STRAWBERRIES.

DR. HOGG.—Very large, extra fine Pine flavour, and a good bearer
One of the finest in cultivation.
THE LADY.—All the fruit of a good equal size without thinning; immense cropper for forcing, as we proved last pring; flavour highly perfumed.
BRITISH QUEEN, PRINCE ARTHUR, KEEN'S SEEDLING.
CRIMSON QUEEN, SIR CHARLES NAPIER.

Prices—Established in large 32 pots for forcing, from 75*s.* to 100*s.* per 100. Strong layers in 60 pots, from 25*s.* to 50*s.* per 100. Strong runners from 5*s.* to 21*s.* per 100. A large collection of other varieties, strong, well-rooted runners, 5*s.* per 100.

JOHN & CHARLES LEE, Royal Vineyard Nursery and Seed Establishment, Hammersmith, London, W.

Extra Fine New Tulips.

GEORGE LIGHTBODY, Falkirk, will LET OUT several of the Splendid Seedlings raised by Richard Headly, Esq., of Stapleford, near Cambridge, at very moderate prices. These flowers have been successfully exhibited at the Principal Shows in the Kingdom, and are warranted the finest Tulips now extant. A description of them, by Shirley Hibberd, Esq., F.H.S., was published in the "Gardeners' Magazine" for 22d June. A list of names and prices supplied on application.

Extensive and well-grown Nursery Stock.

J. SCOTT, Merriott Nurseries, Somerset, has to offer FOREST TREES in large numbers, finely rooted and in perfect health. ORNAMENTAL TREES and SHRUBS of all sizes in quantity, beautifully grown and regularly transplanted.

Intending Planters would do well to visit these fine Nurseries, which have been established 150 years, and are by far the largest in Somerset. CATALOGUES on application.

Araucaria imbricata Seed.

CHARLWOOD AND CUMMINS beg to give notice that they have just received a CONSIGNMENT of the above, in excellent condition.

Price per 1000 Seeds .. 25*s.* | Price per 100 Seeds .. 3*s.*
Usual discount to the Trade.
14, Tavistock Row, Covent Garden, W.C.

Richmond Nurseries, Richmond, Surrey.

G. AND W. STEELE beg to call the attention of the Trade in general to their valuable and very extensive Stock of CONIFEROUS and other EVERGREENS, particularly Striped and Green Hollies, in which they abound; and also to their DWARF-TRAINED, STANDARD, and SPIRAL FRUIT TREES, which are of first-rate quality, consisting of Apricots, Peaches, Nectarines, Apples, Pears, Plums, Cherries, &c., which are second to none in the Trade. An inspection by Travellers this Autumn is respectfully solicited.

New Weeping Elms.

WOODLANDS NURSERY, MARESFIELD, NEAR UCKFIELD, SUSSEX.

WM. WOOD AND SON have much pleasure in recommending the undernamed magnificent WEEPING ELMS, being varieties of Ulmus suberosa, which have been raised from Seed in their Nurseries, and have elicited the admiration of several of the leading Nurserymen and Amateurs.

The gracefully weeping branches of these two new Elms are thickly covered with a cork-like excrescence, presenting a very interesting and novel appearance, entirely distinct from all other varieties in cultivation.

ULMUS SUBEROSA PENDULA .. .. .. 5*s.*
" " MICROPHYLLA .. 5*s.*
Usual discount allowed to the Trade.

To Farmers, Gardeners, and Others.

EXCELLENT CABBAGE PLANTS (Stocks not to be surpassed), can be supplied in any quantity, as follows :—

TRUE DWARF NONPAREIL (the earliest and best), 2*s.* 6*d.* per 1000
TRUE ENFIELD MARKET (extra fine variety), 2*s.* 6*d.* per 1000
TRUE ROBINSON'S CHAMPION DRUMHEAD, 2*s.* 6*d.* per 1000
TRUE RED DUTCH (for Pickling), 5*s.* per 1000

A remittance or reference to accompany all orders.

FREDK. GEE, Seed Merchant and Grower, Biggleswade, Bedfordshire.

Early Spring Feed, Trifolium incarnatum.

SUTTON'S ITALIAN RYE-GRASS.
NEW LATE RED TRIFOLIUM.

These are invaluable articles for Early Spring Feed, either grown separately or together. The proper quantity of Italian Rye-grass, if sown alone, is 3 bushels per acre, or if Trifolium alone, 28 lbs. per acre.

The New Seed is now being harvested, and we shall be pleased to send samples and lowest prices per quarter and cwt. on application. Also MUSTARD and RAPE, New Seed. All goods carriage free, except very small parcels.

SUTTON & SONS, Seed Growers, Reading.



Choice Bulbs.

STEPHEN BROWN'S
ILLUSTRATED CATALOGUE,
Cultural and Descriptive,
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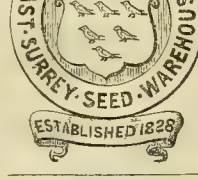
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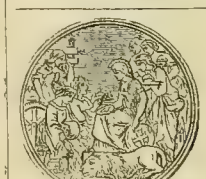


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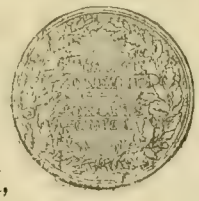


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The Gardeners' Chronicle.

SATURDAY, SEPTEMBER 21, 1867.

SOME time since we took occasion to allude to the plans that had been proposed with reference to the education of officers for service in the FORESTS of INDIA by Dr. BRANDIS and others, and we alluded to the very complete and systematic training which is demanded of the students in the forest schools of Germany and France. In this country, as we have nothing like the same extent of forest, so we have nothing approaching to the scheme of education carried out in the establishments to which we have referred. Admirable as those schemes are, as is manifested not only by the excellent management of the forests, but by the numbers of high class standard text-books which are so frequently published by the Professors, it is to us a matter of considerable doubt whether the plan advocated by Dr. BRANDIS with so much zeal, can be successfully worked. It remains to be seen whether young men of superior education will be content to conform themselves, in the first instance, to the strict regulations of the German or French forest schools; and next, whether, when thus armed with so thorough an education, liberal as well as technical, they will cheerfully accept service under such drawbacks as the

forests of India in many cases offer: such are the isolation from other Europeans, the disastrous climate, the hardships and exposure, the expense of living, and other minor evils to which it is not necessary to allude, but which make it difficult for a forest officer to get a life assurance office to grant him a policy. Truly the bait ought to be well gilded; nay, the reward for such service should be both speedy and substantial. On the other hand, it must not be overlooked that to a young man of good *physique*, with a love of sport, or, still better, a taste for natural history, the attractions may be great. In any case, however, we doubt whether a sufficient number of these highly-trained officers can be looked for; and we would therefore strongly urge the consideration of a scheme for establishing forest schools in India, and for educating the natives to act as forest officers, at first in a subordinate capacity, but in due time, as they become competent, advancing them to higher posts.

In some parts of India the climate and the course of vegetation are so widely different from what we have in Europe, that the European officer, with all his training, would require some little time to accommodate himself to the novel circumstances by which he would be surrounded, and to mould and adapt his "principles" to the peculiar phase of practice which would be required. To some extent he would have to unlearn, or at least to ignore, great part of what he had learnt, while on other points a great deal of what he would have learnt would be entirely useless to him in India. For these reasons, then, we rather demur to the lengthened educational period, either in this country or on the Continent, which Dr. BRANDIS' scheme entails. Pending the formation of a forest school in each of the Presidencies, at least it might be well for the embryo forest officer to pass some time in the Botanic Gardens at Calcutta or Peradenia, and in the Cinchona plantations at Ootacamund, or Darjeeling, where at least he would get an insight into the peculiarities of Indian vegetation, and into many details of management which would be of service hereafter, while excellent opportunities would be afforded for acquiring knowledge in the botany and natural history of the country, as well as of the native languages. We incline to think that a portion of the time allotted in Dr. BRANDIS' scheme to study in the European forests would be better spent in the way we have indicated. As to the estimation of quantities, the valuation of blocks, the making of roads, the forest police and legislation, and many cognate matters, surely they could even now be gained as rapidly in India by the student having a little preliminary knowledge as they could in Europe. But it is specially with reference to the differences in the growth and reproduction of trees in India as contrasted with Europe that we would urge the speedy formation of forest schools on the spot. Take the Deodar for instance. Would any European forester, from his knowledge of the rate of growth of that tree in this country, and the inferiority of its timber here, be able in the absence of authentic information even to surmise that the Deodar was the mosti mportant timber tree of the Himalayas?

Whatever scheme be ultimately adopted, it is a matter for congratulation that, thanks to the labours of such men as ROYLE, CLEGHORN, STEWART, BRANDIS, MADDEN, and others, the attention of the Government has been drawn to the vast importance of conserving these forests—too long considered, as is well said in a recent article in the *Calcutta Review*, to be "inexhaustible," and, therefore, suffered to be felled recklessly. In the journal to which we have above alluded, is an account of how forests were till recently destroyed in the Punjab, from which, by way of illustration, we extract the following:—"So the price of timber rose, native traders crowded round the rajahs of the forest-bearing hill states, begging, praying, and bribing for licenses to cut trees; felling, launching, and pilfering with an amount of energy rarely to be seen in orientals, except when money is to be made." And here is an account of how the felling was done, as related by Dr. CLEGHORN:—"The wood-cutter enters, fells many trees, and damages many others by the tree falling down the steep slopes, the branches not having been previously cut off; a heap of chips and *débris* remains, which takes fire by accident or otherwise; the villagers send their cattle for pasturage, and in a few years some scattered Pines are all that remain of a once flourishing forest." Truly it was time for the Government to "think of preserving these forests."

THE discussion in our columns on the RIVAL SYSTEMS of GRAPE-GROWING has excited general interest throughout the country, and on reviewing the subject, it must be admitted that the advocates of the progressive or accumulative system appear to have the best of the argument, whatever may be the results of their practice. We do not, indeed, go the length of believing that a Vine must progress indefinitely, in order that its vigour may be kept in full force. On the contrary, we think that if the surface of each Vine were increased three or four fold, or, in other words, if, instead of a dozen Vines in a house, we had three or four to fill the same space, the balance of force between the root and the branch would be more equitably adjusted, and the constitution of the plants would be stronger, while as a natural consequence the average weight of crop and size of bunch would be increased. If we look to nature, such is the fact. A fully-developed fruit tree of any kind, with the free action of root and branch, will produce finer fruit than another of the same variety suffering from the maiming of its roots or branches, either by accident or design; and it is fair to assume that the Vine, obedient to the same laws of growth, will obey them in the same manner. It is doubtful if this balance of vital force can be so well maintained under the restrictive system. On the contrary, the roots revel in fatness, while the branches being restricted to a given area, ruthlessly insisted upon, the gross food taken up has no adequate outlet, and hence accumulates in the system of the plant in the form of crude undigested sap, the parent of shanking, imperfect colouring, and other evils.

Look at the Vines which have supplied all the fine Grapes to the Chiswick Exhibitions from the time of DOWDING (referred to by MR. TILLERY) and the CRAWSHAYS down to the present time. Though we have seen many superb collections while the Vines were young and extending, not one exhibitor has kept up the size of bunch, after the plethoric condition has set in. To mention names would be invidious, but the records of the exhibitions will prove the fact; and if any exceptions have occured, we doubt not it would be found that they may be explained by the fact that new Vines had been planted, or that old Vines had been cut down, and allowed a progressive season to recruit the waning energy of the plant. One of our great Grape growers, noted for the size of the bunches which he exhibits, is so well aware of this fact, that he regularly cuts down a few Vines to produce rods for these monster bunches; and taking only one or two bunches from each Vine, he attains his end. But this is not legitimate Grape growing, and hence, in a cultural point of view, is not equal to a regular crop, regularly finished off. The Vine at Finchley, as it has been described in our pages, seems the perfection of Grape growing. For size and uniformity of bunch, the crop appears superior to that of any set of Vines filling the same space, and hence the success of the plan cannot be gainsaid.

Of the various geological strata which are met with from the Valley of the Thames to the Valley of the Trent, a tract of country to which the discussion has related, there is not one whereon good Grape growing has not been manifested. Indeed, for artificial cultivation the geological formation is comparatively a secondary consideration. With a well-formed and properly drained border, and Vines properly planted and attended to, success is certain, so long as the border does not become water-logged, and the roots are in a sound and healthy medium. As for its not paying to form an expensive border for one Vine, that argument must fall to the ground. There is no reason that a house should remain partly unstocked, until one Vine fills it. We say, plant each rafter—in duplicate if you please; but if one, three, or six Vines will, by allowing them to develop themselves, adjust the balance of force better than 12 or 18 smaller plants crowded together, then we say, let Nature assert her prerogative, and let us accept the superior results which she offers. In planting with a view to the accumulative system, fix the sites for the one or more Vines which are intended ultimately to occupy the house, filling in with secondary plants, and let it be a rule that the permanent Vines shall not be over-cropped, and that the secondary ones shall be made quite subservient to the others. To illustrate what we mean, it may be mentioned that in a Vinery planted last season with 32 Vines, we intend to reduce the number ultimately to eight, and it will be done in this manner. The Vines, now standing in line, will be reduced to groups of four plants. From one of the two centre plants in each group a branch will be carried this season, and be inarched upon the other, and that completed, two other shoots will be carried to fill the space of the outside Vines. In this manner the force of two sets of roots will be retained to support one Vine, as we anticipate with corresponding success. When the late Sir J. PAXTON first went to Chatsworth he planted duplicate Vines in a long range of Vineries, with the intention, as he explained at the time, of inarching the two together; but whether he did so or not, we do not know. Mr. HEREMAN, who was there at the time, can perhaps throw some light upon the subject.

Passing to SPEECHLEY'S Vines, as transplanted by Mr. MEARNS, and referred to by Mr. TILLERY, we have reason to know that they were not always trained upon the restrictive system. At the time of their removal each Vine covered two or more rafters, and as they had been pruned for years upon the cut-to-the-best-eye plan, each plant was comparatively a fagot of branches. Mr. MEARNS reduced them when the roots were reduced, and as Mr. TILLERY informs us, the result was large crops of small but luscious Grapes. Of the fine old Vines at Clumber we cannot speak so positively. Mr. MOFFATT had only had charge of them a short time when we first knew them; but one fact we recollect perfectly well: at the time the coiling system came up, a cart-load of long branches was received at Welbeck from Clumber, which certainly looks as though the Vines there had not been, up to that time, trained upon a very restrictive plan.

The large Vines at Cole Orton, which have been alluded to in this discussion, were severely injured a few years back, and are not now so fine as they would have been under other circumstances. Still, looking to the exhibition awards of many years past, these old Vines have taken a very large number of prizes, and even now the young Vines cannot put them altogether aside. We thank Mr. SAGE for having elicited this fact, which is worth many ingenious theories.

Our great Grape growers, and our most recent authors, give signs of progress. The followers of Mr. THOMSON are adopting the double rod system, and no doubt they will come to the quadruple system in the course of time, while Mr. THOMSON himself, as shown in an extract at p. 809, from the last edition of his admirable treatise, rather commends than objects to the principle of extension. CLEMENT HOARE defined the bearing capabilities of the Vine at 10 lb. for the first inch in diameter at the base of the stem, and 10 lb. more for every subsequent half inch at the same point. Has any person ever tested this standard?

THE Exhibition of VARIEGATED ZONAL PELARGONIUMS, which took place on Tuesday last at South Kensington, bore evidence that the public interest in these beautiful-leaved plants is unabated. Never before were so many of these plants, or so many kinds, brought together; and if after all there is a touch of sameness running through the whole series, there remains this satisfaction at least, that all are charming objects, and any of them worth possessing. The great number of varieties we now possess, and the similarity which exists between them, must, however, lead to the gradual rejection of all but the best sorts; and it is just in so far as exhibitions of this kind serve to eliminate the inferior sorts, that they render an essential service to the horticultural public. Those varieties which best bear the test of public competition, are those which must make their way amongst growers.

The experience of another exhibition fully confirms the soundness of the rules laid down by us at p. 515 for judging these plants, for those which approached the nearest to the standard we had set up, were conspicuously the best sorts. The special points of merit may be regarded as comprising constitutional vigour, free growth, and effective marking. Without clear, well-defined markings and duly balanced bands of colour the leaves would be unattractive; without free development to clothe the plants with an even surface of uncrumpled foliage, the beauties they possessed could not be advantageously displayed; and without vigour of constitution to

secure bulk in the plants, they would prove but sorry ornaments to the parterre, however pretty they might be as toy plants. Our report in another column will show which of the kinds, in the opinion of the judges, most nearly reached the standard; and purchasers may be assured that in obtaining these, they will at least obtain reliably good sorts.

We are more than ever convinced of the necessity of insisting on a flat or plane surface for the leaves, in plants like these, whose beauty depends on the richly-coloured markings of those organs. Convexity to a slight degree may be permitted, but is not to be desired; while concavity is altogether inadmissible. Some highly-coloured varieties of the gold and bronze sections, Empress Eugénie, for example, appear quite spoiled by this concavity of the leaves. Again: the less the leaf is lobed at the margin, and the nearer it approaches without indentation to the circular outline—that talisman of floricultural perfection —the more beautiful will it appear.

There is one other point relating to the exhibition of these plants, with the view of testing their merits, which demands attention. The varieties are all in their younger stages sportive, and therefore the appearance of the seedling plants may be to some extent, at certain times, deceptive. In order to obviate this, it has been proposed that in future three plants of each kind should always be staged in the case of new candidates for popular favour; and as these must necessarily be propagated plants, there will, by the time these are obtained, be some assurance that the plant has assumed its permanent and fixed characteristics. We quite coincide with this suggestion.

We learn that there is a desire on the part of some at least of the growers of these Pelargoniums, for another trial of strength next summer, it being thought that the exhibition last May was too early, and that on Tuesday last somewhat late, for the plants to be shown at their best, and that sufficient notice was not given in either case for making the necessary preparations. Hence it is proposed to hold another show in July or August next. Indeed, Mr. GRIEVE'S proposal in our own columns (p. 808) stands open for that season, to be either modified or adopted in the form suggested, as the growers may collectively determine. We shall be happy to facilitate the completion of any arrangements that may be thought desirable, as far as lies in our power; but whatever form of exhibition is adopted, the plan and details should be decided on at once, in order that due preparation may be made by those who intend to exhibit.

—— NEW BRITISH PHÆNOGAM.—Allium carinatum. L., was formerly considered as a British species, but the plant figured for it in English Botany, and what has since been gathered for it, has proved to be a mere broad-leaved variety of Allium oleraceum. At the last meeting of the Northamptonshire Field Club, we had the pleasure of receiving from the neighbourhood of Newark, but on the Lincolnshire side of the boundary, an undoubted specimen of the true A. carinatum, as figured by REDOUTÉ and REICHENBACH, characterised not only by its lilac flowers, with the concave connivent divisions of the perianth, but by the exserted stamens. We at first referred it to Allium flexum, Kitaibel, of which we had a fresh specimen, but that is very properly reduced by KOCH to A. carinatum, of which it is merely a narrow-leaved form. We have lately received a tuft, consisting of more than 20 specimens, growing on sandy, wet soil, mixed with a little lime, amongst Rushes and coarse Grass. The plant was found by the Rev. W. T. HAMPTON, Rector of Stubton, between Brandon and Doddington. Allium oleraceum extends eastward as far as Beluchistan, but Allium carinatum is not an Indian plant, though it probably extends beyond Hungary. *M. J. B.*

—— In the number of the "Gartenflora" for August, Dr. REGEL gives an account of a quite new (?) METHOD of GRAFTING, as practised by HERR FREUNDLICH, one of the Russian court gardeners, with remarkable success. Instead of taking the scions from the previous year's wood, with the bud just beginning to swell, the still soft, growing, lateral shoots are selected, when from ½ to 1½ inch long, and either bark or tongue grafted, care being taken not to draw the ligature too tight, as they swell much more rapidly than hard-wood scions. Success, he says, is certain, if care be taken that the sap of the stock is in motion at the time the operation is performed. He recommends this mode as superior to all others, especially for hard-wooded trees, such as Quercus, Fagus, &c., which are usually difficult to propagate from the old wood. New Roses and other plants, which it is desirable to increase as rapidly as possible, may also be advantageously worked in the same manner.

—— One of the most gratifying features of the PELARGONIUM Show on Tuesday last, was the production of two very creditable Variegated Zonal Seedlings by a Corporal of the Royal Engineers, engaged on the Ordnance Survey, and now stationed at Hersham. These were respectively named Royal Engineer, and Hon. Mrs. W. le Poer Trench. They had been shown at the Chertsey local show, and had there obtained First-class Certificates; but on this occasion they were eclipsed by the more brilliantly-coloured varieties produced by other growers. Nevertheless, they possessed considerable merit, and probably, cultivated under more favourable conditions, might prove superior. They had been grown in the window of Corporal BROWNE'S room; and during last winter, when very young and tender, had been nursed on the mantelshelf. It is gratifying to find soldiers taking so much interest in the higher branches of gardening, and it would be well if many others would profit by the example, and go and do likewise.

NOTES ON THE ART OF GROWING ROSES OUT-OF-DOORS.

(*Continued from p. 951.*)

SECTION II. *Preparation of the Beds.*—Every one wishing to grow good Roses should have some beds appropriated to them. Of these some may be in the flower garden, but it is necessary to have some plants also in the kitchen garden, where, if it is not desired to appropriate a plot to them, they may be conveniently grown by the sides of the walks. In every garden of any but the smallest size, there will be usually found some varieties of soil. Most commonly these run in strips. Choose for the Perpetuals a spot where the subsoil is a clayey loam, or a clayey gravel, what is technically called "a cool bottom." For the Tea Roses a drier soil is to be selected, and a sheltered situation with a southern aspect, is required. We will presume that the garden, if the situation requires it, has been already drained; for Roses will not bear water stagnating about their roots. The situation being chosen, the soil must be dug and manured. It should be trenched; and we will first suppose it required for standards on the Briar. Dig out a trench at the end of the bed, across its width. Let the trench be of the width of the spade, and a scant spit in depth. Carry the earth dug out to the other end of the bed to fill up at last. Now, with a fork, turn up and break the subsoil at the bottom of the trench. Then place upon it a layer of good manure, but do not stir it in. Cover it with the soil dug out of the succeeding trench, and so continue until the bed is completed. By proceeding in this manner we obtain a layer of manure between the two spits that have been moved; and if the roots of a standard Rose be examined they will be found to spread sideways at a uniform level, pointing to this as the best arrangement for their food.

Some growers plant their Roses upon raised beds in form like an old Asparagus bed. By this means more perfect drainage is secured, and a greater depth of mould. The plan seems peculiarly adapted for Teas. Some difference of opinion exists as to the state the manure should be in, whether somewhat fresh or completely decayed. Probably each may suit particular soils. But it is doubtful whether the point is of much importance, for the freshest manure, applied when the beds are made, will have lost its freshness before the plants begin to grow in it. There can be no doubt that the manure should not have had its salts and animal constituents washed out of it.

Of all manures night soil is the best; next to it pig and stable manures. For strong soils the dressing is improved by being mixed with burnt earth. The earth should not be too much burnt; it should be black rather than red. In preparing beds for dwarf Roses on the Manetti, or on their own roots, it seems preferable to mix the manure with the lower spit of soil; for the roots of these kinds strike downwards more deeply than do the roots of the Briar. This fact is probably one cause of such plants being better suited to hot soils.

Section III. *On Obtaining Plants.*—Plants may be propagated at home, or they may be bought. There can be no doubt that it is best to propagate your own standards, but it is a matter of indifference whether you propagate your dwarfs or buy them. All standards do best budded where they are to remain. Indeed, some kinds of Roses will scarcely bear to be moved. It will therefore be a question with you, whether you will put up with a bed of wild Briars in your flower garden for one summer, or whether you will set plants which, for the first year, will be weak, and which will some of them perhaps die. The best alternative is to transplant into the flower garden only the strong-growing kinds, and to retain the more delicate growers in the kitchen garden.

In whatever way you obtain your plants, be conscientiously scrupulous to have them correctly named, and to keep their names attached to them. If a friend offers you a variety of which he cannot give you the name, it will be a question with you whether to accept it. Your labels should be of deal; red deal is the best. Pass a piece of wire through one end to attach it loosely to the plant. Smear a little white paint upon one side of the label, and write the name upon the paint while wet with a soft pencil: a B B answers best. The safest way to obtain sorts is to visit a rose nursery early in July. See the plants in flower, and order a plant of each kind that pleases you. If the sorts in question can be obtained in pots, you may take them home at once, and plunge them in the soil; otherwise you will have to wait for them until October.

Section IV. *On Obtaining and Planting Stocks for Standards.*—Stocks of the Dog Rose may commonly be bought of hedgers. A penny a piece is a high price for them. But you will obtain better ones, and be more sure of their not having been exposed to frost or drought by getting them yourself. Moreover, those which grow in the vicinity of your garden will probably suit the soil better than those which are brought from a distance. Those stocks should be selected which grow from the ground without knots in their stems. They may be of one, two, or three seasons' growth; but those of one season make on the whole the best plants. They may be obtained from November to February, the first of these months being the best for the purpose. Having roughly torn them from the hedges, and brought them home, they must be trimmed. This is a more important process than it is usually considered, and here the art of pruning may be said to begin. The stem of the stock, if it be of one or two years' growth, will have branches proceeding from its top. It must be cut off below the lowest of these, so as to present a mere straight stick, like a walking stick. You will often see the snags of the branches left on the stick. This is a very great mistake. At the root-end there will be a thick portion placed at an angle with the stick. This is an underground stem. It should be cut off close to where the stick springs from it, and not more than 2 or 3 inches on the other side of the stick should be retained. If a fibrous root or two proceeds from this portion, so much the better. It is this underground stem which has an unconquerable tendency to send up suckers, causing one chief plague of the Rose garden. Search, then, the small portion you have retained for every bud upon its surface. They appear in the form of warts upon the bark; cut these all off close. So you will save yourself much future trouble. When the stocks are thus prepared, lay them in by the heels until you have enough for your bed. Now plant them: if to remain, at about 2½ feet apart. Let them just reach the layer of manure. Plant the taller ones in the middle, and graduate towards the sides of the bed. Having planted them, cut them all off to suitable lengths; those in the centre to the height of the second button of your waistcoat, and the outside rows graduated to the height of the knee. Leave room round the edge of the bed for a border of dwarf plants. If the plants are intended for future removal, they may be planted closer. If you please you may afterwards remove the alternate ones. When planted close, single or double rows are the most convenient for budding. If there are three rows they should be set close together, the middle being the highest, so that you can reach over the outside rows to get at it. Remember that Briars have awkward thorns, and are very difficult of access.

Section V. *On Planting Stocks of the Manetti Rose.*—You will not have grown Roses long without discovering the immense value of the Manetti stock. It is of much easier management in every way than the Briar. Its disadvantage is that it will not make standards. Dwarf plants obtained from nurseries often send up suckers of the Manetti from their roots. Sometimes an old neglected plant, so obtained, becomes a mass of shoots of this sort, the scion completely perishing. If you can find such, you have your materials at hand. Otherwise, purchase a bundle of cuttings in October. Cut the shoots of the current year into lengths of about 10 inches; make a clean cut off just below the lowest bud. Cut off all the leaves and the buds in their axils, except three or four at the upper end. Upon the care with which this is done will depend your immunity from suckers. Having prepared a piece of lightish ground, as directed for the Manetti in Section II, take each cutting between the finger and thumb, and push it down into the soil to the depth of about 3 inches, and so form a row in which the cuttings should stand about 10 inches apart. About 18 inches from a walk is the most convenient position for the row. Let the cuttings slope slightly away from the walk. Now with a hoe ridge up the soil to cover all as far as the buds have been cut out. They will all grow and be ready to bud in July, August, and September.

Section VI. *On Planting Standard Roses.*—The best time for planting ready-made plants on the Briar is from the middle of October to the end of November. For Teas, however, it is better to wait until the severe winter frosts are past. The latter part of March is a good season for the purpose. Standard Roses should not have their heads pruned when planted. Look over the roots carefully for suckers, and buds which produce suckers, and remove them. To distinguish a sucker from a root, observe that a root tapers, getting smaller as it lengthens; a sucker, on the other hand, gets thicker. Cut off all wounded roots, and their bruised tips, and then plant them upon the layer of manure, and at once tie them to stakes. At this season you need not tread the earth round the roots; the winter rains will settle it much better.

If you have the taking up of the plants before removing them, be very careful indeed not to break off the roots. Few operations require greater patience. A common labourer, or a "groom and gardener," immediately enters upon a contest with the poor plant, and his object is to tear it quickly from the soil, he cares not how. Not so the Rose grower. He desires to obtain a plant which will produce him abundant blossoms of beauty six months hence. Therefore he is anxious not to destroy the organs with which it collects its juices. Whenever you need anything done which is to be buried out of sight, if you wish it done well, do it or see it done yourself. *An Amateur.*

(*To be Continued.*)

A FEW WORDS ON DORSTENIAS.

THESE curious plants meet in a general way with but little attention, notwithstanding that some of them have elegantly cut leaves, and others have the leaves decorated with silvery markings; notwithstanding, moreover, that they are of neat compact habit, and easy of cultivation in a moderately damp stove.

The fructification of these plants is indeed remarkable, and their relationship would be little suspected at first sight, for, notwithstanding their very different habit and generally low herbaceous growth, they are in reality very close relatives of the common Fig, and have a very similar fructification. The Dorstenias

produce amongst their leaves certain green fleshy bodies springing up on long stalks. These are of very different forms in the various kinds of Dorstenia; some are hand-shaped, some horned, some nearly quadrangular, and some cup-shaped. These fleshy bodies, so irregular and varied in shape, constitute a basis or receptacle, on the upper side of which are seated numerous flowers, a portion of which eventually produce small rounded minute fruit or seed-vessels. The fruit of a Fig is a somewhat pear-shaped body, presenting externally a rather rough skin, with a small opening at the broader end leading directly into the interior, where is found, according to its age, a multitude of small flowers or of seed-vessels, which when ripe constitute the fleshy, luscious portion so much admired by Fig-eaters. Here the pear-shaped body is the receptacle, and the flowers are quite analogous to those produced on the receptacles of Dorstenias. The Fig may therefore be described as a Dorstenia with a bag-shaped fructification, having in addition other characters by which botanists are able to recognise differences constituting a good generic distinction between the two. The Dorstenias stand next the Figs in the same natural family, being their nearest allies.

The Dorstenias are plants found in tropical climates, both in America and Africa, and are called after Dorsten, an old botanist, who did good service to the science he cultivated. The species are said to have tonic and other virtues, and one or more of them are reported to have the power, when in the green state, to cure the bite of serpents! A few of the more remarkable species are well worthy of cultivation, and will much interest those who will give them a little careful examination. Among those which may be recommended to the cultivators of curious plants are D. ceratosanthes, D. Houstoni, D. pilosa, D. tubicina, D. arifolia, and D. maculata. *Florist and Pomologist.*

FRUIT GROWING IN JERSEY.

In turning the suggestions of nature to profitable account, by bringing artistic knowledge to bear, Jersey contains an example that I have nowhere seen equalled. In entering the port of St. Helier's the eye cannot fail to be arrested by a considerable spread of glass houses just beyond a nook at the north-western corner of St. Aubin's bay. On inquiry a stranger will be informed that this glittering display is, what may be termed, the nucleus of one of the wonders of the island; but it will probably be added—"It will require a good introduction to be favoured with a sight of the interior." This difficulty, it will be found on further inquiry, arose from the fact that cockney excursionists, who obtained leave to inspect this grand show of fruit growing, could not, in many cases, so far leave their vulgar manners at home, as to resist the temptation to spoil a few bunches of Grapes by picking an extra fine berry occasionally, as they passed through the hot-houses. The proprietor is evidently of too generous a nature to make this a show-place by charging for admission; and to have his grounds open to the many sight-seers who visit the island, would require more attendants to keep them from this petty peculation and other forms of mischief, than are required at this season of the year to do the work of the whole place. To cut a whole bunch, if it were not the best, would be comparatively a pardonable liberty, but to slyly pluck here and there a berry, as the opportunity presented itself, was a breach of self-respect, and an abuse of conferred courtesy, that no man could continue to endure.

Mr. Pond, the present proprietor and cultivator of the plants of these highly interesting grounds, is, we believe, a Bath man, and he has been in possession of them, we were informed, about six years. The beginning of their formation and planting was made by a Frenchman, who fell into a state of insufferable alarm under the belief that the Emperor of the French intended to take possession of the Channel Islands. In this state of mind he sold his possessions to the best customer—and it may be only customer—he could at once find, pocketed the proceeds, and skedaddled to Great Britain, "The land of the free." Mr. Pond undoubtedly saw a good opportunity before him, and from what I saw, he has had no cause to repent of his bargain. Indeed, if there be cases where profitable business, and one of the most enjoyable pleasures, exist together in happy combination, this is surely one of them.

The extent of the grounds under hothouses, Pear, Apple, Plum, and a few Peach, Nectarine, and Apricot trees, is about 4 English acres. Its ancient formation was an abrupt point of one of the small tables of land which are so frequent in this island. It jutted out with its foremost point towards the south, and as its rugged sides ran nearly at right angles, it would present a face to the south-east and south-west, or thereabouts.

The most striking feature about the whole place is the manner in which the upper part of it has been transformed from rugged unproductive declivities to a system of the most productive hot-houses and beds that could well be devised. This consists in a succession of terraces. These are not very regular, but they are none the less convenient for that; and their appearance is perhaps more pleasing than would have been the case had uniformity been studied, and the monotony of equal heights and regular straight lines been constructed throughout. The great economy of adapting these terraces to the original formation of the cliffs was, undoubtedly, a material consideration, for it is no trifling matter to shift the surface of such a place, so as to make it uniformly suitable for receiving foundations of walls, however low, and for growing the delicate Vine and the finer sort of Pears and stone-fruits to perfection. Had this point of uniformity been studied, too much "rubble" would have been shifted to one place, and deep trenching—which would have involved the risk of a land slip—would have been required where a prominent part needed reducing.

The first plan of operations seems to have been to cut down from the top to a depth which would give a flat surface wide enough for a terrace that would receive two or three rows of trees, or a house and an artificial bed for Vines to grow in. As the original upper surface was not level, this depth varies in some places from about 12 feet to 6 or 8 feet. The earth removed in doing this work was disposed of by selecting the best for forming the bed for planting in, and the waste—if any of it came under that term—was passed down the cliff as conveniently as possible for assisting in forming another terrace below. We are speculating in some measure in this description, by inferring from present appearances what was probably first done. The facings thus formed were not left quite perpendicular. This was undoubtedly a judicious precaution, for there was apparently some danger that water might accumulate during heavy storms, when there would be a danger of the walls, which were to be subsequently built, being carried away. This was further guarded against by wooden troughs being carried across the terraces and through the walls into enclosed "shoots," which were placed against the front of the slightly inclining walls. Whether these high leaning walls are single brick or 4-inch work, or a brick and half, or 14-inch work, we omitted to ascertain; but in proof of the general economical construction of these terraces, it is important to state that the low faces to Vine beds in front of houses, or of beds on which standard fruit trees are growing, are generally only single brick or 4-inch work; these walls, or facings, vary—omitting the top one, described—from 2 to 4 or 5 feet in height, and as they are backed with soil to absorb and retain the heat of the sun, although they are so thin in themselves, they answer every required purpose for growing wall-fruit. Their great advantage, reckoning their cost, will appear when we come to describe the present crops of fruit against them.

Mr. Pond has greatly improved upon and extended the works of his predecessor, so far as go the alterations, and increased number of houses, heightening the walls, and increasing the depth and fertility of the soil which composes the beds of the terraces. This is clear from every corner being, not only filled with some kind of tree, but from every tree, with scarcely an exception, being laden with as heavy a crop of fruit as experience in thinning has decided ought to remain and be fine, and yet not exhaust the trees for the crops of coming seasons.

The Grapes, which have been, and will be cut by the end of the year, will amount to nearly four tons. Allowing for the lesser number of houses in previous years, a proportionate quantity has been grown nearly every season since the Vines have been under Mr. Pond's care and management. The quantity of Pears, Plums, and other stone-fruit named, sent to market, amounts annually to about the same weight, four tons. A large portion of this fruit is sold in Covent Garden.

The hothouses, or Vineries, are generally of the lean-to, or one-light construction, but there are some lengths of half-span. The lights are generally 12 feet in length. The lineal extent of these houses is about 1400 yards, or a little over three-fourths of a mile. The man whose duty it is to give air to the houses in the morning, has to walk, when the weather is suitable for the lights or ventilators of all the houses to be raised, a distance of two miles before he has completed his work.

As this is a business, Mr. Pond does not aim at growing many wonderful or sensational bunches of fruit, but he endeavours to adapt his yield to his customers, by producing a greater number of compact bunches of a medium size—Black Hamburgh, for example, of three-fourths of a pound weight.

The longest houses are for Black Hamburghs. There are two of these, 300 feet each, the form of which is a lean-to. A Muscat house is the next, 200 feet in length. The fruit in these houses had been cut for some weeks. This I mention, because there was here one of the most remarkable appearances I ever saw; although the fruit had been some time cut, excepting a bunch or two, and the canes were well ripened or ripening off, the leaves were as green as I have usually seen them in this country when the fruit begins to ripen. Mr. Pond said this was now usual with him. Some Cornish gentlemen were greatly puzzled at this appearance. They could not define it. As I make no pretensions to professional knowledge in Grape-growing, I did not make any further attempt to solve the problem than to ask a few plain questions. According, however, to my familiarity with the science of vegetable physiology, and to my views of the doctrine of reasoning by analogy, this certainly seemed to be a most interesting question, amounting as it did to a species of phenomena. Whether it was mainly attributable to climate, the same being humid, or whether it was due to Mr. Pond's superior treatment, are questions well worth discussing *pro* and *con*, by men who are learned in the influences which produce or prevent these results in the Vine; thus it might be determined whether the splendid condition of these Vines was due to any particular treatment or not. For my part I should watch this inquiry with great interest. I may here add, as a general confirmation of this statement, that although Mr. Pond aims at cutting Grapes all the year round, and has hitherto done so, there is only a difference of a darker green shade between the leaves of the Vines from which the fruit has been cut for some weeks, and those of the Vines on which the Grapes are just ripening, or are quite green from being for Christmas and January cutting.

As a brief reference to a crop or two, we may say, in one house several kinds of Grapes were growing, and a singular feature of its arrangement was, the Vines grew alternately from top to bottom and from bottom to top. This plan was conveniently adopted from the soil of the terrace above being as high as the wall to which the glass roof was attached. Thus, in one Vine the flow of sap was upwards, in the next downwards. There has been, we believe, much discussion between rival growers as to the advantages of one of these methods over the other. In regard to the result in this case, where the Vines are several years old, I need give only one reply to the several questions I put, viz., "I have taken every opportunity to watch the progress of these Vines," said Mr. Pond, "and I have never been able to detect the slightest possible difference." This ought to be valuable if not conclusive evidence. The base of contention about the roots growing to and from the sun, would not in this case be quite accurate; but here the up-growing Vines would have their roots in a south-eastern aspect, while the opposite ones would of course be on the less favourable north-western side

In one of the late houses Muscats are now growing in splendid form, not a single berry being defective, and the weight of the bunches varying from about 2 to 2½ lb. Here there are also Black Hamburghs of a similar character as regards form and quality; two Vines of the latter grow side by side from the top, the form of training being a fork, or two canes to each root. On each vine there are 50 bunches of the best marketable size and form, viz., three-fourths of a pound each. The length of each branch is 12 feet. Anything more perfect than these specimens could not be produced. Muscats are also growing both from the top and the bottom, with the same results, and in every case to the utmost degree of perfection.

A Vine of the Australian Grape, known as "Coleman's," had a crop, which for size of bunches and berries I have never seen equalled. The flavour of this Grape, too, was very fine, while its sweetness was intense. Mr. Pond spoke of this as an extraordinarily good Grape for cutting at Christmas. The stock of it came from Mr. John Keynes, of Salisbury.

The principal trees growing on the terraces are the best varieties of Pears. There are some Plum and a few Apple trees. All these are on short stocks, and kept cut down to 5 or 6 feet in height. The Pear trees are engrafted on Quince stocks. This practice, combined with the cutting-in to insure young and vigorous lateral shoots—which is here in almost every instance the case—is, according to Mr. Pond's view, the plan to make trees continuously prolific while they last, but under this highly artificial treatment they soon become exhausted. This, however, in this case is of no material consequence, for these trees take up so small a space, that a circle a yard in diameter would enclose the greater number of them, and they are so planted that a set of young trees, at a trifling cost, can be planted so soon as the present standards show signs of falling off in producing their usual abundant crop. Nothing of the kind could be more profitable, and at the same time more charming, than is the appearance of these trees this season. This, we were informed, has been their regular show each year since Mr. Pond has possessed and cultivated them. Common soil, no matter how good it might have been in the first instance, would not of course sustain these heavy crops year after year. The required fertility of these terraces is, however, preserved at a profit, for as the trees are so low and pillar-like in form, there is but little obstruction to the growth of a full crop of Potatos. The nursing manure suitable for bringing these bulbous esculents forward enough to make the best price in the market, subsequently serves to stimulate and sustain the summer growth of the trees. It will have been anticipated probably that the manure used for this double purpose is stable-dung in a suitably digested form. As the young or "new" Potatos thus grown are taken up by the time they would begin to require something more than the ammoniacal or volatile qualities of the dung, the phosphates and humus of this compound of animal excreta and straw remain to yield up its organic and inorganic elements to the trees during their vigorous midsummer shoots, and, when these are cut-in, to the crops of fruit, which thus grow to so great a weight and to so much perfection.

Here I may incidentally remark that raising the Potatos thus grown, is usually begun early in May and finished by the second or third week in June. This year the first quantity raised was despatched to Covent Garden on the 8th of May, and the last on the 27th of June.

Pears are also grown on the walls and facings of the terraces. Pear trees on walls are no novelty, and need no special reference; but to see Chaumontelle and other Pear plants—they hardly come, as regards size, under the class we understand by the term trees—growing on rod after rod, lineal measure, of brick facings only 18 inches and 2 feet high, and to see these plants at the same time uniformly covered with full and judiciously thinned crops of the finest fruit, is certainly a sight worthy of a note, and the commendation which the simple mention of the fact conveys. Other kinds, such as Louise Bonne, Josephine de Malines, Beurré Clairgeau, Crassane, and other fine varieties, are grown both on these walls and facings, and also on the dwarfed standards.

One young Beurré Clairgeau Pear tree is growing on the wall of the packing house. Last year was its third season after planting, when it was allowed to mature seven Pears. Six of these came to perfection without injury or blemish, and their weight was 9 lb., or an average of 1½ lb. each. This year, the fourth of its age, there are 15 Pears growing, and from the rapidity of their growth their skins shine under the stretching which the pressure of juice has produced.

This great success in growing Pears is nearly, if not quite equalled by the display of Apples: fruit which do not, however, generally have an equal amount of interest attached to them. This, however, is literally

a matter of taste. For my own part, a perfectly grown and matured English Apple, whether grown in Jersey or elsewhere, is second to nothing in the season when it is in its prime. With these proclivities of taste I was charmed with the appearance of the Ribston Pippin trees, both on the high walls and the low facings. The first tree of this sort, which was singularly striking, is on a low curving and inclining wall, which separates the end of one terrace and the rising semi-circular pathway by which a higher and lower terrace are passed to and from. The roots of this tree are on the north side, and run under the pathway, and the wall here being from 2 to 3 feet high, there are branches of that length leading to the top of the wall. "Notice this," said Mr. Pond, "for when we get round you will see the effect of a wall and a sunny aspect." On the path side there were but few leaves—none it may be said worth mentioning—and only one Apple standing out at the end of a spur, appearing to be all forlorn and miserable in its nakedness. On the inside of the curved wall, however, where there was about 2 feet of space above the soil, the branches, which are trained each way, were a mass of the most beautiful, glossy foliage, and completely laden with corresponding fruit. On the highest part of the top wall, another tree of this kind may be said, and fairly, to luxuriate. The wall is here, as I have said, 12 feet high. The bottom of the tree extends 26 feet, and the top runners vary from 18 to 20 feet; thus there is a vast spread of fruit-bearing branches. One noteworthy feature here presents itself: while this tree is without exception a mass of glossy leaves, there is not —which may be taken perhaps as a natural inference—one or more of the defective and dying branches which almost invariably occur on Ribston Pippin trees at this season. This is the more singular, as showing the effect of the wall, from all the standard trees of this kind growing on the open terraces being affected in the various stages of lice and canker, and the dying of branches which sooner or later inevitably ensues.

Hawthornden trees, which are anywhere almost certain and heavy bearers, are also on the lower part of the top wall, and also, if I recollect rightly, on a low facing. But this seems to be a comparative waste of walling, for this kind will grow well enough in the open, and nothing can convert them into choice table fruit. However, as a curiosity, the larger tree is worth its place, for such a display of bunches for quantity and size we have never seen equalled, and I should say it was never surpassed. Codlins, too, of all others, seeing how they are looked upon as one of the most old-fashioned of the Apple tribes, were planted against the wall, and Mr. Pond has allowed one or two to remain. These, however, are a fine table fruit, from being handsome in their deep rosy colour, which is made more intense by the influence of the wall, while the brisk acid they contain, and the dry aroma they emit when well grown, make them equal in medicinal qualities to Oranges or Lemons, and more agreeable as a dessert in the autumn and winter seasons. I cannot conclude this notice of fruit growing on this system of terraces, and by the fertilisation and culture we have cursorily described, without mentioning a little standard tree of the Pride of Kent variety. This was on one of the upper terraces of the south-eastern aspect, and this plant was covered from top to bottom with these quaint and elegant little golden gems of the Apple species of fruit.

In making a general remark or two, I cannot but admit that climate has much to do with this success. But there are many sheltered spots in England where greatly increased contributions to our material comforts and luxuries might be made with a very passable and satisfactory imitation. Plums, as Orleans, Magnum Bonums, and the fine luscious Greengages and other rich fruit of this kind, are also grown on these facings in the greatest profusion that is consistent with the future vigour of the trees, and they are growing too to the utmost perfection. One hundred dozen of choice Plums are frequently picked a-day for Covent Garden at this season. Why should not single-brick walls be built a few yards apart on some of the slopes of Kent and Surrey, where the fruits in question would grow equally well? This investment could not fail to pay, with the wealth and 3,000,000 inhabitants of London within easy reach. In many places bricks might be made on the spot, and if slopes could not be found, a succession of walls made slightly serpentine to give them strength, if built on the flat, would add marvellously to the produce and value of the fruit so grown; while early Peas, Potatos, and salads might be produced in sufficient abundance to create a ravenous taste among Cockneys for such wholesome spring relishes. Thus the greater the supply in season the greater would be the demand; for now these things are thought but little of because they are so scarce that the bulk of well-to-do people never think of them till the idea is dinned into their heads by such street cries as, "Lettus three a pennee!" and "Reddishes, three fardens a markkit bundle!" Will not some enterprising men strike out in the direction indicated, and seize upon the opportunity that 3,000,000 of people offer them? There is room for a thousand Mr. Ponds, with ten times the extent of his grounds for each enterprising individual. And when these thousand men have developed their schemes, each in his own particular way, there will be a greater demand for the produce they will yield, and this from the taste for these home-grown fruits and "vegetables" having been established and made to linger for satisfaction. *W. W. G.*

NOTES ON EPIPHYLLUM TRUNCATUM.

As winter-blooming plants the Epiphyllum truncatum and its numerous varieties rank among the most useful, and when grafted on stems of from 1 to 2 feet in height they have a most charming effect. Their blossoms vary in colour from the richest crimson and purple to pink, and the delicately-tinted E. alboluteritia promises fair to produce a white one at no distant day.

They are of the easiest culture. The following is the mode of treatment usually adopted by the best growers of this class of plants. Take for compost good pasture loam of medium strength, and peat of rather a sandy nature, in about equal proportions, and add to this a moderate quantity of leaf-mould and brick rubble. In this compost they will both grow and flower vigorously. The time for potting is when the plants begin to grow in the spring after flowering. It is imperative to drain well and not to over-pot them. Place them at once into a brisk moist heat until they have quite completed their growth, after which they may be set in a lower temperature to harden, and finally they may be exposed to the full sun in order to set their buds. They generally begin to flower in November, and a few at a time may be placed in a gentle heat to open their blossoms as they may be wanted.

The varieties of E. Russellianum are naturally from one to two months later in blooming than the varieties of E. truncatum, and are invaluable as successional plants.

If failures take place in the cultivation of these plants they usually arise from neglecting to give them the higher temperature at their growing time, for although usually termed greenhouse plants they are natives of the Brazils, which country, it is almost needless to state, does not produce many that thrive under mere greenhouse treatment. Appended is a list of 24 of the most distinct sorts in cultivation:—

E. truncatum majus	E. truncatum spectabile
,, ,, albo-lateritium	,, ,, ,, carminatum
,, ,, amabile	,, ,, salmoneum
,, ,, aurantiacum	,, ,, tricolor
,, ,, bicolor	,, ,, violaceum
,, ,, coccineum	,, ,, ,, grandiflorum
,, ,, cruentum	,, ,, ,, superbum
,, ,, magnificum	,, Russellianum
,, ,, purpureum	,, ,, rubrum
,, ,, roseum	,, ,, cupreum
,, ,, rubro tinctum	,, ,, superbum
,, ,, Ruckerianum	,, ,, Snowii
,, ,, splendens	

W. Buckley, Tooting.

LETTERS FROM PARIS.—No. XXIII.

ORNAMENTAL FRENCH GARDENING.

THIS is the 27th day of August, and I cannot, perhaps, select a better time to tell all I can about the merits of the much talked-of system of flower gardening employed about Paris. To begin, we had better consider for a moment that the gardens of Paris are under different boards of management, if I may so speak. Thus the gardens of the Luxembourg, the Tuileries, and other palaces, with the Jardin des Plantes, have their own gardeners, and have nothing to do with what we may call the Municipality of Paris, nor are they supplied from its great nursery, La Muette. On the other hand, the Parc Monceau, the Bois de Boulogne, the great belt of gardens on each side of the Champs Elysées, and all the squares, &c., belong to La Ville de Paris, and are managed by it. As I have many large gardens to deal with in one article, the sooner we come to the vital points the better, and we will begin at the Luxembourg, with M. Rivière. This fine garden was cut to pieces last winter, and so much so that those who knew it a year or two ago would hardly recognise it now. But it is yet a noble garden, and for a geometrical one very pleasing indeed. I must pass by its fine collection of Orchids, and some other interesting features, and come at once to the style of decoration, which is distinct, good, and well worthy our attention. Continuous borders, not beds, run round the squares of Grass, &c., and from the dawn of spring to the end of autumn, these are never without occupants, never ragged, never flowerless. It is not the old mixed border system, observe—far from it; nor is it the bedding one. It is a system of bedding and herbaceous plants mixed, but all changed every year. They steal out a spring flower this week, and put in a fine herbaceous or bedding plant, or strong growing florists' flower in its stead, and with the very best success. A stock of good bedding and herbaceous plants are always kept on hand to carry out this, and the placing of good kinds of herbaceous plants into fresh ground every year causes them to flower as freely as the bedders. But those borders also contain permanent things—Lilac bushes, Roses, &c., which give a line of verdure throughout the centre of the border, and prevent it from being quite overdone with flowers. Among those woody plants there were others very beautiful and very sweet, for many weeks, through the better part of the season, and those were low standard bushes of the common Honeysuckle! Your readers would, perhaps, scarcely ever think of that for such a position; but alternating between a Rose and a Lilac, or other bush, and throwing down a head of free-growing and flowering shoots, I can safely say that I have rarely seen anything so pleasing in the flower-garden. Few arrangements can be more satisfactory than the mixture of Phloxes, Gladioli, Œnothera speciosa, Fuchsias, Pelargoniums, large yellow Achillea, &c., in these beds at present and for months past. They also have the sub-tropical system at the Luxembourg, and rather more tastefully than elsewhere. Thus in one part may be seen a graceful mixture of a variety of fine-leaved plants with an edging of Fuchsias, instead of the ponderous mass of 500 plants of one variety of Canna, which you sometimes meet with in other places about Paris. M. Rivière is also fond of having mixed beds of Ferns in the open air, and also isolated specimens of tree Ferns, Woodwardia elevated on a moss-covered stand, &c., and their effect is very good. One thing, however, not in the flower-beds I must not pass by—the magnificent lot of large Oleanders that are in flower here now among the Orange trees and double Pomegranates. They are many of them perfectly furnished with flowers, have well-formed heads, and being from 6 to 10 feet in diameter, look like beds of flowers rather than single petals. They are grown in large tubs, precisely like the Orange trees, and stored in a great dark conservatory with them also. The culture of Orange trees in tubs is at best but an awkward relic of Middle Age gardening, but the culture and keeping of these magnificent Oleanders is really not only tolerable but admirable. They have many specimens here such as I have described. A bed of Papyrus antiquorum does well here, and looks refreshingly dark green and distinct.

From the Luxembourg we will next turn to the garden around the Louvre. Here again we have borders instead of beds to deal with, and the effect is beautiful and also capable of infinite change. This is the plan of the Louvre borders. It is a combination of circle, and mixture, and ribbon, quite unpractised with us. Along the middle of the borders we have a line of permanent and rather large-growing things—Roses, Dahlias, neat bushes of Althæa frutex, and small Persian Lilacs. The Lilacs might be thought to grow too gross for such a position, but by cutting them into the heart as soon as they have done flowering the bedding stuff starts with them on an equal footing, and the Lilacs hurt it not by pushing out again, and making neat heads for taking a lead in the display of spring flowers. Thus they have all the central line of each border a line of green and pointed things, which always save it from over-colouring, and then underneath they lay on the tones as thick as could be wished. Around each bush or tallish plant in these borders are placed rings of bedding plants—Fuchsia, Veronica, Heliotrope, Chrysanthemum grandiflorum, fœniculaceum, &c., the outer spaces between the rings being filled with a few plants of a sort. Then follows a straight line of Pelargoniums—red, white, and rose, mixed plant for plant, and forming a very pretty line. Outside of that a band of Irish Ivy, pegged close to the earth, and pinched two or three times a year; and finally, on the walk side, an edging of the capital irons before described. As soon as one gets beyond the very primitive idea, that because one border is of a certain pattern the others ought to follow it, this will be found a really good plan, and it is worth attention with us; by its means we may enjoy great variety in a border without any of the raggedness of the old mixed border system. Around most of the Rose trees they place a ring of the Gladiolus—a good plan where the plant grows well. Any person with a knowledge of bedding plants may vary this plan *ad infinitum*, and produce a most happy result with it wherever borders have to be dealt with. In the Tuileries we find much the same kind of garden, with a fine bloom of Roses in summer, and more Hollyhocks and Althæas in autumn. So also in the Palais Royal we meet with the same style going around the squares, but it is only the Louvre strips that have the wide margin of dark green Irish Ivy—a refreshing and neat finish.

In the private garden of the Emperor, at the Tuileries, the flowers are kept a good deal subdued, and some trouble is taken to develop the shrubs and stronger vegetation distinctly and well. The effect is very good from the windows, and the interior. Here again we see the Ivy edging, 20 inches wide, well used. The flower borders touch the gravel walk, and are edged with Box, but on the gravel itself they lay down a beautiful dark green band of the Irish Ivy, of course allowing, in the laying down of the walk, for the space thus occupied. The effect of the rich green band adds much to the beauty of the border.

Let us next turn to an entirely opposite style—that generally adopted by M. Barillet for the gardens of the city. It is often striking, often beautiful, and occasionally mean. It is striking when you see a host of that fine silvery tree, Acer Negundo variegata, arranged in one great oval mass, gay and bright, in the midst of a park laid out after the English fashion; it is beautiful when you see some spots with single specimens and chaste beds, every one differing from its neighbour; and it is mean when you meet with about 1000 plants of one variety stretched around a collection of shrubs, or flopped down in one wide mass in some of these beautiful little green pieces that spread out among the trees on the islands in the Bois de Boulogne. In the Champs Elysées there is a deal of this gardening, and much of it consists of masses of monstrous ugliness, in consequence of what I will call overlumping to produce sensational effect. But, nevertheless, the general disposition of the ground prevents this from doing much harm, and it is with a fine piece of pleasure ground this, which spreads along each side of the noblest avenue in the world. An odd single specimen of Musa Ensete looks very fine here now, and occasionally you may see a really tasteful thing—for instance, a mass of brightly and freely flowering Portulacas surfacing beds with tall foliaged plants, &c. Iresine appears to be a failure here up to this date; doubtless it will as usual begin to put on a decent face as soon as it is time to clear off the beds. The Hibiscuses are beginning to compensate for months of ugly stickyness by showing an odd blazing bloom, beautiful here and there, while Begonias and not a few other things look miserable indeed. "This sub-tropical system will never do for England!" say some practical men. The truth is, it requires to be done very carefully here, and that there is a great mistake made by putting out a host of tender plants merely because—well, I can't say why, unless it is to contrast healthy beauty with ragged ugliness. Their weakness is, that, like most people in this world, they do not know where to stop. You have in the Parc Monceau a group of Musa Ensete worth making a journey to see, and groups of Wigandia, Canna, and such Solanums as Warcewiczoides, that are worthy of association with it; but you also see there groups and beds of Begonias without a good leaf, let alone a particle of beauty: you

see nasty scraggy stove plants, with long crooked legs, and a few tattered leaves at the top, and poor standard plants of the Sweet Verbena at the same time. If it were an experimental ground one would not mind, of course; but this, in gardens where its omission would leave almost nothing to be desired, is almost too bad. In some respects this park is really unequalled, and therefore one regrets the more to see these blemishes. However it is only fair to say the season is considered exceptionally bad, and that may have caused some things to look so very poorly. Musa rosacea and M. sinensis flap their poor leaves about in the wind without being "kilt entirely," but among all the Musas give me M. Ensete for the open air or the cool conservatory. It blows and rains as hard in Paris as in London, but there was not to-day a rib of its beautiful wide leaves separated from its fellow, though there had been a storm of rain this morning enough to riddle the leaves of Gunnera scabra. Although it is vanity for us to attempt much with this sub-tropical gardening except in the milder parts, yet the hardiness and good qualities of this superb Musa cannot be too widely known, and those who cannot enjoy it in the open air in some sheltered spot during the summer, may plant it out with confidence as the grandest of all conservatory plants. The surfacing of the beds containing the large plants here, with such things as Phlox Drummondii, Sweet Alyssum, Mignonette, &c., is tasteful, and worthy of adoption with us. Tapidanthus calyptratus, growing here and there among a bed of Chinese Pinks, illustrates the kind of thing I mean. It should be practised in most cases with this class of sub-tropical plants because the smaller plants keep the bed furnished till the big things have made leaf. In many cases—that of the Ficus, for instance—this surfacing vegetation will show well all through the season; in others, where the foliage is strong and dense, it may become useless after a while, and in all such we may of course use annuals and cheap stuff. The New Zealand Flax is often used with good effect, and all I have to say of it is, that there is not in cultivation a plant more useful for either conservatory, house, flower garden, or vase. The French know the value of this plant, and cultivate it by the thousand. With us it is, as regards the effects it is capable of, an unknown plant.

Wigandia Vigieri is on trial a good deal about Paris this year, and proves a good thing, though it does not quite equal the old one. A variety of the common Tobacco, called grandiflora, is one of the most useful of all annual plants that furnish fine leaves; it grows to a great size, and is very effective. A very pretty effect is obtained in one place by alternating lines of Mrs. Pollock with lines of Alternanthera, several of each forming a band for a clump of shrubs. Caladium bataviense is very fine indeed in the open air, the bed surfaced with Mignonette. Their rarest things appear to be put out in this way: thus there is a bed of Lomaria cycadifolia, each plant with an old and fine stem; and this valuable and distinct tree Fern apparently much hurt by the cold and stormy rains. There is a variety of Perilla—"argentea crispa"—used, which seems capable of giving a dark olive effect, wherever such a sombre tone may be desired. Artemisia Stelleriana seems a fine, free, and decidedly silvery-leaved plant. Here, as in England last year, the best of the small fry of coloured-leaved plants recently introduced is Alternanthera paronychioides; the second best, A. spathulata; the third best, Telianthera ficoidea versicolor. Eranthemum tuberculatum, a pretty white-flowering dwarf plant, is used, and flowers freely, but only succeeds well during warm seasons. I have, of course, taken observations of numerous other plants which I have not room to mention here, and will conclude by naming the best of the Solanums employed about Paris, for the genus is so full of wretched weeds, and plants useless as to the effect they produce, that your readers are more likely to make a mistake with them than with most families in this way:—

Solanum robustum	Solanum crinitum (one of the very best)
,, macranthum	,, marginatum
,, lanceolatum (a free-flowering kind, blue)	,, Warscewiczioides
,, discolor	,, crinitipes
,, sisymbrifolium (distinct)	

There are many others, but being planted late, they are not yet sufficiently developed. The fact is, what with *fêtes* and the garden of the Exposition, the people at La Muette have had great difficulties to get things planted at all this year, and therefore it is hardly a fair one in which to judge them. *W. R.*

GRAPE JUDGING.

ONE or two of your contributors seem apparently determined to put an end to all Grape exhibiting. What nobleman or gentleman would allow Grapes to come to their table, after a show, that had been fingered by unknown hands? About some matters in our great exhibitions the public is always found to be lingering, and from which they pass with reluctance—notably Fruit and Roses. Nor is this to be wondered at when we consider that careful packing has defied the travelling of 200 miles perhaps to shake or touch a single particle of the bloom on the fine bunches of Grapes, or put one berry out of place, both of which it is now to be reserved for the judges to effect. It has always been my impression that, in regard to exhibitions, two great ends should be kept in view: the first, pleasing the public by putting before it perfect examples of horticultural skill; the other, honourably rewarding and fostering that skill. Surely the present movement, in reference to Grape judging, is not any furtherance of these ends.

If tasting is to be laid down as a rule, why not make it general as regards all fruits?—a result which few would like to see. Suppose the Royal Agricultural Society was to lose confidence in the judgment of its practical farmers, and order a steak or chop to be cooked out of each animal before a prize was awarded it, would not such a practice, if possible, change the objects the Society has in view? Increased progress would not be the result. The proposed new mode of Grape judging would leave us in much the same position. Judges would go backwards and forwards in trying to be correct, until they had mutilated and disfigured what should have been perfect, because even in three bunches the flavour may be different. And how puzzling it would be to bring oneself to giving a 1st prize to small red bunches of what should have been black Grapes, when close by are perfect-looking specimens of the same variety. Colour, as Mr. Penny says, cannot be got on fruit from unhealthy Vines, and as a rule there is little flavour in its absence. If red Grapes, however, are taken at a certain time, they are to some palates more grateful and agreeable than black Grapes, because they are mere bags of sugar and water, but to test their merits against black fruit, let them hang a month. The red in nine cases out of ten will look as if some person had gone over them with the finger and thumb, pressing all the juice out, and only leaving an empty bag with one good seed and one or two bad ones in it; whereas the highly-coloured fruit is plump and may in time dry to a raisin, but never becomes a shrivelled bare bunch like the other. Any one wanting red Grapes should fall back upon the time when your columns were full of a discussion in reference to Red Hamburghs, which were upheld by many as a distinct kind, but Red Hamburghs proved to be simply the result of carrion messes and indigestion, which a wholesome *regimen* soon dispelled. Your correspondent (see page 949) says that Mr. Alex. Forsyth puts the value of a thing at as much as it will bring, and in my opinion he is correct. There are many gentlemen, and amateurs too, who send Grapes to market when over-stocked with them. Whatever flavour your correspondent's Grapes might have, I think they would turn a little sour if he found they brought at market only one shilling, when his neighbour's brought three. I consider the public who generally buy Grapes, has as much common sense as generally belongs to shrewd people; and it would, I imagine, be difficult to persuade it to believe that a red Grape is better than a black one; and instead of green fruit, I believe from what I have seen that the best fruit, either foreign or English, finds its way to Covent Garden Market. In it are also the best judges; and I should say, instead of dismissing the salesman, let us try to improve upon him. It is frivolous to write about gardeners' Grapes, which only exist in nightmare dreams. The various Grapes at exhibitions are classed. No gardener would think of putting a monstrous bunch of Syrian between say two 3 lb. bunches of Muscats, and fancy that the extra size and weight of the coarser Grape would carry his smaller correct two bunches through the judges' ordeal to the prize. No prize that I remember has ever been offered by any Society for gardeners' Grapes, and he is not much of a gardener who would plant such rubbish. The colour and bloom upon Damson Plums are as much evidence of perfection in that fruit as in the Grape, but, under unfavourable circumstances, the former are equally as red as are ill-grown Grapes, and much more unpalatable, to say nothing of their depreciated marketable value in comparison with those to be in future termed eye-feeders. The latter will, however, if the rules recently set up become law, hold their own in regard to flavour against all colours, notwithsanding this jet bloom-covered black. *J. F.*

Home Correspondence.

Agaricus rubescens.—Although fully agreeing with "M. J. B." in his observations on the late lamentable case of poisoning by Fungi at Chiselhurst, and thanking him for his seasonable caution, I beg to put in a plea for Agaricus rubescens, which abounds in the Fir woods about here, and which I used to regard with much the same suspicion as your reverend correspondent does, till about 10 years ago, when the learned editor of Dr. Badham's "Treatise" satisfied me of the wholesomeness of this species, and taught me how to distinguish it from other and deleterious kinds; since which time it has been constantly eaten and enjoyed by myself and my family, and introduced to many friends and neighbours, who have thanked me for overcoming their prejudices against every sort of Fungus but the common Mushroom. I shall never forget the shriek of horror uttered by our cook when desired to dress the first dish of these Fungi; and yet she and her fellow servants have now learnt to look upon them as a delicacy, and to relish the good food which once they despised. We have several other kinds of esculent Fungi in this neighbourhood, and if your valued correspondent ever strays into it, I shall be delighted to feast him with some of them, and express to him personally the obligations which, in common with so many others, I owe him for what he has done and is doing for floral science, using the term in its largest acceptation. *W. F. Harrison, Bartropp, Weybridge Heath.*

Foxgloves.—In answer to your correspondent "W. T." (see p. 952), who directs attention to the common Foxglove as a garden flower, I should be glad to mention that we have grown the white kind here for many years, and have found it to be a most useful as well as ornamental plant, as (save perpetually warning the gardener and his men that the young plants were not to be pulled up as weeds) they require little or no care. We usually leave a good number of heads for seed, and when this is ripe we scatter it broadcast in the shrubbery or rougher garden beds, and seldom fail to have beautiful flowers in due course, usually white, but occasionally including some light purple varieties, all very beautiful, and well rewarding much more labour than they require. On the newly-turned red soil in the Forest of Dean the common Foxglove flourishes most luxuriantly, and should "W. T." chance to pass at the proper time of year near any recent alterations which have left the ground free for them, he can scarcely fail to be much gratified by their wonderful beauty. *E. A. O.*

Showing Dahlias.—Is the practice of pinning the under petals of Dahlia blooms a common one among exhibitors who travel long distances by rail, in order to be present at a competition? Is it right, or is it wrong? These are questions which we should like to see answered by experienced Dahlia competitors, in order that a distinct understanding may be arrived at, that would serve as a rule for all judges to abide by, as to whether blooms so treated should be disqualified or not. At the late Dundee show we were competitors for Dahlias, and thought that by careful handling on the way we should be able to carry them safely without any artificial expedient; but on arrival there we were very much disappointed to find that all the best blooms, though perfectly fresh when we started, had dropped their petals, and we were obliged to make up the number with spare flowers of inferior quality, thus losing any chance we might have had of gaining the head prize, though we managed to secure the second place. The first prize blooms, on the other hand, had travelled beautifully, most of them being carefully pinned up to prevent destruction. Well, vainly imagining that we could not go far wrong in taking a pattern from such experienced and successful Dahlia growers as the well-known firm who were first at Dundee, we adopted the plan of pinning a few of our flowers at the Glasgow Show on the 11th inst., thinking that thereby we should increase our chance of the prize, but, alas! worse luck attended us there than even at Dundee, for at Glasgow we got no prize at all, but as a reward for pinning our blooms got a disqualifying card pinned to our stand; and to show the difference of opinion that exists on the subject, we may mention that while the judges in the Nurserymen's Class acted in the manner just named, those in the Gardeners' Class awarded a first prize to a stand with pinned blooms. This is certainly a very perplexing state of things, and one which cannot be too soon remedied. What say our leading growers? *Dreghorn & Aitken, Kilmarnock.* [It is a malpractice. EDS.]

Chiswick Gardens.—I had a look at the varieties of Pelargoniums planted out for trial here last week, and I must confess that as a whole they made a very fine appearance; but, like our so-called varieties of Peas, if their flowers were collected and thrown into a basket, I am of opinion that 25 per cent. of distinct sorts could not be selected from amongst them. I hope therefore that the Floral Committee will not only give certificates where they are deserved, but that it will also furnish us with a list of such kinds as are really distinct. I leave it to others to give a description of the ribbon borders, the fine standard Pear trees, the deplorable arboretum, and the "Doctor's dell," which, by-the-by, had at one time a few good points about it. Now it is half nursery and half something else. What a desecration. It might however be made to be very interesting with Yuccas, Ferns, &c., and I should like to see this done as a memento of the Doctor. On entering the orchard from the kitchen garden, the Peach wall had a very good appearance; for though I have seen it better covered, yet there was a quantity of very fine fruit: but on looking to the right—oh, horrible! the orchard appeared one mass of Sow Thistles, Groundsel, and Couch Grass. Has the Society let it to some of the Dudley Street London bird-catchers? or are the weeds in question left for the studies of the certificated Chiswick students? One would suppose if they were tied up in bunches before they were quite so ripe they might find a better market. Surely this ought not to remain in the condition just indicated. *An Old Four Guinea F.R.H.S.* [It is the old story of scanty means. EDS.]

Old Favorites.—Having been for many years an earnest unbeliever in "spirit-rapping," and all therewith connected, it was with considerable anxiety I not long since attended a meeting, or, more technically, *séance*, for the purpose of learning, if possible, certain matters which appeared almost inscrutable. The unbelief aforesaid was for the nonce shaken off, and I now record the results. The company being assembled, and on the "tip-toe of expectation," the "medium" was good enough to request some one of the company to ask for the presence of any spirit that took his fancy. On this deponent ventured timidly to inquire "Is the spirit of William Hunt present?" and the orthodox number of raps, from the fist or foot (uncertain) of a 15 or 16 stone man "when in the flesh," immediately responded "Present." My courage almost gave way, but, screwing it up to high-pressure point, I asked—"Tell me, friend and lover of plant growing, how it happened, that, when you entered "spirit land," you swept clean off the face of the earth all your old favourites, hard and soft alike, and swept them off so effectually that, could you but revisit the scenes of your former triumphs, you would need an illustrator to show the beauties of the present class of exhibition plants, and an interpreter to teach you their names? The spirit replied, "I think, young man, it would be a deal more respectful for you and such like, when you come into the presence of spirits, to come in good spirits, but not in a *state* of spirits; and if you can't understand that—why, then, in plain words, come *sober*." I did not consider this a very nice way of giving a modest young man encouragement; but being anxious to gain my point, pretended to take it as a bit of chaff. So repeating the question a little more firmly, but very respectfully, was astonished to hear, "That fellow had better get back again before his mother or his *keeper* knows he's out." Remembering, nevertheless, the old saying, "the third

time pays for all," courage again came to my aid; and, repeating my question once more, his spiritship seemed to think—like the boy when he turned up the bee-hive—that there "might be something in it," and said, "But, stranger, you don't mean to tell me, seriously, that the shows at the Park and Chiswick are pretended to be carried on without Burtonias, Leschenaultias (red and blue), Chorozemas, Podolobiums, Boronias, Pimeleas, and so on, all as big and healthy as good Gooseberry trees; and not only these, but lots of other things, without which, in my opinion, I take it a London show would look like a pump without a handle?" I replied, "The list of names which you have now called over would astonish beyond measure a great many of the parties who now profess plant growing; for I very much question if many of them ever saw several of them, and they would rather 'whistle a jig to a milestone' than attempt the cultivation of plants which require so much time, care, and patience. Our present exhibition plants, or nearly all of them, must grow as fast as 'Bear Bine,' or 'they won't do now.' Whatsoever will grow a yard a year may be just tolerated, but anything less than that it voted 'too slow.' I should be sorry, spirit friend, to cause you uneasiness, but, as this subject is between us, I may as well tell you, that I looked all over the last show at the Park in the hope of finding a few of the good old Clerodendrons that used to light up with a blaze the July shows of old, but my search was rewarded, or rather saddened, by finding one poor little wretch (I think in a 24 pot), screwing itself out of sight, as if ashamed of the 'last appearance on any stage' of the sole surviving relic of a class of plants that were once a pride and a glory. The poor little spike, if spike that might be called which spike had none, would hardly have been sufficient to furnish your button-hole, and contrasting that last little bit with the grand old plants that 'West Kent' used to turn out, I could not help exclaiming, 'Alas! "the light of other days is faded."' I fear your patience will be exhausted; so will say for this time, Adieu. Will you grant me another occasion to discuss this matter?"—"Yes." "Thank you; will you come to 'the Park' next show?"—"No," roared the spirit, in a tone of disgust and anger, and we knew at once that he was gone. *Erica.*

Rusting of Grapes.—Inquiries are occasionally made in your columns relative to the rusting of Grapes. I have no doubt that, at times, the supposed rusting is nothing more than the accretion of dirt deposited by a dusty atmosphere on green Grapes wet by syringing. Gooseberries are not unfrequently dirty from a similar cause. I lately had an opportunity of inspecting a case of real rusting, in which the clear bloomy cuticle of the ripe Grapes was more or less changed into a brownish grey fibrous substance. This form of rusting was clearly owing to excessive steaming. It had been the custom in the Vinery in question to pour twice a day a quantity of water on the heating pipes, so as to fill the house with dense white vapour of a high temperature. The rusting was worst immediately over the pipes, where the rising steam first impinged on the Vines, and it gradually decreased toward the top of the rafters. In the end of the house at which the heating pipe entered, and where of course the steam was hottest, the foliage as well as the fruit was much injured. The bunches near the upright glass in front were not rusted at all. I am aware that sulphur smeared on hot pipes, to destroy red spider, sometimes produces rusting, but in this instance no sulphur had been employed, though a year ago a little had been dusted into the soil of the house. Viewing the circumstances on the spot, I could come to no other conclusion than that the rusting was due to the hot steam. Every one is aware that a moist atmosphere is beneficial to Grapes when the berries are swelling, but that is very different from immersing them twice a day in vapour approaching the temperature of boiling water. It is inconceivable that gardeners should think it expedient to parboil their Vines and Orchids, and yet they not unfrequently do it. Such an artificial climate does not resemble any on the face of the earth; and it is certainly very different from that in which Vines naturally grow. *J. S. E.*

Nierembergia rivularis.—It is a cheering fact to lovers of hardy plants that not only are there some who carefully guard all our good old things, and thus provide that when the demand does come for them they shall be ready for dispersal over the country, but also that entirely new things of the highest merit in this class are not unfrequently introduced. Of these nothing that I have recently seen surpasses this singularly distinct and beautiful little plant. They tell us that its large, erect, creamy white flowers whiten the Grass near the banks of the Plate river, its native home. The Messrs. Veitch having proved it to be a "perfectly hardy" plant, why not permit it to do the same in an isolated sunny spot in our pleasure grounds? Why not add it to the charms of our best form of spring garden—those parts of a country place planted with beautiful spring bulbs, and flowers hardy enough to take care of themselves, and lovely as things in a really wild state, peeping through the budding Grass in spring or early summer, without the usual gardenesque accompaniments of naked muddy earth and prim surroundings? But granting that we do not and cannot make this most elegant of all uses of it, it will prove very useful in other ways. What, for instance, so beautiful in small beds on the green Grass, like those in the "Duke's garden" at Cliveden, in which a very dwarf and choice type of vegetation is desired? The stems and foliage trail along the ground as dwarfly as those of that beautiful but tender little New Holland Violet, Erpetion reniforme, while from amongst them spring erect open cup-like flowers of a creamy white tint, just barely pushed above the foliage, so that the side effect is seen at a considerable distance. This side effect is very pleasing, suggesting Snowdrops at first, but entirely different, and no less pretty when you come near and stand over the flowers. No collection of rock or herbaceous plants can be complete without it, while the tasteful flower-gardener may well use it in his smaller designs. What, for instance, could be more appropriate than to use it as a groundwork where single specimens of some choice showy thing are put out for the summer—say Echeveria metallica, which has been proved to grow finely in the open air, even during such a peculiarly bad season as the present. *Viator.*

Grape Judging.—I fully coincide with the views expressed by Mr. Meredith (see p. 925) in reference to this subject. It seems to my thinking scarcely right for the judges to mutilate a fine bunch or bunches of Grapes that are shown in competition. If shown as a seedling, or new variety, then as a matter of course it becomes highly important that something more should be known than is seen by the eye. Presuming that a seedling possesses all the cardinal properties and qualifications as regards colour, size of berry and bunch, bloom, &c., it is absolutely necessary that the berries should be subjected to the tasting process, so that the flavour may be contrasted with other known varieties. No successful raiser would for one moment offer the slightest objection to his Grapes undergoing the test of tasting; but when several collections are subjected to this ordeal, it must of necessity become somewhat difficult to determine their respective merits. I therefore consider that size and symmetry of bunch, and size, colour, and bloom of berry, should be the only qualifications to guide the censors to a right decision relative to the merits or demerits of Grapes exhibited for competition. *George Fry, Lee, Kent.*

Strawberries.—The Alpine Strawberry, about which your correspondents have written so much lately, is very similar, I imagine, to one which I have seen almost every day for the last six weeks at Vichy; and upon inquiring at the public gardens there, where I saw it in blossom and bearing fruits, I was told that its name was Tous les Saisons. It is indeed most delicious in flavour, and the perfume, as described, enchanting. At Vichy it is ordered to be served as one of the fruits so desirable when taking the waters. *E. A. M., Dublin.*

Railway Embankments as Gardens for Cottagers.—I have often thought that the slopes of the railway embankments in this country, especially in some counties, might be turned to good account by cottagers residing near them. Found, as they often are, in some of our richest valleys, they would, without much trouble in regard to preparation of soil, afford a capital situation for the culture of choice fruits. The aspect of many of them is everything one could wish, combining at the same time shelter with plenty of sun, and they are so curved and otherwise screened as to enclose a temperature scarcely found in any other position out-of-doors. I believe, therefore, that there are some places in this county (Cornwall) where an apparatus might be erected for forcing fruits for the London markets, and prove a profitable investment. It would certainly be so as regards Grapes. The cottager, with the help of the "ground vinery," advertised in your columns, or something akin to it, could, with very little trouble, grow Grapes for local markets. With a little expense, in the shape of trellises, Peaches, Nectarines, Plums, Pears, and Cherries could be grown in perfection. Figs, too, could scarcely be planted in a better situation out-of-doors than in some of those places. Perhaps, however, they should be planted say 6 feet up the embankment, where they would probably fruit better than in richer soil. The embankment would serve the purpose of a wall, while the roots of the trees would flourish in the rich soil beneath. Strawberries would require some terraces made, and a good depth of soil laid on, which perhaps would not be allowed on the one hand, and too much labour to be profitable on the other, yet a good bed might be made at the base where nothing else grew, but not over the roots of the trees. Peas and Scarlet Runners could also be trained up those banks. Cucumbers could be grown by the million in the summer months by making little beds of good compost. Here and there over the slope Vegetable Marrows might be grown in the same way, and would be productive. Herbs of all kinds would answer. What an aspect some of those slopes would give for growing Tomatos! Digging out pits 16 inches square, and filling them with stable dung and loam well rotted together, would be all the preparation required. The plants would grow down those slopes, and a few pegs and a little pruning now and then, would be all the after trouble. Patches of Sedums, Wallflowers, &c., would make it all gay, these requiring no trouble in such a situation after planting. In the growth of Cucumbers, Vegetable Marrows, Tomatos, a frame would be required, and a little hot-bed to raise the plants in spring; many cottagers, however, already possess these essentials, and also the amount of skill and care to use them. Besides rendering the appearance of the slopes more pleasant, and the pecuniary advantages accruing to the cottager, the encouragement given by local exhibitions all over the country would be met by finer displays of fruit, if not a greater variety, than is at present seen at those shows. Proprietors of railways would, doubtless, gladly let those banks to cottagers on such conditions as to prevent all accidents, such as keeping fences in good repair, &c. It would form an item to swell the dividend, which I know is much needed in some places. If this subject was brought before the notice of cottagers who happen to live near those banks they would perhaps apply to the proper quarter with a view to some arrangement to carry this idea into practice. *H. M., Enys, Penryn.*

Allamanda Hendersoni.—In answer to Mr. W. Whitaker, of Crewe Hall, Cheshire (see p. 928), I have to say that a plant of A. Hendersoni, which I purchased of Mr. Bull, Chelsea, is now in bloom at my place, as well as a plant of A. Schottii, of the same age, and I regret to say that it is impossible to discern any difference between them, either in the bloom or time of flowering—in fact, the two plants with me are identical, the only difference being that one of them cost 20*s.* and the other 2*s.* 6*d.* *H. Marshall, Sands House, Durham.* [There are some very slight botanical differences between the two plants, and cultivators of them state that there are corresponding differences in the habit of the two. EDS.]

Australian Spinach (*Chenopodium auricomum*).—We forward to you a few plants of the above Spinach for your inspection. The leaves should be put into boiling water to bleach, and afterwards cooked the same as ordinary Spinach. It requires a little more time to boil than our Spinach, and perhaps a little more attention in the beating. If we are correct in our estimate of this vegetable, it is likely to prove valuable on account of its flavour, its productiveness, and its not having a tendency to run to seed. The flavour is that of Spinach, but it is preferred by many who have tasted it, as more delicate and less grassy in taste. Will you kindly favour us with your opinion of it? A few plants will yield an abundance of leaves during the season. We began to gather when our plants were about 18 inches in height, and they have continued to grow and produce leaves until they are now from 6 to 7 feet in height. It should be planted on well-manured ground, and afterwards watered occasionally. It is of exceedingly rapid growth. The tallest plants we send you were sown on a slight hot-bed about the middle of April, and the smaller size in the open border on the 11th June. *Stuart & Mein, Kelso, N.B.* [The plants were strong, vigorous, and productive, some of them as much as 7 feet high. Cooked like ordinary Spinach we found the flavour to be coarse, with a saline and bitter taste, which might be removed by the bleaching recommended, or by changing the water in cooking. It boils of a fine dark green colour. EDS.]

Destroying Wasp Nests.—Can any of your correspondents inform me of the best means of destroying a wasp's nest in the roof of a mansion without disturbing the slates? Gunpowder and sulphur cannot, for certain reasons be used, for the purpose. *E. B.*

Foreign Correspondence.

A Few Further Notes on the Jardin des Plantes.—I forgot to tell you, when describing the Jardin des Plantes, how much I enjoyed a freely blooming specimen of Pavia californica in the nursery. What a pity that such a sweetly blooming, low and neat tree is not oftener seen with us. It has also the valuable point of blooming three months in succession, so unlike that of its relatives. Juncus glaucus is very extensively used in nearly all French gardens for tying plants. They plant a ring of it round the water cistern, or any convenient spot, and cut a handful whenever it is required. It seems a useful practice. Fruit growers like the rush for tying down the young shoots, while it is also useful for tying up annual and herbaceous plants. For the information of curators of botanic gardens I may state that Cuscuta major is luxuriantly grown here upon the Nettle, C. Epithymum upon Calliopsis tinctoria, C. Engelmanii upon a Solidago, and Orobanche grows upon Hemp. I have myself grown O. minor upon perennial Clovers, and O. Hederæ may be readily grown upon the Ivy at the bottom of a wall (I once saw it growing freely on the top of a wall near Lucan, in Ireland), so that there ought not to be the difficulty in showing these curious plants to the public which our botanic gardeners find. Orobanche ramosa is also grown here upon Calliopsis tinctoria. The safest way with the Orobanches is to scrape away the soil till you come near the root, and then sow the seed. Echinophora tenuifolia is a beautiful umbellate, with hoary leaves. Phlomis cashmeriana is a large and noble herbaceous species, with soft lilac whorls, and Menispermum virginicum is a glistening species, nice for covering bowers, like the Canadian Moonseed. Antirrhinum rupestre is a pleasing decumbent species, good for rockwork. They have also the White Belladonna and a little Spiræa (decumbens) from the Austrian Alps, nice for making edgings, growing about three inches high, and also healthy plants of Arracacha esculenta. The Sweet Potato is also grown here in the open air, as in many French gardens. Merendera Bulbocodium, Colchicum byzantinum, and C. montanum were all in full flower on the 26th day of August, and very pretty, especially the second. The first is like Bulbocodium verum, but flowers in autumn. Of ornamental Grasses here the best are Sorghum halepense and Panicum bulbosum, both fine, with Poa abyssinica, graceful and pretty. Panicum altissimum and virgatum are also good. Clematis mongolica is a very interesting species, but barely ornamental, though very desirable for a botanic garden. Nelumbium speciosum and Limnocharis Humboldtii are both flowered well in the open air in cold water. Epilobium sericeum is a very pretty and distinct species. Arctotis elongata, silvery and spreading on the ground, looks like a thing that would make edgings, while Dahlia arborea (out only for the summer of course), looks better than even D. imperialis, D. Decaisneana being good also. Finally, Pyrethrum Tchihatchewii, of the south of Europe, is a capital plant for covering with dark green the dryest of banks. It is very low in habit, and produces white flowers in spring.

Anemone alba is very dwarf, with large white flowers appearing in July and August. They have also a Ficaria calthæfolia, which is very fine and interesting. Cuphea jorullensis, very large and fine, though of course only out for the summer, and many other good things, which I shall not trouble to name at present, but the best of which I hope to be the means of introducing. *R.*

Societies.

ROYAL HORTICULTURAL: *Sept.* 17.—*Show of Variegated Zonal Pelargoniums.*—Of these there was a large and excellent display, in which a crowd of exhibitors and other visitors appeared to take a lively interest.

In Class 1, which was for the best 6 Variegated Zonal Pelargoniums not yet in commerce, Messrs. F. & A. Smith, of Dulwich, were 1st, with Sunray, King of Tricolors, Coruscans, Earl of Derby, Peri, and Banshee; the last, which was silver white-edged, also received a First-class Certificate. Messrs. Saltmarsh, of Chelmsford, were 2d, with Mrs. Pattison, Alma Browning, Sunrise, Vesuvius, Duke of Buccleuch, and Crown Jewel; Messrs. Carter & Co., Messrs. Garaway & Co., Mr. Wills, and Messrs. E. G. Henderson & Son, also showed in this class.

In Class 2, for the best 6 Gold and Bronze Zonal Pelargoniums not yet in commerce, Mr. Wills was 1st, with Diadem, Her Majesty, Admiration, Princess Beatrice, The Sultan, and Arthur H. Wills; the last also received a First-class Certificate. Mr. Bull, King's Road, Chelsea, was 2d, with Duchess, National, Modern, Success, Umpire, and Diamond.

In Class 3, for the best 3 Variegated Zonal Pelargoniums, Messrs. F. & A. Smith were 1st, with Jetty Lacy, Sylph, and Sunray. Messrs. Carter & Co. were 2d, with Mrs. Dunnett (which also received a First-class Certificate), Viceroy of Egypt, and Emperor; and Messrs. E. G. Henderson 3d, with Lady Sheffield, Howarth Ashton, and Mrs. Grieve.

In Class 4, for the best 3 Gold and Bronze varieties, the 1st prize was awarded to Messrs. Downie, Laird, & Laing, for Kentish Hero, Mrs. John Todd, and Countess of Kellie; 2d, Messrs. F. & A. Smith, with Sybil, Combatant, and Brilliant; and 3d, Mr. Wills, with Her Majesty, a noble kind previously described by us, Beauty of Sabden, and Illuminator.

In Class 5, for the best Golden Variegated Zonal, the 1st prize was awarded to Countess of Craven, from Messrs. Perkins, of Coventry, who also received for it a First-class Certificate. It has medium-sized leaves, with a fine golden edge, and a red and mulberry zone. Messrs. F. & A. Smith were 2d, with Jetty Lacy, a handsome variety, described by us in former reports; and Mr. Watson 3d, with Mrs. Dix, which has also been frequently noticed in these pages. Mr. Turner had a First-class Certificate for Mrs. George Hanbury, a very promising kind; and similar awards were made to Messrs. E. G. Henderson for Beauty of Culford, a very fine kind, with a broad bright zone, having an unusual amount of red in it, and to Messrs. F. & A. Smith for Retaliator.

In Class 6, for the best Gold and Bronze Zonal variety, Messrs. Carter & Co. were 1st, with Egyptian Queen, to which a First-class Certificate was awarded. It has a very broad reddish bronze zone, with a golden centre and edge, altogether very beautiful. The same firm were 3d, with Cleopatra, which is somewhat similar in general appearance. The 2d prize was assigned to Messrs. Downie, Laird, and Laing for Countess of Kellie, a sort having a handsome light-coloured zone and a bright golden ground. Mrs. Frampton, from Mr. Uphill, Moreton, Dorchester, received a First-class Certificate in this class.

In Class 7, for the best Golden Self, Mr. Tirebuck, of Luton, was 1st, with Golden Drop; Messrs. Saltmarsh 2d, with Golden Queen; and Mr. Tirebuck 3d, with a variety which was also shown under the name of Golden Queen.

In Class 8, for two plants of the best Variegated Zonal Pelargoniums in commerce, Messrs. Perkins were 1st, with Queen Victoria, and Messrs. F. & A. Smith 2d, with Defiance, to both of which First-class Certificates were also awarded; Mr. Watson was 3d with Miss Watson. A First-class Certificate was awarded to Messrs. F. and A. Smith for their Queen Victoria.

In Class 9, for the two best Golden Variegated Zonal varieties, whether in commerce or not, the 1st prize was awarded to Messrs. F. & A. Smith for Louisa Smith and Jetty Lacy; the 2d to Mr. Watson, for Mrs. Dix and Miss Watson. Messrs. Carter & Co., Mr. Wills, Messrs. Saltmarsh, and Messrs. E. G. Henderson also showed fine varieties.

In Class 10, for the best 6 Gold and Bronze Zonal varieties put in commerce within the last 12 months, Mr. Wills was awarded the 1st prize with Beauty of Ribblesdale, Perilla, Firebrand, Beauty of Calderdale, Model, and Compactum, all charming varieties. Mr. Bull was 2d with Perilla, Compactum, Model, Firebrand, Beauty of Calderdale, and Glowworm.

In Class 11, for the best Silver Variegated Zonal Pelargonium, not in commerce, the 1st prize was awarded to Messrs. F. & A. Smith for Miss Burdett Coutts, a variety having a large bold leaf with a broad edge and zone, the latter with much pink in it. This also received a First-class Certificate. Messrs. E. G. Henderson were 2d, with Italian Sunshine, a sort having smaller leaves, with less red; and Messrs. F. & A. Smith 3d, with Peri, white edge, and a broad green centre.

Floral Committee.—First class Certificates were given to the following Seedling Dahlias, viz., Buttercup, yellow, and Rosamond, pinkish lilac, from Mr. C. Turner, Slough; Memorandum, tipped rosy lilac, from Mr. Church, of Woolwich; and President, rich crimson, from Mr. Henry Legge, Edmonton. Second-class Certificates were awarded to Gipsy Queen, a crimson-tipped flower, from Mr. R. Hopkins, of Brentford; to Chameleon, a rosy purple-tipped variety, and Rosy Circle, shaded rose and purple, from Mr. George Wheeler, Warminster; to Billy Button (Fancy), dull lilac and crimson flakes, Adonis, a light tipped flower, and Vedette, rosy purple, from Mr. C. Turner; to Princess Mary of Cambridge, white, from Mr. H. Thorneycroft, Floore, Weedon; and to Golden King, bright yellow, from Mr. George Rawlings, Romford, whose address we have erroneously given as at Bethnal Green. Of new kinds, Mr. R. Hopkins also had Yellow Gem and Excellent; Mr. George Wheeler, Snowball, Alice, and Flag of Truce; Mr. Turner had Mrs. Dorling, Guardsman, Claudia and Master Johnny (Fancy); Mr. Thorneycroft had Mr. Henry Hooper, Conqueror, and Scarlet King; Mr. Hopkins had Mr. Burgess; Mr. Rawlings had Hebe; Mr. Eckford, The Gardens, Coleshill, had Eliza and the Hon. Mrs. Bouverie; Mr. Church had Reform; and Mr. H. Legge also had Beacon, Sultan, Fairy Queen, Flora, and Rainbow; Mr. Rawlings also showed a white bedding kind. A First-class Certificate was moreover awarded to Mr. Knight, florist, Battle, for Verbena Constance; and Mr. Eckford exhibited the following new kinds:—Achievement, Lord Derby, Julius, Isa Key, and Novelty. Some further remarks on these will be found in another place.

Mr. Bull contributed a highly interesting collection of miscellaneous plants, which filled one side of the room. Among them the following were awarded Certificates, viz., Oreodoxa regia, an elegant Palm; Astrocaryum niveum; Cyathea canaliculata, a handsome tree Fern; and Araucaria elegans, a very elegant species, of smaller growth than A. Rulei. Messrs. Veitch & Sons also exhibited some very beautiful plants. Alocasia Jenningsii, with black foliage, edged and banded with green, received a First-class Certificate. Among other plants in this collection to which were awarded a Special Certificate were Cattleya exoniensis, a beautiful panful of Panicum variegatum, Selaginella Poulteri, and Davallia parvula. A fine-foliaged Cinchonaceous plant, stated to be suitable for sub-tropical gardens, was also exhibited, and the Committee requested that it should be sent again. Messrs. E. G. Henderson also sent several good plants, among which were Miltonia Cloweaii, Cychnoches chlorochilum, and Cattleya speciosissima. Mr. Shortt, Heckfield, received a First-class Certificate for Saxifraga longifolia (vera), an old plant, but scarce. He also furnished two Cape Pelargoniums, Sarcoglottis lineata and S. variegata, Hibiscus metallicus, and Satyrium aureum, the last a robust yellow-flowered terrestrial Orchid. Mr. Earley, Digswell, sent some well-grown specimens of Æchmea fulgens, suitable for table decoration. Mr. Cannel, Woolwich, contributed a seedling Ivy-leaf Pelargonium, Duke of Edinburgh, which, when better grown, will be likely to be a very useful plant. From Mr. George, Stamford Hill, came Tropæolum Scarlet Perfection. Messrs. Downie, Laird, & Laing had Wigandia Vigieri, a fine-foliaged plant, but not equal to Caracasana. From Mr. Salter, Hammersmith, came a small collection of plants, among which were Centaurea magnifica, Crassula Cooperi, and Pachyphytum bracteosum. Mr. Beach, gr. to C. J. Herries, Esq., Sevenoaks, sent Fuchsia gracilis aurea and Hoya carnosa variegata alba; Mr. Richardson, Southend, Darlington, Athyrium Filix-fœmina Peaseanum, to which a First-class Certificate was awarded; and Mr. Middleton, gr. to Sir W. W. Wynne, Bart., a small plant of Bougainvillæa glabra, in flower in a 4-inch pot. Concerning this Mr. Middleton states that he procured a dozen of cuttings in the beginning of June, struck them and potted them in the end of the month; kept them for a fortnight in heat, turned them out in a cold frame, and a month afterwards introduced them into a sharp heat again, and they all flowered as the sample sent, and some of them are commencing to bloom a second time.

Mr. W. Paul exhibited Cupressus Lawsoniana ochroleuca, which received a First-class Certificate; a variety of Taxus, and a beautiful collection of Roses, which were awarded a Special Certificate. Mr. Jackman, Woking, sent a basket of small plants in pots, full of flowers, of his Clematises, for which a Special Certificate was awarded.

Two pretty seedling Variegated Pelargoniums were brought by Corporal Browne, of the Royal Engineers, who had raised them in his small sitting-room, after carefully fertilising the flowers. They were named Royal Engineer and Hon. Mrs. W. le Poer Trench.

Fruit Committee.—Prizes were offered on this occasion in separate classes for the best dishes of Peaches, Nectarines, and Apricots from the open wall, and there was a class for each of the same fruits from orchard-houses; there were likewise classes for the best three dishes of Plums, and for the best dish of Figs. No Apricots were shown either from walls or orchard-houses. The 1st prize for the best dish of Peaches from the open wall was awarded to Mr. Ruffett, gr. to Viscountess Palmerston, Brockett Hall, who had finely ripened fruit of Violette Hâtive; the 2d prize was awarded to Mr. Earley, gr. to F. Pryor, Esq., Digswell, for Barrington. Mr. Whiting, Mr. Lynn, and others also exhibited in this class. In the corresponding class for Nectarines, Mr. Ruffett was again 1st with Elruge; and Mr. Whiting, The Deepdene, Dorking, 2d, with Pitmaston Orange, of fine flavour, but not remarkable as regards size. For orchard-house Peaches, a 3d prize was awarded to Mr. Whiting, for Noblesse; and Mr. Douglas, gr. to F. Whitbourne, Esq., Loxford Hall, Ilford, sent Walburton Admirable; from Mr. Tillery, gr. to the Duke of Portland, came large fruit of Barrington. The same exhibitor also sent good examples of Elruge Nectarines, from an orchard-house. In the class for Plums, three dishes, the only exhibition came from Mr. Whiting, who had a 2d prize for Impératrice, Reine Claude de Bavay, and Guthrie's Late Green. Mr. Hughes, gr. to the Rev. G. Kemp, had a similar award for a dish of small Brown Turkey Figs. Mr. Ingram, Royal Gardens, Frogmore, received a First-class Certificate for a seedling Plum called Bonne Bouche, which proved of delicious flavour. From the Society's gardens at Chiswick came large examples of Goliah; and White Magnum Bonum came from J. Whitmore, Esq., Sloane Street. Mr. Webb, Calcot, Reading, sent a seedling Plum and Apple, but they were not considered equal in merit to existing kinds. Mr. Beach, Surbiton, exhibited a large fine-looking seedling Pear called Lord Suffield; but it, too, was not considered of sufficient merit for an award. Messrs. Lee, Hammersmith, sent fruit of Royal Vineyard Peach, a fine-looking variety, of which it was stated that the parent tree bore a heavy crop as a standard out of doors in 1865, the fruit averaging 10 oz. each, but that the May frosts had destroyed all the blossoms of the parent tree for the last two years. It is described as being of vigorous habit, and ripening its fruit, which is juicy and of good flavour, a week earlier than the Barrington. Mr. Shortt sent a variety of Pine-apple introduced from Brazil, stated to keep good for from five to seven weeks after being cut from the plant; it was, however, not ripe. A seedling white Grape with large berries, was also shown by Mr. James, gr. to the Earl of Dartmouth, Patshull, but no award was made for it. Mr. Jones, gr. to Lord Leconfield, Petworth, sent a seedling Plum; Mr. Ford, a seedling Black Currant; and Mr. Perkins, gr. to Lord Henniker, a Scarlet-fleshed Melon.

G. F. Wilson, Esq., Weybridge, was awarded a Special certificate for Louise Bonne of Jersey Pears of remarkably fine flavour, grown in pots in an orchard-house, and then plunged outside. Mr. Wilson also exhibited fine fruit of the Melon Apple. A Special Certificate was also awarded to Mr. Chalmers, gr. to E. J. Colman, Esq., Stoke Park, Slough, for four finely grown Queen Pines. Messrs. Veitch exhibited their Muscat Champion Grape, a remarkably fine variety, with a Muscat flavour. It was raised between Mill Hill Hamburgh and Canon Hall Muscat, and succeeds in the same temperature as a Black Hamburgh. The Committee confirmed their previous decision as to its high merit. Among other subjects shown were fruit of Monstera deliciosa, from Mr. Fleming, Cliveden; Quetsche, or German Prune Plums, from Mr. Turner, of Slough; Morello Cherries, from Mr. Tillery; good specimens of Yellow Ingestre Apples, also Raspberries and Red Grape Currants, from Mr. Beach; a collection of upwards of 80 Apples and Pears came from Mr. W. Paul.

GLASGOW AND WEST OF SCOTLAND HORTICULTURAL: *Sept.* 11.—The last great show of the season was, as usual, remarkable for the large number of articles exhibited, upwards of 1200 entries being officially notified in the various classes of fruits, flowers, and vegetables. Every available spot was occupied, and the interest evinced by a host of competitors was of itself sufficient to mark the matter as an event in the West of Scotland. Visitors were more numerous than at any former exhibition of the Society, and the amount realised was consebition of the Society, and the amount realised was consequently unprecedentedly large. In the evening, when the admission was reduced to 6*d.*, crowds passed in and crammed the large hall to suffocation, and it was no easy task for the directors to keep all going smoothly. Large as the City Hall of Glasgow is, with its various tributaries, which are always at command, it is not at all capable of accommodating the crowds that periodically flock to the flower shows. It is time, therefore, that some spirited effort should be made to erect some commodious building in the West End Park, or in the Botanic Gardens, to meet the growing wants of a great and populous city. In the interests of horticulture we suggest such a step, in the first place to give scope for the articles that are exhibited, and in order in the next place to offer sufficient walking space. At present the different articles shown are detached and detailed in groups, like so much furniture in so many suites of rooms, and the central hall, where the music and the principal attractions are, is often unnecessarily crowded when the subsidiary ones are much less so.

Fruit formed the chief feature of the exhibition, and it was well staged on a table about 10 feet wide, sloping from the centre on both sides like a double desk in any business counting-room—a very pleasing style of doing this sort of thing. The otherwise fine appearance of this grand table was marred by a lot of unsightly "baskets of fruit." These circular things ought not to be tolerated, a much better style being generally adopted at Edinburgh—that of arranging groups of this kind in square boxes, neatly lined, or placing them in dishes, which is quite as good. The method of mixing Pines, Grapes, Plums, Melons, Peaches, and such like, in these baskets, is only suggestive of disordered arrangements, such as one might expect from a railway collision, or something where precipitancy and a "rush" for safety was unavoidable. It is simply showing the finest productions of Pomona *en deshabille*.

Mr. Fowler, gr. to the Earl of Stair, Castle Kennedy, had the most extraordinary bunch of Grapes, for size and weight, that has been exhibited in modern times. It all but rivalled the famous bunch of Speechly at Welbeck, and was suggestive of it in being suspended from an arched trellis, and rather too formally strung up, showing its enormous proportions. It weighed 17 lb. 2½ oz., and, its name is the White Nice. The same grower had enormous Black Alicante, with berries the size of Victoria Hamburghs, and bunches compact and pyramidal to a fault, but they were red in colour. Trebbiano, too, was the largest and best formed bunch of the kind probable ever exhibited. Black Hamburghs were models in point of form, but deficient in colour, and Muscats were particularly good, as also was the Golden Hamburgh. This collection of three bunches, however, was beaten by much larger ones from a hitherto unknown grower, Mr. D. Campbell, gr. to E. Alston, Esq., of Craighead, Hamilton. The two bunches of Muscats, from this grower, were superb in point of size, both of bunch and berry, but neither of these contributions were so highly finished as the samples sent from Mr. Campbell, gr. to J. Hozier, Esq., of Mauldslie Castle, Carluke, and there seemed to be some questioning as to how the judges had arrived at their decision. The fact is, there are no two sets of men who base their conclusions upon the same premises; which shows the absolute necessity for an instant settlement of the points of merit in Grapes by some properly qualified tribunal. Mr. J. McConnachie, gr. to A. Smollett, Esq., Cameron House; Mr. Alexander Foggo, Calendar House, Falkirk, and many others, had all excellent Grapes. If there was one thing more meritorious than another it was a bunch of the Duchess of Buccleuch variety from Castle Kennedy. It was much larger, both in bunch and berry, than any of this variety ever before exhibited; and as shown, too, in colour, and in all points which are worth contending for in Grapes, it merits a higher place than we were ever before inclined to give it. The size of bunch which Mr. Fowler induces in all the sorts that are under his cultural care, is something wonderful, and if he does not at all times show them quite up to the finishing stroke in point of colour, it need not be wondered at. Mr. Barnwell, gr. to A. Fleming, Esq., Kilkerran House, exhibited a large variety of Grapes, some of them in good condition, and many of them of very large size.

Pines were meagrely contributed, the best coming from Mr. Alex. Crossby, gr. to Sir Jas. Colquhoun, of Luss. Peaches were a large and a good exhibition, Mr. Fowler taking 1st place with Royal George, and Messrs. Campbell and McFarlane, Peebles, having large fruit of Noblesse and Royal George. A very excellent dish of Nectarines, called the Balgowan variety, which came from Castle Kennedy, seemed to be very much like the Elruge.

Passing from the table over a miscellaneous assortment of plants, which were more numerous than generally praiseworthy, we note with special pleasure a group of Heaths from Mr. Stevenson, gr. to R. Addie, Esq., View Park, Bothwell, which were the admiration of every one; and as they represent probably, nay, certainly, the three very best autumn Heaths in cultivation, we single them out—Marnockiana, densely clothed with its marvellous crimson and black blossoms; Aitoniana Turnbulli, the most chaste white Heath, and the best for brides' bouquets in cultivation; and McNabiana, the largest and most showy of its kind. Really these are grand plants, and more worthy of culture than some things that get a vast deal more attention.

The groups of Lilies were numerous: *L. auratum* was, as usual, the most conspicuous—those from Mr. Jas. Buchanan, Lochbrae, and Mr. Robert Thomson, Hope Park, being superb.

Florists' flowers were numerous. Roses, considering the season, were very good, especially those from Messrs. A. Dickson & Sons, Newtonards, Ireland; from Mr. Campbell, Craighead; and from Mr. John Ingram, Aitkenhead. The very best sorts in the different pans were John Hopper, large, fine, and full; Madame Rivers, Sénateur Vaisse, Gloire de Dijon, Comtesse Chabrillant, and Maréchal Souchet,

The best among groups of miscellaneous plants came from J. & R. Thyne. That firm has always a nice lot of Ixoras in bloom, and they appear very effective among foliage plants and Ferns, and so does the charming Eucharis amazonica. The pretty lofty-spiked Trichinium Manglesii, with its rosy-tipped flowers, was conspicuous among them. Mr. Clark sent from the Royal Botanic Gardens a very fine pair of the pearl-bearing Sonerila (margaritacea), a leaf of the Victoria Lily, and a plant of the curious Echeveria metallica, with its lustrous, glaucous, bronzy leaves strikingly conspicuous. Messrs. Dreghorn & Aitken, Kilmarnock, had a group of the best variegated zonal Pelargoniums in cultivation, in some 50 sorts, effectively arranged and fronted with a good line of elegant variegated Grass—Poa trivialis. The very best are under the gold section, and at the risk of being tedious, we name them here: Lucy Grieve, Queen of Tricolors, Miss Watson, Sunset, Meteor, Lady Cullum, and L'Empereur. Under the regular grouping section, Mr. Campbell, gr., Castlemilk, took first place with a good twelve, trained, as usual, in the pyramidal style; others are following this grower's example, and it is the best mode of setting or growing these to advantage.

Gladioli were grand as spikes, as varieties, and in point of numbers. Nothing could have been finer than those from Mr. John Taylor, Musselburgh; Mr. J. M'Lachlan, Belfast; and from Mr. George Fife, Kilmarnock. The very cream of them were Queen Victoria, a large fine white flower, with coloured stripes; J. W. Lane, Milton, Comte de Morny, Isoline, Neptune, Ophir, Lucifer, Brenchleyensis, and Diana, a list which comprises some of the old as well as some of the newer sorts.

Dahlias were largely contributed, and some of the stands, notwithstanding the weather, were as clean and fine as possible. We can see, however, that the showing of them has become quite a trade, and that many of the flowers are "got up" for the occasion. Judge of our surprise when some of the jury pointed out more than half-a-dozen of flowers on one stand with their florets pinned together with veritable pins. Turn the flower upside down, and you see a circlet of glistening heads in quite apple-pie order, just upon a par with what one often sees done by children for amusement on a pin-cushion! This seemed to be no novelty, for we overheard some of the jury support this despicable outrage upon Flora's beauties. Who among all our readers will have the audacity to declare for such a practice? The best varieties staged were Charlotte Dorling, Lord Derby, Jenny Austin, Lord Palmerston, Miss Henshaw, Andrew Dodds, Freemason, Bob Ridley, Garibaldi, Fanny Purchase, Chairman, Blushing Fifteen, Bullion, Baron Taunton, Stella Colas, Criterion, Donald Beaton, Anna Keynes, Juno, Delicata, Princess Alice, Lotty Atkins, Count Cavour, Willie Austin, &c. The exhibitors of the winning stands were J. Gartshore & Sons, Falkirk; Wm. Paul, Paisley; J. Gibson, gr., Fairhill, Hamilton; James Orr, Lady Burn, Greenock; George Fyve, Bellfield, Kilmarnock;

Francis Smith, Partick, and Mrs. Vais, Dunfermline. Mr. George White, Paisley, exhibited a collection of Pompon sorts which have novelty about them. We would prefer, however, a group of Chinese Asters. Hollyhocks were not so good as usual. Some of the sorts that demand notice are Mrs. Downie, Countess Craven, Invincible, Decision, Acme, Mrs. Binning, Lord Rokeby, James Anderson, Mrs. Hastie, John Tweedie, Mrs. M'Kenzie, and Gem of Yellows. The most successful exhibitors were Mr. D. M'Farlane, Peebles; Mr. George Barrie, Edinburgh; and Thomas Walker, Tennochside, Bothwell.

Annuals as shown here, in little made-up bouquets, and arranged in dozens and in twenty-fours, make a most effective display, and are well worthy the attention of all schedule makers; indeed, they arrest general attention. Such things look better made up in this than in any other way. These were the double Senecio, Godetia the Bride—a grand acquisition, having exquisitely pure, large, wax-like flowers; the crimson Mallow, the yellow and white edged Oxyura, the common Sweet Pea, the charming Phlox Drummondii, always good and pretty; the Cyanus minor, the Tom Thumb Nasturtium, that tiny white and ochre eyed gem Nycterinia selaginoides, the grey and marbled Silpiglossis, the elegant pink Centranthus; and the soft, pink, showy flowered Calandrinia discolor. Those from Mr. Henderson, Ardrossan; from Mr. Miller, Bothwell, from Mr. Alex. Walker, Merryleo, a grand lot; from Mr. Wm. Clark, Camphill; and from Mr. H. Crichton, Gourock, were all praiseworthy. Such things as Phloxes, Pentstemons, "Herbaceous cut flowers," are not suitable unless arranged far better than usual, as they all become flaccid, trashy, and faded-looking. Vegetables were grandly shown, the collection from Mr. Burnwell, Kilkerran, being worthy of all praise.

CRYSTAL PALACE SHOW.—At this Show, of which a report will be found at p. 953, and at which 36 dishes of Pears competed for the prizes for "a single dish for flavour:" the 1st prize was awarded to the Louise Bonne Pear, from G. F. Wilson, Esq., Gisburst Cottage, Weybridge. These very large fine-looking Pears were grown on trees in pots which had their fruit set in an orchard-house, and were then plunged in the ground outside. In the Company's list of awards, the 1st prize for these was erroneously set down to Mr. Bailey, who was not a prize-taker in this class. We may also add that Mr. Norris, gr. to A. Bosanquet, Esq., Osidge, Southgate, received the 1st prize in the class of baskets of 12 lb. of Grapes, a fact which was omitted in our report last week.

Notices of Books.

Mr. Cannell has just issued a shilling pamphlet, entitled *Cannell's Extending Method of Grape-growing* (Woolwich: Pryce), in which he further illustrates the plan which has given rise to so much discussion, since his remarks were first printed in our columns. In an appendix the letters which have appeared in our columns and elsewhere, relating to the subject are reprinted. In his concluding remarks the author says: "I began the subject simply because I felt sure we were torturing the Vine and many other plants unnecessarily. I trust much good may result from the publication of this book, for it is nothing more than a good old system revived and proved. I felt convinced, from practice, and from a common knowledge of nature, that it would prove itself, and I determined to explain myself, no matter whether I stood or fell."

Florists' Flowers.

WE read the following account of MAKING-UP FLOWERS for show, in our northern contemporary, *The Farmer*:—"At the Glasgow flower show the other day, the Dahlia, the pride and glory of the florist, was shamefully abused. One of the best-looking stands of 24 blooms was 'made up' for the occasion. The grower had evidently exhausted all the usual modes of trimming and dressing, and in the fertility and exuberance of his resources had hit upon an effective method of keeping the florets together, and but for the keen, discriminating eye of one of the judges, he might have pocketed chief honours, and escaped scot-free. On examining some of the blooms individually, to scan the depth of petal, lo! and behold, the base of the receptacle turned into a veritable pincushion! A perfect circlet of tiny pins, with their silvery-looking heads, met the eye, but so nicely was the operation performed that no semblance of such wholesale stabbing could be detected on the surface. This may be a very clever proceeding, but it is an indefensible one. Every representative of the floral race would, if he could, cry aloud against such an unwarrantable manipulation. We, too, thus prominently condemn it; and if it were insisted upon and tolerated by florists, and the societies which countenance them, it were a thousand times better that they should have no existence. By all means let the standard of excellence be reached by legitimate means, but don't abuse the wonderful productions of Nature by such and similar arbitrary and artificial modes of procedure." Although the flowers in question must have had a few good "points" about them, we heartily join in protesting against such a practice.

IF it be true, as some assert, that the cultivation of the DAHLIA is on the wane, it is nevertheless true that the production of seedling flowers during the present year has been unusually large. Thus at the meeting of the Floral Committee, at South Kensington, on the 17th inst., even though Mr. Keynes was absent, a large number of new flowers were staged by the leading raisers of new kinds. Chameleon (G. Wheeler) had considerably improved both in size and colouring since last seen. It is of a pale yellowish buff ground, tipped with rosy purple, and appears as if it will make a useful exhibition flower, as well as being a constant one. Rosy Circle (G. Wheeler), clear vivid rose in the centre of the flower, while down to the base of the flower the tips of the petals are heavily suffused with purple. It has a most pleasing shade of colour, and there is a good deal of substance in the flowers, but it is sadly deficient in outline. Snowball (G. Wheeler) is a likely-looking white flower, of a good pure colour, and good petal, but looking as if it would be inconstant. Alice (G. Wheeler) is something in the way of Turner's Adonis, and not so good. Flag of Truce was again shown by Mr. Wheeler; it looks very constant, but the character of two or three of the flowers had become changed, as they were considerably suffused with lilac. Gipsy Queen (Hopkins) is a heavily tipped crimson flower, the pale ground suffused with purple, into which some of the crimson runs. It is a striking and useful exhibition flower, but wants high class properties. Yellow Gem (Hopkins) is a small though well-formed yellow flower, there being, as the florists say, "not enough of it;" and Excellent (Hopkins) has a pale buff ground, with maroon tip. Buttercup (Turner) and Golden King (G. Rawlings) are two fine high-coloured yellow flowers, something similar in build, though distinct in colour. Mr. Rawlings' were smaller than those of Mr. Turner, though equally pure in colour, and with as fine a floret and outline; but size carried the higher award. Hebe (Rawlings) was not in such good condition as at a previous meeting; and the white bedding kind shown by Mr. Rawlings, though having larger and better flowers than the well-known Alba floribunda nana, does not bloom so freely, nor does it appear to possess so good a habit, being stronger growing as well as taller. Memorandum (Church) is a light ground flower, tipped with rosy lilac, very pretty, of good substance, and smooth in the florets. Reform (Church) is an indifferent plum-shaded crimson flower, as shown. President (Legge) is a fine addition to the lively crimson flowers. It is of a very rich hue of colour, has a remarkably full and high centre, good florets and substance, and possesses first-class properties. Beacon, a violet-shaded crimson flower, of a pleasing shade of colour, but wanting quality; Sultan, shaded crimson, small but promising; Fairy Queen, a small pale ground flower, suffused and slightly tipped with lilac; Flora, something in the way of the foregoing, but more lilac about it; and Rainbow (fancy), maroon, tipped with white, a small flower, were all shown by Mr. Legge. Mrs. Dorling (Turner) was not so good as at the Crystal Palace; Guardsman (Turner), is of a vivid crimson shade, very bright, but the flowers are low in the centre; Rosamond (Turner) has grown into a fine flower, the colour a clear pinkish lilac, very bright and pleasing, a flower that will render good service as an exhibition variety; Vedette (Turner) is a small but handsome and well formed flower, of a clear rosy purple shade, the purple more manifest on the edge of the florets; Adonis (Turner) was not so good as at the Crystal Palace, though one flower was a model in in point of outline; Claudia (Turner) is a somewhat coarse-looking light flower, with a light tip of rosy violet; Billy Button (Turner) is a fancy variety, having a ground colour of dullish buff, flaked with dark crimson, a flower of good substance and considerable promise, though so dull in appearance; and Master Johnny (Turner) is another fancy flower, pale buff, flaked with rose, good floret and outline, but thin and flat, and deficient in the centre. Mrs. Henry Hooper (Thorneycroft) is a yellow flower very much in the way of Turner's Buttercup, but a little deeper in colour, and not so good in quality; Conqueror, a shaded crimson flower, small and poor; Princess Mary of Cambridge, a large French white flower, of good substance, and appearing to be constant, though with an inclination to coarseness as shown; and Scarlet King, bright deep orange scarlet, good outline and centre, but of small size, were also shown by Mr. Thorneycroft. All that could be said of Mr. Eckford's flowers was that they were shown in bad condition, whatever unrevealed merits they might have possessed.

Some cut blooms of Mr. Knight's new Verbena Constance, again from the open ground and without even a stain in them, were produced here, and received the high award they deserved. A single truss of Achievement (Eckford) was shown, the colour dull cerise dashed with crimson, and lemon eye, the pip large, stout and of good quality; Lord Derby (Eckford) still has that cupped appearance that detracts from the value of its really brilliant scarlet hue; Julius, deep cerise, with white eye; Isa Key, violet rose, with white eye, a shade of colour that looks as if it would not stand exposure; and Novelty, bright carise, with lemon eye, surrounded with a narrow crimson ring, were also shown by Mr. Eckford, but scarcely in their best condition.

A very dwarf form of bedding Pelargonium Christine, with pale yellow foliage, and flowering most profusely, was shown by Mr. Wills of Huntroyde, Burnley. It was obtained from a cross between Little David and Christine, and it is of an unusually dwarf and compact habit. A good bright-coloured, free-blooming variety of the Tropæolum compactum, named Scarlet Perfection, was shown by Mr. J. George, of Stamford Hill. In point of constitution it appeared to be a noteworthy advance on some of the high-coloured kinds; but as the plants had been grown in pots, it was thought by the Committee not to afford sufficient indication as to fitness in regard to the habit of the plant for bedding purposes. *R. D.*

The Apiary.

FUMIGATING MATERIAL.—I find a difficulty in using smoke when uniting bees, &c., which I cannot get over. In the first place, I am no smoker of Tobacco, and have, when by myself, to depend on Fungus. Now the proper kind of Puffball for the purpose is not always to be had. The proper kind is a large sort; that I find about here is small, and dries into a hard substance, which when torn up and dried carefully in an oven, even for the day it is to be used, does not burn in the fumigator. The large kind has a soft spongy inside, which does burn readily when made quite dry just before using. I have thought of a plan which it might be worth while trying, that of soaking the small kind, or perhaps cotton rag, in a weak solution of saltpetre, if that is not likely to hurt the bees. What do you say to this? Fungus is certainly to be bought, but at too dear a rate.

When I have a Tobacco-smoking assistant, but one mode of using it with a veil is practicable. It is to pull aside the latter to light the pipe, and then, having readjusted the veil, to cover the lighted bowl with a rag, and blow strongly through the latter, so as so drive a stream of smoke through the mouthpiece, which is thrust into the hive. It is only some smokers, however, that can do this, and it is troublesome even to them. Some easily-procured ready-lighting substance for the fumigator is a desideratum. *A. B.*

[We doubt if the small Fungus you allude to will answer for the purpose at all, even when soaked in saltpetre. The large kind, Lycoperdon giganteum, is, as you observe, sometimes difficult to be procured. But the kind we always were in the habit of using in bygone fumigating days was that which grows in large old wine vaults, or bonding cellars, described by Taylor as Racodium cellare, or Mouse-skin Byssus. We had no difficulty in obtaining a supply sufficient to last for many years. Some of the owners of these vaults object to having it taken away, as its presence is said to be indicative of a good cellar. The use of smoke has, however, almost entirely disappeared in our apiary; still there are times when a resort to it may be made with advantage. Then we find any old—and if dirty, all the better—linen or cotton rags, tied round a short stick, and the smoke blown gently in with the mouth, to answer very well. We have also used rag saturated in a very weak solution of saltpetre, and have had no reason to believe that the saltpetre injured the bees. It should be as weak a solution as possible; if the rag smoulders ever so slowly, that is sufficient. As regards the tobacco-pipe, our old assistant used it in the way you describe, but it is a troublesome affair. The longer you live as a bee-keeper, the less smoke you will find necessary in your operations. In fact, in the majority of all the various manipulations with bees we believe the use of smoke to be quite unnecessary, and at times even, to a certain extent, to defeat the object in view.]

ITALIAN BEES.—Mr. Reazin, head master of the grammar school here, has made a successful attempt to introduce these famous bees into this county, by importing through J. H. Thomas, Esq., Brooklin, Ontario, an Italian queen bee from Quinby, the celebrated American bee-keeper, at a cost of 5.50 dols. Mr. Reazin has just built, at considerable expense, one of Thomas's improved bee-houses for wintering bees, capable of holding about 40 hives. He has also purchased the right to make Thomas's patent hives, and has let a contract to build 50 of them. *Lindsay Post.*

BEE DRESS.—For every department of house-work equip yourself properly. Unless very timid, you will in your every-day care of bees need no protection—any way, no more than gloves and your gardening hat and veil give. For extraordinary work, such as hiving, making artificial swarms, pruning comb, or making surplus boxes, you will need a bee-dress, which can be made perfectly efficient as follows: Having a hat on your head, measure from the band down to your waist, very free measure, two lengths of calico; sew these together at the sides, and put in it a third strip, half a yard wide, of some transparent material. Hem strongly top and bottom, and run in a strong gum-elastic tape. One of these cords will draw around your hatband, the other around your waist; the gauze width is before your face, allowing free vision. Now insert long, easy-fitting sleeves with an elastic cord that fits closely over your glove at the wrist. With thick hose, stout shoes, and snug-fitting under-wear, you are perfectly free from danger from the most exasperated swarm. Your skirts should be bloomer, as trails gather up the bees from the Grass, and the hat brims should be broad, otherwise the bees may reach your face through the cloth. *American Country Gentleman.*

PROCESS FOR MAKING EMBOSSED WAX SHEETS FOR BEE-COMB.—As you state in your last issue (see p. 954) that I should not be doing an injury to English manufacturers of artificial bee-combs by publishing this process, I herewith send it to you:—

1. To prepare the plain wax sheets it is necessary to have a double trough, or melting pan, similar to a glue-pot, but square, the inner pan being about one inch longer than the intended length of the sheets, and about 3 inches wide, allowing 1 inch all round between it and the outer can for boiling water. The top of the inner can should have the upper edge projecting a little over the outer can, so as to prevent any of the water getting into the wax, should it boil over.

2. A very smooth slab of plaster-of-Paris must be made, about 1½ inch thick, of the length of the required sheet, but about 3 inches wider; melt the wax by boiling the water over a fire, and having soaked the plaster slab in water, allow that which is superfluous to be absorbed, and dip it into the melted wax, withdrawing it again immediately, with an even motion. If properly manipulated a beautifully even and smooth sheet of wax will be deposited, which will drop from the slab on the outer edges being separated.

3. To emboss the sheet with the form of the base of the honey-cells it is only necessary to press it between damp plaster moulds, with a moderate amount of pressure, such as may be obtained by an ordinary linen press. To prepare the mould involves some knowledge of modelling and casting plaster. What are called "squeeze moulds" must be prepared as follows:—A model of the base of one cell must be made very accurately in clay, leaving the sides which are intended to come together perfectly true and upright; from this the first squeeze mould is cast in plaster. Then set out on tracing paper, in pencil, a portion of the hexagonal plan of the embossing, the size of a multiple of the intended dimensions of the

mould (say 2 inches long and a proportionate width). Then on a small plaster slab (previously "lacquered"*), spread pipe-clay of a perfectly even thickness of ⅛ inch, of a somewhat larger area than stated above. Then form the second "squeeze-mould" as follows:—Lay the tracing-paper drawing face downwards on the clay, and rub off the drawing on to the clay. Then proceed to take "squeezes" from the first (single cell) mould (having first thoroughly dried it), by squeezing into it with the thumb fine pipe-clay, striking it off the surface evenly with a steel scraper; then pull it out by adhesion to the surface of a modelling tool. These squeezes must be accurately arranged on the clay surface described above, according to the drawing, and when this is completed a second "squeeze-mould" is to be formed in exactly the same way, by casting plaster on to it, after cutting away the layer of clay upon which the squeezes are placed round the outer edge of the pieces laid on, so as to form in the plaster the walls of the second mould. With this mould proceed in the same way until a sufficiently large surface is covered. In making the double mould, one side must be cast from the other to insure accuracy, or from moulds originally cast from one another. The moulds used for pressing the sheets must be cast into metal frames, made of hoop-iron or brass, with bars across the back to hold the plaster together should it crack under the press, and they must be furnished with guide-pins, or corresponding projections and depressions in the plaster to insure the accurate fitting of the two moulds. I have produced the most satisfactory results from the above described process after trying a variety of others, such as casts in type-metal taken from the natural comb, a single mould used with an India-rubber pad, &c. *Arthur Maw, Benthall Hall, Salop.*

* Lacquer is a material used by workers in plaster of-Paris, which renders it unabsorbent and capable of being again cast from in plaster.

Miscellaneous.

Ventilating Furnace Bars.—A company has recently been started for the purpose of bringing into practical operation Warriner's regulating furnace bars, which are intended to economise fuel, to prevent the destruction of fire-bars, and to consume smoke. These objects are effected by admitting only such an amount of atmospheric air as the nature of the fire requires, and by distributing the air admitted equally over the whole grate surface. This is done by means of hollow bars, through which all the air required for combustion passes to the fire, the rest of the furnace being made air-tight, and the admission of air to the bars being controlled by a valve. The atmospheric air continually passing through the bars tends to keep them cool, and replaces the oxygen burned out of them, thus preventing their being destroyed so rapidly. For horticultural purposes, where the fire is required to be kept in for a long period without stoking, this arrangement is invaluable, as the gardener can set the valves to keep up any temperature, and leave them without attention for 12 hours. The invention has been tested by a number of practical men, and has received their unanimous approval. *Weekly Paper.*

Vegetable Hair.—The Californian papers state that there is now dug out of the mountains of the Sierra Nevada Range a better material for beds than has been hitherto available in the markets of the world. It is the soap root, which grows in unlimited quantities in that region. It is a bulbous root, enveloped in a very tough and supple fibre, resembling somewhat the husk of Cocoa-nut in colour and appearance, but nearly as tough as whalebone. The roots are dug, observes the *Toronto Globe*, chiefly by Chinamen, bound in bundles of 100 lb. each, and brought on poles to the factory. The first work is to put the roots through a picker similar to a threshing-machine, which is run by horse-power. This separates the fibre into a hair of 8 or 10 inches long, which is placed in a large vat or steamer till it becomes flexible, and is free from all gummy or glutinous matter. It is then dried on flats in the sun, put through another fine picker turned by a Chinaman, then taken and twisted into ropes at a common rope-walk, then steamed again, which sets the curl. The ropes are then bound in bales and are ready for the market. The natural colour is brown, but it is often coloured black, and an expert would find it hard to tell it from curled hair. [What is the plant herein referred to? Can it be Agave sapouaria, incorrectly described as to "root?" EDS.]

Garden Operations.

(*For the ensuing week.*)

PLANT HOUSES.

Do not longer delay potting *Pelargoniums* of the Cape sections, as sufficient time ought to be allowed to enable them to establish themselves in the fresh soil and pots before the duller months set in. They should be potted firmly into small pots, in an admixture of one part good, fibrous, maiden loam, and one of sand and good leaf-mould intermixed. First free the roots entirely from the old soil, and, if needed, shorten all coarse lengthy ones, cutting them clean in two. In potting, shake the fresh soil well in amongst the roots, but be careful not to in any way injure the delicate shoots in the operation. Continued watchfulness will be necessary to see that no outstanding greenhouse plants suffer from too much moisture, or through cold, which, with other attendant ills, does much mischief, although it may not show its effects for some time to come. Place forthwith some sort of covering over *Auriculas*, and more especially those which have been recently potted. A spare light set at a moderate angle and elevated upon pots, so that air can blow freely through, will be ample for a time. Be very particular—at this season especially—to see that all plants which are standing out upon open borders, or in similar situations, have a good layer of cinder ashes under them, or are placed individually upon slates or some such material, as worms are constantly upon the surface ready to enter anything containing soil composed of decayed vegetable matter, such as leaf soil. These remarks apply more especially to Chrysanthemums, Cinerarias, and similar plants which are at times left unnecessarily exposed in that way. Of course no one would dream of placing any hard-wooded greenhouse plant out of doors without a good sized slate, or equally effective basis to stand upon. Continue to constantly give a little air to all stoves, but only give just sufficient water to keep a nominal amount of moisture throughout the balls of all inmates of them, which having matured their growths should now be permitted to enjoy a season of rest. It will be well to place a few *Tea Roses* grown in pots under shelter, in order that the soil may become slightly dried, and the wood get better ripened previously to forcing them early into bloom. The beautiful Maréchal Niel, Céline Forestier, and similar varieties, will be greatly benefited by this treatment.

FORCING HOUSES.

Do not delay longer than is possible the pruning of all *Vines* intended for very early forcing. Having been forced early last season, as probably many of them have been, they will not be unlikely to bleed if pruned at a much later date. Those who intend buying *Pot Vines* for fruiting in pots, and especially for early work, should lose no time in procuring them, for delay ofttimes compels purchasers to put up with what they can get, instead of selecting the best from amongst saleable stocks. Short-jointed, hard, and firm-wooded canes, with high prominent buds, ripened to a dark hazel brown colour, are those which should be preferred, and which should always be selected where possible. As it is only by a proper and studious gradation of heat, in conformity with the decline of sunlight, and with it an attendant and uniform decrease of moisture, &c., that success in the winter fruiting and the proper rest of *Pines* can be attained, I cannot impress these facts too much upon practitioners. Where practicable, give a little air constantly at night. This is best given at the front of the house at all times when a proper and sufficiently dry air exists within, as it does not necessarily admit an egress of the warmed inner air. Should there be from any cause too much atmospheric moisture within, then with a little brisker heat, a little air afforded during the night at the apex will be of invaluable service. There can be no doubt that an over-stimulating state of the atmosphere induces the formation of large unsightly crowns upon Pines. The fruit itself is sustained and fed directly by means of the roots, leaves, &c., of the plant, and so to a given extent is no doubt the crown, but the latter must not receive too much encouragement, as the fruit itself is thereby impoverished. Counteract this tendency, therefore, by every practicable means, and we shall no longer have to lament such unsightly formations as overgrown crowns. Pay all attention possible to the renewal of linings necessary to *Pine pits*. Worn-out linings should never be permitted to remain until more heat is really needed; on the contrary, they should be always renewed before that occurs. Wash, scrub, clean, and whitewash all the internal surfaces of the earlier *Peach* or *Nectarine houses*, and should any vacancy occur, fill it up with some fine promising tree from the outer wall, where any such exists. A season or two may thus be gained as compared with the too common practice of purchasing small stuff for the purpose, and hence having to put up with a large vacancy for a year or two. The past weather has been unfavourable for all *Melons* grown in pits or frames without the assistance of pipes or flues, and as no improvement can be anticipated at this late season, every assistance must be given them by means of fermenting materials, &c., to well line the beds, without which no fruit worthy of the name can be had.

HARDY FRUIT GARDEN.

I regret to see that, notwitstanding your able editorial advice, regarding injury caused by the removal of perfect leaves from *Strawberry plants* which have fruited, many amateurs continue the old, old practice of cutting all away indiscriminately. Whilst it is absolutely necessary to remove all suckers, as often as they crop out, and is advantageous to remove all decayed leaves or such as are of no further use, good sound fibre-sustaining ones must receive every possible encouragement, in order duly to elaborate and to aid in storing away all the strength necessary to the formation of a good large crown ready to push forth robustly next spring. *Peaches* and *Nectarines* will now be ripening, and insects will persevere in their attacks, more especially on the ripest and best-flavoured. In order to annoy them in their lurking-places, keep the hoe and rake moving frequently along the bottom of the walls. Earwigs are best entrapped in bean-stalks, as previously directed; wasps may be enticed into bottles with water sweetened with honey or sugar, or under a hand-glass baited with over-ripe fruit, another being placed over it, a hole in the top of the lower one forming an easy communication between the lower to the upper. *Wall Fruit* acquires a higher flavour by exposure to the direct rays of the sun than it does under glass, unless the season is unusually wet and sunless. When the fruit is gathered the trees should be gone over, and if any are crowded with succession shoots, some portion of the wood that has just borne may be removed in order to benefit the succession of shoots.

HARDY FLOWER GARDEN.

Polyanthus beds or edgings should now be formed, as they move well at this season. It will be well not to delay it too long, however, as the roots ought to resume a slight activity before winter sets in, in order duly to establish themselves. Take up layers of *Carnations* and *Picotees*, and pot them forthwith into 60-sized pots; two in a pot, placed at opposite sides, is the best way. Expose them freely to sun and air for some time to come. Good loam, leaf-mould, and road-drift will suit them well, with efficient drainage. Beds should not be formed of these much later than this; proceed, therefore, with the operation as quickly as possible. Elevate the bed formed for them slightly above the level of the surrounding soil; pat it firmly over, and fix the plants firmly therein. Pick and hoe over *Pansy* beds frequently, in order to entirely free them from weeds. Press the soil firmly around the plants when necessary, duly to fix them firmly in the soil after blustering windy weather. Should the seedling plants of *Myosotis, Silene, Saponaria*, &c., become too strong in anticipation of standing severe frosts, it will be best to transplant the larger ones, an operation which will imbue them with greater hardihood, whilst at the same time it will check them materially.

KITCHEN GARDEN.

Here past "directions" must be attended to. Continue earthing *Celery*. Prick out succession *Cauliflowers, Endive*, and *Lettuce* plants as the successional seed-beds afford respectively plants in a proper state for handling. Get in the main crop of *Potatos* with as little delay as possible, as the moist weather we are experiencing tends greatly to further the ill-effects of the disease, with which they are, I fear, too generally smitten this season. Continue to thin out the various sowings of *Spinach*. It will be well to draw a little soil, where convenient, up to the stems of late planted *Broccoli*. Every possible assistance should be given these, to duly encourage the best growth possible under the circumstances. *W. E.*

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the Week ending Sept. 18, 1867, as observed at the Horticultural Gardens.

Sept.		Moon's Age.	Barometer.		Temperature. Of the Air.			Of the Earth		Wind	Rain.
			Max.	Min.	Max.	Min.	Mean	1 foot deep.	2 feet deep.		
Thurs.	12	14	29.877	29.694	73	46	59.5	62	59	S.W.	.00
Friday	13	15	29.997	29.903	70	42	56.0	62	60	W.	.00
Satur.	14	○	29.996	29.858	66	40	53.0	62	59	S.W.	.04
Sunday	15	17	30.086	29.983	70	40	55.0	61	59	N.W	.00
Mon.	16	18	30.194	30.124	66	36	51.0	60	59	N.W.	.00
Tues.	17	19	30.317	30.291	61	46	53.5	60	59	N.E.	.08
Wed.	18	20	30.320	30.209	68	49	58.5	60	59	N.E.	.00
Average			30.112	30.009	67.7	42.7	55.0	61.0	59.0		0.12

Sept. 12—Rain; fine; very clear and fine at night.
— 13—Slight haze; overcast; very fine.
— 14—Fine; rather boisterous; rain at night.
— 15—Cloudy; fine; clear and very fine.
— 16—Clear, partially clouded; clear at night.
— 17—Overcast and cold; clear and fine; overcast; rain.
— 18—Cloudy; clear, with scattered white clouds; cloudy.
Mean temperature of the week, 2 deg. below the average.

STATE OF THE WEATHER AT CHISWICK,
During the last 41 years, for the ensuing Week, ending Sept. 28, 1867.

Sept.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain	Prevailing Winds. N.	N.E.	E.	S.E	S.	S.W.	W.	N.W.
Sunday..22	66.4	45 9	56.2	20	0 80 in.	—	5	9	1	6	12	6	2
Mon. ..23	66.3	45.8	56 0	21	1.21	—	7	8	3	6	10	5	2
Tues. ..24	65.9	44.0	54 9	19	0 75	2	9	3	1	6	12	6	2
Wed. ..25	66 0	43.4	54.7	20	0.30	2	4	4	3	7	14	6	4
Thurs. ..26	65.8	44.0	54 8	20	1.68	—	5	7	2	9	3	3	3
Friday ..27	65 5	44.8	55.1	23	0.57	—	2	6	3	8	11	9	2
Satur. ..28	65.1	43.9	54.5	21	1.44	1	5	6	1	10	10	5	3

The highest temperature during the above period occurred on the 25th, 1832—therm. 82 deg.; and the lowest on the 26th, 1855—therm. 26 deg.

Notices to Correspondents.

ÆTHIONEMA CORIDIFOLIUM: *J P.* This pretty plant, referred to at p. 901, is, we believe, grown by Mr. W. Thompson, of Ipswich.

BEECH TREES: *J P F.* The disease in your Beech trees is very curious. The shoots and branches perish very much after the fashion of gumming. It is clearly not the effect of last year's frost, because though in one case the disease originated in last year's wood, in another it is of much longer standing. The bark is constricted at a certain point, the part above it distinctly swollen, and the wood at the constriction dead to the pith. It is most probable that the injury is due to some insect. The dead portion is now occupied by Fungi belonging to the genera Nectria and Asterosporium, but there is no reason to believe that they are the causes of decay. A close inspection of this year's wood a little later in the year might possibly lead to the discovery of the cause. *M J B.*

HEATING: *J L L.* The two flow and return pipes will not be sufficient for your proposed Vinery; put in double the quantity of piping; it is better to have more than enough than too little, as the necessary heat can then be got without forcing the apparatus. The proposed arrangement will suffice for the plant house, if a greenhouse, but not if it is intended for stove plants. We should recommend keeping the connecting pipes inside, for economy of heating power.

INSECTS: *W R & Sons.* Your young Apple tree was attacked by the larva of the beautiful wood leopard moth, Zeuzera Æsculi. It is rare. A soft wire introduced into its burrow would have killed it. *W.*

MELONS: *M.* Melon plants are so capricious, and so liable to die off from so many and opposite causes, that it is impossible for us to say what may have been the cause of yours having done so. Melons have not been good anywhere this season, owing, probably, to the changeable character of the weather, *i. e.*, alternate extremes of heat and cold. We have examined your two samples of soils. No. 1 is of a very poor, sandy nature, without substance, and not all suited for Melons, which require a somewhat stiff and heavy soil. We should not like to use No. 1 for any potting purposes whatever. No. 2 is of a better description, but somewhat hard and deficient in fibre; it would, however, we think, with a little manure added, grow Melons very well, and be generally useful.

NAMES OF FRUITS: *J M.* Black Achan Pear, and King of the Pippins Apple.—*F Kelly.* Apple not known; Pear resembling Napoléon, but we are not quite sure, as the specimen sent was considerably decayed.

NAMES OF PLANTS: *P C.* 1, Gymnogramma ochracea; 2, Pteris hastata; 3, Pteris serrulata.

TOMATO: *R J S.* The Tomato is undoubtedly a fruit, though not a dessert fruit. It may be classed with kitchen Apples and Pears.



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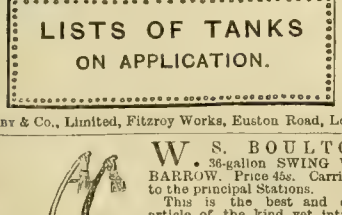
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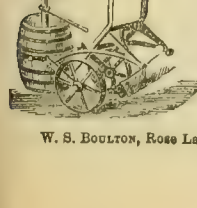
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GRANTS of GOVERNMENT LAND are given to Men familiar with Farming operations, and possessing sufficient means to turn their Land to account.

Applications for further information to be made to Dr. MANN, the Special Agent of the Natal Government, at the Natal Immigration Office, 15, Buckingham Street, Strand, London, W.C.

THE NATIONAL EXHIBITION of SPORTING and OTHER DOGS.—The EIGHTH GREAT ANNUAL EXHIBITION will be held in the CURZON EXHIBITION HALL, BIRMINGHAM, on MONDAY, TUESDAY, WEDNESDAY, and THURSDAY, the 2d, 3d, 4th, and 5th of December next.

Copies of the Prize Lists and Regulations may be obtained from the Secretary, Mr. G. BIXON, Temple Row, Birmingham.

The ENTRIES CLOSE on NOVEMBER 1.

SMITHFIELD CLUB FAT CATTLE SHOW.—The ANNUAL SHOW of FAT CATTLE, SHEEP, and PIGS, will be held at the AGRICULTURAL HALL, ISLINGTON, on MONDAY afternoon, December 9, and Four following Days.

Intending Exhibitors are requested to apply for Cert ificate Forms by the reference letters as under.

CATTLE.—Form A.	For an OX or STEER (in any Class).
" B.	For a COW or HEIFER (in any Class).
" C.	For a BEAST in Extra Stock.
SHEEP. " D.	For a PEN of 3 WETHERS (in any Class).
" E.	For a SINGLE SHEEP in Extra Stock.
PIGS. " F.	For a PEN of 3 PIGS (in any Class).
" G.	For a SINGLE PIG in Extra Stock.

ENTRIES for LIVE STOCK CLOSE NOVEMBER 1.

Prize Lists, Forms of Certificates, and all information, may be obtained on application to Mr. DAVID PULLEN, Assistant Secretary, at the Office of the Honorary Secretary, corner of Half-Moon Street, Piccadilly, London, W.

N.B. All communications respecting the Show must be addressed to the Assistant Secretary, as above, and should bear outside the words "Smithfield Show."

SMITHFIELD CLUB SHOW.
AGRICULTURAL HALL, ISLINGTON, DECEMBER 9 to 13,
IMPLEMENT DEPARTMENT.

The LAST DAY for receiving Applications for Space for Implements and Machinery, &c., is OCTOBER 1.

Printed Forms of Application, with the Rules and Regulations, may be obtained of Mr. DAVID PULLEN, Assistant Secretary, at the Office of the Honorary Secretary, Corner of Half-Moon Street, Piccadilly, London, W.

The Agricultural Gazette.

SATURDAY, SEPTEMBER 21, 1867.

THE continual rise of prices in the corn market is due, no doubt, in part to short arrivals (and indeed to demands upon us) from abroad: but it is a striking confirmation, nevertheless, of the reports regarding our own produce, which were given in our pages last month. The compiler of those reports had less personal knowledge this year of the harvest prospects of the country than on any of 20 or more previous occasions on which he has had to undertake the annual task. It was with less personal confidence, therefore, that the mere arithmetical result of so many local estimates was extracted from them. That result is, however, notwithstanding the cheerful picture sketched on Thursday last by the CHANCELLOR of the EXCHEQUER, proving remarkably trustworthy; and there can be no doubt that the opinion based on these estimates in the early weeks of harvest is correct, and that in particular the Wheat crop is again unfortunately deficient, and the Potato crop unusually diseased.

What help or remedy is there under the circumstances? None now within reach of the producer. The quantity of food for the coming year is now unalterable by him; and, like the crew of a ship upon a twelvemonths' voyage, all we now can do is to regulate our rations according to the condition of our store-room. This is, indeed, happily forced upon us all, as the natural result of our circumstances: for the rising price of food at once enforces that economy which deficient stores require. There are not wanting, however, already many advisers: and, among others the Rev. C. F. WATKINS—well known, he says, to the farmers of Northamptonshire—urges the importation of rice and the use of Indian corn and Peas, of porridge and oatcake, in place of wheaten bread and Potatos; and "Rhubarb, which has thrown out a second crop, is a good substitute for the scarcity of Apples!" It is certain that importers of food, guided by the expectation of profit upon the transaction, will keep us as well supplied as the markets of the world permit; and it is probable that the clergymen in every rural parish will be ready to advise his cottagers on such economies as may be at their command: and recommendations under both these heads, published in the columns of the *Times*, are thus decidedly works of supererogation.

But what are we to say to the advice which Mr. WATKINS volunteers to the farmers, especially it appears to those of Northamptonshire, to whom he refers all others to assure them of his "good will towards them?" If the voyage of our ship can be shortened, and she shall then arrive at a well provided port, the crew may no doubt be better fed during the course of it from their existing limited supplies; and if next harvest could anyhow be hastened, and a better crop could be then ensured, no doubt such a prospect would in like manner affect the supplies of corn to market, and prices would be lowered. We fear, however, that whatever may be our power over the latter of these particulars the former is almost wholly beyond us. The period of next harvest may, perhaps, to some extent, be affected by the general adoption of the best seed time, but the result of any influence in excess of ordinary practice that we can set up here—the consequence of any extra effort beyond that which every farmer always makes to get his Wheat all in in proper time—will be so over-ridden and obscured by the character of next year's weather, that we must lay our account with the probability that we shall not reach our next year's harvest till after the usual twelvemonths' interval.

The abundance of the supplies which will then be at our command is, however, clearly to some extent under our control; and the only circumstance that strikes us here is that any one should think that the farmer is not already perfectly aware of it. Mr. WATKINS, with his earnest recommendation of thin sowing, heavy rolling, spring hoeing, and PROCTOR & RYLAND'S manures, reminds us of Mr. SALTER'S letter to his brother farmers, in which he discusses the general belief, that theirs alone of all businesses and occupations is best understood by the mere outsider and spectator!

An immediate alleviation of our unhappy plight is at hand, we are assured, if the farmers will lay aside an old prejudice, and, instead of sowing 3 bushels, sow but half the quantity to the acre. For more than 30 years before HEWITT DAVIS wrote upon the subject, and long before MECHI practised, Mr. WATKINS has never sown more than 6 pecks upon light land, and 4 upon strong land in the autumn season; in spring 2 bushels or 2 and a peck; and never has he had less than 36 bushels to the acre, and generally from 40 to 48, and above, even to 56. Of course the land must be in good condition, and the seed put in by the middle of October if possible, to secure an early tillering and a level crop at harvest. He drills 12 inches apart on strong land and 10 on light. On Clover leys, and where, from other causes, there is fear of the slug, 2½ cwt. of salt to the acre should be sown before the ploughing and 2½ cwt. after. Light land should be firmly pressed by the roll or clod crusher, and if the season be too wet for the roll, trampled in by sheep. This preserves the root from the winter frosts and north-east winds, and very much helps to secure it from the slug. Repeated in March, it arrests the wire-worm. The saving of the seed Wheat will add millions and millions of bushels to the national supply; and in such an emergency as that to which he fears we are now exposed, it is the duty of every man to endeavour for the sustenance of his countrymen.

The farmers of Northamptonshire will not suspect him of evil counsels; and he refers all others to them to assure them of his good will towards them. In this confidence, he earnestly entreats them to hoe their Wheat, clean or foul, early in the spring, and a second hoeing will bring its return. "The nitre and ammonia in the atmosphere will thus reach the roots of their Wheat through the pulverised earth, and the plant will have freedom for breathing, for exercise, and sporting under the rays of the sun and the dews of heaven, like the young of the animal creation rejoicing in their strength. The stalk of their thin-sown Wheat will stand up firm under storm and rain, and the stout ear will have its four rows entire, and the full corn in the ear. If, owing to extraordinary frosts, or bleak winds, or the ravages of the slug, the plant should have a weak appearance in spring, three or four cwt. of Proctor and Ryland's manure will do wonders to restore it." He never knew it to fail. This is no puff—they don't need it. It is but just and grateful to bear this testimony, without meaning to disparage others not tried like this for 20 years.

The salvation of the country evidently depends on this advice being followed! The ludicrous aspect which it presents to us arises chiefly from the fact that the writer should not know that the points he insists on are already everywhere admitted. Thin seeding, as he defines it, is already general—everybody knows that 6 pecks of seed on well-prepared land are all that an autumn seed-time needs; and the only criticism on Mr. WATKINS' advice here that we would make is, that we hope everybody will determine upon the quantity he may sow with regard exclusively to the interests of next year's harvest, and uninfluenced by any idea of a present saving. Early seeding—pressure for light land—salt for slugs — spring hoeing and top-dressings in spring, are all in universal operation; and to many other manufacturers and importers, as well as PROCTOR and RYLAND, our Wheat produce is annually indebted.

—— A CORRESPONDENCE upon cattle plague regulations as conveyed in the recent Privy Council Order on the subject, between Mr. CORBANCE, one of the members for the county of Suffolk, and Lord ROBERT

MONTAGUE, has been published, in which it is urged on the one side—

(1). That the definition of the parts of ports at which foreign cattle may be landed is by no means precise, and thus no proper or effective provisions for the reception or slaughter of animals are likely to be carried out.

(2). That Thames Haven should remain open is a source of some anxiety and apprehension, owing to the constant recurrence of disease in the county of Essex.

Mr. CORRANCE adds:—"All which we can require is that by suitable regulations (made as the occasion demands) the foreign trade at improper places even within the ports themselves should be checked, and encouragement and security afforded to all places having for their object the safe attainment of certain ends now sufficiently defined. Competent authorities do not differ as to these or the means by which they may be accomplished without inconvenience or risk."

To this Lord R. MONTAGUE replies (1) "that by Art. 42 of the Consolidated Cattle Plague Order of August, 1867, foreign cattle cannot be landed elsewhere than at defined parts of ports, and by Article 44 of the same Order such cattle cannot be moved alive out of the limits of such defined parts of ports at which they are landed, and that foreign cattle cannot be landed at any port at which such part has not been defined.

"(2) That the part of the port of London for the landing of cattle (which it is the intention of the Privy Council to define) has not been yet defined. In this definition it is intended to exclude Thames Haven, as stated by me in the House of Commons.

"(3) That quarantine is required only for store stock. In the case of animals which are to be slaughtered it is not considered necessary to keep them alive for a time sufficient to ascertain that they have no latent disease, but it is absolutely necessary to do so in the case of foreign cattle, which, after quarantine, are to be treated as home stock.

"As no cattle can be moved out of the metropolis, the communication is entirely cut off between cattle within and without the metropolis."

Mr. ODAMS comments on the above correspondence by quoting a letter dated Sept. 12, and signed by "A. WILLIAMS, Privy Council Office, Veterinary Department," in which the writer is directed by their Lordships to state that the detention of foreign cattle for 12 hours will not in every instance be enforced; but in any case in which the inspecting veterinary surgeon will certify that there is no danger in the removal of any particular cargo of cattle from the landing place, any part of such cargo may be so moved within a less period than 12 hours, provided that the cattle which are so moved have been properly inspected.

—— The Shorthorn herd of Mr. STEPHENSON, of Fernstones, near Hexham, is announced for sale on Oct. 3 by Mr. WETHERALL. Twenty-four out of 30 of which the herd consists are descended from one cow, *Red Darlington*, which was purchased from the late Mr. BATES, by Mr. BURNETT, of Black Hedley, Northumberland; and she and her produce have been crossed by "2d CLEVELAND LAD," "2d EARL OF BEVERLEY," "LORD GEO. BENTINCK," "DISRAELI," (all bred by Mr. BATES); VOLTIGEUR, IVANHOE, FIELDMATE, SILVER MEDAL, and ROYAL BUTTERFLY 16th, all first class bulls, and from herds of notoriety. Full particulars of the descent and performances of these bulls are given in the catalogue of the sale which has been issued, from which the reader will gather that the herd well deserves the attention of Shorthorn breeders.

—— The annual sale of Mr. R. SMITH'S Exmoor Cobs, Galloways, and Ponies is again approaching, as will be seen by the advertisement. We are informed that the 42 to be offered by auction at Fielder's Repository, College Street, Bristol, on Wednesday next (Sept. 25), are equal to any that have hitherto been supplied from this well-known stud farm.

AGRICULTURAL STATISTICS, IRELAND, 1867.

THE collection of these statistics was carried out, as in former years, by nearly 4,000 enumerators, selected from the constabulary and metropolitan police; and they have furnished returns of the tillage and live stock on the several holdings in Ireland, which amount to about 600,000. The inquiries were conducted by the officers and men employed on this duty with their usual efficiency.

The abstracts are compiled from summaries made by the enumerators, and may differ slightly from the revised figures hereafter to be published; but I do not apprehend that any important change will be necessary.

	Acres.
The total acreage under all crops in 1867 was ..	5,458,945
The total acreage under all crops in 1866 was (revised numbers)	5,520,568

Showing a decrease in the extent under crops in 1867 of 61,623

The crops which diminished in area this year are—

	Decrease. Acres.	Acres.
Cereals—		
Wheat	37,282	
Oats	40,283	79,307
Bere and Rye	415	
Beans and Pease	1,327	
Green Crops—		
Potatos	48,808	
Mangel and Beet	1,357	
Cabbage	12,510	67,866
Carrots, Parsnips, and other Green Crops	1,267	
Vetches and Rape	3,924	
Flax	..	10,402
Total decrease on the foregoing crops ..		157,575

The crops which increased in acreage in 1867 are—

	Increase.—Acres.
Cereals—Barley	20,411
Green Crops—Turnips	18,513
Meadow and Clover	57,028
Total increase on the foregoing crops	95,952

Making a net decrease in the area under all crops of 61,623

Compared with 1866 the area under Wheat decreased by 37,282 acres, Oats by 40,283 acres, Bere and Rye by 415 acres, and Beans and Peas by 1327 acres. Barley increased by 20,411 acres. In green crops the area under Potatos diminished by 48,808 acres, and Cabbage by 12,510 acres. Turnips increased by 18,513 acres.

The following abstracts exhibit the acreage under each crop in 1866 and 1867, and the increase or decrease in the latter year:—

ABSTRACT OF CEREAL CROPS.

	1866.	1867.	Increase in 1867.	Decrease in 1867.
	Acres.	Acres.	Acres.	Acres.
Wheat	299,190	261,908	..	37,282
Oats	1,699,695	1,659.412	..	40,283
Barley	150,293	170,704	20,411	..
Bere and Rye ..	10,021	9,606	..	415
Beans and Pease..	14,834	13,507	..	1,327
Total	2,174,033	2,115,137	20,411	79,307

Decrease in Cereal Crops in 1867, 58,896 acres.

ABSTRACT OF GREEN CROPS.

	1866.	1867.	Increase in 1867.	Decrease in 1867.
	Acres.	Acres.	Acres.	Acres.
Potatos	1,050,353	1,001,545	..	48,808
Turnips	317,198	335,711	18,513	..
Mangel Wurzel and Beet Root ..	20,162	18,805	..	1,357
Cabbage	36,531	24,021	..	12,510
Carrots, Parsnips, and other Green Crops	26,738	25,471	..	1,267
Vetches and Rape	30,623	26,699	..	3,924
Total	1,481,605	1,432,252	18,513	67,866

Decrease in Green Crops in 1867, 49,353 acres.

GENERAL SUMMARY OF CEREAL AND GREEN CROPS, &c.

	Acres.	Acres.
Decrease in Cereal Crops in 1867	58,896	
Decrease in Green Crops in 1867	49,353	118,651
Decrease in Flax in 1867	10,402	
Increase in Meadow and Clover in 1867		57,028
Total Decrease in the extent of Land under Crops in 1867		61,623

From the foregoing statement it will be seen that there has been a decrease of 61,623 acres in the total area of Land under crops in 1867 compared with 1866; Grass has increased by 52,828 acres, fallow by 772 acres, bog and waste unoccupied, by 13,176 acres. Woods and plantations show a decrease of 5,153 acres.

THE EXTENT UNDER CROPS, GRASS, FALLOW, WOODS AND PLANTATIONS, AND BOG AND WASTE UNOCCUPIED, IN 1866 AND 1867, ARE GIVEN BY PROVINCES IN THE FOLLOWING TABLE:—

Provinces.		Extent under Crops.	Grass.	Fallow.	Woods and Plantations.	Bog and Waste Unoccupied.	Total.
		Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
Leinster	1866	1,598,987	2,473,607	12,023	104,909	648,150	4,837,676
	1867	1,579,416	2,494,414	11,807	101,928	650,111	
Munster	1866	1,315,760	3,279,941	4,932	111,487	1,222,667	5,934,787
	1867	1,301,248	3,278,388	7,088	110,320	1,237,743	
Ulster	1866	1,881,135	2,181,301	6,320	59,806	1,185,705	5,314,267
	1867	1,861,903	2,175,776	4,818	60,733	1,211,037	
Connaught	1866	724,686	2,069,395	2,144	53,259	1,383,710	4,233,194
	1867	716,378	2,108,494	2,478	51,327	1,354,517	
Total	1866	5,520,568	10,004,244	25,419	329,461	4,440,232	20,319,924*
	1867	5,458,945	10,057,072	26,191	324,308	4,453,408	

* Exclusive of the larger rivers, lakes, and tideways.

THE AREA UNDER THE SEVERAL CROPS IN EACH YEAR FROM 1863 TO 1867, INCLUSIVE, WAS AS UNDER:—

Crops.	1863.	1864.	1865.	1866.	1867.
	Acres.	Acres.	Acres.	Acres.	Acres.
Wheat	260,311	276,483	266,989	299,190	261,908
Oats	1,953,883	1,814,886	1,745,228	1,699,695	1,659,412
Barley	171,892	172,700	177,102	150,293	170,704
Bere and Rye	8,659	8,894	10,091	10,021	9,606
Beans and Pease	15,153	16,090	16,899	14,834	13,507
Potatos	1,023,414	1,039,724	1,066,260	1,050,353	1,001,545
Turnips	351,436	337,355	334,212	317,198	335,711
Mangel and Beet Root	16,434	14,128	14,478	20,162	18,805
Cabbage	34,125	31,821	33,622	36,531	24,021
Carrots, Parsnips, and other Green Crops	22,505	23,149	24,130	26,738	25,471
Vetches and Rape	29,938	29,829	29,466	30,623	26,699
Flax	214,099	301,693	251,433	263,507	253,105
Meadow and Clover	1,560,638	1,609,569	1,678,493	1,601,428	1,658,451

RETURNS OF LIVE STOCK.

The returns of live stock for 1867 compared with 1866 show a decrease in the number of horses of 13,451; of cattle, 43,779; and of pigs, 263,381; and an increase in the number of sheep of 551,733. This increase in sheep is spread over every county in Ireland.

THE FOLLOWING ARE THE NUMBERS OF LIVE STOCK FOR EACH YEAR FROM 1855 TO 1867, INCLUSIVE:—

Years.	Number of Horses.	Number of Cattle.	Number of Sheep.	Number of Pigs.
1855	556,287	3,564,400	3,602,342	1,177,605
1856	573,408	3,587,858	3,694,294	918,525
1857	599,782	3,620,954	3,452,252	1,255,186
1858	611,321	3,667,304	3,494,998	1,409,883
1859	620,075	3,815,598	3,592,804	1,265,751
1860	619,811	3,606,374	3,542,080	1,271,072
1861	614,232	3,471,688	3,556,050	1,102,042
1862	602,894	3,254,890	3,456,132	1,154,324
1863	579,978	3,144,231	3,308,204	1,067,458
1864	562,158	3,262,294	3,366,941	1,058,480
1865	548,339	3,497,548	3,694,356	1,305,953
1866	535,799	3,746,157	4,274,282	1,497,274
1867	522,348	3,702,378	4,826,015	1,233,893
Difference in Numbers between 1866 and 1867 ..	Decrease. 13,451	Decrease. 43,779	Increase. 551,733	Decrease. 263,381

The total estimated value of horses, cattle, sheep, and pigs this year, was £35,095,224, being a decrease of £114,491 compared with 1866.

ESTIMATED VALUE OF LIVE STOCK IN IRELAND IN EACH YEAR FROM 1855 TO 1867, CALCULATED ACCORDING TO THE RATES ASSUMED BY THE CENSUS COMMISSIONERS OF 1841, VIZ.:—For Horses, £8 each; Cattle, £6 10s.; Sheep, 22s.; and Pigs, 25s. each.

Years.	Horses.	Cattle.	Sheep.	Pigs.	Total Value.
	£	£	£	£	£
1855	4,450,296	23,168,600	3,962,576	1,472,006	33,053,478
1856	4,587,264	23,321,077	4,063,723	1,148,156	33,120,220
1857	4,798,256	23,536,201	3,797,477	1,568,982	33,700,916
1858	4,890,568	23,837,476	3,844,492	1,762,354	34,334,890
1859	5,032,600	24,801,387	3,952,084	1,582,188	35,368,259
1860	4,958,488	23,441,431	3,896,288	1,588,840	33,885,047
1861	4,913,856	22,565,972	3,911,655	1,377,552	32,769,035
1862	4,823,152	21,156,785	3,801,745	1,442,905	31,224,587
1863	4,639,824	20,437,501	3,639,024	1,334,322	30,050,671
1864	4,497,264	21,204,911	3,703,635	1,323,100	30,728,910
1865	4,386,712	22,734,062	4,063,792	1,632,441	32,817,007
1866	4,286,392	24,350,020	4,701,710	1,871,593	35,209,715
1867	4,178,784	24,065,457	5,308,617	1,542,366	35,095,224
Difference in Value between 1866 and 1867 ..	Decrease. £107,608	Decrease. £284,563	Increase. £606,907	Decrease. £329,227	Decrease. £114,491

I beg here to repeat the observation made by me when submitting to your Excellency the general abstracts of tillage and live stock for last year:—"There is great cause for thankfulness to a merciful Providence that Ireland has hitherto been almost entirely free from the distressing ravages of the cattle plague by which almost every county in England and Scotland has so deeply suffered."

I have again the pleasure to state that, with scarcely an exception, the particulars given in the returns

have been readily afforded to the enumerators by the various stockowners and occupiers of land, which I beg to say is highly creditable to their good feeling and intelligence; and I have now to repeat my respectful acknowledgments to the landed proprietors, tenant farmers, the clergy of all denominations, and to the public Press, for their continued valuable assistance with reference to the collection of these Statistics. *William Donnelly, Registrar-General, General Register Office, Dublin, September* 12, 1867.

The following is the detailed report of the live stock returns for all Ireland in 1866 and 1867 respectively:—

	1866.	1867.
Horses:—		
Agricultural	407,949	396,816
Traffic	27,703	26,966
Amusement	30,650	29,780
1 to 2 years old	36,278	34,797
Under 1 year	33,129	34,189
Total	535,799	522,348
Cattle:—		
Milch cows	1,482,616	1,519,720
2 to 3 years old	816,253	789,233
Yearlings	717,662	681,511
Calves	729,626	711,914
Total	3,746,157	3,702,378
Sheep:—		
Ewes	1,790,264	2,027,749
Tups and Wethers	886,450	1,055,847
Under 1 year	1,588,568	1,742,419
Total	4,274,282	4,826,015
Pigs:—		
1 year old and upwards	241,017	197,112
Under 1 year old	1,256,257	1,036,781
Total	1,497,274	1,233,893

THE "TIMES" AND THE CROPS.

THE *Times*, in a very cheery article, tells us that "the harvest of 1867 is decidedly a good one." We are very glad to hear it, and it is quite right for the *Times* to make the most of the glorious weather of the past month. Most cordially do we agree in thinking that "great reason for thankfulness is furnished by the general harvest of 1867." But we much fear that the pictures of heavy crops and great abundance so vividly painted by Messrs. Sanderson, Turner, and Mechi, in the columns of the leading journal, will not be altogether realised. It is perfectly idle for the cleverest land agent in the world, in taking a railway trip from London to Plymouth, to form any sort of estimate of the yield of grain on the South and West of England; and really that is the only way in which some of these favoured writers in the *Times* form any opinion of the growing crops. The glimpses by road or rail cannot be half so reliable as the opinions of practical farmers from all parts of the kingdom, which are collected with so much pains by the *Agricultural Gazette*. The summary of the whole of these returns was published a week or two ago, and is very much at variance with the glowing estimates of the *Times*. And we should remember that it is now-a-days the direct interest of the farmer (who of course wishes to keep up prices) to make the most of the growing crop, and to put the highest estimate upon the expected yield, for such reports might prevent merchants from speculating largely in foreign grain, and securing large shipments in anticipation of a rise in price. In the days of old, when the value of Wheat depended almost entirely upon the amount we grew in this kingdom, it was the interest of the farmer to take the most gloomy view of the yield of the crops, in order to force up the price at once; but now, we contend, it is quite the contrary. Other nations, which do not allow the opinions of any number of theoretical agriculturists or advertising land agents to magnify an acknowledged small but happily well-secured crop into a good harvest, are already a-head of English merchants, and have been supplying their wants in the cheapest markets in the world. Such leading articles really defraud the public by ultimately enhancing the price of grain. The very arguments of the *Times* writer, showing how this grand crop of corn has been grown, are worthy of note. Here they are:—

"Yet the circumstances under which this blessing has been realised are probably almost without parallel. We owe the result almost entirely to a fine August. Up to the beginning of last month the prospect was unpromising in the extreme. The intense and prolonged cold of the winter, followed by an inclement spring and a tempestuous summer, had reduced the crops to a most critical condition. We are assured, indeed, that if the weather of August had been as unfavourable as that of July, our supplies of food would have been almost destroyed. With August, however, came a brilliant sun, with fine drying winds, and a week or two of the change acted like magic on the aspect of the fields. Rust and mildew disappeared, the crops of grain were raised and ripened with extraordinary quickness, and a continuance of the brilliant weather allowed the produce to be housed almost as soon as it was cut. The result has been the sudden transformation of a gloomy prospect into a happy and most beneficial reality."

Nature is not quite so magical as is supposed. August, thank God, was a glorious month, and it did wonders for the corn crops of this kingdom; but it could not in a few days undo all the evil of the previous winter, spring, and summer, and although "rust and mildew are supposed to have disappeared," the effects we fear will be still felt when the farmer measures and weighs his corn. But there is one thing that naturally puzzles the *Times*, and that is that the markets won't believe in this good and great harvest. It says—"It is impossible, however, to overlook the fact that the actual price of corn has failed as yet to respond adequately to the rapid improvements in the prospects of the harvest—Wheat is very dear." Yes, and when the majority of its readers were busied in this flattering article, Mark Lane put up the price of Wheat 2*s.* or 3*s.* per quarter more, and we think the summary of the agricultural reports in the farming papers had some effect upon the market. The *Mark Lane Express* finishes up thus:—"Our accounts of the yield are now so universally admitted to be very deficient, that farmers will not push their corn to market so freely"—and hence the rise in price, which all over England has ranged from 2*s.* to 3*s.* and even 4*s.* per quarter.

The *Times* concludes its leader by a lecture upon farming generally. Here is a sample:—"The object of agriculture is to turn bad lands into good, and to compensate the deficiencies or remove the impediments of nature by judicious applications of science. Drainage and manures are the two specifics of farming. By these aids any land can be rendered fertile at a cost which it is easy to compute." We don't believe any quantity of manure would turn black sand into good soil, nor would the most scientific under-draining render some our London clays friable or fertile land. *A Young Norfolk Farmer.*

MR. MECHI.

I HAVE, long since, ceased to be angry about any comments on my practice as a farmer or agricultural improver. As a public man I expect that a very great variety of sentiments must have been awakened and feelings excited, and, in many cases, honest doubts have arisen about the propriety of my agricultural proceedings.

Standing on the rock of truth, and supported comfortably by success, I can well afford personally to despise even misrepresentation; but wishing well to agricultural progress, I cannot leave any infringement of truth, interfering with the good cause, unchastised. I observe that adverse critics, who dislike Tiptree proceedings, and do not desire that my farming should succeed, carefully avoid a personal inspection of the farm, and prefer to pick up and reproduce the second-hand gossip or floating grumblings of prejudiced and discontented practitioners. The stern logic of facts supplied by a personal investigation before or during harvest would be inconveniently and unpleasantly convincing, so they are prudently avoided under pretence of not being able to hire a conveyance. I must even venture to differ with my able agricultural friend, the Editor, and state that, in the practical working of this farm, in its details it may compete safely with the most economical elsewhere, both in cost, management, and result.

Before I proceed to consider and rebut the charges of "An Old Farmer and Agent," let me say, but not in self praise, that this farm has been visited weekly, nay, almost daily, by sensible and able practical agriculturists from all parts of the kingdom, and, indeed, of the civilised world, who have expressed favourable opinions of the crops and management. I need hardly say how ready I am to avail myself of any suggestion that would increase the profit of the farm. But I must decline the "Old Farmer's" advice of going back to the little hedge-surrounded fields and undrained shallow-ploughed lands of the original occupation. The land was full of water then, now the brooks have it; and instead of robbing the poor of their water I have deprived their lands of superfluous moisture and afforded them a brook of pure spring water of the finest quality, running for many miles before it reaches the sea, and thus "spoiling his best cases of fever," as the late medical man of this neighbourhood used jocularly to say to me.

The origin of this charge was, that when I drained the bog of the farm 12 feet deep (a difficult operation), I lowered the water level, and the public-house in the village could only obtain water by sinking their well deeper. My drains have discharged constantly for 25 years about 40,000 gallons of the purest water daily, and that water flows for miles, supplying many cottages which previously only got stagnated or impure water. The draining of the cottage gardens and neighbour's lands by drying this bog and another one has been a real benefit to their health and produce.

The general drainage of this neighbourhood, following my example, has greatly benefited the crops and the sanitary condition of the district, which is most healthy, though somewhat cold from its superior altitude. If an "Old Farmer" had any doubt about the ancient condition and fertility of Tiptree Heath, with its geese, donkeys, cross roads, and gipsy camps, it would be removed by the common saying in this country—"Tiptree Heath? God help you!" and "Cold, poor, Tiptree Heath, with its once well-known fair and races." Even now many farmers say, "Why, Mr. Mechi, I would not farm such land if you were to give it to me."

What strange mistakes and misrepresentations the "Old Farmer" makes when he amusingly states that the old-fashioned tumble-down dwelling-house (previous to my purchase of it in 1841) was called Tiptree Hall, signifying that the first owner of it was a person of some note in the country, and that the house was the chief one in the parish! Now, the old farm was called Sadler's or Bigmore's Farm, and like many other lath and plaster farm buildings, had its bedrooms in the roof, the ceiling high in the middle, and about 18 inches from the floor near the windows. When I pulled it down as un-repairable, and rebuilt the premises elsewhere, I re-christened it Tiptree Hall. After this the remaining strictures of "An Old Farmer" may pass for what they are worth. I never said that the farm had not been in cultivation previous to my purchase of it. The labourers on the farm tell me that only a small area of Wheat used to be grown; that in a wet season it produced as little as 1½ to 2 quarters per acre, and that the farm now produces in meat and corn three times its former produce. I remember walking over it in 1842, when it was in a wretched condition, water-logged and altogether like too many others of the present day.

Now as to the charge of misrepresenting produce, I thought that I had so distinctly (in my recently published balance sheets for 1864 and 1865) detailed every particular as to cropping, &c., that no one, except intentionally, could misunderstand or misrepresent it.

I have 56 acres of Wheat. I have already sold 190 quarters, and have still 4 stacks (100 quarters) to sell. I have plenty of Beans, Barley, Oats, and Peas, and quite 60 tons of good Clover, Grass, and Italian Rye-grass hay.

My stackyard is well filled, although I have sold 190 quarters of Wheat, not coarse, but good white and red Wheat, mostly the former (club-headed rough chaff). I have 44 short-horn bullocks fattening in paved and covered yards, 75 ewes, and 107 lambs of my own breeding. I have been shy of pigs for the last 12 months, owing to the high price of Barley, and consequently I have avoided those heavy losses sustained last winter and spring by pig breeders and feeders.

If farmers are to make poor stiff land pay, landowners must drain the land and put up proper buildings for stock. Farmers must invest a much larger acreable capital, and keep more live stock.

I have 15*l.* to 16*l.* per acre as tenant, and find that is not enough. Without 20*l.* per acre you cannot keep your corn over, and provide a sufficiency of live stock. 20*l.* tenant capital will pay a much better interest on one acre than on two, and this is one of the most important lessons that farmers have to learn. The great want of agriculture is more manure and maximum crops. These follow one another in logical sequence.

There is no way of obtaining manure so good and so cheap as by feeding cattle with good rich food. Excepting certain soils, dependence on guano and other artificial manures is a great mistake, although they are occasionally useful auxiliaries. A landowner said the other day:—"My tenants have been selling straw and buying guano—the consequence is a gradual exhaustion of their soil and diminution of their corps: I have not done so, and consequently my land maintains its fertility. They were too far away to bring back town manure." Here we have a practical illustration of the truth of Baron Liebig's prediction that a dependence on Peruvian guano alone would surely bring on exhaustion.

My experience teaches me that agriculturists (both landlords and tenants) must prepare themselves for a great change in the mode of administering food to cattle and farm horses. Already they have fallen into the improved method of root pulping, chaff-feeding, &c. Their Grass, Clover, and green crops must be treated in the same way if the most is to be made of them. Steam-power makes child's play of finely comminuting such crops, and as I look at the asphalted floor covered with finely cut green food, mixed with chaff, malt-combs, and bran, and consider how accessible such a mass must be to the gastric juices, and what advantages it possesses in various ways (no treading, lying down, or dunging on the food), I find a ready and satisfactory reply to those who ask innocently, "How can you find food, Mr. Mechi, for 44 bullocks on your small farm, besides your 182 sheep?"

The turning-out system for cattle, especially after September, must soon be given up. It won't pay like the other system of covered yards and paved floors. My bailiff has just reminded me that we employ eight to nine men in harvesting, where formerly only four were required—a pretty sure proof of the increase of produce.

Personally it does not signify a straw whether Mr. Mechi loses or gains by his farming, but, as it affects the general improvement of our agriculture, it rises into the utmost importance. *J. J. Mechi, Sept.* 16.

ON OVER SEEDING.

IT is now a long time since I troubled you with my articles on land cultivation and corn and root growing; but I believe my name was once familiar to most of the readers of the *Agricultural Gazette*, and I hope it has not entirely escaped from their minds at the present time; and if so, I will endeavour to bring it again to their recollections. The subjects upon which I before wrote were, as you will recollect, deep and thorough cultivation, supplying the land with proper vegetable *pabula*, and what is erroneously called thin-seeding or seeding much thinner, full one half thinner, or more, than farmers generally seed for all kinds of both cereal and pulse crops; not that I care about the quantities of seed as to its value, whether it be little or much, but chiefly because every year, and this year also, I have painfully witnessed thousands of acres of corn of all kinds ruined by practical and regularly bred farmers through absurd or over seeding alone, even where the land had been tolerably cultivated and in fair condition. I think therefore I can resume the subject now without an apology, since I have used my pen in favour of what I advocate, and have practised the system I now recommend for upwards of 50 years, and have never known it to fail of success. The first acre of Wheat I ever had a hand in was hand-dibbled, and in this way: the acre was accurately measured in the middle of a large field of nearly 30 acres, and marked out with stakes, and then dibbled in rows 12 inches apart, and the seeds carefully dropped in 9 inches apart from seed to seed in the rows; and the result was that considerably under a peck of seed was required for the acre. The remainder of the field was drilled with

exactly a bushel an acre, and was put in with what was then called Parson Cook's drill, which was then only coming into use. At harvest each crop was reaped and carefully kept by itself, and the results were, that when threshed and measured the single acre produced 45 bushels, and the others averaged 42; and the owner of that land, who farmed very extensively (full 1000 acres of arable with about 500 of permanent Grass), never used more than one bushel of Wheat an acre, and for other cereals nearly the same: but he really cultivated, and generally with two ploughs, one going before the other for a furrow, and the latter reaching at least 12 inches deep; and although land-draining was then not so common as it is now, yet even then, upwards of 50 years since, I saw much draining done on that land, 4 feet deep; and the last time I saw the drains they were working apparently as well as when first made. And I will here also observe, that 30 years back I made drains in the same way in my parish of Wix, some of which were 6 feet deep, and they now work nearly or quite as well as when first made. Nor was thin-seeding, at the time of the above experiments, confined to a single farm; I myself knew three other farms at the same time (from 1810 to 1820), upon each of which acres were seeded with a single peck each only, and with the best results.

But I will give you and your readers, Mr. Editor, a few examples of what were called thin-seeders many years back, and of the quantities of seed each of them used. Thus we have—

Mr. Tull, who used	3 pecks, and	farmed	from	1712 to 1735
Mr. Dean	3 ,,	,,	,,	1744 to 1764
Rev. W. Close,	2 and 3 ,,	,,	in	1782
Mr. Budd	3 ,,	,,	,,	1790
Mr. Beaman	3 ,,	,,	from	1816 to 1822
Mr. Box	3 ,,	,,	,,	1825 to 1832
Mr. Clark	3 ,,	,,	in	1857
Rev. S. Smith	2 ,,	,,	from	1846 to 1858
Mr. Jones	2 and 3 ,,	,,	,,	1850 to 1858
Rev. Sir G. Robinson	2 and 3 ,,	,,	,,	1819 to 1858

Mr. Hewett Davis was also a successful thin-seeder; Mr. Hardy the same, sometimes using as little Wheat as one peck an acre. But the most successful and perfect thin-seeder of the whole was the late Mr. Piper, of Colne Engain, Essex, who never exceeded one peck, and yet, after allowing liberally for all expenses—rent, taxes, rates, and labour—made annually according to his published balance sheets, from 5*l.* to 6*l.* an acre profit, and he was a man who, from my knowledge of him, could be implicitly relied upon, and, besides, I myself inspected most of his crops just as they were ripening before harvest, and ready to be cut.

Mr. Mechi also professes to have joined the ranks of the thin-seeders, and that he has done in this way an acre or so for several years; but as his farm is 170 acres, it may be feared that his not venturing to do more on this plan shows that he has not faith enough in it to follow the examples of his predecessors, the Rev. Sir Geo. Robinson, the Rev. S. Smith, the Rev. W. Close, and others, who, as long as they lived, seeded all their lands on the same system, and, as they showed, with complete success.

But I have been induced to resume my pen in defence of what is called thin-seeding—and I think erroneously—in consequence of your talented correspondent "A. S." having in last week's *Agricultural Gazette* apparently expressed his astonishment that "a single grain of Wheat cultivated in a garden, with every assistance that art can give it, has been known to produce a thousand grains." If "A. S." will take the pains to look back for a few years into the numbers of the *Agricultural Gazette* he will find that I several times published that I had growing, and by plough cultivation—though I prefer the spade or fork—plenty of roots from single grains of seed then containing 4000 grains, and that I anxiously invited inspection of them; and he will further find that I publicly offered to be blindfolded by any persons, and in that state be led into my field, and in their presence pull up root after root growing from single grains having 2000 or more grains growing from them; and my challenge was accepted, and I was so blindfolded, and by strangers, who came on purpose, and who led me into the field, just where they pleased, when I knelt down and pulled up root after root having so many grains to each. I must here observe that all the above Wheat was the Egyptian kind, the most prolific and nutritious of any that is known, and called Mummy Wheat, though no man, except one of the most ignorant of his race, believes that it was preserved in mummies, though it is the most ancient kind known, but has been handed down to our time by successive cultivation. As probably "A. S." and others will be sceptical of what I here state, I add that many persons purposely came and examined some of the above described crops, and that the last who did so was a gentleman who cultivated his own large tracts of land, and who brought his steward, farm bailiff, and servants, just as the corn was ripe and fit to be cut, and these found several roots having 4000 grains to them of the same kind of Wheat. But I hereby challenge, should my life be spared, that I will next year produce roots of common kinds of Wheat, and such as is usually grown, having from each rootful 2000 grains, and I now invite "A. S." to come, and next year inspect them, and the land shall be cultivated by the plough, and nothing done by us from the time the seed is put in until the crop is ripe for cutting at harvest, except horse and hand-hoing it during its early growth.

And another thing which rather surprised me was this. Some time since Mr. Mechi expressed his surprise that a gentleman in Scotland had produced 400 grains of Barley from one grain, whereas, on several occasions, I have counted nearly four times that number, or 1400 or 1500 grains, growing from roots from single grains, growing within seven miles of Tiptree Hall; and many such roots were hung up in a shop in Maldon, only six miles from Tiptree Hall, where I several times saw them, and counted upwards of 60 stalks, all growing from one crown, showing that they sprang from one seed.

Nor is this wonderful at all, as I myself have produced the same many times from roots in my field, as in the above cases, having 1400 or 1500 fold; nor is there any mystery or legerdemain in all this, as any farmer with tolerably good corn-producing land may accomplish the same if he knows anything of vegetable nature.

But here, Mr. Editor, I reluctantly stop, lest I press too much on the columns of your valuable Journal; but another week, if you will permit me, I will explain the *modus operandi* by which I myself have accomplished what I have above stated: and I will show further how in 17 years I had a year of fallow the first, then 14 crops of Wheat from various quantities of seed—from half a peck to 2 pecks, which I never exceeded, and that the average yields of these crops was 44 bushels. I had then a crop of Barley on the same system, equally as good; and then followed as fine a crop of Clover as ever was grown. My landlord then sold my little farm, it having been rented by me, and for 120*l.* or more an acre, although copyhold, though no land in my parish had before or since sold for more than half that sum—so high had the reputation of the land become from the splendid crops I had successively grown upon it.

I add, also, that my seed was put into the ground by the drill I invented and made, dropping it seed by seed, and before as many witnesses as I could obtain, that it was threshed by machinery, and, of course, in the presence of witnesses, and always measured at the same time; hence there could by no possibility be any wilful or accidental mistake. and, besides, I myself superintended the whole. *Geo. Wilkins, Wix Parsonage, Sept.* 13.

STEAM CULTIVATION.

[The following paper on the advantages to be derived from Steam Cultivation, its present position, and its future development, was read last week before the meeting of the British Association, at Dundee, by Mr. David Greig, of the firm of Fowler & Co.]

IT is not my intention in this paper to treat of the mechanical part of the above subject; for although the greatly varying nature of the soils and circumstances to be dealt with all over the country render it necessary to have many different adaptations of the apparatus employed, still the machinery has now been so nearly brought to perfection that the farmer has no longer any difficulty in obtaining apparatus suited to his own particular requirements. The means employed to bring about such results as those to which the writer will advert can scarcely be considered of that importance which the subject assumed during the earlier stages in the development of steam cultivation. The points the writer proposes to deal with are—the advantages to be derived by the farmer from the use of steam, in the shape of better crops; tillage operations more economically effected; the lessening of the number of operations required; and, most important of all, work done at precisely the right time, and when it can be done to the greatest advantage. I shall also advert to the present state of steam cultivation, and its prospects for the future.

SUPERIORITY OF STEAM TILLAGE.

It is asserted by all who have tried spade husbandry that the crops obtained under that system are much better than those which can be got from horse-cultivated land; indeed, this is so far the case, that although to cultivate land by the spade a foot deep costs about 4*l.* per acre, it would pay the farmer better to employ the spade than the horse, providing the necessary amount of manual labour could be procured at the proper time. The state of the labour market in England, however, renders such a system of cultivation impracticable; but the superiority of the spade to the plough nevertheless remains an indisputable fact. The chief feature of advantage in spade husbandry is the thorough loosening and mixing of the soil, and as this is much better accomplished by steam, it logically follows that crops upon steam-tilled land will be far superior to those grown under horse culture; and this is borne out by actual experience, the exchange of horse for steam power being generally followed by a marked improvement in the crops and much greater yield per acre, varying, of course, with the nature of the soil, but amounting in some cases to 2 quarters more corn per acre. Ample proof of the accuracy of this statement may be found in the recently published "Reports of the Royal Agricultural Society's Commission on Steam Cultivation," a work with which I presume most gentlemen are well acquainted. The reason for this increased productiveness can be easily understood. A team of four horses ploughing a 12-inch furrow will leave more than 300,000 footprints per acre; and as these nearly cover the ground, the effect, as every farmer well knows, is to leave a hard subsoil, or "pan," beneath the cultivated ground, which becomes worse with every successive ploughing at the same depth. The tractive power that horses are able to exercise upon a plough or other implement is very limited, and is further decreased in consequence of having to convey their own weight over the broken and uneven soil, and also to partly undo the compression caused by the treading of their feet.

"If a horse be taken when the land is in a rather plastic state, and walked across the track of the steam plough, and made to travel to and fro transversely on every 10 inches width until a breadth of six yards is trodden over, it is then found that if the steam cultivator has just sufficient steam to perform its work properly before it arrives at the ground so trodden down it will be completely stopped before it gets through the six yards; and, considering the momentum of the fly-wheel, this experiment shows plainly that the power required is something very material; and experience shows one-third additional draught to be required on land that has been trodden down to the same extent as in cultivation by horse-power."

With steam the case is different. The engine stands on the headland and hauls the implement to and fro by means of a wire-rope; all treading and compression of the soil and subsoil is thereby entirely avoided, and the implement is driven at a much more rapid pace, throwing up the soil to a greater depth and in a loose state, enabling it to derive full benefit from the influences of the atmosphere.

It is found in practice that the rapid motion of the steam-driven implement tends to loosen and aëreate the soil much below the actual depth at which the tine or share is running. In horse or ox ploughing the case is just the reverse, as the sole of the plough and the treading of the animals so consolidate the bottom that the necessary chemical action between soil and subsoil is prevented, and, consequently, all escape of gas and water. The result of the deep tearing up and loosening of the soil at the proper time by steam is that its temperature is raised and a much greater quantity of ground is permeated by air. The air is replaced in the same proportion by water when rain comes, and this moisture is retained in the cultivated ground as though in a sponge, any superfluous quantity sinking away to the drains beneath, instead of the whole lying for some time on a hard trampled subsoil as though held in a dish, making the land cold and ungenial.

I am now more particularly referring to heavy land, but a similar result is observable in the case of light land. Light lands are never much damaged by wet, the principal danger is from "burning" in dry weather, but the deep cultivation and loosening of the soil (instead of having it lying on what might be termed a "board") causes even light land to retain its moisture in a dry season for a considerable time. The mere question of aërating the soil deserves much more attention than is generally given to it.

Mr. Bailey Denton lately wrote an able letter to the *Times*, which forcibly illustrates the importance of this question. He says:—"Within a few miles of the metropolis, in North Park Farm, Blackheath, Mr. Shepherd has raised a breadth of Wheat which any earnest agriculturist will be pleased to see. It is growing on land not naturally fertile, which Mr. Shepherd under-drained at his own cost, and has since cultivated with Fowler's steam plough. The yield has been estimated by good judges at an average of 45 bushels per acre. At 8*s.* per bushel this will bring 18*l.* per acre, irrespective of the straw, which may be considered as equivalent to the harvest expenses. Adjoining North Park Farm is some very good Wheat growing on similar land equally well drained and treated, except in the one particular of steam cultivation. It has been horse-ploughed. This yield may be fairly put at 30 bushels, which at the same price per bushel will bring 12*l.* per acre. Within sight of these two instances may be seen some Wheat also growing on land similar in character to Mr. Shepherd's, which has neither been drained nor steam-cultivated, the yield of which cannot be estimated at more than 20 bushels to the acre. The return in money at the same price per bushel will be 8*l.* per acre. Hence we have within a short drive of London three cases for comparison, which cannot fail to show that by the adoption of deep steam cultivation on deep drainage the produce of our stiff soils may be doubled." But steam cultivation improves the crops in another way. If the soil has been thoroughly and deeply loosened at the right period, and has not been consolidated except by its own weight, the roots of the plants have ample liberty to penetrate until they are stopped by natural causes. In dry seasons the roots are thus enabled to follow the moisture in the ground very much further than would otherwise be possible, and as no burning can take place until the deepest root has entirely exhausted the moisture around it, the crop is made capable of resisting the effects of drought for a very long time. The writer believes that the success or otherwise of a crop depends upon the number of cubic feet of soil that the roots are able to penetrate, and the writer has found that a grain crop will stand up much better, and is not so easily laid on a deeply cultivated soil as on one that is shallow. From what has been said on this part of the subject it will, the writer thinks, be readily conceded that a great improvement in the crops is one of the results that must inevitably follow the use of steam on the land.

COST OF TILLAGE, &c.

At the present time the cost of performing tillage operations by steam is very far from being so low as it should be, or what it eventually will be. In many cases, and especially with machinery working for hire the very heaviest portion of the work is given to steam, and generally that which cannot well be done by horses. Now, before we can obtain the maximum of cheapness we must cause steam power to perform all the operations connected with the tillage of the ground. For if after steam ploughing a field horses are taken upon it, perhaps two or three times for the purpose of harrowing or doing other similar work, the ground is of course trodden down and consolidated again. The consequence is that the next year it requires much more power to break it up than would otherwise be the case, and not only does it require this extra force, but clod-crushers and other implements have to be applied to it, which would not be required if the treading were avoided. The generality of land, if put under steam cultivation and kept entirely free from the trampling of animals, would only require one very deep cultivation operation every fourth or fifth year, and would be kept in such a state as to allow air and moisture and

the roots of the crops to penetrate freely, so that the cultivation for the grain crops in the rotation would only require to be light or surface operations sufficient to receive and cover the seed. The cost of steam cultivation has hitherto been greatly increased by the excessive breakages that have occurred to the machinery. These have arisen from two causes, namely, the want of men properly educated to the work, and the deficient construction of the machinery at first employed. The varying circumstances under which the apparatus had to work involved much more experimenting to bring it to perfection that would have been the case with any fixed machinery. These difficulties are now, however, altogether overcome, and with ordinary good management any mishaps of the kind named may be wholly avoided.

With regard to the cost of steam as compared with horses, the writer finds from careful observation that, including interest on money, depreciation, and repairs, the average yearly cost of maintaining a set of steam cultivating machinery, doing 2000 acres per year (say 10 inches to 12 inches deep), is under 300*l.*, or 3*s.* per acre. This allows money enough for its replacement in 10 years. A good machine of this kind should displace over 30 horses, and of course many horse implements. Now the wear and tear of the harness, implements, and the amount of farriers' and other bills in connection with these 30 horses, with interest and depreciation, will be at least twice as great as the corresponding items chargeable upon the steam tackle. The average price of coals per horse-power per day—that is, the cost of the quantity of coals we should have to burn in an engine to get out of it work equal to what one horse could do in a day—is 7*d.* It is quite evident that the daily keep of a horse must cost much more than this. Less than half the number of men also are required to do the same acreage of work, although their wages have to be somewhat higher than those of the ordinary farm labourer. Or, to put the case more concisely: a pair of horses in an ordinary plough cannot pull with a force of more than 3 cwt. or 4 cwt. at the most, and a day of this work cannot cost less than 10*s.*; on the other hand, a steam ploughing engine will give of during the whole day eight or nine times that draught, at a cost of certainly not more than 3*l.* These calculations are per day only; but as the horses have to be kept and fed when they are idle as well as when they are working—which is not the case with the steam engine—the comparison is manifestly unfair to the latter. The whole of the comparison should be based on a yearly average; but it is rather difficult to come to a conclusion how many acres a pair of horses can cultivate in a year, even supposing them to be exclusively occupied in such work. But money is saved in another way. After a thorough deep ploughing or cultivating by means of steam, it is evident that only half the number of after operations will be required to bring the ground to a tilth. In heavy land Twitch will be found to disappear altogether, as there will be no treading and plaiting of it by the horses' feet, which has so much effect in undoing the very operation while being performed, and, consequently, necessitating many successive operations in thoroughly clearing the land. A steam-driven implement always tends to bring the weeds and rubbish to the top, never buries them. Heavy land is not naturally inclined to grow Twitch; and if so, much treading and trampling should be prevented. It is the writer's firm opinion that no such thing would grow on it, except through gross mismanagement on very light crops. The want of suitable implements has been a drawback to the cheap use of steam in tillage, as farmers have not been able to effect more than a portion of their work by its means.

Although it is no doubt an advantage to be able to do the farm operations more cheaply than by horse power, the writer looks upon this as of minor importance, compared with the results referred to in the first part of this paper, and with the increased certainty that will attend the carrying out of the farming business, about which he will say more presently. The cultivation of the soil is a business that requires a great amount of care and attention. A very false idea of a farmer's business is conveyed when it is said that anyone is fit for farming; on the contrary, the writer does not know of any business which requires such minute attention and such keen observation; and this arises mainly from the extraordinary variations in the climate, weather, and soil, and the great effect these variations have upon the crops. Those persons who most carefully observe the state of their land, and never work it except at proper times, will derive the greatest advantage from it. On a farm under horse cultivation, however, this is a very difficult task, as the small amount of profit yielded by farming will not allow the number of horses to be kept that would be necessary to deal with all the land at the right period and in the most economical manner. This inability to perform the work when the land is in its best condition involves its deterioration until it can scarcely be considered to be in a growing condition, and not unfrequently involves the total or partial loss of a crop. When we reflect that there are only two or three months in the year during which tillage work can be profitably performed, the fact that the horses are sometimes kept going constantly, in order not to fall behindhand with the work, shows that the soil must often be operated upon when it is in a very improper condition. But the person who farms by steam has a powerful and ample force at his disposal, so that he can afford to wait until his land is in a fit state for working; and this force is also an untiring one, which he can work night and day with relays of men if necessary. You may often hear farmers complain that they are behindhand with the work, and they will point out to you a field, or perhaps two fields, in which the crop had been nearly lost simply because it was put in two or three days later than the remainder, or when the land is in a state unfit for its reception. This occurs because the farmer is usually obliged to keep his working force of horses down to the narrowest possible limit, and the consequence is that in some unfavourable seasons he requires twice the power at his disposal to do his work in time. But, as the writer shows, these irritating and expensive difficulties are almost unknown to the man who farms by steam.

PREPARATIONS FOR STEAM CULTIVATION.

Hitherto farming has very rarely been highly successful as a commercial undertaking, and when taken up by commercial men it does not often pay. The reason is that to effect the different operations required in the best possible way entails an expenditure all the year round which cannot be borne by the profits of farming. As the use of steam developes itself, however, farming will become a business in which a man may see his way with some degree of confidence, and be able to calculate beforehand the cost of each operation, and whether he will gain or lose by it. The season and the weather will have only half the control over the crops and tillage operations that they have at present. But, before these results can be effected it is necessary that the very cheapest system of cultivation—cheapest, I mean, as regards the cost per acre—should be adopted, that the tillage should be done at a given time, and at a cost not greater than that of the actual day's work. For instance, if under the present system a farmer were to take each field consecutively, and just calculate beforehand the cost of the different operations required for cultivating it under ordinary circumstances, he would probably find that such an estimate would have to be doubled before it would cover his actual expenditure; and this in consequence of wet days and other contingencies compelling him to keep his teams and men idle. Such a state of things in an ordinary mercantile business would be ruinous; and this is the great drawback in all calculations connected with farming—wet days have to be paid for exactly the same as dry ones, and often expenses are running on when real harm is being done to the land. Before, also, we can attain the cheapest system of cultivation we must have the farms remodelled, in order to admit of engines and machinery being worked in the most profitable way; and, as the writer has before pointed out, we must have steam implements that will perform every operation required, so as to keep horses off the land altogether, and thus lessen the power required to to till the ground.

It is important that the fields should be made of a size to suit exactly the routine of work that the farmer wishes to carry out, and arranged so that all the crops of one kind are together, thus avoiding unnecessary delays and removals. The removal of a number of implements from one field to another entails a loss of time which should be reduced to a minimum by making the fields as large as possible, consistent with the rotation of crops the farmer intends to follow. Some may argue that as their farms consist of different kinds of land, they require a particular crop upon each kind; but the writer believes that when steam is used the advantage of having the whole of a crop in one place more than counterbalances any drawbacks of this nature—except, of course, in very exceptional cases; and besides, the fact that steam can work one kind of land just as easily as another will often remove these objections altogether. As an example of the advantages of enlarging fields and pulling down old fences, the writer would refer to the case of a gentleman in Essex—Mr. Prout, of Sawbridgeworth—who, on a holding of 440 acres, by pulling down fences and dividing his farm into seven or eight large fields, has gained no less than 16 acres of arable land—land which was formerly occupied by old straggling fences, trees, and water-courses; and this has been done at a cost which is trifling in comparison with the benefits obtained from the improvements.

The question of roads on a farm has an important bearing on the subject. There is an objection generally made that they take up too much ground, but this is altogether unfounded. The head-lands, which are generally trodden down and compressed by horses and carts, require at least twice the cultivation of the other parts of the field, and yield worse crops. There can, consequently, be no profit in their tillage, and the width of a road dividing two fields is of course much less than that of two headlands and the hedge. But however that may be, by having properly-constructed roads on a farm the cost of taking off the produce is very considerably lessened—say by a halfpenny per ton on the whole. This would much more than cover the rent of the ground occupied, and prevents any treading on land to be cultivated. When these and such kindred improvements are carried out, farming will become a business which any thoughtful and intelligent man may manage with profit, and will be free from most of the vicissitudes which now cause the investment of capital in farming to be looked upon as of so precarious a character.

Besides the advantages to the agriculturist the nation at large will derive great benefit from the increased yield of crops, and also from the fact that the materials to "feed" the power used in tillage will be drawn from the coal-mine or the forest, instead of being taken from the produce of the fields. We shall not be obliged to import so much corn as hitherto, and a larger percentage of the crops will be converted into food for human beings instead of food for horses.

In these days of dear labour a very important point is the reduction in the amount of manual labour required to till the soil, together with the enlightenment of the agricultural labourer, tending to make him use his mind as well as his body. So far as the country is concerned, the state of the labour market is becoming a question which every farmer will have to study, for while the labourer justly participates in the progress of the condition of the people of this country, the rise in labour must materially lessen the farmer's profits. Indeed, if wages go on increasing in the same ratio as they have recently done, it will be impossible to farm with a profit at all except by employing such machinery as shall considerably diminish the number of men required.

Home Correspondence.

Harvest and other Experiences.—I fear the suggestions of your correspondent "C.," in his letter on "Harvest Experiences," will be looked upon in England as a suggested retrograde movement, or, as I once heard an Irishmen describe the abandonment of corn-stack making in the fields, "a disprovement," or, as a waggish Irish pedagogue more eloquently defined it, "a retrogressive progression," which the very same abandonment has actually proved to be in many parts of this country of late years; as has also the sowing of corn on flat beds of wide dimensions on undrained land, in preference to what has been libellously called the "lazy-bed" system, that is, narrow ridge and deep furrow culture—the best ever devised for cropping with all kinds of crops on heavy or wet undrained land. These things are now well known in Ireland, ay, and keenly felt by those who have decried and caused others to abandon those old and successfully practised systems of cropping lands and harvesting their crops; unmindful, if not regardless, of the vicissitudes which could not well be foreseen by strangers to an uncertain climate; thus treating poor Paddy's successful practices as remnants or the residue of that barbarism with which his ancestors had been unjustly charged by those who denied the right of education according to what is now becoming universally admitted to be common sense. I think I saw in your pages some time ago some stringent arguments given to prove the folly of abandoning the ridge and furrow culture of crops on undrained heavy lands, to which I could willingly and confidently subscribe, and in proof give you many more examples than those given by your Irish correspondent at the time. From long and well-tried experience I could also, under very varied circumstances, give you many examples, both past and present, to justify "C." in his suggestions on the harvesting of corn, more especially in wet climates, when grown on heavy lands; and were it not that it would appear like a daring heresy to do so, I could cite you many other examples to prove that much of our costly got up agricultural machinery, now employed in the sowing, reaping, and threshing of our corn in Ireland, are evils which should not be tolerated in this country, at least under any other circumstances than the cheapening of labour, which at first sight is a direct gain, but which ultimately is an indirect loss of great magnitude, both to the individuals who require such cheap accommodation, and a loss far heavier still—to every individual of the community at large, nay, to the national strength of the empire.

> "Ill fares the land to hastening ills a prey,
> Where wealth accumulates, and men decay."

Thus sang poor Goldsmith many years ago, and of all the bulls ever made by his bull-making countrymen, the greatest appears in the stanza I have just transcribed; for surely no political economist worthy of being listened to will assert at this period of the 19th century that there can be an accumulation of wealth where there is such a thing as decadence of men, the producers of the true wealth of nations—the food of man. Some of our would-be great philosophers fancy, and would seek to make others believe, that because they cannot make tillage farming pay in Ireland, such farming in Ireland should be abandoned, and the whole country abandoned to the production of Grass; as if forgetful or in total ignorance of the fact regarding much of this land so abandoned, which whilst in tillage gave excellent corn crops, forage plants of Clovers and what is called artificially forced Grasses, and green feeding generally for cattle, sheep, and pigs—that when now abandoned to, and even well laid down with, good Grasses, annual, biennial, and perennial, all the Grasses and Clovers have disappeared, and the whins, so "racy of the soil," are growing more than ever luxuriously on the same land, as a consequence of the improvement it has undergone for the production of corn, Turnips, Mangels, Italian Rye and other Grasses, Clovers, &c., which in fair courses of tillage it gave in abundance, and of the best quality in each case respectively. Well, what is the reply given by those "dogs in the manger" who are complaining of the deterioration of those lands for Grass producing purposes, when you ask them, "Why not till this land which Nature points out to you should be tilled?" "Oh! the cost of labour is too great; it would not pay to employ men at the rates of wages now demanded for harvest and spring work, by men who are idle at all the other periods of the year." You ask them then "Why not get improved machinery for effecting those purposes cheaply?" The reply will be, "Oh! I have seen my Lord this, or Sir that, or Mr. Somebody else's English, Scotch, or Irish stewards get such machinery, and when once tried thrown by to rust, thin corn sown with the seed drill coming up and ripening unevenly, and thin crops when harvested lying in the fields in unhooded stooks, waiting for a dry day to draw it in and get it threshed by a portable machine—much of it wasted by the reaping machine, and more still by the stooks being blown down by storms, caught so by the rains, and as much more wasted in the haggard during the threshing, &c., as would in the olden time pay for the entire cost of culture and harvesting." Then, if you ask them "Why not adopt a system modified so as to embrace all the good in the old and new practices, by a mixed work or proper division of labour?" the answer is, "They won't work for me as I could wish, and I must give it up." Now, sir, the fact is, such men do not know how to arrange their work or direct their

labourers, and hence the work must either stand still or be badly done. Nor is the case much benefited by the practices of our new neighbours, who abandon, or rather who will not adopt, the old and successful system of harvesting suggested by your correspondent "C.," because it is so purely Irish, without even taking the trouble of investigating the matter, and judging if it is not the best under particular circumstances to insure their success. I know well how difficult a thing it is to remove prejudices, and how much harder it is to get adults to embrace objectionable habits, than it is to get juveniles to learn new ones based on principles of common sense, which is the true science that leads to success. *Fingal, Sept.* 12.

Mangel Cake (see p. 909).—The subject noticed in your leader a few weeks back, viz., the Mangel cake of Mr. Hugh Smith, is already attracting a considerable degree of attention, and the question "How will it pay?" is being asked on more sides than one. Now, the answer to this, I think, can only be arrived at by considering, first of all (1) How much does it cost to raise one acre of Mangels? (2) How many tons can be grown per acre? (3) What is the money value of a ton of Mangel off the land? Practical farmers of long experience and of various soils and localities can alone give the right answers to these questions, and as I lay claim to the possession of none of these qualifications, my answers must be taken simply for what they are worth, but as a reader and inquirer I hazard for answer to the first, 10*l.* per acre, exclusive of rent and rates; to the second, 32 tons; to the third, 10*s.* per ton;—in some localities, for example near large towns, and in late spring, as much as 1*l.* and even 25*s.* has been given; and here, of course, it would not be worth while to convert the raw material: and in like manner, as soil and climate vary, so will the answers to the two former questions differ, for example, in a deep rich staple it will not take even 5*l.* to grow the crop. Therefore, taking my answers as about the true ones, and presuming that the Mangel cake is as valuable for a feeding stuff as analysis and the careful experiment now being carried on upon the living animal by Mr. Henry Knight, of Much Hadham, proves it to be, we have 4 tons of cake the produce of one acre, and putting the value of it, say at the least 10*l.* per ton, we have the money value of an acre of Mangel 40*l.*: but from this we must deduct 10*l.* the cost of producing, 8*l.* the cost of manufacturing, leaving for profit 22*l.* I have not put to the "per contra" side the interest of money for erection of kiln, or for the conversion of some old building into one, for 4 tons of cake, nor for the inferiority of Mangel cake as a manure to that of Linseed—presuming that it is inferior, nor the cost of harvesting, nor, lastly, the rent and rates for the credit side of the account. As against these we may fairly put the land clean and fit for a crop of Wheat or other cereal. The damping and consequent loss by fermentation, frost, &c., is all avoided by this mode of converting the Mangel crop into cake: no mean consideration. Having no pecuniary interest whatever in the success or otherwise of this experiment, I only write in the interest of truth, and in the hope of eliciting opinion in reference to it. The results of the last weighing of the respective lots of five sheep (Sept. 14), give for the four months' feeding a total gain, for oil-cake, 192 lb.; Mangel cake, 218 lb. I enclose my card. *X. Y. Z.*

Prepared Mangel v. *Oilcake.*—Those of your readers who took an interest in my communication on this subject, published in your number of the 31st ult., will, I think, be glad to hear the result of another four weeks' feeding. The sheep have been on the same pasture, and have been fed in the same manner, each receiving an equal weight of oilcake and prepared Mangel. The result of the month's weighing has been unsatisfactory with both lots—which my friend Mr. Knight accounts for from the fly, which has been very tormenting the past month—the oilcake lot having only increased 25 lb., the Mangel lot 34 lb. Bad as the result is, it shows a decided continued superiority of the prepared Mangel over oilcake. I shall continue the trial for another month, when, with your permission, I will publish an analysis of the feeding of each sheep month by month. I confess the result thus far has convinced me that 1 ton of prepared Mangel cake is decidedly superior to the same amount of oilcake. *Hugh Smith, Much Hadham, Herts, Sept.* 14.

The Labour Question and the Farmer's Duties.—This is becoming a very important subject for the most attentive consideration of farmers. Already we have symptoms of disaffection, and occasional instances of actual strikes. We must be prepared for such a course being adopted by agricultural labourers unless something be done to improve their condition as a body. No doubt in many districts they are fairly and liberally paid for their labour; but it is undoubtedly true that in other districts they are ground down to the lowest point of remuneration or rate of payment upon which it is possible for them to exist. It is no longer to be expected that in our glorious country, our happy "Old England," that farm labourers will be content to live upon Oatmeal porridge or Onion skilly, and the like insipid stuff. No. They have long been fed upon stronger and more substantial food, and the determination of the class is to live better still—to be better fed and better clothed. Now in this lies the difficulty. Will the farmer's returns enable him to meet a much higher expenditure for labour? Can the labourer subsist comfortably upon an equitable amount being paid for his labour? This is the question to be discussed, arranged, and settled. Take the farmer. There are innumerable ways for the beneficial employment of labour, which farmers as a body do not adopt. "'Tis the labour that eats you up," says one. "My land shall only have two crops and a dead or bare fallow," says another, "so that I may save labour." The economising labour is a main object with a large class of farmers. This is all right enough if done judiciously after such a bestowment of it as to make the land produce its very utmost. But who does this? Who does not curtail labour in this, that, and a thousand other instances where a doubtful result is apparent? Farmers do not in the main manage so as to make labour profitable. They have done much of late years to effect this double advantage—to employ labour and get well paid for it; but it is not half done yet. Every farmer should look upon it as a duty imposed upon his station of life to employ all the labour of his poor labouring neighbours that he possibly can. Their labour is their only capital; he is in a position to employ it. His duty is to consider and devise every means whereby he can advantageously give employment, not how to do without it, how to save labour. What a vast amount of misery and poverty might thus be prevented by such timely consideration. Now take the labourer. Is he doing the best he can to improve his condition? Is he not chargeable with many inconsistencies? It is but little he has to expend, but does he do that economically? "He likes to see his family comfortable;" *i. e.*, the lads to appear as young gentlemen, the lasses as young ladies—yes, in silk, with veils, parasols, &c. It is one of the glories of our country, that so little poverty is publicly seen. Thousands of the poor would submit to any privation rather than appear poorly clad. Then there is the improvident husband, or still more improvident wife, or idle and unruly children. No system of equitable payment in wages can make provision for these cases. There is much to be done and borne on both sides. Farmers must lay themselves out to provide profitable labour at just rates. Labourers must well consider what is an equitable payment for their labour, be content with it, and look more closely to its expenditure. Could these mutual attempts to help and benefit each other be fully carried out, we should not have much complaint. *O. F.*

The Dates of the Beginnings and Endings of Harvest on a farm on the Chalk Hills of West Sussex, about 250 to 300 feet above the sea level:—

	Began.	Ended.
1813	August 5	September 17
1814	August 19	September 19
1815	August 2	September 6
1816	September 6	October 18
1817	August 23	October 2
1818	July 28	August
1819	August 4	September 1
1820	August 10	September 8
1821	August 21	October 5
1822	July 22	August 17
1823	August 28	September 19
1824	August 16	September 22
1825	July 22	August 25
1826	July 26	August 23
1827	August 6	September 3
1828	July 29	September 6
1829	August 12	October 1
1830	August 9	September 11
1831	August 1	August 29
1832	August 2	September 14
1833	August 1	August 29
1834	July 25	August 21
1835	July 27	August 21
1836	August 8	eptember 13
1837	August 12	September 8
1838	August 14	September 5
1839	August 10	September 27
1840	August 7	September 1
1841	August 12	September 13
1842	July 29	August 31
1843	August 11	September 7
1844	July 25	August 23
1845	August 14	September 8
1846	July 17	August 17
1847	August 4	August 27
1848	July 31	September 13
1849	August 3	August 28
1850	August 6	September 2
1851	August 7	September 2
1852	August 2	August 27
1853	August 10	September 10
1854	August 7	September 1
1855	August 16	September 8
1856	August 7	September 5
1857	July 28	August 20
1858	July 23	August 21
1859	July 19	August 13
1860	August 21	October 5
1861	August 2	August 28
1862	August 11	September 16
1863	August 3	August 24
1864	July 25	August 19
1865	July 31	August 30
1866	July 30	August 27
1867	August 1	August 31

Harvest began in July	.. .. ..	17 times.
" " August	.. ..	37 "
" " September	.. ..	1 "
		55 "
" ended in August	.. ..	23 "
" " September	.. ..	27 "
" " October	.. ..	5 "
		55

Societies.

HUGHENDEN, BUCKS: *Harvest Home, Sept.* 19.—The Right Hon. B. DISRAELI, M.P., thus addressed his neighbours on the occasion of the local Harvest Home at which he presided:—"Nothing gratifies me more than presiding at the 'harvest home' at Hughenden. I am on the present occasion more gratified, because I think I can congratulate all around me upon the results of this harvest. There is at present, as there always is at this period, very great controversy going on as to the character and results of the general harvest, not merely of England, not merely of Europe, not merely of America, but of the world; and we hear contrary accounts and conflicting calculations upon that all-important subject. On the present occasion I am satisfied with the limited horizon in which we live, and I think I can say this without exaggeration, that when we met in church this morning to return thanks to the Giver of all Goodness, we might sincerely return thanks for a most satisfactory and plenteous harvest in the parish of Hughenden. Whatever may be the accounts which may reach us from other quarters, whatever may be the conclusions arrived at and the criticisms passed by others, I think there is no doubt that in the parish of Hughenden we ought to be content with the ingathering which we have just accomplished. With regard to the Wheat harvest, of which in other places we have heard such contrary accounts, we have realised an average. As regards Barley, it has that brightness which brewers love. As for our Oats, rarely have I seen such a prolific and golden ingathering. These are very great results under all circumstances, and alone would constitute a good harvest. But when I look around me I remember and observe that these results have been obtained in these varieties of grain in a district where the root crops are equally distinguished. Nor ought we to forget, my friends, that this satisfactory and prolific season has afforded one of the finest hay harvests that can be remembered on the Chiltern hills—so great and plentiful that even the after-math will exhibit almost as fertile a condition as our pastures have had in the last few years in the month of June. Well, then, I think we have a right to be satisfied, and we ought to be grateful for the harvest which we have just ingathered in this district and parish; and at the present moment I am speaking only of this parish, with whose interests I am so intimately connected, and with whose feelings I so deeply sympathise. I think, so far as I can take an impartial survey of our rural world, there are other things in this parish, of no less importance, upon which we may equally congratulate ourselves. In the first place, I think it is a matter of great satisfaction that at this moment there is no able-bodied labourer who is not employed, and who also is not employed at good wages. We are, no doubt, in some degree indebted for this result to the happy circumstance of that rural manufacture, and the prosperity of that rural manufacture, which converts the raw material of our Beechen woods into the convenient form of chairs for the accommodation, not only of England, but even of the colonies and of foreign parts. I am glad to say we are indebted for that satisfactory result to another and not less efficient cause, and that is the highly-improved husbandry of this district and parish. It is to the skilful rotation of crops, it is to the various and often costly manner in which our lands are now dressed, and the great head of stock that is now maintained on the farms of this parish, that the results of the population being well employed, and being employed at high and satisfactory wages, are mainly, or at least equally, to be ascribed, and these are very satisfactory results. There is another circumstance of our rural life in this parish in which, I think, we may find congratulation, and it refers to a subject which I have more than once brought under your consideration—that is, the dwellings of those to whom we are peculiarly indebted for the labour which cultivates our fields and gathers in our crops. I am glad to say that there has been going on for some time a continuous improvement in the residences of the peasantry—of the labourers on the soil of this parish. Some time ago I mentioned this subject, and, indeed, more than once I have dwelt upon it in your presence. These are legitimate and proper occasions on which we ought to touch upon such subjects. I am very much in favour of building new cottages for the labouring population; but at the same time I know it is a process which can only be very gradually carried out. I will not enter into any controversy on this subject, because this is not a moment for controversy, further than to repeat what I have often said, that those take a limited and too contracted view of the case who, in building cottages for the labouring population, look only to the immediate return in the shape of rent. There is an immediate return far more valuable than rent, which is to be acquired by giving the labouring population dwellings which conduce to their health, to their strength, and to their happiness. But I would make this remark, because it is one essentially practical and applicable to this parish, that you may do a great deal to improve the dwellings and to increase the comfort of the labouring classes without absolutely building new cottages; you may improve those that exist. I believe that there are three things which a labourer in the Chiltern hills most desires. The first is a porch, the second an oven, and the third a tank. I have for some time been extremely anxious that every labouring man on my estate should have these three sources of comfort and happiness—a porch, an oven, and a tank. I am very glad to say that the example I set is spreading; and I hope when we hold our next "harvest home" we shall find that the custom of providing the three things I have named is meeting with general adoption. Whether I look to our harvest, whether I look to the general condition of those who have mainly assisted in its in-gathering, I think I can congratulate the proprietors and the cultivators, the farmers, the occupiers, and the labourers of this parish on its general prosperity. I am sure, from what I have seen this morning, I am addressing a society that, in the possession of these great advantages, is deeply grateful to the Giver of all Goodness, to whom we are indebted for these blessings. I trust that the prosperity of Hughenden may long continue. It is founded on sound principles and, under the blessing of Providence, it ought at least to be superior to most of the vicissitudes that interfere with human occupation. I am sincerely obliged to you for drinking my health on an occasion like the present. Your kind feelings I greatly appreciate, and your good opinion will always be my best reward. I thank you heartily.

The right hon. gentleman had only just resumed his

seat when a village maiden stepped up and presented him with a cereal doll-shaped figure. Whether it were effigy, fetish, or idol, or only a sample of the harvest on which he had been speaking, seemed a general puzzle. Its head was of Oats, its arms were Barley, and its feet were Wheat; and somewhat of a feminine character was imparted by a dress of blue paper. For the satisfaction of the curious and uninitiated,

The CHANCELLOR of the EXCHEQUER added,—I was for a moment a little daunted. I feared that one of the most ancient customs in England had been forgotten on this occasion. I hold in my hand a representation of the goddess Ceres. For centuries this figure, dressed up in robes of similar magnificence, has been brought forward on these occasions, as representing that golden harvest for which in this parish we are deeply grateful. This reminds me—indeed, my mind was already full of the subject—of those who are, perhaps, more interested in the success of the harvest than even other classes intimately connected with it. We are in this parish favoured, I believe, with a body of farmers who, take them altogether, equal, I believe—perhaps more than equal—those of any parish in the county. It is not merely that they are skilful farmers, and that they bring to the cultivation of the soil a knowledge of its character, and all those artificial adjuncts which develop its qualities, but they are men who are sensible of their social duties as farmers, as great tillers of the soil. They look upon their occupation as being one not directly of a commercial character. They remember and do fulfil their duties towards those who are dependent upon them. Indeed, I have always found that the skilful farmer is a man who most appreciates the good qualities of the person labouring under him, and knows the value of a good character. Such a person is always found to be the best master. I must congratulate the farmers of Hughenden upon their great success and prosperity this year; I propose that we drink "the Healths of the Farmers of the Parish," and I trust that they may have many happy returns of seasons like the present.

The toast was drunk, and was responded to by Mr. Coates. He said that if they did not spend their capital in that part of the country they would get no return, although they were blessed with some prolific land. With regard to Wheat, Barley, and Oats, they were favoured this year with a fair, average crop, and he certainly considered that they were better off in that respect than farmers were on many of the wet soils.

The CHANCELLOR of the EXCHEQUER then proposed that they should drink the health of another order of the agricultural hierarchy, not inferior in importance or utility to those whose healths had been drunk. It was "the Health of those to whom they were indebted for the in-gathering of the crops, and for the preceding processes of culture." So far as he could form an opinion of his neighbours, and he was happy to say that when at Hughenden he lived much among them, the labouring class in the parish was one of which the parish might be proud. They were skilful husbandmen, they were moral, they were influenced, generally speaking, by a great sense of duty. In proposing the health of the labourers he would connect the toast with the name of one who had long worked on his estate, and who in his own person combined many of the best qualities of the English husbandman. This was Hatt, who worked for Mr. James Leigh, and was a model of what a skilful, independent, and excellent husbandman ought to be.

The toast having been drunk, Hatt rose to respond. He was a hale old man, and a good specimen of an agricultural labourer. But speaking was evidently not his forte. In disjointed fragments of sentences he expressed his thanks, and his appreciation of these celebrations and the kindly associations of classes in them. He also referred to the morning's discourse, and concluded by invoking a general blessing. Somehow he seem to suggest more than he said by his unaffected earnestness of manner, and he sat down amid cheers.

The Rev. C. W. CLUBBE proposed "the Health of Mrs. Disraeli," who had many claims on their respect and regard, sympathised with all the amusements of their rural fête, and was the great promoter of the mirth, fun, and jollity which were essential elements of the proper celebration of a "harvest home."

The compliment was acknowledged by the Rev. C. LLOYD.

SCOTTISH CHAMBER OF AGRICULTURE: *Farm Leases.*—At a meeting of this Society, held some time ago in Glasgow, this subject was discussed in reference to modern scientific farming. The PRESIDENT of the Chamber thus referred to his objections to the modern lease. There should be no reservations in leases of game, fish, minerals, or anything else. The law gives the landlord the ownership of all these things usually reserved, and right to bruick them on reasonable and fair terms, and nothing more should be given in a lease. The thing let, that is, the land, should be given for the purpose for which it is hired—that is, agricultural purposes. If the landlord chooses to rear game or work minerals, the law gives him the right of doing so, but it compels him to compensate the tenant for any loss the subject let may sustain, for the purpose of the lease, through the landlord's acts. That is quite fair between man and man, but anything more is not fair. For instance, the usual clause that the tenant is not to be compensated for loss through the landlord's game consuming the fruits of the subject hired, is just giving with the one hand and robbing with the other. Then the clause excluding assignees and sub-tenants is no better. A decent, industrious man takes a farm and makes many improvements on it. You all know the first five years of a new tack is incessant labour and outlay. But he is cut down, say in the fifth year of his lease. His all is in the farm—energy, enterprise, and capital. He leaves a widow and a young family. To deprive them of the surplus rent the farm will bring on a re-let for the remainder of the lease, from the husband's exertions and capital laid out in improvements, is simply robbing the widow and fatherless. The clause providing for the lease falling if a tenant is bankrupt, is also a very unfair one to the creditors. I have known farms let at a surplus rent of 100*l.*, 150*l.*, and 200*l.*, the laird pocketing the whole, and the creditors, with their capital sunk in the improved condition of the farm, not receiving a farthing. Then the shifts and rotations fixed in leases are in many cases a gratuitous hindrance to the proper cultivation of the soil, resulting in loss to the land, and of course to landlord and tenant; for I take it to be undoubted that what is loss to the one is loss to the other. In my opinion, all rotations are drags on the wheels of modern scientific agriculture, and ought to be abolished, unless it may be for the last five or six years of a tack. My lease would just be this: I (the proprietor) let to you (the tenant), your heirs and assignees, the lands with the houses, fences thereon, and roads thereto, for 19 years, at a given rent, payable out of the fruits at the first term after these are gathered. The condition of the lands and erections to be reported on by men mutually chosen on entry and again at issue. The land and erections to be left in as good a condition as got; and if better or worse, to be paid for by the landlord or tenant, as the case may be, according to the valuation of men mutually chosen. I would give right to sub-let, the original tenant always remaining liable in tenant's obligations under the lease; and I would take ordinary tear and wear into account in estimating the value of houses, fences, and roads at issue. Nothing more is needed, nothing more is required by the circumstances. My case would encourage every man to do his best for the subject let, and it would give him the honest reward of his labour, and it asks no one to pay a penny save for value received. With these views, hurriedly and imperfectly expressed, I leave the subject to be treated by my friends who are to follow me; and I call on my predecessor in this chair—my friend Mr. Goodlet—to read the paper he has prepared on this subject at the request of the committee.

Mr. GOODLET (Bolshan) said:—(1) A landlord, in entering into a lease with a tenant, will natually seek, by certain clauses and provisions, to protect the subject let from being injured or deteriorated by the tenant, or from being used by him in a manner different from that intended at entering on the contract. He will also seek to provide against certain contingencies which, in the course of a 19 years' lease, are not unlikely to arise, affecting the stability of his tenant, through death or bankruptcy; and he will also wish to see the lands properly farmed, and the buildings and fences kept in proper repair; and should improvements be intended, he will desire the insertion of a clause to limit and define the extent of his own obligations, and to secure the proper performance of those undertaken by the tenant; and doubtless, as is customary, he will desire to reserve the game, which he rarely admits to himself does harm to the tenant's crops; and lastly, he will be very chary about omitting any of the merely formal clauses of the deed, which, however useless in themselves, have come to be regarded by landlords as essential to the validity of the lease, but which in thir wordiness rather tend, in my opinion, to cumber and perplex.

(2) The tenant, on the other hand, will desire to have the lease so framed as to allow of his enjoying the free and peaceable possession of the subjects let—that he shall not be unnecessarily hampered in the management and cropping of the lands, and that he shall have the free use and disposal of the produce of the farm at his command, limited only by such conditions as may be absolutely necessary to prevent the deterioration of the soil—that the buildings and fences be handed over to him in proper order, with such new additions as may be requisite for the profitable occupation of the farm. He will also desire to secure to himself and his family the benefit of any improvements he may effect by draining and liming, or otherwise increasing the fertility of the soil; and in order that he may not, in the event of certain contingencies arising during the lease, be deprived of this benefit, he ought to have the power to assign and subset, under provision, of course, that the rights of the landlord under the lease are not thereby impaired; and the tenant will expect, if, as is always the case, the game be reserved, that at least no greater damage will accrue from game than that which exists at his entry to the farm; but that if at any future time damage from an increase of game should arise, compensation will not be withheld under cover of a stringent game clause, but that the same shall be at once ascertained and readily allowed for by the landlord when found to have been incurred.

(3) Such being the understood views of the contracting parties, one would think that no great difficulty need arise in framing a deed of moderate length, distinctly to express and define the rights and obligations of both under it. From various causes, however, the modern lease, as usually drawn, is found to be not only a verbose document, but, what is worse, it is for the most part a very one-sided one. This, I believe, arises chiefly from the circumstance that the landlord is very much in the habit of laying down the conditions under which the farm is to be held, and the tenant must either take it on these conditions, or have his offer declined. The landlord—himself seldom a practical agriculturist—insists on the most stringent and often unsuitable clauses, under the mistaken notion that such are necessary for his own protection and the proper binding of the tenant; while, in reality, they fail to effect either purpose, and only tend to hamper the tenant in the free use of the subject let, and also retard improvements by not unfrequently confining him to systems of cropping and management of the land alike detrimental to the interests of both. This, although a serious evil in itself, becomes still worse when the agent who frames the lease is not more conversant with practical agriculture than his constituent, and who has to depend upon the various forms of lease to be found in the style books for direction and guidance in his preparation of it. The management of landed property is now largely confided to gentlemen of the legal profession, who rarely are possessed of that practical knowledge of agriculture which is essential to the agent who would intelligently frame the deed in accordance with the just and equitable requirements of the case.

(4) It would be easy to give instances of the most absurd blunders committed by agents in framing leases. I have myself seen a lease, prepared by a lawyer, with a Martinmas entry, containing clauses suited only for one with a Whitsunday entry, and *vice versâ*; and even the better informed of them, who would not be guilty of such gross blundering as this, will always be inclined so to frame the clauses as to make the landlord safe, as they suppose, whatever may become of the tenant. Some agents, indeed, will tell you that the clauses are only framed to please the laird, and that they are not meant to be rigidly enforced. Others, again, will say that they are the usual conditions applicable to the estate, and however unsuitable they may be to the present farm, they cannot be departed from: and tenants are to be found who will sign such leases provided the rent suit; and some even are not very particular about the rent, trusting that, if once in possession, neither the rent nor conditions will be strictly exacted or enforced against them. And I could instance cases of this kind where such tenants have not been disappointed. Estates managed on such principles, however, are seldom occupied by a trustworthy tenantry, and are about the worst farmed, under leases the most wordy, stringent, and arbitrary, of any to be found in the country. At one time, indeed, it was customary for almost all farmers to be indifferent as to the nature of the written conditions of the lease—trusting to the good faith and honour of their landlords that no unfair advantage would be taken of them; but the practice has been gradually changing, and tenants are now more than ever strictly kept to the terms of the written contract. Many cases of hardship have occurred from tenants having signed leases containing stringent clauses, which they little expected at the time would be enforced to the letter against them; and since the written contract is being more and more looked on as embodying the exact agreement of parties, it becomes all the more necessary, as well in the interest of the landlord as in that of the tenant, to see that the lease be a deed expressing in plain, simple, and clear language the true nature of the transaction between the contracting parties, in which the rights and obligations respectively undertaken by, and conferred on each of them are plainly defined and set forth.

(5) All the wordy and unmeaning jargon which disfigures most of our leases should be unsparingly eliminated and cast aside; and here I cannot do better than quote to you the remarks of a worthy Edinburgh lawyer of a former generation, called forth by a long and wordy minute of lease, interlined, altered, scored, and crammed with marginal additions, which had been sent to him to be framed into a lease by one of his constituents—a Forfarshire laird—to whom these remarks were addressed and sent. For sound sense, clearness of thought, and terseness of expression, I venture to say they are not to be surpassed; and I would strongly recommend them to the careful consideration of our landlords and their factors, especially such of them as are of the legal profession. They are as follow:—

> "*Observes on the proposals and conditions of a new lease of F——n & W——d.*
>
> "April, 1819.
>
> "1. These conditions are, in many particulars, too general, notwithstanding of the appearance of being very particular.
>
> "2. In a great many particulars they are indefinite: in others they provide for what the law provides.
>
> "3. It will be impossible to engross them all in a tack and make the tack effectual, without running out to a great length; and the multiplicity of them will afford a tenant a good and legal apology for neglecting some of them, and a handle for disobeying others.
>
> "4. A man would need to read the tack every morning to be sure of knowing them, and a tenant has other work than to read and to comprehend intricate clauses and conditions. A court of law would be disinclined to enforce such a contract.
>
> "5. Reference to other tacks is inconsistent with the nature of a tack, and it seems impossible to make the proposed tack explicit and binding.
>
> "6. If W——r requires all these fetters to keep him right, Mr. M——l had better have nothing to do with him.
>
> "7. All gentlemen find it their interest to have tacks short, clear, and explicit; the fewer conditions the better. Tenants always find escape-holes in long tacks.
>
> "8. The proposed tack is laying the foundation for a multiplicity of law processes, which is just the game of a bad tenant.
>
> "9. The signing such a minute, scored and deleted, and signing scorings, and some not signed, appears quite inconsistent."

(6) It is not a great many years ago when protection was the recognised policy of the nation, and when bad times for the manufacturing and commercial classes were hailed by the farmers as the sure indication of high prices and prosperous times for themselves. In those days the farmer was accustomed to look up to his landlord as his natural leader and protector, and in the letting of land less of the mercantile spirit pervaded their dealings with each other than has latterly come to be the case under the *regime* of free-trade. Landlords were then content with moderate rents—not only professing, but many of them really acting on, the principle of "live and let live" in dealing with their tenants, who were not then so hard driven as they are now. If they did not possess so many of the amenities of life as the modern farmer can command, they had at least less anxiety, and lived in an easy sort of way. They were to a man zealous partisans of the

laird, whose health at their social entertainments never failed to be drunk with all the honours; Tories for the most part in politics, were keen supporters of Church and State and the powers that be; and always the humble servants of the laird, who, to do him justice, usually ruled with gentle force his willing slaves. In our day, however, all this is changed. Under the iron sway of free-trade which now animates the spirit of the age, the relation between landlord and tenant has come to be regulated mainly on commercial principles. The rent exacted is, on the one hand, what can be got in the market; and on the other hand, when that is paid and the other obligations of the lease performed, the tenant considers he has exhausted the sum of his obligations, and that he should be free to mould his opinions and exercise his political rights as may seem to him best, uncontrolled by landlord interference, or even the fear of subjecting himself to his displeasure. Some landlords, indeed, have still a lingering desire to retain the influence their predecessors claimed and generally exercised over the opinions and sentiments of their tenants, while they have no objections at the same time to take the benefit of the commercial principle in the matter of rent and other prestations of the lease; but the two are wholly incompatible, and can be no more mixed up together than can oil and water. There is no halting between the two systems; the one or the other must prevail, and landlords must either make up their minds to go back to low rents with a poor and subservient tenantry, or forward to high rents and a more advanced agriculture, which the commercial principle, fairly carried out, cannot fail ultimately to secure.

(7) To give, however, that principle fair play, it must have free scope, and in order to that, certain obstacles in our laws affecting agriculture, which now impede its progress, must be removed, but to these your time will only permit me to give a passing glance. The law of hypothec, the game laws, and in some degree, also, the law of entail, are all more or less opposed to the full development of agriculture, chiefly by rendering the investment of capital by tenants, in the improvement and cultivation of the soil, unsafe, and by encouraging a "hand-to-mouth" system of management, alike injurious to the true interests of landlord and tenant. The law, as it affects the rights of the tenant, in reference to any permanent improvements made by him in the course of his occupancy, is also in a very unsatisfactory state; and it would, moreover, tend greatly to promote the advancement of agriculture, if an equitable plan could be devised by which a tenant would be able to maintain the farm to the close of the lease in good condition, without incurring the risk of losing the increased outlay necessary for that purpose, by having to leave the benefit of it to be reaped by his successor. It is hardly necessary for me to tell a meeting of practical farmers what a serious evil it is both to the landlord and tenant, but especially to the tenant, to have a farm run out, or even partially so, at every renewal of a lease, again to be restored at great expense by the new tenant. Some landlords may fancy that deterioration of the soil can be prevented by those stringent clauses in the lease to which we have before alluded; but if such clauses would have done it, the evil should have been remedied long ago, for we all know how stringent the clauses are in many leases, and yet run-out farms at the end of a lease are no uncommon things in the country—indeed, so far as my own observation goes, the most run-out farms are those that have been held under the most rigid conditions. But I cannot dwell longer on these topics, and must hasten to offer a few remarks on the lease itself, which I shall endeavour to do as briefly as possible under the following heads:—

I. *Destination.*—In the clause of destination it is usual to exclude "assignees and sub-tenants legal and voluntary." Such exclusion may, under certain circumstances, inflict heavy loss on an improving tenant, who might not be able to continue the occupancy of the farm to the close of the lease; and it deprives creditors, in the event of the tenant's bankruptcy, of the power to reap the benefit of the expenditure, which may have been made by him in ameliorating the condition of the soil, or in executing other improvements on the farm, and therefore a power to assign and subset should not be withheld if it can be granted without unduly impairing the landlord's rights under the lease. The exclusion is not only unfair to the tenant, but is calculated to lay an arrest on all improvements by him not yielding an immediate return. It is unfair, inasmuch as it may have the effect of depriving him of the benefit of his expenditure in raising the fertility of the soil, or in the erection of buildings which he is not even allowed to remove, because of his inability personally to carry on the farm; and to declare, by a clause of irritancy, the lease to be null and void in the event of the tenant's bankruptcy, without in any way providing for his creditors getting the benefit of his outlays so made, is simply dishonest. If, in the interest of the landlord, it is necessary to exclude assignees and sub-tenants, provision ought at least to be made in the lease to obviate such gross cases of hardship as those to which I have referred, and which I believe are of no unfrequent occurrence under the clause of destination as now usually framed.

II. *Endurance.*—The great advantage of having the lease of reasonable endurance is, that it enables the tenant to execute improvements, and bring up the condition of the farm at the beginning of his occupancy, with the hope of being remunerated before the lease expires. To do this usually requires a few years of extra outlay—generally speaking, I should say, two rounds of a short rotation, or one round of a long one—and for a purely agricultural lease the common period of nineteen years seems not unsuitable. A shorter lease than this would not justify a tenant in laying out largely in making permanent improvements at his own cost. And even such outlays as are necessary to bring the soil into a high manurial condition, would not be warranted unless under a lease of sufficient duration to realise returns. Yearly holdings are altogether opposed to outlays of any kind beyond the mere current expense of seed and labour, with manure enough to produce a crop. Under such holdings the advancement of agriculture is not to be expected; and it is well known that in England, where yearly holdings are common, agriculture, unless fostered by other causes, is in a very backward condition. A lease of some endurance therefore seems essential to the successful cultivation of the soil by a tenant, and must be for his interest to have, as well as for that of his landlord to grant.

III. *Reservations.*—It is customary in the lease to reserve coal, lime, minerals, wood, &c., to which at common law the tenant has no right, and to reserve them, therefore, seems unnecessary—at all events these reservation clauses are often stated very wordily, and might with much propriety be shortened and more concisely expressed. The game clause, I need not remark, is distasteful to most farmers, even in its mildest form; but in many leases that have come under our notice of late, this clause is so outrageously unjust and exacting that the wonder is, not so much that such clauses are there, as that tenants are so readily found willing to agree with them. But I believe that this is one of the many evil effects of the law of hypothec, which, by inducing a gambling spirit into the letting of land, encourages a set of men to take farms who have nothing to recommend them but a readiness to offer high rents, and to incur risks which a prudent man would not, if he could help it, venture to undertake, but which, however, he must do if he is to compete successfully with them. The fact, however, is undoubted, that the most stringent clauses that the ingenuity of game-preserving landlords can devise, are admitted by tenants into leases, and so long as game clauses, such as we have seen, are allowed, and game is unduly preserved, it is impossible agriculture can be in a healthy or thriving condition. To such of our members as are enamoured with the English game laws, and would support the Bill of Lord Elcho, as originally brought in by that noble lord, to render ours more in accordance with them, I would commend to their serious perusal a book, published in 1846, by Mr. Welford, on the "Influences of the Game Laws," containing classified extracts from evidence taken before a Select Committee of the House of Commons that year, in which facts are disclosed that should at least cure farmers of that silly craving for an assimilation of the Scotch game-law, bad as it is, to that of the English, which is infinitely worse. Lord Elcho's Bill has been characterised in the House of Commons by an honourable member as an "imposture and a sham." The "imposture" very properly has been knocked out of it by the Select Committee which lately sat on the Game Bills, and to that extent the Bill has been amended and improved, as well as shortened; but the "sham," I am sorry to say, still remains, and now comes recommended by the Committee as a proper measure to be passed by Parliament. This Bill, as far as I can perceive, concedes nothing that the law does not allow. Damages can be recovered at present when game is increased on a farm, and if the landlord does not reserve the hares, there is nothing to prevent the farmer now acquiring the qualification and killing them, and these are the rights which this Bill professes to confer on the farmer—a sham Bill truly! If landlords will insist on reserving the game for the special sport of themselves and friends, they should at least be prepared to limit their power in the lease, and, if at any time the game on a farm should increase, frankly to grant the tenant compensation equivalent to the damage done, and cease to shelter themselves under a stringent game clause. High farming—or, for that matter, even low farming—and a head of game such as is now thought necessary by our modern sportsmen, who delight in battue shooting, cannot co-exist; and I hesitate not to say that any landlord, who in virtue of a stringent game clause, and in defiance of the reasonable claims of his tenant, shall persist in maintaining a large head of game on land let for agricultural purposes, and at the same time refuse to allow compensation, is neither more nor less than a legalized plunderer, whose proceedings cannot fail to bring deserved odium on the class to which he belongs—countenancing him in them.

IV. *Kain and Services.*—These on many estates have now ceased to be exacted or stipulated for in the lease. They are a remnant of feudalism, and the performance of them is often very inconvenient to the tenant, and of no equivalent advantage to the landlord. They are also imposed as an extra burden over and above the rent, and constitute a badge of bondage which should have no place in a contract between independent parties.

V. *Buildings and Fences.*—It is customary to make the tenant bound to accept of these as in "good and sufficient repair," and to keep and leave them so at his removal, the landlord assigning over to him the obligation on the outgoing tenant to leave them in that state. This is a custom which has in it nothing to commend it, but, on the contrary, much that is objectionable. It may relieve the landlord, or rather his factor, of a disagreeable duty, but it is the fruitful source of much strife and quarrelling between outgoing and incoming tenants. It is seldom that anything like an adequate sum is awarded against the outgoing tenant for repair, and the incoming one is often put to serious inconvenience and loss by having buildings and fences handed over to him in a worn-out and dilapidated state, while the sum got from the outgoing tenant is altogether inadequate to put them into the "good and sufficient" condition in which by his lease it has been assumed they have been received by him. It would be better for all parties were the landlord himself to enforce the fulfilment of the outgoing tenant's obligations in respect of the buildings and fences, and to see to it that the incoming tenant really gets them in the good and sufficient condition in which, by his lease, he accepts of them and binds himself so to keep and leave them. The present practice is unfair to the tenant, and cannot fail in the long run to recoil injuriously on the landlord himself. So long as this objectionable custom prevails, buildings and fences will never be properly cared for, or kept in that good order and repair which it would be for the interest of both landlord and tenant they should at all times be in, whether during the currency or at the expiry of the lease.

VI. *Cropping Clauses and Management.*—Many absurd and pernicious conditions are inserted in leases in reference to cropping the lands. It is customary, in most cases, to bind the tenant to a regular rotation of crops, from which he cannot deviate unless under heavy penalties; so that, should a failure occur in a particular crop, the tenant has no power to remedy it by deviating for a time from the prescribed rotation, although the doing so would be of advantage to him and not injurious to the landlord. Rotations, moreover, are often ill chosen, and inserted in the lease by agents ignorant of practical agriculture, where a different course of cropping would have suited better. In fact, it is doubtful if a tenant should be bound to a particular rotation under any circumstances. In my opinion it is better for both parties that as much latitude as possible should be allowed the tenant in the management and cropping consistent with the due preservation of the subject let, and this could as well be secured by negative clauses, which would, at the same time, permit more than one rotation to be followed, and prevent deterioration of the soil by injudicious cropping. Of course the obligations at entry and waygoing must be provided for by suitable conditions; but all unfair advantages should be avoided—such as compelling a tenant to leave dung and straw paid for at his entry to the landlord or incoming tenant for nothing at his removal; or to leave more in grain or less in corn crop than there was at his entry, unless specially bargained and paid for.

I might take up and discuss the other clauses of the lease, but those commented on are the most important. The formal clauses are generally prolix, and some of them ought to be dispensed with altogether. The bankruptcy clause is one of these; and the insurance clause is often too favourably framed for the landlord to be quite just to the tenant; but I shall not detain you longer. In conclusion, allow me, in the words of the worthy old lawyer already quoted, to reiterate his wise "observe:" "All gentlemen"—not all landlords, be it observed, but all gentlemen—"find it their interest to have tacks short, clear and explicit; the fewer conditions the better"—a remark which cannot too often be dunned into the ears of all landlords and their agents with whom is entrusted the preparation of the deed which we are this day met to discuss.

[We shall give the remainder of the discussion next week.]

WARWICKSHIRE: *Meeting at Sutton Coldfield, Sept.* 17.—The show of this Society may be described, from an agricultural point of view, in a small compass. The flower tents, the vegetables produced by cottagers, and the musicians were, with a few exceptions in favour of the animals, the better and more attractive departments of the exhibition. The Society will also, we feel assured, be considerable losers by this meeting. For whatever may have been the shortcomings of the authorities and officials of the Association, they have not for some years past been niggardly in expenditure with a view to make the showyard worthy of the animals shown, and the collection thereby a worthy representation of the county of Warwick. In this respect the yard on Tuesday and Wednesday last was no exception. But as at Lichfield the previous week there were no cattle, and as the Midland Counties farmers seem in many cases to have lost heart in regard to the utility to them of these exhibitions, the horses were few, the sheep were scanty, and the pigs not numerous. When to these facts it is added that the railway company obstinately refused to run trains at convenient intervals, it will be judged that the company was also anything but large. This was an inexplicable freak of the London and North-Western, for if a little exertion had been made in advertising in the streets of Birmingham, in the "Black Country," and at Wolverhampton, a little Derby day in traffic might have been secured on their seven miles branch line. For Sutton Coldfield is at all times so attractive, from its thoroughly rural character, that excursion parties often make this the place of their visit and recreation. With an agricultural show in addition, an effort might have been made by the railway officials, particularly as the starting points are at such centres as we have named; 10 carriages might have been run every half-hour, or if that number were not enough, 20 might have been "coupled" in two minutes, or if that number were too many, less might have been as readily started. There is no excuse whatever for the conduct of this railway, and the officials at Euston, or the shareholders, who are not overdone with dividends just now will do well to ask a few questions as to why this fair opportunity was wilfully thrown away. If a Sunday more or less is enough, as has been recently contended, to cause a reduction of a half-yearly dividend, what must be said of the management which refuses to take advantage of one of the ordinary events, such as a county agricultural show, which take place at frequent intervals somewhere in connection with a great railway system like the London and North-Western? Thus some of the want of success at this meeting may be attributed to causes which are not agricultural.

The animals were worthy of a few notes. As at Lichfield, the horses were the amusement, if not the fun, of the Show. The arrangement of the ring for judging in, and of hurdles for trials over, were also similar. The number of horses, however, bore no comparison to that of the neighbouring county. There were only 50 entries in all, and several were absent.

For the best cart stallion, 20*l.* 1st, and 5*l.* 2d, were offered, but the heavy 1st prize failed to bring more than four. Black Prince and Young Samson again met here, and the judges (Messrs. John Clayden and J. E. Bennett) confirmed the opinion of the Lichfield judges by placing the short pot-bellied waddling Black Prince before the longer, straighter-barrelled, true-stepping Young Samson. Our opinion remains the same, notwithstanding this decision; that is, if the veterinarian declared the grey sound. Although the relative position of these two was the same the real situation was different, for the old horse was placed 2d to a 3-year-old, and the grey was only commended. This 3-year-old was sent by Mr. W. Wynn, of Grafton, and a very powerful horse, with admirable temperament, he is. He has a splendid neck and plates, a fair shoulder, great arms, knees and hocks, a kindly but rather heavy head. If he has any great weakness, it is in the want of spring in the upper part of his ribs. This defect, however, was well kept out of sight by an abundance of strappings and cloths. In the mares, Mr. Holland. M.P., took the 1st prize with his wonderfully-formed roan, 14 years old, which has taken so many prizes, and deserved others. The class for geldings had only two, and the fillies ditto, none of which were worth notice. The pairs of cart geldings were better, Mr. Hawkes', of Clifford Hill, were powerful, and Mr. Nottenham, of Birmingham, had a capital pair of browns, to which were awarded the prize of 10*l.*

There was no entry of stallions for hunting purposes. For the best hunter, ridden in neighbouring specified hunts, 15*l.* was offered, which was taken, in a small class of three entries, by a grand 5-year-old, shown by H. J. Sheldon, Esq., of Brailes House, Shipton-on-Stour. The 20*l.* for the best hunter of any age was taken by Mr. Gilman, jun., of Birmingham, for his dark brown Little Joan, the horse we spoke of last week as having Clydesdale traits and perfect style, and performing powers for carrying a heavy weight safely through a tolerably long day. Mr. Summerfield's 2d is a gay and good-looking chestnut. For the 15*l.* for best 4-year-old gelding or filly for hunting purposes, only three were entered, the prize being taken by Mr. C. Griffin, of Chesterton, with a beautiful brown. Only two mares for breeding hunters

were entered—Mr. G. T. Smith's 5*l.* prize going to H. J. Sheldon, Esq., for a good-looking roany half-bred bay, with a fine promising chestnut foal at her foot, by Wantage. The only other horses worth notice were Mr. Sheldon's very powerful large brown "hackney," over 15 hands, which, however, was more of a hunter; a capital trotting black in the class under 15 hands, shown by Mr. Summerfield, aged, and by name Dusty Bob; and an equally clever 12-year-old chestnut pony, shown by R. Milward, of Thurgarton Priory. These took the 1st prizes of their respective classes.

The sheep were short in most of the classes. In the Leicesters, which were placed first in the catalogue, the old question, Where does Leicester end and Lincoln begin? might have been raised at almost ever corner. Mr. Cresswell's 1st prize suggested it, and his 2d prize was a neat sheep, but more like what this still valuable breed is frequently coming down to. Mr. Turner's 3rd prize, and his other sheep were of doubtful appearance; however, as Leicesters go, their value was not less, but on the contrary, for general purposes. Mr. Cresswell's 1st in 2-shears was of the same stamp, with a more clumsy head; and the 2d was a good sheep, barring the above suspicion. Mr. Umber had the ewes to himself, and he had the prizes awarded him for five pens of five each.

In long-woolled sheep not being Leicesters, the well-known names of Gillett, Lynn, and Tombes were great as usual in Cotswolds, the 1st going to the latter, the 2d to the former, and the 3d to a less known man, Mr. Wheeler, of Long Compton. In 2-shears Mr. Gillett took the 1st and 2d, Mr. Lynn being absent, and Mr. Wheeler again taking the 3d. Mr. Gillett was again 1st and 2d with two pens of five ewes each.

The Shropshires were the strength of this department, but as a whole the numbers were greater than the beauty of the animals. Mr. W. Baker's two shearling rams were good sheep, to which were awarded 1st and 2d prizes. The 1st has a fine dark head, but this was somewhat detracted from by the wool of his scrag having been made too prominent; the 2d has also a fine but less characteristic brown head. This sheep as a 2-shear will probably possess a far better shoulder and a better back than the one to which he is now placed 2d. Mrs. Baker's, of Grendon, the 3d prize, is also a good thick sheep, as is her 2-shear, for which she took the 2d prize—Mr. Holland, of Dumbleton, taking 1st with a sheep of good form, great size and substance, but from some cause, probably in feeding, with much deficiency in firmness. Mr. Tongue's was a good compact sheep, in natural condition, neither trimming nor colouring having been practised on him. Mrs. Baker was 1st in ewes, which were admirable; and Mr. Joseph Beach was 2d as regards the award, but his five sheep were equally to be admired. In shearers, or yearling ewes, Mr. Holland's, of Dumbleton, were very neat, thick, and good brown-faced sheep, with polls tolerably well covered. The remaining lots of ewes and lambs were generally mean.

In the "other short-woolled sheep," Mr. S. Wallis, of Old Shifford, sent a good Oxford Down; the other four lots under this head being only "half-middling."

The Pigs were much about the same as at Lichfield, but if anything an improvement as regards quality. Such names as Sir J. W. C. Hartopp, Bart.; Mr. Bantock, Wolverhampton; Mr. Joseph Smith, of Henley-in-Arden; Mr. R. E. Duckering, of Northorpe; Mr. John Wheeler, Long Compton; and others, are names familiar enough with fine characters of pigs to be a guarantee that the animals, if not numerous, could scarcely be improved upon for form and quality

The Poultry Yard.

Allez voir le nouveau produit de Vichy.—This sentence is one, which together with the beak and comb of a bird holding in the former a piece of paper upon which is printed in small letters, "*Poulets gras des Princes*," is to be found in the local journal of Vichy, named *Le Programme*. Being tempted to respond, perhaps because of the invitation of agreeable friends, who were anxious to see these *poulets gras*, I made one of a party who engaged a good carriage (this in justice to the proprietors of the *voitures* of this charming retreat, alike of invalid and pleasure seeker—for truly Vichy is well adapted to each), on the morning of the 12th of August we started for Cusset, a neat old town, about four or five miles from Vichy. The drive upon this said 12th of August, which was a hot scorching day, was most refreshing, as upon either side of the road were fine old trees, whose foliage formed a substantial shade. Passing the Cusset, we ascended gradually to the residence of Monsieur Martin, who has taken out a patent for the system of fattening fowls by means of machinery, an outline of which I shall try to describe for the advantage of those of your readers who may be interested in the management of this department of the farmyard. Upon arriving at the "Belvedere" you are met by one of the neatly dressed "Bourbonnais," who in polite language demands from each visitor 1 franc. This is more to prevent a general rush of strangers than as payment, for it could scarcely repay M. Martin for the trouble taken by his son, who is the conductor of the visitors. The Belvedere is prettily situated on the top of one of the hills surrounding the rich valley of the Vichy, and the view from this place of the Allier, the Montagne Verte, and in the distant horizon the peaks of the Puy de Dôme, is extremely picturesque. The hour of feeding being notified, we were requested to follow M. Martin *fils* into the building wherein are kept the fowl. Before describing this somewhat unpleasing operation, I should say that it takes place three times daily, viz., at 8 o'clock A.M., 2 P.M., and 8 o'clock in the evening. You are first taken into a large room containing a goodly supply of sacks, one of which is open to show the meal upon which the lean "scraggy" chicken is in a fortnight converted into the "*Poulet gras des Princes!*" The meal appeared to my eyes to be very fine Indian corn, but so fine as to bear the aspect of finely ground flour. From this room we passed into what may well be designated "the chamber of horrors," for in this apartment the unhappy fowls are slaughtered. Here M. Martin *fils* directed our attention to a large pail, in which was a mixture resembling one well known in this land by the endearing term of "pap;" this was composed of milk mixed with meal, at least so I understood him to say, although in an article published in *Le Programme* the day before our visit it is said that the composition of the "*patée*" is a secret not to be revealed. Passing from this "chamber of horrors" you are conducted into a large square room, in which are three octagonal coops, each containing five stages, which are divided into compartments, large enough to hold a fowl each. The coops are upon pivots, which are turned slowly by the machinery below. The fowls, of which we were informed there were at the time of our visit 6000 in the coops, were tied to the board upon which they stood by the legs; all seemed most eager for their turn to arrive. Two women, one at the entrance the other at the further corner, stood opposite the coops, holding in their left hand a hollow zinc tube, which was about four inches long; to this was attached a hose upon a small scale, which was placed in a large reservoir beneath containing the food. As the coops were moved slowly round, each row of the eight rails was removed, and the woman, who had a small hollow piece of wood to fit the back of the fowl, placed it over each one to prevent its moving; this she had in her right hand, having, as I before said, in her left the feeding hose. Like lightning she placed this upon each, and at the same time applying the zinc tube to the open beak, removing it as quickly. And so in a short time the first stage was fed. By the pressure of her foot upon some part of the machinery, the food contained in the cauldron beneath was shot into the tube, which act was repeated as each fowl was fed. And when one stage of the five was finished, it was lowered, and again the operation was commenced at No. 2, until the entire 6000 had feasted. If I have not given even an outline of this wonderful place, I must crave the indulgence of my readers, for as we are warned that M. Martin has an objection to his *système mécanique* becoming known, and as his visitors are not permitted much time to investigate the mysteries themselves, I only promised to report what I had seen as well as was in my power. To one fact I can most truly testify—viz., that more tender and delicious fowls never were eaten than those placed upon the dinner-table of the Hôtel Mianel, at Vichy. The price paid for them in the market was a matter of interest, after having seen the "Belvedere Cusset," and in reply to my query, I was told that each sold for 5 francs. *E. A. M., Dublin.*

Miscellaneous.

Importance of Science.—In every relation of life the discoveries of science are becoming more and more necessary. Where would the prosperity of this town have been had it not been for science? You will say we have got a certain amount of manufactures of Flax, Hemp, Jute, and things of that sort; there is not much science in that. Well, go to the cultivation of these plants—go on to the preparation of these plants after they are cultivated, and the means of bringing them to this country. Do we not require science to build those ships, and to navigate them? and when those vessels come to port do we not require science to produce the docks and harbours in which these vessels are to lie? Then, again, when you come to the manufacture of the raw material, do we not require science in chemistry and in mechanics? Is it not also the case when we come to cultivate the soil? What do people do now? Is it the rule of thumb process—the old story, that you must lime here on one farm, and manure there on another? And when you ask why? the answer is, it stands to reason—because the soil requires that. Standing to reason is a very good answer; but the man who gives it goes by the rule of thumb. We want the man of science, of chemistry, to tell us why we do these things—why we apply one description of manure to one soil and another to another; and why, if we apply this description of manure to one place and not to another, we apply it wrongly. *Duke of Buccleuch at the Dundee Meeting of the British Association.*

Notices to Correspondents.

COWS: *Old Subscriber.* Has the change in the character of the milk and butter appeared shortly after adding lime to the water? Grass and hay, both of them good, are very good feeding for the cow. Your letter has been sent to our veterinary authority.

GRUB: *M A R.* Your grub is probably the maggot of the crane fly, which is a most destructive animal in the field and garden, eating through the roots of Wheat, Oats, Beet, Cabbages, Carrots, Potatos, Turnips, Scarlet Beans, Lettuce, Dahlias, Carnations, and various flowers from May to August. All that Mr. Curtis says of a remedy is—"Rolling will reduce these gnats by destroying the larvæ, pupæ, and flies, and hand-picking may be successfully practised in the garden." Soot, salt, and sea-sand sown on the surface prevent their increase. Rooks, starlings, seagulls, lapwings, pheasants, and snipes pick up and devour multitudes of these larvæ.

RAPE: *J R.* There is no need of ridging up. If properly grown, you should not now be able to get among it.

ZOPISSA: *J L J* asks whether some substitute for roofing walls and outbuildings could not be found for slate, tiles, and straw; and refers at the same time to a patent called the "Zopissa," taken out by Colonel Szerelmi, Victoria Works, Wellington Road, Battersea Bridge Road, proposing to apply paper to such purposes. Any information that our correspondents could give on this subject will oblige him.

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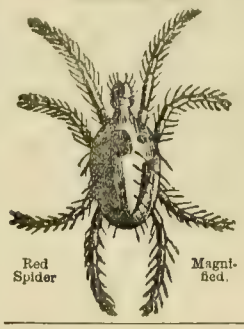


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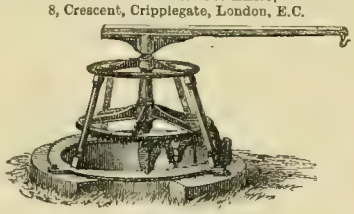


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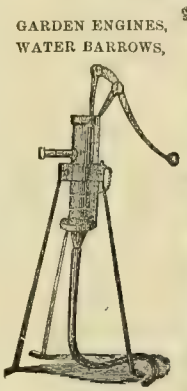
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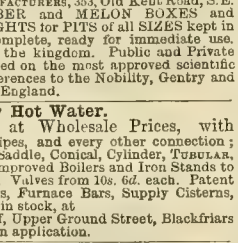
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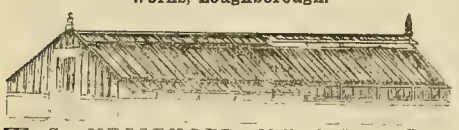
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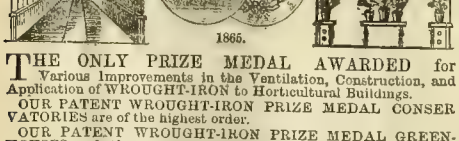
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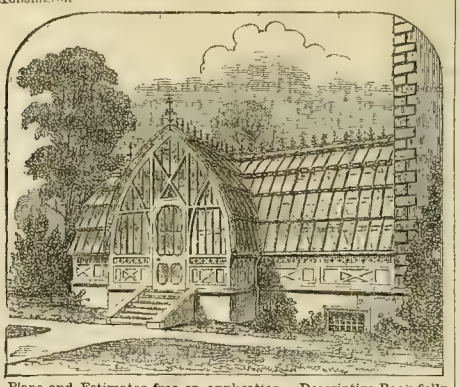
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"Glass without Laps."
"Ventilation without Moving Lights."
Highly Commended by the Royal Horticultural Society, South Kensington

Plans and Estimates free on application. Descriptive Book fully illustrated, post free for 20 stamps, from the Author and Patentee, JAMES CRANSTON, Architect, Birmingham.
Works: Highgate Street, Birmingham.
HENRY J. GROWTAGE, Manager, 1, Temple Row West, Birmingham.

TO BE SOLD, Cheap, an IRON DOME CONSERVATORY, 52 feet 8 inches long, 9 feet 4 inches wide. Would make an excellent Peach House or Covered Way. Also an ORNAMENTAL CONSERVATORY, 25 feet 6 inches by 18 feet 6 inches, with Iron Dome; and all other descriptions of Horticultural Buildings to be seen at
J. LEWIS'S Horticultural Works, Stamford Hill, Middlesex.

Dried Natural Flowers.
BOETTNER, BROTHERS, Greussen, near Erfurt, Germany, beg to announce that they can supply BOUQUETS, WREATHS, FLOWER BASKETS, &c., of DRIED NATURAL FLOWERS at most reasonable prices.
Price Lists may be had post free on application to Messrs. R. SILBERRAD & SON, 5, Harp Lane, Great Tower Street, London, E.C.

E. T. ARCHER'S "FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, and Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, &c.
PROTECTION from the SCORCHING RAYS of the SUN.
"FRIGI DOMO" NETTING, White or Brown, made of prepared Hair and Wool, a perfect non-conductor of heat or cold, keeping a fixed temperature where it is applied. It is adapted for all Horticultural and Floricultural purposes, for Preserving Fruits and Flowers from the Scorching Rays of the Sun, from Wind, from Attacks of Insects, and from Morning Frosts. To be had in any required lengths.
"FRIGI DOMO" NETTING, 2 yards wide, 1*s.* 6*d.* per yard run.
"FRIGI DOMO" CANVAS.
Two yards wide .. .. 1*s.* 9*d.* per yard run.
Four yards wide .. .. 3*s.* 6*d.* per yard.
An improved make, 2 yards wide .. 1*s.* 9*d.* per yard.
An improved make, 3 yards wide .. 2*s.* 8*d.* per yard run.
ELISHA THOMAS ARCHER, Whole and Sole Manufacturer, 7, Great Trinity Lane, Cannon Street, City, E.C., and of all Nurserymen and Seedsmen throughout the Kingdom.
"It is much cheaper than Mats as a covering."

CARSON'S ANTI-CORROSION PAINT, Patronised by the Nobility and Gentry, is extensively used for all kinds of OUT-DOOR WORK, and is proved, after a test of 70 years, to surpass any other Paint. It is especially applicable to Iron, Wood, Stone, Brick, Compo, and is the only Paint that will effectually resist the rays of the sun upon Conservatories, Greenhouses, Frames, &c. Is twice as durable as genuine White Lead, so simple in application that any person can use it. Per cwt.
WHITE, LIGHT STONE, BATH, and LIGHT PORTLAND COLOURS .. .. 30*s.*
LEAD, CHOCOLATE, RED, PURPLE, BROWN, and BLACK 26*s.*
BRIGHT GREEN, DEEP GREEN, and BLUE .. .. .. 42*s.*
Prepared OIL MIXTURE for the ANTI-CORROSION. OILS, TURPENTINE, VARNISHES, BRUSHES, &c.
3 cwt. Free to all Stations in England and Wales, and most Ports of Ireland and Scotland. Patterns and Testimonials sent post free.
WALTER CARSON & SONS, La Belle Sauvage Yard, Ludgate Hill, London, E.C.
CAUTION.—All Casks should bear the Trade Mark. No Agents.

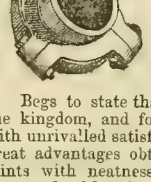
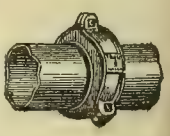
WARNER'S SILICATE of IRON PAINT.—The peculiarities and advantages of this Paint are that it will stand extreme Heat and Damp, and is not affected by Acid, Sea Water, Sulphuretted Hydrogen, or Ammonia. It is equally well adapted for Iron, Wood, Brick, or Cement. Every Shade of Colour ground to order. The Creamy White and Bright Stone will retain the soft delicate shades, regardless of the fumes of Gases. It has no smell, and there is an entire absence of deleterious effect.
WARNER'S ANTITERMITE COMPOSITION is suitable for Felt Roofing, and is a Cheap Coating for Iron Work, and preserves Wood in India from the ravages of the White Ant. Price 1*s.* 3*d.* per gallon.
17, Laurence Pountney Lane, Cannon Street, London, E.C.

Oil Paint no longer Necessary.

HILL AND SMITH'S PATENT BLACK VARNISH for preserving Iron Work, Wood, or Stone. This Varnish is an excellent substitute for oil paint on all out-door work, and is fully two-thirds cheaper. It may be applied by an ordinary labourer, requires no mixing or thinning, and is used cold. It is used in the grounds at Windsor Castle, Kew Gardens, and at the seats of many hundreds of the nobility and gentry, from whom the most flattering testimonials have been received, which HILL & SMITH will forward on application.
From J. A. TAYLOR, Esq., *Strensham Court.*
"In answer to your inquiries, I beg to inform you I find your Black Varnish an excellent substitute for oil paint upon iron and wood out of doors, and have found the iron Barrow with apparatus essential in applying the Varnish to lines of fencing. I can strongly recommend the Black Varnish for all out-door work as superior to anything I have yet used for the purpose, and it can be applied with great economy by careful labourers."
Sold in casks of about 30 gallons each, at 1*s.* 6*d.* per gallon, at the Manufactory, or 1*s.* 8*d.* per gallon paid to any Station in the kingdom.
Apply to HILL & SMITH, Brierly Hill Iron Works, near Dudley, and 22, Cannon Street West, E.C., from whom only it can be obtained.



IMPROVED BLACK VARNISH, an excellent Substitute for Oil Paint, for Coating and Preserving all kinds of Iron and Wood Fencing, Gates, Roofing, and every description of out-door Wood or Stonework, Steam Boilers, Pipes, Tanks, Carts, Waggons, Farm Implements, &c.
It is an excellent substitute for Oil Paint, and is not one-fifth the cost! It requires no mixing, and can be applied in a cold state by any ordinary labourer.
Sold in Casks of about 30 gallons each at 1*s.* 3*d.* per gallon (casks included). Carriage paid to any Railway Station in Great Britain or Scotland. Extra strong Iron-bound Varnish Brushes, 5*s.* per pair.
The following Testimonial has just been received from W. C. HAIGH, Esq., of Ashfield, Bradford.
"DEAR SIR,—I have used your Black Varnish both on Wood and Iron, and find it far superior to any Paint, both as to colour and durability, and so cheap that any one that can do with the colour will find it far superior to anything they can use. I shall recommend it wherever I have the opportunity. It is as easy to lay on as paint, and dries a beautiful bright colour.—Yours truly, W. C. HAIGH."
CHARLTON PAIN, 10, Richard's Villas, Lavender Grove, Dalston, London, N.E (from whom it can only be had), Manufacturer of Continuous Iron and Wire Fencing, Hurdles, Gates, Tree Guards, Garden Arches, Rosaries, Netting, and every description of Wire Work.

PORTABLE AND FIXED HOT-WATER APPARATUS,
FOR HEATING CONSERVATORIES, HOTHOUSES, CHURCHES, PUBLIC BUILDINGS, PRIVATE RESIDENCES, ETC., WITH

TRUSS'S PATENT UNIVERSAL FLEXIBLE AND LEAKLESS PIPE-JOINTS.

T. S. TRUSS
Begs to state that the immense number of APPARATUS annually Designed and Erected by him in all parts of the kingdom, and for the ROYAL HORTICULTURAL SOCIETY at SOUTH KENSINGTON and CHISWICK, with unrivalled satisfaction, is a guarantee for skill of design, superior materials, and good workmanship; while the great advantages obtained by his IMPROVED SYSTEM cannot be over-estimated, consisting of perfectly tight joints with neatness of appearance; EFFECTS A SAVING OF 25 PER CENT. on cost of Apparatus erected compared with other systems; facility for extensions, alterations or removals without injury to Pipes or Joints; can be erected by any Gardener; an ordinary size Apparatus erected in one day, and PERFECTNESS of DESIGN SUPPLIED, INSURING NO EXTRAS. Complete Apparatus, of the best materials, with Saddle Boiler, delivered to any Railway Station in England, and Erected at the following prices. Erection beyond 25 miles off London, railway fare for one man additional. Considerable reduction on large works.

TWO FOUR-INCH PIPES ALONG ONE SIDE AND ONE END OF HOUSE.

Size of House.	Apparatus Complete.	Erection.	Size of House.	Apparatus Complete.	Erection.
20 feet by 10 feet ..	£9 0 0 ..	£2 0 0	50 feet by 15 feet ..	£17 10 0 ..	£3 0 0
30 feet by 12 feet ..	11 15 0 ..	2 10 0	75 feet by 15 feet ..	20 0 0 ..	3 0 0
40 feet by 15 feet ..	15 0 0 ..	2 15 0	100 feet by 15 feet ..	26 0 0 ..	3 5 0

Bath and Gas Work erected in town or country. The Trade Supplied.
Horticultural Buildings of every description from 1*s.* 6*d.* *per foot superficial, inclusive of Brickwork.*
Price Lists, Plans, and Estimates forwarded on application to
T. S. TRUSS, C.E., CONSULTING HORTICULTURAL ENGINEER, &c., SOLE MANUFACTURER, FRIAR STREET, BLACKFRIARS ROAD, LONDON, S.E.
Observe—The City Offices are now Removed to the Manufactory, Friar Street.

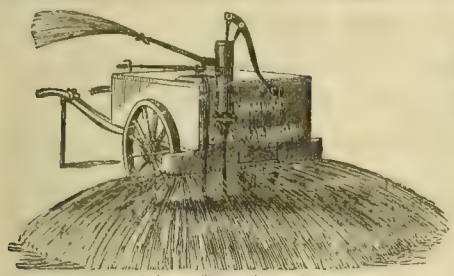
SHANKS' NEW PATENT LAWN MOWERS.



HAND MACHINE.

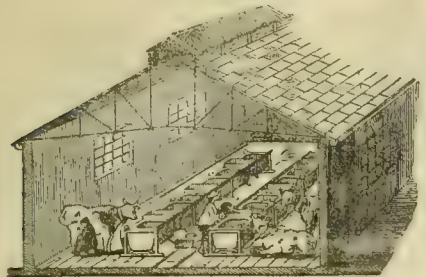
These are the only Machines in daily use in all the Royal Gardens.
These are the only Machines that will mow properly when the Grass is wet.
These are the only Machines that will last for years without requiring repair.
Illustrated Circulars with full particulars free on application.
A. SHANKS & SON, Dens Iron Works, Arbroath.
London Office and Show Rooms—27, Leadenhall Street, E.C.
☞ 27, Leadenhall Street, is the only place in London where intending purchasers of Lawn Mowers can choose from a stock of 150 to 200 Machines. All sizes kept there whether for Horse, Pony, or Hand-power.

FOR the BEST LIQUID MANURE CART, IMPROVED ROLLER and CLOD CRUSHER,



Apply to I. JAMES, Tivoli Works, Cheltenham

COTTAM'S PATENT PORTABLE UNITED COW FITTINGS.



Their advantages are—Portability, not fixtures, removable at pleasure, no Woodwork or Partitions to impede Ventilation or breed Vermin, Hay Rack dispensed with as unnecessary, increased width and depth of Feeding Troughs, Water Cistern, and Patent Drop Cover to prevent over-gorging. Cleanly, durable, and impervious to infection, being all of iron. Price of Fittings per Cow, 55s.
Prospectuses free of COTTAM & Co., Iron Works, 2, Winsley Street (opposite the Pantheon), Oxford Street, London, W., where the above are exhibited, together with several important Improvements in Stable Fittings just secured by Patent.

MR. JOHN BIRCH, ARCHITECT (Author of the Society of Arts' Prize Cottages), 16, Beaufort Buildings, Strand, W.C.

JOHN GIBSON, JUN., begs to announce that he is prepared to Furnish PLANS and ESTIMATES for LAYING OUT GROUND attached to Mansions and Villa or other Residences, or for the FORMATION of PUBLIC PARKS or GARDENS and to carry out the same by Contract or otherwise.
Address Mr. JOHN GIBSON, jun., Surrey Lane, Battersea, S.W.

GEORGE F. MORRIS (of the Firm of PROTHEROE & MORRIS) undertakes SALES and VALUATIONS of FREEHOLD LANDED ESTATES, Leasehold and Reversionary Property of every description, Farming and Market Garden Produce, Household Furniture, Stock in Trade, &c.
Auction and Estate Agency Office, The Limes, Leytonstone, Essex.

Farm Poultry.

GREY DORKING FOWLS, of purest breed, in any numbers.
Imported TOULOUSE GEESE, the largest and most productive breed known.
Improved NORFOLK TURKEYS, large, hardy, and good breeders.
AYLESBURY and ROUEN DUCKS.
Imported BELGIAN HARE RABBITS, for size and early maturity.
BRAHMA-POUTRA, CREVECŒUR, and LA FLECHE FOWLS, for constant layers.
Priced Lists and Estimates on application.
JOHN BAILY & SON, 113, Mount Street, London, W.

WANTED, a SMALL MARKET GARDEN or FLORIST BUSINESS near London, or any large Provincial Town.—Address, stating particulars, to
A. B., care of Mr. Kinghorn, Richmond, S.W.

FOR DISPOSAL, a First-class NURSERY and SEED BUSINESS; or the present Proprietor would accept of a WORKING PARTNER with a Capital of not less than £1500.
Apply by letter to E., Messrs. Hurst & Son, 6, Leadenhall Street, London, E.C.

To Market Gardeners, Nurserymen, &c.

TO BE SOLD, by Private Contract, about 200 ACRES of very superior GARDEN GROUND, all Freehold, situate in the County of Bedfordshire, about three miles from Biggleswade Station, Great Northern Railway. The Land is divided into Lots to suit the convenience of purchasers. For particulars apply to
THOMAS FOUNTAINE, Esq., Dunton Lodge, Ashwell, Baldock.

Nursery and Seed Business for Sale.

WILLIAM DEAN, having determined on residing in London again, offers for SALE, with immediate possession, the NURSERY at SHIPLEY, consisting of Four Acres, with 13 extensive Glass Houses, the whole, with the Nursery well stocked, and with Dwelling House, &c., is held on Lease; also the SEED SHOP, in BRADFORD (the only one in the town), which is well fitted up, and where there is a good business doing in Fancy Articles, as well as Seeds, Cut Flowers, Flowering Plants, &c. The Nursery is 2½ miles from the Shop, on a principal road to Bradford. A half year's business is equivalent to the purchase money required, and will be a great bargain to the purchaser. It is an excellent opportunity for a large house in the South to establish a Branch Business here, as a good healthy Trade is already done, which may be very much increased. For particulars apply to
WILLIAM DEAN, Bradford Nursery, Shipley, Yorkshire.

Nursery Ground

TO BE LET, or LEASE to be SOLD, well cropped with Vegetables, Flower Roots, and Fruit Trees; large Greenhouse, Heated with Hot Water; Stock Plants, in pots; Frames, Lights, &c. Standing on about Two Acres of excellent Land. Price, with Lease, for the whole, £150.
Apply A. B., The Greyhound, Basham Street, Plaistow, Essex, E.

The Exmoor Cobs, Galloways, and Ponies.

MR. ROBERT SMITH'S next ANNUAL SALE of about 40 of these LITTLE HORSES will come off at Fiolder's Repository, Bristol, on WEDNESDAY, September 25, next, at 1 o'clock. On view the day previous to the Sale.
They are warranted sound, and chiefly bred from renowned sires and Exmoor Pony Mares. Descriptive Catalogues may be had, 10 days prior to the Sale, at the Stud Farm, Exmoor Forest, South Molton, Devon.—Emmett's Grange, August 20.

Sales by Auction.

SALE THIS DAY AND MONDAY, AT HALF-PAST 12 O'CLOCK.

Bulbs from Holland for Autumn Planting.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on SATURDAY and MONDAY, September 21 and 23, at half-past 12 o'Clock precisely each day, 1000 Lots of first-class HYACINTHS, TULIPS, CROCUSES, NARCISSUS, RANUNCULUS, GLADIOLI, IRIS, and other Bulbs just arrived from well known Farms in Holland; and a few Lots of RUSTIC SEATS, STOOLS, VASES, &c.
On view the Morning of Sale, and Catalogues had.

A Collection of Greenhouse Ferns,

THE PROPERTY OF A GENTLEMAN, AND A CONSIGNMENT OF BULBS FROM HOLLAND FOR PRESENT PLANTING.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, September 25, at half-past 12 o'Clock precisely, a Collection of choice GREENHOUSE and HOTHOUSE FERNS, the property of a Gentleman; and a Consignment of first-class BULBS from Holland, just arrived in capital condition; also some RUSTIC SEATS, STOOLS, BASKETS, &c.
On view the Morning of Sale, and Catalogues had.

To Noblemen, Agriculturists, and Others.

AN IMPORTANT UNRESERVED SALE OF PRIZE BERKSHIRE PIGS, WILL TAKE PLACE AT READING, BERKS, ON TUESDAY, SEPTEMBER 24, COMMENCING AT 12 O'CLOCK.

MR. TOMPKINS is favoured with instructions from Arthur Stewart, Esq., of Saint Bridge House, Gloucester (who is returning from breeding and exhibiting for prizes), to SELL by AUCTION, at his Mart, close to the Railway Station, Reading, without the slightest reserve, the entire and Valuable HERD of about 60 head of the CHOICEST PIGS perhaps ever seen together. Mr. Stewart's Berkshire Pigs took the 1st and 2d Prizes in the Breeding Sow Class, and the Silver Medal in the Boar Class, at the Royal Agricultural Show at Newcastle in 1864. Mr. S. also obtained at the Royal Agricultural Show at Plymouth in 1865, 1st and 2d Prizes, and reserved number in the breeding Sow Class, and 1st Prize in the Boar Class. In 1866 there was no Show. At the Royal Agricultural Show at Bury St. Edmund's this year, Mr. S. secured the 1st Prize in the Boar Class, and 2d Prize and reserved number in the Breeding Sow Class: Mr. Stewart's best sow died, leaving seven young in the pen, before the Judges were admitted into the snow yard.
N.B.—The Auctioneer earnestly solicits the attendance of the Public to the above unreserved Sale, and would remark that Mr. Stewart has gained many Prizes, both at the Bath and West of England Shows, and elsewhere. These Pigs will be found of great size, length and depth; the fine strain of blood is solely confined to the above herd, Mr. Stewart never allowing any subscription to be taken for his Boars.
Full particulars will appear in Catalogues, which can be obtained a week prior to the Sale, on application being made to the Auctioneer. See Vol. No. 2 of the *Agricultural Journal* for 1865, in reference to this Herd.

The late W. Fisher Hobbs, Esq., Boxted Lodge, near Colchester, Essex.

MR. CLEAR is instructed by the Executor, H. TRETHEWY, Esq., to SELL by AUCTION, on THURSDAY and FRIDAY, September 26 and 27, upon the Premises, without any reserve, the Farm being Let, all the Valuable LIVE and DEAD AGRICULTURAL STOCK, comprising the Entire Herd of his celebrated improved ESSEX PIGS, which consist of 40 Sows with Pigs and in farrow, 20 Boars of various ages, and 70 Store Pigs; the whole of the FLOCK of highly-bred pure SOUTHDOWN SHEEP; bred from the Flocks of the Duke of Richmond, Mr. Jonas Webb, and Mr. Penford, which includes 180 Ewes, 170 Ewe and Wether Shearlings, 160 Ewe and Wether Lambs, 6 very large and superior Rams, 11 Shearling Rams, 6 Ram Lambs; the choice selection of 9 ALDERNEY COWS and CALVES, and 4 BULLS, which are exceedingly handsome and profitable, being all bred from prize stock; 100 couple of pure Dorkings, bred from the late Mr. Hobbs's celebrated prize stock; and 10 couple of Golden-Pencilled Hamburghs; 10 Aylesbury Ducks and 6 Turkeys; 10 Suffolk CART HORSES.
Enfield Farm, Boxted.
ARRANGEMENT OF SALE.—The herds of Cows and Swine, flock of Sheep, Poultry, and Steam Threshing Machine, on THURSDAY, September 26. The Horses and Agricultural Implements, on FRIDAY, September 27. Sale to commence each day at 11 for 12 o'clock.
Enfield Farm is 4 miles from Colchester, a first-class station on the Great Eastern Railway. Conveyances will meet the train that leaves London at 9.15 and arrives at Colchester at 10.57; also the train that leaves Colchester at 6.45, arriving in London at 8.45.
Catalogues may be obtained, on application to WM. HOBBS, Esq., Boxted Lodge; at the Cups Hotel, Colchester; and of Mr. CLEAR, Maldon Essex.

Preliminary Announcement.

VALUABLE ORCHIDS, STOVE, GREENHOUSE, AND OUT-DOOR PLANTS, GREENHOUSE, VINERY, AND FRUIT-HOUSE, CLAUGHTON, NEAR LIVERPOOL.

MR. BRANCH will SELL by AUCTION on WEDNESDAY and THURSDAY, October 2 and 3, on the Premises, Devonshire Road, Claughton, near Liverpool, the property of a Gentleman changing his residence, a large and select collection of valuable ORCHIDS, STOVE and GREENHOUSE PLANTS, FERNS, ORNAMENTAL and FOLIAGE PLANTS, ROSES, DWARF FRUIT TREES, AZALEAS, CAMELLIAS, BEDDING PLANTS, &c.; also a large GREENHOUSE and VINERY, about 70 feet long by 26 feet wide, with Boiler and Hot-water Pipes complete, and an ORCHARD or FRUIT-HOUSE, &c., which will be further particularised in the *Mercury* of Friday next.
To be viewed one day previous to the Sale, when Catalogues may be obtained on the Premises, or at the Offices of Mr. BRANCH, 60, Hanover Street, Liverpool.

Nursery Stock—Mill Hill Nursery, Hendon.

About a mile from Mill Hill Station on the Edgware and Highgate Railway, and one hour's ride from Camden Town by Mill Hill Omnibus.

MESSRS. HUMBERT AND COX are favoured with instructions from the Executors of the late Mr. James Wright, to SELL by AUCTION, on the Premises, Mill Hill Nursery, Hendon, on THURSDAY, October 24, at 12 for 1 o'Clock, the whole of the NURSERY STOCK, comprising 1000 Thuja Lobbii, 100 Thujopsis Borealii, 1000 Aucuba japonica, 1000 Laurustinus, 1000 English Yews, 200 Laurels, 500 Portugal Laurels, 1000 Cupressus Lawsoniana, 500 Abies Douglassii, 500 Phillyrea, 500 Scotch Fir, 500 Pinus excelsa, 500 Standard Roses (named), 500 Dwarf Roses, 500 Thuja gigantea, 600 Limes, Chestnuts, Birch, Acacias, Mountain Ash, English Oak and Elm, &c.
May be viewed two days prior to the Sale. Catalogues may be had on the Premises: at the principal Inns at Hendon; the Essex Arms and Clarendon Arms Hotels, Green Man, and Leathersellers' Arms, Watford; the Red Lion, Elstree and Harnet; Abercorn Arms and Vine Inns, Stanmore; Three Crowns, Bushey Heath; Bell Inn, Bushey; Swan and Bell Inns, Rickmansworth; and (free by post) of Messrs. HUMBERT & COX, Land Agents, Auctioneers, and Surveyors, Little Nascot, Watford, Herts; and 88, St. James' Street, London, S.W.

Important to Gentlemen engaged in Planting, Landscape Gardeners.

SALE BY AUCTION OF HIGHLY VALUABLE NURSERY STOCK.

JOHN CRANSTON begs to say that from the greatly increased demand for ROSES during the last two or three years he finds it absolutely necessary to very considerably extend their Cultivation, both out-of-doors and under glass. To enable him to accomplish this in a manner fully and satisfactorily to meet the demand, he feels compelled to clear a very large portion of his Nurseries, now stocked with valuable collections of Fruit Trees, Conifers, Evergreens, Deciduous Ornamental Shrubs, Forest Trees, &c.; likewise a fine Collection of Camellias, Azaleas, Geraniums, and Miscellaneous Greenhouse Plants, now occupying several large houses.
He will, therefore, in future be able to devote at least the one-half of his Nurseries, which extend over 50 Acres, solely to the cultivation of Roses, as well as five or six large Houses for the propagation of Tea-scented and other tender sorts in pots.
The fact of his having on every occasion during the season taken the First Prize for the large Collection of Roses at the Metropolitan and other Rose Shows, coupled with the regular increase of orders which has been going on for years, convinces him of the necessity of losing no time in taking the course he herein proposes.
Mr. SUNDERLAND has received instructions to SELL by AUCTION, on the premises, at the King's Acre Nurseries, on September 30, 1867, and following days, a large portion of the GENERAL NURSERY STOCK, comprising—
25,000 Dwarf-trained, Pyramid, and Standard Peaches, Nectarines, Apricots, Pears, Plums, Cherries, and Apples, all well grown and finely trained—the greater portion are large-sized bearing trees.
1,000 Peaches, Nectarines, Pears, Plums, Cherries, and Figs in pots.
300 Grape Vines.
15,000 Common Laurel, 2 to 3 feet.
30,000 Conifers, including beautifully grown plants of Cedrus Deodara, Cedrus atlantica, Cupressus Lawsoniana, Thujopsis borealis, English Yew, Pinus austriaca, Pinus insignis, Araucaria imbricata, &c., varying in height from 2, 3, 4, and 6 to 8 feet, and many of them fine specimen trees.
2,000 Wellingtonea gigantea, from 2 to 3 feet, beautifully grown plants, all regularly transplanted.
3,000 Rhododendrons, 2½ feet.
Several thousand Berberis Darwinii, variegated Holly, Arbutus, &c.
A quantity of the New Japan Aucubas, &c.
A large quantity of Deciduous Ornamental Trees and Shrubs, including 1000 Standard Double Pink, Scarlet and other Thorns, Weeping Ash, Beech, Oak, Elms, &c.
2000 Deutzia gracilis, suitable for forcing.
Climbing and Wall Plants, all the leading kinds of Clematis, Lonicera, Ceanothus, &c.
300,000 Transplanted Forest Trees, including Ash, Spanish Chestnut, Larch, Scotch, English Oak, Spruce Fir, Thorns, &c., varying in height from 2 to 4 feet.
1500 Indian Azaleas, 500 Camellias, miscellaneous Greenhouse Plants, &c.
The whole of the above Stock is in the finest condition possible, having been thoroughly well grown, and regularly and carefully transplanted, neither were any of the Trees injured in the least during the last severe winter.
Further particulars are given in circulars now published, and will be forwarded on application.
Catalogues, which art now in course of preparation, will be distributed early in September.
Nurseries, King's Acre, near Hereford.—Aug. 1, 1867.

Preliminary Notice.—Important Sale.

MR. A. RICHARDS will SELL by AUCTION, on the Premises, Edmonton, on WEDNESDAY and THURSDAY, October 2 and 3, the valuable NURSERY STOCK, GREENHOUSES, &c. (the Lease having expired and the Ground being required for building purposes), including 3000 home-grown Camellias of the best varieties, 3000 Calceolarias, 2000 Hydrangeas, 2 00 Wellingtonia gigantea 3 to 6 feet high, 1500 Cupressus Lawsoniana 3 to 5 feet, Red Cedars, Aucubas, Araucaria imbricata, &c., nearly the whole transplanted in the spring and autumn of 1866. Also 8 capital Greenhouses, 100 Lights, large common Boiler, Pipes, Spring Van, &c. On view two days previous. Catalogues obtainable on the Premises, and of the Auctioneer, Tottenham.

To Market Gardeners and Others.

MR. W. T. ATWOOD will SELL by AUCTION, on the Premises, Culvert Road, near the Half-way House, Battersea Fields, S.W., on THURSDAY, October 3, at 12 o'Clock precisely, the property of Mr. S. POUPART, who is relinquishing business, the LIVE and DEAD STOCK and IMPLEMENTS of TRADE, and CROPS of GLOBE ARTICHOKES, RHUBARB, and BEET ROOTS. The Stock comprises—3 powerful Cart Horses and Chaise Horse, 5 Spring Market Vans, Dung Cart, Market Cart, Block Waggon, Wash Bed, 4-wheel Chaise and Dog Cart, Thill Trace and Chaise Harness, Corn Bins, Ploughs, Harrows, Rollers, Box and Long Barrows, Patent Chaff Machine, Fruit and Step Ladders, Seed Sieves, Winnowing Machine, Sack and Seed Cloths, Watering Pots, Garden Tools, 80 3-light Boxes and Lights and Bell Glasses; heaps of excellent Manure, Litter, and Packing Hay; quantity of useful Boards, Scantling, Kerb and Paving Stones, Firewood, Iron Hurdles, and sundry useful effects.
May be viewed Day before and Morning of Sale; Catalogues had on the Premises, Inns in Covent Garden Market, and W. T. ATWOOD, Mortlake, Surrey.

The Prince Consort's Shaw Farm, Windsor Home Park.

IMPORTANT SALE OF SHORTHORNED CATTLE, &c.

MR. STRAFFORD has the honour to announce that he has received instructions to offer for SALE by AUCTION, without reserve, on WEDNESDAY, October 16 next, at the Prince Consort's Shaw Farm, Windsor Park, a choice selection of SHORTHORNED CATTLE, comprising upwards of 50 HEAD of BULLS, COWS, and HEIFERS. Amongst them will be found some fine specimens of the Fawsley blood, including several descendants of the celebrated Cows "Alix" and "Cold Cream." First-class Bulls from Warlaby have been used for a number of years, viz., Prince Alfred (13,494), British Prince (14,197), Fitz-Clarence (14,552), and Lord Hopewell (14,239). Also will be offered three entire YEARLING CLYDESDALE COLTS, 15 Fat BULLOCKS, 100 Fat SHEEP, and a few Choice PIGS, of the Prince Consort's celebrated Windsor Breed.
Catalogues, with Pedigrees, will shortly be issued, and may be had on application to Mr. STRAFFORD, 13, Euston Square, London, N.W.; or of Mr. TAIT, at the Prince Consort's Shaw Farm, Windsor.

Very Important to Noblemen, Gentlemen,

PUBLIC COMPANIES, NURSERYMEN, AND OTHERS ENGAGED IN PLANTING.

PRELIMINARY NOTICE of FORTHCOMING SALES by Messrs. PROTHEROE AND MORRIS.

TUNBRIDGE WELLS, October 16, 17, 18, and 19:—CLEARANCE SALE of VALUABLE EVERGREEN, CONIFERÆ, and DECIDUOUS SHRUBS, ORNAMENTAL and FOREST TREES, in the finest condition.

CITY AUCTION ROOMS, 38, GRACECHURCH STREET, CITY: WEEKLY SALES of first-class DUTCH BULBS, STANDARD and DWARF ROSES, &c.

ACTON, HOPGOOD'S NURSERY, October 21, 22, 23, and 24:—CLEARANCE SALE (the Lease having expired). Thriving NURSERY STOCK, including, with the usual assortment, some remarkable fine LIMES, PLANES, FRUIT TREES, &c.

TOTTENHAM, MIDDLESEX. HALE FARM NURSERY, November 1.—(Surplus Stock). A Collection of ORNAMENTAL TREES, EVERGREENS, CONIFERÆ, and FLOWERING SHRUBS, ROSES, FRUIT TREES, CLIMBERS of sorts, &c.

KINGSTON, SURREY.—Clarence Street and Park Road, Nov. 5, and following days:—Excellent NURSERY STOCK, in the best state of cultivation; EVERGREEN, CONIFERÆ, and DECIDUOUS SHRUBS in great variety, ranging all sizes, which has been constantly transplanted, and will incur no risk from removal.

GODALMING, SURREY, November 11, and following days, by order of Mr. Charles J. Barker, unless previously disposed of in one lot by Private Contract, the whole of the GREENHOUSE PLANTS, GREENHOUSES (newly erected), and other Effects, at Godalming Nursery; also the Valuable NURSERY STOCK, growing in Terrace Gardens, shady Hangers. Within five minutes' walk of the Godalming Railway Station.

WOKING, SURREY, November 18, and following days:—Clearance Sale of the whole of the unrivalled COLLECTION of EVERGREEN, CONIFERÆ, and DECIDUOUS SHRUBS, ORNAMENTAL FRUIT, and FOREST TREES, extending over 100 acres, or thereabouts, to be SOLD, without reserve, in consequence of the death of Mr. Robert Donald. The Stock is particularly worthy the attention of the Trade.

HOOPER'S ETRUSCAN HYACINTH VASES.
To be had of most Seedsmen in the Kingdom, Wholesale and Retail of
HOOPER & Co., Seed Merchants, Covent Garden, London, W.C.

SHAW'S TIFFANY.
For samples and prices apply to
J. SHAW & Co., 29, Oxford Street, Manchester.

Russia Mats.
JAMES T. ANDERSON'S PRICE LIST of ARCHANGEL and other MATS is now ready, and may be had post-free on application. They are the best and cheapest offered.
JAMES T. ANDERSON, 7, Commercial Street, Shoreditch, London, N.E.

IRON HURDLES (Silver Medal of the Royal Agricultural Society).
SHEEP, 3s. 5d.; CATTLE, 4s. 2d.; OX, 5s. 11d.
List by Post. GATES and FENCING of every description.
St. Pancras Iron Work Company, Old St. Pancras Road, London, N.W.

FOR SALE, at half its cost, a TREE-MOVING MACHINE, capable of lifting Trees 30 feet high, constructed under the Superintendence of Mr. Barron, of Elvastone Castle. Is as good as new, and only parted with because the present owner has no use for it.
Apply to Mr. HENRY DOWNING, Mickleham, Surrey.

WANTED, a SECOND-HAND TRANSPLANTING MACHINE, for the Removal of Large Trees. Any one having such for Disposal, will oblige by sending price and particulars to CHARLES TURNER, Royal Nurseries, Slough.

Caution to Gardeners.—When you ask for
SAYNOR AND COOKE'S WARRANTED PRIZE PRUNING and BUDDING KNIVES, see that you get them. Observe the mark SAYNOR, also the corporate mark OBTAIN WARRANTED, without which none are genuine.
S. & C. regret having to caution Gardeners and others, but are compelled to do so, in consequence of an imitation, of common quality, having been sold for the genuine one, and which has caused many complaints to be made to them of Knives which were not of their make, all of which are warranted both by Sellers and Makers.
S. & C.'s Pruning and Budding Knives are the BEST and the cheapest in the market.
Paxton Works, Sheffield. Established upwards of 125 years.



GARDEN BORDER EDGING TILES, in great variety of patterns and materials, the plainer sorts being especially suited for KITCHEN GARDENS, as they harbour no Slugs and Insects, take up little room, and once put down incur no further labour and expense, as do "grown" Edgings, consequently being much cheaper.

GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, of great durability, and in great variety of design.
F. & G. ROSHER, Manufacturers, Upper Ground Street, Blackfriars, S.; Queen's Road West, Chelsea, S.W.; Kingsland Road, Kingsland, N.E.

Sole London Agents for FOXLEY'S PATENT GARDEN WALL BRICKS. Illustrated Price List free by post. The Trade supplied.

ORNAMENTAL PAVING TILES for Conservatories, Halls, Corridors, Balconies, &c., as cheap and durable as Stone, in blue, red, and buff colours, and capable of forming a variety of designs.
Also TESSELATED PAVEMENTS of more enriched designs than the above.
WHITE GLAZED TILES, for Lining Walls of Dairies, Larders, Kitchen Ranges, Baths, &c. Grooved and other Stable Paving Bricks of great durability, Dutch and Adamantine Clinkers, Wall Copings, Red and Stoneware Drain Pipes, Slates, Cement, &c.
To be obtained of F. & G. ROSHER, at their premises as above.

SILVER SAND (REIGATE, best quality), at the above addresses—14s. per Ton, or 1s. 3d. per Bushel; 2s. per Ton extra for delivery within three miles, and to any London Railway or Wharf. Quantities of 4 Tons, 1s. per Ton less.
FLINTS, BRICK BURRS or CLINKERS, for Rockeries or Grotto Work. F. & G. ROSHER.—Addresses see above.
N.B. Orders promptly executed by Railway.

TYE'S REGISTERED HYACINTH GLASSES AND SUPPORTS

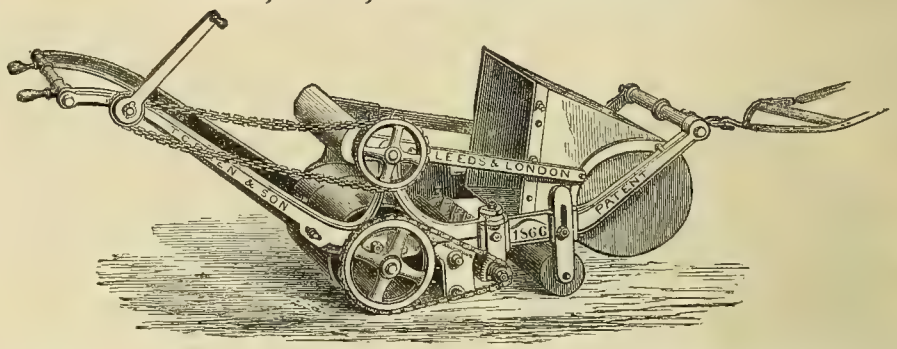


MAY BE HAD OF ALL RESPECTABLE NURSERYMEN AND SEEDSMEN,
AND WHOLESALE OF
CLAUDET, HOUGHTON, & SON, 89, High Holborn, London W.C.
Also a Revised Edition of "PRACTICAL HINTS on the CULTIVATION and PROPERTIES of the HYACINTH," by G. P. TYE. Price 4d.
PRICE LIST of the above, and of FERN CASES, FLOWER STANDS, &c., free on application.

GREEN'S PATENT SILENS MESSOR,
OR NOISELESS LAWN MOWING, ROLLING, AND COLLECTING MACHINES.
FITTED WITH PATENT SELF-SHARPENING CYLINDER CUTTERS.

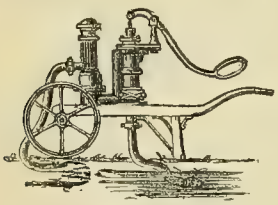
They are the simplest in construction, least liable to get out of order, and can be worked with far greater ease than any other Lawn Mower extant.
GREEN'S PATENT LAWN MOWERS have proved to be the best, and have carried off every Prize that has been given in all cases of competition; and in proof of their superiority, 40,000 have been sold since the year 1856.

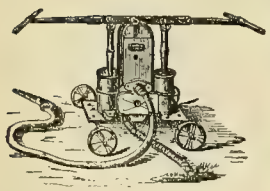
HORSE, PONY, AND DONKEY MACHINE.

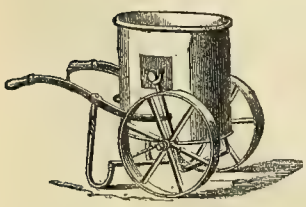


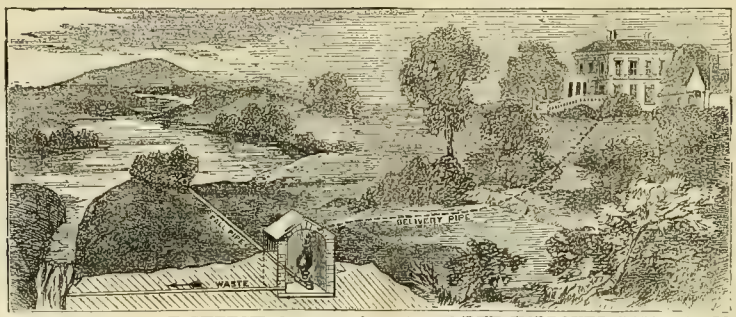
Every Machine is warranted to give entire satisfaction, and if not approved of can be returned at once unconditionally.
T. GREEN AND SON *have to state that the demand for their* LAWN MOWERS *this Season has been unprecedented, which is a proof of the high estimation in which they are held. Selections can be made from their Stock both in London and Leeds.*
☞ ILLUSTRATED PRICE LISTS FREE ON APPLICATION.
THOMAS GREEN AND SONS, SMITHFIELD IRON WORKS, LEEDS; and
54 and 55, BLACKFRIARS ROAD, LONDON, S.

S. OWENS & CO.,
(LATE CLINTON AND OWENS),
MANUFACTURERS OF
PUMPS AND HYDRAULIC MACHINERY,
WHITEFRIARS STREET, FLEET STREET, LONDON.


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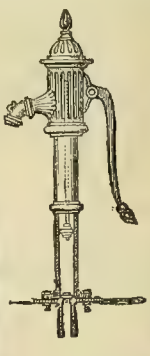

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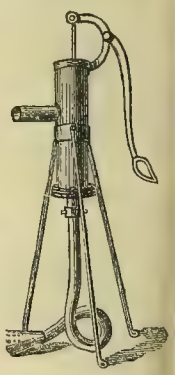

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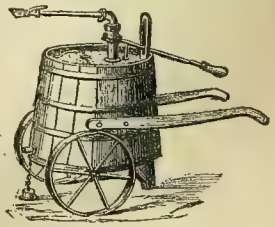
THE LANDSCAPE SKETCH shows an adaptation of THE IMPROVED HYDRAULIC RAM for Forcing Water to considerable Heights and Distances to supply Mansions, Farms, &c., where a few feet fall can be obtained. Full particulars of this useful Self-acting Machine can be had on application.

No. 4. Useful YARD, GARDEN, and COTTAGE PUMPS, from £1 5s. each.
No. 38. PORTABLE LIQUID MANURE PUMPS, with Flexible Suction Pipe.
No. 46a. DOUBLE-ACTION PORTABLE FORCE PUMPS and FIRE ENGINES for WATER or LIQUID MANURE.
No. 50. IMPROVED (HOLMAN'S PATENT) DOUBLE-BARREL FARM FIRE ENGINES and IRRIGATING PUMPS.
No. 49. GARDEN ENGINES of all sizes.
No. 49a. IMPROVED SWING WATER CARRIERS, holding 24 and 35 Gallons, for GARDEN USE.
No. 49c. INDIA RUBBER HOSE and FITTINGS for WATERING GARDENS.
☞ *Further particulars, Estimates, and Illustrated Price Lists on application.*


No. 4.


No. 38.


No. 49c.


No. 49.

Editorial Communications should be addressed to "The Editor;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
Printed by JAMES MATTHEWS, at the Office of Messrs. BRADBURY, EVANS, & Co., Lombard Street, Precinct of Whitefriars, City of London, in the Co. of Middlesex, and Published by the said JAMES MATTHEWS, at the Office, No. 41, Wellington Street, Parish of St. Paul's, Covent Garden, in the said County.—SATURDAY, September 21, 1867.

THE GARDENERS' CHRONICLE

AND

AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.

No. 39.—1867.] SATURDAY, SEPTEMBER 28. {Price Fivepence, Stamped Edition, 6d.

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ROYAL HORTICULTURAL SOCIETY, SOUTH KENSINGTON, W.

NOTICE.—A MEETING of the FRUIT and FLORAL COMMITTEES will be held on TUESDAY, October 1, at 11 for half-past precisely. GENERAL MEETING at Three.

NOTICE.—Awards having been given to Messrs. F. & A. Smith, for Louisa Smith and Jetty Lacy, and to Mr. Perkins' Victoria and Countess of Craven, at the South Kensington Exhibition, in preference to J. WATSON'S MISS WATSON and MRS DIX, J. WATSON CHALLENGES Messrs. Smith and Perkins to EXHIBIT their TWO against his TWO for a CUP, value £15 15s. Each Exhibitor to subscribe Five Guineas; the Plants to be judged according to rules laid down in the *Gardeners' Chronicle;* each Exhibitor to choose two Judges

New Zealand Nursery, St. Alban's.

"MR. PAUL'S ROSES * * * are things to see once and dream of for ever."—*Athenæum, June,* 1867.

WM. PAUL begs to announce that his CATALOGUE of ROSES is now ready, and will be forwarded free on application.

EIGHTEEN PRIZES have been awarded to him for Roses this year at the principal London Flower Shows.

PAUL'S Nurseries, Waltham Cross, London, N.

PAUL AND SON'S NEW ROSE CATALOGUE for 1867, Priced and Descriptive, may now be had post free from The "Old" Nurseries, Cheshunt, N.

The Advertisers venture to call attention to their large stock of fine Plants, and to solicit early orders.

To the Trade.

MARECHAL NIEL ROSE, from own roots, in pots, by the 100 or 1000, at £5 per 100.

G. BAKER & SON, American Nursery, Bagshot.

CULTURAL DIRECTIONS for the ROSE. Second Edition. By JOHN CRANSTON, King's Acre Nurseries near Hereford. Free by post from the Author for 20 stamps.

New Green-flesh Melon, the Sultan.

SUTTON AND SONS beg to announce that they have purchased the entire stock of the above splendid MELON, which took the First Prize at the Royal Horticultural Society's Show at Bury, in July last. It will be sent out in the Spring, in packets 2s. 6d. each, post free.

Royal Berkshire Seed Establishment, Reading.

Vines.

B. S. WILLIAMS has now on hand a very large and fine Stock of FRUITING and PLANTING CANES of all the best varieties. An inspection is invited.

Victoria and Paradise Nurseries, Upper Holloway, London, N.

Pines (Queens).

TO BE DISPOSED OF, 94 superior FRUITING and SUCCESSION PLANTS, clean and healthy.

For further particulars apply to Mr. R. STANLEY, 21, Holly Grove, Balham, Surrey, S.

Strawberries.

CHARLES TURNER is now prepared to supply strong Plants of the best modern kinds, as well as all the leading established varieties, true to name.

A DESCRIPTIVE LIST may be had on application.

The Royal Nurseries, Slough.

THE THREE MOST USEFUL STRAWBERRIES in cultivation either for forcing or the open ground.

PRESIDENT, strong layers, in 60-pots, 15s. per 100

SIR CHARLES NAPIER, strong layers, in 60-pots, 15s. per 100

KEEN'S SEEDLING, strong layers, in 60-pots, 15s. per 100

Runners of most other sorts, true to name, from 3s. 6d. per 100

F. R. KINGHORN, Sheen Nursery, Richmond, S.W.

Standard Apples.

WOOD AND INGRAM offer to the Trade and others 20,000 splendid STANDARD APPLES, with 5 to 6 feet stems and magnificent heads. Price on application.

The Nurseries, Huntingdon.

Orchard-house Trees Fruiting in Pots.

PEACHES, NECTARINES, APRICOTS, CHERRIES, PLUMS, PEARS, APPLES, VINES, and FIGS.

RICHARD SMITH, Nurseryman and Seed [illegible], Worcester.

Highly Cultivated and Regularly Transplanted Nursery Stock.

EIGHTY ACRES of the above, consisting chiefly of FRUIT TREES, ROSES, EVERGREENS, and ORNAMENTAL TREES, which for general excellence are unsurpassed.

THOMAS WARNER, Leicester Abbey Nurseries.

PINKS.—These should be planted at once, when fine well-laced Blooms will be obtained. Strong Plants of the best named varieties at 9s. and 12s. per dozen pairs.

CHARLES TURNER, Royal Nurseries, Slough.

CLARKE'S ROSE PINK, LORD LYON.—The best Pink for Forcing in Cultivation, to which a Certificate was awarded at the Great Show of the Royal Horticultural Society, on June 4, 1867. Strong Plants, now in a fine state for potting, 5s. per pair. Orders, accompanied by Post-office order or stamps, to

J. CLARKE, 42, College Street, Bury St. Edmund's.

Winter and Spring Flowering Bulbs and Plants.

BARR AND SUGDEN'S FLORAL GUIDE may be had free. It contains much valuable information.

For particulars see large Advertisement, page 1016.

Dutch Bulbs and Plants for Spring Gardening.

PAUL AND SON'S very complete and suggestive LIST is NOW READY.

The "Old" Nurseries, Cheshunt, N.

Bulb Catalogue.

BUTLER, McCULLOCH, AND CO.'S CATALOGUE of Choice DUTCH and CAPE BULBS is now ready. Sent free and post paid.—Established upwards of a Century.

South Row, Covent Garden Market, W.C.

Dutch and Other Flower Roots.

JAMES DICKSON AND SONS have received, in excellent condition, a large Importation from the most eminent growers. PRICED DESCRIPTIVE LIST post free on application.

102, Eastgate Street, and "Newton" Nurseries, Chester.

WM. CUTBUSH AND SON beg to say that their DESCRIPTIVE CATALOGUE of CHOICE HYACINTHS, TULIPS, CROCUSES, &c., is now ready, and can be had post free on application. Highgate Nurseries, London, N.

IMPORTED DUTCH and CAPE FLOWERING BULBS.—We beg leave to intimate that our PRICED DESCRIPTIVE CATALOGUE and AMATEUR'S GUIDE of the above is now ready, and will be sent post free on application.

FERGUS FARRELL & SON, 119 and 120, Capel Street, Dublin.

SUTTON'S GUINEA COLLECTION of BULBOUS FLOWER ROOTS, for Pots and Glasses, or Open Ground Cultivation, carriage free.

SUTTON & SONS, Reading, Berks.

The Successful Cultivation of Hyacinths.—See

SUTTON'S AUTUMN CATALOGUE for 1867, which may be had gratis and post free on application.

SUTTON & SONS, Reading, Berks.

WILLIAM ROLLISSON AND SONS' CATALOGUE of DUTCH, ENGLISH, and CAPE BULBS, NEW PLANTS, and those of RECENT INTRODUCTION; ROSES, GRAPE VINES, &c., is now ready and will be forwarded post free on application to

WILLIAM ROLLISSON & SONS, The Nurseries, Tooting, London, S.

Dutch Roots.

JOHN AND CHARLES LEE will be happy to forward their CATALOGUE for 1867 of newly-imported HYACINTHS and other Roots, post free on application.

Royal Vineyard Nursery and Seed Establishment, Hammersmith, London, W.

Dutch Bulbs and other Flower Roots.

THOMAS SAMPSON, The Preston Road Nurseries, and Houndstone, Yeovil, Somerset, begs to announce that he has imported a large assortment of the above, in excellent condition, and is now ready to supply orders at the lowest prices. See CATALOGUE, free on application.

Strong GRAPE VINES, from Eyes.—All the leading varieties, at unequalled low prices.

Dutch Bulbs for Exhibition.

J. SCOTT has received his annual supply of DUTCH FLOWER ROOTS from Holland; extra fine in quality and true to name.

12 very choice exhibition HYACINTHS, 10s.
12 extra choice " " 12s.
Other very fine sorts, 6s. and 8s. per dozen.

A complete list of the above sent free on application to

J. SCOTT, The Seed Stores, Yeovil, Somerset.

HOOPER AND CO.'S AUTUMN CATALOGUE of BULBS, &c., is about to be issued, and can be obtained by application. Price 1s., postage free (presented to Customers).

It is copiously illustrated, and describes a larger collection of rare and choice Bulbous Plants than probably any other in the Kingdom. It includes also Coloured Drawings of their celebrated Etruscan Hyacinth Vases and Horticultural Elegancies.

HOOPER & Co Covent Garden Market, London, W.C.

Special Notice.—Dutch Bulbs.

MR. STEVENS' SALES of HYACINTHS, TULIPS, CROCUSES, and other BULBS, just imported from Holland, take place every WEDNESDAY and SATURDAY, and frequently on MONDAY, at the Rooms, 38, King Street, Covent Garden, London, W.C.

Important Notice.

THE SALE of CONIFER TREES, SHRUBS, FRUIT TREES, &c., to be held at the KING'S ACRE NURSERIES, Commences on MONDAY, September 30, and will continue until FRIDAY, October 11.

CATALOGUES will be forwarded on application to JOHN CRANSTON, King's Acre Nurseries, near Hereford.

To Gardeners, Seedsmen, &c.

HENLEY, BROTHERS, MERCHANTS, Holbeach, have still on hand a quantity of SNOWDROPS, which they beg to offer. Samples and price on application.

Notice.—Fruits, Flowers, Bulbs.

BEFORE PURCHASING, PLEASE SEND FOR

DILLISTONE AND CO.'S LITTLE LISTS, post free to all applicants.

Address, DILLISTONE & Co., Nurserymen, &c., Sturmer, near Halstead, Essex.

New Fuchsias, Verbenas, Lobelias, Petunias, Tropæolums, &c.

H. CANNELL has got a fine Stock of all the above, and will offer them to the Trade at a REDUCED PRICE.

CATALOGUES, &c., on application.

Fuchsia Nursery, Woolwich, S.E.

Cephalotus follicularis.

W. E. DIXON has to offer fine Plants, 5s. to 7s. 6d. each. Price per dozen to the Trade on application.

Norwood Nursery, Beverley.

To the Trade.

AUCUBA JAPONICA, well-rooted Cuttings, by the 100 or 1000. Price (according to size) on application to

THOS. S. WARE, Hale Farm Nursery, Tottenham, Middlesex, N.

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New Seed of 1867, choice quality.

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CHARLES BUTLER, Wellington Nursery, Salop, begs to offer to the Trade a fine lot of the above at 75s. per 100; extra large picked plants at 12s. per dozen.

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CUTTINGS WANTED, of GERANIUMS and CALCEOLARIAS, nearly every variety, including Italia Unita, Mrs. Pollock, Bijou. CALCEOLARIAS:—Sutton, Aurea floribunda, and others. Write, stating price per 100 or 1000 for prompt cash, to WILLIAM ARMITAGE & SONS, Seed Merchants, Huddersfield.

ORCHIDS.—A Small Collection of the best varieties for SALE, on account of owner's ill health.

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Camellias and Indian Azaleas, with Buds.

An extensive Stock of their very best varieties is ready for Sale at

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The Autumn Catalogue of

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Genuine Agricultural and Garden Seeds.

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Genuine Garden and Agricultural Seeds.

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HYACINTH GLASSES, in great variety, from 4s. per dozen; CROCUS GLASSES, HYACINTH DISHES, &c., at The Garden Repository, 32, James Street, Covent Garden, W.C.
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Price Lists free on application.

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FOR SALE, at half its cost, a TREE-MOVING MACHINE, capable of lifting Trees 30 feet high, constructed under the Superintendence of Mr. Barron, of Elvastone Castle. Is as good as new, and only parted with because the present owner has no use for it.
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An improved make, 2 yards wide .. 1s. 9d. per yard.
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GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, of great durability, and in great variety of design.
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Also TESSELATED PAVEMENTS of more enriched designs than the above.
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SILVER SAND (REIGATE, best quality), at the above addresses—14s. per Ton, or 1s. 3d. per Bushel; 2s. per Ton extra for delivery within three miles, and to any London Railway or Wharf. Quantities of 4 Tons, 1s. per Ton less.
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N.B. Orders promptly executed by Railway.

Extra Fine New Tulips.
GEORGE LIGHTBODY, Falkirk, will LET OUT several of the Splendid Seedlings raised by Richard Headly, Esq., of Stapleford, near Cambridge, at very moderate prices. These flowers have been successfully exhibited at the Principal Shows in the Kingdom, and are warranted the finest Tulips now extant. A description of them, by Shirley Hibberd, Esq., F.H.S., was published in the "Gardeners' Magazine" for 22d June. A list of names and prices supplied on application

Lilium lancifolium—Enormous Bulbs.
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LANCIFOLIUM RUBRUM, per 100, £3. } 5000 on
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LILIUM LANCIFOLIUM PUNCTATUM, 1000 extra-sized bulbs, in splendid condition, are offered at, per dozen, £2; 50 ditto, £7; 100 ditto, £12.
A reduction made when 500 are taken at once.

Azalea, Her Majesty.
WILLIAM BARNES has much pleasure in announcing that he will be prepared to send out the above splendid AZALEA on and after Wednesday, October 23, at the following price—21s. each. A very few extra strong plants at 42s. each, with the usual allowance to the Trade; where three plants are ordered at one time four will be given.
It was exhibited before the Floral Committee of the Royal Horticultural Society on June 14, 1866, where it was awarded a First-class Certificate for its great beauty in its markings, shape, and colour, when the following remarks were made upon it, which appeared in the *Gardeners' Chronicle*, June 16, 1866:—"A beautiful Azalea, rosy lilac, edged with white, and blotched, and spotted in the upper petals with crimson, called Her Majesty, from Mr. BARNES, of Camberwell."
On June 23, 1866, the following remarks appeared in the same Paper:—"We have from time to time referred to the sportive character of the Indian Azalea, and called attention to the fact that some of our best varieties have had their origin in a freak of Nature. A fresh instance of their sportiveness was shown the other day at South Kensington. Mr. WILLIAM BARNES there exhibited a variety of Azalea which he purposes to designate Her Majesty. It is, we believe, a sport from Madame Miellez, or some of the forms closely allied to that fine old sort; and in quality, therefore, as well as in name, takes the very highest rank. The flowers are of the full average size, and of excellent form and substance, and the colour is a soft lilac-tinted blush, white at the margin, densely spotted with crimson in the upper part, and marked with variable stripes, or sometimes broadish bars of deep rosy purple. Its high quality as regards the flower itself, and this novelty of marking, will make it an acquisition in any collection of these showy plants."
A faithful Figure of this fine Azalea is given in the January number of the "Florist and Pomologist."
A remittance must accompany all orders from unknown correspondents. Camden Nursery, Camberwell, London, S.

WHITE SAND, good quality, to be SOLD, Cheap.
Apply by letter or otherwise to Mr. HUGHES,
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REIGATE SILVER SAND, best quality, 12s. per ton, at Swan Place; delivered four miles, or to any London Wharf or Railway, 16s. per ton, or 1s. 6d. per bushel. (Sacks at cost price, or on hire.) KENTISH and HAMPSHIRE PEATS, YELLOW LOAM, LEAF MOULD, SPHAGNUM MOSS, & COCOA FIBRE REFUSE.
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Have now ready for delivery in dry fine condition,
CORN MANURE, for Spring Use
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PREPARED GUANO
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LAWES' WHEAT MANURE for AUTUMN SOWING.—A supply of the above Manure is now ready for delivery, at J. B. LAWES' Factories, Deptford and Barking Creeks. Price £8 per Ton. Two to three cwt. per acre to be harrowed into the land before the seed is sown. It can be obtained of Mr. LAWES, or through any of his appointed Agents; also
LAWES' PATENT TURNIP MANURE .. £6 6 0 per ton.
SUPERPHOSPHATE of LIME .. .. £5 5 0 per ton.
Genuine PERUVIAN GUANO direct from the Importers, and all Chemical Manures of value.
AMERICAN and other CAKES at market prices.
Address JOHN BENNET LAWES, Offices, 1, Adelaide Place, London Bridge, E.C.; 22, Eden Quay, Dublin; & Market Square, Shrewsbury.



COCOA-NUT REFUSE is becoming SCARCE, the old reserves will soon be gone. Now sold in bags, 1 for 2s., 10 for 16s., 20 for 30s., 50 for 66s., 100 for £6.
Fourpence allowed for each bag returned carriage-paid.
A Railway Truck-load (not in bags), 40s.
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For samples and prices apply to
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Caution to Gardeners.—When you ask for
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S. & C.'s Pruning and Budding Knives are the best and the cheapest in the market.
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NIEREMBERGIA RIVULARIS (see *Gardeners' Chronicle* for last week, page 977), each ..	2	6
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RETINISPORA PLUMOSA ..	5	0
SALVIA GRAHAMI PURPURATA	1	6
SEDUM AZOIDEUM VARIEGATUM	2	6
12 of the finest NEW GERANIUMS (Zonals) let out this season for	12	0
12 finest NEW VERBENAS ditto	6	0
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VIOLETS, strong, in pots, for winter flowering.

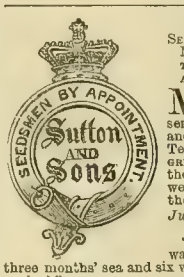
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64-page CATALOGUE of NEW and CHOICE PLANTS, ROSES on own roots, STRAWBERRIES, BULBS, &c., free on application.
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GRASS SEEDS for PERMANENT PASTURE, of the finest quality, at moderate prices, carefully selected on a new, natural, and scientific system.
See "WHEELER'S BOOK on GRASSES," which contains Illustrations and Descriptions of the most suitable Grasses for Permanent Pasture.
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Gloucester,
Seedsmen to the Gloucestershire Agricultural Society.

New Seeds for the Colonies.



SEEDS DIRECT FROM THE GROWERS ARE THE MOST SUITABLE FOR EXPORTATION, AND THE BEST MEANS OF PREVENTING DISAPPOINTMENT.
MESSRS. SUTTON solicit the favour of Orders from those about to send or take out SEEDS to the COLONIES, and submit the following from among many Testimonials recently received, as to the GREATLY SUPERIOR quality of their Seeds to those usually exported from this country, as well as to the very efficient manner in which their export packing is carried out:—
July 9, from A. N. ELLA, Esq., *Queenstown, Cape of Good Hope.*
"I may mention that the case referred to was in splendid order, looking as fresh after three months' sea and six weeks' land carriage as if only yesterday packed."
From HUGH ROMSAY, Esq., *Shanghae, China, May 5*, 1866.
"The box of seeds and roots has arrived, and nothing has given me greater pleasure for a long time than the excellence of these seeds."
From Mr. Z. W. WELLS, *New Plymouth, New Zealand, May 7*, 1866.
"The Grass and other seeds sent by the Shelburne to me, have come safe to hand. I have tried samples of the Grass seeds, and am happy to inform you that they have come up quite to my satisfaction."
From Mr. JAS. DALE, *Orange, New South Wales, September 20*, 1866.
"I have the pleasure to inform you that your seeds have given great satisfaction, and I now send you a larger order."
All Seeds properly packed and delivered free to ship's side. Special quotations given for large quantities. A liberal allowance made to Shippers. SUTTON & SONS, Seed Growers, Reading.

Important to Gentlemen engaged in Planting, Landscape Gardeners.
SALE BY AUCTION OF HIGHLY VALUABLE NURSERY STOCK.
JOHN CRANSTON begs to say that from the greatly increased demand for ROSES during the last two or three years he finds it absolutely necessary to very considerably extend their Cultivation, both out-of-doors and under glass. To enable him to accomplish this in a manner fully and satisfactorily to meet the demand, he feels compelled to clear a very large portion of his Nurseries, now stocked with valuable collections of Fruit Trees, Conifers, Evergreens, Deciduous Ornamental Shrubs, Forest Trees, &c.; likewise a fine Collection of Camellias, Azaleas, Geraniums, and Miscellaneous Greenhouse Plants, now occupying several large houses.
He will, therefore, in future be able to devote at least the one-half of his Nurseries, which extend over 50 Acres, solely to the cultivation of Roses, as well as five or six large Houses for the propagation of Tea-scented and other tender sorts in pots.
The fact of his having on every occasion during the season taken the First Prize for the large Collection of Roses at the Metropolitan and other Rose Shows, coupled with the regular increase of orders which has been going on for years, convinces him of the necessity of losing no time in taking the course he herein proposes.
Mr. SUNDERLAND has received instructions to SELL by AUCTION, on the premises, at the King's Acre Nurseries, on September 30, 1867, and following days, a large portion of the GENERAL NURSERY STOCK, comprising—
25,000 Dwarf-trained, Pyramid, and Standard Peaches, Nectarines, Apricots, Pears, Plums, Cherries, and Apples, all well grown and finely trained—the greater portion are large-sized bearing trees.
1,000 Peaches, Nectarines, Pears, Plums, Cherries, and Figs in pots.
300 Grape Vines.
15,000 Common Laurel, 2 to 3 feet.
30,000 Coniferæ, including beautifully grown plants of Cedrus Deodara, Cedrus atlantica, Cupressus Lawsoniana, Thujopsis borealis, English Yew, Pinus austriaca, Pinus insignis, Araucaria imbricata, &c., varying in height from 2, 3, 4, and 6 to 8 feet, and many of them fine specimen trees.
2,000 Wellingtonea gigantea, from 2 to 3 feet, beautifully grown plants, all regularly transplanted.
3,000 Rhododendrons, 2½ feet.
Several thousand Berberis Darwinii, variegated Holly, Arbutus, &c.
A quantity of the New Japan Aucubas, &c.
A large quantity of Deciduous Ornamental Trees and Shrubs, including 1000 Standard Double Pink, Scarlet and other Thorns, Weeping Ash, Beech, Oak, Elms, &c.
2000 Deutzia gracilis, suitable for forcing.
Climbing and Wall Plants, all the leading kinds of Clematis, Lonicera, Ceanothus, &c.
300,000 Transplanted Forest Trees, including Ash, Spanish Chestnut, Larch, Scotch, English Oak, Spruce Fir, Thorns, &c., varying in height from 2 to 4 feet.
1500 Indian Azaleas, 500 Camellias, miscellaneous Greenhouse Plants, &c.
The whole of the above Stock is in the finest condition possible, having been thoroughly well grown, and regularly and carefully transplanted, neither were any of the Trees injured in the least during the last severe winter.
Further particulars are given in circulars now published, and will be forwarded on application.
Catalogues, which art now in course of preparation, will be distributed early in September.
Nurseries King's Acre, near Hereford.—Aug. 1, 1867.

EDWARD TAYLOR, NURSERYMAN, SEEDSMAN, and FLORIST, Malton, Yorkshire, offers as under:—
GLADIOLUS BRENCHLEYENSIS, 9s. per 100; 75s. per 1000
WINTER ACONITES, 2s. per 100; 17s. 6d. per 1000
DOUBLE GERMAN WALLFLOWER PLANTS, all transplanted, 4s. per 100; 35s. per 1000
Fine SINGLE ENGLISH WALLFLOWER, 4s. per 100; 35s. p. 1000
TRITOMA UVARIA, 3s. per dozen; 20s. per 100
GOOSEBERRY and CURRANT TREES, 2, 3, and 4-yr. old, 8s. per 100; 75s. per 1000
CATALOGUES of BULBS and SPRING FLOWERING PLANTS, GLADIOLUS, &c., free per post on application.

Roses, Roses, Roses.

PLANTS of all the FINEST VARIETIES in CULTIVATION will this Autumn be in magnificent order in the CASTLE STREET NURSERIES, SALISBURY.

The frost of May 24 destroyed all the blooming buds; the consequences are that the Plants have produced the most vigorous growth.

Amateur Rose Growers may insure the finest Plants that can possibly be produced, true to name. CATALOGUES on application.

VINES, from Eyes, the finest in England, 10s. 6d. each, in October next. JOHN KEYNES, Castle Street, Salisbury.

JOHN CRANSTON'S CATALOGUE of SELECTED ROSES is now ready and will be forwarded on application.

J. C. respectfully directs attention to the following LIST of FIRST PRIZES which have been awarded to him at the principal Rose Shows of the present year, proving beyond a doubt that the soil and climate of his Nurseries are unrivalled for the Cultivation of Roses.

Royal Botanic Society, Regent's Park, London.
June 19.—24 Varieties, Cut Roses, one truss each, FIRST PRIZE
Cirencester.
June 19.—36 Varieties, Cut Roses, three trusses each, FIRST PRIZE
Clifton.
June 25.—24 Varieties, Cut Roses, one truss each, FIRST PRIZE
Crystal Palace.
June 29.—72 Varieties, Cut Roses, one truss each, FIRST PRIZE
Royal Horticultural Society, South Kensington
July 2.—72 Varieties, Cut Roses, one truss each, FIRST PRIZE
Birmingham.
July 4, 5.—72 Varieties, Cut Roses, one truss each, FIRST PRIZE
24 Varieties, Cut Roses, three trusses each, FIRST PRIZE
Hereford
July 9.—72 Varieties, Cut Roses, one truss each, FIRST PRIZE
24 Varieties, Cut Roses, three trusses each, FIRST PRIZE
Rugby.
July 12.—72 Varieties, Cut Roses, one truss each, FIRST PRIZE
Nurseries, King's Acre, near Hereford.

The New Sensation in Bedding Out.

JACKMAN'S HARDY HYBRID CLEMATISES, awarded Eleven First-class Certificates, and One Special.

The following HARDY PLANTS would be found very distinct and effective for edging, either in point of shape or foliage, where an entire hardy and permanent bed is desired, and suitable for winter gardening:—

BUXUS ARGENTEA NOVA.—A dwarf compact silver variegated Box.
Species, from China, a dwarf green variety.
CUPRESSUS THYOIDES VARIEGATA.—Small branchlets of golden yellow, regularly intermixed with the green.
EUONYMUS RADICANS, fol. var.—Neat habited shrub, well adapted for edging, bright silver margined leaves.
HEDERA MACULATA VARIEGATA.—Silver marbled, broad leaved; besides several other variegated Ivies.
LONICERA AUREA RETICULATA.—Leaves golden yellow, effective.
RETINISPORA ERICOIDES.—Green pyramidal bush, changing in the winter to a purplish hue.
TAXUS ELEGANTISSIMA.—Silver striped, changing to straw colour.
THUJA AUREA.—A dwarf conical green Arbor-vitæ; branchlets during winter and spring of the finest golden colour.
VINCA ELEGANTISSIMA.—The beautiful golden-yellow margined Periwinkle.
VIRGINIAN CREEPER.—Leaves in the autumn dying off scarlet.
WEIGELIA NANA VARIEGATA.—Yellow variegated leaves.

The above can be supplied in large quantities at very moderate prices by
GEORGE JACKMAN & SON, Woking Nursery, Surrey.

New Beautiful and Hardy Pæonies.

PÆONIA MOUTAN GLORIA BELGARUM (CH. GOETHALS).
" " SOUVENIR DE GAND "

JOSEPH BAUMANN, NURSERYMAN, Ghent, Belgium, has great pleasure in offering for the first time to the Nobility, Gentry, and the Trade, the two finest MOUTAN PÆONIES known in the world, of which he is the only possessor. They are figured in many horticultural and botanical journals. (For the description see J. B.'s NEW CATALOGUE.) One good strong plant, in Basket or in Pot, £20; also plants at £16, £12, £8, £5, and £3, according to size.

For the next spring, one good plant grafted in 1867, in Pot, £2 8s.
20 per cent. discount to the Trade for the two new Pæonies only.

In 1851 Mr. Ch. Goethals sent a few flowers of these Pæonies to Dr. Lindley, who gave them a special notice in the *Gardeners' Chronicle*, and proclaimed them the most beautiful and largest Pæonies he knew. The flowers are from 3 to 4 feet in circumference, and are very odoriferous.

Four Gold Medals at Ghent and Paris.

100 Hardy GHENT AZALEAS, with flower buds, best named sorts, £5 to £6.
100 Hardy GHENT AZALEAS, best seedlings, with flower buds, £4 to £5.
100 CAMELLIAS, without flower buds, best sorts, £5 to £6.
100 MAGNOLIAS, LINNÉ, £15 to £25.
100 LILIUM LANCIFOLIUM ALBUM, £1 15s.
100 " " RUBRUM, £1 15s.

STRAWBERRIES.

DR. HOGG.—Very large, extra fine Pine flavour, and a good bearer One of the finest in cultivation.
THE LADY.—All the fruit of a good equal size without thinning; immense cropper for forcing, as we proved last spring; flavour highly perfumed.
BRITISH QUEEN, PRINCE ARTHUR, KEEN'S SEEDLING.
CRIMSON QUEEN, SIR CHARLES NAPIER.

Prices—Established in large 32 pots for forcing, from 7s. to 10s. per 100. Strong layers in 60 pots, from 2s. to 5s. per 100. Strong runners from 5s. to 21s. per 100. A large collection of other varieties, strong, well-rooted runners, 5s. per 100.

JOHN & CHARLES LEE, Royal Vineyard Nursery and Seed Establishment, Hammersmith, London, W.

Strawberry Plants.

FELTON AND HOLIDAY, Birmingham Nursery, Harborne Road, Birmingham, have a large stock of the following first-class varieties to Dispose of, extra Strong Plants, selected with great care and warranted true to name, fit for bedding or pot culture. Prices on application.

THE LADY	PRESIDENT
PROGRESS	VICTORY OF BATH
KEEN'S PERFECTION	PRINCE OF WALES
DR HOGG	EMPRESS EUGENIE
PRINCE ALFRED	LUCIDA PERFECTA

Fruit Trees.—The finest Collection in England.

J. SCOTT, Merriott Nurseries, Somerset, begs to solicit his Friends and the Public to inspect his Immense Stock, consisting of 700 sorts of APPLES, 50 do. APRICOTS, 120 do. CHERRIES, 150 do. PEACHES and NECTARINES, 900 do PEARS, and 150 do. PLUMS, in all manner of training, well root-pruned and carefully transplanted; CURRANTS, FILBERTS, GOOSEBERRIES, &c.; making together about 1500 sorts of FRUIT TREES, which for health and beauty cannot be surpassed.

CATALOGUES on application.

STRONG STANDARD and DWARF-TRAINED APPLES and PEARS.

Fine transplanted LARCH FIR, 4 to 6 feet
Bushy LAURUSTINUS, LAURELS, and BOX TREES
CHINESE ARBOR VITÆ, 5 to 6 feet, fine Pyramids
A choice collection of CONIFERÆ
A large assortment of STANDARD and DWARF PERPETUAL, and strong DWARF CHINA or MONTHLY ROSES, and a general NURSERY STOCK.

All the above are well rooted, and will remove with safety. Prices on application to
CHARLES BURGESS, The Nurseries, London Road, Cheltenham.

Fruit Trees and Free Stocks. Roses, and other Nursery Stock.

GEORGE GRAY AND SON begs leave to offer to the Trade, MUSSEL and other PLUM STOCKS; also CRABS, APPLES, and PEARS, all very clean and strong, two and three years transplanted. A few thousands of MANETTI ROSE STOCKS, DWARF HYBRID PERPETUAL and TEA ROSES, very strong, of all the leading and approved kinds, new and old; also strong MOSS, CABBAGE, PROVENCE, CHINA, and other ROSES, on own roots, twice transplanted. They also offer several thousands of Dwarf Trained and Maiden FRUIT TREES; also one year cut-backs of APPLES, APRICOTS, PEACHES, NECTARINES, PEARS, PLUMS, and CHERRIES (the trained trees are very strong and handsome), and of all the most approved sorts, new and old; RHODODENDRONS, two years' grafts of the leading kinds; EVERGREENS, and other kinds of Nursery Stock. Prices of all, which are very moderate, may be had on application.

Nurseries, Brox, Chertsey, Surrey.

Ixoras.

J. AND R. THYNE, Woodside Nursery, Glasgow, beg to state that they are prepared to offer a very superior Stock of the above at the following prices:—

In 5-inch pots, 16 inches high, and bushy, 7s 6d. each.
In 7-inch pots, 10 inches high, 42s. per dozen.
In 6-inch pots, 8 inches high, 30s. per dozen.
The above are nearly all well set with bloom-buds.
In 4-inch pots, 7 inches high, 18s. per dozen.

Richmond Nurseries, Richmond, Surrey.

G. AND W. STEELE beg to call the attention of the Trade in general to their valuable and very extensive Stock of CONIFEROUS and other EVERGREENS, particularly Striped and Green Hollies, in which they abound; and also to their DWARF-TRAINED, STANDARD, and SPIRAL FRUIT TREES, which are of first-rate quality, consisting of Apricots, Peaches, Nectarines, Apples, Pears, Plums, Cherries, &c., which are second to none in the Trade. An inspection by Travellers this Autumn is respectfully solicited.

New Weeping Elms.

WOODLANDS NURSERY, MARESFIELD, NEAR UCKFIELD, SUSSEX.

WM. WOOD AND SON have much pleasure in recommending the undernamed magnificent WEEPING ELMS, being varieties of Ulmus suberosa, which have been raised from Seed in their Nurseries, and have elicited the admiration of several of the leading Nurserymen and Amateurs.

The gracefully weeping branches of these two new Elms are thickly covered with a cork-like excrescence, presenting a very interesting and novel appearance, entirely distinct from all other varieties in cultivation.

ULMUS SUBEROSA PENDULA .. .. .. 5s.
" " " MICROPHYLLA .. 5s.

Usual discount allowed to the Trade.

Gladioli.

CHARLES VERDIER, fils (Ex-partner in and Successor to the late firm of VICTOR VERDIER, père, and CHARLES VERDIER, fils), 13, Rue Duméril, Paris, has just published his CATALOGUE of GLADIOLI, containing all the novelties of the season (M. Souchet's Seedlings), and can be had, free, either from him or of his Agents, Messrs. SILBERRAD & SON, 5, Harp Lane, Great Tower Street, London, E.C.

New Zealand Nursery, St. Alban's, Herts.

J. WATSON'S beautiful BEDDING PELARGONIUM EXCELSIOR, now ready colour of Indian Yellow; fine truss, and habit of Lord Palmerston. Price 6s. each; 30s. per doz. to the Trade

MISS WATSON, ready August 25; MRS. DIX, May 1. The Two have received 4 10 First-class Certificates and Extra Prize Money.

Fine New TABLE APPLE, ST. ALBAN'S PIPPIN, Ripe in April. Plants ready in November. 5s. each; 30s. per doz to the Trade.

DESCRIPTIVE LIST sent on application.

VARIEGATED PELARGONIUMS.

SOPHIA DUMARESQUE	ITALIA UNITA
MRS. BENYON	COUNTESS
GOLDFINCH	ELEGANS
LUNA	THE FAIRY
BEAUTY of OULTON	PRINCESS ALEXANDRA
NEATNESS	BICOLOR SPLENDENS

The above forwarded on receipt of Post Office order for 21s.
ALFRED FRYER, Nurseries, Chatteris, Cambridgeshire.

SUPERB VARIEGATED PELARGONIUMS.

SOPHIA DUMARESQUE	EDWINIA FITZPATRICK
BEAUTY of OULTON	GENERAL LONGSTREET
ITALIA UNITA	THE COUNTESS
MRS. LONGFIELD	BICOLOR SPLENDENS
LUNA	GLOWWORM
BEAUTY of GUESTWICK	QUEEN'S FAVOURITE

The above, 21s. Remittance requested.
CASBON & SON, Gravel Walk Nursery, Peterborough.

Choice Tricolored Geraniums.

J. ELCOMBE AND SON beg to offer the following, in well rooted Plants:—

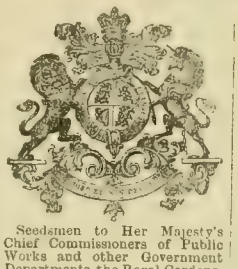
	Each—s. d.		Each—s. d.
LADY CULLUM	7 6	COUNTESS	1 0
LUCY GRIEVE	10 6	ITALIA UNITA	1 0
EDWINIA FITZPATRICK	5 0	MRS BENYON	1 0
SOPHIA DUMARESQUE	10 6	SUNSET, 5s per doz., 36s. per 100	
BEAUTY of GUESTWICK	2 6	MRS. POLLOCK, 6s. per dozen,	
NEATNESS	1 6	36s. per 100	

Nursery and Seed Establishment, Romsey, Hants.

DOBSON'S NEW DECORATIVE PELARGONIUM MAGNET.—This splendid variety will be sent out in October, 1867. It received a First-class Certificate at the Royal Botanic Society's Exhibition on Wednesday, May 27, 1867, and it has been the admiration of all who have seen it in bloom the last two seasons. We can therefore very strongly recommend it as a most attractive variety, worthy of general cultivation whether as exhibition plants, or for decorating, or for market purposes. It is also a good forcing variety for any of the purposes above named. It is unequalled, having a fine habit, profuse bloomer, and most striking colour. A single stem has produced from 18 to 20 large trusses of bloom. The following remarks appeared in the *Gardeners' Chronicle* of June 1, 1867, page 577: "If it had been in the province of the judges to grant a Certificate to what has an excellent character both for decorative and market purposes, it should have been given to DOBSON'S PELARGONIUM MAGNET. A large quantity of small plants literally covered with bloom were grouped together, and a most striking effect they had. The colour is very bright purplish crimson, the habit good, and it has the appearance of forcing well."

Strong plants, 15s. each.
Dobson & Sons, Woodlands Nursery, Isleworth, W.

Carter's Dutch Bulbs.



Seedsmen to Her Majesty's Chief Commissioners of Public Works and other Government Departments, the Royal Gardens, Kew, &c., &c., &c.

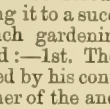


Seedsmen to H.I.M. the Emperor of the French, the Crystal Palace Company, the Agri-Horticultural Society of India, &c., &c., &c.

CARTER'S GUINEA BOX of DUTCH FLOWER ROOTS for FORCING, contains 12 choicest named Hyacinths in 12 varieties; 9 varieties Polyanthus Narcissus, 12 Single Jonquils, 12 Double Jonquils, 50 Queen Victoria Crocus, 50 David Rizzio Crocus, 50 Louis d'Or Crocus, 25 Early Duc Van Thol Tulips, 6 La Candeur Double Tulips, 6 Rex Rubrorum Double Tulips, 12 Tournessol Double Tulips, 1 Cyclamen persicum, box and packing included.

The above forwarded without delay on receipt of Post Office order for 21s. PRICE LISTS gratis and post free on application to
CARTER'S Great London Seed Warehouse, 237 & 238, High Holborn, London, W.C.

Dutch Flower Roots.



MESSRS. FRANCIS AND ARTHUR DICKSON AND SONS have received from the most celebrated Growers in Holland their first large importation of the above, and have the satisfaction to say that the BULBS are this season sound, well ripened, and of excellent quality. Early orders respectfully solicited.

DESCRIPTIVE PRICED CATALOGUES post free upon application.

106, Eastgate Street; and the "Upton" Nurseries, Chester.

FRESH IMPORTED DUTCH FLOWER ROOTS.

SUTTON'S

AUTUMN CATALOGUE FOR 1867

IS NOW READY,

and may be had Gratis and Post Free on application.

SUTTON'S COMPLETE COLLECTIONS OF FLOWER ROOTS

FOR BLOOMING DURING WINTER AND SPRING.

FOR POTS AND GLASSES.				FOR OPEN GROUND.			
COMPLETE COLLECTION	(Carriage Free)..	£2	2 0	COMPLETE COLLECTION	(Carriage Free)..	£2	2 0
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DITTO..		0	10 6	DITTO..		0	10 6

LIST of CONTENTS of the above on application.

SUTTON AND SONS, ROYAL BERKS SEED ESTABLISHMENT, READING.

The Gardeners' Chronicle.

SATURDAY, SEPTEMBER 28, 1867.

MEETING FOR THE ENSUING WEEK.

TUESDAY, Oct. 1 { Royal Horticultural (Fruit and Floral Committees), at South Kensington .. 11 A.M.
{ Ditto (General Meeting) .. .. .. 3 P.M.

PARIS, the city of stone, is fast becoming a city of trees, but while her modern architecture is full of so much promise, her modern gardening is retrograding or settling into a lifeless formula, from which it should be rescued by those whose interest it is to bring it to a successful issue. The traditions of French gardening may briefly be described as twofold:—1st. The style founded by LE NÔTRE, supposed by his contemporaries to be a revival of the manner of the ancients. LE NÔTRE, in spite of some gigantic failures at Versailles and elsewhere—and it is difficult to separate his work from that of those who came after him—has not yet been equalled by any of his countrymen. His chief defects lay in detail, in the relation of subordinate parts to the whole, and in some

greater matters, but his conceptions were magnificent, and he must be allowed the merit of having pointed out a path which may yet lead to results as lasting as any monument in architecture. This school gradually decayed, till in its last and feeblest efforts straight and radiating alleys, originated with a very different purpose, were margined by a parallel flower border, the contents of which varied with the taste of the gardener. The other style, presumedly borrowed from *Le Jardin Anglais*, may be seen in some perfection at the Trianons at Versailles, where although rather dependent upon those *tours de force* which are more frequently suggested by stage effect than by nature, it is not unworthy of being classed among works of art. The stagnant pools imitating the line of the brook, but without the rush of water that hews out its course, the artificial cascades without any visible supply, the pavilions and fairy buildings originally designed with much taste, have been preserved as characteristics of this style, but the principles which, judging from the result, one may presume dictated their application, have been forgotten.

The gardening of the Paris Exhibition is among the examples of the latter class, and is a magnified version of what has been already done in the Champs Élysées. The task allotted to the gardener, in this instance, was to lay out the spaces between the buildings or exterior exhibitions of the different nations, thus requiring many and broad walks suited to exceptional crowds of people. A universal scheme, such as a garden laid out by each nation in illustration of its own particular style, would have been a very interesting addition to the Exhibition, but any intelligent pupil might be instructed in a very short time in the principles on which it has been done. The existence of design is in itself, to a certain degree, a proof of art, though the rules of design seldom admit of being strictly defined, but in this case they are easily arrived at, though in most cases even of geometrical gardening they are not; but this seeming inconsistency becomes more clear when it is recollected that the latter is generally dependent upon the wants of the architect, whereas the former is independent and subservient only to its own purposes. Having no pretension to regularity, it admits of even greater freedom and variety of treatment, and is governed only by pictorial effect. Unless designed pictorially, it stands to reason there must be some system, some code or manner, on which the designer proceeds with the embellishment of his ground. It is the extreme mannerism that has crept into French gardening that we think likely to prove fatal to its healthy development. As a manner it is deficient in breadth, and is entirely destitute of that quality known to painters as composition, which need not exist in pictorial treatment, though it is quite certain, from the trouble its acquirement has always given, even to painters of the greatest capacity, that it cannot exist without it. The means also are nearly always the same, and lead to the same ends, till they weary with the repetition of tame effects, producing neither nobility, picturesqueness, nor quaintness of design. In the Jardin du Roi, at Versailles, an old water-basin was filled up and converted into an English garden with considerable success. Its former use is not entirely disguised, but its adaptation is ingenious, and it forms a pleasant corner. In the reserved park at the Exhibition, which was a great opportunity lost by French gardeners, concave or basin hollows are invariably constructed, which is extremely offensive to any one who has studied Nature, and observed the immensely greater proportion of convex than of concave lines. In certain cases there can be no doubt of the beauty of the concave line, especially in a general assemblage of forms, but the entire predominance given to this form for contour purposes is, we imagine, subversive of truth. Monotony thus ensues, and affords another proof of the baneful effect of being cramped by rules that rest on no better foundation than man's dictation.

Before concluding these remarks, we must not pass over the skill exhibited by the French in moving trees, originally founded upon Sir HENRY STEWART'S practice. The Boulevards afford sufficient testimony to this, and to the handsome manner in which the trees are grown. The deciduous trees in the Exhibition garden could hardly be expected to make much show in the first season, but a large number of choice evergreens has done much to harmonise the motley collection of buildings. In colour there is not much variety, and the elliptical outline of the shrubs and flower beds is antagonistic to any great display. A greater acquaintance with other gardening schools will correct this omission, and lead to the introduction of a better style. Even in gardening, though but a small portion in the wide field of scenery, there is a right and a wrong way of doing things. The art tendency of the age leans too much to copying, instead of originating—if we are not good enough to invent, we are good enough to copy—but we hope that the French, with so much natural talent, may strike out a new phase in gardening, and since France does exercise and aims at exercising an influence over art matters, we wish the effort to be made in the right direction. *Z.*

WHATEVER may be the direct results of the expedition now on its way to the shores of ABYSSINIA there can be little doubt, that in some particulars at least, benefits will accrue from the incursion of our troops into so little known a region as that which lies beyond the frontiers of Egypt and Nubia. Not that we are altogether ignorant of the features of the country. The travels of BRUCE, of SALT, of DILLON and PETIT, of FERRET and GALINIER, of BEKE, and others that might be mentioned, have made us acquainted to some extent with the climate, the zoology, and the natural products of this region. As far as the plants are concerned, the collections of SCHIMPER, a German, who resided for some years in Abyssinia, and which are accessible in any of our large herbaria, suffice to give a general idea of the vegetation of the country.

Owing to the varying physical conformation of the kingdom, and other causes, the climate and natural products present very considerable variety. In some parts, especially in the district in which Messawah, the principal seaport, is situated, the climate is so intensely hot and scorching that, as far as vegetation is concerned, there is, as some French travellers put it, "stérilité absolue." In other districts during the rainy season, which lasts from June to the end of September, the fertility of the soil is described as prodigiously great; and then there are the lofty mountain ranges only a little less in altitude than the Alps, on whose slopes may be found an alpine flora, and whose summits are clothed with perpetual snow.

Speaking in general terms, the country may be described as a vast plateau dotted with fresh-water lakes, surmounted by lofty mountains and furrowed by deep valleys, allowing passage for numerous rivers tributary to the Nile. Between the most easterly spurs of these mountains and the shores of the Red Sea is a dry, hot, arid region, one of the hottest, driest, deadliest districts on the face of the globe. In the less barren portions in the interior the vegetation approximates very closely to that of the desert regions of Senegal; indeed, this portion of the country may be said to constitute a part of the vast desert tract, stretching from the Cape de Verd Islands, across the Great Sahara, into Arabia, and on into Scinde and Affghanistan, a region characterised throughout its whole extent by almost identically the same species of plants. In strange contrast with this sterile tract of country are the valleys, deep gorges, clothed with luxuriant vegetation, almost rivalling that of the tropics, but as deadly in their way, as the arid, barren tracts beforementioned. In the lower part of the valleys the temperature is stated to vary from 25° to 36° C. (77° —97° F.), a heat too great to allow of the cultivation of Wheat, whose place is supplied by Dagoussa (Eleusine coracana var.), and in which Cotton and Indigo are largely grown. Here the Ebony, the Baobab, the Tamarind, the Castor-oil, the Sugar-cane, and the Date Palm flourish in luxuriance, and here, too, may be encountered the lion and the hippopotamus, besides hosts of scorpions and legions of stinging insects. At a higher elevation on the mountain sides the climate is more like that of Western Spain or Italy, the thermometer ranges from 14° C., to 27° C. (58°—81° F.). Such is the climate of Gondar, around which town Wheat, Barley, "Teff" (Poa abyssinica), Peas, Beans, and Lentils are grown, together with Vines, Citrons, Peaches, and Apricots. Higher up the vegetation becomes more and more scanty, though Barley and Wheat are grown at a considerable elevation; but as the height increases the flora assumes more and more of an alpine character, and at last altogether disappears.

The recent researches of Mr. GUSTAV MANN in the Cameroon Mountains, in Western tropical Africa, have shown that the vegetation of those mountains is to a great extent identical with that of the mountains of Abyssinia, on the other side of the continent—an interesting and significant fact to those who occupy themselves with the consideration of the distribution of plants over the surface of the globe.

As may be inferred from what we have already said, the temperature ranges between that of the torrid and that of the arctic zones, according to elevation, &c.; nevertheless, it may serve to give a general idea of the *mean* temperature of the country to cite the following figures from DOVE'S maps on the distribution of heat on the surface of the globe. From these we find that the mean temperature of Abyssinia in January is 68° F., in April and in October, 86°, while in July it rises to 90° F.

The geological features of the country are, as might be anticipated, not less varied than the climate. Indeed, we are told that from the shores of the Red Sea, where tertiary strata exist, up to the granitic mountains, almost all the principal geological strata are represented, including the basaltic rocks and other indications of volcanic agency.

From such a country it is impossible that our army should return without considerably adding to our somewhat meagre information. We would fain hope that some professed naturalist may accompany the expedition, in order to supplement the information on matters such as we have above alluded to, which of necessity must be obtained by the engineers, and the scientific staff of the army.

THE Bury magistrates, acting on the dicta of counsellors learned in the law, have just decided that a Geranium (PELARGONIUM ZONALE, Lady Cullum, is the specific instance) is not a SHRUB.

The circumstances which gave rise to the decision we have adverted to, are briefly these:—At the Bury Flower Show, on the 13th inst., Mr. GRIEVE showed a plant of Pelargonium Lady Cullum. In the course of the day a branch was cut from this plant by some unauthorised hand. A witness named HEAD stated that he saw a gardener named FISHER take this branch: "I saw him take his hand away with a cutting in it, put it into his pocket, and walk away." FISHER was charged with the theft, but denied it, and the matter subsequently came before the Bury Petty Sessions. The defence set up by FISHER'S attorney was, that although he felt confident of a verdict on the facts, mistaken identity being alleged, yet he was bound to contend that a "Geranium" was not a shrub, and even if it could by any possibility be dragged into the class of shrubs, it was not such a shrub as was contemplated in the Act of Parliament. The Bench, after deliberation, decided that in their opinion a Geranium was not a shrub within the meaning of the Act. The case was thereupon dismissed on that ground, and a new summons granted under another Act of Parliament.

Since, therefore, the Bury magistrates and lawyers have taken upon themselves to affirm that a Geranium (Pelargonium) is not a shrub, we hope that on the further hearing of the case they will enlighten us by affording some definite information as to what it really is. We get no insight, from the newspaper report of the proceedings at the sessions, into the grounds of their decision—whether because it is not a hardy plant, or because it is not indigenous; but the fact that it is a tender plant does not in the least alter the other fact, that it is, in the strict botanical sense of the word, a shrub. The Zonal Pelargonium—the progenitor of this Lady Cullum—is, in fact, neither more nor less than a greenhouse shrub, and as such it is entitled to at least as much legal protection as a shrub of any other kind. We have not, indeed, the Act of Parliament in question before us, and are therefore unable to say at the present moment what meaning or meanings are given to the word shrub in that Act. We know, indeed, that botanically this Pelargonium is a shrub, and we are quite aware that it would be exceedingly difficult in all cases to draw the line between the shrub and the tree, but we must affirm that the distinction between a herbaceous perennial and a shrub is far more clearly marked: there is no intermediate class between the two, and that being so, the Pelargonium in question must surely be a shrub, as it is clearly not a herbaceous perennial. This appears to us to be the physiological truth of this matter. The expression

"shrubby perennial," sometimes loosely made use of, is one which has no real application in plant life; and that of "plant," which was the term most in favour with the attorney, being about as definite as it would be to call a pheasant an animal.

—— We are pleased to be able to announce the publication of the third part of BENTHAM and HOOKER'S GENERA PLANTARUM, with the issue of which is completed the first volume of this most important work, to which we shall take another opportunity of adverting more at length. We may also allude to the issue of a new and revised edition (the fifth) of Dr. ASA GRAY'S MANUAL of the BOTANY of the NORTHERN UNITED STATES, with 20 plates and analytical tables on the plan of BENTHAM'S British Flora. No one concerned in American botany can dispense with this work.

—— More Congresses! If we go on at this rate there will be no more flower shows or fruit shows, just as schools have merged into "Academies," and establishments for young ladies have become "Ladies' Colleges." This time it is the POMOLOGICAL CONGRESS OF FRANCE of which we have to speak, and which is in full operation at this moment at the rooms of the Société Impériale et Centrale d'Horticulture de France. Here are fruits of all kinds in abundance, the first place being most creditably filled by Mr. KNIGHT, of Pontchartrain, who shows French gardeners what British Grape growing really is. Pears and Apples are of course shown in profusion, most of them being of the same varieties as are grown here, but larger and more brightly coloured. One main object of the exhibition is to secure the correct nomenclature of the varieties, and the rectification of the synonymy. In this particular the Congress has still much to do.

—— We learn from Mr. LLOYD, who was the first to direct attention to the occurrence of LYCOPODIUM ALPINUM in Hampshire (see p. 808), that, having lately paid much attention to the growth of that plant amongst the Welsh mountains, he has no hesitation whatever in regarding the Hampshire plant as identical with it. Mr. LLOYD also maintains that Lycopodium alpinum has not been correctly described as to its habit of growth, a repent above-ground stem being attributed to it; and this opinion he supports by specimens of the Welsh plant, still growing in the sod of earth, in which a subterranean rhizome is distinctly evident. It is therefore clear that, in addition to a stem threading its way on the surface amongst the surrounding herbage, this alpine Lycopod does also produce a true underground stem, in which it agrees with the Hampshire plant, which from the very fragmentary specimens first seen, was referred to L. complanatum.

—— We learn that the BOTANICAL SOCIETY of CANADA whose operations have been suspended for some time, is about to resume the publication of its Annals, a new series of which will be commenced forthwith. Botanists in Britain, the United States, or other foreign countries who desire to connect themselves with the Society will be elected corresponding members, from whom no subscription is required. Such members, by payment of one dollar (four shillings) annually, may have the Annals sent regularly to their address. All communications should be addressed to Professor LAWSON, LL.D., Dalhousie College, Halifax, Nova Scotia.

New Plants.

AERIDES VANDARUM.

Affine Aeridi cylindrico, Lindl., labelli laciniis posticis lineari-falcatis erosulis, lacinia antica unguiculata reniformi-biloba, calcari extinctoriiformi ovarium pedicellatum subaequante.—*Aerides cylindricum*, Hook. Bot. Mag., tab. 4982.

Caulis foliosus, foliis tereti-subulatis superne canaliculatis; pedunculis vulgo unifloris. Substantia floris tenuis sub-membranacea. Sepalum dorsale obovato-ligulatum unguiculatum; sepala lateralia sub-æqualia apice sub-crenulata, pedi columnæ affixa; tepala cuneata obovata acuta hinc illinc crenata, reversa; omnia undulata. Labellum basi columnari pedis articulatum; in calcar extinctoriiforme rectum descendens, trifidum, laciniæ posticæ lineari falcatæ, superne serrulatæ, isthmus inter lacinias has et laciniam anticam processu quadrato, dentato; lacinia antica ligulata, apice hastato-semiovata cucullata, denticulo utrinque in basi unguis, carina arguta, interjecta.

It is astonishing how long an error may last. A single glance at the figures in the *Bot. Mag.* and in *Wight's Icones*, vol. v., tab. 1740, show how different the plant above named is from A. cylindricum. We have for a very long time delayed the correction of the error. Aerides Vandarum has very pretty white flowers, reminding one of Vanda flowers, by the reflexed petals, and the undulations of both sepals and petals. We do not know whence the novelty comes. We have observed it, from English sources, both in the gardens of Frau Senatorin-Jenisch, grown under Mr. Kramer's superintendence, and in that of Consul Schiller, cultivated by M. Schmidt. Whether the true Aerides cylindricum, so well represented by Dr. Wight, is in cultivation in Europe, we cannot say. It has a short conical spur, broad ovate-acute lateral partitions, and a wide, retuse, anterior lip, bearing crests. The caudicula is very broad, whereas it is slender and narrow in A. Vandarum. *H. G. Rchb. fil.*

DENDROBIUM CAPILLIPES.

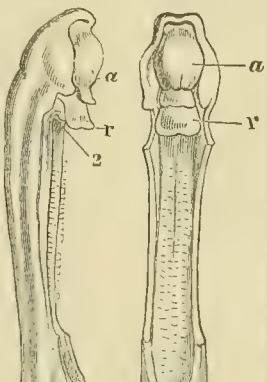
Chrysanthum, caule fusiformi brevi, foliis cuneato-lanceolatis acutis tenuibus, pedunculo bene exserto capillari monantho, mento obtusangulo, sepalis ligulatis obtuse acutis, tepalis rotundis subcrenulatis, labello a lineari basi reniformi bilobo lineis ramentaceis ac papulis filiformibus microscopicis permultis, callo ovato postice obtusangulo ac carinulis duabus linearibus in unque, columna apice utrinque auriculata, basi utrinque angulata, fovea semi-rotunda in basi.

This is a very little species, with a small, golden-yellow flower. Whether it is capable of a higher development we cannot say; we may, however, remark that no reasonable man ought to accuse us of a mistake, if ultimately the plant takes on another appearance. Such was our fortune with Dendrobium dixanthum, which we described just as it was when it fell into our hands. It appears to be one of the numerous Moulmein introductions of Mr. S. Low, to whom we are indebted for it. *H. G. Rchb. fil.*

VANILLA PLANIFOLIA AT OSBERTON.

IT has been stated in your Journal (see p. 654) that probably the largest plant of this in the kingdom is to be found in the Sheffield Botanical Gardens. Mr. Simpson, of Chelmsford, who had visited the Sheffield Gardens as well as those at Osberton, however, thinks otherwise (see p. 686), and considers the one here much the largest. Leaving mere size of plant, however, for others to discuss, visitors who have seen the two, one and all, come to the conclusion that there is no comparison between the two plants as regards the quantity of fruit which they respectively bear. The plant here has more than 300 pods upon it, and some of them are of large size; while that at Sheffield produces only about half-a-dozen pods.

When I went to Osberton about eight years ago, I found that most of the houses were heated on the old flue principle; and as my employer wished to keep pace with the times, several new houses were erected, and the whole were heated on the one boiler system. Some 14 houses and four ranges of pits are therefore now satisfactorily warmed in that way. The work in question was not commenced until late in autumn, consequently it could not be completed before severe weather set in; and during that time, with the exception of a small piece, we lost our old Vanilla plant, which was again planted when the heating apparatus was made complete. This plant, which is trained near the roof, now runs the length of the pit in which it is placed, viz., 40 feet, and it would have covered more than double that length could sufficient room have been found for it. The pit in which it is growing is used for succession Pines, for which the temperature rarely exceeds 50° in winter, and frequently it is even lower than that. Mr. J. Bloomfield (see p. 857), states his plants of Vanilla have grown well, but that his gardener fails to fruit them. Several plants in this immediate neighbourhood never do produce a fruit, and some never even flower, while others blossom profusely but never fruit. I attribute the failure in the first place to not getting the wood well matured, for if it is not well hardened it will not flower freely. I allow my plant at times to get almost dry and parched, for if, like some Orchids, the wood is not well ripened, it will not, as I have said, flower, but, on the contrary, grow vigorously. In the second place, failure ensues through a want of knowledge of the art of fertilising the stigma, an operation which requires great care, and some skill. In the flowers of this Vanilla three sepals and as many petals surround the column which bears the anther and stigma; the former of these (*a*), a dilated appendage attached to the summit of the column by a narrow curved neck, contains, within a cavity on its lower surface, the pollen masses. This appendage, by means of its curved neck, bends towards the lower surface of the column, where it rests upon an organ called the retinaculum (*r*), which interposes between the anther and the stigmatic surface of the column (2), this latter, projecting from the column, lies immediately under the retinaculum, and terminates a bearded glandular process which covers the lower surface of the column. The retinaculum, which is concave towards the stigma, effectually prevents all contact between that and the anther; it is therefore necessary to remove the retinaculum in order that the anther and stigma may be brought together, and this is best effected by means of a pair of narrow pointed forceps. These should be carefully introduced sideways between the anther and stigma, seizing the retinaculum and tearing it off in the direction of the anther. The pollen-masses are then drawn out and pressed down on the stigmatic surface of the column, and the operation is completed. If this is properly performed, the setting is certain. The flowers will not drop, but will remain for a considerable time on, or continue fixed to the fruit; in less than 24 hours the latter will be perceptibly elongated, and in about 12 months will be ripe. It is requisite, therefore, that the Vanilla should be planted and trained so that when the flowers expand they may be easily got at. They for the most part open during the night or early in the morning, therefore the best time to fecundate the flowers is in the morning; and this must be attended to day by day as long as the plant is in bloom. This operation is so familiar to me now, that I could venture to rely upon every pod swelling to maturity.



The Vanilla itself, as far as the plant is concerned, is of easy culture, and grows very freely in a mixture of peat and charcoal. It may be trained in any form, and will attach itself to mortar, wood, or iron. Having little tendency to branch, I frequently stop my plant to make it throw out side shoots, and thereby secure a greater space for the production of fruit. Its leaves are of a rich fleshy green, and its flowers have a somewhat singular appearance. The pods grown here are of high flavour, which they retain for years. I am indeed of opinion that it would be a good speculation to grow a house of Vanilla for commercial purposes, its price being very high. A large Pine stove, where the plants could be removed during the few weeks in which the flowers are setting, would be a suitable place for it. I generally keep the temperature rather high during the time the plant is in flower, and I use the syringe pretty freely during the summer time. Insects never trouble me, and shade during the hot summer months is all that is required.

My plant commenced to fruit after the second year, and it has borne pods annually, since I could doubtless have had a thousand fruit upon it this season had I thought well to do so, but after I had set as many as I considered the plant could conveniently bring to maturity, I discontinued setting the flowers. *Edward Bennett, Gr. to G. S. Foljambe, Esq., Worksop.*

[The pod which accompanied this communication was 10 inches in length, well coloured, and in every way excellent. EDS.]

NEW STRAWBERRIES.

IN a circular recently issued by M. de Jonghe, of Brussels, we find some interesting remarks concerning some new seedling Strawberries raised by him since 1846, a description of which has not up to this time been made accessible to the general public. From this document we condense the following particulars, which will be interesting to Strawberry growers. The first variety of Strawberry named by M. de Jonghe is La Perpétuelle de Saint-Gilles, obtained in 1845, in an amateur's garden, from seeds of a variety called in France La Meudonnaise. This variety is reproduced true from seeds when gathered in the month of September, that is to say, from the third crop of the year. The Strawberries to which M. de Jonghe gave names in 1849 and 1850, are the following:—Bicolor, Choix d'un Connoisseur, Perle, and La Reine. Bicolor and La Reine, on account of the early ripening of their fruit (15th to the 20th of May), and especially owing to their fine quality, were welcomed in the gardens of cultivators, wherein those distinct varieties are still frequently grown. The Choix d'un Connoisseur and the Perle have been surpassed by other varieties, which are more prolific, and have better properties. In 1852 and 1853 two other seedlings were named, viz., Belle de Bruxelles and Ne Plus Ultra. The first, having the flesh too soft and the fruit too scanty, has not been preserved. The second, by reason of its large size and the abundance of its fruit, is still grown by those who have at command a firm soil and a good aspect. In 1854 and 1855 six other seedlings were named—Dr. Karl Koch, Emma, La Constante, La Grosse Sucrée, Retemeyer, and Robert Trail. After 10 years' cultivation these varieties are much appreciated by a large number of growers who have space at command. In 1857 La Constante took the lead of the five others by its vigorous habit, by the abundance, the beauty, the flavour, and consistence of its fruits. At that time no variety offered so many good points, and it was then considered as the type of perfection. In 1857 and 1858 La Savoureuse, Lucas, and Lorentz Booth were named. In 1859 and 1860 Bijou and Souvenir de Kieff. From 1861 to 1864 Héro, Globe, La Fertile, Léonce de Lambertye, Modèle, La Noire, Paysanne, Progrès, Robuste, Rustique, Topsy, and Virginie; and in 1865 Baron de Quadt, Carniola magna, Ménagère, and Sucrée, or Surpasse Grosse Sucrée, received names.

In M. de Jonghe's opinion, La Savoureuse, Lucas, Souvenir de Kieff, and La Sucrée will remain a long time in our gardens. Lorentz Booth produces an abundance of fruit of good quality. Léonce de Lambertye, Héros, La Fertile, Progrès, and Robuste require a firm soil and a good aspect, in order to produce fruits which leave nothing to be desired. Baron de Quadt and Modèle are distinguished by the beauty and superior quality of their fruits when these are produced on plants growing in a suitable soil. The fruits of Globe, of Paysanne, Virginie, and Carniola magna are often deficient in flavour when the plantation has not been made on a warm soil and in a good aspect. The fruit of Carniola magna is the finest of all the seedlings, except President Wilder. Bijou, La Noire, and Topsy are curiosities. In addition to the above M. de Jonghe gives a descriptive list of a new series of varieties raised by himself. It must be remembered that the properties of the fruit, &c., are liable to variation either from defective culture, bad situation, or soil, or an unfavourable season.

Dr. Thompson: In the spring, summer, and autumn this variety has a stiff habit of growth; the leaves are of a deep green, but little polished; the lobes of the leaves are nearly flat, and have their blades regularly toothed; the hairs are spreading. The flower stalk is very solid and branched; the flowers have the corolla but little developed, as is also the case with all the varieties of this new series, which are all derived from the same race, and hence offer considerable degree of uniformity in this particular. The fruit is of moderate or large size, conical, regular, and with firm flesh; the surface is of a red, shining, cherry colour; the seeds are rather numerous, not deeply imbedded; flesh of a pale cherry colour, juicy, and of a brisk flavour.

Emérite: The plant is of firm, compact habit, the foliage is that of La Constante, and the fruit has the form of that of Bijou, but larger, and it is of an elongated conical shape. The hairs are spreading. The seeds are even with the surface. Skin cherry-coloured and shining; flesh firm, white, or flesh-coloured, juicy, and very rich. The variety is a good bearer; it has a robust habit of growth and reproduction.

Fanny: Habit vigorous; leaves broad, of a pale dull green, subsequently assuming a straw colour with the

lobes turned up and deeply cut; the hairs are spreading. The fruit is of a regular conical form, of a reddish cherry colour; seeds numerous; flesh of a dull white or flesh tint, juicy, and of a piquant flavour when first gathered: the next day the flavour is vinous and sugary.

Madame Bal: This variety is of moderate compact habit, hardy, and a good bearer. The leaf-stalk is short and solid. The lobes of the leaves are of a deep dull green, flat, and deeply toothed; hairs spreading. Fruit conical, medium-sized or large; skin varnished red; flesh white or flesh-coloured, very juicy, and with a distinct vinous flavour.

Madame Jacobs: Plant of very moderately vigorous habit, leaves but little developed, lobes nearly round, of a dull green colour, margins deeply toothed, hairs spreading; fruit oval or round, of a bright red, shining colour; seeds but little imbedded; flesh of a cherry or flesh tint, juice abundant, of piquant and brisk flavour.

Mrs. Wilder: Habit vigorous, great firmness in the stalks of the leaves and of the fruits, hairs spreading; fruit of flattened conical form; surface deep red and varnished; seeds on the surface, or but slightly imbedded; flesh of a deep cherry or flesh colour, very juicy, and with a brisk flavour. This variety may be recommended for its vigorous habit, its fertility, and the good quality of its fruit.

Miss Coutts: This name has been given to the variety the most remarkable of all for its vinous, sugary, and brisk flavour; at the request of a large number of excursionists from St. Gilles, as a mark of esteem and of acknowledgment to the lady after whom it has been named. It is of moderately vigorous habit, the leaves have round lobes of a dull green colour; the hairs are spreading. The fruit is of a shining cherry colour, of a shortened but regular conical form; size above average, skin of a pale cherry tint; seeds rather numerous but slightly imbedded. The flesh is firm, white, and very juicy; the flavour is vinous and brisk. This variety is a good bearer.

President Wilder: This variety has more firmness in the leaf and fruit-stalks than has La Constante. It is very hardy in all seasons. The hairs are inconspicuous and ascending. The fruit is nearly conical, but acquires an oval form when it has obtained its full size. The seeds are not numerous, but they are rather large, even with the surface, and symmetrically arranged. The skin is of a deep, shining, cherry colour; the flesh flesh-coloured and firm, juicy, and of a sugary, piquant, brisk flavour. This variety is a good and continuous bearer. To sum up, it is a good type of Strawberry, surpassing, in the beauty of the fruit, La Constante.

Succès: The plant is of vigorous and firm habit. The leaves are of a deep shining green, broad, flat, the lobes deeply cut, hairs scanty and ascending; fruit large, conical, obtuse, and of a yellowish cherry colour; seeds numerous, but little imbedded; flesh firm, of a pale flesh tint, juicy, and of good flavour. This variety produces a considerable number of runners as soon as the fruit has acquired half its size.

BRITISH ASSOCIATION.

[We select from the very interesting proceedings at the recent Dundee meeting an abstract of such of the papers, read at the various Sections, as are likely to possess interest for our readers. EDS.]

IN Section A. (Mathematics and Physics), Professor FOSTER read a paper, by Mr. R. RUSSELL, F.R.S.E., on the *Properties of Vapour in the Atmosphere*, in which the author, after admitting the ingenuity of Professor Tyndall's researches on heat as a mode of motion, took exception to some of his deductions on the influence which the vapour of water exerts in modifying the intensity of solar and terrestrial radiation. He, on the other hand, came to the conclusion that the radiant powers of the vapour of water in the atmosphere were not even capable of forming clouds, though they might be capable of forming mists in valleys. In our atmosphere the vapour of water had little power of transmitting its heat into space when it approaches or reaches the dew point. If any cloud had been caused by the radiation of heat into space, its upper surface would be flat, like the mists in the meadows before sunrise. These and other reasons led him to the conclusion that the radiation of vapours into space has, directly, a very slight influence on the production of rain.

Sir WM. THOMSON observed that the paper that had been read contained some very important arguments on a difficult question of meteorology. He did not doubt that the author was right in the main in maintaining that cold produced by expansion had a very small effect in causing those condensations which gave rise to torrents of rain. But he thought he had undervalued very considerably the influence of radiation in producing that minor condensation by which mists and clouds were constituted. He said minor condensation—meaning condensation from a gaseous condition into small spherical globules, so small that the resistance they met with kept them suspended. The reason why a cloud did not fall down as rain was, that every part of the cloud was composed of very minute drops of water. The larger the drops were that constituted a cloud the more rapidly would they fall; but when very small they fell insensibly, as Professor Stokes had shown, only perhaps a few inches in an hour. When somewhat larger they formed what we called a Scotch mist, which was something between a shower of globules coming down appreciably, and a shower of globules in which the descent was insensible; and it appeared to him that Mr. Russell had undervalued the influence of the radiation referred to. He would not pronounce, however, at present upon the vexed question of the radiating power of transparent gaseous vapour. Professor Magnus, of Berlin, and Dr. Tyndall had been investigating that subject; and although up to this time they had not been able to agree in their conclusions, he had no doubt that two such eminent observers would yet arrive at a conclusion, and give the benefit of it to the world. But as to the influence of radiation and the influence of minor condensation to which he had already alluded, as soon as a cloud exists, whether high or low, each particle becomes a radiator. It radiates heat, and becomes itself a little cooler than the surrounding air, and so becomes a reservoir of condensation. That takes place at the top of the cloud if there is clear air above it, and so with the mist in the valleys. The observations of Wells, the discoverer of the true theory of dew, demonstrated the accuracy of this assertion. He might now refer to Mr. Russell's remarks upon the temperature at night as influenced by the dew point. The temperature at night was found to be but little different from the dew point which might be observed in the course of the day. The true explanation of that was to be found in Wells' theory of dew. A blade of Grass could not go to a temperature lower than the dew point of the air touching it, and so it was with particles of mist. Dew was most plentiful in clear, calm nights, when the air was very moist, but quite transparent, and when it fell fine leaves of flowers and Grass blades could not sink lower than the dew point. Dew did not form to any great extent, indeed hardly at all, when the sky was cloudy, for then the clouds afforded the protection which was not on such nights afforded by the dew. When there were no clouds, and if there was a high wind, then in that case the wind afforded the protection to the leaves and flowers which was to be obtained from neither dew nor clouds. But by an arrangement which they could not but regard as an admirable and wonderful exemplification of design, there was nothing destitute of protection. The protection was sometimes insufficient, and plants were killed by frost, but some degree of protection was never wanting; and there was enough of that protection always to allow plants to live, as we saw them doing, and to survive during weather when, were it not for one or other of these three causes, the cold would be so great as to destroy them altogether. Physically, it was interesting to remark how it was that in each instance the protection was obtained. There was first the protection afforded by clouds. These prevented the surface of the earth from radiating and reaching a lower temperature than that of the clouds. The temperature of a blade of Grass on a cloudy evening would therefore be very nearly the temperature of the lower surface of the clouds overhead. When there were no clouds and no wind, the office of each blade of Grass was to collect the air touching it, condense vapour from that air, and so take heat from part of the heat around it. Thus we had a source of heat taken from the air several feet above the surface. The protection was more complete, however, when dew did not fall, for when there was no dew the wind made up so large a portion of heat from the air that the leaves of plants were never allowed to go down even to the dew point. Thus wind was a more complete protection than dew, and it would have been observed that plants were never injured by frost on windy nights, and that in the morning the Grass was found dry. It was sometimes remarked that flowers were frosted in hollows, but that close at hand, and on the summits of little hillocks, they escaped damage. The explanation was clear when they took into account the principles developed by Wells. The air in the hollows remained unchanged, and unless there was moisture enough in the air to provide dew as long as the severe condition of weather lasted, and to keep the dew point from going down too low, injurious effects would follow. The plants, in short, got dry, drying the air around them, and if that air was not changed very much for the better, then they were destroyed by frost. This, however, rarely happened. He agreed with Mr. Russell in what he had said regarding the value of Dr. Tyndall's work on "Heat." The scientific world were much indebted to Dr. Tyndall, not merely for his investigations, but for the manner in which he had attracted interest to the results of science, and for the beautifully clear explanations he had given of scientific principles. Scientific men were extremely dependent on the sympathy of the rest of the world, and this was very largely increased when the illustrations of scientific investigations were made known in a clear and interesting manner, as Dr. Tyndall had made them known, to a very large part of the population in this country, and throughout the civilised world.

In Section B. (Chemistry and Mineralogy), Professor ODLING read a paper by Dr. L. LINDSAY on *The Present Use of Lichens as Dye Stuffs*. He said—It had been expected that the aniline dyes—a product from the distillation of coal tar—discovered a few years ago, would supersede the lichenous dye-stuffs previously in use, and that the latter would speedily disappear, in consequence of the breaking up of the Highlands by railways, and the improvement of the communication between Glasgow, Edinburgh, and the south. To him, however, it seemed that all such predictions were at least premature. He confessed that such was the eminence and experience of the authorities, that for a time he acquiesced in their conclusions, and took it for granted that they were well grounded; but in the course of his investigations for a work which he had in preparation on Lichenology, he had found that there existed abundant evidence of the use of Lichens in commercial manufactures on a large scale, as well as for domestic purposes. Dr. Lindsay then stated that from facts which he had learned at the Exhibition of 1862, from his investigations whilst on a tour through the Orkney and Shetland Islands, and parts of the Highlands, and from numerous writers whom he quoted, he had come to conclusions favouring the belief that Lichens would not be superseded, at least for a long time to come. He then proceeded to give numerous details of the use of Lichen dyes for commercial and domestic purposes, to remark on the unsatisfactory state of the nomenclature and classification of the Lichens, and to advocate a uniform system.

Some conversation followed, principally as to the use of the lichenous dye-stuffs, in the course of which Mr. R. PULLAR, of Perth, said—It is very important to investigate the question of the value of Lichen products, as many more districts might be found where the Lichens are produced, and a certain market for them. Orchill or Cudbear will not, I think, be replaced by coal tar or aniline colours for many purposes, and especially for rich crimson or claret shades on woollen goods. I think there is every likelihood of this material being used to a greater, instead of less extent, and the introduction of the coal tar colours has rather increased than diminished its use. I do not think the Lichen products will ever compete with the coal tar colours for light shades. It is a well known fact, which can be corroborated by the ladies present, that purples, violets, and other shades produced in former days by the Orchill or Cudbear, gave way very much sooner than those produced from coal tar. A violet dress or ribbon was formerly stained red so easily by exposure to the atmosphere or the slightest acid, that very few persons thought of having such colours; while, since the introduction of the coal tar shades, however, which some say are not so fast as the old colours, there is now an enormous sale, because they can be worn with impunity, and the colours in most cases stand well for a long time. This is an extraordinary fact, but can be corroborated by every person of experience. In reference to the Lichens of the Shetlands and West Highlands, their value is, I conceive, very small, as the same colours they produce, can be made by the use of Fustic and Orchill, or Cudbear, at a less cost, and more certainly. These Lichens are only used in these wild districts because of the difficulty of procuring any properly fabricated dyeing materials.

In Section C. (Geology), Mr. CARRUTHERS read a paper on *British Graptolites*. The genus was established by Linnæus in the first edition of his "Systema Naturæ" for a series of natural productions which had previously been considered to be tree fossils. In the genus, as it appeared in the early editions, not a single species of the fossils to which the name is now confined, was included. No alteration was introduced into the genus until the 12th edition, when G. scalaris appears, which had already been figured by Linnæus in his Scanian travels. This is the true type of the family, and the only species with which Linnæus was acquainted. The single-celled Graptolite, which has by every one been referred to Linnæus's G. sagittarius, has nothing whatever to do with the organism to which he gave this name. His species is found on a fragment of Lepidodendron figured by Volkmann. To correct this error, and to make the extent of the acquaintance which Linnæus had with these fossils more obvious, he proposed to substitute the name G. Hisingeri for the species, after the distinguished palæontologist who first described the species, but erroneously ascribed to it the Linnæan name. The whole of the species were included by Murchison, Portlock, and others in the original Linnæan genus. New genera were introduced by Barrande, M'Coy, Hall, Salter, and the author. The various genera were then described, their different characteristics noticed, and the number of species given. A new genus, Cyrtograpsus, was proposed for a singular form from the Wenlock of England, of which a single species only has been observed occurring both in England and Bohemia, and which the author dedicated to the distinguished author of "Siluria." The netted forms which have been referred to this family had been carefully examined by the author, but he could not satisfy himself as to their affinities, and for the present must exclude them. The family still remains characteristic of the Silurian period—nothing having been observed to alter the generalisation made years ago by Sir R. I. Murchison. Mr. Carruthers then made a verbal communication respecting *Calamites and Fossil Equisetaceæ*. Having described the structure of the recent genus Equisetum, he referred to the various stems that had been regarded as allies of this genus. While true specimens of Equisetum had been found fossil, he showed that the stems belonging to Calamiteæ had a structure very different from anything known in this or any other order of acotyledons. The most important characters were obtained by botanists from the fructification. The author had obtained, through the kindness of Dr. Hooker, sections of vegetable structures prepared by Mr. Binney, whose extensive acquaintance with coal plants was well known; and he had discovered some of these fruits which belonged to Calamites so beautifully preserved that the most minute details could be determined, and, with the help of his diagrams, the various points in which they agreed and differed from the fruits of the recent Equisetaceæ were shown. He then described the foliage which had been certainly found connected with Calamites, and which had been named Asterophyllites; and he showed that as similar fruits had been found associated with Annularia and Sphenophyllum, which differed from Asterophyllites only in the amount of cellular tissue spread out on the veins, there could be no doubt that these also were the foliage of members of this larger genus or tribe of plants. Calamites he considered to represent a new natural order more highly organised than any acotyledonous order, but certainly belonging to this great class of plants.

Professor Phillips congratulated the section on having had such an able communication as that of Mr. Carruthers submitted to them; and said it was also matter for congratulation that they had in that gentleman an authority on the subject with which he had just been dealing, and one who was not only willing but thoroughly qualified to work out profitably these important investigations.

Mr. Carruthers then proceeded shortly to describe the fruits of a *fossil Pandanus*, belonging to the Northampton Museum, which his friend Mr. S. Sharp had brought under his notice. He believed it to be nearly allied to, if not identical with, the imperfectly-preserved cone, which Lindley figured under the name of Strobilites Bucklandii, the affinities of which, owing to its state of preservation, he was unable to determine. It differed very greatly from Buckland's Podocarya, and approached nearer the structure belonging to the recent family, and more especially to that section of the Screw Pines which had single seeded drupes.

FLOWER-GARDENING AT ARCHERFIELD.

ALTHOUGH Mr. D. Thomson is one of our very best fruit growers and general gardeners, space prevents me from discussing those phases of his excellent garden. I cannot even touch upon his sturdy, quickly grown, and capital Pines—which subject, however, is in less want of notice in consequence of its being fully described in Mr. Thomson's book on the Pine-apple—but I was so much struck with the excellent and highly finished style of flower gardening pursued by him, that I cannot help sending you a special notice of it.

Let me at once proceed to deal with the flower-gardening near the glass-houses in the kitchen garden. First, there is a circular bed in a courtyard, in front of Mr. Thomson's house; and, by the way, I must stop for a moment to say what an excellent gardener's house it is—comfortable and roomy, fitted with every convenience, and altogether a model of what such a structure should be in a first-class place. I mention the bed in front of it simply for its edging—Dactylis glomerata variegata. I have often recommended this to your readers, but observation in many parts convinces me that it is the best of all variegated or silvery edging plants. That, too, is Mr. Thomson's opinion, although it was he who first used that now most popular and useful plant, Centaurea ragusina. The Dactylis seems to grow well in all parts of the country—every bit grows when pulled in pieces, it is perfectly hardy, and worth a dozen such plants as the variegated Poa, recently sent out. Here, in consequence of regular planting of healthy young stuff and probably a cooler climate, it grows taller and more erect than about London, forming quite a little wall of silvery leaves in fact, the tops drooping over, and looking on a long border like the crest of a wave, as Mr. Thomson remarked. In another part of the grounds we looked from a considerable height down upon a large collection of bedding plants, showing most of the popular silvery plants in a good state, and there and then, after comparison, came to the conclusion that it was the best of all silvery bedding plants, as I have before said. Not alone is it useful as an edging, &c., but also in a high sense for a single specimen panel plant, and many other uses, which will suggest themselves to the tasteful bedder. Mr. Thomson does not clip it, but allows it to grow to its full size; but it may, where we wish to keep it dwarf, and associate it with dwarfer things, be cut or clipped in, and the budding points of the leaves will in a few days come out and take away every trace of the shearing. It is the borders near the houses that first strike the visitor to Archerfield, and the first thing that strikes him in those borders are tall and noble things like the Gladioli and Tritomas, if he go there in autumn. Thus, right against the houses there is a capital collection of fine tall Gladioli, in full bloom, and they take all the stiffness and flatness out of the borders while offering the visitor a glorious floral treat from their fine and varied colouring. Mr. Thomson is about the first gardener I have met who really knows the full value of this superb autumnal flower. G. brenchleyensis and G. Bowiensis, and many of the best varieties, are cultivated to a great extent; the minor cross borders in the kitchen garden being planted with them, as well as more important parts. But let us come at once to the main border here, which was a splendid thing in its way.

I should explain that in consequence of the central portion of the main range being projected more into the garden than its right and left wing, an opportunity occurred for varying the ribbon borders and making them much more satisfactory than if all in one line. Accordingly we find the middle portions differing from the receding borders of the wings, and being the most important—exhibiting choice plants and higher finish. First, we have a compact line of espalier trees, then one of Humea, followed by a line of Dahlia Prince Arthur, then a groundwork of Verbena venosa, 7 feet wide, edged all round with Pelargonium Flower of Spring, and varied at every 7 yards by a nice specimen of Yucca aloifolia variegata; after that a line of Christine, followed by 3½ feet of that fine Verbena Crimson King, dotted at every 7 yards with a single plant of Chrysanthemum Sensation, just barely raising its rich head a little above the bright Verbena,—the whole being edged off with Cerastium, and the ends of the border rounded off and planted as neatly as the front, instead of being carried out straight as is frequently the case in other places. Now the effect of the rich bed of Verbena venosa in this border with the bold and pleasing diversity caused in it by the placing of the Yuccas as I have stated, was the finest I have ever seen in a ribbon border. The colour of the Verbena is very fine when grown in masses, and the heads of the striped Yuccas standing above it made the picture complete of its kind. Need I say there are many other plants which may be used with equal success? Near at hand several specimens of the fine Cordyline indivisa were placed out among the flowers in the same way, and with the happiest results. I must not mention all the ribbons here, one will suffice. First, a wide line of Gazania near the walk, then a capital line of Dactylis, followed by purple King Verbena and Christine, the whole backed by a line of Gladiolus against the glass. This I mention in consequence of the extraordinary good effect produced by the Dactylis between the Gazania and Purple King. I may say in passing that although all the new Pelargoniums have been tried, old Tom Thumb still holds his own, and is always found good for sandy soil. The Stocks, particularly the East Lothian varieties, are found fine for flower-garden work, and are full of colour and beauty, even when the rain has washed it all out of Pelargoniums, &c. Zelinda and Prince Arthur Dahlias are both much used and thought highly of. Asters prove as useful as the Stocks, and for the same reason. Barrott's dwarf crimson Beet is largely used instead of Perilla, and really produces a much finer effect. Of course the fact that you can make use of the roots when all is over should not make any body prejudiced against it, especially when there is a hope of its delivering us from Perilla to some extent. Perilla is a thing that rarely pleases unless put in with the greatest care. The Beet is certainly a great improvement on it.

We will next have a look at what may be termed the flower gardens proper. They are situated a considerable distance from the mansion, and form the greater part of the enclosed grounds of the old Castle of Dirleton. This looks over on the Firth of Forth, and commands from its ivied heights a fine view of the rocks, small but bold rocky islets in the Firth, North Berwick Law, and the Bass Rock. However it also looks down straight upon a flower garden; one of those very awkward ones with large beds on a gravelled space—no Grass. It is not geometrical, nor are the beds of any precise form; therefore making it beautiful requires more than ordinary skill. A border in it was of an unusual degree of vividness, while distinct and pleasing. It was against a wall, and was made thus:—First the top of the wall was covered with one great plant of Wistaria, then a magnificent line of Gladiolus Brenchleyensis was at the back of the border, then 4 feet of the bright Stella, a row of Flower of Spring variegated Pelargonium, 2½ feet of Gazania and blue Lobelia, with 10 inches of Cerastium. But a bold attempt was made to vary this by planting nice small and compact specimens of Irish Yews at intervals of a yard apart amongst the Stella, and good specimens of Centaurea ragusina amongst the Gazania. In the larger beds in the body of the garden, single specimens of various Conifers, and of a larger size, were planted, and, on the whole, with a much better effect than if the place were devoid of anything to vary it. However, this garden is not one that I should hold up as a model—one close at hand, and simply cut off by a slight plantation, comes very much nearer to perfection. In it the beds are on the Grass. It is entirely surrounded by trees of some kind, and though some of them are formal from clipping, they help it very much. But it owes its beauty solely to the tasteful arrangement of its contents. Entering it from the large flower garden on gravel, the effect was charming. Graceful Conifers were here and there on the Grass, varying the scene in a very desirable way, while in most cases the beds were graced by the presence of a "subtropical" plant in the centre. There were plenty of flowers, but also an abundance of permanent vegetation of a graceful type, while the rather near walls of green played a very good part. Southerners who doubt the good of the subtropical movement, and do not even try the best plants employed in it, should surely be encouraged by the fact that these grow well during such a wretched season as the present within a short distance of Edinburgh. I had no idea that they would do at all thereabouts, and was therefore surprised to find Wigandia looking very well indeed, and having made a large growth; the India-rubber plant with clean leaves made in the open air; Solanums really good; and Cannas quite enough so to warrant their general culture.

This is Mr. Thomson's first year of trial with these plants, and what a year he has had to begin with! Therefore he has no doubt of the merit of the system, and intends employing it more fully. The Tritomas are several weeks later than usual—so much so that it is doubtful if their full bloom can be developed ere the winter falls, and yet here we have Nicotiana wigandioides bravely developed. It should be mentioned that the garden is thoroughly well sheltered, and without thorough shelter nobody should attempt the culture of such plants. As yet there are no masses of them, but the few in the centres of the beds produced a capital effect. I should add that a very tasteful practice of backing lines of Gladiolus with lines of Sweet Pea obtains in the kitchen garden, and an even more commendable one of planting those bare spaces under trees near the flower gardens around the old castle with trees. People frequently ask, What can I plant under trees? while our strong-growing native Ferns offer themselves to everybody. To find the ground covered with a rich growth of Ferns in passing under the trees that surround these gardens was quite refreshing. It is worthy of note that Mr. Thomson makes it a point to vary all his arrangements every year. The aspects of the several gardens and borders differ completely from year to year. This cannot be explained better than by giving the planting for the past year of the great border with the Yuccas before described, the more so as it was much admired by good judges as a fine example of colouring. First row, after espaliers, Humea elegans; 2d, dwarf white Dahlia; 3d, Christine; then a groundwork of Stella Pelargonium, 7 feet wide, varied with raised panels of Centaurea ragusina, followed by another row of Christine, then a line of purple King, followed by line of Calceolaria canariensis, and then a groundwork of 3 feet of blue Lobelia. In this Lobelia panels of Polemonium cœruleum variegatum occupied a like position to the raised plants of Centurea ragusina in the wide groundwork of Stella, and the whole was edged off by the dwarf and glistening Arabis lucida variegata. It may readily be imagined how fine this arrangement must have looked. In concluding my very hurried survey of this most interesting garden it would ill become me not to simply testify to the superb condition of all departments, from the extraordinary wall of Apricots to the propagating pits. The borders are the finest of their kind I have ever seen, the last described garden quite a lesson in taste, and the fruit culture of a character which is very rarely attained even where fruit-growing alone has to be attended to; and all this is done with but a very spare allowance of help. It is, in short, about the most instructive garden I have met with for a long time, and I almost wish that good taste would permit me to speak with equal frankness of the qualities of its manager, Mr. David Thomson. *Viator.*

GRAPE JUDGING.

FROM the various opinions of those who have lately written upon this subject, it seems to me that the point of colour is the one most in question, and were I to be asked whether I considered the colour of any black Grape a standard of its flavour, I should say, decidedly not. Take, for example, one of our highest coloured Grapes, a universal favourite as a late variety—Lady Downes' Seedling, which I have now as black as Sloes, and yet I do not consider it fit for table before Christmas; but on the other hand, the question of flavour without bloom cannot be denied, and *vice versâ*.

As to flavour without bloom, my experience is this: Last year I fruited for the first time 24 Vines that were planted by my predecessor. The varieties were Hamburghs, Muscat Hamburghs, and Lady Downes' Seedling. The Hamburghs were the colour of Frontignans, the Muscat Hamburghs little better, and Lady Downes' only moderately well coloured. The Vines are planted outside of the house, without any protection, and I attributed the deficiency of colour and bloom to the cold wet season. I also afterwards found that there was an obscure wall built across the bed, which prevented to a great extent the escape of superfluous water. The flavour of the Hamburghs was exquisite, so much so, indeed, that one of my employer's visitors came to the gardens on purpose to inquire of me the name of the beautiful red Grape, of which he had the previous evening partaken; and on my telling him that they were what should have been Black Hamburghs, he thought I must be mistaken, as he had no hesitation in saying that they were the best-flavoured Grapes he had ever tasted. The Muscat Hamburghs were equally good, though shanked a little, and Lady Downes' were as perfect when I cut them in April as they were at Christmas; in fact, as to the last three bunches which I sent to my employer's table as late as the 22d May, the berries and bloom were quite fresh and plump, and I then for the first time tasted a really good sugary berry of Lady Downes' Seedling.

Then as to bloom without flavour: The Vines above alluded to are now all bearing excellent crops, of which the bunches and berries are equally good as those of last year, but they are as black as Sloes, though as yet they have not nearly the same flavour, which makes me so much the more strongly assert that the bloom of black Grapes, of however dark a hue, is not, nor never can be, any criterion as to flavour. I do not mean this remark to refer in any way to white Grapes, as I never yet knew an instance in regard to that class in which an absence of colour did not denote a deficiency of flavour.

In your columns (see p. 929) I find some important inquiries relative to Vine bloom: one is, does it tend to keep or decompose fruit? My opinion is that it acts as a preservative, as I never had such difficulty in keeping Grapes as I had in the case of the Red Hamburghs of last year, for although every possible attention was paid in keeping the atmosphere cool and dry (and for a considerable time not a moulded berry was to be seen), yet frequently the mere motion of cutting a bunch was enough to cause a complete shower of berries to fall from it, leaving only the outside ones remaining.

While advocating, as I have done, that bloom is no criterion as regards flavour, I would not for a moment be thought so sceptical as to ignore a large bunch and berry with a beautiful black bloom—three primary objects, which I shall always endeavour to obtain, for when these are secured and the fruit ripe I have little fear of deficiency in flavour.

As to the objection brought forward by one of our most successful Grape growers against flavour being constituted a point, when he says "that an exhibitor's Grapes might be thrown aside because the palate of the judges would become so cloyed that they would not be able to satisfy themselves which samples were best," I do not for my own part see any difficulty whatever, or how is it that any determination is ever come to with other fruits which are subjected to the test of taste? Besides, the palate will not readily cloy with unripe Grapes, but between the two it is much more likely to act as a detective of the highest flavour. And as to the remark made by the same writer, that the primary objects in Grape-judging ought to be confined to four points—which he gives in the following order, namely, "a black colour, yet with a good bloom; size of berry, compactness of bunch, and size of bunch"—he just excludes the most essential point, flavour, to which ought to be given the maximum number of whatever figures are fixed upon to denote the highest excellence in a bunch of Grapes, giving to the other four in the same order as above.

Were a test of this kind once adopted, I feel sure that the mutilation (?) apprehended by another writer, "that might be caused by the judges plucking two or three berries from each bunch," would only go to expose the great sacrifice at present made in the cutting of so many fine unripe bunches, which, though they adorn a show table, are certainly fit for little else. *R. Westcott, the Gardens, Raby Castle.*

Home Correspondence.

Fern Sports.—One of the most interesting features of the late flower show at Dundee consisted of the groups of abnormal forms of Ferns for which various classes were provided. The reporter of the local *Advertiser* thought fit to lecture the growers of these varieties in the following terms:—"There was also another feature which we would advert to, though with no willing hand—we care not for the shades—but a thorough love of Nature constrains us to do our duty. We refer to the Fern sports. If there was one department more than another where we lingered longest, and enjoyed ourselves the most, it was among the Ferns. A more precious collection we never saw. Amongst these, however, there were by far too many sports. The normal form of the frond of the Fern is Nature's form, and they that will waste their time to work the Ferns out of their natural shape by raising sports, *alias* monstrosities, deserve no encouragement. We have known not a few of Nature's ardent votaries, but never yet met with one of them but detested the Fern fancier who took to raising sports. What ails the sport exhibitors that they will grow some of their beautiful Ferns out of all shape, and run them to Parsley? What ails them at the common Hart's-tongue that they will run the simple into the compound form of frond? Let the Scolopendrium vulgare alone. It is better as Nature meant it than in its crested shape. This bastard system of raising sports deserves to be classified with that ridiculous and misplaced art which tears up corollas of every colour, and batters the petals piecemeal with leaves upon base pieces of timber and pasteboard of fantastic shapes and labels them 'Floral devices'—Floral vices would be a more appropriate designation." This ignorant tirade drew from Dr. Lyell, of Newburgh, an enthusiastic Fern grower, and one of the exhibitors, the following dignified reply, which, transferred to your columns, may serve as a more general answer to similar sentiments:—"It is said of the great Sir Isaac Newton that when Dr. Halley began to sneer at religion in his presence, he made use of somewhat the following words:—'Dr. Halley, when you speak about mathematics or astronomy—subjects which you understand—I shall always be glad to listen to you, but when you speak about Christianity—which you do not understand—I cannot have patience with you.' I would apply these words to the critic on Fern sports, for he evidently does not understand the subject on which he writes. I will not yield to him or any one else in the love of nature; and, in his words, this love of nature constrains me to do my duty, and confess in the face of these strictures my love and admiration of the extraordinary as well as the ordinary forms of the Fern family. This writer does not seem to know that the greater number of the abnormal varieties of Ferns have been found wild in Nature, just as God made them, and cannot thus have been worked out of their shapes by the manipulation of any Fern fancier, who has had no hand in the matter. The florist has considerable power over the objects of his culture, such as the Pansy, the Dahlia, and the Pink, by hybridising, and other well-known processes; but, owing to the peculiar mode of reproduction, the Fern grower has little or no power to vary his favourites. Varieties do sometimes spring up, but these are the exception, and not the rule, for they are exceedingly true to parentage. With regard to these varieties, I will ask any unprejudiced or common-sense person whether there can be any just resemblance between the constructor of a floral device, and the raiser of a new Fern? Why, the former object, barring the material, is a bit of human workmanship entirely, while the latter is the gift of the good God, the sole maker of it all. Is it a waste of time in any way to aid the development of occult forms, with which Ferns seem to be so richly endowed by their Maker? or is it a waste of taste to admire what God has taken the trouble to make? But let me state a few facts. The Scolopendrium vulgare crispum is an abnormal variety or sport of the common Hart's-tongue. Put the two together; does the writer mean to tell us that a person has no true taste who admires the wavy line of beauty in the one as much, or more so, than the plain straight edge of the other? Will he dare to tell us that the young man who, some years since, found the lady-fern Victoriæ, should have cast it again into the ditch, and trodden it under foot in the mud, because, forsooth, it was a sport? Or will he put the ordinary male Fern alongside the cristata or cristata angustata, and tell us that the former ought only to be admired, because it is the normal, and the others the abnormal conditions of the plant? Is the common Polypody more beautiful than the cambricum, or pulcherrimum, or omnilacerum?—all sports of the other. I presume our friend would prefer the Sloe or Bullace to the Victoria Plum, because the latter is a sport, and a Crab to a Ribston Pippin for the same reason. A Carrot he would not eat because it is abnormal—nor put his mouth to a Cauliflower because it is a monstrosity. But to conclude: I love Nature in all its forms, and see the hand of God in every variation. Variety in unity is a principle in natural organisation, and the love of variety a principle in our organisation, and thus the two harmonise. The lover of ordinary forms, as the Fern-sport critic, I claim as a half-brother; but the lover of all forms I claim as a whole brother, and with him rejoice over our inexhaustible feast." *C.*

Variegated Plants from Root-cuttings.—Last autumn I observed two or three green shoots on plants of Mrs. Pollock Geranium which had been cut very hard all through the summer for propagating, and I noticed that these shoots in each instance sprang from internodal, or rather ultranodal germs (?)—I here want a term more expressive of maturity, for they undoubtedly propagate their kind, and engage in the affairs of individual, active, instinctive (and why not intelligent?) life—centres of vital force, each working in its own department, gathering form and substance about them as garments, building up matter as habitations or storehouses, or laboratories, or using it as social appliances of some kind. What are these unknown dwellers in every fertile cell? The microscope may have discovered them, but by their works only we know them. Shall we ever have a better knowledge of them? If we do, it will be through their actions, and it is an action of theirs I am about to describe. These green shoots, then, were from plants of my own propagating, and had their origin clearly below any previously formed leaf buds, my practice being, when the shoots are sufficiently long-jointed, to cut them immediately above and not below a leaf joint, and these shoots were from such struck plants, and had started from clearly beneath the lowest leaf-bud. They had been forced out, as it were, on a principle of self-preservation by the close cutting treatment of the other parts of the plant. Having ascertained this much, I thought I would try what root suckers would do. For this purpose I severed some roots from the stem close at the point of contact without disturbing them otherwise, and found they made, without exception, green shoots from their summits. I then cut some roots into lengths and planted them in pots, according to the old-fashioned way of propagating Pelargonium roots, and I find they are universally coming up green without any disposition to come variegated. These are certainly children of Mrs. Pollock, rejoicing in her maternity, but evidently waifs and strays from her fraternity. I have also root-cuttings from some other kinds of variegated Geraniums evidently following the same example. Sunset has not yet shown any signs of leaf-shoots, but other kinds have. I expect to have a batch of these unschooled, unchristened Arabs, and shall be happy to distribute them among those who may be disposed to try if they can be brought back again to the variegated condition, and if so, whether they will come to the same pattern of variegation again, which I very much doubt. I should very much like to hear of this being tried on other variegated plants, and with what results. Has any one a variegated Elm on its own roots? I have not been able to find one, or I should have tried it before this. I know of no better plant on which to try the experiment, as the roots would not require to be severed, only to be laid bare, to make them throw up an abundance of suckers. It appears to me from this little experiment that variegation is only a conditional state assumed by certain plants under certain circumstances, and not a necessary nature of the plant. Neither would it appear to be disease, for if so it would surely affect the roots, it being well known that disease, even in a grafted plant, affects the root action of the stock, though it has no effect whatever in altering the special nature of such stock. It is also well known that variegation of the leaves has a material effect in weakening root action, not by disease, but from want, by its depletive tendency. So that were it disease, the root germs would be most liable to it, instead of holding exemption from it. I can answer for my plants that they were wholly variegated to the bottom of the stem, and not plants that had run from a green to a variegated state; in such case it would have been easily accounted for. What, then, is the cause of this change? Is variegation an educational process, and are these dwellers in the ultranodal stem and root cells, having been hitherto engaged in the occupation of depositing wood and drawing water only, and never having been initiated into the mysteries of the laboratory, suddenly called upon by necessity to act a new part and do the best they can? If so, awkward at first is their best, as we shall see if we look at the tattered misshapen rags of green they first throw out as leaves. Without figure of speech, I do believe that Nature is constantly and quietly carrying on an educational process: whereby she gradually changes, and fits by change of life action, every subject of the vegetable kingdom to altering circumstances and requirements, either for its own preservation or the wants of others, and that she does this as surely as she is instructing humanity by means of mental powers in the knowledge of arts and sciences for the same ends. And, surely, this is a more rational theory than the present fashionable one, that Nature, which means of course an all-wise Providence, should scatter at random, then make her selection afterwards. *J. Hally.* [See an article at p. 952.]

Fruit Growing in Jersey.—"Honour to whom honour is due." Your correspondent "W. W. G." (see p. 974) has been led into error by information that a Frenchman, who fell into an unsufferable state of alarm, for political reasons, had disposed of the St. Laurens Vinery to the best customer. The St. Laurens Vinery was established by, and the larger portion of the houses constructed to the order of, Mr. A. Fennimore, a gentleman who had devoted much time to the cultivation of Grapes, &c., at Peckham, near London, and who, 25 years ago, was intimately connected with Covent Garden Market. The cause of the place being disposed of was not "unsufferable alarm," but domestic affliction, and consequent nervousness, which rendered him, considering his increasing years, unable to cope with the duties attending the management of so large an establishment. I have known the establishment from the commencement, and therefore can write confidently. It is a marvellous place for producing fruit, and under the skilful management of its present proprietor it is certainly, and deservedly, one of the greatest horticultural attractions in the island. Other establishments of a similar character are being erected for the purpose of growing fruit for the London markets, and they are favoured with such a fine climate and excellent soil that I look forward to the time when larger amounts of capital will be invested in the speculation of "Channel Islands fruit growing," and when the islands will become "one of the principal sources of early supply for the London markets." Potatos are largely grown here; during the month of June last the weekly shipments averaged 900 tons. Grapes and Pears form the most prominent of the features, whilst cut flowers, Asparagus, Apricots, Peaches, Plums, and Nectarines help to make up the sum total of the supplies sent herefrom. In conclusion, I may add that I did not think it just to ourselves to have attributed to any other nationality what Englishmen do. It was an Englishman who established the fruit-growing establishment at St. Laurens, and if this should meet his eye he may possibly inform you of it himself. *Charles B. Saunders, Nurseryman, Jersey.*

Grape Judging.—I fear that under the present system of judging Grapes, especially in provincial towns, it will be difficult to bring the suggestions made by some of our leading Grape growers to bear practically on the matter with satisfactory results. How often are men chosen to act as judges who never grew a good bunch of Grapes in their lives, and who know little about what flavour good fruit should have, or its value in other respects? I have had considerable experience in buying and selling fruit in Covent Garden Market, and I am acquainted with the handsome prices which well-coloured Grapes realise there, compared with those which are badly coloured. The latter are almost unsaleable, and always bring the lowest price, no matter what their flavour may be. Few gentlemen care to have badly coloured fruit on their tables, especially where dinners are served *à la Russe*, as the fruit in that case is used quite as much for ornament as for use. In my opinion, fruit of any description which has not attained its natural colour should be passed over unnoticed, when ripe well coloured fruit is on the table for exhibition. This applies to Peaches, Nectarines, Apples, &c., as well as to Grapes. How often do we see third-rate fruit put on a higher level than first-rate kinds? For instance, a few days ago I saw Grosse Mignonne Peaches, unripe and badly coloured, awarded a 1st prize, when ripe, highly coloured Bellegardes and Noblesses were on the table in competition with them. On the same table I also saw fine looking Black Hamburgh Grapes passed by while larger bunches of the same variety, which were of a greenish brown colour, took the 1st prize. What proprietor would care to have his guests supplied with the latter? and who knows if even the flavour of the big greenish bunches was best? Tastes vary much; some prefer Grapes when they are about to shrivel; while many will not eat them except when the berries are full of vinous juice. To do justice to exhibitors, I would suggest that the system by which fruits are to be judged should be entered in the exhibition schedule, in order that all parties might understand what they were to aim at. *Old Sub.*—I am of opinion that in many instances the quality of Grapes may be pretty well ascertained without having recourse to tasting them. But at the same time it not unfrequently happens in Grape judging as well as in judging other productions, that there is an approach to what in sporting language is, I believe, termed a "dead heat." Now I would ask if it can be reasonable in that case to prohibit the judges from appealing to their palates, which might at once decide the matter? Your correspondent "J. F." speaks of tasting as the new mode of judging Grapes, I think, however, he must mean the old mode of doing so; for I have been in the habit of assisting to judge Grapes at various horticultural exhibitions for more than 20 years, and I cannot recollect a single instance in which they were not tasted. Great stress is laid by some of your correspondents on the supposed objection that the employers of exhibitors may have to their Grapes being tasted. In my opinion this argument is weak, and I do not believe that one employer in a thousand would object to anything of the sort; and if such an employer is to be found I can only say that I would strongly recommend his gardener to decline showing altogether. Mutilation is not, in my opinion, the correct word to apply to the careful removing of two or three berries from a dish of Grapes for the purpose of ascertaining their quality, for when done the exhibitor or owner could not, in the majority of cases, tell whether a berry had been removed or not. Surely no one could find it necessary to disfigure a dish of Grapes in his endeavours to ascertain their merits. For my own part I still think that the best way is for horticultural societies to continue to appoint to the office of judges men in whose judgment and probity they have seen reason to place entire confidence, and allow them, untrammelled by any rules or standard for judging, to award, as they doubtlessly will, the prize to the production which, all things considered, they believe to be the best, and let their decision be final. *P. G.*—A great deal is now being said on the subject of judging Grapes by flavour, and I think all who can throw any light thereupon should do so. As we are far ahead of other nations in producing Grapes, it is no more than right that we should endeavour to keep so; and I hope this may be one result of the present discussion, though I must confess there are many obstacles in the way. Nevertheless, Black Hamburghs are not very difficult to judge, for the rules are simply five in number:—1st, that relating to colour, which must be jet black, with the bloom perfect; 2d, size of berry; 3d, size of bunch; 4th, shape of bunch; and then comes, 5th, the question of flavour, which must be decided with fairness and impartiality. Now there would be no difficulty at the present day in collecting at an exhibition all those that possess the first four points of quality, as there are seldom many samples that possess all these precious qualities; and I see no more harm, nor so much, in taking a few berries from the back of a bunch to decide the fifth point than there is in cutting a large gap in a Melon. If there are good reasons for cutting Melons, there certainly must

be good reasons for putting Grapes through the same ordeal. But let the colour of the kind of Grape be what it may, no matter whether it be black, yellow, or red, if it is grown to perfection there is always a peculiar, noble, and attractive appearance, such as no one can paint but Nature herself; and no lover of Nature, with a taste for Nature's beauty, could ever give a verdict in favour of any other colour than that which is natural to the kind of Grape shown. What is most pleasing to the eye certainly goes far to tempt the palate; and any other than the natural colour conveys an idea of imperfection and sourness. I say therefore that colour must be insisted on as the first quality; if not, I feel sure that great dissatisfaction will arise, and the best Grapes will cease to be shown. There certainly is a great difference in the flavour of Grapes of the same sort from different Vines. It happens to have been my lot to have had several old Vines as well as a number of young ones at the same time under my charge, and the difference was very great, even when berries equally well coloured were tasted. But then one was grown in rich soil, and the other in the natural, unprepared, ordinary garden soil. I am convinced that manure is not conducive to good flavour in any fruit, and I feel sure that all the samples of jet Black Hamburghs which have been found to be sour, are the produce of young Vines grown in rich borders, and in a damp atmosphere. In proof of this it may be mentioned that on the Continent they never consider Grapes produce good wine till they are 12 years of age. If the first prizes are in future given to Grapes with the best colour and flavour, time will prove that those monstrous bunches that we are accustomed to see will be left far behind. I think small black bunches have more to complain of than red Grapes if flavour is to be the ruling point. *H. Cannell, Fuchsia Nursery, Woolwich.*——The one or two "saving clauses" in my letter of the 19th ult. seem to strike "Vitis vinifera" (see p. 949) as being rather clever. Now, it is just these "saving clauses" that keep up the real standard quality of all good Grape-growing. The "open door" leading to perfection we have already, and we do not intend to allow a loop-hole for inferior cultivators. Whatever our tendrilled friend may say, we must still keep to the old laws, which have guided judges of Grapes for so many years, viz., colour, bloom, size of bunch, evenness of berry, and ripeness. I was surprised that "Vitis vinifera" had not made himself acquainted with established rules. If he would provide himself with an old schedule of the Royal Botanic Society he would then see separate classes for Hamburghs, Muscats, any other black (not red), and any other white Grapes. Some societies provide an extra class for the heaviest bunch, as was the case the other day at the Crystal Palace, when a large Red Hamburgh bunch came in for the prize, with the bloom looking as if it had been laid on with a birch-broom. This bunch I have no doubt would have been pronounced by "Vitis vinifera" to be super-excellent. *C. Penny.*——Will you kindly allow me to give three cheers for "J. F." (see p. 976), and one cheer more for "Mr. Fry?" (see p. 977). *Black Hamburgh.*

Rawling's White Bedding Dahlia.—Will you permit me to invite any persons interested in bedding Dahlias to bring the best plant of Alba floribunda nana they can procure, on Tuesday, October the 1st, to compare with one of my white bedder, which I hope to submit to the Floral Committee at Kensington on that day. I have 12 plants growing along with the above-named variety, and none of mine are taller; both varieties are full of bloom; mine are all double; the blooms of Alba are all open in the eye. They may be seen by any persons interested, who will favour me with a visit. The plant shown last meeting was grown as a show variety, and therefore had not many blooms. *G. Rawlings, Romford.*

New Runner Bean.—I venture to send you some pods of a Runner Bean, very distinct in character from all others with which I am acquainted. It grows dwarfer than the ordinary Runner Bean, produces a thin and handsome pod, and is singularly prolific. I take it to have been selected from some dwarf-growing variety, as the seed in a dry state is of that character. I hold it to be valuable for two reasons, viz., its extraordinary productiveness, and its adaptability for purposes of exhibition. You will observe, in regard to the pod, that it would not be known from an ordinary dwarf-growing kind, as far as its appearance is concerned. *Richard Dean, Ealing, W.* [A handsome looking Bean, quite like a dwarf French Bean in respect to its pods. EDS.]

Royal Ascot Grape.—Having recently paid a visit to the Ascot Nursery, I was very much struck with the promising qualities of this new Grape. It has all the appearance of proving a great boon to gardeners, and of filling up a gap in early forcing. It does not appear to want much heat, either to move it into growth or to ripen and colour the fruit, as some finely coloured bunches had been without fire heat since June. But its abundant fruitfulness is something surprising. I counted four different successions of bunches from one side shoot. Both in the latter and in lateral shoots it begins to show bunches from the fifth eye, and if stopped repeatedly it shows the same on all the lateral shoots that break out—not the trifling bits that generally come from the laterals of Hamburghs or Muscats, but medium-sized and shapely bunches in hundreds. Those that were ripe were a second crop. The berries are large, taking a fine colour, and resembling in shape those of the Muscat Trovéren, one of the parents, except that it is black; indeed, both the parents are classed among amber-coloured sorts—a singular freak. The flesh is juicy and rich, with a smack of the Muscat flavour. Mr. Standish expects to have ripe fruit next March from eyes now in the cutting frame, put in on the 26th of August. It is not possible to know what can be done with a plant so fruitful; still this appears an incredibly short time in which to do so much, for, allowing it to be seven months, we generally consider a Vinery takes six months to ripen fruit under common management. Of course the fruit will come in the eye from the cutting. I have no doubt this will prove an excellent pot Vine, and if I am not deceived it will be easily got in for February, March, and April; it will come in, too, at a time when the difference in flavour may be considered greatly in its favour, and worth a point or two. I think, moreover, that pot plants ripened in March may be easily coaxed to carry another crop in autumn; at all events there will be no difficulty in getting bunches if there is growth left in them. *J. F., Cliveden.*

Autumnal Strawberries.—From 100 planted last autumn, I gathered on the 8th of this month 28 fruit; on the 16th, 37; on the 20th, 32; and on the 22d, 42 fruit; and from the quantity of flowers and green fruit still on the plants I am likely to gather ripe Strawberries for some time yet to come. *F. S. Calver, Garnons, Hereford.* [A berry which accompanied this communication, though of fair size, was not particularly good as regards flavour. EDS.]

Show of Zonal Pelargoniums.—In reply to remarks (see p. 973) alluding to Mr. Grieve's proposal to hold an exhibition of these most beautiful and popular plants in the summer of 1868, I beg to make a few suggestions. The month of July would doubtless be the most appropriate time to show them in their greatest perfection, say about the 25th and following day. I would propose that the schedule of prizes be divided into 14 classes, subject to an entrance fee in each class as follows: For classes 1, 4, 7, and 12, 20*s.*; for classes 2, 5, 8, 10, and 13, 15*s.*; for classes 3, 6, 9, 11, and 14, 10*s.*:—

1.—6 Golden Variegated Zonal, in pots not exceeding 6 inches in diameter.
2.—3 Golden Variegated Zonal, do.
3.—1 Golden Variegated Zonal, in pot not exceeding 8 inches.
4.—6 Silver Variegated Zonal, in pots not exceeding 6 inches.
5.—3 Silver Variegated Zonal, do.
6.—1 Silver Variegated Zonal, in pot not exceeding 8 inches.
7.—6 Bronze Zonal, in pots not exceeding 6 inches.
8.—3 Bronze Zonal, do.
9.—1 Bronze Zonal, in pot not exceeding 8 inches.
10.—3 Golden Selfs, in pots not exceeding 6 inches.
11.—1 Golden Self, in pot not exceeding 8 inches.
12.—6 Green Zonal, in flower, in pots not exceeding 6 inches.
13.—3 Green Zonal, in flower, do.
14.—1 Green Zonal, in flower, in pot not exceeding 8 inches.

Thus the different varieties would be provided for. Three prizes might be offered in each class, making 42 in all. I would solicit monetary assistance from the Royal Horticultural Society; also subscriptions from non-exhibitors interested in these magnificent productions, the amount to be proportionately divided to increase the prizes. This would induce many to send plants from long distances, who otherwise would not show. It would be desirable that not less than two plants be staged of each variety. [It has been decided that three plants of each shall in future be required. EDS.] Seedling plants to be excluded. Not more than one plant in a pot should be allowed. It would also be a novel feature to confine all varieties to such as are not already in commerce; this would prevent repetition of previous shows. I would suggest that the pots in which the plants are exhibited should be restricted not to exceed the sizes named above, but smaller sizes should be allowed. I believe if these, or similar rules were adopted, a grand treat would be offered to lovers of these ornamental plants, which would be remunerative to the Royal Horticultural Society, and give the raiser an opportunity to judge if he had anything really worth propagating which he might offer to the public with confidence. Should my respected friend, Mr. Grieve, or any of my Pelargonium friends, propose anything more appropriate, I will willingly give my best support. *Wm. Groom, Ipswich.*

New Silkworm.—Some three or four months ago I received at the Museum at Kew from China some cocoons of a silk-producing insect which fed on the leaves of Liquidambar formosana (Hance). They were very dirty, broken, and without any chrysalids; it was therefore impossible to rear any of the insects. From the appearance of the cocoons it would seem that they are attached to the bark of the tree, as some portions of them are still adhering to it. As I am unacquainted with the name of the insect, and as no notice seems to have been taken of it in the review of a new Silkworm book in your issue of the 14th, I am induced to send you this, together with the following extracts from a report of Consul Swinhoe, at Amoy, in reference to it. He says: The silk-producing worm found on the leaves of the Liquidambar formosana I have already alluded to. The late acquisition of the cocoons of the insect, however, do not hold forth any high promise of its use in the silk trade. It is said, nevertheless, that near Canton the silk is woven into a coarse fabric. But here, the only use that I can learn that is made of the worm is to draw it into gut. The gut is strong, and is used for fishing lines. The tree itself produces a gum which might easily be collected in large quantities, and perhaps compete in the market with the storax of trade obtained from other species of the genus Liquidambar. A silk wadding, for padding the dresses of the rich, was brought to me the other day for inspection. It was called sze-meen, or silk cotton, and consisted of several layers of network-web of fine silk. I was informed that it came from Szechuen and its adjacent provinces, was spun by a species of worm distinct from the ordinary Bombyx mori, was found too delicate to roll off for weaving, and was therefore torn in the cocoon and expanded into layers for wadding. The Chinese who were offering this substance for sale, were taken up on suspicion of being spies, as they were asking so small a price for it that the Mandarins considered that profit could not be the inducement that brought them from distant homes, where this stuff is produced, to these parts. Hankow would be the proper port whence to obtain particulars relating to the worm that yields the sze-meen. *John R. Jackson.*

Wasp Nests (see p. 977).—If there is any opening through which the nest in question could be reached, a little coal tar poured into it would effectually destroy it. Should that be impracticable, the wasps could, by degrees, almost all be caught by placing glass bottles near the nest about half filled with beer, well sweetened with coarse brown sugar. If the mixture spoils by fermentation or otherwise, the bottles should at once be emptied, thoroughly cleansed, and then refilled as before. *S. M. O.* [We can confirm our correspondent's statements as to the use of coal tar for the above purpose. EDS.]——After dusk we pour a little (quarter of a pint) of gas tar into their holes, and then stuff in a wisp of long Grass, a process which always destroys them. If your correspondent's slates fit closely except at the place of ingress, he will find this plan, if adopted, a certain means of destroying his nest. *William Denning, Gr., Bolton Hall, Bedale.*——Spirits of turpentine is the most effectual remedy for destroying wasps. A small quantity should be poured down the hole, and a piece of tow soaked in it, and then thrust down the entrance as well; then place a flower-pot, the hole having been previously corked, in an inverted position over it. Next morning (the process just mentioned having been done in the evening) the wasps will be found either dead or stupefied, and the nest may be dug up with impunity. A bottle of sugar and beer should be placed near the flower-pot to catch the late arrivals. For a nest in a roof the process is not so easy, as it is difficult to confine the scent; but any means that can be suggested to gain that end, would probably effect the object. I would suggest pouring the spirits into the nest if possible, and down the entrance of the same, as well as stuffing it up with tow soaked in the spirits, which in this case must be used pretty freely. It is perhaps needless to remark that in neither case is fire necessary: it is the vapour alone that stupefies. *George Henslow.*——A deadly mode of destroying these pests is by means of cyanide of potassium and dilute sulphuric acid (as sold by druggists). It can be applied with but little trouble, by day or night, though of course the most certain plan is at night, when all are at home; those, however, who would wish to see its deadly effect may do it in the daytime. The mode is simply this: Put half a drachm of cyanide of potassium in a vial, and three drachms of dilute sulphuric acid in another; pour in the acid, thrust the bottle into the hole, the more upright the better; every wasp that enters drops at once, and none come out, so that the operator may look on without risk; at night act in the same manner, but dig the nest out in 10 minutes and destroy it. A child's feeding bottle does well for positions in which a bottle cannot be placed. *T. W. Taylor, Bocking.*

Fowler's Gardener's Insecticide.—A few months ago I received from Messrs. Fowler, of Brighton, a jar of the above, with a request that I would give it a trial, which has been entirely confined to Roses and some shoots of Black Currant trees. Both of these were infested with green fly, and I found that immersing the shoots in the solution, heated to a temperature of from 85° to 90°, thoroughly cleansed them, producing instant death in the case of the aphides clustered on them. I used it on several occasions with the same satisfactory results. It is especially worthy of the attention of amateur gardeners, as the preparation of the solution is a very simple process, involving but slight labour, in fact a lady could prepare and apply it with the greatest ease. *Richard Dean, Ealing, W.*

Tropæolum Mrs. Treadwell.—I saw this the other day at the nurseries of Messrs. F. & A. Smith, of Dulwich, and I hold it to be a great acquisition. It has a slightly climbing habit, the dark foliage of the King of Tom Thumbs, and large, well-formed, stout flowers of a brilliant orange-crimson hue. The build of the flower is that of T. Lobbianum elegans. *R. D.*

Lilium auratum.—We have flowered a good many of this Lily this season, and have found among them six distinct varieties, four of them answering to the description of your correspondent "J. P." (see p. 952). Of the others, one is very thickly set with bright crimson spots, having rays of a pale red; the other is a fine transparent white flower, measuring 14 inches in diameter, with golden yellow rays, and very sparingly studded with pale pink spots. This I consider to be the best I have seen, and I also believe some varieties are later than others, and I think we might get a succession of this magnificent flower nearly all the year round; for instance, I potted 50 bulbs at one time, of these some started and flowered, while others which have been in the same house and under same treatment are just bursting into bloom, and the last three bulbs are just started, so that we shall have them in bloom in about six or eight weeks hence. I quite agree with your correspondent that it is desirable to have the varieties named by some proper authority, but when it is taken into consideration that the country is stocked with some thousands of bulbs, the difficulty is not so easily met. If the Committee of the Royal Horticultural Society would appoint some one to receive and name the different varieties, and growers would send a flower of all the sorts they possessed, it might be done; but written descriptions would never answer, as in many cases they would be inaccurate or incomplete. Perhaps some of your readers will suggest a better mode of getting over the difficulty. *J. Kent, Jun., Penkhull Nursery, Stoke-on-Trent.*

Allamanda Hendersoni.—Last year so much correspondence took place in your columns about this plant, and its merits were so highly extolled by many of the best judges and plant growers, that I thought no doubt remained as to its excellence and distinctness. I should therefore have passed unnoticed the letter respecting it at p. 977, but for two reasons: first, I am about to introduce to the public another new Alla-

manda from Rio Branco; and, secondly, it is not correct that Mr. Marshall paid 20*s.* for his plant. What he paid was 15*s.* The discrepancy may not be great, but any one that could rush into print with such an inaccuracy might be equally mistaken in his other observations. The inference from Mr. Marshall's statement can only be, that he had bought an old plant under a new name, and paid very much too high a price for it. Such, however, is not the case. Allamanda Hendersoni is not only a new plant, but very superior to any other yellow-flowered Allamanda in cultivation. Compared with A. Schottii, it is more compact in habit, much more profuse in flowering, especially in a young state; it can also be bloomed much earlier in the season than A. Schottii, which is a great point of usefulness with exhibitors; the flowers individually are larger, of greater substance, smoother in texture, and more evenly formed. It was a plant of this Allamanda that won the 1st prize as the best specimen stove and greenhouse plant, at the Great Show of the Royal Horticultural Society, held the beginning of last June. It was then very much admired, and perhaps the exhibitor of that plant will give us his opinion of its merits. Some may ask, "Why has it been said, it is like A. Schottii?" The reply is, that under certain conditions the two plants may appear similar—perhaps the true character of neither being developed, or that of one, and not of the other; and it is possible for plants to be weakly bloomed. Our leading exhibitors all agree as to the merits of the Allamanda in question, and theirs is the best testimony that can be given. *William Bull.*

Dressing Dahlias.—I am surprised at the prominence given (see p. 979) to an attack on dressing Dahlias at flower shows. Messrs. Dreghorn & Aitken, of Kilmarnock, showed a fine stand of Dahlias at the last Glasgow Show, and these were excluded from competition on account of some of the flowers having pins at the back to support the petals. You and your correspondents have decided that they were rightly excluded, indeed, you go so far as to censure the practice as despicable. Let me, therefore, take up the subject as one of general interest to Dahlia growers,—how far is dressing a flower legitimate? I was one of the judges of the flowers in question, and constituted the "some of the jury who supported this despicable outrage;" other two judges and your correspondent (who was passing, and took part in the discussion) being on the other side. Had anything been taken from the flower, or artificially added to it for effect, I should at once have thrown it; but in my opinion it is quite legitimate for any exhibitor to dress any flower in whatever way he thinks best fitted to preserve its beauties or to show its points. It is, besides, a general practice to put a pin here and there in the back petals, and this is perfectly well known, and, till this occasion, allowed. What your correspondents wish, is to show the bloom exactly as cut from the plant; if dressed in any way it is called manufactured, not grown. Now, can you tell me of a single exhibitor who does not in some way dress his flowers? Are they not all in the habit of putting artificially a thick stem over the natural thin one? Why? To support the bloom erect, and sometimes to support the back petals. If this is not permitted you would require to show your blooms in bottles instead of cans, as the flower would be top-heavy and fall out. The other judges admitted having known green hearts to be cut out of Dahlias, and justified the act, while strongly condemning the pins. Is there any comparison between the acts? Cutting out the heart materially alters the flower, and this I believe to be commonly practised, as it is well known that flowers are staged perfect that are almost impossible to bloom out in the heart without their falling away in the back, except by this method of cutting out the green heart; but in the present case the pins did not in the least degree affect the merit of the flower, they did not improve its appearance; neatly put in, they did not spoil its look; they only guaranteed that the flower would appear in Glasgow as it did in Kilmarnock. And if this is considered unfair, it is equally so to tie, support, or prop, any plant exhibited: any artificial support must be disallowed if this rule holds good; for of all dressing this case of pinning seems to me the most legitimate, as it is the most necessary to exhibits coming from a distance. It is however the uncertainty of the rule that I most complain of; no one can tell whether or not he should put in his best and fullest blooms. With one set of judges he ought to do so, if necessary with a few pins to prevent dropping; with others it would only result in disqualification; and should he only put in young blooms that can stand carriage unsupported, then he may be cut out by other competitors with larger pinned blooms. Let there be a rule fixed, and no one can complain; but while the present uncertainty exists, every one must feel aggrieved. I think by far too much has been made of the present case. It has been written about as if an attempt at defrauding had been discovered. To read the remarks made about it, one would think the effect of the pins was to do what the grower had been unable to do in a legitimate manner on the plant. Nature ordains that when flowers are cut they should decay; to act up to the letter of the rule, we should not even put them in water, as by such arbitrary and artificial procedure we may in some degree counteract this natural law. I uphold that all florists should encourage by every means in their power the production and exhibition of the most perfect flowers, preserved, staged, and shown in the best manner, and instead of quibbling at a novelty, should award a prize to any one who can promote or improve any of these particulars. *E. A. G.*

Second Crops of Fruit.—I have in my garden a tree of Williams' Bon Chrétien Pear, from which I picked what there was on it about three weeks ago, which only amounted to about three dozen fruit, and now the second crop of about 50 fruit is about as large as pigeon's eggs. I have also an Apple tree (a Hawthornden), which has been in full bloom this last fortnight. The Apples have been picked some time. *M. C., Highbury.*

Foreign Correspondence.

Gardening in the Azores (see pp. 658, 785, 952).—Having previously made mention of the splendid establishments of MM. Do Canto and Borges, I must now refer to that of M. José Correa, smaller, indeed, but in many respects as interesting as those before mentioned. Here at the time of my visit, among other Proteads growing in the open air was a specimen of Banksia serrata, 15 feet high, in full flower. Some Cycads also, such as Encephalartus horridus, and Cycas circinalis, were also in cone.

A fine tree of Araucaria Cookii was also showing its cones, the female flowers having been artificially fertilised with the pollen of Araucaria excelsa, a sufficently remarkable occurrence, and one which if it prove successful in engendering a hybrid offspring between the two species just named, will excite much interest among horticulturists.

Among the Melaleucas cultivated here, I may mention M. Leucadendron, the fibrous bark of which might possibly be used in the manufacture of paper.

Aralia papyrifera, the Rice-paper plant, adorns not only this garden, but almost all the others in the island with its large whitish leaves. Cunonia capensis and Ceratopetalum gummiferum, Australian plants, succeed well here, and are remarkable, not only for the abundance of their flowers, but also as being Saxifrages on a large scale—arborescent Saxifrages in fact.

In the stoves M. Correa possesses a good collection of tropical fruit trees, as well as a fine specimen of that splendid Musa—Musa vittata—with variegated leaves. Corynocarpus lævigatus, a New Zealand shrub, ripens its fruits here; they contain a sweetish pulp, and the seeds are edible.

Reverting to the garden of M. Antonio Borges, I may allude to its prominent characteristics—the Palms, the Cycads, and Ferns. Fine as these plants are, they require to be grouped with taste to become fully effective. M. Borges has thoroughly understood this, as will be seen by the arrangement of the blocks of volcanic rocks, &c., among the trees, so as to form ravines, glens, &c. Tree Ferns of large size, such as Alsophila radens, A. australis, and A. guianensis, Dicksonia australis and pubescens, and some splendid Cyatheas give a noble effect, to which an additional charm is given by the multitude of small herbaceous Ferns which spring out from the clefts and crannies of the rocks. But in order the better to contrast with the graceful foliage of the Ferns, brightly coloured Begonias, Caladiums, Achimenes, and Gloxinias are interspersed, and even epiphytal Orchids are not wanting to enhance the beauty of the scene. I must not forget to allude to the beauty of Jacaranda filicifolia, which here forms a large tree.

Emerging from one of these glens, the eye rests on small lakes surrounded with green turf, while here and there are fine ornamental Grasses, Dacrydiums, Pincenectitias, and Agaves, and these again give place to Palms and Cycads. Endogenous vegetation here reigns almost supreme. How delighted would European horticulturists be with the grand specimens of such plants as Caryota urens, Arenga saccharifera, Phœnix spinosa, Corypha australis, Latanias, Elæis guineensis, Jubæa spectabilis, various Arecas, Seaforthias, Thrinax, and Oreodoxa, which M. Borges has collected together, and which here flourish in the open air better than in the stove houses of Europe. Cycads also, such as species of Encephalartos, Zamia, Ceratozamia, Dioon, Cycas, &c., thrive equally well, and the magnificent Traveller's tree, Ravenala, adds its splendid foliage to aid the general effect.

Among the Exogenous plants distinguished for their fine foliage I may allude to two species of Sciadophyllum grown here, also to Carapa guianensis, the young leaves of which are of a brilliant red colour. Here, too, are Lomatias, Theophrastas, Coccolobas, Stadmannias; and among "economic" plants, the Baobab, the Xanthochymus pictorius, long supposed to yield Gamboge, but whose fruits are very good eating, and ripen here every year; Genipa americana is equally esteemed for its fruits, and specially the Mango, Mangifera indica. Stillingia sebifera, the Tallow-tree of China, is also cultivated here. Pine-apples are grown in the stoves, and fruits weighing nearly 14 lb. have been grown in this garden.

Besides these noble establishments there are many smaller ones which I visited: among them the nurseries of Mr. Brown, who communicated to me the list of Oranges cultivated by him, and already communicated to you (p. 786).

In the garden of M. Boros I saw two superb Date Palms, one of which was more than 30 feet in height, and had a trunk over 7 feet in girth. The other was somewhat smaller in size. A specimen of Laurus fœtens, in the same garden, measured over 27 feet in height.

M. le Vicomte la Praya has a splendid collection of Camellias, which here form large shrubs, flowering almost throughout the year.

In the garden of the Baron das Lorangeiras is a colossal specimen of Jubæa spectabilis, some fine specimens of Acacia heterophylla, Eucalyptus globulus, Diospyros virginiana, &c.; while the Baron de Fontebella may well be proud of his Magnolia grandiflora, the trunk of which is 6 feet in circumference, and does not begin to branch till it reaches a height of 8 feet from the ground; it is certainly far the finest specimen I have ever seen of this noble species.

Thanks to the liberality of some of the gentlemen I have named, the garden under my charge has been much enriched, and your readers will be enabled to judge of my delight and astonishment from my record, however imperfect, of the horticultural features of San Miguel. *Edmond Goeze, Coimbra.*

Notices of Books.

Letters Home from Spain, Algeria, and Brazil. By the Rev. Hamlet Clark, M.A., F.L.S. Van Voorst: 8vo, pp. 178, tab. 5.

The first impression on reading this book is one of surprise that the author should have made public a series of "letters home," in which outsiders have little concern. For the most part the regions traversed are not precisely *terræ incognitæ*, nor does our author add much to our knowledge of them. Nevertheless, it must be admitted that the letters have a freshness about them and are written in so liberal a spirit, that it is impossible not to be pleased with their perusal, even though they contain little novelty. The work consists of a light gossiping record of a yachting trip along the coasts of Spain and Algiers, with occasional excursions inland. To this is added the account of a voyage to Teneriffe, Brazil, &c. Our author is an enthusiastic entomologist, and the zest with which he enters into his pursuit is well reflected in this volume, wherein it is well shown, among other things, how insects can revenge themselves, especially upon clerical gentlemen in black. Though the story has often been told before, and always in terms of highest admiration, we cite as suggestive to horticulturists, the author's account of his first excursion into a Brazilian forest. "We were in the deepest shade, some 50 or 80 feet above our heads were the bushy tops of closely-packed trees; then below them a second covering of Palms, Fern trees, and such like, all loaded with parasites; below them, again, was thick tangled brushwood, not in the least like our English brushwood, that good-naturedly gives way to your arms and hands as you stride through it, but interlaced in all directions with long trailing creeping plants, some with stems as thick as my wrist, others thinner; the thinnest, and by far the worst for us, were thread-like runners that were no thicker than string, so tough that to break them was impossible, and so long that they would not give way before us. Underneath this monster vegetable net (through which we had to struggle for hours) was the ground covered with masses of dead leaves, broken branches, all the *débris* of the vast vegetable creation above that had been accumulating for countless ages, and often green with little plants and Ferns."

This extract may serve as a sample of this unpretending little volume, whose author will have the sympathy of all readers embued with that most enthralling and most innocent of pursuits—Natural History.

Readers concerned in the history and doings of trades' unions and similar organisations will find matter of interest for perusal in a small work recently published by Messrs. Longman & Co. under the title of *The Last Thirty Years in a Mining District*, by Ignotus. The literary style in many places reminds us of that of Mrs. Flora Finching, in "Little Dorrit," as our author's sentences are often as involved and as difficult to be disentangled as the confused periods of the lady to whom we have referred.

"Was Galileo supported by rigorous scientific proofs when he held with so much tenacity the orbital and diurnal motions of the earth?" is the question which a Wrangler attempts to answer in a pamphlet entitled *The Theories of Copernicus and Ptolemy* (Longmans). We must refer our readers to the publication itself for the reply to the above question.

Symons' Monthly Meteorological Magazine (Stanford), for August, 1867, has special interest as containing a report on the excessive rainfall of July 26, which in some places amounted to 5 inches. The thanks of meteorologists are due to Mr. Symons for his persevering labours in this department. No observations are more easily made than those relating to the measurement of rainfall, and the mere record in various localities of the number of rainy days in a year would for cultural purposes be very valuable. If the quantity were measured, so much the better; but very useful information, practically speaking, can be deduced from a bare record of the number of days upon which rain, little, or much, falls in any given locality.

The fifth number of the *Journal of the Transactions of the Victoria Institute* (Hardwicke), radiant in the brightest of blue covers, is before us, and is chiefly occupied by a paper on the credibility of Darwinism by Mr. Warrington, who maintains that Darwinism is harmonious, adequate, consistent, and credible. The discussion, which is given in full, may be summed up in the words of one of the speakers, who is persuaded that "the theory of Mr. Darwin is inharmonious, inadequate, inconsistent, and utterly incredible." One of the speakers objects to the hypothesis on the grounds that the ark constructed by Noah was of enormous size, and a great deal too large for the representatives of eight or ten species only! Of greater scientific value are the remarks of the Rev. W. Mitchell on the cells of the hive-bee, the construction of the eye, &c. The same inexhaustible subject is treated of in the *Anniversary Address* of the same Society.

Florists' Flowers.

THE value of the PENTSTEMON as a decorative plant for the flower garden is so generally admitted on every hand, that one wonders they are so seldom seen at exhibitions. A stand of cut blooms of some of the best varieties could not fail to be highly attractive, but rarely are they met with excepting when they are employed to assist in making up a stand of cut blooms of herbaceous plants. It is simply for

want of being better known, that they are so seldom met with, nevertheless they are slowly but surely rising in public estimation. There will be a reaction presently in favour of mixed borders as a relief from the stereotyped masses of colour met with in every garden, the constant iteration of which palls upon the taste; and in these mixed borders the Pentstemon will play an important part, as the flowers, both fine in form and colour, combined with elegance of habit and large and showy spikes of flowers, mark them as especially attractive and useful things. They bloom continuously, for the succession of bloom is prolonged from the early part of June till the end of September where a selection of varieties are grown; and the stiff, strong flower-stem enables them to resist both wind and rain without material injury, while the hottest sun fails to burn or disfigure the brightest hues of colour in any perceptible degree.

The improvement of the Pentstemon during the past few years has taken the form of adding to the varieties of some one or two well-known species, rather than by the introduction of new species. P. Hartwegii and P. gentianoides appear, as far as can be traced, to have been the two species most fertile in producing new varieties; while P. Cobæa, sometimes confounded with P. Digitalis, from which, however, it is quite distinct, and the dwarf blue species (P. glaber), have no doubt added their quota of blood and characteristics to the work of improvement. As this work has been wrought out more extensively on the Continent than in our own country (though at the present time it is being most successfully prosecuted here), we have thereby lost the record of the pedigree of the new kinds, supposing it could have been traced.

It has been noticed that the commoner species of the Pentstemon betray a ready tendency to variation, without the interposition of any artificial agency to produce it, and it is thought that some of the new kinds of what have been termed garden hybrids of this flower are not hybrids at all, but simply higher and handsomer forms of the variation referred to, the which are simply the effects of accident rather than of design—"mere seminal varieties, with nothing of the true hybrid in their natures." However they may have originated, certain it is that recent years have added considerably to the list of varieties in cultivation, and that among these are beautiful and striking forms, manifesting not only a considerable variation in point of colour, but having the flowers enlarged in size and perfected in form, and the addition of a robust growing habit as seen in the stout vigorous plant stalk that yields not only a leading spike, but branches with lateral spikes as well, and in the increased size, and especially the width, of the leaves of the plants.

Opportunities have recently been afforded to me of inspecting two collections of Pentstemons when in bloom, one at the London nursery of Messrs. Downie, Laird & Laing, Stanstead Park, Forest Hill; the other at Mr. John Fraser's, Lea Bridge Road Nursersies, Leyton. The flowers seen at the first-named repre sented what has been done in the way of improving the Pentstemon in our own country; while Mr. Fraser's flowers represented a corresponding advance on the Continent. I cannot say that either collection was the best in point of quality, but in the matter of variation Mr. Fraser had the best of it, as it would appear that the varieties of the Pentstemon are more numerously produced on the Continent than in England. Varieties having shades of purple and violet, with broad Gloxinia-like flowers, represented mainly the new varieties in the hands of Messrs. Downie & Co., but while these are by no means overlooked on the Continent, there were yet to be seen among the foreign flowers many having the trumpet shape of what has been erroneously termed P. gentianoides coccinea, allied to colours leading up from light rose to even brilliant red and crimson blossoms, of great beauty. These trumpet-shaped flowers have become considerably enlarged, as in the case of the shorter flowers, and many of them are very handsome. The disposition of the sepals is rapidly approximating to the florists' ideal of their perfect form and arrangement. The limb segments are five in number, and are well rounded, in shape nearly two-thirds of a circle; those of the most perfect form stand out almost at a right angle from the orifice of the tube, and are very slightly concave in form, with a slight inclination forwards from the flower stem.

The best of Messrs. Downie, Laird, & Laing's flowers, respecting which it is only due to this well-known firm to say that they are mainly their own raising, were:—Andrew Smith, dark purplish maroon with pure white throat, the flowers of great size and fine quality; James Douglas, the tube bright violet purple, with a ring of light blue just within the mouth, a beautiful and distinct variety; Czar, dark purple, the throat pure white, veined, and very slightly spotted with crimson; Iona, pale rosy crimson, a bold and distinct variety with a finely expanded tube; John Pow, brilliant red, the throat pure white marked with deep carmine, a very fine and showy variety; the Hon. Mrs. Dalrymple, light rose, with pure white throat, a beautiful and distinct variety; Delicatum, a very pretty light flower, flesh colour, suffused with rose; Donald Beaton, light rosy crimson, with light throat, faintly pencilled and suffused with deep rose, flowers large and showy; William Martin, a very fine flower, the tube a series of heavy crimson stripes on a paler ground, the throat white, marbled with blue, distinct and handsome; Madame Le Brun, a French variety, violet rose, with white throat; Exchequer, purple, a very fine flower; David Smart, deep crimson, with pure white throat, a very showy flower; Euclide, a very fine variety, the flower crimson, the throat pencilled with deep rose and purple; and Dr. Hogg, bright glowing scarlet, with pure white throat, the flowers very broad, and of fine quality.

The flowers seen at the Lea Bridge Road Nursery comprised, as before stated, the leading improvements in the Pentstemon made on the Continent.

The following varieties represent the very cream of a large collection that Mr. Fraser had planted out for trial, and also with a view of amending the descriptions received from France with the flowers, and which are often found to be unreliable:—Le Conquerant, deep rosy crimson, with white throat pencilled with bright crimson, a handsome and fine flower; Richard Lenoir, rosy purple, the throat heavily pencilled with deep violet: the habit of this fine variety is extremely good; Duc de Lorraine, a claret crimson self flower, the mouth of the tube suffused with violet, a fine self-coloured variety, but the flowers are somewhat narrow in the tube; Georges Bruant, white, suffused with pale rosy violet, a very pretty and distinct flower; Souvenir de Matthieu Pernet, purplish crimson, the throat pencilled with rosy crimson, a fine and bold flower; Souvenir de St. Paul, bright crimson, suffused with purple, clear bright throat, pencilled with rosy crimson, extra fine; Melanie Lalauette, pale violet rose shaded, the throat white, heavily pencilled with rosy lilac, a flower very handsome as well as of fine shape, and of dwarf habit; Pauline Dumont, pale rosy lilac, suffused with crimson, and handsome pencilled white throat, very pretty; Surpasse Victor Hugo, fine bright reddish scarlet, with pure white throat, a superbly fine flower; Rosalie, rosy red suffused with violet, the white throat slightly pencilled with rose, bright and very pretty; Indispensable, delicate rose, the throat crimson, which is pencilled with white, a very free blooming variety; Edmond About, deep reddish scarlet, with pure white throat: the colour of the flower comes out remarkably bright and effective when the sun is on it; George Sand, purplish lilac, of a bright shade, conspicuous white throat pencilled with violet, very free blooming and showy; L'Africaine, creamy white, suffused with violet, clear white throat, very pretty and effective, but somewhat inappropriately named; Bonne Villageoise, intense reddish scarlet, with white throat, pencilled with lines of the same colour; a splendid variety, and one of the very best of this shade of colour; Grinchu, violet shaded with purple, and having a conspicuous white throat, a very promising flower, but not in good condition on this occasion; Léon Leprevote, the crimson of the flower is deeper than any that has preceded it, while it is also quite rich in the hue, it has also a conspicuous white throat slightly pencilled and dashed with violet crimson; and Maria Held, bright violet purple, with showy white throat, a very handsome and striking flower.

As a rule, the Pentstemon, of which the foregoing flowers stand as representatives, is an evergreen shrub, as during mild winters the foliage is retained. The plants will endure some degrees of frost without material injury, but it is best to winter all choice kinds in cold frames, when some extra covering can be added in very severe frost. Mr. Fraser regards it as an invariable rule that if the foliage dies though frost the roots will inevitably die also.

The commonly-received method of cultivation, and a generally successful one, is to increase the stock of plants by taking cuttings from the old plants in the summer, when the young wood is nicely developed. These strike readily put into a small frame in a bed composed of a good friable sandy soil, or they can be put out in a similar way under hand glasses in a shady situation. Here they may be struck quite readily, and in numbers. When rooted, the plants should be potted off singly into small pots if space will permit, and in this way they will form well-established and strong plants by the winter. They can be set out in some exposed place, and be freely watered to encourage growth, and the shoots should be pinched out to make the plants bushy. A cold frame or pit will serve to house them during the winter, which should be in as dry a situation as it is possible it can occupy. Very little water will be required by the plants, as freedom from damp is a necessary condition of their winter treatment. In bright dry weather, especially if there be some sunshine, the lights or covering to the frame may be entirely removed during the day, but should be replaced at night in all weathers. An additional shift into larger pots can be given to the plants early in March, if it is required they should be extra strong, but as a general rule they can be transferred to their blooming quarters from the pits in which they have been wintered. Planting out can be done at the end of April or the beginning of May, but the plants will be secure from injury if it be done earlier, as the exigencies of accommodation at that season of the year often require that all available economy of shelter for tender subjects, should be practised.

To those who are fond of raising seedlings (and it is always fraught with great interest to the Horticulturist) the Pentstemon is an excellent subject on which to operate. They by no means seed freely in this country, or at best produce matured seeds, only unless the season be very favourable. Still, Continental seed can generally be obtained, and that has been found of very good quality indeed. About March the seeds should be sown in pans in a light sandy soil, and placed in a gentle heat. The usual plan of pricking off the plants into other pans as soon as they are large enough to handle should be followed in this case, still retaining the plants in warmth for a time to encourage growth, and then gradually introducing them to cooler quarters. By the end of May and on into the middle of June they can be planted out in a well-prepared bed to bloom, placing an inverted flower-pot over any plants that appear weakly till they get roothold. These plants should be about 18 inches apart each way, if so much room can be spared. Those of the seedlings that prove worth keeping should be marked, the others can be accommodated on the rubbish heap, or can go to fill up odds and ends of borders requiring to be tenanted. *R. D.*

The Apiary.

ARTIFICIAL QUEEN-RAISING (*Concluded from p.* 907).—The stock, No. 9, which I believed (as previously stated) to have lost the very diminutive queen which was raised from an inserted, sealed, royal cell, I afterwards found, when about to take steps to remedy the supposed deficiency, had not sustained such a bereavement. The queen was so extremely diminutive that she might have been easily overlooked in my former search for her. More than three weeks had elapsed from the time of the queen leaving the cell when I examined the hive, and as there was still not a single egg or any larvæ, sealed or unsealed, to be seen, I naturally came to the conclusion that she was really dead, and may not have instituted so strict a search as I otherwise should have done. Not having a royal cell that could be spared, I left the stock to its own devices until I should be able to supply it with one, or with a fertile queen. But on again examining the combs more than a fortnight after I was surprised to find a considerable quantity of brood and eggs in worker-cells, many of which were elongated, and sealed for the accommodation of drones, proving that the queen had commenced her egg-laying career as a drone-breeder.

Still hoping that the unsealed larvæ might prove to be worker, I intended again to inspect the hive after an interval of a few days, and if they should all then turn out to be undoubtedly drone brood, to destroy the queen, and, as it was drawing on very late in the season, probably to break up the stock altogether. Circumstances, however, prevented my being able to examine the hive for some weeks, when I found that all the brood was hatched out with the exception of a very few drones still sealed up in worker cells. There is therefore every reason to fear that this stock has at its head a confirmed drone-breeding queen. There are many drones to be seen on the surface of the combs, but they are all very diminutive, being scarcely larger than ordinary bees. The queen decidedly is a small one, but is nicely coloured, exhibiting unmistakably her Ligurian blood. I mean to endeavour to keep the queen alive in this stock until next spring, solely as a matter of curiosity, and not of utility.

I may now conclude these papers by stating that it will have been seen that my experiments this season in queen-raising have been particularly unfortunate and unsuccessful. This want of success may be attributed partly to the season, which in this district has been singularly unpropitious for bees in every way—swarms having been conspicuous by their non-appearance, and honey-gathering barely sufficient to keep the hives from starving—and partly to having been prevented by other engagements from examining my queen-rearing stocks just at the time when they most required supervision. It is now obvious to me that in such a season as the one we have just passed through, the bees engaged in queen-raising should be liberally fed. This was not done, and to this omission I may ascribe the loss of three, if not four, of my small artificial nuclei. In other summers, when honey has been plentiful, I have had no difficulty in forming as many artificial stocks as I required, or in substituting young and vigorous Ligurian queens for those of common origin or of advanced age, and with little injury to, or retardation of, the prosperity of the stocks; but this year I have found, without any exception, that every hive which has been manipulated on for the purpose has been seriously weakened, and has failed in laying in a sufficient store of food for the coming winter. Hives, on the contrary, which have not been tampered with, though they have given neither swarms nor surplus honey, are safe in this respect.

The result of all my operations this past summer is an increase only of two or three artificial swarms, headed by young Ligurian queens; but against this, I must put in the balance the injury done to what would have been, by this time, strong colonies.

It would have been a far more pleasing task to have had an account to give of unvaried success, but I have thought that it might be as well if we occasionally recorded our failures, as well as our successes. Queen rearing has been usually described as a remarkably easy and certain affair, the formation of artificial swarms as being attended with but little difficulty or uncertainty; but I have proved that the contrary may be the result, and that enormous delay may often occur before a hive deprived of its queen is again in possession of a fertile mother. During all this period the colony is going back, lessening both in population and in prosperity. Before embarking in these experiments I would advise the inexperienced bee-keeper to count the cost, and be fully alive to the possibility of seriously interfering with the welfare of the apiary. *S. Bevan Fox.*

Garden Memoranda.

GLAMIS CASTLE, the seat of the Earl of Strathmore and Kinghorn, has been in the family of the present Earl for nearly 500 years, and bears many traces of the alterations that at different times have been made upon it. The building consists of a massive round turret standing at the intersection of two square towers at right angles, and this part is very remarkable from the large number of small turrets and pinnacles that cluster round the building, giving it a very grand appearance. The buildings and other offices are very extensive, and the interior of the Castle is magnificently furnished. The drawing-room is particularly superb, being hung with numerous family and other valuable historical portraits. The grounds and garden are of great beauty and extent; and as to the latter, it occupies what little more than a twelvemonth ago was moorland, covered with the yellow broom and golden furze. Now it is a beautiful level, laid out with much taste. The wall, which is of brick, is on one side above 30 feet high, and is of a most substantial character. It encloses within a square above 4 acres of ground

which is intended principally for kitchen garden, fruit trees, and bushes. Along the base of the wall, a wide border extends all round, in which wall trees are extensively planted. Then a wide walk surrounds the garden parallel to the wall, gravelled, and edged with box, as are all the walks. The rest of the ground is divided by transverse walks at right angles into four large compartments. Outside the south wall many labourers are employed levelling the ground for a flower garden. It will occupy a gentle incline of several acres, sloping to the river Dean, and is, when finished, to be something very magnificent. To the east, west, and south the entrances are by splendid iron railed gates, hung upon stone-arched gateways.

Along almost the whole length of the north wall extends one of the finest ranges of hothouses which exists in Scotland. They are fitted up with every improvement known at the present day. The artificial heat is to be furnished by hot-water pipes, while the natural heat is largely drawn upon by many underground lines of communication with what appears to be a long row of ventilators at a few yards' distance from, and parallel to, the houses. The means of ventilation are of the most complete description. The Vines and other plants, with a few exceptions, are not yet in their permanent positions. Several of the compartments are occupied with a varied and unique display of greenhouse plants. This, however, is only a temporary arrangement, an extensive range of Melon and Pine-apple pits and greenhouses being in course of construction. These are situated about 20 yards behind the north wall, with which they run parallel. It will be two or three years before the houses can offer a display approaching anything near to perfection, the whole being as yet in infancy. A range of buildings, consisting of bothy, toolhouses, potting-houses, stables, boiler-house, &c., runs along the whole back of the north wall. One of these is occupied for the rather unusual purpose in Scotland of forcing Mushrooms, and is surrounded by two ranges of trough shelving. This room, as well as the whole range, is heated by hot-water pipes. Outside the north-west corner of the garden has been erected a tasteful and commodious dwelling-house for the head gardener, Mr. Johnston.

Garden Operations.

(*For the ensuing week.*)

PLANT HOUSES.

IT will be best now to get all *Greenhouse Plants* into their permanent winter quarters without delay. Of course I refer more especially to such hard-wooded "stuff" as Camellias, Azaleas, &c. After housing, it will be necessary to throw all the lights open, to admit all the air possible for a week or two, in order that the transition from the outer air to, at the best, a closer inner atmosphere may not be too sudden. Such plants as *Chrysanthemums*, *Cinerarias*, and the like, continue to keep as cool as possible by exposing them constantly to the outer atmosphere, simply protecting the latter from too much moisture, heavy rains, &c. In giving *Cinerarias* their final shift, which, generally speaking, should be into 32-sized pots, always place them in a compost containing more fibrous loam than that in which they may have been grown previously, potting them also more firmly than before. Do not keep them too moist at the root, but give slight sprinklings frequently overhead with the rose of a fine spray watering-pot. The more forward ones, which begin to fill the pots in which they are to flower, with roots, will be much benefited by alternate waterings with liquid manure of moderate strength. See that no slugs injure the foliage, which they too frequently do, if not watched closely and occasionally sought for after sunset. Place *Primulas* in a more open sunny situation than previously, sprinkle them freely overhead, but be careful not to make the balls too wet, as they readily rot off at the base under such circumstances. It is usual when these get sufficiently large to fall over, or roll from side to side of the pot, to fix them firmly in their position, by placing two neat pegs of well-dried wood, one on either side of the base, in such a position that they cannot possibly move. These little pegs are of great benefit, as they support the plant and secure it from the danger of snapping some of its main roots in two. Pot *Lachenalias* without further delay. Shake the old balls to pieces, and choose from amongst the bulbs the larger ones. These are best placed evenly and thickly in 32-sized pots. Put them into a compost of two parts good loam and one of leaf mould, with a little silver sand; when potted, place them upon a properly prepared bottom in the open ground, and treat them in every way like Cinerarias, when once they have fairly commenced rooting. Do not place *Tritonia aurea* in a dry position, and hence force it into rest, a too generally followed practice. If success in its culture is sought for, treat it precisely as you would an evergreen, by continuing to water freely, &c. Remove the old flower stalks without injuring the leaves, as these too frequently have seed pods which are useless growing upon them.

FORCING HOUSES.

Look about for a proper material duly to protect all *Vine borders* from superficial rains, and especially those attached to Vineries which are at rest. Great caution however will now be needed with *all*, as very much rain has already fallen this season, and therefore we may fairly surmise that even the best drained borders are quite wet enough in consequence. Those whom it may concern therefore may best judge of the injurious effects which already may accrue to badly drained ones, and should take precautions accordingly. Much good may be done to many borders of that kind by running an additional drain all around them where convenient, provided a good clear outfall can be secured for the water which is likely to traverse them. By this means additional air, with its many useful properties, is diverted down into the root-line. By no means arrange the grating and its attendant minute dumb well (formed to catch the drift sand and other *débris*) so as to fix it contiguously to the border, as a certain amount of dampness necessarily exists around such an arrangement. Where any such exist, I advise their immediate removal. Asphalte is perhaps the best covering for borders; let it be securely fixed to frames, and laid over them at a sufficient angle to drain the water freely off. Next comes a thatching of good wheaten straw, and lastly a thick layer of dry Fern, which has the good property of retaining much moisture and drying quickly again if fine weather ensue without admitting any very large quantity into the border below. In an economical point of view, there can be no more efficient covering, however, than a good layer of this Fern, well trodden down, slightly thatched over with straw in the usual way. A latent heat, with perfect security from too much moisture, is thus readily retained. Any Grapes which remain enclosed in paper or other bags, wherein they have been placed for protection against insects, had better have the covering taken off, and be duly scrutinised to see that no decayed or injured berries exist in the middle of the bunches. It is needless to say that the damaged berries should be removed with the utmost care, so as not to injure other berries which are near them. *Pines* ripening fruit must be kept studiously in a dry, light, and sunny position, if good flavour is to be sought for.

HARDY FRUIT GARDEN.

Go over all *Peach* and *Nectarine* trees for the last time, and remove all foreright shoots from them. It will be well also to stop the points of weak shoots; this will aid them in maturing flower-buds for next year's crop. Proceed with the gathering of *Apples* and *Pears*, using proper judgment and forethought in so doing. Some of the earlier sorts of Pears, at least those which succeed the first early, such as Marie Louise, Gansel's Bergamot, British Queen, &c.; where a sufficient crop of either exists, had better be gathered "at twice." Go over them carefully at once and gather one-third of the most prominent ones which have been the most fully exposed to the sun. When gathered lay them upon a shelf upon which a little straw has been placed. Give them plenty of air by day, but if convenient keep the moist night air away by closing the windows, or other apertures. It will be better also to proceed with the ingathering of the earlier Apples generally. The test of fitness will be found in the colour of the "pip." Take from the tree one of the soundest looking of the fruit, and cutting it in two ascertain whether the pips have, or are, changing colour; if brown, the fruit is perfectly ready, and should not be allowed to remain upon the tree another day. Generally speaking, however, they have not yet arrived at this stage, but at the most will only commence showing the ripening tint. If gathered when the first signs of ripening only exist, they keep much better than when farther advanced; hence, I advise that no delay should occur in concluding the operation so soon as the pips have arrived at this stage. Studied discernment will be needful in dealing with late keeping Apples, and indeed Pears. To gather thus early such Apples as Court-pendu Plat, Sturmer Pippin, Ashmead's Kernel, and similar sorts, even should the pips show signs as above, would be to spoil them irretrievably. The same applies equally to such of the latter also, as Easter Beurré, Beurré Rance, Ne Plus Meuris, &c. All such must remain some time upon the trees yet. Little tom-tits I find are doing much injury to standard and espalier trees bearing fruit. They gouge out small holes near the stalk, which, however small they may be, are sufficient to cause the fruit to rot at a later date. Protection, by the aid of nets or any other mode which suggests itself, must be given, and that quickly, if the crops are to be saved. It is hardly necessary to add, that all fruit should be gathered when perfectly dry. Each individual fruit should be taken without any injury in disengaging it from the branch, and with the stalk entire; this is particularly needful, as the fruit thereby keeps much better than under other conditions. Lay each fruit carefully down, bearing the fact in mind that the least bruise whatever gives place to ulterior decomposition, a cause from which much good fruit is entirely lost, together with the labour and outlay attending its production.

HARDY FLOWER GARDEN.

Auriculas often at this season form offsets, which if removed with care and potted in small pots, and attentive treatment be given may become good plants for next season's flowering. Be very careful, however, in taking them off the parent plant, not to injure the base more than is absolutely necessary. Too large a mound made at this season tends to cause decay hereafter. Expose the wound made fully to the sun, and induce it thus to heal over. Take up *Anemones* which have ripened off their foliage, and store them away in silver sand, should the ground be wanted for other purposes. I find that *Weigelas*, which have grown freely during the summer, flower better if taken up out of the border and replaced immediately; severing some of the roots, and thereby checking the growing capabilities of the plant generally, would appear to throw it into a flowering state. *Hollyhock* cuttings may still be placed in pans or pots, as they will still strike freely. As I have before stated, choose those eyes only which have not produced any flowers during the season.

KITCHEN GARDEN.

Cardoons must now be earthed up; some bind them round with hay or similar bands, and thereby save much of the labour of handling them continually during the operation. It may be well to give them a good soaking with strong liquid manure first of all. A similar application would also benefit much *Globe Artichokes*. Do not omit to remove all old flower-stalks from these as soon as the flowers are used; leaving them causes the stools to become much weakened, and, indeed, very frequently so decrepid that they are in consequence unable to withstand the effects of winter. The last main batch of *Lettuces* and *Endive* should be got in in the ensuing week. Continue to plant the Endive deeply; it is only needful just to ensure that the crown does eventually reach the surface. Take advantage of favourable dry weather to tie up a good batch of each of these also; they will come in about right to lift and store away in frames for early winter use. Forward all *Onions* which still remain out, by laying the necks of the coarser ones in such a manner that they cannot rise again. Dust lime and soot, or either separately, amongst all young plantations of such things as those just referred to—Cabbages, Cauliflowers, &c.; slugs, which are very numerous, caterpillars, and other nightly depredators, injure these materially by marking the leaf ever so little; all wounds spread apace when hoar frost has once set in. To keep the plants' clothing intact and free from injury, is the first step to secure it against such positive injury. *W. E.*

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the Week ending Sept. 25, 1867, as observed at the Horticultural Gardens.

Sept.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Min.	Mean	Of the Earth. 1 foot deep.	2 feet deep.	Wind	Rain.
Thurs. 19	21	30.096	30.014	68	49	58.5	60	58	E.	.00
Friday 20	22	30.144	30.122	68	47	57.5	59	59	N.	.00
Satur. 21	((	30.137	30.009	66	54	60.0	60	59	S.W.	.13
Sunday 22	24	30.030	29.857	65	38	51.5	59	58	N.W.	.06
Mon. 23	25	30.014	29.887	66	38	52.0	59	58	S.W.	.01
Tues. 24	26	30.376	29.994	69	31	50.0	58	57	N.	.00
Wed. 25	27	30.434	30.391	63	32	47.5	58	57	N.	.00
Average		30.176	30.039	66.4	41.3	53.8	59 0	58.0		0.20

Sept. 19—Fine throughout; overcast at night.
— 20—Fine; low white clouds; clear at night.
— 21—Uniformly overcast; clear and fine; clear.
— 22—Rain; cloudy and fine; clear at night.
— 23—Rain; cloudy, and rather boisterous; clear.
— 24—Boisterous; masses of dusky white clouds; clear.
— 25—Partially overcast; fine; clear.
Mean temperature of the week, 1 8-10 deg. below the average.

STATE OF THE WEATHER AT CHISWICK,
During the last 41 years, for the ensuing Week, ending Oct. 5, 1867.

Sept and Oct.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday ..29	65.5	44.2	54.8	25	0.46 in.	2	3	4	4	9	13	4	2
Mon. ..30	65.0	43.5	54.3	23	0.58	3	2	4	4	8	9	10	1
Tues. .. 1	63.6	45.1	54.4	21	0.53	2	3	4	3	7	16	4	2
Wed. .. 2	64.7	44.4	54.5	19	0.48	2	4	3	—	9	11	7	4
Thurs. .. 3	64 0	41.8	52 8	16	1.01	2	4	3	1	11	11	5	3
Friday .. 4	64 1	43.0	53.5	20	1.06	—	8	2	3	7	17	3	1
Satur. .. 5	63.0	40.6	51.8	21	0 82	4	4	4	1	6	13	7	2

The highest temperature during the above period occurred on the 5th, 1834—therm. 80 deg.; and the lowest on the 5th, 1865—therm. 25 deg.

Notices to Correspondents.

BOWLING GREEN: *J C M.* A bowling green should be rendered as level as possible, and should be sunk below the general surface level, so as to present a small bank of turf to stop the progress of the bowl. It must be rendered perfectly dry by drainage, and must also be kept very closely mown, and repeatedly rolled.

CLEMATISES: *E B.* C. lanuginosa as a rule cannot be struck by means of cuttings; it should be grafted, which is also a slow process. C. montana may be increased by means of layers. C. Jackmanni and lanuginosa should be mulched in November; the former should be cut back in that month, but the latter, unless very strong, should be but sparingly pruned.

CUCUMBERS: *Messrs. Sutton & Sons.* Your specimen of Hamilton's Invincible is certainly the largest of which we have either seen or read. It measures 38 inches in length, 10¾ inches in circumference, and weighs 12½ lb.! It is short-necked, straight, and altogether handsome in form. It is, however, far advanced beyond an eatable state, and is now only useful for the seed which it contains.

GRAPES: *R D B.* Your Grapes arrived in better condition, but, as in the former case, the apex of the berries moulded. The wrinkles at the base were very evident and were clear of mould, though the stalks were covered with it. We presume the leaves which accompanied the Grapes were gathered from the same Vine, and if so, it is clear that the roots are in a bad condition, as the chlorophyll is only partially developed. In consequence the berries are unhealthy, and subject to decomposition. *M J B.*

INSECTS: *Vitis.* The disease in your Black Hamburgh Grapes is quite new to us, and consists of a number of minute galls on the under surface of the leaves, which burst open on the upper surface, disclosing a number of minute oval eggs. We can only suppose they may be the work of some gall midge. Can you follow out their history or send us more specimens?—*Miss E A O.* We believe your wasps are Vespa rufa, but they are so smashed and discoloured that it is difficult to make them out.—*J M C.* The grubs in your lawn are either young cockchafers or the larvæ of one of the allied smaller species of Melolontha. Water the Grass with strong lime water, and next summer employ children to catch and kill all the beetles. *W.*

NAMES OF PLANTS: *W M.* Your Fungus is one of the various forms of Marasmius peronatus. *M J B.*—*M D.* 1, Polygonum complexum; 2, Gymnogramma chærophylla.

OUT-DOOR VINES: *Vigneron.* There are none better for your object than Royal Muscadine and Black Cluster, or Miller's Burgundy.

PELARGONIUM: *M & Son.* The leaves you have sent us, though pretty, exhibit no improvement on those of varieties possessing the same colours already in cultivation. The chief fault belonging to them is the irregularity of the zone, which, on a small scale, has the appearance of being what is termed Vandyked.

RAINFALL IN THE W. INDIES: *Inquisitive* wishes for information as to the amount of rainfall during every month of the year in the West Indian islands. He is anxious to try some experiments with planted-out Pine-apples, and wishes to know the exact amount of rain they receive in their natural habitats. None of the authorities to which he has access take any notice of so important a matter.

VINE MILDEW: *H S T.* Sulphur is an unfailing remedy, if applied sufficiently early. The Vines should be thoroughly dusted with flowers of sulphur, by means of a sulphurator, the moment that mildew is observed. You will find some useful hints in Thomson's Treatise on the Vine.

COMMUNICATIONS RECEIVED.—J. Fleming.—J. A.—J. Hally.—M. Nesfield (thanks).—H. Cannell.—W. Groom.—I. J.—W. F.

THE TANNED LEATHER COMPANY.
Armit Works, Greenfield, near Manchester.
TANNERS, CURRIERS, & MANUFACTURERS of IMPROVED TANNED LEATHER DRIVING STRAPS for MACHINERY.
PRIME STRAP and SOLE BUTTS.
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Full directions for use are given with each packet.
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The Company advances money, unlimited in amount, for the following works of Agricultural Improvement, the whole outlay and expenses in all cases being liquidated by a rent-charge for 25 years.
1. Drainage, Irrigation, and Warping, Embanking, Inclosing, Clearing, Reclamation, Planting, for any beneficial purpose, Engines or Machinery for Drainage or Irrigation.
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4. The Erection of Farm Houses, Labourers' Cottages, and other Buildings required for Farm purposes, and the improvement of and additions to Farm Houses and other buildings for Farm purposes.
Landowners assessed under the provisions of any Act of Parliament, Royal Charter, or Commission in respect of any public or general works of Drainage or other improvements, may borrow their proportionate share of the cost, and charge the same with the expenses on the lands improved.
The Company will also negotiate the Rent-charges obtained by Landowners under the Improvement of Land Act, 1864, in respect of their Subscription of Shares in a Railway or Canal Company.
No investigation of title is required, and the Company being of a strictly financial character, do not interfere with the plans and execution of the Works, which are controlled only by the Government Enclosure Commissioners
Apply to GRANVILLE R. RYDER, Esq., Managing Director, 3, Parliament Street, London, S.W.

THE GENERAL LAND DRAINAGE and IMPROVEMENT COMPANY. Offices, 22, Whitehall Place.
Under this Company's Act Tenants for Life, Trustees, Mortgagees, Guardians, Committees of Incompetent Persons, Benedcial Lessees, Corporations (Ecclesiastical or Municipal), Incumbents, Charitable Trustees, &c., may effect the following Land Improvements, and charge the outlay and expenses on the estate improved, by way of rentcharge, to be paid by half-yearly instalments, viz. :—
1. All works of Drainage, Irrigation, Warping, and Embankment.
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The owners of Estates, not entailed, who may be desirous to avoid the expense or inconvenience of a Legal Mortgage, may also charge their Estates with an Outlay in Improvements under the simple and inexpensive process of the Company's Act.
The Term of Years for the Rentcharge is fixed by the Landowner, so as to adapt the amount of Annual Payment to the circumstances of the Tenants.
No Investigation of Title being required, and the Charge not being affected by Encumbrances, no Legal Expenses are incurred.
The Arrangements for Effecting Improvements are threefold —
No. 1. The Works may be Designed and Executed entirely by the Landowner's Agent, and the Company employed only to supply the Loan and conduct the matter through all the official Forms for Charging the Outlay on the Estate.
No. 2. The Company will supply Plans, Specifications, and Estimates for any Improvements to be executed by the Landowner's Agent as under No. 1. In each of these cases the Landowner will be solely under the control of the Enclosure Commissioners.
No. 3. The Company will undertake the entire responsibility of the Improvements, prepare the Plans, execute the Works, and finally charge on the Estate the actual amount expended, with their Commission thereon, approved by the Enclosure Commissioners.
Landowners may thus obtain what assistance they require from the Company, and no more, in effecting the objects in view.
Works of Drainage and other Improvements are also executed on Commission for Landowners, who merely require the skill and experience of the Company's Officers and a Staff in constant practice.
Applications to be addressed to HORACE BROKE, the Secretary, at the Office of the Company, 22, Whitehall Place, London, S.W.

SMITHFIELD CLUB FAT CATTLE SHOW.—The ANNUAL SHOW of FAT CATTLE, SHEEP, and PIGS, will be held at the AGRICULTURAL HALL, ISLINGTON, on MONDAY afternoon, December 9, and Four following Days.
Intending Exhibitors are requested to apply for Certificate Forms by the reference letters as under.

CATTLE.—Form A.	For an OX or STEER (in any Class).
,, B.	For a COW or HEIFER (in any Class).
,, C.	For a BEAST in Extra Stock.
SHEEP. ,, D.	For a PEN of 3 WETHERS (in any Class).
,, E.	For a SINGLE SHEEP in Extra Stock.
PIGS. ,, F.	For a PEN of 3 PIGS (in any Class).
,, G.	For a SINGLE PIG in Extra Stock.

ENTRIES for LIVE STOCK CLOSE NOVEMBER 1.
Prize Lists, Forms of Certificates, and all information, may be obtained on application to Mr. DAVID PULLEN, Assistant Secretary, at the Office of the Honorary Secretary, corner of Half-Moon Street, Piccadilly, London, W.
N.B. All communications respecting the Show must be addressed to the Assistant Secretary, as above, and should bear outside the words "Smithfield Show."

SMITHFIELD CLUB SHOW.
AGRICULTURAL HALL, ISLINGTON, DECEMBER 9 to 13,
IMPLEMENT DEPARTMENT.
The LAST DAY for receiving Applications for Space for Implements and Machinery, &c., is OCTOBER 1.
Printed Forms of Application, with the Rules and Regulations, may be obtained of Mr. DAVID PULLEN, Assistant Secretary, at the Office of the Honorary Secretary, Corner of Half-Moon Street, Piccadilly, London, W.

The Agricultural Gazette.

SATURDAY, SEPTEMBER 28, 1867.

HARVESTING in a bad season was the subject of a capital essay (in 1861) by Mr. EDWIN EDDISON, of Leeds, who said, "During the last 12 years I have experienced three harvests in which I had not a drop of rain, except what might, unknown to me, have fallen in the night; but I have also had to contend, like the rest of my brethren, with wet weather in the other seasons." The loss by delay, as well as by direct injury to the corn, is a serious matter to the farmer in three years out of four, and anybody who can help him to secure his crops more speedily, or who is able to neutralise the evils of a showery harvest, must be hailed as a benefactor to his country. Mr. EDDISON'S practical recipe was in ten parts:—"(1) Reap early; (2) make small sheaves; (3) use single bands; (4) leave the sheaves open as long as you can before binding; (5) never allow the sheaves to lie all night upon the ground; (6) make small stooks; (7) do not use hoods; (8) rather let corn be 'muck in the stook than muck in the stack;' (9) carefully watch it; (10) when dry, quickly cart it." So far good; but what is to be done with the corn when it is not dry? Are we always to wait throughout a beautiful sunny and windy day for a wetted crop to get dry, and on the morrow, just as we are harnessing out to fetch it, have a storm come and drench it again as wet as ever? Could we not cart between the showers by help of an artificial drying apparatus, and so save corn almost as quickly in a bad season as in a good one, only at a little more expense?

"I have dried corn," wrote Mr. EDDISON, "in a room into which hot air was forced by a blowing machine, and on a small scale I have tried the drying of the ears cut off close to the straw; but I have no present intention of repeating the experiment, the cost being too great." Still, there are different ways of doing the same thing; and we are inclined to think that Mr. WILLIAM ALFRED GIBBS, who farms around his residence at Gillwell Park, three or four miles from Waltham Station, on the Great Eastern line, knows how to deal with wet corn in a satisfactory manner.

This gentleman, having a taste for mechanical inventions, has expended much time and thought upon the drying of hay and grain crops for at least half-a-dozen years, trying all sorts of suggested methods, and at last patenting what practice has arrived at as the best. Visiting the place a week or two since, we found several "playthings," as the inventor termed them, beside the corn-dryer. One was an elevator, consisting of a long slanting spout on wheels, reminding one of a fire-escape, having a fan at the bottom; and armfuls of straw, hay, or sheaves of Wheat, being inserted through a valve door, are blown up to the top and delivered on a stack. Another contrivance was an iron steam-chamber, shaped like a large horse-shoe, kept heated by a steam-pipe from a portable-engine boiler, so as to dry hay placed round it.

The principle of corn-drying adopted by Mr. GIBBS is that of forcing currents of hot air into a chamber in which Wheat sheaves are placed, the chamber being made with two compartments, so that one may be emptied and refilled while the other is "baking." The experimental "chamber" that we saw (for the apparatus is not yet quite in shape for immediate manufacture and sale) is a cheap structure of corrugated sheet-iron walls and roof, so made as to be quickly removable in pieces; its dimensions are 12 feet square, with a middle partition forming two compartments, each 12 by 6 feet, and 7 to 8 feet high. Two iron floors, 12 inches apart, form a receptacle for the hot air, which enters the chamber through vertical pipes, each about 18 inches high and the same distance apart. There are 32 of these pipes standing in each compartment, and the sheaves are stuck upright upon these pipes, like so many faggots stuck upon stakes; a jet of hot air being thus injected into the centre of each sheaf in such a direction as to rush upward through the mass of ears. When a compartment has been charged with its 32 wet sheaves, the door is closed, the hot air "turned on," and the air, damped and cooled, issues from the chamber through spaces left under the eaves and above the door. At first the metal walls feel chilled by the moisture condensing upon the inside, but become warmed as the Wheat dries. The air, when we were present, entered at a temperature of about 280°, and finally issued from the chamber at about 140°. Sheaves, all wet enough to moisten the hand when feeling of them, were dried sufficiently for threshing in about 20 minutes—the "stubble ends" of the sheaves, however, not being thoroughly done, showing that jets of hot air should enter by holes in the floor as well as through the 18-inch long pipes.

In a subsequent experiment, the Wheat operated upon had had 18 hours of storm and rain upon it on a Monday and Tuesday, six hours rain on Wednesday, and again four hours heavy rain on it on Friday morning (September 6th), the day of trial. It was carried from the field during a perfect torrent, and left on a cart exposed to several showers until four o'clock in the afternoon. The temperature of the ingoing air was raised to 320°, and well dried both grain and straw in 15 minutes. A large party of practical farmers and other gentlemen witnessed this trial, and unanimously pronounced it a complete success. Some person may say, "How about damaging the corn by the heat?" Certain experiments in France are known to have proved that the germinating power of Wheat is destroyed by a temperature of about 160°, the grain being also injured for bread-making at a temperature considerably below 212°. But in this apparatus only a few ears come in immediate contact with the ingoing air, namely those in the middle of the sheaves; the moisture on the straw and ears must instantly cool the air by evaporation; and besides, the grain itself is protected from scorching heat by its covering of chaff scales. No smoky or unpleasant taste or scent is communicated to the grain. Now, a performance of 32 sheaves every quarter of an hour is not anything like expeditious enough for common field practice, although some of the farmers present expressed themselves satisfied with that rate of work; at any rate it would be an improvement upon leaving corn out in the field to take its chance of natural drying. Our opinion is that, to command the approval of farmers in general, and to be adopted in regular practice, provision should be made for desiccating sheaves as quickly as the force of men and teams on a farm can get them up to stack them. This would "look like business," whereas most farmers would shake their heads doubtingly at such a slow "fiddling" job as clearing only half a dozen acres in a day and a night. In a large field of one of our own moderately heavy Wheat crops we have lately counted 48 shocks to each acre; the average number of sheaves in a shock was 13, so that there were 648 sheaves per acre, and thickish ones, too, with straw 4½ to 5½ feet long. A one-horse cartload averaged scarcely 100 sheaves, thrown up at the rate of about nine sheaves per minute (on a windy day); the loads leaving the field, however, at not more than four per hour. To suit us, the drying apparatus should be large enough and expeditious enough to take good-sized wet sheaves at the rate of about 400 per hour—that is, about three times the capacity of the experimental apparatus at Gillwell Park. What forbids the fitting up of an old barn as a drying-chamber in two compartments, each to hold one cartload of 100 sheaves, to be cleared and refilled every quarter of an hour? It is simply a question of the supply of hot-air.

Mr. GIBBS obtains it in this way: We found an old 8-horse portable steam engine with the chimney off, and an iron fan, of 4½ feet diameter and 2⅔ feet wide, in a sheet-iron case, was placed close to the opened smoke-box, drawing in the hot air, and delivering it between the two bottoms of the drying chamber. To intercept sparks a screen of malt-kiln wire is placed between the fan-case and the smoke-box. The engine drives the fan by means of a belt off the fly-wheel; and, working at only 10 lb. pressure of steam, drove the fan with a speed of about 600 revolutions per minute. To avoid smoke, anthracite coal or coke is used. It is evident that by simply increasing the velocity of the fan to double or treble (by working at a high pressure of steam), double or treble the volume of warm air may be injected into the chamber, and thus either the 32 sheaves be dried in a shorter time, or a larger number of sheaves be dried in the same time. We are not sure how far the sharp draught may tend to melt the fire-bars, or whether the admission of plenty of air by the fire-door will tend to crack the tubes, or cause constant leakage at the end-plates; but, certainly, boilers can be constructed purposely for this work; indeed, upright boilers (as those of WOODS & COCKSEDGE) are already in use which have no tubes at all, while other boilers (as some of TUXFORD'S) have flues and tubes too,—either construction promising safety in this air-heating process.

We predict that this novelty of "desiccation" will be the fashion by next harvest; any building of brick walls, lined inside with galvanised sheet-iron, is precisely adapted for keeping in the heat; ample apertures for egress of the damp air must be provided; the engines are in the farmer's hands in readiness, and a fan is one of the simplest pieces of machinery to make, buy, or keep in order.

Cost we can say nothing about; but an outlay of 20*l.* or 30*l.* would be into pocket again in a day or two's work during a "catchy" time.

Mr. GIBBS has duly patented his invention, the date being 19th of November, 1866, and the number of the specification 3036. *I. A. C.*

—— MR. SMITH, of Woolston, thus announces the completion of his autumn tillage for Wheat sowing by the aid of his new cultivator:—My 112 acres of cropping were as follows: Wheat, 59 acres; Barley, 12 acres; Beans, 23 acres; Peas, 6 acres; and 12 acres of Clover fed on. You see that I had more than half my farm in Wheat. The Wheat, Beans, Barley, and Peas were all over an average. You know that we have had two wet years together, yet my farm is clean from end to end. It is true that the wet seasons have caused some small patches of knot Grass, and a few weak Thistles to shove up their heads; but when I weigh my position after these two wet seasons with horse farming I have plenty of room to be thankful for the aid of steam power. I have looked round in all directions and can see more than a usual quantity of dead fallows, and no end of land in a state that will cost vast sums of money to clean it; yes, and I can look over the hedge on to the best-farmed land in the neighbourhood and see more twitch on a square yard of land than there is to be found all over my farm. Such are the results of steam and horse farming after wet seasons. On Saturday last, September 14, I finished my harvest. On Monday last I set the steam-power smasher to work on my Bean and Pea stubbles, and to-day I have finished them, doing three fields, containing together 29 acres. These four day's work have made me completely master of my position for my next year's crops. The bits of Grass and Thistles are now being roasted to death. Horse farmers may be inclined to have a smile at this. If they have any doubt upon the point, let them come and look at my land and judge for themselves. They cannot lay their land for the sun to shine through it as it does through mine. For some time past we have heard a good deal about ploughing or cultivating, then cross cultivating, rolling and harrowing by steam power, thus giving a number of operations by steam power for a crop. Now I have long since told you that as a rule we ought only in exceptional cases to use steam power more than once for a crop. My letter to you last year, dated October 13, shows that I smashed 45 acres of Bean and Pea stubbles, and then cross cultivated and seeded them at one operation by steam power. My opinion now is that I should have done better to have been content with the smashing, leaving the cross cultivating and seeding to the horses, for I see plainly that the operations came too quickly one after the other to allow the sun and wind to do their work before the seeding, and it will never do to take the tackle away from a field after smashing and then bring it back again to do a crossing, that can be done as well with horses for 2*s.* an acre as it can by steam for 5*s.* or 6*s.* an acre. Now, look to my 12 years' practice. The yearly average of work done on my farm by steam power is 70 acres; yet the farm is clean, and there has not been an acre of fallow on it during the 12 years.—— In another column Mr. SMITH illustrates the fitness of his system for ordinary farm practice, and argues against the entire exclusion of farm horses from farm work; declaring that the maximum of economy is to be looked for rather in the use of horses along with steam-power for whatever work is especially adapted for them.

—— It appears from a published correspondence that all restriction on the movements of sheep has now ceased, except only when they have arrived in the same ship with foreign cattle. Mr. WALLER, Secretary of the Home Cattle Defence Association, after stating that the Butcher's Trade Society had announced that on September 16th all restrictions on the movement of sheep would cease, so that "sheep," it was added, "may therefore be removed in any direction as formerly," asks Dr. WILLIAMS, of the Privy Council Office:—Is there any official authority for this statement? To this Dr. WILLIAMS replies that he is not aware of any restrictions under "The Consolidated Cattle Plague Order of August, 1867" on movement of sheep, unless they arrive in ships. Mr. WALLER is therefore directed to ask him, if sheep not arriving with foreign cattle in the port of London may be forthwith driven out of the Metropolitan District; or, if taken to the Metropolitan Market to be sold, may, after sale, be taken out of the Metropolitan District? He asks furthermore, whether it is to be understood that sheep arriving in contact with foreign cattle are to be treated differently; that is to say, whether they too may be driven out of the Metropolitan District? Dr. WILLIAMS replies to this by enclosing a copy of "The Consolidated Cattle Plague Order of August, 1867," and calling attention to Article 46 of such Order. Clause 46, above referred to, is: "Sheep, goats, and swine brought in the same vessel with foreign cattle shall be subject to the provisions of this Order respecting foreign cattle." It thus appears that sheep may be removed from the Metropolitan Market without any restrictions whatever, if not imported with foreign cattle. But should they arrive in a vessel with oxen, then alone, although all the sheep in market are in pens contiguous, are they subjected to all the restrictions applicable to foreign cattle.

—— At a meeting of the Council of the Bath and West of England Society, held at Taunton last Tuesday, it was resolved (having regard to the fact that for the last two years the annual meetings of the Society have been held at a considerable distance from the centre of operations, and that in 1868 the meeting will take place at Falmouth), that, subject to the compliance of the local authorities with the usual conditions of the Society, the meeting in 1869 shall be held at Taunton.

—— In the *Times* of Tuesday last Mr. BAILEY DENTON calls attention to the various branches of land improvement as a safe investment for capital now lying idle. "The present Premier," he says, "more than 26 years ago, at the meeting of the Royal Agricultural Society of England at Liverpool, uttered these words:—

'The man would be thought to have conferred no trifling benefit on his country who should add one bushel to the quantity of Wheat produced by the Wheat lands of England, yet I am confident I speak within compass when I say that much of the wet land of England is capable, by improved cultivation and drainage, of producing 5, 10, or 15 bushels per acre more than they do. I am aware that the process of draining is an expensive process, which requires an outlay of capital which, if we were to take the total of even a single county, would strike every man as something marvellous and almost appalling, and yet I am satisfied that there is no bank in the country, no commercial undertaking, no investment so safe, so sure, so profitable as that in which even borrowed capital may be engaged by investing it under the ground of your own soil.'

These words were used before the passing of the Public and Private Moneys Drainage Act, and the several Companies Acts for the advance of money for drainage. In the 26 years that have since elapsed it is estimated that 10 millions of money have been expended in under-drainage, and the views of Lord DERBY have been more than verified by the results attending the outlay. Perhaps there never was a time at which the remembrance of these circumstances could be more opportune than at the present moment, when capitalists are in a state of disgust at the failure of popular speculations, and when the produce of the present harvest is proving to demonstration the very satisfactory return due to the drainage of clay lands in the increased yield of Wheat of superior quality. If I remember rightly Lord DERBY, when making the observations I have quoted, mentioned that money was then (in 1841) commanding only 1½ per cent. interest in the market, and this I believe is the value of money now. Labourers, too, were then in the same condition as at this moment—plentiful and wanting employment. May I be permitted to call the attention of capitalists as well as landowners to the great scope there still exists for the profitable employment of money in the improvement of the soil? Though 10 millions of money may have been expended, but a small proportion of the wet lands of Great Britain is yet drained. Many millions of acres in England alone still remain wet, and some of the capital now unproductive, but which must soon find employment, probably in the encouragement of hazardous schemes, may not only be applied in their drainage to gain between four and five per cent. interest with certainty and security, but the general commerce of the country may be advantaged at the same time, for the result cannot fail to be increased crops of corn and increased yields of meat-producing herbage."

STEAM CULTIVATION AT WOOLSTON.

YOU give in your Paper this week an article on Steam Cultivation, read by Mr. David Grey at Dundee. In his paragraph on "Cost of tillage, &c.," he says:—"Now before we can obtain the maximum of cheapness, we must cause steam-power to perform all the operations connected with the tillage of the ground. For if, after steam-ploughing a field, horses are taken upon it, perhaps two or three times, for the purpose of harrowing or doing other similar work, the ground is of course trodden down and consolidated again. The consequence is that the next year it requires much more power to break it up than would otherwise be the case, and not only does it require this extra force, but clod-crushers and other implements have to be applied to it which would not be required if the treading were avoided. The generality of land if put under steam cultivation and kept entirely free from the trampling of animals would only require one very deep cultivation operation every fourth or fifth year, and would be kept in such a state as to allow air and moisture, and the roots of the crops to penetrate freely, so that the cultivation for the grain crops in the rotation would only require to be light, or surface operations sufficient to receive and cover the seed."

Now, Sir, I will prove to you either that Mr. Grey is not writing from practical evidence, or that he is not a practical man.

I have just finished my harvest, and have 29 acres of Bean and Pea stubbles, and 12 acres of Clover-ley to be prepared for Wheat, 32 acres of Wheat stubble for Beans, 13 acres of Wheat stubble for roots, and 14 acres of Wheat stubble for Barley; the remaining 12 acres are seeded with Clover. I will first bring Mr. Grey's talk to bear upon the 29 acres of Bean and Pea stubbles. I have smashed them up by steam-power, but they are not in a fit state to receive the seed, neither has the proper time arrived for planting them; but the sun is shining round, and even under some of the lumps, the recent dry east winds have helped to dry them, and to assist I have thought it wise to pass a horse-cultivator over them. Since the steam-smasher did its work no consolidation from the horses' tread has taken place, merely the turning over or breaking the big lumps. Besides, the cost by horses was only 2*s.* an acre, and done by the horses that I am obliged to keep to cart my corn, whereas had it been done by steam it would have cost three times as much. They will not be fit for planting until we have had rain to mellow and reduce the lumps, after which, and when the proper season arrives, am I to bring the steam tackle out again to plant them? No; for, in the first place, we shall have dirty weather by then, rain we must have, for the land will not be fit for seeding until the lumps have been reduced by it. Then the cost of taking the tackle over the dirty land would be more than doing the work by horses. Would Mr. Grey take steam tackle to a field to do a couple of harrowings to save the tread of horses, when horses do no damage? It is absurd to talk of needing clod-crushers on this land next year, for I shall hereafter show that they will not be needed on Wheat stubble for Beans, or even roots. Last year I did try the dodge of seeding my 45 acres of Bean stubbles as soon as I had smashed them by passing the combined cultivator, and drill over by them by steam power, but I find that, although my Wheat crops are over an average, I have more bits of knot Grass in my Wheat stubbles, through not having smashed them up as early as I could after harvest, and giving a horse-cultivating or two before seeding them, than I should have had. I have done so; therefore I am wise enough this year to practise what I neglected last year. Mr. Grey must practise a bit himself before he sets himself up to be a teacher. Just fancy him bringing his big double engine or even single engine tackle to my heavy clay land Bean stubbles after the big lumps have been well soaked by rain, and made thereby fit for seeding. See what woful consolidation the engines must make upon the headlands, if they could be got over them at all, and that part of the work, if his tackle is used, must be done by horses if seeded at all. Mine (the roundabout tackle) can do better, for when standing at a corner of the field it can do headlands and all without doing any damage by consolidation; but it is of no use bringing even that tackle out to do work that horses can do better and at less than half the cost.

Now for the 12 acres of Clover-ley. I shall plough it over with my horses, for they have done nothing yet but shift tackle and cultivate the land once over that had been previously steam smashed, and besides that they can do it better than the steam engine can; and as to the consolidation that goes on when they are seeding it, it is a benefit, for a Clover-ley seed bed is never a good one unless it is well worked down. On some occasions clod-crushers are even used to effect this, in addition to the consolidation by horses.

Now for my 32 acres of Wheat stubble for Beans. I shall steam ridge-plough and subsoil them, and when the proper time for seeding comes I shall dib the Beans in by manual labour; therefore "the maximum of cheapness" is arrived at here, and so it has been for a long time, for this was my practice at starting 12 years ago, and I have never been able to beat it.

Now for my 13 acres of Wheat stubble for roots. It will be steam ridge-ploughed and subsoiled. In that state it will lay through the winter until seed time, when it will be planted by hand-power; therefore no consolidation will take place, yet frost and snow will be its clod-crusher. "The maximum" has long since been arrived at here.

Now for my 14 acres of Wheat stubble for Barley. In March next I shall smash it by steam power, then cultivate it twice over by horses to bring it to a fitting seed-bed. To talk of consolidating it would be all nonsense, for it does the land good to tread and break it after it has been well broken up by steam and before it is seeded.

Such has been my practice for 12 years, and I do know that the horse never damages land when preparing seed beds after the land has been well smashed by steam-power; and if Mr. Grey will consider and weigh these facts over (for they are facts, for when the above described work is done it will be a repetition of fact), he must see that he has never made a greater blunder. *William Smith, Woolston, Sept.* 23.

RECENT SALES OF SHEEP.

LEICESTERS: *Great Sale at Kelso, Sept.* 13.—The following are some of the particulars of the great sale at Kelso, when upwards of 2000 sheep stood for sale. The lot belonging to Lord Polwarth is generally regarded with great interest. There were altogether 29 of his lordship's sheep sold, which brought a total of 743*l.* 15*s.*, being an average of 25*l.* 13*s.*, or 1*l.* 8*s.* less than last year. His highest ram this year was 106*l.*; last year it was 98*l.* We give the sales of some of the tups, with the names of purchasers:—Mr. Nisbet, of Lambden, purchased one at 22*l.*; Mr. Brunton, of Eastfield, one at 66*l.*; Mr. Black, Heatherlaw, one at 27*l.*; Mr. Wilson, Haymount, one at 62*l.*; Lord Devasse, Ireland, one at 42*l.*; Mr. Ainslie, Costerton, one at 41*l.*; Mr. Smith, Castlemains, one at 106*l.*; Mr. Dove, Eccles Newtown, one at 36*l.*; Mr. Simpson, Courthill, one at 35*l.*; Mr. Angus, Whitehouse, one at 22*l.*; Mr. Scott, Maisondieu, one at 24*l.*; Mr. Bell, Cessford, one at 35*l.*

In Mr. Torrance's lot, of Sisterpath, Mr. Henderson, Middlethird, gave the highest price—19*l.*; Mr. Chess, Melwick, gave 18*l.*; and Mr. Thomson bought one at 15*l.* Mr. Torrance's highest price last year was 47*l.*, and his average 9*l.* 4*s.* 7*d.*

Miss Stark's (of Mellendean's) sheep have long had a high reputation in the market, and the prices of the highest this year were as follow:—Mr. Mills, Horsburgh Castle, bought the best ram at 84*l.*; Mr. Forster, Ellingham, bought one at 76*l.*; Mr. Roberton, Harperton, bought a splendid animal at 69*l.*; Mr. Clark, Oldhamstocks, one at 28*l.*; Mr. Stevenson, Hales, one at 20*l.*; Mr. Roberton, Harperton, another at 22*l.*; Mr. Franks, Ireland, one at 35*l.*; Mr. Allan, Billiemains, one 51*l.*; Mr. Laing, Cornhill, one at 26*l.*; Mr. Calder, Kelloe Mains, one at 20*l.* The total amount of the sale for the 34 tups was 773*l.* The average last year was 25*l.* 15*s.*, and the highest 80*l.*

In the lot belonging to Mr. Purves, Linton Burnfoot, the highest price was 60*l.*, the animal being purchased by Mr. Calder, Oxenrig. The next highest prices were:—Mr. Douglas, Riddleton Hill, 31*l.*; Mr. Wilson, Cumledge, 25*l.*; Marquis of Tweeddale, 22*l.*; and Mr. Flockhart, Edinburgh, 15*l.*

Mr. Lees, Mervingston, sold two rams, and his average was 26*l.* 10*s.*

In Mr. Errington's lot, Sir George Dunbar bought one at 27*l.*; and Mr. Calder, Kelloe Mains, one at 16*l.*

In the Rev. Mr. Bosanquet's lot, Mr. Hope, Fenton

Barns, purchased one at 29*l.*; Mr. Murray, Edinburgh, one at 21*l.*; Mr. Langdale, Morpeth, one at 20*l.*

The following are some of the sales:—

Names.	No. of Rams	Highest price. £ s. d.	Average price. £ s. d.
Mr. Forster, Chathill	40	17 0 0	8 18 9
Earl of Zetland	20	5 0 0	3 3 9
Mr. Angus, Morpeth	43	7 10 0	4 0 6
Mr. Dinning, Belford	50	17 0 0	8 1 1
Mr. Morrison, Bewick ..	25	6 0 0	4 1 0
Mr. Robinson, Leckby Palace	40	7 15 0	3 9 4
Messrs. Black, Heatherlaw ..	45	21 0 0	5 11 8
Messrs. Dinning, Nilston Ridge	25	10 10 0	6 0 6
Mr. Rodgerson, Whittingham	2	8 15 0	7 0 0
Mr. Errington, Whittingham	5	27 0 0	16 10 0
Mr. Chisholm, Hawick ..	20	5 5 0	4 0 0
Mr. Wood, Thornbrough ..	22	14 0 0	5 4 3
Rev. R. W. Bosanquet, Rock	80	29 0 0	10 15 0
Mr. Smith, Galagate House ..	40	3 0 0	3 0 0
Mr. Wilson, Haymount ..	50	14 0 0	6 12 6
Mr. Brunton, Eastfield ..	16	17 0 0	6 12 0
Mr. Hardie, Harriefield ..	100	..	6 6 6½
Mr. Thomson, Dilstonhaugh	24	14 0 0	5 10 0
Mr. Cunningham, Grahamslaw	35	15 10 0	6 7 0
Mr. Bell, Millheugh	20	5 0 0	3 10 0
Mr. Haddon, Honeyburn ..	20	10 0 0	4 6 0
Mr. Thomson, Rutherford ..	40	9 15 0	5 14 0
Mr. Bain, Segars	19	3 15 0	2 18 0
Mr. Hume, Ballicknowe ..	30	5 10 0	3 19 0
Messrs. Hubback, Sunlawshill	30	7 15 0	4 4 6
Mr. J. C. Bolam, Low Trewitt	13	10 10 0	5 1 0
Mr. Simson, Trows	13	7 5 0	4 6 8
Mr. Calder, Kelloe Mains ..	40	10 10 0	4 4 6
Mr. Tait, St. Cuthbert's ..	25	4 10 0	2 17 11
Trustees of the late Colonel Nisbet, Mersington	45	11 15 0	4 9 10
Mr. Hogarth, Eccles Tofts ..	60	11 0 0	5 4 0
Mr. Lees, Mervyngston ..	60	41 0 0	26 10 0
Mr. White, Duddo	20	9 0 0	3 1 8
Messrs. Taylor, Presson ..	25	6 15 0	3 16 4
Mr. Calder, Oxenrig	40	8 10 0	4 0 2½
Mr. Ripely, Kirkhammerton	35	8 0 0	4 0 0
Messrs. Laing, Cornhill ..	37	20 0 0	7 11 11½
Mr. Borthwick, Cowbog ..	20	9 5 0	4 11 10½
Right Hon. Lord Polwarth ..	35	106 0 0	25 13 0
Mr. Bell, Linton	38	14 10 0	7 5 5
Mr. Robeson, Springwells ..	55	15 0 0	6 0 0
Mr. Torrance, Sisterpath ..	40	19 0 0	7 16 0
Mr. Wotherspoon, Spotsmains	40	9 15 0	5 11 0
Mr. Hume, Wormerlaw ..	12	5 0 0	4 5 5
Mr. Roberton, Harperton ..	50	18 0 0	5 8 0
Representatives of the late Mr. Stark, Mellendean ..	34	84 0 0	22 14 9
Mr. Jameson, late Nottyless	16	4 15 0	3 14 0
Mr. Purves, Linton Burnfoot	80	60 0 0	7 17 9¾
Mr. Simson, Courthill ..	46	16 10 0	7 9 1
Mr. Elliot, Galalow	11	5 0 0	3 7 6
Mr. Barber, Alnwick	14	12 10 0	5 1 0
Mr. Peak, Craigend	28	14 5 0	8 3 9
Mr. Blaikie, Camieston ..	45	15 10 0	6 4 8
Mr. Ord, of Muirhouselaw ..	30	6 0 0	3 2 6
CHEVIOTS.			
Mr. W. Moffat, Easter Kinleith	51	60 0 0	7 0 0
Mr. J. M'Gregor, Bebridding	30	6 15 0	3 0 0
Mr. D. Scott, Heriot Mill	8	2 0 0	1 12 6
BLACK-FACED.			
Mr. Thomas Aitken, Listonshiels	70	41 0 0	6 0 0
Mr. W. Dickinson, Longcroft	30	8 0 0	4 5 0
Mr. J. Wilson, Crosshouse ..	73	26 0 0	5 10 0
Sir G. Graham, Montgomery	23	7 15 0	2 5 0
Earl of Morton	20	4 10 0	3 15 0
Mr. Flockhart, Annacroich ..	60	3 0 0	2 10 0
Mr. Gay, Polmont Hill ..	30	4 2 6	3 0 0
Mr. Ritchie, Plean Mill ..	60	4 0 0	3 2 6
Mr. Wilson, Crosshouse ..	20	4 2 6	3 10 0
Mr. Mills, Horsburgh Castle	27	15 0 0	5 10 0
Admiral Sir J. Hope, Carrington	30	3 10 0	3 0 0
Mr. Smith, Stevenson's Mains	60	31 0 0	5 10 0
Mr. Simson, Blainslie ..	37	37 0 0	8 9 11
Mr. Stevenson, Halls	40	10 0 0	5 11 0
Mr. Balfour, Whittinghame..	25	6 5 0	4 0 0
Mr. Calder, Kelloe Mains ..	38	5 15 0	3 11 0
Messrs. Clarke, Oldhamstocks Mains	26	14 10 0	5 17 11
Mr. Lees, Mervyngston ..	80	41 0 0	6 17 6
Mr. Christie, Hailes	24	4 0 0	3 5 0
Earl of Wemyss	20	4 2 6	3 0 0
Mr. Marshall, Reedshill ..	10	3 7 6	3 0 0
Mr. Smith, Castlemains ..	20	17 10 0	7 10 0
Duke of Buccleuch	22	20 0 0	6 13 1½
Mr. J. Edgar, Edinburgh ..	28	2 17 6	2 6 6
Mr. Ainslie, Costerton ..	53	12 0 0	4 8 2
Mr. Ford, Hardengreen ..	35	6 5 0	4 4 0
Mr. Fender, Rules Mains ..	20	3 17 6	3 0 6
Mr. Wotherspoon, Spotsmains	20	8 5 0	3 16 0
Mr. Bell, Linton	24	3 17 6	3 2 9
Mr. Robeson, Springwells ..	20	3 17 6	3 15 6
Mr. Hogarth, Eccles Tofts ..	30	5 0 0	3 3 4½
Mr. John Horn, Thornanean..	20	2 14 0	2 7 0

CHEVIOTS: *Biennial Sale of Mr. Brydon's Rams at Beattock.*—The 5-year-olds, of which there were only two, were first sold. The 4-year-olds were the next to pass under Mr. Oliver's hammer; and one of them, "Craigpatrick," a splendidly made sheep, realised the fabulous sum of 185 guineas. The first bode which was offered for him was only 10*l.*, but he quickly rose to a 100 guineas, after which the competition was confined to Mr. Miller, from Sutherlandshire, and Mr. Johnston, Cappiegill. Mr. Johnston bade 180 guineas, amid the applause of those surrounding the ring, but Mr. Miller, who was evidently anxious to secure "Craigpatrick," dropped another five, and Mr. Johnston declining to go further, Mr. Miller secured the animal, at the highest price ever paid for a ram in Scotland. The next highest figure, 72 guineas, was paid by Mr. Johnston, Archbank, for "Young Sammie," a 3-year old, out of "Lammie." The averages are considerably lower than they were in 1865, but the reduction is not equivalent to that which has taken place in the value of white stock generally during the last year. The biddings throughout, despite the coarseness of the weather, were spirited in the extreme, and the sale, which began shortly after two, was finished by half-past five. The total number of rams sold was 173, and the sum which they realised was 1310*l.* 7*s.* The subjoined is a list of some of the principal prices, with the average of this and the last sale:—5-year-olds—Highest price, 11*l.* 10*s.*; lowest, 5*l.*; average, 8*l.* 5*s.* 4-year-olds—Highest, 19*l.* 5*s.*; lowest, 3*l.*; average, 16*l.* 1*s.* 9*d.*: average in 1865, 21*l.* 6*s.* 1*d.* 3-year-olds—Highest, 75*l.* 12*s.*; lowest 2*l.* 10*s.*; average, 10*l.* 12*s.* 3*d.*: average in 1865, 15*l.* 11*s.* 3*d.* Mr. Johnston, Archbank, bought the highest priced one; Mr. Denholm, Baitlaws, bought one for 62 guineas; Mr. Welsh one for 56 guineas; Mr. Moffat, Garvald, one for 40*l.*; Mr. Aitchison, Linhope, bought one for 34 guineas. 2-year-olds—Highest, 37*l.* 16*s.*; lowest, 2*l.*: average, 6*l.* 15*s.*; average in 1865, 14*l.* 18*s.* 8*d.* 1-year-olds—Highest, 13*l.* 10*s.*; lowest, 2*l.* 5*s.*: average, 5*l.* 0*s.* 2*d.*; average in 1865, 6*l.* 13*s.* 5½*d.*

SHROPSHIRES: *Mr. Preece's Sale* of Shropshires took place in the Smithfield, Shrewsbury: contained entries of 294 rams and about 2250 ewes—the largest lot ever brought together for sale by auction. The first day's sale was occupied in the disposal of the rams, and though we have known higher prices given for individual sheep, yet we find the large number of 278 rams actually sold at an average of over 12*l.* a-piece. The ewe sale, on Friday, was well attended, and the competition was spirited. Prices ranged from 50*s.*, at which some store lots low in condition were sold, to 6 guineas, at which price Mr. Coxon's prize ewes found purchasers. *Shrewsbury Journal.*—*Mr. Bradburne's, of Pipe Place,* rams numbered 48, of which three were let, and the remainder sold at an average of 10*l.* 2*s.* 6*d.*; the highest price being 20 guineas. There was a brisk competition for the ewes, two pens making 110*s.* per head, to W. O. Foster, Esq., M.P.; and another, 97*s.* 6*d.*, to Mr. Kittow; the 100 averaging nearly 70*s.* per head. *Bingley Hall.*—Mr. Lythall held his seventh sale of Shropshires at Bingley Hall, on Thursday of last week. The number of sheep sent was in excess of any former occasion, but the trade was not so good as usual. Mr. E. Lythall's rams made from 5½ to 12 guineas; Mr. Yates's, 6 to 11 guineas; Mr. Pilgrim's, 11 guineas; Mr. Nock's, 6½ to 16 guineas; Mr. Baker's, 5½ to 8 guineas; Mr. Bradburne's, 6 guineas; Mr. May's, 6 to 10 guineas; Mr. Horley's, 6 to 10 guineas; Colonel Dyott's, 5 to 9½ guineas; Mr. Beach's, 6 to 10 guineas; Mr. Glover's, 5 guineas; and Mr. Wood's, 5 guineas each. Mr. Yates's ewes realised from 39*s.* to 45*s.*; Mr. Brawn's, 40*s.* to 54*s.*; Mr. Nock's, 46*s.* to 55*s.*; Mr. Pilgrim's, 44*s.* to 50*s.*; Mr. Beach's, 85*s.* to 95*s.*; Mr. Glover's, 40*s.* to 45*s.*; Major Wollaston's, 42*s.* to 45*s.*; Mr. King's 40*s.* to 42*s.*

AGRICULTURAL ACTS, 1867.

THE following Acts have been passed during the past session:—

I. THE AGRICULTURAL GANGS ACT.

(2) Comes into operation January 1, 1868.

(4) No child under the age of eight years shall be employed in any agricultural gang. No females shall be employed in the same agricultural gang with males. No female shall be employed in any gang under any male gangmaster unless a female licensed to act as gangmaster is also present with that gang. Any gangmaster employing any child, young person, or woman in contravention of this section, and any occupier of land on which such employment takes place, unless he proves that it took place without his knowledge, shall respectively be liable to a penalty not exceeding 20*s.* for each child, young person, or woman so employed.

(5) Gangmasters to be licensed.

(6) Licences not to be granted to keepers of public houses.

(7) Licences to gangmasters to be granted by two or more Justices in Divisional Petty Sessions, on due proof that the applicant for a licence is of good character and a fit person. The Justices shall annex to their licence a condition limiting, in such manner as they think expedient, the distances within which the children employed by such gangmaster are to be allowed to travel on foot to their work, and any gangmaster violating the condition so annexed to his licence shall for each offence be liable to a penalty not exceeding 10*s.*

(8) Licences to be in force for six months only.

(12) The Act applies only to England.

II. THE HYPOTHEC AMENDMENT ACT—

(1) Applies only to Scotland; and (2) only to farms or land with the buildings thereon occupied for farming purposes, and not dwelling houses, shops, and other subjects, though the same may be in rural districts.

(3) Whensoever any agricultural produce has been *bonâ fide* purchased for its fair marketable value from the tenant of any farm, and actually delivered to the purchaser, and removed, the price having been paid, or whensoever agricultural produce has been purchased at public auction, after seven days' written notice of the intention to sell by public auction given to the landlord or person entitled to the rent of such farm or land, then all right of hypothec over such agricultural produce shall cease and determine. This does not, however, apply to any agricultural produce which the tenant is not entitled legally or by the terms of his lease to sell or carry off the land.

(4) Hypothec not to be available beyond three months after rent is payable.

(5) Stock of third party taken on a farm to graze to be liable only to the amount of consideration payable for the grazing.

(6) When agricultural produce or stock is sequestrated, it is incompetent to sequestrate furniture, implements, imported manures, &c.

(7) Register of sequestrations for rent is to be kept.

III. AN ACT TO ESTABLISH EQUITABLE COUNCILS OF CONCILIATION TO ADJUST DIFFERENCES BETWEEN MASTERS AND WORKMEN—

Gives (1) Power to her Majesty or Secretary of State to license councils of conciliation. (2) Councils to consist of not less than two nor more than ten masters and workmen, and a chairman. (3) Petitioners for council to elect first council.

(4) The council shall have power to hear and determine all questions of dispute and difference between masters and workmen, as set forth in the Act of the fifth year of King George IV., chapter 96, which may be submitted to them by both parties, and shall have, hold, and exercise all the powers and authority granted to arbitrators and referees. And any award the said equitable councils of conciliation and arbitration may make in any case of dispute or difference submitted to them shall be final and conclusive between the parties to such arbitration, without being subject to review or challenge by any court or authority whatsoever; and the said council are hereby further authorised to adjudicate upon and determine any other case of dispute or difference submitted to them by the mutual consent of master and workman or masters and workmen. But nothing in this Act contained shall authorise the said council to establish a rate of wages or price of labour or workmanship at which the workman shall in future be paid.

(7) No counsel, solicitors, or attorneys to be allowed to attend on any hearing before the council or the committee of conciliation, unless consented to by both parties.

(9) Householders and part occupiers may demand to be registered, and have a vote for the council, and may be elected thereto; but the masters shall appoint their own portion of the council, and the workmen elect their portion of the council.

IV. THE CONTAGIOUS DISEASES (ANIMALS) ACT, 1867—

(9) Enacts that every inspector appointed by a local authority on receiving information of the supposed existence of cattle plague in any place within his district, shall proceed to that place with all practicable speed, and execute and discharge the powers and duties by law conferred and imposed on him as such inspector.

(10) Section 10 of the Cattle Diseases Prevention Act, 1866, shall be read and have effect as if the words "any animal affected" were therein substituted for the words "cattle affected."

(11) Where an inspector finds cattle plague to exist within his district, he shall forthwith make a declaration thereof, and deliver a notice under his hand of such declaration to the occupier of the premises where the disease is found, and thereupon the same, with all lands and buildings contiguous thereto in the same occupation, shall become and be an infected place.

(12) Where an inspector makes such a declaration of the existence of cattle plague the local authority shall inquire into the correctness thereof, and if it appears to them that cattle plague existed as declared by the inspector, they shall so determine and declare, and shall prescribe the limits of the infected place; but if it appears to them that cattle plague did not exist as declared by the inspector, and the same is certified to them in writing by one or more duly qualified veterinary surgeons, they shall so determine and declare, and thereupon the place comprised in the inspector's declaration or affected thereby shall cease to be an infected place.

(15) The inspector may order any animal to be slaughtered for the purpose of ascertaining the nature of any disease, suspected to be cattle plague, under which such animal may be labouring; and the owner of such animal shall be compensated in the manner provided by the Cattle Diseases Prevention Act, 1866.

(18) An order of a local authority declaring a place to be an infected place shall be published by the local authority by notices posted in and near the infected place.

(21) The following rules shall have effect with respect to infected places:—

1. No animal shall be moved alive out of an infected place.
2. The hide, skin, hair, wool, horns, hoofs, or offal of any animal, or any part thereof, shall not be moved out of an infected place without a licence signed by an officer of the local authority appointed to issue licences in that behalf, certifying either that the thing moved has not formed part of an animal affected with cattle plague, or of an animal that has been in the same shed or stable, or in the same herd or flock, or in contact with an animal so affected, or that it has been disinfected.
3. The carcase of an animal, or a single portion of raw meat weighing more than 20 lb., shall not be moved out of an infected place without a licence signed by an officer of the local authority appointed in that behalf, certifying that the carcase or meat moved is not the carcase or part of the carcase of an animal affected with cattle plague.
4. Any dung of animals, and any hay, straw, litter, or other thing commonly used for food of animals or otherwise for or about animals, shall not be moved out of an infected place without a licence signed by an officer of the local authority appointed in that behalf, certifying that the thing moved has not been in contact with or been used for or about any animal affected with cattle plague, or that it has been disinfected.

(23) The rules of this Act shall not restrict the moving of any animal or thing by railway through an infected place, such animal or thing not being stopped within the infected place.

(26) Any constable

1. May apprehend any person found committing an offence against the rules of this Act with respect to infected places, and he shall take any person so apprehended as soon as conveniently may be before a Justice of the Peace to be examined and dealt with according to law.
2. He may require that any animal or thing moved out of an infected place in contravention of those rules be forthwith taken back within the limits of that place, and may enforce and execute such requisition.

(27) The local authority by whom an infected place is declared may at any time after the expiration of 28 days from the disappearance of cattle plague in that place by order declare the place to be free from cattle plague.

(32) Notwithstanding anything in the former Acts, a local authority may withhold compensation in respect of any animal slaughtered, where the owner or person having the charge of such animal has been guilty, in relation to such animal, of any act in contravention of any of the former Acts or this Act, or has failed in respect of the giving of notice of disease, or in any other respect.

(46) The Privy Council may from time to time by order regulate the landing in Great Britain of foreign animals, either as regards the port or ports or as regards the part or parts of the port or ports at which such animals may be landed.

(47) It shall be lawful for the local authority to provide, erect, and fit up proper places for the sale of such animals, hairs for and slaughter of the same, and for such purpose they may purchase or hire land or buildings.

(48) It shall be the duty of every railway or other company and every person carrying animals for hire to thoroughly cleanse and disinfect all pens, trucks, vehicles, and boats used for the carrying of animals, and failing this such company or person shall on every such occasion be deemed guilty of an offence against this Act.

(49) If any person exposes for sale in a market or fair cattle affected with pleuro-pneumonia, or sheep affected with scab, he shall be deemed guilty of an offence against this Act, unless he shows that he did not know of the same being so affected, and that he could not with reasonable diligence have obtained such knowledge.

(55) Any person guilty of an offence against this Act shall for each such offence be liable to such penalty as is provided by Section 27 of The Cattle Disease Prevention Act, 1866; and where any such offence is committed in relation to offal, dung, hay, straw, litter, or other thing, a further penalty not exceeding 10*l.* may be imposed in respect of every half ton in weight of such offal or other thing after the first half ton.

V. THE SEWAGE UTILIZATION ACT—

(3) Gives authority to local boards and corporate bodies to provide any works and do any act for the purpose of receiving, storing, disinfecting, or distributing sewage within their district.

(4) To purchase or take on lease any lands either within or without their district.

(5) To deal with any land held by them for the purpose of receiving, storing, disinfecting, or distributing sewage in such manner as they deem most profitable, either by leasing the same for a period not exceeding 7 years for agricultural purposes, or by contracting with some person to take the whole or a part of the produce of such land, or by farming such land and disposing of the produce thereof; subject to this restriction, that in any appropriation which may be made of land held by a sewer authority for the above purposes, care shall be taken that provision be made for receiving, storing, disinfecting, or distributing all the sewage which it is the duty of the sewer authority to cause to be disposed of in that manner.

(15) And where a sewer authority, or any corporate or other body, under any power enabling them in that behalf, or by any agreement confirmed by Parliament, has agreed with any person or persons or body of persons, corporate or unincorporate, as to the supply of all or any of the sewage of any place, and the works to be made for the purpose of that supply, they may contribute to the expense of carrying into execution by such person or persons or body of persons all or any of the purposes of such agreement, and may become shareholders in any company with which any agreement in relation to the matters aforesaid has been or may hereafter be entered into by such sewer authority or corporate or other body, or to or in which the benefits and obligations of such agreement may have been or may be transferred or vested; and all expenditure in consequence of the exercise of the power hereby conferred shall be deemed to have been incurred by such sewer authority or corporate or other body in the construction or due maintenance of the necessary sewers for carrying away the said sewage, and shall be provided for accordingly.

(17) And where the sewer authority of a district is a vestry, select vestry, or other body of persons acting by virtue of any Act of Parliament, prescription, custom, or otherwise, as or instead of a vestry or select vestry, such authority shall for the purpose of defraying any expenses incurred in carrying into effect the Sewage Utilization Act, 1865, or this Act, issue their precept to the overseers of the parish of which they are the authority, requiring such overseers to pay over the amount specified in such precept to the sewer authority, or to their officer named in the precept, or into some bank mentioned in such precept.

The overseers shall comply with the requisitions of such precept by levying a separate rate in the same manner as if it were a rate for the relief of the poor, with this exception, that the owner of any tithes or of any tithe commutation rent-charge, or the occupier of any land used as arable, meadow, or pasture ground only, or as woodlands, market gardens, or nursery grounds, and the occupier of any land covered with water, or used only as a canal or towing-path for the same, or as a railway constructed under the powers of any Act of Parliament for public conveyance, shall, where a special assessment is made for the purpose of such rate, be assessed in respect of such property in the proportion of one fourth part only of the rateable value thereof; or, where no special assessment is made, shall pay in respect of the said property one fourth part only of the rate in the pound payable in respect of houses and other property. [The Act defines the mode in which public notice of any proceedings is to be given, and in which an appeal against the same may be made.]

VI. THE MASTER AND SERVANT ACT—

(4) Declares that wherever the employer or employed shall neglect or refuse to fulfil any contract of service, or the employed shall neglect or refuse to enter or commence his service according to the contract, or shall absent himself from his service, or wherever any question, difference, or dispute shall arise as to the rights or liabilities of either of the parties, or touching any misusage, misdemeanour, misconduct, ill-treatment, or injury to the person or property of either of the parties under any contract of service, the party feeling aggrieved may lay an information or complaint in writing before a justice, magistrate, or sheriff, setting forth the grounds of complaint, and the amount of compensation, damage, or other remedy claimed for the breach or nonperformance of such contract; and upon such information being laid, the justice shall issue or cause to be issued a summons or citation to the party so complained against.

(5) The time to be appointed in the summons or citation for the appearance of the party complained against shall not be less than two or more than eight days from the date of the summons or citation.

(7) On neglect or refusal to obey summons or citation, warrant to issue.

(9) Upon the hearing of any information or complaint under the provisions of this Act two justices, or the magistrate or sheriff, after due examination, by an order in writing under their respective hands, in their or his discretion, as the justice of the case requires, either shall make an abatement of the whole or part of any wages then already due to the employed, or else shall direct the fulfilment of the contract of service, with a direction of the party complained against to find forthwith good and sufficient security, by recognizance or bond, with or without sureties, to the satisfaction of a justice, magistrate, or sheriff, for the fulfilment of such contract, or else shall annul the contract, discharging the parties from the same, and apportioning the amount of wages due up to the completed period of such contract, or else where no amount of compensation or damage can be assessed, or where pecuniary compensation will not in the opinion of the justices, magistrate, or sheriff meet the circumstances of the case, shall impose a fine upon the party complained against, not exceeding in amount the sum of 20*l.*, or else shall assess and determine the amount of compensation or damage, together with the costs, to be made to the party complaining, inclusive of the amount of any wages abated, and direct the same to be paid accordingly; and if the order shall direct the fulfilment of the contract, and direct the party complained against to find good and sufficient security as aforesaid, and the party complained against neglect or refuse to comply with such order, a justice, magistrate, or sheriff may, if he shall think fit, by warrant under his hand, commit such party to the common gaol or house of correction within his jurisdiction, there to be confined and kept until he shall so find security, but nevertheless so that the term of imprisonment, whether under one or several successive committals, shall not exceed in the whole the period of three months: provided always, that the two justices, magistrate, or sheriff may, if they or he think fit, assess and determine the amount of compensation or damage to be paid to the party complaining, and direct the same to be paid, whether the contract is ordered by them or him to be annulled or not, or, in addition to the annulling of the contract of service and discharge of the parties from the same, may, if they or he think fit, impose the fine as hereinbefore authorized, but they or he shall not under the powers of this Act be authorized to annul, nor shall any provisions of this Act have the effect of annulling, any indenture or contract of apprenticeship that they or he might not have annulled or that would not have been annulled if this Act had not been passed.

(18) Nothing in this Act shall prevent employer or employed from enforcing their respective civil rights and remedies for any breach or nonperformance of the contract of service by any action or suit in the ordinary courts of law or equity in any case where proceedings are not instituted under this Act; nor shall anything in this Act affect the provisions of the Act of the fifth year of King George IV., chapter 96, "to consolidate and amend the laws relative to the arbitration of disputes between masters and workmen," or of any Act extending or amending the same.

(26) This Act shall continue in force until the expiration of one year after the passing thereof (Aug. 20, 1867), and to the end of the then next session of Parliament, and no longer.

VII. AN ACT TO REPEAL THE DUTIES OF ASSESSED TAXES ON DOGS, AND TO IMPOSE IN LIEU THEREOF A DUTY OF EXCISE—

(3) Enacts that instead of the existing duties there shall be granted and charged in respect of dogs kept in England after April 5, 1867, or in Scotland after May 24, 1867, the following duties:—

> For and in respect of every dog, of whatever description or denomination, for which a licence to keep the same shall be taken out under this Act, the annual duty of 5*s.* to be paid by the person who shall keep such dog.

(8) If any person shall keep a dog without having in force a licence granted under this Act authorising him so to do, or shall keep a greater number of dogs than he shall be licensed to keep, he shall for every such offence forfeit the sum of 5*l.*; and every person in whose possession, or in whose premises, any dog shall be found or seen, shall be deemed to be the person who shall keep such dog, unless the contrary be proved, and the owner or master of hounds shall be deemed to be the person keeping the same.

(10) The duties imposed by this Act shall not be payable in respect of any dog under the age of six months.

THE DISEASES OF WHEAT.

[We extract from the *South Australian Register*, of the 9th May, the more interesting portions of the Prize Essay, on the Wheat plant and its diseases, by the Rev. James Maughan) see p. 933):—]

"TAKE-ALL."

Of all the diseases with which our Australian Wheat crops are being affected, that popularly designated take-all is at the present moment the most serious and embarrassing. It seems to be the very contrary, in many respects, of the diseases we have already enumerated. These affect only the leaves and straw, leaving the roots of the plant entirely unaffected: this affects the roots only, leaving the leaves and straw entirely untouched, excepting by the result; these permit the formation of the nutritive juices, and then simply appropriate them to their own sustentation, thus causing the plant to die a slow and lingering death; this stops at once the formation of the nutritive juices, and kills the plant outright; these allow the husbandman a tithe of the property on which they lay their hands, to assist him to meet expenses, but this takes crop and tithe as well. On subjecting to careful examination a plant of Wheat, the growth of which has been prematurely arrested by the take-all, there is not the slightest indication of any kind of disease on any portion of the plant, until we come to the examination of the root. Here we instantly detect the mischief. About two months ago a farmer of Saddleworth forwarded two parcels of plants to the editor of the *South Australian Register* and *Observer* for his inspection. They were taken from within 8 feet of each other. One sample, taken from about 40 acres, had grown most luxuriantly, and given promise of considerably more than an average yield. It had grown upon a light and friable soil. The leaves, the straw, and the ears were all apparently completely developed, and there was scarcely a speck of any kind of rust to be seen upon them. But when the owner went to inspect his Wheat, prior to its being reaped, he found to his dismay that the ears in the whole 40 acres were entirely empty. On an adjoining patch, the soil of which was of a less friable nature, the second sample was obtained. It was even better in appearance than the first, and not a single ear of it was in any way affected. It had a full firm ear, and the grains were everything that could be desired. The samples having been placed in my hands for examination and report, the cause of the mischief was almost instantly detected. The roots appeared to be enlarged and distorted from their usual form. The root fibres were all covered with a coating of fine soil, and a 16th of an inch in diameter. On placing one of these fibres, with its encrusted covering, as an opaque object, under the microscope, a number of mouldy or woolly-looking threads appeared, projecting through the soil, throughout the whole length of the fibre, and on every side. On carefully removing the soil, the whole of the fibres appeared to be covered with these mouldy or filamentous threads. On further examining the cellular tissue of the root, a mycellium or spawn was distinctly seen amongst the cells, and from which the woolly mould, almost identical in character with the Penicillium armeniacum, or painters' pencil-like mould, or the Peronospora infestans, or Potato mould, had sprung. There can, therefore, be no doubt but that the take-all is a disease of the Wheat plant, caused by a fungus fastening upon its root, as the black rust is a disease that fastens upon its leaves and stems. I see from a letter of Dr. Muecke to the *South Australian Register*, to which my attention has just now been called, that he had previously arrived at the same conclusion. I may further observe that a few days after the Saddleworth specimens of plants were placed in my hands, I was favoured with several of an almost similar character from Mr. Randall, of Rapid Bay. One of these was a magnificent Wheat plant, containing about 50 strong stalks, some of them between 4 and 5 feet high and a quarter of an inch in diameter. The straw seemed quite free from rust, and some of the ears measured 6 inches in length; but the moment the eye was directed to the root, the state of the ears was correctly predicted. The fibres of the root were covered from end to end with a white woolly mould, the never-failing indication of the take-all, and, as a certain consequence, the ears were empty. Most frequently, however, the disease attacks the Wheat plant long before it reaches the more advanced stages of development. In 1865 it appears to have been generally observed in this colony during the months of August and September, in many instances before the shooting of the stem of the plant. In several districts the disease appears to have been equally severe on manured, unmanured, and on fallowed and unfallowed lands, though in a number of others the fallowed lands appear to have borne decidedly the best crops, and to have been most free from rusts. In that year Mr. Thompson, of O'Halloran Hill, reported that he was in the habit of fallowing one-third of his land, and of manuring with sheep, stable, and stackyard dung; that his average crop was 18 bushels to the acre; but that on 60 acres of manured land the average would be 25 bushels to the acre. Red rust, black rust, and take-all appear during the year to have been about equally distributed, although the black rust and take-all were decidedly the most pernicious. In every one of the districts that suffered from blight the early sown suffered severely, and that sown late only in a trifling degree.

SUGGESTIONS AS TO REMEDIES.

Scientific men are agreed in believing that it is possible to find remedies for the various diseases to which our Wheat crops are liable. Remedies have already been found for bunt, smut, the hop diseases, the white mildew, and a variety of other fungitic maladies. With the immensely rapid multiplication of our chemical resources, therefore, no reason can exist why remedies should not ultimately be found for all the diseases to which the Wheat plant is heir. It unfortunately happens, however, that the study of the nature of these diseases is much easier in its character, and has more abundant opportunities and facilities provided for it than has the study of their cure. One falls within the province of every competent mycologist, the other scarcely within the proper province of any one. The first only requires a little scientific knowledge and the possession of a good microscope for its prosecution; the second requires much time, large scientific facilities, extensive opportunities of observations, and means for extensive agricultural, chemical, and physiological experiments. Hence it is that we have a thousand men investigating the nature of these diseases for one who, possessing the requisite knowledge and commanding the necessary time, is investigating the questions of cause and cure. Hence, also, it is that we now know everything about those diseases, excepting that one thing which above all others it is essential for us to know. The fact is, that in this matter "what is everybody's business is nobody's business." It is as true of scientific men as it is of men of commerce, that each one is so intent on the prosecution of his own special duties that few men possessing the requisite means either can or will devote themselves to that which may prove an utterly unremunerative task. The only men having a direct and special interest in the question are those who are the least fitted by habit and education for conducting such profound and subtle questions to a successful issue, or who, if otherwise fitted for the task, are hindered from undertaking it by the pressure of their own local and personal duties. The discovery of some means of preventing these diseases, or, at least, of largely mitigating their severity, would be an immense boon to this colony. But it is in vain to hope for any such discovery unless the Government can be induced to take up the investigation. No one can be expected to devote himself to such a purely national object without the authority and appliances of the Government to sustain him. In such a colony as this, where so much of our commercial prosperity depends upon the proper development of our agricultural resources, our farmers ought to have placed at their command by the Government a properly-equipped agricultural chemist, whose province it should be to investigate such questions as the present; from whom they could obtain advice as to the nature of their soils, and the character and purity of the manures they need to employ; to whom they might be able to send their sons in order to obtain that high-class scientific education of which their fathers have been necessarily, by circumstances, deprived; and who should, in fact, act as the scientific pilot of our great agricultural interests. If in England, under the scientific proclivities of the Royal Agricultural Society, land can be made to produce on the average 26½ bushels to the acre, there can be no reason why in this colony we should be contented with less than 12. I would strongly urge upon our own agricultural society the necessity of appealing to the Government at once for the appointment of an agricultural chemist, as the first step towards the formation of an agricultural college. If there be one reason more than another for the taking of such a step, it is the perplexity into which it is being perpetually thrown in connection with these terrible Wheat diseases and their remedies. The appointment of an agricultural chemist would also lead to such a diffusion of scientific information amongst our farmers as would pave the way for that natural treatment of soils for which our English and Continental chemists are now so eloquently pleading, and to which we shall be compelled to come, in spite of ourselves, before many more years have passed away. Still, though no general specific has yet been discovered, science and experience have made some progress in the study of palliative measures for the prevention of these diseases. No intelligent farmer can reside long in a particular district without discovering some particular conditions of seed or soil which are most favourable to the development of some particular disease, and therefore of being prompted to the employment of such measures as his observa-

tion and experience may indicate for their prevention. As a sample of what may be accomplished in this way, I may state the following out of many similar cases which have recently come under my notice:—Mr. Steer, of Crookham Hill, on the Lake Plains, informed me when on a visit to that locality that the two principal varieties of seed which had been used in that district were the "Frampton" and the "purple straw;" but that the "Frampton" was so much more liable to the ravages of rust than the "purple straw," that they were being compelled almost entirely to abandon the use of the former as seed. He said Mr. Crawford, of Milang, had in 1863 sown both these varieties in the same land, and had treated both precisely alike, but that when he came to reap the two, the "purple straw" yielded from 12 to 15 bushels to the acre, and the "Frampton," through the ravages of "red rust," not more than four or five. The variety called "White Winslow" was being abandoned. Its liability, but in this case to black rust, when early sown, and in a damp season, was something frightful. There were two things they had to guard against in his district. The first was against early and wet sowing, when they lost their crops through the ravages of dust; and the second was against dry ploughing and sowing, when they lost their crops for want of moisture. His largest and soundest crops were obtained where he had ploughed and sown immediately after the rain, and when the land therefore contained a large amount of moisture. In three samples of Wheat, which I obtained from three different soils in one of his paddocks, I found on microscopic examination that the sample which had been grown on strong clay land was slightly affected with Trichobasis rubiga vera. The straw also was deficient in quantity, but the ear was large and healthy, and the yield most promising. In the second sample, which had been taken from good red sandy loam, I found a mixture of the rusts Trichobasis linearis and Trichobasis rubiga vera. The straw was considerably stronger, but the rust being more abundant, the ears were somewhat sickly looking. In the third sample, which was obtained from a fine healthy looking alluvial soil, the straw was covered with Trichobasis linearis, and the grain was shrivelled in the ear. In the strong clay land, in the district generally, the Wheat was less affected with rust; but in the low places, where the vapour in the morning arising from the lakes was the longest in clearing away, the rust was generally the worst, and in some particular places seriously bad. As a rule, the rust was worst on the best soils and in the dampest situations. I am quite aware that in making these statements I am placing myself in direct antagonism with the statements of Dr. Muecke, namely, that "The black rust attacks early and late seedlings without distinction; that it knows no preference between Wheat sown in the wet and Wheat sown in the dry, nor between the numerous varieties of that grain; and that these experiences are of themselves sufficient to prove that the origin of the disease ought not to be sought in any of the circumstances alluded to." The conclusion I readily admit, but not the premises upon which it is based; and I believe that facts will bear me out in the position I take. Most of the farmers on the Lake Plains have entirely relieved themselves from the curse of black rust by simply changing their seed and their time of sowing. That the disease is not to be found in the seed is, I think, unquestionably demonstrated by the fact that the seed of affected Wheat has frequently been sown under different conditions without a single particle of disease reappearing; but that particular kinds of seed are most suited to particular districts, and less liable to particular forms of disease in those districts, it is impossible to doubt. After these general remarks, we now proceed to indicate those more particularly specific measures of a preventive character which the present state of science points out as most useful in the treatment of these diseases:—

1. *Remedies for Bunt, Smut, and Rust.*—One grain of "bunted" Wheat is capable of containing four million spores of the Fungus, while each ear of "smutted" corn gives at least ten millions of spores. When the grain is threshed the bunted or smutted seeds become ruptured, clouds of sporules escape, which, being of a greasy nature, adhere to the skins of the unaffected grains. If these grains be sown with these Fungus spores attached, the crop will be more or less destroyed. But several remedies for this evil may be successfully employed. One is to cleanse the Wheat which is about to be sown from all the spores of bunt or smut, or even rust, which may have attached themselves to it by reason of their unctuous character. The principle of effecting this object clearly must be to convert the oily matter of the bunt or smut into a saponaceous compound, which will allow the spores to be easily washed off. Chemistry here supplies us with the material. An alkali will convert oil into soap, and this is the basis of nearly all the dressings, as they are called. Every district has its own peculiar mode of dressing, but the best are merely modifications of this principle. Whatever other ingredients may be used, the effective constituent is some alkaline matter in the form of a ley. Lime, which possesses alkaline properties, is frequently resorted to, but there is one serious objection to its use. If too much slaked in mixing it loses its alkaline properties, and thus fails to effect its purpose. Some persons employ brine, common potash, or substances containing ammonia, such as stale chamber-ley, or the liquid excrements of animals. The plan most usually adopted a few years ago was to immerse the seed Wheat in stale chamber-ley, and afterwards to dry it by mixture of quicklime. This is called "pickling" the Wheat, and is usually efficacious; but the lime injures the eyes and excoriates the hands and face of the sower, or clogs the hopper of the sowing-machine, and has therefore now been superseded by other substances. But another and much less objectionable method of getting rid of these spores is, to use a popular phrase, to "kill" them. Two methods are employed for this purpose: one is to wash the seed-corn in a strong solution of Glauber salts, and afterwards, while still moist, to dust it over with quicklime. The chemistry of this process consists in the setting free of caustic soda through the sulphuric acid of the Glauber salts combining with the lime—and thus converting it into sulphate of lime. The caustic soda thus set free is fatal to the germination of spores of bunt and smut. The other, and by far the most popular method, is that called bluestone pickling. A solution is prepared by dissolving powdered sulphate of copper (bluestone) in water, about 2 ounces more or less to a pint for each bushel of Wheat to be sown. The grain is emptied on the floor: a little of it is shovelled to one side by one person, while another sprinkles the solution over it: and this process is continued until the whole quantity is gone over. The heap is repeatedly turned by two persons working with shovels opposite to each other. After lying for a few minutes the grain absorbs the moisture, the sulphate of copper destroys the spores of the fungi, and the seed is ready for committing to the ground. Some persons prefer steeping the seeds in a weaker solution, in order to wash away the bunt spores, but this is probably the safest plan. In addition to what has been already said as to these remedies, it may be of service to quote the remarks of the Rev. M. J. Berkeley, who is the very highest of British authorities on all matters relating to the cryptogamic world. That gentleman says:—"Many of the most formidable enemies of the farm are rust, smut, and bunt. The surest remedy is to steep the seed grain in some solution, which at once washes off a portion of the spores and poisons the rest. Many remedies have been proposed, as simple water, salt, lime, sulphate of copper, corrosive sublimate, and arsenic. The best, perhaps, is sulphate of soda (Glauber salts) in solution, and dried off with quicklime. The lime combines with the sulphur to form sulphate of lime, while caustic soda is set free."

2. *Remedy for Mildew—Puccinia graminis.*—Unfortunately, no remedy has yet been found for this pest. The suggestion, however, of Mr. Tycho King, the eminent land agent of the Bedford estates, has been found of great practical value, namely, to allow no Reeds or loose Grass to remain in the ditches, but to clear everything away and to consume it at once. As the Fungus which attacks Reeds and Grass is to all appearance the same as that which attacks Wheat, it is considered that the disease may be propagated in the spring from such near and dangerous enemies. For the same reason it is desirable, says Mr. Berkeley, that the stubble should not be left on the land too long, but that it should be as speedily as possible cleared away. Attention should also be given to hoeing the Wheat crops in the early stages of their growth, in order to free them from all kinds of weeds. Mildew will seldom prevail to any very serious extent when this precaution is taken. Land should never be manured immediately before it is sown, and early luxuriance ought to be checked by cropping down with sheep for a few hours in the daytime.

3. *Remedies for Black Rust.*—The remarks applied to mildew will also apply to black rust, with this addition, that as in this colony it is all but universally admitted that early sown Wheat is much more liable to this rust than that which is late sown, those farmers who have suffered from the black rust should take care to protect themselves as far as possible in this respect. Again, as in the case of the farmers on the Lake Plains, they should study the characters of the Wheats most suitable to their lands, and sow only those which experience teaches them to be least liable to the rust. Those farmers whose lands lie low, and are consequently exposed to excessive fogs, or to undue saturation of their soils, should give them the greatest possible access to free currents, and they should also pay all necessary attention to matters of drainage.

4. *Remedies for Take-all.*—As this disease is to a great extent a new one, and we have therefore no experience to guide us in any remedial suggestions we may make, it will be seen that there must be some appearance of presumption in such an attempt. The question is being perpetually asked, Is there no remedy for this terrible take-all? The answer is, There is none at present, but there ought to be one. 1. The disease is in the root of the plant, and therefore easily accessible at all times to the agricultural chemist. 2. The disease is manifestly occasioned by a vegetable parasite, and therefore our agricultural chemists ought to be able to "kill" it without necessarily "killing" the Wheat plants upon which it feeds. 3. Similar vegetable or parasite Fungi have been destroyed while preying upon other plants, and plants have thus been relieved from the diseases to which they have been subjected; and therefore there is the advantage of experience in support of this opinion. As we already know, sulphate of copper, and some other chemical agents, destroy the vitality of the spores of bunt and smut. Sulphur, again, when applied as a dressing by the Hop growers to their plants, proves a perfect specific against the Hop mildew, and we have the authority of Mr. Berkeley, who first suggested its use for such a purpose, that it appears to be not only a specific against the mildew in Hops, but against all the species in alliance with it. I am not aware whether any of your agriculturists have tried the virtues of sulphur in this disease; but if not, I think it is, at all events, worthy of trial. The crude sulphur combines with oxygen in a nascent state, and so forms sulphurous acid, which is eminently destructive to mucedinous bodies, as appears from its effect in stopping fermentation. The more finely the sulphur is divided the better, and, therefore, it is most efficacious when applied in such a form as to cause a chemical deposit of sulphur, or, as the earlier chemists were wont to designate it, a magisterium on the plants or leaves. Liver of sulphur answers the same purpose. If sulphur fails, it is scarcely possible but that some other material from the laboratory of the chemist would succeed. Tannic acid is well known for its power of destroying a great many different forms of Fungi. In the hands of an intelligent agricultural chemist, well conversant with vegetable physiology and having an enthusiastic love of science, it might be turned to valuable account as a remedial agent in connection with this most terrible of all the diseases of the Wheat plant. At all events, the matter cannot rest where it is. It is impossible for the Government of this colony to see fine districts, once covered with smiling sections of Wheat, being blighted year after year, and their owners falling into financial ruin, without some effort, though it may be ever so abortive, being put forth to retrieve the disaster. Probably the Government of South Australia is at the present moment the only agricultural government in the world that does not provide scientific facilities of one kind or another for promoting the development of its agricultural resources. It is to be hoped that the day is not far distant when this reproach shall have been wiped away. Only one further remark is necessary. Having fully, and as we believe correctly, described the various diseases to which our Wheat crops are liable, and having indicated all that is at present known of the remedies that can be employed, it is only left to express our sincere regret that the present state of science does not enable us to point out some great specific for the ills of our agricultural friends. We are no quacks. We cannot manufacture nostrums. We have, however, furnished the South Australian Agricultural and Horticultural Society with all that is at present surely known upon the subject; and in this way have supplied its members with material for further discussion, and cleared the starting-point for fresh advances in its great and useful career.

Home Correspondence.

The best Wheat for Seed.—Whilst entirely agreeing in what your correspondent "C." has written under this heading, in as far as the vegetable kingdom is concerned, I cannot quite agree with his parallels in regard to the human and animal kingdoms. I believe him quite right in saying that some of the most highly prized sires have produced, even with good dams, very inferior stock, of horses, cattle, sheep, and pigs, whilst sires comparatively inferior, except in point of pedigree, have produced much better stock with the same dams. Of this I could cite you many notable examples, both in private practice and public report, due regard not being always had to the pedigree of the dams, or if of equally good pedigree with the sires, consanguinity not having been duly considered—but more especially if there should be a taint of unsoundness in either dam or sire, proceeding from a combination of causes, of which over high or otherwise injudicious feeding from infancy had been practised in the case of both, or even either, without the due exercise which nature intended for the full development of all the organs interiorly as well as exteriorly placed. Farther still, I agree with your correspondent as regards the degeneracy of the human frame and intellect, although I know of my own knowledge that the greatest men Ireland ever produced, not only in a physical, intellectual, but a moral sense, were the fathers of men who never could come to the standard of mediocrity in any one of the foregoing senses. Nay, farther, I know of my own knowledge that one at least of the very greatest was the son of parents of a rather low standard of intellectual and physical powers. Ah! but this great man had a pedigree derived from ancestors who were great in every sense of the word, his grandmother more especially. Nay, more than that; some of the collateral branches of that great man's family are great in every sense at the present day. But to return to the vegetable kingdom, the subject more immediately under consideration: and here, I repeat, I could verify by examples obtained during varied experiments. Such examples, and a detailed account of the experiments they were drawn from, however important they may seem to myself, would be insignificant compared with the scientific reasoning which such facts should elicit. It is believed, and I think with much justice, that seeds of all kinds exceedingly rich in starch, such as your correspondent alluded to, but deficient in nitrogen, will not produce as strong and as healthy plants as others differently constituted. The same rule holds good in the case of the Potato, in Ireland at least, and hence the degeneracy from time immemorial of the finest kinds of Potatos ever grown in our great Potato-growing as well as Wheat-growing locality, long long before the awful Potato disease made its appearance in 1845. Permit me now to put a question on this important subject. Is the theory I have but cursorily glanced at a correct one in the opinions of the chemist and vegetable physiologist? *Fingal, Sept.* 10.

The "Agricultural Gazette's" Report of the Crops Correct.—In the first place, the gentlemen who send in these reports (*Agricultural Gazette* of August 17) are all resident, each on the spot from which he writes. They are all, less or more, immediately or remotely connected with agriculture; for the most part they are persons who are now spending their lives in the earnest pursuit of that business—in a knowledge of which, and all its details, the names given are those of men who stand amongst the cleverest in the United Kingdom. Now, when the Editor of the *Agricultural Gazette* applies to one of these, his correspondents, for an opinion as to "the present promise of the harvest," is that opinion given hastily—is it something written down at hap-hazard and sent off at once? By no means. The person applied to, and who is to fill up the blanks in the sheet fowarded to him for that

purpose, is scrupulously cautious as to the words he is about to use; he knows that what he sends to the *Agricultural Gazette* will be copied and re-published in every paper in his own county, and will be commented on by all its agricultural readers, commended if correct, condemned if not. He has formed an opinion as to the answers he should give, but he wishes to be fortified as to its correctness by the opinions of others. "In the multitude of counsellors there is safety." He seeks out a few of his brother agriculturists, shrewd, observant, experienced men. He says, "So and so is my opinion; what is yours?" as to the present promise of the harvest. Then there is an interchange of opinions; some of his own are perhaps slightly modified by these "friends in council," but ultimately a statement is agreed upon which must be true; and if true as regards a county, then true as regards a kingdom, because the same caution is used, and the same care taken to avoid error in almost every instance, so that the names—say 200—of contributors whose opinions are given in the *Agricultural Gazette* represent not 200 only, but 1000 at least—all good men and true, with which the most fastidious truth seeker after the state of the crops ought to be satisfied. *P.*

Slate Water Tanks.—Having used several for more than 20 years I can speak of their cleanliness and durability. There is one point, however, that requires amendment and alteration. Mine answered admirably until the foundation on which they rested settled or gave way a little—and then, although the difference was only the thickness of a sixpence or less, there was leakage. This is easily remedied or prevented by small bars of iron, ½ inch to ¾ inch or 1 inch, passing under or through the bottom of the cistern and hooked on the the upper edge of the slate, or the cistern may be clamped with iron outside—the object being to tie the various slabs of slate together, so that if there is any sinking or settlement it should all go together, and the bottom slate should thus be prevented from leaving the upper ones. In fact, all slate cisterns should be well clamped, and then the foundation is comparatively unimportant. Again, with very large slate slabs there should be iron ties passing through them across from one side to the other, and well screwed up with a broad outside flange under the nut. The pressure of water is so great that these matters require attention, especially where the tanks hold 2000 to to 3000 gallons. Any crack is easily closed by asphalte. I know of a very old slate tank, well clamped and tied outside with iron, which has been removed and somewhat roughly used without the least leakage. *J. J. Mechi, Sept.*, 1867.

Mangel Cake.—Your correspondent "X. Y. Z.," at page 986, estimates Mangel at 32 tons per acre. This appears to us a very moderate estimate, as we have often grown, under ordinary conditions, 40 tons per acre, and we hear of greater weights from some of our correspondents. Mr. H. Taylor, steward to the Right Hon. Lord Falmouth, writing on 30th of May, 1867, says:—In 1866 I sowed about 23 acres of your Yellow Globe, Orange Globe, and Yellow Intermediate Mangels, and I had an average of 40 tons per acre, the roots being of very fine quality." Mr. H. L. Breeds, Grove Farm, Burgess Hill, writing on 24th of April, 1866, says;—"Last year I grew upwards of 40 tons of Mangel per acre, and it was admired by all who saw it." Mr. Geo. Watson, Princes Field Farm, Waltham Abbey, writing on March 16, 1866, says:—"I weighed 1 acre of the Yellow Globe Mangel, and found there were 44 tons." Wm. Peers, Esq., Magazine, Bromborough, writing on 14th Feb., 1867, says:—"I have 500 tons of Mangel and Turnip on 11 acres." Mr. James Rollins, at the Hon. and Rev. Edward Talbot's, Evercreech, says:—"Mr. Talbot had nearly 60 tons per acre of your Yellow Globe Mangel this season." Messrs. J. & T. Hepburn & Sons, Southwark, S. E., writing on Nov. 15, 1865, say:—"We forwarded yesterday, from our farm at Dartford, for exhibition at your show, 9 Yellow Intermediate Mangels, taken from a field of 3½ acres, which produced 75 tons per acre; the rows 2 feet 6 inches apart, and the plants 18 inches in the rows." These latter are exceptional cases, but if only 5 tons per acre may be fairly added to the estimate of "X. Y. Z.," it will tell materially upon the advantages of Mangel Cake, which he has already shown to be considerable. *Sutton & Sons, Reading.*

The Rainfall in August—the Harvest Month.—The average of the last 30 years has been 2.84 inches. During the same periods the wet Augusts have been—

In 1841	4.40 in.	In 1852	5.20 in.
„ 1846	5.23 „	„ 1860	5.05 „
„ 1848	5.51 „	„ 1865	5.49 „

The rainfall in August 1867 has been 3.41. The average rainfall in September for 30 years has been 3.07;—the gauge kept on a farm 280 feet above the sea, and 14 miles from the sea, on the chalk hills of West Sussex. *W.*

Societies.

Scottish Chamber of Agriculture: *Discussion on Farm Leases* (*Continued from p.* 988).—Mr. Cunninghame, Chapeltoun, Ardrossan, then spoke as follows: The subject of leases is one of the greatest interest both to landlords and tenant farmers, and has hitherto not received anything like the ventilation its importance ought to have commanded; and, with the view of directing the attention of both the parties most immediately interested in such contracts, let us shortly consider what ought to be the principal clauses in an agricultural farm lease. 1. As a general rule, leases should not be for a period shorter than 19 years. 2. If the lease is for a farm in need of great improvement, and the tenant be prepared to expend the requisite capital, he should not be too strictly bound by cropping clauses until the four last years of the lease, for it often happens that neither landlord nor tenant have properly appreciated the capabilities, or the reverse, of many portions of the farm, and the result of the tenant being tied down by cropping clauses, as has often happened, is serious loss to both parties. 3. When an on-going lease has lapsed by death, bankruptcy, or any other cause, it ought to be in the power of those who are immediately interested to have power to sub-let the farm, so that a fair portion of the improvements might be made available to either creditors or heirs, or those otherwise beneficially interested; but in such cases of sub-letting the landlord ought to have the power to enforce the clauses inserted for rotation for the last four years from the day of entry of any such sub-tenant. 4. Landlords in general insert clauses in their leases as to the preservation of game that are altogether antagonistic to good farming. The majority of tenants are not opposed to their landlord's retaining on their lands sufficient game to afford a fair day's sport; but when hares and rabbits are allowed to multiply, it must be quite apparent that both the landlord and tenant cannot each have a stock on the farm with profit. 5. There are so many different modes of entry upon leases in the various districts of Scotland, that it is apparent that if one instead of the many systems now pursued, as to the date of entry of the lands and houses, and the term for the payment of the first half-year's rent, were made for cropping farms in the various districts, that it would afford greater facilities to tenants to remove from one district to another; and without stating the rule which obtains very generally in the West of Scotland, viz., entry to the ploughable land at Martinmas, with accommodation for horses and ploughmen, and full possession of houses and pasture at Whit Sunday, and to pay the first half-year's rent at Martinmas thereafter, is the best, it appears to be as reasonable and convenient as any other system that exists, and is so satisfactory to the landlord that it must convince him that his tenant is possessed of some means; while in some of the other modes of entry and payment of the first half-year's rent, a term of 18 months is often allowed. There may be some need for the hypothec of the landlord, but if the system previously indicated were generally adopted there would be none. 6. When a tenant enters into possession of a farm, the landlord ought in fairness to see that the houses and fences are in a proper state of repair, and not cause him to treat with the out-going tenant, as is the custom upon many estates. 7. Where a tenant is about to enter on a farm that has been improved, and has been lastly in the hands of a judicious farmer, it is quite reasonable that he should be bound by clauses enforcing a rotation of crops suitable to the soil.

Mr. Wilson, Crosshouse, Edinburgh, said—In bygone days, when a tenant received from his landlord seeds and implements and cattle, it was all very well to direct and instruct him. But times have changed. Proprietors and farmers are now on a different footing, and the covenants entered into between them should be suitable to the present date. I may state that my remarks are not prompted by any personal grievance. I have few restrictions binding me to a prescribed course of rotation, and I am glad to acknowledge this here, as I can more freely and with better grace speak of evils which do not bear heavily on my own individual case; but, taking an interest in the agricultural prosperity of the country, I think the subject is well worthy the consideration of this Chamber. I doubt very much if receiving offers by tender is the wisest way of letting farms, at least it is liable to many objections. A farm is advertised, and offers are to be taken in up to a certain day; the competition may be keen, and parties from other counties become candidates, likely possessing skill and experience, but coming from a distance they must labour under a disadvantage in estimating the true value of the land. Others, destitute both of skill and experience, equally anxious to obtain possession, frequently offer a rent quite beyond the capabilities of the farm; and the proprietor, being tempted by the high offer, accepts of an adventurer, especially if he be a man of capital, and rejects the wiser offer of the practical agriculturist, who by his skill and experience could farm the land to much greater advantage. In some cases that have come under my observation, proprietors in letting their farms have adopted a course which, I think, is worthy of being more generally followed. When a tenant is quitting a farm, the proprietor has it valued by some competent party, and, after having a fair rent put upon it, he offers it to the public, and from amongst the candidates selects one who possesses not only capital, but also skill and respectability. Were this method more generally adopted, unskilled adventurers, the great bane of farmers, would be kept out, and the land let at its true value to practical men. The practice of agriculture has undergone such a change during the last 30 years that the stipulations then common in leases are not now applicable. On some estates the tenants are very much hampered by being bound to adhere to old stereotyped conditions and prescribed rules, whereby they are to be guided during the whole currency of their lease. During the greater part of a lease, it is as much the interest of the tenant as of the proprietor that the land should be kept in good condition; as, should he allow it to get out of heart, it will soon deprive him of the means of success. I do not go the length of saying that there should be no restrictions in leases at all, but a sufficient guarantee to the proprietor, I think, would be, to preclude the tenant from having two white crops in succession, and have a fixed rotation for the last five years of the lease. This would simplify the whole matter, and while securing to the proprietor the farm at the end of the lease in a regular rotation, the enterprising tenant would be untrammelled during its currency by clauses too often ambiguous and liable to misconstruction. To show how little room is sometimes left for the skill and experience of a tenant, I may quote one or two stipulations from a Mid-Lothian lease. After stringent conditions in regard to the cropping, the lease runs thus: "And the said A. B. binds and obliges himself and his foresaids to pay 5*l.* sterling of additional rent for each acre managed contrary to the above regulations, and that over and above, and along with the rent above stipulated, and over and above such damages as may be fixed by two persons mutually chosen for that purpose." Where in regard to rotation such regulations as these have to be adhered to, there is no room left for the skill and experience of a tenant in the matter at all. Take another example—"One quarter of the land being always in Grass, sown down with the first crop after bare fallow, Turnips, or Potatos, with at least 7 lb. of Red Clover, 7 lb. White Clover, and one bushel of good perennial Rye-grass per acre, at the sight of the landlord or a person employed by him." Now, to say the least of this clause, the quantities or kinds of seed for every field on this farm, considering the state the land may be in at the time, may not be in the proportion or of the variety that an experienced farmer would fix upon; and he who is not allowed to exercise his own judgment must work at a disadvantage. No good farmer will object to stipulations restraining him from deteriorating a farm by mislabouring and overcropping the same, contrary to the usual practice of the country; but stipulations binding him to certain kinds of manure, seeds, ploughing, harrowing, and so forth, should belong to a bygone age.

In regard to game, the regulations in many leases are simply ridiculous. There is something quite incongruous in the stipulation requiring a tenant to have his lands at all times fully stocked, and at the same time being bound to preserve all the game that the proprietor may choose to rear upon it. This often-discussed and vexing question of game is one of the most irritating that can arise between landlord and tenant. The enterprising farmer who has brought his fields up to the highest pitch of cultivation, is in many districts perpetually annoyed by having them overrun with game, over whose ravages he has no more control than he has over wind and weather. In some leases proprietors have even gone so far as to have a clause inserted, that whatever enactment might be passed modifying the game laws, the tenant shall be strictly bound to preserve all that now goes under the head of game. Where tenants have agreed to such conditions, the result may be most disastrous. A few cases have lately come under my observation, where at the entry of the tenants the game was very inconsiderable, but in a short time the estate came under different management, and the game is now strictly preserved; the result being that it has increased to an extent wholly unforeseen by the tenants when they entered to their farms. They have thus sustained serious injury. With high rents they can ill afford to bear the loss which they incur from the ravages of a stock upon their crops and pastures which do not belong to them, and from which they have no power to protect themselves. I may mention a clause connected with game, which is embodied in many leases of hill farms, and which I think is a damaging one to both landlord and tenant—I refer to the restrictions against burning Bent and Heather. It is well known to sheep farmers that when Heather is old, sheep can get little benefit from it, but when burned in rotation at intervals of a few years it is most valuable. Cases have come under my notice where the stock has annually to be reduced in number, and, besides, have become much smaller in bone, because of such a prohibition being enforced. Now, while the want of new Heather is hurtful to the sheep, I know it is also hurtful to the game. I believe proofs are not wanting this season of the mortality of game being greater where the prohibition of burning has been strictly enforced than where the Heather has been regularly burned in rotation, thereby affording a breadth of fresh young Heather, which seems to be as necessary for the game as for the sheep. A friend of mine who entered to a large sheep-holding a number of years ago, and having a great proportion of heather, was bound not to burn except at the dictation and under the eye of the gamekeeper; but it turns out that the gamekeeper does not approve of burning, only 5 acres out of 1000 having been burned during seven years; so the Heather is running wild, and the farmer has to suffer. It is, indeed, not easy to estimate the damage entailed by such a prohibition; and I think it is one of the most unreasonable restrictions that a lease can contain. I admired the exemplary generosity which some proprietors have lately shown, in giving to their tenantry perfect freedom to share alike with them the privilege of shooting. This must be productive of the best feeling between landlord and tenant, and in few cases, were it adopted, would it damage to any great extent the landlord's sport. I will now only say, before closing, that in regard to permanent improvements, I think that suitable farm buildings and fences should be erected at the proprietor's expense; and in regard to draining, the money should be laid out by the proprietor, on condition that the tenant pay interest on the outlay at a fixed rate. A tenant laying out money on any of these improvements has not time to reap the full benefit of the capital expended during the currency of a 19 years' lease. I do not think that valuation of farms at entry, and again at issue of lease, and having the difference in value paid to the landlord or tenant, as the case might be, would be likely to work well; such an arrangement would be attended with a great deal of trouble, and, considering the time that elapses from the entry to the expiration of a lease, it might not be an easy matter to give satisfaction to either party. In the few remarks I have made I have given my opinion candidly, although I know I have said little that can throw light upon the matter; I now only urge simplicity of form in leases, with well-selected tenants, and no one need fear the result. Very closely connected are the interests of landlord and tenant, and what affects the one must ulti-

mately affect the other; and I hope this discussion, which has for its aim the reformation of existing evils, may only be the means of strengthening the bonds between them.

STAFFORDSHIRE: *The Politics of Agriculture.*—At the dinner of the Staffordshire Agricultural Society, the Vice-President, Mr. G. A. MAY, of Elford Park, said: For the last hour those who had sat with him at the far end of the room had been silent spectators, for they had not been able to hear a single speech. Little whiffs of wind had now and then reached them with uncertain information of what was going on, but nothing definite. He was there by virtue of a rule of the society, as vice-chairman, to represent the tenant farmers of Staffordshire, and he was proud to hold that position. His opinion was that these meetings were too little devoted to that which was practical and which belonged to agriculture. He had sat for two hours and had heard little that had been very interesting, and certainly very little that had given him information. He was not one of those who would put an unfair or an uncharitable construction upon what had been said, but he had heard a speech from his friend, Mr. Neville, which he thought bore upon the interests of tenant farmers, but which was rather snubbed by Sir Edward Buller. He did not like mentioning names, but would ever stand up for his order, and he did not believe that the farmers of this county or of England generally were held in the estimation they deserved to be. Sir Edward Buller might pass satirical jokes very pleasantly and happily to his own mind upon those who sat around him, but he would tell Sir Edward Buller that farmers had something else beside satirical jokes and happy hits to attend to. They had to get their living, and they wished to get it as honourable, upright, and independent men. They had to spend a good deal of time, and attention, and health, and strength to try to put things into an intelligent and just form, and begged really and seriously to call upon those men who signed M.P. to their names to help to do something in that direction. He would tell them candidly, honestly, and fearlessly, that the tenant farmers were watching their conduct and criticising it—not, he hoped, unjustly; and he was bound to say from what he had seen and known that in some instances he did not believe members of Parliament had those questions at heart which were for the benefit of the tenant farmers. He hoped the meeting would hear him out. He did not desire class legislation, for no man was freer in his ideas than himself; but he wanted the same freedom for himself which he would give to others. Colonel Dyott had invited them to discuss their grievances, and, therefore, he would say that the sympathy of both the present and the late Government had been for the foreigner and not for Englishmen. Let those who differed from him look at the way in which the cattle-plague question had been treated, and then let them say whether the Dutchman and the German had not been more thought of than the British farmer. This was not, as was said by many people, a mere clap-trap complaint, the object of which was to keep up the price of meat. All they wanted was that the cattle disease should not be brought to their homes, but now everything was in a muddle from right to left, and nobody knew what to do. An order came from one quarter to do this, and another order came from another quarter to do that, and at this moment they could not have a show of cattle, although such shows could be held in Derbyshire and Yorkshire. Why was it that this anomaly existed? He could not tell. They generally supposed that wisdom existed with men of high station, and if that were so why did they not deliver the country from this muddle? It was not only in reference to cattle, but other things. There was the question of the repeal of the malt-tax. At that moment they were drinking beer which was taxed 60 per cent.: but if he were on the Continent, and were to go to a *café*, he might drink untaxed beer made from Barley grown possibly by the very men who were taxed 60 per cent. Was not that showing sympathy with the foreigner? He did not ask for class protection, but for simple justice. If they meant free trade, let there be free trade; but let them not tell him he must grow his Wheat in competition with the whole world, and then tax his Barley 60 per cent. What sense was there in that? He might express himself strongly, but if he did it was because he thought these things ought to be placed upon a right footing. As a farmer occupying a considerable extent of land, he wanted to pay his way and have something in his pocket; but if he was to be loaded with extra taxation how was he to do it? Local taxation had increased at his place something like 50 per cent. during the last seven years. What he wanted was that the fetters should be taken off which prevented him from running the race. He confessed he felt a sort of pity for the stock platitudes which they always heard at meetings of this sort, which might with proper management be made both interesting and useful. But instead of that they trifled away the time, getting up and sitting down and doing nothing. If they wanted to see what one man who was thoroughly in earnest could do let them look at Mr. Read, the tenant-farmer member for East Norfolk—a man who had the courage to stand alone in the House of Commons. What did he say? "I have not birth to recommend me: I have neither money nor eloquence, but I have honesty and earnestness, and those are worth more than money or birth." He (Mr. May) honoured and respected those above him in rank, and he hoped he should ever keep himself in his right place, but he had the most honest conviction that these meetings were prostituted; by that he meant that a number of toasts were given and responded to which had no bearing whatever upon the object which had called them together. He was as loyal as any man. He loved his country, he loved his Queen, and he loved the institutions of his country; but he did not love flattery, he did not love mere verbiage, he did not love empty wind. He did love truth and honesty, and earnestness and justice.—Mr. May was loudly cheered at the close of his speech, and Mr. Beale, mounting his seat, called for "three cheers for Mr. May." This proposition was received with cries of "No, no," and some hissing from the upper end of the room, but the cheers were nevertheless given very heartily.

[On this meeting—Mr. May and his speech—the *Mark Lane Express* thus comments:—"For our own part, as our readers are aware, we have long complained of the 'stock platitudes' of these occasions, and the system under which the practical men are kept in the background until the fag-end of the evening, when the company is weary, as well it may be, and the last train due. Nevertheless, despite the partial cheers of those around him, it is clear that Mr. May had not his audience with him at Lichfield. Mr. Chawner, for instance, also a farmer of some position in the district, who spoke subsequently, 'had been perfectly astounded at the way in which the discussion had gone on. He could not understand the President, who ought to have led them, nor could he understand his old friend Mr. May, who would take them in a contrary direction. Everything was in a jumble.' And, again, Lord Sandon considered that 'a meeting like theirs was quite unsuited for the discussion of the details of practical agricultural questions.' So that the luckless Mr. May finds both landlord and tenant dead against him; although we cannot so readily admit 'the jumble' of Mr. Chawner. Colonel Dyott, the chairman, and himself a member of Parliament, invited the farmers to state their grievances if they had any, and Mr. May proceeded to do so. Nothing could be clearer, and nothing more in order, according to the law which the chairman had laid down. Lord Sandon, however, goes further than this in his reproof of Mr. May's conduct, and according to his lordship's reading the dinners of agricultural societies are quite unsuited for the discussion of agricultural questions! What in the name of common sense, then, are they fit for? Or for what purpose is a toast-list prepared?"]

BUCKINGHAM: *September* 25.—At the annual stock show of the North-West Bucks Agricultural Association about 120 gentlemen dined, under the presidency of the Duke of Buckingham.

The Duke of BUCKINGHAM, acknowledging the toast of his health, referred to the differences of opinion which prevailed in the district 18 months ago as to the best way of dealing with the cattle plague. He and many of the magistrates felt that stringent measures were necessary, and he thought time had proved that they were in the right. But for what had occurred within the past fortnight he should have congratulated them on the Rinderpest being no longer in the kingdom, but there was a doubt whether seeds of infection did not still lurk among us. Competent authorities were of opinion that recent cases in Cheshire were not the cattle plague, but while any doubt remained restrictions were necessary. He trusted, however, that the movement of native cattle within all uninfected parts of the country might speedily be permitted, and that the troublesome restrictions which had hampered agriculturists in carrying on their operations might be discontinued.

Sir H. VERNEY, in returning thanks for the toast of his health, said—Representing an agricultural district, he had always regarded himself as, to a certain extent, the representative of the agricultural interest, and he could not help reflecting on the changes of opinion which had taken place on agricultural questions since 40 years ago. At that time many landowners and parishes thought it wise policy to get rid of their labourers, and to offer them inducements to migrate to the manufacturing districts. In this opinion he never shared, for he had always held that every locality could supply sufficient work for all its labouring population. Unless, however, comfortable dwellings with good gardens were provided for them, we could not expect agricultural labourers to resist the temptation to remove to the large towns, though he knew that many when they got there were sorry for it, and that some of them came back to the country. It was a melancholy thing to think that men might leave kind-hearted employers in their own neighbourhood and might find themselves subjected to the atrocious tyranny and the abominable outrages which, as has been shown by the inquiries at Sheffield and Manchester, were practised in some districts by working men upon members of their own class. It was important, moreover, to retain the occupiers of the land as well as the labourers, and to do this care must be taken not to overrun their farms with too much game. He was glad to think there was no excessive preservation of game in this neighbourhood, and for his own part he would rather have none on his estate than that any tenant should feel that his crops were injured by it. A farmer naturally took a pride in the fertility of his fields, and money could not compensate him for the ravages of game. He believed no farmer objected to a certain amount of game sufficient to furnish sport after the old English fashion, for farmers felt it an advantage that country gentlemen should reside on their estates and should find sufficient sport if they were fond of shooting. Excessive preservation, however, encouraged poaching, for an active young fellow found that he could make as much in one night by killing pheasants as he could in a fortnight by hard work. This was a state of things much to be deprecated. There was another point he wished to touch upon. Farmers wanted capital. He knew that very often they could not get it, but he believed his hon. colleague, who was more conversant with such matters, would corroborate him when he said that never was there a larger amount of capital in the country open to fair investment. Now, he believed no investment was so safe for the capitalist as the land of his own country, and he should never feel satisfied until he saw the capitalist willing to advance money to the farmer in whose ability and integrity he could place confidence. He could not, however, be expected to do this unless the farmer had some certainty of tenure, and he thought, therefore, farmers ought to make a stand for leases. It was true some of his tenants were afraid to take leases, but he was convinced that until leases became the rule the soil would never become so productive or so healthy as it might be. The co-operation of all classes—the labourer, the farmer, the landlord, and the capitalist—was necessary for the efficient cultivation of the land. He had seen the benefits of leases in Scotland, and he hoped to see the same benefits enjoyed in this country.

Mr. HUBBARD congratulated the company on the cessation of the ravages of the cattle plague, and on those ravages having caused so small a diminution of the prosperity of the country. About 300,000 head of cattle had been slaughtered, the value of which might be set down at five millions sterling; but what was this plague compared with the plague of war with which this country was in former times so often visited? After referring to the great improvements which had taken place in agricultural implements and in our breeds of cattle, Mr. Hubbard remarked that the labourer had not been commensurately elevated, but still remained too much of an unreasoning instrument. Education had made rapid strides, but much had yet to be done in order to fit for their duties the class who were now rising not only into industrial but into political importance. With regard to his hon. friend's remarks on the investment of capital, it was quite true that there had never been a larger amount of capital for investment than there was at the present moment, but it appeared to him that it was in the first place the landlord's duty to put the land into the condition best suited for the tenant. No doubt the tenant required a floating capital, and must purchase stock and other things, but until the landlord had done his part he had no right to complain of any lack of enterprize in his tenant.

Farmers' Clubs.

KELSO: *The most Economical Way of Cutting Corn Crops.*—This subject was introduced by Mr. Munro, Fairnington, who said the different ways of cutting were three,—viz., by the hook, the scythe, and the machine. There were many good shearers, and the same might be said of mowers, especially the Aberdeen men; but we must take the average, and he certainly preferred the machine, wherever the crop was at all suited for it, as the best and cheapest method. He preferred the self-delivery, as he had never found that the manual could cut when the self-delivery could not, and there was thus a saving of a man; and though more machinery was required, this was more than counterbalanced by the want of the man's weight on the machine. He also preferred the man who drove the horses walking instead of riding, as both easier for himself and the horses, and he was better able to notice anything that went wrong, and readier to rectify it than on the back of the horse. He had made a calculation of the cost, which he would read, counting it by the week:—

SHEARING.

Three men at 18*s.*, and victuals 4*s.* 8*d.*	£3	8	0
Two women at 17*s.*, and do 4*s.* 8*d.*	2	3	4

Cutting, when the crop was light, 15 acres at a cost of 7*s.* 5*d.* per acre, or, when the crop was heavy, 12 acres at 9*s.* 3*d.*

MOWING BY SCYTHE.

Mower at 22*s.*, and victuals at 4*s.* 8*d.*	£1	6	8
Lifter at 17*s.*, and do. 4*s.* 8*d.*	1	1	8
Bandmaker at 6*s.*, and do. 4*s.* 8*d.*	0	10	8
Binder at 19*s.*, and do. 4*s.* 8*d.*	1	3	8

Cutting 9 acres per week, costing 9*s.* 2*d.*

MACHINE.

Four men at 18*s.*, and victuals 4*s.* 8*d.*	£4	10	8
Four women at 17*s.*, and do. 4*s.* 8*d.*	4	6	8
Half woman cutting corners, &c.	0	10	10
One pair of horses	3	0	0
Tear and wear of machine, 1*s.* 3*d.* per acre ..	2	12	6

Cutting 42 acres one way cost 7*s.* 2*d.*—a little less if the machine cut all round.

Mr. BURN, Ednam, said he agreed generally with the remarks of Mr. Munro, but he thought he had put down too little for victuals, and on the other hand we were apt to calculate machines on crops below the average; but on heavy crops, even where standing, it was doubtful whether they could be done any cheaper than the hook, and when the crops were down and twisted the hook was still by far the best.

The other members generally agreed with the foregoing remarks.

ARDOCH: *Artificial Manures.*—The following extracts are from a paper read by Mr. Panton:—

As agriculture progresses, and the reclamation and improvement of land increases here and elsewhere, so does the demand and need for manures of the character indicated. The sum paid annually by Perthshire farmers alone is large. Some tenants pay from 10*l.* to 500*l.*, or perhaps more. Having made these remarks, I unhesitatingly state the fact that there are, and for the 12 years of my experience have been, many spurious and valueless manures in the markets pressed and imposed ("guaranteed") upon farmers, for which they had to pay—what? So much per ton, rent and working of land, and besides suffer loss of crop to a serious extent. Thus cheated, the loss cannot be estimated in figures. It may run over a current lease, or prematurely be the indirect cause of putting an end to it. The crop so lost was of course intended to be converted into money and manure for next year's operations. The latter being awanting in consequence of bad crop, the farmer is again almost forced into the artificial manure market to provide for

the raising of next season's crops. And supposing, from the same cause (viz., useless manure), that that year's crop fails, the farmer must either return (for crops cannot be raised without assistance) to "the dangerous manure market," or retire from his farm, perhaps a ruined man. I am sorry to say that I can name farmers by the score who attribute their poverty to having used and paid for spurious manures, and thereby lost their money and crops. Supposing a farmer loses one crop, or has "a poor crop," through being so cheated, it will take him years to recover his purse and recruit his land. And the very bestial feeding, labouring, &c., on the impoverished soil suffer in the flesh from the want of what ought to be plentiful.

The numerous manufacturers of these manures are represented by fifty times as many agents—many of the latter closely bound up in business relations with the farmer—the one indebted and obliged to the other; even some bankers are agents. Most of these manures are widely advertised and recommended, with detailed analysis. The manufacturer's invoice bears the same in print, and which is guaranteed to be correct and genuine.

What I wish to notice is, that it is in the buyer's own power to see, learn, and know that they get what they buy. Then they cannot turn round and blame a poor agent or rich manufacturer for a bad crop. There has been no "pig bought in a poke," if such is followed out. In explanation, an agent books his orders in the various markets, &c., and transmits them direct per letter to the manufacturer, who sends the manure direct to the purchaser or farmer. Consequently the agent may, *bonâ fide*, take an order from a friend, and the manufacturer send a spurious article. There are of course sellers and agents of these manures who keep them in stock at their various places of business, and also at railway stations, which are not sent or delivered direct from the manufacturer or importer. A farmer supplied from such places may receive the brand of an honest manufacturer's manure, but perhaps not the contents. In such a case even the manufacturer suffers, as his manure will in due time be reported bad and its sale curtailed. In my humble opinion there ought and should be some mode adopted to protect the honest manufacturer, merchant, and agent, and especially the farmer, from a repetition of the heavy losses the latter has sustained by manure frauds for many bygone years. I write from actual knowledge, observation, and experience.

Governments looks after "weights and measures." A little short weight would not ruin the farmer, as the spurious article in question does. Likewise a cup of coffee, with chicory in it (if he discarded the latter) would not occasion him any harm or loss; for by Act of Parliament he can have unadulterated coffee without chicory. Then to put the question—Do any of your readers think that it would be out of place for Government to take strict cognisance of manufacturers and vendors of manures, seeing that such a vast amount of money is paid for them by proprietors and tenants, and that the bulk of stackyards, the tons of Turnips and Potatos, and even the price of the "poor man's loaf," depended much upon the genuineness of the commodity in question? Whisky is sent out in casks with a Government label bearing the strength and quantity. Manure is sent out in bags, and I think (under some authority or regulation) should have a "permit" in the mouth of each bag (unopened), and liable anywhere—in store, in field, or in transit—to be seized and tested; and if found deficient of the permit or an analysis, that proper steps be taken to fine and expose the manufacturer or seller. Were some such mode as this adopted, manure manufacturers, manure merchants and agents would have much more pleasure in meeting together with farmers, and there would then be a much better prospect of punctual payments than hitherto, and without a grudge or grumble.

I am far from ignoring the fact that there is a great deal of valuable and genuine manure imported into, and also manufactured in the United Kingdom, suitable for various soils. For a crop of any kind, on very high lying land, how valuable to the farmer is a ton of genuine artificial manure. It saves an immense cartage, labour, tear and wear, that would be incurred in laying down farm-yard manure.

Reviews.

Hearths and Homesteads: a series of Papers on subjects connected with Agriculture. By a Hampshire Farmer. J. Humphreys, 28, Southampton Row, Holborn, W.C.

The papers here collected in a thin octavo volume are entitled—Education—Labourers' Houses—Work and Wages—Who does the Farmer Work for?—Clipping Farm Horses—Our Sheep, and How we Treat them—Game and Farming—Should Farmers Hunt?—Corn *versus* Grass—Our Citizen Soldiers. They are written by a practical man, of considerable literary ability, independent thought, and confident opinion. He attacks and defends with equal courage, whether his subject be the prejudices of his own class or the mistakes of others. Thus, speaking of education:—

"Does any man doubt the advantage? Let him look back a hundred years, and inquire what were the manners and customs of the country gentleman of that period, and then compare them with the same class of to-day. Which is the most pleasant picture, and what has wrought the change? Education! Take, again, the farmer of the same period, and you will find a very different person from his prototype of to-day. The school-master has been abroad, and ignorance and debauchery have given place to education and sobriety. Surely what has done so much for two classes cannot hurt the third. The Scotch farm-labourer is known throughout the world for his industry and integrity; he has had the chance to learn, and has in most instances availed himself of it. Are servants in the various trades valued more highly for not knowing how to read and write? I turn to the mechanics' institutes, poor men's libraries, and reading-rooms, for an answer."

Again:—

"I am, unfortunately, only too well aware that the country, the fabled seat of innocence and purity, has its plague-spots and miseries to the full as visible as those that stain the town; it is no secret that ignorance, drunkenness, and immorality reign supreme in our villages. We naturally ask the why and the wherefore of this, and the answer that suggests itself is the present state of our labourers, both as regards their education and housing. Again, it may be asked, why are not these things amended? The answer I write with sorrow, is, I fear, the true one—viz., the apathy, if nothing worse, of farmers themselves in the matter, and their obtuseness to any improvement that does not promise an immediate return. Show them a new implement, or extol a fresh manure, and ten to one but they will purchase either the one or the other. Ask them for education and better housing for their people, and see what response you will receive."

The discussions which have taken place on the agricultural gang system and on Mr. Fawcett's Bill, are quoted in justification. On Cottages, he says—"without hesitation, that on many estates the cottage homes are simply a disgrace to the proprietors. I write strongly on this subject, having personally felt the ill effects of it. My first start in business was on a farm of some 500 acres in extent, with—will it be believed?—not one single cottage. On taking it I was promised some should be built; and being young at the time, and somewhat too trustful, I signed my lease without any special clause as to time for their erection being inserted, and after waiting seven years got two built on the threat of leaving the farm unless something was done. My landlord was a clergyman of the English Church. Most of the cottages in this village belonged to a noble lord who never even saw them, and were allowed to get into the most horrible condition, and men who worked for me paid, to my own knowledge, fifteen and eighteen pence a week for them, some without a foot of garden attached, and others with but a very small piece. When I state that only for a very short time during my residence in this place were wages over 9*s.* a week, and that often many were paying under that, some idea of the prosperity of the poor in the district may be formed. One farmer near, who had a great many cottages at this time, refused to allow any of his tenants to keep pigs, certainly a great hardship on a poor man, as it debars him from making use of so much refuse."

This is, we hope, a practice of the past.

Besides the essays on what may be called social questions there are a number of practical essays on points of farm management which will repay perusal. We make one more extract:—

"*On the Policy of Breaking up Down Lands.*—That many downs have been broken and converted into really good arable land I am well aware, especially on Salisbury Plain, where what was formerly down now yields large grain and root crops, producing infinitely more food, both in meat and corn, than it could have done in its natural state. Here the plough has been a real improvement; but the success here and in similar places has unfortunately caused a great deal of useful down to be turned into worthless arable, and landlords would do well to consider what chance there is of permanent improvement to the farm before granting leave for downs to be broken up.

"The tenant is little to blame if, when a farm is in the market, he takes it on condition of 'breaking the down,' and gives, perhaps, rather more an acre than he otherwise would do. He is safe enough, and if he manages with anything of judgment will reap a good reward for his spirited outlay, and continue to get fair crops to the end of his lease from the unexhausted soil, which he is sure to take pretty good care shall not remain idle. But when he has had his pull, and vacated the farm, the next comer possibly does not find things quite so rosy. He perhaps takes it on the report that his predecessor has done well there, naturally expecting to do the same, but overlooks the fact that, but for the chance of breaking up a large extent of down and having its maiden produce, that predecessor would never have taken the farm at all. An exhausting, though quite fair, series of cropping has now, in all probability, reduced this to nearly the level of the land surrounding it, and both the fresh tenant and his landlord find to their sorrow that the last state of that land is worse than the first. Many may think this an exaggerated picture; but I have more than one farm in my mind's eye as I now write that will quite bear me out in everything I have said. In fact, I know a spot where a down was divided and enclosed. One proprietor turned his portion to arable, the other has now as fine a fine sheep walk as can be imagined; a road separates them, and any one going along it, who will use his eyes, can see with which of the two wisdom resided."

The Poultry Yard.

Profitable Poultry.—The best kind of breed to propagate depends upon situation and other circumstances. The kind we find to be the most profitable is the half-bred Dorking from the barn-door fowl and Dorking cock, by which we get a fowl thick in body, plump on the breast, and short legged, which we can get well fleshed at the age of 16 weeks. Their colours are white, brown, speckled, and buff; the white hens lay the best in summer, the dark ones in winter; the buff ones sit the best, and are the kindest mothers; the speckled lay the largest eggs. We do not keep our hens over three years old, unless they are very fine ones; as by bringing in young fowls we can spare the others before they are too old to sell for the table.

As a table fowl we have not yet seen any we like so well as the Dorking, which Mr. Baily, of Mount Street, Grosvenor Square, London, deals in, but a little cross of the barn-door breed enlivens them, making them more nimble and able to get out of the way of cattle about the park, and it hardens the constitution and fits them for colder localities. When once crossed I should always afterwards prefer the best and purest bred Dorking cocks to be got, not breed my own, but buy them, and thus keep the stock improving, which is what we consider good farm-yard poultry. I use but one plan in rearing all kinds, and find it suitable to our place. When a hen wants to sit she is brought home; for should she sit where many other hens lay and roost, they will want to lay in her nest when she comes off for food, and in the confusion much injury is done: but, by having all the sitting hens at the rearing house, they can be immediately attended to when they come off to feed, and also prevented from going upon another sitting fowl's nest, when more are off than one at the same time, for the purpose of feeding, &c. In spring, for our sitting hens, we place the nest and eggs in wicker baskets; but in summer, on the cool damp floor. We find little difficulty in getting a hen to sit on a different nest from that she has layed in; but if very unwilling, place her in the nest with a board over, perforated with auger holes for air, she will thus soon be accustomed to her situation if she has a desire for incubation.

Another reason why all sitting fowls should be under and near the attendant's care is, that immediately they come off the nest they should be fed, and care taken that each returns to its appropriate nest, for, should any take the wrong one, a quarrel will ensue, which will not terminate until both nests of eggs are spoiled. Since we had our breeding and rearing house built close to us, when I hear any quarrel amongst the fowls I go and see which is in fault, determinedly pull off the hen who has got on the wrong nest, and put her on the floor, when the proper owner of the nest will appear to thank us, and go on her own eggs, while the other that was wrong will mutter at our treatment, but with an appearance of shame will betake herself to her own nest. Sometimes the quarrel will be repeated, but with two or three interferences on our part the strife will end. When the chickens are hatched, I leave them in the nest with the hen for 24 hours, as they do not require any food then, but merely the warmth of the hen's body. It is decidedly wrong to remove the nest during 24 hours on any pretext, as any other that you may substitute cannot be so warm or congenial. When the chickens come from under the hen, and run about in a lively manner, I take them all to the coops in the rearing house, and place a board 10 inches high to keep the chickens while so young from getting to the older ones, or other hens, who, from having other chickens, would kill then. I first feed them with boiled eggs, chopped up with the shell. Then for the first week they get their boiled eggs and bread crumbs, tail Wheat and Groats, and bricks, finely powdered or broken, and a little brimstone. This food is laid on a board in the coop. For the first month the chickens get their food as dry as possible, allowing no water to be spilt about.

I find earthenware fountains the best to supply them with water, as in the course of a few days the chickens all run in the body of the house together. We put their food there to eat as they require, which is a hard rolled ball of barley paste, about 3 inches in diameter. These I put in small garden pans, to keep the food clean—in which I am very particular—and keep it fresh; this plan tends to lessen the necessity for any medicinal treatment, and if kept dry, in light and well ventilated places, very few of the chickens will die. This sort of food is prepared for them every two or three hours if required. But should any of our chickens take cold, or be otherwise sick, we look for any feathers under the wing or tail, and if the quills seem full of black blood, we call them sick feathers, and pull them out, and give them agrimony and rue tea to drink, without any other suction for 24 hours. When we do not give them this tea, we give them a pill or two of Arum maculatum, or what children call "lords and ladies," at night. *Land Steward.*

(*To be Continued.*)

Turkeys.—He who would succeed well in this business must, during the winter, feed his flock well and familiarly. By the middle of March or first of April they will probably commence laying. If they are quite tame, as they can readily be made to be, they will be likely, if allowed to run at large, to lay about the farm or outbuildings; but the best way is to drive them into some shed every morning and let them out at noon. They will lay in the corners of the room, and when they come to set they will be content to be taken care of, and by closing the door at night they are free from harm. I never feed the turkey on the nest, and am decidedly opposed to the practice of so feeding them. It is well enough to place food where they can get at it; but if the turkeys are hardy and in good condition this is not necessary. Most turkeys are good sitters, and will commence hatching in 28 days. They should be kept on the nest until the young are dry, and able to stand. The hen may then be put with a coop in a warm, dry place, and the chicks be permitted to run out, but should not be fed for 24 hours, or for even a longer period. I am very particular on this point, as I think many young turkeys are destroyed by overfeeding soon after they are hatched.

After the first day a little curd or hard-boiled egg may be scattered upon a board or flat stone. If the weather is cold or wet, it is well to season their food with pepper. I have experimented with giving young turkeys food very highly peppered, and have seen no bad effects from it, but have frequently noticed cases where I was quite sure that the use of it produced

much good. After the first two or three weeks, it is well to let the old turkey out some four or five hours each pleasant day, if you have pasture or other suitable grounds. There is much danger in leaving them out at nights, as they are disposed to wander about while the dew is on the Grass.

I would also again caution all who hope for success not to feed too high for the first week or two; afterward feed often, but sparingly. If during the first four or five weeks any of them should droop and decline eating in the morning, give them pepper by taking a small quantity of their regular food and about an equal quantity of pepper; mix it and give to each one as much as a healthy one of the same size would eat. One of the most important points is to prevent the turkeys from getting wet during the first six weeks or two months of their life, for during this period a good soaking will generally prove fatal to a large majority of the flock. Nor should they, for this reason, be turned out too soon in the morning—not until the dew is entirely dried off the Grass. For feed during the first week I use common cottage cheese with a small amount of pepper, and to prevent the old hen from eating it, feed her with whole corn, which the young chicks cannot eat. *Germantown Telegraph.*

Miscellaneous.

The Harvest.—Wheat is in some respects a hardy plant, and often bears productively very rough seasons and somewhat rough usage. But it is a plant especially grateful for generous treatment. There is in England far more Wheat sown and grown under circumstances which may fairly be deemed rough rather than generous. On the clay soils, a wet autumn and winter, such as we had in 1866-67, are most adverse to the Wheat crops—being commonly sown on land imperfectly prepared, while much seed perishes from long continuance of superabundant moisture. Again, in game-infested districts, the plant has less chance of recovering from game depredation in bad than in good seasons. Then, the mechanical condition of the soil—the result of good or imperfect cultivation—the abundance or paucity of weeds, and the amount of applied fertility in the form of manure which the land may have received during the rotation, of which the Wheat crop is usually the conclusion, are all important circumstances in the results of Wheat growing. Where the land is very well farmed, there will be in different seasons great differences in the amounts of yield, as well as in the quality of the grain; but such differences will be far less than the differences of yield in various seasons upon land indifferently managed. Now, a very large proportion of the arable land of England is by no means well farmed, and, consequently, the degree in which the crop of the country generally is dependent upon a good season is far greater than it ought to be, having regard to the capacity of our soil and the knowledge of our better farmers. Applying these general remarks to the present season, it must be recollected that the Wheat crop in most parts of the country and on average farms came through the last winter with a thin plant; that the blooming season was not favourable; and that though we have had some very hot weather in August as well as in September, we have also had some very heavy rains, and that at no great intervals. Indeed, our climate this year has almost justified the reproach that the summer is made up of successions of three hot days and a thunderstorm. Our own observation, too, made in the Midland Counties—where, however, the general management of very fertile arable land is not always first-rate—leads to the conclusion that the majority of the Wheat crops will be deficient in quantity; though it is certain that during the 10 days which preceded the unusually late harvest in the Midlands, the improvement in the character of the crops was unexpectedly great, and that when cut they had a very bright and good colour. And the harvest has been late, and the corn when cut has sustained whilst in the field some heavy and drenching storms; there has been none of that perpetual rain which last year did so much injury. Where there has been ordinary judgment and activity, there has been no great portion of the grain seriously damaged. The quality then will be good, but all accounts agree that the new Wheats have yielded badly. The highly coloured views of the harvest which have been put forth by leading journalists and their correspondents, must be taken with large abatements. The markets show that the dealers do not regard our crop as more than moderate, while the whole stocks are said to have been worked down unusually low. Barley is, perhaps, better than Wheat, but not so much better as has been represented. The Oat crop, however, is unquestionably large, and that almost without exception. This, with a good hay crop, for the most part well saved, will afford some relief to horse-keepers, who have had to pay heavily for their provender during the last two years. The pastures are very full of keep, and roots of all sorts are good and growing rapidly, so that, with the fall in the price of store sheep which has taken place, the grazier may hope for a profit at lower prices than the public have of late paid for mutton. Still, we do not look for any considerable reduction at present in the price of meat; consumption is very large, and the gap which the cattle plague made in our herds, though filling, has not yet been filled up. *Economist.*

Calendar of Operations.

OCTOBER: *Wheat-sowing* is one of the principal operations of this month. The Clover stubbles will, to a considerable extent, have been ploughed (they may be rolled or pressed immediately after it), and the Bean stubbles also, by this time; the Potatos also are being, or have been, harvested; and towards the end of the month some of the Turnip land, too, may be ready for sowing, part of the early crop having been by that time removed from the land or consumed on it. All or any of these fields on which it may be intended to sow Wheat will, after one or two double turns of the harrows (the Turnip land being first either ploughed or scarified) be ready for the seed. The quantity sown may be from 1 to 2 bushels per acre. Five or six pecks are quite sufficient on good land in midland and southern England. The use of the drill is always advisable; the grain should be sown in rows 9 to 12 inches apart. The seed before use is "pickled"—watered with a solution of blue vitriol, 1lb. to a gallon of water being enough for 8 bushels of seed. A drilling maching sowing a width of 5 feet 6 inches should get over 1 acre per hour. The land should be somewhat moist when sown with Wheat, but not so wet as to knead under the treading of the horses. A single, or at most one double turn of the harrows, either across or along the ridges, will be required after the drill. The furrows should then be cleaned out by plough and spade, so as to leave a free passage for water, which might otherwise stagnate during winter. On light and free soils the seed furrow for Wheat should be given two or three weeks before sowing.

Winter Beans should be sown this month on any Wheat or other stubble that has been prepared for their reception. The stubble worked with the grubber is manured broadcast with 12 or 16 tons of farm manure per acre; then well harrowed, and ribbed over by the plough with shallow furrows, at intervals of 18 to 24 inches, and the seed sown broadcast and harrowed in. Or the seed and manure may be ploughed under together, the former being sown from the barrow in every second or third furrow of the plough. The seed should not exceed 2 bushels per acre.

Winter Vetches may be sown now—some having been sown in September also—for successions next May and June. If tried in Scotland, this crop must be confined to rich and sheltered land.

Potatos should be harvested during this month. They may be taken up either by the common or by the double mouldboard plough, which is made to undermine and throw open every other row, the tubers being gathered by women and children; and the alternate rows are to be similarly treated after these are completed; or by spade husbandry, in which case the whole operation is let to a party of men, who dig or fork up the tubers, and employ children to sort and gather them. This operation costs from 20*s.* to 25*s.* per acre. When the plough is used, the field is afterwards to be harrowed, to expose any tubers that may remain. Perfectly dry "houses," thickly thatched to the ground, with channels to carry off the water, will secure the store for sale or consumption. That portion intended for seed should be "green'd," or air-hardened, before storing, and, if possible, kept so cool and dry as to prevent sprouting.

Turnips, *Mangel Wurzels*, and *Carrots* may be harvested towards November—such of them as it is not intended to consume on the land where they have grown.

Rape or *Coleseed* will be ready for receiving the stock to be fed upon it.

Stubbles may be ploughed during October—in ridges up and down the field.

It is well, if the farmer finds himself possessed of sufficient manure in his yards, at this season to apply it on all the land which requires it, that is to be cropped early in spring. All land for spring Beans, early-sown Peas, Carrots, Parsnips, and Mangel Wurzels should thus, if possible, be manured in October.

Ditches should be scoured and the rubbish cleaned out; if weeds, &c., burned—and if earth and clay, carried to the spots on which the dung heaps are to be formed, and laid as a foundation for them. The outlets of drains should be examined.

Fences.—Finish clipping, slashing, and cropping hedges; cleanse all ditches and water-courses; plant Holly hedges. Begin trenching for planting fresh hedges.

Notices to Correspondents.

The Editor of this Journal can recommend for the position of Land Steward, or Agent over an estate, one who is well qualified, not only by long agricultural education under the most favourable circumstances, but by considerable experience, resolute character, and good judgment.

BONE MILLS: *F C W.* Apply to the Beverley Iron and Waggon Company, Beverley, Yorkshire. There is also an agricultural machine factory at Legh, near Manchester, which turns out good bone crushers.

COW-HOUSE: *Derwent.* A simple open shed facing the south, with an end space for fodder, and capable of being shut up in winter, is all that you need for six cows. A width of 16 or 18 feet is sufficient, and 4 feet per cow is abundant length. Mr. Avis, Lodge Farm, Barking, has designed and erected several capital cow-houses for us lately.

COWS: *An Old Subscriber* says: "We have two cows, one of them cannot be got in calf, and at last we have left off sending her to the bull, and have determined to keep her only as long as the milk she gives makes her worth her keep. Her cream and butter have been both remarkably good, till of late the cream has had a sickly taste, which was not apparent in the milk when first taken, but has at length extended itself to the butter. We have thought this was attributable to the feverish and unquiet state of the cow, but within the last few days the same thing has been apparent in the other cow's cream, for which no such cause exists. We have thought, therefore, there may be something in the feed. They have as much Grass as they can pick in the paddock in which they are, and the hay is this year's making, bought two or three weeks ago. The water is what is laid on from the Vauxhall Waterworks, and in it, by the advice of the person from whom the first mentioned cow was bought, some lime is put. There is good reason to believe that there is no fault in the person who has the management of the dairy.—[Most probably the flavour is imparted to the milk from some portion of the food. Wild Garlic has a very remarkable effect, and there are doubtless other plants which have a similar influence. Give the animals two drachms of nitre every day in a little mash, and throw rock salt about the meadows in which they are grazing.]

DESICCATED MILK: *M.* Apply to Mr. Grimwade, Desiccated Milk Company, Harrow-on-the-Hill.

Iron Cisterns.

F. BRABY AND CO. having laid down extensive and Improved Machinery in their new range of buildings, IDA WHARF, DEPTFORD, are now prepared to supply WROUGHT-IRON TANKS, GALVANISED, or PAINTED, of superior quality, at reduced prices, and at very short notice.



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This is the best and cheapest article of the kind yet introduced. It can be used with or without a Pony. Two Tubs can be had with one Carriage, and a Spreader if required.

Testimonials can be furnished from all parts of the country.

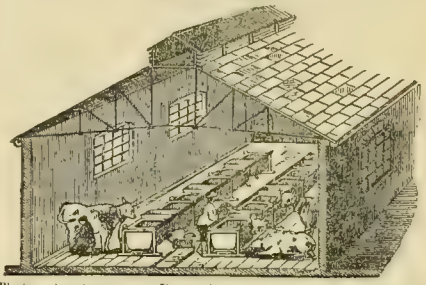
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Their advantages are—Portability, not Fixtures, removable at pleasure, no Woodwork or Partitions to impede Ventilation or breed Vermin, Hay Rack dispensed with as unnecessary, increased width and depth of Feeding Troughs, Water Cistern, and Patent Drop Cover to prevent over-gorging. Cleanly, durable, and impervious to infection, being all of Iron. Price of Fittings per Cow, 55*s.*

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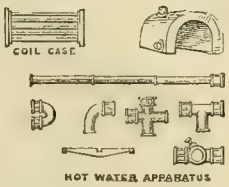
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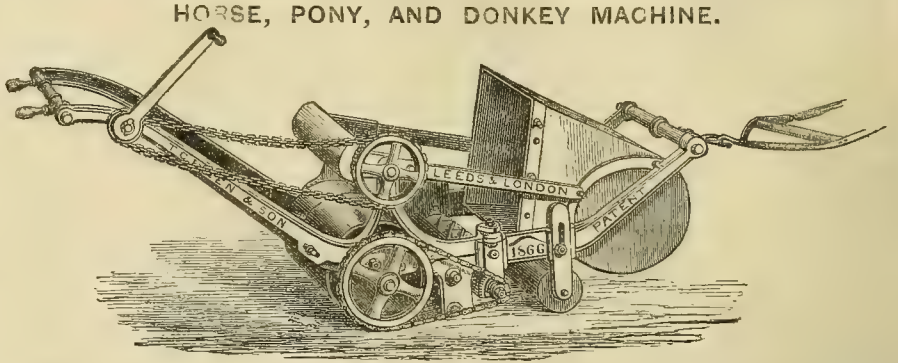
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NEW OVAL TUBULAR BOILER,
Acknowledged by practical judges to be a great improvement on every form of Tubular Boiler yet introduced. It has proved itself superior to all other Boilers for quickness of action and economy of Fuel, doing its work with one-third less the amount required by any other.

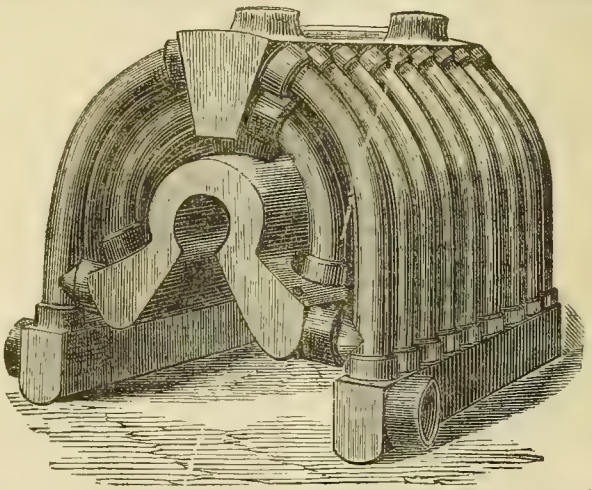
Extract from Report in GARDENERS' CHRONICLE *of International Exhibition, May* 24, 1862, *page* 476.
"The upright form of Boiler is usually made on a circular plan, but the oval form given to Mr. GRAY'S variety of it is said to be preferable in consequence of its bringing the tubes in closer contact with the fire. The usual form of a furnace being a parallelogram rather than a square, it seems feasible that the Boilers on the oval plan should bring the tubes more completely within range of the burning fuel; and this being so, the change, though a slight one, is no doubt an improvement."

☞ *They are made of all sizes, which, with prices, may be had on application.*
JAMES GRAY, HORTICULTURAL WORKS,
DANVERS STREET, PAULTON'S SQUARE, KING'S ROAD, CHELSEA, S.W.

CUMMING & EDMONDS'

PATENT TUBULAR ARCHED SADDLE BOILER.

AWARDED THE ONLY FIRST-CLASS CERTIFICATE FOR HOT-WATER BOILERS AT THE



SHOW OF THE ROYAL HORTICULTURAL SOCIETY, at BURY ST. EDMUND'S, JULY 16, 1867.

We have received numerous and flattering Testimonials of the efficiency of this Boiler, and in a report of the Directors of the Royal Horticultural Society, April, 1867, it is specially mentioned as "*working very efficiently, and maintaining the heat at stove temperature with a very small consumption of fuel.*"
We beg to draw attention to our superior designed CONSERVATORIES and HOTHOUSES of every description, and especially to our

NEW ORCHARD, STRAWBERRY, AND PLANT HOUSES,

which are "very cheap," and "ventilated" on a principle very much approved by all practical judges.
Having lately made considerable additions and alterations to our STEAM-POWER MACHINERY, we are now enabled to execute orders in the shortest possible time.
GARDEN BOXES, PIT LIGHTS, &c., at the lowest prices.
MANSIONS, CHURCHES, PUBLIC BUILDINGS, WAREHOUSES, SCHOOLS, &c., HEATED by HOT WATER in the most efficient manner.
☞ *Designs and Estimates Free on application.*
CUMMING AND EDMONDS,
CONSERVATORY ARCHITECTS, HORTICULTURAL BUILDERS, AND HOT-WATER ENGINEERS,
LILLIE BRIDGE, RICHMOND ROAD, FULHAM, LONDON, S.W.,
Adjoining the West Brompton Station on the West London Railway.

By Royal Letters Patent.

G. SHREWSBURY'S NONPAREIL GAS BOILER. Size to Heat 30 feet of Pipe, 38s.

"His Nonpareil Gas Boiler is an invention of which we can speak in terms of unqualified approval."—*From the Ironmongers' Journal, June 29, 1867.* G. SHREWSBURY, Lower Norwood, S.



The Only Stove without a Flue.

NASH AND JOYCE'S PATENT, for AIRING, DRYING, and WARMING HALLS, SHOPS, ROOMS, &c., a new especial Stove for Conservatories, Greenhouses, Fruit-Ripening, &c: to Burn without re-lighting all winter by filling with fuel every 12 hours. Temperature, any degree required, without varying. Price from 12s. 6d. to 6 guineas.

MINCING and SAUSAGE FILLING and MASTICATING MACHINES of the best makers, 10s. 6d.

The COTTAGE KNIFE CLEANER is the only rapid Cleaner and Polisher of Knives at a moderate price. 3s. 6d. to 10s. 6d. Prospectus post paid.

CHEAP FIRES.—The Radiating Fire Balls save half the usual consumption of fuel. One Shilling packet of Four, red hot in the fire every day, lasts all Winter.

S. NASH, Ironmonger, 253, Oxford Street, W.C.; Linster Terrace, Bayswater; and Stove Depot, 119, Newgate Street, London, E.C.

The New Furnace Bar

(WARRINER'S PATENT).

THIS BAR is particularly adapted to FIRES for VINERIES, GREENHOUSES, &c., and all FURNACES worked on the principle of slow combustion. The saving of Fuel effected is very great; nearly all the Smoke is consumed if care be taken, and the fire can be so regulated that any temperature desired can be kept up for at least 12 hours without stoking or further trouble. Any Bricklayer can set up these Bars without deranging much of the brickwork. They are in use in many Conservatories, and give the highest satisfaction. Testimonials will be forwarded on application to the Proprietors,

The Ventilating Furnace Bar Company, Limited, 9, Mincing Lane, London, E.C.

Specimens of these Bars may be seen in the Eastern Arcade of the Horticultural Gardens, South Kensington.

IRON HURDLES (Silver Medal of the Royal Agricultural Society).

SHEEP, 3s. 6d.; CATTLE, 4s. 2d.; OX, 5s. 11d.

List by Post. GATES and FENCING of every description.

St. Pancras Iron Work Company, Old St. Pancras Road, London, N.W.

SHANKS' NEW PATENT LAWN MOWERS.



HAND MACHINE.

These are the only Machines in daily use in all the Royal Gardens.

These are the only Machines that will mow properly when the Grass is wet.

These are the only Machines that will last for years without requiring repair.

Illustrated Circulars with full particulars free on application.

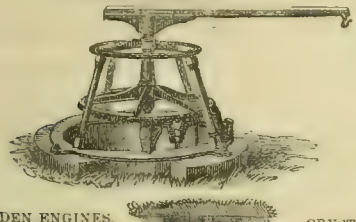
A. SHANKS & SON, Deus Iron Works, Arbroath.

London Office and Show Rooms—27, Leadenhall Street, E.C.

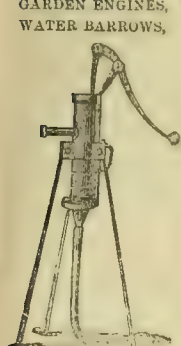
☞ 27, Leadenhall Street, is the only place in London where intending purchasers of Lawn Mowers can choose from a stock of 150 to 200 Machines. All sizes kept there whether for Horse, Pony, or Hand-power.

JOHN WARNER AND SONS, BRASS and BELL FOUNDERS to HER MAJESTY, HYDRAULIC ENGINEERS,

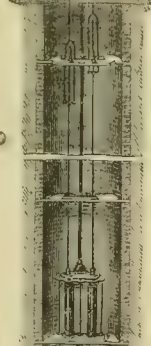
8, Crescent, Crippiegate, London, E.C.



GARDEN ENGINES, WATER BARROWS,



No. 42.



CRYSTAL PALACE FIRE ENGINES.



No 35.

PORTABLE PUMPS for LIQUID MANURES.

DEEP WELL PUMPS, for Steam, Horse, or Hand Power.

CAST-IRON PUMPS.

Drawings and Prices for any description of Hydraulic Machinery sent upon application.

GEORGE F. MORRIS (of the Firm of PROTHEROE & MORRIS) undertakes SALES and VALUATIONS of FREEHOLD LANDED ESTATES, Leasehold and Reversionary Property of every description, Farming and Market Garden Produce, Household Furniture, Stock in Trade, &c.

Auction and Estate Agency Office, The Limes, Leytonstone, Essex.

Farm Poultry.

GREY DORKING FOWLS, of purest breed, in any numbers.

Imported TOULOUSE GEESE, the largest and most productive breed known.

Improved NORFOLK TURKEYS, large, hardy, and good breeders.

AYLESBURY and ROUEN DUCKS.

Imported BELGIAN HARE RABBITS, for size and early maturity.

BRAHMA-POUTRA, CREVECŒUR, and LA FLECHE FOWLS, for constant layers.

Priced Lists and Estimates on application.

JOHN BAILY & SON, 113, Mount Street, London, W.

GEORGE PAUL, DECEASED.—Pursuant to the Act of Parliament of the 22d and 23d Vict., cap. 35, intituled "An Act to further amend the Law of property, and to relieve Trustees:"

All CREDITORS and others having any CLAIMS or DEMANDS upon or against the ESTATE of GEORGE PAUL, late of Cheshunt, in the County of Hertford, Nurseryman, who died on the 7th day of July, 1867, and to whose personal Estate and Effects Letters of Administration were on the 11th day of September, 1867, granted by the Principal Registry of Her Majesty's Court of Probate to MARY PAUL, of Cheshunt, aforesaid, Widow, and GEORGE PAUL, of the same place, Nurseryman, are hereby required to send particulars of their Claims in writing to the said Administrators on or before the 31st day of October, 1867, at the expiration of which time the said Administrators will proceed to distribute the Assets of the said deceased among the parties entitled thereto, having regard to those claims only of which they shall then have received Notice; and the said Administrators will not be liable for the Assets so distributed to any person or persons of whose claim or demand they shall not have had notice. Dated this 26th day of September, 1867.

SEWELL & EDWARDS,
Gresham House, Old Broad Street, London, E.C.
Solicitors to the above-named Administrators.

WANTED, a SMALL MARKET GARDEN or FLORIST BUSINESS near London, or any large Provincial Town.—Address, stating particulars, to

A. B., care of Mr. Kinghorn, Richmond, S.W.

WANTED to HIRE, 50 to 100 ACRES of LAND, near London, and near a Canal or Railway, to improve and cultivate in Garden order. The Advertiser is prepared to invest £20 per Acre of working capital, on satisfactory Tenure, such as a long Lease, or with Covenants securing payment for unexhausted improvements.

Address A., Post-office, Stapenhill, near Burton-on-Trent.

FOR DISPOSAL, a First-class NURSERY and SEED BUSINESS; or the present Proprietor would accept of a WORKING PARTNER with a Capital of not less than £1500.

Apply by letter to E., Messrs. Hurst & Son, 6, Leadenhall Street, London, E.C.

To Market Gardeners, Nurserymen, &c.

TO BE SOLD, by Private Contract, about 200 ACRES of very superior GARDEN GROUND, all Freehold, situate in the County of Bedfordshire, about three miles from Biggleswade Station, Great Northern Railway. The Land is divided into Lots to suit the convenience of purchasers. For particulars apply to

THOMAS FOUNTAINE, Esq., Dunton Lodge, Ashwell, Baldock.

Nursery and Seed Business for Sale.

WILLIAM DEAN, having determined on residing in London again, offers for SALE, with immediate possession, the NURSERY at SHIPLEY, consisting of Four Acres, with 13 extensive Glass Houses, the whole, with the Nursery well stocked, and with Dwelling House, &c., is held on Lease; also the SEED SHOP, in BRADFORD (the only one in the town), which is well fitted up, and where there is a good business doing in Fancy Articles, as well as Seeds, Cut Flowers, Flowering Plants, &c. The Nursery is 2½ miles from the Shop, on a principal road to Bradford. A half year's business is equivalent to the purchase money required, and will be a great bargain to the purchaser. It is an excellent opportunity for a large house in the South to establish a Branch Business here, as a good healthy Trade is already done, which may be very much increased. For particulars apply to

WILLIAM DEAN, Bradford Nursery, Shipley, Yorkshire.

Sales by Auction.

Very Important to Noblemen, Gentlemen,

PUBLIC COMPANIES, NURSERYMEN, AND OTHERS ENGAGED IN PLANTING.

PRELIMINARY NOTICE of FORTHCOMING SALES by Messrs. PROTHEROE AND MORRIS.

ACTON, HOPGOOD'S NURSERY, October 21, 22, 23, and 24:—CLEARANCE SALE (the Lease having expired). Thriving NURSERY STOCK, including, with the usual assortment, some remarkable fine LIMES, PLANES, FRUIT TREES, &c.

PECKHAM, QUEEN'S ROAD NURSERY, October 29:—Very compact EVERGREEN and CONIFEROUS SHRUBS, and other valuable NURSERY STOCK, choice GREENHOUSE PLANTS, &c.

TOTTENHAM, MIDDLESEX. HALE FARM NURSERY, November 1:—(Surplus Stock). A Collection of ORNAMENTAL TREES, EVERGREENS, CONIFERÆ, and FLOWERING SHRUBS, ROSES, FRUIT TREES, CLIMBERS of sorts, &c.

WANDSWORTH ROAD, LAVENDER HILL NURSERY, Nov. 4:—The thriving young NURSERY STOCK, including some thousands of fine AUCUBAS, 1 to 4 feet; CHINESE ARBOR-VITÆ, ENGLISH YEWS, and other fine EVERGREENS, particularly worthy the attention of the Trade; STANDARD and DWARF FRUIT TREES, ROSES, &c.

KINGSTON, SURREY.—Clarence Street and Park Road, Nov. 5, and following days:—Excellent NURSERY STOCK, in the best state of cultivation; EVERGREEN, CONIFERÆ, and DECIDUOUS SHRUBS in great variety, ranging all sizes, which has been constantly transplanted, and will incur no risk from removal.

GODALMING, SURREY, November 11, and following days, by order of Mr. Charles J. Barker, unless previously disposed of in one lot by Private Contract, the whole of the GREENHOUSE PLANTS, GREENHOUSES (newly erected), and other Effects, at Godalming Nursery; also the Valuable NURSERY STOCK, growing in Terrace Gardens, Shady Hangers. Within five minutes' walk of the Godalming Railway Station.

WOKING, SURREY, November 18, and following days:—Clearance Sale of the whole of the unrivalled COLLECTION of EVERGREEN, CONIFERÆ, and DECIDUOUS SHRUBS, ORNAMENTAL, FRUIT, and FOREST TREES, extending over 100 acres, or thereabouts, to be SOLD, without reserve, in consequence of the death of Mr. Robert Donald. The Stock is particularly worthy the attention of the Trade.

Sale of Very Fine Dutch Bulbs, Handsome Standard Roses, &c.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at 38 and 39, Gracechurch Street, E.C., on TUESDAY, October 15, at 1 o'Clock precisely, a First-class Collection of DUTCH BULBS, including choice named Hyacinths, Tulips, Crocus, Narcissus, Snowdrops, &c.; a splendid assortment of STANDARD, DWARF, and CLIMBING ROSES, comprising the finest varieties in cultivation; Hardy AMERICAN PLANTS, viz., Ghent and other Azaleas, Hybrid Rhododendrons, Kalmias, Andromedas, with a variety of Hardy Climbers, &c.

On View the Morning of Sale. Catalogues had at the Rooms as above, and of the Auctioneers, American Nurseries, Leytonstone, N.E.

Strawberry Hill Nursery, Tunbridge Wells.

CLEARANCE SALE OF VALUABLE NURSERY STOCK.

MESSRS. PROTHEROE AND MORRIS have received instructions from Mr. Edwin Hollanby to SELL by AUCTION, on the Premises, Strawberry Hill Nursery, Tunbridge Wells, on WEDNESDAY, October 16, and three following days, at 11 o'Clock each day, without Reserve (the Lease having expired, and the land being immediately required for building purposes), the valuable NURSERY STOCK, including a very extensive and choice Collection of Evergreen Conifers and Deciduous Shrubs, comprising 1800 Portugal Laurels, 4000 Common Laurels, 2500 Spruce Firs, 10 to 6 feet; 1100 American Arbor-vitæ, 800 Laurustinus, 200 Green Hollies, 4 to 10 feet; fine Aucubas, Box, Oval-leaved and Evergreen Privet, some remarkably handsome Cedrus Deodara, 4 to 20 feet; splendid Araucaria imbricata, 2 to 15 feet; Wellingtonia gigantea, 10 to 12 feet; Thuja aurea (very compact), 2 to 4 feet; Cupressus Lawsoniana, Irish Junipers, Thuja Warreana, T. Lobbii, T. gigantea, Thujopsis borealis, Juniperus chinensis, Deutzia; 1000 Standard and Dwarf Roses; also Ornamental and Forest Trees, consisting of Standard-worked Thorns, Weeping Ash, Elms, Spanish Chestnuts, Oaks, Mountain Ash, Beech, Limes, Sycamores, Laburnums, Acacias, Chestnuts, Standard Walnuts, 3500 Rhododendrons, together with some fine Camellias and Azalea indica, 2 to 6 feet, beautifully furnished with bloom buds, &c.

May be viewed any day prior to the Sale. Catalogues had on the premises, and of the Auctioneers and Valuers, American Nurseries Leytonstone, N.E.

Dutch Bulbs.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, October 2, at half-past 12 o'Clock precisely, 100 Lots of DUTCH BULBS, just arrived from two Farms in Holland.

On view the Morning of Sale, and Catalogues had.

Important Sale of Established Orchids.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on FRIDAY, October 4, at half-past 12 o'Clock precisely, Two Private Collections of ESTABLISHED ORCHIDS, the property of Gentlemen giving up the Culture, including many fine Specimen Plants, and well worthy of attention; and about 100 Lots of BULBS for present planting, just arrived from Holland.

On view the Morning of Sale, and Catalogues had.

Bulbs from Holland.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on SATURDAY, October 5, at half-past 12 o'Clock precisely, 500 lots of BULBS, for present planting, just arrived from Holland.

On view the Morning of Sale, and Catalogues had.

Established Orchids.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on TUESDAY, October 8, at half-past 12 o'Clock precisely, a Collection of ESTABLISHED ORCHIDS in the finest possible health, and including many fine specimen Plants of CYPRIPEDIUMS, CYMBIDIUMS, AERIDES, ODONTOGLOSSUMS, DENDROBIUMS, VANDAS, LYCASTES, LÆLIAS, SACCOLABIUMS, CATTLEYAS, and other choice species.

On view the Morning of Sale, and Catalogues had

Preliminary Announcement.

VALUABLE ORCHIDS, STOVE, GREENHOUSE, AND OUT-DOOR PLANTS, GREENHOUSE, VINERY, AND FRUIT-HOUSE, CLAUGHTON, NEAR LIVERPOOL.

MR. BRANCH will SELL by AUCTION on WEDNESDAY and THURSDAY, October 2 and 3, on the Premises, Devonshire Road, Claughton, near Liverpool, the property of a Gentleman changing his residence, a large and select collection of valuable ORCHIDS, STOVE and GREENHOUSE PLANTS, FERNS, ORNAMENTAL and FOLIAGE PLANTS, ROSES, DWARF FRUIT TREES, AZALEAS, CAMELLIAS, BEDDING PLANTS, &c.; also a large GREENHOUSE and VINERY, about 70 feet long by 26 feet wide, with Boiler and Hot-water Pipes complete, and an ORCHARD or FRUIT-HOUSE, &c., which will be further particularised in the *Mercury* of Friday next.

To be viewed one day previous to the Sale, when Catalogues may be obtained on the Premises, or at the Offices of Mr. BRANCH, 60, Hanover Street, Liverpool.

Nursery Stock—Mill Hill Nursery, Hendon.

About a mile from Mill Hill Station on the Edgware and Highgate Railway, and one hour's ride from Camden Town by Mill Hill Omnibus.

MESSRS. HUMBERT AND COX are favoured with instructions from the Executors of the late Mr. James Wright, to SELL by AUCTION, on the Premises, Mill Hill Nursery, Hendon, on THURSDAY, October 24, at 12 for 1 o'Clock, the whole of the NURSERY STOCK, comprising 1000 Thuja Lobbii, 100 Thujopsis Boreali, 1000 Aucuba japonica, 1000 Laurustinus, 1000 English Yews, 200 Laurels, 500 Portugal Laurels, 1000 Cupressus Lawsoniana, 500 Abies Douglassii, 500 Phillyrea, 500 Scotch Fir, 500 Pinus excelsa, 500 Standard Roses (named), 500 Dwarf Roses, 500 Thuja gigantea, 500 Limes, Chestnuts, Birch, Acacias, Mountain Ash, English Oak and Elm, &c.

May be viewed two days prior to the Sale. Catalogues may be had on the Premises; at the principal inns at Hendon; the Essex Arms and Clarendon Arms Hotels, Green Man, and Leathersellers' Arms, Watford; the Red Lion, Elstree and Barnet; Abercorn Arms and Vine Inns, Shannore; Three Crowns, Bushey Heath; Bell Inn, Bushey; Swan and Bell Inns, Rickmansworth; and (free by post) of Messrs. HUMBERT & COX, Land Agents, Auctioneers, and Surveyors, Little Nascot, Watford, Herts; and 38, St. James' Street, London, S.W.

Edmonton.—Important Sale of Nursery Stock.

MR. A. RICHARDS will SELL by AUCTION, on the Premises, Edmonton (near the Golden Fleece), a quarter of a mile from the Railway Station, on WEDNESDAY and THURSDAY, October 2 and 3, at 12 o'Clock each day, the valuable NURSERY STOCK (in consequence of the expiration of the Lease, and the Ground being required for building purposes), comprising valuable collection of Greenhouse Plants, including about 3000 home-grown Camellias of the best varieties - Double White, imbricata, Cup of Beauty, Princess Frederick William, Jubilee, Dride, fimbriata, &c., in fine health and well set with bloom buds; 3000 Herbaceous Calceolarias, of the well-known Edmonton strain; 2000 Hydrangeas, in 48 and 32-pots, well set for blooming next year; 500 choice Azaleas, full of flower buds, comprising the following fine varieties:—Flower of the Day, Flag of Truce, Duc de Nassau, Duchesse Adelaide de Nassau, &c.; Lilies of the Valley, in pots; 3000 Camellia Stocks, &c.; a large quantity of fine Evergreens, comprising 2000 Wellingtonia gigantea, 3 to 5 and 6 feet high; 1500 Cupressus Lawsoniana, 3 to 5 feet; Red Cedars, Roses, Aucubas, Araucaria imbricata, and many others,—nearly the whole of this Stock having been transplanted in the spring and autumn of 1866; also Eight Greenhouses, in good condition; 100 Pit Lights; a large quantity of ½ and ¾ Slate Slabs, Bricks, Hot-water Pipes, a large Cannon Boiler, Covered Van, 300 Casts of Garden Pots, &c.

May be viewed two days previously. Catalogues obtainable on the Premises, and of the Auctioneer, Tottenham.

To Market Gardeners and Others.

MR. W. T. ATWOOD will SELL by AUCTION, on the Premises, Culvert Road, near the Half-way House, Battersea Fields, S.W., on THURSDAY, October 3, at 11 o'Clock, the property of Mr. S. Poupart, who is relinquishing business, the LIVE and DEAD STOCK and IMPLEMENTS of TRADE, and CROPS of GLOBE ARTICHOKES, RHUBARB, and BEET ROOTS. The Stock comprises—3 powerful Cart Horses and Chaise Horse, 5 Spring Market Vans, Dung Cart, Market Cart, Block Waggon, Wash Butt, 4-wheel Chaise and Dog Cart, Thill Trace and Chaise Harness, Corn Bins, Ploughs, Harrows, Rollers, Box and Long Barrows, Patent Chaff Machine, Fruit and Step Ladders, Seed Sieves, Winnowing Machine, Sack and Seed Cloths, Watering Pots, Garden Tools, 80 3-light Boxes and Lights and Bell Glasses; heaps of excellent Manure, Litter, and Packing Hay; quantity of useful Boards, Scantling, Kerb and Paving Stones, Firewood, Iron Hurdles, and sundry useful effects.

May be viewed Day before and Morning of Sale; Catalogues had on the Premises, Inns in Covent Garden Market, and W. T. ATWOOD, Mortlake, Surrey.

Important Annual Sale of Nursery Stock.

TO NOBLEMEN, GENTLEMEN, NURSERYMEN, AND OTHERS.

MESSRS. J. TAYLOR AND CO. have been favoured with instructions from Mr. B. WHITHAM to CATALOGUE and SELL by AUCTION, at his Nursery, Reddish, near Stockport, on WEDNESDAY and THURSDAY, October 9 and 10, commencing each day at 11 o'Clock A.M., a portion of his VALUABLE and EXPENSIVE NURSERY STOCK, comprising a large quantity of Choice Greenhouse Plants, Fruit, Forest, and Ornamental Trees and Shrubs, including about 10,000 Roses, in and out of pots; Camellias, well set with buds; Ericas, Epacris, Azaleas, 20,000 extra strong bushy Rhododendrons, mostly hybrids; a large quantity of Fruit Trees of all sorts, true to name; 250,000 extra strong five and six years old Transplanted Quicks, Larch, Spruce, Austrian Pines, Poplars, extra strong Alders, extra strong Privet, five and six years old; and many other sorts too numerous to mention, all of which have been grown with the greatest care and attention. These Nurseries rank amongst the largest in the North of England, and as the stock comprises the most choice descriptions, the auctioneers have great pleasure in calling the attention of the trade and of private gentlemen to it, believing it to be in the finest condition, the whole having been regularly transplanted, and well protected from the late severe winter.

Catalogues, and any further information may be obtained from Mr. B. WHITHAM, at the Nurseries, Reddish, and at the Offices of the Auctioneers, 17, Cross Street, Manchester, and Bank Chambers Great Underbank, Stockport.



CARTER'S DUTCH BULBS.



JAMES CARTER & CO.'S

AUTUMN SUPPLEMENT

TO THEIR

GARDENER'S AND FARMER'S VADE MECUM,

Containing ORIGINAL ARTICLES on the CULTURE of BULBS and SPRING GARDENING, also a LIST of VEGETABLE SEEDS for AUTUMN SOWING, is NOW READY and will be forwarded immediately on receipt of 12 Stamps (Gratis to Customers), on application to

CARTER'S GREAT LONDON SEED WAREHOUSE, 237 & 238, HIGH HOLBORN, LONDON, W.C.

DUTCH AND OTHER BULBOUS ROOTS.

B. S. WILLIAMS

HAS RECEIVED HIS FIRST IMPORTATIONS IN EXCELLENT CONDITION, AND RESPECTFULLY SOLICITS EARLY ORDERS.

A PRICED and DESCRIPTIVE CATALOGUE forwarded free on application.
COLLECTIONS of BULBS carefully put up to suit Gardens of various sizes.

The CHOICEST HYACINTHS for Pots or Glasses, 24*s.*, 18*s.*, 12*s.*, 9*s.*, 8*s.*, and 6*s.* per doz.
HYACINTHS for Bedding, assorted, in colours, 3*s.* 6*d.* per doz.
All Roots of the first quality only.

B. S. WILLIAMS,
VICTORIA AND PARADISE NURSERIES, UPPER HOLLOWAY, LONDON, N.

ALL the FIRST PRIZES for HYACINTHS, TULIPS, CROCUSES, &c.,

AWARDED TO

WM. PAUL'S COLLECTIONS

IN MARCH LAST,

At the ROYAL HORTICULTURAL and ROYAL BOTANIC SOCIETY'S SPRING SHOWS.

FIRST IMPORTATION JUST ARRIVED IN EXCELLENT CONDITION.

PRICED DESCRIPTIVE CATALOGUE FREE BY POST ON APPLICATION.

☞ *Early Orders respectfully solicited.*

PAUL'S NURSERIES AND SEED WAREHOUSE, WALTHAM CROSS, LONDON, N.

JEAN VERSCHAFFELT, NURSERYMAN,

134, FAUBOURG DE BRUXELLES, GHENT, BELGIUM,

Begs to offer the following, in fine healthy PLANTS, at the undermentioned low prices, viz.:—

AZALEA INDICA, fine plants for winter blooming, choice varieties, £5 per 100; stronger, £8 to £10, and upwards.
AZALEA INDICA SOUVENIR DU PRINCE ALBERT, £1 4*s.* per dozen.
AZALEA INDICA STOCKS, fit for grafting, £1 per 100.
CAMELLIAS, fine plants, beautifully set with buds, choice named varieties, £6 per 100; stronger, £8, £10, £12, and upwards.
CAMELLIA STOCKS, fit for grafting, £1 8*s.*
OTAHEITE ORANGES, full of fruit, £1 4*s.* per dozen.
" " stronger plants, extra, £1 9*s.*
JASMINUM GRANDIFLORUM, grafted, flowering all through the winter, £1 per dozen.
TEA ROSE, MARECHAL NIEL, grafts in pots, 8*s.* per dozen.

☞ *Early Orders are respectfully solicited.*

JEAN VERSCHAFFELT'S NEW CATALOGUE is just published, and may be had Free on application either to himself or to his Agents, Messrs. A. SILBERRAD & SON, 5, Harp Lane, Great Tower Street, London, E.C. All Letters to be addressed

JEAN VERSCHAFFELT, 134, FAUBOURG DE BRUXELLES, GHENT, BELGIUM.

New Catalogue of Plants, Dutch Bulbs, &c.

ROBERT PARKER begs to announce that his NEW CATALOGUE, containing Select, Descriptive, and Priced Lists of New, Rare, and beautiful Greenhouse, Hardy and Stove Plants, Azalea indica, Fruit Trees, Grape Vines, Rhododendrons, Roses, Sweet Violets, &c.; Amaryllis, Crocuses, Cyclamens, Gladioli, Hyacinths, Liliums, Narcissus, Tulips, and other Bulbs, is now published and will be forwarded to applicants.
Exotic Nursery, Tooting, Surrey, S.

Hyacinths, Hyacinths.

DREGHORN AND AITKEN, Kilmarnock, N.B., beg to intimate that their CATALOGUE of HYACINTHS and other BULBS is now Published, and will be forwarded Post Free to any Address. It contains valuable Descriptive and Cultural Notes, and will be found a useful guide to Purchasers.

PRIZE HYACINTHS.—D. & A.'s PRIZE DOZEN for 15*s.* The best value in the Trade—viz., Macaulay, Ornament de la Nature, Von Schiller, Grandeur a Merville, Lord Wellington (double), Alba maxima, Mont Blanc, Queen of the Netherlands, Baron Von Thuyll, Charles Dickens, Grand Lilas, and Prince Albert.

ROMAN HYACINTHS.—Fine Bulbs of these beautiful early-flowering Hyacinths, 3*s.* 6*d.* per dozen. Free by Post or Rail.

Dutch and Cape Bulbs.

BUTLER, McCULLOCH AND CO. have received their usual consignment of the above, and beg to offer the following carefully assorted collections.

FOR CONSERVATORY DECORATION.

No. 1	No. 2	No. 3	No. 4	No. 5	No. 6
100*s.*	50*s.*	25*s.*	21*s.*	15*s.*	10*s.*6*d.*

FOR FLOWER GARDEN DECORATION.

No. 7	No. 8	No. 9	No. 10	No. 11	No. 12
100*s.*	60*s.*	40*s.*	25*s.*	21*s.*	10*s.*6*d.*

FOR FLOWER GARDEN AND CONSERVATORY COMBINED.

No. 13	No. 14	No. 15	No. 16	No. 17	No. 18
105*s.*	52*s.*6*d.*	42*s.*	21*s.*	15*s.*	10*s.*6*d.*

CATALOGUES containing details of above Collection sent free, and Post-paid Orders amounting to 21*s.* sent, carriage paid, on receipt of Post-Office Order.—Established upwards of a century.
Covent Garden Market, London, W.C.



Choice Bulbs.

STEPHEN BROWN'S

ILLUSTRATED CATALOGUE,

Cultural and Descriptive,

Free for 6 stamps, gratis to customers.

THE DUTCH ROOTS

Have arrived in splendid condition.

Seed and Nursery Establishment,

Sudbury, Suffolk.



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MESSRS. SUTTON'S COLLECTIONS include the varieties so much admired at the spring shows, and they are now prepared to receive orders for the same at the following prices:—

The Choicest 100 Sorts, £4 4*s.*, carriage free
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The Choicest 25 Sorts, £1 1*s.*, "
The Choicest 12 Sorts, £0 12*s.*

Cheaper Roots, 6*s.* to 9*s.* per dozen.

HYACINTHS for Beds and Open Borders, 3*s.* per dozen, 21*s.* per 100, carriage free.

SUTTON & SONS, Importers, Reading, Berks.

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WINTER AND SPRING FLOWERING BULBS AND PLANTS.

BARR & SUGDEN,

THE METROPOLITAN SEED, BULB, AND PLANT WAREHOUSE,

12, KING STREET, COVENT GARDEN, W.C.

BARR & SUGDEN'S FLORAL GUIDE

CONTAINS MUCH VALUABLE INFORMATION, AND CAN BE HAD FREE ON APPLICATION.

COLLECTIONS of BULBS for Winter and Spring Blooming In-doors, 10*s.* 6*d.*, 21*s.*, 42*s.*, 63*s.*, 84*s.*, and 105*s.*

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COLLECTIONS of PLANTS for Spring Blooming, 12*s.* 6*d.*, 25*s.*, 50*s.*, and 105*s.*

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GARDEN NARCISSUS, 3*s.* 6*d.* to 10*s.* 6*d.* per 100
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CROCUS, 1*s.* 6*d.* to 4*s.* per 100 | IRIS, 3*s.* 6*d.* to 10*s.* 6*d.* per 100
GLADIOLI, the very best kinds [sorts
IXIAS, SPARAXIS, TRITONIAS, and BABIANAS, the finest

LILIES, finest kinds
LILIUM AURATUM, the Golden-rayed Lily of Japan, 2*s.* 6*d.*, 3*s.* 6*d.*, 5*s.* 6*d.*, 7*s.* 6*d.*, and 10*s.* 6*d.* each
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ANEMONES, 4*s.* to 7*s.* 6*d.* per 100 | AMARYLLIS, 6*d.* to 63*s.* each
AMARYLLIS, unbloomed seedlings, from varieties the finest in cultivation, 42*s.* per dozen

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CYCLAMEN EUROPÆUM, quite hardy and very fragrant, 3*s.* 6*d.* per dozen, 21*s.* per 100
LILY of the VALLEY, fine imported clumps to bloom in winter, 15*s.* to 21*s.* per dozen [to 25*s.*
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SUNDRY BULBS.—*Under this heading in the "Guide," are described many rare and beautiful Bulbous Plants.*

BARR AND SUGDEN, 12, KING STREET, COVENT GARDEN, LONDON, W.C.

Editorial Communications should be addressed to "The Editor;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
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THE GARDENERS' CHRONICLE
AND
AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.

No. 40.—1867.] SATURDAY, OCTOBER 5. {Price Fivepence. STAMPED EDITION, 6d.

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1868.

THE SECOND GRAND HORTICULTURAL FETE, FLOWER and POULTRY SHOW will be held at SPALDING, on THURSDAY, June 25, 1868. Schedules will be issued in January.
GEO. F. BARRELL, } Hon.
EDMD. CAMMACK, } Secs.

Vines.

B. S. WILLIAMS has now on hand a very large and fine Stock of FRUITING and PLANTING CANES of all the best varieties. An inspection is invited.
Victoria and Paradise Nurseries, Upper Holloway, London, N.

Vines.

H. LANE AND SON solicit an inspection of their stock of VINES: 2000 Canes to choose from, strong and well ripened. They have been awarded the First Prize for Vines in pots at all the leading Exhibitions. CATALOGUES free on application.
The Nurseries, Great Berkhampstead, Herts.

CASTLE KENNEDY GRAPES. — Photograph of the famous Bunch of Grapes grown by Mr. Fowler, of Castle Kennedy; post free for seven stamps.
JOHN BROWN, Photographer, Kilmarnock.

PINES.—Wanted, strong well-rooted SUCKERS of BLACK JAMAICA PINE. Warranted free from scale.
Apply, stating quantity and price, to W. B., *Gardeners' Chronicle* Office, W.C.

Standard Apples.

WOOD AND INGRAM offer to the Trade and others 20,000 splendid STANDARD APPLES, with 5 to 6 feet stems and magnificent heads. Price on application.
The Nurseries, Huntingdon.

Orchard-house Trees Fruiting in Pots.

PEACHES, NECTARINES, APRICOTS, CHERRIES, PLUMS, PEARS, APPLES, VINES, and FIGS.
RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

PRINCESS of WALES STRAWBERRY.—This fine variety is now proved to be the best early variety ever produced, either for Forcing or for general Early Crop. See *Gardeners' Chronicle* of May 12, 1866, p. 437. Good Plants can now be supplied from the true stock, at 5s. per 100, from the raiser.
B. W. KNIGHT, Nurseryman, Battle, Sussex.

THE THREE MOST USEFUL STRAWBERRIES in cultivation either for forcing or the open ground.
PRESIDENT, strong layers, in 60-pots, 15s. per 100
SIR CHARLES NAPIER, strong layers, in 60-pots, 15s. per 100
KEEN'S SEEDLING, strong layers, in 60-pots, 15s. per 100
Runners of most other sorts, true to name, from 3s. 6d. per 100
F. R. KINGHORN, Sheen Nursery, Richmond, S.W.

New Green-flesh Melon, the Sultan.

SUTTON AND SONS beg to announce that they have purchased the entire stock of the above splendid MELON, which took the First Prize at the Royal Horticultural Society's Show at Bury, in July last. It will be sent out in the Spring, in packets 2s. 6d. each, post free.
Royal Berkshire Seed Establishment, Reading.

THREE HUNDRED ARBOR-VITÆ for SALE.—From 3 to 4 feet, fine bushy Shrubs, price £10 per 100.
J. SALTER, Nurseryman, Park Cottage, Dulwich Road, Dulwich, S.

PAUL AND SON'S NEW DOUBLE SCARLET THORN.—For the present season we can supply the above, our unique and original introduction, as
FINE STANDARDS with good heads, 5s, each.
PYRAMIDS, 6 feet high, pinched in to bloom, 5s. each.
DWARF MAIDENS, 2s. 6d. each.
The "Old" Nurseries, Cheshunt, N.

Important Notice.

THE SALE of CONIFER TREES, SHRUBS, FRUIT TREES, &c., to be held at the KING'S ACRE NURSERIES, Commences on MONDAY, September 30, and will continue until FRIDAY, October 11.
CATALOGUES will be forwarded on application to
JOHN CRANSTON, King's Acre Nurseries, near Hereford.

Immediate Clearance of Surplus Stock.

THREE HUNDRED THOUSAND NATIVE SCOTCH FIRS, 2-yr. Seedling, and 1-yr. Transplanted, at 6s. per 1000; also about 300,000 LARCH, various sizes, up to 4 feet (Special offers on application.) Terms cash. For particulars apply to
JOSEPH ROBSON & SON,
Nurserymen & Seedsmen, Bank Foot, Hexham, Northumberland.

British Fern Catalogue.

ROBERT SIM can now send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his NEW and PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.
Foot's Cray Nursery, S.E., a mile from Sidcup Station of New North Kent Line of South Eastern Railway.

Agricultural and Garden Seeds.

H. AND F. SHARPE beg to announce to the Trade that their SPECIAL LIST of HOME-GROWN SEEDS, 1867 Growth, is now ready and may be had on application.
Seed Growing Establishment, Wisbech, Cambs.

Dutch and Other Flower Roots.

JAMES DICKSON AND SONS have received, in excellent condition, a large importation from the most eminent growers. PRICED DESCRIPTIVE LIST post free on application.
102, Eastgate Street, and "Newton" Nurseries, Chester.

The Successful Cultivation of Hyacinths.—See

SUTTON'S AUTUMN CATALOGUE for 1867, which may be had gratis and post free on application.
SUTTON & SONS, Reading, Berks.

Bulb Catalogue.

BUTLER, McCULLOCH, AND CO.'S CATALOGUE of Choice DUTCH and CAPE BULBS is now ready. Sent free and post paid.—Established upwards of a Century.
South Row, Covent Garden Market, W.C.

WM. CUTBUSH AND SON beg to say that their DESCRIPTIVE CATALOGUE of CHOICE HYACINTHS, TULIPS, CROCUSES, &c., is now ready, and can be had post free on application. Highgate Nurseries, London, N.

JOHN KELLETT begs to announce that his NEW PRICED DESCRIPTIVE CATALOGUE of DUTCH FLOWER ROOTS, SPECIMEN AZALEAS, ROSES, EPIPHYLLUMS, &c., is now ready, and can be had post free on application.
Wellington Nursery, Heaton Chapel, Stockport.

Dutch Bulbs and Spring Flowering Plants.

PAUL AND SON venture to call attention to their very carefully prepared LIST of PLANTS for WINTER and SPRING GARDENING, joined to their Catalogue of Hyacinths and Dutch Bulbs. Post free on application.
The "Old" Nurseries, Cheshunt, N.

Dutch Bulbs and other Flower Roots.

CHARLES TURNER'S CATALOGUE of the above is now ready, a Copy of which may be had on application.
The Roots have arrived in splendid condition, and early Orders are respectfully solicited.
The Royal Nurseries, Slough.

Winter and Spring Flowering Bulbs and Plants.

BARR AND SUGDEN'S FLORAL GUIDE may be had free. It contains much valuable information.
For particulars see large Advertisement, page 1016.

WILLIAM ROLLISSON AND SONS' CATALOGUE of DUTCH, ENGLISH, and CAPE BULBS, NEW PLANTS, and those of RECENT INTRODUCTION; ROSES, GRAPE VINES, &c., is now ready and will be forwarded post free on application to
WILLIAM ROLLISSON & SONS, The Nurseries, Tooting, London, S.

Dutch Roots.

JOHN AND CHARLES LEE will be happy to forward their CATALOGUE for 1867 of newly-imported HYACINTHS and other Roots, post free on application.
Royal Vineyard Nursery and Seed Establishment, Hammersmith, London, W.

Special Notice.—Dutch Bulbs.

MR. STEVENS' SALES of HYACINTHS, TULIPS, CROCUSES, and other BULBS, just imported from Holland, take place every WEDNESDAY and SATURDAY, and frequently on MONDAY, at the Rooms, 38, King Street, Covent Garden, London, W.C.

Dutch Bulbs and other Flower Roots.

THOMAS SAMPSON, The Preston Road Nurseries, and Houndstone, Yeovil, Somerset, begs to announce that he has imported a large assortment of the above, in excellent condition, and is now ready to supply orders at the lowest prices. See CATALOGUE, free on application.
Strong GRAPE VINES, from Eyes.—All the leading varieties, at unequalled low prices.

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J. SCOTT has received his annual supply of DUTCH FLOWER ROOTS from Holland; extra fine in quality and true to name.
12 very choice exhibition HYACINTHS, 10s.
12 extra choice " " 12s.
Other very fine sorts, 6s. and 8s. per dozen.
A complete list of the above sent free on application to
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FOR SALE, Cheap, the BED of 700 fine BULBS of first-rate SHOW TULIPS, formerly Mr. Tebbutt's Collection, for the last seven years bloomed by
MICHELL & Co., Florists, William Street, New North Road, Islington.

Notice.—Fruits, Flowers, Bulbs.

BEFORE PURCHASING, PLEASE SEND FOR
DILLISTONE AND CO.'S LITTLE LISTS, post free to all applicants.
Address, DILLISTONE & Co., Nurserymen, &c., Sturmer, near Halstead, Essex.

To Gardeners, Seedsmen, &c.

HENLEY, BROTHERS, MERCHANTS, Holbeach, have still on hand a quantity of SNOWDROPS, which they beg to offer. Samples and price on application.

FIFTEEN Dozen CINERARIAS, in 48-pots; 100 Dozen SCARLET GERANIUMS, and 50 Dozen Pot GERANIUMS in store pots. No reasonable offer refused.
J. WEBB, Chase Side, Southgate, N.

TO the TRADE.—The immensely increasing demand among the Trade all over the globe for our CALCEOLARIA, CINERARIA, PRIMULA, PELARGONIUM, BALSAM, and INTERMEDIATE STOCK, prove beyond a doubt that they are all they profess to be, of unequalled quality, and worthy of general cultivation. TRADE LISTS free.
DOBSON & SONS, Woodlands Nursery, Isleworth, W.

DOBSON'S DECORATIVE PELARGONIUM MAGNET. Strong plants, 15s. each.
DOBSON & SONS, Woodlands Nursery, Isleworth, W.

DOBSON'S CATALOGUE of DUTCH BULBS, PELARGONIUMS, CINERARIAS, &c., is now ready, and may be forwarded post free.
Woodlands Nursery, Isleworth, W.

FORCING GERANIUMS.—MRS. LEWIS LOYD, SPOTTED ALMA, and MRS. BRADSHAW (JACKSON).—Good Plants of these unequalled Forcing Geraniums, 1s. 6d. each, or 15s. per dozen.
T. JACKSON & SON, Nurseries, Kingston, S.W.

ZONAL PELARGONIUMS. — SUNSET, ITALIA UNITA, MR. BARRE, NE PLUS ULTRA, GLOIRE DE NANCY, MRS. POLLOCK, GLOWWORM, SCEPTRE D'OR, MADLLE. MARIE VAN HOUTTE, GARLAND, COUNTESS OF WARWICK, and AMY HOGG. The 12 for 9s. Apply to
WILLIAM COOKS, Old Nurseries, Donington, near Spalding.

SUTTON'S COMPLETE COLLECTIONS of FLOWER ROOTS.
For particulars see page 1020 of this Week's Paper.
SUTTON & SONS, Reading, Berks.

Camellias.

CHARLES BUTLER, Wellington Nursery, Salop, has 12 fine Plants from 6 to 7 feet, and 12 from 3 to 4 feet, well set with Bloom Buds, to dispose of at reasonable prices.

Azaleas, best sorts, with buds.

F. AND A. SMITH have to offer to the Trade a large clean STOCK of the above—every Plant a specimen. Price (moderate) on application.
The Nurseries, Dulwich, S.

Gladioli.

EUGENE VERDIER, fils aîné, NURSERYMAN, 3, Rue Dunois, Paris, is now publishing his CATALOGUE of NOVELTIES (Seed from M. Souchet), and also of his own splendid Collection of the above. CATALOGUES to be had gratis, either direct from him, or of his agents, BETHAM & BLACKITH, Cox's Quay, Lower Thames Street, London, E.C.

To the Trade.

MARECHAL NIEL ROSE, from own roots, in pots, by the 100 or 1000, at £5 per 100.
G. BAKER & SON, American Nursery, Bagshot.

CULTURAL DIRECTIONS for the ROSE. Second Edition. By JOHN CRANSTON, King's Acre Nurseries near Hereford. Free by post from the Author for 20 stamps.

New Roses for 1867-1868.

EUGENE VERDIER, fils aîné, NURSERYMAN, 3, Rue Dunois, Paris, is now publishing his CATALOGUE of the above, which will comprise 69 New Varieties for 1867-1868. This CATALOGUE to be obtained gratis, either direct from him, or of his Agents, BETHAM & BLACKITH, Cox's Quay, Lower Thames Street, London, E.C.

"THE ROSES of MR. PAUL * * * are things to see once and dream of for ever."—*Athenæum, June, 1867.*
WM. PAUL begs to announce that his CATALOGUE of ROSES is now ready, and will be forwarded free on application.
EIGHTEEN PRIZES have been awarded to him for Roses this year at the principal London Flower Shows.
PAUL'S Nurseries, Waltham Cross, London, N.

New and Good Roses.

J. HARRISON begs to inform his Friends and the Public that his STOCK of ROSES is exceedingly fine this season, CATALOGUES of which are now ready.
Several Thousands of MARÉCHAL NIEL, fine plants, 15 to 18 inches high, both on roots and Manetti, 12s. per dozen, or 80s. per 100; ISABELLA SPRUNT, 9s. per dozen, 50s. per 100; MADAME MARGOTTIN, 18s. per dozen. All other Roses equally low to the Trade.
North of England Rose Nursery, Darlington.

Notice.

H. LANE AND SON beg to inform their Patrons and Friends that their CATALOGUES are now ready, viz.:—
No. 1. ROSE | No. 3. FRUIT
No. 2. TREE and SHRUB | No. 4. AZALEA
And may be had post free on application.
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Richmond Nurseries, Richmond, Surrey.

TO NOBLEMEN and GENTLEMEN making large PLANTATIONS, or PLANTING ORCHARDS or WALLS with FRUIT TREES, and requiring quantities of superior Coniferous and other Evergreens, Ornamental Flowering Trees, Shrubs, &c., or Dwarf-trained, Standard, or Spiral Fruit Trees. Special prices will be given on application to
G. & W. STEELE, of the above Nurseries.

Extensive and well-grown Nursery Stock.

J. SCOTT, Merriott Nurseries, Somerset, has to offer FOREST TREES in large numbers, finely rooted and in perfect health. ORNAMENTAL TREES and SHRUBS of all sizes in quantity, beautifully grown and regularly transplanted.
Intending Planters would do well to visit these fine Nurseries, which have been established 150 years, and are by far the largest in Somerset. CATALOGUES on application.

New Grass Seeds for Exportation.

SUTTON AND SONS, having received their supply of NEW GRASS SEEDS of the present Season's Growth in fine condition, will be happy to forward lowest price per ton or cwt. on application. All Seeds perfectly packed and delivered free to ship's side at any English Port. CATALOGUES gratis and post free.
SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

EVERY GARDEN REQUISITE kept in Stock at
CARTER'S New Seed Warehouse, 237 & 238, High Holborn, London.

Genuine Garden and Agricultural Seeds.

JAMES CARTER AND CO.
SEED FARMERS, MERCHANTS, and NURSERYMEN,
237 & 238, High Holborn, London, W.C.

Genuine Agricultural and Garden Seeds.

JAMES FAIRHEAD AND SON, SEED GROWERS and MERCHANTS, 7, Borough Market, and Braintree, Essex.

RAYNBIRD, CALDECOTT, BAWTREE, DOWLING, AND COMPANY, Limited,
CORN, SEED, MANURE, AND OILCAKE MERCHANTS,
Address, 89, Seed Market, Mark Lane, E.C.; or Basingstoke.
Samples and Prices post free on application. Prize Medals, 1851, for Wheat; 1862, for "Excellent Seed Corn and Seeds."

To the Trade.

DICKSON'S "FIRST and BEST" EARLY PEA.
New Seed can now be supplied.
Lowest price per quarter on application.
FRANCIS & ARTHUR DICKSON & SONS, 106, Eastgate Street, Chester.

ASPARAGUS SEED.—Half a Ton of this year's crop, and three or four Cwt. of last year's on SALE. What is unsold at the end of the month will be offered by Public Auction in Liverpool.
Apply at Asparagus Garden, Formby, Liverpool.

MUSHROOM SPAWN of the best possible quality, 5s. per bushel. Sample Brick sent on application. The Trade supplied,
JOHN KELLETT, Wellington Nursery, Heaton Chapel, Stockport.

CUCUMBER, "DROVER'S TELEGRAPH."—This celebrated Cucumber has obtained within three years 20 First-class Prizes at various Shows, viz.:—Winchester, Chichester, Southampton, Gosport, Fareham, Emsworth, and Kingston. For references apply to the Secretaries of the above Shows. Per packet, 1s. and 2s. 6d., to be had of HENRY DROVER, Fareham, Hants.

Tulips, Ranunculuses, Anemones, &c.

C. TYSO, FLORIST, &c., Wallingford, Berks, invites attention to his assortment of FLOWERS as under :—
TULIPS, 25 choice late varieties, £1 5s.
" 25 fine mixed do., 2s. 6d. and 3s. 6d.
RANUNCULUSES, 25 superb named sorts, 7s. and 10s.
" 25 fine mixed do., 2s. 6d and 3s. 9d.
ANEMONES, 25 choice double sorts, 5s. and 6s. 6d.
" 25 fine mixed do, 1s. 9d. and 2s. 6d.
HYACINTHS, 12 imported varieties, 7s. 6d. and 10s.
IMPORTED BULBS, for Autumn planting, in variety.
Splendid ANEMONE SEED, 1s. and 2s. 6d. per packet. Treatise on Culture, four Stamps.
RANUNCULUS SEED, 2s. 6d. per packet. Treatise on Culture, seven Stamps.
CATALOGUES sent free for one Stamp.

Lilium lancifolium—Enormous Bulbs.

JEAN VERSCHAFFELT'S NURSERY, 134, Faubourg de Bruxelles, Ghent, Belgium.
LANCIFOLIUM RUBRUM, per 100, £3. } 5000 on
" ALBUM, per 100, £3. } hand.
LILIUM LANCIFOLIUM PUNCTATUM, 1000 extra-sized bulbs, in splendid condition, are offered at, per dozen, £2 ; 50 ditto, £7 ; 100 ditto, £12.
A reduction made when 500 are taken at once.

Gladioli.

EUGENE VERDIER, fils aîné, NURSERYMAN, 3, Rue Dunois Paris, has the honour to inform his numerous friends and those interested that he is now publishing his CATALOGUE of the above, which will contain all the New Varieties obtained by M. Souchet.
He is happy to be enabled to announce that M. Souchet's Collection and his own carried off all the First and Second Prizes at the Exposition Universelle of Paris as well as being the admiration of all visitors.
This Catalogue can be had gratis, either direct from him, or of his Agents, BETHAM & BLACKETH, Cox's Quay, Lower Thames Street, London, E.C.

NEW FUCHSIAS, ZONAL GERANIUMS, &c.

12 Select New FUCHSIAS of 1867 for 6s.
12 Select New ZONAL GERANIUMS of 1867 for 12s.
12 Finest ZONAL GERANIUMS of 1865—1866 for 4s.
12 Select New CHRYSANTHEMUMS of 1867 for 5s.
12 Select New VERBENAS of 1867 for 4s.
12 Select New PETUNIAS of 1867 for 6s.
12 Select New PHLOXES of 1867 for 9s.
6 Varieties of AUCUBAS, 3 Male, 3 Female, for 21s.
3 Varieties of New Japan OSMANTHUS, quite hardy, 5s.
12 Fine Varieties of Japan EUONYMUS, very fine, 6s.
12 Fine Varieties Perpetual ROSES, Dwarfs, for 6s.
12 Fine Varieties of VARIEGATED ZONAL GERANIUMS, 12s
GERANIUM GLOIRE DE NANCY, the best double, 1s. each.
COLEUS VEITCHII, 1s. 6d.
" GIBSONII, 1s.
" LAMONII, 1s.
FICUS COOPERI, 2s. 6d.
PANICUM VARIEGATUM, 2s. 6d.
BRUGMANSIA KNIGHSII, 1s. 6d.
CATALOGUE of NEW and CHOICE PLANTS sent on application.
B. W. KNIGHT, Nurseryman, Battle, Sussex.

Winter Flowering Plants.

FREDERICK PERKINS has for SALE the following CARNATIONS, ROSES, &c, which are strong healthy Plants, well set with Buds, and suitable for Conservatory or Greenhouse decoration :—
TREE CARNATIONS.
GLOIRE DE LYON, Scarlet Flake. } Flowering plants with buds, in
LA GRENADIER, bright Scarlet. } 48-sized pots, 15s. per dozen.
These two varieties of Perpetual Carnations open freely in the dull months of winter, which makes them invaluable for cut flowers.
POINSEFFIA PULCHERRIMA.—Flowering plants, in 48-sized pots, 15s. per dozen.
JASMINUM GRANDIFLORUM.—On own roots, flower the best, full of buds, 24s per dozen.
BEGONIA SANDERSIANA.—Bright crimson ; will flower all winter ; 18s. per dozen.
TEA ROSES ON OWN ROOTS.
ADAM.—Strong plants, 12s. per dozen.
CAROLINE.—Strong plants, 12s. per dozen.
MARECHAL NIEL.—True ; on own roots, 12 to 18 inches high, in 60-sized pots, 12s. per dozen. Ditto, ditto, large plants with buds, 3s. 6d. to 5s. each.
GLOIRE DE BORDEAUX, 12s. per dozen.
GLOIRE DE DIJON, 12s per dozen.
MRS. BOSANQUET, China, 12s. per dozen.
The usual discount to the Trade.
FREDERICK PERKINS, Seed Warehouse, Regent Street, Leamington.

The New Sensation in Bedding-out.

JACKMAN'S HARDY HYBRID CLEMATISES.
AWARDED ELEVEN FIRST-CLASS CERTIFICATES, AND ONE SPECIAL.

MESSRS. GEORGE JACKMAN AND SON are desirous of drawing the attention of those who intend using their HARDY and HYBRID CLEMATISES for a PERMANENT BEDDING PLANT, that the present time is most favourable for planting them to secure good vigorous growth and flower next summer.
See Editorial remarks in *Gardeners' Chronicle*, August 17 :—"The new Sensation in Bedding." Also in August 31, 1867, in which "J. F." (Cliveden), endorses the former statement, and adds, that Messrs. G. J. & SON have in their several varieties "the very colour" of which our summer flower gardens are in a great measure deficient.
Varieties that flower together in May and June :—
CLEMATIS AZUREA GRANDIFLORA, violet, stamens deep purple.
" STANDISHII, beautiful violet blue.
" FORTUNEI, fine large double white.
Besides several other good old summer sorts.
Autumn varieties, flower from July to October :—
CLEMATIS JACKMANNI (G. J. & SON), large, intense violet purple, rugose and veiny.
" RUBRO-VIOLACEA (G. J. & SON), maroon, shaded reddish violet.
" RUBELLA (G. J. & SON), rich velvety claret (new).
" PRINCE OF WALES (G. J. & SON), deep violet purple, with red bars, (new).
Also a large Stock of other autumnal kinds.
An Engraving from a Photograph, showing the flowering qualities of their Hybrid Clematises, can be forwarded shortly by enclosing a stamped envelope.
Woking Nursery, Surrey.

Azalea, Her Majesty.

WILLIAM BARNES has much pleasure in announcing that he will be prepared to send out the above splendid AZALEA on and after Wednesday, October 23, at the following price :—21s. each. A very few extra strong plants at 42s. each, with the usual allowance to the Trade ; where three plants are ordered at one time four will be given.
It was exhibited before the Floral Committee of the Royal Horticultural Society on June 14, 1866, where it was awarded a First-class Certificate for its great beauty in its markings, shape, and colour, when the following remarks were made upon it, which appeared in the *Gardeners' Chronicle*, June 16, 1866 :—"A beautiful Azalea, rosy lilac, edged with white, and blotched, and spotted in the upper petals with crimson, called Her Majesty, from Mr BARNES, of Camberwell."
On June 23, 1866, the following remarks appeared in the same Paper :—"We have from time to time referred to the sportive character of the Indian Azalea, and called attention to the fact that some of our best varieties have had their origin in a freak of Nature. A fresh instance of their sportiveness was shown the other day at South Kensington. Mr. WILLIAM BARNES there exhibited a variety of Azalea which he purposes to designate Her Majesty. It is, we believe, a sport from Madame Miellez, or some of the forms closely allied to that fine old sort ; and in quality, therefore, as well as in name, takes the very highest rank. The flowers are of the full average size, and of excellent form and substance, and the colour is a soft lilac-tinted blush, white at the margin, densely spotted with crimson in the upper part, and marked with variable stripes, or sometimes broadish bars of deep rosy purple. Its high quality as regards the flower itself, and this novelty of marking, will make it an acquisition in any collection of these showy plants."
A faithful Figure of this fine Azalea is given in the January number of the "Florist and Pomologist."
A remittance must accompany all orders from unknown correspondents. Camden Nursery, Camberwell, London, S.

£20 REWARD.—Whereas a considerable quantity of GERANIUMS—Lady Cullums, Lucy Grieve, Princess of Wales, Sophia Dumaresque, and Sophia Cusack—have been STOLEN on three several occasions within a fortnight, besides other New Variegated Varieties not yet offered in trade, and evidently taken by some person well acquainted with the premises and position of the Plants, and supposed to have been passed into other hands for purposes of sale :
The above REWARD will be paid to any one who shall give information leading to the conviction of the guilty party or parties. The Plants can be sworn to.
We caution Nurserymen and others, purchasing New Variegated Geraniums (in any section), from parties who cannot offer satisfactory evidence that they have been raised by themselves, or directly purchased of the raiser, such being their *bona fide* property.
E. G. HENDERSON & SON, Wellington Nursery, St. John's Wood, London, N.W.—Oct. 3, 1867.



DILLISTONE AND WOODTHORPE beg to offer the following beautiful New Plants :—

	s.	d.
NIEREMBERGIA RIVULARIS (see *Gardeners' Chronicle* for last week, page 977), each ..	2	6
PANICUM VARIEGATUM, finest of all the variegated Grasses	3	6
COLEUS VEITCHII, very beautiful	2	6
COLEUS LAMONTI, ditto ..	1	6
HIBISCUS METALLICUS, ditto	3	6
RETINISPORA PLUMOSA ..	5	0
SALVIA GRAHAMI PURPURATA	1	6
SEDUM AZOIDEUM VARIEGATUM	2	6
12 of the finest NEW GERANIUMS (Zonals) let out this season for	12	0
12 finest NEW VERBENAS ditto	6	0
12 finest NEW CHRYSANTHEMUMS ditto	6	0
12 finest NEW PETUNIAS, Double and Single	6	0

VIOLETS, strong, in pots, for winter flowering.

QUEEN of VIOLETS, the most magnificent double variety grown, per dozen	9	0
KING of VIOLETS, extra fine double blue	9	0
NEAPOLITAN, fine Double Lilac	6	0
Double Red, very fine	12	0

64-page CATALOGUE of NEW and CHOICE PLANTS, ROSES on own roots, STRAWBERRIES, BULBS, &c., free on application.
Post-office Orders on Castle Hedingham.
Munro Nursery, Sible Hedingham, Essex.

STRAWBERRIES.

DR. HOGG.—Very large, extra fine Pine flavour, and a good bearer One of the finest in cultivation.
THE LADY.—All the fruit of a good equal size without thinning ; immense cropper for forcing, as we proved last spring ; flavour highly perfumed.
BRITISH QUEEN, PRINCE ARTHUR, KEEN'S SEEDLING.
CRIMSON QUEEN, SIR CHARLES NAPIER.
Prices—Established in large 32 pots for forcing, from 75s. to 100s. per 100. Strong layers in 60 pots, from 25s. to 50s. per 100. Strong runners from 5s. to 21s. per 100. A large collection of other varieties, strong, well-rooted runners, 5s. per 100.
JOHN & CHARLES LEE, Royal Vineyard Nursery and Seed Establishment, Hammersmith, London, W.

The Autumn Catalogue of

H. LAURENTIUS' Horticultural Establishment, Leipzig, containing BULBS and TUBEROUS-ROOTED PLANTS, VARIEGATED and COLOURED-LEAVED PLANTS, Prices for the Trade, &c. ; also a SELECT LIST of NOVELTIES and RARE PLANTS ; is now ready, and may be had gratis and post free on application to
Messrs. BETHAM & BLACKETH, Cox's Quay, Lower Thames St., London.

JOHN CRANSTON'S CATALOGUE of SELECTED ROSES is now ready and will be forwarded on application.
J. C. respectfully directs attention to the following LIST of FIRST PRIZES which have been awarded to him at the principal Rose Shows of the present year, proving beyond a doubt that the soil and climate of his Nurseries are unrivalled for the Cultivation of Roses.
Royal Botanic Society, Regent's Park, London.
June 19.—24 Varieties, Cut Roses, one truss each, FIRST PRIZE
Cirencester.
June 19.—36 Varieties, Cut Roses, three trusses each, FIRST PRIZE
Clifton.
June 25.—24 Varieties, Cut Roses, one truss each, FIRST PRIZE
Crystal Palace.
June 29.—72 Varieties, Cut Roses, one truss each, FIRST PRIZE
Royal Horticultural Society, South Kensington.
July 2.—72 Varieties, Cut Roses, one truss each, FIRST PRIZE
Birmingham.
July 4, 5.—72 Varieties, Cut Roses, one truss each, FIRST PRIZE
24 Varieties, Cut Roses, three trusses each, FIRST PRIZE
Hereford.
July 9.—72 Varieties, Cut Roses, one truss each, FIRST PRIZE
24 Varieties, Cut Roses, three trusses each, FIRST PRIZE
Rugby.
July 12.—72 Varieties, Cut Roses, one truss each, FIRST PRIZE
Nurseries, King's Acre, near Hereford.

CARTER'S DUTCH BULBS.



JAMES CARTER & CO.'S
AUTUMN SUPPLEMENT
TO THEIR
GARDENER'S AND FARMER'S VADE MECUM,



Containing ORIGINAL ARTICLES on the CULTURE of BULBS and SPRING GARDENING, also a LIST of VEGETABLE SEEDS for AUTUMN SOWING, is NOW READY and will be forwarded immediately on receipt of 12 Stamps (Gratis to Customers), on application to
CARTER'S GREAT LONDON SEED WAREHOUSE, 237 & 238, HIGH HOLBORN, LONDON, W.C.

NEW PLANT.—DALECHAMPIA ROEZLIANA ROSEA.

MR. WILLIAM BULL
WILL COMMENCE
SENDING OUT THIS BEAUTIFUL WINTER FLOWERING PLANT,
On and after the 14th inst.

It blooms very freely, even on plants a few inches high ; and produces its flowers nearly throughout the year, but especially so during the winter. Individually the flowers are extremely handsome and last a long time in beauty, owing to the persistent nature of the bracts. Added to these recommendations it is sweet-scented.
Decidedly the best New Plant of the year.
The large rosy bracts recall those of Bougainvillæa, and will render the plant very acceptable in our stoves, and useful for purposes of table decoration. The flowers are admirably adapted for bouquets.
This attractive plant has been introduced from Vera Cruz, Mexico. It differs from the great majority of its congeners, in its erect (not climbing) stem.
The leaves are 5 to 9 inches long, undivided ; 1 to 3 inches wide at the widest portion ; are very shortly stalked ; subcordate, obovate, or spoon-shaped ; tapering towards the base ; acuminate at the apex, and smooth, or nearly so on both surfaces. The peduncles are slender, thread-like, angular, slightly downy stalks, 2 to 3 inches long ; they bear at the top two small ovate bracts, placed at the base of two large, broadly egg-shaped, acuminate, denticulate, rosy-pink floral leaves. Within these two latter are other smaller bracts, placed around and among the male and female flowers ; some of them thick and club-shaped, and bearing at the top a fringe of short, yellow, waxy-looking threads, which give a singular appearance to the blossoms.
At the Royal Horticultural Society's Show of New and Rare Plants, held last May, Mr. W. B. received for Dalechampia roezliana rosea the First Prize (Silver Floral Medal), as "the best New Plant shown for the first time in flower."
This Plant has also received First-class Certificates from the Floral Committee of the Royal Horticultural Society, at the Great Horticultural Exhibition held at Bury St. Edmund's, the National Horticultural Exhibition at Manchester ; indeed, wherever exhibited it has received the highest Award that could be made.

Price Two Guineas each.

The following NEW PLANTS, having been successfully propagated,
Are now offered at the reduced prices annexed :—

BERTOLONIA MARGARITACEA, 21s., reduced from 63s.
CIBOTIUM PRINCEPS, 10s. 6d., reduced from 21s.
CISSUS ARGENTEA, 10s. 6d., reduced from 21s.
DICHROSTACHYS PLATYCARPA, 10s. 6d., reduced from 15s.
ERANTHEMUM IGNEUM, 10s. 6d., reduced from 31s. 6d.
GAULTHERIA PUNCTATA, 7s. 6d., reduced from 10s. 6d.
GLEICHENIA SPELUNCÆ, 5s., reduced from 10s. 6d.
GYMNOSTACHIUM PEARCEI, 5s., reduced from 7s. 6d.
MARANTA HEGRELLEANA, 31s. 6d., reduced from 63s.
MUSSÆNDA LUTEOLA, 7s. 6d., reduced from 15s.
MUSA VITTATA 31s. 6d., reduced from 42s.
PHILODENDRON HINDENIANUM, 21s., reduced from 63s.
PTERIS FLABELLATA ASCENSIONIS, 21s., reduced from 63s.
RHODODENDRON THIBAUDIENSE, 7s 6d., reduced from 10s. 6d
SAMYDA NOBILIS, 31s. 6d., reduced from 63s.
TERMINALIA ELEGANS, 42s., reduced from 105s.
UROSPATHA SPLENDENS, 10s. 6d., reduced from 21s.
" SPECTABILIS, 10s. 6d., reduced from 21s.

For descriptions of the above, *vide* MR. W. BULL'S CATALOGUE of NEW and RARE PLANTS.

ESTABLISHMENT FOR NEW AND RARE PLANTS, KING'S ROAD CHELSEA, LONDON, S.W.

PELARGONIUM EBOR (GOLD OR BRONZE ZONAL).—This is a variety which we can with confidence recommend to all Growers of this popular class of Plants. It is a Seedling which for two years has been grown and exhibited in our Nursery, and has received the unqualified approbation of all who have seen it. The constitution is vigorous, whilst the habit is remarkably close and compact. The leaves are of good size and substance, even, and of a fine rounded outline. The yellowish-gold disc is bounded by a broad regular zone of deep chocolate-bronze, with a good outer edge, rendering it most effective as a Bedding Variety; whilst as a Plant for House Cultivation it is distinguished for the clearness of its markings and excellent habit. Good Plants now ready, 21s. each.
JAS. BACKHOUSE & SON, York Nurseries.

New Plants, 1867.
SPECIAL OFFER TO THE TRADE, FOR OCTOBER ONLY.

H. CANNELL will send the following, in strong distinct kinds, on the receipt of a Post Office Order for 10s.:—
12 FUCHSIAS, including TRICOLOR and PICTURATA; 4 LOBELIAS, including PUMILA ELEGANS; 2 best ALTERNANTHERAS; 3 COLEUS, including VIETCHII; 4 TROPÆOLUMS, 6 PETUNIAS, 2 GOLDEN FEATHERS, 2 POA TRIVIALIS ARGENTEA, and 2 AGERATUMS.
Fuchsia Nursery, Woolwich.

New Weeping Elms.
WOODLANDS NURSERY, MARESFIELD, NEAR UCKFIELD, SUSSEX.

WM. WOOD AND SON have much pleasure in recommending the undernamed magnificent WEEPING ELMS, being varieties of Ulmus suberosa, which have been raised from Seed in their Nurseries, and have excited the admiration of several of the leading Nurserymen and Amateurs.
The gracefully weeping branches of these two new Elms are thickly covered with a cork-like excrescence, presenting a very interesting and novel appearance, entirely distinct from all other varieties in cultivation.
ULMUS SUBEROSA PENDULA .. .. 5s.
" " MICROPHYLLA .. 5s.
Usual discount allowed to the Trade.

WELLINGTONIA GIGANTEA. — A Gentleman having more specimens of this noble tree than he requires, wishes to DISPOSE OF SOME; they are all Seedlings, and as perfect in form as possible, ranging from 5 to 8 feet high, and 4 to 5 feet through. They will move safely, having been regularly transplanted, and will carry large balls of earth. For particulars and to view,
Address, A. A., *Gardeners' Chronicle* Office, W.C.

Ixoras.
J. AND R. THYNE, Woodside Nursery, Glasgow, beg to state that they are prepared to offer a very superior Stock of the above at the following prices:—
In 8-inch pots, 16 inches high, and bushy, 7s. 6d. each.
In 7-inch pots, 10 inches high, 42s. per dozen.
In 6-inch pots, 8 inches high, 30s. per dozen.
The above are nearly all well set with bloom-buds.
In 4-inch pots, 7 inches high, 18s. per dozen

Elvaston Nurseries, Borrowash.
WILLIAM BARRON AND SON'S PRICED DESCRIPTIVE CATALOGUE of CONIFERÆ, HARDY JAPANESE PLANTS, and EVERGREEN and DECIDUOUS SHRUBS for the AUTUMN of 1867 is now ready, and may be had post free on application. Their Stock this year is unusually fine.
Elvaston Nurseries are only 3 minutes' walk from the Borrowash Station on the Derby and Nottingham Railway.

Richmond Nurseries, Richmond, Surrey.
G. AND W. STEELE beg to call the attention of the Trade in general to their valuable and very extensive Stock of CONIFEROUS and other EVERGREENS, particularly Striped and Green Hollies, in which they abound; and also to their DWARF-TRAINED, STANDARD, and SPIRAL FRUIT TREES, which are of first-rate quality, consisting of Apricots, Peaches, Nectarines, Apples, Pears, Plums, Cherries, &c., which are second to none in the Trade. An inspection by Travellers this Autumn is respectfully solicited.

Forest Trees, Fruit Trees, Evergreens, Plants for Game Covers, Conifers, Roses, &c.
FRANCIS AND ARTHUR DICKSON AND SONS invite the attention of Planters to their very large stock of the above, which in extent and variety is not excelled by any Nursery in the Kingdom. Their Nurseries, which are very bleak and exposed, extend over some 600 Acres, and their Plants are well known to be unusually hardy, as well as in the most perfect health and condition in every respect; and are found to thrive admirably when removed to other parts of the country. PRICED CATALOGUES post free upon application. Estimates and Special Prices for large quantities.
The "Upton" Nurseries, and "Old" Established Seed Warehouse, 106, Eastgate Street, Chester.

Fruit Trees and Fruit Tree Stocks, Roses, and other Nursery Stock.
GEORGE GRAY AND SON begs leave to offer to the Trade, MUSSEL and other PLUM STOCKS; also CRABS, APPLES, and PEARS, all very clean and strong, two and three years transplanted: one to two thousands of MANETTI ROSE STOCKS, DWARF HYBRID PERPETUAL and TEA ROSES, very strong, of all the leading and approved kinds, new and old; also strong MOSS, CABBAGE, PROVENCE, CHINA, and other ROSES, on own roots, twice transplanted. They also offer several thousands of Dwarf Trained and Maiden FRUIT TREES; also one year cut-backs of APPLES, APRICOTS, PEACHES, NECTARINES, PEARS, PLUMS, and CHERRIES (the trained trees are very strong and handsome), and of all the most approved sorts, new and old; RHODODENDRONS, two years' grafts of the leading kinds; EVERGREENS, and other kinds of Nursery Stock. Prices of all, which are very moderate, may be had on application.
Nurseries, Brox, Chertsey, Surrey.

Northampton Nurseries.
JOHN PERKINS, SEN., begs to call the attention of Noblemen, Gentlemen, and others engaged in Planting, to his large stock of the following:—1,000,000 BLACK THORNS, for Covert Planting, 1½ to 2 feet, 2½ to 3 feet; 2,000,000 LARCH FIRS, 3 to 4 ft., 4 to 6 feet; 1,000,000 SPRUCE FIRS, 1½ to 2 feet, 2½ to 3 feet, 3 to 4 feet; 2,000,000 WHITE THORN QUICK, 2 and 3 years transplanted; also large quantities of

Birch, 3 to 4 feet	Elms, English, 6 to 8 ft., 8 to 10 ft.
Berberis Dulcis, 2 to 3 feet	Elms, Huntingdon, 6 to 8, 8 to 10 ft.
Cedrus Deodara, 5 to 6 ft., 6 to 8 ft.	Chestnuts, Spanish, 2 to 3 feet
Green Box, 1½ to 2 feet	Portugal Laurel, 1½ to 2 ft, 2 to 3 ft.
Evergreen Privet, 2 to 3 feet	Pinus austriaca, 2 to 3 feet
Hornbeam, 3 to 4 feet	Sycamore, 3 to 4 feet

J. P.'s stock of all kinds of FRUIT, FOREST and ORNAMENTAL TREES, &c., is very extensive, and this season remarkably fine, and in excellent condition for removal, having been frequently transplanted. DESCRIPTIVE PRICED CATALOGUES sent post free on application to 52, Market Square, Northampton.

CHARLES NOBLE begs to offer the following (a large clearance must be made, and purchasers are invited to ask for prices):—

Alder and Birch, 2 to 6 feet.	Dwarf and Pyramidal Cherries.
Chestnut, Horse and Spanish, 1 to 3 feet.	Thuja americana, 1 to 3 feet.
Elm (scotch), 2 to 4 feet.	Deutzia crenata fl. pl., 1 to 4 feet.
Larch, Spruce and Scotch, 2 to 4 feet.	Spiræas, in best kinds, 3 to 4 feet.
Oaks and Thorns, 1 to 3 feet.	Erica herbacea, fine.
Poplars, of sorts, 4 to 8 feet.	" other sorts.
Abies Douglasii, 6 to 7 feet.	Cotoneaster Simmondsii, 2 to 3 ft.
Thujopsis borealis, 1 to 7 feet.	Ligustrum ovalifolium, 1 to 3 ft.
Thuja Loobii, 2 to 4 feet.	Berberis japonica Darwinni.
Retinispora ericoides, 1 to 2 feet.	" dulcis, &c
" squarrosa, 1 foot.	Sweet Gall, Sweet Briar, 1 to 3 ft.
" obtusa, 1 to 3 feet.	Pampas Grass.
" juniperæ, 1 to 3 feet.	Arundo conspicua.
Cupressus Lawsonii, 2 to 6 feet.	Vinca elegantissima.
" " erecta, 2 to 6 ft.	Russian Violets.
Dwarf Roses, best kinds.	Ivies, green and variegated.
Dwarf and Pyramidal Pears.	Manetti stocks.
	Pear and Mussel stocks.
	Grape Vines, a fine selection.

PEACHES, NECTARINES, APRICOTS, APPLES, PEARS, &c.; dwarf bushes for Potting.
RHODODENDRONS, for cover planting, all heights and sizes.
" finest named kinds.
CHARLES NOBLE, Sunningdale, Bagshot, Surrey.

To Noblemen and Gentlemen about to Plant.
JOHN HARRISON begs to inform his Patrons that in consequence of one of his Nurseries being required for building, he is SELLING OFF this portion of his STOCK at very reduced prices. A large quantity of very splendid specimens of CONIFERÆ, EVERGREEN SHRUBS, and FRUIT TREES; many hundreds of CEDRUS DEODARA, 6 to 12 feet high and nearly as much through; WELLINGTONIA GIGANTEA, 4 to 7 feet; ABIES DOUGLASII, CRYPTOMERIA JAPONICA, ARAUCARIA IMBRICATA, THUJA AUREA, THUJA LAWSONII, THUJA LOBBII, and T. GIGANTEA, THUJOPSIS BOREALIS, PINUS EXCELSA, and PINUS NOBILIS, &c. Many hundreds of the above in splendid specimens and frequently removed, must shortly be cleared off the ground. Several thousands of fine PORTUGAL LAURELS, YEWS, CANADIAN PINES, AUCUBAS, JUNIPERS, CEDARS, &c. HOLLIES of various sorts, in fine specimens. Also a very large Stock of STANDARD, DWARF, and PYRAMID APPLES, PEARS, CHERRY, and PLUM TREES.
Address, North of England Rose Nursery, Darlington.

CUCUMBER "DICKSON'S FAVOURITE" or ALL THE YEAR ROUND.
We can confidently recommend this as one of the best Winter Cucumbers grown, while it is second to none for general purposes. In Winter it grows about one foot long, and in Summer from 15 to 18 inches, is of deep green colour, very handsome, delicate in flavour, and particularly tender, crisp and juicy. It is very prolific, showing two to three fruit at every joint, and furnishes a continual supply of handsome Cucumbers during the Winter, Spring, and Summer months. Per packet 1s. 6d. and 2s. 6d., post free.
FRANCIS & ARTHUR DICKSON & SONS, The "Old" Established Seed Warehouse, 106, Eastgate Street, Chester.

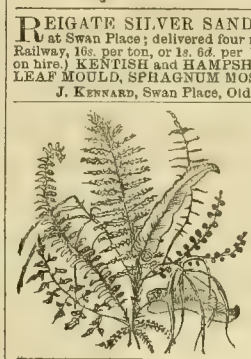
To Farmers, Gardeners, and Others.
EXCELLENT CABBAGE PLANTS (Stocks not to be surpassed), can be supplied in any quantity, as follows:—
TRUE DWARF NONPAREIL (the earliest and best), 2s. 6d. per 1000
TRUE ENFIELD MARKET (extra fine variety), 2s. 6d. per 1000
TRUE ROBINSON'S CHAMPION DRUMHEAD, 2s. 6d. per 1000
TRUE RED DUTCH (for Pickling), 6s. per 1000
A remittance or reference to accompany all orders.
FREDK. GEE, Seed Merchant and Grower, Biggleswade, Bedfordshire.

Seed Potatos.
H. AND F. SHARPE are now offering MYATT'S EARLY PROLIFIC KIDNEY, RIVERS' ROYAL ASHLEAF, WEBB'S IMPERIAL KIDNEY, DAINTREE'S EARLIEST, EARLY OXFORD, EARLY FORTY-FOLD, and many other Early and Late varieties grown from their own selected stocks. The Prices are moderate, and the quality excellent. PRICED LISTS may be had on application.
Seed Growing Establishment, Wisbech.

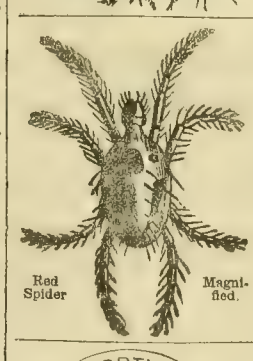


GRASS SEEDS for PERMANENT PASTURE, of the finest quality, at moderate prices, carefully selected on a new, natural, and scientific system.
See "WHEELER'S BOOK on GRASSES," which contains Illustrations and Descriptions of the most suitable Grasses for Permanent Pasture.
J. C. WHEELER & SON,
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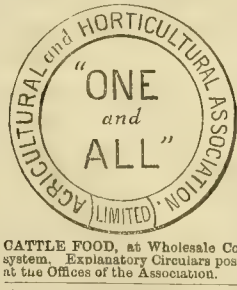
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The Gardeners' Chronicle.

SATURDAY, OCTOBER 5, 1867.

THE havoc and consequent vexation occasioned by the frost of last winter will no doubt influence many who are about to plant this autumn, and will induce them to ask the question—What shall we plant?

If Conifers be planted, what security is there that the choicer kinds will not, sooner or later, succumb to our treacherous climate? Again, although no one would deny the beauty of some of the trees of this family, yet it must be acknowledged that in other cases, after a time, the trees assume a scraggy, naked aspect, very much the reverse of ornamental. This is the case with many of the Pinus tribe. Even Pinus insignis is apt to get bare and unsightly as it grows older, a fact which will compensate some for the loss of what in the young state is a noble tree.

We have not the remotest wish to depreciate the Conifers; many of them are so splendid in their growth that it would be the merest affectation to pretend to underrate them. Should any lover of this family wish to increase his fondness for them, let him visit Dropmore and see the Douglas Fir, towering up to a height of nearly 100 feet—let him see the elegant glaucous Cedar of Lebanon, the fine Araucarias, the stately Picea nobilis, and all the host of interesting specimens which have been tended so carefully by Mr. FROST. But, however suitable Conifers may be for certain localities and certain conditions, it is equally sure that they are not fitted for other places, or it may be that the taste and fancy of the intending planter do not tend toward their cultivation. Under such circumstances recourse must be had to DECIDUOUS TREES, and we are a little surprised at the comparative neglect into which they have fallen of late years.

Ornamental trees of this description are for the most part perfectly hardy, and the choice they offer to the planter is most varied. A landscape gardener, or, indeed, any one with the slightest taste, will know how to group and where to place them. But without particular reference to landscape effect, when trees are planted for shelter, or to hide an unsightly object or what not, is it not remarkable that the run should be so much upon certain trees, to the almost entire exclusion of others equally suitable? Why should we see so constantly common Limes, common Horse Chestnuts, &c., to the exclusion of other equally useful trees?

At this season how gorgeous are some of the leaves in their robes of death! What a golden glow there is on the Virgilia lutea, what a ruddy bronze tint lights up the leaves of the Crus galli and other Thorns, rendering them as iridescent in the sunlight as so many films of copper. Then there are the Maples and the Liquidambar with their splendid scarlet tints, and the Pavias and Gleditschias steeped in golden hues. These are the waning tints of autumn, it may be said; there is an ample selection of variegated-leaved trees whose particolored hues are more permanent; such are the Acer Negundo variegata, not to speak of the many new Japanese Maples which are hardly known out-of-doors yet, but for which great future popularity may be predicted. There are the variegated Elms, blotched with silver and golden tints, there are the purple-leaved Beeches and Filberts, the white-leaved Poplars, the Elæagnus, the curious Pyrus salicifolia. In this section there are also some novelties which, when more widely known, will be in great demand: such are the golden-leaved Elm and the golden Alder, both of Belgian origin, as well as the golden Oak, all quite different from anything of the kind grown previously in this country; their leaves are not merely speckled with gold, but are of one unbroken golden tint, which when lit up by the sun is radiant indeed. Among variegated Elms, too, we may mention a small-leaved form raised by the Messrs. LEE, and which we believe is not yet "let out," but which is a little gem in its way.

Is the general form and habit of the tree an object? There are the Planes, the Gleditschias, the cut-leaved Alder, the Beeches, the Alnus cordata, the weeping Elms, the Poplars, the Limes, and scores of others, many of them almost as beautiful when their branches are bare and seen against a clear sky as when clothed with foliage. Is the planter "curious" in his tastes? There is abundance of material to gratify his whim among deciduous trees. There are Fern-leaved Beeches and Limes, and jagged Birches; Laburnums, some with slashed, others with oddly crumpled leaves; there are Elms with similarly crisped foliage, not to mention curly-leaved Willows, and many similar freaks.

In addition to their foliage, many of this class of trees are most valuable for their flowers in early spring, or for their brightly-coloured fruit at a later season. With winter gradually stealing upon us, we can still remember the delicate purplish tinge of the Elm blossoms against the blue sky—we can look forward with equal pleasure to the brilliant catkins of the Poplars and Willows, the rounded yellow masses of bloom of the Norway and other Maples, the white sheets of blossom that cover the Amelanchier and the Medlar, the profusion of white or pink flowers that bedeck the Thorns. And as for the fruits, who can look without admiration at the glowing berries of the Mountain Ash and other species of Pyrus, or at those of the many garden forms of Cratægus? Whose eyes are not gladdened with the sight of the Berberis laden with its coral pendants? We have taken our illustrations quite indiscriminately when writing, but we trust that we may succeed in drawing increased attention to a class of trees possessing as much, if not more, variety and interest than any other, and which are the more valuable as contrasting so well with the more sombre tints and comparatively monotonous forms of evergreen trees and shrubs.

ALTHOUGH much has been written on PRUNING THE VINE, we are not aware that special reference has been made to any specific time for performing that operation, or to any advantages to be derived therefrom. Of course it will be admitted on all hands, that Vines should not be pruned until the wood of the current year is quite ripe, and the leaves have fallen, for so long as they hold on it is believed they are doing some good to the plant, or in other words are supplying nutriment to it. THOMSON, in his recent treatise, says nothing about the time to prune, but treats it as a foregone conclusion; and though some gardeners may venture to prune before the leaf has fallen, as a matter of convenience, we question if they do not almost invariably consider they are, to some extent, doing wrong. The function of the leaf, however, is a very intricate matter, and whether after it begins to assume the "sere and yellow" form, it continues to minister to the material fabric of the plant, is a question open to debate, if not to doubt.

Thirty years ago, a friend of ours, one of the best gardeners in England, used at this season—the end of September—to divest his Vines of lateral branches, and to cut the leading shoots back to within one leaf of the bunch. At the same time the branches were loosened from the training wires and allowed to hang down as far as the weight of the bunch would depress them—our friend always contending that the buds at the base of the branch swelled or plumped up more in consequence, and that to allow the sap to spread through a lot of lateral branches was a waste of the vital force of the plant. Looking at the matter from a physiological point of view, we could never see any force in this reasoning. The fluid of a plant contains little if any life invigorating nutriment until it has passed through the leaf, and has there, under the influence of light, been converted into true sap. The upward flow may be considered life, but it is the backward movement—the return of organisable matter—that gives substance to the plant. Reasoning thus, we could see no advantage in denuding a plant of its laterals, further than promoting a free circulation of air—an important point indeed in keeping Grapes in the winter season; and hence we came to look upon it as one of those "practical" expedients which science could not sanction. The practice had passed from our mind, like many other foregone conclusions, until a short time back, when in conversation on Grape culture with an experienced grower, he put the very pertinent question: "What difference do you think there would be in the colouring of the Grapes upon two Vines in the same house; one pruned say in September, before the leaves had fallen, and the other pruned at Christmas?" We naturally said there would be no difference, and were astonished to find that repeated experiments, reversing the Vines for the experiment, had proved that those pruned in September while the leaves were on, would have the Grapes coloured 15 to 20 days earlier than other Vines pruned in November. A fact so interesting was too important to be "hid under a bushel," and hence it is our privilege to make it known. The experiment has been tried for years upon Vines that yield a supply of fruit from June until January, and whether in early or late houses, with the same result.

Our informant was forced to this practice by the prevailing rule, want of space; for having a large conservatory to supply with blooming plants through the winter, he has been obliged to avail himself of his Vineries to store his Salvias, Azaleas, &c., for the winter supply. Before he pruned early, the falling leaves were a perpetual nuisance, and not only the leaves, but insects also. Where Vines and plants are necessarily grown together, it is a difficult matter to keep the former clear of insects, such as thrip and red spider; and when the leaves fall among the plants it is equally impossible to keep the plants clean. Forced to this extremity, early pruning was resorted to, and that with the most complete and satisfactory result. Now our friend prunes, cleans, and dresses his Vines, and washes and lime-whites his houses before the greenhouse plants are put in for the winter; and thus managed they not only look much cleaner, but it is fair to infer they are almost, if not quite, free from insect pests. At this season the preceding facts are worth knowing, for as most gardeners are obliged to use their Vineries as plant stores, it is important to know that the Vines may be pruned with their leaves on, not only without injury to the succeeding crop, but with decided advantage.

Of the physiological question involved in the practice it is difficult to speak with certainty. It assuredly does not square with preconceived notions of the returning sap being the only organiser of the substance of the plant, but it seems rather to point to the fact that the upward flow has the power to mature the bud and induce a precocious growth in the spring, more than the returning sap of the matured and fully organised growth. We can quite understand the action of the upward current upon the stored organisable matter when excited into action by the light and heat of a returning season of growth; but this autumnal action is not quite so explicable. We hope, however, that some of our observant readers will put the facts we have set forth to the test of experiment, so that in the multitude of counsel the wisdom of the practice may be fully realised. If it answers for Grapes to ripen in June, the practice will be equally important for Grapes to ripen in January, and perhaps more so, as it is always more difficult to get Vines to break early, than at their natural season for growth. *P.*

—— WE are requested to announce that the next EXAMINATION of the ROYAL HORTICULTURAL SOCIETY will commence on Tuesday, December 17th, and not on December 31st, as previously intimated. This examination is open to all young gardeners who may desire to present themselves, the only condition being the recommendation of a Fellow of the Society, or of the director of a public garden. We exhort all young gardeners who are ambitious to distinguish themselves in their profession to enter the lists. The thought and effort brought into play in preparing for an examination, form an excellent discipline, and can-

not fail to benefit those who have energy enough to engage in such an exercise.

—— The case of STEALING a cutting of PELARGONIUM LADY CULLUM, to which we alluded at p. 996, has, we are informed, been decided by the conviction of the offender, ALFRED FISHER, notwithstanding the efforts of his solicitor to make out a case of mistaken identity. The sentence was a fine of 5*l.*, making, with expenses, a total of 6*l.* 4*s.*, or two months' imprisonment with hard labour. It is to be hoped that this conviction may have a salutary influence on those who find it hard to repress their pilfering proclivities when they attend a flower show. The matter has not been taken up before it was needed, for at the great show at Bury, last July, a plant of Lucy Grieve and a cutting of Senior Wrangler were stolen from the tents. The Bury Horticultural Society has prosecuted in the present case.

—— We alluded some time ago to certain cases of VARIEGATION INDUCED BY INOCULATION, and suggested that the growers of Variegated Zonal Pelargoniums should look to this as a means of procuring some very choice things in that way. The idea which thus presented itself has been in some degree realised. In the nurseries of Messrs. BALLANTYNE & SON, Dalkeith, observes a northern contemporary, "there is now to be seen a variegated Geranium raised in the following manner:—A strong upright sport of that old green-leaved favourite, GLENDINNING'S seedling scarlet Geranium, was grafted two or three months since with that popular quadricolor, Mrs. Pollock, which 'took' somewhat imperfectly, but lived for five or six weeks, when a bud presenting an appearance of variegation was observed to protrude from the old stem at from 5 to 6 inches under the graft. The partly adhering Mrs. Pollock was then removed, so as to encourage the growth of the young shoot, which is now growing freely, and may be described as a first-class bicolor, or white and green-leaved Geranium."

—— Those interested in Grape growing will be pleased to hear that a PHOTOGRAPH has been taken of Mr. FOWLER'S 17-pound bunch of WHITE NICE GRAPE, which was exhibited at Glasgow on the 11th of last month (see p. 978). The shape and general appearance of the bunch are well shown in the photograph, copies of which may be had from Mr. BROWN, Portland Street, Kilmarnock.

—— The introduction of TYE'S GLASSES for the CULTURE of the HYACINTH IN WATER, has resulted not only in the improved form of the vases for cultural purposes, but has stimulated manufacturers to make use of tasteful designs and improved material, which were formerly defective. Messrs. CLAUDET and HOUGHTON have submitted to us a large number of their single and triple glasses, the designs on some of which are particularly elegant, so that the vases, whether in use or not, are well adapted to adorn a drawing-room or boudoir.

—— We learn from our Paris Correspondent that what is probably the finest EXHIBITION OF HARDY FRUITS ever held has just been opened at the Exposition. The quantity of fruit shown, too, is enormous, and the quality superb. The large pavilion in the centre of the reserved garden, the Palm house, and other large glass houses, are quite filled with magnificent fruit. The exhibition of fruit lately held in connection with the Pomological Congress of France was quite small compared with this, which may safely be pronounced to be the most successful show of all in connection with the Exposition, and is quite a credit to French cultivators of hardy fruits. Our correspondent will have more to say about this exhibition next week.

—— Dr. BROWN, who till recently held the office of Colonial Botanist at the Cape of Good Hope, having during his tenure of that office collected a large amount of information on the natural products and physical conditions of the CAPE OF GOOD HOPE, proposes to publish a series of treatises, embracing—

I. The Hydrology of Southern Africa, in which the desiccation of South Africa from pre-Adamic times to the present day is traced by indications supplied by geological formations, by the physical geography or general contour of the country, and by arborescent productions in the interior, with results confirmatory of the opinion that the appropriate remedies are irrigation, arboriculture, and an improved forest economy.

II. The Water Supply of South Africa, its sources, its quantity, the modes of irrigation required in different circumstances, the facilities for the adoption of these in different districts, and the difficulties, physical and other, in the way of works of extensive irrigation being carried out at the Cape, and the means of accomplishing those which are at command.

III. The Forests and Forest Lands of Southern Africa, with details of the extent and contents of the different forests of the Colony of the Cape, of Kaffirland, of Natal, and of the regions beyond to the mouth of the Zambesi, and a corresponding latitude on the west coast, with the intermediate districts.

IV. South African Trees and Arborescent Shrubs, with the natural history, botanic characters, and economic uses of those enumerated in a list of upwards of 450 names in the English, Dutch, Kaffir, Bechuana, Damara, and Hottentot languages, with botanic synonyms, appended to "Report of Colonial Botanist for 1866."

V. Forest Economy of the Cape Colony; and forest economy of Britain, British North America, Honduras, Australia, Ceylon, India, France, Germany, Russia, and Sweden, suggestive of arrangements for the conservation, utilization, and extension by plantation of the forests of the Cape.

VI. South African Arboriculture, with details of what has been done, and what may be done, in planting trees in the Colony with a view to securing thereby ornamentation, moisture, shelter, fuel, or timber.

VII. Physiology of arborescent vegetation illustrative of the probable effect of subsoil ploughing, draining, fencing, transplanting, pruning, and thinning plantations of trees at the Cape.

VIII. Trees Cultivated or Recommended for Culture at the Cape, with notices of the natural history, characteristics, and uses of each.

IX. The Agricultural Capabilities of the Colony, and measures adapted to the development of these.

X. The Herbage and Grasses of the Cape, with notices of the economic uses to which many may be applied, forming a manual for inexperienced students of the flora of the Cape.

XI. The Ferns of the Cape.

XII. The Sea Weeds of the Cape.

New Plants.

GOODYERA (GEORCHIS) MACRANTHA, *Maxim. in Gartenflora*, 1867, 36, t. 533, fig. 2.

Nana, caule glabro brevissimo approximatim folioso, vaginis foliorum amplis in petiolum augustatis, foliis ovatis acutis reticulatim pictis spicam 2—3 floram brevissimam fulcientibus, bracteis elongato linearibus acuminatis ovarium superantibus perigoniisque plusquam pollicaribus pilosis, sepalis petalisque linearibus, labello basi leviter saccato intusque piloso lineari-acuminato, stigmate basi margine 4-dentato cincto.

Hab. in Japonia meridionali, unde cultam habeat in urbe Yedo, nec non in archipelago Koreano, ubi raram invenit b. Oldham.

To the above technical particulars from the *Gartenflora* we add the following popular account and figure of this very pretty little plant, borrowed from the *Florist and Pomologist*:—

"If not quite equal in beauty of colour and marking to the Anæctochils of our hothouses, we have at least in this pretty Japanese plant one which is suggestive of those rare hothouse gems, and one which has enough of intrinsic beauty to make it a welcome addition to our collections. It has been introduced from Japan in a living state to the St. Petersburgh Botanic Garden by M. Maximowicz, and the same, or a very similar plant, was brought to this country by Mr. J. G. Veitch on his return from Japan.

"The plant is a dwarf herb, with short stems, and approximate leaves, narrowing into the petiole, which



is dilated, so as to sheath the stem by its base. The form of the leaves is ovate, acute, the margin being of a clear pale yellow, and the central part barred with bright green reticulations on a deep olive-green ground. The flowers are upwards of an inch long, of a pale pink colour, hairy on the outside, with linear erect sepals and petals, and a lip of the same form, but shorter and recurved. It is related to the Georchis biflora of Lindley, and M. Maximowicz regards it as forming with that plant, a very natural section of the genus Goodyera.

"For garden purposes it will be very welcome, because, with much of the beauty of the Anæctochils, it is far more manageable than they. Indeed, M. Regel states that it succeeds well in a cool house if placed in a light situation, protected from the influence of the sun by means of shading. In Japan it is only met with in cultivation, and M. Regel suspects that this and another species, G. velutina, something in the way of G. discolor, both come from the southern islands of Japan. Their free growth, easy culture, and nicely marked leaves render them both desirable for general cultivation. It is recommended that they should be grown in flat pots, planted in freshly gathered sphagnum, mixed with a little loamy earth and sand, and kept rather elevated above the edge of the pot."

GARDEN WALLS.

THE appeal of "Una Mœnia" (see p. 602) has not met with that response which I think the subject demands. In my opinion the question is not whether we shall do away with walls and replace them with glass structures, but whether garden walls may not be built on an improved principle, or whether glass cannot be profitably introduced in combination with walls. The best manner of constructing either a wall or a house ought always to receive the best attention of gardeners, and I was disappointed when this subject was brought before us, to find that instead of provoking a discussion of the point, it was elbowed out of your columns altogether, by protests, and matter having little or no relation to garden walls. Granted that walls will never be done away with, the question arises, and is well worth considering—Is a wall for the growth of fruit best built hollow or solid? Hollow walls, *i.e.*, walls having no filling but bound together, say every 3 feet, by solid work, known as 9-inch work, would have advantages over a solid one, and would be as cheap as one of that description. Hollow walls could be kept warmer in spring than solid ones, and equally cool in summer. Ventilators in the shape of loose bricks at the foot could be made to regulate that. The reservoir of warm air contained within those walls would be equally advantageous in the case of east and west as north and south walls. I think if hollow walls were adopted we should hear less than we do of the failure of crops on wall trees through spring frosts. Every gardener knows that in bright frosty weather bricks retain warmth in their outer surface for hours after the sun has left them; if, therefore, the inner surface could also be warmed, which I believe would be the case in hollow walls, the advantages of such structures would be apparent.

Then as regards coping, instead of heavy tiling or slate, why not use glass? In the case of hollow walls, I would recommend slate to be put on first, flat, one every 6 feet being movable so as to be taken aside in summer, in order to give free action to the air. Glass copings could easily be constructed to allow a Vine to grow under them. These copings could also be extended to ward off hail and heavy rains. Fancy, ½ lb. of Grapes to every foot of wall enclosing 3 acres! This, however, need not be confined to the imagination, for doubtless they must be seen, handled, and, better still, eaten and enjoyed. This would be making a wall what "Una Mœnia" thinks it ought to be, "almost itself a fruit garden." But perhaps your correspondent would like more glass introduced so as not to have, for instance, all his Peaches ripe in the same month: this I believe might be effected by a better method than that now generally used—at least by one less costly. One way would be, instead of having a house, have a wall built with 9 inch work, with supports built 18 inches by 3 feet, at intervals of 20 feet, and sashes adapted to fit those places between the supports. Thus, where the trees would be, would be a contrivance less costly than a house, and one which would answer the same purpose. Access to the trees could be had by means of a sliding sash or a door. The earliest compartment could be heated artificially, the second would come on without that attention, and the next might be exposed altogether. This would be in reality a succession of fruit cases equal to a run of houses. The roof of these cases of course should be used as a ventilator, and slides should be introduced at the bottom of the sashes for admitting fresh air. Sashes on Sir Joseph Paxton's principle would perhaps answer the purpose of enclosing the compartments in question as well as any that could be devised. These cases need not be confined to the Peach wall; Cherries and Plums could be forwarded by them.

These contrivances could, moreover, be used in mid-winter for stowing away different things where they would be dry, preparatory to forcing them. Green fly and other insects could easily be destroyed in the cases just named, and also in the hollow walls, by fumigation. As to aspect, I believe that all gardeners would prefer "a slight inclination towards the morning sun" for either Peach walls or houses. Indeed the rays of the rising sun are so valuable in gradually thawing frozen leaves or blossoms, for the want of which many crops have been destroyed by the sun suddenly coming on them after he has attained some hours' strength, that I should decidedly "go in" for east two or three points. These are a few suggestions which I should certainly carry out if desired to erect a new garden wall on a principle of my own; and for many reasons which I hope are apparent in the desoription I have just given, I believe that the result would prove more effectual and less costly than either common walls or houses. *H. M., Enys, Penryn.*

RIVAL SYSTEMS OF GRAPE GROWING.

As my name has been brought prominently forward in one of your leading articles (see p. 972) respecting the rival systems of Grape growing, perhaps you will kindly allow me space to make a few remarks on the subject. Whether the advocates of the progressive system have the best of the argument or not, is a mere matter of opinion, and time will try this better than by jumping at too hasty conclusions. Had the progressive system been such a panacea for all the ills that Vines are heir too, it would have been more generally tried before this, and not left to be revived in a nurseryman's catalogue. But no doubt these spasmodic episodes in fruit culture will crop up now and then, and do good by making the opinions of experienced gardeners known to younger men in the profession, as well as to amateurs. That legitimate Grape growing can only be attained by the progressive plan, I beg leave to doubt. It is certainly the most natural to the plant; and to gardeners and amateurs who do not know how to prune the Vine properly, or to add to its wants in confined borders, it may be the most successful system. For market gardening purposes, where a quantity of fruit is wanted at a particular season, it may likewise be found to answer the best, particularly where broad borders of a good natural soil can be secured.

That young Vines on the restrictive system only produce large bunches when they are extending, and fail to do so after the plethoric condition has set in, only holds good where they are mismanaged as to pruning and borders. It is well known that all kinds of fruit trees, as well as Vines, always produce the largest fruit when they are young. That Vines may be kept fruitful for a lengthened number of years, and show fine bunches and berries under the restrictive system, I have proved with the largest collection of Grapes in any one place in the kingdom. But this is not done by pruning them like Hop poles, but by encouraging healthy foliage, and vigorous young wood,

by judicious pruning, and by attention to the wants of their roots. I never hesitate to chop off two or three feet width of soil from an exhausted border, whether inside or out, and to fill up with turfy soil from the top of a limestone rock, mixed with a few bones. It is better, perhaps, to fork the roots out, when it can be done, than to chop all away, but in either way new vigour is given to the Vines, and the soil can be renewed again after the lapse of a few years.

I believe that Mr. Fowler is on the right track with his aërated borders, and that the highest point of excellence will be attained in the cultivation of Grapes when this mode becomes more general.

You say "that a fully developed tree of any kind, with the free action of root and branch, will produce finer fruit than another of the same variety suffering from the maiming of its roots or branches." Now, I can show at the present time, growing in a small pot, a bush of Cox's Pomona Apple, with eight fruit on it; one of these Apples girths 14 inches, and all the fruit are far larger and more highly coloured than any of the same sort on the walls, or borders, on fully developed trees. The pot that contains this bush is only 11 inches wide, and about the same in depth, and three crops have been taken since the tree was potted, the only addition of soil being a little top dressing. All my Louise Bonne, Beurré Clairgeau, and other Pears are larger and more highly coloured this year, where restricted in pots, than those more fully developed in the borders.

Whether the large Vines at Clumber have always been grown on the restrictive system I know not, but this I do know, that for the last 30 years there has been one to a rafter, and they have never failed in producing good crops. This year Mr. Tegg had some Frontignans, and other Grapes, as good in colour and flavour, from the old Vines, as any in the country, at least as far as exhibited. These Vines must now be between 90 and 100 years old, if planted at the time when the hothouses were built.

Another subject has lately been mooted in your columns, namely, the judging of Grapes, and some spirited correspondence has already appeared. I believe that few gardeners would like to see their bunches of Grapes mauled about and tasted by the judges, neither do I think it is requisite, for all good judges of Grapes can tell at a glance the best as to growth and finish of the different varieties. When there is a great equality in the size of the bunches and berries, then by all means let the best flavoured and highest coloured samples carry the day. The judges of Grapes at the Horticultural Society, Crystal Palace, and Regent's Park shows, generally give satisfaction, but I should be chary of sending Grapes to many of the country shows unless I knew who the judges were to be.

I have sent you a berry of the Black Tripoli variety of Hamburgh Grape, which you will find girths nearly 6 inches round, and I have no doubt that Mr. Cannell would be delighted to see it, as it is grown on the extending system. Some of the other round berries on the same bunch have a girth of 4½ inches. *William Tillery, Welbeck.* [The berry sent was a "monster," composed of two berries fused together, and therefore not a fair sample as to size. Eds.]

SLUGS.

Anno Domini 1867 seems likely to figure in horticultural and agricultural history as the year of slugs. Mr. Mechi has written to the *Times* about them, but still they come. Gardeners have not such a repute for grumbling as farmers; perhaps it is because they have less time for it, or we should have had more written complaints even than have yet appeared concerning the ravages of these slimy creatures amongst plants. Certain is it that they have devoted to their destruction this year much valuable time, which they would gladly have employed in other ways.

It has occurred to me that, before the last slug of the season is crushed under foot or dropped into the jar of salt and water, it might be interesting to some of your readers to know something of the species of slugs which are particularly injurious to gardens, and I therefore propose to give a few remarks about them, without going further into their specific differences than is requisite to enable any one, who has not previously paid any scientific attention to them, readily to put a name upon the particular sort, whose improprieties of conduct he may wish to speak or write about.

The gardener's worst enemy is the common field slug (Limax agrestis). It is one of the smallest of our English slugs, and is certainly the most slimy. When walking it is from 1 to 2 inches long, and barely ¼ of an inch thick. When touched it contracts into a slimy oval lump ⅔ of an inch long by half that thickness, and if turned over two or three times upon the ground is liable to be lost, from the particles of earth which adhere to its sticky exudation rendering it difficult to distinguish. Its colour varies from creamy brown to grey.

The next to which I shall refer (which in some localities is quite as numerous as the preceding) is Arion hortensis. This is the smallest of all the garden slugs, rarely exceeding an inch in length. It may readily be known by its deep black colour, while closer examination will reveal that it is marked longitudinally with indistinct streaks. By many this is erroneously supposed to be the young of that large black slug (Arion ater) which is so commonly seen on the Grass by the sides of roads and lanes after a shower. As this latter is not often of less size than 3 inches long, and is frequently found as long as 5 inches, it is impossible to confound the two species.

In the gardens around London may be found slugs about 2 inches long, of a chocolate-brown colour, so like the earth upon which they are generally seen crawling, that it requires a tutored eye to detect them. This is the keeled slug (Limax carinatus), so named from a slender ridge or keel, which runs down the middle of the back to the tail. This keel is so clearly defined, and of such a distinct amber colour, that it is commonly observed before the outline of the animal is recognised upon the ground. I wish to do justice to all, even in the slug world, and I, therefore, willingly record that the keeled slug is not nearly such a "bull in a china shop" as either Limax agrestis or Arion hortensis amongst growing plants. Books record that the large Arion ater is very destructive amongst Cabbages. It may be so, but it has not fallen to my lot to see it; I have often seen its very little brother (Arion hortensis) swarming upon Cabbage plants; and I also know that the larger species is more fond of dead animal matter, crushed snails and worms, and garbage of all kinds, than of any living plant. I believe of Arion ater, that which I am sure of with Limax carinatus, namely, that it greatly prefers dead to living vegetable matter, and that if it can find plenty of dead leaves and fallen flowers upon the ground, it will rarely be found climbing a growing plant. Where the keeled slug occurs, it is usually very plentiful. In a small garden, about 40 feet square, on a clay soil on the south side of London, there were destroyed during the first week of last month more than 200 of this species, twice that number of Limax agrestis, and about 40 of Arion hortensis. Children's eyes assisted materially in bringing about this great slaughter; their powers of observation as collectors of natural history objects are greater than many of their seniors are aware of; and when human eyes are within 3 feet of the ground without risk of lumbago—bad luck to the slugs!

I have recorded two dire pests to the horticulturist: I have also referred to two slimy creatures of doubtful character; there remains but one other garden slug to notice, and that is Testacella haliotidea. This curious creature feeds solely upon earth-worms, and need therefore never be destroyed. It is usually from 2 to 3 inches long, flattish, of a dull yellow colour, and has a small ear-shaped shell near the tail.

Perhaps some may express surprise at learning that there are so few kinds of slugs troublesome to gardeners, and may wish to know what other species have been found in the British islands. A very few words will suffice to give this information. There is a black slug (Oncidium celticum) found on rocks washed by the sea-waves in a small bay in Cornwall. There is a beautifully spotted slug (Geomalacus maculosus) found only near the margins of a lake in the south-west of Ireland. There is a local sea-shore species (Limax gagates) found in Ireland, and at South Shields. There is a species occurring in woods, but not often seen (Limax arborum), which has the singular habit of letting itself down from a branch by a slimy thread, up which it can crawl again at pleasure. There are also two species (Limax brunneus and Limax tenellus), recorded as having been found in Northumberland, but both are rarities. Gardeners in the south of England evidently need not be under any anxiety about either of these kinds.

There remain but two more British species, and then all are told. These, like the black beetle and the cricket, are essentially domestic, frequenting cellars, vaults, and damp places, and feeding upon any decaying animal or vegetable matter. I have often found them in places where the only visible means of subsistence was the mildew on the damp walls, and yet they looked as sleek and fat as prize pigs. One is the yellow slug (Limax flavus), the other is Limax maximus, the largest of all our native species. These two species vary from 4 to 6 inches long, the yellow one rarely exceeding 5 inches. Limax maximus is grey or dull black, indistinctly spotted and striped with black; Limax flavus is yellowish, and the end of the tail is keeled. Should either of these species be found in sheds or outhouses, their lives may be spared, for there is nothing that I can bring against them as a horticultural crime.

I have now passed briefly in review all the known British slugs, and hope I have succeeded in enabling any one to determine for himself which are the injurious species, and which are not. *W. T.*

VINE CULTURE AT GARSTON.—No. II.

Houses and their Management. — The first thought that would probably pass through the mind of a person of business habits, after he had fairly rated the relative positions of the blue sky for a canopy and a genial fruit-maturing clime, as against the enormous cost incurred in throwing over a transparent artificial covering, and providing means for developing heat to ensure success, would be,—Does all this sort of thing pay, or is it simply a great experiment that will some day prove the folly of the speculator? Mr. Meredith's energies may be severely taxed, but his resources in furnishing marketable commodity one way and another in the matter of Vines seem to be unbounded. Like Mr. Mechi's farming on the "high pressure" principle, or the thrifty tradesman with his savings, the more he deposits towards the perfecting of his Vineyard, the more is realisable in time of need.

The Vineyard at Garston may be an experiment, but it is the grandest experiment in Grape growing and Vine propagation in modern times, offering to all those that come within its influence much to think over and speculate upon. It possesses nothing of exterior adornment to commend itself to any one's consideration. It might be pooh-poohed on that score without a dissentient voice. As might be done with the best of places, the captious might nibble at, if not pick a few little holes, in the surface, and ruffle the temper of those more immediately interested, which would serve no practical end. It is simply a great business establishment, which has grown out of all ordinary proportions through the exigencies of the day, and the continued success which has smiled upon the proprietor as a cultivator of Grapes.

The houses, which are all, with one or two exceptions, of span-roofed form, are very much varied as to their internal capacity. We have here an opportunity of judging between the merits of a low span, a lofty span, an intermediate span, as well as of houses of a variety of length, glazed in various ways, and standing at different exposures. These are all matters of first-rate importance, albeit some would be inclined to skip over such things or look upon them askance, enjoining us to believe that, given a house of any size with Vines planted in a good border, the issue would not be greatly dissimilar. No practised cultivator who carefully notes causes and effects would subscribe to a doctrine thus taken for granted; we might just as soon expect a mathematical master to accept an undefined problem. Doubtless for general purposes variations in size need cause no uneasiness to the amateur or any one else, in growing good enough crops of Grapes, but it is something gained to know where these fine hammered Hamburghs, perfection as to colour and other points of excellence, grew. Those that we saw, and the best that have ever been cut, in point of finish, at Garston, came out of low span-roofed houses, where a man of Mr. Meredith's size could scarcely walk comfortably with a Scotch cap on his head. The rafters are joined together, forming the two principal limbs of the letter A, and the borders, both inside and out, so cover the perpendiculars, that a novice would not know there were such things at all. The Vines are planted about 18 inches apart, and carry fruit to the ground, of which I shall speak by-and-by. The pipes with hot water run along the surface at equal distances, and carry very heavy coatings of sulphur. In the house to which I refer, which was about 45 feet long and 16 feet wide, I picked up a wrinkle "anent" colouring, which shall be divulged when I come to speak of varieties.

To show how the progress of time and business exigencies affect the individual, feeling his way for what is really wanted, Mr. Meredith built, some 10 years ago, four houses, as nearly as possible 50 feet long. A year or two afterwards we find him extending to 65 feet, then to 100 feet, then to 127 feet by 17 feet, and another one, of the same length, and 4 feet wider. These of themselves are capable of doing much; but when we look to another pair, each 144 feet by 26 feet, built two or three years ago, and the last and greatest one of last year, measuring 202 feet long by 41½ feet broad, and about 20 feet high, and at the same time take cognisance of the numerous establishments throughout the country where they grow Grape Vines for planting, and Grapes for the market, we must either be astonished at the prosperity of this country, or else at once say that the thing is beginning to be overdone.

The lofty houses have a substantiality about them which is commendable. Their very plainness is suggestive of neatness, and their parts are so admirably fitted, that we are forced to admit that we have the practical horticulturist, and the practical engineer combined. Light and ventilation can be had in abundance; the first because there is a minimum obstruction of opaque materials, the second because there are sufficient inlets and exits, and these, too, in the proper places. The whole materials are so knit together that artificial heat can be economised. The great object in the erection of all structures is, that the maximum of the light of day should be attainable when required, and that ventilation when it takes place should be so provided for as to correct the sudden alternations of cold and heat less or more present in our variable climate. No better plan can be hit upon than Mr. Meredith's, of having his ventilating space below opposite the hot-water pipes, and his outlet at the hood-like coronet which surmounts some of the principal buildings. The circulation of the air takes something like a systematic movement in an artificial atmosphere of this kind; whereas if the roof be "broken" and ventilating space introduced along its slopes, the whole action is of a disturbing tendency, and creates unpleasant draughts, which every human being at all careful of his health endeavours, in rooms and in other places, carefully to avoid.

Not contented with the ordinary methods of building and setting spans east and west, and north and south, and the oldest of all style, that of the lean-to set against the sunny side of a north wall, Mr. Meredith is attempting to do with Vines what Mr. Bateman is doing, and impressing upon others to do, in the growing the cool Orchids from the Andes, and the Cordilleras of tropical America, namely, growing them on the shady side of a north wall. "The man is mad," some may involuntarily and tacitly exclaim on reading this. Friend, believe me, there's method in his madness, for in a house of this kind he kept Black Alicante in condition fit for table till the second week of May, and according to our present rating of late keepers he might have kept Lady Downes' under similar treatment till the first week of June. The *modus operandi* was this:—Some pot Vines had been grown and forced into one of the many little service houses which are detailed for "doing" all the little things which large establishments find forced upon them to meet all demands. These were well coloured, and in the language of the garden fit enough for use by the first week of July, having been started in January. By way of experiment he transferred some of the plants into his north house, and was rewarded by being able to keep them 10 months after the fruit was ripe. What he may be able to do with the permanent Vines which are running up this house and looking fully as well as any in the vast establishment, time will alone tell. For six months in the year the plants never see the sun, and the fruit at no time at its period of maturation can ever be under the influence of its rays. Mr. Meredith avers that the fruit he has finished in that house keeps better, colours better, and is quite as highly flavoured as any other samples under the best exposure, giving it as a reason that the saccharine matter is not so severely pumped out, and that the colouring process

is more gradual. How it might be with Hamburghs, which are more difficult to colour than either Black Alicante or Lady Downes', remains yet to be proved. As if to make the matter more inexplicable, opaque glass has been introduced, such as is used for plate-glass windows, but in an unfinished and unpolished state, a quantity of that having been in the market at the time the house was building, at a cheap rate. The slope of the roof is very flat, and it reaches to the top of the wall, which gives it fully as good an exposure to the sun unless when low in the horizon. It struck me at the time when I was told how the pot Vines had been so successfully retarded that such a house would be more useful for retarding fruit after it was ripened, than for both ripening and retarding it. The thick glass and the long panes, with a minimum of interstices, is so good a covering that fire-heat is reduced to a low proportion. That, together with the comfortable way in which the borders are arranged and the roots conserved, goes far, depend upon it, to induce the healthful action of the Vines, and their promising fruitful exuberance. *A.*—[In p. 901, col. *b*, line 30, for "houses filled," read "turfs piled." It may be added that Mr. Meredith's Grapes are reported to be very fine this season, and that he has something magnificent in the way of Muscats. EDS.]

BRITISH ASSOCIATION.

(*Continued from p.* 999.)

IN Section D (Biology), Mr. W. STEPHEN MITCHELL read portions of the report of the committee appointed to investigate the *Leaf Beds of the Lower Bagshot Series in the Hampshire Basin.* He pointed out that there was a better chance of determining the remains from these beds than those from many others. They were more perfect in themselves, and many of them had very characteristic forms. The forms he adduced (which he admitted were the best) were several specimens nearly approaching Cussonia natalensis, in its leaf, and separately a fruit very like that of Cussonia paniculata; also, fruits like Dalbergia rufa, and leaves also of Dalbergia; leaves in shape and venation, like Dryandra foliata, but larger; Sabals from Corfe; and Saxites. He laid stress on the fact that we know the age of the beds from stratigraphical evidence, not depending on botanical details.

Mr. W. BROWN read a paper on the *Claims of Arboriculture as a Science*, from which we take the following:—After advocating the proper recognition of Arboriculture as a distinct science, on the ground of the aid its elucidation would afford to the practical forester, and those influences, good or bad, which trees are found to possess over soil and climate, the paper continued—The area of Great Britain is about 57,000,000 acres, of which it is estimated 2,600,000, or 1.22 part, are under a crop of wood, of all kinds and ages; or, more particularly, the whole surface may be divided into five grand divisions, thus:—

Corn crops	9,300,000 acres.
Green crops	3,500,000 ,,
Grass	15,800,000 ,,
Wood	2,600,000 ,,
Uncultivated	25,800,000 ,,
	57,000,000 ,,

There is, then, in our island one acre in every 22 covered by trees, or only one-third less than what is under green crops. To every 11 acres of cultivated land there is one of wood, and 1 to every 16 of uncultivated. Without its timber Britain—and more especially other countries less favourably situated as regards latitude and sea influences—would, it may be safely said, never have attained its present eminence, either politically or agriculturally. The gross land rental of Britain is about 53,000,000*l.*, or 18*s.* 6*d.* per acre overhead—but 30*s.* when confined to the cultivated; and as a wood crop is found to return as much, on an average, as arable, we find the annual value thereof to be no less than 2,500,000*l.*—a financial fact to tell in favour of the object of this paper. While trees regulate a climate, it is also a fact that injudicious clearings, or over planting, respectively cause aridity and humidity. The want of a due proportion of country under a tree crop, is certain to cause irregularity of temperature, violent storms, and dryness. On the other hand, a country may be over-clothed with wood, so as to bring about just the opposite effects, which, besides their more immediate results, are well known as generators of disease. Upon the ground of these few facts, then, it is evident that a climate may be made, or at least regulated, by man to suit different crops and districts. As illustrative of the effects of trees on the health of the population, I would refer to the districts of Grantown and Abernethy, in Strathspey, which before 1856 were covered with some 15,000 acres of almost continuously close masses of plantation and natural forest. After 1856, and to this date, a regular system of thinnings and clearings have taken place. The population of these districts in 1861 was 5871, and the extent embraced is some 90,000 acres; thus showing 1 acre of wood to every 6 of other crops or waste land, being double the average of the kingdom. Some still say that nature is the best forester in the sense of thinning or regulating the number of trees on the ground, but neither in this nor in the extent with which we are provided with them naturally does it suit, as we have seen, to allow things to have their own way. Yet we are to take advantage of the fact of nature's bounty, and to say that the great importance of arboriculture is more manifest from the early care which she takes in covering the surface of the countries with trees. It may be safely said that civilisation cannot advance without trees, and that those must be the most civilised people who cultivate them on scientific principles.

The PRESIDENT (Mr. Busk) considered the cultivation of arboriculture in two lights—first, as a means of procuring timber; and, secondly, as a means of obtaining a supply of water. Referring to the scarcity of this necessary of life at the Rock of Gibraltar, he said that the cause was entirely owing to the denuded state of the rock. By the planting of trees the precipitation of moisture would be greatly increased, and the present want of water considerably lessened. He contrasted the condition of France and Spain in respect to arboriculture, and attributed much of the intellectual and social superiority of the former over the latter to the cultivation of the science of tree culture.

A communication on *Polleniferous Ovules in the Rose*, by Dr. Masters, was read. Reference to the formation of perfectly-formed pollen within the ovules of Rosa arvensis, and of the occurrence of fibrous cells, such as are usually met with in the anthers, in the interior of perfectly formed ovules, has already been made in our columns, p. 757. The present communication supplied the details of this extraordinary phenomenon, and was preceded by an account of ovular malformations in general.

A paper on the *Destruction of Plantations at Drumlanrig by a species of Vole* was read by Dr. GRIERSON:—The ravages of one or more species of Arvicola or Vole in the plantations of Drumlanrig, in Dumfriesshire, have been for years increasing. As far as I can learn, such was not specially noticed until about the year 1852. Since then the destruction might be represented by high figures. It would seem that the voles have migratory habits, at times appearing in vast numbers in plantations where they had not been previously noticed, and which they almost completely destroy. The destruction is principally among the young Oaks and Ash. A ring of bark is gnawed from the tree close to the root, where it is covered with the Grass or Moss. The effect of this ring of bark being removed is the destruction of the tree. Plantations are liable to be so injured until they are of more than 12 years standing. Should there be any trees of Holly, their bark is almost wholly removed, even that of the small branches. Larch and Pines, as far as I know of late years, have not been attacked, but I have heard of Larch plantations being much injured by what I presume to have been a vole. It is in the winter months that the destruction chiefly takes place, especially when the ground is covered with snow. I do not know of any like injury having been noticed in other localities in the south of Scotland, although it is recorded as having occurred in times past in other places, as in the New Forest. In the examination of hundreds of voles, obtained from the Drumlanrig plantations, I distinguish two species. The one corresponds to the Arvicola pratensis, the other to the Arvicola agrestis. The former bears but a small proportion in number to the latter, not, I think, above one to twenty. There is probably another species of small vole to be met with in moorland districts, but which is not associated with the destruction of plantations. The only method that has been tried for the destruction of the voles is that of digging pits wider at the bottom than at the mouth, into which many fall, and are there killed, or allowed to die. The numbers thus destroyed have, however, no sensible effect in lessening the swarms. There can be little or no doubt that the enormous increase of voles is owing mainly to the relentless extirpation of rapacious birds, and especially of the weasels, who are the natural police of the forests, to maintain a balance of power, and prevent the usurpation of any one class. While Nature gave unlimited fertility to the rodentia, she bounded their destructive increase by the carnivora, and it is not wise for man, for the sake of his amusement, to disturb that order. Nature will not suffer him with impunity to sacrifice her offspring for game. Judgment will be upon him, the forests become blighted, the land overrun with vermin, until he repent of the injury that he has done to the hawks, the owls, and the weasels.

A paper on *Life: its Nature and Origin*, by Mr. P. Melville, was read. In criticising the "development" theory, Mr. Melville remarked—Animals and men may develop and grow till they reach the maximum of their constitutional capacity. Beyond that they go not. Have we not seen the matured species universally remaining stationary? In this sense the development theory is true, viz., that life in all its phenomenal forms rises by an unbroken evolution of natural causes from a microscopic germ to a complex organism; but that germ contains the nature of the species, and can grow only into the organism of that species. The true nature or vital form adjusts its environment to itself, as well as becomes adjusted to it. Herbert Spencer and his school, however, try to evade the force of this by the theory of "heredity." Spencer holds that the intelligence of an infant is no higher than that of a dog—that, in fact, intelligence is the same in man and brute, and that what is requisite to raise the brute to the human level is the accumulation of experience hereditarily organised into nervous tendencies. Here I join issue with him. Many animals surpass man in perfection of the senses, and we can prove geologically that the brutes have a longer pedigree than man. Why, then, have the brutes not more intelligence than man? It is answered that language makes the difference; and Huxley argues that two delicate nerves in the tongue are the foundation of all man's pre-eminence above the beasts. If that is the fact, the brute should be able to learn the language of signs as well as the dumb man, which we know is not the case. Then it is argued that men are the progeny of primæval brutes, and hence inherit through every ancestral species all the organic experience or heredity of the primal reptiles, saurians, apes, "missing links," and all. Thus man's pedigree is made the longest, and he has attained better nerves in his tongue, and hence languages, reason, and pre-eminence. But even Spencer admits that this may ever remain a mere hypothesis, with many improbabilities on its side. If so, and no tribes of monkeys ever become "developed" into humanity, the hypothesis is worthless, and is indeed utterly refuted. If man sprang from the ape he may do so again; but even our opponents despair of this, and do not try it by cultivating and humanising the noblest tribes of apes. All facts seem to confirm the opinion that species are never transmuted.

Home Correspondence.

Grape Judging.—When Grapes are grown for ornament only—when colour, size of bunch and berry constitute the chief characteristics for which they are grown—then it will be time to judge them by that standard. But so long as they are grown to be eaten, then let us, in the name of common sense, have flavour as the leading quality. Let me not be misunderstood; for while I consider flavour the aim and end of good Grape growing, I would in no instance give a premier prize to Grapes that were badly grown or badly coloured. Green Muscats or Frontignans are as reprehensible as red Hamburghs or Alicantes; neither are properly grown, and therefore are not entitled to be premiated. What was it at Manchester that prevented Mr. Meredith from taking full honours but the want of flavour? When we first saw the fruit we were astonished at the award of equal prizes to the Hamburghs, but directly we tasted the fruit we could see that Mr. M.'s had a first prize for growth, his Grapes wanting a fortnight to ripen them, and his rival's for full maturity. The ghost which Mr. M. has raised about the mutilation of bunches by tasting, may soon be laid. No gardener worthy of being appointed a judge would mutilate a bunch or disfigure it in the slightest manner, but, on the contrary, he would with a penknife or pair of scissors take out the two or three berries necessary for tasting, without any person knowing that they had been removed at all. For years, at Chiswick, Regent Street, and the Park, I had regular opportunities of seeing or assisting the judges at their duties, and I can safely aver that I never saw either of the gentlemen named by Mr. Meredith, or other persons equally eminent — Fleming, Spencer, Ingram, &c., judge Grapes without tasting them. As for Mr. Glendinning, I have judged with him scores of times, and he always tasted—in fact, there is no other certain way of ascertaining whether Grapes are ripe and fit for table—conditions required by most prize schedules. I could at the present moment cut fine handsome bunches of the Muscat Hamburgh perfect for the kind in bunch, berry, and bloom, but sour enough to turn a schoolboy's teeth, and so they will be for a fortnight or three weeks to come; yet in point of style, if to be judged by the eye, I question if Mr. Meredith, with all his resources, could surpass them. To give a prize for such Grapes would be simply madness, and yet I would defy either Mr. Meredith or Mr. Penny to detect their want of maturity without tasting them. Need we any other proof of the absurdity of the proposition which seeks to judge Grapes without tasting them? *A. P. W.* [Much of the difference of opinion which it is evident exists, as to the value of "colour" and "flavour," arises, we doubt not, from this fact, which some of our correspondents seem to ignore, that Grapes are fully coloured long before they are ripe enough to be eaten. Red Hamburghs, that have hung their full time, may be better tasted than black ones cut too soon, but they are not better examples of Grape-growing, nor can we admit that they should be placed before the others in judging them. We are sceptical as to the existence of well-swelled, well-coloured, well-bloomed Grapes (Hamburghs are generally understood in this discussion) that would be deficient in flavour if they hung their proper time. Practically, in judging it is a small matter to taste the few samples which are perfect in other points, and thus flavour may be allowed to carry the award; but to give prizes to badly-coloured, *i. e.*, defective Grapes, over good samples, grown to their natural colour, would be subversive of good gardening. Red Hamburghs maybe eatable, but they are not models for imitation. Then again, there are many sorts of Hamburghs, and, speaking generally, their quality is in inverse proportion to their size. All this has to be considered in judging. We do not object to eliminating the coarse tasteless sorts, such as Dutch Hamburghs, but let us have perfection in all points in those which carry off the prizes, and let not good taste and justice be violated by selecting what is obviously defective, to be crowned with an award. EDS.]

Cucumbers.—One of your correspondents complained (see p. 903) of having been supplied by a London seed firm with a spurious variety of Rollisson's Telegraph. I procured a packet of Telegraph, also, from a London house. I sent for Rollisson's Telegraph, and got in place of it a vile substitution. When my plants fruited they produced a variety which some call a Ridge Cucumber. The house in which I grew my plants has a division in it; in one part I had the true stock of Rollisson's Telegraph; in the other I had both the true variety and some of that supplied from a London firm; the former (Rollisson's) proved all that could be desired, first-class in every respect; the latter, though grown side by side, turned out to be, as has just been mentioned, worthless. Both varieties had the same treatment in every respect. At first I considered my having been supplied with so bad a sort, an accident, but since reading in your columns the just complaints that have been made about spurious sorts having been sent out for the true kind, I take a different view of the matter; in fact I have heard in one instance of a gardener having received a packet labelled Telegraph, with as many seeds in it as would have supplied a dozen large establishments, and they turned out to be a mixture of Carter's Champion and Ridge Cucumber. *J. W.*——Early in May we had some Cucumber seeds placed in our hands; they were a portion of a packet that had been sold by a London firm, and were asserted to be Rollisson's Telegraph. They were sown at the same

time, and under similar conditions, as some from our own stock. The result of the trials was that the variety which was sold by the London house proved to be a very inferior kind. We forward you a fruit of our Telegraph, which is, however, scarcely a fair sample, as it has been grown in a pot, and upon the same plant from which it has been cut are several considerably larger fruit ripening off for seed. We also send you a specimen of the produce of the seed sold by the London house; it, too, has been grown in a pot, both kinds having the same treatment; the latter had two fruits upon the plant, the best of which we have forwarded to you. When we proved that a spurious kind had been sent out for our Telegraph, we caused advertisements to be inserted in your Paper, and also in other horticultural journals, intimating that purchasers should be cautious where they procured seed of Telegraph, as we were convinced from our trials that if they were supplied with the same stock, of which we forward you a sample, they would certainly fail in producing Cucumbers in winter. We may mention that we have not had a single complaint from persons who have been supplied with our printed and sealed packets, but that, on the contrary, every one who grows the true stock of Telegraph speaks of it in the highest terms as being a first-class variety for general purposes. *W. Rollisson & Sons, Tooting.* [The fruit of the true Telegraph which accompanied this communication measured 21¾ inches in length, and 7 inches in circumference, while the length of the spurious fruit was scarcely a foot; in short, compared with the true Telegraph it is a mere Gherkin, and its rate of growth is reported to be much slower than that of Rollisson's Telegraph. Eds.]

Araucaria imbricata, at Craigs.—In the various reports that have from time to time appeared in your columns about the size of some of the Pines and ornamental trees of modern introduction, I am not aware that any notice of the Pinetum, at Craigs, near Montrose, has ever appeared. The gardener there, Mr. Muirden, is a retiring, unobtrusive man, but thoroughly up in all branches of his business, and has certainly managed his Conifers so as to make them perfect pictures of health and beauty. On the present occasion I wish particularly to notice one of his Araucarias. From my notes taken on the spot, this tree was planted in 1838, and cost 16*l*. Its circumference now at the ground is 5 feet 6 inches; at 4 feet from the ground it measures 3 feet 4 inches. Its height is 30 feet, and the spread of its branches from one extremity to the other is 25 feet 6 inches. It is one of the most uniform and perfect plants I ever saw—clothed with branches to the very ground, and all of a beautiful green. *R. G. Ross, M.A.*

Late Peas.—Many have written to you about Early Peas; why should not a dish of Green Peas, if good, be equally valuable in October as in May? I have sent you a small sample of Ne Plus Ultra, which my employer says are very good indeed. Of the variety just named, which is a good summer and autumn bearer, I sowed four rows 22 yards in length on the 26th of June, between rows of early Kidney Potatos. They stood about 6 feet from row to row, and both crops have done well. I began to pick on the 12th of September, and I pinched off the points of the haulm next day; afterwards a lad having a pair of steps and pruning shears reduced it to about 7 feet in height. The result has been a good crop of Peas, and if the present favourable weather lasts we may gather a good dish almost every day until the close of the present month. *Jas. Bowring, Gr. to J. C. Colquhoun, Esq., Chartwell, Westerham, Kent.* [An excellent sample for this season of the year, quite free from mildew, from which late Peas often suffer. Eds.]

Echeveriametallica.—I am pleased to see (p. 952) that Mr. Earley speaks highly of this plant for decorative purposes, as here it has been one of the most attractive plants which I have had this season. Its bright metallic tinged leaves, and singular appearance of growth, must at all times be looked upon with pleasure, either in the flower garden, or in the conservatory. Many who have visited Osberton this season have expressed astonishment at seeing it thrive so luxuriantly so farth north; somes of the leaves measure 10 inches in length and 8½ inches in breadth. I also found this species of Echeveria in fine condition last week at Thoresby, where it flowers freely. It occupies two small beds which have a very striking appearance. E. glauca has also done well with me this season. *Edward Bennett, Osberton, Worksop.*

Allamanda Hendersoni.—While acting as a judge at an exhibition a few weeks ago, this plant, together with A. Schottii, was exhibited in a collection of stove and greenhouse plants. The difference between the two was strikingly apparent; indeed, the superiority of A. Hendersoni, compared with its excellent congener, could not fail to strike even the most careless observer. *Bruce Findlay, Botanic Gardens, Manchester.*—I see (p. 1001) that Mr. Bull has again written to you about Allamanda Hendersoni, and its distinctness from A. Schottii; and supposing Mr. Bull's description to be correct, A. Hendersoni would be an acquisition, but, unfortunately for myself, who gave 31*s.* 6*d.* for it, I cannot see the slightest difference in any one point between it and A. Schottii. I have two specimens of A. Hendersoni and three of A. Schottii, all growing in one house and receiving the same treatment. These plants have been seen during the past season by numbers of plant growers, who are all of my opinion as regards A. Hendersoni. A gentleman who flowered it last year authorised me to offer two guineas at any of the London shows to the exhibitor who should show the two best plants, one of Hendersoni and one of Schottii, the prize to be awarded if, in the judges' opinion, the two kinds were distinct varieties. This was made known in your columns at the time, and may I ask Mr. Bull why he did not settle the matter by competing for the prize in question? I do think that it is a hardship that I should be led by a catalogued description to purchase a plant at a high price, and after growing it into a specimen to find that there is really no difference between it, and one of which I have plenty of stock. *John Stevens, Gardener, Malvern Hall, Solihull.*—I have grown both A. Hendersoni and A. Schottii side by side for more than eighteen months, both being under the same treatment. A. Hendersoni I purchased from Mr. Bull, at the end of February, 1866. I bloomed it in June the same year, and exhibited it in August with more than eighty expanded blooms on it, and it gained a first prize. Being so full of bloom it was the admiration of all who saw it. I have invited many gardeners in this neighbourhood to inspect it, and all agree with me that there is a marked difference between the two plants. Hendersoni blooms earlier and more freely than Schottii, and has larger flowers than those of that kind: the colour, too, is deeper, and the habit more compact than that of Schottii. I have been much pleased indeed with the growth of Hendersoni. *Thomas Charlesworth, West Bridge, Leicester.*

Hardihood of Centaurea argentea and C. candidissima.—I have some slight proof that certain of the Centaureas, and especially the kinds just named, are nearly, if not quite hardy. As, however, I am not thoroughly convinced of the fact, perhaps some of your readers who may have left plants out in the open border during the winter, or who may have otherwise tested their hardihood, will favour us with a record of their experience in regard to the matter. My Coleus beds have been frozen down since the 25th ult. It may therefore be a matter of some interest to many of us to receive confirmatory evidence, or otherwise, concerning these very valuable decorative plants. *William Earley, Digswell, Welwyn, Herts.*

The Vines at Chatsworth, as planted by the late Sir Joseph Paxton.—I am glad to see that a very useful discussion has been taking place in your columns, by some of our first practical men, on the best system of growing Grapes, and in some of the remarks made last week (Sept. 21) I see that my name is incidentally mentioned in connection with the planting of the Vines at Chatsworth nearly 40 years ago. Without entering particularly into the merits of either system advocated by the various writers, I shall confine my remarks to the principal point of inquiry, in which my name has become mixed. When Sir Joseph (then Mr.) Paxton first came to Chatsworth, in 1818, from the Horticultural Society's Gardens at Chiswick, the Vines here were in a very poor condition. The garden, as many are aware, is nearly on a level with the river Derwent, which is periodically subject to heavy floods, arising from the many tributary mountain streams. In consequence, the Vine borders (not being much raised, but in other respects probably well made) were all water-logged, and the Vines not only grew badly, but were so over-run with mealy-bug that a good bunch of fruit fit for table could scarcely be procured. The woodwork of the Vineries was heavy, and the glazing had large overlaps, so that comparatively little light entered the Vineries; in fact the garden altogether was by no means calculated to inspire in a young man in his first situation, much hope for the future, unless it underwent an entire revolution. To a man of Mr. Paxton's indomitable spirit these apparent discouragements only helped to spur him on, and furnish him with a stimulus for exertion to overcome them. When the crops of Grapes were gathered and the wood ripened, the sashes were taken from the houses, and during the cold rainy autumn and winter weather, we took out the glass (Mr. Paxton himself assisting), and had the sash bars lightened, and the whole reglazed with better glass, and making smaller laps. Two new houses were built to this range of Vineries, the borders of all these houses were remade, and a set of new Vines planted one under each rafter, with the intention of removing every other Vine, and making one Vine fill two or three rafters. The following year an entire new range was built, and planted in a similar manner. Some one had praised the system of inarching two or three Vines into one, so as to secure two sets of roots to one Vine; but eventually on talking the matter over it was abandoned, and in a few cases the Vines that were planted with the intention of occupying the houses permanently were extended so as to occupy two or three rafters each, many of which still continue. The crops on these extended Vines have ever been exceedingly good, both in quantity, quality, and colour. *S. Hereman, Chatsworth, and 7, Pall Mall East, London.*

Show of Variegated Pelargoniums.—I observe the suggestion for another show of Tricolors, &c., next season, and agree, to a certain extent, that good notice should be given that all may prepare; but if the arrangements are made in too great a hurry, there is a risk that continued modifications of the schedule will be made. I would therefore recommend that all suggestions be sent to Mr. Moore before a given date—say the end of October—and that two persons (one amateur and one florist, or grower for sale) should be named to act with him in preparing the scheme. *Charles Turner, The Royal Nurseries, Slough.*—July or August has been named for the show of next year, but I would suggest that it be held as early in the former month as possible, before London begins to thin of its sight-seeing company. The plants may be had in capital condition by the beginning of July. *B.*

Currant Trees losing their Leaves.—Can you tell me the cause of red and white Currant trees losing their leaves in July? Mine here always do so as the fruit ripens. They wither gradually, just as they should in autumn. It does not seem seriously to hurt the bushes; at least they live and bear the next year, though rather scrubby in size and appearance. They are just as bad against a north wall. The soil is a nice Turnip loam, rather light, with a gravelly subsoil, varying in depth from 1 to 3 feet; the deeper soil is also heavier, but the same thing happens there. It is a capital soil for most garden produce. The climate is that of the extreme south of Ireland. A sort of Currant between red and white holds on best, *i. e.*, later than the others. The mischief is, the Currants do not ripen thoroughly, and one cannot keep them late, when they are so useful; and no doubt the crop of next year does suffer in quantity. I saw the same thing this year in a garden in Somerset. The gardener said it was a new thing there in the past 10 years, and was never so in that garden when he knew it as a boy, and they used to keep Currants till near Christmas. He thought it was a disease. His soil is heavy lias clay, and has been a garden for a century. Mine was only made 12 or 15 years ago, and the trouble began at once. *W. B. J.* [We are not acquainted with any disease likely to produce the effect you mention, but should rather be inclined to attribute it to the effect of soil and climate. It is not an unusual thing for red and white Currants to lose their foliage early, particularly if the soil be very light and hungry, or very cold and stiff. In your case we should imagine that a remedy would be found in liberal dressings of good manure, one dressing to be pricked in during this or the next month, and then in May a coating of the same, 3 inches in thickness, applied all over the surface of the soil. *C.*]

Tropæolum speciosum.—This is one of the prettiest of Tropæolums, and is a hardy perennial. It makes a handsome climber for covering logs in Ferneries, as it likes a partly shaded situation. In the Fernery here it covers yards in extent, climbing up shrubs 5 feet high, and up the tall Ferns, producing at the same time abundance of scarlet flowers, which are the admiration of all who see them. It grows freely in a mixture of leaf mould and loam or peat, and it may be readily increased either by means of roots or seeds. *Wm. Smythe, the Gardens, Elmham Hall, Norfolk.*

Tomatos.—At a recent horticultural show in the north, where I was one of the judges, collections of vegetables were set up for competition, several of which contained Tomatos. Were we justified in awarding the prize to a collection which included Tomatos? I must own that I am scarcely satisfied with the reply given to a correspondent in yours of the 21st ult. (p. 980), in which you class Tomatos with baking Apples and Pears, and I should be glad to have the opinion of some of your able correspondents on this question, viz., Is the Tomato a vegetable? *T. H.* [Though unquestionably a fruit, yet being used for culinary purposes only, the Tomato is admissible in a collection of vegetables, equally with Peas, Beans, or Cucumbers, which are all fruits in the strict sense of the word. Eds.]

Societies.

Royal Horticultural, *October* 1.—*Floral Committee.*—From the Society's Garden came a collection of beautifully flowered small plants of Odontoglossum grande, for which a Special Certificate was awarded. Among them were one or two large blossomed and highly coloured varieties. It may be mentioned that this Odontoglot is pre-eminently a cool Orchid, and that as such it is well worth the attention of amateur cultivators. Dendrobium cumulatum was furnished on this occasion by Messrs. Veitch, who received a Second-class Certificate for it. It produces drooping spikes of white flowers, flushed with lilac, and when better established will probably be a showy and interesting species, the more so on account of its free-flowering habit. Mr. Bull contributed a fine group of plants, in which were several examples of Clematis Jackmanni and rubella, ranging from 18 to 20 inches in height, and loaded with large showy blossoms; Ptychosperma regalis, a handsome Palm, with leaves which when young have a coppery tinge on the upper surface, and are ribbed with red on the lower side; Peristeria elata, or Dove plant; Zamia villosa, a graceful species; Dracæna Cooperi, with finely coloured foliage; the robust-looking Lastrea floridana from Japan, which was awarded a First-class Certificate; and Aspidistra elatior angustifolia variegata, with narrow leaves striped with cream colour. This latter also received a First-class Certificate. Messrs. Carter & Co. received a Special Certificate for three plants of Phalænopsis amabilis in fine bloom; and the same firm also sent a semi-double nearly white flowered Lilium auratum. Mr. Parsons, Danesbury, Welwyn, furnished Gymnogramma peruviana laciniata, a variety of Silver Fern with fronds much cut and densely powdered. It received a First-class Certificate. A similar award was made to Mr. Stevens, Ealing, for Variegated Zonal Pelargonium Achievement, a kind with smooth leaves having a broad bright crimson and black zone on a yellow ground. From Mr. Crump came two seedling Pansies, respectively named Lord Lyons and Lily White, but not of sufficient merit to gain an award; and from Markham Spofforth, Esq., Porchester Terrace, Bayswater, shoots of Jasminum officinale foliis aureis, a gold-variegated Jasmine, to which attention has been directed in former reports. Mr. M'Dougall, Greenock, sent cut specimens of a white Zonal Pelargonium called Kate Bell, which is stated to be free-flowering, and of dwarf habit, but it was not in good condition. Mr. Tillery, gr. to the Duke of Portland, at Welbeck, exhibited a collection of seedling Gladioli, of which some account will be found in another column. Mr. Standish, Royal Nurseries, Ascot, likewise sent a collection; and First-class Certificates were awarded to Lady Alice Hill, Lord Kenlis, and William Menzies, all kinds which are noticed elsewhere (see p. 1027). Messrs. E. G. Henderson exhibited some finely flowered Standard Veronicas, from among which V. purpurea violacea was selected to receive a First-class Certificate. It is apparently a robust free-growing kind, and has stout spikes of flowers of a beautiful violet-purple colour. The other Veronicas exhibited by the same firm were Madame Bouchar-lat, Azurea superba, Delfossiana, and meldensis. A Special Certificate was likewise awarded to Messrs. E. G. Henderson for a collection of Lantanas, of which Ne Plus Ultra, Alba lutea grandiflora, Julius Cæsar, and Madame Dufoy, appeared the best. The same firm also sent a dwarf variety of Lobelia named Queen Victoria, and examples of Echeveria glauca, Sempervivum californicum and S. calcaratum, together with Princess of Wales, Duke of Edinburgh, and Edward George Henderson Pelargoniums, of the Gold and Bronze section. A few seedling Dahlias were produced. A First-class Certificate was awarded to Mr. C. Turner, of Slough, for Vedette, a purplish rose flower of considerable merit. Mr. Turner also had Autocrat, Prince Leopold, Guardsman, Yellow Perfection (one bloom only of the two last mentioned), and Master Johnny and Billy Button, both Fancy kinds. From Mr. Legge, Edmonton, came President and Sultan. Some fine blooms of dwarf African Marigolds, of large size and well coloured, were shown by Mr. Richard Dean, Ealing. The plants grow from 11 inches to 2 feet in height, and produce fine blooms for exhibition. Mr. Green, gr. to

W. Wilson Saunders, Esq., had a Special Certificate for a group of plants, most of which were more interesting than beautiful. Among them were Vanda recurva, Sarcanthus tricolor, Billbergia sp., Bahia; a new Tillandsia, also from Bahia; Oncidium abortivum; a species of Solanum, from Peru; a Mexican species of Myanthus, with greenish-white, brown, and purplish flowers; a Dorstenia from Rio Janeiro, with silvery variegation on the leaves; and a new terrestrial Orchid from Bahia, having leaves with a pale green ground colour, spotted and mottled with brownish purple. To this a First-class Certificate was awarded. From Mr. Cripps, Tunbridge Wells, came a beautiful collection of Clematises. First-class Certificates were awarded to Star of India, violet purple, striped with rosy purple; Marie Lefebvre, very large, delicate French white, striped with deep lilac; Madame Van Houtte, very large, pure white; and Sensation, also a large, pale blue. Mr. Cripps likewise exhibited Cupressus Lawsoniana flava, a variety with a golden tinge, for which he received a First-class Certificate; Cupressus Lawsoniana nivea, variegated with white; and Jasminum nudiflorum aureum, of which some of the leaves were altogether yellow, and others yellow variously mixed with green. Mr. Walkling, Lewisham, exhibited Variegated Zonal Pelargoniums; Mr. J. J. Chater, Gonville Nurseries, Cambridge, a collection of Scarlet and other Zonal varieties; and there were also several neatly grown plants of the best Zonal and Nosegay Pelargoniums from the Society's Gardens.

Fruit Committee.—In the class set apart for the best three dishes of Dessert Apples, Mr. Hughes, gr. to the Rev. G. Kemp, was 1st with large examples of the Ribston Pippin, Cox's Orange Pippin, and Lewis's Incomparable. Mr. Whiting, The Deepdene, Dorking, was 2d with Ribston Pippin, Cox's Orange Pippin, and a kind the name of which was unknown. A 3d prize was awarded to Mr. Ruffett, gr. to Viscountess Palmerston, Brockett Hall, for Cox's Pomona, Cellini, and Ribston Pippin. J. Garland, Esq., Turnham Green, and Mr. Lynn, gr. to Lord Boston, Hedsor, also exhibited in this class. For the best three dishes of Dessert Pears a 1st prize was awarded to Mr. Whiting for good fruit of Louise Bonne of Jersey, Beurré d'Amanlis, and Gratioli. Mr. Neale, gr. to R. A. Cartwright, Esq., Edgcott Gardens, Banbury, sent Williams' Bon Chrétien, Thompson's, and Marie Louise, but the two last were not ripe enough to merit an award. A Special Certificate was awarded to Mr. Garland, for unusually large and fine examples of Blenheim Pippin, and for Dumelow's Seedling, known in the markets as the Wellington, which, though not so remarkable as the preceding in point of size, was still very fine. A Special Certificate was likewise given to Mr. Ruffett for two Pines, one a handsome Blood Pine, and the other a Providence, beautifully grown and ripened, and weighing 10 lb. Mr. Green, gr. to W. Wilson Saunders, Esq., sent a fine specimen of Glory of the West, a large Kitchen Apple. From Mr. A. Dean, Maybush, Southampton, came a collection of Apples and Pears, including among others good samples of Scarlet Admirable, Herefordshire Pearmain, Hawthornden, Golden Noble, Blenheim Pippin, and Lemon Pippin, the last very fine; and Beurré Clairgeau Pears, to which the same remark applies. Mr. Piester, Elsenham Hall Gardens, sent an Apple under the name of old "Essex Golden Pippin," which appeared to be the Ingestre Yellow; likewise Queen Anne's Pocket Melon, and a cross-bred from it, larger in size, but not equal to it in ornamental appearance. Queen Anne's Pocket Melon was also shown by Mr. Marwell, gr. to the Earl of Gainsborough, who had also Exton Green-fleshed Melon, which, though not perfectly ripe, proved of good flavour. Messrs. Veitch exhibited a Tomato which was considered distinct, and provisionally named Veitch's Prolific; but there is now every reason to believe it to be a form of the Pear-formed variety. The only other subjects worthy of note were Premier runner Bean, shown by Mr. R. Dean, Ealing, which grows from 4½ to 6 feet high, and produces an abundance of pods resembling those of a large-podded dwarf Kidney Bean; and from Mr. R. Headly, Stapleford, a small seedling Kidney Potato, which, on being cooked, proved very mealy and good-flavoured.

Quekett Microscopical Club: *Sept.* 27.—This, the monthly meeting, was held at University College, Mr. Arthur E. Durham, president, in the chair. Mr. Slade read a paper on "Snails' Teeth," in which he described those organs of Mollusca known as the tongue, or palate, consisting of a long and narrow strip of membrane on which are arranged, in various patterns, successive series of strong recurved teeth, by the rasping action of which the animal is enabled to obtain its food. By this means the carnivorous mollusca bore through the shells of the animals on which they prey. The number, arrangement, and shape of these teeth afford to naturalists a means of determining species. Dr. Maddox exhibited a collection of beautifully executed micro-photographs of deep sea soundings, many of the objects being magnified 3000 times.

Notices of Books.

Lois de la Nomenclature Botanique. Par M. Alph. De Candolle. Geneva. Georg. 1867. 8vo, pp. 60. (Williams & Norgate). "Laws of Botanical Nomenclature," &c.

It is satisfactory to see that discussion upon a subject of so much importance to both botanists and horticulturists will not be allowed to drop before some useful results have been obtained, the organising Committee of the International Congress at Paris having revived it by requesting the author of the pamphlet before us to draw up a code of laws as a basis, and we may now fairly hope for something approaching uniformity in naming spontaneous and cultivated plants. The want of a regular and systematic nomenclature of plants, especially with regard to those introduced by nurserymen and amateurs, and varieties and hybrids of garden origin, has long been felt, and various propositions have been made by scientific men at the different international meetings to overcome this difficulty; but no definite plan or set of rules has previously been submitted to consideration. The learned author gladly complied with the request of the Committee, he informs us—having from his youth devoted considerable attention to systematic botany, and being therefore better prepared for the task, perhaps, than many others; the result has been a code of laws, consisting of some 68 articles, following which is a commentary on the principal questions, where the arguments advanced by several noted men for and against some of the latest innovations are given in full, and impartially criticised and rejected or retained as the author deemed fit.

That the author has exhibited a praiseworthy discrimination generally in the selection and forming of his rules is no more than might have been expected from one who has all his life been intimately connected with systematic botany, and has ever been active in the cause of scientific progress; but, although great judgment and discernment have been brought to bear upon the work, and great care has evidently been taken to provide for all contingencies, we cannot say that he has been successful in every case, nor can we accept the whole of the laws here laid down. For instance, we object to giving names to "sub-species," "varieties," "sub-varieties," "variations," and "sub-variations," whatever they may be, and to blendings of any combination of these forms of a spontaneous species. Neither can we admit in practice of so many gradations of a species. In calling them sub-species, &c., an intermediate state is admitted, we presume, to exist. Why, therefore, name any but the more striking forms? Even that is inconvenient, except for cultivated plants, when the intermediate form turns up. With regard to cultivated plants, the same rule is to be observed for the "sub-species," "varieties," and "sub-varieties," but inferior varieties, seedlings, sports, &c., must not receive Latin names. By this we understand that M. De Candolle deprecates the employment of Latin names for varieties artificially produced or originating in gardens, and we strongly urge upon florists and others the desirability of compliance in this respect, for a variety or hybrid is not always evident as such, and great loss of time to the botanist results in searching for the supposed description of a plant bearing a Latin name. We fear, however, that a long time will elapse before botanists and horticulturists will join to effect this greatly needed reform in the vegetable kingdom.

No directions are given to guide nurserymen and others in the publication of their introductions, but catalogue names, unless accompanied by a description, may, according to Article 46, be ignored; and even when the name is adopted, the time of publication dates from the published description: so they will do well to send their plants to some well-known botanist. We are glad to see that he does not defend the course adopted by R. Brown, of modifying specific and generic characters, and substituting his own name for that of the original describer, such as has been lately pursued by M. Mueller in his monograph of the "Euphorbiaceæ," published in the last volume of the "Prodromus." Indeed, he seems to have arrived at the conclusion that if carried out it would lead to chaos; for, as he justly observes, anyone restricting or extending the character of a species or genus would be entitled to append his own name, to the exclusion of the person who had modified it, and the next comer likewise; so that at the end of the chapter we should have the same genus or species differently constituted, and more or less comprehensive in its character, according to individual views, by half-a-dozen different authors, and in an Index Botanicus it would be necessary to cite them all separately. The evil might extend even further than this; for one botanist might exclude all the species of a certain genus adopted by another, and his species again might be rejected by a third. The same with regard to species. Different assemblages of the variations of one species might receive the name intended for the whole or last, as the case might be, according to the fancy of any person anxious to see his name in print, thereby causing unutterable confusion We cordially unite, too, with the author in condemning the whole of the proposals put forward, and supported by many eminent botanists, for conserving the name of the original describer of a species, when it is necessary to transport it to another genus, &c. All the schemes proposed to this end are exceedingly clumsy, and the old plan of quoting the name of the author who placed it in the genus, after the species, really gives all the information required in using the name. This plan has, moreover, almost invariably been adhered to by systematists in this country. We will now give some of the articles chiefly relating to cultivated plants.

"Art. 12. The fertilisation of one species by another creates a hybrid; that of one modification or sub-division of a species with another modification of the same species, a mongrel or blending (*mixtus*)."

This reminds us that some of the following words are very loosely applied by gardeners in this country—bastard, mongrel, blending, cross, hybrid, mule, sport, &c.

"Art. 13 (in part). Hybrids are arranged under the genus after one of the species from which it originated, with the sign * placed before the generic name.

"Art. 14. Modifications of cultivated species should be traced to their wild progenitors where possible. The most important of these modifications are referred to sub-species, and when constant from seed they are termed races (*proles*). Modifications of a second order are called varieties, and, if constant from seeds, are termed sub-races (*sub-proles*)."

The less important modifications, comparable to the sub-varieties, variations, and sub-variations of spontaneous species, are designated according to their origin, when it is known, in the following manner:—1. Seedling (*satus*), a form derived from seed; 2, blending (*mixtus*), proceeding from cross fertilisation in a species; 3, sport (*lusus*), when derived from a shoot, tubercle, or other organ, and propagated by division.

"Art. 36. Hybrids of undoubted origin are designated by the name of the genus, to which is added a combination of the names of its two progenitors, the name of the mother plant being placed first with the termination *i* or *o*, that of the species which furnished the pollen following with a hyphen between them, thus—Amaryllis vittato-reginæ. Hybrids of unknown parentage are named in the same manner as species, and are distinguished from them by the absence of a number, and by the sign * preceding the generic name, thus—* Salix capreola, Kern.

"Art. 37. Names of sub-species and varieties are formed in the same way as those of species, and added to them in their order of relative value."

Blendings of doubtful origin are named in the same manner.

"Art. 38. Sub-varieties, variations, and sub-variations of spontaneous species may receive names analagous to the preceding, or simply numbers or letters to facilitate their classification.

"Art. 39. Blendings of undoubted origin are designated by a combination of the two names of such species, varieties, sub-varieties, &c., which gave the births, observing the same rule as in the case of hybrids.

"Art. 40. Seedlings, blendings, and sports whose origin is obscure, receive fancy names in the vulgar tongue, as different as possible from the Latin names of species and varieties. When a sub-species or variety can be traced back to its species, it is indicated by a succession of names, thus—Pelargonium zonale Mrs Pollock."

In conclusion, we extract some interesting statistics on the proportionate increase of generic synonymes, and also of new genera and species, as well as one or two more rules with regard to names and authorities.

In the four first volumes of the "Prodromus," published from 1824—1830, the proportion of genera retained to synonyms is about 100—55.

In Hooker and Bentham's "Genera Plantarum," Parts 1 and 2, published 1862-65, and containing nearly the same families, there are 100 genera admitted to 117 synonymes, showing that the number of generic synonymes has doubled in 36 years.

The foregoing remarks and the following table, demonstrate that genera are becoming better known, and that we are approaching the period when all will be told. The figures show a regular decrease in the proportion of new genera, and slight increase in the proportion of new species:—

Volumes of the "Prodromus."	Dates of the Volumes.	Genera.			Species.		
		Total.	New.	Proportion.	Total.	New.	Proportion.
VIII., IX., X. ..	1844-46	840	130	15.4	8495	1636	19.1
XI., XII., XIII.	1847-52	602	65	10.7	8308	1783	21.4
XIV., XV., XVI.	1857-66	476	35	7.3	7832	1864	23.7
Total ..		1918	230		24,635	5283	

The following rules deserve to be strictly observed:—Never change the name or alter the orthography of name after it is once published, unless there is some very glaring error. Keep to the rule, with a few evident exceptions, as in the case of D. C. for the author of this paper, of quoting the proper contraction of authors' names, viz., the first syllable and first consonant or two of the second as Hook., &c., for Hooker: this has sometimes been abbreviated to Hkr, which the author humorously shows might answer to no fewer than 2209 different names.

Catalogues Received.—The following have recently come to hand:—Of Bulb Lists—*Vilmorin-Andrieux et Cie.'s Catalogue des Ognons à Fleurs Plantes Bulbeuses et Fraisiers; E. G. Henderson & Son's Catalogue of Bulbs; W. Rollisson & Son's Catalogue of Dutch Bulbs; T. Sampson's Catalogue of Flower Roots; J. Carter & Co.'s Vade-Mecum: Part IV., Dutch and Cape Bulbs; Hooper & Co.'s Autumn Catalogue of Flowering Bulbs; C. Turner's Catalogue of Bulbous Flower Roots; J. Kellett's Catalogue of Dutch and other Flowering Bulbs; B. J. Edwards' Autumn Catalogue of New and Choice Hyacinths; Barr & Sugden's Autumnal List of Choice Bulbs; Butler & McCulloch's Autumn Catalogue of Dutch and Cape Bulbs; W. Wood & Son's Dutch Flower Roots.* Of Rose Lists we have—*W. Paul's Rose Catalogue for* 1867-8; *J. Cranston's Catalogue of Selected Roses; Paul & Son's Rose Catalogue for* 1867-8; *W. Wood & Son's Descriptive Catalogue of Roses.* Of General Lists we have—*R. Parker's Catalogue of Stove, Greenhouse, and Hardy Plants and Bulbs; W. Wood & Son's General Catalogue of Ornamental Trees and Shrubs, &c; W. Barron & Son's Select Catalogue of Ornamental Plants; Ambroise Verschaffelt's Prix Courant pour l'Automne,* 1867, *et Printemps,* 1868; *Aug. Nap. Baumann et fils' Catalogue Général.*

Florists' Flowers.

I imagine that the last of the Seedling Dahlias of the season were seen at the meeting of the Floral Committee on October 1st. It is getting late for them, and though frost may not come to cut them off, the cold weather affects their perfect development. Vedette was finely shown by Mr. Turner on this occasion, the flowers being much larger than when last seen. The centre of the flower is remarkably full and high, the petal finely rounded, the outline excellent, but yet with somewhat of a thin substance as shown. The green scales which could be seen amid the florets in the centre of the flowers will, no doubt, disappear with cultivation. Perhaps it would be best to describe the prevailing hue of this flower as being of a purplish rose, as in its best state the purple is more manifest than the rose. The two Fancies, Master Johnny and Billy Button, were again shown, the former deficient in the centre, and the last still small in size. There appears to be stuff enough in the last out of which to build up a good flower. Autocrat (Turner) is a somewhat novel form of a crimson Dahlia, having a band of bright rosy crimson up the middle of the florets, which are feathered with dark. This peculiar marking seems to disappear as the flowers age; and the specimens shown were a little deficient in the centres also. Prince Leopold (Turner) is a rose-coloured flower slightly suffused with purple, the centre of a pale colour, which does not add to its attractiveness. It appeared to be in indifferent condition. Guardsman (Turner), of which only one bloom was shown, is of a rich crimson hue, but not of the

best quality. Sultan and President, both from Mr. H. Legge, are crimson flowers, the latter not so good as when last seen; the former is a shaded flower, poor as shown.

Mr. Rawlings' Dahlia White Bedder was again shown on this occasion, and received the highest award. On the last occasion the plant shown was one that had been grown in a similar manner to those planted for show purposes. On this occasion the plant produced was much dwarfer in growth—about 20 to 24 inches—and the flowers were very freely produced, and of a pure white colour, without being so open in the centre as is generally seen in the case of Alba floribunda nana. It is a good acquisition for bedding purposes.

Some cut blooms of a white bedding Pelargonium, named Kate Bell, were sent by Mr. J. McDougall, gr., Balibutha, Greenock, N.B. It partakes something of the character of Madame Vaucher, but is purer in colour. It is said to bed well, grows very dwarf, and blooms freely. Seedling Pansy Lily White, from Mr. Crump, Dursley, was represented by some cut flowers. It looks as if it would make a good bedding kind; the flowers are stout, circular, and it has a large dark purple blotch.

Seedling Gladioli were shown both by Mr. Standish, Ascot, and Mr. W. Tillery, Welbeck. Of the choicer kinds, William Menzies, rosy carmine, with faint flakes of white, the throat pencilled with purplish crimson, and forming a close and effective spike, having 16 expanded flowers at one time; Lady Alice Hill, a novel looking flower, having a pale ground marked and feathered with bright deep lilac, the throat stained with rosy violet; and Lord Kenlis, bright orange red, with conspicuous lemon throat, and a light stripe up each segment of the flower—a fine and attractive exhibition variety, were all from Mr. Standish. Besides these there was a large collection of named kinds, among which Dr. Hogg, Prime Minister, Carminata, The Colonel, J. W. Lane, Our Little Lucy, Blair Athole, Sir James Clark, Io, Mrs. Siddons, and Aurora, all of Mr. Standish's own raising, were very attractive, and may be taken as a fine lot of exhibition flowers. One of Mr. Tillery's flowers, a pale buff kind, with a pencilled throat, came before the Committee, but it was thought to be no improvement on existing kinds, though a bold and showy flower. Mr. Tillery explained that his Gladioli were not sent as examples of show flowers or fine spikes, but merely to indicate how this gorgeous autumn flower can be made to bloom in two years from sowing the seed, and what a variety of colours can be had among seedling varieties. The seeds of the flowers sent were saved in the fine autumn of 1865, and sown in the open border in April, 1866. On lifting them in October, the largest bulbs were not much bigger than Marrow Peas. They were again planted in April, 1867, in a rich light soil in the open border, and the flowers sent had been cut from them. From 400 to 500 were now in flower, and many hundreds were showing flower that would not open this season. Some seeds from the best show flowers were sown at the same time in boxes, and started in a Peach house, and grown in these boxes duing the summer of 1866. They were planted out the same as the others this year, but had not flowered, showing that the best and quickest way of raising Gladioli from seed is to sow them in the open air. It is astonishing what a small bulb will flower in two years from sowing the seed, and the very best spikes come from middling-sized bulbs. *R. D.*

The Apiary.

Wax or Bee-Comb. Propolis or Bee-Glue.—Wax is a natural secretion, and is produced in a similar manner to that in which tallow is produced. If bees are fed on honey or any liquid sweet, they will secrete wax; and as pure white wax will be produced when bees are fed on the darkest of sugar or syrup, as when they are fed on pure honey. During the comb-building season small scales of wax may be seen issuing from between the rings of the abdomen of the worker bee. The drones never secrete wax. Fifteen or twenty pounds of food are required to secrete 1 lb. of comb; hence old comb is valuable to give the bees, when it is not full of worms or mould. Clean pieces of comb, placed in the honey-box, will often induce the bees to enter and go to work, when they otherwise would not. An attempt is being made to produce artificial comb by several American bee-keepers, who are sanguine that it can be perfected. In many instances it would be of great advantage. By many wax is often confounded with bee-glue, but there is a wide difference. Wax, as already observed, is a natural production of the bee, while bee-glue is gum or resin that exudes from different trees, and is used for stopping up cracks or any joints in a hive that would admit air or the miller. It is found on the Pine, Hemlock, Cedar, Fir, Balm of Gilead and Cherry trees. The bee gathers it, and carries it in the same way as it does pollen or bee-bread. (*Canada Farmer.*)

It has been asserted that brown sugar, when consumed by the bees, is more conducive to the secretion of wax, consequently to the formation of combs, than white sugar. It might be well to institute a course of experiments on this point; which, if correct, might be of importance in our bee-feeding operations. For ordinary feeding—that is, when it is intended that the bees shall store up the food for future consumption—I prefer using loaf sugar to brown, believing it to be much more likely to remain unfermented in the cells during a long winter. In combs which had been sealed up at the time the syrup was supplied, I have often found it as good and pure in March as when given in October. In the above extract from our American contemporary, by worms the writer of course alludes to the larvæ of the Tinea mellonella, or wax-moth, called also in America "the miller." These frequently prove to be a fearful pest in the apiary in that country. In some districts it is extremely difficult to keep them out of the hives; and when they once obtain a good footing, their ravages are very great. Even in our country, if combs are left exposed, or the hives allowed to remain in a neglected and dirty condition, the wax-moth will establish itself, and commit great damage.

In artifical comb-making the German bee-masters have taken precedence, in point of time, of both the English and the Americans. *S. Bevan Fox.*

Obituary.

The Late Mr. J. MacGillivray.—Mr. John MacGillivray, late naturalist of H.M.S. Rattlesnake, died at Sydney on the 6th of June. He had just returned from an expedition to the Richmond River, and was preparing to leave for the islands of the South Pacific, when his career of usefulness was cut short by death. John MacGillivray was the eldest son of the late William MacGillivray, Regius Professor of Natural History, Marischal College, Aberdeen. He was intended for the medical profession, and had all but completed his studies when Lord Derby offered him the appointment of naturalist on board H.M.S. Fly, which was about to make the voyage round the world. On his return to England he was appointed naturalist to H.M.S. Rattlesnake, employed on the Government survey, and recorded the results of a three years' cruise in two interesting volumes, which were favourably received by the public and the leading literary journals of the day. His next appointment brought him to Sydney in 1856, and the rest of his life was devoted to scientific investigations into the natural history of Australia and the neighbouring islands. He spent nearly five years among the savage inhabitants of the South Sea Islands, where he had many strange adventures and hair-breadth escapes. He had a wonderful power of gaining the confidence and adapting himself to the manners of the cannibal tribes among whom he lived. Constant exposure and hardship gradually undermined his vigorous constitution, and superinduced the disease which brought his active life to a close. *Athenæum.*

Miscellaneous.

Irritability of Plants.—We have undertaken, in the course of this year, a number of experiments on the irritability of plants, which show that the faculty which some of them, and especially the Sensitive Plant, possess of executing movements which appear voluntary, may be suspended by many agents, such as ether, chloroform, carbonic oxide, and spirit of turpentine, all of which are known to act upon the nervous system of animals. Amongst these experiments one appears to us of sufficient interest to deserve the attention of the Academy of Science; it relates to the action of the electric current on the Mimosa pudica (Sensitive Plant). We selected four plants perfectly developed, and so sensitive that the slightest contact, such as the friction of a fly's wing, caused their leaves to shut up, and the petioles (leaf stalks) to droop along their stems. Placing the pots containing these plants on an insulating stand, we attached to the two ends of their stems a small copper wire, in order to pass through them the current from a single Bunsen's cell. After a few seconds, when the plants reopened their leaves, and erected their petioles, we caused the current to traverse them; but the leaves did not fold up, the petioles did not fall, and the plants seemed insensible to the electric action. We then varied the experiment, and instead of employing the direct current of the battery, we used an induced current obtained by the aid of a very small Ruhmkorff's coil. The results were then quite different. Scarcely had the current commenced when the leaflets began to fold together, and the leaf-stalks drooped down along the stems. These movements were quickly propagated from one end to the other of the plants. According to this experiment the plants are sensible to electric disturbances, and behave under such conditions like animals. We then wished to see whether the application of the electricity for a longer or shorter time would give rise to any special phenomena, and we exposed three of the plants to electric action for varying periods. The first plant received the current from the Ruhmkorff coil for five minutes, and was then left to itself. For more than a quarter of an hour it remained in a state of prostration, but gradually its leaflets re-opened, the leaf-stems lifted themselves up, and in about an hour it reassumed its natural appearance, and seemed none the worse for the shocks it had received. A second plant was similarly treated for 10 minutes, and then left alone. The state of prostration in this case lasted for an hour, and it was not till the expiration of that time that the leaflets began to open, and the leaf-stalks to rise, and these movements seemed to be accomplished with greater difficulty than in the preceding case. The plant was evidently fatigued, and did not fully recover for two hours and a half. The third plant was electrified for 25 minutes and then left to itself. In this case we waited in vain for its restoration—the prolonged electric action had destroyed its irritability, and even its life, for the next day we found it withered, and blackened, as if struck by lightning. The fourth plant was reserved for an experiment, which proves that electric disturbance acts upon plants as it does upon animals. It is known that man, and other animals, exposed to the anæsthetic action of ether, become insensible to induction currents, even when strong. We desired to ascertain if it was the same with the sensitive plant. With this object in view we placed a plant under a bell-glass with two openings, through which two copper wires could convey the electric current to it. A few drops of ether were sprinkled in the glass, and in a short time the plant experienced the anæsthetic action of that substance, for when shaken it did not close its leaves, or manifest any sensibility. In this state we passed the induction current through it, but it gave no sign of sensitiveness. The petioles remained straight, and the leaflets continued open. These fresh experiments came in aid of others which have been made on the same subject, and supply an argument in favour of those who consider the movements observed in these plants to be produced by the operation of organs analogous to those which animals possess. *M. Blondeau, in Comptes Rendus.*

Garden Operations.

(*For the ensuing week.*)

PLANT HOUSES.

Aquariums, especially those containing the *Victoria Lily, Nymphæas,* &c., will now need every attention, with the view of prolonging the flowering season. Gradually advance the temperature until a moderate artificial maximum heat has been attained. This will admit of the possibility of giving a plentiful supply of air in fine sunny weather. It is quite needless to refer again to the subject of shading in connection with these plants, as shading material should have been entirely removed before this time. Where sundry pendent or creeping plants are grown around the sides of the tank, they should also be so reduced as to admit all the light possible. Where these plants are annually removed after their active season of flowering is past—a very desirable mode of treatment—it may be possible to so reduce the amount of water when a cleansing of the tank takes place, as to give the mounds in which the plants grow a soaking of good liquid manure. This is best done by fixing some sort of tube, as a large drain pipe for example, firmly upon the surface of the mound, and then filling it with the liquid, so as to allow it, by means of a pointed stick or some such implement, gradually to soak down into the soil without in any way directly influencing the clear water in the tank. I do not advise this however where no annual removal of the soil takes place, as if left dormant throughout the winter it has a tendency to make the mould sour. The time is fast approaching when the utmost ingenuity will be necessary in order to devise means for the proper storing away, during the coming winter, of many valuable plants which we hope to retain until next summer, and those who possess the least amount of glass, or other efficient substitute, will be much the most taxed in this wise. It is not those who possess Vineries, Peach, and Fig-houses to whom we wish to address this word in season. They can "store away" their old specimen vase plants, ornamental-foliaged plants, &c., with little tax upon their wits. Not so the amateur possessing more limited means. As regards bedding plants, I have before stated that some of the more tender, less easily wintered sorts, such as *Variegated Zonal Pelargoniums* (Mrs. Pollock, &c., for example), can be stored away more safely and in less room, taken up whole as they are, than by putting cuttings of them in now. Unless under favourable circumstances, such cuttings are very liable to damp off, even the very wounds upon the old plants, made in procuring them, tend to hasten a similar decay in regard to them also. Surmising that the greatest possible amount of "stuff" has to be housed safely over the winter, with but limited means at command, it will be better to set apart the most favourable site for the best of the hard-wooded plants. This will admit of a little more crowding for the time being. For the variegated sections, of whatever sort, choose the driest situation. All such plants, especially those which have to be potted up out of the open borders, should be placed in a free open soil, which is not likely to be too retentive of moisture. Silver sand, or, what is better for such a purpose, coarse road-drift, from which the softer dusty matter has been removed, where any such exists, should be used abundantly, potting firmly after having well crocked the pots. Such semi-tuberous things as *Cannas, Herbaceous Lobelias,* &c., may be placed away under the stage, or in any dry corner where not more than 6° of frost can possibly reach them, buried in dry mould. *Scarlet Pelargoniums* may be stored away in larger numbers, as old plants, than it is possible to do with cuttings. A good supply of these latter is also attainable from them in the spring. Choose the lesser, neatest plants for this purpose, lay them aside for a few hours until the foliage begins to flag, when it will be well to take off all the grosser leaves, except about three at the several points: remove them with a knife, and in such a manner that a small portion of the leaf-stalk remains attached to the stem, which will induce them to fall off without causing a wound. Do not cut or break any shoots, as this gives them a tendency to decay. Having cut in the larger roots, fix, as many together as you reasonably can in any store pots at hand, crock well, and use such a compost as that recommended above. With but little water, occasionally turning them round in order that all sides may receive an equal amount of light, they will thus keep well in any out-of-the-way corner, and prove efficient stock when the early spring arrives. One other thing I would remark, and that is, in arranging a house necessarily composed of such motley and various subjects always endeavour to keep the various sorts together. The dissimilar treatment which they severally require demands that this should be done. Should fine weather continue, viz., a dry hazelly October—the gardeners' boon!—use the damper more freely to keep such fires, as are needed in moderation at night, in check during the day, and use these combined advantages to have every bit of growth made by the inmates of stoves and other intermediate houses during the past summer dry, hard, and well ripened. No plants, bear in mind, need this more than Cape Heaths; treat them, therefore, to a constant supply of fresh moderately dried air at this season, and give sufficient root moisture to ensure a healthy action of the roots

without the risk of undue top-excitement. All *Poinsettias* should have been potted before this time, if fine large bracts are to be expected; any which now need it must be placed in one size larger pots only, and be plunged in bottom-heat at once; as with plants generally, they also require the pots to be well furnished with roots before the flowers commence forming. Give all such subjects plentiful sprinklings overhead with clear tepid water.

FORCING HOUSES.

Do not omit to adopt the necessary means, continually to keep all *Vineries*, having Grapes yet hanging, as dry as possible. Lessen the bulk of air afforded at night materially as the external night temperature decreases; this will obviate too large a condensation of vapour, and its consequent settling in dewy particles upon all internal objects, caused by the antagonism of the two distinct temperatures, *i. e.*, the inner and outer. In houses where Grapes have not yet finished the ripening process it will be best to keep a slight warmth in the pipes or flues during the day, with abundance of air upon all warm sunny occasions, and a constantly moderated supply at others. Attend well to *Pines* showing, or about to show, flower. Remove all such to the most favourable position at command, and as soon as they show flower, keep the atmosphere rather drier, with rather more warmth than before, combined with air, until they are well set. October is not at all a favourable month for flowering any kind of Pine, especially the Queen, hence the need of even greater attention in regard to this variety than perhaps any other. Good warm linings will now become absolutely necessary around all *Cucumber* and *Melon* pits or frames not otherwise heated artificially, if a constant supply of fruit of the former is required, or well-ripened ones of the latter. At all times when a good maximum heat has been thus attainable, water the Cucumbers more freely at the root. Give old plants an occasional supply of liquid manure. Generally speaking, Melons have no further need of water at this season, unless it be some that are growing freely, and that are intended to come in late.

HARDY FRUIT GARDEN.

As soon as all the fruit upon *Peach* and *Nectarine* trees has been picked, and this will have been done very generally at this date, excepting it may be perhaps a few of the later October varieties, it will be well to go carefully over each tree, and remove therefrom all the more prominent shoots which have borne fruit this season. Just remove the parts which have leaves upon them only, as the chief object in view is to afford all the light and air possible to the young shoots of the current season's formation, in order duly to harden and therefore well ripen the wood and the buds thereon. As I have before intimated, where many grossly-formed leaves exist it will be well to cut them in two. This operation has a tendency to cause fruit or flowering buds to form at their base, in lieu of wood buds only. Stop all strong-growing shoots which have formed upon *Fruit trees* of every sort after this date. Doing so will tend in some manner to induce fruitfulness in the ensuing season. Do not omit to remove, without further delay, all old canes from *Raspberry* plantations. The old fruit-producing wood has no further purpose to fulfil, and the removal of it will admit air and light into and amongst the young canes. *Fig trees*, and especially any which are growing too robustly, should also have some of the larger leaves and unnecessary shoots thinned out for a similar reason. Continue to rub off all young Figs which continue to show and which are too forward to stand through the winter, with the view of ripening next season. This it is not likely any will do if they have assumed any size beyond such as renders them just discernible in their first stage, or such as are about the size of a pin's head. Removing these now will cause others to follow at their base, in the axils of the same leaves, and be the means of insuring a plentiful crop hereafter. Go over all *Pears* which in a general way ripen from late in December onward. Should any part pretty freely—bearing past directions in view—gather a part, if a superabundant crop of any sort exists, forthwith; or if a middling one only, it will be better to secure the whole. Later varieties must remain upon the trees for some time longer.

HARDY FLOWER GARDEN.

Incessant vigilance will now be needed in the out-door flower garden. Many subjects which we treat in every way as "hardy" enough for summer decoration must now be taken up, and cared for in a different way, if we intend to winter them successfully for a future display. We have even now experienced a forerunner of what is to follow, and must not risk too much. It takes all the means at command to properly house many subjects; to wait, therefore, till the life is nearly frozen out of them before we take them up is but adding to our difficulties. Secure forthwith a sufficient stock of *Coleus*, *Heliotrope*, &c., and do not be caught napping with zonal and other even more tender *Peargoniums*, the whole stock of which it may be intended to pot up. Cuttings of *Calceolarias* may now be put in. Choose strong healthy shoots, having no symptom of disease about them; should any exist upon any of the stock, either place them thickly in 32-sized pots, or dibble them in rows sufficiently wide apart into a cool pit or frame, where proper protection can be afforded them against any severe frosts. Do not make the cuttings too long, but cut them neatly into young growing wood. When made do not allow them to flag, but by shading, &c., induce them to root freely without too great a tax on their latent energies.

KITCHEN GARDEN.

No more favourable weather can be desired than the present for ripening crops, hardening wood, &c. Should it last, therefore, take advantage thereof to thoroughly destroy all weeds before we experience a return to damp sunless weather. Finish housing the *Potato* crop with all possible despatch. As there are too general symptoms of disease amongst them, it will be better not to finish pitting them—*i. e.*, placing the mounds of earth over them—until it is proven whether they are likely to keep well in the aggregate or not, after being stored away in confined spaces. I advise, therefore, that while they are properly protected by the aid of straw, or other coverings, it will be best to leave them in that way, in order that a periodical examination of them may take place; when, should any bad symptoms show themselves, they may with greater certainty, and with a less amount of trouble, be again carefully picked over before definitely clamping them for winter protection. *Carrots* should also be taken up now. I find these keep much better pitted out in the open ground than when stored away in cool, damp, confined bins. Here they are not nearly so likely to rot; and they keep to the end much fresher. Make the necessary preparations for protecting *Lettuces* and *Endive*, should sharp weather set in early; which the slight, but early foretaste we have experienced justifies us in thinking it may do. *W. E.*

HINTS FOR AMATEURS.

The duties which the month of October brings with it are not perhaps so pleasurable as those of the summer months; nevertheless they must be attended to, or the time will come when we shall wish we had not been so indolent. The evenings are now so short that those whose avocations occupy them elsewhere all day can only work in their garden in the early morning, and as the heavy dews and slight frosts occur, gardening is wet, chilly work for the amateur's fingers, particularly before he has had his breakfast. Milk, with a dash of rum in it, is not a bad foundation to begin the day's work upon, but for keeping out cold there is nothing like coffee, if the engine drivers in the north are to be believed.

The effects of frost upon tender plants must now receive consideration. The mercury will soon be down to 32° of Fahrenheit, which is zero of the Centigrade thermometer, and our Dahlias and Heliotropes will record the fact with their blackened leaves. It should be remembered, however, that tender plants are not so much injured by extremes of temperature as by sudden changes, and that many a plant will survive a severely cold night if protected from the sun's rays during the following day. Careful screening after a November frost will often preserve to us till nearly Christmas, plants of whose beauty we should otherwise have been at once deprived.

There are many plants usually taken up in the autumn and kept in pots in frames, which might just as easily be preserved where they have passed the summer. Take for example Fuchsias, or Lobelias, or Dahlias. Procure some pieces of sheet zinc, from 2 to 3 feet long, and 5 or 6 inches wide; bend back about half an inch at each end, so that, when the piece is curled round into a circle, one end shall catch into the other end. Having thus encircled a plant, push the ring of zinc about an inch into the ground, which will keep it in its place. Then fill up the ring all round the plant with fine cinders, not dust or ashes, but finely-sifted cinders. This will keep the frost away from the roots of the plant, and will effectually preserve many things that would otherwise be occupying room in the greenhouse or frame which is probably much needed for more tender things. These rings keep the cinders from rolling or blowing about, and confine them to the roots of the plant which they are required to protect. In the spring, when no more severe weather is expected, the rings may be lifted, unhooked, and laid away flat until wanted again next autumn. The cinders also, being free from ashes, are easily cleared away. Those whose soil is light and sandy might use glass rings. They can be had of various sizes, both round and oval, at the glass shade shops, for a penny a-piece. Glass shades are usually made tall, and pieces are cut off the lower part to reduce them to the required height; these pieces are generally broken up, unless the dealers have an order to save them, which they will always do for the small amount named, provided you will call from time to time and take them away, so that they do not accumulate and fill up their shop. Of course you would tell them only to save such as are at least 4 inches deep.

It is only a very pretty face that will stand having the hair drawn back by the root, as curls are more generally suitable, and much more natural; and as with the fair sex, so with plants—nature's arrangements produce more genuine admiration than any which art can effect. Sulphate of this and hyposulphite of that, may be all very well, but for general use there is nothing better than well-rotted leaves, if you want strong healthy plants with plenty of flowers upon them. And now is the time to collect them. Never go for a walk without a basket, and never come home with it empty. If a wood is within reach, you may generally find in or near it a ditch containing more dead leaves than you can carry home at once; scrape away the dry leaves, and you will very probably find under them some of last year's leaves rotten and changed to a blackish colour. This is the most useful manure you can have, therefore get as much of it as possible; you cannot have too much of it, as what you do not want to put by for potting should go upon your borders and beds for the winter, and be dug in next spring.

Disbudding Chrysanthemums is one of the cold-fingered occupations of the present month. By disbudding is meant the removing with a sharp-pointed knife, or fine pair of scissors, all the buds upon each branch, excepting the terminal one; the effect of this proceeding is that the individual blooms are allowed to expand without being crowded or distorted by any other blooms, and thus become larger and more regularly shaped. It is a fidgetty job, requiring a quick eye and a steady hand; but the result is well worth the trouble.

Nearly all kinds of fibrous-rooted hardy perennials may now be divided and replanted, where they are getting too large for their places. It looks as if these fine old-fashioned things were really coming into favour again, when we see 30,000 herbaceous plants advertised by one nurseryman as being ready for delivery in pots. And they, of all others, are most particularly amateurs' plants; for they produce the greatest effect with the smallest labour and trouble. Campanulas, Rockets, Asters, Scarlet Lychnis, Wallflowers, Rose Campion, Solidago, Monk's-hood, Columbines, Polyanthus, Primroses, Hepaticas, Heartsease, Violets, Thrifts, Chamomile, Feverfew, Sweet Williams, Carnations, Pinks, Saxifrages, Lilies (white, red, orange and yellow), Iris of all colours, Foxgloves, Antirrhinums, Valerian, Hollyhocks, Christmas Roses, Crocus, both vernal and autumnal, Lilies of the Valley, Snowdrops, Fritillarias, Cyclamens, winter Aconite, Colchicums, Fair Maid of France—surely this is a list of hardy plants long enough to satisfy any one that beauty of arrangement may be secured and pleasure derived, without the aid of frames or greenhouses, boiler makers, or coal merchants. *W. T.*

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the Week ending Oct. 2, 1867, as observed at the Horticultural Gardens.

Sept. and Oct.		Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Of the Air. Min.	Of the Air. Mean	Of the Earth. 1 foot deep.	Of the Earth. 2 feet deep.	Wind.	Rain.
Thurs.	26	28	30.410	30.381	68	33	50.0	57	57	S.E.	.00
Friday	27	●	30.298	30.241	64	44	54.0	57	56	S.W.	.00
Satur.	28	1	30.298	30.167	66	47	56.5	58	56	S.W.	00
Sunday	29	2	30.162	30.131	63	46	54.5	57	57	S.W.	.00
Mon.	30	3	30.090	29.895	67	36	51.5	57	57	S.W.	.00
Tues.	1	4	30.384	30.290	60	32	46.0	56	56	N.	.00
Wed.	2	5	30.070	29.980	59	30	44.5	56	56	S.W.	.00
Average			30.244	30.155	63.8	38.3	51.0	56.8	56.4		0.00

Sept. 26—Foggy, very fine; overcast.
— 27—Slightly overcast; hoar frost early A.M.; clear and fine.
— 28—Fine, cloudy, clear and fine at night.
— 29—Overcast, cloudy, clear and fine.
— 30—Clear; cloudy; clear and very fine.
Oct. 1—Clear and fine throughout.
— 2—Overcast, cloudy and boisterous; clear, frosty.
Mean temperature of the week, 3 7-10 deg. below the average.

STATE OF THE WEATHER AT CHISWICK,
During the last 41 years, for the ensuing Week, ending Oct. 12, 1867.

Oct.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday .. 6	62.1	43.3	52.7	21	0.78 in.	1	4	7	4	5	12	6	2
Mon. .. 7	63.9	44.1	54.0	20	0.58	2	7	5	2	4	15	5	1
Tues. .. 8	61.8	42.4	52.1	21	0.63	1	8	5	4	6	7	9	1
Wed. .. 9	60.8	42.6	51.7	23	0.79	—	9	2	3	5	14	6	2
Thurs. ..10	61.7	44.0	52.9	24	0.68	3	4	6	1	8	10	6	3
Friday ..11	61.9	42.7	52.3	21	0.34	2	5	4	2	4	14	5	5
Satur. ..12	59.2	41.7	50.4	22	1.00	2	2	4	1	11	6	10	5

The highest temperature during the above period occurred on the 9th, 1861—therm. 77 deg.; and the lowest on the 11th, 1860—therm. 25 deg.

Notices to Correspondents.

CARNATIONS AND PICOTEES: *W W C.* These are both garden varieties of Dianthus Caryophyllus. In this country Carnations are grouped into bizarres, flakes, and Picotees. In France the grouping is different. Our Picotees would be placed with the "œillets de fantaisie;" while flakes and bizarres would be included among "œillets flamands." The Sweet William belongs to Dianthus barbatus, as also does Dianthus oculatus marginatus of the German catalogues. Hence, the seeds you were supplied with in Frankfort were not those of the Picotee or Carnation. "Picotten," "Rand-Picotten," and "Bizarden," are the general German equivalents for our Carnations and Picotees, but we are not certain as to their precise application to our varieties.

DAMSONS: *A R.* The production on a Damson is not a Fungus, but the egg of some Hemerobia. We have received a similar production from Bombay. Corda published it as a Fungus under the name of Crateromyces. *M J B.*

GLADIOLI: *Messrs. Youell & Co.* Your specimens of Brenchley-ensis are truly magnificent; large both in spike and flower, and highly effective.

GLOXINIA: *J Coates.* Your seedling is no acquisition. There are many better sorts in cultivation.

INSECTS: *Devoniensis.* We can only guess that your caterpillar may be that of Sphinx elpenor, the elephant hawk moth. We know no caterpillar provided with a retractile proboscis. —*J H.* See last week's "Answers to Correspondents." The insect within the Vine leaf galls proves to be a very singular species allied to Coccus, and not a gall midge. As the eggs are being hatched, the affected leaves should be picked off and burnt. *W.*

LABOURERS AT KEW: *D F.* We are informed that the regulations as to dismissal and rate of payment of garden labourers at this establishment are the same as are in force in the parks. As to the sick list, the rule used to be to pay full wages, doctor's attendance, and medicine for an unlimited period. Under these circumstances it was found that the estimates for this item were doubled annually; a change was therefore made, and the practice now is to give half pay for 14 days. The effect of this was to reduce the sick money at once 75 per cent!

NAMES OF FRUITS: *E C.* Very small and much bruised; most probably a small specimen of Walburton Admirable.—*W T.* Myatt's George IV.

NAMES OF NEW ZEALAND PLANTS: *J H B* will find the names he is in search of in the Appendix to Hooker's "Handbook of the New Zealand Flora."

NAMES OF PLANTS: *J W B.* 1, Pteris tremula; 2, Athyrium Filix-fœmina crispum; 3, Selaginella Martensii; 4, Cystopteris atomaria.—*J C, Shadwell.* Cornelian Cherry, Cornus mascula. Some people like them—we don't.—*Lord Egerton of T.* Houlletia Brocklehurstiana. *J W B.* 1, Cupressus Lawsoniana; 2, Apple stock.

PEACH HOUSE: *E F.* As the roots cannot run out in front, on account of the obstruction you mention, there can be no necessity for arching the front wall. The drainage can be effected by sloping the bottom of the border down to a drain with proper outfall at the lowest part. The trellis may be from 12 to 15 inches from the glass.

SHRUBS AND TREES FOR THE SEA-SIDE: *A B C.* Hippophæ rhamnoides, the Sea Buckthorn, will suit your conditions. Evergreen Oak, Pinaster, Austrian Pine, Ontario Poplar, Sycamore, Tamarisk, and Atriplex Halimus, are all useful. We can answer for all these doing well along the South coast.

COMMUNICATIONS RECEIVED.—M. de Jonghe.—F. T.—A. M.—T. Simpson.

ROYAL AGRICULTURAL SOCIETY of ENGLAND.

EDUCATIONAL PRIZES.

APRIL, 1868.

Form of Application for Candidates.

To be returned filled up on or before February 29, 1868.

Name of the Candidate at full length ..
Date of his Birth ..
Branch of Business followed by his family
Business intended to be followed by himself
Residence of Parents or Guardians ..
The Names of the Schools at which the Candidate has been educated, stating the number of years spent at each; accompanied by Certificates of general Education ..
The Candidate has to state whether he will be examined in Land Surveying, or in Mechanics as applied to Agriculture, or in both subjects..
He must likewise state in which of the following optional subjects he desires to be examined, viz.:— Botany .. Geology .. Veterinary Science..

Copies of the above Form may be obtained on application to H. Hall Dare, Secretary.

12, Hanover Square, London, W.

HIGHLAND AND AGRICULTURAL SOCIETY. AGRICULTURAL EDUCATION.

The NEXT EXAMINATIONS for the SOCIETY'S CERTIFICATE and DIPLOMA will be held in MARCH, 1868, in the Society's Chambers, No. 3, George IV. Bridge.

Candidates for the Certificate must be 18 years of age; those for the Diploma must be 21.

Candidates for the Certificate must be acquainted with Farm Accounts, Mensuration, and Surveying, and must possess a good knowledge of Practical Agriculture, and a general acquaintance with the elements of Botany, Chemistry, and Natural History.

Candidates for the Diploma must have previously obtained the Certificate, and must possess a thorough knowledge of the theory and practice of Agriculture; of Mechanics and Mensuration; of the Physiology and treatment of domesticated Animals; and of the applications of Botany, Chemistry, and Natural History to Agriculture.

Further information in reference to the Examinations to be had on application to the Secretary of the Society, at No. 3, George IV. Bridge, Edinburgh. F. N. Menzies, Secretary.

THE LANDS IMPROVEMENT COMPANY, Incorporated by Special Act of Parliament in 1853.

To Landowners, the Clergy, Estate Agents, Surveyors, &c., in England and Wales, and in Scotland.

The Company advances money, unlimited in amount, for the following works of Agricultural Improvement, the whole outlay and expenses in all cases being liquidated by a rent-charge for 25 years.

1. Drainage, Irrigation, and Warping, Embanking, Inclosing, Clearing, Reclamation, Planting, for any beneficial purpose, Engines or Machinery for Drainage or Irrigation.
2. Farm Roads, Tramways and Railroads for agricultural or farming purposes.
3. Jetties or Landing places on the sea-coast or on the banks of navigable rivers or lakes.
4. The Erection of Farm Houses, Labourers' Cottages, and other Buildings required for Farm purposes, and the improvement of and additions to Farm Houses and other buildings for Farm purposes.

Landowners assessed under the provisions of any Act of Parliament, Royal Charter, or Commission in respect of any public or general works of Drainage or other improvements, may borrow their proportionate share of the cost, and charge the same with the expenses on the lands improved.

The Company will also negotiate the Rent-charges obtained by Landowners under the Improvement of Land Act, 1864, in respect of their Subscription of Shares in a Railway or Canal Company.

No investigation of title is required, and the Company being of a strictly financial character, do not interfere with the plans and execution of the Works, which are controlled only by the Government Enclosure Commissioners

Apply to Granville R. Ryder, Esq., Managing Director, 3, Parliament Street, London, S.W.

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GREY DORKING FOWLS, of purest breed, in any numbers.
Imported TOULOUSE GEESE, the largest and most productive breed known.
Improved NORFOLK TURKEYS, large, hardy, and good breeders.
AYLESBURY and ROUEN DUCKS.
Imported BELGIAN HARE RABBITS, for size and early maturity.
BRAHMA-POUTRA, CREVECŒUR, and LA FLECHE FOWLS, for constant layers.
Priced Lists and Estimates on application.
John Baily & Son, 113, Mount Street, London, W.

LAWES' WHEAT MANURE for AUTUMN SOWING.—A supply of the above Manure is now ready for delivery, at J. B. Lawes' Factories, Deptford and Barking Creeks. Price £8 per ton. Two to three cwt. per acre to be harrowed into the land before the seed is sown. It can be obtained of Mr. Lawes, or through any of his appointed Agents; also
LAWES' PATENT TURNIP MANURE .. £6 6 0 per ton.
SUPERPHOSPHATE of LIME .. .. £5 5 0 per ton.
Genuine PERUVIAN GUANO direct from the Importers, and all Chemical Manures of value.
AMERICAN and other CAKES at market prices.
Address John Bennet Lawes, Offices, 1, Adelaide Place, London Bridge, E.C.; 22, Eden Quay, Dublin; & Market Square, Shrewsbury.

THE LONDON MANURE COMPANY (Established 1840),
Have now ready for delivery in dry fine condition,
CORN MANURE, for Spring Use
DISSOLVED BONES, for Dressing Pasture Lands
SUPERPHOSPHATES of LIME
PREPARED GUANO
MANGEL and POTATO MANURES.
Also Genuine PERUVIAN GUANO, and NITRATE of SODA, ex Dock Warehouse; SULPHATE of AMMONIA, FISHERY SALT, &c. E. Purser, Secretary.
Offices, 116, Fenchurch Street, E.C.

Wheat Sowing.

DOWN'S FARMER'S FRIEND, for Preventing the Smut in Wheat, and the Ravages of the Slug, Grub, and Wireworm. A 9d. packet is sufficient for Six Bushels of Seed Wheat, which can be dressed and fit to sow in a quarter of an hour.

Testimonials from the largest Wheat Growers in the Kingdom, bearing testimony to its great power and efficacy, may be had of Agents, who are appointed for every district.

Full directions for use are given with each packet.

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Agents in every Town throughout England, Scotland, and Ireland.

COLONY of NATAL. IMMIGRATION and FREEHOLD LAND GRANTS.

GRANTS of GOVERNMENT LAND are given to Men familiar with Farming operations, and possessing sufficient means to turn their Land to account.

Applications for further information to be made to Dr. Mann, the Special Agent of the Natal Government, at the Natal Immigration Office, 15, Buckingham Street, Strand, London, W.C.

SMITHFIELD CLUB FAT CATTLE SHOW.—The ANNUAL SHOW of FAT CATTLE, SHEEP, and PIGS, will be held at the AGRICULTURAL HALL, ISLINGTON, on MONDAY afternoon, December 9, and Four following Days.

Intending Exhibitors are requested to apply for Certificate Forms by the reference letters as under.

CATTLE.—Form A. For an OX or STEER (in any Class).
" B. For a COW or HEIFER (in any Class).
" C. For a BEAST in Extra Stock.
SHEEP. " D. For a PEN of 3 WETHERS (in any Class).
" E. For a SINGLE SHEEP in Extra Stock.
PIGS. " F. For a PEN of 3 PIGS (in any Class).
" G. For a SINGLE PIG in Extra Stock.

ENTRIES for LIVE STOCK CLOSE NOVEMBER 1.

Prize Lists, Forms of Certificates, and all information, may be obtained on application to Mr. David Pullen, Assistant Secretary, at the Office of the Honorary Secretary, corner of Half-Moon Street, Piccadilly, London, W.

N.B. All communications respecting the Show must be addressed to the Assistant Secretary, as above, and should bear outside the words "Smithfield Show."

The Agricultural Gazette.

SATURDAY, OCTOBER 5, 1867.

An extremely interesting letter has appeared in the *North British Agriculturist* this week from Mr. Hunter, of Thurston, near Dunbar, in which that gentleman describes his experience of the reaping machine during the past harvest. It appears that in the Lothians generally, where reapers have been in common use for years, hand reaping has again been very generally preferred. The crops have been so strawy and so twisted that many, concluding that their machines could not do the work, never tried them, while others gave up the trial after a single day's attempt, in the belief that manual labour, if not cheaper, must this year be very much more efficient. There has in consequence been a very unusual demand for harvestmen; and wages have been very high. It appears from Mr. Hunter's experience that a little more perseverance would have succeeded in the Lothians, as it has in isolated farms all over the country; and that laid and twisted crops present no more insuperable difficulties to the machine than they do to the sickle. For, now that the corn has been cleared, the appearance of the stubbles on East Lothian farms is said to prove that the crops reaped by hand have been at least as unsatisfactorily cleared as those which have been cut by the reaping machine; so that, as our contemporary declares, "with a certain amount of ingenuity and perseverance in the guiding of the machines towards the laid grain—changing the direction to suit the lie of the crop—a very considerable extent of corn which was cut by the hook would have been reaped by machines at a less cost, and the work would have been more efficiently executed."

Mr. Hunter says that he has during the past harvest had no fewer than six reaping machines in constant work "cutting all the crops that were not on too steep ground for the machines; and, in spite of the extraordinarily strong and heavy laid and twisted crops, with hardly any stoppages. The number of acres thus cut is about 380. Some of the fields, he says, bothered him a good deal by warping the spindles of the web-rollers, but they were soon repaired and at work again. Not one of the machines was near the blacksmith's shop from the time they commenced until they finished. The Rev. Mr. Bell was present when the work was proceeding in the last field, a very hilly one, and the crop very much laid and twisted. By the Ordnance Map the lower part of that field is marked as 500 feet above the level of the sea, and the top of it at about 650 feet. This will give an idea of the nature of the ground; yet during the four hours that Mr. Bell was in the field he never saw a single stoppage.

Mr. Hunter adds:—

"I cannot understand why the farmers could not use their machines this year as well as any other, unless it is that the machines (other than Bell's) were not fit to get through the heavy crops without breakages, or that the deliverers on the manuals were unable to put the sheaves off. My machines have this year enabled me to cut down all my crop with my own hands without paying the entravagant wages of 28*s.* or 30*s.* per week with food—with the exception of a few extra hands this week at 12*s.*—the same as I pay to my regularly engaged farm servants hired for the harvest as well as the usual farm work at a certain fixed wage at the hiring time in February; and I still stick to Bell as the only machine that has yet come out that will go through all sorts of harvest work—as you can so easily alter your proceedings in a field, and turn off the corn either to one side or the other as may suit your convenience, or a change in the wind, or the nature of the ground as to slopes," &c.

It is worth while pointing out to readers in districts where machines are not yet in general use, that wherever the requisite patience, tact, and persoverance have been exercised, even the past extremely unfavourable condition of the corn crops has been no hindrance to their use. Mr. Lawrence, on the Cotswolds (p. 868), with his homely hands, unaccustomed till very recently to the use of machinery upon the farm at all, unites his experience to that of Mr. Hunter in the Lothians; and at length the ordinary experience of the practical farmer tallies with that of the judge in the show-yard and the trial ground, in declaring that the reaper is a perfectly satisfactory farm implement, not more dependent on circumstances for its efficiency than any other long-established tool—the plough, the cultivator, or the threshing machine.

We understand that at the close of the sale in Windsor Park on Wednesday week, to which reference is made below, the recent American importations of *Duchess* and *Oxford* Shorthorns will be offered by Mr. Strafford. There are in all nine animals just out of quarantine at Southampton, which will be transported to the Shaw farm as soon as the necessary licenses have been obtained — three of the former tribe and six of the latter. The 3d and 12th Dukes of Geneva, and the 7th *Duchess of Geneva* are all descended from Duchess 66, the 700 guinea cow bought for Messrs. Becar & Morris at the Tortworth Sale. The 4th, 5th, 6th, and 7th *Maids of Oxford*, the *Countess of Oxford*, and the 8th *Lady of Oxford*, are all descended from *Oxford 5th* by the celebrated Duke of Northumberland, bought at the Kirkleavington Sale. We hope next week to give a fuller account of these cattle, and of their position in the great tribes to which they belong. It cannot be doubted that their appearance at the sale on October 15 will greatly add to the attractions there offered.

—— The Rev. Henry Moule has just received from the Indian Government a gratifying and substantial recognition of the value of his system of dry earth sewage. The following is an extract from a letter addressed to him from the India Office in London, dated Sept. 25th, 1867:—"I am directed by Sir Stafford Northcote to forward for your information copies of reports which have now been received from the Government of India, on the successful and general adoption of your dry earth sewage system in India. In consideration of the very satisfactory character of these reports, and on the recommendation of the Government of India, the Secretary of State for India in Council has much pleasure in authorizing the payment to you of the sum of five hundred pounds."

—— The "non-contagious disorder," as Professor Brown described it, among the cattle of a Cheshire farm, which had been pronounced cattle plague by the local veterinary authority, has since been made the subject of examination by Professor Gamgee, who declares the disease to be a "malignant catarrhal fever, once described by a Continental authority as glanders in the ox." The history of the attack sufficiently disproves the idea of its being the true cattle plague; only six cows, out of a herd of 30, having died during six week, and at pretty regular intervals during that time, whereas animals "succumb rapidly and in masses to that disease whenever they are congregated together."

—— During the three weeks ending the 28th Sept., no case of cattle plague has been reported from any part of England, Wales, or Scotland. The total number of cattle reported to have been attacked in Great Britain since the commencement of the plague is 278,927, and 56,911 healthy cattle have been slaughtered to prevent the spread of the disease.

—— Mr. Strafford announces for sale, on Wednesday, October 16, a portion of the Shorthorn herd bred at the Prince Consort's Shaw Farm, in Windsor Home Park. The catalogue includes 42 cows, heifers, and heifer calves, and 11 bulls and bull calves. First-class Warlaby bulls, as British Prince (14,197), Prince Alfred (13,494), Fitz Clarence (14,552), and Lord Hopewell (18,239), have for many years been used, and the cows to which they have been put were collected by purchase at several of the most important sales of the past 12 years, including those of Sir C. Knightley, Mr. Marjoribanks, &c. Mr. Morton, in his book on the Prince Consort's Farm, thus describes the herd:—Since 1855 pure Booth bulls have been used. Prince Alfred (successful at the North Lincolnshire Show in 1859, and hired in succession by the Prince Consort, the Emperor of the French, and Lady Pigot), Fitz-Clarence, and now Lord Hopewell, have been used over the whole herd, which is thus rapidly acquiring a common family character. The Pedigree herd are chiefly descended from the following cows:—*Alix* (1853), by Earl of Dublin (10,178),

bred by Sir C. KNIGHTLY, and bought at the Fawsley sale for 100 guineas; *Rachel* (1850), bred by the PRINCE CONSORT, by GOLDSMITH (10,277), dam *Matchless* by FITZHARDINGE (8073)—*Narcissus* (1851), bred by Mr. TROTTER, of Bishop Middleham, by 3D DUKE OF YORK (10,106), dam *Norna* by DUKE OF RICHMOND (7996), bought at the Hendon sale for 72 guineas—*Cold Cream* (1851), another Fawsley cow, also got by EARL OF DUBLIN (10,178), and purchased for 100 guineas at Sir C. KNIGHTLY'S sale—*Graceful* (1852), bred by Mr. MARJORIBANKS—*Bracelet, Sally*, and others, bred by the PRINCE CONSORT. *Sally* was the 2d prize cow at the Paris International Show, 1855. The cows first named have all been good breeders; *Graceful* and *Rachel, Alix* and *Cold Cream* had each had six calves at the date when Mr. MORTON wrote. And we find, on looking at the catalogue, that there are six descendants of *Rachel*, eight of *Alix*, four of *Narcissus*, and ten of *Cold Cream* for sale next Wednesday week. We add the following note relating to the two cows which contribute most largely to this sale. Both *Cold Cream* and *Alix* were by the EARL OF DUBLIN, a bull descended from *Princess*, by NAPIER (6283), and through the former from BELVEDERE (1706)—and thus on both sides from herds in which the present pampering system of treating Shorthorns was carefully avoided. It is perhaps in consequence of this that the cows descended from him have possessed remarkable milking properties. Mr. ADKINS' herd, sold in 1861, at Milcote, included a number of his descendants, and the dairy quality of the herd there, as well as the excellence in this respect of many of the Fawsley cows, is to be attributed to the influence of this bull. The late Earl DUCIE, who was the principal owner, after the Kirkleavington sale, of the *Duchess* tribe of Shorthorns, wanted much to procure a cross of the EARL OF DUBLIN for the *Duchesses* on account of his proved influence on the milking properties of his descendants. We hope that at the ensuing sale the special value in this respect of his descendants may be realised.

—— A printed correspondence has been pretty widely distributed, in which Mr. BAILY DENTON calls attention to the way in which the Jury system has failed of its purpose and intention at the Paris Exhibition. It appears that Mr. DENTON had prepared and sent for exhibition a series of plans and drawings illustrating the advance made by Great Britain in cottages and farm buildings — entering them in Classes 93 and 74 respectively—and that, no notice of any kind having appeared of them in any published report of these Classes, pains were taken to ascertain whether any examination of them had been made. This resulted in the discovery that after the ruling authorities had excluded the farm buildings from Class 74, for which they were specially entered, and the examples of rural labourers' cottages from Class 93, both exhibits were nominally transferred to the Architectural Class, though actually placed in the Machinery Department; and so, being put altogether out of place, had been acknowledged by no Class and been entirely overlooked. Mr. DONALDSON, who reported on the Architectural Class, says that he apprehends as his report did not extend to them "the drawings showing the construction and arrangement of farm buildings will be reviewed in another Class, very possibly 74." Mr. GREGORY, Juror for another Class, states that Mr. DENTON'S exhibit was brought to the notice of the Jury of Class 65, and by them considered as not properly belonging to that Class, a communication to that effect having been made to the Imperial Commission, with a request that the exhibit might be brought to the notice of the proper Jury. And thus it appears that the drawings were bandied from one Jury to another, and finally lost sight of altogether; so that the prizes have in this case been awarded without any examination of an exhibit showing the progress made in late years in the cottages of the English farm labourer, and the homesteads of the English farmer. Mr. DENTON adds:—"Employing many hundred labourers in land improvements, I could not fail to take an interest in their homes; and having carefully studied the dwellings of the rural poor in Italy, Germany, Switzerland, France, Belgium, and Holland, I can state, with some confidence, that the comfort now given to the agricultural poor in England is superior to that of any of the countries I have named."

—— Mr. BAKER'S anti-incrustator was referred to in our report of the implements exhibited in the Agricultural Hall last December. It was then said to act by setting up a particular electrical condition—using for that purpose differences of temperature inside the boiler itself—by which a cake, if already formed inside the boiler, becomes detached, and by which such deposits are hindered for the future. A recent Number of *Engineering* describes this "magnetic incrustator," and gives drawings of it as made by Messrs. Kitson & Co., of Leeds. It consists of a brass casting having inserted in it radially a number of steel magnets sharply pointed at the outer end, so fixed in the boiler that it is fully exposed to the current of issuing steam on its way to the steam-chest. The battery is supported by an insulating stud, and connected with some distant point by a stout copper wire.

"Respecting the manner in which the anti-incrustator acts in removing the scale from a boiler we shall not say much here, and, in fact, no thoroughly satisfactory explanation of its action has yet been advanced. In fact, doubts have from time to time been expressed whether it produced any electric current at all; but recent experiments made by Messrs. Kitson at their works show decisively that an electric current does exist when the apparatus is in use."

But whatever doubts may be expressed as to the manner in which the anti-incrustator prevents the formation of scale and effects its removal, if already formed, there can be no doubt that it does do these things. There are now some hundreds of the anti-incrustators at work both in this country and in America, and they have given excellent results, scale already formed being caused to fall off in fragments, and the impurities of the water being deposited as a soft mud easily removable by the process of blowing off.

HARVESTING IN WET WEATHER.

IN your admirable leading article upon "Harvesting," in last week's *Agricultural Gazette*, there are two or three points upon which I should like to offer a few words of explanation. You inquire, "What forbids the fitting-up of an old shed as a drying chamber?" I reply, nothing could be easier, cheaper, and more efficient—with this additional advantage, that a shed so fitted would (when not in use for drying purposes) make the most perfect form of granary that could possibly be devised, as it would be proof against vermin and damp, and afford a thoroughly diffused ventilation, by means of the tubes, into the very centre of the heap of grain; moreover, should the corn thus stored show any after sign of dampness, a small stove placed at the lower inlet would diffuse through it a slow stream of warm air, so as completely to preserve it from must or mouldiness. I pointed this out to several practical farmers at the time of our experiments, and they willingly acknowledged the great advantages of such an arrangement. The size of shed which I should recommend would be 12 or 14 feet wide by 24 feet long. This, with my present sized fan, driven (as it may easily be done) at three times the velocity, will enable a farmer to clear 8 or 10 acres in a working day of 12 hours; or if he chooses to divide his men into two gangs, and keep the engine going night and day, he could, of course, clear his fields twice as fast. The opinion of practical men here is, that the threshing should be carried on simultaneously with the drying, because in that way the cost of power for drying is practically nothing, and the additional consumption of fuel would certainly not exceed 1*s.* per quarter.

Taking a 4-quarter yield per acre as an average, 10 acres will give 40 quarters, which is probably about the usual work of an ordinary threshing machine; hence, a shed of the size named would just keep the threshing apparatus regularly supplied. With regard to this certain and rapid mode of dealing with a crop, I would remark that it is very important, when a harvest is belated, to have some means of clearing the fields, so as to enable a farmer to get his ploughs to work before the early frosts set in; and a little additional expense or labour will be well rewarded by the better tillage for the succeeding crop.

Touching any injury to the fire-bars and tubes, from the great draught, I do not think it need be feared, because we have a perfect control over the amount of draught, by means of a valve on the chimney-stalk, which enables us to reduce the volume of air drawn through the furnace by supplying air direct into the smoke box. As to the injury to the grain for bread-making, or the destruction of its germinating power by heat, I have found that the general air of the chamber, after contact with the wet sheaves, never exceeds 140°, which is 20° below that which the French experimentalists pronounced to be destructive of fertility, and 72° below that which was said to be injurious to the quality of the flour. But acting upon the doubt thus suggested, I will have some of this dried Wheat sown, and another portion ground into flour and made into bread, and report the results to you as soon as obtained.

My apology for trespassing so much upon your time must be that this is a question in which the whole community are more or less, directly or indirectly, interested. *William A. Gibbs, Gillwell Park, Sewardstone, Woodford, N.E.*

P.S.—The cost for apparatus will be very inconsiderable and small; as it is, it need not fall upon the farmer at all, because the possessors of travelling engines will find it greatly to their interest to purchase and hire out this additional machine, in order to obtain more work for their men and engines. At present they are wholly unoccupied during the two or three months of harvest.

WHAT IS GOOD SEED WHEAT?

I SEE in your impression of 7th of September, page 935, a letter from your correspondent "C." on the best Wheat for seed, and this letter has reference to a very important one on the same subject in your impression of 24th of August, page 885, from another correspondent, who signs himself "B." I need scarcely remark that this impinges upon the vexed questions of thick and thin sowing, of high and low farming, of tillering, and the ticklish questions of late and early sowing—in short, on all the questions of climate, of chemistry, and of botany that affect wheaten life from the time that the seed leaves the granary until the produce is again safely housed.

If we take the common Wall Barley (Hordeum murinum), which is reckoned by botanists a British weed, at all events it is perfectly at home with us, it produces perfect seeds which grow freely, and hence we find our waysides in the southern counties well supplied with Wall Barley of the normal type. It neither mends with us, nor gets worse; when dried it is an exceedingly beautiful specimen, quite a Bantam among Barleys, boldly showing its graceful beard, like the best of its family. The greatest grumbler could not say that this plant is not grown to perfection, although its small seeds can do nothing for us in the way of malt or meal; so that notwithstanding its beauty, &c., it has no value whatever in the eye of the agriculturist. In the cereals we must have the plants to corn well, and unless they produce weight of meal they have not reached the standard they must be judged by. It is not the normal type that the farmer wants, neither is it the perfect type that he is looking out for; it is something more than perfect that he has fixed on as the goal to be gained, and the whole gist of the argument goes to show that "B." and "C." both agree that weight of grain is everything, and if weighed and found wanting against the grain from which it sprung, it is not praiseworthy. An extra quantity of starch in seed Wheat is no mark of perfection, although it will afford the infant plant a good cotyledon to commence with; at the best it is but a small sack, and would very soon be emptied unless supplemented by exterior supplies; it is therefore to the descending and ascending axes, the radicle and plumule, that we must look to foster the brairded grain, and not to the seed alone. I have now before me a picked sample of fair average Wheat, well grown, perfect seeds, and it takes 720 of them to make an ounce, and yet it is on this two-thirds of a grain of starch that all the doctrines are founded of change of seed, soil, climate, &c. And when I state that 30 seeds weigh only 20 grains, it is clear that even an extraordinary weight of starch in the seed can exert only a small influence on the crop of Wheat; but upon that debatable ground, the collar of the plant, there comes to be enacted a *pro* and *con* trial. It is from the collar that the radicle descends to suck supplies from the bosom of mother earth; and it is from the collar, that the blade rises upward to salute the sunbeam and green itself with what it can gather from the air we breathe; and it is from the collar that the plant propagates itself laterally by adventitious buds that come to be virtually arms or branches, bearing fruit under the name of tillering. When a healthy seed takes root downward in a fertile field and finds plenty to live on, it sends a message to the collar "all right below," and the ascending axis in like manner gives in its report of "a bracing air and plenty of room (thin sowing) above;" the collar then decides that the latent buds must be pushed to extend the business all round, and thus we have some five or six stems producing Wheat from a single seed, which would not have been the case had the blade been crowded above ground or the radicle starved below. Whatever ingredient the Wheat plant was short of in the land where it grew last, it imprinted that loss upon its progeny; hence when we see the "field" changed, the young plant will seize greedily the chemical it had so long been craving for, and grow rapidly, and it is in this way that the change of seed generally tells best.

In order to show the clumsy way that our Wheat fields have to be cropped (and for very weighty reasons they have to be done so) I will show the number of Wheat plants necessary to crop an acre of high class Wheat land, giving the plants all the space they need to come to perfection without giving them any space to spare. Ten square chains is an acre, and a field 10 chains long and one chain in width will exactly contain 100,000 square links, so that if we allow each plant a space equal to one square link, or $9 \times 9 = 81$ square inches, the acre will just hold 100,000 plants at the equivalent distances of say 12 inches apart from row to row, and about 6¾ inches from plant to plant in the row, and if the Wheat will only tiller, as above stated, no one will say that I have not cropped the ground heavily. Here then we have the astounding facts that by actual weight and measure 8 lb. 10 oz. of Wheat will plant an acre, so that a bushel of 56 lb. weight would seed more than 6 acres of land, and therefore the man that sows 3 bushels of Wheat to the acre of land gives 19½ times as much as I have reckoned; here, consequently, it is evident that this subject wants to be ventilated pretty freely. The glutton swine that we must call prize pigs, having as much lard on their bones as they can well carry at a very slow walking pace into their pens in the show-yard are indeed fat pigs, but a very long way behind being perfect pigs; the bare idea of hunting such a boar would be madness, and, as for breeding purposes, such greasy gluttons are in no condition for that. Pigs are selected upon the principle of "which will pay best," hence we find the breeders active, agile, and lively, and as nearly as can be perfect pigs, whilst the pigs with a tendency to fatten are the farmer's favourites; and it is not worth while stopping to inquire if that "tendency" is a healthy one or not, since pigs are unsaleable unless they are fat. Now it is notorious that certain Wheats have "tendencies," some to weight of grain, others to fineness, some to hardiness, to quick growth, to strength of straw, against stormy situations, *cum multis aliis*; but I mean to assert, that the fatted grain, like the fatted pig, is by no means better as a breeder by being starched so heavily.

Whoever has watched plant life closely must have seen, by the tendril of the climbing plant feeling its way all round as well as overhead for a peg to hang its burden on, something very much like forethought; and so it is with supply and demand in the Wheat seed extending itself by tillering, especially when time is given it to work underground, it will fill up its measure of some 30, some 60, and some an 100-fold; but it is to the fine, healthy, development of the collar that we must look for the welfare of the crop, for the blade may be destroyed, and the stalk eaten down by sheep to the stumps, and yet the plant may suffer nothing eventually, as long as the collar is safe. The collar is literally the turning point of the plant: below the collar all is colourless, above the collar all is green: the underground organs are only calculated to work in the dark and in the cold, whereas those above ground are clearly lovers of light and heat. Whoever, therefore, would consult the economy of Wheat growing, must have an eye to the collar. Arguments addressed to that point, will always be answered promptly and surely. It is worth while to settle the distances not only of one collar from another,

but of every collar from the surface, so that this point should not be either bare of earth or buried; and nothing can be done with thin seeding until these matters are settled: for if three bushels of Wheat per acre are sown broadcast, and one bushel is taken by the rooks, &c., or left uncovered, and another bushel gets covered too deeply, we have our best hopes anchored on the other bushel for a crop, and if that bushel gets safely earthed we see from the above calculation that not one seed need to tiller, as there will be six or seven stalks to every square link. No one need waste a word in condemning imperfect seeds, for the radicle and plumule must necessarily suffer along with the more conspicuous though less important cotyledon; yet the seed prized for its valuable and bulky starch is not thereby necessarily better for breeding purposes than seed of the normal size and weight, for although good seed be essential in order to secure a good crop, the best seed can only act from the starting post and run a little way along the course, for when the adult plant is able to feed on coarse fare, the starch that started it can scarcely be said to influence the crop any more. Yet there is one way in which the heavy seed would affect the future crop, and that is that, weight for weight, or bulk for bulk, the large seed would make the sowing about one-third or even one-half thinner than if the land were sowed with tail corn; the large seed would therefore be stronger to start with, and having more room to grow would develop a better blade, and eventually bring better corn than small or offal seed could bring: still the normal size of seed will ever be the practical man's mainstay. Where corn is too thinly seeded you cannot transplant to fill up the gaps, even where the rows would freely admit of the work being done; it does not behave well under the planting trowel, but nothing can be easier than to regulate the crop where the supply is redundant. The culture of Wheat cannot be solved as one would solve a question of simple proportion, and say if the seed sowed weighed 64 lb. to the bushel, the grain reaped should weigh 64 lb. also. Of what avail would fine seed be to the plant when the temperature above its collar was ruinously below the Wheat-producing minimum? and the same might be said of want of moisture underground producing disease, as rust or mildew, on the leaf. Moreover, where the land is poor, an acre will require 3 bushels of seed Wheat to crop it, whereas the rich land will not only corn heavily but there will be a saving of 11 pecks and odd of seed Wheat upon every acre. *Alex. Forsyth.*

UNCOLOURED CHEESE.

The farming interests of Ayrshire have in no small degree been forwarded by its Agricultural Association. The dairy farmer has been greatly benefited by its introducing a better system of making cheese. With this view it deputed some time ago some intelligent gentlemen to go into England, and report on the best method of making Cheddar cheese. In their able report valuable directions are given on the subject. The Hardings were invited from Somersetshire to perambulate the county, and exhibit in all the cheese districts of Ayrshire their method of making Cheddar cheese. With great liberality, the same Association has thrown open to all the south-western counties of Scotland its cheese prizes at its annual cheese exhibition at Kilmarnock; and by instituting every year a cheese exhibition with handsome premiums, and a cheese fair at Kilmarnock, a great progress has been made in improving the produce of the dairy.

Though great progress, no doubt, is annually made in the Cheddar system of cheese-making, much more skill might be attained if the practice of colouring was abandoned. The public taste, in a most unaccountable way, has been trained to buy no other than a coloured cheese. With a view to alter this public vitiated taste, the Ayrshire Agricultural Association has most laudably offered, at the ensuing cheese exhibition at Kilmarnock, prizes for uncoloured Cheddar cheese. To these I am happy to contribute a small sum to aid the Association to carry out its plan, and I hope good will arise from our united endeavours to introduce uncoloured Cheddar cheese, and that the public will be gradually trained to prefer it to the coloured.

There are several advantages from not colouring cheese. Among these may be stated:—

1. An uncoloured cheese will ripen sooner, and be fit for use. Some years ago, the late George Wilbraham, M.P., of Cheshire, an enlightened and public-spirited country gentleman, suspecting that the colouring of cheese with annatto and other vegetable substances had a deleterious effect on it, offered a large sum of money to any one who would chemically investigate the subject, and write an essay on it. Mr. George Whitby composed an able one on the subject. It was published by Ridgway, bookseller, Piccadilly, London, in 1841. Mr. Whitby, at page 29, states "that it is his opinion that most red and scarlet vegetable substances are astringents: and that all matters possessing this property, if mixed with the milk, will tend more or less to interrupt the formation of curd, and that it will interrupt one or more of the processes or changes which all cheese must pass through before it ripens, particularly as its action on the curd will counteract, condense, and harden, by that natural attraction between gluten, gelatine, and tannin, the principle of the astringency." If such be the case, and of which it seems certain, what a great loss must it be to the dairy farmer colouring his cheese with annatto or any other vegetable colouring substance. The reed, or rennet, when added to the coloured milk, will not throw down all the curd; and where much cheese is made, what a great loss of weight must be experienced. Mr. Titley, of Bath, one of the most extensive dealers in cheese in the west of England, and well acquainted with all the details of Cheddar cheese-making, informed me long ago how injurious it was to colour cheese. It prevents the cheese ripening for a long time for the market. The sooner the blue-mould appears in the cheese, the sooner it ripens, and is fit to come to table. An uncoloured Cheddar quickly ripens, and the blue-mould appears in it.

2. No intelligent dairy farmer, either of Cheshire or Somersetshire, has on his table coloured cheese. They always prefer one uncoloured, as richer and higher in flavour. Had the Cheddar cheeses that obtained the prizes at Kilmarnock exhibition been uncoloured, they would have been much richer in taste and higher in flavour.

3. It is curious to remark that no country except Great Britain colours cheese. The only uncoloured cheese is the Stilton, which is one of the best flavoured and richest cheeses. We find no coloured cheese in Holland; none in Switzerland, where Gruyère is made; none in Lombardy, the country of the Parmesan; nor in France, which produces the delicious Rochfort cheese. The American cheese, which is now imported in such vast quantities into this country, is uncoloured, and is yearly improving in its quality. It greatly behoves our dairy farmers to do all they can to improve their Cheddar, and to prevent it being lowered in value in the market by the superiority of the American. And as it is ascertained that colouring cheese affects its quality and richness, surely this ought to be a chief reason to abandon it, and bring into the market the best made Cheddar uncoloured, to cope with that which comes from America. *Sir J. Stuart Menteith, of Mansfield, in "Ayrshire Express."*

Notes on Butter.

The following suggestions in regard to the making of fresh and salted butter are, by permission, extracted from a small pamphlet prepared some time ago by Sir James Stuart Menteith, of Mansfield, Bart., chiefly for private issue amongst his own tenantry:—

I. *Dairy.*—Above all things, have everything in it sweet and clean; the floor well washed, plenty of air admitted, and no meat or anything put in the dairy having a bad smell.

II. *Vessels to Keep Milk in.*—Of whatever sort they are, of glass, earthenware, or of metal, let them be kept clean, by being well washed with water having a little soda in it; and then being properly scalded with hot water, so that no particle of the old milk be left in them before the new milk is put into them.

III. *Cream.*—Let the cream in summer stand not more than two days before it is churned.

IV. *Churn.*—Keep the churn particularly sweet and clean. Before putting into it the cream to be churned, let it be well scalded with warm water, and afterwards wash it well with cold water, and then put in the cream. Churn for 20 minutes, taking care to turn the churn steadily. Take out when the butter is come all the buttermilk, and then put into the churn cold water. The butter is now fit to take out of the churn.

V. *Butter.*—Take the butter which is taken out of the churn, and wash it again and again with fresh spring water, till no buttermilk comes of it; and the proof of this is that the water comes off the butter clear, and with no milkiness. If the least buttermilk be left in the butter, it will give it a rancid, unpleasant taste. In working up the butter, about 4 oz. of the best salt ought to be given to every 10 lb. of butter. The chief reason why the butter in New Cumnock parish, and in the greatest part of Scotland, is often badly flavoured, is that the buttermilk is not carefully washed out of it.

VI. *Winter Salted Butter.*—To prepare butter for winter's use, the following mixture of salt will be found to make good salted butter, from which all its buttermilk has been previously most carefully washed out of it:—8 oz. of best salt, 4 oz. of saltpetre, 4 oz. of the best white loaf sugar. All these ingredients to be well pounded down, and thoroughly mixed together.

To every pound of fresh butter, take of this mixture 1 oz., and work it well into the butter.

REAPING MACHINES.

[The following is a report of a paper on the subject by the Rev. Patrick Bell, read before the British Association for the Promotion of Science at the recent meeting at Dundee.]

In the outset of his paper, Mr. Bell gave an account of the reaping machine in the various forms through which it had gone down to the present day. Noticing the two sickles from Egypt in the British Museum, he said that they were much like our own reaping hooks, with smooth-cutting edges; and after remarking that from the earliest times down to our own day there had been little if any alteration made upon the reaping-hook since its invention, Mr. Bell described the ani-ani, a rude implement used in Japan for cutting corn, which was inferior to the reaping-hook in point of execution, though the principle for cutting was that of scissors, the same as in the reaping machine. The heads of the grain only were cut off by the ani-ani. He then noticed the earliest real machines constructed for reaping, describing the principle adopted in each machine. He said that no fewer than 30 contrivances had been attempted to construct an efficient reaping machine upon the principle of a circular cutter, though he was not sure that any of them ever reached maturity.

Coming down to 1852, he said that in that year no fewer than 30 patents were taken out in this country for reaping machines. In America, from the beginning of this century to the end of 1851, no fewer than 98 contrivances were patented at Washington, embodying, like those in this country, almost every conceivable principle. The reaper which bore his (Mr. Bell's) name was invented in 1826, and used in the field in 1827, and had been in successful operation every season since. The most successful American reapers were upon his principle, and were patented at Washington in 1833-34, seven or eight years after his invention was known to the world, so that his neighbours in the Far West had ample time to make up their minds whether they would think for themselves, or quietly take a hint from a brother. Mr. Bell concluded his paper with the following account of the difficulties he experienced in completing his own invention:—

Before I finally conclude, it may be expected of me to state in a few sentences the rise and progress of the reaping machine known by my name. From my earliest years I had a liking and turn for the study and practice of mechanics. I am the son of a farmer, and was accustomed from my early youth to witness all the operations of the farm performed, and in most of them I engaged with my own hands. I was not a Presbyterian minister during the time in which I invented the reaping machine, as is currently stated, but an alumnus of one of our national universities—the University of St. Andrew's. A farmer's son, in my days at least, although an academic, would not have been allowed to study undisturbed in his *sanctum*, and was liable, especially in the harvest season, to be summoned to wield the fork or some other implement of toil. At a very early period of my life I was most painfully struck with the very severe nature of the toil to which the harvest workers were subjected—a toil made doubly oppressive sometimes by the heat of the weather, and always by the very awkward position in which they were obliged to stoop when engaged in their work. It may sound as an empty sentimentalism, but it is, nevertheless, true, that a desire to mitigate such excessive toil led me to inquire whether there might not be a possibility of transferring part of it at least to beams of wood and bars of iron, supplemented by the bones and sinews of the horse. Sure I am that I had no intention of taking the people's bread from them; and had I been so taunted I believe that even then I could have demonstrated that the multiplication and employment of machinery in agricultural work immediately promotes the increase of the people's bread, and does not ultimately tend to diminish the means of the people to obtain that bread.

For years I had thought of the matter, and had diligently searched for some principle; and, taking up one after another, I duly weighed the possibilities of their application to the object in view, and abandoned them all as worthless. One evening after tea, while walking in my father's garden, my eyes caught a pair of gardener's shears sticking in the hedge. I seized them by the handles, which protruded, and I proceeded to snap at the twigs of the Thorns. My mind was full of mechanics at the time, and many hours were spent in my workshop; and contemplating the shears attentively, I insensibly said to myself, "Here is a principle, and is there any reason why it should not be applied to the cutting down of the corn?" Not altogether satisfied with my performance on the hedge, I brushed through it, with the shears in my hand, to a field of young Oats adjoining, and commenced cutting them right and left. It was well that no neighbouring gossip saw me at the unwonted employment, else the rumour might have been readily circulated that the poor student had gone crazed. For weeks and for months, by night and by day, those shears were uppermost in my thoughts, and I searched anxiously and indefatigably for the mode in which they should be employed. Plan after plan presented itself to me, and were put upon paper. The merits of each, and the likelihood of its success, were carefully scrutinised and pondered, and eventually I fixed upon the plan now successfuly in operation. This took place in the summer of 1827. The next step was to construct a model, and to ascertain how thoughts would look when transferred to steel and iron. This was done, and it was during the process of making the little wooden frame and my puny cutters, that the idea of a sloping canvas for conveying the cut corn to the side occurred to me. My first idea was to place the canvas level with the ground, and it was merely because that it was more conveniently situated in the model, and pleased the eye better, that the angular position was adopted, so that in reality the position and the angle of the canvas were more matters of accident than the result of consideration. Were the truth always known, I believe that much more important improvements in mechanical science would be found to have a similar origin.

Having finished my model, and speculated as accurately and deeply as I was able upon the possibilities and probabilities of the actual results, I determined to have a machine constructed upon the large scale. For this purpose I had to pass out of my character of inventor into that of engineer and workman. The plan I took was this. After making my calculations as to size, &c., I joined a quantity of rough sticks together and called them a frame. Then I made cutters of wood of every part that required to be made of iron and steel. I sent these piece by piece as I required them to the blacksmith, with the instructions to make a thing of iron as like the wooden ones sent as possible. When I got a few of the pieces from the smith I finished them with the file, and secured each to its proper place. I remember the cutters gave me a world of trouble and vexation. When they came into my hands they were in a very rude state, and required much filing, grinding, and fitting. By dint of patient application I got the whole into a sufficiently perfect state, as I thought, for trial. It may amuse you, perhaps, if I give you some account of the first field I cut. That you may understand this, imagine an empty outhouse, rather long and narrow, having in one end a wright's bench, and in the other a rude-looking piece of mechanism, an embryo reaping machine. For my subsequent operations I chose a quiet day, that is a day where they were few people about the place. On that day an eavesdropper might have seen me busily but stealthily engaged in conveying earth in a common wheel-barrow into the workshop. When the place between the bench and the rude but ambitious candidate for the honours of the harvest field was covered to the depth of some 6 inches, I proceeded to compress the loose mould with my feet. I next went to an old stack that happened to be in the barnyard, and drawing a sheaf of Oats out of it, and carrying it into the workshop, I planted it stalk by stalk at about the same thickness which I knew it would have grown in the field. This done, I shut and barred the door, and then going behind the

machine I pushed it forward with all my might through my planted Oats. As soon as I recovered my breath, I anxiously examined how the work had been done. I found that it had been all very well cut, but it was lying higgledy-piggledy, in such a mess as would have utterly disgraced me in the harvest field. Upon the whole, however, I was not discouraged, but rather encouraged by this first experiment. The cutting was perfect, and that was the great point I then aimed at.

Although by this experiment I had proved my new invention to be a cutting machine, it certainly little deserved to be dignified with the name of reaping machine, and yet it was a reaping machine I had set my heart upon constructing. Had I at this stage been content to summon a man with a rake to do the work of wheels and pinions, my machine was complete; and, had I been contented with a combination, I would have saved myself a host of trouble, and what to me at the time was no small expenditure of money. My workshop was again speedily cleared of earth and loam, and made ready for the jack-plane and piles. I proceeded forthwith to put the canvas in order. One might naturally suppose that this would be an easy matter, but I did not find it so. After the rollers were put in position, the wheels for driving them adjusted, and the canvas stretched and fixed upon the rollers the proper tightness, I conceived in my simplicity that the work was done, and my object secured. The result was otherwise; for, on pushing the machine forward only the length of the house, I found that it twisted, and would have been torn to pieces if it had proceeded many yards forward. I proceeded now to make grooves at the rollers, in which I placed a small rope. To these ropes, one at the top and the other at the bottom of the rollers, I sewed the canvas, expecting that the ropes and canvas would move together in uniformity, and that my object would thus be obtained; but, upon trial, I was a second time disappointed. The ropes, from inequality in the grooves, moved irregularly, and the canvas became twisted as before. For a time I was non-plussed and dispirited, but, plucking up courage, and ruminating over mechanical appliances, I thought of the pitched chains. Having made some 6 inches of such a chain out of a piece of old iron hoop, I sent the same as a pattern to the blacksmith, with an order to make for me so many feet of chain like the model sent. Having received the chains, and put them in their places, the canvas was speedily attached, and the machine was prepared to meet the third trial of its construction which had now been made. The wheelbarrow was again in requisition, and another visit made to the old stack in the barnyard, and the process of dibbling another sheaf gone through. The door was again shut, and, palpitating with expectation, I pushed the machine forward. To my unspeakable satisfaction the Oats were not only nicely cut, but were lying almost unanimously by the side of the machine in one even continuous row, as I had confidently expected. You may smile, but I now complimented myself sensibly, I think, on my success, being convinced that I had converted the implement from a cutting to a reaping-machine. All this took place in 1828. Until the crops were ripe nothing more could be done. I was in high excitement and hope, and I waited impatiently for the ripening of the grain. In the meantime I revolved in my mind with anxious and provident hope, everything that was likely to happen when the actual trial in the open field should come to be made. I was fearful that there should happen to me what had happened to many an experimenter before who performs his experiments to a wish in the laboratory or workshop, but who utterly fails when he actually adjourns to the actual domain of nature or of art. I had observed in my experiment upon the pigmy and artificial field in the worshop that while the Oats upon the whole came to the canvas, and were regularly removed to its side, nevertheless some seeds straggled away capriciously in different and adverse directions. And yet I could not forget that in the workshop all was calm, and that I had the elements greatly under my own control, but that in the open field the blowing wind might multiply the capricious stragglers and fan the flame of disunion, and damage the success of the operation. It was an anticipation of this kind that induced me to think of the reel or collector. Having plenty of time before harvest, I constructed this part of the implement, and laid it past to be used or not as the emergencies of the field might require. The period now approached that was to decide the merits of the machine. That night I will never forget. Before the corn was perfectly ripe (I had not patience to wait for that) a younger brother of mine and I resolved to have a quiet and unobserved start by ourselves. That could not be got while the sun was in the heavens, nor for a considerable time after he was set; and, accordingly, about 11 o'clock at night, in a dark autumn evening, when every man, woman, and child were in their beds, the machine was quietly taken from its quarters, and the good horse Jock was yoked to it, and we trio wended our way through a field of lea to one of standing Wheat beyond it—my brother and I the meanwhile speaking to one another in whispers. We reached our destination, and the machine was put in position right in the end of a ridge. My duty was to look ahead, and my brother's to guide the horse. I gave the word of command to go on, and on the implement went; but it had not proceeded above 5 or 6 yards when I called upon my brother to stop. Upon examining the work we found it far from satisfactory. The Wheat was well enough cut, but it was lying in a bundle before the machine. For a moment we were both downcast; but, recollecting myself, I had yet great hope, and said so, the whole of the machine not being used, the reel or collector having been left behind. I ran across the field and brought the reel and everything connected with it upon my shoulders, and adjusted it as well as the darkness of the night would permit, and we were soon ready for a second start. Taking our positions respectively as before, the machine moved forward, and now all was right. The Wheat was lying by the side of the machine as prettily as any that has been ever cut by it since. After this we merely took it back again to the end of the ridge, and made a cut with the open edge to ascertain how the swaths would lie upon the stubble, with which being well pleased, we, after some pardonable congratulations, moved the machine back to its old quarters as quickly and quietly as possible. I have extracted from the paper published in the "Quarterly Journal of Agriculture," which I wrote at the time for that periodical, these remarks so far as relating to myself. The paper in full will be found in the number of January, 1854. I consider it unnecessary to follow out the history farther, as the implement is now well known, and may be seen in operation in most parts of the country every harvest.

Professor W. FAIRBAIRN, LL.D., Vice-President, said the Section was much indebted to Mr. Bell for bringing forward the reaping machine of which he was the original inventor in this or any other country. He (Professor F.) had been engaged at the Paris Exhibition to report on reaping machines. For this purpose he proceeded to a large farm where there were 15 or 16 machines to be experimented upon. One machine in particular, which was the best, was by an American, and he had not seen much difference betwixt it and that of Mr. Bell. Certain modifications had, however, taken place during a long series of years. So far as this country is concerned, Professor Fairbairn was of opinion that Section G. of the British Association should engage themselves very much with inventions connected with agriculture. It was most important, considering the weather which prevails in this country, that the agriculturists should have machinery that could cut down crops in a very limited period of time. He for one was very much pleased with Mr. Bell's description, and moved that he be thanked for it.

The PRESIDENT congratulated the Section upon Mr. Bell's paper having been brought forward, and moved for thanks to that gentleman, which were cordially given.

POLLUTION OF RIVERS.

POLLUTIONS caused by sewage, and by trades and manufactures, ought, in our opinion, to be prevented at the cost of the communities and persons causing such pollutions. At Croydon, at South Norwood, and at some other towns it has been forbidden by injunctions from the local authorities to pass down sewage into running waters below a defined standard of purity; and the result has been, after the failure of all other systems, a clarification of such sewage by irrigation, which not only proves successful for the purpose desired, namely, to prevent river pollution, but in its operation is a source of profit to the ratepayers. However that may be, the question of profit or loss in abating nuisances and in preventing either undue pollution of the atmosphere, running waters, or the sea shore, by town and house sewage, or by working mines and carrying on trades and manufactures, ought not too closely to be taken into account, as in some cases restrictive measures rigidly enforced would result in profit, whilst in others there might be a small loss, if that can be fairly called loss which is more than compensated by gain to the community. Towns can as well afford to pay for the means and appliances necessary to render sewage innocuous to running waters, as they can to pay for the sewers and drains which are necessary to their sanitary well-doing. We have explained in this report that abuse and pollutions of running waters are of wide extent, and affect entire watersheds, so that it may be inferred that any useful remedy must be capable of being applied as widely as the pollutions extend. Some districts are notoriously more polluted than others, as, for instance, those which we have just visited, where the great woollen and worsted trades are established. There the abuses and pollutions of running waters have become almost intolerable; and even trade is seriously injured in consequence.

The long catalogue of pollutions and of floodings as set forth in the evidence, and in the appendix to this report, indicates the extent to which such abuses may further grow if left uncontrolled. Every witness we examined admitted the existence of many great evils, and remedial measures are in the evidence over and over again suggested—the reiterated stipulations being that such measures shall be as general as the trades affected by them, and their enforcement shall be by Government authority. A stronger power than has hitherto been available must be brought to bear if the present abuse and pollution of streams is to be arrested, and Government supervision and inspection must enforce and strengthen the aid of local authorities. As previously mentioned, there is plenty of land in the Aire and Calder district suitable for sewage irrigation, and we have no experience of any town or locality where the application of that system would be impracticable. Should there be any place so exceptionally situated that the benefit of this system could not be secured by reasonable outlay, then the entire sewage should be treated by mechanical deposition, aided by any available chemical process, so that no portion of solid matter in suspension should pass into the streams, and that the effluent waters should be as free from organic impurity as the best known method can make it. All refuse from dye-works, mills, factories, tanneries, breweries, malt-houses, slaughter-houses, and the like should be prevented from being cast into the running waters. No ashes, cinders, slag, waste, earth, mud from canals or reservoirs, road scrappings, broken pottery and utensils, bricks and building rubbish, or any other solid calculated to impede the flow of water, raise the bed of the stream, or cause impurity, should be permitted to be cast on, or so to be disposed on the banks of a river as to be carried in by its waters. No matter that has been used in washing, scouring, milling, fulling, &c., wool or woollen goods should be allowed to pass into any running stream until all oil, grease, suspended matter, and dirt have been removed from it. Water containing colouring matter from dyeings should be clarified, with or without chemical aid, by ordinary subsidence, by filtration through ashes or sand, or by mechanical filtration, as Needham's process, before being allowed to flow into any running water or river; or water from coal workings, which is highly objectionable to manufactures if passed direct into running waters, may be greatly improved by mechanical deposition, and should be so treated. We do not consider it desirable to define the exact modes of treating dye waters and other waste products of manufactures, solid and fluid, as the modes of operation vary at different places. The cheapest and best mode of one place might not in any way be equally applicable at others; but the prohibition against the practice of casting in solids may at once be general without any exception. Sewage irrigation is always practicable. Where it can be applied fresh to the land there is least nuisance and least cost to the ratepayers; where the solids are extracted by mechanical deposit there is pecuniary loss on the operation, and running streams receiving the effluent water are still polluted, the pollution being greater as the volume in the stream is relatively small.

No arrangements for treating sewage are satisfactory, except its direct application to land for agricultural uses. It is for the interest of manufacturers, as well as of riparian owners and the community at large, that a preventive law should be equitably but rigidly applied. For such legislation the successful operation of Lord Derby's Act, which has abolished the nuisance from alkali works, affords a fitting and encouraging precedent. We have shown in this report how, with advantage to all parties, the main elements of river obstruction and pollution in the West Riding of Yorkshire may be eliminated. It will be our duty to inquire in districts specially affected by other trades, or by mining, whether there exist any obstacles, which we do not at present anticipate, to such a general system of river conservancy for the country at large as suggest itself as most desirable for local application to the valleys of the Aire and Calder. Our experience of the weakness inherent in unaided and uncontrolled local authorities as at present constituted, convinces us that a central board appointed by a State department is necessary to the efficient protection of running waters. Economy in the working of a central board for the conservancy of rivers might probably be obtained by enabling it to avail itself of such parts as may be applicable of the existing system of Government inspection—as of factories, mines, alkali works, fisheries, land drainage, &c. In respect of submitting this suggestion, the establishment of central authority, we would guard ourselves against being supposed to ignore the sentiment which exists throughout the country in favour of local representative bodies, with power to levy and control such rates as may be sanctioned, and to perform all necessary works within their respective neighbourhoods. Essential to the well working of our plan would be the parcelling of rivers' basins into conservancy districts, or areas and sub areas, large in agricultural districts, where the duties would be light, by grouping together several river catchment basins, and smaller in manufacturing and mining districts, where river pollutions and obstructions are more general and numerous, and where the operation of local boards and their officers would be more frequently required. As we are now, in obedience to your Majesty's commission, about to visit rivers specially polluted by other manufactures and by mines, we respectfully reserve the absolute recommendation which would appear to be in this place due from us, partly in deference to the expressed objection on the part of West Riding manufacturers to any legislation which should not also be enforced upon the textile trade of other districts, and partly in the hope and expectation that by postponement of final judgment to experience of other pollutions and localities, our recommendation will be more valuable and more capable of general application to the improvement of the rivers of England. *Third Report of H. M. River Commissioners.*

CONSULAR REPORTS OF THE HARVEST.

AT this time of the year, when every one is interested in the result of the home harvest, now mostly gathered in, there are many who also like to know the latest information of the agricultural produce abroad, and it is from the reports furnished by the British Consuls to the home government that this information is best derived. In the reports just issued, the following extracts relating to the harvests of the past year appear:—

Memel.—The harvest of 1866 in all kinds of corn and grain throughout this district was good. Notwithstanding the disadvantages of a long and severe winter, under which the cultivation of the land and the growth of its produce must naturally be retarded, agricultural undertakings generally prosper in the province of Prussia. Nearly all kinds of corn and grain which are known in the north of Europe are cultivated in this province, and the warm summer weather ripens them in so short a time that the harvest takes place but little later than in the west of Germany. The harvest for winter corn usually commences in the middle of July in the more northern districts; the harvest of the summer corn follows immediately after that of the winter corn; and it is only for Barley, which is generally sown in May, that the harvest takes place so late as the end of August and the beginning of September. The chief article grown in the province is Wheat, next to this Rye; Barley, Oats, and Pulse, are also grown in considerable quantities. In the district of Memel, Rye (winter corn) is chiefly grown, and all other articles of agricultural produce are scarcely to be seen. Although during the last 50 years much has been done for the cultivation of land in this district, which, like others in the province

of Prussia, suffered so severely from the repeated hostile invasions in the beginning of the present century, the landed proprietors are, for the greater part, without sufficient capital for extending their farms and industrial establishments. Agricultural machinery is hardly known in these parts; and some of the means used in farming remind one of those adopted in other countries centuries ago, but which have long since been abandoned.

Koordistan.—We read that in this place the splendid harvest of last year reduced Wheat to 13*s.* 5½*d.* per quarter against 1*l.* in 1865; and Barley to 6*s.* 6½*d.* against 14*s.* 10¾*d.* I am led to believe that the crops for this year promise to be equally fine. In view of these facts prices are nominal, sales being very heavy. The tithes have, of course, risen, but, owing to the above circumstances, not in the same proportion—sales being very limited in all the kaimakamliks composing the vilaiet of Erzeroom. The amount for which they were farmed was 139,000*l.*, making the whole value of last year's yield, at the lowest estimate, 1,390,000*l.* Taking one quarter of this sum as the value of fruit, vegetables, Grass, Clover, and grain other than Wheat and Barley, and two-thirds and one-third of the remainder for that of the two latter, and the price of the former at 13*s.* 5½*d.* the quarter of 430 lb., and of the latter 6*s.* 6*d.* the quarter of 376 lb., the above sum of 1,390,000*l.* will give about 637,000 somars, or 1,029,300 quarters of Wheat; 637,000 somars, or 1,050,000 quarters of Barley; and 573,375 somars, or 927,000 quarters of other grains, as the entire produce of the vilaiet. The greater part of these products are confined to three of the eight kamakamliks, viz., those of Erzeroom, Moosh, and Van, their collective produce being nearly two-thirds that of the other five. As in contrast to the large plains in the three named, the others are mostly mountainous districts unfavourable to such productions. The proportion of Wheat and Barley grown in the Van kaimakamlik also is small when compared with hardier grains, the greater part of the former consumed there being imported from Persia and Mosul. Agriculture seems more profitable in the Kharput plain and Kuzaa than in most other places. The district contains 21,000 houses, and a population at the lowest estimate of 126,000 souls, producing among them 101,250 quarters of Wheat, and 42,900 of Barley, besides double the latter amount of rice and other useful grains. The dense and increasing population occasioned a steady demand, requiring extended cultivation, which is sustained and encouraged by the nearly uniform rates consequently prevailing, excepting, of course, when the crops, from unforeseen causes, fail entirely. The tithes in the Kharput Kuzaa are, as an exception, always taken in kind direct by the Government officers, without the intermediate process of farming, so ruinous to the State and onerous to the fellah. This plan, independent of the good results obtaining under such a system, in comparison with general usage elsewhere, is another cause for the steady scale of prices; as in years of scarcity the Government magazines are opened, and parts of the contents retailed at a lower rate than the ruling one, thus securing a double advantage—keeping down exorbitant prices, and clearing the stores of much that would otherwise be damaged. But, on the other hand, an impolitic practice prevails of forcing the public bakers to buy corn for their trade from Government magazines only, a custom obtaining from a similar wish to get rid of old stocks by degrees. For the last two years, although the crops have failed, corn imported from Siwass has been sold for 1*l.* 14*s.* 4½*d.*, for best Wheat, the quarter, against 2*l.* 2*s.* 4½*d.* the same measure in Diarbeke, only 36 hours off. The general average of chifts or farms employ 12 oxen and 20 souls, among whom are eight able-bodied labourers, the rest being boys, women, and young children. All however, excepting infants, contribute to the general labour required to till it, collect the harvest, and other incidental matters. The system of farming pursued is to divide the chift into four equal portions, of which every year one is sown with Wheat, another with Barley, and the third with different other seeds and Cotton, the fourth portion remaining fallow till its turn comes in the ensuing year. The landlord provides seed, and constructs the rude mud cottages for the fellahs at his own expense; the latter, labour, implements, oxen, and everything else. The proceeds, after deducting the seed, or its price, and the Government tithe, is shared equally between the two. As to the prospect of the harvest of the present year, we read that the seasonable and heavy rains that fell during autumn, winter, and spring, have given such impulse to agriculture that, if the district is spared from locusts—which, unfortunately, however, thrive in rainy mild seasons—the harvest this year will exceed a five years' supply. The rains, that have done so much good here, have, in the low lands about Mosul and Baghdad, destroyed most of the crops, the Tigris having swollen to an unwonted extent, sweeping all before it in its flood. As there is water carriage by raft the whole way to those towns, it is probable the Diarbekr farmers will reap large profits from exports of their grain that will naturally take place. But the masses of locusts that have already appeared excite natural alarm. Government has done nothing to check their development beyond going through the childish farce of sprinkling a few drops of reputed holy water, from the Mehlevi Mosque at Iconium, in the threatened localities.

Dunkirk, France.—Under the head of agriculture it is said that the results were in general favourable to the agriculturists of this district, and have compensated for the losses in 1865, when there was a very poor crop of Wheat, and a total failure of Flax, and throughout France disastrously low prices. The return of Wheat varied from 24 to 35 hectolitres per hectare. The various foreign Wheat recently introduced preserve their superiority in regard to yield, but do not succeed in light soil. Although the Flax crop was below that of an average year, the cultivation has been remunerated by the high prices obtained. Pasture lands have benefited by the wet weather, and Grass was abundant. The price of butter rises yearly. The produce is of great consequence in the district, a farm of 30 hectares having from seven to nine in Grass. In ordinary years cows are turned out to Grass from the end of April to the end of October. The average amount of butter obtained from each cow is valued at about 6*l.* It is to be regretted that pasture lands are being annually ploughed up, because, although more lucrative, it tends to discourage the breeding of cattle.

Brindisi, Italy.—Consul Grant reports—The Wheat crop of the year 1866 was a very poor one, and as even an average crop in this district is barely sufficient for its wants, considerable quantities of Wheat and flour had to be imported in the latter part of the year. The harvest prospects of the present year have been very brilliant till quite lately, when night dews began to cause considerable damage to the corn and the Olives. Notwithstanding this, however, there is every reason to hope that the harvest will be a fair one.

Venice.—The harvests in the Venetian provinces, both of Wheat and Indian Corn, were again good in quality, and sufficiently abundant, so that no importations of foreign growth were necessary; notwithstanding which, prices were maintained too high to encourage exportations to England. Opportunities, however, of low freights per steamer caused some shipments of Wheat to be made in the early part of the year and in the autumn, amounting to about 22,000 quarters; about 2500 quarters of Oats were also shipped. Prices of Wheat ranged from 44*s.* to 55*s.* per quarter free on board, and of Indian Corn from 32*s.* to 35*s.* per quarter free on board.

Pomerania, Prussia.—The yield of agricultural produce in Pomerania, in 1866, though on the whole more abundant than in 1865, was in many instances scanty. The Potato disease prevailed to a considerable extent in most districts, and the crop was in consequence deficient, both as to quantity and quality. Wheat, hay, and tobacco were above a "normal crop," and hay not only abundant, but also of an excellent quality; but Rye, Barley, and Rape considerably below the decennial average.

Riga.—The crops of cereals of all kinds in this district proved more abundant than was expected in the early part of the season. The average price of Wheat during the year was 40*s.* 10*d.*; of Rye, 25*s.* 7*d.*; of Barley, 24*s.* 6*d.*; and of Oats, 16*s.* 2*d.* per imperial quarter.

Wiborg, Russia.—After the gloomy picture which I had to draw in my last report of the great calamity brought about by the failure of crops in the last preceding four years, it is no small gratification for me to state that the harvest of last year has, comparatively speaking, been abundant. The yield of Rye, Oats, and Barley (other kinds of corn are not grown here, at least not to an extent worth mentioning) has even exceeded an ordinary average return; and in this district, and other parts of the Grand Duchy, several cargoes of Oats only wait for the re-opening of the navigation to be exported to England; also of Rye and Barley, I understand, a few shipments are made ready for exportation to Sweden. Potatoes of good quality were also abundant, at low prices; and of wholesome fodder there has been no want.

Gottenburg, Sweden.—Up to the middle of the month of August the prospects of the harvest were most promising, but from that time the weather set in wet, and continued, with little interruption, to the end of September; so that, with exception of winter seed, Hay, and Clover, which were gathered early, the crops in this district suffered generally. Winter Rye and Wheat were housed before the rain set in, and yielded from eight to tenfold, or a full average. Spring Rye and Wheat, under average. Barley and Oats suffered in quality from the heavy and constant rain; but being rank in growth, the yield in quantity was from six to sevenfold, or nearly an average crop. Peas, Beans, Tares: much injured by wet, and gave an under average yield of five to sixfold. Potatos: a very bad crop, of not more than three to fivefold, and generally diseased. Hay: The crop was abundant and well got in, and fully sufficient for the wants of the province.

Tripoli.—The Wheat crops were so limited that, in order to prevent a scarcity and rise in prices, which would have caused great distress amongst the population of this country, the local government prohibited the exportation of Wheat. Barley having been much more abundant, its exportation was left free; but as great quantities were shipped for the Regency of Tunis, where a famine prevailed, a monetary scarcity ensued, which, however, soon disappeared, in consequence of the supplies that arrived from the eastern parts of this province and from Malta. Barley being the principal staple of food in this country, the prices of all articles are more affected by the failure or the reserve of the Barley crops than by that of any other. The cultivation of Potatos, which was introduced only a few years back, has been very successful, and is yearly on the increase. *John R. Jackson.*

THE WEIGHT OF CORN.

Mr. A. S. Wilson read the following paper before the meeting of the British Association at Dundee:—The corn trade of this country is in a state of great confusion. In one place corn is sold by the quarter; in another it is sold by some unit of weight, and in another by some other unit. These units have generally a reference to the weight per bushel. It seems very desirable that a uniform practice should be established throughout the whole kingdom, so that the quotations of prices might become easily intelligible. Except for liquids, the quarter is probably the most indefinite unit in existence. Two quarters of Oats may differ from each other to the extent of 10 lb., or 20 lb., or 40 lb., or 80 lb., or 150 lb. The bushel is a legal measure; but there is no legal or uniform way of filling it. No two meters will put the same weight into it. Half-a-bushel measure, except of particles perfectly fluid, is only half-a-bushel of corn by an unknown and constantly varying method of filling. Neither is a peck the fourth part of a bushel of corn, if both measures are filled in the same way. The reason why it has hitherto seemed desirable to combine measurement with weight in exchanging corn is the assumption that the weight per bushel is an index of the quality of value. In other words, that the heavier the grain is per bushel, it contains proportionally (the proportion unascertained) the more meal. This is one of the bases of the corn trade. If it is true, it is of sufficient importance to warrant a very strenuous endeavour to devise a uniform mode of filling the bushel. The method which, after various trials, the writer has adopted is, to place a flat-bottomed perforated filler one-fourth of an inch above the rim of the bushel or measure, and to stir the corn through the holes, thus filling the measure equally all over, constantly from the same height, and without enclosing masses of air. In general, this method increases the weight above the ordinary basket-filling from three to eight pounds. With certain sorts of Oats approaching the Canadian type, successive trials yield very uniform results. But with all rough Oats approaching the Tartarian type, the weight generally increases at every successive trial with the same sample. Indeed, to increase the weight of many sorts of Oats per bushel, nothing more is necessary than to give the sample to be weighed a good smart whisk in a corn basket. This friction will rub off a great many of the asperities, and permit the seeds to flow more easily into a compact mass. The weight per bushel will thus increase, while the absolute weight diminishes. Again, the weight of Oats per bushel, in all sorts which have awns or long rough hulls, depends, to a considerable extent, on the instrument by which the Oats have been threshed. If threshed by the flail, the awns and sharp points will be less broken and hummelled than if threshed by machinery. Whatever hummels the grain most will produce the heaviest bushel, while, of course, extremely little variation will have taken place in the dynamical relation of the kernel and hull. Again, Oats which are smooth, well closed, and sharp at the ends, flow closely together, and leave much less space unoccupied than Oats which may be better filled and the glumes somewhat open at the upper end. So that the smoother Oat will give the heavier bushel. From these considerations a suspicion arises that the weight per bushel is no true test of the comparative value of Oats. Mr. Wilson then read a tabulated statement of six pairs of experiments, and then continued—In the first pair, black Tartarian and Sheriff, which are different sorts of home Oats, the weights per bushel are nearly equal; while the weight of meal per cwt. varies nearly 7¼ lb. In the second pair (both Potato), which are the same sort of home Oats, the weights of meal are nearly equal, the advantage being in favour of the sample which weighs least by 5½ lb. The third pair, both sandy, are also samples of the same sort of home Oats. No. 85, weighing 45 lb. per bushel, contains 86½ lb. of meal, while No. 69, weighing 47¼ lb., contains 83¾ lb. The fourth pair (various and Tam Finlay) compares home with foreign Oats. Both samples are nearly of the same weight per bushel, while the one contains more meal than the other to the amount of 7½ lb. per cwt. of grain. In the fifth pair (both various) both samples are foreign. The sample from Sweden weighs 43 lb., and contains 76 lb. of meal per cwt., while that from Archangel weighs 40¾ lb., and contains 81½ lb. of meal per cwt. The sixth pair (Canadian and Darthonia) are both home Oats. In weight per bushel, the Canadian stands at one extreme of the Oats scale, and the Darthonia, or bristle-pointed, at the other. The smooth compact Canadian, with a hull like plaster lath, contrived to slide into the bushel to a weight of nearly 54 lb., but gives no more than 77 lb. of kernels to the cwt., while its less accommodating opposite (though deprived of its awns) sticks out its bristles, and demands elbow room in the bushel, and so will permit no more weight there than 34¾ lb. But it far surpasses its rival in the only point which is commercially and agriculturally important—namely, the ratio of kernels to hulls. The qualities are the quotients of the weights of kernels divided by the bushel weight; but the absolute qualities, which are really important, are simply represented by the weight of kernels, the weight per bushel being evidently a thing of no permanent meaning or importance whatever. It appears, therefore, to the writer that a uniform corn trade should be based on a uniform unit of weight, the quality or comparative value to be tested in the manner adopted in these experiments, and that the bushel should be wholly set aside.

A short discussion followed, in which it was shown that there was no uniformity in the principle of ascertaining the weight and value of Oats. Heavy grain was not always the most valuable, the husks being sometimes heavier than the grain. Mr. Wilson stated that he would publish the method by which he wrought as soon as he had it completed.

Home Correspondence.

Cows' Milk.—I thank you for noticing (p. 1013) my inquiry. The lime began to be put into the water some time about the latter end of July, and it may be three or four weeks since the fault in the cream and butter, and in the skimmed milk, became apparent. But since my communication to you of the 17th inst. I have learnt that the man who milks the cows has been in the habit of shifting the milk, of the first cow milked, out of the tin pail (for convenience) into a wooden pail painted inside. This pail was bought ready painted last April, and has not been painted

since. Of course I have ordered both of these practices to be discontinued, and since my letter to you we have been able to use the cream and butter. I should, however, say, that my man says he used this pail from the beginning, and when no fault was apparent in the milk; and my dairywoman has told me this morning that she thought there was a slight smell in one of the pans, but that it went off in scalding the milk (she makes the butter in the Devonshire way). *An Old Subscriber.*

Farm Accounts.—All systems of farm accounts that I have seen appear to me to be too complicated and elaborate for the use of most farmers, being more suitable for those who keep educated bailiffs, or for those who are practised accountants and are fond of accounts. I have used for several years a plan of accounts founded on the same system as "Letts' Household Expenses," which is very simple, and I think efficient. I take the liberty of sending you a copy of one page, which I hope may prove useful. If you would mention the plan even in your next Paper, perhaps some publisher might be induced to adopt it, or if not, the necessary lines can easily be ruled in any book. The accounts should be balanced monthly. *Edward Hockin, Poughill Vicarage, Bude.*—In addition to the columns I use, it would be well to have a small column between the date and the description for the folio in the ledger and the mark when posted.

Steam Cultivation.—I have looked Mr. Greig's article on Steam Cultivation over again, and find another point needing some notice of mine. He says:—"The cost of steam cultivation has hitherto been greatly increased by the excessive breakages that have occurred to the machinery. These have arisen from two causes, namely, for the want of men properly educated to the work, and the deficient construction of the machinery at first employed. . . . These difficulties are now, however, altogether overcome." These "excessive breakages" have been entirely with the Fowler tackle, for I have never heard of such a thing from the use of the Woolston tackle, and with that tackle "sufficiently educated men" have on all occasions been readily found amongst the regular farm labourers. It is nothing but the Fowler tackle, that needs mechanics to work it. Then he talks of "deficient construction." Why, the Woolston tackle is constructed now as it always has been, upon simple and moving of corn-stooks, the admission of air, the prompt and quick cartage whenever a chance occurs, stacking in small and narrow stacks, with layers of thorns or otherwise for ventilation, long rows of stacks, 6 or 7 feet in width and 10 to 12 feet in height, are far better than depending upon heated air from a farmer's steam engine. I am far from finding fault with Mr. Gibbs (hailing every attempt to benefit the farmer with pleasure), I merely doubt the utility of his invention. *O. F.*

Date.	Description.	Labour.	Stock.	Manure, Seeds, and Artificial Food.	Rent, Rates, Tithes, and Taxes.	Tradesmen's Bills.	Sundries.	Total.	Cash Received.
1867.		£ s. d.	£ s. d.	£ s. d.	£ s. d.			£ s. d.	£ s. d.
Aug. 1.	Cash in hand	..	..	..	..	..	..	..	25 11 3
,, 2.	Paid Wackly, Calf	..	1 10 0	..	..	..	..	1 10 0	..
,, 4.	Paid Rev. Mr. Carnsene, Tithe	..	..	..	4 0 4	..	..	4 0 4	.
,, 6.	Paid Metters, two weeks, at 14*s.* = 28*s.*; Ware, do., at 10*s.* = 20*s.*	2 8 0	..	..	..	..	..	2 8 0	..
,, 6.	Paid Thorn, two weeks, at 11*s.* = 22*s.*; Brock, do., at 10*s.* = 20*s.*	2 2 0	..	..	..	..	..	2 2 0	..
,, 7.	Cash of Gubbins, Ram ..	..	..	..	..	..	..	..	5 0 0
,, 12.	Cash of Squire, Wheat ..	..	..	..	..	..	..	.	32 8 0
	Paid W. Shephard, three Cows, warranted sound	..	28 17 0	..	..	..	..	28 17 0	..
	Paid Chubb, 1 ton Bran ..	..	..	5 10 0	..	..	..	5 10 0	..
	Paid Hopper, Taxes	..	..	..	4 15 0	..	..	4 15 0	..
	Cash of S. Box (butcher) on account	..	..	..	..	..	..	..	5 0 0
		4 10 0	30 7 0	5 10 0	8 15 4	..	..	49 2 4	67 19 3
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Mr. Gibbs' Sheaf-drying Apparatus.—Your able editorial article of this week gives an interesting account of Mr. Gibbs' invention for drying corn in a wet harvest season. There appears to be ingenuity and simplicity in the scheme, and no doubt it might answer occasionally providing our farmsteads were fitted up with all the necessary appliances. But only fancy tenants applying to their landlords to fit up these drying rooms upon a scale suited to the size of their various farms, which for the most part are already poorly provided with the most requisite and useful adjuncts of farm premises. No doubt streams of hot air would speedily desiccate wet sheaves, but look at the time and trouble, the labour and cost. Why, it would swallow up a large portion of the crop. There are the drying rooms, with all the necessary pipes, tubes, &c. Then the steam engine, the fire fittings, the fans to keep up the heat, with all other requisites for adjusting correctly and pouring on the stream of heated air. Then the loading, unloading, tying and fixing firmly the sheaves upon each pipe or tube through which the steam has to be driven. Then comes the taking off, the reloading, and conveyance to the stack, to which it is useless to convey it unless well dried. It is said to take 15 minutes to dry a damp sheaf. How long to dry one thoroughly wetted? Now it is no slight job to place these sheaves properly upon the upright ends of these organ-like pipes, and if they are not rightly done they will not dry truly. This operation must take up much time; and then comes the breaking of sheaf bands, the shaking out and scattering of the loose corn and straw, all making woful waste. Again, look at the time consumed in all these operations. Fancy one of the writer's crops this very harvest—a 15-acre field of Wheat. It contained five large stacks, averaging 5 yards in width, 8 yards in length, and 6 yards in height, well thrown over in the stacking, and roof additional. Had it been in small sheaves proper for the organ pipes, and dried in rooms as proposed, it would have taken about 20 days to dry this one little field-crop. But the apparatus must be in proportion to the size of the farm. Well, take this 15 acres as an extra crop, and take off a great per centage, for the drying must extend over several days, so that it would appear almost impossible to provide means for such speedy drying as to make the plan a feasible one. To me the scheme appears impracticable, and I trust and hope that very few persons will put themselves to the expense of trying it. Better to have an Australian reaper, which tears off the ears and leaves the straw for another operation. These ears are thrown into a sheet, from thence it might go to the kiln, and there be dried—the straw to be subsequently gathered; or it could be possible to thresh damp Wheat and kiln-dry it; but to dry such immense quantities of straw appears superfluous and impracticable. Of course Wheat high-dried by the kiln is useless for seed, and not good for the miller. Would it not be best to devise some plan for drying the sheaves in the stack? It is no uncommon practice to leave air passages through ricks and stacks. Could not heated air be driven through these openings without danger? It is seldom, however, that farmers are driven to such extremities. The incessant continuous sound mechanical principles; and its durability is proved by the hundreds of sets at work. It was the Fowler tackle that was deficiently constructed. We are now told that "these difficulties are altogether overcome." This is a repetition of an old tale. At the Chester meeting John Fowler, jun., told us that his tackle had "attained a state of perfection that left no improvement to be desired." At the next meeting at Warwick he writes thus: "The machines sent out last year . . . were all thoroughly efficient . . . but as the improvements since made were then in contemplation . . . J. Fowler, however, feels confident that the apparatus has now assumed a shape which eminently unites lightness, cheapness, efficiency, and simplicity, and he can confidently recommend it as a standard machine." Each successive year has brought its tale of "eminently perfect," yet at last we are told of the "excessive breakages" of this very tackle. After such facts as these, can we believe that "these difficulties are now, however, altogether overcome?" I shall not say a word, but will leave your readers to draw their own conclusion from the facts before them. The Woolston tackle has stood the test of time, if Fowler's cannot. *William Smith, Woolston, Bletchley Station, Bucks, October 2.*

Concrete for Cottages.—At the present time, when so much is being said and done with respect to bettering the position of the labouring class—both as regards wages, as we learn from the Rev. E. Girdlestone's letter in your impression of the 14th inst., and also improved dwellings,—might I suggest that I feel certain some information in your columns on the subject of erecting cottages of concrete would be of great interest to your readers, with some account of the present most approved methods of dealing with the concrete in cottage-building, and directions how to proceed to get builders in the country who understand the use of it. I feel sure that any information any of your readers could give would help many landed proprietors who are anxious to improve the condition of the labourers' cottages on their estates, but who cannot afford to do all they desire. The French seem to have advanced considerably in the manufacture and use of this substance, and are using it in blocks of great size against the sea; and in many places where so much of the material exists on the spot, or to be had for little more than the fetching, it should serve very considerably to lessen the expense of cottage building. *C. E. F.*

Foreign Correspondence.

PARIS, *Sept. 27.—Home and Foreign Agriculture.*—One idea "dominates the construction," as the French would say, of agricultural instruments, and that is the ever progressing one of replacing wood by iron. Thanks to the advance thus made, the instruments gain in solidity and durability, whilst their price is comparatively lower. The specimens of agricultural machinery in the Champ de Mars itself are of course very limited. The mere plans and designs of which these chiefly consist present no real interest save as matter of general study. Such, however, is not the case with the instruments. By the way, there is a complete collection of the latter on the scale of one-fourth. Nothing could be better made; they are constructed with mathematical exactitude; not a bolt or screw is loose, and though insufficient to allow one to form an absolute judgment in any given case, they may be of service in directing the preliminary choice; but, after all, it is the practical test, with instruments of a practical size, that must decide the agriculturist.

The plough is, of course, the principal instrument in the agricultural department of the Exposition. The French plough differs entirely from the English plough. The former has not only to receive the soil and turn it over, but to pulverise it; while the latter, in the share of work allotted to it, merely cuts the band of earth and turns it over without crushing it. To which plough should the preference be given? The answer is, to one or the other, according to the purpose one wishes to attain, and agreeably to the soil to be cultivated. On the ground where the crop springs up rapidly, especially in Normandy, the English plough works wonders; in the greater number of the other French provinces the preference is given to the national instrument. In France, the plough performs nearly all the labour in the preparation of the soil; a simple harrow completes the work.

In the Palace may be seen a regular forest plough, from Moulin. The instrument appears perfectly formed to aid the natural replenishment in what the French term "the regenerative cutting" of forest trees. The improved French Vine ploughs possess an immense importance. The Belgian and Italian ploughs come near to the French type, whilst Prussian and Austrian ploughs strongly resemble our English forms. The harrows, scarifiers, extirpators, hoes, and rollers of the French, constructed in recent years, greatly resemble those of Coleman & Morton, of Chelmsford, Howard, of Bedford, Ransome & Sims, of Ipswich, and others of our great manufacturers. Ploughing by steam is represented at Billancourt by Frenchmen as well as Englishmen. The drills occupy a great space, but there is little new to be signalised. All, however, merit study, for certain varieties of farms will be found to possess generally some special merit in reference to the description of culture and the kind of soil to which they are applied.

The mowers and reapers are extremely numerous. If the mechanical hay-turner and horse-rake have come into use in France, the same cannot be said of the mowers and reapers, which in England are as common as the plough. I have counted in the park and its annexes, as well as at Billancourt, six mowers and reapers differing in system. These instruments are as well made in France as in England; but negligent cultivation and a bad preparation of the soil must account for their extremely limited use. In the American department, the mower and reaper of Mr. Wood, and the modified one of Mr. M'Cormick, recommend themselves to use.

The fixed and moveable steam engines applicable to agriculture are distributed in the Palace, the annexes, and at Billancourt. The steam locomotives of Great Britain, constructed for farm use, excite admiration for their strength and finish: a remark also applying to the machinery which sets in movement the threshing machines. One fact is evident, that French artisans can largely supply the wants of native agriculturists; and the extent to which the partitioning of land has been carried out in France is not favourable to extensive orders for improved machinery. I must notice particularly a powerful thresher of Parisian make, constructed on the latest American system. French farmers appear to be of the opinion that English threshing machinery, as well as French, has undergone little improvement since 1861. Of miscellaneous agricultural instruments worthy of notice may be mentioned a Cotton cleaner from Algeria, a Maize shelling machine from Toulouse, and a portable steam sawing machine for clearing forests.

A large number of rural undertakings and agricultural establishments in France are represented by plans and drawings. The Dutch, however, have set out in a separate building the absolute model of a Dutch farm, and a stable for 24 milch cows. The building is entirely of wood, and is capable of being easily taken to pieces and transported elsewhere.

As to the vicinal railways to be constructed, one immediate effect must be the increase of rural salaries, which in France, as, indeed, throughout the continent, are miserably low. The inspiriting effect of advanced wages in elevating an agricultural people is well known. The passion of the peasantry of France is to own soil and cultivate it for themselves; failing this, they are disposed to emigrate, seeking elsewhere to realise what to them is a first necessity. The population of central France partakes little of the enterprising spirit of other portions of the country. Its communities are comparatively isolated through the want not merely of vicinal railroads but navigable rivers; and to natural causes unfavourable to development are to be added others historical and political. The projected vicinal railways will, it is calculated, transport produce at a fourth of the present price, and stimulate production by producing larger markets.

The papers read of late before the Agricultural Societies of France have largely referred to the means of more fully developing the riches of the soil, or, in other words, the national agricultural wealth; and the restriction of Vine growing, and the giving a preference to cereals, is admitted in many quarters. There can be little doubt that Vine growing tends to enervate a people, keeping, as it does, the greater portion of the population engaged in it in a state of periodic idleness. Wine, indeed, is an essential article of trade, and a considerable portion of the wealth of France is drawn from it; but its consumption might be less with advantage to the people, and the returns would be far larger from the sowing of grain. When the contemplated vicinal railways are completed, a change will probably come over France in this respect.

A "Chemical Industrial Dictionary,"* recently published in Paris by Messrs. Delagrave and Co., sets forth comparative means of agriculture carried on in different countries in a way well fitted to challenge attention, together with a history of the progress of the science; its principles are very fully detailed. The value of the work is much enhanced by its ample analytical tables. The instructions are at once succinct and practical, and important information may be found in it as to dealing with soil with reference to crops in all conceivable circumstances.

Another serviceable work that has made its appearance is entitled "Prairies Artificielles."† The author is the well known J. Isodore Pierre, Professor of Chemistry at Caen, and he has here undertaken, and very successfully, to point out the causes of the lessening of the products of artificially prepared soils, and the means of preventing their degeneration. The work should be studied and used as a manual of reference not only in France but England, for though the conditions of agriculture are different in the two countries, the principles to be acted on are the same for both. A considerable space is necessarily devoted to the fertilising manures and the various ingredients composing them. The author urges on French agriculturists the adoption of wholly different manures to those to which they are habituated, and supports his advocacy by incontrovertible chemical facts, which the experience of English farmers will sustain. The necessity of good drainage and of rotatory crops does not escape attention.

Among other works that have appeared is one on the culture of the Cactus, with its principal species and varieties, by T. F. Palmer, published by the Central Library of Agriculture; and another by the same house on the Culture of the Artichoke and the distillation of alcohol from that plant, to which I shall draw attention in a future letter. *C.*

Societies.

Cheshire: *Cheese-making.*—At the meeting of this Society Mr. Barbour, the President, spoke of the splendid show of cheese they had had.

Mr. Davies, of Mere Old Hall, said they had witnessed that day a very successful show, and a most extraordinary exhibition of cheese. He was delighted to see that Cheshire was getting up again.

Mr. Warburton, one of the judges, said they were very much pleased with the articles shown for competition, but more especially the cheese. But farmers of Cheshire must, he thought, be careful how they went to work. The farmers in this county were of a different class of people, and more mixed than in those large American dairies, where nothing else was done but cheese-making. If they thought of establishing a factory it would be much better to go to work gradually, and on a small scale. He was glad to find that Cheshire had secured the Champion Prize of the day.

Mr. Harding said the Cheddar system was a very good one, but he dared say it would produce no better cheese than the Cheshire system. He was satisfied from his own experience that they were very much behind what they should be in cheese-making. They managed their arable lands with science, energy, and application, using all the mechanical power within their grasp. He wished he could say the same about the cheese-making districts. Go wherever he would, he found very great disparagement in the productions of the cheese-maker. They had had a very good show of cheese—perhaps some of the finest that could be obtained anywhere in England. But on the other hand, some of the cheese produced must have been manufactured by some who knew nothing at all about cheese-making. So that whilst some of the cheeses were an honour to any country or county, others were an equal disgrace. He disputed the assertion that cheese could be only made in certain counties, and said no man had had more experience in the matter than he had, and he had come to the conclusion that good cheese could be made anywhere—in fact, it did not matter where. He repeated that no man had had greater experience than he, and, therefore, he was prepared to show what he had stated was correct. He had made cheese in Scotland, and in various parts of England. In Scotland they adopted the Cheddar system, which he had the honour of introducing there, and they made just as good cheese as in Cheshire and Somersetshire. He complained that the farmers in England had not proper accommodation afforded them by their landlords for cheese-making. The landlords had not done what they ought to have done. If they visited farm houses, and old farm houses especially, they would find dairies that had been constructed without the slightest attention or regard to science. If they had not proper accommodation for cheese-making they should not do it, for the best cheese-makers were sometimes baffled because they had not got a good place in which to make the cheese.

Mr. Aston (Brassey Green) said when he entered as a competitor of cheese in the Society he was not sanguine about taking any prize, and would have returned home quite satisfied if he had not been awarded one. They must not think, however, that because he had been successful he entertained the notion that his cheese was superior to some which had been classed among the unsuccessful of that day. Cases had been known where unsuccessful competitors had sold their dairies for a higher price than those who were successful. In order to be a successful competitor a great deal depended upon the cheese selected being ripe for market at the time of exhibition, and not what they would be in weeks or months to come. This appeared, however, to be a matter with which the judges had not to do. They should bow to their decision, although at times it might be adverse to their own private opinions. He had felt great interest in that part of the show with which he stood so closely identified—namely, the dairy department. Considering the heavy losses they sustained about a year and a-half ago in horned cattle, he considered they had had a most excellent show of cheese, and that if Cheshire had not entirely recovered, she bade fair to regain her former renown as a cheese-making county. He was glad to see that there were exhibitors of cheese from other counties, so that Chester had been fairly and thoroughly tested. He had no doubt the gentleman who had been a competitor was celebrated for making prime Cheddar, or he would not have shown up on that occasion. If the first prize had been awarded him they would have freely given him the honour; but the fact of Cheshire, under existing circumstances, carrying away the champion prize, ought in the estimation of all impartial judges to enhance it. He had no desire to boast, but he had no hesitation in saying that they could compete with any cheese-making county in England. It might be that there was equally as good cheese made in other counties, but they ought to give "honour to whom honour is due." All they wished for was a fair field, justice awarded, and they would then be satisfied. He did not exactly agree with one or two of the remarks made by Mr. Harding. He scarcely thought that one uniform system of cheese-making would do for all counties alike. He was disposed to think that the mode of manufacture of this article of diet should vary according to the description of the soil and the quality of the herbage. He had for some years entertained a high opinion of Cheddar cheese. They appeared to have a most excellent way of manufacturing it in some parts of Somerset; but from what had transpired that day it did not appear to be superior to that of Cheshire. He thought it possible for a skilful person to make a good cheese upon every description of soil; but prime dairies appeared to be manufactured with greater ease and facility upon some farms as compared with others.

Reviews.

The Quarterly Journal of Science. No. XVI. October, 1867. J. Churchill & Son, New Burlington Street.

The number just published contains interesting papers on "Creation by Law," on International Exhibitions, on the Luminosity of the Sea, and on our Field Clubs, with chronicles for the quarter of various arts and sciences, and a good and prompt report of the Proceedings of the British Association for the Advancement of Science and of the Social Science Association. The work is one especially for the country resident, who has not the same opportunities as others of making himself acquainted with the progress of knowlege and invention; and there is for our own readers a special section on the agricultural proceedings of the past quarter, which we extract, as follows:—

"The cattle plague has not yet entirely left us. During the past quarter several cases have occurred on farms lying eastward of London, to which the infection may have been brought by the imported stock which is landed at Thames Haven and taken into the Metropolitan Market by a railway passing through the district which has suffered. And thus it is, in all probability, that the disease has at length reached the farm and large herd of cows near Barking, belonging to the Metropolitan Sewage Company, to whose proceedings reference has more than once been made in this Chronicle. There were 238 cows on this farm early in August, feeding on the sewage-grown grass which is there cultivated. Of these 12 became diseased, and were killed and buried, and 115 were condemned to be slaughtered, as having been infected by contact with diseased animals. There then remained 111, in two sheds detached from the homestead, and these have remained healthy. They had been fed on the same food as the others, and being surrounded by the meadows irrigated by the sewage water, were not only thereby more easily and completely isolated from the other stock, but were at the same time more liable to any injurious influence which the sewage may be capable of exerting. It is satisfactory to learn from this experience, that neither on the food nor on the treatment of these cows can the losses by the cattle plague be changed, that sewage-grown grass is perfectly wholesome food, and that the cattle plague is, as it has always been supposed to be, simply the result of an imported poison, the special produce of the disease itself. Of the quantity as well as quality of the produce which sewage-water raises even on poor land, the experience of the Barking farm is satisfactorily conclusive. Flax, Mangel Wurzel, Potatos, Cabbages, and Grass have been grown luxuriantly on it; and dressings of the young Wheat plant in spring and early summer have shown what immense bulk of straw can be thus ensured—from which, in suitable seasons, no doubt increased yield of grain must follow. Of the Italian Rye-grass thus produced a record has been kept, and on many acres upwards of 50 tons per acre had been obtained from five cuttings by the middle of August. It seems certain that the produce of sewage applications, under all ordinary circumstances, must be sufficient to return a satisfactory profit after the deduction of expenses.

"Professor Anderson has lately delivered at Glasgow an interesting lecture on recent laboratory results, in which he called attention to the state of the guano trade, the superphosphate manufacture, the quality of oil-cakes, and of drinking water—all of them important agricultural subjects. He informs us that the guano on some of the Chincha Islands is already exhausted, and that recent imports are of inferior quality—containing considerably more water and considerably less ammonia than the qualities which have hitherto been common—a difference capable of correction only by the artificial addition of at least 20 shillings-worth of sulphate of ammonia to the ton—'and to this extent the price of the guano is practically enhanced by this diminution of its quality.' Of recently manufactured superphosphates Professor Anderson reports an improvement. They are indeed no longer manufactured from bones, but the process by which the mineral phosphates are converted is more completely carried out, and new supplies, of excellent quality, are from time to time discovered. Thus it has been lately met with in nests in a particular kind of dolomite in the valley of the Lahn, a tributary of the Rhine. The mines of Staffel yielded last year 2500 tons of a quality containing 55 to 65 per cent. of phosphates. It is here in a new and unexpected geological formation, and there can be little doubt that by an extended search many similar deposits will be found.

"During the past year Professor Anderson has found Bran, Grass seeds, Carob Beans, French nutcake, and other adulterations in oil-cakes of British manufacture. And we are informed of the offer in the market of inferior mixtures containing mustard and other small seed, with the avowed purpose of 'reducing high quality Linseed.' A dealer in cakes, we are told, has sold at 11*l.* a ton an article, which he stated was of the highest quality, under the name of the 'Simon Pure.' It was found on analysis to contain Bran, and since then he has supplied his customers with the real Simon Pure at 11*l.* 10*s.*, 'so that in commerce as well as in comedy there are a real and counterfeit Simon Pure.'* Professor Anderson touched, lastly, on the character of the drinking water given to cattle. He has lately examined the water from wells on several farms, and has found them to contain nitrates obviously derived from the infiltration of animal matters. The presence of such matters is injurious to human beings, and is in all probability also mischievous to the live stock of the farm.

"One of the more remarkable features of the annual show of the English Agricultural Society at Bury last July, was the illustration given of the economical application of steam-power to light-land cultivation. By means of two engines, one at either end of the cultivated field, two tools are worked at once; and when the widest tools were used—Fowler drags a 13-tine cultivator which takes a width of four yards at once—the cultivation was accomplished at the rate of 50 acres in a day. It seems plain that on light-land farms as well as clays, whenever the area has been properly laid out for steam cultivation, there need in future be no more horse-power provided and kept throughout the year than will suffice for the harvesting and marketing of the crops; in fact, for all the work of carriage. With Fowler's or with Howard's double engines, each with double drum working two tools simultaneously, there is no reason why a square of 20 acres, or even more, of land which had been ploughed by steam-power before winter, should not be grubbed or cultivated, and receive a thorough harrowing all at once in a single day in spring, or why a thorough fallowing after a winter's frost upon the autumn tillage of stiff clays should not be thus accomplished almost at a blow.

"The hot and variable weather, accompanied by thunderstorms, of the current season has been greatly against the dead-meat trade; and some easy preservative of quality is under such circumstances greatly needed. Messrs. Medlock and Bailey have patented the use of their solution of bisulphite of lime for this purpose. Two quarts of this solution, one pint of common salt, and four gallons of water, constitute the wash, by which it is said that a joint of meat may be preserved fresh in the hottest weather. A dip night and morning into such a mixture will keep meat sweet for any length of time: and when afterwards dipped in cold water for a few minutes and then dried thoroughly with a cloth it is ready for cooking, unaltered in any detectable way from the day it was slaughtered. Such are the assertions of the patentees; and they are sufficiently striking to deserve examination.

"The weather of the past spring and summer has proved on the whole better for succulent growth than for the formation and ripening of seed, and the reports of the grain harvest are not satisfactory. More than half the reports of the Wheat crop supplied to the *Agricultural Gazette* declare it to be under average, and that is a larger proportion than was similarly returned last year, when the crop was undoubtedly an inferior one. The crops of spring-sown Oats and Barley, and especially of Beans, are believed, on the other hand, to be generally good."

The Poultry Yard.

Profitable Poultry (*Continued from p.* 1012).—When all the chickens have gone into the coops, we remove all the left food, and sweep the place out clean, then with a watering-pot with a small rose, we slightly sprinkle the floor with water; shortly after we dredge the same with quicklime, which decomposes all effluvium; we then take either cut Wheat straw or Wheat chaff, and cover the floor, which amuses the

* "Dictionnaire de Chimie Industrielle." Par MM. Barreswil et Girard, avec la Collaboration de M. de Luca, et des Professeurs de Chemistes et Industriels. Paris: Delagrave & Co., 78, Rue des Ecoles.

† "Prairies Artificielles; Causes de Diminution de leurs Produits; Etudes sur les Moyens des Prevenir leur Degenerescence." Par J. Isodore Pierre. Prize awarded to this Treatise by the Agricultural Society of Orleans. Paris: Delagrave & Co., Rue des Ecoles.

* For the guidance of analysts and of our agricultural readers, we may mention that the following substances are used for the adulteration of Linseed cake: Wheat bran, ground Rice husks, inferior Rape cake, inferior Groundnut cake, Niger cake, damaged Cotton cake, cake made from damaged Linseed, Dodder cake, Sessame cake, Indian corn meal, Locust Beans, &c.; but the worst and most valueless substance used is ground Rice-husks, known as "shudes."

chickens to scratch and pick about, providing sufficient exercise to keep them in health; this should be done every night, as the chickens begin to feed early in the morning, when they find a fresh and invigorating meal ready for them. There is not a sufficiently large Grass plot in our yard for green food for them, but I provide mown Grass, Lettuce-leaves, or any waste greens we may have instead; and every three or four days give them some sweet raw meat, cut in shreds, as by keeping them up we prevent their obtaining worms and insects. Their natural mode of life should be our guide in all these provisions. In proof of our recommendations of warmth and light for chickens, I may mention that in February, when carrying on our experiments in artificial incubation, we had a hen with a brood of eight chickens in a coop, by the side of our stove; we soon saw that what the chickens cared for was heat; for if they were sufficiently warm they would not go under the hen. In six weeks the hen would take no more notice of them, but wanted to lay again. The chickens did not seem at any loss without her; they had not been out of doors, nor did they want to go, as the air was cold, and in 14 weeks from the hatch, viz., six with the hen and eight with artificial warmth, by our stove, the chickens weighed upon an average a pound and a half each, and were at that time worth 6*s.* a couple. Thus these chickens were as good in the cold months as they could be, brought up in any of the finer seasons of the year. In six weeks after this hen left her chickens she had another brood of 10 chickens; in August she sat again, and by rearing the chickens by the artificial means, on the 13th October she wanted to sit again. We feed all our fowls twice a day, first when we let them out in the morning, then about 3 o'clock in the afternoon. When fatting poultry for the table, especially young ones, we have had most praise for those that have been well fed while allowed to run about. If we put them up to fatten, we find the best plan is to put up from six to 12 in a place made with wooden pales about the size of a common pigstye, with little light, sufficiently open to admit a free current of air in each pen; we feed them with Barley paste, giving them plenty of clean water, and fine gravel for digestion. We feed them for about a fortnight, and if they do not gain flesh in that space of time, we do not consider them healthy; but we prefer those, as already stated, who are, with plenty of Barley, allowed their liberty until they are fit for the table. We find our eggs best for hatching chickens from, when allowing 10 hens to one cock in summer, when the fowls have a good run; but when in a confined yard five hens to one cock is better. On eggs laid in cold and snowy weather there will be a loss if used for incubation; for instance, I once had under hens 70 eggs laid in such weather, and only eight chickens were hatched. At the same time I had 20 eggs in my hatching apparatus, laid under similar circumstances, which produced only two chickens. We have no rule to ascertain how long a hen will continue to lay eggs fit for hatching without the attendance of a cock. In December, 1852, I had a Shanghai cock and hen, she had laid four eggs, and on that day the cock was accidentally killed; I kept the hen up, and allowed her to lay six more eggs, which she did in as many days. I then put a true Dorking cock with her. She then laid 10 more eggs in 11 days. The first 10 eggs were set under another hen, from which I had nine true Shanghai chickens. The other 10 eggs (which we marked as they were laid) were sat on by the Shanghai hen, and produced nine chickens—five of them were half-bred Dorking with 10 toes. The hen's chickens were half-bred by the Dorking cock after he was with her five days. *Land Steward.*

French Experience. — In the year 1866 we imported 438,878,880 foreign eggs, chiefly from France; for the French are superior to us in poultry-breeding. This is the fact which is shaking the seats of the authorities, and seems likely to produce a revolution in the hen-houses. The French undersell us in our own markets, although they have to pay for sea carriage; they send us 6,000,000 eggs a week. Their poultry is better on the table than ours, and very much cheaper. Something must be done, or a dynasty may be changed and a new government set up. The British poultry-eater cannot understand why he cannot be as well and cheaply supplied by English hens as by French. He says there must be something wrong somewhere. Feeling this fact in the nerves of his purse, he is not consoled by being told that British poultry surpasses French in gorgeous plumage, and carries off the prizes at competitions. Caring little or naught for niceties about combs, beaks, hackles, wattles, saddles, and fluff, vulture-hocks or five toes; his standard of excellence is his palate and the size of the eggs he empties with his spoon, or of the] helps he can give from his knife and fork. The excellence of the prize-shows and the pictures of Mr. Harrison Weir, he readily grants, have proved the possession of points of beauty, which the unobservant have never seen, by cocks, hens, ducks, geese, turkeys, and guinea-fowls; but his tests are contained in the sum of relief which the prices of his poulterer can give him from the extortions of his butcher. Pencillings, spanglings, frizzles, silky or sickle feathers are, of course, worthy of note in an artistic point of view; but it is curious to remark that these things have for years absorbed the attention of English fanciers, while Frenchmen have devoted themselves to the production of eggs and flesh. Here is a matter in which Englishmen have won prizes while Frenchmen made profits. Students of the French in France do not come back saying of all things, how much better they manage those things in France, but they observe more superiorities than stay-at-home folks will believe in; and as for this one, it is undeniable. In poultry, the English seek show and the French reality. Horticultural shows produce large fruits deficient in flavour, and Gallinocultural competitions breed picturesque fowls with small breasts. The editor of "The Poultry Book" says the great superiority of French poultry for the table and the greater cheapness of French eggs make it desirable to ascertain what the conditions are which enable our neighbours to surpass us. When this inquiry arose, and curiosity was excited on the subject, a clever Frenchman sent a paragragh to the newspapers to explain the mystery and show the English how fortunes might be made. M. de Sora and his establishment were described, to the astonishment and delight of poultry-breeders of every clime. The ancient race of De Sora had lost all except a dilapidated castle and a small home-farm; and the last De Sora thought anxiously how he might restore the fallen fortunes of his family. At last he found out how to make the hen-house rebuild the castle! He made his hens lay every day, by feeding them on horseflesh. He had proved, by physiological experiments, that if hens do not lay every day in winter, it is only because they do not then get their meat-diet of worms and insects. Fed with horseflesh, their natural fertility returns. The discovery was a valuable one; and pilgrims, full of faith, left America and Australia, and wandered over France, crying "De Sora, De Sora," as the Saracen mother of St. Thomas à Beckett cried "Gilbert, Gilbert." Here was, no doubt, the lost secret embodied in the fable of the goose which laid the golden eggs. Journalists of well-earned authority in the poultry world explained the theory of the process. M. de Sora began with 300 fowls, and soon had 300,000, with a proper proportion of cocks. Immense sausage-machines turned 22 horses a day into barrels of mincemeat. The ingenious De Sora turned every part of the horse to account, selling heads, hoofs and skins at a profit, and manufacturing the marrow into perfumed pomade and lip-salve. Thus the mince-meat cost him "much less than nothing." Kept in store-rooms of a temperature just above the freezing-point, the meat never spoils. Salt and pepper are beneficial additions. Four years of life having been accorded to each fowl, it is fattened and sent to market; and of course the fowls sent can be counted only by thousands a-year. Commenting on these brilliant results, an eminent writer in a London journal asked, "Why the spoilt meat of London was not sent to the poultry-yard?" There are still to be found believers in the discovery of M. de Sora; and for aught known to the contrary among the visitors to the Paris Exhibition there may have been practical poultry-keepers who have tried to find the locality of his establishment. A poultry-farm said to realise 40,000*l.* a year of clear profit is worth seeing. Mr. Geyelin, the manager, and two directors of the National Poultry Company having been sent to study the celebrated horse-flesh henery, Mr. Geyelin published a report of the results of their researches. A search within a radius of 40 miles of Paris was made in vain. At the Garden of Plants and the Society of Acclimatation nothing was known of any such establishment. But at last it was heard of. An official of the Acclimatation Society in Boulogne Wood stated, in writing, that he had been informed of a henery with 12,000 fowls, at Mouy, near Beauvais. Mr. Geyelin immediately telegraphed to Beauvais, requesting De Sora to say whether or not he had an extensive henery. The answer returned was—"Not known." A letter which was despatched, with the same question, to the same address was neither answered nor returned. And then the indomitable Mr. Geyelin went to Mouy, and found and saw a great henery. No M. de Sora had ever been heard of in the neighbourhood of Mouy, but a M. Manoury lived at Mouy, rearing about 5000 fowls a year, of pure breeds, and neither supplying the markets of Paris nor feeding them on horse-flesh! *Athenæum.*

Farm Memoranda.

DAIRY FARM, IN CHESTER COUNTY, PENNSYLVANIA. — *Butter Increased by Liberal Feeding.* — Rokeby began farming four years ago, having about 100 acres of cleared land, for which he purchased 12 cows and two heifers. He engaged a farmer, who continued in charge two years, and made 1432 lbs. butter the first and 1500 lbs. the second year.

This was principally from pasture alone, no provision having been made, by growing early Rye, Corn for fodder, or any other green food, to keep up a plentiful supply, either early or late in the season, when pasture is short, and it is so indispensable, in order to keep up the condition of the cows and their milk.

The third year the proprietor undertook the management himself, and made 2878 lbs. butter, and during the fourth year, ending April 1, 1867, he made 4055 lbs., having increased his stock from 14 up to 20 head—five of the latter heifers with their first calves. He says:—

Now, I suppose it will be asked by what management the butter was increased from 1432 lbs. to 4055 lbs. There was but little change in the stock, almost all of the original cows having been retained, and the increase being but three cows and three heifers; but the increase in the butter was from twice and a half to three times the quantity. The difference in the management was this: my original farmer kept the cows only, as I have before stated, on the pasture; the farm then had nothing grown expressly to fodder or soil them with, which was and is now the custom with many farmers in our country; neither was there any meal fed, except it might be to a cow that had calved early in the spring, before the pasture was sufficient to turn out upon; also, the cows were permitted to remain out, exposed to cold, wet storms (when they should have been stabled and kept warm and dry), thus early in the season checking the flow of milk, which is afterwards difficult to restore.

Early in the season the young Grass, when cows are first turned out to pasture, is watery, and tends to make the cows scour very much; and although it will in that state increase the flow of milk, and also the quantity of butter, yet it will be at the expense of the condition of the cow, reducing her in flesh, and telling upon her during the whole season. At this time I consider it important that a cow should be fed with ship stuff or bran and cob meal, mixed night and morning. This not only assists in preventing scouring, but by keeping up the condition of the stock, increases the quantity of the butter to a very coniderable extent. My opinion is, that meal fed at this time pays better, certainly as well as at any other time during the season, not excepting midwinter.

I am well satisfied that the condition of the cow, in order to obtain from her a full yield, or one that will be profitable, must at all times be well looked to. She must be well wintered and fed, so that when she comes out of the barn-yard in the spring, after having calved, she is in good flesh, showing her keep and the care taken of her, and not like what is too much the custom of the country, viz., dry cows, wintered on straw, and no shelter except the lee side of a barn-yard until the calf is dropped, when it is too late for the poor-in-flesh cow to yield her full capacity.

A cow should at all times, when milking, be fully supplied with meal; not stimulated to excess, however, for that would certainly produce reaction afterwards; but she must have a full and plentiful supply at all times of good food and water. For that purpose I have grown early Rye to begin with in the early season before the Grass is sufficient to turn out on; then after harvest, during the dry weather, when the pasturage becomes short, Hungarian Grass, to be followed with corn sowed in drills for fodder, which cut morning and evening, and fed to the stock whilst milking, fills them twice a day, and, with the pasture, makes up all that is required. During the last season, whilst it was necessary to soil with Hungarian Grass and corn for fodder, we have also fed two quarts of ship stuff each night and morning, as we feel satisfied that, although the Hungarian Grass and green corn will keep up the yield of milk, yet they will not alone make as much butter as a full supply of pasture or the natural Grasses.

I look upon a cow as similar to a steam boiler; no matter how good they may be, unless the boiler is well supplied with water and good fuel, also well attended to, the supply of steam will be short, or it will be in proportion to the fuel and attention. So also with the cow; no matter how good she may be, if she is not well and plentifully fed and cared for, her product will be shortened.

Another very important matter with cows is that they should be protected from storms and bad weather. They should be fed and kept under shelter when the nights are wet and inclement; this more particularly in the early season, when the cow is fresh and in full milk; one exposure to a cold, wet night has frequently reduced milk one-half. Also in the fall, when the nights become frosty, never let them remain out; be particular to stable them; and in the morning never turn them out on the pasture until the frost is melted off by the sun, as nothing, perhaps, dries a cow or reduces her milk more than eating Grass with the frost on it. To many of these requirements the generality of farmers pay no attention whatever. In the early season, as soon as there is any pasture whatever the cow is turned out of the barn-yard, to eat what she may find, and to remain day and night until the winter comes; there is also nothing grown or fed to eke out the scanty supply of pasturage that almost invariably occurs at some time in each season. *Practical Farmer, U.S.*

Obituary.

The Late Mr. Wallace Fyfe.—We very deeply regret to announce the death of Mr. W. Wallace Fyfe, for many years a well known agricultural writer, Editor of the *Nottinghamshire Guardian*, and frequent contributor to our own columns and those of other agricultural periodicals.

Death of Mr. Edward Pope.—We regret to announce the death of Mr. Edward Pope, of Great Toller, Dorset, a leading English agriculturist, and member of Council of the Royal Agricultural Society. The following reference to his agricultural career is taken from the *Dorset County Chronicle*:—We know that in all things example is more effectual than precept, and Mr. Pope was more of a performer than a preacher. The altered conditions upon which agricultural operations are now carried on, compared with what was the fashion, say thirty years ago, are too palpable to need recapitulation, and in this matter he was truly a pioneer. He was the first to introduce in these parts the pure Southdown into his flock, for which purpose he purchased a ram from the late Mr. Ellman at what was then considered a fabulous price. But the success which followed this step fully proved its wisdom, for eager competitors soon flocked to his annual sales as Mapperton. This example must be credited with no slight effect in the change that ensued in many flocks upon our Dorsetshire downs, and the stimulus given to sheep farming generally in this county. But it was perhaps in the maintenance of a pure breed of Devon cattle that Mr. Pope attained the highest eminence, his name for many years standing in successful competition with the first breeders in the country, both at the national and the district exhibitions. These were his peculiar pride, and their undoubted purity and perfect symmetry established a reputation which has outlived a fleeting popularity, though he had for some years ceased to enter the lists for honours which might often afterwards have been his. As a cultivator of the land his spirit and ability were early recognised by the award of prizes in competition against the whole county at a time when much

less attention was given to root crops than at present; and few gentlemen could boast of such a noble array of trophies for these peaceful and honourable achievements. Though, as we have intimated, he had in this respect latterly retired into private life, and appeared to be more bent upon improving the pretty little estate which he inherited at Great Toller, he was always ready to come forward at the call of duty, and, whether as a judge at the great shows, or as an active member of the Royal Agricultural Society and the Smithfield Club, we may venture to say he will be very much missed, his business habits and sound judgment rendering his assistance of the utmost value.

Notices to Correspondents.

Agricultural Imports during Eight Months, 1866 & 1867: *R.*

Articles.	Quantities Imported. 1866.	1867.
I. *Articles Free of Duty.*		
Animals, living—Oxen, Bulls, and Cows .. .. No.	122,603	101,430
Calves .. .. ,,	19,851	17,184
Sheep and Lambs .. .. ,,	590,549	377,534
Swine and Hogs .. .. ,,	47,076	26,898
Ashes, pearl and pot .. .. cwt.	65,640	42,944
Bones burnt or not, or as animal charcoal .. .. tons	55,281	55,593
Flax and Tow or Codilla of Flax—		
From Russia .. .. .. cwt.	823,885	574,185
Holland .. .. ,,	46,248	63,024
Belgium .. .. ,,	93,007	119,775
Other Countries .. .. ,,	69,884	103,714
Guano, from West Coast of Africa, tons	580	2,425
United States .. .. .. ,,	1,411	2,182
Peru .. .. ,,	70,232	89,356
Bolivia .. .. ,,	..	4,967
British West India Islands .. ,,	2,355	1,692
Other Countries .. .. ,,	10,660	6,925
Hemp and Tow or Codilla of Hemp—		
From Russia .. .. .. cwt.	349,892	175,428
Venetia .. .. ,,	171,014	79,075
Illyria, Croatia, and Dalmatia ,,		32,652
British India .. .. .. ,,	22,079	5,456
Philippine Islands .. .. ,,	28,312	59,520
Other Countries .. .. ,,	43,778	39,520
China Grass .. .. .. ,,	1,246	584
Jute and substances of the nature of Hemp .. .. ,,	1,215,065	1,003,666
Hides, untanned—Dry—From British India .. .. ,,	92,901	111,801
Other Countries .. .. ,,	52,019	37,676
Wet—From Argentine Confederation and Uruguay .. .. ,,	205,821	162,317
Brazil .. .. ,,	70,989	54,200
Australia .. .. ,,	66,022	46,976
Other Countries .. .. ,,	120,017	66,017
Tanned, Tawed, Curried, or Dressed (except Russia) .. .. lb.	5,638,342	4,913,699
Hops .. .. cwt.	36,588	32,517
Oil Seed Cakes .. .. .. tons	80,073	75,165
Potatos .. .. cwt.	416,020	778,948
Provisions—Bacon and Hams .. ,,	521,119	327,352
Beef, salt .. .. .. ,,	148,362	120,232
Pork, salt .. .. .. ,,	141,162	106,918
Butter .. .. ,,	671,510	708,835
Cheese .. .. ,,	406,610	462,820
Eggs .. .. No.	326,331,840	301,711,080
Lard .. .. cwt.	217,076	142,010
Rice, not in the husk .. .. ,,	631,764	609,541
Saltpetre .. .. ,,	130,339	105,836
Cubic Nitre .. .. .. ,,	633,610	724,256
Seeds—Cotton .. .. .. tons	79,292	81,295
Clover .. .. cwt.	178,810	92,888
Flaxseed and Linseed .. qrs.	566,703	541,802
Rape .. .. ,,	232,225	331,607
Tallow—From Russia .. .. cwt.	179,542	69,427
Australia .. .. ,,	17,042	16,592
South America .. .. .. ,,	202,716	162,552
Other Countries .. .. ,,	127,365	89,291
Wool, Sheep and Lambs'—From Europe .. .. lb.	20,705,702	11,380,301
British Possessions in South Africa ,,	11,619,449	18,552,086
British India .. .. .. ,,	12,388,168	8,323,646
Australia .. .. ,,	97,047,069	115,220,496
Other Countries .. .. ,,	13,925,859	17,178,894
Alpaca and the Llama Tribe ,,	1,892,885	1,650,111
Yeast, dried .. .. .. cwt.	75,358	73,134
II. *Articles Subject to Duty.*		
Corn—Wheat—From Russia .. ,,	4,610,396	8,045,857
Denmark .. .. ,,	354,108	343,483
Prussia .. .. ,,	2,898,506	4,474,338
Schleswig, Holstein, & Lauenburg ,,	141,078	92,692
Mecklenburg .. .. .. ,,	545,365	574,605
Hanse Towns .. .. .. ,,	620,378	485,241
France .. .. ,,	3,305,024	531,976
Turkey and Wallachia & Moldavia ,,	329,738	1,694,506
Egypt .. .. ,,	11,769	422,203
United States .. .. .. ,,	345,750	1,738,945
British North America .. ,,	8,789	3,132
Other Countries .. .. ,,	2,358,398	2,624,669
Barley .. .. ,,	4,782,925	3,948,551
Oats .. .. ,,	6,117,740	6,612,608
Peas .. .. ,,	892,032	1,151,344
Beans .. .. ,,	382,659	1,230,982
Indian Corn, or Maize .. .. ,,	10,509,656	6,530,092
Wheatmeal and Flour—From Hanse Towns .. .. ,,	181,232	281,362
France .. .. ,,	3,078,740	1,071,394
United States .. .. .. ,,	193,051	208,704
British North America .. ,,	15,818	23,838
Other Countries .. .. ,,	168,807	682,234
Indian Corn Meal .. .. .. ,,	10,274	4,193

Mustard Seed: *Constant Subscriber.* Beat it out on a dry day with a flail, on a board laid in the middle of a sheet, in the field where it is grown.

Natal: *Sub.* We can but repeat the advice already given. In a long-established colony the wants of colonists have long since been considered by tradesmen on the spot. You had bettor take out nothing with you but things of personal or domestic need, about which there can be no doubt. Money will buy on the spot whatever agricultural implements and seeds are necessary.

Oilcake: *B R A.* There are machines for breaking oilcake, by which it is reduced partly to small fragments and partly to powder. It is generally put in the troughs after they have been cleaned out from the previous meal—chaff or Turnips. We have also given cake broken and mouldered down in water, thrown over mixed hay and straw chaff, to cattle and sheep. Give from 2 to 4 or 6 lb. of cake to oxen or cows, and from ½ to 1 lb. daily for sheep.

SPECIAL NOTICE.

CLAYTON, SHUTTLEWORTH, & CO.,

At the Triennial Trials of THE ROYAL AGRICULTURAL SOCIETY OF ENGLAND, held at Bury St. Edmund's, July, 1867, received the following Awards:—

For Single Cylinder Portable Steam Engine, THE FIRST PRIZE OF £25.
For Double Cylinder Portable Steam Engine, THE FIRST PRIZE OF £25.
For Horizontal Cylinder Fixed Engine, THE FIRST PRIZE OF £20.
For Double Blast Finishing Threshing Machine, THE PRIZE OF £15.
Also THE SOCIETY'S SILVER MEDAL, for Adjusting Blocks for Machines.

The duty performed by all C., S. & Co.'s Engines on this occasion *considerably exceeded that of any others*, and *has never been equalled at* ANY *of the trials of the Society.* C., S. & Co. refer with pleasure to the fact that the duty of their "COMMERCIAL" or SINGLE VALVE ENGINE, at Chester, so long ago as 1858, was not equalled by any "ordinary" Engine at Bury.

CLAYTON, SHUTTLEWORTH, AND CO., LINCOLN; and 78, LOMBARD ST., LONDON.

GREEN'S PATENT SILENS MESSOR,

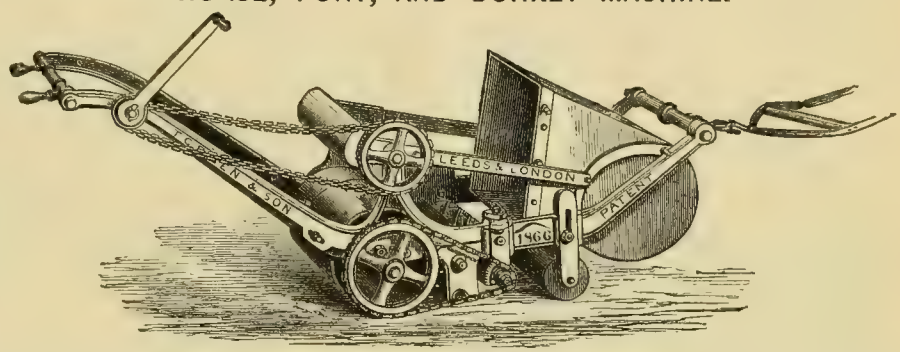
OR NOISELESS LAWN MOWING, ROLLING, AND COLLECTING MACHINES.

FITTED WITH PATENT SELF-SHARPENING CYLINDER CUTTERS.

They are the simplest in construction, least liable to get out of order, and can be worked with far greater ease than any other Lawn Mower extant.

GREEN'S PATENT LAWN MOWERS have proved to be the best, and have carried off every Prize that has been given in all cases of competition; and in proof of their superiority, 40,000 have been sold since the year 1856.

HORSE, PONY, AND DONKEY MACHINE.



Every Machine is warranted to give entire satisfaction, and if not approved of can be returned at once unconditionally.

T. GREEN AND SON *have to state that the demand for their* LAWN MOWERS *this Season has been unprecedented, which is a proof of the high estimation in which they are held. Selections can be made from their Stock both in London and Leeds.*

☞ ILLUSTRATED PRICE LISTS FREE ON APPLICATION.

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PORTABLE AND FIXED HOT-WATER APPARATUS,

FOR HEATING CONSERVATORIES, HOTHOUSES, CHURCHES, PUBLIC BUILDINGS, PRIVATE RESIDENCES, ETC., WITH



TRUSS'S PATENT UNIVERSAL FLEXIBLE AND LEAKLESS PIPE-JOINTS.



T. S. TRUSS

Begs to state that the immense number of APPARATUS annually Designed and Erected by him in all parts of the kingdom, and for the ROYAL HORTICULTURAL SOCIETY at SOUTH KENSINGTON and CHISWICK, with unrivalled satisfaction, is a guarantee for skill of design, superior materials, and good workmanship; while the great advantages obtained by his IMPROVED SYSTEM cannot be over-estimated, consisting of perfectly tight joints with neatness of appearance; EFFECTS A SAVING OF 25 PER CENT. on cost of Apparatus erected compared with other systems; facility for extensions, alterations or removals without injury to Pipes or Joints; can be erected by any Gardener; an ordinary size Apparatus erected in one day, and PERFECTNESS of DESIGN SUPPLIED, INSURING NO EXTRAS. Complete Apparatus, of the best materials, with Saddle Boiler, delivered to any Railway Station in England, and Erected at the following prices. Erection beyond 25 miles off London, railway fare for one man additional. Considerable reduction on large works.

TWO FOUR-INCH PIPES ALONG ONE SIDE AND ONE END OF HOUSE.

Size of House.	Apparatus Complete.	Erection.	Size of House.	Apparatus Complete.	Erection.
20 feet by 10 feet ..	£9 0 0 ..	£2 0 0	50 feet by 15 feet ..	£17 10 0 ..	£3 0 0
30 feet by 12 feet ..	11 15 0 ..	2 10 0	75 feet by 15 feet ..	20 0 0 ..	3 0 0
40 feet by 15 feet ..	15 0 0 ..	2 15 0	100 feet by 15 feet ..	26 0 0 ..	3 5 0

Bath and Gas Work erected in town or country. The Trade Supplied.

Horticultural Buildings of every description from 1*s.* 6*d. per foot superficial, inclusive of Brickwork.*

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Observe — The City Offices are now Removed to the Manufactory, Friar Street.

HOTHOUSES for the MILLION, CHEAP, PORTABLE, and EASILY FIXED.

SPAN-ROOFS (over 16 feet long), glazed and painted three coats, with complete ventilation all over roof, necessary water gutters and ironwork, exclusive of ends, put on Rail in LONDON, GLOUCESTER, COVENTRY, ULVERSTONE, PAISLEY, or ABERDEEN; 10 to 16 feet wide *inside*, at 16s. to 24s. per foot run. Illustrated Circulars, with *definite prices* and sizes, free on application to

HEREMAN & MORTON, 7, Pall Mall East, London, S.W.

HOT-WATER APPARATUS, of every description, fixed complete in any part of the country, or the materials, viz., Boilers, Pipes, &c., delivered to any Station.

Estimates on application.

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By Royal Letters Patent.

G. SHREWSBURY'S NONPAREIL GAS BOILER. No. 1, for 30 feet; No. 2, for 90 feet; No. 3 for 200 feet of Pipe. A HOT-WATER APPARATUS, complete, to Heat a Small Conservatory, for 2½*d.* per day, for 55s.—G. SHREWSBURY, Lower Norwood, S.

Heating by Hot Water.

W. J. HOLLANDS, IRON MERCHANT, 31, Banl side, London, S.E.

HOT WATER PIPES, from Stock, per yard:—2-inch, 1*s.* 1½*d.*; 3-inch, 1*s.* 9*d.*; and 4-inch, 2*s.* 3*d.* BENDS, from Stock, 1*s.* 6*d.*, 2*s.* 6*d.*, and 3*s.* each. THROTTLE VALVES, 10*s.*, 13*s.*, and 14*s.* each. Other Connexions at equally low prices, and all goods of first-class manufacture. Estimates given, and orders by post punctually attended to the same day.

Heating by Hot Water.

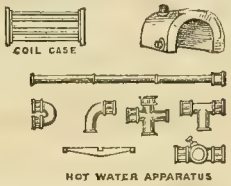
HOT-WATER PIPES, at Wholesale Prices, with Elbows, Syphons, Tee-Pipes, and every other connection; Wrought and Cast-Iron Boilers, Saddle, Conical, Cylinder, TUBULAR, and Elliptic, from 24*s.* each. Improved Boilers and Iron Stands to use without brickwork, 60*s.* each. Valves from 10*s.* 6*d.* each. Patent Valves, Improved Furnace Doors, Furnace Bars, Supply Cisterns, and Castings of every description in stock, at

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SADDLE BOILERS.

20 24 30 inches long.
45*s.* 65*s.* 92*s.* 6*d.* each.

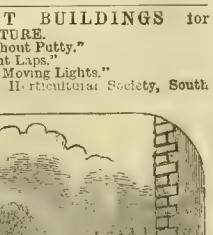


HOT-WATER PIPES.

3 4 inch.
1*s.* 6*d.* 2*s.* 1*d.* 2*s.* 9*d.* per yard.

Materials supplied as above, or Estimates given fixed complete to Plan, on application to

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CRANSTON'S PATENT BUILDINGS for HORTICULTURE.

"Dry Glazing without Putty."
"Glass without Laps."
"Ventilation without Moving Lights."

Highly Commended by the Royal Horticultural Society, South Kensington.



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Greenhouses—Heating Apparatus.

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OUR PATENT WROUGHT-IRON PRIZE MEDAL GREENHOUSES perfectly neutralize atmospheric conduction.

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OUR PATENT WROUGHT-IRON PRIZE MEDAL ORCHID HOUSES and STOVES, with double-glazed roofs, are a complete arrangement.

OUR PATENT WROUGHT-IRON PRIZE MEDAL ORCHARD HOUSES (as supplied to Mr. Rivers), induce perfect symmetry and unfailing result.

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OUR PATENT WROUGHT-IRON PRIZE MEDAL PINERIES, when heated upon the improved system, are calculated to secure the growth of first-class fruit.

OUR PATENT PRIZE MEDAL FORCING HOUSES are eminently superior for all early work.

OUR PATENT WROUGHT-IRON PRIZE MEDAL STRAWBERRY HOUSES admit a complete flood of air and light.

The above Patent Houses can be glazed with or without putty.

These Houses are now protected by three Royal Letters Patent, and from the complete adjustment of their constructional parts will vie most favourably with Wood Structures in point of cost.

Designs and Estimates prepared for single or complete ranges of Houses in Wood or Iron.

Illustrated Catalogues on application to the Patentees,

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TWO HUNDRED CUCUMBER and MELON BOXES and LIGHTS, and from 400 to 500 LIGHTS for PITS of all SIZES kept in STOCK, Glazed and Painted complete, ready for immediate use. Packed and sent to all parts of the kingdom. Public and Private Buildings, Warehouses, &c., heated on the most approved scientific and economical principles. References to the Nobility, Gentry and Trade in most of the Counties in England.

Cheap Greenhouse Stoves.

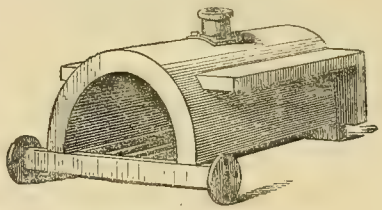
DEANE AND CO.'S Patent VENTILATING and SUSPENSION STOVES are simple, cheap, and efficient; have been largely adopted and approved; will burn many hours without attention, and at a small cost for fuel. Prices of Suspension Stoves, 20*s.*, 30*s.*, 38*s.*, and upwards. Ventilating Stoves, 60*s.*, 60*s.*, 70*s.*, 90*s.*

HOT-WATER APPARATUS for Conservatories, Greenhouses, Hothouses, Forcing Pits, &c., erected and fitted up complete.

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THE PATENT TERMINAL SADDLE BOILER, with following note:—

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The Only Stove without a Flue.



NASH AND JOYCE'S PATENT, for AIRING, DRYING, and WARMING HALLS, SHOPS, ROOMS, &c., a new especial Stove for Conservatories, Greenhouses, Fruit-Ripening, &c.: to Burn without re-lighting all winter by filling with fuel every 12 hours. Temperature, any degree required, without varying. Price from 12*s.* 6*d.* to 6 guineas.

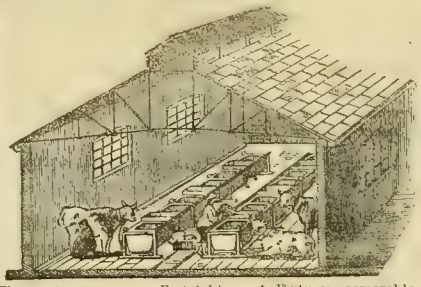
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The COTTAGE KNIFE CLEANER is the only rapid Cleaner and Polisher of Knives at a moderate price. 3*s.* 6*d.* to 10*s.* 6*d.* Prospectus post paid.

CHEAP FIRES.—The Radiating Fire Balls save half the usual consumption of fuel. One Shilling packet of Four, red hot in the fire every day, lasts all Winter.

S. NASH, Ironmonger, 253, Oxford Street, W.C.; Linster Terrace, Bayswater; and Stove Depôt, 119, Newgate Street, London, E.C.

COTTAM'S PATENT PORTABLE UNITED COW FITTINGS.



Their advantages are—Portability, not Fixtures, removable at pleasure, no Woodwork or Partitions to impede Ventilation or breed Vermin, Hay Rack dispensed with as unnecessary, increased width and depth of Feeding Troughs, Water Cistern, and Patent Drop Cover to prevent over-gorging. Cleanly, durable, and impervious to infection, being all of iron. Price of Fittings per Cow, 55*s.*

Prospectuses free of COTTAM & Co., Iron Works, 2, Winsley Street (opposite the Pantheon), Oxford Street, London, W., where the above are exhibited, together with several important Improvements in Stable Fittings just secured by Patent.



IMPROVED BLACK VARNISH, an excellent Substitute for Oil Paint, for Coating and Preserving all kinds of Iron and Wood Fencing, Gates, Roofing, and every description of out-door Wood or Stonework, Steam Boilers, Pipes, Tanks, Carts, Waggons, Farm Implements, &c.

It is an excellent substitute for Oil Paint, and is not one-fifth the cost! It requires no mixing, and can be applied in a cold state by any ordinary labourer.

This Varnish is now used in the Royal Botanic Garden, Regent's Park, and by a great number of the nobility and gentry in the United Kingdom.

Sold in casks of about 30 gallons each, at 1*s.* 3*d.* per gallon; or in casks from 10 to 20 gallons each, at 1*s.* 5*d.* per gallon (casks included). Carriage paid to any railway station in Great Britain. Extra strong Iron-bound Varnish Brushes, 5*s.* per pair.

The following is from Mr. STEPHEN BLACKALLER, Agricultural Engineer, Steyning, Sussex.

"Dear Sir,—I am very glad the Improved Black Varnish was introduced to me. I have used it both on Wood and Iron, and I must say that I am really astonished at its efficiency, particularly on Iron-work. I intend never to be without it, and shall recommend its use to all my friends. Please forward me another cask, together with six brushes. Yours truly, S. BLACKALLER."

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SHAW'S TIFFANY.

For samples and prices apply to J. SHAW & Co., 29, Oxford Street, Manchester.

Russia Mats.

JAMES T. ANDERSON'S PRICE LIST of ARCHANGEL and other MATS is now ready, and may be had post-free on application. They are the best and cheapest offered.

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FOR SALE, a Complete SET of HOWARD'S STEAM CULTIVATING TACKLE; a BARN PART PORTABLE THRESHING MACHINE, by Hornsby; and a PAIR of 4-feet MILL STONES, with Gearing complete.

Apply to Mr. JOSEPH NOAKES, Medway Ironworks, Rochester; or Mr. E. NOAKES, Lamberhurst, Kent.

JAMES PHILLIPS AND CO. beg to submit their prices as follows:—

GLASS for ORCHARD HOUSES,

As supplied by them to Mr. Rivers, to the Royal Horticultural Society, and to most of the Nobility, Clergy, and Gentlemen of the United Kingdom.

Each Box contains 100 feet. The prices only apply to the sizes stated.

Squares 20 by 12, 20 by 13, 20 by 14, 20 by 15.

	16 oz. to the foot.	21 oz.
Fourth quality	15*s.* 0*d.*	.. 19*s.* 6*d.*
Third ditto	.. 17*s.* 0*d.*	.. 22*s.* 6*d.*
Seconds	.. 18*s.* 6*d.*	.. 26*s.* 0*d.*
English	.. 20*s.* 0*d.*	.. 27*s.* 0*d.*

The above prices include the boxes, which are not returnable.

HORTICULTURAL GLASS.

Stock sizes, 16-oz., in 100 feet boxes, boxes included.

These prices only apply to the sizes stated.

				4ths.	3rds.	2nds.
				s. d.	*s. d.*	*s. d.*
11 by 9	12 by 9	13 by 9	14 by 9	13 6	16 6	17 0
12 „ 10	13 „ 10	14 „ 10	15 „ 10			
13 „ 11	14 „ 11	.. ..	.. ..			
14 „ 12	15 „ 12	15 „ 11	16 „ 11			
18 „ 12	19 „ 12	16 „ 12	17 „ 12			
16 „ 13	17 „ 13	20 „ 12	.. ..	15 0	17 0	18 6
16 „ 14	20 „ 13	18 „ 13	.. ..			
	17 „ 14	18 „ 14	.. ..	16 to 17 oz. to the foot.		
	20 „ 14					

SMALL SHEET SQUARES.

In 100 feet Boxes.

6 by 4	6½ by 4½	7 by 5	7½ by 5½	.. 12*s.* 6*d.*
8 by 6	8½ by 6⅝	9 by 7	9½ by 7½	
		10 by 8	10½ by 8½	.. 13*s.* 6*d.*

Boxes 2*s.* each, returnable at full price.

London Agents for HARTLEY'S IMPROVED PATENT ROUGH PLATE.

LINSEED OIL, Genuine WHITE LEAD, CARSON'S PAINTS, PAINTS of various colours, ground ready for use.

SHEET and ROUGH PLATE GLASS, SLATES of all sizes, BRITISH PLATE, PATENT PLATE, ROLLED PLATE, CROWN, SHEET, HORTICULTURAL, ORNAMENTAL, COLOURED, and every description of GLASS, of the best Manufacture, at the lowest terms. Lists of prices and estimates forwarded on application to

JAMES PHILLIPS & Co., 180, Bishopsgate Street Without, E.C.

Horticultural Glass Warehouse.

THOMAS MILLINGTON AND CO., 87, Bishopsgate Street Without, London, E.C.

NEW LIST for ORCHARD HOUSE GLASS as supplied to Her Majesty, the Nobility, Gentry, Mr. Rivers, and the leading Horticulturists of the United Kingdom.

ORCHARD HOUSE SIZES.

in.	in.		4ths.	3rds.	2nds.	Best.
20 by 12						
20 by 13		15 oz.	14*s* 3*d*	15*s* 6*d*	18*s* 6*d*	20*s* 0*d*
20 by 14	Per 100 feet					
20 by 15		21 oz.	19*s* 6*d*	22*s* 2*d*	26*s* 6*d*	29*s* 6*d*
20 by 16						

SMALL SHEET SQUARES, 15 oz., per 100 feet.

in.	in.	in.	in.	in.	in.	in.	4ths.	3ds.	2nds.	Best.
6 by 4	7 by 5	8 by 6	9 by 7							
6½ by 4½	7½ by 5½	8½ by 6½	9½ by 7½				12*s* 3*d*	13*s* 3*d*	16*s* 0*d*	18*s* 0*d*

Per 100 feet.

10 by 8	12 by 9	12½ by 10½	14½ by 10½							
10½ by 8½	12½ by 9½	13 by 10	15 by 10							
11 by 9	13 by 9	13½ by 10½	13 by 11				13*s* 3*d*	14*s* 6*d*	17*s* 3*d*	19*s* 0*d*
11½ by 9½	12 by 10	14 by 10	14 by 11							

LARGE SHEET SQUARES, 15 oz., per 100 feet.

in.	in.	in.	in.	in.	in.	in.	4ths.	3ds.	2nds.	Best
15½ by 10½	14 by 12	22 by 12	22 by 16							
16 by 10	14½ by 12½	17 by 13	24 by 16							
14½ by 11½	15 by 12	23 by 13	20 by 17							
15 by 11	15½ by 12½	18 by 14	22 by 17							
15½ by 11½	16 by 12	22 by 14	24 by 17				14*s* 3*d*	15*s* 6*d*	18*s* 6*d*	20*s* 0*d*
16 by 11	16½ by 12½	24 by 14	20 by 18							
21 by 11	17 by 12	22 by 15	22 by 18							
13 by 12	18 by 12	24 by 15	24 by 18							

The above Prices are only for the Sizes stated; if a quantity of any other Size be required, a Special Price will be given.

SHEET GLASS.

In Sheets for Cutting up, averaging from 6 to 9 feet super.

15 oz.		21 oz.	
4ths quality, per 300 feet case,	38*s.*	4ths quality, per 200 feet case,	38*s.*
3ds „ „	48*s.*	3ds „ „	48*s.*
2ds „ „	62*s.*	2ds „ „	66*s.*
Best „ „	92*s.*	Best „ „	96*s.*

SHEET GLASS is made only in the following substances, 15 oz., 21 oz., 26 oz., 32 oz., 36 oz., and 42 oz.

HARTLEY'S IMPROVED ROLLED ROUGH PLATE in 1-8th in., 3-16th in., 1-4th in., and 3-8th in. substances.

BRITISH PLATE GLASS for Windows and Silvered for Looking Glasses, Coloured Glass, Glass Shades, Striking Glasses, &c., &c.

PAINTS, COLOURS, VARNISHES, &c.

STUCCO PAINT, 24*s.* per cwt. This Paint adheres firmly to the walls, resists the weather, and is free from the glossy appearance of Oil Paint, resembling a stone surface, and can be made any required shade. It is mixed with rain or pure river water.

WHITE ZINC PAINT, 36*s.* per cwt. One hundredweight of pure Zinc Paint, with three gallons of Linseed Oil, will cover as much as one hundredweight and a half of White Lead and six gallons of Linseed Oil. Special Dryers for this Paint.

IMPROVED ANTI-CORROSION PAINT, 28*s.* to 34*s.* per cwt. Anti-corrosion Paint is extensively used for all kinds of work in exposed situations, on Brick, Stone, Compo, Iron, Iron Bridges, Conservatories, Greenhouses, &c, and is easily laid on by any ordinary workman. Prepared Oil for ditto, 4*s.* per gallon.

Per cwt.—*s. d.*		Per gallon.—*s. d.*	
GENUINE WHITE LEAD	32 0	LINSEED OIL	3 4
SECONDS WHITE LEAD	30 0	BOILED OIL	3 8
GROUND PATENT DRYERS, 3*d.* to 4½*d.* per lb.		TURPENTINE	3 0
„ OXFORD OCHRE, 3*d.* to 4½*d.* per lb.		LINSEED OIL PUTTY, 8*s.* to 9*s.* per cwt.	
RAW UMBER, 4½*d.* to 6*d.* per lb.		Fine OAK VARNISH, 10*s.* to 12	0
„ BURNT do., 6*d.* to 9*d.*		„ CARRIAGE do., 12*s.* to 14	0
GREEN PAINT, all shades,	28*s.* to 60 0	„ PAPER do. 10*s.* to 12	0
BLACK PAINT,	24*s.* to 36 0	„ COPAL	16 0
RED PAINT ..	28*s.* to 36 0	KNOTTING	10 0
		Patent GOLD SIZE ..	10 0
		„ BLACK JAPAN ..	12 0
GROUND BRUSHES. DUSTERS. SASH TOOLS. DISTEMPER BRUSHES.		GLAZIER'S DIAMONDS and TOOLS	
		MILLED LEAD and PIPES	
		OLD LEAD Bought or taken in exchange.	

The above are Net, for Cash, and as such cannot be booked.

Lists of any of the above on application.

Caution to Gardeners.—When you ask for SAYNOR AND COOKE'S WARRANTED PRIZE PRUNING and BUDDING KNIVES, see that you get them. Observe the mark SAYNOR, also the corporate mark OBTAIN WARRANTED, without which none are genuine.

S. & C. regret having to caution Gardeners and others, but are compelled to do so, in consequence of an imitation, of common quality, having been sold for the genuine one, and which has caused many complaints to be made to them of Knives which were not of their make, all of which are warranted both by Sellers and Makers.

S. & C.'s Pruning and Budding Knives are the best and the cheapest in the market.

Paxton Works, Sheffield. Established upwards of 125 years.



W. S. BOULTON'S 36-gallon SWING WATER BARROW. Price 45s. Carriage paid to the principal Stations.

This is the best and cheapest article of the kind yet introduced. It can be used with or without a Pony. Two Tubs can be had with one Carriage, and a Sprinkler if required.

Testimonials can be furnished from all parts of the country.

Powerful GARDEN ENGINE for the above, price 45s.

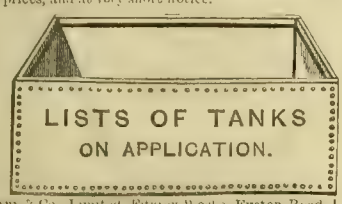
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F. BRABY AND CO. having laid down extensive and Improved Machinery in their new range of buildings, IDA WHARF, DEPTFORD, are now prepared to supply WROUGHT-IRON TANKS, GALVANISED, or PAINTED, of superior quality, at reduced prices, and at very short notice.



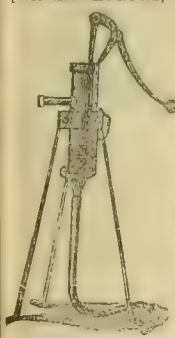
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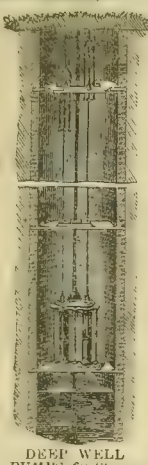
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GARDEN ENGINES, WATER BARROWS,



No. 42.



CRYSTAL PALACE FIRE ENGINES.



No 35.

PORTABLE PUMPS for LIQUID MANURES.

DEEP WELL PUMPS, for Steam, Horse, or Hand Power.

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PARKS PLANTED, OLD GARDENS RENOVATED and made Fruitful, or New Ones made.

GLASS-HOUSES BUILT and HEATED, as best suited for Growing any particular class of Plants or Fruits, by ROBERT BULLEN, Nurseryman, &c, Tranmere Park, Birkenhead.

JOHN GIBSON, JUN., begs to announce that he is prepared to Furnish PLANS and ESTIMATES for LAYING OUT GROUND attached to Mansions and Villa or other Residences, or for the FORMATION of PUBLIC PARKS or GARDENS and to carry out the same by Contract or otherwise.

Address Mr. JOHN GIBSON, jun., Surrey Lane, Battersea, S.W.

GEORGE F. MORRIS (of the Firm of PROTHEROE & MORRIS) undertakes SALES and VALUATIONS of FREEHOLD LANDED ESTATES, Leasehold and Reversionary Property of every description, Farming and Market Garden Produce, Household Furniture, Stock in Trade, &c.

Auction and Estate Agency Office, The Limes, Leytonstone, Essex.

Nursery and Seed Business for Sale.

WILLIAM DEAN, having determined on residing in London again, offers for SALE, with immediate possession, the NURSERY at SHIPLEY, consisting of Four Acres, with 13 extensive Glass Houses, the whole, with the Nursery well stocked, and with Dwelling House, &c., is held on Lease; also the SEED SHOP, in BRADFORD (the only one in the town), which is well fitted up, and where there is a good business doing in Fancy Articles, as well as Seeds, Cut Flowers, Flowering Plants, &c. The Nursery is 2½ miles from the Shop, on a principal road to Bradford. A half year's business is equivalent to the purchase money required, and will be a great bargain to the purchaser. It is an excellent opportunity for a large house in the South to establish a Branch Business here, as a good healthy Trade is already done, which may be very much increased. For particulars apply to

WILLIAM DEAN, Bradford Nursery, Shipley, Yorkshire.

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A LUCRATIVE BUSINESS could be carried on by exposing for SALE DECORATIVE PLANTS, à la Française, as PALMS and other FOLIAGE PLANTS, which may now be bought a Bargain. For particulars and how to manage a Depot, X. Y. Z., the MANAGER, care of Mrs. Dearn, High Street, Epping.

WANTED to HIRE, 50 to 100 ACRES of LAND, near London, and near a Canal or Railway, to improve and cultivate in Garden order. The Advertiser is prepared to invest £20 per Acre of working capital, on satisfactory Tenure, such as a long Lease, or with Covenants securing payment for unexhausted improvements.

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To Market Gardeners and Others.

FOURTEEN ACRES of MARKET GARDEN GROUND to LET, with CROPS, SHEDS, and COTTAGE. First-rate Land; low Rent; three miles from London Bridge.

Apply to J. L., Mr. Kernan, 4, Russell Street, Covent Garden, W.C.

FOR DISPOSAL, a First-class NURSERY and SEED BUSINESS; or the present Proprietor would accept of a WORKING PARTNER with a Capital of not less than £1500.

Apply by letter to E., Messrs. Hurst & Son, 6, Leadenhall Street, London, E.C.

To Market Gardeners, Nurserymen, &c.

TO BE SOLD, by Private Contract, about 200 ACRES of very superior GARDEN GROUND, all Freehold, situate in the County of Bedfordshire, about three miles from Biggleswade Station, Great Northern Railway. The Land is divided into Lots to suit the convenience of purchasers. For particulars apply to THOMAS FOUNTAINE, Esq., Dunton Lodge, Ashwell, Baldock.

Sales by Auction.

SALE THIS DAY AND MONDAY, AT HALF-PAST 12 O'CLOCK.

First-class Dutch Bulbs, for present Planting.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on SATURDAY and MONDAY, October 5 and 7, at half-past 12 o'Clock precisely each day, 1000 Lots of DOUBLE and SINGLE HYACINTHS, TULIPS, CROCUS, SNOWDROPS, NARCISSUS, JONQUILS, LILIES, RANUNCULUS, &c., just arrived from Holland, and lotted to suit private Buyers.

On view the Morning of Sale, and Catalogues had.

First-class Bulbs from Holland.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, October 9, at half-past 12 o'Clock precisely, 500 Lots of DUTCH BULBS, just arrived in capital condition, and in collections to suit Private Buyers and the Trade.

On view the Morning of Sale, and Catalogues had.

Dutch Bulbs.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on SATURDAY and MONDAY, October 12 and 14, at half-past 12 o'Clock precisely, each day, 1000 Lots of BULBS from several well-known Farms in Holland.

On view the Morning of Sale, and Catalogues had.

The Days of Sale altered to Tuesday, the 8th, and Wednesday, the 9th inst.

EXTREMELY VALUABLE ORCHIDS, STOVE, GREENHOUSE, AND OUTDOOR PLANTS, VALUABLE ERECTION OF GREENHOUSE, VINERY, AND FRUITHOUSE, CLAUGHTON.

MR. BRANCH will SELL by AUCTION, on TUESDAY and WEDNESDAY NEXT, the 8th and 9th inst., at 12 o'Clock each day, on the Premises, Devonshire Road, Claughton, Cheshire, a large and beautiful Collection of valuable ORCHIDS, STOVE and GREENHOUSE PLANTS, FERNS, ORNAMENTAL and FOLIAGE PLANTS, ROSES, DWARF FRUIT TREES, AZALEAS, CAMELLIAS, BEDDING PLANTS, &c.; also a large GREENHOUSE and VINERY, about 70 feet long by 26 feet wide, with Boiler and Hot-water Pipes, erected at a great cost in the very best manner, and fully fitted with all the requisites for such purposes as they are used for; and an ORCHARD or FRUIT-HOUSE, &c., the property of a Gentleman changing his residence.

To be viewed one day previous to the Sale, when Catalogues can be had on the Premises, or at Mr. BRANCH'S Office, in Hanover Street, Liverpool.

Important Annual Sale of Nursery Stock.

TO NOBLEMEN, GENTLEMEN, NURSERYMEN, AND OTHERS.

MESSRS. J. TAYLOR AND CO. have been favoured with instructions from Mr. B. WHITHAM to CATALOGUE and SELL by AUCTION, at his Nursery, Reddish, near Stockport, on WEDNESDAY and THURSDAY, October 9 and 10, commencing each day at 11 o'Clock A.M., a portion of his VALUABLE and EXTENSIVE NURSERY STOCK, comprising a large quantity of Choice Greenhouse Plants, Fruit, Forest, and Ornamental Trees and Shrubs, including about 10,000 Roses, in and out of pots; Camellias, well set with buds; Ericas, Epacris, Azaleas, 20,000 extra strong bushy Rhododendrons, mostly hybrids; a large quantity of Fruit Trees of all sorts, true to name; 250,000 extra strong five and six years old Transplanted Quicks, Larch, Spruce, Austrian Pines, Poplars, extra strong Alders, extra strong Privet, five and six years old; and many other sorts too numerous to mention, all of which have been grown with the greatest care and attention. These Nurseries rank amongst the largest in the North of England, and as the stock comprises the most choice descriptions, the auctioneers have great pleasure in calling the attention of the trade and of private gentlemen to it, believing it to be in the finest condition, the whole having been regularly transplanted, and well protected from the late severe winter.

Catalogues, and any further information may be obtained from Mr. B. WHITHAM, at the Nurseries, Reddish, and at the Offices of the Auctioneers, 17, Cross Street, Manchester, and Bank Chambers Great Underbank, Stockport.

Very Valuable Freehold Nursery and Garden Land, WITH DWELLING HOUSE AND PREMISES, AT EYNSHAM, NEAR OXFORD.

MR. LONG will SELL by AUCTION, at the Swan Inn, Eynsham, on FRIDAY, October 11, at 4 o'Clock, under such conditions as will be then produced (by order of the Trustee of the Will of the late Mr. Jos. Day, deceased) about 5 ACRES of rich FREEHOLD LAND, now cultivated as a NURSERY GARDEN, situate at Eynsham, near to the Oxford and Witney Turnpike Road, within a short distance of the Railway Station, and about 5 miles from Oxford Market, late the property of Mr. Jos. Day, deceased, Nurseryman and Market Gardener; together with a convenient Brick-built DWELLING HOUSE and Offices thereon. There is a well-selected stock of prolific Fruit and other trees, and an abundant supply of good water. This would be a desirable property for a Nursery Gardener. Mr. Day occupied the property successfully for many years, and the neighbourhood would fully warrant a practical man securing a good business.

To view the property, and for further particulars, apply to Mr. ROBT. FEBREY, Eynsham; or the Auctioneer, Bridge Street, Witney, Oxon.

Nursery Stock—Mill Hill Nursery, Hendon.

About a mile from Mill Hill Station on the Edgware and Highgate Railway, and one hour's ride from Camden Town by Mill Hill Omnibus.

MESSRS. HUMBERT AND COX are favoured with instructions from the Executors of the late Mr. James Wright, to SELL by AUCTION, on the Premises, Mill Hill Nursery, Hendon, on THURSDAY, October 24, at 12 for 1 o'Clock, the whole of the NURSERY STOCK, comprising 1000 Thuja Lobbii, 100 Thujopsis Boreali, 1000 Aucuba japonica, 1000 Laurustinus, 1000 English Yews, 200 Laurels, 500 Portugal Laurels, 1000 Cupressus Lawsoniana, 600 Abies Douglassii, 500 Phillyrea, 500 Scotch Fir, 500 Pinus excelsa, 500 Standard Roses (named), 500 Dwarf Roses, 500 Thuja gigantea, 500 Limes, Chestnuts, Birch, Acacias, Mountain Ash, English Oak and Elm, &c.

May be viewed two days prior to the Sale. Catalogues may be had on the Premises; at the principal inns at Hendon; the Essex Arms and Clarendon Arms Hotels, Green Man, and Leathersellers' Arms, Watford; the Red Lion, Elstreet and Barnet; Abercorn Arms and Vine Inns, Stanmore; Three Crowns, Bushey Heath; Bell Inn, Bushey; Swan and Bell Inns, Rickmansworth; and (free by post) of Messrs. HUMBERT & COX, Land Agents, Auctioneers, and Surveyors, Little Nascot, Watford, Herts; and 88, St. James' Street, London, S.W.

MESSRS. PROTHEROE AND MORRIS'S PRELIMINARY NOTICE of FORTHCOMING SALES.

HIGHLY IMPORTANT TO NOBLEMEN, GENTLEMEN, NURSERYMEN, MARKET GARDENERS, AND PUBLIC COMPANIES ENGAGED IN PLANTING.

PECKHAM, QUEEN'S ROAD NURSERY, October 29:—Very compact EVERGREEN and CONIFEROUS SHRUBS, and other NURSERY STOCK; choice GREENHOUSE PLANTS.

TOTTENHAM, MIDDLESEX. HALE FARM NURSERY, November 1:—A Collection of ORNAMENTAL TREES, EVERGREEN, CONIFERÆ, and FLOWERING SHRUBS, ROSES, FRUIT TREES, HARDY CLIMBERS, &c.

WANDSWORTH ROAD, LAVENDER HILL NURSERY, Nov. 4:—Some thousands of fine AUCUBAS, 1 to 4 feet; CHINESE ARBOR-VITÆ, ENGLISH YEWS, and other fine EVERGREENS, STANDARD and DWARF FRUIT TREES, &c. Important to the Trade.

KINGSTON, SURREY.—Clarence Street and Park Road, about four days' Sale, November 5, 6, 7, and 8.—Excellent NURSERY STOCK, viz.: EVERGREEN, CONIFERÆ, and DECIDUOUS SHRUBS, ranging all sizes and in great variety, all prepared for removal; STANDARD and DWARF ROSES, &c.

GODALMING, SURREY, November 11, and following days, by order of Mr. Charles Barker, at Godalming Nursery.—The whole of the choice GREENHOUSE PLANTS, newly erected GREENHOUSES, PITS, and other Effects; also at Terrace Gardens, Shady Hangers, within five minutes' walk of the Godalming Railway Station, the whole of the valuable PYRAMIDAL FRUIT TREES in a full bearing state, all carefully prepared for removal; EVERGREEN and CONIFERÆ SHRUBS, BOX-EDGING, &c. Any person securing a Lease of the aforesaid Premises will have the option of purchasing what they choose at the Sale, presenting an excellent opportunity to small capitalists desirous of embarking in the Nursery business.

EDMONTON, MIDDLESEX.—LANGHEDGE NURSERY, November 13 and 14:—SALE of a large quantity of FRUIT TREES. Important to Market Gardeners and others. EVERGREEN, CONIFERÆ, and DECIDUOUS SHRUBS of all sizes; STANDARD ROSES, ORNAMENTAL and FOREST TREES, &c.

WOKING, SURREY.—About nine days' Sale, commencing Nov. 18, without reserve, in consequence of the death of Mr. Robert Donald:—About 160 Acres of NURSERY STOCK, including an unusual large quantity of EVERGREEN, CONIFERÆ, and DECIDUOUS SHRUBS, ORNAMENTAL, FRUIT, & FOREST TREES. The Stock is particularly worthy the attention of the Trade.

CITY AUCTION ROOMS, 38 & 39, Gracechurch Street.—WEEKLY SALES of only first-class DUTCH BULBS, STANDARD ROSES, AMERICAN PLANTS, &c.

Particulars will appear in future Advertisements.

American Nurseries, Leytonstone.—Oct. 5.

Sale of Very Fine Dutch Bulbs, Handsome Standard Roses, &c.

MESSRS. PROTHEROE and MORRIS will SELL by AUCTION, at 38 and 39, Gracechurch Street, E.C., on TUESDAY, October 15, at 1 o'Clock precisely, a First-class Collection of DUTCH BULBS, including choice named Hyacinths, Tulips, Crocus, Narcissus, Snowdrops, &c.; a splendid assortment of STANDARD, DWARF, and CLIMBING ROSES, comprising the finest varieties in cultivation; Hardy AMERICAN PLANTS, viz., Ghent and other Azaleas, Hybrid Rhododendrons, Kalmias, Andromedas, with a variety of Hardy Climbers, &c.

On View the Morning of Sale. Catalogues had at the Rooms as above, and of the Auctioneers, American Nurseries, Leytonstone, N.E.

Strawberry Hill Nursery, Tunbridge Wells.

CLEARANCE SALE OF VALUABLE NURSERY STOCK.

MESSRS. PROTHEROE AND MORRIS have received instructions from Mr. Edwin Hollanby to SELL by AUCTION, on the Premises, Strawberry Hill Nursery, Tunbridge Wells, on WEDNESDAY, October 16, and three following days, at 11 o'Clock each day, without Reserve (the Lease having expired, and the land being immediately required for building purposes), the valuable NURSERY STOCK, including a very extensive and choice Collection of Evergreen, Coniferæ, and Deciduous Shrubs, comprising 1800 Portugal Laurels, 4000 Common Laurels, 2500 Spruce Firs, 10 to 6 feet; 1100 American Arbor-vitæ, 800 Laurustinus, 200 Green Hollies, 4 to 10 feet; fine Aucubas, Box, Oval-leaved and Evergreen Privet, some remarkably handsome Cedrus Deodara, 4 to 20 feet; splendid Araucaria imbricata, 2 to 15 feet; Wellingtonia gigantea, 10 to 12 feet; Thuja aurea (very compact), 2 to 4 feet; Cupressus Lawsoniana, Irish Junipers, Thuja Warreana, T. Lobbii, T. gigantea, Thujopsis borealis, Juniperus chinensis, Deutzia, 1000 Standard and Dwarf Roses; also Ornamental and Forest Trees, consisting of Standard-worked Thorns, Weeping Ash, Elms, Spanish Chestnuts, Oaks, Mountain Ash, Beech, Limes, Sycamores, Laburnums, Acacias, Chestnuts, Standard Walnuts, 3500 Rhododendrons, together with some fine Camellias and Azalea indica, 2 to 6 feet, beautifully furnished with bloom buds, &c.

May be viewed any day prior to the Sale. Catalogues had on the premises, and of the Auctioneers and Valuers, American Nurseries Leytonstone, N.E.

Clearance Sale.

ACTON VALE NURSERY, UXBRIDGE ROAD, MIDDLESEX.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. F. Hopgood, Sen., to SELL by AUCTION on the premises, as above, on MONDAY, October 21, and Three following Days, at 11 o'Clock each day, without reserve, the Lease having expired, the whole of the valuable NURSERY STOCK, consisting of a large assortment of Evergreen and Deciduous Shrubs, Ornamental Fruit and Forest Trees, viz., 600 Thuja aurea, 400 Chinese Arbor-vitæ, 200 Yews, 300 Cupressus Lawsoniana and Thujopsis borealis, 300 Spruce Firs, 500 bushy Laurustinus, well set with bloom, 1000 Euonymus, 600 Aucubas, 1000 Common Laurels, 1000 Box, 300 Phillyreas, 200 Green Hollies, 2000 Privet, Ribes, Guelder Roses, &c., Hardy Climbers, sorts, in pots; 400 worked Thorns, 200 Almonds, 400 bushy-headed Planes, 1000 fine Limes, 2000 Poplars, 300 Laburnums, 300 Weeping Ash, Elm, and Willows; 2000 Standard and Dwarf trained and untrained, Apples, Pears, Plums, Cherries, Peaches, Nectarines, and Apricots; 1000 fine Standard Damsons, 800 Gooseberries and Currants, 200 strong Vines in pots, &c.; 10,000 handsome Standard Dwarf and Climbing Roses, 500 Ivies in pots, 600 yards Box Edging, 2000 strong Seakale, Asparagus, &c.

May be viewed prior to the Sale. Catalogues had on the premises; at the Beaumont Arms, Shepherd's Bush Green; and of the Auctioneers and Valuers, Leytonstone, N.E.

Important Sale of Choice Specimen Conifers, and other Shrubs,

TO NOBLEMEN, GENTLEMEN, LANDSCAPE GARDENERS, AND OTHERS.

MESSRS. BENTLEY AND HILL beg to announce their instructions from Mr. R. H. Vertegans, to SELL by AUCTION, on MONDAY, October 14, and following days, in consequence of the contemplated extensive alterations at the Promenade Gardens, Great Malvern, a Portion of the valuable Stock growing thereon, consisting of the choicest selections of CONIFERÆ, EVERGREEN and FLOWERING SHRUBS, ROSES, FRUIT TREES, &c., all of which have been recently transplanted, and are in the finest possible condition for removal.

Catalogues may be obtained one week previous to the Sale of Mr R. H. VERTEGANS, Malvern; and Chad Valley Nurseries, Edgbaston Birmingham; or of the Auctioneers, Worcester and Pershore.

The Prince Consort's Shaw Farm, Windsor Home Park.

IMPORTANT SALE OF SHORTHORNED CATTLE, &c.

MR. STRAFFORD has the honour to announce that he has received instructions to offer for SALE by AUCTION, without reserve, on WEDNESDAY, October 16 next, at the Prince Consort's Shaw Farm, Windsor Park, a choice selection of SHORTHORNED CATTLE, comprising upwards of 50 HEAD of BULLS, COWS, and HEIFERS. Amongst them will be found some fine specimens of the Fawsley Blood, including several descendants of the celebrated Cows "Alix" and "Cold Cream." First-class Bulls from Warlaby have been used for a number of years, viz., Prince Alfred (13,494), British Prince (14,197), Fitz-Clarence (14,552), and Lord Hopewell (18,239). Also will be offered three entire YEARLING CLYDESDALE COLTS, 15 Fat BULLOCKS, 100 Fat SHEEP, and a few Choice PIGS, of the Prince Consort's celebrated Windsor Breed.

Catalogues, with Pedigrees, may be had on application to Mr. STRAFFORD, 13, Euston Square, London, N.W.; or of Mr. TAIT, at the Prince Consort's Shaw Farm, Windsor.

WINTER APPROACHES !!!

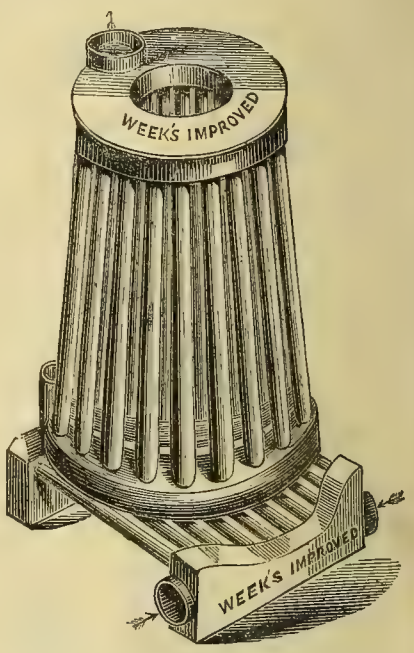
AND THE FOLLOWING ARE A DOZEN REASONS WHY

WEEKS'S IMPROVED UPRIGHT TUBULAR BOILER

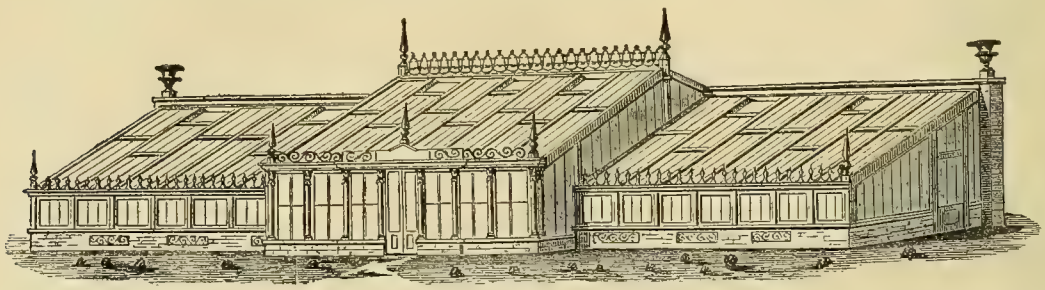
MAY JUSTLY BE STYLED THE

"LION" OF THE SEASON FOR HEATING BY HOT WATER.

1. AT ONE ESTABLISHMENT IT HAS FOR SEVERAL YEARS MOST EFFICIENTLY DISCHARGED THE DUTIES OF TWENTY-TWO ORDINARY BOILERS, AT A SAVING OF £175 PER ANNUM IN FUEL AND LABOUR, HENCE ITS ECONOMY.
2. IT ABOLISHES ALL NIGHT LABOUR.
3. IT REQUIRES MUCH LESS GENERAL ATTENTION THAN OTHERS.
4. IT IS THE MOST EFFICIENT, AND WILL CONSUME EVERY INFERIOR DESCRIPTION OF FUEL.
5. IT IS THE MOST CLEAN, BEING FED FROM THE TOP AND NOT FROM THE FURNACE DOORS.
6. IT IS THE MOST POWERFUL (see Reason 12).
7. IT IS THE MOST EASILY MANAGED, BEING SELF-REGULATING.
8. IT HAS BORNE THE MOST NUMEROUS AND CRITICAL TESTS, AND HAS BEEN PRONOUNCED BY MOST COMPETENT JUDGES AS THE BEST.
9. IT IS THE PARENT OF THE TUBULAR BOILER PRINCIPLE OF HEATING BY HOT WATER.
10. IT HAS BEEN LONGEST IN VOGUE, AND EVINCED ITS CAPABILITIES IN MANY HUNDREDS OF INSTANCES.
11. IT IS ENTIRELY OF CAST IRON, AND THEREFORE THE MOST DURABLE.
12. IT HAS ACHIEVED THE MOST GIGANTIC OPERATIONS ON RECORD TO WHICH NO OTHER BOILER CAN LAY CLAIM, THE LARGEST APPARATUS CONSISTING OF UPWARDS OF *FOUR MILES OF PIPING*.



THE MANY FLATTERING TESTIMONIALS RECEIVED ARE TOO NUMEROUS FOR INSERTION.



J. WEEKS AND COMPANY respectfully announce that, aided by their extensive Plant of Steam-power Machinery, they are able to execute every description of

CONSERVATORY, ORCHARD HOUSE, FORCING HOUSE, PIT, &c.,

in the best manner, and Ventilate the same upon their improved principle of Machinery by one movement.

CATALOGUES, DRAWINGS, AND ESTIMATES FREE ON APPLICATION.

J. WEEKS AND COMPANY,

HORTICULTURAL BUILDERS AND HOT-WATER APPARATUS MANUFACTURERS,

KING'S ROAD, CHELSEA, LONDON, S.W.

Editorial Communications should be addressed to "The Editor;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
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THE GARDENERS' CHRONICLE

AND

AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.

No. 41.—1867.] SATURDAY, OCTOBER 12. {Price Fivepence. STAMPED EDITION, 6d.

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ROYAL HORTICULTURAL SOCIETY, SOUTH KENSINGTON, W.
NOTICE.—A MEETING of the FRUIT and FLORAL COMMITTEES will be held on TUESDAY NEXT, October 15, at 11 for half-past precisely. GENERAL MEETING at Three.

SUTTON'S COMPLETE COLLECTIONS of FLOWER ROOTS.
For particulars see page 1020 of last Week's Paper.
SUTTON & SONS, Reading, Berks.

Lilium auratum.
SUTTON AND SONS can supply fine BULBS of this beautiful Flowering Plant at from 5s. to 15s. each.
Royal Berks Seed Establishment, Reading.

Calceolaria, Aurea floribunda.
WANTED, 10,000 CUTTINGS of the above.
Apply to Mr. HARRINGTON, Nursery, Kingsland, N.E.

LIBONIA FLORIBUNDA. — One of the most beautiful winter blooming Greenhouse or Conservatory Plants grown, blooming profusely from November to April.
Strong Plants, 1s. each; 8s. per dozen.
FREDERICK MARTIN, Nurseryman, &c., North Bridge, Hull.

Spring Flowers.
WM. PAUL'S CATALOGUE may be had on application, free by post.
LECTURE on the HYACINTH, &c., delivered before the Royal Horticultural Society, price 6d.
PAUL'S Nurseries, Waltham Cross, N.

WEBB'S FIRST NEW GIANT POLYANTHUS, Florist Flower, and GIANT COWSLIP SEEDS; also Plants of all the varieties, with double PRIMROSES of different colours; AURICULAS, both Single and Double, with every sort of Early Spring Flowers. LIST on application.—Mr. WEBB, Calcot, Reading.

To Gardeners, Seedsmen, &c.
HENLEY, BROTHERS, MERCHANTS, Holbeach, have still on hand a quantity of SNOWDROPS, which they beg to offer. Samples and price on application.

Azaleas, best sorts, with buds.
F. AND A. SMITH have to offer to the Trade a large clean stock of the above—every Plant a specimen. Price, moderate, on application.
The Nurseries, Dulwich, S.

New Tricolored Geraniums.
F. AND A. SMITH'S extensive Collection of these beautiful Variegated Golden and Silver-edged varieties are now in fine colour, and may be seen every day except Sunday.
The Nurseries, Dulwich, S.

DOBSON'S DECORATIVE PELARGONIUM MAGNET. Strong plants, 15s. each.
DOBSON & SONS, Woodlands Nursery, Isleworth, W.

FORCING GERANIUMS.—MRS. LEWIS LOYD, SPOTTED ALMA, and MRS. BRADSHAW (JACKSON).—Good Plants of these unequalled Forcing Geraniums, 1s. 6d. each, or 15s. per dozen.
T. JACKSON & SON, Nurseries, Kingston, S.W.

ZONAL PELARGONIUMS. — SUNSET, ITALIA UNITA, MR. BARRE, NE PLUS ULTRA, GLOIRE DE NANCY, MRS. POLLOCK, GLOWWORM, SCEPTRE D'OR, MADLLE. MARIE VAN HOUTTE, GARLAND, COUNTESS OF WARWICK, and AMY HOGG. The 12 for 9s. Apply to
WILLIAM COOKS, Old Nurseries, Donington, near Spalding.

FOR SALE, a Collection of STOVE and GREENHOUSE PLANTS; have been exhibited the last two years at the Regent's Park, Crystal Palace, and other places. Sold through death of owner. Apply to
Mr. COLES, The Gardens, Beckenham Place, S.E.

EVERY GARDEN REQUISITE kept in Stock at
CARTER'S New Seed Warehouse, 237 & 238, High Holborn, London.

Genuine Garden and Agricultural Seeds.
JAMES CARTER AND CO.
SEED FARMERS, MERCHANTS, and NURSERYMEN,
237 & 238, High Holborn, London, W.C.

Genuine Agricultural and Garden Seeds.
JAMES FAIRHEAD AND SON, SEED GROWERS and MERCHANTS, 7, Borough Market, and Braintree, Essex.

Agricultural and Garden Seeds.
H. AND F. SHARPE beg to announce to the Trade that their SPECIAL LIST of HOME-GROWN SEEDS, 1867 Growth, is now ready and may be had on application.
Seed Growing Establishment, Wisbech, Cambs.

RAYNBIRD, CALDECOTT, BAWTREE, DOWLING, AND COMPANY, Limited,
CORN, SEED, MANURE, AND OILCAKE MERCHANTS,
Address, 89, Seed Market, Mark Lane, E.C.; or Basingstoke.
Samples and Prices post free on application. Prize Medals, 1851, for Wheat; 1862, for "Excellent Seed Corn and Seeds."

SUTTON'S GUINEA COLLECTION of BULBOUS FLOWER ROOTS, for Pots and Glasses, or Open Ground Cultivation, carriage free.

The Successful Cultivation of Hyacinths.—See
SUTTON'S AUTUMN CATALOGUE for 1867, which may be had gratis and post free on application.
SUTTON & SONS, Reading, Berks.

DOBSON'S CATALOGUE of DUTCH BULBS, PELARGONIUMS, CINERARIAS, &c., is now ready, and may be forwarded post free.
Woodlands Nursery, Isleworth, W.

Winter and Spring Flowering Bulbs and Plants.
BARR AND SUGDEN'S FLORAL GUIDE may be had free. It contains much valuable information.
For particulars see large Advertisement, page 1044.

Bulb Catalogue.
BUTLER, McCULLOCH, AND CO.'S CATALOGUE of Choice DUTCH and CAPE BULBS is now ready. Sent free and post paid.—Established upwards of a Century.
South Row, Covent Garden Market, W.C.

BULBS and PLANTS for the SPRING GARDEN.—DESCRIPTIVE PRICED CATALOGUE of the above free on application.
WM. HOOPER, Nurseryman, New Wandsworth, S.W.

WM. CUTBUSH AND SON beg to say that their DESCRIPTIVE CATALOGUE of CHOICE HYACINTHS, TULIPS, CROCUSES, &c., is now ready, and can be had post free on application. Highgate Nurseries, London, N.

JOHN KELLETT begs to announce that his NEW PRICED DESCRIPTIVE CATALOGUE of DUTCH FLOWER ROOTS, SPECIMEN AZALEAS, ROSES, EPIPHYLLUMS, &c., is now ready, and can be had post free on application.
Wellington Nursery, Heaton Chapel, Stockport.

Dutch Bulbs and other Flower Roots.
CHARLES TURNER'S CATALOGUE of the above is now ready, a Copy of which may be had on application.
The Roots have arrived in splendid condition, and early Orders are respectfully solicited.
The Royal Nurseries, Slough.

Dutch Roots.
JOHN AND CHARLES LEE will be happy to forward their CATALOGUE for 1867 of newly-imported HYACINTHS and other Roots, post free on application.
Royal Vineyard Nursery and Seed Establishment, Hammersmith, London, W.

Dutch and Other Flower Roots.
JAMES DICKSON AND SONS have received, in excellent condition, a large Importation from the most eminent growers. PRICED DESCRIPTIVE LIST post free on application.
102, Eastgate Street, and "Newton" Nurseries, Chester.

Special Notice.—Dutch Bulbs.
MR. STEVENS' SALES of HYACINTHS, TULIPS, CROCUSES, and other BULBS, just imported from Holland, take place every WEDNESDAY and SATURDAY, and frequently on MONDAY, at the Rooms, 38, King Street, Covent Garden, London, W.C.

Notice.—Fruits, Flowers, Bulbs.
BEFORE PURCHASING, PLEASE SEND FOR
DILLISTONE AND CO.'S LITTLE LISTS, post free to all applicants.
Address, DILLISTONE & Co., Nurserymen, &c., Sturmer, near Halstead, Essex.

New Rose Catalogues for 1867 and 1868.
CATALOGUES OF TREES, SHRUBS, FRUIT TREES, & BULBOUS ROOTS.
WM. WOOD AND SON will be happy to forward Copies of above, gratis and post free.
Address, Woodlands Nursery, Maresfield, near Uckfield, Sussex.

To the Trade.
MARECHAL NIEL ROSE, from own roots, in pots, by the 100 or 1000, at £5 per 100.
G. BAKER & SON, American Nursery, Bagshot.

CULTURAL DIRECTIONS for the ROSE. Second Edition. By JOHN CRANSTON, King's Acre Nurseries near Hereford. Free by post from the Author for 20 stamps.

New Roses for 1867-1868.
EUGENE VERDIER, fils ainé, NURSERYMAN, 3, Rue Dunois, Paris, is now publishing his CATALOGUE of the above, which will comprise 69 New Varieties for 1867-1868. This CATALOGUE to be obtained gratis, either direct from him, or of his Agents, BETHAM & BLACKITH, Cox's Quay, Lower Thames Street, London, E.C.

"THE ROSES of MR. PAUL * * * are things to see once and dream of for ever."—*Athenæum, June, 1867.*
WM. PAUL begs to announce that his CATALOGUE of ROSES is now ready, and will be forwarded free on application.
EIGHTEEN PRIZES have been awarded to him for Roses this year at the principal London Flower Shows.
PAUL'S Nurseries, Waltham Cross, London, N.

Notice.
H. LANE AND SON beg to inform their Patrons and Friends that their CATALOGUES are now ready, viz.:—
No. 1. ROSE
No. 2. TREE and SHRUB
No. 3. FRUIT
No. 4. AZALEA
And may be had post free on application.
The Nurseries, Great Berkhampstead, Herts.

To Nurserymen.
WANTED for planting this autumn a considerable quantity of WELLINGTONIAS, DEODARAS, AUSTRIACAS, CYPRESSES, and other Evergreens.
Address, stating age, size, and lowest price per score, to X. X., Housekeeper, 1, Great Winchester Street Buildings, London, E.C.

FOR SALE, several fine WELLINGTONIAS, DEODARS, CEDARS OF LEBANON, IRISH YEWS, ARAUCARIAS, &c. A rare opportunity for any Gentleman about to plant, as the above plants will make a show at once. The soil being very adhesive, any quantity of bale may be secured. Apply to
WILLIAM MILWARD, Chesterford Park, Saffron Walden.

Gladioli.
EUGENE VERDIER, fils ainé, NURSERYMAN, 3, Rue Dunois, Paris, is now publishing his CATALOGUE of NOVELTIES (Seed from M. Souchet), and also of his own splendid Collection of the above. CATALOGUES to be had gratis, either direct from him, or of his agents, BETHAM & BLACKITH, Cox's Quay, Lower Thames Street, London, E.C.

Grape Vines.
WM. PAUL has his usual stock of first-rate VINES, both Fruiting and Planting Canes. All the best sorts at moderate prices.
PAUL'S Nurseries, Waltham Cross, N.

Vines for Early Forcing.
F. AND A. SMITH have strong FRUITING CANES of the above. Prices, with LIST of VARIETIES, on application. The Nurseries, Dulwich, S.

Vines.
H. LANE AND SON solicit an inspection of their stock of VINES: 2000 Canes to choose from, strong and well ripened. They have been awarded the First Prize for Vines in pots at all the leading Exhibitions. CATALOGUES free on application.
The Nurseries, Great Berkhampstead, Herts.

Vines.
B. S. WILLIAMS has now on hand a very large and fine Stock of FRUITING and PLANTING CANES of all the best varieties. An inspection is invited.
Victoria and Paradise Nurseries, Upper Holloway, London, N.

Pines and Vines.
PINES (QUEENS), in all sizes, from Suckers to Fruiting Plants, very strong and healthy, from a stock that never had scale; also about 10 HAMBURGH VINES, extra strong, in 13-inch pots, for fruiting, finely ripened and short pointed.
M. ROCHFORD, Market Gardener, Page Green, Tottenham, N.

Pines (Queens).
TO BE DISPOSED OF, 94 Superior FRUITING and SUCCESSION PLANTS, clean and healthy. The property of a deceased gentleman. For further particulars apply to
Mr. R. STANLEY, 21, Holly Grove, Balham, Surrey, S.

Pines.
TO BE DISPOSED OF, in consequence of the glass being required for other plants, 60 stout clean FRUITING PLANTS of the best sorts, and 30 good SUCCESSIONS of the same.
Apply to FRANCIS R. KINGHORN, Richmond, S.W.

Standard Apples.
WOOD AND INGRAM offer to the Trade and others 20,000 splendid STANDARD APPLES, with 5 to 6 feet stems and magnificent heads. Price on application.
The Nurseries, Huntingdon.

Orchard-house Trees Fruiting in Pots.
PEACHES, NECTARINES, APRICOTS, CHERRIES, PLUMS, PEARS, APPLES, VINES, and FIGS.
RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

PRINCESS of WALES STRAWBERRY.—This fine variety is now proved to be the best early variety ever produced, either for Forcing or for general Early Crop. See *Gardeners' Chronicle* of May 12, 1866, p. 437. Good Plants can now be supplied from the true stock, at 5s. per 100, from the raiser.
B. W. KNIGHT, Nurseryman, Battle, Sussex.

WEBB'S PRIZE COB FILBERTS, and other PRIZE COB NUTS and FILBERTS. LIST of these varieties from Mr. WEBB, Calcot, Reading.

Now Ready,
A DESCRIPTIVE CATALOGUE of FRUITS for 1867, free.
A DESCRIPTIVE CATALOGUE of a few SELECT ROSES for 1867. By THOS. RIVERS. Free by post.
Nurseries, Sawbridgeworth.

To the Trade.
FIFTY-THOUSAND LAUREL (COMMON) 1-yr. Cuttings, fine. Price on application.
DILLISTONE & WOODTHORPE, Munro Nursery, Sible Hedingham, Essex

Trees and Plants.
JAMES DICKSON AND SONS beg to draw attention to their large and excellent stock of Hardy and regularly Transplanted TREES and PLANTS, which are found to thrive well in the most exposed situations. PRICED LISTS on application.
Old Established Nursery and Seed Business, "Newton" Nurseries, Chester.

To the Trade.
DICKSON'S "FIRST and BEST" EARLY PEA.
New Seed can now be supplied.
Lowest price per quarter on application.
FRANCIS & ARTHUR DICKSON & SONS, 106, Eastgate Street, Chester.

WANTED, Five Tons MYATT'S PROLIFIC KIDNEY POTATOS, true; Two Tons FORTYFOLDS do.; Two Tons OLD ASHLEAF, do. Lowest cash price.
Address B. A., *Gardeners' Chronicle* Office, W.C.

MUSHROOM SPAWN of the best possible quality, 5s. per bushel. Sample Brick sent on application. The Trade supplied.
JOHN KELLETT, Wellington Nursery, Heaton Chapel, Stockport.

ASPARAGUS SEED.—Half a Ton of this year's crop, and three or four Cwt. of last year's, on SALE. What is unsold at the end of the month will be offered by Public Auction in Liverpool
Apply at Asparagus Garden, Formby, Liverpool.

ASPARAGUS ROOTS, 3-yr old, per 100, 2s. 6d.; 2-yr. old, per 100, 1s. 6d. Terms cash.
RICHARD WALKER, Seed Grower and Market Gardener, Biggleswade, Beds.

To Noblemen, Gentlemen, Gardeners, and the Trade.
SEAKAIL for Forcing, magnificent roots, now ready. Per 100, 10s. Terms cash.
RICHARD WALKER, Market Gardener and Seed Grower, Biggleswade, Beds.

Yellow Globe and Long Yellow Mangel.
MR. S. A. DAINTREE, of Fen Drayton, St. Ives, Hunts, has several varieties of the above named Seed for Sale grown from large selected Bulbs.
Samples and Price on application.

PAMPAS GRASS SPIKES WANTED.
HOOPER & Co., Covent Garden, London, W.C.

New Grass Seeds for Exportation.
SUTTON AND SONS, having received their supply of NEW GRASS SEEDS of the present Season's Growth in fine condition, will be happy to forward lowest price per ton or cwt. on application. All Seeds perfectly packed and delivered free to ship's side at any English Port. CATALOGUES gratis and post free
SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

SUPERB VARIEGATED PELARGONIUMS.

SOPHIA DUMARESQUE	EDWINIA FITZPATRICK
BEAUTY of OULTON	GENERAL LONGSTREET
ITALIA UNITA	THE COUNTESS
MRS. LONGFIELD	BICOLOR SPLENDENS
LUNA	GLOWWORM
BEAUTY of GUESTWICK	QUEEN'S FAVOURITE

The above, 21s. Remittance requested.
CASSON & SON, Gravel Walk Nursery, Peterborough.

VARIEGATED PELARGONIUMS.

SOPHIA DUMARESQUE	ITALIA UNITA
MRS. BENYON	COUNTESS
GOLDFINCH	ELEGANS
LUNA	THE FAIRY
BEAUTY of OULTON	PRINCESS ALEXANDRA
NEATNESS	BICOLOR SPLENDENS

The above forwarded on receipt of Post Office order for 21s.
ALFRED FRYER, Nurseries, Chatteris, Cambridgeshire.

New Zealand Nursery, St. Alban's, Herts.

J. WATSON'S beautiful BEDDING PELARGONIUM EXCELSIOR, now ready colour of Indian Yellow; fine truss, and habit of Lord Palmerston. Price 5s. each; 36s. per doz. to the Trade

MISS WATSON, ready August 25; MRS. DIX, May 1. The Two have received 10 First-class Certificates and Extra Prize Money.

Fine New TABLE APPLE, ST. ALBAN'S PIPPIN, Ripe in April. Plants ready in November. 5s. each; 36s. per doz. to the Trade.
DESCRIPTIVE LIST sent on application.

STEPHEN BROWN'S splendid EARLY GLADIOLI. —An extra Prize was awarded to S. B. at the Bury Show of the London Horticultural Society for a Collection of this beautiful section of the Gladiolus. Planted early in pots, they will flower in May by keeping them in cool pits or frames, and brought into the greenhouse when about to flower.

Fine selections, per dozen varieties, 5s., 10s., and 15s.
For descriptions and culture, see Bulb Catalogue.

GLADIOLUS COLVILLII, the earliest, and useful for borders, 1s. per dozen; 7s. per 100.
" " RUBRUM, 2s. per dozen; 12s. per 100.
" " ROSEUM, 1s. 6d. per dozen; 10s. per 100.
" " FULGENS, a splendid new variety, most intense crimson scarlet and elegant form, 2s. 6d. each.

Also an extensive Collection of the RAMOSUS and GANDAVENSIS Sections (see CATALOGUES), and an immense Stock of other BULBS.
Seed and Nursery Establishment, Sudbury, Suffolk.

NEW FUCHSIAS, ZONAL GERANIUMS, &c.

12 Select New FUCHSIAS of 1867 for 6s.
12 Select New ZONAL GERANIUMS of 1867 for 12s.
12 Finest ZONAL GERANIUMS of 1865—1866 for 4s.
12 Select New CHRYSANTHEMUMS of 1867 for 5s.
12 Select New VERBENAS of 1867 for 4s.
12 Select New PETUNIAS of 1867 for 6s.
12 Select New PHLOXES of 1867 for 9s.
6 Varieties of AUCUBAS, 3 Male, 3 Female, for 21s.
3 Varieties of New Japan OSMANTHUS, quite hardy, 5s.
12 Fine Varieties of Japan EUONYMUS, very fine, 6s.
12 Fine Varieties Perpetual ROSES, Dwarfs, for 6s.
12 Fine Varieties of VARIEGATED ZONAL GERANIUMS, 12s
GERANIUM GLOIRE DE NANCY, the best double, 1s. each.

COLEUS VEITCHII, 1s. 6d.	PANICUM VARIEGATUM,
" GIBSONII, 1s.	2s. 6d.
" LAMONTII, 1s.	BRUGMANSIA KNIGHSII,
FICUS COOPERI, 2s. 6d.	1s. 6d.

CATALOGUE of NEW and CHOICE PLANTS sent on application.
B. W. KNIGHT, Nurseryman, Battle, Sussex.

Report.

"GLADIOLI.—YOUELL AND CO.—Your Spikes of BRENCHLEYENSIS, though perhaps scarcely so large as those you sent last year, are MAGNIFICENT, and fully entitle this deservedly favourite variety to hold a foremost place against all competitors."—*Vide Gardeners' Chronicle*, August 31, 1867, p. 903.

Samples and prices may be had post free on application.
For prices of AZALEAS, CAMELLIAS, GREENHOUSE PLANTS, VIOLETS, &c., see *Gardeners' Chronicle*, Sept. 7, p. 922.
Royal Nurseries, Great Yarmouth.

Gladioli.

EUGENE VERDIER, fils aîné, NURSERYMAN, 3, Rue Dunois Paris, has the honour to inform his numerous Friends and those interested that he is now publishing his CATALOGUE of the above, which will contain all the New Varieties obtained by M. Souchet.

He is happy to be enabled to announce that M. Souchet's Collection and his own carried off all the First and Second Prizes at the Exposition Universelle of Paris as well as being the admiration of all visitors.

This Catalogue can be had gratis, either direct from him, or of his Agents, BETHAM & BLACKETH, Cox's Quay, Lower Thames Street, London, E.C.

The New Sensation in Bedding Out.

JACKMAN'S HARDY HYBRID CLEMATISES, awarded Eleven First-class Certificates, and One Special.

Messrs. GEO. JACKMAN and SON are desirous of drawing the attention of those who intend raising their Hardy Clematises for a Permanent Bedding Plant, that the present time is most favourable for planting.

OPINIONS OF THE PRESS.

Gardeners' Chronicle, Aug. 17:—"The new sensation in bedding." Also, August 31, "J. F." (Chiveden) adds, "that Messrs. G. J. & SON have in their several varieties the very colour of which our summer gardens are in a great measure deficient." "Country Life," Aug. 15:—"Clematis Jackmanni is a most useful bedding kind if pegged down; used as such, a perfect carpet of flower, so to speak, is soon formed." *The Field*, Sept. 28:—They will be of the highest value as purple-bedding plants, our present colours in this way being poor indeed compared to these."

An engraving, from a photograph, showing the flowering qualities, and Circular of Prices, will be forwarded gratis on application.
Woking Nursery, Surrey.

Azalea, Her Majesty.

WILLIAM BARNES has much pleasure in announcing that he will be prepared to send out the above splendid AZALEA on and after Wednesday, October 23, at the following price—21s. each. A very few extra strong plants at 42s. each, with the usual allowance to the Trade; where three plants are ordered at one time four will be given.

It was exhibited before the Floral Committee of the Royal Horticultural Society on June 14, 1866, where it was awarded a First-class Certificate for its great beauty in its markings, shape, and colour, when the following remarks were made upon it, which appeared in the *Gardeners' Chronicle*, June 16, 1866:—"A beautiful Azalea, rosy lilac, edged with white, and blotched, and spotted in the upper petals with crimson, called Her Majesty, from Mr. BARNES, of Camberwell."

On June 23, 1866, the following remarks appeared in the same Paper:—"We have from time to time referred to the sportive character of the Indian Azalea, and called attention to the fact that some of our best varieties have had their origin in a freak of Nature. A fresh instance of their sportiveness was shown the other day at South Kensington. Mr. WILLIAM BARNES there exhibited a variety of Azalea which he purposes to designate Her Majesty. It is, we believe, a sport from Madame Miellez, or some of the forms closely allied to that fine old sort; and in quality, therefore, as well as in name, takes the very highest rank. The flowers are of the full average size, and of excellent form and substance, and the colour is a soft lilac-tinted blush, white at the margin, densely spotted with crimson in the upper part, and marked with variable stripes, or sometimes broadish bars of deep rosy purple. Its high quality as regards the flower itself, and this novelty of marking, will make it an acquisition in any collection of these showy plants.

A faithful Figure of this fine Azalea is given in the January number of the "Florist and Pomologist."

A remittance must accompany all orders from unknown correspondents. Camden Nursery, Camberwell, London, S.

New Tricolored Geraniums.

F. AND A. SMITH are now able to supply strong vigorous Plants of the undermentioned fine varieties:—

ANTAGONIST	LOUISA SMITH
ARIEL	MEMNON
DAWN	METEOR
DEFIANCE	MONARCH
ENSIGN	PRINCE of WALES
GEM	PRINCESS of WALES
GRANDIS	QUEEN VICTORIA
IMPERATRICE EUGENIE	QUEEN of the FAIRIES
L'EMPEREUR	UNIQUE

A DESCRIPTIVE LIST of the above, with Prices, may be had on application. The Nurseries, Dulwich, S.

Extra Fine New Tulips.

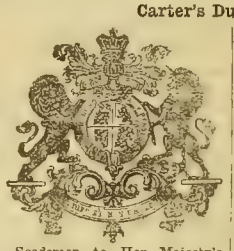
GEORGE LIGHTBODY, Falkirk, will LET OUT several of the Splendid Seedlings raised by Richard Headly, Esq., of Stapleford, near Cambridge, at very moderate prices. These flowers have been successfully exhibited at the Principal Shows in the Kingdom, and are warranted the finest Tulips now extant. A description of them, by Shirley Hibberd, Esq., F.H.S., was published in the "Gardeners' Magazine" for 22d June. A list of names and prices supplied on application

Dutch Bulbs and other Flower Roots.

THOMAS SAMPSON, The Preston Road Nurseries, and Houndstone, Yeovil, Somerset, begs to announce that he has imported a large assortment of the above, in excellent condition, and is now ready to supply orders at the lowest prices. See CATALOGUE, free on application.

Strong GRAPE VINES, from Eyes.—All the leading varieties, at unequalled low prices.

Carter's Dutch Bulbs.



Seedsmen to Her Majesty's Chief Commissioners of Public Works and other Government Departments, the Royal Gardens, Kew, &c., &c., &c.



Seedsmen to H.I.M. the Emperor of the French, the Crystal Palace Company, the Agri-Horticultural Society of India, &c., &c., &c.

CARTER'S GUINEA BOX of DUTCH FLOWER ROOTS, contains 12 choice named Hyacinths, 12 mixed Hyacinths for borders, 50 Yellow Crocus, 50 Blue Crocus, 4 Polyanthus Narcissus, 12 Double White Narcissus, 12 Pheasant's Eye Narcissus, 12 Double Daffodils, 24 finest mixed Ranunculus, 24 finest mixed Anemones, 12 choice mixed Single Tulips, 12 choice mixed Double Tulips, 4 Garden Lilies, 50 Snowdrops, 12 finest mixed Spanish Iris, 12 Campernelle Jonquils.

The above forwarded without delay on receipt of Post Office Order for 21s. Box and packing included. PRICE LISTS gratis and post free on application to

CARTER'S Great London Seed Warehouse, 237 & 238, High Holborn, London, W.C.

Winter Flowering Plants.

FREDERICK PERKINS has for SALE the following CARNATIONS, ROSES, &c, which are strong healthy Plants, well set with Buds, and suitable for Conservatory or Greenhouse decoration:—

TREE CARNATIONS.

GLOIRE DE LYON, Scarlet Flake. } Flowering plants with buds, in
LA GRENADIER, bright Scarlet. } 48-sized pots, 15s. per dozen.
These two varieties of Perpetual Carnations open freely in the dull months of winter, which makes them invaluable for cut flowers.

POINSETTIA PULCHERRIMA. — Flowering plants, in 48-sized pots, 15s. per dozen.

JASMINUM GRANDIFLORUM.—On own roots, flower the best, full of buds, 24s per dozen.

BEGONIA SANDERSIANA. — Bright crimson; will flower all winter; 18s. per dozen.

TEA ROSES ON OWN ROOTS.

ADAM.—Strong plants, 12s. per dozen.
CAROLINE.—Strong plants, 12s. per dozen.
MARECHAL NIEL.—True; on own roots, 12 to 18 inches high, in 60-sized pots, 12s. per dozen. Ditto, ditto, large plants with buds, 3s. 6d. to 5s. each.
GLOIRE DE BORDEAUX, 12s. per dozen.
GLOIRE DE DIJON, 12s. per dozen
MRS. BOSANQUET, China, 12s. per dozen.
The usual discount to the Trade.
FREDERICK PERKINS, Seed Warehouse, Regent Street, Leamington.

British Fern Catalogue.

ROBERT SIM can now send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his NEW and PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.

Foot's Cray Nursery, S.E., a mile from Sidcup Station of New North Kent Line of South Eastern Railway.

EDWARD TAYLOR, NURSERYMAN, Malton, Yorkshire, offers as under:—
TROPÆOLUM TRICOLORUM, 9s. per dozen.
TRITONIA AUREA, 1s. 6d. per dozen.
DOUBLE TOURNESOL TULIPS, 10s. 6d. per 100
DOUBLE REX RUBRORUM TULIPS, 10s. 6d. per 100.
AUBRETIA PURPUREA VARIEGATA, fine Silver-edged Plant, for Winter Gardening, 6s. per dozen; 30s. per 100.
DOUBLE YELLOW ROSE TULIPS, 6s. per 100.
GIANT ASPARAGUS ROOTS, 2-yr., 1s. 3d. per 100; 10s. per 1000.
GIANT ASPARAGUS ROOTS, 3-yr., 2s. per 100; 17s. 6d. per 1000.
STRONG ASPARAGUS PLANTS for FORCING. Price on application.

Elvaston Nurseries, Borrowash.

WILLIAM BARRON AND SON'S PRICED DESCRIPTIVE CATALOGUE of CONIFERÆ, HARDY JAPANESE PLANTS, and EVERGREEN and DECIDUOUS SHRUBS for the AUTUMN of 1867 is now ready, and may be had post free on application. Their Stock this year is unusually fine.

Elvaston Nurseries are only 3 minutes' walk from the Borrowash Station on the Derby and Nottingham Railway.

STRONG STANDARD and DWARF-TRAINED APPLES and PEARS.
Fine transplanted LARCH FIR, 1½ to 6 feet
Bushy LAURUSTINUS, LAURELS, and BOX TREES
CHINESE ARBOR-VITÆ, 5 to 6 feet, fine Pyramids
A choice collection of CONIFERÆ
A large assortment of STANDARD and DWARF PERPETUAL, and strong DWARF CHINA or MONTHLY ROSES, and a general NURSERY STOCK.
All the above are well rooted, and will remove with safety. Prices on application to
CHARLES BURGESS, The Nurseries, London Road, Cheltenham.

Richmond Nurseries, Richmond, Surrey.

TO NOBLEMEN and GENTLEMEN making large PLANTATIONS, or PLANTING ORCHARDS or WALLS with FRUIT TREES, and requiring quantities of superior Coniferous and other Evergreens, Ornamental Flowering Trees, Shrubs, &c., or Dwarf-trained, Standard, or Spiral Fruit Trees. Special prices will be given on application to
G. & W. STEELE, of the above Nurseries.

Fruit Trees.—The finest Collection in England.

J. SCOTT, Merriott Nurseries, Somerset, begs to solicit his Friends and the Public to inspect his immense Stock, consisting of 700 sorts of APPLES, 50 do. APRICOTS, 120 do. CHERRIES, 150 do. PEACHES and NECTARINES, 900 do. PEARS, and 150 do. PLUMS, in all manner of training, well root-pruned and carefully transplanted; CURRANTS, FILBERTS, GOOSEBERRIES, &c.; making together about 1500 sorts of FRUIT TREES, which for health and beauty cannot be surpassed.
CATALOGUES on application.

Richmond Nurseries, Richmond, Surrey.

G. AND W. STEELE beg to call the attention of the Trade in general to their valuable and very extensive Stock of CONIFEROUS and other EVERGREENS, particularly Striped and Green Hollies, in which they abound; and also to their DWARF-TRAINED, STANDARD, and SPIRAL FRUIT TREES, which are of first-rate quality, consisting of Apricots, Peaches, Nectarines, Apples, Pears, Plums, Cherries, &c., which are second to none in the Trade. An inspection by Travellers this Autumn is respectfully solicited.

TO LARGE PLANTERS and the TRADE—
Fine HORSE CHESTNUTS, 6, 7, 8, and 10 feet high.
PORTUGAL LAURELS, extra fine, 2, 3, and 4 feet.
ACER NEGUNDO VARIEGATA, from 3 to 4 ft., Pyramids.
HEMLOCK SPRUCE, 4 to 5 feet, fine.
BOX TREES, 2½ to 3 feet. | PRIVET, 3 to 4 feet.
SIBERIAN and AMERICAN ARBOR-VITÆ, 3 to 8 feet.
Special offers on application to
A. GODWIN & SON, Ashbourne, Derbyshire.

Northampton Nurseries.

JOHN PERKINS, SEN., begs to call the attention of Noblemen, Gentlemen, and others engaged in Planting, to his large stock of the following:—1,000,000 BLACK THORNS, for Covert Planting, 1½ to 2 feet, 2½ to 3 feet; 2,000,000 LARCH FIRS, 3 to 4 ft., 4 to 6 feet; 1,000,000 SPRUCE FIRS, 1½ to 2 feet, 2½ to 3 feet, 3 to 4 feet; 2,000,000 WHITE THORN QUICK, 2 and 3 years transplanted; also large quantities of

Birch, 3 to 4 feet	Elms, English, 6 to 8 ft., 8 to 10 ft.
Berberis Dulcis, 2 to 3 feet	Elms, Huntingdon, 6 to 8, 8 to 10ft.
Cedrus Deodara, 5 to 6 ft., 6 to 8 ft.	Chestnuts, Spanish, 2 to 3 feet
Green Box, 1½ to 2 feet	Portugal Laurel, 1½ to 2 ft, 2 to 3 ft.
Evergreen Privet, 2 to 3 feet	Pinus austriaca, 2 to 3 feet
Hornbeam, 3 to 4 feet	Sycamore, 3 to 4 feet

J. P.'s stock of all kinds of FRUIT, FOREST and ORNAMENTAL TREES, &c., is very extensive, and this season remarkably fine, and in excellent condition for removal, having been frequently transplanted. DESCRIPTIVE PRICED CATALOGUES sent post free on application to 52, Market Square, Northampton.

PAUL & SON, THE OLD NURSERIES, CHESHUNT, N.,

(One mile from the Cheshunt Station, Great Eastern Railway,)

BEG TO ANNOUNCE THAT THEIR

NEW PRICED DESCRIPTIVE ROSE CATALOGUE

IS NOW READY, AND WILL BE SENT FREE ON APPLICATION.

The Prices will be found very reasonable, and PAUL AND SON invite an inspection of the quality and quantity of their Stock.

FORTY-FIVE FIRST PRIZES, gained by them at the Horticultural, Botanic, Crystal Palace, Manchester, Leeds, York, Clifton, and Birmingham Shows, are a guarantee of the extent and success of their culture.

Besides ROSES, their culture includes—

FRUIT TREES, in carefully Trained and Cordon Trees, 30,000 Standards, and a large extent of root-pruned Pyramids.
Also VINES, unsurpassed in the Trade, and FIGS.
EVERGREENS, of large and small sizes, including 40,000 LAURELS, 2 to 8 feet.
DECIDUOUS TREES, of ordinary size, and large for direct effect, and selected for ornamental foliage and form.
AMERICAN PLANTS of all varieties, at their New American Nurseries, High Beech.
CONIFERÆ.—Large quantities of the leading kinds for ornamental plantations.

GENERAL PRICES FOR FOREST AND FRUIT TREES.

STANDARD and HALF STANDARD ROSES, 18s. to 30s. per dozen.
DWARFS and DWARF STANDARD ROSES, 12s. to 18s. per dozen.
NEW ROSES of 1867.—Dwarfs, 30s. to 36s. per dozen.

FRUIT TREES, per dozen.

APPLES.—Standards, 18s.; Pyramids, 18s. to 24s.; Dwarf-trained, 30s.; Cordons, 18s.
PEARS, PLUMS, and CHERRIES.—Standards, 24s.; Pyramids, 24s. to 42s.; Dwarf-trained, 42s.
PEACHES, NECTARINES, and APRICOTS.—Dwarf-trained, 60s.; Standard Trained, 84s.

Prices per hundred for Orchard planting on application.

☞ *Trucks from Cheshunt direct through the Systems of the Great Eastern and Great Northern Railways.*

PRICED DESCRIPTIVE LISTS POST FREE.

Forest Trees, Fruit Trees, Evergreens, Plants for Game Covers, Conifers, Roses, &c.

FRANCIS AND ARTHUR DICKSON AND SONS invite the attention of Planters to their very large stock of the above, which in extent and variety is not excelled by any Nursery in the Kingdom. Their Nurseries, which are very bleak and exposed, extend over some 150 Acres, and their Plants are well known to be unusually hardy, as well as in the most perfect health and condition in every respect; and are found to thrive admirably when removed to other parts of the country. PRICED CATALOGUES post free upon application. Estimates and Special Prices for large quantities.

The "Upton" Nurseries, and "Old" Established Seed Warehouse, 106, Eastgate Street, Chester.

Immediate Clearance of Surplus Stock.

THREE HUNDRED THOUSAND NATIVE SCOTCH FIRS, 2-yr. Seedling, and 1-yr. Transplanted, at 6s. per 1000; also about 300,000 LARCH, various sizes, up to 4 feet (Special offers on application.) Terms cash For particulars apply to

JOSEPH ROBSON & SON,
Nurserymen & Seedsmen, Bank Foot, Hexham, Northumberland.

The Dorset Nurseries, Blandford and Blandford St. Mary.

FREDERICK GILL AND CO., NURSERYMEN, SEEDSMEN, and FLORISTS, beg to invite the attention of Gentlemen who intend Planting, to their large and vigorous STOCK of FOREST, FRUIT, and ORNAMENTAL TREES, SHRUBS, ROSES, &c., extending over many acres, and not to be surpassed.

Their ROSES on MANETTI STOCKS, of the choicest Varieties and superior growth, merit especial mention.

Planting Season.—Walton Nursery, Liverpool.

To PLANTERS OF PUBLIC OR PRIVATE PARKS, CEMETERIES, PLEASURE GROUNDS, OR WOODS AND FORESTS.

W. SKIRVING begs to announce that his STOCK of TREES and SHRUBS is this Season very extensive and well grown, and that he is now prepared to execute orders to any amount for Trees and Shrubs of all sizes, at moderate prices.

W. S. considers the present month one of the best for transplanting Evergreen Trees or Shrubs, and solicits Planters to inspect his Stock, which consists of many thousands of the Holly, of the most choice varieties of the Gold and Silver Variegated kinds, and of the large broad-leaved Holly (the finest of all Evergreen Trees), hundreds of which are of large size and fine specimens for giving immediate effect, with thousands and tens of thousands of smaller sizes, for general planting.

Also an immense Stock of all other cultivated Trees and Shrubs, either for Villa, Park, or Forest planting, and of Fruit Trees for Gardens or large Orchards.

N.B. Fifty acres of Walton Nursery being required for Villa Building, the Stock thereon must be cleared as soon as possible, therefore very moderate prices will be accepted.—October, 1867.

CHARLES NOBLE begs to offer the following (a large clearance must be made, and purchasers are invited to ask for prices):—

Alder and Birch, 2 to 6 feet.
Chestnut, Horse and Spanish, 1 to 3 feet.
Elm (Scotch), 2 to 4 feet.
Larch, Spruce and Scotch, 2 to 4 feet.
Oaks and Thorns, 1 to 3 feet.
Poplars, of sorts, 4 to 8 feet.
Abies Douglasii, 5 to 7 feet.
Thujopsis borealis, 1 to 7 feet.
Thuja Lobbii, 2 to 4 feet.
Retinispora ericoides, 1 to 2 feet.
" squarrosa, 1 foot.
" obtusa, 1 to 3 feet.
" jusifera, 1 to 3 feet.
Cupressus Lawsonii, 2 to 6 feet.
" erecta, 2 to 6 ft.
Dwarf Roses, best kinds.
Dwarf and Pyramidal Pears.
Dwarf and Pyramidal Cherries.
Thuja americana, 1 to 3 feet.
Deutzia crenata fl. pl., 1 to 4 feet.
Spiræa, in best kinds, 3 to 4 feet.
Erica herbacea, fine.
" of sorts.
Cotoneaster Simmondsii, 2 to 3 ft.
Ligustrum ovalifolium, 1 to 3 ft.
Berberis japonica Darwinnii.
" dulcis, &c
Sweet Gall, Sweet Briar, 1 to 3 ft.
Pampas Grass.
Arundo conspicua.
Vinca elegantissima.
Russian Violets.
Ivies, green and variegated.
Manetti stocks.
Pear and Mussel stocks.
Grape Vines, a fine selection.
PEACHES, NECTARINES, APRICOTS, APPLES, PEARS, &c., dwarf bushes for Potting.
RHODODENDRONS, for cover planting, all heights and sizes.
" finest named kinds.
CHARLES NOBLE, Sunningdale, Bagshot, Surrey.

Seed Potatos.

H. AND F. SHARPE are now offering MYATT'S EARLY PROLIFIC KIDNEY, RIVERS' ROYAL ASHLEAF, WEBB'S IMPERIAL KIDNEY, DAINTREE'S EARLIEST, EARLY OXFORD, EARLY FORTY-FOLD, and many other Early and Late varieties grown from their own selected stocks. The Prices are moderate, and the quality excellent. PRICED LISTS may be had on application.

Seed Growing Establishment, Wisbech.

CUCUMBER "DICKSON'S FAVOURITE" or ALL THE YEAR ROUND.

We can confidently recommend this as one of the best Winter Cucumbers grown, while it is second to none for general purposes. In Winter it grows about one foot long, and in Summer from 15 to 18 inches, is of deep green colour, very handsome, delicate in flavour, and particularly tender, crisp and juicy. It is very prolific, showing two to three fruit at every joint, and furnishes a continual supply of handsome Cucumbers during the Winter, Spring, and Summer months. Per packet 1s. 6d. and 2s. 6d., post free.

FRANCIS & ARTHUR DICKSON & SONS, The "Old" Established Seed Warehouse, 106, Eastgate Street, Chester.

ASPARAGUS PLANTS.—For SALE, about 200,000 strong 2-yr. old ASPARAGUS PLANTS, at 1s. 6d. per 100; 10s. per 1000. Also about 50,000 extra strong 3-yr. old do., at 2s. per 100; 15s. per 1000. A few thousand APPLE STOCKS, 4 to 6 feet, large enough for working, 5s. per 100; 40s. per 1000. NEW 4-lb. SACKS, 1s. 6d. each. Remittances to accompany all orders. The usual allowance to the Trade.

CHRISTM-S QUINCEY, Seedsman, &c., Peterborough.
N.B. This Advertisement will not be repeated.

Biggleswade Market Gardens, Beds.

RICHARD WALKER can supply the following CABBAGE PLANTS, the finest in England:—
RED, from the finest stock in the country, 4s. per 1000.
EAST HAM, ENFIELD MARKET, NONPAREIL, ROBINSON'S CHAMPION, warranted true, 2s. per 1000, in any quantity.
LETTUCE PLANTS, 6d. per 100. Terms cash.

To Farmers, Gardeners, and Others.

EXCELLENT CABBAGE PLANTS (Stocks not to be surpassed), can be supplied in any quantity, as follows:—
TRUE DWARF NONPAREIL (the earliest and best), 2s. 6d. per 1000
TRUE ENFIELD MARKET (extra fine variety), 2s. 6d. per 1000
TRUE ROBINSON'S CHAMPION DRUMHEAD, 2s. 6d. per 1000
TRUE RED DUTCH (for Pickling), 5s. per 1000
A remittance or reference to accompany all orders.
FREDK. GEE, Seed Merchant and Grower, Biggleswade, Bedfordshire.

J. C. WHEELER AND SON Gloster.

GRASS SEEDS for PERMANENT PASTURE, of the finest quality, at moderate prices, carefully selected on a new, natural, and scientific system.

See "WHEELER'S BOOK on GRASSES," which contains Illustrations and Descriptions of the most suitable Grasses for Permanent Pasture.

J. C. WHEELER & SON,
Gloucester,
Seedsmen to the Gloucestershire Agricultural Society.

REIGATE SILVER SAND, best quality, 12s. per ton, at Swan Place; delivered four miles, or to any London Wharf or Railway, 16s. per ton, or 1s. 6d per bushel. (Sacks at cost price, or on hire.) KENTISH and HAMPSHIRE PEATS, YELLOW LOAM, LEAF MOULD, SPHAGNUM MOSS, & COCOA FIBRE REFUSE.
J. KENNARD, Swan Place, Old Kent Road, London, S.E.



COCOA-NUT REFUSE is becoming SCARCE, the old reserves will soon be gone. Now sold in bags, 1 for 2s., 10 for 16s., 20 for 30s., 50 for 68s., 100 for £6.

Fourpence allowed for each bag returned carriage-paid.

A Railway Truck-load (not in bags), 40s.

Postage Stamps or Post-office Order, payable to J. BARSHAM & Co., Kingston-on-Thames, S.W.

APPLEBY'S GENUINE TOBACCO PAPER, in 2 lb. and 4 lb. packets.

Price on application to HENRY APPLEBY, Foreman to Messrs. Ivery & Son, Dorking, Surrey.

TOBACCO TISSUE for Fumigating Greenhouses. Will Destroy Thrip, Red Spider, Green and Black Fly, and Mealy Bug; and burns without the assistance of blowing, and is entirely free from paper or rag. Price 3s. 6d. per lb., carriage free. A reduction in price for large quantities.

To be had of Messrs. ROBERTS & SONS, Tobacco Manufacturers, 112, St. John Street, Clerkenwell, E.C., of whom copies of Testimonials may be obtained; and of all Seedsmen and Nurserymen.

WINTER-DRESS ALL FRUIT TREES with GISHURST COMPOUND.

Copy of a Letter from MR. RIVERS, *Nurseries, Sawbridgeworth, Herts, 22d October, 1861.*

"I must tell you what I heard to-day from a very clever gentleman farmer, Anthony Bubb, Esq., of Witcombe Court, Gloucester. He has a wall to which Peach Trees are trained. Well, last autumn they were in a wretched blighted state. As a desperate remedy he unnailed them all, early last February, and gave all but one a thorough painting with Gishurst Compound, 1 lb. to the gallon of water; his trees, all but the one, commenced to grow favourably in spring, and are now pictures of health. The tree not painted is in a half-dead blighted state. He used the same dressing to his Apple Trees; it killed the woolly Aphis entirely, and has made his trees clean and vigorous in their growth. He intends to paint his Wall Trees annually, and tells all his friends to do the same. I shall certainly serve all my young Peach Trees against my walls in the same manner. The Compound is, I believe, more efficacious than the usual offensive mixtures of clay, soot, sulphur, &c.; and it does not blacken the shoots on the walls."

For Orchard-house Trees, 4 ozs. to the gallon will be found a good strength; when used stronger some buds on weakly trees may be injured.

GISHURST COMPOUND is sold Retail by Nurserymen and Seedsmen, in boxes, 1s., 3s., and 10s. 6d. each.

Wholesale by PRICE'S PATENT CANDLE COMPANY, LIMITED, Belmont, Vauxhall, London, S.

Gishurst Compound has more recent testimonials to its efficacy, but none more conclusive than the above, which has been published before.

CAST-IRON HAND-GLASS FRAMES (loose tops).—Prices: 14-inch, 4s.; 18-inch, 5s. 9d.; 20-inch, 6s. 6d.; 22-inch, 7s. 6d.; 24-inch, 8s. 6d. each. Twelve or more delivered free to any Station in England on receipt of Post Office order.

Catalogues on application.
J. JONES & SONS, 6, Bankside, London, S.E.

HYACINTH GLASSES, in every variety of shape and colour; SUPPORTS, DISHES, CROCUS GLASSES, &c. The Garden Repository, 32, James Street, Covent Garden, W.C.
N.B. A liberal discount to the Trade.

Tye's Registered Hyacinth Glasses.



SOLE WHOLESALE DEPOT,

CLAUDET, HOUGHTON, AND SON,

FERN CASE MANUFACTURERS, and HORTICULTURAL GLASS DEPOT,

80, High Holborn, W.C.

Price Lists free on application.

SHAW'S TIFFANY.
For samples and prices apply to
J. SHAW & Co., 29, Oxford Street, Manchester.

A LARGE QUANTITY of RUSSIAN MATS for SALE.
Apply to J. C. SIMONDS, Oil Mills, Boston.

LARGE GREENHOUSE for SALE.
May be had a bargain.
Apply at 28, Bolton Street, Piccadilly, W.



GARDEN BORDER EDGING TILES, in great variety of patterns and materials, the plainer sorts being especially suited for KITCHEN GARDENS, as they harbour no Slugs and Insects, take up little room, and once put down incur no further labour and expense, as do "grown" Edgings, consequently being much cheaper.



GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, of great durability, and in great variety of design.

F. & G. ROSHER, Manufacturers, Upper Ground Street, Blackfriars, S.; Queen's Road West, Chelsea, S.W.; Kingsland Road, Kingsland, N.E.

Sole London Agents for FOXLEY'S PATENT GARDEN WALL BRICKS. Illustrated Price List free by post. The Trade supplied.

ORNAMENTAL PAVING TILES for Conservatories, Halls, Corridors, Balconies, &c., as cheap and durable as Stone, in blue, red, and buff colours, and capable of forming a variety of designs.

Also TESSELATED PAVEMENTS of more enriched designs than the above.

WHITE GLAZED TILES, for Lining Walls of Dairies, Larders, Kitchen Ranges, Baths, &c. Grooved and other Stable Paving Bricks of great durability, Dutch and Adamantine Clinkers, Wall Copings, Red and Stoneware Drain Pipes, Slates, Cement, &c.

To be obtained of F. & G. ROSHER, at their premises as above.

SILVER SAND (REIGATE, best quality), at the above addresses—14s. per Ton, or 1s. 3d. per Bushel; 2s. per Ton extra for delivery within three miles, and to any London Railway or Wharf. Quantities of 4 Tons, 1s. per Ton less.

FLINTS, BRICK BURRS or CLINKERS, for Rockeries or Grotto Work. F. & G. ROSHER.—Addresses see above.
N.B. Orders promptly executed by Railway.

Horticultural Glass Warehouse.

THOMAS MILLINGTON AND CO., 87, Bishopsgate Street Without, London, E.C.

NEW LIST for ORCHARD HOUSE GLASS as supplied to Her Majesty, the Nobility, Gentry, Mr. Rivers, and the leading Horticulturists of the United Kingdom.

ORCHARD HOUSE SIZES.

In.	In.		4ths.	3rds.	2nds.	Best.
20 by 12						
20 by 13		15 oz.	14s 3d	15s 6d	18s 0d	20s 0d
20 by 14	For 100 feet					
20 by 15		21 oz.	19s 0d	22s 2d	26s 0d	29s 0d
20 by 16						

SMALL SHEET SQUARES, 15 oz., per 100 feet.

In.	In.	In.	In.	In.	In.	In.	4ths.	3ds.	2nds.	Best.
6	by 4	7	by 5	8	by 6	9	by 7			
6¼	by 4¼	7¼	by 5¼	8¼	by 6¼	9¼	by 7¼	12s 3d	13s 3d	16s 0d	18s 0d
								For 100 feet.			
10	by 8	12	by 9	12¼	by 10¼	14¼	by 10¼				
10¼	by 8¼	12¼	by 9¼	13	by 10	15	by 10	13s 3d	14s 6d	17s 3d	19s 0d
11	by 9	13	by 9	13¼	by 10¼	13	by 11				
11¼	by 9¼	12	by 10	14	by 10	11	by 11				

LARGE SHEET SQUARES, 15 oz, per 100 feet.

In.	In.	In.	In.	In.	In.	4ths.	3ds.	2nds.	Best
16¼	by 10¼	14	by 12	22	by 12	22	by 16				
16	by 10	14¼	by 12¼	17	by 13	24	by 16				
11¼	by 11¼	16	by 12	23	by 13	20	by 17				
16	by 11	16¼	by 12¼	18	by 14	22	by 17	14s 3d	15s 6d	18s 0d	20s 0d
15¼	by 11¼	16	by 12	22	by 14	21	by 17				
16	by 11	16¼	by 12¼	24	by 14	20	by 18				
21	by 11	17	by 12	22	by 15	22	by 18				
13	by 12	18	by 12	24	by 15	24	by 18				

The above Prices are only for the Sizes stated; if a quantity of any other Size be required, a Special Price will be given.

SHEET GLASS.

In Sheets for Cutting up, averaging from 6 to 9 feet super.

15 oz.		21 oz.	
4ths quality, per 300 feet case,	38s.	4ths quality, per 200 feet case,	38s.
3ds " "	48s.	3ds " "	48s.
2ds " "	62s.	2ds " "	66s.
Best " "	92s.	Best " "	96s.

SHEET GLASS is made only in the following substances, 15 oz., 21 oz., 26 oz., 32 oz., 36 oz., an 1 42 oz.

HARTLEY'S IMPROVED ROLLED ROUGH PLATE in 1-8th in., 3-16th in., 1-4th in., and 3-8th in. substances.

BRITISH PLATE GLASS for Windows and Silvered for Looking Glasses, Coloured Glass, Glass Shades, Striking Glasses, &c., &c.

PAINTS, COLOURS, VARNISHES, &c.

STUCCO PAINT, 24s. per cwt. This Paint adheres firmly to the walls, resists the weather, and is free from the glossy appearance of Oil Paint, resembling a stone surface, and can be made any required shade. It is mixed with rain or pure river water.

WHITE ZINC PAINT, 36s. per cwt. One hundredweight of pure Zinc Paint, with three gallons of Linseed Oil, will cover as much as one hundredweight and a half of White Lead and six gallons of Linseed Oil. Special Dryers for this Paint.

IMPROVED ANTI-CORROSION PAINT, 28s. to 34s. per cwt. Anti-corrosion Paint is extensively used for all kinds of work in exposed situations, on Brick, Stone, Compo, Iron, Iron Bridges, Conservatories, Greenhouses, &c., and is easily laid on by any ordinary workman. Prepared Oil for ditto, 4s. per gallon.

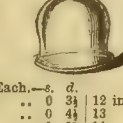
Per cwt.—s. d.		Per gallon.—s. d.	
GENUINE WHITE LEAD	32 0	LINSEED OIL	3 4
SECONDS WHITE LEAD	30 0	BOILED OIL	3 9
GROUND PATENT DRYERS, 3d. to 4½d. per lb.		TURPENTINE	3 0
" OXFORD OCHRE, 3d. to 4½d. per lb.		LINSEED OIL PUTTY, 8s. to 9s. per cwt.	
RAW UMBER, 4½d. to 6d. per lb. [per lb.		FINE OAK VARNISH, 10s. to 12	0
" BURNT do., 6d. to 9d.		" CARRIAGE do., 12s. to 14	0
GREEN PAINT, all shades,	28s. to 60 0	" PALE do. 10s. to 12	0
BLACK PAINT,	24s. to 36 0	" COPAL	16 0
RED PAINT ..	28s. to 36 0	KNOTTING	10 0
		Patent GOLD SIZE ..	10 0
		" BLACK JAPAN ..	12 0
		GLAZIER'S DIAMONDS and TOOLS	
GROUND BRUSHES.		MILLED LEAD and PIPES	
DUSTERS. | SASH TOOLS.		OLD LEAD Bought or taken in exchange.	
DISTEMPER BRUSHES.			

The above are Net, for Cash, and as such cannot be booked.

Lists of any of the above on application.

Glass for Garden Purposes

JAMES PHILLIPS AND CO. beg to submit their REDUCED PRICES as follows:—

PROPAGATING  GLASSES.

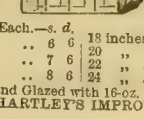
	Each.—s. d.		Each.—s. d.
2 inches in diameter ..	0 3½	12 inches in diameter ..	1 9
3 " " ..	0 4½	13 " " ..	2 0
4 " " ..	0 5½	14 " " ..	2 6
5 " " ..	0 6½	15 " " ..	3 0
6 " " ..	0 8	16 " " ..	3 6
7 " " ..	0 10	17 " " ..	4 0
8 " " ..	1 0	18 " " ..	5 0
9 " " ..	1 2	19 " " ..	6 0
10 " " ..	1 4	20 " " ..	7 0
11 " " ..	1 6		

HYACINTH and FLOWER DISHES.

6 inches diameter .. .. 1s. 0d. | 9 inches diameter 1 6
12 inches diameter .. .. 2s. 6d.

Hyacinth Dishes are intended to contain a number of Roots Bedded in and covered with Moss, instead of the common Hyacinth Glass.

LACTOMETERS, for Testing the Quality of Milk.
Four Tubes .. .. 4s. 6d. | Six Tubes .. .. 6s. 6d.
With Stands complete.

HAND GLASSES,  WITH OPEN TOPS.

	Each.—s. d.		Each.—s. d.
12 inches	6 6	18 inches	9 6
12 "	7 6	20 "	10 6
.. .. ..	8 6	22 "	11 6
		24 "	12 6

Painted and Glazed with 16-oz. Sheet Glass.

London Agents for HARTLEY'S IMPROVED PATENT ROUGH PLATE.

LINSEED OIL, Genuine WHITE LEAD, CARSON'S PAINTS, PAINTS of various colours, ground ready for use.

SHEET and ROUGH PLATE GLASS, SLATES of all sizes, BRITISH PLATE, PATENT PLATE, ROLLED PLATE, CROWN, SHEET, HORTICULTURAL, ORNAMENTAL, COLOURED, and every description of GLASS, of the best Manufacture, at the lowest terms. Lists of prices and estimates forwarded on application to

JAMES PHILLIPS & Co., 180, Bishopsgate Street Without, E.C.

George Hall, late Manager to the late Saynors' Firm.

HE WAS FOR 30 YEARS IN THEIR EMPLOY.

GEO. HALL AND SON'S Celebrated PRUNING and BUDDING KNIVES, SCISSORS, &c., may be obtained from the most respectable Nurserymen and Seed Merchants in the kingdom, also America, France, Germany, Holland, Prussia, Russia, &c.

N.B.—We only make one quality, the best that can be manufactured, the same as the late Saynors always made during the lifetime, with all the latest improvements.

CAUTION.—None are genuine unless marked "GEO. HALL & SON. Other marks would cause disappointment, as these blades are tempered by a process known only to the Makers.

Engravings of Patterns, with Price Lists gratis, on application.
Horticultural Cutlery Works, Sheffield.

New Catalogue of Plants, Dutch Bulbs, &c.

ROBERT PARKER begs to announce that his NEW CATALOGUE, containing Select, Descriptive, and Priced Lists of New, Rare, and beautiful Greenhouse, Hardy and Stove Plants, Azalea indica, Fruit Trees, Grape Vines, Rhododendrons, Roses, Sweet Violets, &c.; Amaryllis, Crocuses, Cyclamens, Gladioli, Hyacinths, Liliums, Narcissus, Tulips, and other Bulbs, is now published and will be forwarded to applicants.

Exotic Nursery, Tooting, Surrey, S.

Dutch Bulbs for Exhibition.

J. SCOTT has received his annual supply of DUTCH FLOWER ROOTS from Holland; extra fine in quality and true to name.

12 very choice exhibition HYACINTHS, 10s.
12 extra choice " " 12s.
Other very fine sorts, 6s. and 8s. per dozen.

A complete list of the above sent free on application to J. SCOTT, The Seed Stores, Yeovil, Somerset.

Dutch and Cape Bulbs.

BUTLER, McCULLOCH AND CO. have received their usual consignment of the above, and beg to offer the following carefully assorted collections.

FOR CONSERVATORY DECORATION.

No. 1	No. 2	No. 3	No. 4	No. 5	No. 6
100s.	50s.	25s.	21s.	15s.	10s.6d.

FOR FLOWER GARDEN DECORATION.

No. 7	No. 8	No. 9	No. 10	No. 11	No. 12
100s.	60s.	40s.	25s.	21s.	10s.6d.

FOR FLOWER GARDEN AND CONSERVATORY COMBINED.

No. 13	No. 14	No. 15	No. 16	No. 17	No. 18
105s.	52s.6d.	42s.	21s.	15s.	10s.6d.

CATALOGUES containing details of above Collection sent free, and Post-paid Orders amounting to 21s. sent, carriage paid, on receipt of Post-Office Order.—Established upwards of a century.

Covent Garden Market, London, W.C.

Hyacinths for Exhibition.

SEEDSMEN BY APPOINTMENT Sutton AND Sons

MESSRS. SUTTON'S COLLECTIONS include the varieties so much admired at the spring shows, and they are now prepared to receive orders for the same at the following prices:—

The Choicest 100 Sorts, £4 4s., carriage free
The Choicest 50 Sorts, £2 2s., "
The Choicest 25 Sorts, £1 1s., "
The Choicest 12 Sorts, £0 12s.

Cheaper Roots, 6s. to 9s. per dozen.

HYACINTHS for Beds and Open Borders, 3s. per dozen, 21s. per 100, carriage free.

SUTTON & SONS, Importers, Reading, Berks.



STEPHEN BROWN'S ILLUSTRATED BULB CATALOGUE, descriptive, with cultural instructions, free by post for six stamps, and may be deducted by new purchasers sending orders.

S. B.'s several importations of FOREIGN BULBS this season have been received in fine condition.

The choicest GLADIOLI in 200 varieties; also 70 varieties of superb LILIES, together with a very extensive Collection of DUTCH, CAPE, and other BULBS.

A DESCRIPTIVE CATALOGUE of New and Select HERBACEOUS and ALPINE PLANTS, just published, sent free.

Seed and Nursery Establishment, Sudbury, Suffolk.

Dutch Flower Roots,

CROYDON. A. HENDERSON & EAST SURREY SEED WAREHOUSE ESTABLISHED 1828

ARCHIBALD HENDERSON begs to announce that he has received a large Consignment of Dutch and other Roots, carefully selected from the most celebrated growers.

DESCRIPTIVE and PRICED CATALOGUES are now ready, containing practical directions for their successful cultivation on all the various systems now adopted.

Also a CHOICE and SELECT LIST of VEGETABLE and HARDY FLOWER SEEDS for Autumn Sowing. Catalogues gratis and post free upon application.

Sion Nursery, Thornton Heath, Surrey, and at the East Surrey Seed Warehouse, College Grounds, North End, Croydon.

Hyacinths, Hyacinths.

DREGHORN AND AITKEN, Kilmarnock, N.B., beg to intimate that their CATALOGUE of HYACINTHS and other BULBS is now Published, and will be forwarded Post Free to any Address. It contains valuable Descriptive and Cultural Notes, and will be found a useful guide to Purchasers.

PRIZE HYACINTHS.—D. & A.'s PRIZE DOZEN for 15s. The best value in the Trade—viz., Macaulay, Ornament de la Nature, Von Schiller, Grandeur a Merville, Lord Wellington (double), Alba maxima, Mont Blanc, Queen of the Netherlands, Baron Von Thuyll, Charles Dickens, Grand Lilas, and Prince Albert.

ROMAN HYACINTHS.—Fine Bulbs of these beautiful early-flowering Hyacinths, 3s. 6d. per dozen. Free by Post or Rail.



CARTER'S DUTCH BULBS.

JAMES CARTER & CO.'S

AUTUMN SUPPLEMENT

TO THEIR

GARDENER'S AND FARMER'S VADE MECUM,



Containing ORIGINAL ARTICLES on the CULTURE of BULBS and SPRING GARDENING, also a LIST of VEGETABLE SEEDS for AUTUMN SOWING, is NOW READY and will be forwarded immediately on receipt of 12 Stamps (Gratis to Customers), on application to

CARTER'S GREAT LONDON SEED WAREHOUSE, 237 & 238, HIGH HOLBORN, LONDON, W.C.

ALL the FIRST PRIZES for HYACINTHS, TULIPS, CROCUSES, &c.,

AWARDED TO

WM. PAUL'S COLLECTIONS

IN MARCH LAST,

At the ROYAL HORTICULTURAL and ROYAL BOTANIC SOCIETY'S SPRING SHOWS.

PRICED DESCRIPTIVE CATALOGUE FREE BY POST ON APPLICATION.

PAUL'S NURSERIES AND SEED WAREHOUSE, WALTHAM CROSS, LONDON, N.

DUTCH AND OTHER BULBOUS ROOTS.

B. S. WILLIAMS

HAS RECEIVED HIS FIRST IMPORTATIONS IN EXCELLENT CONDITION, AND RESPECTFULLY SOLICITS EARLY ORDERS.

A PRICED and DESCRIPTIVE CATALOGUE forwarded free on application.

COLLECTIONS of BULBS carefully put up to suit Gardens of various sizes.

The CHOICEST HYACINTHS for Pots or Glasses, 24s., 18s., 12s., 9s., 8s., and 6s. per doz.

HYACINTHS for Bedding, assorted, in colours, 3s. 6d. per doz.

All Roots of the first quality only.

B. S. WILLIAMS,

VICTORIA AND PARADISE NURSERIES, UPPER HOLLOWAY, LONDON, N.

NEW PLANTS,

TO BE SENT OUT ON AND AFTER OCTOBER 14.

E. G. HENDERSON & SON

RESPECTFULLY CALL ATTENTION TO THE FOLLOWING NOVELTIES:—

NEW BEDDING FUCHSIA, GOLDEN FLEECE
NEW DOUBLE PELARGONIUM, PRINCE OF NOVELTIES
NEW STRIPED-FLOWERED PELARGONIUM, AURANTIA STRIATA
NEW ZONAL PELARGONIUM, MAGENTA CHRISTINE
NEW DOUBLE-FLOWERED ZONAL PELARGONIUM, TRIUMPH
NEW CRIMSON NOSEGAY PELARGONIUM
NEW HYBRID FRAGRANT-LEAVED PELARGONIUM, GRANDIS ODORATA
NEW FORCING PINK, PLATO
NEW TREE or SHRUBBY-HABITED PINK, ROSE of ENGLAND
NEW STOVE SHRUB, DALECHAMPIA ROEZLIANA ROSEA
NEW DOUBLE-FLOWERED AMARYLLIS, ALBERTI PLENA

Full descriptions of the above Select Plants are given in

E. G. HENDERSON & SON'S NEW BULB CATALOGUE,

which, on application, is forwarded Post Free.

☞ *The Trade will receive a DESCRIPTIVE LIST in a few days hence.*

THE WELLINGTON NURSERY, ST. JOHN'S WOOD, LONDON, N.W.

WINTER AND SPRING FLOWERING BULBS AND PLANTS.

BARR & SUGDEN,

The Metropolitan Seed, Bulb, and Plant Warehouse, 12, King Street, Covent Garden, W.C.

BARR & SUGDEN'S FLORAL GUIDE

CONTAINS MUCH VALUABLE INFORMATION, AND CAN BE HAD FREE ON APPLICATION.

COLLECTIONS of BULBS for Winter and Spring Blooming In-doors, 10s. 6d., 21s., 42s., 63s., 84s., and 105s.

HYACINTHS, 3s. to 12s. per dozen
POLYANTHUS NARCISSUS, 3s. to 6s. per dozen
GARDEN NARCISSUS, 3s. 6d. to 10s. 6d. per 100
TULIPS, 4s. to 20s. per 100 | SNOWDROPS, 2s. 6d. per 100
CROCUS, 1s. 6d. to 4s. per 100 | IRIS, 3s. 6d. to 10s. 6d. per 100
GLADIOLI, the very best kinds [sorts
IXIAS, SPARAXIS, TRITONIAS, and BABIANAS, the finest

COLLECTIONS of BULBS for Spring Blooming Out-doors, 10s. 6d., 21s., 42s., 63s., 84s., and 105s.

LILIES, finest kinds
LILIUM AURATUM, the Golden-rayed Lily of Japan, 2s. 6d., 3s. 6d., 5s. 6d., 7s. 6d., and 10s. 6d. each
RANUNCULUS, 2s. 6d. to 5s. 6d. per 100
ANEMONES, 4s. to 7s. 6d. per 100 | AMARYLLIS, 6d. to 63s. each
AMARYLLIS, unbloomed seedlings, from varieties the finest in cultivation, 42s. per dozen

COLLECTIONS of PLANTS for Spring Blooming, 12s. 6d., 25s., 50s., and 105s.

CYCLAMEN PERSICUM, exceedingly fine varieties, 10s. 6d., 15s., 21s., and 25s. per dozen
CYCLAMEN EUROPÆUM, quite hardy and very fragrant, 3s. 6d. per dozen, 21s. per 100
LILY of the VALLEY, fine imported clumps to bloom in winter, 15s. to 21s. per dozen [to 25s.
SPIRÆA JAPONICA, fine imported clumps to bloom in spring, 18s.

SUNDRY BULBS.—*Under this heading in the "Guide," are described many rare and beautiful Bulbous Plants.*

BARR AND SUGDEN, 12, KING STREET, COVENT GARDEN, LONDON, W.C.

JOHN CRANSTON'S CATALOGUE of SELECTED ROSES is now ready and will be forwarded on application.

J. C. respectfully directs attention to the following LIST of FIRST PRIZES which have been awarded to him at the principal Rose Shows of the present year, proving beyond a doubt that the soil and climate of his Nurseries are unrivalled for the Cultivation of Roses.

Royal Botanic Society, Regent's Park, London.
June 19.—24 Varieties, Cut Roses, one truss each, FIRST PRIZE
Cirencester.
June 19.—36 Varieties, Cut Roses, three trusses each, FIRST PRIZE
Clifton.
June 25.—24 Varieties, Cut Roses, one truss each, FIRST PRIZE
Crystal Palace.
June 29.—72 Varieties, Cut Roses, one truss each, FIRST PRIZE
Royal Horticultural Society, South Kensington.
July 2.—72 Varieties, Cut Roses, one truss each, FIRST PRIZE
Birmingham.
July 4, 5.—72 Varieties, Cut Roses, one truss each, FIRST PRIZE
24 Varieties, Cut Roses, three trusses each, FIRST PRIZE
Hereford.
July 9.—72 Varieties, Cut Roses, one truss each, FIRST PRIZE
24 Varieties, Cut Roses, three trusses each, FIRST PRIZE
Rugby.
July 12.—72 Varieties, Cut Roses, one truss each, FIRST PRIZE
Nurseries, King's Acre, near Hereford.

Roses, Roses, Roses.

PLANTS of all the FINEST VARIETIES in CULTIVATION will this Autumn be in magnificent order in the Castle Street Nurseries, Salisbury.

The frost of May 24 destroyed all the blooming buds; the consequences are that the Plants have produced the most vigorous growth.

Amateur Rose Growers may insure the finest Plants that can possibly be produced, true to name. CATALOGUES on application.

VINES, from Eyes, the finest in England, 10s. 6d. each, in October next. John Keynes, Castle Street, Salisbury.

1868.

NATIONAL ARTS EXHIBITION at LEEDS.

Patrons:—
Her Most Gracious Majesty The Queen,
H.R.H. The Prince of Wales,
H.R.H. The Duke of Cambridge,
The Emperor of the French,
The King of Holland, &c.

During the above,
THE LEEDS HORTICULTURAL SOCIETY
will hold their
ANNUAL GREAT FLORAL FETE, viz.,
on WEDNESDAY, THURSDAY, and FRIDAY, June 10, 11, and 12.

The Prizes will be considerably increased.

Schedules ready in January, and forwarded on application.

James Birbeck, Secretary.

THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.

NOTICE IS HEREBY GIVEN, that an ADDITION of TWO PENSIONERS on the Funds of this Institution will take place in JANUARY NEXT.

All Persons desirous of becoming CANDIDATES are required to send in their Petitions with Testimonials, &c., to the Committee, on or before the 11th November next, after which time they will not be received.

Preference will be given to those Persons who may have been Subscribers for 15 years and upwards; but should there not be any of that class, then the Petitions of those who may not have been Subscribers will be considered

Printed Forms may also be had upon application to the Secretary.

By Order of the Committee. E. R. Cutler, Sec.

14, Tavistock Row, London.—October 9, 1867.

The Gardeners' Chronicle.

SATURDAY, OCTOBER 12, 1867.

MEETING FOR THE ENSUING WEEK.

Tuesday, Oct. 15	Royal Horticultural (Fruit and Floral Committees), at South Kensington	..	11 A.M.
	Ditto (General Meeting)	..	3 P.M.

THE time is now rapidly approaching when the arrangements for next year's EXHIBITIONS must be considered and determined on; and it may therefore be well to gather up some of the experience of the past season, with a view to profit by it. The most important points to be considered, we take to be those relating to duration, to staging, and to variety.

As to the duration of flower shows, there is an evident disinclination on the part of many exhibitors to fall in with the plan of extending them over three or four days, and the Orchid growers are altogether rebellious. The exhibitors say, and very truly, that their expenses are multiplied; they also affirm that their plants are damaged by being kept so long under canvas, which to a certain extent may be also true, though experience has shown that in the majority of cases the damage is not very serious; while the Orchid growers say that without heated tents or glass-houses they will not venture to exhibit their plants at these extended shows, and considering the value of some of them, it is quite reasonable that their owners should be chary of exposing them to injury of whatever kind. On the other side, experience has shown that the old state of things, two or three single day exhibitions under the auspices of each of the great Societies, are no longer possible. The shows fall so quickly in succession that the public become wearied with them, and will not, or at least do not, come to them in sufficient numbers to make them pay. This may be a very vulgar consideration, but it is a vital one to the corporate bodies more immediately concerned in providing the funds, and hence the policy of the Societies very naturally tends towards reducing the number, and extending the duration of their shows. The Royal Horticultural has tried the experiment, though hitherto with but partial success; the Crystal Palace Company has at least reduced the number of its great shows; and if the Royal Botanic has not yet followed in the same track it does not appear that its financial position under the present *régime* can be the reason for its not having made the change. On the other hand the Great International of 1866, Manchester, Bury, and Dundee may all be referred to as instances of financial success, arising directly from the application of the extension principle to the duration of these flower shows.

What course, then, should be adopted in reference to this most important question? It is clearly a matter mutually concerning Societies and exhibitors. The Societies cannot continue to hold shows and pay prize money, unless the shows are themselves remunerative; nor can the exhibitors hope to obtain the due reward of their skill and enterprise unless, on the other hand, exhibitions are managed by some responsible body, occupying such a position in respect to the fashionable world—yes, we must write fashionable—that the upper ten thousand may rule it to be the right thing to give countenance to such meetings by their presence. When however success is rendered probable by this kind of patronage, then the extension of time to another day or two is tolerably certain to draw in another and another stratum of society, and thus ultimately to secure a profitable result to the enterprise. It is true that in our climate we always run the risk of having even the best laid plans disarranged by unpropitious weather, but at least the chances of total failure from this cause are reduced, when the number of days is increased. The upshot of all this is, that the Societies should meet the exhibitors, and the exhibitors should meet the Societies fairly, to their mutual support and benefit. We may honestly counsel the Societies to arrange terms which will be fairly remunerative to the exhibitors, as well as to take all possible precautions for the safety of their valuable specimens; and we may with equal sincerity advise the exhibitors that they on their part should by their hearty support and good-will make up such a show as may not fail to attract a numerous company, and to facilitate as far as in them lies the arrangements for extending the time during which the shows may be open to the public. To a limited extent mutual arrangements might be made for removing, after the first day, any choice plant liable to suffer injury, and for replacing it by something equally attractive, while avowedly tender subjects could be accommodated in a glazed house. Indeeed, we may here repeat what we have before expressed, namely, that none of our Societies will, in our opinion, have a perfect exhibition building, until one of due proportions, neither too large, nor too small, is provided, having a ridge-and-furrow glass roof, to be shaded with tiffany or other drapery, and having the more exposed side or sides glazed, and the other sides shut in more or less closely, as may be found necessary at the time, with canvas or some such slight screen.

What the fair remuneration we have hinted at should be, would be best settled by consultation between the parties more immediately concerned; but we may remark that, in our opinion, it would be preferable, as a principle, not so much to augment the amount of the prize-money to meet the extension of time, as to make a definite allowance for expenses, according to scale—at a higher rate perhaps for prize collections—to all who furnish subjects sufficiently important. We must reserve the other points, to which we referred at the outset, for future consideration.

THE PARASITIC FUNGI, which induce disease in plants, are happily introduced into this country but very rarely; a circumstance of the more importance, as exotic parasites sometimes attack with peculiar virulence the plants of the natural order to which they are especially addicted—a circumstance of which a curious instance is afforded, in the difficulty of culture of Hollyhocks in Australia from the invasion of a Puccinia, though they seem to be quite free from such attacks in Europe.

Pines have in this country been subject for many years to the attacks of Peridermium Pini; but it is only recently that Peridermium elatinum has been observed in England, though it is so well-known in Germany as the enemy of the Silver Fir, where branches are transformed by it in a manner so peculiar (of which we gave an illustration some years since in this Journal), that the branches attacked are known under the popular name of Witches' besoms (Hexen-besen). At present this has been, we believe, confined to the South of England, and we have just received from Torquay a quantity of shoots of Picea cephalonica, which are affected with Peridermium columnare. This does not modify the branches, or deform the leaves, as is the case with P. elatinum, but it still appears to affect their health, and prematurely exhaust their vitality. It has been observed for the last three years, and appears to be confined to a single species of Picea, not extending to neighbouring Conifers of other genera. Our correspondent naturally asks for a remedy, but though it is always satisfactory to know exactly the strength of the enemy against which we have to contend, this does not always ensure victory, and we can give no hope of eradicating so subtle a foe. The mycelium penetrates deeply into the tissues, and we know of no chemical which, taken up by the roots, could destroy the Fungus, without injuring the tissues of the plant on which it preys. Should it seem inclined to spread, the only precautionary matter we can suggest is to cut off the affected branches, and burn them. We do not, however, expect that it will spread. We should be glad to know whether any species of Picea has been introduced from the German nurseries.

We can speak more hopefully of another pest, which has been forwarded to us by Mr. SHORTT, on the leaves of Sarcoglottis picta, a Trinidad Orchid of the division Spiranthæ: because, as he informs us, it is easily killed by dusting both sides of the leaves with sulphur. This appears to be Trichobasis Orchidum, though more scattered over the frond than is usual in European specimens of that rare species. As this yields to sulphur, it is to be hoped that the Uredo which is so destructive to Ferns, may be kept under by a similar treatment. *M. J. B.*

— IT is intended to resume forthwith the publication of the ICONES PLANTARUM, under the editorship of Dr. HOOKER. The plates will be numbered in continuation of the former series, commencing with No. 1001, and will be devoted to the illustration of "new and rare plants selected from the Kew herbaria." The first part is, we believe, on the eve of publication, and contains 25 lithographed plates by Mr. FITCH, with descriptions. We shall revert to these plates, so useful to working botanists, on another occasion, and shall now only express our regret that the Government has not long ago taken this matter into its own hands. The illustration of the rich treasures at Kew, whether in the herbaria, or museums, or in the gardens, should hardly be left exclusively to private enterprise, the less so as these collections are the property of the public.

— From Mr. W. B. JEFFRIES, of Ipswich, we have received a curious POLYANTHUS, in which the truss is surmounted by a plant in miniature, forming, as it were, a "crown" above the ordinary flower-stalks, just as the crown of the Pine-apple surmounts the fruit. Though familiar with a similar occurrence in many other plants, we do not recollect ever to have seen a parallel instance in the Polyanthus.

— We are informed that a new journal wil shortly be issued under the editorship of Mr. ANDREW MURRAY, and which will be entitled the JOURNAL OF TRAVEL AND NATURAL HISTORY. A very general feeling of regret has been expressed as to the discontinuance of the "Natural History Review," owing to the insufficient support that naturalists alone, from their paucity of numbers, could give. It has been thought that by appealing to a wider circle, a greater measure of success might be obtained, and with this view the projectors of the new publication propose to omit anatomy and physiology from their programme, as these sciences are already represented in the "Journal of Anatomy and Physiology," and to substitute for these, general travels and geography, which "are so closely connected with natural history, that they can scarcely be called foreign elements. Isolated notices of objects of natural history constantly occur in voyages and travels, and the want of some book of reference, recording such notices, is often felt by the naturalist. It is intended that the journal now projected should become such a record. In addition to the topics already indicated, the contents will consist of extracts from the scientific correspondence of naturalists and travellers in foreign parts; miscellaneous information; and notices of the proceedings of the principal natural history societies in London." We heartily wish success to the new journal, as its subjects comprise so many matters of interest to horticulturists, and plant lovers.

New Plants.

DALEA MUTISII, *Kunth, Mim.* 161, t. 47.
DC. Prod. ii., 247.

Erecta pubescens, foliolis 4—6 jugis ellipticis subtus ramulisque glanduloso-punctatis et villosis, spicis cylindraceis pedunculatis densis, bracteis ovatis in setam longè productis flore longioribus. *DC.*

This elegant plant, which promises to be a very desirable greenhouse shrub, has been recently introduced from the Cordilleras of South America by Mr. Bull, whose collector describes it as of good habit, and flowering freely at a height of from 6 inches to 2½ or 3 feet. The plant is of erect and somewhat slender growtht very much resembling in its general aspect some of the smaller-growing Indigoferas. Its reddish-brown stems branch freely, and are clothed with imparipinnate leaves, which in the specimens before us, both wild and cultivated, consist of 8—10 pairs of elliptic oblong obtuse leaflets, which are pubescent on the lower surface, and marked with transparent glan-

dular dots. The flowers grow in dense cylindrical heads, which are about an inch and a half long, and are crowded with blossoms of a deep blue colour. As a greenhouse shrub, the graceful habit and foliage, and the very desirable colour of the flowers of this species of Dalea, give promise that it may prove an acquisition to our collections, which it certainly will be if it realises the description given of it, in regard to its free flowering habit. It is moreover not unlikely to prove a useful subject for planting against a conservative wall, or perhaps for occupying a place in the choice shubbery border or the mixed flower garden during the summer, and is certainly well worth a trial in these positions.

We may add a caution to those who are not familiar with garden botany, not to confound this papilionaceous shrub, with the florists' Dahlia, which belongs to the composite family. *M.*

THE POMOLOGICAL CONGRESS OF FRANCE.

THE great meeting of French Pomologists and Exhibition of Fruit, referred to previously (p. 997), was held this year in Paris, under the auspices, and in the house, of the Société Imperiale et Centrale d'Horticulture de France, 84, Rue de Grenelle, St. Germain. This is the twelfth meeting of the Society, and commenced on the 19th of September. The Society was established for the purpose of drawing up correct descriptions of fruits, of correcting their nomenclature generally, and of recommending the varieties considered most worthy of cultivation. In this, its professed objects, the Society has still much to do; but composed as it is of the best pomologists of France, and in a country where fruits generally attain much perfection, its labours cannot fail to be other than of the greatest importance to fruit growers. No doubt the result of its deliberations will soon be made public. As to descriptions, it must be borne in mind that French fruits, as compared with those of English growth, show a great difference, Pears and Apples especially being generally much larger, and always much more highly coloured, when grown in the sunny South, than we are accustomed to see them; moreover, much attention is paid to the cultivation of the Pear in France. As to the recommendation of varieties most worthy of cultivation, we may in England derive some benefit therefrom, although not without exception. We may be tolerably sure that those varieties which are bad in France, will be ten times worse in this country. It is, however, in the correction of the embarrassing synonymy of fruits that we may hope to derive the greatest benefit from the labours of such a body, much needless expense, annoyance, and trouble being incurred by the confusion which at present exists.

The Exhibition of Fruit also opened on the 19th ult. It was unlike any of our exhibitions—the great nurserymen, proprietors, and fruit growers in France sending specimens of all their varieties of fruits for exhibition, solely for scientific purposes, no prizes being offered. The Society, however, bestows medals for very meritorious exhibitions. Why cannot we in England get up a great meeting of this sort, having for its object some higher motive than that of obtaining a prize of a few paltry pounds? The fruit was displayed in a large hall, the arrangement reminding one very much of the great fruit shows which were held, some few years since, in Willis's Rooms and St. James's Hall, the centre of the hall being filled with seven large tables, some 50 or 60 feet in length and 8 or 10 feet in breadth, on which the fruits were arranged in dishes. At the entrance, at the further end of the hall, and in some small rooms adjoining, were likewise numbers of smaller tables filled with fruit. Most of the fruits were legibly named, great care appearing to have been taken in this respect. It seemed strange, however, to see how little prominence was given to the name of the exhibitors, it being almost impossible to find out by whom some of the fruits were shown, even from the officials in attendance.

Pears occupied the lion's share of space, upwards of 2000 dishes of them being exhibited. The principal exhibitors were Messieurs Jamin et Durand, Pépinièristes, Bourg la Reine; Messieurs Croux et fils, Horticulteurs, Sceaux, Seine; Messieurs Baltet frères, Pépinièristes, Troyes; Messieurs Reville Combe, Tours; M. Lelandais, père, Pépinièriste, Caen; Baron Phillibert Menilmontant, La Société d'Horticulture de Melun, et Fontainbleau; La Société Coulommiers, La Société d'Horticulture de Metz; M. Grégoire Nelis, Pomologist, Jodoigne, Belgium, &c. The finest specimens consisted, for the most part, of sorts with which we are tolerably familiar in England. Duchesse d'Angoulême, the leading Pear of France, was to be found in every collection, frequently of enormous size. Messieurs Jamin et Durand exhibited a variety of this beautifully striped with yellow, called Duchesse d'Angoulême panaché. Our Flemish Beauty was frequently exhibited, and very beautiful it was; it is known in France as Fondante du Bois—in one collection it was called Beurré Spence, a name about which there has been a great amount of confusion. Easter Beurré was exhibited as Doyenné d'hiver—the French name for this variety; Beurré Bosc as Beurré d'Apremont; Beurré Rance as Bon Chrétien de Rance, also as Bon Chrétien d'hiver: about this name, however, there appears to be sad confusion, the French pomologists maintaining that it is perfectly distinct from Beurré Rance, though, judging from the specimens exhibited, with one or two exceptions, it is without doubt identical. In one or two instances the name Bon Chrétien d'hiver was applied to a Pear exactly the same as Bon Chrétien d'Auch. Very fine examples of Glou Morçeau were exhibited under the name of Beurré d'Aremberg, the French name for this variety, our Beurré d'Aremberg being there called Orpheline d'Enghein; Beurré d'Hardenpont is also another synonym of this variety, and the name it is known by in Belgium. Beurré Diel was called Beurré Magnifique; Vicar of Winkfield was the Curé. Grosse Calebasse was exhibited under a multitude of synonyms, viz., Calebasse Monstre, Calebasse Royale, Calebasse Tougard, Calebasse Carafon, and Van Marum; the specimens in one collection under this last name were immensely long and crooked. Uvedale's St. Germain, the monster "quart pot" Pear which we are accustomed to see in Covent Garden Market, was here exhibited under the name of Belle Angevine. Cerneau d'Automne appeared to be the same as our Styrian. The excellent stewing Pear Gilogil was frequently exhibited, spelt in all manner of ways, as Gill ô Gill, Gille Aigulle, &c. Amongst other Pears particularly noticeable were fine examples of Louise Bonne d'Avranches (Louise Bonne of Jersey) and the striped variety of the same exhibited by Messieurs Jamin et Durand, which is very prettily striped with rosy red and yellow, and well worth introducing to our gardens. Napoléon, or as it is called in France, Bon Chrétien Napoléon, was exhibited with bright rosy red cheeks, a colour which we in England would scarcely believe it could ever attain, it being here always so decidedly green. Belle et Bonne, a very handsome looking Pear, but of no value, was exhibited as Belle sans Pepins, in allusion to its want of seeds; also as Belle de Bruxelles. Of other very fine and handsome varieties may be mentioned Beurré Clairgeau, Thompson's, Colmar d'Aremberg, Beurré Superfin, Jalousie de Fontenay, very fine; General Todtleben, Doyenné du Comice, very fine, and a host of others too numerous to mention. Conspicuous by its absence, or nearly so, it being only represented by some two or three scrubby dishes, was our favourite, our first and best English Pear, Marie Louise, without which no collection of Pears in England is complete. One can scarcely understand why this variety is not more cultivated in France.

Apples occupied the next largest space, and though they were not so well represented as the Pears, there were still upwards of 1200 dishes exhibited. M. F. Mauduit, Pépinièriste, of Roucy; Messieurs Baltet, Jamin et Durand, and Croux et fils, exhibited the largest collections. The varieties mostly consisted of our best English sorts, rather more highly coloured than we usually see them. Reinette du Canada was in general very large and fine; this is the staple Apple of France, taking the same rank there as the Blenheim Orange does in England—a variety, by the way, which does not find much favour in France, there not being a single specimen of it exhibited. Reinette Grosse d'Angleterre, in one or two collections, resembled it, and Mervilion d'Espagne in another, but neither were exactly the same. Calville Blanche was frequently exhibited, and very fine it was; this is a most excellent Apple, either for dessert or culinary purposes, and much attention is paid in France to the cultivation of this particular variety. It will not succeed in this country, excepting in a warm situation, against a south wall, or in an orchard-houses. It is worthy of the best situations in Paris, for in the spring season Calville Blanche Apples fetch a fabulous price, as much as 2 fr. and 3 fr. being paid for a single fruit. Belle Dubois was immensely large and fine; it is a kitchen Apple, very similar to our Gloria Mundi. Reinette de Caux was large and handsome, regular in outline. Reine des Reinettes was very handsome, resembling our King of the Pippins or Golden Reinette. Calville de St. Sauveur and Ménagère, two kitchen varieties, were likewise very fine.

Peaches, it being somewhat late in the season, were not so well represented. M. Chevalier, of Montreuil, exhibited a very handsome seedling in the style of the Bellegarde. It was named Belle Impératrice; the fruits were large and handsome, excellent in flavour, the flesh parting freely from the stone; it ripens somewhat later than the Barrington, and will prove a welcome addition to our stock of late Peaches. On one of the fruits was a very pretty and correct tracing of an imperial crown, which must have been pricked into the skin while it was yet very young and tender. The celebrated Peach cultivator, Monsieur le Pére, of Montreuil, exhibited several varieties, the best of which were Chevreuse tardive, and Bon Ouvrier; also the Stanwick Nectarine, which was cracked in the same manner as it is with us. The name was spelt Stanswight.

Strawberries were contributed by M. F. Gloede, of Beauvais; and amongst them was a small dish of Ananas perpetuelles (Perpetual Pine), which is a rather small fruit, conical, deep scarlet, and firm fleshed. Judging by the fruits sent, it seemed a poor trashy thing; but although not first-rate in itself, it is a perpetual bearing variety, and is a break in the right direction, as it may prove the basis of a grand race of perpetual-bearing Strawberries. Belle Bordelaise, a Hautbois Strawberry, was very fine; this is an excellent variety, as likewise is a variety of the Alpine, named Guillon sans filets, somewhat more pointed than the common variety. These Alpine Strawberries are very largely cultivated about Paris, and are to be had in the *restaurants* nearly all the year round.

Grapes were not largely nor well represented, with the exception of those sent by our countryman, Mr. Knight, of Pontchartrain, whose examples of Frankenthal, Chasselas de Napoléon, Gros Guillaume, Lady Downes', &c., were exceedingly fine,—by far the finest Grapes I have ever seen grown in France. He exhibited portions of the stems of his Vines, trained on the spur system, with the bunches hanging on them, and very excellent examples they were; the wood strong, clean, and beautifully ripened. It was an excellent way of showing how the Vine is cultivated in this country—an example which the French gardeners would do well to imitate, their style of cultivation, and the results obtained, being wretchedly poor in comparison. All honour, then, to Mr. Knight for the spirited way in which he continues to uphold the standard of British viticulture amid difficulties of no ordinary kind. It has always been surprising to me to see the little interest and care that is taken in the cultivation of the Vine, in France, for dessert, and that in a country where Vines grow so freely, and Grapes are so much eaten. It is almost impossible out of the millions of tons grown, to get a single respectable bunch. It is also surprising that they should so much admire and lavish such praises on the *petite* Chasselas, entirely ignoring the merits of the large and beautiful Muscat of Alexandria, while they bestow so much care in the cultivation of, and are so proud of, their large Peaches and huge Pears and Apples. *A. F. B.*

ON JUDGING GRAPES.

HOW PRACTICAL MEN LEARN TO JUDGE GRAPES.

IF any one were to ask an experienced Grape grower about the prospects of a crop of Grapes when the leaves had just fallen, and the buds upon the ripened wood were all he could see, he would no doubt be able to give, even at that early date, a very fair estimate of the future crop. A little further on, when the buds had begun to swell, he would see the future bunches taking their shapes, and could accurately reckon their number and size, although they had not as yet any greater dimensions than the size of one's thumb nail. In the culture of Grapes it may truly be said that the "wine comes direct from the wood," and there is no after current; so that unless the buds indicate a fine crop it never can be realised. When the leaves begin to expand, and the flower buds and tendrils shoot out, the crop is counted, and the experienced eye judges, as in true logic, that that which has almost invariably acted in the same manner may be taken as a general rule, and concludes that the bunches will be large or small, fine or stunted, according to the evidence before it. When the Vine flowers, and gives out strongly the peculiar Mignonette flavour, it is a happy omen, and augurs well for the set, and for the stoning of the berry. The size and strength of the foliage give further promise, favourable or otherwise, for the experienced eye to judge of the crop. When a single bunch of Grapes is exhibited for competition, it should be accompanied by the leaf out of whose bosom it has sprung, for the green shade of its parent will make the best garnish that can adorn it, and the judges will have, in the fineness of the foliage presented, an excellent clue to the flavour of the Grape. For such is the faithful and trustworthy character of all the works of Nature (or, if you please, of God), that every promise duly made in indoor Grape culture, is also duly fulfilled. As regards the bloom upon the berry of the Grape, it seems a gratuitous and elegant gift, a heaping of the measure of goodness of Him who "giveth liberally and upbraideth not." It is not of the same category as the mildews and moulds of decay, but is of the nature of a healthy ornament, like the human hair, and referable to the same source, namely, an emanation from the uncreated beauty accompanying a valuable gift. Therefore in judging of the flavour of Grapes by their beauty, we may truly say with Dryden, "Think but well of Him, and half your work is done."

When the prize Grape grower is expecting a spirited competition he either himself goes the round of the neighbouring gardens, or sends his right-hand man to reconnoitre, and so accurately can these men measure in their mind's eye (and carry the measure home) all the opposition bunches, that even the journeyman gardener, gazing intently upon all the points of interest, has become unwittingly an excellent judge, and that before the judgment day, for he has seldom been deceived as to the garden to which the gold medal of the Society would go, if he could only get a glimpse of the Grapes in any stage of their growth. No person should be trusted to judge Grapes who could not tell by sight the flavour of good Grapes, without tasting them. Those who hold the opposite doctrine, and think that no mortal could tell, remind me of that splendid tale so beautifully told by Daniel, where the King asked his wise men to tell him the dream which he himself had forgotten; and we can easily imagine the consternation of what we may call the "Artful Dodgers," when they had to own that "such secrets were only known to the gods, whose conversation was not with men." From what has been elicited in your columns it is evident that this subject was ripe for discussion. If a houseful of Hamburgh Grapes grown to perfection and well ripened, could be found without flavour, they would deserve a first-class prize as the greatest horticultural curiosity of the day.

The ancients considered the Vine as one of the greatest gifts the gods had given them; and whoever is spared to see the development of cheap glass applied to Grape growing in these islands, may yet have cause to be grateful for the generous juice. There is no better way of forwarding the good work of Grape-growing than by keeping the subject on the carpet, and occasionally brushing the dust away from its surroundings. The greatest cause of the want of flavour is to be found in the fruit being exhibited before it is ripe. At the first Manchester Exhibition of this year, the Grapes that I saw were fit enough for exhibition, but not fit to be eaten; and it is but right to state that at most of the early shows exhibitors are rather prone to this failing. I have, indeed, seldom seen the Muscat of Alexandria exhibited properly ripened, although it is constantly shown; it takes an unusual quantity of light and heat, and has to hang long on the Vines after it has fully grown. I may remark here, that for two months after this Grape is ripe and eatable, it keeps improving, and hence it is that this Grape is so unprofitable. Any one can grow Muscats, but ripening them to their full flavour, is a costly and tedious process, for the foliage must be preserved, and it has many enemies where the atmosphere is necessarily warm and dry. From all that I have stated, it is easily seen that Grapes can be soundly judged and compared with one another at various stages of ripeness, and therefore at various stages of flavour, but the man who can judge Vines when budding, and when in flower, and the fruit when colouring, can have no difficulty with ripe Grapes. It must not, however, be forgotten that Hamburgh Grapes are black and beautiful long before they are ripe, so that one bunch may be black and sweet and richly flavoured, and another black and comparatively tart—not being ripe. This lesson of ripening by the means of the foliage is best learnt from the Gooseberry bush; when the caterpillar has taken the foliage the fruit is worthless, for without foliage flavour is not to be got; and if Grapes were to be judged chiefly by their flavour, we had better go the whole length, and judge them by the wine they would yield. But then the real aristocratic use of high class Grapes is quite as much to adorn the table, as to be an eatable part of the dinner, and it is this point which fixes their character. Such Grapes are saleable at, say, from 300 to 500 per cent. above the price of ordinary Grapes. When they are ripe enough to pass this ordeal, they are fit for exhibition anywhere; and the judges know well that a London fruit salesman would never allow that class of fruit to be tasted or even touched, and therefore the exhibitor has good reason to expect that his beautiful Grapes will get the benefit of the doubt, if there be any, as to their flavour, at the hands of the judges. But what most concerns Grape-growers is to have clearly pointed out the immense importance of first getting fine foliage, and then preserving it healthy till the fruit is fully ripened, when the flavour will be secured. If the foliage is forwarded, the flavour will not lag behind, any more than in the

case of Butler's hero, Hudibras, whose quaint reason for using only one spur was that when he spurred one side of his horse, the other never hung back. If Mr. Barnes was able to convert Red Hamburgh Vines of long-standing into Black ones, I have no doubt of getting flavour to well-grown Grapes by the same practical means. The late Duke of —— remarked to his guests that he liked to be able to say, "These —— are the produce of my own garden." I mention this because one of your correspondents seems to insinuate that bought Grapes are not altogether respectable, and that they would necessarily be carried to market half ripe, &c.; but another correspondent naively hints that the best things somehow or other do find their way to London, and a few visits to Covent Garden Market at an early hour of the morning, would take the conceit out of many a crack grower from the country. It is the nation's storehouse for fruit, and when the choicest articles are wanted at untimely seasons, you get supplied from this garden. The deathbed is cheered by Strawberries in the depth of winter at fabulous prices by the ounce, from this market; and hothouse Grapes all the year round are gathered there, to cheer the happy homes of England. But, after all, I offer no apology in favour of its respectability, for I have in my recollection a long article in "Chambers's Journal" about this word, the author of which paper, after he had run over every article in the whole gamut of dress and adornment, could only settle one item, and that was the umbrella: and of this appendage he sagely said, that to be respectable all the world was agreed that the umbrella must not be cotton—*ergo*, to be respectable in the horticultural way, your Grapes must be the produce of your own garden. And in judging of their merit, it will be like bringing a written recommendation along with them, if a leaf be attached, so that a practical man may see its condition. This test ought to be added as a new point by which to judge Grapes, for there is none more trustworthy, and it does not in the least damage the Vine to cut a little wood and a leaf, with the bunch.

Very few, indeed, have had the necessary training to know the flavour of Grapes. The sharp sweetness of the Pine-apple would be quite crabbed for Grapes; the sweet, watery taste of the Melon would lack the vinous flavour of the fruit of the Vine. I recollect a French clergyman tasting some Muscat of Alexandria Grapes that had hung till late upon the Vines, and he was glad to confess that he had never tasted such Grapes before, yet he had been reared in the south of the "Grand Nation," where wine and Grapes were not given by way of dainty, but every day—

> "Ladlefuls o' gospel kail, and runt o' grace,
> Nae gi'en by way o' dainty, but ilka day."—*Burns.*

During my long and somewhat eventful life, I have tasted Grapes, green in tarts, and ripe for table service, of pretty nearly all the leading sorts in cultivation, that I might know how to choose the good, &c.; but there remains vividly impressed upon my mind one sample of White Muscats grown at Oakhill, East Barnet, in the palmy days of that prize fruit-growing garden. To prevent good Grapes from being wasted, the fine golden berries came to the undignified use of being "baked in a pie," and when the pie was opened, it so gratified the taste and smell that it acted like laughing gas, gladdening the partaker all over his countenance. In heathen antiquity the food of the gods was called ambrosia, and Muscat pie must, I think, be ambrosial; for although I have seen feastings for Royalty, with all done that money could do, in the way of fruit, I have never seen these highly-ripened Muscats surpassed, for they were ripened under very extraordinary circumstances which could but rarely happen, and they were heavenly. *Alex. Forsyth.*

THE VICTORIA NECTARINE.

I YESTERDAY (October 1) gathered some fruit of this kind from a south wall. I never remember to have eaten any fruit so delicious: they were not so luxuriously sweet as those grown under glass, but they have, with their rich flavour, a piquancy most grateful. A friend, living near Southampton, writes to me as follows, in two communications:—"In 1864 I had a maiden plant, which, in a pit, has produced its first fruit, now (Sept. 25) just ripening. In June, 1865, I inserted three buds in the upper wood of another Nectarine tree; they all took, and last year (1866) made very rapid growth. This year the young wood was covered with well-set embryo fruit, of which I left 40, every fruit swollen: not one was lost in stoning; they reached an immense size, and of the 32, gathered up to this date (September 25), every one has possessed the most exquisite flavour. I hope to keep the remainder on the tree till Michaelmas. In reply to your note of the 25th, inquiring respecting the aspect and position of my tree, I have to add that I budded the Victoria just alluded to on an ordinary Nectarine tree on the wall of my orchard-house, which is 130 feet long, and without artificial heat, the Victoria Nectarine occupying the east end, and taking the afternoon sun; and this probably gave me so long a succession of fine ripe fruit during the whole of September, which were placed in muslin bags to protect them from the flies, which do not on the whole attack them freely, for, like the Stanwick, they have a thick skin. Every one of my 40 obtained its full size, and every one was fit for the Queen's table. They commenced to ripen early in September, and I amused myself by gathering one or two at a time, and sending them to my friends, and very grand and delicious they were thought to be. They were as large as good-sized Royal George Peaches, very high coloured and beautiful, and one of my friends declared they were the most perfect productions he ever looked on. I must add one word more: the last of my Victorias in swelling so filled the muslin bags that they were obliged to be torn asunder to liberate the prisoners. This princely fruit may, I think, with care be had in perfection during the whole of October; it is very remarkable for keeping several days in a good fruit house after being gathered."

It is always interesting to hear of the welfare of one's children, and so I have ventured to copy part of my friend's letter. I raised the Victoria Nectarine from a stone of the Violette Hâtive Nectarine, the blossom of which had been fertilised with pollen from flowers of the Stanwick Nectarine. When its first fruits were exhibited to the Fruit Committee at South Kensington, with some of the Albert Nectarine, raised the same year, it was very amusing to see the furor which the Victoria created, while the Albert, which had a most distinct and very remarkable vinous flavour, was passed over. The peculiar rich aroma of the Victoria—the blending of intense sweetness with some flavour quite indescribable—had satisfied the committee; it was like offering very excellent mock turtle after green fat.

The Victoria Nectarine will not ripen kindly against walls north of the Trent, unless in some warm sheltered nooks, such as may be found on the east coast of Scotland. In the warmer counties of England it succeeds perfectly against walls, ripening slowly, and, owing to its thick skin, it may be suffered to remain on the tree for some days after ripening. *Thos. Rivers.*

BRITISH ASSOCIATION.

(*Continued from p.* 1024.)

IN Section D (Biology), in addition to the papers previously noticed, Mr. HIERN read a paper on *The Occurrence of Aster salignus, in Wicken Fen.*—Wicken Fen, about 10 miles from Cambridge, is a large, wild, uncultivated tract of peat, overlying a basin of gault, producing sedge, and cut up with ditches. On August 23d last, the writer found growing in an apparently wild state on the fen several plants which he refers to Willdenow's Aster salignus. This species is nearly the only one, out of about 70 closely allied Asters, which is a native of Europe, while the rest are American. It grows wild in Germany and Denmark, in many places by the banks of rivers, and therefore might probably occur in Britain in such a locality as Wicken Fen. It is not a plant in ordinary cultivation, and could not, therefore, easily escape from a garden. Specimens from Wicken have the habit of a wild plant. A living specimen has been placed in the Cambridge Botanical Garden.

Dr. DICKSON, of Dublin, exhibited a *Peculiar Leaf*, in which much interest was taken. Its peculiarity was that the blade, instead of being simply expanded as in the ordinary way, was separated into two leaves, which were united to each other back to back. The leaf had also a very peculiar stalk.

Mr. W. CARRUTHERS read a paper on *British Fossil Cycadeæ.*—After describing the structure and peculiarities of living Cycads, he referred to the history of our knowledge of fossil species. Two genera had been described—Clathraria by Mantell, from the Wealden, and Cycadoidea by Buckland, from the Purbeck. Clathraria has a simple or bifurcated stem, with the internal structure of Cycas; its lozenge-shaped scars are alternately large and small, as in the recent genus, showing the close relationship of the recent and fossil genus; and this is further established by the fruits which have been found in the same beds, and which agree generally with those of Cycas. Four species have been found—three from the south of England, and one by the late Hugh Miller, at Brora, in Scotland. A cylindrical stem, having the general appearance of Clathraria, but with uniform scars on the stems, and seeds in terminal cones, was named by the author Yatesia, after a member of the Association who had first drawn his attention to fossils, and who had rendered him great help in his researches. A single species of this genus occurs in England, and three have been found in France. Buckland's genus Cycadoidea has bulbiform trunks, with small branches, which differ from the bulbils of recent Cycads in that they are permanently attached to the tree. In addition to the three species already known, was one which had been found by Mr. Charles Peach, at Helmsdale, and which the author dedicated to that distinguished naturalist; and a fifth species had been obtained from the Polton Sands. The most remarkable form described, was one to which the name Bennettites, was given by the author after his colleague, whose advice and assistance in this, as in every other work in which he had been engaged, had been of more value than he could express. Two species were described, both from deposits in the Isle of Wight. One had been exhibited and shortly described by Robert Brown. The genus was characterised by having an elliptical bulbiform stem, and a single woody cylinder from which the vascular tissue for each leaf separates *en masse*, as in the stem of Ferns, but passes outwards through the cortical cellular layer. The structure of the fruit was minutely described. It was borne on short branches; the seeds were supported on the ends of branched vascular bundles, which the author considered analogous to the altered leaves of the genus Cycas, but wanting the cellular tissue which forms the blade of the leaf. The various genera thus represent the two sub-tribes of recent Cycads, while Bennettites shows a structure which, while it approaches nearer to Cycas, yet is sufficiently different to form a distinct tribe, of equal value with the other two.

Mr. A. R. WALLACE made a communication on *Birds' Nests and Plumage*, or the relation between sexual differences of colour and the mode of nidification in birds.—Underlying the various structural peculiarities of birds' nests there is a functional difference, which enables us to divide them into two classes, the first comprising all those nests in which the sitting bird is either fully exposed to view, or but imperfectly concealed by the situation of the nest among foliage, &c.; the second, in which the nest is either completely roofed in, or is placed in a dark hole or cavity, so that the eggs and young, as well as the sitting bird, are effectually hidden. Our thrushes, warblers, and finches, as well as all raptorial birds and pigeons, and the chatterers and tanagers of the tropics, are examples of the former style of nest; while the kingfishers, which build underground; the parrots and woodpeckers, which build in holes of trees; the Icteridæ of America, which build hanging covered nests; and our own wren, which makes a domed nest, are examples of the latter mode of nidification. Turning now to the colours and markings of birds, we shall find that, from this point of view also, we can divide them into groups, which are probably functional, since the division depends, not upon the colour or mark of the whole species, but on the difference or identity of colour in the two sexes. The striking difference of colour in the sexes of many birds has attracted much attention, but has not hitherto been brought under any general law. In some groups, as the toucans for example, although the colours are very varied and very brilliant, they suffer no diminution in the female, which is always equally adorned with her mate. In the majority of birds this is not the case, but the female is almost always less brilliant than the male; and in many cases, as in the gorgeous chatterers and Paradise birds, the hen bird is so dull and dusky in colour that it can rarely be recognised as belonging to the same species. Now, I believe I have discovered a casual connection between these two groups of facts, for with but very few exceptions I find that, whenever both sexes are of bright, gay, or conspicuous colours, the nest is of the second class, or such as to conceal the sitting bird; while, whenever there is a striking contrast of colours, the male being gay or conspicuous, the female dull and obscure, the nest is open, and the sitting bird fully exposed to view. The following are the chief facts on which this generalization is founded:—The entire families of kingfishers, motmots, and Bucconinæ, or American barbets, build their nests in holes deep in the earth. They are almost all gaily coloured or at least conspicuous birds, and in every case the female is either of exactly the same colour and markings as the male, or when different is scarcely less conspicuous. The Capitonidæ, the toucans, the plantaineaters, the hoopoes, the trogons, the woodpeckers, and the parrots, all build their nests in holes of trees, and in all these birds (comprising 500 or 600 species), which are almost universally gay-coloured or conspicuous, the females are either coloured exactly like the males, or, when different, are little less conspicuous. The Eurylæmidæ, another group of strikingly handsome eastern birds, make a covered nest, and there is no distinction of sexes whatever. The beautiful little group of Paridæ or tits differ from most of their allies in always building a nest in which the female is concealed, for while some of the species build a roofed nest, others place it in a hole. The genera, Sitta, Sittella, and Climacteris, either build their nests in holes, or conceal them carefully among twigs and dense foliage. They are all pretty and conspicuous birds, and the males are always either coloured like the females, or even sometimes more gaily. The fine metallic starlings of the East (Eulabes and Calornis) have the sexes exactly alike, and the former builds its nest in holes, while the latter forms a roofed hanging nest. The ground-cuckoos (Centropus) are showy birds, which build a domed nest, and the females are not different from the males. The Icteridæ, or hangnests of America, are almost all showy birds, generally adorned with bright red or yellow patches on their glossy black plumage. They all build roofed or purse-shaped nests, generally pensile, and in all the females are as gay as their mates. These facts strikingly contrast with the number of birds of showy plumage which build open nests, for in almost every case the female birds are totally devoid of the gay plumage of their partners. The superb blue and crimson chatterers, the exquisitely varied tanagers, the gay little manakins, with their orange, blue, scarlet, or white heads, have all females of the dullest brown, or olive-green tints, generally without a vestige of colour over their whole bodies. Hundreds of species of tropical flycatchers, shrikes, thrushes, and warblers are exceedingly handsome birds, adorned with the most brilliant hues, but they build open nests, and in every case the females are much less conspicuous than the males, been especially deficient in those bright patches of colour on the head and upper parts which would render them visible while sitting on their eggs, and in a large proportion of instances being of uniform earthy brown or olive-green tints best adapted for concealment. We learn from these curious facts that, in harmony with innumerable facts of a similar nature among insects, the female bird being exposed to danger during the important epoch of incubation, and it being of the highest necessity for the preservation of the species that she should be protected during that epoch, all gay colours which would betray her presence to carnivorous birds, beasts, or reptiles are denied her, except in those cases when the structure or situation of the nest itself effectually hides her; then, as if plainly to teach us the reason of this difference, we find female birds adorned with all the gorgeous hues which, in other cases, are confined to the male sex. A most striking proof that this is the true explanation of these phenomena is found in some very curious and anomalous facts in the natural history of birds. There are a few cases in which the male birds either chiefly or wholly perform the duties of sitting on the eggs; and when this is the case, and the bird is sufficiently defenceless to need protection, the usual external characters of the sexes is also reversed, and the female becomes the larger and the finer-coloured bird. The sooty phalarope, the dotterel, and the small Indian quails of the genus Turnix, are examples. The origin of this curious and unexpected connection between the

mode of a bird's nesting, and the colour of the female plumage, will be differently explained according as we adopt the theory of "special creations" of every slightly varied form, instinct, or habit, or believe that these are all due to the action of the laws of variation and hereditary transmission, and the cumulative effect of "natural selection" or survival of the fittest. It appears to me that the views of Mr. Darwin best enable us to understand these facts, and that they well illustrate how large a part the need of protection has played in producing many of the most striking peculiarities and anomalies in the animal kingdom. It is true there are some exceptions to the law here laid down, but they are few in number, and can generally be explained by the peculiar habits of the species. On any theory of evolution or development of the forms of life, we must admit that the present condition of nature is the resultant of all past conditions. The long-continued actions and reactions of all known and unknown causes, must have been intricate in the highest degree, and their effects must be proportionately complex. Anomalies and exceptions must therefore be expected to occur, for how can we explain all the phenomena of nature so long as we know only an infinitesimal fraction of its past history? Yet there are existing facts in nature which enable us to trace some of the more important influences which have been mainly instrumental in modifying and remoulding the forms and colours and habits of all living things.

Home Correspondence.

Mildew in Peas.—From this year's crop of early Peas I saved some seed that was sown on the 30th of July. The kind was supplied to me, in the first instance, by one of our leading nurserymen, as Daniel O'Rourke, but I found it so much mixed that the whole did not come to maturity at the same time. I therefore, in the produce obtained, separated two of the varieties therein, a larger and smaller sort, of which samples are enclosed, marked Nos. 1 and 2. These were sown apart, on the same day, and from the former I have been gathering for the last week Peas nearly as numerous and fine as those from the previous crop. The other (No. 2) is upwards of a foot taller, and now only coming into pod. Can you tell me, from the appearance of the samples, which of the two sorts is the true Daniel O'Rourke? It strikes me that No. 1 is identically the same as First Crop. Both Nos. 1 and 2 are growing, even at this late period of the year, in a most luxuriant state, entirely free from mildew or blight. This arises no doubt from the rows having been constantly well syringed all over, on the evening of every dry day, from the time they came up, so that the soil remained always moist, and the vegetation did not suffer in the least from extreme heat or drought, which circumstance I take to be the main cause of mildew, because, I have other Peas still in a bearing state, sown in June, not so treated, that are sadly affected with it. The same observation applies to my Roses, for those that were kept regularly watered are now growing and blooming splendidly, whereas others, in consequence of that omission, are covered with mildew or unhealthy blackened foliage. I should like to know if others of your readers have given the "water cure" a trial on their late sown Peas in the same copious manner, and how it has answered with them? A mere sprinkling will not suffice, they require to be thoroughly soaked during the dry season, but, at the same time the drainage must be perfect, because, as every one knows, stagnant moisture is destructive to all plants. *Amateur.* [No. 1 is Dillistone's Early or First Crop; No. 2, Sangster's No. 1 or Daniel O'Rourke. EDS.]

Phalænopsids (see p. 952).—The formation of a young plant on a Phalænopsis cannot by any means be considered rare, though perhaps the occurrence happens as seldom with P. Schilleriana as with any, which is singular enough, considering the magnificent specimens of it now in the country. The most prolific I think is P. rosea; but P. Luddemanniana I imagine will eventually prove itself to be even more free than it. I have a plant of P. Luddemanniana on which a young plant formed at the end of a spike last autumn. The offset soon threw out roots, and established itself. The old plant grew all the winter, making leaves 11 inches long and 4 inches broad, and at the same time threw up four flower spikes, the longest attaining a length of 26 inches. The plant was exhibited at the National Exhibition in June last, with eight very large and finely-coloured blooms on it, and since then it has formed three more at the extremity of the spikes. The old plant has continued growing all the time, and is now making the twelfth leaf. I have a plant of P. Lowii, which has made a leaf this summer 4 inches long, and now it has thrown up a spike 12 inches long, with two laterals, each bearing two flowers. *W. Swan, Gardener to T. Jones, Manchester.*—I have under my charge a plant of P. Schilleriana, which has produced two breaks, and another is formed with five leaves on the base of the old plant. The productive mother had 46 flowers in great beauty during the time when the second break was forming. The plant taken off last May has seven leaves, the longest being 8½ inches. I may mention that I have seen at Park Hill, Streatham, P. amabilis, P. grandiflora, and P. rosea, with several young plants on their flower stems. *John Preston, Gardener, The Ryelands, Norwood.*

Frost.—I had intended, some weeks ago, to have given you the results of last season's frosts on my shrubs. My garden is bounded on the eastern side by the River Thames, and on the night of January 4—5 this year, the thermometer marked zero on the scale of Fahrenheit. Most hardy Roses escaped, both standards and others on their own roots, but Bourbons were killed to the snow line; this was the case with a white and yellow Banksia, but Fortune's Banksia braved the frost. Escallonia, killed to the ground, partially recovered, but probably will eventually die. Ceanothus, though much cut, recovered full vigour; Cupressus macrocarpa, quite killed; Lambertiana, close by it, untouched; Bay, Arbutus, Laurustinus, killed to the ground. On the whole, I suffered less than most of my neighbours, which I attribute to the dryness of my soil—chalky gravel. I desire to call attention to this point, that persons may make trustworthy observations—I mean observations with reliable instruments, recorded at the time—during the coming winter. It is frequently said, and at the beginning of the year a good deal was written in your pages asserting, not proving, that the cold was greater in the valleys and by watersides than on the hills, because the damage done to plants in such localities is generally greater. It may occasionally be the case, because so many circumstances conspire to produce what we call climate; but it will be found, I believe, that the tendency of water is always to mitigate the extremes of temperature. If the valley as a rule is not warmer than the hill, will any one explain to me why we may often see the hill tops covered with snow while the vale is free; or why the corn is 10 days or a fortnight later in ripening on the hills 400 feet above me than, I will not say in the valley, but in the open plains to the northward of them? To conclude with the most recent instance in favour of what I have been advancing. On Oct. 4 I called on a friend who lives on the hills above me, and I found none of his flowers holding up their heads but some beds of Tom Thumb Pelargonium; they had been all nipped by that morning's frost. I had a frost, too, upon the Grass; but all my flowers, even Nasturtiums and Heliotrope, within 100 feet of the river, were unhurt. *J. S., Streatley Vicarage.*—In reply to your inquiry respecting the effect of the cold winter upon Coniferæ in this neighbourhood, I am happy to say that, as far as I am aware, there has not been the smallest damage done to them for several miles around me. I am seven miles west of Taunton. Some trees of Pinus insignis at Mr. Perkins', The Grange, Kingston, about seven miles N.W. from here, have been slightly frost-bitten on the exposed side, but none of them killed. My own had grown 9 feet in two years, but have escaped all injury, and made long shoots. I am sorry to say that the fine Benthamia at Tetton has been killed this year; the return of winter in March, and the frost on the Derby day, have done much more harm hereabouts than the cold in January, and gave the Benthamia its death-blow. A very large Bay tree, 30 feet high, at Milverton, has been pinched, but not severely. Smaller shrubs of the same in that parish have not been hurt. The Laurustinus, as elsewhere, have been the greatest sufferers: but I do not believe that any of them have been killed. Quercus Ilex has escaped altogether, and so has the common Furze bush. *R. C. A. Prior, Halse House, Taunton.*

Pine-apples at Archerfield.—In speaking of Archerfield recently (see p. 999), I forgot to give you an interesting quotation from Mr. Thomson's fruit note book, concerning an experiment which he made with Pines. It was undertaken with a view to test the value of large or small pots for Pines. Eighteen plants were shifted into 15-inch, and 18 into 11-inch pots. The following are the results:—

				lb.	oz.
From 15-inch Pots.					
1	Smooth Cayenne	weighed	.. ..	9	6
1	,,	,,	.. ..	9	1
1	,,	,,	.. ..	8	9
2	,,	each	.. ..	8	3
1	,,	weighed	.. ..	8	2
1	,,	,,	.. ..	8	1
1	,,	,,	.. ..	7	9
1	,,	,,	.. ..	7	7
1	,,	,,	.. ..	7	4
1	Charlotte Rothschild	,,	.. ..	8	5
1	,,	,,	.. ..	7	5
In 11-inch Pots.					
1	Smooth Cayenne	weighed	.. ..	9	2
1	,,	,,	.. ..	8	12
1	,,	,,	.. ..	8	11
	,,	each	.. ..	7	10
2	,,	,,	.. ..	7	11
1	,,	weighed	.. ..	6	12
1	,,	,,	.. ..	6	10
1	,,	,,	.. ..	6	8
2	,,	each	.. ..	6	7

"Although," says Mr. Thomson, "the 15-inch pots show the greatest weights, I do not consider anything was gained by the larger pot, as those plants put into the largest pots were at the time of shifting the finest plants, and those from which I should have looked for the finest fruit. Out of the 36, seven fruit were under 6 lb., and only one fruit under 5 lb. They were cut in the dead of the year, from the end of October to the end of January, 1866. In the smallest sized pots there are some wonderful fruit this year just swelling off from plants potted as rootless suckers in August, 1866, that will ripen at Christmas." *Viator.*

Planting.—If planters will follow the advice given by you last week (see p. 1021) there will be little disappointment. My advice also is to those who have room to plant extensively, plant of all sorts, both Conifers and deciduous trees. Some sorts will surely succeed, even in the most unfavourable localities. I have introduced to a considerable extent, in my woods and pleasure grounds, most of the new deciduous varieties. They are indeed well worth cultivation. In particular at this season, and after the long, hot, dry summer and autumn, the beauty of foliage in its dying state is very great. *Shannon, Castle Martyr, Ireland.*

The Vines at Chatsworth.—Allow me to correct a little mistake which I find in the *Gardeners' Chronicle* of October 5 (p. 1025). Your correspondent, Mr. Hereman, while noticing the alterations that were made to raise and improve the Vine borders at Chatsworth nearly 40 years ago by Sir Joseph (then Mr.) Paxton, observes that "he came to Chatsworth in 1818 from the Horticultural Society's gardens at Chiswick," whereas these gardens were not formed until 1822, and Mr. Paxton was not employed in them until November, 1823. Under the direction of the late Dr. Lindley, who was then Secretary for the garden, Mr. Paxton assisted to arrange and plant most of the beautiful specimens of trees which now adorn the arboretum, and had the superintendence of this department until he was appointed to the gardens at Chatsworth, in 1826, by the late Duke of Devonshire. *W. B. B.*

Viola lutea.—This plant has qualities adapted for bedding purposes which, when known, will render it as popular and as much sought after as its lovely compeer the Viola cornuta. On a recent visit to Huntroyde I was very much struck with the charming effect produced by these two Violas, planted in a border side by side. V. lutea is perfectly hardy, of a very compact habit, and produces its beautiful canary-coloured flowers throughout the season (rain or sunshine) in the greatest profusion. To those who are not the fortunate possessors of this plant, my advice is, get it and propagate it as soon as you can. Mr. Wills informed me that the border in which his plants were blooming so freely, had been well manured: this is a matter that will require attention, as neither of these Violas will bloom so freely in poor soil as they will do in good rich material. It is a pleasing fact to note, that three of our most effective bedding plants are quite hardy, viz., Dactylis glomerata variegata, Viola cornuta and V. lutea. *Bruce Findlay, Botanic Gardens, Manchester.*

The Silver Pine of Table Mountain (*Leucadendron argenteum*, syn. *Protea argentea*).—In your impression of the 29th of June (see p. 685), you inserted a short communication from me, respecting the so-called "Silver Pine" of Table Mountain. I find, from a conversation which I have had within the last few days with a gentleman recently returned from the Cape, that the last paragraph of the quotation given in the article under notice requires a slight correction. It is there stated that "this tree seems of little use, and has only its beauty to recommend it;" I am told that the bark of the tree is used in tanning, and the trunk furnishes excellent firewood. I ask you to insert this, because I am of opinion that all good and useful qualities possessed by any plant should be duly recorded. *δ.*

The Loquat (*Eriobotrya japonica*, Lindley, syn. *Mespilus japonica*, Thunberg).—Although this tree was introduced some 80 years ago, it is very rarely to be found in collections of exotic fruits in this country. Yet it produces an agreeable fruit about the size of a Gooseberry, of a fine yellow colour, and, according to the late Sir Joseph Banks, as good as the Mango. To ripen it with flavour it requires the temperature of a stove, coming, with such treatment, into use in March. I know of one tree which has been growing in a conservatory for many years, and has a stem of considerable thickness; but though it has frequently produced its deliciously sweet-scented flowers, it has never matured its fruit, the temperature of the house not being sufficiently high to effect that result. It may be grafted on either species of the genus, or on the Hawthorn. At the Cape I find the tree is cultivated, and the fruit is there much esteemed. *δ.*

Polygonum cuspidatum.—This is not mentioned in Paxton's Botanical Dictionary, but it deserves to be more generally known than it is. For many years I never saw it anywhere except at Kew and in my own garden, both of which have to thank the late Dr. Royle for it. He brought it from Northern India, and I think he said it occurred also in China. It grows as a bush to the height of 8 feet. In the summer its foliage is pleasing, though peculiar from the singular shape of the leaves, and its delicate clusters of white flowers in August are very pretty. It is a capital perennial for a mixed border. *W. T.*

Anagyris indica.—Some 20 years ago I saw a plant of this species growing out of doors, trained against a south wall, at Streatham, where in the month of May it was producing clusters of yellow blooms, in form resembling bunches of Wistaria. I sent a bloom of it to the late Dr. Lindley, who kindly named it for me. There is a balcony in Norland Square, Notting Hill, where Wistaria (Glycine) sinensis and Laburnum have been intertwined all over it, with good effect when in bloom; but I have often thought that a much more elegant and graceful combination would result from training Glycine and Anagyris indica together. It has never been my good fortune to see another specimen of the latter plant, no do I remember to have seen it referred to in any catalogue. Can any of your correspondents give any information about it? *W. T.* [What our correspondent refers to is the shrub now called Piptanthus nepalensis, which is much less frequently seen than its merits deserve, though it requires the shelter of a wall. EDS.]

Variegated Zonals for Bedding.—Can any of your correspondents inform me which of the "Tricolor" Geraniums would surpass Mrs. Pollock for a bed 15 yards from the nearest point of view? *W. E.*

New Silkworm (see p. 1001).—The following additional notes upon the manufacture of silkworm gut, from the Liquidambar feeding worm, may prove interesting. Mr. Consul Swinhoe says that the cocoons which were brought to him were attached to the twigs of the tree, and that at the time he received them (July 10) nearly all the worms had finished spinning. On the 27th of June some, full grown, were taken to him for the purpose of showing him the method of drawing out the gut, but, as he was engaged at the time, attention was not given to the subject till the following day, when the basket was opened and one worm found dead: the others, the natives declared, were past the time, and no longer of use. He, however, proceeded to show the process of drawing out the gut. For this purpose he had a cup of strong vinegar and another of water; he took one of the live worms in his fingers, and broke it in one of the hinder joints of the

body, from which he extracted a thickish, white, thread-like substance: this was steeped in the vinegar for a second or two, and then shaken about in the fresh water. It seems that great care is required not to allow it to be in the vinegar too long, as it turns it yellow. The gut was next fixed at one end and drawn gradually out into lengths. Care is necessary to select the larvæ before becoming too old, as in those which were experimented upon in Mr. Swinhoe's presence (the native declared to be too old) the gut cracked and broke, and had lost its ductility. Some of the worms were fast spinning cocoons. It seems that at the season—near the end of June—"boys are set to watch under the trees for the worms to descend, lowering themselves on their own threads. They do not come down until they are ready to spin. As soon as a worm descends it is at once caught, broken, and the silk gut there and then extracted, steeped in vinegar, washed, and drawn out. The boys are always provided with vinegar and water during the capture, as the operation brooks of no delay. If the worms are kept at all the gut is useless, and will not draw. Each gut, if properly managed, will draw out to 20 or 30 feet. The gut is dried in a shady place, and is then rolled up and considered ready for use." The use of vinegar in preparing the gut agrees with the mode of preparing it in Spain. *J. R. Jackson.*

Pinning Dahlia Blooms.—As a grower and admirer of Dahlias I am glad to see that attention has at length been called to a practice which for some years has been gaining ground among Dahlia competitors, viz., that of "pinning on" the under petals of blooms intended for competition. I have always been certain that it only required to be known that such a thing was done, to call forth, as it has now done, and as it most justly deserves, an unqualified and unanimous denunciation. It certainly is a despicable and dishonest practice, and the sooner some plan is devised which shall effectually put a stop to it the better. A correspondent asks (see p. 976) "Is the practice right, or is it wrong?" Surely there can only be one answer to the question, seeing that it is dishonesty and deceit to pass off for a *bonâ fide* Dahlia what is little other than a "basket" one. Were every show-stand which contained a pinned up Dahlia bloom to have a disqualifying card pinned to it, in my opinion there would soon be an end of pinning. *M. P.*

Variegated Elms.—If your correspondent Mr. Hally (p. 952) will visit the garden of the Royal Horticultural Society at Chiswick, he will find in the wilderness walk at least two variegated Elms on their own roots, and moreover one of them has sent up an abundance of suckers, the leaves on which are as fully variegated as those on the parent stem. *M. S.*

New Grapes.—1st, Muscat Champion: A fine looking Grape, possessing a tolerable Muscat flavour, with large bunches and berries; I am under an impression that this Grape will not come into general favour, as it is more liable to be of a brown than a black, rarely colouring up to the stalk. 2d, Royal Ascot: This is a great bearer, with thick skin and hard flesh, bunches medium sized; it is not so early as the Black Hamburgh, and in my opinion not so good. Much has been said about its keeping qualities, but this has yet to be proved, as no fruit of this Grape has yet been seen in February or March. 3d, Mrs. Pince's Black Muscat: This, in my opinion, is the best Grape of the year; bunches large, well formed, berries medium sized, well set on stout rigid stalks, fine Muscat flavour, and it has proved itself to be an excellent late Grape; one great recommendation is that it requires little artificial heat. 4th, Madresfield Court Black Grape: This is likely to take a first-class place where good Grapes are grown; it has fine bunches, large berries, strong Muscat flavour, vigorous constitution; perhaps the leathery skin may be an objection. There is yet another Grape in the country which has not yet put in an appearance for public favour, but which probably will do so next year; it is of Australian origin, remarkably large in bunch and berry, a fine black, and said to be well flavoured. The Mammoth would not be a bad name for it. *Ebor.*

Nurserymen and their Representatives.—Let me not "rush into print" without taking heed of the consequences. I would not say one word against the nurserymen as a body, for their respectability is undoubted, and from many of them I have received the utmost civility while conducting the business of my employers; but a circumstance has occurred which my duty to the class to which I belong leads me to bring under public notice. Nearly ten years ago I was engaged where I now am. Some two months after a London traveller called, and was told by me that I was not a buyer; that I was not in want of anything. He said he had been in the habit of supplying my predecessor to the extent of from £70 to £200 for plants in one account, and that it would be hard for him to lose this through me. "Would it be of any use to see the gentleman himself?" My reply was that I had nothing to do with that; but that I did not intend to purchase any more Orchids till I had another house to put them in, as we were too full already. Time rolled on; the traveller became himself a dealer, and transacted business on his own account. His representatives (I write in the plural, for they have been many) made calls upon me, and sometimes received an order for a few plants, and at other times went without. About three weeks ago another of his representatives called, and on making himself known, was by me invited into a room in my house, paid the account due, and was informed again that I did not require anything at this time; that the plants had not answered my expectations, they having been so small and imperfect that it had taken all the summer to make plants of them. This was nearly the extent of my conversation. Judge my surprise when, a few days after, I received a letter from the principal, telling me that I had abused his "representative," and that he was about to bring my conduct under the notice of my employer, who, he was sure, would not tolerate such conduct in any of his servants; but conveying a hint that an apology might stop proceedings. To this I replied, that his threats and his favours were alike to me—I cared for and wanted neither. This brought from him in return a repetition of the threat; and so the matter rests. Now, sir, this is a system of pushing business new in its way; but one calculated to work upon country gardeners not always prepared, with strength of mind, or position in business matters, to resist the annoyance. *A Gentlemen's Gardener.* [Is not this a matter which should be settled "out of court" by the parties concerned? The anxiety "to do business" does not usually manifest itself in incivility. Eds.]

Pipe Flues.—I have a brick pit here, heated with 9 inch socket earthenware pipes, which answer the purpose perfectly. The cost of fuel to keep it at a forcing heat is very small, the attention is no more than what would be required for a hot-water apparatus, and it does not need any hole dug in which to set a boiler, the whole being but 1½ feet below the surface of the ground. The pit contains six lights. It is divided in two, and is 21 feet long, and 7 feet wide. The height in front is 2½ feet, and that of the back 6 feet. Inside is a brick pit 4 feet wide and 3 feet 6 inches high, with space in front for the pipes for top heat, set on bricks, to keep the damp from affecting the draught. The other row of pipes is under the mould at the back of the inside pit, with a walk behind 2 feet in width. In this pit have been grown good Cucumbers and other plants. *J. H.*

Coast Plants.—I have a house and grounds on the south coast, close to the sea, and as you may suppose, there is great difficulty in obtaining shelter from the wind, which I may say is almost constantly blowing. I have had a number of roots piled up as a screen, which would have the desired effect, but that we do not know what plants to put in. The roots face the south, and are very much exposed to the force of the wind. Will you mention what plants you think would succeed. *A. B. C.* [The following will perhaps succeed with you, viz.:—Cupressus macrocarpa and Lawsoniana, Yews, Hollies, Box, Laurustinus, Phillyreas, Arbutus, Black Austrian Pines, Maples, and common Alder; Hypericum calycinum, Vincas, Gum-cistus, Cineraria maritima, Tamarix, Lilacs, Antirrhinums, Delphiniums, Wallflowers, Helianthemums, Pinks, and Carnations. Eds.]

Campanula Barrelieri.—I wonder this handsome and free-blooming species is not oftener seen than it is. Its profuseness of bloom is something remarkable, while its duration extends over a considerable time. It is an excellent kind for greenhouse decoration during summer, as the plants hang down from the pots, and are literally covered with bloom. It has also bloomed capitally in pots out-of-doors. I mean to try a bed of it next summer. I have a woolly-leaved species or variety also, almost identical in every other respect with the above. *R. D.*

Zonal Pelargoniums. — I quite approve of Mr. Groom's suggestions with regard to a show of Zonal Pelargoniums. I also highly approve of the mode of classification which he has proposed to adopt. And I will willingly withdraw my own proposal (see p. 808) in favour of that of Mr. Groom, concerning which I will only suggest a slight addition to the number of classes. It appears to me that it may not be quite advisable to exclude seedling or yearling plants altogether, as it is quite possible that the ensuing season may develop forms and varieties quite distinct from, and even in advance of, all that has preceded them; and it is certainly a pity to refuse the public the earliest opportunity of seeing them. I therefore beg to suggest the adding of two classes to the 14 which Mr. Groom has proposed, so that the schedule, if adopted, would consist of 16 classes. The two I propose to add would be as follows:—

Class 15.—Six Seedling or Yearling Pelargoniums, seedling plants, not from cuttings, viz., two Golden Variegated Zonals, two Silver Variegated Zonals, and two Bronze Zonals.

Class 16.—Three do., do., do., viz., one Golden Variegated Zonal, one Silver Variegated Zonal, and one Bronze Zonal.

The entrance fee to be the same as for the corresponding classes, and the same rules to apply with regard to the size of pots. In your parenthesis in Mr. Groom's letter you say that it has been decided that in future three plants of each sort shall be required. I regret to say that I see considerable objections to this hasty decision, inasmuch as intending exhibitors do not all reside at what may be called an easy distance from South Kensington; and supposing Mr. Groom's schedule, or one similar, agreed to and adopted; and suppose, also, a distant grower desirous of exhibiting in classes 1, 4, 7, and 12; this would necessitate the transmission of no fewer than 72 plants—a somewhat serious consideration. So I will beg to propose, as an amendment, that they be shown in pairs. This will reduce the number of plants required by one-third, and two specimens would represent each variety just as well as three. *P. Grieve, Culford.*

Hardihood of Centaureas (see p. 1025).—Last year I had two beds of Centaurea argentea, and in November, when the beds were relieved of their other blackened and despairing occupants, the Centaureas looked so little damaged that I determined to try a bed throughout the winter without any protection. The bed in question was situated only a few yards from a thermometer which several nights during the winter indicated 29° of frost, yet not a single plant was destroyed, and indeed they are now by far the best plants I have. When I say that they have had no protection, I mean no artificial assistance, for this was rendered unnecessary, as Nature had provided a substitute in the clouds of leaves which fell from the many and beautiful Beech trees that so thickly stud the park which surrounds the gardens, and these in their passing flight were detained by the long and flexible leaves of the Centaurea, until every cavity was closely filled up with them. These leaves were allowed to remain just as they fell until the spring, when everything was cleared away, and, although every leaf of the Centaureas was rotten, the crowns and side buds were quite fresh and plump, so that early in April they were again fine bushy plants, although, strange to say, as green as Cabbages. I had occasion to transplant them early in June, which they evidently enjoyed, and I have no hesitation in saying that they produced the largest and best powdered leaves I ever saw grown in the open air, so much so that I intend this winter to leave all my plants again at the mercy of Nature's kind protection, except those which I require for pot culture. I may just add, that the best companion for the Centaurea that I have found is Achyranthes Verschaffeltii, notwithstanding all that has been written both as regards its merits and demerits, for with me it has always proved a decided success in the north, where Coleus and Amaranthus melancholicus have proved complete failures. *R. Westcott, The Gardens, Raby Castle.*—Centaurea candidissima (ragusina) has frequently been left out here all winter; and though it does not live over our severest winters, it has stood 10° and 15° of frost without being killed. Continued damp appears to be as fatal to it as cold, and I feel confident that the generally damp climate and soil of Hertfordshire would kill it without frost. Even if it stood over the winter, however, I do not think much would be gained, because old plants which I have known to stand the winter never make such graceful and beautiful specimens as those grown from single crowns. Old plants have a much greater tendency to throw up flower-stems, and do not make nearly such fine foliage as young plants planted every year. I may state that it frequently damps off very much, even in wet summer and autumn weather, when planted on the level: and to obviate this I generally elevate the plants a little by sticking large drain tiles or bottomless pots into the border, leaving them 9 to 10 inches above ground; and in these the Centaureas are planted in April. Managed thus they never suffer from damp, and the beauty and elegant habit of the plants are set off to great advantage. During this unprecedented cold and wet season, in some instances they have been elevated in 15-inch pots, and the latter have been entirely hidden from view by the leaves hanging over the sides, meeting together with a surrounding band of Iresine Herbstii, a combination which has been much admired. This is in a sort of chain fashion, and the whole is, while I write (Oct. 8), in great beauty. These Centaureas when planted were bushy young plants, in 6-inch pots, and were surrounded in the pots in May with blue Lobelia. They are now more than 30 inches across. Plants of that size we never save, unless for the purpose of propagation in spring. Young plants are always considered more beautiful in symmetry and foliage. *D. Thomson, Archerfield Gardens.*—C. candidissima is so far hardy that it withstood the severity of the winter of 1864-65, at this place, in the open border. On reference to our register of the temperature, I find that our lowest record was 12°, showing 20° of frost on the nights of February 14 and 15, 1865, with a slight covering of snow at the time. Last winter I kept a few in a cold pit, and they were frozen as hard as stone in the pots. Part of these died, but not all: those that lived are still growing in the borders here. I find this Centaurea to be a very difficult plant to keep alive when taken up, as with us it refuses to root again when re-potted; so I now plunge it, pot and all, in its summer station, and so far the practice seems to answer well. *William Denning, Gardener, Bolton Hall, near Bedale.*

Miniature Vines in Pots.—When at Birkenhead Horticultural Show the other day I saw several pots of Black and White Grapes exhibited, from 1 foot to 1 foot 6 inches in height, with two or more bunches of fruit on each. The grower of them is Mr. Wm. Henderson, Gr. to the Hon. L. Harman, Newcastle, Ballymahon, Ireland. The cuttings were taken from old plants in February, and planted in 4-inch and 6-inch pots, and the Grapes were ripe for table in the following February,—a great acquisition to dinner-table decoration, being both useful and ornamental. *Z.*

Comparative Hardiness of Bedding Plants.—If your correspondents would send notes, something similar to those upon the fruit crops, on the above subject, much valuable information might be collected. Several things would be needful to render such facts valuable for scientific and practical purposes, *e. g.*, the latitude, longitude, and altitude of the place; its mean temperature, and the amount of cold which injured or destroyed the plants. If the readings of the thermometer, the prevailing wind, and the rainfall could be added for each day and week, such facts might, when multiplied and generalised, furnish the key to the solution of some strange problems in plant life in their relation to the weather. But I cannot enter into the matter at present, my object being simply to state at what time, and by what temperature, certain plants have suffered here, and how the others look after such a cold bath of freezing ice—it could hardly be called snow, although the great flaky masses froze as they fell—on the morning of the 4th. This, although the thermometer was 1° below freezing, seemed to injure nothing except Dahlias. On the 5th, with 2° of frost, Perilla was the most injured of all our bedding plants, Coleus next, and Iresine less than either. On the 6th the thermometer sank to 3° below freezing, and the additional degree killed the Iresine nearly to the ground. Since then we have had several ground frosts of about ½° or 1°, but they have left everything else uninjured, with the exception of Golden Chain, which has proved itself the most tender Pelargonium in the garden. Probably Spread Eagle is the next most sensitive to cold. Mrs. Pollock, Italia Unita, &c., have neither lost colour nor suffered in any way; even Mangles' Variegated is as

delicately beautiful as before, and Stella, Christine, Boule de Feu, Improved Frogmore, and other old stagers, are as fresh and beautiful as ever. Some Iresine in baskets and vases, from 2 to 6 feet from the ground, and fully exposed, have not a leaf touched, and the whole of the vases are as perfect as at any period of the season. I will watch and carefully note when the other plants are injured. One fact is very striking. Iresine, that would not bear, with the most careful hardening off, ½° of frost in May, has now borne 3° or 4° with perfect impunity. *D. T. F.*

Notices of Books.

Genera Plantarum ad exemplaria imprimis in herbariis Kewensibus servata definita; auctoribus G. Bentham *et* J. D. Hooker. Vol. i., pars 3. London: Reeve & Co.; Williams & Norgate. Royal 8vo. Pp. 319. (Genera of Plants, &c.)

On former occasions we have noticed the issue of two parts of this most important systematic work, and we have alluded to the plan which the authors have followed in its preparation. We have now to announce the issue of a third instalment, completing the first volume—a volume comprising, with the supplements and indices, over a thousand pages, and including the whole of the Polypetalous orders. To the contents of the preceding parts it is unnecessary again to refer. The orders now treated of, are very varied as to relative importance, and numerical constitution, thus, while the Turneraceæ occupy scarcely two pages, the Umbelliferæ require 70 pages for their enumeration.

In this place no detailed criticism as to the constitution of, or as to the alterations or limitations proposed by the authors in, the several genera can be entered into, a few general remarks being all that our space, or our scope, will allow us to make. The Melastomaceæ, a group of tropical plants nearly allied to the Myrtles, are here classed according to a scheme originally propounded by Signor Triana, a scheme dependent in great degree upon the anthers, which, as most readers will be aware, present great peculiarities in this family. Horticulturally this group is one of considerable importance as comprising many important plants; some, such as Pleroma, Medinilla, Osbeckia, and others, valued for their flowers, which are among the most brilliant of all; others, prized for the boldness or the singularity of their foliage, as Cyanophyllum Sphærogyne, Bertolonia, &c. The order Lythrarieæ, as here constituted, is somewhat of a refuge for the destitute, or for certain genera that have no very clearly marked resting place; and it requires the exercise of some botanical faith to assent to the close approximation of the Pomegranate (Punica), with such plants as Cuphea and Lagerstrœmia.

Amongst the Onagrads, many genera interesting to horticulturists are included, such as Fuchsia, Œnothera, Clarkia, &c. Loaseæ comprise Mentzelia, with which Bartonia is incorporated, and other genera, as remarkable in appearance as in morphological structure. Of the very interesting group of Passifloreæ we can say but little, save that Carica Papaya and its congeners find a very suitable home, side by side with Passion-flowers, from which they differ in matters of comparatively little importance.

Cucurbitaceæ constitute a large and important group, horticulturally speaking, and one in which the public in general will take an interest so long as Melons and Cucumbers are in vogue. Begoniaceæ are evidently closely allied to them, and it is a great relief to find that the 41 genera proposed by Klotsch to be separated from Begonia, are relegated by our authors back to the source whence they came.

Cacteæ are horticulturally well known—too well known it would seem, if that be not paradoxical; at least our authors raise an oft-repeated cry, and we believe with perfect justice, that the species of this group are "ab hortulanis inordinate multiplicatæ;" but then, on the other hand, it must be remembered that few of this race of plants are preserved in herbaria or museums, so that it is quite possible that some forms have really never come under the eye of systematic botanists. Ficoideæ naturally follow on the heels of Cacteæ.

The Umbelliferæ, which come next, are in many respects the despair and opprobium of botanists—so easily recognisable as an order, so difficult to break up into well-defined subdivisions. The plan adopted in this volume is founded mainly on the nature of the inflorescence, the position of the oil channels, or vittæ, and the form of the fruit. As might have been anticipated, a general revision like the present has led to the extinction of numerous genera, either insufficiently described, or referrible to older genera. The common Parsley (herein referred to Carum) received a separate generic name at the hands of De Candolle when he received specimens of it from the West Indies! and this is by no means a solitary instance of the fabrication of genera in this important order, upon insufficient grounds. That still much is to be learnt concerning these plants may be judged from a circumstance that has come under our notice, unimportant in itself, perhaps, but of value taken in conjunction with other circumstances, and specially so as indicating that botanists have still much to look for among these plants. We allude to the presence in many Umbelliferæ of a distinct intramarginal vein in the leaves; the secondary veins seem to run, in these cases, into the sinuses on the margin of the divided or lobed leaves, and then to follow the course of the margin of the leaf. We have failed to find up to this time any reference to this peculiarity, which certainly exists in many Umbellifers, as pointed out to us by Mr. John Gorham, whose researches on this point are we believe shortly to be made public.

Of the remaining orders treated of, the Araliaceæ contain the Ivies, the Panax, and other plants valued in gardens; while the Cornaceæ include the Aucuba, and, what would hardly have been surmised, the Garrya. Benthamia we see is referred to Cornus, from which in truth it scarcely differs.

In addition to the orders we have named there is a supplement, including the characteristics of those genera which have been published since the issue of the preceding portions of the volume; so that as far as the particular orders treated of are concerned, the supplement in question is booked up to the time present, a circumstance the value of which is enhanced by a comprehensive index to the whole volume. We could have wished that our authors had thought it expedient to have rendered the nomenclature of the orders a little more uniform. The use of the terminal syllables "aceæ" is now so general, and so convenient, that we regret that more use is not made of it in this place. Cactaceæ or Lythraceæ would in our opinion have been preferable to Cacteæ or Lythrarieæ, which rather lead to the inference that the groups so-called are tribes or sections, than separate orders.

Our running commentary has extended to such length that we must forbear further remark—else there are many points of structure, the interpretation of which, by our authors, as it seems to us, is open to considerable doubt. But looking at the work as it is intended, mainly in a systematic point of view, it is impossible to estimate too highly the boon which is herein conferred on all botanists. So much is this appreciated by all classes concerned in any way with botany, that we believe if such a vote could be taken, it would run in favour of the issuing of an injunction forbidding the authors of this volume from following any other pursuit or occupation till they had completed this work—an injunction the more necessary when we remember that five years have been occupied in the preparation of the first volume only, and at this rate of progress ten more, at the very least, will be required to complete it.

Florists' Flowers.

I know of no flower that graces the out-door garden which is so thoroughly acceptable at its particular season of blooming, as the Crocus. Reared amid the raging of the "elemental war" that follows on winter's supremacy, they presently come forth

"Like stars, to tell us Spring is born,"

studding that material firmament,—earth.

The immense number of Crocus bulbs imported every year from Holland—a sum-total so vast as to appear almost incredible, proves how much is appreciated the valuable service rendered by this humble little floral ministrant in its own good time. Nothing else but the Crocus can make such an acceptable and charming display in the early spring—a display the more appreciable, as there is then but little in the way of flower to come into competition with it. Somewhat restricted though the variations of colour are, still there is enough of variety to enable them to be grouped together very prettily and effectively—enough when so arranged to produce such a mass of blended colour, as to relieve it of the charge of sameness sometimes brought against the Crocus as an ornament of the flower garden. Especially can that free-blooming and showy kind, the Cloth of Gold, be largely used in this way, as it is one of the most free-blooming of all, as well as one of the earliest to flower. A few purple and white varieties appropriately grouped will impart considerable relief to so much golden hue of colour, and create a display unparalleled as a mass of colouring at any other season of the year.

During the autumn of 1866 I endeavoured to obtain as many as I possibly could, of the so-called varieties of Crocus that are annually imported from Holland, and was enabled to plant a good-sized piece of ground with the collection I succeeded in getting together. I had white, striped, blue, purple, violet, lilac, yellow, and edged flowers, and at the time of planting I could not help remarking, on carefully comparing the corms, the one with the other, how much diversity of shape and size prevailed, even in relation to this simple flower. As I had not less than 12 bulbs of any one kind, I was enabled to work out the task of comparison somewhat satisfactorily to myself at least, both by taking note of the shape of the bulbs, and afterwards by comparing the flowers when in bloom. Of diversities in the habit and style of growth of the different varieties but little that is really reliable can be said. The early-flowering Cloth of Gold, the common yellow, and the Versicolor, are peculiar in this respect; the other varieties must be classed together, excepting, perhaps, that though the style of foliage may be much the same, the largest bulbs invariably produce the strongest leaves. The earliest to bloom are the yellows; the earliest of these two—for there are but two distinct varieties of yellow spring-flowering Crocuses—is the Cloth of Gold. It is very dwarf-growing, and blooms freely. The common yellow is a little later, grows taller and stronger, and produces more flowers than any other variety. It is remarkably free in blooming, and as a rule should be allowed plenty of room, as the bulbs branch out in a remarkable degree. The Giant Yellow, the large, and also the new Golden Yellow, are but larger bulbs of this variety. It is imported generally in two sizes, and where extra-sized roots are added, they are christened and priced accordingly. One named Sulphureus was sent to me as being something very fine. There was a suspicious identity with the common yellow noticeable about the roots, and it proved to be nothing more than this. Crocus sulphureus proper is, I believe, an autumnal flowering kind.

The old Crocus versicolor, or Cloth of Silver Crocus—for any original difference between them appears to be entirely lost—is a dwarf-growing and very free-blooming kind, and does well for massing. The flowers are white, with purple stripes, but they are neither so large nor so stout as those of the newer striped varieties The Scotch Crocus, so called, now rarely met with, is a striped variety imported from Holland under that name. The bulbs are very peculiar, being hard and smooth, and unlike any other spring-flowering kind.

After these it would be difficult to assign correctly the order of flowering. Speaking generally, I found this season that the striped varieties were the earliest to bloom, then the blue class, and lastly the white class. Another cultivator may have obtained a result exactly the reverse.

Of the striped varieties, I found that Bride of Lammermoor, La Majesteuse, and Sir Walter Scott were three of the finest, of much the same build and growth, Bride of Lammermoor being the darkest, and Sir Walter Scott the boldest in the colour of the stripe. Of the darker striped kinds, Albion was the boldest and the showiest; the flowers were large, and of a globular shape, and they were heavily flaked and striped with violet: it was also distinct and good. Florence Nightingale was a large and bold light striped variety. Ida Pfeiffer, a lovely flower of good form, delicately striped with rosy lilac, very fine; and Madame Mina, a very pretty and free-blooming pale violet-striped flower, of good form. Princess Alexandra, Argus, Comtesse de Morny, Parnassus, Elfrida, and Albertine, are more than summed up in the sorts described—they are not even required to exist as varieties. Rhea Sylvia is a medium sized, pale, striped flower, but very pretty. Duke of Cumberland, deep lilac, with stripes of a darker shade, and edged with white, is a somewhat curious and novel flower, which could be classed both with the blue and the striped varieties, and yet belongs exclusively to neither. Perhaps it would be best to class it with the edged flowers. I had two forms of Argus, one a very pale striped flower of medium size; the other, a heavy violet striped flower, with more colour in it than could be seen in Albion, though otherwise not differing materially from it, nor yet quite so large. Lastly, Maria, La Sylphide, Miss Priestly, Géant des Batailles, Baron Chasse, Duchess of Sutherland, Napoléon, Leviathan and Philades, are sorts that can be obtained to suit the fancy of the importer, to whom names are an object, but they are scarcely required for any other purpose than to impart obesity to a catalogue.

The white flowers necessarily admit of even less variation. The most beautiful variety I have ever seen, and one that cannot be too highly commended for its superb quality, was named Goldfinder. The flowers were very large, globular, and pure in colour, and had rich dark orange stamens. Caroline Chisholm and Mrs. Beecher Stowe are undoubtedly the same, everything alike—bulb, flower, style of growth, time of blooming, &c. It is a dwarf-growing free-blooming kind, very useful for pots. Grand Conquerant is one of the most novel white flowers I have yet met with; pure white, edged with citron, and extremely pretty, as well as free blooming. Mont Blanc has large and bold pure white flowers, and though classed with the white varieties, the insides of the blooms are faintly pencilled with lilac. It is a robust-growing kind, useful for outdoor work. To these add Mammoth, a large white flower, changing to cream; and Calypso, another creamy white, and Queen Victoria, and the list of white kinds is complete. A reserve list can be formed of the following varieties:—Mathilde, Grand Vainqueur, Porpus, Isabella, Marie Antoinette, and Bride of Abydos.

Of edged flowers—a very small division—the variety called Duke of Cumberland, previously described can be regarded as one; the old Ne Plus Ultra, violet with white edge, a large and fine and showy flower, is another; and Lord Wellington, deep violet, edged with white, a small but pretty flower, complete the list of kinds I have seen. I find Ne Plus Ultra to be very effective out of doors, and it has the additional recommendation of being very cheap.

Lastly comes that somewhat numerous group consisting of the blue and purple varieties. Among these there are some beautiful kinds, large in size and deep in colour in regard to the blooms, and having a glossy silken appearance. I find the darkest coloured of the whole group—I don't mean simply the darkest on first expanding, but the darkest throughout the blooming period—to be a variety with a rather small bulb, named Sir John Franklin. It is of a rich dark glossy purple, and it did remarkably well with me out of doors. David Rizzio, often termed the darkest blue, is paler in the colour than the foregoing; Prince Albert, paler still, and yet both are fine and bold flowers. Prince of Wales I found to be identical in every respect with Prince Albert. Vulcan, a very large pale violet flower, I found to be the same as Othello, in spite of the anachronism and confusion of nomenclature. Lilaceus superbus is a somewhat distinct kind, with a broad flake of a lilac tint up each petal. These are all the distinct shades of blue, so-called, I could possibly light upon, and I therefore add a supplementary list of the following kinds which came under my notice, premising that they are well represented by the foregoing:—Baron von Brunnow, Brunel, Lamplighter, General Pelissier, Charles Dickens, Jupiter, Von Schiller, Sir R. Peel, Loveliness, and La Simplicité.

I am compelled at the same time to admit that, though amongst these reserve lists of the several divisions of colour there were many points of resemblance, yet from a close and daily inspection one seemed to be able to detect, more or less in each, some small and distinct traits of character either in the size or shape or in the purity or depth of the colour of the flowers, in the height they grew, in the time of their flowering, and even in the form, the colour, and the greater or less prominence of the stamens. I thought I noticed also perceptible differences in the size and height and colour of the foliage, in flowers of the same colour, though these diversities of foliage were not so apparent as those of the flowers—the which, however, are scarcely

reliable, as conditions of soil or situation may modify any conclusions that were arrived at. I am also led to admit that we ought not hastily to charge the Dutch growers with sending us professedly new varieties that are really repetitions of what we already possess. I am disposed to think they select their seedlings with considerable care, and for some novelty or distinctness possessed by them. There will be an inevitable sameness, even when coupled with the largest quantum of novelty, but then these new kinds are rarely priced at anything like an exorbitant rate, as it would appear it is the invariable rule to obtain them in bulk before they are sent out.

Those who are desirous to plant the Crocus for the purpose of producing spring effect, should make a selection of a few distinct kinds. With a larger selection may come want of uniformity in the growth of the plant to a serious degree, as well as in time of flowering, and these adverse qualities might possibly impair the effect sought to be secured. *Quo.*

The Apiary.

Bee-Feeding.—The past season, in many districts, has been so exceedingly bad, that I am not surprised to find from various reports which I have had sent me, that, with many bee-keepers, most liberal bee-feeding is neceessary to render their stocks safe for the coming winter. In reply to some of these, I am induced to offer the following hints, though at the risk of repeating what has already been written on this subject both by myself and others.

In my early career as a bee-keeper, I used to imagine that hives could not be too profusely fed, whether well supplied with natural stores or not. Then, the nasty mess which I used for the purpose was composed of beer and brown sugar, given in most inconvenient feeding pans. Subsequent experience taught me two things, viz., that beer is not a good ingredient to be used for bee-food; and that too much food stored in the combs of a hive is absolutely injurious to its ultimate prosperity. The reason for the latter is that if in the spring the greater portion of the central combs are filled with sealed food, the queen has not proper space for extending her egg-laying, consequently the stock suffers in population. The beer-food became, frequently, so nasty by fermentation, that the bees could not or would not remove it from the cells.

But of late years, I have discovered that a much smaller quantity of stored food than has usually been considered necessary, will suffice to carry a hive through the winter. Sometime before the year 1860, I instituted a course of experiments to endeavour to find out what is about the quantity usually consumed in the winter by a strong stock of bees. I frequently weighed hives in September and again in the following March, and found that the food consumed during all that period varied in weight from 4½ lb. to 7½ lb.; therefore I concluded that if I found at the autumnal weighing the stock to contain from 8 lb. to 10 lb. above the weight of bees and combs, it was quite unnecessary to feed in autumn at all. This course I have since then adopted, and have proved it to answer remarkably well. But I take care to visit my hives in spring, and then supply them with limited quantities of food. This limited spring-feeding quickens the energies of the bees, and promotes breeding, thereby conducing to the attainment of a large population ready to take advantage of any early honey harvest. Nevertheless, I do not neglect copious feeding in autumn if the hives really require it. If very deficient in stores, but with ample supply of combs, I give each stock from 10 lb. to 15 lb. of sugar syrup in the course of a few days, getting the affair over as soon as possible. The greater part of this is stored and sealed; some of the food being used by the bees for the secretion of the necessary wax.

It is well to give the food to the bees extended over as short a period of time as possible: 1st, because less excitement is kept up both among the bees of the stock being fed, and of those of the other hives in the apiary; 2d, because less is wasted by the bees, and less converted by them into wax, or required for feeding brood in consequence of protracted feeding exciting the queen to deposit eggs.

Let the requisite food be supplied quickly, and if possible only at night, removing the feeding paraphernalia in the morning. If fed during the day time, I believe a great deal is wasted by bees which have filled themselves flying out of the hive, and voiding it. I have never found hives fed during the day to increase in weight so much with the same amount given as if done only at night. Day feeding also attracts hosts of would-be robbers; a constant succession of mortal combats is kept up the entire time, which must result in a serious loss of valuable bee-life. Every bee at this period of the year is of more value than two in summer. The bees living now are mostly what will survive the winter, and serve to start the colony in spring for renewed prosperity in the summer.

No time should be lost in feeding all hives that may require help. No better recipe can be followed than that I have before given:—To 6 lb. of loaf sugar add by weight 4 lb. of water; boil for about five minutes. This may, if it be preferred, have about 2 lb. of strained honey stirred into it while warm. It must be cold when supplied to the bees.

The best feeder is the pickle or preserve bottle, with not too wide a neck. Fill, tie open muslin or fine cap-net over the mouth; lay a piece of perforated zinc over the hole in the top, invert the bottle over the zinc; with cloths, or some kind of casing, cover all up securely, so as to prevent any bees obtaining access to the top of the hive, and leave for the night, removing all appliances for feeding early the next morning. *S. Bevan Fox.*

Garden Memoranda.

Messrs. Carter & Co.'s Seed Farms.—Strikingly beautiful as these are in the season, owing to the large breadths of brilliant colours which such annuals as the Scarlet Flax, for example, grown in quantities, necessarily present, we never recollect to have seen them in better condition or gayer than they were this year. To the Tropæolums, or Nasturtiums, as they are called, this remark is, as a matter of course, especially applicable, for they alone clothe acres of ground in glowing scarlet. Among them a new climbing, or rather trailing sort, called Glory, was most conspicuous, owing to the dazzling effect of its vivid scarlet blossoms; while in the Tom Thumb class, King of Tom Thumbs stood in the first rank. T. compactum coccineum, orange scarlet, is also very dwarf and good. Nearly every shade of colour is to be seen among them, one has even a bluish tinge; Beauty is a prettily spotted kind, and Pearl a creamy white. Bright orange or yellow sorts might also be found in abundance. T. compactum luteum is a dwarf and good sort for beds; the blossoms are bright yellow, with a small blotch of a darker colour in the centre.

The interest which always pertains to annuals, and certain other kinds of plants raised from seeds sown every spring, renders it a matter of regret that they are not grown to a greater extent than they are, for the general decoration of the flower garden. The Perilla nankinensis is too well known to need remark, and so is the Amaranthus melancholicus ruber; the latter is highly interesting from the time when it is planted out, until it is destroyed by the frost about this season of the year. It is, however, somewhat tender in its early stages, and should seldom be planted out before the 1st of June. Lobelia Erinus speciosa is perhaps the most useful annual which we have for flower garden decoration, colour and habit being everything that could be desired; some recommend it to be grown from and increased by means of cuttings, but this is unnecessary, as it comes perfectly true from seed, and the plants are more healthy and not so apt to die off in patches as when they are grown from cuttings. The double-flowered Sanvitalia procumbens promises to be a useful bedding plant; it grows to the same height and is of the same habit as the old S. procumbens, but the flowers are larger, beautifully double, and are produced in great abundance. It continues in flower all the season. Viola cornuta, when seen in quantity as it is here, reminds one, on looking at it at a little distance off, of the blue waters of the Mediterranean. It certainly deserves all that has been said in its praise. We mention it here among the annuals, as it can be successfully grown from seed; but it can also be increased by means of cuttings, or divisions, and it is perfectly hardy. Tagetes signata pumila must be pronounced to be a very ornamental annual; indeed, in many gardens it has taken the place of the Calceolaria. It does not come into flower quite so early as might be desired, but its foliage is so delicate and beautiful that it is very ornamental from the time when it is planted out; and there are few bedding plants which continue to flower to a later period. It has but one fault, and that is a tendency to irregularity with regard to height, which, notwithstanding the greatest care in selecting the seeds from the most promising plants, it is difficult to entirely rectify; notwithstanding this, however, it must still be considered a most valuable bedding plant. The different varieties of Phlox Drummondi are well-known and appreciated as bedding plants; they are very hardy, and frequently continue in flower after most of the occupants of the garden are either killed or disfigured by the early winter's frosts. Among Everlastings, of which there are here great numbers, Helichrysum atrosanguineum panum is a beautiful variety, with deep crimson double flowers, which continue in beauty during the whole season. It is exceedingly well adapted for the back row of a ribbon border; it grows about 18 inches or 2 feet high, and produces its flowers in great abundance, and being everlasting they are much in request for winter decoration; as a bedding plant it is worthy of a place in most gardens. Salvia patens, treated as an annual on light soil, with a little care in removing decayed flower stalks, &c., makes an exceedingly beautiful bed, and the colour is quite a desideratum in the flower garden. On heavy soil it is apt to become somewhat coarse, and it is best adapted for a rather large bed.

The above might all be introduced into modern flower gardens with advantage. Neither of the following are eligible as bedding plants, although one of them has been recommended for that purpose, viz., Lobelia Snowflake, which is merely a white variety of the old Lobelia ramosa, and which is very pretty in its way, but it is not at all adapted for the purposes of bedding out in the flower garden. The other is the so-called New Scarlet Sweet Pea Invincible, a really beautiful variety, which appears to have the property of continuing longer in flower than others, and it is equally fragrant. It is really a very desirable ornamental Pea, which is sure to become a favourite when its merits have become more fully established.

Marigolds are grown, both at Dedham and St. Osyth, very extensively, and although the object in both places, as with other plants, is simply to produce seed, and no special mode of cultivation is adopted to bring the flowers to a large size, both the lemon-coloured and orange African are very large and showy, having heads not less than 4 inches in diameter. The orange variety is very rich in colour, and both would prove very effective in large borders where tall plants are grown; while for places in which such are not admissible, the miniature French kinds are well adapted, being very compact, and seldom exceeding 6 or 7 inches in height. One, the Miniature Orange, bears heads 1½ inch across, and is very free-flowering; but still more showy are the dwarf gold-striped varieties, which produce a profusion of rich brownish crimson flower-heads striped and edged with golden yellow, and measuring, when well grown, about 2¾ inches in diameter.

Among the integripetala varieties of Clarkia there is a showy one called carnea, of a deep flesh colour; a fine double white; a dwarf variety called Tom Thumb, with large rose-coloured petals; and marginata, deep rose with a light edge. Conspicuous among Godetias was The Bride, which is still one of the finest kinds; the blossoms are large, of a very delicate rose colour, approaching to white, and deep red at the base of the petals, forming a ring of that colour round the centre of the flower. Godetia rosee-alba, pale rose, blotched in each petal with crimson, is also a beautiful kind. Messrs. Carter have, however, a variety which is a great improvement on the kind just named. Godetia reptans alba is very dwarf and pretty for trailing over rockwork.

Lupines and Larkspurs have been very fine this year, as have likewise been Indian Pinks and Petunias. Among the latter, those known as Dunnett's hybrids, which are striped and variously marked with rich purplish violet, are of great excellence. There is also a variety called Petunia viridicincta, with purple blooms narrowly edged with green. Of Brachycome iberidifolia, or Swan River Daisy, there have been charming masses, both of the blue and the white varieties, and of the two mixed, an association which most people admire. Another Swan River plant, the Acrocolinium roseum, of which there are both rose-coloured and white varieties, is also deservedly a great favourite. Nemophilas, which are amongst the prettiest, and for almost all purposes the most popular of annuals, are grown by the acre, and when the bloom is over they are gathered into cocks, like hay, by the sides of the roads, along which, and in other parts of the seed farms, they extend in belts for miles. Other sorts of annuals, such as Calliopsis of various kinds, are also extensively grown, and when seen in large masses, as they are here, are very effective. Of annual Chrysanthemums, the New Double Golden is free-blooming, dwarf, and very double; while amongst those exhibiting several colours in the same flower, Burridgii, white, crimson, yellow, and dark brown in concentric circles, is most beautiful. Some of the flowers measure 2¾ inches in diameter.

Saponaria calabrica and its white variety are grown here by the acre, and when seen in full bloom are extremely pretty, owing to the close and level surface they present to the eye. There is also a variety with rose-coloured flowers having a narrow white margin. The white-flowered variety of Silene pendula is also pretty, as is Nemesia versicolor compacta, which is densely covered with bluish lilac, rose, and white flowers, and being very compact, is excellent for pot-culture.

Viscarias form fine masses; one of the most remarkable is that called oculata Dunnettii; another, cœli-rosa nana, is a fine, dwarf, rose-coloured sort, very even in height; but more beautiful than either is the novel Viscaria cardinalis, with brilliant crimson flowers produced in profusion. This forms quite a rival to the Scarlet Flax. At St. Osyth, many of the annuals mentioned above, as well as other flowers already noticed, are also grown in quantity. There are considerable breadths of hybrid Asters, which have been very fine this year; and Salpiglossis in alternate beds, double Zinnias, Carnations, Pansies, Auricula-eyed Sweet Williams, and Antirrhinums. The splendid scarlet Linum grandiflorum is also grown in profusion here; it is sown without previously steeping the seeds, and comes up very well. Among very dwarf annuals must be classed the white and lilac-flowered varieties of Nycterinia selaginoides, which are two of the prettiest of half-hardy annuals. We likewise noticed several hybrid Leptosiphons, which, being very dwarf and free-flowering, are well adapted for rockwork and edgings. Among Clarkias here is a pure white C. elegans, also a showy double rose-coloured variety of C. integripetala. Of Eschscholtzias, E. aurantiaca is of a uniform deep orange from the base to the top of the petals; and there are likewise an orange-striped sort, and varieties of E. crocea and californica, in which the petals are lapped over on the inside and toothed. Rhodanthe Manglesii, of which there is a variety with larger flowers than the ordinary form, and the white-flowered R. maculata alba, together with the charming dwarf lilac Abronia umbellata, are all grown here in quantity. Here, too, are several varieties of Tropæolum, including one, Lillie Schmidt, with fine scarlet flowers, and a Tom Thumb variety of pyramidal habit. Among other subjects are about 2 acres of Gladiolus, which have been unusually showy this season.

Vegetables for seed are grown extensively at all the farms; but more especially at Jupe's Hill and St. Osyth. Among Peas the Peabody, a very prolific variety, little more than a foot high, covers 5 acres; Dwarf Waterloo, a late branching Marrow, not exceeding 1½ foot high, a like extent; and Maclean's Little Gem, a very early wrinkled Marrow, a still greater area. Of Myatt's Improved Parsley there are 3 acres, and Pine-apple Beet, Carter's Champion, Maule's Late White, Snow's Winter White, and other kinds of Broccoli are cultivated by the acre. Maclean's Premier Pea occupies between 3 and 4 acres, and though not more than 2 feet high, on some plants we counted as many as 40 well-filled pods. It is a rather late sort, of excellent flavour. Imperial Wonder Pea, a tall late wrinkled Marrow, is also extensively grown, as well as Laxton's Prolific Longpod, Yorkshire Hero, Kent Rival, and Carter's Leviathan, the last a new late Pea to be sent out next season. Carter's Champion Runners, judging from the specimens we saw, are of a very prolific race. Of Large York Cabbage, there is a piece of about 8 acres, and a like extent of Imperial Oxheart; of Little Pixie 2 acres; of Asparagus for roots 2 acres, and similar areas are devoted to Marjoram, Thyme, and

other herbs. Musselburgh and Ayton Castle Leeks, Onions, Carrots, Rat's-tail and other Radishes, Celery, Sims' Mammoth and Keyes' New Early Prolific Tomatos also fill large quarters, besides which there are frames full of Lynch's Star of the West, and other Cucumbers for seed.

Garden Operations.

(For the ensuing week.)

PLANT HOUSES.

Do not fail gradually to reduce both heat and moisture in all *Orchid-houses*. To continue to stimulate these plants too greatly, will be to cause the premature formation of young growths at the base of the pseudobulbs grown during the current season, and hence, instead of aiding them to ripen off into a resting season, divert the sap into a fresh channel of premature activity, and so derange the whole order of things. When sufficient convenience exists, it will be well to make a strict division of those plants which yet require a little further growth for the purpose of finishing the whole formation of any lateral breaks, and others which, having finished growing, should go to rest. Set one house or division wholly apart, therefore, for these two distinct requirements. Those which have finished growing, and which now are likely to require no more atmospheric humidity, will be found among Cattleyas, Cœlogynes, Dendrobiums, Lælias, Lycastes, Oncidiums, Sobralias, Ansellias, &c. Once this arrangement has been concluded, cease syringing or otherwise slopping water about in any way. Give air plentifully with proper judgment, and only just sufficient root moisture to properly aid the already formed growths duly to swell off. The other division, or that containing those subjects which need a little more growing, I need scarcely repeat, must also have the necessary *stimuli* reduced materially in proper gradation, with the view of bringing about, at no distant date, a similar decided resting period. It may be well to refer at this time to a few such plants as Phalænopsids, Saccolabiums, Aerides, and others which have not quite finished growing, with the view of advising those who grow them in mixed collections, or under other adverse circumstances, not to allow any to cease growing while just the tip of a young leaf only is discernible in the point of any growing shoots. To allow them to become stationary at such a stage will tend materially to expose them to unnecessary danger, as they rot off readily should the least drip or water in any form find a lodgment upon them. Admit air freely into all plant structures upon fine sunny days, with a corresponding decrease of artificial heat and humidity, taking care not to start any into making a fresh growth. Few irregularities injure stove or other hard-wooded plants more than starting them into growth at an unseasonable period. A due study of these and similar points will enhance materially the success attending their culture. I repeat, do not allow any plants to stand out wholly exposed longer than this. Cold wet weather injures them quite as much as a moderate amount of frost does. *Chrysanthemums* will now require supporting with stakes of some sort. Tie them out neatly, affording, where practicable, a stick to each main stem. Do not cut the supports off to suit the shoots according to their present length, but allow them to stand up a foot higher than the branches, As the flower-stalks grow these will be handy to attach them to. Large plants growing out in the open ground, if it is desirable to lift them into pots hereafter, should have all the roots cut in two all around, at a distance from the plant, corresponding with what the diameter of the pot, into which it is intended eventually to place them, may be. Give manure water abundantly when once the flower buds have shown. Give *Cape Pelargoniums* abundance of air, placing them in an open, light, and sunny situation, thus to afford them every opportunity of making a fine strong start preparatory for winter. Be very particular in watering *Torenias, Sonerilas, Peperomias*, &c., after this date, so as not to make the balls too wet; the *Sonerilas* will only need just sufficient moisture to keep them from drying quite up. Some of the earlier *Caladiums*, which begin to show the yellow leaf, should be placed with the pots upon their sides in a cool situation where the foliage can ripen gradually off, and the tubers go to rest.

FORCING HOUSES.

Those who wish to keep Grapes hanging as fresh and plump as possible to the longest possible period, must take care not to afford them too much heat, as an excess of this, no matter how dry the structure may be, or how favourably treated otherwise, is sure to cause them to shrivel more or less prematurely. Give only just such warmth to the pipes or flues as will ensure sufficient buoyancy to any humidity which may arise in the house as to enable it to make its escape. Independently of the ill effects caused by actual heat, a too warm atmosphere, even in the driest house, will cause a correspondingly excessive evaporation, and consequent condensation, which will be found each morning to have settled upon the berries to their no small injury. Where *Vines* intended for early forcing have not yet been pruned, this operation should now be performed without further delay. Scrub the pots well, and surface dress them with a good rich compost before introducing them into the proper structure. In inducing them to break, an operation which should be performed very gradually, a starting minimum heat of 53° to 57° will have to be maintained. *Peach* and *Nectarine* trees intended for early work may also be pruned back into young fruiting wood as soon as possible. Strong sappy shoots, it is well understood, are ill-formed for fruiting, and should therefore be carefully removed with the least possible injury to the wood which remains. Where a successional number of houses exists, it is sometimes better to place the one which was second last season first this. Should such be the case, it will be necessary to proceed in a like manner with the preliminary arrangements. When the trees are denuded of their superfluous wood, &c., well wash them over with a wash formed of one part soft soap, one of sulphur, and two of cow manure; if with a little tobacco-water all the better. Apply this with a stiff painter's brush, and well work it into every crack and cranny thoroughly to destroy any insects or their eggs which may be lurking or are deposited therein. I have before stated that all internal surfaces should be well washed over with a wash formed of fresh slacked lime, with a little sulphur intermixed, except any paint work, which should be avoided, as the lime quickly destroys all such surfaces when rubbed on in this state.

HARDY FRUIT GARDEN.

Continue the ingathering of *Apples* and *Pears* as they severally become sufficiently ripened for the purpose; the early frost we have already experienced prompts that we should be as speedy about it as possible this season. I have before stated that some sorts of Apples must be left later than others under any circumstances, and as the Nonpareil or the Old Nonpareil is a sort very much grown, it may be well to say the same regarding this variety. As a thorough good keeping Apple, it should be left out as long as possible, without actual injury by frost. Some of the late *Plums* which have a tendency to keep well may be induced to extend their season of usefulness by being picked when perfectly dry, and after laying in the sun a day or two be packed away where no air can penetrate to them. Some varieties of Impératrice improve much in flavour by being laid in a warm sunny situation for a week after they are fit for gathering, which, as is well known, they are not until the skin has become pretty well shrivelled. Be particular to allow all fruit as much room as possible for the first month or so after it is gathered. Give also abundance of light and air for a like period. Continue as I have before advised to gather fruit where a sufficient crop of any given sort exists, at intervals, that they may ripen successively, at intervals apart, and not all at once. Keep *Filberts*, &c., from the air in some material in which a constant latent moisture can be maintained. In places where much planting is to be done, it will be well to see about preparing the border, by trenching, &c., and making choice also of the necessary trees to occupy the vacant spaces. Always have these borders a foot or two above the level of the walk and sloping down thereto at an angle of about 55°. Do not now omit to remove, without further delay, all old canes from *Raspberry* plantations. The old fruit-producing wood has no further purpose to fulfil, and the removal of it will admit air into and amongst the young canes. *Fig trees*, and especially any which are growing too robustly, should also have some of the larger leaves and unnecessary shoots thinned out for a similar reason.

HARDY FLOWER GARDEN.

Take up and transplant *Crocuses, Snowdrops*, Dutch *Narcissus*, &c., if they were not taken up and dried in the earlier summer months. Proceed with potting up out of the outer borders all valuable plants requiring shelter during the winter. As soon as the foliage upon *Dahlias* has been destroyed by frost, cut the plant down to within a foot of the ground, and choose a dry opportunity to take them up, when they should be first well dried and then stored away beyond reach of frost until the spring. Let all young plantations of Pinks be gone over, pressing each plant which the worms may have loosened firmly into the bed, &c. Such Picotees, Carnations, &c., as may have been placed in small pots must not be kept too close, as they have an aversion to a damp atmosphere. Place all cuttings in pots under some sort of protection both from frost and from excessive rains.

KITCHEN GARDEN.

Continue to hoe at this season whilst any weeds remain. Pick all the larger and most forward leaves off early plantations of *Winter Spinach*; this will check any too great a tendency which it may have to become "winter proud." Remove the surface growth from *Asparagus* as soon as it has ripened off to a yellow tint, and well stir the surface once with the hoe, to admit air freely into it. Another sprinkling of salt will aid in destroying any insects which otherwise may choose to harbour about the beds during winter. Make a final plantation of *Cauliflowers* under hand-lights, or some similar protection against the severer frosts of winter. Keep late *Carrots* free from weeds, and stir the soil frequently amongst late sowings of *Turnips*, &c. The leaves upon *Horseradish* must be removed, and the surface be cleaned and raked over in order to give all, as soon as signs of decay show themselves, a neat appearance. *W. E.*

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the Week ending Oct. 9, 1867, as observed at the Horticultural Gardens.

October.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Of the Air. Min.	Of the Air. Mean	Of the Earth. 1 foot deep.	Of the Earth. 2 feet deep.	Wind	Rain.
Thurs.	3	29.942	29.914	57	31	44.0	55	55	N.W.	.00
Friday	4	30.098	29.987	52	25	38.5	55	55	N.	.00
Satur.	5	30.044	29.978	54	24	39.0	53	54	N.	.00
Sunday	6	29.932	29.828	51	37	44.0	52	53	N.W.	.15
Mon.	7	29.612	29.512	60	31	45.5	52	52	W.	.04
Tues.	8	29.675	29.509	57	24	40.5	52	52	N.W.	.01
Wed.	9	29.828	29.567	48	38	43.0	51	52	S.W.	.30
Average		29.876	29.629	54.1	30.0	42.0	52.8	53.3		0.50

Oct. 3—Fine; fine, with white clouds: clear.
— 4—Fine, but cold and dry; overcast at night.
— 5—Clear; quite cloudless; fine; clear and frosty.
— 6—Foggy; rain, overcast at night.
— 7—Rain showers; clear and frosty; overcast.
— 8—Clear; masses of white clouds; clear and frosty.
— 9—Hoar frost early A.M.; rain; heavy rain at night.
Mean temperature of the week, 10 7-10 deg. below the average.

STATE OF THE WEATHER AT CHISWICK,
During the last 41 years, for the ensuing Week, ending Oct. 19, 1867.

October.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday ..13	60.8	42.0	51.4	21	0.33 in.	2	4	4	1	7	10	8	4
Mon. ..14	60.0	40.6	50.3	19	0.50	2	6	4	1	9	8	6	5
Tues. ..15	58.8	40.4	49.6	20	1.04	2	2	4	1	11	6	7	8
Wed. ..16	58.7	40.1	49.4	17	0.58	—	7	5	1	5	11	8	4
Thurs. ..17	58.6	41.0	49.8	18	0.31	—	5	5	1	3	12	10	5
Friday ..18	60.5	41.3	50.9	20	0.85	3	4	5	1	3	8	14	3
Satur. ..19	59.5	40.0	49.7	21	0.61	2	3	7	2	2	1	9	5

The highest temperature during the above period occurred on the 14th, 1861—therm. 80 deg.; and the lowest on the 15th, 1860—therm. 24 deg.

Notices to Correspondents.

CHARD: *Artichoke* will feel obliged by some of our correspondents stating what is meant by this term, which is applied to some product of the Artichoke by M'Intosh, in the "Practical Gardener." He writes—"Artichokes, in order to produce Chard, should, as soon as the principal crop is gathered, have their leaves cut over about six inches above the ground, and their stems cut as close to it as possible. It is to be observed, that, to produce Chard, the plants will be destroyed," &c. What, therefore, is "Chard?"

DISEASED GRAPES: *R D B.* The second batch of diseased Grapes was forwarded to "M. J. B." in Ireland. On reference to the letter of Sept. 3, he finds, since his return to England, that the leaves are stated to be quite healthy. As nothing was said about the leaves which accompanied the berries, he thought it possible that the discoloured leaf might belong to the berries. It is now stated that the disease commences at the apex, and if so, some similar cases have been transmitted before. Discoloration undoubtedly often occurs long before the Grapes ripen, and in such cases various forms of decay arise. "R. D. B." must make allowance for the difficulty of answering questions about disease from specimens transmitted by post, without any opportunity of examining the trees themselves. As far as possible, such answers are founded on practical as well as scientific observations. "M. J. B." is, however, obliged for a very interesting letter. *M J B.*

EVERGREENS: *A Z.* For a winter garden of evergreens to be kept low, select of Hollies two or three with leaves of different form and colour; Aucubas, green and variegated; Osmanthus Aquifolius, Cotoneaster Simmonsii, and the silver variegated Euonymus radicans.

GARDENERS' EXAMINATIONS: *E H* will find the programme of subjects for the examinations of the Royal Horticultural Society in our No. for May 11th (No. 19, 1867).

INSECTS: *Vitis.* Thanks for the Vine leaves. The disease is undescribed. We are preparing an article on it. *W.*

NAMES OF FRUITS: *H W C.* 1, Old Nonpareil; 2, King of the Pippins; 3, Pinner Seedling; 4, Sam Young; 5, Golden Reinette; 6, Redstreak.—*E G.* 1, Crimson Queening; 2, Kentish Fill-basket; 3, not known; 4, Blenheim Orange Apples. Pears: 5, Beurré Diel; 6, Beurré de Capiaumont; 7, quite rotten and smashed.—*S R H.* Next week.—*B B.* 1, Hughes's Golden Pippin; 2, Golden Pearmain.

NAMES OF PLANTS: *J O'G.* Your Fungus is Clavaria vermiculata. *M J B.*—*G Allen.* Erysimum cheiranthoides.—*G (Bath).* Rhus glabra (a North American sp.).—*P C.* Phytolacca octandra.—*H H W.* 1, Senecio Jacobæa; 2, Veronica Andersoni; 3, Begonia—crushed and not determinable; 4, Cytisus canariensis.—*T M S.* Smashed, and indeterminable.—*J W B.* Can you favour us with another specimen of what we named the other day (see p. 1028) Cupressus Lawsoniana?—*A D B.* 1, Warscewiczella discolor; 2, Oncidium pubes; 3, next week.—*W Thompson.* Statice pectinata.—*M D.* Sempervivum villosum.—*A Z* does not furnish sufficient means for discovering the name of his plant.

PAN-ANGLICAN SYNOD: *A Garden Labourer* writes as follows, *verbatim et literatim*:—"You will very much oblige a few garden labourers who are weekly readers of your paper, If you would inform them the meaning of the article headed 'The Pan-Anglican Synod,' not hearing until lately such a word as Pan-Anglican, we are at a loss for a explanation all the information we get by refering to Walker's pronouncing Dictionary is that Pan was a God amongst the heathen deities. I hope you will pity our ignorance but we live in a parish that has no Church, or clergyman and only a few ignorant people who no body cares to instruct." We suspect "A Garden Labourer" is not the only one who wonders "what it all means." We can only enlighten our correspondent as to the word Pan, which in this case has the same signification as the word "all." Cricketers speak of "All England." The ecclesiastics who have recently met at Lambeth speak of all those bishops who adhere to the principles and practice of the Church of England as "Pan-Anglicans." We fear much the word Pan here cannot be taken in the sense of Catholic—*i. e.*, universal; it is but a sorry substitute for that most comprehensive term.

PRUNING VINES: *Wiltshire.* Our correspondent "P" distinctly states, on the faith of repeated trials, that Vines may be advantageously pruned now, while the leaves are on them. We refer you again to his remarks at p. 1021.

RAWLING'S DWARF WHITE BEDDING DAHLIA.—In our report of the Floral Committee of the Royal Horticultural Society (see p. 1025) we inadvertently omitted to state that this new bedding Dahlia was awarded a First-class Certificate, a mark of distinction which it well deserves.

ROSES: *H E W.* Your specimens, though smashed to pieces when they arrived, evidently indicate traces of mildew, for which the only cure is sulphur. Apply it to the leaves when wet by means of an ordinary dredger.

STRAWBERRIES: *R, Malines.* Many thanks. Your photograph shows the variety in question to be of good size, conical in shape, and to have somewhat prominent seeds.

SWEET SULTAN: *W Thompson.* A very fine variety, and quite distinct in colour from any we have previously seen. Instead of the pale purple of the ordinary kind, this is of a deep rich port wine colour, rather paler in the centre when the flower heads are fully blown. It is quite an acquisition amongst ornamental annuals.

SUN HEAT: *Sun Dial.* You do not furnish data sufficiently explicit to enable us to answer your question. You say, "take a side of a greenhouse—put on an angle of 10 to 12 inches." Will you have the kindness to explain what is meant by this? It contains nothing from which the slope or inclination of the plane of glass can be inferred.‖

VINE MILDEW: *A G.* We have examined your Grape leaves, and find them covered with Oidium. The mildew occurs frequently on the healthiest Vines, and is not dependent on any appreciable circumstances. It is in spring, when it first makes its appearance, that sulphur should be applied, and as often as its presence is ascertained afterwards. *M J B.*

VIOLETS: *E M R.* The white spots on your Violet leaves are very common, and occur on many other herbaceous plants, as, for example, on the Dead Nettle, and common Mallow. They are either caused by some Fungus, or eventually become the seat of one, belonging to the genus Depazea. Their occurrence probably depends on some climatic conditions which cannot be modified by cultivation.

COMMUNICATIONS RECEIVED.—D. Buchanan.—A. Pettigrew.—E. W. Jackson.—West Indian (thanks).—Alph. De C.—J. S.—W. B.—W. B. H.—A. F. B.—D. T. F.

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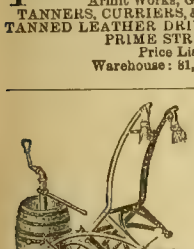
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THE BIRMINGHAM CATTLE and POULTRY SHOW, 1867.

The NINETEENTH GREAT ANNUAL EXHIBITION of FAT CATTLE, SHEEP, PIGS, DOMESTIC POULTRY, CORN, ROOTS, and IMPLEMENTS, will be held in RINGLEY HALL, on SATURDAY, MONDAY, TUESDAY, WEDNESDAY, and THURSDAY, November 30, and December 2, 3, 4, and 5, when PRIZES to the amount of £2100 will be awarded in the following Divisions, viz. :—

FAT CATTLE ..	£812 15 0	BREEDING PIGS ..	£76 10 0
FAT SHEEP ..	314 5 0	ROOTS and CORN ..	67 4 0
FAT PIGS	59 5 0	POULTRY & PIGEONS	755 9 0

Prize Lists, Certificates of Entry, and every information may be obtained from the Secretary.

The ENTRIES CLOSE on FRIDAY, November 1.

John B. Lythall, Secretary.

Offices, 39, New Street, Birmingham.

SMITHFIELD CLUB FAT CATTLE SHOW.—The ANNUAL SHOW of FAT CATTLE, SHEEP, and PIGS, will be held at the AGRICULTURAL HALL, ISLINGTON, on MONDAY afternoon, December 9, and Four following Days.

Intending Exhibitors are requested to apply for Certificate Forms by the reference letters as under.

CATTLE.—Form	A.	For an OX or STEER (in any Class).
"	B.	For a COW or HEIFER (in any Class).
"	C.	For a BEAST in Extra Stock.
SHEEP. "	D.	For a PEN of 3 WETHERS (in any Class).
"	E.	For a SINGLE SHEEP in Extra Stock.
PIGS. "	F.	For a PEN of 3 PIGS (in any Class).
"	G.	For a SINGLE PIG in Extra Stock.

ENTRIES for LIVE STOCK CLOSE NOVEMBER 1.

Prize Lists, Forms of Certificates, and all information, may be obtained on application to Mr. David Pullen, Assistant Secretary, at the Office of the Honorary Secretary, corner of Half-Moon Street, Piccadilly, London, W.

N.B. All communications respecting the Show must be addressed to the Assistant Secretary, as above, and should bear outside the words "Smithfield Show."

The Agricultural Gazette.

SATURDAY, OCTOBER 12, 1867.

We are fortunate in being able to present our readers with a full report of Mr. Wren Hoskyns' admirable Paper on the Land Laws of England, which was last week read at Birmingham before the Midland Farmers' Club. The subject is one on the many relations of which Mr. Hoskyns has been long a powerful writer and an urgent speaker; and never, we think, has it received happier illustration, or more suggestive treatment, than in the address which appears in the following pages.

The *Duchess* and *Oxford* cattle to be sold next Wednesday at the Shaw Farm, Windsor, are descended respectively from *Duchess 55th* and *Oxford 5th*, sold at the Kirkleavington sale—the one to the late Earl Ducie and the other to Mr. L. G. Morris, of the United States. *Duchess 55th* then realised 105 guineas, and *Oxford 5th* fetched 71 guineas. The daughter of the former was bought by Messrs. Becar and Morris at the Tortworth sale for 700 guineas, and taken across the Atlantic, whither *Oxford 5th* had preceded her. *Oxford 20th*, a daughter of *Oxford 5th*, was purchased along with *Duchess 71st* (out of *Duchess 66th*), from Mr. Thorne and Colonel Morris, by Mr. Sheldon, and from them are descended the cattle now imported.

"*Oxford 20th*," we quote from an American Paper, "was for a long time barren, but fortunately at length bred four heifers, all of whom have turned out as fruitful as the veriest scrub cow of the streets. She is a light roan, with strongly marked Bates' characteristics—a great cow, broad back, hips, and loins, horns too long and stout to suit the taste of those who fancy the more delicate ones of most Shorthorn cows, but really better, for the Bates' cow seldom loses her horns. All her offspring have plenty of size and substance at maturity, and in general appearance resemble, as she does herself, her dam, *Oxford 5th*, by Duke of Northumberland (1940). The most noteworthy of the descendants from *Oxford 20th* is *4th Maid of Oxford*, by Imperial Oxford, colour red, a model head and eyes, short fine neck, and the best brisket, crops, loin, and ribs of any of the young stock here, and withal of good quality, and a look of breeding to which words cannot do justice."

This—*4th Maid of Oxford*—is the oldest of the heifers to be offered at the sale next Wednesday.

"By the side of *Oxford 20th*," the American writer proceeds, "stands *Oxford* by Romeo. They are both in robust health—12 and 13 respectively, which puts them past much hope of farther breeding. The latter is a red roan, large in size but short of limb, broad and deep in body, a good milker. We have known her 10 years, and never saw her otherwise than in good show condition. In fact, we have believed for a long time that this cross of Romeo has given the best results of any alien blood ever put into Bates stock. It did not disturb the high-bred Bates current, but only imparted more volume and vigour. Two living calves attest the judgment of Colonel Morris in breeding this cow, viz., *Gem of Oxford* by 2d Grand Duke (12,961), and the bull Oxford Lad."*

Gem of Oxford, who is the dam of *Countess of Oxford*, one of the heifers for sale at Windsor, is described as being a rich red roan, now in the full development of cowhood—"heavy and full in body, broad back, hips, and rumps; when in show order, with perfect heart and crops—brisket wide, deep, and prominent, with a neat head and very short legs—as grand a beast as is her dam. *Gem* is a trifle short-bodied, perhaps, but with this goes constitution, feeding capacity, and, in this cow, good milking." She has been a regular breeder, and her daughter, *Countess of Oxford*, now to be sold, is by the 7th Duke of Airdrie. The other *Oxford* heifers are descended, three from daughters of *Oxford 20th*, and one from another grand-daughter of *Oxford 5th*, the original Kirkleavington cow. In her case, that of *8th Lady of Oxford*, there is through the sire, the 6th Duke of Thorndale, what the writer in the *Farmer* calls "the splendid addition of Grand Turk's Warlaby blood, while the whole of her dam's pedigree is of Bates materials without admixture. *Countess of Oxford*, and *4th*, *5th*, *6th*, and *7th Maids of Oxford*, are all of virtually pure Kirkleavington blood, although each has a dash of something else through one or more of the sires in her pedigree. *Countess of Oxford*, and *5th Maid* and *7th Maid of Oxford*, are all by 7th Duke of Airdrie (Bates, with a fraction of Booth through his great grandsire, 2d Duke of Athol), while *4th* and *6th Maids of Oxford* are by Imperial Oxford, a son of Duke of Geneva, from *Gem of Oxford* by 2d Grand Duke."

The remaining heifer is the *7th Duchess of Geneva*, by 3d Lord Oxford, one of an earlier importation from America, got by 2d Grand Duke—12,961—(dam, *Oxford 13th*), a pure Bates bull; her dam is the *3d Duchess of Geneva*, by Oxford Lad, whose dam is Romeo's *Oxford*, referred to above. So that here, to the extent of one-sixteenth in the heifer to be sold next Wednesday, we have the admixture of the blood of Romeo (a bull of the Marquis of Exeter's breeding) with the pure *Duchess* blood.

In the 3d Duke of Geneva, one of the two bulls to be offered at the Windsor sale, we have in still smaller proportion the same admixture, which, according to the American writer, has not diluted the high-bred Bates current, but only imparted more volume and vigour.

We cannot doubt that these descendants of two of the most celebrated families of the Shorthorn breed, to be offered for sale by Mr. Strafford next week, will command the same high prices which their cousins the *Grand Duchesses* realised at Aylesford in the spring.

How much the value of wool still guides that of the animal which supplies it, appears plainly enough notwithstanding exceptional maxima, from a comparison of the prices which have ruled this year at autumnal ram sales with those of 1866. When Bakewell undertook the improvement of the Leicester sheep, his attention was directed almost exclusively to its carcase—to the placing and the thickening of the flesh upon the choicest joints—and to the quickening of the fattening process; so that now the food which a well bred sheep consumes is converted

* The number of this bull in the forthcoming volume of the Herd Book is 24,713.

into mutton four or five times as fast as it was a century ago. The wool thus became a less important consideration than it used to be: the sheep was formerly not ripe till three or four years old, and three or four fleeces were obtained for every carcase; but BAKEWELL ripened it at 14 months, after it has borne but one. That fleece has of late been so much more valuable, however, than it was, that it has latterly regained somewhat of its former influence on the value of the animal; and the close-grained quality of Southdown mutton has not sufficed to hinder the depreciation due to its scanty, short-woolled coat; nor has the coarser character of the flesh of Cotswolds and of Lincolns prevented an extraordinary rise in prices, due to their long and heavy fleece.

When wool was worth half-a-crown a pound, and especially when certain wools became available as substitutes for that of the Alpaca in the manufacture of what are called Lustre goods, no wonder that those breeds which yield a fleece of 10 or 12 lb. weight, and wool remarkable for its bright and lustrous character, acquired the highest reputation and commanded the highest prices in the market. And now that such wools have gone back to 16 and 18 pence per lb. no wonder that prices have this year very seriously receded.

The Lincoln breed has exhibited this contrast more seriously than any other, just because its wool commanded the very highest price last year. So heavy are Lincoln fleeces that in one instance, as Mr. J. A. CLARKE told them at the Royal Agricultural College, 257 weighed 117 tods, and in another 2829 fleeces weighed 1100 tods, or from 11 to 12½ lb. per fleece; and so fine and bright is the wool, that 20 lb. of it worked up with cotton suffices to give the necessary lustre to 12 pieces of "Alpaca" goods, each 42 yards in length! Certainly the owners of the best flocks have had reason to congratulate themselves on the reputation they had thus acquired. And thus it was that last year Mr. T. KIRKHAM sold 80 shearling rams for an average price of 16*l.* 14*s.* a piece; 26 2-shear sheep at 14*l.* 9*s.* each; and 44 3-shear sheep at 26*l.* apiece. One of these old sheep realised 100 guineas, having the previous year been let for 135*l.*, and, as a shearling the year before, for no less than 160*l.* To name two other ram sales of last autumn:—Mr. DAVY sold 135 shearlings at 12*l.* 9*s.* 6*d.* each, and Mr. CHAPLIN 40 at 15*l.* 6*s.* This year we do not hear of such enormous prices. Mr. KIRKHAM, of Warkby, has indeed realised 12*l.* apiece, and Mr. T. CASSWELL, of Pointon, sold 50 for no less than 15*l.* 10*s.* each: but at Peterborough Fair the demand was far beneath the supply, although there were only 582 sheep on the ground, against 867 in 1865.

Turning to the Cotswold breed, standing next upon the scale for length and lustrous character of fleece, we find hardly such a reduction as the above at recent sales. Notwithstanding the lower value of Cotswold wool, prices have been generally well maintained. There is probably no breed which owes less to mere push and praise. Hardly ever represented at our annual shows as it ought to be, its merits in its own particular locality are the sole and safe foundation of its reputation; and the prices commanded by the large numbers sold each autumn on particular farms in Oxfordshire and Gloucestershire, as well as at sales by auction at our fairs, are the true and trustworthy indications of genuine and intrinsic worth.

Last year Mr. W. LANE, of Broadfield, Northleach, sold 54 shearling rams, averaging 26*l.* 18*s.* each—the highest prices being respectively 210, 126, 122, and 100 guineas. Mr. GARNE sold 51, at nearly 18*l.*, the highest price being 120 guineas. Mr. FLETCHER'S 50 fetched 15*l.* 5*s.* apiece, the highest price being 53 guineas.

This year, although no such excessive prices have been given for individual animals, yet many of the flocks have realised quite their usual average. Thus Mr. W. LANE has sold 50 shearling rams at 31*l.* 19*s.* 6*d.* each, the highest price being 127*l.*; Mr. C. BARTON, of Fyfield, realised nearly 15*l.* for his 50; Mr. FLETCHER'S 50 fetched 14*l.* 15*s.* 9*d.* each; and Mr. R. GARNE offered 52 sheep, four of which were only let for the season, and the whole realised 1286*l.*, or nearly 25*l.* apiece. The Cotswold men may be congratulated on holding their own, notwithstanding lower prices; and on presenting, in this respect, a most favourable contrast to their Lincolnshire rivals.

If we now look at recent sales of Shropshire sheep, we shall find that prices have not been so well maintained. In this breed the fleece is not of that comparative importance that it is in Cotswolds and in Lincolns. Nevertheless the smaller price of wool amounts to a depreciation of 6*s.* or 8*s.* a head over a flock; and that must affect their value in the market.

Last year Mr. HORLEY made 13 guineas apiece of 40 shearling rams; Mr. C. R. KEELING made 16 guineas of 30; and Mr. CRANE 19*l.* 5*s.* apiece of 35. This year Mr. KEELING'S sheep sold for 13*l.* 5*s.* apiece; Mr. HORLEY made hardly so much; Mr. S. BYRD made 15*l.* 8*s.* apiece of his,—the highest price realised for any one, and the highest price, they say, that any single sheep has ever made in Shropshire, being 86 guineas.

Going north to Kelso, we find at the great sales of Leicester sheep which have just concluded there, that prices have hardly been so high as they were last autumn. Lord POLWARTH'S 20 averaged 25*l.* 13*s.*, or 1*l.* 8*s.* less than it was last year. Mr. TORRANCE sold 40 for 7*l.* 16*s.* apiece; last year the average was 9*l.* 4*s.* 7*d.* Miss STARK sold 34 for 22*l.* 14*s.* each from a flock which last year averaged 25*l.* 15*s.*

Notwithstanding, however, the general depreciation when compared with last year's prices, the sums that are given for the best blood are enough to reward and to command the efforts of the ablest skill and judgment. Even Cheviots and other mountain sheep realise great prices. At the biennial sale of Mr. BRYDON'S rams, "Craigpatrick," a splendid 4-year-old ram, made 185 guineas, the highest price, we presume, that has anywhere been given for a single sheep this year; 75*l.* 12*s.* was given for a 3-year-old; 37*l.* 16*s.* was given for a 2-year-old, and 13*l.* 10*s.* for shearlings. Certainly, therefore, there is no lack of enterprise or stimulus to effort in this particular branch of agricultural improvement. We have not seen a report of many sales of Oxfordshire Downs, Mr. TREADWELL, of Whichendon, Buckinghamshire, however, made an average of 14*l.* for 37 sheep the other day, many of them fetching 20 guineas each, which is quite as high an average price as the breed generally commands.

—— MR. LAWES' letter on the harvest experience at Rothamsted this year is a striking corroboration of all we have written this summer on the general crop of the country. The threshing machine is almost everywhere disappointing expectation. We know of instances where the promise of 5 quarters, as it had been read when the corn was stacked, is resulting in a performance of only three; and the quality of the corn is inferior, too. A "Practical Farmer," writing to the *Mark Lane Express*, says:—"In two threshings on the writer's farm, one of 49 quarters heads left 7½ quarters tails; the other 29½ quarters heads leaving 4½ quarters tails; and this is only a sample of the district yields. The weight will average from 16 stones to 17 stones 10 lb. per sack of 4 bushels; and this, more or less, is the character of the threshings throughout the country."

—— "ROKEBY," of Chester county, Pennsylvania—a Philadelphia merchant, who seems to be a sort of American Mr. MECHI, began farming four years ago, and has already increased the produce of 100 acres of cleared land from 1500 lb. to 4000 lb. of butter per annum. This has been effected to some extent by an increase in the number of cows, and therefore we may infer by an improved cultivation of the land; but it has resulted chiefly from a better management in the cowhouse. "I look upon a cow," he says, "as similar to a steam boiler; no matter how good it may be, unless the boiler is well supplied with water and good fuel, also well attended to, the supply of steam will be short, or it will be in proportion to the fuel and attention. So also with the cow; no matter how good she may be, if she is not well and plentifully fed and cared for, her product will be shortened." Accordingly he gives his cattle "ship stuff," as he calls it, that is, meal and cake and bran early in the season, when they are first put on the young watery Grass. He winters them generously, so that when coming out of the farm-yard after calving they are in good flesh—and he grows forage of various kinds with which to supplement deficient pastures in times of drought and difficulty. "For that purpose," he says, "I have grown early Rye to begin with in the early season, before the Grass is sufficient to turn out on; then after harvest, during the dry weather, when the pasturage becomes short, Hungarian Grass, to be followed with corn sowed in drills for fodder, which, cut morning and evening, and fed to the stock whilst milking, fills them twice a-day, and, with the pasture, makes up all that is required. During the last season, whilst it was necessary to soil with Hungarian Grass and corn for fodder, we have also fed two quarts of ship stuff each night and morning, as we feel satisfied that, although the Hungarian Grass and green corn will keep up the yield of milk, yet they will not alone make as much butter as a full supply of pasture or the natural Grasses." What Hungarian Grass is we do not know, but the corn referred to is no doubt Maize, a plant of which the value for supplying green forage during its early growth requires to be ascertained amongst ourselves. Anyhow the advice which ROKEBY gives, applies with equal force on both sides of the Atlantic. "The cow should be fed and kept under shelter when the nights are wet and inclement; this more particularly in the early season, when she is fresh and in full milk; one exposure to a cold wet night has frequently reduced the milk one-half. Also in the fall, when the nights become frosty, never let them remain out; be particular to stable them; and in the morning never turn them out on the pasture until the frost is melted off by the sun, as nothing, perhaps, dries a cow or reduces her milk more than eating Grass with the frost on it. To many of these requirements the generality of farmers pay no attention whatever. In the early season, as soon as there is any pasture whatever, the cow is turned out of the barn-yard, to eat what she may find, and to remain day and night until the winter comes: there is also nothing grown or fed to eke out the scanty supply of pasturage that almost invariably occurs at some time in each season."

—— A correspondence has lately been proceeding in some of the agricultural journals about Mr. JOYCE'S pigs and Palm-nut meal. It appears that Mr. JOYCE, of Waterford Co., who is a well-known and successful breeder of Berkshire pigs, has fed them lately to a great extent on the Palm-nut meal—that he has suffered great losses among them—and that he attributes the disaster to the use of the food he has been giving. This idea is disputed by "An Essex Agriculturist," by Mr. J. COLEMAN, and by the *Dublin Farmers' Gazette*. The "Essex Agriculturist" says:—"I have used Palm-nut meal for the past five years, and know many who have used it much more extensively. I am now giving it to a herd of nearly 100 pigs; they are thriving and doing well on it—in fact, I know of no food that produces such good results. For bullocks I have used it largely, with equal benefit. It is quite possible that Palm-nut meal, given without discretion, might produce injurious consequences; but let Mr. JOYCE turn his horses all night into his granary amongst his Oats, and it is possible that he may find that Oats will produce great mortality amongst his horses. Mr. COLEMAN says:—"Having fed pigs upon this meal more or less ever since its introduction, some seven or eight years since, using it largely at the present time, and having been intimately connected with its sale, I can state that in the whole of my experience I am not aware of a single instance in which pigs were injured from eating the meal. Further than this: some three years since, Mr. F. J. CHARLTON, of Hill Fields, Bewdley, fed a number of porkers on nothing but Palm-nut meal and water. They did exceedingly well, and showed no sign of constipation. Now if the meal was good, I cannot believe (because it is contrary to all my experience) that it could be the cause of constipation and paralysis. The fatty matter, of which Messrs. SMITH'S meal contains 20 per cent., is certainly not purgative in its nature, and therefore superior in feeding properties to linseed-oil; but neither is it binding, as proved by the instance given above." The *Dublin Farmers' Gazette* adds—"We believe that some manufacturers do not take care to remove the outer black-coloured shell of the nut, but grind all up together, and in this case it may have an injurious tendency; but that well prepared Palm-nut meal has not, we are in a position to prove, having used some of it during the past season in feeding our cows, several purely-bred Berkshire pigs, fowl, and dogs, and no ill consequences arose from its use. On the contrary, the improvement in condition from the use of Palm-nut meal was strikingly remarkable. The cow's milk improved in richness, and the pigs, fowl, and dogs got speedily fat; but they were not wholly fed on it, as they got also Potatos and vegetables mixed with it." The evidence is sufficiently strong to throw great doubt on the impression made on Mr. JOYCE that he has suffered from the use of Palm-nut meal—or that, properly administered, it is anything but a very useful and nourishing food.

THE LAND LAWS OF ENGLAND IN THEIR INFLUENCE ON AGRICULTURE.

[The following paper was read by C. Wren Hoskyns, Esq., on Thursday evening, Oct. 3, before the Midland Farmers' Club, Birmingham.]

NOT very long before I received the invitation which brings me here to-day, I met with an article in a provincial publication giving a humorous account of a Housekeeper who is represented complaining to his Butcher of the high price of meat. The Butcher replies by referring him to the Farmer he was in the habit of buying of, declaring that the price of the living animal hardly left a profit on the killing. On carrying his complaint to the quarter indicated, the Farmer assures him that he should be very glad if stock could be fattened and sold any cheaper, but, as matters stood, all its profit to him was the manure it left behind: that he kept and fattened all the stock he had accommodation for, and if the Housekeeper desired further information, it might throw some light perhaps on the matter if he would apply at once to the Landlord. Accordingly he determined to do so; and very much surprised the Landlord was at finding the subject brought to him: he did not know, he said, how his Tenants were to fatten more stock, at least without an outlay of capital which they would hardly like to make for themselves, and which it was impossible for him to encounter. What he did for one he must do for all, and circumstanced as he was this would not answer his purpose. If the complainant wished to know why, perhaps he would like to talk to the family Solicitor, who might possibly be able to throw some

light upon the matter. Undeterred by this further reference, the Housekeeper perseveres,—accepts and acts upon the suggestion: and then comes a mysterious conversation, which ends with an allusion to the House of Commons, as the ultimate and only real authority upon the various points to which the colloquy has led.

The humour of the story is of course wound up to its climax in the ridiculous-*seeming* idea that a gentleman's complaint of his butcher's high prices should find no stand-point till it gets, step by step to something very like a petition to Parliament.

I have briefly stated to you this somewhat whimsical sketch, because it happens to have been the first popular intimation I have met with, of the relation expressed in the title of the Paper to which I am going to ask your attention—On the Land Laws of England in their Influence upon Agriculture.

But what are these Laws? I should imagine that scarcely any one who has not had what is called a legal education can form any adequate idea of the immensity of the subject, involved in that short phrase—'the Land Laws.' Almost ever since this country has had a historical existence—even during the days of our Saxon forefathers—long before the growth of what is called Feudalism, the laws and customs relating to Land were so stringent that the Feudal system can barely be said to have more than rivetted, not forged, the fetters that have made land the favourite victim of legislation, as long as legislation itself has existed.* I will not take up your time even with a sketch of this history; but it is absolutely necessary to refer to it, just to show how land came to be the exception that it is to the laws applying to every other kind of property.

You can readily understand that in the long past ages called 'feudal,' Land formed almost the only shape in which property existed. Commerce and Manufactures are the younger children of National history, and as they rose to wealth and importance they obtained laws for themselves adapted to the stature and intelligence of the periods at which they rose to corporate existence and maturity. Laws are to a nation very like what habits are to an individual: it is easier to make a new one than to break, or alter an old one: and thus we must not be surprised to find the modern Trade interests of Society clothing themselves with the legal habiliments of advancement and intelligence, while Land was still struggling in the fetters—perhaps I ought (for my metaphor) to say rather the swaddling-clothes of a system which, while always carefully and exclusively describing it as *real* property, deprived it of that which is recognised as the best test of proprietary right—the power of alienation.

To modern eyes Buying and Selling are so natural as to be almost inseparable from the idea of possession: but to the eye of Feudalism land was a thing peculiarly and essentially inalienable. Ownership, in the modern sense of the word, existed nowhere, except in the chief of the nation, the 'Sovereign Lord,' or King. All below him, in their degree, were vassals, or as we should say Tenants, holding their estates very much in the same sort of way as in our days an officer holds his regiment. As each died his male successor took his place as a matter of course. If his child was a female the land almost reverted to the Crown, or Suzerain, by the undisputed right he claimed to give her hand in marriage to whomsoever he thought fit of his Commanders or Favorites.

It was a system that suited the time, because it was a necessity of the time. No such thing existed then as a standing Army—nor even a Navy—these were the creations of a much later date: the defence of the Country lay in the Land. The holders of it were Tenants to the King, and the Rent they owed and paid was to follow him to the Field. A good instance in illustration of this occurred when the Earl Warenne was summoned by the Chief Justiciary of England to show his Title to certain Lands over which he claimed seigniorality. He entered the Hall of Justice, silently unbuckled his sword, and laid it on the table. And it seems too that he *gained his cause.*

But concurrently with the reign of Feudalism and following close upon it, there grew up the practice, in order to avoid Forfeitures, of a sort of secret ownership by which nominal possessors held land in Trust for the persons actually and beneficially entitled to it, and when this was formally abolished by Statute the ingenuity of the Church (which absorbed all the scholarship and ingenuity of that age) supplemented it by a mode of Conveyance to Uses as they were called: and this produced at length a system so complicate and abstruse that it required, and to this day requires, no small amount of learning to master it. And as law books have in this country outlived the Revolution, the English simplicity of dealing and transfer which applies to every other species of property not blessed with the privilege of so ancient a pedigree, finds an exception the moment you touch upon what the lawyers are pleased to call Real Property; and the law which regulates its descent remains pretty much what it was six centuries ago. This exceptional law, which carries the inheritance of land to the eldest male, to the exclusion of females, and of all younger children, is known as the Law of Primogeniture, and constitutes one of the Land Laws which we shall discuss to-day.

But the simple severity of this ancient law rarely comes into play; by reason that landowners have now the power (which did not exist in the feudal days we have been speaking of,) to make Wills and family Settlements, by which the naked operation of the law of primogeniture is modified, but at the same time much extended. The law did no more than carry the land to the next male heir, in a continuous line of living successors: it did not attempt to make perpetuities, nor to bind the rights of unborn generations. This remained to be accomplished by the now almost universal practice of family settlement and Entail.

In most European countries, in America, and in our Colonies, the practice is allowed of conferring estates in land for life to any number of persons in succession who are all living at the time the Settlement is made. But in this country the Law goes further, and allows a present owner to bind the next generation not only after he is dead, but after the death of the longest liver of those named in his deed of settlement, and that for one-and-twenty years. "It may be stated generally," says Mr. Kay, "that these laws enable an owner of land by his Settlement or Will so to affect his estate that it cannot possibly be sold, in many cases for about 50, in some for 60, 70, or even 100 years after the making of the Settlement or Will." Thus a man can declare what shall happen to an estate in Land, during the whole life of an infant just born, and for 21 years after the birth of that infant's Infant! This power is commonly known as the law of Entail, and forms the second of those land laws of which I am to speak to you.

But there is a Third law, as powerful in its effects as either of those two which I have named, in its practical operation upon Land. It is this, that whereas if I offer to sell you a Horse, or a Carriage, or a House full of costly Furniture, or a diamond Necklace worth a fortune, nay the Koh-i-Noor itself, you have only to determine whether you will give the sum asked, and the payment of it concludes the transaction, and you may sell it to somebody else to-morrow, if you like. (Observe this last point, for one of the raciest elements of value in most kinds of property is the power of ready conversion, and one of the greatest blessings to the community the ease and facility of transmission from hand to hand.) But if it happen to be a bit of Land, worth less perhaps than the smallest brilliant in that necklace, or the furniture of a single room of that House, it at once becomes your business, and *necessity*, to assume that I am trying to sell what is not my own, and to oblige me to prove my 'title' to it—not merely of to-day, or this week, or the month past, but to show the history and pedigree of that bit of land for 60 years back, and all the births and deaths and marriages in any way connected with it, for a period that may thus extend over a couple of generations. This is known to lawyers and their clients under the playful title of 'conveyancing practice,' which governs more powerfully than any Act of Parliament the transfer of Land; and this forms the Third of the Land Laws of which I have to speak.

There are some other laws connected with the land to which I shall have to refer, such as the law relating to the Settlements of the Poor, the law of Fixtures, and that vestige of the old Norman Forest-laws which has descended to our day, under the title of Game laws: but the three which I have named first are those to which I shall chiefly confine myself; namely, the law of primogeniture, the law of Entail, and the practice of conveyancers in the transfer of land.

I am not going to discuss those laws in their political aspect. With that I have nothing to do here. Neither are we directly concerned with their Social consequences, nor yet their Moral effects, however important these may be, interpenetrating as in truth they do the whole structure of English life and society. My object is simply and solely to endeavour to trace their effects, both separately and jointly, upon Agriculture.

And having stated to you what I mean by the land laws, it is also necessary that I should define what I mean by the word Agriculture. By Agriculture I do not mean the interests of Landlords; neither do I mean the interests of Tenant-farmers; nor even the interests of Labourers; nor yet of Implement Manufacturers, nor of any other existing *class*. By Agriculture, I mean *Agriculture*, and nothing else; the *Cultivation of the Soil for the production of food* for mankind, and other animals: and my single and simple object is to endeavour to ascertain and point out how that is affected by the laws prevailing in this country, which directly and indirectly govern the ownership, the cultivation, the disposition, the descent, and the transfer of land.

First then with regard to what is called the Law of Primogeniture. It is hardly possible to afford a true picture of this law except by the light and outline of contrast.

If a foreigner writing of England were describing the mode in which the Law disposes of the property of an Intestate, he would speak of it as excellent almost above the reach of praise or criticism. "On the death of any person without a Will," he would say, "the Law divides his wealth equally amongst all his children, with a proportion to his Widow if living, and the children of a deceased child, with an equity and impartiality that seem to approach the perfection of wisdom and justice. But"—and then comes the grand exception—"if any portion of his property, or the whole of it, happen to consist of Land—then the whole scene changes—then the whole shall go to the eldest male child, to the exclusion of all the other children, male and female; and in default of sons to his nearest male relative."

Here then are two totally opposite principles of distribution and descent of property, and that too in a country the most commercial in the world:—where land can, like everything else, pass under the auctioneer's hammer in exchange for money, and money be converted into land, not indeed as quickly, but as surely as any other commodity or form of capital. It is hardly possible to convey an idea of the everlasting stream, I should say whirlpool, of Litigation that has been occasioned in our Courts of Law and Equity by this unnatural wabble of two systems so diametrically opposed to each other, yet operating simultaneously in the same country. It furnishes the keynote, the underlying cause that long rendered our Court of Chancery a scandal not to this country only, but almost to the civilised world. The disputes between the Heir-at-law and the Personal Representative, the respective champions of the two interests—the two conflicting systems—if recounted, would surpass belief.

We are told, however, or were told by those who do not know what goes on in the Law Courts, that as a matter of inheritance and descent, the *Law* of primogeniture very rarely comes into action; because in fact landowners substitute it by the system of family settlement and entail;—in fact make their own primogeniture; so that the *law* might be abrogated to-morrow, yet the *custom* would exist unaffected, and the landed property of the country remain as at present.* It is singular that this argument should be used by the defenders of the law as a reason for retaining it. Looking at the evil conflict of two opposing laws of succession, it would furnish, according to their own statement, the most cogent as well as satisfactory ground for its abolition. But on the other hand, there can be no good reason why any man should not devise or settle his landed estate on his eldest son even to the exclusion of all his other children (if his fortune allow of it): but there is very good reason why *the Law* should not speak in two voices, nor make a capricious exception to its own even-handed justice and policy, in order to supplement his omission, nor set up an impossible distinction that has baffled the learning of the most acute lawyers as much as it has the common out-o'-door sense of practice and experience. Individuals may act as they please: it is consistent with the best policy and freedom to allow them to do so: but it it the duty of the Law to be both consistent with itself, and a Rule of Right. "No human laws," says the great Judge Blackstone, "are of any validity if contrary to the Law of Nature; and such of them as are valid derive all their force and all their authority, mediately or immediately from this original."

It is most important to keep in mind this distinction between the *Law*, and the *Custom* of primogeniture: because it is quite possible and consistent for one who is an advocate and admirer of primogeniture as a national or social custom, to disapprove entirely of its existence as a Law operating for a particular class and species of property, conflicting with the existence of another and more general Rule of the Realm that applies to property of every other kind whatsoever.

And now, as to its agricultural effects. I need hardly point out its tendency and acknowledged effect in preventing the distribution of land amongst the community, and amassing it into large estates. However rarely the law, as a rule of inheritance, may operate,—that is, however seldom a landed estate may escape accidentally from family entail, and drop by intestacy or disputed claim into the course of legal distribution, yet whenever it *does* happen, the law adjudicates it to an individual, and restores it, so to speak, to that primogenitary circle which is continually and every day growing smaller and their estates larger. The effect of this is noticed very strikingly in Lord Macaulay's History. Writing of this country a century and a half ago, he speaks of the independent landowning yeomanry as "an eminently manly and true-hearted race. These small proprietors," he says, "who cultivated their own fields, and enjoyed a modest competence, without affecting to have scutcheons and crests, or aspiring to sit on the bench of justice, then formed a much more important part of the nation than at present. If we may trust the best statistical writers of that age, not less than 160,000 proprietors, who with their families made up more than a seventh of the whole population, derived their subsistence from small freehold estates. * * * It was computed that the number of persons who occupied their own land was far greater than of those who farmed the land of others." "Great," he adds, "has been the change in the rural life of England." Great indeed!† Such has been the rapid concentration of land in fewer hands that the computation of the number of landowners in the kingdom at the present time, scarcely exceeds the number Macaulay mentions as representing even at that period the *small* proprietors alone.

That this decrease, I should rather say extinction, of the valuable class of yeomen, and aggregation of land into larger masses, and fewer hands, has been accompanied by an immense increase of the system of Tenant Farming, it is unnecessary to point out. To the present generation the farm-tenancy of another man's land is so completely the rule, and ownership the exception, that it is quite like going out of practical life to the statement of some abstract principle to remind them that what they see exists only factitiously; and that in every country the original and natural condition of land is that it should be occupied by the person who owns it; and that few generations have passed since this was in fact the state of things in England. As landed estates grew more extensive, this of course became impracticable. It has often been attempted, but no one has ever yet succeeded, in becoming the great merchant or factor of his own vast acreage. Nature itself operates against it, and compels its distribution into separate farms to be held and cultivated at least on a smaller scale than that. But the larger the estate the greater becomes the inevitable inducement for making large farms: the expense of a multiplicity of homesteads, with the requisite outbuildings, is by the resort to large farms greatly reduced, and a kind of wholesale economy is obtained by the use of implements which reduce the expense of cultivation and conversion at every stage to their most

* See Kemble's 'Saxons in England.'

* See the Debate on Mr. Locke King's Bill on the intestate Succession to Land.

† It was reckoned by Dr. Beke that there were not more than 200,000 owners of land in England, and in Ireland 8000 only.

economical rate. To one who can look back eight-and-twenty years to the first Implement Exhibition of the Royal Agricultural Society of England at Oxford, it is most striking to observe how invention and manufacture have been stimulated to follow the track of enlarged holdings, and the extensive scale of farming that has grown up in this country. Whatever the demand, there will always be a supply, and the magnitude as well as perfection of our farm-implements and machinery have become the wonder of Europe. All this has helped to disguise a growing fact of deep significance to the community: while to many persons it has come to appear as if Agriculture will have reached its perfection, its Golden Age, when the whole country consists of large Tenant-held Farms under large Landowners.

But there is a considerable class of thinkers, on the other hand, including amongst them almost every distinguished writer on political economy (the science of the distribution of national wealth), from Adam Smith to our own time, who are of opinion that God made the earth for all, and not for a few; and who hold that the true question is, not how the land can be cultivated *on the largest scale at the most economical rate*, but how it can be made to produce *the greatest returns by the profitable employment of the greatest number*.

These are two very different propositions; and if our land laws tend, as they do unquestionably, to the extirpation of small independent estates, and the continual aggregation of land into large territories, and these again to the holding of large farming acreages, the question between these two propositions is one which must in the course of things force itself upon the attention of legislators and the Public. If the process were stationary this might not be: but what was going on when Adam Smith and again when Lord Macaulay wrote, still is going on under our eyes indeed the dispossession of smaller proprietors has been so successful that the whole question of the occupation of land is narrowed down to the comparison between small and large *farms*; and the advantage which modern implements and machinery have given to the larger holdings has almost put out of view the far more important comparison between Tenancy itself, and Proprietorship. "Give a man," says Arthur Young, "the secure possession of a bleak rock, and he will turn it into a garden; give him a nine years' lease of a garden, and he will turn it into a desert. The Magic of *property* turns sand to gold." This of Arthur Young's may be rather a strong statement of the case, but it is sufficient that it asserts a true principle. The outlay in capital and labour that a man will make upon that which is his own, and will descend to his family after him, is essentially different *in kind* as well as in degree to the farming treatment, taken at its very best, of land belonging to another. In no country in the world has Tenant-farming reached a higher point (I wish I could say standard) of excellence than in England: in no country, I think, it may with equal truth be said, has the relation between Landlord and Tenant afforded nobler instances of the most daring confidence between man and man, and that for successive generations. But not the less for that is it true that Tenant-farming, or 'How to make the most out of another man's land,' stands on a footing so intrinsically different, as respects the varied forms of permanent *investment in the soil*, which are lavished by the absolute owner of it, that the two things are hardly susceptible of fair comparison. The one is a business, that may be anywhere, the other is a *life*, that is always at home: the one is a time-bargain, to get money out of, the other is a deposit bank to put money into. Let a man lay out whatever he may upon another man's land, it is only with the view of getting it back again as soon as he can. The difference of the object affects insensibly the very nature of the crops and the course of cropping. The large-field practice almost compels an amount of cereal produce, which looking at the home demand for meat, and the portability of corn from every country of the world, with its wonderful adaptation to almost every climate, renders the price of Wheat (in the average of years) an almost hopeless competition; while the home-cry for beef and mutton can hardly be said commercially to command a proper supply.* To give an extreme instance: the absolute proprietor will spend more money and employ more labourers in the planting half an acre of fruit trees, than a leasehold tenant would think himself justified in doing upon the wheat crop of a 30-acre field. Compare the two cases: compare them not with a view to the mere economy of the particular outlay, but with an eye to the employment of labour, and investment of capital in the soil over the whole face of England.

The resort to machinery instead of hand labour on large Farms is commonly taken for granted as being in analogy with the same thing in manufactures. This is a mistake. In manufactures the substitution of machinery for hand labour has so enormously multiplied production, as to employ a far greater number of hands in the details of the millwork: and here the power of production is practically illimitable. No such result obtains in agriculture. The most enthusiastic admirer of the steam plough, useful as it is as an auxiliary to clay cultivation, does not pretend that it can rival the action or the produce of the Spade, which skilfully handled exceeds the results of the best laid furrow that Ransome or Howard, or even Smith or Fowler can accomplish. The much greater quantity of small products, such as eggs, butter, milk, cheese, honey, vegetables, fruit, &c., which are obtained from a given quantity of land cultivated by the smaller class of proprietor, formed quite a characteristic feature of the ancient agricultural system of England. These have almost disappeared with the modern system. The importation of foreign eggs in the last year amounted to the prodigious number of nearly 500 millions. The value at the English Market price paid to the Foreigner for this one element of neglected home produce is from one and a-half to two millions sterling.

What is the conclusion? Does this look as if it ever was intended that the earth should be capitalized into vast aggregations, that shall drive the small proprietor, or the small cultivator out of the land? I think not: I think that a great but unconscious experiment has been going on sufficiently long to warrant the assertion that it is not within the laws of Nature that the earth should come under the wholesale grasp of capitalization. The very structure of the soil—apart from all questions of its variety—is a problem in itself so special, so unique, so responsive to the modest and simple machinery of want, and the patient toil that eats bread in the sweat of its face, that it would seem as if a silent but imperative appeal against aggregation lies in the very bosom of the ground, lies in the crumbling fall of every spadeful in the garden or the allotment field—rivalling as they do in comparative produce the quadruple steam-laid furrow-slice that attracts the gaze of hundreds and thousands at our Agricultural Shows.

It so happens, however, that in England the smaller forms of proprietorship are rendered so impracticable by causes I shall presently refer to, that no fair comparison can be made between proprietary and tenant cultivation. In Belgium, in Switzerland, Holland, Italy, in France, Sweden, and Denmark, no such laws exist. In all these countries (except the two last) I have myself personally witnessed the results of a landed proprietary enjoyed by all classes, not only as it affects themselves but also in its influence upon the labourer. "The English agricultural system stands surrounded not merely by countries, but by continents which rest on the principle of the diffusion of landed property. The Continent, America, and Australia, proclaim, with hardly a dissentient voice, that in Agriculture at all events the opposition of Labour and Capital need not exist. It would be wise to do all in our power to prevent this schism extending from manufactures to agriculture, by uniting as far as possible instead of separating the masses from the soil, by the aggregation of land in the hands of a few." *

I need not point out to you how the conditions of labour influence the conduct and even character of the labourer, of the man himself. The kind of hopeless, brainless drudgery that drags along through the day in the work of a hired Farm, and with the too probable prospect of being turned adrift for the Winter, is as unlike the active intelligent work of one who enjoys a partner-like interest with the actual owner, as the movement of the hunter or the racehorse is to that of the jaded poster or the dray.

You cannot separate these things from one another. Whatever tends to divorce the soil from its proprietor, or even to widen the generous relation that unites them, will cast its shadow upon the condition of the labourer as surely as an intervening object will cut off the sunshine from the ground. The way in which men will spend money upon that which is their own, is to the Labourer a sort of special providence; however doubtful the return to the proprietors, *he* at least is employed and benefited. One man's folly is another man's thrift. And the converse is equally true: the shrewd and keen calculation, how the most can be taken at the least cost from the ground, is for him the arithmetic of starvation.

Looking at the landed wealth of England, and the justly admired scale and character of its farming, the condition of the Labourer in Agriculture, compared with other countries, presents one of the most startling paradoxes that can meet the eye or the mind. The philanthropist asks, why it is that when every other class in society can be well housed, with a return of 7½ per cent., the building of cottages for Labourers is, "through some obscure cause" as he wonderingly words it, found unprofitable? There is an occult relation between things that seem far apart to the eye, that shows itself in symptomatic disease at the most unexpected points, indicating a screw loose up near the very life-spring far away from the place visibly affected. Can we seriously wonder that building Labourers' Cottages does not pay in a country, however rich, where the whole agricultural system is based upon *Tenancy* instead of *ownership*, and the interspace between Property and Labour is occupied by a vicarial system, the very essential conditions of which are the obtaining a profit that will pay the rent with something left to live upon, by the greatest returns consistent with the least expenditure in labour?

The building speculator stands aghast at a problem that utterly baffles his means of comprehension, seeing that the meanest hovels and cellars in our towns are crowded and over rented, while our agricultural villages either remain stationary in the condition of 50 years ago, or become daily more and more deserted: that Trade is ever pushing out its suburban shoots and suckers in the shape of new streets of cottage rows in the outskirts of manufacturing Towns, while agriculture is making appeals to sheer patriotism and liberality to provide a place where the labourer may lay his head.

But out of the hundreds who would readily acknowledge and lament over this cruel reproach, this blot upon our national escutcheon, how many are there who could be made to understand that it is as direct a result of our national system of land-aggregation and vicarial culture of the soil as it is possible for effect to follow cause? The American planter of the Southern States housed and fed and looked after his Slave, because it was his direct and imperative interest to do so. Whose business is it to do the like for the English agricultural labourer? Not that of his Employer, the rent-paying Tenant, because the land is his only *to farm*, not to build cottages or plant gardens on: not the rent-receiving Owner's, because between him and the labourer there is, to use a well-known law term, no 'privity of contract,' the relation being broken by the intervening link of an employer who, be he ever so kind a master, has even less local tie with the hands he employs than with the fields they work upon. And if this be the case in England, what must be that of Ireland in this respect, where our law of primogeniture equally prevails, but where the proprietor is commonly an absentee? Undoubtedly "it *should be* regarded as part of the indirect interest of the landowner to build Cottages, viewing the accommodation of the labourer in the light of a part of the general improvement of his Estate."* But we are speaking, not of what should be, but what is: and the misfortune is, that indirect interests are always and necessarily postponed to those which are direct and immediate, and the repairs of a large estate are in this category, while Cottage building is in that. And it is only lately that one of the worst of our land laws, the local Settlement of the Poor, has ceased (if it have ceased) to furnish a motive for the pulling down instead of building up dwellings for the labourer.

"The housing of the labourer suffered a marked deterioration between '51 and '61. In 821 English Parishes, according to the last Census, a decrease of houses was accompanied by an increase of population. The demolition of cottages has perhaps ceased with Parish chargeability, but there is nothing in the Union Chargeability Act which undoes the mischief that has been done."†

But there exists a cause which I do believe has done more than any other to prevent the amelioration of this law in England, and to keep up what almost amounts to a national prejudice on the subject. It is the Napoleonic *law of Subdivision* existing in the neighbouring country of France. If in England the remnant of a feudal institution has saddled us with a law which incidentally favours aggregation, in France there is a diametrically opposite law, which was purposely framed in order to compel its subdivision. So few people will give themselves the trouble to examine this subject patiently, that you rarely hear the word Primogeniture mentioned without some hasty deprecation of the French Law of *Morcellement*; as if the existence of one bad law was an excuse for an opposite law almost equally bad. The Truth lies in the middle: the Land should be free: the Law has no business to do either one or the other. Land has its own inherent laws, like every other form in which property exists; and those are the only wholesome laws by which it can be governed. The aid attempted to be given by legislation to the concentration, *or* to the subdivision, of land, distorts the true economical movement, and disguises the irresistible working of a natural law by which Land would be found to grow into large estates and into small, like other large and small fortunes. We have proved this in the case of the Usury Laws, the Sumptuary Laws, the laws once directed against Forestallers and Regrators, the law of Evidence, the Tariff or Customs Laws, and many others that have been in turn abolished, after being each vaunted as the Palladium of England, and we have only the same experience to prove in the case of the law which interferes exceptionally with the intestate succession of Land. Against primogeniture itself as a family practice and custom there can be no objection whatever. The freedom of land requires that every one should be allowed to dispose of its succession in what manner he pleases, subject only to the interests of Future Generations. And this brings me to the second head of my discourse, namely, the subject of family settlement or Entail.

The law of Settlement is described in the following words by a recent well known writer (Mr. Kay):—"This law enables an owner of land to grant by deed or leave by will different interests in his land to a number of persons, and so to arrange the succession to it, that no person shall be able to part with any portion of it until some one who was an infant at the time of making the settlement has grown up, married, and had a son, and until that son has attained the age of 21 years, and not even then, unless all those who have any prior interest in the land are dead or join in the sale." Supposing a Father, a year after his son's marriage, and on the birth of a child, to make a settlement giving a life estate to his son, and to his grandson just born, with remainder to that grandson's child; it is obvious that the property is tied up in life estates for upwards of 40, more probably 60 or 70 years. (It was stated in evidence before Mr. Pusey's Committee of the House of Commons on Agricultural Customs, that this system of entail embraced upwards of two-thirds of the land in this kingdom.) But is the land set free at the end of this distant period? Not at all. As each successor comes of age, the same process is repeated, the existing generation always considerately tying up the hands of the next, in perpetual succession. By this system (as Mr. Newman remarks) "the land is wrested from the control of the State, to be placed under the still more interested control of the Family." In other words, the landowning families of England make their own primogeniture; and as long as the ball is kept flying the Law never steps in at all, except indeed by the tacit permission it supplies to tie up the hands of the unborn by the force of that little phrase "*and twenty-one years afterwards*." This is the fetter upon the hands of the

* "It is beyond contradiction," says Mr. Cliffe Leslie (in a recent article in "Fraser"), "that the products best suited to the soil and climate of England are those which small farming produces best." "The farm produce for which England is best suited," requires, Mr. Caird states, "an immensity of labour." "English agriculture," says Mr. Thornton, "would be exceedingly benefited by the application to it of at least double the actual quantity of labour:" and England is fitted by Nature to support an immense rural population in comfort.

* Newman on the Land Laws.

* Lord Leigh's admirable letter to the *Times*. † Caird.

unborn which exists in no other civilised country in the world except in Russia, and still, I suppose, in part of Austria. In America it has been long abolished, in all our vast colonial empire it has been shaken off as utterly impracticable, in India the attempt to impose it led to some of our cruellest troubles. What it does, and has done, in Ireland we do not enquire here. Our concern is solely with its effects upon the cultivation of the land.

Now, if Agriculture was a thing that stood still, as indeed for a long time it did, making no new demands either upon the owner or the Tenant, to keep up with the improvements of the day, and if landowners under entail had only one son apiece in perpetuity, and no daughters, no widows to leave, or jointresses to provide for, no annuitants, or rentcharge owners, or inherited mortgages, or law and management expenses—if, in fact, the word 'inheritance' had only a credit and no debtor side—then I can conceive nothing more effectively prudential than this system of each generation treating the next as a perpetual child, and putting him into a perpetuity of leading-strings, intended, not always successfully, to prevent him from doing any harm, but very efficient to prevent him doing any good.

Land is a thing which from its own inherent nature —not half-studied or understood—is ever demanding at the hands of the occupier, and the owner, fresh investment. In the long run it will give nothing for nothing. It is a faithful and rigid tell-tale of the character of its cultivator, and not less of the circumstances under which he is placed, and by which his acts are inevitably governed; and if the fields show a picture of the tenant, the Buildings will probably afford an equally photographic portrait of the owner. But the responsibility does not rest here. Every advancement in agricultural knowledge and practice makes it more pressing and compulsory. The increased energy and activity thrown upon the tenant to keep up with the demands of the time, oblige him of necessity to look to the proprietor for an aiding hand towards the necessary improvements required, before his own capital can be beneficially invested. The obligation thus thrown upon the owner to assume, in effect, the position of a moneyed capitalist, increases with every improvement that is discovered. Drainage, Irrigation, Enclosure, Warping, Roads, Cottages, Fixed Steam-power, the erection of buildings for a larger head of stock—all the improvements in fact of which land is susceptible, and which the advance of science enforces, have to be met, and this by hands tied by an ancient system of entail to an emasculated form of ownership, not amounting in a large proportion of cases to anything better than an annuity of half the nominal rental—this subject to all the ordinary expenses of repairs and management, and the accidental or occasional losses necessarily incident to land. The existing proprietor may be the father of a large family all unprovided for except the eldest, upon whom the entail devolves. His Tenant goes to him and says: "Sir, the outlay of a couple of thousand pounds upon my farm I will gladly pay you 10 per cent. for: it will improve your property far beyond that." What is the answer? "Sir, my estate furnishes me with Income, not Capital. I have no money to spend in buying annuities; for such in effect is your proposal, which bids me, for the sake of 10 per cent. to myself for life, add to the fortune of my best provided child at the expense of those which are penniless."

Or again, he may be the mere tenant for life in tail without issue, of a property passing at his death into remote hands: or he may be a young proprietor just come into possession of an estate burdened with jointures, mortgages, and the unpaid portions of younger brothers and sisters charged upon the property. Such and similar cases form the majority: absolute independent ownership is the rarest of all.

These impediments, brought to a climax by the discovery and necessity of Drainage, led to the Loan of two millions sterling of the public money in 1844 to the Landowners of England and Scotland, and ultimately to the various Drainage Acts and the establishment of Land Improvement Companies of which that Act was the forerunner. The first Loan was due to the accident of a surplus in the public Revenue, and the employment of it in so unusual and irregular (though undoubtedly useful) a manner proved the existence of an acknowledged difficulty, which the Act in question and all that have succeeded it, endeavoured to palliate but not to cure. The 'Private Money Drainage Act,' passed three years afterwards, was a still more important recognition of the anomalies I have described. Setting aside the last named Act, the others, down to the Act of Mr. Childers of last year, operate in this way.

By their action the Public is invited to lend their money to the owners of land to prevent the land from coming into the market, and afford to the public the opportunity of employing it themselves. This is a somewhat cumbrous mechanism, a very roundabout way of affording to the soil the investment that it wants, by introducing a new interest, a fresh incumbrancer in the shape of a rentcharge owner who takes precedence of all others. To use the words of Mr. Newman: "First the owner is not the cultivator * * *, the proprietary interest is broken into the hierarchical trio of Landlord, Tenant, and Labourer, separated from each other by a social and economical interval which checks the rise of the labourer to the place of tenant, and that of tenant to the place of proprietor." Then, when the requisite capital is still not forthcoming to carry out the necessary improvements, a kind of Fourth Interest is superadded, who becomes a sleeping partner in the shape of the owner of an annuity charged upon the land, and paid by the Tenant to the pocket of a stranger.

It is surely obvious that the owner of an estate larger than he is himself able to improve, would be advised rather to part with a portion of it than to enter into deeper obligations, with an acreage already overgrown, by making fresh investments of borrowed money, which besides the payment of interest will soon be found to involve further liabilities, which all who know anything of the charges upon land know to be self-generating. The most serious objection to this system (which after all has failed to secure the proper drainage of the highest-rented county in England) is, that it indirectly subsidises the narrowing circle of family entail, as against purchasers, and prevents the application of *free capital* to the soil, which it should be the object of the State to encourage; and the burthen of mere ostensible ownership increases: the effect of which is easily seen by comparing the spirited outlay and improvement carried out on estates held in fee or newly purchased, with those which have been tied to the hands of nominal owners burdened with a lengthened chain of incumbrances. It would be difficult to find among the various forms of inherited penury one in which the secret suffering is more frequent than within that very class whose unborn interests the efforts of family pride, aided by the law of entail, so jealously attempt to guard. In spite of it all, we know that estates do become worm-eaten, let them be coated by no matter how many skins of parchment; and it is equally evident that men can grow rich and "leave an inheritance to their children's children," who entered life without the shelter of an entail, and passed through it without the go-cart of a family settlement. The shortening of the power of entail to the ordinary European standard; of lives existing at the time of making the settlement; accompanied by a power of sale to the extent of the incumbrances, by the Trustees of the Settlement, would, far better than Drainage Loans, set free the hands of many a landowner to the improvement of his Estate, in spirited conjunction with his own tenantry; would open the land market to new blood and free capital, and prevent many a catastrophe which our present system of entail has no power whatever to prevent, but great power to precipitate.

And now I come to the third and last head of our subject, the conveyancing practice on the Transfer of Land. I hardly know whether we are even right in classing this among the land *Laws*; for really upon this point our quarrel is not so much with the Law as with a certain section of the lawyers. It was believed by Lord Brougham and the other Law Reformers of 1832 that they had broken the neck of the difficulty as to the transfer of Land, when they passed an Act by which it was decreed that 20 years' possession should give an absolute and indefeasible title to it. But 20 years is a long time now, in the days of Express Trains and Ocean Telegraphs: yet this seemed then an immense step in advance, over the ancient length of title which ran—I beg your pardon—crawled, over three or four times twenty. But alas! the Reformers of '32 only "scotched the snake, not killed it!" for they left 'exceptions.' There were five excepted cases which the Statute of Limitations (as it is called) did not shut out of claim. Their names were 'Infancy,' 'Duress,' 'Beyond Seas,' 'Lunacy,' and 'Ventre sa Mere.' To translate this into plain English: By *Law*, by Act of Parliament, 20 years' undisputed possession did, and does, give a title to land; *but*, not if the adverse claimant was under age, in prison, beyond seas, mad, or unborn, who might rise up against you, after you had paid your money, sat down on your estate and thought you had been at home for 19 years and 11 months. "Who would run such a risk?" asked your Conveyancer. So the statute became waste paper, and the Conveyancers had their way, and have had to this day, in spite even of Lord Brougham in that day, and Lord Cairns and Lord Westbury in this day, and a whole Bench of Law Lords and distinguished Lawyers between then and now who have given all their mind and influence to the emancipation of land from this childish thraldom, that a Vendor willing to sell and a Purchaser willing to buy, cannot complete their bargain—because the Conveyancer won't let them.

What is the hindrance? The hindrance is shortly this: that the dealings with land being secret, especially—for obvious reasons—those dealings which mean borrowing money upon all sorts of charges affecting the land—it was impossible to know how the title might have been tampered with, and how far the ostensible possessors had no more of real ownership than you would have to a horse that happened to be in your stable after you had sold it, and received the value of it. What was the remedy? Of course a public Registration of Title, accompanied by a National Map (on the 6-inch scale that has been used for Ireland and Scotland, but for some inscrutable reason has never yet been applied to England itself). Such a register and such a Map does exist in many of the most civilised States of Europe; and the sale and purchase of land in any quantity, large or small, has in Belgium, Switzerland, and in Germany been reduced to a simplicity as perfect, to use Mr. Laing's expression, as that of "a yard of cloth, in a draper's shop." I need not describe to you what it is in this country. All the ability of Lord Westbury was required in order to carry a mere *permissive* Act for the Registration of Title, which has hitherto proved little better than a nullity. Practically the difficulty remains the same: and if this applies to large purchases of land, what must it be to small, where the expense of making a title, if encountered, would in a multitude of cases exceed the value of the land? Look at the fact in a commercial point of view. Imagine an investment offered to you, in which it would take nearly all the money to pay the Broker! Yet such is very nearly the condition which appertains to land in small quantities. That class in Society whose capital would enable them to buy land on this scale is virtually excluded from it: not merely from the difficulty and expense of title, but because even when bought the same system of legal trammels follows the possession of it. If the law expenses on a large estate are troublesome, on a small one they are overwhelming: if the inexperienced buyer has parted with too much of his capital in the purchase, and requires to borrow upon it in order to improve it, then begins a course of self-consumption, if I may so call it, which soon brings cultivation to its worst form, that of needy farming; and the opponent of small properties points with ridicule to the instance which yet, properly understood, is only one example of the Law eating up land by beginning *at the small end*: for the same applies to all, being only borne with more endurance upon the larger estates, in proportion as they *are* larger, just as a disease that would kill an infant or an aged person is survived by one in the vigour of life, by sheer surplusage of strength. But this should not, and need not be. Money borrowed within certain limits by a small proprietor to improve his means of cultivation is as much within the rules of prudent business as that taken up by a merchant on Bills of Lading or Dock Warrants; it is not the loan (if properly applied) but the parchment that renders the transaction ruinous. The merchant would be ruined, the Export and Import Trade of the country would be stifled, could not possibly be carried on, if the money it employs were saddled with the same conditions. It is hardly possible to calculate the loss to the soil of money that is prevented from investment in it by this suicidal tyranny of Parchment. Millions of acres that are incapable of paying Rent are nevertheless capable of improvement and of cultivation *at first hand*, if capital were as free to invest in land as in Trade and Commerce. We all know, who know anything of agriculture, how much capital the soil will swallow even in ordinary cultivation to reproduce with interest. It is the first and most natural of Savings-banks, to the small as well as to the large capitalist: it is endowed with an equal aptitude to both: it belongs to the spade as well as to the plough. "To increase the facility of its transfer must ever be the great end of the lawgiver in all his plans for amending this great branch of jurisprudence." So thought Blackstone: so thought Locke. "Experience," says the learned Commentator, "shows that property best answers the purposes of civil life when its transfer and circulation are free and unencumbered." To be driven to risk our national earnings and accumulations in any other channel till this one is exhausted is the widest and most penetrating form of national impolicy, reaching to almost every individual, for who is there that does not love a bit of land, and spend freely of his gains upon that which he can call his own. The law can make no crueller divorce than when it interferes to separate between Man and "the Earth which was made for all," first by denying a free, speedy, and cheap mode of transfer, in small and in large quantities, and secondly by the incessant recurrence of costly forms which our system involves, pressing at every turn and transaction upon the owners of the soil. To fully develop and expose the extent to which our conflicting institution of 'legal' and 'equitable' estates, our prolix conveyances and redundant law terms operate as a charge upon the land, an impediment to its exchange, a reduction of its value, a drain upon the resources of the owner, and thus a secret injury to the Tenant and the Labourer, would be to write the severest satire upon a Legislature in which the land is reputed to have some voice and influence, it would be possible to pronounce. One might imagine that a House so composed would easily supply all necessary aid to the improved value of Land by free circulation, would *enforce* registration of deeds, limit the period over which proof of title must go back to at least half the existing if not to a shorter period, and bring within some bounds the intricacies and obscurities which legal cobwebs have collected around the subject. Parliament after Parliament has taken up the matter, and feebly shrunk from the labour almost at the threshold, as if it was under some special inaptitude for dealing with a landed topic. Perhaps it is idle to look to those who habitually permit the mutilation of their own proprietary interest in the soil, for any emancipation of it from the trammels that beset and stifle its circulating freedom and value. Nor would this be to be wondered at, for all History proclaims that distribution is a safer and healthier source of value than monopoly, and the consequent incapability of any one class in any state for the task of wholesome and effective legislation for their own true welfare; and all the moral experience of life attests that individual and special interests never flourish more successfully than when it is subordinated to the wants of all.

To sum up in as few words as possible all that I have adventured to say upon our Land Laws,—What, then, are the suggestions that I would make, regarding them solely in their influence on agricultural development? The change that we require is but little, but that little underlies and interpenetrates the whole Economy of Agriculture as a national business, and is concerned with every acre uncultivated or half-cultivated by the operation of legal trammels. First, as to Primogeniture: What I should ask is simply that the *custom* should be *let alone*. It is strong enough to take care of itself. The Law has no right to pander to it or interfere with it, or against it. In the distribution of the property of Intestates, the Law has only to be consistent with itself. It makes no exception amongst all the other various forms of property now far too many to enumerate: it should make no exception of this. By doing so, it violates its own simplicity and impartiality, and wounds its own justice.

Secondly, as to the law of Settlement and Entail. Here, too, the change required is small: but most distinctive and significant. It is to give the utmost latitude to the will of the owner, consistent with *the rights of*

the generations yet unborn. That is, to allow any and every kind of estate and interest in land to be carved and divided by the owner amongst any number of lives *in being*, however young, at the time of making the Deed or Will: and there to terminate; where Nature itself seems to proclaim that the voice and will of each generation should and must end,—with its own existence and enjoyment of the earth.

Thirdly, as to the Sale and Transfer of Land, the question still remains, to whom are we to look to give us the openness of the land market, the proprietary freedom which the true interests not of one agricultural class alone but which every class connected with the soil, from the labourer to the Duke, say rather which agriculture itself in its fullest and freest national and natural development, requires?

Despairing of any more congenial or intrinsic solution of the question, which all appeared so much to wish but no one to be able to accomplish, I once, in a letter published in the *Times*, proposed to cut the Gordian knot by introducing the principle of Insurance for the security of Titles: that Buyer and Seller should take the matter into their own hands, and an Insurance, composed of some of the chief Landowners of the country, should secure the contract by a corporate seal strong enough and permanent enough to outlast the Statutary period of Limitation, and all the exceptions it allowed. Whoever has had the misfortune to upset a beehive will be best able to form an idea of the buzzing that ensued. Fond of ease and a quiet life, I desisted. But perhaps the busy bees have improved the shining hours since then, and learnt that conveyancing may prove none the worse profession for dealing in a free commodity.

However that may be, my inability to offer any other solution of the difficulty suggests to me that my present task is near its close. Perhaps however it may suggest itself that the story of the gentleman and his Butcher was not a mere allegory after all: for in whatever degree our Land Laws tend towards a narrow monopoly of the soil, or paralyse and enfeeble the hand that owns it, or militate against security of tenure in those who occupy and farm it, or depress, dishearten, and demoralise the class that cultivate it, they tend to diminish the productiveness of agriculture, and to give adverse proof of the intimate connection that exists between the Food Supply of the people and the Freedom of Land.

HARVEST OF 1867.

A WET autumn, a very severe winter, a spring with alternations of extreme heat with cold and wet, and a summer with occasional violent storms of wind and rain, which laid the growing corn as flat as if a roller had been passed over it, are not the conditions of season from which we might expect a productive harvest to follow. I was, therefore, somewhat suprised, on reading the reports of your correspondents, to find that, as the result of extensive observation, they were led to speak in sanguine terms of the corn crops of 1867. Fortunately the weather just before and during harvest was, over a very considerable area, upon the whole, fine and dry—indeed, in every respect the reverse of that of last year. Otherwise we should, probably, have had the worst crops ever grown in England; and, even with the more favourable ripening and harvest weather of the present season, I fear that the corn crops of the country are greatly deficient in quantity, though generally stored in good condition, and of more than average, if not even of good, quality.

With regard to the Wheat crop, it is to be hoped that, from some exceptional cause, the results I am about to record may not represent the yield of the country in general. At the same time I must confess that careful observation for many years past has shown that the produce of my experimental field affords a pretty correct indication of the productiveness of the harvest over, at any rate, the more southern parts of the country.

The soil is of fair average quality, is naturally well-drained by resting upon chalk, and has also, for nearly 20 years, been drained artificially. Wheat has now been grown on this land for 24 years in succession. During the whole of this period (and for some years previously) the "unmanured" portion has been entirely without manure. The "farm-yard manure" plot has had 14 tons per acre applied every year. Where "artificial manure" had been employed there were some changes during the earlier years; but the same manure has now been applied on the respective plots for 16 years. Hence, in order that the results may be strictly comparable, there are given by the side of those of the present year (and of the four immediately preceding years) the average annual produce on the same plots for the 15 years preceding the present—that is, for 1852 to 1866 inclusive. The whole of the results from 1844 to 1863 inclusive will, however, be found recorded in the "Journal of the Royal Agricultural Society of England" for 1864.

As the preparation of the land, the quantity of seed sown, the time of sowing, and every other operation is each year the same for all the plots, the difference of result between plot and plot in the same year is due to the difference in the manuring; and, as the operations are also conducted as far as possible in the same way from year to year, the variation in the produce of one year compared with another should represent the variation of climatic conditions or season. As, however, the last five crops show a progressively declining yield, it may, perhaps, be supposed that the land is becoming unfit for the growth of Wheat, or that in its present condition the manures employed can no longer produce the same effects as formerly. But a reference to the produce of previous years shows that from 1860 to 1863 there was a progressively increasing yield from year to year; while the extraordinary crop of 1863, the 20th of the successive growth of Wheat, was the largest obtained during the whole 24 years. We have thus had a series of years of progressively increasing as well as a series of progressively decreasing produce, and it is to be hoped that the present season may prove to be the last of the recent declining series.

The following table shows the produce of Wheat on the selected plots (the same as those referred to in former years) in 1863, 1864, 1865, 1866, and 1867, and also the average produce per annum for the 15 years, 1852 to 1866:—

HARVESTS.

Plots.	How manured each year.	1863.	1864.	1865.	1866.	1867.	Average 15 years, 1852-66.
	Bushels of Dressed Corn per Acre.						
3	Unmanured	17¼	16½	13¼	12½	8⅞	15¼
2	Farm-yard manured ..	44	40	37½	32⅝	27½	35⅝
7	Artificial manure ..	53⅝	45⅜	40¼	29⅝	22¼	36¼
8	Ditto	55⅜	49⅝	43⅝	32¼	30⅛	38¼
9	Ditto	55½	51⅛	44	32½	29⅛	36⅜
	Weight per Bushel of Dressed Corn, lb.						
3	Unmanured	62.7	62.0	60.6	61.3	56.1	57.5
2	Farm-yard manure ..	63.1	62.5	61.5	61.7	61.4	59.3
7	Artificial manure ..	62.6	63.1	61.6	61.0	61 0	59.1
8	Ditto	62.3	63.5	61.4	60.1	60.7	58.6
9	Ditto	62.1	62.6	61.1	60.6	59.9	57.9

Thus, on every plot, the produce of 1867 is not only inferior to that of any one of the four preceding years, but it is also very inferior to the average of the preceding 15 years. The produce without manure is unusually low (indeed, lower than in any year of the 24 excepting 1853), indicating that the season was specially unfavourable for the crop on lands out of condition. The plot manured with 14 tons of farmyard manure per acre each year (the crop of which is probably less affected by variations of seasons than that of any other) gives 1 quarter less Wheat per acre than on the average of the previous 15 years. Plot 8, which may be said to represent extremely high farming, also gives 1 quarter less per acre than the average of the 15 years, and more than 3 quarters less than was obtained by exactly the same manure in 1863.

The quality of the grain, as shown by the weight per bushel, is much more satisfactory, being above the average in every case excepting where there was no manure employed. It may be mentioned that on none of the plots was there any deficiency of plant. The straw was, upon the whole, abundant, and amounted on Plot 9 to 44 cwt. per acre, a quantity which, on the average of seasons, would be accompanied with about one-third more corn than was actually obtained, and in favourable seasons even much more.

In addition to the evidence afforded by the above experimental results it may be stated that, under the ordinary management of my farm, three fields in very high condition have respectively given this year 36½, 35, and 32 bushels of Wheat per acre, while three last year (1866) gave 40, 42, and 46 bushels, and four the year before (1865) gave respectively 38, 48, 48, and 51 bushels. There is here again, therefore, very considerable falling off.

The conclusion I draw is that the Wheat crop of 1867 is decidedly inferior to that of 1866. I estimated the crop of last year to be 10 or 12 per cent. below an average, and I fear the present crop cannot be estimated to be less than 20 per cent. below an average. Further, this time last year there was a very large quantity of old corn in the hands of the farmers, while at the present time there is very little of last year's crop in the country.
J. B. Lawes, Rothamsted, Herts, Oct. 2 (in "*Times*").

THE WHEAT CROP OF 1867.

Under the above heading Mr. Lawes published in your issue of the 5th inst. his annual statement of the yield of his experimental Wheat plots. The statement is interesting, inasmuch as it gives the results annually obtained from the impracticable mode of consecutive Wheat cropping, but as furnishing sound data for estimating the general Wheat harvest it must be received with caution. Indeed, I consider that the annual produce of a cotter's garden, and the yield of a solitary Apple tree would more accurately indicate the productiveness of market-gardens and the general yield of cider fruit than does the yield of Mr. Lawes' tiny plots indicate the general yield of Wheat produce.

The influence of season varies so much on different soils—a dry season being favourable to strong deep soils, and a rainy season being favourable to early light soils—that as a general rule the yield of any one farm with a soil of uniform character (excepting a medium loam) will frequently represent the very reverse of the general yield of the country. Mr. Lawes' experimental soil is, no doubt, peculiar, having artificial as well as good natural drainage, but as it is a strong loam incumbent on clay, its productiveness, I apprehend, will be adversely influenced by cold wet seasons. Apart from soils, rust, smut, or storms attack and fall on one district and leave another untouched, so that the yield of even a large district is no reliable datum upon which to base a general estimate.

Mr. Lawes, though professing to write solely on the Wheat crop, speaks of the "corn crops" being greatly deficient in quantity, and thus, like several writers on the harvest of this year, confounding the Wheat with the corn harvest, as if a slight deficiency of the Wheat crop were synonymous with a non-productive harvest.

Wheat, as constituting the chief bread food produce in England, is doubtless the most important cereal; but the native produce of Barley, which is not only the Grape of Great Britain, but also furnishes to the peasantry in the north of England and throughout Scotland a large proportion of bread food, and Oats, taken together always exceed the Wheat crop in value.

The following table shows the respective values of the cereals grown in England and Scotland last year. The acreage is taken from the published statistics, and the prices are those for the 12 months ending Michaelmas, 1867, taken from Mr. M'Cabe's tables published in the *Times* of Friday last, and the number of bushels is the estimated average yield per acre in ordinary seasons:—

Grain.	Acreage.	No. of Bushels per Acre.	Total Quarters.	Value per Quarter.	Total Value.
				s. d.	£
Wheat ..	3,397,161	28	11,890,063½	61 7½	36,566,351
Barley ..	2,245,708	36	10,105,686	40 7½	39,151,056
Oats ..	2,771,649	42	14,551,157½	25 7	

Taking the same acreage for the corn crops for this year, and estimating Wheat at 10 per cent. below average, Barley 10 per cent. over, and Oats 20 per cent. over average, the excess of the cereal yield in England and Scotland over average will be 2,731,793 qrs.

I believe that this estimate will prove to be far under instead of overstated, and that, therefore, the harvest of 1867 may be termed a productive harvest.

Taking every circumstance into account—the rapid depletion of the granaries before the reaping of the present crops, the gloomy prospects at the opening of harvest, and the high and increasing prices of every description of grain—never, perhaps, were there stronger reasons than this year for a nation's gratitude for the harvest results. *An Agriculturist.*

[The above letter appeared in the *Times* of Oct. 10. The writer forgets, when asserting the *probabilities* of the case against Rothamsted, that there is now a long *history* attaching to Mr. Lawes' experimental plots, and that, as a matter of fact, the general harvest of the country has agreed from year to year in a remarkable way with the indications afforded by Mr. Lawes' experience.]

ALLEGED OUTBREAK OF CATTLE PLAGUE IN CHESHIRE.

[The *Chester Chronicle* gives the following account of this outbreak:—]

SINCE our last issue other cattle have been attacked with the "new non-contagious disease," and notwithstanding the statement of Professor Brown that the symptoms were not those of cattle plague, some alarmists have caused a report to be very widely circulated and generally believed, that the disease which has broken out at Hartford is nothing more or less than a re-appearance of that dreadful scourge, from which this county suffered so much last year. We are glad to be in a position, through the kindness and courtesy of the chief constable of the county, to place before our readers the report of Professor Gamgee, which must remove any doubts which may have existed. The learned Professor visited the farm of Mr. Joseph Holland on the 21st inst., at the request of Captain Smith, the chief constable of the county, and after making a most careful and minute examination, he has pronounced the disease not to be cattle plague, but a malignant or anthracoid catarrhal fever. We append the Professor's report *in extenso*:—

RECENT CONDITION OF THE STOCK.

Having been shown eighteen milch cows in a field, I observed all in apparent health, having fed freely, and being then, without a single exception, in the act of rumination. They were driven into the sheds and separately examined. The visible mucous membranes were sound and unabraded. The seventh cow referred to in the subjoined list of temperatures had an œdematous swelling between the branches of the lower jaw, and the mucous membrane of the mouth was of an uniform pinkish colour, the redness being slightly greater than in health. The pulse was 80 per minute, and temperature 103° Fahrenheit. In other respects this animal appeared healthy, and had evidently eaten as heartily as the rest.

The temperatures of the 18 cows were as follow:

No. 1.	101.8	No. 10.	101.8
,, 2.	102.2	,, 11.	102.1
,, 3.	101	,, 12.	102.2
,, 4.	101.3	,, 13.	102
,, 5.	101.2	,, 14.	102
,, 6.	102.1	,, 15.	102.3
,, 7.	103	,, 16.	101.9
,, 8.	101.8	,, 17.	101.7
,, 9.	102	,, 18.	101.4

I afterwards saw another cow, her calf, and eight yearlings, in a separate field. All these were in the enjoyment of perfect health.

STATE OF ORGANS OF A COW KILLED ON THE 18TH INST.

On Wednesday, the 18th inst., a cow which had shown symptoms of illness on the 11th, and had been treated with purgatives, setons, and salines, was killed. The head, organs of generation, portion of lung, stomachs, portions of small intestines, and the rectum, spleen, and one kidney, had been preserved for my inspection in a sack, buried under some loose earth. All these parts were in good condition, so as to enable me to make a satisfactory examination, the result of which was as follows:—

Head.—Cranium smashed in by the blow given in felling the animal. Horns dropt off at the same time. Eyes of a deep red colour—the right one opaque, as in cases of acute ophthalmia; a dense yellow purulent discharge trickling down the face from the inner corner of each eye. Muzzle denuded of epithelium. Nostril of a deep red colour, studded with purulent discharge and detached portions of epithelium. The mucous lining of the nose was in parts ecchymosed and abraded. On depressing the lower lip I observed the cuticle more or less detached, and the same condition existed on the gums, hard and soft palate, and root of tongue. Portions of the detached cuticle were lying wrinkled on the membrane, as if having formed the walls of distinct vesicles, but generally over the palate the cuticle was cracked, of a yellowish colour, adherent to deeply reddened portions of mucous membrane; and no one could be blamed for confounding this appearance with that which, to the naked eye, seems identical in the case of cattle plague. The mucous membrane at the back of the mouth, in the pharynx, larynx, and trachea, was of a deep red hue, with yellow flakes of discharged epithelium and pus studding its surface. The general aspect of these parts was quite similar to what may often be witnessed in Rinderpest.

Portions of Lung.—Healthy.

Stomachs.—Only a portion of the rumen had been preserved, and the mucous membrane of this was healthy. The second and third stomachs were healthy, and the fourth stomach the seat of diffused redness. The mucous membrane was not abraded. The epithelium was intact and the pylorus sound.

Small Intestine and Rectum.—The portion of small intestine preserved was deeply reddened in patches from extravasation of blood in the substance and beneath the mucous membrane, and this condition was still more marked and general in the rectum.

Spleen.—The spleen was somewhat enlarged, studded with dark blood spots, and its substance was of a dark red colour.

Kidney.—The organ appeared quite healthy, but was decomposed, so as not to offer an opportunity for a satisfactory inspection.

Organs of Generation.—Healthy. Vagina slightly reddened. Pregnant horn of uterus containing a small fœtus somewhat deeply reddened. The other horn healthy.

History of the Outbreak.

Mr. Holland's stock consisted, at the beginning of August, of 23 cows and nine calves or yearlings. Twelve of the cows had had Rinderpest in 1866. No fresh animals had been purchased since last December. A cow died after calving in the spring of this year, and this death was attributed to the high condition of the animal at the period of parturition. Until recently the stock had grazed throughout the year on very old permanent pasture. The land is stiff, retentive clay, and undrained. The season has been unusually fine and warm—more favourable for harvesting than any in Mr. Holland's recollection. All the cattle were healthy until the 12th of August, when a cow was supposed to be suffering from pleuro-pneumonia. She died on the 17th. This animal was the first seized with cattle plague, about Good Friday, in 1866. Five other cases have occurred, including the animal now sick. The dates of the whole run as follow :—

1.	Cow,	sickened	August	12th,	died August 17th.
2.	Calf,	,,	,,	23rd,	,, ,, 25th.
3.	Cow,	,,	Sept.	3rd,	,, Sept. 7th.
4.	Cow,	,,	,,	6th,	killed ,, 9th.
5.	Cow,	,,	,,	14th,	,, ,, 18th.
6.	Cow,	,,	,,	21st,	alive.

Professor Brown prescribed change of pasture, the daily use of salines, and rock salt to be placed about the fields where the cattle were grazing. He did not observe any elevation of temperature on the 11th inst. in the cow which was seen to be ill on the 14th; and it is important to remark that in the event of the one at present ill being affected with the same disease as that which has attacked the rest, the rate of progress of the malady is maintained unaltered since the change of diet and the use of medicines.

Symptoms Reported.

Cough; suspended secretion of milk; intense heat of mouth, nose, ears and horns; profuse discharge from eyes and nose; tendency in two cases to become blind in one eye; erosion and desquamation of membranes of nose and mouth, but never of the vagina; in two cases there was diarrhœa, in one the fæces were tinged with blood, in the other cases the animals have been costive; the calf was seen ill in the morning, and died the same day. In all cases there was a complete absence of the moaning and grunting so common in cattle plague and pleuro pneumonia. In answer to a question I asked asked as to whether the horns of the animals had been loosened, I was told by Mr. Holland that when the last cow was knocked down one of the horns dropped off, and whilst they were dragging the cow on a grate to the side of the grave, the other horn shook off, and he considers the horns really fell off rather than were knocked off. In previous cases ulceration of the fourth stomach and parts of the intestines is reported to have existed.

Conclusions.

From the foregoing facts and statements I am warranted in stating :—

1. That an examination of any isolated case of the disease prevailing at Green Bank, without reference to the history of the outbreak, might readily lead to grave suspicions being entertained that it was really cattle plague.

2. That the malady presents all the symptoms and *post mortem* appearances I have repeatedly seen in past years in cases of malignant catarrhal fever, once described by a continental authority as glanders in the ox.

3. The disease is one of the forms of anthrax or anthracoid affections common in this and other countries, sometimes assuming, as in Siberia, the destructive character of a true plague, but never spreading widely by contagion. In this country especially, such diseases are of a distinct local or enzootic type, and often occur on a single field and not on those adjoining it. Such outbreaks usually occur during hot weather, and on undrained lands.

4. Were there any doubt as to the nature of the disease at Green Bank, the history of the outbreak is quite enough to dispel the idea of its being Rinderpest. Animals only suffer once in their lives from cattle plague. They succumb rapidly and in masses to that disease whenever they are congregated together. At Green Bank the herd was in the first instance divided in two portions. One calf as well as the cow had died, and whilst the malady appeared on the 11th August, 26 animals are still alive and well 41 days after the first case. I never examined a herd, thermometer in hand, under such circumstances without obtaining unmistakeable evidence of a number of animals being simultaneously affected if the disease was Rinderpest.

John Gamgee,
Principal of the Albert Veterinary College.

Since Professor Gamgee visited Green Bank, Mr. James Storrar, veterinary surgeon, of Chester, has made daily examinations of sick and healthy animals in the herd, and whilst his observations satisfactorily prove that it is possible to modify the progress of the disease by proper remedies, only one case seems effectually to be held in check.

Home Correspondence.

Harvesting in Wet Weather.—I trust that "O. F." will have had a few of his alarms allayed by a letter of mine, which appeared in the same number of the *Gazette* as his own; but some of the conclusions to which he has very rapidly jumped are so astounding, and, if true, would be so damaging, that you will perhaps kindly allow me to enter a protest against them. "O. F.," with a pardonable exultation in the goodness of his crops, bids us "fancy" a 15-acre field of his, which this season yielded five stacks of such-and-such a size; and then, having excited our imaginations by this pleasing picture, he takes us, by a "leap in the dark," (possibly through some occult calculation, peculiar to himself,) to the conclusion, that because there are five stacks it would take 20 days to dry them. Now, sir, in matters of agriculture I think most practical men prefer facts, however humble, to "fancies," however exuberant; and the few humble facts which I have been able to glean on this subject of quantity are simply these :—I had an acre of land measured on each of three different farms in this district, and the sheaves upon these several acres counted. The average thus obtained gave 497 sheaves per acre; and in selecting the farms from which to obtain this average I purposely avoided two, where the crops were exceptionally light; my object being to ascertain what quantities I should usually have to deal with. Now 497 sheaves dried at the rate of 64 sheaves in 15 minutes demonstrates to any one who will take the trouble to work out a very easy calculation that a 15-acre field in our locality may be cleared and dried in 30 hours, instead of 20 days; *ex. gr.* :—

64 in 15 minutes = 256 per hour.	256 × 30 = 7680
15 acres × 497 sheaves =	7455
Balance in favour of drying ..	125

But "O. F." has another awful "fancy," from which I would fain relieve his mind. "Only fancy," he says, "tenants applying to their landlords to fit up these drying rooms, &c." Horrible presumption! One can picture the abject humiliation that would follow from the stern refusal, and the expressive pantomime of a tightly-buttoned breeches pocket; but, happily, the cost, however insignificant compared with the saving of a valuable crop, need not be borne by either landlord or tenant. There exists through the whole country a large class of shrewd, enterprising, and intelligent men, owners of travelling engines, who will find that by an expenditure of 50*l.* or 60*l.* they can add to their portable machinery an apparatus that will give frequent profitable employment to both steam engine and threshing machine through the two or three months during which they now lie idle and unused; these men will not be slow to avail themselves of this additional power, and hire it out to the farmers of their respective districts. "Ah! but," still mourns the irrepressible "O. F." "look at the woeful waste! and then the loading and unloading, and tying and firmly fixing the sheaves on the pipes through which the steam has to be driven; then comes the taking off, re-loading, breaking of sheaf-bands, &c., &c." I reply, that there need be no woeful waste if a barn sheet is at hand; that the sheaves want no tying nor fixing on the pipes; that the sheaf-bands do not break, and that one man is able to fork on 64 sheaves in six minutes. And I further beg to observe, that it is hot dry air, and not "steam," which is driven through the pipes. I have now only one more objection to dispose of, and one more question to answer. "O. F." infers that the sheaves were small. Upon what ground he bases this inference I cannot tell; but it is certainly incorrect. They were of the size usual in this district, and taken from the field of a neighbouring farmer, who had assuredly not bestowed any special pains upon either their size or regularity. He then infers that they were only "damp," and inquires "how long it would take to dry them if thoroughly wetted." I can truly assure him that they were not only thoroughly wetted, but completely saturated, so that the water ran in streams from the cart in which they stood. Now these things were not done in a corner. If your objective correspondent will take the trouble to refer back to your own excellent leader on the subject, or to the "Scientific Review" for October, or the *Morning Post* of the 5th inst., he will see that besides being carried on in the presence of several gentlemen of high standing and great scientific knowledge, the results were tested and approved by shrewd, practical farmers, some of them farming their 1000 acres each, men not usually given to look indulgently on novelties. I trust "O. F." will not be offended, if I have not been able wholly to conceal the amusement I felt at some of his objections; I would fain shake hands with him at parting, and as he has aptly christened the air tubes "organ pipes," let me conclude with no worse wish than that he may find the advantage next harvest of playing on this "organ" a tune that will amply pay the piper. *William A. Gibbs, Gillwell Park, Essex.*

Average Prices of Grain for the Year.—Following the course pursued by my predecessor, the late Mr. Willich, I take the opportunity at this season, being the close of the farmers' year, to send you, for the information of your agricultural readers, and more especially for those who have adopted the system of corn rents, based on the average price of Wheat, Barley, and Oats, a statement of the average prices, founded on the returns as published weekly in the *London Gazette:*—Average prices for the year ending Michaelmas, 1867 :—

	s.	d.
Wheat, per imperial quarter	61	7¾
Barley ,, ,, ...	40	7¾
Oats ,, ,, ...	25	7

The highest and lowest prices for the same period were :

Highest.	s.	d.	Lowest.	s.	d.
Wheat, Aug. 20	68	4	Wheat, Oct. 2	51	5
Barley, Dec. 11	46	2	Barley, July 16 ..	34	9
Oats, Aug. 20	29	7	Oats, Oct. 29	22	10

It may be interesting to show the fluctuation in the average price of Wheat which has taken place during the last 10 years :—

	s.	d.		s.	d.
1858	46	10	1863	46	8
1859	43	6	1864	40	9
1860	49	9	1865	40	3
1861	54	9	1866	46	10
1862	58	3	1867	61	7¾

Charles M'Cabe, Secretary University Life Assurance Society, 24, Suffolk Street, Pall Mall, Oct. 2.

Artificial Manure.—As an old-established artificial manure manufacturer I have been interested in reading, in a recent issue, your extracts from Mr. Panton's paper on Artificial Manures, read at the Ardoch Farmers' Club. I regret to have to admit that the low quality of many of the artificial manures largely sold over the country is but too true, and that he does not complain without cause, and that farmers are often heavy sufferers by "useless," or at any rate very inferior manures, widely advertised, and recommended and sold to them by travellers and agents, who have of course their profit or commission to get in addition to the manufacturer. For my own part I should have no objection to a system of Government supervision, such as Mr. Panton suggests, and which he illustrates by the well-known official restrictions on the grocers' sale of chicory and coffee, but it seems to me that any intelligent farmer has the matter very much in his own hands. He cannot be expected to be an analytical chemist, or even in many cases to feel sure he understands analyses sufficiently to protect himself from imposition, for analyses (so called) are sometimes circulated that are not merely untrue, but even impossible on chemical grounds, and printed in a form intended to deceive. But if farmers, who buy artificial manure, more especially those who buy it largely, would be at the little trouble and expense of sending a fair average sample of the delivered bulk to some competent chemist for analysis and valuation, they would, I think, often find themselves well repaid; and if this practice were to become at all general for a few years, the necessity for it would soon die away. Manufacturers who could not stand the test would be gradually driven out of the market, or have to mend their ways. The protection now required by the farmer is not, I think, so much against actual flagrant adulteration, though that is not extinct, as against inferior qualities of honest manufacture, so far as they go, but not so good as represented. A farmer wants some dependable guarantee that he gets what he bargains for when he makes his purchase, and most respectable manufacturers would be quite willing to give an analysis with their manures. Mr. Panton has alluded to another of the peculiarities of the manure trade. It is largely in the hands of local agents, who may be very respectable men but cannot be expected to know much of the article they sell. They often represent very distant manufacturers, who must be paid for the heavy carriage on the manure from the place of manufacture to the farmer. The article has also to bear the agents' commission and expenses, which are often heavy. The carriage for great distances on artificial manures is so heavy in proportion to their value that it always seems to me unnatural to buy them from any considerable distance, and I have not unfrequently had to suggest to intended customers out of my own district, that in attempting to supply them I should be at a disadvantage as compared with a local manufacturer, provided he has the same facilities for manufacturing, and is willing to work for the same profit. If it were more general among farmers to deal directly with respectable and responsible manufacturerers that they know in their own neighbourhood, whose character is at stake in the quality they send out, they would save themselves a good many expenses attendant on the sale of manures through agents and others, and I have no doubt they would in the long run be better served. *Henry Richardson, York, October 2.*

Societies.

North Walsham: *The Cattle Plague.*—At the annual meeting of this Society, Mr. Sewell Reid said :—"I think it must have been within the knowledge of a great number of farmers here present that for some years past there has been a growing scarcity of store cattle. I believe that scarcity has arisen from two very contradictory causes—the first was the low price of corn, which compelled a great many farmers to sell their cattle before they otherwise intended to do, and the other the high price of Wheat, which caused a great number of young stock to be what I call permanently grazed. Then we had the cattle plague, with those serious losses, amounting, as you are aware were recorded, to 300,000; and after that came a certain amount of panic, and all the hindrances that have been placed in the way of breeding and moving of cattle ever since. Now I think the time has fully arrived when those hindrances and restrictions ought to be removed from our home trade. I think that the Privy Council have treated us agriculturists of Great Britain, especially the agriculturists of England, in a manner in which we ought not to be treated. If we had brought the cattle plague into this kingdom; if it had been through us that our herds had been devastated, then I could have understood why these most troublesome and hampering restrictions are still retained. But the Privy Council seems to do anything and everything but the right, simple, and only plain thing, and that is, after having got rid of the cattle plague from this kingdom, endeavour to keep it out. And now, gentlemen, you are aware of some of the means that the Privy Council have taken to prevent the importation of the disease. A short time ago they ordered that all foreign stock should undergo a quarantine of 12 hours before they were examined. If you could, by any possibility, detect the cattle plague by such a quarantine I think it was good, but now it comes to pass that instead of that quarantine being enforced it depended entirely upon the will and whim of the inspector. The next thing was that all the foreign stock, on landing, should be branded on the hoof. Now, did any one ever hear such a ridiculous thing in the world? First of all, it is a very tiresome operation to brand cattle on the hoof, whilst the first time the animal put his foot into the mud the brand is obliterated. Then they have no less than 300 policemen who are stationed round the outskirts of London to prevent foreign cattle being sent into the country. Why in the world did they not slaughter cattle in the ports? Why do not they go about it at once? My hon. colleague says he did not wish to say anything disrespectful or harsh of the Government. I say that having given this promise and made an engagement by the House of Commons, the least we can say is they have been very tardy. There is Thames Haven, 60 miles from London, from whence cattle are conveyed through the rich grazing districts of Essex. Why are they not prevented from being landed there? Why are not some steps taken to define the ports and points at which cattle shall be slaughtered? And why is not there some intimation given to the vast Corpo-

ration of London that it is the opinion they should proceed very speedily to the erection on the river side of a market for all foreign stock? We shall never be safe from this cattle plague until we have slaughtering at the ports; and with regard to store stock, we want a vigorous quarantine. Then people say, "Oh, of course, that is the way of you farmers; you are protectionists; you want to prohibit the importation of store cattle by this quarantine." I will ask any Norfolk farmer whether it would not be the best thing possible to have store stock cheap? But we would rather have store stock dear and have it healthy; and, therefore, I am quite sure that in Norfolk you would rather go without any more foreign store cattle unless they are properly quarantined.

Reviews.

On the Disposal of the Sewage of Kingston and Surbiton. Plan proposed by Charles Slagg (Associate of the Institution of Civil Engineers), September 23, 1867.

A printed copy of Mr. Slagg's report has been sent to us, with a request for the expression of an opinion on the method of irrigation proposed. The plan appears to us to be, in its main features, admirably adapted to the circumstances of the place. The whole of the drainage of Kingston and Surbiton—100,000 cubic feet per diem—will be delivered in one sewer at Teddington Lock. There the fall of the river will be used, through turbines, to supply the power by which this quantity, or double this quantity, shall be pumped on to adjoining land, where it is to be converted into Grass and other crops, and thus cleaned before returning to the river. Up to this stage the plan seems perfect, but Mr. Slagg proposes to adopt Mr. Bovill's plan, or rather that of Mr. Wilkins, for the distribution of the sewage below the surface of the ground. The water is to be delivered in underground pipes, and find its way through lines of these laid 4 yards apart and 1 foot deep. In this way it is believed that the whole interval will be fertilised, and that all risk of nuisance will be avoided.

It is quite possible that the risk of nuisance may be diminished in this way; for, wonderful as is the power of the soil at once to deal with the filth of foul water when it is in a sufficiently diluted state—so that the contents of the receiving tank, which smell most offensively, are almost at once made innocuous by distribution over the land—yet there are occasions, as we have found in the case of London sewage, which therefore will also probably arise with that of other towns, when the sewage comes in a particularly offensive condition, and when its use in surface irrigation does not *immediately* purify it. This has happened once or twice in the course of 12 months in our own experience; and a plan which should deal successfully with this exceptional misfortune, to which the ordinary method of irrigation seems liable, may to that extent be pronounced the better of the two. Mr. Bovill's plan, however, ought nowhere to be tried upon an extensive scale until it has been tested over a small extent,—for however effectual it may be for the abatement of a nuisance, unless it is an economical method of converting sewage into plants, it must fail of its intended purpose. The late Mr. Wilkins, of Reading, strongly advocated the underground feeding of plants, and had a plot near the Great Western Railway Station, where he used to grow enormous vegetables in this way. He delivered liquid manure underground by means of pipes in this way, but, finding that the manure once buried wasted, he was driven to the need of concreting the floor on which his 2 feet of soil lay, thus turning the land into a tank, which was kept more or less full of fertilising stuff. But what would become of manure delivered below the soil in this way, when that lies, as Mr. Slagg informs us, on 10 or 20 feet of *gravel*. Why, it would fall through the subsoil just as it would through air, and the 12-feet intervals would never know its neighbourhood.

Mr. Bovill's plan, which is originally the same as that of Mr. Wilkins, would not deliver muddy water at all outside the pipes by which he proposes to carry it—for they would choke almost immediately; but even if it did, this water on escaping from them would either fall through a porous subsoil, or, if in impervious land, it would find its way upwards through the moved soil to the surface, and there it would either pond or flow according as that was flat or sloped. Mr. Slagg says, indeed, that there is only 1 part of suspended matter in 3000 of the Kingston sewage, and that his 4-inch pipes would hold all this unchoked for four years to come, and then they could be ploughed out, cleaned, and relaid. But it is absurd to suppose that the water would deposit its sediment evenly throughout; it would choke in the first faulty point in any pipe, and that pipe would become unserviceable throughout its length in a single month by its weakness in one place.

We have been superintending the distribution of sewage over a light soil on gravel during the last two years, and the hollowness of the land is our great difficulty in the way of an economical management of the stuff. Our beds were made with slope enough in part to overcome this tendency at once to sink and disappears, so that some at least of the water is made to reach the plants at the lower edge of each bed; and in the case of Grass, fortunately the surface becomes so matted over with the growth of fibrous root, which makes it somewhat more impervious, that the economy of the process improves with the lapse of time. But what would be our chance of feeding a plant 6 feet off the water, if that were delivered 12 inches below the surface on the top of a bed of gravel? We believe it might as well be poured to waste at once.

The following is Mr. Slagg's statement of his plan:—

"I could hardly have ventured to recommend the local application of sewage, as I have done, to land so near the town as this is, unless I had been prepared to recommend at the same time a better method of irrigation than that of surface irrigation. To irrigate the surface of land so near the town, and so near the village of Ham, might possibly be obnoxious.

"I propose to convey the sewage under the soil in pipes, which I will call reverse drain pipes, laid at about 12 feet apart, and at 1 foot or less beneath the surface. The cultivator of the land will direct the exact depth at which they should be laid. These pipes would be formed of half-round tiles, covered with tiles. The edges of the half-round tiles would be serrated. Through these serrations the liquid sewage would flow to the roots of the crops. Alongside the tiles the trench would be filled in with gravel (of which the subsoil consists), so as to keep back the soil. These serrations in the edges of the tiles would be about an inch in width and depth. The action would be that the liquid sewage escaping from these tiles all along their length would be soaked up by the soil and held for the vegetation to feed upon by the roots, the mere water surplus sinking into the gravel subsoil.

"The land coloured on the plan is very dry, and the surface lies at a height of from 12 to 20 feet above the water level. The soil being dry, with a subsoil of dry gravel 12 to 20 feet thick above the water level, will be much improved by moisture being conveyed to it underneath, allowing it to absorb just as much as it wants without saturating it by surface irrigation. There are many objections to surface irrigation. I think this plan of conveying the sewage beneath the soil will do away with all of them, and moreover will increase the fertility of a dry soil very much. My own opinion is that this will be the way of utilising the sewage of towns in general, but not wishing you to rely solely on my opinion, I have communicated with Dr. John Stenhouse, F.R.S., an eminent chemist who has studied the subject of town sewage, and with Mr. Mechi, both of whom approve the plan. It is to be expected that of a new way of doing anything opinions will differ, and so they do of this, but the objections, so far as I have heard them stated, will fall when the plan is more fully explained. It is said that the 'perforations' will be choked with solid sewage. Now if pipes with small perforations were employed, the holes might become choked, but I propose to use tiles of such a form as to prevent this. I propose the tiles to be half-round, laid with the back downwards. In this channel the liquid sewage, carrying with it some solid matter in suspension, would flow slowly along, and escape by serrations of an inch or so in width and height in the edges of the tile. The covers would be flat tile—say an inch thick. The solid matter in suspension would be deposited in the lower part of the tile until it becomes, say, half full.

"The quantity of solid matter in sewage may be taken at about one-thousanth part of the whole sewage and rainfall. Two-thirds of this would be retained in the reservoir by the strainers I have described. There would therefore be one part of insoluble matter in 3000 of sewage to be pumped to the land in suspension in the liquid. If the tiles are 4 inches wide, and laid at a distance of 12 feet apart, they would become half-full in three years; but they might go four years without inconvenience. Whenever the accumulation takes place so as to half fill the tiles, or a little more, a plough (to be made for the purpose) will be run along the lines of pipes, and they will be turned out on the land. As fast as they are turned out they will be emptied and relaid in the trench, and the solid matter may be ploughed into the land with the soil. The pipes will then be ready for another three or four years' irrigation.

"The expense of doing this will, it is submitted, be abundantly repaid by the value of the sewage deposit turned out.

"In the meantime the greater part of the value of the sewage will have been had in the liquid form, and taken up by the vegetation. Chemists who have studied this subject say that three-fourths of the fertilising ingredients of the sewage are in solution in the liquid.

"The essence of the sewage having been thus conveyed to the roots of the crops will, it is believed, increase their growth very much, and permanently improve the value of the land, while the sewage will have become purified, and nothing but water will sink far into the ground. Chemists are agreed that the earth is itself best purifier of foul water.

"No exhalation from the sewage can take place, as is the case with surface irrigation in hot weather, and the volatile matter of the sewage will be retained in the soil. These underground channels, when not running full of sewage, will convey air to the soil—a very desirable thing to be done.

"It is better to use sewage in this way in the immediate neighbourhood of towns than to take it away at great cost. By these means land may be irrigated close to any town or place without the least annoyance to anyone, and there will be an end of the vexatious question—Where can we obtain land upon which to use the sewage, so as not to be a nuisance? The only requirement is that the subsoil be porous, and the surface lie at some feet above the water level. If land otherwise suitable be not naturally porous, it can be made so for the sewage application by draining at a good depth."

We have no wish to condemn a novelty untried; but we strongly recommend to the Kingston Board of Health, that if they are disposed to adopt this plan, they should try it on a single acre in the first place. But let the sewage be delivered on the land at Teddington sufficiently diluted and of uniform strength, and we believe they may adopt the plan of surface irrigation without hesitation.

Farm Memoranda.

THE HEATH FARM.—A few miles in a southerly direction from the thriving town of Athy, on the property of his Grace the Duke of Leinster, lies the Heath Farm, now celebrated in more respects than one, as we shall presently see, but more especially as the spot where Scotch farming nearly 35 years ago had its first advent into the district.

The Heath Farm had been all but a sterile waste, within the bounds of which it may be jocularly said, no "Scotchman, black-crow, or Newcastle grindingstone" had ever either found a resting-place or anything to do! This the Duke resolved to change, and that, from being in a state of sterility and unproductiveness, the Heath Farm should become the cradle of alternate husbandry, or, in other words, of the most improved system of agriculture in the district. But how was this to be inaugurated? Who was to be the successful cultivator and pioneer? How was Ceres to be wooed and won? As we have seen, the Duke had neither the book nor theory of Darwin to guide his choice; but yet, nevertheless, how unerring was the instinct of His Grace in selecting one of the oldest formations, or rather upheavals of Britain, from which to import an improver to the modern limestone deposit, of which the Heath Farm is a portion; and from the trap or granite formation of "Cannie Aberdeen" came the man who was destined to make the sterile wilderness a fruitful field, and its agricultural productions to luxuriate and blossom as the rose!

After a time the strangest stories began to float about the neighbourhood as to the doings and on-goings of the "farran" steward. There was a rumour that two ploughs had been seen at work together upon "The Heath," to each of which no less than four horses (some said six) had been attached, and that it was not "Christian" ploughing, but "quarrying begorra," that was going on. Jim Grady and Barney Cummins, "who risked their lives" as ploughmen, became celebrated in more respects than one. At chapels and at wakes and "berrins" their rehearsals of the "mortial" work it was to hold their ploughs, and save themselves from being buried under the "tremindous" furrows they were "turnin' up against the sky!" were listened to with breathless attention and respect; and when they told of the "rocks" that every minute "rowled and tundered out, bedad, and amost aiqual to tons in weight," the astonishment of everyone who heard them almost knew no bounds. Then, as the spring advanced, and summer was at hand, with the cheering carol of the lark above, and the note of the cuckcoo in the grove, when there came a rumour—could it possibly be true?—that the growing of the "ould honoured Pyato" was to be given up, and some said 30, others 40, acres of Turnips wore to be sown on the Heath instead, where ne'er a Turnip had been sown before. There would be a "mortial pison to the baste that ate them," all agreed. But when the Turnips grew and swelled to aldermanlike proportions, and specimens were sent to Dublin to the Royal Society Show, and returned with "goold medals and ribbons galore," the wonder of the neighbours was too great for utterance; and when another May came round, and the stall-fed bullocks one after another "rowled" out upon the road, on their way to Smithfield, the people looked, and rubbed their eyes, and looked again to see the "monstrous bastes, as big amost, the everyone of them, as Paddy Brian's cabin on the commons, which held every night, both aisy and comfortable, himself, herself, and sevin childher, the pig, the ass, the three geese, and 11 goslins, besides all the delf and chayney were left him by his grandmother!" And when the cultivation of the "farrener" extended, and fields of yellow corn waved where formerly the "tranyeen" and the Irish Furze held sway, it was emphatically alleged on every hand that "Mister Tim O'Hologhan at the Lodge, with the best land in yer country," had been beaten by "the Duke's Scotchman," and that Tim's "growin' av Pyatos without manure, and Whate after that, and Oats after Whate, and thin the finest av Grass and meadow without the sowing av eer Grass seed or Clover in life, wasn't the aiquals, or next to near, the craps growin' upon the ould heath." The labourers around, too, began to feel the benefits of constant employment, and their hearts to warm to the genial stranger who gave it to them. The wages came "mighty convanient av a Saturday night;" and in the famine years, when they unfortunately came, the families of those employed upon "the Heath farm" passed through the dreadful ordeal almost unscathed. And, as time wore on, and the Heath labourer became used to little comforts—as his constitution improved by better feeding, and his mind and intellect correspondingly enlarged—he began, in more respects than one, to have a dim perception that for his class a better day was about to dawn, and that another way of living than in a miserable clay-built cabin and semi-starvation upon Potatos and buttermilk, to breakfast, dinner, and supper alike, ultimately awaited him. In the first instance, however, with the ruin of the Potato, came the destruction of the poor man's pig and the poor man's fowl—often his only friends. There was no refuse for either in the "yallow male;" and neither did Paddy himself nor his wife and "childher" ever take kindly to the "yallow boock." Even "the lad," which was the next stage in Paddy's onward eating progress, although admitted to be an improvement, especially when garnished with a few Cabbages or other "trimmings," has never gone down so kindly as the smell of the live pig of the "ouldeen" time, and the thought of the "Pyatos" growing and swelling in the neighbouring field. Paddy, in fact, is still dissatisfied. He is in the transition period equally with his betters, and does not know of it. If he could, without increasing his exertions, come at wages which would give him the means of having "tay" and white bread-and-butter for breakfast, dinner, and supper, with now and again, and in short pretty regularly, a rasher of bacon, to keep the other "refreshment" company, there would be less cause for grumbling with his lot. This is his ambition.—*Leinster Express.*

The Poultry Yard.

Do Farm Poultry Pay?—The *Field* of the 27th July, in reviewing my remarks on this question, says:—

"Knowing, as we do, the value of poultry as destroyers of injurious insects, we hail Mr. Mechi as an important ally in proclaiming their uses to the Farmer, although we cannot but perceive that he has rather evaded the question with which he starts. It is quite true that the price of poultry is double that of beef, but the selling price is only an element in the calculation of profit. We require to know what is the relative cost of the food requisite to produce a pound of beef and a pound of fowl. If the latter costs, as we shrewdly suspect it does, more than double the cost of the former, then poultry will not pay as well as beef. Mr. Mechi does not solve this question."

Before I proceed to answer this question, I must ask two others:—

1st. Will any live stock (pigs, sheep, or cattle) pay market price for their food?

2d. Is there any and what reason why a pound of fowl flesh, live weight, should cost more in food than a pound of beef or mutton?

I answer unmistakeably, "No," and "None." The profit from stock feeding must be looked for in the

manure as a means of enriching the soil and enabling it to produce abundant crops.

This is no question of doubt or speculation. We have extensive and undeniable experiments and proofs on the subject, and, among many others, most voluminous, valuable, and exact, well-recorded results and facts detailed by Mr. Lawes in the various "Journals of the Royal Agricultural Society," and which are worthy of the study of those who are interested in the production of meat.

At present I am not aware of any analysis of poultry as compared with other flesh, but I have no reason to suppose that its elements are different, or that it can require any more food to produce 1 lb. live weight than either beef, mutton, or pork; and we are quite sure that poultry obtain much of their food from insects, waste kernels, &c., which gives them, so far, a considerable advantage over cattle, sheep, and pigs. In Mr. Lawes' experiments, recorded in the "Journal of the Royal Agricultural Society of England," vol. xxiii., p. 206, we see that in sheep fed on hay alone (cut into chaff) it required 4339 lb. of hay chaff to produce 100 lb. increase live weight (about 55 lb. net of mutton), or nearly 2 tons of hay, worth at market price probably 9*l.*, to produce in mutton, 55 lbs. at 8*d.*, 1*l.* 16*s.* 8*d.*! Sheep fed upon hay and Beans consumed 20 per cent., or one-fifth of their gross live weight weekly; that is, more than 10 times their live weight in a year of 52 weeks. Now I doubt whether poultry could ever be more ungrateful and more unremunerative than this.

In several other cases fully recorded in the Society's Journal the fact came out that lots of 40 sheep each, fed for six months with hay, Linseed cake and roots (Swedes), only paid for the hay and cake, and left nothing for 50 tons of Swedes consumed by each lot of 40 sheep, although the market price of those Swedes would be 15*s.* per ton, or 37*l.* 10*s.* for the 50 tons. Nothing was left for casualties, shelter, attendance, or interest of capital. All we gain by feeding cattle, sheep, and pigs is their manure, and for that we have to pay dearly. The manure from our poultry is of a very valuable quality.

As to rearing, is there no risk and expense in feeding our cattle and sheep preparatory to and during their multiplication? The same remark applies in degree to bullocks as to sheep. Mr. J. C. Morton showed that over four years' period of meat-making the bullocks, sheep, and pigs, after paying for the cake, hay, &c., they had consumed (the latter, I suspect, at feeding price), only left 3*s.* 4*d.* per ton for the roots and green crops they had consumed. So, in other words, it required 450 tons of Mangel, Swedes, and green crops to produce 1 ton net of butcher's meat, worth, at present prices, 7½*d.* per lb., or 74*l.* 5*s.* per ton. The value of Mangel and Swedes is generally from 12*s.* to 20*s.* per ton, and of green crops quite as much.

It is remarkable that in all our best works on poultry, including that one in Morton's "Encyclopædia of Agriculture," no mention is made of cost of food in relation to weight and value of poultry—the very testing point of profit. Perhaps some of your correspondents will favour us with their facts and results.

I am of opinion that, although live stock do not pay directly, they are essential to the well-being of the farm as providers of the best and cheapest manure. Poultry not only provide manure but benefit the farm in other ways, by economising every waste grain and seed, and particularly in the destruction of insects and slugs. Flies that torment the stock have no chance with them, if within reach. I now see them searching for insect food 500 yards from my homestead.

At the present cheap season for poultry they realise 9*d.* a lb., live weight—exactly double the price of beef or mutton, which bring 4½*d.* per lb., live weight. I would recommend every one interested in the feeding of stock or poultry to read Messrs. Lawes and Gilbert's admirable summary of all their experiments in feeding in vol. xxi., p. 438, of the "Journal of the Royal Agricultural Society of England." They say:—"For practical purposes it may be assumed that sheep, when fed liberally upon good fattening food, composed of a moderate proportion of cake or corn, a little hay or straw chaff, together with roots or other succulent food, will yield, over a considerable period of time, 1 part increase in live weight for 9 parts of the dry substance of such mixed food." As the dry substance of corn or cake is worth 1½*d.* per lb., and of hay and roots more than ½*d.* per lb., and as the price of beef and mutton, live weight, is only 4½*d.* per lb. (5*s.* per stone net), it is quite clear that, under the most favourable circumstances (if the question of manure is not considered), there must be a heavy loss in feeding live stock. Not so with poultry, for their price, live weight, is over 9*d.* per lb. as an average, wholesale. I have just received a return from the wholesale market giving 10*d.* per lb., live weight. It will never do in business matters to "shrewdly suspect" when we have means of arriving at a practical conclusion.

My bailiff agrees with me in concluding that poultry consume, according to their weight, on the same scale as other flesh-forming animals; and they never do better than when they have free range and access to Grass or roots, which they consume abundantly, together with insects, seeds of weeds, and grain. I need hardly say that the quality of their food has a most material influence on the quality of their flesh and eggs. Poorly fed fowls give very inferior eggs, just as cows on poor pastures yield sky-blue milk and little cream. *J. J. Mechi, Tiptree Hall, Oct.*, 1867.

Notices to Correspondents.

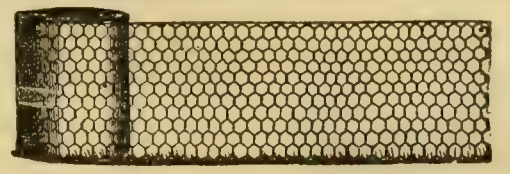
Desiccated Milk: *Cor.* Desiccated milk is made at Sheepcote Farm, Harrow, Middlesex. A little refined sugar is added to fresh cows' milk, which is then carefully evaporated until it becomes solid; the solidified milk is then ground to powder, dried, and bottled for use. About five ounces of the powder dissolved in hot water will reproduce a quart of fresh milk.

NEW IMPROVED PREMIUM WIRE NETTING.

AWARDED FIRST-CLASS CERTIFICATE BY THE ROYAL HORTICULTURAL SOCIETY OF LONDON AT BURY ST. EDMUND'S, JULY 16.

J. B. BROWN and CO. having introduced Improved Machinery into their London Workshops for manufacturing Wire Netting, are now prepared to execute orders to any extent at the shortest notice. The Netting is of very superior quality, best formed mesh, well twisted, and Galvanised after made in a superior manner.

GREAT IMPROVEMENT, WITH REDUCED PRICES, February, 1866.



AND GALVANIZED AFTER MADE.

PRICES PER LINEAL YARD, 24 INCHES HIGH.

Size of Mesh.	Mostly used for	Light. No. 19.		Medium. No. 18.		Strong. No. 17.		Extra Strong. No. 16.	
		Japanned.	Galvanized.	Japanned.	Galvanized.	Japanned.	Galvanized.	Japanned.	Galvanized.
2¼ inch	Hares, Dogs, Poultry ..	2¾*d.*	3¾*d.*	3½*d.*	4½*d.*	4*d.*	5½*d.*	5*d.*	6¼*d.*
2 inch	Game or Poultry Netting	3½*d.*	3¾*d.*	3¾*d.*	4½*d.*	4½*d.*	5¾*d.*	5½*d.*	7*d.*
1⅞ inch	Small Rabbits, Hares, &c.	3½*d.*	4½*d.*	4½*d.*	5½*d.*	5*d.*	6½*d.*	6¼*d.*	8*d.*
1½ inch	Smallest Rabbits	4½*d.*	5½*d.*	5½*d.*	6½*d.*	6½*d.*	8*d.*	8*d.*	10*d.*

Quantities of 100 yards or upwards delivered free at all Railway Stations. All Netting warranted to give satisfaction.

J. B. BROWN and CO. Offices: 90, CANNON STREET, CITY, LONDON, E.C.
WAREHOUSE and MANUFACTORY—148, UPPER THAMES STREET, E.C.

GREEN'S PATENT SILENS MESSOR,

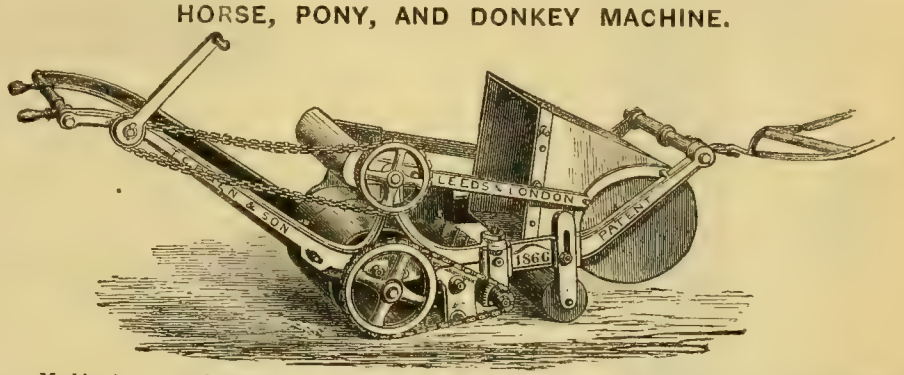
OR NOISELESS LAWN MOWING, ROLLING, AND COLLECTING MACHINES.

FITTED WITH PATENT SELF-SHARPENING CYLINDER CUTTERS.

They are the simplest in construction, least liable to get out of order, and can be worked with far greater ease than any other Lawn Mower extant.

GREEN'S PATENT LAWN MOWERS have proved to be the best, and have carried off every Prize that has been given in all cases of competition; and in proof of their superiority, 40,000 have been sold since the year 1856.

HORSE, PONY, AND DONKEY MACHINE.



Every Machine is warranted to give entire satisfaction, and if not approved of can be returned at once unconditionally.

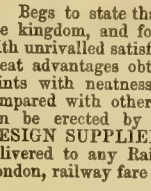
T. GREEN and SON *have to state that the demand for their* LAWN MOWERS *this Season has been unprecedented, which is a proof of the high estimation in which they are held. Selections can be made from their Stock both in London and Leeds.*

☞ ILLUSTRATED PRICE LISTS FREE ON APPLICATION.

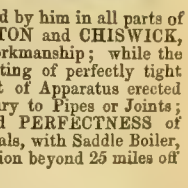
THOMAS GREEN and SONS, SMITHFIELD IRON WORKS, LEEDS; and
54 and 55, BLACKFRIARS ROAD, LONDON, S.

PORTABLE AND FIXED HOT-WATER APPARATUS,

FOR HEATING CONSERVATORIES, HOTHOUSES, CHURCHES, PUBLIC BUILDINGS, PRIVATE RESIDENCES, ETC., WITH



TRUSS'S PATENT UNIVERSAL FLEXIBLE AND LEAKLESS PIPE-JOINTS.



T. S. TRUSS

Begs to state that the immense number of APPARATUS annually Designed and Erected by him in all parts of the kingdom, and for the ROYAL HORTICULTURAL SOCIETY at SOUTH KENSINGTON and CHISWICK, with unrivalled satisfaction, is a guarantee for skill of design, superior materials, and good workmanship; while the great advantages obtained by his IMPROVED SYSTEM cannot be over-estimated, consisting of perfectly tight joints with neatness of appearance; EFFECTS A SAVING OF 25 PER CENT. on cost of Apparatus erected compared with other systems; facility for extensions, alterations or removals without injury to Pipes or Joints; can be erected by any Gardener; an ordinary size Apparatus erected in one day, and PERFECTNESS of DESIGN SUPPLIED, INSURING NO EXTRAS. Complete Apparatus, of the best materials, with Saddle Boiler, delivered to any Railway Station in England, and Erected at the following prices. Erection beyond 25 miles off London, railway fare for one man additional. Considerable reduction on large works.

TWO FOUR-INCH PIPES ALONG ONE SIDE AND ONE END OF HOUSE.

Size of House.	Apparatus Complete.	Erection.	Size of House.	Apparatus Complete.	Erection.
20 feet by 10 feet ..	£9 0 0 ..	£2 0 0	50 feet by 15 feet ..	£17 10 0 ..	£3 0 0
30 feet by 12 feet ..	11 15 0 ..	2 10 0	75 feet by 15 feet ..	20 0 0 ..	3 0 0
40 feet by 15 feet ..	15 0 0 ..	2 15 0	100 feet by 15 feet ..	26 0 0 ..	3 5 0

Bath and Gas Work erected in town or country. The Trade Supplied.

Horticultural Buildings of every description from 1*s.* 6*d. per foot superficial, inclusive of Brickwork.*

Price Lists, Plans, and Estimates forwarded on application to

T. S. TRUSS, C.E., Consulting Horticultural Engineer, &c., Sole Manufacturer,
FRIAR STREET, BLACKFRIARS ROAD, LONDON, S.E.

Observe — The City Offices are now Removed to the Manufactory, Friar Street.

McKENZIE'S SHEEP-FOLDING FENCE,
versus SHEEP NETS and HURDLES.

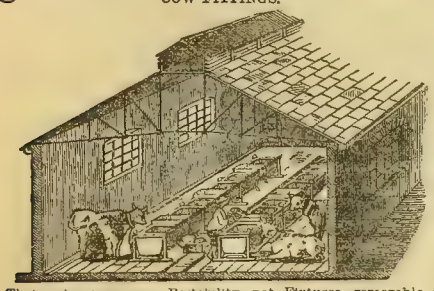
Vide Report of *The Times*, August 31, 1867.

"The low-priced Sheep Fence of this Firm is of great merit compared with Net; being stronger, more portable, not liable to injury from Hares and Rabbits, and not capable of entangling headstrong members of the flock."

Price per lineal yard, 6½*d.* (lasts five years), delivered at any Port in direct communication with Ireland.

THOMAS McKENZIE & SONS, 34, Dawson Street, Dublin; and Camden Quay, Cork. (Orders executed from the Factory at Cork.)

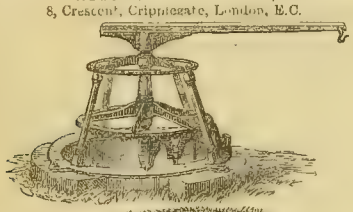
COTTAM'S PATENT PORTABLE UNITED COW FITTINGS.



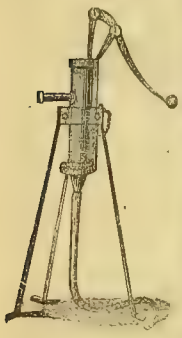
Their advantages are—Portability, not Fixtures, removable at pleasure, no Woodwork or Partitions to impede Ventilation or breed Vermin, Hay Rack dispensed with as unnecessary, increased width and depth of Feeding Troughs, Water Cistern, and Patent Drop Cover to prevent over-gorging. Cleanly, durable, and impervious to infection, being all of iron. Price of Fittings per Cow, 55*s.*

Prospectuses free of COTTAM & Co., Iron Works, 2, Winsley Street (opposite the Pantheon), Oxford Street, London, W., where the above are exhibited, together with several important Improvements in Stable Fittings just secured by Patent.

JOHN WARNER AND SONS,
BRASS and BELL FOUNDERS to HER MAJESTY,
HYDRAULIC ENGINEERS,
8, Crescent, Cripplegate, London, E.C.

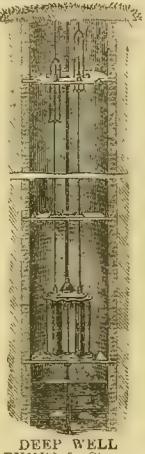


GARDEN ENGINES, WATER BARROWS,



No. 42.

PORTABLE PUMPS for LIQUID MANURES.



DEEP WELL PUMPS, for Steam, Horse, or Hand Power.

CRYSTAL PALACE FIRE ENGINES.



No. 35.

CAST-IRON PUMPS.

Drawings and Prices for any description of Hydraulic Machinery sent upon application.

GRAY'S OVAL TUBULAR BOILER.
INTERNATIONAL EXHIBITION, CLASS IX., No. 2119.

MR. GRAY begs to call the attention of the Nobility, Gentry, Nurserymen, Gardeners, &c., to his

NEW OVAL TUBULAR BOILER,

Acknowledged by practical judges to be a great improvement on every form of Tubular Boiler yet introduced. It has proved itself superior to all other Boilers for quickness of action and economy of Fuel, doing its work with one-third less the amount required by any other.

Extract from Report in GARDENERS' CHRONICLE *of International Exhibition, May* 24, 1862, *page* 476.

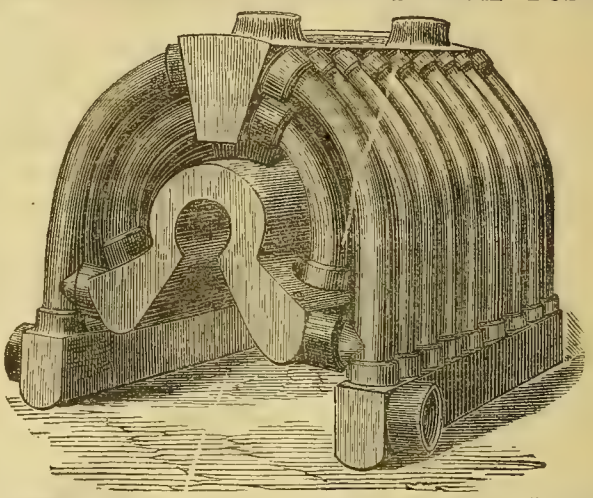
"The upright form of Boiler is usually made on a circular plan, but the oval form given to Mr. GRAY'S variety of it is said to be preferable in consequence of its bringing the tubes in closer contact with the fire. The usual form of a furnace being a parallelogram rather than a square, it seems feasible that the Boilers on the oval plan should bring the tubes more completely within range of the burning fuel; and this being so, the change, though a slight one, is no doubt an improvement."

☞ *They are made of all sizes, which, with prices, may be had on application.*

JAMES GRAY, HORTICULTURAL WORKS,
DANVERS STREET, PAULTON'S SQUARE, KING'S ROAD, CHELSEA, S.W.

CUMMING & EDMONDS'
PATENT TUBULAR ARCHED SADDLE BOILER.

AWARDED THE ONLY FIRST-CLASS CERTIFICATE FOR HOT-WATER BOILERS AT THE



SHOW OF THE ROYAL HORTICULTURAL SOCIETY, at BURY ST. EDMUND'S, JULY 16, 1867.

We have received numerous and flattering Testimonials of the efficiency of this Boiler, and in a report of the Directors of the Royal Horticultural Society, April, 1867, it is specially mentioned as "*working very efficiently, and maintaining the heat at stove temperature with a very small consumption of fuel.*"

We beg to draw attention to our superior designed CONSERVATORIES and HOTHOUSES of every description, and especially to our

NEW ORCHARD, STRAWBERRY, AND PLANT HOUSES,

which are "very cheap," and "ventilated" on a principle very much approved by all practical judges.

Having lately made considerable additions and alterations to our STEAM-POWER MACHINERY, we are now enabled to execute orders in the shortest possible time.

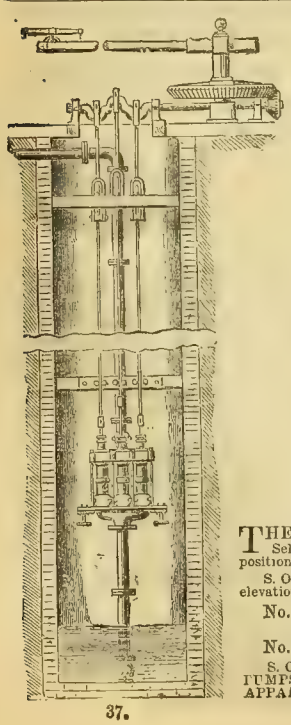
GARDEN BOXES, PIT LIGHTS, &c., at the lowest prices.

MANSIONS, CHURCHES, PUBLIC BUILDINGS, WAREHOUSES, SCHOOLS, &c., HEATED by HOT WATER in the most efficient manner.

☞ *Designs and Estimates Free on application.*

CUMMING AND EDMONDS,
CONSERVATORY ARCHITECTS, HORTICULTURAL BUILDERS, AND HOT-WATER ENGINEERS,
LILLIE BRIDGE, RICHMOND ROAD, FULHAM, LONDON, S.W.,
Adjoining the West Brompton Station on the West London Railway.

S. OWENS & CO.
(LATE CLINTON AND OWENS),
MANUFACTURERS OF
PUMPS and HYDRAULIC MACHINERY,
WHITEFRIARS STREET, LONDON, E.C.



37.



THE LANDSCAPE SKETCH shows an adaptation of THE IMPROVED HYDRAULIC RAM. This is a simple Self-acting Machine, suited for raising a Supply of Water for use in Public and Private Establishments. Its adoption is not confined to positions as shown, but it is suited for any situation where a Fall can be obtained from a Stream, Brook, or Spring.

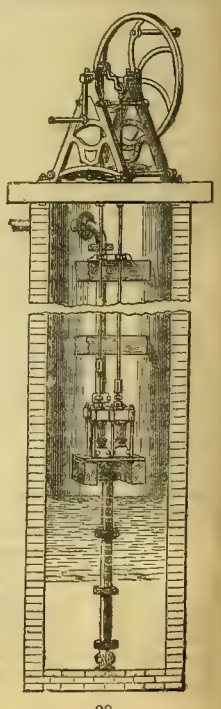
S. OWENS AND CO. have fixed a great many in various parts of the country for raising from 600 to 6000 or more Gallons per day to elevations varying from 30 to 300 feet, and forcing through Main Pipes 50 yards to several miles in length.

No. 37. IMPROVED TREBLE BARREL PUMPS, with HORSE GEARING for Raising Water from DEEP WELLS, for the supply of MANSIONS and PUBLIC BUILDINGS.

No. 28*a*. DOUBLE BARREL PUMPS for HAND-POWER for similar purposes.

S. OWENS AND CO. Manufacture and Erect every description of Engineer's Work required in Public or Private Establishments, such as PUMPS for any purpose on the largest or smallest scale, STEAM ENGINES, WATER WHEELS, TURBINES, WARMING and DRYING APPARATUS, BATHS, GAS WORKS and FITTINGS. Estimates furnished from Plans or on inspection of position.

☞ *Illustrated Catalogues Free on application.*



28*a*.

E. T. ARCHER'S "FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, and Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, &c.

PROTECTION from the SCORCHING RAYS of the SUN.

"FRIGI DOMO" NETTING, White or Brown, made of prepared Hair and Wool, a perfect non-conductor of heat or cold, keeping a fixed temperature where it is applied. It is adapted for all Horticultural and Floricultural purposes, for Preserving Fruits and Flowers from the Scorching Rays of the Sun, from Wind, from Attacks of Insects, and from Morning Frosts. To be had in any required lengths.

"FRIGI DOMO" NETTING, 2 yards wide, 1s. 6d. per yard run.

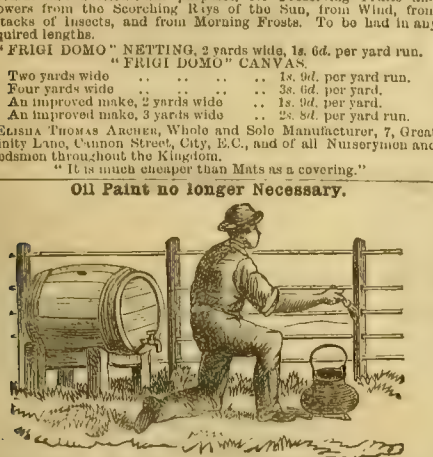
"FRIGI DOMO" CANVAS.

Two yards wide	1s. 9d. per yard run.
Four yards wide	3s. 6d. per yard.
An improved make, 2 yards wide	1s. 9d. per yard.
An improved make, 3 yards wide	2s. 8d. per yard run.

ELISHA THOMAS ARCHER, Whole and Sole Manufacturer, 7, Great Trinity Lane, Cannon Street, City, E.C., and of all Nurserymen and Seedsmen throughout the Kingdom.

"It is much cheaper than Mats as a covering."

Oil Paint no longer Necessary.



HILL AND SMITH'S PATENT BLACK VARNISH for preserving Iron Work, Wood, or Stone. This Varnish is an excellent substitute for oil paint on all out-door work, and is fully two-thirds cheaper. It may be applied by an ordinary labourer, requires no mixing or thinning, and is used cold. It is used in the grounds at Windsor Castle, Kew Gardens, and at the seats of many hundreds of the nobility and gentry, from whom the most flattering testimonials have been received, which HILL & SMITH will forward on application.

From ROBT. RAIKES, Esq., *East Dale, near Brough, Yorkshire.*

"I have used your Black Varnish for park palings and consider it to be the most durable and best thing of the kind I have ever seen. I think it might be applied with still greater advantage to iron fencing instead of paint, and it is my intention so to employ it in future."

Sold in casks of about 30 gallons each, at 1s. 6d. per gallon, at the Manufactory, or 1s. 8d. per gallon paid to any Station in the kingdom.

Apply to HILL & SMITH, Brierly Hill Iron Works, near Dudley, and 22, Cannon Street West, E.C., from whom only it can be obtained

CARSON'S ANTI-CORROSION PAINT, Patronised by the Nobility and Gentry, is extensively used for all kinds of OUT-DOOR WORK, and is proved, after a test of 70 years, to surpass any other Paint. It is especially applicable to Iron, Wood, Stone, Brick, Compo, and is the only Paint that will effectually resist the rays of the sun upon Conservatories, Greenhouses, Frames, &c. Is twice as durable as genuine White Lead, so simple in application that any person can use it. Per cwt.

WHITE, LIGHT STONE, BATH, and LIGHT PORTLAND COLOURS	30s.
LEAD, CHOCOLATE, RED, PURPLE, BROWN, and BLACK	26s.
BRIGHT GREEN, DEEP GREEN, and BLUE	42s.

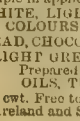
Prepared OIL MIXTURE for the ANTI-CORROSION. OILS, TURPENTINE, VARNISHES, BRUSHES, &c.

3 cwt. Free to all Stations in England and Wales, and most Ports of Ireland and Scotland. Patterns and Testimonials sent post free.

WALTER CARSON & SONS,

La Belle Sauvage Yard, Ludgate Hill, London, E.C.

CAUTION.—All Casks should bear the Trade Mark. No Agents.



WARNER'S SILICATE of IRON PAINT. —The peculiarities and advantages of this Paint are that it will stand extreme Heat and Damp, and is not affected by Acid, Sea Water, Sulphuretted Hydrogen, or Ammonia. It is equally well adapted for Iron, Wood, Brick, or Cement. Every Shade of Colour ground to order. The Creamy White and Bright Stone will retain the soft delicate shades, regardless of the fumes of Gases. It has no smell, and there is an entire absence of deleterious effect.

WARNER'S ANTITERMITE COMPOSITION is suitable for Felt Roofing, and is a Cheap Coating for Iron Work, and preserves Wood in India from the ravages of the White Ant. Price 1s. 3d. per gallon.

17, Laurence Pountney Lane, Cannon Street, London, E.C.

BEDSTEADS, BATHS, and LAMPS.—WILLIAM S. BURTON has Twelve Large Show Rooms devoted exclusively to the separate display of Lamps, Baths, and Metallic Bedsteads. The stock of each is at once the largest, newest, and most varied ever submitted to the public, and marked at prices proportionate with those that have tended to make his Establishment the most distinguished in this country.

Bedsteads, from	12s. 6d. to £20 0s. each.
Shower Baths, from	8s. 0d. to £6 0s. each.
Lamps (Moderateur), from	6s. 0d. to £7 7s. each.

(All other kinds at the same rate.)

Pure Colza Oil 3s. 9d. per gallon.

WILLIAM S. BURTON, GENERAL FURNISHING IRONMONGER, by appointment to H.R.H. the Prince of Wales, sends a Catalogue gratis and post paid. It contains upwards of 600 Illustrations of his unrivalled Stock of

STERLING SILVER and ELECTRO-PLATE
NICKEL SILVER, and
BRITANNIA METAL GOODS,
DISH COVERS, HOT-WATER DISHES
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TEA TRAYS,
URNS and KETTLES,
TABLE CUTLERY,
CLOCKS and CANDELABRA,
BATHS and TOILET WARE,
IRON and BRASS BEDSTEADS,
BEDDING and BED HANGINGS,
BED-ROOM CABINET FURNITURE,
TURNERY GOODS, &c.,

With List of Prices, and Plans of the Twenty large Show Rooms, at 39, Oxford Street, W.; 1, 1A, 2, 3, & 4, Newman Street; 4, 5, & 6, Perry's Place and 1, Newman Yard, London.

Breakfast.

EPPS'S COCOA.

INVIGORATING AND GRATEFUL.

Sauce.—Lea & Perrins'

WORCESTERSHIRE SAUCE.—This delicious Condiment, pronounced by Connoisseurs "THE ONLY GOOD SAUCE," is prepared solely by LEA & PERRINS. The public are respectfully cautioned against worthless imitations, and should see that LEA & PERRINS' Names are on Wrapper, Label, Bottle and Stopper. ASK FOR LEA & PERRINS' SAUCE.

*** Sold Wholesale and for Export by the Proprietors, Worcester; Messrs. CROSSE & BLACKWELL; Messrs. BARCLAY & SONS, London, &c., and by Grocers and Oilmen universally.

The Gardener's Watch.



PATENT LEVER WATCH in Engine-turned Silver Case, with all the latest improvements, jewelled, seconds hand strong, and calculated for hard wear, 4*l.* 14*s.* 6*d.*

The same Watch in Hunting Cases, 5*l.* 5*s.*

STRONG SILVER ALBERT and GUARD CHAINS.

The above being Manufactured on the Premises, are with confidence recommended and warranted for correct performance.

Illustrated Pamphlet, and all particulars gratis, on application to GOLDSMITHS' ALLIANCE (LIMITED), 11 & 12, Cornhill, London, E.C.

Farm Poultry.

GREY DORKING FOWLS, of purest breed, in any numbers.

Imported TOULOUSE GEESE, the largest and most productive breed known.

Improved NORFOLK TURKEYS, large, hardy, and good breeders.

AYLESBURY and ROUEN DUCKS.

Imported BELGIAN HARE RABBITS, for size and early maturity.

BRAHMA-POUTRA, CREVECŒUR, and LA FLECHE FOWLS, for constant layers.

Priced Lists and Estimates on application.

JOHN BAILY & SON, 113, Mount Street, London, W.

JOHN GIBSON, JUN., begs to announce that he is prepared to Furnish PLANS and ESTIMATES for LAYING OUT GROUND attached to Mansions and Villa or other Residences, or for the FORMATION of PUBLIC PARKS or GARDENS and to carry out the same by Contract or otherwise.

Address Mr. JOHN GIBSON, jun., Surrey Lane, Battersea, S.W.

GEORGE F. MORRIS (of the Firm of PROTHEROE & MORRIS) undertakes SALES and VALUATIONS of FREEHOLD LANDED ESTATES, Leasehold and Reversionary Property of every description, Farming and Market Garden Produce, Household Furniture, Stock in Trade, &c.

Auction and Estate Agency Office, The Limes, Leytonstone, Essex.

WANTED to RENT, TWO or THREE ACRES of LAND suitable for a NURSERY, within 15 miles of London, near a Railway Station. Address, with full particulars,

Mr. JAMES ILOTT, 168, Southwark Bridge Road, S.E.

WANTED to HIRE, 50 to 100 ACRES of LAND, near London, and near a Canal or Railway, to improve and cultivate in Garden order. The Advertiser is prepared to invest £20 per Acre of working capital, on satisfactory Tenure, such as a long Lease, or with Covenants securing payment for unexhausted improvements.

Address A., Post-office, Stapenhill, near Burton-on-Trent.

FOR DISPOSAL, a First-class NURSERY and SEED BUSINESS; or the present Proprietor would accept of a WORKING PARTNER with a Capital of not less than £1500.

Apply by letter to E., Messrs. Hurst & Son, 6, Leadenhall Street, London, E.C.

Manure Manufactory to be Disposed of, in full Trade,

THE PROPRIETOR WISHING TO RETIRE ON ACCOUNT OF ILL HEALTH.

TO BE LET, for a Term, a MANURE MANUFACTORY, replete with every Convenience for Carrying on a Lucrative and Extensive Trade, including Steam Engine, Carr's Disintegrator, Mixing Machine, Bone Mill, &c. Transit to all parts by Water and Rail adjacent to the Works. The Manure manufactured has given universal satisfaction, and there is a good and safe Connection, which can be considerably extended.

For particulars apply to THOS. H. WOODMAN, Agricultural Merchant, Town Hall Chambers, Borough, London, S.E.

To Market Gardeners and Others.

TO BE DISPOSED OF, the OLD LICENSED PUBLIC HOUSE, known as the STAPENHILL GARDENS, with Three Cottages, Glass Houses, and Pits, Stabling, Cowsheds, and other Outbuildings, together with 10 Acres of Grass, Garden Land, and Pleasure Grounds. The chief place of resort for Tea and Picnic Parties. The Glass Houses are well stocked with choice Plants. The Garden is well cropped and contains a number of choice Ornamental Shrubs, Fruit, and other Trees, Vegetables, &c. The above is held on Lease, 7½ years of which are unexpired.

Apply to W. DE VILLE, Stapenhall Gardens, Burton-on-Trent.

Nursery and Seed Business for Sale.

WILLIAM DEAN, having determined on residing in London again, offers for SALE, with immediate possession, the NURSERY at SHIPLEY, consisting of Four Acres, with 13 extensive Glass Houses, the whole, with the Nursery well stocked, and with Dwelling House, &c., is held on Lease; also the SEED SHOP, in BRADFORD (the only one in the town), which is well fitted up, and where there is a good business doing in Fancy Articles, as well as Seeds, Cut Flowers, Flowering Plants, &c. The Nursery is 2½ miles from the Shop, on a principal road to Bradford. A half year's business is equivalent to the purchase money required, and will be a great bargain to the purchaser. It is an excellent opportunity for a large house in the South to establish a Branch Business here, as a good healthy Trade is already done, which may be very much increased. For particulars apply to

WILLIAM DEAN, Bradford Nursery, Shipley, Yorkshire.

Sales by Auction.

SALE THIS DAY AND MONDAY, AT HALF-PAST 12 O'CLOCK.

Dutch Bulbs.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on SATURDAY and MONDAY, October 12 and 14, at half-past 12 o'Clock precisely, each day, 1000 Lots of BULBS from several well-known Farms in Holland.

On view the Morning of Sale, and Catalogues had.

Imported Orchids.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, October 17, at half-past 12 o'Clock precisely, Choice Imported ORCHIDS, including a box of South American ORCHIDS received from a private Gentleman, consisting of SOPHRONITIS GRANDIFLORA, LÆLIA RUPESTRIS, ONCIDIUM CRISPUM, LEPTOTES BICOLOR, ODONTOGLOSSUM CORONARIUM, ODONTOGLOSSUM KRAMERI from Central America, quite new. Also an importation of new and rare ORCHIDS just arrived from the Vulcan of Chanque, among which are the fine EPIDENDRUM BRASSAVOLA, EPIDENDRUM PRISMATOCARPUM; a new and very distinct ODONTOGLOSSUM, SELENIPEDIUM CAUDATUM ROSEUM; ACINETA SELLA-TURCICÆ, &c., &c. and 20 lots of fine imported PLANTS of the true CATTLEYA, AMETHYSTOGLOSSA.

On view the Morning of Sale, and Catalogues had.

Nursery Stock—Mill Hill Nursery, Hendon.

About a mile from Mill Hill Station on the Edgware and Highgate Railway, and one hour's ride from Camden Town by Mill Hill Omnibus.

MESSRS. HUMBERT AND COX are favoured with instructions from the Executors of the late Mr. James Wright, to SELL by AUCTION, on the Premises, Mill Hill Nursery, Hendon, on THURSDAY, October 24, at 12 for 1 o'Clock, the whole of the NURSERY STOCK, comprising 1000 Thuja Lobbii, 100 Thujopsis Borealis, 1000 Aucuba japonica, 1000 Laurustinus, 1000 English Yews, 200 Laurels, 500 Portugal Laurels, 1000 Cupressus Lawsoniana, 00 Abies Douglassii, 500 Phillyrea, 500 Scotch Fir, 500 Pinus excelsa, 500 Standard Roses (named), 500 Dwarf Roses, 500 Thuja gigantea, 600 Limes, Chestnuts, Birch, Acacias, Mountain Ash, English Oak and Elm, &c.

May be viewed two days prior to the Sale. Catalogues may be had on the Premises; at the principal Inns at Hendon; the Essex Arms and Clarendon Arms Hotels, Green Man, and Leathersellers' Arms, Watford; the Red Lion, Elstreet and Barnet; Abercorn Arms and Vine Inns, Stanmore; Three Crowns, Bushey Heath; Bell Inn, Bushey; Swan and Bell Inns, Rickmansworth; and (free by post) of Messrs. HUMBERT & COX, Land Agents, Auctioneers, and Surveyors, Little Nascot, Watford, Herts; and 88, St. James' Street, London, S.W.

MESSRS. PROTHEROE AND MORRIS'S PRELIMINARY NOTICE of FORTHCOMING SALES.

HIGHLY IMPORTANT TO NOBLEMEN, GENTLEMEN, NURSERYMEN, MARKET GARDENERS, AND PUBLIC COMPANIES ENGAGED IN PLANTING.

BATTERSEA, SURREY, October 28:—

Large FRUIT TREES, &c.; also FIVE HORSES, CARTS, SPRING VANS, and Sundry Effects.

PECKHAM, QUEEN'S ROAD NURSERY, October 29:—

Very compact EVERGREEN and CONIFEROUS SHRUBS, and other NURSERY STOCK; choice GREENHOUSE PLANTS.

BLACKWATER, SURREY. FRIMLEY PARK NURSERY, near Railway Station. October 31, by order of Mr. Holder, the NURSERY STOCK, including the usual assortment.

TOTTENHAM, MIDDLESEX. HALE FARM NURSERY, November 1:—A Collection of ORNAMENTAL TREES, EVERGREEN, CONIFERÆ, and FLOWERING SHRUBS, ROSES, FRUIT TREES, HARDY CLIMBERS, &c.

WANDSWORTH ROAD, LAVENDER HILL NURSERY, Nov. 4:—Some thousands of fine AUCUBAS, 1 to 4 feet; CHINESE ARBOR-VITÆ, ENGLISH YEWS, and other fine EVERGREENS, STANDARD and DWARF FRUIT TREES, &c. Important to the Trade.

KINGSTON, SURREY.—Clarence Street and Park Road, about four days' Sale, November 5, 6, 7, and 8.—Excellent NURSERY STOCK, viz.: EVERGREEN, CONIFERÆ, and DECIDUOUS SHRUBS, ranging all sizes and in great variety, all prepared for removal; STANDARD and DWARF ROSES, &c.

GODALMING, SURREY, November 11, and following days, by order of Mr. Charles Barker, at Godalming Nursery.—The whole of the choice GREENHOUSE PLANTS, newly erected GREENHOUSES, PITs, and other Effects; also at Terrace Gardens, Shady Hangers, within five minutes' walk of the Godalming Railway Station, the whole of the valuable PYRAMIDAL FRUIT TREES in a full bearing state, all carefully prepared for removal; EVERGREEN and CONIFERÆ SHRUBS, BOX-EDGING, &c. Any person securing a Lease of the aforesaid Premises will have the option of purchasing what they choose at the Sale, presenting an excellent opportunity to small capitalists desirous of embarking in the Nursery business.

EDMONTON, MIDDLESEX.—LANGHEDGE NURSERY, November 13 and 14:—SALE of a large quantity of FRUIT TREES. Important to Market Gardeners and others. EVERGREEN, CONIFERÆ, and DECIDUOUS SHRUBS of all sizes; STANDARD ROSES, ORNAMENTAL and FOREST TREES, &c.

WOKING, SURREY.—About nine days' Sale, commencing Nov. 18, without reserve, in consequence of the death of Mr. Robert Donald:—About 150 Acres of NURSERY STOCK, including an unusual large quantity of EVERGREEN, CONIFERÆ, and DECIDUOUS SHRUBS, ORNAMENTAL, FRUIT, & FOREST TREES. The Stock is particularly worthy the attention of the Trade.

CITY AUCTION ROOMS, 38 & 39, Gracechurch Street.—WEEKLY SALES of only first-class DUTCH BULBS, STANDARD ROSES, AMERICAN PLANTS, &c.

Particulars will appear in future Advertisements.

American Nurseries, Leytonstone.—Oct. 12.

Sale of Very Fine Dutch Bulbs, Handsome Standard Roses, &c.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at 38 and 39, Gracechurch Street, E.C., on TUESDAY, October 15, at 1 o'Clock precisely, a First-class Collection of DUTCH BULBS, including choice named Hyacinths, Tulips, Crocus, Narcissus, Snowdrops, &c.; a splendid assortment of STANDARD, DWARF, and CLIMBING ROSES, comprising the finest varieties in cultivation; Hardy AMERICAN PLANTS, viz., Ghent and other Azaleas, Hybrid Rhododendrons, Kalmias, Andromedas, with a variety of Hardy Climbers, &c.

On View the Morning of Sale. Catalogues had at the Rooms as above, and of the Auctioneers, American Nurseries, Leytonstone, N.E.

Strawberry Hill Nursery, Tunbridge Wells.

CLEARANCE SALE OF VALUABLE NURSERY STOCK.

MESSRS. PROTHEROE AND MORRIS have received instructions from Mr. Edwin Hollanby to SELL by AUCTION, on the Premises, Strawberry Hill Nursery, Tunbridge Wells, on WEDNESDAY, October 16, and three following days, at 11 o'Clock each day, without Reserve (the Lease having expired, and the land being immediately required for building purposes), the valuable NURSERY STOCK, including a very extensive and choice Collection of Evergreen, Coniferæ, and Deciduous Shrubs, comprising 1800 Portugal Laurels, 4000 Common Laurels, 2500 Spruce Firs, 10 to 6 feet; 1100 American Arbor-vitæ, 800 Laurustinus, 200 Green Hollies, 4 to 10 feet; fine Aucubas, Box, Oval-leaved and Evergreen Privet, some remarkably handsome Cedrus Deodara, 4 to 20 feet; splendid Araucaria imbricata, 2 to 15 feet; Wellingtonia gigantea, 10 to 12 feet; Thuja aurea (very compact), 2 to 4 feet; Cupressus Lawsoniana, Irish Junipers, Thuja Warreana, T. Lobbii, T. gigantea, Thujopsis borealis, Juniperus chinensis, Deutzia; 1000 Standard and Dwarf Roses; also Ornamental and Forest Trees, consisting of Standard-worked Thorns, Weeping Ash, Elms, Spanish Chestnuts, Oaks, Mountain Ash, Beech, Limes, Sycamores, Laburnums, Acacias, Chestnuts, Standard Walnuts, 3500 Rhododendrons, together with some fine Camellias and Azalea indica, 2 to 6 feet, beautifully furnished with bloom buds, &c.

May be viewed any day prior to the Sale. Catalogues had on the premises, and of the Auctioneers and Valuers, American Nurseries Leytonstone, N.E.

Clearance Sale.

ACTON VALE NURSERY, UXBRIDGE ROAD, MIDDLESEX.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. F. Hopgood, Sen., to SELL by AUCTION on the premises, as above, on MONDAY, October 21, and Three following Days, at 11 o'Clock each day, without reserve, the Lease having expired, the whole of the valuable NURSERY STOCK, consisting of a large assortment of Evergreen and Deciduous Shrubs, Ornamental Fruit and Forest Trees, viz., 600 Thuja aurea, 400 Chinese Arbor-vitæ, 200 Yews, 300 Cupressus Lawsoniana and Thujopsis borealis, 300 Spruce Firs, 500 bushy Laurustinus, well set with bloom, 1000 Euonymus, 600 Aucubas, 1000 Common Laurels, 1000 Box, 300 Phillyreas, 200 Green Hollies, 2000 Privet, Ribes, Guelder Roses, &c., Hardy Climbers, sorts, in pots; 400 worked Thorns, 200 Almonds, 400 bushy-headed Planes, 1000 fine Limes, 2000 Poplars, 300 Laburnums, 300 Weeping Ash, Elm, and Willows; 2000 Standard and Dwarf trained and untrained, Apples, Pears, Plums, Cherries, Peaches, Nectarines, and Apricots; 1000 fine Standard Damsons, 800 Gooseberries and Currants, 200 strong Vines in pots, &c.; 10,000 handsome Standard Dwarf and Climbing Roses, 500 Ivies in pots, 600 yards Box Edging, 2000 strong Seakale, Asparagus, &c.

May be viewed prior to the Sale. Catalogues had on the premises; at the Beaumont Arms, Shepherd's Bush Green; and of the Auctioneers and Valuers, Leytonstone, N.E.

Important Sale of First-class Shorthorns.

MR. STRAFFORD has great satisfaction in announcing for SALE by PUBLIC COMPETITION, on WEDNESDAY, October 16, at 1 o'Clock precisely (along with the SHORTHORNS from the Royal Farms), the valuable SHORTHORNED CATTLE recently exported by James O. Sheldon, Esq., of Geneva, New York, U.S.A. They consist of two Bulls and one Heifer of the far-famed "Duchess" tribe, viz., Third Duke of Geneva, Twelfth Duke of Thorndale, and Seventh Duchess of Geneva; also six Heifers of the very celebrated "Oxford" family; the whole are descended from the Cows bought at the Kirkleavington Sale. These animals are well worth the attention of Breeders of first-class stock. By permission they will be offered at the Prince Consort's Shaw Farm, Windsor Home Park.

Catalogues with Pedigrees may be had on application to Mr STRAFFORD, 13, Euston Square, London.

Important Sale of Choice Specimen Conifers, and other Shrubs.

TO NOBLEMEN, GENTLEMEN, LANDSCAPE GARDENERS, AND OTHERS.

MESSRS. BENTLEY AND HILL beg to announce their instructions from Mr. R. H. Vertegans, to SELL by AUCTION, on MONDAY, October 14, and following days, in consequence of the contemplated extensive alterations at the Promenade Gardens, Great Malvern, a Portion of the valuable Stock growing thereon, consisting of the choicest selections of CONIFERÆ, EVERGREEN and FLOWERING SHRUBS, ROSES, FRUIT TREES, &c., all of which have been recently transplanted, and are in the finest possible condition for removal.

Catalogues may be obtained one week previous to the Sale of Mr. R. H. VERTEGANS, Malvern; and Chad Valley Nurseries, Edgbaston, Birmingham; or of the Auctioneers, Worcester and Pershore.

WINTER APPROACHES !!!

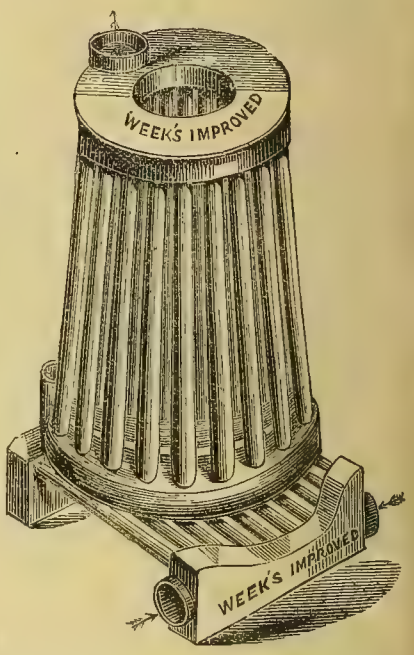
AND THE FOLLOWING ARE A DOZEN REASONS WHY

WEEKS'S IMPROVED UPRIGHT TUBULAR BOILER

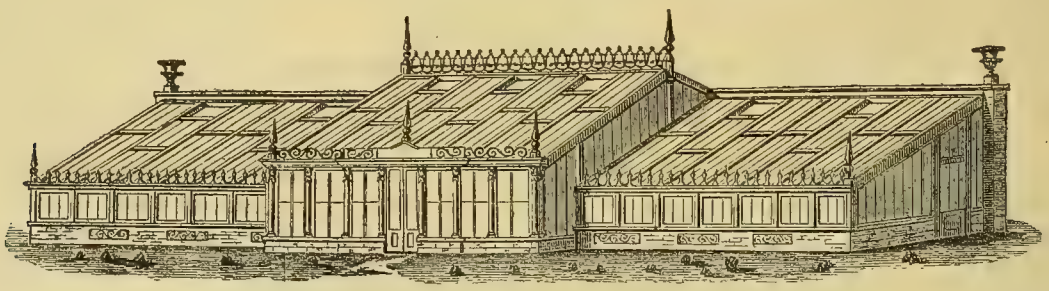
MAY JUSTLY BE STYLED THE

"LION" OF THE SEASON FOR HEATING BY HOT WATER.

1. AT ONE ESTABLISHMENT IT HAS FOR SEVERAL YEARS MOST EFFICIENTLY DISCHARGED THE DUTIES OF TWENTY-TWO ORDINARY BOILERS, AT A SAVING OF £175 PER ANNUM IN FUEL AND LABOUR, HENCE ITS ECONOMY.
2. IT ABOLISHES ALL NIGHT LABOUR.
3. IT REQUIRES MUCH LESS GENERAL ATTENTION THAN OTHERS.
4. IT IS THE MOST EFFICIENT, AND WILL CONSUME EVERY INFERIOR DESCRIPTION OF FUEL.
5. IT IS THE CLEANEST, BEING FED FROM THE TOP AND NOT FROM THE FURNACE DOORS.
6. IT IS THE MOST POWERFUL (see Reason 12).
7. IT IS THE MOST EASILY MANAGED, BEING SELF-REGULATING.
8. IT HAS BORNE THE MOST NUMEROUS AND CRITICAL TESTS, AND HAS BEEN PRONOUNCED BY MOST COMPETENT JUDGES AS THE BEST.
9. IT IS THE PARENT OF THE TUBULAR BOILER PRINCIPLE OF HEATING BY HOT WATER.
10. IT HAS BEEN LONGEST IN VOGUE, AND EVINCED ITS CAPABILITIES IN MANY HUNDREDS OF INSTANCES.
11. IT IS ENTIRELY OF CAST IRON, AND THEREFORE THE MOST DURABLE.
12. IT HAS ACHIEVED THE MOST GIGANTIC OPERATIONS ON RECORD TO WHICH NO OTHER BOILER CAN LAY CLAIM, THE LARGEST APPARATUS CONSISTING OF UPWARDS OF *FOUR MILES OF PIPING*.



THE MANY FLATTERING TESTIMONIALS RECEIVED ARE TOO NUMEROUS FOR INSERTION.



J. WEEKS AND COMPANY respectfully announce that, aided by their extensive Plant of Steam-power Machinery, they are able to execute every description of

CONSERVATORY, ORCHARD HOUSE, FORCING HOUSE, PIT, &c.,

in the best manner, and Ventilate the same upon their improved principle of Machinery by one movement.

CATALOGUES, DRAWINGS, AND ESTIMATES FREE ON APPLICATION.

J. WEEKS AND COMPANY,
HORTICULTURAL BUILDERS AND HOT-WATER APPARATUS MANUFACTURERS,
KING'S ROAD, CHELSEA, LONDON, S.W.

Editorial Communications should be addressed to "The Editor;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
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THE GARDENERS' CHRONICLE

AND

AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.

No. 42.—1867.] SATURDAY, OCTOBER 19. {Price Fivepence. {Stamped Edition, 6d.

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To Nurserymen and Seedsmen.—Notice.

THE GARDENERS' YEAR BOOK, ALMANACK, and DIRECTORY for 1868, by Robert Hogg, LL.D., F.L.S., will be Published on DECEMBER 2. Any alterations in the style and address of Firms are requested to be sent forthwith to the Editor, so that the necessary corrections may be made in the Directory portion.

"Journal of Horticulture" Office, 171, Fleet Street, London, E.C.

EVERY GARDEN REQUISITE kept in Stock at Carter's New Seed Warehouse, 237 & 238, High Holborn, London.

Genuine Garden and Agricultural Seeds.

JAMES CARTER AND CO. Seed Farmers, Merchants, and Nurserymen, 237 & 238, High Holborn, London, W.C.

Genuine Agricultural and Garden Seeds.

JAMES FAIRHEAD AND SON, Seed Growers and Merchants, 7, Borough Market, and Braintree, Essex.

Agricultural and Garden Seeds.

H. AND F. SHARPE beg to announce to the Trade that their SPECIAL LIST of HOME-GROWN SEEDS, 1867 Growth, is now ready and may be had on application. Seed Growing Establishment, Wisbech, Cambs.

RAYNBIRD, CALDECOTT, BAWTREE, DOWLING, AND COMPANY, Limited, Corn, Seed, Manure, and Oilcake Merchants, Address, 39, Seed Market, Mark Lane, E.C.; or Basingstoke. Samples and Prices post free on application. Prize Medals, 1851, for Wheat; 1862, for "Excellent Seed Corn and Seeds."

PAMPAS GRASS SPIKES WANTED. Hooper & Co., Covent Garden, London, W.C.

New Grass Seeds for Exportation.

SUTTON AND SONS, having received their supply of NEW GRASS SEEDS of the present Season's Growth in fine condition, will be happy to forward lowest price per ton or cwt. on application. All Seeds perfectly packed and delivered free to ship's side at any English Port. CATALOGUES gratis and post free Sutton & Sons, Royal Berkshire Seed Establishment, Reading.

To the Trade.

DICKSON'S "FIRST and BEST" EARLY PEA. Now Seed can now be supplied. Lowest price per quarter on application. Francis & Arthur Dickson & Sons, 106, Eastgate Street, Chester.

MUSHROOM SPAWN of the best possible quality, 5s. per bushel. Sample Brick sent on application. The Trade supplied, John Kellett, Wellington Nursery, Heaton Chapel, Stockport.

ASPARAGUS SEED.—Half a Ton of this year's crop, and three or four Cwt. of last year's, on SALE. What is unsold at the end of the month will be offered by Public Auction in Liverpool. Apply at Asparagus Garden, Formby, Liverpool.

ASPARAGUS ROOTS, 3-yr. old, per 100, 2s. 6d.; 2-yr. old, per 100, 1s. 6d. Terms cash. Richard Walker, Seed Grower and Market Gardener, Biggleswade, Beds.

To Noblemen, Gentlemen, Gardeners, and the Trade.

SEAKAIL for Forcing, magnificent roots, now ready. Per 100, 10s. Terms cash. Richard Walker, Market Gardener and Seed Grower, Biggleswade, Beds.

Yellow Globe and Long Yellow Mangel.

MR. S. A. DAINTREE, of Fen Drayton, St. Ives, Hunts, has several varieties of the above named Seed for Sale grown from large selected Bulbs. Samples and Price on application.

Seakail for Forcing.

POTTER AND FERRIGE, "The Nurseries," Sutton, Surrey, S., have 30,000 extra-fine Plants for disposal; ROSES in pots for forcing, strong plants; strong VINES for fruiting or planting; Fern-leaved and other PRIMULAS. Prices on application.

Biggleswade Market Gardens, Beds.

RICHARD WALKER can supply the following CABBAGE PLANTS, the finest in England:—
RED, from the finest stock in the country, 4s. per 1000.
EAST HAM, ENFIELD MARKET, NONPAREIL, ROBINSON'S CHAMPION, warranted true, 2s. per 1000, in any quantity.
LETTUCE PLANTS, 6d. per 100. Terms cash.

WANTED, Large YEW (EUROPÆA), Large AUCUBA JAPONICA, and Strong WHITE CURRANTS that will bear. Send price and size to C. Young, Balham Hill Nursery, London, S.

SUTTONS' FLOWER ROOTS.
See p. 1088 of this Week's Paper.
SUTTONS' EXHIBITION HYACINTHS.
See p. 1088 of this Week's Paper.

Before Purchasing Flower Roots, send for

J. SCOTT'S CATALOGUE of BULBS, VASES, and GARDEN REQUISITES. Bulbs are extra fine. J. Scott, The Seed Stores, Yeovil, Somerset.

Winter and Spring Flowering Bulbs and Plants.

BARR AND SUGDEN'S FLORAL GUIDE may be had free. It contains much valuable information. For particulars see large Advertisement, page 1044.

Bulb Catalogue.

BUTLER, McCULLOCH, AND CO.'S CATALOGUE of Choice DUTCH and CAPE BULBS is now ready. Sent free and post paid.—Established upwards of a Century. South Row, Covent Garden Market, W.C.

WM. CUTBUSH AND SON beg to say that their DESCRIPTIVE CATALOGUE of CHOICE HYACINTHS, TULIPS, CROCUSES, &c., is now ready, and can be had post free on application. Highgate Nurseries, London, N.

Special Notice.—Plants and Bulbs.

MR. STEVENS' SALES of DUTCH BULBS, FRUIT TREES, ROSES, and HARDY SHRUBS, take place every WEDNESDAY and SATURDAY, and frequently on MONDAY, at the Rooms, 38, King Street, Covent Garden, London, W.C. CATALOGUES on application.

Notice.—Fruits, Flowers, Bulbs.

Before purchasing, please send for DILLISTONE AND CO.'S LITTLE LISTS, post free to all applicants. Address, Dillistone & Co., Nurserymen, &c., Sturmer, near Halstead, Essex.

TO the TRADE.—The immensely increasing demand among the Trade all over the Globe for our CALCEOLARIA, CINERARIA, PRIMULA, PELARGONIUM, BALSAM, and INTERMEDIATE STOCK, proves beyond a doubt that they are all they profess to be, of unequalled quality, and worthy of general cultivation. TRADE LISTS free. Dobson & Sons, Woodlands Nursery, Isleworth, W.

DOBSON'S DECORATIVE PELARGONIUM MAGNET. Strong plants, 15s. each. Dobson & Sons, Woodlands Nursery, Isleworth, W.

DOBSON'S CATALOGUE of DUTCH BULBS, PELARGONIUMS, CINERARIAS, &c., is now ready, and may be forwarded post free. Woodlands Nursery, Isleworth, W.

CHARLES TURNER'S CATALOGUE for the present season is now ready, containing DESCRIPTIVE LISTS of ROSES, FRUIT TREES, CONIFERÆ, TREES, SHRUBS, &c. The Royal Nurseries, Slough.

Roses.

CHARLES TURNER'S stock of STANDARDS and DWARFS is very fine, and now ready for sending out. The best kinds only are cultivated at The Royal Nurseries, Slough.

Fruit Trees.

CHARLES TURNER'S stock of the above is remarkably fine this season, and in great variety. PYRAMIDAL PEARS and DWARF-TRAINED TREES, such as are seldom seen. The Royal Nurseries, Slough.

Foster and Hoyle's New Pelargoniums.

CHARLES TURNER is now prepared to execute Orders for the above, which obtained so many Certificates during the past season, and were much commended by the Press. A CATALOGUE, comprising the best old kinds, is now ready, also of AURICULAS, CARNATIONS, PICOTEES, and PINKS. The Royal Nurseries, Slough.

Vines.

H. LANE AND SON solicit an inspection of their stock of VINES: 2000 Canes to choose from, strong and well ripened. They have been awarded the First Prize for Vines in pots at all the leading Exhibitions. CATALOGUES free on application. The Nurseries, Great Berkhampstead, Herts.

Vines.

B. S. WILLIAMS has now on hand a very large and fine Stock of FRUITING and PLANTING CANES of all the best varieties. An inspection is invited. Victoria and Paradise Nurseries, Upper Holloway, London, N.

JOHN KELLETT begs to announce that his NEW PRICED DESCRIPTIVE CATALOGUE of DUTCH FLOWER ROOTS, SPECIMEN AZALEAS, ROSES, EPIPHYLLUMS, &c., is now ready, and can be had post free on application. Wellington Nursery, Heaton Chapel, Stockport.

Pines.

TO BE DISPOSED OF, in consequence of the glass being required for other plants, 60 stout clean FRUITING PLANTS of the best sorts, and 30 good SUCCESSIONS of the same. Apply to Francis R. Kinghorn, Richmond, S.W.

Orchard-house Trees Fruiting in Pots.

PEACHES, NECTARINES, APRICOTS, CHERRIES, PLUMS, PEARS, APPLES, VINES, and FIGS. Richard Smith, Nurseryman and Seed Merchant, Worcester.

Standard Apples.

WOOD AND INGRAM offer to the Trade and others 20,000 splendid STANDARD APPLES, with 5 to 6 feet stems and magnificent heads. Price on application. The Nurseries, Huntingdon.

PRINCESS of WALES STRAWBERRY.—This fine variety is now proved to be the best early variety ever produced, either for Forcing or for general Early Crop. See *Gardeners' Chronicle* of May 12, 1866, p. 437. Good Plants can now be supplied from the true stock, at 5s. per 100, from the raiser. B. W. Knight, Nurseryman, Battle, Sussex.

CURRANT PLANTS, 4-years' growth.—The large RED GRAPE and NETTLE-LEAF WHITE, at 10s. per 100, cash on the ground, or a Post Office order payable at Hounslow. T. Milton, Lampton, near Hounslow, W.

WEBB'S PRIZE COB FILBERTS, and other PRIZE COB NUTS and FILBERTS. LIST of these varieties from Mr. Webb, Calcot, Reading.

"THE ROSES of MR. PAUL * * * are things to see once and dream of for ever."—*Athenæum, June, 1867.* Wm. Paul begs to announce that his CATALOGUE of ROSES is now ready, and will be forwarded free on application. EIGHTEEN PRIZES have been awarded to him for Roses this year at the principal London Flower Shows. Paul's Nurseries, Waltham Cross, London, N.

Roses.

PAUL AND SON propose to begin early next week to execute Rose Orders. Early orders are solicited to insure particularly desired varieties. Their NEW CATALOGUE post free on application. The Old Nurseries, Cheshunt, N.

CULTURAL DIRECTIONS for the ROSE. Second Edition. By John Cranston, King's Acre Nurseries near Hereford. Free by post from the Author for 20 stamps.

To the Trade.

MARECHAL NIEL ROSE, from own roots, in pots, by the 100 or 1000, at £5 per 100. G. Baker & Son, American Nursery, Bagshot.

New Rose Catalogues for 1867 and 1868.

Catalogues of Trees, Shrubs, Fruit Trees, & Bulbous Roots.

WM. WOOD AND SON will be happy to forward Copies of above, gratis and post free. Address, Woodlands Nursery, Maresfield, near Uckfield, Sussex.

New Roses for 1867-1868.

EUGENE VERDIER, fils ainé, Nurseryman, 3, Rue Dunois, Paris, is now publishing his CATALOGUE of the above, which will comprise 69 New Varieties for 1867-1868. This CATALOGUE to be obtained gratis, either direct from him, or of his Agents, Betham & Blackith, Cox's Quay, Lower Thames Street, London, E.C.

Manetti Stocks.

HUSSEY AND SON beg to offer a quantity of very fine Cuttings of the above, ready for planting, at 1s. 6d. per 100, 10s. per 1000. Mile End Nursery, Eaton, Norwich.

Dwarf Hybrid Perpetual Roses.

HUSSEY AND SON beg to offer the above, consisting of all the leading varieties, at 40s. per 100. Mile End Nursery, Eaton, Norwich.

IN ANSWER to CORRESPONDENTS, I beg to state the New PELARGONIUMS will be DISTRIBUTED NEXT SPRING. The particulars of each will be advertised very shortly. John Mann, The Nurseries, Brentwood.

Lilium auratum.

SUTTON AND SONS can supply fine BULBS of this beautiful Flowering Plant at from 5s. to 15s. each. Royal Berks Seed Establishment, Reading.

To Gardeners, Seedsmen, &c.

HENLEY, BROTHERS, Merchants, Holbeach, have still on hand a quantity of SNOWDROPS, which they beg to offer. Samples and price on application.

CALCEOLARIA (Herbaceous), of choice strain, nice plants, in single pots, 21s. per 100; 12s. 6d. for 50, and 4s. per doz. H. & R. Stirzaker, Skerton Nurseries, Lancaster.

CAMELLIA STOCKS.—Strong Plants, in single pots, fit for immediate working, 30s. per 100; and extra strong, selected, 35s. per 100. W. H. Rogers, Red Lodge Nursery, Southampton.

WEBB'S NEW GIANT POLYANTHUS, Florist Flower, and GIANT COWSLIP SEEDS; also Plants of all the varieties, with double PRIMROSES of different colours; AURICULAS, both Single and Double, with every sort of Early Spring Flowers. LIST on application.—Mr. Webb, Calcot, Reading.

Gladioli.

EUGENE VERDIER, fils ainé, Nurseryman, 3, Rue Dunois, Paris, is now publishing his CATALOGUE of NOVELTIES (Seed from M. Souchet), and also of his own splendid Collection of the above. CATALOGUES to be had gratis, either direct from him, or of his agents, Betham & Blackith, Cox's Quay, Lower Thames Street, London, E.C.

Rhododendrons,

As Exhibited at the Royal Botanic Gardens, Regent's Park.

JOHN WATERER, the Exhibitor at the above Gardens, has pleasure in announcing that his CATALOGUE of the above popular Plants is now published, and will be forwarded to all applicants. It faithfully describes all the varieties considered worthy of cultivation. It contains likewise a selection of HARDY CONIFERS, with heights and prices. The American Nursery, Bagshot, Surrey.

Wholesale Catalogue.

GEORGE JACKMAN AND SON'S PRICED and DESCRIPTIVE CATALOGUE of HARDY NURSERY STOCK for 1867 and SPRING, 1868, can be had free on application. Woking Nursery, Surrey.

Now Ready,

A DESCRIPTIVE CATALOGUE of FRUITS for 1867, free.
A DESCRIPTIVE CATALOGUE of a few SELECT ROSES for 1867. By Thos. Rivers. Free by post. Nurseries, Sawbridgeworth.

To the Trade.

FIFTY-THOUSAND LAUREL (COMMON), 1-yr. Cuttings, fine. Price on application. Dillistone & Woodthorpe, Munro Nursery, Sible Hedingham, Essex

Red Lodge Nursery, Southampton.

W. H. ROGERS begs to call attention to this extensive Nursery, which offers unlimited supplies of FRUIT, FOREST, and ORNAMENTAL TREES, SHRUBS, and AMERICAN PLANTS of every size and description. CATALOGUES and every information may be had on application.

AZALEA INDICA.—Good healthy blooming Plants, 40 of the choicest varieties, including Stella, Carnation, Flag of Truce, and Mdlle. Verschaffelt, for 40s., or less quantities 12s. per dozen; also other good named varieties, healthy blooming Plants, at 9s. per dozen. H. & R. Stirzaker, Skerton Nurseries, Lancaster.

ALOES.—A fine pair of VARIEGATED ALOES for SALE, placed in new Wooden Boxes, 2 feet 6 inches square, painted green. The Aloes are 4 feet high, handsome and healthy. They are now too large for the greenh use, which obliges the owner to part with them. Robert Mercer, Gardener, Orpington, Kent.

British Fern Catalogue.

ROBERT SIM can now send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his NEW and PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.

Foot's Cray Nursery, S.E., a mile from Sidcup Station of New North Kent Line of South Eastern Railway.

STEPHEN BROWN'S splendid EARLY GLADIOLI.—An extra Prize was awarded to S. B. at the Bury Show of the London Horticultural Society for a Collection of this beautiful section of the Gladiolus. Planted early in pots, they will flower in May by keeping them in cool pits or frames, and brought into the greenhouse when about to flower.

Fine selections, per dozen varieties, 5s., 10s., and 15s.

For descriptions and culture, see Bulb Catalogue.

GLADIOLUS COLVILLII, the earliest, and useful or borders, 1s. per dozen; 7s. per 100.
" " RUBRUM, 2s. per dozen; 12s. per 100.
" " ROSEUM, 1s. 6d. per dozen; 10s. per 100.
" " FULGENS, a splendid new variety, most intense crimson scarlet and elegant form, 2s. 6d. each.

Also an extensive Collection of the RAMOSUS and GANDAVENSIS Sections (see CATALOGUES), and an immense Stock of other BULBS.

Seed and Nursery Establishment, Sudbury, Suffolk.

Gladioli.

EUGENE VERDIER, fils aîné, NURSERYMAN, 3, Rue Dunois Paris, has the honour to inform his numerous Friends and those interested that he is now publishing his CATALOGUE of the above, which will contain all the New Varieties obtained by M. Souchet.

He is happy to be enabled to announce that M. Souchet's Collection and his own carried off all the First and Second Prizes at the Exposition Universelle of Paris as well as being the admiration of all visitors.

This Catalogue can be had gratis, either direct from him, or of his Agents, BETHAM & BLACKETH, COX's Quay, Lower Thames Street, London, E.C.

JOHN CRANSTON'S CATALOGUE of SELECTED ROSES is now ready and will be forwarded on application.

J. C. respectfully directs attention to the following LIST of FIRST PRIZES which have been awarded to him at the principal Rose Shows of the present year, proving beyond a doubt that the soil and climate of his Nurseries are unrivalled for the Cultivation of Roses.

Royal Botanic Society, Regent's Park, London.
June 19.—24 Varieties, Cut Roses, one truss each, FIRST PRIZE
Cirencester.
June 19.—36 Varieties, Cut Roses, three trusses each, FIRST PRIZE
Clifton.
June 25.—24 Varieties, Cut Roses, one truss each, FIRST PRIZE
Crystal Palace.
June 29.—72 Varieties, Cut Roses, one truss each, FIRST PRIZE
Royal Horticultural Society, South Kensington.
July 2.—72 Varieties, Cut Roses, one truss each, FIRST PRIZE
Birmingham.
July 4, 5.—72 Varieties, Cut Roses, one truss each, FIRST PRIZE
24 Varieties, Cut Roses, three trusses each, FIRST PRIZE
Hereford.
July 9.—72 Varieties, Cut Roses, one truss each, FIRST PRIZE
24 Varieties, Cut Roses, three trusses each, FIRST PRIZE
Rugby.
July 12.—72 Varieties, Cut Roses, one truss each, FIRST PRIZE
Nurseries, King's Acre, near Hereford.

PAUL AND SON, the Old Nurseries, Cheshunt, can confidently invite attention to their stock of ROSES for the present season, of several of the leading varieties, as MARECHAL NIEL, ALFRED COLOMB, PRINCESS MARY OF CAMBRIDGE, &c. They believe they hold as large a quantity as any house in the kingdom, both as Standards and Dwarfs; and their plants are strong, healthy, and clear in stem, head, and root. They venture to quote their List of FIRST PRIZES gained this season:—

ROYAL HORTICULTURAL SOCIETY.

March 19.—Collection of Roses in Pots.	June 26.—18 vars. New Roses. 12 Blooms, New Roses, one variety.
April 16.—Collection of Cut Roses.	
June 4 to 8.—6 Roses in Pots. 6 New Roses in Pots. Collection of Cut Roses.	12 vars. Tea and Noisette. Collection of Moss Roses.
June 26.—48 vars. Roses, three Blooms each.	24 Roses in Pots.

ROYAL BOTANIC SOCIETY.

March 23.—Collection of Cut Roses.	April 27.—24 vars. Cut Roses. Collection of Cut Roses.
April 13.—Collection of Cut Roses.	May 29.—Collection of Cut Roses.
April 27.—3 New Roses in Pots.	June 19.—20 Roses in Pots.

PETERBOROUGH SHOW.

July 27.—36 Cut Roses. 24 Cut Roses.	July 27.—12 Tea and Noisette Roses.

CRYSTAL PALACE EXHIBITIONS.

May 25.—12 Roses in Pots. Collection of Cut Roses,	June 29.—Collection of Tea and Noisette Roses. Collection of Cut Roses. Collection of Roses in Pots.
June 29.—20 New Roses in Pots. 48 Varieties Cut Roses. 3 Blooms each. Collection of New Cut Roses.	Sept. 10.—36 Cut Roses. 24 Cut Roses.

MANCHESTER SHOW.

June 7 to 15.—16 Roses in Pots.	June 7 to 15.—6 Roses in Pots.

LEEDS SHOW.

June 13 and 14.—48 Cut Roses. 36 Cut Roses.	June 13 and 14.—24 Varieties Cut Roses, three Blooms each.

YORK FLORAL FETE.

June 19.—48 Cut Roses.	36 Cut Roses.	24 Cut Roses

CLIFTON SHOW.

June 25.—48 Varieties Cut Roses, 3 blooms each.	June 25.—Collection of Tea and Noisette Roses. 12 New Roses.

BIRMINGHAM ROSE SHOW.

July 4 & 5.—6 New Roses "Alfred Colomb."	July .—18 Tea and Noisette Roses.

The New Sensation in Bedding-out.

JACKMAN'S HARDY HYBRID CLEMATISES.

AWARDED ELEVEN FIRST-CLASS CERTIFICATES, AND ONE SPECIAL.

MESSRS. GEORGE JACKMAN AND SON are desirous of drawing the attention of those who intend using their HARDY and HYBRID CLEMATISES for a PERMANENT BEDDING PLANT, that the present time is most favourable for planting them to secure good vigorous growth and flower next summer.

See Editorial remarks in *Gardeners' Chronicle*, August 17:—"The new Sensation in Bedding." Also in August 31, 1867, in which "J. F." (Cliveden), endorses the former statement, and adds, that Messrs. G. J. & Son have in their several varieties "the very colour" of which our summer flower gardens are in a great measure deficient.

Varieties that flower together in May and June:—
CLEMATIS AZUREA GRANDIFLORA, violet, stamens deep
" STANDISHI, beautiful violet blue. [purple.
" FORTUNEI, fine large double white.

Besides several other good old summer sorts.

Autumn varieties, flower from July to October:—
CLEMATIS JACKMANNI (G. J. & Son), large, intense violet purple, rugose and veiny.
" RUBRO-VIOLACEA (G. J. & Son), maroon, shaded reddish violet.
" RUBELLA (G. J. & Son), rich velvety claret (new).
" PRINCE OF WALES (G. J. & Son), deep violet purple, with red bars, (new).

Also a large Stock of other autumnal kinds.

An Engraving from a Photograph, showing the flowering quantities of their Hybrid Clematises, can be forwarded shortly by enclosing a stamped envelope.

Woking Nursery, Surrey.

For Lawn and Clover Planting.

BERBERIS DARWINII.—Too much cannot be said of this fine evergreen species. It is hardy, and the profusion of its orange coloured blossoms, together with the quantity of berries which it bears (of which pheasants are very fond), render it one of the most attractive and desirable plants for lawn as well as cover planting ever introduced.

2-YR. Seedlings, per 1000, 30s.

9 in. to 12 in., per 100, 10s.	18 in. to 2 ft., per 100, 35s.
12 in. to 18 in., per 100, 18s.	2 ft. to 2½ ft., per doz., 9s.

COTONEASTER SIMMONDSII.—This is a beautiful hardy evergreen shrub, with glossy dark green leaves, and bearing a large quantity of scarlet berries, which ripen later than the Berberis Darwinii, and will hang all winter.

12 in. to 18 in., per 100, 15s.	2 ft. to 3 ft., per 100, 30s.

WILLIAM BARRON & SON, Elvaston Nurseries, near Derby.

Large Evergreens, Specimen Conifers, &c.

WATERER AND GODFREY beg to submit the following List to the notice of intending planters:—

YEWS, ENGLISH, 5, 6, 7, 8, 10, 12, and 15 feet high
" IRISH, 6, 7, 8, and 10 feet high
" GOLDEN, 5, 6, to 9 feet
" STANDARD GOLDEN, 20 years worked
" " ELEGANTISSIMA, 10 and 15 years old
" " DOVASTON or WEEPING, fine heads, 10 and 15 years old
We have altogether thousands of these different Yews of the large sizes. Every plant has been recently removed.
HOLLIES, COMMON GREEN, 6, 7, 8, 10, 12, and 15 feet high, and as much in circumference—hundreds
" LAURIFOLIA and SCOTTICA, 6, 7, 8, and 10 feet, and wide in proportion
" WATERER'S, the hardiest of all variegated Hollies, 4 and 5 feet by 10 and 12 feet in circumference
" THE QUEEN, or best gold striped, the handsomest of all variegated Hollies
We have hundreds of these beautiful plants, 4, 5, and 7 feet high and wide
" STANDARD, WATERER'S, and GOLDEN, with fine heads, 15 and 20 years worked
☞ We have some thousands of the ordinary kinds of Variegated Hollies, 4, 5, 6, and 7 feet high. Every plant has been removed within 12 months.
CEDRUS DEODARA, some thousands, 6, 7, 8, and 10 feet high
" ATLANTICA, and Cedars of Lebanon, moved in April, 4, 5, 6, and 8 feet
" RED VIRGINIANS, 5, 6, and 7 feet
CHINESE JUNIPER, one of the handsomest and hardiest of all evergreens—thousands of beautiful plants, 4, 5, 6, 7, and 8 feet high; some magnificent plants, 10, 12, and 15 feet high, 12 to 20 feet in circumference
THUJA AUREA, 3, 4, and 5 feet high, 7 to 20 feet in circumference
" GIGANTEA, 10, 12, and 15 feet high, very handsome
" LOBBII, splendid plants, 7, 8, to 10 feet high, and 12 and 15 feet round—hundreds
CUPRESSUS LAWSONIANA, the finest stock—many thousands, 6, 7, 8, 10, to 15 feet high, and as much in circumference
THUJOPSIS BOREALIS, 4, 5, 6, and 10 feet high, 7 to 12 feet in circumference—hundreds
PORTUGAL LAUREL, 4 and 5 feet high, 7 and 8 feet round
BOX, Green and Variegated, 4, 5, 6, 7, and 8 feet—thousands
PICEA NOBILIS, splendid plants, moved in spring, 4, 5, 6, and 8 feet
" NORDMANNIANA, 4, 5, 6, 8, 10, and 15 feet high [high
None of our Nobilis or Nordmannianas are grafted plants.
" MAGNIFICA or NOBILIS ROBUSTA, the finest stock in the trade, all seedlings, 2 to 4 feet high
" LASICARPA, hundreds of plants, 4, 5, 6, and 7 feet high, all [seedlings
ABIES DOUGLASSII, 5, 6, 7, and 8 feet
" ORIENTALIS, 4, 5, 6, 7, to 10 and 12 feet; 7 to 20 feet in circumference; most beautiful plants
PINUS CEMBRA, 6, 7, to 9 feet
" PINSAPO, 3, 4, 5, and 6 feet
" " Some very fine plants, 10 to 20 feet high, 15 and 25 feet in circumference
WELLINGTONIA GIGANTEA, a large number, all removed recently, 4, 5, 6, and 10 feet high, and 12 and 15 feet in circumference
RHODODENDRONS.—We have 40 acres of land in one piece filled almost exclusively with Rhododendrons. A more healthy and beautiful stock cannot be desired.
STANDARD RHODODENDRONS.—Some of the finest plants to be found in any nursery, many are 20 to 40 years old
☞ The large Standard and other Rhododendrons planted last spring in Rotten Row, Hyde Park, were supplied by WATERER & GODFREY.

We do not quote prices, we presume purchasers of such large plants will adopt the much wiser, and always more satisfactory course, of seeing and judging for themseives.

We solicit an inspection and invite comparison with any other similar nursery stock in the kingdom.

The Knap Hill Nursery is upwards of 150 acres in extent, and contains an enormous and very superior stock of the ordinary sized EVERGREENS, DECIDUOUS ORNAMENTAL TREES, &c.

A PRICED and DESCRIPTIVE CATALOGUE will be forwarded free on application to

WATERER & GODFREY, Knap Hill Nursery, Woking, Surrey.

The Nursery is readily reached by Train, 40 minutes from Waterloo to Woking. Conveyances are always to be had at the Station.

A. VAN GEERT, NURSERYMAN, Ghent, Belgium begs respectfully to offer the following Plants, of which he possesses a good stock, at very reasonable prices:—

100 HARDY RHODODENDRONS, in finé named varieties, £3.
100 ASCLEPIAS TUBEROSA, flowering roots, £1 1s.
100 HERBACEOUS CHINESE PÆONIES, in fine vars., £2 10s.
25 TREE PÆONIES, different varieties, £2 10s.
100 ABIES PINSAPO, fine plants, well rooted, 1 foot high, £4.
100 " NORDMANNIANA, 3-yr. seedlings, £3 10s.
100 THUJA ERICOIDES, small, very pretty variety, £2.
100 THUJA AUREA, 25s. to £2 10s.
160 CHAMÆCYPARIS SPHÆROIDEA FOLIIS AUREIS, fine plants, £3.
50 THUJA ELEGANTISSIMA, 2-yr. grafted, £2.
100 WIDDRINGTONIA ERICOIDES, £1 5s.
50 CUPRESSUS LAWSONIANA ARGENTEA (WATERER), £2.
25 " " GRACILIS, £1.
25 " " STRICTA, £1.
50 PINUS' INSIGNIS, strong plants, £2.
50 GINKGO BILOBA, strong, £2.
50 MAGNOLIA GRANDIFLORA, fine plants, £3 10s.
50 " TRIPETALA, fine plants, £1 5s.
25 FABIANA IMBRICATA, fine, £1.
50 ILEX, of sorts, £2 10s. | 100 HEDERA, of sorts, £1.
50 BERBERIS, of sorts, 15s. | 100 CONIFERS, of sorts, £2.
100 fine STANDARD PERPETUAL ROSES, £5.
100 COMMON MOSS ROSES, £2.
25 STANDARDS of ACER LEOPOLDII, £2 10s.
12 ARUNDO DONAX VARIEGATA, £1.
100 LILIUM LANCIFOLIUM RUBRUM, very strong, £3.
100 INDIAN AZALEAS, small, with buds, £3.
100 " larger, £4 to £6.
100 CAMELLIAS, fine sorts, without buds, £4.
100 GLADIOLUS GANDAVENSIS, different varieties, £4.
100 GLOXINIAS, in varieties, £2.
6 AGAVE SCHIDIGERA, fine strong plants, £5.
6 " COCCINEA, £1 10s.
6 " XALAPENSIS, £1 10s.
12 " AMERICANA, 21s. to £2.
12 " " VARIEGATA, 21s. to £2.
12 LATANIA BORBONICA, £1.
12 CORYPHA AUSTRALIS, fine plants, £3.
12 CHAMÆROPS HUMILIS, £1.
6 " fine plants, £3 to £5.
12 DICTYOGLOSSUM CRINITUM, £1 5s.
25 LOMARIA GIBBA, £1.
50 GYMNOGRAMME WETENHALLIANA, £1 10s.
25 ALSOPHILA EXCELSA, £1.
25 WOODWARDIA ORIENTALIS, £1.
20 TROPICAL ORCHIDS, £3.
50 NEW PERPETUAL PINE-APPLE STRAWBERRY plants, £1.
6 RHODODENDRON AUGUSTE VAN GEERT, the largest bouquet of the hardy varieties, strong plants, £1 10s.

When a large quantity of the above articles are ordered, the carriage will be paid to London. References required from unknown Correspondents.

Agents: Messrs. R. SILBERRAD & SON, 5, Harp Lane, London, of whom NEW GENERAL CATALOGUES may be obtained on application.

Frogmore Early Bigarreau Cherry.

CHARLES TURNER has great pleasure in offering the above valuable NEW CHERRY. The following extracts will be a sufficient guarantee of its excellence:—

From the *Gardeners' Chronicle*, July 1, 1865.

"Fruit of a Seedling Cherry of excellent flavour, called the Frogmore Early Bigarreau, was shown by Mr. Ingram, on a north-east wall; it was as early as the May Duke, and said to be a heavy cropper."

A First-class Certificate was awarded by the Fruit Committee of the Royal Horticultural Society.

It was exhibited at the Royal Botanic Society in July of the present year, and awarded a Certificate. The report from the *Gardeners' Chronicle* of July 6 is as follows:—"A branch of a Cherry called Frogmore Early Bigarreau, loaded with ripe fruit, was shown by Mr. TURNER, of Slough. The fruit of this new variety is of good size, thin skinned, tender, and well flavoured, and being at least three weeks earlier than the common Bigarreau, cannot fail to be favourite."

From the "Journal of Horticulture," July 11, 1867.

"Mr. TURNER exhibited a branch of Frogmore Early Bigarreau Cherry, loaded with fruit; of this excellent variety, which is ripe three weeks before the Bigarreau, a figure and description will be found in our ninth volume."

From the "Florist and Pomologist."

"By the time these pages are in the hands of our readers, the Frogmore Early Bigarreau Cherry will be at its highest excellence, perfectly ripe, and waning towards its end, before any of the other Bigarreaus have yet made their appearance. It was raised by Mr. Ingram, at the Royal Gardens at Frogmore.

"Unlike the class to which it properly belongs, it has a tender melting flesh; in every respect it is a Bigarreau in habit, leaf, and appearance of the fruit, and must be classified along with these varieties; but as if to set at nought all human arrangements, it persists in having a delicious melting flesh, instead of one that is hard and crackling. The fruit is large, obtusely heart-shaped, with a very shallow suture. Skin with a brilliant red cheek, dotted with minute yellow points, and of a remarkably pale almost pure white where shaded—so susceptible is it of shade, that the point of a leaf or the shadow of a twig would be photographed on this brilliant red. Stalk 2 inches long, with a very small receptacle, and set in a shallow and narrow cavity. Flesh very delicate and translucent, perfectly tender, melting, and very juicy, with a rich sweet flavour; stone small. The tree is a great bearer, clusters of a dozen and half to two dozen large handsome Cherries being produced on a small spray; and the fruit ripens in the middle of June."

STRONG PLANTS NOW READY.

STANDARDS, PYRAMIDS, and DWARF-TRAINED, 10s. 6d. each.
MAIDENS .. .. 7s. 6d. "
A Coloured Drawing by ANDREWS will be sent on receipt of 13 Stamps.

The Royal Nurseries, Slough.

Weston Nursery, Weston-super-Mare.

GEO. JAMES begs to offer the following:—

1,000 MAIDEN APPLES, 30s. per 100.
500 MAIDEN PEARS, 30s. per 100.
10,000 APPLE STOCKS (good), 20s. per 1000.
20,000 APPLE STOCKS, 10s. per 1000.
1,000 CHINESE ARBOR-VITÆ, 2 to 3 feet, 30s. per 100.
500 LAURUSTINUS (good), 25s per 100.
1,000 STANDARD ROSES, 75s. per 100.

SAMPLES and CATALOGUES on application.

Forest Trees, Fruit Trees, Evergreens, Plants for Game Covers, Conifers, Roses, &c.

FRANCIS AND ARTHUR DICKSON AND SONS invite the attention of Planters to their very large stock of the above, which in extent and variety is not excelled by any Nursery in the Kingdom. Their Nurseries, which are very bleak and exposed, extend over some 150 Acres, and their Plants are well known to be unusually hardy, as well as in the most perfect health and condition in every respect; and are found to thrive admirably when removed to other parts of the country. PRICED CATALOGUES post free upon application. Estimates and Special Prices for large quantities.

The "Upton" Nurseries, and "Old" Established Seed Warehouse, 106, Eastgate Street, Chester.

The Dorset Nurseries, Blandford and Blandford St. Mary.

FREDERICK GILL AND CO., NURSERYMEN, SEEDSMEN, and FLORISTS, beg to invite the attention of Gentlemen who intend Planting, to their large and vigorous STOCK of FOREST, FRUIT, and ORNAMENTAL TREES, SHRUBS, ROSES, &c., extending over many acres, and not to be surpassed.

Their ROSES on MANETTI STOCKS, of the choicest Varieties and superior growth, merit especial mention.

Northampton Nurseries.

JOHN PERKINS, SEN., begs to call the attention of Noblemen, Gentlemen, and others engaged in Planting, to his large stock of the following:—1,000,000 BLACK THORNS, for Covert Planting, 1½ to 2 feet, 2½ to 3 feet; 2,000,000 LARCH FIRS, 3 to 4 ft., 4 to 6 feet; 1,000,000 SPRUCE FIRS, 1½ to 2, 2½ to 3 feet, 3 to 4 feet; 2,000,000 WHITE THORN QUICK, 2 and 3 years transplanted; also large quantities of

Birch, 3 to 4 feet	Elms, English, 6 to 8 ft., 8 to 10 ft.
Berberis Dulcis, 2 to 3 feet	Elms, Huntingdon, 6 to 8, 8 to 10ft.
Cedrus Deodara, 5 to 6 ft., 6 to 8 ft.	Chestnuts, Spanish, 2 to 3 feet
Green Box, 1½ to 2 feet	Portugal Laurel, 1½ to 2 ft, 2 to 3 ft.
Evergreen Privet, 2 to 3 feet	Pinus austriaca, 2 to 3 feet
Hornbeam, 3 to 4 feet	Sycamore, 3 to 4 feet

J. P.'s stock of all kinds of FRUIT, FOREST and ORNAMENTAL TREES, &c., is very extensive, and this season remarkably fine, and in excellent condition for removal, having been frequently transplanted. DESCRIPTIVE PRICED CATALOGUES sent post free on application to 52, Market Square, Northampton.

CHARLES NOBLE begs to offer the following (a large clearance must be made, and purchasers are invited to ask for prices:—

Alder and Birch, 2 to 6 feet.	Dwarf and Pyramidal Cherries.
Chestnut, Horse and Spanish, 1 to 3 feet.	Thuja americana, 1 to 3 feet.
Elm (Scotch), 2 to 4 feet.	Deutzia crenata fl. pl., 1 to 4 feet.
Larch, Spruce and Scotch, 2 to 4 feet.	Spiræas, in best kinds, 3 to 4 ft.
" " of sorts.	Erica herbacea, fine.
Oaks and Thorns, 1 to 3 feet.	Cotoneaster Simmondsii, 2 to 3 ft.
Poplars, of sorts, 4 to 8 feet.	Ligustrum ovalifolium, 1 to 3 ft.
Abies Douglasii, 5 to 7 feet.	Berberis japonica Darwinii.
Thujopsis borealis, 1 to 7 feet.	" dulcis, &c.
Thuja Lobbii, 2 to 4 feet.	Sweet Gall, Sweet Briar, 1 to 3 ft.
Retinispora ericoides, 1 to 2 feet.	Pampas Grass.
" squarrosa, 1 foot.	Arundo conspicua.
" obtusa, 1 to 3 feet.	Vinca elegantissima.
" jusifera, 1 to 3 feet.	Russian Violets.
Cupressus Lawsoniana, 2 to 6 ft.	Ivies, green and variegated.
" " erecta, 2 to 6 ft.	Manetti stocks.
Dwarf Roses, best kinds.	Pear and Mussel stocks.
Dwarf and Pyramidal Pears.	Grape Vines, a fine selection.

PEACHES, NECTARINES, APRICOTS, APPLES, PEARS, &c.; dwarf bushes for Potting.

RHODODENDRONS, for cover planting, all heights and sizes.
" finest named kinds.

CHARLES NOBLE, Sunningdale, Bagshot, Surrey.

Planting Season.—Walton Nursery, Liverpool.

TO PLANTERS OF PUBLIC OR PRIVATE PARKS, CEMETERIES, PLEASURE GROUNDS, OR WOODS AND FORESTS.

W. SKIRVING begs to announce that his STOCK of TREES and SHRUBS is this Season very extensive and well grown, and that he is now prepared to execute orders to any amount for Trees and Shrubs of all sizes, at moderate prices.

W. S. considers the present month one of the best for transplanting Evergreen Trees or Shrubs, and solicits Planters to inspect his Stock, which consists of many thousands of the Holly, of the most choice varieties of the Gold and Silver Variegated kinds, and of the large broad-leaved Holly (the finest of all Evergreen Trees), hundreds of which are of large size and fine specimens for giving immediate effect, with thousands and tens of thousands of smaller sizes, for general planting.

Also an immense Stock of all other cultivated Trees and Shrubs, either for Villa, Park, or Forest planting, and of Fruit Trees for Gardens or large Orchards.

N.B. Fifty acres of Walton Nursery being required for Villa Building, the Stock thereon must be cleared as soon as possible, therefore very moderate prices will be accepted.—October, 1867.

Cheap Sale of Excellent Nursery Stock.

W. JACKSON AND CO., NURSERYMEN and SEED MERCHANTS, Bodale, Yorkshire, begs to inform Planters that in consequence of a portion of their Nurseries being required for Seed Growing purposes, they are SELLING OFF the STOCK at very moderate prices. The severe frosts of last Winter, so destructive to Nurseries in some localities, did no injury here; and the whole of the CONIFERS, ORNAMENTAL TREES, SHRUBS, FRUIT and FOREST TREES are in fine condition, the Laricus particularly so, having no damaged leaders. Letters addressed as above will be attended to immediately. Transplanted SCOTCH FIR, 5s.; SILVER FIR, 15s.; BLACK THORN, 16s.; HAZEL, 15s.; BALM of GILEAD, 20s.; ASPARAGUS, 10s. per 1000.

Extensive and well-grown Nursery Stock.

J. SCOTT, Merriott Nurseries, Somerset, has to offer FOREST TREES in large numbers, finely rooted and in perfect health. ORNAMENTAL TREES and SHRUBS of all sizes in quantity, beautifully grown and regularly transplanted.

Intending Planters would do well to visit these fine Nurseries, which have been established 150 years, and are by far the largest in Somerset. CATALOGUES on application.

TO LARGE PLANTERS and the TRADE.—Fine HORSE CHESTNUTS, 6, 7, 8, and 10 feet high.
PORTUGAL LAURELS, extra fine, 2, 3, and 4 feet.
ACER NEGUNDO VARIEGATA, from 3 to 4 ft., Pyramids.
HEMLOCK SPRUCE, 4 to 5 feet, fine.
BOX TREES, 2½ to 3 feet. | PRIVET, 3 to 4 feet.
SIBERIAN and AMERICAN ARBOR-VITÆ, 3 to 8 feet.
Special offers on application to
A. GOWIN & SON, Ashbourne, Derbyshire.

WELLINGTONIA GIGANTEA.—A Gentleman having more specimens of this noble Tree than he requires, wishes to DISPOSE of SOME; they are all Seedlings, and as perfect in form as possible, ranging from 5 to 8 feet high, and 4 to 5 feet through. They will move safely, having been regularly transplanted, and will carry large balls of earth. For particulars and to view, Address A. A., *Gardeners' Chronicle* Office, W.C.

To Persons Engaged in Planting.

MESSRS. WOOD AND SONS, 172, Old Kent Road, beg to offer the following TREES and SHRUBS at very low prices, in consequence of Lease being nearly out:—A large quantity of Lilacs, bushy, up to 7 feet; Evergreen Privets, to 5 feet; Filberts, Althea frutex, Bladder Senna, Guelder Roses, &c., &c. Also a large quantity of Aucubas, Euonymus japonicus, a few Variegated and Green Hollies, &c., &c. Some large size Forest Trees of sorts. Standard Almonds and Thorns. Als a fine Standard Mulberry Trees, up to bearing sizes; Standard Pears; Standard and Dwarf-trained Plums, &c., &c. The above Trees and Shrubs being mostly of large size would suit anyone planting for immediate effect, for Parks, &c.

EPACRIS.—Strong blooming plants, 24 named varieties for 24s., or 12 for 12s.
MONOCHÆTUM SERICEUM MULTIFLORA and ENSIFERUM.—Extra strong, flowering plants, 12s. per doz.; second size, good flowering plants, 9s. per doz.; smaller flowering, 6s. per doz.
PRIMULA SINENSIS.—Good strain, strong flowering plants, 4s. doz.
GARDENIA RADICANS or CAPE JASMINE.—Good healthy plants, set with flower buds, 12s. per doz or 1s. 6d. each.
JASMINUM LIGUSTRIFOLIUM.—Good healthy plants, to bloom, 9s per doz. or 1s. each.
PRICED DESCRIPTIVE CATALOGUE of STOVE, GREENHOUSE, and other Plants, free on application.
H. & R. STIRZAKER, Skerton Nurseries, Lancaster.

To Suburban and other Extensive Planters.

PONSFORD AND SON have much pleasure in offering (with special advantages) well-grown and thoroughly healthy GENERAL NURSERY STOCK, prominently the following:—Fruit Trees for every purpose, in fine condition; Roses, Ornamental Trees, Evergreen and Deciduous Shrubs for general furnishing, particularly Aucubas, Arbor-vitæ, Ligustrum, Thuja (various), Variegated Hollies, &c., specially to the Trade; fine Standard Mulberries, Limes, extra strong; Standard Apples and Plums, Dwarf-trained Apricots, Planes, Poplars, &c.; Azalea indica, choice sorts, extra size, Cheap.
Nurseries: Loughborough Park, Brixton, S.
Seed and Plant Department: Brixton Place.

The Nurseries, Barnet, Herts.

CHARLES CORNWELL begs to call the attention of Gentlemen and others engaged in Planting to his large STOCK of the following, which are offered at a low price, the ground being required for other purposes:—CEDRUS DEODARA, 4 to 12 feet; Araucaria imbricata, 2 to 6 feet; Arbor-vitæ, American, 6 to 8 feet; Cedar-, Red and White, 4 feet; Cryptomeria japonica, 4 to 8 feet; Cupressus Lawsoniana, 2 to 6 feet; Cupressus sempervirens, 3 to 6 feet; Junipers, of sorts, 3 to 5 feet; Taxodium sempervirens, 6 to 10 feet; Irish Yews, 6 feet; Thuja gigantea, 4 to 6 feet; Thujopsis borealis, 4 to 7 feet; Thuja Lobbii, 4 to 6 feet; Thuja aurea, 2 to 4 feet; Wellingtonia gigantea, 4 to 6 feet; Pinus cembra, 5 to 6 feet; and Pinus excelsa, 5 feet. The above have been kept constantly removed, so that they are all perfect specimens. Also all other kinds of Evergreen and Flowering Shrubs of all sorts and sizes; Standard Ornamental Trees, Fruit Trees of all descriptions, Standard and Dwarf Roses of the leading kinds.

Extra Fine New Tulips.

GEORGE LIGHTBODY, Falkirk, will LET OUT several of the Splendid Seedlings raised by Richard Headly, Esq., of Stapleford, near Cambridge, at very moderate prices. These flowers have been successfully exhibited at the Principal Shows in the Kingdom, and are warranted the finest Tulips now extant. A description of them, by Shirley Hibberd, Esq., F.H.S., was published in the "Gardeners' Magazine" for 22d June. A list of names and prices supplied on application

TO GENTLEMEN, GARDENERS, and OTHERS.—Highest Prices given for CAMELLIA BLOOMS, and all descriptions of CUT FLOWERS; also GRAPES, PINES, and PEACHES. Stamp for reply.
A. J., 9, Moreton Terrace, Pimlico, S.W.

Seed Potatos.

H. AND F. SHARPE are now offering MYATT'S EARLY PROLIFIC KIDNEY, RIVERS' ROYAL ASHLEAF, WEBB'S IMPERIAL KIDNEY, DAINTREE'S EARLIEST, EARLY OXFORD, EARLY FORTY-FOLD, and many other Early and Late varieties grown from their own selected stocks. The Prices are moderate, and the quality excellent. PRICED LISTS may be had on application.
Seed Growing Establishment, Wisbech.

Seed Potatos.

G. AND J. RUMLEY have to offer a large quantity of the following sorts, in excellent condition, at moderate prices, which may be had on application:—
ROYAL ASH-LEAF KIDNEY (Rivers').
MYATT'S PROLIFIC KIDNEY.
MONA'S PRIDE (True).
KING of the POTATOS (True).
PRINCE of WALES KIDNEY.
MARTIN'S GOLDEN GLOBE, &c.
The Nurseries, Newton-le-Willows, near Bedale, Yorkshire.

CUCUMBER "DICKSON'S FAVOURITE" or ALL THE YEAR ROUND.
We can confidently recommend this as one of the best Winter Cucumbers grown, while it is second to none for general purposes. In Winter it grows about one foot long, and in Summer from 16 to 18 inches. Of deep green colour, very handsome, delicate in flavour, and particularly tender, crisp and juicy. It is very prolific, showing two to three fruit at every joint, and furnishes a continual supply of handsome Cucumbers during the Winter, Spring, and Summer months. Per packet 1s. 6d. and 2s. 6d., post free.
FRANCIS & ARTHUR DICKSON & SONS, The "Old" Established Seed Warehouse, 105, Eastgate Street, Chester.

To Farmers, Gardeners, and Others.

EXCELLENT CABBAGE PLANTS (Stocks not to be surpassed), can be supplied in any quantity, as follows:—
TRUE DWARF NONPAREIL (the earliest and best), 2s. 6d. per 1000
TRUE ENFIELD MARKET (extra fine variety), 2s. 6d. per 1000
TRUE ROBINSON'S CHAMPION DRUMHEAD, 2s. 6d. per 1000
TRUE RED DUTCH (for Pickling), 5s. per 1000
A remittance or reference to accompany all orders.
FREDK. GEE, Seed Merchant and Grower, Biggleswade, Bedfordshire.

SUTTON AND SONS have the honour of announcing that at the recent Meeting of the Royal South Bucks Agricultural Society the following PRIZES were awarded to their Customers, viz.:—The "Prince Consort's Twenty Guinea Cup," for the best general Root Crops, to Mr. Hy. Cantrell, of Baylis Court Farm. These Crops included SUTTONS' CHAMPION SWEDE, and their IMPROVED YELLOW GLOBE MANGEL.
The First Prize for Pulled Roots of Mangel Wurzel, to Ed. Evans, Esq., of Boveny Court, for SUTTONS' NEW YELLOW INTERMEDIATE.
The First for Turnips, to Mr. Stephen Pullen, for SUTTONS' IMPERIAL GREEN ROUND. The First Prize for Swedes, to Mr. Stephen Pullen, for SUTTONS' CHAMPION.
Royal Berkshire Seed Establishment, Reading.

SUTTON AND SONS have the honour of announcing that at the recent Meeting of the Royal East Berks Agricultural Association, the following PRIZES were awarded to their customers, viz.:—"The Prince Consort's Twenty Guinea Cup," for the best cultivation of Root Crops generally, to J. H. Clarke, Esq., Altwood House, Maidenhead, whose crops included SUTTONS' IMPERIAL GREEN GLOBE TURNIP, GREY STONE TURNIP, and NEW YELLOW INTERMEDIATE MANGEL; the Second Prize, value £10, given by the Association upon the same terms as the Prince Consort's Cup, to Mr. J. T. Mills, of Cookham.
A Prize of £5, given by Colonel Loyd Lindsay, M.P., for the best Five Acres of Swede, to Mr. Garraway, Ruscombe, with SUTTONS' CHAMPION.
Two Prizes, given by Robert Palmer, Esq., for the two best pieces, Three Acres each, of MANGEL WURZEL.—First Prize, £3, to Robert Palmer, Esq., Holmes Park, Sonning; Second Prize, £2, to J. H. Clarke, Esq., Altwood House.
Prizes for Culled Roots, offered by Messrs. Sutton.—The best 25 Mangel Wurzel, to J. H. Clarke, Esq., with NEW YELLOW INTERMEDIATE MANGEL; best 25 Turnips, to J. H. Clarke, Esq., with SUTTONS' IMPERIAL GREEN GLOBE TURNIP.
Royal Berkshire Seed Establishment, Reading.

New Seeds for the Colonies.

SEEDS DIRECT FROM THE GROWERS ARE THE MOST SUITABLE FOR EXPORTATION, AND THE BEST MEANS OF PREVENTING DISAPPOINTMENT.

MESSRS. SUTTON solicit the favour of Orders from those about to send or take out SEEDS to the COLONIES, and submit the following from among many Testimonials recently received, as to the GREATLY SUPERIOR quality of their Seeds to those usually exported from this country, as well as to the very efficient manner in which their export packing is carried out:—

July 9, from A. N. ELLA, Esq., *Queenstown, Cape of Good Hope.*

"I may mention that the case referred to was in splendid order, looking as fresh after three months' sea and six weeks' land carriage as if only yesterday packed."

From HUGH ROMSAY, Esq., *Shanghae, China, May* 5, 1866.

"The box of seeds and roots has arrived, and nothing has given me greater pleasure for a long time than the excellence of these seeds."

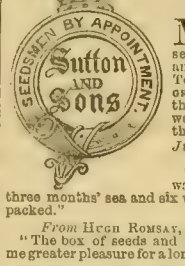
From Mr. Z. W. WELLS, *New Plymouth, New Zealand, May* 7, 1866.

"The Grass and other seeds sent by the Shelburne to me, have come safe to hand. I have tried samples of the Grass seeds, and am happy to inform you that they have come up quite to my satisfaction."

From Mr. JAS. DALE, *Orange, New South Wales, September* 20, 1866.

"I have the pleasure to inform you that your seeds have given great satisfaction, and I now send you a larger order."

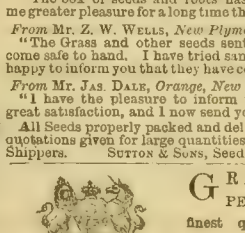
All Seeds properly packed and delivered free to ship's side. Special quotations given for large quantities. A liberal allowance made to Shippers. SUTTON & SONS, Seed Growers, Reading.



GRASS SEEDS for PERMANENT PASTURE, of the finest quality, at moderate prices, carefully selected on a new, natural, and scientific system.

See "WHEELER'S BOOK on GRASSES," which contains Illustrations and Descriptions of the most suitable Grasses for Permanent Pasture.

J. C. WHEELER & SON,
Gloucester,
Seedsmen to the Gloucestershire Agricultural Society.



COCOA-NUT REFUSE is becoming SCARCE, the old reserves will soon be gone. Now sold in bags, 1 for 2s., 10 for 16s., 20 for 30s., 50 for 66s., 100 for £6.

Fourpence allowed for each bag returned carriage-paid.

A Railway Truck-load (not in bags), 40s.

Postage Stamps or Post-office Order, payable to J. BARSHAM & Co., Kingston-on-Thames, S.W.

APPLEBY'S GENUINE TOBACCO PAPER, in 2 lb. and 4 lb. packets.
Price on application to HENRY APPLEBY, Foreman to Messrs. Ivery & Son, Dorking, Surrey.

TOBACCO TISSUE for Fumigating Greenhouses. Will Destroy Thrip, Red Spider, Green and Black Fly, and Mealy Bug; and burns without the assistance of blowing, and is entirely free from paper or rag. Price 3s. 6d. per lb., carriage free. A reduction in price for large quantities.
To be had of Messrs. ROBERTS & SONS, Tobacco Manufacturers, 112, St. John Street, Clerkenwell, E.C., of whom copies of Testimonials may be obtained; and of all Seedsmen and Nurserymen.

WINTER-DRESS ALL FRUIT TREES with GISHURST COMPOUND.

Copy of a Letter from Mr. RIVERS, *Nurseries, Sawbridgeworth, Herts, 22d October*, 1861.

"I must tell you what I heard to-day from a very clever gentleman farmer, Anthony Bubb, Esq., of Witcombe Court, Gloucester. He has a wall to which Peach Trees are trained. Well, last autumn they were in a wretched blighted state. As a desperate remedy he unnailed them all, early last February, and gave all but one a thorough painting with Gishurst Compound, 1 lb. to the gallon of water; his trees, all but the one, commenced to grow favourably in spring, and are now pictures of health. The tree not painted is in a half-dead blighted state. He used the same dressing to his Apple Trees; it killed the woolly Aphis entirely, and has made his trees clean and vigorous in their growth. He intends to paint his Wall Trees annually, and tells all his friends to do the same. I shall certainly serve all my young Peach Trees against my walls in the same manner. The Compound is, I believe, more efficacious than the usual offensive mixtures of clay, soot, sulphur, &c.; and it does not blacken the shoots on the walls."

For Orchard-house Trees, 4 ozs. to the gallon will be found a good strength; when used stronger some buds on weakly trees may be injured.

GISHURST COMPOUND is sold Retail by Nurserymen and Seedsmen, in boxes, 1s., 3s., and 10s. 6d. each.
Wholesale by PRICE'S PATENT CANDLE COMPANY, LIMITED, Belmont, Vauxhall, London, S.
Gishurst Compound has more recent testimonials to its efficacy, but none more conclusive than the above, which has been published before.

HYACINTH GLASSES, in every variety of shape and colour; SUPPORTS, DISHES, CROCUS GLASSES, &c.
The Garden Repository, 32, James Street, Covent Garden, W.C.
N.B. A liberal discount to the Trade.

Tve's Registered Hyacinth Glasses.



SOLE WHOLESALE DEPOT,
CLAUDET, HOUGHTON, AND SON,
FERN CASE MANUFACTURERS, and HORTICULTURAL GLASS DEPOT,
89, High Holborn, W.C.
Price Lists free on application.

A LARGE QUANTITY of RUSSIAN MATS for SALE. Apply to J. C. SIMONDS, Oil Mills, Boston.

JAMES PHILLIPS AND CO. beg to submit their prices as follows:—

GLASS for ORCHARD HOUSES,
As supplied by them to Mr. Rivers, to the Royal Horticultural Society, and to most of the Nobility, Clergy, and Gentlemen of the United Kingdom.
Each Box contains 100 feet. The prices only apply to the sizes stated.

Squares 20 by 12, 20 by 13, 20 by 14, 20 by 15.

	16 oz. to the foot.	21 oz.
Fourth quality	16s. 0d.	19s. 6d.
Third ditto	17s. 0d.	22s. 6d.
Seconds	18s. 6d.	28s. 0d.
English	20s. 0d.	27s. 0d.

The above prices include the boxes, which are not returnable.

HORTICULTURAL GLASS.
Stock sizes, 16-oz., in 100 feet boxes, boxes included.
These prices only apply to the sizes stated.

				4ths.	3rds.	2nds.
				s. d.	s. d.	s. d.
11 by 9	12 by 9	13 by 9	14 by 9	13 6	15 6	17 0
12 ,, 10	13 ,, 10	14 ,, 10	15 ,, 10			
13 ,, 11	14 ,, 11	..	..			
14 ,, 12	15 ,, 12	15 ,, 11	16 ,, 11			
18 ,, 12	19 ,, 12	16 ,, 12	17 ,, 12			
16 ,, 13	17 ,, 13	20 ,, 12	..	15 0	17 0	18 6
16 ,, 14	20 ,, 13	18 ,, 13	..			
	17 ,, 14	18 ,, 14	..	16 to 17 oz. to the foot.		
	20 ,, 14					

SMALL SHEET SQUARES.
In 100 feet Boxes.

6 by 4	6½ by 4½	7 by 5	7½ by 5½	.. 12s. 6d.
8 by 6	8½ by 6½	9 by 7	9½ by 7½	
		10 by 8	10½ by 8½	.. 13s. 6d.

Boxes 2s. each, returnable at full price.
London Agents for HARTLEY'S IMPROVED PATENT ROUGH PLATE.
LINSEED OIL, Genuine WHITE LEAD, CARSON'S PAINTS, PAINTS of various colours, ground ready for use.
SHEET and ROUGH PLATE GLASS, SLATES of all sizes, BRITISH PLATE, PATENT PLATE, ROLLED PLATE, CROWN, SHEET, HORTICULTURAL, ORNAMENTAL, COLOURED, and every description of GLASS, of the best Manufacture, at the lowest terms. Lists of prices and estimates forwarded on application to
JAMES PHILLIPS & Co., 180, Bishopsgate Street Without, E.C.

Horticultural Glass Warehouse.

THOMAS MILLINGTON AND CO., 87, Bishopsgate Street Without, London, E.C.
NEW LIST for ORCHARD HOUSE GLASS as supplied to Her Majesty, the Nobility, Gentry, Mr. Rivers, and the leading Horticulturists of the United Kingdom.

ORCHARD HOUSE SIZES.

in.	in.		4ths.	3rds.	2nds.	Best.
20 by 12						
20 by 13						
20 by 14	Per 100 feet	15 oz.	14s 3d	15s 6d	18s 6d	20s 0d
20 by 15		21 oz.	19s 6d	22s 2d	25s 6d	26s 6d
20 by 16						

SMALL SHEET SQUARES, 15 oz., per 100 feet.

in.	in.	in.	in.	in.	in.	4ths.	3ds.	2nds.	Best.
6 by 4	7 by 5	8 by 6	9 by 7						
6½ by 4½	7½ by 5½	8½ by 6½	9½ by 7½			12s 3d	13s 3d	16s 0d	18s 0d

Per 100 feet.

10 by 8	12 by 9	12½ by 10½	14½ by 10½					
10½ by 8½	12½ by 9½	13 by 10	15 by 10					
11 by 9	13 by 9	13½ by 10½	13 by 11			13s 3d	14s 6d	17s 3d	19s 0d
11½ by 9½	12 by 10	14 by 10	14 by 11					

LARGE SHEET SQUARES, 15 oz., per 100 feet.

in.	in.	in.	in.	in.	in.	in.	4ths.	3ds.	2nds.	Best
15½ by 10½	14 by 12	22 by 12	22 by 16							
16 by 10	14½ by 12½	17 by 13	24 by 16							
14½ by 11½	15 by 12	23 by 13	20 by 17							
15 by 11	15½ by 12½	18 by 14	22 by 17				14s 3d	15s 6d	18s 6d	20s 0d
15½ by 11½	16 by 12	22 by 14	24 by 17							
16 by 11	16½ by 12½	24 by 14	20 by 18							
21 by 11	17 by 12	22 by 15	22 by 18							
13 by 12	18 by 12	24 by 15	24 by 18							

The above Prices are only for the Sizes stated; if a quantity of any other Size be required, a Special Price will be given.

SHEET GLASS.
In Sheets for Cutting up, averaging from 6 to 9 feet super.

15 oz.		21 oz.	
4ths quality, per 300 feet case,	38s.	4ths quality, per 200 feet case,	38s.
3ds ,, ,,	48s.	3ds ,, ,,	48s.
2ds ,, ,,	62s.	2ds ,, ,,	66s.
Best ,, ,,	92s.	Best ,, ,,	96s.

SHEET GLASS is made only in the following substances, 15 oz., 21 oz., 26 oz., 32 oz., 36 oz., and 42 oz.
HARTLEY'S IMPROVED ROLLED ROUGH PLATE in 1-8th in., 3-16th in., 1-4th in., and 3-8th in. substances.
BRITISH PLATE GLASS for Windows and Silvered for Looking Glasses, Coloured Glass, Glass Shades, Striking Glasses, &c., &c.

PAINTS, COLOURS, VARNISHES, &c.
STUCCO PAINT, 24s. per cwt. This Paint adheres firmly to the walls, resists the weather, and is free from the glossy appearance of Oil Paint, resembling a stone surface, and can be made any required shade. It is mixed with rain or pure river water.
WHITE ZINC PAINT, 36s. per cwt. One hundredweight of pure Zinc Paint, with three gallons of Linseed Oil, will cover as much as one hundredweight and a half of White Lead and six gallons of Linseed Oil. Special Dryers for this Paint.
IMPROVED ANTI-CORROSION PAINT, 28s. to 34s. per cwt. Anti-corrosion Paint is extensively used for all kinds of work in exposed situations, on Brick, Stone, Compo, Iron, Iron Bridges, Conservatories, Greenhouses, &c., and is easily laid on by any ordinary workman. Prepared Oil for ditto 4s. per gallon.

	Per cwt.—s. d.		Per gallon.—s. d.
GENUINE WHITE LEAD	32 0	LINSEED OIL	3 4
SECONDS WHITE LEAD	30 0	BOILED OIL	3 9
GROUND PATENT DRYERS, 3d. to 4½d. per lb.		TURPENTINE	3 0
,, OXFORD OCHRE, 3d. to 4½d. per lb.		LINSEED OIL PUTTY, 8s. to 9s. per cwt.	
RAW UMBER, 4½d. to 6d. per lb. [per lb.		FINE OAK VARNISH, 10s. to	12 0
,, BURNT do., 6d. to 9d.		,, CARRIAGE do., 12s. to	14 0
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GROUND BRUSHES.		GLAZIER'S DIAMONDS and TOOLS	
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Carter's Dutch Bulbs.



Seedsmen to Her Majesty's Chief Commissioners of Public Works and other Government Departments, the Royal Gardens, Kew, &c., &c., &c.



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CARTER'S GUINEA BOX of DUTCH FLOWER ROOTS contains 12 choice named Hyacinths, 12 mixed Hyacinths for borders, 50 Yellow Crocus, 50 Blue Crocus, 4 Polyanthus Narcissus, 12 Double White Narcissus, 12 Pheasant's Eye Narcissus, 12 Double Daffodils, 24 finest mixed Ranunculus, 24 finest mixed Anemones, 12 choice mixed Single Tulips, 12 choice mixed Double Tulips, 4 Garden Lilies, 50 Snowdrops, 12 finest mixed Spanish Iris, 12 Campernelle Jonquils.

The above forwarded without delay on receipt of Post Office Order for 21*s.* Box and packing included. PRICE LISTS gratis and post free on application to

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HOOPER AND CO.'S TWO-GUINEA COLLECTION of BULBS, for In and Out-door Culture, sent Carriage free, contains:—

18 choice named Hyacinths, 6 named Double Tulips, 12 named Single do., 3 Polyanthus Narcissus, 6 Single Sweet Jonquils, 6 Double do., 25 named (extra fine) Crocus, 6 Ixias, 2 Lilium lancifolium, 3 Oxalis, 9 Border Hyacinths, 12 Double mixed Tulips, 12 Single do., 18 Border Narcissus, 100 Blue Crocus, 100 Yellow do., 50 White do., 50 Striped do., 25 Ranunculus (mixed), 12 Scarlet Turban do., 6 Golden do., 6 Black do., 12 Single Anemones, 12 Double do., 3 English Iris, 6 Spanish do., 100 Snowdrops, 3 Feather Hyacinths, 2 Tiger Lilies. Half the quantities, 21*s.*

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ROBERT PARKER begs to announce that his NEW CATALOGUE, containing Select, Descriptive, and Priced Lists of New, Rare, and beautiful Greenhouse, Hardy and Stove Plants, Azalea indica, Fruit Trees, Grape Vines, Rhododendrons, Roses, Sweet Violets, &c.; Amaryllis, Crocuses, Cyclamens, Gladioli, Hyacinths, Liliums, Narcissus, Tulips, and other Bulbs, is now published and will be forwarded to applicants.

Exotic Nursery, Tooting, Surrey, S.

VARIEGATED PELARGONIUMS.

SOPHIA DUMARESQUE	ITALIA UNITA
MRS. BENYON	COUNTESS
GOLDFINCH	ELEGANS
LUNA	THE FAIRY
BEAUTY of OULTON	PICTURATA
NEATNESS	BICOLOR SPLENDENS

The above forwarded on receipt of Post Office order for 21*s.*

If any of the above kinds are not required, others of equal value can be substituted.

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SUPERB VARIEGATED PELARGONIUMS.

SOPHIA DUMARESQUE	EDWINIA FITZPATRICK
BEAUTY of OULTON	GENERAL LONGSTREET
ITALIA UNITA	THE COUNTESS
MRS. LONGFIELD	BICOLOR SPLENDENS
LUNA	GLOWWORM
BEAUTY of GUESTWICK	QUEEN'S FAVOURITE

The above, 21*s.* Remittance requested.

CASHON & SON, Gravel Walk Nursery, Peterborough.

New Zealand Nursery, St. Alban's, Herts.

J. WATSON'S beautiful BEDDING PELARGONIUM EXCELSIOR, now ready colour of Indian Yellow; fine truss, and habit of Lord Palmerston. Price 6*s.* each; 36*s.* per doz. to the Trade.

MISS WATSON, ready August 25; MRS. DIX, May 1. The Two have received 10 First-class Certificates and Extra Prize Money.

Fine New TABLE APPLE, ST. ALBAN'S PIPPIN, Ripe in April. Plants ready in November. 5*s.* each; 36*s.* per doz. to the Trade. DESCRIPTIVE LIST sent on application.

NEW FUCHSIAS, ZONAL GERANIUMS, &c.

12 Select New FUCHSIAS of 1867 for 6*s.*
12 Select New ZONAL GERANIUMS of 1867 for 12*s.*
12 Finest ZONAL GERANIUMS of 1865—1866 for 4*s.*
12 Select New CHRYSANTHEMUMS of 1867 for 5*s.*
12 Select New VERBENAS of 1867 for 4*s.*
12 Select New PETUNIAS of 1867 for 6*s.*
12 Select New PHLOXES of 1867 for 9*s.*
6 Varieties of AUCUBAS, 3 Male, 3 Female, for 21*s.*
3 Varieties of New Japan OSMANTHUS, quite hardy, 6*s.*
12 Fine Varieties of Japan EUONYMUS, very fine, 6*s.*
12 Fine Varieties Perpetual ROSES, Dwarfs, for 6*s.*
12 Fine Varieties of VARIEGATED ZONAL GERANIUMS, 12*s.*
GERANIUM GLOIRE DE NANCY, the best double, 1*s.* each.

COLEUS VEITCHII, 1*s.* 6*d.*	PANICUM VARIEGATUM,
,, GIBSONII, 1*s.*	2*s.* 6*d.*
,, LAMONTII, 1*s.*	BRUGMANSIA KNIGHTII,
FICUS COOPERI, 2*s.* 6*d.*	1*s.* 6*d.*

CATALOGUE of NEW and CHOICE PLANTS sent on application.

B. W. KNIGHT, Nurseryman, Battle, Sussex.

Azalea, Her Majesty.

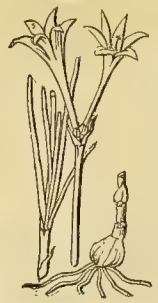
WILLIAM BARNES has much pleasure in announcing that he will be prepared to send out the above splendid AZALEA on and after Wednesday, October 23, at the following price—21*s.* each. A very few extra strong plants at 42*s.* each, with the usual allowance to the Trade; where three plants are ordered at one time four will be given.

It was exhibited before the Floral Committee of the Royal Horticultural Society on June 14, 1866, where it was awarded a First-class Certificate for its great beauty in its markings, shape, and colour, when the following remarks were made upon it, which appeared in the *Gardeners' Chronicle*, June 16, 1866:—"A beautiful Azalea, rosy lilac, edged with white, and blotched, and spotted in the upper petals with crimson, called Her Majesty, from MR. BARNES, of Camberwell.'

On June 23, 1866, the following remarks appeared in the same Paper:—"We have from time to time referred to the sportive character of the Indian Azalea, and called attention to the fact that some of our best varieties have had their origin in a freak of Nature. A fresh instance of their sportiveness was shown the other day at South Kensington. Mr. WILLIAM BARNES there exhibited a variety of Azalea which he purposes to designate Her Majesty. It is, we believe, a sport from Madame Miellez, or some of the forms closely allied to that fine old sort; and in quality, therefore, as well as in name, takes the very highest rank. The flowers are of the full average size, and of excellent form and substance, and the colour is a soft lilac-tinted blush, white at the margin, densely spotted with crimson in the upper part, and marked with variable stripes, or sometimes broadish bars of deep rosy purple. Its high quality as regards the flower itself, and this novelty of marking, will make it an acquisition in any collection of these showy plants.

A faithful Figure of this fine Azalea is given in the January number of the "Florist and Pomologist."

A remittance must accompany all orders from unknown correspondents. Camden Nursery, Camberwell, London, S.



STEPHEN BROWN'S ILLUSTRATED BULB CATALOGUE, descriptive, with cultural instructions, free by post for six stamps, and may be deducted by new purchasers sending orders.

S. B.'s several importations of FOREIGN BULBS this season have been received in fine condition.

The choicest GLADIOLI in 200 varieties; also 70 varieties of superb LILIES, together with a very extensive Collection of DUTCH, CAPE, and other BULBS.

A DESCRIPTIVE CATALOGUE of New and Select HERBACEOUS and ALPINE PLANTS, just published, sent free.

Seed and Nursery Establishment, Sudbury, Suffolk.

Dutch and Cape Bulbs.

BUTLER, McCULLOCH AND CO. have received their usual consignment of the above, and beg to offer the following carefully assorted collections.

FOR CONSERVATORY DECORATION.

No. 1	No. 2	No. 3	No. 4	No. 5	No. 6
100*s.*	50*s.*	25*s.*	21*s.*	15*s.*	10*s.* 6*d.*

FOR FLOWER GARDEN DECORATION.

No. 7	No. 8	No. 9	No. 10	No. 11	No. 12
1.0*s.*	60*s.*	40*s.*	25*s.*	21*s.*	10*s.* 6*d.*

FOR FLOWER GARDEN AND CONSERVATORY COMBINED.

No. 13	No. 14	No. 15	No. 16	No. 17	No. 18
105*s.*	52*s.* 6*d.*	42*s.*	21*s.*	15*s.*	10*s.* 6*d.*

CATALOGUES containing details of above Collection sent free, and Post-paid Orders amounting to 21*s.* sent, carriage paid, on receipt of Post-Office Order.—Established upwards of a century.

Covent Garden Market, London, W.C.

NEW PLANTS,

TO BE SENT OUT ON AND AFTER OCTOBER 14.

E. G. HENDERSON & SON

RESPECTFULLY CALL ATTENTION TO THE FOLLOWING NOVELTIES:—

NEW BEDDING FUCHSIA, GOLDEN FLEECE
NEW DOUBLE PELARGONIUM, PRINCE OF NOVELTIES
NEW STRIPED-FLOWERED PELARGONIUM, AURANTIA STRIATA
NEW ZONAL PELARGONIUM, MAGENTA CHRISTINE
NEW DOUBLE-FLOWERED ZONAL PELARGONIUM, TRIUMPH
NEW CRIMSON NOSEGAY PELARGONIUM
NEW HYBRID FRAGRANT-LEAVED PELARGONIUM, GRANDIS ODORATA
NEW FORCING PINK, PLATO
NEW TREE or SHRUBBY-HABITED PINK, ROSE of ENGLAND
NEW STOVE SHRUB, DALECHAMPIA ROEZLIANA ROSEA
NEW DOUBLE-FLOWERED AMARYLLIS, ALBERTI PLENA

Full descriptions of the above Select Plants are given in

E. G. HENDERSON & SON'S NEW BULB CATALOGUE,

which, on application, is forwarded Post Free.

☞ *The Trade will receive a DESCRIPTIVE LIST in a few days hence.*

THE WELLINGTON NURSERY, ST. JOHN'S WOOD, LONDON, N.W.

DUTCH AND OTHER BULBOUS ROOTS.

B. S. WILLIAMS

HAS RECEIVED HIS FIRST IMPORTATIONS IN EXCELLENT CONDITION, AND RESPECTFULLY SOLICITS EARLY ORDERS.

A PRICED and DESCRIPTIVE CATALOGUE forwarded free on application.
COLLECTIONS of BULBS carefully put up to suit Gardens of various sizes.

The CHOICEST HYACINTHS for Pots or Glasses, 24*s.*, 18*s.*, 12*s.*, 9*s.*, 8*s.*, and 6*s.* per doz.

HYACINTHS for Bedding, assorted, in colours, 3*s.* 6*d.* per doz.

All Roots of the first quality only.

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VICTORIA AND PARADISE NURSERIES, UPPER HOLLOWAY, LONDON, N.

TO NOBLEMEN, GENTLEMEN, AND THE TRADE.

WILLIAM BARRON & SON,

LANDSCAPE GARDENERS AND NURSERYMEN,

BEG TO OFFER THE FOLLOWING, ALL FIRST-RATE AND VERY CHEAP.

PRICES ON APPLICATION.

ABIES CANADENSIS, 18 in. to 4 ft.
,, DOUGLASII, 1 ft. to 6 ft.
,, MENZIESII, 18 in. to 6 ft.
CEDRUS ATLANTICA, 3-yrs. seedlings, 2-yrs. transplanted
,, ATLANTICA, 1 ft. to 3 ft.
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CRYPTOMERIA JAPONICA, 1 ft. to 5 ft.
,, LOBBII, 1 ft. to 5 ft.
,, ELEGANS, 6 in. to 4 ft.
CUPRESSUS LAWSONIANA, 6 in. to 6 ft.
,, LAMBERTIANA, 1 ft. to 2½ ft.
,, MACROCARPA, 1 ft. to 2½ ft.
,, NUTKAENSIS, 1 ft. to 6 ft.
JUNIPERUS CHINENSIS, 2 ft. to 5 ft.
PICEA MAGNIFICA, 1 ft. to 4 ft.
PICEA NOBILIS, 6 in. to 6 ft.
,, NORDMANNIANA, 6 in. to 6 ft.
,, PARSONSI, 18 in. to 6 ft.
,, PINSAPO, 1 ft. to 6 ft.
PINUS AUSTRIACA, 6 in. to 5 ft.
,, CEMBRA, 6 in. to 7 ft.
,, CONTORTA, 1 ft. to 6 ft.
,, INSIGNIS, 2 ft. to 5 ft.
,, LARICIO, 9 in. to 8 ft.
,, PONDEROSA, 1 ft. to 6 ft.
RETINISPORA ERICOIDES, 6 in. to 2 ft.
,, OBTUSA, 6 in. to 6 ft.
,, PISIFERA, 6 in. to 6 ft.
THUJA GIGANTEA, 1 ft. to 5 ft.
,, MENZIESII, 1 ft. to 6 ft.
,, PYRAMIDALIS, 18 in. to 3 ft.
THUJA SIBERICA, 15 in. to 3 ft.
THUJOPSIS DOLABRATA, 6 in. to 2 ft.
WELLINGTONIA GIGANTEA, 1 ft. to 6 ft.
BERBERIS DARWINII, 9 in. to 2 ft.
COTONEASTER SIMMONDSII, 9 in. to 4 ft.
DEUTZIA CRENATA, fl.-pl., 6 in. to 3 ft.
MAHONIA AQUIFOLIA, 9 in. to 18 in.
,, JAPONICA, 6 in. to 3 ft.
COMMON YEWS, 1 ft. to 6 ft.
GOLDEN YEWS, 1 ft. to 8 ft.
,, HOLLIES, 1 ft. to 4 ft.
EUONYMUS JAPONICUS VARIEGATA AUREA, 6 in. to 12 in.
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In addition to the above, W. B. & SON hold one of the finest General Stocks in the Midland Counties, comprising a large assortment of RARE CONIFERS, JAPANESE PLANTS, EVERGREEN and DECIDUOUS TREES and SHRUBS for Lawn and Cover Planting; ROSES, RHODODENDRONS, FRUIT TREES, &c.,

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WILLIAM BARRON begs to inform those who may wish for his advice on LANDSCAPE GARDENING or the MANAGEMENT of TREES, that he now devotes the greater portion of his time to this department of the business. Having had great experience as a Landscape Gardener, both in public and private works, he can with confidence undertake the Laying-out and Planting of Grounds to any extent.

Trees from 50 feet high downwards removed by BARRON'S TRANSPLANTING MACHINES. Prices, for sale or hire, on application.

ELVASTON NURSERIES, near DERBY.

New Tricolored Geraniums.

F. AND A. SMITH'S extensive Collection of these beautiful Variegated Golden and Silver-edged varieties are now in fine colour, and may be seen any day except Sunday.
The Nurseries, Dulwich, S.

Azaleas, best sorts, with buds.

F. AND A. SMITH have to offer to the Trade a large clean stock of the above—every Plant a specimen. Price, moderate, on application.
The Nurseries, Dulwich, S.

New Tricolored Geraniums.

F. AND A. SMITH are now able to supply strong vigorous Plants (as advertised by them on October 12)
A DESCRIPTIVE LIST, with prices, may be had on application.
The Nurseries, Dulwich, S.

Vines for Early Forcing.

F. AND A. SMITH have strong FRUITING CANES of the above. Prices, with LIST of VARIETIES, on application. The Nurseries, Dulwich, S.

Paul's Nurseries, Waltham Cross, N.

WM. PAUL begs to announce that he has the following COLLECTIONS of TREES and PLANTS now ready for delivery, which he can confidently recommend for quality and price :—

ROSES.—100,000 Plants, Standards, Dwarf Standards, and Dwarfs.
PRICED DESCRIPTIVE CATALOGUE free on application.

TREES and SHRUBS.—Large quantities of the popular Nursery Plants, of all sizes, good and cheap.
A choice variety of PICTORIAL TREES, his collection of which was the only one which received a Prize at the International Exhibition of 1866.

AMERICAN PLANTS.—Rhododendrons, Azaleas, Kalmias, Heaths, &c., in variety, from the commonest to the choicest.

FRUIT TREES.—Apples, Pears, Cherries, Plums, Figs, Peaches, Nectarines, Apricots, &c., &c ; Standards, Dwarfs, and Pyramids, trained and untrained. A large stock of handsome trees, many in a fruiting state.

GRAPE VINES.—All the best sorts, both Planting and Fruiting Canes.

PELARGONIUMS.—Beaton's and other Zonal kinds, Gold, Bronze, and Silver variegated, a fine collection.

HYACINTHS, TULIPS, and other BULBS.—All the First Prizes for Hyacinths and Tulips were awarded to his Collection at the London Flower Shows last spring. Cheap Hyacinths, Tulips, &c., for spring gardening by the 100 or 1000. Choicer kinds for pot culture and glasses good and cheap.
PRICED DESCRIPTIVE CATALOGUES of any or all of the above free by post.

The Gardeners' Chronicle.

SATURDAY, OCTOBER 19, 1867.

In the current number of the "American Agriculturist," is a letter signed "A. G.," which we may safely attribute to "Asa Gray," relating to the Effects of Crossing on plants. It runs as follows :—"As to where the mixing of varieties is shown, I would first ask, why should it be in the seed rather than in the seed vessel or fruit? Of course we expect the mixture to be shown in the offspring, that is in the next generation, the principle being that the offspring inherits from both parents. But the seed is not the offspring; it only contains the offspring in an embryo state. If the alien pollen may impress some peculiarity on the coats of a seed—which are parts of the mother plant—why not upon the seed vessel as well? So much for the likelihood of the case. It appears to be well settled that the coats of Beans are thus affected. It is generally supposed that the fruits or seed vessels of Melons and Squashes are similarly affected. Careful observation and experiment ought to determine the question.

"Now, in the case of certain plants of the Squash family (Cucurbitaceæ), Naudin found, if I remember correctly, that alien pollen, which would not act on the ovules so as to cause an embryo to be produced at all, would yet cause the fruit to set and grow apparently to full size, though not a seed matured within. Does not this prove that the pollen may somehow act on the ovary or pistil, as well as on the contained ovules?"

The question raised in this letter of the estimable American Professor is one of no little consequence to the cross breeder and hybridizer, and it is one on which we should gladly hear the opinions of raisers of seedlings, whether hybrids or mere crosses. That the pollen does exert an influence on the pistil, even when no effects are produced on the contained ovules, is obvious enough. We have ourselves, in following some experiments in cross-breeding this season, noticed that the stigma becomes changed—withered, almost immediately after contact with the pollen, even if no perfect seeds be produced. This fact has long been known to practical gardeners, and it is of itself sufficient to show that an effect is produced on the stigma by the pollen; and if on the stigma, why not on the other portions of the ovary? We have before us as we write, a curious variety of Epilobium hirsutum, upon which we have been experimenting. Some ten or a dozen blossoms have been touched with pollen from an ordinary plant of the same species, the other blossoms have been left to themselves, and as the flowers in question contain no perfect stamens but only leaves where the pollen-bearing organs should be, of course no self-fertilization could ensue. The stigmas and styles of the flowers that have been touched with pollen are all withered, though no seeds have been produced, or are now likely to be formed, while in the flowers that have been left to themselves the stigmas retain their freshness.

Every one is of course aware of the ordinary effects produced on the ovary after contact with the pollen—the question raised by Professor A. Gray is rather as to the differences, if any, that are observable when the pollen from another species or variety is used, as in hybridizing or cross-breeding, to fertilize the ovary. Are the effects produced on the ovary, in such cases, different from those which result when the flower is fertilized in the ordinary way? If differences have been observed in the seed produced by cross-fertilization, it seems natural to suppose that corresponding differences exist in the ovary: and this is the point to which attention should be directed.

The case is complicated by the fact that the ovary will swell—the fruit will set, in some cases without any contact with pollen at all, though of course no embryo is produced. This happens now and then in Pears, in the Papaw, and in other dicecious plants under cultivation; hence the mere swelling of the ovary and apparent ripening of the fruit are by no means always to be considered as absolutely dependent on the action of the pollen on the stigma. The structural conformation of the fruit must also be taken into consideration; where the fruit—using that word in its popular sense—is formed, as in the Fig, or the Pear, or Apple, mainly from the dilated and expanded flower stalk, its formation can have but an indirect relation to the action of the pollen on the stigma. In such cases the changes in the actual pistil are comparatively slight; the great alterations take place in organs outside the pistil, and on which the pollen can possibly have no direct effect. In these instances then, cross-fertilization could have no effect different from what would occur under ordinary circumstances.

Many circumstances concur to render Central Asia a district of more than ordinary interest at this time, to our statesmen and to geographers. It is not for us to enlarge upon the political aspects of the country, and as for its plants, with which we are more particularly concerned, we must know a great deal more of them before we can venture to say much about them. In the meantime it is satisfactory to see that practical measures are at any rate suggested, with the view of opening up this little known land, and of facilitating intercourse with it by increasing its productiveness. At present the caravans, by means of which the Russian and Indian trade is carried on, are compelled to carry with them Wheat sufficient for a month's consumption, a quantity representing so many camels, on whose backs merchandise might more profitably find a place were it possible to secure food *en route*. Hence the importance of a suggestion lately made by Lieut. Pogson to the Agricultural and Horticultural Society of India, that the Quinoa (Chenopodium Quinoa) should be introduced from Peru into the highlands and alpine plateaux of Tibet, where, owing to the height of the locality and consequent coldness of the climate, neither Wheat nor Barley can be grown. The plant has been cultivated on the slopes of the Andes at great elevations, in Chili and Peru, from time immemorial, for the sake of its seeds, which contain a very nutritious farina, unfortunately, however, mixed with a bitter principle, which is removed but with difficulty, and which renders it unpalateable to Europeans.

In Chili several varieties are cultivated, differing principally in the colour of the seeds, those most in use being the black and the white seeded varieties, of which the latter is preferred.

We perceive that Lieut. Pogson refers to the sweet and bitter varieties, but so far as we are aware there is little difference in the flavour of the several kinds. The plant is not unknown in this country, and on the Continent the leaves of the winter variety have been used as spinach during dry hot summers when ordinary spinach could not be procured, but the seeds of this white kind are as bitter as those of darker hue. Be this as it may, it is not unlikely that there are some varieties in which the objectionable ingredient exists in smaller proportion than in others, and the suggestion unquestionably deserves the earnest consideration of the authorities. The plan suggested for importing the seed from Peru may supply a hint for the transmission of other seeds to or from India, for which reason we append it.

"The seed should be packed in a tin case, in the centre of which a perforated tin cylinder, 3 inches in diameter and 12 inches in height, should be firmly soldered. Three inches of the upper part of the cylinder should remain intact, the remaining 9 inches being perforated. Each perforation to be 1-12th of an inch in diameter, and ½rd of an inch distant from its neighbour. The cylinder to be provided with a cap or cover. The cylinder, after being soldered in its place, is to be three-quarters filled with bits of very coarsely pounded charcoal, from the size of a Pea and below the size of a marble. The cover is then to be put on. The box being now ready, the unhusked Quinoa seed is to be put into it gradually and gently pressed down—the operation being repeated till the box is filled, when it should be soldered down, packed in wood, and shipped without delay direct to India.

"The object of placing the tin cylinder charged with charcoal in the centre of the tin case has to be explained. Any moisture existing in the seed husks, or seed stalks, when given off, would at once pass through the perforations of the cylinder, and be absorbed by the charcoal. The upper portion of the cylinder being empty and closed, would always contain in a condensed or compressed state any vapour produced by heat during the voyage, and the seeds being kept cool and dry in the husk would reach in a perfect state of preservation. Care should be taken that the box of wood within which the tin case is placed, is well and strongly made. For convenience of transit in India, each tin case should be of the following size, viz.: length, 3 feet; width, 15 inches; depth, 12½ inches. This, when placed in the packing-case, would give a convenient-sized box or package, two of which could be easily carried by a mule."

—— We have received from M. Alphonse De Candolle the following communication relative to the Nomenclature of Plants :—"The writer of the notice of my pamphlet on the 'Lois de la Nomenclature Botanique' (see p. 1026), approves of most of the points proposed for adoption, and only objects to certain matters relating to the grouping of cultivated varieties, &c., on which I shall explain myself more at length hereafter; at present I confine myself to the expression of a wish that the readers of the *Gardeners' Chronicle* will wait until the text adopted by the International Botanical Congress at Paris is published. An English edition of this, translated from the French by M. Weddell, will shortly be issued by Messrs. Lovell Reeve and Co., London. The little work noticed in the *Chronicle* was merely a proposed scheme submitted to a committee of the Paris Congress in August last, and which was subsequently discussed article by article in the presence of more than 200 botanists and horticulturists of all nations. Many of the articles were changed for the better, and therefore I would wish judgment to be deferred till after the adopted text has been published. This revised edition, based on the decisions of the Congress, will be issued in November next, in French, German, and English. A more extended commentary will accompany it than was appended to the original (provisional) edition." M. Weddell, who has undertaken to translate it into English, was one of the committee of reference to whom M. De Candolle's paper was first submitted, and from that accomplished botanist we may be assured of an accurate translation of this important document. We refrain from further comment until the publication of the English edition above alluded to.

—— A. M. Rousseau recently affirmed that he could ensure the Production of Truffles by sowing acorns from an Oak on whose roots Truffles grow. The principle upon which this culture depends, says M. Rousseau, is the faculty that certain Oaks have of producing Truffles, and of transmitting that property from one tree to another by hereditary transmission. What nonsense! our readers may exclaim. Some of our neighbours across the Channel, however, did not look upon the matter in this light, and M. Rousseau has this year established a Truffle ground in the reserved garden at the Paris Exhibition. Not long since, says the "Horticulteur Français," a committee was appointed to investigate these Truffle grounds. Failing Truffle dogs or Truffle pigs, a gardener was set to work to dig at the roots of the young Oaks raised by M. Rousseau. Sure enough, there were the Truffles, and M. Rousseau's triumph seemed complete, and would have been so but for sundry sceptics who, from a sort of appearance in the ground whence the Truffles were removed, indicative of the use of a "dibber," were led to place the Truffles in water and wash off the blackish soil of the Champ de Mars, when, adhering to the precious Fungus, was seen a yellow mould; proving, says our contemporary, that these Truffles, found in the Champ de Mars, at the foot of the Oaks, had passed their early life beneath the skies of Perigord. M. Rousseau, it appears, has received a gold medal for his Truffles, and sells the Acorns of his Truffle Oaks, which are also quoted in the catalogues of some of the Paris seedsmen.

—— The productiveness of the Royal Ascot Grape, to which we alluded early in the season, proves to be something wonderful. After every successive stopping fresh bunches are developed on the young shoots put forth, so that were it practicable a fourth crop of this year might now be swelling off on Vines which have been planted less than two years. The regular crop has for some time been cut, but numerous

bunches of a second crop, left to test the fruitfulness of the variety, are now ripening, while there are others with the berries as large as Peas, and others, again, from recent stoppings, younger still. So prolific is it, that the young plants just struck from scarcely-ripened buds are in almost every case showing clusters which promise to grow on and perfect themselves during the winter or early spring. It seems impossible to repress the bearing propensities of this Grape, and this peculiarity, if sustained, coupled with its size and fine quality, will serve to mark it out as a grand acquisition for Grape-growers.

—— We would again call the attention of horticulturists to the THOMPSON TESTIMONIAL. In this age of testimonials we fear that some of the more deserving run the risk of being comparatively ill-supported from the number of demands that are made. The THOMPSON Testimonial, however, should receive the warmest support of all classes of horticulturists, for there is not a man who is more deserving a substantial mark of respect and esteem than ROBERT THOMPSON. His life-long devotion to his art—his services to horticultural knowledge, which really are incalculable—his modest and amiable disposition, are so many reasons, and of the most urgent character, why the Testimonial proposed to be raised for his benefit, should be of the heartiest and most general description. There is not a gardener in the United Kingdom who in some way or other is not indebted to Mr. THOMPSON, but it is as we understand, and we say it with pain, precisely that class—we speak not so much as to the amount given, but as to the members—who are the tardiest in coming forward to support the dignity of their calling by the expression of their sympathy for one who has done so much for them.

—— We have received from Mr. W. DEAN, of Shipley, some blooms of a charming new DIPLADENIA, raised between D. splendens and D. amabilis. The flowers, apparently somewhat shrunk when they reached us, were fully 4 inches in diameter, and of a charmingly delicate rose pink, deeper in the throat and towards the edges, and becoming paler towards the centre of the lobes. The leaves are oblong acuminate, and downy on both surfaces, but of a deep glossy green above, with a somewhat rugose appearance from the numerous depressed veins. It is the result of a cross between D. splendens and D. amabilis, the flower partaking of the splendens type, but having more colour in it, while the foliage shows a decided cross between the two. We are informed that the plant is a much freer bloomer than even D. amabilis, itself the freest amongst the Dipladenias already known. The pleasant delicate colour of this valuable novelty suggests for it the name of *Dipladenia amœna*.

New Plants.

PASSIFLORA (Sect. ASTROPHEA) GLAUCA.
Humboldt and *Bonpland*.

Arbor excelsa, Magnoliæ tripetalæ habitu cortice lævi, ex viridi cinereo; rami alterni, teretes, patentissimi; folia indivisa, magna, tenuissima, supra viridia, costa media inferne glandulosa, glandulis plurimis solitariis in venarum axillis inferioribus; petiolus vix uncialis interne sulcatus. Stipulæ duæ lineares ad basim singuli petioli oppositæ. Flores pauci, albi, suaveolentes, pedunculati, pedunculo dichotomo foliis multoties breviores bracteolato. Calyx inferne ovatus, limbo patente decemfido, laciniis omnibus oblongis, sub-æqualibus, petaloideis; corona (nectarium, Linn.) triplex multipartita; exterior major radiata, filamentis primo teretibus postea ad falcis modum arcuatis, ibique flavis compositæ; alteræ duæ interiores brevissimæ, lamellis crassiusculis. Stamina, pistillum et fructus ut in reliquis speciebus hujusce generis, Cyrrhus nullus. *H. et B., Plantæ Æquinoctiales*, tab. 22.

Tree Passion-flowers, with erect, rigid stems, and no tendrils, seem at first sight somewhat paradoxical, nevertheless the difference is merely in habit, so that the name Astrophea, once proposed as a generic designation, is now made use of to indicate a section only—a section containing but two or three species. The species whose technical description is above given, is a tree varying in height from 3 or 4, to 20 feet and upwards, having much the appearance of Magnolia tripetala. The leaves are obovate oblong, acute, entire arcuately venose, smooth, light green above, glaucous or whitish on the under surface, varying considerably in size, in some cases attaining to a length of no less than 2 feet. Two or more glands are often to be seen near the base of the leaf on the under side along the sides of the midrib; but in number they are variable, and sometimes they are entirely wanting. The leaf-stalks are from 1 to 2 inches long, cylindrical, compressed, very slightly channelled on the upper surface. The stipules are small, linear, and deciduous. The flowers, of which we have seen only dried specimens, are white, disposed in axillary clusters. The perianth forms a tube below, somewhat after the fashion of a Tacsonia, and is divided above into ten equal oblong-obtuse spreading divisions, five of which are external to the other five. The corona is in three rows, the outer series of numerous, somewhat club-shaped, three-sided or three-winged segments, white below, yellow above, and about half the length of the segments of the perianth, or a little longer; the other two series are much shorter, cylindrical and filiform. The stamens are coherent below; the anthers are oval. The ovary is ovoid, glabrous, surmounted by three thick styles, terminated by large, flat, undulate stigmas. The fruit is a berry, 1 to 2 inches in length, coriaceous in texture, and brownish yellow in colour in the dry state. The tree is a native of the mountainous districts of New Granada and neighbouring regions, extending to a height of 2000 metres (over 6000 feet) above the sea, and is therefore likely to succeed in a cool greenhouse in this country.

Our description of the Passion-flower has been drawn up from a comparison of living specimens now in the hands of Mr. Bull, King's Road, Chelsea, and brought over to this country by Mr. Cross, with several dried specimens in the Kew Herbarium, and specially with some furnished by that indefatigable traveller, Spruce. That gentleman, in a note to his No. 6144, considers the plant in question to be distinct from P. glauca in the absence of glands, but the glands evidently furnish no reliable mark of distinction, inasmuch as even on Spruce's own specimens some leaves have two glands, while others have none. Mr. Spruce seems to have given his plant the provisional name of P. macrophylla, but from an examination of the numerous specimens in the Herbarium, we believe that Humboldt and Bonpland's name has precedence. Mr. Cross describes it as growing in tropical situations exposed to the sun, but mostly in damp, shady forests. He describes the plant as bearing beautifully smooth dark green leaves, from 2 to 3 feet in length, and which assume a drooping or weeping habit, so that at a short distance the plant looks almost exactly like a green umbrella stuck in the ground. Some of the plants were only a foot high, although in the damp forest some plants are occasionally seen "drawn up" to a height of 10 or 12 feet. The flowers are similar to those of a Passiflora, but rather larger, the filamentous portion is white, the centre orange. The fruit, continues Mr. Cross, is oval, about the size of a pigeon's egg, of a very pale yellow colour, but covered from its earliest stage with a beautiful glaucous bloom.

The discrepancies in the measurements given by various authors are slight and immaterial, and are readily accounted for by the differences of locality and elevation in which the plant grows. It forms a welcome addition to our garden flora, not only from its singularity amongst others of its race, but for its fine glaucous foliage. *M. T. M.*

SIR WILLIAM THOMSON ON PLANT PROTECTORS.

DEW, clouds, and winds, according to the observations of Sir William at the British Association at Dundee (see p. 998) are the three great conservators of plant life. Withhold any or all of these, and plants must be injured, perhaps destroyed, by cold. In reference to clouds, this may be accepted without dispute. One of their most important secondary functions is to check and arrest the passage of terrestrial heat and return it again to the earth; without these, both vegetable and animal life would be in danger of being alternately roasted alive, and frozen through. Clouds come in to mediate between heat and cold, and spread abroad their thick curtains to shield all life from the extremes of either. They are endowed with power enough to break the strongest sunbeam, and are woven fine enough to arrest and bend back upon its source the most subtile ray of obscure heat that darts stealthily and speedily away from the earth. No beam is powerful enough to pierce through their thick, although apparently flimsy substance, none are so subtile as to steal through. Each side of every cloud becomes not only a heat breaker but a heat reflector, and the temperature of day and night, and the climate of our world, are largely controlled by this compound action of both their sides. In summer they moderate the heat of the sun—in winter they husband the warmth of the earth. Thus observation and experience abundantly confirm the assertions of science, when it claims protective functions for the overshadowing ministry of the clouds. But the same concurrent testimony is not so emphatic in reference to wind. It is indeed doubtful whether experience will sanction wind being accepted as a protective agency at all. Objection might possibly be made at the outset to the acceptance of wind as a separate entity. It certainly is not so in the sense in which clouds and dew are such. Both of these may be affirmed to be water in abnormal conditions; whereas wind is simply unchanged air in motion. Plants are also said to be exposed to, rather than protected by, the wind. It expends its force apparently to destroy, not to preserve, them. But it is evident that Sir William Thomson is not adverting to the mechanical force, but to the mixing and warming power of the wind. Before accepting wind as a protective agent, we must inquire into its character and state. It may be either warmer or colder than the plant; in the former case it would protect, in the latter expose it. Warm wind warms, cold wind chills plants, and the idea that mere motion alone, or wind, without reference to the temperature of the air around, will protect plants from the inroads of cold, cannot be sustained by experience. It may, doubtless does, check the energy of radiation by rapidly changing the relation of the molecules of the air in relation to each other, but a plant may be blasted and frozen by a sweeping onslaught of arctic wind, as well as by the powerful radiation of a still, clear air. Hence, in biting March weather, tender fruits on walls often suffer more from the rude sweep of the blast, than from calm night frosts. Instead of these being any protection, they become the most formidable foe of the cultivator, and it needs all his wisdom to protect plants from their chilling, blighting, killing force.

Taking a sweep wide as the universe, the man of science may be right. Winds, like clouds, wage war with the extremes of either heat or cold. They blow on for ever towards an impracticable uniformity of temperature; but on the limited scale with which gardeners have to deal with winds in this country, they cannot be safely received as protective agencies, as they blow with equal impartiality and apparent good will, either hot or cold upon plants—at one moment a warm breeze, fanning them into new life; the next, a cold one, freezing their life blood into the coldness of death.

The next protective agent adverted to by Sir William is dew. It is important to note the grounds upon which he claims it as such. After alluding to the circumstances most favourable to the production of dew, Sir William proceeds to say "that the office of each blade of Grass, when there are no clouds and no wind, is to collect the air touching it, condense vapour from that air, and so take heat from part of the heat around it. Thus we have a source of heat taken from the air several feet above its surface." This does not seem quite in accordance with experience. Objection might also be taken to the mode of illustrating the phenomena of dew. The Grass, for instance, is not an active but a passive agent in securing its deposition. Its energy as a radiant being in excess of that of the air, it becomes actually colder than the surrounding atmosphere. As the air impinges on its surface, it is lowered to the temperature of the Grass, and hence the liberation and deposition of the vapour in the form of dew. The cooled air could carry it no further, and left its burden perforce on the spot that robbed it of its heat—its water-carrying power. But the amount of heat absorbed by the plant during the transformation of the vapour into water must be infinitely small, and its stay with the plant of briefest duration; else the first covering of dew would be the last, which is far from being the case. The process and conditions just described must be repeated at every fresh deposit, and it seems a misapplication of terms to call that agent a protection (against cold), while the condition of its presence from first to last is that the plant so protected shall be colder than the surrounding air. As for the source of heat, taken from several feet above the surface, it is such that the energy of radiation is greatest and the deposition of dew most copious within a few inches of the surface, while the temperature of the air at from 2 to 9 feet above the ground ranges from 5° to 10° higher than it does at those points where the protective force of the dew is most felt.

Sir William proceeds: "It was sometimes remarked that flowers were frosted in hollows, but that close at hand, and on the summit of little hillocks, they escaped damage." There can be no doubt of the truth of this. The valuable returns of the fruit crops recently given in the *Gardeners' Chronicle*, would, if analysed in relation to the altitude of the places reported on, abundantly confirm this. Perhaps it has never received a more trying illustration than during the persistent frosts of last May. The fact itself being accepted, let us carefully note Sir William's elucidation of its cause. "The explanation was clear when they took into account the principles developed by Wells. The air in the hollows remained unchanged, and unless there was moisture enough to provide dew as long as the severe condition of weather lasted, and to keep the dew point from going down too low, injurious effects would follow. The plants, in short, got dry, drying the air around them, and if that air was not changed very much for the better, then they were destroyed by frost. This, however, rarely happened." Two questions arise here: 1st, Is this explanation intelligible? and 2dly, Is it in accordance with observed facts and general experience? I regret to answer the first question in the negative. The explanation refers us to the principles developed by Wells. But the case required clearly substantiated facts. I find no facts in Wells' Essay that will bear out the sentences about the air in hollows, &c. Wells, at p. 53 of the latest edition of his Essay, refers indeed to the formation of dew as a means of increasing warmth. But he alludes to the fact that heat is liberated by the precipitation of water; not that it can be husbanded by the protecting force of the water itself suspended in the air. According to Dr. Wells, the heavier the dew, the warmer the atmosphere, in consequence of the reduction of its aqueous vapour to the state of water. Sir William appears to assert that the more vapour in the air, the warmer it will be, and the more efficient as a protection to plants. It is obvious that both authorities cannot be right, and just possible that neither of them are. But what I complain of here is that a scientific writer should make vague appeals to the developed principles of Wells in support of a theory of which Wells never dreamed, and which many parts of his work appear to practical men flatly to contradict.

Sir W. Thomson's "change for the better," for plants in hollows in danger of losing their life from frost, is a thicker envelope of a water-charged atmosphere. Dr. Wells' protecting heat comes from drawing down this water out of the air, and condensing it into dew upon the leaves of plants. If I have misunderstood either writer, I invite correction and discussion. Fuller information is much needed on this subject. This leads me to inquire if either of the above explanations are in accordance with observed facts, and recorded experience. Sir William Thomson concluded his remarks by stating that this — that is, I presume, the destruction of plants in hollows by frosts—rarely happens. On the contrary, it constantly and invariably happens. The fact is, on Sir William's—or, rather, Tyndall's theory, it ought not to happen. But it does so all the same, and therefore practical men, who are keenly alive to and constantly suffering from these powerful facts, cannot accept theories, however brilliant, until they are made to fit in with the facts. Professors may make mistakes in their experiments, but there can be no mistake as to the facts, when the cruel monster death sweeps along every plant-filled hollow with his keen-bladed scythe, leaving on his ruined tracks a whole army of prostrate victims; while on every raised hillock on either side, the plants defy his power, and escape his death-freighted stroke. These facts must be explained before we accept or believe in the gentle ministrations of dew as a protection from frost. As a single matter of demonstrated truth, it exercises no such functions in sufficient force to ensure the safety of plants. Wherever it falls thickest, the frost exerts its most destructive energy. Most dew is necessarily deposited where and when the air is most heavily laden with aqueous vapour. More of this vapour is found in valleys than on hills or knolls. On the latter plants escape, while in the former they are

destroyed; consequently neither the vapour nor the dew protects them from death, and we are justified in inferring that the greater dryness of the air over the elevated spots ensures the safety of the plants in these positions. This much at least may be said to be proved, that neither the aqueous vapour of the atmosphere, nor the same vapour condensed into water, nor the heat liberated during the transformation of the one into the other, saves plants from destruction when all three are present in full volume, and most active force; whereas when all these are reduced to a minimum volume or activity plants escape. (See my articles on moist and dry air, with editorial comments, in the *Gardeners' Chronicle* of March 23d and 30th of this year.)

I still believe that the true explanation of the destructive energy of ground frost in valleys is not to be found in the absorbent or interceptive power of aqueous vapour for or against the power of radiant heat, but to the extraordinary energy of water in all its states as a radiant. My remedy for it is, not more dew, but less water, and in this I believe I am sustained by every experienced gardener. If we are wrong, we invite scientific men to set us right; but they must begin by grappling with, and end by mastering, our facts; no other course can, or ought to, change our convictions. *D. T. Fish, F.R.H.S.*

AUTUMN PRUNING THE VINE.

The pruning and management of the Vine opens up an interesting field for discussion, and while perusing the excellent remarks at p. 1021, I was forcibly reminded of an article on the subject that appeared in the first number of "Loudon's Gardeners' Magazine," 42 years ago. It was communicated by Mr. Richard Anthony Salisbury, well-known at that time as an eminent botanist and ardent promoter of horticulture; indeed, he was one of the founders of the Horticultural Society, and in 1809, on obtaining its charter of incorporation, he was appointed honorary secretary, and for several years took an active part in the management of its affairs. As many readers of the *Gardeners' Chronicle* may not have seen the article above referred to, which relates to the season for pruning the Vine out-of-doors, I subjoin the following extracts from it for their information:—

"A very large brick building (at Chapel Allerton, in Yorkshire) was covered entirely with a single Vine of the Miller's Grape, and as it was ornamental to the building, it was pruned and trained yearly, at no trifling expense, though it very seldom ripened 20 bunches out of from 1000 to 2000, which it annually bore.

"A Scots nobleman, who often visited the place, one autumn made the following remark:—'When I was a young lad I remember eating ripe Grapes from a Vine in the open air near Stirling Castle, which was brought to ripen half its crop in most summers, and a whole crop in warm summers, by the following treatment. On the 20th of September prune the Vine as you would in the month of December, taking off all the leaves and Grapes, ripe or unripe, and shortening all the branches to one, two, or three eyes at most. The following spring it will push its buds a few days before any neighbouring Vines pruned in winter. Train it carefully all summer as if you were certain it would ripen its crop of fruit. Pursue the same system annually, pruning the tree always between the 20th and 30th of September, and in the course of seven years you will be rewarded for your patience and expense, with half a ripe crop in most summers, and a whole ripe crop in warm summers.' This mode of treatment was immediately begun in his lordship's presence, and in five years afterwards some excellent wine was made from the Grapes."

To any person who wishes to pursue this mode of hastening the maturity of Grapes, north of Stamford, in Lincolnshire, Mr. Salisbury recommends the cultivation of the Miller's or Burgundy Grape exclusively; as he has found it unaffected by smart frost, when the shoots of the Muscadine and Sweetwater were injured, and this he considers to be owing to the very thick wool on the young shoots.

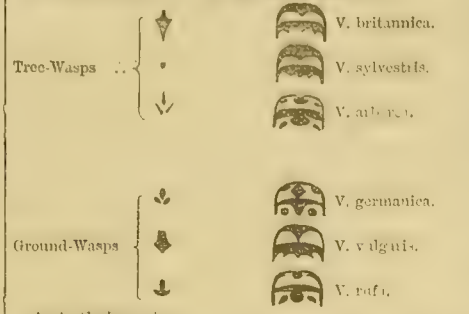
I never heard of any one treating the Vine in the manner described by the "Scots nobleman." I rather think the latter was considered to be a myth, and that the communication was based on a statement in Dr. Hales' "Vegetable Staticks" (Vol. I., p. 373), where it is mentioned that, "Mr. Parker, a curious gentleman, of Chelsea, has found that by pruning his Vines, and pulling all the leaves from them in September, as soon as the fruit was off, they have borne greater plenty of Grapes than other Vines."

On this subject there will, doubtlesss, be various opinions; but I think the majority of readers will highly appreciate the excellent practical details which have been so well stated in your leading article of October 5. For my own part I consider the fittest time for pruning the Vine to be, as soon as circumstances may permit, after the crop has been fully matured, and the young wood thoroughly ripened. The leaves will then have performed their office, and no appreciable injury will be occasioned by their removal. The end of September, or early in October, is preferable to a later period of the autumn or winter for performing the operation, and the effect will be a more vigorous growth the following season. This probably explains in some measure the cause of the very remarkable influence which early and late pruning are stated to exercise on the colouring of the fruit. *B.*

WASPS.

You published, some little time ago, a letter requesting some of your readers to assist me in procuring a specimen of the nest of Vespa arborea. That letter has brought me some kind communications on the subject, but not the nest, which I am still in search of. As the subject has attracted the attention of some of your readers, perhaps you will allow me a little space to explain more clearly what I, with every other naturalist who studies wasps, really do want.

There are seven species of British social wasps, including the hornet. Three of these are tree wasps, distinguished by having the scape of the antennæ yellow in front, in both the sexes. Three are ground wasps, in which the scape of the antennæ is yellow in front in the male only. The species are readily distinguished by the forms of the markings on the face, and on the dorsal aspect of the first two rings of the abdomen, as shown in the following diagram:—



As to their nests:—

1. *V. germanica*, the large common wasp, builds in the ground; the case of her nest is made in shelly patches, and is of a grey and white colour.

2. *V. vulgaris*, the small common wasp, also builds in the ground; her nest being formed likewise in shelly patches, but of a pretty fawn colour, and of a very brittle nature.

3. *V. rufa* is an earlier wasp than the others; her nest is of a dull grey, and is built in rings, not in patches. The name of "anchor-faced wasp" has been unfortunately applied to this, as well as to the preceding species.

Of the tree wasps:—

1. *V. sylvestris* builds in the ground, or under eaves, or anywhere; her nest is formed in layers. Every bee-keeper has a word for, or against, her. She is the owner of the very pretty bell-nests, which have gained for her the name of Vespa campanaria.

2. *V. britannica*, *norwegica*, or *borealis*, builds also in layers, which are less regular than those of the preceding species, and generally prefers low bushes.

3. *V. arborea*—is the blank I wish to fill up. This wasp is found in Gloucestershire and in Savoy. It was first discovered by Mr. F. Smith, of the British Museum, among some Firs, on a ridge about four miles north of Wakefield, in Yorkshire. The promise of a reward for a nest of this species, circulated in that neighbourhood, has as yet failed to procure me a specimen to engrave for a work on wasps which I hope shortly to have the pleasure of publishing. If this note shall prove the means of enabling me to complete my series of drawings, I shall feel thankful. *Edward L. Ormerod, M.D., Brighton.*

NOTES ON THE ART OF GROWING ROSES OUT-OF-DOORS.

(*Continued from p.* 973.)

Section VII. *On Planting Dwarf Roses worked on the Manetti.*—Dwarf Roses on the Manetti stock should have the junction of the stock and scion buried to the depth of at least an inch. If the stem of the plant is long, so that this cannot be done in the usual way, it is a good plan to lay the plant in sideways, so that the object sought is obtained without burying the roots too deeply. Dwarf plants in pots may be turned out into the open border at any time during the summer. By this means they become established, and make some growth before the winter sets in.

Section VIII. *On the Treatment of the Plants during the Winter and Early Spring.*—Perpetual Roses require no attention during the winter. Tea Roses require to be protected from severe frosts, or they will be killed. It is not that the temperature of the air itself is often low enough to destroy the plant, but by radiating away its heat against a clear winter sky it becomes cooled many degrees lower than the air. Our aim, then, is to prevent this radiation, and the slightest covering to intercept it is sufficient. A piece of matting will act in this way, though it can have no effect in keeping the air on one side of it warmer than on the other.

In budding it is best to place the bud at the side of the branch and not on the upper part, because in the latter case it would radiate towards the sky, and become much more cooled than when it radiates laterally against terrestrial objects.

To protect your Teas, then, tie the branches together into a compact head; then tie some fern leaves, or fir branches, or gorse, or whatever similar material you have at hand, so as to conceal the branches from sight; when that is accomplished they are safe. Less than five minutes suffices to protect a plant thus. It is for want of this precaution that so few gardens contain Tea Roses. Dwarf plants may have a few branches of fir or gorse stuck into the ground, so as to shade them, and some long manure placed over their roots. Noisette Roses require to be treated as Teas. If against a wall, they should be covered with matting.

Dormant buds of tender Roses are much less liable to suffer from frost than full-grown plants. Hence it is a wise plan to bud a few plants of all choice tender sorts year by year. It is also a good precaution in this case not to cut back the wild growth of the stocks until the spring, because it has a beneficial effect in protecting the inserted buds. Buds encouraged to run out during the summer are peculiarly liable to be killed by frost.

In February or March the Rose borders should be forked over, but not sufficiently deeply to disturb the roots. Afterwards such plants as have not been freshly set in well manured beds, should have a good soaking with liquid manure.

Section IX. *On Pruning.*—The best time for pruning Roses is the early spring. About the middle of March suits well for the Perpetuals, and the latter part of that month for Tea Roses and Noisettes. You must however be somewhat guided by the forwardness of the season and the weather.

Perpetual Roses are best pruned close, leaving an inch or two inches of last year's wood. Those which grow strongly should not be cut quite so close as the weaker growers. Take care to have the last eye in a position where the future branch will be well placed for the general symmetry of the tree; and do not leave the head of the plant too crowded. Dwarfs on the Manetti should not be pruned so closely as standards. The Tea Roses should be uncovered as soon as danger of frost is over, and, when pruned, should not be cut quite so closely as the Perpetuals.

Noisettes, like all climbing Roses, require a few of the shoots of last year left nearly of their full length, and distributed evenly upon the wall, and all the rest cut out. They will throw out side branches from these, and bear their blossoms upon them.* The principles which guide you in pruning Roses for the wall are equally applicable to pillar Roses.

Section X. *On Budding the Briar.*—It is not necessary to say much upon the mode of budding, as it is described in every treatise on gardening, and requires figures to illustrate it. The best way is to see it done once or twice. But much depends upon a few niceties in the operation.

First, of the time of budding Roses:—It may be done from the end of May to the end of September; but the best months are July, August, and the beginning of September. It will be found that about the middle of the summer the shoots of the Briar cease to grow, and the bark refuses to rise. Then, after a shower, they start into growth again. That is the best time of all for budding.

If the buds are inserted early in the summer, the branches are apt to break off where the cross-cut has been made. It will, therefore, be necessary after budding to support the branch with a stake, or by tying it to a neighbouring stock. If the extreme end is pinched off it will also prevent its becoming unduly heavy.

When budding provide yourself with an old kid glove for the right hand, cut the tips off the first and second fingers. It will give you confidence. Obtain some "budding cotton;" it is a very thick, soft, darning cotton, and much better than bast or worsted. Cut the skein into quarters, and wrap it up in a thread paper. Take a cutting off the Rose you wish to propagate, cut off all the leaves, so that only a portion of the foot-stalk of each, free from thorns, is left. Select a bud which is slightly prominent, but has not begun to be developed, cut it out with a scooping action of a sharp budding knife, so that the bud is near the base of the shield of bark which you have separated, which should be in all not much over half an inch long; remove the wood from the bark with the thumb nail and the knife, or with the nail alone.

The shield of bark containing the bud being thus prepared, place it between your lips. Next select a shoot near the top of the stock, and make a cross cut extending about half-way round the shoot, and about three quarters of an inch distant from the stem. A longitudinal cut must next be made below this, extending about half an inch towards the stem. These cuts should reach just through the bark, and should be made on the side, not on the upper part, of the shoot.

Raise the corners of the bark and slip in the bud. Push it home, and cut off the bark to fit the cross cut. Bind it in firmly with a piece of cotton, making its turns touch one another. The bud itself must not be covered by it. If the weather is hot and dry, a Cabbage-leaf put on the top of the stock, to shade it for a few days, is a wise precaution.

Thus insert two or three buds into your stock, on contiguous branches. Affix a label, with the name of the sort and the date of budding, and remove the bandage in three weeks time.

When the shoot from which you have to take your buds is very small, say for example not larger than a thick darning needle, it is best not to attempt to remove the wood from out the shield. Slice the shield off thin, and insert it just as it is. Often you cannot get buds of Tea Roses in any other condition.

The same plan is preferable with the buds which grow near the tip of a branch, where the wood is still unripe.

BRITISH ASSOCIATION.

(*Continued from p.* 1048.)

Among the papers read in Section D (Biology) was the following, on *The Relations of Lichen Growth to the Health and Value of Trees and their Products*, by Dr. Lauder Lindsay. There is, it would appear, a radical difference of opinion between lichenologists on the one hand, and arboriculturists on the other, as to the effect on the value of the timber and bark of the trees on which it occurs, of Lichen growth. Lichenologists have been in the habit of describing Lichens as deriving their nourishment wholly from the air, as non-parasitic, and as making use of trees simply as bases of support. Some, especially of the earlier, writers not only deny any possible harm, but demonstrate a considerable amount of actual good, in so far as

* The Banksian Rose requires a peculiar treatment. It blossoms on the small spray formed during the second year's growth of the branch, and unless a sufficiency of this be left on the tree, not a blossom will be seen.

Lichens attract moisture to the trees on which they occur, and thus assist in their nourishment and growth. All "practical men," on the other hand—all those who are concerned with the cultivation of timber, bark, or fruit trees—without theorising on the subject, are unanimous in describing Lichens as detrimental to growth, and as depreciative of value. Mr. Anderson, of the Kinnoul Nurseries, Perth, states that trees or shrubs coated with Lichens are "immediately discarded as unsaleable;" while Mr. Bell, factor on the Kinfauns estate, gives a similar assurance as to the diminshed value of Oak-bark when infested by Lichens. Mr. Gorrie, one of the most experienced and discriminating arboriculturists in Scotland, Mr. Moore, of the Sydney Botanic Gardens, New South Wales, and other practical authorities, whose opinions carry great weight on such a question, have borne similar testimony. My inference from this testimony is that they regard Lichens as true parasites, living, in great measure at least, at the expense of the bark on which they occur—interfering with its healthy action and growth. While regarding Lichen-growth, however, as, in a certain sense, or in some measure, a cause of unhealthiness or disease in the trees which it affects, they also admit that, in a certain other sense, it is a result of unhealthiness or disease. The evidence appears uniform that Lichen-growth should never occur in forests or nurseries which are the subject of proper care, where the trees or shrubs are properly thinned, where the condition of healthy growths are sedulously provided. Not only so, but I am assured that the disease of Lichen-growth, when it occurs, can be removed or dissipated by removal of the tree which it affects to more favourable conditions of development. Mr. Moore, of Sydney, tells me he has seen Lichen-growth disappear from a tree simply by transferring the latter to a richer soil or more favourable locality, or by supplying it with proper manure.

It is inconceivable that there should be such unanimity of opinion among arboriculturists, devoid of bias or theory, and expressing only the results of repeated observation in very different quarters of the world, without the existence of some good ground for their assertions. My impression is that arboriculturists are right to a greater extent than are the lichenologists, and that Lichens must be regarded as, in some measure at least, parasitic, drawing the constituents of their thallus from the objects on which they grow. I pointed out in 1856, in my preliminary work on "British Lichens" (p. 50), that the filamentous Lichens belonging to such genera as Usnea, Ramalina, Evernia, and Parmelia, which coat with shaggy, flowing masses Oak, Fir, and other trees, and whose growth is the main subject of dispute between lichenologists and arboriculturists, contain such bases as silica and alumina, lime, potash, and soda, magnesia, manganese, and iron, in combination or not with carbonic, sulphuric, hydrochloric, phosphoric, or other acids, The most of these inorganic constituents could not have been derived from the atmosphere; and, indeed, we are forced to the conclusion that, as in the case of higher plants, they are derived from the surfaces of substances on which the Lichens containing them grow. This conclusion is further supported by the recorded facts that chemists have detected iron in greatest amount in species affecting ferruginous soils, and silica in those growing on quartzose rocks or their *débris*. I am not, however, prepared to contribute any new facts towards the settlement of this interesting question, or of the other equally interesting, but less practical and economically important, questions which naturally suggest themselves for consideration in connection therewith. My purpose is rather to call attention to the paucity and unsatisfactory character of the facts or opinions that have hitherto been been recorded, and to invite the record of facts, as contradistinguished from mere opinions, bearing upon the following points more especially:—1. What are the precise grounds on which the assertion is founded that Lichen growth is detrimental to timber and other trees? 2. In what way does such growth injuriously affect the timber, bark, fruit, or foliage of such trees? 3. How far is Lichen growth a cause of unhealthy or diseased development in the trees on which it occurs? 4. How far is it a result of such development? 5. To what extent do Lichens draw their constituents, organic and inorganic, from the atmosphere? 6. To what extent from their bases of support—the bodies on which they grow?

LETTERS FROM PARIS.—No. XXIV.

THE GREAT FRUIT SHOW.

As you have already published at some length an account of the display of fruits at the Pomological Congress (see p. 1046) it will not be necessary on this occasion to enter into great detail as to the kinds of fruits now on view at the exhibition. Suffice it to say that the collection, comprising as it does the fruit shown at the Congress, is an exceedingly large one. The houses and covered way devoted to fruit throughout the season are now at last, as full as they can hold, while others of greater size are equally occupied. Thus the showily decorated pavilion in the centre of the garden has been cleared, furnished with benches, and now contains about 500 feet run of bench, accommodating six rows of Pears and Apples as thickly placed as they can stand; and sometimes, in addition, heavy baskets of magnificent Pears arranged along at the back. Here are placed the large collections of Baltet of Troyes, and Croux of Sceaux, large fruit-tree supplying nurserymen, as well as of several Horticultural Societies, the whole being well arranged, each kind neatly named by having a small label pasted on it. In many cases, however, the names of the exhibitors are not given. To describe individual fruits or dishes of fruit would merely be to give a string of adjectives filling many columns, for not a few of the exhibitors show several hundred kinds of Pears, and the marvel is that, with few exceptions, they are of superb quality. It is not only the extent but the character of the display that astonishes the English visitor, as house after house and stage after stage of fruit, is seen. Even in the pavilion there is enough of fruit to make a fine show, and the same applies to the Palm-house, where M. André Leroy, of Angers, occupies nearly a fourth of the space with many hundred varieties of Pears and Apples in fine condition. Jamin and Durand, Cochet, Deseine, and most of the great fruit-growing nurserymen, exhibit enormous collections. It is not only by the size of the very large kinds, like Uvedale's St. Germain, that we are surprised—imported specimens of these have often been seen as large at London fruit shows—but by the generally increased size, and greater depth and beauty of colour, of the smaller and medium-sized varieties. This Pear question is in a curious state at present, some contending that it is the climate of France which gives the French superiority in hardy fruits; others, like the "London Market Gardener" in the *Times*, that French Pears are "coarse, granular, and insipid!" One contends that it is the heat of the sun that makes French Pears "hard"; another, that it is the same heat that gives them their superiority. I can state from experience that the flavour of French Pears is in every way equal to their appearance, and that it is absurd to endeavour to prove that our climate is better suited for the culture of this magnificent fruit. If, according to some, we have the finest climate for the Pear, how is it that we do not grow it as cheaply and well as the French? How is it that Covent Garden is obliged to buy so largely from them? How is it that really good Pears are only obtainable by the wealthier classes in London? The truth is, that we are as far behind the French in the culture of the Pear, as we are before them in that of the Pelargonium and greenhouse or stove plants; we have already learnt much from them, and have much more to learn. Their climate I believe to be finer for the fruit than ours, but that fact is simply a reason why we should pay the more attention to the wants of the trees. To suppose that because the climate here is better, the French may leave the trees "to Nature" more than we do, or take less trouble with them, would be a great mistake, and one likely enough to be incurred by persons who have not visited this country. The French attend much more to their trees in every way than we do. Their most usual mode of training is the pyramidal form, which we have adopted from them so extensively. They use the Quince as a stock to a considerable extent, but they are aware that though very valuable upon humid soils, it is worthless upon vast areas exactly suited to the wants of the Pear grown on the Pear stock. It is certainly an inestimable boon to have a choice of stocks, which we may adapt to the two different sets of circumstances; but it strikes me that the advantage is more for the private or amateur grower than the fruit-buying public. For it, we ought I think, to have more "special culture," and in the case of the Pear cultivate it to a large extent on the Pear stock in soils suited to its wants; and there are many thousand acres now devoted to less lucrative crops that would suit it to a nicety. What I mean will be best understood by a reference to the Peaches at Montreuil. There by growing very extensively, and paying special attention to the Peach, they are enabled to supply good Peaches to every restaurant in Paris; and I am certain that a similar system adopted in England would make good fruit familiar to the middle and working classes in our large towns, and render us less dependent on the Continent than we are at present. I may here state that the variety of cordon forms, and many fancy methods of training, are not in general favour with the good French fruit grower. They have been so much advocated by some writers in England, that I came here with the impression that they were everywhere to be seen: no such thing. The only cordon that I have seen give a really good result is the simple horizontal before alluded to by me. This simple horizontal cordon might be adopted in both large and small English, Irish, and Scotch gardens with the best results. It is, I think, very much more certain of success and of giving satisfaction than the small bush Apples on the same stock—the Paradise. The Pear is grown also as a horizontal cordon, and I have seen it fertile in that way; but recent visits to French fruit gardens have convinced me that the Pear as a simple cordon is not to be recommended. On the other hand, what I have said of the horizontal cordon is confirmed. A border covered with lines of these, rather close together, will eventually prove a most useful feature in the good English fruit garden, no matter what our present opinion about the matter may be. With the Pear as a pyramid, (on the Quince in small gardens, and, where the soil and climate are suitable, on the Pear stock for general cultivation,) and with simple useful forms on walls, like those under Mr. Powell's care in the Royal gardens at Frogmore (where by the way the Quince is in no favour), we might, generally speaking, be pretty safe for crops of good garden fruit. For the supply of the people who now usually get their fruit bad and dear, an improved system of orcharding, and increased facilities of carriage is the great want. To "plant orchards" of cordons with the hope of benefiting anybody but the nurserymen who sell them, would be absurdity itself. The simple, and so to speak, natural forms that take care of themselves to a great extent, are the ones best suited both for England and France.

To return to the exhibition: the Apples, though not nearly so numerous as regards the number of varieties as the Pears, are wonderfully fine and handsome—many of the very best having been gathered from the horizontal cordon that I advocate. Altogether five structures are devoted to the exhibition of Pears and Apples alone, and some miscellaneous matters which I have no space to mention. The long covered way devoted to Roses, vegetables, and fruits all the season, is now nearly filled with Grapes, mostly those kinds grown for wine, and in which we have little or no interest. The cultivation of the Vine indoors is not at all understood by the French gardener. By far the best Grapes in the Exposition are shown by Mr. Knight, of Pontchartrain, who displays in fine condition many of the best known English kinds, and with them splendid specimens of the Chasselas Napoléon—a Grape noble in bunch and berry, which ought to be procured and grown by all good Grape growers in England. A rod of the Vine is shown, thickly suspending its beautiful well-shaped bunches, and equally disposed clear yellow, oval berries, as big as those of a Muscat. There are not many Pines shown, but of these some are very good, though not better, if so good, as the fine ones which may be often seen in the window of the great purveyor of fish, fruit, &c., in the Palais Royal. It is too late for French Peaches to be shown in good condition, though one or two large dishes of fine fruit were sent by growers from Montreuil. I have before spoken of two handsome specimens of perfectly trained Peach trees in the garden; but during the past few weeks another specimen has been added, which deserves mention here. It is the finest and most perfectly trained Peach tree I have ever seen, perfectly furnished with capital, well ripened wood, and in all respects perfect. To show this tree the exhibitor has had to sacrifice it—the branches of one side being cut off near their union with the stem to save space in conveyance, and placed again in position when the tree was placed in the garden, the other and exactly corresponding side being left intact. The branches of this start from the erect stem in an exactly opposite manner, and after running their allotted distance, horizontally, ascend straight to the top of the wall, each upper branch shortening or course. The lower and all-enclosing line of branches is about 60 feet long, the tree 12 feet high, and a model in every respect. Its peculiarity, as compared with our best specimens, is that the wood is as good, as fertile, and as strong at the base of the long branches as at the top, indeed stronger. It seemed better and thicker the nearer it grew to the base of the branch, the thick central stem being clothed with young shoots to its very base, so that the tree was a masterpiece. This tree is 11 years of age, and has for about four years been at about its present size.

This may be the proper place to mention that I have lately seen a method of training Pears, which is very simple, and I think, well worthy of extensive use. It consists merely of trees with an erect central stem, giving off two pairs of branches oppositely; these branches ascend obliquely, and the trees being planted rather close, the branches cross and support each other. They are in fact self-supporting espaliers, the branches being tied together with willow twigs. This thing I have seen in good working order, and believe it to be worth a dozen of the simple cordon system for Pears, because the tree is allowed something more than a chance for a contorted development, and there is no expense for supports; the ugly appearance too often presented by the rough supports frequently used for such is also prevented. They will form capital things for running along the backs of borders, &c., and may be employed in many ways. I may add, that there are many exhibitions of hardy fruit about here now. The display six days every week in the central market is enormous, and very fine. Great quantities of fine though not selected fruit are sent in small shallow baskets, which merely afford a base on which to pile up a lot of about 25 large fruits. They are then covered with long straw, and tied snugly and safely with twine over it, just in the way the French pack their oysters. This may seem a trifling point, but it is a really important one; for everything which facilitates the cheap and quick transit of fruit, or even of the empty baskets which have conveyed fruit, is a gain to the fruit-buying public. Being very shallow and of an oval shape these baskets may be sent back, if desired, in very small space, and cost a mere trifle in the beginning. Twenty-five good Pears in these may be bought for from 2 francs to 2½ francs. Of course there are many other ways of sending, and many other prices for selling, the choicest fruit; but I merely mention this because it seems a convenient way for the middle and working classes of fruit-buyers in towns. *W. R.*

HARDY ORNAMENTAL TREES,—No. VIII.

BERRY-BEARING TREES, ETC.

BERRY-BEARING trees are so beautiful in autumn and winter that one would expect to find them more extensively planted than is customary. The Pyrus Aucuparia (Mountain Ash) is perhaps one of the most attractive of these, but there are many others equally interesting to the close observer. First of the Evergreen kinds.

Arbutus Unedo (the common Arbutus).—Height 15 feet. This fine evergreen thrives best on a light loamy or peaty soil, and requires a sheltered situation when planted north of London. Berries red.

Aucuba japonica.—Height 4 to 6 feet. Perhaps the greatest acquisition that has been made to hardy evergreens of late years is the many new and beautiful verieties of Aucuba. Of berry-bearing kinds the best are *A. japonica*, *A. j. foliis aureis*, *A. himalaica*, *A. macrophylla*, *A. picta*, *A. longifolia*, *A. viridis*, and *A. latimaculata*. Berries bright red, larger than those of the Hawthorn, produced in clusters, and remaining on the tree throughout winter and spring.

Berberis Aquifolium.—Height 5 feet. A first-class evergreen, growing anywhere; the yellow flowers, dark green leaves, and purple berries are alike beautiful.

Berberis Darwinii.—Height 5 feet. A neat and

handsome evergreen; leaves dark green, flowers deep orange, berries purple.

Cotoneaster microphylla.—Height 4 feet. A beautiful, dense dwarf evergreen, suitable for beds, edgings, and low walls, and thriving in common soil. *C. buxifolia* is a similar kind, but larger in all its parts. Berries red.

Cratægus Pyracantha.—Height 8 feet. A beautiful wall plant, laden in winter with clusters of scarlet or orange-coloured berries.

Ilex Aquifolium (the common Holly).—Height 20 to 30 feet. The common Holly is too familiar to need description; among the numerous varieties there are, however, some which seldom produce berries. The best selection from the berry-bearing point of view are—*I. Aquifolium, Aquifolium pendula, fructu aurantiaco, fructu luteo, hybrida, platyphylla, nigrescens, scurtica, Hendersonii, Hodgsinii, senescens, flammea, angustifolia, bicolor, aureo-marginata, obscura, albo-picta, albo-marginata, balearica,* and *maderense.* Berries, red, yellow, and orange.

Gaultheria procumbens.—Height 6 inches. A pretty dwarf shrub, requiring peat; flowers white, berries red.

Gaultheria Shallon.—Height 2 feet. A handsome dwarf shrub, requiring peat; flowers white tinged with pink, berries purple.

Hedera (the Ivy).—There are among climbing and tree Ivies, varieties which produce berries: of the climbing kinds the best are—*H. aureo-maculata, marginata argentea, marginata canescens, albo-lutescens, Helix foliis aureis,* and *canariensis;* of the tree kinds I recommend—*arborescens, baccata lutea, canariensis arborescens, Helix arborescens, H. a. foliis aureis,* and *Rægneriana arborescens;* berries, yellow or purple.

Pernettya speciosa.—Height 1½ foot. A beautiful dwarf evergreen, thriving best in light loam or peat; flowers white, berries red. *P. mucronata* and *P. angustifolia* are also desirable berry-bearing kinds, of similar but somewhat larger growth.

Skimmia japonica.—Height 1½ foot. A pretty dwarf evergreen; berries red. *S. oblata* is also a very handsome kind.

Vaccinium Vitis Idæa.—Height 1 foot. A pretty dwarf evergreen, thriving best in peat; flowers pale pink, berries red, the latter remaining on the plant throughout the winter.

Of Deciduous berry-bearing trees the most remarkable are:—

Berberis vulgaris (the common Berberry).—Height 10 to 15 feet. A useful shrub, growing freely in the commonest soils, equally valuable for its bright yellow flowers, and coral-like berries. *B. v. foliis purpureis* is also a very desirable kind; the flowers and berries similar to the last, the leaves of a rich purple in early spring and summer.

Cotoneaster frigida.—Height 15 feet. In sheltered situations this shrub is often sub-evergreen, and is plentifully adorned with clusters of bright red berries throughout the autumn and winter.

Cratægus (the Hawthorn.)—Height 10 to 20 feet. There are many varieties of Cratægus which are interesting and valuable on account of their berries. *C. Oxyacantha aurea, C. Aronia* (berries yellow), *C. coccinea maxima,* and *C. Layii* (berries red), are perhaps four of the most desirable.

Ligustrum vulgare (the Privet).—Height 10 feet. There are two varieties of this plant, one with black, and another with yellowish berries, both pretty in hedges, and in various situations where not too prominent. *L. sempervirens* (the evergreen Privet), is also a handsome variety.

Pyrus Aucuparia (the Mountain Ash).—Height 20 to 30 feet. Here, as with the Privet, there are two desirable kinds; the red and yellow-berried. Both are handsome, the former more particularly so. They are among the best of fast-growing medium-sized trees, and thrive well near London, and in large towns generally.

Pyrus Malus prunifolia (the Siberian Crab).—Height 15 to 20 feet. This tree is equally beautiful in flower and in fruit. *P. M. astracanica,* or Transparent Crab, is also well worthy of cultivation for the beauty of its fruit. I have also received recently some varieties of Russian Apples, the fruit of which produces a fine effect on the trees.

Euonymus europæus (the Spindle tree).—Height 10 to 20 feet. This pretty shrub, which abounds in the hedge-rows in many parts of England, produces an abundance of bright orange, rose-margined fruit in autumn, at which season it is very beautiful. There is also a white fruited variety, but this is not of great merit.

Symphoricarpos racemosus (the Snowberry).—Height 5 to 6 feet. Of shrubs bearing white berries this is the most showy, and it is so free and hardy that, like the Euonymus, it thrives everywhere.

Nearly allied (from the pictorial point of view) to berry-bearing trees are trees with bark of various colours, and such are very interesting in winter, when denuded of their leaves. Of white-barked trees, *Acer striatum, Betula alba, Hippophaë rhamnoides,* and *Populus argentea* are the best. *Cornus alba* has red, *Salix vitellina* and *Fraxinus excelsa aurea* yellow, and *Salix purpurea* purple bark. *William Paul, Waltham Cross, N.*

Home Correspondence.

Cold on Hills and in Valleys.—"J. S." (p. 1048) calls special attention to this subject. It is one of the greatest importance to cultivators, and therefore cannot be too frequently discussed. The time is also opportune for reopening the question upon which a good deal was not only asserted but proved by the records of the frost, as well as by the veritable statements that appeared in the *Chronicle* last winter and spring. The doings of the frost among bedding plants give swifter testimony than its influence upon trees, and are equally deserving of record. There can be no difficulty in accepting your correspondent's facts. Vegetation is earlier on plains and in valleys, than on hills, and it escapes destruction from frost for a longer period by the sides of rivers than when no river is near. Now, what can be the reason of this, unless "the tendency of water is always to mitigate the extremes of temperature, and the valley, as a rule, is warmer than the hill?" Both these reasons may also be accepted as correct, with important exceptions. No one has more emphatically claimed water as a husbander, carrier, and regulator of heat than myself. At pages 293 and 322 of the *Gardeners' Chronicle* for last March these views are emphatically propounded. The character of water as a warming agent is there established on the surest grounds. At p. 322 it is stated, "that at night the land, especially if covered by vegetation, cools much faster than the water. No sooner does the land become coldest than the water wafts its heat over it, and thus tempers the nightly cold. In winter, again, every body of water above the freezing point becomes a source of heat, and softens the rigour of winter." I submit that this transference of heat from the river to the land is the sole cause why "J. S.'s" Heliotropes, Nasturtiums, and other plants growing within 100 feet of the Thames, escaped; while his neighbour's plants, higher up and beyond the local influence of this body of warm water, were frozen through by the greater cold. No one disputes that every great body of unfrozen water is a source of heat. The question is whether in valleys, where no such source is present in sufficient quantity to be able to make a sensible exchange with the colder earth, plants suffer less or more from frosts than they do on open plains or hills of moderate elevations—of, say, from 100 to 400 feet in height. It will be obvious to every one that it is necessary to place some limit to the altitude, for owing to the greater rarity of the atmosphere in elevated regions it is well known that in ascending we are everywhere hemmed in by the frost or snow line. Therefore such mountains are necessarily colder than the valleys. They are less thickly clad by the encircling air, and, independent of the vexed question of aqueous vapour, all freely admit that thin air provides a swifter, freer passage for the heat of the earth than thick air. It is like the difference between a lightly laden express, and a heavily-weighted cumbersome luggage train. The friction of the one upon the rails is almost imperceptible, that of the other is a heavy drag on its progress. The high mountain air is the express, the valley air is the luggage train; and in the different elevations we have illustrations of every variety of speed between the two. It is also quite possible that under altered conditions the relative speed of the different trains might be exchanged. Not that the luggage and express would be likely to exchange paces, but it is no uncommon thing for a passenger train to attain to the speed of an express, or for the luggage to go faster than the passenger trains. Now, I believe something like this happens in the case before us. Doubtless, as a rule, valleys have a higher temperature than either open plains or hills of any or all heights. That is not disputed. They preserve their heat well. It moves slowly forth from beyond their encompassing and intensifying sides. But at times all this is by some means reversed. On clear frosty nights the temperature of every deep valley destitute of a body of water is lower than the temperature of its elevated sides, or the plateaux of moderate elevations beyond it. And it is to this fact, and the reasons for it, that I would respectfully direct the attention of practical men. First of all, is any one prepared to deny the fact? Then let us hear him. Next, how is the fact to be accounted for? Is there less or more aqueous vapour in the atmosphere of the valley than in that on the hill or plain. If less, this is what no one has suspected. If more, how then, according to the newest science, does the heat get out or the cold in? Practical men still cling to the belief that the excess of moisture in the air of valleys, and the extraordinary energy of aqueous vapour as a radiator of heat, is the cause of all the extra mischief that is there wrought by the frost. *D. T. F., Oct.* 14.

Daturas.—I send you a photograph of my bed of Daturas. Except Roses, I find nothing so well repay the trouble of cultivation. Those represented in the photograph were planted out in May; they were unprotected on the first night of the May frosts, and on the second had only a net doubled thrown over them. I syringe their leaves constantly, and give plenty of water and liquid manure two or three times a week. They had hundreds of flowers open at once. The tallest is over eight feet high. I get two displays of flowers yearly from the single ones, but the double, with less flowers at a time, is in constant bloom during the summer. They are now housed for the winter. I take them up with as much earth as I can, which in my soil is not much, place them on a narrow border behind the stage of the greenhouse, and cover their roots with leaf-mould, and keep leaves and roots well moistened. They lose part of their leaves and die back a little, but easily recover in spring. I send you the photograph, hoping that you will help me to induce others to procure for themselves the treat that I annually enjoy. I have often thought what a noble sight would be afforded by a row of them in front of the Orangery at Hampton Court, where they could manage them in winter so much better than I can. *Portsdown.* [The plants represented were most abundantly bloomed, and deserve all that our correspondent has said of them. The Datura when well grown, is a truly regal plant for the flower garden, and we are surprised it is not oftener met with in a well-flowered condition. Eds.]

Nuneham Park Onion.—I purchased in the spring of this year a packet (a pinch) of this Onion from a most reliable source for 2*s.* 6*d.*, and half an ounce of the well-known White Spanish for 2*d.*, in order to give the Nuneham a fair trial against this variety, with which it has been frequently compared. Both were sown on a drill, the one following the other, on a piece of well prepared and richly manured ground, and of course obtained equal care in their after culture. During the season they were seen by at least a dozen competent judges, all of whom failed to discover any material difference between them, except that the White Spanish was fully the larger of the two; and now that they are lifted, I can safely affirm that if there is any advantage in size the White Spanish has it. *C.* [The Nuneham Park is doubtless, as has been often asserted, merely a well selected "stock" of the White Spanish. Eds.]

Christ's Thorn (*Paliurus aculeatus*).—I shall be thankful to any of your correspondents, who will inform me whether this tree has proved hardy as far north as Huntingdon, Rugby, or Ludlow. I would plant one in the churchyard if its hardiness in such latitude were established; but Loudon only instances its growth at Syon, Chelsea, Chiswick, and Oxford; and I cannot find in the pages of your Journal any notice of the way in which it has been affected by the frost in any of the severe winters. *Diss.*

American Aloe.—I enclose you a photograph of an American Aloe (Agave americana), which is in full flower here at present on a terrace, with rockery in front, about 200 yards from the sea. It was planted 35 years ago, in the spring of 1832, and it began throwing up its flower-stalk in May last. This has now attained the height of 28½ feet, and is about 2 feet 3 inches in circumference. Its floral branchlets number 41. The colour of the flowers is bright yellow, and as there are several suckers at the base now in flower, on stems about 2 feet high, the whole has a very handsome appearance. The Agave virginica flowered here in 1862, and A. Metus in 1863; the latter was about 8 feet in height, and ripened a large quantity of good seeds. Agave lurida flowered in 1864, with a flower stalk 20 feet 2 inches in height, but it ripened no seeds, and was not so striking as the americana. *Peter McNeil, Gr. to Earl of Ilchester, Abbotsbury Castle.* [The last time we saw the first-mentioned Agave in bloom was in the year 1866, in the garden of the Star and Garter Hotel, at Richmond. It also flowered beautifully a few years ago in the Royal Botanic Gardens, Regent's Park. Eds.]

Vine Pruning.—"Early prune, early grow," if not a proverb, is a common saying among the Vine growers in the South of France. It was not without surprise, therefore, that I read in a recent number of your paper (see p. 1012), that the effect of early pruning the Vine was still a secret in England, and that there was a difficulty in reconciling it with the received theory of "the function of leaves." If the facts stated by your correspondent be really facts (as I have no doubt they are), the sooner our theory is made to agree with them the better; and I may perhaps be permitted to show that the French proverb is well founded, and that there is nothing in it inconsistent with what we believe to be the function of leaves. I must observe, in the first place, that the question of pruning involves something more than the removal of mere leaves. In cutting off a branch, you remove along with the leaves a number of sap-absorbing buds; the single bud then left upon the reduced branch will thenceforth monopolise nearly the whole sap, of which it formerly received only a small share. If the branch were not removed, it is certain that the lowest bud, from which you expect the fruit, would be very late in pushing, if it pushed at all. It is the removal of the branch which induces the bud to start; and the earlier that is done the earlier will the bud be developed. The policy of early pruning is a different affair, which it is not necessary to discuss. In France, where there are spring frosts, it is not much approved; and in this country, where the roots of Vines are outside the house, I should think it better to retard than to advance the buds, which are in a different climate. But I am only *An Amateur.*

The Loquat, Eriobotrya japonica (see p. 1048).—I think that failures with this fruit must be attributed to our murky sky and damp atmosphere, especially as it is inclined to flower late in the season. If it could be induced to flower early, or even in August, there might be a chance of getting it to set its fruit. Some 20 years ago a large luxuriant plant of it occupied the back wall of a Camellia-house in the Glasnevin Botanic Gardens; I recollect trying my "prentice hand" on it in the shape of ringing some of its branches, but without success; for I have been informed that it never flowered. In the autumn of 1860, however, when I had the charge of a large collection of plants in the United States, a neglected pot-bound plant of it flowered whilst under the shade of a huge Apple tree. I removed it to a conservatory, where, though surrounded by a miscellaneous collection of plants, and though the house was kept at merely greenhouse temperature, it set and ripened its fruit. It occurred to me at the time that it would never do so in England, for the month of October must have been somewhat advanced before the operation of setting was complete. *J. K., Dublin.* Fine Loquats, as large as bantam's eggs, are imported from the Western Isles, and sold in Covent Garden. Eds.]

Piptanthus nepalensis.—I agree with your remark (see p. 1048) that the Piptanthus nepalensis "is much less frequently seen than its merits deserve," but the further observation that "it requires the shelter of a wall," is quite contrary to my experience. I have several plants growing in my grounds in the open border, and though in the meridian of Durham, growing vigorously and flowering well at their usual season, the spring. "W. T." would, I think, be disappointed "in the elegant and graceful combinations" which he expects from training the Piptanthus or Anagyris, and the Wistaria together. The former, instead of producing its flowers in pendent racemes like the Wistaria and the Laburnum, produces them on

rigid spikes like those of the Lupine, the yellow flowering kind of which plant its blossoms resemble. *Derwent.*

Hardiness of the single Red Camellia.—In the month of June, 1866, I planted a single Red Camellia against a wall in the flower garden—a good plant, nearly 4 feet high. Up to this time it had been in-doors, growing mostly under Vines, going through the hottest times with them, when want of space often drives things not much cared about into places not over congenial to their existence, so that its previous treatment was anything but calculated to fit it for the terrible frost of the 2d of January last. Among many other things this Camellia was pronounced to be dead, but as there was a chance of its "coming from the root" it was not pulled up. Not only the bark seemed as if it had been boiled, but the wood itself when cut was quite brown, and appeared dead. Early in June, I examined the plant, in order to see if there was any appearance of the expected growth from the bottom, when I was very much surprised to find that the supposed dead tree had come to life again: numerous small red buds were pushing all over the plant, even one of the terminal buds of the top was bursting. In a short time the bark in places began to peel off, but under it young wood was forming, something in the way in which it does where bark has been broken off a healthy tree in spring, and then covered over with the usual mixture of clay, cow-dung, &c. During the past summer part of this young wood has died, but still sufficient is left to form a medium all up and in places round the stem. It also began soon to throw up several shoots from the bottom, and these are now (October 5) 10 inches long. Although it withstood the rigours of the past winter unkilled, during the summer it has been unfortunate, for an over-officious knife, unknown to me, cut off its upper half. There are numbers of short shoots and leaves upon the part remaining, but they do not look so healthy as the leaves and shoots from the bottom; and the probability is, that it will yet die down to those shoots, as Pear trees on the walls here, from the effects of the frost on the memorable Christmas eve of 1860, continued to die, branch by branch, up to the summer of 1864. To all appearance the single Red Camellia is as hardy as the common Furze, which was killed to the ground in this neighbourhood, even when partially covered with snow, which I should consider a better protection than the wall against which the Camellia is growing. *D. Buchanan, Dyrham Park.*

Large Lord Suffield Apple.—A friend of mine has just brought me a fruit of this variety which weighs 14 oz., and measures 13 inches in girth in the middle; it was grown on a small plant four years old, and has been planted in its present position about two years; the situation in which it grew is very high and exposed, and upon a cold clayey soil. Is not this an unusual size? *Pyrus, North Stafford.*

Pinus Benthamiana. — Your correspondent, Dr. Prior (see p. 1048) says that the cold on the Derby day gave the death blow to the fine Pinus Benthamiana at Tetten, but if the plant had been carefully examined I fear that its death would have been found to have arisen from other causes than frost. Was it grafted? We have lost many fine "worked" plants from canker at the union of the graft with the stock, after they have grown well for years. A few plants of P. Benthamiana in the north of Yorkshire withstood the winter of 1860 and 1861, when the thermometer fell to 13° below zero, and last winter it stood when the mercury was below zero without having a leaf browned. Two younger plants also withstood last winter without injury. For the north it is the best of all long-leaved Pines. *William Culverwell, Thorpe Perrow.* [Dr. Prior's remark refers to Benthamia fragifera, now Cornus capitata, not to Pinus Benthamiana. Eds.]

Grape Judging.—There is one essential in this discussion, on which all appear to agree, and that is, that a definite set of rules by an authorised body should be framed for the guidance of Grape judges. During the present irregular state of matters can it surprise us that judges, while acting merely under the dictation of chance, should be constantly disagreeing among themselves? How frequently, too, do we find amateurs appointed to adjudicate on Grapes—gentlemen who unfortunately possess little information on the subject, and who only cultivate for their amusement a few Sweetwater Grapes in a greenhouse, and who can scarcely distinguish the difference between a Black Hamburgh and a West's St. Peter's. The question then may be asked, Is the reputation of exhibitors safe in the keeping of judges of this description? Equity, I think, demands that only such judges shall be appointed as have made Grape growing a special study, and who fully understand the quality of Grapes. One section of your correspondents contends that badly or indifferently coloured Grapes are the best flavoured, and that therefore they should be ticketed No. 1. Surely this is a mistake, which ought to meet with prompt rejection by every intelligent gardener. Badly coloured Grapes are little better than sugar and water manufactured under a system of mismanagement. The following receipt, which I offer gratuitously, will produce the much coveted result:—Be careful to secure imperfectly ripened wood, increase the temperature considerably when the berries begin to colour. Confine the air of the Vinery as much as possible, and maintain as much moisture in the house as will effectually check perspiration. Give the roots as much or more water than they can absorb, so that the Vine may always contain a greater amount of liquid than the leaves can elaborate. In short, do all that imagination can suggest to disarrange the functions of the Vine, and the process will be complete! Under such a system of management Nature must be tortured, and vitality sufficiently weakened, to enable us to produce highly-flavoured Grapes! The mere statement, that red or badly coloured Hamburghs are better than samples thoroughly ripened and carrying a deep bloom, is in itself so absurd that sensible people reject the assertion. Why should the advocates of red colour call upon us to commit so great an act of barbarity as to deprive black Grapes of their inherent and natural properties? As far as I have seen, no instructions will enable us to overcome difficulties in regard to judging so fully as the rules laid down by Mr. Meredith (see p. 925). Under particular circumstances instances may occur in which Grape-tasting may be a necessity, but such cases rarely happen. As a rule, the practice is deceptive, owing to the fact that those little asperities on the tongue, called papillæ, form the terminations of the nerves to which flavour is acceptable, and by means of a constant repetition of the same thing, the sense of distinction is so greatly reduced as scarcely to be of any service. Nothing would so much lessen the labour of judges, or contribute more to an equal distribution of justice, as the classification of Grapes into different sections: their value could then be estimated by means of the eye. *Alexander Cramb, Tortworth Court.*

Pine Growing.—The Pine, I think, ought to have a little attention as well as the Grape. I have a Pine stove under my care, from which I am able to cut more than ½ cwt. of Pines annually, the fruit weighing from under 2 lb. to more than 5 lb. each. I have no succession plants growing elsewhere, consequently I have to grow and fruit my Pines in one stove. I fruit mostly the suckers on the old stools. The stove is 31 feet long and 15 feet 6 inches wide. The pit in which the Pines are growing is 26 feet 6 inches long, and 6 feet 6 inches wide; the bottom heat is kept up by means of hot-water pipes; there is a foot-path on two sides and one end, with shelves all round for stove plants. I am able likewise, each season, to get two crops of Melons from pots set on the front curb. I believe it quite possible to supply any moderate-sized family with Pines, from a single stove, without succession pits. Although I have cut more than 120 lb. weight of Pines since October, 1865, there is at this time 19 fruit swelling off, also a fine stock of fruiting plants for next season. *W. T., Manchester.* [We shall be happy to afford our correspondent an opportunity of explaining his mode of treatment. Eds.]

Old Favourites (see p. 976).—With a little reflection I think that "Erica" might discover the reason why such and such plants are not now so frequently seen at exhibitions as they were some years ago. At the time he mentions, our London shows commenced about the first week in May, whereas now the first exhibition generally takes place in the last week of that month, a circumstance which necessitates the maintenance of a much lower temperature for greenhouse plants than used to be required for them. Consequently such subjects as Leschenaultia biloba and formosa, Gompholobium polymorphum, Boronia pinnata, &c., that will not withstand a continuous low temperature, do not succeed so well now as they used to do. "Erica" complains that nothing will now do that will not grow "a yard in a year," and laments the absence of Clerodendrons, plants which the merest tyro can grow 4 feet from a cutting within the 12 months. I suppose he is equally sorry at not now seeing such plants as Coleonemas, Correas, Tropæolums, Vincas, Dillwynias, Mirbelias, &c., shown in quantity as heretofore. At the time your correspondent names, Azaleas were not grown half so well as they are now, when such plants as Acrophyllum venosum, Francisceas, Hedaromas, &c., take the place of Ericas — favourites, which, with the exception of Leschenaultias, are collectively much quicker growers, far less effective, and do not require a fourth of the skill in cultivation as those which have supplanted them. Verily, between those who grumble at the absence of old favourites, and those who are equally disappointed that each year does not furnish a totally different class of plants for the exhibition table, plant growers are in a dilemma. After all it is easy to find fault; but if those who grumble would give their signature instead of sheltering under a *nom de plume*, we should then be able to form some estimate as to what their opinions were worth. *Thos. Baines, Summerfield, Bowdon.*

New Grapes.—What "Ebor" says (see p. 1049) about the Royal Ascot Grape is certainly incorrect; in proof of which it was awarded a First-class Certificate at Bury St. Edmund's, and at a full committee of fruit growers at South Kensington its excellencies, and the justice of the award were confirmed unanimously. As to its being a winter Grape, "Ebor" will soon hear or see something about that. *Jno. Staudish, Royal Nursery, Ascot, Berks.* [The Royal Ascot is admitted by all who are well acquainted with it, to be a Grape possessing most valuable qualities (see p. 1069). Eds.]

Birds.—To-day (Oct. 15th), though so late in the season, the Hirundine family of birds are all busy on the wing here (North Wilts). The swifts are soaring very high in the air; the swallows and martens are flying low, and do not seem to be making preparations for departure. *J. K., Wilts.*

Late Peas.—Enclosed are pods of Dillistone's Early Pea gathered from a crop produced by this year's seed. You will see that they are a good sample, and the crop in general could not be a better one. We have always considered Dillistone's Early to be a first-class Pea for the last crop. *Dillistone and Woodthorpe, Sible Hedingham, Essex.* [The sample sent is in every way satisfactory. Eds.]

Clubbing in Vegetables.—Can any of your readers assist me in the following case:—I have charge of a kitchen garden which has to furnish a large family with vegetables, but clubbing is so prevalent, that Cabbages, Broccoli, and Brussels Sprouts die outright. The club where the roots should be, is in most instances as large as a cricket ball. The ground is a stiff loam. I have tried soot, lime, and guano water, but all have hitherto been of no avail. *T. S., Chertsey.* [Wood ashes dropped into the holes along with the plants when put out might be used with good effect. They should also be liberally incorporated with the soil of the seed bed, as well as strewed plentifully over your garden ground generally. Eds.]

Large Salway Peach.—I send for your inspection a Salway Peach, which is the largest that I have ever before seen. It was grown on a tree 4½ feet high in a 9-inch pot, in one of my Orchard-houses. The same tree also bore three other fruit, one of which, dropped prematurely, promised to have been even larger than that now sent. I have gathered at least 20 dozen fruit of this variety this autumn from trees in pots, and each of the fruits has averaged from 11 to 12 inches in circumference. *Richard Smith, Worcester.* [The Peach in question measured 13¾ inches in circumference, and weighed a little over 19 oz. It had a beautiful appearance, its yellow skin having more red in it than usual. As regards flavour, we had no opportunity of judging. Eds.]

Variegated Zonals for Bedding.—"W. E." asks (p. 1048) which of the "Tricolor" Pelargoniums would surpass Mrs. Pollock for a bed 15 yards from the nearest point of view. I have no hesitation in saying that Miss Watson will prove a much more effective plant in every respect than Mrs. Pollock. Seen from the distance it is grand. I have been growing what I consider to be eight of the finest Tricolor Pelargoniums which have been raised during the last few years, and Miss Watson for brilliancy of colouring is superior to them all, the leaves being so clear outside the zone, while from its good constitution it is a valuable acquisition for bedding. On the 4th September I received a plant of Miss Watson in a thumb pot; the leaves are now growing over the sides of a 48-pot. *A. Donaldson, Gr. to Lord Chesham, Latimers, Oct.* 15.——I presume your correspondent means "Tricolors" already in the trade. If so, Lady Cullum and Lucy Grieve are both better than Mrs. Pollock, being much brighter, either near at hand or afar off. Lucy Grieve is not, however, such a good grower, but Lady Cullum grows even more freely than Mrs. Pollock, if that is possible. *D. T. F.*

Societies.

Royal Horticultural: *Oct.* 15.—*Floral Committee.*—Mr. Bull contributed on this occasion an interesting collection of plants, among which the following received First-class Certificates, viz., Encephalartos lanuginosa (Hort.), a graceful-looking species with long, slender, downy stems, on which the narrow leaves are arranged in a somewhat pectinate form; Aucuba japonica mascula marmorata, a mottled variety, bearing considerable resemblance to the ordinary Aucuba, but having the colours more intense and therefore better contrasted; A. japonica fœmina grandis, a noble variety, with large, broad, green glossy foliage; Polystichum angulare cristato-gracile, a slender-growing sort, with slightly crested fronds; Athyrium Filix-fœmina pulcherrimum, a small neat-growing variety; and Lastrea Filix-mas crispa gracilis, a kind with compact short stiff fronds. One or two other varieties of Ferns were also furnished by Mr. Bull, who sent, moreover, examples of the pretty Trichinium Manglesii, and other plants. From Mr. Anderson, gr. to T. Dawson, Esq., Meadow Bank, Glasgow, came some finely-flowered cut Orchids. Mr. Bowie, gr., Chillingham Castle, received a First-class Certificate for a new Lobelia, named Little Gem, a compact-growing kind, with white blossoms, broadly edged with blue. From Mr. Watson, St. Alban's, came basketfulls of young plants of his Variegated Zonal Pelargoniums Miss Watson and Mrs Dix, which, although said to be only struck some 10 weeks ago, quite covered the surface of the pots in which they were growing with finely-coloured foliage. They were exhibited in order to show the inherent constitutional vigour by which these two now well-known varieties are distinguished. Ealing Rival, a charming new Variegated Zonal, came from Mr. Stevens, who received a First-class Certificate for it. Other Variegated Zonal Pelargoniums were furnished by Mr. Aldred, Kilburn, and Mr. Walsh, Hillingdon. A collection of Orchids was shown from the Society's garden, among which was a remarkably well-grown and beautifully-flowered plant of Odontoglossum grande, to which a Special Certificate was awarded. Paintings of fruits and Pelargonium leaves, executed by Miss Fothergill, Somerset House, Old Shirley, Southampton, were shown by that lady, who deservedly received much praise for their beauty and general faithfulness. Mr. McRonald, Nurseryman, Chichester, contributed ripe fruit of Passiflora cærulea Newmani, a useful hardy Passion-flower, the beautiful blue blossoms of which are succeeded by handsome orange fruit, each as large as a pullet's egg. Messrs. F. & A. Smith had a collection of variegated Zonal Pelargoniums.

Fruit Committee.—On this occasion Mr. Ward, gr. to T. V. Miller, Esq., Bishop Stortford, sent three handsome Smooth Cayenne Pines, weighing respectively 10½, 10, and 9¾ lb. They were awarded a Special Certificate. Mr. Whitiug, The Deepdene, Dorking, exhibited fruit of Croft Castle Pear, British Queen, Windsor, and Beurré Hardy, all excellent in flavour. Henry Webb, Esq, Redstone Manor, Redhill, furnished specimens of several varieties of Pears, to show the effect of the past season on the ripening of the fruit: some of which were cankered, and others much cracked. Mr. Wells, of Southend, Essex, sent Black Hamburgh Grapes, grown in his patent ground Vineries, which were equal in size to what are usually grown in ordinary Vineries, but in colour they were a little deficient. He also sent bunches of Muscat of Alexandria, grown in the same structures, but they were not up to the mark in regard to flavour. The Committee awarded these Grapes a Special Certificate. Mr. Bye, gr. to R. Arkwright, Esq., Hampton Court, Leominster, sent a Seedling Nut; Messrs. Downie, Laird, & Laing, a Seedling Kitchen Apple, raised at North Berwick House, East Lothian; and Mr. Aldred, Kilburn, a Seedling Apple, called Aldred's Seedling, which was, however, not considered distinct from existing kinds. Mr. Penfold, gr. to J. Cockle, Esq., M.D., West Moulsey, furnished fruit of a White-spine Cucumber. Mr. Colbourne, gr. to J. Blyth, Esq., Woolhampton, had a dish of Salway Peaches, large and handsome, and of pretty good flavour; they had been grown under glass. Mr. Rivers, of Sawbridgeworth, sent fruit of a seedling Peach. He said, "I send two Pavies, the sort a seedling, raised from that favourite late Peach (with the Americans), the Heath Clingstone, which it resembles. Downing calls the Heath 'the most superb and delicious of all the Clingstones.' In 1865 the sort now sent was a mass of syrup. This season has not been warm enough; still, the flavour is remarkable from the perfect absence of the prussic acid smack. These white Pavies may be kept the greater part of November on the trees and in the fruit-room, and are very ornamental for the dessert." The Committee was, however, of opinion that the fruit is not calculated to ripen sufficiently in this climate. The Rev. George Kemp brought a dish of Dunmore Plums, which had hung on the tree till they shrivelled, and the flavour was sweet and excellent. Mr. Kemp stated that he had the fruit in the dessert in December. From the garden of the Society came a

collection of Tomatos, as well as fruit of the Pear-shaped Service, and of the Gros Colman Grapo. Mr. William Paul, of Waltham Cross, exhibited an interesting collection of correctly named Apples and Pears. Mr. Bye contributed some fine specimens of White Spanish Onion; and Mr. Lidgard, of Hammersmith, received a Special Certificate for a very meritorious exhibition of Celery. It consisted of Dewar's Northumberland Champion, Cole's Superb Red, Wall's Invincible, and Manchester Solid Red. Mr. Lidgard also received a Special Certificate for fine examples of Onions, consisting of Danvers, New Venetian, Giant Tripoli, and that called Nuneham Park. Mr. Rivers exhibited examples of the stocks used for dwarfing the growth of the Apple tree. They were:—"No. 1. The French Doucin, on which Apples grow very well, but it does not keep up (*i. e.*, swell) with a vigorous growing sort. No. 2. The Broad leaved Paradise, an English stock, raised here (Sawbridgeworth) from seed. This sort roots freely at the surface, swells with the graft, and makes healthy productive trees. No. 3. The Nonsuch Paradise, an English stock, raised here from (it is supposed) the Nonsuch Apple. Like No. 2, it roots freely at the surface, swells with the graft, and forms healthy productive trees. It retains its leaves, and grows freely till late in autumn. It strikes freely from cuttings, and is found to be a distinct and valuable stock."

Notices of Books.

Miscellanies: being a Collection of Memoirs and Essays on Scientific and Literary Subjects, &c. By Charles Daubeny, M.D., F.R.S. 2 vols., 8vo. Oxford: Parker & Co.

The memoirs collected together in these volumes have been published at various times within the last 30 years. Most of them were originally issued in various scientific and literary periodicals, but some were made public in the form of separate pamphlets or as addresses to public bodies. Some also have been printed from time to time in our own columns. Professor Daubeny has classed them under four heads, as follows:—1, Experimental Essays on the growth of plants; 2, Geological Memoirs, relating specially to volcanic phenomena, mineral springs, &c., on which our author is the highest authority in this country; 3, various essays on scientific subjects; and 4, similar memoirs on literary subjects.

Favoured by the circumstances of his position as Professor of Chemistry, Botany, and Rural Economy in the University of Oxford for many years, and still holding the two last named appointments, Professor Daubeny has throughout his distinguished career been the energetic and consistent advocate of measures calculated to widen the influence, and enhance the value of the university of which he is a member. The recognition of the natural and physical sciences as a branch of education worthy of forming part of the university curriculum, the establishment of a well appointed museum and laboratory in Oxford, are matters for which the university and the public in general have in very great degree to thank Dr. Daubeny. His liberal and enlarged notions, however, would probably not have been so successful as they have been, had they not been efficiently supplemented by the numerous series of practical researches, especially in chemical matters bearing on vegetable physiology and agriculture, the record of which may be found in the volumes before us.

These works supply an illustration of the value of establishing, in connection with a botanic garden, a laboratory and an experimental garden such as we have from time to time advocated. Such an establishment, thanks in great measure to the munificence of the present and of former Professors of Botany, Oxford has had, and the reader has but to glance down the table of contents of these volumes to see what has been the result.

The number of observers in this country, who devote themselves to the chemical history of plants, and to the physical phenomena presented by these organisms, is comparatively small, mainly, we believe, from the want of facilities, such as we have alluded to, and yet it must not be forgotten that Dr. Stephen Hales, whose writings are still referred to as standard authority, was but a country parson in the reign of Charles the Second, and his apparatus would probably excite a smile could it now be seen.

It is not necessary to enter at any length into the subject-matter of the volumes now before us. Many of the facts recorded have taken their place in the text books and manuals as part of the science of the day, while some have become so incorporated with it, that the history of their origin is, says Dr. Daubeny, in danger of being forgotten. In this fear, however, we do not share. Even in the case specially alluded to by the Professor, viz., the discovery of the fact that the luminous rays of the spectrum exert the most powerful action on the living plant, as measured by the quantity of oxygen gas given off, while the chemical and calorific rays are inert, there is hardly a text book in which full credit is not given to Dr. Daubeny. His experiments have been extended and confirmed by Draper, Gladstone, Sachs, and others, and were commented on in Professor De Candolle's address to the Botanical Congress of London in 1866.

Other memoirs relating to the germination of seeds, the emission of ozone, the functions of roots, the rotation of crops, the mineral phosphates of Spain, as well as those on geological, literary, and other subjects, we can only thus allude to; but we may express our opinion that Dr. Daubeny has rendered an additional service to science by reprinting these essays, while the general reader can hardly fail to admire the elegant classical style in which the less technical papers are written.

Anleitung zum Plan-Zeichnen nach der Lenné'schen Methode, &c. Bearbeitet von G. Burmester, Brunswick: Viehweg & Son, 1867. 8vo, pp. 29. with 10 plates. (Guide to Plan Drawing, &c.)

Such a help for the self-instructing young gardeners of this country has long been looked for, but has not yet been supplied. In Germany, too, the author tells us, bulky and expensive volumes only, inaccessible to the class most in want of assistance, were to be had; and having a large number of pupils to instruct he was at loss for a simple, concise, and cheap manual, wherewith to guide them in the continuation of their studies at home. The little book before us is well calculated to attain the object in view, being unusually brief and intelligible for a German production.

Instructions are given for every stage of plan drawing, from the cutting of a goose quill to the complete coloured design, but the practical directions for laying out a garden are too meagre to be of much service. The method here taught is called Lenné's, but how it differs from that generally pursued it would be difficult to say, unless it be that the figures employed to distinguish the different trees and shrubs "were suggested by Nature," and are easily recognised in a well-executed design. To represent single trees or clumps of trees and shrubs, a series of connected bows is made use of, more or less flat and obtuse, or elongated and obtuse, or acute, according to the general outline of the subject intended. We hope to see something of the same sort done for English gardeners soon, for it is really deplorable how few of them have any idea of the subject, still fewer being capable of drawing a decent plan; but it is not entirely their own fault, because the books are beyond their means.

The Apiary.

Bee-Feeding.—I have a few remarks to make on this subject, in addition to what I wrote last week. Again let me advise that all feeding should be got over as quickly as possible. The administration of small quantities at intervals of a day or two, sustained during several weeks, is very injurious; a constant state of excitement being kept up. Excitement is necessarily accompanied with great waste. Bees consume the food, which, instead of being stored and sealed in the cells, is employed as fuel to supply the heat given off from their bodies, and the consequent extra nutriment required.

A friend informed me, at the time he instituted the experiment, of the results of feeding in driblets, and in larger quantities. A stock selected was suspended to a Salter's balance, and the weight accurately noted. The bees were then treated with very small quantities at a time, extending over a period of many days, until exactly 16 oz. of food had been supplied. The hive then had increased in weight only 1 oz. It was now given 16 oz. of the same food, at one dose. This was all carried down by the following morning, and the hive exhibited an increase of exactly 15 oz. The experiment was repeated more than once with the same result.

A gentleman near me, who has become a bee keeper this summer, told me with great self-satisfaction that he had given his hive plenty of food, good honey, which he had placed in a saucer before the porch, and kept constantly renewed for several weeks. I strongly advised him against this injudicious mode of proceeding, and promised to go out to put him in a better way. When I did so, the first object that met my eye was the saucer of honey standing close before the entrance. As might be supposed, the bees were in great excitement, and engaged in carrying on a succession of petty fights with would-be invaders, among whom I recognised in considerable force, either my own, or another gentleman's Ligurians. Removing the saucer, I examined the interior of the hive; finding, as I expected, but a very limited amount of stored food; the bees by no means very numerous, having doubtless been continually suffering diminution, owing to the long-continued guerilla warfare. According to my directions a pickle bottle was fitted up as a feeder, and a copious supply given on the top—the entrance of the hive being contracted, to enable the bees the better to defend their castle.

A few years ago I had a hive tenanted by a swarm on the 30th of May. The box was suspended to a Salter's balance; the weight then registered being exactly 20 lb. They were fed nearly every day up to June 10th without any increase in weight, much being required for the combs, which were being rapidly built. On this date a second swarm was united to it, thereby increasing the weight to 22½ lb. Food being still supplied, the register stood as under—all the markings being of gross weights:—

	lb.	oz.		lb.	oz.
June 10. Weight ..	22	4	July 19. Not fed	32	0
			,, 25. Do. ..	31	8
,, 11. Fed ..	24	8	,, 27. Do. ..	32	8
,, 14. Do. ..	25	0	,, 30. Fed ..	32	0
July 3. Do. ..	27	0	Aug. 3. Do. ..	33	8
,, 7. Do. ..	30	0	Not fed till Aug. 22		
,, 10. Do. ..	31	8	Aug 22	31	0
,, 13. Do. ..	32	8	Fed till Sept. 30		
,, 14. Do. ..	33	12	Sept. 30	40	0

On the 22d of August feeding was carried on more liberally. On examining the combs late in September, I found most of them well filled with sealed brood, and larvæ in all stages. On the 30th of September, when the hive turned the scale at 40 lb., all feeding was discontinued. Fifteen days after it exhibited a loss of 5 lb. 8 oz., the index standing at 34 lb. 8 oz. This decrease must have been in consequence of the demands made upon the stores by the large quantity of growing larvæ. Two months afterwards, on the 4th of December, the hive had lost only 1 lb. more. I believe that over 50 lb. of food was given at the two periods of time over which the feeding was extended, yet on the 15th of October the stock weighed only 14½ lb. more than it did on being first peopled on May 30th.

About 20 lb. had been supplied up to the 17th July, when, on inspection, I found the box nearly full of combs, but with little stored food. The second more extensive feeding amounted to about 30 lb., and was chiefly employed in rearing a great quantity of brood, in elongating, filling and sealing the cells. I need hardly say that the season had been a very wretched one for bees and honey. The following year the same stock gave me a splendid super of 15 lb. weight: nevertheless I would not recommend such copious supplies being administered to any colony, nor is it advisable to continue it for so protracted a period. *S. Bevan Fox.*

Season of 1867.—A gentleman in the south of Devon, usually a very successful bee-keeper, gives a very unfavourable report of the honey harvest in his neighbourhood. He says:—"I have not had one swarm this year. I have only one super partly filled, and that has been bred in very considerably. Never, in all my experience, have I had so miserable a season. Those terrible years, 1860 and 1862, were excellent compared to the summer just passed by. A bee-keeper near me has 18 or 20 stocks; but he has not taken one super, and has had only two or three late swarms.

"My single stock of Egyptians is still alive, though the queen has turned out to be a thorough drone-breeder, and nothing else. But such drones as they were,—perfect beauties. These Egyptian bees are the most aggravating creatures I ever saw." *South Hams, Devon.*

From some other districts we have very similar complaints as to the honey harvest, and the paucity of swarms during the late season. We should be glad if some others of our correspondents would favour us with the benefit of their experience, as it is useful and interesting to be able to compare notes.

Garden Memoranda.

Mr. Thomas Methven's Nurseries, Edinburgh.—The principal nursery ground of this establishment is situated in Leith Walk, a broad promenade between the cities of Edinburgh and Leith. It is rather a choice spot of ground, at a level considerably lower than that of the road, and is consequently seen to advantage. The seed warehouses and offices confront the road, and form a centre block to the strip of ground which leads to the nursery proper. On either side of the walk are spacious borders, which were wont to be devoted to purely bedding out plants. Since there has been some disposition manifested to look more to permanent decorative objects, the tide in this nursery has turned more to Coniferæ, to some of the ornamental Yews, to Hollies, of which there is much variety in point of form and colour, and to Aucubas and such like things, which, when arranged in lines, in something like order, present a picture very pleasing to look at from either extremity, and also compel a more formal notice in passing down the border. Along with these occur such things as Picea Nordmanniana, P. nobilis, and others of a similar caste, which are often enough named in describing places under "Garden Memoranda," and are singularly appropriate. Planted as they are somewhat systematically, the lifting them away for "nursery orders," even in considerable numbers, does not mar the "general effect." Although these are all beautiful, there is a grace imparted by the introduction of numerous Weeping Willows, Ashes, and Elms, and such other habited plants, which are highly desirable for all places where effective combination is studied.

At the end of these borders stands the block of houses built for plant stock requiring that sort of accommodation. Pelargoniums seem here, as everywhere, to be a leading feature, and there is much demand for everything new and good. The advantage of keeping plants near the glass is apparent at once, from the shrubby, viridescent appearance they bear. Soft-wooded plants especially seem to claim immediate contiguity with their artificial covering, and an abundant supply of light. These houses are very light—not in make, but in reference to the diffusion of the important element in plant growth—having the strong astragals placed about 15 inches apart. Besides this, such houses have elegance to recommend them, and our great amateur growers would do well to study this carefully before looking so much to grand exteriors, and lofty but obscure buildings, which have the merit of keeping plants pining out a miserable existence. Another advantage which is appreciated here and practicable everywhere, is that of having houses of two different temperatures, only divided from one another by a glass partition. We see the use of it palpably here for young stock that are potted off from the cutting pots, encouraged for a time in heat, and transferred at next shift to "harden off" into the cooler department. In soft-wooded stock, especially where multiplication is in the first place an object, and where "tidy," good, fresh specimens are in request (as they always are), such an arrangement, when well worked, suggests itself to every practical mind. In the hard-wooded department are some excellent Heaths of all the leading sorts; Epacrises equally numerous; Camellias in various sizes; and Azaleas and New Holland plants, each having house accommodation to themselves.

Vines in pots are vastly on the increase. Time was when there were not tens reared for the hundreds now grown in the Edinburgh nurseries, and yet there is now far less of a residue at the end of the season. This speaks more forcibly than anything else of the immense impetus that has been given to the trade in Vines in recent years. Every one appears to be able to grow Vines from eyes well now-a-days, so that the purchaser may fruit them the following year. This was not always the case, but by skilful practice we are now able to get the plants in a condition from which a maximum result can be obtained. Another "wrinkle," this time from Mr. Methven, was placed at our disposal. Instead of wintering the plants against the face of a wall, or some other convenient place, a large wooden shed is erected, and when the wood of the yearlings is thoroughly ripened, and rest is an object in the annual routine, the plants are all set in

"apple-pie order" in this shed. The wisdom of the practice is apparent. Neither root nor stem are exposed to sudden changes, and above all the icy grasp of inclement frost is warded off, and the baneful effects that follow in those plants which are exposed to "all weathers" is prevented. No distorted cells, nor frozen-up vessels, no infringement of plant physiology, which no amount of after-doctoring can ever make up for, need be feared with a provision of this kind; but the plants when called upon to grow, will push away strong and vigorous.

The forest tree department of the nursery is not very large, but what is cultivated is done well. The quarters of ground all over this strath are unusually fertile, and with artificial ingredients in the shape of manures, both farmyard and artificial, a vast amount of vigour is induced There are some 32 acres in the nurseries we are writing about, and every available spot seems clad with saleable stock.

In the Stanwell Nurseries, a little nearer the bed of the Firth, is the famous Rhododendron ground. In this department particularly Mr. Methven has long taken a deep interest, and has always kept up a position in the van of his compeers. His stock of this valuable shrub is as varied as it is large, and the beauty of all is that the plants are in the best possible condition. We need not weary with details of varieties, but there is bed after bed of them in specially prepared quarters, each quarter protected with a beech hedge. Nothing can possibly be more gorgeous than these in the blooming season. There are about 600 different varieties, including many seedlings, which are arranged in the "show ground," and have rather extra allowance provided for them. The natural tilth here seems to be all that could be wanted for successful culture, but in the division to which we allude, there are several hundred cartloads of peat introduced, which imparts a colour to the foliage that no loam of any colour can ever induce. Along with this, is given an annual top-dressing of farmyard manure, which no one need feel alarmed to introduce among a group of Rhododendrons.

Here we met with gigantic Rhubarb, growing by the water-courses which thread their way uncovered, from the city drainage, through this ground to the river. A better plan could not be devised, nor one more in accordance with the "drouthy" habit of the plant. Plantations are made on either side of these courses on the brink of the water-run, and as the roots grow so is the nourishment provided. The young plant has good tilth to induce root propagation, and when it increases in growth it comes in contact with more stimulating ingredients. In this way, and in many ways, such valuable material can be utilised without interfering with the olfactory nerves of a growing population. Of course the drainage is conveyed in covered drains until it reaches the fields, and is utilised afterwards. *J. A.*

Miscellaneous.

Test for Alkalies.—A new and highly sensitive reagent for alkalies and alkaline earths has recently been discovered by Professor Böttger in the leaves of Coleus Verschaffeltii. The reagent is prepared by digesting the fully developed leaves of this plant in alcohol, and impregnating slips of Swedish filter paper with the solution obtained. This test paper is of a beautiful red colour, which becomes green under the influence of an alkali or alkaline earth. It is not affected by free carbonic acid, so that it may be used for detecting traces of carbonate of lime in water.

Grass Sponge.—A natural product called Grass Sponge, and found in profusion on the coral reefs of the Bahamas and coasts of Mexico and Florida, has lately come into use in America. It is said to make a much better stuffing for beds, chairs, &c., than any kind of hair.

Garden Operations.

(*For the ensuing week.*)

PLANT HOUSES.

Thunbergia fragrans, which is perhaps one of the most beautiful of winter-flowering stove plants, will, if properly treated, be very gay now, and will continue to flower onward through some of the duller winter months. It is to be regretted that flowers of such matchless whiteness have not that "fragrance" which the name would lead us to believe they possessed; for though they are reported to have that great merit in plenitude in their native country, I cannot but regard the term here as a misnomer. This I took occasion to protest against when I introduced it a year or two ago. These remarks specially apply to the variety with wider and much thicker leaves than the narrow-foliaged variety originally introduced. *Amaryllids, Tydeas, Begonias, Nematanthus, Justicias*, and similar plants, will now become valuable in the way of affording a supply of flowering plants through the earlier autumn months, and should therefore receive every encouragement possible by being placed in warm open sunny positions, care being taken not to water them overhead, or otherwise to moisten them at this season. Where sufficient stock exists, some such subjects as the following may have their flowering period materially prolonged by introducing them in small quantities at various intervals through the earlier winter months into an advance of temperature compared with that in which the general stock is placed, viz., *Zygopetalums, Euphorbia jacquiniflora, Phajus, Dendrobium chrysanthum. Pentas*, &c., which generally thrive well in mixed stoves; whilst a few *Cyclamens* of the Persian breed, *Monochætums, Oleas, Daphnes, Citrus*, &c., might be made extremely useful in greenhouses. Let us not, morever, overlook *Indian Azaleas*, which, however, may be classed under the general term of forcing plants, a few of which, according to the more prominent requirements of individual places, should be introduced at any time. It will be understood, however, that plants forced very early are not nearly so likely to produce an abundant display of flowers, as others started in three or four weeks' time, and with the well-ripened tint of autumn well impressed upon them. Let me here remind those who are anxious to have a good display of forced flowers throughout the winter, that besides *forced Bulbs* generally, *Azaleas, Rhododendrons*, and similar plants, there are a few unique subjects which ought not to be overlooked. I refer to the exeedingly free blooming *Japan Cherry* (Cerasus japonica flore-pleno alba), small plants of which forced are objects of great beauty. *Hoteia japonica*, which bears pyramidal masses of white Spirea-like inflorescence, is another useful addition. To flower it—forced in small pots—well-grown clumps, prepared in a manner similar to what continental Lilies of the Valley are, must be procured. *Deutzia crenata flore-pleno*; some half-dozen varieties of the *Double-flowered Peach; Weigela rosea variegata, Magnolia Lenne*, &c., are all equally desirable, and should be procured if possible, together with the *Variegated Solomon's Seal*, which is one of the best forcing plants with which I am acquainted; as is also the new *Double crimson Thorn*, specimens of which have been exhibited so freely during the past season. *Chrysanthemums* cannot well be overdone with liquid manure now, as the season in which they are about to flower has arrived. Do not omit to sprinkle them frequently overhead, where this is compatible with the requirements of other plants which necessarily remain in any house along with them. This practice constantly pursued, added to a constant supply of water to the root, affords certain security of having a beautifully green foliage, down to the very base, without which the best grown specimens fail fully to display the whole beauty of which they are capable.

FORCING HOUSES.

Do not longer delay covering with suitable material all *Vine borders* which are fully exposed to rains. Remove any laterals, or leaves which show symptoms of ripening, and which throw too great a shade over hanging Grapes, or which are likely to unduly impede a free circulation of air. Be particular not to slop water about in any unnecessary quantities, in watering any "bedding stuff," or other plants which may be placed in Vineries to winter. Once a crop has been used from any Vinery, set to work immediately with the view of giving it the necessary cleansing out. Should the canes be fairly ripened, cut away all loose hanging laterals without reserve, and remove ripened foliage freely, as "the Vines are benefited thereby." This practice seems reasonable, as any superabundant sap—or I may say any that the plant may be in possession of—is as a matter of course equally distributed throughout every bud of which the Vine is possessed. We afford the fruiting plant a sufficiency of wood to properly develop as many leaves as possible, compatible with the limited amount of space each has to occupy, for the double purpose of duly elaborating the sap, to carry the crop to perfection, and of imbuing it with vigour properly to form and ripen wood for the wants of the following year. When the crop, therefore, has ripened off, and good wood has been laid in store, the leaves, ripening to decay, perform their office languidly; it is therefore highly feasible that to ripen and plump up the whole of the minor buds at the extremity of each lateral and sub-lateral, is to rob the main rod of some portion of its vigour, and hence the principal buds of their fullness. By all means the main thing to study in connection therewith is the following fact. See that the Vines are going to rest beyond a possibility of pushing any of the buds upon the laterals shortened. This will be readily known by the ripened state of the wood, and by the foliage advancing to decay. Give air freely when once the house has been put in order, even to the admission of a few degrees of frost, should that be possible without injuring any migratory subjects stored therein for the winter. It is possible that the wood in some late *Peach-houses*, being over robust, ripens too slowly. Should this be so in any instance, it will be well to keep a slight amount of warmth in the heating apparatus. Give abundance of air therewith upon all sides during the day, but only at the apex of the house at night. To allow the air to enter, surcharged as it is this season with moisture, at the front, would be to damp all the foliage. Do not delay longer the planting out in their proper winter quarters all *Cucumber* plants intended for winter fruiting. A good maximum bottom-heat of 95° should be maintained, with from 75° to 80° as the temperature of the house, added to abundance of air upon all favourable occasions.

HARDY FRUIT GARDEN.

Get all *Strawberry Plants* grown in pots, and intended for forcing, under some form of shelter; and properly secure the roots from the possibility of being frozen. Keeping this in view, they should be plunged in a good depth of cinder ashes, old tan, leaves, or similar material, in any frame where some sort of upper protection can be afforded, should the weather eventually set in very severe. Allow free exposure to the outer air, when once they are properly secured in their winter quarters. The only exception necessary will be at any time when excessive or long-continued rain sets in; the shelter of the lights or so will then be of some benefit to them.

HARDY FLOWER GARDEN.

As soon as the beds have been emptied of their summer-blooming plants they should be forked over and again planted with plants for early spring flowering. The Forget-me-Nots (*Myosotis*), whether blue or white, make charming beds when blooming *en masse* in the early spring. These should now be planted about 4 inches from plant to plant. *Silene pendula* and *S. pendula alba* are equally useful, and, if the plants are strong, the former will be sufficiently high to form a centre to the beds of blue Forget-me-Not. The blue and yellow *Cliveden Pansies*, the latter of which is in greatest request, as it contrasts best with the blue and pink just alluded to, might also be planted now. Nor must the elegant little *Saponaria calabrica* and its white-flowered variety, with *Collinsia grandiflora, C. verna*, and *C. bicolor*, be overlooked; the former of these forms the most compact of all flowering plants for edgings—*Arabis*, in several varieties, equalling it as a foliage plant. I have before directed that new seed of Collinsia verna be procured and sown at once. This is the most striking of all spring-flowering annuals, and should be slightly protected in winter. It is to be regretted that old seed will not germinate with any show of success. *Wallflowers* might now be removed into beds. They will flower freely in the spring, and form excellent centres for large beds.

KITCHEN GARDEN.

Let me repeat that all root crops should be taken up with as little delay as possible. Be very careful in drawing *Beet* not to break any of the roots, and do not in any way injure the crown in the process of removing the leaves. The least injury in this wise will cause them to lose their colour, and to become insipid when cooked. These, like Carrots, keep best pitted in the open ground. *Parsnips* should never be taken up until wanted for cooking; they become hard and stringy if long out of the ground. *W. E.*

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,

For the Week ending Oct. 16, 1867, as observed at the Horticultural Gardens.

October.	Moon's Age.	Barometer.		Temperature.					Wind	Rain.
				Of the Air.			Of the Earth			
		Max.	Min.	Max.	Min.	Mean	1 foot deep.	2 feet deep.		
Thurs. 10	13	30.098	29.670	55	26	40.5	51	51	N.	.00
Friday 11	14	30.179	29.924	53	38	45.5	51	51	S.W.	.15
Satur. 12	15	29.831	29.753	47	33	40.0	51	51	N.E.	02
Sunday 13	○	29.591	29.513	53	38	45.5	51	51	N W.	05
Mon. 14	17	29.760	29.629	55	45	50.0	51	51	S.	.04
Tues. 15	18	29.750	29.7 0	58	47	52.5	51	51	S.	.20
Wed. 16	19	29.834	29.783	64	45	54 5	50	52	S.	.00
Average		29 863	29.715	55.0	38.8	46.9	50.8	51.1		0.46

Oct. 10—Cloudy and damp; fine; clear and frosty.
— 11—Foggy; rain; heavy rain at night.
— 12—Foggy throughout, cold at night.
— 13—Low fog, dull and cloudy; foggy at night.
— 14—Foggy; cloudy and fine; clear and fine.
— 15—Cloudy and damp, fine, heavy rain in evening; clear.
— 16—Cloudy and damp, fine; overcast at night.
Mean temperature of the week, 4 deg. below the average.

STATE OF THE WEATHER AT CHISWICK,

During the last 41 years, for the ensuing Week, ending Oct. 26, 1867.

October.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain	Prevailing Winds.							
						N.	N.E.	E.	S.E	S.	S.W.	W.	N.W.
Sunday ..20	59.1	39 5	49 4	19	0 34 in.	—	6	7	3	6	10	11	3
Mon. ..21	58.3	40.0	49 2	18	0.64	3	7	5	5	5	9	5	2
Tues. ..22	58.9	42.5	50 7	24	0 96	2	2	4	1	12	11	5	4
Wed. ..23	58 2	39 8	49.0	22	0.56	2	3	1	3	4	16	8	3
Thurs. ..24	56.2	39.4	47 8	19	0.88	1	4	4	—	10	13	7	2
Friday ..25	58 0	38.5	48 3	20	0 80	5	6	7	3	4	7	6	3
Satur. ..26	55.5	36.6	46.0	18	0.72	6	7	3	2	7	8	5	3

The highest temperature during the above period occurred on the 22d, 1863—therm. 69 deg.; and the lowest on the 23d, 1859—therm. 17 deg.

Notices to Correspondents.

Gymnogramma: *J C Mundell.* A very handsome sport, Gymnogramma peruviana argyrophylla cristata. Whether it be the result of a cross between G. peruviana and G. Wetenhalliana we cannot say; the genus is notoriously sportive.

Names of Fruits: *S R H.* Pears: 1, Beurré Diel; 2, Grosse Calebasse. Apples: 3, Golden Reinette; 4, Scarlet Pearmain.—*A G.* 1, Hacon's Incomparable; 2, Marie Louise; 3, Louise Bonne (of Jersey); 4, Comte de Lamy; 5, Urbaniste; 6, Nouveau Poiteau; 7, Beurré Diel; 8, White Doyenne.—*A B.* 1, Easter Bergamot; 2, Brown Beurré; 3, Brown Beurré; 4, Glou Morceau; 5, Old Colmar; 6, small and worthless. Apples: 1, Ribston Pippin; 2, Syke House Russet; 3, Ravelston Pippin; 4, not known; 5, perhaps Ortley; 6, Borsdorffer.

Names of Plants: *Miss Eliza.* 1, Asplenium Adiantum-nigrum; 2, Polypodium Dryopteris; 3, Asplenium lucidum.—*J Cox.* Pedicularis palustris.—*W Sharpe.* 1, a curious form of Polystichum angulare, not sufficiently developed; 2, 3, and 4, different states of Polystichum aculeatum lobatum.—*P C.* 1, Alyssum saxatile; 2, Solidago, insufficient for determination; 3, Cystopteris fragilis dentata.—*Filix-fœmina.* Lastrea Filix-mas paleacea.—*J B.* 1, not fertile—the specimens look like sterile fronds of Davallia (or Acrophorus) chærophylloides; 2, Blechnum occidentale minor; 3, Pteris longifolia.—*W G S.* Selaginella cæsia, and Sedum Sieboldii.—*J D.* Hibiscus rosa-sinensis.—*A D B.* Dioscorea, near D. marginata.—*E S.* Polygonum tomentosum, var.—*A B C.* Browallia demissa?

Paris Pomological Congress.—In our account of this meeting at p. 1046 one or two misprints occur. Messrs. Reville Combe should be "Messrs. Rouille Courbe;" Roncy should be "Rouen;" Cernau d'Automne should be "Certeau d'Automne."

Variegated Elm: *J B* writes—"If Mr. J. Hally (p. 1000) wishes to have a rooted sucker of the Variegated Elm, I can send him one, from a tree that has been cut down last winter.

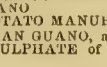
Variegated Laurel: *T Neil.* Your Laurel is very finely marked, and is well worth perpetuating. As to its distinctness, we cannot speak positively without an opportunity for comparison, which just now we do not possess.

Vines: *S B.* It is always somewhat difficult to grow Grapes and plants together in the same house; to do the one well, the others must needs suffer. We have, however, seen very good Grapes and plants too grown in this manner. When your Vines are in blossom, make the house conformable to their wants; and in the autumn, when the wood and fruit are ripening, keep up a good brisk bracing atmosphere, by admitting plenty of air, and applying a little fire-heat in cold, dull weather. We have seen very good Grapes grown in a house with a northern aspect, on which the sun never shone. Mildew is most prevalent in cold stagnant atmospheres, and shanking is caused through cold and badly-drained borders, over-cropped, or unhealthy Vines. See that you keep out of the border the roots of the Elm trees.

Trees for Avenues: *Anon.* Elm, Lime, Ailantus, Sycamore, Sophora japonica, Cedar of Lebanon, Deodar, Austrian Fir, Walnut, Black Walnut, Horse and Spanish Chestnuts, and Oak, where there is good space, are all good trees for avenues.

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Prepared OIL MIXTURE for the ANTI-CORROSION OILS, TURPENTINE, VARNISHES, BRUSHES, &c.
3 cwt. Free to all Stations in England and Wales, and most Ports of Ireland and Scotland. Patterns and Testimonials sent post free.
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Caution.—All Casks should bear the Trade Mark. No Agents.

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From Major Rt. Bell, *Sandhoe, Northumberland.*
"I have much pleasure in saying I have known your Black Varnish to be used for some time by friends of mine, and they all speak highly of it, which has induced me to get the quantity I have from you. That I have used looks remarkably well."
Sold in casks of about 30 gallons each, at 1s. 6d. per gallon, at the Manufactory, or 1s. 8d. per gallon paid to any Station in the kingdom.
Apply to Hill & Smith, Brierly Hill Iron Works, near Dudley, and 22, Cannon Street West, E.C., from whom only it can be obtained.

COLONY of NATAL.
IMMIGRATION and FREEHOLD LAND GRANTS.
GRANTS of GOVERNMENT LAND are given to Men familiar with Farming operations, and possessing sufficient means to turn their Land to account.
Applications for further information to be made to Dr. Mann, the Special Agent of the Natal Government, at the Natal Immigration Office, 15, Buckingham Street, Strand, London, W.C.

THE BIRMINGHAM CATTLE and POULTRY SHOW, 1867.
The NINETEENTH GREAT ANNUAL EXHIBITION of FAT CATTLE, SHEEP, PIGS, DOMESTIC POULTRY, CORN, ROOTS, and IMPLEMENTS, will be held in BINGLEY HALL, on SATURDAY, MONDAY, TUESDAY, WEDNESDAY, and THURSDAY, November 30, and December 2, 3, 4, and 5, when PRIZES to the amount of £2100 will be awarded in the following Divisions, viz.:—

FAT CATTLE ..	£812 15 0	BREEDING PIGS ..	£76 10 0
FAT SHEEP ..	311 5 0	ROOTS and CORN ..	67 4 0
FAT PIGS	59 5 0	POULTRY & PIGEONS	755 9 0

Prize Lists, Certificates of Entry, and every information may be obtained from the Secretary.
The ENTRIES CLOSE on FRIDAY, November 1.
John B. Lythall, Secretary.
Offices, 30, New Street, Birmingham.

SMITHFIELD CLUB FAT CATTLE SHOW.—The ANNUAL SHOW of FAT CATTLE, SHEEP, and PIGS, will be held at the AGRICULTURAL HALL, ISLINGTON, on MONDAY afternoon, December 9, and Four following Days.
Intending Exhibitors are requested to apply for Certificate Forms by the reference letters as under.

CATTLE.—Form	A.	For an OX or STEER (in any Class).
"	B.	For a COW or HEIFER (in any Class).
"	C.	For a BEAST in Extra Stock.
SHEEP. "	D.	For a PEN of 3 WETHERS (in any Class).
"	E.	For a SINGLE SHEEP in Extra Stock.
PIGS. "	F.	For a PEN of 3 PIGS (in any Class).
"	G.	For a SINGLE PIG in Extra Stock.

ENTRIES for LIVE STOCK CLOSE NOVEMBER 1.
Prize Lists, Forms of Certificates, and all information, may be obtained on application to Mr. David Pullen, Assistant Secretary, at the Office of the Honorary Secretary, corner of Half-Moon Street, Piccadilly, London, W.
N.B. All communications respecting the Show must be addressed to the Assistant Secretary, as above, and should bear outside the words "Smithfield Show."

The Agricultural Gazette.

SATURDAY, OCTOBER 19, 1867.

FOUR analyses of a Patent Cake have been lately published by Mr. C. W. Hamilton, of Hamwood, Ireland. They are by Doctors Anderson, Apjohn, Cameron, and Voelcker respectively. Imperfect manufacture or uneven mixture of the ingredients employed may account for such differences of composition as the samples submitted for analysis appear to have exhibited; but the extreme variety of opinion expressed by the several authorities to whom the subject was submitted, certainly cannot be accounted for in that way.

It appears from the letter on the subject in the *Farmer* that Mr. Hamilton, at the last December show in the Agricultural Hall, Islington, found that a great number of the prize-takers, both for cattle and sheep, had used Hardon's patent cake, and expressed approval of it. He therefore sent over a couple of tons for trial against the Linseed cake which he was in the habit of buying, and with the analysis of which, as well as its feeding quality, he had every reason to be satisfied. The experiment was fairly tried, and a very decided superiority attributed to Hardon's cake, the prices paid having been equal. A doubt, however, having arisen as to the relative money value of the two feeding stuffs, he sent a sample of each to the secretary of the Royal Agricultural Society of Ireland, in order to have them examined and reported on by Dr. Apjohn. His report was:—

"Mixed Cake, No. 1 (this was Hardon's).

Water	18.50
Oil	4.20
Sugar	2.50
Dextrine	6.42
Gum, starch, fibre, &c.	45.88
Flesh-forming constituents, including 2.52 of nitrogen	15.75
Ash	6.75
	100
Phosphoric acid of ash	2.05

"Linseed Cake, No. 2.

Water	11.20
Oil	15.10
Flesh-forming constituents, including 4.2 of nitrogen	26.25
Sugar, starch, gum, fibre, &c.	41
Ash	6.45
	100
Phosphoric acid of ash	2.24

To these figures Dr. Apjohn added the following note:—"In casting the eye over the above results, it will be seen that the Linseed cake is much more valuable as a feeding material than the mixed cake, No. 1; in fact, if the relative values be calculated from the percentage of oil and flesh-forming materials existing in each, it will be found that such values are to each other very nearly in the ratio of 5 to 2."

This was a rather startling conclusion in the ears of one who had ascertained by actual experience that this cake in actual feeding value was equal if not superior to the best Linseed.

Accordingly Mr. Hamilton sent a piece of the same cake to Dr. Cameron, who recognised the material as the same which he had previously analysed for the manufacturer. He found very much less water in it than had been found by Dr. Apjohn, from which we may suppose that the material had dried in Mr. Hamilton's keeping; but then the oil, too, had diminished, whereas the sugar had very largely increased; so that we are bound to conclude that different modes of analysis were employed. The oil determined by Dr. Cameron's method was only 3.29 per cent.; the sugar amounted to 10.14 per cent.; and that gentleman speaks of the cake analysed as being the best specimen of artificial food he has ever examined. "It is extremely rich in easily digestible nutritive substances, possesses an extremely pleasant flavour, and will be relished by horses, oxen, sheep, and pigs." He can strongly recommend its use as a supplemental food, and those who use it will have, in his opinion, every reason to be satisfied with the results. Mr. Hamilton naturally enough thinks that in the difference between 12*l.* and 5*l.*, assigned as the value of the feeding stuff by two such eminent chemists as Drs. Cameron and Apjohn, he has a *primâ facie* case for inquiry into the grounds upon which such estimates are made.

Probably no better umpire could be chosen in such a contest of opinion than Dr. Voelcker; and he reports upon the two cakes which had been examined as follows:—

"No. 1 (the Linseed) is a genuine and pure Linseed cake, worth at present from 11*l.* 10*s.* to 12*l.* per ton.

"No. 2 is a mixed feeding cake, containing nothing which is injurious to cattle, and possessing high fattening properties. I have no doubt that No. 2 would be much liked by cattle and sheep, and fatten them well. Probably No. 2 cannot be sold at a profit at much less than 11*l.* 15*s.* to 12*l.* per ton."

In answer to further inquiry as to the modes employed by scientific men in estimating the value of foods, Dr. Voelcker says that the composition of food, though an important feature in estimating its value, is not the only one, and hence no correct estimate of the value of feeding stuffs can be given solely on the strength of an analysis.

Linseed cakes and mixed feeding cakes, he says, may be used, according to the skill and judgment of the feeder, either with great advantage or even occasional loss in money; clearly showing that the economical value of all food depends much on the right use being made of it. In his opinion, a mixed cake is better adapted for quickly fattening animals than Linseed cake. For young animals, on the other hand, he prefers Linseed cake, or, generally speaking, food rich in nitrogenous matter.

It thus appears, what every thinking farmer must already know, that the profit arising from the management of fatting sheep and cattle depends not only on the quality of their food, but upon its fitness to their individual constitution, and upon a variety of other circumstances independent of the feeding altogether. And a long course of experiment is needed before the relative values of two rival foods can be fairly ascertained.

Mr. Strafford's sales of Shorthorns at and near Windsor on Wednesday last deserve a record here. The market value of ordinary pedigree stock may be gathered from them to be nearly as high as ever it has been. We believe that the average price of well-bred Shorthorns of all ages, gathered from a list of all the auction sales of the last 20 years, stands at not much more than 30*l.* a-head. But this includes the enormous prices given for pure Kirklevington and pure Warlaby blood. Here—in the case of a selection from the Royal herd, which owes, we may add, hardly any of its value to any Bates' admixture, and only some of its value to crosses of Booth bulls—the average over 53 of all ages has been upwards of 40*l.* The two families to which this high average was mainly due, are those of the cows *Alix* and *Cold Cream*, bought in 1856 at the Fawsley sale. The former cow has since then had 21 descendants in the Royal herd, and the latter 36, many of which have been sold, and others remain at the Prince Consort's Shaw Farm. Eighteen of them reached an average price of 60*l.* 6*s.* 4*d.* last Wednesday. Among them was *Cowslip*, a 3-year-old cow, bought by Mr. Bulteel for 136*l.* 10*s.*; *Princess Alice*, a 2-year old, bought by Mr. Leney for 126*l.*; and *Dewdrop*, a yearling, bought by Mr. M'Intosh for 105*l.* All these are descendants of *Cold Cream*, with crosses in some cases of Warlaby and in others of Kirklevington bulls,

and they stand quite in the higher rank of Shorthorn prices.

After the sale at the Shaw Farm the large company, which this valuable stock and the beautiful weather had together assembled, adjourned to Windsor to witness the disposal of the nine imported *Duchess* and *Oxford* cattle, to which reference was made last week. Of these, one, the younger *Duchess* bull, was withdrawn after 180 guineas had been bid for him. He had caught cold on his journey, and had been greatly pulled down and disfigured by his illness and had better not have been offered at all. The others, however, made ample amends for the disappointment in this one case. The 3D DUKE OF GENEVA, a 2-year-old roan of beautiful quality, was bought by Mr. D. M'INTOSH, of Romford, for 550 guineas. The *7th Duchess of Geneva*, a white yearling heifer of great substance, beautiful hair and character, was bought by Mr. F. LENEY, of Wateringbury, for 700 guineas. The *4th Maid of Oxford*, red, 2-year-old, fetched 300 guineas, bought by the same purchaser. Mr. DOWNING, of Staffordshire, gave 200 guineas for the *5th Maid of Oxford*, another 2-year-old heifer. Colonel KINGSCOTE was the purchaser of the *Countess of Oxford*, for 250 guineas. Colonel TOWNLEY bought the *6th Maid*, and the *8th Lady of Oxford*, roan and white yearlings, for 400 and 450 guineas respectively; and Mr. F. LENEY gave 260 guineas for the *7th Maid of Oxford*, another yearling. The whole eight fetched 3265*l.* 10*s.*, or 408*l.* 3*s.* 9*d.* apiece. And Mr. STRAFFORD may be congratulated on closing the season as he began it, with unquestionable proof of the extraordinary value which on both sides of the Atlantic is attached to pure Kirklevington blood.

—— MESSRS. PEARL and GOOCH, medical men of Eton and Windsor, and members of their respective local Boards of Health, have addressed a letter to members of the local Boards of towns upon the Thames, in which they especially urge the advantages of the system of separating the rainfall from the drainage—so that a sewage uniform in quality and quantity has to be dealt with, and all the arrangements, whether of sewers, outfalls, pumps, or irrigated land, escape the difficulty and the cost of having to be made upon a scale suited to occasional enormous maxima. The daily quantity is virtually constant, and not 100 fold during some few hours in the year what it is at other times. When sewage has to be pumped, the power and machinery required are thus known, and may be exactly provided; whereas, if the rainfall comes in to swell the amount, both sewers and pumping apparatus must be provided adequate to meet the contingency; so that not only is the first cost enormously greater, but the unfitness to the work ordinarily to be done makes that work costly and inefficient. The separation system, say Messrs. PEARL and GOOCH, "is now associated with the name of Mr. MENZIES, deputy surveyor of Windsor Forest and parks. Other gentlemen have, we believe, formerly advocated this plan, but Mr. MENZIES was the first to bring it to a practical conclusion." We presume the reference here is to the arrangement planned and carried out by him at the Broadmoor Asylum, of which the following account is given:—"The area of the roofs, as ascertained, was 2½ acres; the area of the site of the building about 17 acres; the population varying from 600 to 800, but arrangements made for an increase to 1000. Here we found the rain-water off the roofs all saved for washing purposes; the surface water discharged into the nearest ditch, and all the foul drainage conducted by itself, filtered, and applied to about 15 acres of land for utilisation. The contrast presented by this garden to the surrounding heathy and barren district was most striking, and certainly most encouraging. The man who attended to the irrigation told us he had not had a day's illness since he had been so occupied. What struck us most was, the extreme regularity and economy of the system: one man attending to the whole process. We visited the point where the drainage is ultimately discharged into a brook, and took some of the water as it passed from the drain; this to the taste, smell, and sight was not to be distinguished from ordinary spring water." On this the question naturally arises—"If this system is applicable to Broadmoor, where is the line to be drawn between that place and a town? At what amount of population does it cease to apply? The whole plan has been three years in operation there, and we have the published testimony of the chairman of the council that nothing could be more satisfactory. We have constantly heard it stated that this separation system would be attended with much greater expense than the others, but we have some reason to doubt this, and wish it to be fairly answered and considered from first to last. We have ascertained, on the best authority, that the drainage of the new cavalry barracks at Windsor was all planned and estimated on the old system of putting rainfall and sewage together. At the suggestion of Mr. MENZIES, the royal engineer in charge considered the propriety of applying the separation system, and the work was carried out on that plan. The total cost of this was found to be actually less than that at which the other system had been estimated. This arose from several small drains being required, instead of a smaller quantity of much larger ones." Is not the filtration, spoken of as a part of the Broadmoor plan, a difficulty in the way of any simple and wholesale treatment of the drainage of a great town on Mr. MENZIES' system? And may not the greater strength of pure sewage be sometimes another difficulty interfering with the plan of using it in irrigation—as the abatement of a nuisance? We have known pure town sewage, especially on a Monday morning, when there has been less waste of water during the previous 24 hours than during any other day of the week, come so strong and so offensive, that the land has failed either to cleanse it or deodorise it in the usual time. There are advantages in the agricultural use of sewage connected with a moderate degree of dilution beyond the ordinary, or at least beyond the occasional minimum, supply of household water; and this easier disinfection by its use in irrigation is one of them.

—— An Order in Council was published last Saturday, relating to the landing of foreign cattle in the port of London. It names Thames Haven, Odams' Wharf, and the Victoria Docks as the only places at which cattle brought from foreign places may be landed. The order prescribes that the cattle landed at Thames Haven shall be removed from there only by the London, Tilbury, and Southend Railway to Forest Gate, near Stratford, thence by the Great Eastern Railway to the metropolis. Those landed at Odams' Wharf are to be taken along a siding of the North Woolwich Railway, which is part of the Great Eastern Railway, to the Barking Road Station, thence by the Great Eastern Railway to the metropolis; and those landed at the Victoria Docks must be taken along sidings running direct on to the North Woolwich Railway, which is part of the Great Eastern Railway, to the Barking Road Station, thence by the Great Eastern Railway to the metropolis. They are to be brought along the said railways without stopping, and to be discharged from the trucks in which they have been conveyed, at a station or place within 1000 yards of the Metropolitan Cattle Market at Islington, and to be driven immediately to such market or to the lairs belonging to it. This order takes effect from and immediately after the 4th day of November, 1867.

—— Mr. HERAPATH, the chemist, reports that from 3 oz. of the Palm-nut meal, sent to him by Mr. JOYCE, whose pigs had died while being fed on it, he had extracted only a very few and small spangles of copper, and a trace only of lead; they were in far too small a quantity to kill. The copper was, no doubt, obtained from the brass kettles which the Africans boil their Palm-nuts in to obtain the oil. "If the lead had amounted to the hundredth part of a grain," he says, "I should have thought it possible that death could be produced by it. The symptoms are exactly those of lead, and it would be well for you to examine whether that metal could have been introduced in another material. Does the water stand in a cistern, or pass through a pipe of that metal? What do you mix with the meal? The meal itself does not injure, but is very fattening, from the oil still remaining in it."

—— The *Journal of the Society of Arts* calls attention to the monthly report of the engineer to the Association in Manchester for the prevention of steam-boiler explosions. It appears that during the past month 272 visits of inspection have been made, and 624 boilers examined, 392 externally, six internally, 11 in the flues, and 215 entirely, while in addition four have been tested by hydraulic pressure. In these boilers 170 defects have been discovered, six of those being dangerous. A high number of "entire" examinations is still maintained, as many as 215 boilers, out of the 624 inspected during the past month, having been examined "entirely," that is to say, internally as well as in the flues. It is on these "entire" examinations that the Association relies more especially for the prevention of explosions, and therefore attaches considerable importance to their increasingly high number. This is greatly due to the working of the guarantee system, which makes an annual "entire" examination of every boiler an essential condition of granting the guarantee. The defects met with, however, during the month were of an ordinary character, and do not present any features of sufficient interest to merit detail reference. Agricultural steam engines ought always to be placed on the books of any such Association whenever opportunity offers. A professional examination, periodical and "entire," is the only security against accident.

—— That portion of the prize list of the Lincolnshire Agricultural Society, which offers rewards to labourers in husbandry, extends over almost the whole scale between the extremes of merit and demerit in the conditions which it prescribes. It offers handsome sums of money (upwards of 100*l.* in all) in 17 classes; and among them are sums of 6*l.*, and 3*l.*, and 2*l.* to the driver of a steam-engine used for agricultural purposes, who has lived in that capacity, in the service of a farmer or his successor, or on the same farm, not less than two consecutive years, who shall show the greatest skill, care, and competence in the management of a steam-engine, awarded to—Hansel Vessey, Holton-le-Moor, in the service of T. J. Dixon, Esq.; Edward Foster, Holton-le-Moor, in the service of T. J. Dixon, Esq.; and George Towle, South Kelsey, in the service of G. B. Skipworth, Esq. Also various sums, from 5*l.* to 2*l.*, to the shepherd who has reared the greatest proportionate number of lambs, from not less than 400, 200, and 100 ewes and gimmers, belonging to the same person or partners. Nothing can be better than prizes of this kind, unless, indeed, it be in cases where the conditions of rivalry can be prescribed or made uniform, and the award is made upon the spot by judges of the skill or ability displayed in the different sections of farm work illustrated. In addition to these, however, we have prizes offered to the foreman, shepherd, waggoner, blacksmith, carpenter, female servant, who has been for the greatest number of years in the employ of the same family or their successors on the same farm. This may perhaps be regarded as a matter for reward, and distinction or not without much reason for the difference of opinion, according to the habit or prejudice of the thinker; but surely to offer rewards to those who have brought up the largest family without parish relief is not the proper business of an association of farmers and of ratepayers. The following nevertheless are the terms in which the announcement under this head is made in the printed report:—To the labourer in husbandry who has brought up and placed out the greatest number of children without having ever received parochial relief, the total number of his children to be taken into consideration, 1st, 7*l.* to William Elsom, Tathwell, 13 children brought up, 10 placed out; 2d, 4*l.* to Robert Brocksome, Theddlethorpe, 12 children brought up, 10 placed out; 3d, 2*l.* to Robert Mower, Covenham, St. Mary, 11 children brought up, 10 placed out!

—— The risks arising from reckless use of lucifers are forcibly put by Mr. ALFRED BELL, the secretary of the Suffolk Alliance Assurance Office. He says in the *Suffolk Chronicle*, that already since harvest, in the eastern division of the county alone, his company has paid upwards of 1000*l.* for crops and other property destroyed through the neglect of children who are allowed to get possession of lucifers, and have wilfully set fire to the stacks and premises of those who find work and food for their parents. Five instances are described, the details of which can be easily verified; but they all bear the same general character. "The insurer sends in his claim, gets his money, and forgets all about the cause of the fire. The police look serious and knowing; the lad is taken before the magistrates, tremblingly owns his guilt, the father scolds, the mother weeps. The worthy magistrates whisper and confer: 'What is to be done with lads of four and five, and even seven and ten years of age?' The Assizes take it up; a presentment as drawn up by a highly respected M.P., is made, and receives from the Lord Chief Justice the consideration which it fully deserves, and is probably, in due course, forwarded to the Secretary for the Home Department. Meanwhile, the insurance companies, who are practically trustees for the public, lose their savings. Spite of statistics and nice computations, the managers are at a loss to apportion a fair premium to each class of insurer, and the cause of all the mischief is the small stick tinged with sulphur, and dignified by us with the name 'lucifer,' the son of the morning; and this 'light carrier' has already this year consumed more corn than a hundred hungry labourers could provide for their families' yearly consumption! Is there no remedy for this? Is there no law which could reach the parents, and punish them for allowing their children to be armed with these dangerous playthings—more dangerous as to annual results than all the gunpowder which is stored in the arsenals of Europe; so long, at least, as the 'armed peace' continues?" Mr. BELL urges that the matter should be brought under the attention of the Legislature. "A small tax on lucifers would have acted most beneficially in reducing the large number and serious character of fires which are recorded in the late parliamentary inquiry, and would especially have preserved for consumption by hungry mouths the thousands of quarters of Wheat which are annually consumed by fire. The amount of farming stock annually assured in the United Kingdom is under 80,000,000*l.* in value. For the protection from fire of that property the fire offices receive, perhaps, 200,000*l.* If the ratio of fires from lucifers, which has obtained within the last three months in the experience of this office only, were continued, it would be impossible for the insurance companies, on existing terms, to cover farming stock which is subject to be thus destroyed. They would require two or three times the above-named income; and, therefore, the premium would have to be raised proportionately, or they would be compelled to close their doors against all insurances for the protection from fire of farming stock and buildings."

—— At the late meeting of the Newbury Farmers' Club, Professor GAMGEE told his hearers that whereas the annual losses in sheep are 5 per cent. of their number, or 1,000,000 head a year, throughout the country generally, his information from the county of Berks alone demonstrates that the flocks of that county are annually more than decimated. Returns from 12 farms in 1863 proved that the lowest loss on any farm was 3.6 per cent., and that on six of these farms the losses suffered were as follow—10.8 per cent. per annum, 14.6 ditto, 16.8 ditto, 17.6 ditto, 22.2 ditto, 29.5 ditto. Now it appears that in Berkshire there are 327,316 sheep, and if the average mortality on 12 farms, extended over 5894 animals, can be relied on, no less than 35,000 sheep are destroyed by disease in a single year in that one county. The list of diseases reported from which these losses have been owing is significant. They include canker, chilled, choked, consumption, decline, evil, diseased joints, debility, weakness, dropsy, water on the heart, gathering in the head, lambing, heaving, warping, casting lambs, bad udder, stoppage, diarrhœa, scour, inward scour, injury on the back, ricketty in back, gathering on back, giddy, rotten, blowed. Of these, "scab in sheep alone does as much silent mischief and costs this country more in one year than even the cattle plague did in 12 months." If the members of that Club, and the farmers generally of Berkshire and Hampshire, would undertake for a single year to sacrifice 6*d.* per head on their flocks, Professor GAMGEE would engage that such a mass of information should be collected and elaborated as to diminish our losses by disease forthwith to a most remarkable extent, and at the same time confer a lasting benefit on the whole land. A million sheep saved would almost supply the whole of London with

mutton for six months. It would lower the price of meat at least from 1*d.* to 2*d.* per lb., and such reduction implies the saving of a large number of human lives per annum.

THE BREEDING AND MANAGEMENT OF PIGS.

Too little attention is generally paid by farmers to their pigs; they are left pretty much to take care of themselves, and are often kept solely for the purpose of consuming refuse which would otherwise be wasted. The cost of increasing a stock of pigs is very trifling, as they multiply rapidly, and may, with good management, be maintained cheaply in store condition. It is, however, on dairy farms where the greatest number may be profitably kept, more particularly on those that have a considerable proportion of arable land. During the cheese-making months the whey will provide food, and when that runs short stubbing comes in to help, and after stubbing the root harvest.

On a dairy farm, with no plough land, the farmer will be obliged to buy food for his pigs during the winter months.

There are three ways of disposing of pigs; they may either be sold as stores, when weaned or later, or they may be fed and sold either as porkers or bacon pigs. In choosing between these several plans the farmer will be influenced by the locality he lives in, and the distance from good markets.

A very good sale may be obtained for stores in the neighbourhood of large towns, or in mining districts; but, even under the most advantageous circumstances, it will sometimes be found impossible to sell all the stores to advantage, and then recourse must be had to feeding them. I believe it will prove most profitable to combine two of the above plans.

When the farmer has determined upon the method he intends to adopt in the disposal of his pigs, he will next have to fix upon the kind best suited to his purpose. Care should be taken not to run counter to the prejudices of a district, and of would-be purchasers. In some counties a very strong prejudice exists against black pigs, whilst in others they are preferred.

It is not my intention to enter into a discussion of the relative merits of the different kinds. Suffice it to say that the small and large whites, the Berkshires, the Essex, and the Suffolk pigs are the most important. When it is intended to sell pigs as stores at an early age, the large white breed will be found to answer the best: these grow very rapidly, and are ready for sale at a much earlier age than their smaller brethren. For pork feeding I should recommend either the small white Essex, or Suffolk, as these kinds get fat very readily, and, when put upon good food at an early age, do not grow, as a large pig would, instead of laying on flesh. The black Berkshire is perhaps the hardiest, and the Essex pig the most delicate. For bacon and general purposes no pig can be most desirable than the Berkshire, and between them and a medium-sized white pig will the choice rest.

Neither very fat bacon nor pork sells well and therefore, as hair denotes lean flesh, attention must be paid to this point. It should be long and silky, and there should be plenty of it.

I now come to treat of breeding pigs. The period of gestation in the pig is 16 weeks; some old sows will go rather longer, but this may be taken as the rule. If young sows be well done, they will be fit to take the boar when eight months old, and will thus bring their first litter at a year old. If allowed to run much longer, especially if highly fed, a difficulty is experienced in getting them to breed. The time of putting all sows to the boar should depend somewhat upon the season; thus it will be a wiser policy to run the risk of a young sow turning than to allow her to bring her first litter during the coldest time of the year. It will not answer to keep sows four or five years to breed from, except in particular cases.

Boars should be kept by themselves in as quiet a place as possible, and always treated gently, or they are apt to become savage. Savage boars are awkward customers, and great difficulty is often experienced in getting sows away from them. Neither boars nor sows should be fed too highly; they will never be so successful as breeders if they are. Good store condition should be aimed at, and what that is every pig-keeper either knows or ought to know.

Before farrowing the sows should be fed better than they have been, in order to stimulate the secretion of milk; indeed, during the whole 16 weeks they should, if possible, be kept gradually improving in condition. They should have exercise; this they will take themselves if they have plenty of range.

Poor sows will often produce the most healthy, and sometimes the largest pigs, but in nine cases out of ten the milk supply runs short, and then many deaths may be expected. Fat sows are equally objectionable; their pigs are generally weakly, and they are certain to destroy some by lying on them. At the time of farrowing the sow must be separated from her companions, and placed in a proper house for the purpose, fitted up with a rail round to prevent her from crushing her young ones against the walls.

A small quantity of cut straw chaff should only be allowed as bedding: long straw is particularly objectionable for this purpose, as the little pigs become entangled in it before they are strong, and then the sow if she moves about much, is almost certain to kill some by treading or lying on them. Some people recommend the removal of the little pigs as they are born, and have a hamper placed in one corner of the house to hold them until the sow has done farrowing, when they are all returned to her. This plan is, however, only to be recommended in the case of very fat sows, when they are a long time in farrowing. As a rule, the less the attendant interferes the better. I would not, however, have all sows left to themselves; in cases of mal-presentation, a little help may be judiciously given. For a few days after pigging the sow should not have forcing food; if she appears to be quite right at the end of that time, she can then be treated well. Nothing will produce more milk than a little skim-milk given warm. A great deal of the after success of the pigs depends upon how they are treated at this stage.

At about a fortnight old the little pigs should begin to eat on their own account, and a small trough, hurdled off so that the mother cannot get at it, must be provided for their use. Skim-milk with a small quantity of flour in it will be most readily taken to, and they will soon begin to feed freely. In the case of pigs which are to be forced for exhibition, they may be induced to drink a little milk when a few days old; after tumbling into the trough a few times they will soon learn to drink. In the case of ordinary rearing, however, it will hardly pay to feed them so young. It must be remembered that more than half the breed of a pig goes in at its mouth. On no account should young pigs be allowed to depend entirely upon their mother's milk until weaning time. If they have been freely fed—and it will pay to feed all young animals well—they will not go back when weaned, a great desideratum, as every one must know how long it takes for any animal to overcome the effects of being pinched when young. I would urge upon all pig breeders very strongly the advantage of having their pigs castrated before being weaned, care being taken that they have nothing given them for two meals beforehand. There will be fewer losses by adopting this plan than by allowing them to get to a greater age.

Pigs may be weaned from seven to ten weeks old: this will depend upon the season and their general condition. The better they have been done, the sooner may they be weaned: and for some time after they should be fed liberally.

No reason has yet been assigned why in some cases little pigs lose their tails, and in others do not. The blame cannot be laid on the weather, as they fall off at all seasons; indeed, it is still a complete mystery to pig breeders.

No animal will take so kindly to the young of another as a sow, and in some instances it will be found very convenient to give one sow the whole two litters to bring up. The only danger incurred is, that the sow from whom the pigs are taken may suffer from her milk; but with care and proper attention, no bad results need follow. Even young gilts will take to the young of another.

Some attention must be paid to the time at which the sows are to farrow. If allowed to farrow too late in the autumn, the pigs will not thrive so well during the ensuing cold weather as they would do if older. Pigs suffer very much from cold. When possible, no sows should farrow later than the middle of October; they will then bring another litter in April. The best months are September and March, and the pig breeder should try and arrange so as to have his general stock born during those months. The September pigs will be a good size and strong before winter sets in, and will be able to stand the cold; and the March ones will be born at a time when there is no reasonable prospect of their growth being retarded by inclement weather; besides which, on a dairy farm, they will be just old enough to commence their ravages on the whey cistern by the time the supply becomes plentiful. On most farms it will be found very troublesome to provide warm shelter for sows and pigs during very cold weather, and for this reason alone winter pigs should be avoided if possible.

All store pigs should have range, either in large yards or in Grass fields. Sows will do well in a Grass field with a shed attached, and will require no food whatever except Grass for many months in the year. A little corn or a few roots can be given them when the Grass runs short. The great objection to allowing pigs the range of a Grass field is that, unless very carefully rung, they root up the turf; and some pigs (more especially old sows) have a supreme contempt for all fences, and are difficult to keep in any field, unless it be very strongly and closely enclosed.

As I said before, pigs are kept sometimes merely as general scavengers, to consume all the refuse food which would otherwise be wasted, and not for the immediate profit that they bring. This is a mistake, as, with careful management, pigs may be made to pay very well. They make very valuable manure—a point that ought not to be lost sight of.

Store pigs can be kept very cheaply, and will do well on food that no other animal kept by the farmer will eat. I have kept sows and stores in good condition on the bulbs of Turnips picked up after fatting tegs, and they will thrive on Turnip tops, which sheep will not touch. I must not be supposed by any means to advocate a starving system; nothing can pay worse than to feed any animal badly. I am only attempting to show how cheaply store pigs may be kept. Fat sows will not be found profitable, neither will very poor ones; a happy medium should be aimed at.

I would strongly advocate the use of cooked food for all pigs; and, in case the farmer have not accommodation for cooking, that all meal be thoroughly soaked before being given. For this purpose the food should be mixed one day before another. When roots are plentiful, they will prove capital food for fattening pigs, mixed with meal, and boiled together to a pulp. The use of roots should not be continued to the end of the feeding time, or the meat will not be as firm as it should be.

Before entering upon the subject of the feeding of pigs upon whey, I would say that I do not hold with the plan of giving it alone to any kind of pig. It is apt to produce scour, the good properties of the whey being counteracted by its laxative tendency. Any one in the habit of seeing pigs fed solely on whey, and the places they live in, must have been struck by the waste. Some kind of meal should be placed in the whey cistern, and the more astringent this meal is in its properties the better. The meal will sink to the bottom, and become thoroughly soaked, and the feeder will be enabled to ladle as much up as he requires to mix with the whey. I have used for many years Messrs. A. M. Smith and Co.'s Palm-nut meal for this purpose, and have found it to answer admirably. It is astringent in its properties, and very feeding at the price. With the addition of a little meal, it is wonderful how much better the pigs will thrive. I am convinced that it is one of the most profitable ways in which a farmer can use artificial food. When it is his intention to make his pigs into pork, it will be doubly useful, as they should never be allowed to get low in condition.

The number of store pigs that may be kept upon the whey from a given number of cows will depend upon the kind of cheese made, the nature of the land, and whether or no it be skimmed for whey butter before being given. Where cheese is carelessly made the whey will be found the most valuable as pig food, and *vice versâ*. On my own farm I have been enabled to keep from 80 to 100 store pigs on the whey of 40 cows, supplemented with 2 cwt. of Palm-nut meal per week. I may say that I make Cheddar cheese, and also a quantity of whey butter. In case the farmer determines upon selling his pigs out as stores, his course is very simple; he has nothing to do but keep them in good growing condition, and sell them when the supply of food runs short. When it is his intention to feed for bacon, he will do wisely to keep his autumn farrows (in case he breeds the pigs he feeds) well during the winter and spring months, and they will be fit for the knife in September or October. The same will hold good in case the pigs are brought in. The spring farrows will also require good food, and will be ready to kill later in the season. Thus the earliest pigs will be killed when 12 or 13 months old, and the spring ones from 8 to 11. Bacon is now cured at all seasons of the year in large towns, and is often cut up and sold within a month after.

About one bacon pig to a cow may be kept, and the whey supplemented by whatever kind of meal can be bought the cheapest. Nut meal is the most valuable feeding stuff that can be used, then Indian Corn meal, and lastly, Barley meal. When home-grown Barley is only 3*s.* a qr. dearer than foreign, it will answer better. In the case of a mixed arable and Grass farm, the tail and damaged corn will be used for this purpose.

When possible, especially on mixed husbandry farms, it will be found more profitable to breed the pigs than to buy them; the farmer by this means will secure both profits, that of rearing and also that of feeding. The want of proper accommodation will often be fatal to the carrying out of this plan, as without it no one must attempt to keep a number of breeding sows.

And now I come to the subject of porkers. When within reasonable distance, say 100 miles of London, it will be found the wisest policy to kill the porkers at home, and to send them there to be sold. It is not always possible to sell a large number at home, and a better price will always be secured if the pigs are not made too fat or large. From 60 lb. to 70 lb., perhaps, will be found the most selling weight, and perhaps on the whole the most profitable.

The pigs should be packed in hampers with no cloths, and not backsetted. The most convenient-sized hampers are those which will hold four pigs packed on their backs, the two upper ones being placed between the legs of those under them. If the farmer have, or can rig up, a slaughter house on his own premises, I would advise him by all means to kill the pigs at home. A butcher will always be found to do this for 6*d.* a piece, the insides are worth from 1*s.* 6*d.* to 2*s.* each, and a ready sale will be had for them among the labourers on the farm.

Pigs intended for pork should be fed well from the time they leave the sow, and they ought, if moderately well done, to be fit for the knife when from four to five months old. Large pork will be found to sell better in the country than in London.

I would warn anyone desirous of driving a flourishing pork trade from using any condiment, such as Fenugreek and Aniseed, with the meal he feeds his pigs upon. These things will taint the meat and give it a most peculiar taste.

In conclusion I would recommend a plan I have adopted with much success—viz., that of giving the pig feeder, as part of his wages, a certain sum for every pig he rears to weaning time. This will be found not only to render him extra careful of the little pigs when born, but also to make it his interest, as well as his master's, to keep his sows in a fit state to breed large litters. The best servants are apt to overfeed their favourites, but they will soon give the practice up when they perceive that it is not to their advantage to do so.

T. H. A., in the "Field."

Home Correspondence.

Potato Growing.—About 15 or 16 years ago I sent you a curious story of two Carrots, one a White Belgian and the other a Red Altringham variety, grown in the same spot, which had crossed each other in their progress, and in doing so united, each reversing its colour, and taking this characteristic from its neighbour. Thus the red Carrot at its junction or union with the white took the white colour at bottom, and retained its red and green at top; the white at the same time performing the same interchange in all respects. On making this singular discovery I asked the worthy owner to give me the united plants, with the view of ascertaining what might result from seeds obtained from each of the united specimens. This he politely declined to do, saying he would send them as they were, through his son, a medical student in Trinity College, Dublin, to obtain the opinion of the then Professor of Botany there, and I have heard

nothing more of it since. I mention this matter now with the view of eliciting more information on the matter, if anything further is known or left on record, either in Trinity College itself, or by or with the talented Curator of Trinity College Botanic Gardens, Mr. John Bean. Turning to the subject of this letter. On taking up a crop of Potatos in the experimental grounds here last week, I discovered what appears to me another strange metamorphic phenomenon. Amongst a select lot of Potato seedlings, raised in part by myself and in part by my learned colleague, Dr. Moore, I discovered one, or rather a collection in one tuber, of a strange nature. The tuber producing the curiously coloured group was, when planted, very like what was formerly called in Ireland the Scotch Apple, a rather coarse, waxy variety, very productive in weight but deficient in starch. At an early or even medium period of the year these were much used for pig and cattle feeding, but later in the year used as human food. This Potato, with the others which grew out of it and on it, weighed, when taken up, 3½ lb. The first formed tuber, that out of which the others have grown, resembled the parent, being in colour between a dull white and a purplish red. On it there are placed six others, one marked like the original seedling or his grand parent; 1, red with very little white; 2, a bright red; 3, a white with an occasional tinge of purple; 4, a dark red; 5, a deep red with an occasional spot of cream colour; 6, a pure white; and 7, the parent itself, which includes the group. I should remark that No. 7 had got the disease, and the others, as if by an effort of Nature to escape it, have grown from the eyes on the sound parts. To arrest the disease I placed the group in a dry place, but the dry root is setting in in the original tuber as the wet rot, so called, disappears.—When I took charge of my department here, about two years ago, I had very little manure at command, and no means of getting it, except at a heavy first cost. On looking round I discovered a good deal of rubbish of various sorts, the sweepings and cleanings. I found also lying unused a considerable quantity of gas lime, and with them I made up a compost, and after a little time tried on it a series of experiments with various seeds, and I found the Potato stood foremost, for it not only survived but grew luxuriantly where some of the others grew but poorly. By repeated turning and exposure of fresh surfaces to the action of the atmosphere till the time of sowing and planting came round in spring, I had the compost so purified as to be fit to apply to any ordinary crops, many of which it produced most luxuriantly, but none with a more salutary effect than the Potato, which grew on it quite free from the disease which had attacked all the Potato crops in the locality grown on rich nitrogenous manure. Resolved to put the gas lime to a more severe test in preventing the Potato disease, I planted some sets about the middle of June last, merely covering first with a little soil, and then with what I had of the fresh gas lime, spread and left exposed to the action of the atmosphere until the crop required earthing, which was done in the usual way, covering up the lime as the work proceeded. The crop grew well, and bade fair to equal those planted early and more highly manured. All increased in luxuriance except the very early ones, which were matured when the first changes in the atmosphere foretold, to me at least, the near approaches of the dreaded malady; and surely it did come later in the year with its wonted virulence. To assist in arresting its progress, I buried the stalks. Whether the protection thus afforded consisted in checking the descent of the sap, and with it the seeds of the disease, as it evidently checked the further growth of the tubers—or whether by this operation, which rendered the raised and narrowed crowns of the ridges capable of casting off the rains, as they fell into the furrows—or, again, whether the sinking the furrow spaces deeper than the site of the Potatos on the ridges protected them by rendering the site dry, singly or all combined, the means by which the tubers were protected against the further progress of the disease I know not. But this much I know, that amongst the many other means I have from time to time adopted for such preservation, in none have I been so successful in either open fields or enclosed gardens. *Edward Carroll, Albert Training Institution, Glasnevin, Dublin, Oct. 7.* P.S. I should, perhaps, have remarked, that if the group of Potatos I have attempted to describe and myself survive so long, I will plant them all separately with the view of seeing if like will produce like, and the majority so unlike the parent stock upon which they have so singularly sprung. *E. C.*

What is Good Seed Wheat?—Mr. Forsyth appears to me to imagine that the office of the grain of Wheat extends no farther than the mere production of the plumule and seminal roots, and then ceases, by its composition, to exercise any influence on the future stem of the plant, or the coronal roots, by which it is to be supported, and whose efficacy it in turn helps to sustain. Let me, however, ask, Why do we ever seek to change our seed Wheats when grown to the highest perfection with which we are acquainted—that is, weighing 65 lb. to 66½ lb. per bushel—and get the same variety, weighing not more than 62 lb. to 64 lb. per bushel, produced on a different soil and influenced by a different climate during its growth, with the view of arresting that degeneracy which we know to result from sowing those fine plethoric Wheats in the same soil, no matter how economically and scientifically our rotation of cropping may be in practice? Again, Why do we get from another locality Barley weighing 54 to 56 lb. per bushel, and discard our own by selling it to the maltster at a less price, though weighing fully 58 lb. per bushel, than we give for the imported? I could put the same question, certain of receiving the same reply, in the case of the Oats. I will even go farther, and ask, Why do we sell our grain of the maximum weights, and next year its produce, though of diminished weight per bushel, in preference to sowing our own superior grain of the same variety for the miller's and maltster's purposes? Is it not because our grain so discarded for seed-sowing purposes is poor in nitrogen compared with its products in starch or carbonaceous compounds? Some scientific men tell us so; will Mr. Forsyth prove to us that these philosophers are unworthy of credence? Again, why do we sell out our fine mealy Potatos at 4*l.* to 6*l.* a ton, and buy the "red bog" Scotch waxy Potatos at 8*l.* to 9*l.* a ton, to replace them as seed, as we term it, but for the same reason? But why go to Scotland or anywhere else for "red bog" Potatos, when we have millions of acres of "red bogs" worse than wasted in Ireland, capable of producing us seed equally good, did our people get due encouragement to reclaim and cultivate them? But I feel I am now treading on forbidden ground, and pull up and draw back, lest I should, if I persevere in this line, get both you and myself into one of those boggy quagmires from which we could not very easily extricate ourselves. In conclusion, permit me to assure Mr. Forsyth and all else concerned that nothing can be farther from my wish than to treat his letter with anything but becoming respect, my sole object being, not so much to get information for myself as for others, who on this side the Channel seek for it in your valuable pages. *Fingal, October 9.*

Stable Management.—1. The stable should be ventilated in such a manner as to secure a constant circulation of fresh air, without exposing the horse to a draught. 2. The stable should also be well lighted, because light is essential to health, also to preserve sight, darkness being sure to produce blindness. 3. Horses should not be allowed to stand on their litter during the day, as the vapours from it are very injurious to the lungs and eyes. 4. Horses should always be allowed to eat their food without being disturbed. Neither horse nor stable should be cleaned during such time, as horses are easily fretted whilst eating their corn, and when this is the case they will bolt their Oats. 5. In summer it is desirable to stop the soles of their feet with a mixture of sweet-oil, mutton suet, and Stockholm tar, so as to keep them cool and moist. 6. In winter a horse should not be tied up outside to have his feet washed in cold water; this should be done in the stable, and the feet and legs rubbed dry. 7. Always give a horse moderate exercise every day, but never allow him to feed until at least 20 minutes after. *T. P. Gostling, Diss.*

Produce of Cottagers' Cows in Berwickshire.—I need scarcely mention that the amount of dairy produce depends largely on the qualifications of the individual cows, and the best cow on this place is a pure Ayrshire. It is also to be noted that last summer, being very dry, was the worst year for Grass that we have had for a long time. The hind has Grass, and some 4 tons Swedes and straw for his cow's keep, or 7*l.* in lieu thereof. Five of my people (householders) at present have cows, and two take money. I have eight yearly men-servants and three families of cotters, who have house, garden, Potatos, and day's wages for seven women and boys, but no cows. The seven hind's families furnish only five women workers. It has often happened that the hinds furnished more workers, and the cotters fewer. There are besides some 20 children too young for work, and eight wives. The cows give 27 to 30 imperial pints of milk a day from April to September, and then fall off as the Grass fails. Of this the family uses two or three pints, and the rest is creamed. The cream produces 5 to 8 lb. of butter per week for sale, besides ½ lb. used by family. The family sups from 8 to 15 pints of skim milk, a little is used for cakes and for the pig, and the rest is made into cheese. In two instances, good managers, with good cows, have sold 120 lb. skim-milk cheese at 4*d.* during the season. I am sorry the information is so incomplete, but it is all I can get. The above mentioned good managers can, I believe, sell above 12*l.* worth of dairy produce, besides keeping their young families. Against that sum must be set risk and yearly deterioration of the cow; but then there is the calf, which may bring 2*l.*, if a good one, sold at nine days old. *J. T., Dunse.*

The Old Farmer and Agent, and Mr. Mechi's Reports.—It will be recollected that I parted company with you at the White Horse, Ipswich, after I had passed through the county of Essex, on a journey I was making into Norfolk. Before I left home for this journey I had determined to stop some time near the renowned Tiptree Hall, and there learn what were the opinions of Mr. Mechi's farming neighbours on his farming and his annual reports; for this purpose I took my fare from Bishopsgate Street Station, so as to be at one of the nearest towns to Tiptree on a market day, and there to mix myself up as much as I could with the farmers in the market, and also at some of the inns at which the chief of them dined. All this I had done more successfully than I could have expected, by obtaining much of the information I was in search after. Two things I was very anxious to learn, namely, what was the condition of Mr. Mechi's land when he himself first became the proprietor of it, namely, whether it formed a part of an uncultivated barren heath, as we at a distance had been led to believe it did, or whether it had undergone any kind of cultivation; and whether the land was now producing, from Mr. Mechi's novel style of farming it, those marvellous—I might almost add miraculous—crops, the annual reports of which, as kinds of Encyclical missiles, Mr. Mechi sends forth to the public, and, I may say, to the whole world. With reference to what was the condition of Mr. Mechi's estate before he came into possession of it, I have had proofs supplied to me of all I was before informed of, and of which I caused an account to be published on the 14th ult., namely, that the farm had been an enclosed farm for at least 200 years, and in my opinion for a much longer time. My informant, to whose information I before referred, writes that a deed of an estate adjoining Tiptree Hall farm, describes land as abutting on the land of Tiptree Hall, and this deed bears date 180 years back. Hence there is a real proof that the farm existed as a farm at that time, and that the dwelling-house and homestead were then known as Tiptree Hall. I decide, therefore, that for near, or quite, or more than 200 years Mr. Mechi's farm has formed no part of an uncultivated heath. My respectable informant furthermore states that the farmer who occupied the farm for full 40 years before Mr. Mechi, was well known to him; and further, he adds, that the farm is, and long has been, nearly surrounded by other farms, in the fields of which, having only hedges between them and Mr. Mechi's, he has known as fine crops grown as any produced by Mr. Mechi. It is true that Mr. Mechi has made more cultivatable land, by grubbing up old and worthless hedgerows and the 200-year old Pollard trees with which those hedges were then nearly full. It is true Mr. Mechi has done this, and we give him all credit for it; and it is true also that he has drained his Alder Ear, and gained somewhat more land for the plough on that account; but my informant believes, that were Mr. Mechi's land now offered for sale it would not fetch more per acre than would any of the lands by which it is surrounded, notwithstanding the enormous sums that have been expended upon it. It is true there is a Tiptree Heath, and it has the general characteristics of all other heaths; but this has nothing whatever to do with Tiptree Hall estate. But Mr. Mechi thinks, because I (copying from Sir John Herschel) am opposed to the ruthless draining of wells and springs and ponds advocated by Mr. Mechi—and because I condemn the denuding of farms and landscapes of every stick of timber, as Mr. Mechi has his farm—he considers I am against land draining altogether, and in favour of hedge-row Pollards, and even timber trees in their wrong places; but no such thing. My own land is every part of it thoroughly drained, and I have not a tree growing in any of my hedges which divide my fields. But Mr. Mechi says that "the 'Old Farmer' advises going back to shallow ploughed lands of the original occupation." Here again he is wrong, for in this, at least, I am far before him, as I learned at the market table I have referred to, for it appears he has not a steam plough on his farm, nor even a steam engine, except one enclosed in a kind of mausoleum enveloped in a shroud—which is kept rather to throw pestiferous liquids into the atmosphere, mixing with the clouds, than for any practical purpose in the cultivation of his lands—whilst I have an engine performing all the chief work of my farm, which I order into every field of my farm in its turn, where, by ploughing and cross-ploughing, and going deeper and deeper in the soil every time I use it, I produce crops which to see would excite envy in the breast of Mr. Mechi. As good wine needs no bush, so the crops I produce by my steam cultivation require no puffing. Should Mr. Mechi follow my plan—bring his steam engine out, and send it into his fields with ploughs, rollers, scarifiers, clod-crushers, harrows, drills, &c.—he would set an example worth his neighbours' following; and no puffing off of his crops would then be required. I may say, indeed, that my Wheats, as far as I have threshed them, are yielding considerably more than Mr. Mechi's do, and at least the value of the rent of my land more. And yet I have had much better Wheat crops than I have this year; but then, as I have said, I do not keep my steam engine at home shut up in my barn merely to work a steam squirt with, as the friend referred to informs me Mr. Mechi's labourers designate a kind of steam-propelled watering-pot he has; but, as I have said, I send my engine into my fields, and make it work. I will say, therefore, to my new acquaintances in Essex, as I shall not probably address them again—square your fields, and use the steam-plough, going deeper and deeper with it every time you set it to work, and you will then lay the foundation, with other necessary adjuncts, of never-failing crops, though even then, of course, they will not be always equally alike, but nevertheless always good and satisfactory. *An Old Farmer and Agent.* [We must observe that our correspondent ends, after all, with something very like the advice which Mr. Mechi is himself almost always offering. ED.]

The Potato Crops.—Much speculation and very great interest is now excited relative to the real position of the Potato crop at the present juncture. The reports vary considerably, but the balance is sadly against the crop. From trustworthy sources of a private character we learn that the crops in Scotland are in a most unsatisfactory state. The disease has been for several weeks making sad havoc amongst them; all lands and soils are alike affected to a great extent, although unequally. In some districts the heavy land crops are the best; in others, the light soils have the advantage—both are greatly injured; in some cases the entire crop is destroyed. In the northern counties the disease is less virulent, but the crop is a meagre one. The breadth planted is large, but the general testimony is that the total produce of this year for the whole of Scotland will not exceed a moiety of the past year, and the bulk of these of inferior quality. In Ireland the crop is not made prominent this year, and we are still without positive information as to the condition of the Potato crop in most of the principal producing districts. What we do hear is not of the precisely unfavourable character which this crop bears both in Scotland and this country. The disease is not so prevalent, nor so severe, but the produce is not excessive. The quantity usually planted make it a very important crop in that country and relatively to the United Kingdom. In the past seven years the acreage planted has been as follows, respectively:—1861, 1,133,504 acres; 1862, 1,018,112 acres; 1863, 1,023,626 acres; 1864, 1,039,282

acres; 1865, 1,066,260 acres; 1866, 1,050,419 acres; 1867, 1,001,545 acres. The total returns which were taken for the past year of the United Kingdom gives 1,382,525 acres, showing the comparatively small quantity grown in Great Britain compared with the growth of Ireland, *i. e.*, amounting only to about one-third the number of acres; so that in the absence of agricultural statistics for this country, I will take the last year's general statistics, *i. e.*, giving in round numbers about 330,000 acres as the number of acres grown in the United Kingdom, against 1,001,545 acres grown in Ireland. This shows the immense importance of the Irish Potato crop, and taking the average as given of the last 10 years, the produce would amount to about 4½ tons per acre, or in gross amount 4,500,000 tons, which may be taken as the produce of this year, a very considerable portion of which will undoubtedly find its way to the English market if the present prices are upheld. The crop in this country, *i. e.*, England and Wales, is no doubt (taking it as a whole) a bad one. In many districts the disease has all but destroyed the crop, in others it has made sad havoc. In the Lincolnshire marshes, and in some districts of the Cambridgeshire fens, the crops are much affected with disease, but the crops are so abundant that large breadths have been sold as they grow to realise from 20*l.* to 28*l.* per acre. The quality is very fine. The better crops average about 5 tons per acre of ware; few crops will average so low as 3 tons, which for many past years has been a general average. In Kent the disease is not very virulent, but the crop is a short one. In the West of England much injury is experienced from disease. In Yorkshire the crops vary much, but the reports are unfavourable; good open loams, well managed, have produced excellent, well grown crops—most other soils have suffered greatly in their produce. The tremendous but partial floods of rain in June actually destroyed some crops, and seriously injured others. The present season for taking up and preventing further inroads of the disease is all that can be wished, and will tend to allay and suppress the unusual excitement which the Potato trade is now undergoing. The high price of Wheat, and consequent demand for its best substitute, the Potato, must cause prices to rule very high, but the quantity to be brought out will ultimately be large, and constitute our chief safeguard against famine prices. I am a rather large grower of Potatos, but I cannot for interested purposes join in the cry of "Wolf, wolf." I believe the crop will turn out better than our large band of speculators would lead us to believe. These men are driving up the market too strenuously. *O. F.*

Milk for Labourers in Cheshire.—Some years ago it occurred to me that the condition of the labourer would be much improved by allotting to him a sufficient quantity of land to enable him to keep a cow for a supply of milk, &c., to his family, for although in a dairy district, the farmers having an aversion to selling their milk in small quantities, a supply from them could not be depended upon. After introducing the system, it appeared to answer so well that it soon became general in this part of the county, most of the landowners being favourable to the scheme, and it certainly has had the effect of adding great comfort to many a labourer's family, but there is one caution required, which is, not to allow a man to have more land than is absolutely necessary for the maintenance of a cow during the whole year—from 1½ acre to 2 acres, according to the quality of the land, being generally considered sufficient for the purpose; if more is allowed he may be induced to till a portion of it and grow corn, defeating thereby the object intended, and by this extra labour at home be the means of its interfering with his daily work upon the farm, and frequently putting his employer to inconvenience. There is also another plan sometimes adopted by landowners: it is to let the poor have pasturage for their cows at 3*s.* or 4*s.* per week each, and, if required, a certain portion of mowing Grass for the winter months. Of course when these advantages are not to be had, the families of the poor fare badly in comparison with the former. *W. P.*

Foreign Correspondence.

French Agriculture: *Paris, October*, 1867.—The vintage has terminated in the south of France, and is nearly over in the central and south-west provinces. The aggregate product will be behind that even of ordinary years, some of the farmers' vintages being the sole exception in the general falling off of the yield. An augmentation in the price of wine would not in itself be necessarily proportionate to the deficiency, but cold and rains have induced a certain species of immaturity in the Grape, injurious to flavour, taste, and conservation. The better class of wines have accordingly risen in price, and to an extent that will certainly be appreciable in England.

In the comparison of French and English wines made from fruit other than the Grape, the preference as to superiority must be given to the French manufacture. With really superior fruits we make worse wines. It may be that hereafter this department of English industry will receive more attention, and that with this attention the quality will advance. There are two principal modes of preparing wine from fruits, the one by fermentation pure and simple, the other by the addition of eau-de-vie and of sugar. The first procedure gives the veritable wine. As to the latter, the simple fermentation is allowed to proceed with a greater portion of the fruit, the remainder only being mixed in the first instance with eau-de-vie and sugar, and when the fermentation is complete, mixed with the residue of the liquor to give it flavour and body. All parts of the fruit are ordinarily submitted to fermentation. The white and red wines of Burgundy are in high request for colouring and giving flavour to Gooseberry, Apple, Cherry, Peach, and other wines. The most serviceable work to consult as to their fabrication is the "Encyclopédie-Roret."*

Maize has not hitherto been credited with any extraordinary medical qualities, but in a memoir drawn up by members of the Royal Academy of Bordeaux it is remarked that since the culture of the Maize has been introduced into Gascoyne, and the inhabitants have made it their principal nourishment, they have been free from all apoplectic and epileptic affections, the latter having previously been very common. Close analytic observers declare that the use of Maize has a happy effect on the temperament. The one thing certain is, that Maize has high sustaining qualities. The Indians of America when engaged in the chase, in war, or on long journeys, are known to make use of a particular kind of farina obtained from Maize, and to have subsisted on this for months together without any other aliment. By the way, the American display of Maize at the Exhibition is excellent; and the little enterprising colony of Natal sends most creditable specimens.

A city Vineyard was in olden time no rarity in Paris, and even now, in many of its retired quarters, may be caught glimpses of arbours and walks trellised by the Vine, and bearing heavy clusters of Grapes. Ingenuity has frequently exhausted itself in seeking to provide in a limited space the widest possible area for the growth of the plant, consistent with the access of air and light. In the course of the merciless demolitions proceeding in Paris for the construction of boulevards and streets, some exquisite traces of what may be termed *souvenirs* of rural life are brought to light. The last week has witnessed a whole street adorned on either side with miniature Vineyards, the pride of their artisan owners, swept away. The rural taste of the Parisians is testified to by balconies crowded with flowers, and by the flowering and trailing plants which relieve the ordinary demure aspect of their enclosed courts.

Horticulture has always been popular in France, the sale of flowers and plants being the subject of a widely extended trade. The flower pavilion of the Central Hall or market, recently erected in Paris, presents a most imposing appearance. It is singularly light and airy, covered by an immense zinc roof, supported by iron columns. The upper part of the arcades and small skylights of the roof are closed by rough glass shutters. The stalls, arranged on either side of its central avenue in tiers, are four yards square. In the other flower markets, five in number, the flower-seliers and their wares are only protected by light moveable structures. Romance has done much with the flower-girls of Paris, making them the heroes of endless adventures; they haunt every place of public resort, obtaining their supplies from these markets, and their aggregate daily sales must be enormous.

The trade in fruit is very active at the present time, not merely with England but with Sweden, Norway, and Russia. The French pride themselves in producing Apples and Pears of enormous size, and, as a rule, these generally prove the best. The external trade in Pears, Prunes, and Cherries has changed its direction; a large and active commerce is carried on in these articles with England, Sweden, Norway, and even Russia.

It has been no less strikingly than truly observed that the nineteenth century belongs to agriculture. The improvement of this great department of industry engages more attention than all others combined. In fact it is only in very modern times that agriculture has asserted its position as a science, less and less being left to mere chance. The French chemists, Dumas, Payen, and Boussingault, have laboured much to this end, applying themselves especially to the means of increasing the nutritive power of the several soils, according to their original constituent qualities and the crops to be raised. Their experimental researches, together with those of other *savants* and of practical agriculturists, will be found admirably summed up in the *Chimie Appliquée à l'Agriculture*, by M. F. Malaguti.†

Strange as it may sound, the mass of French agriculturists are only beginning to understand the value and importance of guano, France having imported but 25,000 tons in the past year, against 150,000 tons absorbed by England in the same time. A large mass of agriculturists in France appear by their practice to incline to the belief that machines will do everything, oblivious of the necessity of new supplies of extraneous elements, such as phosphorus and potash, for the renewal of the soil. Vast tracts of land in Vendée, Bretagne, Sologne, and Gascoigne, now uncultivated, might be redeemed for the culture of cereals, and with great profit, by means of fossil phosphates, of which France possesses an abundant supply. Vast depositories of the bones of animals of former ages, in a state of concretion, extend in a belted zone from the Pas de Calais to the maritime Alps. At present, indeed, the chief artificial application to land by French agriculturists consists of the phosphate fossils of men and animals.

It is surprising to learn that one of the chief objections expressed against the use of English ploughs in France—an objection, the utterance of which shows how far the slightest prejudice will go—is their length, this involving, it is assumed, a difficulty in turning them. *Le Mémorial Agricole* in its last number gives expression to this objection, remarking in reference to the plough of a well-known maker: "It has the advantage of tracing easily rectilineal furrows, and of dressing regularly the bands of earth which it turns over, but we reproach it with rendering very difficult by its length the change of direction at the end of each furrow. This feature renders its employment undesirable on lands abutting on ditches or on fields bordered by others that have been sown. On great reaches of land, however, the length facilitates the rectilineal advance." With lands cut up as they are in France, the sale of English ploughs must continue to be somewhat limited. The small farmer, generally speaking, needs an instrument which, however faulty in construction, he can repair himself. Lowness of price is with him, too, not the least desideratum.

The races of French sheep have, for a series of years, tended rapidly to improve, a result due in part to the superior quality of the food with which the sheep have been fed and to crossings with Merinos. The improvement has been both in the character of the wool and in the meat. Mutton may be said to hold the same place in France that beef does in England, and is less inferior to our own than is French beef, which for the most part is singularly coarse. The production of fine wool together with good meat have come to be regarded as physiologically incompatible, and sheep farmers consider their interest chiefly to lie in producing the latter. Accordingly the French manufacturer trusts mainly for his supplies to the English and colonial wool sales of London. The opinion of competent French judges on the means of further improving the French races of sheep is that it is indispensable to infuse more fully the blood of English races. The price of meat tends to rise, that of wool to fall, and this decides for farmers the question as to the priority of attention to be given to one or the other of the two objects of production to be held in view.

The production of the salts of potash, the feldspath of the Germans, so powerful an agent in the regeneration of the soil, is extremely limited in France, the dearness of the article restricting the demand; but it has been suggested by an eminent chemist that it might be supplied cheaply and in large quantities for purposes of agriculture by distillation from saline lakes and sea water. Already at Carmague M. de Merle has a manufactory of the kind. The water is received in basins acres in extent, and the sulphate of soda and chloride of potassium are extracted separately. At the Exhibition, the Parisian chemists are especially forward in the display of salts of potassium. It is a remarkable fact that none of the guano of Peru figures at the Exhibition, notwithstanding it constitutes a leading article in the commerce of that country, no less than 14,000,000 tons having been extracted from the guano islands of the Pacific during the past 23 years.

The deficiency of the present year's harvest in France occasioning a rise in the price of bread, which has evidently not attained its maximum, and is a cause of increasing discontent among the *ouvriers* of Paris, is certain to lead to the sowing of an increased breadth of land. More confidence can always be entertained in a cereal than in a fruit crop, and thus we may come to see some of the larger vineyards encroached upon by Wheat and Rye. The tax of 2 francs on every sack of Flour brought into Paris is felt to be very onerous, and a strong belief prevails that the present high rate of Flour is not justified by the actual deficiency of the Wheat crop, but is due to combinations among the merchants of grain. The Parisians believe that if they had representative municipal institutions, such combinations could be set aside, but they are mistaken.

* Limonadier: Paris, A. Roret, Libraire Editeur, 12, Rue Hautefeuille.

† Paris: Charles Delagrave & Co.

Societies.

Great Braxted: *Oct.* 10.—At the third annual meeting of this Society, Mr. Ducane, M.P., in introducing other speakers, said: I am happy to think that there is nobody in this room who does not understand the merits of ploughing and other agricultural occupations as well or better than I do; and, finally, for me to attempt to teach farmers how to farm in the presence of such eminent agriculturists as my friends Mr. Mechi and Mr. William Fairhead, would be an act of presumption on my part almost as great as if, because accident has made me a Lord of the Admiralty, I were to think myself capable of taking command of the Channel fleet in a gale of wind.

Mr. Mechi, in proposing "the Visitors," said as this was an agricultural meeting he supposed he might say a word or two about agriculture. We had all a right to our own opinions, and if these opinions were honest, however much he who expressed them differed from those around him, it was only right that they should be expressed with a view to their consideration, and to their being rebutted if they were not sound and correct. He himself had an opinion that the greatest misfortune that could happen to agriculture was to be satisfied with things as they are—and it was rather unfortunate for him in some respects that he was dissatisfied with things as they are, because it brought him into collision with others who thought differently, but whom he respected very much. Although they had present to-night a great many who where extremely successful in agriculture, he was bound to say, at the same time, that, looking at agriculture generally, it was open to immense improvement, and that they must all of them be prepared to give up many of their old customs and prejudices to meet the requirements of this intelligent and progressive age. It was the same with agriculture as with locomotion; if, 30 years ago, we had been told that we must give up the famous old four-horse coaches and spend 500 millions of money on a new mode of conveyance, the person who had had the boldness to say it would at that time have been declared to be insane; but it had, nevertheless, come to pass, and we now travelled at 50 miles an hour instead of 8 or 9. This rapid means of communication with our fellow creatures was fast removing the prejudices of agriculturists; and the Royal Society, with its itinerating exhibitions every year, was bringing each county it visited to see that it was mistaken in the hitherto entertained idea that its agriculture was perfect. He was very discontented with Essex agriculture in one particular respect, and, as an honest man, he was bound to state it. He saw many present who farmed a certain soil very common

in parts of Essex, called by them "loam," but which was in reality a tile earth of a very adhesive and plastic quality. The opinion of these gentlemen, and that opinion had been very much to their own injury, was that it was of no use underdraining the soil, while the fact was, that if there was one soil that required draining more than another it was this. If he could transfer the farmers of Essex into other parts of the kingdom further north, and they were there to express the opinion they did here, as to the uselessness of draining this particular soil, they would really be looked upon as not understanding their business. His own experience of this kind of draining for 24 years was a complete refutation to the opinions expressed by his friends who thought differently, that drainage was not wanted on this kind of soil, because water would not go to the drains. Having stated the result of an examination he had made of the floor of a drain made 24 years ago upon his own farm at Tiptree, he said he would venture to suggest to those gentlemen who differed from him, that they should experimentalise upon their farms, and report the result to this Society. He thought they were bound to do that, and if they found that they had previously been in error to come here and honestly admit it.

There was another point for the consideration of landlords and tenants, and, after all, not a very costly feature, viz., the giving up of open farmyards, and the adoption of covered sheds and paved floors. He had no hesitation in saying that if landlords would build very inexpensive sheds with paved floors, the farmer paying a moderate percentage upon the outlay, it would do away with dung-heaps, the goodness of the manure would be preserved, and the result would be, crops so astounding that once a shed of this kind was built another would soon be asked for. Having reiterated his old opinion that sufficient capital was not put into the working of the land, and that if it were done it would prove more than equally remunerative to the farmer, he addressed himself to the question of manuring. There were very many, he said, who had had a great affection for Peruvian guano, and he had no doubt the sum paid every year for that manure by those present represented a very large sum. This year he had tried comparative results between the value of Peruvian guano and the fish caught on our coast, putting on the same money value; he had tested the two on Barley, Oats, and Mangel, and he was bound to say that in every case there was a large advantage both in quality and quantity in favour of fish over guano. It was really surprising. He could not tell them to a fraction, but he believed the advantage of the one over the other was fully a quarter in the quantity of Barley and from 2*s.* to 3*s.* in quality. If he was told that sprats could not be obtained, he would remind them that last year 10,000 bushels were sold at Rowhedge alone, within a week, for the purpose of manure. He himself purchased his just before last Christmas, at 8*d.* or 9*d.* a bushel, and those who did not live so near the coast could have the fish brought by rail for a small sum per ton. Speaking of the necessity of keeping a considerable quantity of stock upon a farm as the true secret of maximum crops, he said he could assure them without any desire to praise his own, that what portion of his Wheat crop he had threshed averaged 5 quarters an acre, his Barley (grown after Wheat) averaged 6 quarters an acre. He had threshed 190 quarters of Wheat and still had a good stackyard. He had threshed the previous day 10 acres of Barley which yielded 60 quarters. A very great loss had been occasioned this year, and they must all admit it, by sowing too thickly, which with the seasons we had had caused the crops to fall too early, and the consequence had been certainly a diminution of the yield.

Mr. Mechi then went on to say that he wished to allude to the intercourse that should exist between town and country. The time was when there was a very jealous and nasty feeling exhibited by his agricultural friends towards manufactures and commerce: but he believed that this had died away, or was rapidly dying away. He had, however, been surprised to hear what was the annual consumption in one single house in London of the products of agriculture. In the Bow Churchyard establishment alone of Messrs. Copestake and Moore, lace manufacturers, the following was the annual consumption:—170,000 lb. of meat, 45,000 4-lb. loaves of bread, 14,000 lb. of butter, 10,000 lb. of cheese, 3500 lb. of coffee, 1600 lb. of tea, 63 tons of Potatos, 7 tons of loaf sugar, 5 tons of raw ditto, 22,000 gallons of beer, 3300 gallons of milk, 700 lb. of mustard, &c. If they had mutton for dinner they consumed more than ten sheep in a day; if beef, a bullock; and they feed between 700 and 800 persons a day. Mr. Mechi concluded by remarking that it ought to be the object of the landlord and tenant so to improve the productive qualities of the land as to render less demand upon foreign countries for grain than there was at present. There could be no doubt that it was a disgrace to us, as a nation, that our production was so small per acre. What he wanted to impress upon his agricultural friends was, to look at things not with an eye of prejudice, and before condemning anything to try it on a moderate scale on their own land. When they visited his farm he asked them to come not with an intention to find fault, but with a view to compare results, and to see whether what they saw justified the statements he (Mr. Mechi) made.

The Rev. C. B. LEIGH, in proposing "the health of the Chairman," which he did in eulogistic terms, referred to the question of the adoption of the Highway Act for the whole county, to be brought forward at the Quarter Sessions next Tuesday. He avowed himself at present as a determined opponent of the adoption of that Act. He did not for a moment pretend to say that the roads in every parish through which he travelled were such as he could wish them to be; he admitted that he sometimes came in contact with ruts that shattered the springs of his carriage, and that in some places manure heaps were placed objectionably near the centre of the road—all these things he strongly condemned. He was for the maintenance and good repair of the roads, but he believed that could be accomplished without the adoption of this Act. He believed the law, as it stands, was quite sufficient to accomplish all the wished-for results, and until he was convinced to the contrary he should not be an advocate for the change. If any remedy was needed, he believed it could easily be effected by summoning one or two surveyors of parishes before the magistrates. In the parish in which he resided he did not believe that anyone could find fault with the roads, and yet, for the last 20 years, the highway rate had been under 2*d.* in the pound on the present assessment. By the adoption of the Highway Act he believed they would more than double the rates; and he did not see why a parish which had good roads should have to pay an increased rate because their neighbours kept their highways badly.

Mr. MOSS proposed "the Judges."

Mr. C. HALL returned thanks, and entered into the merits of the several competitions. With regard to the speech of Mr. Mechi, he said he was a much older agriculturist than that gentleman, and he ventured to differ very materially from him. He (Mr. Hall) had land all tenacious loam, part of which he had drained, and he defied Mr. Mechi to point out any difference in the two portions, whether in the crop produced or the appearance of the land itself. His own opinion was that this kind of land would, whether drained or not, hold a certain amount of water before it would run off or find its way below, and, he believed, in this theory he had almost made a convert of Mr. Carter. [Mr. CARTER: With some reservations.] Good draining, however, on land that required it, he believed to be the beginning of good farming. Mr. Hall, as himself a surveyor, expressed himself decidedly opposed to the adoption of the Highway Act.

Mr. DUCANE: With regard to draining, he said he had come to the conclusion that both Mr. Mechi and Mr. Hall were right, "with," as Mr. Carter remarked "some reservations." The fact was, that he held to the opinion he had before now expressed, that no uniform depth of draining would suit all soils, and to that opinion he meant to stick. He had listened to the results of the threshing of Mr. Mechi's crops, and he confessed he had not exactly been favoured with similar returns of his own harvest. He only hoped that there was a good time coming, and that when his tenants threshed out their grain they would find their results to be equal to Mr. Mechi's. He had also listened with very great interest to, and at the first blush with something of astonishment at, Mr. Mechi's returns of the manner in which one firm profited the agricultural interest, and he confessed he thought, for the moment, that they had got back to the days of a gentleman whose exploits were very familiar to all children—

> "Robin the Bobbin, the Big Bellied Ben,
> Who ate more meat than four score men;
> He ate a cow, he ate a calf,
> He ate a butcher and a half,
> He ate the church, he ate the steeple,
> He ate the priest and all the people:"

but on closer inspection of his hon. friend's figures he found that there was nothing very extraordinary in the consumption of food compared with the number fed; and the idea struck him that if another year the officers of this Society were to draw up the statistics of their feed that evening, and show how much they profited the farmers of the district thereby, he should be obliged, as owner of the house, to build a new room for the accommodation of the additional number of gentlemen that would attend. With regard to the proposed attempt to subject this county to the provisions of the Highway Act, he said he had expressed his opinion on this subject about six months ago, when the subject was then brought forward at the Quarter Session. He should go to the Quarter Sessions next Tuesday perfectly unprejudiced, and prepared to listen fairly to all the arguments that might be adduced, but he must confess that unless he heard something of an entirely novel character, he saw no reason whatever for altering the vote he gave on the previous occasion—decidedly against the adoption of the Act. He agreed with much that fell from Mr. Leigh, but without following him minutely through the question, he might say that he thought this was a ratapayers' question altogether—and one upon which the opinion of the majority of the ratepayers ought by some means fairly to be arrived at. He had no doubt there were some districts where the application of the Highway Act might be beneficial, but at the same time he was certain they would increase the expenditure rather than diminish it. His own idea was this—if any district applying to the Quarter Sessions for a provisional order were in the possession of a clear large majority of the ratepayers in favour of such an order, he should himself hesitate to oppose it; but he did not believe that to be the case: on the contrary, if they were to poll the county throughout they would find an enormous majority of the ratepayers—he was not speaking of the tenant farmers only, but of the clergy and small shopkeepers—against the adoption of the Act. His own way of looking at the question was that the matter was one to be decided by the voice of the ratepayers. He confessed that he thought magistrates ought to be rather careful in measures of this kind in setting themselves against the voice of the ratepayers, because, after all, the magistrates were at the present moment the representatives of the ratepayers, and entrusted with a control over the county expenditure; and they had heard of such things as county financial boards, and he must say that if, in defiance of the voice of the large majority of the ratepayers, they thrust these things upon them, they would have a cry for more direct representation and a more direct control over the county expenditure than they had at the present time He thought the subject was one very fitting to be discussed by a Chamber of Agriculture. *Essex Gazette.*

LISNASKEA.—At a recent Agricultural Meeting here, the Earl of ERNE made a number of practical remarks:—

1. *On Irish Butter.*—I am sorry to say that Irish butter does not hold the same command of the English markets as it used to do. We have now to compete with the butter from Holland and from France. The Dutch farmers have large dairies, and can make up a tub of butter from one milking, and, therefore, it is all of the same colour. That comes over to England, and is preferred to ours. There was not much butter at our show to-day, but it is an extraordinary thing that there was one tub, said to belong to a woman who had only a single cow, of really first-rate quality. She said she had been making that butter since the month of May. If we could all get our butter made up like that we should do very well. I have heard, however, that it will not do to make butter by piecemeal. The French butter, though not so good as ours, is very clean. They have white tubs, and they put cotton dipped in salt into the firkin, and when the butter comes out it is free from salt and impurities of all kinds. It is also complained that too much salt is put into Irish butter. Mr. Fowler of Manchester, says:—"The foreign butters are preferred to the Irish butter, because they are so fresh. All the foreign butter brought to England is sold within 10 days of being churned. Foreign butters are scrupulously clean, while Irish butter contains hair and dirt of various kinds, as well as too much salt and brine, principally that from the South of Ireland, and much too frequently in that from the North. The chief fault of the Irish farmers is the practice of 'holding' which prevails. They 'hold' their butter for two or three months at a time; and I have actually known it 'held' for a year for the purpose of getting the highest prices of the season. The butter thus deteriorates, and becomes stale and rancid. English consumers are not fond of stale rancid butter, and prefer French, which is quite fresh. The dairies should be kept quite clean, and the milk vessels thoroughly scalded. The milk should be passed through fine sieves, and the churn kept quite clean. Many farmers keep their milk till it is stale, but it should be churned when quite fresh. The butter should be sold the week it is churned. I would recommend instead of firkins, small white pails, with slip lids, to contain about 50 lb. or 60 lb. of butter. I would particularly recommend perfect cleanliness in the handling and putting up of the butter. If these few suggestions were fully carried out, Irish butter would be preferred to any, it would command higher prices, and find a ready sale in all the English markets. The north of England markets are equal to those of London in these respects. Till quite lately, Irish butter always met with a preference, but the faults stated caused it to lose ground, and now French and German butter commands a better sale." I do wish we could get all friends and neighbours to take more pains with the butter than at present, or we shall lose our prestige, and French butter will drive us out of the market altogether.

2. *Flax Culture.*—Another matter to which I wish to refer is that of Flax. It is a produce which we have always cultivated in this country, but we do not take sufficient pains with it. The Belgian Flax, therefore, always gets higher prices, though in itself it is not better Flax; and the case is very similar to that of the Irish butter. It is as good, if not better, than the foreign Flax, though not so carefully cultivated. Mill-owners can tell you the manner in which the Flax is brought to them. Unless the Flax is well handled it goes to nothing when it is sent to the mill. I see by the Government returns that in this province there are 783 acres of Flax more than we had last year. Now, this is all very well; but altogether in Ireland, there is a decrease of 10,869 acres. In Fermanagh and this county there is an increase; but I would caution you to take good care that you do not cultivate too much of it, because that is the great thing for you to consider. You should not put it into any field under five or six years at least. I believe the decrease is the simple result of an over-cultivation of Flax. Farmers have put it in much too often. There are districts where the land is quite black from continual cropping. Don't try to "Flax" too often, for it is the worst thing you could possibly do.

3. *Weeds.*—Another matter to which I am anxious to draw your attention is the neglect of weeds. I saw more weeds here in one day than during an entire journey from Holyhead to London. It is extraordinary to see the weeds in this country. I have frequently brought the subject before my tenants, and told them that the weeds take up as much suction from the ground as the crop itself. I have heard that the seeds from one Thistle will grow 30,000 or 40,000 more, and by not destroying them you do incalculable harm. In Scotland there is a law by which you can serve a notice upon your neighbour, and compel him, under a penalty of 5*l.*, to remove the weeds from his land. We have no law of the kind, but we ought to have, for it would be very beneficial. The weeds, being indigenous, take more nourishment out of the ground than the crops, and thus cause a serious loss.

4. *Agricultural Labourers.*—I believe that upon an occasion of this kind, two years ago, I brought the same matter before you. I do think that we ought to take better care of our agricultural labourers. We know they are scarce, and are becoming more so every year. Without a sufficient number of labourers your cattle would perish, and your crops be destroyed. We ought to take much better care of them than we do. I am going to give a premium next year for the best house specially constructed for an agricultural labourer, and I hope there will be a good deal of competition. This

is a want we ought to attend to. If you have good houses you will get good labourers; but if you have bad houses, you will only get indifferent labourers to live in them. The last matter I shall refer to is that of machinery. We all know how indispensable labour-saving machinery has become, though at present it is so expensive that it has not yet met with general adoption. I exhibited to-day a reaping and mowing machine, to show you their working. They are both good instruments, and were made by the best firms, but unfortunately they are very dear, costing 20*l.* each. But there are other and cheaper machines, for saving labour, which you should procure, and by-and-by those will probably become much cheaper.

Highclere, *Hants.*—At the annual meeting of this Association the following remarks were made by Lord Carnarvon. He said:—Agriculture has changed much during the last 20 years. It probably has to undergo many more changes, and in fact to keep pace with the development, the expansion, and change which accompany every other department of trade. It is not merely that different branches of trade are undergoing change, but, as you all well know, the persons engaged in those different branches are changing equally. I do not mean that they are merely changing in sympathy, opinion, and feeling, but also in all the visible and material externals, so to speak, of their everyday life. If any of us look back to the state of things which existed some 20 years since, we must necessarily observe that in agriculture, at all events, men are better clothed, better housed, and better fed than they were in former years. They have more of the comforts, more of the luxuries of life, and in some cases I may say they have more of those refinements which are after all good and wholesome refinements, and which tend to make human life happier and better on the whole. They have more of these comforts now, and I wish to God that they had in many cases still more. I also observe that almost in every part of England the agricultural labourers are now in the receipt of larger wages than they were in former years. I have myself only just returned from the north of England, and I find that in many of the midland counties, especially in the one with which I am myself connected by family ties of property, the ordinary wages of the common labourer are not less than 16*s.* and 17*s.* a week, while a good and first-rate labourer receives from 19*s.* to 20*s.* a week. I do not deny that there may be difficulties in dealing with this altered state of circumstances. It is, in fact, a period of transition through which we are all passing, but I believe, for my own part, that these difficulties will be generally found attended by certain compensations—compensations which perhaps do not appear at the moment, but which will develop themselves as time goes on. Of one thing I am convinced, that it is our policy—the landlords and the tenants being in the same boat—that whatever these difficulties of a transition period may be, we must look them in the face, accepting the circumstances of the time in which we live, and, as far as possible, endeavouring to make them our own. We may do a great deal by that improved system of husbandry, of which there are so many able and excellent representatives here present, and I believe that they will themselves be the first to say that there is yet a great deal more to do and to be done.

Improved Machinery.—In the same way it is quite possible that there may be a very large increase of machinery before many years have gone by that will be applicable to agriculture. Happily the prejudices which existed in former years on the part of the labourers to the use of machinery have disappeared. They have now begun to find that machinery in no way interferes with the true scope and sphere of their labours. Travelling, as I have been lately, through the Lothians in Scotland, it was hardly possible to avoid being struck with the chimney which every single farmhouse throughout that great agricultural country possesses. We see there an enormous development of agriculture, and a development accompanied by almost all the mechanical appliances which art and science can suggest. But whatever machinery may do for us, this is to be remembered, that we shall still need labour. Labour we must have; labour, I believe, we shall have; but we can only get good labour eventually by paying for it.

Improved Cottages.—On the other hand, the landlords must be prepared to look another difficulty in the face which belongs to them especially, and that is, they must be prepared as far as they can to provide good cottages. Everybody here present knows that providing good cottages is not as easy a matter as it sounds. What constitutes a good cottage it would take me a long time to explain. We want not merely a good porch, not merely good windows, good doors, a convenient arrangement of the out-of-door premises and offices of the cottage, but we want a great deal of consideration in laying it out, and a great many points have to be taken into account. But I do say this, that the main object of importance inside the cottage when you are building afresh is to provide three bedrooms for the use of the cottagers. Of course, on a very large property there must be some cottages small and some large, but whenever you have to house an ordinary-sized family, the three bedrooms are really indispensable as a matter of decency. That is the great provision which I think a cottage requires inside. Outside, I should say, the most important consideration is that of a good-sized garden. But there is also another question closely connected with that of gardens. I mean the question of allotments. I know that there is a feeling that an allotment is an inducement to a labourer to neglect his own proper work with his employer; that it draws that man's labour from the service of his employer and diverts it to himself. Now I do not think so, or that it need be the case. I believe this—that the interest which the man feels in the soil is so useful in attaching him to the parish, and in giving him an interest in the parish, that the employer of labour in the long run will find himself fully compensated. I incline myself, where it is possible, to the plan of placing these allotments by ones, twos, or threes together as close as may be to the labourer's cottage. I think that that is not only kind to the labourer, but that in the long run it will be found wise and profitable. He has the opportunity thus of employing upon this ground, which is within easy reach, every odd moment which he has at his disposal. I believe that the personal interest which a man has in a plot of ground he can cultivate with advantage and profit to himself, will outweigh all the speculations as to feelings of emulation and rivalry which philosophers ever indulged in. At present we see great tracts of land in the possession of a few individuals. There is no one to blame for this. It is the inevitable result of the wealth which has grown up around particular individuals. But as far as they can, both landlord and tenant ought to give every facility to deserving labourers and cottagers in a country district to put themselves in a position as nearly as possible analogous to that which they might possess if they were themselves the owners of little patches of land.

Albert Veterinary College: *Queen's Road, Bayswater.*—The following is an abridgment of the introductory lecture by Professor John Gamgee, on the reopening of the College for the Winter Session:—The third International Veterinary Congress has just been held in Zurich. They considered the important subject of veterinary education and the organisation of the veterinary art by the state. It was resolved that the preparatory studies for all desiring to enter a veterinary college should be the same as those required by the schools of medicine; that a period of not less than three years should be devoted to college study by our students; and that, whilst there are no objections to a connection between veterinary colleges and the public universities of a country, it is indispensable that every veterinary school should have a proper staff of duly qualified veterinary professors. On the other hand, the veterinary profession demands that there should be some law for the protection of the duly qualified practitioners and the public from the quacks falsely assuming titles they have no right to. The world believes far more in specifics than brains, and the man who in his ignorance boldly asserts he can cure all things, sells his physic and lives. The other, who discriminates and confesses his ignorance, or advises with discretion, is not esteemed and cannot live. Forget not the years 1865, 1866. The men who could cure cattle plague made money; the doctors who vaccinated to prevent cattle plague made money; 7*s.* 6*d.* each was paid for tubes of spurious vaccine; and 5*l.* for the privilege of getting a child with a fine pock on its arm. All this was after the advice had been published that both drugs and vaccination were useless, and that nothing but isolation, slaughter, and disinfection could save the farmer's stock. To my cost I know that the search for knowledge and dissemination of truth not only met no reward, but entailed on some the penalties of premature wisdom. In denouncing our profession, and myself in particular, the *Times* said, on the 5th October, 1865:—"Professor Gamgee has to complain that his profession is denounced as 'ignorant and inadequate for the occasion.' The truth is, as one of the other (medical) lecturers observed, that the doctors are looked up to because they have done good work, because they have diminished the fatality of our human diseases, and are daily at least endeavouring to acquire new victories over Nature. The veterinary surgeon, on the contrary, has fallen into disrepute, because, by his own confession, he is absolutely useless in the presence of disease, and because, assuming himself unable to cure it, he would resort to the most reckless measures to avoid its contagion." Further on in the same article the sound observations are made that nothing could be effectually done in the way of preventing contagion unless the disease could be detected earlier than that at which it was then capable of recognition.

On the 8th of October I had the honour of addressing the Health Department of the Social Science Association at Sheffield on the origin and prevention of the cattle plague. On that occasion I published the fact, that by noting the temperature of animals it was possible to detect an attack of cattle plague two days earlier than by the most minute observation of any other symptom; and, referring to the observations in the *Times*, I ventured to remark that we could not confess ignorance regarding the disease then ravaging our herds, and that the ignorance had existed on the part of those who had done all they could to weaken our influence in the eyes of the world. In conclusion I said—"Turn to the histories of typhus and yellow fever, of human small pox and cholera, and tell us what has been done by curative means. The doctors who have gained victories over Nature have gained no victories over these maladies but by the adoption of preventive measures. Animals can be dealt with differently to men, and a hundred outbreaks of cattle plague might be quoted to prove that to kill is to save the lives of thousands and tens of thousands. To spare the knife implies propagating and perpetuating the malady." For this advice I was rewarded by another leader in the *Times*, the opening paragraph of which ran as follows:—"Professor Gamgee, like the cattle plague itself, is irrepressible. As is the case, according to his own account, with animals attacked with that disease, he is wholly insensible to curative measures. We have 'exhibited,' to use medical language, various remedies for the delusion with which this gentleman is possessed, but it has been to no purpose whatever." What happened with reference to the Rinderpest is of daily occurrence in the intercourse between true and false veterinary practitioners and the general public. We do not object to any one attempting to cure diseases, but whoever treads on the confines of the qualified veterinarian should be dealt with as the quacks in medicine who are not permitted to deceive the unwary by affixing titles to their names which have not been earned by an essential course of study.

We are doubtless to blame in many respects. Years ago when I said we were certainly deficient in numbers, those afraid of competition declared the profession overstocked. When a new Veterinary College was formed, the profession slumbered, whilst for many months one of the most influential agricultural associations in the world attempted to extinguish it. When some attempted to improve veterinary literature, and extend the curriculum of study in our schools, there was no cordial support, but rather the most unconquerable aversion to any innovation. What was done were realities, though the fruits borne are yet far from ripe. We want good men of all kinds in our ranks, and when our kid-gloved members denounce the forge and its votaries let them think of Velpeau and Michael Faraday. We cannot do without the best from all ranks, and I can point out at least two Scotchmen who were farm servants on entering this College, and who I believe at present to be the most scientific men in our profession. I shall be delighted to see such men tested as to their knowledge of English, Latin, French, history, geography, arithmetic, geometry, and mathematics; but let an independent board do this any time between six and 12 months before they are made to appear before examiners for a veterinary degree. What I would, and, indeed, intend to suggest is, that the Royal College of Veterinary Surgeons, the university of our profession, should undertake such examinations, not before young men enter this or any other college, but simply 12 months before they are admitted to any special scientific examination. Then let it be provided that they shall be examined in the fundamental sciences of anatomy, physiology, natural philosophy, chemistry, and botany. Another year should elapse, and a thorough practical examination passed, at which their knowledge of pathology, pathological anatomy, veterinary jurisprudence, and sanitary police, hygiene and the art of farriery, should be tested in a complete and effectual manner. Instead of students entering now being ready for their single hour's *viva voce* examination in April, 1869, I would simply register the commencement of their studies now, and cause them to pass a preliminary examination at any time they chose; but if they wished to pass their first scientific examination in April, 1869, I would cause them to be examined in writing and orally on the subjects of general education not later than the 1st of October, 1868. If they passed this and their first special examination in April, 1869, they might go on with a view to complete their education by the month of April, 1870—that is to say, in two years and a half after being first registered in the books of the Royal College of Veterinary Surgeons. It is my intention, at an early meeting of the Council of the Royal College of Veterinary Surgeons to pave the way for the due consideration of such a scheme; and no one will rejoice more than I shall at the inauguration of a system of preliminary examination, which will not close our gates to the bright young countryman who in a year can make up many of the deficiencies of his early training. So much the better for the gentleman who comes prepared from the first; but let it be remembered that whilst the man straight from a good school may have a good start, it is not my intention he should become a veterinary surgeon without soiling his fingers. It is the custom now to decry any connection with the forge. A veterinarian who knows less of a horse's foot than an experienced blacksmith is unworthy of the name; and like the engineer who can use his lathe and hand hammer for the instruction of his men, I would not allow a man to become a veterinarian who could not make, fit, and apply a good shoe.

Our people ask for meat, and there is no meat. Starvation and death stare us in the face in this very metropolis; and it is not the physician, it is not the unlimited bounty of our charitable people who can arrest this. It is a small band of able and zealous veterinarians. I astonished the people of Berkshire the other day by telling them that they lost 35,000 sheep annually in that single county. That the mortality from indigenous disease varied from 3.6 to 29.5 per cent., and that there would be no difficulty in preventing 50 per cent. of that loss. But, gentlemen, who is there to pay for the investigation of sheep diseases? Can the young veterinarian amuse and instruct himself as a volunteer in the sheepfold! I am afraid the pangs of hunger would soon quiet his enthusiasm. But let us come close home to the citizen. In this metropolis there is always a mortality amongst horses, which would startle you as much as the sheep statistics of Berkshire. If you inquire at the knackers' you will find that glanders, a loathsome disease which annually destroys some human beings, is far from uncommon. Ten per cent. is no unusual loss on large establishments. Our metropolitan railways could tell us a tale if they would; and I should like to know why we ought not to know what animals die of? Why have we not some plan by which the knowledge which dies with the horses in the slaughterer's yard should be made available for the public good and the education of the future veterinarian? It is a question of expense. A few hundreds a year would secure an able pathologist, a good and useful inspector for each of our knacker's yards, and although you may fancy this would be dirty work, it would have the effect of purifying our stables and teaching us much of comparative pathology; in fact, advancing the science of medicine, and clearing the scales off the eyes of innocent politicians. I cannot resist calling your attention to the fact that a clever attempt is being made to place a certain section of our profession under the control of others than members of their own body. An

agitation has been kept up for a charter to be granted to a new examining body from Scotland. Apart from the fact that this would interfere with the privilege of the body corporate, which includes every duly qualified veterinarian in the three kingdoms, it has not occurred to the few professors and practitioners who are made a cat's-paw in this business that it is proposed to form a council for the regulation of such new body in Scotland, in which they are immeasurably outnumbered by peers, town councillors, and medical men. Would the lawyers or the medical men of Scotland sanction the creation of an authority over them, an authority not calculated to feel and to think as themselves? Have they not learnt already that the disposition is growing to supersede us on the most trivial pretence? Do they forget the Royal Commission appointed to consider the cattle plague, in which our profession had one vote against 11?

Farm Memoranda.

Chatteris, Isle of Ely: *Oct.* 9.—We have just concluded a most laborious harvest. Our Wheat and Oat crops were unusually heavy, and were laid and twisted fearfully. The summer was ungenial and unpropitious, which occasioned the Wheats to ripen unkindly. Blight and mildew prevailed to a serious extent, and reduced the yield of the crop probably 1½ quarter per acre, and the weight of the grain 2 to 4 lb. per bushel. Oats, which bear the cold and storms better, ripened more kindly, and produced a very heavy crop. Barley on cold stiff lands was by far the lightest crop we grew. Peas were a full crop of straw, and were full of corn. Beans were exceedingly promising, but a blight came over them in August, which made them ripen prematurely, and which we fear will influence the yield prejudicially. We were very fairly supplied with labour, but the crops being so bad to cut, made work pass off very slowly, which resulted in the men asking high wages, and the masters being compelled to pay them. Fortunately we met with no serious interruptions from adverse weather. The brilliant weather of August and the continued dry weather at the latter end of harvest, were very beneficial, and we were enabled to get the corn into the stack in fine threshing condition with very few exceptions. Our growth was 554 acres, which occupied exactly seven weeks in harvesting. We have threshed both Wheat and Oats; the former yields as well as we expected when we stacked it, but much worse than appearances indicated a few weeks before. The latter yield well; they are not heavy in quality, but more than an average quantity. As to the other crops, we have not tested them, and consequently have only appearances to guide us in estimating their produce. The present excited and advancing state of the markets pretty clearly reveals the fact that the yield of Wheat is generally deficient. With a deficiency of new and exhausted stocks of old we cannot have low prices, we may have very high ones. Our Coleseeds and root crops are generally good, and will afford an abundance of sheep-feeding. Both lean and fat sheep are lower in price; lambs can be bought at prices to which for several years we have been strangers, and the tendency is to increase depression. In consequence of the cattle plague, sheep have been extensively bred, and the country has become overstocked; and the wool trade, being so depressed, tends to increase the heaviness of the trade. We have to go to Ireland chiefly for cattle. Complaints of lung disease have reached us, but we trust, after the heavy losses sustained by the cattle plague, we may be spared anything serious from the next worst disease to which our herds are liable. Winter keeping of all kinds will be abundant, but whether either cattle or sheep will afford good profits for consuming it, is very doubtful. Pigs are animals one fears to name. The high price of all feeding stuffs for the last 12 months has made pig-feeding the most unprofitable part of the farmer's business, until at length he abandons it in despair, and would almost give his pigs away rather than buy food to fatten them. Hence the price of store hogs is almost nominal. Happy the man who has no pigs! *A. S. R.*

The Poultry Yard.

The Turkey.—The young of the turkey in this country are amongst the tenderest of birds, although in their natural forests they are capable of enduring a Canadian winter of six months' duration, in which state they are larger and more beautiful than in their state of domestic captivity.

We have kept the Norfolk, the Cambridge, the American, and the white breeds, but we find the black Norfolk the best; the Cambridge next, the American third, and the white Turkey the worst. We principally keep the black Norfolk now for profit, and the white merely as an ornamental bird.

In rearing our young turkeys we were very unsuccessful until we had our rearing-house built, but since then have found it comparatively easy. When the air is cold they will sit and cry, rejecting food, but when a proper temperature is provided, they soon become contented, and eat their food with a zest. We give them the same food as the young chickens, keeping them a little warmer, and give them as many Onion tops, chopped up, or young Onions, as we can spare; milk curds they are also fond of; they are very tender if exposed to damp or cold, until they acquire that red colour natural to the head. After that all they require is plenty of food and good range of ground. They are fond of ranging in the park for Bents, Grass, Clover, or Acorns; we also take them to the stubble fields, and give them Barley when they come home. We find the best time to hatch them is in May, and with good feeding till Christmas have cock birds weighing 17 lb. each, and hen birds 10 lb. each and upwards. We do not take our turkeys up to cram them with food to fatten them. They are fed with Barley paste, and were allowed to range the park and fields until we wanted to kill them. We do not find second broods pay, having been unsuccessful with them in six cases out of seven; the successful ones were in July, 1849; then one turkey hatched 14 birds, and brought them up. If we cannot get a second brood by this time (July), it will pay better if the turkey sits on guinea fowls' or hens' eggs. We find her a good mother. We have six hens to one cock as our stock.

We do not confine the hens while laying their eggs, but allow them to choose the situation, which is generally under a shrub or tree; we watch them and take out the eggs, without leaving a nest egg, which, although done, they will not forsake to make another nest. When they want to sit, we give them their eggs at our home or rearing house, on the ground or floor, with a little loose hay under a coop to make their nest with. They do better making their own nest upon the ground, with plenty of room, than with any nest we could provide. We turn up the coop sufficiently every morning to allow each to come off to feed, to prevent any danger of breaking the eggs, then return the coop to its place, leaving the slide open for each to return, which if they fail in good time to do, which is about 15 minutes in cold weather, we send them on. We take them off to feed if they will not come off without, as sometimes we find they will not leave the nest for days.

We give each from 13 to 15 eggs to sit upon, which require a month to hatch. When first hatched we allow them to remain with the mother for 24 hours before we move them, unless they hatch very slowly, in which case we take some away and wrap them in flannel, placing them before a fire for warmth to prevent the mother from squeezing them while sitting on the remaining unhatched eggs, but take them back to her as soon as we think it safe. We then take away all the empty egg shells, that the sharp edges might not hurt the birds in their nest.

We have stated that the young ones are very susceptible of cold while under the age of four or five months, and should they take cold during that time are liable to disease in the head which will cause it to swell to an unusual size, and acquires an appearance of solution of gum water, which in some changes to a thick curd of a yellow colour; at this stage of the disease their eyes are often closed, and the nostrils stopped up, and, rejecting all food, they mope in a corner to die by suffocation. We have found mercury or sheep ointment a good remedy for this disease, by applying it across the top of the head and under the throat. A small piece about half the size of a pea is sufficient for one turkey, we then keep them warm and dry about a week, and apply it twice in that time, if the first does not seem to cure; but we have frequently found the first dressing cure in the space of three or four days when the weather is fine. In August, 1849, when three months old, our flock of young turkeys were in a heavy shower of rain, which brought on this disease, and in a month's time thereafter one was in the extreme state described; seeing that all the birds were getting worse, notwithstanding having applied all the usual remedies recommended as well as my own, I took as a last resource a sharp-pointed penknife, and cut through the skin close to the top of the bird's beak: I then gently pressed out all the secreted matter, and washed the head well with warm water and a small quantity of sulphuric acid As soon as this operation was performed, I put the bird on the ground, with some food, which it immediately began to peck up, and seemed to get much relief, yet it ultimately died. I had 20 others diseased in a similar manner, but by applying the same remedy every one recovered and did well. But this needs caution and experience, as by opening the skin before the virulence is insufficiently ripe state the head will become festered a second time and be longer in getting well, while by allowing it to come to too great a head you cut off any chance of saving them; but this is only used after the ointment fails. I have cut more than 100 afflicted with this disease, and have only lost one, whereas formerly we suffered considerable loss from the same disease in summer time if it was wet weather.

The turkey is fond of roosting upon trees, and requires care in bringing home for safety, which should be attended to early in the afternoon. We have brought up a cat in our poultry yard, which we find very useful in keeping sparrows and other small birds from eating the chickens' food, as she will kill any small birds that come within her reach, but we have never known her to destroy one head of poultry. She will even allow the chickens to pick her victuals from her mouth while she is eating; and once this year, when we had put 80 young turkeys on the hearth before the fire for warmth, she gathered them in a brood for three quarters of an hour, and she generally sleeps in the rearing house at night to keep mice from the corn, &c., and chickens' food. *Land Steward.*

French Experience.— Mr. Geyelin learned some things in France. He saw turkeys hatching chickens. A hen finds a dozen chickens quite as many as she can bring up; but a turkey can hatch and protect a couple of dozen. Mr. Geyelin found large numbers of turkeys—on some farms as many as a hundred—busy hatching chickens. Some of them spend as many as six months in the year at this employment; and all the while they are rearing pullets they are fattening themselves. Pullets and turkeys, two kinds of birds by one process, are thus prepared for the market. Moreover, by this process the frugal French reserve the hens for the more profitable pursuit of laying eggs. The hens, instead of leading about their chickens and capons, have, like other French mothers, substitutes, who discharge their nursing duties for them. Turkeys are said to be the best protectors of chickens and capons. After considering the De Sora hoax, and recalling to mind many a similar one, successively invented and propagated by our clever neighbours, the account which Mr. Geyelin gives of the *ruse* by which the turkeys are beguiled into the functions of foster-mothers for chickens, must be received as a hearsay which has been believed by Mr. Geyelin:—

"When a turkey has been hatching for some months, and shows a disposition to leave off, a glassful of wine is given her in the evening, and a number of chickens are substituted for the eggs. On waking in the morning, she kindly takes to them, and leads them about, strutting amidst a troop of 70 to 100 chickens with the dignity of a drum-major. When, however, a troop leader is required that has not been hatching, such as a capon or a turkey, then it is usual to pluck some of their feathers from the breasts, and to give them a glass of wine, and whilst in a state of inebriation to place some chickens under them. On getting sober the next morning, they feel that some sudden change has come over them, and as the denuded part is kept warm by the chickens, they also take kindly to them."

The poultry-competitions of the French differ from, or rather contrast with the poultry-shows of the English; for the French do not exhibit their specimens until the feathers have been stripped off, and the fowls prepared for the table. The ideal of English excellence is in the feathers, and of French in the flesh. In December, 1864, there was an exhibition of poultry prepared for the table at Paris. 500 competitors exhibited in the Palace of Industry nearly 3000 specimens, all ready for the pot or the spit. Four specimens lay together on sloping tables covered with blue paper, each lot being separated from the other by partitions of wood painted red. The specimens were grouped into five divisions—the Houdan, La Flèche, La Bresse of Burgundy, Crèvecœur of Normandy, and a miscellaneous group. Four La Bresse pullets won for their exhibitor the grand prize of 1000 francs and a gold medal. La Bresse fowls are remarkable for the smallness of their bones and the plumpness of their flesh. They are very artistically prepared for the market. There were at the exhibition 600 specimens of La Bresse fowls, about 150 specimens of La Flèche, and 200 Crèvecœurs. Some of the geese were gigantic. During the show, the judges and exhibitors dined upon La Bresse and Crèvecœur fowls. Questions were discussed, not about pencillings and spanglings, but about the loss of weight in drawing and roasting, preparing for the cook, or in cooking for the table. The loss per cent. was as follows:—

	La Bresse.	Houdan.	Crèvecœur.
In preparing for the cook	20.95	20.32	17.58
In cooking	40.68	28.83	28.42
Total loss per cent. ..	52.51	44.32	49.95

No experiments of similar exactitude are on record respecting British fowls, and the "Standard of Excellence" prescribes no such tests of the relative merits of breeds. Prizes for superior merits on the table have not yet been given at any British shows. La Bresse, like our farmyard fowls, seem to have been formed by a mixture of races. They are of any or of all colours. Their shape and size resemble the grey Dorking. They are fed on buckwheat and maize. The district of La Bresse lies on the banks of the Saône, and its fame as a poultry country dates from the end of the eighteenth century, when the culture of maize for pigs and poultry became general. La Bresse pullets only three months old can be fattened for the table. The offspring of young cocks fatten best. A hen may lay 160 eggs in a year and hatch two or three broods. A chicken two months old weighs 2 lb., a poulardе five months old weighs 6 lb., and a capon at six months may weigh 8lb. or 10 lb. Crèvecœurs, the rivals of La Bresse fowls for the table, are said to be too delicate in constitution for the climate of Great Britain. The La Flèche breed are strange birds to look at. La Flèche cocks have a metallic black plumage, an upright carriage, large watchful eyes, long red hanging wattles, red faces, and red, branching, antler-like combs, They have something weird and hobgoblin-like about them. La Flèche hens, only less formidable in appearance than the cocks, are prolific layers of tremendous eggs. The eggs are not so fertile as they are large. The appearance of this breed is so wild from their black feathers, red wattles, red faces and red combs, that they might have been made in memory of *les bonnets rouges* of *La Terreur*. Houdans resemble Dorkings. They have the artificial fifth toe, which, indisposing the old Dorkings to exercise and making the young ones lift their feet very high, prevents their becoming thin, tough and wiry from running about. By the way, this excrescent toe, long deemed a very cunning application of a principle in physiological science, is now generally condemned. It is said to be a cause of the disease called bumble-foot, and probably the fat gained by enforced indolence is lost in cooking. The names of the French breeds seem to be truly derived from the places in which they flourish. The Spanish breed, also, is found in Spain and on the shores of the Mediterranean. But this appropriateness seems to be the exception, and not the rule, in reference to the names of breeds of poultry. For Cochin China fowls were unknown in that country until introduced by the English. Polands are not known in Poland. Spangled Hamburghs are said to be certainly an English breed. There are no Brahmas on the banks of the Brahmapootra. The game breed is, more than any other, characteristically English, and the editor of the "Poultry Book" calls it indigenous. Perhaps the attention given to feathers rather than flesh of late years, and the culture of pluckiness in the game breed in the times of our cock-fighting forefathers, may have not a little to do with the present inferiority of our poultry for the table. There are British game-cocks whose genealogies can be carried back in stud-books for at least a hundred years. The cock-fight was a Darwinian

struggle for life which selected the strongest to be the sires of the breed. Many fanciers think the game cock the perfection of gallinaceous beauty; perhaps just as there are servant girls who think the soldier's the finest manly form. Cock-fighting having become illegal, the game or English breed has survived the purpose for which it was bred; but it is still a fine breed for gentlemen with large estates, where the fowls can have extensive runs. And this breed can be used to protect more timid breeds. When a yard is infested by cats which carry off the chickens, a game hen with steel spurs, and having a brood of her own, can give lessons in honesty to the boldest grimalkins. "The Poultry Book" and "The Poultry Keeper" are both valuable books; "The Poultry Book" may be best adapted for exhibitors, and "The Poultry Keeper" for families. *Athenæum.*

Rice as Food: *Cor.* Two lb. of Rice are nearly equal in value to a quarter of a peck of Barley, but when swelled by boiling are more than double its bulk. The seeds of the Sunflower are good for poultry. Buckwheat is excellent food for poultry.

Miscellaneous.

Sale of the Royal Herd.—On Wednesday last Mr. Strafford sold by auction at the Prince Consort's Shaw Farm, in the Home Park, Windsor, a portion of the Shorthorn herd, which, commenced during the late Prince Consort's life, has now increased beyond the powers of the farm on which, under Mr. Tait's management, they have been kept. A selection, including many descendants of *Alix* and *Cold Cream*, cows bought at the Fawsley sale for 100 guineas each, was disposed of on Wednesday last at a very satisfactory price. The following is the list:—

No.	Names.	Purchasers.	Price. £	s.	d.
	Cows and Heifers.				
1	Rosewood	Mr. Adwick	37	16	0
2	Anemone	Mr. Adcock	54	12	0
3	Rachel	Mr. Woodward	32	11	0
4	Bessy	Mr. Lang	42	0	0
5	Nancy	Mr. W. Nicholson, M.P.	42	0	0
6	Roseleaf	Dr. Hurman	31	10	0
7	Cherry	Mr. Bulteel	75	12	0
8	Cowslip	Mr. Bulteel	136	10	0
9	Pearl	Mr. Mann	32	11	0
10	Annie	Earl of Aylesford	73	10	0
11	Water Maid	Mr. Blackwell	42	0	0
12	Princess Helena	Mr. Mitchell	42	0	0
13	Clara 2d	Mr. Mitchell	26	5	0
14	Princess Alice	Mr. F. Leney	126	0	0
15	Princess	Mr. Nicholson	34	13	0
16	Empress	Mr. Alison	27	6	0
17	Butterfly	Mr. Dickers	25	4	0
18	Pride of Windsor	Mr. Gilbey	36	15	0
19	Ada	Earl of Aylesford	52	11	0
20	Dora	Mr. Walter	31	10	0
21	Prosperity	Mr. Walter	33	12	0
22	Princess Charlotte	Mr. Fowler	66	3	0
23	Florence	Mr. Mitchell	30	9	0
24	Plum Blossom	Mr. Alison	26	5	0
25	Rose	Mr. J. Blyth	35	14	0
26	Edith	Mr. Gilby	32	11	0
27	Dewdrop	Mr. McIntosh	105	0	0
28	Emmeline	Mr. Prosser	26	5	0
29	Blossom	Mr. Gilby	31	10	0
30	Cherry Blossom	Rev. C. Marshall	63	0	0
31	Princess Mary	Mr. Gilby	25	4	0
32	Cold Cream 2d	Mr. Fisher	52	10	0
33	Narcissus 2d	Mr. J. Blythe	25	4	0
34	Favourite	Comtesse de Morella	23	2	0
35	Regina	Mr. Woodward	31	10	0
36	Crocus	Mr. C. Hall	18	18	0
37	Maude	Mr. C. Hall	23	2	0
38	Princess Christian	Mr. Wise	45	3	0
39	Ringlet	Mr. J. Blyth	44	2	0
40	Peerless	Mr. H. Gorringe	16	16	0
41	Duchess of Cambridge	Rev. C. Marshall	52	11	0
42	Abbess	Mr. Canning	36	15	0
	Bulls.				
1	Prince Albert	Mr. Webb	31	10	0
2	Rajah	Mr. C. Hall	32	11	0
3	Prince Arthur	Mr. M. Druce	31	10	0
4	Prince William	Mr. J. Walter	32	11	0
5	Nimrod	——	23	2	0
6	Fox	Mr. Hutt	——		
7	Albion	Earl of Aylesford	45	3	0
8	Pioneer	Mr. Gardiner	27	6	0
9	Governor	Mr. Mitchell	11	11	0
10	Prince Christian	Mr. Cary	11	11	0
11	Charlie	Mr. Friend	24	3	0

	Total.	Average.
42 Cows and Heifers	1850 2 0	44 1 0
11 Bulls and Calves	283 10 0	25 15 6
Total—53 head	2133 12 0	40 5 3

Southdowns and Norfolk Polled Cattle.—At the recent sale of Lord Sondes' stock at Elmham Park, Sir Willoughby Jones said:—Lord Sondes remarked that he should not advocate the merits of either Southdowns or polls, but I do not feel myself tongue-tied in this respect; and, therefore, I will venture a word or two, first about Southdowns, and afterwards about polls. As to Southdown sheep, I would say, if I were allowed to make a comparison between the Southdown sheep and the half-bred sheep, they, as nearly as possible, as we should say in mathematics, have the same ratio to each other as a Swede Turnip has to a white Turnip. No doubt in a white Turnip you get very early maturity and very white flesh, and in the half-bred sheep you get also very early maturity and very white mutton; but, as we know the quality of the white Turnip is not first-rate, and cannot bear comparison with that of the Swede, no more can the quality of our big white half-bred bear any comparison with that of the Southdown. But the half-bred has had a very unfair advantage over the Southdown of late years, owing to our interests compelling the breeders of sheep to prefer our backs to our stomachs, and to look at the wool rather than the mutton. There is no ill-wind that does not blow somebody good, and there is no doubt the little depression that now exists in the long-wool trade will have the effect of stimulating Southdown breeding, because if we do not get such a very long price for our wool it will be worth our while to look a little closer at the mutton. We all know foreigners are very anxious to buy Southdown sheep, and it was, to a certain degree, a matter of curiosity to me why it should be so. When I was at the Paris Exhibition the other day I asked a well-known *restaurateur*—a very good *restaurateur*—what was the relative price in the Paris market of the different joints of mutton. I asked, "What is the prime joint?" He said, "The prime joint, beyond all comparison, is the neck." I asked, "What is the next joint?" and he said, "The loin." I said, "What is your lowest-priced joint?" He said, "The leg;" adding that when the leg of mutton was priced at 6*d.* per lb. the neck was priced at from 1*s.* to 1*s.* 2*d.* per lb. I said, "You are clearing my sight very much, you are throwing a new vista open to me." The fact is, the small cutlet and the large cutlet—that is to say, the neck and the loin—require very little fuel to cook them, whereas the leg of mutton requires a great deal of fuel. On the continent of Europe fuel is very dear, and, therefore, the joints vary in price according to the value of fuel; consequently you will find there necks and loins dear and legs cheap. This was a revelation to me. The result is, and there is no doubt about it, that Southdowns will always command a good price on the Continent; and the more we can develop what the butchers call "the scrag," and the more we can keep up the necks of our sheep, the greater price will they fetch in the Paris market and throughout the continent of Europe. One cannot travel without getting "wrinkles," and I felt I had got one when I found out that fact. Another merit in the Southdown flock I must for a moment allude to, and it is this: For a certain period in the year the ewe flock on every farm is the Cinderella in the family, living on a bit of browseland, where there is nothing to eat, only varied by an occasional walk along the dusty road, where it is supposed to pick up a great deal, and where the quantity is hardly compensated by the quality; and, if you are the possessor of a half-bred flock, the animals have a most deplorable look. They ultimately become a sort of "bag of bones," and they are really anything but creditable for any one to look at. Now, if you have a flock of Southdowns, it does not matter how bare the browse-land may be, or how much you may walk them about the roads, the animals have always the same round, well-to-do aspect, so that you have the advantage of a flock that can live upon almost nothing and always look handsome; and if they happen, by any contingency, to be killed, they are always good for food. I would say one word to the breeders of polls. I will entreat them, whatever they do, not to cross the breed any more. We have got a very nice animal bred from polled bulls, and we must trust to care and feeding, to a careful selection of the proper points in the male animal that is put to the female—the regular way to improve all your breeds. Do not try to get rich in a hurry. If you try to make it into a Devon without horns, or a Shorthorn without horns, by mixing it with either of those breeds, you will spoil both, without making what you hope—a more valuable animal. I will ask any breeder of the red Norfolk polls, who has any really good stock, to go to the trouble, as far as he can, of sending them to our shows. I would also ask him to register the birth of promising calves, and to make notes of the names and of the pedigree of every animal he exhibits. If this is attended to by all the breeders of polls, in the course of a few years we shall have the necessary statistics, which would enable any industrious gentleman, who might choose to undertake it, to draw up a herd-book. It will be simply impossible to have a herd-book if you have not the statistics of a certain number of ancestors to start with. By adopting this plan, we shall ultimately be able to trace a great and well-known breed to the patriarchs of the Elmham herd. If people will do that, then the red polled breed will become what Lord Sondes considers it will become—a very valuable product of the county.

Searching for the Cause.—In a Madder-growing district near Avignon, in France, it was found that the crops were deteriorating and becoming unproductive; that the crops were less luxuriant than not previously, but that they contained less of the colouring principle for which they were cultivated. Various attempts were made to remedy the evil by using different manures, but without success. That was groping in the dark. At last some one said the deterioration in brilliancy of colouring is probably due to the exhaustion of some element in the soil; let us first find out what are the necessary ingredients for the successful growth of Madder, and then ascertain by analysis whether our soil contains them. They did so—they analysed the soil of other districts in which the best Madder was grown—they analysed their own, and found that it was deficient in lime. The lime was supplied, and the Madder crops resumed their former richness in colouring matter. This was an instance of an inquiry made with knowledge, and on a preconceived hypothesis. *The Farmer.*

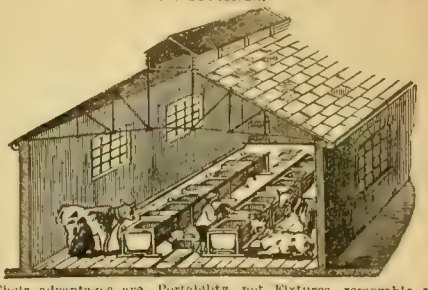
Notices to Correspondents.

Bread: *Correspondent.* The quantity of water in bread varies according to the specimen of the flour. Dr. Smith states that 10 lb. of flour will produce 13½ lb. to 14 lb. of bread; and he has found some flour which yielded 20 lb. and 20½ lb. of bread for 14 lb. of flour.

Cow Cabbages: *J C C.* "When well hearted the outer leaves may be stripped off, and the Cabbages stored for a month with safety in dry, well thatched pits in the field." So says Mr. Raynbird, the writer on them in the "Cyclopædia of Agriculture."

Mutton: *S.* In a Southdown carcase of 11 stones, the leg will weigh 11 lbs.; the loin, 9 to 11 lbs., according as the kidney and fat are or are not left out; the shoulder and neck about 9 lbs. each; and the breast about 4½ lbs.

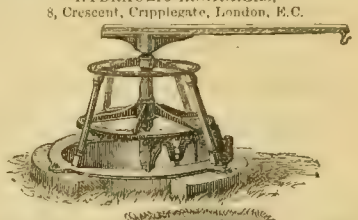
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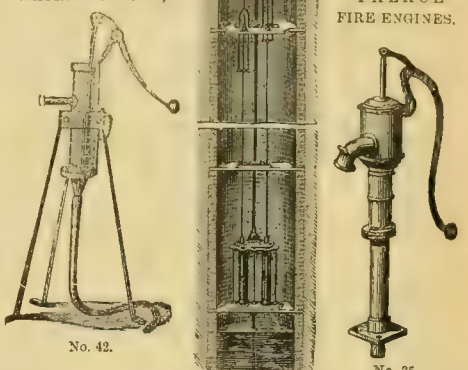
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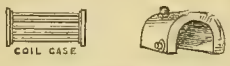
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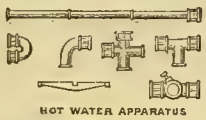
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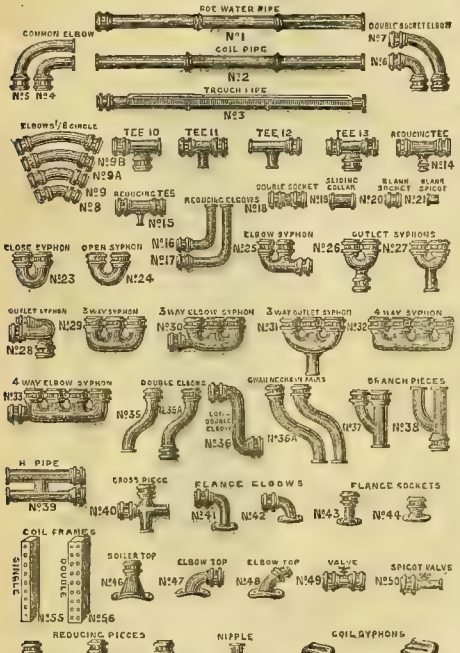
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Plans and Estimates free on application. Descriptive Book fully illustrated, post free for 20 stamps, from the Author and Patentee, JAMES CRANSTON, Architect, Birmingham.

Works: Highgate Street, Birmingham.

HENRY J. GROWTAGE, Manager, 1, Temple Row West, Birmingham.

By Royal Letters Patent.

G. SHREWSBURY'S NONPAREIL GAS BOILER. No. 1, for 30 feet; No. 2, for 90 feet; No. 3 for 200 feet of Pipe. A HOT-WATER APPARATUS, complete, to Heat a Small Conservatory, for 2½d. per day, for 55s.—G. SHREWSBURY, Lower Norwood, S.

The New Furnace Bar
(WARRINER'S PATENT).

THIS BAR is particularly adapted to FIRES for VINERIES, GREENHOUSES, &c., and all FURNACES worked on the principle of slow combustion. The saving of Fuel effected is very great; nearly all the Smoke is consumed if care be taken, and the fire can be so regulated that any temperature desired can be kept up for at least 12 hours without stoking or further trouble. Any Bricklayer can set up these Bars without deranging much of the brickwork. They are in use in many Conservatories, and give the highest satisfaction. Testimonials will be forwarded on application to the Proprietors,

The Ventilating Furnace Bar Company, Limited, 9, Mincing Lane, London, E.C.

Specimens of these Bars may be seen in the Eastern Arcade of the Horticultural Gardens, South Kensington.

The Only Stove without a Flue.



NASH AND JOYCE'S PATENT, for AIRING, DRYING, and WARMING HALLS, SHOPS, ROOMS, &c., a new especial Stove for Conservatories, Greenhouses, Fruit-Ripening, &c.: to Burn without re-lighting all winter by filling with fuel every 12 hours. Temperature, any degree required, without varying. Price from 18s. 6d. to 6 guineas.

MINCING and SAUSAGE FILLING and MASTICATING MACHINES of the best makers, 10s. 6d.

The COTTAGE KNIFE CLEANER is the only rapid Cleaner and Polisher of Knives at a moderate price. 3s. 6d. to 10s. 6d. Prospectus post paid.

CHEAP FIRES.—The Radiating Fire Balls save half the usual consumption of fuel. One Shilling packet of Four, red hot in the fire every day, lasts all Winter.

S. NASH, Ironmonger, 253, Oxford Street, W.C.; Linster Terrace, Bayswater; and Stove Depôt, 119, Newgate Street, London, E.C.

GREEN'S PATENT SILENS MESSOR,

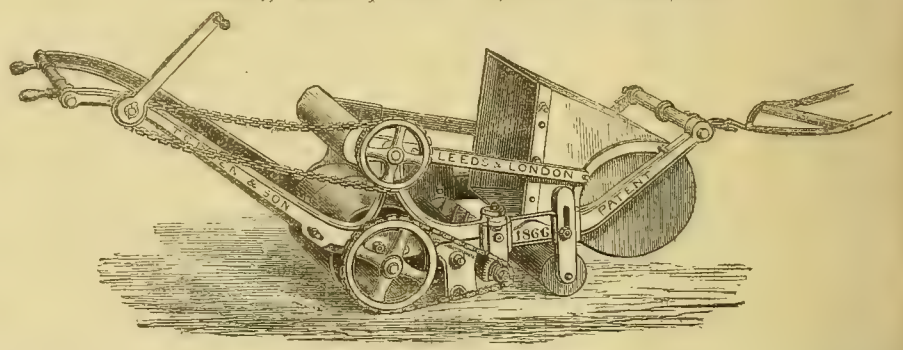
OR NOISELESS LAWN MOWING, ROLLING, AND COLLECTING MACHINES.

FITTED WITH PATENT SELF-SHARPENING CYLINDER CUTTERS.

They are the simplest in construction, least liable to get out of order, and can be worked with far greater ease than any other Lawn Mower extant.

GREEN'S PATENT LAWN MOWERS have proved to be the best, and have carried off every Prize that has been given in all cases of competition; and in proof of their superiority, 40,000 have been sold since the year 1856.

HORSE, PONY, AND DONKEY MACHINE.



Every Machine is warranted to give entire satisfaction, and if not approved of can be returned at once unconditionally.

T. GREEN AND SON *have to state that the demand for their* LAWN MOWERS *this Season has been unprecedented, which is a proof of the high estimation in which they are held. Selections can be made from their Stock both in London and Leeds.*

☞ ILLUSTRATED PRICE LISTS FREE ON APPLICATION.

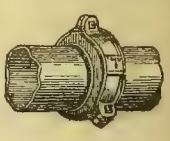
THOMAS GREEN AND SONS, SMITHFIELD IRON WORKS, LEEDS; and
54 and 55, BLACKFRIARS ROAD, LONDON, S.

PORTABLE AND FIXED HOT-WATER APPARATUS,

FOR HEATING CONSERVATORIES, HOTHOUSES, CHURCHES, PUBLIC BUILDINGS, PRIVATE RESIDENCES, ETC., WITH

TRUSS'S PATENT UNIVERSAL FLEXIBLE AND LEAKLESS PIPE-JOINTS.





T. S. TRUSS

Begs to state that the immense number of APPARATUS annually Designed and Erected by him in all parts of the kingdom, and for the ROYAL HORTICULTURAL SOCIETY at SOUTH KENSINGTON and CHISWICK, with unrivalled satisfaction, is a guarantee for skill of design, superior materials, and good workmanship; while the great advantages obtained by his IMPROVED SYSTEM cannot be over-estimated, consisting of perfectly tight joints with neatness of appearance; EFFECTS A SAVING OF 25 PER CENT. on cost of Apparatus erected compared with other systems; facility for extensions, alterations or removals without injury to Pipes or Joints; can be erected by any Gardener; an ordinary size Apparatus erected in one day, and PERFECTNESS of DESIGN SUPPLIED, INSURING NO EXTRAS. Complete Apparatus, of the best materials, with Saddle Boiler, delivered to any Railway Station in England, and Erected at the following prices. Erection beyond 25 miles off London, railway fare for one man additional. Considerable reduction on large works.

TWO FOUR-INCH PIPES ALONG ONE SIDE AND ONE END OF HOUSE.

Size of House.	Apparatus Complete.	Erection.	Size of House.	Apparatus Complete.	Erection.
20 feet by 10 feet	£9 0 0	£2 0 0	50 feet by 15 feet	£17 10 0	£3 0 0
30 feet by 12 feet	11 15 0	2 10 0	75 feet by 15 feet	20 0 0	3 0 0
40 feet by 15 feet	15 0 0	2 15 0	100 feet by 15 feet	26 0 0	3 5 0

Bath and Gas Work erected in town or country. The Trade Supplied.

Horticultural Buildings of every description from 1s. 6d. *per foot superficial, inclusive of Brickwork.*

Price Lists, Plans, and Estimates forwarded on application to

T. S. TRUSS, C.E., CONSULTING HORTICULTURAL ENGINEER, &c., SOLE MANUFACTURER,
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Observe — The City Offices are now Removed to the Manufactory, Friar Street.

HOT-WATER APPARATUS, of every description, fixed complete in any part of the country, or the materials, viz., Boilers, Pipes, &c., delivered to any Station.
Estimates on application.
J. Jones & Sons, 6, Bankside, Southwark, London, S.E.

Iron Greenhouses Cheaper than Wood.



BEARD'S PATENT NON-CONDUCTING METALLIC GLASS HOUSES
Manufactured by Sanders, Prower, & Co., Bury St. Edmund's.
No. 2, Class A.
S., F., & Co. beg to acknowledge the large number of orders received for the above highly approved Houses; and refer for Prices, &c., to their large Advertisement of October 5, in this Paper.

JAMES WATTS AND CO., Hothouse Builders and Hot-water Apparatus Manufacturers, 354, Old Kent Road, S.E.
TWO HUNDRED CUCUMBER and MELON BOXES and LIGHTS, and from 400 to 500 LIGHTS for PITS of all SIZES kept in STOCK, Glazed and Painted complete, ready for immediate use. Packed and sent to all parts of the Kingdom. Public and Private Buildings, Warehouses, &c., heated on the most approved scientific and economical principles. References to the Nobility, Gentry and Trade in most of the Counties in England.

Heating by Hot Water.

W. J. HOLLANDS, Iron Merchant,
31, Bankside, London, S.E.
HOT-WATER PIPES, from Stock, per yard:—2-inch, 1s. 1½d.; 3-inch, 1s. 9d.; and 4-inch, 2s. 3d. BENDS, from Stock, 1s. 6d., 2s. 6d., and 3s. each. THROTTLE VALVES, 10s., 13s., and 14s. each. Other Connexions at equally low prices, and all goods of first-class manufacture. Estimates given, and orders by post punctually attended to the same day.

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HOT-WATER PIPES, at Wholesale Prices, with Elbows, Syphons, Tee-Pipes, and every other connection; Wrought and Cast-Iron Boilers, Saddle, Conical, Cylinder, Tubular, and Elliptic, from 24s. each. Improved Boilers and Iron Stands to use without brickwork, 60s. each. Valves from 10s. 6d. each. Patent Valves, Improved Furnace Doors, Furnace Bars, Supply Cisterns, and Castings of every description in stock, at
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TO BE SOLD, Cheap, an IRON DOME CONSERVATORY, 52 feet 8 inches long, 9 feet 4 inches wide. Would make an excellent Peach House or Covered Way. And all other descriptions of Horticultural Buildings to be seen at
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FOR SALE, THREE SECOND-HAND GREENHOUSES, various sizes.
Apply to Mr. Harrington, Nursery, Kingsland, N.E.

CAST-IRON HAND-GLASS FRAMES (loose tops).—Prices: 14-inch, 4s.; 18-inch, 5s. 9d.; 20-inch, 6s. 6d.; 22-inch, 7s. 6d.; 24-inch, 8s. 6d. each. Twelve or more delivered free to any Station in England on receipt of Post Office order.
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THE PERFECT SUBSTITUTE for SILVER.—The REAL NICKEL SILVER, introduced more than 30 years ago by William S. Burton, when PLATED by the patent process of Messrs. Elkington & Co., is beyond all comparison the very best article, next to sterling silver, that can be employed as such, either usefully or ornamentally, as by no possible test can it be distinguished from real silver.
A small useful set, guaranteed of first quality for finish and durability, as follows:—

	Fiddle or Old Silver Pattern.	Bead Pattern.	Thread Pattern.	King's or Shell and Thread.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.
12 Table Forks	1 13 0	2 0 0	2 4 0	2 10 0
12 Table Spoons	1 13 0	2 0 0	2 4 0	2 10 0
12 Dessert Forks	1 4 0	1 10 0	1 12 0	1 15 0
12 Dessert Spoons	1 4 0	1 10 0	1 12 0	1 15 0
12 Tea Spoons	0 16 0	1 0 0	1 2 0	1 5 0
6 Egg Spoons, gt. bowls..	0 10 0	0 12 0	0 12 0	0 13 6
2 Sauce Ladles	0 6 0	0 8 0	0 8 0	0 9 0
1 Gravy Spoon	0 6 6	0 9 0	0 10 0	0 11 0
2 Salt Spoons, gt. bowls..	0 3 4	0 4 0	0 4 0	0 4 6
1 Mustard Spoon, gt. bwl.	0 1 8	0 2 0	0 2 0	0 2 3
1 Pair of Sugar Tongs ..	0 2 6	0 3 6	0 3 6	0 4 0
1 Pair of Fish Carvers ..	1 4 0	1 10 0	1 10 0	1 10 0
1 Butter Knife	0 2 6	0 4 0	0 5 6	0 6 0
1 Soup Ladle	0 10 0	0 12 0	0 16 0	0 17 0
1 Sugar Sifter	0 3 3	0 4 6	0 4 6	0 5 0
Total	9 19 9	12 9 0	13 9 6	14 17 3

Any article to be had singly at the same prices. An oak chest to contain the above, and a relative number of knives, &c., 2l. 15s. Tea and coffee sets, dish covers and corner dishes, cruet and liqueur frames, &c., at proportionate prices. All kinds of replating done by the patent process.

CUTLERY, Warranted.—The most varied assortment of TABLE CUTLERY in the world, all warranted, is on sale at WILLIAM S. BURTON'S, at prices that are remunerative only because of the largeness of the sales.

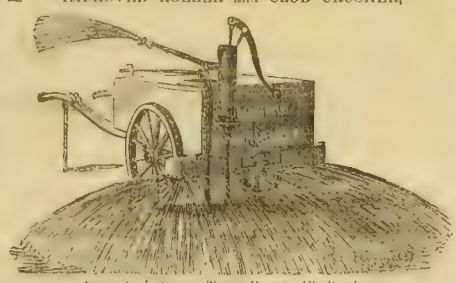
Ivory Handles.	Table Knives per Dozen.	Dessert Knives per Dozen.	Carvers per Pair.
	s. d.	s. d.	s. d.
3½-inch ivory handles	13 0	10 6	5 0
3½-inch fine ivory balance handles	18 0	14 0	6 9
4-inch ivory balance handles	21 0	16 0	6 9
4-inch fine ivory handles	28 0	21 0	8 0
4-inch finest African ivory handles ..	34 0	27 0	12 0
Ditto, with silver ferules	42 0	35 0	13 6
Ditto, carved handles, silver ferules ..	55 0	45 0	18 6
Nickel electro-silver handles	25 0	19 0	7 6
Silver handles, of any pattern	84 0	54 0	21 0
Bone and Horn Handles—Knives and Forks per dozen.			
White bone handles	11 0	8 6	2 6
Ditto, balance handles	23 0	17 0	4 6
Black horn rimmed shoulders	18 0	15 6	4 6
Ditto, very strong riveted handles ..	12 0	9 6	3 0

The largest stock in existence of Plated Dessert Knives and Forks, and of the New plated Fish-eating Knives and Forks and Carvers.
Illustrated Catalogues sent per post, free.

WILLIAM S. BURTON, GENERAL FURNISHING IRONMONGER, by appointment to H.R.H. the Prince of Wales, sends a Catalogue gratis and post paid. It contains upwards of 600 Illustrations of his unrivalled Stock of
SPECULING SILVER and ELECTRO-PLATE
NICKEL SILVER, and
BRITANNIA METAL GOODS,
DISH COVERS, HOT-WATER DISHES
STOVES and FENDERS,
MARBLE CHIMNEY PIECES,
KITCHEN RANGES,
LAMPS, GASELIERS,
TEA TRAYS,
URNS and KETTLES,
TABLE CUTLERY,
CLOCKS and CANDELABRA,
BATHS and TOILET WARE,
IRON and BRASS BEDSTEADS,
BEDDING and BED HANGINGS,
BED-ROOM CABINET FURNITURE,
TURNERY GOODS, &c.,
With List of Prices, and Plans of the Twenty large Show Rooms, at 39, Oxford Street, W.; 1, 1a, 2, 3, & 4, Newman Street; 4, 5, & 6, Perry's Place and 1, Newman Yard, London.

MOULE'S PATENT EARTH CLOSETS and URINALS. Perfect substitute for Water Closets. Avoiding all bad smells; applicable to any existing Closets, and admirably adapted for Bed-rooms, Hospitals, Barracks, &c.
On view and in operation at the Office of Moule's Patent Earth Closet Company, Limited, 29, Bedford Street, Covent Garden, London, W. C., where Prospectuses may be had on application.
T. M. Evans, Manager.
Messrs. Girdlestone, 31, Duke Street, Westminster, Engineers.
The Rev. Henry Moule has just received from the Indian Government a gratifying and substantial recognition of the value of his system of dry earth sewage. The following is an extract from a letter addressed to him from the India Office in London, dated Sept. 25th, 1867:—"I am directed by Sir Stafford Northcote to forward for your information copies of Reports which have now been received from the Government of India, on the successful and general adoption of your dry earth sewage system in India. In consideration of the very satisfactory character of these Reports, and on the recommendation of the Government of India, the Secretary of State for India in Council has much pleasure in authorising the payment to you of the sum of £500."

FOR the BEST LIQUID MANURE CART, IMPROVED ROLLER and CLOD CRUSHER,



Apply to I. James, Tivoli Works, Cheltenham

George Hall, late Manager to the late Saynors' Firm.
He was for 30 Years in their Employ.

GEO. HALL AND SON'S Celebrated PRUNING and BUDDING KNIVES, SCISSORS, &c., may be obtained from the most respectable Nurserymen and Seed Merchants in the kingdom, also America, France, Germany, Holland, Prussia, Russia, &c.
N.B.—We only make one quality, the best that can be manufactured, the same as the late Saynors always made during their lifetime, with all the latest improvements.
Caution.—None are genuine unless marked "Geo. Hall & Son." Other marks would cause disappointment, as these blades are tempered by a process known only to the Makers
Engravings of Patterns, with Price Lists gratis, on application.
Horticultural Cutlery Works, Sheffield.

SHAW'S TIFFANY.
For samples and prices apply to
J. Shaw & Co., 29, Oxford Street, Manchester.

E. T. ARCHER'S "FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, and Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, &c.
PROTECTION from the SCORCHING RAYS of the SUN.
"FRIGI DOMO" NETTING, White or Brown, made of prepared Hair and Wool, a perfect non-conductor of heat or cold, keeping a fixed temperature where it is applied. It is adapted for all Horticultural and Floricultural purposes, for Preserving Fruits and Flowers from the Scorching Rays of the Sun, from Wind, from Attacks of Insects, and from Morning Frosts. To be had in any required lengths.
"FRIGI DOMO" NETTING, 2 yards wide, 1s. 6d. per yard run.
"FRIGI DOMO" CANVAS.
Two yards wide .. .. 1s. 9d. per yard run.
Four yards wide .. .. 3s. 6d. per yard.
An improved make, 2 yards wide .. 1s. 9d. per yard.
An improved make, 3 yards wide .. 2s. 8d. per yard run.
Elisha Thomas Archer, Whole and Sole Manufacturer, 7, Great Trinity Lane, Cannon Street, City, E.C., and of all Nurserymen and Seedsmen throughout the Kingdom.
"It is much cheaper than Mats as a covering."

Farm Poultry.

GREY DORKING FOWLS, of purest breed, in any numbers.
Imported TOULOUSE GEESE, the largest and most productive breed known.
Improved NORFOLK TURKEYS, large, hardy, and good breeders.
AYLESBURY and ROUEN DUCKS.
Imported BELGIAN HARE RABBITS, for size and early maturity.
BRAHMA-POUTRA, CREVECŒUR, and LA FLECHE FOWLS, for constant layers.
Priced Lists and Estimates on application.
John Baily & Son, 113, Mount Street, London, W.

ALDERNEY BULL.—FOR SALE, a pure-bred, self-coloured ALDERNEY BULL CALF, of the highest quality, Calved February 1.—Apply to Edward Tyllett, Mr. Simpson's, Farm Buildings, Wray Park, Reigate, Surrey.

JOHN GIBSON, Jun., begs to announce that he is prepared to Furnish PLANS and ESTIMATES for LAYING OUT GROUND attached to Mansions and Villa or other Residences, or for the FORMATION of PUBLIC PARKS or GARDENS and to carry out the same by Contract or otherwise.
Address Mr. John Gibson, jun., Surrey Lane, Battersea, S.W.

FOR DISPOSAL, a First-class NURSERY and SEED BUSINESS; or the present Proprietor would accept of a WORKING PARTNER with a Capital of not less than £1600.
Apply by letter to E., Messrs. Hurst & Son, 6, Leadenhall Street, London, E.C.

Nursery and Seed Business for Sale.

WILLIAM DEAN, having determined on residing in London again, offers for SALE, with immediate possession, the NURSERY at SHIPLEY, consisting of Four Acres, with 13 extensive Glass Houses, the whole, with the Nursery well stocked, and with Dwelling House, &c., is held on Lease; also the SEED SHOP, in BRADFORD (the only one in the town), which is well fitted up, and where there is a good business doing in Fancy Articles, as well as Seeds, Cut Flowers, Flowering Plants, &c. The Nursery is 2½ miles from the Shop, on a principal road to Bradford. A half year's business is equivalent to the purchase money required, and will be a great bargain to the purchaser. It is an excellent opportunity for a large house in the South to establish a Branch Business here, as a good healthy Trade is already done, which may be very much increased. For particulars apply to
William Dean, Bradford Nursery, Shipley, Yorkshire.

Sales by Auction.

SALE THIS DAY AND MONDAY, AT HALF-PAST 12 O'CLOCK.

Dutch Bulbs, Hardy Shrubs, Fruit Trees, &c.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., THIS DAY and MONDAY, October 19 and 21, at half-past 12 o'Clock precisely each day, 1600 lots of choice HYACINTHS, TULIPS, CROCUSES, NARCISSUS, LILIES, and other Bulbs, just arrived from Holland; and an assortment of Hardy Trees and Shrubs, consisting of LAURELS, ARBOR-VITÆ, CUPRESSUS LAWSONIANA, ARAUCARIA IMBRICATA, KENTISH COBNUTS, DWARF PLUMS, DEUTZIAS, ACHIMENES, HONEYSUCKLES, PIMELIAS, RUSTIC SEATS, STOOLS, VASES, BASKETS, &c.
On view the Morning of Sale, and Catalogues had.

MESSRS. PROTHEROE AND MORRIS'S PRELIMINARY NOTICE of FORTHCOMING SALES.
Highly Important to Noblemen, Gentlemen, Nurserymen, Market Gardeners, and Public Companies engaged in Planting.
BATTERSEA, SURREY, KING STREET, October 28:—
Sale of large FRUIT TREES, &c.; several CARTS, HORSES, SPRING VAN, BRICKS, MANURE, and Sundry Effects.
PECKHAM, QUEEN'S ROAD NURSERY, October 29:—
Very compact EVERGREEN and CONIFEROUS SHRUBS, and other NURSERY STOCK; choice GREENHOUSE PLANTS.
BLACKWATER, SURREY. FRIMLEY PARK NURSERY, October 31.—Sale of general NURSERY STOCK.
WANDSWORTH ROAD, LAVENDER HILL NURSERY, Nov. 4:—Some thousands of fine AUCUBAS, 1 to 4 feet; CHINESE ARBOR-VITÆ, ENGLISH YEWS, and other fine EVERGREENS, STANDARD and DWARF FRUIT TREES, &c. Important to the Trade.
KINGSTON, SURREY.—Clarence Street and Park Road, about four days' Sale, November 5, 6, 7, and 8:—Excellent NURSERY STOCK, viz.: EVERGREEN, CONIFEROUS, and DECIDUOUS SHRUBS, ranging all sizes and in great variety, all prepared for removal; STANDARD and DWARF ROSES, &c.
GODALMING, SURREY, November 11, and following days, by order of Mr. Charles Barker, at Godalming Nursery.—The whole of the choice GREENHOUSE PLANTS, newly erected GREENHOUSES, PITS, and other Effects; also at Terrace Gardens, Shady Rangers, within five minutes' walk of the Godalming Railway Station, the whole of the valuable PYRAMIDAL FRUIT TREES in a full bearing state, all carefully prepared for removal; EVERGREEN and CONIFEROUS SHRUBS, BOX-EDGING, &c. Any person securing a Lease of the aforesaid Premises will have the option of purchasing what they choose at the Sale, presenting an excellent opportunity to small capitalists desirous of embarking in the Nursery business.
EDMONTON, MIDDLESEX.—LANGHEDGE NURSERY, November 13 and 14:—SALE of a large quantity of FRUIT TREES, Important to Market Gardeners and others EVERGREEN, CONIFEROUS, and DECIDUOUS SHRUBS of all sizes; STANDARD ROSES, ORNAMENTAL and FOREST TREES, &c.
WOKING, SURREY.—About nine days' Sale, commencing Nov. 18, without reserve, in consequence of the death of Mr. Robert Donald:—About 150 Acres of NURSERY STOCK, including an unusual large quantity of EVERGREEN, CONIFEROUS, and DECIDUOUS SHRUBS, ORNAMENTAL, FRUIT, & FOREST TREES. The Stock is particularly worthy the attention of the Trade.
CITY AUCTION ROOMS, 38 & 39, Gracechurch Street.—WEEKLY SALES of only first-class DUTCH BULBS, STANDARD ROSES, AMERICAN PLANTS, &c.
Particulars will appear in future Advertisements.
American Nurseries, Leytonstone.—Oct. 19.

Clearance Sale.
Acton Vale Nursery, Uxbridge Road, Middlesex.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. F. Hopgood, Sen., to SELL by AUCTION on the premises, as above, on MONDAY, October 21, and Three following Days, at 11 o'Clock each day, without reserve, the Lease having expired, the whole of the valuable NURSERY STOCK, consisting of a large assortment of Evergreen and Deciduous Shrubs, Ornamental Fruit and Forest Trees, viz., 600 Thuja aurea, 400 Chinese Arbor-vitæ, 200 Yews, 300 Cupressus Lawsoniana and Thujopsis borealis, 300 Spruce Firs, 600 bushy Laurustinus, well set with bloom, 1000 Euonymus, 500 Aucubas, 1000 Common Laurels, 1000 Box, 300 Phillyreas, 200 Green Hollies, 2000 Privet, Ribes, Guelder Roses, &c., Hardy Climbers, sorts, in pots; 400 worked Thorns, 200 Almonds, 400 bushy-headed Planes, 1000 fine Limes, 2000 Poplars, 300 Laburnums, 300 Weeping Ash, Elm, and Willows; 2000 Standard and Dwarf trained and untrained, Apples, Pears, Plums, Cherries, Peaches, Nectarines, and Apricots; 1000 fine Standard Damsons, 800 Gooseberries and Currants, 200 strong Vines in pots, &c.; 10,000 handsome Standard Dwarf and Climbing Roses, 500 Ivies in 4 pots, 600 yards Box Edging, 2000 strong Seakale, Asparagus, &c.
May be viewed prior to the Sale. Catalogues had on the premises; at the Beaumont Arms, Shepherd's Bush Green; and of the Auctioneers and Valuers, Leytonstone, N.E.

Sale of Very Fine Dutch Bulbs, Handsome Standard Roses, &c.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at 38 and 39, Gracechurch Street, E.C., on FRIDAY, October 25, at 1 o'Clock precisely, a First-class Collection of DUTCH BULBS, including fine named Hyacinths, Tulips, Crocus, Narcissus, Snowdrops, Anemones, Ranunculus, &c.; a selection of choice named show Tulips from a celebrated grower; a splendid assortment of handsome STANDARD, DWARF, and CLIMBING ROSES, of the best varieties in cultivation; Selected AMERICAN PLANTS, viz., Ghent and other Azaleas, Hybrid Rhododendrons, Kalmias, Andromedas, &c., with a variety of Hardy Climbers, Rustic Baskets, Vases, &c.
On View the Morning of Sale. Catalogues had at the Rooms as above, and of the Auctioneers and Valuers, Leytonstone, N.E.

Tottenham, Middlesex.

MESSRS. PROTHEROE AND MORRIS have received instructions from Mr. Thos. Ware, to SELL by AUCTION, on the Premises, Hall Farm Nursery, adjoining the Tottenham Railway Station, on the Great Eastern line, on FRIDAY, November 1, at 11 o'Clock, the Charming NURSERY STOCK, including Evergreen, Coniferous, and Deciduous Shrubs; Ornamental, Forest, and Fruit Trees; Standard, Dwarf, and Climbing Roses; Manetti Stocks, 2000 Red and Black Currants, &c.
May be Viewed prior to the Sale. Catalogues had on the premises, and of the Auctioneers and Valuers, Leytonstone, N.E.

Nursery Stock—Mill Hill Nursery, Hendon.
About a mile from Mill Hill Station on the Edgware and Highgate Railway, and one hour's ride from Camden Town by Mill Hill Omnibus.

MESSRS. HUMBERT AND COX are favoured with instructions from the Executors of the late Mr. James Wright, to SELL by AUCTION, on the Premises, Mill Hill Nursery, Hendon, on THURSDAY, October 24, at 12 for 1 o'Clock, the whole of the NURSERY STOCK, comprising 1000 Thuja Lobbii, 100 Thujopsis Borealis, 1000 Aucuba japonica, 1000 Laurustinus, 1000 English Yews, 200 Laurels, 500 Portugal Laurels, 1000 Cupressus Lawsoniana, 00 Abies Douglassii, 500 Phillyrea, 500 Scotch Fir, 500 Pinus excelsa, 500 Standard Roses (named), 500 Dwarf Roses, 500 Thuja gigantea, 500 Limes, Chestnuts, Birch, Acacias, Mountain Ash, English Oak and Elm, &c.
May be viewed two days prior to the Sale. Catalogues may be had on the Premises; at the principal Inns at Hendon; the Essex Arms and Clarendon Arms Hotels, Green Man, and Gatherers' Arms, Watford; the Red Lion, Elstreet and Barnet; Abercorn Arms and Vine Inns, Stanmore; Three Crowns, Bushey Heath; Bell Inn, Bushey; Swan and Bell Inns, Rickmansworth; and (free by post) of Messrs. Humbert & Cox, Land Agents, Auctioneers, and Surveyors, Little Nascot, Watford, Herts; and 88, St. James' Street, London, S.W.

To Wholesale Druggists and Others.
Valuable Crop of Liquorice, at Mitcham, Surrey.

MESSRS. BLAKE will SELL by AUCTION, on the land as under, on TUESDAY, October 29, at 2 for 3 o'Clock, in two lots, the CROP of LIQUORICE, 5 and 3 years' growth, now growing on about 2 acres, in Pudding Field, opposite the Ravensbury Mills, near the Mitcham Railway Station.
Catalogues will be forwarded on application to the Auctioneers 21, High Street, Croydon, Surrey, S.

Silver Hill Farm, Radbourne, near Derby.

JAMES TURNER, Auctioneer and Valuer, respectfully announces to the Public that he is again honoured with instructions from E. S. Chandos-Pole, Esq., to SELL by PUBLIC AUCTION, upon the Silver Hill Farm, on THURSDAY, October 31, the SURPLUS LIVE FARMING STOCK, consisting of 10 barren Cows, 3 Bulls, 50 Steers and Stirks, 3 working Horses, 250 Sheep, and 8 Pigs. Particulars in a future Paper.
Dalbury Lees, Derby, Oct. 9.

To Make Room for Herbaceous Plants, &c.,

T. S. WARE, Hale Farm Nursery, Tottenham, Middlesex, has given Messrs. Protheroe and Morris instructions to SELL by AUCTION, on the Premises, on FRIDAY, November 1, at 11 for 12 o'Clock, a quantity of ORNAMENTAL TREES, SHRUBS, CONIFERÆ, ROSES, FRUITS, FOREST TREES, &c. Catalogues on application.




SUTTONS'

COMPLETE

COLLECTIONS of DUTCH FLOWER ROOTS

FOR

BLOOMING DURING WINTER AND SPRING.




ALL GOODS CARRIAGE FREE, EXCEPT VERY SMALL PARCELS.

FIVE PER CENT. DISCOUNT ALLOWED FOR CASH PAYMENTS.

No. 1.—SUTTONS' COMPLETE COLLECTION FOR OPEN GROUND,

Price 42s., Carriage Free, contains :—

24 Fine Mixed BORDER HYACINTHS
12 Fine Mixed POLYANTHUS NARCISSUS
50 BORDER NARCISSUS, of sorts
12 Large CAMPERNELLE JONQUILS
100 Fine Mixed DOUBLE RANUNCULUS
100 SCARLET TURBAN RANUNCULUS

25 DUC VAN THOL TULIPS
12 Mixed SINGLE EARLY do.
12 DOUBLE YELLOW do.
12 Fine Mixed PARROT do.
50 Fine Mixed SINGLE LATE do.
12 REX RUBRORUM TULIPS

12 Choice ENGLISH IRIS'
25 Fine Mixed DOUBLE ANEMONES
25 Fine Mixed SINGLE do.
300 Fine CROCUS, in sorts
100 SNOWDROPS
50 Winter ACONITES

12 Fine Mixed GLADIOLUS
12 Choice SPANISH IRIS
6 LILIES, of sorts
6 FERRARIA PAVONIA
6 ALSTRŒMERIA VAN HOUTTE
12 DOG'S TOOTH VIOLETS

No. 2.—SUTTONS' COMPLETE COLLECTION FOR OPEN GROUND,

Price 21s., Carriage Free, contains :—

12 Fine Mixed BORDER HYACINTHS
6 Fine Mixed POLYANTHUS NARCISSUS
25 BORDER NARCISSUS, of sorts
6 Large CAMPERNELLE JONQUILS
50 Fine Mixed DOUBLE RANUNCULUS
50 SCARLET TURBAN RANUNCULUS

12 Fine Mixed DOUBLE ANEMONES
12 Fine Mixed SINGLE do.
150 Fine CROCUS, in sorts
50 DOUBLE SNOWDROPS
25 Winter ACONITES
6 Fine Mixed GLADIOLUS

12 DOUBLE DUC VAN THOL TULIPS
6 Mixed SINGLE EARLY do.
6 Mixed DOUBLE do.
6 Mixed PARROT do.
25 Mixed SINGLE LATE do.
6 REX RUBRORUM do.

6 Choice Mixed ENGLISH IRIS
6 Choice Mixed SPANISH do.
3 LILIES, of sorts
3 FERRARIA PAVONIA
3 ALSTRŒMERIA VAN HOUTTE
6 DOG'S TOOTH VIOLET

No. 3.—SUTTONS' COMPLETE COLLECTION FOR OPEN GROUND,

Price 10s. 6d., contains :—

6 Fine Mixed BORDER HYACINTHS
3 Fine Mixed POLYANTHUS NARCISSUS
12 Fine Mixed BORDER NARCISSUS
3 Large CAMPERNELLE JONQUILS
25 Fine Mixed DOUBLE RANUNCULUS

25 SCARLET TURBAN RANUNCULUS
6 Fine Mixed DOUBLE ANEMONES
6 Fine Mixed SINGLE do.
100 Fine Mixed CROCUS
25 DOUBLE SNOWDROPS

12 Winter ACONITES
3 Fine Mixed GLADIOLUS
12 DOUBLE DUC VAN THOL TULIPS
6 Fine Mixed SINGLE EARLY do.
12 Fine Mixed SINGLE LATE do.

6 Fine Mixed IRIS
2 LILIES, of sorts
1 CROWN IMPERIAL
2 Mixed ALSTRŒMERIAS
3 Mixed FRITTILARIAS

No. 4.—SUTTONS' COMPLETE COLLECTION FOR POTS AND GLASSES,

Price 42s., Carriage Free, contains :—

24 Fine HYACINTHS, by name
12 Miniature HYACINTHS, do.
12 POLYANTHUS NARCISSUS, do.
12 Large DOUBLE JONQUILS
12 SINGLE SWEET-SCENTED do.

12 SINGLE DUC VAN THOL TULIPS
12 Choice IXIAS
6 Choice SPARAXIS
6 ACHIMENES
6 FERRARIA PAVONIA

50 EARLY TULIPS, 10 sorts, by name
12 SCILLA PRÆCOX
6 PERSIAN IRIS
6 PEACOCK do.
100 Fine CROCUS, by name

6 LACHENALIA TRICOLOR
1 CYCLAMEN PERSICUM
1 JACOBEA LILY
1 LILIUM LANCIFOLIUM ALBUM
1 „ „ RUBRUM

No. 5.—SUTTONS' COMPLETE COLLECTION FOR POTS AND GLASSES,

Price 21s., Carriage Free, contains :—

12 Fine HYACINTHS, by name
6 Miniature HYACINTHS, do.
6 POLYANTHUS NARCISSUS, do.
6 Large DOUBLE JONQUILS
6 SINGLE SWEET-SCENTED do.

6 SINGLE DUC VAN THOL TULIPS
25 EARLY TULIPS, 5 sorts, by name
6 SCILLA PRÆCOX
3 PERSIAN IRIS
3 PEACOCK IRIS

50 Fine CROCUS, by name
6 Fine mixed IXIAS
3 Fine mixed SPARAXIS
3 Fine mixed ACHIMENES

3 FERRARIA PAVONIA
3 LACHENALIA TRICOLOR
1 JACOBEA LILY
1 LILIUM LANCIFOLIUM

No. 6.—SUTTONS' COMPLETE COLLECTION FOR POTS AND GLASSES,

Price 10s. 6d., contains :—

Fine HYACINTHS, by name
3 Miniature HYACINTHS, do.
3 POLYANTHUS NARCISSUS, do.

3 Large DOUBLE JONQUILS
3 SINGLE SWEET-SCENTED do.
3 SINGLE DUC VAN THOL TULIPS

12 EARLY TULIPS, 4 sorts, by name
3 SCILLA PRÆCOX
3 PERSIAN IRIS

25 Fine CROCUS, by name
3 Fine mixed IXIAS
1 LILIUM LANCIFOLIUM
3 LACHENALIA TRICOLOR

☞ *Any Article above specified, if not required, will be excluded, and additional quantities of others included, according to the wish of the purchaser.*

SUTTONS' CHOICE HYACINTHS FOR EXHIBITION, AS SUPPLIED TO HER MAJESTY'S GARDENS, WINDSOR,

SELECTED BY MESSRS. SUTTON FROM THEIR VERY FINE COLLECTION.

100 in 100 very choice sorts	£4	4	0	50 in 50 very choice sorts	£2	2	0	25 in 25 very choice sorts	£1	1	0	12 in 12 choice sorts	£0	9	0
100 in 50 very choice sorts	3	10	0	50 in 25 very choice sorts	1	15	0	12 in 12 extra fine sorts	0	12	0	12 in 12 good sorts	0	6	0

Mixed Hyacinths for Beds or Open Borders, any Colour, 3s. per dozen; 21s. per 100.

Hyacinths, in distinct Colours, for Massing or Ribbon Gardening, 4s. per dozen; 30s. per 100.

For Prices and particulars of finest TULIPS, ANEMONES, RANUNCULUS, IRIS, NARCISSUS, GLADIOLUS, and other BULBOUS ROOTS, see

SUTTONS' AUTUMN CATALOGUE,

GRATIS AND POST FREE ON APPLICATION.

SUTTON AND SONS, ROYAL BERKSHIRE SEED ESTABLISHMENT, READING.

Editorial Communications should be addressed to "The Editor;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
Printed by JAMES MATTHEWS, at the Office of Messrs. BRADBURY, EVANS, & Co., Lombard Street, Precinct of Whitefriars, City of London, in the Co. of Middlesex, and Published by the said JAMES MATTHEWS, at the Office, No. 41, Wellington Street, Parish of St. Paul's, Covent Garden, in the said County.—SATURDAY, October 19, 1867.

THE GARDENERS' CHRONICLE

AND

AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.

No. 43.—1867.] SATURDAY, OCTOBER 26. {Price Fivepence. {Stamped Edition, 6d.

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THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.

NOTICE IS HEREBY GIVEN, that an ADDITION of TWO PENSIONERS on the Funds of this Institution will take place in JANUARY NEXT.

All Persons desirous of becoming CANDIDATES are required to send in their Petitions, with Testimonials, &c., to the Committee, on or before the 11th November next, after which time they will not be received.

Preference will be given to those Persons who may have been Subscribers for 15 years and upwards; but should there not be any of that class, then the Petitions of those who may not have been Subscribers will be considered.

Printed Forms may be had upon application to the Secretary.

By Order of the Committee. E. R. CUTLER, Sec.

14, Tavistock Row, London.—October 9, 1867.

IF THOS. TOWNSEND, who formerly kept a Nursery at Canonbury Grange, Islington, or any one who may be acquainted with him, will communicate to MICHAEL COMERFORD, 44, Brill Row, Somers Town, they will HEAR of SOMETHING to their ADVANTAGE.

SUTTONS' FLOWER ROOTS.
See p. 1092 of this Week's Paper.
SUTTONS' EXHIBITION HYACINTHS.
See p. 1092 of this Week's Paper.

WM. CUTBUSH AND SON beg to say that their DESCRIPTIVE CATALOGUE of CHOICE HYACINTHS, TULIPS, CROCUSES, &c., is now ready, and can be had post free on application. Highgate Nurseries, London, N.

Bulb Catalogue.

BUTLER, McCULLOCH, AND CO.'S CATALOGUE of Choice DUTCH and CAPE BULBS is now ready. Sent free and post paid.—Established upwards of a Century.
South Row, Covent Garden Market, W.C.

Winter and Spring Flowering Bulbs and Plants.

BARR AND SUGDEN'S FLORAL GUIDE may be had free. It contains much valuable information.
For particulars see large Advertisement, page 1090.

Before Purchasing Flower Roots, send for

J. SCOTT'S CATALOGUE of BULBS, VASES, and GARDEN REQUISITES. Bulbs are extra fine.
J. SCOTT, The Seed Stores, Yeovil, Somerset.

JOHN KELLETT begs to announce that his NEW PRICED DESCRIPTIVE CATALOGUE of DUTCH FLOWER ROOTS, SPECIMEN AZALEAS, ROSES, EPIPHYLLUMS, &c., is now ready, and can be had post free on application.
Wellington Nursery, Heaton Chapel, Stockport.

Hyacinths, Tulips, Crocuses, &c.

B. S. WILLIAMS has a fine Collection of the above. PRICED CATALOGUE post free on application.
HYACINTHS for Glasses or Pots, 6s., 8s., and 10s. per dozen.
Victoria and Paradise Nursery, Upper Holloway, London, N.

Special Notice.—Plants and Bulbs.

MR. STEVENS' SALES of DUTCH BULBS, FRUIT TREES, ROSES, and HARDY SHRUBS, take place every WEDNESDAY and SATURDAY, and frequently on MONDAY, at the Rooms, 38, King Street, Covent Garden, London, W.C.
CATALOGUES on application.

Notice.—Fruits, Flowers, Bulbs.

BEFORE PURCHASING, PLEASE SEND FOR
DILLISTONE AND CO.'S LITTLE LISTS, post free to all applicants.
Address, DILLISTONE & Co., Nurserymen, &c., Sturmer, near Halstead, Essex.

To Gardeners, Seedsmen, &c.

HENLEY, BROTHERS, MERCHANTS, Holbeach, have still on hand a quantity of SNOWDROPS, which they beg to offer. Samples and price on application.

WANTED, BEECH MAST.—Send price, per bushel, to G. FROST, Nurseryman, Bampton, Devon.

THE QUEEN. A 1.—By permission CHARLES NOBLE has had the honour of Exhibiting his NEW WHITE RHODODENDRON before Her Majesty the Queen, at the Royal Gardens, Windsor; he has authority to state that Her Majesty was graciously pleased to approve of, and recognise the name given in honour of Herself, as being really "THE QUEEN" amongst Rhododendrons.
Price 21s., 31s. 6d., 42s., 63s., 84s., & 105s. each. Standards, 105s. each.

Gladioli.

EUGENE VERDIER, fils aîné, NURSERYMAN, 3, Rue Dunois, Paris, is now publishing his CATALOGUE of NOVELTIES (Seed from M. Souchet), and also of his own splendid Collection of the above. CATALOGUES to be had gratis, either direct from him, or of his agents, BETHAM & BLACKITH, Cox's Quay, Lower Thames Street, London, E.C.

Vines.

B. S. WILLIAMS has now on hand a very large and fine Stock of FRUITING and PLANTING CANES of all the best varieties. An inspection is invited.
Victoria and Paradise Nurseries, Upper Holloway, London, N.

Vines.

H. LANE AND SON solicit an inspection of their stock of VINES: 2000 Canes to choose from, strong and well ripened. They have been awarded the First Prize for Vines in pots at all the leading Exhibitions. CATALOGUES free on application.
The Nurseries, Great Berkhampstead, Herts.

Pines.

TO BE DISPOSED OF, in consequence of the glass being required for other plants, 60 stout clean FRUITING PLANTS of the best sorts, and 30 good SUCCESSIONS of the same.
Apply to FRANCIS R. KINGHORN, Richmond, S.W.

CURRANT PLANTS, 4-years' growth.—The large RED GRAPE and NETTLE-LEAF WHITE, at 10s. per 100, cash on the ground, or a Post Office order payable at Hounslow.
T. MITTON, Lampton, near Hounslow, W.

THE best STRAWBERRY, the PRESIDENT.—Free grower, abundant bearer, fruit very rich flavoured, handsome, and bears carrying and keeping well. Plants, 7s. 6d. per 100; smaller do., 30s. per 1000.
Also the true old PINE, extra fine flavour, 10s. per 100.
Messrs. WRENCH & Co., London Bridge, E.C.

PRINCESS of WALES STRAWBERRY.—This fine variety is now proved to be the best early variety ever produced, either for Forcing or for general Early Crop. See *Gardeners' Chronicle* of May 12, 1866, p. 437. Good Plants can now be supplied from the true stock, at 5s. per 100, from the raiser.
B. W. KNIGHT, Nurseryman, Battle, Sussex.

WEBB'S PRIZE COB FILBERTS, and other PRIZE COB NUTS and FILBERTS. LIST of these varieties from Mr. WEBB, Calcot, Reading.

Orchard-house Trees Fruiting in Pots.

PEACHES, NECTARINES, APRICOTS, CHERRIES, PLUMS, PEARS, APPLES, VINES, and FIGS.
RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

Standard Apples.

WOOD AND INGRAM offer to the Trade and others 20,000 splendid STANDARD APPLES, with 5 to 6 feet stems and magnificent heads. Price on application.
The Nurseries, Huntingdon.

Now Ready,
A DESCRIPTIVE CATALOGUE of FRUITS for 1867, free.
A DESCRIPTIVE CATALOGUE of a few SELECT ROSES for 1867. By THOS. RIVERS. Free by post.
Nurseries, Sawbridgeworth.

RICHARD SMITH'S FRUIT LIST contains a sketch of the various forms of Trees, with directions for Cultivation, Soil, Drainage, Manure, Pruning, Lifting, Cropping, Treatment under Glass; also their synonymes, quality, size, form, skin, colour, flesh, flavour, use, growth, duration, season, price, &c. Free by post for three stamps.
RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

To Noblemen's Agents, Land Owners, &c.

FINE STOCK of FOREST TREES, &c., for Ornamental Enclosures. Prices very reasonable.
JOSEPH TREMBLE & SONS, Penrith, Cumberland.

Specimen Chinese Arbor-vitæ.

HUSSEY AND SON, having a large Stock of very fine bushy plants of the above, from 4½ to 6 feet high, beg to offer them at 2s. each, or 20s. per dozen.
Mile End Nursery, Eaton, Norwich.

THIRTY THOUSAND AMERICAN ARBOR-VITÆ, from 3 to 6 feet, very suitable for Hedges.
WM. WOOD & SON, Woodlands Nursery, Maresfield, near Uckfield, Sussex.

ONE HUNDRED THOUSAND fine Transplanted COMMON LAURELS, from 1½ to 3 feet.
WM. WOOD & SON, Woodlands Nursery, Maresfield, near Uckfield, Sussex.

LIBONIA FLORIBUNDA.—One of the most beautiful winter blooming Greenhouse or Conservatory Plants grown, blooming profusely from November to April. Strong Plants 1s. each; 8s. per dozen.
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AZALEA INDICA.—Good healthy blooming Plants, 40 of the choicest varieties, including Stella, Carnation, Flag of Truce, and Mdlle. Verschaffelt, for 40s., or less quantities 12s. per dozen; also other good named varieties, healthy blooming Plants, at 9s. per dozen.
H. & R. STIRZAKER, Skerton Nurseries, Lancaster.

ELMS for AVENUE and PARK PLANTING.—Fine well rooted Trees of HUNTINGDON and HERTFORDSHIRE ELMS, 10 to 12 and 12 to 14 feet; and HERTFORDSHIRE, 14 to 16 feet, at a very cheap rate, according to quantity required. For price, &c., apply to
WOOD & INGRAM, Nurseries, Huntingdon.

To Make Room for Herbaceous Plants, &c.,

T. S. WARE, Hale Farm Nursery, Tottenham, Middlesex, has given Messrs. PROTHEROE AND MORRIS instructions to SELL by AUCTION, on the Premises, on FRIDAY, November 1, at 11 for 12 o'Clock, a quantity of ORNAMENTAL TREES, SHRUBS, CONIFERÆ, ROSES, FRUITS, FOREST TREES, &c. Catalogues on application.

WANTED, a quantity of HEATHS, in or coming in bloom, good bedding stuff, in 48-pots; also all kinds of CUT FLOWERS WANTED regularly through the winter.
West London Flower and Seed Establishment, 9, Queen's Road, W.

THE CZAR VIOLET is NOW in BLOOM, and will continue flowering through the winter. Strong plants, 3s. per dozen; also new seed, 2s. 6d. and 5s. per packet.
RASPBERRY CANES:—Fastolff, Fillbasket, and Early Thimble, 4s. per 100; may be had for pre-paid orders from
Mr. JOHN GRAHAM, Cranford, Hounslow, W.

Beck's Seedling Pelargoniums.

S. GLENDINNING AND SONS are now offering for the first time the 12 beautiful, new, and distinct PELARGONIUMS raised by Mr. Wiggins, Gr. to W. BECK, Esq., of Isleworth, which were awarded numerous Certificates at the various Metropolitan Shows.
DESCRIPTIVE PRICED LIST may be had on application.
Chiswick Nurseries, London, W.

Lilium auratum.

SUTTON AND SONS can supply fine BULBS of this beautiful Flowering Plant at from 5s. to 15s. each.
Royal Berks Seed Establishment, Reading.

CALCEOLARIA (Herbaceous), of choice strain, nice plants, in single pots, 21s. per 100; 12s. 6d. for 50, and 1s. per doz.
H. & R. STIRZAKER, Skerton Nurseries, Lancaster.

WEBB'S NEW GIANT POLYANTHUS, Florist Flower, and GIANT COWSLIP SEEDS; also Plants of all the varieties, with double PRIMROSES of different colours; AURICULAS, both Single and Double, with every sort of Early Spring Flowers. LIST on application.—Mr. WEBB, Calcot, Reading.

Wholesale Catalogue.

GEORGE JACKMAN AND SON'S PRICED and DESCRIPTIVE CATALOGUE of HARDY NURSERY STOCK for 1867 and SPRING, 1868, can be had free on application.
Woking Nursery, Surrey.

Manetti Stocks.

HUSSEY AND SON beg to offer a quantity of very fine Cuttings of the above, ready for planting, at 1s. 6d. per 100, 10s. per 1000. Mile End Nursery, Eaton, Norwich.

New Rose Catalogues for 1867 and 1868.

CATALOGUES OF TREES, SHRUBS, FRUIT TREES, & BULBOUS ROOTS.
WM. WOOD AND SON will be happy to forward Copies of above, gratis and post free.
Address, Woodlands Nursery, Maresfield, near Uckfield, Sussex.

To the Trade.

MARECHAL NIEL ROSE, from own roots, in pots, by the 100 or 1000, at £5 per 100.
G. BAKER & SON, American Nursery, Bagshot.

CULTURAL DIRECTIONS for the ROSE. Second Edition. By JOHN CRANSTON, King's Acre Nurseries near Hereford. Free by post from the Author for 20 stamps.

"THE ROSES of MR. PAUL * * * are things to see once and dream of for ever."—*Athenæum, June*, 1867
WM. PAUL begs to announce that his CATALOGUE of ROSES is now ready, and will be forwarded free on application.
EIGHTEEN PRIZES have been awarded to him for Roses this year at the principal London Flower Shows.
PAUL'S Nurseries, Waltham Cross, London, N.

New Roses for 1867-1868.

EUGENE VERDIER, fils aîné, NURSERYMAN, 3, Rue Dunois, Paris, is now publishing his CATALOGUE of the above, which will comprise 69 New Varieties for 1867-1868. This CATALOGUE to be obtained gratis, either direct from him, or of his Agents, BETHAM & BLACKITH, Cox's Quay, Lower Thames Street, London, E.C.

POA TRIVIALIS ARGENTEA ELEGANS.—Several dozen bunches of this very pretty Silver-leaved Grass, at 6s. per dozen; each bunch will separate into several plants.
CHARLES SHILLING, Hill Nursery, Winchfield, Hants.

New Grass Seeds for Exportation.

SUTTON AND SONS, having received their supply of NEW GRASS SEEDS of the present Season's Growth in fine condition, will be happy to forward lowest price per ton or cwt. on application. All Seeds perfectly packed and delivered free to ship's side at any English Port. CATALOGUES gratis and post free
SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

EVERY GARDEN REQUISITE kept in Stock at
CARTER'S New Seed Warehouse, 237 & 238, High Holborn, London.

Genuine Garden and Agricultural Seeds.

JAMES CARTER AND CO.
SEED FARMERS, MERCHANTS, and NURSERYMEN,
237 & 238, High Holborn, London, W.C.

Genuine Agricultural and Garden Seeds.

JAMES FAIRHEAD AND SON, SEED GROWERS and MERCHANTS, 7, Borough Market, and Braintree, Essex.

Agricultural and Garden Seeds.

H. AND F. SHARPE beg to announce to the Trade that their SPECIAL LIST of HOME-GROWN SEEDS, 1867 Growth, is now ready and may be had on application.
Seed Growing Establishment, Wisbech, Cambs.

RAYNBIRD, CALDECOTT, BAWTREE, DOWLING, AND COMPANY, Limited,
CORN, SEED, MANURE, AND OILCAKE MERCHANTS,
Address, 89, Seed Market, Mark Lane, E.C.; or Basingstoke.
Samples and Prices post free on application. Prize Medals, 1851, for Wheat; 1862, for "Excellent Seed Corn and Seeds."

MUSHROOM SPAWN of the best possible quality, 5s. per bushel. Sample Brick sent on application. The Trade supplied,
JOHN KELLETT, Wellington Nursery, Heaton Chapel, Stockport.

To the Trade.

DICKSON'S "FIRST and BEST" EARLY PEA.
New Seed can now be supplied.
Lowest price per quarter on application.
FRANCIS & ARTHUR DICKSON & SONS, 106, Eastgate Street, Chester.

ASPARAGUS ROOTS, 3-yr old, per 100, 2s. 6d.; 2-yr. old, per 100, 1s. 6d. Terms cash.
RICHARD WALKER, Seed Grower and Market Gardener, Biggleswade, Beds.

To Noblemen, Gentlemen, Gardeners, and the Trade.

SEAKAIL for Forcing, magnificent roots, now ready. Per 100, 10s. Terms cash.
RICHARD WALKER, Market Gardener and Seed Grower, Biggleswade, Beds.

Yellow Globe and Long Yellow Mangel.

MR. S. A. DAINTREE, of Fen Drayton, St. Ives, Hunts, has several varieties of the above named Seed for Sale grown from large selected Bulbs.
Samples and Price on application.

Seakail for Forcing.

POTTER AND FERRIGE, "The Nurseries," Sutton, Surrey, S., have 30,000 extra-fine Plants for disposal, ROSES in pots for forcing, strong plants; strong VINES for fruiting or planting; Fern-leaved and other PRIMULAS. Prices on application.

Biggleswade Market Gardens, Beds.

RICHARD WALKER can supply the following CABBAGE PLANTS, the finest in England:—
RED, from the finest stock in the country, 4s. per 1000.
EAST HAM, ENFIELD MARKET, NONPAREIL, ROBINSON'S CHAMPION, warranted true, 2s. per 1000, in any quantity.
LETTUCE PLANTS, 6d. per 100. Terms cash.

Forest Trees, Fruit Trees, Evergreens, Plants for Game Covers, Conifers, Roses, &c.

FRANCIS AND ARTHUR DICKSON AND SONS invite the attention of Planters to their very large stock of the above, which in extent and variety is not excelled by any Nursery in the Kingdom. Their Nurseries, which are very bleak and exposed, extend over some 150 Acres, and their Plants are well known to be unusually hardy, as well as in the most perfect health and condition in every respect; and are found to thrive admirably when removed to other parts of the country. PRICED CATALOGUES post free upon application. Estimates and Special Prices for large quantities.

The "Upton" Nurseries, and "Old" Established Seed Warehouse, 106, Eastgate Street, Chester.

To Suburban and other Extensive Planters.

PONSFORD AND SON have much pleasure in offering (with special advantages) well-grown and thoroughly healthy GENERAL NURSERY STOCK, prominently the following:—Fruit Trees for every purpose, in fine condition; Roses, Ornamental Trees, Evergreen and Deciduous Shrubs for general furnishing, particularly Aucubas, Arbor-vitæ, Ligustrum, Thuja (various), Variegated Hollies, &c., specially to the Trade; fine Standard Mulberries, Limes, extra strong; Standard Apples and Plums, Dwarf-trained Apricots, Planes, Poplars, &c.; Azalea indica, choice sorts, extra size, Cheap.

Nurseries: Loughborough Park, Brixton, S.
Seed and Plant Department: Brixton Place.

Planting Season.—Walton Nursery, Liverpool.

To PLANTERS OF PUBLIC OR PRIVATE PARKS, CEMETERIES, PLEASURE GROUNDS, OR WOODS AND FORESTS.

W. SKIRVING begs to announce that his STOCK of TREES and SHRUBS is this Season very extensive and well grown, and that he is now prepared to execute orders to any amount for Trees and Shrubs of all sizes, at moderate prices.

W. S. considers the present month one of the best for transplanting Evergreen Trees or Shrubs, and solicits Planters to inspect his Stock, which consists of many thousands of the Holly, of the most choice varieties of the Gold and Silver Variegated kinds, and of the large broad-leaved Holly (the finest of all Evergreen Trees), hundreds of which are of large size and fine specimens for giving immediate effect, with thousands and tens of thousands of smaller sizes, for general planting.

Also an immense Stock of all other cultivated Trees and Shrubs, either for Villa, Park, or Forest planting, and of Fruit Trees for Gardens or large Orchards.

N.B. Fifty acres of Walton Nursery being required for Villa Building, the Stock thereon must be cleared as soon as possible, therefore very moderate prices will be accepted.—October, 1867.

A. VAN GEERT, NURSERYMAN, Ghent, Belgium, begs respectfully to offer the following Plants, of which he possesses a good stock, at very reasonable prices:—

100 HARDY RHODODENDRONS, in fine named varieties, £3.
100 ASCLEPIAS TUBEROSA, flowering roots, £1 1s.
100 HERBACEOUS CHINESE PÆONIES, in fine vars., £2 10s.
25 TREE PÆONIES, different varieties, £2 10s.
100 ABIES PINSAPO, fine plants, well rooted, 1 foot high, £4.
100 ,, NORDMANNIANA, 3-yr. seedlings, £3 10s.
100 THUJA ERICOIDES, small, very pretty variety, £2.
100 THUJA AUREA, 25s. to £2 10s.
160 CHAMÆCYPARIS SPHÆROIDEA FOLIIS AUREIS, fine plants, £3.
50 THUJA ELEGANTISSIMA, 2-yr. grafted, £2.
100 WIDDRINGTONIA ERICOIDES, £1 5s.
50 CUPRESSUS LAWSONIANA ARGENTEA (WATERER), £2.
25 ,, ,, GRACILIS, £1.
25 ,, ,, STRICTA, £1.
50 PINUS INSIGNIS, strong plants, £2.
50 GINKGO BILOBA, strong, £2.
60 MAGNOLIA GRANDIFLORA, fine plants, £3 10s.
50 ,, TRIPETALA, fine plants, £1 5s.
25 FABIANA IMBRICATA, fine, £1.
50 ILEX, of sorts, £2 10s. | 100 HEDERA, of sorts, £1.
50 BERBERIS, of sorts, 15s. | 100 CONIFERS, of sorts, £2.
100 fine STANDARD PERPETUAL ROSES, £5.
100 COMMON MOSS ROSES, £2.
25 STANDARDS of ACER LEOPOLDII, £2 10s.
12 ARUNDO DONAX VARIEGATA, £1.
100 LILIUM LANCIFOLIUM RUBRUM, very strong, £3.
100 INDIAN AZALEAS, small, with buds, £3.
100 ,, ,, larger, £4 to £6.
100 CAMELLIAS, fine sorts, without buds, £4.
100 GLADIOLUS GANDAVENSIS, different varieties, £4.
100 GLOXINIAS, in varieties, £2.
6 AGAVE SCHIDIGERA, fine strong plants, £5.
6 ,, COCCINEA, £1 10s.
6 ,, XALAPENSIS, £1 10s.
12 ,, AMERICANA, 21s. to £2.
12 ,, VARIEGATA, 21s. to £2.
12 LAPANIA BORBONICA, £1.
12 CORYPHA AUSTRALIS, fine plants, £3.
12 CHAMÆROPS HUMILIS, £1.
6 ,, fine plants, £3 to £5.
12 DICTYOGLOSSUM CRINITUM, £1 5s.
25 LOMARIA GIBBA, £1.
50 GYMNOGRAMME WETENHALLIANA, £1 10s.
25 ALSOPHILA EXCELSA, £1.
25 WOODWARDIA ORIENTALIS, £1.
20 TROPICAL ORCHIDS, £3.
50 NEW PERPETUAL PINE-APPLE STRAWBERRY plants, £1.
6 RHODODENDRON AUGUSTE VAN GEERT, the largest bouquet of the hardy varieties, strong plants, £1 10s.

When a large quantity of the above articles are ordered, the carriage will be paid to London. References required from unknown Correspondents.

Agents: Messrs. R. SILBERRAD & SON, 5, Harp Lane, London, of whom NEW GENERAL CATALOGUES may be obtained on application.

MAURICE YOUNG'S NEW CATALOGUE of NEW HARDY PLANTS, JAPANESE NOVELTIES, NEW AUCUBAS, ORNAMENTAL TREES and SHRUBS, EVERGREENS, CONIFERÆ, RHODODENDRONS, FOREST TREES, &c., may be had on application.

DESIGNS, PLANS, and ESTIMATES PREPARED for LAYING-OUT NEW GROUNDS, IMPROVING PARK SCENERY, PLANTATIONS, &c.

FOREST TREES PLANTED by the Acre, and Guaranteed.

Convenient railway accommodation to all parts of the country.

Milford Nurseries, near Godalming, Surrey.

Weston Nursery, Weston-super-Mare.

GEO. JAMES begs to offer the following:—
1,000 MAIDEN APPLES, 30s. per 100.
500 MAIDEN PEARS, 30s. per 100.
10,000 APPLE STOCKS (good), 20s. per 1000.
20,000 APPLE STOCKS, 10s. per 1000.
1,000 CHINESE ARBOR-VITÆ, 2 to 3 feet, 30s. per 100.
500 LAURUSTINUS (good), 25s per 100.
1,000 STANDARD ROSES, 75s. per 100.
SAMPLES and CATALOGUES on application.

TO LARGE PLANTERS and the TRADE—
Fine HORSE CHESTNUTS, 6, 7, 8, and 10 feet high.
PORTUGAL LAURELS, extra fine, 2, 3, and 4 feet.
ACER NEGUNDO VARIEGATA, from 3 to 4 ft., Pyramids.
HEMLOCK SPRUCE, 4 to 5 feet, fine.
BOX TREES, 2½ to 3 feet. | PRIVET, 3 to 4 feet.
SIBERIAN and AMERICAN ARBOR-VITÆ, 3 to 8 feet.
Special offers on application to
A. GODWIN & SON, Ashbourne, Derbyshire.

Northampton Nurseries.

JOHN PERKINS, SEN., begs to call the attention of Noblemen, Gentlemen, and others engaged in Planting, to his large stock of the following:—1,000,000 BLACK THORNS, for Covert Planting, 1½ to 2 feet, 2½ to 3 feet; 2,000,000 LARCH FIRS, 3 to 4 ft., 4 to 6 feet; 1,000,000 SPRUCE FIRS, 1½ to 2 feet, 2½ to 3 feet, 3 to 4 feet; 2,000,000 WHITE THORN QUICK, 2 and 3 years transplanted; also large quantities of

Birch, 3 to 4 feet	Elms, English, 6 to 8 ft., 8 to 10 ft.
Berberis Dulcis, 2 to 3 feet	Elms, Huntingdon, 6 to 8, 8 to 10ft.
Cedrus Deodara, 5 to 6 ft., 6 to 8 ft.	Chestnuts, Spanish, 2 to 3 feet
Green Box, 1½ to 2 feet	Portugal Laurel, 1½ to 2 ft, 2 to 3 ft.
Evergreen Privet, 2 to 3 feet	Pinus austriaca, 2 to 3 feet
Hornbeam, 3 to 4 feet	Sycamore, 3 to 4 feet

J. P.'s stock of all kinds of FRUIT, FOREST and ORNAMENTAL TREES, &c., is very extensive, and this season remarkably fine, and in excellent condition for removal, having been frequently transplanted. DESCRIPTIVE PRICED CATALOGUES sent post free on application to 52, Market Square, Northampton.

Woodlands Nursery, Maresfield, near Uckfield, Sussex.

WM. WOOD AND SON have a very extensive stock to offer of the following, viz.:—

Scarlet HORSE CHESTNUTS, Standards, 6 to 10 feet [1000
CATALPA SYRINGÆFOLIA | THUJA AUREA, by the 100 or
LABURNUMS, yellow and purple | Strong ASPARAGUS Plants
LARCH, SPRUCE, and SCOTCH FIRS
PINUS AUSTRIACA [and other Forest Trees
ASH, BIRCH, WILLOW, HORNBEAM, OAKS, SYCAMORE,
CATALOGUES and Samples may be had on application.

Araucaria imbricata, and Wellingtonia gigantea.

SURPLUS STOCK ON LAND TO BE CLEARED FOR BUILDING PURPOSES.

W. SKIRVING, Walton Nursery, Liverpool, begs to offer a few thousands of the above healthy well-grown plants, with good roots; the Araucarias ranging from 3 to 5 feet, and the Wellingtonias from 2 to 4 feet high.

Prices may be obtained on application, and special agreements made for large quantities.

For Lawn and Clover Planting.

BERBERIS DARWINII.—Too much cannot be said of this fine evergreen species. It is hardy, and the profusion of its orange coloured blossoms, together with the quantity of berries which it bears (of which pheasants are very fond), render it one of the most attractive and desirable plants for lawn as well as cover planting ever introduced.

2-Yr. Seedlings, per 1000, 30s.
9 in. to 12 in., per 100, 10s. | 18 in. to 2 ft., per 100, 35s.
12 in. to 18 in., per 100, 18s. | 2 ft. to 2½ ft., per doz., 9s.

COTONEASTER SIMMONDSII. — This is a beautiful hardy evergreen shrub, with glossy dark green leaves, and bearing a large quantity of scarlet berries, which ripen later than the Berberis Darwinii, and will hang all winter.

12 in. to 18 in., per 100, 15s. | 2 ft. to 3 ft., per 100, 30s.
WILLIAM BARRON & SON, Elvaston Nurseries, near Derby.

The Dorset Nurseries, Blandford and Blandford St. Mary.

FREDERICK GILL AND CO., NURSERYMEN, SEEDSMEN, and FLORISTS, beg to invite the attention of Gentlemen who intend Planting, to their large and vigorous STOCK of FOREST, FRUIT, and ORNAMENTAL TREES, SHRUBS, ROSES, &c., extending over many Acres, and not to be surpassed.

Their ROSES on MANETTI STOCKS, of the choicest varieties and superior growth, merit especial mention.

Copy of a Letter received from the Rev. F. RADCLYFFE.

To the PROPRIETORS *of the* DORSET NURSERIES.

"SIRS,—I was much pleased to-day with the review of your fine Nursery Stock. Your Manetti Roses are the best propagated of any that I have ever purchased. At a little distance few can discern whether they are on alien stocks or on their own roots. They are usually budded far too high to prosper.—Yours truly,

"W. F. RADCLYFFE."

PAUL & SON, THE OLD NURSERIES, CHESHUNT, N.,

(One mile from the Cheshunt Station, Great Eastern Railway,)

BEG TO ANNOUNCE THAT THEIR

NEW PRICED DESCRIPTIVE ROSE CATALOGUE

IS NOW READY, AND WILL BE SENT FREE ON APPLICATION.

The Prices will be found very reasonable, and PAUL AND SON invite an inspection of the quality and quantity of their Stock.

FORTY-FIVE FIRST PRIZES, gained by them at the Horticultural, Botanic, Crystal Palace, Manchester, Leeds, York, Clifton, and Birmingham Shows, are a guarantee of the extent and success of their culture.

Besides ROSES, their culture includes—

FRUIT TREES, in carefully Trained and Cordon Trees, 30,000 Standards, and a large extent of root-pruned Pyramids. Also VINES, unsurpassed in the Trade, and FIGS.
EVERGREENS, of large and small sizes, including 40,000 LAURELS, 2 to 8 feet.
DECIDUOUS TREES, of ordinary size, and large for direct effect, and selected for ornamental foliage and form.
AMERICAN PLANTS of all varieties, at their New American Nurseries, High Beech.
CONIFERÆ.—Large quantities of the leading kinds for ornamental plantations.

GENERAL PRICES FOR ROSE AND FRUIT TREES.

STANDARD and HALF STANDARD ROSES, 18s. to 30s. per dozen.
DWARFS and DWARF STANDARD ROSES, 12s. to 18s. per dozen.
NEW ROSES of 1867.—Dwarfs, 30s. to 36s. per dozen.

FRUIT TREES, per dozen.

APPLES.—Standards, 18s.; Pyramids, 18s. to 24s.; Dwarf-trained, 30s.; Cordons, 18s.
PEARS, PLUMS, and CHERRIES.—Standards, 24s.; Pyramids, 24s. to 42s.; Dwarf-trained, 42s.
PEACHES, NECTARINES, and APRICOTS.—Dwarf-trained, 60s.; Standard Trained, 84s.

Prices per hundred for Orchard planting on application.

☞ *Trucks from Cheshunt direct through the Systems of the Great Eastern and Great Northern Railways.*

PRICED DESCRIPTIVE LISTS POST FREE.

BARR & SUGDEN,

The Metropolitan Seed, Bulb, and Plant Warehouse, 12, King Street, Covent Garden, W.C.

COLLECTIONS of BULBS Carriage Paid 21s. *and upwards.*

PAXTONIAN COLLECTIONS of EASILY CULTIVATED BULBS, Best adapted for Spring Gardening Out-of-Doors.

	Fine Collections.					Extra Fine Collections.				
	A.	B.	C.	D.	E.	F.	G.	H.	I.	K.
	£ s. 4 4	£ s. 3 3	£ s. 2 2	£ s. 1 1	£ s. d. 10 6	£ s. 5 5	£ s. 4 4	£ s. 2 15	£ s. 1 10	£ s. d. 15 6
HYACINTHS, various	100	75	50	25	12	100	75	50	25	12
POLYANTHUS NARCISSUS	30	20	12	6	3	30	20	12	6	3
ORDINARY NARCISSUS	100	75	50	30	15	100	75	50	30	15
TULIPS, various	300	200	150	100	50	300	200	150	100	50
CROCUS, various	500	300	200	100	50	500	300	200	100	50
ANEMONES, various	200	100	75	50	20	200	100	75	50	20
RANUNCULUS, various	200	100	75	50	25	200	100	75	50	25
SNOWDROPS	300	200	150	100	50	300	200	150	100	50
CROWN IMPERIALS	9	9	6	..	..	9	9	6	..	..
SCILLA SIBIRICA	25	20	15	..	..	25	20	15	..	..

COVENT GARDEN COLLECTIONS, For Winter and Spring Blooming In-Doors.

	Fine Collections.					Extra Fine Collections.				
	L.	M.	N.	O.	P.	Q.	R.	S.	T.	U.
	£ s. 4 4	£ s. 3 3	£ s. 2 2	£ s. 1 1	£ s. d. 10 6	£ s. 5 5	£ s. 4 4	£ s. 3 3	£ s. 1 10	£ s. d. 15 6
HYACINTHS, named varieties ..	60	40	30	20	10	60	40	30	20	10
POLYANTHUS NARCISSUS ..	30	20	12	10	6	30	20	12	10	6
TULIPS, named varieties ..	150	100	70	30	12	150	100	70	30	12
JONQUILS, sweet scented ..	40	30	20	12	6	40	30	20	12	6
IXIAS, named	24	12	9	6	..	24	12	9	6	..
SPARAXIS, named	24	12	9	6	..	24	12	9	6	..
TRITONIAS, named	24	12	9	6	..	24	12	9	6	..
BABIANAS, named	24	12	9	6	..	24	12	9	6	..
SEEDLING CROCUS	200	150	100	50	50	200	150	100	50	50
SNOWDROPS, large	200	100	100	50	50	200	100	100	50	50
SCILLA SIBIRICA	50	30	20	12	6	50	30	20	12	6

CLIVEDEN COLLECTION of SPRING FLOWERING PLANTS, £5.

50 beautiful large PERPETUAL YELLOW PANSIES, 50 do. flowering CLIVEDEN BLUE PANSIES, 50 do. rich PURPLE PANSIES, 50 beautiful mixed POLYANTHUS, 100 large pure WHITE CLIVEDEN DAISIES, 100 do. PINK DAISIES, 100 rich BLUE FORGET-ME-NOT, and 100 PINK SILENE. Half of the above quantity, 50s.; Quarter, 25s.; Eighth, 12s. 6d.

For particulars of the best SPRING FLOWERING BULBS and PLANTS, refer to our GUIDE to WINTER and SPRING GARDENING, published last September.

MAGNIFICENT DWARF-TRAINED FRUIT TREES,
By the Dozen, Hundred, or Thousand.
APPLES, PEARS, PLUMS, CHERRIES, PEACHES, NECTARINES, and APRICOTS.
Also Standard, wall-trained, fruit bearing, PEACHES and NECTARINES.
PYRAMIDAL PEARS on the Quince Stock in a fruit-bearing state; and PYRAMIDAL PEARS, on the Pear Stock, extra strong and well grown.
WM. WOOD & SON have many acres of the above named, which for health and vigour are quite unsurpassed in the trade. The Trees have been most carefully trained, and are really examples of successful cultivation.
Address, Woodlands Nursery, Maresfield, near Uckfield, Sussex.

Dumfries Railway Station Nursery.

THOMAS KENNEDY AND CO., NURSERYMEN AND SEEDSMEN, Dumfries, have this season a very large and superior stock of FOREST, FRUIT, and ORNAMENTAL TREES, DECIDUOUS and EVERGREEN SHRUBS, &c., which they are selling at extremely moderate prices. The TREES and SHRUBS being of all ages and sizes, are particularly well suited for extensive planting or for giving immediate effect in the formation and improving of Ornamental Parks, Pleasure Grounds, &c.
Prices on application. Special offers made to large purchasers.
*** Dumfries is most conveniently situated for the speedy transmission of goods to all parts of the United Kingdom.

Laurels.

FOR SALE, several Thousands of well-grown and thriving LAUREL PLANTS, from 2 to 3 feet high; delivered at the Tisbury Station, on the London and South-Western Railway, in quantities of not less than 1000, at 30s. per 1000. Either a respectable reference or the money will be required before sending the Laurels out. Post Office Orders to be made payable at the Tisbury Post Office. Apply to
MR JOHN JEFFERY, Old Wardour Castle, near Salisbury, Wilts.

To Noblemen, Engineers, Contractors, and Others.

TEN MILLIONS of THORN QUICKS for SALE.
1 year Seedlings, 1s. per 1000.
2 years, 1 to 2 feet, strong, 4s. per 1000.
2 years transplanted, suitable for railway fencing, 4s. 6d. p. 1000.
3 years do., well rooted and strong, 5s. per 1000.
Do., all selected, very strong, from 6s. to 8s. per 1000.
LARCH, 3 to 4 feet, 12s. per 1000.
GREEN HOLLIES, 2 feet, twice transplanted, 10s. per 100.
Apply to JOHN BUCK, Hawthorn House, Melbourne, near Derby.

BARGAINS to the TRADE.
100,000 2 to 3 feet THORN QUICKS, will be sold a bargain.
500,000 2-year Seedlings, fine, small ones selected out, 3s. 6d. p. 1000.
800,000 Seedlings, at 1s. 6d. by the 100,000, 1s. 3d. per 1000.
10,000 transplanted BERBERIS DARWINII, 2 years old, strong, 6s. 6d. per 100, or 50s. per 1000.
50,000 transplanted MAHONIA AQUIFOLIA, 2 years old and selected, 12s. 6d. per 1000; 10,000, 10s. per 1000.
50,000 bedded MANETTI STOCKS, good rooted plants, 25s. per 1000; selected, 30s.
A LIST of other NURSERY STOCK sent on application.
ANDREW G. DALY, Nurseryman, Newry, Ireland.

To Railway and Enclosure Planters.

S. ROBINSON, of Shaw House, Melbourne, near Derby, has several millions of BEDDING and TRANSPLANTED QUICKS to dispose of, suitable for the above purposes, from 2, 3, 4, and 5 years old. Price, from 4s. 6d. to 20s. per 1000; well rooted and fit for planting out.
S. R. has also for sale some fine Bushy SPRUCE, 3 to 4 feet; HOLLIES, BEECH, and LARCH, 4 to 5 feet; and other kinds of FOREST TREES.
Mr. ROBINSON wishes to inform his customers that he has a fine stock of his CHAMPION OX CABBAGE PLANTS for spring use.
N.B. Satisfactory references required previous to orders being executed.

Large Evergreens, Specimen Conifers, &c.

WATERER AND GODFREY beg to submit the following List to the notice of intending planters:—
YEWS, ENGLISH, 5, 6, 7, 8, 10, 12, and 15 feet high
" IRISH, 6, 7, 8, and 10 feet high
" GOLDEN, 5, 6, to 9 feet
" STANDARD GOLDEN, 20 years worked
" " ELEGANTISSIMA, 10 and 15 years old
" " DOVASTON or WEEPING, fine heads, 10 and 15 years old
We have altogether thousands of these different Yews of the large sizes. Every plant has been recently removed.
HOLLIES, COMMON GREEN, 6, 7, 8, 10, 12, and 15 feet high, and as much in circumference—hundreds
" LAURIFOLIA and SCOTTICA, 6, 7, 8, and 10 feet, and wide in proportion
" WATERER'S, the hardiest of all variegated Hollies, 4 and 5 feet by 10 and 12 feet in circumference
" THE QUEEN, or best gold striped, the handsomest of all variegated Hollies
We have hundreds of these beautiful plants, 4, 5, and 7 feet high and wide
" STANDARD, WATERER'S, and GOLDEN, with fine heads, 15 and 20 years worked
☞ We have some thousands of the ordinary kinds of Variegated Hollies, 4, 5, 6, and 7 feet high. Every plant has been removed within 12 months.
CEDRUS DEODARA, some thousands, 6, 7, 8, and 10 feet high
" ATLANTICA, and Cedars of Lebanon, moved in April, 4, 5, 6, and 8 feet
" RED VIRGINIANS, 5, 6, and 7 feet
CHINESE JUNIPER, one of the handsomest and hardiest of all evergreens—thousands of beautiful plants, 4, 5, 6, 7, and 8 feet high; some magnificent plants, 10, 12, and 15 feet high, 12 to 20 feet in circumference
THUJA AUREA, 3, 4, and 5 feet high, 7 to 20 feet in circumference
" GIGANTEA, 10, 12, and 15 feet high, very handsome
" LOBBII, splendid plants, 7, 8, to 10 feet high, and 12 and 15 feet round—hundreds
CUPRESSUS LAWSONIANA, the finest stock—many thousands, 6, 7, 8, 10, to 15 feet high, and as much in circumference
THUJOPSIS BOREALIS, 4, 5, 8, and 10 feet high, 7 to 12 feet in circumference—hundreds
PORTUGAL LAUREL, 4 and 5 feet high, 7 and 8 feet round
BOX, Green and Variegated, 4, 5, 6, 7, and 8 feet—thousands
PICEA NOBILIS, splendid plants, moved in spring, 4, 5, 6, and 8 feet
" NORDMANNIANA, 4, 5, 6, 8, 10, and 15 feet high [high
None of our Nobilis or Nordmannianas are grafted plants.
" MAGNIFICA or NOBILIS ROBUSTA, the finest stock in the trade, all seedlings, 2 to 4 feet high
" LASIOCARPA, hundreds of plants, 4, 5, 6, and 7 feet high, all
ABIES DOUGLASSII, 5, 6, 7, and 8 feet [seedlings
" ORIENTALIS, 4, 5, 6, 7, to 10 and 12 feet; 7 to 20 feet in circumference; most beautiful plants
PINUS CEMBRA, 6, 7, to 9 feet
" PINSAPO, 3, 4, 5, and 6 feet
" " Some very fine plants, 10 to 20 feet high, 15 and 25 feet in circumference
WELLINGTONIA GIGANTEA, a large number, all removed recently, 4, 5, 6, and 10 feet high, and 12 and 15 feet in circumference
RHODODENDRONS.—We have 40 acres of land in one piece filled almost exclusively with Rhododendrons. A more healthy and beautiful stock cannot be desired.
STANDARD RHODODENDRONS.—Some of the finest plants to be found in any nursery, many are 20 to 40 years old
☞ The large Standard and other Rhododendrons planted last spring in Rotten Row, Hyde Park, were supplied by WATERER & GODFREY.
We do not quote prices, we presume purchasers of such large plants will adopt the much wiser, and always more satisfactory course, of seeing and judging for themselves.
We solicit an inspection and invite comparison with any other similar nursery stock in the kingdom.
The Knap Hill Nursery is upwards of 150 acres in extent, and contains an enormous and very superior stock of the ordinary sized EVERGREENS, DECIDUOUS ORNAMENTAL TREES, &c.
A PRICED and DESCRIPTIVE CATALOGUE will be forwarded free on application to
WATERER & GODFREY, Knap Hill Nursery, Woking, Surrey.
The Nursery is readily reached by Train, 40 minutes from Waterloo to Woking. Conveyances are always to be had at the Station.

New Fruits, &c.

THE NEW YORKSHIRE COCKPIT APPLE.—This tree forms a fine pyramid; the fruit is large, and a good Apple for the kitchen. STANDARDS, 30s. per dozen.
New Pine-apple flavoured Dessert GOOSEBERRY, 36s. per dozen.
Two other New kinds, great bearers, 24s and 36s. per dozen.
ASPARAGUS Plants, 10s.; SEAKALE Plants, 40s. per 1000.
500,000 strong transplanted QUICKWOOD, Cheap.
Full particulars on application to WM. JACKSON & Co., Nursery and Seed Merchants, Bedale, Yorkshire.

STRONG STANDARD and DWARF-TRAINED APPLES and PEARS.
Fine transplanted LARCH FIR, 1½ to 6 feet
Bushy LAURUSTINUS, LAURELS, and BOX TREES
CHINESE ARBOR VITÆ, 5 to 6 feet, fine Pyramids
A choice collection of CONIFERÆ
A large assortment of STANDARD and DWARF PERPETUAL, and strong DWARF CHINA or MONTHLY ROSES, and a general NURSERY STOCK.
All the above are well rooted, and will remove with safety. Prices on application to
CHARLES BURGESS, The Nurseries, London Road, Cheltenham.

Frogmore Early Bigarreau Cherry.

CHARLES TURNER has great pleasure in offering the above valuable NEW CHERRY. The following extracts will be a sufficient guarantee of its excellence:—
From the *Gardeners' Chronicle*, July 1, 1865.
"Fruit of a Seedling Cherry of excellent flavour, called the Frogmore Early Bigarreau, was shown by Mr. Ingram, on a north-east wall; it was as early as the May Duke, and said to be a heavy cropper."
A First-class Certificate was awarded by the Fruit Committee of the Royal Horticultural Society.
It was exhibited at the Royal Botanic Society in July of the present year, and awarded a Certificate. The report from the *Gardeners' Chronicle* of July 6 is as follows:—"A branch of a Cherry called Frogmore Early Bigarreau, loaded with ripe fruit, was shown by Mr TURNER, of Slough. The fruit of this new variety is of good size, thin skinned, tender, and well flavoured, and being at least three weeks earlier than the common Bigarreau, cannot fail to be a favourite."
From the "Journal of Horticulture," July 11, 1867.
"MR. TURNER exhibited a branch of Frogmore Early Bigarreau Cherry, loaded with fruit; of this excellent variety, which is ripe three weeks before the Bigarreau, a figure and description will be found in our ninth volume."
From the "Florist and Pomologist."
"By the time these pages are in the hands of our readers, the Frogmore Early Bigarreau Cherry will be at its highest excellence, perfectly ripe, and waning towards its end, before any of the other Bigarreaus have yet made their appearance. It was raised by Mr. Ingram, at the Royal Gardens at Frogmore.
"Unlike the class to which it properly belongs, it has a tender melting flesh; in every respect it is a Bigarreau in habit, leaf, and appearance of the fruit, and must be classified along with these varieties; but as if to set at nought all human arrangements, it persists in having a delicious melting flesh, instead of one that is hard and crackling. The fruit is large, obtusely heart-shaped, with a very shallow suture. Skin with a brilliant red cheek, dotted with minute yellow points, and of a remarkably pale almost pure white where shaded—so susceptible is it of shade, that the point of a leaf or the shadow of a twig would be photographed on this brilliant red. Stalk 2 inches long, with a very small receptacle, and set in a shallow and narrow cavity. Flesh very delicate and translucent, perfectly tender, melting, and very juicy, with a rich sweet flavour; stone small. The tree is a great bearer, clusters of a dozen and half to two dozen large handsome Cherries being produced on a small spray; and the fruit ripens in the middle of June."
STRONG PLANTS NOW READY.
STANDARDS, PYRAMIDS, and DWARF-TRAINED, 10s. 6d. each.
MAIDENS .. .. 7s. 6d. "
A Coloured Drawing by ANDREWS will be sent on receipt of 13 Stamps.
The Royal Nurseries, Slough.

Fruit Trees.—The finest Collection in England.

J. SCOTT, Merriott Nurseries, Somerset, begs to solicit his Friends and the Public to inspect his immense Stock, consisting of 700 sorts of APPLES, 50 do. APRICOTS, 120 do. CHERRIES, 150 do. PEACHES and NECTARINES, 900 do. PEARS, and 150 do. PLUMS, in all manner of training, well root-pruned and carefully transplanted; CURRANTS, FILBERTS, GOOSEBERRIES, &c.; making together about 1500 sorts of FRUIT TREES, which for health and beauty cannot be surpassed.
CATALOGUES on application.

FOR SALE, the property of a Gentleman discontinuing their growth, some FRUITING and SUCCESSION PINE PLANTS, they are examples of good cultivation, clean and vigorous. Also some specimen INDIAN AZALEAS, of leading kinds; fine pyramidal plants, 3 to 5 feet high, fit for exhibition in 1868; also some fine half specimen ditto. And some fine GLOXINIAS, CALADIUMS, BEGONIAS, STOVE FERNS, &c., &c.
They are growing within a mile of Kingston Market Place.
For particulars or cards to view, apply to H. McMILLAN, Nurseryman, St. James's Road, Kingston-on-Thames.

Tansley Nurseries, near Matlock, Derbyshire.

JOSEPH SMITH, SEN., invites Planters and the Trade to inspect his Nursery of 80 Acres of high land. The soil is of a fibrous nature, and the Plants take up with excellent roots, such as to ensure the best success in their removal.
The Nursery contains many Hundred Thousands of RHODODENDRONS, COMMON and PORTUGAL LAURELS, BOX, BROOMS, BERBERIS, HOLLIES, PRIVETS, YEWS, &c. THE FOREST TREES are very extensive, of all the leading kinds; there are 15 Acres of LARCHES, of different sizes, and all others in proportion. Prices moderate, which can be had on application as above.

WELLINGTONIA GIGANTEA.—A Gentleman having more specimens of this noble Tree than he requires, wishes to DISPOSE of SOME; they are all Seedlings, and as perfect in form as possible, ranging from 5 to 8 feet high, and 4 to 5 feet through. They will move safely, having been regularly transplanted, and will carry large balls of earth. For particulars and to view, Address A. A., *Gardeners' Chronicle* Office, W.C.

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5,000 Copper Beech, 3 to 4 feet, and 4 to 6 feet.	2 to 3 feet, and 3 to 4 ft.

Also a large quantity of Alder, Birch, Beech, Elm, Limes, Poplars, Spanish and Horse Chestnuts, Sycamores, Sweet Briars, &c. Upwards of Two Millions of 1-year extra fine Quick.
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Fourpence allowed for each bag returned carriage-paid.
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WINTER-DRESS ALL FRUIT TREES with GISHURST COMPOUND.
Copy of a Letter from Mr. RIVERS, *Nurseries, Sawbridgeworth, Herts, 23d October*, 1861.
"I must tell you what I heard to-day from a very clever gentleman farmer, Anthony Bubb, Esq., of Witcombe Court, Gloucester. He has a wall to which Peach Trees are trained. Well, last autumn they were in a wretched blighted state. As a desperate remedy he unnailed them all, early last February, and gave all but one a thorough painting with Gishurst Compound, 1 lb. to the gallon of water; his trees, all but the one, commenced to grow favourably in spring, and are now pictures of health. The tree not painted is in a half-dead blighted state. He used the same dressing to his Apple Trees; it killed the woolly Aphis entirely, and has made his trees clean and vigorous in their growth. He intends to paint his Wall Trees annually, and tells all his friends to do the same. I shall certainly serve all my young Peach Trees against my walls in the same manner. The Compound is, I believe, more efficacious than the usual offensive mixtures of clay, soot, sulphur, &c.; and it does not blacken the shoots on the walls."
For Orchard-house Trees, 4 ozs. to the gallon will be found a good strength; when used stronger some buds on weakly trees may be injured.
GISHURST COMPOUND is sold Retail by Nurserymen and Seedsmen, in boxes, 1s., 3s., and 10s. 6d. each.
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SANDSTONE, peculiarly adapted for Rockwork, supplied at 15s. per Ton, in Lots of Four Tons and upwards, carriage paid to Bricklayers' Arms Station.
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PROTECTION from the SCORCHING RAYS of the SUN.
"FRIGI DOMO" NETTING, White or Brown, made of prepared Hair and Wool, a perfect non-conductor of heat or cold, forming a fixed temperature where it is applied. It is adapted for all Horticultural and Floricultural purposes, for Preserving Fruits and Flowers from the Scorching Rays of the Sun, from Wind, from Attacks of Insects, and from Morning Frosts. To be had in any required lengths.
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Apply to HILL & SMITH, Brierly Hill, Iron Works, near Dudley, and 22, Cannon Street West, E.C., from whom only it can be obtained.



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25 Mixed SINGLE LATE do.
6 REX RUBRORUM do.

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25 DOUBLE SNOWDROPS

12 Winter ACONITES
3 Fine Mixed GLADIOLUS
12 DOUBLE DUC VAN THOL TULIPS
6 Fine Mixed SINGLE EARLY do.
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12 Choice IXIAS
6 Choice SPARAXIS
6 ACHIMENES
6 FERRARIA PAVONIA

50 EARLY TULIPS, 10 sorts, by name
12 SCILLA PRÆCOX
6 PERSIAN IRIS
6 PEACOCK do.
100 Fine CROCUS, by name

6 LACHENALIA TRICOLOR
1 CYCLAMEN PERSICUM
1 JACOBEA LILY
1 LILIUM LANCIFOLIUM ALBUM
1 „ „ RUBRUM

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Price 21s., Carriage Free, contains :—

12 Fine HYACINTHS, by name
6 Miniature HYACINTHS, do.
6 POLYANTHUS NARCISSUS, do.
6 Large DOUBLE JONQUILS
6 SINGLE SWEET-SCENTED do.

6 SINGLE DUC VAN THOL TULIPS
25 EARLY TULIPS, 5 sorts, by name
6 SCILLA PRÆCOX
3 PERSIAN IRIS
3 PEACOCK IRIS

50 Fine CROCUS, by name
6 Fine mixed IXIAS
3 Fine mixed SPARAXIS
3 Fine mixed ACHIMENES

3 FERRARIA PAVONIA
3 LACHENALIA TRICOLOR
1 JACOBEA LILY
1 LILIUM LANCIFOLIUM

No. 6.—SUTTONS' COMPLETE COLLECTION FOR POTS AND GLASSES,

Price 10s. 6d., contains :—

6 Fine HYACINTHS, by name
3 Miniature HYACINTHS, do.
3 POLYANTHUS NARCISSUS, do.

3 Large DOUBLE JONQUILS
3 SINGLE SWEET-SCENTED do.
3 SINGLE DUC VAN THOL TULIPS

12 EARLY TULIPS, 4 sorts, by name
3 SCILLA PRÆCOX
3 PERSIAN IRIS

25 Fine CROCUS, by name
3 Fine mixed IXIAS
1 LILIUM LANCIFOLIUM
3 LACHENALIA TRICOLOR

☞ *Any Article above specified, if not required, will be excluded, and additional quantities of others included, according to the wish of the purchaser.*

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100 in 100 very choice sorts	.. .. £4 4 0	50 in 50 very choice sorts	.. .. .. £2 2 0	25 in 25 very choice sorts	.. .. .. £1 1 0	12 in 12 choice sorts	.. .. .. £0 9 0
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Mixed Hyacinths for Beds or Open Borders, any Colour, 3s. per dozen; 21s. per 100.

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Fine New TABLE APPLE, ST. ALBAN'S PIPPIN, Ripe in April. Plants ready in November. 5s. each; 36s. per doz. to the Trade.

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BEAUTY of OULTON	PICTURATA
NEATNESS	BICOLOR SPLENDENS

The above forwarded on receipt of Post Office order for 21s.

If any of the above kinds are not required, others of equal value can be substituted.

ALFRED FRYER, Nurseries, Chatteris, Cambridgeshire.

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SOPHIA DUMARESQUE	EDWINIA FITZPATRICK
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LUNA	GLOWWORM
BEAUTY of GUESTWICK	QUEEN'S FAVOURITE

The above, 21s. Remittance requested.

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NEW FUCHSIAS, ZONAL GERANIUMS, &c.

12 Select New FUCHSIAS of 1867 for 6s.
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12 Finest ZONAL GERANIUMS of 1866—1866 for 4s.
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6 Varieties of AUCUBAS, 3 Male, 3 Female, for 21s.
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CATALOGUE of NEW and CHOICE PLANTS sent on application.

B. W. KNIGHT, Nurseryman, Battle, Sussex.

The Gardeners' Chronicle.

SATURDAY, OCTOBER 26, 1867.

IF, as we maintain, it is necessary that our GREAT HORTICULTURAL EXHIBITIONS should be curtailed in number, and lengthened in duration, it is equally essential that they should be varied in character, so as to afford fresh features of interest, instead of presenting that stereotyped aspect which has well nigh worked their ruin. Variety must be thrown into them; and this variety must be of a twofold character, that is to say, it must be made apparent both in the materials used, and in the mode in which they are arranged.

When we say that the materials of our flower shows must be varied, we do not mean that their constituents must be changed *in toto*, but rather that new features must be added to the best of the old ones, in a sufficient ratio to keep up their interest. The reason, or at least one reason, for the greater interest formerly excited by exhibitions of flowers, may be traced, we think, to this very cause, though doubtless another cause has been, the manifest improvement in general cultivation which has gradually resulted in the high state of perfection to which plants are now brought. At first there was no such general perfection either in the mixed or the special subjects which formed the main features of our shows. Orchids alone perhaps were better in those days than in these, and that not so much because the growers cannot now produce them, as that they are not spirited enough to exhibit them. Pelargoniums in those days were but sorry objects compared with what we have since witnessed, and the advance made towards higher perfection of cultivation furnished of itself the needful change—they were better grown, and therefore did not prove to the visitors the same old familiar objects. Pot Roses, those choicest gems of our flower shows, once did not exist, but they were asked for and were produced, and thus a new feature of the highest value was added. Azaleas have not always been what we have seen them of late years, when the monstrous size and blaze of beauty they presented have created the chief sensation. And then looking to the future, the Zonal Pelargonium, hitherto generally brought out as an unattractive show plant, is doubtless the coming flower, the more perfect growth and blooming of which will afford a new feature the full beauty of which we have not yet realised—a new pleasure awaiting us in a not distant future.

These changes have been gradual, but they have been real and palpable, and we cannot doubt but that much of the popular esteem which has in the past been lavished upon flower shows, and which has latterly been less enthusiastic than of yore, may be traceable to this source. Nor can we doubt that, if popularity is to be revived, the element of variety must play an important part in the revival. Fortunately horticulture has not reached its climax; gardeners have still new plants to conquer, and old ones which they can further improve. Already of materials being worked up to their hands, but of which the full effect as exhibition plants has not been realised, we may mention the Variegated Zonal Pelargonium, hardy trees of ornamental foliage, hardy flowering shrubs, Hollies, and other evergreen shrubs; Agaves, Anthuriums, Lilies, and the varieties of Zonal Pelargoniums cultivated for the sake of their flowers; to say nothing of new races of old flowers brought about by new efforts at cross-breeding, such as are going on at the present moment with the Pelargonium in many places, and which might be successfully prosecuted with such showy subjects as Calceolarias and Fuchsias, either by the introduction of new blood into the cultivated races, or by a new start altogether. Here are materials enough to occupy the exhibitor for the next few years, and with these, and such as these, added to the gems of our present exhibitions, from Ixoras and Sarracenias, to Cyclamens and Alpine Auriculas, there need be no fear of sustaining the interest of the fashionable crowds who patronise flower shows. But, we repeat, new elements must be worked into the picture, if this public interest is to be maintained.

And not alone new elements; the scene itself must be recast. Baize-covered tables must give way to turf banks or some improvement on them, straight lines must be replaced by graceful curves, and a level surface must be moulded to an undulating one which will permit of the objects being viewed from different elevations, as well as from different standpoints. Already at Bury, where some degree of formality was inevitable from the form of the tents, a great improvement was effected by the almost general adoption of the plan, first we believe resorted to by MCEWEN at Chiswick, of setting the plants on the ground, so that the eye might rest on their leaves and flowers, instead of their bare stems and props. Of all the exhibition arrangements we have yet seen, the Regent's Park tent is the nearest approach to perfection. Here we have green banks, curved lines, and an undulating surface, conditions which may be infinitely varied, and with the best possible results. We have also a roof not too low, so as to cut off all distant view, nor too elevated, so as to dwarf the plants; but we have only a canvas roof, which, though pleasant enough in fair weather, is equally wretched when the weather is foul. This is its drawback. The Crystal Palace has been extolled as a place for exhibitions, but its only merit for this purpose is the ample space it affords under cover. The great "mast" tent of the Royal Horticultural Society has also been highly and unduly praised, but the dwarfing effect of its lofty canvas roof is fatal to the appearance of the plants, while its formal arrangements never can produce the same beautiful pictures which irregular lines would present. This leads us to remark that if any further attempt to make a grand show in that tent is contemplated, three things should be done with it,—a floating screen of the lightest possible material should be suspended from the roof, so as to cut off half its height; the hollow centre should be entirely filled up; and the surface should be then broken up into hill and vale, with winding pathways, after the fashion of the International Tent. No fitting place for exhibition will however be found until, as we have already said, a sufficiently capacious building, with ridge and furrow glass roof, be provided, a portion of it enclosed and heated, and the surface laid out in the manner indicated. Arising out of our remarks in reference to such a building, a week or two since, we may state that it has been suggested, that if the principal exhibitors and growers of plants around the metropolis, as well as the patrons of gardening in general, were invited to contribute a limited subscription, of perhaps 5*l*. each, a building might be provided in which, with proper light, shelter, and warmth, it might be possible at all times to exhibit the choicest plants without the slightest risk of injury either from cold or from the necessary prolongation of the shows. We can only say that if such a scheme, which has as yet only been faintly shadowed forth, can be realised—and it does not appear so very chimerical after all—it will be the very best thing that can happen for the improvement of our metropolitan shows.

THERE is something particularly impressive about a fine old tree, and the same may be said with equal truthfulness of a fine OLD VINE. When such an object is seen the imagination busies itself in the endeavour to realise the tons upon tons of luscious berries under which the tendrilled branches have groaned, until it gets lost in the mazes of mental statistics.

A good deal has of late been said about monster Vines, some writers eulogising, and others disparaging them; but whether, as has been asserted, large old Vines are the more profitable or not, the feelings of admiration to which they give rise, when they are seen teeming with their grateful burden, cannot be repressed.

Some few days since we found ourselves face to face in succession with two of the British lions of the Vine family, viz., that at Cumberland Lodge, and that at Silwood Park, the one within, the other in the immediate neighbourhood of, Windsor Park. The former of these grand old Vines was planted about the beginning of the present century, and is consequently something over 60 years old. It occupies a house which, with successive enlargements, is now 138 feet long by 17 feet wide, with a 20 feet rafter. The stem, which is within the house, girths about 2 feet 4 inches, and at the base is short and twisted, dividing near the ground into several unequal-sized branches, which are carried up and trained irregularly over the area of the roof, so that it covers a superficies of upwards of 300 square yards. The roots are known to extend over a considerable space of lightly cropped kitchen-garden ground in front of the Vinery, and are, indeed, supposed to run in adjacent pasture-land for something like 150 yards from the tree. The crop on this noble Vine, this season, consists of 2000 bunches, the produce having been reduced to that number, and the Vine is in a good vigorous condition, the leaves being healthy, and the bunches and berries of moderate size, though the latter are not quite so well coloured this year as we have formerly seen them—a result which, judging from what has appeared at the exhibitions, is this season a very common failing. This Vine, with its enormous crop, is a marvellous sight, well worthy of a visit. It seems well cared for, the house having been enlarged to admit of its extension, and the roots being assiduously preserved from injury by the non-cropping of the adjacent garden ground, in which they are known to find pasturage.

The Vine at Silwood is a descendant of that at Cumberland Lodge, having been raised from a cutting taken from it, as nearly as we could ascertain, about 50 years ago. It is considerably smaller than its parent, the house which it fills being only 123 feet long by 12 feet wide; but it is a much handsomer tree, and is probably the handsomest Vine to be found in this country. Its stem rises near the front wall about the centre of the house, and goes straight up to the roof with a nearly equal girth of 2 feet 4½ inches, being a trifle larger than that of its parent, and from thence its main branches are distributed longitudinally over the roof area, which extends to a superficies of about 190 square yards. One cannot but feel regret that so remarkable a Vine as this should suffer from neglect, but such is the case. The house is far too cramped for it, and requires widening if not lengthening to a considerable extent; but what is worse than all, its roots are uncared for, the ground in front of the Vinery being nothing but flat kitchen-garden ground, constantly cropped, and blocked up far too much with Filberts and other worthless bushes, and denied the judicious feeding which a top-dressing of manure would supply, and which all such monster Vines require from time to time in order to keep up their stamina. The consequence is, that the young shoots are little thicker than straws, the leaves are deficient in vigour, and the bunches are for the most part miserably puny. There are, indeed, said to have been 2000 of them, but judging from the picture at Cumberland Lodge, this could scarcely have been the case, unless indeed their diminutive size rendered them deceptive. They were, however, of good quality, and better coloured than those of the parent tree; and there can be no doubt that with liberal and careful treatment the Vine might be restored to its former vigour, and to more than its antecedent beauty. What is required is to widen the house, which is much too narrow for its length, to clear the ground in front of the house of its present worthless encumbrances, and then to bestow a liberal top-dressing of manure and rich compost to feed the hungry and exhausted roots. It is, we had almost said, a disgrace that so remarkable a Vine should be treated with such indifference, when a moderate and judicious expenditure would make it the grandest Vine, as we

venture to say it is already the handsomest large Vine in the country. Both these Vines are of the true old Black Hamburgh, the best of all the Hamburghs as regards the quality of its fruit.

What may be done by judicious feeding may be seen at no great distance from Silwood. At the Mount, Sunninghill, is a small Vinery, in a situation where the soil is a poor sand with gravel beneath, but where the Vines—also Black Hamburghs—having good drainage, from the garden being on a hill, and having their vigour sustained from being fed with plenty of good wholesome manure, bear fine healthy foliage, firm rods, and handsome clusters of well swelled berries of excellent quality. These, it is true, were grown on the restrictive system, but their success is mainly attributable to the perfect drainage of the site, combined with the judicious feeding of the roots.

A further hint in Vine culture may be gleaned from another garden in the same neighbourhood. Here, attaching to the leaves the importance which is due to them, and desirous to encourage a large development of leaf surface, the Vines whose rods were confined to a rather short rafter had been continued onwards and trained down the back wall, which was thus covered with leaves, while other leaf branches had been led away from the base of the rods, and trained over the surface of the inside border. With such leaf-feeding, we were not surprised to learn, on the evidence of no less an authority in Grape growing than Mr. Standish, that the fruit borne by these Vines was the best which had this year been produced in the neighbourhood.

The question is often asked, Which is the best kind of Boiler for Horticultural purposes? We must admit the difficulty of giving a satisfactory answer to the inquiry. So large is the number of boilers, so great the variety in their form, while each is brought forward by its inventor or manufacturer with such excellent testimonials, that if implicit confidence could be placed in the various statements, the purchaser could scarcely go wrong by taking any one of them. But it too often happens that the promise is not borne out by the performance. Some boilers which are said to require no attendance at night, nevertheless do require a great deal of attendance; others which are stated to effect a great saving in fuel, very often miscarry in their mission. The advocate of cast iron affirms that that is the best material, because it is the most durable; on the other hand the constructor of wrought iron points out the many advantages which it possesses over cast iron, one of the most potent being that it is not liable to crack or, to use a common term, "split," and that it will heat much quicker.

Then as to form, there is quite as great a diversity of opinion. One maker advocates the upright tubular, jointed boiler. Another condemns the joints, and points to the great advantage of having the whole boiler in one casting. A third departs from the original form, and makes one of an oval shape, the fortunate designer claiming for it a superiority over all others for quickness of action and economy of fuel. A fourth bends his tubes into the form of a saddle, and boasts for it the power of maintaining a stove temperature with a very small consumption of fuel.

Then comes the saddle-boiler, either of wrought or of cast iron, with its multiplicity of improvements. There is also the "cannon" and the conical boiler, as well as boilers of many other shapes; and each one sent out with the same kind of flattering testimonials as a candidate for public favour.

Amongst such an accumulation of good things how is it possible, for a person not overburdened with practical knowledge, to decide which is the best boiler for his use. In his bewilderment he looks around to try and find some disinterested person who can tender him the advice he needs: naturally enough he turns to Kew Gardens. There, in a Government establishment, the pride of Englishmen at home and abroad, and with the most valuable collection of plants in the world, he will surely get the information he needs; but alas! the able Curator of that establishment confesses that he cannot assist the enquirer by pointing to any examples of superior heating in the Royal Gardens at Kew. So unsatisfactory, indeed, is the present system in use in the Palm stove considered, that it is, we believe, in serious contemplation to revise the whole heating apparatus of the edifice in question. If this be so, we trust that the Government will not allow any petty parsimony, any ill-judged economy, or any undue partiality for this or that plan, to interfere with the proper maintenance of so noble a collection. It stands to reason that the apparatus which is suitable in a small establishment, may not necessarily be so effective when used on a larger scale. But in any case, we take it, the main points to be considered are economy of fuel, amount of surface exposed to the fire, excellence of material and workmanship, and simplicity of construction. These requisites, it is quite conceivable, may be attained in boilers of very different patterns, and we should gladly receive from our correspondents unprejudiced reports on the operation of the boilers they are in the habit of using. Such reports would not indeed have the value that a thorough "competitive examination" of the various boilers made by competent and impartial judges would have, but failing such a test, honest individual experience will be of no little importance.

— Last year about this time we took occasion to speak of the Fall of the Leaf, and we referred to the explanation given by Von Mohl and others as to the cause of this phenomenon, according to which the removal of the leaf is due to the formation of a layer or layers of entirely new and active cells between and amongst the older and effete ones, thus ultimately causing the detachment of living from dead tissue. Since then we have endeavoured to ascertain the determining causes of the formation of these new cells, but hitherto with little success. It seems clear to us, however, that when leaves fall from drought or from other accidental causes these peculiar cells are not formed; they appear only, so far as we have observed, just before the leaf naturally falls in autumn. Their resemblance in form and function to what pathologists call "exudation cells," such as are met with in healing ulcers, and "healthy granulations," is sufficiently striking. The "line of demarcation," as a surgeon would call it, between dead tissue about to be cast off and living healthy structures, is thus very similar to the line of cells that cause the shedding of the leaf.

— The prevalence of the Potato Disease this season, in certain localities, shows that we need still to be on the alert in battling with so fatal an enemy. For this reason we may commend to the notice of those who have been sufferers by this insidious malady, or who may desire to take steps to protect themselves against serious damage in the future, a little treatise by Mr. Jennings, of Shipston-on-Stour, in which he describes a remedy—rather perhaps a means of prevention—which with him, at least, has never failed, and is the result of several years of experiment. "When the tubers approach maturity is the time that the murrain makes its appearance, and this is the most critical time for the crop. The leaves must be examined every day closely, and as soon as one spot of the murrain is discovered on a leaf, then is the time to act with promptness if you wish to save your crop." What has to be done is explained in the little *brochure*, which may be had for a few pence (7*d*.), sent in postage stamps.

— We have been supplied with samples of a very fine new Celery, called Hooley's Conqueror, selected by Mr. S. Hooley, a mechanic, of Nottingham, who has, we are informed, taken the first prize with it at each of five shows last year, against 129 competitors, and at four shows this year, against 126 competitors. The largest pair exhibited weighed 11 lb. 2 oz. This variety has been obtained by careful selection for some years past. It has remarkably broad leaves, and is of vigorous growth, plants left for seed rising to the height of 6 ft., and being stout in proportion, the base of some of the stems being as thick as a man's arm. The prize Celery shown about Nottingham, is, we are informed, not earthed up, but is blanched by being tied up in brown paper, which is renewed every week, or as often as may be necessary; hence it is not so delicate in flavour as Celery which is properly earthed. This new variety seems in every respect first-rate.

— It is stated in the public journals that four Chaumontel Pears have lately been exhibited in Jersey, weighing together 96½ oz., the heaviest of the four weighed 30½ oz., the lightest 19½ oz. Three of them are stated to have grown from one eye. The Pears were grown in the grounds of Mr. G. H. Horman, H.M.'s Solicitor-General for the Island of Jersey.

— In the "Journal of Horticulture" Mr. Leo Grindon states that there is at present in the gardens of Mr. Finzell, of Clevedon, near Bristol, a Female plant of Garrya elliptica, covered with racemes of ripe fruit. Can any correspondent furnish us with an analogous instance?

— A terrible calamity, said to be the result of eating Poisonous Mushrooms, is recorded in the *Moniteur* of October 10. It appears that a gentleman, having, as is said, a knowledge of Fungi, collected several which, he supposed, were edible (the species are not mentioned), and he and his family partook of them and found them excellent. It was on the fourth day only that any ill-effect was perceived, and then the wife was attacked with symptoms of irritant poisoning and soon died, as did also her eldest son, a lad of 14 years of age. Two infants at the breast—the one a child of the lady, the other a nurse child, also died—having imbibed the poison with the milk. The father, the unhappy cause of these misfortunes, was the last to die. We give the story as we find it, but in the interests no less of the public and of science we hope the matter will be thoroughly investigated. From the above statement it is by no means clear that the Fungi had anything to do with the disaster—the length of time that elapsed between the time when they were eaten, and the occurrence of any symptoms, would make it seem as if some other poisonous agent had been taken subsequently.

— At a recent meeting of the Société Impériale et Centrale d'Horticulture of Paris a letter was read from M. Briebre, of Saint Hilaire de Riez (Vendée), describing a curious Sport in the Vine. It was stated that an old Vine (Chasselas Doré), cultivated on a trellis in the locality just mentioned, had given off at different times, sometimes from one or other end of its long trunk, sometimes from the centre, a shoot, the leaves of which were like those of the Vigne de Virginie. Eyes raised from this shoot produced Vines of the last-mentioned kind. This year a still more singular appearance has been presented: at about a third of the way up the stem, on the same "courson," two shoots have been formed nearly opposite one another, one of these has the characters of the original stock (Chasselas Doré), while the other has those of the Vigne de Virginie.

— It may be worth recording as an instance of the influence which Horticulture, as carried out in England, exercises on Foreign Potentates who witness it, that the Viceroy of Egypt when recently here, was so struck with the plants and flowers which he saw cultivated, that he has commissioned Mr. Bull to send him out a thoroughly proficient flower gardener—one capable of carrying out floriculture in a similar manner to the style adopted in this country. As is generally known, the Viceroy already has an English gardener, but the one now referred to goes exclusively for the cultivation of flowers: a new and entirely separate appointment, brought about by the Viceroy's last visit to this country.

— Besides the improvement in form and material which are found in Tye's Hyacinth glasses, and to which we adverted a week or two since, the growers of Hyacinths in living rooms have a further opportunity of consulting their taste, presented by Hooper's Etruscan Hyacinth Vases, a form of vessel resembling Tye's glasses in general form, but presenting the more sober hues of pottery ware—a dull Venetian red, unobtrusively decorated with figures in black. These vases, which at first were porous, and therefore objectionable, are now glazed inside, so that when the glazing is thoroughly done the evaporation and staining of the surface which used to occur, are both prevented. As less gaudy than the colour of the glasses, we have no doubt these vases will recommend themselves to many persons of taste as being more suitable for the purpose of holding flowering bulbs than those which in their colours or decorations almost, if not quite, eclipse the flowers they are meant to contain. These vases are made in various shapes, and in different colours, but doubtless the dwarf shape and dull red colour will be found most generally useful.

FRENCH AND ENGLISH FRUIT GROWING.

There are some remarks on this subject by "W. R." in your last number which may convey ideas to your readers not quite correct, and which are not in accordance with my experience (which is not little) of fruit culture here and on the Continent.

First, with regard to Pears. Our English climate, in five seasons out of seven, when unassisted, is not so favourable to the growth of Pears as that of France; but assisted by walls, and the skill of our gardeners, it is quite equal, and, in the case of some Pears, superior, as it does not ripen them too rapidly. The past season in France has been cool and showery, and very favourable to the ripening of early Pears. If your correspondent had visited France 10 or 15 times in the last 30 years he would, in hot, dry seasons, have found the early autumn Pears very inferior. As to the question—"How is it that we do not get Pears as cheaply as the French?" I may reply that the French climate, without any assistance, will give health and fertility to Pear trees in the majority of the departments of France, while in England there are but few large Pear gardens yet formed after a right method, and but few sites with soil and climate favourable to their extensive culture; but I have in my mind a plantation of 3000 pyramidal trees on Quince stocks of the Louise Bonne of Jersey, the trees from 5 to 20 years old, all pruned closely in summer, and occupying less than one acre of ground, which cannot be matched in France. These trees have borne large quantities of fruit of such superior quality as to displace in Covent Garden Market those of the same kind from France and Jersey. "W. R." is mistaken when he writes, "We are as far behind the French in the culture of the Pear as we are before them in the culture of the Pelargonium," &c. There are thousands of gardens in England and Ireland, in which Pear trees are cultivated with as much and sometimes even with more skill and care than in France, not only as horizontal cordons against walls but as pyramids and low bushes, a form so admirable in windy districts. In many gardens near Dublin, near Limerick—a very favourable Pear site—and in hundreds of gardens in Ireland, "W. R." may find pyramidal Pear trees most successfully cultivated. As to England, every county south of the Trent abounds with gardens in which they are carefully pruned and trained, and not "left to Nature," as stated in p. 1072. When your correspondent makes a more extended gardening tour in France and Belgium he will see more of cordon training than he appears to have done at present. His favourite mode of single horizontal cordon training for Apple trees on Paradise stocks is to be recommended

for edgings to small kitchen gardens, and for no others. In my experience of them I find they bear very fine fruit, and are easily kept in order by incessant summer pinching of their young shoots; but I have been troubled with red spider, and some trees grafted on an inferior kind of Paradise Apple have been so subject to canker as to make sad gaps in an edging: this may be obviated by care in the selection of stocks. The wire, hidden as it is, is apt to give one what foxhunters call an "ugly purl" with one's nose among the Cabbages, something after the manner that wire fences serve the lovers of the chase, but that is a small objection, which is soon got over.

As to a garden covered with "lines of these wires being preferable to the bush culture of Apple trees on Paradise stocks," I have very recently seen a plantation of bush Apple trees, the trees planted 6 feet apart, and 12 years old; they have been pruned in summer with but little care, and yet they have borne such abundant crops of fine fruit, as to have paid five times for the value of the ground they stand on. The Pear as a double horizontal cordon, *i. e.*, two branches thus, T, close to the ground, and supported by a wire like that used for the single cordon Apple tree, bears the finest of fruit, and is easily protected from frost by strewing dry hay over the branches when the trees are in bloom. I have not seen this system in France. I cannot understand the words used by "W. R.," "simple cordon," as distinguished from the horizontal cordon; does he mean the upright cordon—"*cordon verticale*"?

There is no "absurdity" in planting orchards with cordons. An old farmer in Sussex, many years ago, found that his standard Apple trees shaded his ground too much; he therefore formed an orchard of cordon Apple trees, on Crab stocks, cutting the trees close to the ground, and training up from each stump five or seven branches at regular distances, and making each branch a cordon by pinching in the young shoots in summer. He declares, after many years' experience, that he thus gains more than treble the produce from the same area of soil his standards are on, as the trees are planted thickly.

After recommending different modes of training, "W. R." says: "The simple, and so to speak natural, forms that take care of themselves to a great extent, are the ones best suited both for England and France." As this may, however, mislead some of your readers I feel that I ought to make known the fact that Pear trees on Quince stocks, whether in the gardens of amateurs or market gardeners, should be pruned once or twice during the summer, or they will destroy themselves by over-productiveness.

Had your contributor paid a visit to M. Grin, of Chartres (not a long journey from Paris), he would have seen Peach trees perfectly unique and beautiful in their training, and managed solely by leaf-pinching; there is no "laying in" of shoots, as with those at Montreuil, but every branch is a perpetual and perfect cordon. As regards the *cordon oblique*, or diagonal cordon, which does not seem in favour with "W. R." and his friends, it is now some 15 or 20 years since I used to hear the French hammering away with their nimble tongues for and against the system, which, as usual with all modes of culture, is very nice and useful under certain circumstances: for instance, single diagonal Peach and Apricot trees trained against the back wall of an orchard house give a great variety of sorts in a small space; against our walls in the open air they would be a folly. In the last number of the "Bulletin du Cercle Professoral," for October, published at Ghent, is an account of a visit by the Society to the fruit gardens of Madame Meester, and the report is highly eulogistic of all they saw. Among other things they say, "Les Pêchers en cordons obliques sont tous, sans exception, sains, vigoureux, et régulièrement fertiles. Ils sont agés de plus de dix ans, et jusqu'à present rien n'indique chez eux, les inconvénients que les adversaires systématiques de cette forme ont prédits pour son avenir et sa durée." This report is from a sound English-like Belgian committee, and is far more worthy of attention than the incessant verbosity one too often hears at a French congress.

I ought to add that diagonal single cordons (trained to a wire fence 5 feet high, formed with four strained wires) of Pears, Plums, Apples, and Cherries, planted 10 inches apart, are very nice things for small gardens. The objection to the oblique-trained cordons, with four shoots of Pears, tied with Willows, as described by "W. R.," is, that in England they cannot be so easily protected from spring frosts as the double cordons, near the ground; the usual horizontally-trained espaliers, with their branches interlaced, will be found more eligible, and they can be planted very near to each other, so as to economise space equal to the oblique trees, which would give much trouble to the cultivator by the Willow twigs rotting, and the branches, from having no firm support, would soon be deranged and broken by our Channel winds. The method is a sort of amiable dodge, calculated to attract the attention of young cultivators.

I have often been struck with the extraordinary fact, that with all the skill and vast advantages of sites and soils in France, no such Pears are produced as we receive from Jersey and Guernsey. The cultivators there seem to be quiet and unassuming, neither showing nor writing about extraordinary modes of pruning and training; yet not a Pear in France is ever produced equal to their Chaumontels. This seems to tell us that climate often baffles the skill of the cultivator, and that a good climate is the grand essential—soil can be formed, climate not.

And now with regard to fruit growing in France and England. I have seen much of both countries, and I believe that more perfect fruit gardens can be found in the comparatively small space of an English county, than in any two of the enormous departments of France. The truth is, that first-class gardens and gardeners are things *sui generis*, and not to be found to any extent out of Great Britain. As to the market fruit gardens of France and England, those of the former are what we should call "peddling:" they have climate and soil, but seem to lack energy and capital. Place an English market gardener in the climate-favoured parts of France, and he would plant 3000 or 5000 trees of a sort, if popular, and fill all the comeatable markets with their produce; the Frenchman will perhaps plant 300 trees, manage them carefully, and be satisfied with his small profits. *A Fruit Cultivator and Traveller.*

BRITISH ASSOCIATION.

(*Continued from p.* 1072.)

In Section E (Geography and Ethnology), Mr. J. Crawfurd, F.R.S., read a paper on *The Migration of Sugar Producing Plants*. The first saccharine matter used by man was honey; it must have composed a large part of the food of the first men, as it still does of all savages, and it is found in all countries from the equator almost to the arctic and antarctic circles. Among the plants yielding the most abundant and easily accessible supply of saccharine matter, are the Palms, and most probably they afforded one of the earliest sources of sugar wherever Palms abounded. It is only necessary to boil down the sap of any Palm previously to its undergoing fermentation, which it does rapidly, in order to obtain a concrete impure mass of sugar. Although the sugar obtained from Palms be equally capable of refining as that obtained from the Cane, the produce of the latter is the main source of the sugar of commerce. The Sugar-cane is the Saccharum officinarum of botanists, one of a genus of many species of tall Grasses. Like most of the cereals, the Sugar-cane has not been traced to its wild state. In its cultivated state it has been found in many independent places, often remote from each other, and bearing independent names. Its geographical limits are nearly the same as those of Cotton—that is, extending from the equator to about the thirtieth degree of latitude. Like Cotton, its culture had been pushed up to the fortieth degree, but even with less success, for the Cane takes a year to arrive at maturity, and is therefore liable to be cut off by severe frosts. The processes of refining sugar are certainly of foreign introduction in India; and this could be readily believed from the state of the arts among the Hindus. As to China, the cultivation of the Cane and the manufacture both of clayed and crystalised sugar were of an antiquity beyond all record; and for this he had the highest authority — that of Sir John Davis. For economic purposes there were other plants which yielded sugar, but not so profitably as Palms and the Sugar-cane. The Beet was largely cultivated with this view, especially in France. In North America, also, a species of Maple yielded a considerable supply of sugar. It seemed strange to the author that the ingenious Greeks and luxurious Romans should have contented themselves with honey, and never have fallen into the art of manufacturing a solid sugar from indigenous plants yielding a sweet sap. They were well acquainted with the Beet and the Carrot, and, of course, with the Grape, all of which would, by an easy process, have yielded a solid sugar. As savages they had invented the more difficult art of kindling a fire, and as barbarians, the yet more difficult arts of making malleable iron, and reducing the ores of copper and silver, but the art of extracting sugar from their own plants never occurred to them.

In Section F (Economic Science), Mr. Charles C. Maxwell read an interesting paper on *The Confectionery and Marmalade Trade of Dundee*, which, he said, although unimportant when compared with the Flax and spinning, was yet of sufficient magnitude to be entitled to rank as a distinctive branch of local industry. From a very small beginning it has reached its present proportions, and now furnishes constant employment to about 400 persons, requires expensive and peculiar machinery for its adequate development, and produces in large quantities articles of consumption which are perhaps as widely known and appreciated as Dundee canvas and carpets. Probably the best known product of this trade is Orange Marmalade, concerning which Mr. Maxwell said:—"It is between 60 and 70 years (that is, about the beginning of the present century) since Dundee marmalade was first manufactured as an article of commerce, by the late Mr. James Keiller, and then merely to supply the local and district demand. Gradually, however, the area of its sale extended, not only throughout Scotland, but into England and Ireland, until now, when it may be said that the whole British Isles, a considerable portion of the Continent, and even our most distant colonies, are supplied with it. To give an idea of the extent of this trade I may state that the quantity of marmalade made in Dundee at the present time amounts to above 1000 tons annually, for the production of which more than 3000 chests of the finest bitter Oranges are used. These are imported from Seville, as it has been found that the Oranges grown in and around that city possess a peculiar and agreeable aroma, which renders them better adapted for the purpose than those of any other district either in Spain or Italy. When the marmalade is prepared, a sufficient quantity of sugar is added to preserve it thoroughly, without in any degree impairing the flavour. It has already been stated that about 400 persons are directly employed at the Dundee confectionery works, and it may be added that occupation is furnished to many more in connection with them. For example, one of the Newcastle Potteries is to a large extent employed in turning out the well-known printed jars for marmalade. Of these there are about one and a-half millions required every year, costing upwards of 6500*l*. The marmalade season, as it may be called—that is, the period during which all that is required of this preserve for the year's supply must be made—usually continues about four months, — viz., from the beginning of December to the end of March. Before leaving this part of the subject, I may state, on the authority of a learned Doctor, a member of this Association, that the word Marmalade is supposed to be derived from an Indian fruit not unlike the Orange, called the Ægle Marmelos, or Indian Bael, from which at one period a similar conserve seems to have been made. Besides orange marmalade, other preserves from fruit are extensively manufactured in Dundee — considerable quantities of fruit being grown in the neighbourhood, although far from sufficient to supply the demand. The manufacture of confections is also carried on here on a very large scale, and embraces an immense variety of lozenges, comfits, candied peels, &c., to supply the constantly increasing demand both for the home and colonial markets. I may state that in most of the processes connected with the production of these, carefully constructed steam machinery is now successfully employed, and the result is a degree of finish, quality, and cheapness which hand labour could never have attained. The quantity of sugar, chiefly refined, used for the confections, marmalade, and preserves made in Dundee it would be difficult to estimate, but it probably amounts to 2000 tons annually. The trade is still extending, and that extension is, no doubt, chiefly due to the fact that the goods in question are distinguished not only by purity of material, but by care and finish in the manufacture. It is but justice to add, and I do so most willingly, that these characteristics are not confined to the confectionery of Dundee, but will be found to prevail, I believe, in all the larger establishments of the kind throughout Scotland. It may be asked whether this is a healthful occupation to the persons engaged in it? and that question can, I think, be confidently answered in the affirmative. It has been ascertained that working among sugar and fruit is not injurious to health, but the reverse, especially when care is taken that the temperature in the work-rooms is duly equalised, and cleanliness and ventilation constantly attended to."

In Section G (Mechanical Science), Mr. John Halliday read a paper on *The Heating of Hothouses*, from which we extract the following:—As sparks fly upward when the current of heated air is strong to lift them, the heating of the lower stratum of air alone, for the effective distribution of heat throughout the building, has been considered sufficient; but until the roof is heated, hothouse warming, for every purpose, will not have arrived at that perfection it is capable of being brought to. The object of heating the roof is, that the temperature may be more equalised. The method to be adopted for heating the roof, and covering it with a layer of warm air, might either be by steam or hot water, for houses already in use; and for those which it might be considered desirable to treat in that way, a small piping, from a ¼ to ½ an inch diameter, might be attached to the rafters or girders, and heated by steam. For hothouses in progress, the framework should consist of tubular cast-iron piping, which might be heated with steam or hot water. [Rather costly work this. Eds.]

THE CHINA PEAR.

The Pear even in England is generally understood to be a tardy bearing tree, and the old couplet—

> He that plants pears,
> Plants for his heirs,

is an expression of this popular belief; nor is the character entirely undeserved, as with the exception of a few varieties, 10, 12, or even a greater number of years will oftentimes elapse after the trees are planted ere they bear fruit. Such being the case even where it has been long acclimatised, people are naturally backward in planting it here, under new and untried conditions.

But my object just now is not to point out how we shall succeed with European and American varieties (experiments upon which are going on), but to endeavour to direct public attention to the China Pear.

This variety appears to have been in the neighbouring colony of New South Wales for many years. Being struck with the name, as probably denoting that it had been received from China, and knowing how thoroughly all fruits of Chinese origin appreciate our climate, I procured a tree, and as it was late in the season, temporarily planted it between two rows of Grape Vines, on the brow of a schistose slope devoted to Grapes. After remaining there two years it commenced to bear, and has borne regularly and freely ever since; requiring generally a little thinning of the crop, as it has a tendency to overbear.

It has had no doctoring and very little attention, except taking out the leading branch to open the interior of the tree, that it might bear on the inside as well as on the outside of the branches. It is grafted on the common Pear stock of the nurseries—has never been root-pruned nor lifted, and occupies a space of about 6 feet by 6 feet, or 4 square yards of ground. The wood is a dark grey, sprinkled with white dots, robust, long-jointed, of upright habit, and producing a profusion of fruit-spurs.

Unlike other Pears, cuttings readily root, especially if shaded and watered during a dry hot spring, and I feel convinced that it will play an important part both as stock and medium for grafting and double grafting other Pears that are shy fruit-producers on the common stock. I have not yet proved its perfect adaptability to the Quince, but am experimenting with some of the best Flemish and French Pears on the rooted China cuttings. The Marie Louise shows a stocky, sturdy robustness on this stock that is suggestive of a hopeful future.

This last season a severe thunderstorm most effectually thinned the fruit on the above mentioned tree, besides mutilating the branches to some extent; yet it

ripened 50 large fruit, many of which weighed 16 or 17 ounces, a result which is not to be despised from 4 or 5 square yards of ground.

The fruit, when ripe, varies in shape, the breadth being sometimes as great as the length. It has a warm yellowish ground, dotted all over with russet; a good-looking and very fragrant fruit. Its flesh is crisp, juicy, and sweet, the skin having something of a musky Pine-apple flavour, and as a cooking fruit; baked, stewed, or in pies, it is unsurpassed by any other Pear, its flesh when cooked having nothing like lumpiness or grittiness about it—in fact, leaving nothing to be desired. I have not said anything about its keeping qualities, as it has not been tested fully—the kitchen demand is so much greater than the supply. But I kept three or four in the summer of 1865-66 for six weeks on a shelf in an ordinary room, and the inference is that if they had been put away in a dry cellar, or some cool, dry, dark place, they would have been preserved much longer. *Fructus, in "Queenslander," Australian Paper.*

CAMELLIA CULTURE.—No. V.

(*Continued from p.* 601.)

Hendersoni.—This variety partakes much of the character of Saccoi nova, producing flowers equally large and of fine quality. If it differs at all, it is in colour, the deep rosy tint of Saccoi nova being scarcely so prominent. It originated in the once famous gardens of Woodhall in Lanarkshire, and has kept a distinguished place for nearly half a century. Its habit is dense, and clothed as it is with fine glistening foliage, it is always, when well grown, an object of attraction.

Lady Belhaven is a flower of great substance, having large shell-like petals that imbricate in the true ranunculus form. It is a little deficient, however, towards the centre, which mars an otherwise very attractive appearance. Colour deep crimson. The plant is a vigorous grower, and when of half specimen size, it flowers freely; in a young state it is somewhat shy, which is apt to militate against its general cultivation. Growers and collectors, who have proved it, will find it a useful individual in a large collection; and when in its best style it is a desirable flower—much better than many of the novelties that find their way into commerce.

Lowii is a plant of good average habit, rather shy than otherwise, until a few years good cultivation infuses a vigour into its system which is not so easily checked. When so managed it yields a copious show of blossom buds, and comes in about the beginning of the spring months. It yields flowers of full average size, of a rosy shade, with a well defined white band down the centre of the petals. It is fully imbricated, although not possessing the depth of some of the standard sorts, and is upon the whole of good formation.

Jeffersoni.—This is one of the smaller-leaved sorts, something in habit and size of foliage after the character of Candidissima; but although, so to speak, diminutive in foliage, it grows away freely, and in time makes a good specimen. Like most plants of its kind, it is very constant in producing quantities of blossom buds, and it is often necessary to disbud on that account, sometimes five and six embryo buds making their appearance at the apex of each shoot. When thinning is necessary, it ought to be proceeded with in good time, so that ample justice may be served out to the "select few." Moreover, if an operation of this kind be attended with ill success, it is far more likely to occur when the buds are of nearly full size, than when in their embryo state. The flowers are of scarlet crimson, with a rather undefined band of white down the centre of each petal. Although the flowers when fully expanded are small, their colour and form are very attractive.

Jenny Lind.—This is of more recent introduction than some others in the motley group of 40 varieties which I deem it desirable to recommend where variety, constitution, and effectiveness is desired. It has proved a most desirable sort, of rather hardy growing habit. The flowers are exquisite, having a purity and a constancy which render them popular. The ground colour is white, with streaks of rosy pink distributed over its surface. In point of size it is fully up to the average, and it is more than an average flower in build, form, and substance. To all who have not added this to their collections, I would say, buy it the first opportunity.

Marie Therèse.—This plant possesses one of the best of constitutions. It yields leaves of large size, thickly set, and exhibits a freeness of branching which serves to distinguish it as a plant of good habit. In addition to this it yields a profusion of buds, and may always be counted on as a sure bloomer. This variety does not at all present any wayward tendency to interfere with the order of expansion, which not a few of her fair companions, such as the dignified Countess of Orkney, or her fickle sister the Countess of Ellesmere, often do. Marie is one of the white grounds, mottled all over the surface with pink, and is fully imbricated. From a florist's point of view it might be considered rather rough in outline, the extremities of the petals not being so purely geometrical as in the stately and beautiful Contessa Lavinia Maggi; but it is a flower of noble proportions, and will always be admired in a mixed collection.

Mathotiana.—This plant is of truly wayward habit, and refuses when in a young state to show its blossoms, unless starved or in some way checked. Grown, however, for some years, and liberally dealt with as to heat and moisture, it succeeds unexceptionally. It is far from being constant, and although it will sometimes yield a crop of flowers that will astonish and delight all who come within the circle of its influence, it occasionally produces them positively ugly. At best the petals are somewhat pointed, and startling as it is to the general onlooker it fails to command that instinctive sympathy which ever reigns dominant within the circle of Flora's council chamber. It can be grown to a larger size than any fully imbricated flower in cultivation, nearly equalling in size the double-flowered reticulata, and its deep glowing crimson colour elevates it to a position of prominence in any mixed collection.

Miniata.—Possessed as this variety is of one of the best of habits, and adorned with singularly perfect flowers, somewhat under the average size, it does seem strange that it is not more generally cultivated. Its dense bushy habit at once points it out to the practical eye as a plant of slow growth, and more apt to suffer under maltreatment than many of its fellows, for it is wonderful the amount of fatigue and hardship that Camellias, as a race, can be subjected to with impunity. When at all in condition it is one of the freest of the free in producing flower-buds, which seldom fail to yield perfect blossoms. The colour of the flower is of a deep ruby, with the centre a little paler. It yields blooms of great depth of petal, as closely packed together as a ranunculus, and the flower as a whole is quite as perfect in its way. This is one of the sorts that has to be attended to in season, in the way of disbudding.

Pirzio is a plant of moderately vigorous habit, rather inclining to "run away" without a proportionate complement of laterals. In order, therefore, to correct its growing movements the "knife" must be systematically applied, which for a time disturbs the formation of buds, and the consequent produce of flowers. It is one of the "sporting characters," which can have no pretension to constancy, now appearing dressed in one colour, and a few days after entirely changing its complexion, as a fresh flower expands upon the plant. Some come nearly pure white, others of a soft rosy shade, and others again of an intermediate cast, as if the flowers and their opposite colours had undergone a process of interfusion, and come forth irregularly mottled and barred. It cannot be depended upon as constant in point of imbrication, many of the samples coming irregular and confused, and often yielding buds which refuse to conform to a proper order of expansion. With these drawbacks, it is not a variety that any one cultivating a select number should fix upon, but in a general group it is not a bad sort, although occasionally not trustworthy. *J. A.*

PRESERVING GRAPES THROUGH THE WINTER AND SPRING.

THE preservation of Grapes over the winter with the least amount of trouble is one of the most important of all matters to the British Grape grower. Every gardener, young or old, knows to his cost what a task it is to keep Grapes hanging all the winter after they are ripe, especially in places where there are a good many houses devoted to Vines. The latest books on the Vine give directions for regulating the houses, so as to preserve the Grapes on the Vine after they are ripe, and every calendar of operations tells how to manage them in that respect, though I fear the directions are not always intelligible. The trouble of regulating the atmosphere, the expense for fire heat, and the necessity of keeping the house almost entirely devoted to the Grapes, must render any improvement very acceptable, and I think I have a decided one to describe. Several times during the spring I noticed Grapes hanging from branches the ends of which were inserted in vases of water—Grapes which the exhibitors described as having been for a long time so preserved in a fresh state. From such few specimens I did not derive sufficient confidence in the method to speak with certainty of its merits, but having visited a good many gardens recently, just as many of the Grapes were ripe, I find that the thing is accepted as a great boon by some of the best gardeners in France, and their system of keeping Grapes has been altered accordingly.

The best example I have seen was in the gardens of Ferrières, the magnificent country seat of Baron Rothschild. Here they have constructed, in addition to very fine and well-filled fruit rooms, a Grape room, which is filled with stands, thickly hung from top to bottom with all kinds of Grapes—those for present consumption as well as those for use six months hence. M. Bergman, the head gardener, was cutting down all his Grapes after a harvest-like fashion, and would in a few weeks, as soon as the latest houses were ripe, have his many and well-managed Vineries to do as he pleased with, ripen the wood, prune and clean the Vines, or utilise the cleared space of the houses for any purpose that might be convenient, not fearing as we do to spill a drop of water or make any other use of the house. The Grapes are cut with a portion of the stem attached, which latter is inserted in a narrow-necked and small bottle containing water, and these little bottles are fixed firmly along, so that the bunches hang about clear of each other. In the first instance are erected two uprights, pretty strong, and each supported on three legs. Then from one to the other of these, on both sides, and in an alternate manner, are nailed sets of strong laths, two for each line of bottles. These laths are kept an inch and a-half or so apart by a bit of wood at each end: in the inner one there are incisions made, into which the bottom of each little bottle fits, and then the outer lath has a concave incision into which the side of the bottle fits, so that, caught in the inner and leaning firmly on the outer lath, it holds the stem and stout bunch quite firmly. I thus particularise it from having seen other ways of doing the same thing less neat and simple than this. Walking space was left between each wall of Grapes, for six or seven rows were arranged one above another on both sides of each support.

Charcoal is mixed with water, allowed to stand for some time, and then the water is strained off to fill the bottles. But there can be no doubt that to put a pinch of animal charcoal in each bottle would prove a better plan of guarding the water from any impurity from the slight deposit of organic matter that might be expected; at least, it does not seem very clear how the charcoal put into the water before the Vine-stem, can have much effect in keeping it pure. However, that is not an important matter, and it is certain that a pinch of animal charcoal, which is very cheap, will keep the water quite sweet. That once settled, all there is to do is to add a little water, in case evaporation should cause that in the bottles to fall below the bases of the shoots. Of course it will be understood in a moment that with one-tenth the amount of expense and trouble that is now necessary in large Grape-growing places, we may preserve in a Grape room like this conditions infinitely better calculated for the preservation of the fruit than the atmosphere of any Vinery can possibly be. We may keep the fruit dark, preserve the necessary amount of dryness in the atmosphere, keep up a temperature constantly equal—all of which are essential to the well-being of fruits, and none of which can possibly be attained in the house in which the Grapes are grown. It would, of course, be wise, in arranging a room of the sort, to have hollow walls and other contrivances to attain the conditions under which fruit is known to keep best. I do not know that this method is practised anywhere in England, Mr. Thomson tells us that he cut about 50 bunches of Lady Downes' in February with the branch attached, and sharpening that, inserted them into the side of a Mangel Wurzel, laid on a shelf in the fruit room, and that in that way they kept perfectly fresh till April. Speechley speaks of having kept Grapes in water, changing it every 14 days; but it seems nobody with us has taken the precaution of keeping the little water required pure. M. Charmeaux, the great Grape grower of Thomèry, was, I believe, the first to try it extensively. Now as we grow by far the best and largest quantity of hothouse Grapes of any country, I need scarcely say this method, if sound, as I have little reason to doubt, will prove of far more use to us than to the French. I am told by experienced gardeners here, who have adopted the system, that they keep the fruit as long this way as upon the Vine, with fewer mouldy berries, and almost without trouble, and it is not likely that a man would cut down half-a-dozen houses of fine Grapes at the beginning of October, unless he had proved it to be as I have stated.

The advantage of having all the stock of Grapes safely housed and away from the attacks of vermin and other interlopers, is another of many advantages presented by this plan, which I now leave in your readers' hands for trial, confident that it will prove a great boon to the Grape grower, and tend to make that fruit—every day growing in popularity—a great deal more enjoyable and obtainable in the winter and early spring months. For if it be a process requiring much care in large well conducted gardens, how much more difficult must it be for the large class of amateurs and small gardeners to preserve their fruit in good condition? In places where the stock of Grapes is not sufficient to require a special room for their keeping, part of the fruit room might be adopted, or even a dry cellar or store room. *W. R.* [This plan has been previously mentioned, in our volume for 1866, p. 126. EDS.]

ON STEM-PRUNING TREES AND SHRUBS.

MY attention has been directed to the effects of stem-pruning on various species of Conifers, also on evergreen shrubs and trees, now growing in the numerous plant establishments throughout the country, and on this subject I beg to offer the following observations.

One of the chief features which engaged my attention was the comparative scantiness of old and fine-stemmed specimens of Cedars of Lebanon, Yews, Hollies, Evergreen Oaks, Cork trees, &c., notwithstanding the length of time these species have been introduced into Britain. Judging from the numbers annually planted all over the country, it is surprising to see so few in a tree-forming state; and this, I should say, arises chiefly from their being kept for a long time in a compact or evergreen shrub condition, instead of being stem-pruned at certain stages of the growth, in order to work them into a tree form. When these shrub-formed trees are first planted they are generally put into positions where they are allowed to grow freely; and there is no doubt that for 18 or 20 years, or even more, they have a good effect as shrubs, forming, as they do, large, round, or upright bushes; and the parties in charge feeling quite content with them in their shrub condition, they are allowed to remain so. Numerous instances of Cedars, Yews, Hollies, &c., come under my notice, and to these I shall first confine my observations, and conclude with some remarks on the more recently introduced Coniferæ. Of the kinds just mentioned, some have been stem-pruned in consequence of their standing near a path, or approximating to some favourite shrub or tree, and soon afterwards they begin to assume an upward or tree tendency.

With reference to the Cedar of Lebanon, I have seen shrub-formed plants 10 feet high and 48 feet in circumference of branches, healthy and vigorous to the lowermost tier, which proceed from the stem about 1 foot up. One specimen in question has its top or leading shoots very much dwarfed and thin, while a plant of a similar age which had been stem-pruned, from its proximity to a walk, is now 20 feet in height, with a thriving healthy top.

Numerous instances of Yews come daily under my notice, varying from 10 to 40 years of age. In all stages of their growth, if left to themselves, they form large round or upright bushes, and are often very picturesque and suitable for the positions they occupy. If it should be the wish of parties to convert any of their duplicate shrubs into trees, particularly those with

single stems, and standing in positions where they can be allowed to spread their tops, it may be done by pruning up the stems, say for 5 or 6 feet, and notwithstanding that the plants operated on may be 30 or 40 years of age, they can easily be brought thus into a tree shape, pointing at the same time all the lower branches left, so as to induce a more vigorous upright tendency in the leading shoots. Old plants so treated will take a much longer time to form trees than plants put under training from a young state. Some young plants growing in good soil, although 10 years old, after being regularly stem-pruned, are now 8 feet high. The Yew is naturally of a slow growth, and the difference with regard to height between the stem-pruned and those untouched, is not so great as might be expected; unpruned plants 30 years old are 15 feet high, while stem-pruned plants of the same age, after being operated on for 14 years, are not more than 18 feet in height. Few evergreen plants bear cutting better than the Yew. It is therefore capable of being fashioned into many shapes; but for the Grass lawn, the semi-pyramidal shrub, and stem-pruned with a somewhat pyramidal head, are perhaps the most pleasing. Of course, where Yews are planted for tree purposes, such branch-pruning from an early stage is absolutely necessary.

Old or large tree-shaped specimens of Hollies are rarely to be seen; this arises from their being considered and treated as evergreen shrubs. Where met with in gardens, such specimens have been early stem-pruned from their standing near walks, as must have been the case with the fine old variegated tree Hollies on the old terrace kitchen-garden at Inverleith. Such trees generally have compact and somewhat rounded heads, while most of the old unpruned specimens are wide-spreading, having loose branches leaning on the ground. Specimens of Holly intended for tree-culture should be operated on when young in order to give them a set for after-growth.

The Evergreen Oak is another example of an evergreen tree rarely seen of tree growth, although numerous specimens are annually procured and planted for evergreen shrub purposes. Specimens of Evergreen Oaks about 40 years of age are very abundant. Some stem-pruned trees known to me are now 35 feet high, having fine-shaped tops, while the unbranched or shrub-formed specimens of the same age average about 14 feet in height, and upwards of 40 feet in circumference of branches. During the ever-memorable winter of 1860-61 the deaths amongst the Evergreen Oaks were mostly confined to the hemispherical shrubs, probably owing to their stems and branches being more tender from being excluded from a free circulation of air, as it was in the bark that the Evergreen Oak showed the first symptoms of injury. The stemmed ones suffered comparatively little, the bark being rough from exposure. If it should be intended to form Evergreen Oaks into trees, stem-pruning must be early commenced; and few trees are more pleasing in the landscape than a well-balanced Evergreen Oak.

The Cork tree is also rarely seen of a large size, and stands an ordinarily severe winter better in a tree form than it does in the shape of an evergreen shrub. The Cork tree which died of old age at Belleville, Trinity, near Edinburgh, some years ago, was about 45 feet high, with a fine branching stem 6 feet in circumference. This tree must have stood many a severe blast, and was in a dwindling condition for some years before it died.

As a plea for stem-pruning, what would many of the ornamental deciduous trees, such as Turkey Oaks, Birches, Beeches, Elms, and numerous others now growing in our reserved shrubberies, have been without it, during the early stages of their growth? With some stem-pruned trees of various heights the branches frequently droop in a graceful manner to the ground. *J. M'Nab, in the "Gardener."*

Home Correspondence.

Cold in High and Low Places.—There are two communications bearing on this subject in your last Number on which I will venture a few brief remarks. Mr. Fish objects to Sir W. Thomson classing wind amongst protecting causes from frost, and makes some very just observations on this head, but they are hardly to the point: for what Sir William meant, I have no doubt, was simply this:—That as the loss of heat by radiation is excessive only in still air, the prevalence of a very slight wind is sufficient to moderate the loss of heat, and in a multitude of cases preserves the air on the warmer side of freezing point. This is again in part the explanation why "flowers are frosted in hollows," and "on the summit of little hillocks escape damage." In the depth of the hollows sheltered from the wind radiation proceeds unchecked, and probably the thermometer would show a difference of 5° to 10°. But there is also another cause to account for this, and this is an answer to "D. T. F.'s" inquiry (1073 *a*). In certain spots, owing to the configuration of the ground, the cold air, as it is formed on the heights, being heavier than the warmer air in the hollows, slides down hill and displaces this, which may, under favouring circumstances, even change places with it, and so raise the temperature of the higher level. This may sometimes be noticed in a degree sufficient to be quite sensible without the aid of instruments in the evenings at the end of summer and beginning of autumn—in perfectly calm air. But here again appearances are often fallacious, and the marked coolness of valleys is often attributable to the fact of their being meadow-land with moist soil, on which both radiation and evaporation are doing their utmost to lower the temperature. But this seems an invariable rule in the operations of Nature—that when a cause seems on the point of creating an effect that would be intolerable, some counteracting cause interposes to modify the conditions, and in no department of Nature is this more noticeable than in those phenomena which are the subject matter of meteorology. So when the meadow has so far cooled the air above it that it will hold no more water, the vapour exhaled by it becomes its own protection, and stops the further loss of heat. The point I have contended for is this: that the damage done by frost in valleys and watersides is no measure of the cold. The nature of the soil, and its condition at the time, *i. e.*, with what crop it is covered, and whether it is wet or dry, are questions which much more regulate the power of frost on tender vegetation than the absolute degree of cold, and upon the whole it will be found that the presence of moisture has a tendency to mitigate extremes of temperature; so that, however cold it may have been with the presence of moisture, it would without it have been still colder. *J. S., Streatley Vicarage.*—The remarks of Mr. Fish, with reference to Sir William Thomson's observations on Plant Protectors (see pp. 1070-1), are so full of practical good sense, that I am induced to incur the charge of "scientific heresy," by asserting that Wells' "Theory of Dew" (founded on Prevost's "Theory of Exchanges") is not true. I shall now merely state what does take place on clear, calm nights. It is well known that during the day the temperature of the atmosphere diminishes as the distance from the earth increases; after the influence of the sun has declined, however, a change begins to take place, especially remarkable in clear, calm weather. The cold air from the higher regions descends, while the warmer air ascends from the surface of the earth. At a certain stage of this process there is a tendency to uniformity of temperature in ascending to some height above the surface, a fact which Mr. Glaisher, through some of his balloon ascents, has already made known. With a clear sky, when no wind disturbs the process, and there are no clouds to act as a screen, the gaseous vapour which exists in the chilled air begins to be deposited, and the "latent heat" given out by this condensed vapour warms the air, in which it had descended, which in consequence ascends, carrying its acquired heat upwards; this condensed vapour will at first wet the Grass, and after some time will appear as "dew." Thus Wells writes (see p. 6 of Cassella's edition): "I have frequently felt Grass moist in dry weather several hours before sunset; on the other hand I have scarcely ever known dew upon Grass to exhibit visible drops before the sun was very near the horizon," &c. This process goes on (not merely at the surface end) even where there is no substance to receive the condensed vapour, and the necessary result is "an increase of temperature in ascending." When we reflect that a cubic foot of air, replete with moisture (to adopt Wells' expression), at about 56° Fahrenheit, and falling in temperature to 50°, must give out 1 grain of water, the latent heat of which is sufficient to raise the temperature of a cubic foot of air about 8°, we see an evident *vera causa* for the phenomena observed; and the view to which I am here directing attention is quite in harmony with Mr. Glaisher's experience in his nocturnal balloon ascents. Thus in the Reports of the British Association (Nottingham, 1866), p. 373, you may read as follows:—"At night, with a clear sky, the temperature increases with increase of elevation; at night, with a cloudy sky, there was a small increase of temperature as the height increased" (little dew was found). * * * "It would seem that after radiation is set in, the heat passes upwards till arrested where the air is saturated with vapour, when a heat greater by 5° was experienced after sunset than at the same elevation before sunset." The method of experimenting adopted by Wells, viz., weighing wool exposed in a clear calm night, although ingenious, is totally inadequate to detect the secrets of Nature in this instance. The deposition of one-sixteenth of a grain of moisture would have warmed a cubic foot of air about half a degree; what an amount of heat then must have been previously given to the air by the dew deposited on the Grass all around! The true method of investigating this subject is to use a series of "differential thermometers" (Leslie's invention) at various heights; both the bulbs to be covered with calico, one wet the other dry. It is obvious that the zero point of each instrument will indicate the commencement of the process, for there can be no cold, from evaporation, when the air is at the dew point. Should you desire it, I shall in a future communication prove the fallacy of Prevost's theory, by the adoption of which, as true, Wells was betrayed into advocating an erroneous theory of dew. *H. H. G.* [We shall gladly insert your communication on this subject if "condensed." Eds.]

Bulb-bearing Shoots of Caladium.—Can you give me any information as to the nature of the peculiar growth from the tuber of a seedling Caladium, which I enclose for your inspection? It looks like an Orobanche in its habit of growth, absence of leaves, &c. *F.* [The shoot in question is brown and leafless, but bears numbers of small ovate tubers or bulbils arranged in clusters. Each bulbil is covered with numerous overlapping scales, the latter terminating in a long tail-like point, hooked at the extremity, so that the little bulb resembles closely a burr. This formation is the common state of Remusatia vivipara or Caladium viviparum, the flowers and seeds of which are rarely produced, propagation being effected by the little bulbs as in the case of a Tiger Lily. Eds.]

Vines at Chatsworth.—I am obliged to "W. B. B." (see p. 1048) for his correction; the mistake had by some mishap found its way into my communication of Oct. 12. Mr. Paxton was employed in the Horticultural Society's Garden at Chiswick from 1823 to 1826, and in connection with Dr. (then Mr.) Lindley, he assisted in arranging and planting the arboretum under the direction of Mr. Sabine and Mr. Munro. When the late Duke of Devonshire was about to go as ambassador to Russia, to be present at the coronation of the Emperor Nicholas, he engaged Mr. Paxton to be his gardener, and he came to Chatsworth in May, 1826, whilst his Grace remained in Russia, and shortly after his arrival he began to make some of his improvements, which were afterwards carried out to such perfection. Sir Joseph was ever an advocate of a moderate extension system in Vine culture, four or six rods being often allowed to one root in the houses devoted entirely to Vines; but when light was required for other plants growing beneath, he kept his rods entirely to the rafters, allowing one spur and one succession rod to each rafter, in the same manner as, after long experience, I have recommended in my little Handbook on fruit culture. *Samuel Horeman, 7, Pall Mall East.*

Violas, Mauve Queen and lutea.—I must confess that until the other day I was one of those who had never run wild about Viola cornuta; I have not seen it go right through the summer, like any other truly valuable bedding plant. Beautiful enough in the spring—tolerable in the early summer—it has invariably seemed weedy or seedy in the autumn. Such was my experience until a few days since, when a basket of Mauve Queen arrived from Mr. Wills, of Huntroyde Park. The plants were one mass of bloom. I gathered a whole vaseful of them for my employer's table, and I have no hesitation in admitting, that if this can be maintained in such a state of health and bloom as these plants were, throughout the summer, no plant can be more welcome or valuable for bedding purposes. They have brought me over to the side of the Violas at last, and I have divided and planted in accordance with the instructions of Mr. Wills, and will try them by the thousand next summer. I have also to thank Mr. Wills for the Viola lutea, a perfect gem of the dwarf old-fashioned type, invaluable for a dwarf yellow bed, or edgings. It is a bright yellow, of the most compact habit, and seems even to flower more freely than Mauve Queen, which, if identical with cornuta, as some affirm, has the great merit of flowering much more freely than I have ever seen cornuta. *D. T. Fish.*

Seedling Pelargoniums.—I enclose some leaves of a new class of Pelargoniums raised by Mr. Wills. They are crosses between the Ivy-leaved varieties and the common Zonals; some of them also seem to have tricolor blood in their veins, and Mr. Wills hopes soon to supply us with both silver and golden tricolors of this type. They will prove invaluable for small beds, edgings, hanging baskets, &c. These new types of Ivy-leaved varieties are also distinguished, some of them, by great size, and all by great substance. The accompanying bronze-leaved varieties will prove invaluable for bedding purposes as well as for house decoration. The colours are, however, brightest out-of-doors, and when used for conservatory purposes the plants should not be kept in for more than two or three weeks at a time. Two or three sets should be provided, so as to have one lot constantly in the full sunlight ready to be introduced the moment the colours begin to fade. I estimate the enclosed in the following order:—Empress Eugénie, Her Majesty, Admiration, Perilla, Arthur H. Wills, and Princess Alice. Attraction, Mrs. Petch, and Diamond are also most beautiful varieties. There can be no question that for distinctness and distant effect most of these eclipse the best tricolors. *D. T. F.* [From what we have seen of these varieties on various occasions, we consider Her Majesty as the best amongst them. Empress Eugénie is very much larger than appears from the leaf sent, and has always been shown coarse and cupped. Some of the Ivy-leaved sorts indicate a true cross; we shall look out with much interest for their flowers. Eds.]

Grape Judging.—Some exhibition schedules state that "all fruit must be ripe and fit for table." When this condition is not expressed, it is generally understood, by all men who are qualified to judge, and rarely is an award made to unripe fruit. I think also that all schedules ought to state that "all fruit should have its natural colour." Were this done, we should not see so often as we do now green Muscats, red Hamburghs, &c. All other fruits as well as Grapes should exhibit their natural colour. If this were done, and the Grapes properly classed, there could be no difficulty in judging them by the four cardinal points of quality enumerated by Mr. Meredith (see p. 925), namely, colour and bloom, size of berry, compactness of bunch, and size of bunch. Those who undervalue colour as a sign of quality, confine their objection to black Grapes; no one, as far as I have seen, has ventured to assert that colour in Muscats is not a sign of quality and flavour. Who ever saw a dish of Muscat Grapes of a fine amber hue (their natural colour when ripe), that was sour or unpalatable? And if they are large in the berry compact and large in the bunch, are they any the worse for it? Has your correspondent "Vitis vinifera"—who altogether ignores bloom, and who sets down colour so low, that for all practical purposes we must consider he all but ignores it also—ever seen Muscats that were wanting in colour, equal in quality and flavour to Muscats that were of a fine amber hue? If he has, it is more than I have. The majority of the Muscats which one sees at exhibitions are greenish and unripe. Such Grapes cannot have the flavour that fine amber-coloured Muscats have. Then surely colour in Muscats—and they form the bulk of white Grapes at exhibitions—is a certain sign of flavour and quality. And so it is of all other white Grapes—the better the colour the better the flavour. With regard to black varieties, I will confine my remarks to one kind, namely, the common Black Hamburgh. All Grapes have a flavour peculiar to themselves. The Black Prince, Lady Downes' Seedling, and Barbarossa [Gros Guillaume] have all different flavours, which are unlike that of the Hamburghs. I never yet saw well coloured Hamburgh Grapes with a fine bloom that were ripe and fit for table, and to which I would award a prize, that were sour and unpalatable. It is true that at most exhibitions there are plenty of Hamburgh Grapes of jet black colour and with a fine bloom, that are sour. And why? Because they are unripe, and not fit for table. When only a fair crop is left on Vines in good

condition, which receive proper attention, the Grapes will get a jet black colour, and have a fine bloom weeks before they are ripe and fit for table. Practical men who are fit to judge Grapes will at once distinguish Grapes that are ripe, from those that are not, without tasting them. I quite agree with your correspondents that there is no necessity whatever for tasting Grapes to know their flavour. Men who adopt that practice are not qualified to judge Grapes, and no exhibitor of first-class fruit would place the slightest confidence in the judgment of such men. I have some considerable experience myself both as an exhibitor, and as a judge, and I have always noticed that the worst judges were the greatest tasters of fruit. In the standard laid down by "Vitis vinifera" (see p. 853), he gives flavour, 6 marks; quality of flesh, fineness of texture, 2; colour, 2; size of bunch, 1; shape of bunch, 1; in all 12 marks. Really this is very fanciful. It may theoretically look well, but let us apply it practically and see how it will work. Let us suppose that "Vitis" and another person are appointed judges at one of our great exhibitions, where Grapes are shown in quantity. Every exhibitor when leaving home has some idea that his Grapes will obtain a prize. As "Vitis" ignores bloom as altogether useless, and only gives two marks for colour, he cannot tell by any other test except tasting what the flavour, the quality of flesh, and the fineness of texture of all these dishes of Grapes are—by no means an easy task if a right judgment is to be arrived at, notwithstanding "Vitis'" sweeping assertion (see p. 949) "that it is doubtful if a hundred dishes have ever competed together; and if they had, the tasting test would speedily reduce them to half a dozen, and among them the sensitive palate would be quite as likely to detect flavour as the discursive eye to assess the relative value of endless shades of varying colours." With all due deference to "Vitis vinifera," I do not think the tasting test would "so speedily reduce them to half a dozen," if there be an honest desire to arrive at a just judgment. The common standard of colour, bloom, &c., would, however, speedily reduce them to half a dozen. Then, suppose Grapes possessing flavour, and wanting colour, are awarded the prize, every other exhibitor will feel himself wronged, for most people think their own production the best. Has "Vitis" never heard disappointed exhibitors say, "My Grapes are the best in the Show, the bunches are large, the berries fine, and the flavour first-rate, but colour is rather deficient"? I have oftentimes heard such remarks, and should "Vitis'" fancy standard be acted on it would lead to general dissatisfaction; indeed, I don't know anything more likely to injure fruit exhibitions than his standard. When Grapes are judged by the common standard of colour, bloom, size of berry, compactness and size of bunch, properly qualified judges will in a few minutes reduce the number to three or four dishes, and they will in an equally short time decide which is the best dish, and such decisions generally give perfect satisfaction to all exhibitors. But we are told that Grapes are grown to be eaten. What a wonderful discovery! I presume every generation of men which has preceded us, back to the days of Adam, were as well aware of that as we are. Besides being grown to be eaten, Grapes are also grown to be made into wine; and I would strongly recommend "Vitis vinifera" to convert his badly coloured Grapes into that beverage, and not attempt to set up a standard by which he may get a prize for such evidences of bad management. Flowers are placed on the dinner table for ornament, and not to be eaten; and Grapes, though placed on the dinner table to be eaten, are also put there to adorn it, and when fine and large with well coloured berries they are sure to be admired. There are few who would not prefer to see placed on the dinner table, a dish of Muscats of a fine amber colour, with large berries, in preference to a dish of wizened Frontignans. I consider Mr. Forsyth's test (see p. 902) to be a very good one, viz., "that the value of a thing is just as much as it will bring." It is the best samples of grain that realise the highest prices in Mark Lane, and so it is the best fruit of all kinds that fetch the highest price in Covent Garden. The Grapes that are bought in the market just named, find their way to the tables of the wealthy, who prefer to pay a high price for finely coloured fruit, to having it badly coloured at a low price. And they are right, notwithstanding the remarks of "Vitis vinifera." There are plenty of badly coloured Grapes grown, without setting up a standard for them at exhibitions. Let a house of Vines bear an excessively heavy crop—no care or attention will colour and finish it off properly. Let the same Vine carry a fair crop, and the Grapes will then be everything that is required as regards colour, bloom, and flavour, and though probably not half the weight of the heavy crop, will be worth more money in the market. Besides, the Vines will be in a condition to bear fine Grapes another season, which would not be the case after bearing an excessively heavy crop. Surely your correspondent "Vitis vinifera" must know that the Syrian and White Nice are not what he calls "gardeners' Grapes," nor are they "exhibitors' Grapes," for no two kinds are less grown or seldomer exhibited than these two varieties. If your correspondent knows anything about gardeners or Grape-growing, he must know that if there be any Grapes that can be called gardeners' Grapes or exhibitors' Grapes, the Muscat of Alexandria and the common Black Hamburgh are the sorts, for they are grown by gardeners in general, and most generally exhibited; and to take them for all in all, for general purposes I do not know two better kinds. I repeat this, that Grapes that have their natural colour and bloom will also have flavour, if they are ripe and fit for table. This is not disputed in the case of Muscats and other white Grapes. It is only black varieties that are said to be wanting in flavour. And why? Because jet black Grapes with a fine bloom are very often brought to exhibition in an unripe state, and quite unfit for eating. *M. Saul, Stourton, Yorkshire.*—Allow me to congratulate you, Messrs. Editors, on your putting the Grape judging question (see p. 1024) on its proper footing. There is not the shadow of a doubt that all Red Hamburghs, or badly coloured Grapes of any kind, are not examples of good culture, and ought not to get awards in preference to well coloured Grapes of the same varieties, if even not quite ripe. Red Hamburghs, when quite ripe, are very saccharine, but they lack the rich vinous flavour of deep black coloured Hamburghs. The Black Damascus, when well grown and ripened, has the richest and most highly vinous aroma of all black Grapes, and never comes badly coloured, like Hamburghs. As regards white Grapes, of any kind, there can be no difficulty, for the colour will always tell those which are the best flavoured. Your correspondent "A. P. W." (see p. 1024) has likewise made some sensible remarks, and from the plentitude of his knowledge on Grape growing and judging, he has doubtless in his own opinion settled the matter. As it is, Mr. Meredith must keep the fear of these grand bunches of Muscat Hamburghs before his eyes, in case they might appear at some of the forthcoming exhibitions against his own. *Thoth.*

Variegated Zonal Pelargoniums.—I think every one was both surprised and pleased who had the pleasure of seeing the late exhibition of Variegated Zonal Pelargoniums at South Kensington. The effect, when a large number of these plants is brought together, is quite charming; but I am anxious to know what the interested parties who propose renewing the display another season, are going to do for us flower-gardeners. There is upon the whole, as yet, very little variety. All those exhibited had been grown under protection, and no test or prize was offered for trying their effectiveness in my department. So fully am I convinced of this being necessary, that I venture to say, that after a trial outside, one half of the varieties exhibited would not be heard of again. There is too great an amount of high breeding in one class, and too little in the other. The white and yellow circle surrounding some of the most beautiful leaves, would pale before a hot sun, after a shower, and the bronze and yellow would become black and green from luxuriant growth. I should therefore be pleased to hear of something being arranged in order to settle the question for us, and help us to get sorts outside that would be as effective as they now are when exhibited in pots. Even Mrs. Pollock through the past season has not put on a garb suitable for the dress circle, black and green predominating over the brighter colours. There is a great deal to be done yet before we shall get much decided assistance from this class of plants; but the sooner it is tried the better, and the more likely are we to succeed. *A Flower Gardener.*

Nuneham Park Onion (p. 1073).—I see that one of your correspondents had a packet of this Onion seed, also White Spanish, and the result has been very different from what he expected. It would be of little use for me to defend my Onion while you hold the opinion you do, but if you or your correspondent will call at Nuneham I think I may safely say that you will go away with a changed opinion from that which you now hold about the Onion in question. *James Stewart, Nuneham Park Gardens.* [We judge from those samples that have come under our own eyes. Eds.]

Pinning Dahlia Blooms.—I really cannot exactly agree with your correspondent "M. P." (see p. 1049) as to the magnitude of the offence of pinning Dahlia blooms, neither can I see any "deceit" or "dishonesty" in the matter, as the blooms were no doubt "*bonâ fide*" when the exhibitor left home, and what "M. P." means by "basket" blooms I cannot imagine. I can only say that if your correspondent was going to a show, and intended to put up two stands of 24 blooms, and his Dahlia box only held 50 blooms, he would be terribly annoyed on his arrival at the show to find, perhaps, half his best blooms with the guard petals all falling out. Now what would "M. P." do? Why he would do as I used to do 30 years ago, "pin them;" but he should do it so that even the cannie Scotchmen who judged your unfortunate correspondent's flowers (see p. 976), would not discover it. I never looked upon the practice in the light of either "deceit" or "dishonesty," as the artifice could not be observed, nor were the blooms in any way disfigured by the process adopted, which was as follows:—I procured the finest hair wire, cut it in lengths, and doubled it in the shape of a lady's hair-pin. I could generally get wire to match the colours of the flowers: fine pin wire for white or light blooms, brass wire for yellow, and so on. But Dahlia growers have very great advantages now compared with what we had 30 years ago: they may now cut their blooms the same morning, and go 50 miles or more to the show, and arrive in good time; whereas in my time, to get to the Surrey Gardens or Salthill Shows, both famous Dahlia exhibition places at that time, we had to cut the blooms the morning before the Show, and then travel all night on the outside of a coach, and the blooms got terribly shaken. At those Shows there was something to see, probably 20 stands of 50 or 48 blooms, and 30 of 24 blooms; the judges had something to do compared with what they have got now, as it has been a rare thing to see even a dozen stands of 24 blooms at some of the best shows which I have attended this season. *J. K., Wilts.*

Grapes Cracking.—We have got a Vine of Josling's St. Alban's (Chasselas Musqué) and one of the White Tokay, but they are both cracked very badly. Can you tell me the reason? I should be glad to do anything to prevent it for the future. *Wiltshire.* [Chasselas Musqué, the variety you mention, is always liable to crack. It is, perhaps, the richest-flavoured Grape in cultivation, and were it not for this fault, which it seems impossible entirely to overcome, it would be much more extensively cultivated than it is. Cracking is caused through an excess of fluid—a swelling of the flesh, as it were, without a corresponding relaxation of the skin. In the case of Gooseberries and Plums this may be particularly noticed after a sudden deluge of rain, by which the whole crop is frequently destroyed. The cause of cracking being therefore excess of moisture, the remedy suggests itself: keep the roots and atmosphere of the house drier, and perhaps a little warmer than you have been doing. The taking of a rather heavy crop has also been found to reduce the proportion of cracked berries considerably. When this variety is cultivated in pots it seldom cracks, the plants in pots being generally heavily cropped, and the roots drier than can well be the condition of those of planted-out Vines. With respect to the White Tokay, the case is different; there is no natural liability to crack in that variety; its having done so must therefore be owing to too much moisture received in some way or other when the fruit was ripening. *B.*]

Tomatos.—The following notes, taken at a later date, supply some additional particulars to those printed at p. 903. The *Large Red Italian*, of Barr & Sugden, or Orangefield, of Williams, the earliest of the large-fruited sorts, is very dwarf and prolific, the fruits very large, broad, red, and deeply corrugated, or ribbed; an excellent variety, and one of the best in the collections. *Keyes' Early Prolific*, of Carter, is a tall-growing variety, with the divisions of the leaves larger and fewer in number, and also of a lighter colour than in the other sorts; the fruit medium-sized, roundish, pale red, but slightly corrugated, somewhat later than the Orangefield, but very productive, and altogether a first-class variety. The *Grosse rouge hâtive*, of Vilmorin, is later than the Orangefield. The fruits are large, broad, corrugated, red; it is very prolific, and vigorous; the leaves pale green. The *Great Mammoth*, of Barr & Sugden, or Large Red, of Thorburn, has smaller and more finely-cut leaves, with the fruits very similar to those of Grosse rouge hâtive. The *Large Red*, of Veitch, is synonymous with Powell's Prolific. The fruits are medium-sized, roundish, and slightly corrugated, and the plants very prolific. The *New Giant*, of Barr & Sugden, is a very large and coarse late variety, the fruits red, very deeply corrugated, and irregular; the plant robust, and not very prolific. The *Tilden*, of Thorburn, or Red Valencia Cluster, is a strong growing variety, which appears to be very highly esteemed in America. The fruits are large, full, roundish, slightly corrugated near to the stalk only, of a deep red colour, and the leaves are deep green; it is rather late, and not so prolific as others, but very excellent. The *Fiji Island*, or Lester's Perfected, of Thorburn, is very similar in all its characters to the Tilden, excepting that its fruits are of a decided crimson, quite a distinct colour among Tomatos. The fruits are large and very fine, both of this and of the preceding variety. *A. F. B.*

Late Peas.—I am now gathering from Veitch's Perfection nearly every day. They are still as green as in June, and full of flower. I shall continue gathering from them until the frost stops me. I consider Veitch's Perfection to be one of the best of our late Peas. *H. Hepburn, Scaresbrick Hall Gardens, Ormskirk.*

Swifts.—Your correspondent "J. K.," in his communication dated the 15th inst. (see p. 1074), says, "Swifts are flying high in the air." I think this is a mistake. Swifts, with the exception of a straggler or two, always leave this country about the middle of August. Three or four pairs annually nest under the roof of my house, and although the weather was very hot at the time, they all left on the night of the 12th of August. Several other pairs breed in different parts of the town, but I have not seen a single individual since the above-mentioned date. A few swallows and martins still remain. *Henry Doubleday, Epping, October* 21.

Fruit Growing in Jersey.—I forward you a bunch of the Gros Colman Grape grown here, mentioned at p. 974. It is, I think, a good late Grape, and always commands attention on account of its large berries, but the flavour is inferior to that of the Black Hamburgh. I also forward a Beurré Clairgeau Pear. Fifteen of these Pears grew this season on one small tree, and together weighed 21¼ lb. *James Pond, The Vineries, Jersey.* [A handsome-looking Grape for those who prefer size to flavour. One of the berries measured nearly 4 inches in circumference. The Pear was a splendid specimen, weighing 1 lb. 13 oz. Eds.]

The Thompson Testimonial.—"Honour to whom honour is due," has passed into a proverb. It is especially applicable to this case. Within the whole range of practical horticulture it would be difficult to point to a man more worthy of honour, alike for what he is, for what he has done, and his mode of doing it, than Mr. Robert Thompson. Honour should also be rendered by those from whom it is due. Mr. Thompson, above most others, is the man whom gardeners should delight to honour. He is one of ourselves; he has worked with and for us; he has extended our knowledge, lightened our labours, and rendered our success more easy and certain. His writings have instructed us all; the example of his busy life has stimulated many, and enabled not a few to achieve their present measure of success. His life appears to have been more of a seed-time for others than a reaping time for himself. He has filled us all more or less with his good things, and we must not send this testimonial empty away. The least we can do is to acknowledge our obligations in kind words, and, now we have the privilege, in loving gifts, however small. To do less than this will reflect upon ourselves, and more is not needed. I feel as if severely reproving my class by urging such an obvious pleasure upon them. Unless we can rise spontaneously to the cheerful discharge of such duties, there is something radically wrong with either our hearts or heads, or both. While manifesting such utter indifference to the just claims of each other, it is hopeless to expect

that the great public will trouble itself one iota whether we rise or fall. The evils of trades' unions are just now in the mouth of every one, from the Premier downwards, but I have often regretted that gardeners, while shunning the faults of such societies, should not be able to pick out and use for their own credit and advantage some of their virtues. The *esprit du corps* engendered by such institutions would carry a testimonial like this triumphantly through without the least trouble. Our utter isolation has always been our weakness—often threatened our ruin. It is the author of our poverty, and the shadow on our escutcheon. In cases like this the only mode that would be likely to overcome the *inertia* induced by our isolation is by a personal application to each individual through a central or local committee. I am not aware whether this course has already been taken. If not, I do not yet despair of a creditable sum being raised. My experience in connection with the guarantee and special prize funds at our great show in July, destroyed my faith in general appeals. Although these proposals were kept prominently before the public for months, in no single instance was money either promised or given without a special, direct, personal, application. Gardeners especially seemed to expect this. It was not a little provoking, although amusing, to receive in several instances letters from them, after subscriptions for gardeners' cups had been solicited for weeks through the press, complaining that they had not been asked to subscribe! And then a letter had to go, humbly soliciting a subscription, and a second to acknowledge the same. Of course this mode is troublesome and expensive; but at least 10 per cent. of such applications would bring money, and our credit might in this way be preserved, and the object gained. This was the course adopted at the great International Show, and the recent success of Sir Robert Peel's personal application on behalf of the Gardeners' Benevolent Institution is a further proof of its adaptability to gardeners, and of its success in overcoming the difficulties incident to their isolation. It might be worth trying on this occasion. It is important that what is done should be done quickly. Time hastens, and our friend has grown grey in our service. And I know not, to use the words of Bulwer Lytton, why we should delay our tokens of respect to those who deserve them until the hearts that our sympathy could have gladdened, have ceased to beat. As men cannot read the epitaphs inscribed upon the marble that covers them, so the tombs that we erect to virtue often only prove our repentance, that we neglected it when with us. Nothing like this must happen in this instance. Large sums are not needed nor expected from gardeners. The promptitude of the gift, and the measure of grateful love accompanying it, will render it doubly precious. Let each, therefore, hasten to subscribe at once, and send with each sum words of so sweet breath composed as will make it seem more rich. In thus honouring Mr. Thompson we can but honour ourselves, and speedily accomplish a good and praiseworthy object. *D. T. Fish, F.R.H.S.*

TRADE MEMORANDUM.

"Caution," who lives in the neighbourhood of Strood, Kent, wishes to warn his fellow nurserymen against a person representing himself to be a traveller for a large nursery establishment, and who, it seems, has neglected to pay for goods supplied to him as well as to leave his present address, as he is no longer to be found at his former abode at Kensington.

Florists' Flowers.

Crocuses.—Having grown the Crocus extensively for 20 years or more, and having tried a great many of its species and varieties, I am disposed to make a few observations on the article by "Quo" (see p. 1050). I have never seen an autumn flowering yellow Crocus, but of spring ones I have had C. susianus, which is the earliest, and the petals of which open very wide and recurve; C. stellaris, which is a much handsomer kind and early; C. sulphureus, a small plain yellow, and of which there are several varieties, one nearly white; and C. concolor, a cream coloured kind, rather larger than the varieties of C. sulphureus, but with the peculiar root of the yellows. For associating in garden decoration with the blues and whites, the large yellow is decidedly the best, for although C. stellaris is a very handsome kind it comes out too soon, but the time of flowering of the yellow is much more affected by climate than the blues and whites; it comes into flower here with the later varieties of these, but in warmer situations is considerably before them; from this I should judge it was a native of a warmer climate than C. vernus, which I suppose is the same as is found on the Swiss mountains, flowering close up to the snow. Some of the varieties of C. versicolor are very beautiful, but they here require more care than C. vernus, and, if not removed, dwindle away and die out, and they also often lose the fine dark pencilling on their outside. This dwindling away is also the case with sulphureus and its varieties. I have found one year's trial too short to judge of the qualities of the varieties of C. vernus, and determine their relative merits; in addition to shape and substance, as well as size, there is a fault often found in the purples by the more or less frequency of discoloured patches, which quite spoils the flower. David Rizzio is, with me, very subject to this, so much so as not to be worth a place; in some varieties the flowers will come crumpled to a great extent, and these are not worth keeping. Another defect is that of the leaves appearing above the flowers too soon after they have expanded, and this is the most objectionable with light varieties. Mrs. Beecher Stowe is subject to this defect, which is perhaps chiefly occasioned by the flower-stalks not being long enough; otherwise it is as fine a white as any with which I am acquainted. I find Abydos the most effective, though not a pure white, having a few stripes inside, but it stands well up, flowers freely, and lasts well. I have not had all the kinds named, or at least under the names mentioned, and some which I have had, do not agree with "Quo's" characters. My Argus is a small flower, and appears to be the same as the old leucorhynchus or Pheasant's Feather, being grey outside, with a white tip, and dark triangular blotch below it. Albion was very different, and had narrow petals, so I discarded it, and Prince Albert or Prince of Wales are very inferior to one I got under the name of Miracle, which is the finest-shaped purple I know, and very large, flowering freely, and generally clear of blotches, and but seldom crumpled. I set them within 2 or 3 inches of the Box on my beds, each bed having the same variety all round, and find they will flower well in such a position for fixe or six years, and are not so liable to be dug up as in other situations; I prefer setting them nearly six inches deep, and they are thus in less danger of being eaten by mice. *Wm. Backhouse, Walsingham, by Darlington.*

The Apiary.

Lecture on "The Honey Bee."—On Wednesday evening, October 16, S. B. Fox, Esq., of this city (Exeter), delivered a highly interesting lecture on "The Honey Bee" to the members of the Literary Society. Mr. Fox's lecture was illustrated by upwards of 20 beautifully executed diagrams, some of which were drawn by Mr. G. Townsend, artist. A picture of bee flowers was beautifully executed. The habits of the bee were dilated upon at considerable length, and there was an exhibition in the lecture room of hives and boxes, an observatory hive with its inmates, and numerous specimens of filled glass supers, together with other matters relating to bee economy. We have not space to give a lengthened report of this excellent lecture. Notwithstanding the stormy weather the audience was very numerous, and at the conclusion a hearty vote of thanks was given to Mr. Fox for his excellent, able, and instructive lecture.—*From the Western Times.*

The observatory hive alluded to above was designed by Mr. Fox, and made purposely for exhibition at this lecture. It is constructed to take six of the bars which fit the frames of his ordinary boxes. The length is about 41 inches by 17 inches in depth, inside measure. It takes six combs in two rows of three each, made to fit so closely together as to appear, when in position, almost as one comb. The hive is fitted with two glass sides, each formed of one sheet of glass, and wooden outer shutters. The process of stocking the hives with combs and bees from a frame hive, not in any way previously prepared for the purpose, occupied less than 20 minutes, no attempt at hurrying the operation being made. This was done a few days previously to the lecture, the bees having had time to secure the combs and repair damages.

During the evening of the exhibition, the bees, though exposed to a strong artificial light, were tolerably quiet and composed; the queen, a handsome hybrid Ligurian, showing off to great advantage. The bees and combs can, when desired, be transferred back to their proper quarters and intended winter residence in the space of about five minutes. The hive is equally well adapted for being tenanted with a new swarm, as with combs from an established stock.

Among the diagrams exhibited there were diagrams of comb with a group of royal cells; a picture of a nest of the common humble bee (Bombus terrestris), and the ovarium of the queen bee; all exquisitely painted. Many of the other diagrams were also worthy of lengthened inspection.

Mr. Fox demonstrated the mode of management peculiar to the improved frame-hives, and the various ways of carrying out the principle of artificial swarming. *Reporter.*

Garden Memoranda.

Shrubland Park, the fine seat of Rear-Admiral Sir George N. Broke Middleton, Bart., C.B., &c., is situated in the parish of Barham, in Suffolk, about five miles from Ipswich. It is readily reached from Ipswich by the Norwich Road, or from either the Needham Market or Claydon Stations on the Great Eastern Railway. The mansion is a fine specimen of the Italian style, and was greatly extended and improved some 16 years ago by Sir Charles Barry. Its position is most commanding, and its beauty and grandeur are familiar to all travellers on the Great Eastern Railway or the roads between Ipswich and Norwich and Bury St. Edmund's. The house occupies a bold eminence on the southern side of an extensive richly wooded deer park, and overlooks the rich fertile valley of the river Gipping. This small river expands into the Orwell at Ipswich, to which town it is thought to have given its name (often spelt Gipswich in the olden time). It then assumes the character of a broad navigable river, rolling past some of the loveliest scenery in England, including the fine seats of Wolverstone, Orwell Park, and Broke Hall—the last the old family seat of the Broke family, now owned by the proprietor of Shrubland—until, finally, it discharges its waters into the German Ocean at Harwich.

Shrubland is approached in three directions, and the lodges, which are of the highest excellence, sustain the dignity and grandeur which the house and the tower in the wood, with its flag fluttering in the breeze, never fail to inspire. The Ipswich carriage-road is about three-quarters of a mile long, the Coddingham 1 mile, and the Norwich or Needham Market 1½ mile. The latter is the one chosen by the late Prince Consort on his vist to the late Sir Wm. and Lady Middleton at Shrubland, and as it is the pleasantest and the longest, it will be the one chosen on this occasion. It sweeps along, by the easiest possible gradients, through a most interesting wood of Oak, Beech, Spruce, Scotch Firs, &c., while here and there, and almost everywhere, choice specimen Conifers look out and up in cosy places. Among these were noticed Abies Morinda, Picea Pinsapo, and Pinus macrocarpa. Part of this fine wood is planted in the mixed style; other portions of it are grouped. Masses of Scotch Firs, planted on bold mounds, have a fine effect. But the grandest trees seen here were a group of extraordinary fine black Spruce, sable-toned, arboreal monarchs, that have few, if any, equals. At times the trees, as in the case of these Spruces, approach close to the road; in other places they recede several yards; but along almost the entire distance a broad fringe of more or less depth, varying from a few feet to a hundred or more, of flowering trees and shrubs, lightens up and dresses the carriage way. These consist of Lilacs, Laburnums, Hypericums, Thorns, &c. Box, Yews, Laurels, and other shrubs, are also largely introduced for summer variety and winter clothing. Here also acres of the common Brake rear their grand fronds from underneath, or even climb far up among the branches of the o'ershadowing trees. Few combinations could be more effective than heavy ranks of sturdy, gaunt, bare stems of aged Scotch Firs, upspringing from the feathery fretwork of this magnificent Fern—a fine example of strength supported by elegance. Proceeding onwards, the road sweeps and undulates, revealing lovely glades and tempting dells on either side until the extremity of the wood and the highest ground are reached together. Just here a wide clearance on the right reveals Shrubland, standing boldly out among its rich embroidery of living green. The house is supported on the garden side by a fine hanging wood enriched with masses of shrubs. At the base of this wood a broad green glade sweeps along the entire length of the gardens, and crosses part of the park, climbing up a series of about 20 steps to this point of the carriage road. These wide massive steps are embellished with vases, and are evidently erected for effect from the gardens. On each side of the glade a row of Arbor-vitæ is planted, and in the centre a fountain is seen, near its point of entrance to the gardens. On the right-hand side of this glade glimpses of the gardens and pleasure-grounds peep forth. The stand-point here is about the same level as the house, which is probably about half a mile distant. A valley lies between; therefore the site of the main gardens, with all their varied features of interest, is looked down upon. Only enough of them is seen, however, to excite an intense desire for a closer inspection, and to create an impression of quiet grandeur and comprehensive magnificence. The first peep, then, has answered its purpose, and we hurry through the gate into the park. The ground here is more uneven, some splendid views of the surrounding vale are opened up, the home farm and dairy are noticed on the left, the groups of large Thorns, boles of splendid Oaks, and extraordinary masses of Sweet Chestnut are noted and admired, and the house itself stands before us. Before entering the gardens, one word about the carriage road. The road makes no break at the house, but passes in a straight line, and becomes the Ipswich carriage road as soon as it has passed. A large sweep of gravel reaches from the front door on to the road. The Coddingham road joins the Norwich one on the left before the house is reached, and the stable road diverges from it opposite the house. It will readily be seen that Shrubland is thus approached from the side—a simple, convenient arrangement, without any attempt at effect, although the carriage front is distinguished by beauty and grandeur. The stables abut on to the kitchen gardens, a few hundred yards from the house, and are skilfully planted out from both house and gardens.

Having arrived at Shrubland with the view of describing it to your readers, one feels the difficulty of doing it full justice. It is so extensive, so justly famous, possessing so much semi-classical horticultural interest, through its late proprietors, and their great gardener, the late Donald Beaton, that one seems overawed by the genius of the dead, while endeavouring to pour the full flood of descriptive and delineative light on the living present. Shrubland may be described as the embodiment of the artistic life of the late Sir William and Lady Middleton. Gardening with them was not simply a pastime, but a passion, and every extension of beauty was simply the solidification of a new passion or taste into concrete form. They were poets, and wrote their verses in a mosaic of flowers on these grounds. They were great artists, and they painted on the broad canvas of nature, and left as their legacy to posterity that masterpiece of their genius—Shrubland.

Though, I believe, no landscape gardener was ever employed here, yet in the formation of the garden the designing skill of the proprietors was ably seconded by the skilful executive hands of a number of most able practical gardeners. Mr. Beaton, I believe, succeeded Mr. Smith, the raiser of Smith's or Shrubland Scarlet Pelargonium. It is impossible to say how much the gardens were indebted to Mr. Beaton. He expended upon them his full strength, through the best years of his life, and made the place and himself an honoured name throughout the kingdom. Soon after, or about the time of his retirement, Sir Chas. Barry was called in to design improvements in the house—and with him originated the chief architectural embellishments of the gardens. Mr. Davidson, Mr. Beaton's successor, carried through the work of forming several distinct new flower gardens, with great ability. He was succeeded by Messrs. Foggo and Taylor. On the death of the latter, Mr. Blair succeeded to the command at Shrubland, and it is highest praise to say that he has not only maintained but extended its just reputation. The best way to see any large garden with pleasure or profit is to walk through

it at least twice; first, to note its general features, and then to admire its particular excellencies. Shrubland will be best treated in this dual fashion. *F.*

(To be continued.)

Miscellaneous.

Australian Gum Trees.—The marvellous height of some of the Australian, and especially Victorian, trees has become the subject of closer investigation, since of late, particularly through the miners' tracks, easier access has been gained to the back gullies of our mountain system. Some astounding data, supported by actual measurements, are now on record. The highest tree previously known was a Kauri-Eucalyptus (Eucalyptus colossea), measured by Mr. Pemberton Walcott, in one of the delightful glens of the Warren River of Western Australia, where it rises to approximately 400 feet high. In the hollow trunk of this kauri, three riders, with an additional pack-horse, could enter and turn in it without dismounting. On the desire of the writer of these pages, Mr. D. Boyle measured a fallen tree of Eucalyptus amygdalina in the deep recesses of Dandenong, and obtained for it the length of 420 feet, with proportions of width indicated in a design of monumental structure placed in the exhibition: while Mr. G. Klein took the measurement of a Eucalyptus on the Black Spur, 10 miles distant from Healesville, 480 feet high. Mr. E. B. Heyne obtained at Dandenong as measurement of heights of a tree of Eucalyptus amygdalina—Length of stem from the base to the first branch, 295 feet; diameter of the stem at the first branch, 4 feet; length of stem from first branch to where its top portion was broken off, 70 feet; diameter of the stem where broken off, 3 feet; total length of stem up to place of fracture, 365 feet; girth of stem 3 feet from the surface, 41 feet. A still thicker tree measured, 3 feet from the base, 53 feet in circumference. Mr. George W. Robinson ascertained, in the back ranges of Berwick, the circumference of a tree of Eucalyptus amygdalina to be 81 feet, at a distance of 4 feet from the ground, and supposes this Eucalypt towards the sources of the Yarra and Latrobe Rivers to attain a height of half-a-thousand feet. The same gentleman found Fagus Cunninghami to gain a height of 200 feet, and a circumference of 23 feet. Nor is it at all likely that in these isolated inquiries chance has led to the really highest trees, which the most secluded and least accessible spots may still conceal. *Professor Müeller in "Seemann's Journal of Botany."*

Garden Operations.

(For the ensuing week.)

PLANT HOUSES.

Orchid-houses generally, no matter what the heat maintained within individual compartments may be, must, if future success is to be anticipated, have the temperature reduced to a proper winter range forthwith. The maximum degree of heat for some time to come should not in any case, with a suitable dry atmosphere, exceed 65°, and must be reached by a temperate and a properly studied downward gradation. Of course, whilst an excess of moisture remains within the house, whether as regards the balls of the plants or otherwise, a relatively high temperature must be continued, to insure a free and healthy evaporation. Those requiring the least amount of heat should have the lower extreme seldom below 55°. But with this a studied dry temperature must be maintained, with air in moderation upon all favourable occasions. Plants of other kinds that are approaching a flowering state, must in consequence receive that amount of attention of which they are so deserving. Among these may be classed the useful, but much neglected, old *Gesnera longiflora, Russellia juncea*, the many beautiful varieties of *Epiphyllum truncatum, Amaryllis aulica* (which will be flowering freely at this time), *formosissima* (*Sprekelia*), &c., together with a host of others, which space will not allow me to enumerate. Nor must the *Forcing-pit* be overlooked. The first requirement here is a thorough good cleansing of its every part, whitewashing, paint scrubbing, and if no hot water tank exists, filling with proper fermenting materials any sunken pit which it may contain. Be particular thus early to insure the best possible system of ventilation, compatible with the form of the structure; as a free supply of air, efficiently diffused throughout the house, is one of the chief points in successful forcing. I will assume, upon the strength of past suggestions, that the necessary *Bulbs* are to hand, potted, and placed under cinder ashes, cocoa-nut refuse, or the like. The only real attention which they will now need, therefore, will be in reference to the amount of moisture which they have received by means of superficial rains draining down upon them. Examine one or two of the pots containing these occasionally, therefore, and should they appear likely to become too much soddened, or, indeed, too wet to insure healthy rooting, some loose covering must be placed over them forthwith, removing it upon any dry days which ensue, in order to aid in drying them as quickly as possible.

FORCING HOUSES.

Do not exceed a day temperature of from 56° to 60°, with at night an average one of 51° in *late Vineries*. Start a little warmth in the heating apparatus early in the morning, which should be allowed to subside wholly by one o'clock in the afternoon. Pot vines about being started for the purposes of forcing must receive every assistance possible, in order to enable them, with the limited amount of root room at command, to fruit well. Much assistance might therefore be afforded them, if proper means be found, to give the pots, and hence the roots, a maximum of from 80° to 85° of bottom heat. Nothing is better for this purpose than sweetly fermented materials, whether in part, or as a whole. Plunged in such a heat the roots have a good chance of starting before any great demand exists above, and hence they are better prepared to bring the whole to a successful issue. Syringe the canes frequently, but do not allow the temperature to exceed—excepting through the direct influence of sun heat—an average of 57° for some little time to come. As regards *Pineries*, with a reduced temperature, somewhat in conformity with the amount of sunlight which we possess, see that too much moisture does not exist in the atmosphere with any, and especially young, successions. Use the syringe only occasionally, and then early in the day, but merely when it is anticipated that sufficient warmth will be afforded by the sun to cause a thorough evaporation of all the moisture thus expended. Pine pits, heated principally by external linings, should now have a covering of mats placed on at nightfall, removing them at daybreak the following morning. A little air should be given at the back, or upper parts of a few lights upon all proper occasions, and especially when the lights are thus matted over. And here I may refer to a matter of some importance, which perhaps concerns Pine pits more than other form of glass structure, and that is, the question of "fresh air." Modern houses in which large squares of glass are used, are far more air-tight than old many-squared forms could be; therefore it must be conceded that they need a greater supply of air, in a general way, than old-fashioned glass houses, a fact worth attention. Place all fruiting plants intended for early forcing under some sort of shelter from superficial rains forthwith—drying the soil contained in the ball being an absolute necessity, if the roots are to start freely when the plant is presently introduced into a warmer temperature.

HARDY FRUIT GARDEN.

While repeating my suggestion, that advantage should be taken of fine autumnal weather to proceed with all *Fruit Tree* planting, let me now add a short list of good varieties of fruit, which I give in order of fruiting, rather than any merit one variety has in excess of another. *Pears*, which are best grafted upon Quince stocks, commence with the earlier Williams' Bon Chrétien, September; Marie Louise, October, November; Winter Nelis, November to February; Josephine de Malines, November to February; Beurré Rance, February to May. *Apples*, cooking and dessert, both in one: Blenheim Orange, November to February; Dutch Mignonne, December to April; Ribston Pippin, November to March; London Pippin, from February, through March and April; Reinette du Canada will keep till May. They are all procurable, trained in different forms, at from 1*s.* to 2*s.* 6*d.* each. *Apricots:* Moor Park, dwarf-trained tree, 3*s.* 6*d.* to 5*s.* *Cherries:* Elton, July, August; Black Tartarian, ripe about the same time, or a little before, according to position, does well upon a north wall; Florence, August. All these may be had for some 1*s.* 6*d.* or 2*s.* 6*d.* *Nectarines:* Elruge, Violette Hâtive, and Pitmaston Orange (yellow-fleshed), August and September, 3*s.* 6*d.* to 5*s.* *Peaches:* Violette Hâtive, Royal George, Noblesse, Bellegarde, and Late Admirable; price same as Nectarines. *Plums:* Early Favourite, July; Drap d'Or, August; Angelina Burdett, September; Coe's Late Red, October to November. The above are "table" varieties. The following are useful for "cooking," and in some instances for both, viz., July, Greengage; Orleans, August; Coe's Golden Drop, September; Mitchelson's, October, November; price from 1*s.* 6*d.* to 7*s.* 6*d.*, according to form, &c. I have already given instructions as to preparation of borders. Give as much new soil (maiden loam from a pasture is best) as is practicable, mixing therewith about a fifth of its quantity of good sound manure. Of course, if little fresh soil only can be afforded, more of this latter will be needed to make up for it. This, and securing the necessary trees will suffice for this week: I hope to revert to the subject of actual planting next week.

HARDY FLOWER GARDEN.

Proceed with the necessary cleaning and re-arranging of beds, &c., for winter and early spring display, upon every fine and favourable occasion. Remove any vases under shelter which are not in themselves ornaments sufficient to be attractive without the aid of plants. Be cautious not to mow—either with the scythe or machine—Grass sward when the frost is upon it, or on days when such may be anticipated at night; as neglect in this wise may end in disfigurement through a greater part of the winter. Plant the necessary bulbs in all open borders at the earliest possible moment—the soil being sufficiently dry—finishing all such operations before the ground is likely to become saturated with moisture. Keep the besom constantly at work, not to allow decayed leaves too long a lodgment upon walks, and thus secure to the whole a neat and tidy appearance.

KITCHEN GARDEN.

Be prepared with sufficient material for covering any crop needing protection from frost, when such arrives in its severity. Fern, which ought now to be collected, is one of the best materials for the purpose. *W. E.*

STATE OF THE WEATHER AT CHISWICK,
During the last 41 years, for the ensuing Week, ending Nov. 2, 1867.

October and Nov.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain	Prevailing Winds.							
						N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday ..27	55.0	39.0	47.0	26	0.92 in.	2	7	3	1	7	8	7	6
Mon. ..28	54.5	36.0	45.3	25	1.03	4	7	3	—	7	13	3	4
Tues. ..29	53.7	35.3	44.5	19	0.63	4	8	4	1	5	16	1	2
Wed. ..30	55.0	38.0	46.5	21	0.98	3	8	4	3	6	14	2	1
Thurs. ..31	53.7	40.0	46.9	21	0.88	1	5	5	4	2	14	8	4
Friday .. 1	54.0	37.9	45.9	24	0.58	3	2	6	3	4	9	11	3
Satur. .. 2	54.3	37.6	46.0	19	0.61	1	4	6	3	2	16	3	6

The highest temperature during the above period occurred on the 2d, 1857—therm. 64 deg.; and the lowest on the 1st, 1868—therm. 22 deg.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the Week ending Oct. 23, 1867, as observed at the Horticultural Gardens.

October.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Of the Air. Min.	Of the Air. Mean	Of the Earth 1 foot deep.	Of the Earth 2 feet deep.	Wind	Rain.
Thurs. 17	20	29.705	29.686	62	41	51.5	50	52	S.	.04
Friday 18	21	29.710	29.665	61	36	48.5	50	52	S.W.	.08
Satur. 19	22	29.679	29.648	58	32	45.0	50	52	S.W.	.01
Sunday 20	☾	29.988	29.812	60	30	45.0	54	53	S.	.00
Mon. 21	24	30.040	30.101	58	31	44.5	53	53	S.W.	.00
Tues. 22	25	30.177	30.128	62	50	56.0	53	53	S.	.00
Wed. 23	26	30.044	29.859	57	45	51.0	53	53	S.E.	.00
Average		29.905	29.843	59.7	37.8	48.7	51.8	51.1		0.13

Oct. 17—Clear; fine; masses of white clouds; rain; clear.
— 18—Clear; clear and fine; rain; clear at night.
— 19—Overcast; fine; overcast; low fog; clear.
— 20—Foggy; very heavy dew; clear and very fine; clear.
— 21—Overcast; cloudy; overcast at night.
— 22—Overcast; cloudy; fine; clear at night.
— 23—Overcast and damp; clear and very fine; bright sun; overcast.

Mean temperature of the week, 1 deg. below the average.

Notices to Correspondents.

ADIANTUM CAPILLUS-VENERIS: *G H.* As a matter of fact, this Fern is an exotic as well as a native, and as a consequence the exotic forms would be admissible in a class of Exotic Ferns at an exhibition. The large form sometimes called Moritzianum may be instanced; this is not British, and is fairly classed amongst exotics. Such nice distinctions are better avoided where possible, as they very frequently give rise to disputes. Of course a British plant of Adiantum could not be accounted exotic.

AUCUBAS: *R H.* Plants in flower, or nearly so, now are not likely to bloom again in spring. The growth must have been made and matured very early. The pollen from the male plant now in bloom, if collected and kept dry, may be effectually used when the other comes into blossom.

BARBERRY BERRIES: *W Henderson.* We know of no ready means of preventing the shrivelling of the berries on twigs of the Barberry and the Snowberry, cut from the bushes, except they could be dipped while quite plump in some transparent glaze. Have any of our readers tried such a plan?

BOOKS: *J D.* There is no work in English that will exactly suit your requirements; but Loudon's "Encyclopædia of Plants," and Lindley and Moore's "Treasury of Botany" may be useful to you.—*Foreman.* We have never seen the book about which you inquire. Cuthill's small treatise on Market Gardening may be recommended.

DOUCIN STOCK: *B.* This is a variety of the Paradise stock, much more vigorous than it, but still not so free in England as the English Paradise.

FUCHSIAS: *W Bull.* The varieties are pretty and nicely varied. That called Innocence, with white tube and sepals, and carmine corolla tinted with violet, seems an improvement on the light-coloured kinds which are generally seen; and Marksman is a double scarlet and purple, with a peculiarly dumpy-shaped flower.—*H Cannell.* The blooms sent were remarkably fine, some of them magnificent, especially the dark flowers. The white-tubed sorts are now most in need of improvement. The beautiful varieties with white corollas seem to be ignored in this selection, which is somewhat surprising, as they admit yet of much improvement, which careful breeding, such as has evidently been bestowed upon those with purple corollas, would not fail to effect.

ITALIAN GARDENING: *A B* will feel obliged by some of our correspondents informing him whether or not there is a handbook on Italian gardening, with designs for flower beds in that style, or in the Dutch stiff style?

LILY OF THE VALLEY: *H D.* Transplant in moderate-sized patches into rich loamy soil in a shady situation. The deficiency of flowers arises partly from exhaustion and overcrowding, and partly from exposure. They may be planted at any time in open weather during the winter.

MICROSCOPES: *A Young Gardener.* We cannot advise you to purchase a microscope at the cost you mention. Such an instrument would be a mere toy, and a costly one. For three guineas a good working instrument may be procured; but we advise you to become thoroughly experienced in using a good pocket lens, which may be had for a few shillings, and which will be more useful to you at first than any compound microscope.

MR. METHVEN'S NURSERY.—Mr. Methven writes to say that instead of "the forest tree department not being very large" (see p. 1076), "next to the Messrs. Lawson, he is the largest forest tree grower in Scotland, having 65 acres of ground covered with trees of all sizes." *J A.*

NAMES OF FRUITS: *H, Lodge, Barnwood.* Apples: 1, Early Nonpareil; 2, Scarlet Crofton; 3, Golden Noble; 4, King of the Pippins; 5, Court of Wick. Pears: 11, Gansel's Bergamot; 12, Glou Morceau; 13, Chaumontel; 14, Gansel's Bergamot; 16, Easter Beurré.—*D W, Denmark Hill.* 1, Eyewood; 2, Glou Morceau; 3, Northern Greening; 4, Dumelow's Seedling.

NAMES OF PLANTS: *J C, Shadwell.* 1, Cyrtomium falcatum; 2, Doodia media.—*G P, Chislehurst.* Probably Promenæa Rollissoni—that is, if it comes from Brazil. Persons who want their Orchids named should give habit and habitat.—*D Frost.* The Crested Fern is not a Cystopteris, but a seedling of some of the varieties of Lady Fern.—*W Bull.* Gaillardia aristata, a large-flowered variety, similar to others in cultivation.—*Savernake.* Your Fungus is a young Phallus fœtidus in the egg state. *M J B.*

PALM NUT MEAL: *Anon.* Probably this consists of the ground nuts of the African Oil Palm, Elæis guineensis.

PEAR FUNGUS: *W.* Your Pear leaves are infested with a Fungus, Rœstelia cancellata. Collect all the infected leaves and burn them. *M J B.*

PELARGONIUM TRUSSES: *E W Jackson, Bedale.* Your truss, 5 inches in diameter and about 14½ inches in circumference, must be a good one; but we think we have seen some equally large in the neighbourhood of London.

RICINUS SANGUINEA: *Orlando.* The Castor Oil plant not being an annual, but a small tree, may be kept through the winter if placed in a house sufficiently warm. In an ordinary greenhouse it would be liable to damp, but it ought to survive in a dry, warm greenhouse. In a stove it will grow on without giving the least trouble. Sensitive plants are also of a shrubby character, and may be kept through the winter, but as a rule they grow more vigorously when raised from seeds every year, and treated as annuals.

VINE GROWING AT GARSTON: *Amateur, Leeds.* You will find the remarks on this subject to which you allude at p. 511 of our Number for June 3, 1865.

VIOLETS: *No Name.* The Violets are gouty with a parasitic Fungus Polycystis Violæ. *M J B.*

WALKS: *W P* will find full instructions for making walks of various materials, in Nos. 50 and 51 of our last year's volume. See also an article headed "Grog," in No. 42 of the same volume. Asphalte walks, as they are called, made with coal tar, would suit the conditions mentioned, if the colour is not objectionable.

COMMUNICATIONS RECEIVED: W. Smythe.—A. B.—Poor Countryman.—G. M.—B.—G. Lee.—J. Jackson.—Ignoramus.—Euclid.—J. H. Mason.—J. P.—Ariel.—J. J.—W. R.

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THE LONDON MANURE COMPANY
(Established 1840)
Have now ready for delivery in dry fine condition,
CORN MANURE, for Spring Use
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SUPERPHOSPHATES of LIME
PREPARED GUANO
MANGEL and POTATO MANURES.

Also Genuine PERUVIAN GUANO, and NITRATE of SODA, ex Dock Warehouse ; SULPHATE of AMMONIA, FISHERY SALT, &c.
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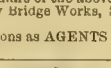
Look to your Grass Lands, &c.
Established 1820.

MESSRS. JARED T. HUNT and SONS beg to inform their numerous Agricultural Friends and Customers, that they have now on hand, in the finest condition, their usual Autumn Stock of
AMMONIACAL CORN MANURE,
which has, for several years, given such general satisfaction.

They have also always on hand, ready for immediate delivery, the largest stock of CRUSHED BONES of any firm in the United Kingdom, viz. :—In ½-inch BONES ; ¼-inch BONES ; PULVERIZED BONES for Grass Lands ; prepared BONES for Grape Vines and Hops ; also BLOOD MANURE, SUPERPHOSPHATE of LIME, PERUVIAN GUANO, and NITRATE of SODA, direct from the Docks.

Prices and other particulars of the above, at their Works, Lambeth Wharf, London, S. ; Bow Bridge Works, Stratford, E. ; and Downham Market, Norfolk.

N.B.—Responsible Persons as AGENTS WANTED in districts not yet represented.

Wheat  Sowing.

DOWN'S FARMER'S FRIEND, for Preventing the Smut in Wheat, and the Ravages of the Slug, Grub, and Wireworm. A 9d. packet is sufficient for Six Bushels of Seed Wheat, which can be dressed and fit to sow in a quarter of an hour.

Testimonials from the largest Wheat Growers in the Kingdom, bearing testimony to its great power and efficacy, may be had of Agents, who are appointed for every district.

Full directions for use are given with each packet.

Prepared at the Manufactory, Woburn, Beds.

Caution.—To guard against fraudulent imitation and consequent disappointment, see that the signature of Henry Down is on the label.

Agents in every Town throughout England, Scotland, and Ireland.

George Hall, late Manager to the late Saynors' Firm.
He was for 30 Years in their Employ

GEO. HALL and SON'S Celebrated PRUNING and BUDDING KNIVES, SCISSORS, &c., may be obtained from the most respectable Nurserymen and Seed Merchants in the kingdom, also America, France, Germany, Holland, Prussia, Russia, &c.

N.B.—We only make one quality, the best that can be manufactured, the same as the late Saynors always made during their lifetime, with all the latest improvemets.

Caution.—None are genuine unless marked "Geo. Hall & Son." Other marks would cause disappointment, as these blades are tempered by a process known only to the Makers

Engravings of Patterns, with Price Lists gratis, on application.
Horticultural Cutlery Works, Sheffield.

FOWLER'S PATENT STEAM PLOUGH and CULTIVATOR may be SEEN at WORK in every Agricultural County in England.

For particulars apply to John Fowler & Co., 71, Cornhill, London, E.C. ; and Steam Plough Works, Leeds.

THE TANNED LEATHER COMPANY.
Armit Works, Greenfield, near Manchester.
TANNERS, CURRIERS, & MANUFACTURERS of IMPROVED TANNED LEATHER DRIVING STRAPS for MACHINERY.
PRIME STRAP and SOLE BUTTS.
Price Lists sent free by post.
Warehouse : 81, Mark Lane, London, E.C.
Mr. H. Ferrabee, Agent.

ROYAL AGRICULTURAL BENEVOLENT INSTITUTION.
Patron—Her Majesty the Queen.
President—His Grace the Duke of Richmond.

For the RELIEF of DECAYED FARMERS, their WIDOWS and ORPHAN DAUGHTERS ; and for the MAINTENANCE and EDUCATION of their ORPHAN CHILDREN.

Allowance to Pensioners.
Married .. £40 per annum | Male .. £26 per annum
Widow and Unmarried Orphan Daughters .. £20 per annum

Orphan Children admitted from 7 to 10 years of age, and wholly maintained and educated until the age of 14 years in the case of Boys, and 16 years in the case of Girls.

One Hundred and Five Pensioners have already been placed on the books of the Institution ; and in addition to the number of Pensioners to be admitted at the next Election, the Council have decided to Elect Ten Orphan Children.

Forms of Application for Pensioners and Children, and every information, to be obtained of the Secretary, by whom Donations and Subscriptions will be thankfully received.

55, Charing Cross, London, S.W. Charles Shaw, Secretary.

THE NATIONAL DOG SHOW at BIRMINGHAM. —The EIGHTH GREAT ANNUAL EXHIBITION will be held in the CURZON EXHIBITION HALL, BIRMINGHAM, on MONDAY, TUESDAY, WEDNESDAY, and THURSDAY, the 2d, 3d, 4th, and 5th of December next.

Prize Lists and Regulations may be obtained from the Secretary, Mr. G. Beech, 41, Temple Row, Birmingham.

PRIZES amounting to EIGHT HUNDRED POUNDS will be awarded. The ENTRIES CLOSE on FRIDAY NEXT, Nov. 1.

THE BIRMINGHAM CATTLE and POULTRY SHOW, 1867,

The NINETEENTH GREAT ANNUAL EXHIBITION of FAT CATTLE, SHEEP, PIGS, DOMESTIC POULTRY, CORN, ROOTS, and IMPLEMENTS, will be held in BINGLEY HALL, on SATURDAY, MONDAY, TUESDAY, WEDNESDAY, and THURSDAY, November 30, and December 2, 3, 4, and 5, when PRIZES to the amount of £2100 will be awarded in the following Divisions, viz. :—

FAT CATTLE ..	£812 15 0	BREEDING PIGS ..	£76 10 0
FAT SHEEP ..	314 5 0	ROOTS and CORN ..	67 4 0
FAT PIGS	59 5 0	POULTRY & PIGEONS	755 9 0

Prize Lists, Certificates of Entry, and every information may be obtained from the Secretary.

The ENTRIES CLOSE on FRIDAY, November 1.
John B. Lythall, Secretary.
Offices, 39, New Street, Birmingham.

SMITHFIELD CLUB FAT CATTLE SHOW.—The ANNUAL SHOW of FAT CATTLE, SHEEP, and PIGS, will be held at the AGRICULTURAL HALL, ISLINGTON, on MONDAY afternoon, December 9, and Four following Days.

Intending Exhibitors are requested to apply for Certificate Forms by the reference letters as under.

CATTLE.—Form A. For an OX or STEER (in any Class).
" B. For a COW or HEIFER (in any Class).
" C. For a BEAST in Extra Stock.
SHEEP. " D. For a PEN of 3 WETHERS (in any Class).
" E. For a SINGLE SHEEP in Extra Stock.
PIGS. " F. For a PEN of 3 PIGS (in any Class).
" G. For a SINGLE PIG in Extra Stock.

ENTRIES for LIVE STOCK CLOSE NOVEMBER 1.

Prize Lists, Forms of Certificates, and all information, may be obtained on application to Mr. David Pullen, Assistant Secretary, at the Office of the Honorary Secretary, corner of Half-Moon Street, Piccadilly, London, W.

N.B. All communications respecting the Show must be addressed to the Assistant Secretary, as above, and should bear outside the words "Smithfield Show."

The Agricultural Gazette.

SATURDAY, OCTOBER 26, 1867.

THE volume of the English Agricultural Society's Journal for 1867 is distinguished mainly by the valuable collection of facts on recent steam cultivation which appeared in its first Part. The remainder of the volume just issued, though containing a variety of interesting papers, is not remarkable for the striking merit of any of them. Mr. CADLE'S account of the agriculture of Worcestershire is a meagre and apparently an imperfect report : and the paper on Town Sewage which follows it, though containing a full and elaborate discussion of the existing publications on the subject, does not relate the experience of the current year, which is even more important than any that has gone before. On the other hand, Mr. LITT'S Prize Essay on Certain Diseases of Sheep is a model of simple, modest style, and a full and explicit account of its subject ; and Dr. VOELCKER'S papers on Root Crop Experiments and on Anthyllis, are, as usual, full of trustworthy information. There are two papers on Poultry—one a Prize Essay, by Mrs. SOMERVILLE ; the other on Feeding Turkeys and Geese for London, by W. H. DIXON. Professor WILSON'S Blue-book on the Danish Exhibition furnishes the material of a useful picture of Danish agriculture. There is an elaborate account of experiments on the Potato crop, extending over no fewer than 129 trial plots, by Mr. G. MAW, member of the Royal Agricultural College. Mr. G. MURRAY gives a capital account of the improved value of Scottish sheep. Mr. HERBERT contributes his usual statistical account of the live stock and dead meat for consumption in the metropolis. The Reports of the Bury Show-yard, and those of the past season's Discussions in the Society's rooms, complete the volume.

Confining ourselves to the Bury Show-yard reports, we have first a collection of short sentences, occupying six very readable pages, by the senior and retiring steward of the implement department, in which the experience of the office during a term of three years is left on record for the help and guidance of successors. Brimming over with humour, full of practical suggestion, and evidently inspired by the heartiest good will, Lord CATHCART characteristically concludes this preliminary statement as follows :—

"My task is finished; only I would add two or three sentences, not by way of empty compliment, but to express a hearty feeling. For our great Society my wish is, may it ever be said 'Age cannot wither her, nor custom stale her infinite variety.' Of the honorary directory, need I say, I concur in the general feeling—one of unqualified respect. The judges, they who bear the heat and burden of the day, their disinterested labours command our appreciation and deserve our thanks. I can see an eminent engineer judge, rain on one side, fire on the other, yet all day wearing an expression of pleasant humour, as though reflecting on 'Man born unto trouble as the sparks fly upward.' To my friendly colleagues, one and all, I am indebted for many agreeable and profitable hours : may I say, and trust the feeling is mutual, should old acquaintance be forgot? I do think a great charm of our meetings is, that they so tend to blend the sympathies of those whose best interests are really identical."

Then follows Mr. COLEMAN'S general account of the Implement Yard, in which the special reports of the several judges are presented to the reader in a useful and well-written setting, which helps to maintain the continuity of the story, and its relation to the implement show as a whole. Notwithstanding the large quantity of useful information which is here conveyed, it would be easy to pick out points on which questions, hard, we think, to answer, might be asked. For example : How is it that only 100 out of 400 marks of merit given to a threshing machine, are allotted to perfection in the act of threshing—so that positively a machine receiving only 50 of them—*i. e.*, as ordinary readers might read it, taking out only 50 per cent. of the corn—might, by its superiority in shaking and cleaning what corn it did get out, beat another which threshed perfectly but did not clean its corn so well? And, in fact, something like an error of this kind appears to have been committed. The threshing machine taking the first prize in a very heavy competition, earned only 90 of its 100 marks for threshing, but seems to have been perfect in all other respects. The second-prize machine was perfect as a thresher, but lost 20 for not perfectly freeing its chaff from seeds! The first-prize implement left some of its corn in the straw, but beat another machine because *it* left some seeds of weeds in its chaff! The second-prize implement left none of its corn in the straw—did not leave any anywhere else that we can see; its straw, threshed perfectly, was clean shaken (it got full marks there)—the cavings, too, were free of corn—the chaff was free of corn—but then the chaff was not itself well cleaned! Twenty marks, it appears, are allotted for the chaff being well cleaned from cavings, and 20 other marks for the chaff being kept free from seeds ; and so Messrs. CLAYTON & SHUTTLEWORTH, who seem to have thought the corn more deserving of their attention than the chaff, were placed second ; and Messrs. HOLMES, who by their threshing machine won only 90 per cent. of the marks allotted for perfection in the act of threshing, were placed first. The award needs further explanation, and we do not agree with the judges when they say that the tables from which we have quoted "sufficiently explain their reasons for the decision."

Another point deserves especial notice :—One of the most elaborate investigations carried on at Bury under the most competent superintendence —one of the most important, too, in the interests of English agriculture of any which the Society directs—was that of the steam engines, fixed and portable, which competed for the prizes triennially offered in that class. Of this class the engineering papers of the week in which the Society's show was held contained elaborate and full reports. Of the same class the Society's own Journal, published three months' after date, announces merely that "the judges' report has not yet been received (Oct. 3)." It is plain that many of our best authorities as judges, both in the implement and live-stock yards, find the literary work attaching to their office infinitely more irksome and laborious than any other. And so glaring an illustration as this, combined with the extremely meagre and imperfect reports from the judges of the various classes of live stock—which Mr. RANDELL has had enough to do to

piece together in the very well written account he has given of his department—must prove to the Council the need of some other arrangement for the benefit of those who cannot be present in the yard to judge for themselves. It would contribute to improvement here if the second part of the year's volume were always published in August, so as to enforce an immediate discharge of the reporter's duty, for that alone would ensure the work being better done.

And it is also desirable that as many competent reporters be in attendance on the judges as shall ensure at once an accurate record of all that is seen and done during the week, and a prompt and well written justification of every decision that is arrived at. There is no reason why such a report and justification should not appear in the yard itself, with the prize sheet, the very day after the trials: and how much more valuable and instructive that prize sheet would then be to both implement makers and their customers every one must admit.

Lord CATHCART says that "the agricultural and engineering press is able, and 'by evil report and good report' when construed together much may be learned." Perhaps his lordship is right, if by including 'evil report' he contends that any report is better than none at all. Any how we believe that from the members of the agricultural and engineering press men may be selected perfectly able to draw up fuller, prompter, and better reports than, as a general rule, are now supplied by the Society to those of its members who, unable to attend the annual meeting, would be glad to have the best substitute as soon as possible for the advantages of personal inspection which they have lost.

—— READERS may like to be reminded that November 1st is the last day on which the Honorary Secretary of the Smithfield Club can receive entries of live stock for the coming Show. Application, therefore, should at once be made for the necessary forms at his office, corner of Half Moon Street, Piccadilly, W.

—— A Council Meeting of the Central Chamber will be held at the Salisbury Hotel, Fleet Street, at 11 A.M., on Tuesday, November 5th, 1867, to consider the injury to the home cattle trade, caused by the operation of the Order in Council of August 20th, 1867, and the impolicy of admitting foreign animals into the same market with home-bred animals, and proposed legislation thereupon; also to consider what steps shall be taken by the Chamber with regard to the Malt Tax.

—— During the six weeks ending the 19th October, no case of cattle plague has been reported from any part of England, Wales, or Scotland. The total number of cattle reported to have been attacked in Great Britain since the commencement of the plague is 278,927; and 56,911 healthy cattle have been slaughtered to prevent the spread of the disease.

—— Mr. EVAN DAVIES, of Wenlock, at a recent meeting of the Wenlock Farmers' Club, claimed as among the results of the establishment of that Club many of the agricultural improvements of the locality during the previous twenty years. The increase of forage for wintering stock—the cultivation and storing of the root crops—the growing and harvesting of hay—the economising and better application of straw—the most economical mode of feeding the stock—the economising of labour, both manual and horse—all these subjects had been discussed. As a result especially of the last-named discussion, Mr. DAVIES now can say:—"Even on our strongest clay farms the two-horse plough prevails, and the improvement in other farm implements followed in rapid succession. With these improved appliances and willing minds on the part of our farmers, coupled with the assistance of the landlords in draining, &c., the improvement in the management and cultivation of the arable land made most rapid progress, and in a short time became all that could be desired. Instead of bare fallows, magnificent root crops covered the district, in some instances reaching 40 tons of Swedes to the acre. These being all well and systematically stored, made stock-keepers almost independent of the pitiless pelting of the storm in the winter months. But this large increase of winter forage suggested and necessitated the increase and improvement of live stock; and these questions occupied the attention of our Club, and in no part of our proceedings were our discussions fraught with more signal success. The young cattle stock, instead of being sent away in the winter to enrich other farms, are now cared for at home; and whereas, heretofore, the steers were sold at three-years-old, in store condition, at prices varying from 12*l.* to 15*l.* each, they are now fattened by the breeder, and sold, a little over two-years-old, at prices varying from 20*l.* to 25*l.* each, some of our crack farmers considerably exceeding the latter sum. But in no description of stock has the improvement been more satisfactory than in that of sheep. Shearlings that were formerly sold out of this district in October, at from 20*s.* to 30*s.* each, to be fattened by farmers in the more favoured part of the county, are now fattened at home for the London and Manchester markets, realising in May and June 2*l.* to 3*l.* each. And this fact is not to be wondered at, when our list of members is referred to. First and foremost in this line stands the venerated SAM MEIRE, to whose skill and perseverance Shropshire is indebted for its world-wide fame for sheep. The breeder and owner of "Buckskin" and "Patentee" was, during his lifetime, a constant attendant at our meetings, with HENRY SMITH, THOMAS HORTON, and others whose names have ever been conspicuous in the prize list at all agricultural shows; and the committee of the Wenlock Farmers' Club take credit to themselves for having succeeded in collecting such men around them, who were ever ready to impart to our members the information necessary to ensure the improvement and good management of their flocks. These questions having been discussed, and the objects of the discussions fully realised, the increased value and quantity of stock required increased care and appliances. Consequently the Club took up the question of enlarged and improved farmsteads, and —to their honour be it spoken—the landlords were not slack in complying with the result of our discussions. Assuredly, in no part of the county did the improvements in the home of the farmer and his stock make more rapid strides than in the Club district, and that, too, long before the necessity for these things was acknowledged by others. The next object of the Club was to inquire into the condition of the agricultural labourer. The cottages then in existence were very few and of miserable construction, and an earnest appeal was made to the landlords on this question, and not made in vain. All these questions of domestic policy having been disposed of, matters of higher import were attended to. A prize of 10*l.* was given for the best essay on tenant-right, a question then much agitating the minds of agriculturists, and our prize essay is a standard work with all those who wish to pursue this subject. 10*l.* was then offered for the best farm agreement, but this was not so successful as the former; still the discussions which took place on the questions without doubt tended to greater liberality in farm covenants. Our discussions on the equalisation of weights and measures called forth some complimentary correspondence from the then chairman of quarter sessions; and such was the position of the Club that the committee were on several occasions solicited to send some of our members to give evidence before committees of the House of Commons on questions of agriculture. Suffice it to say that, in addition to the discussions of our own members, several eminent gentlemen have honoured our proceedings by reading papers before us —Nesbit, Voelcker, Newham, Whitmore, Mechi, Coleman. These and several others brought before our members their mature knowledge upon questions which, had it not been for the Wenlock Farmers' Club, in all probability would not have been heard of by the generality of the farmers in our isolated district; but which, like the silent leaven in the meal, has worked changes amongst us which, but for the means used, must have been a work of considerable time, if ever accomplished." Assuredly this is the picture of a most useful career. And Mr. EVAN DAVIES may be congratulated on the valuable services which, through the institution which he helped to found, have been rendered to his county.

—— Mr. C. S. READ, M.P., reports to the Lord President of the Council a resolution adopted by the Cattle Plague Association of Norfolk, of which he is President:—"That this Association having laboured with great diligence and much success to carry out the various orders of the Privy Council, observe with much concern that the assurances given on the part of her Majesty's Government that all foreign stock should be slaughtered within certain defined parts of the port of debarcation, have only been partially carried into effect, and they would respectfully urge the great importance of immediately confining foreign stock imported into the metropolis to a river-side market, which, in the opinion of this Association, would enable the present restrictive regulations upon the movement of home cattle to be entirely abolished." Mr. READ informs the Duke of MARLBOROUGH that more than two months ago Lord ROBERT MONTAGU, in answer to a question put to him in the House of Commons, promised that the licence for landing foreign stock at Thames Haven should be cancelled. The Harwich and Southampton Orders were revoked on the 19th of August. Why does Thames Haven still remain open?—A correspondence ensued with Dr. WILLIAMS, of the Veterinary Department, and was closed with the following letter from Mr. READ:—

"Oct. 19, 1867.

"SIR,—It appears from your letter of yesterday's date that foreign sheep can be landed at any port in Great Britain. Inspection is no safeguard against cattle plague or small pox, and, except in those parts where foreign stock are regularly landed, is a complete farce. In very many small sea-ports there is no veterinary surveyor within miles of the town. It does seem monstrous that the Privy Council should persist in maintaining all the restrictions upon home cattle, so that no farmer can move his stock from one end of his farm to the other without a licence, and yet allow foreign sheep to be imported anywhere, and be driven through the whole country. Your own veterinary inspectors tell us that sheep are the subjects of cattle plague, and all agree that they can be and have been the means of spreading it, even if they don't take it. Foreign sheep certainly have often brought us small pox, and they are very seldom free from scab. This Order is, however, only another illustration of the way in which the Privy Council defends the herds and flocks of Great Britain from foreign diseases, and fully illustrates their favourite policy of providing cheap food for the people! "Yours, &c.,

"Dr. Williams." "CLARE SEWELL READ."

THE PROPER SEEDING OF WHEAT.

I NOW redeem my promise to show the *modus operandi* by which I cultivated my land, so as in 17 years to have in one field 14 crops of Wheat, one of Barley, and a crop of Clover. The seed for the Wheat crops varied from ½ a peck to 2 pecks an acre, but mostly the last quantity, or 2 pecks; that for the Barley was 2 pecks, and for the Clover crop comparatively small, but I cannot tell exactly how much an acre.

The Wheat crops averaged for the 14 years of Wheat 44 bushels an acre, and one year (1847) the crop was 55 bushels an acre; and I had in that year in another field a crop of Barley, 63 bushels an acre. Should my readers be sceptical about these statements, I inform them that I always got as many witnesses as I could to see my seed put into the ground, and also to see the crops threshed and measured; and I inform them that after my heaviest crop of Wheat was threshed, as it was by machinery, and measured, several sceptical farmers came and saw the corn in sacks, and employed a land-measurer also to measure the land for them. On the largest crop of Barley I had, a wager was depending, and hence both the parties were present when the crop was measured; it wanted but one bushel of being 8 quarters an acre, and the corn was so fine that the maltster who bought it said it was the best Barley he had ever seen, and in consequence he should not malt it but send it to his son, who was a farmer, for seed, and he gave the highest market price for it. I will also add that my Wheat was always of the best quality and sold at the highest market price; and I state this emphatically, because old-fashioned farmers have a notion that thin-seeded corn always produces coarse-grained crops. From my experience such is not the case when the land is in a high state of cultivation, so as to keep the plants continually on the growth; the land should be free from stagnant water, otherwise, from causes I will explain hereafter, very thinly seeded corn is apt to produce thin and troughy grain and mildewed crops, and especially when the land is not well drained.

It is to avoid such evils as these that I publish my mode, and I do so the more willingly and carefully because two clergymen have written to me on the subject in reference to cultivating their glebes. To begin, then. Exactly 30 years back, I took in my parish of a very old man a little land to hold until a nephew of his came of age, which would be in 17 years. The land was naturally good corn land, but it was very foul, full of Couch-grass and other weeds. The fields (two only in number) were surrounded by high and broad earth mounds, called hedges, and on these grew very many old Pollard trees, bushes, and all kinds of rubbish; both the fields also were naturally wet, but one more so than the other. Such was the state of my small farm at Michaelmas, 1837, when I became the tenant of it.

What then was my *modus operandi?* My friends, listen, and I will inform you. I set to in earnest grubbing up the hedges and the old Pollard trees, and cleaning out and deepening the ditches, and carting all the earth from the ditches and the hedges to make heaps at the bottom of the fields, where they lay with an admixture of chalk and salt, being frequently turned over for the first year, and some so lay for two years. But besides all this I sunk some drains where the land was wettest, but as drain pipes were not then come into use, at least not in this part of the country, I used picked stones and shingles from the seashore in lieu—covering them over with the brambles and bushes cut up on purpose, which I got from the grubbed up hedge-rows; and I will just here observe, that the drains so made work now as well as they did when first made, though I afterwards added to them other drains made with drain pipes, increasing the size of these as they were laid from the top to the bottom of the fields—those at the top being about 1-inch bore, and as they approached the bottom about four times that capacity This, I have no doubt, is the proper way of making drains—namely, to gradually increase the size of pipes from the top to the bottom of the field to be drained, or the accumulation of the drain water, as it descends the pipes, will, as I have often observed, burst the pipes, which have not sufficient capacity for getting rid of the water as it descends, and thus by over-flooding the land do much more harm than good. To avoid this, therefore, I increased the capacity of the pipes, as I have said, as the drains descended from the top to the bottom of my fields; and I earnestly advise all my friends to do the same, and especially where the land contains much stagnant water. Whilst thus proceeding I did not neglect the cultivation of my land, but, on the contrary, I ploughed it during the first autumn and following spring and summer 11 times, going as deep as I possibly could; and I kept the roll, scarifier, and harrows going between the ploughings all the time, getting out the Couch-grass and pulverising the soil ready to receive the 2 pecks of seed per acre, which I put in in the following autumn; and as perhaps my readers will like to know what shifts I was put to, and what oppositions I met with in my attempts to put in so small a quantity of seed, I will here give them a brief narrative of them. First, I engaged one of my labouring parishioners to dibble in my seed grain by grain in rows 12 inches asunder, and to be 9 inches in the rows from seed to seed. Such was my agreement, but the man on commencing, instead of dropping one seed or two at the most at a time, dropped on an average six or eight or more; and so, on discovering that, I called him to account for having broken his bargain, which was to drop but one seed at a time. On which the man turned restive, so much so that I determined to stop his proceeding, and I said to him, "Woolege," which was his name, "you shall give up dibbling Wheat for me, but as I want some Broad Beans to be planted, you shall dibble them:" and so away we went to the bottom of the field, where was the plot intended for the Beans, and the man commenced dibbling and dropping into the holes single Beans. I said, "Why do you not drop in six or eight or more into each hole?" when the fellow became saucy again; he had never heard of such a thing as dropping six or eight Beans, nor, indeed, had I. I wanted to show to him that it was not more absurd to drop six or eight or more Broad Beans in a hole than it was to drop so many seeds of Wheat or Barley or Oats in a hole, but I failed to succeed,

and so I dismissed my man altogether. On that I applied to a farmer, who put in seed corn with his drill at so much an acre, and I asked him if with his drill he could put in so little seed as just half a bushel an acre, and he replied that he could; so he brought his drill to my field and set to work. I at once saw that he was putting the seed in at the rate of four times the quantity I had agreed he should, and so I stopped him from proceeding; he and his men began to exhibit their tempers as my dibbler had done, but as the drill was in the field, I determined to persevere, and so I took and kneaded some clay, and with it filled up all the cups of the drill. This being done I made a small indention into the clay of each cup with my finger, and then took out half the coulters of the drill, so as to make six rows only instead of 11 at a sweep, which the drill had made before, and in this way I set the drill going again. But now another difficulty arose, my seed all stuck to the wet clay in the cups, and so drilled no seed at all. As I never go through the farce of wetting my seed and then drying it again with lime, as the custom is, to prevent smut, my seed all stuck to the wet clay, and then the laugh was against me again; but to remedy this, some lime being at hand, I mixed some of it with the seed, and that being done the cups took up and dropped the seeds just as I had wished them to do; and thus, by making a little more alteration in the indentions of the clay in the cup, exactly two pecks of seed per acre were drilled, and this came up a full plant, and, the land being in fine tilth, the crop, by my assisting it by horse and hand hoeing, became very fine and luxuriant. The same farmer who drilled the field threshed the crop with his machine whilst it was in the field, and it afterwards was dressed and measured also in the field: the yield was upwards of six quarters an acre. That farmer has left my parish now for several years, nor have I seen him for some length of time, but his name is Barber; he resides in or near Colchester, and doubtless would confirm all I have stated he did for me, and the quantity of my seed, and the yield of my crop, were he applied to. After that, on finding the difficulty of getting my seed drilled, I invented and made a drill for myself, which puts in seed by seed just as much as I please—from three or four quarts an acre to so many bushels, were I insane enough to use so much.

I fear I have now trespassed upon your space too much, but I may another week write to you again.

In conclusion, I will ask those of my readers, and especially my clerical ones, why I should have used more seed for given quantities of land than I use?—my crops being always good, some it is true better than others (I never had a bad crop), and further, my land, after 14 years of successive cropping with Wheat, was in better condition by far than it was when I first became the tenant of it, as was proved by the admirable crop of Barley, and then the largest crop of Clover I ever saw grow, which followed the Wheat. And another thing, I think, should not be lost sight of, namely, at the end of my lease (as I in former letters have stated) the land, though copyhold, was sold for full 120*l.* an acre, full double the price that any land has been sold for in my parish before that time or since, so high was the estimation of the land raised by the system I adopted for the cultivation of it. But I warn my clerical brethren, who have applied to me for my *modus operandi*, not to expect the like success unless like me they not only superintend every operation on their lands themselves, but lend a hand in it also. For example, they must not say to their men, cultivate the lands in such a manner, but they must see the work done. They must not only say their lands shall be cultivated to such a depth, but they must follow the plough rule in hand, and measure the depths, and that not once in a way, but often enough to make themselves sure that the depths have been regularly obtained. Nor must they send their men into their fields and tell them to put in so much seed only—say, for example, two pecks an acre,—but they must superintend the whole seeding, or three or four times or more will be put in than was ordered, or in some places three or four times more will be put in than in others. But perhaps my friends will say they have not time for all this; but if such be their excuse, I reply, get up two or three hours sooner in the morning, and then they will have enough and some to spare. *Geo. Wilkins, The Parsonage, Oct.* 10.

P.S. In my next I will show why thin-seeded cereals are sometimes much injured by mildew; I will also show why Bean and Pea crops are so often greatly injured or ruined as they are, and how these evils may be prevented by cultivation.

STEAM PLOUGHING IN FRANCE.

Very much more in its full bearing than a mere ploughing match is the event we have to describe at Evry-sur-Seine. It must be thoroughly understood that the trials which have just taken place are a result emanating from, but in no way a part of, the Paris Exhibition; they are, indeed, the first independent effort of their own, by French farmers and proprietors, to substitute a higher and more intellectual combination and intercourse of the cultivators of the soil of France amongst themselves, and to foster periodic gatherings and discussions.

M. Lecouteur, the editor of the *Journal d'Agriculture Pratique*, organised a steam trial altogether independent of the Imperial Commissioners and of Government control.

Mr. Fowler and M. Lecouteur were brought into personal communication, and M. Decanville, the occupier of a very extensive farm (not less than 1000 acres) at Petit-Bourg, near Corbeil, offered the land for the public trials, and entered into an arrangement with Mr. Fowler to plough for so much an acre the whole of his arable land in the interval which would elapse between the date of engagement and the ploughing trials. This contract the steam-plough maker has performed. The whole apparatus was moved by road, steaming all the way, without assistance from horses over any part, and on arrival at the farm of Petit-Bourg operations were immediately proceeded with, and 200 acres ploughed with perfect success. A portion of M. Decanville's land was left untouched for the public exhibitions on the 19th and 20th inst. [Sept.], of which we have now to give an account.

The field allotted by M. Decanville for the steam trial operations was a large one of certainly not less than 80 acres, and of very fine soil for the purpose. This was divided into two suitable portions, of which the largest and farthest away from the refreshment booth was in possession of Mr. Fowler; the smallest nearest to it was disposed of to Mr. Howard.

Mr. Fowler had two 10-horse power traction engines stationed one on each side of the field. He first worked with his small balanced cultivator; then with his five-furrow plough to a depth of 14 inches over a total width of land of 5 feet; after this followed his large turning cultivator, taking a grand breadth of full 5 yards; then his magnificent eight-furrow plough referred to above, ploughing 8 inches deep its light loose course of ridges and furrows along a breadth of 7 feet, and upturning its 2 acres an hour with ease. How the crowd watched and followed up at a good smart step this wonderful work! How quietly but earnestly the sober ejaculations of admiration dropped from the Frenchmen's lips! They felt and admitted the Englishman was doing unrivalled execution; and the look forward to the gigantic stride that France must soon begin to take, impressed with gravity every face. The men there were men of thought, men of experience in their own national systems; and never, perhaps, has a more compact assemblage of business-like and scientific farmers been gathered together, even at our own prominent meetings in England. But when the splendid harrow took the field and paced its 400 yard across, sweeping its 30 feet in breadth at a rate of more than six miles an hour [!] the scene became indeed exciting; and the name of Fowler attained to highest renown in France. His success was surpassing.

Mr. Howard brought his cultivator and four-furrow plough. His ploughman is one of the best in England, and marvellously straight tracks did he make. The Howard system of working is by a single engine stationed at one side of the field, having a double capstan with reverse motions for the separate parts, by means of which a single chain is worked round the horizontal drums of four anchors placed at each corner of the land to be tilled. The plough or implement is attached to this rope, and after each furrow is completed, the two foremost anchors are lifted and set back for the next furrow; the steam engine being reversed at each operation. The two foremost anchors are thus pegged equally back and back as guides for the ruling of the tillage. The plough is not a balanced one, like Mr. Fowler's, but each set of breasts is lifted in and out by means of a powerful spring on arrival at the end of every furrow.

Besides the steam ploughing, the French committee organised a very complete exhibition of horse and bullock ploughs at work. Another large field on M. Decanville's property of about 10 acres of heavy land was devoted to ploughs specially constructed for deep ploughing; and another of similar extent was reserved for ploughs suited for light land and ordinary purposes. In the former we noticed some very large turn-wrist ploughs on the Brabant and Vallerand principles, in which the ploughs are constructed with two breasts one above the other, and so arranged that the ploughman on arriving at the end of his furrow, which, say for example has been made with the breast turning the furrow to the right hand, then by merely operating a lever, lowers the left breast into the ground, and continues his work in the same groove. Many of these ploughs turned up the soil to a depth of 15 to 16 inches, but they required great power, and several had teams of six and eight pairs of oxen each, every two pairs being accompanied by a driver. Even these strong teams appeared to find the labour quite as much as they could accomplish. This very deep ploughing is confined chiefly to the cultivation of Beetroot for the manufacture of sugar; and we cannot but feel convinced that if our eminent agricultural machinists would direct their attention to this branch of culture, they could design a class of ploughs which would enable the same amount of work to be performed by the application of, at most, one-half of the present amount of bullock power.

On the second field, devoted to general purpose ploughs, several French makers had representative implements; but the work performed was very inferior, and such as would not have been tolerated on an English farm. Messrs. Ransome and Sims were the only English exhibitors at this meeting, and they put into operation one of their champion ploughs; another adapted for turning over the soil and huckling it up in the same way as the Grignon and Dombar French ploughs; and, thirdly, one of their new turn-wrist (Gold Medal) ploughs. This last attracted very great attention from the French farmers, who found the mechanism more simple and the draught much lighter than that of the comparable class of ploughs manufactured in France. The two former ploughs were worked by French ploughmen, who unreservedly declared they were the best implements they ever handled.

Thus has begun and ended probably what will be the most memorable incident in the existence of the Exposition Universelle of 1867. This meeting is the first real and promising attempt of the French cultivators to act for themselves in the advance of their important art and industry; it is an event portentous of future advantages, for from this foundation there will doubtless arise a far more powerful and united institution, giving far greater unity and practicability of results than ever would be obtained from the numerous *concours regionaux* held annually in each department. The results of these small gatherings are but unsatisfactory at best; whilst they are wanting entirely in that essential feature of scientific development, concentration of ideas, of intelligence. The determination has already been arrived at to form an independent institution, on the type of the Royal Agricultural Society of England: to hold, in the same manner, its yearly meetings in the various most important towns of the chief agricultural districts. We can only on our side the Channel wish this spirited committee all success in their excellent movement, and sincerely hope to see so desirable an emulation thoroughly aroused, and in the fullest activity. *Abridged from the "Standard."*

MANGEL-CAKE *v.* OIL-CAKE.

The time allotted by me for ascertaining the relative values of the above feeding materials has expired. The two lots of sheep were weighed for the last time this morning, having been on their respective kinds of food for 20 weeks. I now proceed to give, as I promised, a detailed analysis of the various months' feeding, and the respective weights gained by each sheep, during each month.

The two lots of sheep of five each were put up on May 25. They are crossbred wethers from the same flock, and received daily an equal weight of oil-cake and prepared Mangel, and have been for the last 16 weeks on a 3-acre piece of aftermath, divided in two by hurdles.

Monthly Gain.

Weight of Sheep when put up, May 25.	Oil cake Fed.	June 22.	July 13.	Aug. 17.	Sept. 14.	Oct. 12.	Present Weight.
1	134	3	14	8	5	15	179
2	119	14	16	9	4	17	179
3	119	11	12	11	7	13	173
4	118	4	20	9	5	14	170
5	113	6	21	8	4	12	164
	603	38	83	45	25	71	865
				Original weight	..	..	603
				Total gain	..	..	262

Monthly Gain.

Weight of Sheep when put up, May 25.	Mangel Cake.	June 22.	July 13.	Aug. 17.	Sept. 14.	Oct. 12.	Present Weight.
1	136	5	11	21	5	8	189
2	128	5	15	15	7	10	180
3	117	9	15	12	8	10	171
4	113	9	13	18	5	12	170
5	109	10	14	9	9	8	159
	603	38	71	75	34	48	869
				Original weight	..	..	603
				Total gain	..	..	266

This 266 lb. of live weight gained, or about 20 stone of dead meat, has been made from food, manufactured from 3 tons 3 cwt. of raw Mangel, and 1½ acres of aftermath; 20 stone of mutton at 5*s.* per stone=5*l.*; valuing the aftermath at 1*l.*, this leaves a balance of 4*l.* for 3 tons 3 cwt. of Mangel, and would thus make an ordinary crop of Mangel of 32 tons worth 40*l.* per acre, less 4*l.* the cost of manufacture. Now let us look to the oil-cake account.

262 lb. of live weight, or not quite 20 stone of mutton, has been made by 7 cwt. 3 qrs. and 14 lb. of oilcake, at 11*l.* 5*s.* per ton; cost of cake 4*l.* 9*s.*, and aftermath 1*l.*, total 5*l.* 9*s.*; value of mutton 5*l.*, showing a positive loss of 9*s.* Verily the oil-cake maker seems to get the best of it.

The issue raised by this trial is not merely the narrow one of placing on the market another material for feeding stock; it has a broader significance, a more distinctive bearing on our national wealth and happiness. It means, if it means anything, prosperity to the farmer, meat for the working man. We may have oilcake and all other feeding materials in abundance, and yet meat dear; because, so long as the farmer has to put his hand in his pocket to purchase feeding materials which do not give an adequate return—so long, in short, as the profit of feeding goes into the pocket of the oilcake maker and the merchant rather than into his own, so long will the farmer manufacture so much meat only as will insure the fertility of his land for the production of grain. He prefers turning his attention to that article in which he finds a competition in every quarter of the globe, rather than the other, where he necessarily meets a more limited competition. He will do what every other sensible man of business does—produce that most abundantly which pays the best.

I want to see the farm producing abundantly its own feeding material; to see the profit accruing from feeding circulate in its own proper channel; to see the production of meat more profitable than the growth of grain. I am informed by those who have long practised it that Mangel Wurzel may advantageously be grown for a long succession of years on the same ground.

Now 30 acres of land selected near the homestead for the convenience of carting on manure, and of carrying off the roots to the drying-house, producing an ordinary crop of 32 tons of Mangel to the acre (Messrs. Sutton put it 50 per cent. higher), will produce 120 of Mangel-cake, equal in feeding value to 120 of oil-cake, and as oil-cake ordinarily in the winter averages at least 11*l.*

per ton (last year 12*l.* 5s.), the produce of these 30 acres assumes the extraordinary amount of 1320*l.*, less the cost of manufacture. This item in my trial last spring, carried on under most adverse circumstances, cost me 2*l.* per ton; this year I hope to do it for less than 1*l.* Here, then, we have the means of feeding to a profit. How much further the process of drying our root crops may advantageously be carried I leave to experience to decide. I may mention that Mr. Norton, engineer, of Manchester, and 38, Belle Sauvage Yard, Ludgate Hill, London, is about to produce a machine for that purpose that will be portable.

This enormous profit on an article of home produce must, by the invariable laws of trade, divide itself between producer and consumer. More meat will be produced, to be absorbed by a larger area of consumption. The supply of meat will continue to increase, so long as its production will pay better than any other produce. The grower will find his benefit in a larger trade, the consumer in a reduction of price; giving one more practical illustration of the great laws of political economy, that cheap production and large consumption are beneficial alike to producer and consumer.

One word in conclusion. More meat implies more stock, more stock more corn per acre. *Hugh Smith, Great Hadham, Herts, Oct.* 12.

[The above letter was sent to us too late for publication last week.]

LIME FOR WHEAT.

As lime, in its natural form of chalk or limestone, is now within easy reach of almost every farming district, and as it requires but little labour to assure a great effect, it may be said to stand in the class of cheap manures or fertilisers. This abundance, and its common use for ages, may have caused its qualities and application to receive an excess of attention in modern times. But, be this as it may, some amateur and professional lecturers and contemporaneous writers, who have evidently more enthusiasm and good intention than practical knowledge, have so pushed their theory of liming, and its effect on soils, that many farmers have been persuaded out of their more sound experience, and now place too much faith in lime. The great value of lime, when judiciously applied, is not questioned in the least, but some have undoubtedly been led to believe that lime may be applied advantageously, that is profitably, in ordinary dressings and at frequent intervals, to almost every kind of soil, and for almost every kind of crop.

This remark follows naturally on what we have recently seen in various parts of this country, and in the Midland Counties particularly, of the preparations which have been, and are now being, made for the next crop of Wheat. Lime has been used alike for light and heavy land, after fallow and after "seeds." This cannot be consistent either with the indications of Nature or the rules of art; nor is it in harmony with the conclusions of the best scientific writers.

The matter, however, is really in a very small compass, and practical men may accurately apply the sound data we have to their variable fields, and the equally variable preparatory crops of them.

In the "Cyclopædia of Agriculture," under the heading "Lime" (p. 225), we find this sentence:—"The liming of new soils is, according to this view, merely a mode of converting the useless vegetable matter (composed of roots, fibres, and stems in every form of natural decay) into active manure in the soil itself."

Again (p. 263):—"In Scotland, the effect of an application of lime on the Barley crop, especially on soft soils, is to cause a large increase of straw, so that not unfrequently the first crop, after liming, produces an inferior sample of grain. It is also remarkable that the awns are more difficult to detach when grown on a field just newly limed." Regarding Wheat, on the same page it is said:—"Wheat is also benefited by the use of lime, still, it must be confessed, not to the same degree as Barley or Turnips. We have seen a remark by an able Professor that Wheat comes sooner to maturity on land newly limed than when it is not. But this is quite contrary to our experience, which is, that all corn crops, in a moderately moist climate, are retarded in their ripening from 10 to 14 days by a recent application of lime. The grain is also coarser, but the yield is greater."

In these extracts there is ample to guide any practical man in the use of lime for Wheat, although there is a difference of opinion between an "able Professor" and the author of the article, whose signature is "J. H." Both, however, were right. According to modern experience the ripening of a crop would be retarded by the use of lime under certain conditions. This is when there was a superabundance of easily digestible vegetable substances, when food for the Wheat would therefore be abundant, and, therefore, when the yield of both straw and corn would be increased by the use of lime. A rich old pasture, for example, a fen or moor soil, firm enough to grow Wheat, and where there had been an excess of root growing, are the conditions where the experience of "J. H." would, in an ordinary season, be confirmed. On old cultivated land, however, where the pristine deposits of decayed vegetation had been exhausted by corn cropping; on all land which is poor from deficiency of vegetable deposit by the growth and decay of the refuse of green crops, as on land which is too light or dry, or too tenacious for that rapid spread of roots which admits of this deposit becoming great during the ordinary courses of modern close farming; and on land where "seeds"—Rye-grass, White Clover, and Trefoil—have to be substituted for Red Clover; here the maturity of Wheat would be facilitated by the use of lime: but the probability is, the quantity of both straw and corn would not be increased, and the quality of both would, in ordinary seasons, be most certainly deteriorated.

The conclusions we may now come to are clear. On all light land which is deficient in vegetable substances the application of lime for Wheat is wrong. Dusting the surface for slugs is altogether apart from this question of fertilisation. If this light land has been down to Rye-grass, lime would most assuredly be injurious to the crop of Wheat to follow. If, too, this Rye-grass had been fed with sheep, it would be all the more so; for the ammonia and uric acid contained in the droppings of animals are powerful solvents of vegetation, even when it may be in the crude form of the matured roots of previous crops of corn. The chemical and physiological character of the roots of Rye-grass are, besides, nearly allied to Wheat or cereal crops. There is nothing acrid in them which would be better neutralised by the action of a caustic substance like lime. On the contrary, the digestible part of the remains of Rye-grass which is left for the Wheat to feed on is so readily assimilable by the Wheat plant, that to make it more readily digestible by this solvent, lime, would be to do that by art which the Wheat plant would do far better for itself. This is just the case, and the theory of the cause, where the Professor observed that Wheat matured earlier when limed. The food of the Wheat had, as we may term it, been cooked. The result generally in similar cases is, that Wheat matures before the proper season; the further result is, the straw begins to decay at some part while it is yet alive. This is generally at the root, when the first wind that blows snaps the frail part between earth and air, the final result being what is termed a "root-fallen" crop, and its accompanying defects—a short yield of inferior quality. Early maturity or ripening before the due season, when this does not arise from a maggot in the stem, is the cause for root-falling in nine cases out of ten. Lime, by the way it makes the food consisting in the preparatory crop more readily digestible, is a powerful agent in inducing this disease.

Stirring such land as has grown Peas, Beans, or white Turnips, and thereby exposing the roots of these crops—the food of the following crop of Wheat—to atmospheric action has the same effect; they become unduly oxidised, carbonic acid is more readily formed, the solution containing them in a decomposed form is more readily assimilable by the Wheat plants, as indicated by rapid growth in the autumn or early spring, whereby the stock of food becomes exhausted in May at the very time when the feeding and the digestive powers of the crop are at their largest stage of development. It must be a very exceptional piece of "sour" or tenacious heavy land, if pulling or chopping the annuals off with a hoe would not, on the above grounds, be far better for the Wheat than any kind of stirring or cultivation. On the same ground, one furrow, rolling down close, sowing the seed, rolling again perhaps, and then harrowing up, is agreeable both with practice and the teachings of science.

Where lime may be used, consistently with the above views, is where there is an excess of Clover root and indications of a previous large deposit or accumulation of vegetation or its remains. On pure Red Clover, after a heavy crop, lime may be occasionally freely used; but this is when there has been a humid and wet season, and it was previously known that the soil was likely to produce a rank or dark-coloured foliage. But then it would have been better to have limed for the Clover. When Rye-grass has been grown, the only exceptional instance where liming may be judiciously practised is where there is clear evidence of rankness or sourness. Semi-aquatic plants, as Gye or King-cup, or Butter-cup, and other plants of a similar nature, will point this out; where these grow vigorously—lime. On drier soils Sorrel is a good indicator; lime will kill Sorrel by starving it, making the food that would otherwise be left for it to feed on digestible to and assimilable by cultivated plants. In all these cases, however, it would have been better to have limed for the preparatory crop, that the substances which are now unsuitable for the Wheat might have been converted into wholesome food in the organs of the cultivated crop.

When fine Red Clover land has, from some unavoidable cause, to be ploughed late in the season, a good sprinkling of lime would be serviceable, but this should be applied immediately after the plough, that the acrid acid, which this root contains, might be neutralised in the bed for receiving the seed. Turnips will not plant immediately after a crop of Vetches. The cause is the same, as also is the remedy. Powdered chalk would act in a similar way, but not so rapidly. It is not because Red Clover land gets more solid by laying a month after ploughing that it is more likely to admit of a full plant of Wheat, but it is because the seed-bed-to-be has had the roots of the Clover and the juices they have voided exposed to the air and undergone a given amount of oxidation.

Wheat, like Barley, or any other cereal, will plant better in a loose mouldy bed than elsewhere. The after-growth in such a case is not the point here in question. Wheat grows better as a rule, however, after Red Clover—because the roots of that plant are larger and less soluble than other preparatory plants, and, therefore, because the Wheat crop has a store of food remaining well up into May and June. This is a chemical and not a mechanical question. Wheat will plant well if sown at once after a clean White Clover root has been ploughed: after Red Clover, even if equally clean, it will not, as a rule, do so.

This data affords further signs for liming with discretion. When there is no doubt about the Wheat planting—apart from any mechanical or insect considerations — there liming would injure the crop. When there is a doubt—chemically considered—about a plant, there a light dressing may be well applied: but the heavy dressing here really required for the good of cultivated crops generally should be left over till the crop following the Wheat. *G.*

THE LAND LAWS OF IRELAND.

At the eleventh annual meeting of the National Association for the Promotion of Social Science, at Belfast, the President for the year, Lord Dufferin, thus referred to the land laws in his opening address:—]

FOR long years past the conduct and character of the landed proprietors of Ireland have been the subject of severe and continuous criticism. A great number of persons, whose motives I do not wish to question, have been doing their very best to persuade the tenantry themselves, and the public at large, that the agriculturists of the south of Ireland are the victims of unjust laws, and of methods of procedure unknown in the sister kingdom; that by a system of wholesale evictions, and the unremitting consolidation of farms, the occupying population of the country has been driven across the Atlantic, while their desolated holdings have become the pasturage of cattle and of sheep; and that all the discontent and disloyalty which prevail throughout the country have been created by these circumstances. Into the facts by which these monstrous assumptions are refuted I will not now enter. I will simply note, in passing, that the laws which regulate the relation of landlord and tenant in Munster and Connaught are practically identical with those which exist in Scotland, in England, and in the north of Ireland; that the official returns of the annual number of Irish evictions show that tenants are rarely dispossessed except for non-payment of rent, and that probably the annual rate of evictions does not much exceed one to every 10,000 acres of the occupied land; that the alleged extravagant consolidation of farms is an absurd myth, as proved by the simple fact that during the 12 years from 1850 to 1862 the number of holdings increased instead of diminishing: that the emigration from the country consists almost entirely of labourers, mechanics, tradesmen, and the younger sons of framers; that conversion of arable into pasturage is a process which the tenants themselves have inaugurated, with a view to the high price of cattle; and that with respect to the disloyalty and disaffection prevailing in Ireland, it has become a patent fact that there have been fewer Fenians detected in the ranks of the farmers of Ireland than in any other class of the population, and that it is from amongst the urban and village population of Ireland, and of Great Britain, the insurrectionary impulse has proceeded. But though this much may fairly be contended for, in opposition to the popular view of what is called the land question, there still remains the undoubted fact that the agriculture of Ireland is not in a satisfactory condition. The principal reason of this is the want of skill, of capital, of enterprise, and industry amongst the agricultural class, aggravated by a traditional hankering after a bit of land in the minds of those who are not in a position to cultivate it with advantage. Of course it will be urged by others that the one and only reason is the insecurity of tenure. I am by no means indisposed to deny that insecurity of tenure may be an appreciable cause of inferior cultivation in parts of Ireland; but if one fact is more patent in Ireland than another, it is this, that, as a general rule, there is no perceptible difference in the condition of unleased lands and those on which, whether in consequence of the existence of leases, or from other causes, the plea of insecurity of tenure cannot be pretended, and that the most hopeless areas are generally those held by their occupants in perpetuity at a low rent. Some more universal causes, such as those which I have suggested, must be discovered therefore to account for the general condition of the agriculture of the country.

Admitting, however, an indisposition to grant leases on the part of some landlords to be one of the palpable blots in our agricultural system, an inquiry into the best mode of obliterating it will be well worthy of your attention. Of course the most obvious way to induce a landlord to grant a lease would be for the tenantry to refuse to cultivate their farms without one; but it is alleged that the competition for land is so intense in Ireland, and other methods of earning a livelihood so scanty, that it is impossible for a tenant to stand out for such a condition. Though there is some justice in this argument, it has been pushed beyond its legitimate limit.

I believe there are very few estates on which, if the tenants really evinced a desire for equitable leases, and were themselves in a position to enter into a contract, leases would be refused; but most of the tenantry are unfortunately either indifferent to leases altogether, or would only be satisfied with leases of such a character as would be tantamount to obtaining the fee-simple of the land. The next best method of overcoming a landlord's hesitation to grant a lease would be for the tenant to make it his interest to do so. But bitter experience has taught the landlords that too often the granting of a lease is destructive to the tenant, to the land, and to himself, and that the conditions of the contract prove altogether one-sided, hopelessly restricting his own freedom, while the tenant is able to escape from all his obligations. Time will not permit me to explain how this comes to pass, but all the practical agriculturists who are present very well know that such is the fact. Let us briefly examine, then, how those who have undertaken to solve this kind of dead lock have proposed to deal with the difficulty. They may be divided into two categories—thoughtful and responsible statesmen like Mr. Bright, Mr. Mill, Mr. Chichester Fortescue, and others who have exercised their ingenuity in suggesting remedies that are compatible with the maintenance of those rights of property which are the basis of civilisation, and less practical and more ambitious experimentalists, whose simple remedy is to take the land away from its present owners and make a present of it to the lucky individuals who may happen to be in possession of it at whatever moment their projected Act of Parliament may pass.

The chief suggestion made by the former class of persons appears to be the creation in Ireland, with the assistance of Parliament, of an extensive body of small landowners who shall themselves cultivate the fields they own; in fact, a peasant proprietary. Such was the proposal made by Mr. Bright, and such I take to be the meaning of the paragraph in which Mr. Mill refers to the subject in his recent letter to the National Association of Dublin. Now, there can be no doubt that the existence of a large class of sturdy yeomen in Ireland would be an enormous advantage to the country. Nor would there be any insuperable difficulties to their introduction. Every year a very large area of landed property passes through the market, and if Government supplied the money for its purchase it might easily be colonised with the description of agriculturist required. But even supposing the original difficulty as to where the purchase money of these small properties, and the capital necessary for their cultivation, is to come from, were got over—how will you be able to guard against your yeomen or his descendant eventually turning into a petty landlord, and playing pretty much the same part in the social economy of the country that the middleman did 30 years ago? For after all, what was the middleman but an ordinary Irish farmer paying a fixed quit-rent, such as Mr. Mill describes, for a term of years that might fairly be expected to outlast his own and his son's life, and which, therefore, in some measure approached in value to a perpetuity? Again, we must consider a little whether there might not be danger of the land thus handed over to the cultivation of these small farmers eventually deteriorating, through bad cultivation, into a state of complete exhaustion. As long as land is rented there exists some one whose interest it is to see it done justice to, but if it is owned by the occupier you have nothing to depend upon but his self-control and foresight for escape from such a state of things as existed before the Potato failure. I am afraid the land agents in Ireland will tell you that these qualities are hardly sufficiently developed to afford a satisfactory guarantee upon the subject, and it is more than probable if the country were again to be split up into five and eight-acre farms, that we should inevitably lapse into a system of Potato culture, which, even as it is, is far too extensively practised. Of course the opposite opinion may be legitimately maintained, and as no proof is possible we have nothing but a balance of probabilities to decide between; but it is a very significant fact that M. de Lavergne, a strong advocate for peasant proprietors and small farms, and probably the highest and most impartial authority that could be cited, has pronounced, in a work especially devoted to the agriculture of this country, a strong opinion against the establishment of a peasant proprietary. There is one other alternative which I have not yet seen suggested, but which has occasionally occurred to me, and that is, not the creation of peasant proprietors, but the acquisition by Government of large areas of landed property at present under pasture, and the settlement upon them of what I would call "crown tenants," who should hold their land on something approaching to the "ryotwar" tenure of India, though under a stricter control as to its cultivation than is there found necessary. Such a method of proceeding would be, however, very alien to the principles on which Government is conducted in Europe, and though, perhaps, calculated to improve the physical status of the people, would tend, independently of other objectionable consequences, to undermine their manliness and self-reliance.

With regard to the various schemes for the introduction into Ireland of compulsory leases at rents fixed by Parliament, I do not propose to trouble you. They are advocated, I have no doubt, with the most benevolent intentions, but I differ so completely from their authors, not only as to the first principles of political economy, but as to the very meaning of the terms right and wrong, justice and injustice, liberty and tyranny, that we have no common ground for discussion between us. What arguments can I use to a gentleman who calmly asserts that after a man has invested the savings of a lifetime in the purchase, at its competition price, of a portion of landed property in the Encumbered Estates Court, on the security of a Parliamentary title, it will be competent for the Legislature to turn round on him the day after and say: It is true you have purchased this property at its market value with the intention of putting it to its most remunerative uses, but we now intend to restrict your interest in it to that of a rent-charge. You must immediately lease it out, at a rent which a valuator of our own shall fix, to all the tenants who happen to be in occupation of it at the present moment, without reference to their solvency or skill, for your own, your son's, and it may prove your grandson's lifetime, though, mind you, the tenants in whose favour we create this novel interest shall have the right to sell it, under your nose, to the highest bidder who may choose to beggar himself and you by buying it. Of course I may be told that the purchasers of property under the Estates Court are a small minority, and that they are in an exceptional category as compared with the landed proprietors of Ireland. In the first place, as to the matter of fact, it is probable that more than one-third of the present landholders of Ireland are recent purchasers of estates under these very conditions; and, in the second, the very contention that a difference exists in the inviolability of a title derived from this source and that which rests on prescription, or ordinary deeds of sale, is sufficient to show the impossibility of arguing with those who support it. Unfortunately, however, the unreasonableness of these views does not render their agitation the less mischievous. The one thing which the country stands in need of is capital, and the sense of insecurity engendered by such proceedings is incompatible with the investment of capital. The difference in the rate of interest between a first charge on an Irish property and that on a landed estate in England is gradually rising to more than one per cent.—that is to say, the Irish people (for the loss ultimately falls upon the nation at large) pay for the folly of a knot of agitators a unique tax of several millions a year. But not only is capital not being invested, capital is actually being withdrawn from the country. Like any other person engaged in business, the landed proprietor is often compelled to develop the resources of his estate with the assistance of borrowed money; but within the last few months I know, from trustworthy information, that a tendency has been shown on the part of those who hold mortgages on Irish property to call them in; nay, more, even in the neighbourhood of some of our northern towns, gentlemen who were on the point of investing the fortunes they had made in trade in the purchase of property in their native land have been deterred from doing so by the unsatisfactory condition of the country, and, as a consequence, will enrich an English neighbourhood with the wealth they would willingly have distributed among their fellow-countrymen.

It would be to insult your intelligence were I to waste words in developing the mode in which all classes of the community are affected by the increase of price in the value of money, and this outward drain of our slowly-accumulating wealth. All the vital energies of the country are more or less arrested by these and similar influences. Fenianism and agitation (for the one is the offspring of the other) have alike combined to paralyse the retail trade of the towns and villages in one half of the island, to demoralise the industry of a large portion of the agricultural classes, to discourage the enterprise of our southern manufacturers, and to cripple the landed proprietors in their schemes for the improvement of the country; while Irish patriotism itself, the crown and flower of the national character, has become the synonym of whatever is extravagant and impracticable.

Home Correspondence.

Utilization of Town Sewage.—In your complete and, to us, satisfactory summary of our circular addressed to local boards, two objections to the system which we ventured to advocate appear to have presented themselves to your mind. We must confess that we ourselves thought that, on those two points, the separation plan was particularly to be recommended. 1st. Regarding the practicability of filtering the sewage of a great town, it must be remembered that the sewage will always be fixed in quantity, and will be free from sand and all *impedimenta* of that nature, thus avoiding all danger of choking the filters; besides, the system of upward filtration would be adopted, so that the solid matter would always be deposited at the bottom of the tanks. 2nd. As to the sewage being too concentrated on the Monday morning, that certainly could be easily regulated by a proper system of flushing. It does not appear to us that under the present systems of drainage there is any advantage in that respect, as you can never guarantee a proper supply of rainfall on the Sunday to dilute the Monday's sewage. Since issuing our circular we have read a report on the drainage of Reading, by Mr. Lawson. We were glad to find that he has adopted some of Mr. Menzies' principles, viz., the separation of the sewage from the rainfall, and the system of upward filtration (*vide* pp. 7 and 11 of Report). He proposes to use all the present drains in the town, together with some additional ones, for the rainfall alone—about 13 miles in all—and to construct a fresh system of drains for the sewage proper; the rainfall from the courts and yards alone to be admitted into these. *E. Pearl, T. W. Gooch, Windsor, Oct.* 24, 1867.

Milk for Cottagers.—You are aware that in the south-eastern counties of Scotland the universal practice is to have the whole of the ploughmen, shepherds, and other labourers required throughout the year resident upon each farm; and accordingly that a set of cottages, in numbers proportioned to the requirements of each farm, form invariably a part of our farm buildings. These regular farm labourers resident upon each farm are engaged for a year, from Whitsunday to Whitsunday. Hitherto they have received only a small proportion of their wages in money, and the remainder in kind, consisting of certain fixed quantities and kinds of grain, the keep of a cow throughout the year, a portion of land planted with Potatos, and the use of a cottage with small garden rent free. This practice is now of long standing, and has undoubtedly worked well, both for employers and labourers. The cow's keep consists of pasturage in summer, and about 3 tons of Turnips, with straw sufficient for fodder and litter in winter. The cows are housed in a byre forming part of the farm buildings, but appropriated to the use of the hinds' cows. As a rule, the cow is the property of the hind; and it is always for the interest of all concerned when it is so, although occasionally when a hind is unable to purchase a cow, the employer supplies him with the use of one, and in such cases retains the newborn calf as interest for his outlay and risk. Of course the money-value to the hind of a cow's keep varies exceedingly, and is influenced by a variety of circumstances. Much depends on his skill or good fortune in making a successful purchase of a cow, much on the quality of the pasture, and very much on his wife's skill in managing the cow and her dairy produce. The cow is necessarily liable to such accidents as abortion or barrenness, and she may sicken and die. The latter calamity is often provided against and mitigated by the system of mutual assurance. The hinds of a convenient district form themselves into cow clubs, which they organise and manage for themselves with much success. After allowing for all contingencies, the money value of the cow keep is usually estimated at from 5*l.* to 7*l.*, according to the locality of the farm and quality of the pasturage. When all conditions are favourable it is worth considerably more in actual money; but apart from this it does not admit of question that our farm servants and their families benefit exceedingly by the constant use of milk, as an important part of their dietary. To children in particular an adequate supply of good milk is of such consequence, that nothing else can compensate for the want of it. With us milk occupies very much the place that beer does in many parts of England, and in my opinion is both cheaper to the farmer and better for the labourer. Mr. Mechi has recently informed us that his annual expenditure for beer to his labourers amounts to 2*s.* 4*d.* per acre, while a Lincolnshire farmer puts it at from 3*s.* to 5*s.* per acre. Estimating the cost of keeping servants' cows at a fair rate, I think that the outlay for milk under our system will not exceed 2*s.* per acre, and that a further sum of 6*d.* per acre will cover our expenditure for beer, which is little used except in harvest time. If the two systems which I have thus incidentally contrasted be tried by their results, physical, moral, and social, I think you will agree with me in the opinion that milk is better than beer. *J. Wilson, Edington Mains, Aytoun, Berwickshire.*

[The above letter was addressed some time ago to a member of the Food Committee of the Society of Arts.]

The Harvest.—Through your exertions in obtaining reports of our harvest prospects from various parts of the Kingdom, both producers and consumers were early apprised of the fact that those prospects were not such as some few writers represented them to be, whose favoured letters obtained a place in the columns of the *Times*, although their information appeared to rest solely upon an occasional glance through the windows of the railway carriages whilst being rapidly whirled from place to place. Bad as the prospects appeared to be when you obtained the opinions of such a numerous body of practical and well-known agriculturists, yet I feel were those opinions to be expressed now, they would give a much more gloomy statement. I am free to confess that when I had the pleasure of answering your queries my ideas were fully cent. per cent. more for Wheat than it is likely to yield; and I hear of similar disappointment in every direction. Men whose daily occupation it is to thresh for hire state that where they used to thresh from 200 to 250 bushels per day, they now obtain from 100 to 130, and rarely reach 150 bushels. Besides this great deficiency in yield, the quality is very inferior. It is quite the exception to see a really plump good sample of corn, and the spring-planted Wheats, of which we usually grow a great quantity in this neighbourhood, are infinitely worse than the autumn-planted, if we except those planted in April, which I think will prove the best yield and sample I this year grew. The cause of this great deficiency I attribute to the severe frost we had on the 28th of June. The autumn-planted Wheats were then in full bloom, the spring planted were just coming in ear, whilst the Aprils were not so advanced, and thus they escaped. If the opinions which I frequently hear and often read are correct, and of which I have no doubt, viz., that the Wheat crop of this year is 30 per cent. below an average, the position of this great bread-consuming nation is a most serious one. The calamity with our corn crop far exceeds that of the past two years from cattle plague. The official returns of the acreage of Wheat grown in England, Wales, and Scotland, in 1866, was 3,385,394, and taking the estimated average growth at 24 bushels per acre, it will appear that there is a deficiency of 24,374,832 bushels, of a present money value, 9,749,928*l.* In order to obtain food for the nation, that sum in excess of former years will have to be sent abroad, for the English farmers have no old stocks to fall back upon. The corn dealers, the millers, the merchants, are pretty well in the same position. All looked forward to the promising crops, a good harvest, and lower prices, but alas! their hopes, like our Wheats, are blighted, and I fear many millions in excess of the sum I quoted will be required to be sent to enrich the foreign producer, whilst the English farmer will have to pay increased wages and increased tithes, if not increased rents, in consequence of this great national disaster. *T. Duckham, Baysham Court, Ross, Oct.* 15.

Societies.

Norfolk Chamber of Agriculture: *The Employment of Women and Children in Agriculture.*—At a recent meeting of the Norfolk Chamber of Agriculture, held for the purpose of resuming the discussion on this subject, there was a large attendance.

The President (Mr. Clare Sewell Read, M.P.) said that the Committee of the Association were desirous of adopting certain resolutions in answer to the very able statement made by Mr. Fraser, the Assistant Commissioner, at the last meeting of the Chamber; but they found it impossible, in two or three small resolutions, to embrace all the topics, and they had, therefore, drawn up a report, which he would call upon the Secretary to read.

Mr. C. R. Gilman, the Secretary, then read the following report:—

"The Norfolk Chamber of Agriculture (having heard the nature of this inquiry fully and ably explained by the Commissioner) record in the following statement the conclusions at which they have arrived. They would preface these observations by saying that they have entirely excluded from their consideration the gang system as practised in some parts of Norfolk. They cordially approve of the Agricultural Gangs' Act of last Session, and believe that it will be found sufficient to cure what is certainly an exceptional, but still a great, and perhaps the chief, evil in the employment of women and children in agriculture. Farm work on which women and children are usually employed is certainly healthy, and is by no means excessive or laborious. With the exception of hay and corn harvests, and in the case of small boys keeping birds or herding stock, the time women and young children are employed on a farm does not exceed eight hours a day. The

Chamber, therefore, considers any restriction of the hours of labour quite unnecessary, and that there is not the slightest cause for limiting the agricultural operations on which women and children should be employed. The amount and quality of education in the rural districts of Norfolk have greatly increased during the last 20 years. There is now, for the most part, a school in every parish, in which the children of the agricultural labourers can be educated at the trifling cost of one penny a week. But still there are many small parishes without schools, and in the sparsely-populated parts of the country there is, and must ever be, the difficulty of placing school-houses within a reasonable distance of many cottages. Norfolk, however, has good cause to complain of the small encouragement and support her schools receive from Government, as only 147 out of 757 parishes receive any portion of the Educational Grant. Notwithstanding, however, the great increase of schools, the moral and social improvement of the labouring population has not been such as the friends of education hoped and had a right to expect. No doubt children —especially boys—are taken from school much too young; but the lack of sufficient cottage accommodation, and the absence of parental authority in the homes of the labourers, have done much to destroy any good effects of such improved education. This Chamber would offer no objection to an Act prohibiting the employment of any child in agriculture under nine years of age; but, if such restriction is imposed, means must be taken that the child should attend school, and not be kept at home in idleness. It has been stated that children are but of little use upon a farm till they are 11 or 12 years old. It is certainly during the summer months that the labour of women and children in any numbers is chiefly needed, and without such labour it would be difficult, if not impossible, for the Norfolk farmer to cultivate his land in a neat and husband-like manner. It is during this busy portion of the year that the rural schools are now shut up, and the teachers take their holidays. As the successful performance of almost all farm-work depends on the seasons and the weather, it is expodient, in a national point of view, that every facility should be given to the farmer to employ all the labour at his command during the busy seasons of the year. Therefore, if any legislation is attempted, certain dispensing powers should be granted during the summer and autumn months. Should attendance at school be insisted upon after the boy has commenced labour, school on alternate days or weeks would render the boy almost useless to the farmer. He had much better attend the school for a certain number of consecutive days during the leisure part of the year. As the restrictions on the employment of juvenile labour will fall heavily upon the parent, and, in the case of large young families, with crushing severity, it will be far more than ever necessary that good schools should be provided. Compulsory education in the mildest form will most probably lead to an education rate, and this Chamber protests most earnestly against such a rate being levied exclusively upon the real property of the kingdom. In conclusion, this Chamber would express its opinion that any further restriction on the employment of women and children in agriculture, and any regulations respecting the education of the children of the labouring classes, is not required, and should they be attempted must utterly fail to produce any good result until reasonable and sufficient cottage accommodation is provided."

The PRESIDENT said the Council had requested him to move the adoption of this report. He was sure that all who had the advantage of hearing the statement of Mr. Fraser, and had read the speeches which he made at the different union meetings, must have felt that more reasonable and more truly Christian addresses were scarcely ever made by any person. Mr. Fraser first of all told them that they could no longer expect to be exempt from the legislative interference which had already taken place in regard to all industries with the exception of that of the farmer, and that even in regard to agriculture the thin end of the wedge was introduced last year by the passing of the Agricultural Gangs Act. He explained to them some of the principles on which those Acts were passed. He told them the main principles of the Factory Extension Act and the Workshop Act, but he did not tell them one little circumstance, namely—that in one of those bills it was stated that no woman or child should be employed after two o'clock on Saturday afternoon. He (the Chairman) stated that, by way of illustrating how Parliament seemed inclined to deal with these matters. It had been said to him in the House by one or two gentlemen who were large employers of labour, that legislative interference would very much interfere with the proper performance of their business, and he asked them why they did not oppose the Bill? Why, they said, it would look as though they were interested parties, and that it would not do for the friends of the people to do anything to restrict the people's leisure. Then they were told that the Factory Acts were based upon physical, moral, and educational principles. In regard to the physical principle as applied to agriculture, they had said, and said very justly, that the employment in which women and children were engaged was certainly light, and that the hours during which they were employed were short. Therefore they could dismiss that part of the question.

Then as to the moral principle, if they applied it to agriculture, and excluded the gang system as they had purposely done, he did not think there was quite so much in it as the majority of people in towns, and especially in London, seemed to imagine. It would be very right, if agricultural gangs continued, that the sexes should be separated; but as to a total separation of sexes in all farm work, he thought they would join with him in saying that that was impossible. They could not have men carting Barley in one field and women raking in the other, nor could they think of having women in one field heaping hay, and men in another field cocking it. His opinion was that it was rather at play, not at work, where the evils arose. Supposing the sexes were separated whilst working upon the farm, how could they stop them from assembling together during the dinner hour? How could they prevent them mixing as they went home from work? They knew very well that if they went into a village street they would see great girls and boys "larking" together at nine or ten o'clock at night; and in all probability some of those boys and girls slept in the very same room. All ideas of decency which the farmers might entertain could not by any possibility have the same effect upon the people who were herded together in this manner as they would upon themselves. Well, then, as to the employment of women and children in agriculture, he must say there had been a great deal of what he might call sentimental twaddle on the subject. It had been said that it was repugnant to the refinement and delicacy of females to be employed in agriculture. They knew very well that the refinement and delicacy of their dairymaids would not allow them to milk; and, he dare say, in a few years they would tell them that dressing a fowl and dressing a hare were so extremely disgusting that a man must be employed to superintend those operations. The women that were engaged in agriculture were sometimes the objects of pity and sometimes of reprobation. Their dress often did not pass without comment. He knew a lady who was asked the other day what she thought of the dress of agricultural female labourers as common in the west of Norfolk, and she replied in the fashionable and vigorous language of the present day, "It is awfully disgusting." What was it that these women wore? A pair of strong-laced high-lows, good woollen gaiters, with (he had no doubt) suitable continuations, and skirts which, instead of being 18 inches on the ground, were, perhaps, 18 inches off the ground. He did not mean to say that this was an elegant, or by any means a becoming dress, but he was sure that it was useful; and he believed that if they were to see the same women on a Sunday, they would find them with their parasols, veils, and crinoline, and all the adornments which were supposed to be the true index of the refinement and civilisation of English females. Field-labour, he thought, had been unduly blamed. It was not field-labour, he thought, but the persons who were employed upon it, that did harm. When a gentleman got up and told them that when a poor girl went to work she was contaminated and spoiled, he contended that in all probability she was contaminated and spoiled before she got there. It was not the nature of the work. They might just as well say that gaols made people bad, and that workhouses made them poor. He contended that if there was a girl who at school was more troublesome than the rest, or more independent, or more thoroughly good-for-nothing, she was the girl who would go to farm-work. As to the case of older women he did not think that that observation applied. If a married woman was the mother of ever so small a family, and that family was young, she would be very much the best at home; but they must remember that there were a great number of women who had very little employment in their homes, and that field labour was to them healthy and by no means objectionable. He could tell them of an instance on his own farm. There happened to be two women living in a double cottage; one of them had formerly been a dairy servant, and accustomed to a good deal of hard work. She could not find up a sufficient quantity of in-door work, and the consequence was that she got fat and out of health. The other woman had only one child, and the child having died, she was seized with a melancholy turn of mind. These women said to him, "What shall we do?" and he recommended them to go out to field labour, which they did. They had continued working in the fields ever since, and were perfectly well, and were now two most respectable women, and he was sure that the 4s. per week which they took home was a most pleasant addition to their husbands' 12s. Then as to the age of girls. He had always found that a girl of 11 or 12 was just as strong as a boy of the same age. It was proposed that no girl should go to work until she was 15 or 16 years old; but as was stated in that room a fortnight ago by the Rev. P. Gurdon, that was the very age at which the girl required the greatest protection. He was of opinion that there could be no good neat farming without the assistance of juvenile or female labour. He had travelled in many parts, he had lived in Wales and different counties in England, and he had also been in Scotland, and could say that he had never seen a well-cultivated farm in his life but that some women or children had been employed upon it; and if they went to Scotland they would be perfectly astonished to find in that ever-forward and advancing country, where agriculture had always been considered in its greatest perfection, that women were there employed in very much larger numbers than in England: for they performed almost the whole of the field-work upon the farms. They were certain fiddling operations of husbandry, such as picking stones and Couch-grass, singling Turnips, and weeding Barley or the drills of corn after the horse-hoe had gone through, which could not be said to be laborious, to which the children with their nimble hands and fingers very soon became adapted, and he did not think that that was the sort of employment in which they could expect men to be engaged.

Then they came to the last subject, the educational principle. They had said in the report that they should have no objection whatever to limit the age of children employed in agriculture to nine years. Some people might differ from them and say ten, and some would go so far as to say twelve. He was sure that unless boys went to work when they were young, they would not in nine cases out of ten make good labourers. The Assistant Commissioner was good enough to say, "Surely a boy's muscles at twelve are not more rigid than they are at nine." They might not be; but he (the Chairman) had always found this to be the case, that if a boy did not go to work until he was eleven or twelve years old, in all probability he would be so stupid and so utterly unsuited to the labour at which he was set, and he would be so disgusted to find that younger boys were better labourers than he was, that unless he was a superior lad he would get into a shuffling sort of a way which he would never get out of. If the employment of agricultural children was continuous, then they might fix a higher limit than nine years, but it was not so. There were certain seasons in the year when women and children were employed, and must be employed, on the farm; and there were some months when the farmers could very readily dispense with a great portion of them. They must remember that these restrictions, if they were imposed, would fall very heavily upon the parents of children. He believed that, as farmers, they would hardly feel them at all, though perhaps it might incur a certain amount of trouble to know that the child had a certificate showing that he had arrived at the prescribed age; or they might get into some muddle if they employed a man to hoe Turnips, and if that man were to have one of his children picking after him who was below the prescribed age, and did not come up to the conditions required by the Legislature. A policeman might summon a farmer for employing this child, about whom he knew nothing, upon his farm; and difficulties, of course, would arise in this way. He must, however, say, in vindication of the farmers, that they were not opposed to education. They wished their labourers to be educated; and he could assert without fear of contradiction, all other things being equal, that the educated man was certainly the best labourer. Nor did he think the charge brought against the guardians of Norfolk was altogether right as to their not encouraging education. The expense for educating a boy was one penny per week—really so trifling that it did not often enter into the calculation of the guardians—but he was acquainted with three different unions, and he could say that in all of them the guardians encouraged out-door education of pauper children all in their power. It was frequently the case, as had been stated by the Rev. P. Gurdon, that the school bill was brought in by the relieving officer, and cheerfully allowed by the guardians. The invariable question put in these cases was, "Is the child properly brought up? does he go to school?" If he went to school, and was properly brought up, they would allow the fullest relief in their power. With regard to the fortunate man—the bailiff who could not read, about whom some remarks were made at the last meeting—he thought the observations must be taken in a sort of general sense. They knew what were the sort of bailiffs that a farmer had now-a-days. He either had some fine young gentleman who would not work, or he got some broken-down farmer who could not manage his own business. Therefore the man who wanted a good farm bailiff—a thoroughly good working man—said he would rather have one who could not read, because he would then be able and willing to work. With regard to the schooling after the child went to work, he contended that alternate half-days, alternate days, or alternate weeks for the employment of children in agriculture would render the child utterly useless to the farmer. It must be something like so many hours in the year; and it was to night-schools and Sunday-schools that they would have to look for keeping up the education of the agricultural labourer. He was sure that the farmers owed a deep debt of gratitude to the clergy and gentry who undertook the management of such schools. A different class of teachers were required for night-schools than those who were employed in day-schools. A man might be a very good national-school teacher; but he would not be able to properly manage a lot of great boys and young men: therefore it was very necessary that schoolmasters should be absolved from the duty of night-schools, and that some other person should step in his place. But he did consider that night-schools had accomplished a great amount of good, and that they ought to receive more encouragement from Government. He, for one, thought that compulsory education was not needed. He quite agreed with Mr. England in saying that the great evil—the lack of education—was in a great measure curing itself. If they had compulsory education, they must very soon have an educational rate; and then, as a matter of course, they would undo all the voluntary efforts that had done so much good: but he did maintain that, as the country as well as the towns paid taxation to the imperial revenue, so it was the duty of the Government to take care that the educational votes should no longer go to the towns and great villages only, but that they in the country should receive their fair and just proportion. He had stated his views upon the subject, though he did not mean to say that he had stated all that he could; but he had answered some of the chief statements that had been made; and he hoped that the report which he had now the pleasure of proposing would be generally supported by the Chamber.

Farmers' Clubs.

BALLYMAHON: *Oct. 7.—The Harvesting of Root Crops.*—Mr. A. C. KINGSTONE read a paper on this subject, from which we make some extracts:—

(1). *Potatos* if left long exposed to the sun, even to the light or to the air, lose their flavour as food; the side exposed to the light becomes green; a slight frost will destroy them; if damp is allowed to reach them for a length of them, when heaped together, they will rot. They should, when fully matured, be taken out of the ground in dry weather, and not stored till perfectly dry; they should be stored in a dry place, closely covered, excluded from the air—one of the best coverings is ordinary dry earth. One evidence of their being mature is when the tubers freely come off, as you moderately shake a handful of freshly dug up stalks. About the beginning of October the Potatos should be taken out of the ground and secured. This may be done by the spade or graip, or plough without its coulter.

When ploughing Potatos out of drills, the coulter is removed, and instead of the mould-board, a contrivance, made like the hand, with its fingers extended from each other, is attached to the plough. This Potato raiser is made by Howard for his ploughs; also, I presume, by other implement makers. As the Potatos are dug or ploughed out, remove all diseased tubers, to be used at once in feeding pigs, poultry, &c. The sound tubers may then be picked up, sorting them in different sizes, to be kept separate for use as may be required. Every Potato, even the smallest, should be gathered, with the object of removing a weed from the succeeding crop. The Potatos, as gathered in baskets or cleaves, may be carried or carted to the store heaps or Potato pits. Some say that the sound Potatos will be much the better of lying in the field for a day or two after being raised, to dry them thoroughly before being stored; but they must be covered at night with straw.

Potatos may be stored in various ways. Choose a convenient situation; the ground dry of itself, to absorb the rain as fast as it falls, or as much inclined as to allow surface water to run away quickly. In cold, northerly aspects select a situation sheltered from the north wind, and have the direction of the pits north and south, to place both their sides within reach of the sun's rays in winter. When the soil is naturally dry the site of the pit may be dug out of the solid ground a spade depth; but unless the soil is as dry as sand or gravel, the Potatos should be piled upon the natural surface of the ground made smooth. Here let the Potatos be emptied from the cart, and piled by hand in a long heap; its breadth about 7½ feet, its height not exceeding 2½. Cover the Potatos with a thick coat of dry, clean straw, not drawn straw, but mixed as it is after being threshed, or dry Potato stalks may be used, free from any green weeds; then dig up earth in the form of a trench all round the pit, the inner edge of the trench being cut as far from the pile of Potatos as will be the thickness of both the straw and the earth to be put on it, which may be about 1 foot. The first spadeful is laid upon the lower edge of the straw along the heap, the earth being chopped fine and beaten down with the spade, to render it as impervious to cold as possible; and the drier it is, the less effect will frost have upon it, and penetrate into it the less distance.

If 12 inches be allowed for the thickness of the straw and earth, the height of the finished pit will be 3½ feet, and the breadth 9½. The trench all round should be cleared of earth, and an open cut made from its lowest side. Openings may be left along the ridge of the pit as ventilators for the heat and moisture. The openings may be left at intervals through upright bundles of drawn straw before the earth is thrown up and beaten down near the ridge. This is only wanting for about a fortnight after pitting. After the heat subsides all apertures should be well stopped. It is said that Potatos from unripe tubers are both vigorous and more early than such as are raised from tubers perfectly ripe. Therefore, Potatos intended for seed may be taken up a fortnight or three weeks before being fully ripe. When taken up, all ill-shaped, small, bruised, or diseased tubers should be laid aside, and the best dried in the sun and carefully stored until wanted for cutting. The vegetation of Potatos stored for seed begins some years in spring earlier than usual. The first buds being rubbed off, all the first bud's early growth is strength wasted, and loss to the future plant. Cannot much of this loss be avoided? May not the Potatos be examined early in February, and occasionally afterwards, and when indications of vegetation are observed, then move the Potatos to a cooler situation, and keep them thinly spread, and, if possible, cut and plant them so that the first bud shall spring

from the sets, not before, but after, they have been planted.

(2). *Mangel Wurzel* not being able to withstand frost, the crop should be entirely cleared from the field before it makes its appearance. When standing in the ground, protected by its broad leaves, it may stand a frost, if not severe, but a very slight frost will damage any roots lying uncovered; therefore, it is well to cover any roots that are pulled and left out for the night. The tops may be twisted off by hand; rather leave some of the leaf on than injure the crown in any way. The drier the weather is the better for storing the crop; the roots will not be injured by a little earth adhering to them. When about to be used, the earth and small roots should be removed. The best way of pulling them is to have two drills pulled by one worker, and the adjoining two by another, the roots placed in the hollow intermediate between the four drills, the leaves thrown in heaps in the same hollow between the roots. The leaves thus treated are clean, and fit for food for stock, which they are not when thrown on the land and trampled; besides, the leaves are at hand to cover any roots that may not be carted off in the evening; if not required for food, the leaves may be scattered over the ground. Stripping off the under leaves of Mangel in summer and early autumn, as sometimes is done for cows or pigs, lessens the weight of the roots. Mangel is not safe to give to cattle until it has been some time out of the ground; it becomes more valuable for feeding when longer out of the ground—about spring—than earlier in the season. Mangel is, perhaps, the longest keeping root we have in cultivation. Mangels may be stored like Potatos, with a thicker covering, leaving the top uncovered for a time, to act as a ventilator.

(3). *Carrots and Parsnips* may be taken up and stored in dry weather, when the leaves change colour, at the end of October or early in November, before winter frost appears. They may be taken up with a three-pronged fork, any adhering earth removed, the tops cut off or wrenched off, avoiding injury to the crown. Separate the roots in sizes, the smaller for earlier use, and store them in alternate layers of dry sand in a dry outhouse, or in narrow heaps or ricks about 3 feet wide, made like those for Potatos or Mangels, building the crowns of the roots outwards. When being placed in store, the roots should be perfectly dry; thus well secured, Carrots and Parsnips will keep sound all winter for use as may be required.

As Parsnips are not injured by frost, but, on the contrary, are rendered sweeter, they need not be taken up, except as required for use, or until the ground in which they grow is required for tillage. For table use they are better taken up fresh and fresh. In February or March, however, any remaining should be taken up; otherwise they will vegetate. Preserved in sand, they will continue good until the end of April.

In October the leaves of Parsnips, as they begin to change colour, may be cut off and given dry to the cows, and also to oxen and horses. It is important to see that they be dry, as when moist from rain or dew they are apt to inflame the udder. If given moderately—a good armful to each cow—they will impart as much richness to the milk as the Parsnip itself; but do not let any decayed leaves be given to the milch cows. The Parsnip deserves notice on account of its fattening properties, as well as the good milk it yields. When given to cows with a little hay in winter, the butter is of fine colour and excellent flavour. Parsnips are excellent for fattening cattle or pigs. For them they should be used raw, never washed, as washed Parsnips are found to surfeit both pigs and cattle, and boiling it makes the bacon flabby. Parsnips are said to fatten a hog in six weeks, especially if sour milk is given with them. When boiled, Parsnips will fatten poultry.

(4). Dry weather should be chosen for the pulling of Turnips, not merely for the sake of keeping the Turnips clean, but also for the sake of the land, which ought not to be cut up and poached by the horses and carts. Turnips may be stored safely in triangular heaps, or ricks, from 6 to 10 feet wide at the base, tapering gradually to the top; the outer roots carefully built with the crowns outside. Frozen Turnips are injurious to cattle, they should be steeped in cold water to remove the frost; but having them stored and protected in time is less expense. The earth upon unwashed Turnips is injurious to cattle, it scours them, and keeps them loose in the bowels; they fatten faster with clean Turnips. Turnips gathered in frost should not be stored, but used at once. Turnip-tops are sometimes given to cattle, but it is an injurious practice, producing looseness of the bowels and loss of condition, from which the cattle take some part of the winter to recover. Better spread the tops equally over the ground on which they grew; let them become withered, and plough them down; they make some return to the ground.

The Turnips should be given on fresh pastures for the first month. Before the end of October the sheep should be netted on the Turnip land. They will improve more than double in September if they obtain a good supply of Turnips in a Clover or other good field than what they will do in November with the same full quantity of both.

Reviews.

Practice with Science. A Series of Agricultural Papers. Vol. I. Longmans.

A second has been added to the first series of papers from the Royal Agricultural College; and the whole appears as Vol. I. of "Practice with Science." The title very fairly describes the contents of the book; there are useful lectures and essays here by practical men as well as by scientific men, and even some of the separate papers might very well have the title of the whole collection as an appropriate individual motto. Take Mr. Russell's lecture on rotation of crops for example, which is one of the most important of the second series of papers here collected The subject is discussed—first, in relation to the practical economy of the farm; secondly, in relation with the physiological nature of the different plants, which renders some plants more exhaustive of the soil than others; and thirdly, in relation to the chemical and physcal constitution of soils, which renders them better adapted for certain plants than for others. Both Science and Practice are drawn upon. This, at any rate, is the plan of the lecture, which, however, while elaborate and complete even to redundancy under the first head, is less satisfactory, little more, indeed, than suggestive, under the other two. Mr. Russell's essay is, however, a very interesting contribution to the collection.

We are very glad indeed to find that Professor Wrightson is engaged on a series of experiments on the capillary action of soils—a subject which greatly needs investigation, and when thoroughly understood is certain to throw great light on the theory and action of land drainage. The various soils examined were placed in tubes, which stood in water. In 20 minutes the sand tube had drawn up the water 9 inches, and in 20 minutes 15 inches; in 132 days only 23 inches. In the corresponding times the clay tubes had drawn up the water 1½ inches, 5.17 inches, and 35½ inches respectively. The soils of closest texture, acting more slowly, had yet, when time was given to them, brought about the greatest lift; clays and loams beating coarse granules, whether of sand or any other mineral. The experiments are no doubt being continued, and we shall ultimately have some definite light thrown by them on the still vexed question of deep or shallow drainage.

Professor Church contributes the following short report on a second series of Wheat experiments, in the years 1865 and 1866—made to ascertain the germinating power and growth of heavy and light seeds respectively:—

"The results were slightly in favour of the light seeds in their early stages of development; but, as in former trials, the yield of corn was slightly greater from the heavy seeds. When translucent seeds were compared with opaque the same results were obtained. The former seeds, which are heavier than the latter, yielded a slightly greater increase, but fewer of them arrived at maturity. In these experiments, Hallett's new Pedigree Wheat was used—a white rough-chaffed variety. All the seeds selected were as perfect as possible, and on this account the results were much less conspicuous than where the whole sample of dressed seed-corn was separated into two parts, light and heavy, in the way described on p. 108 of these memoirs. The results this year with the Wheat already mentioned are very striking. In the following table the results of growing heavy and light seed under the same conditions as to sowing, cultivation, &c., are given in a condensed form:—

Kind of Seed.	Area in parts of an acre.	Yield of dressed corn (bushels)	Weight per bushel (pounds).	Yield per acre (bushels).
1. Heavy, top-dressed ..	.744	29.	61.9	37.
2 Do. not top dressed..	.567	18.95	62.6	34.4
3. Light, top-dressed ..	.270	9.02	62.3	33.4
4. Do. not top-dressed..	.288	8.76	62.5	30.4

"Thus we see that the heavy seed, top-dressed, yielded 3.6 bushels per acre more than the light seed similarly top-dressed; while the heavy seed, not top-dressed, yielded 4 bushels more than the light seed not top-dressed. Valuing this increase at 5*s.* per bushel, we have in the first case a gain of 18*s.* per acre, and in the second case a gain of 20*s.* In the experiments of 1863-1864, the gain similarly calculated amounted to just 13*s.* per acre; this was the average of four varieties of Wheat. But, in accordance with our expectations, the gain is greater in our latter experiments, in which the heavy seed was grown against the light seed, instead of against ordinary seed, as in the experiments of 1863-1864."

A collection of papers by the same author, descriptive of laboratory results, is well deserving of perusal. So is a good and practical paper on the hydraulic ram by the Principal. Mr. Robert Smith, of Exmoor, contributes a short account of his experience in the early sowing of Wheat, which is, however, less instructive than it would have been had the experiments been on a larger scale, and had the results been given per acre.

The Poultry Yard.

The Guinea Fowl.—The Pintado, or Guinea fowl, is partially known in a domestic state all over Europe, but is most common on the Mediterranean coasts. Africa appears to be its native country, and it was probably introduced into this country from Guinea. It is not only quite hardy, but we find this fowl very profitable to rear, and consider if the mode of rearing it were better known it would be more kept than it is. The first week in June is soon enough to begin setting common fowls on Guinea fowls' eggs. They come off in July, when plenty of ant eggs can be found for their food. One of our Guinea hens laid 180 eggs from April to October in 1851. Of course we feed them well. We never allow them to sit on their own eggs, but prefer giving them to a turkey, which will bring them up as cautiously as any hen, in fact better. We would recommend turkeys who lose their first brood to be set on the guinea fowls' eggs to rear them. A turkey can sit on from 20 to 24 eggs, whilst a common hen only upon 15 eggs. They do not like confinement, and if near a good park or Grass fields where they can range, will find more than half the food they require. The best way we find to render them tame is to feed them in one particular place, and at one specific time of the day, when they will not fail to come to the accustomed spot. They are fond of roosting in trees, if you are not particular in getting them home to roost early in the evening; but as we are careful of ours in this respect, we can drive them home at an early hour as easily as a flock of sheep. They cannot be put up to fatten, but must be allowed a good range, with plenty of food. We can generally sell them in February for 5*s.* a couple, and they are as easy to keep as chickens. To rear Guinea fowls, however, a good sitting hen or turkey takes 28 to 29 days to hatch, and as soon as they are hatched they will run about and be very wild, like a partridge. We place the hen and brood under a coop, with a lift similar to that used by keepers in rearing young pheasants, and are careful that there are no apertures through which they can get out, for in that case they would get to a stack of wood, or something of that sort, from which it would be very awkward to get them out again before they starved. Therefore we keep them very close within this coop for ten days, and give them plenty of ant eggs in the left compartment of the coop, and if we can procure sufficient they will require no other food; indeed they will not do well without them. Any one who can rear pheasants or partridges may rear Guinea fowls, as they seem to require the same treatment at first. *Land Steward.*

Poultry Management.—The age of poultry should never exceed three years (except it is wished to keep an individual for the sake of breed), after this age they rarely lay from the moulting season to late in the following spring, consequently it is folly to keep an unprofitable animal when one in profit would consume no more food. The plan I pursue and recommend is to part with all poultry after the third autumn laying, and to put in their place the previous spring chickens, by which is meant chickens hatched through the months of March, April, and May; birds of January and February hatching are apt to have their feet swollen by the cold of some situations, which is unsightly: and besides this being ready for market in May they are too valuable to be kept for stock when birds of less market value but equally good for laying can be had. The March pullets will begin to lay in September, and the others will succeed them in rotation of hatching; to these in November will be added the hens rising two years old, and about January, if favourable weather, the hens rising three years old will begin to lay. By attending to age a succession of laying hens will be had through the whole year. The next particular to be attended to is diet. With poultry as with other animals variety has its charms, and greatly promotes both fattening and laying. Poultry confined to a yard should have given to them food as similar as possible and as various as that they would feed on if allowed to roam at large; they require vegetables, seeds, insects, gravel, ashes, or dry mould as much as corn of different sorts, to keep them in health, and plenty of clean water: rain water is the best. If a feed of corn is given the first thing in the morning, let this be followed at 11 A.M. by a feed of Barley-meal mixed with boiled Potatos or Parsnips, or both, to this pieces of fat meat chopped may be added; the fowls will fill themselves to repletion. About 3 P.M. a little corn may be thrown them, soon afterwards they will prepare for roosting. Fowls prefer meal to corn, and I have observed that those birds that had rolled crams of Barley and Oatmeal required feeding only twice a-day, feeding to satisfy each time, and resting nearly the whole of the interval: by feeding with meal made into a stiff dough or crams with milk or liquor of boiled meat, more eggs and larger and fatter fowls will be obtained than by corn-feeding—of giving peppercorns to poultry I have no knowledge, neither do I think any benefit will attend it. *J. S.*

Spanish Poultry.—A correspondent says:—"I obtained some years ago four eggs of a remarkably large size (for hen eggs), averaging over 3 oz. each, from a friend, who got his fowls from a correspondent in the wine trade at Cadiz or Xeres, and from these I obtained a cock and two hens, very large and heavy, high, not from length of leg but depth of body as well, silver spangled in colour, with muffs to the jaws only, not to the head as the Polish—on the head is a small comb, drooping to one side, with silver ears. When young they are very odd-looking and bare of feathers, being first covered with a soft down, which is slowly succeeded by feathers, during which process the bare skin of the backs is seen during a week or two. Some of last year's chickens are perfectly black, and like the old Spanish breed, though there was no possibility of mixture of breeds: and this has happened in my friend's poultry-yard also, though we keep no other breed, nor do we intend to do so, as we find them superior to all others. They are equally good as layers and as table fowls—the young cocks of last year averaging 4 lb. weight, three months old, and of very white flesh, though never crammed or forced in feeding. Some of the eggs of the 2-year-old hens weigh 4 oz. wanting 2 drachms; and they may be called, with some propriety, 'ever-laying,' as they have never shown any disposition to hatch, which obliges us to procure common hens for that purpose. As it may be satisfactory to state how they are fed and treated, I shall do so as briefly as I can:—When my horses are fed in the morning, they get their share of white Oats; at 2 or 3 o'clock, when let out of their enclosure after laying, they get some screenings of Wheat, thus varying the grain, which I think of much importance, particularly as to flavour of the eggs; and in the evening, before retiring to roost, they get the boiled Potatos and skins left after kitchen use. Their houses are regularly cleaned out twice a-week, perches, &c., scraped cleanly, and there is a thorough ventilation through

the houses by the open doors and latticed small windows. Green food, of some kind or other, such as Cabbages, Vetches, Clover, &c., is regularly given two or three times a-week, and a boiled ox liver is thrown to them (whole) weekly, which, in a few days, is picked to shreds. Water and a large wooden bowl of gravel, and another of coal-ashes, are left in their way, without which I do not think they could be in such vigorous health as they always are."

Farm Memoranda.

A MARYLAND DAIRY FARM, BALTIMORE.—While the sale of milk is believed to be remunerative under the management we are to describe, I must add that the custom of diluting milk is so universal that the honest man is, as it were, driven out of all connection with a dishonest traffic. Mr. Winans, for example, disposes of his milk, of course, to retail dealers, and he has never sold to them at less than 30 cents per gallon. They can buy of others at 25 cents, but have preferred to pay him his price because they could water a pure article more than one that was already somewhat diluted. No responsibility for their acts can rest on his shoulders, it is true; but when any pursuit is carried on, at least partially for mental and physical recreation, one likes to avoid all connection, however remote, with anything that is not open and above-board. This unsavoury reputation does adhere to the trade in milk; and to that reason, in all likelihood, we may ascribe the fact that it is so often in the hands of a class of dealers in very low position, both morally and pecuniarily.

I said that though rendered somewhat familiar, by correspondence, with what Mr. Winans had done, I did not realise it as I have come to do by personal examination for a few days past. Let me illustrate by a few figures I am permitted to copy from his books:—

Sales of Milk by Mr. Winans for one Year to May 1st, 1867.

Month of	Dols. c.	Month of	Dols. c.
May, 1866 ..	3,421 45	November, 1866 ..	3,176 45
June ,, ..	3,585 93	December ,, ..	3,104 60
July ,, ..	3,558 91	January, 1867 ..	3,086 26
Aug. ,, ..	2,371 03	February ,, ..	3,020 78
Sept. ,, ..	2,194 75	March ,, ..	3,373 08
Oct. ,, ..	3,047 56	April ,, ..	3,709 91

Total sales of milk for 12 months ..	Dols. 37,630 71
Sales of cows and calves for same period ..	11,986 08
	Dols. 49,616 79
Purchase of cows and heifers, same time ..	9,098 66
	Dols. 40,518 13

It is only since the 1st of May (and therefore not included in the foregoing statement) that Mr. Winans has begun to reduce his stock, and the sales given only include the usual surplus of the year. Moreover, although no count or inventory was taken of the two dates referred to, it is estimated that the number of cattle on hand was 15 or 20 greater May 1st, 1867, than May 1st, 1866. Their value is to be added to the above figures, as is also that of 100 tons hay sold at 38 dollars per ton (3800 dollars), and about 220 tons estimated now on hand; so that it is easy to see that the aggregate production of the year may be safely put down at 50,000 dollars. The cost of feed (mainly bran or shorts and Indian Corn), and that of labour on the farm and in the stables and dairy, are of course to be deducted. If we add the value of the manure produced, and charge it over to the cost price of the farm, it will somewhat increase the latter, and so much enlarge the yearly profit. Indeed the present value of the 700 acres may be fairly rated at 200 dollars per acre, and this is just about what has been invested—say 50,000 dollars in the cost of land, 67,000 dollars in manures and fertilisers, purchased and produced, including transportation and labour, 20,000 dollars in buildings, and 3000 dollars in fencing. These are round numbers, but will serve the purpose of illustrating the scale on which the operation has been conducted.

On visiting the two farms we found them in excellent condition. The standing Grass crop, though backward (mowing begun May 20th, in 1866), bids fair to exceed that of last year. And as to last year's crop, I can only say that it filled 45 barns, rated at 40 tons each, being an aggregate of 1800 tons—the largest hay crop I remember to have seen on record cut by an individual in a single year! The estimate can be tested in this way: 300 head of cattle and 30 horses were fed on hay all the year round, and 320 tons were sold or left over—which would account for an average consumption of less than 25 lb. hay per head per day. Now, as to the surface on which this crop is grown: The two farms together have about 760 acres, of which there is one considerable patch that is still wet and not in order, leaving, with other deductions, less than 700 acres to mow—probably not over 650—so that the crop, at the lowest figures, was over 2½ tons to the acre. So much for liberal manuring!

This year three more barns are to be put up, and it is hoped that the crop will be nearly or quite 2000 tons.

The stables are in the city, and contain stalls for 220 cows. The number of cows actually milked has varied from 180 to 200 for two years past, while nearly 100 more are kept at the farm, to draw upon as circumstances require. The average yield of milk per cow per day, when tested, has been about 2 and 1-10th gallons; but no record has been kept showing the average number of days in the year which each cow has been milked. It may be computed, from the facts that are satisfactorily ascertained, however, to be very nearly 315 days; and upon this basis we shall make an average yearly yield of 2637 quarts per cow, which, for an establishment of such extent, I need not say, is exceedingly large. Most of these calculations, I should add, are my own, from the data furnished by Mr. Winans' books; and they are not made up with any other view than to get at the exact facts of the case. Many of the cows very much exceeded the average; and I copy the following from the records of a number which attracted my attention as we passed through the stalls.

Average Daily Yield of several Cows, from a Record kept of the Amount they gave, at Intervals of about Three times per Month, in Quarts and Hundredths.

No. 30, cow fresh May 8, 1866,	to May 10, 1867	....	11.37
No. 147, cow fresh June 27, 1866,	to May 11, 1867	....	11.49
No. 191, cow fresh April 20, 1866,	to May 4, 1867	....	12.22
No. 101, cow fresh Nov. 21, 1866,	to May 1, 1867	....	10.96
No. 215, cow fresh Nov. 28, 1866,	to May 9, 1867	....	13.85
No. 122, cow fresh Dec. 17, 1866,	to May 2, 1867	....	12.65

These six cows had thus averaged a fraction over 12 quarts each per day, for periods varying from about five months in the last (No. 122) up to two days over a full year in the first (No. 30). Of the fresher cows I might add a list of 16, which dropped their calves at intervals during January and February, and up to March 13, which have averaged over 16 quarts of milk daily to each cow. A third list might include 14 heifers, with their first calves, which have now been in milk from one to six months, and have averaged 13 quarts per day each. *American Country Gentleman.*

Miscellaneous.

Sales of Shorthorns.—The herd of the Duke of Montrose, and the largest portion of the herd of Viscount Strathallan, were sold by Mr. Carr, at Mr. Dewar's farm, King's Park, near Stirling. The sale was opened with the Duke of Montrose's cows and heifers, for which there was a good competition. Rosedale, the best cow in the herd, was purchased by the Duke of Montrose, at Lady Pigot's sale, for 217 guineas. In the herd of cows belonging to Viscount Strathallan, Violante obtained the highest price, 91 guineas, Sir William Stirling-Maxwell being in this case the buyer. The highest price paid for a bull was Scottish Chief, belonging to the Duke of Montrose, which fetched 67 guineas. The sale was the greatest which has ever occurred in Scotland. Excepting Rosedale and a few others, the most of the animals will remain in Scotland, a circumstance which shows how much the Shorthorn stock is appreciated on that side of the Border. The following is the list of the Duke of Montrose's herd:—

COWS AND HEIFERS.

La Valliere, roan, 12-year-old; got by Gainford 5th (12,913), dam (Farewell) by Royal Buck (10,750)—41 guineas; Mr. Fox, of St. Bees.

New Year's Morn, white, 10-year-old; got by Baltic (12,431), dam (Lady Marguerite) by Master Charlie (13,312)—30 guineas; Sir W. Stirling-Maxwell, of Keir.

Rosedale, roan, 6-year-old; got by Valasco (15,443), dam (Rosy) by Master Belleville (11,795)—235 guineas; Mr. Beattie, of Montreal.

Flower Girl, roan, 6-year-old; got by Baron Killerby (19,280), dam (Flora) by Victor Emmanuel (15,459)—100 guineas; Sir W. Stirling-Maxwell, of Keir.

Rosy Morn, red roan, 5-year-old; got by Victor Royal (21,028), dam (New Year's Morn) by Baltic (12,431)—61 guineas; Duke of Richmond.

Baroness Killerby, roan, 4-year-old; got by Baron Killerby (19,280), dam (Flavia) by Baron Warlaby (7813)—75 guineas; Mr. White, of Little Clinterty, Blackburn, Aberdeenshire.

Early Dawn, roan, 2-year-old; got by Fashion (21,724), dam (New Year's Morn) by Baltic (12,431)—58 guineas; Mr. Turnbull, of Huntingtower.

Ballet Girl, roan, 2-year-old; got by Fashion (21,724), dam (Flower Girl) by Baron Killerby (19,280)—58 guineas; Mr. Turnbull.

Princess, red, 2-year-old; got by Fashion (21,724) dam (La Vallière) by Gainford 5th (12,913)—50 guineas; Mr. Turnbull.

Pride of the Morning, roan, 1-year-old; got by Scottish Chief (22,849), dam (Rosy Morn) by Victor Royal (21,028)—75 guineas; Sir W. S. Maxwell.

Highland Girl, roan, 1-year-old; got by Scottish Chief (22,849), dam (Flower Girl) by Baron Killerby (19,280)—56 guineas; Mr. Balfour, of Balbirnie.

Lady Booth, roan, 1-year-old; got by Baron Booth (21,212), dam (La Vallière) by Gainford 5th (12,913)—42 guineas; Mr. Storer, of Hellidon, Daventry.

Day Spring, roan, calf; got by Scottish Chief (22,949), dam (Early Dawn) by Fashion (21,724)—31 guineas; Mr. Scott, of Brotherton, Kincardine.

French Lady, roan, calf; got by Scottish Chief (22,849), dam (La Vallière) by Gainford 5th (12,913)—23 guineas; Mr. Fox, of St. Bees.

BULLS.

SCOTTISH CHIEF (22,849), red, 3-year-old; got by Ravenspur (20,268), dam (La Vallière) by Gainford 5th (12,913)—67 guineas; Duke of Richmond.

ROSE HILL, roan, 2-year-old; got by Fashion (21,724), dam (Rosedale) by Valasco (15,443)—40 guineas: Mr. Stirling, of Cockermouth.

NORTHERN LIGHT, roan, yearling; got by Scottish Chief (22,849), dam (New Year's Morn) by Baltic (12,431)—42 guineas; Mr. Balfour, of Whittingham.

SCOTCH ROSE, red, yearling; got by Scottish Chief (22,849), dam (Rosedale) by Valasco (15,443)—51 guineas; Mr. Cruickshanks, of Sittyton.

CLANSMAN, roan, calf; got by Scottish Chief (22,849), dam (Rosy Morn) by Victor Royal (21,028)—32 guineas; Mr. Forman, of Windymains, Upperkeith.

JACOBITE, roan, calf; got by Scottish Chief (22,849), dam (Flower Girl) by Baron Killerby (19,280)—30 guineas; Mr. Charles Tenant, of Buchlyrie.

Average of cows (14)	£70 4 0
Average of bulls (6)	55 0 0
Total average	62 18 0

Irish Cattle Traffic.—A bullock "trucked" at Westport at 8.30 P.M. arrives in Dublin about 11 A.M. on the following morning; in a couple of hours it is shipped for Liverpool, and on its arrival there is sent by railway a considerable distance inland; and during all this time remains unfed and unwatered. Such a mode of conducting business is as demonstrably wasteful as it is obviously immoral. A cattle salesman stated before the Committee of the House of Commons that the animals are so ill-treated in loading on the railway trucks, and are kept so long standing in them, that he prefers walking his cattle 70 or 80 miles. A wholesale butcher stated, "they sometimes get dreadfully bruised," and that "a beast badly bruised may lose 3*l.* or 4*l.* in value." Another witness adds that "the Irish cattle are very wild, and the men who drive them very wild, and that they do not use ordinary care." Is it not natural to suppose that such a system must tend to generate fever and contagion amongst the cattle, or at least make them less fit for the purposes of man? I believe I do not exaggerate when I say that scenes of shocking cruelty are constantly witnessed at the shipment of cattle at the North Wall, Dublin. *Dr. Moffat, of Queen's College, Galway.*

Guernsey Agriculture.—Mr. T. Butler, of Ballycarron, thus referred to it at a recent agricultural meeting in Ireland:—"I attended the show of the Royal Agricultural Society of Guernsey last November, and acted as one of the judges, and although this union is seven times larger than Guernsey, I assure you they had a capital show. I found out that my fellow judge, who holds a seven-acre farm, was quite a big man in his way; for, taking the farms in Guernsey one with another, they average only four Irish acres each. In the next place, I found that the farming in the island, though it is done by the very smallest of small farmers, is yet some of the best and most profitable farming in the whole world. I found that these small farmers enter into the occupation of their three or four acres of land often at the almost incredible rent of 8*l.* the Irish acre, and yet that their profits gradually enable them to redeem or buy out the rent, an option which is allowed to them by their land laws, and to pay the owner 20 years' purchase upon this enormous rental. I think we can learn much from the example of Guernsey. It is a good deal to learn from it, in the first place, that which Lord Dufferin and the Fenians both agree in denying—that a dense agricultural population can exist in comfort under the British Crown. In the Channel Islands we find a ready solution to some other problems and controversies that vex us much in Ireland. We are often told here that the small farmers must get eaten up by their larger rivals—that 'the peaceful operation of economic laws' has done for them—that they cannot stand any longer before the mowing machines and threshing and winnowing machines, which, it seems to be thought, must perform their natural offices by Irish men and women, as well as by Irish corn and chaff and hay. But how is it in the Channel Islands? Why, the consolidation of farms is a phrase unknown there. The tendency is rather to subdivide, and the smallest farms pay the highest rent. I visited one farmer who had recently come into occupation of a second farm, and he told me he had parted with it because he could not give to it that close attention which would enable him to realise so good a profit as he obtained by letting it to a small farmer. So you see different institutions in the Channel Islands lead to a different working of economic laws. But I cannot enter further into the causes of this difference without trenching upon ground that is forbidden here. All I shall say is this: if there is any one here who will go to inquire into the condition of agriculture and of the people in the Channel Islands, I care not what may be his politics, I am sure there is one character in which he will not return, and that is, as the determined opponent of all improvement of our land laws."

Caustic lime made from magnesian limestone is very generally disliked by farmers. It retains its caustic properties for a much longer time than the common lime, and instead of only using them upon the decaying vegetable matter of the year in which it is applied, continues to exercise them upon the living crops, both in that and subsequent years. It is, therefore, a serious objection to any lime that it contains magnesia in any quantity, and yet upon hypothesis applicable to special circumstances it has been used successfully. It occurred to some one that as peat soil, from its redundance of vegetable matter, ordinarily requires a long time, and the application of lime for successive years, for its conversion into ordinary earth, the superior caustic properties of lime from magnesian limestone might be applied with advantage to reduce it more rapidly into the required state. The experiment has been tried, and the hypothesis proved well-grounded. *The Farmer.*

On Drying Corn in Sheaves.—Reading a periodical of date Edinburgh, 1st September, 1832, I was struck with the following extract from the "New Monthly Magazine" of that period, referring to the stupid outcry made then against steam conveyance by railroads. The writer says—"Farmers, who are the most timid of God's people, and about the most short-sighted, cry out that horses would cease to be wanted!" "The general produce of the country will be greatly increased by the easy conveyance of appropriate manures, and all those heaps of articles, of which it is often remarked they are not worth carriage, will suddenly rise into great value. Treasures will start up under the feet of some men." But, alas! the British farmers for a generation past have made little or no efforts to appropriate the fertilising refuse of our cities and towns, as our polluted streams testify. It may be that our farmers do not want to increase the fertility of mother earth, seeing the helpless mode they have got of securing the produce as it is during a wet season. The following extract from the same journal (although it may have been published many times during the last 35 years) is well worth the attention of both landlord and farmer:—"Mr. Stephens, of Edinburgh, communicates to the Journal of Agriculture—'The simplest method of securing the crop after cutting it down from being damaged by standing long in stooks on the ground, is that universally practised by the agriculturist in the woody parts of Sweden and Norway, and which never fails in completely protecting at least nine-tenths of the grain from growing in the sheaf, as well as the straw from any serious injury. In those districts every farmer provides as many *sades stor*, corn stakes (that is, stakes for drying the grain on), as will be necessary for the quantity of his growing crop. They are generally made of young white Pine, 8 feet long, about 1½ inch diameter at top and 4 inches at the bottom. The upper end is pointed, to allow the sheaf to pass easily

down over it, and the lower end is likewise pointed, to facilitate its being fixed in the ground. When a field of grain is ready for the sickle, the stakes are conveyed to the spot, and the reapers proceed with the work; the stakes are put up in rows behind them, in the same manner and at the same distance from each other as is common in stooking the crop. A man, with the assistance of an iron crane or spit, will set up 500 of these in a day. The next operation is to put the sheaves on the stakes. This is performed by raising the first sheaf up to the top of the stake and passing it, with the root end downwards, to the ground, the stake being kept as nearly as possible in the middle of the sheaf. The sheaf then stands perpendicular and round the stakes. The second sheaf is fixed on the stake in an inclined position, with the grain end sloping a little downwards, the stake passing through the sheaf at the band in a transverse manner, and in that position it is pressed down to the first sheaf, and thus forms a covering to it. All the other sheaves are threaded on the stake in a similar way as the last sheaf put on, keeping them all one above another, with the root-ends facing the south-west to receive as much of the sunshine as possible, on account of the greater quantity of Grassy substance they contain at the end. As each sheaf thus acts as a complete covering to the one beneath it, and as there is only one that can touch the ground, rain cannot at any time penetrate through them, and it is very rare that any single heads of grain on a stake are injured. I have witnessed these operations performed with as much expedition as actually attends the common way of setting the crop in the field in stooks. The number of sheaves put upon each stake is generally 15 or 16. The advantages arising from the above simple manner of protecting the crop are many, exclusive of the consideration of the grain and straw being preserved in a wholesome state. The farmer by it is enabled to commence reaping early in the morning while the dew is yet on the grain. Partial rainy weather does not prevent his operations; he can employ all his people in cutting down the crop before carrying home any part of it, and when he does commence carrying it home not the least particle is shaken out, for, instead of throwing a single sheaf into the corn cart or waggon at a time (by which much grain is frequently lost), the stake with the whole of its contents is taken up, put into the cart, and carried to the corn-yard. When the crop is all carried home the stakes are collected and laid aside to be similarly applied the succeeding year, and when carefully kept during the period they are in use they will last 20 or 30 years. I have known many farmers residing on the plains of Sweden, where wood is extremely scarce, who, rather than be without such preservatives of their crop, choose to purchase them at a dear rate and transport 30 or 40 miles to their possessions. Indeed, the practice of staking the grain is there so general and so beneficial that the number of stakes used is often taken notice of when a lot of land is offered for sale.'" The above method of securing the crop during a wet season is so well adapted for our variable climate, and being cheap, simple, and efficient, it must be the stupid adherence to old habits that hinders our farmers from adopting such a mode. I believe in some parts of Aberdeenshire it is adopted during wet seasons with success, though many projects made of late induce me to think that a lesson might be taken from Norwegian and Swedish farming. *J. Kerr, Galashiels, in "Inverness Courier."*

Notices to Correspondents.

"*" One or two questions must remain unanswered for a week.

Milk: *M A X.* Keep out light and you keep out heat in great measure. Cold water is, of course, the main agent; but a dark cellar will help you.

Teeth as Indicating Age: *Cor.* The following tables are taken from Professor Simond's report on this subject in the "Journal of the English Agricultural Society":—

DENTITION OF THE OX.

Table of Early Average. The Breed and other Causes favouring Development.			*Table of Late Average* The Breed and other Causes retarding Development.		
Years.	Months.		Years.	Months.	
1	9	Two permanent Incisors.	2	3	Two permanent Incisors.
2	3	Four do.	2	9	Four do.
2	9	Six do.	3	3	Six do.
3	3	Eight do.	3	9	Eight do.

DENTITION OF THE SHEEP.

Table of Early Dentition.			*Table of Late Dentition.*		
Years.	Months.		Years.	Months.	
1	0	Central pair of temporary Incisors replaced by permanent.	1	4	Two permanent Incisors.
			2	0	Four do.
1	6	Second pair do.	2	9	Six do.
2	3	Third pair do.			
3	0	Fourth pair do.	3	6	Eight do.

DENTITION OF THE PIG.

	At Birth.	One Month.	Three Months.	Nine Months.	Twelve Months.	Eighteen Months.
Foetal { Incisors	4	4	4	..	..	..
Foetal { Tusks	4	4	4	..	..	..
Temporary Incisors	..	4 *a*	8 *b*	8 *b*	4 *a*	..
Permanent Incisors	..	..	..	4 *c*	8 *e*	12 *f*
Permanent Tusks	..	..	..	4 *d*	4	4
Total in both jaws	8	12	16	16	16	16

a. Central. *b.* Central and Lateral. *c.* Corner. *d. Cutting.* *e.* Central and Corner. *f.* Central, Lateral, and Corner.

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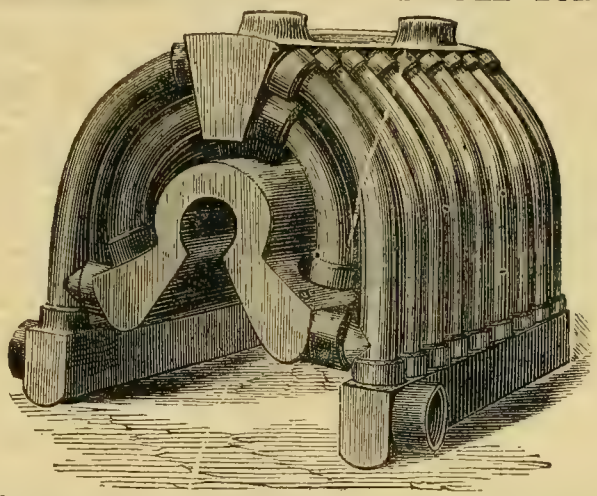
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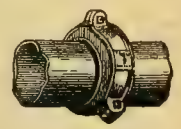
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40 feet by 15 feet ..	15 0 0 ..	2 15 0	100 feet by 15 feet ..	26 0 0 ..	3 5 0

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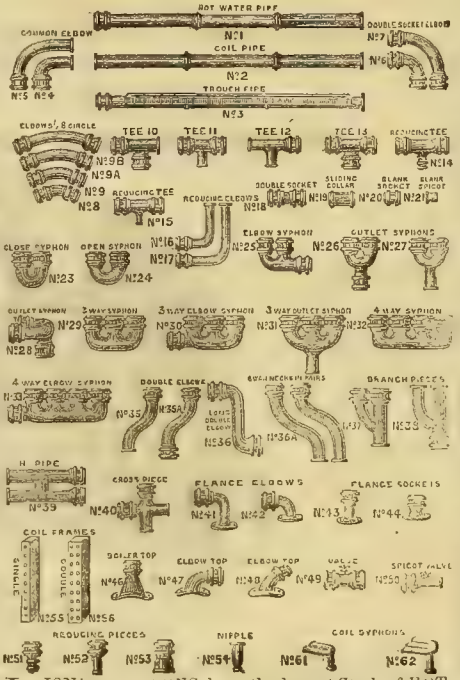
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2	3	4 inch.
1s. 6d.	2s. 1d.	2s. 9d. per yard.

Materials supplied as above, or Estimates given fixed complete to Plan, on application to COTTAM & Co., Iron Works, 2, Winsley Street, (opposite the Pantheon), Oxford Street, London, W.



CRANSTON'S PATENT BUILDINGS for HORTICULTURE.

"Dry Glazing without Putty."
"Glass without Laps."
"Ventilation without Moving Lights."

Highly Commended by the Royal Horticultural Society, South Kensington.



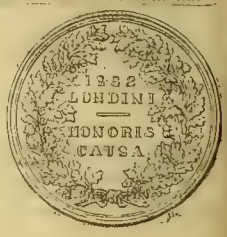
Plans and Estimates free on application. Descriptive Book fully illustrated, post free for 20 stamps, from the Author and Patentee, JAMES CRANSTON, Architect, Birmingham.

Works: Highgate Street, Birmingham.

HENRY J. GROWTAGE, Manager, 1, Temple Row West, Birmingham.



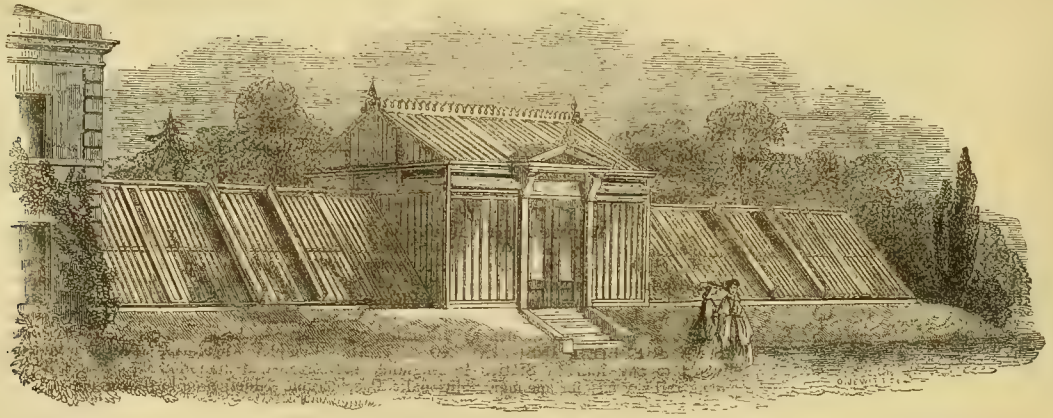
CONSERVATORIES, ORCHARD HOUSES, &c.



BY STEAM-POWER MACHINERY, OF BEST MATERIALS, AND AT LOWEST PRICES.

EVERY DESCRIPTION OF HORTICULTURAL BUILDING DESIGNED, HEATED, AND VENTILATED IN THE MOST EFFICIENT MANNER.

MANUFACTORIES: { LONDON, GLOUCESTER, COVENTRY, ULVERSTONE, PAISLEY, and ABERDEEN.



The above represents a Range about 90 feet long; Conservatory in centre, 20 feet square; and Span-roof Wings, 32 feet long, on Sir Joseph Paxton's Patent Principle, forming Orchard-House, Vinery, &c. This system of building Span-roofs has been extended to form large WINTER GARDENS, covering an immense area, at a low cost; the produce of which, in a few years time, would almost, if not entirely, repay the original cost.

Gentlemen about to form New Gardens can be advised the best method of arranging these Glass Roofs for all Horticultural purposes, and as Boundaries in place of Walls, combining elegance with utility. As already so erected by us, they are economical substitutes for walls, ensuring the production of much larger and better crops of fruit.

ILLUSTRATED PRICE LISTS of the PATENT ROOFS free on application. REFERENCES can be given to work executed in all parts of the Kingdom.

ESTIMATES given for ORNAMENTAL CONSERVATORIES to Architect's Plans and Specifications; also for HEATING APPARATUS for all purposes, and to any extent, fixed complete anywhere in the United Kingdom.

☞ *Designs prepared to suit different styles of Mansions, or to particular dimensions, with rough Sketches.*

HEREMAN AND MORTON, 7, PALL MALL EAST, LONDON, S.W.

The New Furnace Bar
(Warriner's Patent).

THIS BAR is particularly adapted to FIRES for VINERIES, GREENHOUSES, &c., and all FURNACES worked on the principle of slow combustion. The saving of Fuel effected is very great; nearly all the Smoke is consumed if care be taken, and the fire can be so regulated that any temperature desired can be kept up for at least 12 hours without stoking or further trouble. Any Bricklayer can set up these Bars without deranging much of the brickwork. They are in use in many Conservatories, and give the highest satisfaction. Testimonials will be forwarded on application to the Proprietors,

The Ventilating Furnace Bar Company, Limited, 9, Mincing Lane, London, E.C.

Specimens of these Bars may be seen in the Eastern Arcade of the Horticultural Gardens, South Kensington.

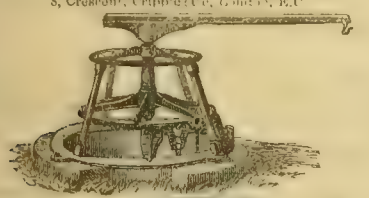
Greenhouse.

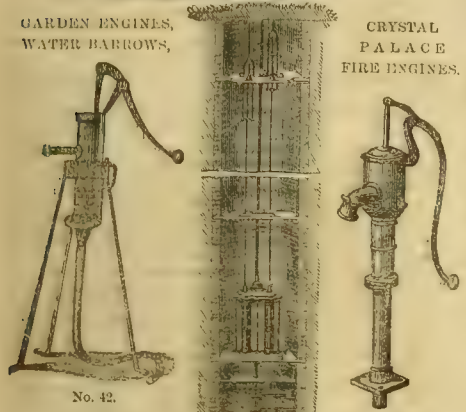
WANTED to PURCHASE, a GREENHOUSE or CONSERVATORY. It must be of modern character and in good condition.

Particulars of size, price, &c., to A. Z., Abbott, Barton, & Co., Advertisement Contractors, 203, Strand, W.C.

JOHN WARNER AND SONS, BRASS and BELL FOUNDERS to HER MAJESTY, HYDRAULIC ENGINEERS,

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GARDEN ENGINES, WATER BARROWS, CRYSTAL PALACE FIRE ENGINES.

No. 42. PORTABLE PUMPS for LIQUID MANURES. DEEP WELL PUMPS, for Steam, Horse, or Hand Power. No 35. CAST-IRON PUMPS.

Drawings and Prices for any description of Hydraulic Machinery sent upon application.

JOHN GIBSON, Jun., begs to announce that he is prepared to Furnish PLANS and ESTIMATES for LAYING OUT GROUND attached to Mansions and Villa or other Residences, or for the FORMATION of PUBLIC PARKS or GARDENS and to carry out the same by Contract or otherwise.

Address Mr. John Gibson, jun., Surrey Lane, Battersea, S.W.

Farm Poultry.

GREY DORKING FOWLS, of purest breed, in any numbers.

Imported TOULOUSE GEESE, the largest and most productive breed known.

Improved NORFOLK TURKEYS, large, hardy, and good breeders.

AYLESBURY and ROUEN DUCKS.

Imported BELGIAN HARE RABBITS, for size and early maturity.

BRAHMA-POUTRA, CREVECŒUR, and LA FLECHE FOWLS, for constant layers.

Priced Lists and Estimates on application.

John Baily & Son, 113, Mount Street, London, W.

WANTED on LEASE, GARDENS with VINERIES &c., and some few ACRES of good LAND.

Apply to A. B., Mr. G. Tibbey, Covent Garden Market, W.C.

Market Garden Ground.

LEASE of 18½ ACRES, 12 years unexpired, 10 Acres stocked with FRUIT TREES, to be SOLD, about 13 miles from London.

Apply to Mr. Edw. Baker, Feltham Middlesex.

FOR DISPOSAL, a First-class NURSERY and SEED BUSINESS; or the present Proprietor would accept of a WORKING PARTNER with a Capital of not less than £1500.

Apply by letter to E., Messrs. Hurst & Son, 6, Leadenhall Street, London, E.C.

TO BE DISPOSED OF, on account of a death, a SMALL NURSERY, with immediate possession. Stock to be taken at Valuation. Good Jobbing Business attached.

J. H., 18, Delancey Street, Camden Town, N.W.

TO BE DISPOSED OF, and may be entered upon immediately, in a first-rate business town, an old-established small NURSERY, well stocked with Fruit Trees, Evergreens, Roses, and ornamental Shrubs, &c; Greenhouses and Pits, and other requisites; brick walls stocked with about 400 Standard and Dwarf Fruit Trees. The soil rich loam; there is every facility for laying on an extensive trade. The Advertiser resides in the town, and will render every assistance to the purchaser.

For further particulars apply to G. E. W., *Gardeners' Chronicle* Office, W.C.

To Gardeners and Others.

TO BE LET, a FIRST-CLASS FRUITERER'S and GREENGROCER'S, with Horse, Cart, and Harness, and everything complete. A good Family Connection in an improving neighbourhood, with a good Jobbing Gardening attached. Satisfactory reasons for leaving. All at £100.

Apply, 2, Shaftesbury Terrace, Hornsey Rise Middlesex, N.

Nursery and Seed Business for Sale.

WILLIAM DEAN, having determined on residing in London again, offers for SALE, with immediate possession, the NURSERY at SHIPLEY, consisting of Four Acres, with 13 extensive Glass Houses, the whole, with the Nursery well stocked, and with Dwelling House, &c., is held on Lease; also the SEED SHOP, in BRADFORD (the only one in the town), which is well fitted up, and where there is a good business doing in Fancy Articles, as well as Seeds, Cut Flowers, Flowering Plants, &c. The Nursery is 2¼ miles from the Shop, on a principal road to Bradford. A half year's business is equivalent to the purchase money required, and will be a great bargain to the purchaser. It is an excellent opportunity for a large house in the South to establish a Branch Business here, as a good healthy Trade is already done, which may be very much increased. For particulars apply to

William Dean, Bradford Nursery, Shipley, Yorkshire.

Sales by Auction.

Dutch Bulbs.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on MONDAY, October 28, at half-past 12 o'Clock precisely, 800 Lots of First-class BULBS, just arrived from well-known Farms in Holland. On View the Morning of Sale, and Catalogues had.

Roses, Shrubs, Fruit Trees, Bulbs, &c.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, October 30, at half-past 12 o'Clock precisely, 1200 Standard and Dwarf ROSES from France; a fine assortment of Hardy TREES and SHRUBS, FRUIT TREES, CONIFERS, &c. And a large importation of HYACINTHS, TULIPS, GLADIOLI LILIES, CROCUS, NARCISSUS, and other Bulbs, just arrive rom Holland.

On view the Morning of Sale, and Catalogues had.

To Wholesale Druggists and Others.

Valuable Crop of Liquorice, at Mitcham, Surrey.

MESSRS. BLAKE will SELL by AUCTION, on the land as under, on TUESDAY, October 29, at 2 for 3 o'Clock, in two lots, the CROP of LIQUORICE, 5 and 3 years' growth, now growing on about 2 acres, in Pudding Field, opposite the Ravensbury Mills, near the Mitcham Railway Station.

Catalogues will be forwarded on application to the Auctioneers 21, High Street, Croydon, Surrey, S.

Valuable Nursery Stock,

At the late Mr. Day's Nursery, at Eynsham, midway between Witney and Oxford,

MR. LONG will SELL by AUCTION, on the Premises, at the Nursery Gardens in Eynsham, on TUESDAY and WEDNESDAY, October 29 and 30, commencing each day at 11 o'Clock, in convenient lots, and by order of the Trustee under the Will of the late Mr. Joseph Day, deceased, Nurseryman and Market Gardener (without reserve)—about 30,000 Laurels, 10,000 Laurustinus, 2000 Yew Trees (various), 2000 Evergreen Oak, 1000 Apple, Pear, Plum, and Cherry Trees, 500 Portugal Laurel, 5000 English and Turkey Oaks, Gooseberries, Currants, and Raspberries, 3000 Aucuba japonica, 2000 dwarf Berberis, 3000 Tree Box, 2000 yards of Box Edging, Evergreen Privet, Elm, Hornbeam, Chestnut, and Acacia Trees, 500 Common Holly, 1000 Spruce Fir, Italian Poplar, Sweet Briars, and Broom; Filbert, Walnut, Standard Apricot, Fig, and other WALL FRUIT TREES; also a variety of other Choice Stock, which will be sold for ready money, and to be cleared on or before December 23.

Catalogues can be had at the Nursery Lodge in Eynsham, and of the Auctioneer, Witney, who will forward the same by post on application.

Important Sale of Ayrshire Cattle, &c.

The Silver Hill Farm, Derby.

MR. TURNER will SELL on the Premises, on OCTOBER 31, at 11 o'Clock precisely, upwards of 70 Head of BULLS, COWS, YEARLING HEIFERS, STEERS, and CALVES; also three Working HORSES, 250 Cross-bred SHEEP, in Fat and Store condition; and eight choice PIGS, of both the large and small breeds.

Catalogues may be had of Mr. Davie, on the Farm; or Mr. Turner, Dalbury Lees, Derby. Luncheon at 10 o'Clock.

To Florists, Orchid Growers, Amateur Gardeners, and Others.

MESSRS. CRAWTER AND DEATH will SELL by AUCTION, on SATURDAY, Nov. 2, at 1 o'Clock, at the Assembly Room, King's Head Inn, Enfield, by direction of W. Marshall, A. Short, and J. Skilbeck, Esqs., a Choice Collection of STOVE and GREENHOUSE PLANTS, comprising fine specimens of rare Orchids, Foliage Plants, Ferns, Azaleas, Camellias; large handsomely grown Specimen Pelargoniums, well adapted for exhibition, Rhododendrons, Stephanotis, Cacti of sorts, Epacris, Caladiums, Oleanders, and various other plants. All well worthy the attention of gentlemen wishing to obtain specimens of first-class Plants.

May be Viewed on the Morning of Sale and Catalogues obtained at the place of Sale, and of the Auctioneers, Enfield, Middlesex, and Cheshunt, Herts.

Extensive Sale of Nursery Stock at Edengrove Nursery, Cupar Fife.

THERE will be SOLD by PUBLIC ROUP, on MONDAY, November 4, at half-past 12 o'Clock, in consequence of the near expiry of the Lease, the WHOLE STOCK in EDENGROVE NURSERY, consisting of—

400,000 1-yr. Seedling Larch.	30,000 Transplanted Pinus Austriaca.
200,000 2-yr. do.	200,000 2-yr. Seedling Elm.
54,000 2-yr. Transplanted Larch.	6,000 Transplanted do.
200,000 1-yr. Seedling Scots Fir.	40,000 2-yr. Seedling Ash.
50,000 2-yr. do.	100,000 2-yr. Seedling Oak.
20,000 1-yr. Transplanted Scots Fir.	10,000 2-yr. Turkey Oak.
100,000 3-yr. Seedling Spruce.	10,000 Transplanted Oak.
65,000 Transplanted Spruce.	30,000 Transplanted Thorns.
15,000 3-yr. Seedling and Transplanted Silver Fir.	10,000 Transplanted Alder.
30,000 1-yr. Seedling Pinus Austriaca.	10,000 Transplanted Hollies.
	2,000 Limes, from 3 to 7 feet.
	15,000 American Arbor-vitæ.

Together with large quantities of Rhododendrons, Irish Yews, and Junipers, Bays and Portugal Laurels, Pear, Apple, and Cherry Stocks, &c.

Catalogues to be had on application to Messrs. Charles & J. R. Welch, Writers, Cupar Fife.

Important Sale of Nursery Stock

At Hedenham Rosery, Norfolk, near Bungay, Suffolk.

GEO. DURRANT has received instructions from the Executors of the late Mr. R. B. Bircham to SELL UNRESERVEDLY by AUCTION, on TUESDAY, November 5, all the choice and highly-prized STANDARD and DWARF ROSES, HOLLYHOCKS, PHLOXES, &c, for the superior excellence of which the late Mr. Bircham had for many years been justly celebrated, viz:—1100 Standard Roses, 10,000 Dwarf Roses, 2100 Hollyhocks, 1000 Phloxes, Pampas Grass, 30,500 Manetti Stocks; APPLE, PEAR, and PLUM TREES, the whole of which are named; together with all the Propagating and Forcing Houses, complete as built, consisting of a Lean-to Cucumber House, 77 feet by 8 feet; a Span-roof Cucumber House, 40 feet by 12 feet 6 inches; one ditto, 40 feet by 10 feet 6 inches; a Propagating House, 51 feet by 11 feet; also 14 Pit Lights, 14 various Frames and Lights, 44 Hand Lights, Frigi Domo Coverings, Garden Netting, Fumigators, Syringes, Watering-pots, and utensils in trade.

The Auctioneer begs to call the attention of Nurserymen and Amateurs to this Sale of the entire Stock of Hedenham Rosery. The late Mr. Bircham having obtained many prizes and much celebrity for the excellence of his Roses and Hollyhocks, is a guarantee of the superior quality of the plants now in the Nursery.

Catalogues, price 3d. each, may be had seven days before the Sale upon the premises; of Messrs. Nunn & Hobday, St. Augustine's Nursery, Norwich; of the Auctioneer, St. Peter's Hall, Bungay; and at his Office, Mr. R. R. Cann's, Harleton.

The Property may be viewed three days' prior to, and on the Morning of the Auction, till 10 o'Clock, at which time, to a minute, the Sale will commence, in consequence of the great number of Lots.

Notice.—Eaton Nursery, near Norwich.

To Noblemen, Gentlemen, and Others, about to Plant.—Important Sale of Forest Trees, Evergreens, Deciduous Shrubs, &c.

MESSRS. BUTCHER have received instructions from Mr. J. W. Ewing (in consequence of his being about to devote more land to the cultivation of fruit trees) to SELL by AUCTION on WEDNESDAY, November 6th, and following days, on the premises at Eaton, near Norwich, a large quantity of Strong, Healthy, and well-grown FOREST TREES, DECIDUOUS SHRUBS, EVERGREENS, &c., &c., comprising about 150,000 Larch, 8000 Scotch, 70,000 Spruce, 30,000 Ash, 10,000 Common Laurel, 20,000 Privet, 30,000 Hazel, 1500 Arbor-vitæ, 2000 Standard and Dwarf Roses, &c., besides a great quantity of large trees.

Catalogues may be obtained at No. 9, Exchange Street, Norwich; at the Nurseries, Eaton and Cringleford; or at Messrs. Butcher's, Theatre Street, Norwich, and posted free on application.

MESSRS. PROTHEROE AND MORRIS'S PRELIMINARY NOTICE of FORTHCOMING SALES.

Highly Important to Noblemen, Gentlemen, Nurserymen, Market Gardeners, and Public Companies engaged in Planting.

GODALMING, SURREY, November 11, 12, and 13, by order of Mr. Charles Barker, at Godalming Nursery.—The whole of the choice GREENHOUSE PLANTS, newly erected GREENHOUSES, PITS, and other Effects; also at Terrace Gardens, Shady Rangers, within five minutes' walk of the Godalming Railway Station, the whole of the valuable PYRAMIDAL FRUIT TREES, in the full bearing state, all carefully prepared for removal; EVERGREEN and CONIFEROUS SHRUBS, BOX-EDGING, &c.

EDMONTON, MIDDLESEX.—LANGHEDGE NURSERY, November 13 and 14: SALE of a large quantity of FRUIT TREES, EVERGREEN, CONIFEROUS, and DECIDUOUS SHRUBS, of all sizes; STANDARD ROSES, ORNAMENTAL and FOREST TREES, &c.

WOKING, SURREY.—About nine days' Sale, commencing Nov. 18, without reserve, in consequence of the death of Mr. Robert Donald.—About 160 Acres of NURSERY STOCK, including an unusually large quantity of EVERGREEN, CONIFEROUS, and DECIDUOUS SHRUBS, ORNAMENTAL, FRUIT, and FOREST TREES. The Stock is particularly worthy the attention of the Trade.

TWICKENHAM, November 19, by order of Mr. Lang.—The usual assortment of NURSERY STOCK.

NEW HAMPTON NURSERY, November 15 and 16, by order of Mr. R. Lay.—1000 ENGLISH FAN YEWS, remarkably handsome; and a large variety of other EVERGREEN and DECIDUOUS SHRUBS; 6000 fine STANDARD and DWARF APPLES, and other FRUIT TREES

CITY AUCTION ROOMS, 38 & 39, Gracechurch Street.—WEEKLY SALES of only first-class BULBS, STANDARD ROSES, AMERICAN PLANTS, &c.

Particulars will appear in future Advertisements.

American Nurseries, Leytonstone, N.E.

Clearance Sale, King Street, Battersea, S.W.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, on the Premises, as above, on MONDAY, October 28, at 12 o'Clock, by order of Mr. Ambrose, a quantity of very large Standard and Half-Standard APPLES, PEARS, PLUMS, and CHERRIES; very large trained Cherries, Plums, Apricots, Pears; strong fruiting Vines, Cob Nuts, Currants, and Gooseberries, Raspberries, &c.; large Lilacs, Dwarf Roses, Seakail, Asparagus; also 2 Tumbril Carts, 3 Light Spring Carts, Spring Van, a useful Cob and 2 Cart Horses, Harness, Chaff Machine, Barrows, and numerous other Effects.

May be Viewed, and Catalogues had on the premises, and of the Auctioneers and Valuers, Leytonstone, N.E.

Peckham.

MESSRS. PROTHEROE AND MORRIS are instructed by Messrs Dashwood & Co. to SELL by AUCTION, on the Premises, Queen's Road, Peckham, Surrey, on TUESDAY, Oct. 29, at 11 o'Clock precisely, 800 remarkably fine CHINESE and AMERICAN ARBOR-VITÆ, 3 to 6 feet; CUPRESSUS LAWSONIANA, 3 to 6 ft.; WELLINGTONIA GIGANTEA; CUPRESSUS sorts; Thujas; 600 Common Laurels, "3 feet bush;" 200 Euonymus, Aucubas, Hollies, Yews; 500 Privet, Lilacs, Spiræa, Forsythia; 400 Dwarf and Climbing Roses; very handsome Standard and Half-standard Roses, by name; 200 Sweet Briars, Selected FRUIT TREES, Red and Black Currants, Gooseberries, Raspberries; Stools of Rhubarb, very strong; VINES in pots, Manetti Stocks; also 500 Stove and Greenhouse Ferns and Lycopods, 100 Gardenia florida, 1000 Stove and Greenhouse Plants, Mushroom Spawn, &c. &c.

May be Viewed prior to Sale. Catalogues had on the Premises, and of the Auctioneers and Valuers, Leytonstone, N.E.

Frimley Park Nursery, Blackwater.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, on the Premises, Frimley Park Nursery, Blackwater, Surrey, about 2 miles from Blackwater Station, on THURSDAY, October 31, at 12 o'Clock precisely, a portion of the valuable NURSERY STOCK, including the usual assortment of Evergreen, Coniferous, and Deciduous Shrubs, Ornamental Forest and Fruit Trees, Standard and Dwarf Roses, &c.

May be Viewed prior to the Sale. Catalogues had on the premises, and of the Auctioneers and Valuers, Leytonstone, N.E.

Tottenham, Middlesex, N.

MESSRS. PROTHEROE AND MORRIS have received instructions from Mr. Thos. Ware, to SELL by AUCTION, on the Premises, Hale Farm Nursery, adjoining the Tottenham Railway Station, on the Great Eastern Line, on FRIDAY, November 1, at 11 o'Clock, the thriving NURSERY STOCK, including a large variety of fine Evergreen and Deciduous Shrubs, Conifers, Ornamental Forest and Fruit Trees, Standard, Dwarf, and Climbing Roses; Manetti Stocks, 2000 Red and Black Currants, &c.

May be Viewed prior to the Sale. Catalogues had on the premises, and of the Auctioneers and Valuers, Leytonstone, N.E.

Sale of Very Fine Dutch Bulbs, Handsome Standard Roses, &c.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at 38 and 39, Gracechurch Street, E.C., on SATURDAY, Nov. 2, at 1 o'Clock precisely, a First-class Collection of DUTCH BULBS, including fine named Hyacinths, Tulips, Crocus, Narcissus, Snowdrops, Anemones, Ranunculus, &c.; a selection of choice named show Tulips from a celebrated grower; a splendid assortment of handsome STANDARD, DWARF, and CLIMBING ROSES, of the best varieties in cultivation; Selected AMERICAN PLANTS, viz., Ghent and other Azaleas, Hybrid Rhododendrons, Kalmias, Andromedas, &c., with a variety of Hardy Climbers, Rustic Baskets, Vases, &c.

On View the Morning of Sale. Catalogues had at the Rooms as above, and of the Auctioneers and Valuers, Leytonstone, N.E.

Wandsworth Road.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, on the Premises, Lavender Road Nursery, Wandsworth Road, on MONDAY, November 4, at 11 o'Clock precisely, by order of Mr. Surman, the ground being required for building purposes, the valuable NURSERY STOCK, comprising a large quantity of fine Evergreen, Coniferous, and Deciduous Shrubs, Ornamental Forest and Fruit Trees, including 500 Aucuba, 1500 Laurustinus, 1100 Green and Variegated Hollies, 1 to 6 feet; 500 English Yews, 2000 Common Laurels, 1 to 4 feet; Berberis, Green Box, Portugal Laurels, 700 Chinese Arbor-vitæ, 2 to 6 feet; Weymouth Pines, Pinus excelsa, 500 Spruce, Scotch and Larch Firs, Thujas (sorts), Retinispora, Araucaria, &c.; Limes, Planes, Mountain Ash, Chestnuts, Acacias, Laburnums, Weeping Willows, Copper Beech, &c.; Standard and Dwarf Apples, Pears, Plums, Cherries, Dwarf-trained Peaches, Nectarines, Apricots, Walnuts, Filberts, &c.; Standard and Dwarf Roses, 500 Irish Ivies, in Pots; Virginian Creepers, &c.

May be viewed prior to the Sale. Catalogues had on the Premises, and of the Auctioneers and Valuers, Leytonstone, N.E.

Kingston, Surrey.

MESSRS. PROTHEROE AND MORRIS have received instructions from Messrs. Jackson & Son, to SELL by AUCTION, on the Premises, Clarence Street and Park Road Nurseries, Kingston, Surrey, on TUESDAY, November 5, and three following days, at 11 for 12 o'Clock precisely each day (a portion of the Land being required to be cleared for Building purposes), the thriving and well-cultivated NURSERY STOCK, comprising fine Ornamental Evergreen, Coniferous, and Deciduous Shrubs, varying all sizes, and including specimens of symmetrical beauty, the whole of which have been constantly transplanted, and are now in excellent condition for removal, comprising 1100 Tree-Box, 2 to 8 feet; 400 Portugal Laurels, 2 to 3 feet; 6000 Common Laurels, 2 to 4 feet; 400 Berberis (sorts), 3000 Green and Variegated Hollies, 1100 Broad-leaved Privet, 2 to 4 feet; 300 Laurustinus, 1400 Chinese Arbor-vitæ, 2 to 7 feet; 800 Thuja Lobbii, 3 to 8 feet; 700 Thujas (sorts), 300 English Yews, 500 Irish Yews, 200 Variegated Yews, 1200 Cupressus Lawsoniana, 3 to 7 feet; 800 Cupressus (sorts), 5700 Spruce Firs, 1 to 8 feet; 200 Wellingtonia gigantea, 3 to 5 feet; Red Cedars, Cedars of Lebanon, 100 Rhododendrons (sorts), Hardy Azaleas, Kalmias, Hardy Heaths, Double Deutzias, &c.; Standard Thorns, 8000 Hazel, 4000 Birch, 3000 Chestnuts, 12,000 Strong Quicks, &c. Also, about 4000 handsome Standard, Dwarf, and Pyramidal Trained and Untrained Fruit Trees (various), many of which have been loaded with Fruit this season; 2000 Gooseberries and Currants, with some large Double Camellias, 3 to 10 feet; 800 Azalea indica, 2 to 4 feet; an 140 large Rhododendron aureum (varieties).

May be Viewed prior to the Sale. Catalogues may be had on the Premises, and of the Auctioneers and Valuers, Leytonstone, N.E.

Roses, Roses, Roses.

PLANTS of all the FINEST VARIETIES in CULTIVATION will this Autumn be in magnificent order in the CASTLE STREET NURSERIES, SALISBURY.

The frost of May 24 destroyed all the blooming buds; the consequences are that the Plants have produced the most vigorous growth.

Amateur Rose Growers may insure the finest Plants that can possibly be produced, true to name. CATALOGUES on application.

VINES, from Eyes, the finest in England, 10s. 6d. each, in October next. JOHN KEYNES, Castle Street, Salisbury.

JOHN CRANSTON'S CATALOGUE of SELECTED ROSES is now ready and will be forwarded on application.

J. C. respectfully directs attention to the following LIST of FIRST PRIZES which have been awarded to him at the principal Rose Shows of the present year, proving beyond a doubt that the soil and climate of his Nurseries are unrivalled for the Cultivation of Roses.

Royal Botanic Society, Regent's Park, London.
June 19.—24 Varieties, Cut Roses, one truss each, FIRST PRIZE

Cirencester.
June 19.—36 Varieties, Cut Roses, three trusses each, FIRST PRIZE

Clifton.
June 25.—24 Varieties, Cut Roses, one truss each, FIRST PRIZE

Crystal Palace.
June 29.—72 Varieties, Cut Roses, one truss each, FIRST PRIZE

Royal Horticultural Society, South Kensington.
July 2.—72 Varieties, Cut Roses, one truss each, FIRST PRIZE

Birmingham.
July 4, 5.—72 Varieties, Cut Roses, one truss each, FIRST PRIZE
24 Varieties, Cut Roses, three trusses each, FIRST PRIZE

Hereford.
July 9.—72 Varieties, Cut Roses, one truss each, FIRST PRIZE
24 Varieties, Cut Roses, three trusses each, FIRST PRIZE

Rugby.
July 12.—72 Varieties, Cut Roses, one truss each, FIRST PRIZE

Nurseries, King's Acre, near Hereford.

EPACRIS.—Strong blooming plants, 24 named varieties for 24s., or 12 for 12s.

MONOCHÆTUM SERICEUM MULTIFLORA and ENSIFERUM.—Extra strong, flowering plants, 12s. per doz.; second size, good flowering plants, 9s. per doz.; smaller flowering, 6s. per doz.

PRIMULA SINENSIS.—Good strain, strong flowering plants, 4s. doz.

GARDENIA RADICANS or CAPE JASMINE.—Good healthy plants, set with flower buds, 12s. per doz. or 1s. 6d. each.

JASMINUM LIGUSTRIFOLIUM.—Good healthy plants, to bloom, 9s. per doz. or 1s. each.

PRICED DESCRIPTIVE CATALOGUE of STOVE, GREENHOUSE, and other Plants, free on application.

H. & R. STIRZAKER, Skerton Nurseries, Lancaster.

Gladioli.

EUGENE VERDIER, fils ainé, NURSERYMAN, 3, Rue Dunois Paris, has the honour to inform his numerous Friends and those interested that he is now publishing his CATALOGUE of the above, which will contain all the New Varieties obtained by M. Souchet.

He is happy to be enabled to announce that M. Souchet's Collection and his own carried off all the First and Second Prizes at the Exposition Universelle of Paris as well as being the admiration of all visitors.

This Catalogue can be had gratis, either direct from him, or of his Agents, BETHAM & BLACKETH, Cox's Quay, Lower Thames Street, London, E.C.

STEPHEN BROWN'S splendid EARLY GLADIOLI.—An extra Prize was awarded to S. B. at the Bury Show of the London Horticultural Society for a Collection of this beautiful section of the Gladiolus. Planted early in pots, they will flower in May by keeping them in cool pits or frames, and brought into the greenhouse when about to flower.

Fine selections, per dozen varieties, 5s., 10s., and 15s.

For descriptions and culture, see Bulb Catalogue.

GLADIOLUS COLVILLII, the earliest, and useful or borders, 1s. per dozen; 7s. per 100.
" " RUBRUM, 2s. per dozen; 12s. per 100.
" " ROSEUM, 1s. 6d. per dozen; 10s. per 100.
" " FULGENS, a splendid new variety, most intense crimson scarlet and elegant form, 2s. 6d. each.

Also an extensive Collection of the RAMOSUS and GANDAVENSIS Sections (see CATALOGUES), and an immense Stock of other BULBS.

Seed and Nursery Establishment, Sudbury, Suffolk.

Extra Fine New Tulips.

GEORGE LIGHTBODY, Falkirk, will LET OUT several of the Splendid Seedlings raised by Richard Headly, Esq., of Stapleford, near Cambridge, at very moderate prices. These flowers have been successfully exhibited at the Principal Shows in the Kingdom, and are warranted the finest Tulips now extant. A description of them, by Shirley Hibberd, Esq., F.H.S., was published in the "Gardeners' Magazine" for 22d June. A list of names and prices supplied on application

The New Sensation in Bedding Out.

JACKMAN'S HARDY HYBRID CLEMATISES, awarded Eleven First-class Certificates, and One Special.

Messrs. GEO. JACKMAN and SON are desirous of drawing the attention of those who intend using their Hardy Clematises for a Permanent Bedding Plant, that the present time is most favourable for planting.

OPINIONS OF THE PRESS.

Gardeners' Chronicle, Aug. 17:—"The new sensation in bedding." Also, August 31, "J. F." (Clivedon) adds, "that Messrs. G. J. & SON have in their several varieties the very colour of which our summer gardens are in a great measure deficient." "Country Life," Aug. 15:—"Clematis Jackmanni is a most useful bedding kind if pegged down; used as such, a perfect carpet of flower, so to speak, is soon formed." *The Field*, Sept. 28:—They will be of the highest value as purple bedding plants, our present colours in this way being poor indeed compared to these."

An engraving, from a photograph, showing the flowering qualities, and Circular of Prices, will be forwarded gratis on application.

Woking Nursery, Surrey.

Azalea, Her Majesty.

WILLIAM BARNES has much pleasure in announcing that he will be prepared to send out the above splendid AZALEA on and after Wednesday, October 23, at the following price—21s. each. A very few extra strong plants at 42s. each, with the usual allowance to the Trade; where three plants are ordered at one time four will be given.

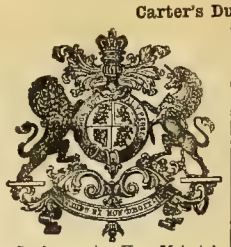
It was exhibited before the Floral Committee of the Royal Horticultural Society on June 14, 1866, where it was awarded a First-class Certificate for its great beauty in its markings, shape, and colour, when the following remarks were made upon it, which appeared in the *Gardeners' Chronicle*, June 16, 1866:—"A beautiful Azalea, rosy lilac, edged with white, and blotched, and spotted in the upper petals with crimson, called Her Majesty, from Mr. BARNES, of Camberwell."

On June 23, 1866, the following remarks appeared in the same Paper:—"We have from time to time referred to the sportive character of the Indian Azalea, and called attention to the fact that some of our best varieties have had their origin in a freak of Nature. A fresh instance of their sportiveness was shown the other day at South Kensington. Mr. WILLIAM BARNES there exhibited a variety of Azalea which he purposes to designate Her Majesty. It is, we believe, a sport from Madame Mielliez, or some of the forms closely allied to that fine old sort; and in quality, therefore, as well as in name, takes the very highest rank. The flowers are of the full average size, and of excellent form and substance, and the colour is a soft lilac-tinted blush, white at the margin, densely spotted with crimson in the upper part, and marked with variable stripes, or sometimes broadish bars of deep rosy purple. Its high quality as regards the flower itself, and this novelty of marking, will make it an acquisition in any collection of these showy plants.

A faithful Figure of this fine Azalea is given in the January number of the "Florist and Pomologist."

A remittance must accompany all orders from unknown correspondents. Camden Nursery, Camberwell, London, S.

Carter's Dutch Bulbs.



Seedsmen to Her Majesty's Chief Commissioners of Public Works and other Government Departments, the Royal Gardens, Kew, &c., &c., &c.



Seedsmen to H.I.M. the Emperor of the French, the Crystal Palace Company, the Agri-Horticultural Society of India, &c., &c., &c.

CARTER'S GUINEA BOX of DUTCH FLOWER ROOTS contains 12 choice named Hyacinths, 12 mixed Hyacinths for borders, 50 Yellow Crocus, 50 Blue Crocus, 4 Polyanthus Narcissus, 12 Double White Narcissus, 12 Pheasant's Eye Narcissus, 12 Double Daffodils, 24 finest mixed Ranunculus, 24 finest mixed Anemones, 12 choice mixed Single Tulips, 12 choice mixed Double Tulips, 4 Garden Lilies, 50 Snowdrops, 12 finest mixed Spanish Iris, 12 Campernelle Jonquils.

The above forwarded without delay on receipt of Post Office Order for 21s. Box and packing included. PRICE LISTS gratis and post free on application to

CARTER'S Great London Seed Warehouse, 237 & 238, High Holborn, London, W.C.

Dutch Flower Roots,



ARCHIBALD HENDERSON begs to announce that he has received a large Consignment of Dutch and other Roots, carefully selected from the most celebrated growers.

DESCRIPTIVE and PRICED CATALOGUES are now ready, containing practical directions for their successful cultivation on all the various systems now adopted.

Also a CHOICE and SELECT LIST of VEGETABLE and HARDY FLOWER SEEDS for Autumn Sowing. Catalogues gratis and post free upon application.

Sion Nursery, Thornton Heath, Surrey, and at the East Surrey Seed Warehouse, College Grounds, North End, Croydon.

Dutch and Cape Bulbs.

BUTLER, McCULLOCH and CO. have received their usual consignment of the above, and beg to offer the following carefully assorted collections.

FOR CONSERVATORY DECORATION.

No. 1	No. 2	No. 3	No. 4	No. 5	No. 6
100s.	50s.	25s.	21s.	15s.	10s.6d.

FOR FLOWER GARDEN DECORATION.

No. 7	No. 8	No. 9	No. 10	No. 11	No. 12
100s.	60s.	40s.	25s.	21s.	10s.6d.

FOR FLOWER GARDEN AND CONSERVATORY COMBINED.

No. 13	No. 14	No. 15	No. 16	No. 17	No. 18
105s.	52s.6d.	42s.	21s.	15s.	10s.6d.

CATALOGUES containing details of above Collection sent free, and Post-paid Orders amounting to 21s. sent, carriage paid, on receipt of Post-Office Order.—Established upwards of a century.

Covent Garden Market, London, W.C.

New Catalogue of Plants, Dutch Bulbs, &c.

ROBERT PARKER begs to announce that his NEW CATALOGUE, containing Select, Descriptive, and Priced Lists of New, Rare, and beautiful Greenhouse, Hardy and Stove Plants, Azalea Indica, Fruit Trees, Grape Vines, Rhododendrons, Roses, Sweet Violets, &c.; Amaryllis, Crocuses, Cyclamens, Gladioli, Hyacinths, Liliums, Narcissus, Tulips, and other Bulbs, is now published and will be forwarded to applicants.

Exotic Nursery, Tooting, Surrey, S.

HOOPER and CO.'S TWO-GUINEA COLLECTION of BULBS, for In and Out-door Culture, sent Carriage free, contains:—

18 choice named Hyacinths, 6 named Double Tulips, 12 named Single do., 3 Polyanthus Narcissus, 6 Single Sweet Jonquil's, 6 Double do., 25 named (extra fine) Crocus, 6 Ixias, 2 Lilium lancifolium, 3 Oxalis, 9 Border Hyacinths, 12 Double mixed Tulips, 12 Single do., 18 Border Narcissus, 100 Blue Crocus, 100 Yellow do., 50 White do., 50 Striped do., 25 Ranunculus (mixed), 12 Scarlet Turban do., 6 Golden do., 6 Black do., 12 Single Anemones, 12 Double do., 3 English Iris, 6 Spanish do., 100 Snowdrops, 3 Feather Hyacinths, 2 Tiger Lilies. Half the quantities, 21s.

HOOPER & Co., Covent Garden Market, London, W.C.

To Florists, Seedsmen, and Nurserymen.

P. VALK, 9, Queen Street, Mint Pavement, Tower Hill, begs to announce that he has still a large quantity of HYACINTHS, TULIPS, NARCISSUS, LILIUMS, GLADIOLUS, and other Dutch Flower Roots in stock.

They may be depended upon as of the finest quality, and any order will be forwarded at a moderate price, free, and delivered at the shortest notice.

Paul's Nurseries, Waltham Cross, N.

WM. PAUL begs to announce that he has the following COLLECTIONS of TREES and PLANTS now ready for delivery, which he can confidently recommend for quality and price:—

ROSES.—100,000 Plants, Standards, Dwarf Standards, and Dwarfs.
PRICED DESCRIPTIVE CATALOGUE free on application.

TREES and SHRUBS.—Large quantities of the popular Nursery Plants, of all sizes, good and cheap.
A choice variety of PICTORIAL TREES, his collection of which was the only one which received a Prize at the International Exhibition of 1866.

AMERICAN PLANTS.—Rhododendrons, Azaleas, Kalmias, Heaths, &c., in variety, from the commonest to the choicest.

FRUIT TREES.—Apples, Pears, Cherries, Plums, Figs, Peaches, Nectarines, Apricots, &c., &c.; Standards, Dwarfs, and Pyramids, trained and untrained. A large stock of handsome trees, many in a fruiting state.

GRAPE VINES.—All the best sorts, both Planting and Fruiting Canes.

PELARGONIUMS.—Beaton's and other Zonal kinds, Gold, Bronze, and Silver variegated, a fine collection.

HYACINTHS, TULIPS, and other BULBS.—All the First Prizes for Hyacinths and Tulips were awarded to his Collection at the London Flower Shows last spring. Cheap Hyacinths, Tulips, &c., for spring gardening by the 100 or 1000. Choicer kinds for pot culture and glasses good and cheap.

PRICED DESCRIPTIVE CATALOGUES of any or all of the above free by post.

Rhododendrons,

AS EXHIBITED AT THE ROYAL BOTANIC GARDENS, REGENT'S PARK.

JOHN WATERER, the Exhibitor at the above Gardens, has pleasure in announcing that his CATALOGUE of the above popular Plants is now published, and will be forwarded to all applicants. It faithfully describes all the varieties considered worthy of cultivation. It contains likewise a selection of HARDY CONIFERS, with heights and prices.

The American Nursery, Bagshot, Surrey.

THE QUEEN.—This RHODODENDRON has now proved itself A 1 amongst 800 named kinds. Fine plants are now ready as under:—21s., 31s. 6d., 42s., 63s., 84s., 105s. each. Standards 105s. each, fine straight stems. See copy of letter below.

"Dear Sir,—The Queen has now bloomed with me wonderfully well considering the season, and in comparison with other sorts, which (though I lost none) had their blooms much deteriorated by the severe spring. As you asked me to give my opinion of her, I beg to say that I consider her Flowers first-rate as to form, substance, and truss, and the Foliage faultless. She possesses a 'beauty of her own' which fairly entitles her to rank with the very best—in fact, I see no fault in her, for a difference in colour or marking is assuredly no defect. She is far beyond Ingramii and Lady Godiva in my mind, as well as perfectly distinct from both. The Queen is A 1 so far as I know, and can, I think, scarcely be surpassed.

"June 13, 1867." "H. H. GLENVILLE."

This quotation is from a gentleman who has purchased every named Rhododendron offered in commerce; his Collection now amounts to above 800.

British Fern Catalogue.

ROBERT SIM can now send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his NEW and PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.

Foot's Cray Nursery, S.E., a mile from Sidcup Station of New North Kent Line of South Eastern Railway.

New Seeds for the Colonies.

SEEDS DIRECT FROM THE GROWERS ARE THE MOST SUITABLE FOR EXPORTATION, AND THE BEST MEANS OF PREVENTING DISAPPOINTMENT.



MESSRS. SUTTON solicit the favour of Orders from those about to send or take out SEEDS to the COLONIES, and submit the following from among many Testimonials recently received, as to the GREATLY SUPERIOR quality of their Seeds to those usually exported from this country, as well as to the very efficient manner in which their export packing is carried out:—

July 9, from A. N. ELLA, Esq., *Queenstown, Cape of Good Hope.*

"I may mention that the case referred to was in splendid order, looking as fresh after three months' sea and six weeks' land carriage as if only yesterday packed."

From HUGH ROMSAY, Esq, *Shanghae, China, May* 5, 1866.

"The box of seeds and roots has arrived, and nothing has given me greater pleasure for a long time than the excellence of these seeds."

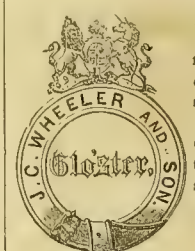
From Mr. Z. W. WELLS, *New Plymouth, New Zealand, May* 7, 1866.

"The Grass and other seeds sent by the Shelburne to me, have come safe to hand. I have tried samples of the Grass seeds, and am happy to inform you that they have come up quite to my satisfaction."

From Mr. JAS. DALE, *Orange, New South Wales, September* 20, 1866.

"I have the pleasure to inform you that your seeds have given great satisfaction, and I now send you a larger order."

All Seeds properly packed and delivered free to ship's side. Special quotations given for large quantities. A liberal allowance made to Shippers. SUTTON & SONS, Seed Growers, Reading.



GRASS SEEDS for PERMANENT PASTURE, of the finest quality, at moderate prices, carefully selected on a new, natural, and scientific system.

See "WHEELER'S BOOK on GRASSES," which contains Illustrations and Descriptions of the most suitable Grasses for Permanent Pasture.

J. C. WHEELER & SON,
Gloucester,
Seedsmen to the Gloucestershire Agricultural Society.

Seed Potatos.

H. AND F. SHARPE are now offering MYATT'S EARLY PROLIFIC KIDNEY, RIVERS' ROYAL ASHLEAF, WEBB'S IMPERIAL KIDNEY, DAINTREE'S EARLIEST, EARLY OXFORD, EARLY FORTY-FOLD, and many other Early and Late varieties grown from their own selected stocks. The Prices are moderate, and the quality excellent. PRICED LISTS may be had on application.

Seed Growing Establishment, Wisbech.

CUCUMBER "DICKSON'S FAVOURITE" or ALL THE YEAR ROUND.

We can confidently recommend this as one of the best Winter Cucumbers grown, while it is second to none for general purposes. In Winter it grows about one foot long, and in Summer from 15 to 18 inches, is of deep green colour, very handsome, delicate in flavour, and particularly tender, crisp and juicy. It is very prolific, showing two to three fruit at every joint, and furnishes a continual supply of handsome Cucumbers during the Winter, Spring, and Summer months. Per packet 1s. 6d. and 2s. 6d., post free.

FRANCIS & ARTHUR DICKSON & SONS, The "Old" Established Seed Warehouse, 106, Eastgate Street, Chester.

To Farmers, Gardeners, and Others.

EXCELLENT CABBAGE PLANTS (Stocks not to be surpassed), can be supplied in any quantity, as follows:—

TRUE DWARF NONPAREIL (the earliest and best), 2s.6d. per 1000
TRUE ENFIELD MARKET (extra fine variety), 2s. 6d. per 1000
TRUE ROBINSON'S CHAMPION DRUMHEAD, 2s. 6d. per 1000
TRUE RED DUTCH (for Pickling), 5s. per 1000

A remittance or reference to accompany all orders.

FREDK. GEE, Seed Merchant and Grower, Biggleswade, Bedfordshire.

New Hybrid Wheat.

KING RICHARD'S WHEAT was obtained by crossing SHIRREFF'S BEARDED WHITE with POLLEN from Talavera. On examining this Wheat at the commencement of harvest in this trying season, growing in East Lothian upon nine different farms, varying in soil and situation, the straw was invariably found to be the tallest, the stoutest, and the most golden-coloured of all the varieties growing contiguous.

Small Samples of the Grain, which is particularly fine, will be forwarded to intending purchasers if desired. The Subscriber's own growth is offered at 95s. per quarter, and the growth of other parties will fluctuate with current prices, delivered on the North British Railway. Terms Cash. PATRICK SHIRREFF.

Haddington, October 18.

Editorial Communications should be addressed to "The Editor." Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.

Printed by JAMES MATTHEWS, at the Office of Messrs BRADBURY, EVANS, & Co., Lombard Street, Precinct of Whitefriars, City of London, in the Co. of Middlesex, and Published by the said JAMES MATTHEWS at the Office, No. 41, Wellington Street, Parish of St. Paul's, Covent Garden, in the said County.—SATURDAY, October 26, 1867.

THE GARDENERS' CHRONICLE

AND

AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.

No. 44.—1867.] SATURDAY, NOVEMBER 2. {Price Fivepence. STAMPED EDITION, 6d.

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ROYAL HORTICULTURAL SOCIETY, SOUTH KENSINGTON, W.

NOTICE.—A MEETING of the FRUIT and FLORAL COMMITTEES will be held on TUESDAY NEXT, November 5, at 11 for half-past precisely. GENERAL MEETING at Three.

To Nurserymen and Seedsmen.—Notice.

THE GARDENERS' YEAR BOOK, ALMANACK, and DIRECTORY for 1868, by ROBERT HOGG, LL.D., F.L.S., will be Published on DECEMBER 2. Any alterations in the style and address of Firms are requested to be sent forthwith to the Editor, so that the necessary corrections may be made in the Directory portion.

"Journal of Horticulture" Office, 171, Fleet Street, London, E.C.

EVERY GARDEN REQUISITE kept in Stock at CARTER'S New Seed Warehouse, 237 & 238, High Holborn, London.

Genuine Garden and Agricultural Seeds.

JAMES CARTER AND CO. SEED FARMERS, MERCHANTS, and NURSERYMEN, 237 & 238, High Holborn, London, W.C.

Genuine Agricultural and Garden Seeds.

JAMES FAIRHEAD AND SON, SEED GROWERS and MERCHANTS, 7, Borough Market, and Braintree, Essex.

Agricultural and Garden Seeds.

H. AND F. SHARPE beg to announce to the Trade that their SPECIAL LIST of HOME-GROWN SEEDS, 1867 Growth, is now ready and may be had on application. Seed Growing Establishment, Wisbech, Cambs.

RAYNBIRD, CALDECOTT, BAWTREE, DOWLING, AND COMPANY, Limited, CORN, SEED, MANURE, AND OILCAKE MERCHANTS, Address, 89, Seed Market, Mark Lane, E.C.; or Basingstoke. Samples and Prices post free on application. Prize Medals, 1851, for Wheat; 1862, for "Excellent Seed Corn and Seeds."

To the Trade.

DICKSON'S "FIRST and BEST" EARLY PEA. New Seed can now be supplied. Lowest price per quarter on application. FRANCIS & ARTHUR DICKSON & SONS, 106, Eastgate Street, Chester.

MUSHROOM SPAWN of the best possible quality, 5s. per bushel. Sample Brick sent on application. The Trade supplied, JOHN KELLETT, Wellington Nursery, Heaton Chapel, Stockport.

ONE TON of ASPARAGUS SEED on SALE.—Entire Crop of 1867, at 3d. per lb.; do. of 1866, at 2½d. per lb.; per cwt., at 4d. per lb.; per quarter, at 8d. per lb.; lesser quantities, 1s. per lb.—Asparagus Garden, Formby, Liverpool.

ASPARAGUS ROOTS, 3-yr. old, per 100, 2s. 6d.; 2-yr. old, per 100, 1s. 6d. Terms cash. RICHARD WALKER, Seed Grower and Market Gardener, Biggleswade, Beds.

To Noblemen, Gentlemen, Gardeners, and the Trade.

SEAKAIL for Forcing, magnificent roots, now ready. Per 100, 10s. Terms cash. RICHARD WALKER, Market Gardener and Seed Grower, Biggleswade, Beds.

Biggleswade Market Gardens, Beds.

RICHARD WALKER can supply the following CABBAGE PLANTS, the finest in England:—RED, from the finest stock in the country, 4s. per 1000. EAST HAM, ENFIELD MARKET, NONPAREIL, ROBINSON'S CHAMPION, warranted true, 2s. per 1000, in any quantity. LETTUCE PLANTS, 6d. per 100. Terms cash.

POA TRIVIALIS ARGENTEA ELEGANS.—Several dozen bunches of this very pretty Silver-leaved Grass, at 6s. per dozen; each bunch will separate into several plants. CHARLES SHILLING, Hill Nursery, Winchfield, Hants.

New Grass Seeds for Exportation.

SUTTON AND SONS, having received their supply of NEW GRASS SEEDS of the present Season's Growth in fine condition, will be happy to forward lowest prices per ton or cwt. on application. All Seeds perfectly packed and delivered free to ship's side at any English Port. CATALOGUES gratis and post free SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

The Best Variegated Zonal Pelargonium, COUNTESS OF CRAVEN.

S. PERKINS AND SONS are now Booking Orders for the above splendid variety, to which was awarded a First Prize as the best not in Commerce at the late Show at South Kensington; at the same time the Floral Committee awarded it a First-class Certificate. Plants in May next, 21s. each. Park Nursery, Coventry.

ELMS for AVENUE and PARK PLANTING.—Fine well rooted Trees of HUNTINGDON and HERTFORDSHIRE ELMS, 10 to 12 and 12 to 14 feet; and HERTFORDSHIRE, 14 to 16 feet, at a very cheap rate, according to quantity required. For price, &c., apply to WOOD & INGRAM, Nurseries, Huntingdon.

Bulb Catalogue.

BUTLER, McCULLOCH, AND CO.'S CATALOGUE of Choice DUTCH and CAPE BULBS is now ready. Sent free and post paid.—Established upwards of a Century. South Row, Covent Garden Market, W.C.

Winter and Spring Flowering Bulbs and Plants.

BARR AND SUGDEN'S FLORAL GUIDE may be had free. It contains much valuable information. For particulars see large Advertisement, page 1090.

Before Purchasing Flower Roots, send for.

J. SCOTT'S CATALOGUE of BULBS, VASES, and GARDEN REQUISITES. Bulbs are extra fine. J. SCOTT, The Seed Stores, Yeovil, Somerset.

Hyacinths, Tulips, Crocuses, &c.

B. S. WILLIAMS has a fine Collection of the above. PRICED CATALOGUE post free on application. HYACINTHS for Glasses or Pots, 6s., 8s., and 10s. per dozen. Victoria and Paradise Nursery, Upper Holloway, London, N.

WM. CUTBUSH AND SON beg to say that their DESCRIPTIVE CATALOGUE of CHOICE HYACINTHS, TULIPS, CROCUSES, &c., is now ready, and can be had post free on application. Highgate Nurseries, London, N.

To Gardeners, Seedsmen, &c.

HENLEY, BROTHERS, MERCHANTS, Holbeach, have still on hand a quantity of SNOWDROPS, which they beg to offer. Samples and price on application.

Special Notice.—Plants and Bulbs.

MR. STEVENS' SALES of DUTCH BULBS, FRUIT TREES, ROSES, and HARDY SHRUBS, take place every WEDNESDAY and SATURDAY, and frequently on MONDAY, at the Rooms, 38, King Street, Covent Garden, London, W.C. CATALOGUES on application.

The Best Twelve Hyacinths Imported by

SUTTON AND SONS, for Twelve Shillings. SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

MIXED HYACINTHS, for Beds or Open Borders, all colours, of various shades, 21s. per 100 (carriage free), or 3s. per dozen. SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

Finest Dutch Crocuses and Early Tulips.

SUTTONS' DESCRIPTIVE LIST is now ready, and will be forwarded gratis and post free on application. SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

Notice.—Fruits, Flowers, Bulbs.

BEFORE PURCHASING, PLEASE SEND FOR DILLISTONE AND CO.'S LITTLE LISTS, post free to all applicants. Address, DILLISTONE & Co., Nurserymen, &c., Sturmer, near Halstead, Essex

Roses.

PAUL AND SON beg to solicit Early Orders for ROSES this season, to ensure Good Plants of particular kinds. The Stock is large and the Plants fine. Very reasonably-priced CATALOGUE post free. The "Old" Nurseries, Cheshunt, N.

To the Trade.

MARECHAL NIEL ROSE, from own roots, in pots, by the 100 or 1000, at £5 per 100. G. BAKER & SON, American Nursery, Bagshot.

WM. KNIGHT offers the splendid YELLOW ROSE, MARECHAL NIEL.—Large plants, about 3 feet high, well ripened wood, in 8-inch pots, suitable for forcing, from 5s. to 6s. each, or 60s. per dozen. GENERAL DESCRIPTIVE CATALOGUES free on application. Floral Nursery, Hailsham, Sussex.

CULTURAL DIRECTIONS for the ROSE. Second Edition. By JOHN CRANSTON, King's Acre Nurseries, near Hereford. Free by post from the Author for 20 stamps.

"THE ROSES of MR. PAUL * * * are things to see once and dream of for ever."—*Athenæum, June*, 1867. WM. PAUL begs to announce that his CATALOGUE of ROSES is now ready, and will be forwarded free on application. EIGHTEEN PRIZES have been awarded to him for Roses this year at the principal London Flower Shows. PAUL'S Nurseries, Waltham Cross, London, N.

Wholesale Catalogue.

GEORGE JACKMAN AND SON'S PRICED and DESCRIPTIVE CATALOGUE of HARDY NURSERY STOCK for 1867 and SPRING, 1868, can be had free on application. Woking Nursery, Surrey.

CALCEOLARIA (Herbaceous), of choice strain, nice plants, in single pots, 21s. per 100; 12s. 6d. for 50, and 4s. per doz. H. & R. STIRZAKER, Skerton Nurseries, Lancaster.

Lilium auratum.

SUTTON AND SONS can supply fine BULBS of this beautiful Flowering Plant at from 5s. to 15s. each. Royal Berks Seed Establishment, Reading.

WEBB'S NEW GIANT POLYANTHUS, Florist Flower, and GIANT COWSLIP SEEDS; also Plants of all the varieties, with double PRIMROSES of different colours; AURICULAS, both Single and Double, with every sort of Early Spring Flowers. LIST on application.—Mr. WEBB, Calcot, Reading.

Beck's Seedling Pelargoniums.

S. GLENDINNING AND SONS are now offering for the first time the 12 beautiful, new, and distinct PELARGONIUMS raised by Mr. Wiggins, Gr. to W. BECK, Esq., of Isleworth, which were awarded numerous Certificates at the various Metropolitan Shows. DESCRIPTIVE PRICED LIST may be had on application. Chiswick Nurseries, London, W.

THE CZAR VIOLET is NOW in BLOOM, and will continue flowering through the winter. Strong plants, 8s. per dozen; also new seed, 2s. 6d. and 5s. per packet. RASPBERRY CANES:—Fastolff, Fillbasket, and Early Thimble, 4s. per 100; may be had for pre-paid orders from Mr. JOHN GRAHAM, Cranford, Hounslow, W.

VIOLETS NOW in FULL BLOOM, and in first-rate condition for planting out. A large stock of all kinds of Violet Roots. The GIANT, bearing a finer bloom and a more beautiful perfume than any of its kind, now in perfection. Roots of this fine new sort (which flowers from October to April), of at least 24 inches in circumference, at 12s. per doz. Sample Bloom of Giant and List of Prices sent on receipt of stamp for postage. JOHN STEDMAN, Violet Grower, Thornton Heath, Surrey, S.

Vines.

PAUL AND SON have very fine CANES of FRUITING PLANTS, close-jointed and well-ripened, 7s. 6d. each; PLANTING CANES, not so strong, 3s. 6d. to 5s. each, of HAMBURGHS, MUSCATS, and the leading varieties. The "Old" Nurseries, Cheshunt, N.

Vines.

H. LANE AND SON solicit an inspection of their stock of VINES: 2000 Canes to choose from, strong and well ripened. They have been awarded the First Prize for Vines in pots at all the leading Exhibitions. CATALOGUES free on application. The Nurseries, Great Berkhampstead, Herts.

Vines.

B. S. WILLIAMS has now on hand a very large and fine Stock of FRUITING and PLANTING CANES of all the best varieties. An inspection is invited. Victoria and Paradise Nurseries, Upper Holloway, London, N.

Vines.

J. MEREDITH will have great pleasure in forwarding his PRICED LIST of VINES on application. He has the largest stock in England. An inspection is invited. The Vineyard, Garston, near Liverpool.

STRONG and EXTRA STRONG FRUITING VINES, unusually fine and well ripened. All the leading kinds, for fruiting in pots and for planting out. JAMES DICKSON & SONS, Newton Nurseries, Chester.

Pines.

TO BE DISPOSED OF, in consequence of the glass being required for other plants, 60 stout clean FRUITING PLANTS of the best sorts, and 30 good SUCCESSIONS of the same. Apply to FRANCIS R. KINGHORN, Richmond, S.W.

Standard Apples.

WOOD AND INGRAM offer to the Trade and others 20,000 splendid STANDARD APPLES, with 5 to 6 feet stems and magnificent heads. Price on application. The Nurseries, Huntingdon.

CURRANT PLANTS, 4-years' growth.—The large RED GRAPE and NETTLE-LEAF WHITE, at 10s. per 100, cash on the ground, or a Post Office order payable at Hounslow. T. MITTON, Lampton, near Hounslow, W.

PRINCESS of WALES STRAWBERRY.—This fine variety is now proved to be the best early variety ever produced, either for Forcing or for general Early Crop. See *Gardeners' Chronicle* of May 12, 1866, p. 437. Good Plants can now be supplied from the true stock, at 5s. per 100, from the raiser. B. W. KNIGHT, Nurseryman, Battle, Sussex.

WEBB'S PRIZE COB FILBERTS, and other PRIZE COB NUTS and FILBERTS. LIST of these varieties from Mr. WEBB, Calcot, Reading.

Orchard-house Trees Fruiting in Pots.

PEACHES, NECTARINES, APRICOTS, CHERRIES, PLUMS, PEARS, APPLES, VINES, and FIGS. RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

STANDARD APPLES, PEARS, and PLUMS, &c., &c. See CATALOGUES, Wholesale or Retail. THOMAS WARNER, Leicester Abbey Nurseries.

APPLES, CHERRIES, NECTARINES, and PEACHES, &c., Dwarf and Dwarf-trained; Houghton Castle CURRANTS, &c., &c. See CATALOGUES, Wholesale or Retail. THOMAS WARNER, Leicester Abbey Nurseries.

SCARLET CHESTNUTS, STANDARD ELMS, THORNS, and POPLARS, SEEDLING QUICK, &c., &c. See CATALOGUES, Wholesale or Retail. THOMAS WARNER, Leicester Abbey Nurseries.

ARBOR-VITÆS, ARBUTUS, AUCUBAS, BOX, YEWS, &c., &c. See CATALOGUES, Wholesale or Retail. THOMAS WARNER, Leicester Abbey Nurseries.

Fruit Trees.

H. LANE AND SON beg to call attention to their extensive stock of FRUIT TREES of every description, which is very fine and healthy, at moderate prices. CATALOGUES free on application. The Nurseries, Great Berkhamstead, Herts.

Now Ready,

A DESCRIPTIVE CATALOGUE of FRUITS for 1867, free. A DESCRIPTIVE CATALOGUE of a few SELECT ROSES for 1867. By THOS. RIVERS. Free by post. Nurseries, Sawbridgeworth.

RICHARD SMITH'S FRUIT LIST contains a sketch of the various forms of Trees, with directions for Cultivation, Soil, Drainage, Manure, Pruning, Lifting, Cropping, Treatment under Glass; also their synonymes, quality, size, form, skin, colour, flesh, flavour, use, growth, duration, season, price, &c. Free by post for three stamps. RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

Large Evergreens and Forest Trees.

MESSRS. PAMPLIN AND SON have a large quantity of the above, and offer them at low prices, part of their Grounds being required for building purposes. The Nurseries, Lea Bridge Road, Leyton; and Wood Street, Walthamstow, Essex, N.E.

AZALEA INDICA.—Good healthy blooming Plants, 40 of the choicest varieties, including Stella, Carnation, Flag of Truce, and Mdlle. Verschaffelt, for 40s., or less quantities 12s. per dozen; also other good named varieties, healthy blooming Plants, at 9s. per dozen. Trade price on application. H. & R. STIRZAKER, Skerton Nurseries, Lancaster.

THIRTY THOUSAND AMERICAN ARBOR-VITÆ, from 3 to 6 feet, very suitable for Hedges. WM. WOOD & SON, Woodlands Nursery, Maresfield, near Uckfield, Sussex.

ONE HUNDRED THOUSAND fine Transplanted COMMON LAURELS, from 1½ to 3 feet. WM. WOOD & SON, Woodlands Nursery, Maresfield, near Uckfield, Sussex.

British Fern Catalogue.

ROBERT SIM can now send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his NEW and PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7. Foot's Cray Nursery, S.E., a mile from Sidcup Station of New North Kent Line of South Eastern Railway.

Dutch and Cape Bulbs.

BUTLER, McCULLOCH AND CO. have received their usual consignment of the above, and beg to offer the following carefully assorted collections.

FOR CONSERVATORY DECORATION.

No. 1	No. 2	No. 3	No. 4	No. 5	No. 6
100s.	50s.	25s.	21s.	16s.	10s.6d.

FOR FLOWER GARDEN DECORATION.

No. 7	No. 8	No. 9	No. 10	No. 11	No. 12
100s.	60s.	40s.	25s.	21s.	10s.6d.

FOR FLOWER GARDEN AND CONSERVATORY COMBINED.

No. 13	No. 14	No. 15	No. 16	No. 17	No. 18
105s.	52s.6d.	42s.	21s.	16s.	10s.6d.

CATALOGUES containing details of above Collection sent free, and Post-paid Orders amounting to 21s. sent, carriage paid, on receipt of Post-Office Order.—Established upwards of a century.

Covent Garden Market, London, W.C.

Extensive and well-grown Nursery Stock.

J. SCOTT, Merriott Nurseries, Somerset, has to offer FOREST TREES in large numbers, finely rooted and in perfect health. ORNAMENTAL TREES and SHRUBS of all sizes in quantity, beautifully grown and regularly transplanted.

Intending Planters would do well to visit these fine Nurseries, which have been established 150 years, and are by far the largest in Somerset. CATALOGUES on application.

LOUIS VAN HOUTTE'S CATALOGUE, No. 121, will be published on the 15th November next, and will be sent, per post, to all his customers.

CONTENTS :—

Azalea Indica	Trees and Shrubs
Camellias	Conifers
Rhododendrons	Roses
Ghent Azaleas, hardy	Herbaceous Plants, Select Collection of
Azalea Van Houttei flore-pleno, hardy (see "Flore des Serres," xiii., 13)	Fruit Trees, Belgian and other
Magnolias and other American Plants	Gladiolus gandavensis [sorts
Magnolia Lennei (see "Flore," xvi., 159)	Gesneraceous Rhizomes and Tubers
	Caladiums, &c., in dry Tubers, &c., &c.

LOUIS VAN HOUTTE'S goods, baskets, bundles, cases, crates, hampers, &c., are sent free to Edinburgh, Goole, Grangemouth, Grimsby, Harwich, Hull, Liverpool, London, Middlesbro'-on-Tees, and Newcastle-on-Tyne; but, per contra, 5s. per parcel will be charged in the account. From the above seaports the goods are sent with great care to the various railways by LOUIS VAN HOUTTE'S Agents.

"FLORE DES SERRES," XVI., Nos. 11 and 12, will appear at the end of this month.

Each Volume of the "FLORE DES SERRES" may be had separately for 30s., and the Sixteen Volumes complete (the entire collection) for £22 10s. This work contains more than 1700 highly finished Coloured Plates, and numerous Woodcuts.

Ghent, Belgium.—Nov. 2.

Azalea, Her Majesty.

WILLIAM BARNES has much pleasure in announcing that he will be prepared to send out the above splendid AZALEA on and after Wednesday, October 23, at the following price—21s. each. A very few extra strong plants at 42s. each, with the usual allowance to the Trade; where three plants are ordered at one time four will be given.

It was exhibited before the Floral Committee of the Royal Horticultural Society on June 14, 1866, where it was awarded a First-class Certificate for its great beauty in its markings, shape, and colour, when the following remarks were made upon it, which appeared in the *Gardeners' Chronicle*, June 16, 1866 :—"A beautiful Azalea, rosy lilac, edged with white, and blotched, and spotted in the upper petals with crimson, called Her Majesty, from MR. BARNES, of Camberwell."

On June 23, 1866, the following remarks appeared in the same Paper :—"We have from time to time referred to the sportive character of the Indian Azalea, and called attention to the fact that some of our best varieties have had their origin in a freak of Nature. A fresh instance of their sportiveness was shown the other day at South Kensington. Mr. WILLIAM BARNES there exhibited a variety of Azalea which he purposes to designate Her Majesty. It is, we believe, a sport from Madame Mielles, or some of the forms closely allied to that fine old sort; and in quality, therefore, as well as in name, takes the very highest rank. The flowers are of the full average size, and of excellent form and substance, and the colour is a soft lilac-tinted blush, white at the margin, densely spotted with crimson in the upper part, and marked with variable stripes, or sometimes broadish bars of deep rosy purple. Its high quality as regards the flower itself, and this novelty of marking, will make it an acquisition in any collection of these showy plants.

A faithful Figure of this fine Azalea is given in the January number of the "Florist and Pomologist."

A remittance must accompany all orders from unknown correspondents. Camden Nursery, Camberwell, London, S.

A. VAN GEERT, NURSERYMAN, Ghent, Belgium, begs respectfully to offer the following Plants, of which he possesses a good stock, at very reasonable prices :—

100 HARDY RHODODENDRONS, in fine named varieties, £3.
100 ASCLEPIAS TUBEROSA, flowering roots, £1 1s.
100 HERBACEOUS CHINESE PÆONIES, in fine vars., £2 10s.
25 TREE PÆONIES, different varieties, £2 10s.
100 ABIES PINSAPO, fine plants, well rooted, 1 foot high, £4.
100 " NORDMANNIANA, 3-yr. seedlings, £3 10s.
100 THUJA ERICOIDES, small, very pretty variety, £2.
100 THUJA AUREA, 25s. to £2 10s.
100 CHAMÆCYPARIS SPHÆROIDEA FOLIIS AUREIS, fine plants, £3.
50 THUJA ELEGANTISSIMA, 2-yr. grafted, £2.
100 WIDDRINGTONIA ERICOIDES, £1 5s.
50 CUPRESSUS LAWSONIANA ARGENTEA (WATERER), £2.
25 " " GRACILIS, £1.
25 " " STRICTA, £1.
50 PINUS INSIGNIS, strong plants, £2.
50 GINKGO BILOBA, strong, £2.
50 MAGNOLIA GRANDIFLORA, fine plants, £3 10s.
50 " TRIPETALA, fine plants, £1 5s.
25 FABIANA IMBRICATA, fine, £1.
50 ILEX, of sorts, £2 10s. | 100 HEDERA, of sorts, £1.
50 BERBERIS, of sorts, 15s. | 100 CONIFERS, of sorts, £2.
100 fine STANDARD PERPETUAL ROSES, £5.
100 COMMON MOSS ROSES, £2.
25 STANDARDS of ACER LEOPOLDII, £2 10s.
12 ARUNDO DONAX VARIEGATA, £1.
100 LILIUM LANCIFOLIUM RUBRUM, very strong, £3.
100 INDIAN AZALEAS, small, with buds, £3.
100 " larger, £4 to £6.
100 CAMELLIAS, fine sorts, without buds, £4.
100 GLADIOLUS GANDAVENSIS, different varieties, £4.
100 GLOXINIAS, in varieties, £2.
6 AGAVE SCHIDIGERA, fine strong plants, £5.
6 " COCCINEA, £1 10s.
6 " XALAPENSIS, £1 10s.
12 " AMERICANA, 21s. to £2.
12 " VARIEGATA, 21s. to £2.
12 LATANIA BORBONICA, £1.
12 CORYPHA AUSTRALIS, fine plants, £3.
12 CHAMÆROPS HUMILIS, £1.
6 " fine plants, £3 to £5.
12 DICTYOGLOSSUM CRINITUM, £1 5s.
25 LOMARIA GIBBA, £1.
50 GYMNOGRAMME WETENHALLIANA, £1 10s.
25 ALSOPHILA EXCELSA, £1.
25 WOODWARDIA ORIENTALIS, £1.
20 TROPICAL ORCHIDS, £3.
50 NEW PERPETUAL PINE-APPLE STRAWBERRY plants, £1.
6 RHODODENDRON AUGUSTE VAN GEERT, the largest bouquet of the hardy varieties, strong plants, £1 10s.

When a large quantity of the above articles are ordered, the carriage will be paid to London. References required from unknown Correspondents.

Agents: MESSRS. R. SILBERRAD & SON, 5, Harp Lane, London, of whom NEW GENERAL CATALOGUES may be obtained on application.

Hyacinths for Exhibition.

SEEDSMEN BY APPOINTMENT. Sutton AND Sons

MESSRS. SUTTON'S COLLECTIONS include the varieties so much admired at the spring shows, and they are now prepared to receive orders for the same at the following prices :—

The Choicest 100 Sorts, £4 4s., carriage free
The Choicest 50 Sorts, £2 2s., "
The Choicest 25 Sorts, £1 1s., "
The Choicest 12 Sorts, £0 12s.

Cheaper Roots, 6s. to 9s. per dozen.

HYACINTHS for Beds and Open Borders, 3s. per dozen, 21s. per 100, carriage free.

SUTTON & SONS, Importers, Reading, Berks.

SUTTONS' unrivalled COLLECTIONS of BULBOUS FLOWER ROOTS, for Blooming during the Winter and Spring. These are every year becoming more popularly cultivated, and the HYACINTHS, ANEMONES, TULIPS, &c., which we imported last season from the celebrated Dutch Florists, Messrs. de Boom, Veen, Byvoet, and others, having been so generally admired, we have imported from the same parties, and still more extensively.

SUTTONS' COLLECTIONS of HARDY FLOWER ROOTS for OPEN GROUND.

	£	s.	d.
No. 1. A large and Choice Collection of ANEMONES, HYACINTHS, CROCUSES, TULIPS, RANUNCULI, NARCISSI, SNOWDROPS, IRISES, GLADIOLI, &c.	2	2	0
No. 2. Ditto ditto, consisting of all the same kinds, in Reduced Quantities	1	1	0
No. 3. A Small and Choice ditto	0	10	6

SORTS for FLOWER POTS and GLASSES.

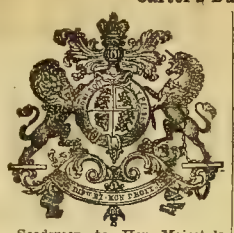
No. 4. A splendid Collection of HYACINTHS, JONQUILS, NARCISSI, EARLY TULIPS, new large CROCUSES, &c.	2	2	0
No. 5. The same in Reduced Quantities	1	1	0
No. 6. A Small and Choice Assortment	0	10	6

SUTTONS' DESCRIPTIVE AUTUMN CATALOGUE is now ready, and may be had gratis and post free on application.

All Goods sent Carriage Free except small parcels, and 5 per cent. allowed for Cash Payments.

SUTTON & SONS, Royal Berks Seed Establishment, Reading.

Carter's Dutch Bulbs.



Seedsmen to Her Majesty's Chief Commissioners of Public Works and other Government Departments, the Royal Gardens, Kew, &c., &c., &c.



Seedsmen to H.I.M. the Emperor of the French, the Crystal Palace Company, the Agri-Horticultural Society of India, &c., &c., &c.

CARTER'S GUINEA BOX of DUTCH FLOWER ROOTS contains 12 choice named Hyacinths, 12 mixed Hyacinths for borders, 50 Yellow Crocus, 50 Blue Crocus, 4 Polyanthus Narcissus, 12 Double White Narcissus, 12 Pheasant's Eye Narcissus, 12 Double Daffodils, 24 finest mixed Ranunculus, 24 finest mixed Anemones, 12 choice mixed Single Tulips, 12 choice mixed Double Tulips, 4 Garden Lilies, 50 Snowdrops, 12 finest mixed Spanish Iris, 12 Campernelle Jonquils.

The above forwarded without delay on receipt of Post Office Order for 21s. Box and packing included. PRICE LISTS gratis and post free on application to

CARTER'S Great London Seed Warehouse, 237 & 238, High Holborn, London, W.C.

FINE SHOW and FANCY PELARGONIUMS.

12 Fine young Plants, all named, one each, 12s.
24 Do. do. do. do. 20s.
50 Do. do. do. do. 40s.
100 Do. do. do. .. 75s.
12 CAMELLIAS, full of flower-buds 30s.
12 AZALEAS, do. do., and fine heads, 24s.

H. MAY was awarded the First Prize for all the Pelargoniums at the Manchester International Show and the Leeds Floral Fête during the past summer, and also at the Great Yorkshire Gala, York, for many years in succession, and same kinds will be included in the above.

HENRY MAY, The Hope Nurseries, Bedale, Yorkshire.

NEW GOLDEN-LEAVED BEDDING PLANT,

FUCHSIA "GOLDEN FLEECE."

AWARDED A FIRST-CLASS CERTIFICATE BY THE ROYAL HORTICULTURAL SOCIETY OF LONDON.

"A perfect gem for decorative purposes; the intense golden colour of the foliage very effective,"—*Journal of Horticulture.*

This very beautiful and effective plant is adapted for all decorative purposes in beds, or ribbon rows, and by its free, yet densely compact growth, equally suited for front or second rows; its slightly decurved branches retaining a dwarf habit, from 6 to 9 inches, as required, throughout the season. The early summer leaf-tint is an uniquely rich bronze yellow, changing to a pure gold in midsummer and autumn. In general effect it is less formal and more equal in growth than the "Golden Feather" (Pyrethrum), and superior in effect to the whole self Gold-leaved section of Geraniums. Out of 40 plants in one row, there was no perceptible difference in height and effect through the summer, and increased in the richness of its colour until October.

The Plants now offered are the only batch adapted for spring stock.

Price, 7s. 6d. each.

E. G. HENDERSON AND SON, WELLINGTON NURSERY, ST. JOHN'S WOOD, N.W.

LEE'S GIANT ORACH (SPINACH).

THIS NEW AND VALUABLE VARIETY OF ORACH

POSSESSES IMMENSE PRODUCTIVE POWERS,

COMBINED WITH A DELICIOUS PIQUANT FLAVOUR, QUITE DISTINCT FROM ALL OTHER VARIETIES, RENDERING IT A GREAT ACQUISITION AS A SUMMER SPINACH OF THE HIGHEST CLASS.

The plant is of rapid and vigorous growth, and attains a height of 6 or 7 feet, with numerous branches; yielding a constant supply of large dark green leaves throughout the summer months.

The Fruit Committee of the Royal Horticultural Society awarded a FIRST-CLASS CERTIFICATE to LEE'S GIANT ORACH, after partaking of a dish of this most useful vegetable, cooked especially for their judgment.

JOHN AND CHARLES LEE have much pleasure in introducing this productive vegetable, which they intend to send out in January next. **Sealed Packets, 1s. each.**

PRICE TO THE TRADE ON APPLICATION.

ROYAL VINEYARD NURSERY and SEED ESTABLISHMENT, HAMMERSMITH, W.

AMBROISE VERSCHAFFELT, NURSERYMAN,

(PUBLISHER OF THE "ILLUSTRATION HORTICOLE)," GHENT, BELGIUM,

BEGS TO OFFER THE FOLLOWING NOVELTIES :—

CALADIUM LEOPOLDII.—One of the finest, 7s. 6d.

TACSONIA BUCHANANI.—A splendid climber; as fine as the Tacsonia Van Volxemi: see figure in the "Illustration Horticole;" 7s. 6d.

VRIESEA GLAZIOUANA.—A splendid Bromeliaceous plant, which obtained at the Universal Exhibition in Paris the First Prize for the best new Plant, and of which a specimen was exhibited by Miss Zoë de Knyff, under the name of Chevaliera. This really splendid ornamental plant is figured in the "Illustration Horticole." Fine plants, £1.

AZALEA INDICA FRANCOIS DEVOS (A. VERSCHAFFELT).—This is one of my best seedlings. Flowers very double, deep red, with black spots. See figure in "Illustration Horticole." Fine plants, full of buds, 12s.

RHODODENDRON ORNATISSIMUM (A. VERSCHAFFELT).—See the "Illustration Horticole." This is the best seedling raised; colour whitish, rose in the centre; the edges are coloured with rose violet, and the centre is marked with fine golden spots. It is one of the most distinct varieties, and is quite hardy. Good plants, 12s.; do. with buds, £1.

THE GENERAL CATALOGUE, No. 81,

CAN BE OBTAINED FREE OF

MESSRS. R. SILBERRAD AND SON, 5, HARP LANE, GREAT TOWER STREET, LONDON, E.C.

HENRY MAY begs to offer the undernamed:—
ENGLISH YEWS, 2 ft., very bushy (often transplanted), 3s. per doz., 16s. per 100; do., 2½ to 3 ft., bushy, do., 6s. per doz., 40s. per 100; IRISH do, 4 to 5 ft., do, 1s. 6d. each, 15s. per doz.
PORTUGAL LAUREL, 2 ft., bushy, do., 4s. per doz., 20s. per 100; do., 2½ to 3 ft., bushy, do., 8s per doz., 50s. per 100
CUPRESSUS LAWSONIANA, 2 ft., bushy, do., 6s. per doz., 40s. per 100; do., 3 to 4 ft., bushy, do., 12s. per doz.
WELLINGTONIA GIGANTEA, 2 ft., bushy, do., 12s. per doz.; do., 3 ft., bushy, do., 18s. per doz.; do., 4 ft., bushy, do., 36s. per doz.; do., 5 ft., bushy, do., 60s. per doz.
ARBOR-VITÆ (AMERICAN), 4 to 5 ft., bushy, do., 9s. per doz., 50s. per 100
PINUS AUSTRIACA, 2 ft., bushy, do., 4s. per doz., 20s. per 100; do., 3 ft., bushy, do., 6s. per doz., 30s. per 100; do. EXCELSA, 4 to 5 ft., bushy, do., 18s. per doz.
ENGLISH SPRUCE FIR, 3 ft., single planted (perfect specimens), 6s. per doz., 30s. per 100
HORSE CHESTNUT, 8 ft., do., fine, 6s. per doz., 30s. per 100
ENGLISH ELM (Grafted), 8 ft., do., do., 6s. per doz., 30s. per 100
LIMES, 8 ft., do., do., 12s. per doz.
AILANTHUS GLANDULOSA (for Silkworm Culture), 2½ ft., 2s. per doz., 10s. per 100
STANDARD APPLES, 6 ft. stems, fine heads, good, 10s. per doz., 70s. per 100; do. VICTORIA PLUMS, good, 15s. per doz.
Fine named LANCASHIRE GOOSEBERRIES, 2s. per doz.; 12s. per 100.
CURRANTS, WHITE, BLACK, and RED, fine, 1s. 6d. per doz.; 8s. per 100.
Fine named HYBRID-PERPETUAL ROSES, at 6s., 9s., and 12s. per doz.
All the above are fine grown stuff, and well removed, and will plant safely.
HENRY MAY'S CATALOGUES can be had on application, which contain all the most popular EVERGREENS, SHRUBS, &c.
HENRY MAY, The Hope Nurseries, Bedale, Yorkshire.

MAURICE YOUNG'S NEW CATALOGUE of NEW HARDY PLANTS, JAPANESE NOVELTIES, NEW AUCUBAS, ORNAMENTAL TREES and SHRUBS, EVERGREENS, CONIFERÆ, RHODODENDRONS, FOREST TREES, &c., may be had on application.

DESIGNS, PLANS, and ESTIMATES PREPARED for LAYING-OUT NEW GROUNDS, IMPROVING PARK SCENERY, PLANTATIONS, &c.

FOREST TREES PLANTED by the Acre, and Guaranteed.
Convenient railway accommodation to all parts of the country.
Milford Nurseries, near Godalming, Surrey.

BARGAINS to the TRADE.
100,000 2 to 3 feet THORN QUICKS, will be sold a bargain.
500,000 2-year Seedlings, fine, small ones selected out, 3s. 6d. p. 1000.
800,000 Seedlings, at 1s. 6d. by the 100,000, 1s. 3d. per 1000.
10,000 transplanted BERBERIS DARWINII, 2 years old, strong, 6s. 6d. per 100, or 50s. per 1000.
50,000 transplanted MAHONIA AQUIFOLIA, 2 years old and selected, 12s 6d. per 1000; 10,000, 10s. per 1000.
50,000 budded MANETTI STOCKS, good rooted plants, 25s. per 1000; selected, 30s.
A LIST of other NURSERY STOCK sent on application.
ANDREW G. DALY, Nurseryman, Newry, Ireland.

PAUL AND SON beg to offer the undernoted frequently-removed and well-formed TREES, SHRUBS, and NURSERY STOCK, which they have grown in large quantity:—
ARBOR-VITÆ, AMERICAN, CHINESE, and WARE'S, 3 to 8 feet.
AUCUBA JAPONICA, 1 to 3 feet.
BOX, COMMON and VARIEGATED, 1 to 3 feet.
RED CEDARS, 3 to 4 to 8 feet.
HOLLIES, VARIEGATED and GREEN, 3 to 6 feet.
LAURELS, COMMON, very bushy and moving well, 2 to 3 feet, 3 to 4 feet, 5 to 6 feet, 6 to 8 feet.
YEWS, COMMON, or trained flat, 3 to 6 feet.
DWARF DECIDUOUS SHRUBS, in 100 varieties.
RHODODENDRON PONTICUM, 2 to 4 feet.
RHODODENDRON PONTICUM, choicest named kinds, 2 to 3 feet.
KALMIAS, HARDY HEATHS, AZALEAS, &c.
LIMES, COMMON and RED TWIGGED, 6 to 12 feet.
PLANES POPLARS, ACÆNAS, for London planting.
DECIDUOUS TREES in great variety of foliage and growth, 6 to 10 feet.
The "Old" Nurseries, Cheshunt, N.

Hanover Nursery, Rye Lane, Peckham, S.E.

M. A. IVERY begs to invite an inspection, from those engaged in Planting, of a selection of EVERGREENS and SHRUBS that will remove well, being all lifted at proper seasons to secure removal, consisting of—

Aucuba japonica, very handsome.
Box, of sorts, very bushy, 2½ to 3 feet.
Cedrus deodara, 4 to 5 feet.
Thuja aurea. These are very handsome specimens.
Thuja chinensis, 4 to 5 feet.
" Lobbii, 3½ to 5 feet.
" Wareiana, 2½ to 3 feet.
Cupressus Lawsoniana, very handsome, 3½ to 6 feet.
Euonymus, green; very bushy, 3 feet.
Wellingtonia gigantea.
Ligustrum japonicum.
" ovalifolium, 3 to 5 ft.
Laurustinus, very bushy.
Holly, green, 1 to 2 feet.
Thujopsis borealis, 3 to 4 feet.
Garrya elliptica, in pots.
Laurels, common, very bushy.
" Portugal, "
Lilacs, 4 to 7 feet.
Yews, English, 3 to 4 feet.
Yews, Irish, very handsome, 6 to 7 feet.
Phillyrea, 3 to 4 feet.
Yucca gloriosa, very handsome specimens, 3 to 4 feet.
Ivies, Irish. These are very fine, being grown in large pots for immediate covering, 7 to 8 feet.
Mulberry, very fine, 5 to 6 feet stems, with fine heads.
Standard Fruit Trees of all kinds.
Dwarf-trained ditto.
Black and Red Currants, fine bearing trees.

Also a selection of HARDY CLIMBERS, including Variegated and other choice kinds of Ivies in Pots, at reasonable prices.

To Planters.

WOOD AND INGRAM beg to offer the following NURSERY STOCK, all of which is well-grown and finely-rooted stuff:—
ACACIA, COMMON, 10 to 12 feet.
ALDER, 3 to 4, 5 to 6, and 6 to 7 feet
ASH, 1½ to 2, 2 to 3, and 3 to 4 feet | BIRCH, 5 to 6, and 6 to 7 feet
CHESTNUT, HORSE, 1-year seedling, 7 to 8, and 8 to 9 feet
ELM, NARROW-LEAVED ENGLISH, from seed, 1-year seedling, 3 to 4, and 4 to 5 feet
" HUNTINGDON, 4 to 5, 5 to 6, 6 to 7, 7 to 8, and 8 to 10 feet
FIR, SPRUCE, 1 to 1½, 1½ to 2, 2 to 2½, 2½ to 3, 3 to 4, and 4 to 5 feet
" WHITE and BLACK AMERICAN, 3 to 4, 4 to 5, and 5 to 6 feet
MAPLE, 2 years seedlings, and 2 to 3 feet
POPLAR, BLACK ITALIAN, 8 to 10, and 10 to 12 feet
" LOMBARDY, 4 to 5, 5 to 6, and 8 to 10 feet
" ONTARIO or AMERICAN, 5 to 6, 6 to 8, and 12 to 16 feet
SYCAMORE, 2 to 3, 3 to 4, 4 to 5, 5 to 6, and 7 to 8 feet
ARBOR-VITÆ, AMERICAN and SIBERIAN, 1 to 1½, 1½ to 2, 2 to 2½, 2½ to 3, 3 to 3½, and 3½ to 4 feet
" LOBBII, very fine bushes, specimens, 4½ to 5, 5 to 6, 6 to 7, 7 to 8, and 8 to 9 feet
AUCUBA JAPONICA, 1 to 1½, 1½ to 2, 2 to 2½, and 2½ to 3 feet
CEDAR, RED VIRGINIAN, 3 to 4, 4 to 5, and 5 to 6 feet
CUPRESSUS LAWSONIANA, splendid specimens, 3½ to 4, 4 to 5, and 5 to 6 feet
" MACROCARPA, 1 to 2, 3 to 4, 4 to 5, and 5 to 6 feet
JUNIPER, ENGLISH, 3½ to 4, and 4 to 5 feet
LAUREL, COMMON, 1 to 1½, 1½ to 2, 2 to 2½, 2½ to 3, and 4 to 5 feet
" PORTUGAL, 1 to 1½, 1½ to 2, 2 to 2½, 2½ to 3, 3 to 3½, and 3½ to 4 ft.
LILAC, various kinds, 5 to 6, and 6 to 8 feet
PLANE, OCCIDENTAL, 4 to 5, 5 to 6, 6 to 7, 7 to 8, 8 to 10, and 10 to 12 feet
" ORIENTAL, 10 to 12, and 12 to 14 feet
YEW, COMMON, 1½ to 2, 2 to 2½, 2½ to 3, 3 to 3½, 3½ to 4, and 4 to 4½ ft.
Prices, which are very moderate, according to the quantity taken, sent free on application to The Nurseries, Huntingdon.
N. B. W. & I.'s new NURSERY CATALOGUE is now ready.

Araucaria imbricata, and Wellingtonia gigantea.
SURPLUS STOCK ON LAND TO BE CLEARED FOR BUILDING PURPOSES.
W. SKIRVING, Walton Nursery, Liverpool, begs to offer a few thousands of the above healthy well-grown plants, with good roots; the Araucarias ranging from 3 to 6 feet, and the Wellingtonias from 2 to 4 feet high.
Prices may be obtained on application, and special agreements made for large quantities.

New Seeds for the Colonies.
SEEDS DIRECT FROM THE GROWERS ARE THE MOST SUITABLE FOR EXPORTATION, AND THE BEST MEANS OF PREVENTING DISAPPOINTMENT.
MESSRS. SUTTON solicit the favour of Orders from those about to send or take out SEEDS to the COLONIES, and submit the following from among many Testimonials recently received, as to the GREATLY SUPERIOR quality of their Seeds to those usually exported from this country, as well as to the very efficient manner in which their export packing is carried out:—
July 9, from A. N. ELLA, Esq., *Queenstown, Cape of Good Hope.*
"I may mention that the case referred to was in splendid order, looking as fresh after three months' sea and six weeks' land carriage as if only yesterday packed."
From HUGH ROMSAY, Esq., *Shanghae, China, May* 5, 1866.
"The box of seeds and roots has arrived, and nothing has given me greater pleasure for a long time than the excellence of these seeds."
From Mr. Z. W. WELLS, *New Plymouth, New Zealand, May* 7, 1866.
"The Grass and other seeds sent by the Shelburne to me, have come safe to hand. I have tried samples of the Grass seeds, and am happy to inform you that they have come up quite to my satisfaction."
From Mr. JAS. DALE, *Orange, New South Wales, September* 20, 1866.
"I have the pleasure to inform you that your seeds have given great satisfaction, and I now send you a larger order."
All Seeds properly packed and delivered free to ship's side. Special quotations given for large quantities. A liberal allowance made to Shippers. SUTTON & SONS, Seed Growers, Reading.

Suttons' Ringleader, or First-crop Pea.
CHARLES SHARPE AND CO., SEED MERCHANTS, Sleaford, having a very large Stock of the above, are enabled to offer it on very liberal terms to the Trade. Price and sample will be sent on application.
C. S. & Co.'s Stock has been grown from Seed direct from the original raiser of this Pea.

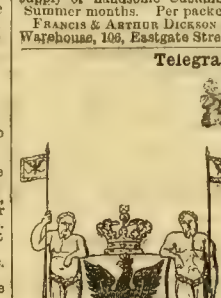
The best Pea for Market Gardeners is
SUTTONS' IMPROVED EARLY CHAMPION.—It is only three days later than SUTTONS' RINGLEADER (the forwardest known), and a week earlier than Daniel O'Rourke or Sangster's No. 1. It is very prolific, with fine long and well filled pods, thus making it a peculiarly desirable sort for early picking.
Lowest price per bushel or quarter may be had on application.
SUTTON & SONS, Seed Growers, Reading.

To Farmers, Gardeners, and Others.
EXCELLENT CABBAGE PLANTS (Stocks not to be surpassed), can be supplied in any quantity, as follows:—
TRUE DWARF NONPAREIL (the earliest and best), 2s. 6d. per 1000
TRUE ENFIELD MARKET (extra fine variety), 2s. 6d. per 1000
TRUE ROBINSON'S CHAMPION DRUMHEAD, 2s. 6d. per 1000
TRUE RED DUTCH (for Pickling), 5s. per 1000
A remittance or reference to accompany all orders.
FREDK. GEE, Seed Merchant and Grower, Biggleswade, Bedfordshire.

Seed Potatos.
H. AND F. SHARPE are now offering MYATT'S EARLY PROLIFIC KIDNEY, RIVERS' ROYAL ASHLEAF, WEBB'S IMPERIAL KIDNEY, DAINTREE'S EARLIEST, EARLY OXFORD, EARLY FORTY-FOLD, and many other Early and Late varieties grown from their own selected stocks. The Prices are moderate, and the quality excellent. PRICED LISTS may be had on application.
Seed Growing Establishment, Wisbech.

CUCUMBER "DICKSON'S FAVOURITE" or ALL THE YEAR ROUND.
We can confidently recommend this as one of the best Winter Cucumbers grown, while it is second to none for general purposes. In Winter it grows about one foot long, and in Summer from 15 to 18 inches, is of deep green colour, very handsome, delicate in flavour, and particularly tender, crisp and juicy. It is very prolific, showing two to three fruit at every joint, and furnishes a continual supply of handsome Cucumbers during the Winter, Spring, and Summer months. Per packet 1s. 6d. and 2s. 6d., post free.
FRANCIS & ARTHUR DICKSON & SONS, The "Old" Established Seed Warehouse, 106, Eastgate Street, Chester.

Telegraph Cucumber.



ROLLISSONS' TELEGRAPH CUCUMBER, the best Winter and Early Spring variety in cultivation.
See *Gardeners' Chronicle*, January 12, 1867.
See *Gardeners' Chronicle*, March 16, 1867.
See *Gardeners' Chronicle*, August 31, 1867.
See *Gardeners' Chronicle*, October 12, 1867.
The above, in printed sealed packets, 2s. 6d. each. Prices to the Trade on application to
WILLIAM ROLLISSON & SONS,
The Nurseries, Tooting, London, S.



GRASS SEEDS for PERMANENT PASTURE, of the finest quality, at moderate prices, carefully selected on a new, natural, and scientific system.
See "WHEELER'S BOOK on GRASSES," which contains Illustrations and Descriptions of the most suitable Grasses for Permanent Pasture.
J. C. WHEELER & SON,
Gloucester,
Seedsmen to the Gloucestershire Agricultural Society.

New Hybrid Wheat.
KING RICHARD'S WHEAT was obtained by crossing SHIBREFF'S BEARDED WHITE with POLLEN from Talavera. On examining this Wheat at the commencement of harvest in this trying season, growing in East Lothian upon nine different farms, varying in soil and situation, the straw was invariably found to be the tallest, the stoutest, and the most golden-coloured of all the varieties growing contiguous.
Small Samples of the Grain, which is particularly fine, will be forwarded to intending purchasers if desired. The Subscriber's own growth is offered at 90s. per quarter, and the growth of other parties will fluctuate with current prices, delivered on the North British Railway. Terms Cash. PATRICK SHIRREFF.
Haddington, October 18.



COCOA-NUT REFUSE is becoming SCARCE, the old reserves will soon be gone. Now sold in bags, 1 for 2s., 10 for 16s., 20 for 30s., 50 for 66s., 100 for £6.
Fourpence allowed for each bag returned carriage-paid.
A Railway Truck-load (not in bags), 40s.
Postage Stamps or Post-office Order, payable to J. BARSHAM & Co., Kingston-on-Thames, S.W.

FIBROUS PEAT of first-class quality for Orchids, Heaths, American Plants, and all potting purposes, may be obtained by application to Mr. THOMAS JESSOP, Farningham Wood, near Farningham Station, Kent. It is dispatched by the London, Chatham, and Dover Railway in trucks of 10 yards, to most Stations in the Kingdom, or fetched in carts from the wood. It is extensively used and appreciated in the principal Nurseries, and in the Royal Parks and Gardens. Price 5s. per cubic yard, at Farningham Station.

TOBACCO TISSUE for Fumigating Greenhouses. Will Destroy Thrip, Red Spider, Green and Black Fly, and Mealy Bug; and burns without the assistance of blowing, and is entirely free from paper or rag. Price 3s. 6d. per lb., carriage free. A reduction in price for large quantities.
To be had of Messrs. ROBERTS & SONS, Tobacco Manufacturers, 112, St. John Street, Clerkenwell, E.C., of whom copies of Testimonials may be obtained; and of all Seedsmen and Nurserymen.

WINTER-DRESS ALL FRUIT TREES with GISHURST COMPOUND.
Copy of a Letter from Mr. RIVERS, *Nurseries, Sawbridgeworth, Herts, 22d October*, 1861.
"I must tell you what I heard to-day from a very clever gentleman farmer, Anthony Bubb, Esq., of Witcombe Court, Gloucester. He has a wall to which Peach Trees are trained. Well, last autumn they were in a wretched blighted state. As a desperate remedy he unnailed them all, early last February, and gave all but one a thorough painting with Gishurst Compound, 1 lb. to the gallon of water; his trees, all but the one, commenced to grow favourably in spring, and are now pictures of health. The tree not painted is in a half-dead blighted state. He used the same dressing to his Apple Trees; it killed the woolly Aphis entirely, and has made his trees clean and vigorous in their growth. He intends to paint his Wall Trees annually, and tells all his friends to do the same. I shall certainly serve all my young Peach Trees against my walls in the same manner. The Compound is, I believe, more efficacious than the usual offensive mixtures of clay, soot, sulphur, &c.; and it does not blacken the shoots on the walls."
For Orchard-house Trees, 4 ozs. to the gallon will be found a good strength; when used stronger some buds on weakly trees may be injured.
GISHURST COMPOUND is sold Retail by Nurserymen and Seedsmen, in boxes, 1s., 2s., and 10s. 6d. each.
Wholesale by PRICES' PATENT CANDLE COMPANY, LIMITED, Belmont, Vauxhall, London, S.
Gishurst Compound has more recent testimonials to its efficacy, but none more conclusive than the above, which has been published before.

Caution to Gardeners.—When you ask for
SAYNOR AND COOKE'S WARRANTED PRIZE PRUNING and BUDDING KNIVES, see that you get them. Observe the mark SAYNOR, also the Corporate Mark, OBTAIN WARRANTED, without which none are genuine.
S. & C. regret having to caution Gardeners and others, but are compelled to do so, in consequence of an imitation, of common quality, having been sold for the genuine one, and which has caused many complaints to be made to them of Knives which were not of their make, all of which are warranted both by Sellers and Makers.
S. & C.'s PRUNING and BUDDING KNIVES are the best and the cheapest in the market.
Paxton Works, Sheffield. Established upwards of 125 years.

COTTAM'S PATENT PORTABLE UNITED COW FITTINGS.



Their advantages are—Portability, not Fixtures, removable at pleasure, no Woodwork or Partitions to impede Ventilation or breed Vermin, Hay Rack dispensed with as unnecessary, increased width and depth of Feeding Troughs, Water Cistern, and Patent Drop Cover to prevent over-gorging. Cleanly, durable, and impervious to infection, being all of Iron. Price of Fittings per Cow, 55s.
Prospectuses free of COTTAM & Co., Iron Works, 2, Winsley Street (opposite the Pantheon), Oxford Street, London, W., where the above are exhibited, together with several important Improvements in Stable Fittings just secured by Patent.

Oil Paint no longer Necessary.



HILL AND SMITH'S PATENT BLACK VARNISH for preserving Iron Work, Wood, or Stone. This Varnish is an excellent substitute for oil paint on all out-door work, and is fully two-thirds cheaper. It may be applied by an ordinary labourer, requires no mixing or thinning, and is used cold. It is used in the grounds at Windsor Castle, Kew Gardens, and at the seats of many hundreds of the nobility and gentry, from whom the most flattering testimonials have been received, which HILL & SMITH will forward on application.
From J. A. TAYLOR, Esq., *Strensham Court.*
"In answer to your inquiries, I beg to inform you I find your Black Varnish an excellent substitute for oil paint upon iron and wood out of doors, and have found the iron Barrow with apparatus essential in applying the Varnish to lines of fencing. I can strongly recommend the Black Varnish for all out-door work as superior to anything I have yet used for the purpose, and it can be applied with great economy by careful labourers."
Sold in casks of about 30 gallons each, at 1s. 6d. per gallon, at the Manufactory, or 1s. 8d. per gallon paid to any Station in the kingdom.
Apply to HILL & SMITH, Brierly Hill Iron Works, near Dudley, and 22, Cannon Street West, E.C., from whom only it can be obtained.

Rhododendrons,

AS EXHIBITED AT THE ROYAL BOTANIC GARDENS, REGENT'S PARK.

JOHN WATERER, the Exhibitor at the above Gardens, has pleasure in announcing that his CATALOGUE of the above popular Plants is now published, and will be forwarded to all applicants. It faithfully describes all the varieties considered worthy of cultivation. It contains likewise a selection of HARDY CONIFERS, with heights and prices.

The American Nursery, Bagshot, Surrey.

THE QUEEN. A 1.—By permission CHARLES NOBLE has had the honour of Exhibiting his NEW WHITE RHODODENDRON before Her Majesty the Queen, at the Royal Gardens, Windsor; he has authority to state that Her Majesty was graciously pleased to approve of, and recognise the name given in honour of Herself, as being really "THE QUEEN" amongst Rhododendrons.

Price 21s., 31s. 6d., 42s., 63s., 84s., & 105s. each. Standards, 105s. each.

Rhododendrons, &c.

JAMES SMITH, Darley Dale Nurseries, near Matlock, offers the following:—

150,000 RHODODENDRON PONTICUM, beautiful healthy plants, 9 to 15 inches, 15s. per 100; £6 10s. per 1000
150,000 RHODODENDRON PONTICUM, fine bushy plants, 1 to 1½ foot, 20s. per 100; £9 10s. per 1000
50,000 RHODODENDRON PONTICUM, fine plants, 1½ to 2 feet, 25s. per 100; £12 per 1000
10,000 RHODODENDRON WHITE MAXIMUM, 1 to 1½ foot, 5s. per dozen; 30s. per 100
20,000 RHODODENDRON HIRSUTUM, the Dwarf Alpine Rhododendron.—Nice little plants, 3s. per dozen; 15s. per 100
10,000 RHODODENDRON HYBRIDUM, 1 to 1½ foot, bushy plants, 5s. per dozen; 30s. per 100
5,000 AZALEA PONTICUM, the sweet Azalea.—Beautiful bushy plants, 12 to 18 inches, mostly in bloom bud, 3s. per dozen; 20s. per 100. Ditto, 15 to 24 ins., 5s. per dozen; 30s. per 100
50,000 HARDY HEATHS, in about 20 varieties.—Good plants, in fine health, 3s. to 4s. per dozen; 10s. to 15s. per 100. Also about 20 varieties at 5s. to 7s. per dozen
12,000 DOUBLE WHIN, GORSE, or FURZE, nice plants, well rooted, 2s. 6d. per dozen; 12s. per 100. Also, in pots, at 4s. per dozen; 20s. per 100
30,000 COTONEASTER MICROPHYLLA, 6 to 12 inches, 2s. 6d. per doz.; 12s. per 100. 1½ to 2 feet, 3s. per doz.; 15s. per 100
20,000 ARBOR-VITÆ, AMERICAN, beautiful plants, with fine roots, 1½ to 2 feet, 2s. per dozen; 12s. per 100. 2 to 3 feet, 2s. per dozen; 15s. per 100. 2½ to 3 feet, 2s. 6d. per dozen; 18s. per 100. 3 to 4 feet, 3s. per dozen; 20s. per 100. 4 to 5 feet, 6s. per dozen; 5 to 6 feet, 12s. per dozen
5,000 PORTUGAL LAURELS, 2 to 3 feet, beautiful plants, thrice transplanted, fine roots, 4s. per dozen; 20s. per 100
40,000 EVERGREEN PRIVET, 2 to 3 feet, fine plants for Hedges or Game Covert, 2s. 6d. per 100; 22s. per 1000
10,000 IRISH IVY, nice plants, 2s. per dozen; 8s. per 100
900,000 LARCH, transplanted, fine healthy plants, not the least injured by frost or any disease, 1½ to 2 feet, 14s. per 1000; 2 to 3 feet, 16s. per 1000; 3 to 4 feet, 18s. per 1000; 4 to 5 feet, 19s. per 1000

All the above will be delivered free at Matlock Bridge, or Darley Stations, on the Midland Railway.

A CATALOGUE of GENERAL NURSERY STOCK, including Forest Trees, Flowering Shrubs, named Rhododendrons, &c., sent free by post. The Trade supplied. Apply to

JAMES SMITH, Darley Dale Nurseries, near Matlock.

Report.

"GLADIOLI.—YOUELL AND CO.—Your Spikes of BRENCHLEYENSIS, though perhaps scarcely so large as those you sent last year, are MAGNIFICENT, and fully entitle this deservedly favourite variety to hold a foremost place against all competitors."—*Vide Gardeners' Chronicle*, August 31, 1867, p. 908.

Samples and prices may be had post free on application.

For prices of AZALEAS, CAMELLIAS, GREENHOUSE PLANTS, VIOLETS, &c., see *Gardeners' Chronicle*, Sept. 7, p. 922.

Royal Nurseries, Great Yarmouth.

The New Sensation in Bedding Out.

JACKMAN'S HARDY HYBRID CLEMATISES, awarded Eleven First-class Certificates, and One Special.

Messrs. GEO. JACKMAN and SON are desirous of drawing the attention of those who intend using their Hardy Clematises for a Permanent Bedding Plant, that the present time is most favourable for planting.

OPINIONS OF THE PRESS.

Gardeners' Chronicle, Aug. 17:—"The new sensation in bedding." Also, August 31, "J. F." (Cliveden) adds, "that Messrs. G. J. & SON have in their several varieties the very colour of which our summer gardens are in a great measure deficient." "Country Life," Aug. 15:—"Clematis Jackmanni is a most useful bedding kind if pegged down; used as such, a perfect carpet of flower, so to speak, is soon formed." *The Field*, Sept. 28:—They will be of the highest value as purple bedding plants, our present colours in this way being poor indeed compared to these."

An engraving, from a photograph, showing the flowering qualities, and Circular of Prices, will be forwarded gratis on application.

Woking Nursery, Surrey.

New Zealand Nursery, St. Alban's, Herts.

J. WATSON'S beautiful BEDDING PELARGONIUM EXCELSIOR, now ready; colour of Indian Yellow; fine truss, and habit of Lord Palmerston. Price 5s. each; 36s. per doz. to the Trade.

MISS WATSON, ready August 25; MRS. DIX, May 1. The Two have received 10 First-class Certificates and Extra Prize Money.

Fine New TABLE APPLE, ST. ALBAN'S PIPPIN, Ripe in April. Plants ready in November. 5s. each; 36s. per doz. to the Trade.

DESCRIPTIVE LIST sent on application.

VARIEGATED PELARGONIUMS.

SOPHIA DUMARESQUE	ITALIA UNITA
MRS. BENYON	COUNTESS
GOLDFINCH	ELEGANS
LUNA	THE FAIRY
BEAUTY of OULTON	PICTURATA
NEATNESS	BICOLOR SPLENDENS

The above forwarded on receipt of Post Office order for 21s.

If any of the above kinds are not required, others of equal value can be substituted.

ALFRED FRYER, Nurseries, Chatteris, Cambridgeshire.

TRICOLOR ZONAL GERANIUMS.

The 12 for 21s.

ITALIA UNITA	BURNING BUSH
WAVERLEY	RAINBOW
CRYSTAL PALACE GEM	SUNSET
TWILIGHT	BICOLOR SPLENDENS
GOLD PHEASANT	SILVER STAR
GLOWWORM	SOPHIA DUMARESQUE

Or the following dozen for 21s.:—

CINDERELLA	LADY CALLUM
SILVER STAR	COUNTESS
REINE D'OR	EASTERN BEAUTY
ROSEBUD	GOLDEN NUGGET
SULPHURIA MARGINATA	VARIEGATED LITTLE DAVID
ARGUS	ST. CLAIR

MRS. POLLOCK, 30s. and 40s. per 100 | JANE, 40s. per 100
ITALIA UNITA, £5 per 100 | FLOWER of SPRING, 40s. p. 100
VIRGIN QUEEN, 40s. per 100 | SUNSET, £5 per 100
MISS KINGSBURY, 50s. per 100

GOLDEN ZONAL, BED of GOLD.—Nothing can equal this for bedding purposes, the colour being so glaring and quite distinct at a great distance. Two for 10s. 6d.

GOLDEN ZONAL, USHER'S GEM.—This in an immense fine flat leaf, 7 inches across, bronze zone, and excellent in colour. This was a splendid bed, and quite distinct from the above. Two for 10s. 6d.

MARTIN & SON, 7, Market Place, Hull.

NEW FUCHSIAS, ZONAL GERANIUMS, &c.

12 Select New FUCHSIAS of 1867 for 6s.
12 Select New ZONAL GERANIUMS of 1867 for 12s.
12 Finest ZONAL GERANIUMS of 1865—1866 for 4s.
12 Select New CHRYSANTHEMUMS of 1867 for 5s.
12 Select New VERBENAS of 1867 for 4s.
12 Select New PETUNIAS of 1867 for 6s.
12 Select New PHLOXES of 1867 for 9s.
6 Varieties of AUCUBAS, 3 Male, 3 Female, for 21s.
3 Varieties of New Japan OSMANTHUS, quite hardy, 5s.
12 Fine Varieties of Japan EUONYMUS, very fine, 6s.
12 Fine Varieties Perpetual ROSES, Dwarfs, for 6s.
12 Fine Varieties of VARIEGATED ZONAL GERANIUMS, 12s
GERANIUM GLOIRE DE NANCY, the best double, 1s. each.

COLEUS VEITCHII, 1s. 6d.	PANICUM VARIEGATUM, 2s. 6d.
" GIBSONII, 1s.	BRUGMANSIA KNIGHTII, 1s. 6d.
" LAMONTII, 1s.	
FICUS COOPERI, 2s. 6d.	

CATALOGUE of NEW and CHOICE PLANTS sent on application.

B. W. KNIGHT, Nurseryman, Battle, Sussex.

EARLY FLOWERING PLANTS for SPRING GARDENING.

ALYSSUM SAXATILE COMPACTA, yellow, 4s. p. doz.; 25s. p. 100
ANEMONE NEMOROSA PLENO, white, 3s. per doz.; 15s. per 100
ARABIS ALBIDA, white, 3s. per doz.; 15s. per 100.
" LUCIDA VARIEGATA, beautiful foliage, 6s. p. doz.; 40s. p. 100
AUBRETIA PURPUREA, lilac purple, 4s. per doz.; 25s. per 100.
" GRÆCA, blue, 6s. per dozen; 40s. per 100
BULBOCODIUM NARCISSIFLORUM, yellow, 4s. per dozen; 30s. per 100
DORONICUM CAUCASICUM, yellow, 4s. per doz.; 25s. per 100
EPIMEDIUM PINNATUM ELEGANS, yellow, 6s. per dozen; 40s. per 100
EPIMEDIUM RUBRUM, red, 6s. per dozen; 40s. per 100
" GRANDIFLORUM, white, 6s. per dozen; 40s. per 100
IBERIS SEMPERVIRENS, white, 3s. per dozen; 20s. per 100
IRIS PUMILLA, deep purple, 6s. per dozen; 30s. per 100
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NURSERYMEN are requested to send their CATALOGUES, with reduced prices of TREES, SHRUBS, EVERGREENS, and Hardy Plants, suitable for Plantation of large Parks, to the Office of Works, Sefton Park, Smithdown Road, Liverpool, in order to assist in the selection of suitable Trees for the Site.

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J. C. respectfully directs attention to the following LIST of FIRST PRIZES which have been awarded to him at the principal Rose Shows of the present year, proving beyond a doubt that the soil and climate of his Nurseries are unrivalled for the Cultivation of Roses.

Royal Botanic Society, Regent's Park, London.
June 19.—24 Varieties, Cut Roses, one truss each, FIRST PRIZE
Cirencester.
June 19.—36 Varieties, Cut Roses, three trusses each, FIRST PRIZE
Clifton.
June 25.—24 Varieties, Cut Roses, one truss each, FIRST PRIZE
Crystal Palace.
June 29.—72 Varieties, Cut Roses, one truss each, FIRST PRIZE
Royal Horticultural Society, South Kensington.
July 2.—72 Varieties, Cut Roses, one truss each, FIRST PRIZE
Birmingham.
July 4, 5.—72 Varieties, Cut Roses, one truss each, FIRST PRIZE
24 Varieties, Cut Roses, three trusses each, FIRST PRIZE
Hereford.
July 9.—72 Varieties, Cut Roses, one truss each, FIRST PRIZE
24 Varieties, Cut Roses, three trusses each, FIRST PRIZE
Rugby.
July 12.—72 Varieties, Cut Roses, one truss each, FIRST PRIZE
Nurseries, King's Acre, near Hereford.

MADRESFIELD COURT BLACK MUSCAT GRAPE

WAS RAISED BY MR. COX, AT MADRESFIELD COURT, GREAT MALVERN, FROM

BLACK ALICANT, crossed by MUSCAT of ALEXANDRIA.

THE EARL OF BEAUCHAMP

KINDLY CONDESCENDED TO HONOUR IT WITH THE ABOVE DESIGNATION, AFTER PRONOUNCING IT TO BE

THE FINEST FLAVOURED AND MOST LUSCIOUS GRAPE

HIS LORDSHIP HAD EVER TASTED.

MR. COX may well be proud of having produced a Grape so far superior to all other known varieties, and possessing qualities so ardently desired by all Cultivators of the Queen of Fruits. The Fruit Committee of the Royal Horticultural Society duly honoured the MADRESFIELD COURT BLACK MUSCAT with a First-class Certificate on the 20th of August last, when every Member of the Committee pronounced the highest encomiums in its favour.

MADRESFIELD COURT BLACK MUSCAT GRAPE resembles Alicant somewhat in the bunch, in the berry, and in colour; but is superior to that fine variety, inasmuch as it is a free setter, and possesses the most intense Muscat flavour, combined with extraordinary lusciousness. As a late Grape it is especially valuable, MR. COX having proved that it will hang for months after ripening without shrivelling.

To confirm the high opinion formed of this fine Grape by the Royal Horticultural Society's Committee, MR. COX sent specimens to many of the most distinguished Grape Growers in England, and the following Extracts from the Letters of those Gentlemen establish its character on the highest authority:—

"SIR,—I have the honour to return you the thanks of the Fruit and Vegetable Committee of the Royal Horticultural Society for your exhibition of Seedling Grape 'Madresfield Court Black.' The Committee considered it of great excellence, and awarded it a FIRST-CLASS CERTIFICATE. I am much taken with it, and intend noticing it in the *Gardeners' Chronicle*."—A. F. BARRON, *August* 22, 1867.

"DEAR SIR,—I consider it a most excellent Grape in every way, and if it will hang well it will be doubly valuable. You may consider yourself fortunate."—W. HILL, *Keele Hall Gardens*.

"DEAR SIR,—I am exceedingly obliged for the berries of your new Grape. You are a fortunate man. If the constitution of the Vine be good it solves the problem of whether we are to have a highly flavoured Black Muscat Grape for late work."—Z. STEVENS, *Trentham Gardens*.

"MY DEAR SIR,—I am obliged for the sample of Grapes. I am well pleased with the berries, both as regards flavour and colour."—J. MEREDITH, *Garston*.

"MY DEAR SIR,—Allow me to congratulate you on your success in raising such a deliciously flavoured Grape. It is fully as good as you represented it to be last year. The berries are of a peculiar long oval, finely coloured, much the form of a good Damson, and of the most delicious flavour. It is sweeter than Muscat Hamburgh, and with quite as high a Muscat flavour; flesh ample, melting, with a thinner skin and smaller seed stones. I had with me Mr. Freeman, Gr. to Lady Cotton Shepherd, who said it was quite equal to Muscat of Alexandria."—W. MOORE, *Alton Towers*.

"DEAR SIR,—Thanks for the Grapes. I consider it a first-rate variety. From the parentage I should say it is a good keeper. The flavour is certainly first-rate."—JAMES TAPLIN, *Chatsworth Gardens*.

"DEAR SIR,—Mr. Ingram, his Son, and the Foreman of each Department, tasted your Grape, and you will be pleased to learn that each and all pronounced it first-class in every respect. Mr. Ingram said it was the KING OF GRAPES."—CHARLES TURNER, *Slough*.

JOHN AND CHARLES LEE have secured the ENTIRE STOCK of this MAGNIFICENT NEW GRAPE, which cannot fail to become a universal favourite; and they can assure their Patrons and the Public generally that they have satisfied themselves by ocular proof during the last two years that the constitution of the MADRESFIELD COURT BLACK MUSCAT is good and vigorous; that it is an excellent setter and a good cropper; and that its keeping qualities are everything that can be desired.

MR. COX will exhibit it abundantly in 1868, to give the Public an opportunity of judging of its merits for themselves, and MESSRS. LEE confidently hope to send it out in the Autumn of 1868.

ROYAL VINEYARD NURSERY and SEED ESTABLISHMENT, HAMMERSMITH, LONDON, W.

MEMORIAL to the LATE G. U. SKINNER, F.L.S., F.R.H.S., &c.—Mr. SKINNER'S services to Science generally, and to Botany in particular, having been so considerable as to claim some permanent acknowledgment, it has been determined by his Friends to erect a DRINKING FOUNTAIN in the Royal Horticultural Gardens as a tribute to his memory. In aid of this the following Contributions have been already promised, and others are earnestly solicited.

Royal Horticultural Society	£10	0	0	Messrs. J. G. & H. Veitch	£5	0	0
Mr. J. Bateman	10	0	0	Mr. G. W. Brownlow	2	0	0
Proprietors of *Gardeners' Chronicle*	5	0	0	Major Trevor Clarke	2	0	0
Mr. A. Turner (the late)	5	0	0	Mr. Brandreth Gibbs	2	0	0
Bishop of Winchester	5	0	0	Mr. Wentworth Buller	5	0	0
Mr. Stevens	5	0	0	Messrs. Backhouse	1	0	0
Mr. Ruskin	5	0	0	Mr. Mendel	10	0	0
Lord Egerton of Tatton	5	0	0	Mr. O. Salvin	5	0	0
Mr. Dawson	5	0	0	Mr. Day	5	0	0
Lord Londesborough	5	0	0	Mr. Johnson	5	0	0
Mr. Veitch	10	0	0	Mr. Knowles	1	0	0
				Mr. Wilson Saunders	5	0	0
				Dr. Masters	1	0	0

Subscriptions may now be paid to J. WILSON SAUNDERS, Hillfield House, Reigate, Treasurer. Additional names to be sent to *Gardeners' Chronicle* Office. JAS. BATEMAN, Hon. Sec.

UNITED HORTICULTURAL BENEFIT and PROVIDENT SOCIETY.

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Amount of Benevolent Fund, Jan. 14, 1867, £462 5s. 5d.

The Gardeners' Chronicle.

SATURDAY, NOVEMBER 2, 1867.

MEETING FOR THE ENSUING WEEK.

TUESDAY, Nov. 5 { Royal Horticultural (Fruit and Floral Committees), at South Kensington .. 11 A.M. / Ditto (General Meeting) .. .. .. 3 P.M.

To develop most that kind of vegetation which best suits his climate and soil, should be the aim of every good gardener. It is indeed in our opinion the most important consideration for him, especially in the planting or laying out of a place, and hardly less so as regards its fleeting summer decoration. It is of moment in every branch of open air gardening, whether it be vegetable, fruit, or flower growing. Bearing this in mind, we think it may not be uninteresting to our readers to give some general impressions on the subject of FLOWER GARDENS, the result of a recent extended trip. The first thing which struck us was the great success that has attended the sub-tropical movement during this very cold and bad season. It is true that some things have suffered much more than usual, but on the other hand some have proved that it is possible to enjoy in even the worst of our summers, many fine-leaved plants in the open air. The Dracænas with coloured leaves, and not a few other tender things, suffered very much at Battersea, but they, even during the best of our summers, hardly move; while Wigandia, the Cannas, Polymnia, Verbesina, &c., seem quite regardless of the adverse season, though smaller than is usually the case. At Cliveden fine-leaved plants also looked very well, and we were quite surprised at the lustrous beauty of Begonia Leopoldi and others, in a warm, shady, and moist place. This is the more remarkable when it is considered that at Paris this season the Begonias suffered so much from cold in its commencement, that they were quite denuded of leaves during the greater part of the summer. But Mr. FLEMING places most of his subtropical plants in recesses along a winding walk, well overhung with great trees. In such positions the plants are, of course, perfectly sheltered, and the vegetation suits the position to a nicety. By making each bed to differ from the rest, a great deal of interest is presented along this walk; and the arrangement is altogether worthy of attention, as the principle may be applied with the best results in many places, not only with foliage but with bedding plants. It is worthy of special note that the spring gardening, so beautifully and extensively carried out at Cliveden, does not in the least interfere with an excellent display of summer bedding.

A noticeable point at Cliveden at all times, is the simplicity and cheapness of much of the material used. Thus, this year one of the most charming combinations was that afforded by a bed of Nepeta Mussinii, with a sprinkling of Marigolds through it. The effect of this was of the most attractive description, while the materials are as cheap as cheap can be, requiring no protection, or expense of any kind in their preservation. There are other noticeable points upon which space alone prevents us from enlarging.

Huntroyde Park brings us to the capabilities of the several new Violets or Pansies. We have rarely seen anything more beautiful than both V. cornuta and V. lutea, as seen there. V. lutea will, we believe, prove the most valuable plant of the two. Mr. WILLS had a wide band of it in front of a line of V. cornuta, and nothing could be more beautiful than the effect thus brought out. As to the great value of V. cornuta in many parts of the country, there can be no doubt whatever; while in not a few places its appearance quite justifies the complaints that are often made against it. In all wet soils and districts it will be found to thrive, and even in dry ones, if the soil be deep and rich, it often does well. A rather liberal digging in of rotten manure before planting is a great aid towards its perfect culture. It is better in every case to put out young plants from cuttings, as they grow fresher and bloom longer. At Huntroyde there was also a capital opportunity of judging of the excellent qualities of the Bronze and Gold-leaved Pelargoniums when planted out and grown into large plants. Such varieties as Her Majesty, Arthur H. Wills, and others, seem to promise much as bedders, and are very effective when planted out. Here among many other novelties was a little yellow-leaved Pelargonium with the flowers of Christine—in fact, it is to be named Little Golden Christine. A young plant here, the result of a cross between an Ivy-leaved and Variegated Zonal Pelargonium, promised to be good, and it will probably lead to a distinct race. To the above notice of V. cornuta we desire to add, that at Osberton several beds of an equal mixture of it and Beaton's Variegated Nosegay Pelargonium, afforded one of the most charming combinations of colour we have ever seen.

We have had considerable opportunities of observing the condition of such richly coloured foliage plants as Coleus, throughout the country. They often afford beautiful results, and are of great importance to the flower gardener. The Coleus is capable of being much more extensively used than has been generally supposed. It is true that it does no good at Archerfield, but the opinion that it is of little use north of London will not hold good, as nothing could be finer than its rich colour and splendid effect at Shrubland and thereabouts, and also in Nottinghamshire. It is so much superior to all other things in this way, that it should get a fair trial from many flower gardeners who live further north than it is generally used. The Amaranthus is capable of a wider use, being able to withstand a greater degree of cold. It is a glorious plant, for mixtures especially, and should be made use of more or less in every flower garden. The fact that it occasionally becomes a little shabby late in autumn should not militate against its use, for this comes very late, if at all. The Iresine may be grown further north than any of them with success, but somehow it is a failure in not a few places this year, where it has hitherto been much liked. Thus at Osberton it was very poor indeed, although it had been twice planted, but at Archerfield it was good, and about London in some places very good in autumn. It should never, under any circumstances, be grown where a good summer display is a consideration—in places visited chiefly during the autumn it may be much used with the best result. The fact that BARRETT'S Beet affords an effective substitute for some of these plants is encouraging to those who live too far north to allow of their successful cultivation. It should be particularly borne in mind that however much Iresine may be improved by being kept slightly in the shade, that is the true way to take much of the beauty of colour out of the Coleus, which delights in the full sun. The variety of Coleus with a yellow margin is worth growing wherever the other succeeds.

Some things that do well in the south cannot be grown in the north, and others that do grow look poorly. It is therefore a pleasure to name a few that do equally well everywhere. Of these, one of the cheapest and most useful is the variegated Alyssum, which seems happy in all sorts of positions and places, and is most useful to the tasteful flower gardener either for ribbons or mixtures. It looks as well in Hyde Park, as at Drumlanrig, and ought, therefore, to be "everybody's plant." The Dactylis, too, is of universal utility, flourishing as well at St. John's Wood as on the shores of the Firth of Forth, and, when tastefully used, giving a most desirable effect. It should be noted that there are two forms of this plant in cultivation, one apt to be greenish and of a rather low and horizontal-growing habit, the other beautifully variegated and erect-growing, the tips of the leaves hanging gracefully over. The Gazania, too, does splendidly in the north, southerner as it is. Indeed, we have not seen it so fine about London as we have at Drumlanrig, and in other places in Scotland. It is, however, universally useful in these isles. We shall return to a consideration of other interestg ing and important phases of flower gardeninhereafter. *R.*

THE discussions that have been carried on of late in our columns on the question of JUDGING AT EXHIBITIONS lead to the inquiry, whether or no in very many horticultural products, notably in what are called florists' flowers, much too arbitrary a STANDARD has not been set up. We are well aware that this is a delicate subject to handle; it becomes in some people's opinion almost an infringement on the liberty of the subject to protest against the "standard of perfection," while to say one word against the recognised "properties" is to run the risk of being considered an ignorant heretic. There are certain points, however, upon which the veriest stickler for the standard and the most heterodox opponent of the florists' charter may, and we should hope do, perfectly agree, and among them we may enumerate certainly these points: firstly, that a standard of some kind is absolutely necessary, upon which point, as all are agreed, no discussion is needed; and in the second place, that every individual has a free, full, and unconditional right to think, feel, and do as he likes in regard to this matter, be he right or wrong in the eyes of others. With these points as a basis, let us look a little closer into the nature of the standard, and see how and why its edicts often are, or at least appear to be, so irrational and so arbitrary.

It being admitted that some contrivance of the kind is required, in order to avoid confusion, the next questions that arise are as to whether the contrivance in question is the best that can be had, whether it is based on right principles, and whether it is not a mistake to enforce its application as rigidly as is commonly the case.

When an attempt was made, on the ground of convenience, to introduce phonetic spelling, scholars of all degrees protested against the innovation—and why? Not because they were not fully alive to the inconvenience of the system of spelling in general use, but because they thought that the adoption of the new plan would be productive of evils of greater magnitude than those which it was sought to remedy. Had the new system been introduced, all trace of the origin, all vestiges of the meaning primarily assigned to the word, and of the adaptations and changes it had undergone, would have been lost. The word, instead of being as it were a living organism, would have become a dead symbol—a token, intrinsically of little or no value, and whose use would be restricted within the narrowest limits, instead of a coin having a determinate value in all places and capable of being made use of under many and varied circumstances. Just so in the case of flowers: set up a standard, the main features of which are the same for all, and you gradually lose the individuality of separate flowers. The natural shape, the disposition of the colours, the intensity of the odour, are not so many arbitrary, meaningless attributes, but they have a definite purpose; they were not created simply to gratify our senses, but to fulfil some useful purpose either to the flower itself, or (as all living beings are so wonderfully interconnected one with another) to some other member of God's creation. A flower, then, is not to be looked on merely as a piece of ornamentation. Those who look upon it in no other aspect than this, miss the greatest part of its beauty—they miss the keenest enjoyment it is capable of giving. There is a history written for our learning in every blossom; it is not merely external beauty that should be admired, but it is the marvellous adaptation of structure and form to particular ends, and in conformity with particular circumstances. Were it otherwise, a piece of coloured paper would give well nigh as much pleasure as a flower. Do we not run the risk, in enforc-

ing too strictly certain points, of marring the consistency and harmony that reign in floral structure, of obliterating its history, of deadening our own perceptions to the tales it has to tell, and of blinding our eyes to half its beauty?

We take it, the main object of the code now in use is to maintain the excellence and secure the "improvement" of any plant, flower, or fruit which comes under the gardener's hands. The aim, speaking in general terms, is to secure increased vigour of constitution, greater hardihood, greater freedom of blooming, or flowers with better "properties;" in other words, flowers in which the form, the symmetry, the colour, the size, the substance, and the relative position of the several portions are nearer to the adopted standard than in the native "unimproved" condition. Now all this is legitimate enough: a flower of good form, of bright pure colours, or if not a "self" having the colours well contrasted, of firm texture, and with a heightened perfume, is no doubt very often as great an improvement upon the raw material as the sharp non-commissioned officer is upon the mere recruit; the mistake, as it appears to us, is in the rigid martinet-like application of the same set of "properties," or nearly so, to widely different flowers. To pursue our metaphor, the practice is about as reasonable as it would be to put the seamen of her Majesty's navy into the same uniform as that worn by their military brethren, or to submit each alike to the same drill. This is too large a subject to be treated of at this time; but without entering at present into details, we may lay it down as a principle to be followed in floriculture—Improve the flower as much as possible, but let it not be made a malformation by altering its natural proportion and symmetry; let not the form which is natural in one case be imposed upon another flower which is naturally shaped after a different pattern, else a "monster" will be the result, interesting perhaps as a scientific phenomenon, but false in taste, and repulsive to the educated eye. What POPE said of landscape gardening applies, with the change of a word, to the "improvement" of a flower—"Consult the genius of the *flower* in all." *M. S.*

—— THERE is a very prevalent notion that TRUFFLES will not grow except under Beech trees. This is far from being a fact in this country, as they occur frequently under Oaks and Hazel, and we have seen them extremely abundant under young Firs; the essential point being rather the presence of calcareous matter in the soil, than the neighbourhood of any particular tree. The common mode of preparing Truffle grounds in Poitou, by sowing Acorns in an enclosed spot on the downs, and the success attending the practice, probably suggested to Monsieur ROUSSEAU the notion of sowing Acorns from trees under which Truffles had been found (p. 1069). Supposing everything to be fair, it would not be very surprising to find Truffles where the Acorns had been sown, as they occur in the Forest of Fontainebleau, though it should be observed that in the Poitou Truffle grounds no produce is expected till the young Oaks are about seven years old. Though every physiological consideration is against the suggestion of M. ROUSSEAU, it might be worth while on some of our southern downs to try the Poitou method. Truffles occur in Sussex in woods on the downs south-east of Petersfield, and it is very possible that the Poitou plan might answer, though the Poitou Truffle is of a different species from that which commonly appears in Covent Garden market, the former being Tuber melanosporum, the latter Tuber æstivum. The wild animal which would be likely to be injurious is the squirrel, and as this cannot be fenced out, it would not be necessary to make so rigid an enclosure as where wild or tame pigs might be likely to obtain entrance. Some good may possibly come out of what is clearly a 'canard," if the suggestion is carried out. At any rate we would caution our readers against the purchase of any of the Truffle acorns. *M. J. B.*

—— Those who were fortunate enough to have come in contact with the late GEORGE URE SKINNER, and could appreciate his enthusiasm for horticulture and botany, as well as his many excellent qualities, will be pleased to know that the proposal to erect a MEMORIAL to him in the grounds of the Royal Horticultural Society at South Kensington is received with favour. Subscriptions should be sent to Mr. WILSON SAUNDERS, Hillfield House, Reigate.

New Plants.

CYPRIPEDIUM STONEI, *var.* PLATYTÆNIUM, *Rchb. f.*

Petalis lato ligulatis obtuse acutis.

When Cypripedium Stonei made its appearance in 1862, we were all in full admiration of its beauty. It would have been a solecism to believe a more showy Cypripedium could be introduced. We have at hand a letter of Sir William Hooker, who speaks in the highest terms of it; and yet—*fuit Ilium!* But it is said that it is always a consolation to be beaten by one's nearest relations, and thus old C. Stonei may be glad to be beaten by a wonderful variety of itself, bearing the petals in the shape of these of Cypripedium Lowii itself, but hanging down and beautifully spotted. If some one should suggest its being a mule between the old Lowii and the new Stonei, we would beg him to leave the question open, since we have no means whatever of elucidating the question. We know of but a single plant in Europe, in the hands of J. Day, Esq., at High Cross, Tottenham. *H. G. Rchb. fil.*



GRAPE JUDGING.

EYE OR PALATE, OR EYE AND PALATE?

WHY, both of course. And this is just where the eye jurors go astray. They contend for a verdict from one sense only, we consult at least two, and in cases of perfumed fruits three. For this reason alone, the tasting judges have the best chance of correctly determining quality. They have always two, often three judges, to the others' one. And these judges have a decided advantage over the others, inasmuch as the proof of the fruit is not in the seeing, but in the eating of it. One fact stated by you, at p. 1024, adverted to by other correspondents, and well-known by all Grape growers, confirms this beyond all doubt. To the eye many Grapes are perfect a month or six weeks before they are ripe. No more colour is laid on after this period; on the contrary some of it seems occasionally to be removed—Hamburghs especially have frequently a denser bloom, and are of a more jet black in this unripe state than after they are perfectly matured. Hence eye judgment may favour unripe fruit and prefer it to ripe, but the palate would at once come in to the aid of the eye and settle the point correctly.

But tasting is objected to upon two grounds—first, that it is a new mode of judging Grapes; and, secondly, that it would disfigure them, or ruin and destroy their beauty and value. Let us look at these objections and measure their force. Tasting a new mode of judging? What, in the name of common sense, then, is the old mode? Tasting, as a means of determining and assessing the value of fruit, is at least as old as Adam. It has been persistently followed by all his posterity, and it is the only standard accepted by the whole host of fruit consumers at the present day. New indeed; new to whom?—to fruit judges? certainly not, as the hundreds of berries consumed by them can testify—to consumers? why, they recognise no other standard of value. The mere fact of asserting, as has recently been done in your columns, that Grapes are not tasted when judged at our great shows, has created a sort of panic among both growers and consumers, and a feeling of utter distrust in the prize system as affording a true test of merit. Whatever may or may not have been done at the London shows, there is no doubt whatever that the general rule through the United Kingdom is, and always has been, to taste Grapes before awarding them prizes. I believe, with your correspondent "W. P. A.," that the common sense mode of seeking assistance from the palate, as a realiser of quality, has also been the general practice in the metropolis. Therefore such a mode of judgment is the old mode, while a judgment resting upon sight wholly is a dangerous innovation, uncertain and deceptive in practice, opposed to experience, and at variance with common sense. The second objection, that the bunch must be injured, soiled, and rendered unsaleable or uneatable by tasting it, is—well, one would say, utterly childish, only it has been urged by so many good growers; and each of them must know that their objection is entirely destitute of weight. There is no judge of any talent but could extract or remove a sufficient number of berries for the purpose without injuring in the slightest degree the symmetry, soiling the cleanliness, or tarnishing the colour of the bunch. A weaker objection was never urged against a necessary and rational practice than the outcry against touching a berry with the view of testing its quality. Even if the bunches were injured, this ought not to influence the mode of judging by tasting, by a single hair's breadth. The fruit is sent there to have its merits tested; it comes to contend with others for the prize. The object of the societies that offer the prizes is not simply that a certain number of Grapes should be staged for a few hours and then be removed in a perfect condition, with a card attached that will double their price in Covent Garden Market, but to see to it that the Grapes of the highest excellence are awarded the prizes. Therefore the first duty of such societies is, to test for merit by every available means. Often in the case of other fruits the tests applied may render the specimens exhibited all but worthless for sale. And although this is not the case with Grapes, I contend that if it were, this might prove a reason for not competing, but none against the application of the necessary tests for the discernment of quality. Those who object *in toto* to tasting may still exhibit, but not compete. Their large Grapes would then be admired without the risk of a berry being tasted, and they could place the extra price that their unmutilated bunches would command, against the prizes that they might lose, by their jealous care over their Grapes. Certain it is, that unless Grape-showing is to degenerate into a mere farce, the Grapes must be tasted. One of your correspondents allows that new varieties might be tasted. Let me thank him for the concession, and inquire whether the old sorts are alike good, from all places, in all seasons, even if they have the same colour? Every one knows they are not, and hence the necessity of subjecting all to the same ordeal, old and new. It can be done without injury to the Grapes; it always has or ought to have been done, and therefore neither involves an innovation nor a mutilation.

It is rather discouraging in this matter to observe the number of great authorities against one. But it is instructive to note that while these are to a man either growers or exhibitors, the fruit consuming public and the authority of the Press is in favour of tasting. In the *Agricultural Gazette* recently (p. 1036), occurred the following passage on fowls, from an impartial source—the *Athenæum*. It is so apposite to this discussion that you will allow me to quote it. The writer says that the "French poultry are cheaper than ours. The British eater cannot understand why, and feels there must be something wrong somewhere. Feeling this fact in the nerves of his purse, he is not consoled by being told that British poultry surpasses French in gorgeous plumage, and carries off the prizes at competitions. Caring little or naught for niceties about combs, beaks, hackles, wattles, saddles, and fluff, vulture hocks, or five toes, his standard of excellence is his palate, and the size of the egg he empties with his spoon, or of the helps he can give with his knife and fork. . . . Pencillings, spanglings, frizzles, silky

or sickle feathers are, of course, worthy of note in an artistic point of view; but it is curious to remark that these things have for years absorbed the attention of English fanciers, while Frenchmen have devoted themselves to the production of eggs and flesh. Here is a matter in which Englishmen have won prizes while Frenchmen have made profits. In poultry the English seek show and the French reality. Horticultural shows produce large fruits deficient in flavour (such is the verdict of the *Athenæum*), and Gallinocultural competitions breed picturesque fowls with small breasts." Change the word French for exhibitor and the word English into consumer, and you have in this extract the position of our growers and eaters of fruits. Instead of abolishing the tasting test, the public are desirous of its extension to vegetables. A gentleman passing through a large show-tent a few weeks since exclaimed, when examining the prize Potatos, —"But what about their quality?" And added, "Had I been a judge I should have insisted upon a cooked sample of each before the award was made." Doubtless "J. F." would have ridiculed such a mode of testing horticultural skill, although certainly that skill is more patent in the quality than the size or form of a Potato. But it is beyond my purpose here to advocate the tasting of all vegetables. It might be almost as impracticable and absurd, as some of the reasoning that has appeared against the tasting of Grapes. Because these are to be tasted, one writer infers that a steak should also be cut out of a live prize bullock. It is not by such overstrained analogies that a reasonable practice can be abolished. Public opinion has, however, modified the points of merit in even prize bullocks. At one time prize breeders laid on tallow for the candle-makers; now, at the demand of the public, they manufacture beef for the flesh eaters. On the same principle we demand that the merits of the palate rather than the desires of the eye should be studied in the matter of fruits.

Another analogy of "J. F.'s" is equally unfortunate. He compares black Damsons with red, and speaks of the depreciation in price caused by the redness in fruits sold by the peck or bushel in the public streets. Granting that it is just possible "J. F." may have seen red Damsons, although I have not, I doubt if this injures their sale. My comparison, however, was between black Damsons and other Plums, and the point was to show that gold, green, and red excelled the black in flavour. I must also add that gardener's Grapes are still grown, and have no hesitation in classing the Dutch Hamburgh, Syrian, and Trebbiano in this category. Worse than this: if colour, size, and form alone are to decide merit, then gardeners that grow exhibiters' Grapes will carry off all the prizes, and quality will be ignored. With such rules even Muscats cannot be pronounced equal to well finished Syrians.

I pass on to notice one more fallacy of the eye judgers. They begin by denying that red Grapes have any flavour, and conclude with asserting that if the taste is consulted, the red will carry off the prize from the black. Both statements cannot be true, and the choice of either places the eye feeders on the horns of a dilemma, from which there is no escape. Old established rules, the nature of our constitution, and common sense, alike demand that in determining the quality of fruits we should use all the powers with which Nature has endowed us for this express purpose. Reference should be made to the eye, the nose, and the palate in fruits that appeal to all three: to the eye and the palate in those that appeal to these two only. To ignore either sense, but especially the one most immediately concerned—the taste—is unphilosophical in principle, and necessarily unsatisfactory and misleading in practice. Therefore the question is, not colour, size, or form *versus* the want of all or either of these, nor the palate *versus* the eye, but palate and eye both *versus* the eye only; and surely the verdict of the two together is more likely to be right than that of the eye alone. I have no desire to ignore either, but am only careful that the eye, which cannot taste fruit, should not be gratified at the expense of the palate which can.

Mr. Cramb's receipt (see p. 1074) for the manufacture of Red Grapes shows that he has never met with a good example of them. There have been, and are, imperfectly-coloured Grapes as perfect in every other respect, with the single exception of colour [still imperfect], as the very blackest. There are more however, such as Mr. Cramb describes, bags of water and sugar. There is no danger of these last being placed first at any show. Mr. Cramb's appeal to the nerves of taste is amusing. Perhaps he will enlighten us whether the eye sees without nerves, or if the nerves of vision are larger than those small papillæ or asperities he is so careful not to overtax, that have their home and resting-place upon the tongue. If it comes to a matter of measurement between different-sized nerves the tasters must certainly have it, for their papillæ are cables compared with the minute ramifications of the optic nerves, to which the eye judgers so confidently appeal.

While admiring Mr. Forsyth's practical and literary lore, and admitting the great interest and value of his remarks, it must be added that they have but a remote bearing on the subject of the present dispute. So far as they do bear upon it they are not very conclusive. For while in one part of his paper he states that not only masters, but foremen and journeymen can judge of the quality of Grapes in all stages from the wood upwards, he concludes by averring that very few have had the necessary training to know the flavour of Grapes. It is singular, too, that while ignoring the palate, he furnishes no other data by which any one can distinguish ripe from unripe fruit, both equally black and well grown. His appeal to Daniel and the King is equally unfortunate. The "Artful Dodgers" for once spoke truth and common sense together, when they admitted that the power of recalling and interpreting a totally forgotten dream, was a work for gods and not men. Daniel, without Divine help, would have been equally helpless to unsolve such a riddle. Does our good friend infer that the eye judges are to expect such inspiration as was vouchsafed to Daniel? If not, it is difficult to see how his argument can be strengthened by the appeal to such a case. If any class of judges deserve to be designated "Artful Dodgers," it is those that profess to do what the wise men were too wise to attempt—give a decision upon an important matter in utter ignorance of the facts. Leaps in the dark are now becoming common: the Reform Bill has been called one—the Abyssinian Expedition another; but that of judging the quality of Grapes without any appeal to the very sense with which the Almighty has endowed us for this especial purpose, is the last and greatest leap in the dark of all. In the interests of producers and consumers alike, and for my own honour, I demand that such haphazard guesswork be no longer sanctioned by any of our great societies.

The foregoing, written several weeks since, answers most of the points raised by Mr. Saul. He, like the rest of the eye judges, admits that unripe Grapes are largely exhibited, but strangely enough forbids the application of the only test that can prove whether they are ripe or not. The eye alone would, does often, pronounce unripe Grapes more perfect than ripe, and coarse Grapes, such as those I have indicated, better than fine, and hence the absolute necessity of appealing to the palate for its verdict upon ripeness and quality if a just judgment is to be given. *Vitis vinifera.*

[What we want as prize Grapes, and what we should get at table, are *perfect* examples of their kind, and deficiency of colour is as much an imperfection as deficiency of flavour. We say again that "red" Black Hamburghs may be eatable, they may even be very good, but even then they are not the right models for the cultivator to imitate. Hence any formula for judging which would bring them to the front is faulty. It is to give prominence to first-class articles that we hold exhibitions, thus affording a stimulus to cultivators; and first-class cultivation, as regards Grapes, demands that both flavour and colour, as well as every other "point" of merit, should be developed in the highest state of perfection. Thus we do not allow that Grapes badly coloured, such as red Hamburghs undoubtedly are, are model specimens of horticulture, fit to carry off prizes at all. We hold that they are altogether out of court, as being imperfect productions. And this being so, it is evident that many exhibitions may be drawn out of competition without need of tasting, for badly swelled as well as badly coloured Grapes should be set aside, while there are more perfect examples to come into competition Tasting would be thus reduced to a minimum, but here most certainly it ought to come in, and be allowed its full weight, as practically, we venture to say, it is at most, if not at all, exhibitions. Eds.]

ON STEM-PRUNING TREES AND SHRUBS.

(*Concluded from p.* 1097.)

Looking at the numerous additions recently made to our evergreen vegetation in the shape of Coniferous trees and shrubs, it is time to consider what is to be done with some of them. Are they to go on as shrubs, or are they to be trained so as to induce a tree growth? Of the recently introduced species of Conifers, the one which bids fair in time to become one of our best evergreen avenue trees is the Cedrus atlantica; but the way specimens of this tree are generally treated certainly gives little hope of their ever being turned to a practical account, possessing as they do every branch made since they were first planted,—all very healthy and wide-spreading it is true, but with heads comparatively dwarfed, and frequently five or six leaders all vieing with each other. With such plants as the Atlantic Cedar, a process of side-branch pruning a few years after planting would be advisable, in order to induce a more healthy and vigorous top growth. A few years afterwards the lower branches can be removed altogether, in order to give the plants a tree shape, which will be preferable to the large healthy branching bushes which have become very prevalent throughout our lawns—and deservedly so, as it has proved itself to be one of the hardiest of the recently introduced Conifers. The Atlantic Cedar stands pruning and cutting well, provided it is done during the autumn months; and if so treated, we may have it vieing in time with the fine old Cedar of Lebanon, for it has naturally a much freer habit of growth than the latter, and bids fair to become a very handsome evergreen tree if properly attended to for this purpose.

Cupressus Lawsoniana is another hardy evergreen shrub which bears stem-pruning well. At the present time most of the Lawsoniana plants throughout the country are in a shrub-growing condition; and as they are now very numerous in every collection, individuals may be induced, if only by way of experiment, to stem-prune a few of them, particularly those standing on Grass. If so treated there will be no cause to regret it, as the upward growths produced will be found to be considerably more than when left in the shrub-growing condition, where they are very apt to throw out a quantity of upright shoots from the lower part of their stems, which weakens the top very much. The tree appearance of the C. Lawsoniana contrasts well with the other natural-growing plants of the same species, and the flowers, which are exceedingly beautiful, are more freely produced on the pendent branches of the tree-shaped plants. The Cupressus Lawsoniana in its natural condition grows to a tree upwards of 100 feet in height, and from its hardiness in this country the stem-pruned specimens will form an interesting addition to the list of ornamental evergreen trees. Like most of the other Conifers mentioned, it will stand pruning best during the early autumn months.

The system here adopted and recommended for the Cedrus atlantica and Cupressus Lawsoniana is equally applicable to many of the other recently introduced Coniferous trees. The Deodar stands stem-pruning well; the excessive growth which many of these plants take on at the bottom is very apt to cause the leaders to become weak, which is not an uncommon occurrence with plants 10, 12, or 15 feet in height. If Deodars are stem-pruned when 6 or 8 feet high, and the lower branches slightly pointed, fresh vigour will be thrown into the leaders. Stem-pruned Deodars standing on Grass have rather a pleasing appearance when their feathery-pointed branches are seen drooping round the upright bare portion of stem, which ought not to exceed 18 inches, and like the C. Lawsoniana, they form a nice contrast on the Grass lawn to the ordinary shrub-formed specimens. Plants of the Taxodium sempervirens, which were stem-pruned about 14 years ago, are now working into fine-shaped and healthy trees, forming a contrast with the unpruned plants of the same age, although 30 years old.

In stem-pruning Wellingtonia gigantea, those specimens should be selected that are getting somewhat loose in their habit. The branches cut off should be removed ¼ to ½ an inch from the stem, according to the size of the plants operated on. The smaller the plants, the closer the cuts can be made. The cut surfaces of all Coniferous and other plants should always be smoothed over and darkened with clay.

Numerous other Conifers bear the knife well, and many are wonderfully improved by a free use of it, particularly those species which assume in certain soils and situations a somewhat spreading habit, or rather where the preponderance of side shoots has a tendency to make short and weak leaders, as often happens with Picea Nordmanniana, Picea cephalonica, P. Pinsapo, and others. The two latter species are particularly prone to a dwarfing condition when growing in soils not exactly suited to their constitution. They make rapid progress in all limestone districts; while on sandy or light soils the dwarfing habit occurs, and there pruning (both stem and branch) is essential to secure an upright growth. The Picea Nordmanniana stands branch-pruning well, and it is frequently necessary to do so in order to induce an upright tendency. This operation should be done while the plants are young, say 12 or 14 inches high, but, like most of the other long-leaved Piceas, it ought not to be stem-pruned.

Numerous other plants may be enumerated, but enough has been said to induce a series of experiments being performed on plants where duplicates exist.

A general notion seems to have taken possession of the minds of many of our Conifer cultivators, that it is unsafe and imprudent to prune or cut any species of the Fir tribe. Such a notion ought to be dispelled, as many species of Coniferous plants, as I have attempted to show, will bear pruning as well as most other trees and shrubs, taking care that it is done at a time when the sap is up, and not too late to subject the cut extremities to severe frost. For this end I always perform these operations during the months of August, September, October, and November, and I have never seen any species of Conifer injured when pruned during these months.

Many of our amateur cultivators are impressed with the idea that, Coniferous trees never being pruned in their normal condition, it is injudicious to do so when cultivated; but in a state of nature such plants are much more subjected to a process of pruning than they can ever be in cultivation, growing as they generally do in extensive forest groups, where their proximity to each other destroys all the lower branches. It is this natural process of pruning which causes them to rise the more rapidly into a tree condition, unless in cases where a few may be seen in isolated groups, particularly where open ground prevails along the outsides of some of these extensive native forests.

These remarks are the result of my experience in Scotland. They may not be new to some of our southern neighbours; still in many parts of England the hints here given are sometimes required, and therefore worthy of a trial. It is to be hoped that the results obtained may from time to time be communicated, as in milder climates some of the species of Conifers here recorded grow more freely than they do in Scotland; branch and stem pruning may therefore be found less safe than in our more northern climate. *J. M'Nab, in the "Gardener."*

BURR APPLES.

A gentleman living near Narberth, South Wales, has recently sent me a collection of fruit of this curious race of Apples, which, as far as I can learn, are totally unknown to the pomological world—the Burr Knot being the only kind that has been noticed. They are all of the same nature as that variety, forming "burrs" on their shoots, and striking from cuttings; they are like it also in growing slowly, and bearing profusely. *T. R.*

1. *Redstreak Summer Burr.*—Growth vigorous, roots exceedingly fibrous, like a brush or mop; fruit above the middle size, yellow, thickly covered with red streaks; an excellent cooking Apple and very tolerable eating Apple, keeping from August to Christmas. An abundant and constant bearer.

2. *Winter Pippin Burr.*—Growth vigorous, fruit small and well formed, dark green colour; a tolerable eating Apple, a good kitchen Apple, and keeps till April.

3. *Green Winter Burr.*—A kitchen Apple, above middle size, and keeps from end of September to January.

4. *Red Winter Burr.*—Growth moderate, making a small tree; fruit rather above middle size in a good year, well formed and handsome, of a dark red colour; an excellent eating Apple, and good cooking Apple,

and keeps till April. The best Apple of the lot, and will bear comparison with any; the tree bears well, and is extraordinarily full of callosities.

5. *Waingron Burr* (No. 1).—Tree moderate in growth; the fruit has a peculiar tart high flavour, and is liked by some when eaten fresh from the tree, but shrivels and becomes worthless in a week after gathering. This, like all the others, has numerous burrs or callosities on the branches; it roots freely, and makes a good stock for several kinds of Apples.

6. *Waingron Burr* (No. 2).—Fruit striped like a Strawberry, and handsome, but worth little.

7. *Hard Winter Burr.*—Growth moderately vigorous; fruit small, conical, and hard; worthless as an Apple, but makes an excellent stock for other Apples. N.B. A man in this neighbourhood has an Apple and Jargonelle Pear growing on a stock of this together. I have twice seen the Jargonelle fruiting well, and the Apple growing beside it.

8. *Dark Red or Black Burr.*—Growth small, fruit small and worthless; might answer as a stock, but I have not tried it.

9. *White Bloom Burr.*—Growth moderate, fruit middle-sized, and rather handsome, with a white bloom like a Peach. A good cooking Apple; keeps a few months. The tree is an extraordinary slow grower for two or three years after cuttings are inserted.

10. *Yellow Summer Burr.*—Growth moderate, fruit scarcely middle-sized, tart and sweet at the same time. Ripe in the end of August, and melts in cooking like a Codlin; must be used soon after gathering.

THE CULTIVATED SELAGINELLAS.

(*Continued from p.* 950.)

GROUP 4. Caulescentes. Habit of growth tree-like, *i. e.* the stem erect, without any branches from the lower third or half, but copiously branched above.

22. *S. erythropus*, Spring, Monog. p. 156. A. Braun, Revis. No. 19. Lycopodium erythropus, Mart. Ic. Pl. Sel. Crypt. p. 39, t. 20, fig. 3. S. umbrosa, Hort.:—Frond 6 inches to more than a foot high: the stem below the branches half as long, bright red; the pinnæ copious, bipinnate, both pinnæ and the pinnules imbricated: the general outline of the frond deltoid, the ultimate divisions an eighth of an inch broad: the larger leaves very close, oblong-lanceolate, slightly falcate, the point acuminate, the upper side more dilated and rounded than the lower one, the edge ciliated: the smaller leaves ovate-acuminate, convergent; the spikes slender, tetragonous.

A common species in tropical America, ranging from Guatemala southward to Chili. It is easily distinguished from all the others except hæmatodes by its bright red stem, and as compared with this last is a smaller, neater plant, with narrower divisions and closer leaves, having the margin ciliated. S. umbrosa is the common garden name, one that has no book authority to support it.

23. *S. hæmatodes*, Spring, Monog. 2, p. 156. Lycopodium hæmatodes, Kunze, Linnæa, 1, p. 9. S. filicina, Spring, Monog. 2, p. 189; A. Braun, Revis. No. 22. S. dichrous and Karsteniana, Hort.:—Frond 1—2 feet high, the stem below the branches half as long, bright red: the pinnæ copious, bipinnate, both pinnæ and pinnules imbricated: the general outline of the frond deltoid; the ultimate divisions 2½—3 lines broad; the larger leaves close, oblong-acuminate, subfalcate, a quarter of an inch long, two lines broad, very much dilated on the upper side and rounded at the base, finely toothed, but not at all ciliated: the smaller ones ovate-acuminate, convergent; the spikes slender, tetragonous.

A native of the west side of tropical America, from Venezuela southward to Peru. Very striking from its ample frond, and bright scarlet stem. Not liable to be confused with any other except the preceding, and easily to be recognised from that by the characters stated. Spring in his Monograph has described it twice, once as S. hæmatodes and again as S. filicina, but the former name must have preference, on account of having been previously given to it by Kunze.

24. *S. Braunii*, Baker. S. pubescens, A. Braun, Revis. No. 24, non Spring. S. Vogelii, Mett. Fil. Hort. Lips., non Spring:—Frond 1½—2 feet high; the stem firm, slender, stramineous, flexuose, the branches reaching three quarters of the way down, the lower ones distant, spreading, bipinnate, the rachises pubescent, the ultimate divisions two lines broad; the larger leaves with a space between them, much decurved when dry, spreading at right angles, oblong, obtuse, entire, the midrib inconspicuous: the smaller ones ovate-acuminate, adpressed to the axis; the spikes slender, tetragonous.

A native of China, and a very distinct species, clearly marked by its woody, stramineous, flexuose stem, pubescent branches, and leaves in shape very different from those of any other species. The S. pubescens of Spring (Lycopodium pubescens of Wallich) is S. fulcrata. It is often called L. Willdenovii in gardens, but as I have shown already, the plant to which that name belongs of right, is quite different. The only wild specimens I have seen were gathered in the west of China by Captain Blakiston. As it is in want of a name, I have designated it after the author of the excellent paper to which I have already referred, who, under the name of pubescens, describes it in the fullest detail with thorough accuracy.

25. *S. fulcrata*, Spring, Monog. 2, p. 171. Lycopodium fulcratum, Hamilton in Don, Prod. Fl. Nep. p. 17. S. pubescens, Spring, Monog. 2, p. 175. Lycopodium pubescens, Wall, Cat. No. 123. S. Pervillei, Spring, Monog. 2, p. 169. S. Vogelii, Spring, Monog. 2, p. 170. S. africana, A. Braun, Revis. No. 23:—Frond 1—2 feet high, the stem below the branches about half as long, firm, almost woody, slender, glossy: the general outline of the frond deltoid, the lower pinnæ not imbricated, deltoid, the lower pinnules with forked or subpinnate segments; the branches conspicuously downy, the ultimate divisions 2—2½ lines broad; the larger leaves close, linear-oblong, slightly falcate, sub-acute, the upper side broader and more dilated at the base than the lower one, the edge entire, not at all ciliated: the smaller leaves obliquely ovate, convergent; the spikes slender, tetragonous.

A native of tropical Asia and Africa. I cannot separate from one another four of Spring's species—fulcrata, pubescens, Vogelii and Pervillei, and of these the first is the oldest specific name. The plant may be known from all the others except the preceding, by its distinctly pubescent branches, and from Braunii it differs totally in leaves and general habit. The main stem and branches are more slender and woody than usual, the latter being uniformly erecto-patent. The general colour is a rather dull green, with sometimes a tinge of red. The leaves are unusually tender in texture, and the edges curl up readily when the plant is at all dry.

26. *S. viticulosa*, Klotzsch, Linnæa, 18, p. 524; Spring, Monog. 2, p. 186; A. Braun, Revis. No. 18:—Frond 8 inches to a foot high, the branches reaching two-thirds of the way down, and the stem beneath them with dimorphous leaves extending down nearly to the base; branches erecto-patent, close, with numerous short, simple, or forked branchlets; ultimate divisions two lines broad; the larger leaves close, oblong-lanceolate, falcate, pointed, the upper side only a little broader than the lower, the edge ciliated: the smaller leaves ovate-cuspidate, adpressed to the rachis; the spikes slender, tetragonous.

A native of Columbia. This and the next are the only two of this group that have the main stem, below where the branches begin, distinctly dimorphously leafy like the branches. In the typical Caulescentes the leaves of the main stem are adpressed to it, distant from one another, and nearly uniform. In this the colour of the upper surface is deep green, that of the lower pale and glossy, and the plant shows a considerable tendency to curl up when dry. The midrib is very indistinct. *J. G. B.*

FRENCH AND ENGLISH FRUIT GROWING.

IN replying to "A Fruit Cultivator and Traveller" (see p. 1094), I shall take his statements and objections in detail, and thus give your readers a full opportunity of judging whether or not I have conveyed to them ideas that are "not correct."

He begins by telling us that the French climate is, as a rule, superior to ours for the Pear. I said so emphatically in the letter which he has written to correct. But then he says that assisted by walls, it is "quite equal;" there I nearly agree with him: and I shall have, in due time, one or two important conclusions to draw from the fact, merely adding now that the French build and cover more garden walls than we do, who want them most. In reply to my question, How is it that we do not get Pears as cheaply as the French? he in the first instance tells us that the French climate without any assistance will give health and fertility to Pear trees. In this he is wrong. I repeat, to cultivate Pears with success over a great part of France—around Paris for example—it is necessary to take as much care of them as we do in England. Then he says distinctly that there are "in England but few large Pear gardens yet formed after a right method," while a little further on he writes—"there are thousands of gardens in England and Ireland in which Pear trees are cultivated with as much and sometimes with even more skill and care than in France," a statement which may require further explanation. He adds that many Irish gardens contain good Pear trees. Surely he cannot mean this as a reply to my question! I know the gardens of Ireland well, and in many parts, and may safely say that a good Pear is a thing hardly ever tasted by the working or lower middle classes in Ireland, while in France there is scarcely anybody who has not that privilege or luxury now and then. Observe, however, that I do not deny that here and there we cultivate Pears well, but is this enough? Why in France poor householders, who do their own bit of gardening in their working hours, have their splendid Pears now gradually coming to maturity, whereas many British families with good gardens and gardeners find it difficult to get a supply. I know many fine Pear gardens in England, but I want to see the fruit made an easily procurable commodity throughout the land: and that it certainly is not at present. There is only one answer to my question—we are behind the French, and shall have to pull up! I protested against the error that affirms French Pears to be "hard," "inferior," &c.; he, while not disputing this, attributes their fine flavour and condition this year to the cool and showery weather which prevailed in France during the past summer. This is directly the opposite of the truth, as every French fruit grower will tell you, and I subjoin the opinion of a well-known one, a distinguished member of the Horticultural Society of France, M. E. Jamain, of the great fruit-tree supplying firm of Jamain and Durand, Bourg-la-Reine:—"La qualité des fruits est bien meilleure en France dans les années chaudes que dans les années pluvieuses et froides. 1867 peut-être considerie comme assez abandonte, mais la saveur des Poires en général, laisse à desirer."

He says that the low horizontal cordons I so strongly recommend are suited "for small gardens and for no others," the wire "tripping one over into the Cabbages," &c. Well, if this cordon be no better developed than to be invisible, the less we have to do with it the better, but where it is thickly and regularly set with a stubby spray of fruit-buds, and a dense crop of noble fruit, as I have seen it at Ferrières, at Chartres, and at many other places, then it becomes a thing which catches the eye for its beauty and utility. If I were making a garden to-morrow as large as Frogmore, I would run a line of wire round every plot of it at 1 foot from the ground, and on that train the best kind of Apples, believing this cordon to be much better, more useful, and more easily managed than either the bush or pyramid on the same stock! The following are my reasons for this assertion. It may be placed round the squares of a kitchen or fruit garden, so as to act as an edging, and thus in numbers of gardens it may be adopted to an extent sufficient to supply the fruit-room with splendid Apples without devoting a special quarter to them, or, in fact, losing any space thereby. The wood, leaves, and fruit are more fully exposed to the sun than in the case of either pyramid or bush, or any other method of growing Apples away from walls—an advantage for all parts of England, but especially so to cold, northern, and elevated parts. The form is so definite and so simple, that anybody may attend to it, and direct the energies of the little trees to a perfect end, with much less trouble than is requisite to form a presentable pyramid or bush. It does not, like other forms, shade anything, not even so much so as a low-growing vegetable, for beneath the very line of cordons you may have some slight crop. They are less trouble to support than either pyramid or bush, always under the eye, for thinning, stopping, &c: easy of protection if that be desired, very cheap in the first instance—that great fruit-grower M. A. Leroy, of Angers, marking them at *4d.* each in his catalogue—and therefore this is the best of all known modes of obtaining first-class garden Apples. I shall describe exactly how to arrange this cordon, and also a very important modification of it, in an article (illustrated), which I hope to write, on the best and simplest forms of French fruit trees, and such of their ways as seem worthy of adoption with us. In that I shall give reasons why the planting of orchards of cordons is unnecessary and even absurd.

My critic, who has visited France "15 times during the past 30 years," sagely remarks that when I have travelled more, I shall know more about cordon training than I do now, and then a little further on speaks highly of the Pear as a double horizontal cordon, adding that he has "not seen this system in France." A few days ago, while in the neighbourhood of Sceaux, I saw bundles of this very pattern preparing for package to England, and there are specimens of it to be seen in the neighbourhood of Paris more than 20 years old! Mr. Rivers says in his book that this double lateral cordon "is a great improvement on the French single cordon," speaking of training the Apple in that way; but it has been known to exist in France for 50 years, and I can adduce proof of this if necessary. I am requested to explain what I mean by the word "simple cordon"—well, the horizontal cordons, with either a simple stem, or one branching in opposite directions, as distinguished from the oblique, erect, and other cordons, especially those planted very closely together against walls and trellises, and which he thinks "nice," but which I hope to show are only to be recommended in special cases. He next points out that "If I had been to M. Grin, of Chartres, I should have seen Peach trees perfectly unique and beautiful in their training, every branch being a perpetual and perfect cordon," &c. I have been to M. Grin, have seen his garden and his trees, and when I assure your readers that there is not one cordon in his garden at all, nor one single tree of any kind that could be called "unique and beautiful" in its training, they will understand with what justice and truth I have been blamed for simply endeavouring to find out and convey to my countrymen, those points of French horticulture which they may adopt with advantage. M. Grin is the worthy author of an interesting mode of pruning by leaf-pinching, one which is certain to lead to some good results, but he has no tree in his garden that could for a moment be compared, either for beauty or profusion of fruitful well-ripened wood, to one turned out by such men as Carrelet, Lepère, or Chevalier, of Montreuil; he does not nail in, and that alone is a reason why I do not specially recommend his method to your readers, for we want the shoot close to the wall in England: and I have seen trees on his method with the wood growing out straight from the wall, so that if in England it would have no chance of ripening. But, in addition to that, the Secretary of the Committee appointed to investigate his method—a Committee that has visited his garden many times—told me that M. Grin had as yet not brought his system to any definite stand-point, and thatas a system it was in its present state entirely unworthy of being named as being good or better than the most successful one pursued by the best Peach cultivators near Paris. M. Grin's trees are trained in the palmette form, and when I asked him what form of tree he preferred for the Peach, he said the handsomest, the best, and that which forms a fine tree with the greatest facility, is the form known as *palmette verrier*, of which I hope to give you an illustration. The best cordons trained on M. Grin's method are much nearer Paris than Chartres—of them in due time. The remaining statements in my critic's letter I will deal with next week. *W. R.*

Home Correspondence.

Variegated Zonal Pelargoniums.—I really cannot allow "A Flower Gardener's" remarks upon the late exhibition of Variegated Zonal Pelargoniums at South Kensington to pass unnoticed. In the first place he states that all those exhibited on that occasion had been grown under protection, whereas the fact is, the two varieties that we exhibited, viz., Queen Victoria and Countess of Craven (to both of which in their respective classes a 1st prize was awarded), had been fully exposed to wind and weather; they were in 8-inch pots, standing on an old Cucumber bed, and the roots ran through into the manure; but the lights were off night and day, and we have had some of the heaviest storms of rain this summer that have visited this part of the country for some years. After the very heavy storm on the morning of August 20, the plants looked clearer and better than they did before. I am at a loss to know how plants are to be grown in order that they may be exhibited at a given place, if such treatment as I have just described is not a test of their being able to stand both hot sun and heavy rain. *Arthur Perkins, Park Nursery, Coventry.*——What your correspondent, "A Flower Gardener," says (see p. 1098) concerning the exhibitions of these plants may be tolerably correct. We have too many sorts and too little variety; and very many of the so-called varieties will, when subjected to the ordeal of open-air cultivation, be no more heard of. Exhibitions of these plants in

pots must necessarily exemplify the favourable circumstances brought to bear upon the specimens exhibited, or the skill of the cultivator, quite as much, or more so, than they do the real merits of the particular varieties shown. But how is this to be remedied? We cannot send entire flower beds to South Kensington. If, however, the Royal Horticultural Society really takes an interest in the matter, it should devote a suitable piece of ground to the exhibition of such masses, and should invite the various raisers of these plants to entrust specimens of their choicest novelties to it for the season, the Society giving assurance of their being taken every possible care of. Intending exhibitors should send, say two plants of each sort that they wish to show, to South Kensington, by the beginning of June, together with an order to give to all a fair start and no favour; and the plants ought to be all autumn or spring struck cuttings, growing in pots, say 3 inches or 3½ inches in diameter. All should be planted together at the same time, as nearly as possible, and in all respects grown under the same circumstances. Of course Golden Variegated Zonals would compete with Golden Variegated Zonals, Silver do. do. with Silver do. do., and Bronze Zonals with Bronze Zonals. About the middle or end of July competent judges could be appointed to decide on their merits as bedding or ornamental plants, and to assign the prizes that the Society might feel inclined to award. The plants, which up to this time would of course have numbers attached to them, might now have the name affixed to them by which their owners wished them to be known, together with the name of the exhibitor if thought desirable; and the plants might all be allowed to remain until, say the last week in August, when they ought to be carefully packed and returned to their owners in their entirety. This would give the public ample time to inspect and to mature their own opinion as to the merits of the various varieties exhibited, and the names would, as it were, be confirmed by the Royal Horticultural Society. Consequently, when the various sorts came to be distributed, under, of course, their proper names, the admirers of these plants would know how to make their selection; and the watching of their progress during the summer months could not fail to be a source of great interest to all that are in any way interested in the matter. *P. G.* [This should be done at Chiswick. Eds.]

Boilers.—In reply to your invitation (see p. 1094) I beg to give you my experience of the several boilers in use here. First in order of merit stands Burbidge's corrugated, heating efficiently 1000 feet of 4-inch pipe, in stoves, Cucumber houses, and forcing pits. One of these boilers likewise heats our fine large conservatory, and is very little trouble, as the fire can be regulated to the greatest nicety, by the damper and very excellent ash pit, and furnace doors with which it is fitted. Any one accustomed to stoke for these boilers, fitted with the patent Sylvester doors, may so bank up the fires as to leave them with safety for six or eight hours, and secure a very even, uniform temperature. The merit of these, and indeed of all good boilers, consists in the larger amount of heating surface exposed to the direct action of the fire, and the way the caloric is made to travel over the surface of the boiler before it can escape up the shaft. Next in order of merit here, stands the tubular, heating two large Vineries, containing 600 feet of 4-inch pipe, but as we burn coal in this I am doubtful whether it works at its full power, as it becomes very much fouled by the smoke. When this boiler was first set, and the tubes clean, I thought it a very powerful one; and I am, therefore, of opinion that coke alone should be used in all tubular boilers. One great defect in them is, that the heat gets away by the shaft too quickly, instead of being turned to account about the boiler. I may add, that I liked the appearance of the tubular saddle boiler shown by Cumming, and examined at the Bury Show, and feel sure it will be found a very powerful and economical boiler, especially if it can be set free from the above defect. We have likewise in use here a small Munroe's cannon, and this I consider a very good boiler, as there is a larger amount of surface exposed to the fire, before the latter can get away to the shaft, and it can be set in places where deep stokeholes are impracticable. The worst form of boiler we have here is the old conical. This I found a very slow coach till I had it reset, by carrying a spiral flue three times round the outside of it, and the draught through the middle stopped. This has made it heat much more rapidly, and has lessened the consumption of fuel at least one-third. To sum up: the best boiler, in my opinion, is the one that exposes the largest amount of surface to the direct action of the fire, and that can be so set as to retain the greatest amount of the fire-heat about the whole surface before it passes to waste up the shaft. Before closing, allow me to say a word about stoking, as I am convinced that much fuel is wasted by young gardeners from a want of thought, or of knowledge in the care of fires. They invariably keep out the dampers, and the ashpit door wide open, and drive the heat rapidly into the flues to waste. Instead of this the draught should be shut off, to keep every particle of heat about the boiler, and to keep the combustion slow and regular. *J. Sheppard, Gr. to J. Berners, Esq., Woolverstone Park.*

Orchard Cordon Trees.—My attention has recently been called to the above mode of training trees by the remarks of your correspondents, one calling it an "absurdity," the other telling the world that it is not only feasible, but to be recommended. I know not which is the wiser man of the two, but I feel I can do no injury to any one if I say in a few words how orchard cordon trees may be formed, either in orchards under Grass, in which case you must keep out the cows, or in orchards in which the ground is cultivated. The proper kinds of trees to plant are Apples on Crab stocks, and Pears on Pear stocks. The trees should be dwarf, one, two, or three years old, and planted either 6 feet apart in the rows, and the same distance from row to row, or 6 feet apart in the rows, and 8 feet apart row from row, the latter to be preferred if space is of no consequence; in the latter case, 1 acre will hold about 800 trees. The ground should be prepared after the directions given in all the gardening books, and the trees when planted, and 10 or 12 inches cut off the ends of their shoots, should remain one season untouched by the hand of the pruner. The following season early in February they should be cut down to stumps, *i. e.*, each shoot reduced to about 1½ or 2 inches. Early in June the crowd of young shoots which will to a certainty make their appearance must be thinned, leaving some five or seven their full length, and as nearly as possible at equal distances from each other. Each of these shoots is to be a cordon, it must therefore, the first season, have its top pinched off to some 3 feet in height, and the second and following seasons have its side-shoots pinched in, after the usual mode of cordon-training. It is good practice to tie the shoots to stakes for the first and second seasons, so that each may take a proper direction at equal distances. The beauty of orchards formed by cordons and the profit derived from them will make them pleasing "absurdities." I should add that each cordon branch may be suffered to attain a height of 12, 15, or even 20 feet. I have recently read in some of the French periodicals, of a new and economical mode of training espalier Apples and Pears having two branches, on each side of the tree, to be trained obliquely and fastened to the branches from a tree planted rather closely to it, the branches to cross each other, and be fastened together by Willow twigs, so that a row of oblique espalier trees planted about 6 feet apart would form a self-supporting hedge net-work-like. The idea is very ingenious, and in a still small French garden, where stormy winds do not blow, it may be practicable. In English gardens this mode of training would soon be fatal to an Apple tree, and injurious to the health of our Pear trees. Every hedge cultivator or observer knows that when two branches cross each other they are easily moved by the wind, having no support they therefore fret and chafe each other, till they are, as it were, worn to the bone. Well, such must be the fate of branches of trees crossing each other without any firm support; they would, of course, chafe each other, and then would come canker and all its attendant evils. I wrote to one of my French correspondents, pointing this out to him, if he carried out the practice in Normandy, or any of the provinces open to the Atlantic breezes. I believe he thinks me absurd, and I know that he considers the Willow-twig oblique espaliers likely to be of great benefit to the pomological world. In that opinion we shall continue to differ, as I know from long experience how liable the branches of trees are to be injured when in contact by crossing each other. The sorts of Apples and Pears adapted for the orchard cordon training are those of upright, vigorous growth, not liable to canker, as it is awkward after a few years to have a cordon branch die, and a symmetrical tree spoilt. The following kinds of Apple may be selected:—Court of Wick, Cox's Orange Pippin, Cox's Pomona, Forge Apple, Lord Suffield, Lord Burleigh, Duke of Devonshire, Dutch Mignonne, King of the Pippins, Northern Spy, Reinette Van Mons, Stamford Pippin, and many others. The following kinds of Pears are of a hardy, vigorous, upright growth, and are likely to form healthy orchard cordons:—Beurré Hardy, Baronne de Mello, Beurré Superfin, Beurré Léon le Clerc, British Queen, Dana's Hovey, Doyenné du Comice, Conseiller à la Cour, Duchesse d'Orléans, Durandeau, Beurré Clairgeau, Huyshe's Victoria, Marie Louise d'Uccle, Summer Beurré d'Aremberg, and Williams' Bon Chrétien. Many other varieties equally hardy may be selected: I have given the above as being tolerably well known. *Thos. Rivers, Bunk's Hill, Sawbridgeworth.*

Scotch Nurseries.—At page 1100 we read:—"Mr. Methven writes to say that next to the Messrs. Lawson he is the largest forest-tree grower in Scotland, having 65 acres of ground covered with trees of all sizes." We beg to say that this is a mistake, as his grounds, to our certain knowledge, are neither the second nor the third largest in Scotland. We ourselves have under cultivation considerably more than he, as has also a neighbour of ours in this county. How many more nurserymen there are in Scotland who may be in a position to take exception to Mr. Methven's statement we know not, but no doubt they will speak for themselves. *Thomas Kennedy & Co., Dumfries, Oct.* 29.

Christ's Thorn.—I beg to inform "Diss" (see p. 1073) that Paliurus aculeatus, growing in the open ground as far north as Cumberland, was to the best of my recollection uninjured during the severe winter of 1837 and 1838. *J. M.*——I have a plant of Paliurus aculeatus, from 4 to 5 feet high, growing here, that stands the winter well. *Henry Hepburn, Scaresbrick Hall Gardens, Ormskirk.*

Hardy Ornamental Trees.—Many visitors, while rambling round the charming environs of Wiesbaden, will remember the Trauer Eichë (weeping Oak). It is of considerable size and age, and of a decidedly pendulous character. They may also have remarked in the Kursaal Gardens there, perpendicular Oaks of great height, resembling Lombardy Poplars, for which at a distance I mistook them. Have any of your readers met with these two varieties in this country? and if so, can they inform me where they may be procured? Such novelties, especially weeping trees of different kinds, are very ornamental, and are more frequently made use of in shrubberies of gardens and parks abroad than with us. They form, when tastefully arranged, an agreeable contrast with trees of ordinary shape and of variously-tinted foliage, such as have lately been described in some interesting papers in your columns. Writing from the neighbourhood of Liverpool, I look forward hopefully to a beautiful assortment of trees being freely introduced in the proposed new parks there. *J. A. T., Aigburth.* [The trees mentioned by our correspondent can be obtained from any of the large nursery establishments in this country. Eds.]

Victoria Nectarine.—Mr. Rivers may well be proud of this Nectarine. I gathered, as late as the 4th of October, fine and delicious specimens of it from a tree against a south wall. The flavour was most exquisite. The fruit, however, was not so large as that of his "Pine-apple Nectarine" hard by, which for size and beauty might vie with almost any Peach. It is luscious beyond description. Another invaluable gift of his, the Princess of Wales Peach, has gladdened us in October with fruit, not pale, and dry, and hard (like all other late Peaches), but crimson, and gushing, and most delicious. Also among first Peaches his Early York is pre-eminent. I ripen it here on standards, year after year, and prefer it to most of the wall-fruit. He tells me that he has now some that will beat it—a fact which I will believe when I see them. If the Early York had glands, and were one size larger, no improvement could be desired. *R. D. B., Teddington.*

Slitting the Bark of Trees.—I have seen it stated that when a young tree does not grow freely it is a good plan to cut slits down the bark—cutting quite through the bark, but not cutting any out; and that the same practice is also good for the stock of a grafted tree that is smaller below the graft than above it. I have a Planera acuminata that was planted in its present exposed situation about two years ago, and which has only made weak shoots since then (see p. 855 of your volume for this year). I have also a grafted plant of Acer colchicum rubrum which is smaller below the graft than above it, and with a knob at the graft. What time of the year should you recommend the bark to be cut? *C. P.* [Early in the season, but not when the tree would bleed from the cuts; therefore not whilst the sap is flowing, but when the leaves have expanded. ‖]

The Judgment of Grapes before the Shows.—Considerable surprise and disappointment have often been expressed at the limited number of Grapes exhibited at the metropolitan and other great shows. Considering the numbers grown throughout the country, the quantity staged is very limited. Mr. Forsyth tells us the reason, at p. 1046. It seems a preliminary judgment takes place at home. Exhibitors, either personally or through their subordinates, manage to get a peep at their neighbours' Grapes, and if they are better—that is, larger and blacker than their own—they proceed no further in the matter, but keep their own Grapes at home. Such, it seems, is the general practice. It suggests several inquiries. The first is, Can such a course promote the interests of exhibitors? A prior question might be asked here, Is it reputable to them? I think not. There is something underhand and scarcely honourable about the practice. Therefore on this ground alone it might be condemned as damaging to exhibitors. But looking at it in another light, such hurried judgments are very apt to be mistaken: as a matter of well known fact they often are. It is no uncommon thing to hear the remark on a show day: "Well, if I had known that the Duke's Grapes were no better than these, I should have had the prize: I have much better at home," &c. The practice also exhibits the exhibitor in the most egotistical light. He places his own opinion or that of his men above that of the best judges the country can command, and often suffers loss, alike of the prize and the respect of his friends—and richly deserves all he suffers, too—in consequence of this inordinate development of self conceit. The second inquiry suggested by this preliminary judgment is, whether such a course of procedure is generous to our neighbours? I think not. It reduces the merit attaching to the prize to the lowest possible standard. In racing, no credit is attached to a simple walk over the course. The same principle holds with prizes at our shows. The value of the prize rises in proportion with the number and ability of our competitors in the same class for the same honours. If I carry off a prize from 100 competitors, the credit is 10 times as great as if I only defeated 10. Now every exhibitor should be influenced by two motives. The first is, to win himself if possible. It is not necessary to enforce this; it is strong enough in us all. The next motive, however, is not so common, but it is equally important, and even more creditable; it consists in adding to as much as possible, and thus virtually sharing in, the honour of others that may defeat us. This is the highest side of the exhibitor's nature. It relieves him from the trammels of mere selfishness. It ennobles his character, and gives a grand scope for his generous impulses in thus doing justice to his higher nature. He becomes generous to his neighbour, who has honourably vanquished him in the strife. Such feelings, while they do credit to the head and heart of some successful exhibitors, bring their own immediate remedy. They extract the sting of defeat. In fact, to such minds there is nothing galling in another's success; they rejoice in it almost as if it were their own. To such noble men home judgments, prompted only by the fear of defeat, would savour of meanness and cowardice. Let us do our best, and then honour (and the more of it the better) to whom honour is due; let the best Grape only win, and we are content. Finally, let us note the effect of these home judgments upon societies and the advancement of horticulture. Every creditable bunch of Grapes or dish of fruits thus kept at home is a dead loss to the one, and a heavy drag to the other. Fruit is the most attractive feature of our shows. Scarcely ever has it been seen to reach to its legitimate dimensions, in comparison with other departments; and it never will if these home judgments, with all their meannesses and littlenesses are to be present. Our own interests and neighbour's

honour, the prosperity of the societies that support or encourage us, and the interests of horticulture, protest against such selfish and mistaken practice; and I know exhibitors too well to believe that they will have to protest in vain. *An Exhibitor.*

Salway Peach.—That must have been a very fine Salway Peach of Mr. Smith's (see p. 1074); I should therefore be glad to know the diameter and depth of the head of the tree from which it was gathered, and how many more fruit there were upon it. We thought we were growing Salways pretty well here, but the largest girth attained in that variety in our case is 10.3 inches, the weight corresponding, being about half a pound (7⅞ oz.), the tree bearing the fruit in question having 15 more upon it. The average diameter of its head is about 3 feet; pot 15 inches. Trees carrying two and two-and-a-half dozen have fruit correspondingly smaller. The lateness of the season at which the Salway comes in constitutes it a valuable fruit, extending as it does the Peach season at least a month beyond the usual time. The last of the Late Admirable has been gathered over a week ago, while there appears a probability of our having Salways for the next fortnight or three weeks. *H., Oct.* 23.

Late Peas.—I send you a small sample of Ne Plus Ultra Pea, which has proved itself to be a first-class late variety, both in quality and quantity. I have picked from the above crop, 92 yards in length, ever since the 12th of September. I believe that stirring in guano between the rows has given them their healthy appearance. *J. Bowring, Chartwell, Westerham, Kent.* [Your Peas, though somewhat uneven in the pod, as regards size, are a fine sample, considering the season.—EDS.]

Cymbidium eburneum.—A plant of what was bought at one of Stevens' sales under the above name, is now flowering at Knypersley, and proves to be nothing but C. Mastersii. This is the third time that I have bought (at a high rate) the latter under the name of the former, and as the vendor's name was not given—and no wonder—in either case, of course I have no redress. The only remedy for this infamous practice of selling worthless plants under the name of good ones, lies with the public; they ought never to bid for plants where the name of the vendor does not appear in the catalogue. If they do, they run a very great risk indeed of throwing their money away. *J. B.*

Gardening at the Present Day.—You have lately been hitting us rather hard, Messrs. Editors, for not maintaining the reputation which we had for good gardening in former days, therefore I, as one of the "craft," desire to protest against the justness of your remarks; and I would respectfully say, that we are as able as ever we were to do our duty with credit to ourselves. All we want is fair treatment, a fair field, and no favours. The Grapes which I now send you form no exceptional case as regards what we modern gardeners can do, neither do I consider them perfection; but I am under the firm conviction that their flavour would not be the less rich if the colour had chanced to be a little blacker. *Black Hambro'.* [Your Grapes are excellent, both as regards size of bunch and berry. True, they might have been blacker; but in your case we do not know if that would have improved their flavour, which is rich and good. EDS.]

Autumn Leaves.—Wishing to produce something out of the common way in table decoration, the other day the idea occurred to me of using "dead leaves" in lieu of flowers, and the result was so successful that I am induced to give you a short description of the arrangement. The flat part of a Dobson's Dinner Vase was filled with moistened sand, and round the glass stem was twined a slender branch of Lonicera aureo-reticulata, whose pretty green and yellow leaves droop downwards. The outer edge was formed of a fringe of hardy Ferns; next to them a few leaves of Mrs. Pollock, Flower of the Day, or Lady Plymouth Geraniums, their light tints contrasting with the brilliant orange and scarlet of the Sumach Rhus, large and small. Almost black are the curled Perilla leaves, and quite white the tender sprays of Variegated Balm; the fashionable brown comes from off yon tall Poplar tree that is slowly dying; and the Virginian Creeper produces the newer shade the French call "*Bismarck en colère.*" A stiff Hart's-tongue supplies the verdant green, and light fronds of Maiden-hair add gracefulness to the group; stiff and straight are the branches of green and white Periwinkle; the Amaranthus yields a melancholy red, while in the striped Iresine is seen the colour of Bordeaux wine; but between these two the ragged Cineraria maritima looks light and downy. Then a few of the sere yellowed leaves of Laburnum, all speckled as they are, a branch of snowy Gnaphalium near the spray of purple Beech, the shaded Liquidambar imberbe, and the pure crimson of the long narrow Cockscomb leaf, need only the shiny Ice plant, a dark olive Camellia or Myrtle leaf, with a spike or two of Juniper and Mountain Heather to complete as bright a cluster as ever wax lights illumined, though not one flower or berry rises from out our autumn bouquet. And so we find that e'en in withering leaves "a thing of beauty is a joy for ever;" and in arranging them remember that, at all seasons,—

"It is pleasant to note all plants, from the Rush to the spreading Cedar;
From the giant king of Palms to the Lichen that staineth its stem."

Ariel.

Variegated Pelargonium Show.—I am of opinion that May or June are equally as suitable as the month of July for exhibiting Variegated Pelargoniums, and propose that a show be held on the occasion of that of the Royal Horticultural Society, either in May or June; and as it may not be quite convenient for some growers to enter the earlier competition, a second show may be held in July. The great consideration is the means for providing the funds necessary to carry out the programme, which involves the providing of above 50*l.* for each show. I am willing to render material help in a pecuniary sense, provided say six or eight others contribute. This, if agreed to, will materially simplify the arrangements, otherwise there will be a necessity of cutting off the largest column of prizes offered:—

I. *Varieties not in commerce. Three plants of each. Open to amateurs and nurserymen.*

Golden	1 variety,	20*s.*, 15*s.*, 10*s.*, 5*s.*
"	3 "	30*s.*, 20*s.*, 10*s.*
Gold and Bronze Zonal ..	1 "	20*s.*, 15*s.*, 10*s.*, 5*s.*
" ..	3 "	30*s.*, 20*s.*, 10*s.*
" ..	6 "	40*s.*, 30*s.*, 20*s.*
Silver-edged	1 "	10*s.*, 5*s.*
Silver variegated	1 "	20*s.*, 15*s.*, 10*s.*, 5*s.*
"	3 "	30*s.*, 20*s.*, 10*s.*
Golden variegated	1 "	20*s.*, 15*s.*, 10*s.*, 5*s.*
"	3 "	30*s.*, 20*s.*, 10*s.*
"	6 "	40*s.*, 30*s.*, 20*s.*
Golden or Silver variegated	12 "	60*s.*, 40*s.*, 20*s.*

II. *Varieties in commerce. One plant of each, in pots not to exceed 8 inches. Amateurs only.*

Golden	3 varieties,	20*s.*, 15*s.*, 10*s.*, 5*s.*
Gold and Bronze Zonal ..	3 "	20*s.*, 15*s.*, 10*s.*, 5*s.*
" ..	6 "	40*s.*, 30*s.*, 20*s.*
Silver variegated	3 "	20*s.*, 15*s.*, 10*s.*, 5*s.*
"	6 "	40*s.*, 30*s.*, 20*s.*
Golden variegated	3 "	20*s.*, 15*s.*, 10*s.*, 5*s.*
"	6 "	40*s.*, 30*s.*, 20*s.*
3 Golden, 3 Gold and Bronze Zonal, 3 Silver variegated, and 3 Golden variegated	12 "	60*s.*, 40*s.*, 20*s.*

III. The same as Section II., but for nurserymen only.

The above liberal scale of prizes can only be offered in case of a spirited response from the now numerous growers. It is proposed to make a general entrance fee of 2*s.* 6*d.* in each class, and presuming there will be an average of 12 entries in each, the proceeds will materially aid the prize fund; aid also may be reasonably expected from most of the principal growers; and doubtless the Royal Horticultural Society will lend a generous assistance towards providing the remainder. As to size of pot, I am not favourable to limiting the size in Section I, but object to go below a 6-inch pot; if any one prefers showing in a less size there can be no objection to it, and if plants are produced as fine as the others in the smaller pots, the greater merit will lie with plants so produced. The primary object in this section is to evolve merit in the individual variety rather than size of plant; still a good plant is desirable, that its habit of growth may be as plainly seen as the colours of its foliage. In Sections 2 and 3 the object is to encourage skill in cultivation. Specimen plants are looked for, and 8-inch pots may with propriety be allowed, as this size is by no means too large in which to produce a well developed plant. The scale of prizes may be thought too liberal by some, and by others insufficient. I have, however, endeavoured to encourage all classes, without prejudice to any, and should this or any similar plan be adopted, I would suggest that the entries be made one month before each exhibition. This will give time for proper arrangements. As the season for a settlement of this question is far advanced, it would be well to endeavour to arrange the matter at the next Committee meeting. *F. T. Smith, Dulwich.* [The making of arrangements for these special exhibitions does not, we believe, come within the duties of the Floral Committee, as Mr. Smith seems to suppose. They are got up by the growers who are directly interested, and then held, by permission, at the Society's meetings. As, however, this special show would be best held at the time of one or other of the Society's shows, it may be a consideration how far it may be advisable to ask the Society to throw the amount of prize money it would give in its own schedule for this race of plants, into the common fund, and then to take the whole management of the special show, the special schedule being arranged between the Society and the subscribers. The Floral Committee might recommend this course to the Council if it is thought desirable. We question the desirability of holding two of these special meetings next year. The public will tire of them if they are too often repeated. EDS.]

Florists' Flowers.

THE value of the ordinary form of the zonal as well as of the plain-leaved BEDDING PELARGONIUMS for autumn and winter decoration within doors has been well illustrated at the Gardens of the Royal Horticultural Society at Chiswick. In one of the houses may be seen a lot of these Pelargoniums in excellent bloom, moreover they have been flowering all through the summer. They have been grown under glass entirely, and there is every appearance of their remaining in flower for a considerable time to come. The plants betray no symptoms of becoming drawn, as, though only part occupants of the house, yet the other plants grouped with them are of such a nature that air can be given as fully and freely as possible. The plants retain, what they have possessed from the first, a free and healthy development, and they yield a profusion of flowers without any attendant disadvantage of weather to tarnish their beauty or rob them of their attractiveness. The simple rules by which the plants are managed appear to be, that they are growing in moderately sized pots, and that they are kept growing freely. A little attention is required to keep the plants free from decaying leaves and trusses of bloom, and an invaluable decorative agency is secured at a season when it is more especially welcome.

Now while there is no period of the year when there is such a void of flowering stuff within doors, even in the largest establishments, as prevails from September to February, there is at the same time scarcely to be found a more useful and acceptable means of supplying this than that found in the ordinary bedding Pelargoniums. What more effective masses of colour or intermingling of shades can be obtained just now? Thanks to persistent hybridisation, variation of colour is yearly widening as well as deepening. And as regards those who charge against the Zonal Pelargonium a monotonous sameness of hue, it can now be safely pleaded that the variation of hue and shade is co-existent with the multiplication of varieties of the plant. Perhaps after all it is by no means a disadvantage that in the Zonal Pelargonium there should be a preponderance of bright hues of colour, as these will be found most attractive for the purpose to which it is now advocated they should be devoted. The act of housing the hard-wooded plants for protection during the winter months in mixed houses furnishes a large surface of foliage of a somewhat sombre cast; it therefore requires something warm and telling in point of colour to light up the comparatively dingy surroundings, supplemented by a murky atmosphere without; and it is certain that the dull autumn weather seems to add by contrast an increased brilliancy to the bright colours employed.

Hitherto the advocates of the Zonal Pelargonium for decorative purposes during the autumn and winter have contended that the plants so employed should be young plants annually raised for the purpose, rooted by the beginning of September, shifted into 5-inch pots by November, allowed to rest till the end of March, receiving meanwhile an abundance of air, and just as much water as will serve to keep the foliage healthy. Then a shift at the beginning of April into a large pot; the "pinching off the extreme points to cause the production of side shoots," to be again operated on in a similar manner about the middle of June; and then by a process of tying out the branches, "the cultivator is enabled to lay the foundation of a large plant." Then a further shift into "a pot 8-inches in diameter, as one of the objects to be obtained, is abundance of flower resulting from confined roots." Until the middle of September every flower stem should be removed as soon as it appears, and the neglect of this precaution, it is said, will reduce the strength of the plant. At no period must the plants be exposed, but be kept constantly under glass, and shaded from strong sunshine.

This certainly appears to be a somewhat lengthy and cumbrous process necessitating to some extent a special act of propagation, together with a frame and house devoted specially to their culture; while it throws even the commencement of the blooming season on nearly to the verge of the coming winter.

Now, Mr. Barron has effectually demonstrated at Chiswick that it is a very easy matter to extend the blooming season; for the very plants now crowded with trusses of bloom were in June last rendering the same important service for the especial benefit of the Floral Committee in another house. There is, therefore, no break in the continuity of bloom, while there is vigour enough in the plants to carry them on producing flowers till the beginning of February, the earliest time at which they will fail to produce flowers. By this time spring-flowering bulbs and many other plants, as Ericas, Epacrises, Deutzias, &c., will be in a forward position to take their place. If they are then cut down, the soil shaken from the roots, and the roots pruned, then re-potted, and placed by in a frame, they can be made very useful in the following summer, if a dearth of "stuff" requires that they should be kept over.

The following kinds were particularly noticeable among the group of plants at Chiswick:—Crimson: Waltham Seedling; Le Grand, a very fine Nosegay variety; and Christian Deegen, dark scarlet crimson—a very fine kind. Scarlet: La Zouave, very bright and rich; Persian, a fine shade of pale orange scarlet; Inquisition, very bright scarlet, a rich and striking hue, flowers large and bold; and Garibaldi, another very bright scarlet. Orange: Volcano, a bright shade of deep orange; and Acme (Chater), glowing orange salmon. Cherry, cerise, and salmon: Rebecca, cherry, fine trusses of bloom; Violet Hill Nosegay, an excellent dwarf-growing and free-blooming variety; Endeavour, cerise; Excellent (Smith's), rosy salmon, a very valuable decorative plant; and Mrs. Longman, rosy cerise. Rose and pink: Wiltshire Lass, rosy pink; Eve, pink; and the still useful Rose Rendatler. Flowers with carmine and salmon centres: Loveliness, salmon, carmine centre; and Lady Parker, carmine centre. White: White Perfection and Emile Vaucher.

The whole of the plants were in 32 or 48-sized pots and Mr. Barron finds it to be essential to their doing well that the atmosphere should be kept dry, so as to prevent any damp from settling on the leaves and flowers. In fine weather the admission of the external air, with a little fire heat in damp dull weather, will be found to regulate the atmosphere, and adjust it to the requirements of the plants.

A plant of Mr. Chater's very distinct Pelargonium Annulus, one of the zonal kinds, was particularly noticeable from the peculiar marking as well as the formation of the leaves. They are of a bright deep green, remarkably rounded, though serrated at the edges, and having a circular bronzy zone, distinctly traced on the leaf, but yet unusually narrow. It flowers very sparingly, but the peculiarity of the foliage makes it useful as a decorative plant. *E. D.* [It is very like an old sort which we have heard called Crystal Palace Nosegay—also a shy bloomer. EDS.]

The Apiary.

LIGURIAN BEES.—The clever German Bee-master, the Baron von Berlepsch, states "that he had never known a queen of the current year to lead off a swarm."

The following facts prove that a queen of the current year does sometimes lead off a virgin or maiden swarm, but it is a rare occurence, and I never heard of a second swarm of English or common black bees sending out two virgin swarms. In May, 1866, I sent a stock of Ligurian bees to a clergyman in Essex, and it threw off three swarms, the first swarm sent out only one virgin swarm, but the second swarm with the queen of the current year, sent out two virgin swarms, so this one stock last year increased to seven.

Another stock of Ligurian bees despatched at the same time to the neighbourhood of Liverpool, also increased to seven; but in this case the old stock sent out four swarms and the first swarm sent out two virgin swarms. The old stock after throwing off four swarms got so crowded again with bees, that they hung out in a large cluster; and it was thought they would swarm again, to prevent which a large super was put on the hive which they nearly filled with combs and honey.

Before the introduction of the Ligurian bees into England, such an increase as two stocks of bees to increase to 14 in one year, all with natural swarming, was never heard of. *Wm. Carr.*

Covering Wooden Hives.—Having commenced bee-keeping with two stocks in wooden boxes, I am told that they will not do well in them, being too cold for bees in winter. Will wrapping the boxes up in cloths be of any use in protecting the bees from the cold? *Novice.*

[Provided your boxes are secured from any accession of outer wet, and that their inmates are populous and sufficiently supplied with stores for winter consumption, you need be under no apprehension as regards the unsuitability of the material of which the hives are made as a winter habitation for bees.

On no account swathe your boxes with cloths; they frequently become and remain damp, doing more harm than good.

Internal moisture is more to be dreaded than outer cold. A good plan for preventing injury from this cause is to remove the wooden top or crown-board, and substitute for it a thick mat made of twisted straw, which may be retained in place by four slips of wood, fastened down by screws.

In a large apiary, composed of hives of both wood and straw, we have for many years had occasion to remark that the stocks which have passed the winter in the best condition, and have been most populous and forward in the spring, have been almost invariably domiciled in wooden hives.]

Bees in Lancashire.—I thought it might interest and comfort some of your readers to know that in this district bees have done wretchedly this past season. from what I have seen and heard, I should say that most of the honey that has been collected, and that is far less than an average quantity, is discoloured, and has a bitter taste. Hardly any stocks have swarmed to my knowledge. *R. Binns.*

Garden Memoranda.

Shrubland Park (*continued from p.* 1100).—Stepping then into the garden through the side gate near the conservatory, the first impression is one of admiration of the prospect. The valley of the Gipping affords a most satisfying panorama of quiet beauty, and the foreground is quite in character with the distant scenery. A charming lawn slopes gracefully away from the parapet wall that sustains the terrace. Passing the noble conservatory on the right, and across the grand terrace that forms a second base to the mansion, we come to the architectural balcony garden on the left. It consists of four massive beds on each side of a broad centre walk, and simple forms of turf, embroidered round with white bands of sparkling silver sand, heavily ornamented with urn-shaped ornaments, massive stone baskets, &c. It is bounded by a highly ornamental retaining wall towards the side of the hanging wood, which is pierced in the centre by a massive architectural arch leading to a magnificent flight of 100 or more stone steps, that land the visitor on the panel garden that looks enchantingly brilliant at their base. The scene from here is truly magnificent. The steps themselves are of regal grandeur, the panel garden the richest imaginable. It is bounded by a highly ornamental retaining wall, pierced by an arch in the centre, similar to the one at the top of the steps. By one of those rapid transitions for which the late Lady Middleton was famous, undressed Nature, in the form of a rough wooded scene, creeps right up to the base of this highly artistic wall. A deep, artificial dell, just through the arch in the retaining wall of the panel garden, is spanned by a rustic stone bridge. Beyond this broad sweeps of green turf, only interrupted by masses of evergreens and mixed beds of herbaceous and semi-tropical plants, reach down to the bottom of the valley, that is here occupied with a belt of wood. This wood is from one-half to three-quarters of a mile distant from the balcony garden, and about 200 feet below it. In front of the belt of wood a lake was formed last year, that has a fine effect from the top of the stone steps, and helps to satisfy the craving that the rich scenery leaves unsatisfied—that for more water. This lake and the moving line of the Gipping scarcely adds coolness enough to the brilliant colouring and rich verdure that compose the broad features of the landscape.

Returning to the noble terrace overlooking the balcony garden, and passing along in a line with the front of the mansion, the Sweet Chestnut-tree walk is reached. Here there are the sloping lawns on the left, with a strip of lawn and the park on the right, and the finest Sweet Chestnuts in England. There are nine of these magnificent weather-beaten trees, each supposed to have battled with the elements for a thousand years, and, although deeply scarred with the weather-brands of many a storm, they look as if they might contend with all comers for as many more centuries to come. Their size and form proclaim their hoar antiquity, and inspire one with a feeling of respect, akin to reverence and awe. One of the largest measures 42 feet in circumference, and several of the other boles are nearly as large. This walk terminates in a seat at the extremity of the upper lawn, and looks up a fine dell in the deer park, almost entirely planted with Sweet Chestnuts of great size. It was stated, that while these generally ripen enormous quantities of fine fruit, those on the lawn never bring any to maturity. Passing down, at the extremity of the lawn we arrive at a lower level, and reach a straight gravel walk, bounded on the left by a hill of roughly-formed natural-looking scenery, composed of common shrubs and coarse herbaceous plants, growing wild amid a groundwork of roots, stones, and stumps of trees, and on the right by a ribbon border planted in the Vandyke style ten rows deep. Both sides of the walk have features of beauty, but the violence of the contrast is extreme, and perhaps too forcible for the satisfaction of the ordinary run of men. Leaving here, the French garden is reached—a very pretty design, laid out on gravel with Box and silver sand, and prettily filled-in bedding plants. This little gem is surrounded with a high hedge of English Laurel. The design, chaste and elegant, was copied from the scrollwork embellishing an ancient book-cover. Near here a diagonal Grass walk leads to the centre of the Panel garden. This garden, as its name imports, is sunk between 2 and 3 feet below the surrounding surface. It forms part of a semicircle, bounded on the circular extremity by Grass and gravel and the retaining wall already noticed from the top of the steps, and on the other two sides by diagonal Grass walks stretching across with lines of beds on each side. One of these Grass paths is the long one first observed from the steps on the carriage road that forms one side of the whole series of gardens; the other is a short one by which the Panel garden is reached, terminating at one end with a seat under a tree, and at the other in a seat forming the extremity of the retaining wall. Both centre in a fine fountain, that adds much to the architectural effect of the Panel garden. Looking up from here towards the spot on the carriage road that affords the first glimpse of Shrubland, the steps at that point seem a mistake. They should either lead up to a house or tower in the distance, or give place to a bank of turf. Turning round to view the mansion, the noble flight of steps connecting the balcony with the Panel garden stand out in all their bold magnificence. They are 12 feet wide, with four rests 21 feet wide, the whole furnished with massive balustrading. Within 20 steps of the bottom they diverge to the right and left with an elegant curve presenting a bold front of wall to the Panel garden. A small cave is scooped out of the centre of this wall, which is furnished with Ferns, with water dripping among them. Just beyond the steps on each side—that is, on a line with the projecting rests—the wall is carried up on the ground level. On this wall two or three vases, large enough for their position, are placed in the spaces between each rest. These are filled with brilliant masses of the old Tom Thumb Scarlet Pelargonium, the best of them all for such purposes. It is impossible to exaggerate the rich effect of these masses of scarlet in contrast with the white stone and the heavy masses of shrubs, chiefly Box, that are planted to clothe the sides of the steps. These shrubs are mainly kept down to the base of the balustrading, but a curious effect is produced by allowing some Arbor-vitæs, &c., to tower up here and there among the Box; and against each rest the Box is carried through at a higher level, as high as the top of the balustrading at the point, until it joins the untrained trees and shrubs that constitute the hanging hill on either side. Near the base of the steps on either side a unique and pleasing effect is produced by a curious bed, formed of lines of Yew, about 18 inches high, and as much through, interwreathed in a singular manner, and enclosing scrolls of turf, silver-sand, and flowers. But the most striking feature consists of a large double-headed serpent, laying lazily across the back of each bed, formed of variegated Box, twisted over, among, in, and through the Yew. Box and Yew alike are in the highest health, and these architectural beds, with reptiles scaling their shrub-built walls, add an element of the grotesque to complete the grandeur of these fine stairs.

Hurrying through the archway on the opposite side of the Panel garden, across a rustic bridge that spans a walk running along an artificial dell that has bold mounds on either side tempting one strongly to a botanical exploration in search of lost or forgotten herbaceous plants, an open lawn studded with clumps of shrubs stretches away in all directions. Proceeding nearly in a straight line to have a look at the lake, it is found to be formed of asphalte, and great difficulty is experienced in keeping it watertight, from the effect of heat and cold, causing it to contract and expand, and thus to crack its sides.

Bearing to the left, through a series of beds of mixed herbaceous and sub-tropical plants and Pelargoniums, the Moss summer-house is seen in the distance. This consists of a long tent-like building, open in front and at the ends, covered with Virginian creeper, which at this early season (the 20th of September) is a perfect flame of scarlet, and one of the richest sights imaginable from many points of the grounds. A very fine bed of Cannas and Caladiums, and another of tall Fuchsias were growing here, and at once attracted attention from their health and great beauty. Leaving this and passing along the side of the Rosary, we next arrive at the Poplar garden and the conservative wall. The Poplar garden consists of two tall Poplar trees with a high vase between them, and a large bed on either side planted in lines of colours. Passing round the back of the conservative wall, and turning to the right at the end, we are led into the Fountain garden. This is a large circle cut into four quarters by gravel walks, each quarter being divided into about 30 beds by narrow strips of turf reaching from the centre to the circumference, and divided in the middle by a row of circles. A small circle is also placed at the further extremity of the diverging lines of turf, where the surrounding ground admits of them. This garden is a perfect blaze of bloom, and is one of the richest scenes in this paradise of varied beauty. It is bounded on one side by the long green glade so often adverted to, and on the other by the conservative wall. This wall used to be heated, and the plants protected on each side by lights and shutters in winter. Close by, and within sight of this, is the Chinese garden, with its large hanging baskets suspended on poles, its quaint groundwork of tiles, scrolled beds of box and silver sand filled mostly with sweet-scented Pelargoniums, such as Shrubland Pet, &c., and embellished with Irish Junipers. Passing forward among shrubs and trees, a mass of Yew, of octagon form, having a bold vase on each side, is reached. Each of these vases forms the centre of a walk that converges on the respective points. The other ends of these walks have all their special objects as termini—one a tree, another a raised bed of flowers, a third a vista, and so on. Neither of the walks are long, and they are of course all straight, and the whole thing is a surprise and a pleasing change. One of these walks leads to the Maze, which was one of the latest works of Mr. Beaton at Shrubland. Stepping on to the green glade at its furthest extremity by the park gate, and returning a few yards, the Dial garden is seen on the left and the Swiss Cottage on the right. The Dial garden is sunk below the glade, and is very pretty. It used to be wholly devoted to Verbenas, but is planted this season with Linum grandiflorum, Stella Pelargonium, Purple King Verbena, Tropæolum Brilliant, Cerastium tomentosum, and others. A level platform, reaching from the end of the Dial garden and extending past the Chinese to the Fountain garden, is devoted to scrollwork of Box on gravel and silver sand, with some tiny flower beds. This, like the Dial garden, is sunk below the level of the green glade, and forms its left-hand boundary as far as the scrollwork extends. The Fountain garden then comes in, succeeded by lawn and shrubs, until the Panel garden is reached.

A great part of the space on the opposite, or wood side of the green glade is occupied by a sloping bank of different coloured Dahlias, five or six rows deep, each whole row being of one colour. At other points between the Swiss Cottage and the grand steps, not so lighted up with flowers, the shrubs sweep down to the glade. Several walks are carried through this wooded bank, and one diverges right and left from the first rest on the stone steps. But it is impossible to explore either of those at present; so, returning to the Swiss Cottage, and noting the cottager's garden in front, we pass at once into miniature mountain scenery—clothed with Ferns and furnished here and there with water. The rapid transition and quiet repose at this point are charming. The rocks are hardly bold enough to represent Swiss scenery; but it must be borne in mind that there is no stone except flint in Suffolk, and that most of the blocks here are artificial. With the one exception of insufficient massiveness, the scene is perfect. The dell is spanned by a rustic wooden bridge, and erratic narrow passes lead in various directions to nowhere in particular. Emerging from these a neat summer-house is reached, with what appears to be a looking-glass, or massive mirror, suspended in a large frame opposite the entrance. It puzzles one at first to tell whether the exquisite scene revealed is the reflection of a work of art, or a glimpse of the most charming natural scenery. On nearer approach it is found that the frame is destitute of glass, and that the charming picture is one of the richest imaginable views across the surrounding gardens, and far away over the rich valley towards Needham Market. A straight walk leads from this up to the boundary walk that skirts the park, back to our starting point by the conservatory gate. Another fine gravel walk proceeds along the top of the wooded hill on to the Balcony garden. A velvety sloping lawn, with a few Thorns and other trees and shrubs, stretches away on a charming rise, until it meets the base of the different terraces and Balcony walls. *F.*

(*To be Continued.*)

Garden Operations.

(*For the ensuing week.*)

PLANT HOUSES.

We are now entering "the dull November month," and upon one of the most adverse periods of our, at the best, not over felicitous climate. The main considerations, therefore, as regards pits, frames, greenhouses, &c., ought to be how to best reduce the volume of dense humidity with which their atmosphere is continually surcharged; and whilst a minimum temperature of 50° only is maintained, how to keep them as dry as possible. To open lights or sashes, even with a not too cold outer atmosphere, when this latter is teeming with moisture, under the impression of giving increased freshness to plants, kept necessarily at a low temperature in order not to excite them, is, to say the least of it, multiplying the very evils with which we have to contend. Reliable hygrometers ought to be used both out and indoors; and when the outer atmosphere is found to contain an equal amount of, or more moisture than that inside, the structure should be immediately closed against its entry, and *vice versâ*. A little air may sometimes be given at the apex, or highest ventilators, even on certain doubtful occasions; but with proper warmth outside, should it be seen that there is an inclination to dryness, if ever so little, give abundance of air, as it may be concluded that a somewhat rarified and absorbent atmosphere exists.

FORCING HOUSES.

Those who are now employed in preparing early *Vineries* for forcing, should not overlook the great advantage attending bottom-heat in connection with all such operations. Out-door borders should invariably receive assistance in this way, by simply placing thereon sufficient fermenting material; which with proper attention in the shape of an

occasional stirring over, and a slight renewal by adding fresh litter, &c., might be made to retain a nice even temperature. Besides, by absorbing superficial moisture, this protection may be made to act in a two-fold manner. As regards *Pines*, some amount of discrimination will be necessary in order to distinguish between the requirements of bright sunny and of dull dark days. The thermometer should not rise above from 54° to 58° in pits, &c., containing the succession stock when the latter kind of weather prevails, with a range up to a maximum of about 85° in the fruiting structures. Examine the test sticks in all pits recently renovated with fresh tan frequently, in order to see that the heat is not too high. Push Pines showing fruit prominently forward, and use every advantage at command, with the view of producing a successful issue; but do not hurry others, which show for the next three weeks or a month, but by using moderate warmth, only, try to carry them into the first weeks in the new year, when, with a larger amount of solar light, better success in ripening might fairly be anticipated. Get together at the earliest moment possible a goodly heap of *leaves*—Oak, Sweet Chestnut, and the like, are the best, being most durable. Mix some with stable litter, thoroughly to ferment together for the purpose of sweetening them. These will shortly be required for the purpose of forcing *Rhubarb*, *Seakale*, &c. Surface dress *Fruit trees* in pots generally; and should any need it, this will be a convenient time to pot, or shift them into larger-sized pots. These remarks apply especially to *Figs*, *Cherries*, &c. It is not advisable to fresh pot the former of these, however, unless growth is a desideratum. A surface dressing alone will insure a good supply of fruit.

HARDY FRUIT GARDEN.

Intending planters in this department, having prepared the borders, procured the necessary fruit trees, &c., had better proceed with planting at the earliest moment possible after their arrival. First prune the roots carefully with a keen-edged knife, removing about a third of all the larger, grosser ones, any which might have been injured beyond recovery in digging them up, &c. Elevate the soil upon the exact position where the tree is to be planted, mound-like, say to about 12 inches higher than the surrounding ground, after having first well trodden the space surrounding it 5 or 6 feet in diameter, for the purpose of obviating any undue sinking thereof at a later date, and when the tree has begun to establish itself. If the tree operated upon, whatever its form may be, is being planted in the open ground, it will be better to drive a stake firmly down through this mound first. To this the tree should be firmly tied when planted. Spread the roots—even to the minutest fibre—out evenly all around upon this mound, at an angle of about 50°, sprinkling in finely pulverised soil between every rootlet separately; finish off firmly with about 6 inches of soil above all. In tying the tree to the stake, always attach the tying material to the latter first, at a height of 2 or 3 inches *below* where it is intended it should be tied to the tree. So doing will obviate what gardeners sometimes call "hanging the roots," a condition caused, as will be readily seen, by the sinking of the soil with the roots therein, whilst the main stem is held suspended to the stake. In planting trees against walls, &c., proceed in precisely the same manner. Bring the observations just made to bear upon each in fastening it to the wall; and, what is likely to prove of some importance hereafter, do not plant any too close to the wall, whether "standards" or "dwarfs," but afford each ample room to swell and fill out properly at the base, for once a tree has its sides compressed against so hard a substance, and especially its base, an interference with its proper development, free circulation of sap, &c., occurs, beyond dispute. Besides which, imagine the heat, in such a position, which this has to endure, in broiling summer days. To do these young trees justice, then, in this wise, they should each and all be quite 6 inches from the wall, where the base emerges from the soil. I am aware that this might appear an excessive distance, taking the size of the small stocks when planted only into consideration. Not so, however, when, having attained to a fruiting size, it doubles in diameter what its simple circumference scarcely now measures. I have not yet made any remark concerning the branches. These may be left as they are until a later date. If the weather is dry at planting time it will be well to water the roots well, in order to settle the soil around them without delay.

HARDY FLOWER GARDEN.

Pansies, if strong and well rooted, should be planted out not later than the ensuing week, provided the weather is moderately open. It will not be advisable to remove them, however, after this date. The Cliveden, or spring flowering sorts, bedded out, should they be strong or are likely, by having been drawn up in the cutting beds—being long or lanky—to receive injury in windy weather, had better be pegged down firmly forthwith. They will quickly turn their heads up and continue flowering freely. Proceed with *Tulip* planting as the weather proves favourable. Remove any *Gladioli* from the open borders into a dry open situation, where the bulbs can ripen off freely.

KITCHEN GARDEN.

I have little to add this week to past directions, as in all neatly kept gardens it must be superfluous to speak of removing all decaying vegetable matter with despatch—dead leaves from Borecole, Broccoli, Brussels Sprouts, &c.—all these harbour insects, mildew, and retain moisture, to the impediment of a free circulation of air, so necessary to harden all such things, in order to enable them to resist the severity of hard frosts. Do not cut the tops off *Brussels Sprouts*, if it is neccessary that they should stand well through the winter. Manure, trench, or dig any vacant ground, as soon as time can be spared from constant sweeping and raking operations, for that purpose. Cut away the older growth upon plantations of *Chamomile* without further delay; freshen over the surface of the soil, and tread the plants firmly all over afterwards. This will induce them to root more freely. *W. E.*

HINTS FOR AMATEURS.

AMONGST November's duties, transplanting occupies an important place; and as some appear to imagine that this is a simple matter, consisting merely of pulling up a plant, cramming it into a hole prepared for it, shovelling in the loose earth, and stamping upon it, we purpose making a few remarks upon the subject.

Transplanting is a combination of two distinct operations, and as much depends upon the manner in which the plant is dug up, as upon the way in which it is re-planted. The taking-up or digging-up of plants deserves more thought, care, and consideration than is generally given to it by amateurs; it is too commonly the case that they care little how it comes up, so long as they get it up quickly and without trouble; to "get it up" is their only thought, no matter how; "never mind about a few broken roots, but get it up." Now of the two operations, this is really the more important and the more difficult one; for if a plant be carefully dug-up, it is not very likely to be badly planted, while the most careful planting in the world will never make up for injuries inflicted in digging it up. By injuries we mean boughs or roots broken off, or strained, or bruised. If the plant be large or its branches brittle, it is desirable to tie it up into the smallest compass before beginning to move the earth; by so doing it becomes more manageable and less liable to injury both in digging it up and in removing it to its intended destination. Having thus secured its branches, the next care must be for its roots. The object must be to save all the roots, and especially the rootlets, for they are really the most important parts, and upon the care with which they are preserved from injury depends, more than upon anything else, the future well-being of the plant. Now, the mode of the growth of roots is very various, and nothing but experience will enable any one, unacquainted with the plant, to tell what kind of roots it will probably have. Some plants have tuberous roots, like Dahlias and Potatos, and these are found close under or near to the main stem of the plant; you need never dig far away for them. Other plants have long straggling roots, with the rootlets chiefly near the end of the roots, and these require more care in digging up than any others. With such plants you should begin to dig down some distance off, and carefully dig up towards the plant until you come up to the ends of its roots, and having thus found and relieved the extremities all round the plant, the earth near the stem may be last loosened, and the plant then removed. If you do not know what kind of roots a plant may have, it will always be most prudent to begin digging at some distance away from the stem.

In order to be able to re-plant properly, you must know how the roots grow naturally; and as this can only be learnt during the process of digging up, here is another reason for that process being carried on with care and consideration. The depth at which the roots are found below the surface should be especially remarked. How often have we observed Ferns planted, ay, even by professed gardeners, in a manner in which it is impossible for the poor things to grow at all, treated as if they were young Cabbages, or pricked out like young Lettuces, having all their roots squeezed together, and put down into a round hole some 6 inches deep, with their crowns an inch or two below the surface of the earth, their gracefully arching fronds having no alternative left them but to stand bolt upright! It seems almost incredible that any one who had ever seen a Fern growing healthily, and had taken it up, could have failed to note that the crown is always found above the surface of the earth, and that the roots always lie upon or just beneath the surface, and extend for some distance away from the crown. The roots of such a plant must inevitably rot if put deep into a hole, and the same thing will happen to its crown if smothered beneath a layer of soil; in short, a Fern so treated is not planted, but buried, and as little likely to live as a man in the water would be who had only the point of his nose or the tips of his toes above the surface.

It is a matter of great importance that attention be paid to the drainage of ground to which plants are about to be moved, for nothing but aquatics will grow in stagnant water or wet mud. Having secured good drainage, the nature of the soil below that in which the plant is to grow must be looked to; where strong shoots and luxuriant growth are wanted this subsoil should be deeply trenched, but where dwarf growth is required, or flowers and fruit rather than foliage are desired, then it is better to abstain from digging up the subsoil.

The soil in which the plant is to be grown should be that in which it is observed to flourish best; and if that is not to be had, the ingenuity of the grower is then called into action to make up, out of the soils at his command, a mixture that imitates the natural soil as closely as possible.

And now as to re-planting. Having made a hole larger and deeper than the "ball," fill it nearly half full of the prepared soil, and press it down firmly, leaving it rather higher in the middle than at the sides; then place the plant upon this elevated part, and spread out its roots carefully in all directions, taking care that they do not overlap one another. Next drive in a stake, to which fasten the plant so that it cannot move, and then carefully shake some soil over the roots to the depth of two or three inches; a free use of the watering-pot will settle it down amongst the roots, after which the hole may be filled up and the earth pressed or beaten down.

No matter how thoroughly this is done, the ground is sure to sink after a time; it is therefore expedient to finish off newly-moved soil rather higher than the surrounding surface, which thus ultimately becomes uniform. Otherwise it would be necessary afterwards to fill up with more soil the sunken part, and as this would involve the burying of the roots under a greater depth of earth than was at first intended, it is very important that this sinking should be provided for, by planting high at first.

Having thus stated generally the chief points to be borne in mind in transplanting, I will conclude by noticing two things commonly done which should be especially avoided. First, avoid shaking the plant while the earth is being filled in; the end which this objectionable plan is intended to attain, that of making the earth settle down between the roots, is far better secured by soaking it with a watering-pot, without any injury to the young roots, which are sure to be bruised, if not broken, by the least rough treatment. Secondly, avoid stamping the earth down with your heel; tread it fairly with a flat foot, and with the whole weight of your body when enough soil has been put above the roots to protect them from crushing, but do not use your heel. *W. T.*

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the Week ending Oct. 30, 1867, as observed at the Horticultural Gardens.

October.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Of the Air. Min.	Of the Air. Mean	Of the Earth 1 foot deep.	Of the Earth 2 feet deep.	Wind	Rain.
Thurs. 24	27	29.942	29.785	61	41	51.0	55	53	S.E.	.00
Friday 25	28	30.130	30.085	62	34	48.0	55	53	E.	.00
Satur. 26	29	30.082	29.938	62	45	53.5	54	53	S.	.00
Sunday 27	●	29.502	29.351	51	29	40.0	52	52	N.W.	.17
Mon. 28	1	29.924	29.762	55	30	42.5	51	51	N.W.	.02
Tues. 29	2	29.999	29.738	55	47	51.0	51	51	S.W.	.01
Wed. 30	3	29.982	29.874	54	47	50.5	51	51	S.W.	.06
Average		29.964	29.936	57.1	39.0	48.0	52.7	52.0		0.26

Oct. 24—Overcast; very mild; very fine; clear; low fog.
— 25—Overcast; fine; cloudy and fine.
— 26—Clear; low fog; clear and fine; clear.
— 27—Overcast; boisterous; very heavy rain; clear and cold.
— 28—Clear, hoar frost; clear and fine; clear and frosty.
— 29—Rain; cloudy and boisterous; cloudy; overcast.
— 30—Overcast and damp; overcast; rain at night.
Mean temperature of the week, 1 8-10 deg. above the average.

STATE OF THE WEATHER AT CHISWICK,
During the last 41 years, for the ensuing Week, ending Nov. 9, 1867.

November.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday .. 3	53.5	35.6	44.6	19	0.82 in.	2	3	10	—	7	9	8	2
Mon. .. 4	52.0	36.6	44.3	21	0.44	3	5	8	1	7	9	6	2
Tues. .. 5	53.1	37.9	45.5	20	0.69	4	4	4	4	5	13	3	4
Wed. .. 6	52.8	37.6	45.2	19	0.76	2	8	2	3	5	14	6	2
Thurs. .. 7	52.1	37.3	44.7	20	1.03	2	8	2	3	4	13	6	3
Friday .. 8	51.1	34.8	42.8	19	0.58	2	6	2	2	2	16	6	5
Satur. .. 9	50.6	33.6	42.1	16	0.40	3	5	5	3	5	10	4	6

The highest temperature during the above period occurred on the 5th, 1852, and 6th, 1834—therm. 63 deg.; and the lowest on the 9th, 1864—therm. 17 deg.

Notices to Correspondents.

ADIANTUM GHIESBREGHTII.—The Editors would be obliged to any correspondent who may have the true A. Ghiesbreghtii in cultivation if he would forward them a frond showing its usual character.

CARNATIONS AND PINKS: *Fuchs.* The florists' Carnation is a variety of the Dianthus Caryophyllus, while the Pink is a variety of D. plumarius, perhaps crossed by some other species. The Picotee is another variety of D. Caryophyllus, and is therefore closely related to the Carnation, and but distantly to the Pink. The Carnation has its colours arranged longitudinally in stripes, the Picotee transversely as an edging to the petals. Is this the information you seek?

FUCHSIAS: *Leonard Fuchs.* Much depends on the present condition of the plants. If they are so young as to be still growing, you must rest them moderately by keeping them rather dry, and then about the beginning of February turn out, root prune, branch prune, and start in a moist heat. You should get Mr. Cannell's Catalogue, for which he charges a few pence; it contains most trustworthy instructions on this subject. If the plants have the wood ripened, dry them off more thoroughly now.

INSECTS: *C N S.* The caterpillar found feeding on Dendrobium nobile is that of one of the Noctuidæ, belonging to the genus Graphiphora, of which we are not able to determine the species in the larva state.

NAMES OF FRUITS: *J D.* Pears: 1, Chaumontelle; 3 and 4, Knight's Monarch; 6 and 7, Beurré Diel; 9 and 14, Bergamotte Cadette; 11, Ne Plus Meuris; others indeterminable. —*C Langdon.* Apple, Mère de Ménage.—*Carter & Co.* Apple, Blenheim Orange.—*D Frost.* Grape, Raisin de Calabre.—*Jones, Ickworth.* Your Pear is one of the old musky, very gritty, turpentine-flavoured French Pears, not worth growing, for nobody would care to eat the fruit.—*W C.* We believe your Grape is the Dutch Hamburgh.

NAMES OF PLANTS: *M D.* Opuntia microdasys.—*M M P.* 1, Alyssum incanum; 2 and 5, Quercus Ilex; 3, Arbutus Unedo; 4, Cupressus Lawsoniana.

NOTICE TO QUIT: *A. J.* You do not give sufficient data for us to answer your questions. We imagine the reply to your first question must depend on the terms of your agreement, or lease. 2. It is usual that the notice to quit should expire at the same period as that on which the tenancy commenced. In any case you should consult your solicitor.

PEACH: *J C.* Your seedling Peach is not first-rate in this season, but deserves trial in a better one.

PELARGONIUM: *G D B.* In the leaf sent the green is almost obliterated by the spreading of the colouring matter of the zone over nearly the entire surface. We have seen one or two others similar to yours. They will probably be useful as breeders, for a Pelargonium with finely-coloured deep chocolate or maroon leaves would be a welcome substitute for some of the dark-foliaged plants now used for bedding—as useful in its way as the golden-leaved sorts.

SPOT IN ORCHIDS: *J B.* A great deal appeared in this journal in 1865 respecting the spot in Orchids. No remedy or mode of treatment, however, has yet been discovered which will cure or prevent its attacks. It occurs frequently on Orchids in their native countries, and therefore is not solely the result of cultivation. Almost every Orchid grower has suffered more or less, and its appearance cannot be considered as a proof of want of skill in the cultivator. *M J B.*

SUN HEAT: *Sun Dial.* Next week.

ERRATUM.—In p. 1025, col. *c*, for Lastrea floridana read Lastrea lacera.

COMMUNICATIONS RECEIVED.—W. Thomson.—J. Wills.—E. C. —D. Thomson.—H. H. G.—J. M. M.—G. B.—J. E.—Amateur.—W. R.—J. F.—J. A. T.—J. T.

THE LANDS IMPROVEMENT COMPANY,
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The Company advances money, unlimited in amount, for the following works of Agricultural Improvement, the whole outlay and expenses in all cases being liquidated by a rent-charge for 25 years.

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Landowners assessed under the provisions of any Act of Parliament, Royal Charter, or Commission in respect of any public or general works of Drainage or other improvements, may borrow their proportionate share of the cost, and charge the same with the expenses on the lands improved.

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CORN MANURE, for Spring Use
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SUPERPHOSPHATES of LIME
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MANGEL and POTATO MANURES.
Also Genuine PERUVIAN GUANO, and NITRATE of SODA, ex Dock Warehouse; SULPHATE of AMMONIA, FISHERY SALT, &c. E. PURSER, Secretary.
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Look to your Grass Lands, &c.
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MESSRS. JARED T. HUNT AND SONS beg to inform their numerous Agricultural Friends and Customers, that they have now on hand, in the finest condition, their usual Autumn Stock of
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which has, for several years, given such general satisfaction.
They have also always on hand, ready for immediate delivery, the largest stock of CRUSHED BONES of any firm in the United Kingdom, viz.:—In ½-inch BONES; ¾-inch BONES; PULVERIZED BONES for Grass Lands; prepared BONES for Grape Vines and Hops; also BLOOD MANURE, SUPERPHOSPHATE of LIME, PERUVIAN GUANO, and NITRATE of SODA, direct from the Docks.
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N.B.—Responsible Persons as AGENTS WANTED in districts not yet represented.

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LAWES' PATENT TURNIP MANURE .. £6 6 0 per ton.
SUPERPHOSPHATE of LIME .. .. £5 5 0 per ton.
Genuine PERUVIAN GUANO direct from the Importers, and all Chemical Manures of value.
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DOWN'S FARMER'S FRIEND, for Preventing the Smut in Wheat, and the Ravages of the Slug, Grub, and Wireworm. A 9d. packet is sufficient for SIX Bushels of Seed Wheat, which can be dressed and fit to sow in a quarter of an hour.
Testimonials from the largest Wheat Growers in the Kingdom, bearing testimony to its great power and efficacy, may be had of Agents, who are appointed for every district.
Full directions for use are given with each packet.
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HE WAS FOR 30 YEARS IN THEIR EMPLOY.
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GRANTS of GOVERNMENT LAND are given to Men familiar with Farming operations, and possessing sufficient means to turn their Land to account.
Applications for further information to be made to Dr. MANN, the Special Agent of the Natal Government, at the Natal Immigration Office, 15, Buckingham Street, Strand, London, W.C.

ROYAL AGRICULTURAL SOCIETY of ENGLAND.
EDUCATIONAL PRIZES.
APRIL, 1868.
FORM OF APPLICATION FOR CANDIDATES.
To be returned filled up on or before February 29, 1868.

Name of the Candidate at full length .. ..
Date of his Birth .. ..
Branch of Business followed by his family ..
Business intended to be followed by himself ..
Residence of Parents or Guardians .. .. ..
The Names of the Schools at which the Candidate has been educated, stating the number of years spent at each; accompanied by Certificates of general Education .. .. ..
The Candidate has to state whether he will be examined in Land Surveying, or in Mechanics as applied to Agriculture, or in both subjects.
He must likewise state in which of the following optional subjects he desires to be examined, viz.:—
Botany .. ..
Geology .. ..
Veterinary Science.. .. ..
Copies of the above Form may be obtained on application to H. HALL DARE, Secretary.
12, Hanover Square, London, W.

ROYAL AGRICULTURAL BENEVOLENT INSTITUTION.
Patron—HER MAJESTY THE QUEEN.
President—HIS GRACE THE DUKE OF RICHMOND.
For the RELIEF of DECAYED FARMERS, their WIDOWS and ORPHAN DAUGHTERS; and for the MAINTENANCE and EDUCATION of their ORPHAN CHILDREN.
ALLOWANCE TO PENSIONERS.
Married .. £40 per annum | Male .. £26 per annum
Widow and Unmarried Orphan Daughters .. £20 per annum
Orphan Children admitted from 7 to 10 years of age, and wholly maintained and educated until the age of 14 years in the case of Boys, and 16 years in the case of Girls.
One Hundred and Five Pensioners have already been placed on the books of the Institution; and in addition to the number of Pensioners to be admitted at the next Election, the Council have decided to Elect Ten Orphan Children.
Forms of Application for Pensioners and Children, and every information, to be obtained of the Secretary, by whom Donations and Subscriptions will be thankfully received.
55, Charing Cross, London, S.W. CHARLES SHAW, Secretary.

The Agricultural Gazette.

SATURDAY, NOVEMBER 2, 1867.

MEETINGS FOR THE ENSUING WEEK.

MONDAY, Nov. 4—London Farmers' Club, Salisbury Hotel—6 P.M
TUESDAY, — 5—Central Chamber of Agriculture, at Salisbury Hotel—11 A.M.
WEDNESDAY, — 6—Royal Agricultural Society of England—Noon.

A CORRESPONDENT proposes for the benefit of farmers a Financial or Banking Association, which should lend money for farming expenditure and more permanent agricultural improvements on such security as tenant-farmers can offer. The Association which he desires to form would be analogous to what is known on the Continent as a "Crédit Agricole," many of which exist in different countries abroad. Few of them are very successful; many of them are jobbed atrociously; but the majority, which enjoy a moderate success, and which may be taken as the type of what the system at its best may be expected to do, are got up by enterprising and patriotic landowners, with the assistance of a few bankers; and no doubt in many cases are productive of very great individual benefit, and perhaps in the course of years may effect improvements on a scale sufficiently large to be observable on the general face of the country. But at best they only do expensively what our Land Improvement Companies do cheaply, that is to say, they lend money to the farmer or occupier of the land upon the security of his growing crops and live and dead stock—to effect improvements which ought to be charged to the land, and paid for over a long term of years. They of course require payment from the farmer over a short term of years, and this is very onerous to him. And as, necessarily with such securities, they frequently make bad debts, they are compelled to charge pretty high rates. Thus it is not a very good business, either for the lenders of the money, or the borrowers.

In this country—wherever, indeed, landowners refuse to join as co-security, fancying, perhaps, that they have been created simply for the purpose of spending, for their personal amusement and gratification, the rents which are paid in through the industry of their tenants—we do not think that it would be possible to get up any such Association, for, owing to the ephemeral nature of the security which alone can be offered by a farmer, very great supervision is necessary, and the operations of each Company can therefore only be carried on in a limited area, and thus there cannot ever be any very large Company. Such Associations could only be local, and therefore must be got up by local landowners and bankers, and London men of business could take no part in such affairs.

Judging from his letter, our correspondent is probably unacquainted with the operation of the existing Lands Improvement Companies. They advance money for every species of permanent agricultural improvement at very low rates of interest, and take repayment by instalments ranging over 25 years. That is to say, for an annuity, or total annual payment of about 6¾ to 7 per cent. upon the money borrowed, payable during 25 years, the borrower gets his improvement effected, and is free from further charge.

WE last year endeavoured to show how in ordinary farming each field and each crop may be made the subject of experiment, not necessarily by trying all sorts of new devices but by acting in accordance with surrounding circumstances and by carefully registering results. Thus in our own practice we generally ascertain the germinating power of any seed to be sown; we regulate the quantity to be used according to circumstances: we enter the day on which it is sown, its time of germinating, time of flowering, time of harvesting: observe upon any diseases, or otherwise, from which it might have suffered; and, finally, tabulate the resulting crop from three points of view—firstly, by an estimate in the field—secondly, in the case of corn, by an estimate in the rick, combining the results of size of rick and quantity of land—and, lastly, by actual measurement, in the corn account. In dealing with this matter last year we took occasion to show its bearing with respect to the Barley crop, and we now commence an extension of our plan for 1867, by adding Wheat and roots to the crops to be discussed. We now therefore direct attention to our Wheat crop of 1867.

Our Wheat for this year was confined to two fields, one of 24 acres of rich sandy loam, slightly mixed with stonebrash of the inferior oolite; the other of 15 acres of a light sandy loam, on the sands of the inferior oolite; the first on a Clover-lea, the second after Rape.

The larger field was sown on the 3d and 4th October, the smaller on the 13th and 15th of the same month. This is unusually early for the southern parts of the West of England, and consequently it did not escape comments at market. By most we were told that we should repent it, though some remarked that if it were a hot dry summer we should be right: however, it turned out just the reverse of all this, and still we were not wrong; but as this sowing was full a month earlier than that of most of our neighbours, it became a matter of interest to watch the results, some of which are given in the following—

TABLE OF WHEAT CROP FOR 1867.

Date.	Sorts sown.	Number of Field.	Pecks per Acre.	Number of Acres.	Sacks per Acre.	
Oct. 3	Conservative Wheat	5	7	12	9	Commenced reaping on July 24
,, 4	Mixed white and red Wheat	5	6	12	9½	
,, 13	Nursery Wheat ..	2	7	7	8	Commenced reaping on August 8
,, 15	Ditto	2	7	6	8	
,, 15	Ditto, small ..	2	7	2	6	

Our seeding is thinner than that usually employed in the district; and it is indeed more so than would at first sight appear, for it is now our custom to sow well-developed plump seed, and as this is swollen by the dressing of salt and slaked lime, it perhaps reduces our average of seed to about six pecks per acre.

The salt and lime we consider of little or no value as a remedy for smut, but it certainly prevents such ravages with small birds as undressed seed would be subject to, and good seed scarcely needs dressing with sulphate of copper: but this matter forms a subject for experiments now preparing.

We prefer good plump seed, because we have found from experience that it produces a more robust plant; nor is this at all the subject for wonder that some would have us to suppose, for the starch in the grain is to the young Wheat plant what a good breast of milk is to the animal.

The 2 acres near the middle of the sowing of the 15th October, consisted of the smaller grains sifted from the main sample, and the crop was remarkable for very uniformly small ears, and

certainly a loss in produce. Now this result we consider to be mainly due to the smallness of the seeds, though we quite admit that the comparative thickness of the sowing had much to do with the matter.

As our crops progressed they were remarkably free from blight, but soon after the ears had shot it was evident that a great abatement was to be made from the promised yield, as so many of the lower flower bunches gave evidence of abortion by turning yellow. Harvest was commenced by the process called "*Hewing*" in Dorset, "*Bagging*" in the midland counties; and here again we excited the surprise and not over complimentary comments of our neighbours. "Our friend B. must be mad for cutting his corn so green," was said by all; but we are happy to state that the earliest cut is by far the best sample, and we know will yield the best price, and taking all things into consideration it will, we think, fill up the measure even better than that cut dead ripe, which some was, from the lack of hands. So much indeed do we think it important that Wheat should be cut earlier than is usually done, and when deemed ready that it should be cut off hand, as to lead to the conclusion that a reaping machine is of the first consequence; and we conclude from observations of our own crop, that when cut the moment it is ready it usually stands up better than it does when dead ripe, for as soon as the ear begins to ripen the roots begin to decay, and it will often happen that much Wheat becomes laid, as it did this season, from root loosening, wind and rain; and such laid corn was here blackened in the straw, and the grain became shrivelled and light. This year there was much Wheat in this district, which the machine would have cut well when green, which had to abide the catastrophes indicated until it could not well be done by the reaper, and from the paucity of labour was left uncut so long that it became greatly injured.

The experiments and observations upon our Wheat crop of 1867, lead to the following conclusions:—

1st. That earlier sowing than usual is of advantage in perfecting the constitution of the young Wheat plant before the rigours of winter set in, thus producing a green winter-tillered blade, instead of a single-stemmed, spindled, yellow one.

2d. That well-developed plump seed supplies more infantile pabulum, is surer of germination, and tillers better than small and weak seed, and the produce is not so likely to be blighted.

3d. That though with this the ears may not be so many in number as in the case of poorer seed and thicker sowing, yet they will be longer and the grain stouter, not being the offspring of little people in crowded dwellings.

4th. The harvest after such practice is much earlier, and, in our case, a fortnight before most in our district.

These, then, seem to us to be reasons not only for watching results, but for noting them, as memory is proverbially fickle. With us the lesson has induced early sowing for the next crop, most of our Wheat being already sown, whilst around us the ground had in too many cases only just commenced to be broken up.

—— A WRITER in the *Times* specifies the following points as being embraced by the renewed inquiry now in course of prosecution as to the employment of children in agriculture:—

1. Whether it would be desirable, and, if desirable, whether it would not be possible to fix upon some age below which it would be penal to employ children in agriculture?

2. Whether it might not be possible to make some provisions to secure the attendance of children for a certain number of years of their life at school?

3. Whether it might not be possible to do without the labour of young unmarried girls on the land; or whether, if they are employed on the land, their employment ought not to be put under regulations similar to those which have already been passed for the control of agricultural gangs?

4. What are the real causes which have been at work to prevent the beneficial results which 25 years ago it was generally expected would follow from the improvement in education which was then contemplated, and which has since been carried into effect?

5. Whether the provision of cottages is adequate to the accommodation of those who have to labour on the land?

6. Whether the multiplication of beerhouses has not been one cause preventing the favourable results that might have been hoped to be produced by schools?

The Commissioners do not question the desirableness of securing the attendance at school of the children of those employed in agriculture—they simply question the possibility of securing it. Children, he says, are not generally wanted for out-door work in winter, and it is obvious that it would be a most merciful act that should prevent the exposure of the little creatures during severe and inclement weather. He therefore proposes that no children under the age of 12 be employed in out-door agricultural work between November 1 and March 1, and he would make it penal to employ any such children on or after any such March 1 unless in possession of a certificate of school attendance for 120 days or 240 half days during the preceding 12 months, or half that number of days or half days during the preceding six months. He would further make it penal to employ in agriculture any child under the age of nine years, unless in possession of a certificate of school attendance for 180 days or 360 half days during the preceding 12 months. He urges, in reference to the third point named above, that if we desire to go to the root of those moral evils which degrade our present race of labourers, we should altogether exclude young girls from agricultural labour, from "tenting" cattle in the lanes, and from going out with threshing machines. "The evidence already given on this subject should satisfy any man that it is hopeless to expect a race of chaste, domestic, and loveable wives to grow up from girls who have been exposed to the demoralising associations and who have taken up the gipsy habits of outdoor labour, who have lost the gait, the complexion, and the manners of their sex." The latter part of the third question he answers by saying that it would be impossible to regulate the employment of young girls, working singly or in small numbers, on the principles to be carried out in the case of gangs, or on any other system. We must either exclude them altogether or leave them to the operation of the rule proposed for school attendance in the case of boys. Even this would be a great improvement upon the present state of things, for vast numbers of these girls now attend no school at all. "The fifth question which the Commissioners propose must, in the vast majority of cases, be met with a negative. As a rule, cottages in the agricultural districts are insufficient in number, miserably deficient in sleeping accommodation, and, very commonly, unprovided even with the simplest arrangements for health and decency." To the sixth inquiry he apprehends the reply will be almost unanimous. There can scarcely be a question as to the demoralising effects produced by the multiplication of beerhouses. They exhaust the little balance of wage which, after payment for the necessaries of life, should provide the 2*d.* or 3*d.* per week for each child's schooling. They multiply temptation in the way of those who have been ill trained to contend with temptation. They madden or stupefy by the wretched and poisonous liquor they dispense. They lower the tone of thought and feeling of those who frequent them, and of the whole neighbourhood in which they exist. They are frequent places for the reception of stolen goods, and the haunts of poachers and thieves and of the most depraved of the female sex. There ought to be some check upon the multiplication of these houses corresponding with that which regulates what are called the old licenses. They ought, when established, to be under more stringent supervision, and liable to summary repression. The liquor they sell ought not to be mixed with poisonous drugs—an adulteration which is very general, and of which the poor labourer is the victim, to the frequent loss of self-respect, of health, of reason, and of life itself.

—— As a contrast to Mr. TURNER'S reiterated estimate of a past good harvest we quote the opinion of Mr. ROBERT MATSON, of Wingham, who has for 50 years or more been a trustworthy agricultural authority:—"With one-third under an average crop of Wheat, one-third less breadth of Potatos, and one-third less in crop, at last what an alarming position is this dependent England placed in!"

—— Mr. BAILEY DENTON called attention some weeks ago to the safe and profitable employment of capital which agricultural improvements offer; and Sir HARRY VERNEY, Bart., thus illustrates the connection with this subject of leasing land to the tenant of it for a term of years:—

"At the late agricultural meeting at Buckingham I suggested the necessity of leases. It was replied to me that a yearly tenant under a landlord in whom he has confidence wants no better or safer tenure, and does not require a lease. Some one added that he did not wish to see the Scotch system introduced of farms put up to auction at the end of the term, nor do I. I should deeply regret to see any such change introduced into England. The tie between a tenant and his landlord, under whose family his ancestors have lived for generations (which was the case with many then present in the hall), is one most precious and gratifying to both sides; but such a tenant need not fear that, because he has a lease, his farm will be put up to the highest bidder at the end of it.

"A landlord wishes that capital should be expended on his land by the tenant. The tenant would be glad to have it to spend. He can well make 10 per cent. out of money borrowed up to a certain limit, and the capitalist will be satisfied with 3 or 4, or even less, if he has perfectly good security. However just the confidence which the tenant has in his landlord, it will not induce the capitalist to lend his money. For that three conditions are indispensable. The capitalist must be confident of the trustworthy character of the borrower; of his capacity as a farmer; and of the tenure of his farm for a certain period. The fulfilment of all three is to be desired as beneficial to the community at large.

"One other requirement is necessary in order to carry out the system which I advocate. The farmer who takes the lease and borrows the money must have confidence in himself. It requires both self-confidence and courage in a man living in a neighbourhood where farms are let from year to year to undertake to pay a rent annually for many years to come. It is a new system to him. His predecessors have done well under a different one, and he does not much like binding himself to such an engagement. Let us not undervalue the unwillingness of any man to change a system under which he has prospered, and one, too, which could not have endured without mutual trust and good understanding between himself and his landlord. But no other mode is proposed by which the tenant, who has not himself the command of capital, can obtain as much of it as he requires in order to make his land produce as largely as it ought, and obtain the many incidental advantages which accompany good agriculture. The land made more productive becomes, at the same time, more healthy. If the soil is wet, ague and rheumatism disappear, or are greatly mitigated, when it is drained. The crop is improved in quality as well as increased in quantity—more labour is required—good labour is better paid. The farmer with a better crop can better afford to pay it. The labourer can pay for a better cottage, wear better clothes, obtain for his family the medical attendance that he prefers, and give his children better education. The maker of agricultural implements sells more of them, and they require skilled labour to manage them, which itself is an education. The farmer purchases more manure, and takes more care of that made on his own farm. There is more food for man and beast produced to feed London and other large towns. Such are among the advantages which will be found to result from letting land on lease, and which will compensate for the annoyance and inconvenience of making the change from yearly tenancy to a tenancy for a term of years."

—— At the late meeting of the British Association in Dundee, a paper on the war between capital and labour, by our correspondent, Mr. PATRICK MATTHEW, of Gourdie Hill, which was accepted for the section of Economics and Statistics, while admitting that combination among working men is necessary to regulate the number of hours of labour, to see that workshops and factories are in a high degree wholesome, clean, well-ventilated, and for any other sanitary requirement, argued that it is the interest of working men that wages-combination should cease both among employers and employed. Entire freedom in trade, in the price of the products of labour, and in labour itself, as necessary concomitants, are universally advantageous. Competition is the great and universal law of Nature, which retains every organism in the realms of wild Nature in the highest perfection of being that it has reached; and were competition removed from man he would soon sink back to the savage state, or lower, or disappear from the earth. A uniform wage, taking away all desire to improve or excel, would soon bring British working men to fall behind those of other countries, and British manufactures would disappear. The more that capitalists prosper, the more competition there will be for labour, and wages will rise higher, far higher, than combination can, for any length of time, obtain. Nevertheless, it appears that there are better means of regulating labour than by the system of employer and employed. Co-operation in manufactures by working men of small capital is succeeding. The system of our whalers—of all the working men having a small share of the profits—is perhaps the best possible system; a marriage between capital and management on the one side with workers on the other."

COUNTRY MILK AND COW MANAGEMENT.

THAT there is a growing demand for country milk may be taken for granted, and that this demand extends from most of our large towns may also be conceded. And if this has been true of the past, when the sewage of our large towns was allowed to flow into our rivers, and when the artificial manuring and cropping of land and the indoor management of milch cows were only in a state of infancy, so to speak, it is more than probable that for the future, the reverse of these conditions being the general rule—the sewage of towns being applied to land, the use of artificial manures being everywhere common, and the indoor feeding of cows better understood—the population of towns being at the same time greatly increased, while the expense and risk of keeping milch cows in towns free from disease multiply—the demand for, and supply of country milk will increase more rapidly than it is now doing. At all events, the subject just now is ripe for discussion, both as to its past economy and future prospects.

Of the past the less said the better, perhaps, as to the general rule; the vast majority of town dairies, from which towns have chiefly obtained their daily supplies of milk, having been of a very low, discreditable character, in reference to the health of milch cows, and the wholesomeness of their milk as compared with the rich milk and healthy cows of some country dairies; and much of this applies to those country dairies which have hitherto sent their daily supplies of milk to town.

Is it not certain, for example, that milch cows in some of our crack commercial dairies, both in town and country, have their milk-giving powers stimulated and pushed to an extreme injurious to the normal quality of their milk—so much so that it cannot be preserved over from one meal to another, but must in the summer time be used immediately, the distance to which country milk can be sent to town being thus limited to a minimum? And is it not notorious that robust cows fresh from the country, kept in some of the worst sheds of the metropolis, yield, so long as they retain their health, richer milk than what comes from these same commercial exceptions where the cows are apparently kept comfortable and everything trim and clean to a proverb?

A visit to the two weekly cattle markets of the metropolis, and to the lairs of cow jobbers, enables us to trace cows that have gone to the shambles, and others that have been transposed from one dairy stock to another, with the various reasons why. Hitherto the trade has been a hard driven one, and the frequent outbreaks of cattle plague and other contagious diseases does not mitigate it in this respect. Into such details, however, it is not our intention to go at present, the questions that more immediately call for discussion having reference to future progress rather than past practice, viz., Why is it that the milk of cows fed on stimulating milk-producing food will not keep during the heat of summer so long as the milk of cows otherwise fed? Why is it that milk cannot be conveyed from greater distances by railway? Cannot improvements be adopted so as to obviate such disadvantages and losses for the future—in reference both to the quality and commercial value of the milk, and to the health and prolonged usefulness of milch cows?

The solution of the first of these questions hinges partly upon the constitutional health of milch cows, partly upon the quality of feeding materials and mode of dieting, and partly upon the times of milking and subsequent management of the milk. In practice, questions of this kind generally have their opposite

extremes. Thus, although it would to a certain extent be superfluous to propose to any dairyman in the British capital the keeping of some of our native and improved breeds of cows that give rich milk, but only a small quantity of it, yet we are apprehensive the opposite extreme has been too commonly fallen into of breeding and keeping dairy cows having certain constitutional weak points about them, but which nevertheless can be stimulated by a peculiar dietary to give a super-abundant flow of milk—milk, too, that will in many cases bear the test of the lactometer, and even of an ordinary chemical analysis, but which, notwithstanding, is defective in some of its elementary properties. We allude to that class of skin-and-bone great milkers of various breeds, but chiefly of the Shorthorn, against which a person runs no small risk of bringing a shower of milk pails about his ears should he say a single word to their disparagement. Facts, however, are plain spoken; and we aver, the sooner the advocates of skin-and-bone great milkers listen to the facts of the case at issue the better for them, as their present position is an extreme which will not bear a detailed close investigation.

An example will best illustrate the force of the argument thus raised. For this purpose we shall assume that the cows are fed on the forced herbage of sewage farming, or of water meadows, or of Tares and other crops grown in luxuriant abundance by artificial manures, or that they are fed on brewers' grains, &c., according to the old and still common practice. Now it is a well known fact to chemists and physiologists that in each of these examples there is much crude matter in the dietary of milk cows, less or more of which is liable to pass along to the udder with the secretion of milk. It may be so small and so finely blended in the mass as not to be perceptible to the organs of taste and smell, but its presence and chemical action in the milk are not one whit less certain on that account, but the contrary, for the more minutely the crude matter is sub-divided and mixed in the milk the more certain is its present and ultimate effects. At first its action may by such means be rendered more incipient, especially in cold weather, but, practically speaking, this rather means one sort of chemical action for cold weather, and another for hot weather—a diversity amply verified by experience. In short, such crude matter has a tendency either to enter into combination with some one or more of the elementary properties of the milk, or else to break up existing affinities, as when milk becomes sour and so on.

Again, much of the feeding materials now given to milch cows, as oilcake, &c., contain medicinal properties often injurious to certain constitutions. Such medicinal properties are different from the crude matters referred to in the preceding paragraph, and therefore require to be carefully distinguished therefrom in any practical and scientific investigation of the subject; as experiments with individual animals, and even with whole dairy stocks, form no general rule, for each example must be judged by its own facts or merits.

We now come to the question, do these skin-and-bone great milkers pass in their milk more of those crude matters and of those medicinal properties than animals of a more healthy and robust constitution which only give an average flow of milk in some examples, and a small quantity of rich milk in others? And to this question an affirmative answer must obviously be given, for their dietary being the same as to quality they by consuming more of it take into the system a greater quantity of such abnormal substances which they pass in greater proportion in their milk. The fact that they are worse nurses than the others where both have to bring up calves at their feet, in a great measure proves this. It even proves something more, for it shows that the dietetic value of a small quantity of rich milk is greater than the large quantity of inferior quality. And what is true of nursing calves is equally true of nursing children, and even of supplying milk to the tea and coffee of grown-up people. Such then being the facts of the case, it is therefore difficult to say at what conclusion a future and more intelligent race may arrive, relative to the commercial value of milk. Looking forward from the position of the present time it may safely be affirmed that the milk of these skin-and-bone great milkers, on which calves won't thrive, will not go much longer down with a thinking public, or even the milk of healthy cows fed on unwholesome food.

That the quality of the milk is affected by the quality of the food consumed by milch cows is admitted on all hands, so that it would be wasting time and space to enter upon its discussion as a question *per se*. It is, however, otherwise, when we compare one dietary with another, as the feeding materials of town cows with those consumed in the country. The almost exclusive feeding on brewers' grains, at one time a common practice in towns where grains were plentiful and cheap, has been found to be objectionable, and is now fast being given up; so is the exclusive feeding on sewage Grasses and other forced productions of the soil, at one time the common rule of dietary in the country or in towns, as Edinburgh and Leith, where a supply of sewage Grasses has always been at command in the summer season. On the other hand, the proposition of a mixed dietary is such a broad and comprehensive one that no definite rule of action has been yet laid down for carrying it out into practice, almost every dairyman following some peculiar plan of his own, more under the guidance of the price of feeding materials in the market, or what he grows upon his farm, than the physiological requirements of his milch cows. This general rule of guidance is far from being sound, but to this point we shall return under the last division of our subject—future progress.

How far the times of milking and the management of milk affects its quality is the next topic for notice The delivery of milk in towns twice a day, for breakfast in the morning and tea in the afternoon, has led to the general practice of milking cows only twice a day, the first milking being at an early hour in the morning, so as to let the dairyman out upon his walk between 6 and 7, and the second milking for delivery between 3 and 4 o'clock in the afternoon, and this old town practice regulates the hours at which milk from the country must arrive in town for delivery to consumers.

There are many growing objections, so to speak, to this old town practice, which has also become common in perhaps the majority of counties. The chief of these is, that when cows are fed on a succulent stimulating food, such as is now being given, they are greatly burdened with an unnatural quantity of milk in the udder, much to the injury of their own health and the quality of the milk. Cows, for example, that have been milked between noon and 3 o'clock in the afternoon secrete afterwards a large flow of milk in the udder, which ought to be withdrawn before bed-time, otherwise the short period of rest allotted them is interrupted, and not refreshing, as it might be, while the retaining of the milk for six to eight hours in the udder—more especially in the heat of summer, when such milk subjects cows to a feverish state of the body over night, after it has been secreted—is greatly against its quality, rendering its conveyance to town from a distance in the country impracticable. Were any dairyman to keep his milk six hours in heated bladders or Tartar skins for this length of time, every finger in the kingdom would point him out as a madman, and yet the keeping of it in a cow's udder is some degrees worse, when the manner it affects the health of the poor animal is taken into serious consideration. No doubt the temperature of the animal economy is too high for certain chemical changes taking place in the udder, but it is highly favourable to others, more especially when crude matter is present in the milk; consequently certain affinities are broken up before the milk is withdrawn in the morning: while the equilibrium of chemical forces in other elements, or in the elements generally, becomes unstable, so that the moment the milk comes in contact with the atmosphere, lactic fermentation and other changes immediately commence before it has left the dairy. If it has to be sent to town, it is useless before it gets that length. If it is town milk it curdles in the tea not unfrequently in the morning, and by mid-day poor people's cats turn up their noses at it. Children who dare not say nay, may use it with bread, but they take a dislike to milk, and ever afterwards look upon it with an unfriendly eye. Again, udders in which milk has been kept for this length of time overnight should be well washed and rinsed out before any fresh milk is allowed to flow in for the afternoon's supply, otherwise the upshot may soon be told. The udders are not so cleaned out, hence the consequences, and conclusion.

With regard to the second interrogatory, relative to the conveyance of milk by railway, we have known small quantities of milk in bottles for children come up to the capital from Scotland fresh—what remained of it—and as fit for using with tea and coffee as when put into the bottles. How is it, then, that dairymen in London tell us six or seven miles is the limit that milk can be safely conveyed by railway, and with much risk and loss even at this short distance as compared with milk produced in town? It is beyond the bounds of reason to account for such differences, for there cannot be a doubt that the dairymen alluded to all spoke from experience. The solution of the question, however, becomes plain the moment we enter upon the examination of the facts of the case in practice, for the unwholesome milk from one or two skin-and bone great milkers is mixed with the milk of the others, setting it on fire, so to speak, while the milking twice a day, with the consequences attending it noticed above, is the universal rule. The conclusion, therefore, at which town dairymen arrive relative to the short distances they can procure milk from the country, is not surprising. Indeed, the contrary would be so; such, however, does not invalidate the other fact, or in any way affect the argument which it involves relative to the supplying of children with fresh milk, per railway, on long journeys.

The last interrogatory has reference to the obviating of the losses thus sustained, both as to the quality of the milk and health of cows; and there cannot be a doubt that much improvement lies in the foreground in both these respects. True, there are as yet a thousand prejudices amongst the lower classes in towns that stand in the way of the town dairyman relative to the dietetic and commercial nature of milk, a very little drop over the halfpennyworth measure making up for all shortcomings as to quality. The extent to which this shortsightedness is carried is very remarkable, but it is fast becoming otherwise with the upper classes in towns. Hence the growing demand of this class for quality in preference to quantity, and for rich country milk in preference to the produce of town cows; and as poor people are said to "ape their betters," there is every prospect of such demand being greatly increased for the future. The real cause of progress, therefore, lies in the country. As to skin-and-bone milkers, the sooner they are turned out of the herd the better, only healthy robust stock, of the finest constitution, being bred for dairy purposes. As to an improved dietary, two rival plans are in the field; some arguing that succulent herbage, such as sewage Grasses, the produce of water meadows, and the like, should undergo an incipient state of fermentation along with some dry produce, so as to change crude matters, &c., analogous to what takes place in the heating of the hay stack; others arguing that the mixture of certain condimental substances will counteract the effects of crude matter and medicinal properties injurious to cows. The former of these plans appears to have the balance in its favour; and with regard to the question, How often milch cows highly fed should be milked every 24 hours? that has long been a controversy, and therefore we cannot in a concluding paragraph enter upon the merits of opposite arguments. We may add, however, that calves suck their dams often, which is in favour of frequent milkings.

W. B.

FOOD FOR THE PEOPLE.

This is a question which presents itself at this time with peculiar force to the consideration of all thinking persons. The chief articles of food are now selling at prices which render it difficult for working people to obtain a sufficiency for the maintenance of their families, and great apprehension has been and still is felt as to whether those prices will advance or recede.

I shall be gratified if you can make room for a few remarks which I should like to make on this important subject. It will be convenient to me, and, as I think, more satisfactory to your readers, if the subject be dealt with in three divisions—namely (1) Potatos, (2) butchers' meat, (3) bread.

Potatos.—There was more than the usual extent of land planted last season with this useful root, and almost everywhere the crop was abundant. The earlier sorts showed a deal of disease, and caused anxiety for the safety of the later kinds, on which our winter supply depends. For a long time this late crop in the great Potato-growing districts had no bad symptoms, but early in last month the whole crop seemed to have been smitten by the pestilence, and in nearly every case which has come under my notice, over a great extent of country, the crop has largely suffered. In many instances one-half of the produce has been thrown aside as unfit for human food, and not unfrequently the proportion of bad ones has been greater even than one-half. This will prove a serious loss to the community, and we have no other root or grain that can fully make good that loss.

Butcher's meat, under which term I include beef, mutton, and bacon.—During the last year the reduction in the price of those articles has been considerable—at any rate, the price received by the farmer has been much less. It may be doubted if the retail purchaser has fairly participated in this reduction, but in some measure, at least, he has that point under his own control—he can choose his own market.

It used to be considered dangerous to go to the shops of butchers who did not slaughter their own cattle, but that is entirely changed now. Many butchers in London have cattle and sheep slaughtered in the country and the carcases sent up to them by rail; and many of those are as fine and as well-fed animals as can be found anywhere.

Again, when fat cattle were first imported from foreign countries, great coarse animals were brought; but a great change has been effected in this branch of the trade; men of skill and capital have undertaken the business, and conduct it in a way to insure success. I recently had an opportunity of leisurely examining two cargoes of imported cattle, one from France, the other from Spain. There was very little difference in the looks, size, or condition of those animals—they were nearly all red or dun in colour; they were very even in size, weighing from 5 cwt. to 6 cwt. each; and they were as good beef as any butcher could wish to put upon his stall. Some of those animals were purchased by the butchers at the port where they were landed; the remainder were slaughtered and forwarded to London.

Sheep have fallen greatly in value. Lambs generally are down 10*s.* each as compared with last year's prices, and all other sheep have lowered in nearly the same proportion, from 7*d.* to 7½*d.* per lb. being now the full price of the best sheep we produce.

The abundant supply of Grass which we have had this summer has put holding stock into good healthy condition; and the valuable crops of Swedes and other Turnips now on the ground make it reasonable to conclude that beef and mutton, even of our own feeding, will be plentiful throughout the year.

Pigs have for some time been the worst-paying animals on a farm, young ones being scarcely saleable at any price; and bacon, though offered much below what was charged for other meat, could hardly be turned into money. The breeding of pigs has, therefore, entirely ceased in many places, and by-and-by prices will advance.

Bread.—This article is justly called the staff of life, and we naturally think about it with deep interest. During the past few weeks we have seen an extraordinary advance in the price of Wheat, which has alarmed some people, and perplexed a great many more. Let us calmly examine our position in this matter.

The wheat crop of 1866, if it had all been secured good, was about an average one, but it was not so secured. When writing to the *Times* on that crop I stated it to be my deliberate opinion that one-tenth of the entire Wheat crop of England had been so injured by continued wet weather as to be wholly unfit for human food. I have never heard any one dispute that estimate, and it is my belief that it was under rather than above the actual loss. In consequence of the deplorable condition of that Wheat crop—chiefly in the northern counties—Wheat had largely to be brought from the south or from foreign stocks, at first to supply the people with bread, and afterwards to grind with the best of the local Wheat. Prices necessarily advanced, and farmers were induced to thresh and deliver freely. Thus, when the last harvest came we had no old Wheat in the north, and there was scarcely any left in the hands of the southern farmers. "There are more church steeples than corn stacks in my county," was the remark of an observant southern landowner.

Suddenly a great outcry was raised that the present harvest was certain to be a deficient one; France, too,

had discovered that she had a short crop, and a commission to buy, which cannot have been much less than two millions sterling, was sent into our markets. Thus an unusual competition was at once entered upon—our millers had no stocks in hand; they must have as much Wheat as would enable them to supply the wants of their customers; and the buyers from France secured all they could lay their hands upon, regardless of cost. This year they did not go to country markets, they operated in Mark Lane; and every market in the kingdom advanced the price of Wheat, not because of a deficiency or of the bad condition of the Wheat offered, but because of the excitement shown in Mark Lane. Under such circumstances ought we to wonder at the rapid advance in prices?

But France has been supplied; the alarm about the deficiency of our own crops has greatly subsided, merchants dare not lay up Wheat at 80*s.* per quarter, and we shall now, I firmly believe, see the prices gradually recede to what it ought to be—viz., from 56*s.* to 64*s.* per quarter.

There is now a perfect fleet of ships on their way to this country with Wheat; indeed, no person at all conversant with business can doubt that at our present prices every country in the world—not even excepting France—could and would send us Wheat. But I am persuaded that America alone could send us every bushel of Wheat which we shall this year require.

There is no doubt that in many places in England the crop of Wheat is light and the yield deficient, but this is not generally the case, and, excepting that I find there was more injury done to lodged Wheat in Cambridgeshire and some other of the earlier counties than I imagined, I endorse every word I wrote in the *Times* on the general crops of 1867. It is true that Wheat in the south is not so full and firm as I have seen it; but as I write I have by me many excellent samples; one grown near Lynn is a bold red Wheat, weighing 65½ lb. per bushel. But the specimen I like best is a white Wheat grown on a farm on the estate of his Royal Highness the Prince of Wales, weighing 64¾ lb. per bushel. It is thin in the skin, the grains are beautifully even, and it is altogether as good a sample as I would wish to see.

I stated in my former letter that I believed the northern Wheat would this year bear a favourable comparison with that of the south—and so it has proved. Our northern Wheat generally is an excellent sample. It has all been got in sound; and, more than that, the whole crop is dry enough to grind now.

It is my firm belief that the whole crop of English Wheat is this year worth more by several millions sterling than was the crop of last year. Instead, therefore, of desponding about our supply of Wheat, I think we ought heartily to thank God for the crop He has given us, and for allowing us to secure it all so well. *H. J. Turner, Richmond, Yorkshire, Oct.* 22, *in the "Times."*

ON THE ESSENTIALS TO PROFITABLE FARMING.

THE following address was delivered by Mr. JOHN GREY, to a meeting of the Hexham Farmers' Club, in January, 1863, and has just been republished:—

"Every one knows how great has been the change in the practice of agriculture during the present century. Previous to that it was a dull routine, leaving all to the land, as the nurse of plants, not knowing that different plants required different nourishment, and that land is only the medium through which that must be administered. Science must be called to aid in discovering what it is. When the mere produce of the farmyard was found insufficient to maintain the fertility of the soil, under more frequent cropping, other kinds of manure were sought for, and resorted to. The first application of the kind was bones in different shapes, which were found to yield the quickest return when dissolved in acid, which fits them at once to be assimilated by plants. Phosphates were found to be efficacious for roots. Then guano was discovered, which has ever since been imported in increasing quantities, added to many manufactured manures. One source of manurial wealth is still neglected, in the waste of sewage, which Dr. Liebig reminds us must eventually tend to the diminished fertility of the country, so great a portion of its produce being consumed in large towns, and never restored to the soil. It follows, of course, that the qualifications essential to a successful farmer are now much increased, and different from what they were formerly. More education, intelligence, and knowledge are required to keep up with the progress of scientific agriculture. The subject proposed for our present discussion is 'The Essentials to Profitable Farming,' under which head may be enumerated capital, judgment, intelligence, probity, and good moral conduct, on each of which I shall endeavour to make a few remarks. First, Capital—A rock on which many make shipwreck at the outset, leading themselves to work afterwards in shoals and difficulties. The man who engages in a larger concern than he has capital to do justice to is always at the mercy of the times, if they prove unfavourable, to bring him to a standstill; is compelled to dispose of his produce in low markets, and unable to take advantage of a good bargain if it comes in his way. The capital required to stock and enter upon a farm differs according to the customs which prevail in different parts of the country. It is usual in these parts to allow six months to pass after a rent becomes due before it is collected, which gives a considerable advantage to the tenant in regard of capital, as he can often realise some produce from the land in aid of his funds in hand. The amount of capital required for entering upon a farm has often been stated at a certain sum, but that cannot be applied to farms indiscriminately, so much depends on the quality of the land, as 100 acres of very good land will require as much stock as 200 acres of an inferior quality. Much depends also on the proportions which may be in old pasture and in tillage. But it may be safe to say, allowing for such diversities, that the capital needful for entering upon a farm of mixed cultivation and stock, with safety, varies from 5*l.* to 8*l.* an acre. In another way of reckoning, it may be considered that a farmer should have at command four times the rent which he engages to pay. It hardly needs remark that all such calculations must be made to meet particular circumstances, and must therefore be liable to great variation. In countries where 'tenant's rights' are in force, and take the place of leases, where tenants are left to build, enclose, and drain at their own cost, looking for re-payment from their successor, in case of a change, the tenant's investment becomes so great on the premises that it is no easy matter for a new tenant to encounter such an undertaking. Hence, long occupations by the same family are found to exist in connection with the annual tenure, and necessarily with lower rents, giving to that system, in the opinions of some people, a preference over the custom of letting land or leases of reasonable length; and of all permanent works, such as building, fencing, draining, and road making, being done by the owners, so as to leave the farmer's capital to be employed solely in the legitimate object of stocking and cultivating the land. Then, as to judgment, the first and most important subject on which a farmer's judgment can be exercised is in selecting a farm suited to his means; next, in making a just estimate of its worth; and then in deciding upon the most judicious and profitable course of management to which it should be subjected. Another point on which it is essential for a farmer to exercise judgment is in selecting the kinds of live stock which are most suited to the quality of his land, its produce, and climate. Having made up his mind on this point, judgment is still called into constant exercise, in bringing his animals to the greatest perfection, and selling them to the greatest advantage. There is no operation on a farm, nor any animal or implement by which it is effected, that is not a subject for the exercise of sound judgment, the absence of which may greatly detract from its profitable occupation. There is another subject on which it is of infinite importance to exercise good judgment, and that is, so to arrange the cultivation of a farm as to cause it to maintain the greatest quantity of live stock. To pretend to grow Wheat to profit, on inferior soils and in high situations, in this country, which must come into competition with the produce of the finest Wheat-growing districts in other parts of the world, is manifestly absurd. Wheat can be conveyed by sea and by rail, at a small cost as compared to its value, and without injury; but it is not so with live stock. In that we can suffer little from foreign competition; and, happily for us, we have soil and climate most favourable for its production, and a never-failing market at home for all the beef, mutton, and wool that we can supply. The result of our last harvest, and the relative prices of corn and butcher's meat at this time, tend strongly to confirm this view of the matter, which I have endeavoured, on former occasions, to impress upon you. It is difficult to uproot old prejudices; and time was, before the freedom of trade and the facilities of intercourse existed, which we now enjoy, that it was in some measure true what an old farmer in this part told me nearly 30 years ago, 'that nothing was worth growing but Wheat.' Now, I believe, except in the most favourable situations, it pays, on an average of seasons, the least, and is the most precarious of all our crops; while the consumption of meat continues to increase, and had it not been for the dreadful calamity under which so large a section of the operative classes of our country are now suffering [the cotton famine] it is reasonable to suppose that the price of butchers' meat would have ruled still higher than it does at present. No doubt exists in my mind, that a large portion of the inferior land in this country would yield the greatest profit, by restricting the growth of corn, and curtailing the expense of cultivation, to that point which is necessary for the maintenance of live stock, making that our primary object, and the growth of corn crops subservient to it, except in situations most favoured by soil and climate. I do not say that all lands of inferior quality should be laid off to permanent pasture: on the contrary, I believe that a rotation of tillage, with an interval of three years' Grass, is more profitable, and that the freshness which is recovered by that rest in pasture is most favourable to the growth of those root crops which are indispensable to the keeping of stock during the winter. What I recommend is, to curtail the area of tillage as much as is consistent with the production of winter food for stock, and to deal with that reduced area so liberally, by draining, good cultivation, and manure, as to obtain from it as much as is got from the larger surface at a greater expense. Even the heavy soils of our districts may, by draining and deeper cultivation, be made available for sheep pasture, which I need not tell you practical farmers is the best and most profitable stock you can rear, whether as regards the return they yield in flesh and wool, their greater exemption from disease, and the benefit derived from their manure, which is richer in quality and more equally distributed over the land than that of horned cattle. It does not come within the object of this address to compare the advantages of different rotations of cropping for different soils, I only refer to it as a subject on which sound judgment must be exercised, or much labour may be lost, and many advantages sacrificed; but as a general maxim, I believe it to be prudent to cultivate chiefly that kind of grain which the land has a tendency to grow in the greatest abundance; for if it should not be the most suitable for market, the coarsest grain can always be employed, by bruising or steaming it, for feeding stock, and seldom fails to be profitable, especially if mixed with a portion of Thorley's or Campbell's condiments. The next point which I have named in the list of essentials to profitable farming is industry. That, you may say, and say truly, is essential to success in every calling, but in none that I know of are persevering industry and constant vigilance so indispensable as in farming. The manufacturer, in any line, employs a certain kind of machinery, and works upon certain substances which admit of little variation. As he leaves his work at night, he resumes it in the morning. Not so the farmer. He works in an ever-varying climate, the changes of which affect the soil, or the produce on which he operates, and the performance of the implements in use. A fall of rain while he sleeps makes the operation he was engaged in to-day injurious on the morrow. New arrangements must be made, and other employment resorted to, and it depends on his capacity and activity whether they be suitable and profitable or otherwise. Such circumstances naturally stimulate to industrious and active habits; and such, in general, are characteristic of the farmer. Yet among them you do not find men, as in all situations of life, of various temperaments and dispositions; some pushing and energetic, others indolent and indifferent. And it is curious to remark how everything about a farm bears the impression of the occupier's peculiar temperament. On one farm you will find operations going on systematically and energetically, the master present among his workpeople, or, if absent, well aware by the amount of work performed how things have gone on in his absence. On that farm you are likely to find stock of a right kind and in good keeping, and roads, fences, and gates in good order. On another, you probably find horses in plough or cart, standing behind a hedge, and the people enjoying a quiet gossip beside them. Ask for their master, and they will tell you that he would likely be found in the house. And there you find him, with his feet on the fender, and a pipe in his mouth, or, if a warmer season invites, on a seat outside, indulging in the sun. Go through his farm, and you find the roadsides flourishing with Docks and Thistles, shedding their seed for the good of his neighbours; the hedges full of gaps, stuffed with dead Thorns that kill the living ones; and gates which you must lift off the crooks, or shift a pile of stones from, to obtain a passage through. I speak from experience in such matters, and have no wish to draw an exaggerated picture. Is it fair, then, to abuse farming as a bad occupation, because such an one does not thrive in it, or to accuse a landlord of being rapacious and tyrannical because he would like to remove such a tenant, and to put his property into other hands? I now come to speak of intelligence as an essential for profitable farming. No doubt much and useful intelligence may arise from good natural abilities and acute observation. These, even without the advantage of early instruction, have, in some instances, been the pioneers to great distinction and success; but did we ever hear of a Watt or a Stephenson who, having struggled through difficulties, and attained great eminence, did not lament the impediments they had to encounter, from the want of early education? The time has gone by with too many of us to profit by the improved education which the present state of society requires and affords; but allow me to remind such of you as have the responsibility of being parents, of the duty incumbent upon you, to educate your families so as to fit them for taking a respectable position in life. It is the best patrimony which you can bestow upon them. A liberal and judicious course of education is the foundation of future acquirement; it opens up the sources of knowledge, and gives vigour and opportunity of expansion to any peculiar tendency of intellect which the mind is disposed to. Without it no man need expect to keep pace with the onward movement of society, or to make his way in arts, manufactures, or even agriculture—to which some knowledge of chemistry and the natural sciences are indispensable. I have heard with great satisfaction of the distinguished places which two youths, who were lately pupils with my near neighbour, Mr. Lee, have taken in the late examination at the College of Cirencester; and I congratulate our late secretary on the success of his pupils, which reflects credit upon himself. Although we cannot but look with admiration on the brilliant examples which fortuitous education has at times produced from the lowest walks of life; or the philosophic depths of Leslie, and the poetic heights and stupendous learning of the ever-lamented Leyden, yet it is far more for the purpose of improving and instructing the great masses of the people that we ought to prize and encourage a popular education. I need hardly ask you, in the last place, whether that education should be limited to the mere business of scholastic acquirements, or if it should not also be directed to a higher and holier aim—to imbue the youthful mind with those sentiments of morality and virtue which it ought to be our especial desire to see as the characteristics of an improving age. I have ventured to place probity among the essentials for profitable farming, and, I may say, for success in any line of life. Point to the unfortunate man who is known to be capable of practising falsehood, fraud, or deceit—the man who will show a better sample of grain from his pocket than he has in his sack—who will not scruple to use a defective measure if he thinks he can escape detection—or to pass off an animal on a purchaser which is lame or diseased—and need you ask if such an one can long be successful—if he can be respected by others, or happy in himself? Many complaints and disputes are heard of in our day between masters and their farm servants, and doubtless the latter have many faults. We hear of cases of disobedience, drunkenness, and dishonesty; but are the faults all on their side? Are the masters always found to be actuated by a spirit of justice and mercy? Are they inclined to visit these faults with forbearance and forgiveness, with a view of reforming them, or with

severity and punishment? To effect a general reform, each one should begin by reforming himself. Do we keep habitually in mind that, though God has appointed us to different stations in life, giving to each his duties, one to direct and another to serve, yet that, in His sight, we are all brethren? Do we consider it to be a part of our social duty to look to their domestic accommodation and comforts—to the moral training and religious instruction of their children—to do what we can to elevate them in principle and feeling—in short, to purify and make more healthy the whole moral atmosphere in which we live—to impress upon all the obligations imposed upon us here, and the responsibility which we must give account for hereafter?

THE HORSE SHOE.

Of all the unnatural and barbarous devices to which civilisation resorts in the case of those animals that serve man, the iron horse-shoe seems the most extraordinary. The reason why our words sound astonishing is because nobody really does "come to consider it." For centuries we have all gone on nailing a rigid plate of metal to the hoofs of our beasts of burden, until people are startled by hearing anybody question the propriety of the practice. The village blacksmith, with the horse's foot in his leathern lap, rasping, paring, and searing the crust; trimming the frog, and setting the hot shoe; driving long nails into the hoof, drawing and clenching them, and finishing all off with a touch of the big file, is among the most regular of sights. It seems as natural that all this should be done as that the shoemaker should try the tape and fit the sliding-rule to some pretty little feminine foot which stands in need of Balmorals or Hessians. Yet when we come to look at the hoof of a horse, the iron ring of the smithy is surely a brutal and a bungling affair. First of all, the driving of the nails constantly leads to the "pricking" of some valuable or useful animal, and occasionally lames it for life. Even if the farrier never makes such a mistake, the stubs tear and weaken the structure of the hoof, especially when they are of the "shelly" kind; and they play mischief with its proper symmetry and growth. So far as natural fitness goes, we might as well arm human toe-nails with metal rims rivetted through the substance, as put all this carpentry and metallurgic work upon that horny nail which we call "the hoof." But the evil only begins here. Unless the iron shoe be carefully placed, the level of the horse's limb is destroyed, and nature is thrown out of gear. That is especially the case with cart-horses, which are shod with high-heeled abominations that cause all kinds of anguish and lameness. Then the jar and weight, as well as the hardness and coldness of the metal are bad qualities, tending to damage the foot and to give the horse pain; and when the animal "over-reaches," the iron toe inflicts much more serious bruises and wounds on the front legs than the natural hoof would leave. But the worst effect of all is that the beautiful provision of nature in the substance of the horse's foot, to qualify him for his service to us, is utterly destroyed. When subjected to pressure, the hoof of those animals which have cloven feet opens visibly, so as to take the contact with the ground lightly, and to give a broader basis. The single *ungula* of the horse, or ass, or mule would act in the same manner if it were not fettered in a rigid ring of iron. We believe that this violation of natural arrangements causes more falls, and sends more valuable animals to the knackers, than any other cause; for the elasticity of the equine foot is necessary to a sure step, and the thick bar of metal kills the special quality, and cramps the hoof-wall out of its natural spread and strength.

Next is the cruel pain which must be frequently inflicted by the time-honoured barbarity; and, whatever other faults our "worthy but stupid" population possesses, it is not insensible to the feelings of "that noble animal, the horse." Imagine what the torture of tight boots would be if they were nailed to the agonised toes, and fixed there till the torment wore itself out. Of course, if a horse which presents no visible injury is seen to limp, the owner is a brute if he does not have the shoes shifted; but a horse may suffer a long while from a bad fit at the blacksmith's without showing signs of suffering. England has been called the "Paradise of horses;" but if Swift's Houhynnyms could again talk with Lemuel Gulliver about the agonies inflicted upon our draught and saddle cattle by the shoe and the bit, we should hear a different epithet. However, one reform at a time, in the horsy world especially, is as much as can be attempted, and we shall not now speak of the pain inflicted by some of the bridles now in use. To return to the much-suffering hoof, it is a portion of the animal organisation exactly contrived for its function by its rapid growth. If you shut up goats in a Grass field or close soft place, their hoofs grow so long as to be deformed. Canaries in a cage must have their toe-nails trimmed for want of the natural friction upon the sand and stones, which would keep them to the proper length. The horse's foot, in a state of nature, such as it may be seen on the Pampas of South America, the plains of Thibet, or the scrubs and gullies of Australia, is always neat, shapely, and in good order, kept at its right size by the friction of use and the free increase of the wall. Of course, our metalled roads and granite paving stones would soon knock an undefended foot to pieces; nobody doubts that, and there must be protection of some sort. But the natural increment is checked by the cold, hard iron; what grows in spite of it the smith pares and rasps away, often very unskilfully. Often, too, he does permanent damage by the way in which he burns the shoe into its place upon the new surface. So far as that cruel and irrational practice exists, such representations should be enough to condemn it. It was a fashion once to "dock" the tails of hunters—that is, to cut through the ligaments of the tail, besides clipping the hair. With similar barbarism and ignorance, the ears of certain dogs are clipped, and the tails of lambs and little puppies are bitten or cut. Fashion ought not to be heard against the project of relieving horses from the cruelty of an outrageous custom; and, indeed, we think that all who have to do with the "noble animal"—except, perhaps, the blacksmiths—would gladly accept any plan that promised to banish so much torture from our stables, and make the horse go more perfectly.

Is there, then, any other way as good, and also more in conformity with the exquisite intentions which nature displays in the horse's foot? We believe that a dozen might be found. One is exhibited this year at Paris—an iron shoe in segments, which, if it can be securely fixed, would at least admit of any amount of expansion. Another—also to be seen in the Parisian Exhibition—embraces the hoof in a hinged cirque just above the bottom, wearing away as the foot wears, and keeping a strong but mobile protection round the wall. Our correspondent "Medicus" recently described an iron shoe with four nails, which he says retains its place well; and we quite agree with him that nothing too complicated or expensive can have any chance of thrusting the present article out of universal use. But we think "C. P." came nearer to the truth when he urged that the great point is to protect the toe of the foot; and he appears to believe, as we do, that with a toe-piece of metal, well fastened and fitted, so as to let the hoof grow, the greatly increased growth of the natural surface might suffice to withstand the effects of ordinary work, such as that which a hack has to perform. We join with "C. P." too, in asking why iron should be the only thing conceivable for employment? Solid gutta-percha, ebonite, and simple caoutchouc are substances which suggest themselves for experiment, and which could, if necessary, be renewed much oftener than metal, and at less cost. Of course, for town traffic the protection must be stouter; but let it be remembered that the sole, heel, and frog of a horse's foot are made by nature to accommodate themselves to great wear and tear, and that it is our unnatural clamp of chilly iron which deforms them. Those parts of a cart-horse—if the toe were defended, and if they were left to grow thick and natural—would stand a good deal more than is thought: witness the feet of all the heavy wild animals which are ungulated. We hope that the subject will be intelligently and earnestly considered. We believe that the best of our dumb servitors could be relieved from a dreadful amount of pain, and that the horse might thus be made more useful, safe, and perfect. *Daily Telegraph.*

THE BEST POTATOS FOR SEED.

The following extracts are taken from various agricultural essays. They appear to be confirmatory of the views entertained by "Fingal" in the last *Gazette*. The "failure" herein referred to, it may be needful to explain, was that of the seed roots in 1833. Recurring to the doctrine from which "Fingal's" remarks and the remarks of others have sprung—namely, the doctrine that degeneracy ensues in the vegetable and animal world when perfection is attained—it is one which demands much study and research, with careful observation and long practical experience in the field and fold, to arrive at a sound conclusion before the pen is taken up in the matter. This, I submit, should be the rule, but I am afraid it is the exception; people don't like to find their old practices assailed, and when they do, are apt to rush into print to defend them, the defence of course weakening their cause if it is not a good one. And so of scientific men, their professional motto is—"Ready, aye ready:" they can soon prove to you that the best Wheat in the scales is the best Wheat for seed, and that the best Potatos for the table must be the best to plant in the field. Science and the "gift of the gab" against any two, reminding one of the story told of the late Rev. Dr. Whately, Archbishop of Dublin, who upon a certain occasion in a company of *savans* wanted to know how it was that white sheep ate more Grass than black sheep? Whereupon several scientific men then present undertook to explain the phenomenon on scientific principles, when the Doctor suddenly stopped them, saying, "Don't trouble yourselves, gentlemen—white sheep eat more Grass than black sheep because there are more of them!" So far the pen, now for the scissors. *C.*

"*Choice of Seed.*—'Watery,' 'soapy,' 'soft,' 'unripened,' are here synonymous terms; and the Potatos to which they are applicable, if otherwise uninjured, are the best for seed, for they are found to produce the strongest plants. Potatos late planted, or dug before they are fully ripe, therefore, or those which have grown in poor land, or on a moory or mountain situation, are to be preferred. Those, on the contrary, which have grown in good land, and in a favourable situation, are fully ripened, and arrived at all the perfection of which they are capable, and contain the greatest quantity of farina, must be rejected for seed, because they produce weakly plants. Potatos which contain the least farina or starch are the best for seed; and when a farmer happens to have a favourite but scarce variety, he can, by acting on this principle, always preserve his seed pure without changing it or requiring to do so. To effect this, the plan—and it is a simple one—is, merely to dig those Potatos intended for seed before they are fully ripe, and while the tops continue green. In this way they will never 'run out,' as it is termed; and by adopting this plan, I have grown the same sorts of Potatos, on soil of the same quality, on this farm, for the last eight years; and they have continued, and are likely to continue, as free from degeneracy, as vigorous and as prolific, as they were at first. This practice, it will be seen, is merely anticipating the farmer's business, when he goes every year to 'boggy ground,' or to the 'hills,' in search of seed-roots, and is proceeding on exactly the same principle; for in neither case have the Potatos attained a perfect degree of ripeness, but are, on this account, the better fitted to make good seed, because they are found to produce more healthy and vigorous plants than those which have been fully ripened in good land, and among which, if used for seed, failures are likely to ensue." *Field Culture of the Potato, by Solanum*, 1835.

"Those who derive advantage from growing Potatos for the early market, take up their tubers intended for seed at a very early season, when the tubers are well formed, but while the stalks are quite green; long experience has proved to them, that if they allowed the tubers to attain a perfect state of ripeness, the plants produced the following year would be curled: they (the tubers) would abound in farina, probably, but would be proportionately deficient in that mucilaginous matter, which appears to suckle as it were, the germ, till, having formed its own roots, it becomes enabled to seek its own food, independently of the parent tuber—analogous to that beautiful provision of Nature, for the sustenance of the young of animals—the milk of the dam, which supports them till they are able to seek for, or make use of, and to digest, grosser aliment."—*Idem.*

"We think that the experience of last year and this, in regard to the state of the Potato crop, is strikingly corroborative of the theory of weakness in the Potato as being the primary cause of the failure; for observe the results: the under-ripened seed raised in the bad season of 1841 produced a crop without failure in 1842, in the alleged unfavourable circumstances of heat and drought; while the over-ripened seed raised in the very fine season of 1842 has caused extensive failure in 1843, in the alleged favourable circumstances of moisture and coolness. What should be the practice indicated by these results, but that unripened seed should be planted in all cases; and, to prevent its becoming over-ripened in any season, let the Potatos intended for seed be raised before they become ripe."—*Quarterly Journal of Agriculture*, July, 1843.

"It was necessary to consider the substances which Potatos contained; which were—starch, albumen, and saline matter. It was the result of a great number of chemical examinations, that Potatos which contained the greatest quantity of starch were the most likely to fail."—*Professor Johnston's Lecture*, August, 1843.

Home Correspondence.

Chambers of Agriculture and their Discussions.—The most popular and perhaps most important of the discussions at the present time is upon the employment of women and children in agriculture, and the education of children employed in agriculture. The two subjects are generally taken together in the discussions, and rightly so, as they are so intimately connected. There never was a time when it was more requisite that these questions should be fully discussed and ventilated. They are full of interest. Great commiseration and fearful apprehensions are entertained by the general public relative to the wrongs and hardships of this class of the community, which these discussions may allay. I trust it will be so, and that the question will be taken up in Parliament in that fair and dispassionate way it deserves. No one will assert that the state of the agricultural population of this country is in that highly satisfactory state which the general aspect of the country would justify, but for the sake of quieting some of the many complaints I would assert that in no country in the world are they so well fed, well clothed, and so well taken care of, as in our highly favoured land. I do not say this to prevent any laudable attempt to improve their condition—that I hail with the greatest pleasure; but I deprecate the unjust outcry against the agricultural interest as the authors and abettors of an acknowledged evil. The great thing is to tide over these intricate matters without inflicting great hardships upon the poor labourer, and great inconvenience and injury upon the employer. I do not hesitate to assert that in many districts it will be impossible to carry out the existing courses of profitable farm management if women and girls are to be debarred from field labour. Take large agricultural parishes with a scanty labouring population—the alluvial soils and rich fens of Lincolnshire, Cambridgeshire, Huntingdonshire, Norfolk, Suffolk, &c., for instance. How are the many thousands of acres of Potatos, Carrots, Mangels, Swedes, Turnips, &c., to be put in in their season, and harvested in their harvest season without such aid? It is with the greatest difficulty it is now accomplished, although every man, woman, and child is fully employed; and then not without severe loss occasionally from early frosts. It is true the growth of some of these perishable root-crops may be given up; but what a loss to the public, and the labouring population in particular: besides, these districts constitute the very soils upon which they can be best cultivated, and leads to a large expenditure in labour. How, I ask, is another of the fine schemes afloat to be carried out in these districts—*i. e.*, not to allow the mixing of the sexes in field labour? It is proposed to get over this difficulty in part by licensing gang-masters and mistresses, but then they must not work in the same field—the hay-field and Potato setting and Potato packing, for instance. Verily, these matters require discussion—they point to the ridiculous. Mix they will, either at home or in field. As an old employer I challenge the inquiry, as to more wickedness being originated in the field than at home, or rather the village street, after work is done. The educational part of the question is very important, and although I hate compulsion as detracting from the independence

of a Briton, yet it may be got over with advantage to both the employer and labourer in the end. Lads under nine years of age and girls under 10 or 11 years, are of but little service in field-labour. If fully employed at an earlier age it stops these growth and healthy development. Till they attain their respective ages provide every inducement whereby they may obtain to a fair degree of education. They will thus obtain schooling and discipline, a better and stronger growth, so as to be of more value when employed, and ultimately without much loss to the parent, as they will afterwards receive wages proportionate to their capabilities. This partial schooling could be supplemented in the winter months when work is scarcely to be had. Lads at nine years of age can be taught to read tolerably well, write legibly, and conquer the four first rules in arithmetic; which attainments, aided during the winter months, and probably in night-schools, might suffice as to elementary knowledge, leaving the industry to do the rest. The schoolmaster should give to each pupil a certificate on quitting school, setting forth the degree of his attainments. *O. F.*

Dressing and Blowing Machines.—We all know the value of the dressing machine, but the blower, with its powerful blast, is less often used. It is only when we do use it that we find how many imperfect kernels and seeds of particular weeds have failed to be extracted or separated from the corn by the dressing machine. This was illustrated to-day when we were blowing white Peas that had passsed through two dressing machines, and would, in nine cases out of ten, have been considered clean enough for sowing, although there was still among them an abundant supply of heavy seeds of weeds that the dressing-machine blast was not strong enough to remove. I quite believe that, as a rule, we are much too negligent in this matter, and that we actually sow our weeds, and, of course, are punished by a crop of them. The blower also gives evidence of the large number of imperfect grains which, if merely taken after the dressing machine, would be part of our seed, and would thus produce feeble or imperfect plants. We should do with seed as we do with animals, choose the most perfect parents, if we are to derive the most favourable result. I know, at this moment, of farmers who, because corn is dear, are sowing refuse grain, as a matter of economy! Against this I now enter my protest. *J. J. Mechi, Oct.*, 1867.

Mangel Cake.—The account given by your correspondent, Mr. Hugh Smith, of the use of Mangel-cake *v.* Linseed-cake, is interesting, and points strongly to the advantage of giving succulent food free from the large amount of water usually contained. I cannot however coincide with the writer in the inferences he seeks to establish, and I fear his deductions are calculated to mislead and to do more harm than good. It appears the experiment was carried on for 20 weeks on two lots of sheep, five in each lot, during which time each sheep was allowed, in addition to Grass *ad libitum*, about 1¼ lb. of Mangel-cake per day, and the same quantity of Linseed-cake. The experiment would have been more complete if an equivalent quantity of Mangel in a natural state, about 10 lb., or, better still, 4 lb. of Mangel and half a pound of cake, had been given to a third lot of sheep, as during the summer months they might have produced equally favourable results as the Mangel-cake. Be that as it may, it appears that the sheep made a fair average, paying about 1*s.* per week each. The quantity of cake (about 1¼ lb. per day) was, however, excessive, and too much of such a highly nitrogenous food to be profitably assimilated by the animals. And as the sheep made equal progress when furnished with food containing only one-third the albumenous food as compared with that of the oilcake, it shows that two-thirds of the latter was in excess, although it greatly enriched the manure. From one-third to one-half the cost of the cake is usually assigned as the increased value of the manure arising from it. In the present case, as two-thirds were given in excess, it cannot he reckoned at less than one-half, or 2*l.* 4*s.* 6*d.*, as compared with 10*s.*—the manuring value of the refuse of the Mangel-cake, thus reducing the balance-sheet by the difference, 1*l.* 14*s.* 6*d.*, and, *per se*, the value of the Mangel in a natural state, or, rather, in the state it is found after a winter's storing, to 14*s.* per ton—a fair value, but not much above that really assigned to it. The writer, by his deductions, first seeks to show that Linseed-cake is not worth its cost, and that it, therefore, should be supplemented by other cheaper food to be raised on the farm, and then he seeks to establish the value of this selfsame food by estimating it an equivalent value to the cake which he has just condemned. This is scarcely logical, any more than his general conclusions that the consumers of meat are to benefit to the extent of one-half by the cheaper food, which is to be caused by the increased production which, in its turn, is to be produced by using only the natural products of the soil, and abstaining from the use of oilcake, which, perhaps more than anything else, has enriched the value of manure and the crops following its application. This certainly savours strongly of the *argumentum ad absurdum*. It may possibly in certain cases be desirable to convert watery roots into dry food; but as it is well known that a Grass is more nutritious than Mangels or Swedes, it is questionable whether a ton of Mangel, hay, or cake is more nutritious than a ton of well-made Sainfoin or Clover hay, with which we think it may be properly compared. It will, however, be necessary considerably to reduce the cost of making this Mangel-cake, if the practice is to be followed advantageously: and it should be remembered that the expense of making Linseed-cake is nothing to the consumer; it is paid for by the increased value of the oil pressed out, which not only influences the shape and condition of the cake, but enables it to be sold some 20 per cent. less than the cost of the seed from which it is made. The profit is of course regulated by circumstances, and controlled by the immense competition to which the trade is subjected in this and other countries. In conclusion, whilst thanking Mr. Smith for his interesting experiments, I trust he will not be offended at my free, and I hope fair, criticism of the rather Utopian conclusions he seeks to establish. *W. C. S.* N.B.—It is rather curious to observe the extraordinary fluctuation in the progress made by each lot of sheep—in some months trebling that of others; and it is also noteworthy that the oilcake-fed sheep made one-third more progress than those on Mangel during the last month of the experiment, when probably the weather became cooler.

Mr. Mechi's Reports.—I observe that "An Old Farmer and Agent" has again written to you on Mr. Mechi's reports, and having warned his new acquaintances in Essex, that it is not probable he will again address them, before leaving us perhaps he will inform us why he did not go to Tiptree Hall and see for himself, ere he accused Mr. Mechi in public print of untruthfulness? Time cannot be his excuse, for he says, "Before I left home for this journey, I was determined to stop some time near the renowned Tiptree Hall;" for what? To see and form his own judgment on the spot? No; but flinging "the lie direct" on the gossip and hearsay of "a market town near Tiptree, and the inns at which the chief of them dine." He also says in his first letter, "I am sorry to do so, but I never had placed any confidence in Mr. Mechi's marvellous reports," &c; yet, in his second, he sends forth to the world the following still more marvellous report—"I produce crops which, to see, would excite envy in the breast of Mr. Mechi. As good wine needs no bush, so the crops I produce by my steam cultivation require no puffing. I may say, indeed, that my Wheats, as far as I have threshed them, are yielding considerably more than Mr. Mechi's do, and at least the value of the rent of my land more. And yet I have had much better Wheat crops than I have this year." Now Mr. Mechi states he is threshing rather more than 5 quarters per acre; are we to assume "An Old Farmer" gets six this year? (remember, he has had much better Wheat crops). Mr. Mechi's reports being so marvellous that he cannot place any confidence in them, will he inform us farmers and the public why we are to believe him in this most marvellous statement of his (I will quote his own words—"I might almost add miraculous") crops? I have one more question to ask: Will he be good enough to obtain from his "respectable informant" who are the occupiers of the farms nearly surrounding Tiptree Hall, "in the fields of which, having only hedges between them and Mr. Mechi, he has known as fine crops grow as any produced by Mr. Mechi?" *West Indian.*

Societies.

NEWCASTLE: *Cattle Fairs and Markets.*—At a recent meeting of the Council of the North of England Chamber of Agriculture Mr. THOMAS LAWSON, Longhurst Grange, read a paper on "Fairs and Markets":—Fairs and markets are places of common resort, where producers and consumers meet for the purpose of trade, and as the object of all trade is conducted on the principle of mutual advantage, it will be readily admitted that the general benefit will be best promoted by the production in abundance of the necessities of life, and at the lowest possible cost. The correct market value of any article must include every cost of production, and as all costs of every description are in the end charged on the article and paid by the consumers, they are often more interested than any other class in every item that either directly or indirectly increases the market value. In unproductive seasons, landowners obtain their rents, and occupiers, as a body, may obtain the whole costs of production by an enhanced price on the lessened quantity and quality, but on the consumers the whole burden falls of actually bearing such a calamity. A free importation of such necessaries from other countries allows consumers to be less dependent on the home supply in unproductive seasons, so that the utmost that can be done is to spread any deficiency of production so generally over the world as to lessen the local pressure, for the general body of consumers must still bear the higher price that is caused by any deficiency of quantity or quality of such productions. True economy in a nation consists in the adoption of such measures as will least increase the cost of an article to a consumer, and more particularly between the producer and the consumer. The waste of home stock, by the introduction of foreign diseases, has been estimated by Professor Gamgee at about 6,000,000*l.* per year for some years past, and whether that estimate be too high or too low, all know that the loss so caused has been enormous; and although, in the first instance, much of such loss may have been borne by the owners of home stock, yet every farthing of it must have come out of the pockets of the consumer; and the cattle-plague waste, and the costs incurred by the necessary or the unnecessary restrictions in transferring and marketing stock, has all fallen on the consumers, and must continue to be borne by them so long as such costs exist. The quantity and quality of meat that imported animals contain is greatest when they first enter our ports—all extra travelling will deteriorate both quantity and quality, and add costs which can only be met by charging an extra price on the meat to the consumer. There cannot be any real ground on which to found the hypocritical cant that to market and slaughter foreign animals at our ports would lessen the food of the people. Such flimsy economists may be reasonably challenged to show that imported stock improves in either weight or quality by travelling to inland towns, ere they put forth such absurd assumptions. Every principle of true economy shows that imported stock will yield the best and greatest quantity of food by being slaughtered at our ports, and such an arrangement would not only best effect the great purpose of supply, but would avoid exposing our home stock to any foreign infectious disease. Ports at which foreign stock is debarked will always be more or less under suspicion of disease, and all markets and fairs for home stock should be held at such a distance from such ports as may be deemed a secure barrier against any infection of disease, and they should all possess the additional precaution of an inspector. The object of all fairs and markets being to effect a transfer of such stock as one person has in excess to another person who is in want of such stock, it follows that such marts should be held where such transfers can be effected at the least possible cost that is consistent with an open exposition of the animals for sale. The distance should be of easy access by highways and railways, both for stock reaching the market place and for allowing of their removal to their future destination; and it is most essential that all markets be of easy access to sellers and buyers; and to attain this object, it is desirable to hold such markets at places accessible by railroad, and, if possible, at centres where railways intersect each other. The holding of fairs or markets annually, weekly, or otherwise, should be regulated by the reasonable likelihood of producing so large an exhibition of stock as to ensure a sufficiently numerous attendance of purchasers, and thereby induce a healthy competition. An auction sale is a useful branch of a stock market: it gives a vitality to business, by its open record of current rate of value, and thereby quickens conclusions between sellers and buyers in the other departments of a market. The time for holding a fair or market should be on a specified day of the week, and should be fixed so as not to incommode other local markets, but so as all may mutually aid each other. Small markets or fairs are a waste, as they are so unsteady as to increase the cost of marketing beyond the local advantages they possess. All fat markets should be provided with cattle lairs and slaughter-houses, the use of which to be voluntary, and not compulsory. The best economy is generally to slaughter animals where they are to be retailed, but as much injury is sustained by carcases, in the process of cooling, being exposed to deleterious gases, slaughter-houses free from such exposure should be provided at the market place for those who would be benefited by them. The heavy death rate of Newcastle must be susceptible of an intelligent explanation. It excites both surprise and anxiety; and it is not improbable but that an inquiry, as to why meat slaughtered and exposed for sale in certain towns is subject to so much more rapid putrefaction than in the country, would explain the cause. The present interruption of fairs and markets is a most suitable time for the consideration of what places and periods are most suitable for holding the local fairs and markets of this locality. The approaches to Newcastle, to Morpeth, to Hexham, and to Bellingham, all offer convenient access for market purposes; but as local residents are best able to judge accurately what is most necessary for their own locality, the best mode of dealing with the subject would be by the member of this Chamber, in each union, considering an dreporting at what places in their respective unions it would be desirable to hold markets, and on what day of the week, and at what periods, would be most suitable for such purposes. Mr. Lawson concluded by moving that a request be sent to each council member to hold a meeting of the members of his union, and consider the question of what fairs and markets it would be desirable to hold in such union, and report to the Chamber.

Mr. JOHN ANGUS, Whitefield, seconded the resolution. He perfectly agreed with the estimate of Professor Gamgee, as given by Mr. Lawson. He had very great doubts whether the consumers in this country received much or any advantage from the importation of foreign stock. The lung disease and the foot-and-mouth disease, as well as the cattle plague, had been brought here by foreign cattle, and he might state that, although they had been subject to great inconvenience by the regulations, the precautions taken by the Government in regard to the cattle plague had very nearly cleared away the foot-and-mouth disease and the lung diseases. He had no wish to limit the importation of foreign stock, but they should be kept from amongst the English cattle.

The resolution was agreed to.

Farmers' Clubs.

KELSO: *Oct.* 4.—*Best Mode of Selling Stock.*—At the usual monthly meeting of this Club, Mr. SHOLTO DOUGLAS, Riddletonhill, introduced a discussion of this subject by the following remarks:—Prices of stock have been, and are likely to be, low, and we must endeavour to dispose of it to the best advantage. In seeking how to do this, one thing must strike the attention—viz., that in most cases there is a considerable discrepancy between the price which the grower receives and that which the consumer pays, and that, too, without any necessary expense being incurred; and, of course, the difference which ought to go into the farmer's pocket finds its way in another direction—viz., towards those gentlemen who find their profit in running between those who are too anxious to sell and those who are anxious to buy. I say, gentlemen, that the nearer the producer and the consumer are brought the better. When this is impossible, as I am sorry to think is too often the case, then a dealer or middleman becomes necessary. This class is divided, like all others, into gentlemen and rogues; and we must encourage the honest dealer when we cannot get a direct customer. The question, then, seems to me to be capable of being put thus:—"Where are we to find the best customers?"

(1) I trust that every man will regret with me that

the Inverness system is not in force in this district, viz., that the buyers and sellers meet without showing the stock, and there make the bargain, depending on the known character of the stock, and in the seller's representations concerning it. I am acquainted with one firm equally well known and trusted in this district who do business in this way; but the sphere of their operations is limited, and other buyers seem inclined to work in rather the opposite manner.

(2) The next best plan is to sell at home. Your stock is shown to the best advantage, and both buyer and seller are free from the excitement attendant in a public market. For my own part, I hardly ever missed a chance of selling at home, and very seldom have I had occasion to regret it. But one has not always a buyer to come and purchase one's stock at home, or there may be a difference as to the value; then the question is where to take them—fair or sale. As I said before, it makes little difference, provided one is sure of a good customer.

(3) And in favour of the sale by auction, I may say that it prevents in a great measure a certain system, which operates alike against the seller and the honest buyer. I allude to gangs going round a fair, first one coming and then another, and so keeping the good buyer at bay; in a bad market I have seen this very successful by having agents to carry bad reports of what is done in the fair, or, as I have seen, by making a flash sale with the aid of an accomplice, they succeed in tiring out the seller, and in carrying out their own nefarious purpose, thereby not only robbing their immediate victim, but giving a bad character to the whole market. At a sale, on the other hand, the fair buyer has a chance of obtaining what he wants at a reasonable price; but as few people think of beginning a thing at its value, the exposer has a chance of seeing his stock sold for less than he expects, or, if set up at its value, of not getting a bid at all. Here is the great difference between the two systems.

(4) In the case of the fairs a man has the selling of his stock in his own hands; he can sell it, keep it, or do anything except give it away, which in the case of the sale he is sometimes obliged to do. Let me here descend from generals to particulars. Ways and fashions will alter considerably before I send fat cattle to a sale, for I am sure that at times the combination (what I believe is called the knock-out) is quite irresistible, and if there is a good man there, he is allowed to supply himself, and the gang get the rest at their own price. In fact, I do not approve of exposing beasts in a public market or sale where there is any chance of their coming back again: they should either be sold at home or consigned to some distant mart. Rams, again, especially in a district like this, where so many are raised, are best sold by auction, as there every man has a chance of pleasing himself, and of dipping into his favourite blood. With regard to wool, very little is to be said on either side, except that it is a cumbrous thing to keep, and that if sent to the sale it lies at the broker's risk and the consigner's disposal. Besides there is always prompt payment, which, in addition to instant delivery being taken, is a state of matters which everybody cannot congratulate themselves on. Still, if a man can make a bargain at home on favourable terms, it is far better. The general remarks I made before refer to lean stock, which was the kind I find in my view, when I proposed this subject; and that it must come to one method or the other alone, as an alternative to private sales, is pretty evident. Because, when a fair and a sale happen on the same day (as Pennymuir fair and Hawick sale do this month), the question arises, where will buyers go? for they cannot be at both. It is hardly a fair comparison. But assuming the character of the stock to be the same, I am afraid that the buyer will prefer the sale, because there he gets a clear field and no favour. I think that when the best stock and the best buyers of a district are brought to a ring that there is more chance of the knights of the rig and the knock-out being set at defiance, and consequently the better chance of the seller and the good buyer (the rest being always the ultimate customer) meeting in equal terms. Should the matter strike any one in any other light, or if any of my views should seem erroneous, I beg to hear it. As I have said, I like neither plan, and cannot therefore have indulged in any special pleading on either side; and all I hope is that the country may adopt the best way.

Mr. MUNRO said that he thought the Inverness system would not do in that part of the country. They might sell their draft ewes by the character of the stock and the farm, but he thought that it was far better dealers having a look at the stock they were purchasing. The remark of Mr. Douglas was correct when he stated that at fairs a company of individuals often annoyed the seller of stock, by appearing to act separately when they were acting conjointly. For his own part he would prefer selling in a public market, and if he were to do so all the year through he would be in pocket. He believed the full price of stock could be got at auction sales when there was a demand; but when there was not, it generally happened that exposers got less than the value of the animals. He would prefer selling in a public market when it was convenient, and when that was not attainable, at the farm-steading. With regard to wool, he would decidedly prefer the auction sales if the wool brokers did not take such a high commission. His reason for this was that none of them knew very well how to sell wool, and, in that case, submitting it to public competition was the best method.

Mr. PURVES, Lintonburnfoot, said his practice was to sell at home if he possibly could in the first place, and if he thought he was not getting the value for his animals he took them to the market at Kelso. He generally either sold or sent them away to Newcastle or Edinburgh, because he believed it was just a week lost to take them home again, for fat cattle never fed well after a long drive, and it deteriorated them in quality very much. He would, therefore, advise a sale if possible when driven to a market. He believed there was nothing like an auction sale for tups: private sales would not do. For one man fancying a particular animal in your lot privately, you had 10 or 12 at a sale, and hence the decided advantage of the one method over the other. With reference to the selling of his wool he would remark that he generally sold at the wool fairs. He generally took note of the prices current in London and Edinburgh, and how his neighbours were selling their wool, and then determined upon what he would ask.

The CHAIRMAN thought that every farmer ought to know the value of his own stock, and if he got a fair offer at home to accept it. If, however, the offer was not up to the value he had set upon his cattle, he should bring them to a public market, and if he had not confidence in his own judgment, let him ask his neighbour, and in a market like Kelso you will rarely leave without making a bargain. However, if you cannot dispose of your stock, he would advise them not to take them home. Take them to the large markets—to Edinburgh or Newcastle—for in all his experience he had observed that when you had cattle of good quality at these markets you could always sell. He was no believer in auction markets, and would not advise cattle to be sold at them.

Reviews.

The Journal of Agriculture. October, 1867. 150, Fleet Street.

The current number contains the last portion of Mr. Ewart's practical and trustworthy papers on the Permanent Improvement of Estates. We commend the whole series—which has appeared in successive numbers of this monthly journal—to the attention of those who agree with Sir Harry Verney and Mr. Bailey Denton as to the need and profitableness of outlay on this class of land improvements, to which reference is made in another column. Poor Wallace Fyfe's last words on an agricultural subject form another article in this number — this is a republication of one of his lectures on manuring land, before the Royal Agricultural College; a short paper, which might have been the leading article of a weekly farming newspaper, discusses some of the evils which still encumber the relation of master and servant in agriculture—the gang system and the bothy system, with education for their remedy; a translation of Count Zicby's report on the Agricultural Products at Paris, a review of Mr. Carr's book on the Booth herds, an article on silkworm culture, and the Farmer's Note-book, make up the Part, which is quite equal in general and professional interest to its predecessors.

We take an extract from the paper on Agricultural Labour, in which the author speaks of one and another of the evils which characterise it.

"The disease is in the blood. It is inherent to our system of agricultural cultivation. It arises from the call for special kinds of labour, and, we fear, can only be remedied by such a change in our agricultural system as will reduce the demand for these kinds of labour, or by such a change in the condition of the labouring classes as will still further diminish the supply, and thereby compel the adoption of some other plan. Improvements in machinery may do something towards diminishing the amount of labour required to carry on farming operations upon the present system; but there must always remain many operations which cannot be performed by machinery, and therefore we cannot look to that source for any great relief.

"Education is the other means which may, and doubtless will, most seriously modify the present condition of the agricultural labour market, and through it the system of cultivation.

"To ignorance is due many of the evils of the present state of affairs. Ignorance and want of thought, although not synonymous, are inseparable. Want of consideration for others, of course, accompanies it; hence flows carelessness for their children, carelessness for the interests of their employers, carelessness for their own welfare both in this and the next world, carelessness for everything but the immediate sensual gratification of the moment. The ignorance of the agricultural population affects their employers injuriously in more ways than this. It lays them open to the machinations of the designing, and agricultural strikes threaten to be another evil arising from the same cause.

"Education will remove many of these evils, but it will not directly thereby affect the course of cultivation. It is indirectly that it will do this. The effect of education is to expand the mind, enlarge the powers, and extend the ambition of those who receive it. An educated hind will find that he can make more in some other way and in some other business than by ploughing, and he will cease to be a ploughman. As parents acquire juster ideas of their duties to their children, they will be more chary of exposing them to the hardships and contamination of field labour, and the general consequence will be a diminished supply of agricultural labour. It is already too small for the present system, and of course any reduction in its amount must bring the farmer to what we set out with—a fresh calculation of the treatment of his farm, and a modification of his system of husbandry to the diminished number of hands.

"The result, we think, must be twofold—the diminution of labour and capital on large spaces on the one hand, and the concentration of labour and capital upon small spaces on the other hand. In other words, the cultivation of England will become divided into feeding of stock and what we may call market-farming, meaning thereby a system of forced cropping analogous to market-gardening. The latter is already creeping in; the Mechi system, the sewage system, are phases of it. The other has been longer in operation, and is extending rapidly; the greater part of Scotland and much of England is already devoted to feeding stock."

Farm Memoranda.

AN ABERDEENSHIRE FARM.—Harvest operations have been sadly retarded by wet weather for some time back, and very little has been got into the stackyard. In many places a good deal of Oats is yet uncut, which is anything but a pleasing operation, it being badly laid and twisted by contrary winds and the snow storm of the 4th and 5th inst., and it is almost impossible to make anything like a neat job of it now.

Reaping machines have been at work at many places in the county, and would seem to be finding more favour with the canny Aberdonians, after having had ample proof of their working powers in almost every state in which a crop can be; and as at the public trials they gave great satisfaction to judges and on-lookers, we have no doubt but the different makers will have a good many orders on their lists for 1868.

Turnips are not up to expectation as a crop in general. The summer, being cold and wet, with little sunshine, was unfavourable for their growth, but should the month of November keep open and genial, they will yet make up to something like an average crop.

The Potato crop is much damaged by disease—more so than in any year since 1846. Few, however, are grown in Aberdeenshire but for home use.

Live stock are mostly tied up or put under cover over night, and put to the fields during the day. Many farmers have been giving their feeding stock Clover hay along with their Turnips, as damp straw and wet Turnips are apt to derange their stomach.

Sheep farmers have now begun to put their flocks to the low pastures for the winter, but the steady cry is the low price; and indeed there is some room for complaint, for with low prices for beef and mutton, and the harvest still at the mercy of the elements, the farmer has anything but a cheering prospect before him. *T.*

FREDERICK CO., MARYLAND, U.S.—One of the best farms I saw is that of Mr. Jacob Walker, 200 acres, held at a rent of 1400 dols. (about 201*l.*). Twenty-five bushels of corn to the acre was thought a fair crop when he began, but now his average yield is nearly double that quantity. On about 60 acres of Wheat he averaged 26 bushels per acre last year and the year before, with not a very favourable season in either case. He cuts about two and a-half tons to the acre of Clover and Timothy, and has about 30 acres of very excellent pasture along a little stream which runs through his farm. His system is to manure the Clover ley—turning it over in November, and applying the manure in spring on the surface. A crop of corn is then taken, followed by Wheat sown in the autumn; and he regards the manure as beneficial for this latter crop, rather than as making the corn much better than would otherwise be expected. A half peck per acre of Timothy seed is drilled in with the Wheat, and Clover sown the next spring at the rate of a bushel to 6 acres. This makes a rotation of three years, with one-third the land manured each year. He has about 30 milch cows, and perhaps 20 head of other cattle, including steers, dry cows, &c., and in feeding, intends to keep them all in good order, so as to be ready for market whenever it becomes desirable to send any to the butcher. He buys also about 100 sheep for feeding, along from June to September, which are sold fat the coming spring. Those he had last year averaged about 120 lb. per head when purchased, and 150 lb. at the time of sale. He thus feeds all the corn and Oats he raises.

Mr. Walker approves of turning stock upon growing Wheat. He puts on heavy stock in autumn, and sheep through the winter, whenever the ground is not covered with snow, keeping them on, frequently, as late as the first of May. A field that we saw which had been thus depastured by 100 sheep a good part of last winter and spring was promising well, except for looking a little bare about the gate. In winter the milk from the farm is sent in to Baltimore, but in summer only the cream. The mode of winter feeding adopted is to cut all the hay and corn [Maize] fodder, both for horses and cattle, and mix with corn meal, or with Oats and corn ground together. The mixture is wet up with scalding water in a trough made for the purpose, and stands covered with a carpet or canvass for several hours, by which time a slight fermentation ensues, answering much the same end as would be done by cooking. Thus the noon feed is prepared immediately after the morning feed is distributed, and stands until dinner time, and so on. Corn fodder, cured and housed with the same care as hay, Mr. Walker thinks better than anything else he can cut up in this way. Taking the average number of cows in milk throughout the year, he thus obtains an average yield of 2 gallons of milk per head per day, the year round. Gypsum is found to have an excellent effect on the pasture, which has been much improved by its application, so that it carries 40 head of cattle on the 30 acres, a good part of the season, though they get a feed of mown Grass occasionally in addition.

Burning Lime.—In driving southwards from Frederick, we made a brief call at the farm of Mr. C. K. Thomas, 3½ miles from the city—an excellent tract of about 300 acres. Here they were burning lime in open stacks. The dimensions of the stack we saw were 13 by 27 feet on the ground. Trenches are first dug crosswise, 3 or 4 feet apart, and a foot or 18 inches in depth and width. Flat stones are put over these trenches, and then a layer of wood, requiring three lengths transversely to cover the whole space allotted. Then follow alternate layers of limestone and soft coal—the lower layers of limestone broken up in pieces of from the size of an egg to 4 or 5 inches across, while the upper ones grow larger as the heap advances. The coal is distributed evenly over the stone, of sufficient depth fairly to cover it, and thicker along the outside than toward the middle. In a stack of this size from 1600 to 1800 bushels lime can be burned. It is carried up to 7 feet in height, and when completed the outside is banked up completely over with 18 inches of earth, supported on the sides by boards and rails. The trenches underneath are then extended far enough out from the stack to admit of kindling, and when fairly going, the process will pretty much take care of itself. The calculation of coal required is 18 bushels to 25 cubic feet of stone, and a ton of coal will make 100 bushels

of lime. These stacks or kilns are often made directly in the field where the lime is to be used, and the whole cost, including quarrying, fuel, attendance, &c., may now be reckoned at about 10 cents per bushel. In spreading the lime, the field is chequered off in 21-feet squares; a half bushel put upon each of these squares is equivalent to 50 bushels per acre, and is put in a little pile, where it stands until slacked, and is then scattered evenly over the ground.

The Tobacco Crop.—Another visit was at a farm of 280 acres, rented by Mr. Warfield, on the slate formation. The principal point of interest here was to investigate the facilities afforded on such land for the culture of Tobacco, of which a considerable quantity is raised, judging from the hogsheads awaiting freightage at the stations on the Baltimore and Ohio railroad. Mr. W. has sold the product of 4 acres for nearly 1200 dollars. On new land it is often grown without manuring; on old soils it receives a dressing of stable manure, and 150 to 200 lb. of superphosphate of lime per acre in the hill. The plants are set out 2 feet apart each way, or, on old land, 2½ feet; and the subsequent culture consists of working with the plough and afterwards with the hoe, very much as with Potatos or Cabbage. The Tobacco is cut from August 15 to September 20, and hung up in the houses built for the purpose, seven to nine plants being strung on a stick, run through a split in the stalk, say 8 inches apart, and put up on beams supporting the ends of the stick. It is cured by "firing"—that is, by the heat of a common wood stove in the house, kept up for two days and nights. Then it remains until there is leisure to take it down and strip the leaves from the stalks, after cool weather has fairly set in. The leaves, assorted in different qualities, which are judged by appearance and colour, are fastened in bunches of a dozen or so, by neatly twisting one around the stems of the others, and are then again hung up for a while to "qualify." This completes the curing process; they are now taken down, and laid regularly in large piles to settle and become compact. *Albany Country Gentleman.*

The Poultry Yard.

The Wild Duck may be reared for shooting, for the table, and for ornament. Before we commenced rearing it, the gamekeeper had it under his charge, and it received no more attention than the other game entrusted to him; and, left to find its own food, which it had often to seek for at a distance from home, it was consequently so much exposed to the sportsman's aim that with us it was becoming scarce. We had not sufficient for ornament for our lakes, and of course none for shooting or the table. We have a fine piece of water for them, but had considerable trouble before we found out the best way to manage them, with the proper food, when young. Our best success has been found in allowing them to lay their eggs where they choose, but we take them away and use them till the three first weeks in April. From the last week in April till the end of May we take their eggs to be hatched by our farm-yard hens. This we do for the following reasons,—we do not leave the early eggs with the duck, to prevent her from setting, so we get double quantities of eggs, and we do not set any hens before May, because when they are hatched earlier the water is too cold, subjecting the young broods to cramp, which kills them. The best time for them to take the water, we have found, is at the end of June. When first hatched we put them in a coop, with a gamekeeper lift, and covered at the top with wire. As they are very wild, they require different treatment from the tame duck; but if you feed them with plenty of worms, cut up, they will be as easily reared. With a sufficient quantity of worms they will require no other food for the first month; in fact, without worms they will not feed. We then give them stiff Barley-paste in a small garden pan, with a little water to dabble in, which nutriment we find suits them best after we can get them to other food than worms. It is remarkable that within a month these little creatures seem quite to undergo a change, for at first they will run anywhere to avoid observation, like the Guinea fowl, but afterwards, when they hear your footstep they will run out of the coop, with one eye turned up and outstretched neck, while on tiptoe they look out with eagerness for their accustomed meal of chopped worms. After they are about a month old, we take the hen and brood of ducks under a coop, boarded at the back, with open spars in front, to within 50 yards of the pond, placing it with the back, or boarded side, towards the water, that the hen may not see the ducks take to the water, and lift the openings for the young brood to get to their element by instinct, which they generally do in a day or two. From this period we give them nothing but the Barley-paste, as they find worms in a sufficient quantity themselves. While here we give the hen Barley, and as soon as they can eat the same, and do without the hen we allow her to go; entering the young ducks in our book as worth a shilling each. When they are about three months old, then we make a place for them close to the water to resort to, of hazel or basket work, like a crate or laying pen, covering the top with straw as a thatch, and to this we drive them home every night, feeding them with Barley. We pull the three first quill feathers from under one wing to prevent their flying into the corn fields, where they might be shot; whereas, by confining them to our own water, they may be shot if required while whirring over it on the wing, as the wing will have new feathers by the month of October. Sometimes we have 130 together for ornament and sport. We feed them regularly, otherwise they will not remain on the premises. They will not breed like the tame duck (with one drake to several ducks), but only in pairs. We once shot too many mallards, and few of the ducks during the next season bred. Some of our ducks hatch and bring up their broods of their own accord, but they generally drag their brood about the ditches, until from want of food or proper care many of them are lost, unless, indeed, when she hatches very late in the season. The rat is fonder of the young wild duck than any other of our poultry. The pike will destroy them, and we lost 30 in one day by these fish when they were a month old. As to the colour of the duck, we consider the darkest the best; the plumage of the drake gets very like the duck at the close of the season, *i. e.* summer. *Land Steward.*

Four Golden Rules: (1) *Shelter.* — Fowls should always be kept in a dry, warm sheltered situation—a southerly aspect is to be preferred—for they benefit greatly by "warms in the sun," as well as requiring protection from its scorching rays, and a shed for rainy weather. The roosting-house and laying-house, if separate, should communicate, that early layers may have early access to the nests, and also communicate with the storm-shed for the fowls to run in in security if they should leave their roosts early in the morning. The nests should be numerous, either in boxes or baskets, not too deep but roomy, some situated high some low, and as independent of each other as possible; each supplied with sweet, short, and soft straw, and a small nest-egg or two of chalk, the size of a pigeon's egg. If the nests be too deep they break the eggs in jumping in and out, and if the nests are not roomy setting hens have no room to turn easily, and consequently break the eggs by not being able to get to them softly. They then eat the broken eggs, which gives them the habit of doing so at other times. They should roost warm at night and of easy access. The more lightsome the house the better for promoting dry air and a free circulation. The feeding-places should be under cover, and as far as possible removed from the nests, that the hens which happen to be laying at the time, or which may be setting, may not be disturbed and enticed off their nest and eggs at improper times. 2. *Cleanliness.*—Fowls being cleanly by nature, thrive when regularly attended, but degenerate and sicken if neglected. In an artificial state of existence, they require to be supplied by art with what in nature they would obtain for themselves. For this purpose they should have a regular supply, in some convenient part of their shed, of sifted cinders daily to roll in and cleanse themselves, and which should be often changed. This precaution will keep them entirely free from vermin of any description. 3. *Green Food.*—This being quite as necessary for health as corn, to supply this requirement of Nature they should have daily a good supply of (sweet and fresh) green vegetables. Cabbage, Lettuce, and Endive are the best—Turnip-tops and Watercresses—but on no account any sour plants, which scour them, as do Spinach, the cuttings from Grass-plats, and most sorts of garden seeds, as their instinct does not serve them to chose the wholesome from the noxious weeds. Green food with fowls is an astringent, the very reverse of what vegetables are with us. This fact will not appear so surprising, when it is recollected that one takes them raw, and the other cooked. 4. *A plentiful supply of clean water*, in daily well-cleansed vessels, and wholesome food. Frequent changes, and mixtures of Corn, improve the appetite. Barley is decidedly their staple food in this country; Indian corn, or sometimes Rice, mixed for a change. Oats occasionally, but in too large quantity are apt to scour. Occasionally Buckwheat and Hempseed, as a stimulant, mixed with the Barley for a change, are very beneficial, particularly whilst moulting. One meal may be composed of boiled or steamed Potatos, well mashed up whilst hot, with a portion of Barley-meal, or Oatmeal for a change, but which must be allowed to remain till cold. Feed twice a day at least, or three times if not too fattening; morning early, before the usual hour for laying, if possible; at noon, the noontide meal may be the Potatos as above directed, and before sunset—not later than 4 o'clock—that they may go to roost by daylight, or they will go without their food. Regularity greatly tends to health, and disturbance of any sort is very hurtful. Rice, occasionally boiled in a cloth, greatly increases its bulk, and they are very fond of it. I cannot say from my own experience that beneficial effects are produced by giving them much flesh, raw or boiled. But fat, as advised in books, produces scourings; spiced or salted meats, and kitchen stuffs, are certainly pernicious to their stomachs. *A Former Correspondent.*

To Fatten Poultry.—The following will be found a quick and excellent food for fattening chickens. Set rice over the fire, with skimmed milk; let it boil till the rice is quite swelled out, then add a teaspoonful of sugar. Feed them three times a-day in common pans, giving them only as much as will quite fill them at once. Let the pans be washed and set in spring water, that no sourness may be conveyed to the fowls, as that prevents them from fattening. Give then clean water, or the milk of rice to drink. By this method, the flesh will have a clear whiteness, which no other food gives; and when it is considered how far a pound of Rice will go, and how much time is saved by this mode, it will be found to be cheap. It is said that a portion of animal mixed with vegetable food causes poultry to thrive rapidly, but they should be confined to a vegetable diet some time before they are killed. A quantity of charcoal, broken in small pieces, and placed within reach of the poultry, increases their appetite, and promotes digestion.

GAPES: *A R.* The seat of the disease is in the windpipe, and is occasioned by a number of small worms adhering to the sides, and increasing until they cause suffocation. A correspondent speaking of this disease says:—"I myself have had considerable experience, having, for four or five years previous to last year (when I gave up keeping fowls), lost about 150 chickens per annum by it. I have tried putting the feather down the trachea, salt, brandy and salt, and many other, said to be effectual, remedies, but with no success; indeed, the very few cases that recovered I consider to have done so more from natural causes than from any remedy applied. A relation of mine tells me he has met with tolerable success by fumigating them with tobacco until they were nearly dead, but this remedy seems to be nearly as bad as the disease; and is at all events a very hazardous one. The only remedy I ever found to be effective was, to have chickens as early as possible; for, I remarked, I always reared all my chickens hatched in March and beginning of April, but after that lost four out of five. Although at first no one could have finer or stronger chickens until they began to feather, when the gapes appeared, and they lingered on, sometimes for four or five weeks, until death put an end to their sufferings. They were of the game breed, and had an excellent situation, it being high dry sandy soil with plenty of fresh water, a large wood with Grass paddocks, and farmyard to run in.

Miscellaneous.

Mr. Dauncey's Herd of Channel Island Cattle.—This famous herd, which has been in the possession of Mr. Dauncey, of Horwood, for more than 40 years, was recently submitted to public competition by Messrs. Dudley and Son, of Winslow. The fame of the collection attracted a large assemblage of purchasers and connoisseurs from all parts of the kingdom. Probably a more pure bred and beautiful herd is not to be found, as the owner, by careful breeding and rigidly excluding every animal that possessed the slightest blemish, has brought them to a state of almost perfection. The following is a detailed list of the animals, and the prices they realised. The sale amounted to 3912*l.*:—

Cows.

Busy—Mr. Farnborough	24 gs.	Hostage—Mr. Courage	48 gs.
Viola—Captain Baumgarten	26	Crane—Lord Chesham	60
Labes—Col. Spicer	28	Pimpernel—Mr. Wilson	48
The Bat—Mr. Moore	50	Lotion—Duke of Grafton	50
Brooch—Rev. H. T. de Salis	33	Dizzy—Col. Spicer	40
Midnight—Mr. Moore	35	Riddle—Mr. Pearse	62
Blarney—Mr. J. Belgrove	12	Glass—Sir H. Verney	40
Dazzle—Captain Baumgarten	36	Primrose—Sir H. Verney	47
Ethel—Mr. Gurney	28	Level—Col. Spicer	59
Pride—Captain Baumgarten	36	Elfin—Mr. Garne	69
Banter—Mr. P. Hart	33	Harmony—Mr. Bakewell	36
Una—Mr. P. Rose	15½	Vixen—Mr. J. Pully	80
Dream—Lord Chesham	45	Braid—Mr. Courage	44
Cravat—Mr. Gurney	24	Prance—Mr. Coleman	62
Halo—Lord Chesham	50	Bustle—Mr. Coleman	71
Rita—Mr. Higgins	49	Grief—Mr. Dauncey	39
Morning—Col. Pratt	17	Gossip—Mr. Coleman	40
Butterfly—Col. Spicer	50	Bedlam—Mr. Dauncey	29
Elk—Mr. T. H. Barnes	51	Tattle—Mr. Coleman	68
Bosh—Sir H. Verney	43	Masquerade—Duke of Bedford	51
Dora—Mr. Hubbard	23	Landscape—Mr. Garne	100
Gossamer—Mr. Bassett	23	Crab—Mr. Duncan	50
Winifred—Mr. E. Courage	35	Dread—D. of Bedford	57
Dagmar—Capt. Pilgrim	55	Day Star—Capt. Pilgrim	61
Parade—Duke of Grafton	50	The Ban—Mr. W. A. Gilbey	81
Vanity—Mr. Wilson	44	Pansy—Mr. Moore	34
		Violin—Mr. Bakewell	86
		Croquet—Col. Spicer	38
		Hyacinth—Mr. Pearse	58
		Curaçoa—Mr. Gilbey	60

In-calf Heifers.

In-calf Heifer—Mr. Gilbey	55 gs.	In-calf Heifer—Mr. Day	51 gs.
Ditto—Mr. Coleman	51	Ditto—Lord Chesham	60
Ditto ditto	56	Ditto—Rev. C. Selby-Lowndes	62
Ditto—Duke of Bedford	35		

Heifers (Out with Young Bull).

Heifer—Major Thursley	27 gs.	Heifer—Mr. Pully	56 gs.
Ditto—Lord Chesham	51	Ditto—Mr. Bassett	28
Ditto—Mr. Wilson	48		

Calves

Pair of Calves—Mr. Bassett	40 gs.	Pair of Calves—Mr. Gilbey	30 gs.
Ditto—Mr. Wilson	41	Ditto—Mr. Duncan	
Ditto—Lord Chesham	50	Ditto—Mr. Garne	29
Ditto ditto	51	Ditto—Mr. Morris	25
Ditto—Duke of Bedford	43	Steer—Mr. Wilson	29
Ditto—Duke of Grafton	38	Heifer, barren—Mr. Kingsley	20

Bulls.

Dolphin—Mr. Dauncey	20 gs.	Young Bull—Mr. Coleman	60 gs.
Vampire—Capt. Baumgarten	31	Bull Calf—Col. Spicer	20
Rioter—Ditto	31		

Field.

The National Exhibition of Dogs.—The Exhibition of Sporting and other Dogs at Birmingham will, as usual, be held in the same week as the Cattle and Poultry Show there. Some few changes have been made in the prize list for this year; we may mention especially that the classes for puppies have been withdrawn. The premiums for this, the eighth, show are very liberal in amount, and the 82 classes afford the opportunity for exhibiting dogs of every breed. As our readers are aware, the show has attained a high degree of popularity, and appears, indeed, to become more and more attractive every year. It has always been admirably conducted, and Curzon Hall is in every respect most suitable for an exhibition of this kind.

Imported Food.—You ask why mutton cannot be obtained from Australia as well as beef. I put that question to Mr. Tindal and other gentlemen; and the answer was, "Good mutton cannot be sent at present from Australia, because it does not exist there." The sheep is at present cultivated in Australia merely for its wool and tallow. You are aware that in this country the grand problem for the modern sheep farmer is to combine in one animal the two qualities of good meat and good wool. Hitherto in Australia there has been no market for mutton; and consequently no good mutton is produced there; but let us buy and eat up all the good beef that Australia can send to us, and Australia will soon learn to produce and send to us mutton of corresponding quality. If the Chancellor of the Exchequer's advice to cross the black-faced ewe with the Cotswold ram be followed in Australia, the Australians may have an animal whose fleece and meat are both valuable, and not, as now, an animal with a valuable fleece, but no carcase, and no capacity for making into mutton.

The difficulty which at present prevents our receiving good mutton from Australia is applicable both to beef and mutton from South America. Messrs. Longman have published a small volume "On the Agriculture of the States of the Rio de la Plata," which I advise your correspondents to read. It demonstrates the necessity of great improvements in the cultivation of land, and the management of stock in those States, before they can hope to send us such meat as even the poorer classes of Englishmen can eat. *Mr. Harry Chester in the "Times."*

Carbolic Acid.—In agriculture our firm has stimulated the employment of carbolic acid for the cure of certain diseases very common to sheep—scab, for example. The method of treatment customary in similar cases was very imperfect as well as dangerous, whilst with carbolic acid this malady is cured, and without danger to the animal, by dipping it for a minute, often only for some seconds, in water containing a small quantity of carbolic acid. For this purpose pure acid would be too expensive, and is not used, nor concentrated acid, which ignorant men who have the care of sheep would not know how to use, but by the help of soap an emulsion is made. After having shorn the sheep it is dipped in this mixture; a single immersion in a bath containing $\frac{1}{65}$ of it is sufficient to effect a cure. After scab, the foot-rot is one of the worst and most frequent complaints. Carbolic acid is also for that an efficacious remedy. For this a mixture is made of the acid and an adherent and greasy substance, capable of forming a plaster, which can be made to adhere to the animal's foot for two or three days, preventing the contact of the air, allowing time for the application to produce its effect. But if the flock be numerous, it would take a long time to dress the four feet of each animal one after another; so, to make it more easy, a shallow tray is made of stone, a sort of trough: this is filled with the medicated mixture, and the sheep are made to pass through it; their feet are thus impregnated with the required substance. Permit me also to state that cattle cease to be annoyed with flies, &c., if washed with this solution, or a weak solution of carbolic acid. *Professor C. Calvert, in the "Journal of the Society of Arts."*

The Advice of the Chemist.—A gentleman in Orkney, who had a farm almost entirely composed of very sandy soil, consulted a chemist as to the manures which he should employ to improve it. The chemist looked over the property, and replied that much could not be done by manure; that there was no proper soil to soak it up and retain it to be given out in future years; consequently any manure that might be given would only be of use during the year in which it was applied. But he had observed a rotten trap-rock on one part of the property, and he recommended that a quantity of it should be carted and spread over a part of the sandy soil, in order to unite with it and form a more retentive soil. The owner took his advice, and carted the rotten rock and spread it thinly and sparingly entirely over a large field. Next year the chemist returned, and the owner attacked him; he had followed his advice, had spent a good deal of money in doing it, and without apparent benefit. The chemist went to see it, and replied that it had been done so sparingly that no effect could be expected, and that, by making the experiment over the whole of the field, he had left no means of estimating whether he had improved it or not; for although the crop was no better than usual, it might have been worse had the rock not been applied. He therefore recommended another trial on a small scale on a part of a field, so that its effect might be contrasted with the produce of the ground where it had not been applied. The owner agreed to try this; and when the chemist returned, he found that it had been applied in plenty in a small corner of the field with astonishing results, the crop on that corner being stronger and more luxuriant than on any other part of the field. So far all was satisfactory; but in another respect, and that the most important, and one which the farmer has always to keep in view in conducting his experiments, it was not so satisfactory. The proprietor found that he could make the soil good, but that the expense of doing so might prove as great as the increased value, and so the experiment stopped. *The Farmer.*

Notices to Correspondents.

PRANGOS PABULARIA: *W. Somner.* It is an umbelliferous plant; a native of the Himalayan Mountains, which has been introduced into this country, but is not suited to our climate. It has the reputation of being valuable as a forage plant in its own country, but any hope of its correcting the tendency to rot in sheep is altogether illusive. Land drainage is the only cure for that.

PRICES OF CORN: *Statistics*—

	Wheat.	Barley.	Oats.
	Quarter.	Quarter.	Quarter.
1860	53*s.* 3*d.*	36*s.* 7*d.*	24*s.* 5*d.*
1861	55*s.* 4*d.*	36*s.* 1*d.*	23*s.* 9*d.*
1862	55*s.* 5*d.*	35*s.* 1*d.*	22*s.* 7*d.*
1863	44*s.* 9*d.*	33*s.* 11*d.*	21*s.* 2*d.*
1864	40*s.* 2*d.*	29*s.* 11*d.*	20*s.* 1*d.*
1865	41*s.* 10*d.*	29*s.* 9*d.*	21*s.* 10*d.*
1866	49*s.* 11*d.*	37*s.* 5*d.*	24*s.* 7*d.*

—See "Statistical Abstract for 15 Years." 1867. Spottiswoode & Co. Price 8*d.*

SHEEP-FEEDING: *A Subscriber at Wrexham* says that having lost his stock of cattle through the rinderpest, and now sheep farming, he should feel greatly obliged to any of our correspondents for any information through this Paper as to the best kind of racks and troughs for sheep-feeding in winter in the field.

SUNDRIES: *Ignotus.* A 6-horse power moveable steam engine costs about 180*l.*, and will consume about 5 or 6 cwt. of coals in 10 hours—costing from 6*d.* to 1*s.* per cwt. A cart-horse may cost 30*l.* to 40*l.*, and will cost 10*s.* to 12*s.* a week to keep him. An ordinary threshing machine, fit for the 6-horse power engine, will cost 100*l.*

IRON GREENHOUSES CHEAPER THAN WOOD.

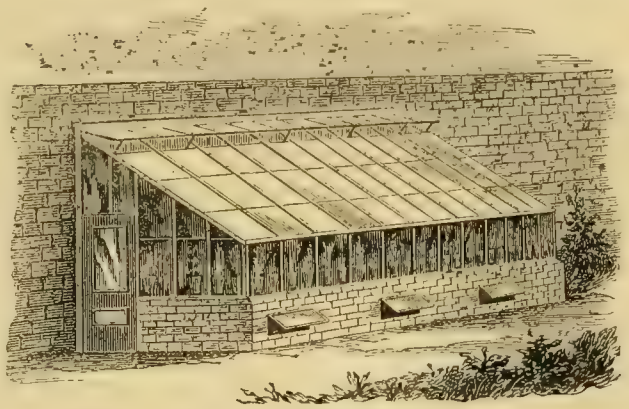
BEARD'S PATENT NON-CONDUCTING METALLIC GLASS-HOUSES

MANUFACTURED BY

SANDERS, FREWER, & CO.,

VICTORIA WORKS, BURY ST. EDMUND'S.

No. 2. CLASS A.



The FIRST and only PRIZE was awarded to SANDERS, FREWER, AND CO., for BEARD'S PATENT SYSTEM of GLAZING and VENTILATING, at the Royal Horticultural Congress, South Kensington, 1866.

Also the FIRST-CLASS CERTIFICATE at the Grand National Horticultural Show held in Manchester, June, 1867.

Also THREE FIRST-CLASS CERTIFICATES at the Royal Horticultural Show, held at Bury St. Edmund's, July, 1867, viz.:—

1. The FIRST PRIZE for the BEST SYSTEM of VENTILATION.
2. The FIRST PRIZE for the BEST SYSTEM of GLAZING WITHOUT PUTTY.
3. The FIRST PRIZE for the BEST IRON FLOWER STAND with SLATE TOP.

SANDERS, FREWER, AND CO., in calling special attention to the introduction of their New Improved Strong, Cheap, and Durable BEARD'S PATENT HOUSES, CLASS A, suitable for Florists, Market Gardeners, and for Vineries, Pine Pits, Orchard, Plant, and Greenhouses, &c., &c., believe the prices at which they are offered will entirely supersede the use of perishable Wood Houses. They are manufactured particularly easy for erecting—any handy workman, practical, or amateur gardener, may build the house when once seen, the entire framework being made of wrought iron to templates, and glazed with 26 oz. Sheet-glass, and painted with two coats of magnetic paint.

The following Prices include PATENT TOP VENTILATORS, as shown in CLASS A, with GALVANISED IRON WATER TROUGHS, delivered at the Bury St. Edmund's Railway Station, but do not include carpenters' or bricklayers' work, or fixing the houses.

CLASS A. LEAN-TO, WITH TWO ENDS, ONE DOOR.

	Width.	Height at Back.	Price with 26 oz. Sheet-glass.
No. 1 ..	5 ft. 3 in.	7 ft. 3 in.	14*s.* per foot run, 1*s.* 4*d.* per superficial foot.
,, 2 ..	7 ft. 3 in.	8 ft. 6 in.	18*s.* ,, ,, ,,
,, 3 ..	9 ft. 3 in.	9 ft. 9 in.	21*s.* ,, ,, ,,
,, 4 ..	11 ft. 3 in.	11 ft. 0 in.	25*s.* ,, ,, ,,
,, 5 ..	13 ft. 3 in.	12 ft. 4 in.	30*s.* ,, ,, ,,
,, 6 ..	15 ft. 3 in.	13 ft. 6 in.	35*s.* ,, ,, ,,
,, 7 ..	17 ft. 3 in.	14 ft. 10 in.	40*s.* ,, ,, ,,

The above Prices are for Houses over 20 feet long, at 1*s.* 4*d.* per superficial foot; all sizes under 20 feet must be subject to special arrangement.

SPAN ROOF HOUSES of CLASS A will also be 1*s.* 4*d.* per superficial foot, viz.:—

No. 1 Span, 10 ft. 6 in. wide, 7 ft. 3 in. high ... ... 28*s.* per foot run.
No. 2 Span, 14 ft. 6 in. wide, 8 ft. 6 in. high ... ... 36*s.* per foot run.

If the Glass Front is made to open with PATENT VENTILATION, 2*s.* 6*d.* per foot run extra will be charged.

THE NEW PRIZE WROUGHT-IRON FLOWER STANDS

With Slate Tops, 24 inches wide and 20 inches high, will be

3*s.* 6*d.* per foot run.

IMPROVED WROUGHT IRON SHELVING FOR GREENHOUSES

With Slate Tops, 12 inches wide, and Brackets,

1*s.* 6*d.* per foot run.

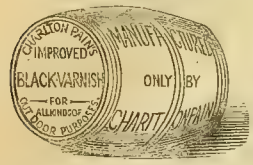
ILLUSTRATED CATALOGUES with full particulars, will be sent for 12 postage stamps, by applying to

SANDERS, FREWER, AND CO.,

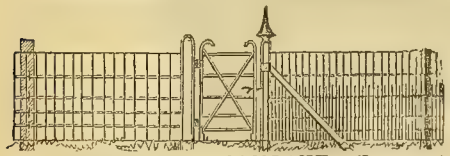
VICTORIA WORKS, BURY ST. EDMUND'S.

CARSON'S ANTI-CORROSION PAINT,
Patronised by the Nobility and Gentry, is extensively used for all kinds of OUT-DOOR WORK, and is proved, after a test of 70 years, to surpass any other Paint. It is especially applicable to Iron, Wood, Stone, Brick, Compo, and is the only Paint that will effectually resist the rays of the sun upon Conservatories, Greenhouses, Frames, &c. Is twice as durable as genuine White Lead, so simple in application that any person can use it. Per cwt.
WHITE, LIGHT STONE, BATH, and LIGHT PORTLAND COLOURS .. .. 30s.
LEAD, CHOCOLATE, RED, PURPLE, BROWN, and BLACK 26s.
BRIGHT GREEN, DEEP GREEN, and BLUE .. .. 42s.
Prepared OIL MIXTURE for the ANTI-CORROSION.
OILS, TURPENTINE, VARNISHES, BRUSHES, &c.
3 cwt. Free to all Stations in England and Wales, and most Ports of Ireland and Scotland. Patterns and Testimonials sent post free.
WALTER CARSON & SONS,
La Belle Sauvage Yard, Ludgate Hill, London, E.C.
CAUTION.—All Casks should bear the Trade Mark. No Agents.

IMPROVED BLACK VARNISH, for Coating and Preserving all kinds of Iron and Wood Fencing, Gates, Roofing, and every description of out-door Wood or Stone Work, Carts, Waggons, Farm Implements, &c.

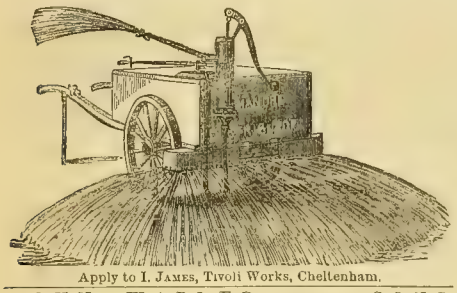


It is an excellent substitute for Oil Paint, and is not one-fifth the cost! It requires no mixing, and can be applied in a cold state by any ordinary labourer.
This Varnish is now used in the Royal Botanic Garden, Regent's Park, and by a great number of the Nobility and Gentry in the United Kingdom.
Sold in casks of about 30 gallons each, at 1s. 3d. per gallon; or in casks from 10 to 20 gallons each, at 1s. 5d. per gallon (casks included). Carriage paid to any railway station in Great Britain. Extra strong Iron-bound Varnish Brushes, 5s. per pair.
CHARLTON PAIN, 10, Richard's Villas, Lavender Grove, Dalston, London, N.E. (from whom it can only be had).
The most flattering Testimonials forwarded on application.



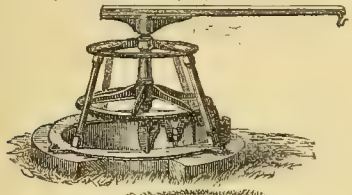
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Offices:—1, Albert Square, Manchester.

FOR the BEST LIQUID MANURE CART IMPROVED ROLLER and CLOD CRUSHER,

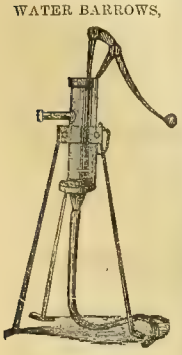


Apply to I. JAMES, Tivoli Works, Cheltenham.

JOHN WARNER AND SONS,
BRASS and BELL FOUNDERS to HER MAJESTY,
HYDRAULIC ENGINEERS,
8, Crescent, Cripplegate, London, E.C.

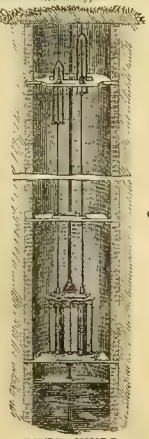


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WATER BARROWS,



No. 42.

PORTABLE PUMPS for LIQUID MANURES.



DEEP WELL PUMPS, for Steam, Horse, or Hand Power.

CRYSTAL PALACE FIRE ENGINES.



No 35.

CAST-IRON PUMPS.

Drawings and Prices for any description of Hydraulic Machinery sent upon application.

SPECIAL NOTICE.

CLAYTON, SHUTTLEWORTH, & CO.,

At the Triennial Trials of THE ROYAL AGRICULTURAL SOCIETY OF ENGLAND, held at Bury St. Edmund's, July, 1867, received the following Awards:—

For Single Cylinder Portable Steam Engine, The FIRST PRIZE of £25.
For Double Cylinder Portable Steam Engine, The FIRST PRIZE of £25.
For Horizontal Cylinder Fixed Engine, The FIRST PRIZE of £20.
For Double Blast Finishing Threshing Machine, The PRIZE of £15.
The SOCIETY'S SILVER MEDAL, for Adjusting Blocks for Machines.
Also PARIS EXHIBITION (1867) GOLD MEDAL.

The duty performed by all C., S. & Co.'s Engines at Bury, *considerably exceeded that of any others*, and *has never been equalled at* ANY *of the trials of the Society*. C., S. & Co. refer with pleasure to the fact that the duty of their "COMMERCIAL" or SINGLE VALVE ENGINE, at Chester, so long ago as 1858, was not equalled by any "ordinary" Engine at Bury.

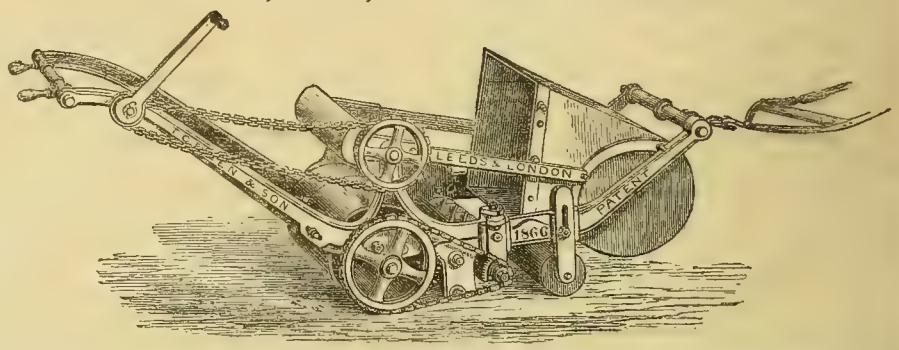
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GREEN'S PATENT SILENS MESSOR,

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FITTED WITH PATENT SELF-SHARPENING CYLINDER CUTTERS.

They are the simplest in construction, least liable to get out of order, and can be worked with far greater ease than any other Lawn Mower extant.
GREEN'S PATENT LAWN MOWERS have proved to be the best, and have carried off every Prize that has been given in all cases of competition; and in proof of their superiority, 40,000 have been sold since the year 1856.

HORSE, PONY, AND DONKEY MACHINE.



Every Machine is warranted to give entire satisfaction, and if not approved of can be returned at once unconditionally.
T. GREEN AND SON *have to state that the demand for their* LAWN MOWERS *this Season has been unprecedented, which is a proof of the high estimation in which they are held. Selections can be made from their Stock both in London and Leeds.*
☞ ILLUSTRATED PRICE LISTS FREE ON APPLICATION.

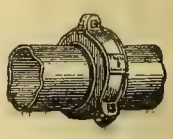
THOMAS GREEN AND SONS, SMITHFIELD IRON WORKS, LEEDS; and
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PORTABLE AND FIXED HOT-WATER APPARATUS,

FOR HEATING CONSERVATORIES, HOTHOUSES, CHURCHES, PUBLIC BUILDINGS, PRIVATE RESIDENCES, ETC., WITH



TRUSS'S PATENT UNIVERSAL FLEXIBLE AND LEAKLESS PIPE-JOINTS.



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Begs to state that the immense number of APPARATUS annually Designed and Erected by him in all parts of the kingdom, and for the ROYAL HORTICULTURAL SOCIETY at SOUTH KENSINGTON and CHISWICK, with unrivalled satisfaction, is a guarantee for skill of design, superior materials, and good workmanship; while the great advantages obtained by his IMPROVED SYSTEM cannot be over-estimated, consisting of perfectly tight joints with neatness of appearance; EFFECTS A SAVING OF 25 PER CENT. on cost of Apparatus erected compared with other systems; facility for extensions, alterations or removals without injury to Pipes or Joints; can be erected by any Gardener; an ordinary size Apparatus erected in one day, and PERFECTNESS of DESIGN SUPPLIED, INSURING NO EXTRAS. Complete Apparatus, of the best materials, with Saddle Boiler, delivered to any Railway Station in England, and Erected at the following prices. Erection beyond 25 miles off London, railway fare for one man additional. Considerable reduction on large works.

TWO FOUR-INCH PIPES ALONG ONE SIDE AND ONE END OF HOUSE.

Size of House.	Apparatus Complete.	Erection.	Size of House.	Apparatus Complete.	Erection.
20 feet by 10 feet ..	£9 0 0 ..	£2 0 0	50 feet by 15 feet ..	£17 10 0 ..	£3 0 0
30 feet by 12 feet ..	11 15 0 ..	2 10 0	75 feet by 15 feet ..	20 0 0 ..	3 0 0
40 feet by 15 feet ..	15 0 0 ..	2 15 0	100 feet by 15 feet ..	26 0 0 ..	3 5 0

Bath and Gas Work erected in town or country. The Trade Supplied.
Horticultural Buildings of every description from 1s. 6d. *per foot superficial, inclusive of Brickwork.*

Price Lists, Plans, and Estimates forwarded on application to

T. S. TRUSS, C.E., CONSULTING HORTICULTURAL ENGINEER, &c., SOLE MANUFACTURER,
FRIAR STREET, BLACKFRIARS ROAD, LONDON, S.E.

Observe — The City Offices are now Removed to the Manufactory, Friar Street.

E. T. ARCHER'S "FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, and Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, &c.

PROTECTION from the COLD WINDS and MORNING FROSTS.

"FRIGI DOMO" NETTING, White or Brown, made of prepared Hair and Wool, a perfect non-conductor of heat or cold, keeping a fixed temperature where it is applied. It is adapted for all Horticultural and Floricultural purposes, for Preserving Fruits and Flowers from the Scorching Rays of the Sun, from Wind, from Attacks of Insects, and from Morning Frosts. To be had in any required lengths.

"FRIGI DOMO" NETTING, 2 yards wide, 1s. 6d. per yard run.

"FRIGI DOMO" CANVAS.

Two yards wide	1s. 9d. per yard run.
Four yards wide	3s. 6d. per yard.
An improved make, 2 yards wide	1s. 9d. per yard.
An improved make, 3 yards wide	2s. 8d. per yard run.

ELISHA THOMAS ARCHER, Whole and Sole Manufacturer, 7, Great Trinity Lane, Cannon Street, City, E.C., and of all Nurserymen and Seedsmen throughout the Kingdom.

"It is much cheaper than Mats as a covering."

JAMES PHILLIPS AND CO. beg to submit their prices as follows:—

GLASS for ORCHARD HOUSES,

As supplied by them to Mr. Rivers, to the Royal Horticultural Society, and to most of the Nobility, Clergy, and Gentlemen of the United Kingdom.

Each Box contains 100 feet. The prices only apply to the sizes stated.

Squares 20 by 12, 20 by 13, 20 by 14, 20 by 15.

	16 oz. to the foot.	21 oz.
Fourth quality	15s. 0d.	19s. 6d.
Third ditto	17s. 0d.	22s. 6d.
Seconds	18s. 6d	26s. 0d.
English	20s. 0d.	27s. 0d.

The above prices include the boxes, which are not returnable.

HORTICULTURAL GLASS.

Stock sizes, 16-oz., in 100 feet boxes, boxes included.

These prices only apply to the sizes stated.

				4ths.	3rds.	2nds
				s. d.	s. d.	s. d.
11 by 9	12 by 9	13 by 9	14 by 9	13 6	15 6	17 0
12 „ 10	13 „ 10	14 „ 10	15 „ 10			
13 „ 11	14 „ 11	..	..			
14 „ 12	15 „ 12	15 „ 11	16 „ 11			
18 „ 12	19 „ 12	16 „ 12	17 „ 12			
16 „ 13	17 „ 13	20 „ 12	..	15 0	17 0	18 6
16 „ 14	20 „ 13	18 „ 13	..			
	17 „ 14	18 „ 14	..	16 to 17 oz. to the foot.		
	20 „ 14					

SMALL SHEET SQUARES.

In 100 feet Boxes.				
6 by 4	6½ by 4½	7 by 5	7½ by 6½	.. 12s. 6d.
8 by 6	8½ by 6½	9 by 7	9½ by 7½	
		10 by 8	10½ by 8½	.. 13s. 6d.

Boxes 2s. each returnable at full price.

London Agents for HARTLEY'S IMPROVED PATENT ROUGH PLATE.

LINSEED OIL, Genuine WHITE LEAD, CARSON'S PAINTS, PAINTS of various colours, ground ready for use.

SHEET and ROUGH PLATE GLASS, SLATES of all sizes, BRITISH PLATE, PATENT PLATE, ROLLED PLATE, CROWN, SHEET, HORTICULTURAL, ORNAMENTAL, COLOURED, and every description of GLASS, of the best Manufacture, at the lowest terms. Lists of prices and estimates forwarded on application to

JAMES PHILLIPS & Co., 180, Bishopsgate Street Without, E.C.

Horticultural Glass Warehouse.

THOMAS MILLINGTON AND CO., 87, Bishopsgate Street Without, London, E.C.

NEW LIST for ORCHARD HOUSE GLASS as supplied to Her Majesty, the Nobility, Gentry, Mr. Rivers, and the leading Horticulturists of the United Kingdom.

ORCHARD HOUSE SIZES.

in.	in.		4ths.	3rds.	2nds.	Best.
20 by 12						
20 by 13						
20 by 14	} Per 100 feet	15 oz.	14s 3d	15s 6d	18s 6d	20s 0d
20 by 15		21 oz.	19s 6d	22s 2d	25s 6d	26s 6d
20 by 16						

SMALL SHEET SQUARES, 15 oz., per 100 feet.

in.	in.	in.	in.	in	in.	in.	in.	4ths.	3ds.	2nds.	Best.
6 by 4	7 by 5	8 by 6	9 by 7					12s 3d	13s 3d	16s 0d	18s 0d
6½ by 4½	7½ by 5½	8½ by 6½	9½ by 7½								

Per 100 feet.

10 by 8	12 by 9	12½ by 10½	14½ by 10½					13s 3d	14s 6d	17s 3d	19s 0d
10½ by 8½	12½ by 9½	13 by 10	15 by 10								
11 by 9	13 by 9	13½ by 10½	13 by 11								
11½ by 9½	12 by 10	14 by 10	14 by 11								

LARGE SHEET SQUARES, 15 oz., per 100 feet.

in.	in.	in.	in.	in.	in.	4ths.	3ds.	2nds.	Best
15½ by 10½	14 by 12	22 by 12	22 by 16						
16 by 10	14½ by 12½	17 by 13	24 by 16						
14½ by 11½	15 by 12	23 by 13	20 by 17						
15 by 11	15½ by 12½	18 by 14	22 by 17						
15½ by 11½	16 by 12	22 by 14	24 by 17	14s 3d	15s 6d	18s 6d	20s 0d		
16 by 11	16½ by 12½	24 by 14	20 by 18						
21 by 11	17 by 12	22 by 15	22 by 18						
13 by 12	18 by 12	23 by 15	24 by 18						

The above Prices are only for the Sizes stated; if a quantity of any other Size be required, a Special Price will be given.

SHEET GLASS.

In Sheets for Cutting up, averaging from 6 to 9 feet super.

15 oz.		21 oz.	
4ths quality, per 300 feet case,	38s.	4ths quality, per 200 feet case,	38s.
3ds „ „	48s.	3ds „ „	48s.
2ds „ „	62s.	2ds „ „	66s.
Best „ „	92s.	Best „ „	96s.

SHEET GLASS is made only in the following substances, 15 oz., 21 oz., 26 oz., 32 oz., 36 oz., and 42 oz.

HARTLEY'S IMPROVED ROLLED ROUGH PLATE in 1-8th in., 3-16th in., 1-4th in., and 3-8th in. substances.

BRITISH PLATE GLASS for Windows and Silvered for Looking Glasses, Coloured Glass, Glass Shades, Striking Glasses, &c., &c.

PAINTS, COLOURS, VARNISHES, &c.

STUCCO PAINT, 24s. per cwt. This Paint adheres firmly to the walls, resists the weather, and is free from the glossy appearance of Oil Paint, resembling a stone surface, and can be made any required shade. It is mixed with rain or pure river water.

WHITE ZINC PAINT, 36s. per cwt. One hundredweight of pure Zinc Paint, with three gallons of Linseed Oil, will cover as much as one hundredweight and a half of White Lead and six gallons of Linseed Oil. Special Dryers for this Paint.

IMPROVED ANTI-CORROSION PAINT, 28s. to 34s. per cwt. Anti-corrosion Paint is extensively used for all kinds of work in exposed situations, on Brick, Stone, Compo, Iron, Iron Bridges, Conservatories, Greenhouses, &c., and is easily laid on by any ordinary workman. Prepared Oil for ditto 4s. per gallon.

	Per cwt.—s. d.		Per gallon.—s. d.
GENUINE WHITE LEAD	32 0	LINSEED OIL	3 4
SECONDS WHITE LEAD	30 0	BOILED OIL	3 9
GROUND PATENT DRYERS, 3d. to 4½d. per lb.		TURPENTINE	3 0
„ OXFORD OCHRE, 3d. to 4½d. per lb.		LINSEED OIL PUTTY, 8s. to 9s. per cwt.	
RAW UMBER, 4½d. to 6d. per lb.	[per lb.	Fine OAK VARNISH, 10s. to 12	0
„ BURNT do., 6d. to 9d.		„ CARRIAGE do., 12s. to 14	0
GREEN PAINT, all shades,	28s. to 30 0	„ PAPER do. 10s. to 12	0
BLACK PAINT,	24s. to 30 0	„ COPAL	16 0
RED PAINT ..	28s. to 36 0	KNOTTING	10 0
		Patent GOLD SIZE ..	10 0
		„ BLACK JAPAN ..	12 0
GROUND BRUSHES.		GLAZIER'S DIAMONDS and TOOLS	
DUSTERS. | SASH TOOLS.		MILLED LEAD and PIPES	
DISTEMPER BRUSHES.		OLD LEAD Bought or taken in exchange.	

The above are Net, for Cash, and as such cannot be booked.

Lists of any of the above on application.

JOHN GIBSON, JUN., begs to announce that he is prepared to Furnish PLANS and ESTIMATES for LAYING OUT GROUND attached to Mansions and Villa or other Residences, or for the FORMATION of PUBLIC PARKS or GARDENS and to carry out the same by Contract or otherwise.

Address Mr. JOHN GIBSON, jun., Surrey Lane, Battersea, S.W.

Farm Poultry.

GREY DORKING FOWLS, of purest breed, in any numbers.

Imported TOULOUSE GEESE, the largest and most productive breed known.

Improved NORFOLK TURKEYS, large, hardy, and good breeders.

AYLESBURY and ROUEN DUCKS.

Imported BELGIAN HARE RABBITS, for size and early maturity.

BRAHMA-POUTRA, CREVECEUR, and LA FLECHE FOWLS, for constant layers.

Priced Lists and Estimates on application.

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FOR DISPOSAL, a First-class NURSERY and SEED BUSINESS; or the present Proprietor would accept of a WORKING PARTNER with a Capital of not less than £1500.

Apply by letter to E., Messrs. Hurst & Son, 6, Leadenhall Street, London, E.C.

TO BE DISPOSED OF, on advantageous terms, and may be entered upon immediately, an OLD ESTABLISHED NURSERY, eligibly situated, adjoining a large and important town, surrounded by an excellent neighbourhood, and having every facility for carrying on an extensive business.—Address,

G. H., Mr. Cooper, Seed Merchant, 152, Fleet Street, London, E.C.

TO BE LET, a SMALL NURSERY and SEED SHOP, situated at North Row, near Victoria Park.—Three Greenhouses, Pits, and Frames, and a good Seven-roomed Dwelling House; rent will be low; 17 years' Lease. Coming in for the whole, about £200. Apply to

JAMES MAY, 86, Usher Road, North Row, London, E.

To Market Gardeners, Fruit Growers, Nurserymen, and Others.

TO BE LET, on the Estate of the Earl of Essex, at Watford, Herts, with Immediate Possession, 27 ACRES of very Fertile ARABLE LAND, lying high, sloping to the south-east, well secured from the north, and abutting on the Turnpike Road, within about a mile of three Railway Stations and the Town of Watford, and admirably adapted for Garden Culture, together with a large quantity of sewerage and an unlimited supply of Water, a 10-Horse Power Stationary Pumping Engine and Pumps, and a Cottage, all in good working order, and, if required, about 25 Acres of Low-lying Meadow Land, on rich Alluvial Soil.

For Terms and Card to View apply to Messrs. HUMBERT & Cox, 88, St. James's Street, London, W.; and Watford, Herts.

Nursery and Seed Business for Sale.

WILLIAM DEAN, having determined on residing in London again, offers for SALE, with immediate possession, the NURSERY at SHIPLEY, consisting of Four Acres, with 13 extensive Glass Houses, the whole, with the Nursery well stocked, and with Dwelling House, &c., is held on Lease; also the SEED SHOP, in BRADFORD (the only one in the town), which is well fitted up, and where there is a good business doing in Fancy Articles, as well as Seeds, Cut Flowers, Flowering Plants, &c. The Nursery is 2½ miles from the Shop, on a principal road to Bradford. A half year's business is equivalent to the purchase money required, and will be a great bargain to the purchaser. It is an excellent opportunity for a large house in the South to establish a Branch Business here, as a good healthy Trade is already done, which may be very much increased. For particulars apply to

WILLIAM DEAN, Bradford Nursery, Shipley, Yorkshire.

Sales by Auction.

Bulbs from Holland, Fruit Trees, Hardy Shrubs, &c.

MR. J. C. STEVENS will SELL by AUCTION at his Great Rooms, 38, King Street, Covent Garden, W.C., on MONDAY, November 4, at half-past 12 o'Clock precisely, first-class BULBS from HOLLAND, in lots to suit private buyers and the Trade; Pyramidal and Dwarf FRUIT TREES, and HARDY TREES and SHRUBS.

On view the Morning of Sale, and Catalogues had.

Standard Roses, Camellias, Dutch Bulbs, Fruit Trees, Hardy Shrubs, &c.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, November 6, at half-past 12 o'Clock precisely, 700 first-class Standard ROSES, CONIFERS, LAURELS, HOLLIES, Pyramidal and Dwarf FRUIT TREES; and an importation, just arrived from Holland, of DOUBLE and SINGLE HYACINTHS, TULIPS, CROCUSES, NARCISSUS, GLADIOLI, LILIES, &c.

On view the Morning of Sale, and Catalogues had.

Imported Orchids.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, November 7, at half-past 12 o'Clock precisely, Imported ORCHIDS from Brazil and Peru, including fine healthy Plants of LÆLIA PURPURATA, CATTLEYA ACLANDIÆ, CATTLEYA LEOPOLDII, CYPRIPEDIUM CAUDATUM, ODONTOGLOSSUM KRAMERI, a new EPIDENDRUM, and two new ANGULOAS.

On view Morning of Sale, and Catalogues had.

Roses, Shrubs, Fruit Trees, Dutch Bulbs, &c.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on SATURDAY, November 9, at half-past 12 o'clock precisely, an Assortment of HARDY TREES and SHRUBS, Pyramidal and Dwarf FRUIT TREES, Standard and Dwarf ROSES, and a large quantity of HYACINTHS, TULIPS, NARCISSUS, CROCUSES, LILIES, GLADIOLI, &c., just arrived from Holland.

On view the Morning of Sale, and Catalogues had.

Extensive Sale of Nursery Stock at Edengrove Nursery, Cupar Fife.

THERE will be SOLD by PUBLIC ROUP, on MONDAY, November 4, at half-past 12 o'Clock, in consequence of the near expiry of the Lease, the WHOLE STOCK in EDENGROVE NURSERY, consisting of—

400,000 1-yr. Seedling Larch.	30,000 Transplanted Pinus Austriaca.
200,000 2-yr. do.	200,000 2-yr. Seedling Elm.
54,000 2-yr. Transplanted Larch.	6,000 Transplanted do.
200,000 1-yr. Seedling Scots Fir.	40,000 2-yr. Seedling Ash.
50,000 2-yr. do.	100,000 2-yr. Seedling Oak.
20,000 1-yr. Transplanted Scots Fir.	10,000 2-yr. Turkey Oak.
100,000 3-yr. Seedling Spruce.	10,000 Transplanted Oak.
65,000 Transplanted Spruce.	30,000 Transplanted Thorns.
16,000 3-yr. Seedling and Transplanted Silver Fir.	10,000 Transplanted Alder.
	10,000 Transplanted Hollies.
	2,000 Limes, from 2 to 7 feet.
	15,000 American Arbor-vitæ.

Together with large quantities of Rhododendrons, Irish Yews, and Junipers, Bays and Portugal Laurels, Pear, Apple, and Cherry Stocks, &c.

Catalogues to be had on application to Messrs. CHARLES & J. R. WELCH, Writers, Cupar Fife.

Notice.—Eaton Nursery, near Norwich.

TO NOBLEMEN, GENTLEMEN, AND OTHERS, ABOUT TO PLANT.—IMPORTANT SALE OF FOREST TREES, EVERGREENS, DECIDUOUS SHRUBS, &c.

MESSRS. BUTCHER have received instructions from Mr. J. W. Ewing (in consequence of his being about to devote more land to the cultivation of fruit trees) to SELL by AUCTION on WEDNESDAY, November 6th, and following days, on the premises at Eaton, near Norwich, a large quantity of Strong, Healthy, and well-grown FOREST TREES, DECIDUOUS SHRUBS, EVERGREENS, &c., &c., comprising about 150,000 Larch, 8000 Scotch, 70,000 Spruce, 30,000 Ash, 10,000 Common Laurel, 20,000 Privet, 30,000 Hazel, 1800 Arbor-vitæ, 2000 Standard and Dwarf Roses, &c., besides a great quantity of large trees.

Catalogues may be obtained at No. 9, Exchange Street, Norwich; at the Nurseries, Eaton and Cringleford; or at Messrs. BUTCHER'S, Theatre Street, Norwich, and posted free on application.

MESSRS. PROTHEROE AND MORRIS'S PRELIMINARY NOTICE of FORTHCOMING SALES.

HIGHLY IMPORTANT TO NOBLEMEN, GENTLEMEN, NURSERYMEN, MARKET GARDENERS, AND PUBLIC COMPANIES ENGAGED IN PLANTING.

WOKING, SURREY.—About nine days' Sale, commencing Nov. 18, without reserve, in consequence of the death of Mr. Robert Donald:—About 150 Acres of NURSERY STOCK, including an unusually large quantity of EVERGREEN, CONIFEROUS, and DECIDUOUS SHRUBS, ORNAMENTAL, FOREST, and FRUIT TREES. The Stock is particularly worthy the attention of the Trade.

FULWELL, November 20, by order of Mr. Laing.—The usual assortment of NURSERY STOCK, consisting of some valuable specimens for effective purposes.

CITY AUCTION ROOMS, 38 & 39, Gracechurch Street.—WEEKLY SALES of only first-class BULBS, STANDARD ROSES, AMERICAN PLANTS, &c.

Particulars will appear in future Advertisements.

American Nurseries, Leytonstone, N.E.

Wandsworth Road.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, on the Premises, Lavender Road Nursery, Wandsworth Road, on MONDAY, November 4, at 11 o'Clock precisely, by order of Mr. Surman, the ground being required for building purposes, the valuable NURSERY STOCK, comprising a large quantity of fine Evergreen, Coniferous, and Deciduous Shrubs, Ornamental Forest and Fruit Trees, including 500 Aucuba, 1500 Laurustinus, 1100 Green and Variegated Hollies, 1 to 6 feet; 600 English Yews, 2000 Common Laurels, 1 to 4 feet; Berberis, Green Box, Portugal Laurels, 700 Chinese Arbor-vitæ, 2 to 6 feet; Weymouth Pines, Pinus excelsa, 500 Spruce, Scotch and Larch Firs, Thujas (sorts), Retinispora, Araucaria, &c.; Limes, Planes, Mountain Ash, Chestnuts, Acacias, Laburnums, Weeping Willows, Copper Beech, &c.; Standard and Dwarf Apples, Pears, Plums, Cherries, Dwarf-trained Peaches, Nectarines, Apricots, Walnuts, Filberts, &c.; Standard and Dwarf Roses, 500 Irish Ivies, in Pots; Virginian Creepers, &c.

May be viewed prior to the Sale. Catalogues had on the Premises, and of the Auctioneers and Valuers, Leytonstone, N.E.

Kingston, Surrey.

MESSRS. PROTHEROE AND MORRIS have received instructions from Messrs. Jackson & Son, to SELL by AUCTION, on the Premises, Clarence Street and Park Road Nurseries, Kingston, Surrey, on TUESDAY, November 5, and three following days, at 11 for 12 o'Clock precisely each day (a portion of the Land being required to be cleared for Building purposes), the thriving and well-cultivated NURSERY STOCK, comprising fine Ornamental Evergreen, Coniferous, and Deciduous Shrubs, varying all sizes, and including specimens of symmetrical beauty, the whole of which have been constantly transplanted, and are now in excellent condition for removal, comprising 1100 Tree-Box, 2 to 8 feet; 400 Portugal Laurels, 2 to 3 feet; 6000 Common Laurels, 2 to 4 feet; 400 Berberis (sorts), 3000 Green and Variegated Hollies, 1100 Broad-leaved Privet, 2 to 4 feet; 300 Laurustinus, 1400 Chinese Arbor-vitæ, 2 to 7 feet; 300 Thuja Lobbii, 3 to 8 feet; 700 Thujas (sorts), 300 English Yews, 500 Irish Yews, 200 Variegated Yews, 1200 Cupressus Lawsoniana, 3 to 7 feet; 800 Cupressus (sorts), 5700 Spruce Firs, 1 to 8 feet; 200 Wellingtonia gigantea, 3 to 5 feet; Red Cedars, Cedars of Lebanon, 1000 Rhododendrons (sorts), Hardy Azaleas, Kalmias, Hardy Heaths, Double Deutzias, &c.; Standard Thorns, 8000 Hazel, 3000 Beech, 2000 Chestnuts, 12,000 Strong Quicks, &c. Also, about 4000 handsome Standard, Dwarf, and Pyramidal Trained and Untrained Fruit Trees (various), many of which have been loaded with Fruit this season; 2000 Gooseberries and Currants, with some large Double Camellias, 8 to 10 feet; 300 Azalea indica, 2 to 4 feet; and 40 large Rhododendron aureum (varieties).

May be Viewed prior to the Sale. Catalogues may be had on the Premises, and of the Auctioneers and Valuers, Leytonstone, N.E.

Sale of Very Fine Dutch Bulbs, Handsome Standard Roses, &c.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at 38 and 39, Gracechurch Street, E.C., on THURSDAY, Nov. 7, at 1 o'Clock precisely, a First-class Collection of DUTCH BULBS, including fine named Hyacinths, Tulips, Crocus, Narcissus, Snowdrops, Anemones, Ranunculus, &c.; a splendid assortment of STANDARD, DWARF, and CLIMBING ROSES, of the best varieties in cultivation; Selected AMERICAN PLANTS, viz., Ghent and other Azaleas, Hybrid Rhododendrons, Kalmias, Andromedas, some Hardy Climbers, &c.

On View the Morning of Sale. Catalogues had at the rooms as above, and of the Auctioneers and Valuers, Leytonstone, N.E.

Godalming, Surrey.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, on the Premises, Godalming Nursery, and at Terrace Gardens, Shady Hangers, Godalming, Surrey, within five minutes' walk of the Godalming Station on the London and South-Western Railway, on MONDAY, November 11, and two following days, at 11 for 12 o'Clock each day, by order of Mr. Charles J. Barker, without reserve (unless previously disposed of in one lot by Valuation or Private Contract), the WHOLE of the thriving NURSERY STOCK, including a valuable assortment of CONIFEROUS, EVERGREEN, and DECIDUOUS SHRUBS, comprising Thuja aurea, Lobbii, Warreana, orientalis, compacta (1 to 5 feet), Wellingtonia gigantea, Picea (sorts), Juniperus, Silver, Balm of Gilead, Spruce and other Firs, Araucaria, Cryptomeria, Cupressus Lawsoniana, Thujopsis borealis, Green and Variegated Box, Common and Portugal Laurels, Hollies, Arbutus, Berberis, &c. Also some remarkably fine full-bearing FRUIT TREES, abundantly loaded with Fruit this Season, viz. Apples, Pears, Plums of the most approved kinds, Quince, and Medlars; Currants, Gooseberries, Weeping Willows, Purple Beech, and other Ornamental Trees; Standard Walnuts, Roses, Box Edging, &c.

The Stock of the Godalming Nursery will consist of Double Camellias, Azalea indica, and other Greenhouse Plants. A fine collection of Ferns, including Seedlings of value. Seven Newly-Erected Greenhouses, Pits, Hot-water Piping, Boilers, Shop Fixtures and numerous other Effects.

May be Viewed prior to the Sale. Catalogues may be had on the premises, and of the Auctioneers and Valuers, Leytonstone, N.E.

Edmonton.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr C. Wooiven to SELL by AUCTION, on WEDNESDAY and THURSDAY, November 13 and 14, at 11 for 12 o'Clock precisely, on the Premises, Langhedge Nursery, Edmonton, within 10 minutes' walk of Park Station on the Great Eastern Railway, the valuable NURSERY STOCK, consisting of 4000 Standard, Pyramidal, and Dwarf-trained Apples, 4000 Pears, 2500 Plums, Cherries, Peaches, Nectarines, and Apricots, 1000 Walnuts, Currants, &c. Also a fine assortment of EVERGREEN, CONIFEROUS, and DECIDUOUS SHRUBS, including 1000 fine Wellingtonias, 8000 Chinese Arbor-vitæ (6 inches to 7 feet), 8000 Thuja aurea, Sibirica, Lobbii, and others; 1000 Cupressus Lawsoniana (4 to 7 feet), 1000 Yews (4 to 6 feet), 1000 compact-grown Green Hollies (oval-leaved) and Common Privet, Portugal and Common Laurels, Aucubas, Lilacs, &c. Likewise a collection of Ornamental and Forest Trees, 1000 Limes, 1000 Sycamores, 1000 Poplars, 500 Thorns, 1000 Standard and Dwarf Roses of sorts, 30,000 Quicks, and a quantity of Climbing Plants.

May be Viewed prior to the Sale. Catalogues had on the premises, and of the Auctioneers and Valuers, Leytonstone, N.E.

New Hampton, Middlesex.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, on the Premises, The Nursery, New Hampton, near the Twickenham Station, and about five minutes' walk from the Fulwell Station, on FRIDAY, November 15, at 11 o'Clock, by order of Mr. Richard Lay, 1000 remarkably handsome FAN YEWS (4 to 10 feet), 1000 GREEN HOLLIES (4 to 6 feet), 1000 compact-grown CHINESE ARBOR-VITÆ, PORTUGAL LAURELS, LIGUSTRUM OVALIFOLIUM, CHESTNUTS, LIMES, POPLARS, &c., with an assortment of the STANDARD and HALF-STANDARD ROSES, DECIDUOUS SHRUBS, and about 6000 Standard and Dwarf APPLES, PEARS, PLUMS, fine Dwarf-trained PEACHES and NECTARINES, &c.

May be Viewed prior to the Sale. Catalogues had on the premises, and of the Auctioneers and Valuers, Leytonstone, N.E.

ROSES.—Extra fine Standards at 18*s.* per dozen; Dwarfs, extra fine, at from 9*s.* to 12*s.* per dozen; New Sorts of 1867, at 24*s.* per dozen; Dwarfs, established in pots for forcing, at from 18*s.* to 24*s.* per dozen.
DESCRIPTIVE LIST on application.
RICHARD SMITH, Nurseryman, Worcester.

FIFTY ACRES well stocked with FRUIT TREES to select from.—APPLES, PEARS, PLUMS, CHERRIES, PEACHES, NECTARINES, and APRICOTS, in every form desired for fruiting.
See RICHARD SMITH'S FRUIT LIST, free by post for 3 stamps.
RICHARD SMITH, Nurseryman, Worcester.

FOR THE OPEN GROUND.—APPLES, PEARS, PLUMS, and CHERRIES, fine healthy Pyramids, very ornamental and productive. Strongly recommended for large and small gardens.
See RICHARD SMITH'S FRUIT LIST, post free for 3 stamps.
RICHARD SMITH, Nurseryman, Worcester.

ESPALIER and WALL-TRAINED TREES in any quantity.—APPLES, PEARS, PLUMS, CHERRIES, PEACHES, NECTARINES, and APRICOTS, fine strong trees of perfect form.
See RICHARD SMITH'S FRUIT LIST, free by post for 3 stamps.
RICHARD SMITH, Nurseryman, Worcester.

A CROP of FRUIT the FIRST SEASON.—Bearing Pyramids and Bushes in pots for orchard houses. PEACHES, NECTARINES, APRICOTS, APPLES, PEARS, PLUMS, and CHERRIES. Extra strong VINES and FIGS in fruiting condition for forcing.
See RICHARD SMITH'S FRUIT LIST, post free for 3 stamps.
RICHARD SMITH, Nurseryman, Worcester.

MAGNIFICENT DWARF-TRAINED FRUIT TREES,
By the Dozen, Hundred, or Thousand.
APPLES, PEARS, PLUMS, CHERRIES, PEACHES, NECTARINES, and APRICOTS.
Also Standard, wall-trained, fruit bearing, PEACHES and NECTARINES.
PYRAMIDAL PEARS on the Quince Stock in a fruit-bearing state; and PYRAMIDAL PEARS, on the Pear Stock, extra strong and well grown.
WM. WOOD & SON have many acres of the above named, which for health and vigour are quite unsurpassed in the trade. The Trees have been most carefully trained, and are really examples of successful cultivation.
Address, Woodlands Nursery, Maresfield, near Uckfield, Sussex.

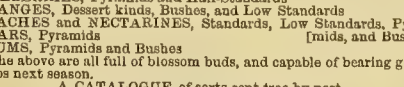
Weston Nursery, Weston-super-Mare.

GEO. JAMES begs to offer the following:—
1,000 MAIDEN APPLES, 30*s.* per 100.
500 MAIDEN PEARS, 30*s.* per 100.
10,000 APPLE STOCKS (good), 20*s.* per 1000.
20,000 APPLE STOCKS, 10*s.* per 1000.
1,000 CHINESE ARBOR-VITÆ, 2 to 3 feet, 30*s.* per 100.
500 LAURUSTINUS (good), 25*s* per 100.
1,000 STANDARD ROSES, 75*s.* per 100.
SAMPLES and CATALOGUES on application.

FOR SALE, the property of a Gentleman discontinuing their growth, some FRUITING and SUCCESSION PINE PLANTS, they are examples of good cultivation, clean and vigorous. Also some specimen INDIAN AZALEAS, of leading kinds; fine pyramidal plants, 3 to 5 feet high, fit for exhibition in 1868; also some fine half specimen ditto. And some fine GLOXINIAS, CALADIUMS, BEGONIAS, STOVE FERNS, &c., &c.
They are growing within a mile of Kingston Market Place.
For particulars or cards to view, apply to H. MCMILLAN, Nurseryman, St. James's Road, Kingston-on-Thames.

ORCHARD-HOUSE TREES in Pots.
APPLES, Pyramids [Bushes
APRICOTS, Standards, Half-Standards, Pyramids, Cordons, and
CHERRIES, Pyramids | FIGS, Bushes with clear stems
MULBERRIES, Pyramids and Half-Standards
ORANGES, Dessert kinds, Bushes, and Low Standards
PEACHES and NECTARINES, Standards, Low Standards, Pyra-
PEARS, Pyramids [mids, and Bushes
PLUMS, Pyramids and Bushes
The above are all full of blossom buds, and capable of bearing good crops next season.
A CATALOGUE of sorts sent free by post.
Carriage of packages paid to London.
THOS. RIVERS & SON, Nurseries, Sawbridgeworth.

Patronised by Her Majesty the Queen,
AND HIS ROYAL HIGHNESS THE PRINCE OF WALES.



THE SEEDLING APPLE, LORD BURGHLEY, was awarded a First-class Certificate by the Royal Horticultural Society, March 21, 1865.
The opinion of the Fruit Committee of the above Society, also testimonials from Messrs. Rivers, Lee, Pearson, and other eminent Fruit Growers, may be had on application to
J. HOUSE, Eastgate Nursery, Peterborough.
Fine Trees, 3*s.* 6*d.* and 5*s.* each.
CATALOGUES on application, post free.

Frogmore Early Bigarreau Cherry,

CHARLES TURNER has great pleasure in offering the above valuable NEW CHERRY. The following extracts will be a sufficient guarantee of its excellence:—
From the *Gardeners' Chronicle*, July 1, 1865.
"Fruit of a Seedling Cherry of excellent flavour, called the Frogmore Early Bigarreau, was shown by Mr. Ingram, on a north-east wall; it was as early as the May Duke, and said to be a heavy cropper."
A First-class Certificate was awarded by the Fruit Committee of the Royal Horticultural Society.
It was exhibited at the Royal Botanic Society in July of the present year, and awarded a Certificate. The report from the *Gardeners' Chronicle* of July 6 is as follows:—"A branch of a Cherry called Frogmore Early Bigarreau, loaded with ripe fruit, was shown by Mr. TURNER, of Slough. The fruit of this new variety is of good size, thin skinned, tender, and well flavoured, and being at least three weeks earlier than the common Bigarreau, cannot fail to be a favourite."
From the "Journal of Horticulture," July 11, 1867.
"Mr. TURNER exhibited a branch of Frogmore Early Bigarreau Cherry, loaded with fruit; of this excellent variety, which is ripe three weeks before the Bigarreau, a figure and description will be found in our ninth volume."
From the "Florist and Pomologist."
"By the time these pages are in the hands of our readers, the Frogmore Early Bigarreau Cherry will be at its highest excellence, perfectly ripe, and waning towards its end, before any of the other Bigarreaus have yet made their appearance. It was raised by Mr. Ingram, at the Royal Gardens at Frogmore.
"Unlike the class to which it properly belongs, it has a tender melting flesh; in every respect it is a Bigarreau in habit, leaf, and appearance of the fruit, and must be classified along with these varieties; but as if to set at nought all human arrangements, it persists in having a delicious melting flesh, instead of one that is hard and crackling. The fruit is large, obtusely heart-shaped, with a very shallow suture. Skin with a brilliant red cheek, dotted with minute yellow points, and of a remarkably pale almost pure white where shaded—so susceptible is it of shade, that the point of a leaf or the shadow of a twig would be photographed on this brilliant red. Stalk 2 inches long, with a very small receptacle, and set in a shallow and narrow cavity. Flesh very delicate and translucent, perfectly tender, melting, and very juicy, with a rich sweet flavour; stone small. The tree is a great bearer, clusters of a dozen and half to two dozen large handsome Cherries being produced on a small spray; and the fruit ripens in the middle of June."
STRONG PLANTS NOW READY.
STANDARDS, PYRAMIDS, and DWARF-TRAINED, 10*s.* 6*d.* each.
MAIDENS .. .. 7*s.* 6*d.* ,,
A Coloured Drawing by ANDREWS will be sent on receipt of 13 Stamps.
The Royal Nurseries, Slough.

Paul's Nurseries, Waltham Cross, N.

WM. PAUL begs to announce that he has the following COLLECTIONS of TREES and PLANTS now ready for delivery, which he can confidently recommend for quality and price:—

ROSES.—100,000 Plants, Standards, Dwarf Standards, and Dwarfs.
PRICED DESCRIPTIVE CATALOGUE free on application.

TREES and SHRUBS.—Large quantities of the popular Nursery Plants, of all sizes, good and cheap.
A choice variety of PICTORIAL TREES, his collection of which was the only one which received a Prize at the International Exhibition of 1866.

AMERICAN PLANTS.—Rhododendrons, Azaleas, Kalmias, Heaths, &c., in variety, from the commonest to the choicest.

FRUIT TREES.—Apples, Pears, Cherries, Plums, Figs, Peaches, Nectarines, Apricots, &c., &c.; Standards, Dwarfs, and Pyramids, trained and untrained. A large stock of handsome trees, many in a fruiting state.

GRAPE VINES.—All the best sorts, both Planting and Fruiting Canes.

PELARGONIUMS.—Beaton's and other Zonal kinds, Gold, Bronze, and Silver variegated, a fine collection.

HYACINTHS, TULIPS, and other BULBS.—All the First Prizes for Hyacinths and Tulips were awarded to his Collection at the London Flower Shows last spring. Cheap Hyacinths, Tulips, &c., for spring gardening by the 100 or 1000. Choicer kinds for pot culture and glasses good and cheap.
PRICED DESCRIPTIVE CATALOGUES of any or all of the above free by post.

TO LARGE PLANTERS and the TRADE—
Fine HORSE CHESTNUTS, 6, 7, 8, and 10 feet high.
PORTUGAL LAURELS, extra fine, 2, 3, and 4 feet.
ACER NEGUNDO VARIEGATA, from 3 to 4 ft., Pyramids.
HEMLOCK SPRUCE, 4 to 5 feet, fine.
BOX TREES, 2½ to 3 feet. | PRIVET, 3 to 4 feet.
SIBERIAN and AMERICAN ARBOR-VITÆ, 3 to 8 feet.
Special offers on application to
A. GODWIN & SON, Ashbourne, Derbyshire.

SEEDLING FOREST TREES.—
1 and 2-yr. Seedling LARCH.
1 and 2-yr. Seedling SCOTCH FIR.
2-yr. Seedling PINUS LARICIO.
2-yr. Seedling PINUS AUSTRIACA NIGRA.
Particularly fine. For Samples (with prices—f. o. b. at Warterford—which will be most moderate),
Apply to D. H. HIGGINS, The Nurseries, Clonmel, Ireland.

QUICKWOOD AND LARCH.
100,000 QUICKWOOD, 2 to 3 ft., very strong and well rooted, at 15*s.* per 1000.
100,000 LARCH, 4 to 5 ft., twice transplanted, good leads, and fine, at 30*s.* per 1000.
100,000 LARCH, 2½ to 3 ft. ditto, at 18*s.* per 1000.
100,000 LARCH, 2 ft. ditto, at 15*s.* per 1000.
The above are grown thinly on the ground and not drawn, but fine, stout, well-rooted stuff, that will stand by themselves. All other Nursery Stock very fine and hardy.
Address, HENRY MAY, The Hope Nurseries, Bedale, Yorkshire.

For Lawn and Cover Planting.

BERBERIS DARWINII.—Too much cannot be said of this fine evergreen species. It is hardy, and the profusion of its orange coloured blossoms, together with the quantity of berries which it bears (of which pheasants are very fond), render it one of the most attractive and desirable plants for lawn as well as cover planting ever introduced.
2-Yr. Seedlings, per 1000, 30*s.*
9 in. to 12 in., per 100, 10*s.* | 18 in. to 2 ft., per 100, 35*s.*
12 in. to 18 in., per 100, 18*s.* | 2 ft. to 2½ ft., per doz., 9*s.*
COTONEASTER SIMMONDSII.—This is a beautiful hardy evergreen shrub, with glossy dark green leaves, and bearing a large quantity of scarlet berries, which ripen later than the Berberis Darwinii, and will hang all winter.
12 in. to 18 in., per 100, 15*s.* | 2 ft. to 3 ft., per 100, 30*s.*
WILLIAM BARRON & SON, Elvaston Nurseries, near Derby.

W. HANDSCOMB, Aspley, Woburn, Beds, has the following for Sale:—

20,000 Laurels, 2 to 3 feet	10,000 Asparagus Plants, 2-yrs.
4,000 Berberis Aquifolia, 2 feet	1,000 Standard Roses
5,000 Spruce Fir, 2 to 5 feet	1,000 Dwarf Roses, of all the best sorts
1,000 Oaks, 4 feet	2,000 Tree Box, 2 feet
15,000 Larch, 3 to 5 feet	5,000 Beech, 4 to 5 feet
2,000 Scotch, 2½ to 3 feet	2,000 Black Poplar, 8 to 10 feet
8,000 Strong Blackthorn	500 Laurustinus, 2 feet
2,000 Horse Chestnuts, 2 feet	100 Savins, 3 feet
2,000 Birch, 3 to 5 feet	3,000 Dutch Elm, 10 to 12 feet
5,000 Ash, 3 to 5 feet	500 Sweet Briars, 4 feet
5,000 Hazel, 3 feet	100 Mountain Ash, 8 feet
1,000 Hornbeam, 2½ to 3 feet	100 Double Scarlet Thorn, 5 to
1,000 Oval-leaved Privets, 3 to 4 ft.	4,000 2-yr. Evergreen Oaks [8 ft.
10,000 do., 1½ to 2 feet	100 White Lilac, 7 to 10 feet
20,000 Evergreen Privet, 1½ to 2 ft.	

Northampton Nurseries.

JOHN PERKINS, SEN., begs to call the attention of Noblemen, Gentlemen, and others engaged in Planting, to his large stock of the following:—1,000,000 BLACK THORNS, for Covert Planting, 1½ to 2 feet, 2½ to 3 feet; 2,000,000 LARCH FIRS, 3 to 4 ft., 4 to 6 feet; 1,000,000 SPRUCE FIRS, 1½ to 2 feet, 2½ to 3 feet, 3 to 4 feet; 2,000,000 WHITE THORN QUICK, 2 and 3 years transplanted; also large quantities of

Birch, 3 to 4 feet	Elms, English, 6 to 8 ft., 8 to 10 ft.
Berberis Dulcis, 2 to 3 feet	Elms, Huntingdon, 6 to 8, 8 to 10ft.
Cedrus Deodara, 5 to 6 ft., 6 to 8 ft.	Chestnuts, Spanish, 2 to 3 feet
Green Box, 1½ to 2 feet	Portugal Laurel, 1½ to 2 ft, 2 to 3 ft.
Evergreen Privet, 2 to 3 feet	Pinus austriaca, 2 to 3 feet
Hornbeam, 3 to 4 feet	Sycamore, 3 to 4 feet

J. P.'s stock of all kinds of FRUIT, FOREST and ORNAMENTAL TREES, &c., is very extensive, and this season remarkably fine, and in excellent condition for removal, having been frequently transplanted. DESCRIPTIVE PRICED CATALOGUES sent post free on application to 52, Market Square, Northampton.

Bedford and Kettering Road Nurseries, Northampton.

FREDERICK PERKINS begs respectfully to offer the following, in consequence of the Lease of a part of his Nursery Grounds having expired, and the land being required for other purposes. The whole of the Stock is in excellent condition, and will be sold at prices to effect a clearance. Parties engaged in any kind of Planting are respectfully invited to inspect the Stock. In addition to the following there are many thousands of Evergreens and Ornamental Trees and Flowering Shrubs of various sizes, from 2 to 6 feet:—
500,000 LARCH FIR, 1½ to 2 ft., 2 to 3 ft., 3 to 4 ft., 4 to 5 ft., 5 to 6 ft.
500,000 2-year Transplanted WHITETHORN, or QUICK.
200,000 ASH, 1½ to 2 feet, 2 to 3 feet, 3 to 4 feet, 4 to 5 feet.

100,000 Evergreen Privet.	50,000 Green Holly.
50,000 Berberis Aquifolia.	20,000 Laurels, from 1½ to 4 feet.
20,000 English Yews.	50,000 Hornbeam, 3 to 4 feet.
50,000 Hazel, 3 to 4 feet.	50,000 English Oak, 1½ to 2 feet, 2 to 3 feet, and 3 to 4 ft.
5,000 Copper Beech, 3 to 4 feet, and 4 to 6 feet.	

Also a large quantity of Alder, Birch, Beech, Elm, Limes, Poplars, Spanish and Horse Chestnuts, Sycamores, Sweet Briars, &c. Upwards of Two Millions of 1-year extra fine Quick.
10,000 Standard, Pyramid, Dwarf-trained, and Maiden Apples. Pears, Plums, Cherries, Damsons, Peaches, Nectarines, and Apricots.
Priced List of the above free on application to
Seed Warehouse, No. 2, Gold Street, Northampton.

PAUL AND SON beg specially to call the attention of ORCHARD PLANTERS to their very fine STANDARDS of APPLES, PEARS, and CHERRIES, of the leading kinds, furnishable by the dozen or 100.
FRUITING PYRAMIDS of APPLES, PEARS, PLUMS, and CHERRIES in like quantity. PRICED LISTS of the above on application to
The "Old" Nurseries, Cheshunt, N.

Forest Trees, Fruit Trees, Evergreens, Plants for Game Covers, Conifers, Roses, &c.

FRANCIS AND ARTHUR DICKSON AND SONS invite the attention of Planters to their very large stock of the above, which in extent and variety is not excelled by any Nursery in the Kingdom. Their Nurseries, which are very bleak and exposed, extend over some 150 Acres, and their Plants are well known to be unusually hardy, as well as in the most perfect health and condition in every respect; and are found to thrive admirably when removed to other parts of the country. PRICED CATALOGUES post free upon application. Estimates and Special Prices for large quantities.
The "Upton" Nurseries, and "Old" Established Seed Warehouse, 106, Eastgate Street, Chester.

Fruit Trees.

J. LE CORNU, NURSERYMAN, SEEDSMAN, and FLORIST, begs to inform his Friends and the Public that he has this season to offer an immense quantity of beautiful and well-grown Fruit Trees, all of the best leading varieties, such as APPLES, APRICOTS, PEACHES, NECTARINES, PEARS, PLUMS, and CHERRY TREES, as Dwarf, Trained, and Standards, 4 to 6 feet stems. CATALOGUE on application.
High View Nurseries, Mont a l'Abbé, St. Helier's, Jersey.

FOREST, ORNAMENTAL, and FRUIT TREES.—Thirty Acres of these, young, healthy, transplanted, of all sorts and sizes, at very moderate prices. The Nurseries are very exposed on the West Coast; the Plants very hardy, and succeed well in the highest and most exposed situations. Parties stating the Sorts, Sizes, and Quantities required, will have special quotations.
YEWS, ENGLISH, some thousands of extra strong well-rooted and furnished, 3, 4, 5, and 6 feet. Price on application.
H. & R. STIRZAKER, Skerton Nurseries, Lancaster.

Now is the Proper Time to Plant Hardy Herbaceous Plants.

HENRY MAY offers the under-named large collection. It contains all the best CAMPANULAS, GERANIUMS (hardy), EPIMEDIUMS, ACONITUMS, PHLOXES, DELPHINIUMS, IRIS, and upwards of 60 different varieties of SAXIFRAGA and SEDUM, with a host of others.
A Collection of 100 named varieties .. .. .. 25*s.*
A Collection of 200 named varieties .. .. .. 40*s.*
A Collection of 500 named varieties .. .. .. 80*s.*
HENRY MAY, The Hope Nurseries, Bedale, Yorkshire.

To Noblemen, Engineers, Contractors, and Others.

TEN MILLIONS of THORN QUICKS for SALE.
1 year Seedlings, 1*s.* per 1000.
2 years, 1 to 2 feet, strong, 4*s.* per 1000.
2 years transplanted, suitable for railway fencing, 4*s.* 6*d.* p. 1000.
3 years do., well rooted and strong, 5*s.* per 1000.
Do., all selected, very strong, from 6*s.* to 8*s.* per 1000.
LARCH, 3 to 4 feet, 12*s.* per 1000.
GREEN HOLLIES, 2 feet, twice transplanted, 10*s.* per 100.
Apply to JOHN BUCK, Hawthorn House, Melbourne, near Derby.

Laurels.

FOR SALE, several Thousands of well-grown and thriving LAUREL PLANTS, from 2 to 3 feet high; delivered at the Tisbury Station, on the London and South-Western Railway, in quantities of not less than 1000, at 30*s.* per 1000. Either a respectable reference or the money will be required before sending the Laurels off. Post Office Orders to be made payable at the Tisbury Post Office. Apply to
Mr. JOHN JEFFERY, Old Wardour Castle, near Salisbury, Wilts.

Woodlands Nursery, Maresfield, near Uckfield, Sussex.

WM. WOOD AND SON have a very extensive stock to offer of the following, viz.:—
Scarlet HORSE CHESTNUTS, Standards, 6 to 10 feet [1000
CATALPA SYRINGÆFOLIA | YUCCA ARREA, by the 100 or
LABURNUMS, yellow and purple | Strong ASPARAGUS Plants
LARCH, SPRUCE, and SCOTCH FIRS
PINUS AUSTRIACA [and other Forest Trees
ASH, BIRCH, WILLOW, HORNBEAM, OAKS, SYCAMORE,
CATALOGUES and Samples may be had on application.

To Suburban and other Extensive Planters.

PONSFORD AND SON have much pleasure in offering (with special advantages) well-grown and thoroughly healthy GENERAL NURSERY STOCK, prominently the following:—Fruit Trees for every purpose, in fine condition; Roses, Ornamental Trees, Evergreen and Deciduous Shrubs for general furnishing, particularly Aucubas, Arbor-vitæ, Ligustrum, Thuja (various), Variegated Hollies, &c., specially to the Trade; fine Standard Mulberries, Limes, extra strong; Standard Apples and Plums, Dwarf-trained Apricots, Planes, Poplars, &c.; Azalea indica, choice sorts, extra size, Cheap.
Nurseries: Loughborough Park, Brixton, S.
Seed and Plant Department: Brixton Place.

To Railway and Enclosure Planters.

S. ROBINSON, of Shaw House, Melbourne, near Derby, has several million of BEDDING and TRANSPLANTED QUICKS to dispose of, suitable for the above purposes, from 2, 3, 4, and 5 years old. Price, from 4*s.* 6*d.* to 20*s.* per 1000; well rooted and fit for planting out.
S. R. has also for sale some fine Bushy SPRUCE, 3 to 4 feet; HOLLIES, BEECH, and LARCH, 4 to 5 feet; and other kinds of FOREST TREES.
Mr. ROBINSON wishes to inform his customers that he has a fine stock of his CHAMPION OX CABBAGE PLANTS for spring use.
N.B. Satisfactory references required previous to orders being executed.

Dumfries Railway Station Nursery.

THOMAS KENNEDY AND CO., NURSERYMEN AND SEEDSMEN, Dumfries, have this season a very large and superior stock of FOREST, FRUIT, and ORNAMENTAL TREES, DECIDUOUS and EVERGREEN SHRUBS, &c., which they are selling at extremely moderate prices. The TREES and SHRUBS being of all ages and sizes, are particularly well suited for extensive planting or for giving immediate effect in the formation and improving of Ornamental Parks, Pleasure Grounds, &c.
Prices on application. Special offers made to large purchasers.
*** Dumfries is most conveniently situated for the speedy transmission of goods to all parts of the United Kingdom.

The Dorset Nurseries, Blandford and Blandford St. Mary.

FREDERICK GILL AND CO., NURSERYMEN, SEEDSMEN, and FLORISTS, beg to invite the attention of Gentlemen who intend Planting, to their large and vigorous STOCK of FOREST, FRUIT, and ORNAMENTAL TREES, SHRUBS, ROSES, &c., extending over many Acres, and not to be surpassed.
Their ROSES on MANETTI STOCKS, of the choicest varieties and superior growth, merit especial mention.

Copy of a Letter received from the Rev. F. RADCLYFFE.
To the PROPRIETORS *of the* DORSET NURSERIES.
"SIRS,—I was much pleased to-day with the review of your fine Nursery Stock. Your Manetti Roses are the best propagated of any that I have ever purchased. At a little distance few can discern whether they are on alien stocks or on their own roots. They are usually budded far too high to prosper.—Yours truly,
"W. F. RADCLYFFE."

Editorial Communications should be addressed to "The Editor." Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
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THE GARDENERS' CHRONICLE

AND

AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.

No. 45.—1867.] SATURDAY, NOVEMBER 9. {Price Fivepence. STAMPED EDITION, 6d.

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ROYAL BOTANIC SOCIETY GARDENS, Regent's Park.—The FIRST EXHIBITION of PLANTS and FLOWERS in the Gardens of the Society next season will take place on WEDNESDAY, May 20, 1868.
By order.
J. DE C. SOWERBY, Secretary.

THE ASSOCIATION of SURREY NURSERYMEN.
Temporary Offices, East Brixton, S.
A Deputation from the above Association having visited Holland, intend VISITING the ENGLISH DUTCH BULB DEALERS not at present connected with the above Society, during the next few weeks. A letter stating the object of the Association will be forwarded by the Hon. Secretary, CHARLES YOUNG, Balham Hill Nursery, Surrey, S.

Open to All England.
THE STOKE NEWINGTON CHRYSANTHEMUM SOCIETY.
President—SHIRLEY HIBBERD, Esq., F.R.H.S.
The TWENTY-FIRST ANNUAL EXHIBITION of the above Society will be held in the School Rooms, opposite Abney Park Cemetery, Stoke Newington, on THURSDAY and FRIDAY, November 14 and 15. Admission—First day, 1*s.*; Second day, 6*d.*
W. T. HOWE, Hon. Sec.
1, Down's Park Road, Shacklewell, N.E.

Chrysanthemums.
ADAM FORSYTH begs to inform his Friends and the Public that his large COLLECTION of SPECIMEN and other CHRYSANTHEMUMS are NOW in FLOWER, and may be seen every day (Sunday excepted).
Brunswick Nursery, Stoke Newington, London, N.

Exhibition of Chrysanthemums.
JOHN SALTER'S COLLECTION of these beautiful FLOWERS is NOW COMING INTO BLOOM. The Winter Garden contains more than 2000 plants, many of which are perfectly new, both in colour and form, and are now exhibited for the first time. The Gardens are open every day except Sunday; admittance free.
Versailles Nursery, William Street, Vale Place, Hammersmith, W., near the Kensington Railway Station.

To Nurserymen and Seedsmen.—Notice.
THE GARDENERS' YEAR BOOK, ALMANAC, and DIRECTORY for 1868, by ROBERT HOGG, LL.D., F.L.S., will be Published on DECEMBER 2. Any alterations in the style and address of Firms are requested to be sent forthwith to the Editor, so that the necessary corrections may be made in the Directory portion.
"Journal of Horticulture" Office, 171, Fleet Street, London, E.C.

To the Trade.
MARECHAL NIEL ROSE, from own roots, in pots, by the 100 or 1000, at £5 per 100.
G. BAKER & SON, American Nursery, Bagshot.

WM. KNIGHT offers the splendid YELLOW ROSE, MARECHAL NIEL.—Large plants, about 3 feet high, well ripened wood, in 8-inch pots, suitable for forcing, from 5*s.* to 6*s.* each, or 60*s.* per dozen.
GENERAL DESCRIPTIVE CATALOGUES free on application.
Floral Nursery, Hailsham, Sussex.

CULTURAL DIRECTIONS for the ROSE. Second Edition. By JOHN CRANSTON, King's Acre Nurseries, near Hereford. Free by post from the Author for 20 stamps.

"THE ROSES of MR. PAUL * * * are things to see once and dream of for ever."—*Athenæum, June*, 1867.
WM. PAUL begs to announce that his CATALOGUE of ROSES is now ready, and will be forwarded free on application.
EIGHTEEN PRIZES have been awarded to him for Roses this year at the principal London Flower Shows.
PAUL'S Nurseries, Waltham Cross, London, N.

PAUL AND SON'S ROSES.
See *Times*, *Athenæum*, and other leading Journals' reports of the Rose Shows.
Very reasonably PRICED CATALOGUES, free by post.
The "Old" Nurseries, Cheshunt, N.

Daphne cneorum.
HUSSEY AND SON beg to offer fine plants of the above charming Border Plant at 6*s.* per dozen; also strong Cuttings of MANETTI STOCKS at 1*s.* 6*d.* per 100, 10*s.* per 1000.
Mile End Nursery, Eaton, Norwich.

Lilium auratum.
SUTTON AND SONS can supply fine BULBS of this beautiful Flowering Plant at from 5*s.* to 15*s.* each.
Royal Berks Seed Establishment, Reading.

Wholesale Catalogue.
GEORGE JACKMAN AND SON'S PRICED and DESCRIPTIVE CATALOGUE of HARDY NURSERY STOCK for 1867 and SPRING, 1868, can be had free on application.
Woking Nursery, Surrey.

WANTED, good plants of DRACÆNA TERMINALIS, fit for Table Decoration. State quantity and lowest price.
A. R., *Gardeners' Chronicle* Office, W.C.

Violets, in good condition.
A JOHNSTON has a large quantity of NEAPOLITAN and TREE VIOLETS, in 48-pots, well set with Bloom, at 6*s.* per dozen.—Tanner's End Nursery, Edmonton, N.

The Best Twelve Hyacinths Imported by
SUTTON AND SONS,
for Twelve Shillings.
SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

MIXED HYACINTHS, for Beds or Open Borders, all colours, of various shades, 21*s.* per 100 (carriage free), or 3*s.* per dozen.
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Finest Dutch Crocuses and Early Tulips.
SUTTONS' DESCRIPTIVE LIST is now ready, and will be forwarded gratis and post free on application.
SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

Winter and Spring Flowering Bulbs and Plants.
BARR AND SUGDEN'S FLORAL GUIDE may be had free. It contains much valuable information.
For particulars see large Advertisement, page 1090.

Before Purchasing Flower Roots, send for
J. SCOTT'S CATALOGUE of BULBS, VASES, and GARDEN REQUISITES. Bulbs are extra fine.
J. SCOTT, The Seed Stores, Yeovil, Somerset.

Hyacinths, Tulips, Crocuses, &c.
B. S. WILLIAMS has a fine Collection of the above. PRICED CATALOGUE post free on application.
HYACINTHS for Glasses or Pots, 6*s.*, 8*s.*, and 10*s.* per dozen.
Victoria and Paradise Nursery, Upper Holloway, London, N.

WM. CUTBUSH and SON beg to say that their DESCRIPTIVE CATALOGUE of CHOICE HYACINTHS, TULIPS, CROCUSES, &c., is now ready, and can be had post free on application. Highgate Nurseries, London, N.

Bulb Catalogue.
BUTLER, McCULLOCH, AND CO.'S CATALOGUE of Choice DUTCH and CAPE BULBS is now ready. Sent free and post paid.—Established upwards of a Century.
South Row, Covent Garden Market, W.C.

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MR. STEVENS' SALES of DUTCH BULBS, FRUIT TREES, ROSES, and HARDY SHRUBS, take place every WEDNESDAY and SATURDAY, and frequently on MONDAY, at the Rooms, 38, King Street, Covent Garden, London, W.C.
CATALOGUES on application.

To Gardeners, Seedsmen, &c.
HENLEY, BROTHERS, MERCHANTS, Holbeach, have still on hand a quantity of SNOWDROPS, which they beg to offer. Samples and price on application.

Surplus Stock of Bulbs.
DOUBLE SNOWDROPS, fine sample, 15*s.* per 1000; also a large quantity of DOUBLE and SINGLE VAN THOL, TURNESOL, and YELLOW POTTEBAKKER TULIPS and other Roots, at very low prices. LISTS on application.
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H. & R. STIRZAKER, Skerton Nurseries, Lancaster.

True Variegated Gynerium argenteum.
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IF YOU WANT fine large bushy LAURELS, not injured by last winter's frost, apply to G. & W. STEELE, of the above Nurseries.

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CARTER'S New Seed Warehouse, 237 & 238, High Holborn, London.

Genuine Garden and Agricultural Seeds.
JAMES CARTER AND CO.
SEED FARMERS, MERCHANTS, and NURSERYMEN,
237 & 238, High Holborn, London, W.C.

Genuine Agricultural and Garden Seeds.
JAMES FAIRHEAD AND SON, SEED GROWERS and MERCHANTS, 7, Borough Market, and Braintree, Essex.

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Seed Growing Establishment, Wisbech, Cambs.

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ASPARAGUS ROOTS, 3-yr. old, per 100, 2*s.* 6*d.*; 2-yr. old, per 100, 1*s.* 6*d.* Terms cash.
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SEAKALE for Forcing, magnificent roots, now ready. Per 100, 10*s.* Terms cash.
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To the Trade.
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Lowest price per quarter on application.
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Vines.
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The Vineyard, Garston, near Liverpool.

FIVE HUNDRED GRAPE VINES, from Eyes. Prices on application.
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MADRESFIELD COURT BLACK MUSCAT GRAPE. See large Advertisement in No. 44, November 2, 1867.
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The "Old" Nurseries, Cheshunt, N.

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CATALOGUES free on application.
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APPLES, CHERRIES, NECTARINES, and PEACHES, &c., Dwarf and Dwarf-trained; Houghton Castle CURRANTS, &c., &c. See CATALOGUES, Wholesale or Retail.
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See CATALOGUES, Wholesale or Retail.
THOMAS WARNER, Leicester Abbey Nurseries.

THIRTY THOUSAND AMERICAN ARBOR-VITÆ, from 3 to 6 feet, very suitable for Hedges.
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ONE HUNDRED THOUSAND fine Transplanted COMMON LAURELS, from 1½ to 3 feet.
WM. WOOD & SON, Woodlands Nursery, Maresfield, near Uckfield, Sussex.

FOR SALE, TWO very large Plants of YUCCA PARMENTIERI. Diameter at base, 11 inches. Price £60 the pair. Apply to
R. GRINSTEAD, Gardener, Enclos St. Bertin, St. Omer, France.

TO LARGE BUYERS we make SPECIAL OFFERS for NURSERY STOCK. One Million EVERGREEN FIRS, five varieties. Accounts due in July, or 5 per cent. less if paid within three months.
JOSEPH TREMBLE & SONS, Penrith.

ELMS for AVENUE and PARK PLANTING.—Fine well rooted Trees of HUNTINGDON and HERTFORDSHIRE ELMS, 10 to 12 and 12 to 14 feet; and HERTFORDSHIRE, 14 to 16 feet, at a very cheap rate, according to quantity required. For price, &c., apply to WOOD & INGRAM, Nurseries, Huntingdon.

FIFTY ACRES well stocked with FRUIT TREES to select from.—APPLES, PEARS, PLUMS, CHERRIES, PEACHES, NECTARINES, and APRICOTS, in every form desired for fruiting.
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See RICHARD SMITH'S FRUIT LIST, post free for 3 stamps.
RICHARD SMITH, Nurseryman, Worcester.

ESPALIER and WALL-TRAINED TREES in any quantity.—APPLES, PEARS, PLUMS, CHERRIES, PEACHES, NECTARINES, and APRICOTS, fine strong trees of perfect form.
See RICHARD SMITH'S FRUIT LIST, free by post for 3 stamps.
RICHARD SMITH, Nurseryman, Worcester.

A CROP of FRUIT the FIRST SEASON.—Bearing Pyramids and Bushes in pots for orchard houses. PEACHES, NECTARINES, APRICOTS, APPLES, PEARS, PLUMS, and CHERRIES. Extra strong VINES and FIGS in fruiting condition for forcing.
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RICHARD SMITH, Nurseryman, Worcester.

Balsam Seed.

F. AND A. SMITH are now executing Orders for their unrivalled Strain of the above, in collections of Nine Varieties at 2s. 6d., and Mixed Packets at 2s. and 1s. each. The quality this season is unusually good. Early Orders respectfully solicited. Terms to the Trade on application.
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Camellias and Azaleas—English Grown.

F. AND A. SMITH beg to announce they have a fine Collection of the above, well set with Buds. Prices, moderate, on application. The Nurseries, Dulwich, S.

Fruiting and Planting Vines from Eyes.

F. AND A. SMITH can supply Strong, Well-ripened CANES of above. Prices and Lists on application.
The Nurseries, Dulwich, S.

MAGNIFICENT DWARF-TRAINED FRUIT TREES,
By the Dozen, Hundred, or Thousand.
APPLES, PEARS, PLUMS, CHERRIES, PEACHES, NECTARINES, and APRICOTS. [NECTARINES.
Also Standard, well-trained, fruit bearing, PEACHES and PYRAMIDAL PEARS on the Quince Stock in a fruit-bearing state; and PYRAMIDAL PEARS, on the Pear Stock, extra strong and well grown.
WM. WOOD & SON have many acres of the above named, which for health and vigour are quite unsurpassed in the trade. The Trees have been most carefully trained, and are really examples of successful cultivation.
Address, Woodlands Nursery, Maresfield, near Uckfield, Sussex.

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GEO. JAMES begs to offer the following:—
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500 MAIDEN PEARS, 30s. per 100.
10,000 APPLE STOCKS (good), 20s. per 1000.
20,000 APPLE STOCKS, 10s. per 1000.
1,000 CHINESE ARBOR-VITÆ, 2 to 3 feet, 30s. per 100.
500 LAURUSTINUS (good), 25s per 100.
1,000 STANDARD ROSES, 75s. per 100.
SAMPLES and CATALOGUES on application.

FOREST, ORNAMENTAL, and FRUIT TREES.—Thirty Acres of these, young, healthy, transplanted, of all sorts and sizes, at very moderate prices. The Nurseries are very exposed on the West Coast; the Plants very hardy, and succeed well in the highest and most exposed situations. Parties stating the Sorts, Sizes, and Quantities required, will have special quotations.
YEWS, ENGLISH, some thousands of extra strong well-rooted and furnished, 3, 4, 5, and 6 feet. Price on application.
H. & R. STIRZAKER, Skerton Nurseries, Lancaster.

TO LARGE PLANTERS and the TRADE—
Fine HORSE CHESTNUTS, 6, 7, 8, and 10 feet high.
PORTUGAL LAURELS, extra fine, 2, 3, and 4 feet.
ACER NEGUNDO VARIEGATA, from 3 to 4 ft., Pyramids.
HEMLOCK SPRUCE, 4 to 5 feet, fine.
BOX TREES, 2½ to 3 feet. | PRIVET, 3 to 4 feet.
SIBERIAN and AMERICAN ARBOR-VITÆ, 3 to 8 feet.
Special offers on application to
A. GODWIN & SON, Ashbourne, Derbyshire.

Larch, &c.

LARCH, 1 to 2 feet, 10s.; 1½ to 2½ feet, 12s. 6d.; 1½ to 3 feet, 15s.; 2½ to 4 feet, 17s. 6d.; 3 to 4½ feet, 20s.; 3½ to 6 feet, 25s.; OAK, 1½ to 2½ feet, 15s. per 1000.
LIST of other TREES on application; special quotations for large quantities. Apply, with reference, to
[JAMES RIDDELL, Steward, Park Attwood, Bewdley, Worcestershire.

To Railway and Enclosure Planters.

S. ROBINSON, of Shaw House, Melbourne, near Derby, has several million of BEDDING and TRANSPLANTED QUICKS to dispose of, suitable for the above purposes, from 2, 3, 4, and 5 years old. Price, from 4s. 6d. to 20s. per 1000; well rooted and fit for planting out.
S. R. has also for sale some fine Bushy SPRUCE, 3 to 4 feet; HOLLIES, BEECH, and LARCH, 4 to 5 feet; and other kinds of FOREST TREES.
Mr. ROBINSON wishes to inform his customers that he has a fine stock of his CHAMPION OX CABBAGE PLANTS for spring use.
N.B. Satisfactory references required previous to orders being executed.

HENRY MAY begs to offer the undernamed:—
ENGLISH YEWS, 2 ft., very bushy (often transplanted), 3s. per doz., 15s. per 100; do., 2½ to 3 ft., bushy, do., 6s. per doz., 40s. per 100; IRISH do., 4 to 5 ft., do, 1s. 6d. each, 15s. per doz.
PORTUGAL LAURELS, 2 ft., bushy, do., 4s. per doz., 20s. per 100; do., 2½ to 3 ft., bushy, do., 8s per doz., 50s. per 100
CUPRESSUS LAWSONIANA, 2 ft., bushy, do., 6s. per doz., 40s. per 100; do., 3 to 4 ft., bushy, do., 12s. per doz.
WELLINGTONIA GIGANTEA, 2 ft., bushy, do., 12s. per doz.; do., 3 ft., bushy, do., 18s. per doz.; do., 4 ft., bushy, do., 30s. per doz.; do., 5 ft., bushy, do., 60s. per doz.
ARBOR-VITÆ (AMERICAN), 4 to 5 ft., bushy, do., 9s. per doz., 50s. per 100
PINUS AUSTRIACA, 2 ft., bushy, do., 4s. per doz., 20s. per 100; do., 3 ft., bushy, do., 6s. per doz., 30s. per 100; do. EXCELSA, 4 to 5 ft., bushy, do., 18s. per doz.
ENGLISH SPRUCE FIR, 3 ft., single planted (perfect specimens), 6s. per doz., 30s. per 100
HORSE CHESTNUT, 8 ft., do., fine, 6s. per doz., 30s. per 100
ENGLISH ELM (Grafted), 8 ft., do., do., 6s. per doz., 30s. per 100
LIMES, 8 ft., do., do., 12s. per doz.
AILANTHUS GLANDULOSA (for Silkworm Culture), 2½ ft., 2s. per doz., 10s. per 100
STANDARD APPLES, 6 ft. stems, fine heads, good, 10s. per doz., 70s. per 100; do. VICTORIA PLUMS, good, 15s. per doz.
Fine named LANCASHIRE GOOSEBERRIES, 2s. per doz.; 12s. per 100.
CURRANTS, WHITE, BLACK, and RED, fine, 1s. 6d. per doz.; 8s. per 100. [per doz.
Fine named HYBRID-PERPETUAL ROSES, at 6s., 9s., and 12s.
All the above are fine grown stuff, and well removed, and will plant safely.
HENRY MAY'S CATALOGUES can be had on application, which contain all the most popular EVERGREENS, SHRUBS, &c.
HENRY MAY, The Hope Nurseries, Bedale, Yorkshire.

To Planters.

WOOD AND INGRAM beg to offer the following NURSERY STOCK, all of which is well-grown and finely-rooted stuff:—
ACACIA, COMMON, 10 to 12 feet.
ALDER, 3 to 4, 5 to 6, and 6 to 7 feet
ASH, 1½ to 2, 2 to 3, and 3 to 4 feet | BIRCH, 5 to 6, and 6 to 7 feet
CHESTNUT, HORSE, 1-year seedling, 7 to 8, and 8 to 9 feet
ELM, NARROW-LEAVED ENGLISH, from seed, 1-year seedling 3 to 4, and 4 to 5 feet
„ HUNTINGDON, 4 to 5, 5 to 6, 6 to 7, 7 to 8, and 8 to 10 feet
FIR, SPRUCE, 1 to 1½, 1½ to 2, 2 to 2½, 2½ to 3, 3 to 4, and 4 to 5 feet
„ WHITE and BLACK AMERICAN, 3 to 4, 4 to 5, and 5 to 6 feet
MAPLE, 2 years seedlings, and 2 to 3 feet
POPLAR, BLACK ITALIAN, 8 to 10, and 10 to 12 feet
„ LOMBARDY, 4 to 5, 5 to 6, and 8 to 10 feet
„ ONTARIO or AMERICAN, 5 to 6, 6 to 8, and 12 to 16 feet
SYCAMORE, 2 to 3, 3 to 4, 4 to 5, 5 to 6, and 7 to 8 feet
ARBOR-VITÆ, AMERICAN and SIBERIAN, 1 to 1½, 1½ to 2, 2 to 2½, 2½ to 3, 3 to 3½, and 3½ to 4 feet
„ LOBBII, very fine bushes, specimens, 4½ to 5, 5 to 6, 6 to 7, 7 to 8, and 8 to 9 feet
AUCUBA JAPONICA, 1 to 1½, 1½ to 2, 2 to 2½, and 2½ to 3 feet
CEDAR, RED VIRGINIAN, 3 to 4, 4 to 5, and 5 to 6 feet
CUPRESSUS LAWSONIANA, splendid specimens, 3½ to 4, 4 to 5, and 5 to 6 feet
„ MACROCARPA, 1 to 2, 3 to 4, 4 to 5, and 5 to 6 feet
JUNIPER, ENGLISH, 3½ to 4, and 4 to 5 feet
LAUREL, COMMON, 1 to 1½, 1½ to 2, 2 to 2½, 2½ to 3, and 4 to 5 feet
„ PORTUGAL, 1 to 1½, 1½ to 2, 2 to 2½, 2½ to 3, 3 to 3½, and 3½ to 4 ft.
LILAC, various kinds, 5 to 6, and 6 to 8 feet
PLANE, OCCIDENTAL, 4 to 5, 5 to 6, 6 to 7, 7 to 8, 8 to 10, and 10 to 12 feet
„ ORIENTAL, 10 to 12, and 12 to 14 feet
YEW, COMMON, 1½ to 2, 2 to 2½, 2½ to 3, 3 to 3½, 3½ to 4, and 4 to 4½ ft.
Prices, which are very moderate, according to the quantity taken, sent free on application to The Nurseries, Huntingdon.
N. B. W. & I.'s new NURSERY CATALOGUE is now ready.

NEW GOLDEN-LEAVED BEDDING PLANT,

FUCHSIA "GOLDEN FLEECE."

AWARDED A FIRST-CLASS CERTIFICATE BY THE ROYAL HORTICULTURAL SOCIETY OF LONDON.

"A perfect gem for decorative purposes; the intense golden colour of the foliage very effective."—*Journal of Horticulture.*

This very beautiful and effective plant is adapted for all decorative purposes in beds, or ribbon rows, and by its free, yet densely compact growth, equally suited for front or second rows; its slightly decurved branches retaining a dwarf habit, from 6 to 9 inches, as required, throughout the season. The early summer leaf-tint is an uniquely rich bronze yellow, changing to a pure gold in midsummer and autumn. In general effect it is less formal and more equal in growth than the "Golden Feather" (Pyrethrum), and superior in effect to the whole self Gold-leaved section of Geraniums. Out of 40 plants in one row, there was no perceptible difference in height and effect through the summer, and increased in the richness of its colour until October.

The Plants now offered are the only batch adapted for spring stock.

Price, 7s. 6d. each.

E. G. HENDERSON AND SON, WELLINGTON NURSERY, ST. JOHN'S WOOD, N.W.

B. S. WILLIAMS'

NOTED CHOICE STRAIN of VEGETABLE SEEDS for SEASON 1868,

IN SEALED PACKETS.

The Orangefield Dwarf Prolific Tomato.

After four years' careful trial it has been proved to be undoubtedly the finest Tomato we possess.
DESCRIPTION.—Very dwarf, but strong in habit; never shows any sign of being stunted or diseased; bearing a greater quantity of fruit than has ever been seen on a Tomato. Is well adapted for indoor culture in those parts where (through the humidity of the climate) Tomatos rarely come to perfection out of doors. It will stand forcing without drawing, and any amount of culture will not destroy its productiveness. This variety when grown in pots make really beautiful decorative plants for the conservatory. Extract of report of the Trial of Tomatos grown at Chiswick, 1867:—"The Orangefield is the earliest of the large fruited sorts, it is very dwarf and prolific, bearing fine fruit within 6 inches of the ground. The fruits are very large, red, corrugated, or ribbed. It is an excellent variety, and one of the best in the collection."

Price 1s. 6d. per packet.

Williams' Matchless Red Celery.

This variety still maintains its reputation. It is now universally grown and everywhere approved of. New Seed, saved from the original stock.

Price 1s. per Packet.

Digswell Prize Endive.

A Green Curled variety, very much superior to the old "Green Curled."
Wherever this valuable Endive has been grown it has given the greatest satisfaction. It is invaluable for its hardihood and good hearting qualities. It is advised that plants for outdoor winter use be dibbled out in a light border early in September, the crowns an inch below the surface, with light earth pressed to them. Seed from original stock.

Price 1s. per Packet.

Williams' Alexandra Broccoli.

This excellent kind has now proved itself the best white and the hardiest of the many varieties in existence. A Special Certificate was awarded to this Broccoli by the Royal Horticultural Society, May, 1867. The Committee considered it of first-class excellence, and worthy of every recommendation. If sown at the end of April it will be ready for use the first week in May of the following year.

Price 2s. 6d. per Packet.

Malvern Hall Melon.

Scarlet flesh; a valuable variety. This kind has been proved by the side of 30 of the best to be the earliest to ripen and the freest in setting its fruit. The following description of it, by Mr. Edlington, Head Gardener to the Earl of Stradford, Wrotham Park, in the *Scottish Gardener*, conveys a very just idea of its properties. He writes:—"I have no hesitation in asserting that the above Melon is second to none in cultivation; I might even go a step further, and not err in placing it first on the list of scarlet-fleshed kinds. Gem, grown in the same house and subjected exactly to the same treatment, bore no comparison in any one point. The Malvern Hall is most deliciously flavoured, remarkably thin skinned, a very free setter, and early. These properties, in my judgment, constitute a first-class Melon. The Malvern Hall is nicely ribbed and moderate in size: those I grew this season averaged 2½ lbs.—a size I consider amply large enough for ordinary desserts. Those who have not grown the Malvern Hall I recommend to do so, and those who have will, I think, agree with my remarks."

Price 1s. 6d. per Packet.

Prices to the Trade on application.

B. S. WILLIAMS, VICTORIA and PARADISE NURSERY, UPPER HOLLOWAY, N.

AMBROISE VERSCHAFFELT, NURSERYMAN,

(PUBLISHER OF THE "ILLUSTRATION HORTICOLE)," GHENT, BELGIUM,

BEGS TO OFFER THE FOLLOWING NOVELTIES:—

CALADIUM LEOPOLDI.—One of the finest, 7s. 6d.

TACSONIA BUCHANANI.—A splendid climber; as fine as the Tacsonia Van Volxemi: see figure in the "Illustration Horticole;" 7s. 6d.

VRIESEA GLAZIOUANA.—A splendid Bromeliaceous plant, which obtained at the Universal Exhibition in Paris the First Prize for the best new Plant, and of which a specimen was exhibited by Miss Zoë de Knyff, under the name of Chevaliera. This really splendid ornamental plant is figured in the "Illustration Horticole." Fine plants, £1.

AZALEA INDICA FRANCOIS DEVOS (A. VERSCHAFFELT).—This is one of my best seedlings. Flowers very double, deep red, with black spots. See figure in "Illustration Horticole." Fine plants, full of buds, 12s.

RHODODENDRON ORNATISSIMUM (A. VERSCHAFFELT)—See the "Illustration Horticole." This is my best seedling raised; colour whitish, rose in the centre; the edges are coloured with rose violet, and the centre is marked with fine golden spots. It is one of the most distinct varieties, and is quite hardy. Good plants, 12s.; do. with buds, £1.

THE GENERAL CATALOGUE, No. 81,

CAN BE OBTAINED FREE OF

MESSRS. R. SILBERRAD AND SON, 5, HARP LANE, GREAT TOWER STREET, LONDON, E.C.

LEE'S GIANT ORACH (SPINACH).

THIS VALUABLE VARIETY OF ORACH

POSSESSES IMMENSE PRODUCTIVE POWERS,

COMBINED WITH A DELICIOUS PIQUANT FLAVOUR, QUITE DISTINCT FROM ALL OTHER VARIETIES, RENDERING IT A GREAT ACQUISITION AS A SUMMER SPINACH OF THE HIGHEST CLASS.

The plant is of rapid and vigorous growth, and attains a height of 6 or 7 feet, with numerous branches; yielding a constant supply of large dark green leaves throughout the summer months.

The Fruit Committee of the Royal Horticultural Society awarded a FIRST-CLASS CERTIFICATE to LEE'S GIANT ORACH, after partaking of a dish of this most useful vegetable, cooked especially for their judgment.

JOHN AND CHARLES LEE have much pleasure in introducing this productive vegetable, which they intend to send out in January next.

Sealed Packets, 1s. each.

PRICE TO THE TRADE ON APPLICATION.

ROYAL VINEYARD NURSERY and SEED ESTABLISHMENT, HAMMERSMITH, W.

ACORNS (ENGLISH).—Fine sound seed, price upon application. LAUREL (COMMON), 1-yr. cuttings, extra fine, price upon application.

TRADE CATALOGUE of FRUITS, HERBACEOUS PLANTS, ROSES, &c., free upon application.

A few bushels of HORSE CHESTNUTS also to spare.

DILLISTONE & WOODTHORPE, Munro Nursery, Sible Hedingham, Essex.

Araucaria imbricata, and Wellingtonia gigantea.

SURPLUS STOCK OF LAND TO BE CLEARED FOR BUILDING PURPOSES.

WSKIRVING, Walton Nursery, Liverpool, begs to offer a few thousands of the above healthy well-grown plants, with good roots; the Araucarias ranging from 3 to 5 feet, and the Wellingtonias from 2 to 4 feet high.

Prices may be obtained on application, and special agreements made for large quantities.

To Suburban and other Extensive Planters.

PONSFORD AND SON have much pleasure in offering (with special advantages) well-grown and thoroughly healthy GENERAL NURSERY STOCK, prominently the following:—Fruit Trees for every purpose, in fine condition; Roses, Ornamental Trees, Evergreen and Deciduous Shrubs for general furnishing, particularly Aucubas, Arbor-vitæ, Ligustrum, Thuja (various), Variegated Hollies, &c., specially to the Trade; fine Standard Mulberries, Limes, extra strong; Standard Apples and Plums, Dwarf-trained Apricots, Planes, Poplars, &c.; Azalea indica, choice sorts, extra size, Cheap.

Nurseries: Loughborough Park, Brixton, S.
Seed and Plant Department: Brixton Place.

QUICKWOOD AND LARCH.

100,000 QUICKWOOD, 2 to 3 ft., very strong and well rooted, at 15s. per 1000.

100,000 LARCH, 4 to 5 ft., twice transplanted, good leads, and fine, at 30s. per 1000.

100,000 LARCH, 2½ to 3 ft. ditto, at 18s. per 1000.
100,000 LARCH, 2 ft. ditto, at 15s. per 1000.

The above are grown thinly on the ground and not drawn, but fine, stout, well-rooted stuff, that will stand by themselves. All other Nursery Stock very fine and hardy.

Address, HENRY MAY, The Hope Nurseries, Bedale, Yorkshire.

Dumfries Railway Station Nursery.

THOMAS KENNEDY AND CO., NURSERYMEN AND SEEDSMEN, Dumfries, have this season a very large and superior stock of FOREST, FRUIT, and ORNAMENTAL TREES, DECIDUOUS and EVERGREEN SHRUBS, &c., which they are selling at extremely moderate prices. The TREES and SHRUBS being of all ages and sizes, are particularly well suited for extensive planting or for giving immediate effect in the formation and improving of Ornamental Parks, Pleasure Grounds, &c.

Prices on application. Special offers made to large purchasers.

*** Dumfries is most conveniently situated for the speedy transmission of goods to all parts of the United Kingdom.

LOUIS VAN HOUTTE'S CATALOGUE, No. 121, will be published on the 16th November next, and will be sent, per post, to all his customers.

CONTENTS:—

Azalea Indica	Trees and Shrubs
Camellias	Conifers
Rhododendrons	Roses
Ghent Azaleas, hardy	Herbaceous Plants, Select Collection of
Azalea Van Houttei flore-pleno, hardy (see "Flore des Serres," xiii., 13)	Fruit Trees, Belgian and other
Magnolias and other American Plants	Gladiolus gandavensis [sorts
Magnolia Lennei (see "Flore," xvi., 159)	Gesneraceous Rhizomes and Tubers
	Caladiums, &c., in dry Tubers, &c., &c.

LOUIS VAN HOUTTE'S goods, baskets, bundles, cases, crates, hampers, &c., are sent free to Edinburgh, Goole, Grangemouth, Grimsby, Hurwich, Hull, Liverpool, London, Middlesbro'-on-Tees, and Newcastle-on-Tyne; but, per contra, 5s. per parcel will be charged in the account. From the above seaports the goods are sent with great care to the various railways by LOUIS VAN HOUTTE'S Agents.

"FLORE DES SERRES," XVI., Nos. 11 and 12, will appear at the end of this month.

Each Volume of the "FLORE DES SERRES" may be had separately for 30s., and the Sixteen Volumes complete (the entire collection) for £22 10s. This work contains more than 1700 highly finished Coloured Plates, and numerous Woodcuts.

Ghent, Belgium.—Nov. 2.

Wonersh Nursery, near Guildford, Surrey.

WVIRGO AND SON beg to announce that their Stock of TREES and SHRUBS of the undermentioned kinds is this season very extensive and well-grown, samples, prices, and Catalogues of which can be obtained on application:—

100,000 Hazel, 3 to 5 feet	500,000 Quick, transplanted, 1½ to 2 feet
50,000 Scotch Fir, 1 to 2 feet	50,000 Green Holly, transplanted, 1½ to 2 feet
50,000 Larch Fir, 2 to 3 feet	50,000 Crab Stocks, strong and clean
50,000 Spruce Fir, 2 to 4 feet	Common and Portugal Laurel
50,000 Birch, 3 to 4 feet	Berberis aquifolia
50,000 Spanish Chestnut, 2 to 3 feet	Arbor-vitæ
30,000 Alder, 3 to 4 feet	And other various Shrubs.
50,000 Ash, 2 to 3 feet	
20,000 Sycamore, 3 to 4 feet	

A large stock of strong STANDARD APPLES, PEARS and PLUMS, and DWARF-TRAINED do.

Northampton Nurseries.

JOHN PERKINS, SEN., begs to call the attention of Noblemen, Gentlemen, and others engaged in Planting, to his large stock of the following:—1,000,000 BLACK THORNS, for Covert Planting, 1½ to 2 feet, 2½ to 3 feet; 2,000,000 LARCH FIRS, 3 to 4 ft., 4 to 6 feet; 1,000,000 SPRUCE FIRS, 1½ to 2 feet, 2½ to 3 feet, 3 to 4 feet; 2,000,000 WHITE THORN QUICK, 2 and 3 years transplanted; also large quantities of

Birch, 3 to 4 feet	Elms, English, 6 to 8 ft., 8 to 10 ft.
Berberis dulcis, 2 to 3 feet	Elms, Huntingdon, 6 to 8, 8 to 10ft.
Cedrus deodara, 5 to 6 ft., 6 to 8 ft.	Chestnuts, Spanish, 2 to 3 feet
Green Box, 1½ to 2 feet	Portugal Laurel, 1½ to 2 ft., 2 to 3 ft.
Evergreen Privet, 2 to 3 feet	Pinus austriaca, 2 to 3 feet
Hornbeam, 3 to 4 feet	Sycamore, 3 to 4 feet

J. P.'s stock of all kinds of FRUIT, FOREST and ORNAMENTAL TREES, &c., is very extensive, and this season remarkably fine, and in excellent condition for removal, having been frequently transplanted. DESCRIPTIVE PRICED CATALOGUES sent post free on application to 52, Market Square, Northampton.

Large Evergreens and Forest Trees.

MESSRS. PAMPLIN AND SON have a large quantity of the following, and offer them at low prices, part of their Grounds being required for building purposes:—

Cedar of Lebanon, 10 to 20 feet	Black Italian Poplar, 20 feet
Cedrus deodara, 6 to 15 feet	Balsam ditto, 10 to 15 feet
Aucuba japonica, 2 to 6 feet	Lombardy ditto, 20 feet
Portugal Laurels, 2 to 6 feet	Horse Chestnut, 10 to 15 feet
Chinese Arbor-vitæ, 5 to 12 feet	Spanish Chestnut, 10 feet
American „ 5 to 10 feet	Limes, 10 to 15 feet
Thuja aurea, 1 to 4 feet	Walnuts, 10 to 15 feet
Green Box, 1 to 6 feet	Ash, 10 to 20 feet
Striped ditto, 2 to 4 feet	Elm, 10 to 15 feet
Evergreen Oak, 7 to 10 feet	Acacia, 10 feet
Yew, Common, 4 to 10 feet	Mountain Ash, 10 feet
Irish Yew, 3 to 5 feet	Turkey Oak, 10 to 12 feet
Laurel, 2 to 6 feet	Sycamore, 10 to 14 feet
Araucaria imbricata, 10 feet	Weeping Willow, 10 to 15 feet
Green Hollies, 1 to 12 feet	Lilac, Common, 8 feet
Weymouth Fir, 3 to 6 feet	Persian ditto, 6 feet
Spruce ditto, 2 to 4 feet	Yellow Azalea, 3 feet
Birch, 14 feet	Privet ovalifolia, 8 feet

The Nurseries, Lea Bridge Road, Leyton; and Wood Street, Walthamstow, Essex, N.E.

Hanover Nursery, Rye Lane, Peckham, S.E.

MR. A. IVERY begs to invite an inspection, from those engaged in Planting, of a selection of EVERGREENS and SHRUBS that will remove well, being all lifted at proper seasons to secure removal, consisting of—

Aucuba japonica, very handsome.	Garrya elliptica, in pots.
Box, of sorts, very bushy, 2½ to 3 feet.	Laurels, common, very bushy.
Cedrus deodara, 4 to 5 feet.	Portugal, „
Thuja aurea. These are very handsome specimens.	Lilacs, 4 to 7 feet.
Thuja chinensis, 4 to 5 feet.	Yews, English, 3 to 4 feet.
„ Lobbii, 3½ to 5 feet.	Yews, Irish, very handsome, 6 to 7 feet.
„ Wellana, 2½ to 3 feet.	Phillyrea, 3 to 4 feet.
Cupressus Lawsoniana, very handsome, 3½ to 6 feet.	Yucca gloriosa, very handsome specimens, 3 to 4 feet.
Euonymus, green; very bushy, 3 feet.	Ivies, Irish. These are very fine, being grown in large pots for immediate covering, 7 to 8 feet.
Wellingtonia gigantea.	Mulberry, very fine, 5 to 6 feet stems, with fine heads.
Ligustrum japonicum.	Standard Fruit Trees of all kinds.
„ ovalifolium, 3 to 5 ft.	Dwarf-trained ditto.
Laurustinus, very bushy.	Black and Red Currants, fine bearing trees.
Holly, green, 1 to 2 feet.	
Thujopsis borealis, 3 to 4 feet.	

Also a selection of HARDY CLIMBERS, including Variegated and other choice kinds of Ivies in Pots, at reasonable prices.

Forest Trees, Fruit Trees, Evergreens, Plants for Game Covers, Conifers, Roses, &c.

FRANCIS AND ARTHUR DICKSON AND SONS invite the attention of Planters to their very large stock of the above, which in extent and variety is not excelled by any Nursery in the Kingdom. Their Nurseries, which are very bleak and exposed, extend over some 150 Acres, and their Plants are well known to be unusually hardy, as well as in the most perfect health and condition in every respect; and are found to thrive admirably when removed to other parts of the country. PRICED CATALOGUES post free upon application. Estimates and Special Prices for large quantities.

The "Upton" Nurseries, and "Old" Established Seed Warehouse 106, Eastgate Street, Chester.

Mulberry Trees.

MESSRS. WOOD AND SONS, NURSERYMEN, 172, Old Kent Road, S.E., beg to inform Gentlemen and the Trade that they have a large quantity of the above Trees—fruiting, handsome, and well-rooted Trees. Prices on application. Also a large quantity of DECIDUOUS SHRUBS and FOREST TREES of large sizes, very cheap.

SEEDLING FOREST TREES.—
1 and 2-yr. Seedling LARCH
1 and 2-yr. Seedling SCOTCH FIR.
2-yr. Seedling PINUS LARICIO.
2-yr. Seedling PINUS AUSTRIACA NIGRA.

Particularly fine. For Samples (with prices—f. o. b. at Warterford—which will be most moderate),
Apply to D. H. HIGGINS, The Nurseries, Clonmel, Ireland.

BARGAINS to the TRADE.

100,000 2 to 3 feet THORN QUICKS, will be sold a bargain.
500,000 2-year Seedlings, fine, small ones selected out, 3s. 6d. p. 1000.
800,000 Seedlings, at 1s. 6d. by the 100,000, 1s. 3d. per 1000
10,000 transplanted BERBERIS DARWINII, 2 years old, strong, 6s. 6d. per 100, or 50s. per 1000.
50,000 transplanted MAHONIA AQUIFOLIA, 2 years old and selected, 12s. 6d. per 1000; 10,000, 10s. per 1000.
50,000 budded MANETTI STOCKS, good rooted plants, 25s. per 1000; selected, 30s.
A LIST of other NURSERY STOCK sent on application.
ANDREW G. DALY, Nurseryman, Newry, Ireland.

Tansley Nurseries, near Matlock, Derbyshire.

JOSEPH SMITH, SEN., invites Planters and the Trade to inspect his Nursery of 80 Acres of high land. The soil is of a fibrous nature, and the Plants take up with excellent roots, such as to ensure the best success in their removal.

The Nursery contains many Hundred Thousands of RHODODENDRONS, COMMON and PORTUGAL LAURELS, BOX, BROOMS, BERBERIS, HOLLIES, PRIVETS, YEWS, &c. THE FOREST TREES are very extensive, of all the leading kinds; there are 15 Acres of LARCHES, of different sizes, and all others in proportion. Prices moderate, which can be had on application as above.

MR. FREDERICK ADOLPHUS HAAGE, JUNIOR, NURSERYMAN, SEEDSMAN, and FLORIST, Erfurt, Prussia, respectfully begs to announce that his NEW TRADE SEED LIST for 1867-68, containing all the leading kinds of Flower, Tree, and Vegetable Seeds and Novelties of this season, will be sent out by the end of this month, and may be had post free on application to his Agents, Messrs. BETHAM & BLACKITH, Cox's Quay, Lower Thames Street, London. All orders will meet immediate and most careful attention.

Lists of STOVE, GREENHOUSE, and HERBACEOUS PLANTS, also of SUCCULENTS, are now ready.—Erfurt, November, 1867.

The Dorset Nurseries, Blandford and Blandford St. Mary.

FREDERICK GILL AND CO., NURSERYMEN, SEEDSMEN, and FLORISTS, beg to invite the attention of Gentlemen who intend Planting, to their large and vigorous STOCK of FOREST, FRUIT, and ORNAMENTAL TREES, SHRUBS, ROSES, &c., extending over many Acres, and not to be surpassed.

Their ROSES on MANETTI STOCKS, of the choicest varieties and superior growth, merit especial mention.

Copy of a Letter received from the Rev. F. RADCLYFFE.

To the Proprietors of the DORSET NURSERIES.

"SIRS,—I was much pleased to-day with the review of your fine Nursery Stock. Your Manetti Roses are the best propagated of any that I have ever purchased. At a little distance few can discern whether they are on alien stocks or on their own roots. They are usually budded far too high to prosper.—Yours truly,

"W. F. RADCLYFFE."

Bedford and Kettering Road Nurseries, Northampton.

FREDERICK PERKINS begs respectfully to offer the following, in consequence of the Lease of a part of his Nursery Grounds having expired, and the land being required for other purposes. The whole of the Stock is in excellent condition, and will be sold at prices to effect a clearance. Parties engaged in any kind of Planting are respectfully invited to inspect the Stock. In addition to the following there are many thousands of Evergreens and Ornamental Trees and Flowering Shrubs of various sizes, from 2 to 6 feet:—

500,000 LARCH FIR, 1½ to 2 ft., 2 to 3 ft., 3 to 4 ft., 4 to 5 ft., 5 to 6 ft.
500,000 2-year Transplanted WHITETHORN, or QUICK.
200,000 ASH, 1½ to 2 feet, 2 to 3 feet, 3 to 4 feet, 4 to 5 feet.

100,000 Evergreen Privet.	50,000 Green Holly.
50,000 Berberis aquifolia.	20,000 Laurels, from 1½ to 4 feet
20,000 English Yews.	50,000 Hornbeam, 3 to 4 feet.
50,000 Hazel, 3 to 4 feet.	50,000 English Oak, 1½ to 2 feet, 2 to 3 feet, and 3 to 4 ft.
5,000 Copper Beech, 3 to 4 feet, and 4 to 6 feet.	

Also a large quantity of Alder, Birch, Beech, Elm, Limes, Poplars, Spanish and Horse Chestnuts, Sycamores, Sweet Briars, &c. Upwards of Two Millions of 1-year extra fine Quick.

10,000 Standard, Pyramid, Dwarf-trained, and Maiden Apples. Pears, Plums, Cherries, Damsons, Peaches, Nectarines, and Apricots. Priced List of the above free on application to Seed Warehouse, No. 2, Gold Street, Northampton.

COLLECTION OF ORCHIDS.

CONSUL G. W. SCHILLER, HAMBURGH,

IS INCLINED TO

PART WITH HIS SPLENDID COLLECTION OF ORCHIDS NEXT SPRING,

BEING THE LARGEST IN EUROPE, AND OFFERING AN EXCELLENT OPPORTUNITY OF BUYING FINE LARGE PLANTS AT A MODERATE PRICE.

For particulars, apply to the Owner,

MR. CONSUL G. W. SCHILLER, HAMBURGH.

BARR & SUGDEN,

The Metropolitan Seed, Bulb, and Plant Warehouse, 12, King Street, Covent Garden, W.C.

COLLECTIONS of BULBS, Carriage Paid, 21s. *and upwards.*

PAXTONIAN COLLECTIONS of EASILY CULTIVATED BULBS,
Best adapted for Spring Gardening Out-of-Doors.

	Fine Collections.					Extra Fine Collections.				
	A.	B.	C.	D.	E.	F.	G.	H.	I.	K.
	£ s. 4 4	£ s. 3 3	£ s. 2 2	£ s. 1 1	£ s. d. 10 6	£ s. 5 5	£ s. 4 4	£ s. 2 15	£ s. 1 10	£ s. d. 15 6
HYACINTHS, various	100	75	50	25	12	100	75	50	25	12
POLYANTHUS NARCISSUS	30	20	12	6	3	30	20	12	6	3
ORDINARY NARCISSUS	100	75	50	30	15	100	75	50	30	15
TULIPS, various	300	200	150	100	50	300	200	150	100	50
CROCUS, various	500	300	200	100	50	500	300	200	100	50
ANEMONES, various	200	100	75	50	20	200	100	75	50	20
RANUNCULUS, various	200	100	75	50	25	200	100	75	50	25
SNOWDROPS	300	200	150	100	50	300	200	150	100	50
CROWN IMPERIALS	9	9	6	..	..	9	9	6	..	..
SCILLA SIBIRICA	25	20	15	..	..	25	20	15	..	..

COVENT GARDEN COLLECTIONS,
For Winter and Spring Blooming In-Doors.

	Fine Collections.						Extra Fine Collections.				
	L.	M.	N.	O.	P.	Q.	R.	S.	T.	U.
	£ s. 4 4	£ s. 3 3	£ s. 2 2	£ s. 1 1	£ s. d. 10 6	£ s. 5 5	£ s. 4 4	£ s. 3 3	£ s. 1 10	£ s. d. 15 6
HYACINTHS, named varieties	60	40	30	20	10	60	40	30	20	10
POLYANTHUS NARCISSUS	30	20	12	10	6	30	20	12	10	6
TULIPS, named varieties	150	100	70	30	12	150	100	70	30	12
JONQUILS, sweet scented	40	30	20	12	6	40	30	20	12	6
IXIAS, named	24	12	9	6	..	24	12	9	6	..
SPARAXIS, named	24	12	9	6	..	24	12	9	6	..
TRITONIAS, named	24	12	9	6	..	24	12	9	6	..
BABIANAS, named	24	12	9	6	..	24	12	9	6	..
SEEDLING CROCUS	200	150	100	50	50	200	150	100	50	50
SNOWDROPS, large	200	100	100	50	50	200	100	100	50	50
SCILLA SIBIRICA	50	30	20	12	6	50	30	20	12	6

CLIVEDEN COLLECTION of SPRING FLOWERING PLANTS, £5.

50 beautiful large PERPETUAL YELLOW PANSIES, 50 do. flowering CLIVEDEN BLUE PANSIES, 50 do. rich PURPLE PANSIES, 50 beautiful mixed POLYANTHUS, 100 large pure WHITE CLIVEDEN DAISIES, 100 do. PINK DAISIES, 100 rich BLUE FORGET-ME-NOT, and 100 PINK SILENE. Half of the above quantity, 50s.; Quarter, 25s.; Eighth, 12s. 6d.

For particulars of the best SPRING FLOWERING BULBS and PLANTS, refer to our GUIDE to WINTER and SPRING GARDENING, published last September.

FINE SHOW and FANCY PELARGONIUMS.

12 Fine young Plants, all named, one each, 12s.
24 Do. do. do. do. 20s.
50 Do. do. do. do. 40s.
100 Do. do. do. .. 75s.
12 CAMELLIAS, full of flower-buds 30s.
12 AZALEAS, do. do., and fine heads, 24s.

H. MAY was awarded the First Prize for all the Pelargoniums at the Manchester International Show and the Leeds Floral Fête during the past summer, and also at the Great Yorkshire Gala, York, for many years in succession, and same kinds will be included in the above.

HENRY MAY, The Hope Nurseries, Bedale, Yorkshire.

New Zealand Nursery, St. Alban's, Herts.

J. WATSON'S beautiful BEDDING PELARGONIUM EXCELSIOR, now ready; colour of Indian Yellow; fine truss, and habit of Lord Palmerston. Price 5s. each; 36s. per doz. to the Trade

MISS WATSON, ready August 25; MRS. DIX, May 1. The Two have received 10 First-class Certificates and Extra Prize Money.

Fine New TABLE APPLE, ST. ALBAN'S PIPPIN, Ripe in April. Plants ready in November. 5s. each; 36s. per doz. to the Trade.

DESCRIPTIVE LIST sent on application.

VARIEGATED PELARGONIUMS.

SOPHIA DUMARESQUE	ITALIA UNITA
MRS. BENYON	COUNTESS
GOLDFINCH	ELEGANS
LUNA	THE FAIRY
BEAUTY of OULTON	PICTURATA
NEATNESS	BICOLOR SPLENDENS

The above forwarded on receipt of Post Office order for 21s.

If any of the above kinds are not required, others of equal value can be substituted.

ALFRED FRYER, Nurseries, Chatteris, Cambridgeshire.

Beck's Seedling Pelargoniums.

S. GLENDINNING AND SONS are now offering for the first time the 12 beautiful, new, and distinct PELARGONIUMS raised by Mr. Wiggins, Gr to W. BECK, Esq., of Isleworth, which were awarded numerous Certificates at the various Metropolitan Shows.

DESCRIPTIVE PRICED LIST may be had on application.

Chiswick Nurseries, London, W.

Beautiful Spotted Pelargonium Grand Arab.

CHARLES KIMBERLEY is now prepared to send out the above in strong healthy plants, at 10s. 6d. each. See *Gardeners' Chronicle*, June 22, 1867: Floral Committee, South Kensington:—"Mr. KIMBERLEY, of Stoke, near Coventry, had some plants of a good-looking Pelargonium, named Grand Arab, having light lower petals, with a medium dark spot on each floret, lit up with fiery rose; dark top petals, margined with fiery rose, and edged with pale pink; flowers smooth and of good shape, and free blooming." Stoke Nursery, near Coventry.

C. KIMBERLEY, Stoke Nursery, near Coventry, can supply the following new PELARGONIUMS, strong healthy plants, at 30s. per dozen:—

ALFRED (HOYLE)	INTERNATIONAL (HOYLE)
ARCHBISHOP (FOSTER)	KING of FLOWERS (FOSTER)
BEAUTY of WINDSOR (FOSTER)	LORD LYON (HOYLE)
BETROTHED (FOSTER)	MILTON (FOSTER)
BRILLIANT (HOYLE)	MONGINI (HOYLE)
CONGRESS (HOYLE)	ORIENTAL (HOYLE)
ECLAIR (HOYLE)	PERFECTION (FOSTER)
ECLIPSE (FOSTER)	PERI (FOSTER)
FAVOURITE (HOYLE)	QUEEN of BEAUTIES (FOSTER)
FREDERICK the GREAT (FOSTER)	RUSTIC (HOYLE)
GOLD BUTTON (HOYLE)	SHAKESPEARE (FOSTER)
INDOO (HOYLE)	TURBAN (HOYLE)
	UNISON (FOSTER)

NEW FUCHSIAS, ZONAL GERANIUMS, &c.

12 Select New FUCHSIAS of 1867 for 6s.
12 Select New ZONAL GERANIUMS of 1867 for 12s.
12 Finest ZONAL GERANIUMS of 1865—1866 for 4s.
12 Select New CHRYSANTHEMUMS of 1867 for 6s.
12 Select New VERBENAS of 1867 for 4s.
12 Select New PETUNIAS of 1867 for 6s.
12 Select New PHLOXES of 1867 for 9s.
6 Varieties of AUCUBAS, 3 Male, 3 Female, for 21s.
3 Varieties of New Japan OSMANTHUS, quite hardy, 5s.
12 Fine Varieties of Japan EUONYMUS, very fine, 6s.
12 Fine Varieties Perpetual ROSES, Dwarfs, for 6s.
12 Fine Varieties of VARIEGATED ZONAL GERANIUMS, 12s
GERANIUM GLOIRE DE NANCY, the best double, 1s. each.

COLEUS VEITCHII, 1s. 6d.	PANICUM VARIEGATUM, 2s. 6d.
„ GIBSONII, 1s.	BRUGMANSIA KNIGHTII, 1s. 6d.
„ LAMONTII, 1s.	
FICUS COOPERI, 2s. 6d.	

CATALOGUE of NEW and CHOICE PLANTS sent on application.

B. W. KNIGHT, Nurseryman, Battle, Sussex.

MAURICE YOUNG'S NEW CATALOGUE of NEW HARDY PLANTS, JAPANESE NOVELTIES, NEW AUCUBAS, ORNAMENTAL TREES and SHRUBS, EVERGREENS, CONIFERÆ, RHODODENDRONS, FOREST TREES, &c., may be had on application.

DESIGNS, PLANS, and ESTIMATES PREPARED for LAYING-OUT NEW GROUNDS, IMPROVING PARK SCENERY, PLANTATIONS, &c.

FOREST TREES PLANTED by the Acre, and Guaranteed.

Convenient railway accommodation to all parts of the country.

Milford Nurseries, near Godalming, Surrey.

Paul's Nurseries, Waltham Cross, N.

WM. PAUL begs to announce that he has the following COLLECTIONS of TREES and PLANTS now ready for delivery, which he can confidently recommend for quality and price:—

ROSES.—100,000 Plants, Standards, Dwarf Standards, and Dwarfs.

PRICED DESCRIPTIVE CATALOGUE free on application.

TREES and SHRUBS.—Large quantities of the popular Nursery Plants, of all sizes, good and cheap.

A choice variety of PICTORIAL TREES, his collection of which was the only one which received a Prize at the International Exhibition of 1866.

AMERICAN PLANTS.—Rhododendrons, Azaleas, Kalmias, Heaths, &c., in variety, from the commonest to the choicest.

FRUIT TREES.—Apples, Pears, Cherries, Plums, Figs, Peaches, Nectarines, Apricots, &c., &c.; Standards, Dwarfs, and Pyramids, trained and untrained. A large stock of handsome trees, many in a fruiting state.

GRAPE VINES.—All the best sorts, both Planting and Fruiting Canes.

PELARGONIUMS.—Beaton's and other Zonal kinds, Gold, Bronze, and Silver variegated, a fine collection.

HYACINTHS, TULIPS, and other BULBS.—All the First Prizes for Hyacinths and Tulips were awarded to his Collection at the London Flower Shows last spring. Cheap Hyacinths, Tulips, &c., for spring gardening by the 100 or 1000. Choicer kinds for pot culture and glasses good and cheap.

PRICED DESCRIPTIVE CATALOGUES of any or all of the above free by post.

Hyacinths for Exhibition.

SEEDSMEN BY APPOINTMENT. Sutton AND Sons

MESSRS. SUTTON'S COLLECTIONS include the varieties so much admired at the spring shows, and they are now prepared to receive orders for the same at the following prices:—

The Choicest 100 Sorts, £4 4s., carriage free
The Choicest 50 Sorts, £2 2s., „
The Choicest 25 Sorts, £1 1s., „
The Choicest 12 Sorts, 20 12s.

Cheaper Roots, 6s. to 9s. per dozen.

HYACINTHS for Beds and Open Borders, 3s. per dozen, 21s. per 100, carriage free.

SUTTON & SONS, Importers, Reading, Berks.

SUTTONS' unrivalled COLLECTIONS of BULBOUS FLOWER ROOTS, for Blooming during the Winter and Spring. These are every year becoming more popularly cultivated, and the HYACINTHS, ANEMONES, TULIPS, &c., which we imported last season from the celebrated Dutch Florists, Messrs. de Boom, Veen, Byvoet, and others, having been so generally admired, we have imported from the same parties, and still more extensively.

SUTTONS' COLLECTIONS of HARDY FLOWER ROOTS for OPEN GROUND.

	£	s.	d.
No. 1. A large and Choice Collection of ANEMONES, HYACINTHS, CROCUSES, TULIPS, RANUNCULI, NARCISSI, SNOWDROPS, IRISES, GLADIOLI, &c.	2	2	0
No. 2. Ditto ditto, consisting of all the same kinds, in Reduced Quantities	1	1	0
No. 3. A Small and Choice ditto	0	10	6

SORTS for FLOWER POTS and GLASSES.

No. 4. A splendid Collection of HYACINTHS, JONQUILS, NARCISSI, EARLY TULIPS, new large CROCUSES, &c.	2	2	0
No. 5. The same in Reduced Quantities	1	1	0
No. 6. A Small and Choice Assortment	0	10	6

SUTTONS' DESCRIPTIVE AUTUMN CATALOGUE is now ready, and may be had gratis and post free on application.

All Goods sent Carriage Free except small parcels, and 5 per cent. allowed for Cash Payments.

SUTTON & SONS, Royal Berks Seed Establishment, Reading.

Dutch Flower Roots.

CROYDON. A. HENDERSON & CO. EAST SURREY SEED WAREHOUSE. ESTABLISHED 1828.

ARCHIBALD HENDERSON begs to announce that he has received a large Consignment of Dutch and other Roots, carefully selected from the most celebrated growers.

DESCRIPTIVE and PRICED CATALOGUES are now ready, containing practical directions for their successful cultivation on all the various systems now adopted.

Also a CHOICE and SELECT LIST of VEGETABLE and HARDY FLOWER SEEDS for Autumn Sowing. Catalogues gratis and post free upon application.

Sion Nursery, Thornton Heath, Surrey, and at the East Surrey Seed Warehouse, College Grounds, North End, Croydon.

Carter's Dutch Bulbs.



Seedsmen to Her Majesty's Chief Commissioners of Public Works and other Government Departments, the Royal Gardens, Kew, &c., &c.



Seedsmen to H.I.M. the Emperor of the French, the Crystal Palace Company, the Agri-Horticultural Society of India, &c., &c., &c.

CARTER'S GUINEA BOX of DUTCH FLOWER ROOTS contains 12 choice named Hyacinths, 12 mixed Hyacinths for borders, 50 Yellow Crocus, 50 Blue Crocus, 4 Polyanthus Narcissus, 12 Double White Narcissus, 12 Pheasant's Eye Narcissus, 12 Double Daffodils, 24 finest mixed Ranunculus, 24 finest mixed Anemones, 12 choice mixed Single Tulips, 12 choice mixed Double Tulips, 4 Garden Lilies, 50 Snowdrops, 12 finest mixed Spanish Iris, 12 Campernelle Jonquils.

The above forwarded without delay on receipt of Post Office Order for 21s. Box and packing included. PRICE LISTS gratis and post free on application to

CARTER'S Great London Seed Warehouse, 237 & 238, High Holborn, London, W.C.

New Catalogue of Plants, Dutch Bulbs, &c.

ROBERT PARKER begs to announce that his NEW CATALOGUE, containing Select, Descriptive, and Priced Lists of New, Rare, and beautiful Greenhouse, Hardy and Stove Plants, Azalea indica, Fruit Trees, Grape Vines, Rhododendrons, Roses, Sweet Violets, &c.; Amaryllis, Crocuses, Cyclamens, Gladioli, Hyacinths, Liliums, Narcissus, Tulips, and other Bulbs, is now published and will be forwarded to applicants.

Exotic Nursery, Tooting, Surrey, S.

Dutch and Cape Bulbs.

BUTLER, McCULLOCH AND CO. have received their usual consignment of the above, and beg to offer the following carefully assorted collections.

FOR CONSERVATORY DECORATION.

No. 1	No. 2	No. 3	No. 4	No. 5	No. 6
100s.	50s.	25s.	21s.	15s.	10s.6d.

FOR FLOWER GARDEN DECORATION.

No. 7	No. 8	No. 9	No. 10	No. 11	No. 12
100s.	60s.	40s.	25s.	21s.	10s.6d.

FOR FLOWER GARDEN AND CONSERVATORY COMBINED.

No. 13	No. 14	No. 15	No. 16	No. 17	No. 18
105s.	52s.6d.	42s.	21s.	15s.	10s.6d.

CATALOGUES containing details of above Collection sent free, and Post-paid Orders amounting to 21s. sent, carriage paid, on receipt of Post-Office Order.—Established upwards of a century.

Covent Garden Market, London, W.C.

Woodlands Nursery, Maresfield, near Uckfield, Sussex.

WM. WOOD AND SON have a very extensive stock to offer of the following, viz.:—

Scarlet HORSE CHESTNUTS, Standards, 6 to 10 feet [1000
CATALPA SYRINGÆFOLIA | THUJA AUREA, by the 100 or
LABURNUMS, yellow and purple | Strong ASPARAGUS Plants
LARCH, SPRUCE, and SCOTCH FIRS
PINUS AUSTRIACA [and other Forest Trees
ASH, BIRCH, WILLOW, HORNBEAM, OAKS, SYCAMORE,

CATALOGUES and Samples may be had on application.

Roses, Roses, Roses.

PLANTS of all the FINEST VARIETIES in CULTIVATION will this Autumn be in magnificent order in the CASTLE STREET NURSERIES, SALISBURY.

The frost of May 24 destroyed all the blooming buds; the consequences are that the Plants have produced the most vigorous growth.

Amateur Rose Growers may insure the finest Plants that can possibly be produced, true to name. CATALOGUES on application.

VINES, from Eyes, the finest in England, 10s. 6d. each, in October next. JOHN KEYNES, Castle Street, Salisbury.

JOHN CRANSTON'S CATALOGUE of SELECTED ROSES is now ready and will be forwarded on application.

J. C. respectfully directs attention to the following LIST of FIRST PRIZES which have been awarded to him at the principal Rose Shows of the present year, proving beyond a doubt that the soil and climate of his Nurseries are unrivalled for the Cultivation of Roses.

Royal Botanic Society, Regent's Park, London.
June 19.—24 Varieties, Cut Roses, one truss each, FIRST PRIZE
Cirencester.
June 19.—36 Varieties, Cut Roses, three trusses each, FIRST PRIZE
Clifton.
June 25.—24 Varieties, Cut Roses, one truss each, FIRST PRIZE
Crystal Palace.
June 29.—72 Varieties, Cut Roses, one truss each, FIRST PRIZE
Royal Horticultural Society, South Kensington.
July 2.—72 Varieties, Cut Roses, one truss each, FIRST PRIZE
Birmingham.
July 4, 5.—72 Varieties, Cut Roses, one truss each, FIRST PRIZE
24 Varieties, Cut Roses, three trusses each, FIRST PRIZE
Hereford.
July 9.—72 Varieties, Cut Roses, one truss each, FIRST PRIZE
24 Varieties, Cut Roses, three trusses each, FIRST PRIZE
Rugby.
July 12.—72 Varieties, Cut Roses, one truss each, FIRST PRIZE
Nurseries, King's Acre, near Hereford.

GREENHOUSE FERNS.—The following 20 fine named FERNS, in 4-inch Pots, for 15s., or 1s., each, viz., Asplenium eburneum, Asplenium alternans, Nephrodium molle, var. polydictyon, Lastræa glabella, Lastræa erythrosora, Lastræa pinnata, Lastræa podophylla, Leptogramma rupestris, Leptogramma asplenioides, Lygodium scandens, Pellæa geraniifolia, Blechnum cartilagineum, Diplazium polypodioides, Doodia dives, Doodia linearis, Microleptis strigosa, Gymnogramma falcatum, Anemodictyon Phyllitides, Scolopendrum Krebsii, Cystopteris bulbifera.

HENRY MAY, The Hope Nurseries, Bedale, Yorkshire.

British Fern Catalogue.

ROBERT SIM can now send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his NEW and PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.

Foot's Cray Nursery, S.E., a mile from Sidcup Station of New North Kent Line of South Eastern Railway.

Vines.

JOSEPH WESTLEY is now prepared to send out well-ripened CANES for fruiting, in pots, of BLACK HAMBURGH, 8-feet rods, 7s. 6d. each; MUSCAT of ALEXANDRIA, 10-feet rods, 10s. 6d. each; extra strong planting CANES of the above, 3s. 6d. each.

GERANIUMS.

	Per dozen.—s. d.		Per dozen.—s. d.
L'ELEGANTE	35 0	LA GRANDE	6 0
SUNSET	24 0	TRANSCENDANT ..	3 0
ITALIA UNITA	24 0	SHOW PELARGONIUM.	6 0
REBECCA	12 0	GOLDEN FLEECE ..	3 0
MRS. POLLOCK	5 0	FLOWER of SPRING ..	3 0

SOPHIA DUMARESQUE, 10s. 6d. each.

ALTERNANTHERA, four sorts, 4s. per dozen.

CISCUS DISCOLOR, 6s. per doz. | HALF SPECIMEN, 10s.6d. each.

Also collection of 200 varieties of Variegated ZONAL GERANIUMS from 15s. per 100.

Special prices given for quantities on application.

Address, JOSEPH WESTLEY, Floral Nurseries, Blisworth, near Northampton.

AMARANTHUS ELEGANTISSIMUS.—This beautiful AMARANTH is a great acquisition for Bedding purposes as well as for Pot culture. It is also very effective in Ribbon Borders. The habit is dwarf and compact, and a brilliant effect is produced by the intensely deep scarlet of the base of the leaves and the rich bronze purple of their terminal half. Price, 1s. 6d. per packet.

JOHN & CHARLES LEE, Royal Vineyard Nursery and Seed Establishment, Hammersmith, London, W.

AZALEA INDICA.—Good healthy blooming Plants, 40 of the choicest varieties, including Stella, Carnation, Flag of Truce, and Mdme. Verschaffelt, for 40s., or less quantities 12s. per dozen; also other good named varieties, healthy blooming Plants, at 9s. per dozen. Trade price on application.

H. & R. STIRZAKER, Skerton Nurseries, Lancaster.

Azalea, Her Majesty.

WILLIAM BARNES has much pleasure in announcing that he will be prepared to send out the above splendid AZALEA on and after Wednesday, October 23, at the following price—21s. each. A very few extra strong plants at 42s. each, with the usual allowance to the Trade; where three plants are ordered at one time four will be given.

It was exhibited before the Floral Committee of the Royal Horticultural Society on June 14, 1866, where it was awarded a First-class Certificate for its great beauty in its markings, shape, and colour, when the following remarks were made upon it, which appeared in the *Gardeners' Chronicle*, June 16, 1866:—"A beautiful Azalea, rosy lilac, edged with white, and blotched, and spotted in the upper petals with crimson, called Her Majesty, from Mr. BARNES, of Camberwell."

On June 23, 1866, the following remarks appeared in the same Paper:—"We have from time to time referred to the sportive character of the Indian Azalea, and called attention to the fact that some of our best varieties have had their origin in a freak of Nature. A fresh instance of their sportiveness was shown the other day at South Kensington. Mr. WILLIAM BARNES there exhibited a variety of Azalea which he purposes to designate Her Majesty. It is, we believe, a sport from Madame Mielliez, or some of the forms closely allied to that fine old sort; and in quality, therefore, as well as in name, takes the very highest rank. The flowers are of the full average size, and of excellent form and substance, and the colour is a soft lilac-tinted blush, white at the margin, densely spotted with crimson in the upper part, and marked with variable stripes, or sometimes broadish bars of deep rosy purple. Its high quality as regards the flower itself, and this novelty of marking, will make it an acquisition in any collection of these showy plants.

A faithful Figure of this fine Azalea is given in the January number of the "Florist and Pomologist."

A remittance must accompany all orders from unknown correspondents. Camden Nursery, Camberwell, London, S.

The New Sensation in Bedding Out.

JACKMAN'S HARDY HYBRID CLEMATISES, awarded Eleven First-class Certificates, and One Special.

Messrs. GEO. JACKMAN and SON are desirous of drawing the attention of those who intend using their Hardy Clematises for a Permanent Bedding Plant, that the present time is most favourable for planting.

OPINIONS OF THE PRESS.

Gardeners' Chronicle, Aug. 17:—"The new sensation in bedding." Also, August 31, "J. F." (Cliveden) adds, "that Messrs. G. J. & SON have in their several varieties the very colour of which our summer gardens are in a great measure deficient." "Country Life," Aug. 15:—"Clematis Jackmanni is a most useful bedding kind if pegged down; used as such, a perfect carpet of flower, so to speak, is soon formed." *The Field*, Sept. 28:—They will be of the highest value as purple bedding plants, our present colours in this way being poor indeed compared to these."

"The Florist and Pomologist," November, 1867:—"There is no finer flowering plant for lawn decoration, no more gorgeous subject for garden avenues, not even excepting pillar Roses.....while the glorious mass of rich violet purple furnishes quite a new sensation in bedding out."

An engraving, from a photograph, showing the flowering qualities, and Circular of Prices, will be forwarded gratis on application.

Woking Nursery, Surrey.

RICHARD SMITH'S FRUIT LIST contains a sketch of the various forms of Trees, with directions for Cultivation, Soil, Drainage, Manure, Pruning, Lifting, Cropping, Treatment under Glass; also their synonymes, quality, size, form, skin, colour, flesh, flavour, use, growth, duration, season, price, &c. Free by post for three stamps.
RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

STRONG STANDARD and DWARF-TRAINED APPLES and PEARS.
Fine transplanted LARCH FIR, 1½ to 6 feet
Bushy LAURUSTINUS, LAURELS, and BOX TREES
CHINESE ARBOR-VITÆ, 5 to 6 feet, fine Pyramids
A choice collection of CONIFERÆ
A large assortment of STANDARD and DWARF PERPETUAL, and strong DWARF CHINA or MONTHLY ROSES, and a general NURSERY STOCK.
All the above are well rooted, and will remove with safety. Prices on application to
CHARLES BURGESS, The Nurseries, London Road, Cheltenham.

Fruit Trees.
J. LE CORNU, NURSERYMAN, SEEDSMAN, and FLORIST, begs to inform his Friends and the Public that he has this season to offer an immense quantity of beautiful and well-grown Fruit Trees, all of the best leading varieties, such as APPLES, APRICOTS, PEACHES, NECTARINES, PEARS, PLUMS, and CHERRY TREES, as Dwarf, Trained, and Standards, 4 to 6 feet stems. CATALOGUE on application.
High View Nurseries, Mont a l'Abbé, St. Helier's, Jersey.

ORCHARD-HOUSE TREES in Pots.
APPLES, Pyramids [Bushes
APRICOTS, Standards, Half-Standards, Pyramids, Cordons, and
CHERRIES, Pyramids [FIGS, Bushes with clear stems
MULBERRIES, Pyramids and Half-Standards
ORANGES, Dessert kinds, Bushes, and Low Standards
PEACHES and NECTARINES, Standards, Low Standards, Pyra-
PEARS, Pyramids [mids, and Bushes
PLUMS, Pyramids and Bushes
The above are all full of blossom buds, and capable of bearing good crops next season.
A CATALOGUE of sorts sent free by post.
Carriage of packages paid to London.
THOS. RIVERS & SON, Nurseries, Sawbridgeworth.

Fruit Trees.—The finest Collection in England.
J. SCOTT, Merriott Nurseries, Somerset, begs to solicit his Friends and the Public to inspect his immense Stock, consisting of 700 sorts of APPLES, 50 do. APRICOTS, 120 do. CHERRIES, 150 do. PEACHES and NECTARINES, 900 do. PEARS, and 150 do. PLUMS, in all manner of training, well root-pruned and carefully transplanted; CURRANTS, FILBERTS, GOOSEBERRIES, &c.; making together about 1500 sorts of FRUIT TREES, which for health and beauty cannot be surpassed.
CATALOGUES on application.

PRINCESS of WALES STRAWBERRY.—This fine variety is now proved to be the best early variety ever produced, either for Forcing or for general Early Crop. See *Gardeners' Chronicle* of May 12, 1866, p. 437. Good Plants can now be supplied from the true stock, at 5s. per 100, from the raiser.
B. W. KNIGHT, Nurseryman, Battle, Sussex.

Royal Ascot Grape.
J. STANDISH has much pleasure in now offering this magnificent GRAPE to the Public. He did not intend sending it out till next June, but from his experience of its extraordinary qualities and constitution, and the many persons who are pressing him for plants of it, he is induced to offer it at once. J. S. has a large number of plants raised from eyes this season, but not grown as strong as they would have been, only because they were intended to be cut back and grown next season. The plants are in 32-pots, and perfectly ripe, and if planted out during this or next month, and grown, all would be fine strong ripe Canes fit to start next autumn for an early crop. A very remarkable characteristic of this Vine is its being what may be termed a perpetual bearer. It never forms a lateral but this shows one or more bunches of fruit. The constitution of the plant is so vigorous that it bears hard forcing during the winter months better than any other Vine; and it was benefited by being repeatedly syringed to a night temperature of 55 degrees while in flower and setting. A house here was planted with very small weak plants of this Vine in November, 1865; these bore a large crop, which was ripe in May last; since then the Vines have made several attempts at making fresh growth, and each young shoot showed one or more bunches. The few bunches which were left of those which showed in June are as black as jet, and fair sized berries, and this despite the house having been treated with a view of ripening the wood. There are also several bunches which were shown upon growths made in August, and the berries of these are swelling, notwithstanding the cold treatment to which they have been subjected. A house here was planted last May with very small weak plants from 48-pots. These have shown fruit upon the laterals, and the bunches which were left are now colouring, and will be ripe early in January. J. S. has no hesitation in saying that with inside borders, &c., this Grape can, with comparative ease, be had ripe and fresh every month in the year. As to the quality of this Grape, it was shown at the Royal Horticultural Society's Exhibition at Bury St Edmund's, and awarded a First-class Certificate, and again at South Kensington, before a full Committee of the Royal Horticultural Society, when the decision of the Committee at Bury St. Edmund's was unanimously confirmed, and the Grape pronounced to be one of great excellence. J. S. has no hesitation in saying that this Grape is the largest, the blackest, and the best flavoured black ever offered. Price, £2 2s. each. Royal Nursery, Ascot.

Frogmore Early Bigarreau Cherry.
CHARLES TURNER has great pleasure in offering the above valuable NEW CHERRY. The following extracts will be a sufficient guarantee of its excellence:—
From the *Gardeners' Chronicle*, July 1, 1865.
"Fruit of a Seedling Cherry of excellent flavour, called the Frogmore Early Bigarreau, was shown by Mr. Ingram, on a north-east wall; it was as early as the May Duke, and said to be a heavy cropper."
A First-class Certificate was awarded by the Fruit Committee of the Royal Horticultural Society.
It was exhibited at the Royal Botanic Society in July of the present year, and awarded a Certificate. The report from the *Gardeners' Chronicle* of July 6 is as follows:—"A branch of a Cherry called Frogmore Early Bigarreau, loaded with ripe fruit, was shown by Mr. TURNER, of Slough. The fruit of this new variety is of good size, thin skinned, tender, and well flavoured, and being at least three weeks earlier than the common Bigarreau, cannot fail to be a favourite."
From the "Journal of Horticulture," July 11, 1867.
"Mr. TURNER exhibited a branch of Frogmore Early Bigarreau Cherry, loaded with fruit; of this excellent variety, which is ripe three weeks before the Bigarreau, a figure and description will be found in our ninth volume."
From the "Florist and Pomologist."
"By the time these pages are in the hands of our readers, the Frogmore Early Bigarreau Cherry will be at its highest excellence, perfectly ripe, and waning towards its end, before any of the other Bigarreaus have yet made their appearance. It was raised by Mr. Ingram, at the Royal Gardens at Frogmore.
"Unlike the class to which it properly belongs, it has a tender melting flesh; in every respect it is a Bigarreau in habit, leaf, and appearance of the fruit, and must be classified along with these varieties; but as if to set at nought all human arrangements, it persists in having a delicious melting flesh, instead of one that is hard and crackling. The fruit is large, obtusely heart-shaped, with a very shallow suture. Skin with a brilliant red cheek, dotted with minute yellow points, and of a remarkably pale almost pure white where shaded—so susceptible is it of shade, that the point of a leaf or the shadow of a twig would be photographed on this brilliant red. Stalk 2 inches long, with a very small receptacle, and set in a shallow and narrow cavity. Flesh very delicate and translucent, perfectly tender, melting, and very juicy, with a rich sweet flavour; stone small. The tree is a great bearer, clusters of a dozen and half to two dozen large handsome Cherries being produced on a small spray; and the fruit ripens in the middle of June."
STRONG PLANTS NOW READY.
STANDARDS, PYRAMIDS, and DWARF-TRAINED, 10s. 6d. each.
MAIDENS .. .. 7s. 6d. ,,
A Coloured Drawing by ANDREWS will be sent on receipt of 13 Stamps.
The Royal Nurseries, Slough.

Rhododendrons,
AS EXHIBITED AT THE ROYAL BOTANIC GARDENS, REGENT'S PARK.
JOHN WATERER, the Exhibitor at the above Gardens, has pleasure in announcing that his CATALOGUE of the above popular Plants is now published, and will be forwarded to all applicants. It faithfully describes all the varieties considered worthy of cultivation. It contains likewise a selection of HARDY CONIFERS, with heights and prices.
The American Nursery, Bagshot, Surrey.

The Queen.
THIS RHODODENDRON has now proved itself A 1 amongst 800 named kinds. Fine plants are now ready as under:—21s., 31s. 6d., 42s., 63s., 84s., 105s. each. Standards 105s. each, fine straight stems. See copy of letter below.
"Dear Sir,—The Queen has now bloomed with me wonderfully well considering the season, and in comparison with other sorts, which (though I lost none) had their blooms much deteriorated by the severe spring. As you asked me to give my opinion of her, I beg to say that I consider her Flowers first-rate as to form, substance, and truss, and the Foliage faultless. She possesses a 'beauty of her own' which fairly entitles her to rank with the very best—in fact, I see no fault in her, for a difference in colour or marking is assuredly no defect. She is far beyond Ingrami and Lady Godiva in my mind, as well as perfectly distinct from both. The Queen is A 1 so far as I know, and can, I think, scarcely be surpassed.
"June 13, 1867." "H. H. GLENVILLE."
This quotation is from a gentleman who has purchased every named Rhododendron offered in commerce; his Collection now amounts to above 800.

Now is the Proper Time to Plant Hardy Herbaceous Plants.
HENRY MAY offers the under-named large collection. It contains all the best CAMPANULAS, GERANIUMS (hardy), EPIMEDIUMS, ACONITUMS, PHLOXES, DELPHINIUMS, IRIS, and upwards of 60 different varieties of SAXIFRAGA and SEDUM, with a host of others.
A Collection of 100 named varieties .. .. .. 25s.
A Collection of 200 named varieties .. .. .. 40s.
A Collection of 500 named varieties .. .. .. 80s.
HENRY MAY, The Hope Nurseries, Bedale, Yorkshire.

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(A Donation of £10 10s. constitutes a Life Member.)
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The Gardeners' Chronicle.

SATURDAY, NOVEMBER 9, 1867.

No small thanks are due to certain of our modern painters, as well as to some of their critics, for the improvement that has taken place in the REPRESENTATION of PLANTS, TREES and FLOWERS in the landscape pictures of the present day. Thanks to this improvement, the public begins to see that SALVATOR ROSA, with all his genius, could not or did not draw a tree, and that GASPAR POUSSIN succeeded no better; moreover, it will no longer tolerate "brown trees," and has learnt to reject, as a proper study for such an object, the old conventional model of a wig on a pole. But while we thankfully acknowledge the progress that has been made, we must, like OLIVER TWIST, still cry out for more. Whatever originality an artist may possess, or affect to possess, we venture to question his right to take liberties with Nature, however desirable such liberties may seem to him in a conventional or artistic point of view. Thus we have seen within a recent period American trees introduced into classic scenes, wood nymphs dancing amid groves of horse chestnuts, water nymphs disporting among Plantains and Bamboos, Ophelia weaving her garland with flowers which she must have procured from a greenhouse, aquatic plants represented as growing on dry land, lowland plants shown in a flourishing condition on the mountain's side—not to mention other forms of vegetation, which surely never could have had any existence save on the canvas of the artist. We may be well startled at anachronisms and solecisms such as these, which violate all that we know with reference to the history or the distribution of plants.

In pre-Adamite subjects an artist may to some extent be allowed to run riot in the Vegetable as in the Animal Kingdom, and to represent Calamites, Palms, and Conifers as well as megatheria, mastodons, and bears in the same picture, but, in subjects of later date, concerning which we are better informed, however artistic, it is hardly admissible to ignore the proper geographical station, or distribution of plants, or animals.

Among the various sciences of which a landscape artist should at least have a smattering, Botany, at any rate, claims a foremost place. It is just as well that some of the brothers of the brush should learn that Figs do not, under ordinary circumstances, grow upon Thistles, and it is equally desirable that they should know that many plants, perhaps most effectively introduced in their pictures, are yet placed in localities where no disciple of LINNÆUS or HUMBOLDT would ever expect to find them.

Art critics need a gentle reminder of this kind as much or more than the painters, whose works they criticise. Some of the oddest and most serious blunders that we call to mind at the present time have been committed respectively by one of the greatest and most eloquent of critics, and by one of our foremost painters of that school whose boast it is to copy Nature accurately and faithfully. Even botanical draughtsmen are not always free from errors, any more than are their critics: "*humanum est errare*," but really it is almost a superhuman blunder to attach a saw-toothed, net-veined leaf to the spike of an Orchis: and yet this has been done. There is another point in which, however, German botanical artists err more frequently than our own, and that is in the profusion of useless detail introduced into their plates. Analyses and dissections are most desirable for the botanist and lover of plants, but surely it is not generally necessary to have half a dozen views of the same organ taken from as many points of the compass. This redundancy of illustration, no doubt, is one result of the facility with which the artist handles his brush or his pencil; and if that facile power were exercised more usefully, there would be no ground of complaint. Another reason for this profusion of comparatively worthless detail arises, no doubt, sometimes, from the ignorance of the artist as to what is really required for botanical purposes, just as the eccentricities of the landscape painter, to which we have above referred, arise from too superficial an acquaintance with botany in general, and botanical geography in particular. In either case the remedy is obvious.

UP to this time the arrangements made in this country with reference to the EDUCATION of YOUNG GARDENERS have had reference, mainly, to their examination in various subjects, by examiners appointed by the Society of Arts, and the Royal Horticultural Society. The results of this scheme, so far as can be judged up to this time, are likely to be satisfactory so far as they go; but it is obvious that as matters are at present arranged, the young men from certain large establishments, such as the Gardens at Chiswick or at Kew, have an immense advantage over their less fortunate brethren in the provinces. No doubt a young man who is desirous of learning, and who is placed under a conscientious and intelligent head gardener in the country, may qualify himself to take a high place in the examinations held in London, and thus hereafter secure to himself the advantages which a certificate of merit so obtained will sooner or later put in his way. On the other hand, how comparatively few upper gardeners are there, who will take the pains, and devote the time requisite, to give their subordinates that thorough technical education which the circumstances of the times demand from those of the rising generation of gardeners desirous of advancing themselves in their business. No doubt the routine of garden operations can be, under existing circumstances, thoroughly well-learnt in any large garden that is directed, as most of them are, by accomplished practitioners; but it must be admitted that, beyond a familiarity with certain practical details, but few opportunities are given to the young gardeners to advance beyond the existing state of knowledge. Speaking in general terms, and without reference to individuals, it may be stated that there is at present nothing in the training of young gardeners that is likely to make them one jot better gardeners than their predecessors. The ultimate result of this must be that, on the whole, the gardening art in this country will remain stationary as regards the practice of the majority of its votaries: any progress that is made, will be due to the comparatively few, who from special gifts, or from the possession of exceptional advantages, are enabled to advance beyond the point reached by their forefathers. Fortunately there have always been such "bright particular stars," and no doubt the future will not be deficient in this respect, but surely that forms no valid reason why strenuous effort should not be made to improve the rank and file.

With these views, we should like to see introduced into this country something like the same system as is in operation in Belgium and France, where young gardeners have the chance not only of seeing the practice of the best gardeners, but of hearing the reasons why and wherefore such practice is adopted. They have the advantage of hearing, from the mouths of the most expert practitioners, the history of their experience, the record of their success or their failure, an explanation of the courses they follow, and a statement of their reasons for so doing. To this is added instruction in the elements of botany, of meteorology, and of other sciences bearing upon the practice of gardening. It must not be supposed that this system of instruction is confined to the large towns: quite the contrary, especially in Belgium; while in France a commission has recently been given to some of the most able gardeners to travel through the provinces, and hold classes for the practical instruction of young gardeners. It must be remembered that these are not mere lectures, to which the pupil may pay but a listless attention, but they are practical demonstrations, supplemented by full information as to the "reason why." We can see no overwhelming difficulties in the way of establishing something of the kind here. The beginning should be made at such places at Chiswick, Kew, Edinburgh, or Glasnevin, and subsequently efforts of a similar character might be made in the provinces. We are aware that something of the kind has been done in past years at Chiswick, and something is still done at Kew, but nothing has been attempted in the systematic way that is followed in Belgium and France. As an illustration, we cite two cases recently commented on by the French horticultural press—one a practical demonstration, pruning-knife in hand, made by M. CHARLES BALTET, to a number of pupils at the exhibition at Billancourt; the other a more elaborate scheme of horticultural education, about to be carried out by M. CITERNE, head gardener of the Botanic Garden of Clermont Ferrand, Auvergne. Subjoined is the scheme that has been sanctioned for adoption, as printed in the *Revue Horticole*. It is obvious that the examination scheme at present acted on, in this country, is only partial in its utility; it requires to be supplemented by some scheme of practical education on the same principle in the main as that followed by our continental neighbours.

—— THE following are the details of the programme of HORTICULTURAL EDUCATION at the Botanic Garden of Clermont Ferrand, above alluded to:—

PROGRAMME OF THE INSTRUCTION GIVEN TO PUPILS AND GARDEN APPRENTICES.

Instruction given between 1 and 2 P.M., or between 5 and 6 (P.M.), according to the season.

Monday.—Reading and writing the scientific names of plants.

Tuesday.—Arboriculture and cultivation in general; classification of soils.

Wednesday.—Vegetable physiology; composition of air and water.

Thursday.—Arithmetic applied to land surveying.

Friday.—Elements of practical geometry, and formation of plans for gardens.

Saturday.—Propagation of plants from seeds, grafts, and cuttings.

Sunday.—Formation of "corbeilles" and "bouquets."

PROGRAMME OF PRACTICAL DEMONSTRATIONS.

In addition to the daily work of the garden, practical demonstrations are given between 9 and 10 in the morning, as nearly as may be, as follows:—

Monday.—Management of lawns, mowing, removal of weeds, rolling, &c.

Tuesday.—Formation of walks, and banks of turf.

Wednesday.—Use of garden tools.

Thursday.—Reading, and placing labels to the plants in the botanical school.

Friday.—Keeping of beds and shrubberies; pruning.

Saturday.—Cleaning, and general inspection of tools.

We should not be doing justice to the above programme unless we added that the above "scheme has been prepared by the head gardener, CITERNE; examined and approved by the Director of the Garden, HENRI LECOQ; and examined and authorised by us, Mayor of the Town, Officer of the Legion of Honour, &c., the Mayor PH. MÉGE." Were such a subscription deemed necessary to a scheme of the kind in England, we should at once hesitate as to its practical working, but in France everything must be "en regle."

—— In our Notices to Correspondents, Sept. 21, 1867, there is a record of a very curious AFFECTION IN BEECH TREES. It is remarked that it is probably due to some insect, and that a close inspection of this year's wood a little later in the year, might probably lead to a discovery of the cause. Singularly enough a day or two before the publication of the note, on driving from Kingstown harbour, we observed every Beech tree affected with a similar disease, which of course gave us an opportunity of examining the matter more closely. We were at once struck with the number of dead terminal shoots, while the other parts of the trees were perfectly healthy. These shoots were in different stages of decay; in most the leaves were quite dead, while in some they were only just beginning to wither. On close inspection it appeared that the seat of evil was the little close rings which marked the point of attachment of the bud scales from whence the shoot proceeded. In most cases the evil was of the growth of the current year; but occasionally it was due to some affection of the previous year, the branch being strongly constricted at the point affected. On making a vertical section through the closely set rings, we found a number of cavities leading to an external orifice, after the manner of the extremely common blisters on Pear leaves, the base of some of the cavities being filled with a shining red mass, which seemed to be of insect origin. It was, however, clear, that if the disease is due to an insect the attack is made at a much earlier period, and probably in the spring, the concentric furrows being well calculated for the reception of minute eggs or insects during winter. We have examined these furrows in healthy Beech trees since our return, but we can find nothing to throw further light on the matter, which must therefore be left for future investigation at a more favourable time of year. This disease was not the only one which we had an opportunity of studying, on the first day of our arrival in Ireland. We have several times had some curious galls on the under side of Vine leaves submitted to us, which have from time to time been noticed in this Journal, but they always arrived in such a wretched condition, from being crushed in the post, that we could never arrive at any certain opinion concerning their nature. Multitudes, however, of the galls in question, in every stage of development, caught our attention immediately, and a moment was sufficient to show that they were due to an insect, as indeed Mr. DUNN, the very intelligent gardener at Powerscourt, pointed out to us on calling his attention to them. We presume that these are the same kind of galls on which we are promised precise information, and we content ourselves therefore with giving only such a description of the galls themselves, made on the spot from fresh specimens, as will serve for identification. On the upper side of the leaf are little dimples like eyelet holes, the border of which is puckered, and the extreme edge fringed with short white hairs. On the under side, corresponding with the dimples, are convex excrescences (sometimes 60 on a leaf), consisting of a number of cylindrical lobes, each of which is generally terminated by a bristle. On opening them carefully a soft buff coccus-like insect is found, surrounded by shining, slightly subfusiform eggs, and a number of young ones of an elongated form moving about with great rapidity, after the manner of the red spider, when free. They attack the young leaves only, and never after they are fully grown. The health of the plants did not seem to be at all affected. *M. J. B.*

—— The Messrs. BURROW, of Malvern, have submitted for our inspection one of their new SELF-REGISTERING MINIMUM THERMOMETERS. It is a "spirit instrument," graduated on the stem, and mounted on a white porcelain slab. It possesses the qualities of great neatness of appearance, easy legibility, and apparently is not very liable to get out of order. Its accuracy is guaranteed by a certificate of verification from the Kew Observatory. When we add that the price is little more than half that usually asked for similar instruments, we have said as much as can be said in favour of a new thermometer.

—— We learn from the *Bury Post*, that at a meeting, held on Saturday last, of the guarantors of the BURY SHOW it was announced that a cheque for 200*l.*, being the stipulated share of the profits of that undertaking, had been received from the Royal Horticultural Society. Of this sum it was resolved that 35*l.* should be presented to Mr. CLAY and to Mr. FISH, respectively, for their great exertions in bringing the Show to a successful issue—Mr. CLAY intimating his intention to invest the amount voted to him, and to offer the interest as an annual prize at one of the shows of the Society. The surplus, it was agreed, should at a subsequent meeting be handed over to the Bury Horticultural Society, and kept as a separate fund, "so that it might be a perpetual memorial of the visit of the Royal Horticultural Society to the town," unless any of the guarantors should claim his share of the amount, in which case it was humourously suggested that a subscription should be got up to photograph the claimant.

—— A good-sized volume might easily be written on the DISEASES to which VINES are subject, for they seem to be multitudinous. Every month appears to yield something new in this direction, and we have now before us a very singular, and, as it would seem, a hitherto unobserved affection. We say affection, because the health of the plant has not hitherto suffered, though the condition of the roots is very abnormal. Our correspondent "J. H.", who has forwarded specimens, compares it to the clubbing of Cauliflowers, but we should rather compare it with the tuberiform bodies which grow on the roots of Beans and many other leguminous plants, and which contain a reservoir of nutriment of which the plants can avail themselves when needful. There is also some resemblance, though on a small scale, to the curious transformation of the tissue into pectic acid, in the affection known in the United States under the name of Tuckaho. On a first glance we thought it probable that we should find the tubercles infested with some species of Vibrio, like that with which the roots of Melons are sometimes distorted, but there is nothing of the kind. A vertical section shows that the greater part consists of granular matter enclosed in cells, which give the tissues a white mealy appearance. When submitted to the microscope, a quantity of loose granules, often about a thousandth part of an inch in diameter, but by no means of equal size, are scattered through the water on the object glass. These granules are transparent, smooth, sub-elliptic, sub-globose, or irregular in outline, with one or two transverse dissepiments, so as very closely to resemble the spores of some mould of the genus Dactylium; and they were the more deceptive, because, accidentally perhaps, the tubercles contain some evident fungus threads. A few, however, had a crucial mark upon them, which made it probable that they were starch granules. The compound solution of chloride of zinc and iodide of potassium turned them of a pale yellow brown, but the moment a simple solution of iodine was applied all became of a most intense blue, showing that they were really starch granules, and not the spores of a mould. Their analogy therefore to the tubercles on the roots of Leguminosæ became at once evident, and the bodies were clearly so many little magazines of nutriment. It is difficult to imagine what condition could induce so curious a change in the Vine roots. It would be well to strike some cuttings under different circumstances, and to ascertain under what conditions the tubercles are produced. The matter is well worth a closer attention, and we would request "J. H." to send cuttings to Mr. BARRON, at Chiswick, that experiments may be made there. A notice of the tuber-like bodies in question will be found among Answers to Correspondents. *M. J. B.*

PLANT PORTRAITS.

BEGONIA BOLIVIENSIS.—*Bot. Mag.*, t. 5657. Begoniaceæ. A most remarkable looking species, of which a figure has been published by us at p. 544. It is a tuberous-rooted cool-stove perennial, with fleshy, branching stems, narrow, oblique, oblong-lanceolate, acuminate, inciso-serrated leaves, and bright cinnabar-coloured flowers, having the parts lanceolate in form, and pointing forward, the males 2 inches long, the females about half that size. Native of Bolivia. Flowered by Messrs. Veitch & Sons.

BEGONIA CLARKEI.—*Bot. Mag.*, t. 5675. Begoniaceæ. A very handsome warm greenhouse species, having a purple caulescent and puberulous stem, obliquely roundish-cordate obtusely-lobed leaves, and large deep rose-coloured flowers, growing on axillary branched peduncles. It is related to B. Veitchii, and is said to have come from Peru; a similar plant has been found on the Bolivian Andes. Flowered by Major Trevor Clarke.

BLETIA SHERRATTIANA.—*Bot. Mag.*, t. 5646. Orchidaceæ. One of the prettiest of this pretty family of terrestrial Orchids, having the habit of B. verecunda, with depressed pseudobulbs, 3—4 plicate leaves, and a spike of about a dozen large rich rosy-purple flowers, the lip of which is of a deeper purple in front, and marked with white and yellow down the centre; the petals are very broad, twice the breadth of the sepals. It requires a stove. Native of New Grenada. Flowered by Mr. Bateman.

CŒLOGYNE HUMILIS.—*Bot. Mag.*, t. 5674. Orchidaceæ. This pretty little Alpine Orchid, which is sometimes called Pleione humilis, forms a tuft of pseudobulbs which resemble little bottle flasks, and has white faintly rose-tinted flowers, with a fringed and crested lip, boldly striped with rich crimson. The leaves precede the flowers. Found on the mountains of India at 7—8000 feet elevation. Flowered at Kew.

CYMBIDIUM HUTTONI.—*Bot. Mag.*, t. 5676. Orchidaceæ. A remarkably distinct-looking stove epiphyte, having elongated pseudobulbs, and producing a pair of coriaceous nerveless leaves. The flowers are rather large, in drooping radical racemes, and have the sepals and lip thickly marked with transverse chocolate-coloured bars on a whitish ground, and the petals wholly of a deep chocolate colour. Externally the flowers are of a dull palish brown. Native of Java. Flowered by Messrs. Veitch & Sons, and named after their collector, Mr. H. Hutton (son of Mr. Hutton, gardener to Lord Houghton), who, after 12 months' residence in Java, fell a victim to his enthusiasm. The funereal colours of the flower render this a fitting memorial plant.

EPIDENDRUM CNEMIDOPHORUM.—*Bot. Mag.*, t. 5656. Orchidaceæ. A very remarkable terrestrial Orchid, long since discovered by the late Mr. Skinner, but not introduced till 1864. It produces tufts of leafy stems 4—6 feet high, having dark green lorate leaves, and bears at the top a nodding many-flowered raceme of showy flowers, which, pale-coloured outside, are yellowish within, and nearly covered by motley markings of rich red-brown, the lip being of a creamy white tinted with rose, three-lobed, with the middle lobe deeply cleft. Native of Guatemala, at an elevation of 7000 feet, and requiring cool treatment. Flowered by Sir P. de Malpas Grey Egerton, Bart.

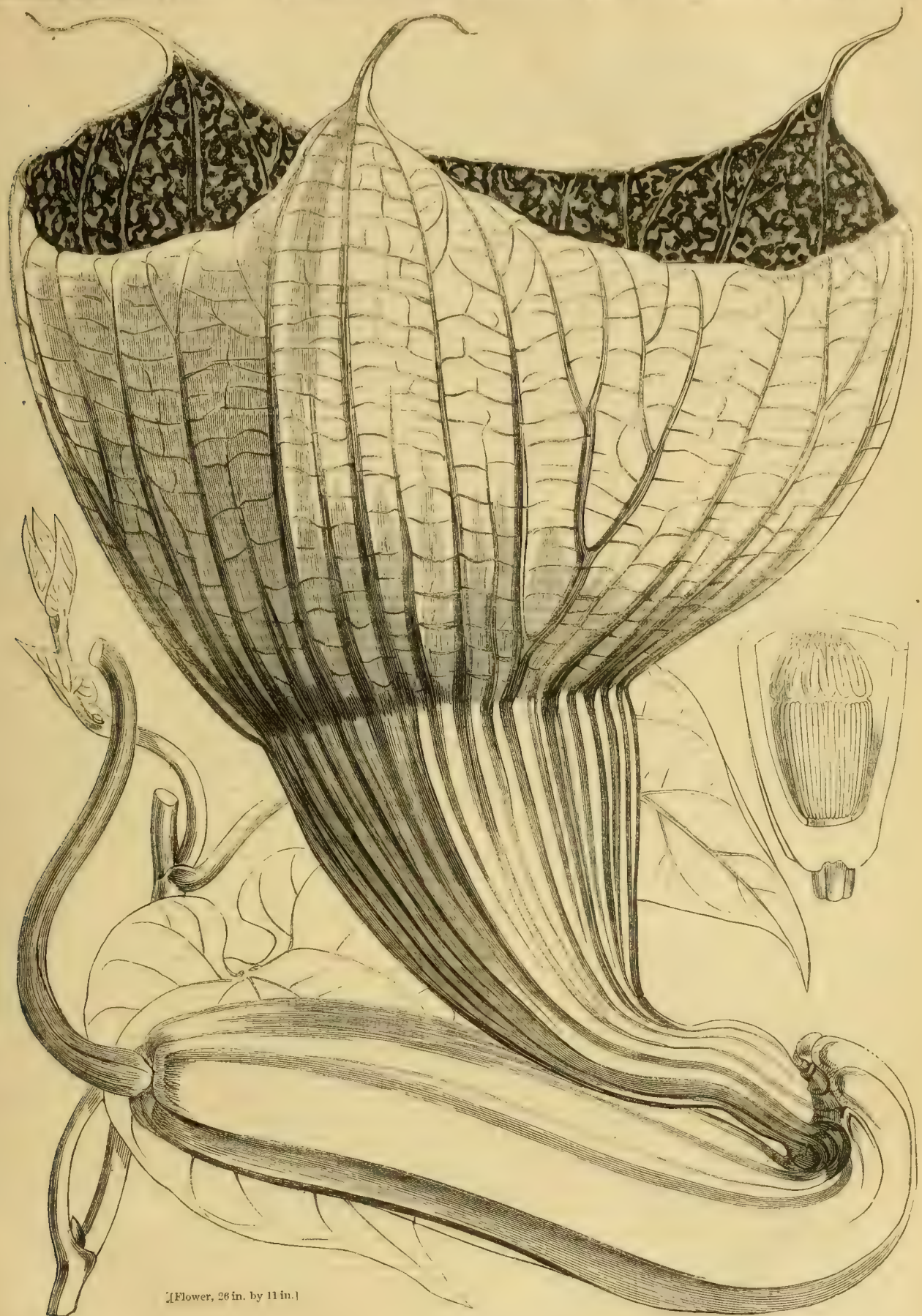
DRABA VIOLACEA.—*Bot. Mag.*, t. 5650. Cruciferæ. A very ornamental dwarf sub-shrubby perennial, with short, obovate-oblong hoary leaves, and sub-corymbose heads of deep violet purple flowers as large as those of Aubrietia purpurea. It grows on loose rocks at an elevation of 13—15,000 feet in the Quitensian Andes. Flowered by Isaac Anderson-Henry, Esq.

GLOXINIA HYPOCYRTIFLORA.—*Bot. Mag.*, t. 5655. Gesneraceæ. A pretty stove perennial, which has received the garden name of Hypocyrta brevicalyx, and which is somewhat anomalous in structure, not fitting exactly to any established genus. It is dwarf, with cordate-ovate, bluntish leaves, which are of a velvety emerald green, traversed by silvery ribs; and has nearly globose gibbous velvety-pubescent flowers, an inch long, with the mouth of very small lobes, and nearly closed; they are of a bright orange red above, yellow beneath. Native of Ecuador. Flowered by Messrs. Veitch & Sons.

LILIUM LEICHTLINII.—*Bot. Mag.*, t. 5673. Liliaceæ. A charming hardy bulb, with slender graceful stems from 2—3 feet high, clothed with alternate linear lance-shaped leaves, and solitary nodding flowers, 4 inches across, of a pale golden yellow, thickly marked with purple spots; the perianth segments are revolute,

with two keeled pubescent ridges in the sepaline divisions, which in the petaline segments become dilated into irregularly-toothed crests. Native of Japan. Flowered by Messrs. Veitch & Sons.

STEMONACANTHUS PEARCEI.—*Bot. Mag.*, t. 5648. Acanthaceæ. A free-blooming and ornamental stove under-shrub, of erect habit, with four-cornered stems, large lanceolate oblong, acuminate leaves, and short axillary panicles of bright red flowers, with a long compressed tube gradually widening upwards, an oblique mouth, and a spreading limb. Native of Bolivia. Flowered in March last, by Messrs. Veitch & Sons.



[Flower, 26 in. by 11 in.]

New Plants.

ARISTOLOCHIA GOLDIEANA, *Hook. fil. Trans. Linn. Soc., vol.* XXV. *p.* 185, *t.* XIV.

Glaberrima, foliis ovato vel triangulari cordatis basi profunde exsculptis, acuminatis; floribus maximis, perianthii refracti utriculo elongato subclavato, limbo infundibuliformi campanulato, ore ampliato truncato obtuse trilobo lobis caudato acuminatis, staminibus ad 24, columnæ lobis ad 12 bicruribus.

The reader will at once be reminded on seeing the woodcut of this superb Aristolochia of that one mentioned by Humboldt "whose blossoms, measuring 4 feet in circumference, the Indian children sportively draw on their heads as caps." The present species, rivalling in size, and similar in habit to the South American kind, is a native of Western equatorial Africa, having been gathered in forests near the mouth of the old Calabar River, by Rev. W. C. Thomson. It has also been found by the Bishop of Sierra Leone, by Barter, and by Mann, the last-named collector having met with the plant in the island of Fernando Po. From the account in the Linnean Society's *Transactions* we find that this gigantic-flowered Aristolochia is a climbing shrub, some 20 feet in height, with cordate and auriculate acuminate leaves, on long stalks. The flower is bent into two unequal portions, the lower portion, surmounting the ovary about 8 inches in length, somewhat cylindrical, terminating in a club-shaped curved knob. The upper portion, commencing from this knob, is about a foot long, funnel-shaped, ribbed, dilated above

into a somewhat three-lobed limb. The stamens are 24 in number, a very unusual occurrence in the genus, as they are generally restricted to five or six. The stigmas, moreover, are two-cleft, each subdivision terminating in a small glandular knob, to which there is, according to Dr. Hooker, nothing analogous in the other species of the genus. The colour of the flower is violet, more or less variegated with yellow and red purple, and the odour is said to resemble that of decaying Fungi. Flowers of this remarkable plant have been produced for the first time in Britain in the Botanic Garden, Glasgow, under the care of Mr. Peter Clarke, the very able Curator of that establishment. A coloured figure, half the size of nature, is given in the "Botanical Magazine" for this month, and we shall publish next week some further observations respecting this extraordinary flower which have been furnished us by Mr. Clarke. *M. T. M.*

CATTLEYA EXONIENSIS (*Hybrid*).

Sepalis ligulatis acuminatis, tepalis cuneato oblongis, antice attenuatis apiculatis, elegantissime plicatis, labello basi cordato, obtusangulo, rhombeo, circa columnam convoluto, antice crenulato, lateribus undulato crispulo. — *Lælia exoniensis*, Veitch.

This is one of the most beautiful Cattleyoids that can be seen. Both sepals and petals are tinted with a delicate blush hue. The lip has a deep orange base, the edges lying over the column are white, while the anterior part is of the richest and warmest purple. There are two purplish veins in the central part of the base and disc of the lip, and the large anterior part is painted with dark lines. It may be added that the lip has the shining appearance of velvet.

This is one of the beautiful seedlings of Mr. Dominy in the famous Veitchian nursery; perhaps it is the finest of all. We are indebted for flowers both to Messrs. Veitch and to Mr. Day. *H. G. Rchb. fil.* [A finely flowered specimen of this charming hybrid was shown at South Kensington, on Tuesday last, by Messrs. Veitch & Sons. EDS.]

GRAPE JUDGING.

HAVING started the discussion on this subject, I have read all that has been written on it with much interest, and I have been not a little amused at the tone assumed by some of the writers who differ from me, as to the importance of flavour in the Black Hamburgh Grape, for this was the one to which I made special reference when I suggested a set of points by which something like justice might be done to all the qualities which a bunch of first-class Grapes should possess. One would think that I, and those who take the view I do, had given a preference to red coloured Hamburghs without bloom, over black coloured ones with perfect bloom, than which nothing can be more absurd, as must be evident to all who put a correct construction on what I wrote. Four points out of ten were given to colour and bloom.

Those who seem to dread that their Grapes should be tasted, try to ward off this calamity by refusing to have their bunches "mutilated." They are surely not in earnest. Do they for a moment suppose that two or three men well accustomed to handle Grapes with care, could not pick a couple or three berries from the least exposed part of a bunch of Grapes without mutilating it? I have done so a score of times, and it would require the most minute scrutiny to detect that I had done so. To be consistent, the advocates of the non-tasting system of judging Black Hamburgh Grapes should either maintain that high flavour is always present when colour and bloom are there, or that flavour is of no importance as a quality in a bunch of Grapes. When they do this they will be perfectly consistent, but not till then. *Wm. Thomson, Dalkeith Park.*

Those who have watched the progress of the controversy which has taken place on this subject cannot fail to have noticed that while clever and experienced Grape-growers appear to disagree as regards the relationship which, as a rule, colour holds to flavour —in Black Hamburgh Grapes in particular—all are agreed that some standard rules for Grape-judging should be set up by some competent and recognised authority. Considering the high position of some of the men who differ in their estimate of colour as a correct indication, in all cases, of flavour, it may be deemed due to the opinions of these respective parties that, before framing a set of rules, their opinions and experience should be brought to some practical test, for certainly flavour, with whatever colour it may be combined, is of first-rate importance. My principal object at present is to suggest that the Fruit Committee of the Royal Horticultural Society—as the "powers that be" in such matters—should take the subject in hand, and invite growers to send samples of Black Hamburgh Grapes in particular to their meetings in 1868, extending from May to October. The best flavoured might be rewarded with Certificates; at all events a careful record should be made of the shades of colour in which good flavour was most frequently found, and *vice versâ*. Of course all experienced Grape-growers need not be told that Grapes have not attained their proper flavour immediately they are fully coloured, and where flavour is the point of merit will not be likely to send unripe Grapes to the meetings any more than to their employers' dessert. It strikes me that this plan would be more likely to bring about a settlement of this bone of contention, than the course pursued by eminent growers of ridiculing and setting aside as nonsense the views of their compeers. While I have taken the liberty of making the foregoing suggestions, perhaps I may be allowed to observe, regarding the question of colour *versus* flavour, as it has been rather illogically termed, that I do not think it necessary to lead Vines into such an abyss of bad management and torture as that prescribed by your correspondent Mr. Cramb (see p. 1074). Such a prescription will not only produce brown coloured Grapes but everything else that is bad. Few who know anything about Grapes will dispute this. At the same time, many Grape growers who revel in the antipodes of such a state of things as that depicted by Mr. Cramb, are sometimes sorely puzzled as to the reasons why certain Vines produce Grapes much better coloured and bloomed in some particular seasons than they do in others. The most skilful are thus sometimes baffled in producing high colour, while the crop in all other respects may be first rate. I, however, do not consider colouring a crop of Grapes to be a matter of chance any more than any other point of culture. And it would soothe the spirit of many bitter controversialists were they to reflect that everything is not adjusted to our limited perceptions. The want of colour and finish, in some instances puzzles the most successful cultivators of Grapes often more than any other point connected with their culture. I do not know whether it has occurred to others, but from my own experience and observation I am disposed to believe that the want of high colour in Black Hambughs most frequently occurs in the case of crops which are ripened in the hottest months of the year. Crops ripened slowly in March, April, and October, are less likely to be brown than Grapes ripened in the heat of summer. And holding this opinion is the reason why I have suggested that the Committee should investigate the question during an extended period of the year. I have known the same grower ripen Grapes to a jet black in February and March, and fail to do so in the heat of summer. More than this, let any one take a house of Black Hamburghs which are to ripen, say in August, grow one half of the vine with two or three leaves of a lateral to each bud, so as to effectually shade the fruit, and remove all the laterals entirely from the other half, allowing a brisk blaze of light about the Grapes, and in nine cases out of ten with this one stroke of management one half the Grapes will be much blacker than the other. Doubtless it has often been observed that bunches hanging down at the front wall of the house near the heating apparatus, not in a shaded position as a rule, colour to a deeper hue than those exposed to more light. Now, not only will the flavour of the Grapes grown in different degrees of shade be different, but the flesh is firmer in the one case than in the other. And here the knotty point crops up, what is the real Black Hamburgh flavour? This I would rather waive, but will be most happy to contribute my mite by way of assisting to settle the question as suggested. That the matter of light and shade can be made to play an important part in ripening and colouring Grapes, I have particularly watched and tested; and by modifying and regulating the agency of light I have, as a rule, started Muscat of Alexandria in March, and ripened them to the most perfect Hamburgh colour in August, while by dense shading they never arrive at this desired stage at all. *D. Thomson, Archerfield.*

FRENCH AND ENGLISH FRUIT GROWING.

HAVING, I hope, effectually disposed of the opening statement of the travelled cultivator (see p. 1120), I now proceed to consider the remainder, noting, however, in the first place, my impression that "A Fruit Cultivator and Traveller" and Mr. T. Rivers must surely be one and the same person.

To come at once to our broad point of difference—which nation cultivates the Pear the best?—I have first to ask what is the test of success in this matter? Why, the price and prevalence of fruit, of course. What does it matter whether or not we have the gardens or the trees, if we have not the fruit? I have seen this year Pears sold at Fontainebleau—a populous town, with plenty of *rentiers* to buy fruit—at one-fourth the price which I should have to pay for them in London. I have bought Pears in the central market of Paris for half the money I have given for the same kind in Covent Garden, while at 50 miles or so from Paris, I have had a good large Duchesse d'Angoulême for a couple of sous; but lest there should be any doubt upon this point I will quote from an impartial and reliable source. In the last number of *The Gardener*, a correspondent, who has lived for the past five years in France, and who also knows well, and has lived long in, the best English and Scotch gardens, writes as follows: "In scanning over an Edinburgh paper the other day my eye caught an advertisement thus: 'Duchesse d'Angoulême Pears, 8*d*. per lb.' At a small town, within 20 minutes' walk of where I am writing, the same refreshing Pear was selling a week ago at 4½ francs the 100, or 50 lb. weight. Beurré d'Amanlis a month ago was selling at 2*s*. the 100." I could quote more in the same direction, but this is perhaps sufficient. Now, allowing for all the differences of climate that are possible, I submit that this is a state of things which ought not to exist; and if these papers will have done no other good than to call attention to it, they cannot be said to have been furnished in vain. The above is written of a neighbourhood within very easy reach of Paris, and one in which Pears must be pruned and grown with skill and care. A full knowledge of our inferiority in this respect of Pears is likely to be of use, as we must know we want the remedy, before we seek for it, and therefore it is with much pleasure that I refer to the ripe opinions of Mr. Rivers on this subject. I have not now his writings at hand to find the many passages confirming my views, but anybody may see them for themselves who will read either his books or contributions to horticultural papers. In the "fruit garden," for instance, he tells us how he "always admired" the Continental trees, but then it was only by "repeated visits to foreign gardens that his prejudice was dispelled." The Pear trees, however, in the Jardin des Plantes convinced him at last, "that our neighbours excel us in the management of fruit trees." In stating that a form of training which permitted of a somewhat free and natural development was more agreeable to the Pear than confining it to a single rod or cordon, my critic very unfairly makes me say that the trees want no pruning, and thereupon feels bound to make known again the valuable fact that "Pears should be pruned." But his pruning advice is so very sweeping and even shearing in its character, that I quote the following, from a thoroughly good French botanist and horticulturist (M. Verlot):—"All the varieties of fruit trees must not be treated alike. Of the Pear, for example, there are varieties which required to be pruned 'energetically,' others which do best with pruning much less severe, and, lastly, there are several which require no pruning. Therefore it is 'stupide' to advise the same treatment for all the varieties of a species."

Your correspondent meets my statement, that it would be unwise and even absurd to plant orchards of cordons, by telling us about "an old farmer in Sussex," who formed an orchard of cordons by training "seven branches from each stump." Now, this is not a cordon, nor has it anything to do with a cordon. A "cordon" is simply a fruit tree confined to a single stem—the only deviation being "*la forme en cordon horizontal bilatéral*"—the name for the "bush" which my critic has not seen in France, but which has existed there for half a century. If we go beyond this, we must call every wall-tree a cordon. I notice that Mr. Rivers gives us a more detailed account of this seven-branches-from-a-stump variety last week (see p. 1121). This is simply a modification of a form seen in many gardens. I must protest against this way of discussing the subject, as by following it we cannot possibly arrive at a useful conclusion. What I spoke of, however, as unfit for orchard culture was the true cordon on the Paradise, trained at within a foot of the ground—his cordons go as high as 20 feet, branch in the way you often see them in private gardens, and are worked on the Crab or Pear stock! Those trees would partake of none of the advantages that I claim for the kind of cordon which I have described; they are so tall that it would be impossible to preserve them in the cordon form conveniently, while they would of course have none of the advantages of early bearing that trees on the Paradise have. How get at such things, to thin the fruit or trim the shoots? If people with well-managed orchards of standard trees find it requires all their attention to make them pay, what, may I ask, would become of them with such things as these to attend to, their staking, their training, &c.? For, observe, that which makes it worth our while to have the low horizontal cordon, the fine fruit, does not obtain in this case; the fruit would be no better than that on a good standard tree. By planting the little cordons I have so strongly advised, or any modification of the same plan, you may attain a certain and valuable result with but very little risk. By planting them against the lower parts of walls, in many cases unoccupied, we may ripen Apples like the Calville Blanche, which surely would be a great gain; but I doubt much if a single advantage can be detected by any practical man in the method recommended by Mr. Rivers, while it is much more difficult of management than the simple low cordon which affords such a capital result.

His objection to the *palmettes en treille*, which I recommended, is that they cannot be protected from frost. Does not the same apply to every pyramid or standard, or other exposed tree? It is no objection at all; and as for the Willow twigs rotting, that is an old failing, not impossible to remedy.

Your correspondent's last paragraph is devoted to prove that there are more "perfect fruit gardens" in an English county than in any two of the "enormous departments of France." I am pretty well acquainted with British gardens, and I willingly grant them every merit but that of being "more perfect" fruit producers than the French. From the nature of the disposition of property in the two countries, there are a great many more places in England where gardeners are kept, and much more money spent upon the garden than in France; but in France the people, the million, are acquainted with fruit culture to a far greater extent than with us; and which is the most important I need not say. One of my favourite ways of judging of a "perfect fruit garden" is by the fruit room, and I must, in justice to French gardeners, say that before I came to France I never knew what it was to see a perfect fruit room, solely devoted to Pears; or what it was to have a good stock of what Mr. Rivers may well call a "luxury" in his books, but which is enjoyed by all in France. Therefore I must still conclude that we are far behind the French, on the whole, in the culture of this grand fruit, and that the fact of our having a number of large gardens scattered over the country does not appear to alter matters much. We are behind, and must pull up, if we are to see the day when English markets will be independent of the French for a supply of hardy fruit, which England is able to produce.

The French send enormous quantities of Pears to London—one salesman of Covent Garden, who has recently obliged me by showing me his books, selling, wholesale of course, from 60*l*. to 100*l*. worth of fruits and vegetables from one importer alone each market day. I also hear of another importer who annually brings to our markets 10,000*l*. worth of Pears. Allow for every difference, or supposed difference, of climate, and ask yourself if this should be so. We know that in many parts of Britain the Pear grows beautifully,—why not get our Pears from such places instead of going to France for them? And it is not only the Pear that we buy from the French in this way, but the Apple. Few will say that the French have a better climate for that, and yet go into Covent Garden in winter, and you will find their fine Apples selling at an enormous price; but let us hope that will not long continue to be the case, for those very Apples may be grown along the lower and naked parts of our walls to an extent suffi-

cient for all our wants. We have merely to plant the little cordon there: it may be trained along in many spots too low for the Tomato. I hope I shall not come in for any additional censure for making known this particular excellent use for my favourite horizontal cordon,—one which is as sure to become popular amongst us, as it is simple to adopt. *W. R.*

VINE CULTURE AT GARSTON.—No. III.

SORTS, AND HOW THEY ARE GROWN.—"Tell us of something else than mere varieties, for the sound of the names of the most popular are continually ringing in our ears, so often have they been advertised in essays, and as articles of commerce," may be something like an embodiment of the feelings of thousands of persons interested in pomology in general, and Vine culture in particular. Stop a little, readers, till I define my position, and then criticise. In speaking of sorts it is not my intention to get up a mere catalogue of names, but to comment upon such varieties as are more or less noteworthy. To do so satisfactorily and profitably it will be necessary not only to speak of results as indicated by the clusters or bunches that hang from the Vines, but to estimate causes, partly from what may be gathered from the communicative roll of the great grower's doings, and partly from personal observation of collateral bearings.

First, then, as to the Black Hamburgh—the chief of the clan for vigorous stamina, and general usefulness. It will not be disputed that if our preconceived notions of a perfectly finished Grape, are to be received as a standard of perfection, Garston has periodically produced, for the last five years at least consecutively, the most perfect samples of this variety ever seen.* How does this follow? Is it to be attributed to the particular soil employed, or to the management afterwards? At Castle Kennedy, and at Garston, there seem to be such uniformity of success that I have overheard some of our great fruit-growers remarking, *in totidem verbis*, "Change the men to different situations and soils, and it will be otherwise with them—very much like ourselves." Without being prepared to endorse the sentiment—and however perplexing it may appear, it must be admitted that instances of that kind sometimes happen—at Garston it must be told that there are no such facilities as deer parks and pastures laid down for ages, to make a raid upon, and put the best face on possible afterwards: the very opposite. The compost to which we have already referred at length, is of the simplest kind, and if we are to lay stress upon results we must look more to management. The Hamburghs that were ripe, and ripening, were as jet black as ever, when we saw them, and the house in which they were growing, which is one of the earliest, was in all respects such as any man might justly feel proud to show his fellow man. The crop was large, the bunches medium sized, some of the larger ones, judging by the eye, about 3½ lb., and not a speck or spot to mar or destroy the appearance of a single bunch in a full cropped house. In a word, the leaves and fruit were unexceptionable, and an enthusiast could have stood a whole hour and admired them. Now comes the deduction: the roots were completely under control, and the borders were kept in the dry order. The external border was more heavily thatched with straw, than most of the hovels of artizans, where this kind of covering is employed in lieu of slates or tiles, and boarded to boot with shutters, that the rain might be thrown off the more effectually. The external air, before it could find its way to the bottom, had to pass through the straw, which impeded its motion considerably, and when it did find ingress, it had to confront the hot-water pipes. By the simplest artificial contrivance, the scale of gradation between the outer and inner atmosphere was as nice as possibly could be conceived. The importance of recognising and providing for this can well be understood by all those who are engaged in early forcing. But an important point remains to be disposed of. The atmosphere of the house was unusually pleasant to the senses, although it was briskly charged with artificial heat. It seemed to me more like the growing atmosphere of an East Indian plant-house, which is very unusual with houses of Grapes at the point of finishing or ripening. "You say you keep your outer and inner borders on the dry order at the time of ripening, how comes it that the inner one looks so wet?" "Examine it," was the reply, "and you will find it as I describe. I only cause the surface to be slightly moistened daily, and hence the results." "I see it all," said I; "the sulphur coating and the air distribution is common enough, being in general practice, but the little bit of judicious attention to atmospheric wants is not only a good antidote against spider, and favourable to the prolonged conservation of the leaves, but certainly serves in some measure to create bloom." "Don't mention that," says my mentor, "in your notes." "Ah, I shall be like the lady in the interesting ceremony at the altar, 'I will.'" I have been thus explicit in my remarks on the Hamburgh, knowing the great interest that has all along been evinced in the endeavour to ferret out Mr. Meredith's practice.

One other remark may be made under this head before proceeding further, and it is to the effect that the general crop of bunches throughout the Hamburgh houses that have been for a length of time planted are not large individually, the larger shows being in all cases on younger plants. There are two important lessons to be deduced from this—the one that if the Vine is to be cultivated to the utmost extent of its capabilities, the root-feeding medium must not be circumscribed; and in order to take a corresponding advantage, or in proper words to have a balance or equilibrium maintained and reciprocated, its branches must not be unduly crippled with the knife. If a young Vine, under wise culture, bears a first-rate return for the first six years of its existence—that is, so long as the extending system of border materials and of stem and branches is going on—who will say that it is impossible (none can say it is illogical) to keep on with equal success by the same simple process of addition? The other lesson referred to is, that Mr. Meredith's plan is clearly a catering for quality. How often do we see, and how unwise it is, large crops of fruit allowed to pull through to the colouring point, and then a large proportion of the berries, not to speak of colour at all, shank off, owing to the sheer exhaustion of the plant. The Garston Vineries are, however, by no means under-cropped; the oldest planted of them carry good crops, and that successfully too, up to the time of cutting.

Muscats were full of promise, the earliest house particularly. The house referred to is of the same form and size as the Hamburgh house, and the management and preparation for cultivation were in all respects the same. Great stress was laid upon early forcing—starting, as was the case with this house, in the beginning of the year to secure both flavour and colour. Mr. Fowler, of Castle Kennedy, used to say he was never afraid of bringing up the colour of his Muscats by being early at work, and keeping the borders dry and warm. Mr. D. Thomson, Archerfield, got up the colour of some bunches in a certain Alexandria Muscat Vine so perfectly, accompanied with flavour so exquisite, from a plant whose roots had found their way into some hot and dry corner, that everybody who saw them took them to be from a new and most valuable variety, which was to be sent out under the designation of the Archerfield Muscat. On testing it, however, Mr. Thomson declined to do so, as it proved itself fairly enough under common treatment. These offer practical proofs which no one ought to disregard. The Canon Hall, in another house devoted to Muscats alone, with similar treatment, refused to set satisfactorily, notwithstanding artificial impregnation or dusting—showing its wayward inclinations here as everywhere else. Tokay, Chasselas Musqué, Duchess of Buccleuch, and some others, were more or less dispersed through the large house in question. The Tokay seems to be a favourite with Mr. Meredith. From the samples growing one can understand that he means to do it full justice, as he reckons it rather an abused Grape, capable of more usefulness. He insists that it should be thoroughly ripened, and kept, before hasty opinions are expressed upon it.

The Barbarossa [Gros Guillaume] is another of his favourites. Its late-keeping qualities have been recognised, but the fickleness of it as a fruit-producer has almost consigned it to oblivion. Singular enough, I saw it fruiting as freely as the Hamburgh, and on remarking upon it my friend said, "Keep the roots inside." The border where this sort was growing was entirely inside, and the gross habit which the plant generally assumes, was corrected. The roots were warped together, and it was some of the most headstrong of them that had permeated the solid brick wall. There is no good rule without an exception, and if it is necessary in most instances to provide relays of good food and accommodation for Hamburghs and Muscats, this variety, to yield a return, must be very differently dealt with.

Of Alicantes and Lady Downes' there are a numerous company, all doing well. They are distributed through various houses, but the grand show of them is in the north-aspect house, where their roots have already monopolised the inside borders, and from the preparations that were being made to extend their dominion I was enabled to see them bristling with vigour, the very gourmands of anything palatable that came in their way. The grower's success with a house of this kind during a former season, makes him very sanguine of its continuance; and as late-hanging Grapes, and the roots which support them, have not been the worst strings to his bow, one can well understand how largely his interests are committed to the schemes which his busy brain suggests, and his indomitable will carries through. In connection with late-keeping Grapes, it may be mentioned that Mr. Meredith was making preparations for the reception of Mrs. Pince's Black Muscat by clearing out a general service house, and adapting it, as a landlord would do, for a tenant who was likely to pay him a good rent.

Other varieties, differing from the above, that take conspicuous place, were Child of Hale, a very large growing variety, heavily shouldered, and made up of large round berries; and Gromier du Cantal, a grizzly variety, like the Frontignan, of the same colour, having larger bunches and berries, and possessed, I understand, of an agreeable flavour. All the Frontignans are placed fairly under trial; so is Black Prince, which is yet worthy of culture, and several other seedlings and comparatively scarce-grown sorts of which it would be premature to speak. The whole of them at first are treated entirely to inside borders, and in the cases where the modern span roofs form the coverings there is a sunk path separating the borders, so that the roots may not become entangled, and in the case of mixed planting, the stronger living at the expense of the weaker. The reader will easily understand the value Mr. Meredith attaches to covered borders, and his anxiety, when it becomes a necessity to extend beyond the limits of the house, to provide against all contingencies of climate, and offer the same attention and care to the roots outside, as he does to the plant and the fruit inside. *A.*

* Flavour, albeit, does not always accompany colour, and it has been suggested as a matter of fairness and justice that samples put up in competitive trial should be tasted. No great hardship this, forsooth. The wonder is why so many, even Mr. Meredith himself, are exclaiming against it. If Mr. Meredith and others who grow moderately sized bunches, and finish them well, show their samples in a proper state of maturation, they have nothing to fear. A jury capable of putting a valuation upon the various eligible points—flavour, of course, one of the most prominent—would probably in 19 cases out of 20 have confirmed the awards given to the splendidly finished Hamburghs from Garston, in London, Edinburgh, and on the Continent. A proper formula might be the means of eliminating coarsely-grained, grossly-grown, mere heavy-weighted fruit, to which no one would demur.

Home Correspondence.

Saturday Shows.—Cannot you help us with your powerful aid to induce the Council of the Royal Horticultural Society to hold their spring shows on Saturdays? It is, comparatively, a leisure day with us all; and as the Royal Botanic Society at present hold their spring shows on that day, there could be no reasonable objection on the part of exhibitors to the change suggested, which I have no doubt would be a financial benefit to the Society. *F. H. S.* [There are objections to Saturday, and there are advantages attending the selection of that day. We could never recommend that the great shows should be held on Saturdays—that question has long been settled in the negative; but for the minor shows the objection becomes less important; and if one society finds it possible and advantageous to adopt the Saturday for these, the other should be able to do the same. EDS.]

Tacsonia mollissima. — Would you kindly say whether the fruit of this Tacsonia is eatable or not; if eatable, how is it used? *W. C., Brechin.* [We do not think it would be worth eating. EDS.]

Variegation.—A correspondent has recently (p. 1076) enquired about a variegated Laurel. Such a sport is by no means uncommon, in proof of which I send a leaf or two, given from a spray, which was taken from an old plant two years ago, and as you will see it retains the variegation quite perfectly, and forms a very lively shrub in contrast to the common green form. It appears that we have only to look for variegation, and we shall be pretty certain to find it, in almost every garden plant. We have it in Onions, Turnips, Carrots, Parsley, and fine in Celery, as you will see from the leaves sent. I have also found it in many wild plants, in Pansies, Daisies, and dwarf Phlox. A good deal of this may, no doubt, arise from the poor sandy nature of the soil. It is frequent in bedding Pelargoniums, more particularly in the old Commander-in-Chief, and Cerise Unique. *J. F.* [The Laurel is finely marked, and must be very attractive grown amongst green shrubs. The Celery is also well-marked, being edged with sulphur, and mottled on the green parts with a lighter greyish tint. EDS.]

Nuneham Park Onion.—I fear that your correspondent (see p. 1073) obtained a wrong sort of seed for the Nuneham Park. I have grown it myself this summer, and have been very successful with it. I procured a half-crown packet of the seed of it from Messrs. Cutbush in January last, and sowed it at once in a box, keeping it in a cool Vinery, and in March I had it transplanted on a piece of ground prepared for its reception, in which the plants grew rapidly; and when the bulbs were stored a great part of them weighed 1½ lb. per bulb. As regards mildness of flavour, I find it to surpass in this respect any Onion that I have grown. *T. Carlton, The Gardens, Ashtead Park.*

The Muscat Hamburgh Vine.—About three years ago there appeared in your columns a letter from Mr. Thomson, of Dalkeith Park, in which he reported the result of an experiment he had made in grafting this Vine upon the Black Hamburgh. According to a memorandum which I made at the time, the fruit was said to be "much improved by the cross, the bunches finer, berries rounder and larger, rivalling in quality the Muscat of Alexandria, and ripening at the same time and under the same treatment as the Black Hamburgh." It may interest some of your readers to know that I have repeated Mr. Thomson's experiment, with results not very different. The fruit ripens in a cool house, but I doubt whether, upon the whole, it is improved. The bunches are, perhaps, better shaped, the berries are rounder (if that be an improvement), and the colour is of a rich and uniform purple black, without any intermixture of pale berries. Upon measuring ten berries of each kind, I found the aggregate length of the grafted fruit to be 9.09 inches; breadth, 8.22 inches; the ungrafted 8.78 inches by 7.51. With respect to the flavour, it strikes me that in the grafted tree the Muscat taste is very much attenuated, and is barely perceptible. But upon this point an accident has brought out a curious fact. The bunch first examined was cut from about 6 inches above the graft; it had little or no Muscat taste, but the Muscat taste was at once detected in a bunch cut from 3 feet higher up the branch. Such was the unanimous verdict of a healthy gardener, a discriminating cook, and two young ladies, as well as of myself. This is an instance in which the scion is notably affected by the stock. If the form of the berries is changed from oval to nearly round, why may not the taste be equally affected? *An Amateur, Clapham Park.*

Plants and the Soils on which they Grow.—Under this heading were published in 1865 some remarks on the botany and geology of Swanage. I now send you a few jottings on the plants and rocks of another portion of the same district. From Swanage to Ringstead Bay, comprehending 18 miles or thereabouts of coast, there is a littoral cliff of Purbeck oolite, Portland sand and stone, Kimmeridge clay, Wealden, greensand, chalk, passing downwards from chalk again through greensand and Portland beds to the Kimmeridge clay. The sections of chalk, Wealden, and Purbeck beds are numerous. A very common chalk flower is Campanula glomerata, starved and small. The fetid Iris is plentiful wherever the upper greensand merges into gault, both towards Lulworth and also at Swanage. About Lulworth I was amazed at the giant stature of the Teazle, plants of my own height were not unusual. They thrive as well on the Kimmeridge clay as on the chalk, but better on both than on greensand. The Purbeck beds and Portland beds are in many places quite clothed with

Golden Samphire, which is even more plentiful than the common edible samphire. Wild celery is plentiful in some of the Wealden cliffs, the clays of which appeared to suit it well, and these same clays bore good crops of Rushes of more than one species, which I did not determine, and had small swamps full of Typha, I thought T. minor. About Swanage, towards Tilly whim, especially, I found the Sea-fern, Asplenium marinum, fairly common and fairly grown; but about Lulworth, in the same formation, I did not see one plant, the reason of which I could not make out. On chalk in the beautiful undercliff below White Nose and at Arishmel, I found the large white Poppy with a purple spot, which I had not seen since I culled it with Ed. Forbes on one of our old botanical rambles to Cobham. In this same undercliff the Wood Sage was very abundant—we met several hovellers with large handfuls of it, which they said they made tea with. I learned that it was a cooling drink, but although suffering much irritation from a minute acarus (which a fellow sufferer not inaptly likened in size and colour to a small grain of Cayenne pepper) I did not feel inclined to try the effects of this rustical tea in my own person. *J. W. H.*

Leonotis Leonurus (*the Lion's Ear*).—This very interesting and very showy labiate plant is one rarely or never seen in beauty in England or the colder parts of France either, so far as I have observed, but I have lately seen in the Jardin des Plantes a bush of it in full bloom. It was a plant that had been kept in the Orangery, with the numerous other greenhouse things, for years, and was only left out all the winter for the first time during the past winter. It has stood the wretched season bravely, and, indeed, was most vigorously furnished with blooming branches. The trial is worth making in England, and certainly it would do as well in some parts of the south as in the cold and changeable climate of Paris. *V.*

A Curious Fact in Natural History.—I happened recently to pay a visit to my friend Mr. H. Doubleday, of Epping, who is a most observant naturalist, as well as a clever Strawberry grower. In gossiping about Strawberries, he narrated the following anecdote:—He had this season a very large crop of Strawberries, and blackbirds and thrushes, tempted by it, came in large numbers to his garden, to the Strawberry feast. Among other kinds, The Lady Strawberry produced abundantly, so that the ground was strewn with the fruit of this rather new variety; the curious fact is, that although the birds diligently sought for and carried off every straggling berry left on the plants of the other kinds, they allowed those of The Lady to lie and rot on the ground, and did not touch them; it might have been their pale colour, but a delicate colour did not prevent them stealing other pale kinds of Strawberries. I am therefore induced to impute it to a higher instinct—perhaps respect for The Lady; who knows? or it is just possible that the Epping birds are not birds of taste, although birds of song. *Fragaria.*

Judging Cucumbers.—Now that the number and value of marks in judging Grapes is under consideration, perhaps it may be opportune to plead for a higher value being placed upon weight than is usually given to it in awarding prizes to Cucumbers. I take it that the greater weight must always indicate an absence of seeds, or perhaps rather a smaller proportion of the watery pulp, amongst which the seeds are found; in short, the heavier the Cucumber, the greater the proportion of the flesh to the pulp. Now, as the flesh is the part which determines the quality of the sort, whether eaten raw or cooked, it follows that, of two kinds with similar flavour, that which carries most flesh must necessarily be the best. Judges are not in the habit of tasting Cucumbers at exhibitions, and therefore visitors have no opportunity of seeing the comparative fleshiness or seediness of the sorts shown, but the weight would determine this point for any one accustomed to handle Cucumbers. I have been led to make these observations by the receipt of one, grown for me by a friend who remembered that I had highly praised some of that sort which he sent me last year. It is, as I was informed, called Crawshay's Favourite, and it is the crispest, juiciest, and highest flavoured Cucumber of my acquaintance. This particular fruit was grown on a trellis in a pot in a Pine-house; its length, 23 inches; its smallest circumference, 7 inches; its circumference generally, 8 inches; and its weight (after being cut 14 hours) was 2 lb. 13½ oz. Upon slicing it there was not a seed to be found; in fact, it was all flesh, and perfect in quality and flavour. Is not this the form that a Cucumber ought to have? If so, why are first prizes usually awarded to long, thin specimens, hardly bigger round than one's thumb? *W. T.*

Epidendrum erubescens.—A specimen of this plant is now flowering freely at Biddulph Grange. The flowers are of a beautiful colour, but not nearly so large as those of the figure in the "Orchidaceæ of Mexico and Guatemala," and which were most carefully copied by Miss Drake, without any exaggeration whatever, from a wild specimen formerly in my possession. No doubt there are many varieties of this species, some of which, as in the case of E. viteilinum, are twice as large as others. *J. B.*

The Florists' Standard.—As the author of "Glenny's Properties of Flowers and Plants," I may be permitted to offer a few observations on one of your leading articles of Saturday last (p. 1117), signed "M. S.," which, without containing a single point of controversy, condemns the so-called standard of perfection. I am prepared to defend every property that I have described, because I have, so far as I was able, founded them all on principles which have been admitted to be sound; and if you, or any of your correspondents, will select one subject capable of raising a discussion, and I cannot prove that I am right, I will with great pleasure openly admit my deficiency, and subscribe to the improvement, for I am much more anxious to have our standard perfect, than I am to uphold my notions of perfection, but I cannot deal with undefined objections. It must be remembered that many old florists and some writers condemned "the properties of flowers," ridiculed the idea of circular Pansies and Cinerarias because "they were unnatural," and there were other flowers liable to the same objections; but having combatted those objections and convinced the public, the writers who had condemned the standard turned round, copied the work, and published the stolen matter as original: I need not mention names, but the attempt to rob me of the credit of originating what they first condemned, and afterwards stole, was not very honourable. However, I am very desirous that any one who can dispute the soundness of my requirements for a perfect flower, will be good enough to select any one of the subjects which I have described, and tell us all freely the particular conditions, the propriety of which he disputes. I will discuss the matter without prejudice, and if I do not succeed in proving I am right, I will accord him all the merit of improving the standard. Dealing in "generals," where every sentence contains a distinct dogma, which is right or wrong, is not the way to enlighten us. There are certain things that may depend on taste, but I have in all cases left those open. *George Glenny.* [If Mr. Glenny will please to read the article to which he refers again, he will find that the writer's objections to the standard are by no means undefined. EDS.]

Pinning Dahlia Blooms.—If the blooms are pinned as your correspondent "J. K." directs, I can readily believe that they will not be in any way disfigured, so long as the pins remain unobserved; but at the same time, I maintain that the practice is anything but creditable to an exhibitor. Thirty years ago, "J. K." might possibly have deceived the judges at the Surrey Gardens or Salthill shows, by pinning with wire to match the flowers, but not at the present day, when none but legitimate modes of dressing blooms for exhibition are countenanced. If pinning is allowed at all, let it be only during the process of travelling. I ought to mention that the word in my last communication on this subject (see p. 1049), which you have rendered "basket," ought to have been "buskit" the Scotch form of "busked," the past tense of the verb to "busk," meaning to prepare, to dress. *M. P., Pitfirrane Gardens, Dunfermline.*

Boilers (see p. 1121).—The best boiler that has come under my notice is one which I have here. It is a double conical, and heats with the greatest ease our large conservatory, Vineries, Orchard-house, forcing-house, plant stove, and greenhouse, as well as a four-light pit, in all about 1700 feet of pipe, of which the greater part is 4-inch pipe; the combustion is so slow and perfect, that during the most severe weather I can bank the fire up, and leave it with the greatest confidence for 12 hours, in the certainty that a uniform temperature will be kept up. All this summer the fire has been made up on Saturday night, and not touched again until Monday morning. In fact, it is a most economical boiler, in which the heat is so utilised that I can bear my hand in the soot-door directly under the damper in the main shaft. *G. Balderstone, Gardener to J. Muggeridge, Esq., the Dell, Tunbridge Wells.*

Swifts.—The last pair of these birds which I saw here this season was on the 19th of October. Martins and swallows were here on house-tops in great numbers on the 23d of that month, on which date they left, and I did not observe one afterwards. *J. K., Wilts.*

Late Peas.—I enclose a small sample of Prince of Wales Pea, which I consider to be a first-rate second early and late bearer. I sowed one row 50 yards in length on the 27th of June; I gathered from it on the 12th of October; and if the present favourable weather lasts we may gather a dish twice a week till the end of the present month. *W. Barham, Gr. to J. W. Dixon, Esq., Hillsbro' Hall, Sheffield.* [A good sample, perfectly free from mildew. EDS.]

Zizania aquatica.—Has any one succeeded in raising plants from the seed of this, kindly distributed by Professor Babington last spring? I am very sorry to find that it has proved quite a failure here. A liberal supply of the seed was received on May 24, and on the very same day (a memorable day, by the by, to those who revere the name of Linnæus) those seeds were carefully sown, and placed under a variety of circumstance as regards treatment, yet all being submerged, some in pots and pans, in the open aquarium, and some beneath glass; not one of the seeds, however, germinated. This must be just the country where its successful introduction might be attended with beneficial results, and I should very much like to meet with some opportunity to give it a further trial. The late Mr. Anderson, of the Chelsea Botanic Garden, cultivated the Zizania for some years, but if I rightly remember he found great difficulty with the sparrows, as they devoured the seeds before they became fully ripe. The seeds, which were received from Cambridge in May last, did not look very promising certainly, being exceedingly light and chaffy. About 40 years ago, I remember to have seen in the hands of my worthy father-in-law (the late Mr. Hunneman) a consignment of the imported seed, and he had received them in a glass bottle, in water. I remember this as perhaps affording a suggestion for a better medium of transmission and introduction than keeping the seeds so long a time in a dry state. *W. P., Merionethshire.* [Many recent importations have failed; indeed, we have not heard of one which has been successful. EDS.]

Variegated Zonal Pelargonium Show.—I am pleased to find my suggestions (see p. 1001), proposing another show of Variegated Zonal Pelargoniums to be held at South Kensington in July next, have been favourably received and responded to; but I cannot fall in with Mr. F. T. Smith's views (p. 1122), that the month of May or June is the most suitable time for such an exhibition. I cannot offer a better proof that July is decidedly the best month to see the full development of colouring in these charming plants, than to refer to the productions sent to the Bury Show on the 16th of July last. It is, moreover, my opinion, that exhibitors and the public who patronise these exhibitions would be far better satisfied with one grand show, than with two partially successful ones, the second being chiefly a repetition of the first. I do not think prizes should be offered for varieties already in commerce, as visitors are becoming tired of seeing the same plants so many times. Scarcely a metropolitan horticultural show has been held during the last two years, but an overplus of these have been exhibited. Covent Garden market would certainly be the most appropriate place to make them popular. The principal object of these special shows is supposed to be that of giving admirers of this class of plants an opportunity to witness novelties, and the advanced skill of the various raisers, and to make selections of plants they consider of sterling merit. I agree with Mr. Grieve that two plants of each sort are sufficient, and certainly more convenient for distant exhibitors; I also approve of the two extra classes, 15 and 16, providing for yearling or seedling plants. I respectfully solicit the attention of the Royal Horticultural Society to the subject, that the schedule may be at once completed, giving intending exhibitors time to grow and prepare their plants. I would also suggest that a subscription list be opened early, inviting all who are interested in Variegated Zonal Pelargoniums to support the same, that exhibitors may be compensated with liberal awards in the shape of Silver Cups, Gold Medals, or money prizes, that the exhibition itself may be successful in its results. *Wm. Groom, Ipswich.* [Probably the Horticultural Society will take up the matter, but if so the show cannot very well be held later than June, within the London season. If it can be arranged to hold the show late in the month, two or three weeks can make but little difference to the plants, and it would surely be more advantageous every way that the plants should be seen by the larger numbers likely to attend a June show, than by the limited numbers who would visit a July show. As these Pelargonium shows have originated with the growers themselves, as a means of increasing the popularity of their plants, and their continuance is still suggested by them, those who wish to see them repeated should at once intimate the amount of their subscriptions, so that the names of subscribers may be known, as well as the amount to be distributed, when the time comes for a conference. We are authorised to state that Mr. Moore is willing to receive any such communications, and to forward them to the proper quarter. The sooner they are sent in the better. EDS.]

Christ's Thorn—Paliurus aculeatus (see p. 1121).—Plants at King's Cliff, raised from seed gathered at Rome, many years ago, stood through the winters of 1861 and 1865, and are now in perfect health, though they suffered slightly from frost. *M. J. B.*—I should imagine that your correspondent "Diss" has confounded two different species of plants. The Paliurus aculeatus of Lamarck is a shrub never reaching more than 6 feet in height; but the Zizyphus spina-Christi of Linneus is a tree attaining the height of 30 feet. The former is a native of the south of France, being extensively used near Montpellier, as a hedge for enclosing Vineyards, for which purpose the abundance of thorny prickles with which it is covered renders it peculiarly applicable. The true Christ's Thorn or Zizyphus spina-Christi, is a native of the eastern parts of Barbary, and is stated to grow near Biskra, in Algeria, by Munby, in his "Catalogus Plantarum Algeriæ." If Loudon has seen either of these trees growing in the open air in any part of England, it must have been in very exceptional circumstances. As to their growing in the latitude of Huntingdon, the experiment (even if trees could be procured) would probably prove a total failure. *Tourist.*—Our plant of Paliurus aculeatus is a remarkably fine old specimen, but not quite so vigorous as it was before the winter of 1860-61, when it was much injured; and I do not remember having seen either flowers or fruit upon it since that date. There can be no doubt about its being the true plant, which is synonymous with Zizyphus Paliurus, Willd. The plant stands in a S.E. angle, formed by the Danby Gateway and the garden wall, and its dimensions are: Height, 18½ feet; stems (for it has two), No. 1, at 1 foot from the ground, 1 foot 4 inches circumference; at 4 feet from the ground, 1 foot 6 inches circumference. This is not a straight stem, and increases in bulk as stated. No 2, at 1 foot, 1 foot 2 inches; at 4 feet, 1 foot 1 inch circumference. Spread of branches from angle, 13 feet. We do not know the age of our plant, but it was a large, old specimen when my father was appointed here in 1813. *W. H. Baxter, Botanic Garden, Oxford.* [The Oxford plant is certainly true to name. EDS.]

Scotch Nurseries (see p. 1121).—Mr. Methven, in correcting you as to the extent of his nursery ground (p. 1100), has doubtless inadvertently fallen into an error in stating that "next to the Messrs. Lawson, he is the largest forest-tree grower in Scotland," as our nurseries extend over 75 acres, being thus 10 acres larger than those of Mr. Methven. *Dicksons & Co., 1, Waterloo Place, Edinburgh.*

TRADE MEMORANDA.

SOME swindlers [sundry humbugs, as the American Press has it], one or two together, are going about to nurserymen, selecting about 80*l.* worth of shrubs, trees, &c., in my name, as if for a new garden. They take with them some few, and arrange that I shall send a van for the remainder in a few days. The whole is an impudent swindle, and I think it well to put nurserymen on their guard. No doubt mine is not the only name so made use of. *G. F. Harris, The Park, Harrow.*

—— A person signing himself D. B. Cradock, 194, King's Road, Chelsea, has, we are informed,

obtained stamps from a gardener, seeking a situation by means of advertisement that appeared in our columns, under the pretence that he was "Agent to the *Gardeners' Chronicle*." We need scarcely say that no such person is authorised by us to act as agent. A similar trick has been successfully carried out by one W. B. Dear, Horticultural Agent, &c., 18, York Road, King's Cross, London, who refers to Messrs. Carter & Co. as his referees. These gentlemen repudiate all acquaintance with Mr. W. B. Dear.

Societies.

ROYAL HORTICULTURAL: *Nov. 5.—Floral Committee.*—Messrs. Veitch showed on this occasion a charming collection of flowering plants, consisting chiefly of Orchids, among which were the beautiful Vanda cærulea, various Cattleyas, among which were some unusually beautiful varieties, the ever-flowering Lycaste Skinneri, Dendrobium bigibbum, and others. In this collection were moreover Cattleya maxima and Lælia præstans, two lovely species, to which First class Certificates were awarded. Dracæna Macleayii, a beautiful plant with deep greenish olivaceous or bronzy leaves, also received a similar mark of distinction, as did Aphelandra Roezlii, a promising species with brilliant orange-scarlet blossoms and broad silvery twisted foliage. From the same firm also came beautiful yellow blossomed Urceolina aurea, and other plants to which a Special Certificate was awarded. Messrs. F. & A. Smith, Dulwich, exhibited a collection of Tricolor Zonal Pelargoniums, in order to show their use for autumnal decoration, and to prove that the colour in the foliage is as bright now as during the summer months. A Special Certificate was awarded them. A First-class Certificate was also given for a deep crimson scarlet Tropæolum sent by Messrs. Smith, and called Mrs. Treadwell. Messrs. Osborn, of Fulham, had a Special Certificate for a plant of Gentiana Fortunei, a tall, biennial kind, with bright light blue flowers, which, however, owing to the dullness of the weather, did not open freely. Acanthus montanus was also shown by the same firm. Mr. Macintosh, Hammersmith, contributed Abutilon vexillarium. Mr. Burt, gr. to H. B. Mildmay, Esq., Sevenoaks, showed a well-flowered specimen of Vanda cærulea, for which a Special Certificate was awarded. Mr. Curd, gr. to M. G. Thoyts, Esq., Reading, had a variegated-leaved Russian Violet. A box containing two plants of double white and two double purple Brompton Stocks which arrived late in the day from Mr. D. Thomson, Archerfield, received and well deserved the admiration of all present. They were magnificent specimens. A plant of Aralia Sieboldi, in flower, was shown from the Society's Garden.

Fruit Committee.—Interesting collections of Apples and Pears were contributed to this meeting; but it was remarked that as a rule their full flavour had not been attained this year. For the best three dishes of dessert Apples Mr. Curd was 1st, with large and fine examples of Ribston Pippin, Blenheim Pippin, and Royal Pearmain. Mr. Whiting, The Deepdene, was 2d, with beautiful fruit of Adams' Pearmain, Ribston Pippin, and Cox's Orange Pippin. Among other varieties shown were Rosemary Russet, Sam Young, Fearn's Pippin, Margil, Nonpareil, Autumn Pearmain, and others. Prizes were likewise offered for Knight's Monarch Pear, but were withheld, the best dish coming from the Society's garden at Chiswick, and the fruit from other exhibitors not being sufficiently ripe to merit an award. In the class for the best dish of Huyshe's Prince of Wales there was no exhibition; and in that for Huyshe's Victoria only a 2d prize was awarded, that being taken by Mr. Hughes, gr. to the Rev. George Komp, Sevenoaks. In the Class for the best dish of any variety of Pear other than those already named, there were no fewer than 29 entries. The 1st prize was awarded to Mr. Garland, gr. to Sir T. Dyke Acland, Bart., Killerton, for very fine fruit of Doyenne du Comice. Mr. Ruffett, gr. to Viscountess Palmerston, Brockett Hall, was 2d with Alexandre Lambré. From Mr. Turner, Slough; Mr. Beach, gr. to C. J. Herries, Esq.; Mr. Whiting, Mr. Curd, Mr. Wilkie, Mr. Cox, Mr. Osman, Mr. Neale, Messrs. Ivery & Son, and others, came good examples of Beurré Bosc, Van Mons Léon le Clerc, Seckle, Thompson's, Conseiller à la Cour, Napoléon, Chaumontel, Duchesse d'Angoulême, Marie Louise, Gansel's Seckel, &c. Beurré Clairgeau, large and finely-coloured, came from Mr. Cox, of Redleaf. Beurré Diel was the variety most numerously shown, and several of the dishes of it contained large, handsome, and excellent specimens. From the Society's garden came a basket of Pears, containing good specimens of Beurré Diel, Passe Colmar, Forelle, Winter Nelis, Broom Park, Glou Morceau, and others; whilst Mr. Collins, gr. to Major R. Trevor Clarke, Welton Place, Daventry, sent two remarkably large specimens of Hacon's Incomparable Pear, which, with two fine examples of Hawthornden Apple, grown by Mr. Enticott, gr. to Lady Fulford, Axminster, were produced after the Committee meeting was over. Mr. Hill, gr. to R. Sneyd, Esq., Keele Hall, sent Keele Hall Beurré Pear, but not in a satisfactory condition for judgment. Three Queen Pine-apples, excellent both as regards size and ripeness, were shown by Mr. Perkins, gr. to C. Kyser, Esq., Stanmore; and from Mr. Drewitt, gr. to Mrs. Cubitt, came Denbies Green-fleshed Melon; Mr. Curd sent Conqueror of Europe and Golden Perfection Melons, and a dish of White Currants.

General Meeting.—Major Trevor Clarke in the chair. Five new Fellows were elected and one Society affiliated. The Chairman directed attention to a Pelargonium, the result of a cross between one of the quercifolium section called White Unique, which was first brought into notice by Mr. Beaton, and Rollisson's Unique, as showing how great an improvement may be effected even by a first cross. Major Clarke added, that he wished to bring the rough-leaved quercifolium varieties into notice, as they might be much improved. One of their good qualities was their remarkable fitness for button-hole decoration.

Mr. Murray directed attention to a piece of a Lime tree which had been brought by Mr. Reeves, interesting from the marks which it exhibited, and with which the greater portion of the tree it was taken from, was covered. They appeared, however, to be merely the slimy marks of snails. Mr. Reeves having stated that two-thirds of the tree was in a similar condition, Major Clarke said he agreed with Mr. Murray as to the cause, and urged members to bring to the Society's meetings anything that appeared to be abnormal, as such specimens frequently proved of much interest in a scientific point of view.

Notices of Books.

Filices Europæ et Atlantidis, Asiæ Minoris et Sibiriæ. Auctore Dr. J. Milde. Lipsiæ: A. Felix. 8vo, pp. 311. (Williams & Norgate.)

This new work of Dr. Milde's contains, first, an account of the Ferns, Equisetums, Lycopods, and Rhizocarps of Europe, Madeira, the Canaries, Azores, and Cape de Verd Islands, of Algiers, Asia Minor, and Siberia; and secondly, a brief and general monographical notice of the genera Osmunda, Botrychium, and Equisetum. In regard to the circumscription and definition of species, the author avows himself to be a follower of the late Professor Mettenius, than whom few have shown themselves more intimately acquainted with the group of plants to which this book is devoted; and enriched as the work is by critical observations resulting from an examination of a very large number of authentic specimens—it cannot fail to be a most valuable contribution to our systematic knowledge of the higher Cryptogams. The utility which would be stamped upon any book having the range of the present volume, if at all creditably worked out, is in this case greatly augmented by the evident care and industry which has been brought to bear in its preparation, and by the attention which has been paid to the varied forms which many of the species assume—a feature in which it creditably compares with some other of our standard books on Ferns.

In glancing rapidly over its contents, it will, doubtless, be chiefly interesting to English readers to note the views which Dr. Milde entertains with reference to our indigenous species. Commencing with the group Hymenophyllæ, we find him adopting the name of Trichomanes speciosum for our Killarney Fern, of Hymenophyllum unilaterale for Wilson's Film-Fern, and Blechnum Spicant, instead of B. boreale. Under Polypodium vulgare he notices 10 varieties, including in the tenth both cambricum and semilacerum, in which he is certainly in error, the one being a constantly barren, the other a constantly fertile variety, differing in structure. The genus Athyrium is adopted, and our Polypodium alpestre, with its variety flexile, is included therein. Under Asplenium fontanum comes a variety major, represented by A. Halleri, but to this is joined as synonymous the Asplenium refractum, a plant which, though obscure as to its history, is at least perfectly distinct from either Halleri or fontanum. The genus Phegopteris is admitted to full rank and made to embrace our Polypodia—Dryopteris, Robertianum, and Phegopteris, while it also includes the Madeiran species drepanum and totta frequently referred to other genera. Under Aspidium are ranged as sub-genera the three important groups of Polystichum, Nephrodium, and Lastrea, the species aculeatum and angulare of the former group being brought together as sub-species under the name of Aspidium aculeatum, and several varieties of each of them noticed; whilst Aspidium spinulosum of the latter group is made to embrace both the genuine plant, and dilatatum, with their several variations. Aspidium remotum, of the Lastrea group, found within the last few years in Great Britain, is admitted to take rank as a distinct plant, though the author evidently favours the notion that it may be a hybrid between Filix-mas and spinulosum; at any rate it is not swamped in Filix-mas as some would have us believe it should be, along with several others, as elongatum and canariense, which are here also treated as genuine species. Aspidium æmulum again, our erstwhile Lastrea fœnisecii, is kept distinct, as no doubt it is, for besides its differences of structure, it emits a strong and pleasant odour which is altogether unknown in the allied plants. Cystopteris Dickieana is not classed under fragilis, as it usually has been with us, but under C. alpina, from which it, however, seems to differ materially in its spores, which are slightly and indistinctly warted, and not at all muriculate. Finally, our two British Woodsias are included as differing forms, under the common name of W. hyperborea.

These indications are sufficient to show the tendency of Dr. Milde's labours. The more general student will find matter equally betokening research and study on the part of the author; and equally suggestive of thought, and calling for the exercise of a just discrimination on the part of the reader. In the monographical portion of the work, the genus Osmunda is reduced to 6; Botrychium to 10, and Equisetum to 25 species, of many of which several varieties are described. The latter genus had been already more fully dealt with by the author in the 32d volume of the Nova Acta, in a monograph illustrated by 35 plates. Altogether, the present work must be regarded as a thoroughly practical, and most valuable contribution to the literature of Ferns; and if we cannot in all cases adopt the conclusions of the author, he has given us abundant reason to respect them.

Florists' Flowers.

THAT the VARIEGATED ZONAL PELARGONIUM can be turned to valuable account at this season of the year, was illustrated in some measure by Messrs. F. & A. Smith at the meeting of the Floral Committee, on the 6th inst. These gentlemen furnished a small group of Variegated Pelargoniums, that for brightness and distinctness of appearance really put into the shade the fine Lycastes that were furnished by Messrs. Veitch & Sons, though for individual beauty the Lycastes would get much the best of it. There were plants of the following Variegated Zonals:—L'Empereur, Wonderful, Louisa Smith, Achievement, and Sultan (a very bright-looking and finely-marked variety, with a robust habit), all golden-edged kinds; and two fine silver-edged varieties—Impératrice Eugénie and Queen Victoria. These plants were in 48 and 32-sized pots, and had been grown in a house appropriated wholly to them, in an average temperature of about 55°. The foliage is occasionally cleaned by a slight syringing on a dry day, which soon gets rid of what dust settles on the leaves. Perhaps nothing could be more charming at this season of the year than a house of these Pelargoniums, for to be done effectively they should occupy a structure devoted specially to their culture. They are hardly fitted for a mixed house during the winter months, if it be necessary to keep the atmosphere at all damp; and probably this may be urged as an objection to their adaptability for decorative purposes through the winter.

Tropæolum Mrs. Treadwell, a description of which was furnished a short time ago, was produced by Messrs. Smith at this meeting, from under glass, and certainly not in such good condition as when seen out of doors at Dulwich. It is remarkably free blooming, and the flowers stand out well from the plant.

Major Trevor Clarke's pretty Primroses promise to become a very useful agent in spring decoration. The flowers produced on Tuesday last were some of the first the plants have produced, and they were undersized as well. Some of the blooms had stout well-rounded segments, and were as smooth on the edges as a fine Polyanthus. Raised from a cross between the common yellow hedge Primrose, and a form of the same slightly coloured, they have developed into a striking variation, and the superior cultivation they have received has induced the plants to throw up irregular umbels of flowers, instead of the ordinary form of a single-stalked flower. Mr. Barron has a number of plants of Major Trevor Clarke's seedlings growing at Chiswick, so that an opportunity will be afforded to any one interested in these flowers to examine them when in bloom in the spring. It should be said that already double flowers are being formed, and they promise to make a very attractive addition to the present forms of the Double Primrose. *R. D.*

The Apiary.

THE HONEY SEASON here in SOUTH WALES, though a poor one, has perhaps been somewhat better than that in the south of England, of which you gave us an account. I managed to get from 15 lb. to 16 lb. each in the supers of two Stewarton hives, and from a third, where the bees refused to work in a super the commencement of July, I got a full top body box, affording 20 lb. of run honey. This hive, however, required some feeding afterwards. From three straw vats I obtained a swarm each by driving, which were, excepting the last, sufficiently provisioned for winter. The last swarm I had to feed up with 7 lb. or 8 lb. of sugar and honey to bring it to weight.

Natural swarms came very late indeed this year. Except in a sheltered locality or two no hives swarmed till July, and I could form but one artificial swarm before that month. July was our only honey month.

I have this year the same complaint to make about the difficulty of getting supers finished on the top of a pile of Stewarton's, that I made last. The bees give over working in the super when it is about two-thirds or three-quarters finished, and work in the nadirs instead. That the system of nadiring does encourage breeding, and gets up a strong population, appears to be true enough; but then the additional force is employed in a comparatively profitless direction. The stocks, too, must be thoroughly strong, or the centre of the nadir becomes filled with drone comb; and therefore it appears to me unfit to leave as a part of the hive. I intend trying another season; but doubt that the Stewarton system is suited for obtaining good supers in this part of the country. It appears to me, too, that supers from a Stewarton hive, managed anywhere according to the orthodox system, for which directions have been given in your pages, would always be later finished than those from hives not nadired previous to supering.

Forming artificial swarms by driving saves a large amount of time and attention, and also of possible loss; but it has one disadvantage, that the swarm must (in the transposing system, at all events), be located in the old locality. This, in peopling a box-hive with a swarm from a vat, is often an inconvenience. What do you consider the least troublesome way of getting over it? *A. B.*

[You seem to have been more fortunate than many in various districts, in your honey harvest, and in the multiplication of your stocks by natural or artificial swarming.

If, as we imagine, your district is usually rather a late one as to the period of the chief honey harvest, it would appear to us that the Stewarton arrangement of hives, and system of managing the same, ought to answer well; as by it you would have your hives filled with strong populations ready to take the utmost possible advantage of an abundant, though short-enduring, honey harvest. We think it is hardly fair to decide upon the merits of this mode of management from your experience of the past two seasons. Last year the chief period of rapid honey secretion was of limited duration, ending abruptly early in July; besides which you had barely become initiated into the mysteries (if any) of the Stewarton method: while this year the whole season has been one of such an anomalous character, that it is hardly to be wondered at if full success has not attended your manipulations.

We should remove the drone-combs from the nadirs, substituting small pieces of worker-comb, or whole, or portions of artificial waxen impressed sheets, prior to again using the boxes. We can quite imagine that the supers generally will be obtained later in the season under this system, than by the more commonly employed methods.

We merely throw out the foregoing hints and observations for consideration. We have no particular knowledge of, or admiration for, the working of the Stewarton method, but we cannot close our eyes to the fact, that in one part at least of Britain the hive and its management prove eminently successful, and we have seen no valid reasons advanced why they should not answer equally well elsewhere.

With regard to the difficulty you suggest as to the permanent position of the artificial swarm, the only way in which, as it appears to us, it could be met, would be to confine the swarm for 12 or 24 hours in a darkened room, after which it might be located anywhere. Why not the following? Having driven out

the bees, place the swarm for a few minutes on the old stand, the majority of the outlying bees will soon join their companions. Seize the opportunity, and when at their greatest quietness, which usually lasts only a few minutes, shut up the hive and remove it. Then let the stock, which is shifted for the purpose of giving a sufficient population to the driven one, be placed on the old stand of the latter. The few bees that may be still out, will be either received among a gradually decreasing population, or they will be killed, but the loss would not be very great.

Another plan is to drive out nearly all the bees; place the swarm for a few minutes out on the old stand, then confine and remove till night, at once returning the original stock to its position, when any outlying stragglers will gladly enter it, and help to rear the brood, soon converting the comparatively tenantless hive into a populous colony.]

Garden Memoranda.

CHRYSANTHEMUMS IN THE TEMPLE GARDENS.—Every year, about this time, as sure as the recurrence of the Lord Mayor's "show-day," have these gardens been "lit up" for the last quarter of a century with gaily-blossomed Chrysanthemums. True, at first, there was some scarcity of varieties, but these have annually increased until now their name is legion. Even during the present season some excellent new kinds, of which more particular notice will be taken hereafter, have been added to the collections in both gardens. Mr. Broome's best border is at present in about as good condition as ever we remember to have seen it. Among others which it contains, the following are particularly worthy of notice, viz.:—White Globe, large and fine; White and Yellow Beverley; White and Yellow Formosum; Jardin des Plantes, a brilliant yellow; Gloria Mundi, also a good yellow; Cherub, golden amber; Little Harry, nearly the same colour; White and Yellow Hermine; St. Patrick, ruby red; Dr. Sharpe, a bright crimson; Faust, crimson purple, a promising kind; General Slade, red; Prince Alfred, rosy crimson; Prince of Wales, dark purple; Rifleman, ruby; Hereward, purple; Ranunculus, purple maroon; Lady Harding, rose; White Queen; Sparkler, a charming little flower, red with gold tips; Venus, lilac peach; Mrs. G. Rundle, a pure white new flower, compact and in every way excellent; Mr. Gladstone, dark chestnut; and Bernard Palissy, orange.

Mr. Broome's beds on the lawn are also good. They are filled chiefly with the different varieties of Cedo Nulli, among which may now be found white, lilac, brown, and yellow-coloured sorts. These, when combined, have the advantage of coming all into bloom at the same time, a condition which adds much to their value as bedding-plants.

Mr. Dale's best flowers, like those of Mr. Broome, are under cover. The most beautiful among them are Sparkler, gold, tipped reddish brown; White Globe; Jardin des Plantes; Antonelli; Hetty Barker, pinkish lilac; Lady Slade; the old bright reddish brown coloured Orlando; Mrs. George Rundle; Vesta, Nil Desperandum, Fleur de Marie, and Prince of Anemones, the last a fine pink sort. His beds this year are also good. The contents of two large circular ones are especially worthy of notice. In the centre of No. 1 is Gerbe d'Or, yellow; then come bands of Aurora Borealis, orange; Mr. Murray, crimson; Miss Talfourd, white; La Lilliputien, reddish brown; and Canrobert, yellow. No. 2 contains, in addition to the varieties just named, Salamon and Duruflet. The best self-coloured beds consist of Salamon, a bright crimson sort very suitable for masses; Comte Achille Vigier, though a very old sort, is also beautiful, its blossoms having a bright red centre surrounded by a broad well-defined margin of yellowish buff. Another bed contains Aurora Borealis, edged with Canrobert. In borders we noticed a pretty little crimson Pompon called Florence, which is very attractive.

In both gardens the flowers of most varieties will be about at their best next week, when they will be well worth inspecting.

Obituary.

WE have to record with regret the death of MR. JAMES CUTHILL, the well-known Strawberry, Cucumber, and Mushroom grower, which took place on the 5th inst, at Denmark Hill, Camberwell, in the 62d year of his age. Mr. Cuthill has been a frequent contributor to the columns of this Paper, in the pages of which may be found numerous contributions from him; among the latter the most important are perhaps those on "Market Gardening round London," which were afterwards republished in a separate form for his benefit. He was also the author of various other pamphlets on different subjects belonging to practical horticulture, in which he may be said to have been an enthusiast, and to which his death must be regarded as a loss, which will, moreover, be deeply felt by a large circle of private friends.

Garden Operations.

(*For the ensuing week.*)

PLANT HOUSES.

AMONGST flowering plants, the lovely *Luculias* will shortly unfold their fragrant cymose inflorescence, and meanwhile are worthy of every attention likely to aid them in the production of fine large heads of bloom; should any side-shoots—and there are generally two—push up grossly, and in a manner likely to overtop the flowers, or interfere with their easy and proper expansion, remove them at once. Give the surface of the foliage a good syringing, and the roots a soaking with well diluted manure-water before the flowers expand, which they will do with advantage under such attention. *Hedychiums*, which have flowered well, now need a season of rest; lay them upon their sides, therefore, until the ball, containing the fleshy tuberous rhizome, has become pretty well dried; this will cause the late growth to ripen off, when it may be wholly removed, and the plant be afforded a period of rest. *Lantanas*, *Vincas*, &c., which have also finished flowering, should be replaced in a warm corner of a stove, or intermediate house, after having first had the balls reduced, and having been placed into a free open compost in much smaller pots. Prune them well back at the same time, and do not water them too freely for a time. *Camellias*, where they have set buds too freely, had better have a little disbudding, which may be done without further delay. The quaint but useful *Platyceriums* will now be forming fresh growths. *P. alcicorne* I have previously recommended as a good greenhouse plant. Water them, therefore, rather more freely in consequence, in order to insure the formation of fine fronds.

FORCING HOUSES.

It would, perhaps, be difficult to refer to a less propitious season in which to ripen Grapes produced upon ill-made or worn-out and other *Vine borders* of obsolete formation, than the past summer. I think it well, therefore, to advert specially to the subject. Where Vines have shown the defect of shanking to a great degree, it will be advisable to test the borders thoroughly in order to arrive at a correct knowledge of their defects. In three cases out of four, old Vine borders are wanting in regard to proper drainage. Depend upon it, with questionable success during the past season staring one in the face, and the consequent depreciation of the vigour of the Vines, added to the chances of success next season, that without using an effort forthwith to resuscitate the border, and hence the roots, cultivators cannot hold themselves entirely blameless should a repetition of mischief occur. There is not that danger in "fingering" the roots which many apprehend attends the operation. Choose a fine interval, clean neat tools, and, with an abundance of material close at hand, enter thoroughly upon the job. Secure soil—good yellow loam of fibrous and free texture, yet possessing sufficient stamina in itself to give it moderate consistency, adding thereto nearly a third of its own bulk of old mortar rubbish, broken bones, charcoal, and well-decomposed manure. Remove the surface soil carefully near the base of the Vine, and having bared the root at this point, follow it carefully until the whole of its ramifications are laid open to the eye, when it will be readily seen, judging from the state in which the roots are, how best to proceed. If these are moderately healthy, appearing deficient in vigour only, and the soil at the root line is not too wet or poverty-stricken, simply renew the soil to some depth, elevating the roots a little when replaced therein. Otherwise, if the fault lie in part or wholly in the border, especially if the latter is in want of better drainage, the roots must be carefully studied for the purpose of ascertaining the best mode of procedure. If very old, the inference is that they will have become so elongated that the ultimate fibrils of the roots—the feeding spongioles proper—are congregated mostly at the extreme front of the border. Hence a difficulty occurs. Prune them slightly back, if possible; place a draining medium below, as I shall presently advise, or in any other efficient manner which suggests itself. Imbed the whole length of the roots in fresh soil, finishing all off neatly, and proceed as advised hereafter, to induce fresh rootlets to form "nearer home." When a moderate supply of young roots is found near the base of the Vine, or, indeed upon the upper half of the Vine border, viz., nearest the house, under similar circumstances to the above, it will be far better, with care, to sever the roots in two. Afterwards remove the whole of the front half of the border to a goodly depth; place a proper drainage at the bottom, and refill with fresh compost, treading the whole firmly as you proceed. The necessary drainage, which I have referred to, might be formed, and it is not convenient to make but a temporary one under the circumstances, as follows:—Go far enough down, if possible, to insure a natural fall of moisture through the subsoil into an open stratum beneath the border. This might be done by making four or five holes, some 2 feet in diameter, and at suitable intervals apart, down into the same, only; which, when filled up with rough-edged stones, or rubble, to a certain height, might there become interlinked with a horizontally laid drain of the same material, the whole being not unlike the figure formed by these letters, TTTT If no natural drainage can be obtained in any of the lower strata, it will be well to lay a row or two of large drain-pipes, well encased in rubble; with a proper fall into a dumb well or, better still, into a free-flowing drain. Positions, circumstances, &c., so vary in different places that I trust the above remarks may be made applicable to any requiring assistance in this wise. I therefore leave the subject for the present.

HARDY FLOWER GARDEN.

Plant *Tulips* at the earliest opportunity, choosing a dry period for the operation. Attend carefully to *Auriculas*, always bearing in mind the fact that damp is even more injurious than a slight amount of frost. Allow decay in no form whatever to remain near them, and by occasionally stirring the surface soil keep it fresh, without however allowing too large a quantity of loose soil to remain around their base, as this tends also to absorb and retain an excess of moisture; keep the drainage free from particles of soil by an occasional examination of it. Rough prune and nail any *Creepers*, *Roses*, &c., growing against walls, for the twofold purpose of neatness, and to have them ready to be duly protected should sharp weather set in at a later date. Look through *Herbaceous* borders, and make note of any plants which, dying down now, may require parting or otherwise. Place leaf-mould over choice roots or around the base of plants for protection against hard weather, and be prepared in detail for such, in the case of *Alstrœmerias*, *Liliums*, *Cyclamens*, of the C. hederifolium, europæum, coum, vernum, and other hardy species, and varieties grown in sheltered corners out of doors. Pot the ripened bulbs of Lilium auratum, and place them in any dry place, even if in such a position where a few degrees of frost can reach them it matters not. They like peat, leaf-mould, and sand. Secure them from slugs, which are very partial indeed to them.

KITCHEN GARDEN.

Where *Seakale* is needed early it will be advisable to take up a few of the best ripened crowns, and by placing them in a warmth of 85° or 90° plunged in soil, and kept quite dark to forward them for use, before those forced in the open ground are ready. The Mushroom house will be found a convenient place for this purpose. Remove the decayed leaves from plantations of Seakale as soon as they are sufficiently ripened off to part freely, and, as previously advised, get the necessary leaves raked to place over them when they have become moderately hardened by exposure. As stated before, *Lettuce* and *Endive* for immediate use will need the protection of a frame or similar contrivance. Make the final sowing of *Radishes* upon a nice sunny aspect, and do not omit to sow the requisite *Small Salading*. *W. E.*

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,

For the Week ending Nov. 6, 1867, as observed at the Horticultural Gardens.

October and November.	Moon's Age.	Barometer.		Temperature.					Wind	Rain.
				Of the Air.			Of the Earth			
		Max.	Min.	Max.	Min.	Mean	1 foot deep.	2 feet deep.		
Thurs. 31	4	29.901	29.877	57	43	50.0	54	52	W.	.08
Friday 1	5	30.010	29.837	65	32	48.5	54	52	W.	.00
Satur. 2	6	30.469	30.227	52	24	38.0	51	52	N.	.00
Sunday 3	7	30.485	30.396	51	32	41.5	50	50	W.	.00
Mon. 4	☽	30.190	30.219	53	33	43.0	51	50	W.	.00
Tues. 5	9	30.252	30.222	48	24	36.0	49	50	N.E.	.00
Wed. 6	10	30.425	30.336	49	25	37.0	48	49	N.E.	.00
Average		30.247	30.159	53.6	30.4	42.0	57.0	50.7		0.06

Oct. 31—Overcast and mild; cloudy and fine; overcast.
Nov. 1—Overcast; fine; clear at night.
— 2—Clear; bright sunshine; clear and frosty.
— 3—Heavy fog; clear; overcast at night.
— 4—Overcast and cold; overcast; fine, overcast.
— 5—Clear and fine; masses of white clouds; clear and frosty.
— 6—Foggy; hoar frost; cloudy, clear and frosty at night.
Mean temperature of the week, 3 5-10 deg. below the average.

STATE OF THE WEATHER AT CHISWICK,

During the last 41 years, for the ensuing Week, ending Nov. 16, 1867.

November.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain	Prevailing Winds.							
						N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday ..10	50.4	34.1	42.3	23	0.67 in.	4	6	4	2	9	11	2	3
Mon. ..11	50.5	34.3	42.4	15	1.02	3	6	7	1	7	9	6	3
Tues. ..12	50.5	34.0	42.2	17	0.50	4	5	9	3	3	8	7	2
Wed. ..13	50.0	35.5	42.8	22	1.16	2	9	5	2	7	6	6	4
Thurs. ..14	48.4	33.6	41.0	19	1.24	6	5	4	6	2	7	6	5
Friday ..15	48.9	34.8	41.8	19	0.34	3	6	5	3	4	11	7	2
Satur. ..16	49.0	33.0	41.0	14	0.34	6	3	5	3	5	11	6	2

The highest temperature during the above period occurred on the 12th, 1841—therm. 63 deg.; and the lowest on the 15th, 1848—therm. 18 deg.

Notices to Correspondents.

APPLE TREE. There is no fungus about the root. Both bark and wood have been gnawed by some animal, which has been almost as indefatigable as a beaver, some of the large roots being completely gnawed through, while others are half eaten. We have never seen a similar case before. *M J B.*

AVENUES: *H C.* You may plant Pinus austriaca and Quercus Ilex alternately for an avenue not more than 10 feet apart. Stop the branches of those intended to be cut down or thinned, before they meet; so that they may remain longer and afford protection to the others. Trench the pits 2½ feet deep, and in summer water freely four or five times. Trees to succeed must be assisted in such a soil and situation as yours.

FICUS COOPERI: *J H W.* The fruit of this is, we believe, uneatable; it is certainly not palatable.

INSECTS: *I H.* We have microscopically examined the small irregular shaped swellings on the rootlets of your young Vines, without having been able to detect any trace of insects within the woody gall-like secretion; although we have found in the outer crevices of one of them several minute yellow eggs, like those of the Aphis which caused the swellings on the leaves. *W.*

NAMES OF FRUIT: *Plumpton.* Apple, Hollandbury.—*J F Bigge.* Apples: the following were correctly named, viz., Hawthornden, Cockpit, Carlisle Codlin, Keswick Codlin, Yorkshire Greening, Lemon Pippin, Green Leadington, and Flowery Town; Mank's Codlin is Hawthornden, Magnum Bonum is Egg or White Paradise; one fruit, with crimson blushed cheek and acid flesh, is Hawthornden; others unknown.—*J Stephenson, Leigh Hill.* Your seedling Pear is the Urbaniste, reproduced from seed, a very excellent variety.

NAMES OF PLANTS: *A B.* Your Fungus was much crushed in the post. It is apparently Agaricus lentus. It is, however, scarcely possible to make out species in so difficult a genus as Agaricus from specimens sent by post, unless they are carefully packed with dry soft paper in a box which will not give way to stamping. *M J B.*

PASSIFLORA QUADRANGULARIS: *H M.* The fruits of this are eatable, but scarcely worth eating in this country.

SUN HEAT: *Sun Dial.* To know the amount of heat that may be obtained from the sun's rays by glass placed in an upright position, as compared with that placed sloping, is a problem which admits of an infinite number of solutions, for it does not even yet admit of a definite answer till the conditions of the inquiry are more particularly defined. It depends on the slope at which the glass may be placed with reference to the direction of the sun's rays; for when these impinge perpendicularly on the surface of glass they are almost all transmitted; on the contrary, when they come in a very slanting direction more than half the rays glance off without their heat being transmitted through the glass. In an inclined direction a sheet of glass may be placed so as to transmit all the rays, or so as to reflect a portion; but in the upright position all the rays cannot be received, because they must fall more or less obliquely on any upright plane of glass, and a portion must always be reflected. To make the most of the sun's rays, it is certain we must employ glass in a sloping position, and by so doing we could have enough heat transmitted for growing tropical plants, if we could but economise it. ‖

COMMUNICATIONS RECEIVED.—J. F. Brandon.—H. V.—H. L.—E. T.—J. Barnes—D. T. Fish.—D. Lumsden.—J. Watson.—J. Walker—Dr. Smith.—J. F.

THE ROYAL BERKSHIRE ROOT SHOW will take place at READING, NOVEMBER 30, 1867.
PRIZES in VALUE or more than TWENTY GUINEAS will be awarded to the best specimens of MANGEL WURZEL, SWEDES, KOHL RABI, TURNIPS, &c. For further particulars apply to SUTTON & SONS, Reading.
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To Farmers, Gardeners, and Others.

EXCELLENT CABBAGE PLANTS (Stocks not to be surpassed), can be supplied in any quantity, as follows:—
TRUE DWARF NONPAREIL (the earliest and best), 2s. 6d. per 1000
TRUE ENFIELD MARKET (extra fine variety), 2s. 6d. per 1000
TRUE ROBINSON'S CHAMPION DRUMHEAD, 2s. 6d. per 1000
TRUE RED DUTCH (for Pickling), 5s. per 1000
A remittance or reference to accompany all orders.
FREDK. GEE, Seed Merchant and Grower, Biggleswade, Bedfordshire.

Seed Potatos.

H. AND F. SHARPE are now offering MYATT'S EARLY PROLIFIC KIDNEY, RIVERS' ROYAL ASHLEAF, WEBB'S IMPERIAL KIDNEY, DAINTREE'S EARLIEST, EARLY OXFORD, EARLY FORTY-FOLD, and many other Early and Late varieties grown from their own selected stocks. The Prices are moderate, and the quality excellent. PRICED LISTS may be had on application.
Seed Growing Establishment, Wisbech.

CUCUMBER "DICKSON'S FAVOURITE" or ALL THE YEAR ROUND.
We can confidently recommend this as one of the best Winter Cucumbers grown, while it is second to none for general purposes. In Winter it grows about one foot long, and in Summer from 15 to 18 inches, is of deep green colour, very handsome, delicate in flavour, and particularly tender, crisp and juicy. It is very prolific, showing two to three fruit at every joint, and furnishes a continual supply of handsome Cucumbers during the Winter, Spring, and Summer months. Per packet 1s. 6d. and 2s. 6d., post free.
FRANCIS & ARTHUR DICKSON & SONS, The "Old" Established Seed Warehouse, 106, Eastgate Street, Chester.

Telegraph Cucumber.



ROLLISSONS' TELEGRAPH CUCUMBER, the best Winter and Early Spring variety in cultivation.
See *Gardeners' Chronicle*, January 12, 1867.
See *Gardeners' Chronicle*, March 16, 1867.
See *Gardeners' Chronicle*, August 31, 1867.
See *Gardeners' Chronicle*, October 12, 1867.
The above, in printed sealed packets, 2s. 6d. each. Prices to the Trade on application to
WILLIAM ROLLISSON & SONS,
The Nurseries, Tooting, London, S.

EARLY FLOWERING PLANTS for SPRING GARDENING.
ALYSSUM SAXATILE COMPACTA, yellow, 4s. p. doz.; 25s. p. 100
ANEMONE NEMOROSA PLENO, white, 3s. per doz.; 15s. per 100
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" LUCIDA VARIEGATA, beautiful foliage, 6s. p. doz.; 40s. p. 100
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" GRÆCA, blue, 6s. per dozen; 40s. per 100
BULBOCODIUM NARCISSIFLORUM, yellow, 4s. per dozen; 30s. per 100
DORONICUM CAUCASICUM, yellow, 4s. per doz.; 25s. per 100
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IBERIS SEMPERVIRENS, white, 3s. per dozen; 20s. per 100
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POA TRIVIALIS ARGENTEA ELEGANS, white edge leaf, beautiful, 4s. per dozen; 20s. per 100
OROBUS VERNUS, purple and red, 4s. per dozen; 25s. per 100.
A large Collection of SPRING BLOOMING PLANTS, see Catalogue.
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DOWN'S FARMER'S FRIEND, for Preventing the Smut in Wheat, and the Ravages of the Slug, Grub, and Wireworm. A 9d. packet is sufficient for Six Bushels of Seed Wheat, which can be dressed and fit to sow in a quarter of an hour.
Testimonials from the largest Wheat Growers in the Kingdom, bearing testimony to its great power and efficacy, may be had of Agents, who are appointed for every district.
Full directions for use are given with each packet.
Prepared at the Manufactory, Woburn, Beds.
CAUTION.—To guard against fraudulent imitation and consequent disappointment, see that the signature of HENRY DOWN is on the label.
Agents in every Town throughout England, Scotland, and Ireland.

THE BIRMINGHAM CATTLE and POULTRY SHOW.—The NINETEENTH GREAT ANNUAL EXHIBITION of FAT CATTLE, SHEEP, PIGS, DOMESTIC POULTRY, CORN, ROOTS and IMPLEMENTS, will be held in BINGLEY HALL, on SATURDAY, MONDAY, TUESDAY, WEDNESDAY, and THURSDAY, November 30, and December 2, 3, 4, and 5, 1867.
The Exhibitors and the Public will be admitted to Bingley Hall to witness the Judging of the Cattle, Sheep, Pigs, Roots, and Corn, on SATURDAY, November 30th, at Nine o'Clock A.M., upon payment of 10s. each. There will be no Admission to the Poultry Department until after the Judging is completed.
The PRIVATE VIEW will take place on MONDAY, the 2d of December Admission to Non-Subscribers, until Five o'clock, 5s.; after that hour, 1s.
The Exhibition will also be open on TUESDAY, WEDNESDAY, and THURSDAY. Admission, 1s.
For Special Railway Arrangements, see the Advertisements and Bills of the several Companies. JOHN B. LYTHALL, Secretary.
Offices, Stephenson Chambers, 39, New Street, Birmingham.

ROYAL AGRICULTURAL BENEVOLENT INSTITUTION.
Patron—HER MAJESTY THE QUEEN.
President—HIS GRACE THE DUKE OF RICHMOND.
For the RELIEF of DECAYED FARMERS, their WIDOWS and ORPHAN DAUGHTERS; and for the MAINTENANCE and EDUCATION of their ORPHAN CHILDREN.
ALLOWANCE TO PENSIONERS.
Married .. £40 per annum | Male .. £26 per annum
Widow and Unmarried Orphan Daughters .. £20 per annum
Orphan Children admitted from 7 to 10 years of age, and wholly maintained and educated until the age of 14 years in the case of Boys, and 16 years in the case of Girls.
One Hundred and Five Pensioners have already been placed on the books of the Institution; and in addition to the number of Pensioners to be admitted at the next Election, the Council have decided to Elect Ten Orphan Children.
Forms of Application for Pensioners and Children, and every Information, to be obtained of the Secretary, by whom Donations and Subscriptions will be thankfully received.
55, Charing Cross, London, S.W. CHARLES SHAW, Secretary.

The Agricultural Gazette.

SATURDAY, NOVEMBER 9, 1867.

THE great International Exhibition in the Champ de Mars is closed; and already, doubtless, the galleries and outbuildings in which agricultural implements and agricultural produce have been exhibited, are being stripped—and engines and machines over which thousands of wondering eyes have wandered during the past summer are being packed off to foreign purchasers or to English warehouses. The agricultural department is the one which has benefited the least by that elaborate and well devised scheme of arrangment which has made it so easy for the visitor to direct and to confine his studies, whether to any given class of subjects exhibited by a variety of nations, or to all the several classes in which any one nation has displayed its prowess and its skill. Agricultural machinery, though in a few instances exhibited within the Building, and then coming under that rule of distribution there which has furnished so satisfactory a clue to the searcher amidst its multifarious contents, has generally been shown outside in sheds and buildings scattered promiscuously amidst the many detached erections of every kind with which the Park has been crowded; and it was to one and another of these that any one desiring to compare this particular class as it appears to-day with what was shown in it in 1862 had to direct his attention.

The long gallery in which our own implement makers displayed their wares has been again, as it was five years ago, unquestionably in the foremost rank. Certain specific manufactures and contrivances excepted — the Beet-root sugar manufacture for one example, paper making from wood for another, some contrivances for drying grain, &c., for others—all of them only incidentally of agricultural importance—there can be no doubt of the easy supremacy of our machine making for agicultural purposes in all the particulars of quality and economy of material with reference to the needed strength in every part, finish of workmanship, and fitness of the contrivance and design to the purposes contemplated.

Tillage implements, culminating in the several rival forms of steam plough — machines for sowing, mowing, reaping—carts and waggons, threshing machinery and portable engines—all are best in the British section of the class. It is however cordially admitted, that the reapers and mowers of the United States take equal rank with those of English makers; and that in them we have in many cases to confess that advantage derived from copying foreign models for ourselves which we see that French and many other manufacturers have derived from the copy of what originated with us.

Of course, also, we do not insist that our English implements in the hands of foreign cultivators would do the work of tillage or even perhaps of carriage, of harvesting, or preparing for market, so well as their own less perfect tools, as we, nethertheless, believe them to be. The race is won by the jockey as well as by the horse; and we do not suppose that the short-breasted abrupt French plough, or even the clumsy French waggon, with its front wheels pretty much in the position of the fore-steerage of our drills, would at once be advantageously displaced by English implements. Nevertheless it is plain that the foremost French and other foreign manufacturers are gradually adopting English guidance in the improvements of their tillage implements, as they have already done in the manufacture of portable steam-engines and threshing machines. That we are still, nevertheless, a long way ahead of our disciples—as much so as we were at the last great International Show, where we were at home—has, we think, been made apparent at Paris, where we have been only visitors.

Among the more interesting items of the agricultural exhibition in the Champ de Mars, however, there are one or two to which there was nothing whatever corresponding in the British section. We refer to the Dutch Dairy homestead and the French Farm-yard. The former with its dwelling apartments for summer and for winter—its working-rooms properly furnished with all necessary dairy arrangements and machinery; its cow-house, calves' stage, piggery, and stable—contained a number of particulars deserving English attention. The dairy implements need not be copied, nor perhaps the arrangements either for holding the cow's head or tying up her tail; the width (length) of lair, too, allotted for the cow indicates a smaller animal than our own Shorthorns; but the small troughs, a mere indent in the floor, which serve as feeding places on each side of a roomy gangway between two rows, point to a lesson of feeding in small quantities, fresh and fresh, which is important; and the size and depth of the gutter behind for the reception of manure, is another important thing, indicating the need of attending carefully to the preservation of other valuable produce of the cow besides her milk.

The French Farm-yard, too, with its barn and dwelling-house, its circular cow-house, with 14 cows tied to a common circular trough, and thence radiating out to a greater interval, where there is ordinarily a risk of treading on one another or on the calves, with a central store or stage for provender, and all under a cheap circular roof; the shed for sheep, 12 yards long and about 4 deep, sufficient for three dozen merino sheep; the poultry-house on wheels, furnished with laying boxes and roosting poles, capable of being carried from field to field, and thus, as the placard told us, helping the work of destroying grubs in the fallows, as well as of picking up waste corn in the stubbles; all these items possessed considerable interest for English eyes—though very probably, amid the almost interminable collection of what possessed more general interest, comparatively few English eyes may have looked upon them.

The farm-yards and farm-houses with their inhabitants, quadruped and biped, are being transplanted, doubtless now with implements and machinery equally out of place, for use, to more proper homes; and we now can only hope that the lessons, sown so wonderfully broadcast as theirs this year have been, carried through the eye and mind to a thousand homes and farms all over the civilised world, may ultimately bear some of the fruit to be expected from such useful seed.

THE important subject of BENEFIT SOCIETIES FOR COUNTRY LABOURERS was admirably introduced for discussion, last Monday, by Mr. C. HOWARD, before the London Farmers' Club. His paper, which well deserves perusal, is given in another page. It is valuable as containing not only the facts and arguments built on them, belonging to Mr. HOWARD'S personal experience in Bedfordshire—but the opinions and the testimony of many correspondents all over the country known to him for their interest in the condition of the labouring class. Nothing very noteworthy was elicited during the discussion which followed the lecture. The general effect of it was to call upon the landowners and farmers of the several localities to take increased interest in the prosperity of the local institutions; to condemn as wasteful the practice of holding their periodical meetings for the receipt of funds at public-houses; to insist upon the monthly or periodical payments being sufficient, according to trustworthy life-tables, for the payments, in case of sickness, which are guaranteed to subscribing members; and to advocate large societies, including the agricultural populations of, at least, Unions or Petty-Sessional districts, rather than small parish clubs.

The debate, if such it can be called, was

enlivened by a speech from Mr. S. SIDNEY, in which he declared, notwithstanding somewhat vigorous contradiction, how extremely unsatisfactory is the plight of the agricultural labourer—working for his employer as long as he can, and then supposed, as the appropriate and natural thing, to end his days as a pauper. Mr. CONGREVE, of Rugby, had disputed the statement of one of Mr. HOWARD's correspondents, that Boards of Guardians are not willing to give relief to men who are receiving pay from clubs when that pay is inadequate. On the contrary, he declared that, so far as the law allowed them, Boards of Guardians are invariably disposed to stretch a point in favour of a man who has had the forethought and self-denial during previous years to subscribe as member of a benefit club. Mr. SIDNEY'S criticism was based upon this contest of opinion, in which both sides assumed that pauperism is the natural termination to a life of agricultural labour. It is a notorious fact, as he contended, that men earning agricultural wages do, as a rule, come at the end to be dependent on the rates; and he urged strongly that the payments made by the member of a benefit club while he was still in his prime, should be more than enough to give him "whole pay" during so many weeks of any illness he might suffer, and "half pay," and "quarter pay," during successive terms—ceasing altogether towards the end of the year, and recommencing "full pay" in a second year, if the incapability should remain, but terminating altogether at a certain age. Better let the Institution be made self-supporting throughout the life of the member—sufficient payment being required from him when strong and well to secure a full and adequate provision, not only during sickness, but during old age; and a sufficiently strict administration being provided to ensure that no one should declare himself upon the list of recipients without real necessity.

The importance of a sufficient payment being required from members was very urgently insisted on by more than one speaker; and the importance of such societies having the guarantee not only of a sufficiently large body of subscribing members, but also of a body sufficiently numerous and interested of honorary members, was pointed out. The practice of holding meetings for business at public-houses was condemned by every one as a useless waste of funds. It is very much more. We remember in the rules of a number of small public-house clubs collected many years ago in Gloucestershire, that there was invariably one which forbade members during a business sitting "fighting, or stripping to fight," the fine being half-a-crown. And (as a discouragement to drunkenness) a smaller fine of 3*d.* was levied on any of the stewards of the meeting who should be unable to distribute the beer without spilling it! Imagine a committee inaugurating a new club, and foreseeing the need of such rules under the circumstances to which, by meeting at a public-house, they were subjecting themselves! To hold such meetings at such places, it is plain, is not only wasteful but degrading.

ON Tuesday last the Council of THE CENTRAL CHAMBER OF AGRICULTURE held their usual meeting. Twenty or thirty gentlemen, presided over by Mr. C. S. READ, M.P., met to consider the interests of agriculture in relation to Orders in Council about the cattle plague, and in relation to the abolition of the Malt-tax. These were the two subjects which had been remitted to them; and, after full discussion, courses of action were resolved on with regard to each. Taking the gentlemen present, either individually or collectively, it might not perhaps be considered a very influential gathering; and any resolution they might adopt would not, it might be supposed, be calculated to exert much influence on the conduct of Government, or on the condition of affairs. But your estimate on this point would have been materially altered had you heard each speaker in succession declare himself, as most of them did, deputed by meetings previously held in the various country districts from which they came. "We had a large and unanimous meeting on Saturday at Banbury, the centre of an extensive grazing district, and I am instructed to represent the views of the agricultural body there." It was in this style that most of the speeches opened; and in this way the Leicestershire Chamber of Agriculture, the Norfolk, Midland Counties, Staffordshire, Northern Counties, Devon and Cornwall, Swindon, Hereford, Worcestershire, and many other Chambers, had representatives present or had sent the resolutions which they had adopted.

It is plain that though 20 men may count for little by themselves, yet, representing as the Central Chamber now does a constituency of 7000 of the leading farmers and landowners of the country, who through their local Chambers send up to it what are virtually unanimous opinions and demands, its representations to the Government, backed as they will be by the attendance of the county members of the several localities on its deputations to the Minister, must be listened to with respect, and cannot but materially influence decisions. And its plan of submitting each subject to full local discussion before resolutions on it are urged through the central mouthpiece on the Government, is the best possible for obtaining a deliberate and intelligent decision on the points at issue.

On the present occasion it was argued by Mr. HARRIS and Mr. WILSON, of Leicestershire; by Mr. BRAWN and Mr. MASFEN, of Staffordshire; by Mr. DUCKHAM, of Herefordshire; Mr. OSBORNE, and others, that it would be for the interest of the English meat-consumer, as well as for that of the English producer, if all Foreign Stock were slaughtered at the point of debarcation. The country is fuller of healthy cattle at this moment, after every possible hindrance has been put to foreign importation for a couple of years, than ever it was before. It is to this hindrance and jealous supervision of imported Stock that our present freedom from pleuro-pneumonia and foot-and-mouth disease, in which the meat consumer is as much concerned as any one, can alone be attributed. And it is evident that if ever free importation of Foreign Stock shall again be permitted, and foreign diseases accordingly gain their former ascendancy, consumers will suffer quite as much as producers.

The resolution ultimately adopted did not, however, go the length of advising that all Stock should be slaughtered on being landed, but that whereas the supply of wholesome meat in this country has been diminished by the introduction of cattle plague and other infectious diseases, no sufficient security against such visitations will be found until all imported Fat Stock are slaughtered at waterside markets at the ports of landing, and until similar regulations to those now in operation for Foreign Store Stock are enforced for the importation of Sheep.

We may add here that resolutions to the same effect were adopted on Wednesday last, at a meeting of the Smithfield Club, viz.—That all Foreign Fat Stock be slaughtered at the place of landing; and, That Sheep be included in the present quarantine regulations for Store Stock.

A deputation from the Chamber will wait on the Home Secretary this month, to urge their resolution on the attention of Government. And that no time should be lost is plain, from the announcement made that many of the Orders in Council, relative to the enforcement of quarantine upon imported Stock, are about to be cancelled.

On the subject of the Malt-tax, to which attention was subsequently directed, it was in the meantime remitted to the local Chambers to recommend gentlemen from whom witnesses may be chosen to give evidence before the Select Committee of the House of Commons.

The Chamber is at a future meeting to discuss the education of the agricultural labourer and the working of the Highway Act—both of them subjects on which action will probably be taken during the ensuing Session of Parliament.

—— THE "Journal of the Society of Arts" states that the French experiments in steam ploughing, referred to at p. 1103 as having lately taken place at Petit-Bourg, under the auspices of an independent committee of agriculturists, were all the more important from the fact that they were not competitive, that there were no prizes given, and that every operation was watched, reported, and commented on by competent judges and witnesses; it was a practical exposition of facts before an experienced audience. M. GUEYRAUD, who discusses the subject in the pages of the "Journal d'Agriculture," objects to the conclusion that had been drawn by others, that the problem of steam ploughing was solved in the case of large farms and soils not encumbered with stones, but not in other cases. He expresses his conviction of the admirable working of both FOWLER's and HOWARD's systems, and adds, after four years' experience of the latter, that "for all superficial operations, and in all soils free from stones and difficulties, ploughs, extirpators, and other implements drawn by animals, give a more economical if not a more regular result than the steam plough. When the depth exceeds about 10 inches, which would require the use of four horses at least, when the soil is dry and hard, in stony land in which the course of the implements is impeded, the steam plough is more economical, more effective, and more regular than implements drawn by animals, and the economy increases in geometrical ratio with the difficulties to be overcome." Now, as middling-sized and small farms are cultivated to a greater depth, says M. GUEYRAUD, than large ones (and herein lies the secret of their crops), the former have more to gain from steam cultivation than the latter. It is true, he adds, that each small farmer could not afford to purchase a steam plough, but by uniting together they may obtain a machine which costs nothing while idle, whereas horses are doing nothing half the year, and eat every day. M. GUEYRAUD is further of opinion that the speed attempted with steam ploughs is too great; they generally try to achieve a yard per second, which is too rapid in stony ground, and causes shocks and irregularity in the work, while if the speed be reduced and the width and depth of the furrow increased, there is a positive gain both in regularity and economy. He recommends a speed of about 20 inches per second, and says he has found it most effective. "I must add," he says, "in favour of steam cultivation, that whereas the practical value of traction by animals decreases with the difficulties to be surmounted and the number of animals required, that of a steam plough, on the contrary, increases with the difficulties to be overcome." Conclusions thus derived from long study and practical experience, says the "Journal of the Society of Arts," cannot fail to be valuable, if only in inducing serious consideration of the subject to which they refer. But we may add that a longer practical experience of steam ploughing exists in this than in any other country, and we believe that if the mere question of cost is to rule a decision, the most striking economy has been realised on large farms of light and shallow soil where full sway has been given to the speed which M. GUEYRAUD deprecates.

—— We are informed by a circular from the Statistical Department of the Board of Trade, that the aggregate Agricultural Returns for Great Britain in 1867 have just been made up, and under corn crops of all kinds there were in England and Wales 7,941,578 acres, against 7,921,244 acres returned in 1866; and in Scotland 1,367,012 acres, against 1,366,540 acres in 1866. The land under Wheat is returned for England and Wales at 3,255,917 acres, against 3,275,293 acres in 1866; and for Scotland at 115,118 acres, against 110,101 acres in 1866. The number of cattle is returned for England and Wales as 4,017,790, against 3,848,435 in 1866; and for Scotland as 979,170 against 937,401 in 1866. Sheep are returned for England and Wales to the number of 22,097,286 against 16,793,204 in 1866; and for Scotland to the number of 6,893,603 against 5,255,077 in 1866. The large increase in the number of sheep returned in 1867, as compared with the previous year, is to be accounted for by the fact that the returns in 1866 were made for the purpose of the cattle plague inquiry at a date preceding the lambing season in some parts of Great Britain.

—— It is announced that the following special awards have been made to English and American firms who took part in the great Agricultural Exhibition at the Island of Billancourt:—1st grand prize, Messrs. RANSOME & SIMS, of Ipswich; 2d, Messrs. J. & F. HOWARD, of Bedford; 3d, Mr. M'CORMICK; 4th, Mr. C. R. MARKHAM, for the successful introduction of the cultivation of Quinine into British India. Second-class prizes, consisting of a Gold Medal and an *objet d'art*, have been awarded to Messrs. WALTER WOOD & Co., Messrs. SMYTH & SONS, of Peasenhall; and Messrs. GARRETT & SONS, of Leiston. English subjects not being permitted to receive foreign decorations, a Special Silver Medal has been awarded to Mr. JOHN HEAD, one of the partners of Messrs. RANSOME & SIMS, who are the only English manufacturers thus honoured at Billancourt.

—— A case of some importance to the seed trade and to farmers is reported in the *North British Agriculturist* of Wednesday last, in which 117*l.* damages against the seedsman were awarded to the plaintiff by the Sheriff's Court of Cupar, on account of seed purchased as that of Aberdeenshire Yellow Turnip turning out to be a softer and less hardy kind, so that the crop perished under the frost of January last, whereby loss to that amount resulted to the farmer.

SHORTHORN INTELLIGENCE.

—— WE hear from Canada of the safe arrival of *Rosedale*, the 6-year-old cow, bred by Lady Pigot, and purchased at the Duke of Montrose's sale in August for 235 guineas. The Hon. David Christie, of Ottawa, Canada, writes: "Rosedale reached Montreal in safety. She calved on the passage, all well. She was purchased by Mr. Beattie for Mr. Cochrane, Lower Canada, who lives some 400 miles from here. She was shown at our Kingston Show, and took a 1st prize." Mr. Christie further announces the safe arrival of a 200 guinea purchase he made of Mr. Carr, of Stackhouse, a bull calf, KNIGHT OF ST. GEORGE. He says, "Beyond the loss of flesh he has not suffered by the voyage. I like the calf very much, and have great expectations from him. He seems to promise to be very much such a bull as WINDSOR was." KNIGHT OF ST. GEORGE is from a Windsor cow (*Windsor's Queen*), and by PRINCE OF THE REALM, both sire and dam being of the famous *Bliss* tribe, now the leading family at Warlaby. The KNIGHT is half brother to "WINDSOR FITZ-WINDSOR," also bred by Mr. Carr, and sold to Mr. Willes, of Carperby, and whose resemblance to his paternal and maternal grandsire, WINDSOR, is also very remarkable. *Rosedale* mentioned above is thus described in Mr. Carr's

book on the Booth herds. He is referring to the prize-takers in Lady Pigot's herd, and says:—"To enumerate all these prize-takers would be impossible and superfluous, but one we must mention—*Rosedale*—a name which must last as long as Shorthorn records may endure; *Rosedale*, perhaps the most beautiful heifer England had ever seen in her show-yards since the time when Queen of the May electrified them, and whose many victories recalled the memory of the proud triumphs of Necklace and of Bracelet. Descended from a celebrated Booth cow of Mr. Maynard's, and herself a daughter of Velasco, to whom her dam, Rosey, was in calf when transferred from Stackhouse to Branches Park, this lovely heifer was wholly Booth, with the exception that one-eighth of her blood was derived from the never-beaten prize bull Belleville. All her victories were won before she had completed the age of two years and a half; while nothing can show more positively the strength and stamina of the Booth cattle than the circumstance that *Rosedale*, now the property of the Duke of Montrose, notwithstanding all her training, has since bred with the greatest regularity; while her dam, Rosey, the property of Mr. Storer, of Hellidon, though now between 14 and 15 years old, continues to give birth annually to a living calf, and after her last milked well for eight months, the last five of which she was again in calf." *Rosedale* was bought by the Duke of Montrose at Lady Pigot's sale for 217 guineas (see p. 1108).

— We see in the latest Catalogue of the Sittyton Shorthorns, among the young bulls coming in for use in that herd is SCOTCH ROSE (25,099), a son of *Rosedale*, by SCOTTISH CHIEF (22,849).

— It is an extraordinary illustration of the value of the pure *Duchess* blood that Captain Gunter's young bulls leave him, as calves, for 500 guineas apiece, as fast as he can breed them. The Wetherby herd are reported to be doing remarkably well in every way—all the animals breeding, and the young things more promising than ever. Within the past few weeks two bull calves have been sold at the price just named—and there is but one now remaining unsold, 5TH DUKE OF WHARFEDALE, out of *Duchess 86th*—he was calved last February. The two bull calves sold are "2D DUKE OF COLLINGHAM" by "3D DUKE OF WHARFEDALE, from *Duchess* 84," the cow for which 1000 guineas was offered by Mr. Betts. This calf was bought by Mr. Rich, of Didmarton, Gloucestershire. The other was sold last week to Mr. Robarts, of Lillingstone Dayrell, Buckingham, calved 29th June last, and is named "DUKE OF TREGUNTER" (after an estate belonging to Captain Gunter). He is rich roan, and is by 3D DUKE OF WHARFEDALE from "*Duchess* 93."

THE GOLDEN SHORTHORNS.

"Eight out of the nine shorthorns of English blood, which 'Our American Cousins' and Mr. Strafford have just sold back to us in a Windsor hotel, averaged nearly 410*l.* a-piece." *Morning Paper.*

Mr. Strafford raised his time-glass,
And Thornton held the pen,
When to a Windsor coffee room
Flocked scores of Shorthorn men.

They crowded round the table,
They fairly blocked the door;—
He stood Champagne did Sheldon,
Of Geneva, Illinois.

They talked of Oxford heifers,
Duchess bulls, and how the States
Had come into the market
With another "Bit of Bates."

Their expression is so solemn,
And so earnest is their tone,
That nought would seem worth living for
But "Red and White and Roan."

All ready for the contest,
I view a dauntless three—
The Macintosh from Essex,
A canny chiel is he.

There's Leney from the hop yards;
'Twill be strange if he knocks under,
When once the chords are wakened
Of that Kentish "Son of Thunder."

The Talleyrand of "trainers"
Is their 'cute but modest foe,
Him whom the Gods call "Culshaw,"
And men on earth call "Joe."

He loves them "points all over,"
With bright dew on the nose;
And in his heart of hearts is writ,
"*A touch of Barmpton Rose.*"

And sure, it well might puzzle
"The Gentleman in Black,"
When the three nod on "by twenties,"
To know which you should back.

And sure, the laws of Nature
Must have burst each ancient bound,
When a yearling heifer fetches
More than seven hundred pound!

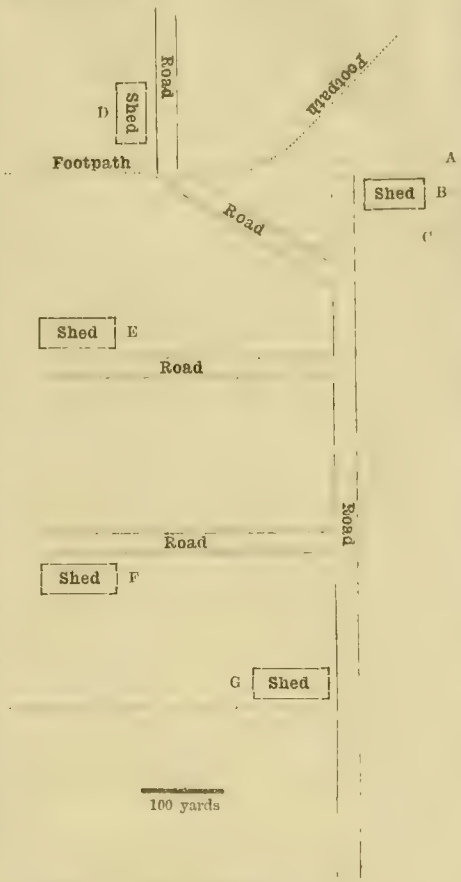
Bulls bring their weight in bullion,
And I guess we'll hear of more,
Arriving from the pastures
Of Geneva, Illinois. *Punch.*

THE CATTLE PLAGUE.

TO THE EDITOR OF THE "AGRICULTURAL GAZETTE."

SIR,—I have great pleasure in acceding to your request to send you a full account of the mode of treatment by which I consider that I arrested the spread of the rinderpest at the Lodge Farm, near Barking. And for the benefit of those of your readers who do not know anything of the particulars of the outbreak, I will precede my description of the treatment by a short account of the outbreak itself.

By the accompanying plan it will be seen that there were at the Lodge Farm seven sheds for cattle, and these sheds were lettered as I have lettered them upon the plan. Sheds A, B, and C, were at the homestead itself. Sheds D, E, and F, scattered at intervals of 220 to 250 yards, and shed G, upon the by-road leading up to the farm, had originally been placed there for use as a quarantine shed, in which animals freshly purchased might pass some time before being drafted into the other sheds.



After the second outbreak of rinderpest in the London dairies, which took place in the spring of the present year, and which was traced just as clearly as the original outbreak to importation from abroad, the disease gradually spread eastwards out of the metropolitan district, and the Lodge Farm had been in a "declared" district for some considerable time; the effect being that with a standard stock of 300 cows we were unable to move any fat cow out of the place alive, and in order to obtain something approaching to their real value, we were tempted to admit the butcher on the premises to select his cows and kill them, and take them away when it suited his convenience.

Of course it is hardly ever possible in such a case to be able to find any one fact or circumstance which affords positive and conclusive proof of the particular route by which the intangible seeds of infection are brought, and at that time not only was there a great deal of rinderpest, both acknowledged and unacknowledged, raging in and about London and its suburbs, but there were also many cases of foreign cattle exhibited in the metropolitan market suffering under decided and often, I am assured, even advanced symptoms of rinderpest, and it would have been almost impossible for a butcher frequenting the market to have avoided bringing away the infection in some form or another, even if he had never, either wittingly or unwittingly, purchased and slaughtered animals infected by rinderpest, or in which the symptoms had actually developed into disease. But there can be little doubt that the probabilities are strongly in favour of a butcher in the habit of purchasing stock on the east side of London, and frequenting the metropolitan market, having during those weeks slaughtered perhaps several animals, at all events infected, if not diseased, and in such a case the poleaxe especially would retain the infection, even did the man's clothes happen to be what a butcher's clothes never are—namely, clean. It may therefore be almost taken for granted that the butchers who came upon the farm were carrying about with them the seeds of infection wherever they went; and the mode in which the disease showed itself upon the farm, though not conclusive evidence that the infection was brought by the butchers, is yet most perfectly in accordance with this theory.

Sheds A and C (in the positions relatively to B indicated by the letters in the plan) contained 14 and 6 stalls respectively. Into these sheds the fat cows were gradually drafted, and it was these sheds that the butchers frequented, although they could not help passing shed B of 54 stalls, which was placed, as will be seen by reference to the plan, halfway between the two.

Where disease is not suspected, and when there is a difference of at most only a few hours, it is very difficult to be quite sure which cattle first show the symptoms of disease. In the present case there is no doubt whatever that the disease showed itself from the first in sheds A and C, and as far as I have been able, by many close cross-examinations of the men in charge, to ascertain, the contagion showed itself in those two sheds, a few hours at all events before symptoms of illness were detected in shed B. But no doubt among so large a number of cows as were then in shed B symptoms of disease might have been overlooked for some hours, and the disease may really and truly have broken out simultaneously in all three sheds; but even were this so, it would be no proof that the butchers had not been the distributors of the disease. If it had been possible to prove that the disease appeared first in only A and C, then the case would have been so clear, and the circumstantial evidence so strong, as hardly to admit of a doubt; but I confess that the evidence is nevertheless so strong that I for my part entertain no doubt that the butchers brought the disease.

The first symptoms of illness were detected on Friday, the 26th of July, in A, B, and C. The next appearance of the disease was in shed G, on Sunday evening, the 28th of July. The next attack was seen in shed F, in two cows, which were at once moved out and taken down to shed G. By this time several of the cows first attacked were very ill, and a veterinary surgeon had been called in, but he, as well as everybody on the farm, was misled by the similarity of the symptoms to a very strange and somewhat unaccountable attack which the cows in shed A had laboured under some six weeks previously. On that occasion, however, instead of the cows gradually showing symtoms of disease one after the other, they were all taken ill at once, or very nearly so, and the purging and other symptoms were much more violent, but the cows recovered in 48 hours and remained perfectly well. Still, the similarity of the symptoms was so great that no one suspected for a moment, on the second occasion, the presence of cattle plague. The first cow died on Tuesday, the 30th of July, in shed C. The second cow died the following day in shed G, and this cow was one of the two cows moved out from shed F, and was the most rapid case of all, only 36 hours elapsing between the detection of the attack and death.

The veterinary surgeon had by this time advised us to send for the butcher and have several of the cows killed, because he confessed himself unable to fathom the mystery which then appeared to surround the disease; and from that time forward cows were being killed continuously.

The manner in which the cows were taken ill successively, the similarity and violence of the symptoms, the assurance of the veterinary surgeon that the disease was not the rinderpest, and the concurrence in that opinion by the stock-keeper and every man best able to judge, induced me to imagine that it might be poison, either administered unintentionally or intentionally in the food, and so strongly did all the facts of the case appear to point in that direction that on Wednesday, July 31, I had the inside of one of the most diseased cows packed up in two large tins and sent to the Royal Veterinary College for analysis. But the whole aspect of the affair was now so serious that Professor Brown, of the Veterinary Department of the Privy Council, was called in on the 1st of August. He examined a large number of the cows, especially in sheds A and C, where the worst cases were. He then proceeded to a field where one of the two cows was being buried, and made a *post mortem* examination, and he told us that although it might be just possible that the disease was not the rinderpest, yet that he had very little expectation to the contrary, and he was then kind enough to give us what was really quite a dissertation on cattle plague. He explained, as far as science had been able to discover it, the action of the disease, pointing out at the same time the reasons of the very great difficulty which must attend any attempt to cure it. In the *post mortem* examination he showed us that the third stomach appeared to have lost its power of grinding the food, that the food lay very much as it had been swallowed, that the intestines were in places very much inflamed. He said that such symptoms might occasionally be found arising from other causes, but that in true rinderpest the food lying in the third stomach for several days together undigested began to putrefy, and that the putrefaction of the food produced inflammation of the intestines and a sort of putrefaction of the mucous membrane of the animal; hence the sickening and revolting stench, hence also the ulcers which appeared in later stages of the disease in the animals' mouths; and he said that he had on the present occasion detected every symptom of rinderpest except this last one, that certain cows in sheds A and C were so ill that if the disease was rinderpest they could not fail to exhibit ulceration of the mouth on the following day, and that, although that again was not in itself, and by itself, a certain and never-failing sign of the rinderpest, yet that the concurrence of all the symptoms already apparent, together with the ulceration of the mouth, would not be susceptible of explanation upon any other theory whatever. That in fact there was no single and never-failing test for rinderpest, its presence could only be detected by the concurrence of known symptoms, *any* of which might be produced by different maladies, and *several* of which, perhaps, might be detected in the same animal, arising from a totally different cause, but *all* of which together could never exist except in a case of genuine rinderpest.

The following day, viz., the 2d of August, when he returned to the farm, he found, as he dreaded, that the last remaining chance had gone, and that ulceration in the mouth had set in, in the case of several of the cows. He, therefore, unhesitatingly pronounced it genuine rinderpest, and sent for the inspector. The inspector agreed with him at once, and indeed there was then no room for any doubt, and the dreary work of slaughtering and grave-digging commenced.

I may here briefly recapitulate what the symptoms of rinderpest are. First, rise in internal temperature—and this symptom may be detected two or even three days before any other, and in the case of cows it is very easy of detection. The next symptom, in the case of cows,

is sudden and complete stoppage of the secretion of milk, and, in the case of both cows and oxen, loss of appetite, loss of the power of chewing the cud, running at the eyes and mouth, generally a slight cough, great heaving at the sides and disinclination or even inability to stand, with a staggering drunken appearance when standing; laying out the head when lying down and resting the chin on the manger or on the ground, with a great appearance of distress, pain, and uneasiness; drooping and flopping of the ears, violent purging with brownish evacuation, degenerating into a bloody mucous discharge, disgusting stench of the breath and evacuations, unnaturally inflamed appearance, in cows, of the vagina with a sort of chocolate and pink streaks; exceeding weakness, slowness, and irregularity of the pulse; external cold, varied by alternations of warmth and even heat; lastly, ulceration of the mouth and throat, and throughout a steadily increasing difficulty in breathing.

This is the genuine rinderpest, and a most terrible disease to witness. The stench of the animals is most sickening and loathsome, and their melancholy, hopeless, dejected appearance, in many cases accompanied by a low moaning, is a most painful and distressing sight, and one which I sincerely trust I may never see again; and the silent and stealthy manner in which the disease makes its ravages, proceeding onward from stall to stall and shed to shed, neither slackening nor hastening its pace, but always gaining ground, seems to clothe it with a malignant individuality, which I can well believe must often paralyse the action of the ignorant and superstitious; for although, whatever may be my sins of ignorance I cannot plead guilty to much superstition, yet I felt, in the efforts which I subsequently made to arrest the progress of the disease, as if I were struggling hand to hand with a personal principle of evil; and the hourly report of beast after beast being stricken down by this mysterious malady, and the continual slaughter of the animals, and digging of graves, by night as well as by day, were indeed almost enough to deprive one of action, and make one give up the combat as too unequal.

I felt it necessary, however, to make an exertion and shake off such feelings of despondency, and by at once commencing a course of vigorous action to rekindle hopes of effecting some good both in my own mind and among the men. I therefore sent off every available horse and cart for lime, and sent to all the chemists I could think of for chloride of lime and carbolic acid, and then I set to work to check as far as possible the further re-infection of the different sheds; for, as Prof. Brown truly said, since the disease had actually been raging for a week before it was recognised, the infection must have existed on the farm for more than a fortnight; and as during all this time no extra precautions of any kind had been taken, all the sheds must have already been thoroughly infected; and so convinced was he of this, and so many disappointments in attempts to save stock had he been witness to, that he repeatedly said that in his opinion nothing in the world could possibly save a single beast on the whole farm. Nevertheless, remembering my family motto, *Spes tamen infracta*, I thought that while there was life there was hope, and determined to do more than anybody had ever done before. Where one man had used a hundredweight of quicklime I determined to use a ton, and where one man had used a pint of carbolic acid I resolved to expend a gallon, so that if by the employment of any known disinfectant or antiseptic agents the course of the disease could by any possibility be checked, it should be; and of course one of the first steps to such a desirable result was to prevent what I have termed the re-infection of the sheds, for to deal with the undeveloped germs of the disease in infected, but not actually diseased, animals would clearly be much facilitated if there were no fresh seeds of infection continually being brought into the sheds.

The first thing therefore that I did was to make use of all the means at my immediate disposal, and the only substance I had at hand to deal with in any large quantity was lime. This I slaked in small pyramids in the centres of the sheds. I also laid trains of it outside the sheds underneath the ventilators, and then slaked it. This I have no doubt, especially in those sheds where there was as yet no actual diseased animals, was very benefical. I also smothered the roadways and paths at different points in layers of quicklime, 3 or 4 inches deep, selecting places where ditches or palings or other obstructions on either side would compel every vehicle and foot-passenger, or dog or other living thing, to pass through the bed of lime, and having done what I could for the moment, I then withdrew for some hours, and deeply studied and pondered over Mr. Crookes' invaluable pamphlet. It so happened that by the merest accident I had some knowledge of the nature and properties of carbolic acid, and was not altogether surprised at the great confidence which Mr. Crookes put in its powers, or at the great results which he achieved. I would strongly recommend any of your readers who may wish really to understand the question, and to arrive at some faint idea of the principles of infection, to study, as I did, this pamphlet; for I think I have never met with any treatise in any language so carefully and impartially written, or with any series of experiments so ably and successfully conducted, and I think that, having done so, your readers will agree with me that there is little doubt, especially after the result of the experiment with the healthy ox placed in a small shed on Mr. Daniel's farm, in actual contact with a succession of diseased animals which were allowed to die in the shed, that Mr. Crookes has proved carbolic acid to be as nearly an absolute and complete specific against the infection of the rinderpest—and, I have little doubt, of all other organic poisons and infections—as it is possible to imagine any chemical agent can be. However, from what Prof. Brown had explained to me of the action of this contagious poison after it had once begun to operate upon the system, and from the very great difficulty which unfortunately exists in operating on the third stomach of bovine animals, as they cannot be made to vomit, and as no injection will pass upwards beyond the fourth stomach, it seemed to me somewhat doubtful whether, when the disease had once set in, the animal could be cured solely by carbolic acid, as, even if that agent neutralised the poison of the rinderpest, and stopped the further development of the infection in the system of the animal, the latter might nevertheless die from some diseased action set up in its system by some secondary cause. No doubt Mr. Crookes' experiments on Mr. Dutton's farm by the injection of carbolic acid into the blood of the animals were most remarkable, and it is possible that in the great majority of cases such an operation, if skilfully performed, with a quantity of carbolic acid exactly suited to the strength or weakness of the animal's constitution, might have complete success; but I conceive that these experiments of Mr. Crookes by injection are not by themselves quite conclusive, and I confess I was a little nervous about performing so delicate an operation. Moreover, for several days I could not procure a sufficent supply of even tolerably pure carbolic acid, such is the shameless system of adulteration practised by the majority of our chemists, who in this particular only follow what has, I fear, now become the common rule among British manufacturers and shopkeepers.

Not being able then at first to procure enough carbolic acid for the whole of the sheds, or indeed anything else except quicklime, I resolved to concentrate my energies upon the two sheds lettered E and F, and to take them into my especial and sole charge. In addition to quicklime inside and outside of those sheds, I placed a belt of quicklime of about 20 feet in width, 3 or 4 inches deep, across each of the roads leading to the sheds and removed from their doors some 30 or 40 feet. I also placed similar belts, but rather wider, at the entrance gateways leading from the principal farm road, and I suffered no one on any pretence whatever to pass inwards over the second belt of lime, and the men in the sheds were only suffered to pass outwards when they carried out and deposited the milk which was afterwards fetched away, or when they went out to carry in their food, which had been previously deposited outside those belts; the Grass for the cows being brought by hired horses and carts, which were kept when not in work at the extremity of the farm farthest from the homestead. I also used in the sheds as much chloride of lime as I could procure, some 6 or 7 cwt. in all.

Among the great number of other cases of real and supposed cures of rinderpest, of which he had more or less knowledge, Prof. Brown told me of a case of 20 cattle imported from abroad with symptoms of rinderpest, the importer of which, averse to the poleaxe, attempted to cure them, and did so by simply feeding them upon nothing but liquid food, and that in moderate quantities. Out of 20, he saved no less than 13. This, too, the Commissioners state, was the only useful part of Mr. Worms' treatment, and in view of the complete suspension of the functions of the third stomach, it appeared to be logical and sound, as, at all events, if adopted before the disease had actually manifested itself, it is quite clear that the great secondary cause of death, namely, putrefaction of the food in the third stomach, would be removed, and therefore the animal could not die in the same manner as it would otherwise do in the ordinary course of rinderpest.

Whether this treatment of a purely liquid diet could have much effect after the disease had actually manifested itself, is another question, and perhaps may depend in some degree upon what it would be very difficult to determine, namely, the precise stage at which this stagnation of the third stomach sets in. Whatever might be the advantages to be derived from this system, I determined that, in the absence of sufficient carbolic acid, the stock in sheds E and F should receive its benefit, and I therefore for some two days deprived them of all solid food; and as Prof. Brown explained to me that, in the high state of internal fever induced by rinderpest, the action of the system upon ordinary gruel, containing the grit of the meal of which it was made, would be to absorb the moisture and leave a hard cake or ball of dry meal in the stomach, I had all the gruel that I made (and I had several people doing nothing for several days but making gruel) strained through fine muslin, and the meal that I used was from Linseed and Barley. Prof. Brown also suggested, and I believe it was a most valuable suggestion, the addition of an ounce of sulphite or hyposulphite of soda to each portion of gruel, to stimulate the action of the glands and of the cud-chewing apparatus; and in order to keep up their strength and in desperation at the non-arrival of a sufficient supply of carbolic acid, I gave the animals each day for the first three days a couple of quarts of beer with a large dose of quinine or salicine dissolved in it. I also gave them at a different time of day 50 drops of the homœopathic tincture of arsenic. But the quinine and arsenic I looked upon as merely a sort of fancy stopgaps pending the arrival of pure carbolic acid. This I was first able to procure in limited quantities (pints and half pints, which among 111 cows were mere drops) by emptying divers chemists' shops in London of the solid white carbolic acid manufactured by F. C. Calvert & Co., of Manchester, and this is certainly the purest carbolic acid known in commerce, and it is the only carbolic acid which I should care to take or to administer to any other human being internally, but then it is very expensive, and for cattle it is unnecessarily refined.

Prof. Brown had informed me that a practically though not chemically pure carbolic acid was manufactured by Messrs. Low & Son, and sold at the moderate price of 3*s*. 6*d*. a gallon; and I had at once telegraphed for a cask of this, with directions that it should be forwarded, regardless of expense, by the most rapid route, and by passenger train, marked "urgent," "immediate," and so forth. The Messrs. Low despatched it most promptly, but owing to that invariable railway mismanagement for which England has now become so celebrated and pre-eminent, the cask remained four days in London before it was forwarded to Barking. When it arrived I felt comparatively easy in my mind, but until it did arrive, and while I was emptying one chemist's shop after another of their wretched stores of weak black adulterated stuff at 5*s*. a gallon and upwards, and still unable to procure any quantity at all commensurate with the necessities of the case, I was, as may be imagined, in no very comfortable frame of mind.

To return, however, to the progress of the disease. Matters continued in the state which I have described until the 14th of August. The cows in sheds A, B, C, and G, continued to manifest one after the other symptoms of the disease, and were being killed as rapidly as the butchers could perform their work, some of them being buried as unfit for human food, others being sent up to town by the inspector as healthy meat, to be sold for the benefit of the county. On the morning of Wednesday, the 14th August, I was nearly driven to depair by finding that one cow in shed E was stricken down, and getting the news simultaneously that six cows were attacked in shed D. The cow in shed E was exceedingly ill. She was lying down, apparently unable to get up, with her chin on the manger, ears flopping, eyes and nose discharging, sides heaving, great appearance of distress and dejection, as well as pain and suffering, pulse feeble and irregular, body cold; her milk had completely stopped, she had lost her appetite and power of chewing the cud, and purging had already set in, the evacuations having the same colour and consistency as in the other cases, and both evacuations and breath having the same unmistakable and offensive stench, the vagina also presenting the same appearance of inflammation and discoloration. She was about the middle of one division of the shed, with cows almost touching her on each side, and I confess when I found her so ill I began to think that there was no chance of saving any of them. For some few minutes I could do nothing but watch her with dismay. However, I felt that if any of the other cows were to be saved at all I must take some very prompt and very strong measures. As I have already stated, I had got supplies of carbolic acid from a great number of different chemist's shops, and although all that I had been able to purchase, with the exception of that manufactured by Calvert & Co., of Manchester, had been more or less impure and adulterated, yet there were different degrees of impurity, and the last supply that I had been using had been unusually weak and of a strong black colour; what I then had at hand was of the same black colour, and I imagined that it would be probably of about the same strength, but in this I was mistaken. With all its bad colour and want of refining it was in reality not much weaker than that of Low. Being ignorant of this I used it as though it had been as weak as the former supply, and I believe that it was this mistake on my part which in a great measure enabled me in that particular case to stay the plague. It was so discoloured that I did not venture to use it internally, but I soused not only the sick cow but all those next to her with a solution of this black stuff in the proportion of 8 or 10 of water to 1 of acid, perhaps even stronger, for I was both hurried and desperate. I dashed it from buckets right over the animal's backs, from the tails onwards towards the horns and over the back of the head, so that their hides were saturated, and dripping down in every direction. So strong was the solution, and so liberal the dose, that some of the animals were burned very severely, and show the marks strongly still, but it is worthy of remark, that the sick cow, although she received much heavier sousings than the others, was not burned except in one place, and that only slightly. She may have had an accidentally thick hide, but it looks as if the poison, being so much stronger and more active in her system than in the others, had absorbed and neutralised the antidote. Previous to doing this to the sick cow, which was of course the first one which I operated upon, I had her forced to stand up, and she was so ill that this was no easy matter, and it took a great deal of kicking and punching to get her upon her legs, and then she staggered about as if she was drunk, but at the first sousing with carbolic acid she shivered violently, and from that moment her eye brightened, and she appeared better. This sousing I repeated three times, and, after flooding the place with carbolic acid, and squirting it with a fine garden syringe against the walls and roof, and all through the atmosphere of the shed, I had the sick cow, who was then able to walk, though with difficulty, driven down to shed G. This shed had been emptied 36 hours before, and I had had it then carefully shut, all the crevices being stuffed with hay, when it was thoroughly fumigated with sulphur, the doors and ventilators remaining shut. I then continued scouring out shed E, and destroying all possible seeds of infection. Every cow's tail (and this operation I had commenced some days previously) was dipped into a bucket of carbolic acid and water. Their heads and noses were dabbed over with it, also their sides and flanks. All the manure and litter from the sick cow's stall, as well as from the adjoining ones, was taken out at once and the floor thoroughly cleansed and saturated with carbolic acid, and on the suggestion of Prof. Brown I had four days previously commenced the use of sawdust saturated with carbolic acid, one or two shovelfuls of which were placed every day underneath the cows' head. This operation was also repeated in each stall, and the cows were then drenched with gruel and sulphite of soda.

Fortunately the cask of carbolic acid from Low & Sons, of Manchester, now arrived, and I at once had a dose of three teaspoonsful in a drenching-bottle of water administered to the sick cow.

I then went to examine the six cows reported to be ill in shed D. I found the report was only too correct; the symptoms were unmistakable; for although it may often be exceedingly difficult for even the most experienced surgeon to decide whether or not one isolated case on a farm is or is not cattle plague, yet when the plague is raging on a farm, the eye becomes so accustomed to the symptoms, and, I might add also, the nose to the stench, that it is impossible to make a mistake; and in this I think most persons who have had much experience of the disease will bear me out.

My first impulse, and I regret now exceedingly that I had not obeyed it, was at once to drive down those six animals to the homestead among those which were being slaughtered, and then to follow the course which I had followed in shed E; but I was deterred by a dread of offending the "local authority" (a weakness I now confess with shame), and I therefore determined to wait until the Inspector arrived. The Inspector came an hour or two afterwards, and he was unwilling to admit that the symptoms were real cattle plague. One cow in this shed had been choked a few days before by careless drenching ,and he thought that these six were suffering merely from the same carelessness; and as, according to his interpretation of the Orders in Council, the recognition of rinderpest in these six would have necessitated the slaughter of all the cows in the shed, he was perhaps only doing his duty to the county by postponing giving a decided opinion. In the afternoon, however, when Prof. Brown arrived, they both visited the shed, and the symptoms by that time had become so much worse and unmistakable, that the shed was ordered to be emptied, and orders were given to drive the cows down to the homestead and kill them as rapidly as possible.

This annoyed me exceedingly; for, first, it was a proof that I was right when I had in the morning pronounced the cases to be rinderpest, and therefore that the six cows attacked ought to have been isolated at once; secondly, the carbolic acid from Manchester having by this time arrived, in what was practically an unlimited quantity, I felt that the means at my command were now equal to the emergency, and that I could have saved, if not the six diseased cows, at all events all of the others. This shed, moreover, happened to contain the two finest cows upon the farm —both of them very large animals, perfect pictures in their way. One, a fine aristocratic looking animal, with regular and prettily turned horns, roan head, white body, back as straight as if it had been levelled with a spirit level, splendid "bag," perfectly "put on," with legs of unusual fineness for a Shorthorn. The other, a still larger cow, of extraordinary depth and great size, spotted red, with rather curiously curled horns, one pointing up, the other down, and an impatient eye. The notion that all these cows were being taken away to be killed while as yet quite healthy, and when I felt I had the means of saving them in my possession, so irritated me, that at length I resolved that the two cows above described should not be killed. This resolution I imparted to some of the people on the farm, whose names I will suppress, in case Policeman X should still be instructed to vindicate the majesty of the law. I need not say that my resolution was well received, and that I was ably assisted in my efforts. An opportunity was made to offer itself the following morning for conveying the inspector to the railway just in time to catch a train to London, that he might proceed by it to make his report to the Privy Council. I accompanied him on other business, and we had a great deal of agreeable and instructive conversation on our journey. During his absence the very active, but perhaps over-suspicious police officer in charge of the farm was put upon a wrong scent. His suspicious nature was played upon. In other words he was gammoned, and while he was very active in one direction my able assistants were very active in another, and the result was that the two cows were transferred to shed G.

But now I must go back a little and explain their movements since the time that they had been driven out of shed D. They were driven into the homestead, galloping about as fresh and spirited as possible through the blood of the slaughtered animals and the evacuations of diseased animals in all stages, and they were first shut up in shed B, in which some of the worst cases of plague had occurred, and in which, despite my efforts to the contrary, there was at that time a strong smell of the disease, and from there they were transferred on some pretext or other to shed C, so as to be more handy, and this shed had been literally saturated with infection. Meanwhile I took out two scraggy animals from shed F, and placed them beside the sick cow from E in G, pretending that I was a little doubtful about them, but refusing to allow the inspector to examine them, for fear of his carrying the infection to them, and these animals were exchanged for the two infected ones, whose lives I determined to save, in order that the number of animals at the homestead might be the same. Before I took these last two animals out of shed F and placed them in shed G, Prof. Brown and the inspector visited the sick cow that I had already placed there. They found her internal temperature to be considerably raised, and shook their heads, saying that she was sure to die. The two cows from D I treated in the same way as the sick one from E, except that instead of giving them three teaspoonsful of carbolic acid at a time, I only gave them two. I deprived all three animals of solid food, giving them beer and gruel as their only food, and carbolic acid and sulphite of soda as their only medicine. Their tails were constantly dipped in carbolic acid, and their heads and faces dabbed over with it. The floor was continually cleansed and sluiced with carbolic acid, and the walls, outside and inside, as well as the roof, were continually syringed with carbolic acid. At the end of two days I permitted the two cows from D to receive a little Grass, and gradually to resume a Grass diet, leaving off the gruel and beer, but continuing the carbolic acid and sulphite of soda. The sick cow I kept on liquid food for 10 days, varying the gruel with Turnip and hay tea. After she had been 24 hours in G it was, however, quite clear that the disease was completely checked; and she had indeed mended steadily from the time that I soused her with carbolic acid in shed E.

I have now no further case to report. All the companions of those two cows from shed D were slaughtered, and none of the other cows in either E or F manifested any signs of the disease. They resumed their ordinary diet of Grass, and the only treatment was an ounce of sulphite of soda a-day, gradually diminished to every second day until stopped at the end of a fortnight. But the same attention was paid to scrupulous cleanliness and incessant washings and syringings with carbolic acid, in particular the tails being dipped in it, and heads and faces being dabbed with it regularly three times a day, besides once or twice at odd times if the weather was close, or if from any cause the ventilation did not seem good. This attention to cleanliness and this lavish use of carbolic acid was kept up until the expiration of the official 28 days, when the inspector returned, and went through the sheds and gave an official certificate that the whole of the premises were free from infection, and all the cows, including the cow attacked in shed E, and the two smuggled out from shed D, were healthy. I may add, that these three cows are not only healthy at this moment, but that they are in rather better condition than any of the other cows.

I ought to mention that on one occasion, while sheds A, B, C, and G, were still occupied by diseased animals and full of infection, a very strong violent wind set in, and blew straight from C down upon E, so strongly and so directly, that standing outside shed E I could smell the cows at shed G. I thereupon kindled an immense fire with a quantity of large baker's faggots and half a ton of coal at a short distance from shed E, in the direction of shed G, and upon this I every now and then threw a little sulphur; hardly, however, had I got this fire in full operation, when the wind began to change and rapidly veered round, and blew with the same violence in a straight line from the homestead—the head centre of infection. Thereupon I lit a second fire, the same as the first, and as the wind lasted for some 36 hours with greater or less strength, and with repeated fluctuations from the one infected quarter to the other, I kept up these fires and had them alternately stirred up and supplied with sulphur. I may mention also, that before the arrival of the carbolic acid from Manchester, I supplemented the small quantities that I was able to procure by a strongly disinfectant paint, containing a considerable percentage of carbolic acid, and a small stock of which happened to have been sent to the farm after the false alarm of rinderpest which had frightened us six weeks before the real attack. With this paint I painted patches of the boarding of the sheds near the cows' faces, putting it on very thickly, and letting it drop about; and with this paint I also painted patches of the paling round the bull's shed, and this for the first week was all the treatment that I was able to give the animal. After that, however, I gave him a few doses of carbolic acid, and had him externally syringed and washed with carbolic acid. His immunity from disease was highly satisfactory, inasmuch as though he was not in actual contact with disease, and although his shed was to a certain extent screened from the direct action of the wind blowing over the rest of the homestead, by the walls and roof of the other buildings, he being outside the homestead, yet he was only at a distance of some 20 yards from the spot where most of the animals were buried. He was, however, on what was generally the windward side.

The result, then, may be summed up as follows:— Of the 58 cows in shed F, and 53 in shed E, that I took the entire charge of and treated as described, I did not lose one, but sacrificed two of the 58 to the poleaxe in order to smuggle out the two from shed D, leaving 109 of those that I originally took charge of, and two which had been condemned to death, which had been in actual contact with diseased animals in every stage of the disease, in no less than three infected, and highly infected sheds, viz., D, B, and C, and which were even placed beside a diseased animal in a shed which had only been emptied of diseased animals suffering from the most virulent type of the disease for a couple of days, and had only been disinfected for 36 hours. These two animals bring up my total to the original 111 of which I took charge, and to these must be added the bull, saved partly from being in a comparatively advantageous situation, and partly from being surrounded by a paling dabbed over with patches of a disinfectant paint containing carbolic acid, but chiefly by the internal doses and external washings of carbolic acid. Of the remainder of the stock the rinderpest killed 14 cows* and 2 calves, and the poleaxe set in motion by the Orders in Council killed 111 cows.

I have now finished my story, and so far as I am aware there is no inaccuracy in any of the statements made with regard to the occurrences which took place at the farm. Where I have ventured to touch upon scientific ground I have also done my best to be as accurate as a layman can be in speaking of professional matters, and I thought that it would be much more satisfactory to your readers to receive my own narrative of what took place, and an account in my own words, from my own recollections, of Prof. Brown's explanation of the nature and action of the rinderpest, than to be told that I had first submitted it to him for correction. Had I done so, he might have been open to the charge of having made his theories to fit my treatment, after the latter had been successful, whereas my treatment was based upon his theories, and upon the experiments of Mr. Crookes. It will be seen that I have discovered nothing, and done nothing which was in itself new; and yet that the results of my treatment were, so far as I know, quite unprecedented, and the explanation of this is, I am inclined to think, two-fold. First, any non-professional man who carefully studies the reports to the Cattle Plague Commissioners from the various scientific gentlemen to whom they delegated different branches of their inquiry will, I think, agree with me that, as a rule, those gentlemen concentrated their attention too much, as it was perhaps only natural they should, upon their own special department, and to some extent lost sight of the great end and object of the Commission, namely, to cure the disease; and it did not seem, so far as I can discover, to have been the duty of any one man continually to make comparisons between the different observations being taken for special objects, and the various theories being formed, in different parts of the country, and from such comparisons to carry on a fresh series of experiments with a wider and more general object. The effect, as it appears to me, was to collect a vast amount of most accurate and valuable information, more copious and more accurate than probably now exists in any other country, without giving the public any practical result, for the poleaxe is no new discovery, and it is impossible to believe that no more intelligent cure could have been devised by the collective science of so many eminent men, if there had been somewhat more of a system in their researches. And if there had been one central medical authority, whose duty it had been to follow out every clue that was obtained by any of the "specialists," surely the experiments of Mr. Crookes would not have been allowed to remain where they did, but would have been followed up until such decided results had been obtained that carbolic acid would have taken the place of the poleaxe. And had such experiments been perseveringly carried out the combined treatment which I adopted could hardly have failed to suggest itself.

But there may also be another reason why no practical fruits came from the protracted and searching investigations of the Commission, and that is, that by the time that all the information which they published had been collected and classified the cattle plague had very greatly diminished, was still rapidly diminishing, and very shortly afterwards was killed out. Therefore there were no longer so many opportunities, nor was there the same urgent necessity for endeavouring to extract a practical result from the knowledge gained. Now, however, that we are in the possession of all the mass of information published by the Commission, and that we see how that information was turned to practical account at Lodge Farm, surely it is time to abolish the poleaxe. That instrument has done its work, and done it very well. Without it the losses to the British farmer would have been very greatly increased. But do not let us fall into any error with regard to it. It is, at best, only an avowal, and a very frank one, of ignorance. It may have been, for a time, the best cure for the rinderpest, because the only one at our disposal, but it cannot be the true cure for the rinderpest, or any other disease. This I have always felt very strongly, and I have also felt the fullest confidence that no contagious or infectious disease, whether in man or beast, can ever be incurable, that is positively incurable. As long as it is unknown, or little known, it may, and perhaps must be, comparatively incurable, but with the vast and constantly increasing number of chemical agents at our disposal, the curing of a contagious or infectious disease can only be a question of time, patience, and experiment, and I confess, from the results of Mr. Crookes' experiments, and my own experience, with carbolic acid, I am inclined to think that that agent, when pure, would prove, when combined with other active and rational treatment, if not a specific, at least very beneficial, in the case of all infectious and contagious disorders, whether in man or beast. But this is perhaps a little beside the mark. What I am anxious now to suggest is, the substitution of carbolic acid for the poleaxe, and I would strongly urge that every Government inspector be furnished with a large supply of reasonably pure carbolic acid, and that whenever he is summoned to a case of rinderpest, or suspected rinderpest, he should at once take with him his whole stock of this invaluable agent, and send off for a fresh supply; for we must remember, that in attempting to stay so dire a scourge as the rinderpest, we must proportion our means to the end in view.

It is of no use to play with a few drops of carbolic acid, it must be used by the gallon, everything must be covered with it, including both men and beasts. And in my judgment the cattle, if grazing on pastures, should at once be shut up in sheds, as they can be kept much more thoroughly and continuously disinfected in a shed than in a field.

But it is not sufficient that the inspector should pay a visit, say in the morning, and order the shed to be disinfected, the animals to be drenched, &c., and then go off upon his ordinary business. First, there is a positive and very great danger in the practice, inasmuch as he may carry the infection to other farms; secondly, he will generally have to do with men labouring under excitement and consequently confused, and with a class of mind which is often very inexact, and with men who in their daily work are seldom required to be very exact, and who are accustomed to use such phrases as "that will do very well," as an excuse to

* These were not all allowed actually to die; the sufferings of some were cut short, but they were all buried, and were all in so advanced a stage of the disease that it would have been hopeless to attempt to save their lives.

themselves or others for inaccurate work. Consequently, the inspector should see that every corner of the sheds is thoroughly disinfected, that every animal is well washed with the acid, and that every animal receives its proper doses, and no more, and also that the liquid diet is persevered in for a sufficient time, and during that time scrupulously adhered to. In short, the inspector should, as I did, abandon himself to his work and stick to it until he has completed the cure, otherwise the men will break through the liquid diet, because "they did not think that just a little bit of hay would do much harm." They will allow the evacuations to remain undisinfected, because "they intended to do it when they finished something else." They will allow the animals to remain unsprinkled because "they thought they would not disturb them just yet." Visitors will be allowed to come straight from the animals most highly diseased and perhaps dead among those animals which are being treated, "because they just wanted to see so and so, and were only going to stay a few minutes," and so on. But let the inspector arrive with his carbolic acid, sulphur, sulphite of soda, and appliances for straining gruel, proclaim a state of siege, and make himself dictator; and if he does this, and acts with sufficient energy and violence—so to say—disappointment can no longer follow attempts to cure the cattle plague, and as the quantities of carbolic acid used should be large, so should the use of sulphur for fumigation where possible, and quicklime for smothering the roadways and paths, be lavish. It is of no use to sprinkle once in a way a few shovelfuls of quicklime, it must be used by the ton, and renewed when necessary. It was to the violence with which I attacked the disease, and the unsparing hand with which I used the lime, sulphur, and carbolic acid, that the great success of my treatment was owing. As one of the men expressed it, the rinderpest "hadn't a chance," and that was exactly what I was determined not to give it. Had I simply followed the liquid diet treatment, combined with the sulphite of soda, and carbolic acid internally, and in moderate and usual quantities externally, I entertain little doubt that I should have saved the greater number of the cows, but I also believe that I should have lost many, and that most of them would have been seriously ill; whereas by adding to these the fumigations with sulphur whenever practicable, deluging with carbolic acid in unusual quantities everything which was or had been near any of the animals, perpetually syringing the sheds, and washing the animals with it, and surrounding all the sheds, and smothering all the roads and paths with quicklime, the rinderpest, as the man said, literally "hadn't a chance." Yet the cost of the chemical agents thus used in practically unlimited quantities, and the use of which, in diminishing quantities, I kept up for 28 days, only amounts to an insignificant percentage of the loss on each animal cured by the poleaxe and sold to the butcher at the lowest price of the day, "sinking the offal."

Surely, then, the time has come for abolishing a system which avowedly, and according to its own most earnest supporters, could only be a temporary stopgap remedy, pending the discovery of a proper and logical system of treatment. The report of the Commissioners, dated May, 1866, in which they so strongly urge the use of the poleaxe, is before me as I write; and I confess that I am not a little astonished to find that instead of attempting, from all the experiments made, and all the knowledge acquired in different parts of the country by their own agents, to construct a consistent and logical system of treatment from the isolated facts and partial successes thus placed before them, they discuss each case and each fact, and each partial success in an isolated, detached, and fragmentary manner, as if they had no other results to compare with it. As I have already said, liquid diet by itself, or sulphite of soda by itself, or sulphur fumigation by itself, or carbolic acid internally by itself, or externally by itself, or chloride of lime by itself, or quicklime by itself, would probably only have produced a partial result; but where the one treatment does not in any way interfere with the other, what so simple, and I may say so obvious, as to combine different agencies? Of course it requires some little concentration of thought to systemise, organise, and carry out such a treatment, but after all there is no great difficulty. The truth is, I presume, that as I said when I first made public the results of my experience, with me it was a necessity to cure the cattle plague—a practical matter of business which I felt I had to do: so I did it. Whereas, with the Commissioners it was a scientific inquiry which they pursued in a critical, I may say hypercritical spirit, thinking, not how they were to save the lives of certain individual animals of which they had charge, but how they were to classify and analyse the statistics and evidence laid before them. In addition to this disadvantageous point of departure, they doubtless laboured under the disadvantages which attend any body of men acting collectively, whether it be the Board of Admiralty or the Board of the Brighton Railway.

It seems to me that an inquiry of this nature is essentially one to be conducted by a single individual, and not by a Commission; and that in the nature of things it is almost impossible that a Commission can, in such matters, ever arrive at any practical result at all. They direct certain inquiries to be made in certain directions, and when they have got the answers to those inquiries they set to work to classify the information, and write a *précis* and critique of the evidence submitted to them. But this is not the way to cure a disease.

The Commissioners admit partial success from the experiments in the injection of carbolic acid by Mr. Crookes; but add that "the results were not decisive." They admit 73 per cent. of recoveries, at Edinburgh, among cattle fed on "mashed food," and confess that if this result could be depended upon, "the cattle plague would lose its terrors;" but they add that "the number of cases" (95) "is far too small to serve as a basis of calculation." In this remark, however, most people will, I think, disagree with them. They further admit that Mr. Crookes' experiments in the use of disinfectants were "careful and searching," and "the general result . . . certainly very encouraging;" and add that "no one can peruse the account of what has been done without saying that a fair case has been made out for a large and systematic trial of those measures. They must, however, be fairly tried; they must be used with perseverance and energy; not grudgingly and insufficiently, as has sometimes been the case, but with the determination to keep the disinfectant in the presence of the poison everywhere and constantly, so that every particle of virus may be, without fail, subjected to its action." Exactly so. Then perhaps I may be pardoned the inquiry—Why, in the name of common sense, did these men, with these results before them, and holding these opinions, and with practically unlimited means at their command, not display the "perseverance and energy" which they recommend to others? and why do they then go on to stultify their own statements by insisting so strongly upon the slaughter of all infected animals? With unlimited means at their disposal, with the weekly report of some thousands of cattle attacked by the disease, costing the country weekly tens of thousands of pounds, and annually millions, why did these Commissioners, to whom the country had entrusted the conduct of so important an inquiry, and whose dicta Parliament was willing to accept—why did they not follow up the clue that they thus confess they had obtained to the end placed before them, namely, a cure for the plague? Why did they not, "perseveringly and energetically," conduct a series of experiments in different parts of the country; some with liquid or "mashed" food alone; some with the injection of carbolic acid alone; some with carbolic acid administered by the mouth, and in copious washings; some by a combination of two of these, and some, again, by a combination of all three? This would have been "persevering and energetic." I ask, therefore, why the Commissioners did not follow their own recommendations? And I think the public have a right to receive an answer to so important a question.

Here it may not be amiss to ask another question, and that is, Who wrote the report of the Commissioners, and who drafted the formal resolutions in favour of slaughtering, which stultified their former recommendations of "persevering and energetic" use of carbolic acid? Of course such men as Lord Spencer, Lord Cranborne, and Mr. Lowe, however useful they might be in taking a general supervision of the conduct of the inquiry, did not, with their own hands, write the report; and I think the public, who paid for it, have a right to know who it was that did write the report; and the public, who have smarted for it, have a right to know who it was that drafted the resolutions in favour of slaughter. I confess that after reading Mr. Crookes' exhaustive treatise, and after my own experience with carbolic acid, and liquid food, and quicklime and sulphur fumigations, and "perseverance and energy," I have read the report of the Commissioners with absolute amazement. In speaking of the "mashed food" diet, they truly say, that if the recoveries from such a system were always to be in the ratio of 73 per cent. "the cattle plague would lose its terrors." Surely, then, it was their simple and obvious duty to endeavour, by that "perseverance and energy" which they vaguely recommend to others, to deprive the plague of its terrors, and not to increase those terrors by their resolutions in favour of slaughtering. Holding the opinions to which he confesses, one is tempted to believe that the writer of the report wished, for some purpose of his own, to increase the terrors of the cattle plague.

Perhaps I may be allowed here to call attention to the very insufficient measures enforced against railroad and steamboat proprietors with regard to cleansing their waggons and vessels. There is no obligation to use carbolic acid, although this is admitted by the Commissioners to be the most powerful disinfectant known. Why is this? Why should not every railway cattle truck be saturated with carbolic acid? Yet what is the use of attending to this, or to any other precaution, unless the cattle steamers are kept thoroughly and rigidly disinfected by the same agent?

In conclusion, I will only add that when the cattle plague is next imported I sincerely trust that it will be arrested and cured by the treatment above detailed, and not by the poleaxe.

I am, your obedient servant,
W. HOPE, *Parsloes, Barking.*

Home Correspondence.

Mangel Cake.—As a well-wisher for the success of Mr. Hugh Smith's Mangel-cake, or concentrated Mangel food, allow me space to say a few words in reference to "W. C. S.'s" strictures upon it in the last number of your Journal. No doubt it would be very desirable to test its value as a feeding stuff, side by side with Mangel in its raw state, but the practical difficulties of such a trial make this no easy matter. "W. C. S." unconsciously, I think, admits this when he says—"The experiment would have been more complete if an equivalent quantity of Mangel, in a natural state, about 10 lb., or better still 4 lb. of Mangel and ½ lb. of cake, had been given to a third lot of sheep." Clearly this would have been no real testing of the respective values of the two foods, but though there are these radical difficulties in the way of a direct testing of the two; indirectly this testing has been made times without number, and it is to this point I wish to direct the attention of those who may chance to read this Paper. "Lots of 40 sheep each, fed for six months with hay, Linseed-cake, and roots (Swedes), only paid for the hay and cake, and left nothing for 50 tons of Swedes consumed by each lot of 40 sheep," is the experience of Mr. Lawes, as recorded in the Royal Agricultural Society's Journal (I am quoting now a quotation made from that Journal by Mr. Mechi, in a letter of his to your Paper published the 12th of last month, not having the Society's Journal by me), and with this experience of Mr. Lawes agrees that of most producers of mutton; but turn now to Mr. Hugh Smith's plan of giving roots deprived of the water contained in them, and we find him making from 3 tons 3 cwt. of raw Mangels and 1½ acre of poor aftermath, 266 lb. of live weight, or 20 stones of dead meat. How much of this the 1½ acre of aftermath made, I leave your readers to say. *X. Y. Z.*

Grass or Arable?—We have often asked ourselves this question, and have most decidedly given the verdict in favour of arable in our soil and climate. It is, in fact, a question of soil and climate. Nature points out to us where Grass thrives naturally. On such soils as ours (yellow plastic clay full of iron and without lime or chalk), and a dry cereal climate, the natural Grasses are of the worst quality. The addition of calcareous matter improves them, but this costs about 5*l.* per acre. By sowing choice Grass seeds and Clovers at intervals, and by heavy folding or feeding with fattening sheep, we manage to make about 14 acres pretty good for accommodating our stock. On soils so difficult for Grass we can, by our manure or guano, produce an average of 5 qrs. of Wheat and 2 tons of straw; and in a choice season 6 to 7 qrs. of Wheat, and 2½ tons straw, 6 to 7 of Beans, and 10 to 12 qrs. of Black Oats. As the great bulk of all kinds of our straw, particularly Bean and Pea straw, is finely chaffed and consumed, we are very independent of hay, although we have at this moment 44 bullocks and 180 sheep on 170 acres, and a very moderate breadth of roots and Cabbage. If all our farm were in Grass, it would hardly be enough for this stock, and yet we grow nearly or quite 600 qrs. of corn annually. According to our best recent authority (Mr. Caird, p. 521), we have in England alone (omitting Wales, Scotland, Ireland, and Middlesex), 13,000,000 of acres of Grass (not used for the growth of corn), and only 14,000,000 of acres arable. Judging from my own experience on this farm (and of course on similarly situate lands in England) the growth of pasture instead of corn inflicts a heavy loss on the country. Poor Grass land requires a minimum of capital, and produces a minimum of food for the people. Neither does it employ much labour, nor so many implements as arable land. I broke up a small area of unprofitable Grass, pared and burned it, and have for many years drawn from it heavy crops of corn, pulse, and roots. The difference in expense of management is more than compensated by the increased value of such crops; and especially such a year as this, where I have 5 qrs. of Wheat, 6 of Barley, 9 of Oats, and 5 to 6 of Beans. At present high prices poor Grass land is completely distanced. Our great weakness in arable land is not using the straw as food, by which its value would be tripled as compared with throwing it down in cartloads as great mops for the rainfall, and water from untroughed roofs. Farmers often express surprise at how I can find food for so much stock, but when they see 100 to 150 bushels of fine cut straw chaff (Wheat, Beans, Oats, or Barley, mixed with Bran, malt combs, cake, Linseed, Bean meal, and condimental food) consumed by the stock daily, they cease to be surprised, and many go and do likewise. This is the way to feed and employ the British people, and to find use for our yearly increasing capital. The pastural system (except under certain circumstances) is no longer adapted to the welfare and requirements of our crowded and meat-consuming population. Although I grow 600 qrs. of corn annually, I still make much more meat than is usually produced from Grass farms equal to mine in extent, on which no corn is grown. *J. J. Mechi.*

Mr. Mechi and his Reports.—[We are unable to find room for a long reply by "An Old Farmer and Land Agent," to the strictures of a "West Indian," on a subject which has been discussed enough; but we may say that he re-asserts and explains his statement that other engagements interferred with his personal visit to the farm (which, however, he had seen in years gone by), and that thus he had to be satisfied with the testimony of others. He also re-asserts that Tiptree farm, though near Tiptree Heath, never had formed part of that Heath. He rediscusses the probabilities of an estimate of corn and root crops made in August being anything near the truth. He declines to inquire (for publication) the names of the neighbouring tenants, on the ground that a professional man never in such a case would publish names. Finally, he adds:—As Mr. Mechi produces these extraordinary crops from, as he writes, unusually small quantities of seed, would it not add to his reputation, or preserve it from suspicion, were he to call in others, and not his labourers and farm bailiff only as witnesses both of his seeding and of his measuring his crops? For, as the farmers said at the market table, no one sees the seeding and the measuring except his own paid people, and they exclaim against both when not in his presence.]

Societies.

ROYAL AGRICULTURAL OF ENGLAND.

MONTHLY COUNCIL: *Wednesday, November* 6.—Present: the Duke of Richmond, K.G., President, in the Chair; Lord Berners, Lord Chesham, Lord Tredegar, Lord Walsingham, Major-General the Hon. A. N. Hood, Mr. Acland, M.P.; Mr. Bowly, Mr. Cantrell, Col. Challoner, Mr. Druce, Mr. Brandreth Gibbs, Mr. Hassall, Mr. Holland, M.P.; Mr. Hornsby, Mr. Hoskyns, Mr. Jonas, Col. Kingscote, M.P.; Mr. Milward, Mr. Rigden, Mr. Read, M.P.; Mr. Robert

Smith, Mr. Thompson, Mr. Torr, Mr. Frere, Professor Simonds and Dr. Voelcker.

The following New Members were elected:—

Bennett, John, Mountfield, Hurst Green, Sussex.
Borthwick, William, Monkwray, Whitehaven, Cumberland.
Botterill, John, Eppleworth, Cottingham, Hull, Yorkshire.
Nash, Henry Fleetwood, Upton Lea, Slough, Bucks.
Oastler, Jonah, White's Farm, Alfold, Horsham, Sussex.
Towerson, John, Whitehaven, Cumberland.
Whitley, Henry Edward, Lock's Farm, Wokingham, Berks.

FINANCES.—Major-General the Hon. A. N. Hood, chairman, presented the report, from which it appeared that the Secretary's receipts, during the past three months, had been duly examined by the Committee, and by Messrs. Quilter, Ball, & Co., the Society's accountants, and found correct. The balance in the hands of the bankers on the 31st October was 1616*l.* 3*s.* 3*d.* The quarterly statement of subscriptions and arrears to the 30th September and the quarterly cash account were laid on the table. The arrears amounted to 2127*l.* The Committee regret that such a large amount of arrears is still due to the Society. This is partly occasioned by members joining at the annual meetings. Your Committee propose that a new form of letter be sent to each defaulter, specially calling attention to his respective liability; or otherwise it will be necessary to adopt more stringent measures to enforce payment.

JOURNAL.—Mr. Thompson, chairman, reported that it had been represented to the Committee that it would be desirable to have a list of Members published in the next number of the Journal. The Committee were of opinion that in the present state of the Society's finances it would not be desirable to incur the expense of publishing a list of Members at present. This report was adopted.

AGRICULTURAL EDUCATION.—Mr. Holland, M.P., stated that it was determined to report a list of the Examiners at the next meeting of the Council in December.

LEICESTER MEETING.—Colonel Challoner reported that an application had been made by local societies to enable their members to make entries for local prizes without payment of the extra fee charged to non-members of this Society, and that it was resolved that exhibitors for local prizes will have free entrance to the Show as exhibitors for the Royal Society's prizes. Fees for entry of Stock have never been reduced to other local societies, and it is not considered expedient that the rule should be relaxed. The Society's Surveyor should be instructed to stake out the outer boundaries of the Show-yard, in order that the local authorities may proceed with the levelling, &c. The date of opening of the Leicester Meeting was fixed for Thursday the 16th July, 1868.

This report was adopted.

Lord Chesham having moved that the Show of Live Stock at future meetings shall commence on Thursday (the Judges making their awards on that day), on the ground that Stock from a distance, with the servants in charge, are kept away from home two Sundays, the motion was seconded by Mr. Milward, and carried unanimously.

Mr. Milward having called the attention of the Council to the veterinary examination of horses in the Show-yard, moved that the home examination be dispensed with; which was seconded by Mr. Torr, and carried by 11 ayes to 4 noes. Mr. Milward then moved that the condition on the Prize Sheet should run in the following terms:—"There shall be an examination by the Society's veterinary inspector of all horses selected by the Judges for prizes, or reserve or commendation." The motion was supported by Lord Chesham, Mr. Torr, and Mr. Read, M.P., and carried.

The Council decided that the General Meeting of the Society should be held on Wednesday, the 11th December, at noon.

Farmers' Clubs.

LONDON: *Nov.* 4.—*Benefit Societies.*—On this evening Mr. C. Howard opened the winter session of the Club with a paper on the above subject. After a reference to the subject of combinations generally among labourers and to one form of them in trades unions, Mr. HOWARD said: It is sometimes difficult for those who are well-to-do in the world, and who feel certain that "their bread shall be given them and their water sure," to form an estimate of the feeling with which the man who gets his bread "by the sweat of his brow" views the prospect of old age. The fear, "when the keepers of the house begin to tremble, and the strong men shall bow themslves," that the slender means of subsistence shall be replaced by want, is a bitterness which is difficult for those who live in comfort to understand. In former days the more far-seeing of the labouring classes, looking forward with horror to the evening of life, when they would have to rely on the workhouse, or, in other words, public charity, led them to make provision for the necessities of old age: hence the origin of benefit societies. It is highly creditable to the working classes to find, from a recent return, that one out of every nine of the population is a member of such a society. In France the proportion is one in 76, and in Belgium one in 66. No record, as far as I am aware, exists of the foundation of the first of these societies. The first Act of Parliament, however, relating to friendly societies was passed in the year 1793. Since that time about 36,000 have had their rules enrolled and certified, more than 13,000 of which have since been dissolved or broken up. Besides these, it is estimated that there are some hundred thousand "Brummagem, or sharing-out Clubs," as they are termed, which are not recognised by the Registrar-General. It is in these where the greatest mismanagement and fraud have prevailed. They appear to be established for the good of the publican, who is in most cases chief manager. Their doings have been very properly exposed in an excellent paper in the "Leisure Hour" of March last, by the Rev. I. Y. Stratton, of Ditton Rectory, Maidstone, who takes great interest in friendly societies, and to whom I am indebted for some valuable information. The object of this paper is to suggest methods, and to invite discussion as to the best means of placing benefit societies for our rural districts upon the soundest and most advantageous footing. It is now nearly three years since I first promised the Club to introduce the subject on the card for this evening. The sudden appearance, however, of the cattle plague among our herds led the Committee to request me to substitute for it a paper upon that all-absorbing topic. In my own village we have a friendly society, which has been established for many years, and which hitherto has held its ground. But, like many other similar institutions, although managed far better than the majority of such societies, symptoms of decay, which might have been foreseen at its formation, already begin to appear. To remedy the defects of friendly societies, and to gain information upon clubs generally, I corresponded with some 60 gentlemen connected with agriculture in various parts of the country. I put to them the following questions:—1. Have you any benefit clubs to which your men do or may belong? 2. How long established? 3. What are the weekly or other payments? 4. What advantages do they offer to the members? 5. Have they been in pecuniary difficulties. 6. What is their present financial position? 7. Where are the meetings held? 8. Can you suggest any improvement in the principle or mode of management? The correspondence which ensued would be far too voluminous to give in this paper.

I will therefore give you some extracts which I deem to be valuable. Mr. G. Battams, of Carlton, Beds, writes:—"In the parishes in which I have occupied land, most of the labourers were members of benefit clubs. One club got into pecuniary difficulties, arising from the members spending 20 per cent. of their subscriptions at the monthly meeting in beer, and this brings me to the only suggestion that I can make, that benefit club meetings should not be at public-houses. I do not wish to deprive a poor man of his beer or his holiday, and I hope ere long he will get more of both, when he ceases to labour for the payment of the malt-tax." Mr. W. Pike, of Castle Thorpe, Bucks, writes:—"I am sorry to say the club meetings are held at public-houses. I cannot help thinking there are too many clubs—'Unity is strength. A mistake is made in taking too young members. So soon as a lad can earn 6*s.* per week, he goes into a club, and, after paying in for 12 months, many of them in case of slight illness go on the club, and get 8*s.* per week. I think if they were allowed to pay 6*d.* per month for two years before they derived any benefit, they would get in the clubs much easier, and would not be so likely to impose on them. But what I should like to see is, that all clubs should be on the same footing as the life assurances, remove them from the public-houses, and not let them have 3*d.* to pay for a pint of beer for every shilling they pay to the club, one fpenny of which goes to Government in the shape of malt-tax." Mr. H. Fookes, of Whitchurch, Dorset, writes:—"Our club works well, and we find most of our best labourers are in friendly societies: it gives them an independence, and they do not come to their parishes for relief." Mr. J. A. Piggot, of Beckingham Hall, Essex, writes: "I send you the rules and report of the 'Essex Provident Society,' which is a first-rate institution; it allows the agricultural labourer 8*s.* 3*d.* per week on payment of 1*s.* per month, and the tradesman or mechanic up to 18*s.*, but no person is allowed to enter in a class above his earnings. I cannot say anything in praise of the smaller clubs of this district; they are all, except one, kept in public-houses, and pay 1*s.* 6*d.* per month, 6*d.* of which is spent at the monthly meeting."

Mr. H. Butt, of Bredon, Gloucestershire, writes: "Many benefit clubs have from time to time been established in our towns and villages, but are not so numerous as formerly, many having 'come to grief' from bad management or dishonesty on the part of some of the officials, consequently the confidence of the working men has been much weakened, and some declare 'they will never again join any club.' Some four years ago a club was established at Beckford, a village near here, and many working men joined it, but two years since it received a heavy blow by the absconding of the secretary with, it was said, part of the funds. I enclose a letter from Dr. R. S. Martin, our village surgeon, who has taken much interest in clubs for many years, and whose remarks and suggestions are entitled to serious consideration. I also enclose a characteristic letter from 'John Bassett,' our district postman, who, as you will see, approves of clubs, but blames boards of guardians for refusing relief to men in distress, because they have pay out of a club, while as he thinks these are the very persons who ought to be relieved and encouraged. Now, as a guardian of many years' standing, I fear there is some ground for Bassett's complaint, and I entirely agree with his conclusions. As a proof of the value of clubs and the comfort they afford to members in cases of illness or accident, I may mention two cases which came under my own observation some time since in my own parish. Two labourers had each a hand injured by agricultural machinery in the same week; one had been for some years a member of the Tewkesbury Club, and immediately on being disabled got his 10*s.* per week and the free services of the club surgeon. The other man had been less provident and had never joined any club, consequently he at once became chargeable to the Union, and, being a single man, got 2*s.* 6*d.* per week, and the assistance of the Union surgeon." Dr. R. S. Martin, of Kemerton, in his letter referred to by Mr. Butt, states that clubs have not done well here as a rule. There has been gross mismanagement, and the want of a sustained interest in them by their own immediate supporters. The accounts have been badly kept, badly audited, and the money often badly invested. No club or business of any kind could succeed under the management I have seen. I feel confident benefit clubs would succeed if the rules and tables and book-keeping, published by Mr. Tidd Pratt, in 1860, were faithfully carried out by efficient and energetic officers; if they were not held at public houses; if members entered young, under 20 years of age; if the gentry, and especially the large employers of labour, took sufficient interest in the subject, not only to subscribe to the fund, but also to see for themselves from time to time that the business was being properly conducted."

The following is the letter of John Bassett, the postman alluded to by Mr. Butt; I give it because I think it worthy the attention of Poor-law guardians. He writes:—"Sick clubs are very good things; they keep men and their families off the parish; but I think one thing is not right, and that is, after a man has paid into a club for 20 or 30 years, and never received any benefit from it nor relief from his parish, and when he is obliged to give up work and goes to the club for his allowance, it does very well when he gets full pay; but when he comes to half-pay, which is after he has been on the box for six months, it is not so well for him. But that is not the worst, for when a man has been on the box for nine months he only gets quarter-pay, amounting to 2*s.* 6*d.* or 3*s.* per week; it is then the parish ought to help him, but they refuse to do so. I think, after a man has done as I have said, the parish ought to be proud to help him. After a man has done his best it is hard to be half-starved. What is 2*s.* 6*d.* or 3*s.* in a house to find everything for a man, and perhaps a wife and family, to live on? then is the time when more is wanting, and for the parish to help." I am bound to say that I think that the conduct of guardians as related by John Bassett is exceptional; my experience is, that men in clubs have always been liberally treated. Mr. Morris, of Maisemore Court, Gloucestershire: "I am glad to find the Farmers' Club is about to take into consideration the management of friendly societies. I think it is a subject well worth the attention of farmers. We have an Odd Fellows' club in this parish, to which many of my labourers belong. I have joined it myself as a regular member (not honorary), and, therefore, take part in the management. I think, if farmers generally would join clubs in the same manner, and take their share of the management, we should see them in a more prosperous condition, and made truly benefit societies. As it now is, many, I may say most, of the clubs are started more for the benefit of a public-house than its members."

The next letter is from Mr. Henry Humphreys, of Beau Manor, Leicestershire, giving an account of a club based upon principles very different to the generality of clubs. He says: "I would especially direct your attention to the Beau Manor and Woodhouse Provident Benefit Society. It was enrolled in 1858, and combines the principles of savings' bank and benefit society. It receives monthly any amount greater, but not less, than 3*d.* from any member, irrespective of age, and allows at the rate of five per cent. interest on sums not exceeding 50*l.*; above 50*l.*, four per cent. This is a decided advantage over benefit clubs generally, where the monthly payments of a member, who has never troubled the club for sick pay, go to the general fund for ever. Compared with others, as a benefit club, it possesses greater advantages. There are four classes in which members are entered by certificates from the medical officers, according to bodily strength. This classification directs the sick allowance the member is to receive, of which an equal amount weekly will be drawn from his own deposit. The society provides this sum so long as the depositor's own funds can hold out an equal sum. There are 131 depositing members of all classes, from two years and upwards; 700*l.* are invested, 250*l.* of which belong to the club. It is supported by a few honorary members. No sick pay is allowed to any member under thirteen years of age." Mr. Charles Newman, of Hayes, Middlesex, writes: "I have for 50 years taken a great interest in benefit societies, and have witnessed their beneficial effect in securing for labourers an independence from parochial relief. When guardian, I always endeavoured to obtain for applicants, being members of clubs, some relief by way of encouragement; I regret that this is not the general feeling. I have long been of opinion that it would be an excellent system, if parishes were empowered to advance parochial benefit societies a certain sum annually, according to the number of members. This would benefit them much better than the reluctant subscriptions of honorary members." Mr. C. S. Read, M.P., of Honingham, Norfolk, writes: "That the meetings should not be held at public-houses, and that farmers and others of the middle classes should become honorary members, take an interest in the clubs, and see that they are based on sound principles." Mr. T. Hawkins, of Bentley Hall, Suffolk, writes: "I herewith send you the rules, &c., of our Sandford Hundred Benefit Club, which has worked exceedingly well, and is yearly increasing in numbers. Many of the local clubs have become insolvent, arising from bad management and spending part of the funds in drink at monthly meetings. The prosperity of these societies depends very much upon the medical certificates to prevent fraud, as there will always be some continue on the sick list after they got well, particularly men who are rather too old to earn full wages and don't like to take less. I find there is an increasing inclination amongst the members to go on the club if they are only slightly indisposed—such as a pain in the stomach, which a little medicine would put right in a few hours; and notwithstanding they can call on the club for half a week's pay, they invariably take a week. If any of my men are absent, and I hear they are not 'vastly well,' I am sure not to have them for a week; and if remonstrated with for calling upon the club upon such slight

occasions, they tell me 'it is their rights!' I think it bad policy to allow a boy of 15, whose wages do not exceed 1*s.* a day, to insure on a 10*s.* table until he can earn that sum weekly. He ought to begin at 8*s.* for three years, and then allowed to enter the 10*s.* table at the same rate as if he began at 15 years. The young men rarely come on the club, but 10*s.* per week has kept several 6*s.* lads on weeks after they get well! I believe we shall shortly have 1000 insuring members; but I am sorry to say our honorary members do not increase as fast as the old ones drop off." The next letter is from Mr. Herman Biddell, of Playford, Suffolk. I regret I cannot give you the whole of it. He says:—"We have many so-called benefit societies in this neighbourhood. They are styled 'clubs' among the labourers. There are two sorts: the first is under the management of the clergy and gentry of the neighbourhood. I enclose you the rules of one; it is called 'The East Suffolk Hand-in-hand Benefit Society and Sickness Club.' Such a club as this has no meetings except for business, and that only for the committee of management. I have, however, before me a copy of the rules of one of the common labourers' clubs in this locality. It goes under the title of "The Society of Brotherly Love," and a more prolific source of evil does not exist—the malt-tax excepted! It is only a fair sample of perhaps 10 others of a like nature within the radius of six miles. They are established, so it is to be supposed at least, for the mutual help of one another in time of sickness and an allowance to widows or other relatives after death. They are, in truth, however, the creation of the more active minds in the lower orders, who have a predilection for drink and beer-house society. The monthly subscription is 1*s.* 6*d.*, 3*d.* of which goes for drink at the monthly meeting and 3*d.* for the annual feast, the remaining 1*s.* being put to the regular fund. It does not matter whether the member goes or not, he must pay the 1*s.* 6*d.* a month; and supposing there are 30 members in the society and only five attend the meeting, these five must take the 30 threepences out in drink! Men have been known to stop and drink till they are helpless, rather than leave the "liquor" on the publican's table. These societies are under no control but of the members, and are under no obligation to each other than as they are bound by the articles they agree upon themselves, and it has frequently occurred, when there has been considerable funds in hand, and one member has what looks like a case requiring long-continued relief, the others have agreed to break up the club and divide the funds. I have a man in my employ to whom, after many years subscribing, such a case happened." Mr. T. W. Outhwaite, of Goldsboro', Yorkshire, writes: "I send you rules of our club; we find it answers very well for our labouring men. We have only two old men, that were two old to enter when the society was formed, who are receiving relief from the Union. After a man has once had relief from the Union his pride vanishes, and he cares little how soon he makes application again."

The last letters I shall trouble you with are from two gentlemen who have lately closed useful careers; I allude to Mr. Charles Stokes, of Kingston, an old and respected member of this Club, and the well-known Rev. S. Smith, vicar of Lois Weedon, with whom some members of this Club a few years ago spent a very pleasant day to inspect his "triple row" plan of growing Wheat. Mr. Stokes wrote: "I am glad to hear the subject of benefit societies is to be brought forward for discussion at the Farmers' Club, and I sincerely hope great good will result from it. Under the new Poor-law it is absolutely necessary able-bodied men should have some fund provided in case of accident or sickness, and in this district the best effects have been produced by making the men feel independent of parish relief; and this principle should be encouraged by the support all those who are placed in a situation of life who, by their pecuniary support and example, can afford to do it. The best effect is produced by the farmers and other classes dining with them at their anniversary meetings, by this means making them much more respectable and orderly, and uniting all classes in a bond of union and good feeling which is most desirable. Benefit clubs do not receive the support from the middle and upper classes they ought to do." The Rev. S. Smith wrote: "I am delighted to reply to your inquiries upon a subject which has occupied my close attention for many years. The grand point with reference to farm labourers is to make them self-reliant, and only to help those (as a rule) who will help themselves. In 1850 we had no club, and all the clubs about us were breaking up from misdirection and mismanagement. I studied the subject well, and then went to Mr. Neison, paid him (most willingly) 5*l.* for his advice, and got him to draw up rules which, humanly speaking, would make a new society safe. In the papers and rules I send you, you will see that they have made us safe and successful, and I have no reason to wish for any change."

I trust I have not wearied you with these letters; but as the subject is likely very shortly to command more attention, I considered them too valuable to be omitted. I think many of them contain evidence which will be valuable to all who are desirous of bringing about a better state of things in their respective neighbourhoods. It will be seen that my correspondents are unanimous and very strong in their condemnation of club meetings being held at public-houses. Mr. Tidd Pratt, who has kindly sent me his last report, and who would have been here this evening but for official engagements, confirms this view in his remarks upon parochial friendly societies. He says that he found in Herefordshire, since 1793, the number of societies enrolled and certified were 136, of this number 123 were held at public-houses and 13 at schools or private rooms. Of those held at public-houses no less than 42 had broken up, but of those held at schools or private rooms only one had been dissolved. Some also of my correspondents consider that there are far too many small clubs; doubtless this is a great drawback to their success. I find in our small county, and I believe it is only a sample of the rest, that there are 260 clubs, or nearly two to a parish. Others condemn, and rightly too, the "sharing-out clubs" previously alluded to. Since the establishment by Mr. Gladstone of the Post Office Savings' Bank, which appears to work so well, it has occurred to some that this agency might be employed in the management of friendly societies. It is not generally known that an Act has recently come into operation by which two branches of the friendly society are engrafted upon the Post Office, whereby persons can insure their lives for sums payable at death and also for annuities. It may perhaps be interesting to some to know that there are now open some 3507 postal banks, and that during the past year there were received 1,525,871 deposits, amounting to 4,400,657*l.*, the average amount of each deposit being 2*l.* 17*s.* 8*d.* The cost of management amounted to nearly 7*d.* for each transaction, while that of the olden Savings' Banks amounted to from 10*d.* to 1*s.* At the end of 1866 a sum of 8,256,968*l.* was standing to the credit of the Post Office Savings' Banks in the books of the National Debt Commissioners, and in cash in the hands of the Postmaster-General, to meet a liability of 8,121,175*l.*, leaving an excess of assets amounting to 135,793*l.*, after providing for the liabilities, and exclusive of the dividends, to be received five days after the close of the account. As this matter is so closely connected with my subject, I thought it well to notice it, considering it a good opportunity of drawing the attention of our agricultural population to such a safe and useful depository for their savings.

The Rev. J. Y. Stratton advocates the Post-office agency for friendly societies in a cleverly-written article in "All the Year Round" of April, 1866. The matter is so well put, that I give you a few extracts. He says: "Ten years ago it would have been thought preposterous to talk of a Post-office Friendly Society. The notion of a Post-office Savings' Bank, entertained by a few, was an ideal as unpractical among practical men as a Post-office Friendly Society is at this moment—indeed, more so, for we have in the Post-office made some steps in the direction of the friendly society. They have been just those steps for which the rural classes, and, indeed, the industrial classes, care the least; but will, it is fair to anticipate, be found of great importance before many years elapse. But the poor man's sheet-anchor, maintenance during illness, coupled with a sum at death, is not yet permitted to secure him in the storms of this life by its hold on the Post-office. Such permission might, and, it will not be difficult to show, ought, if beneficial legislation is persisted in, to be given. Farm-labourers should have the opportunity afforded them of investing their club payments in securing sums during sickness, payable weekly for a term of months, of about three-fourths of their ordinary wages when they are able to work. We may safely leave it to his own option to insure as much as he likes in the way of burial-money and annuity, both these last classes being already offered to the public—and not, I fear, meeting with the attention they deserve—by means of the Post-office. Now, every country postmaster knows the common run of farm labourers' earnings in his neighbourhood, and would thus assist the authorities to fix the maximum sickness provision given at his office. To this I add that, from knowledge of agency management in a large friendly society, the ordinary village postmaster will soon make a most efficient and trustworthy agent. The advantages of such a system of friendly societies throughout the country it would seem difficult to overrate. Every able-bodied farm labourer would slowly but surely discover that, if he pleased, he might go to the nearest post-office instead of the nearest public-house, and, at a somewhat less cost in money, obtain a better provision than the combined resources of the sharing-out club and poor-rates put together can give him." Mr. Stratton is sanguine as to the success of the measure, and has for some time past pressed it upon the attention of the Post-office authorities. It is thought that if some pressure is used, the Government will be disposed to undertake the other branch of a friendly society, viz., the sickness pay. But whether the Government will adopt the suggestion remains to be seen. The success, however, of the Post-office Banks speaks volumes in favour of a trial.

Just as I had finished my paper on Saturday I took up the *Saturday Review*. The first article which attracted my notice was upon friendly societies. I was glad to find this influential journal had devoted a portion of its space to this subject, and, in an article written in its usual forcible style, which is worthy your perusal, had laid bare the evils of the present system, and advocated the more general adoption of the post-office arrangement.

In all probability there will shortly be some legislation upon friendly societies, for on the 17th of August last the Earl of Lichfield laid on the table of the House of Lords a Bill to amend the laws relating to the same, and on the 19th the following order was made by the House, and to which Mr. Tidd Pratt has lately called public attention:—"Ordered by the Lords Spiritual and Temporal in Parliament assembled, that there be laid before this House 'Returns from the trustees or secretary of every Friendly Society legally established in England, Scotland, and Ireland, having paid collectors or agents, of the names, residences, title, business, or occupation of the patrons, presidents, trustees, committee, directors, collectors, and agents of every such society on January 1, 1867, with the name of the place at which, by the rules, such society is established, and the places at which the several collectors and agents reside, together with the salaries, allowances, and emoluments of each paid officer, collector, and agent for the year ending December 31, 1866, with the number of members of each such society and the amount of the funds on January 1, 1867, and also the amount of contributions received and the expenses of management under distinct heads, in the year ending December 31, 1866.'—Ordered to be laid before the House." It appears that under the last Act there was no legal obligation for the rates of such societies to be certified by an actuary: there can be no doubt that the want of this has been the cause of failure of hundreds of clubs. Lord Lichfield proposes to amend this. In the discussion in the House of Lords it was stated that the Registrar-General could not satisfy himself of the soundness of 20 out of 25,000 societies. If such be the case, legislation will not be commenced too soon.

The permanent success of a friendly society (upon the principle that the many can help the few) depends upon the number of its members. If a society be few in numbers, it is clear that when a large proportion have to throw themselves upon the funds, as is invariably the case when the members become advanced in life, the failure of that club is inevitable; especially so it is when the sickness pay is out of proportion to the monthly payments. Those present who happen to be members of boards of guardians can bear testimony to the many pitiable cases which come before them, of men who have subscribed for 30 and even 40 years to a club, and after all the club has failed, and in their time of need have had to throw themselves upon parish bounty. From a recent return I find that there are nearly 4000 paupers in Union Workhouses who have been members of friendly societies which have been dissolved or broken up. I confess, after giving the subject some consideration, that I shall prefer to see the Government grapple with the question of friendly societies, either by the Post-office or some other agency. Until, however, such is the case, and as it may be years about, I incline to the principle of County or District Associations, such as I shall shortly allude to. I would suggest Union Associations, but I know how unpopular anything which might be thought to appertain to the Poor-law is among the labouring classes; at the same time such an arrangement would perhaps be convenient. For my own county, however, being a small one, I would propose one society divided into districts corresponding with the Petty-Sessional divisions. By an organisation of this kind, or a union of surrounding or adjoining parishes, with owners and occupiers as honorary members taking an interest in the management of the affairs of such societies, not only would the permanent success of such institutions be ensured, but that kindly feeling alluded to in the opening of my paper would ensue from such co-operation.

Another advantage of farmers uniting in the management of the friendly societies would probably be found in remeding an evil bitterly and perhaps justly complained of by many of our poor: I allude to the neglect to which their sick are subjected by the club doctor. I am aware their stipend is often very small, but on this account I cannot excuse their shortcomings; they know their salary: and they have no right (nor is it honest) to undertake the duties unless they intend efficiently to discharge them. I would, however, advocate a more liberal payment, by which the poor might reasonably expect greater attention, and by which the funds of the club would be conserved. This would be accomplished by the union of the separate parish clubs into district or county clubs. A medical appointment to a single village club, with an emolument attaching to it of some 10*l.* or 15*l.* a year, is not of great moment to a man who has acquired a fair practice; but should the appointment combine a larger area, with an emolument of 10 times the amount, this income would be a matter of far greater importance, and, as I think, would ensure a more complete fulfilment of the duties. It would also lead to a more rapid cure of real cases, and the speedy exposure of sham invalids. I will relate a circumstance bearing upon the latter point which came under my immediate notice some few years ago. A labouring man had been often ailing, and a constant recipient for some years of the club's funds, much to the annoyance of many of his brother members. At length a member of his family waited upon the club doctor, and informed him that many of the members were dissatisfied with the treatment of this relative—a complaint which naturally aroused his anger, and, being a plain, outspoken man, he said, "I tell you what, if the members of the club think as I do about your relative, they think he can do some work." It was marvellous what an effect this had, for, upon inquiry being made a few days after, his wife replied that he was a good deal better—"the doctor had changed his medicine," and that he would be out to work in a day or two; and sure enough he was. This is a prescription I would commend to the attention of club doctors. From the rules and reports of various clubs which have been kindly sent me by gentlemen throughout the country, to whom I here tender my best thanks, I find those to be the most prosperous where a whole district or county is embraced. I would name a few as worthy of the attention of those who feel interested in such matters; and in order that those who desire further information upon these societies may know where to apply for it, I have given, in an appendix to this paper, a list of those whose rules I deem worthy of being adoped by other districts. I also give the name and address of the secretary, as I wish to avoid the necessity of answering letters from, perhaps, a number of correspondents who might write to me for information: 1st. The Essex Provident Society, which has upwards of 9000 members, and a capital of more than 70,000*l.*, with its honorary members and committees for every district of the county. 2d. The Hampshire Friendly Society, which has upwards of 3000 members, and a

capital of some 35,000*l.*, with honorary members and committees as in Essex. There are also prosperous societies in the counties of Hereford, Salop, Wilts, and Rutland. That of Wilts has been under the fostering care of Mr. Sotheron-Estcourt, who has, both in and out of Parliament, taken a deep interest in friendly societies. For a local or parish club, the one established by our lamented friend, the Rev. S. Smith, of Lois Weedon, appears to be as well managed, and on as sound a footing, as any that have come under my notice. In the last communication I had from Mr. Smith, in his usual happy style he said, speaking of his club, "It really works so well and easily, and without noise, that the machinery scarcely requires oiling." The principle and rules of the Beau Manor Club are worthy of great consideration. It was only established in 1858; yet with only 130 members, it holds securities in stock for 700*l.* The rules were drawn up by the incumbent, who is well known for his great ability in such matters. I must now leave the matter in your hands, trusting we may have a good discussion, and that this Club may be the means of securing a better management of friendly societies throughout the rural districts. That happy result will, I am convinced, be mainly brought about by the increased help and more hearty co-operation of those who own and occupy the land. Such services will be a blessing to that portion of our population which is instrumental in raising the necessary supply of our daily bread, and is so well described, as

"The sinews of Old England,
The bulwarks of the soil.
How much we owe each manly hand
Thus fearless of its toil.
Oh, he who loves the harvest free
Will sing where'er he roams—
God bless the English peasantry,
And grant them happy homes."

APPENDIX.

Name of Society.	*Name of Secretary and Address.*
Essex Provident Society ..	Mr. Julius Mark, Chelmsford.
Hants Friendly Society ..	Mr. J. H. Todd, Solicitor, Winchester.
Herefordshire Friendly Society	Mr. Edwin Day, 9, Bye Street, Hereford.
Shropshire Friendly Society..	Mr. Henry Bevan, St. Mary Street, Shrewsbury.
Wiltshire Friendly Society ..	Mr. F. V. Holloway, Devizes.
Rutlandshire Friendly Society	Mr. Alfred Frisby, Cottesmore.
Lois Weedon Friendly Society	Mr. H. Jones, Lois Weedon, Towcester.
Beau Manor and Woodhouse..	The Secretary, Beau Manor, Loughborough.

Farm Memoranda.

MERSE OF BERWICKSHIRE: *Oct.* 26.—It is three weeks since the close of harvest, with the exception of Beans still a-field. Commencing with rainy weather, it turned out one of the very finest of seasons for making the most of an unsatisfactory crop. The entire crop was carted without the excuse of a single dewy morning for thatching; indeed, those who were first done had to wait a few days until the wind fell. The bulk of straw is quite one-half more than last year; but the yield will be far short. A stack of our best Wheat, selected (at carting) expressly for seed, seems to indicate scarce 3 quarters per acre of poor stuff; but the rejected acres, amounting to half the break, produce nothing but a little swine's meat. We certainly never knew anything like it, and it promised so well in spring. No wonder that it sells so dear. Spring corn is perhaps a trifle dearer than last year, but will bring in nothing like last year's money. Barley is high coloured, but dry, and not unsuitable for the maltster; and the quantity of light corn is great. Oats are enormously bulky, and a stack yields wonderfully little, but of fine quality. Early in the month Turnips were like to be cut up altogether, by cold, hard, north winds; however, a mild, showery fortnight has freshened the shaws, and bulbs are now visible among the last brairded fields, which have stood the drought better than earlier ones. These frosty nights, however, may soon check growth. At present our Swedes alone are good. White Turnips are so small that we cannot afford to remove the tops before giving to cattle; and hoggs have hay and corn to prevent scouring and death, if possible. A lot of sheep, purchased in spring to consume the crop yet ungrown, are sent off to a better land, in the hope that mutton will rise to 6*d.* a pound by-and-by.

Never did we see Potatos look more luxuriant than in July; but the shaws died off suddenly before harvest, and the produce is small and diseased. Regents give just 1 ton per acre; Rocks and Reds much better—say half a crop. Our hinds have about 25 cwt. on their lots; but a place is mentioned where they have but 5 cwt. This tells heavily against children and pigs. *J. T.*

Notices to Correspondents.

LAND STEWARD. The Editor of this Journal can confidently recommend to any one contemplating estate improvement, whether agricultural, horticultural, landscape gardening, building, &c., a man capable of carrying out such operations.

LAYING DOWN A CHALK SOIL: *W.* It will not do to let Grass come of itself in old Sainfoin in order to good pasture. If you want to grow the right sort of plants you must sow the right sorts of seed, and you cannot do better than procure and read Mr. Sutton's paper on laying down Grass, which you will get by sending to his address at Reading. We should get the land well fallowed, and folded heavily with sheep during winter; then in spring put the cultivator through it, and sow Grass seeds in March, with a light crop of either Oats or Barley, about one bushel of seed per acre, which you may either cut green in June or let ripen, as you please. The seeds for a comparatively light calcareous soil should be—Foxtail, 5 lb.; Timothy, 2 lb.; Hard Fescue, 2 lb.; Meadow Fescue, 3 lb.; Perennial Rye-grass, 10 lb.; Italian Rye-grass, 5 lb.; Catstail, 1 lb.; Rough-stalked meadow Grass, 2 lb.; Hop Trefoil, 1 lb.; White Clover, 3 lb.; Red Clover, 4 lb.; and Sainfoin about 5 or 6 lb. per acre.

APPLY TO

FREDERIC F. HALLETT, ESQ., THE MANOR HOUSE, BRIGHTON, SUSSEX.



TRADE MARK.

HALLETT'S PEDIGREE—(HUNTER'S WHITE)—WHEAT.

* Payment Not Required until the Wheat be Ready for Delivery.—Sept., 1867.

EXTRACT FROM MORTON'S "CYCLOPÆDIA OF AGRICULTURE," ARTICLE "WHEAT."

"Hunter's Wheat is remarkably well suited to medium and inferior soils, being hardy and tillering very freely in spring, and continuing its growth steadily till harvest. It will year after year bear comparison with others, either in the sheaf, stack, sack, flour mull, or baker's shelf. It is a great favourite with millers and bakers, and its name to them is a sufficient recommendation to purchase.

"It must be confessed that Hunter's Wheat is neither so pure nor of so good quality as it used to be. Any man would confer a great boon upon a large portion of farmers in Scotland who would carefully select one good ear of Hunter's Wheat, grown on firm hard land in an early climate, and from this ear raise up a pure stock.

"Notwithstanding its impurity, it is still a great favourite in Scotland; and the only objection to be heard against it is that it is now so mixed with other Wheats, that, go where you will for seed, it is impossible to obtain it pure."

SEED REQUIRED:—

If drilled in September, 4 Bushels on 10 acres.
" October, 3 " " "
" November 4 " " "
" December 4 " " "
" January 3 " " "

The "Directions for Planting" will show how these quantities may be drilled without additional expense.

The land should be clean, and kept so during the growth of the crop.

Price (including bags) 1 Guinea a Bushel, or 7 Guineas the Quarter by the Quarter or Half-quarter, delivered in bags, sewed up and sealed, at the Brighton Railway Station, upon receipt of Cheque or Post-office Order, either to be crossed "London and County Bank, Brighton," *without which it will not in any case be sent to unknown correspondents.* Less than a bushel will not be supplied.

Special arrangements can be made for quantities of Two Quarters and upwards.

NOTICE.—The Belgian and French demand for the ORIGINAL RED PEDIGREE WHEAT having annually increased to such an extent that the whole growth of 1867 was purchased before harvest, a Subscription List for 1868 has been commenced, which, to prevent disappointment, intending purchasers are requested to join.*

Look to your Grass Lands, &c.

ESTABLISHED 1820.

MESSRS. JARED T. HUNT AND SONS beg to inform their numerous Agricultural Friends and Customers, that they have now on hand, in the finest condition, their usual Autumn Stock of

AMMONIACAL CORN MANURE,

which has, for several years, given such general satisfaction.

They have also always on hand, ready for immediate delivery, the largest stock of CRUSHED BONES of any firm in the United Kingdom, viz.:—In ½-inch BONES; ¾-inch BONES; PULVERIZED BONES for Grass Lands; prepared BONES for Grape Vines and Hops; also BLOOD MANURE, SUPERPHOSPHATE of LIME, PERUVIAN GUANO, and NITRATE of SODA, direct from the Docks.

Prices and other particulars of the above, at their Works, Lambeth Wharf, London, S.; Bow Bridge Works, Stratford, E.; and Downham Market, Norfolk.

N.B.—Responsible Persons as AGENTS WANTED in districts not yet represented.

LAWES' WHEAT MANURE for AUTUMN SOWING.—A supply of the above Manure is now ready for delivery, at J. B. LAWES' Factories, Deptford and Barking Creeks. Price £8 per ton. Two to three cwt. per acre to be harrowed into the land before the seed is sown. It can be obtained of Mr. LAWES, or through any of his appointed Agents; also

LAWES' PATENT TURNIP MANURE .. £6 6 0 per ton.
SUPERPHOSPHATE of LIME .. .. £5 5 0 per ton.

Genuine PERUVIAN GUANO direct from the Importers, and all Chemical Manures of value.

AMERICAN and other CAKES at market prices.

Address JOHN BENNET LAWES, Offices, 1, Adelaide Place, London Bridge, E.C.; 22, Eden Quay, Dublin; & Market Square, Shrewsbury.

THE LONDON MANURE COMPANY
(ESTABLISHED 1840)

Have now ready for delivery in dry fine condition,
CORN MANURE, for Spring Use
DISSOLVED BONES, for Dressing Pasture Lands
SUPERPHOSPHATES of LIME
PREPARED GUANO
MANGEL and POTATO MANURES.

Also Genuine PERUVIAN GUANO, and NITRATE of SODA, ex Dock Warehouse; SULPHATE of AMMONIA, FISHERY SALT, &c. E. PURSER, Secretary.

Offices, 116, Fenchurch Street, E.C.

IRON HURDLES (Silver Medal of the Royal Agricultural Society).
SHEEP, 3*s.* 5*d.*; CATTLE, 4*s.* 2*d.*; OX, 5*s.* 11*d.*
List by Post. GATES and FENCING of every description.
St. Pancras Iron Work Company, Old St. Pancras Road, London, N.W

McKENZIE'S SHEEP-FOLDING FENCE, *versus* SHEEP NETS and HURDLES.

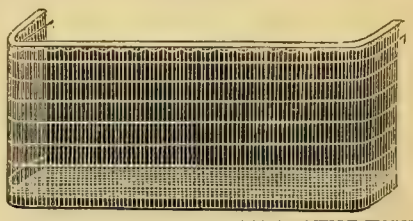
Vide Report of *The Times*, August 31, 1867.

"The low-priced Sheep Fence of this Firm is of great merit compared with Net; being stronger, more portable, not liable to injury from Hares and Rabbits, and not capable of entangling headstrong members of the flock."

Price per lineal yard, 6½*d.* (lasts five years), delivered at any Port in direct communication with Ireland.

THOMAS MCKENZIE & SONS, 34, Dawson Street, Dublin; and Camden Quay, Cork. (Orders executed from the Factory at Cork.)

NURSERY FIRE GUARDS, to keep your Children from the Fire.



FIRE GUARDS, AVIARIES, and all kinds of WIRE WORK.
Manufacturer:
R. HOLLIDAY, 2A, Portobello Terrace, Notting Hill Gate, London, W.

E. T. ARCHER'S "FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, and Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, &c.

PROTECTION from the COLD WINDS and MORNING FROSTS.

"FRIGI DOMO" NETTING, White or Brown, made of prepared Hair and Wool, a perfect non-conductor of heat or cold, keeping a fixed temperature where it is applied. It is adapted for all Horticultural and Floricultural purposes, for Preserving Fruits and Flowers from the Scorching Rays of the Sun, from Wind, from Attacks of Insects, and from Morning Frosts. To be had in any required lengths.

"FRIGI DOMO" NETTING, 2 yards wide, 1*s.* 6*d.* per yard run.
"FRIGI DOMO" CANVAS.

Two yards wide .. .. 1*s.* 9*d.* per yard run.
Four yards wide .. .. 3*s.* 6*d.* per yard.
An improved make, 2 yards wide .. 1*s.* 9*d.* per yard.
An improved make, 3 yards wide .. 2*s.* 8*d.* per yard run.

ELISHA THOMAS ARCHER, Whole and Sole Manufacturer, 7, Great Trinity Lane, Cannon Street, City, E.C., and of all Nurserymen and Seedsmen throughout the Kingdom.

"It is much cheaper than Mats as a covering."



GARDEN BORDER EDGING TILES, in great variety of patterns and materials, the plainer sorts being especially suited for KITCHEN GARDENS, as they harbour no Slugs and Insects, take up little room, and once put down incur no further labour and expense, as do "grown" Edgings, consequently being much cheaper.



GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, of great durability, and in great variety of design.

F. & G. ROSHER, Manufacturers, Upper Ground Street, Blackfriars, S.; Queen's Road West, Chelsea, S.W.; Kingsland Road, Kingsland, N.E

Sole London Agents for FOXLEY'S PATENT GARDEN WALL BRICKS. Illustrated Price List free by post. The Trade supplied.

ORNAMENTAL PAVING TILES for Conservatories, Halls, Corridors, Balconies, &c., as cheap and durable as Stone, in blue, red, and buff colours, and capable of forming a variety of designs.

Also TESSELATED PAVEMENTS of more enriched designs than the above.

WHITE GLAZED TILES, for Lining Walls of Dairies, Larders, Kitchen Ranges, Baths, &c. Grooved and other Stable Paving Bricks of great durability, Dutch and Adamantine Clinkers, Wall Copings, Red and Stoneware Drain Pipes, Slates, Cement, &c.

To be obtained of F. & G. ROSHER, at their premises as above.

SILVER SAND (REIGATE, best quality), at the above addresses—14*s.* per Ton, or 1*s.* 3*d.* per Bushel; 2*s.* per Ton extra for delivery within three miles, and to any London Railway or Wharf. Quantities of 4 Tons, 1*s.* per Ton less.

FLINTS, BRICK BURRS or CLINKERS, for Rockeries or Grotto Work. F. & G. ROSHER.—Addresses see above.

N.B. Orders promptly executed by Railway.

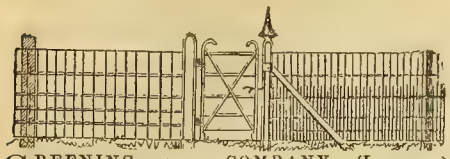
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HE WAS FOR 30 YEARS IN THEIR EMPLOY.

GEO. HALL AND SON'S Celebrated PRUNING and BUDDING KNIVES, SCISSORS, &c., may be obtained from the most respectable Nurserymen and Seed Merchants in the kingdom, also America, France, Germany, Holland, Prussia, Russia, &c.

N.B.—We only make one quality, the best that can be manufactured, the same as the late SAYNORS always made during their lifetime, with all the latest improvements.

CAUTION.—None are genuine unless marked "GEO. HALL & SON." Other marks would cause disappointment, as these blades are tempered by a process known only to the Makers.

Engravings of Patterns, with Price Lists gratis, on application.
Horticultural Cutlery Works, Sheffield.



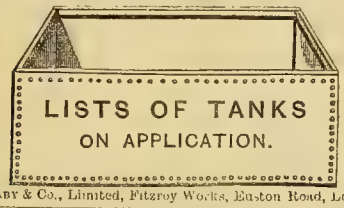
GREENING AND COMPANY (LIMITED), Manufacturers of Iron Gates, Fences, Palisades, Espaliers, Hurdles, Tree Guards, Garden Seats, Verandahs, Vases, Fountains, Tomb Railings, Stable Fittings, Garden Rollers, Poultry Houses, Emigrants' Houses, Bridges, Corn Rick Stands, &c.; also of Wire Strained Fences, Rope Fences, and Patent Movable Fences for Railways, Parks, Farms, Gardens, Game Preserves, Poultry Courts, Sheep Walks, &c.; also of Wire Netting, Plant Guards and Protectors, Garden Bordering, Garden Archways, Aviaries, Pea and Plant Trainers, Pheasantries, Hen Coops, and Garden Lounges.

Catalogues (together with Supplement of Testimonials from the leading Noblemen and Landowners of the United Kingdom to the quality of GREENING & Co.'s Manufactures), forwarded post free.

GREENING & COMPANY (Limited), Victoria Iron and Wire Works.
Offices:—1, Albert Square, Manchester.

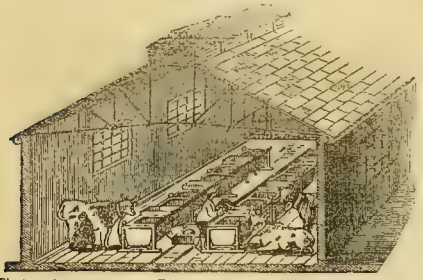
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F. BRABY AND CO. having laid down extensive and Improved Machinery in their new range of buildings, IDA WHARF, DEPTFORD, are now prepared to supply WROUGHT-IRON TANKS, GALVANISED, or PAINTED, of superior quality, at reduced prices, and at very short notice.



F. BRABY & Co., Limited, Fitzroy Works, Euston Road, London.

COTTAM'S PATENT PORTABLE UNITED COW FITTINGS.



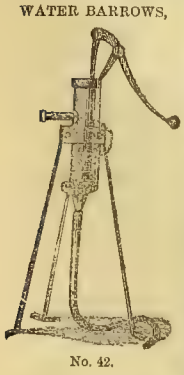
Their advantages are—Portability, not Fixtures, removable at pleasure, no Woodwork or Partitions to impede Ventilation or breed Vermin, Hay Rack dispensed with as unnecessary, increased width and depth of Feeding Troughs, Water Cistern, and Patent Drop Cover to prevent over-gorging. Cleanly, durable, and impervious to infection, being all of iron. Price of Fittings per Cow, 55s.

Prospectuses free of COTTAM & Co., Iron Works, 2, Winsley Street (opposite the Pantheon), Oxford Street, London, W., where the above are exhibited, together with several important Improvements in Stable Fittings just secured by Patent.

JOHN WARNER AND SONS, BRASS and BELL FOUNDERS to HER MAJESTY, HYDRAULIC ENGINEERS,
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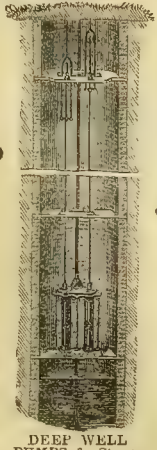


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PORTABLE PUMPS for LIQUID MANURES.



DEEP WELL PUMPS, for Steam, Horse, or Hand Power.

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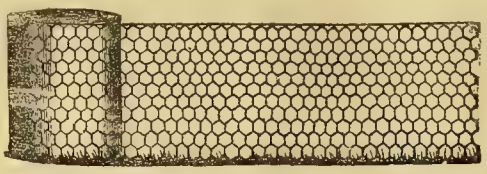
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NEW IMPROVED PREMIUM WIRE NETTING.

AWARDED FIRST-CLASS CERTIFICATE BY THE ROYAL HORTICULTURAL SOCIETY OF LONDON AT BURY ST. EDMUND'S, JULY 16.

J. B. BROWN AND CO. having introduced Improved Machinery into their London Workshops for manufacturing Wire Netting, are now prepared to execute orders to any extent at the shortest notice. The Netting is of very superior quality, best formed mesh, well twisted, and Galvanised after made in a superior manner.

GREAT IMPROVEMENT, WITH REDUCED PRICES, February, 1866.



AND GALVANIZED AFTER MADE.

PRICES PER LINEAL YARD, 24 INCHES HIGH.

Size of Mesh.	Mostly used for	Light. No. 19.		Medium. No. 18.		Strong. No. 17.		Extra Strong. No. 16.	
		Japanned.	Galvanized.	Japanned.	Galvanized.	Japanned.	Galvanized.	Japanned.	Galvanized.
2½ inch	Hares, Dogs, Poultry ..	2¾d.	3¾d.	3½d.	4½d.	4d.	5½d.	5d.	6¾d.
2 inch	Game or Poultry Netting	3½d.	3¾d.	3¾d.	4½d.	4½d.	5¾d.	5¾d.	7d.
1⅝ inch	Small Rabbits, Hares, &c.	3⅝d.	4¾d.	4¼d.	5¼d.	5d.	6¼d.	6½d.	8d.
1½ inch	Smallest Rabbits	4½d.	5½d.	5½d.	6½d.	6¼d.	8d.	8d.	10d.

Quantities of 100 yards or upwards delivered free at all Railway Stations. All Netting warranted to give satisfaction.

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WAREHOUSE and MANUFACTORY—148, UPPER THAMES STREET, E.C.

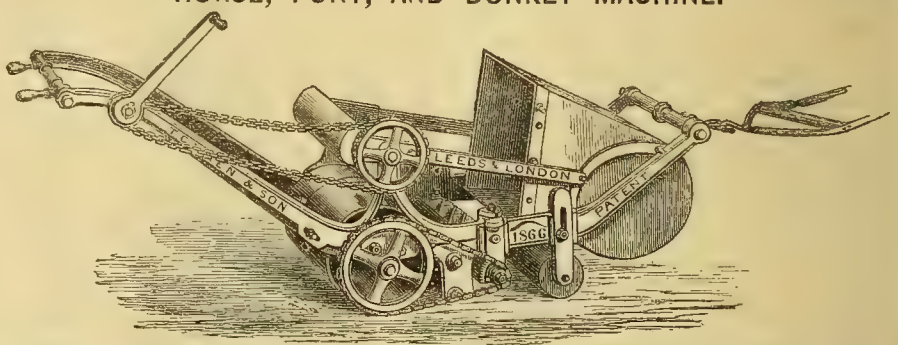
GREEN'S PATENT SILENS MESSOR,

OR NOISELESS LAWN MOWING, ROLLING, AND COLLECTING MACHINES.
FITTED WITH PATENT SELF-SHARPENING CYLINDER CUTTERS.

They are the simplest in construction, least liable to get out of order, and can be worked with far greater ease than any other Lawn Mower extant.

GREEN'S PATENT LAWN MOWERS have proved to be the best, and have carried off every Prize that has been given in all cases of competition; and in proof of their superiority, 40,000 have been sold since the year 1856.

HORSE, PONY, AND DONKEY MACHINE.



Every Machine is warranted to give entire satisfaction, and if not approved of can be returned at once unconditionally.

T. GREEN AND SON *have to state that the demand for their* LAWN MOWERS *this Season has been unprecedented, which is a proof of the high estimation in which they are held. Selections can be made from their Stock both in London and Leeds.*

☞ ILLUSTRATED PRICE LISTS FREE ON APPLICATION.

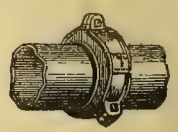
THOMAS GREEN AND SONS, SMITHFIELD IRON WORKS, LEEDS; and 54 and 55, BLACKFRIARS ROAD, LONDON, S.

PORTABLE AND FIXED HOT-WATER APPARATUS,

FOR HEATING CONSERVATORIES, HOTHOUSES, CHURCHES, PUBLIC BUILDINGS, PRIVATE RESIDENCES, ETC., WITH



TRUSS'S PATENT UNIVERSAL FLEXIBLE AND LEAKLESS PIPE-JOINTS.



T. S. TRUSS

Begs to state that the immense number of APPARATUS annually Designed and Erected by him in all parts of the kingdom, and for the ROYAL HORTICULTURAL SOCIETY at SOUTH KENSINGTON and CHISWICK, with unrivalled satisfaction, is a guarantee for skill of design, superior materials, and good workmanship; while the great advantages obtained by his IMPROVED SYSTEM cannot be over-estimated, consisting of perfectly tight joints with neatness of appearance; EFFECTS A SAVING OF 25 PER CENT. on cost of Apparatus erected compared with other systems; facility for extensions, alterations or removals without injury to Pipes or Joints; can be erected by any Gardener; an ordinary-size Apparatus erected in one day, and PERFECTNESS of DESIGN SUPPLIED, INSURING NO EXTRAS. Complete Apparatus, of the best materials, with Saddle Boiler, delivered to any Railway Station in England, and Erected at the following prices. Erection beyond 25 miles off London, railway fare for one man additional. Considerable reduction on large works.

TWO FOUR-INCH PIPES ALONG ONE SIDE AND ONE END OF HOUSE.

Size of House.	Apparatus Complete.	Erection.	Size of House.	Apparatus Complete.	Erection.
20 feet by 10 feet ..	£9 0 0 ..	£2 0 0	50 feet by 15 feet ..	£17 10 0 ..	£3 0 0
30 feet by 12 feet ..	11 15 0 ..	2 10 0	75 feet by 15 feet ..	20 0 0 ..	3 0 0
40 feet by 15 feet ..	15 0 0 ..	2 15 0	100 feet by 15 feet ..	26 0 0 ..	3 5 0

Bath and Gas Work erected in town or country. The Trade Supplied.

Horticultural Buildings of every description from 1s. 6d. *per foot superficial, inclusive of Brickwork.*

Price Lists, Plans, and Estimates forwarded on application to

T. S. TRUSS, C.E., CONSULTING HORTICULTURAL ENGINEER, &c., SOLE MANUFACTURER,
FRIAR STREET, BLACKFRIARS ROAD, LONDON, S.E.

Observe — The City Offices are now Removed to the Manufactory, Friar Street.

HYACINTH GLASSES, in every variety of shape and colour; SUPPORTS, DISHES, CROCUS GLASSES, &c.
The Garden Repository, 32, James Street, Covent Garden, W.C.
N.B. A liberal discount to the Trade.

THOMAS MILLINGTON AND CO.,
IMPORTERS, DEALERS, AND MANUFACTURERS OF GLASS.
87, Bishopsgate Street Without, London, E.C.
PRESENT PRICES of HYACINTH GLASSES.



A.—30s. per gross. 3s. per dozen. B.—6s. per gross. 6d. per dozen. C.—12s. per gross. 4s. per dozen.
The above are made in Green, Blue, Puce, Amber, and White. Opal, 1s. per dozen extra.

RUSTIC BULB VASES.
TYE'S HYACINTH GLASSES.
FERN CASES and AQUARIA.



CLAUDET, HOUGHTON, AND SON,
89, HIGH HOLBORN, W.C.
Price List free on application.

Oil Paint no longer Necessary.



HILL AND SMITH'S PATENT BLACK VARNISH for preserving Iron Work, Wood, or Stone. This Varnish is an excellent substitute for oil paint on all out-door work, and is fully two-thirds cheaper. It may be applied by an ordinary labourer, requires no mixing or thinning, and is used cold. It is used in the grounds at Windsor Castle, Kew Gardens, and at the seats of many hundreds of the nobility and gentry, from whom the most flattering testimonials have been received, which HILL & SMITH will forward on application.

From CHAS. E. B. SMEDLEY, Esq., *The Grange, near Boston.*

"I have much pleasure in giving you a reply to your inquiries about the Black Varnish I have had from you for the last two years. It has answered my expectations fully, and as far as I am able to judge, it is the best material for preserving iron fencing, gates, and other wood work exposed to the air; and I can with safety recommend it as the best and cheapest article that is yet out. Wishing you every success."

Sold in casks of about 30 gallons each, at 1s. 6d. per gallon, at the Manufactory, or 1s. 8d. per gallon paid to any Station in the kingdom.
Apply to HILL & SMITH, Brierly Hill Iron Works, near Dudley, and 22, Cannon Street West, E.C., from whom only it can be obtained



COCOA-NUT REFUSE is becoming SCARCE, the old reserves will soon be gone. Now sold in bags, 1 for 2s., 10 for 16s., 20 for 30s., 50 for 66s., 100 for £6.

Fourpence allowed for each bag returned carriage-paid.

A Railway Truck-load (not in bags), 40s.

Postage Stamps or Post-office Order, payable to J. BARSHAM & Co., Kingston-on-Thames, S.W.

To Gardeners, Nurserymen, and Amateurs.

TO BE SOLD, a great quantity of TOBACCO JUICE, in 8-gallon Tins and 12-gallon Casks, at 1s. 3d. per gallon.
Apply to ROBERT BULLEN, Victoria Nursery, Tranmere Park, Birkenhead.

TOBACCO TISSUE for Fumigating Greenhouses. Will Destroy Thrip, Red Spider, Green and Black Fly, and Mealy Bug; and burns without the assistance of blowing, and is entirely free from paper or rag. Price 3s. 6d. per lb., carriage free. A reduction in price for large quantities.
To be had of Messrs. ROBERTS & SONS, Tobacco Manufacturers, 112, St. John Street, Clerkenwell, E.C., of whom copies of Testimonials may be obtained; and of all Seedsmen and Nurserymen.

WINTER-DRESS ALL FRUIT TREES with GISHURST COMPOUND.

Copy of a Letter from Mr. RIVERS, *Nurseries, Sawbridgeworth, Herts, 22d October*, 1861.

"I must tell you what I heard to-day from a very clever gentleman farmer, Anthony Bubb, Esq., of Witcombe Court, Gloucester. He has a wall to which Peach Trees are trained. Well, last autumn they were in a wretched blighted state. As a desperate remedy he unnailed them all, early last February, and gave all but one a thorough painting with Gishurst Compound, 1 lb. to the gallon of water; his trees, all but the one, commenced to grow favourably in spring, and are now pictures of health. The tree not painted is in a half-dead blighted state. He used the same dressing to his Apple Trees; it killed the woolly Aphis entirely, and has made his trees clean and vigorous in their growth. He intends to paint his Wall Trees annually, and tells all his friends to do the same. I shall certainly serve all my young Peach Trees against my walls in the same manner. The Compound is, I believe, more efficacious than the usual offensive mixtures of clay, soot, sulphur, &c.; and it does not blacken the shoots on the walls."

For Orchard-house Trees, 4 ozs. to the gallon will be found a good strength; when used stronger some buds on weakly trees may be injured.

GISHURST COMPOUND is sold Retail by Nurserymen and Seedsmen, in boxes, 1s., 3s., and 10s. 6d. each.
Wholesale by PRICE'S PATENT CANDLE COMPANY, LIMITED, Belmont, Vauxhall, London, S.

Gishurst Compound has more recent testimonials to its efficacy, but none more conclusive than the above, which has been published before.

BARNSLEY LOCAL BOARD of HEALTH.
DESIGN for GREENHOUSE.

The Local Board are desirous of erecting a Greenhouse in the Locke Park, to be constructed of Iron and Glass, including proper Warming Apparatus, at a cost not exceeding £230. The Board will give a PREMIUM of £5 for the BEST DESIGN, if accepted. The Design must especially embrace ample room for the preservation of Bedding out Plants during the winter months.
Plans and Estimates are to be sent to me, under cover, endorsed "Tender for Greenhouse," on or before MONDAY, December 2
By Order WM. H. PEACOCK, Clerk to the Board.
Barnsley, Nov. 5, 1867.

PARKS PLANTED, OLD GARDENS RENOVATED and made Fruitful, or New Ones made.
GLASS-HOUSES BUILT and HEATED, as best suited for Growing any particular class of Plants or Fruits, by
ROBERT BULLEN, Nurseryman, &c., Tranmere Park, Birkenhead.

JOHN GIBSON, JUN., begs to announce that he is prepared to Furnish PLANS and ESTIMATES for LAYING OUT GROUND attached to Mansions and Villa or other Residences, or for the FORMATION of PUBLIC PARKS or GARDENS and to carry out the same by Contract or otherwise.
Address Mr. JOHN GIBSON, jun., Surrey Lane, Battersea, S.W.

Farm Poultry.

GREY DORKING FOWLS, of purest breed, in any numbers.
Imported TOULOUSE GEESE, the largest and most productive breed known.
Improved NORFOLK TURKEYS, large, hardy, and good breeders.
AYLESBURY and ROUEN DUCKS.
Imported BELGIAN HARE RABBITS, for size and early maturity.
BRAHMA-POUTRA, CREVECŒUR, and LA FLECHE FOWLS, for constant layers.
Priced Lists and Estimates on application.
JOHN BAILY & SON, 113, Mount Street, London, W.

FOR DISPOSAL, a First-class NURSERY and SEED BUSINESS; or the present Proprietor would accept of a WORKING PARTNER with a Capital of not less than £1500.
Apply by letter to E., Messrs. Hurst & Son, 6, Leadenhall Street, London, E.C.

Kemprow, Aldenham, Herts.

TO BE LET, a FARM of 126 Acres, with the Shooting, and a Gentleman's SMALL HOUSE, situated within 10 minutes' walk of the New Station on the Midland Railway at Radlet, Herts, and with immediate possession.
For terms and cards to view, apply to Messrs. HUMBERT & Cox, Land Agents and Surveyors, 88, St. James's Street, S.W., and Watford, Herts.

To Market Gardeners, Fruit Growers, Nurserymen, and Others.

TO BE LET, on the Estate of the Earl of Essex, at Watford, Herts, with Immediate Possession, 27 ACRES of very Fertile ARABLE LAND, lying high, sloping to the south-east, well secured from the north, and abutting on the Turnpike Road, within about a mile of three Railway Stations and the Town of Watford, and admirably adapted for Garden Culture, together with a large quantity of sewerage and an unlimited supply of Water, a 10-Horse Power Stationary Pumping Engine and Pumps, and a Cottage, all in good working order, and, if required, about 25 Acres of Low-lying Meadow Land, on rich Alluvial Soil.
For Terms and Card to View apply to Messrs. HUMBERT & Cox, 88, St. James's Street, London, W.; and Watford, Herts.

Nursery and Seed Business for Sale.

WILLIAM DEAN, having determined on residing in London again, offers for SALE, with immediate possession, the NURSERY at SHIPLEY, consisting of Four Acres, with 13 extensive Glass Houses, the whole, with the Nursery well stocked, and with Dwelling House, &c., is held on Lease; also the SEED SHOP, in BRADFORD (the only one in the town), which is well fitted up, and where there is a good business doing in Fancy Articles, as well as Seeds, Cut Flowers, Flowering Plants, &c. The Nursery is 2½ miles from the Shop, on a principal road to Bradford. A half year's business is equivalent to the purchase money required, and will be a great bargain to the purchaser. It is an excellent opportunity for a large house in the South to establish a Branch Business here, as a good healthy Trade is already done, which may be very much increased. For particulars apply to
WILLIAM DEAN, Bradford Nursery, Shipley, Yorkshire.

Sales by Auction.

SALE THIS DAY, AT HALF-PAST 12 O'CLOCK.

Roses, Shrubs, Fruit Trees, Dutch Bulbs, &c.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on SATURDAY, November 9, at half-past 12 o'clock precisely, an Assortment of HARDY TREES and SHRUBS, Pyramidal and Dwarf FRUIT TREES, Standard and Dwarf ROSES, and a large quantity of HYACINTHS, TULIPS, NARCISSUS, CROCUSES, LILIES, GLADIOLI, &c., just arrived from Holland.
On view the Morning of Sale, and Catalogues had.

Bulbs from Holland.

MR. J. C. STEVENS will SELL by AUCTION at his Great Rooms, 38, King Street, Covent Garden, W.C., on MONDAY, November 11, at half-past 12 o'Clock precisely, a first-class Collection of HYACINTHS, TULIPS, CROCUSES, NARCISSUS, GLADIOLI, LILIUMS, and other BULBS, just arrived from Holland.
On view the Morning of Sale, and Catalogues had.

Imported Orchids.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on TUESDAY, November 12, at half-past 12 o'Clock precisely, an importation of rare ORCHIDS, just received from New Grenada, consisting of—

Odontoglossum ramossimum, the finest of the whole tribe.	Odontoglossum triumphans.
Odontoglossum nævium.	" cristatum.
" Pescatorea.	Oncidium cucullatum, the large-lipped variety.

Also growing plants of the following fine species:—

Cypripedium caudatum roseum.	Mesospindium sanguineum.
Cycnoches pentricosum var. maranthum.	Trichopilia crispa.
Oncidium serratum, and others.	Warscewiczella marginata. [&c.
	Zygopetalum rostratum majus,

On view the Morning of Sale, and Catalogues had.

Consignment of Plants and Bulbs from Holland.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, November 13, at half-past 12 o'Clock, precisely, a consignment from Holland of Choice STANDARD, WEEPING, and DWARF ROSES, Specimen Conifers, Variegated Hollies, Standard, Pyramid, and named Fruit Trees, Laurels, Aucubas, and a variety of HARDY TREES and SHRUBS; also a consignment of first-class DUTCH BULBS, consisting of Double and Single Hyacinths, Tulips, Crocuses, Narcissus, Lilies, Gladioli, and other Bulbs just arrived from Holland.
On view the Morning of Sale, and Catalogues had.

Coningsby Nurseries.

IMPORTANT SALE OF FOREST TREES, SHRUBS, &c.

MR. W. POGSON will SELL by AUCTION, by direction of Mr. William Moor, on TUESDAY, November 12, at 12 o'Clock, in the Nurseries, Coningsby, in the occupation of Mr. William Cooper, about 500,000 FOREST TREES, SHRUBS, &c., comprising OAK, ASH, ELM, LARCH, SPRUCE, and SCOTCH FIR TREES, FRUIT TREES of every description, EVERGREENS, &c., and a quantity of ENFIELD CABBAGE PLANTS.
Coningsby is one mile from Tattershall Station, Great Northern Railway, Lincolnshire Line.

MESSRS. PROTHEROE AND MORRIS'S PRELIMINARY NOTICE of FORTHCOMING SALES.

HIGHLY IMPORTANT TO NOBLEMEN, GENTLEMEN, AND OTHERS ENGAGED IN PLANTING.

FULWELL, November 29, by order of Mr. Laing.—The usual assortment of NURSERY STOCK, consisting of some valuable specimens for effective purposes.

BIRKENHEAD, near Liverpool, on WEDNESDAY, December 4, and following day, by order of Mr. Wm. Henderson, OXTON HILL NURSERY, the valuable NURSERY STOCK, comprising Evergreen, Coniferous, and Deciduous Shrubs, Ornamental and Forest Trees, &c.

CITY AUCTION ROOMS, 38 & 39, Gracechurch Street.—WEEKLY SALES of only first-class DUTCH BULBS, STANDARD ROSES, AMERICAN PLANTS, &c.

Particulars will appear in future Advertisements.
American Nurseries, Leytonstone, N.E.

Godalming, Surrey.

IMPORTANT CLEARANCE SALE OF VALUABLE NURSERY STOCK.

MESSRS. PROTHEROE AND MORRIS have received instructions from Mr. Charles J. Barker, to SELL by AUCTION, on the Premises, Godalming Nursery, and at Terrace Gardens, Shady Hangor, Godalming, Surrey, on MONDAY, November 11, and two following days, at 11 o'Clock each day, the WHOLE of the thriving NURSERY STOCK, including a valuable assortment of CONIFEROUS, EVERGREEN, and DECIDUOUS SHRUBS of all sizes, many of which are handsome specimens for effective purposes; a large quantity of remarkably fine full-bearing FRUIT TREES, mostly Pyramidal trained, viz., Apples, Pears, Plums, and Cherries of the best varieties by name, Quince and Medlars, the whole of which have been properly prepared for removal; Ornamental Trees, various; Standard and Dwarf Roses; Currants, Gooseberries, &c.; a fine collection of Greenhouse Plants, choice Ferns, &c.; with Four newly-erected Greenhouses, Pits, Hot-water Piping, Boilers, Bricks, the Erection of Rustic Saloon, 70 feet long by 13 feet 6 inches wide, and other Effects.
May be viewed prior to the Sale. Catalogues had on the premises, and of the Auctioneers and Valuers, Leytonstone, N.E.

Edmonton, Middlesex.

IMPORTANT SALE OF VALUABLE NURSERY STOCK.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. Charles Woolven to SELL by AUCTION, on the Premises, Langbedge Nursery, Edmonton, within 10 minutes' walk of the Park Station on the Great Eastern Line, on WEDNESDAY and THURSDAY, November 13 and 14, at 11 o'Clock each day, a portion of the ground being immediately required for other purposes, the valuable NURSERY STOCK, including a large quantity of clean-grown FRUIT TREES, viz., Standard, Pyramidal, and Dwarf-trained Apples, Pears, Plums, Cherries, Peaches, Nectarines, and Apricots; 1000 Walnuts, Currants, &c.; a fine assortment of EVERGREEN, CONIFEROUS, and DECIDUOUS SHRUBS, ranging all sizes, including specimens for effective purposes; ORNAMENTAL and FOREST TREES; 1000 STANDARD and DWARF ROSES, of the best varieties; 30,000 QUICK; HARDY CLIMBERS, in pots, &c.
May be Viewed prior to the Sale. Catalogues had on the premises, and of the Auctioneers and Valuers, Leytonstone, N.E.

New Hampton, Middlesex.

MESSRS. PROTHEROE AND MORRIS are directed by Mr. R. Lay to SELL by AUCTION, on the Premises, New Hampton Nursery, near the Twickenham Station, and within five minutes' walk of the Fulwell Station, on the Thames Valley Railway, on FRIDAY, November 15, and following day, at 11 o'Clock each day, 1000 ENGLISH FAN YEWS, remarkably handsome, 4 to 10 ft.; 1000 GREEN HOLLIES, 1 to 6 feet; 800 CHINESE ARBOR-VITÆ, 3 to 5 feet; bushy PORTUGAL and COMMON LAURELS, &c.; a large quantity of ORNAMENTAL TREES and DECIDUOUS SHRUBS; 6000 Standard and Dwarf FRUIT TREES, viz., Apples, Pears, Plums, Cherries, Peaches, Nectarines, &c.
May be Viewed prior to the Sale. Catalogues had on the premises, and of the Auctioneers and Valuers, Leytonstone, N.E.

Sale of Very Fine Dutch Bulbs, Handsome Standard Roses, &c.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at 38 and 39, Gracechurch Street, E.C., on SATURDAY, Nov. 16, at 1 o'Clock precisely, a First-class Collection of DUTCH BULBS, including fine named Hyacinths, Tulips Crocuses, Narcissi, Snowdrops, Anemones, Ranunculi, &c.; a splendid assortment of STANDARD, DWARF, and CLIMBING ROSES, of the best varieties in cultivation; Selected AMERICAN PLANTS, viz., Ghent and other Azaleas, Hybrid Rhododendrons, Kalmias, Andromedas, some Hardy Climbers, &c.
On View the Morning of Sale. Catalogues had at the rooms as above, and of the Auctioneers and Valuers, Leytonstone, N.E.

Clearance Sale.—Woking, Surrey.

MESSRS. PROTHEROE AND MORRIS have received instructions to SELL by AUCTION, on the Premises, Goldworth Nurseries, Woking, Surrey, on MONDAY, November 18, and following days, at 11 o'Clock each day, without reserve, in consequence of the death of Mr. Robert Donald, the WHOLE of the extensive and valuable NURSERY STOCK, in a fine state of cultivation, comprising a splendid variety of CONIFEROUS, EVERGREEN, and DECIDUOUS SHRUBS of remarkably healthy growth, including 10,000 Thujas (sorts), 10,000 Cupressus Lawsoniana, 10,000 Retinispora (sorts), 5000 Juniperus, 4000 Thujopsis borealis, 2000 Wellingtonia gigantea, 2000 Abies (sorts), 2000 Picea (sorts), 40,000 Spruce, Scotch and Silver Firs, 50,000 Larch, Araucarias, Cedrus (sorts), 200,000 Common Laurels, 5000 Portugal Laurels, 6000 Arbutus (very fine), 10,000 Berberis (sorts), 4000 Tree Box, 20,000 Privet, 2000 Laurustinus, 7000 Variegated, English, and other Yews; 20,000 Green and Variegated Hollies, 1000 Magnolias (sorts), Spiræas, Weigelas, Calycanthus, Deutzias, Guelder Rose, Lygustrum japonicum, &c.; Fruit, Ornamental, and Forest Trees, viz., thousands of Standard, Dwarf, and Pyramidal Apples, Pears, Plums, Cherries, Peaches, Nectarines, and Apricots; Currants, Gooseberries, Filberts, Walnuts, Figs, Mulberries, Medlars, &c.; Sycamores, Limes, Maples, Poplars, Chestnuts, Willows, Ash, Birch, Hazel, and Spanish Chestnuts; choice American Plants, consisting of 2000 Rhododendrons of the best named varieties, hardy Ghent Azaleas, Sedums, Azalea amœna, hardy Heaths, a large quantity of Climbers (of sorts), fine Standard and Dwarf Roses (the best kinds), Manetti stocks, 200,000 strong Quick, &c.
May be Viewed prior to the Sale. Catalogues had (6d. each, returnable to purchasers) on the premises, and of the Auctioneers and Valuers, American Nurseries, Leytonstone, N.E.

Hereford.—To Gentlemen, Nurserymen, & Planters.

IMPORTANT SALE OF NURSERY STOCK, IN CONSEQUENCE OF EXPIRATION OF LEASE, AT BARRS' COURT NURSERIES.

MR. O. SHELLARD is instructed by Mr. G. Davison to SELL by AUCTION, at the White Cross and Barrs' Court Nurseries, Hereford, on MONDAY, November 25, and five following days, a large portion of the well-known STOCK on these Premises, comprising 10,000 strong Standard Cider Apple and Crab Stocks; 3000 Specimen Conifers, 4 to 9 feet high, including fine grown plants of Wellingtonia, Deodara, Thujopsis, Cupressus, Thuja, Juniperus, Abies, Araucaria, and Pinus; 500 Common Yews, 5 to 6 feet high; 200 Irish Yews, 6 to 7 feet; 2000 Avenue Trees, consisting of Chestnut, Lime, Elm, Birch, Hornbeam, Beech, Turkey Oak, Plane, &c., 9 to 14 feet high; 500 large Laurustinus, 2½ feet through; 500 Pinus insignis, 4 to 6 feet high; 500 Cupressus macrocarpa, 5 to 7 feet; 1000 large Pinus austriaca, 4 to 6 feet; 12,000 Common Laurels, 2 to 4½ feet; 2000 Spruce Firs grown for Christmas Trees, 3 to 4½ feet; 500 Acer negundo variegata, 3 to 6 feet; 1000 Large Portugal Laurels, 2 to 4½ feet; 150 splendid Thuja aurea, 2½ to 4 feet; a large quantity of Box, Privet, Bay, Lilac, Acer, Purple Beech, Ailanthus, Tulip Tree, Poplar, Judas Tree, Flowering Thorns, &c. 300,000 Strong Transplanted Hawthorn Quick, 2½ to 3½ feet high; 20,000 2-years Seedling Quick; 250,000 Twice Transplanted Larch, 3 to 6 feet; 150,000 Once Transplanted Larch, 1½ to 2 feet; 200,000 Ash, 2 to 5 feet; 70,000 Oak, 1½ to 2 feet; 50,000 Spanish Chestnuts, 1½ to 2 feet; 50,000 Spruce and Scotch Fir, 1½ to 4 feet. In Pots:—A large quantity of Primula sinensis, new Violets, Euonymus, new Aucubas, and Maréchal Niel Rose on own roots. All the above Plants and Trees are in the finest possible condition for immediate removal, well grown, and constantly transplanted.
On view at the Nurseries at any time. Catalogues may be had at the Auctioneer's Office, at Messrs. MINIER, NASH, & NASH, Charing Cross, London; or of GEORGE DAVISON, White Cross House, Hereford.

HEATING BY HOT WATER.

It is now generally admitted that BUILDINGS of any kind can be more effectually WARMED by HOT WATER than by any other means; but as so much depends on the way in which the Apparatus is fixed, it is of the greatest importance that it be done by experienced Men.

J. JONES & SONS

HAVE EVERY FACILITY FOR

EXECUTING WORK IN THE BEST MANNER

AT A MODERATE COST, AND HAVING THE

LARGEST STOCK IN THE KINGDOM OF BOILERS, PIPES, ETC.,

THEY CAN COMPLETE WORK WITHOUT DELAY.

Their great experience in HOT WATER HEATING enables them in all cases to supply an APPARATUS best suited to the purpose for which it is intended, and they will be happy to send to any part of the Country at a moderate charge, to take particulars of work, and prepare Plans, &c., or on receipt of particulars per post, they will forward Estimates free of charge.

J. JONES AND SONS having been so extensively patronised for many years by the Nobility, Clergy, Gentry, and others, are enabled to give references to work done in nearly every part of the Kingdom.

J. JONES & SONS

ARE PREPARED TO ESTIMATE FOR WARMING, TO ANY EXTENT—

CHURCHES	PUBLIC OFFICES	VINERIES	ORCHARD HOUSES	BATHS
CHAPELS	WAREHOUSES	HOTHOUSES	HALLS and PASSAGES	DRYING CLOSET
SCHOOLS	FACTORIES	FORCING PITS	PICTURE GALLERIES	COACH HOUSES
LECTURE HALLS	GREENHOUSES	PINE STOVES	MUSIC ROOMS	HARNESS ROOMS
BANKS	CONSERVATORIES	PEACH HOUSES	BILLIARD ROOMS	

J. JONES AND SONS' APPARATUS is simple in construction, moderate in cost, and economical in working.

It is equally available for the AMATEUR'S GREENHOUSE, or the longest range of FORCING HOUSES; for the smallest Chapel or the largest Church; for Private Offices, or those of Public Companies.

It is admirably adapted for DWELLING HOUSES, as coils of pipes can be placed in any part, for warming the various rooms. One or more Baths may be heated from the same Boiler, and a constant supply of hot water obtained in any part of the house.

For WAREHOUSES and WORKSHOPS this system of Heating is unsurpassed as, unlike Stoves and Hot Air Flues, the circulation of Hot Water in Pipes is perfectly safe, and the Management of Apparatus can be left to any ordinary workman.

J. JONES & SONS

HAVE LATELY

FIXED THEIR HOT WATER APPARATUS IN OR NEAR THE FOLLOWING PLACES;

AND THE WORKING OF THE SAME HAS IN ALL CASES GIVEN THE GREATEST SATISFACTION.

Abbey Wood	Canterbury	Farnworth	Lutterworth	Solihull
Abergavenny	Cardiff	Faversham	Lymington	Southampton
Abingdon	Carshalton	Finchley	Lynn	St. Alban's
Addlestone	Caterham	Gloucester	Maidenhead	St. Asaph
Aldershot	Cheltenham	Glynde	Malvern	Stafford
Alton	Chepstow	Godalming	Manchester	Stamford
Ascot	Chertsey	Godstone	Marlow	Stanstead
Ash	Chester	Gomshall	Middleton	Stone
Atherstone	Cirencester	Grantham	Minster	Stonehouse
Aylesbury	Congleton	Gravesend	Nantwich	Stroud
Balham	Cookham	Guildford	Newbury	Sunninghill
Banbury	Coventry	Hailsham	Newhaven	Swansea
Barnes	Cowes	Hammersmith	Newnham	Teddington
Bath	Crawley	Hampton	Newmarket	Teignmouth
Battle	Croydon	Hanworth	Newport	Thame
Beckenham	Culham	Harrogate	Northampton	Thetford
Beccles	Darlington	Haslemere	Northwich	Tongham
Bedford	Dartford	Hastings	Norwich	Torquay
Bexhill	Datchet	Hatfield	Nottingham	Tunbridge
Bickley	Deal	Hayward's Heath	Oswestry	Tunbridge Wells
Birmingham	Derby	Hereford	Oxford	Twickenham
Bishop Stortford	Dingwall	Hertford	Paris	Uckfield
Blackheath	Diss	Hitchin	Pembroke	Uxbridge
Blandford	Dorchester	Horsham	Petersfield	Virginia Water
Blisworth	Dorking	Hull	Pinner	Wallingford
Bournemouth	Dover	Huntingdon	Poole	Waltham
Boxmoor	Downham	Inverness	Potter's Bar	Walton
Bracknell	Dublin	Kettering	Ramsgate	Warlingham
Brentford	Eastbourne	Kingston	Reading	Warrington
Bridgend	East Grinstead	Knaresboro'	Reigate	Watford
Bridgenorth	Edenbridge	Leamington	Richmond	Wellingborough
Brighton	Edmonton	Leeds	Rickmansworth	Welwyn
Bristol	Elgin	Lewes	Ringwood	Weybridge
Broadstairs	Ely	Leytonstone	Ross	Weymouth
Bromley	Enfield	Limerick	Rugby	Wimborne
Broxbourne	Epsom	Liphook	Rushton	Windsor
Buckingham	Erith	Liss	Ryde	Wolverhampton
Burton	Exeter	Liverpool	Sevenoaks	Worcester
Bury St. Edmund's	Farnborough	Ludlow	Shiffnal	Wisbeach
Cambridge	Farnham	Luton	Shrewsbury	York

J. JONES AND SONS,

IRON MERCHANTS and HORTICULTURAL ENGINEERS, 6, BANKSIDE, SOUTHWARK, LONDON, S.E.

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THE GARDENERS' CHRONICLE

AND

AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.

No. 46.—1867.] SATURDAY, NOVEMBER 16. {Price Fivepence. Stamped Edition, 6d.

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Chrysanthemums.

ADAM FORSYTH begs to inform his Friends and the Public that his large COLLECTION of SPECIMEN and other CHRYSANTHEMUMS are NOW in FLOWER, and may be seen every day (Sunday excepted).
Brunswick Nursery, Stoke Newington, London, N.

Exhibition of Chrysanthemums.

JOHN SALTER'S COLLECTION of these beautiful FLOWERS is NOW in BLOOM. The Winter Garden contains upwards of 2000 plants, many of which are perfectly new, both in colour and form, and are now exhibited for the first time. The Gardens are open every day except Sunday; admittance free.
Versailles Nursery, William Street, Vale Place, Hammersmith, W., near Kensington Railway Station.

To Nurserymen and Seedsmen.—Notice.

THE GARDENERS' YEAR BOOK, ALMANAC, and DIRECTORY for 1868, by ROBERT HOGG, LL.D., F.L.S., will be Published on DECEMBER 2. Any alterations in the style and address of Firms are requested to be sent forthwith to the Editor, so that the necessary corrections may be made in the Directory portion.
"Journal of Horticulture" Office, 171, Fleet Street, London, E.C.

NEW GOLDEN-LEAVED FUCHSIA, GOLDEN FLEECE. See *Gardeners' Chronicle*, Nov. 9.
Wellington Nursery, St. John's Wood, London, N.W.

THALICTRUM MINUS (best substitute for Adiantum). —Plants of the above offered from 6s. to 9s. per dozen, by ROBERT M. STARK, York Road, Trinity, Edinburgh.—Nov. 15.

Paul and Son's Double Crimson Thorn.

PAUL AND SON beg to offer Strong STANDARDS and PYRAMIDS—these last 6 feet high, branched from foot—at 5s. each, 50s. per dozen; MAIDEN DWARFS, 2s. 6d. each. It is a new hardy plant of rare merit.
The "Old" Nurseries, Cheshunt, N.

RICHARD SMITH'S FRUIT LIST contains a sketch of the various forms of Trees, with directions for Cultivation, Soil, Drainage, Manure, Pruning, Lifting, Cropping, Treatment under Glass; also their synonymes, quality, size, form, skin, colour, flesh, flavour, use, growth, duration, season, price, &c. Free by post for three stamps.
RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

WANTED, 1000 transplanted ENGLISH OAKS, 4 to 5 feet; 1000 transplanted SPANISH CHESTNUTS, 4 to 5 feet. Also a quantity of extra strong ASPARAGUS for Forcing.
Apply to ROBERT F. DAREY, Florist, &c., Cirencester.

WANTED, RHODODENDRON NOBLIEANUM, well budded; also 50 to 100 DENYER'S VICTORIA PLUM, Standards for Orchard, with good stems and heads.—Address, stating lowest price, F. L., *Gardeners' Chronicle* Office, W.C.

FOR SALE or EXCHANGE, fine rooted 2-yr. Seedling QUERCUS ILEX.
Fine 1-yr. APPLE STOCKS; Fine 1-yr. and 2-yr. transplanted do. Do. 3-yr. TURKEY OAKS, fine roots, 1 to 3 feet.
PRIVET BERRIES.
ROBERT H. PUYNTER, Nurseryman, Taunton.

EVERY GARDEN REQUISITE kept in Stock at CARTER'S New Seed Warehouse, 237 & 238, High Holborn, London.

Genuine Garden and Agricultural Seeds.

JAMES CARTER AND CO.
SEED FARMERS, MERCHANTS, and NURSERYMEN, 237 & 238, High Holborn, London, W.C.

Genuine Agricultural and Garden Seeds.

JAMES FAIRHEAD AND SON, SEED GROWERS and MERCHANTS, 7, Borough Market, and Braintree, Essex.

Agricultural and Garden Seeds.

H. AND F. SHARPE beg to announce to the Trade that their SPECIAL LIST of HOME-GROWN SEEDS, 1867 Growth, is now ready and may be had on application.
Seed Growing Establishment, Wisbech, Cambs.

RAYNBIRD, CALDECOTT, BAWTREE, DOWLING, AND COMPANY, Limited,
CORN, SEED, MANURE, AND OILCAKE MERCHANTS,
Address, 89, Seed Market, Mark Lane, E.C.; or Basingstoke.
Samples and Prices post free on application. Prize Medals, 1851, for Wheat; 1862, for "Excellent Seed Corn and Seeds."

FOR SALE, a quantity of SANGSTER'S PEAS, No. 1.
For Price, &c., apply to
Mr. JAMES MORRIS, Little Walden, Saffron Walden.

ONE TON of ASPARAGUS SEED on SALE.—Entire Crop of 1867, at 3d. per lb.; do. of 1866, at 2½d. per lb.; per cwt., at 4d. per lb.; per quarter, at 3d. per lb.; lesser quantities, 1s. per lb.—Asparagus Garden, Formby, Liverpool.

MUSHROOM SPAWN of the best possible quality, 5s. per bushel. Sample Brick sent on application. The Trade supplied.
JOHN KELLETT, Wellington Nursery, Heaton Chapel, Stockport.

Vines.

B. S. WILLIAMS has now on hand a very large and fine Stock of FRUITING and PLANTING CANES of all the best varieties. An inspection is invited.
Victoria and Paradise Nurseries, Upper Holloway, London, N.

Vines.

J. MEREDITH will have great pleasure in forwarding his PRICED LIST of VINES on application. He has the largest stock in England. An inspection is invited.
The Vineyard, Garston, near Liverpool.

Vines.

H. LANE AND SON solicit an inspection of their stock of VINES: 2000 Canes to choose from, strong and well ripened. They have been awarded the First Prize for Vines in pots at all the leading Exhibitions. CATALOGUES free on application.
The Nurseries, Great Berkhampstead, Herts.

FIVE HUNDRED GRAPE VINES, from Eyes. Prices on application.
J. PEED, Effra Nursery, Brixton, S.

STRONG and EXTRA STRONG FRUITING VINES, unusually fine and well ripened. All the leading kinds, for fruiting in pots and for planting out.
JAMES DICKSON & SONS, Newton Nurseries, Chester.

New Grape.

MADRESFIELD COURT BLACK MUSCAT GRAPE. See large Advertisement in No. 44, November 2, 1867.
JOHN & CHARLES LEE, Royal Vineyard Nursery, Hammersmith, London, W.

WEBB'S PRIZE COB FILBERTS, and other PRIZE COB NUTS and FILBERTS. LIST of these varieties from Mr. WEBB, Calcot, Reading.

For Orchard Planting.

PAUL AND SON have to offer some thousands of fine-headed STANDARD TREES of the leading kinds of APPLES, PEARS, &c. Prices per 100 or per 1000 on application.
The "Old" Nurseries, Cheshunt, N.

Fruit Trees.

H. LANE AND SON beg to call attention to their extensive stock of FRUIT TREES of every description, which is very fine and healthy, at moderate prices.
CATALOGUES free on application.
The Nurseries, Great Berkhamstead, Herts.

Orchard-house Trees Fruiting in Pots.

PEACHES, NECTARINES, APRICOTS, CHERRIES, PLUMS, PEARS, APPLES, VINES, and FIGS.
RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

Standard Apples.

WOOD AND INGRAM offer to the Trade and others 20,000 splendid STANDARD APPLES, with 5 to 6 feet stems and magnificent heads. Price on application.
The Nurseries, Huntingdon.

STANDARD APPLES, PEARS, and PLUMS, &c., &c. See CATALOGUES, Wholesale or Retail.
THOMAS WARNER, Leicester Abbey Nurseries.

APPLES, CHERRIES, NECTARINES, and PEACHES, &c., Dwarf and Dwarf-trained; Houghton Castle CURRANTS, &c., &c. See CATALOGUES, Wholesale or Retail.
THOMAS WARNER, Leicester Abbey Nurseries.

SCARLET CHESTNUTS, STANDARD ELMS, THORNS, and POPLARS, SEEDLING QUICK, &c., &c. See CATALOGUES, Wholesale or Retail.
THOMAS WARNER, Leicester Abbey Nurseries.

ARBOR-VITÆS, ARBUTUS, AUCUBAS, BOX, YEWS, &c., &c.
See CATALOGUES, Wholesale or Retail.
THOMAS WARNER, Leicester Abbey Nurseries.

THIRTY THOUSAND AMERICAN ARBOR-VITÆ, from 3 to 6 feet, very suitable for Hedges.
WM. WOOD & SON, Woodlands Nursery, Maresfield, near Uckfield, Sussex.

ONE HUNDRED THOUSAND fine Transplanted COMMON LAURELS, from 1½ to 3 feet.
WM. WOOD & SON, Woodlands Nursery, Maresfield, near Uckfield, Sussex.

EIGHT HUNDRED THOUSAND fine transplanted LARCH.
100,000 BIRCH, 3 to 4½ feet. Special prices.
Messrs. TREMBLE, The Nurseries, Penrith.

AUCUBAS.—About 150 fine plants, from 3 to 4 feet high, clearance of building ground, to be SOLD in one Lot or in small quantities. Apply to
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Wholesale Catalogue.

GEORGE JACKMAN AND SON'S PRICED and DESCRIPTIVE CATALOGUE of HARDY NURSERY STOCK for 1867 and SPRING, 1868, can be had free on application.
Woking Nursery, Surrey.

Richmond Nurseries, Richmond, Surrey.

IF YOU WANT fine large bushy LAURELS, not injured by last winter's frost, apply to G. & W. STEELE, of the above Nurseries.

ACORNS.—For SALE, a quantity of fresh, firm, and solid ACORNS (QUERCUS COCCINEA).
Address Mr. HASTIER, 12, Water Street, Blackfriars, E.C.

FOR SALE, TWO very large Plants of YUCCA PARMENTIERI. Diameter at base, 11 inches. Price £60 the pair. Apply to
R. GRINSTEAD, Gardener, Enclos St. Bertin, St. Omer, France.

LASTRÆA FILIX-MAS, var. CRISPA-GRACILIS.—This new and undeniably prettiest of all the Dwarf male FERNS, may now be had, at 5s. per plant, from JOHN CLARK, Gardener, Newburgh, Fifeshire. Many other rare sorts. Trade supplied.

True Variegated Gynerium argenteum.

AMBROISE VERSCHAFFELT, NURSERYMAN, Ghent, Belgium, begs to offer fine and well-established plants of the True Variegated GYNERIUM ARGENTEUM, at the following low prices:—Good plants, 5s. each; £1 10s. for 6; £2 15s. for 12.

Larch, Spruce, &c.

LARCH, extra strong, 4 to 6 feet, 21s. per 1000. SPRUCE, 2 to 3 feet, 10s. per 100; 3 to 4 feet, 20s. per 100; 4 to 5 feet, 32s. per 100.
QUICKS, SCOTCH FIRS, and CONIFERS, of all sizes, &c.
HENRY MINCHIN, The Nurseries, Hook Norton, Oxon.

Winter and Spring Flowering Bulbs and Plants.

BARR AND SUGDEN'S FLORAL GUIDE may be had free. It contains much valuable information.
For particulars see large Advertisement, page 1090.

Hyacinths, Tulips, Crocuses, &c.

B. S. WILLIAMS has a fine Collection of the above. PRICED CATALOGUE post free on application.
HYACINTHS for Glasses or Pots, 6s., 8s., and 10s. per dozen.
Victoria and Paradise Nursery, Upper Holloway, London, N.

WM. CUTBUSH AND SON beg to say that their DESCRIPTIVE CATALOGUE of CHOICE HYACINTHS, TULIPS, CROCUSES, &c., is now ready, and can be had post free on application. Highgate Nurseries, London, N.

Finest Dutch Crocuses and Early Tulips.

SUTTONS' DESCRIPTIVE LIST is now ready, and will be forwarded gratis and post free on application.
SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

Lilium auratum.

SUTTON AND SONS can supply fine BULBS of this beautiful Flowering Plant at from 5s. to 15s. each.
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Before Purchasing Flower Roots, send for

J. SCOTT'S CATALOGUE of BULBS, VASES, and GARDEN REQUISITES. Bulbs are extra fine.
J. SCOTT, The Seed Stores, Yeovil, Somerset.

Notice.—Fruits, Flowers, Bulbs.

BEFORE PURCHASING, PLEASE SEND FOR
DILLISTONE AND CO.'S LITTLE LISTS, post free to all applicants.
Address, DILLISTONE & Co., Nurserymen, &c., Sturmer, near Halstead, Essex

Special Notice.—Plants and Bulbs.

MR. STEVENS' SALES of DUTCH BULBS, FRUIT TREES, ROSES, and HARDY SHRUBS, take place every WEDNESDAY and SATURDAY, and frequently on MONDAY, at the Rooms, 38, King Street, Covent Garden, London, W.C.
CATALOGUES on application.

To Gardeners, Seedsmen, &c.

HENLEY, BROTHERS, MERCHANTS, Holbeach, have still on hand a quantity of SNOWDROPS, which they beg to offer. Samples and price on application.

Surplus Stock of Bulbs.

DOUBLE SNOWDROPS, fine sample, 15s. per 1000; also a large quantity of DOUBLE and SINGLE VAN THOL, TURNESOL, and YELLOW POTTEBAKKER TULIPS and other Roots, at very low prices. LISTS on application.
HY. CLARKE & SONS, 39, King Street, Covent Garden, W.C.

SUPERB LILIES, in 70 finest varieties. Selections, 5s., 9s., 12s., 18s., and 24s. per dozen.
STEPHEN BROWN, Seed and Nursery Establishment, Sudbury, Suffolk.

CALCEOLARIA (Herbaceous), of choice strain, nice plants, in single pots, 21s. per 100; 12s. 6d. for 50, and 4s. per doz.
H. & R. STIRZAKER, Skerton Nurseries, Lancaster.

DOUBLE WHITE PRIMULA.—A few dozen of the above WANTED.
State price to JAFFA & Co., Bury Nursery, Edmonton, N.

JAMES CRAWFORD, High Beech, Essex, begs to offer a fine stock, both for size and quality, of first-class RHODODENDRONS and AZALEAS; also a fine Stock of ROSES, on their own roots; with 1000 GARDENIAS of different sorts and sizes, all of which will be Sold Cheap.

New Pelargoniums.

CHARLES TURNER is prepared to execute orders for the beautiful new varieties raised by Foster and Hoyle.
A DESCRIPTIVE LIST may be had on application.
The Royal Nurseries, Slough.

Pelargoniums for the Million.

JAMES HOLDER, having an immense stock of the above, begs to offer (strong plants, in large 60-pots) 50 distinct sorts for 30s.; 25 sorts for 20s.; or 12 sorts for 15s., hamper and package included. Crown Nursery, Reading.

WEBB'S NEW GIANT POLYANTHUS, Florist Flower, and GIANT COWSLIP SEEDS; also Plants of all the varieties, with double PRIMROSES of different colours; AURICULAS, both Single and Double, with every sort of Early Spring Flowers. LIST on application.—Mr. WEBB, Calcot, Reading.

Pansies.

WILLIAM DEAN'S CATALOGUE of these now ready, and includes some Novelties. Prices very low, especially per 100, to the Trade.
Mixed PANSIES for borders, strong plants, 15s. per 100.
Bradford Nursery, Shipley, Yorkshire.

R. M. STARK, York Road, Trinity, Edinburgh, is now prepared to send, on application, his YEARLY LIST of NEW, RARE, or SHOWY PLANTS, containing some interesting novelties.
A CATALOGUE of select ALPINE and HERBACEOUS PLANTS, HARDY FERNS, &c., is also ready.—Nov. 15.

PAUL AND SON'S ROSES.—See *Times*, *Athenæum*, and other leading Journals' reports of the Rose Shows.
Very reasonably PRICED CATALOGUES, free by post.
The "Old" Nurseries, Cheshunt, N.

CULTURAL DIRECTIONS for the ROSE. Second Edition. By JOHN CRANSTON, King's Acre Nurseries, near Hereford. Free by post from the Author for 20 stamps.

To the Trade.

MARECHAL NIEL ROSE, from own roots, in pots, by the 100 or 1000, at £5 per 100.
G. BAKER & SON, American Nursery, Bagshot.

"THE ROSES of MR. PAUL * * * are things to see once and dream of for ever."—*Athenæum*, *June*, 1867.
WM. PAUL begs to announce that his CATALOGUE of ROSES is now ready, and will be forwarded free on application.
EIGHTEEN PRIZES have been awarded to him for Roses this year at the principal London Flower Shows.
PAUL'S Nurseries, Waltham Cross, London, N.

WM. KNIGHT offers the splendid YELLOW ROSE, MARECHAL NIEL.—Large plants, about 3 feet high, well ripened wood, in 8-inch pots, suitable for forcing, from 5s. to 6s. each, or 60s. per dozen.
GENERAL DESCRIPTIVE CATALOGUES free on application.
Floral Nursery, Hailsham, Sussex.

The Dorset Nurseries, Blandford and Blandford St. Mary.

FREDERICK GILL AND CO., NURSERYMEN, SEEDSMEN, AND FLORISTS, beg to invite the attention of Gentlemen who intend Planting, to their large and vigorous STOCK of FOREST, FRUIT, and ORNAMENTAL TREES, SHRUBS, ROSES, &c., extending over many Acres, and not to be surpassed.

Their ROSES on MANETTI STOCKS, of the choicest varieties and superior growth, merit especial mention.

Copy of a Letter received from the Rev. F. RADCLYFFE.

To the PROPRIETORS *of the* DORSET NURSERIES.

"SIRS,—I was much pleased to-day with the review of your fine Nursery Stock. Your Manetti Roses are the best propagated of any that I have ever purchased. At a little distance few can discern whether they are on alien stocks or on their own roots. They are usually budded far too high to prosper.—Yours truly,

"W. F. RADCLYFFE."

Dumfries Railway Station Nursery.

THOMAS KENNEDY AND CO., NURSERYMEN AND SEEDSMEN, Dumfries, have this season a very large and superior stock of FOREST, FRUIT, and ORNAMENTAL TREES, DECIDUOUS and EVERGREEN SHRUBS, &c., which they are selling at extremely moderate prices. The TREES and SHRUBS being of all ages and sizes, are particularly well suited for extensive planting or for giving immediate effect in the formation and improving of Ornamental Parks, Pleasure Grounds, &c.

Prices on application. Special offers made to large purchasers.

*** Dumfries is most conveniently situated for the speedy transmission of goods to all parts of the United Kingdom.

Hollies, Yews Evergreen, Privets, &c.

W. WRIGHT, East Retford, Notts, begs to offer IRISH YEWS, fine specimens, 6 to 10 ft., at 4s., 5s., and 7s. 6d. each, 36s. per doz. PRIVETS, 9 to 12 inches, 5s. per 1000; 12 to 18 inches, 8s. per 1000; 2 to 2½ ft., 15s. per 1000. HOLLIES, fine plants, removed last year, 1 to 1½ ft., 10s. per 100; 1½ to 2 ft., 12s. 6d. per 100; 2 to 3 ft., bushy, 35s per 100. DAHOON HOLLIES, 2½ to 3½ ft., 15s. per doz.; 3 to 4 ft. ditto MADERENSIS, 15s. per doz. CUPRESSUS LAWSONIANA, 4 to 5 ft., 2s. 6d. each, 20s. per doz. LARCH, twice transplanted, 2 to 3 ft., 4 to 5 ft., 12s. 6d., 15s., 30s. per 1000. POPLARS, 10 to 12 ft., 12s. per 100. WRIGHT'S IMPROVED RED GROVE CELERY SEED, 1s. per packet, 12 packets for 8s.

Terms cash, or references from unknown correspondents.

To the Trade.

G. WALKER, Humberstone Nursery, Leicester, has to Dispose of, in excellent condition, AMERICAN ARBOR-VITÆ, bushy, 2 to 3 ft. high, 30s. per 100; COTONEASTER MICROPHYLLA, 4s. per doz.; TREE BOX, Green and Variegated, 2 to 3 ft., 20s. per 100; MOUNTAIN ASH, 10 ft., 4s. per doz.; HORNBEAM, 8 to 10 ft., 4s. per doz.; CHESTNUTS, 4 to 8 ft., 4s. per doz.; 8 ft. upwards, 6s. per doz.; SCARLET CHESTNUTS, 5 ft. stems, strong, 12s. per doz.; WALNUTS, 6 ft. stems, extra strong heads, 18s. per doz.; APPLES, bushy, for immediate bearing, £3 per 100; DWARF APPLES, 1-yr., cut back, 30s. per 100; STANDARD PEARS, 75s. per 100; MANETTI STOCKS, 30s. per 1000; PRIVET, strong, 20s. per 1000; ROSES, best named varieties, 75s. per 100; RED CURRANTS, 6s. per 100; POT VINES, in sorts, 18s. per doz.

Planting Season.

DICKSONS AND CO., NURSERYMEN, SEEDSMEN, and FLORISTS, 1, Waterloo Place, Edinburgh, have this season a fine healthy stock of all kinds of FOREST TREES, which have been grown on exposed ground and thin in the lines, comprising LARCH (Native and Tyrolese), 1, 2, and 3-yr., transplanted; SCOTCH FIR, from true native seed, 2 and 3-yr., twice transplanted; SPRUCE, 2, 3, and 4-yr., twice transplanted; OAK, 2 to 3 ft. and 3 to 4 ft., extra fine; ASH, 2 to 3 ft. and 4 ft., extra; SPANISH CHESTNUT, 3 to 4 ft, very fine; ELM, 3 to 4 ft.; ALDER, 2 to 3 ft. and 4 ft., strong; LIMES, of all sizes, from 3 to 12 ft.; POPLARS and WILLOWS, of all sizes; EVERGREEN PRIVET, extra strong; THORNS and BEECH for hedges, and all kinds of plants suitable for cover for game. ORNAMENTAL TREES and SHRUBS, FRUIT TREES, ROSES, GREENHOUSE and STOVE PLANTS and FERNS in great variety.

PRICED CATALOGUES free on application.

Large Evergreens, Specimen Conifers, &c.

WATERER AND GODFREY beg to submit the following List to the notice of intending planters:—

YEWS, ENGLISH, 5, 6, 7, 8, 10, 12, and 15 feet high
" IRISH, 6, 7, 8, and 10 feet high
" GOLDEN, 5, 6, to 9 feet
" STANDARD GOLDEN, 20 years worked
" " ELEGANTISSIMA, 10 and 15 years old
" " DOVASTON or WEEPING, fine heads, 10 and 15 years old

We have altogether thousands of these different Yews of the large sizes. Every plant has been recently removed.

HOLLIES, COMMON GREEN, 6, 7, 8, 10, 12, and 15 feet high, and as much in circumference—hundreds
" LAURIFOLIA and SCOTTICA, 6, 7, 8, and 10 feet, and wide in proportion
" WATERER'S, the hardiest of all variegated Hollies, 4 and 5 feet by 10 and 12 feet in circumference
" THE QUEEN, or best gold striped, the handsomest of all variegated Hollies

We have hundreds of these beautiful plants, 4, 5, and 7 feet high and wide

" STANDARD, WATERER'S, and GOLDEN, with fine heads, 15 and 20 years worked

☞ We have some thousands of the ordinary kinds of Variegated Hollies, 4, 5, 6, and 7 feet high. Every plant has been removed within 12 months.

CEDRUS DEODARA, some thousands, 6, 7, 8, and 10 feet high
" ATLANTICA, and Cedars of Lebanon, moved in April, 4, 5, 6, and 8 feet
" RED VIRGINIANS, 5, 6, and 7 feet

CHINESE JUNIPER, one of the handsomest and hardiest of all evergreens—thousands of beautiful plants, 4, 5, 6, 7, and 8 feet high; some magnificent plants, 10, 12, and 15 feet high, 12 to 20 feet in circumference

THUJA AUREA, 3, 4, and 5 feet high, 7 to 20 feet in circumference
" GIGANTEA, 10, 12, and 15 feet high, very handsome
" LOBBII, splendid plants, 7, 8, to 10 feet high, and 12 and 15 feet round—hundreds

CUPRESSUS LAWSONIANA, the finest stock—many thousands, 6, 7, 8, 10, to 15 feet high, and as much in circumference

THUJOPSIS BOREALIS, 4, 5, 6, and 10 feet high, 7 to 12 feet in circumference—hundreds

PORTUGAL LAUREL, 4 and 5 feet high, 7 and 8 feet round
BOX, Green and Variegated, 4, 5, 6, 7, and 8 feet—thousands
PICEA NOBILIS, splendid plants, moved in spring, 4, 5, 6, and 8 feet
" NORDMANNIANA, 4, 5, 6, 8, 10, and 15 feet high [high

None of our Nobilis or Nordmannianas are grafted plants.

" MAGNIFICA or NOBILIS ROBUSTA, the finest stock in the trade, all seedlings, 2 to 4 feet high
" LASIOCARPA, hundreds of plants, 4, 5, 6, and 7 feet high, all

ABIES DOUGLASSII, 5, 6, 7, and 8 feet [seedlings
" ORIENTALIS, 4, 5, 6, 7, to 10 and 12 feet; 7 to 20 feet in circumference; most beautiful plants

PINUS CEMBRA, 6, 7, to 9 feet
" PINSAPO, 3, 4, 5, and 6 feet
" " Some very fine plants, 10 to 20 feet high, 15 and 25 feet in circumference

WELLINGTONIA GIGANTEA, a large number, all removed recently, 4, 5, 6, and 10 feet high, and 12 and 15 feet in circumference

RHODODENDRONS.—We have 40 acres of land in one piece filled almost exclusively with Rhododendrons. A more healthy and beautiful stock cannot be desired.

STANDARD RHODODENDRONS.—Some of the finest plants to be found in any nursery, many are 20 to 40 years old

☞ The large Standard and other Rhododendrons planted last spring in Rotten Row, Hyde Park, were supplied by WATERER & GODFREY.

We do not quote prices, we presume purchasers of such large plants will adopt the much wiser, and always more satisfactory course, of seeing and judging for themselves.

We solicit an inspection and invite comparison with any other similar nursery stock in the kingdom.

The KNAP HILL NURSERY is upwards of 150 acres in extent, and contains an enormous and very superior stock of the ordinary sizes EVERGREENS, DECIDUOUS ORNAMENTAL TREES, &c.

A PRICED and DESCRIPTIVE CATALOGUE will be forwarded free on application to

WATERER & GODFREY, Knap Hill Nursery, Woking, Surrey.

The Nursery is readily reached by Tram, 40 minutes from Waterloo to Woking. Conveyances are always to be had at the Station.

FIFTY ACRES well stocked with FRUIT TREES to select from.—APPLES, PEARS, PLUMS, CHERRIES PEACHES, NECTARINES, and APRICOTS, in every form desired for fruiting.

See RICHARD SMITH'S FRUIT LIST, free by post for 3 stamps.

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FOR THE OPEN GROUND.—APPLES, PEARS, PLUMS, and CHERRIES, fine healthy Pyramids, very ornamental and productive. Strongly recommended for large and small gardens.

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ESPALIER and WALL-TRAINED TREES in any quantity.—APPLES, PEARS, PLUMS, CHERRIES, PEACHES, NECTARINES, and APRICOTS, fine strong trees of perfect form.

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A CROP of FRUIT the FIRST SEASON.—Bearing Pyramids and Bushes in pots for orchard houses. PEACHES, NECTARINES, APRICOTS, APPLES, PEARS, PLUMS, and CHERRIES. Extra strong VINES and FIGS in fruiting condition for forcing.

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Fruit Trees.

J. LE CORNU, NURSERYMAN, SEEDSMAN, and FLORIST, begs to inform his Friends and the Public that he has this season to offer an immense quantity of beautiful and well-grown Fruit Trees, all of the best leading varieties, such as APPLES, APRICOTS, PEACHES, NECTARINES, PEARS, PLUMS, and CHERRY TREES, as Dwarf, Trained, and Standards, 4 to 6 feet stems.

CATALOGUE on application.

High View Nurseries, Mont a l'Abbé, St. Helier's, Jersey.

Extensive and well-grown Nursery Stock.

J. SCOTT, Merriott Nurseries, Somerset, has to offer FOREST TREES in large numbers, finely rooted and in perfect health. ORNAMENTAL TREES and SHRUBS of all sizes in quantity, beautifully grown and regularly transplanted.

Intending Planters would do well to visit these fine Nurseries, which have been established 160 years, and are by far the largest in Somerset. CATALOGUES on application.

THREE MILLION strong 4-yr. transplanted QUICK.
1,000,000 good 2-yr. transplanted QUICK.
2,000,000 superior Seedling QUICK.
100,000 good strong LARCH, 4 to 6 feet.
100,000 good strong LARCH, 2 to 4 feet.

For samples and prices apply to

JOHN HEMSLEY, High Fields, Melbourne, near Derby.

SEEDLING FOREST TREES.—
1 and 2-yr. Seedling LARCH.
1 and 2-yr. Seedling SCOTCH FIR.
2-yr. Seedling PINUS LARICIO.
2-yr. Seedling PINUS AUSTRIACA NIGRA.

Particularly fine. For Samples (with prices—f. o. b. at Warterford—which will be most moderate),

Apply to D. H. HIGGINS, The Nurseries, Clonmel, Ireland.

TO LARGE PLANTERS and the TRADE—
Fine HORSE CHESTNUTS, 6, 7, 8, and 10 feet high.
PORTUGAL LAURELS, extra fine, 2, 3, and 4 feet.
ACER NEGUNDO VARIEGATA, from 3 to 4 ft., Pyramids.
HEMLOCK SPRUCE, 4 to 5 feet, fine.
BOX TREES, 2½ to 3 feet. | PRIVET, 3 to 4 feet.
SIBERIAN and AMERICAN ARBOR-VITÆ, 3 to 8 feet.

Special offers on application to

A. GODWIN & SON, Ashbourne, Derbyshire.

A. FENNESSY AND SON, Waterford, beg to offer the following:—

	Per 1000.—s.	d.		Per 1000.—s.	d.
1-yr. Thorn Quick	1	3	2-yr. Oak	3	0
2-yr. Thorn Quick	2	6	2-yr. Turkey Oak, fine ..	5	0
1-yr. Oak	2	0	1-yr. Horse Chestnut, fine..	5	0

Also Laurustinus, Laurels, Aucubas, &c.

TRADE LIST on application.

A few cwt. of CRESTED DOGSTAIL and other Natural Grasses.

Woodlands Nursery, Maresfield, near Uckfield, Sussex.

WM. WOOD AND SON have a very extensive stock to offer of the following, viz.:—

Scarlet HORSE CHESTNUTS, Standards, 6 to 10 feet [1000
CATALPA SYRINGÆFLIA | THUJA AUREA, by the 100 or
LABURNUMS, yellow and purple | Strong ASPARAGUS Plants
LARCH, SPRUCE, and SCOTCH FIRS
PINUS AUSTRIACA [and other Forest Trees
ASH, BIRCH, WILLOW, HORNBEAM, OAKS, SYCAMORE,

CATALOGUES and Samples may be had on application.

Larch, &c.

LARCH, 1½ to 3 feet, 15s.; 2½ to 4 feet, 17s. 6d.; 3 to 4½ ft., 20s.; 3½ to 6 ft., 25s.; OAK, 1½ to 2½ ft., 15s. per 1000.

LIST of other TREES on application; special quotations for large quantities. Apply, with reference, to

JAMES RIDDELL, Steward, Park Attwood, Bewdley, Worcestershire.

AZALEA INDICA.—Good healthy blooming Plants, 40 of the choicest varieties, including Stella, Carnation, Flag of Truce, and Mdme. Verschaffelt, for 40s., or less quantities 12s. per dozen; also other good named varieties, healthy blooming Plants, at 9s. per dozen. Trade price on application.

H. & R. STIRZAKER, Skerton Nurseries, Lancaster.

To Railway and Enclosure Planters.

S. ROBINSON, of Shaw House, Melbourne, near Derby, has several million of BEDDING and TRANSPLANTED QUICKS to dispose of, suitable for the above purposes, from 2, 3, 4, and 5 years old. Price, from 4s. 6d. to 20s. per 1000; well rooted and fit for planting out.

S. R. has also for sale some fine Bushy SPRUCE, 3 to 4 feet; HOLLIES, BEECH, and LARCH, 4 to 5 feet; and other kinds of FOREST TREES.

Mr. ROBINSON wishes to inform his customers that he has a fine stock of his CHAMPION OX CABBAGE PLANTS for spring use.

N.B. Satisfactory references required previous to orders being executed.

HENRY MAY begs to offer the undernamed:—

ENGLISH YEWS, 2 ft., very bushy (often transplanted), 3s. per doz., 15s. per 100; do., 2½ to 3 ft., bushy, do., 6s. per doz., 40s. per 100;
IRISH do., 4 to 5 ft., do., 1s. 6d. each, 15s. per doz.
PORTUGAL LAURELS, 2 ft., bushy, do., 4s. per doz., 20s. per 100;
do., 2½ to 3 ft., bushy, do., 8s per doz., 50s. per 100
CUPRESSUS LAWSONIANA, 2 ft., bushy, do., 6s. per doz., 40s. per 100; do., 3 to 4 ft., bushy, do., 12s. per doz.
WELLINGTONIA GIGANTEA, 2 ft., bushy, do., 12s. per doz.; do., 3 ft., bushy, do., 18s. per doz.; do., 4 ft., bushy, do., 36s. per doz.; do., 5 ft., bushy, do., 60s. per doz.
ARBOR-VITÆ (AMERICAN), 4 to 5 ft., bushy, do., 9s. per doz., 50s. per 100
PINUS AUSTRIACA, 2 ft., bushy, do., 4s. per doz., 20s. per 100; do., 3 ft., bushy, do., 8s. per doz., 30s. per 100; do. EXCELSA, 4 to 5 ft., bushy, do., 18s. per doz.
ENGLISH SPRUCE FIR, 3 ft., single planted (perfect specimens), 6s. per doz., 30s. per 100
HORSE CHESTNUT, 8 ft., do., fine, 6s. per doz., 30s. per 100
ENGLISH ELM (Grafted), 8 ft., do., do., 6s. per doz., 30s. per 100
LIMES, 8 ft., do., do., 18s. per doz.
AILANTHUS GLANDULOSA (for Silkworm Culture), 2½ ft., 2s. per doz., 10s. per 100
STANDARD APPLES, 6 ft. stems, fine heads, good, 10s. per doz., 70s. per 100; do. VICTORIA PLUMS, good, 15s. per doz.
Fine named LANCASHIRE GOOSEBERRIES, 2s. per doz.; 12s. per 100.
CURRANTS, WHITE, BLACK, and RED, fine, 1s. 6d. per doz.; 8s. per 100. [per doz.
Fine named HYBRID-PERPETUAL ROSES, at 6s., 9s., and 12s.

All the above are fine grown stuff, and well removed, and will plant safely.

HENRY MAY'S CATALOGUES can be had on application, which contain all the most popular EVERGREENS, SHRUBS, &c.

HENRY MAY, The Hope Nurseries, Bedale, Yorkshire.

FOREST, ORNAMENTAL, and FRUIT TREES.—Thirty Acres of these, young, healthy, transplanted, of all sorts and sizes, at very moderate prices. The Nurseries are very exposed on the West Coast; the Plants very hardy, and succeed well in the highest and most exposed situations. Parties stating the Sorts, Sizes, and Quantities required, will have special quotations.

YEWS, ENGLISH, some thousands of extra strong well-rooted and furnished, 3, 4, 5, and 6 feet. Price on application.

H. & R. STIRZAKER, Skerton Nurseries, Lancaster.

Profitable Game Covert.

PLANT your GAME PRESERVES with the BITTER WILLOW. Neither Hares nor Rabbits will destroy them; require no care nor protection; grow quickly, and will form a good Cover in one season. The produce is commercially profitable, and always finds a ready Market. Price of Cuttings, selected, 20s. per 1000, cash. Apply to

WM. SCALING, Willow Merchant, Basford, Notts.

LOMARIA CYCADÆFOLIA, beautiful Tree Fern for cold Greenhouse.—Fine stems, about 1½ to 2 ft. high, price £4. Carriage paid to the United Kingdom.

To be had of AMBROISE VERSCHAFFELT, Ghent, Belgium; or of his Agents, Messrs. R. SILBERRAD & SON, 5, Harp Lane, Great Tower Street, London, E.C.

Lomaria Cycadæfolia.

A. VAN GEERT, NURSERYMAN, Ghent, Belgium, has much pleasure in offering fine plants of this splendid Tree Fern (just arrived, in good condition), 18 inches high, at £5 each.

A. V. G. will be prepared early next Spring to send out nice young plants of CYBOTIUM PRINCEPS at 36s. per dozen, orders for which are now being booked.

Agents: Messrs. R. SILBERRAD & SON, 5, Harp Lane, Great Tower Street, London, E.C., of whom GENERAL CATALOGUES may be obtained on application.

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DELÉPINE'S NEW GENERAL CATALOGUE of FRUIT and ORNAMENTAL TREES has just been published.

DELÉPINE, SEN., begs to call the attention of Planters to his large stock of the following:—

STANDARD, PYRAMID, and DWARF FRUIT TREES and FRUITING SHRUBS.
FOREST and ORNAMENTAL FLOWERING and BEARING TREES, CONIFERÆ, EVERGREENS, and SHRUBS.
AMERICAN PLANTS and ROSES.

Young Plants or Seedlings of all sorts for Nurseries, Hedges, and extensive Plantations.

Proprietor of one of the most extensive Nurseries in this part of France (called, with reason, Le Jardin de la France), M. DELÉPINE is able to furnish very hardy, robust, and strong Stocks of the above.

CATALOGUE and Prices may be obtained post free on application to DELÉPINE aîné, Nurseryman, Route Neuve de Saumur, à Angers, France.

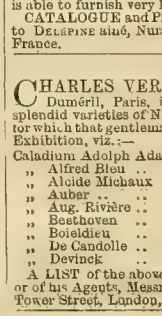
New Caladiums.

CHARLES VERDIER, Fils, NURSERYMAN, 12, Rue Duméril, Paris, is happy to announce that he now offers the splendid varieties of NEW CALADIUMS obtained by Mr. Bleu, and for which that gentleman received a Gold Medal at the Paris Universal Exhibition, viz.:—

	s.	d.		s.	d.
Caladium Adolph Adam .	10	0	Caladium Dr. Boisduval ..	8	0
" Alfred Blen	16	0	" Dr. Lindley	12	0
" Alcide Michaux	10	0	" Ed. André	12	0
" Auber	12	0	" E. G. Henderson ..	12	0
" Aug. Rivière	12	0	" Halévy	8	0
" Beethoven	10	0	" Impératrice Eugénie	16	0
" Boieldieu	8	0	" Louis Poirier ..	10	0
" De Candolle	8	0	" Mars	8	0
" Devinck	16	0	" Reine Victoria ..	10	0

A LIST of the above may be had either direct from Mr. VERDIER, or of his Agents, Messrs. R. SILBERRAD & SON, 5, Harp Lane, Great Tower Street, London, E.C.

New Seeds for the Colonies.



SEEDS DIRECT FROM THE GROWERS ARE THE MOST SUITABLE FOR EXPORTATION, AND THE BEST MEANS OF PREVENTING DISAPPOINTMENT.

MESSRS. SUTTON solicit the favour of Orders from those about to send or take out SEEDS to the COLONIES and submit the following from among many Testimonials recently received, as to the GREATLY SUPERIOR quality of their Seeds to those usually exported from this country, as well as to the very efficient manner in which their export packing is carried out:—

July 9, from A. N. ELLA, Esq., *Queenstown Cape of Good Hope.*

"I may mention that the case referred to was in splendid order, looking as fresh after three months' sea and six weeks' land carriage as if only yesterday packed."

From HUGH ROMSAY, Esq., *Shanghae, China, May 5,* 1866.

"The box of seeds and roots has arrived, and nothing has given me greater pleasure for a long time than the excellence of these seeds."

From Mr. Z. W. WELLS, *New Plymouth, New Zealand, May 7,* 1866.

"The Grass and other seeds sent by the Shelburne to me, have come safe to hand. I have tried samples of the Grass seeds, and am happy to inform you that they have come up quite to my satisfaction."

From Mr. JAS. DALE, *Orange, New South Wales, September* 20, 1866.

"I have the pleasure to inform you that your seeds have given great satisfaction, and I now send you a larger order."

All Seeds properly packed and delivered free to ship's side. Special quotations given for large quantities. A liberal allowance made to Shippers. SUTTON & SONS, Seed Growers, Reading.

New Grass Seeds for Exportation.

SUTTON AND SONS, having received their supply of NEW GRASS SEEDS of the present Season's Growth in fine condition, will be happy to forward lowest price per ton or cwt. on application. All Seeds perfectly packed and delivered free to ship's side at any English Port. CATALOGUES gratis and post free

SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.



GRASS SEEDS for PERMANENT PASTURE, of the finest quality, at moderate prices, carefully selected on a new, natural, and scientific system.

See "WHEELER'S BOOK on GRASSES," which contains Illustrations and Descriptions of the most suitable Grasses for Permanent Pasture.

J. C. WHEELER & SON,
Gloucester,
Seedsmen to the Gloucestershire Agricultural Society.

LEE'S GIANT ORACH (SPINACH).—This new and valuable variety of Orach possesses immense productive powers, combined with a delicious piquant flavour, quite distinct from all other varieties, rendering it a great acquisition as a Summer Spinach of the highest class.

The plant is of rapid and vigorous growth, and attains a height of 6 or 7 feet, with numerous branches; yielding a constant supply of large dark green leaves throughout the summer months.

The Fruit Committee of the Royal Horticultural Society awarded a First-class Certificate to LEE'S Giant Orach, after partaking of a dish of this most useful vegetable, cooked especially for their judgment.

JOHN & CHARLES LEE have much pleasure in introducing this productive vegetable, which they intend to send out in January next. Sealed packets, 1s. each. Price to the Trade on application.

Royal Vineyard Nursery and Seed Establishment, Hammersmith, W

The best Podded, Hardiest, and Earliest Pea.

POYNTER'S STOCK of EARLY PEAS will be found second to none. It was GATHERED in the FIELDS here (Taunton) on the 24th of May last in quantity; and the Bristol, Bath, and Taunton Markets were supplied in considerable quantities by POYNTER'S Customers from the 28th of May, until Second Early Peas came in. Price moderate. Trade terms on application. None genuine without POYNTER'S Label.

ROBERT H. POYNTER, Seed Merchant, Taunton.

Seed Potatos.

H. AND F. SHARPE are now offering MYATT'S EARLY PROLIFIC KIDNEY, RIVERS' ROYAL ASHLEAF, WEBB'S IMPERIAL KIDNEY, DAINTREE'S EARLIEST, EARLY OXFORD, EARLY FORTY-FOLD, and many other Early and Late varieties grown from their own selected stocks. The Prices are moderate, and the quality excellent. PRICED LISTS may be had on application.

Seed Growing Establishment, Wisbech.

Biggleswade Market Gardens, Beds.

RICHARD WALKER can supply the following CABBAGE PLANTS, the finest in England:—

RED, from the finest stock in the country, 4s. per 1000.
EAST HAM, ENFIELD MARKET, NONPAREIL, ROBINSON'S CHAMPION, warranted true, 2s. per 1000, in any quantity.
LETTUCE PLANTS, 6d. per 100. Terms cash.

New and Choice Seeds.

MESSRS. EDMUND PHILIP DIXON AND SON, 57, Queen Street, Hull, Yorkshire, beg to offer the following excellent S ocks of Seeds:—

DIXON'S MAMMOTH WHITE CELERY, 1s. per packet. The best White Celery in cultivation.
BROWN'S INCOMPARABLE BROCCOLI, 1s. per packet. Very fine large heads.
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MALVERN HALL SCARLET-FLESHED MELON, 1s. per packet
DIXON'S YORKSHIRE HERO PEA, 2s. per quart. The best Dwarf Wrinkled Marrow
WHEELER'S TOM THUMB LETTUCE, 1s. per packet. A very excellent small Cabbage variety.
ELLETSON'S TRUE MAMMOTH BROCCOLI, 1s. 6d. per packet. From the original stock.
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Extra choice PRIMULA SINENSIS FIMBRIATA, 2s. 6d. per pckt.

The Yorkshire Seed Establishment, 57, Que n Street, Hull.

Telegraph Cucumber.



ROLLISSONS' TELEGRAPH CUCUMBER, the best Winter and Early Spring variety in cultivation.

See *Gardeners' Chronicle*, January 12, 1867.
See *Gardeners' Chronicle*, March 16, 1867.
See *Gardeners' Chronicle*, August 31, 1867.
See *Gardeners' Chronicle*, October 12, 1867.

The above, in printed sealed packets, 2s. 6d. each. Prices to the Trade on application to

WILLIAM ROLLISSON & SONS,
The Nurseries, Tooting, London, S.

REIGATE SILVER SAND, best quality, 12s. per ton, at Swan Place; delivered four miles, or to any London Wharf or Railway, 16s. per ton, or 1s. 6d. per bushel. (Sacks at cost price, or on hire.) KENTISH and HAMPSHIRE PEATS, YELLOW LOAM LEAF MOULD, SPHAGNUM MOSS, & COCOA FIBRE REFUSE

J. KENNARD, Swan Place, Old Kent Road, London, S.E.

FIBROUS PEAT of first-class quality for Orchids, Heaths, American Plants, and all potting purposes, may be obtained by application to Mr. THOMAS JESSOP, Farningham Wood, near Farningham Station, Kent. It is dispatched by the London, Chatham, and Dover Railway in trucks of 16 yards, to most Stations in the Kingdom, or fetched in carts from the wood. It is extensively used and appreciated in the principal Nurseries, and in the Royal Parks and Gardens. Price 8s. per cubic yard, at Farningham Station



COCOA-NUT REFUSE is becoming SCARCE, the old reserves will soon be gone Now sold in bags, 1 for 2s., 10 for 16s., 20 for 30s., 50 for 66s., 100 for £6.

Fourpence allowed for each bag returned carriage-paid.

A Railway Truck-load (not in bags), 40s.

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TOBACCO TISSUE for Fumigating Greenhouses. Will Destroy Thrip, Red Spider, Green and Black Fly, and Mealy Bug; and burns without the assistance of blowing, and is entirely free from paper or rag. Price 3s. 6d. per lb., carriage free. A reduction in price for large quantities.

To be had of Messrs. ROBERTS & SONS, Tobacco Manufacturers, 112, St. John Street, Clerkenwell, E.C., of whom copies of Testimonials may be obtained; and of all Seedsmen and Nurserymen.

WINTER-DRESS ALL FRUIT TREES with GISHURST COMPOUND.

Copy of a Letter from Mr. RIVERS, *Nurseries, Stachridgeworth, Herts, 22d October*, 1861.

"I must tell you what I heard to-day from a very clever gentleman farmer, Anthony Bubb, Esq., of Witcombe Court, Gloucester. He has a wall to which Peach Trees are trained. Well, last autumn they were in a wretched blighted state. As a desperate remedy he unnailed them all, early last February, and gave all but one a thorough painting with Gishurst Compound, 1lb. to the gallon of water; his trees, all but the one, commenced to grow favourably in spring, and are now pictures of health. The tree not painted is in a half-dead blighted state. He used the same dressing to his Apple Trees; it killed the woolly Aphis entirely, and has made his trees clean and vigorous in their growth. He intends to paint his Wall Trees annually, and tells all his friends to do the same. I shall certainly serve all my young Peach Trees against my walls in the same manner. The Compound is, I believe, more efficacious than the usual offensive mixtures of clay, soot, sulphur, &c.; and it does not blacken the shoots on the walls."

For Orchard-house Trees, 4 ozs. to the gallon will be found a good strength; when used stronger some buds on weakly trees may be injured.

GISHURST COMPOUND is sold Retail by Nurserymen and Seedsmen, in boxes, 1s., 3s., and 10s. 6d. each.

Wholesale by PRICE'S PATENT CANDLE COMPANY, LIMITED, Belmont, Vauxhall, London, S.

Gishurst Compound has more recent testimonials to its efficacy, but none more conclusive than the above, which has been published before.

IRON HURDLES (Silver Medal of the Royal Agricultural Society).

SHEEP, 3s. 5d.; CATTLE, 4s. 2d.; OX, 5s. 11d.

List by Post. GATES and FENCING of every description.

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HYACINTH GLASSES, in every variety of shape and colour; SUPPORTS, DISHES, CROCUS GLASSES, &c. The Garden Repository, 32, James Street, Covent Garden, W.C.

N.B. A liberal discount to the Trade.

THOMAS MILLINGTON AND CO.,
IMPORTERS, DEALERS, AND MANUFACTURERS OF GLASS,
87, Bishopsgate Street Without, London, E.C.

PRESENT PRICES of HYACINTH GLASSES.



A.—30s. per gross. 3s. per dozen. B.—68s. per gross. 6s. per dozen. C.—42s. per gross. 4s. per dozen.

The above are made in Green, Blue, Puce, and Amber. B can be had in Opal, 1s per dozen extra.

RUSTIC BULB VASES.
TYE'S HYACINTH GLASSES.
FERN CASES and AQUARIA.



CLAUDET, HOUGHTON, AND SON,
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E. T. ARCHER'S "FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, and Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, &c.

PROTECTION from the COLD WINDS and MORNING FROSTS.

"FRIGI DOMO" NETTING, White or Brown, made of prepared Hair and Wool, a perfect non-conductor of heat or cold, keeping a fixed temperature where it is applied. It is adapted for all Horticultural and Floricultural purposes, for Preserving Fruits and Flowers from the Scorching Rays of the Sun, from Wind, from Attacks of Insects, and from Morning Frosts. To be had in any required lengths.

"FRIGI DOMO" NETTING, 2 yards wide, 1s. 6d. per yard run.

"FRIGI DOMO" CANVAS.

Two yards wide	1s. 9d. per yard run.
Four yards wide	3s. 6d. per yard.
An improved make, 2 yards wide	1s. 9d. per yard.
An improved make, 3 yards wide	2s. 8d. per yard run.

ELISHA THOMAS ARCHER, Whole and Sole Manufacturer, 7, Great Trinity Lane, Cannon Street, City, E.C., and of all Nurserymen and Seedsmen throughout the Kingdom.

"It is much cheaper than Mats as a covering."

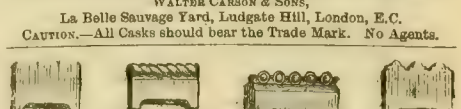
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WHITE, LIGHT STONE, BATH, and LIGHT PORTLAND COLOURS	30s.
LEAD, CHOCOLATE, RED, PURPLE, BROWN, and BLACK	26s.
BRIGHT GREEN, DEEP GREEN, and BLUE	42s.

Prepared OIL MIXTURE for the ANTI-CORROSION. OILS, TURPENTINE, VARNISHES, BRUSHES, &c.

3 cwt. Free to all Stations in England and Wales, and most Ports of Ireland and Scotland. Patterns and Testimonials sent post free.

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La Belle Sauvage Yard, Ludgate Hill, London, E.C.
CAUTION.—All Casks should bear the Trade Mark. No Agents.



GARDEN BORDER EDGING TILES, in great variety of patterns and materials, the plainer sorts being especially suited for KITCHEN GARDENS, as they harbour no Slugs and Insects, take up little room, and once put down incur no further labour and expense, as do "grown" Edgings, consequently being much cheaper.



GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, of great durability, and in great variety of design.

F. & G. ROSHER, Manufacturers, Upper Ground Street, Blackfriars, S.; Queen's Road West, Chelsea, S.W.; Kingsland Road, Kingsland, N.E

Sole London Agents for FOXLEY'S PATENT GARDEN WALL BRICKS. Illustrated Price List free by post. The Trade supplied.

ORNAMENTAL PAVING TILES for Conservatories, Halls, Corridors, Balconies, &c., as cheap and durable as Stone, in blue, red, and buff colours, and capable of forming a variety of designs.

Also TESSELATED PAVEMENTS of more enriched designs than the above.

WHITE GLAZED TILES, for Lining Walls of Dairies, Larders, Kitchen Ranges, Baths, &c. Grooved and other Stable Paving Bricks of great durability, Dutch and Adamantine Clinkers, Wall Copings, Red and Stoneware Drain Pipes, Slates, Cement, &c.

To be obtained of F. & G. ROSHER, at their premises as above.

SILVER SAND (REIGATE, best quality), at the above addresses—14s. per Ton, or 1s. 3d. per Bushel; 2s. per Ton extra for delivery within three miles, and to any London Railway or Wharf. Quantities of 4 Tons, 1s. per Ton less.

FLINTS, BRICK BURRS or CLINKERS, for Rockeries or Grotto Work. F. & G. ROSHER.—Addresses see above.

N.B. Orders promptly executed by Railway.

B. S. WILLIAMS'

NOTED CHOICE STRAIN of VEGETABLE SEEDS for SEASON 1868,

IN SEALED PACKETS.

The Orangefield Dwarf Prolific Tomato.

After four years' careful trial it has been proved to be undoubtedly the finest Tomato we possess.

DESCRIPTION.—Very dwarf, but strong in habit; never shows any sign of being stunted or diseased; bearing a greater quantity of fruit than has ever been seen on a Tomato. Is well adapted for indoor culture in those parts where (through the humidity of the climate) Tomatos rarely come to perfection out of doors. It will stand forcing without drawing, and any amount of culture will not destroy its productiveness. This variety when grown in pots make really beautiful decorative plants for the conservatory. Extract of report of the Trial of Tomatos grown at Chiswick, 1867:—"The Orangefield is the earliest of the large fruited sorts, it is very dwarf and prolific, bearing fine fruit within 6 inches of the ground. The fruits are very large, red, corrugated, or ribbed. It is an excellent variety, and one of the best in the collection."

Price 1s. 6d. per packet.

Williams' Matchless Red Celery.

This variety still maintains its reputation. It is now universally grown and everywhere approved of. New Seed, saved from the original stock.

Price 1s. per Packet.

Digswell Prize Endive.

A Green Curled variety, very much superior to the old "Green Curled."

Wherever this valuable Endive has been grown it has given the greatest satisfaction. It is invaluable for its hardihood and good blanching qualities. It is advised that plants for outdoor winter use be dibbled out in a light border early in September, the crowns an inch below the surface, with light earth pressed to them. Seed from original stock.

Price 1s. per Packet.

Williams' Alexandra Broccoli.

This excellent kind has now proved itself the best white and the hardiest of the many varieties in existence. A Special Certificate was awarded to this Broccoli by the Royal Horticultural Society, May, 1867. The Committee considered it of first-class excellence, and worthy of every recommendation. If sown at the end of April it will be ready for use the first week in May of the following year.

Price 2s. 6d. per Packet.

Malvern Hall Melon.

Scarlet flesh; a valuable variety. This kind has been proved by the side of 30 of the best to be the earliest to ripen and the freest in setting its fruit. The following description of it, by Mr. Edlington, Head Gardener to the Earl of Strafford, Wrotham Park, in the *Scottish Gardener*, conveys a very just idea of its properties. He writes:—"I have no hesitation in asserting that the above Melon is second to none in cultivation; I might even go a step further, and not err in placing it first on the list of scarlet-fleshed kinds. Gem, grown in the same house and subjected exactly to the same treatment, bore no comparison in any one point. The Malvern Hall is most deliciously flavoured, remarkably thin skinned, a very free setter, and early. These properties, in my judgment, constitute a first-class Melon. The Malvern Hall is nicely ribbed and moderate in size: those I grew this season averaged 2½ lbs.—a size I consider amply large enough for ordinary desserts. Those who have not grown the Malvern Hall I recommend to do so, and those who have will, I think, agree with my remarks."

Price 1s. 6d. per Packet.

Prices to the Trade on application.

VIOLA LUTEA (Yellow-flowered Violet).

B. S. WILLIAMS has much pleasure in being enabled to offer CHOICE and SELECTED SEED of the above beautiful plant. Habit dwarf yet vigorous, foliage dark glossy green, flowers bright yellow, which are produced in great profusion all through the early Spring, Summer, and Autumn months. The plant does not grow more than 5 inches high; it is perfectly hardy, therefore well adapted for small beds, edgings, or marginal lines. It is without doubt the best yellow-flowered bedding plant in cultivation. It was spoken very highly of in the leading article of the *Gardeners' Chronicle*, November 2.

Mr. Fish, in his remarks about Violas (*Gardeners' Chronicle*, October 26), states that Viola lutea is a perfect gem, and is invaluable for a dwarf yellow bed or edgings. It is a bright yellow, of the most compact habit, and seems to flower more freely than V. cornuta.

Price 1s., 1s. 6d., and 2s. 6d. per packet.

VIOLA PURPLE QUEEN, true stock, 6d. and 1s. per packet.

VIOLA MAUVE QUEEN, true stock, 6d. and 1s. per packet.

B. S. WILLIAMS, VICTORIA and PARADISE NURSERY, UPPER HOLLOWAY, N.

The Queen, A 1.—By permission,

CHARLES NOBLE has had the honour of Exhibiting his NEW WHITE RHODODENDRON before Her Majesty the Queen, at the Royal Gardens, Windsor; he has authority to state that Her Majesty was graciously pleased to approve of, and recognise the name given in honour of Herself, as being really "THE QUEEN" amongst Rhododendrons.

Price 21s., 31s. 6d., 42s., 63s., 84s., & 105s. each. Standards, 105s. each.

Rhododendrons,

AS EXHIBITED AT THE ROYAL BOTANIC GARDENS, REGENT'S PARK.

JOHN WATERER, the Exhibitor at the above Gardens, has pleasure in announcing that his CATALOGUE of the above popular Plants is now published, and will be forwarded to all applicants. It faithfully describes all the varieties considered worthy of cultivation. It contains likewise a selection of HARDY CONIFERS, with heights and prices.

The American Nursery, Bagshot, Surrey.

Rhododendrons, &c.

JAMES SMITH, Darley Dale Nurseries, near Matlock, offers the following:—

150,000 RHODODENDRON PONTICUM, beautiful healthy plants, 9 to 15 inches, 15s. per 100; £6 10s. per 1000
150,000 RHODODENDRON PONTICUM, fine bushy plants, 1 to 1½ foot, 20s. per 100; £9 10s. per 1000
50,000 RHODODENDRON PONTICUM, fine plants, 1½ to 2 feet, 25s. per 100; £12 per 1000
10,000 RHODODENDRON WHITE MAXIMUM, 1 to 1½ foot, 5s. per dozen; 30s. per 100
20,000 RHODODENDRON HIRSUTUM, the Dwarf Alpine Rhododendron.—Nice little plants, 3s. per dozen; 15s. per 100
10,000 RHODODENDRON HYBRIDUM, 1 to 1½ foot, bushy plants, 5s. per dozen; 30s. per 100
5,000 AZALEA PONTICUM, the sweet Azalea.—Beautiful bushy plants, 12 to 18 inches, mostly in bloom bud, 3s. per dozen; 20s. per 100. Ditto, 15 to 24 ins., 5s. per dozen; 30s. per 100
60,000 HARDY HEATHS, in about 20 varieties.—Good plants, in fine health, 3s. to 4s. per dozen; 10s. to 15s. per 100. Also about 20 varieties at 5s. to 7s. per dozen
12,000 DOUBLE WHIN, GORSE, or FURZE, nice plants, well rooted, 2s. 6d. per dozen; 12s. per 100. Also, in pots, at 4s. per dozen; 20s. per 100
30,000 COTONEASTER MICROPHYLLA, 6 to 12 inches, 2s. 6d. per doz.; 12s. per 100. 1½ to 2 feet, 3s. per doz.; 15s. per 100
20,000 ARBOR-VITÆ, AMERICAN, beautiful plants, with fine roots, 1½ to 2 feet, 2s. per dozen; 12s. per 100. 2 to 3 feet, 2s. per dozen; 15s. per 100. 2½ to 3 feet, 2s. 6d. per dozen; 18s. per 100. 3 to 4 feet, 3s. per dozen; 20s. per 100. 4 to 5 feet, 6s. per dozen; 5 to 6 feet, 12s. per dozen
5,000 PORTUGAL LAURELS, 2 to 3 feet, beautiful plants, thrice transplanted, fine roots, 4s. per dozen; 20s. per 100
40,000 EVERGREEN PRIVET, 2 to 3 feet, fine plants for Hedges or Game Covert, 2s. 6d. per 100; 22s. per 1000
10,000 IRISH IVY, nice plants, 2s. per dozen; 8s. per 100
900,000 LARCH, transplanted, fine healthy plants, not the least injured by frost or any disease, 1½ to 2 feet, 14s. per 1000; 2 to 3 feet, 16s. per 1000; 3 to 4 feet, 18s. per 1000; 4 to 5 feet, 19s. per 1000

All the above will be delivered free at Matlock Bridge, or Darley Stations, on the Midland Railway.

A CATALOGUE of GENERAL NURSERY STOCK, including Forest Trees, Flowering Shrubs, named Rhododendrons, &c., sent free by post. The Trade supplied. Apply to

JAMES SMITH, Darley Dale Nurseries, near Matlock.

Now is the Proper Time to Plant Hardy Herbaceous Plants.

HENRY MAY offers the under-named large collection. It contains all the best CAMPANULAS, GERANIUMS (hardy), EPIMEDIUMS, ACONITUMS, PHLOXES, DELPHINIUMS, IRIS, and upwards of 60 different varieties of SAXIFRAGA and SEDUM, with a host of others.

A Collection of 100 named varieties .. .. .. 25s.
A Collection of 200 named varieties .. .. .. 40s.
A Collection of 500 named varieties .. .. .. 80s.

HENRY MAY, The Hope Nurseries, Bedale, Yorkshire.

VIOLA CORNUTA (Wills' true variety).—We beg to state that in June last we secured the entire stock of Seed of the true variety of "MAUVE QUEEN" VIOLA CORNUTA from the raiser. The Seed is now being delivered to us in beautiful condition.

Price to the Trade on application. Orders will be executed in strict rotation as received.

DICKSONS & BROWN, Seed Merchants, 43 and 45, Corporation Street, Manchester.

The following Houses have already ordered supplies:—

Messrs. Sutton & Sons, Reading
,, Beck, Henderson, & Child, London
,, Peter Lawson & Son, Edinburgh
,, W. Drummond & Son, Dublin and Stirling
,, Hooper & Co., London
,, Nutting & Sons, London
,, Fraser, Goad, & Ratford, London
,, A. Henderson & Co., London
,, C. Platz & Son, Erfurt
Messrs. J. C. Wheeler & Son, Gloucester
,, Butler, M'Culloch, & Co., London
,, Geo. Morrison & Son, Elgin
,, Austin & M'Aslan, Glasgow
,, Smith & Simons, Glasgow
,, Thomas Imrie & Sons, Ayr
Mr. Ernest Benary, Erfurt
Mr. Robert Cooper, London
Mr. F. A. Haage, jun., Erfurt
Mr. William Deans, Jedburgh
Mr. Thos. Pierpoint, Warrington

The New Sensation in Bedding Out.

JACKMAN'S HARDY HYBRID CLEMATISES, awarded Eleven First-class Certificates, and One Special.

Messrs. GEO. JACKMAN and SON are desirous of drawing the attention of those who intend using their Hardy Clematises for a Permanent Bedding Plant, that the present time is most favourable for planting.

OPINIONS OF THE PRESS.

Gardeners' Chronicle, Aug. 17:—"The new sensation in bedding." Also, August 31, "J. F." (Cliveden) adds, "that Messrs. G. J. & SON have in their several varieties the very colour of which our summer gardens are in a great measure deficient." "Country Life," Aug. 15:—"Clematis Jackmanni is a most useful bedding kind if pegged down; used as such, a perfect carpet of flower, so to speak, is soon formed." *The Field*, Sept. 28:—They will be of the highest value as purple bedding plants, our present colours in this way being poor indeed compared to these."

"The Florist and Pomologist," November, 1867:—"There is no finer flowering plant for lawn decoration, no more gorgeous subject for garden avenues, not even excepting pillar Roses.....while the glorious mass of rich violet purple furnishes quite a new sensation in bedding out."

An engraving, from a photograph, showing the flowering qualities, and Circular of Prices, will be forwarded gratis on application.

Woking Nursery, Surrey.

LOUIS VAN HOUTTE'S CATALOGUE, No. 121, will be published on the 15th November next, and will be sent, per post, to all his customers.

CONTENTS:—

Azalea Indica
Camellias
Rhododendrons
Ghent Azaleas, hardy
Azalea Van Houttei flore-pleno, hardy (see "Flore des Serres," xiii., 13)
Magnolias and other American Plants
Magnolia Lennei (see "Flore," xvi., 159)
Trees and Shrubs
Conifers
Roses
Herbaceous Plants, Select Collection of
Fruit Trees, Belgian and other
Gladiolus gandavensis [sorts
Gesneraceous Rhizomes and Tubers
Caladiums, &c., in dry Tubers, &c., &c.

LOUIS VAN HOUTTE'S goods, baskets, bundles, cases, crates, hampers, &c., are sent free to Edinburgh, Goole, Grangemouth, Grimsby, Harwich, Hull, Liverpool, London, Middlesbro'-on-Tees, and Newcastle-on-Tyne; but, per contra, 6s. per parcel will be charged in the account. From the above seaports the goods are sent with great care to the various railways by LOUIS VAN HOUTTE'S Agents.

"FLORE DES SERRES," XVI., Nos. 11 and 12, will appear at the end of this month.

Each Volume of the "FLORE DES SERRES" may be had separately for 30s., and the Sixteen Volumes complete (the entire collection) for £22 10s. This work contains more than 1700 highly finished Coloured Plates, and numerous Woodcuts.

Ghent, Belgium.—Nov. 2.

THE EARLIEST PEA KNOWN

IS

SUTTONS' RINGLEADER.

AFTER another year's careful trial in our Sample Grounds, we can confidently affirm that THIS IS STILL THE MOST FORWARD PEA IN CULTIVATION. It has been alleged that this Pea is identical with Dillistone's, BUT WE UNHESITATINGLY RE-ASSERT THAT NO PEA IS IDENTICAL WITH, NOR SO FORWARD AS, RINGLEADER, except Carter's First Crop, which was sent out at the same time as the Ringleader, and which subsequently proved to be identical with it. The numerous trials made in private gardens confirm our statement; and Mr. Shirley Hibberd's report on the trial of Peas at Stoke Newington (which will be found below), proves beyond a doubt that Ringleader is not only the earliest Pea in cultivation, but that it is also perfectly distinct from all others.

The following are selected from a large number of Letters received to the same effect:—

From Mr. CHARLES TURNER, *Slough.—June* 12, 1867.

"We gathered a good dish of Suttons' Ringleader on the 28th May. These were sown and grown in the open ground, without any protection. Six rows of Daniel O'Rourke were sown at the same time, from which our first gathering was on the 8th June. Ringleader has also the advantage of being dwarfer; and I do not hesitate to pronounce it the best early Pea that has been grown here. No other Pea has been gathered about here at the date mentioned."

From Mr. A. MAXIM, *Gr., Purley Park, Reading.—June* 12, 1867.

"Your Ringleader Pea deserves all its fame. I sowed the first lot on the 2d of February, and gathered on the 4th June. I could have gathered four days earlier had I wished, from well-filled pods. I also made another sowing on the 22d February, by the side of your valuable Champion Pea, and I gathered from Ringleader June the 10th; the Champion will be about six days after, all sown on a south border. I must say great praise is due to you for bringing out such a distinct early Pea as the Ringleader."

Extract from the Report on Peas grown by SHIRLEY HIBBERD, Esq., *reprinted from the "Gardeners' Weekly Magazine," July* 28, 1866.

"SUTTONS' RINGLEADER.—In 1866 the sample was true throughout, the growth quite regular, wiry, the leaves a light green and small as compared with Dillistone's Early, or Sangster's No. 1, or, in other words, it is decidedly less leafy than either of those varieties. The pods are regular in outline, with a neat beak, and are produced both in pairs and singly. One of its distinguishing characters is, that it produces pods from top to bottom in a very uniform manner, whereas Dillistone's Early produces them chiefly at the top. These pods come to perfection all at once, and the haulm dies immediately afterwards, so that once in bearing it is soon over. There can be no doubt that this is a distinct and valuable variety, the earliest in cultivation, and as good for the table as any in the section to which it belongs. Height, 2 feet 9 inches. In 1865 and 1866, Dillistone's Early and Suttons' Ringleader stood side by side, and the first was conspicuous for its comparatively robust habit and superior leafiness—for, in fact, a certain luxuriousness of appearance altogether wanting in Ringleader. These two Peas are as distinct as Oranges are from Lemons, or as Sangster's No. 1 is distinct from Bishop's Longpod."

As the Stock is limited compared with the increasing demand, early Orders are requested, to prevent disappointment.

SUTTON AND SONS, ROYAL BERKSHIRE SEED ESTABLISHMENT, READING.

ROYAL VINEYARD PEACH.

This remarkable PEACH is of very robust habit, and is a most prolific bearer. It is so hardy, that in 1865 it bore a heavy crop of large fruit

AS AN ORCHARD STANDARD,

several branches having each borne from four to five fruit, weighing TEN OUNCES a-piece. It is a free-stone of most luscious flavour, with a superabundance of juice, and is just sufficiently piquant to render it highly refreshing. The time of ripening is about a week earlier than the Barrington Peach.

JOHN AND CHARLES LEE have much pleasure in introducing this extraordinary Peach, which was exhibited at Mr. Webber's, in Covent Garden Market, in 1865, and was much admired and inquired after at the time.

Dwarf Maiden Trees are now ready, price 10s. 6d. each.

ROYAL VINEYARD NURSERY AND SEED ESTABLISHMENT, HAMMERSMITH, LONDON, W.

NEW DOUBLE-FLOWERED ZONAL GERANIUM "TRIUMPH."

E. G. HENDERSON & SON

RESPECTFULLY OFFER

THEIR FIRST PLANTS OF THIS SPLENDID VARIETY,

WHICH SURPASSES ALL OTHERS YET OFFERED IN THE GROUP.

It is an improvement upon Gloire de Nancy in growth, and greatly in advance of it by its immense trusses of double rosette-like flowers of a brilliant orange-scarlet.

Having purchased a great extent of the raiser's stock, E. G. H. & SON are now prepared to furnish well-established plants. It received a Special Certificate at the Exposition Universelle, in Paris, 1867, and by thus possessing all the desired excellencies of its section in growth and bloom combined, commends itself as a real acquisition to every collection of Geraniums, and for conservatory decoration generally.

NEW DOUBLE PELARGONIUMS "PRINCE of NOVELTIES."

The most unique and beautiful double-flowered variety yet offered, now sending out by E. G. HENDERSON & SON. The individual blossoms are 1¾ inch wide, of a brilliant carmine-tinted crimson, admirably adapted for dress bouquets, and for pot culture.

E. G. HENDERSON AND SON, WELLINGTON NURSERY, ST. JOHN'S WOOD, N.W.

AMBROISE VERSCHAFFELT, NURSERYMAN,

(PUBLISHER OF THE "ILLUSTRATION HORTICOLE)," GHENT, BELGIUM,

BEGS TO OFFER THE FOLLOWING NOVELTIES:—

CALADIUM LEOPOLDI.—One of the finest, 7s. 6d.

TACSONIA BUCHANANI.—A splendid climber; as fine as the Tacsonia Van Volxemi: see figure in the "Illustration Horticole;" 7s. 6d.

VRIESEA GLAZIOUANA.—A splendid Bromeliaceous plant, which obtained at the Universal Exhibition in Paris the First Prize for the best new Plant, and of which a specimen was exhibited by Miss Zoë de Knyff, under the name of Chevaliera. This really splendid ornamental plant is figured in the "Illustration Horticole." Fine plants, £1.

AZALEA INDICA FRANCOIS DEVOS (A. VERSCHAFFELT).—This is one of my best seedlings. Flowers very double, deep red, with black spots. See figure in "Illustration Horticole." Fine plants, full of buds, 12s.

RHODODENDRON ORNATISSIMUM (A. VERSCHAFFELT).—See the "Illustration Horticole." This is my best seedling raised; colour whitish, rose in the centre; the edges are coloured with rose violet, and the centre is marked with fine golden spots. It is one of the most distinct varieties, and is quite hardy. Good plants, 12s.; do. with buds, £1.

THE GENERAL CATALOGUE, No. 81,

CAN BE OBTAINED FREE OF

MESSRS. R. SILBERRAD AND SON, 5, HARP LANE, GREAT TOWER STREET, LONDON, E.C.

GREENHOUSE FERNS.—The following 20 fine named FERNS, in 4-inch Pots, for 10s., or 1s., each, viz., Asplenium eburneum, Asplenium alternans, Nephrodium molle, var. polydictyon, Lastræa glabella, Lastræa erythrosora, Lastræa pinnata, Lastræa podophylla, Leptogramma rupestris, Leptogramma asplenioides, Lygodium scandens, Pellæa geranifolia, Blechnum cartilagineum, Diplazium polypodioides, Doodia dives, Doodia linearis, Microleptis strigosa, Cyrtomium falcatum, Anemodictyon Phyllitides, Scolopendrium Krebsii, Cystopteris bulbifera.
HENRY MAY, The Hope Nurseries, Bedale, Yorkshire.

British Fern Catalogue.

ROBERT SIM can now send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his NEW and PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.
Foot's Cray Nursery, S.E., a mile from Sidcup Station of New North Kent Line of South Eastern Railway.

MAURICE YOUNG'S NEW CATALOGUE of NEW HARDY PLANTS, JAPANESE NOVELTIES, NEW AUCUBAS, ORNAMENTAL TREES and SHRUBS, EVERGREENS, CONIFERÆ, RHODODENDRONS, FOREST TREES, &c., may be had on application.

DESIGNS, PLANS, and ESTIMATES PREPARED for LAYING-OUT NEW GROUNDS, IMPROVING PARK SCENERY, PLANTATIONS, &c.

FOREST TREES PLANTED by the Acre, and Guaranteed.

Convenient railway accommodation to all parts of the country.

Milford Nurseries, near Godalming, Surrey.

Paul's Nurseries, Waltham Cross, N.

WM. PAUL begs to announce that he has the following COLLECTIONS of TREES and PLANTS now ready for delivery, which he can confidently recommend for quality and price :—

ROSES.—100,000 Plants, Standards, Dwarf Standards, and Dwarfs.
PRICED DESCRIPTIVE CATALOGUE free on application.

TREES and SHRUBS.—Large quantities of the popular Nursery Plants, of all sizes, good and cheap.
A choice variety of PICTORIAL TREES, his collection of which was the only one which received a Prize at the International Exhibition of 1866.

AMERICAN PLANTS.—Rhododendrons, Azaleas, Kalmias, Heaths, &c., in variety, from the commonest to the choicest.

FRUIT TREES.—Apples, Pears, Cherries, Plums, Figs, Peaches, Nectarines, Apricots, &c., &c.; Standards, Dwarfs, and Pyramids, trained and untrained. A large stock of handsome trees, many in a fruiting state.

GRAPE VINES.—All the best sorts, both Planting and Fruiting Canes.

PELARGONIUMS.—Beaton's and other Zonal kinds, Gold, Bronze, and Silver variegated, a fine collection.

HYACINTHS, TULIPS, and other BULBS.—All the First Prizes for Hyacinths and Tulips were awarded to his Collection at the London Flower Shows last spring. Cheap Hyacinths, Tulips, &c., for spring gardening by the 100 or 1000. Choicer kinds for pot culture and glasses good and cheap.
PRICED DESCRIPTIVE CATALOGUES of any or all of the above free by post.

THE ASSOCIATION of SURREY NURSERYMEN.
Temporary Offices, East Brixton, S.
A Deputation from the above Association having visited Holland, intend VISITING the ENGLISH DUTCH BULB DEALERS not at present connected with the above Society, during the next few weeks. A letter stating the object of the Association will be forwarded by the Hon. Secretary, CHARLES YOUNG, Balham Hill Nursery, Surrey, S.

The Gardeners' Chronicle.

SATURDAY, NOVEMBER 16, 1867.

MEETING FOR THE ENSUING WEEK.

TUESDAY, Nov. 21—Linnean .. .. 8 P.M.

IN looking through some of the numerous CATALOGUES sent to us, foreign and English, but especially the latter, we are struck with the frequency of orthographical errors, and, in some instances, with the total disregard of agreement in gender of the generic and specific names; the species of the same genus being in some extreme cases pretty equally attributed to the three genders. Of course there are several laudable exceptions, where errors are few and far between, and where every precaution has evidently been taken to render the lists as perfect and useful as possible; but these, unfortunately, are easily counted. We call attention to this state of things, and entreat nurserymen, for their own credit, and for the sake of the numerous gardeners and others who consult their lists, nine-tenths of whom have no other guide, and naturally depend upon them without once doubting their accuracy, to have them properly revised by some competent person. It must not be supposed that we have selected the catalogues of small provincial establishments, and founded a general accusation on their demerits, for indeed some of these must be ranked amongst the best, while not a few of those just alluded to emanate from extensive and well-known firms.

In many cases, doubtless, errors have been copied year after year, and others have gradually crept in. The almost universal mis-spelling of some names may be partially attributed to the fact of men in a small way of business having compiled from the productions of their more pretentious colleagues. The following are illustrations of the deviations from correct orthography met with in generic and specific names :—"Lysimarchia," "Medinella," "Trigidia," "Combretium," "Tomentilla," "Lardizabatun," "macrophillum," "Australasia," "flamulea," "brackybotrya," "palustrum." We are bound to say, however, that nothing in the way of mis-spelling that we have ever met with in any nursery or seed catalogue, rivals the eccentric orthography of an auctioneer's list that has been recently forwarded to us, and from which we extract, without alteration, the first dozen names, merely stating that they are neither better nor worse than the two or three hundred that follow: — Euphaba Spliddrul, Bougadvilla Blabra, Hayeidrum Coronorum, Deddroburm Nobile, Musa Cavendisha, Abamadda Cathastica, Dendrobum (Noble) Nobile, Hoya Carnosa, Dopladenia Crassiodorda, Alamanda Henderani, Hoya Caronla Variegata, Oueydium Vllissimum. We are not aware who has the credit (?) of this extraordinary illustration, whether auctioneer or plant grower, but for "messcellanious" (*sic*) blunders it would be difficult to find the equal of this particular catalogue.

Not unfrequently confusion arises from the citation of a plant under two different names without the fact being stated, or from giving the wrong country, or merely local habitats, for species with a wide range of distribution. Adherence to no particular system of nomenclature, and the indiscriminate use of capitals for specific names are further sources of error. The first of these evils, it is true, rarely occurs. But the second, which is of more importance, is conspicuous in a deservedly popular and useful catalogue, where we find Carthamus tinctorius, Datura Stramonium, Impatiens glanduligera, &c., as British plants; while China is stated to be the native country of Disemma coccinea, Texas of Sutherlandia frutescens, India of Lagenaria natalensis, &c. To look for uniformity of nomenclature in seed and plant catalogues, would be to expect too much, inasmuch as the works of our scientific men are more at variance in this respect than in any other; but ancient and obsolete names should be expelled, especially in cases where plants have been referred to the wrong genera, or when the latter have been so modified by general consent as not to admit them any longer, and their more modern names should be substituted, or, if preferred, both might be given.

Much might also be done to render catalogues more intelligible to the general public, who do not understand why two or more names are given to one object, by taking some authority for the larger groups, as Ferns and Conifers, &c., many species of which are offered under no less than half-a-dozen different names. If some established authority were followed for Conifers or Ferns, for instance, instead of picking up the names at hazard from a dozen different sources, much confusion would be avoided. It is all very well, too, to give the authorities with the names when there is no doubt of their correctness, but sometimes the same name has been differently applied by different botanists, and after all their correctness would depend upon their correct application to the plants.

A specific name should only commence with a capital letter when it is named after a person, or has been elsewhere used as a substantive appellation, but this rule is generally ignored; and nurserymen often use capitals for those species which they wish to appear conspicuously, and omit them where they should be given. Many foreign catalogues bear traces of the alterations in orthography, &c., proposed by M. LEMAIRE, the learned editor of the *Illustration Horticole*, who has long carried on a crusade against the "barbarisms" of plant nomenclature. In most cases, however, we should prefer to retain the names as they left their authors' hands, provided the errors were not too gross.

We will only advert to one more point, and that is, the growing tendency to give Latin names to mere garden varieties and hybrids: a practice which, in our opinion, cannot be too strongly condemned.

THE history of the FLOWERING AND FRUITING (for the first time, we believe, in Europe), of the DWARF COCOA-NUT PALM, in the gardens at Syon House, has been already written in our previous volumes. In 1862 (see our volume for that year, p. 189, where a figure is given), it first blossomed; in 1863 (p. 1129), it first fruited; and in 1864 (p. 625), the English-grown fruit made its first appearance at a public exhibition. We are happy to record that at the present time the same plant, in which the vigorous and fertile development induced under Mr. SMITH'S management, has been so successfully maintained under that of his successor, Mr. FAIRBAIRN, is now bearing a couple of Nuts, being its second crop of fruit. These nuts are of much finer growth than the first, and appear to have now reached nearly their full size, and to have commenced the ripening process. The largest of them measures 18 inches in circumference and about 12 inches in length, from the foot-stalk to the apex, having attained this size in 14 months. A young fruit, with which we were favoured by Mr. FAIRBAIRN, showed the usual 6-parted perianth and a one-celled ovary with a single seed. This seed was perfectly solid, without any trace of central cavity, and of course without any milk—where the milk comes from, then, is not determinable in fruits of the small size that we examined. The plant, which has formed a stem of 6 feet high, supporting a noble crest of its graceful plumose leaves, is also flowering freely at the present moment, but its beauty, if not its health, will be soon impaired, unless the house is raised to give it head room. We cannot, however, doubt that so interesting and valuable a plant will be amply cared for by its present noble proprietor, under whose auspices we may hope to see Syon again taking a prominent position amongst the gardens of the metropolis.

—— THE TESTIMONIAL to Mr. FINDLAY, to which we alluded some time since (p. 782), has now been presented to that gentleman, and consists of a Silver Salver, and a Purse of 210*l.*

—— The following anecdote is related in a recent number of the *Revue Horticole*, concerning AUGUSTE SCHŒNE, gardener at Monceaux, and at the Palais Royal, Paris. SCHŒNE, who has recently died, was it seems a man of austere manners, but withal was so sound at heart, that he did not fail to make friends of those with whom he came in contact. In spite of all the dynastic changes, SCHŒNE still remained head-gardener at Monceaux. He was greatly addicted to smoking, and preserved his pipe, no matter what master he served. LOUIS PHILIPPE even permitted him to smoke in his presence, the permission having been granted from this circumstance:—One day SCHŒNE was smoking as usual, when the King passed by and saw him. The gardener hastily removed his pipe from his mouth and slipped it up his sleeve, which caught alight in consequence. The King remarking this, is reported to have said: "SCHŒNE, I know that you smoke constantly; I do not wish to deprive you of your enjoyment: replace your pipe, and in future retain it in my presence." After this, whenever the King made his appearance, SCHŒNE removed his pipe to make the necessary salutation, but resumed it immediately, and continued smoking while walking with the King.

—— We regret to learn that the Botanic Garden at Jamaica, so long under the able superintendence of Mr. WILSON, is to be given up; for what reason we are not at present aware.

—— A paragraph relating to the health of the ASSISTANTS in the KEW HERBARIUM has lately been going the round of the Press. It originated, we believe, in the "Journal of Botany," and was copied thence into various journals, including the "Lancet" and other medical papers. In the course of its travels the original statement underwent some curious alterations and additions; from having been expressly intended to allude to the assistants in the Herbarium only, it became extended so as to include the *employés* in the Gardens generally, causing medical editors and sanitary reformers, to shake their heads gravely, and suggest the necessity for inquiry. From our own knowledge of the facts of the case as regards the Herbarium, we are enabled to state that it is very questionable whether the ill-health of the officials alluded to was in any way connected with the duties they had to undertake in the Herbarium. Two, unfortunately, succumbed to constitutional ailments; of these one at least was seriously ill before he entered upon his duties, the other died in India, while a third was "tomahawked" in Australia.

—— The financial results of the DUNDEE FLORAL FETE have recently been made public. The fête was undertaken by the Dundee Horticultural Society, and, as we reported at the time, was very successful as a gathering of horticultural productions. It appears that the sum of 805*l.* 18*s.* was taken at the gates, and that after paying all expenses a balance of 212*l.* 10*s.* remains in the hands of the Society. The schedule of prizes did not materially differ from the one adopted last year at Nottingham, except in the addition of 15 extra British Fern prizes for varieties, a sum of 15*l.* being devoted to them, and these brought together no less than 1100 British Ferns, as many as 19 competitors exhibiting in the class of six Scolopendriums. Great praise is due to the managers of the Society for the spirit with which the exhibition was carried out.

—— There is as much room for improvement in the ornamentation of many of our places of sea-side resort, as there is in the metropolis, or inland towns in general. We are glad, therefore, of the opportunity of calling attention to the ORNAMENTAL GARDEN now in progress of formation at SALTBURN-BY-THE-SEA, under the direction of Mr. NEWTON. The existence of a natural glen, about a mile in length, through which a rivulet, or bourne, flows into the sea, offered great facilities for ornamentation, and these have been taken advantage of in the shape of woodland walks, which traverse it in all directions, flower gardens, shady alcoves furnished with Ferneries and fountains, waterfalls, croquet grounds, bowling greens, and

mazes. From the gardener's lodge, which is beautifully situated at the eastern end of the glen, the visitor can return to the town by the rosary or high walk, the entire length of which is enriched with standard Rose trees, forming a perfect forest of Roses of every hue. It is to be desired that others of our watering-places may follow the example of this promising young beginner on the Yorkshire coast.

NOTES ON THE ART OF GROWING ROSES OUT-OF-DOORS.

(*Continued from p.* 1071.)

SECTION XI. *Treatment of the Stock after it is budded.*—The object now in view is to obtain a strong head in the following summer from the two or three buds inserted. Bear in mind, then, that the parts of the plant will be in proportion to each other, and that if it commences its growth in the spring with a large root, and robust stem, it will form a full-sized head; but if the root is small, and the stem puny, the head will be of like character. Hence your present object is to encourage the general growth of the plant; and the course naturally pointed out to you is to allow it to grow freely until the cold of approaching winter causes all growth to cease. Do not, then, cut off a single branch until November; neither shorten the branches that have been budded. This recommendation is opposed to the ordinary practice of unskilled gardeners. They like to see an immediate result to their labours, and to force the buds into growth at once. But this is on every account a bad plan. Let the buds lie dormant until the spring. The wild and untidy growth which your stocks make during the autumn will be full of promise of a set of fine plants in the ensuing summer. As soon as they have shed their leaves in November, you may trim them up. Cut off close and clean every branch that is not budded, and leave two or three eyes beyond the inserted bud on those that are. And now you can do nothing, except to watch the buds swelling, until March. If you save the branches you have cut off, you will find a use for them in the spring.

Section XII. *On Budding the Manetti Stock.*—In August the cuttings will be well rooted and may be budded. In this case you follow a different plan, inserting the bud, not in the shoots of the current year, but in the old wood of the stem. Scrape away the earth of the ridge, and level it round as many stocks as you intend for immediate use. Clean the stems with a piece of rag, or an old toothbrush, and insert one bud in each close to the surface of the ground. By the method recommended you will obtain short-stemmed plants; and, when you have to remove them, the junction of the scion with the stock can be conveniently buried.

In October or November you may cut off all the branches from the stock, and use them for making a fresh set of cuttings. Hence you will not require to keep any old plants for this purpose.

Section XIII. *Care of Newly-budded Plants in the Spring.*—Unless the newly-budded plants are carefully tended in the spring, all hitherto done is little better than labour lost. In the first place they should be tied up to good stakes with tar-twine. In the next place take the shoots, which it has been already advised should be saved when the stocks were trimmed in November, select those which are straight, and strip off the thorns. Cut them into lengths of from 2½ to 3 feet, and tie them firmly by their ends on to the tops of the budded stocks. They are to be used to tie the young shoots to when they have begun to grow. If this is not done, you will be certain to have a majority of them blown off by any rough wind that may occur.

All over the stock wild buds will now begin to push. Remove all below the insertions, but not those beyond. These may be allowed to grow a little, pinching them back until the inserted buds have grown to the extent of an inch or more; then the buds beyond may be quite cut off. From this time every shoot from the stock should be removed as soon as it is discovered. When the buds have grown to the length of a couple of inches or so, you may pinch the ends off some of them. This will cause the plants to make bushy heads, and their flowers will not be borne in such crowded clusters as if they are not so treated; but they will flower a fortnight or three weeks later. Some gardeners, when two buds have pushed, pinch the lower one, leaving the other untouched.

There is a point of some importance to be attained in forming healthy standards: it is to get the bark to heal over the top of the stem. Unless this is secured the plants become unhealthy and die. This may be accomplished in the early summer, before the stock is budded, by waiting until a vigorous shoot has grown from an upper bud, and then slicing off the top of the stem in a sloping direction, so that the upper part of the slope is level with the upper side of the shoot; then smear a little paint upon the freshly cut surface. If a bud succeeds in this shoot, the object in view is happily accomplished. But if this plan is not pursued, or the bud in that shoot does not grow, then the top of the stem of the stock must be cut off in a similar way in the succeeding spring, in May, after the scion has made good growth, and the cut must be smeared over as before with paint, or some such material.

The same general principles which apply to the plants budded on the Briar, will hold for those upon the Manetti stock. With them, however, there will be no shoots from the stock below the bud. After the bud has grown a few weeks the stock may be cut clean off an inch or two above the bud.

In the months of June and July your labours will be crowned with the reward of beautiful flowers, and you will be surprised that the tiny buds you delicately handled a year ago, can have formed such full and comely plants in so short a time. Such is the reward of patience, and the result of dormant buds.

Section XIV. *The Flowering Season.*—Roses in general, especially during their first summer, form a larger number of flower-buds upon each branch than they can bring to perfection. Three blossoms are as many as a single shoot can be expected to open well; but in general two will be enough. It is therefore a good plan to pinch off all the buds, except two or three upon each shoot. In looking over the shoots you will often observe a bud which has been injured, or which is mis-shapen, or cracked, or which does not seem to be folded evenly. Pick such an one off, and then the sap will be concentrated upon the next, and you will obtain larger and more perfect flowers. It is a very important point to be able to foresee the event of unopened flower-buds, whether they are likely to make good blossoms, and how long they are likely to be unfolding. Much observation is requisite to gain experience on these points.

It is very important also to become acquainted with the peculiarities of different sorts of Roses. Some are very shy and tardy in opening their flowers. These are usually those which have a large number of petals, so that their flowers are very "full." A smaller number of buds should in this case be left upon each shoot.

Some very full Roses will scarcely ever open their flowers in the summer, but yet will do so in the autumn. When this is a known habit with a Rose, it is well to cut off all the first set of flower buds, and two or three eyes below, and the plant then makes a fresh set of shoots, and throws finer and more numerous blossoms in the autumn.

After the flower buds are fully formed and begin to swell, a watering with liquid manure will add greatly to the beauty of the blossoms, and will likewise give vigour to the plants to send up a fresh set of shoots and flower buds for the autumn. As a general rule, two applications will be found sufficient, viz., that recommended in early spring after the beds are forked, and this one before the flowers open. Particular circumstances of soil or season may however suggest a more frequent application of the stimulus.

The genuine lover of Roses will not be content to see them in his garden, but will wish to have them on his table in water. Let him not spare to cut. And in cutting Roses, take a sufficient number of leaves with the truss to set off the bloom. Forbid, however, that they be picked or broken from the trees. Beware, too, of a blunt knife. If such be used, it often happens, especially with Tea Roses, that the whole branch is broken off. Garden scissors are the best implements for gathering the flowers. *An Amateur.*

(*To be Continued.*)

FRENCH AND ENGLISH FRUIT GARDENING.

I, AN old, hard-headed "Cultivator and Traveller," am inclined to look at things through a dim glass, while "W. R." sees them through a glass clear and with a slight magnifying power. We are, perhaps, like steel and flint, and if we do not strike too hard, we may emit a few genial sparks. I may perhaps be permitted to go through "W. R.'s" article (p. 1120) *seriatim*, but not invidiously. He seems to jog along with me pretty well in the first few sentences, but then comes one astounding assertion—"I repeat, to cultivate Pears with success over a great part of France, it is necessary to take as much care of them as we do in England!" It is true he qualifies this by saying "around Paris." Now although, politically, Paris is France, in Pear culture it is not. If he travelled—and observed as he travelled—the south-western departments, he would have seen Pear trees growing and producing fruit such as is rarely seen near Paris, except against walls.

"W. R." has ingeniously twisted my expression wherein I refer to large Pear gardens. I meant market Pear gardens. The explanation respecting Ireland may soon be obtained by an introduction to some of the clever amateurs near Dublin, also in the county of Wexford, and in the south and south-west. I find, on referring to the article I am discussing, that I have omitted to refer to that astounding assertion that "the French build and cover more garden walls than we do, who want them most." In reply to this, I fearlessly assert that there are more walled gardens, and greater lineal extent of walls, in the counties of Middlesex and Hertfordshire, than in any five departments of France, and if I say in all France I shall not be wide of the mark. "W. R." has seen those long walls at Thomery, and those so numerous at Montreuil and Argenteuil; but they are not France. If he had travelled through those dreary departments where châteaux are few and far between, or in the south, he would find the wall-world very bare. While we have our present climate, the finer kinds of Pears which grow and bear so freely in France, are not likely to be common to our "poor householders," and it is to be regretted that in the northern counties, with the most dense populations, they will not even ripen—how then can we, to use slang, "pull up." I know M. Jamin very well, and I have a high respect for him, but I know also that a hot dry climate ruins the quality of Pears, and I repeat my assertion, which "W. R." has twisted, that "early Pears in France in hot seasons are very inferior." I have seen Doyenné d'Eté ripen so rapidly as to be dry and mealy, and the Jargonelle—which from our walls is one of the most delicious Pears known—is inferior in France and but lightly esteemed; it is the same with Beurré d'Amanlis, which has been so fine this season, Colmar d'Eté, and some others. I do not write from hearsay, but from experience.

There is no doubt about the single lateral cordon being pretty and useful for small gardens. "W. R." "believes" it to be preferable to bushes or pyramids for Apples. Has he tried them? I have before said that these edgings are nice things when well managed, but I prefer the double or two-branched lateral cordon, as looking more artistic and neater, and I also entirely discard those wires with their supports, and screwing-up posts, as things belonging to the dark ages. The double lateral cordon, or the single even for that matter, may be trained without the lateral wire, and simply by means of a piece of iron wire, either painted or galvanised, the size of a reed, or say about half an inch in circumference. This should be made into a crook at the upper end and pointed at the lower, and 20 inches in length, for double or single cordons. This, when thrust into the ground to 12 inches deep, and the crook brought over the lateral stem of the cordon, firmly supports it; the supports may be from 2½ to 3 feet apart, and as these trees require no tying to them, they are less trouble than strained wires. When "W. R." asserts that lateral cordons are "less trouble to support (I presume he means to prune) than either pyramid or bush," he makes the assertion on insufficient grounds.

Respecting the introduction of lateral cordons, "W. R." should read the English gardening books from the time of Evelyn to the end of the last century if he desires to learn something about cordon and even pyramid training. "W. R." should have seen at Chartres M. Grin's pet tree as figured in his book, "Le Pincement des Feuilles," incorrectly given under the name of *palmette*; it is in truth a 12-branched lateral cordon, six branches on each side: this the French cultivators call the *palmette*. The true Palm-leaved shape is what we call fan-shaped, and the French *éventail*. M. Grin smiles at the frivolities of modern French trainers. A friend, a fluent French scholar, who was with him last June, wrote me as follows:—"Grin pooh-poohed the single lateral cordons; you would have laughed had you seen this clever old man walking past them at Chartres, and saying—'Oh, that! well—but have them double at least.' M. Grin has some very fine diagonal cordons in the public garden, of which he is curator." This is my reply to the assertion of "W. R." that "there is not one cordon in his garden at all." It is quite plain that "W. R." did not see all he might have seen at Chartres. Reverting to the summer pinching of M. Grin, and the nice figure in his book, it is odd to find a clergyman in Yorkshire managing his Peach trees on the same principle, and training them after the same pattern which he has done for many years, but with an improvement so remarkable, yet so simple, as to put all other cordon systems to the blush. I am not at liberty to divulge his name, except to any prudent practical cultivator.

And now I have much pleasure in making known to your readers a method of training trees for edgings far preferable to the single or double lateral cordons of "W. R.:" for this reason, that with the same care and trouble it will give double the produce, on the same space of ground. Eureka! I ought to have a patent.

My new Apple tree edging is neither more nor less than a lateral cordon, with four branches instead of two, and is formed by taking a trained Apple tree on the English Paradise stock, with two shoots on each side, the lower tier 8 inches from the ground, kept in their places by two iron rods, 20 inches long, with the crook as above, and the upper tier 8 inches from the lower one, kept in their places by crooked iron rods 28 inches long. The trees, which if on English Paradise stocks, inured to our moist climate, may be planted from 8 to 10 feet apart, will soon form a fine hedge some 16 inches in height, and will be found far more eligible for kitchen garden edgings than any mode mentioned by "W. R.," the double crop being a *grand coup*. I have all the lateral cordons, single, double, and quadruple, under my own care, so that I do not write from hearsay, or merely from looking at trees, but from practice—long practice. In that I think I differ from "W. R." to a great extent.

The method of making orchard cordon trees is well known in America, where such trees are called "wine glass trees," owing to five or seven branches being trained up as nearly as possible in a circular form; it is a modification of the old imperfect system of vase training, so "there is nothing new under the sun,"—except, I hope, my quadruple lateral cordons and their supports. I now conclude by sating that "W. R." has done some good by calling the attention of practical men more forcibly to some modes of training that have been well described in English books, but which are not so well known as they should be; and I beg respectfully to remind him also of some mistakes in his accounts of French walls for trees; secondly, in his account of the trees at Chartres, under the care of M. Grin; and thirdly, in his not quoting me correctly about the ripening of early Pears.

Since writing the above I have read the article by "W. R.," in which he not too modestly asserts the expression of his hope that he has "effectually disposed of the statement," &c., and I feel compelled to make a few further remarks. It will, I think, be seen that I have drawn attention to the inaccuracies he has fallen into, and that I have vindicated that host of amateur gardeners, clergymen, and educated gentlemen, who practise fruit culture with such intelligence and enthusiasm as is rarely to be met with out of this country. I happen to be a sort of "head centre" of amateurs; to know some scores of clergymen whose fruit gardens would make most of those on the Continent hide their diminished heads. We are indeed becoming a nation of gardeners, instead of "a nation of shopkeepers," as Napoleon the First once designated us. To judge correctly in this matter we have only to turn to our gardening periodicals, so superior to any published in France, and all supported by the voluntary contributions of amateurs.

(1). With regard to the price of Pears, is there anything extraordinary in their being cheap in a country where they are grown without skill, and merely owe their cheapness to the favourable climate in which they

grow? Do we award any praise to the cultivators of green Peas in Lisbon or Algeria, because they supply us with them in March?

(2). Mr. Rivers, whom he quotes, did (as it seems from his writings), some 20 or 30 years ago, much admire the Pear culture in France—qualified in one of his articles, by the remark that although the Pear trees in the Jardin des Plantes were perfect as regards the training, they seldom or never bore fruit; and M. Jamin, sen., remarked that the trees which he trained most artistically, were equally barren. Things have since then changed in France, and more so in this country.

(3). What English author has ever given directions to prune all kinds of Pears alike, say, for instance, Beurré d'Amanlis, and Winter Nelis? M. Verlot can surely not imagine such a thing.

(4). A cordon is any kind of fruit tree, the branch or branches of which are formed into *ropes* of fruit buds by pinching the young shoots in summer. You may have five or ten or more branches; all our wall Pear trees in our best gardens are cordons; it is a distinct mode of training from the fan-shaped, in which young shoots are annually laid in to replace others removed by the pruner. As to the cordon being a tree with one branch, that is simply the statement of an error. The simple or single-stemmed lateral cordon, which is a young tree bent down, and fastened to a wire, seems to be the pet tree of "W. R.," with which he would make gridirons of our gardens, and also make them hazardous to the noses of horticulturists. Now, as I take it, this kind of tree is merely rudimentary, resembling a young rustic when he makes his first appearance at school—there is something in him, but it is not developed: after a few years he comes out, clever and smart. So it is with the single cordon trained to a single wire: it is a rustic—the double or quadruple cordon trees trained with iron crooks are educated, and fit to go into the tree world. The thing is, as usual, the English improvement of a rough original.

(5.) Can "W. R." point out seven-branched orchard cordon Apple trees in many gardens, and has he ascertained if they require staking after the first two seasons? I have not. As to his bold assertion that the fruit on such trees is not finer than that from standard trees, I must again use the "little crooked thing that asks questions;" has he seen such trees bearing fruit? I doubt not the answer will be, No.

(6.) The planting of double or single cordon Apple trees at the foot of a wall is ingenious, barring the wires, which cannot be strained near the wall; it is analogous to the recommendation of Mr. Rivers, who somewhere advises the training of Vines on tiles on the ground at the foot of walls, and if required, protecting them with a lean-to frame of glass—the half of a ground Vinery. It is a great comfort not to require these tiresome wires; the iron rod, with a crook, which I have described, will keep any cordon, whether single, double, or quadruple, in its place: these rods should be only ½ inch in circumference, instead of 1 inch. "W. R." has of course seen them in his journeys in the neighbourhood of Paris. The advantage, "which cannot be detected in the method recommended by Mr. Rivers," (I suppose "W. R." means orchard cordons,) is, that in an orchard, large and productive trees may be formed entirely distinct from the little garden trees. As to bush trees, they have been cultivated in England and France, after a fashion, for upwards of a century.

(7.) The objection to the oblique cordon trees (the term "palmette" is incorrect) is, not so much that they cannot be protected from frost, but the crossing of the branches, when moved with the wind, fraying each other, and bringing on canker; besides that, from their having no solid support, the branches loaded with fruit break the twigs, and give endless trouble. I am vain enough to think that I should at once have seen this, and at once have condemned the system, instead of saying, as "W. R." has done, "it is likely to come into general use."

And now having "effectually disposed of" all and everything advanced by "W. R.," I am tempted to give an opinion on the rural practices of France. It is well known that the French *rentier*, with an income of say 4000 francs, would rather be in a large town or city, where he could go to the theatre in the evening, or play at dominoes all the morning at the *café*, than attend to his garden. As a rule, the culture of the earth is not in favour with Frenchmen. I am a great admirer of the ingenuity and intellectuality of the French as a nation; their artistic manipulation in manufactures is marvellous, but they have no taste for mother earth, and are in agriculture and horticulture many decades in arrear of us. If any one doubts this, as to agriculture, let him ride through France with that charming book, "Arthur Young's Travels," taking his note-book in hand, and then compare the advance of agriculture in France, since 1789, with that of our own country; the contrast will seem marvellous. Our advance in the science of horticulture has been in nearly an equal ratio. It is quite true that the French gardeners have originated many fantasies in training, some two or three of which may be adopted in this country, and probably improved: they have also originated some 30 or 40 modes of grafting, all of which, except the two or three modes in general use here and everywhere, are mere fantasies. With respect to our advance in fruit culture, the world has never seen it equalled. Where can such Grapes be seen as at Dalkeith, Castle Kennedy, Archerfield, Garston, and 500 other places in Great Britain?—the four I have named having a climate to which that of the coldest parts of France is a paradise; yet they do not or cannot grow fine forced Grapes in France, and all Paris must wait till August, or September, in short, for the Royal Muscadine,* before they can have from Thomery a reasonable Grape feast. So apparently inefficient are French cultivators in the higher walks of horticulture that Baron Rothschild employs an English gardener, who has shown such Grapes as have surprised the Parisian public; and, what is still more remarkable in showing the inaptitude in French gardeners is, that if the Emperor or any other great personage wishes for a very choice dessert in March, April, or May, the Peaches, Grapes, &c., are all sent from Covent Garden.

I have of late years been much struck with something in French horticulture that seems, to use the elegant word employed by M. Verlot, "stupido." French gardeners and nurserymen without end come to this country, yet in all the north of France, a climate almost as unfavourable as our own, no Vineries, no Peacheries, no Orchard-houses, no ground Vineries, in short, none of the ingenious structures so common in England to guard against the effects of untoward weather, are to be seen in France, except very rarely. In their magnificent climate in Languedoc and Provence they might, with but slight assistance to repel frost in winter, cultivate the finest of dessert Oranges; they might also, with the assistance of glass, send abundance of Grapes to Paris in July and August. M. Verlot's term must, I fear, be applied to many French cultivators with too much justice; it is, I believe, a national feeling, if they cannot invent, they will not adopt or improve.

I enclose a figure of one of M. Grin's trees, which it seems he did not show to "W. R." It will seem strange to your readers that this system of cordon Peach training on walls has been practised for some years, as I have before stated, by a clergyman in Yorkshire, who never saw or even read about the system. He has, however, made an improvement in the culture of cordon trees of great value, and which I hope he will one day give to the world. By a cordon wall tree I mean a tree with branches formed into cordons by pinching, and not requiring any shoots to be laid in, as it is called by gardeners. The Yorkshire Peach trees have succeeded admirably, giving abundant crops. [How does this differ from espalier training, or the old horizontal mode of training Pears? EDS.]

Before I conclude I feel bound to mention our British gardeners. What an army of talent we could muster! One would like to see it in array before an equal number of French gardeners—not to fight, but to reason together. As I have now "effectually disposed of" and exhausted our subject, I beg to subscribe myself, *Thos. Rivers, the "Fruit Cultivator and Traveller."*

* M. Decaisne declared recently to a friend that this sort was the only Grape worth eating; one envies him his boyish taste.

STEM PRUNING OF CONIFERS.

As a rule, don't do it in pleasure grounds. One great and charming distinction between trees in a park and trees in a pleasure ground, is that while the latter should kiss the turf, the former should—must in fact, be pruned up to, or beyond the browsing line. If our object be to convert our Conifers into timber, Mr. M'Nab's instructions would be the likeliest mode of producing it. But beauty rather than utility being our aim, each specimen or group should rise from the turf, or feather down to the ground. This feature is, in fact, the chief charm of such trees in gardens. In the forest or even the park, natural or artificial pruning might be tolerated or advocated. In each of these the main consideration is size or symmetry of bole. This imparts the idea of strength to resist danger, or bulk of valuable timber. But in a garden the ideas of safety from attack, and symmetry of form, should be developed. It is one of the chief beauties of such trees to recline upon the turf, and rise up perfect formed cones from the ground. Even the common Spruce becomes one of our finest trees when its lower limbs have justice. And nothing can exceed the beauty of Abies Douglasii and Taxodium sempervirens, with their lower limbs laying upon the turf, and their heads piercing up 30 or 50 feet into the air.

I do not find that the extension of the lower branches of Conifers interferes with the growth of their leaders. The vertical position of the latter seems to insure a full flow of sap into them, as it is well known that the sap flows much more vigorously in an upright than in a horizontal direction. Several of the Picea, however, such as Pinsapo, cephalonica, and Nordmanniana, may require occasional branch pruning, as at times some of these threaten to rival the leaders. Such branches may be shortened back with positive benefit to the tree, and this is all the pruning that ought to be given to Conifers in gardens or pleasure grounds. Where they are grown for timber, of course, it is quite different. Then all branches and side shoots must be made subservient to the enlargement of the bole. But whether this enlargement will be forwarded or hindered by the removal of the branches from the stems, is still a disputed point among arboriculturists. *D. T. Fish, F.R.H.S.*

ARISTOLOCHIA GOLDIEANA.

[WE have received from Mr. Peter Clarke the following details as to the culture of the wonderful Aristolochia, figured by us at p. 1143. EDS.]

In the month of February or early in March, I repot by shaking off all the old ball, and potting again in a fresh mixture of two parts turfy loam, one of leaf-mould and one of sharp sand, watering the tuber but sparingly for the period of three weeks or a month thereafter; but so soon as a shoot is formed of 6 or 8 inches in length, water is given more liberally and continued until the shoots and leaves are matured—towards the latter end of August or beginning of September. Very soon thereafter the leaves assume a yellowish tinge, portions of the softer shoots damping off, and the whole stem dying back to within three or four inches of the surface of the pot, by which time water is entirely withheld, as it is also during winter.

The temperature of the pit in which I brought the present plant into bloom ranged from 65° to 70°, with a slight bottom heat. The size of pot is 20 inches in diameter; it was placed within 3 feet of the sloping sash of a span-roofed pit, and the plant trained along a horizontal wire, 9 inches from the glass, where it bloomed in July last. When fully expanded, which took place on the 8th of that month, the length from the base of the tube to the apex of the bloom, measuring along and underneath the curvature, was 26 inches, while across the open bloom it attained 11 inches.

The Rev. Hugh Goldie, of Old Calabar, who is at present in this country, and who first discovered it, and in honour of whom the plant has been named by Dr. Hooker, writes—"I am glad to hear that your flowering of the Aristolochia was a success. I saw it first in 1857. The plant was growing in a dry situation, and surrounded with bush. There was but one bloom on the plant—the only one I ever saw till you showed me the one in your hothouse. When Mr. Thomson came to occupy the mission station at Ikunito, on my leaving for Creek Town, seeing that he had a taste for botany, and was searching after plants, I told him of the strange flower I had found, and of its locality. Mr. Thomson found another plant at Old Town, about 24 miles further down the river, which he dug up, giving part of the roots to me, and planting part himself. My tubers shot forth and prospered for a time, but eventually died away, producing no flowers. I understand from Mr. Thomson his roots did the same, so that we have not succeeded in securing any, nor do I know of a single plant in Calabar, and should infer that it is scarce. It was Mr. Thomson who sent you the flower you received." I will add, in conclusion, that I have had much valuable and interesting information in reference to this plant, as well as many others, from my friend the Rev. Mr. Thomson, whose superior knowledge of plants in general, and whose skill in their transmission to this country, from time to time, has placed many public and private institutions under much obligation to him. *Peter Clarke, Royal Botanic Garden, Glasgow, Aug. 7th*, 1867.

Home Correspondence.

The Florist's Standard.—The fact that the rules laid down by Mr. Glenny are generally accepted by professional and amateur florists, is a sufficient proof that they are appreciated by that body of plant lovers; and as imitation is said to be the sincerest flattery, so Mr. Glenny may feel consoled for the felonious appropriation of his ideas: a compliment which, by the way, he does not appear to appreciate. In the article to which Mr. Glenny alludes, I was particularly careful to accord to others the perfect right and liberty to think and do as they please in this matter, at the same time that I claim a similar right for myself. "*De gustibus non est disputandum.*" Mr. Glenny and the appropriators of his ideas look upon flowers in so very different an aspect from that in which I view them, that they would be as unconvinced by any argument of mine, as I should be by any reasoning of theirs. To them a circular Pansy is the correct thing, to me it is simply an abnormal formation, or, I would rather say, an unusual one. I say unusual, because it does now and then happen (very rarely) that the Pansy, like other Violets, assumes a circular outline; but what happens in such a case? Does such a flower present the rest of the "properties" which Mr. Glenny desires to see in a good Pansy, as to the features or the colour of the several petals? Certainly not; the petals in such flowers become nearly as uniform in colour as in size and form, the whole interior of the mechanism of the flower becomes changed at the same time that its outer apparel is altered. The life history of the bloom is changed too, and no doubt Mr. Darwin would tell us that the number of perfect seeds produced, perhaps even the kinds of insects that visit the flower, are different from what they would be under ordinary circumstances. These changes, then, have a meaning; they are consistent one with another. But in the florists' circular Pansy, a change of form is sought and obtained, but one which is only consistent with an arbitrary, conventional standard, such as Mr. Glenny or Mr. Anybody else may choose to set up, as his ideal of perfection. I willingly admit that regularity of edge, freedom from notching, substance of petal, intensity of colouring, are "properties" of great importance in the Pansy, and rational enough; but in spite of the great authority of Mr. Glenny, I am still of opinion, either that the normal form of any given flower should not be departed from, or that if it be considered desirable to alter the form, such alteration should be made in conformity with other structural changes, of which the majority of florists take no heed whatever. A florist's Pansy, under the present conventional rules, is nearly as ridiculous as a mermaid or a centaur. Circular Pansies may be pretty, mermaids may be enchanting, and centaurs imposing, but for all that, they are outrages against harmony and consistency of form. Still, if Mr. Glenny sets up a standard for himself—well and good. Let those adopt it who care to do so. There is room for all of us: and I, for my part, will join in the tribute of thanks to Mr. Glenny, because although some of his notions as to what constitutes floral beauty may be very different from mine, I can nevertheless appreciate the services he has rendered to floriculture, and the impetus which his zeal has given to the improvement (in many points) of our common favourites; I at least shall not be

looked on by that gentleman as a wilful plagiarist. *M. S.*

The Onion Controversy.—I am unwilling to once more raise the question of the assumed distinctness of the Nuneham Park Onion, but only for the purpose of saying that last spring I supplied to Mr. James Stewart, the gardener at Nuneham Park, seeds of the very finest stocks of White Spanish, Brown Spanish, Danvers Yellow, and other leading Onions, to grow against his Nuneham Park variety. The seed of the White Spanish Onion came from one of the first Onion growers in Bedfordshire, and was supplied to me by Messrs. Beck, Henderson, & Child, of Upper Thames Street. The samples were sown side by side on a piece of ground occupying a good position in the kitchen garden. At the end of August I examined the result of the trial, and found that the Nuneham Park exceeded in size by fully one-fourth of the bulb any other kind, while to the greater size were added corresponding weight, and particularly depth of the bulb. I exhibited a few bulbs of the Nuneham Park Onion at the Show of the Ealing Horticultural Society, some of which measured 17 inches in circumference. Whatever the variety may be, Messrs. Cutbush & Son certainly hold the stock of a superb Onion, which to its excellent cropping qualities adds that other important qualification of being an admirable keeper. *Richard Dean, Ealing.*——In reply to your correspondent (see p. 1145) I beg to state, that the seed which I tried against the White Spanish was a sealed packet, obtained direct from Messrs. Cutbush & Son. In my previous communication I did not depreciate the size of the Onion, but I merely alleged that it was identical with the White Spanish, which might, indeed, be viewed as the finer stock of the two. *C.*

Houses for Bedding-out Plants.—I should be obliged if any of your correspondents who are versed in such matters will give information as to the best and most economical manner of putting up forcing houses for bedding-out plants, suitable for nursery purposes. *A Subscriber.*

Paliurus aculeatus.—I sowed some seeds of this here in 1856, which I gathered two years before from a hedge in Northern Italy, between Rovigo and Bologna, and I have now six plants in good condition. The highest is 7 feet 8 inches high, and they produce abundance of flowers and seed every year. The seed, however, so far seems bad. They grow in an exposed situation, with a southern aspect, on a heavy soil, without any wall or other protection. The situation is on Bathwick Hill, about 400 feet above the sea-level. *W. D., Bath.*

Cordon pruning.—In a recent letter, written by "W. R.," he speaks, perhaps rather hastily, of some "absurdities," called cordons. Now, as there is no reason given for the nickname, its applicability may be fairly questioned by one who at least has had practical experience of the cultivation of these little trees, experience which has cost some years to gain, and which is not founded upon knowledge obtained by a cursory inspection of the productions of some French nostrum-mongers. Three years since, struck with the fertility of some very juvenile Pear trees, I caused to be potted into 8-inch pots some 200 one-year-old dwarf Pears on the Quince stock, little unpromising Aaron's-rod-looking switches, of 2 to 3 feet high; they were untouched by the pruning knife, and indeed there was nothing to prune. The pots were then plunged in some light compost, and left until the tender mercies of the spring brought out the dormant buds, which, to use a technical phrase, broke all up the stem. When the shoots had made a growth of five leaves they were pinched back to a third leaf, and by the end of the first year the unpromising looking plantlets had thickened into sturdy little trees, fairly set with bloom. In the spring of 1866, still in their original pots, the "absurdities" were crowded into a glass shed during the treacherous months of April and May, and when all danger of frost had passed were removed into their summer quarters, *i. e.*, plunged as before. As they were now—the second year—important fruit-bearing trees, they were placed 2 feet apart, so that the small area of 100 feet by 8 feet would hold 200 trees; and the little "absurdities" actually ripened from six to eight fruit each—fine fruit, such as an old, respectable tree would be proud to yield. Pinching having been carried on as rigorously as in the previous year, no shoot being allowed more than five leaves for the first pinching and three for the next, the trees had by the autumn grown 5 and 6 feet high, and were columns of fruit buds, close, compact, and sturdy. They had now increased so much that a slight change of pot became necessary, and they were changed from 8-inch pots to 10-inch pots. As every gardener will know, this would not induce a great amount of labour. In the spring of this year the trees bloomed gloriously, and were pillars of flowers, hiding the stem; after setting, the fruits were of course thinned, and each tree allowed to bear from a dozen to 18, which I am glad to inform "W. R." have been remarkably good, the fruits on the average weighing from 10 to 16 ounces each: not a bad return in three years—200 trees giving 300 dozens of fruit, the trees also being now larger and more fruitful. Now it appears to me that few of the marvellous systems described by "W. R." excel my "absurdities," either in productiveness, or in simplicity of management. I do not write from hearsay evidence gathered more or less empirically, but I give the result of actual practice. Perhaps however the fluent pen of "W. R." will tell me that my practice is absurd. If I gather the fruits I shall be content to think it so. It appears to me that fruit-tree training cannot be too simple, although any ingenious gardener may multiply forms indefinitely, the variations being indeed endless; but all opinions as to training should be received with great caution, and those who advance them should at least have three years' experience, There are few forms of training so well adapted for small gardens as pyramid and bush trees; for productiveness and beauty a well trained pyramid is supreme, very little skill is required to perfect it. For open and windy places the bush is invaluable. Fortunately these simple forms are so well known in England that they can afford to be lightly spoken of by "W. R.," and will probably survive his disparagement; anyhow I hope they will not writhe under it. *Apropos* of M. Jamin, I had the pleasure some years since of showing him some hundreds of cordon Peaches—upright trees, not diagonal or horizontal. M. Jamin, far from calling these trees "absurdities," was pleased to say, "Ah, Monsieur! j'ai été decoré par l'Empereur pour mon travail, mais je n'ai rien fait comme ça." *Vespa.*

Zizania aquatica (see p. 1146).—I am sorry to learn that this has not germinated from the seeds sent by me to "W. P.," and I fear that similar failure has happened elsewhere. In our botanic garden a few seeds have produced plants in a tub, with several inches of water covering them. These have flowered, but not, as far as I know, ripened their seeds. As the plant is said to be annual, there is reason to fear that we shall again lose it. It is also monœcious, and so may at first require to be artificially fertilised, which we have neglected to do. *C. C. Babington.*—— The only place in which I ever saw Zizania aquatica really in a healthy though not vigorous state was in the garden of the late Mr. Borrer, of Henfield, in a little crowded basin, where that beautiful Arad, Orontium aquaticum, and many other interesting aquatics, used to flourish side by side. I brought home some seeds and tried them in various ways. In the open water they did but little good, and soon perished among a rich crop of British weeds: however, in large pans of water, with deep, rich mud at the bottom, I succeeded in keeping the plant for a couple of years, but although it once fruited perfectly, it never became vigorous. It would certainly be desirable to transmit seeds of this plant from one place to another in water. *Vertumnus.*

Calville Blanche Apple, and the Cordon system.—Interested by what your Paris correspondent has recently written respecting this and other matters, I strolled into Covent Garden last Saturday evening, in search of a Calville Blanche—that excellent Apple which Mr. Rivers has told us it took him so many years to think as the French do—"that it is the best Apple in the world when cooked,"—but which he eventually confessed to be as superior to a "Norfolk Beefing as a Pine is to an Orleans Plum!" I only saw some moderately good specimens of it—the best ones are not over yet, I think—and judge of my surprise when I found that even now they are 1*s.* 6*d.* a-piece! A fruiterer showed me one which he confessed was not his best, and when I asked him if he would take a shilling a-piece for such as that, he said "certainly not." The samples shown me were only third-rate specimens of their kind. If I am not mistaken, you will find that this same Apple will realise as much as half-a-crown a-piece by and by. It is a first-rate dessert Apple, and is also very popular with French cooks, so much so that to supply them some grow it in pots under glass. That, worked on the true Paradise stock of the French, and trained along in the shape of a simple cordon at the bottom of our garden-walls, will doubtless produce splendid fruit. *W. P. S.*

Grape Judging. — At p. 1119 you observe that deficiency of colour is as much an imperfection as deficiency in flavour. Say one half as much, and I shall agree with you. Flavour is certainly the chief merit in everything that is grown to be eaten. Colour, size, and form, may each have one mark, provided always that flavour has two. To place the chief merit of fruit on a level merely with those of quite secondary importance, does not seem reasonable. I observe a mistake or two in my last letter in the page above alluded to: the words French and English should be transposed; and further down, "merits" of the palate should be rendered "wants" of the palate. *Vitis vinifera.*

French Gardening.—I have been much interested in reading the contributions of your Paris correspondent, particularly those relating to the French methods of plant culture, their modes of decoration, both indoors and out; their forcing of common shrubs so successfully; their culture of fine-foliaged plants for flower garden decoration; their fine Asparagus, Lettuce, Endive, and other salads; their Peach, Pear, and Apple training and management, particularly that relating to the cordon system. These and many other matters have interested me so much, that it has really appeared to me that we have something yet to learn. With this conviction, on clearing up the great business matters of the season, although I had previously been in France, and seen something of French gardening, I went over again to have a good examination of some of their first-class establishments, including fruit collections, and plant and flower treatment; and I was greatly interested by what I saw, and gratified with the civility and attention which I everywhere received—the readiness with which information was given and questions answered; and, in truth, I found that in many respects I had still much to learn. As your intelligent correspondent has been in France so long, searching over such an extent for information, giving us his experience, and still promising us more particulars on the single Apple cordon, and some other matters, it would be superfluous for me to attempt further explanation. I can, however, by ocular demonstration, fully endorse the facts stated by him. More particularly do I agree with him, that the dwarf, or low one-line cordon for Apples, such as I saw at Versailles, Ferrières, and other places in such perfection, and so much more ornamental as an edging to a fruit or kitchen garden than Box or other slug-harbouring edgings, must in time, when seen to perfection, become a fact in general practice, for usefulness as well as ornamentation. The winter Grape-keeping or preserving at Ferrières, described by your correspondent, is also so simple and so good, that it is really the best in practice I ever saw or heard of. Ferrières, moreover, is one of the best kept and cultivated places throughout, in every department, which I have seen. Though an old cultivator, and one who has gone over what I considered the best methods of culture, in some cases more than 15 times, I find, as I have often done before, that I have not yet got to the foundation of simple facts, but have remained in ignorance, till my mind's eye has received a simple hint, sometimes really very suddenly In nothing has this been so strikingly exemplified as in the simple prolific method in which the French produce Mushrooms in such quantities, of the very best quality. Of this your correspondent has also spoken, and we may hear more about it in future. I have had for above 40 years, in full practice the whole year round, a very simple method of producing Mushrooms of the first quality, in great abundance, but I am now of opinion that the culture of this useful esculent may still be rendered more simple. *James Barnes, Bicton.*

What Qualities should a Bedding Pelargonium Possess?—It has been asserted that the round-leaved Tricolor Pelargoniums are valueless as bedding plants, an assertion which experience proves to be unfounded. Miss Watson and Northern Star are specially referred to; but in this case a whole class is condemned because one round-leaved kind happens to bear foliage but little thicker than tissue paper. The opinion of the members of the Floral Committee, and of at least thirty other judges at the principal horticultural shows in the country, points the other way. Only recently a First-class Certificate was awarded to Ealing Rival, a round-leaved variety, with finely-coloured foliage, well worthy the honour conferred upon it. Carter's Prince of Wales is also of the same class, and is undoubtedly a fine plant, if it will retain its constitutional vigour after propagation, which I have no hesitation in saying Miss Watson has done. As a proof of this, I have beautiful, well-coloured plants, taken from the parent plant on the 3d of August last. As a further proof of its sufficient hardiness for bedding purposes, I may say that the plants which were exhibited at Kensington and the Regent's Park, to which First-class Certificates were awarded, were grown outside, plunged in their pots. The most brilliant plants I have ever had of this variety were planted out in the open, and grew as freely as a Tom Thumb. Men of ability and standing in practical horticulture can testify to this. It is a great mistake to condemn the round-leaved varieties, as it is well known among practical men that the round-leaved sorts, generally speaking, are the most hardy, and are sought after on that account. As to the particular class to which Miss Watson belongs, it is an undeniable fact, which may be proved any day at St. Alban's, that as bedding plants they are effective and beautiful at a distance, where other classes are valueless from being a mass of confusion. *John Watson, St. Alban's.*

Fruit Growing.—Whatever may be the result of the discussion going on in your columns, "W. R." deserves credit for bringing before us a great defect. I am not going into the subject of training, or its results, nor that of the difference of climate. The French have as much of that to contend with as us; but have we not of late years been running too much after every new Continental variety, without questioning its hardiness? Our only anxiety has been to get large, fine-looking fruit, to the neglect of our old-fashioned, hardier sorts. I maintain that if the fashionable test of tasting were applied to Pears, the new and larger varieties would have to give way; besides, for table purposes, the small Pears are the most convenient, if not the most showy; and even as standards, I have heard of fine crops ripening in the north this season. For the purposes of the market-gardeners, to benefit whom, appears to be the end this discussion has in view, we may take the Hessle Pear, a variety no one knows how old. If this were brought to market or to table when gathered, its place might as well be supplied by so many pieces of wood; but if kept till properly ripened, there is more real Pear-flavour in one of these fruits, small as they are, than in many of our new varieties, weighing pounds, one half of which never ripen, and the other half, either from high breeding, or tender constitution, or soil, or perhaps all these taken together, proves most frequently to be so gritty as not to be fit for table. My object in these remarks is simply a desire to ascertain from interested parties crossing Pears, whether something could not be gained by keeping hardiness in view. If such all but totally neglected old varieties of Pears as Croft Castle, Knight's Monarch, Thompson's, Swan's Egg, Seckel, Suffolk Thorn, Winter Nelis, &c., &c., were more encouraged for orchard planting, we might find the markets with a better supply of Pears, not by any means good-looking, but, to my taste, infinitely superior, as regards the property of a rich, melting, perfumed Pear-flavour, to most of the sorts now obtainable. Any one who possesses orchard trees of any good old variety, would be conferring a boon upon the public by giving us a little notice of them and their habits, as regards bearing properties. *J. F.*

Pinning Dahlia Blooms.—Your readers may possibly conjecture that the signature "J. K., Wiltshire" (see p. 1098) may represent my initials; however I beg to say that such is not the case, and at the same time I may add that the practice is quite new to me. I confess, however, that it is clever; and I cannot conceive how I, a very old Dahlia-grower, who fancied myself up to every manœuvre, even to the now exploded system of inserting false eyes, could have been so long blind. I declare, however, that until I saw the account of pinning a Dahlia, the practice had never so much as struck me. I have, through a long career, avoided all trickery in exhibiting, or else I have done it so cleverly

as never to have been found out. That I leave to your readers to decide. I am now too old to begin. And should I ever judge Dahlias again, I promise all "pinners" that their labour and ingenuity in that respect shall be lost. I will, however, tell them of a far more effective and legitimate way of keeping the petals firm. There are only a few sorts that in travelling are apt to shed their petals. Let all such flowers be placed in the box without water, and they will neither receive injury, nor shed their petals. Perhaps a knowledge of this may deter pinners from their clever contrivance, which I cannot consider fair. People talk about "dressing" Dahlias, I hold that the form of the flower now-a-days completely obviates that objection. In nine cases out of ten you injure the flower now by attempting to touch a petal. Every year adds to this class of blooms; and very soon even that which is no trick must naturally be avoided. *John Keynes, Salisbury, Wiltshire.*

TRADE MEMORANDUM.

Caution to Advertisers.—We must put gardeners seeking situations on their guard against persons calling themselves "gardeners and horticultural agents," and who, for the small consideration of 5*s.* in postage stamps, undertake to introduce gardeners to situations. We have before us, as we write, letters sent to two different gardeners, couched in the same terms, written in the same handwriting, on the same description of paper, but the signatures and addresses are different. This double-faced worthy refers to several respectable firms, whose names, however, he does not know how to spell.

Societies.

Stoke Newington Chrysanthemum: *Nov.* 14 *and* 15.—Notwithstanding the unusually late season at which Chrysanthemums have flowered this year, the display on this occasion was about equal to that of former years. Cut blooms were abundant, and plants in pots were plentiful, but on the whole scarcely sufficiently advanced in bloom. In the class of six plants Mr. Forsyth was 1st with Alma, Lady Harding, Golden Christine, Annie Salter, Dr. Sharpe, and Vesta, all well-managed plants. Mr. George was 2d with Vesta, Prince of Wales, St. George, a sport from Golden Hermine, and others. In the class of 6 Pompons Mr. Butcher was 1st with the white, lilac, and golden varieties of Cedo Nulli, Bijou de l'Horticulture, Helena, and Andromeda, all well grown and flowered. Mr. Forsyth, who was 2d, had White Trevenna, Canrobert, and Cedo Nulli in excellent condition. In the class of 3 Pompons in 8-inch pots, Mr. Butcher showed good examples of Andromeda, Cedo Nulli, and Salamon. Mr. Forsyth had a good White Trevenna. Six pyramidal Pompons came from Mr. Butcher, who had the different kinds of Cedo Nulli, Salamon, and Andromeda. From Mr. Forsyth came six standard Pompons. Among them were Lilac and Golden Cedo Nulli, Calliope, and Andromeda, in beautiful condition.

In the Class of 24 Cut Blooms, Mr. Slade, Kingsland, was 1st with Aureum multiflorum, Dr. Brock, Golden Beverley, Jardin des Plantes, Gloria Mundi, and Luteum formosum, yellows; White Globe, Mrs. G. Rundle, Beverley, and Formosum, whites. Among other coloured sorts were, moreover, Prince of Wales, large and fine; Lady Harding, beautifully incurved; King of Denmark, Rev. J. Dix, Duchess of Wellington, Lord Ranelagh, General Bainbrigge, General Slade, Prince Alfred, very fine; Orange Perfection, Cherub, and others, all in excellent condition. From Mr. James, who was 2d, came, among others, good blooms of Nil Desperandum, White Globe, Beverley, Venus, Prince Alfred, Rev. J. Dix, and Golden Beverley. Mr. Berry, gr. to the Earl of Leven and Melville, also showed good blooms in this class. In the Class of 12 blooms the last-named exhibitor was 1st with Empress of India (large and beautiful), Queen of England, Lady Slade, Prince of Wales, Lady Harding, and Nil Desperandum; all excellent. Messrs. James and Slade also showed in this class. From Mr. Heard, De Beauvoir Town, came good blooms, conspicuous among which were White Globe, Beverley, Prince Alfred, Sir Stafford Cary, Lady Harding, Rifleman, and John Salter. Mr. Howe, Shacklewell, furnished Beverley, White Globe, Prince of Wales, Mrs. George Rundle, St. Patrick, Jardin des Plantes, and John Salter. Mr. Drain, De Beauvoir Town, also showed some good blooms, especially of Dr. Brock, Mrs. Rundle, and Novelty. In the Class of 6 Cut Blooms Mr. Wheldal, Holloway, was 1st with Beauty, large and fine, blush; also in beautiful condition, Golden Beverley, Prince of Wales, Mrs. Rundle, Pio Nono, and Her Majesty. Mr. Moxham, Clapton, who was 2d, had fine examples of St. Patrick, Jardin des Plantes, Lady Harding, Beverley, and Prince Alfred. From Mr. Heard, also, came six good blooms. Stands of six blooms, in excellent condition, were likewise shown by Mr. Shields, Stamford Hill; Mr. Crute, Holloway; and Mr. Smith, Haggerston.

Among Anemone-flowered varieties, which were shown by Messrs. James, Howe, and Snare, were good examples of Queen of Anemones, Florence Nightingale, Madame Godereau, Fleur de Marie, George Sand, Gluck, Prince of Anemones, Marguérite d'Anjou, Mr. Astie, Madame Sentir, Regulus, Antonius, Madame Montels, Firefly, Perle, Rose Marguérite, and Sidonie.

Extra prizes offered by Mr. Salter for blooms of Countess of Warwick were carried off by Mr. Heale, Clapton, and Mr. James; and those for Lady Talfourd by the last-named exhibitor and Mr. Snare. Mr. Forsyth's prizes for Mrs. George Rundle were won by Mr. Wheldal and Mr. Moxham. The awards for the best four plants shown by young specimen growers were won by Mr. Drain and Mr. Shields, the former of whom had well-managed examples of Christine and its varieties and Lord Ranelagh.

Among Seedlings, a First-class Certificate was awarded to Mr. Wynèss for Princess Beatrice, a beautifully-incurved flower, intermediate in colour between Lady Harding and Prince Alfred; and Mr. Forsyth had a similar award for Mrs. Sharpe, a lilac-tinged, rose-coloured flower, large and fine.

Among Miscellaneous subjects was a fine collection of Chrysanthemums and other plants from Messrs. E. G. Henderson, to whom a Special Certificate was awarded; and Mr. Ware, Nurseryman, Tottenham, had also various Sedums and other plants. From Mr. Shirley Hibberd came a collection of Ivies, and to Mr. Forsyth was awarded a 1st prize for a group of both large flowered and Pompon Chrysanthemums, which served to decorate, with much effect, one end of the showroom.

Quekett Microscopical Club.—A monthly meeting of this Club was held at University College on the evening of October 25, the President in the Chair. Mr. S. J. McIntyre read a paper on "Chelifers," in which he gave some interesting facts with regard to the haunts, habits, and mode of capture of these curious animals, resembling minute scorpions, and having the backward and sideway motions of crabs. Of the 54 known species eight are British, and are chiefly found under the bark of trees and in houses, amongst old papers, &c., often rendering good service by feeding on the insects which are usually so destructive in old libraries. Several living specimens were exhibited under the microscopes, where their activity in the pursuit of their prey was conspicuous. A paper by Mr. C. Nicolson, M.A., on "Object Glasses for the Microscope," was read. Nine members were elected.

Notices of Books.

Plantæ Tinneanæ, &c. &c. Opus xxvii. tabulis exornatum, Theodori Kotschy et Johannis Peyritsch, consociatis studiis, elaboratum. Vienna, 1867. Typis C. Gerold filii. Large folio, tab. 27.

The work, of which the above is the abridged title, is one not a little remarkable in all ways, as our readers may judge from the following particulars, gleaned from the work itself. In 1861 two Dutch ladies, having twice previously visited Egypt, undertook, in company with a third lady of the same nation, a journey into Central Africa, with a view of investigating its natural productions, and specially of inquiring into the condition of the Ethiopians. Attended by a small escort they ascended an affluent of the Nile, called the Sobat, till their progress was arrested by the rocks which impeded the navigation of the river. In these straits the escort feared to land, but Mademoiselle Tinne, mounting a horse, did not hesitate to present herself to the natives. They, struck with her courage and benevolent aspect, supposed her to be the daughter of the Sultan, come among them to redress their wrongs, and Madlle. Tinne narrowly escaped being proclaimed Queen. Pursuing their journey, the travellers were attacked with fever, and had to return to Chartum, where they fell in with two German naturalists, M. de Heughlin and Dr. Steudner. In company with these gentlemen, the three ladies retraced their steps as far as the lake of No, lat. 9° N., long. 28° E., and then went westward up the river Bahr-el-Ghasal as far as the Lake Req, beyond which place it was necessary that the journey should be continued by land. This change in the mode of travelling necessitated certain alterations, and proved the beginning of sad troubles; one of the German naturalists fell a victim to fever, while a few months afterwards Madame Tinne died also. This grievous loss was soon followed by that of a second lady sister to Madame Tinne, so that of the three ladies, Madlle. Tinne alone returned to Europe. Such, in brief, is the sad history of this extraordinary voyage. The work before us is devoted to a record of the journey, an account of the vegetation and of the physical features of the country passed through. The vegetation of the Bahr-Ghasal district was comparatively little known until the collections of Madlle. Tinne and M. Heughlin served to make its treasures more accessible to botanists, and showed that its flora is distinct from that of the other affluents of the Nile, having much affinity with that of the west coast of Africa, while some of the plants seem peculiar to this particular district. On the whole the flora seems to have much in common with that of the more fertile portions of Abyssinia recently alluded to in our columns. Among the many interesting plants we may notice the Ambadj, Herminiera Elaphroxylon. This is a tree whose trunk is 3—4 inches in diameter, and 12—20 feet in height, and the roots of which, by their interlacement, form floating islands, and offer serious obstacles to the navigation of the small streams. It is stated that the conical trunks of this tree are sent up from the numerous horizontally spreading roots, which ramify in all directions beneath the surface of the water, during five years, at the expiration of which period, and for another five years, the trunks gradually perish and a new growth begins. The Ambadj, if this statement be correct, thus undergoes a process of periodical increase and decrease. Another plant to which we may allude is the Tinnea æthiopica, first seen in England at the International Horticultural Exhibition in 1866, and since figured in the "Botanical Magazine." Quite new to botany and to gardens, this genus has been appropriately dedicated to the adventurous travellers by whom it was first gathered.

From specimens gathered in this expedition, the history of the Butter-tree of Mungo Park has been greatly elucidated. First called Bassia Parkii and now known as Butyrospermum Parkii, this tree, like many other Sapotaceæ, furnishes caoutchouc, which the natives obtain by cutting the branches. A milky juice exudes from the branches, which dries into a transparent yellowish, readily inflammable resin, insoluble in water. The negroes make use of this resin to smear on the ends of their arrow-shafts, so that when the iron barb is fixed into the shaft the latter is prevented from splitting. The fruits have a yellow edible flesh, enclosing one or two seeds like Chestnuts. These seeds, bruised and submitted to pressure in cold water, yield a large quantity of oil, which solidifies at 20° Reaumur (77° F.), into a butter-like mass.

Thus much for the contents of this work. It remains for us now to speak of the way in which it has been got up. As far as the strictly botanical portion is concerned, this volume has had the advantage of being entrusted to the care of the late Dr. Kotschy, eminent as a botanist, an accomplished artist, and himself well known as a traveller in Africa; with him was associated Dr. Peyritsch, also known in connection with African botany, and who since the death of his colleague has superintended the botanical portion of this volume. The lithographic plates, from drawings of Dr. Kotschy's, are splendid specimens of their kind, while the typography is a superb sample of that art which is carried to such perfection in Vienna. Throughout, the work is written in Latin and in French in parallel columns. Altogether we have here a sumptuous record of a remarkable journey, and a noble tribute of affection paid to the memory of their deceased relatives, by Alexandrina and John A. Tinne. One thing, and one only, is lacking, and that is a map of the route traversed. Such a map was published in the Transactions of the Historic Society of Lancashire and Cheshire, vol. xvi. (Liverpool, 1864), and might well have been reproduced in this volume.

The Apiary.

Honey Harvest in Yorkshire.—I have kept bees for 10 or 12 years in this part of Yorkshire, and the honey harvest this year, is, I think, rather above the average than otherwise. During that time I have certainly known three or four years much worse than the present one. At the same time there are some peculiarities about it which are worthy of note. It is a very general remark about here that the summer honey is unusually dark; mine certainly was so, having a peculiar dingy kind of bottle-green hue. It is by no means bad in quality, with rather a rich flavour, but not one that I could trace to any particular kind of flower. My own impression is that it is largely made from honey dew, of which there was a very extraordinary quantity this year, and which lasted for some weeks. The crop of moor honey has, I believe, been unusually abundant and fine in quality this year. Most of your readers will probably be aware of the common practice of this country to take the whole or greater part of the honey from the hives at the beginning of August, and send them up to the moors for the bees to refill them. Mine came back filled with beautiful deep golden coloured jelly, so stiff that it will not run out of the comb when cut, which is the peculiar characteristic of moor honey, and which I prefer far above any other honey, though to some the strong taste of heather is disagreeable. As far as I can recollect I never saw a finer flower on the moors than there was this year, and the weather was wonderfully fine for four or five weeks after the plants came into flower. *C. W. Strickland, Hildenley.*

Bee-notes.—I have been a bee keeper for several years; I use common straw hives, made large, with a flat top, and have been generally very successful with them. I kill no bees in taking the honey, nor do I use anything to stupefy them, but drive them from the hives I wish to take, into the wicker hives. By so doing, the bees swarm very early and finely. One hive in the past season swarmed four times within 14 days, leaving the old hive still a good one. They have collected a fair quantity of honey this season, but that taken from the supers in July was dark, and not good.

They were conveyed to the moors early in August, and when brought back some of the hives weighed from 4 to 5 stones. This honey was generally good, but the combs contained a quantity of bee-bread, so that it was difficult to get pure comb and honey. Otherwise, bees have done badly in this neighbourhood, where kept by cottagers, and not well cared for. A working blacksmith living about two miles from this place, came to me lamenting that he had kept six hives over the winter, and none of them had swarmed, nor was there any fit to take. I advised him to feed his bees, and explained to him how he should do it. He laughed at me and said—"I's sure you tak a varry great deal of trouble with your bees." He also continued, "If I have hives that have no food for winter, I lap them up in dry straw, and bury them in the ground like a Potato pie, and let them remain until April." He informed me that the last two hives he treated in that way did better than those that stood in the usual way with plenty of food, while one of them was the best he ever saw. What will Mr. Bevan Fox say to this treatment? *William Culverwell, Thorpe Perrow.*

[We have forwarded your note to Mr. Fox, who has sent us the following reply:—

"I like straw hives to be of large size. The large hives have, in my neighbourhood, as far as I have seen, done the best this season.

"In uniting bees, I generally prefer to drive out both stocks into one empty hive; the two families are equally subdued by the driving, and less likely to fight.

"The burying hives during the winter is a custom of very old standing. Some American and German bee-keepers adopt the plan on an extensive scale. Mr. Langstroth, in his admirable work, gives descriptions of various methods. One of these, practised by a very successful German apiarian, the Rev. Mr. Scholtz, is described in his own words at great length:—A plot of ground having been levelled, a pit of 3 feet square, by the same in depth, is dug out; this is for a ventilating chamber. Four trenches are then dug, radiating to the outside. In these lead pipes are laid, for the purpose of conveying air into the interior. The area is then to be covered with pieces of 4-inch scantling, on which the hives are to rest. The hives, which are well-ventilated, are built up in a pyramidal form in any number, say up to 60 colonies; a funnel, made of four pieces of wood, 8 inches square by 30 inches in length, covered with a movable cap, is let down in the centre, communicating with the air-chamber: thus thorough ventilation is insured. The hives are so built that there is a space of some inches left between each. Boards are then laid on the hives, and on and against them is piled a thick layer of rushes or old dry straw, forming a regular and dense coating from base to apex. This coating is in turn to be covered with a layer of earth 5 or 6 inches thick, leaving the central chimney or shaft open at the top.

"When severe frosts occur, an additional coating of leaves or other suitable material must be given. When finished, a good sprinkling of water should be thrown over the outside to be allowed to freeze. There are many other minor directions given, which I have not space to enlarge upon. It must be remembered that Mr. Scholtz, the inventor of the foregoing plan, lives in Lower

Silesia, where the cold in winter is intense, and of long duration. He goes on to say that he has ascertained that bees preserved in clumps in the manner described, consume scarcely one-half of the quantity of honey required by such as are wintered in the open air. Colonies placed in the clump on the 13th of November, 1857, remained undisturbed until the 29th of March in 1858, and were perfectly sound and healthy when opened. The earth under the outer mantle or covering was still frozen, and had to be removed with a hoe. Long confinement had not injured the bees in the least degree, and they had consumed proportionally little honey.

"It is doubtful whether the system of burying bees would answer, in the long run, in our comparatively mild climate. There are so many days, even in mid-winter, in which our bees are glad to leave their hives, and in which, if confined, they become much excited from the internal temperature, that I am inclined to think we cannot do better than leave them on their accustomed stands.

"Mr. Langstroth gives directions for other methods of wintering bees. They are to be shut up in a dark room or cellar; ventilation is to be afforded by the removal of the tops or crown-boards. This prevents the condensation and accumulation of moisture from the breath of the bees.

"Other authors have recommended tying up the hives in coarse, open-textured cloth, and suspending them from hooks in the ceiling of some cool, darkened room. Various other plans have been recommended, all tending to the same end."]

Garden Memoranda.

SHRUBLAND PARK *(continued from p. 1123).*—Returning from this hurried, and consequently imperfect general survey, one naturally pauses and attempts to gather up into one dazzling focus all that has been seen. Some things are best looked at from a distance, and in this cursory manner; others are most enjoyable close at hand. A garden will bear looking at from either standpoint. In this respect a garden appears a striking contrast to cloud or mountain scenery. These, as Ruskin, I believe, has eloquently pointed out, can only be enjoyed at a distance. But how widely different is the case of a garden! Exquisite at a distance, it is still more lovely when near. It invites and rewards the closest companionship. Beautiful as a whole, it is equally exquisite in each of its component parts.

From the broad lights and shadows of the picture it is necessary to proceed to examine the minuter points of the artist in his filling up, if we would form a true estimate of the beauty of his workmanship or the power of his genius. A garden should be judged by the same rules, and therefore it will be well to note the special and particular excellencies that go to constitute the general beauty of this most pleasing whole.

One of the most novel and striking things at Shrubland, in the way of details, is the use of silver sand as a decorative object. Many of the beds throughout the whole series of gardens are illuminated—the word is not too strong—with its cleanly brilliance. Lines of it running between Box, or surrounding Grass, or forming a base for spiral trees or vases, or patches of it contrasted with red gravel, forming the base of Box scrollwork—always and everywhere it has a charming effect.* The supply is unlimited, as it forms part of the subsoil at Shrubland, and in any garden where it can be procured it should be introduced, as it imparts a new character, and provides a fresh pleasure of the most satisfying kind; in one word, it seems to flash a silver lustre over the grace and virtue of cleanliness. Another feature is the distinctness and variety of the different parts. In no part has the artist of this fine picture repeated herself; some of the contrasts may be considered too violent, but the abruptness of the change serves at least to intensify the sense of variety. Large as the gardens are it is impossible to say of any two parts, "another of the same." Certainly there are two ribbon borders, but one is on a dead level, the other on a hanging bank; one is, say here, the other a quarter of a mile off; one is of the usual character, the other is composed wholly of Dahlias—the former is planted in vandyked lines, the latter in straight ones. And a similar distinctness pervades each changing scene. By the use of living and dead screens or irregular distribution of shrubs and trees, but little or any of the different gardens are seen from the same spot. The scenery unfolds its fresh beauties as one walks along, neither revealing too much at once, nor satiating by monotony. Hence large as the gardens are, the interest does not flag, the attention never wearies; the eye cannot be cloyed with beauty while it is thus refreshed by variety.

* The scrollwork is a capital illustration of its power in bringing out to the full the green of the Box and the red of the gravel. Continuous lines of dazzling white meander through between lines, or encompass masses of solid Box, as these either delineate the thinnest curves, or enlarge into broad forms, as in many of the curves, marked 6, in Figure 1. The few bedding plants introduced here are quite of secondary import, and might be dispensed with, as the object is simply to illustrate the charm of exquisite lines, and this charm is much enhanced by the strong contrasts between the red, white, and green.

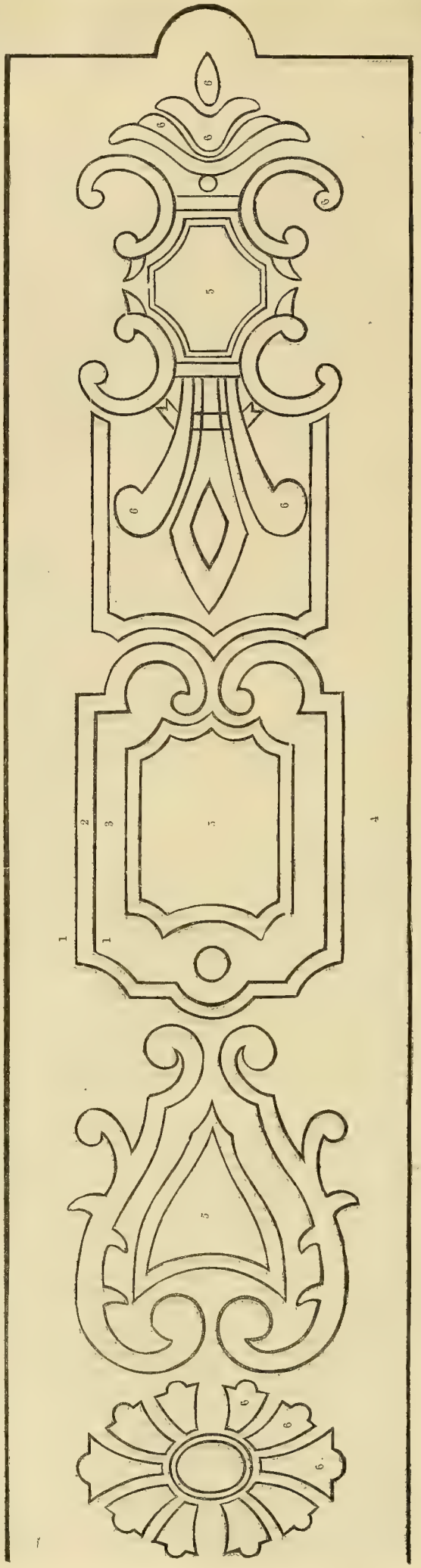


FIGURE 1.—PORTION (ONE-FOURTH) OF BOX SCROLLWORK.

1. Lines of Box. 2. Silver sand. 3. Silver sand. 4. Red gravel. 5. Dwarf bedding plants. The corners and other points marked 6 are solid Box. The lines are wholly composed of Box, the spaces between them, of silver sand; the outside spaces being red gravel bounded by turf.

A third feature is the broad mass of green that separates and entirely divides the upper lawn and Balcony garden from the whole series of gardens, bounded by the long green Grass glade that skirts the base of the shrub-filled hanging wood. The eye rests upon this from the terraces of the mansion, and when fatigued with admiring the brilliant series of gardens from below, it seeks repose on the same impenetrable bank. I have already adverted to the use of this green as a relief to the glare of the stone steps; and amidst so much intense colouring of flowers it is impossible to exaggerate its value in an artistic point of view. Not that there is any lack of green among or contiguous to the flowers. Shrubs, trees, and spiral-shaped Junipers abound, but these rather challenge admiration as decorative objects than induce that repose which the tired eye requires. This is found to perfection by looking on the luxuriant foliage of the hanging wood. On this green it can indeed "rest and be thankful."

A fourth detail is the use that is made of stonework and vases for gardenesque effect, as distinct from their floral uses. Some of them are urn-shaped, having no place for plants; others, such as the fine handsome ones in the Balcony garden, are flat, open-topped stone baskets, not furnished; and many more of the more common patterns are scattered about, planted and unplanted. These, with the beauty of the different walls, the richness of the balustrading, and the massiveness of the copings, already noticed, give a sculpturesque character to the scene that adds dignity, grandeur, and the idea of value and costliness to the whole, such as is rarely met with. Seldom or never has dead stone done more, or better, to exhibit the beauty of living flowers than at Shrubland. Another detail is the use of floral scroll patterns, or borders of flowers, under or near the eye, as enwreathments to the base of the terrace and balcony walls. It lightens up the stone with a gleam of beauty, and links the masonry and the turf together into a skilfully graduated and pleasing whole. The liberal use of sand combined with the flowers is a most happy compromise between the two arts of gardening and architecture, harmonising with both while not strictly belonging to either. Under the balcony, where the wall is higher, the flowers take the form of a continuous border of Pelargoniums broken at regular intervals by patches of Hollyhocks of four in each patch. These are naturally architectural plants, and admirably adapted for such positions. Another point illustrated at Shrubland is the use of flowers as a summer dressing for the front of shrubberies or hedges.

The first thing seen as one enters the gate near the Conservatory is a high wall of Shrubland Scarlet Pelargonium, covering to a height of 5 or 6 feet the surface of a Yew hedge. The effect is gorgeous and grand in the extreme. This flaming wall is composed of, I think, three rows of plants, of different heights, packed closely together, and has been repeated at Shrubland for many consecutive seasons. The other two ribbon borders, it will be remembered, also serve a similar purpose—that of illuminating with floral lamps shrubberies and woods; only in their case the walls are broad horizontal ones, in this vertical—the latter being the most striking, because the most novel.

The following was the actual grouping of some of the most important gardens during the past summer:—

Balcony Garden.—This consists of four large beds on each side of a centre walk adorned with standard Portugal Laurels, in brick and cement imitation tubs (fixtures, to resemble Orange trees); vases, scroll-work, &c. (see figure 2). Two of the beds on each side are planted alike, making four of one character and four of another, the opposite corners corresponding: 1, 1, 1, 1, a good sized centre of Punch, then three rows of Cerise Unique, followed with four rows of Golden Chain, and edged with a broad band of Baron Hugel Pelargonium. 2, 2, 2, 2: centre the same as No. 1; then Tom Thumb Pelargonium, followed by a mass of Mangles' Variegated do., and edged with the dark Ivy-leaved do. Fine Humea elegans are also placed at regular intervals on the turf, and the end beds running across at the outside of the other four, are a combination

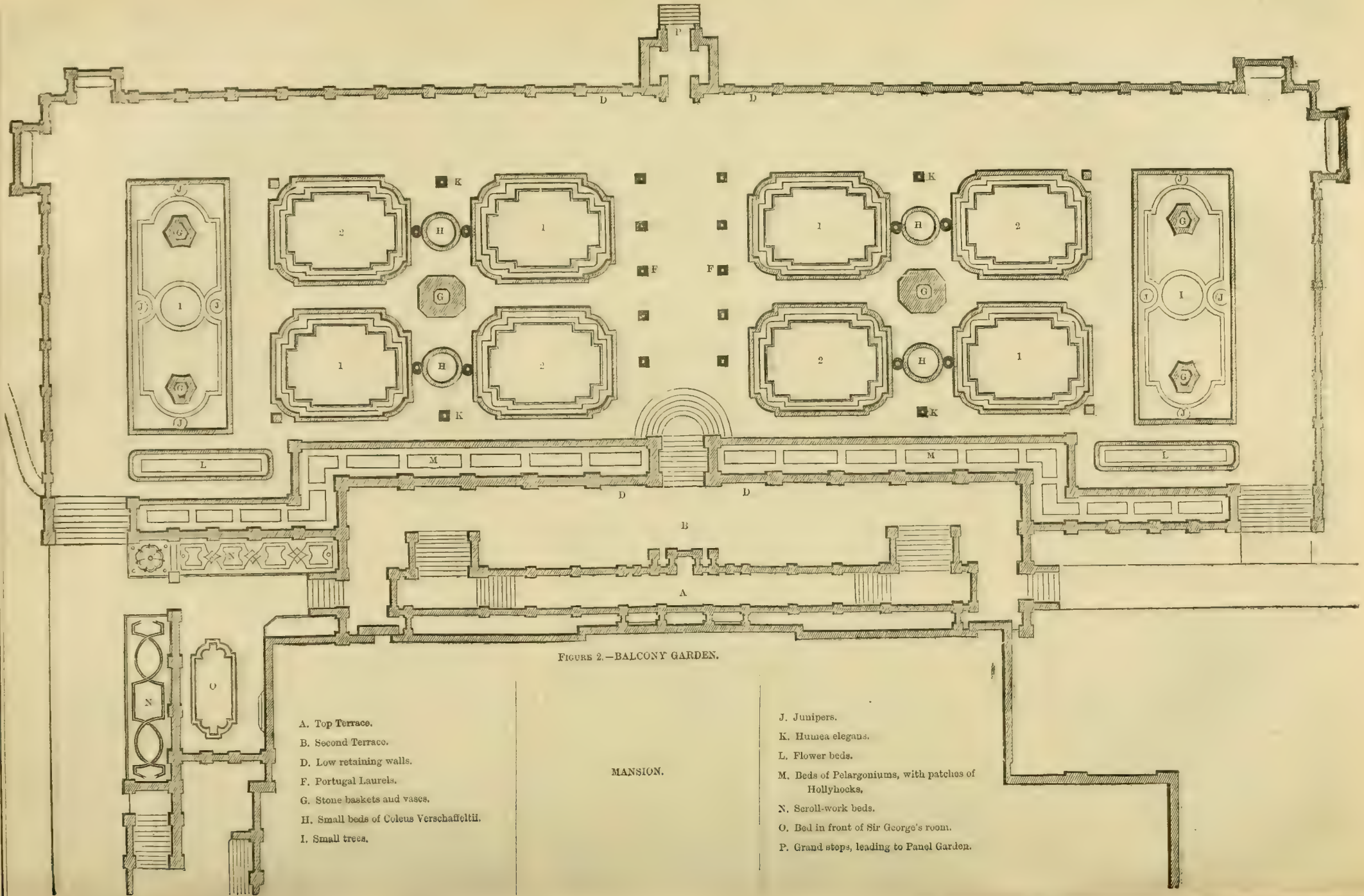


FIGURE 2.—BALCONY GARDEN.

A. Top Terrace.
B. Second Terrace.
D. Low retaining walls.
F. Portugal Laurels.
G. Stone baskets and vases.
H. Small beds of Coleus Verschaffeltii.
I. Small trees.

J. Junipers.
K. Humea elegans.
L. Flower beds.
M. Beds of Pelargoniums, with patches of Hollyhocks.
N. Scroll-work beds.
O. Bed in front of Sir George's room.
P. Grand steps, leading to Panel Garden.

of turf and white sand, with ornamental empty vases or baskets, and Irish Junipers. The whole design is altered in winter. They are then laid down in Grass with lines and circles of sand, and rearranged in circles or different shaped patterns composed of broken bricks, slate, &c., painted over to give them greater brilliance from the windows. *F.*

(To be Continued.)

Miscellaneous.

Seedling Grapes.—Having for the last 10 years been trying experiments in the crossing and rearing of Grapes from seed, I have had some singular productions, many indifferent, some encouraging, and others highly successful; but some which have fruited for the first time this season have exhibited what I consider a singular phenomenon in the colouring of their fruit. Thinking it might be interesting to your readers who may not have tried similar experiments, I have penned these few remarks. My chief object being to get some new and improved varieties, combining as many good properties as possible, I selected for breeding from—Snow's Black Muscat Hamburgh, as being one of our most esteemed Grapes for flavour, &c.; Lady Downes', which is not surpassed for blackness of colour and long keeping; and the Champion Muscat, originally raised by me, the parents of which were the Champion Hamburgh and the large Canon Hall Muscat. This, which is now being sent out, is a very superior Grape for flavour, size of berry, strength of foot stalks, &c.; and if any fault whatever can be assigned to it, it is want of colour, as it does not come a jet black, it being only red, or what is called foxy or grizzly coloured. This Grape, having so many first-rate qualities, but lacking a deep black, I crossed with the Snow's Black Muscat Hamburgh, with the view to perfect it in colour: but, singular to say, in the produce from this operation I have got an identical Champion Muscat in shape as well as size of berry, and every other property, only the colour is a deep yellow, and it ripens 10 days or a fortnight earlier than the common Black Hamburgh, when grown in the same house. I fancy it will be a rival to the Muscat of Alexandria. A year or two ago, Mr. Thomson, of Dalkeith, raised a white or golden coloured Hamburgh from seed of the common Hamburgh, and, if I remember, it was without crossing. I could scarcely credit this at first, but now I can thoroughly corroborate it from practical experience, for I have got from Snow's Black Muscat Hamburgh, an identical white, and a yellowish shaded one, exactly the same in flavour and shape; and again, from the Black Lady Downes', crossed with a White Muscat, I have got a yellowish green Grape, in appearance the same as the Muscat of Alexandria, only a little more like a rifle ball in shape of berries; the flesh firm, like the Muscat, and flavour about the same;—that is, three light coloured Grapes originated from dark parents. A fourth, a seedling from Lady Downes crossed with Snow's Black Muscat Hamburgh: the result from this last is a largish or rather oval berry, similar in size to the seed-bearing parent, Lady Downes', only a white, or, more strictly speaking, a greenish-yellow shaded Grape, with a great portion of the flavour of the male parent. Singular to say, I never before had so many come so decidedly different in colour. No doubt some of these dark kinds have originated from light coloured varieties, or such a quantity of light coloured seedlings would not have been produced. *W. Melville, in "Farmer."* [Similar observations have been made by Mr. Standish. EDS.]

Spider and Wasp.—Last autumn the writer witnessed a curious combat between a large spider, of the species called in Suffolk the "death's-head" spider, and a fine wasp. The wasp had become entangled in the spider's web, who very cautiously, gradually, and most warily approached its victim, and not without reason, as the sequel shows; for no sooner had the insects closed in mortal combat, than they both fell dead to the ground at the same instant. The sting of the wasp must have entered the body of the spider at the precise moment the latter gave the fatal bite. *People's Magazine.*

Garden Operations.

(For the ensuing week.)

PLANT HOUSES.

I HAVE so frequently recommended caution in regard to the use of the *watering-pot* at this dull season, when we have just sufficient artificial heat to suit the requirements of individual structures, that it may seem needless again to revert thus early to the subject. Act, however, now, in a manner the very reverse of what is needed in summer, when the air is dry, often to an extreme degree, and when much moisture is needed; now it is overladen with humidity, too much of which at this time of year, I need scarcely say, is injurious to plants. Where *Conservatories* exist, as well as *Greenhouses*, &c., it will now be necessary to bring all one's strength to bear upon furnishing them well with flowering plants. For this purpose the conservatory should be kept a few degrees warmer than what is requisite for greenhouses generally. From 55° to 57° will be ample warmth for most subjects when in bloom if draughts are studiously avoided. Be particular in regard to *Ericas* and *Epacrises* in blossom; water them with extreme caution, and keep them in the coolest and most airy part of the house. Look well after the former, in order to make sure that mildew has not attacked them. Flowers of sulphur, well distributed amongst the branches and foliage, is an easy and effectual remedy for that pest. Examine all plants lifted from borders. Remove decayed leaves, &c.; freshen the surface of the soil, and keep all scrupulously clean and neat, in order to insure healthy growth. Introduce to a forcing temperature all *Azaleas*, *Bulbs*, *Lilies*, or *Hardy Shrubs*, &c., that are required to be early in bloom. Endeavour to start at a minimum temperature of 58°, raising it gradually to 85°, with actual sun-warmth. Syringe the plants frequently, and endeavour to maintain an agreeable amount of humidity in the air. Do not commence exciting the roots by means of manure-water until some progress in the way of actual growth has been made.

FORCING HOUSES.

Maintain a studied uniformity between the amount of heat and solar light in *Pineries*. Give as much air as possible to all grown in pits heated chiefly by means of fermenting materials. Slightly increase the moisture allowed in compartments allotted to fruiting plants, swelling out, &c.; from others, which are ripening, withhold water, and remove them to the most sunny and dry position possible. *Pot Vines* intended to be forced at a later period should now be laid upon their sides, in such a position that superficial rains cannot find its way to the roots. Abundance of some protecting material must be placed around them for the purpose of keeping them free from injury by frost, should such occur. Do not omit the necessary pruning of these and other subjects which are shortly to be placed in heat, in order that due time may be afforded the wound to so heal over as to avert all chances of bleeding. Vines which were started about the middle of October will soon be showing: syringe them, therefore, twice daily. Maintain an average day temperature of some 78°, with a good maximum advance under actual sunshine, accompanied with a moderate supply of air upon all such occasions. The night temperature should not exceed 62°, a slight amount of air being of inestimable benefit upon all proper occasions, if it can be given without too great an advance of artificial heat. Maintain a temperate warmth in all *Vineries*, the produce of which will be wanted about the beginning of May; 55° will be ample for some time to come, giving sufficient air to moderate it down to this at all times when it is anticipated the sun has a tendency to cause too great an advance. Continue to make fresh *Mushroom beds* for a successional supply as soon as due quantities of the proper materials for forming individual beds can be got together. Introduce *Seakale* in like manner, to insure a proper successional supply for the table.

HARDY FRUIT GARDEN.

This is the proper time to make and plant cuttings of the several varieties of *Gooseberries* and *Currants*. Strong young shoots of the current season's growth, with a portion of older wood taken off therewith, and cut to form a neat heel to each, if dibbled in some few inches apart, in good rich soil, will root freely, and form strong plants during the ensuing summer. Much time will be saved by purchasing strong plants of desirable sorts forthwith. Of *Gooseberries* the following are excellent varieties, viz., Whitesmith and Yellow Sulphur, which are early kinds; Whipper-in, Crown Bob, Green Gage, and Glorious, second early sorts; Champagne, Independent, Large Late Green, and Warrington, late good preserving varieties, &c. Amongst *Currants*, select Black Naples, Red Raby Castle, and White Grape. Such bush fruits generally delight in good old pasture turf, well chopped up, and applied to the roots quite green. They also have a peculiar affection for chalk in proper quantity, say an eighth part as compared with the bulk of soil with which it has to be mixed. Bush fruit should not be pruned until the early spring months have arrived, a practice which diminishes the injury caused to the flowering spray by birds. Newly-planted *Fruit Trees*, of whatever sorts, should now have a surface dressing of well-decayed manure placed over the roots for the purpose of protecting them from severe frosts when such arrive. This will be found a good time for taking up and *Root Pruning* any trees which have become "wood proud." Remove the soil from around the roots with the utmost care, in order not to injure any of the smaller more fibrous rootlets, and prune back to about half their length all strong, main, or sappy roots. Be careful in doing so, however, to leave a clean wound, devoid of anything in the shape of jagged edges. When this operation is performed, replant immediately. Spread the smaller, more useful roots evenly out all around, making them do duty for the grosser ones in every way possible.

HARDY FLOWER GARDEN.

Where the past excellent weather for planting outdoor *Bulbs* has not been taken advantage of, it is advisable to get all such in without further delay. *Ranunculuses* should be also planted soon. It will be well, therefore, to look over the dried roots: remove any symptoms of decay therefrom, and otherwise prepare them for planting. *Lawns* will now need especial attention. Roll them well over occasionally, and by every other means keep them free from worm casts, which are troublesome at this season. Where these are numerous, upon large pieces of sward, the readiest way of removing them is to run a wooden roller over the Grass, when the casts will all adhere to it. The roller for this purpose might be made much wider than iron ones, which are more cumbersome. Secure by the aid of stakes, &c., any freshly planted trees or shrubs, &c., in anticipation of winds, from which, however, we have been tolerably free as yet this season.

KITCHEN GARDEN.

Look through the stock of *Shallots* and *Garlic*, and should any be sprouting plant them forthwith in the open ground. It is waste to throw them away—a too common practice. They thrive well planted at this season, and form good bulbs next summer. Do not plant them too deeply; they should, in fact, not be buried wholly from sight. *Celery*, in a general way, will now require a good earthing up, which will serve as a protection from frost. In earthing up those rows which are not intended for use yet, do not press the soil too closely together upon either side at the top of the mounds, but afford as much air as possible, which will materially increase its keeping capabilities. The earlier batch of *Seakale* intended to be forced in the open ground should now have the necessary pots placed over the crowns, afterwards to be covered with leaves, or a slight quantity of fermenting material. Begin with a minimum heat of 55°, increasing it gradually to a good warmth. No air must by any means be admitted after forcing has been begun. *W. E.*

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,

For the Week ending Nov. 13, 1867, as observed at the Horticultural Gardens.

November.	Moon's Age.	Barometer.		Temperature.					Wind	Rain.
				Of the Air.			Of the Earth			
		Max.	Min.	Max.	Min.	Mean	1 foot deep.	2 feet deep.		
Thurs. 7	11	30.494	30.471	52	24	38.0	47	48	W.	.00
Friday 8	12	30.516	30.493	54	28	41.0	46	47	W.	.00
Satur. 9	13	30.518	30.492	49	37	43.0	48	47	W.	.00
Sunday 10	14	30.471	30.395	51	30	40.5	48	47	N.E.	.00
Mon. 11	15	30.309	30.180	41	26	33.5	47	47	W.	.00
Tues. 12	○	30.277	30.084	44	36	40.0	47	47	N.E.	.00
Wed. 13	17	30.067	29.852	50	26	38.0	48	47	W.	.00
Average .		30.370	30.281	48.7	29.5	39.1	47.3	47·1		0.00

Nov. 7—Heavy fog; very clear, with bright sun; low fog; clear and frosty.
— 8—Low fog; hoar frost; very clear; clear and frosty.
— 9—Foggy, overcast; densely overcast.
— 10—Overcast; overcast and damp; overcast; mild.
— 11—Overcast; very mild; heavy fog; foggy at night.
— 12—Overcast and damp; foggy; overcast at night.
— 13—Overcast; mild; overcast and damp; clear and frosty.
Mean temperature of the week, 3 6·10 deg. below the average.

STATE OF THE WEATHER AT CHISWICK,

During the last 41 years, for the ensuing Week, ending Nov. 23, 1867.

November.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain	Prevailing Winds.							
						N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday ..17	48.1	33 9	41.0	19	0 38 in.	9	5	3	1	9	8	2	4
Mon. ..18	48.1	33.0	40.5	20	0.56	3	7	3	2	4	13	3	6
Tues. ..19	48.9	34.1	41 5	17	0 87	1	5	4	4	15	13	2	7
Wed. ..20	49.0	34.5	41.8	14	0.35	1	7	3	—	7	10	6	7
Thurs. ..21	49.7	36.4	43.0	25	0.44	4	5	4	3	6	12	4	3
Friday ..22	49.2	34.3	41.7	24	0.80	3	4	6	3	4	11	8	2
Satur. ..23	47.5	34.6	41.1	18	0.95	1	6	3	2	6	13	7	3

The highest temperature during the above period occurred on the 20th, 1863—therm. 61 deg.; and the lowest on the 25d, 1858—therm. 9 deg.

Notices to Correspondents.

ALOCASIAS: *Amateur*. These and the other plants named may be grown in good turfy peat, mixed with sand, used rough, and with a little loam added as the plants get large; the pots, of course, well drained. Keep through the winter in a moderate stove temperature, not too dry—65° by night, and from 70° to 75° by day, and shift after the turn of the year, increasing the temperature 5° or 10° or more by day, as the plants progress. The Alocasias propagate by division or by cuttings of the root-stock, the Cyanophyllum by cuttings or eyes with the leaf attached. They all require while growing a thoroughly moist genial atmosphere. If, as you say, they are in a bad state, they should be started in a close pit or frame with bottom heat.

APPLES: *G H.* The largest sort grown in this country is Gloria Mundi, which sometimes weighs as much as 1½ lb. Mère de Ménage and Blenheim Orange also grow very large. Your Turnip Cabbage is doubtless Kohl Rabi.

GRAPES: *H T.* Without more particulars as to the treatment which your Vines have been receiving, it is impossible for us to assist you. Possibly there is a scarcity of good foliage, without which your Grapes will never colour well; or your Vines may be in bad health from being in bad soil. Have they done well previously?

NAMES OF FRUITS: *T S M.* Pears: 1, quite rotten; 2, Passe Colmar; 3, Beurré de Capiaumont; 4, Seckel.—*Alfred.* The large Pear is Duchesse d'Angoulême, the small one Beurré de Capiaumont.—*G Davies.* Apples: 1, unknown, much bruised; 2, Hollandbury.—*Old Sub.* All we can say is that, judging by the leaf sent, your Vine is a black variety—most probably St. Peter's. Cannot you send a few berries?—*R F C.* Pear: Passe Colmar (very gritty).

NAMES OF PLANTS: *F B.* 1, Oncidium Barkerii; 2, Oncidium reflexum.—*E M R.* Epidendrum aloides.—*R T C.* The true Selaginella denticulata of Linnæus.—*W Cooper.* Apparently Euonymus europæus.—*J.* Phygelius capensis.—*J W.* Pedicularis palustris.—*A B L.* 1, Cupressus Lawsoniana; 2, ditto; 3, Thuja orientalis, abnormal specimen; 4, Cupressus thyoides (Chamæcyparis sphæroidea).—*W D.* 1, Cryptomeria japonica; 2, Thuja occidentalis; 3, Juniperus chinensis; 4, Juniperus virginiana.—*Amy.* 1, Bletia Tankervillæ; 2, Platycerium alcicorne; 3, Sanseviera zeylanica.—*W B.* 1, Pteris serrulata; 2, Adiantum macrophyllum; 3, Asplenium cicutarium; 4, Adiantum cuneatum.—*Amateur.* Jasminum officinale, and some variety of Magnolia grandiflora.—*W. Phillips.* 1, Lastrea dilatata; 2, Seedling of Lastrea Filix-mas; 3, Polypodium Dryopteris; 4 and 5, Lastrea Filix-mas incisa, the latter a remarkably good example of the variety.

ORCHARD HOUSES: *J W.* The south is the best aspect for all sorts of fruit houses. In your case, however, we would not hesitate to erect an orchard house on the west aspect, it being the most sheltered.

SCOTCH NURSERIES.—We have received from various Scotch nurserymen statements relative to the amount of land which their nurseries comprise, and also a letter from Mr. Methven, in which he states that his former statement in reference to the acreage of his nurseries was incorrectly rendered at p. 1100. We can insert no more upon this subject.

WEEDS ON GRASS LAWNS: *Mary.* The Prunella vulgaris, with which your lawn is infested, is one of the most troublesome of weeds, and at the same time one of the most difficult to eradicate. We are unacquainted with any chemical preparation which would destroy it and leave the Grass uninjured. We are ourselves about to try the effect of a strong dose of quicklime, which failing, we know of only two remedies—the first, handpicking, but as Prunellas are considerably worse than Daisies to get out, it will be found, as you say, a very slow and expensive process; the other remedy is equally expensive, but far more satisfactory—it is to pare off and remove all the parts infected, and to substitute fresh turves from a locality which is free from the nuisance complained about. We must observe, however, that we have never found the Prunella obtrude itself so much into notice as to become unpleasant to the eye until the end of the summer of the present year, so that it may possibly be only a partial nuisance, we shall therefore try the lime, but not resort to extreme measures for another season. *C.*

COMMUNICATIONS RECEIVED.—E. H. C.—T. Baines.—J. Miller.—W. B. G.—S. R. H.—W. H. F.—J. Barnes.—J. F.—Anthyllis.

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Genuine PERUVIAN GUANO direct from the Importers, and all Chemical Manures of value.
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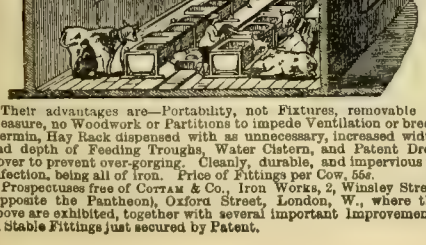
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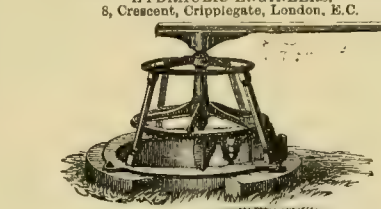
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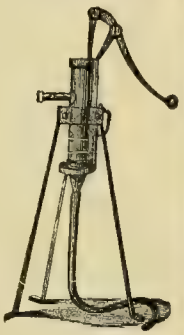


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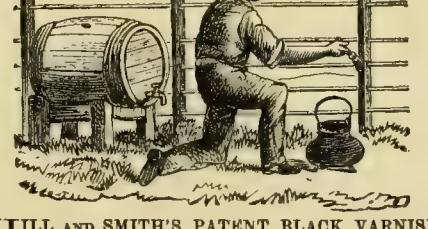
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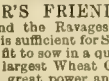
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"Gentlemen,—I have great pleasure in stating that I highly approve of your Black Varnish, as a substitute for paint for farm buildings, barn doors, gates, and especially when the wood has been previously painted in the usual way a few years before; in this particular case it leaves a very nice glazed surface, than which nothing could be better. The same observation also applies to ironwork of every description, such as iron hurdles, &c. The Wrought-iron Barrow with apparatus for heating gas tar has been found most useful, and so great a convenience do I consider it that I shall beg you to send me another, as well as a cask of the Black Varnish, for the use of the property which I have in Warwickshire. Please to send the whole by the same conveyance as before."
Sold in casks of about 30 gallons each, at 1s. 6d. per gallon, at the Manufactory, or 1s. 8d. per gallon paid to any Station in the kingdom.
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One Hundred and Five Pensioners have already been placed on the books of the Institution; and in addition to the number of Pensioners to be admitted at the next Election, the Council have decided to Elect Ten Orphan Children.
Forms of Application for Pensioners and Children, and every Information, to be obtained of the Secretary, by whom Donations and Subscriptions will be thankfully received.
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THE ROYAL BERKSHIRE ROOT SHOW will take place at READING, NOVEMBER 30, 1867.
PRIZES in VALUE of more than TWENTY GUINEAS will be awarded to the best specimens of MANGEL WURZEL, SWEDES, KOHL RABI, TURNIPS, &c. For further particulars apply to SUTTON & SONS, Reading.
N.B. No charge for entry.

DOG SHOW at BIRMINGHAM.—The EIGHTH GREAT ANNUAL EXHIBITION will be held in CURZON HALL, on MONDAY, TUESDAY, WEDNESDAY, and THURSDAY, December 2d, 3d, 4th, and 5th, the days of the Cattle and Poultry Show. For Special Railway Arrangements, see the Advertisements and Bills of the several Companies.

THE BIRMINGHAM CATTLE and POULTRY SHOW.—The NINETEENTH GREAT ANNUAL EXHIBITION of FAT CATTLE, SHEEP, PIGS, DOMESTIC POULTRY, CORN, ROOTS and IMPLEMENTS, will be held in BINGLEY HALL, on SATURDAY, MONDAY, TUESDAY, WEDNESDAY, and THURSDAY, November 30, and December 2, 3, 4, and 5, 1867.
The Exhibitors and the Public will be admitted to Bingley Hall to witness the Judging of the Cattle, Sheep, Pigs, Roots, and Corn, on SATURDAY, November 30th, at Nine o'Clock A.M., upon payment of 10s. each. There will be no Admission to the Poultry Department until after the Judging is completed.
The PRIVATE VIEW will take place on MONDAY, the 2d of December. Admission to Non-Subscribers, until Five o'clock, 5s.; after that hour, 1s.
The Exhibition will also be open on TUESDAY, WEDNESDAY, and THURSDAY. Admission, 1s.
For Special Railway Arrangements, see the Advertisements and Bills of the several Companies. JOHN B. LYTHALL, Secretary.
Offices, Stephenson Chambers, 39, New Street, Birmingham.

The Agricultural Gazette.

SATURDAY, NOVEMBER 16, 1867.

COMPASSIONATE friends of the proletarian classes will, perhaps, thank us for a gentle caution:—You have helped us to pass a wholesome and much-needed measure for the suppression of a moral nuisance in agricultural field gangs (though, by the way, the licensing of gang-masters is already extending the gang system in the Eastern Counties); but in proceeding to improve the manners of private individuals, whether lads and lasses, grown men and women, or beings of an intermediate type called "young persons," be careful lest you make legislation ridiculous. Country girls, hard-handed from the hoe and fork, or ruddy from the churn and milk bucket—lasses that will feed a bevy of rough calves in a shed, or wash down a brick fore-court with a besom—may be somewhat too buxom for fastidious town taste. We doubt, however, if they can be made delicate and ladylike by the powers of an Act of Parliament. Times have changed, so that it is not refined now for our girls to tend flocks, as the daughters of JETHRO did when the learned young MOSES was polite to them in the wilderness, or as RACHEL did when "she came with her father's sheep, for she kept them," and JACOB found her there in the field, and "kissed" her; and few rustic young ladies now make themselves as useful out-of-doors as REBEKAH did when she watered the camels for ABRAHAM'S steward, who thereupon approved her as a bride for his young lord, and gave her the bracelet by the well. But you cannot persuade the husbandmen of England that field employments are indecorous and unseemly for "young women under 18." The Scotch women, who spend most of their lifetime in farm-work, are, at the least, as moral and as well-trained as are our straw-plat makers or village lace-makers, who are crowded together indoors. It is not the sort of labour that makes the great difference in character between people in one locality and people in another. If there is any virtue in honest labour over enforced idleness, girls busy should be less open to the temptations of vice than girls lounging about their village, or killing time in their homes. And if you prohibit the young folks from earning their bread on the farms, the effect will be simply mischievous and destructive of morality, unless you, at the same time, substitute for outdoor work some new occupation that you think to be more feminine and graceful. But the spinning-wheels were all burned or worm-eaten long ago; plain needlework has plenty of professors; every species of female handicraft for rural villages

seems to be practised quite as far as it will pay; women have tried their hands at every indoor engagement, unless, indeed, it be the art of chimney-sweeping; and, in fact, banishing young women from the farmer's employ is equivalent to saying, "Give up your income of 4*s.* to 6*s.* a week for the chance of becoming in a life of idleness more 'domesticated' and more respectful in your behaviour to your superiors." You do not like young women to work in the fields at all; and the matrons, you say, had much better be keeping tidy houses and mothering their families at home. But, if the robust exercises of the hay-field, if weeding and gathering of crops, if short-day service in the food-house and corn-barn be condemned as unfeminine and deleterious to mind or body, surely your Act of Parliament ought to expel from the factories those thousands of pallid-cheeked, bent-shouldered girls and women who live and work in an oily atmosphere of 75° to 85° temperature between six o'clock in the morning and six at night, to the utter degradation of household management, cookery, training of children, and all that a wife and mother should glory in. Picking root-weeds into a basket, or gathering up Potatos along a fresh-turned furrow may be dirty work for a female; but how much better off would she be in rubbing nasty-smelling japan trays with the palms of her hands, or polishing small steel goods with a muddy compound of emery-powder; and how about those little lasses that we have seen with their mouths all day full of gum-labels, which they stick upon cotton-reels?

Then, if you must consent to let young women toil in the healthy open air, you would like to enforce a separation of the sexes, so that males and females shall not labour at one time in the same enclosure. Of course this applies only to boys and girls over the age of about 13 years; because they do, of their own accord, keep to themselves before that period. As to unavoidable indecencies in the fields, our hands are, at least, as well-behaved as the Parisians on their boulevards. But legislation of this sort will only be absurd, unless you can manage to prevent the two parties meeting on different sides of a fence or a gate, and unless you prevent their overtaking one another on the road home. And when you get them safely housed in their respective cottages, you must shut and lock all the doors; for infinitely less harm to morals is done while our hands are buckling-to at their field-work than when they are running loose in the villages after dark. And suppose an Act were passed, would not the agricultural world soon talk of reprisals? If men and women, boys and girls, are not to work within a certain number of yards of each other, let the principle be carried through: no lads shall "doff" throstle-frames which lasses superintend; no young women shall "rove" in the same apartment in which men are "carding;" nay, the scullerymaid shall certainly not scrub and wash in the same kitchen with a man cook; and it is doubtful whether morality should sanction the lady's maid and parlour maid living in the same servants' hall with the butler and valet.

Impudent girls and coarse women do abound in the rural districts—and we have the impression that females just as low may be discovered in large towns; but legislators who fancy that industry degrades them, and that "children of nature" must of necessity be more gross than the denizens of alleys and shops, ought to know very well that the evil lies deeper; and these philanthropists could tell us if they chose that the corruption of the daughters of farm labourers and rural artisans comes, not so much from familiarities in the fields or in close-quartered cottages as from the shameful gallantries of those in a class above them. Your improving Act of Parliament will have a great deal to do after it has forbidden our country lasses taking part in pleasant pastoral occupations, or "gleaning after the young men and sitting down with the reapers," as faithful RUTH did.

Our caution to social reformers must not be understood as an objection against every suggested change. Rustic ignorance is bad enough. PHILLIS may be rosy-cheeked and CORYDON fond of his "pipe;" but they do spell shockingly, and what is vulgar in them by no means extends to "fractions." And we believe that all farmers, excepting the very old-fashioned and short-sighted, will hail with satisfaction a good Bill calculated to deal sensibly and practically with the education of the rude youngsters. Two of the "Assistant Commissioners" appointed to report on the subject, the Hon. E. STANHOPE and the Rev. J. FRASER, are making inquiries in the Eastern Counties; and judging from the tone of the speeches at the Norfolk Chamber of Agriculture, at the Lincolnshire Chamber, at a farmers' meeting at Long Sutton, and elsewhere, agriculturists are prepared for a limit of age below which no child shall be employed; we are anxious to secure a more thorough elementary teaching for boys and girls engaged "part time" in agriculture; but we are not just now willing to upset all the existing volunteer agencies that are doing so much good, to make way for a bran new system, rigid, compulsory, and heavy on the rate-payers. In some localities night-schools might be made more useful; elsewhere the alternate day plan might answer; more generally, the winter-school method would be approved. But a uniform, cut-and-dried organisation cannot possibly suit the very varied conditions of field labour arising from peculiarities in the husbandry of different districts. And we have learned from Mr. STANHOPE that no single scheme is intended to be forced upon us: the proposed Act will comprise five or six different plans of schooling, and any district can adopt whichever it pleases. Moreover, any locality is to have the liberty of employing "part-time" children, not only in certain prescribed months, but whenever weeds, corn, Potatos, &c., really want them.

Is there not a good deal of make-believe in prescribing a certain number of hours' attendance at school during a year, unless this requirement be followed up by some purer incentive to diligent learning? If a boy "under nine" must not earn money by bodily toil, and if a school and a master are provided, he will undoubtedly be found "in wisdom's ways," from the mere self-interest of parents or the looking after of philanthropic individuals in the vicinity. But both this time of schooling, and the hours that may be imposed by law after the lad is nine years old, will very likely be badly spent unless there be offered some motive for his making progress. Why not, therefore, adopt Mr. GLADSTONE'S idea of a simple educational test, say a certain degree of proficiency in "the three R's;" and let all scholastic obligation cease when an Inspector declares this result to have been attained, no matter what the age of the child may be? Here all classes together would be interested in making the schools as efficient as possible — the farmer, because he wants the field hands; the boys and girls, because they want to be earning money; the parents, because they want an increase of their poor income; and the ratepayers or supporters of the schools, because they want to turn out scholars with the least expenditure of time and money. In fact, the principle brings in the merits of piece-work over the spiritless drudgery of day-work.

Legislation upon female and juvenile field-labour is certainly coming: let the agricultural world be in readiness to make the best of it. *I. A. C.* [Let our readers turn to page 1179, and see the remarks of Mr. CLARE SEWELL READ, M.P., upon this subject.]

— WE are glad to record the presentation of an appropriate testimonial of gratitude and respect to Mr. EDWARD PURDON, who had acted with great energy and promptitude as Honorary Secretary to the Mansion House (Dublin) Cattle Plague Committee, and also to the committee appointed by the Government for the purpose of advising them as to the best measures for preventing the introduction of the rinderpest into Ireland. It is attributed to the prompt action of these committees and of the Government that Ireland was happily saved from an evil, the extent of which might have overwhelmed the country with ruin. Mr. PURDON devoted a very large portion of his time to the discharge of the official duties which devolved upon him in connection with both of these important offices, and in many other ways aided, it is believed, in averting the threatened disaster from Irish shores. It appears to have been generally felt by those interested in the preservation of the live stock of that country that his services demanded some substantial recognition. A committee was formed for the purpose of realising these wishes; and, after due deliberation, they decided on presenting Mr. PURDON with one of HOWARD'S magnificent steam ploughs and accessory steam tackle. The presentation accordingly took place last week, to the satisfaction of the large number of distinguished persons who were present, and to the high gratification doubtless of Mr. PURDON, who has so well earned so high a distinction.

— We learn from the *Midland Counties Herald* that the entries for the forthcoming exhibition in Bingley Hall have now closed, with the results set forth in the following Table. The number of cattle is rather smaller than in 1865, the last occasion on which (owing to the subsequent ravages of the rinderpest) such stock could be received; but considering the uncertainty which has existed throughout the past year as to the possible reappearance of the scourge, and the precautionary measures which the Privy Council, with a view to its prevention, might feel called upon to adopt, it is much larger than could have been expected. The figures, as to sheep, do not disclose any important variation; but the pig classes have a total of 81 against 63 last year, and 71 in 1865. In roots and corn, also, there is a considerable increase. A still larger augmentation has taken place in the poultry department, and the collection of pigeons will not only be the largest, but in all probability the finest which has yet been brought together, either in Birmingham or elsewhere.

	1863.	1864.	1865.	1866.	1867.
Cattle	163	151	135	116	122
Sheep	92	104	90	87	82
Pigs	93	91	71	63	81
Roots	124	109	110	68	76
Corn	57	60	45	36	45
Poultry	1,505	1,677	1,675	1,898	2,107
Pigeons	275	200	331	400	565
Total	2,309	2,482	2,457	2,668	3,078

— The following, taken from the correspondence of the *Dublin Farmers' Gazette*, is a curious illustration of the difficulties and costs put in the way of the movement of English stock, of which we hear nothing in the case of foreign animals. The writer says:—"I brought two Cheviot rams over by the steamboat from Glasgow last week, and was charged 3*s.* 6*d.* for carbolic acid to dip them in. On inquiry I was told that half a gallon had been used. Will you tell me the price of carbolic acid per gallon, and what quantity is required, or proper to use, in dipping? The sheep cost—

Freight	6*s.* 0*d.*
Charge at Glasgow	0 6
Sligo	0 4
Dipping	3 6
	10 4

At the present price of sheep such an expense makes importation to any extent prohibitory. It appears that a bill of particulars is to be sent to the office of the veterinary department at the Castle, and, very properly, that the matter is to be investigated.

— We are informed that the paragraph in this page last week which announced the award of certain prizes to English and other agricultural exhibitors at Billancourt, may mislead the reader—that the grand prize which has been awarded to Messrs. RANSOME, Messrs. HOWARD, Mr. MCCORMICK, and Mr. MARKHAM, is the same in every case—and that these gentlemen stand, not 1st, 2d, 3d, and 4th, but on a perfectly equal footing, in the front rank. The special silver medal alluded to as having been awarded to Mr. HEAD, in lieu of a decoration, has been well earned by that gentleman. He is the only English manufacturer of agricultural machinery who has resided in Paris throughout the Exhibition, and he has rendered considerable service to the jury and executive, as well as to his brother manufacturers from England.

SHORTHORNS.

IT will be remembered by those who were present at the sale of the Royal herd, in Windsor Park, last month, that *Princess Alice*, a descendant of one of the Fawsley cows, whose produce gave such high character to the sale, was purchased by Mr. F. Leney, of Wateringbury, Kent. It was announced at the time, that though put to the bull (PRINCE WILLIAM, 24,868) so long ago as January 30th, it was feared that she was not in calf—indeed she had been actually served by one of the American bulls during the previous week—and but for the doubt thus put upon her breeding, she would certainly have commanded an even larger price than the 120 guineas which were given for her. We now learn that she has just calved! The following bulletin, properly authenticated by the signatures of two medical men, was last Thursday issued in Royal style!—

"ORPINES, WATERINGBURY, *Nov.* 7.—*Princess Alice* was safely delivered of a white Princess at 11.30 A.M., this day. Both the mother and daughter are doing well."

The owner of the cow is to be congratulated on a very agreeable surprise. The produce of *Alix* and *Coldcream*, from the latter of which she is descended, have proved extremely valuable in Royal hands; and the owners of any of the family certainly possess the power of breeding very valuable stock. "Fawsley" has long been one of the best "brands" or trade-marks known to Shorthorn breeders, and Sir C. Knightley's name, wherever it can be quoted, bids fair to have increasing influence on the value of pure-bred stock.

— The following notice of another Kentish herd (Red Hill, near Edenbridge) which has been growing up during the last few years, in the hands of Mr. G. Murton Tracy, describes two families which possess in a remarkable degree the special merit to which we are alluding. It is entirely descended, at least maternally, from two cows, *Cleopatra* 2*d* and *Sweetheart* 3*d*, both bred by Mr. Adkins, of Milcote, whose well-known partiality for the blood of "FAVORITE," and persistent adherence to purity of descent, conferred such *éclat* upon his sale in the spring of 1860.

Cleopatra 2*d*, white, like her sire the renowned EARL OF DUBLIN, who was descended on both sides from the famous cow *Princess* by FAVORITE, inherited through her dam *Maude* by STANDISH, a strain of Bates' DUKE OF NORTHUMBERLAND, through her grandam *Lady Vane* by BELLEROPHON the blood of BELVEDERE, through her great grandam *Red Rose* by ALDERMAN the blood of BELVEDERE again, through WATERLOO, sire of BELVEDERE, the blood of *Princess*

by FAVORITE on both sides. She showed in her frame much of the character of her sire, and possessed to the full the milking qualities for which the EARL OF DUBLIN'S stock was so remarkable. *Cleopatra* 2*d*, while at Red Hill, produced half a dozen calves in six successive years, of which but two were females, and then succumbed to milk fever. One of those females, *Cleopatra* 3*d*, by THE BARON, the first pure Shorthorn ever bred at Red Hill, and now 12 years old, is still fresh, and doing good service; though her partiality for males is yet stronger than that of her dam, she having yielded but one female among eight calves. Her appearance is very well shown in the portrait, p. 387, vol. xiii. of the Herd Book.

Sweetheart 3*d*, also white, like her grandsire, was by DAYBREAK (a son of the EARL OF DUBLIN), whose dam *Stella* inherited four direct crosses of the noted FAVOURITE. She is descended in the female line from the famous cow *Sylph* by SIR WALTER, bred by Mr. Arbuthnot (afterwards the property in succession of Sir Charles Knightley and Earl Spencer), and thence back through a line of Colling's blood. She is considered a finely formed cow, was calved in 1853, and is now, at 14 years of age, vigorous and fertile; having produced twin calves during the present year (1867), and being considerably advanced in calf again. She possesses good milking qualities, and has proved an excellent breeder. Since her arrival at Red Hill in 1860 she has produced nine calves, including three pairs of twins. All her matured progeny share her fertility; even *Sweetheart 9th*, twin companion of a bull calf, proving no exception. The number of her descendants now at Red Hill, is twenty-one.

A portrait of one of her elder daughters, *Sweetheart the 5th*, appears in vol. xvi. of the Herd Book. Of the females in the herd, six are by THE BARON, of whom also a portrait appears in the Herd Book, vol. xi., p. 265. A bull likewise, descended from *Sylph*, by SIR WALTER, and member of a family from which many superior animals have sprung, and for which great prizes have been obtained; his dam, *Bon-bon*, by ORONTES, having been also the dam of *Bonny Lass*, which realised 315*l*., and grandam of *Bon-bon* 3*d*, 282*l*. 10*s*., at the sale of Mr. Chaloner, Moynalty, in 1860.

THE BARON himself was a prize bull, having been a winter at the Royal Dublin Show in 1854, and taken the first prizes at the Royal Northern Society's meeting at Aberdeen in 1855, for the best two-year-old bull, and for the best of all ages. He was already accredited with the reputation of being a very successful sire when procured from Messrs. Cruickshank in 1861, with an especial view to reuniting these two branches of the *Sylph* tribe. The result did not disappoint, but unfortunately THE BARON contracted a chill during the prevalence of easterly winds in the spring of 1864, which put a stop to his career of usefulness at 11 years old. More recently COUNT LEINSTER, by DUKE OF LEINSTER (17,724), dam *Sweetheart 6th*, has been partially used and become the sire of three heifers.

To DUKE OF ALBEMARLE also are recorded three heifers. He was a son of *Cleopatra* 3*d*, by THE MARQUIS (20,961), a grandson of DOUGLAS (12,714), who was by the DUCHESS bull DUKE OF GLO'STER. But the bull most freely used of late is THE CORSAIR (25,291), by BARON OF RATHCOOL (21,233), dam *Cleopatra* 3*d*. BARON OF RATHCOOL was by THE BARON, dam *Sweetheart* 3*d*. THE CORSAIR thus unites in himself the blood of THE BARON, of *Sweetheart* 3*d*, and *Cleopatra* 3*d*. None of the animals have ever been prepared for the show-yard, the object having been simply to keep them in thriving condition, and thus maintain their fertility.

This is, we think, a picture of excellent management. An ideal has been kept constantly in view. And there has been a steady persistence in the use of consistent means, so that the *Charmer* character has been preserved and even strengthened, while a sufficiency of new blood has been occasionally introduced.

—— Mr. Adkins, of Milcote, whose herd, including several of the celebrated *Charmer* tribe, is, we learn, to be disposed of next year, will be gratified at learning how well his stock have prospered in the hands of so good a disciple as he has in Mr. Tracy. In his own hands, descended from cows of the same blood, which either remained in his hands at the date of his former sale, or have been purchased back from buyers there, a considerable number of the *Charmer* tribe will be offered with other families in the spring. We shall hereafter refer in detail to the constitution of the herd. It has grown into considerable dimensions during the past six years, notwithstanding some recent disappointments in the non-breeding of purchased cows. But, notwithstanding these accidental misfortunes—which are, after all, only incidents attending every one's experience of any length of time as a breeder—the herd has been all along in a robust and healthy state, and is at present breeding regularly and well.

—— Several important purchasers have been lately made by Mr. Cheney, of Gaddesby Hall, Leicestershire, from the herd at Holly Bank, near Burton. Among them is *Liberty*, a cow descended from Mr. Bates' Fletcher family. Her dam, bred by Mr. Willoughby Wood, at Holly Bank, was thus of pure Bates blood. Her sire is descended from the *Certainty* tribe, once crossed with a Booth bull, and then with one half Bates and half Booth. This infusion of Booth blood is declared to have imparted more substance than was possessed by some of her maternal ancestors, without detracting from their Bates style. Another is *Fidelity* 3*d*, a neat and level, but not large cow, by a half-Booth sire, and a Mason grandsire, from the noble Bates cow *Fidèle*, which, like the former, belonged to the Fletcher family. She was once the property of Mr. Robinson, of Burton-on-Trent, for whom she won numerous prizes. A third is a choice heifer, *Commemoration* 2*d*, of pure Bates blood. She is of a beautifully mixed roan colour, with hair and touch such as are found in this blood in perfection. She is served by the pure Bates bull EARL OF GLO'STER, recently purchased by Mr. Atherton from Mr. Dugdale.

ON THE GERMINATING OF WHEAT.

MY readers will recollect that some three or four years since a respectable and learned Professor and I had somewhat of a discussion on this subject, in which our opinions clashed very much. The Professor having stated that from experiments he had made there was a vast difference in different kinds of Wheat in their powers of germinating—so vast, that whilst a very few seemed to be fit for seed from their germinating freely, the greater number were entirely unfit, as of some kinds about one-half only had the power to grow; and of other kinds only about two-thirds could grow, and of one kind (the Burwell kind) he stated that only 18 seeds out of 100 had grown. This statement greatly astonished me, as I had been in the habit, during a rather protracted life, of sowing very small quantities of seed for my crops, and of all kinds of Wheat, and sometimes no more than a peck of seed an acre; and yet with me the seed never failed to grow; but all of it came up, and grew on until harvest, and I had always fine crops. And hence I replied to the learned Professor's statements that if they were correct, my crops by some means or other must have been produced by magic or without seed. But nevertheless I every year sowed my seed, and I had always a full plant, and frequently from 1 peck an acre; but never in my life did I sow more than 2 pecks an acre. I had a friend also that did the same; and the late Mr. Piper, of Colne Engaine, Essex, never sowed more than a peck an acre, and as he was a corn dealer as well, he delighted in using various kinds of Wheat, and in his hands his crops were marvellous; all were good; and whatever kinds he sowed they grew, one kind equally as another. But still the learned Professor adhered to his first tabulated statements, and of course I and my friends, as we saw all the seed we sowed regularly germinate and grow, and come to fine yielding crops, as obstinately adhered to what was daily before our eyes. We said—"Here our crops are, and if the small quantities of seed we put into the ground did not grow, where did our crops come from? If an enemy had sown our lands he would have sown Tares and not Wheat, and as to our friends, we know that they had such a correct opinion of us, that they would not, even in kindness, attempt to amend what we did, even by sowing more or better seed in our lands than we ourselves had sown." We therefore adhered to what we had asserted, that our superior crops all sprung from the seed we put in to produce them, and consequently that all our seed, almost every grain, must have grown; and moreover we constantly varied our kinds of seed, and one year I got from a large corn dealer the sweepings of all his granaries, and yet the result was the same—all the kinds grew.

But at length our controversy died away by a kind of natural death, each, I believe, retaining the opinions on which we commenced, our worthy and learned opponent adhering to his—on the defectiveness of the germinating principle in various kinds of Wheat, and we, as we saw all kinds nearly germinating alike, adhered to ours; and so the matter ended.

But immediately, to enable me to bring the matter to a positive certainty, I prepared and set off a plot of ground at the front of my house for the purpose of dibbling in it all the kinds of Wheat I could procure, and among them I took care to have the Burwell Wheat and other kinds which our learned opponent stated were so defective in vital principle; yet all of them grew equally alike. And every year since I have gone through the same kind of experiments with various kinds of Wheat, and always with the same results—all grew equally alike. This year, at the present time, my plot may be seen at the front of my house, with my various kinds of Wheat all equally up to full 3 or 4 inches high, and among them are some of the Burwell kind, put in with my own hands, seed by seed, 12 inches asunder every way, and I cannot see that even a seed failed to grow; and yet the seeds were not picked at all, but dropped exactly as they were taken from a sample prepared for selling by, which I obtained from a merchant. Therefore, from practical experiences of myself and others, and from my carefully-made experiments, I can pronounce that one kind of Wheat germinates as freely as another, and that where a deficiency of vitality exists it is as likely to be in one kind as in another. But it is quite certain that all kinds are so liable, and I will here give an example of one kind which has the reputation of germinating very freely. Last year a parishioner of mine drilled a large field with Rough Chaff Wheat at just 2 bushels of seed an acre, and from an accident a part of the field was drilled twice of the same kind of seed, making the quantity of seed in that part 4 bushels an acre. I being an out-and-out thin-seeder, the owner of the field invited me to go and see it, as the 4 bushels an acre seeded had alone a sufficiency of plants upon it for a crop, and he asked me if he should plough up the other part seeded with 2 bushels an acre, when I persuaded him not to do so. But it would have been better had he done so, for up to harvest the crop so seeded was very bad—as the owner said, scarcely worth cutting, and which I saw was the case.

Now, the adjoining field to that was seeded with Rough Chaff Wheat also, and with 2 bushels an acre, and that went down very early as flat nearly as if it had been rolled, so that, as the owner acknowledged, the overseeding was the cause of this disaster. How then was this? The cause was clear, namely, that in one field the seed all germinated; but in the other only a small portion of it did so, though the kinds of Wheat were both the same Rough Chaff, but the seed of each was obtained from different places, and grown on different farms.

I will here therefore beg permission to repeat what I some years before caused to be published: that it was always my custom to prove the vitality of my seed before I used it by wetting some with pure water and then laying it on a plate on flannel, and over the flannel laying another piece, both being damped, and then putting the plate in a warm room; and if the seed was good of any kind, all of it would germinate, but if otherwise, whatever the kind was, it would only in part germinate; and in this way I acted as well as putting the seed into the ground in the experiments I have above described. The owner of the above fields, who farms largely, was so surprised at the results that he asked Mr. Mechi and others to account for them, but he informed me that no one seemed able to do so. But as I have stated in a former letter, I will write purposely to explain why failures of the kind occur.

In the article now under review, at page 1126, the writer recommends the cutting of Wheat whilst it is "green," to which I now beg to call his and my readers' attention. Some years' back, whilst on a visit to my friend, Mr. Mechi's, the cutting of corn before it was ripe, or whilst "green," was discussed by several superior gentlemen farmers, Mr. H. Davis (a gentleman of no mean authority) being one; and by all the cutting whilst green was condemned. But the year before this last a farmer cut a part of a field of Wheat whilst rather green, and then was persuaded by a neighbour to stop. The farmer afterwards cut the remainder when the grain was ripe, and on comparing the two samples, it was clearly visible that the ripe samples were the plumper grain, and the farmer estimated his loss by cutting green at full a quarter of Wheat an acre. This last year also another farmer commenced cutting his crops as soon as they went down, and he has said he had no doubt but he lost money by so doing. But as I like to put everything to a fair trial I asked the former of these two farmers to bring me a certain number of each sample of Wheat of that which was cut green and of that which was cut when ripe, and on putting 200 of each into opposite scales, the ripe seeds were considerably the heaver, and they were certainly the plumper and larger, and hence it was proved that fewer ripe grains of Wheat will fill any measure of capacity than of grain from Wheat reaped whilst it is green; but should any one doubt this, I ask him to go through the same proofs that I did. The cutting of corn unripe may, for anything I know, be in favour of the miller, as more of it in number of grains goes into the bushel; but for the same reason it is most certainly a loss to the grower.

I have already trespassed, I fear, too far, Mr. Editor, on your columns, should you think the foregoing worthy a place in them; but I must go on a little further, if you please. The worthy writer has added a table of his Wheat crop for 1867. It is rather curious that whilst we boast of the vast strides agriculture has made of late years, that I have hanging up in my study a description and a plate of Wheat-sowing, and the old "boke," printed in 1727, from which they were copied, is on my table, and in which only one peck of seed more is recommended, and stated to be used, than our friend's table shows that he used for 1867; and, if I understand what our friend means by sacks—that is, three bushels in a sack, the yield at the former period, 150 years back, was rather the larger. But if our friend's five crops from so much seed be only 9, 9½, 8, 8, and 6 sacks an acre, whether the sack was 3 or 4 bushels, farming in his neighbourhood must, I fear, be a losing business. *Geo. Wilkins, Wix Parsonage, Nov.* 7.

THE PRACTICAL VALUE OF SEWAGE.

THIS point will be illustrated by reference both to the results of direct experiment, and to the judgment of practical men, who have utilised sewage with a view to profit.

The Rugby Experiments.—At Rugby two fields of meadow-land were experimented upon; in each one plot was left without sewage, one received sewage at the rate of 3000 tons, one at the rate of 6000 tons and one at the rate of 9000 tons per acre per annum. The experiments were so conducted through three consecutive seasons, and the following table summarises the results obtained.

QUANTITIES OF SEWAGE APPLIED, AND OF GREEN GRASS OBTAINED, PER ACRE PER ANNUM, IN EXPERIMENTS MADE AT RUGBY. Seasons 1861, 1862, and 1863.

Seasons.	Plot 1. Unsewaged	Plot 2. 3000 Tons Sewage.	Plot 3. 6000 Tons Sewage.	Plot 4. 9000 Tons Sewage.
Grass obtained.—Five-Acre Field.				
	ts. ct. qr. lb.	ts. ct. qr. lb.	ts. ct. qr. lb.	ts. ct. qr. lb.
1861	9 5 3 5	14 16 3 8	27 1 0 10	32 16 3 8
1862	8 3 1 10	27 18 0 18	34 10 0 19	32 9 2 22
1863	4 18 3 13	22 5 0 11	34 18 1 27	37 0 2 5
Average ..	7 9 1 9	21 13 1 12	32 3 1 0	34 2 1 12
Ten-Acre Field.				
1861	8 18 0 15	15 16 3 2	22 15 2 12	26 13 3 12
1862	16 10 0 25	27 11 0 20	32 2 1 14	31 12 1 20
1863	8 0 3 19	25 5 1 8	30 11 2 12	34 19 1 21
Average ..	11 3 0 10	22 17 3 1	28 9 3 13	31 1 3 18
Averages:—The Three Years and both Fields.				
1861, 2, and 3	9 6 0 24	22 5 2 7	30 6 2 6	32 12 0 15

The 5-acre field was much flatter than the other; its soil and subsoil were much more porous. The mechanical and chemical examination of samples, taken to the depth of 9 inches, showed its soil to be much more stony, to retain much less water under equal

external conditions, to contain much less organic matter, much less nitrogen, much less clay, and much more sand than that of the 10-acre field. It was, in fact, decidedly inferior in natural quality, and yielded, accordingly, considerably less produce without manure. Notwithstanding this, it will be seen that it gave upon the whole more total produce per acre under the influence of sewage than did the naturally better soil of the 10-acre field; and, it will be shown further on, that the sewage was in its case both more completely utilised and more completely purified. Moreover, it appears that, by the application of sewage, a supply of green food was obtained much earlier and much later in the season, when it has a special value.

Our attention must here be restricted to the general character of the results obtained, and the practical conclusions to which they seem to lead.

With the exception of the cold, wet season of 1862, the greater the amount of sewage applied the larger was the produce; still the increase in produce was not commensurate with the increase of sewage applied. To produce a maxium effect from a given amount of sewage, the doses must be comparatively small; to produce the largest possible amount of produce per acre, 30,000, 40,000, 50,000 tons might often be applied with advantage; but in that case the sewage would be very inadequately utilised and purified.

The table leads to the folowing practical suggestion: that with an application of about 5000 tons of average sewage per acre per annum, applied pretty evenly throughout the year, taking the average of soils and seasons, an average of about 30 tons of Grass might be expected. Assuming such a produce, and allowing 4*l.* per acre for rent or natural yield, the Grass, if sold

At 10*s.* per ton,	would pay per ton of sewage,	0.5*d.*
,, 12*s.* 6*d.*	,, ,,	0.7*d.*
,, 15*s.*	,, ,,	0.9*d.*

This would be the gross return from which the cost of the application of the sewage, other expenses of the crop, and the farmer's profit would have to be deducted, before anything was available as payment to the town.

In comparison with the result here assumed it may be observed that in the neighbourhood of Croydon, where about 250 acres are laid down for sewage irrigation, and where there are probably more than 6000 tons of sewage annually available for each acre, from 25 to 30 tons of meadow Grass, selling for from 20*l.* to 25*l.*, are obtained per acre per annum; and after deducting as before 4*l.* for rent, the gross return per ton of sewage employed is from 0.6*d.* to 0.8*d.* With a somewhat similar application to Italian Rye-grass, 30 to 35 tons, selling for from 25*l.* to 30*l.*, are obtained, yielding, after deduction for rent or natural produce, from 0.8*d.* to 1*d.* per ton of sewage employed. It will be observed that in these cases the selling price of the Grass is 16*s.* or 17*s.* per ton; but it is obvious that if sewage were extensively employed for the production of Grass, its present price could not be maintained.

A marked effect of liberal sewage irrigation (indeed of active manures generally) on the mixed herbage of Grass land, is greatly to develop the Graminaceous plants, nearly to exclude the Leguminous, to reduce the prevalence of miscellaneous or weedy plants, but much to encourage individual species; among the Grasses the rough meadow Grass, Couch Grass, rough Cock's-foot, woolly soft Grass, and perennial Rye-Grass are frequently very prevalent. But, sewaged produce being generally cut or grazed comparatively young, the tendency which the great luxuriance of a few very free-growing Grasses has to give a coarse and stemmy later growth is not an objection, as in the case of meadows left for hay.

The chemical examination of the Grass grown at Rugby, with and without sewage, showed that at the usual time of cutting the solid substance was less in the sewaged Grass than in the unsewaged, and diminished as the season advanced, or the weather was ungenial.

The nitrogenous substance was much greater in the solid matter of the sewaged than of the unsewaged Grass, also greater as the season advanced, and after periods of cold and wet.

The indigestible woody fibre bore about an equal proportion to the solid matter in the sewaged and the unsewaged produce; this proportion in each case diminished as the season advanced.

It will be seen presently that when used as food, the fresh unsewaged Grass was more productive of both meat and milk than the sewaged, but that a given weight of the solid substance of the sewaged Grass was more productive than an equal weight of that unsewaged.

When the Grass was cut green and given alone to fattening oxen tied up under cover, the result was very unsatisfactory; but when oilcake was given in addition, it did not fall far short of an average result, for oxen as fed under cover on a good mixed diet.

It should here be mentioned that at Croydon, although the land there was more liberally irrigated than at Rugby, much more satisfactory feeding results have been obtained by fattening stock on the land. The practice there is to irrigate for three or four days and nights together, to repeat the treatment two or three times for each crop, and when the Grass has got a sufficient head, to stop the application and turn the stock upon the land, where they remain until the Grass is closely eaten down. They are then removed, the land is re-irrigated, and so on.

At Rugby, when the Grass (as much as they choose to eat) was given to milking cows, much better results were obtained. The unsewaged Grass was then found to be more productive of milk and increase (but especially of milk) than an equal weight of fresh sewage Grass, but for equal amounts of dry solid substance the sewaged Grass had the advantage. The milk from the sewaged Grass was slightly less rich—contained less casein, butter, sugar, and total solid matter, though more mineral matter; when oilcake was given with the Grass, whether sewaged or unsewaged, the richness of the milk was notably increased.

The productive quality of the Grass was very different in different seasons and at different periods of the same seasons, being very inferior in the wet and cold season of 1862, and generally towards the close of each season.

A faithful record of the general results is given in the following table:—

RESULTS OBTAINED AT RUGBY, WITH COWS FED ON UNSEWAGED AND SEWAGED GRASS, IN 1861, 1862, AND 1863.

	Plot 1. Unsewaged.	Plot 2. 3000 Tons Sewage.	Plot 3. 6000 Tons Sewage.	Plot 4. 9000 Tons Sewage.
Time each Acre (with Oilcake, if any) would keep 1 Cow:—				
	Weeks.	Weeks.	Weeks.	Weeks.
1861—Grass (alone)	19	41	59	69
1862—Grass (with oilcake)	42	63	73	72
1863—Grass (half without, half with oilcake) ..	22	48	67	73
Means ..	28	51	66	71
Milk from the produce of each Acre (exclusive of Oilcake,* if any):—				
	Gallons.	Gallons.	Gallons.	Gallons.
1861—Grass (alone)	321	571	820	961
1862—Grass (with oilcake) ..	613	835	973	958
1863—Grass (half without, half with oilcake) ..	414	876	1207	1327
Means ..	449	761	1000	1082
Value of Milk from the produce of each Acre (exclusive of Oilcake,* if any), at 8*d.* per gallon:—				
	£ *s.* *d.*	£ *s.* *d.*	£ *s.* *d.*	£ *s.* *d.*
1861—Grass (alone)	10 14 3	19 0 6	27 6 11	32 0 10
1862—Grass (with oilcake)	20 8 10	27 16 10	32 8 11	31 18 10
1863—Grass (half without, half with oilcake) ..	13 16 0	29 3 9	40 4 7	44 4 4
Means ..	14 19 8	25 7 0	33 6 10	36 1 4
Increased produce of Milk per 1000 tons Sewage applied (exclusive of Oilcake,* if any):—				
	—	Gallons.	Gallons.	Gallons.
1861—Grass (alone)	—	180	178	151
1862—Grass (with oilcake)	—	74	60	38
1863—Grass (half without, half with oilcake) ..	—	154	132	101
Means ..	—	136	123	97
Increased value of Milk (at 8*d.* per gallon) per 1000 tons Sewage applied (exclusive of Oilcake,* if any):—				
	—	£ *s.* *d.*	£ *s.* *d.*	£ *s.* *d.*
1861—Grass (alone)	—	5 19 10	5 18 8	5 0 11
1862—Grass (with oilcake)	—	2 9 4	2 0 0	1 5 7
1863—Grass (half without, half with oilcake) ..	—	5 2 7	4 8 1	3 7 7
Means ..	—	4 10 7	4 2 3	3 4 8

After a careful consideration of all the circumstances and details, it appears that the following practical conclusions may safely be deduced from these experiments:—

1. That by the use of sewage a very great increase (varying from two to three fold according to the season) may be obtained in food, milk, or value of the milk.

2. That a yet larger increase may be anticipated from the application of sewage systematically over large tracts of average or sandy land, than was obtained from these pastures of naturally good feeding quality, and consequent high natural yield.

It is estimated that with 5000 tons of sewage judiciously applied to Italian Rye-grass or meadow-land properly laid down to receive it, an average gross produce of not less, and perhaps more, than 1000 gallons of milk per acre per annum might be anticipated, which, at 8*d.* per gallon, would represent a gross money return of 33*l.* 6*s.* 8*d.*

Or, to put the result in another way, it required, according to circumstances, the consumption of between 5 or 6 tons of Grass for the production of 1 ton of milk; and if we reckon 6 parts of Grass for 1 of milk, and 30 tons of Grass per acre, this would give a gross return in value of milk at 8*d.* per gallon, of something over 37*l.* per acre, or of about 25*s.* per ton, of Grass consumed. *Journal of the English Agricultural Society.*

* The value of the milk, "exclusive of oilcake," is reckoned by deducting the cost of the cake consumed, less the estimated value of the manure it yields, from the gross value inclusive of oilcake; and the amount of milk, "exclusive of oilcake," by deducting from the gross amount of milk with oilcake at the rate of one gallon for every 8*d.* of deducted value. Such estimates are, however, obviously only approximations to the truth.

POULTRY REARING AND MANAGEMENT ON AN ORDINARY FARM.

[The following is Mrs. F. Somerville's Prize Essay on this subject, published in the "Journal of the English Agricultural Society."]

IT is the writer's aim to make this Essay as plain and as brief as is possible when details are given, that it may be suitable to the requirements of a servant, or any one desirous to obtain a practical knowledge on the management of poultry; since it is the fruit of long and careful experience, gained by daily practice, it is not too much to hope that the same happy results that attended the labours of the writer may also requite those who may feel disposed to follow the advice herein laid down. It is intended to point out the best system with regard to the breeding, rearing, and general management of poultry, more than to dwell upon and describe minutely the different breeds of which so many works now treat. There are few creatures that conduce more to man's comfort than domestic poultry, whether he be in health or sickness; and, considering how interesting and profitable is the occupation, it is astonishing how few young people there are who make poultry their study, or even bestow upon it the attention it would so well repay. What a lesson of industry, vigilance, patience, perseverance, care, and affection, may be learned from the parent hen, that "gathereth her chickens under her wings"!

GENERAL REMARKS.

There is no doubt that poultry may be kept and managed so as to produce a profit on all farms where corn and Potatos, or even Swede Turnips are grown, as the light or inferior grain cannot be sent to market in a more profitable shape than as well-fed poultry; but, like all other farming stock, it requires constant care and attention; and if you expect a full remuneration for your trouble, you must adopt a good system of management, and see that it is properly carried out in all points, from first to last. I do not think it would pay upon a small farm to keep a regular paid attendant; that occupation must be united with other employment, unless it is managed as a business, and first-class poultry is bred and kept for exhibition, so that fancy prices can be obtained. Any sharp lad can, under proper directions and occasional supervision, look after and feed adult poultry, but to breed and rear successfully requires some experience. One would not think of trusting sitting birds or their young to youth; they require watching closely to keep the different broods steadily thriving; any check at this stage is a wasteful loss of time, and invites disease, whereas prevention is more important and more easily attainable than cure. The coops and sitting-house should be near the homestead, so that the farmer's wife, daughter, or at all events a confidential servant, may, without much loss of time, attend to those two principal points, thus getting a nice change from the sameness of indoor occupation.

COMMON FOWLS.

Breeding.—Where there is defect, there is commonly a cause which may be traced out; and such is the case with breeding poultry. One of the greatest hindrances to rearing is unskilful breeding. How frequently do we hear of large numbers of the young dying without any apparent cause; but I generally find on inquiry into such cases that they have been bred from old birds and without an infusion of fresh blood in the stock for years; or that pullets' eggs have been set; in which case, should there be chickens, they are weak and delicate, and seldom attain perfection. I keep five pure breeds of the common fowls, viz.:—Grey Dorking, Brahma Pootra, Game, Spanish, and Moonies, and breed all the year round. For stock fowls I select the very best birds of the different breeds and mate them according to age, and with due regard to consanguinity; that is, of the same age, if two years old; or hens one year old, and cocks two; or *vice versâ*; taking care that they are not too near akin, and that fresh blood be introduced, on one side at least, every two years, and never allowing more than five hens to one cock. My early and late chickens for table purposes are bred from the Grey Dorking hen by a Game cock, and the Brahma Pootra hen by a Dorking cock, mated as aforesaid, which two crosses will answer the most sanguine expectations—the Brahma and Dorking especially—and those who do not care to keep a pure breed or wish to exhibit, cannot, I believe, select more valuable fowls: they are not to be excelled as parents, layers, or sitters: their eggs are large, and the birds very good for the table. I have not the least difficulty in rearing chickens from any of the above-named breeds, and feel convinced that success depends upon the breeding and feeding. I find that the cross-breds stand the winter months better than the pure breds, and therefore prefer the former to the latter, because of the high prices they will command at that season of the year. The question is often asked, What kind of fowls will pay the best to keep? The answer depends entirely upon the purpose for which they are chiefly kept. If for laying, I prefer the Moonies, having had pullets of that breed which have laid for 12 months, not missing more than two days a week. They are a good-sized fowl, and are handsome withal; but as table fowls, I should make choice of the Dorking or Game, or the cross-breds, before alluded to.

The Hatching or Sitting House.—To some persons it would appear quite absurd to think of setting hens where they have not been accustomed to lay: but "where there's a will there's a way." The sitting-house is really a most important apartment, necessary to insure the successful hatching of poultry; for how frequently do we see hens spoil their eggs by forsaking the nest when they are allowed to sit where they are hourly interrupted, and perhaps driven off their nests by other hens wishing to lay. To prevent all this, a separate apartment is required for sitting hens. It should be divided into compartments, of sufficient size to contain a nest for one hen, and so arranged that the hen can be secured on the nest by a lattice-door, allowing plenty of air; or the following plan may be adopted. The nests (14 inches wide, 14 inches high, and 16 inches from front to back) may range in two tiers along the lower part of a house (8 or 10 feet by 6), each nest being provided with a loose wooden door, reaching within 3 inches of the top, so as to admit of ventilation at the

same time that the hen is secured on the nest; the door when closed is fitted into a groove at one end and fastened with a wooden button at the other; each button fastens two doors, and each door is numbered with paint, the corresponding number being painted on the *facia* of each nest. I never set less than three hens at one time, and that number may always be had broody in the course of a week or ten days by leaving a few spoilt eggs in the nests where the hens you wish to set are accustomed to lay. The broody hens should be managed thus:—During the day make as many nests as you require in the sitting-house, with clean, soft, bruised straw, underneath which, during the summer months only, place a green sod; when evening arrives place the broody hens thereon, and put under each hen three or four trial eggs (which should be kept for the purpose marked with ink), taking care to handle the hens dexterously, placing one hand underneath the breast, holding the legs in the other hand, and carrying them upright: otherwise have a convenient basket for the purpose. Feed the newly-set hens as usual with the others, and in all probability at the end of two days they will have taken to the nests, in which case, when off feeding, on the third morning, place the eggs for sitting under each hen, and label each nest, naming the kind of eggs, and date when set. On the evening of the eighth day after setting take a lighted candle, and, holding the eggs up to the light, observe if they appear quite clear; if so, they are sterile or addle, for the eggs containing birds will appear opaque. It may happen, should there be many addle eggs, that two of the hens will sit the remaining eggs of the three; and one can be again set with fresh eggs as before, and so on during the year. The sterile eggs should be marked as trial or nest eggs, or boiled as food for chickens, so that none need be wasted. As each sitting hen is now secured upon her nest, as many only at a time as may be most convenient can be let off to feed, which should be done early every morning inside the sitting-house with closed door, allowing them to remain off the nests 15 or 20 minutes, and taking care that each hen returns to the proper nest. Give water, with grain in its natural state, but not with soft food. During the summer months, or dry, windy March, and about a week previous to hatching, take a little warm water, and, when the hens are off their nests, sprinkle the eggs therewith; this will greatly assist Nature in the process of hatching, as the eggs are often very dry in hot weather: this, as a rule, applies to all kinds of poultry.

Feeding.—It is neither necessary nor desirable to go into the market for expensive feeding stuff; still, there are several kinds of food not grown upon the farm which yet are cheap and useful in the rearing of young poultry, or putting into condition birds intended for exhibition. One of the cheapest of these, if properly prepared, is rice; it can be bought at 1½*d.* per lb., or even less; preference should be given to the small grain, or fine Rice, which should be prepared in the following manner, viz.:—to 6 quarts of boiling water add 2 lb. of Rice, and let boil for 10 or 15 minutes, according to the size of the grain; when sufficiently boiled, pour it into a hair sieve, and when cold mix with as much Oats or Barley-meal as will, when stirred lightly round with the hand, give it the appearance of small, well-dusted pills; each grain being then separate, it will be very convenient for and is greedily devoured by young birds, and being very digestible, is an invaluable food for them. Another kind of food for young birds is prepared by boiling two or three eggs until quite hard, afterwards chop fine, adding two or three handfuls of stale bread-crumbs; mix well together, so that the one cannot be eaten without the other. This may be thought expensive food, but as the consumption by young birds is at first very small, I always consider a little extra keep is not thrown away on them; you are forcing and growing birds that will repay you for all, and at no distant date. Another description of food is Indian and Barley meal, in equal quantities, slaked with boiling water or milk, and served cold; it cannot be surpassed as food for small chickens, and answers admirably given alternately with the rice and egg prepared as aforesaid. The youngest chickens I keep near the house, and feed very sparingly every two hours throughout the day, giving little or no water, as I find over-drinking spoils the appetite and brings on indigestion, which generally terminates in death. As they grow and become strong they should by degrees be put upon the same food as adults, and any that promise to make prize birds are then transported to a run specially kept for the purpose, to which of course a little extra feed is carried. The adult poultry I feed twice a day with light Wheat, Oats, or Barley, given alternately with boiled Potatos, or Turnips mashed up with ground Oats or Barley-meal, and I will guarantee this feed to keep them in good condition and to produce plenty of eggs. Care should be taken in not supplying more food than is eaten, otherwise much may be wasted, as is often the case; and I think if profit be looked for more poultry should not be kept than can be conveniently and well cared for and fed with the produce of the farm, except, as I have before mentioned, in reference to young birds or those intended for exhibition.

Home Correspondence.

Lime for Wheat and other Crops.—I have read with some interest, but not without some surprise, the elaborate reasoning of your correspondent "G.," on the application of lime for Wheat in a late *Agricultural Gazette*. "G." says "Turnips will not plant after a crop of Vetches." Now, some of the best rough-leaved Turnips I have ever grown, and I have grown a great many such crops, under very varied circumstances, were after heavy crops of Vetches. I can say the same as regards Swedes and other varieties of the Brassica tribes, when transplanted in the ground from which the Vetches were just newly removed. With these facts so strongly impressed on my mind, I suspect I am equally justified in questioning others of "G.'s" theories, however plausibly laid down. If I have read his letter rightly, he argues as if the use of lime in such cases had reference only to the organic matters in the soil, as if ignoring the existence of all inorganic matters of every kind which other scientific men tell us, and of which experience leads us to believe, that lime acts a salutary part in correcting the evil effects, besides bringing into action their latent powers, by chemical agency, together with the mechanical action lime is believed to promote. Now, let me ask "G.," does not lime exercise a salutary influence in counteracting the evil effects of protoxide of iron when found in excess in lands rendered totally barren by it, but which when limed produce the finest Wheats and other crops? Again, does lime take any part in the *débris* of our rocks, containing potash, soda, silica, and several other inorganic substances, useless until acted upon by lime? Some chemists tell us it does, and that it is the action of lime which has produced such wonderful effects in rendering them highly fertile, instead of being, as they were before its use, all but barren for agricultural purposes. Again, does not lime play an important part in our still heavy soils in rendering them porous, and open to the ameliorating influences of atmospheric air and rain for the lands, and in rendering our too porous soils impervious to the powerfully absorbing rays of scorching suns and withering north-easterly winds? Chemists tell us that lime when properly applied, and in a fit state for such application, does all these things. I could multiply such questions to a greater length, and thus further open the way for your correspondent setting me right, perhaps from not having fully understood the meaning of all he wished to convey for an improvement. In conclusion, I will point to the undoubted depreciation in the corn crops of the present day in Ireland, where in high farming the conductors of it use but little lime beyond what is contained in their stimulating manures, compared with the crops grown on the same lands time immemorial by the "low farming" of the old-fashioned fellows, who used lime abundantly, indeed I may say in some cases to excess, because of their ignorance of science. *Fingal, Oct.* 28.

Sheep Trough.—A correspondent, in a late *Agricultural Gazette*, desires to be informed of a good description of rack or trough for feeding sheep in the field. My experience leads me to state that it is most desirable to combine trough and rack in one. A sheep trough to be of real service should possess strength and weight, and these qualities make it an expensive article. A sheep rack is either a fragile, rude piece of manufacture, well adapted to cause waste and loss of fodder, or it is a cumbersome costly affair, inconvenient to feed from and almost immovable. Well, then, as you must incur a certain outlay if you will have a serviceable article, I would suggest something after the character of the drawing I now send. My design ensures two essential desiderata in open-air feeding, viz., protection for the food in the trough from weather, and ease in removing it from place to place. I believe it to be sufficiently strong for all practical purposes, and so simple in construction that any hedge carpenter might put it together; and, lastly, that by buying the material right, the cost of the trough need not exceed the sum of 35*s.*, which to those versed in such matters is not extravagant. *J. Lynch Fletcher.* [The drawing represents a sheep-trough and rack, combined, 9 feet long, 16 inches wide in the bottom, with 6 inch splay sides, topped by 3-inch upright strips (projecting at both ends as handles, and tied together by cross-iron ties, about 30 inches from the ends). These strips carry on each side 11 vertical wooden bars, about 13 inches long, and united by corresponding horizontal strips at top, which carry the roof of 18-inch boards, with hinged flaps in the middle of their length, through which the rack and trough may be filled. The cost is to be under 35*s.*; the material to be common Spruce or Larch; inch board for the two ends, the bottom, and the sides. One or two pair of wheels as desired.]

Mr. Mechi and his Crop Reports.—[We have two letters this week, the one from "An Old Farmer and Land-agent," and the other from "West Indian;" we must be content with simply describing them, and then close our columns to a subject which has been sufficiently discussed. The former says "that he is satisfied, but without attributing anything wilfully dishonourable to Mr. Mechi, that he had not grown on his small occupation an average of 600 quarters of corn, and 400 tons of roots; but if 'West Indian' believes he has, he is welcome to that belief. Let him prove that these crops are such as Mr. Mechi (believing the statement of his people) writes they are, and I and my friends will thank him. All we want are facts." "West Indian," referring to a paragraph in p. 1154, declares that the "Old Farmer's" long letter, there described, was not wanted. "My question did not require a long letter of explanation, neither did I ask him to tell me if Tiptree Farm was part of a heath or not, nor of the probabilities of estimates; but had he gone to the farm he might have told us the difference between *his* estimates and Mr. Mechi's. And why talk of professional engagements, when he stated in a letter he 'determined to stop some time near the renowned Tiptree Hall?' Do professional engagements shield him or any other man from being asked why he accuses another man in a public journal of untruthfulness on the private testimony of others?" He adds:—"As one of a goodly number who have returned from the colonies and taken to farming, not merely as an amusement but to make our rents and as much more as we can—reading your *Agricultural Gazette*, endeavouring to cull from the accounts there published (by such men as Messrs. Lawes, Mechi, and many more, and may they increase) the mode of treating the soil, stock, &c., as practical men only can give,—I say that it deteriorates much from the value and trustworthiness of such reports if we find a correspondent (admitted in almost every impression of your journal) thus publicly challenged, or I ought to say accused of untruthfulness in his writing, and that not on the testimony of the accuser, but of a third nameless party. 'He declines to inquire for publication, &c.,' but can at the same time use a lot of private gossip for the public accusation of a gentleman to whom the farming public are much indebted. And it does not rest here, for if 'An Old Farmer and Agent's' letters are the truth, then, I ask, what becomes of Mr. Mechi's book, 'How to Farm Profitably?' 'Morton's Encyclopædia' is now before me, and at p. 824, vol. ii., under 'Sewage Manure' (a most perplexing question), there is a plan of Tiptree farm, and an explanatory article written by 'J. J. M.' I read it as Mr. Mechi; is that true or not? What does your correspondent 'Miles' think of Mr. Mechi's book now? I will only repeat your own words: 'We hope it may be long before our agricultural periodicals shall cease to publish Mr. Mechi's thoughts on agriculture, or our agricultural meetings shall miss his hearty face and fluent (and, permit me to add, truthful) tongue.'"]

Sheep Breeding.—When breeding ewes are selected they should be put on Rape for at least a fortnight before the tups are admitted to them. What the stimulating effects of Rape are on the generating system of sheep is not well understood, but the result in all cases is a great increase of lambs; the tups, either one or two-shear, should be in excellent condition, 60 or 70 ewes being the number for each ram. October is generally chosen when the rams, smeared on the breast, are allowed to run with them. Each ewe should be numbered and entered in the shepherd's book; according as they show marks of being served, the dates are noted down. When all are served, the ram should be smeared blue, to distinguish such ewes as take him a second time. After the process of gestation has been completed the ewes should, the first thing in the morning, be turned on a piece of poor pasture until two or three in the afternoon; they should then be drawn on a tolerable good feed for the night (which greatly prevents them proning to the ram a second time), for about a fortnight, care being taken that they should not grow too fat, as this weakens the lambs, destroys the milking qualities, and frequently causes inflammation. Sheep go with young from 20 to 22 weeks. A fortnight before this period is reached, such ewes as arrive at it should be removed to a sheltered paddock where a good bite is preserved, and where huts to shelter themselves and their young are provided. Another open shed should be erected for the hardier-grown lambs and their dams, where some Turnips or Rape could be given. After this, as the lambs grow strong, the ewes should be driven daily to a Turnip field and drawn off at night. As the lambs gain strength the best food for ewes is Italian Rye-grass, with a bite of green Rye sown for the purpose. When lambs are a month or five weeks old they should be castrated; cool weather should always be chosen, if possible, for the purpose. Three persons are required, one to catch the lambs in the pens and hand them to another, who holds them for the operator. The holder should keep the lamb high on his left breast, with the fore and hind legs of each side grasped firmly in each hand, to prevent it struggling; the head should lay back on the holder's shoulder, and the bag be fairly exposed. There are different modes of performing the operation; the best is considered to be the making an incision in the bag over each testicle, and causing the stone to protrude with the hand, when it is pulled out with the teeth; but I have seen them simply cut with the knife and well done, healing taking place much sooner. The tail should be docked at the same time. After this operation the lambs should be kept quiet, not driven or heated by dogs or men. Sheep-shearing should be commenced about May, according to the warmth of the weather. About four or six days before clipping, the sheep should be thoroughly washed, to free the wool as much as possible from dirt. The best place for washing is in a deep pool in a river having a clean gravelly bottom; on the bank pens should be set up to hold the sheep to be handed to the men in the water; two men should then wash the sheep, hand them to another man standing higher up: he should then wash the head, dive the sheep under water, and lead it to the slip or passage out. Sheep after washing should be kept on a clean pasture free from clay or banks of earth, which tarnish the fleeces. When sheared, the fleeces should be carefully folded up and stored away until disposed of. The weaning of lambs should be about July, or soon after they are noticed to feed; the ewes should be moved to a poor pasture out of the hearing of the lambs, and the poor feed will greatly assist in reducing their milk. The lambs should be removed to an old cow pasture or Clover-lea, particular care being taken that they are not left on land previously depastured by sheep, from which a young braird is springing up; if so, scour is apt to set in and death to follow, despite all the efforts of the shepherd. *J. J., Woolverton Park.*

Apple Pumice.—This is the refuse from the manufacture of cider, and in some counties, like Herefordshire, Devonshire, and Somersetshire, this refuse must often be very large in quantity, and I was not aware of its having been put to any use until lately, when there appeared in the "Scientific Review" the following paragraph on the subject: "The waste of Apples and Pears after the manufacture of cider and perry has hitherto been, if not a cause of positive inconvenience,

a material of little or no use, but it has recently been employed in France in the production of gases for illumination. A ton of the refuse yields about 2500 cubic feet of gas, which is perfectly free from sulphur, and therefore has no effect on paint or gilding: which burns without smell, and has an extremely high illuminating power. The apparatus required for its production is very simple, consisting merely of a furnace, a still-head, and an apparatus which serves for a washer, purifier, and gas-holder. The heat employed does not exceed 560° Fahr., or about one-sixth of that necessary for the destructive distillation of coal." This led me to examine its value, both as food for stock, and, when burnt, its value as manure. The following are the results of the examination:—

Composition of dried Apple Pumice, dried at 212° Fahr.

Oil	1.25
Protein, or flesh-forming principles	11.97
Gum, sugar, starch, and respiratory principles	33.14
Fibre	53.64
	100.00
Nitrogen	1.92

In the state I first obtained it (about two days from the press), it contained about 58.30 of water; and, calculated in that state, its composition is:—

Water	58.30
Protein components	4.94
Respiratory principles	12.44
Oil	.52
Fibre	22.15
Ash	1.65
	100.00

Composition of the Ash.	Per cent.
Insoluble siliceous matter	54.943
Soluble ,, ,,	1.974
Oxide of iron and alumina	4.227
Lime	7.978
Magnesia	a trace
Potash	11.664
Soda	6.274
Sulphuric acid	1.823
Phosphoric ,,	5.479
Carbonic ,,	4.080
Chlorine	.829
Loss	.729
	100.00

In looking, then, at the composition of the Apple Pumice in its natural state as it comes from the press, we see it contains a fair proportion of respiratory principles, such as gum and sugar, &c., a small quantity of oil and protein compounds (or flesh-forming principles), with a large amount of water and fibre. The former will vary, according to the length of time the Pumice has been pressed out. I have been in the habit of allowing the Pumice to remain about one week under cover, and then the horses and pigs will eat nearly the whole of it with great relish, and it forms an agreeable variety of food for them. The following Table will show the feeding value of Apple Pumice in comparison with various roots:—

	Apple Pumice in natural state	Mangels.	Swedes.
Water	58.30	87.78	89.460
Flesh-forming substances	4.94	1.54	1.448
Gum, sugar, &c.	12.44	6.10	5.932
Fibre	22.15	2.50	2.542
Ash	1.67	.96	.623
Oil	.52	None	None
	100.00	100.00	100.000

Seeing that it is the custom where large quantities of cider are made to burn the Pumice to get rid of it, I think the above analysis will show it to be a very needless waste of a useful article of food, especially as nearly all animals will eat it, and do fairly well on it. *E. T. Kensington, F.R.A.S., F.C.S., Ilminster.*

The Farmer's Wants.—Agricultural: He wants to be well read in every department of modern agriculture; its improvement in culture, manures, crops, Grasses, stock-feeding stuffs, and management of horses, cattle, sheep, pigs, poultry, &c., and capital and skill to make the best of his knowledge. He wants full liberty, as an occupier of land, to cultivate, graze, and manage it in such a way as to produce the largest and most profitable return without deteriorating its value. He wants activity, energy, and perseverance to procure the best varieties of grain and pulse for seeding, the best sorts of seed for his green crops, the best manures for his land, the best stock for fattening, the best for breeding, the best for labour, the best foods for fattening and general service. He wants determination to carry out the best ideas of practice, with correct judgment and a liberal, unsparing hand. He wants the most intimate knowledge of the condition and capabilities of every acre under his management. He wants to apply manures and culture in sufficient abundance to satisfy every requirement. He wants to grow profitable crops without stint; if so, his land must know no want of power, or culture, or fertility, or management. He therefore wants to be rid of all restrictive covenants as to management except that his land shall not be deteriorated in value, but continue to improve under such liberal culture. Social: He wants a good respectable home, a suitable and convenient farm steading, with the best modern appliances for housing and care of his stock, threshing his corn, securing his roots, making his manure. He wants cottages for his workmen and convenience for their comfort, gardens for their use and welfare. Political: He wants relieving from the very many payments exclusively enforced upon land. He wants to have the poor rate, the highway rate, the county rate, the tithe more equitably distributed over the general community. He wants the population to bear the various burthens to be borne, instead of the land exclusively. He wants the community who require religious instruction, and not the land, to pay for it. He wants those who use the roads to pay for their repair, and not the land. He wants the community who require guardianship and protection to pay for it, and not the land. He wants every employer of the poor to contribute to support the aged, the indigent, and infirm, and not the land. He wants to be rid of the Land-tax if other real property is to go free. He wants to be rid of the Malt-tax, that enormous incubus upon one of the best products of his farm. Barley: He wants to grow more Barley, because English Barley yields more spirit than that of any other country. He wants a better price for his inferior Barley, which the Malt-tax denies him. He wants efficient protection from the introduction of foreign diseases to his stock. He wants greater attention to be paid to the cheaper and more extensive importation of foreign manures, food, &c. He wants a restoration of lost power to the class to which he belongs. He wants to be better represented in Parliament than at present. He wants the agricultural interest to resume or regain the power it once possessed in Parliament. He wants the peers and country gentlemen to assert and uphold the high position and influence they formerly possessed in Parliament. He wants the farmers of England to send into the House of Commons a firm and independent body of tenant-farmers and others, pledged to uphold and promote the best interests of the tenantry of the kingdom. He wants their annual products, amounting to nearly 400,000,000*l.*, to be thought worthy to be more fully represented. *O. F.*

Societies.

HIGHLAND AND AGRICULTURAL.—At the monthly meeting of the directors of this Society, money premiums for the Aberdeen show, 1868, to the amount of about 1300*l.*, were allocated to the different classes of stock. In the poultry class, 65 silver and 65 bronze medals were recommended. At the request of the Aberdeen district, 50 sovereigns were appropriated as a special prize for the best thoroughbred entire horse. The days of the show were suggested to be the 28th, 29th, and 30th July.

Proposed Show at Edinburgh in 1869.—A requisition for a show to be held at Edinburgh in 1869, signed by a number of members of the Society, was submitted to the meeting of the Board on the 9th of October, when the directors resolved to recommend to the next general meeting to comply with the request, and remitted to the Committee on General Shows to suggest the classes of stock for which premiums will be afterwards offered. At the last meeting of the Committee, the classes were named, and subsequently approved of by the directors, the list to be submitted to a meeting of members in the district of the proposed show—namely, the counties of Edinburgh, Haddington, and Linlithgow.

Veterinary College.—The opening of the session 1867-68, on the 30th of October, by an inaugural address from Professor Williams, and the induction of Mr. McBride to the new Chair of Cattle Pathology, which took place the same day, were reported.

District Shows.—The various reports of local competitions which have taken place during the current year in almost every county in Scotland in connection with the Society, were referred to the Committee in charge of that department; and, at the same time, to consider the applications for new grants for 1868.

Cultivation by Steam Power.—Copies of queries to be answered by farmers as to the cultivation of land by horse power, which have been extensively circulated in Scotland, were laid on the table. The answers are to be returned before the 31st of December, and will form part of the report on steam cultivation, which has been for some time in charge of a special committee of the Society.

SMITHFIELD CLUB: *Council Meeting, Nov.* 6.—Present: Major-General the Hon. A. N. Hood, President, in the chair; the Earl of Hardwick, V.P.; Lord Berners, V.P.; Lord Walsingham, V.P.; Lord Tredegar, V.P.; Messrs. Baldwin, Beasley, Clayden, Duckham, Joseph Druce, Walter Farthing, Brandreth Gibbs (Hon. Secretary), C. Howard, Hornsby, Milward, E. W. Moore, Painter, Rigden, C. Sewell, Read, M.P., Professor Simmonds, R. Smith Torr, Twitchell.

The minutes of last Council meeting were read and confirmed.

A memorial, signed by several salesmen, in reference to the slaughter of animals within the metropolitan district, was laid before the Council. It was determined not to ask, in favour of the Club Show, any special relaxation of cattle plague regulations made by the Privy Council in this respect.

Resolved:—

That the Hon. Secretary be empowered to apply for the necessary license for holding the Show.

That the President and officers be empowered to sign on behalf of the Council such an undertaking as may be required by the local authorites guaranteeing that the Orders of Privy Council shall be carried out.

That the admission orders be not furnished to any exhibitor until he has signed a guarantee to the Club to the like effect, also to hold the Club and its officers harmless in regard of any compensation in the event of the slaughter of the animals in consequence of any case of cattle plague occurring within the exhibition.

That a Comittee be appointed, consisting of the stewards, Mr. Clayden, Professor Simonds, and the Hon. Secretary, to make the necessary regulations in respect to cattle conveyances, the appointment of an officer to receive and issue the market licenses, &c.

That the Hon. Secretary apply to the Royal Veterinary College for the necessary veterinary staff.

On the motion of Lord Walsingham, seconded by Mr. Druce, the President was requested to lay the following resolutions before the Privy Council, as recommendations from the Council of the Smithfield Club:—

"That all foreign Fat Stock be slaughtered at the place of landing."

"That Sheep be excluded in the present quarantine regulations for Store Stock."

The Council selected the Judges for the ensuing Show. Mr. Robert Smith was elected a Steward of Live Stock for the present Show, in lieu of the late Mr. Edward Pope. Mr. Joseph Druce was elected a Steward of Implements in lieu of Mr. Robert Overman, who is prevented acting this year in consequence of ill health.

The Council prepared a house-list of the eight members whom they proposed for election on the Council in place of those who will retire by rotation.

The necessary order was given for the Silver Cups to be presented at this year's Show.

Letters were read and answers directed to be returned.

The following were elected Members of the Club:—John Head, of Gracechurch Street; C. E. Amos, of Cedars Road, Clapham Common; the Marquis of Exeter, of Burghley House, Stamford.

The best thanks of the meeting were voted to Major-General the Hon. A. N. Hood, President, for his able conduct in the chair.

AYRSHIRE: *Kilmarnock Cheese Show, October* 3.—It is now 13 years since this show has been established, and year by year, thanks to the energy of the secretaries, the Messrs. M'Murtrie, and to the zeal of the working committee, it has risen in importance so much that it is now the largest display of the kind in Europe—indeed, in the world. In 1862 the entries of cheese amounted to 470: in the following year they rose to 531; in 1864 they mounted up to 636; in 1865 they had increased by 11; last year they reached 754, and this year they have made a sudden spring to 1015. Ayrshire dairies, as a rule, will make from 3 to 5 tons; and the dairies in Galloway from 5 to 15 tons annually. It will probably, therefore, be safe to estimate that the specimens exhibited the other day would give a total of cheese in the hands of dairymen of about from 2000 to 3000 tons.

The quality of the cheese has been improving with the increase of the quantity. At the exhibition there were fewer bad or middling cheeses than have been seen at any former display. There was not so much improvement manifested in the Ayrshire lots as in the others, but this is to be accounted for by the fact that the season was wet, cold, and ungenial, and that in the dairies in this county they have not the same means of counteracting weather effects that they have in Galloway. There is now a strong competition with America in cheese, and our cousins on the other side of the Atlantic are got so close up to us that they are almost treading upon our heels, although they have not so good a climate as we have for producing that which is the poor man's "kitchen" at all times, and the rich man's after-dinner luxury. The reason why they are able to compete so successfully against us is, that they have much better premises for the manufacture and the storage of cheese than Ayrshire farmers have; and it would be well if landlords in Ayrshire would assist their tenants in building and fitting up structures for cheese-making on more scientific principles than the majority of these which at present exist in the county. In Galloway they have better appliances, and the consequence is that, with perhaps little more than equal skill, they always contrive to carry away with them not only the principal but also the lion's share of the prizes.

As a proof of how proficient our dairymen have now become in the manufacture of cheese, it may be mentioned that this year, in the open sweepstakes for all competitors throughout the length and breadth of the united kingdom, a Galloway man—Mr. Cowan, Mains of Park, Old Luce, Wigtownshire—carried off the money, notwithstanding that he had to contend against a man so famous in the cheese world as Mr. Harding, whose county, Somersetshire, is noted for the production of cheese made on the Cheddar method. If we mistake not, it was a namesake and a relative of his own who instructed the Ayr and Galloway farmers in the system upon which Mr. Harding was beaten at this show by no fewer than four Scotch makers, although he had all the advantage of long experience and a better climate. Indeed there is now little difference to be observed between the best of the Scotch and English dairies of Cheddar cheese. The first prize Cheddar in the open competition, belonging to Mr. Cowan, was acknowledged on all hands to be a very excellent example of the kind, possessing fine flavour, a handsome shape, good texture, and rare keeping qualities.

This year two counties were added to the list which formerly had the right to compete—viz., Lanark and Renfrew; the restricted competitions formerly comprising only Ayr, Wigtown, Kirkcudbright, and Dumfries. We cannot particularise all the various classes into which the exhibition was divided. It is sufficient to say that the prize cheeses in all the sections were markedly good, and in all there was a noticeable improvement, save in those from Ayrshire, owing to causes which we have already indicated.

The sweet-milk cheese class, where no particular method was imposed by the regulations of the Society, was an uncommonly strong one, and the 1st prize cheese, belonging to Mr. Hannay, Kirkmabreck, was more than usually good. There were some grand cheeses in the competition for the prizes for cheese made after the Dunlop method, but some excellent ones had to be rejected by the judges, because they partook more of the character of the Cheddar.

The number of samples of butter exhibited were no fewer than 330—166 more than they were in 1866. The quality of cured, powdered, and fresh alike was in the

unanimous opinion of the judges first-class, and an advance upon even the great excellence of previous years. *Scotsman.*

At the dinner, Mr. TITLEY, Bath, who was one of the judges in the cheese department, made the following useful and humorous remarks:—

I see it is stated in the programme that it is particularly desired that one of the judges in each department should give his views of the show, and mention any improvements he may consider requisite. This, perhaps, will require from me a little more speaking than is usual on the part of persons holding the situation I now occupy. But I shall be as brief as possible, and that brevity will be excused when I say that there is almost nothing to find fault with. That which was said 12 months ago in this place has borne fruit among the dairy farmers of this and the surrounding counties. Of course, each gentleman must answer for himself in the matter; but I speak purely and entirely my own impressions. It will be recollected that last year there was a little passage of arms, if we may call it so, and I expressed a wish that the cheese would not be quite so hard and tough, and that it would be more mellow. We know that the sacrifice of one thing involves the sacrifice of another. If cheese is soured it will not be ripe so soon; and, comparing the produce this year with that of the corresponding period last year, there is a great improvement. The general public, the consumers and the purchasers being the judges, much more approve of the cheese seen here to-day than that shown last year. That is one proof of the satisfaction experienced. If the proof o' the pudding be the eating o't, so also is it with cheese, which forms an important article in the food of the people. Just at the present time the papers are full of the subject. The great Thunderer of the Press has been thundering away at it for a month past; but with all their wisdom in that great establishment in London, which has a square to itself, they say nothing about cheese. Corn is important, as is also Wheat, because bread is the staff of life; and meat comes next with its powerful nutritious qualities and properties; but not a word is said of cheese, one of the most important articles with which farmers pay their rent. Now, while in Ireland the pig pays the rent, in Ayrshire, Somerset, Leicester, and Worcester, it is the cheese that pays the rent. If the gentlemen interested will take the trouble to read the two articles by Professor Lyon Playfair, which they will find in the January and February numbers of "Good Words" for 1865, they will find the value and importance to the country at large of that sometimes despised article—cheese. You desire to know something of the trade at the present time. So far as my views go, I say, do not be disheartened because you have had a time of great prosperity and high prices and then there happens to be a check. It is in the nature of things. We cannot suppose that things will always yield the same amount year after year. There are many causes for this. The principal cause is the high price of grain. As it rises cheese falls, and as it falls cheese rises in price, because to a certain extent corn is more necessary as food for the people. Besides, the high price of cheese recently stimulated the production of more cheese, it having been the desire of every farmer, seeing the market up and the prices obtained last year, to throw all his energies into the bringing of cheese into the market. American cheese has touched its lowest figure, and New York consignees won't send any more here at present prices; so that there is hope for an increased value in our home-made kanes. One thing of importance I must say. It is hopeless for Ayrshire farmers making inferior cheese. There is no demand for skim and half-skimmed lots. Time was when it was consumed by poor people, but now it won't be taken even by poorhouses. My advice to farmers who attempt that species of manufacture is to give the milk so used to the hogs, as in that case they would be far better off in the long run. The fact is, people will not eat it now.

Farmers' Clubs.

NORTH WALSHAM: *Nov. 4.—The Agricultural Labourer: his Education and Vocation*.—Mr. C. S. READ, M.P., thus addressed the Prize-takers of the Tunstead and Happing Agricultural Labourers' Association:—Instead of talking to you about the good of these societies, and making that the groundwork of my address, I propose to enlarge upon two subjects of very great importance, which are in reality strongly connected now, and will be more so hereafter—I mean education and wages.

EDUCATION.

Education is now permissive—that a man may or may not educate his children; but it may be compulsory before very long. All other industries have been interfered with, and we are told our turn is to come next. There are the Factory Acts, which have just been extended to other trades. By these Acts, no child can be employed under eight; and from eight to thirteen the child must spend a portion of its time at school, if employed at any work. But the heat, dust, and smell of a factory, and the close confinement, render most of these employments somewhat unhealthy, particularly for children. This cannot be said of farm-work, for there the child has plenty of pure air, with exercise that is not often laborious; so that the restrictions which are likely to be imposed will be directed rather to improving education than limiting the amount of the hours of labour. Any restriction upon juvenile labour will fall heavily upon the man with five or six children under twelve years of age; but as the chief restriction will doubtless refer to the badly-educated children, I hope the fear of it will act as an additional inducement to send your children to school early and regularly, so that they may read by eight or nine years old. I contend that the present system of education is generally ample, if made the most of; our schools are increasing everywhere (thanks especially to the clergy), and there is now hardly a large district in which there is not a good school within reach of the agricultural labourer—a school at which his children can be educated at the cost of one penny a week, though the cost to those who provide it is often as much as ninepence and is seldom under sixpence for each scholar. There is a complaint, and there is good ground for it, that children are not sent regularly to school, and that they leave it too young. There is little excuse for removing a girl from school till she is eleven or twelve years old: she is seldom wanted for home domestic duties before that age, and is hardly of any use upon a farm when she is so young. With the boys it is different—they must bend their backs to labour and develop their muscles while they are of tender years; they must become accustomed to horses and stock, and know what farm-work really is. A boy that can handle a spud well will more easily learn the proper use of the spade and the draining-tool; if he is handy with a hoe, that prepares him afterwards for the scythe and pitchfork; while, if he is skilful with the turnip-knife, he will the more readily learn how to handle the axe and the bill-hook, and even if he can ride the fore-horse, will more easily learn to drive horses in the waggon or at the plough. I contend if a boy can read at the age of nine, that is the age at which he should go to field labour; and by attending Sunday school and night-schools, he can retain and, if he will try, improve his education. A great many stupid things have been said against night-schools—that the hard-worked boys fall asleep over their books, and they are too tired, too wet, or too dirty to attend in the evening or make any progress with their studies. The total change from the labour of the field to the work of the school-room for an hour or two twice a week during the winter months—when the hours of farm work are short and the labour light—cannot be otherwise than advantageous, and ought to be pleasant. I believe that night-schools, when properly managed, have done, and will do, much good. I have in my young days taught in them myself; and as to the over-fatigue of the lads, why, in the summer, when boys work hard for 10 hours or more on the farm, you see them in the evening playing cricket, or some other game, most heartily, and the men are busily employed in their allotments or gardens. So much for general education: to my mind it is on the whole satisfactory, but I wish it could be more practical and special. Any education no doubt tends to make a better man, but not necessarily a better labourer. We must on no account undervalue education. You should always remember that without it, it is almost impossible to sensibly better your condition in life; but we must not expect too much from it. The childhood of the labourer is too short, and the struggle to earn his bread is too keen for him to hope to develop a good general education. I always say that farmers' sons who leave school at 14 or 15 had better learn some science that will be useful on the farm than attempt Latin and Greek. Even we of the middle-classes can't afford to our boys the time which is necessary for a first-rate education. Take my own case. If, instead of leaving school very early and learning the practical work of the farm, I had been sent to a university and studied till I was 21, I doubtless should have made a better M.P., and delivered a better speech to you to-day; but I question if I should have made so good a farmer. And I am one of those singular instances in which a man is promoted to a higher station for no deserts or even any desire of his own, but simply by the kindness of his friends and the wish of a large constituency.

If anything more than reading, writing, and doing a sum are attempted in our village schools, I should like the biggest boys, instead of learning history and geography, to be taught the first principles of mechanics—not the construction of machines, but the proper, and consequently the easiest, way to use farm tools and implements. Something of this sort might do good, for we have few means of instructing boys in the skilled work of the field. Take, for instance, ploughing. In days of yore, the boys lived in the farmhouse, and were often taught to plough; but now, I fear that we seldom attend to the training of our ploughboys, though we do perhaps encourage a willing lad to handle a plough in turning over our stubbles and Turnip-land under the superintendence of the team-man. It may be that a smart boy will soon master the art of ploughing, and excellent societies like these step in and offer rewards for such juvenile energy and skill. An ignorant, plodding lad may by perseverance also overcome the difficulties of cutting a straight furrow; but surely a little thought and knowledge to assist his eye and hand will make him master it all the sooner. It is, however, more than probable, without the thought and observation, that lad may for years only muddle his work, shoving and crowding the plough about and doing half the work of the horses, while the other fellow who uses his head will lay a first-rate furrow though he seems hardly to touch his plough, and walks behind it as upright as a drill-serjeant. Again, we see a "bramble" hand-cutting off a fence, slaving and chopping away, using a hook as if it were a mattock, while another man will do the work much better with half the expenditure of strength. Once more, you have some wooden fellow cutting an under-drain as crooked as a dog's hind-leg, and heaving out double the quantity of soil that is needed, while the skilled workman cuts the clay as if it were butter, does not trouble himself to remove a single ounce more soil than is required, and cuts the drain evenly and straight. Now, you will say all this requires great skill, and can only be learned by long experience, and can never be accomplished without a strong and steady arm and a keen sharp eye. Granted; but if a boy learns something at school that he can carry into the field, any lesson that will induce him to think over his work, to make his mind help and save his hands, that is the sort of education that is more likely to interest him, and is sure to increase his natural intelligence, and help to make him a skilled labourer.

WAGES.

As to the actual wages now paid to the agricultural labourer, it is certainly increased considerably during the past 15 or 20 years. As a boy I can remember that the range of weekly wages never exceeded one-third of a coomb of Wheat; so that three years ago, instead of having 9*s.* or 10*s.* a week, you would have been receiving 7*s.* or 8*s.*, and now, instead of being 12*s.* and 13*s.*, wages would not in these short days have exceeded 11*s.* And not only are wages raised, but the men are all employed winter and summer too. There is no difference now between the wages of the single and married men, and you certainly work less hours in the day than you did, and I am equally sure that much of your labour is not so severe as formerly. But the rise in the rate of weekly wages is much less than the increase in the pay of piece-work. I can remember when mowing hay was 1*s.* 6*d.* and 2*s.* an acre, and now it is 3*s.* and even 4*s.* Draining, ditching, and hoeing are fully 30 per cent. dearer, and harvest wages, which seldom were above 5*l.*, are now rarely under 6*l.* And you must remember that task-work is the only test of cheap labour. In some counties we hear the pay of the farm-labourer is 1*s.* 6*d.*, and in others 2*s.* 6*d.* a day, and yet we find that the price of piece-work is about the same. Rely upon it that where wages are so very cheap, that besides less work being done, there are some privileges—beer, cider, house-rent, garden-ground, firing, constant employment, &c., &c.; while, on the other hand, high wages are universally coupled with dear house-rent, increased cost of living, more work, and longer hours. You know how many of your neighbours who have migrated to London, and earn perhaps double your wages, at the end of the year are no richer than you are, while numbers of them are now returning to their native county, which makes labourers just at the present time unusually abundant. On the stoppage of the Millwall and other ship-building yards last year, a large number of ship-wrights and skilled artizans were thrown suddenly out of work, and though they had been earning one and two pounds a-week, we are told that at the end of a fortnight the great majority of them had nothing to live upon. A year or two ago, when labourers were so scarce in the north and wages were so high, some gentlemen came round to Wymondham and took away 12 families that were very badly employed as weavers there, paid all their railway expenses and found them with plenty of suitable work, and yet at the end of 12 months, five out of those families returned, the men preferring 12*s.* a-week in Norfolk to the 20*s.* they had earned in the north of England. And I once took a young fellow from this county into Oxfordshire, where he received much better pay; but he soon returned to Norfolk, assigning as a reason for his departure, "that he did not like baker's bread and could get no light dumplings!" Pray, don't misunderstand me: I rejoice in your higher wages, and trust they will increase more rapidly than they have hitherto done; not that I wish all should be paid more for doing as little as a man can in a day, but that the best hands should earn more, especially at task work. I believe that the daily wages that are current in Norfolk are about the average of the agricultural wages in England. If you take the weekly wages at 12*s.*, they amount, with extra earnings at piece-work, to at least 14*s.* a week, or 36*l.* a year; for the additional pay of harvest alone will be 1*s.* 6*d.* a week if spread over the 12 months. Now, the average income of all the working classes, including artisans and mechanics, is 17*s.* per week per family, or 44*l.* a year. Mind, not 17*s.* a week for the man, but his wife's and children's earnings as well; and there are very few of you, I apprehend, whose family does not bring you in 3*s.* a week, and so raise your income to the average wages of the working-classes generally. No doubt a certain amount of day-work must be done on all farms. It is easiest for both master and man; it requires less thought and judgment, and there is no bother about measurement; but it has precisely the same effect of trades' unions with the artizan classes, for instead of allowing the best and most skilled labourers to earn 2*s.* 6*d.* or 3*s.* a day, it brings him down to an average hand, and at the same time elevates some stupid lout, whom the farmer employs through charity or necessity, to his level.

We farmers are told that the chief difficulty we shall have to contend with in future years is the labour question—that you labourers don't know your own strength, and when you combine like trades' unionists you will dictate your own terms to your employers. Suppose you do, which I don't believe, for you are like us farmers, and from being scattered over the country, have not the means to congregate yourselves and form associations; but if you did form unions for the protection of the agricultural labourer, I believe you would find that for common ordinary labour—I mean strength without skill—you are paid as much as labourers of a similar class. Compare your wages with those of the labourers in her Majesty's dockyard, with the labourers about the quays, wharfs, and docks of our great ports, the bricklayers' labourers all over the kingdom, the hand-loom weaver, even the ordinary factory hand, and the common shoemakers of Norwich—when you consider the uncertainty of employment, you will find (and some of you, no doubt, can confirm what I say) that for the same amount of the same kind of work, you are paid as well by the farmers as you would be by some other employers of labour. You must look for increased earnings to more skill and dexterity in your calling, and earn more wages by the care and interest you take in what is confided to your working and keeping. I have often heard it remarked, "What has an agricultural labourer to look forward to when he is sixty? Nothing but the workhouse!" This I deny. A man's arms may not be so strong and active at 60 as they were at 30, but by perfecting himself in the knowledge of all farm work (especially in the value of piece-work), by noticing the wants and habits of stock, by knowing how to manage machinery and implements, by being able to instruct young hands and direct them at work—to say nothing of what trustworthiness and general good conduct are sure to secure for him—I say a man of 60 can in many ways be worth more to a farmer than the strongest, most active, and most willing of his younger labourers.

You cannot be too thankful that the labourer is free. A week's wages will carry a young man to any part of England, and a few pounds to America and most of our

colonies. But, remember, the parish is free, and the farmer also. There is now no necessity for the farmer to employ a man because he has a large family, or because he is a stupid worthless fellow that the parish must support if he is out of work, and, consequently there is the greater necessity for the labourer to be a smart active hand; for if you can find another master when you please, so is the farmer justified in finding a better labourer where he can. It is a matter of congratulation that the aversion to machinery, which has been so common, and which at one time produced riot and bloodshed in this county, has considerably diminished, and will, I believe, in a few years entirely die out. Be sure of this, that farm machinery has done the hardest work, and will always ease the labourers' excessive toil. What was such hard work as threshing by the flail, and how could the corn now be threshed if we had no steam-engines? England would have been half-starved this harvest if the farmers had to depend on manual labour to supply the market with his new Wheat. And what takes more out of a man than mowing Grass or corn? So you ought to look upon the reaping and mowing machines as your best friends. For instance, you are now paid as much for hoeing Turnips after the horse-hoe has done the chief part of the work, as you formerly received for doing it all by hand. There is not a sufficient supply of labour to do all the work, and as machinery becomes more general, manual labour will become lighter, though what is left for you will require more skill and more judgment to perform it. There are many things in agriculture that machinery never has and never will do well, and "willing hands and lissome fingers" will always be needed so long as seed-time and harvest follow each other. And you should remember that with all the machinery employed on the farm, there is no diminution of manual labour on arable land. On the contrary, I can remember when the farmer who expended 20*s.* to 25*s.* an acre in labour was considered a good employer; but now, 30*s.*, 35*s.*, and even more, is the common expenditure by good farmers. There must be a limit to the increase of this expenditure. In some districts, the cost of labour and the low price of Wheat which has ranged for some years have made the farmers keep their land in Grass; and with us, although we grow good corn and poor pasturage, if the expenses of working arable land exceed the value of the crops produced, we shall cease to grow corn, and it will be imported from abroad. I don't say this is at all likely. I hope not; but it is no idle threat, for already the high-priced labour is being seriously felt in other trades, notwithstanding our great capital, cheap coals, and other advantages. Engines and other iron goods come in from Belgium, while doors, window-frames, and all the wood-work of our houses come ready-made from Norway.

Education of Girls.

I beg pardon for having dwelt so long and exclusively upon the men, as if this society did not recognise or try to reward female industry. I will for the present pass by the education of the girls, for girls are kept longer at school than boys, and so have an opportunity of becoming better scholars. I am not one of those who think that education has spoiled our domestic servants. A girl who can read well and write to her mother, and to her sweetheart too, ought to make a better servant than one who can't. But schools have innocently lent a helping hand to the deterioration of our domestic servants. Too many mothers send their children to school simply to get rid of them, and then think they have done all that is required, and imagine that the schoolmistress and the parson do what is needed for the discipline and management of their children. Nay, more: very many foolish mothers consider the restraint of school so irksome and tiresome, that it is positively necessary for the health and well-being of the child that it should run wild all the rest of the day. This lack of parental authority of course produces disobedient and undutiful children. With the boys, the discipline, such as it was, when they lived in the house of the farmer, is done away with; and if an employer chastises the most obstinate and wilful of boys, the silly parents reward him by summoning him before the magistrates. As so many parents neither correct their children, nor allow others to keep them in some sort of order, we can't wonder at the uppishness, the insolence, and the lawlessness of some of the young men in our agricultural villages; nor should it create surprise that girls, when they go to service, cannot bear the restraint of a well-ordered household, and prefer the small wage and freedom of field-labour to the better pay and more suitable employment of domestic service. In my station of life, I know that children are brought a great deal too forward; and if they were not made so much of, they would be happier in themselves, and less of a nuisance to those around them; but I maintain that the restraint and discipline—keeping them from evil company, and from going just where they please, and doing just what they like—are much more severe and exacting with us than it is with the lower order. What father, for instance, in the middle-class of life would think of allowing his girls of 14 and 15 to run about the village street at all hours of the night, or allow his boys of the same age to stay as long as they liked at the ale-house? Rely upon it, no great improvement will result from better cottages and better education, unless the parents will take some more decided steps "in keeping their children from wickedness."

I have been somewhat misunderstood as to what I have said on other occasions about the employment of young girls in agriculture. If I were a farm labourer, nothing would give me greater pain than being compelled to send my girls to field-labour. For very much the same reason, nothing should induce me, if I had now half-a-dozen sons, and wished them to be rich and prosperous, to make one of them a farmer. No man gets so little interest for the money he employs as the farmer, or is so unfit for other business should he fail as a farmer; and as the agricultural labour of women is of the lowest type, their wages are consequently very small, and it often spoils them for more delicate and confined employments. But if I had a son whose health would not bear the close confinement of an office, or whose ability would not enable him to stand a fair chance in the race for wealth, I should not hesitate to put in force the old saying, that "any fool can make a farmer." And so with a labouring man: if he has a girl that is not fit for, or could not obtain domestic service or other indoor work, I would rather have her employed in the field than kept doing nothing, or worse than nothing, at home. I well remember an orphan boy who was taken into our house with the idea of training him for an indoor-servant. On being well lectured for his stupidity and dulness, and being told that he would never be fit for anything but a labourer, the boy replied, "He 'sposed there must be such people." No doubt, there are many "such people," girls as well as boys, who have no ability and no desire to be anything beyond field-labourers; and when we consider the miserable pittance paid to milliners, dressmakers, and sewing virgins generally, the difficulty there is in obtaining suitable indoor work for very wooden females, I am not surprised that some of them prefer farm-work—especially when they contrast the eight hours in the field with the sixteen that is the usual length of the day with our domestic servants. I repeat, as there are so very many women and girls who are fit for nothing better than the plain and sturdy labour of the field, it is far preferable that they should work on the farm than have silly notions put into their heads that field-labour is not fitted for females; still less that they should be kept in idleness or vice at home. By all means reduce the number of these females, improve them, enlighten them, educate them, make them better members of society, and then you will have no reason to restrict juvenile female labour in the fields, for the best of all reasons, that young girls won't go out to such work if they can find better and more suitable employment. In the meantime—till that improvement has taken place—it is foolish to say that the employment engenders immorality or bad habits, simply because all sorts of women and girls, who can find nothing better to do, gain an honest livelihood at such work. But to return to the education of the girls: even as to them I could wish that their instruction was more useful and more practical. Let me illustrate what I mean. You all know that this year a great Reform Act has been passed. Don't suppose I am going to talk politics, but I wish to place before you one of the main reasons that was assigned for bringing in a Reform Bill. Mr. Disraeli said it was the great advancement and increased intelligence of the working-classes that rendered it necessary to extend the franchise; but he seemed to think that intelligence was confined chiefly to towns. And he said the main cause of this progress was "the application of science to social life," *i. e.*, applying the useful knowledge and wonderful discoveries of the great and clever men to increase the comforts of our homes.

Domestic Education.

But there is a great social duty of our hearths—the duty of cooking—that has at present received precious little assistance from science. I am one of those who think that a kind Providence gives us food, and that if the Evil One did not send cooks, he certainly has kept women singularly ignorant of one of the foremost of domestic duties. We hardly know how much of the happiness of a poor man depends on the preparation of his food. His capacity for labour, his health, and consequently his comfort and good temper, are mainly dependent upon it. Generally speaking, the economy of the farm-kitchen in cooking is much greater than that of the cottage. Therefore, all things being equal, if I were a young labourer. I should always make love not to black eyes or blue, but to a good plain cook—though it might suit all the better if the plain cook was a nice-looking girl. I shall be told that there is plenty of materials in a farm-kitchen to make a good dinner; but it generally happens that the knowledge of how to make the most of an abundance will also furnish the best and readiest means to make the best use of a little. Knowledge of even the first principles of cooking is often entirely absent in a cottage; and plain fare, that might be made palatable and digestible by good management, is too often rendered distasteful and indigestible, and consequently the hard-earned wages of the husband are well-nigh wasted. You will laugh at my offering you a cooking receipt, but I happened many years since to give a few Peas away in a severe winter for making soup. On going into one cottage I tasted some that was decidedly nice, and in a neighbour's, the same sort of soup, that was essentially nasty. Now, the only difference, I was assured, was that one was made from snow and the other from hard-water. No doubt the virtues of soft-water in making soup are well known to all cooks, but they may not be to every labourer's wife, and I would remark that I think we have strong prejudices against soups and broths, in which the Scotch so much excel, which may possibly arise from our inferior method of preparing them. But it may be some consolation for you to know that other counties are still more behindhand in the mysteries of cottage cookery. I believe that the table of a poor man in Norfolk is much better supplied, and at a less cost, than in many parts of England. I look upon our despised Norfolk dumplings as a great and glorious institution. Surely a snow-white dumpling, so light that it almost knocks the lid off the boiler, if not a "dish to set before a king," is enough, with a little dripping and a few vegetables, to furnish a hungry man with a jolly good meal, and is certainly preferable to the never-ending dinner of bread and cheese that one sees in the midland counties. Then in those parts you find a poor woman buying a pound of dry bacon; she cuts it into slices, and frizzles it before the fire till the chief part of the goodness is gone; while a Norfolk woman would buy the fresh bacon, chop it up, and put it into a good thick crust (if of meal, so much the better), and instead of having a little mouthful of meat, produces a thumping big dumpling, enough for her husband, self, and children. I am glad that the custom which is general elsewhere—viz., buying baker's bread—is not common in Norfolk. This may be very well in towns; but if it finds favour in the country, where firing is to be had and ovens are common, it is really owing to the desire of housewives to get rid of every household trouble and all the hard work they can. It is not because girls go to work in the field that when they become wives they know nothing about cooking. In some cottages all the cooking consists in making a cup of tea and boiling a Potato, and that is generally spoiled because it isn't boiled with its jacket on. And this desire to be rid of trouble is by no means confined to the cottages of the labourer; for there are many farm-houses where the washing, baking bread, and brewing are not done at home. It may be that tradesmen with large establishments can brew and bake better than cottager's wives. The bread may be whiter and the beer may be clearer; but how about the profit and the nourishment? I hope to live to see the day when malt will be almost as cheap as Barley, when every cottager will brew, not only as he does now, at haysel and harvest, but all the year round, and drink his mug of beer with his wife and family, and not go to the "public" for every drop of beer he needs, where the stuff he buys, instead of refreshing and strengthening him, makes him thirsty and stupid.

Just one word as to the price of flour: it has not been so dear for many years, and there seems no prospect of its being cheaper—at least, during the winter. Flour, good sound households, such as you buy, is now, I suppose, 2*s.* 9*d.* per stone, white Wheat is hardly 2*s.* per stone. If you buy 2 bushels of Wheat from your master for, say, 17*s.* 6*d.*, and take it to the miller, he will, for the coarse pollard, grind it for you, and you will have your meal at a little over 2*s.* 2*d.* per stone. I can assure you that meal contains as much, and perhaps more, nourishment than the finest flour; and though you may not like it so well, or find it so palatable, as there is now such need of the greatest economy, I would strongly advise your trying it.

Religious Education.

There is one subject that I have hardly touched upon—it should be the foundation and mainstay of all we say and all we do. I mean the religion of our education and the Christianity of our lives. Without it our learning is useless, and all our labour vain. What I might say upon such high and holy duties would apply more to me than to you, and equally to the employer of labourers as to the employed. The Almighty Ruler of the world has allotted us our various stations, and appointed to each of us our work in life; some to labour with the sweat of their brows, and others with the sweat of their brains; but I trust we are all servants of the great Householder, and all fellow-labourers in His vineyard. Let us therefore labour diligently to get our living, and strive earnestly to do our duty in that station of life in which Providence has placed us; and then, when our work and toil are ended, we may hope to hear the good Master himself say to each one of us, "Well done, good and faithful servant; enter thou into the joy of thy Lord."

Farm Memoranda.

The North Riding of Yorkshire.—During the past month the weather has been all that could be desired for the various operations of the farm. The bare summer fallows of the Cleveland district have been seeded in beautiful order, the seed has brairded well, and is for the season unusually forward. As a rule in this district Wheat is not the first crop grown after Clover, but this year, influenced, doubtless, by the high range of price of that grain, a large proportion of Clover lea is already ploughed and sown with it. Efforts in many cases have also been made to increase the acreage of Wheat after roots, and these, seconded by the dry favourable weather, have been very successful, so that on the whole an area considerably over an average has been sown, and under the most favourable circumstances. Root crops are very good, and great progress has been made in securing them for the winter, and with the great abundance of Grass there is on the pastures, few have as yet gone into consumption.

Threshing has been going on very freely, and all who have applied the crucial test of bushel and scale are unanimous in the opinion that the yield of Wheat is a bad one, and much under an average. There is not such an article of equipment as a stock of old Wheat in any farmer's yard in the district.

The Potato crop has been abundant, but very much disease prevalent; in our own case quite one-half bad, and we hear of instances even worse. The value of all descriptions of cattle and sheep has during the month been on the descending scale. Bullocks for winter fattening can now be bought at 20*s.* a head less than they could a month ago. Beef has also been making less money, the current rate for prime fat animals is now about 8*s.* per stone of 14 lb.

The trade for sheep has been worse than for cattle. Store sheep, draft ewes, and lambs, have all been difficult to quit, at a reduction from the prices of last year of from 10*s.* to 15*s.* a head. *W. J. M., Nov.* 12.

Wester Ross.—Although showery and protracted, the harvest now completed has not by any means been a bad one. True, a great deal of rain has fallen, and the work was much interrupted, but the rain was invariably followed by cool weather, and

gales of wind now and then so strong as to shake out a good deal of standing grain, so that, on the whole, the crops in all the earlier districts have been brought to the stackyard in fair condition. On the 6th September we began to cut 176 acres of Wheat, Oats, and Barley with eight scythes, and on the 2d October we finished the cutting. On the 10th October the whole crop was brought to the stackyard, 22 days having been occupied with purely harvest work, on 14½ of which we were engaged in cutting, and 7½ in carting to the stackyard. During these 14½ days 176 acres were cut by eight scythemen, being at the rate of 1½ acres per day to each man. A larger breadth would have been cut per day, but part of the crop was very heavy and much laid, and consequently required more time. In 7½ days 95 stacks were brought to the stackyard. The whole expense of cutting, gathering, binding, raking, leading, stacking, and thatching was 42*l.*, or about 4*s.* 9*d.* per acre. Let it be remembered, however, that all the half-year servants were constantly engaged in the work, and that a large share of the cutting, which is the more expensive part of it, was performed by the ploughmen. Perhaps it is worthy of note, too, that one of the women, the only one that occupied the place of a man as binder, and who when leading built loads getting up on each cart and finding her way from the top of each load to the ground as best she could, was absent from the work on the last day of leading; and, on inquiry, we were informed that on that morning she had been safely delivered of a child. It is several years since our stackyards were so well filled as they now are, and the yield, we doubt not, will be satisfactory. Altogether the season appears unusually auspicious to the north country farmers. From the lack of sunshine Wheat may not be of so fine quality as it was the last two years, neither, perhaps will it yield so well; but already we hear of a return of 5 quarters per acre off the finer Wheat soils—a yield equal to that of Mr. Mechi's, and in no way to be despised. Oats are yielding much more abundantly than last year—approaching, in some cases, 8 quarters per acre; this, however, is far beyond an average. Potatos are being lifted, and, although not a heavy crop, are not much diseased. The high prices now offered will soon clear the country of them, as they are already being largely shipped. The country is now full of sheep that have come from the hills to winter, and are presently enjoying a run over the newly cleared fields before being folded on the Turnips. The season has been too cold for the Turnip crop, which is still growing, but will scarcely reach an average. Turnips bid fair to be in good demand before the return of Grass, as from the limited demand for sheep to the south there is a larger stock left than usual, and this, with an inferior crop of Turnips, may raise the price so high that sheep, under their present depression, would ill afford to pay it. With a continuation of present prices the sheep farmer may have to disgorge a little of his previously accumulated wealth. The Turnips may be eked out with hay, of which we have an unusual quantity. [We regret to delay the publication of several paragraphs under this heading. They will appear next week.]

The Poultry Yard.

The approaching Poultry Shows (Birmingham).—Just at this time of year the entries of the larger and more important of the great poultry gatherings are closed, or are about to close, and great and eager is the expectation and anxiety of intending competitors. The prize lists are liberal, consequently the entry will be be numerous, the rivalry keen. Eagerly is it remembered that "a month or two since So-and-so's birds looked bad, and we heard he was killing them off." Anxiously is the quality of the food, the appetite, appearance, and growth of favourite birds scanned and chances calculated. Speculation even runs sometimes so far as to lead one to discuss the shape and make of the piece of plate that a liberal committee allows me to take "in lieu of money prizes." Among the large shows of the year pre-eminence must be given to Birmingham. This "mother of big shows" issues this year a prize list of unusual liberality, and if report be true has a corresponding response. All may look for a great treat in visiting it. To those who have hitherto done so with only bovine, ovine, or porcine proclivities, a very strong temptation will be presented by the increased numbers of choice birds, and it is much to be hoped that a step in the right direction has been made by the Royal Agricultural Society of England in introducing again the poultry lists. It may fairly be expected that, having been again taken into consideration as a portion of the yearly exhibition, farm poultry will now take its proper status with our agriculturists generally. To those who wish to start with good stock the classes at Birmingham offer unusual facilities, and judicious selection may be made according to colour, strain, or fancy. Those who wish to make a start with good breeding stock may here do so by claiming some of the birds that, although good, only run up as commended, while those who wish to grasp success ready to hand, must pay heavy prices for birds that are already winners. As birds adapted for farm poultry, the classes of Dorkings, Brahmas, Crèvecœur, and Houdan fowls, Norfolk and Cambridge turkeys, Rouen and Aylesbury ducks, will be especially worthy of notice. Where one breed is to be kept for all purposes, the grey Dorking holds its own well. Where a hardy quick-growing bird is required, and the delicacy of the meat is not imperative, the cross between the Dorking and Brahma will answer well. When a sequence of egg-producers is required, the Crèvecœur, Houdan, and La Flèche are invaluable. In the egg-producing districts of France the Crèvecœur and its offshoots are the birds depended on. For the fowl-fattening districts, the Houdan and La Flèche are the birds; the latter takes precedence for size and quality, the Houdan is hardier and more plentiful.

Gapes in Chickens.—We formerly lost many chickens from the gapes, but have found that keeping them quite clean, and taking care that the water given to them should be fresh, and the saucers scalded daily, is the best preventive, when added to shelter from cold and wet. Those hatched before August do well with us, but later there is great loss in a damp year. This autumn there has been a loss of two in five amongst those hatched the last week in August. Chopped Onion mixed with the food often seems to stop the gapes coming on, when the chickens begin to droop; but any remedy only seems to prolong the illness, and seldom cures it. Our poultry are kept at the farmyard, at some distance, as when the hens hatch they are brought up to the house yard, cooped in the park or meadow at the back during the morning, and allowed to run free in the afternoon; but we have always observed that if young geese or ducks are allowed the run of the same ground the gapes at once increase, and if any of the hens bring their broods to remain in the courtyard in an afternoon, instead of keeping them on the fresh ground, they are never so healthy. The further they stray with a careful hen the stronger the chickens are. We keep coloured Dorkings and black Spanish fowl. *G. E. O.*—I have found from experience of the last few years that I scarcely lose any chickens or turkeys by gapes, if I keep them altogether from water while young. I think "A. B." will find this plan answer. Certainly I used to lose many, and since I have tried this plan lose none. I remember some one in your paper suggesting that the small worms in the trachea were the same as those seen in water, and that the eggs were thus taken into the system. It may be so, but I have rather thought that chickens while young scour themselves and get weakened by too much water, if they can run to it at will. I now, as I said, give none, and they do not appear to miss it. Of course they require moist food—custard made of egg boiled in milk I find the very best for young chickens, turkeys, &c. In "Land Steward's" method of rearing wild ducks, he says, "They will not breed like the tame duck (with one drake to several ducks), but only in pairs;" this is quite correct in the wild state, but when they are kept in a garden, or tame state, they do much better two ducks to a mallard: as is also the case with guinea fowl, which are generally kept in pairs. In both instances they ramble much less from home, lay more eggs, and breed better. *W. D. F.*

Miscellaneous.

The Agricultural Society's Essays.—The following premiums for essays and reports, which are to be sent in not later than the 1st of March next, have been offered by the Royal Agricultural Society of England:—

1. *Farming of Middlesex.*—Thirty sovereigns will be given for the best report on the farming of Middlesex. The leading geological features and the character of the soil should be briefly described. Reference should be made to any older records of the state of agriculture in the county. The influence of the London markets on the management of both pasture and arable land and garden ground; the present state of the dairies; the enrichment or impoverishment of the soil; the extent of land withdrawn from culture by buildings, highways, &c., to be considered.

2. *Improvement of Grass Lands.*—Twenty sovereigns will be given for the best essay on the improvement of Grass lands.

3. *Moors, Mountains, and Wastes.*—Twenty sovereigns will be given for the best essay on the experience of those who are at work on the edges of cultivation on moors, mountains, and wastes.

4. *The Domestic Economy of the Agricultural Labourer.*—Fifteen sovereigns will be given for the best essay on the domestic economy of the agricultural labourer with reference to his food and its cooking.

5. *Preservation of Timber.*—Ten sovereigns will be given for the best essay on the preservation of timber, by painting, steeping, or other methods.

6. *Arable and Grass Lands.*—Twenty sovereigns will be given for the best essay on the comparison between the outlay and returns of 100 acres of arable and Grass land respectively.

7. *Retention of Moisture in Arable Lands.*—Ten sovereigns will be given for the best essay on the retention of moisture in the soil of arable lands in dry climates.

8. *Succession of Green Crops.*—Fifteen sovereigns will be given for an essay on the best mode of providing a continuous succession of green crops, including roots, &c.

9. *Devon Breed of Cattle.*—Twenty-five sovereigns will be given for a short history of the rise and progress of the Devon breed of cattle.

10. *Leicester Breed of Sheep.*—Twenty sovereigns will be given for a short history of the rise and progress of the Leicester breed of sheep.

11. *Any other Agricultural Subject.*—Ten sovereigns will be given for an approved essay on any other agricultural subject.

Notices to Correspondents.

BACON AND PORK: *A B.* At the present prices of pork and feed, it is hardly possible for pig fatting to pay. Still, a good deal is doing in that line of business. A mixture of Maize, Peas, Buckwheat, and Rice, about equal quantities of each, is about as cheap a food as you can give them. Barley you can do nothing with; for, independent of the price, the quality has not been good enough to be of much service. We have been buying Maize and Buckwheat at about 7*l.* 7*s.* per ton; Peas, 9*l.*; and Rice, 8*l.*, which, with expenses of grinding, &c., will cost about 9*l.* per ton in meal. We have used a little damaged Wheat when we could get it.

PALM NUT MEAL: *C Langridge.* Apply to Alex. M. Smith & Co., Kent Street Mills, Liverpool. We believe it costs about 7*l.* a ton.

POTATO EXPERIMENTS: *Constant Subscriber.* They are reported in the "Journal of the Royal Agricultural Society," published by J. Murray, Albemarle Street, W.

VALUATION: *A Correspondent* asks for the name of the publisher of the little pamphlet on the "Valuation of Hexham Union." We do not know it, but this request may find it for him. Bayldon on "Rents and Tillages" (Longmans) may perhaps serve his purpose, but as a general rule it will be found that a valuation is just a "shot" at value, aimed with more or less success and skill, according to the previous experience of the valuer. He puts a value on THIS thing, guided simply by his previous knowledge of the value of SUCH things.

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If drilled in September, 4 Bushels on 10 acres.
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The "Directions for Planting" will show how these quantities may be drilled without additional expense.

The land should be clean, and kept so during the growth of the crop.

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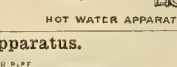
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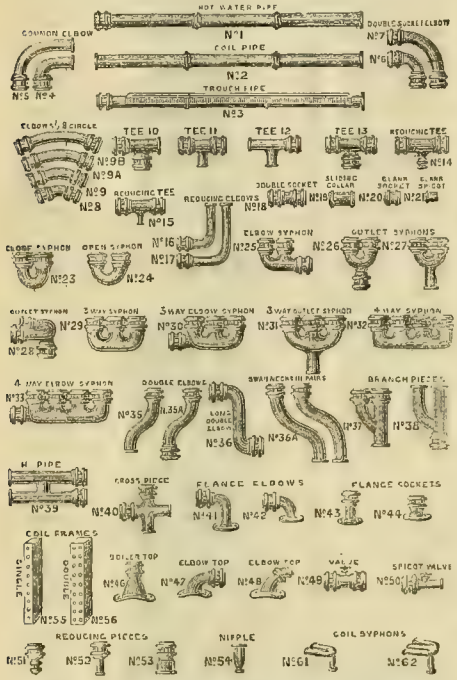






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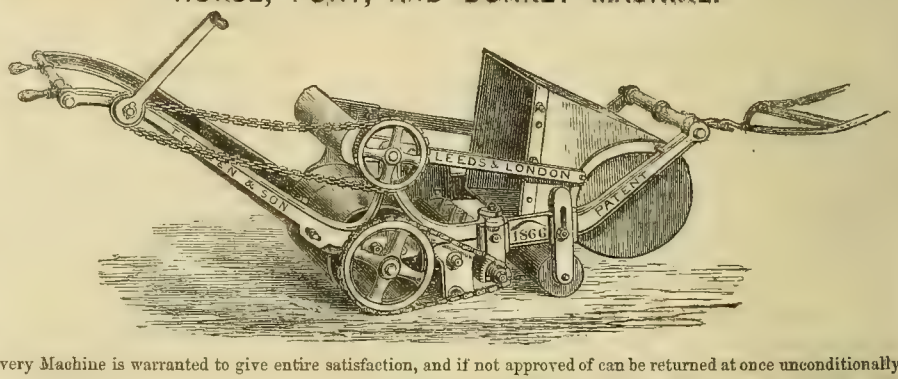
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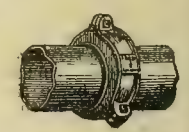
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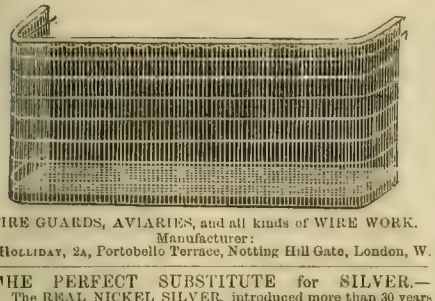
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12 Dessert Forks	1 4 0	1 10 0	1 12 0	1 15 0
12 Dessert Spoons	1 4 0	1 10 0	1 12 0	1 15 0
12 Tea Spoons	0 16 0	1 0 0	1 2 0	1 5 0
6 Egg Spoons, gt. bowls..	0 10 0	0 12 0	0 12 0	0 13 6
2 Sauce Ladles	0 6 0	0 8 0	0 8 0	0 9 0
1 Gravy Spoon	0 6 6	0 9 0	0 10 0	0 11 0
2 Salt Spoons, gt. bowls..	0 3 4	0 4 0	0 4 0	0 4 6
1 Mustard Spoon, gt. bwl.	0 1 8	0 2 0	0 2 0	0 2 3
1 Pair of Sugar Tongs ..	0 2 6	0 3 6	0 3 6	0 4 0
1 Pair of Fish Carvers ..	1 4 0	1 10 0	1 10 0	1 10 0
1 Butter Knife	0 2 8	0 4 0	0 5 6	0 6 0
1 Soup Ladle	0 10 0	0 12 0	0 16 0	0 17 0
1 Sugar Sifter	0 3 3	0 4 6	0 4 6	0 5 0
Total	9 19 9	12 9 0	13 9 6	14 17 3

Any article to be had singly at the same prices. An oak chest to contain the above, and a relative number of knives, &c., 2l. 15s. Tea and coffee sets, dish covers and corner dishes, cruet and liqueur frames, &c., at proportionate prices. All kinds of replating done by the patent process.

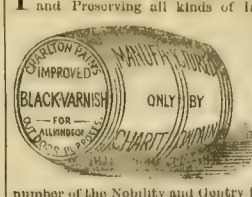
CUTLERY, Warranted.—The most varied assortment of TABLE CUTLERY in the world, all warranted, is on sale at WILLIAM S. BURTON'S, at prices that are remunerative only because of the largeness of the sales.

Ivory Handles.	Table Knives per Dozen.	Dessert Knives per Dozen.	Carvers per Pair.
	s. d.	s. d.	s. d.
3¼-inch ivory handles	13 0	10 6	5 0
3¾-inch fine ivory balance handles	18 0	14 0	5 9
4-inch ivory balance handles	21 0	16 0	5 9
4-inch fine ivory handles	28 0	21 0	8 0
4-inch finest African ivory handles	34 0	27 0	12 0
Ditto, with silver ferules	42 0	35 0	13 6
Ditto, carved handles, silver ferules ..	55 0	45 0	18 6
Nickel electro-silver handles	25 0	19 0	7 6
Silver handles, of any pattern	84 0	64 0	21 0
Bone and Horn Handles—Knives and Forks per dozen.			
White bone handles	11 0	8 6	2 6
Ditto, balance handles	23 0	17 0	4 6
Black horn rimmed shoulders	18 0	15 6	4 6
Ditto, very strong riveted handles ..	12 6	9 6	3 0

The largest stock in existence of Plated Dessert Knives and Forks, and of the New plated Fish-eating Knives and Forks and Carvers.
Illustrated Catalogues sent per post, free.

WILLIAM S. BURTON, GENERAL FURNISHING IRONMONGER, by appointment to H.R.H. the Prince of Wales, sends a Catalogue gratis and post paid. It contains upwards of 600 Illustrations of his unrivalled Stock of
STERLING SILVER and ELECTRO-PLATE
NICKEL SILVER, and
BRITANNIA METAL GOODS,
DISH COVERS, HOT-WATER DISHES
STOVES and FENDERS,
MARBLE CHIMNEY PIECES,
KITCHEN RANGES,
LAMPS, GASELIERS,
TEA TRAYS,
URNS and KETTLES,
TABLE CUTLERY,
CLOCKS and CANDELABRA,
BATHS and TOILET WARE,
IRON and BRASS BEDSTEADS,
BEDDING and BED HANGINGS,
BED-ROOM CABINET FURNITURE,
TURNERY GOODS, &c.,
With List of Prices, and Plans of the Twenty large Show Rooms, at 39, Oxford Street, W.; 1, 1a, 2, 3, & 4, Newman Street; 4, 5, & 6, Perry's Place and 1, Newman Yard, London.

ROWLANDS' MACASSAR OIL.—This elegant and fragrant Oil is universally in high repute for its unparalleled success in promoting the growth, restoring, preserving, improving and beautifying the Human Hair. It is patronised by Royalty and the Aristocracy of Europe, whilst its introduction into the Nursery of Royalty, and the use of the Upper Classes, is a sufficient proof of its merits. Price 3s. 6d., 7s., 10s. 6d. (equal to four small), and 21s. per bottle. Sold at 20, Hatton Garden, and by Chemists and Perfumers.
☞ Ask for "ROWLANDS' Macassar Oil."

IMPROVED BLACK VARNISH, for Coating and Preserving all kinds of Iron and Wood Fencing, Gates, Roofing, and every description of out-door Wood or Stone Work, Carts, Waggons, Farm Implements, &c.


It is an excellent substitute for Oil Paint, and is not one-fifth the cost! It requires no mixing, and can be applied in a cold state by any ordinary labourer.
This Varnish is now used in the Royal Botanic Garden, Regent's Park, and by a great number of the Nobility and Gentry in the United Kingdom.
Sold in casks of about 30 gallons each, at 1s. 3d. per gallon; or in casks from 10 to 20 gallons each, at 1s. 5d. per gallon (casks included). Carriage paid to any railway station in Great Britain. Extra strong Iron-bound Varnish Brushes, 5s. per pair.
CHARLTON PAIN, 10, Richard's Villas, Lavender Grove, Dalston, London, N.E. (from whom it can only be had).
The most flattering Testimonials forwarded on application.

GAMEKEEPERS' CAPES, GREENHOUSE TARPAULINS.—WATERPROOF CAPES lined with Blue Cloth, 3 feet deep, 4s. each; POLICEMEN'S CAPES, 16s. 18s., and 22s. per dozen. Stout TARPAULINS, to cover Pits and Greenhouses, made to sizes, 1d. per square foot. LONG HARE and RABBIT NETS, Cart and Waggon TARPAULINS, Second-hand RICK CLOTHS, &c.—R. RICHARDSON, 99, Euston Road, London.



AGRICULTURAL and HORTICULTURAL PRIZES.
A Pamphlet of Prices, illustrated with 300 Engravings of Cups, Goblets, Tankards, &c., will be forwarded gratis and post free on application. Lithographic Drawings of Silver Epergnes, Flower Stands, &c., have been prepared for the use of Committees and others requiring Presentation Plate, and will be forwarded for inspection on application to the
GOLDSMITHS' ALLIANCE (LIMITED), Manufacturing Silversmiths, 11 & 12, Cornhill, London, E.C.; opposite the Bank of England.

Breakfast.
EPPS'S COCOA.
INVIGORATING AND GRATEFUL.

ELECTRICITY IS LIFE.—SELF-ADJUSTING CURATIVE and ELECTRIC BELT. Sufferers from nervous debility, indigestion, weakness, &c., can now cure themselves by the only "Guaranteed Remedy" in Europe, protected by Her Majesty's Great Seal.
FREE for One Stamp, by H. JAMES, Esq., Medical Electrician (to the London Hospitals), Percy House, Bedford Square, London
N.B.—Medicine and fees superseded.

DR. ROBERTS'S POOR MAN'S FRIEND and PILULE ANTISCROPHULE have been proved, by 60 years' experience, successful in the Cure of Eruptions and Wounds of every description. Sold wholesale by the Proprietors, BEACH & BARNICOTT, at their Dispensary, Bridport, and by the London houses; and Retail by all respectable Medicine Vendors in the United Kingdom and the Colonies, in pots and boxes, 1s. 1½d., 2s. 9d., 4s. 6d., 11s., and 22s. each.

DINNEFORD'S FLUID MAGNESIA.—The best remedy for Acidity of the Stomach, Heartburn, Headache, Gout, and Indigestion: and the best mild aperient for delicate constitutions, especially adapted for Ladies, Children, and Infants.
DINNEFORD & Co., 172, New Bond Street, London, and of all Chemists throughout the World.

BARNSLEY LOCAL BOARD of HEALTH
DESIGN FOR GREENHOUSE.
The Local Board are desirous of erecting a Greenhouse in the Locke Park, to be constructed of Iron and Glass, including proper Warming Apparatus, at a cost not exceeding £230. The Board will give a PREMIUM of £5 for the BEST DESIGN, if accepted. The Design must especially embrace ample room for the preservation of Bedding out Plants during the winter months.
Plans and Estimates are to be sent to me, under cover, endorsed "Tender for Greenhouse," on or before MONDAY, December 2.
By Order. WM. H. PEACOCK, Clerk to the Board.
Barnsley, Nov. 5, 1867.

PARTNER.—An experienced Person may employ about £300 to £500, with advantage, in a New Nursery at a fast rising fashionable watering-place in the south of England. Experience chief requisite.—Apply H. D., Messrs. Hurst & Son, 6, Leadenhall Street, London, E.C.

JOHN GIBSON, JUN., begs to announce that he is prepared to Furnish PLANS and ESTIMATES for LAYING OUT GROUND attached to Mansions and Villa or other Residences, or for the FORMATION of PUBLIC PARKS or GARDENS and to carry out the same by Contract or otherwise.
Address Mr. JOHN GIBSON, jun., Surrey Lane, Battersea, S.W.

Farm Poultry.
GREY DORKING FOWLS, of purest breed, in any numbers.
Imported TOULOUSE GEESE, the largest and most productive breed known.
Improved NORFOLK TURKEYS, large, hardy, and good breeders.
AYLESBURY and ROUEN DUCKS.
Imported BELGIAN HARE RABBITS, for size and early maturity.
BRAHMA-POUTRA, CREVECOEUR, and LA FLECHE FOWLS, for constant layers.
Priced Lists and Estimates on application.
JOHN BAILY & SON, 113, Mount Street, London, W.

Kemprow, Aldenham, Herts.
TO BE LET, a FARM of 126 Acres, with the Shooting, and a Gentleman's SMALL HOUSE, situated within 10 minutes' walk of the New Station on the Midland Railway at Radlet, Herts, and with immediate possession.
For terms and cards to view, apply to Messrs. HUMBERT & COX, Land Agents and Surveyors, 88, St. James's Street, S.W., and Watford, Herts.

To Market Gardeners, Fruit Growers, Nurserymen, and Others.
TO BE DISPOSED OF, the UNEXPIRED LEASE of 26 years, and may be entered upon at Christmas, of a WELL ESTABLISHED BUSINESS for Cut Flowers, Plants, Fruit and Nursery Business, &c., situated near a large Market Town, surrounded by an excellent neighbourhood, and within 5 minutes' walk of two Railway Stations. Further particulars on application by letter to Z., Post Office, Thames Ditton, Surrey.

Onchan Nursery Gardens, Isle of Man,
TO BE LET, with immediate possession, in consequence of the decease of the late Proprietor. The Nursery comprises about 15 Acres, lying in a sheltered situation; has been established for upwards of 30 years, and possesses the advantage of being the only Nursery in the Island. The Buildings consist of Conservatory (in four compartments), Vinery, Orchard House, Propagating House, with large Shed adjoining, and every convenience for carrying on the business. This Establishment would prove a valuable addition to any English Nursery, as from the mildness of the climate, many tender Plants and Shrubs stand the winter which, when young, would be destroyed by the frosts of an English Winter and Spring. A portion has been advantageously occupied as a Fruit Garden, the demand being considerable from the number of Visitors to the Nursery in the Summer season. The Grounds are well stocked with Forest Trees, Evergreens, and Ornamental Shrubs; the Houses with Plants, and liberal terms will be made to enable a Tenant to realise the Stock. For particulars apply to
JAMES SPITTALL, Solicitor, Isle of Man.

FOR DISPOSAL, a First-class NURSERY and SEED BUSINESS; or the present Proprietor would accept of a WORKING PARTNER with a Capital of not less than £1500.
Apply by letter to E., Messrs. Hurst & Son, 6, Leadenhall Street, London, E.C.

TO BE DISPOSED OF, on advantageous terms, and may be entered upon immediately, an OLD ESTABLISHED NURSERY, eligibly situated, adjoining a large and important town, surrounded by an excellent neighbourhood, and having every facility for carrying on an extensive business.—Address,
G. H., Mr. Cooper, Seed Merchant, 102, Fleet Street, London, E.C.

Sales by Auction.

Consignment of Plants and Bulbs just arrived from Holland.
MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on MONDAY, November 18, at half-past 12 o'Clock, precisely, a Consignment from Holland of Choice STANDARD, DWARF, and WEEPING ROSES, Specimen CONIFERS, Variegated HOLLIES, Standard, Pyramid, and Trained FRUIT TREES, &c.; also some first-class DUTCH BULBS, consisting of Hyacinths, Tulips, Crocuses, Narcissus, Lilies, Gladioli, &c.
On view the Morning of Sale, and Catalogues had.

Periodical Sale of Poultry and Pigeons.
MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on TUESDAY, November 19, at half-past 12 o'Clock precisely, 300 PENS of first-class POULTRY and PIGEONS, including many Prize Birds, and many promising Birds bred this season; also a few Fancy PARROQUETS and some RABBITS.
On view the Morning of Sale, and Catalogues had.

Consignment of Plants from Holland.
MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, November 20, at half-past 12 o'Clock precisely, an importation from Holland of first-class trained STANDARD, PYRAMID, and DWARF FRUIT TREES, Specimen Conifers, Rhododendrons, Hardy Shrubs, Standard and Dwarf Roses, Hollies, &c. Also some choice HYACINTHS, TULIPS, CROCUSES, NARCISSUS, LILIES, GLADIOLI, &c.
On view the Morning of Sale, and Catalogues had.

Consignment of Bulbs from Holland.
MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, November 21, at half-past 12 o'Clock precisely, 500 lots of first-class BULBS just arrived from Holland, in lots to suit private buyers and the Trade; and about 50 lots of HARDY HERBACEOUS PLANTS, from Surrey.
On view the Morning of Sale, and Catalogues had.

MESSRS. PROTHEROE AND MORRIS'S PRELIMINARY NOTICE of FORTHCOMING SALES.
HIGHLY IMPORTANT TO NOBLEMEN, GENTLEMEN, AND OTHERS ENGAGED IN PLANTING.
FULWELL, November 29, by order of Mr. Laing.—The usual assortment of NURSERY STOCK, consisting of some valuable specimens for effective purposes.
BIRKENHEAD, near Liverpool, on WEDNESDAY, December 4, and following day, by order of Mr. Wm. Henderson, OXTON HILL NURSERY, the valuable NURSERY STOCK, comprising Evergreen, Coniferous, and Deciduous Shrubs, Ornamental and Forest Trees, &c.
CITY AUCTION ROOMS, 38 & 39, Gracechurch Street.—WEEKLY SALES of only first-class DUTCH BULBS, STANDARD ROSES, AMERICAN PLANTS, &c.
Particulars will appear in future Advertisements.
American Nurseries, Leytonstone, N.E.

Clearance Sale.—Woking, Surrey.
MESSRS. PROTHEROE AND MORRIS have received instructions to SELL by AUCTION, on the Premises, Goldworth Nurseries, Woking, Surrey, on MONDAY, November 18, and following days, at 11 o'Clock each day, without reserve, in consequence of the death of Mr. Robert Donald, the WHOLE of the extensive and valuable NURSERY STOCK, in a fine state of cultivation, comprising a splendid variety of CONIFEROUS, EVERGREEN, and DECIDUOUS SHRUBS of remarkably healthy growth, including 10,000 Thujas (sorts), 10,000 Cupressus Lawsoniana, 10,000 Retinispora (sorts), 5000 Juniperus, 4000 Thujopsis borealis, 2000 Wellingtonia gigantea, 2000 Abies (sorts), 2000 Picea (sorts), 40,000 Spruce, Scotch and Silver Firs, 50,000 Larch, Araucarias, Cedrus (sorts), 200,000 Common Laurels, 5000 Portugal Laurels, 6000 Arbutus (very fine), 10,000 Berberis (sorts), 4000 Tree Box, 20,000 Privet, 2000 Laurustinus, 7000 Variegated, English, and other Yews; 20,000 Green and Variegated Hollies, 1000 Magnolias (sorts), Spiræas, Weigelas, Calycanthus, Deutzias, Guelder Rose, Lygustrum japonicum, &c.; Fruit, Ornamental, and Forest Trees, viz., thousands of Standard, Dwarf, and Pyramidal Apples, Pears, Plums, Cherries, Peaches, Nectarines, and Apricots; Currants, Gooseberries, Filberts, Walnuts, Figs, Mulberries, Medlars, &c.; Sycamores, Limes, Maples, Poplars, Chestnuts, Willows, Ash, Birch, Hazel, and Spanish Chestnuts; choice American Plants, consisting of 2000 Rhododendrons of the best named varieties, hardy Ghent Azaleas, Sedums, Azalea amœna, hardy Heaths, a large quantity of Climbers (of sorts), fine Standard and Dwarf Roses (the best kinds), Manetti stocks, 200,000 strong Quick, &c.
May be Viewed prior to the Sale. Catalogues had (6d. each, returnable to purchasers) on the premises, and of the Auctioneers and Valuers, American Nurseries, Leytonstone, N.E.

Sale of Very Fine Dutch Bulbs, Handsome Standard Roses, &c.
MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at 38 and 39, Gracechurch Street, E.C., on SATURDAY, Nov. 23, at 1 o'Clock precisely, a First-class Collection of DUTCH BULBS, including fine named Hyacinths, Tulips Crocuses, Narcissi, Snowdrops, Anemones, Ranunculi, &c.; a splendid assortment of STANDARD, DWARF, and CLIMBING ROSES, of the best varieties in cultivation; Selected AMERICAN PLANTS, viz., Ghent and other Azaleas, Hybrid Rhododendrons, Kalmias, Andromedas, some Hardy Climbers, &c.
On View the Morning of Sale. Catalogues had at the rooms as above, and of the Auctioneers and Valuers, Leytonstone, N.E.

Hereford.—To Gentlemen, Nurserymen, & Planters.
IMPORTANT SALE OF NURSERY STOCK, IN CONSEQUENCE OF EXPIRATION OF LEASE, AT BARRS' COURT NURSERIES.
MR. O. SHELLARD is instructed by Mr. G. Davison to SELL by AUCTION, at the White Cross and Barrs' Court Nurseries, Hereford, on; MONDAY, the 25th November, and five following days (Sale each day to commence at 11 o'Clock), a large portion of the well-known STOCK on these Premises, comprising 10,000 strong Standard Cider Apple and Crab Stocks; 3000 Specimen Conifers, 4 to 9 feet high, including fine grown plants of Wellingtonia, Deodara, Thujopsis, Cupressus, Thuja, Juniperus, Abies, Araucaria, and Pinus; 500 Common Yews, 5 to 6 feet high; 200 Irish Yews, 6 to 7 feet; 2000 Avenue Trees, consisting of Chestnut, Lime, Elm, Birch, Hornbeam, Beech, Turkey Oak, Plane, &c., 9 to 14 feet high; 500 large Laurustinus, 2½ feet through; 500 Pinus insignis, 4 to 6 feet high; 500 Cupressus macrocarpa, 5 to 7 feet; 1000 large Pinus austriaca, 4 to 6 feet; 2,000 Common Laurels, 2 to 4½ feet; 2000 Spruce Firs grown for Christmas Trees, 3 to 4½ feet; 500 Acer negundo variegata, 3 to 6 feet; 1000 Large Portugal Laurels, 2 to 4½ feet; 150 splendid Thuja aurea, 2½ to 4 feet; a large quantity of Box, Privet, Bay, Lilac, Acer, Purple Beech, Ailanthus, Tulip Tree, Poplar, Judas Tree, Flowering Thorns, &c. 300,000 Strong Transplanted Hawthorn Quick, 2½ to 3½ feet high; 200,000 2-years Seedling Quick; 250,000 Twice Transplanted Larch, 3 to 6 feet; 150,000 Once Transplanted Larch, 1½ to 2 feet; 200,000 Ash, 2 to 5 feet; 70,000 Oak, 1½ to 2 feet; 50,000 Spanish Chestnuts, 1½ to 2 feet; 30,000 Spruce and Scotch Fir, 1½ to 4 feet. In Pots:—A large quantity of Primula sinensis, new Violets, Stanyanus, new Ancubas, and Maréchal Niel Rose on own roots. All the above Plants and Trees are in the finest possible condition for immediate removal, well grown, and constantly trans-planted.
On view at the Nurseries at any time. Catalogues may be had at the Auctioneer's Office, at Messrs. MINIER, NASH, & NASH, Charing Cross, London; or of GEORGE DAVISON, White Cross House, Hereford.

THE VICTORIA NECTARINE (RIVERS).—This is not only the finest of all Nectarines, but the finest of all fruits of temperate climates. Bearing Trees, half Standards and Bushes, 3 to 4-yr. old, 5*s.* to 7*s.* 6*d.* each.

The ALBERT NECTARINE (RIVERS).—Very large and excellent to force; Bearing Trees, half Standards, 5*s.*; Bushes, 5*s.* each.

The Trees will be sent from or in pots, and will bear full crops next season. Carriage paid to London.

THOS. RIVERS & SON, Nurseries, Sawbridgeworth,

Patronised by Her Majesty the Queen,

AND HIS ROYAL HIGHNESS THE PRINCE OF WALES.





THE SEEDLING APPLE, LORD BURGHLEY, was awarded a First-class Certificate by the Royal Horticultural Society, March 21, 1865.

The opinion of the Fruit Committee of the above Society, also testimonials from Messrs. Rivers, Lee, Pearson, and other eminent Fruit Growers, may be had on application to

J. HOUSE, Eastgate Nursery, Peterborough.

Fine Trees, 3*s.* 6*d.* and 5*s.* each.

CATALOGUES on application, post free.

New Fruits.

CHARLES TURNER has great pleasure in offering the following valuable New Fruits:—

FROGMORE EARLY BIGARREAU CHERRY.

The "Florist and Pomologist" thus describes it:—"The Frogmore Early Bigarreau Cherry will be at its highest excellence, perfectly ripe, and waning towards its end, before any of the other Bigarreaus have yet made their appearance. It was raised by Mr. Ingram, at the Royal Gardens at Frogmore. Unlike the class to which it properly belongs, it has a tender melting flesh; in every respect it is a Bigarreau in habit, leaf, and appearance of the fruit, and must be classified along with these varieties; but as if to set at nought all human arrangements, it persists in having a delicious melting flesh, instead of one that is hard and crackling. The tree is a great bearer, clusters of a dozen and half to two dozen large handsome Cherries being produced on a small spray; and the fruit ripens in the middle of June."

STRONG PLANTS NOW READY.

STANDARDS, PYRAMIDS, and DWARF-TRAINED, 10*s.* 6*d.* each.
MAIDENS .. .. 7*s.* 6*d.* ,,
A Coloured Drawing by ANDREWS will be sent on receipt of 13 Stamps.

NEW APPLES.

GIPSY KING.—This Apple is a very distinct variety, very handsome in colour and shape, skin covered over with nut-brown russet, intermixed with red and carmine on the sunny side; flesh yellowish, rich and sugary. Highly recommended as a late keeping variety. Price 5*s.* each.

ROUNDWAY MAGNUM BONUM.—This is a very large late variety, an abundant bearer, and of excellent habit. Price 5*s.* each,

"The Gardeners' Year Book for 1865" thus describes it:—"This is a first-rate culinary Apple, and one that may also be used in the dessert. The fruit is large, roundish ovate, and angular on the side. The skin is lemon yellow, with a few broad broken streaks of pale crimson on one side. The flesh is yellowish white, tender, crisp, very juicy, and with a fine aroma. This was raised by Mr. Joy, Gardener at Roundway Park, Wilts, and received a First-class Certificate from the Royal Horticultural Society's Fruit Committee."

The Royal Nurseries, Slough.

MAGNIFICENT DWARF-TRAINED FRUIT TREES,

By the Dozen, Hundred, or Thousand.

APPLES, PEARS, PLUMS, CHERRIES, PEACHES, NECTARINES, and APRICOTS. [NECTARINES.

Also Standard, wall-trained, fruit bearing, PEACHES and PYRAMIDAL PEARS on the Quince Stock in a fruit-bearing state; and PYRAMIDAL PEARS, on the Pear Stock, extra strong, and well grown.

WM. WOOD & SON have many acres of the above named, which for health and vigour are quite unsurpassed in the trade. The Trees have been most carefully trained, and are really examples of successful cultivation.

Address, Woodlands Nursery, Maresfield, near Uckfield, Sussex.

To Suburban and other Extensive Planters.

PONSFORD AND SON have much pleasure in offering (with special advantages) well-grown and thoroughly healthy GENERAL NURSERY STOCK, prominently the following:—Fruit Trees for every purpose, in fine condition; Roses, Ornamental Trees, Evergreen and Deciduous Shrubs for general furnishing, particularly Aucubas, Arbor-vitæ, Ligustrum, Thuja (various), Variegated Hollies, &c., specially to the Trade; fine Standard Mulberries, Limes, extra strong; Standard Apples and Plums, Dwarf-trained Apricots, Planes, Poplars, &c.; Azalea indica, choice sorts, extra size, Cheap.

Nurseries: Loughborough Park, Brixton, S.

Seed and Plant Department: Brixton Place.

Balsam Seed,

F. AND A. SMITH are now executing Orders for their unrivalled Strain of the above, in collections of Nine Varieties at 2*s.* 6*d.*, and Mixed Packets at 2*s.* and 1*s.* each. The quality this season is unusually good. Early Orders respectfully solicited. Terms to the Trade on application.

The Nurseries, Dulwich, S.

Camellias and Azaleas—English Grown.

F. AND A. SMITH beg to announce they have a fine Collection of the above, well set with Buds. Prices, moderate, on application. The Nurseries, Dulwich, S.

Fruiting and Planting Vines from Eyes.

F. AND A. SMITH can supply Strong, Well-ripened CANES of above. Prices and Lists on application.

The Nurseries, Dulwich, S.

New Roses.

CHARLES VERDIER, Fils, NURSERYMAN, 12, Rue Duméril, Paris, offers this season, for the first time, two NEW ROSES (his own Seedlings), viz., HYBRID PERPETUAL MADAME MARIE GIROUDE, price £1; received 2d prize at Paris Universal Exhibition, 1867. HYBRID PERPETUAL MADAME ADÈLE HUZARD, price 16*s.*; received 3d prize at Paris Universal Exhibition, 1867.

He also offers 63 other new varieties, the list and prices of which may be obtained gratis either direct from him or of his Agents,

Messrs. R. SILBERRAD & SON, 5, Harp Lane, Great Tower Street, London, E.C.

CATALOGUE of GLADIOLI may likewise be had on application.

JOHN CRANSTON'S CATALOGUE of SELECTED ROSES is now ready and will be forwarded on application.

J. C. respectfully directs attention to the following LIST of FIRST PRIZES which have been awarded to him at the principal Rose Shows of the present year, proving beyond a doubt that the soil and climate of his Nurseries are unrivalled for the Cultivation of Roses.

Royal Botanic Society, Regent's Park, London.

June 19.—24 Varieties, Cut Roses, one truss each, FIRST PRIZE
Cirencester.

June 19.—36 Varieties, Cut Roses, three trusses each, FIRST PRIZE
Clifton.

June 25.—24 Varieties, Cut Roses, one truss each, FIRST PRIZE
Crystal Palace.

June 29.—72 Varieties, Cut Roses, one truss each, FIRST PRIZE
Royal Horticultural Society, South Kensington.

July 2.—72 Varieties, Cut Roses, one truss each, FIRST PRIZE
Birmingham.

July 4, 5.—72 Varieties, Cut Roses, one truss each, FIRST PRIZE
24 Varieties, Cut Roses, three trusses each, FIRST PRIZE
Hereford.

July 9.—72 Varieties, Cut Roses, one truss each, FIRST PRIZE
24 Varieties, Cut Roses, three trusses each, FIRST PRIZE
Rugby.

July 12.—72 Varieties, Cut Roses, one truss each, FIRST PRIZE
Nurseries, King's Acre, near Hereford.

New Decorative Pelargonium.

DOBSONS' MAGNET.

Extract from *Gardeners' Chronicle* of May 29, 1867.

"If it had been in the province of the Judges to grant a certificate to a plant that has an excellent character both for decorative and market purposes, it should have been given to Dobsons' Pelargonium Magnet. A large quantity of small plants, literally covered with bloom, were grouped together, and a most striking effect they had. The colour is very bright purplish crimson; the habit is good, and it has the appearance of forcing well."

Fine strong Plants 15*s.* each. Trade price on application.

DESCRIPTIVE CATALOGUES post free.

DOBSON & SONS, Woodlands Nursery, Isleworth, W.

To the Trade.

DOBSON AND SONS' TRADE LIST of extra Choice ANTIRRHINUM, BALSAM, CALCEOLARIA, CINERARIA, COCKSCOMB, HOLLYHOCK, PELARGONIUM, PRIMULA, INTERMEDIATE STOCK, and SWEET WILLIAM, in sealed packets, now ready, post free.

Woodlands Nursery, Isleworth, W.

Beck's Seedling Pelargoniums.

S. GLENDINNING AND SONS are now offering for the first time the 12 beautiful, new, and distinct PELARGONIUMS raised by Mr. Wiggins, Gr. to W. BECK, Esq., of Isleworth, which were awarded numerous Certificates at the various Metropolitan Shows.

DESCRIPTIVE PRICED LIST may be had on application.

Chiswick Nurseries, London, W.

New Zealand Nursery, St. Alban's, Herts.

J. WATSON'S beautiful BEDDING PELARGONIUM EXCELSIOR, now ready; colour of Indian Yellow; fine truss, and habit of Lord Palmerston. Price 5*s.* each; 36*s.* per doz. to the Trade

MISS WATSON, ready August 25; MRS. DIX, May 1. The Two have received 10 First-class Certificates and EXTRA Prize Money.

Fine New TABLE APPLE, ST. ALBAN'S PIPPIN, Ripe in April. Plants ready in November. 5*s.* each; 36*s.* per doz. to the Trade.

DESCRIPTIVE LIST sent on application.

Beautiful Spotted Pelargonium Grand Arab.

CHARLES KIMBERLEY is now prepared to send out the above in strong healthy plants, at 10*s.* 6*d.* each. See *Gardeners' Chronicle*, June 22, 1867: Floral Committee, South Kensington:—"Mr. KIMBERLEY, of Stoke, near Coventry, had some plants of a good-looking Pelargonium, named Grand Arab, having light lower petals, with a medium dark spot on each floret, lit up with fiery rose; dark top petals, margined with fiery rose, and edged with pale pink; flowers smooth and of good shape, and free blooming." Stoke Nursery, near Coventry.

C. KIMBERLEY, Stoke Nursery, near Coventry, can supply the following new PELARGONIUMS, strong healthy plants, at 30*s.* per dozen:—

ALFRED (HOYLE)	INTERNATIONAL (HOYLE)
ARCHBISHOP (FOSTER)	KING of FLOWERS (FOSTER)
BEAUTY of WINDSOR (FOSTER)	LORD LYON (HOYLE)
BETROTHED (FOSTER)	MILTON (FOSTER)
BRILLIANT (HOYLE)	MONGINI (HOYLE)
CONGRESS (HOYLE)	ORIENTAL (HOYLE)
ECLAIR (HOYLE)	PERFECTION (FOSTER)
ELIPSE (FOSTER)	PERI (FOSTER)
FAVOURITE (HOYLE)	QUEEN of BEAUTIES (FOSTER)
FREDERICK the GREAT (FOSTER)	RUSTIC (HOYLE)
	SHAKESPEARE (FOSTER)
GOLD BUTTON (HOYLE)	TURBAN (HOYLE)
INDOO (HOYLE)	UNISON (FOSTER)

VARIEGATED PELARGONIUMS.

SOPHIA DUMARESQUE	ITALIA UNITA
MRS. BENYON	COUNTESS
GOLDFINCH	ELEGANS
LUNA	THE FAIRY
BEAUTY of OULTON	PICTURATA
NEATNESS	BICOLOR SPLENDENS

The above forwarded on receipt of Post Office order for 21*s.*

If any of the above kinds are not required, others of equal value can be substituted.

ALFRED FRYER, Nurseries, Chatteris, Cambridgeshire.

FINE SHOW and FANCY PELARGONIUMS.

12	Fine young Plants, all named, one each,			12*s.*
24	Do.	do.	do.	20*s.*
50	Do.	do.	do.	40*s.*
100	Do.	do.	do.	75*s.*
12	CAMELLIAS, full of flower-buds			30*s.*
12	AZALEAS,	do.	do., and fine heads,	24*s.*

H. MAY was awarded the First Prize for all the Pelargoniums at the Manchester International Show and the Leeds Floral Fête during the past summer, and also at the Great Yorkshire Gala, York, for many years in succession, and same kinds will be included in the above.

HENRY MAY, The Hope Nurseries, Bedale, Yorkshire.

Choice Tricolored Geraniums, &c.

J. ELCOMBE AND SON beg to offer the following, in well-rooted Plants:—

	Each.—*s.*	*d.*		Each.—*s.*	*d.*
LADY CALLUM	7	6	ITALIA UNITA	1	0
LUCY GRIEVE	10	6	MRS. BENYON	1	0
EDWINIA FITZPATRICK	5	0	SPANISH BEAUTY ..	5	0
SOPHIA DUMARESQUE	10	6	MRS. CHARLES BARRY	3	6
SOPHIA CUSACK.. ..	10	6	BEAUTY of OULTON ..	2	6
BEAUTY of GUESTWICK	2	6	CANARY BIRD	2	6
QUEEN VICTORIA (PERKINS)..	7	6	SUNSET, 5*s.* per doz; 36*s.* per 100		
COUNTESS	1	0	MRS. POLLOCK, 5*s.* per doz; 36*s.* per 100		

NEW TRICOLOR GERANIUM, LADY PALMERSTON.—This beautiful and effective variety was awarded a First-class Certificate by the Wilts Horticultural Society; and it has been seen by many practical judges, who have pronounced it a great improvement upon Mrs. Pollock. The leaf has a very broad zone of brilliant red and black, with yellow margin; flowers scarlet, very large trusses, which are borne in great profusion. It is of free habit, and good constitution. Strong plants, 10*s.* 6*d.* each.

New Double-flowering GERANIUMS of this year, viz.:—Triomphe de Thumesnil, Capt. l'Hermite, Surpasse, Gloire de Nancy, Triomphe de Lorraine, at 2*s.* 6*d.* each.

Strong plants of SCHIZOSTYLIS COCCINEA, 2*s.* 6*d.* per dozen.

TRITOMA UVARIA, very fine, 6*s.* per dozen.

Terms Cash.

Nursery and Seed Establishment, Romsey, Hants.

NEW FUCHSIAS, ZONAL GERANIUMS, &c.

12 Select New FUCHSIAS of 1867 for 6*s.*
12 Select New ZONAL GERANIUMS of 1867 for 12*s.*
12 Finest ZONAL GERANIUMS of 1865—1866 for 4*s.*
12 Select New CHRYSANTHEMUMS of 1867 for 5*s.*
12 Select New VERBENAS of 1867 for 4*s.*
12 Select New PETUNIAS of 1867 for 6*s.*
12 Select New PHLOXES of 1867 for 9*s.*
6 Varieties of AUCUBAS, 3 Male, 3 Female, for 21*s.*
3 Varieties of New Japan OSMANTHUS, quite hardy, 5*s.*
12 Fine Varieties of Japan EUONYMUS, very fine, 6*s.*
12 Fine Varieties Perpetual ROSES, Dwarfs, for 6*s.*
12 Fine Varieties of VARIEGATED ZONAL GERANIUMS, 12*s.*
GERANIUM GLOIRE DE NANCY, the best double, 1*s.* each.

COLEUS VEITCHII, 1*s.* 6*d.*	PANICUM VARIEGATUM, 2*s.* 6*d.*
,, GIBSONII, 1*s.*	
,, LAMONTII, 1*s.*	BRUGMANSIA KNIGHTII, 1*s.* 6*d.*
FICUS COOPERI, 2*s.* 6*d.*	

CATALOGUE of NEW and CHOICE PLANTS sent on application.

B. W. KNIGHT, Nurseryman, Battle, Sussex.

MR. FREDERICK ADOLPHUS HAAGE, JUNIOR, NURSERYMAN, SEEDSMAN, and FLORIST, Erfurt, Prussia, respectfully begs to announce that his NEW TRADE SEED LIST for 1867-68, containing all the leading kinds of Flower, Tree, and Vegetable Seeds and Novelties of this season, will be sent out by the end of this month, and may be had post free on application to his Agents, Messrs. BETHAM & BLACKITH, Cox's Quay, Lower Thames Street, London. All orders will meet immediate and most careful attention.

Lists of STOVE, GREENHOUSE, and HERBACEOUS PLANTS, also of SUCCULENTS, are now ready.—Erfurt, November, 1867.

New Catalogue of Plants, Dutch Bulbs, &c.

ROBERT PARKER begs to announce that his NEW CATALOGUE, containing Select, Descriptive, and Priced Lists of New, Rare, and beautiful Greenhouse, Hardy and Stove Plants, Azalea indica, Fruit Trees, Grape Vines, Rhododendrons, Roses, Sweet Violets, &c.; Amaryllis, Crocuses, Cyclamens, Gladioli, Hyacinths, Liliums, Narcissus, Tulips, and other Bulbs, is now published and will be forwarded to applicants.

Exotic Nursery, Tooting, Surrey, S.



SUTTONS' unrivalled COLLECTIONS of BULBOUS FLOWER ROOTS, for Blooming during the Winter and Spring.

These are every year becoming more popularly cultivated, and the HYACINTHS, ANEMONES, TULIPS, &c., which we imported last season from the celebrated Dutch Florists, Messrs. de Boom, Veen, Byvoet, and others, having been so generally admired, we have imported from the same parties, and still more extensively.

SUTTONS' COLLECTIONS of HARDY FLOWER ROOTS for OPEN GROUND.

	£	*s.*	*d.*
No. 1. A large and Choice Collection of ANEMONES, HYACINTHS, CROCUSES, TULIPS, RANUNCULI, NARCISSI, SNOWDROPS, IRISES, GLADIOLI, &c.	2	2	0
No. 2. Ditto ditto, consisting of all the same kinds, in Reduced Quantities	1	1	0
No. 3. A Small and Choice ditto	0	10	6

SORTS for FLOWER POTS and GLASSES.

No. 4. A splendid Collection of HYACINTHS, JONQUILS, NARCISSI, EARLY TULIPS, new large CROCUSES, &c.	2	2	0
No. 5. The same in Reduced Quantities	1	1	0
No. 6. A Small and Choice Assortment	0	10	6

SUTTONS' DESCRIPTIVE AUTUMN CATALOGUE is now ready, and may be had gratis and post free on application.

All Goods sent Carriage Free except small parcels, and 5 per cent. al owed for Cash Payments.

SUTTON & SONS, Royal Berks Seed Establishment, Reading.

Carter's Dutch Bulbs.



Seedsmen to Her Majesty's Chief Commissioners of Public Works and other Government Departments, the Royal Gardens, Kew, &c., &c., &c.



Seedsmen to H.I.M. the Emperor of the French, the Crystal Palace Company, the Agri-Horticultural Society of India, &c., &c., &c.

CARTER'S GUINEA BOX of DUTCH FLOWER ROOTS contains 12 choice named Hyacinths, 12 mixed Bedding Hyacinths, 50 Yellow Crocus, 50 Blue Crocus, 50 White Crocus, 4 Polyanthus Narcissus, 12 Pheasant's Eye Narcissus, 12 Double White Narcissus, 12 Double Daffodils, 24 finest mixed Anemones, 24 finest mixed Double Tulips, 6 Gladiolus Brenchleyensis, 20 Snowdrops, 24 finest mixed Ranunculus.

The above forwarded without delay on receipt of Post Office Order for 21*s.* Box and packing included. PRICE LISTS gratis and post free on application to

CARTER'S Great London Seed Warehouse, 237 & 238, High Holborn, London, W.C.

QUICKWOOD AND LARCH.

100,000 QUICKWOOD, 2 to 3 ft., very strong and well rooted, at 15*s.* per 1000.

100,000 LARCH, 4 to 5 ft., twice transplanted, good leads, and fine, at 30*s.* per 1000.

100,000 LARCH, 2½ to 3 ft. ditto, at 18*s.* per 1000.
100,000 LARCH, 2 ft. ditto, at 15*s.* per 1000.

The above are grown thinly on the ground and not drawn, but fine, stout, well-rooted stuff, that will stand by themselves. All other Nursery Stock very fine and hardy.

Address, HENRY MAY, The Hope Nurseries, Bedale, Yorkshire.

EARLY FLOWERING PLANTS for SPRING GARDENING.

ALYSSUM SAXATILE COMPACTA, yellow, 4*s.* p. doz.; 25*s.* p. 100
ANEMONE NEMOROSA PLENO, white, 3*s.* per doz.; 15*s.* per 100
ARABIS ALBIDA, white, 3*s.* per doz.; 15*s.* per 100.
,, LUCIDA VARIEGATA, beautiful foliage, 6*s.* p. doz.; 40*s.* p. 100
AUBRETIA PURPUREA, lilac purple, 4*s.* per doz.; 25*s.* per 100.
,, GRÆCA, blue, 6*s.* per dozen; 40*s.* per 100
BULBOCODIUM NARCISSIFLORUM, yellow, 4*s.* per dozen; 30*s.* per 100
DORONICUM CAUCASICUM, yellow, 4*s.* per doz.; 25*s.* per 100
EPIMEDIUM PINNATUM ELEGANS, yellow, 6*s.* per dozen; 40*s.* per 100
EPIMEDIUM RUBRUM, red, 6*s.* per dozen; 40*s.* per 100
,, GRANDIFLORUM, white, 6*s.* per dozen; 40*s.* per 100
IBERIS SEMPERVIRENS, white, 3*s.* per dozen; 20*s.* per 100
IRIS PUMILLA, deep purple, 6*s.* per dozen; 30*s.* per 100
POA TRIVIALIS ARGENTEA ELEGANS, white edge leaf, beautiful, 4*s.* per dozen; 25*s.* per 100
OROBUS VERNUS, purple and red, 4*s.* per dozen; 25*s.* per 100.
A large Collection of SPRING BLOOMING PLANTS, see Catalogue.

HENRY MAY, The Hope Nurseries, Bedale, Yorkshire.

Azalea, Her Majesty.

WILLIAM BARNES has much pleasure in announcing that he will be prepared to send out the above splendid AZALEA on and after Wednesday, October 23, at the following price—21*s.* each. A very few extra strong plants at 42*s.* each, with the usual allowance to the Trade; where three plants are ordered at one time four will be given.

It was exhibited before the Floral Committee of the Royal Horticultural Society on June 14, 1866, where it was awarded a First-class Certificate for its great beauty in its markings, shape, and colour, when the following remarks were made upon it, which appeared in the *Gardeners' Chronicle*, June 16, 1866:—"A beautiful Azalea, rosy lilac, edged with white, and blotched, and spotted in the upper petals with crimson, called Her Majesty, from Mr. BARNES, of Camberwell."

On June 23, 1866, the following remarks appeared in the same Paper:—"We have from time to time referred to the sportive character of the Indian Azalea, and called attention to the fact that some of our best varieties have had their origin in a freak of Nature. A fresh instance of their sportiveness was shown the other day at South Kensington. Mr. WILLIAM BARNES there exhibited a variety of Azalea which he purposes to designate Her Majesty. It is, we believe, a sport from Madame Mielies, or some of the forms closely allied to that fine old sort; and in quality, therefore, as well as in name, takes the very highest rank. The flowers are of the full average size, and of excellent form and substance, and the colour is a soft lilac-tinted blush, white at the margin, densely spotted with crimson in the upper part, and marked with variable stripes, or sometimes broadish bars of deep rosy purple. Its high quality as regards the flower itself, and this novelty of marking, will make it an acquisition in any collection of these showy plants.

A faithful Figure of this fine Azalea is given in the January number of the "Florist and Pomologist."

A remittance must accompany all orders from unknown correspondents. Camden Nursery, Camberwell, London, S.

Editorial Communications should be addressed to "The Editor." Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.

Printed by JAMES MATTHEWS, at the Office of MESSRS BRADBURY, EVANS, & Co., Lombard Street, Precinct of Whitefriars, City of London, in the Co. of Middlesex, and Published by the said JAMES MATTHEWS at the Office, No. 41, Wellington Street, Parish of St. Paul's, Covent Garden, in the said County.—SATURDAY, November 16, 1867.

THE GARDENERS' CHRONICLE

AND

AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.

No. 47.—1867.] SATURDAY, NOVEMBER 23. {Price Fivepence. STAMPED EDITION, 6d.

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ROYAL BOTANIC SOCIETY'S GARDENS, Regent's Park.—The days fixed for the EXHIBITIONS of PLANTS, FLOWERS, and FRUIT next season are WEDNESDAYS and THURSDAYS, May 27 and 28, June 17 and 18, July 1 and 2, 1868.
SPRING FLOWERS daily from March 21 to 28.
AMERICAN PLANTS daily from June 1 to 13.
By order of the Council. J. De C. Sowerby, Secretary.

Vines.

J. MEREDITH will have great pleasure in forwarding his PRICED LIST of VINES on application. He has the largest stock in England. An inspection is invited.
The Vineyard, Garston, near Liverpool.

Vines.

H. LANE AND SON solicit an inspection of their stock of VINES: 2000 Canes to choose from, strong and well ripened. They have been awarded the First Prize for Vines in pots at all the leading Exhibitions. CATALOGUES free on application.
The Nurseries, Great Berkhampstead, Herts.

Vines.

B. S. WILLIAMS has now on hand a very large and fine Stock of FRUITING and PLANTING CANES of all the best varieties. An inspection is invited.
Victoria and Paradise Nurseries, Upper Holloway, London, N.

Grape Vines.

HUSSEY AND SON beg to offer a large number of strong planting CANES of the above, at 2s. 6d. each.
Mile End Nursery, Eaton, Norwich.

FIVE HUNDRED GRAPE VINES, from Eyes. Prices on application.
J. Feed, Effra Nursery, Brixton, S.

STRONG and EXTRA STRONG FRUITING VINES, unusually fine and well ripened. All the leading kinds, for fruiting in pots and for planting out.
James Dickson & Sons, Newton Nurseries, Chester.

New Grape.

MADRESFIELD COURT BLACK MUSCAT GRAPE. See large Advertisement in No. 44, November 2, 1867.
John & Charles Lee, Royal Vineyard Nursery, Hammersmith, London, W.

THE ROYAL ASCOT GRAPE is the greatest wonder of the age. It can be made to produce fresh Grapes every month in the year, and is the largest, the blackest, and best flavoured Black ever offered. Price £2 2s. each. See Advertisement, Nov 9. Royal Nurseries, Ascot.

PINES, PINES.—WANTED, a few FRUITING and SUCCESSION PINE PLANTS. Send price and number to The Steward, Hayes' Place, Bromley, Kent.

WEBB'S PRIZE COB FILBERTS, and other PRIZE COB NUTS and FILBERTS. LIST of these varieties from Mr. Webb, Calcot, Reading.

For Orchard Planting.

PAUL AND SON have to offer some thousands of fine-headed STANDARD TREES of the leading kinds of APPLES, PEARS, &c. Prices per 100 or per 1000 on application.
The "Old" Nurseries, Cheshunt, N.

Fruit Trees.

H. LANE AND SON beg to call attention to their extensive stock of FRUIT TREES of every description, which is very fine and healthy, at moderate prices.
CATALOGUES free on application.
The Nurseries, Great Berkhamstead, Herts.

Orchard-house Trees Fruiting in Pots.

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Richard Smith, Nurseryman and Seed Merchant, Worcester.

STANDARD APPLES, PEARS, and PLUMS, &c., &c. See CATALOGUES, Wholesale or Retail.
Thomas Warner, Leicester Abbey Nurseries.

APPLES, CHERRIES, NECTARINES, and PEACHES, &c., Dwarf and Dwarf-trained; Houghton Castle CURRANTS, &c., &c. See CATALOGUES, Wholesale or Retail.
Thomas Warner, Leicester Abbey Nurseries.

SCARLET CHESTNUTS, STANDARD ELMS, THORNS, and POPLARS, SEEDLING QUICK, &c., &c. See CATALOGUES, Wholesale or Retail.
Thomas Warner, Leicester Abbey Nurseries.

ARBOR-VITÆS, ARBUTUS, AUCUBAS, BOX, YEWS, &c., &c.
See CATALOGUES, Wholesale or Retail.
Thomas Warner, Leicester Abbey Nurseries.

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R. Grinstead, Gardener, Enclos St. Bertin, St. Omer, France.

Tarragon Roots, Cheap.

HOOPER AND CO. have a quantity to DISPOSE of.
Covent Garden Market, London, W.C.

Lilium auratum.

SUTTON AND SONS can supply fine BULBS of this beautiful Flowering Plant at from 5s. to 15s. each.
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Finest Dutch Crocuses and Early Tulips.

SUTTONS' DESCRIPTIVE LIST is now ready, and will be forwarded gratis and post free on application.
Sutton & Sons, Royal Berkshire Seed Establishment, Reading.

To the Trade.

CROCUS, SNOWDROPS, named HYACINTHS, Early TULIPS (Double and Single), SCILLA SIBIRICA, &c.
Barr & Sugden, 12, King Street, Covent Garden, W.C.

Surplus Stock.

FINE DOUBLE SNOWDROPS, in good condition. Price to the Trade on application to
Jas. Fairhead & Son, Seed Merchants, 7, Borough Market, London.

To Gardeners, Seedsmen, &c.

HENLEY, BROTHERS, Merchants, Holbeach, have still on hand a quantity of SNOWDROPS, which they beg to offer. Samples and price on application.

SUPERB LILIES, in 70 finest varieties. Selections, 5s., 9s., 12s., 18s., and 24s. per dozen.
Stephen Brown, Seed and Nursery Establishment, Sudbury, Suffolk.

Hyacinths, Tulips, Crocuses, &c.

B. S. WILLIAMS has a fine Collection of the above. PRICED CATALOGUE post free on application.
HYACINTHS for Glasses or Pots, 6s., 8s., and 10s. per dozen.
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Winter and Spring Flowering Bulbs and Plants.

BARR AND SUGDEN'S FLORAL GUIDE may be had free. It contains much valuable information.
For particulars see large Advertisement, page 1090.

Before Purchasing Flower Roots, send for

J. SCOTT'S CATALOGUE of BULBS, VASES, and GARDEN REQUISITES. Bulbs are extra fine.
J. Scott, The Seed Stores, Yeovil, Somerset.

Notice.—Fruits, Flowers, Bulbs.

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DILLISTONE AND CO.'S LITTLE LISTS, post free to all applicants.
Address, Dillistone & Co., Nurserymen, &c., Sturmer, near Halstead, Essex

Special Notice.—Plants and Bulbs.

MR. STEVENS' SALES of DUTCH BULBS, FRUIT TREES, ROSES, and HARDY SHRUBS, take place every WEDNESDAY and SATURDAY, and frequently on MONDAY, at the Rooms, 38, King Street, Covent Garden, London, W.C.
CATALOGUES on application.

WANTED, DOUBLE YELLOW PRIMROSE, and SINGLE WHITE HEPATICA.—State Price and Quantity to L. T. Davis, Ogle's Grove Nursery, Hillsborough, Co. Down.

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To the Trade.

MARECHAL NIEL ROSE, from own roots, in pots, by the 100 or 1000, at £5 per 100.
G. Baker & Son, American Nursery, Bagshot.

PAUL AND SON'S ROSES.—See *Times*, *Athenæum*, and other leading Journals' reports of the Rose Shows.
Very reasonably PRICED CATALOGUES, free by post.
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ROSES, 1s. each, best Hybrid Perpetual.
OAK TREES, 3 to 4 feet, 15s. per 1000.
3-yr. ASPARAGUS, very good, 10s. per 1000, for cash, of A. C. Wilkin, Tiptree, Kelvedon, Sussex.

"THE ROSES of MR. PAUL * * * are things to see once and dream of for ever."—*Athenæum*, *June*, 1867.
Wm. Paul begs to announce that his CATALOGUE of ROSES is now ready, and will be forwarded free on application.
EIGHTEEN PRIZES have been awarded to him for Roses this year at the principal London Flower Shows.
Paul's Nurseries, Waltham Cross, London, N.

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HUSSEY AND SON beg to offer strong plants of the above charming Border plant at 6s. per dozen; also strong MANETTI CUTTINGS, at 10s. per 1000.
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EVERY GARDEN REQUISITE kept in Stock at
Carter's New Seed Warehouse, 237 & 238, High Holborn, London.

Genuine Garden and Agricultural Seeds.

JAMES CARTER AND CO.
Seed Farmers, Merchants, and Nurserymen, 237 & 238, High Holborn, London, W.C.

Genuine Agricultural and Garden Seeds.

JAMES FAIRHEAD AND SON, Seed Growers and Merchants, 7, Borough Market, and Braintree, Essex.

H. LANE AND SON require a large quantity of ASPARAGUS, extra strong, from 7 to 8-yr. old. Sample and price to The Nurseries, Great Berkhampstead, Herts.

MUSHROOM SPAWN of the best possible quality, 5s. per bushel. Sample Brick sent on application. The Trade supplied,
John Kellett, Wellington Nursery, Heaton Chapel, Stockport.

SIX HUNDRED BUSHELS of good MUSHROOM SPAWN for SALE at Mr. G. Noyce's, 1, Rose Vine Cottage, Latymer Road, Notting Hill, W.
N.B. Wholesale and Retail, and for Exportation.

To the Trade.

A GOOD STOCK of DANIEL O'ROOKE PEAS to be had of William Clark, Seedsman, 42, Bishopsgate Without.—Nov. 23.

SEED POTATOS.—All the finest varieties at very moderate prices.
H. & F. Sharpe, Wisbech.

New Pelargoniums.

CHARLES TURNER is prepared to execute orders for the beautiful new varieties raised by Foster and Hoyle.
A DESCRIPTIVE LIST may be had on application.
The Royal Nurseries, Slough.

Pelargoniums for the Million.

JAMES HOLDER, having an immense stock of the above, begs to offer (strong plants, in large 60-pots) 50 distinct sorts for 30s.; 25 sorts for 20s.; or 12 sorts for 15s., hamper and package included. Crown Nursery, Reading.

WEBB'S NEW GIANT POLYANTHUS, Florist Flower, and GIANT COWSLIP SEEDS; also Plants of all the varieties, with double PRIMROSES of different colours; AURICULAS, both Single and Double, with every sort of Early Spring Flowers. LIST on application.—Mr. Webb, Calcot, Reading.

Pansies.

WILLIAM DEAN'S CATALOGUE of these, now ready, includes some Novelties. Prices very low, especially per 100, to the Trade.
Mixed PANSIES for borders, strong plants, 15s. per 100.
Bradford Nursery, Shipley, Yorkshire.

Chrysanthemums.

ADAM FORSYTH begs to inform his Friends and the Public that his large COLLECTION of SPECIMEN and other CHRYSANTHEMUMS are NOW in FLOWER, and may be seen every day (Sunday excepted).
Brunswick Nursery, Stoke Newington, London, N.

Rhododendrons and Laurels.

RHODODENDRON PONTICUM, all from Seed, 10 to 20 inches, bushy, £8 10s. per 1000.
Common LAURELS, 2-yr., transplanted, 2 to 2½ feet, 16s. per 1000; ditto, 1-yr. cuttings, fine, 1½ to 2½ feet, 12s 6d. per 1000
John Behan, Nurseryman, Delvin, Killucan, Ireland.

Agricultural and Garden Seeds.

H. AND F. SHARPE beg to announce to the Trade that their SPECIAL LIST of HOME-GROWN SEEDS, 1867 Growth, is now ready and may be had on application.
Seed Growing Establishment, Wisbech, Cambs.

Wholesale Catalogue.

GEORGE JACKMAN AND SON'S PRICED and DESCRIPTIVE CATALOGUE of HARDY NURSERY STOCK for 1867 and SPRING, 1868, can be had free on application.
Woking Nursery, Surrey.

LASTRÆA FILIX-MAS, var. CRISPA-GRACILIS.—This new and undeniably prettiest of all the Dwarf male FERNS, may now be had, at 5s. per plant, from John Clark, Gardener, Newburgh, Fifeshire Many other rare sorts. Trade supplied.

Athyrium Filix-fœmina Frizelli.

HUSSEY AND SON beg to offer very strong plants of the above charming and most distinct hardy FERN at 1s. 6d. each, or 12s. per dozen.
Mile End Nursery, Eaton, Norwich.

LOMARIA CYCADÆFOLIA, beautiful Tree Fern for cold Greenhouse.—Fine stems, about 1½ to 2 ft. high, price £4. Carriage paid to the United Kingdom.
To be had of Ambroise Verschaffelt, Ghent, Belgium; or of his Agents, Messrs. R. Silberrad & Son, 5, Harp Lane, Great Tower Street, London, E.C.

To Nurserymen and Others.

ACACIA TREES WANTED.—Well-grown Trees, 15 to 20 feet high.—Apply to John S. Prene, Esq., Architect, 5, Carlton Terrace, Oakley Street, London, S.W.

THIRTY THOUSAND AMERICAN ARBOR-VITÆ, from 3 to 6 feet, very suitable for Hedges.
Wm. Wood & Son, Woodlands Nursery, Maresfield, near Uckfield, Sussex.

ONE HUNDRED THOUSAND fine Transplanted COMMON LAURELS, from 1½ to 3 feet.
Wm. Wood & Son, Woodlands Nursery, Maresfield, near Uckfield, Sussex.

Richmond Nurseries, Richmond, Surrey.

IF YOU WANT fine large bushy LAURELS, not injured by last winter's frost, apply to G. & W. Steele, of the above Nurseries.

COMMON LAURELS, PORTUGAL LAURELS, ARBOR-VITÆ, large EVERGREENS, for Immediate Effect. For Prices, see our LIST.
Paul & Son, "Old" Cheshunt Nurseries, N.

To Noblemen, Gentlemen, and the Trade.

WILLIAM BARRON AND SON beg to call the attention of Planters in general to their ADVERTISEMENT on page 1068, in the *Gardeners' Chronicle* of October 19, 1867.
Elvaston Nurseries, Borrowash, near Derby.

PLANTING SEASON.—The Subscribers respectfully intimate that their PRICED LIST of FOREST TREES, &c., is now ready, and may be had on application.
Wm. Urquhart & Sons, Nurserymen, Dundee.

ELMS for AVENUE and PARK PLANTING.—Fine well rooted Trees of HUNTINGDON and HERTFORDSHIRE ELMS, 10 to 12 and 12 to 14 feet; and HERTFORDSHIRE, 14 to 16 feet, at a very cheap rate, according to quantity required. For price, &c., apply to Wood & Ingram, Nurseries, Huntingdon.

To Gentlemen, Builders, and Others.

ABOUT 2000 large Ornamental FOREST TREES, 12 to 84 feet, suitable for immediate Blind or Park Planting, consisting of ELM, MAPLE, SYCAMORE, PLANE, and BIRCH.
J. W. Todman, Eltham Nursery, S.E.

Larch, Spruce, &c.

LARCH, extra strong, 4 to 6 feet, 21s. per 1000. SPRUCE, 2 to 3 feet, 10s. per 100; 3 to 4 feet, 20s. per 100; 4 to 5 feet, 32s. per 100.
QUICKS, SCOTCH FIRS, and CONIFERS, of all sizes, &c.
Henry Minchin, The Nurseries, Hook Norton, Oxon.

Paul and Son's Double Crimson Thorn.

PAUL AND SON beg to offer Strong STANDARDS and PYRAMIDS—these last 6 feet high, branched from foot—at 5s. each, 50s. per dozen; MAIDEN DWARFS, 2s. 6d. each. It is a new hardy plant of rare merit.
The "Old" Nurseries, Cheshunt, N.

New Double Crimson Thorn.

WM. PAUL has still a few good FLOWERING PLANTS, established in Pots, of this first-class new Forcing Plant, price 5s. each. First-class Certificates at International, Royal Horticultural, and Royal Botanic Societies. It was also forced and exhibited by him on several occasions last spring.
Paul's Nurseries, Waltham Cross, N.

NEW and RARE TREES and SHRUBS.

ULMUS AUREA ROSSEELSI.—This elegant and gorgeous tree is one of the richest lawn gems that this age of novelties has produced. The foliage is of the richest BRONZED GOLD, which is increased in brilliancy by the fullest exposure to the sun. Price, 10s. 6d., 15s., to 21s. each.

PRUNUS MAHALEB POLIIS ARGENTEIS MARGINATIS.—A beautiful silver variegated form of Prunus Mahaleb, rivalling in effect the elegant Cornus mascula variegata. Price, strong Standards, 15s. each.

MAGNOLIA LENNÉ.—The flowers of this fine Magnolia are very large, and of great substance; colour, rich bright purple. Habit vigorous. Forms a fine mass on lawns. The best of all the hybrids Price, 7s. 6d. to 10s. 6d. each.

ROSE COMTESSE DE JAUCOURT.—This is decidedly the finest new Rose of 1867. It is of vigorous growth, erect habit, and blooms freely. The flowers are large, of a beautiful flesh rose, of excellent form and very double. Price, Dwarfs, 5s.; Standards, 7s. 6d.

ROSE, TEA, MARECHAL NIEL.—The largest and most brilliant of all the yellow Roses. Price—Dwarfs, 2s. 6d.; Standards, 5s.

LILAC, VILLE DE TROYES (Baltet frères, Troyes, 1867).—A splendid new Lilac, now offered for the first time. The trusses are very large, and of the deepest purple, and produce a fine effect. Vigorous and very flowering. Price 5s, to 7s. 6d. each.

FRAXINUS EXCELSIOR CUCULLATUS (Baltet frères, Troyes, 1867).—This very curious and very ornamental Ash is now offered for the first time. It is of vigorous growth, and the peculiar hooding of the leaves presents a singular and striking aspect. Price 5s. to 7s. 6d. each.

Sole Agents in England for the two last-named novelties, JOHN and CHARLES LEE, Royal Vineyard Nursery and Seed Establishment, Hammersmith, London, W.

Balsam Seed,

FRANCIS A. SMITH are now executing Orders for their unrivalled Strain of the above, in collections of Nine Varieties at 2s. 6d., and Mixed Packets at 2s. and 1s. each. The quality this season is unusually good. Early Orders respectfully solicited. Terms to the Trade on application.

The Nurseries, Dulwich, S.

Camellias and Azaleas - English Grown.

FRANCIS A. SMITH beg to announce they have a fine Collection of the above, well set with Buds. Prices, moderate, on application. The Nurseries, Dulwich, S.

Fruiting and Planting Vines from Eyes.

FRANCIS A. SMITH can supply Strong, Well-ripened CANES of above. Prices and Lists on application.

The Nurseries, Dulwich, S.

British Fern Catalogue.

ROBERT SIM can now send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his NEW and PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.

Foot's Cray Nursery, S.E., a mile from Sidcup Station of New North Kent Line of South Eastern Railway.

Hazel, Larch, Scotch, &c.

J. SCOTT, Merriott Nurseries, Somerset, offers to Planters Five Acres of Transplanted HAZEL, from 3 to 4, and 4 to 5 ft., very fine; and large breadths of LARCH, SCOTCH, ASH, OAK, THORN, &c. Extensive Planters supplied at reduced prices. PORTUGAL LAURELS, YEWS and BOX, large and finely grown, to be SOLD, a Bargain. CATALOGUES on application.

ACORNS (ENGLISH), fine sound seed, price upon application. LAUREL (COMMON), 1-yr. Cuttings, extra fine, price upon application.

TRADE CATALOGUE of FRUITS, HERBACEOUS PLANTS, ROSES, &c., free upon application.

A few bushels of HORSE CHESTNUTS also to spare.

DILLISTONE & WOODTHORPE, Munro Nursery, Sible Hedingham, Essex.

New Caladiums.

CHARLES VERDIER, Fils, NURSERYMAN, 12, Rue Duméril, Paris, is happy to announce that he now offers the splendid varieties of NEW CALADIUMS obtained by Mr. Bleu, and for which that gentleman received a Gold Medal at the Paris Universal Exhibition, viz.:—

	s. d.		s. d.
Caladium Adolph Adam .	10 0	Caladium Dr. Boisduval ..	8 0
„ Alfred Bleu	16 0	„ Dr. Lindley	12 0
„ Alcide Michaux ..	10 0	„ Ed. André	12 0
„ Auber	12 0	„ E. G. Henderson ..	12 0
„ Aug. Rivière	12 0	„ Halévy	8 0
„ Beethoven	10 0	„ Impératrice Eugénie	16 0
„ Boieldieu	8 0	„ Louis Perrier ..	10 0
„ De Candolle	8 0	„ Mars	8 0
„ Devinck	16 0	„ Reine Victoria ..	16 0

A LIST of the above may be had either direct from Mr. VERDIER, or of his Agents, Messrs. R. SILBERRAD & SON, 5, Harp Lane, Great Tower Street, London, E.C.

Vines.

JOSEPH WESTLEY is now prepared to send out well-ripened CANES for fruiting, in pots, of BLACK HAMBURGH, 8-feet rods, 7s. 6d. each; MUSCAT of ALEXANDRIA, 10-feet rods, 10s. 6d. each; extra strong planting CANES of the above, 3s. 6d. each.

GERANIUMS.

	Per dozen.—s. d.		Per dozen.—s. d.
L'ELEGANTE	35 0	LA GRANDE	6 0
SUNSET	24 0	TRANSCENDANT ..	3 0
ITALIA UNITA	24 0	SHOW PELARGONIUM.	6 0
REBECCA	12 0	GOLDEN FLEECE ..	3 0
MRS. POLLOCK	5 0	FLOWER of SPRING ..	3 0

SOPHIA DUMARESQUE, 10s. 6d. each.

ALTERNANTHERA, four sorts, 4s. per dozen.

CISCUS DISCOLOR, 6s. per doz. | HALF SPECIMEN, 10s. 6d. each.

Also collection of 200 varieties of Variegated ZONAL GERANIUMS from 15s. per 100.

Special prices given for quantities on application.

Address, JOSEPH WESTLEY, Floral Nurseries, Bliswerth, near Northampton.

New Fruits.

CHARLES TURNER has great pleasure in offering the following valuable New Fruits:—

FROGMORE EARLY BIGARREAU CHERRY.

The "Florist and Pomologist" thus describes it:—"The Frogmore Early Bigarreau Cherry will be at its highest excellence, perfectly ripe, and waning towards its end, before any of the other Bigarreaus have yet made their appearance. It was raised by Mr. Ingram, at the Royal Gardens at Frogmore. Unlike the class to which it properly belongs, it has a tender melting flesh; in every respect it is a Bigarreau in habit, leaf, and appearance of the fruit, and must be classified along with these varieties; but as it to set at nought all human arrangements, it persists in having a delicious melting flesh, instead of one that is hard and crackling. The tree is a great bearer, clusters of a dozen and half to two dozen large handsome Cherries being produced on a small spray; and the fruit ripens in the middle of June."

STRONG PLANTS NOW READY.

STANDARDS, PYRAMIDS, and DWARF-TRAINED, 10s. 6d. each.

MAIDENS .. .. 7s. 6d. „

A Coloured Drawing by ANDREWS will be sent on receipt of 13 Stamps.

NEW APPLES.

GIPSY KING.—This Apple is a very distinct variety, very handsome in colour and shape, skin covered over with nut-brown russet interspersed with red and carmine on the sunny side; flesh yellowish, rich and sugary. Highly recommended as a late keeping variety. Price 5s. each.

ROUNDWAY MAGNUM BONUM.—This is a very large late variety, an abundant bearer, and of excellent habit. Price 5s. each.

"The Gardeners' Year Book for 1865" thus describes it:—"This is a first-rate culinary Apple, and one that may also be used in the dessert The fruit is large, roundish ovate, and angular on the side. The skin is lemon yellow, with a few broad broken streaks of pale crimson on one side. The flesh is yellowish white, tender, crisp, very juicy, and with a fine aroma. This was raised by Mr. Joy, Gardener at Roundway Park, Wilts, and received a First-class Certificate from the Royal Horticultural Society's Fruit Committee."

The Royal Nurseries, Slough.

THE VICTORIA NECTARINE (RIVERS).—This is not only the finest of all Nectarines, but the finest of all fruits of temperate climates. Bearing Trees, half Standards and Bushes, 3 to 4-yr. old, 5s. to 7s. 6d. each.

The ALBERT NECTARINE (RIVERS).—Very large and excellent to force; Bearing Trees, half Standards, 5s.; Bushes, 5s. each.

The Trees will be sent from or in pots, and will bear full crops next season. Carriage paid to London.

THOS. RIVERS & SON, Nurseries, Sawbridgeworth,

ROYAL VINEYARD PEACH.—This remarkable Peach is of very robust habit, and is a most prolific bearer. It is so hardy, that in 1865 it bore a heavy crop of large fruit as an ORCHARD STANDARD, several branches having each borne from four to five fruit, weighing TEN OUNCES a-piece. It is a free-stone of most luscious flavour, with a superabundance of juice, and is just sufficiently piquant to render it highly refreshing. The time of ripening is about a week earlier than the Barrington Peach.

JOHN & CHARLES LEE have much pleasure in intro ucing this extraordinary Peach, which was exhibited at Mr. Webber's, in Covent Garden Market, in 1865, and was much admired and inquired after at the time.

Dwarf Maiden Trees are now ready, price 10s. 6d. each.

Royal Vineyard Nursery and Seed Establishment, Hammersmith, London, W.

STRONG STANDARD and DWARF-TRAINED APPLES and PEARS.

Fine transplanted LARCH FIR, 1½ to 6 feet

Bushy LAURUSTINUS, LAURELS, and BOX TREES

CHINESE ARBOR-VITÆ, 5 to 6 feet, fine Pyramids

A choice collection of CONIFERÆ

A large assortment of STANDARD and DWARF PERPETUAL, and strong DWARF CHINA or MONTHLY ROSES, and a general NURSERY STOCK.

All the above are well rooted, and will remove with safety. Prices on application to

CHARLES BURGESS, The Nurseries, London Road, Cheltenham.

MAGNIFICENT DWARF-TRAINED FRUIT TREES,

By the Dozen, Hundred, or Thousand.

APPLES, PEARS, PLUMS, CHERRIES, PEACHES, NECTARINES, and APRICOTS. [NECTARINES.

Also Standard, wall-trained, fruit bearing, PEACHES and PYRAMIDAL PEARS on the Quince Stock in a fruit-bearing state; and PYRAMIDAL PEARS, on the Pear Stock, extra strong and well grown.

WM. WOOD & SON have many acres of the above named, which for health and vigour are quite unsurpassed in the trade. The Trees have been most carefully trained, and are really examples of successful cultivation.

Address, Woodlands Nursery, Maresfield, near Uckfield, Sussex.

RICHARD SMITH'S FRUIT LIST contains a sketch of the various forms of Trees, with directions for Cultivation, Soil, Drainage, Manure, Pruning, Lifting, Cropping, Treatment under Glass; also their synonymes, quality, size, form, skin, colour, flesh, flavour, use, growth, duration, season, price, &c. Free by post for three stamps.

RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

FIFTY ACRES well stocked with FRUIT TREES to select from.—APPLES, PEARS, PLUMS, CHERRIES, PEACHES, NECTARINES, and APRICOTS, in every form desired for fruiting.

See RICHARD SMITH'S FRUIT LIST, free by post for 3 stamps.

RICHARD SMITH, Nurseryman, Worcester.

FOR THE OPEN GROUND.—APPLES, PEARS, PLUMS, and CHERRIES, fine healthy Pyramids, very ornamental and productive. Strongly recommended for large and small gardens.

See RICHARD SMITH'S FRUIT LIST, post free for 3 stamps.

RICHARD SMITH, Nurseryman, Worcester.

ESPALIER and WALL-TRAINED TREES in any quantity.—APPLES, PEARS, PLUMS, CHERRIES, PEACHES, NECTARINES, and APRICOTS, fine strong trees of perfect form.

See RICHARD SMITH'S FRUIT LIST, free by post for 3 stamps.

RICHARD SMITH, Nurseryman, Worcester.

A CROP of FRUIT the FIRST SEASON.—Bearing Pyramids and Bushes in pots for orchard houses, PEACHES, NECTARINES, APRICOTS, APPLES, PEARS, PLUMS, and CHERRIES. Extra strong VINES and FIGS in fruiting condition for forcing.

See RICHARD SMITH'S FRUIT LIST, post free for 3 stamps.

RICHARD SMITH, Nurseryman, Worcester.

Mulberry Trees.

MESSRS. WOOD and SONS, NURSERYMEN, 172, Old Kent Road, S.E., beg to inform Gentlemen and the Trade that they have a large quantity of the above Trees—fruiting, handsome, and well-rooted Trees. Prices on application. Also a large quantity of DECIDUOUS SHRUBS and FOREST TREES of large sizes, very cheap.

Fruit Trees.—The finest Collection in England.

J. SCOTT, Merriott Nurseries, Somerset, begs to solicit his Friends and the Public to inspect his immense Stock, consisting of 700 sorts of APPLES, 50 do. APRICOTS, 120 do. CHERRIES, 150 do. PEACHES and NECTARINES, 900 do. PEARS, and 150 do. PLUMS, in all manner of training, well root-pruned and carefully transplanted; CURRANTS, FILBERTS, GOOSEBERRIES, &c.; making together about 1500 sorts of FRUIT TREES, which for health and beauty cannot be surpassed.

CATALOGUES on application.

Fruit Trees.

J. LE CORNU, NURSERYMAN, SEEDSMAN, and FLORIST, begs to inform his Friends and the Public that he has this season to offer an immense quantity of beautiful and well-grown Fruit Trees, all of the best leading varieties, such as APPLES, APRICOTS, PEACHES, NECTARINES, PEARS, PLUMS, and CHERRY TREES, as Dwarf, Trained, and Standards, 4 to 6 feet stems. CATALOGUE on application.

High View Nurseries, Mont a l'Abbé, St. Helier's, Jersey.

LOISE-CHAUVIERE, SEEDSMAN, NURSERYMAN, and FLORIST, 14, Quai de la Megisserie, Paris, begs to inform his numerous Friends and those interested, that he can offer the most complete collection of GLADIOLI bulbs, of the finest quality.

All kinds of VEGETABLE and AGRICULTURAL SEEDS are supplied by this firm, prices of which may be had on application.

LOISE-CHAUVIERE has been rewarded with the Gold Medal for the numerous plants which he exhibited at the "Universal Exhibition," amongst which were Gladioli, Dahlias, Gloxinias, Annuals, and Ornamental plants.

VIOLA CORNUTA (Wills' true variety).—We beg to state that in June last we secured the entire stock of Seed of the true variety of "MAUVE QUEEN" VIOLA CORNUTA from the raiser. The Seed is now being delivered to us in beautiful condition. Price to the Trade on application. Orders will be executed in strict rotation as received.

DICKSONS & BROWN, Seed Merchants, 43 and 45, Corporation Street, Manchester.

The following Houses have already ordered supplies:—

Messrs. Sutton & Sons, Reading
„ Beck, Henderson, & Child, London
„ Peter Lawson & Son, Edinburgh
„ W. Drummond & Son, Dublin and Stirling
„ Hooper & Co., London
„ Nutting & Sons, London
„ Fraser, Goad, & Ratford, London
„ A. Henderson & Co., London
„ C. Platz & Son, Erfurt
„ J. C. Wheeler & Son, Gloucester
„ Butler, M'Culloch, & Co., London
„ Geo. Morrison & Son, Elgin
Messrs. Austin & M'Aslan, Glasgow
„ Smith & Simons, Glasgow
„ Thomas Imrie & Sons, Ayr
„ Hurst & Son, London
„ F. & A. Dickson & Sons, Chester
„ Geo. Gibbs & Co., London
„ Dicksons & Turnbull, Perth
„ Rollisson & Sons, Tooting
„ S. Finney & Co., Newcastle
„ J. Dobson & Sons, Isleworth
Mr. Ernest Benary, Erfurt
Mr. Robert Cooper, London
Mr. F. A. Haage, jun., Erfurt
Mr. William Deans, Jedburgh
Mr. Thos. Pierpoint, Warrington
Mrs. M. L. Poutey, Plymouth

GREENHOUSE FERNS.—The following 20 fine named FERNS, in 4-inch Pots, for 15s., or 18s., each, viz., Asplenium eburneum, Asplenium alternans, Nephrodium molle, var. polydictyon, Lastræa glabella, Lastræa erythrosora, Lastræa pinnata, Lastræa podophylla, Leptogramma rupestris, Leptogramma asplenioides, Lygodium scandens, Pellæa geranifolia, Blechnum cartilagineum, Diplazium polypodioides, Doodia dives, Doodia linearis, Microlepis strigosa, Cyrtomium falcatum, Anemodictyon Phyllitides, Scolopendrum Krebsii, Cystopteris bulbifera.

HENRY MAY, The Hope Nurseries, Bedale, Yorkshire.

Lomaria Cycadæfolia.

A VAN GEERT, NURSERYMAN, Ghent, Belgium, has much pleasure in offering fine plants of this splendid Tree Fern (just arrived, in good condition), 18 inches high, at £4 each.

A. V. G. will be prepared early next Spring to send out nice young plants of CYBOTIUM PRINCEPS at 36s. per dozen, orders for which are now being booked.

Agents: Messrs. R. SILBERRAD & SON, 5, Harp Lane, Great Tower Street, London, E.C., of whom GENERAL CATALOGUES may be obtained on application.

To Gentlemen, Nurserymen, and Planters.

DELEPINE'S NEW GENERAL CATALOGUE of FRUIT and ORNAMENTAL TREES has just been published.

DELEPINE, Sen., begs to call the attention of Planters to his large stock of the following:—

STANDARD, PYRAMID, and DWARF FRUIT TREES and FRUITING SHRUBS.

FOREST and ORNAMENTAL FLOWERING and BEARING TREES, CONIFERÆ, EVERGREENS, and SHRUBS.

AMERICAN PLANTS and ROSES.

Young Plants or Seedlings of all sorts for Nurseries, Hedges, and extensive Plantations.

Proprietor of one of the most extensive Nurseries in this part of France (called, with reason, Le Jardin de la France), M. DELEPINE is able to furnish very hardy, robust, and strong Stocks of the above.

CATALOGUE and Prices may be obtained post free on application to DELEPINE aîné, Nurseryman, Route Neuve de Saumur, à Angers, France; or of his London Agents, Messrs. R. SILBERRAD & SON, 5, Harp Lane, Great Tower Street, E.C.

Dumfries Railway Station Nursery.

THOMAS KENNEDY and CO., NURSERYMEN and SEEDSMEN, Dumfries, have this season a very large and superior stock of FOREST, FRUIT, and ORNAMENTAL TREES, DECIDUOUS and EVERGREEN SHRUBS, &c., which they are selling at extremely moderate prices. The TREES and SHRUBS being of all ages and sizes, are particularly well suited for extensive planting or for giving immediate effect in the formation and improving of Ornamental Parks, Pleasure Grounds, &c.

Prices on application. Special offers made to large purchasers.

*** Dumfries is most conveniently situated for the speedy transmission of goods to all parts of the United Kingdom.

SPECIMEN PLANTS, for immediate effect, have been annually removed. Standard PORTUGAL LAURELS, straight stems, beautiful heads; THUJA LOBBII, TAXODIUM SEMPERVIRENS, PINUS EXCELSA, ABIES DOUGLASSII, CRYPTOMERIA VIRIDIS, THUJA OCCIDENTALIS, PINUS CEMBRA, 6, 8, and 10 feet high, 5s. to 15s. each; a great reduction if taken in quantities. ABIES CANADENSIS, CUPRESSUS LAWSONIANA, ARBOR-VITÆ, RED CEDARS, and PINUS AUSTRIACA, 3 to 5 feet, 12s. to 30s. per dozen. ROSES, Dwarfs, 6s. per dozen; Standards, the very best that can be had, 15s. and 18s. per dozen. W. B. JEFFRIES, Nurseryman, Ipswich.

To Suburban and other Extensive Planters.

PONSFORD AND SON have much pleasure in offering (with special advantages) well-grown and thoroughly healthy GENERAL NURSERY STOCK, prominently the following:—Fruit Trees for every purpose, in fine condition; Roses, Ornamental Trees, Evergreen and Deciduous Shrubs for general furnishing, particularly Aucubas, Arbor-vitæ, Ligustrum, Thuja (various), Variegated Hollies, &c., specially to the Trade; fine Standard Mulberries, Limes, extra strong; Standard Apples and Plums, Dwarf-trained Apricots, Planes, Poplars, &c.; Azalea indica, choice sorts, extra size, Cheap.

Nurseries: Loughborough Park, Brixton, S.

Seed and Plant Department: Brixton Place.

To Railway and Enclosure Planters.

S. ROBINSON, of Shaw House, Melbourne, near Derby, has several million of BEDDING and TRANSPLANTED QUICKS to dispose of, suitable for the above purposes, from 2, 3, 4, and 5 years old. Price, from 4s. 6d. to 20s. per 1000; well rooted and fit for planting out.

S. R. has also for sale some fine Bushy SPRUCE, 3 to 4 feet; HOLLIES, BEECH, and LARCH, 4 to 5 feet; and other kinds of FOREST TREES.

Mr. ROBINSON wishes to inform his customers that he has a fine stock of his CHAMPION OX CABBAGE PLANTS for spring use.

N.B. Satisfactory references required previous to orders being executed.

To the Trade.

G. WALKER, Humberstone Nursery, Leicester, has to DISPOSE of, in excellent condition, AMERICAN ARBOR-VITÆ, bushy, 2 to 3 ft. high, 30s. per 100; COTONEASTER MICROPHYLLA, 4s. per doz.; TREE BOX, Green and Variegated, 2 to 3 ft., 20s. per 100; MOUNTAIN ASH, 10 ft., 4s. per doz.; HORNBEAM, 8 to 10 ft., 4s. per doz.; CHESTNUTS, 4 to 8 ft., 4s. per doz.; 8 ft. upwards, 6s. per doz.; SCARLET CHESTNUTS, 5 ft. stems, strong, 12s. per doz.; WALNUTS, 6 ft. stems, extra strong heads, 18s. per doz.; APPLES, bushy, for immediate bearing, £3 per 100; DWARF APPLES, 1-yr., cut back, 30s. per 100; STANDARD PEARS, 75s. per 100; MAYNETTI STOCKS, 30s. per 1000; PRIVET, strong, 20s. per 1000; ROSES, best named varieties, 75s. per 100; RED CURRANTS, 6s. per 100; POT VINES, in sorts, 18s. per doz.

Hollies, Yews, Evergreen Privets, &c.

W. WRIGHT, East Retford, Notts, begs to offer IRISH YEWS, fine specimens, 6 to 10 ft., at 4s., 5s., and 7s. 6d. each, 30s. per doz. PRIVETS, 9 to 12 inches, 5s. per 1000; 12 to 18 inches, 8s. per 1000; 2 to 2½ ft., 15s. per 1000. HOLLIES, fine plants, removed last year, 1 to 1½ ft., 10s. per 100; 1½ to 2 ft., 12s. 6d. per 100; 2 to 3 ft., bushy, 36s. per 100. DAHOON HOLLIES, 2½ to 3½ ft., 15s. per doz.; 3 to 4 ft. ditto MADERENSIS, 15s. per doz. CUPRESSUS LAWSONIANA, 4 to 5 ft., 2s. 6d. each, 20s. per doz. LARCH, twice transplanted, 2 to 3 ft., 4 to 5 ft., 12s. 6d., 15s., 30s. per 1000. POPLARS, 10 to 12 ft., 12s. per 100. WRIGHT'S IMPROVED RED GROVE CELERY SEED, 1s. per packet, 12 packets for 8s.

Terms cash, or references from unknown correspondents.

HENRY MAY begs to offer the undernamed:—

ENGLISH YEWS, 2 ft., very bushy (often transplanted), 3s. per doz., 18s. per 100; do., 2½ to 3 ft., bushy, do., 6s. per doz., 40s. per 100; IRISH do., 4 to 5 ft., do., 1s. 6d. each, 15s. per doz.

PORTUGAL LAURELS, 2 ft., bushy, do., 4s. per doz., 20s. per 100; do., 2½ to 3 ft., bushy, do., 8s. per doz., 50s. per 100

CUPRESSUS LAWSONIANA, 2 ft., bushy, do., 6s. per doz., 40s. per 100; do., 3 to 4 ft., bushy, do., 12s. per doz.

WELLINGTONIA GIGANTEA, 2 ft., bushy, do., 12s. per doz.; do., 3 ft., bushy, do., 18s. per doz.; do., 4 ft., bushy, do., 36s. per doz.; do., 5 ft., bushy, do., 60s. per doz.

ARBOR-VITÆ (AMERICAN), 4 to 5 ft., bushy, do., 9s. per doz., 50s. per 100

PINUS AUSTRIACA, 2 ft., bushy, do., 4s. per doz., 20s. per 100; do., 3 ft., bushy, do., 6s. per doz., 30s. per 100; do. EXCELSA, 4 to 5 ft., bushy, do., 18s. per doz.

ENGLISH SPRUCE FIR, 3 ft., single planted (perfect specimens), 6s. per doz., 30s. per 100

HORSE CHESTNUT, 8 ft., do., fine, 6s. per doz., 30s. per 100

ENGLISH ELM (Grafted), 8 ft., do., do., 6s. per doz., 30s. per 100

LIMES, 8 ft., do., do., 12s. per doz.

AILANTHUS GLANDULOSA (for Silkworm Culture), 2½ ft., 2s. per doz., 10s. per 100

STANDARD APPLES, 6 ft. stems, fine heads, good, 10s. per doz., 70s. per 100; do. VICTORIA PLUMS, good, 15s. per doz.

Fine named LANCASHIRE GOOSEBERRIES, 2s. per doz.; 12s. per 100.

CURRANTS, WHITE, BLACK, and RED, fine, 1s. 6d. per doz.; 8s. per 100. [per doz.

Fine named HYBRID-PERPETUAL ROSES, at 6s., 9s., and 12s.

All the above are fine grown stuff, and well removed, and will plant safely.

HENRY MAY'S CATALOGUES can be had on application, which contain all the most popular EVERGREENS, SHRUBS, &c.

HENRY MAY, The Hope Nurseries, Bedale, Yorkshire.

Now is the Proper Time to Plant Hardy Herbaceous Plants.

HENRY MAY offers the under-named large collection. It contains all the best CAMPANULAS, GERANIUMS (hardy), EPIMEDIUMS, ACONITUMS, PHLOXES, DELPHINIUMS, IRIS, and upwards of 60 different varieties of SAXIFRAGA and SEDUM, with a host of others.

A Collection of 100 named varieties .. .. .. 25s.
A Collection of 200 named varieties .. .. .. 40s.
A Collection of 500 named varieties .. .. .. 80s.
HENRY MAY, The Hope Nurseries, Bedale, Yorkshire.

Larch, &c.

LARCH, 2½ to 4 feet, 17s. 6d.; 3 to 4½ feet, 20s.; 3½ to 6 ft., 25s; SCOTCH FIR, 1 to 2 feet, 17s. 6d.; SPRUCE, 1 to 1½ feet, 12s. 6d.; OAK, 1½ to 2½ ft., 15s. per 1000.
LIST of other TREES on application; special quotations for large quantities. Apply, with reference, to
JAMES RIDDELL, Steward, Park Attwood, Bewdley, Worcestershire.

Forest Trees.

W. CROWDER, NURSERYMAN, Horncastle, has the following to offer to the Trade at low prices:—LARCH, 3 to 4, and 3 to 5 feet; SCOTCH FIR, 1½ to 2½, and 3 to 4 feet; SPRUCE FIR, 1 to 1½ foot, 1½ to 2 feet, 2 to 3 feet, and 3 feet, twice transplanted; CRAB STOCKS, 2½ to 4 feet, stout; QUICKS, stout, 1, 2, and 3-yr. transplanted.

Profitable Game Covert.

PLANT your GAME PRESERVES with the BITTER WILLOW. Neither Hares nor Rabbits will destroy them; require no care nor protection; grow quickly, and will form a good Cover in one season. The produce is commercially profitable, and always finds a ready Market. Price of Cuttings, selected, 20s. per 1000, cash. Apply to
WM. SCALING, Willow Merchant, Basford, Notts.

Green Hollies, 4 to 7 feet.

GEORGE CHIVAS, Chester, offers several Thousands of the above, very handsome plants, in excellent condition for removing; also an exceedingly large stock of extra strong THORNS, and many Millions of FOREST TREES, including LARCH of all sizes, SCOTCH FIR, twice transplanted, 1½ to 3 feet; SPRUCE, 1 to 3½ feet, thin on the ground; ASH, 2½ to 5 feet; ELM, 3 to 6 feet; SYCAMORE, 3 to 6 feet; OAKS, ALDERS, BIRCH, &c.
PRICED LISTS on application.

JOSEPH SMITH, JUN., Moor Edge Nurseries, Tansley, near Matlock, have to offer a large and GENERAL NURSERY STOCK, consisting of Forest Trees and Ornamental Shrubs and Trees, at very moderate prices.
LARCH, 2 to 3 feet, 3 to 4 feet, and 4 to 6 feet, 13s. per 1000.
RHODODENDRON PONTICUM, 8 to 12 inches, 90s. per 1000; 9 to 15 ins., 130s. p. 1000; 1 to 1½ ft., 150s. p. 1000; 1½ to 2 ft., 260s. p. 1000.
PRICED CATALOGUE on application.
Special offers made to large purchasers.

TWO MILLION Seedling and transplanted THORNS to be SOLD Cheap.
100,000 transplanted BERBERIS DARWINII, ditto.
200,000 transplanted MAHONIA AQUIFOLIA, from 10s. per 1000 to 5s. per 100.
10 Tons ASH-LEAVED KIDNEY POTATOS.
100 Tons SKERRY BLUE POTATOS.
ANDW. G. DALY, Newry, Ireland.

MR. FREDERICK ADOLPHUS HAAGE, JUNIOR, NURSERYMAN, SEEDSMAN, and FLORIST, Erfurt, Prussia, respectfully begs to announce that his NEW TRADE SEED LIST for 1867-68, containing all the leading kinds of Flower, Tree, and Vegetable Seeds and Novelties of this season, will be sent out by the end of this month, and may be had post free on application to his Agents, Messrs. BETHAM & BLACKITH, Cox's Quay, Lower Thames Street, London. All orders will meet immediate and most careful attention.
Lists of STOVE, GREENHOUSE, and HERBACEOUS PLANTS, also of SUCCULENTS, are now ready.—Erfurt, November, 1867.

Large Evergreens, Specimen Conifers, &c.

WATERER AND GODFREY beg to submit the following List to the notice of intending planters:—
YEWS, ENGLISH, 5, 6, 7, 8, 10, 12, and 15 feet high
" IRISH, 6, 7, 8, and 10 feet high
" GOLDEN, 5, 6, to 9 feet
" STANDARD GOLDEN, 20 years worked
" " ELEGANTISSIMA, 10 and 15 years old
" " DOVASTON or WEEPING, fine heads, 10 and 15 years old
We have altogether thousands of these different Yews of the large sizes. Every plant has been recently removed.
HOLLIES, COMMON GREEN, 6, 7, 8, 10, 12, and 15 feet high, and as much in circumference—hundreds
" LAURIFOLIA and SCOTTICA, 6, 7, 8, and 10 feet, and wide in proportion
" WATERER'S, the hardiest of all variegated Hollies, 4 and 5 feet by 10 and 12 feet in circumference
" THE QUEEN, or best gold striped, the handsomest of all variegated Hollies
We have hundreds of these beautiful plants, 4, 5, and 7 feet high and wide
" STANDARD, WATERER'S, and GOLDEN, with fine heads, 15 and 20 years worked
☞ We have some thousands of the ordinary kinds of Variegated Hollies, 4, 5, 6, and 7 feet high. Every plant has been removed within 12 months.
CEDRUS DEODARA, some thousands, 6, 7, 8, and 10 feet high
" ATLANTICA, and Cedars of Lebanon, moved in April, 4, 5, 6, and 8 feet
" RED VIRGINIANS, 5, 6, and 7 feet
CHINESE JUNIPER, one of the handsomest and hardiest of all evergreens—thousands of beautiful plants, 4, 5, 6, 7, and 8 feet high; some magnificent plants, 10, 12, and 15 feet high, 12 to 20 feet in circumference
THUJA AUREA, 3, 4, and 6 feet high, 7 to 20 feet in circumference
" GIGANTEA, 10, 12, and 15 feet high, very handsome
" LOBBII, splendid plants, 7, 8, to 10 feet high, and 12 and 15 feet round—hundreds
CUPRESSUS LAWSONIANA, the finest stock—many thousands, 6, 7, 8, 10, to 15 feet high, and as much in circumference
THUJOPSIS BOREALIS, 4, 6, 8, and 10 feet high, 7 to 12 feet in circumference—hundreds
PORTUGAL LAUREL, 4 and 5 feet high, 7 and 8 feet round
BOX, Green and Variegated, 4, 5, 6, 7, and 8 feet—thousands
PICEA NOBILIS, splendid plants, moved in spring, 4, 5, 6, and 8 feet
" NORDMANNIANA, 4, 5, 6, 8, 10, and 15 feet high [high
None of our Nobilis or Nordmannianas are grafted plants.
" MAGNIFICA or NOBILIS ROBUSTA, the finest stock in the trade, all seedlings, 2 to 4 feet high
" LASIOCARPA, hundreds of plants, 4, 5, 6, and 7 feet high, all
ABIES DOUGLASSII, 5, 6, 7, and 8 feet [seedlings
" ORIENTALIS, 4, 5, 6, 7, to 10 and 12 feet; 7 to 20 feet in circumference; most beautiful plants
PINUS CEMBRA, 6, 7, to 9 feet
" PINSAPO, 3, 4, 5, and 6 feet
" " Some very fine plants, 10 to 20 feet high, 15 and 25 feet in circumference
WELLINGTONIA GIGANTEA, a large number, all removed recently, 4, 5, 6, and 10 feet high, and 12 and 15 feet in circumference
RHODODENDRONS.—We have 40 acres of land in one piece filled almost exclusively with Rhododendrons. A more healthy and beautiful stock cannot be desired.
STANDARD RHODODENDRONS.—Some of the finest plants to be found in any nursery, many are 20 to 40 years old
☞ The large Standard and other Rhododendrons planted last spring in Rotten Row, Hyde Park, were supplied by WATERER & GODFREY.
We do not quote prices, we presume purchasers of such large plants will adopt the much wiser, and always more satisfactory course, of seeing and judging for themselves.
We solicit an inspection and invite comparison with any other similar nursery stock in the kingdom.
The Knap Hill Nursery is upwards of 150 acres in extent, and contains an enormous and very superior stock of the ordinary sized EVERGREENS, DECIDUOUS ORNAMENTAL TREES, &c.
A PRICED and DESCRIPTIVE CATALOGUE will be forwarded free on application to
WATERER & GODFREY Knap Hill Nursery, Woking, Surrey.
The Nursery is readily reached by Train, 40 minutes from Waterloo to Woking. Conveyances are always to be had at the Station.

MAURICE YOUNG'S NEW CATALOGUE of NEW HARDY PLANTS, JAPANESE NOVELTIES, NEW AUCUBAS, ORNAMENTAL TREES and SHRUBS, EVERGREENS, CONIFERÆ, RHODODENDRONS, FOREST TREES, &c., may be had on application.

DESIGNS, PLANS, and ESTIMATES PREPARED for LAYING-OUT NEW GROUNDS, IMPROVING PARK SCENERY, PLANTATIONS, &c.

FOREST TREES PLANTED by the Acre, and Guaranteed.
Convenient railway accommodation to all parts of the country.
Milford Nurseries, near Godalming, Surrey.

Paul's Nurseries, Waltham Cross, N.

WM. PAUL begs to announce that he has the following COLLECTIONS of TREES and PLANTS now ready for delivery, which he can confidently recommend for quality and price:—

ROSES.—100,000 Plants, Standards, Dwarf Standards, and Dwarfs.
PRICED DESCRIPTIVE CATALOGUE free on application.

TREES and SHRUBS.—Large quantities of the popular Nursery Plants, of all sizes, good and cheap.
A choice variety of PICTORIAL TREES, his collection of which was the only one which received a Prize at the International Exhibition of 1866.

AMERICAN PLANTS. — Rhododendrons, Azaleas, Kalmias, Heaths, &c., in variety, from the commonest to the choicest.

FRUIT TREES. — Apples, Pears, Cherries, Plums, Figs, Peaches, Nectarines, Apricots, &c., &c.; Standards, Dwarfs, and Pyramids, trained and untrained. A large stock of handsome trees, many in a fruiting state.

GRAPE VINES.—All the best sorts, both Planting and Fruiting Canes.

PELARGONIUMS.—Beaton's and other Zonal kinds, Gold, Bronze, and Silver variegated, a fine collection.

HYACINTHS, TULIPS, and other BULBS.—All the First Prizes for Hyacinths and Tulips were awarded to his Collection at the London Flower Shows last spring. Cheap Hyacinths, Tulips, &c., for spring gardening by the 100 or 1000. Choicer kinds for pot culture and glasses good and cheap.
PRICED DESCRIPTIVE CATALOGUES of any or all of the above free by post.

R. FENNESSY AND SON, Waterford, beg to offer the following:—

	Per 1000.—s. d.		Per 1000.—s. d.
1-yr. Thorn Quick	1 3	2-yr. Oak	3 0
2-yr. Thorn Quick	2 6	2-yr. Turkey Oak, fine ..	5 0
1-yr. Oak	2 0	1-yr. Horse Chestnut, fine..	5 0

Also Laurustinus, Laurels, Aucubas, &c.
TRADE LIST on application.
A few cwt. of CRESTED DOGSTAIL and other Natural Grasses.

To Nurserymen, &c.

ONE THOUSAND NURSERY YARDS of BOX at 2d.

Ash, 3 to 4 feet	1-yr. Larch, very fine
Sycamore, 3 to 4 feet	1 and 2-yr. Scotch, native
Alder, 3 to 4 feet	2-yr. Pinus Austriaca
Larch, 2 to 3, and 3 to 4 feet	2-yr. Alder
Scotch, 6 to 9 ins., and 1 to 1½ feet	1-yr. Beech
Oak, common, 3 to 4 feet	2-yr. Pinus cembra
Maple, 3 to 4 feet	2 yr. Oak, common
Spruce, 15 to 18 inches	2-yr. Oak, Turkey
Laurel, Portugal, 12 to 15 inches	2-yr. Hornbeam
Laurel, common, 12 to 15 inches	2-yr. Laurel, Portugal

The above to offer, strong, well-rooted, and moderate in price.
LITTLE & BALLANTYNE, Nurserymen, Seedsmen, and Florists, Carlisle.
TRADE LIST now published.

Wonersh Nursery, near Guildford, Surrey.

W. VIRGO AND SON beg to announce that their Stock of TREES and SHRUBS of the undermentioned kinds is this season very extensive and well-grown, samples, prices, and Catalogues of which can be obtained on application:—

100,000 Hazel, 3 to 5 feet	500,000 Quick, transplanted, 1½ to 2 feet
50,000 Larch Fir, 2 to 3 feet	
50,000 Spruce Fir, 2 to 4 feet	50,000 Green Holly, transplanted, 1½ to 2 ft.
60,000 Birch, 3 to 4 feet [3 ft.	
50,000 Spanish Chestnut, 2 to	Common and Portugal Laurel
30,000 Alder, 3 to 4 feet	Berberis aquifolia
60,000 Ash, 2 to 3 feet	Arbor-vitæ
20,000 Sycamore, 3 to 4 feet	And other various Shrubs.

A large stock of strong STANDARD MORELLO CHERRIES, APPLES, PEARS, PLUMS, and DWARF-TRAINED do.

Large Evergreens and Forest Trees.

MESSRS. PAMPLIN AND SON have a large quantity of the following, and offer them at low prices, part of their Grounds being required for building purposes:—

Cedar of Lebanon, 10 to 20 feet	Black Italian Poplar, 20 feet
Cedrus deodara, 6 to 15 feet	Balsam ditto, 10 to 15 feet
Aucuba japonica, 2 to 6 feet	Lombardy ditto, 20 feet
Portugal Laurels, 2 to 6 feet	Horse Chestnut, 10 to 15 feet
Chinese Arbor-vitæ, 5 to 12 feet	Spanish Chestnut, 10 feet
American " 5 to 10 feet	Limes, 10 to 15 feet
Thuja aurea, 1 to 4 feet	Walnuts, 10 to 15 feet
Green Box, 1 to 6 feet	Ash, 10 to 20 feet
Striped ditto, 2 to 4 feet	Elm, 10 to 15 feet
Evergreen Oak, 7 to 10 feet	Acacia, 10 feet
Yew, Common, 4 to 10 feet	Mountain Ash, 10 feet
Irish Yew, 3 to 5 feet	Turkey Oak, 10 to 12 feet
Laurel, 2 to 6 feet	Sycamore, 10 to 14 feet
Araucaria imbricata, 10 feet	Weeping Willow, 10 to 15 feet
Green Hollies, 1 to 12 feet	Lilac, Common, 8 feet
Weymouth Fir, 3 to 6 feet	Persian ditto, 6 feet
Spruce ditto, 2 to 4 feet	Yellow Azalea, 3 feet
Birch, 14 feet	Privet ovalifolia, 8 feet

The Nurseries, Lea Bridge Road, Leyton; and Wood Street, Walthamstow, Essex, N.E.

To Landowners, Nurserymen, &c., in the Neighbourhood of Liverpool.

SEFTON PARK, LIVERPOOL.—Gentlemen having full-grown TREES, of the dimensions and species hereafter mentioned, for SALE, are requested to send a List of the Number, Size, Kind, Situation, and Distance from Site of Park of such Trees, addressed to the Architects, Messrs. ANDREW & HORNBLOWER, at their Offices, Toxteth Farm, Smithdown Road, Liverpool.

LIST OF TREES.

Name.	Circumference 3 feet above ground.
HORSE CHESTNUT	from 1 foot 0 in. to 4 feet
LIME	" 1 " 0 " 3 "
ASH	" 1 " 0 " 3 "
DITTO WEEPING	" 1 " 0 " 3 "
ELM	" 1 " 0 " 3 "
DITTO WEEPING	" 1 " 0 " 3 "
OAK, different sorts	" 0 " 8 " 2 "
PLANES..	" 1 " 0 " 3 "
MAPLE	" 1 " 0 " 3 "
NEGUNDO	" 1 " 0 " 3 "
PAMOLONIA	" 0 " 8 " 2 "
CATALPA	" 0 " 8 " 2 "
HOLLY, various sorts	" 0 " 6 " 2 "
WILLOW, WEEPING and COMMON ..	" 1 " 0 " 2 "
POPLAR, COMMON and LOMBARDY	" 1 " 0 " 3 "
ASPEN	" 1 " 0 " 4 "
AILANTHUS GLANDULOSA	" 1 " 0 " 4 "
SOPHORA JAPONICA	" 1 " 0 " 2 "
SOPHORA JAPONICA PENDULA ..	" 1 " 0 " 2 "

And any other suitable Trees they may have to dispose of.

Tansley Nurseries, near Matlock, Derbyshire.

JOSEPH SMITH, SEN., invites Planters and the Trade to inspect his Nursery of 80 Acres of high land. The soil is of a fibrous nature, and the Plants take up with excellent roots, such as to ensure the best success in their removal.
The Nursery contains many Hundred Thousands of RHODODENDRONS, COMMON and PORTUGAL LAURELS, BOX, BROOMS, BERBERIS, HOLLIES, PRIVETS, YEWS, &c. THE FOREST TREES are very extensive, of all the leading kinds; there are 16 Acres of LARCHES, of different sizes, and all others in proportion. Prices moderate, which can be had on application as above.

QUICKWOOD AND LARCH.

100,000 QUICKWOOD, 2 to 3 ft., very strong and well rooted, at 15s. per 1000.
100,000 LARCH, 4 to 5 ft., twice transplanted, good leads, and fine, at 30s. per 1000.
100,000 LARCH, 2½ to 3ft. ditto, at 18s. per 1000.
100,000 LARCH, 2ft. ditto, at 15s. per 1000.
The above are grown thinly on the ground and not drawn, but fine, stout, well-rooted stuff, that will stand by themselves. All other Nursery Stock very fine and hardy.
Address, HENRY MAY, The Hope Nurseries, Bedale, Yorkshire.

THREE MILLION strong 4-yr. transplanted QUICK.
1,000,000 good 2-yr. transplanted QUICK.
2,000,000 superior Seedling QUICK.
100,000 good strong LARCH, 4 to 6 feet.
100,000 good strong LARCH, 2 to 4 feet.
For samples and prices apply to
JOHN HEMSLEY, High Fields, Melbourne, near Derby.

TO THE TRADE.
ARBUTUS, THUJA AUREA, &c.
CUCUMBER KIRKLEES HALL DEFIANCE, true.
" HEDSOR WINTER PROLIFIC.
Prices on application.
THO. BUNYARD & SONS, Nurseries, Maidstone.

For Lawn and Covert Planting.

BERBERIS DARWINII.—Too much cannot be said of this fine evergreen species. It is hardy, and the profusion of its orange-coloured blossoms, together with the quantity of berries which it bears (of which pheasants are very fond), render it one of the most attractive and desirable plants for lawn as well as covert planting ever introduced.
2-yr. Seedling, per 1000, 30s. | 12 inch to 18 inch, per 100, 18s.
9 inch to 12 inch, per 100, 10s. | 18 inch to 2 feet, per 100, 35s.
2 feet to 2½ feet, per dozen, 9s.
COTONEASTER SIMMONDSII.—This is a beautiful hardy evergreen shrub, with glossy dark green leaves, and bearing a large quantity of scarlet berries, which ripen later than the Berberis Darwinii, and will hang all winter.
12 inch to 18 inch, per 100, 15s. | 2 feet to 3 feet, per 100, 30s.
WILLIAM BARRON & SON, Elvaston Nurseries, near Derby.

Woodlands Nursery, Maresfield, near Uckfield, Sussex.

WM. WOOD AND SON have a very extensive stock to offer of the following, viz.:—
Scarlet HORSE CHESTNUTS, Standards, 6 to 10 feet [1000
CATALPA SYRINGÆFOLIA | THUJA AUREA, by the 100 or
LABURNUMS, yellow and purple | Strong ASPARAGUS Plants
LARCH, SPRUCE, and SCOTCH FIRS
PINUS AUSTRIACA [and other Forest Trees
ASH, BIRCH, WILLOW, HORNBEAM, OAKS, SYCAMORE,
CATALOGUES and Samples may be had on application.

The Dorset Nurseries, Blandford and Blandford St. Mary.

FREDERICK GILL AND CO., NURSERYMEN, SEEDSMEN, and FLORISTS, beg to invite the attention of Gentlemen who intend Planting, to their large and vigorous STOCK of FOREST, FRUIT, and ORNAMENTAL TREES, SHRUBS, ROSES, &c., extending over many Acres, and not to be surpassed.
Their ROSES on MANETTI STOCKS, of the choicest varieties and superior growth, merit especial mention.
Copy of a Letter received from the Rev. F. RADCLYFFE.
To the PROPRIETORS *of the* DORSET NURSERIES.
"SIRS,—I was much pleased to-day with the review of your fine Nursery Stock. Your Manetti Roses are the best propagated of any that I have ever purchased. At a little distance few can discern whether they are on alien stocks or on their own roots. They are usually budded far too high to prosper.—Yours truly,
"W. F. RADCLYFFE."

To Planters.

WOOD AND INGRAM beg to offer the following NURSERY STOCK, all of which is well-grown and finely-rooted stuff:—
ACACIA, COMMON, 10 to 12 feet.
ALDER, 3 to 4, 5 to 6, and 6 to 7 feet
ASH, 1½ to 2, 2 to 3, and 3 to 4 feet | BIRCH, 5 to 6, and 6 to 7 feet
CHESTNUT, HORSE, 1-year seedling, 7 to 8, and 8 to 9 feet
ELM, NARROW-LEAVED ENGLISH, from seed, 1-year seedling 3 to 4, and 4 to 5 feet
" HUNTINGDON, 4 to 5, 5 to 6, 6 to 7, 7 to 8, and 8 to 10 feet
FIR, SPRUCE, 1 to 1½, 1½ to 2, 2 to 2½, 2½ to 3, 3 to 4, and 4 to 5 feet
" WHITE and BLACK AMERICAN, 3 to 4, 4 to 5, and 5 to 6 feet
MAPLE, 2 years seedlings, and 2 to 3 feet
POPLAR, BLACK ITALIAN, 8 to 10, and 10 to 12 feet
" LOMBARDY, 4 to 5, 5 to 6, and 8 to 10 feet
" ONTARIO or AMERICAN, 5 to 6, 6 to 8, and 12 to 16 feet
SYCAMORE, 2 to 3, 3 to 4, 4 to 5, 5 to 6, and 7 to 8 feet
ARBOR-VITÆ, AMERICAN and SIBERIAN, 1 to 1½, 1½ to 2, 2 to 2½, 2½ to 3, 3 to 3½, and 3½ to 4 feet
" LOBBII, very fine bushes, specimens, 4½ to 5, 5 to 6, 6 to 7, 7 to 8, and 8 to 9 feet
AUCUBA JAPONICA, 1 to 1½, 1½ to 2, 2 to 2½, and 2½ to 3 feet
CEDAR, RED VIRGINIAN, 3 to 4, 4 to 5, and 5 to 6 feet
CUPRESSUS LAWSONIANA, splendid specimens, 3½ to 4, 4 to 5, and 5 to 6 feet
" MACROCARPA, 1 to 2, 3 to 4, 4 to 5, and 5 to 6 feet
JUNIPER, ENGLISH, 3½ to 4, and 4 to 5 feet
LAUREL, COMMON, 1 to 1½, 1½ to 2, 2 to 2½, 2½ to 3, and 4 to 5 feet
" PORTUGAL, 1 to 1½, 1½ to 2, 2 to 2½, 2½ to 3, 3 to 3½, and 3½ to 4 ft.
LILAC, various kinds, 5 to 6, and 6 to 8 feet
PLANE, OCCIDENTAL, 4 to 5, 5 to 6, 6 to 7, 7 to 8, 8 to 10, and 10 to 12 feet
" ORIENTAL, 10 to 12, and 12 to 14 feet
YEW, COMMON, 1½ to 2, 2 to 2½, 2½ to 3, 3 to 3½, 3½ to 4, and 4 to 4½ ft.
Prices, which are very moderate, according to the quantity taken, sent free on application to The Nurseries, Huntingdon.
N. B.—W. & I.'s new NURSERY CATALOGUE is now ready.

Seed Potatos.

H. AND F. SHARPE are now offering MYATT'S EARLY PROLIFIC KIDNEY, RIVERS' ROYAL ASH-LEAF, WEBB'S IMPERIAL KIDNEY, DAINTREE'S EARLIEST, EARLY OXFORD, EARLY FORTY-FOLD, and many other Early and Late varieties grown from their own selected stocks. The Prices are moderate, and the quality excellent. PRICED LISTS may be had on application.
Seed Growing Establishment, Wisbech.

The best Podded, Hardiest, and Earliest Pea.

POYNTER'S STOCK of EARLY PEAS will be found second to none. It was GATHERED in the FIELDS here (Taunton) on the 24th of May last in quantity; and the Bristol, Bath, and Taunton Markets were supplied in considerable quantities by POYNTER'S Customers from the 28th of May, until Second Early Peas came in. Price moderate. Trade terms on application. None genuine without POYNTER'S Label.
ROBERT H. POYNTER, Seed Merchant, Taunton.

LEE'S GIANT ORACH (SPINACH).—This new and valuable variety of Orach possesses immense productive powers, combined with a delicious piquant flavour, quite distinct from all other varieties, rendering it a great acquisition as a Summer Spinach of the highest class.
The plant is of rapid and vigorous growth, and attains a height of 6 or 7 feet, with numerous branches; yielding a constant supply of large dark green leaves throughout the summer months.
The Fruit Committee of the Royal Horticultural Society awarded a First-class Certificate to LEE'S Giant Orach, after partaking of a dish of this most useful vegetable, cooked especially for their judgment.
JOHN & CHARLES LEE have much pleasure in introducing this productive vegetable, which they intend to send out in January next. Sealed packets, 1s. each. Price to the Trade on application.
Royal Vineyard Nursery and Seed Establishment, Hammersmith, W.

Carter's Dutch Bulbs.

Seedsmen to Her Majesty's Chief Commissioners of Public Works and other Government Departments, the Royal Gardens, Kew, &c., &c., &c.

Seedsmen to H.I.M. the Emperor of the French, the Crystal Palace Company, the Agri-Horticultural Society of India, &c., &c., &c.

CARTER'S GUINEA BOX of DUTCH FLOWER ROOTS contains 12 choice named Hyacinths, 12 mixed Bedding Hyacinths, 50 Yellow Crocus, 50 Blue Crocus, 50 White Crocus, 4 Polyanthus Narcissus, 12 Pheasant's Eye Narcissus, 12 Double White Narcissus, 12 Double Daffodils, 24 finest mixed Anemones, 24 finest mixed Double Tulips, 6 Gladiolus Brenchleyensis, 50 Snowdrops, 24 finest mixed Ranunculus.

The above forwarded without delay on receipt of Post Office Order for 21s. Box and packing included. PRICE LISTS gratis and post free on application to

CARTER'S Great London Seed Warehouse, 237 & 238, High Holborn, London, W.C.

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50 beautiful large PERPETUAL YELLOW PANSIES, 50 do. flowering CLIVEDEN BLUE PANSIES, 50 do. rich PURPLE PANSIES, 50 beautiful mixed POLYANTHUS, 100 large pure WHITE CLIVEDEN DAISIES, 100 do. PINK DAISIES, 100 rich BLUE FORGET-ME-NOT, and 100 PINK SILENE. Half of the above quantity, 50s.; Quarter, 26s.; Eighth, 12s. 6d.

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PLANTS of all the FINEST VARIETIES in CULTIVATION will this Autumn be in magnificent order, in the CASTLE STREET NURSERIES, SALISBURY.
The frost of May 24 destroyed all the blooming buds; the consequences are that the Plants have produced the most vigorous growth.
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VINES, from Eyes, the finest in England, 10s. 6d. each, in October next. JOHN KEYNES, Castle Street, Salisbury.

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CATALOGUE of GLADIOLI may likewise be had on application.

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J. C. respectfully directs attention to the following LIST of FIRST PRIZES which have been awarded to him at the principal Rose Shows of the present year, proving beyond a doubt that the soil and climate of his Nurseries are unrivalled for the Cultivation of Roses.

Royal Botanic Society, Regent's Park, London.
June 19.—24 Varieties, Cut Roses, one truss each, FIRST PRIZE
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June 26.—24 Varieties, Cut Roses, one truss each, FIRST PRIZE
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June 29.—72 Varieties, Cut Roses, one truss each, FIRST PRIZE
Royal Horticultural Society, South Kensington.
July 2.—72 Varieties, Cut Roses, one truss each, FIRST PRIZE
Birmingham.
July 4, 5.—72 Varieties, Cut Roses, one truss each, FIRST PRIZE
24 Varieties, Cut Roses, three trusses each, FIRST PRIZE
Hereford.
July 9.—72 Varieties, Cut Roses, one truss each, FIRST PRIZE
24 Varieties, Cut Roses, three trusses each, FIRST PRIZE
Rugby
July 12.—72 Varieties, Cut Roses, one truss each, FIRST PRIZE
Nurseries, King's Acre, near Hereford.

EARLY FLOWERING PLANTS for SPRING GARDENING.
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The New Sensation in Bedding Out.

JACKMAN'S HARDY HYBRID CLEMATISES, awarded Eleven First-class Certificates, and One Special.
Messrs. GEO. JACKMAN and SON are desirous of drawing the attention of those who intend using their Hardy Clematises for a Permanent Bedding Plant, that the present time is most favourable for planting.

OPINIONS OF THE PRESS.
Gardeners' Chronicle, Aug. 17:—"The new sensation in bedding." Also, August 31, "J. F." (Clveden) adds, "that Messrs. G. J. & SON have in their several varieties the very colour of which our summer gardens are in a great measure deficient." "Country Life," Aug. 15:—"Clematis Jackmanni is a most useful bedding kind if pegged down; used as such, a perfect carpet of flower, so to speak, is soon formed." *The Field*, Sept. 28:—They will be of the highest value as purple bedding plants, our present colours in this way being poor indeed compared to these."
"The Florist and Pomologist," November, 1867:—"There is no finer flowering plant for lawn decoration, no more gorgeous subject for garden avenues, not even excepting pillar Roses.....while the glorious mass of rich violet purple furnishes quite a new sensation in bedding out."
An engraving, from a photograph, showing the flowering qualities, and Circular of Prices, will be forwarded gratis on application.
Woking Nursery, Surrey.

Rhododendrons,

AS EXHIBITED AT THE ROYAL BOTANIC GARDENS, REGENT'S PARK.
JOHN WATERER, the Exhibitor at the above Gardens, has pleasure in announcing that his CATALOGUE of the above popular Plants is now published, and will be forwarded to all applicants. It faithfully describes all the varieties considered worthy of cultivation. It contains likewise a selection of HARDY CONIFERS, with heights and prices.
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Hardy, Scarlet, and other choice named Rhododendrons.

W. H. ROGERS, Red Lodge Nursery, Southampton, offers the above in quantity at £10 per 100, or selected in fine and distinct colours, 30s. per dozen. The plants are strong, bushy, and well rooted. The sorts (about 200) are magnificent, and none finer in cultivation. A limited number of larger specimens, full of blooming buds, 5s. each. A detailed CATALOGUE may be had on application; and also of a very fine Collection of CONIFERÆ, ROSES, and GENERAL NURSERY STOCK, extending over 60 Acres.

The Queen.

THIS RHODODENDRON has now proved itself A 1 amongst 800 named kinds. Fine plants are now ready as under:—21s., 31s. 6d., 42s., 63s., 84s., 105s. each. Standards 105s. each, fine straight stems. See copy of letter below.
"Dear Sir,—The Queen has now bloomed with me wonderfully well considering the season, and in comparison with other sorts, which (though I lost none) had their blooms much deteriorated by the severe spring. As you asked me to give my opinion of her, I beg to say that I consider her Flowers first-rate as to form, substance, and truss, and the Foliage faultless. She possesses a 'beauty of her own' which fairly entitles her to rank with the very best—in fact, I see no fault in her, for a difference in colour or marking is assuredly no defect. She is far beyond Ingramii and Lady Godiva in my mind, as well as perfectly distinct from both. The Queen is A 1 so far as I know, and can, I think, scarcely be surpassed.
"June 13, 1867." "H. H. GLENVILLE."
This quotation is from a gentleman who has purchased every named Rhododendron offered in commerce; his Collection now amounts to above 800.

Exhibition of Chrysanthemums.

JOHN SALTER'S COLLECTION of these beautiful FLOWERS is NOW in BLOOM. The Winter Garden contains upwards of 2000 plants, many of which are perfectly new, both in colour and form, and are now exhibited for the first time. The Gardens are open every day except Sunday; admittance free.
Versailles Nursery, William Street, Vale Place, Hammersmith, W., near Kensington Railway Station.

Suttons' Unrivalled Collections of Bulbs.

CARRIAGE FREE.

SUTTONS' GUINEA COLLECTION of BULBS for BLOOMING in POTS and GLASSES.
SUTTONS' GUINEA COLLECTIONS for BEDS and BORDERS
For particulars see SUTTONS' AUTUMN CATALOGUE, which may be had gratis and post free.
SUTTON & SONS, Royal Berks Seed Establishment, Reading.

The Gardeners' Chronicle.

SATURDAY, NOVEMBER 23, 1867.

ONE of the questions raised by that enthusiastic student of Lichens, Dr. LAUDER LINDSAY, at the late meeting of the British Association, demands careful attention on the part of foresters and cultivators of fruit trees. The question alluded to is this,—Is the GROWTH of LICHENS on TREES detrimental or not to their health? We may premise that under the common name "Moss," both Mosses properly so-called and true Lichens are frequently meant: an unfortunate association, as not only are the two groups of plants, botanically, perfectly distinct, one from the other, but it is also probable that their effects on the trees that give them support, may also be different. We use the term here in its strict botanical sense, and call attention to the subject in the hopes of eliciting from some of our correspondents an expression of their opinions in this matter. Botanists and vegetable physiologists almost all look upon the Lichens as mere epiphytes, as growing as so many Orchids do, upon trees, &c., but without deriving any of their nourishment from the substance on which they grow, and consequently as harmless intruders. Foresters and growers of fruit trees, on the other hand, are equally unanimous in their opinion that the growth of Lichens on trees is detrimental. And now another question crops up: it may be that the Lichens themselves are not directly injurious, but that their growth is fostered by conditions and circumstances adverse to the healthy development of the tree, and so the Lichen is rather the sign or the indication of an unhealthy condition, than a *vera causa* of disease. Many circumstances induce us to think that the last mentioned opinion is nearer to the truth than the others.

The Lichens, as a rule, are most abundant in old, neglected, or decaying plantations. They are particularly frequent in plantations on swampy ground: they are more abundant on old trees, such as Firs or Thorns, than on more vigorous and healthy plants. Foresters almost invariably look upon the presence of these growths as an indication of neglected "thinning," as if the development of the plants in question were fostered by an obstructed current of air, and by diminished action of light, against which notion, however, may be put the fact on which much stress is laid by Dr. LINDSAY, that Lichen growth is, as a rule, most vigorous in situations freely exposed to light and air. Any one who will examine an old Thorn bush standing by itself in a park will be able to confirm this statement, and he will find further evidence in many an exposed hedge by the sea-side.

But whether the infested plants be exposed to the free current of air, or be stifled in a badly managed plantation, it is evident in either case, that the conditions are not favourable to health. Mr. CHARLES MOORE, of Sydney, as quoted by Dr. LINDSAY, even says that the removal of the Lichen is in some cases ensured by the transference of the infested tree from a poor to a richer soil, or to a more favourable locality. Giving all due weight to these facts, it will be admitted that the evidence is not by any means conclusive that the Lichens are the originators of disease—they rather lead to the inference that these plants are so many harpies, ever ready to avail themselves of the misfortunes of their fellow creatures.

On the other hand, there are certain well-ascertained facts, which are very hard to explain on the theory that these plants are merely harmless settlers, getting their own living, without interfering with the hosts that give them shelter. Foremost among these facts may be named their chemical constitution. Chemists tell us that these Lichens contain substances such as iron and manganese, and earthy and alkaline salts—sometimes in much larger proportion than the tree upon which they grow. Now these are materials which the Lichens could not get from the atmosphere; they must either rob the tree of its juices, or they must make use of it, as a carrier from the soil of these ingredients, which it does not require for itself; and so the tree, in some sort, has to do double work—to provide for itself and for the intruder settled upon its bark. It is a curious fact, that the best samples of Cinchona bark are often the most densely covered with Lichens; so, too, the covering of the partially denuded trees with Moss (not Lichen) has been found by Mr. MACIVOR to increase the proportion of the quinine and other alkaloids in the newly-formed bark. If, however, the bark be penetrated by the mycelium of Fungi, it is regarded as worthless.

Our valued coadjutor, the Rev. J. M. BERKELEY, although apparently a firm believer in the general innocuousness of Lichens, yet admits that in those cases where they exist on the leaf, they may do injury by blocking up the pores; some, moreover, says this distinguished botanist, "originate after the fashion of many Fungi, beneath the true cuticle." In this country we have none of these peculiar Lichens, to which Mr. BERKELEY refers in the passage just quoted, but we may fairly ask whether in some cases the Lichens may not originate beneath the surface of the bark; at any rate the life history of these creatures is by no means satisfactorily worked out, and till it is so, the question raised at the beginning of this article cannot be properly solved. In the meantime, judging from the facts before us, we believe the balance of evidence is in favour of the practical men, and against the physiologists; and we share the opinions of foresters and fruit growers, that Lichens are directly or indirectly detrimental to the trees on which they grow.

IT is not easy, in all cases, to trace the causes of the periodical outbursts of KNAVERY. These, like some epidemic diseases, visit us in greater or less intensity at uncertain intervals—never leaving us wholly free from their ravages, but occasionally subjecting us to paroxysms of unwonted intensity. Just now, if we may judge from the letters we receive from the aggrieved parties, there is prevalent a severe epidemic of this character. It assumes various forms, and presents various phases, according to individual temperament, and in consonance with surrounding circumstances. At one time the prominent symptoms of the disorder consist in an eruption of "private" letters, couched in terms of extravagant hyperbole, and soliciting orders for some eighth wonder of the world in the plant way. The patients who suffer most from this form of the disease are private gentlemen and amateurs, whose constitutions are not so well able to resist an insidious attack of this nature as they would be one of a more patent and obvious character. Should the disease take strong hold of such a patient, secondary symptoms are apt to set in, in the form of an application for a loan. This is an instance of the epidemic as it attacks the well-to-do, but there is another form of the same disease attacking principally those whose purses are not so well filled as are those of the class to which we have just referred. Indeed, the malady attacks those who are looking about for the means of subsistence, and who seek them through the

medium of advertisements. The symptoms in this case are analogous to those of the preceding: elimination (of five shillings' worth of postage stamps) is the principal characteristic. Ill as this depletion can be borne by the patient, there is this advantage about this form of the complaint—that there are rarely any secondary symptoms; the patient recovers from his loss, and is not subject to a relapse, unless indeed he be more than ordinarily imprudent. A third modification of this disease attacks "the trade" principally, and it presents this peculiarity, that in proportion as the patient, from his business habits and general prudence, may be supposed to be on the alert against the attack, and to take all reasonable precautions against it—in proportion to this is the suddenness, we may say the boldness, of the onset. We transfer from the columns of "All the Year Round" the details of a case of the kind, merely stating that facts of a similar nature have of late been more frequently than usual brought under our own notice. Here is the extract in question from an article entitled The "Long" Firm:—

"One summer afternoon a gentleman alights from his dog-cart at Mr. Royston's extensive grounds, and gives in his card, 'Mr. Walter Long, Longsight, Manchester.' He has come to look out some shrubs, trees, and floricultural rarities, for his 'place.' He evinces considerable knowledge of the specimens shown him, but defers to Mr. Royston's judgment in the selection. About fifty pounds'-worth are chosen, and promised to be sent off. Mr. Long explained that he never ran bills, always preferred to pay cash; but having been at great expense about his 'place,' and having allowed himself to be persuaded to exceed the amount he intended expending in shrubs, he supposed his acceptance at two months would be satisfactory? The candour of his manner disarming suspicion, Mr. Royston was prevailed upon to part with his goods on those terms. In two months' time he discovered himself to be a victim of the 'Long' firm, without hope of redress. It is worse than useless to sue a man on a bill who has got nothing; while, as no 'false pretences' had been made, he was not amenable to criminal law, for Mr. Walter Long really did live at Longsight, Manchester, and had a 'place' there, comprising two rooms, and about half-a-crown's worth of furniture.

"A month after this bill had been dishonoured, the same gentleman, in the same dog-cart (hired from the neighbouring town), presented himself once more at Mr. Royston's place of business. Mr. Royston could hardly believe his eyes; called him a thief, and a swindler, and ordered him off his grounds.

"'All you say may be correct,' Mr. Long owned, very calmly. 'I *am* a swindler, and I don't deny it. I am a member of the "Long" Firm, but our rule is never to swindle the same man twice. I am come to make, as far as lies in my power, reparation for the loss I caused you. You remember those shrubs you sent me? I sold them pretty well, I am pleased to tell you. (Don't be angry, but listen.) They gave such satisfaction, that I now have an order to supply another lot at a much better figure, and I thought I couldn't do better than come and make an honest deal with you for them.'

"'And you think me fool enough to be gulled a second time!' said Mr. Royston.

"'Nothing of the kind, my dear sir; I bring the money with me' (he produced a bundle of notes), 'and I do not wish you to part with your goods till they are paid for. I am sure you are too good a man of business to allow any sore feeling at being 'done' before, to interfere with an opportunity of turning money now. Besides, we do business honestly at times. I have a *bonâ fide* commission to buy these trees, and out of my profit I will certainly pay you something off the acceptance.'

"Mr. Royston not seeing how he could lose money on such terms, was finally persuaded to deal. Shrubs were selected to the same amount as before—fifty pounds—packed in his waggon, and started into town; the arrangement being that Mr. Long should drive Mr. Royston to his hotel, where he would pay the account.

"Having directed his man not to deliver the goods at the railway station, but to wait with them outside the hotel for orders (a precaution which Mr. Long assented to as quite justified), Mr. Royston mounted the dog-cart, and was driven into town to the hotel by his customer. Arrived there, Mr. Long called for brandy-and-water, cigars, and writing materials; paid his hotel bill, somewhat ostentatiously displaying his gold and notes; and requested Mr. Royston to write him out a receipt for the amount of his account.

"This done, Mr. Long began to count out the money in payment; but stopped in the middle of his occupation, as if struck by a sudden thought.

"'This won't do,' he said, thoughtfully. 'I have not been a swindler for nothing. If I pay you this money now, you will pocket it for your acceptance, and then go and tell your man to drive back to your place again with the shrubs, so that *I* shall be swindled this time.'

"Mr. Royston disclaimed any idea of the kind.

"'No doubt, my dear sir, no doubt; but a man in my position can't afford to place himself in any one's hands. Now, you see that I have the money to pay, and I know that you have the receipt in your pocket. Tell your man to deliver the goods at the railway station (goods department), when I will give you the notes, and you can hand me the receipt. That's fair to you, and secures me.'

"Not seeing any hitch, and knowing that Long had the money, Mr. Royston acceded to this proposition, though not without considerable hesitation. Accordingly, the goods were consigned at the railway station to a Manchester firm by Long's direction. Mr. Royston asked for his money.

"'Shake hands with me, my dear sir,' said Long; 'you are the best friend I ever met.'

"'What do you mean?'

"'This. My train starts in ten minutes; you can send in your account when you please, or you can draw on me at two months if you prefer—or book it, you know.'

"Royston fetched a policeman; but when Mr. Long explained that it was a mere matter of debt to be recovered by the usual process, the constable regretted he could do nothing.

"'However,' thought Mr. Royston, 'I can at least stop my goods.' But, on going to the traffic manager, he learnt that goods once consigned to any person could not be reclaimed, any more than a letter dropped into the post: the company being tied by law to deliver them only to the address given.

"Mr. Royston took the next train to Manchester, and there communicated with the police, but without effect; for the shrubs were consigned to a most respectable auctioneer, who had no course but to sell them as ordered, and he had handed over the money they realised to Long, before a writ for the amount could be issued against him. Then he was gone. The sheriff's officer told Mr. Royston, 'It's no good suing them Longs, sir; there's always writs out for 'em, but they've got nothing to take.'"

Enough has been said as to the symptoms of the disease. Its cure is often worse than itself. Prevention is far better than any remedial agent. We act the part of sanitary reformers, and once again cry, Caution.

—— THE private friends of Mr. D. MITCHELL, under whose supervision the fine new gardens at Hamilton Palace have been formed, have just presented him with a TESTIMONIAL, or parting gift, on the occasion of his leaving Hamilton to commence business as a nurseryman and seedsman in Edinburgh, as a partner in the firm of LAMONT and MITCHELL, of Hanover Street. The presentation consisted of a time-piece in marble, and a tea and coffee service, with tea tray and salver, and as a separate gift a beautifully embroidered "cozie." Mr. MITCHELL has resided nearly eight years at Hamilton, during which period a new garden has been made, extensive ranges of glass-houses erected, and other improvements carried out, or projected, which would have placed the gardens at Hamilton Palace among those of the first rank. These improvements were unfortunately arrested by the death of the late Duke, and have not since been resumed. As a cultivator Mr. MITCHELL enjoys a well-earned reputation.

—— A most perfect specimen, says the *Leicester Advertiser*, of that truly beautiful Conifer, the WELLINGTONIA GIGANTEA (Sequoia Wellingtonia)—the Mammoth Tree of California—has just been successfully removed from the nursery ground of Mr. GEORGE WALKER, of Humberstone, to the Frith, the seat of THOS. TAYLOR, Esq. The dimensions of the tree are—in height, 17½ feet; diameter of bottom branches, 11 feet; circumference of stem at base, 44 inches. Some idea of the difficulty attending the removal of such a tree may be inferred from the fact that it was found necessary to remove it with 10 tons of earth attached to it. In this effort the aid of Mr. Banks, engineer, of Leicester, was obtained, and by the assistance of screw-jacks of great power the tree was fairly placed on the road. It required 10 powerful horses to draw it, and it was removed to its present location without any mishap.

—— Adverting to the subject of the correct SPELLING of the NAMES of PLANTS (see p. 1165), a correspondent reminds us that the Royal Horticultural Society sets a very bad example in this matter at its shows, and occasionally also in its publications. The Society, unfortunately, does not stand alone in this matter—moreover, so far as the shows are concerned, the labelling of the plants exhibited is generally effected by the exhibitors themselves. Another correspondent reminds us of our own shortcomings—not very frequent, we trust; a third, representing some "injured Potatoes," complains of our omission of the *e*. In this we believe we are correct, but shall have more to say by-and-by.

BOTANY AND GARDENING

HOW CAN A MORE INTIMATE RELATIONSHIP BETWEEN THEM BE BROUGHT ABOUT?

AT the last general meeting of the German horticultural societies, held in July of the present year, Dr. Pomffer undertook to answer this query, and in a long speech (occupying nearly 14 pages in a recent number of Otto's "Gartenzeitung") he gave the details of what, in his opinion, should constitute the qualifications of a first-rate gardener. He strongly insists that gardening must not remain behind other professions, most of which have their special finishing institutions, wherein pupils are taught all that is necessary of theory and practice for their several departments.

He then in an able and forcible manner points out how it is to be effected, but we are bound to say that his standard is a very high one, and very few—although, perhaps, as many as would find places—would pass the severe examination proposed. He reminds us, however, not to expect proficiency in any but those holding or competing for the highest posts, any more than we should require a knowledge of architecture from an ordinary bricklayer.

A very slight examination, he says, which we can fully indorse, will suffice to show that education is the missing link required to connect theory and practice, and render the study and the cultivation of plants mutually serviceable. For, in his words, we have only to turn over a catalogue, or walk into the first garden in our way, and inspect the labels, to find evidence in support of this statement.

He further contends, and we cordially support him, that an uncultivated mind cannot appreciate the beauties of nature, and only regards them as saleable commodities, or as the means of obtaining sustenance.

Dr. Pomffer proposes that the various societies should amalgamate, and that a school should be founded, with extensive grounds attached, wherein the apprentices might see and assist in all kinds of practical operations; but that their time should not be wasted in doing work which an uninstructed labourer could perform.

Before entering the establishment each pupil should have received a good plain education, and only such are to be selected as have evinced something above average intelligence, an ordinary brain being insufficient to master the multifarious subjects necessary for a good gardener to be acquainted with. They should be carefully taught drawing, botanical geography, classification, &c., organic chemistry, &c. Dr. Pomffer neglects to inform us whether such gardeners would meet with encouragement in Germany, and adequate remuneration for the many years devoted to the acquirement of their knowledge. He mentions, however, that there is a vulgar prejudice against the so-called scientific gardener, but we suspect, as in this country, there is more objection to payment for ability than to the knowledge itself. Dr. Pomffer admits that many illiterate men are good cultivators; and we maintain there is no objection to a man's scientific attainments and skill in plan-drawing, &c., provided he will do the same amount of work as another and for the same money. But very few can afford to keep gentlemen gardeners, and those who can will experience no difficulty in obtaining them if they offer sufficient inducement in the shape of payment.

We should be very glad to see the gardener's condition ameliorated in many respects, and we can only recommend young men to take advantage of the rewards and honours offered by the Horticultural Society and the Society of Arts to those who excel. Successful candidates cannot fail to obtain better places than they would if they had remained unknown, and thus by degrees gardening will assert its importance to, and become more closely connected with, botany. *W. H.*

THE CULTIVATED SELAGINELLAS.

(*Continued from p.* 1120.)

GROUP 4.—Caulescentes.

27. *S. Griffithii*, Spring, Monog. 2, p. 151:—Frond a foot or more high, the branches reaching two-thirds of the way down, and the stem beneath them with dimorphous leaves extending down nearly to the base; branches close or imbricated, the lower ones deltoid, with copiously pinnate lower branchlets; ultimate divisions 2 lines broad; the larger leaves close, more than twice as long as broad, sub-falcate, the two sides very unequal, the upper much dilated below and rounded at the base, the point blunt, the edge not at all ciliated: smaller leaves obliquely ovate-cuspidate, convergent; spikes slender, tetragonous.

A native of the Malay peninsula and islands. Colour of the upper surface an average green, the lower side rather paler. Texture delicate; the stem not at all woody, and the leaves soon curling up when dry. Midrib faint, and not reaching the point. Closely allied to viticulosa, and best distinguished from it by the very unequal leaves, with the edge not at all ciliated.

28. *S. Wallichii*, Spring, Monog. 2, p. 143. Lycopodium Wallichii, Hook. & Grev. Enum. Fil., No. 106. L. canaliculatum Sw. and Willd., non Linn. L. elegans, Wall, Cat., No. 128. S. cyatheoides, amboinensis and canaliculata, Spring olim:—Frond 1½—2 feet high, the stem woody below, the branches reaching more than half way down, very regularly pinnate, with long, close, simple branchlets; the ultimate divisions a quarter of an inch broad; the larger leaves imbricated, sub-falcate, about twice as broad as long, the two sides nearly equal, the edge entire, not at all ciliated, the midrib faint: the smaller leaves ovate-acuminate, convergent, the spikes slender, tetragonous.

A native of the East Indies; the Malay peninsula and islands, and the Feejee Islands. A very elegant species, well marked by its regularly pinnated pinnæ, with long, close, simple branchlets, often each tipped with a spike. The colour is an average green, with frequently a tinge of reddish brown.

29. *S. caulescens*, Spring, Monog. 2, p. 158; A. Braun, Revis. No. 18. L. caulescens, Wall, Cat. No. 137; Hook. & Grev. Enum. Fil. No. 69. L. fruticulosum, Blume, non Bory. L. circinale, Don, Prod. Fl. Nep., p. 18, an. Linn.?—Frond 6—18 inches high, the branches reaching two-thirds of the way down, imbricated, the lower branchlets pinnate, the upper ones simple or forked; the ultimate divisions about two lines broad: the larger leaves close, ovate-acuminate, sub-falcate, the upper side broader and more rounded at the base than the lower one, the edge finely denticulate, not ciliated: the small leaves ovate-acuminate, convergent; the spikes slender, tetragonous.

A native of the East Indies, Japan, and China. This is distinguished in the group by the strong tendency which its branches have to curl together when dry, so that it forms a connecting link between the Caulescentes and Rosulatæ. It is not so distinctly deltoid in general outline as erythropus, hæmatodes, lævigata, and flabellata. The colour is a bright, shining, light green, the leaves being moderately rigid and firm in texture, with a broad midrib reaching from the base nearly to the apex, with a white line down the centre. It is very variable in stature, and the Japanese plant mentioned by Dr. Macnab under the name of S. japonica, which is often grown in gardens under the name of involvens, seems to be only a small form of this species. The true involvens is totally different, and belongs to the Rosulatæ.

30. *S. lævigata*, Baker, non Spring, Monog. 2, p. 137.

Lycopodium lævigatum, Lam. Enc. Suppl. 3, p. 652 (1789). S. pectinata, Spring, Monog. 2, p. 166 S. Lyallii, Spring, Monog. 2, p. 168.—Frond 1—2 feet high, the stem below the branches about half as long, firm, almost woody, the general outline of the frond deltoid: the lower pinnæ much the largest, with the pinnules of the lower side considerably larger than those of the upper, the segments forked or subpinnate, the branches naked; the ultimate divisions 2—2½ lines broad; the larger leaves with a space between them, rigid, pale green, obliquely ovate-acuminate, the upper side broader and more rounded than the lower one, the edge entire and not at all ciliated: the smaller ones minute and nearly adpressed to the rachis; the spikes rigid, with erecto-patent, uniform bracts and unusually large macrosporangia.

A native of Madagascar. This is the original Lycopodium lævigatum of Lamarck, and consequently the plant to which that name rightfully belongs. It is easily recognisable by its pale green colour and rigid, falcate, entire, acuminate leaves, with a distinct space between them. The nerve, though faint, is broad, and distinctly visible beneath. S. pectinata, Spring, is a larger and less branched form, with broader divisions; and S. Lyallii, Spring, a form with more numerous and more crowded branches and narrower divisions. The macrosporangia are the largest of any species with which I am acquainted. Both these and the bracts are a line in breadth, and the macrospores are chalky pellets a third of a line in circumference, deeply reticulate-rugose under a low power of the microscope.

31. *S. flabellata*, Spring, Monog. 2, p. 174; A. Braun, Revis. No. 21. Lycopodium flabellatum, Linn. Sp. Pl., p. 1568. L. anceps, Presl, Rel. Haenk. 1, p. 90. L. gracile and microstachyum, Desv.:—Frond 12—18 inches in height, the stem below the branches half as long, firm, erect, naked; the pinnæ copious, bipinnate, both pinnæ and pinnules imbricated, the general outline of the frond deltoid, the lower pinnæ much the largest; the ultimate divisions 2 lines broad; the larger leaves close, acute, sub-falcate, dark green, the upper side slightly dilated and ciliated towards the base: the smaller ones ovate-acuminate, convergent; the spikes slender, tetragonous.

A native both of tropical America and Asia, most resembling S. erythropus, but the stem is not red, and the leaves are not so close, and are less ciliated. The colour is a bright dark green, the texture herbaceous, and the nerve is quite distinct from the base up to within a short distance of the point. There are a considerable number of Caulescent species which have the stems swollen at intervals, and articulated at each of these nodes, but none of them are known in cultivation. *J. G. B.*

LETTERS FROM PARIS.—No. XXV.

GRAPE PRESERVING AND APPLE GROWING.

I WENT the other day to see Mr. Rose Charmeaux, the originator of the method for preserving Grapes, of which I sent you an account a week or two ago, and found his Grapes stored for the winter as described; the method was in full working order, and I was much pleased to find it even more simple and effective than could have been supposed. He began by having a stove and couple of chimneys, to keep the atmosphere of his large Grape-room right; now he finds the Grapes keep very much better without this, and simply devotes to his winter stock a large room in his house, fitting it up in all parts to accommodate handily the little bottles before spoken of, and padding the inside of the windows so as to exclude light, and obviate, as far as possible, changes of temperature. The Grapes are cut in October, and preserved in good condition until May, indeed, they have been shown in May frequently; and Mr. C. states that he has kept them till August, and could do so yearly were it necessary. But he forces the Chasselas extensively, cuts it about the 1st of April, and does not require them to keep such a very long time as that. The first result of the method to the village of Thomery, which is almost wholly occupied with Chasselas culture, was a gain of from 100,000 to 150,000 francs per annum. A small room in Mr. Charmeaux's house illustrated to a nicety the fact that a similar one in most houses may be made to perfectly answer the purposes of keeping Grapes. It had in this case no windows, and scarcely any means of ventilation. The house is heated by hot air, but while there are openings in the floor of the passages and rooms generally to admit this, there are none in the room devoted to Grapes. Thus it is clear that the ordinary temperature of a well constructed house will present suitable conditions for the long preservation of Grapes, in a small room that may be devoted to that purpose. The system was attractive enough when it was considered necessary to construct a room specially to carry it out; it is much more so now when it has been proven that not only is it not necessary to take any special means to warm or ventilate the structure, but that the Grapes keep very much better without such being taken.

Next I will attempt to give you a fuller idea of cordon training, and particularly of that form which will yet be found to be suitable for Apple growing—the horizontal cordon. I may remark that Mr. Rivers' definition of a cordon is certainly not the French one, however well it may suit his argument; neither is it that of the French professor of fruit culture who has chiefly originated the system. In France a man may have several large and distinct forms of trees, each well-trained branch precisely like the stems of the oblique cordons against one of his walls, but he will apply the name "cordon" to the trees usually confined to single stems or with slight deviations from that form, never doing so to the larger and ampler forms. One of the chief merits claimed for the system is that you cover the wall much quicker by planting a large number of trees and confining their energies to a single stem or so, whereas it is obvious this claim does not obtain where you have a large tree. In fact, the laying in or pinching of the shoots is the same in both instances, excepting in the as yet undeveloped pinching of M. Grin. The latest development of that is an attempt to do away with nailing or laying in, and by no means as yet successful or likely to suit our climate. "It will not suit ours either," said a French Peach-grower, who had often been deputed to visit and report upon the garden of M. Grin—M. E. Jamin. However, there can be no misconception in this case with regard to the little horizontal cordon, as shown in the double form in figure 1.



Fig. 1.

Although in France generally the single cordon, as shown in figure 2, is the kind used for making an edging to borders and squares, yet this (fig. 1) is equally or more suitable. It is the form which will in the future afford us such capital specimens of fine Apples, like Calville Blanche, from the bottoms of walls, &c. If the wall be wired as neatly and excellently as neat French fruit growers wire their walls, it may be tied to the lowermost wire; and if not, it may be nailed in, in the old-fashioned way. There are in thousands of British gardens bare spots on the lower parts of walls, &c., where this little rod on the Paradise may be beautifully worked in. It is true that if the wall were as well covered as it ought to be, there would be no room for the cordon, but in the majority of gardens there is sufficient space to do it, and they are so very cheaply established that it will be worth while to plant them in such places, even for a comparatively short period, until the wall is furnished. It may also be trained along the front of forcing houses, pits, &c., and in various other positions now utterly useless and naked.

I know dozens of very large gardens where a magnificent crop of large and beautiful dessert Apples may and will yet be gathered from such surfaces, now bare. Apart from the profit and the satisfaction of having a fruit room stored with such perfect fruit as may be grown in this way, the flowers of the little trees will embellish the walls in spring, and their noble fruit in autumn. For all parts of this fine Apple-growing country it will be a clear gain for the production of Apples like Calville Blanche, good both for table and kitchen—in the colder and northern parts it will prove a great boon.

I will next turn to the modification of this method that is suited for the edgings and such positions. Having described its chief advantages in the *Gardeners' Chronicle* for November 2, I need not repeat them here. I have had excellent means of judging of its merits, *i. e.*, comparison of the result it produces in very many different places, and I am of opinion that it will prove the most successful of all modes of miniature Apple-growing ever introduced, and that by its means we may get our crop of the finest Apples, and have the garden as free of shade as a Strawberry ground, and from such places as are now utterly useless, or perhaps a trouble and expense to clip once or twice a-year. The best height for them is about 1 foot from the ground: at less, the



Fig. 2.

fruit gets soiled with earthy splashings. Figure 2 will point out the usual way of forming the line. They are usually planted at 6 feet apart, or thereabouts, but that is too close for good and moist ground. For very favourable soil 8 or 10 feet will not be found too much. Provided the 5 or 6 feet run of the tree be well furnished with spurs, it is much better to let the point proceed further than to confine its energies.

Sometimes the point of one plant is grafted on to the bend of another, but that is neither necessary nor desirable. Many people pinch them in very close, evidently with a laudable desire to keep them as rope-like as possible, but I always found the best crops and the highest health where the spurs were allowed to push out a little, say roughly a summer development of spurs, leaves, &c., of from 6 to 9 inches through along the wire. Pinching may be overdone, and in our climate

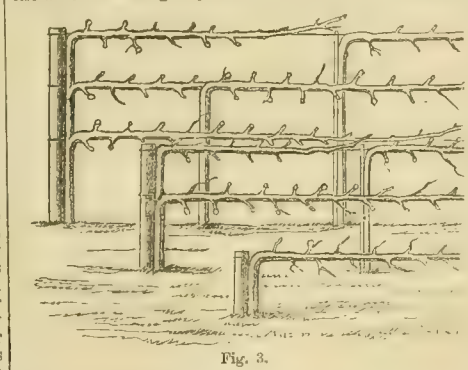


Fig. 3.

its excess should be guarded against. They of course always prune them by summer pinching, and then give them a final touch in winter or spring. To make them break regularly should be a chief object, and this must be done by judicious pinching, and by occasionally cutting an incision before a dormant eye. I have seen those beautiful little trees in full health and bearing at three years of age. I have also seen them trained obliquely against upright strained wires, and planted very closely together; it was very neatly done, but decidedly inferior to the methods above described, and, therefore, I will pass these by. Figure 3 shows a modification of the horizontal cordon system, which is not often met with, but which is largely adopted in the Imperial kitchen garden. It is chiefly suited for borders, and for places where a great number of fine Apples are required, and is by no means so good or useful as the well-managed low cordon. The superimposed cordons are better grafted upon the Doucin stock.

Now comes the very important question of stocks. Mr. Rivers has emphatically condemned the French Paradise stock as "too tender for this climate, unless in very warm and dry soils." Now I respect his opinion as much as that of any other person who had made a trial of a plant in one place, but there is good reason to suppose that Mr. Rivers is wrong here. I have seen the Paradise stock in the highest health on a very wet soil this year in England—it having survived, and in quantity, the very severe frost of the past winter, which even killed and injured Apples, when the thermometer went considerably below zero. However, the testimony of one would be as nothing against my infallible critic, with his visits to France during the past 30 years, and therefore I humbly quote two letters now before me. One is from Prof. Decaisne of the Institute, probably the highest living authority on Pomology. The other is from M. A. Leroy, of Angers, the well-known nurseryman and fruit grower. Mr. Rivers says: "The Pomme de Paradis seems identical with the dwarf Apple of Armenia." The Professor says, "It is a native tree, and therefore hardy." It is "too tender for this climate," says Mr. Rivers; "it is absolutely certain that it cannot be hurt by frost" says Professor Decaisne. M. A. Leroy, of Angers, says, "I employ the Paradise because it is not over vigorous, but very fertile. No other stock is so suitable to this method. It is hardy enough to resist the intense cold of the north of France." To this I add, that it will be found perfectly hardy in all parts of the British Isles. Place the Quince in the position of the Paradise, and see what we should arrive at, if led by one or a dozen isolated trials. Therefore the best thing that those can do who wish to try the system, is to plant the same kinds of Apples on the "English Paradise" and on the French, taking care that they are, as far as possible, started under equal circumstances. In dry poor earth the Doucin, English Paradise, or a dwarf Crab would do better, but for this special purpose there is nothing known equal to the true Paradise, where the soil is suitable to it, and that will be found to be the case over the greater portion of the British Isles. The reasons why this system is not adapted for orchard culture, apart from that given in his writings by Mr. Rivers—*i.e.*, "The Paradise stock requires the cultivation of a garden"—are as follow: It is essentially a garden system, with a well-defined object—*i.e.*, the production of very fine fruit by an economical method, happily suited to the wants of a garden from its not shading anything. To make this clearer, it should be observed that the wants of the fruit-buying public are twofold, namely, first-class fruit at a high price, and fruit of moderate quality at a low one. If proper use be made of the system in the garden we shall be enabled to supply more than the present wants for the first mentioned, and that by losing hardly any space. Of course, if orchards were planted on this principle the whole surface would be covered, and all the ground lost for other purposes. On the other hand, the Grass of a well-managed orchard of standard trees is nearly or quite as useful to the farmer as that in the open, and the same applies in nearly as great a degree to the crop of a ploughed one. In the garden the trees are continually under the eye, and are very easily attended to; in the orchard a very considerable item would be required even for summer treatment: the expense in every way would be great, while the difference in the result and that afforded by a well-managed orchard would by no means justify the expense. Even the most sanguine would get accustomed to it as a garden system, and know its value and its cost before "planting orchards" thus. Therefore "T. F. R." who wrote to the *Times*, and, without a single qualifying word, advised its readers to "plant orchards" of these cordons at from 2000 to 4000 plants per acre, did a very mischievous thing, and the *Times* correspondent, in writing to gently caution the public against this, and to guard himself from misinterpretation, simply did what was right and called for. *W. R.*

P.S. I must ask your readers to suspend their judgment for a while as regards the "inaccuracies" which Mr. Thomas Rivers has endeavoured to point out. I shall not interrupt my papers to refute them, particularly as I have some more important matters than this cordon system to bring before your readers in my last letter from Paris. After that I shall be glad to answer any objections to anything I have stated of the gardening of this country; or if I have erred, to be corrected. Lastly, I hope to show that some of the statements of Mr. Rivers are either incorrect, or have no relation to the subject under discussion. *W. R.*

CAMELLIA CULTURE.—No. VI.

(*Continued from p. 1096.*)

Prince Albert.—This is a good growing plant, making a handsome bush. The flowers are not fully imbricated, but they are of a pleasing carnation stripe, and as it is desirable to introduce variety in any group, this need not be discarded in large collections.

Queen of Denmark is a rather loose habited variety,

and might be called a rampant ungainly grower if not properly handled. The best mode of dealing with this sort is to allow it to get up into half-standard form, and then prune it rather severely. So managed, after a time it blooms well, and is not at all so unsightly in growth as it often appears when allowed to run away at the earlier stages unheeded. The flowers are of a dullish crimson ground, with a chance band of white in the petals; they are only of average size, but the form of flower and petal is good. It requires one or two years of probation to justify any one founding an opinion upon its merits, as if only in "so and so" condition it yields a poor return of bloom.

Regia is one of the small-leaved quick-growing section, differing from Wilderi, Miniata, and that type, as they are small-leaved and slow-growing sorts, and similar to Candidissima and Jeffersoni in being small-leaved and quick growing. It can always be depended upon as a good bud and flower producer, seldom failing to come true to character; flowers of a carmine cast of colour, fully imbricated, and of good form, and if forced early coming mottled like imbricata when similarly managed. Early forcing, or rather early bud setting, and allowing the flowers to expand in the common temperature of a greenhouse, always induce mottling less or more in imbricata, regia, and some others of like sportive character.

Reticulata.—With good culture this is an admirable decorative plant. Although the blooms are after the character of Chandler's Elegans in being anemone-centred, the large guard petals are so highly coloured as to render it strikingly effective. It is somewhat shy as a bloomer, but if planted out in a good border and the roots allowed to ramify, it is sufficiently free to well repay its house accommodation. Even the double variety, of which I will speak in dealing with novelties, is not so much better as to justify the expulsion of the old sort.

Rubens is of good average proportions, both as a grower and as a bloomer. It can be depended upon, and comes in in good style about New Year's Day. The large rosy-coloured flowers that adorn the plant are very attractive, and although it is not first-rate in point of form, it has its admirers.

Rubini is a medium grower, and maintains a reputation for good habit. As a flower it is less showy than the preceding, but in point of form it must be reckoned several points in advance. Its colour is a sort of dull crimson with a white band down centre of each petal. As a late-flowering sort it is most desirable, coming in and holding out about the same time as Princess Bacchiocchi, Bealii, and that valuable late-flowering group.

Sasanqua rosea.—This, one of the original Chinese brood, is still a very desirable sort to keep in a large collection. It is of the most tiny habit of any Camellia in existence, but when up to specimen size it is just such a plant as could be tolerated in specimen groups of miscellaneous plants with striking effect. Unfortunately it is not cultivated nearly so much as it might be, and being rather diminutive in stature, and in size of flowers, it is apt to be overlooked among such a vast multitude as is now under cultivation one way and another. As a hand-bouquet flower it has no equal, and if we could only get a white of the same size and as perfect in formation, it would create quite a sensation. The flowers are of a roseate hue, and are nicely imbricated, although the petals are a little pointed.

Teutonia.—This is among the newer batch, but it has been a considerable time in commerce, and I know enough of it to strongly recommend it. It might have been placed among the 24 (see No. 37, 1866), but it is not equal to Feastii of the same cast of colour. If however a 25th were wanted, I would say take Teutonia. Its habit is desirable, and as a flower producer it cannot be surpassed. The flowers are of fine formation, fully imbricated to the centre, and each petal nicely formed. It, too, is one of the sportive varieties, occasionally producing pure white flowers finely striped, and again others with numerous pink lines radiating in all directions from the base of the petals. It thrives all the better if its growth is finished in a good tropical temperature; and so treated and rested in the ordinary way, it will not fail to yield an abundant crop of bloom.

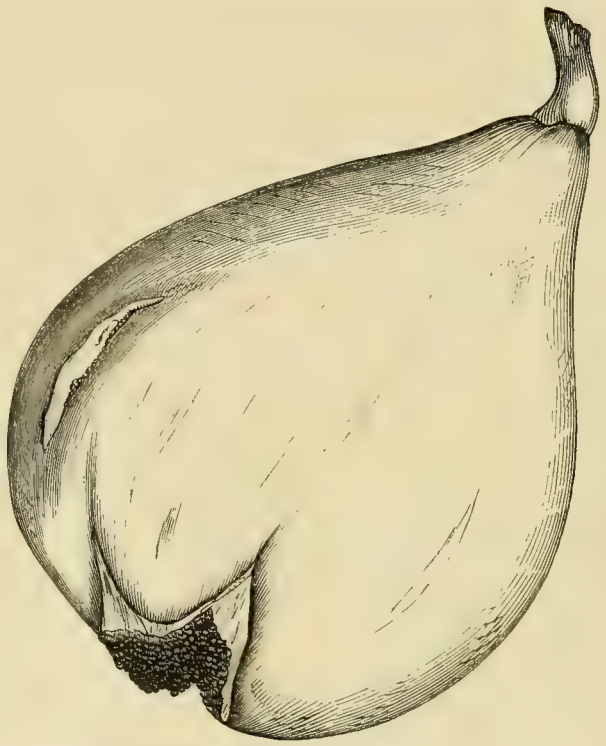
Tricolor.—For decorative effect this and Donkelaari have no equals,—if anything, from the Carnation striping of the variety in question, it might be said to carry off the palm. It is not quite so free in point of growth as the variety with which I have compared it, and on that account may not flourish equally well in the hands of amateurs. To all, however, who are desirous of raising seedlings this is a capital pod-bearer if fertilised with good pollen, and with its showy bizarred flowers it presents quite a fairy-like appearance in any conservatory.

Valtevaredo.—This, in point of habit and fine massive leaves of the most lustrous appearance, is quite a model sort. It, too, yields flowers of captivating formation, very much after the style of a Jules Margottin Rose, but much paler in colour than that favourite flower. La Mæstosa is an improvement upon this in point of colour, and seems so far to maintain a reputation for freeness and constancy of bloom. The more, however, one knows of the one in question the more is its beautiful outline appreciated; it is a Camellia that every one ought to grow, and if they do so at all "respectably," I will vouch for ample repayment in the yield and quality of blossoms, and for a most desirable-looking specimen to admire after the season of flowering has gone. The colour is a soft shade of rose with a chance blotch to light up its features; and the outline both of flower and petal is nearly all that could be desired. It always retains its cupped form, and is more appreciable on that account than those that reflex their petals too much. *A.*

NEW OR LITTLE-KNOWN FRUITS.—No. I.

Grosse Verte Fig.—Though not new, this is in every respect a very excellent Fig. It is but little known in this country, although the name may be found in several fruit lists. It is one of the largest, handsomest, and richest-flavoured Figs in cultivation. It was awarded a First-class Certificate by the Fruit Committee of the Royal Horticultural Society, at a meeting held at South Kensington during the present autumn.

The fruit, which is large, is roundish ovate, or obovate, inclining to pyriform, slightly ribbed, with a short thick neck, frequently better defined than in the figure; the stalk is stout, about half an inch in length. The skin of the unripe fruit is of a very lively green colour, smooth and glossy, marked with numerous small round white dots; when ripe, the skin changes to a pale greenish yellow, streaked with russetty brown. It is very thin, and cracks lengthways as the fruit ripens. The flesh is of a bright red throughout, thick and syrupy, and most delicious. The eye is large and open. The fruit sometimes, when fully grown, from want of sufficient heat, or from too much moisture, splits from the eye into two or three pieces, which curve backwards, thus exposing the bright red interior,



which, contrasted with the deep green outside, has a charming appearance.

The plant itself is of a stout and robust growth; the leaves large, deep green, and moderately lobed. It is a free-bearing variety, well suited for pot culture, ripening rather late.

The fruit from which the accompanying sketch was taken, was grown in a pot, in the collection of the Royal Horticultural Society at Chiswick. *B.*

Home Correspondence.

French and English Gardening.—Your correspondent "W. R." has doubtless been giving us a "fillip" in letting us know how much better some gardening matters are done in France. I beg, however, to slightly differ from him as to the adaptability or utility of cordon training for our climate. What is the cordon but the espalier system, as old as our grandfathers? and in my recollection almost every Scotch garden short of walls could show its cordons by the sides of the walks. Some of the finer varieties of Pears and Apples were no doubt grown successfully in favourable summers on espaliers; but if the system had been profitable or advantageous, it would have been more generally followed than it is now. Single or double cordons by the sides of walks would be very interesting to look at, and will no doubt be tried by many gardeners, after the flourishing description given of them. I however doubt if they ever will be very profitable, or show the fruit like ropes of Onions clustered on the wires, unless the blossoms are protected from spring frosts. Now Pears and Apples grown in the borders as low pyramid bushes generally escape, although unprotected by the foliage covering the blossoms from cutting winds and frosts in the spring months. The suggestion made by "W. R." of trying the single or double cordon on the bottoms of walls for growing the finer varieties of Pears, I believe will prove of great utility in many gardens with plenty of walling. This year I had the finest Beurré Clairgeau Pears that I have ever grown, both for size and colour, from a young tree trained with two branches horizontally, and the fruit hanging close to the ground. These cordons would not disturb the existing wall trees, for they could be planted between them, more especially where fan-trained trees were on the walls above them. I am of the same opinion as your correspondent "J. F." (see p. 1168), that we ought to encourage, in the planting of our orchards and gardens, the hardy and better flavoured Pears and Apples, instead of the newer Continental sorts that are raised in a warmer climate than ours. Many fine flavoured and hardy old varieties, which are now neglected, if crossed with some of the newer sorts might yield a race far more valuable in our orchards and gardens than many of the large French and Belgian Pears and Apples now planted. I have lately had specimens of the supposed best flavoured Pears grown in France and the Channel Islands sent me, but with the exception of the Louise Bonne and Chaumontel grown in Jersey, none of them could be compared in flavour with smaller fruit grown here of the Marie Louise, Suffolk Thorn, Louise Bonne, from standards in the borders, and Gansel's Bergamot from the walls. As to the large specimens of Catillac and Uvedale's St. Germain's, which we often see sent from France to Covent Garden in the winter months, and sometimes charged at the modest price of half a guinea each, what is the use of them, except for show? Their flavour is not to be compared with a good Swedish Turnip, and even for stewing they are not equal to smaller Verulams, Besi d'Heris and Black Pear of Worcester, of our orchards. To compete successfully with the French in growing Pears and Apples to supply the great demand in our cities and towns in the winter months, we must follow a better system of cultivation than what now generally prevails. This can only be done by selecting the hardiest and best-flavoured sorts for particular soils and localities, and cultivating them on scientific principles. When new Orchards are planted to produce fine fruit for the market the trees must be grown as bush pyramids or as lateral cordons, where they can be under the control of the growers, as to pruning them annually, and in thinning the fruit where set too thickly. This only applies to the fine late-keeping sorts of Pears and Apples, for the great bulk of the summer and autumn varieties will pay best by growing them on large trees, without any attention, as their season is soon over. By "W. R.'s" description it seems we have yet much to learn from the French, especially in Salad-growing and in the management of Asparagus. Even an experienced practical man like Mr. Barnes, of Bicton, seems to have lately picked up some wrinkles from the present state of French gardening, of which it is to be hoped he will give us the benefit in due time. As to the fine Lettuce, Endive, and other salad plants grown in the winter months near Paris, the climate has no doubt something to do with it, as well as the universal use of frames and hand-glasses placed on fermenting materials. The Dutch were famous at one time for slightly forcing Lettuces in frames, and even fruit trees in low pits, by linings of hot dung applied to their roots. There is no plant so generally mismanaged in this country as the Asparagus, for it is huddled in beds so close that the individual plants never get large, nor the crowns strong. The French method of growing the plants, singly and in rows, and attending to tying the stems when young to keep the wind from shaking them, must be a great advantage. Their system likewise of annually manuring the roots, and of putting the manure exactly in the place where it is wanted, must tend to encourage the fine heads they produce in France in such abundance. I for one, however, differ from the French and English fashion of cutting Asparagus with stems nearly as white and tough as Elm-roots, with only the small tip of sickly green on the top. If the gourmands in Asparagus eating think that such "grass" furnishes them with the right flavour, I think they are mistaken. [Hear! Hear!] I have seen Asparagus grown in a garden near the sea in Ayrshire, with heads larger and heavier than any I ever saw come from France. The plants were grown singly in rows, and every winter a dressing 6 or 8 inches thick of fresh sea-weed was covered over the crowns, and this was covered-in round each plant in the spring when it was well rotted. The heads, when twisted off for use, although so large, were nearly all eatable, and the flavour was something to relish. *William Tillery, Welbeck.*——The controversy which has been going on in your pages on this subject between Mr. Rivers and your Paris Letter-writer has doubtless proved instructive to some of your readers, and more amusing than useful to others. Doubtless many have began to regard with something like affectionate veneration what has been to a large extent the life work of Mr. Rivers, namely, the advancement of fruit culture. So ably has he fulfilled his task that modern inquirers can hardly console themselves with the hope of dealing with the theme to better purpose. Indeed, to throw a new contribution into the goodly store that our venerable author has piled up for many years past would seem to be rather a difficult task. In the language of Shakspere, it would appear to Mr. Rivers to be "painting the Lily." It is to be hoped that such is not, however, quite the case, but that each generation may go on to lay another course on the horticultural

wall, and so leave the structure loftier than it was found. It is not my object at present to enter into the question as to the relative merits of French and English as cultivators of hardy fruits—indeed, I am not in a position to do so, but as an entirely disinterested learner in this matter I have to offer a few remarks on what Mr. Rivers has written, and to ask if he will kindly explain or reconcile what appears to me to be something like inconsistency. In the first place, I beg to call Mr. Rivers' attention to a passage in his preface to his "Fruit Garden," where he says:—"I conclude, like an Englishman, that the foreigners were ignorant, and very far behind us in the culture of fruit trees." He then writes:—"It was only after repeated visits to foreign gardens that this prejudice was dispelled. . . . I felt convinced that our neighbours (speaking of the French) excelled us in the management of fruit trees adapted to the open borders of our gardens." Now, so far I have been able to understand the subject of Mr. R.'s controversy with your Paris correspondent, it is simply to show that the Paris Letter-writer, in saying in 1867 what Mr. Rivers said in 1864, is not correct. And with regard to the horizontal cordons, Mr. Rivers devotes a chapter to that system of training, and gives an engraving of it, and shows how, from the radiation of heat from the earth, it produces very fine fruit. Will Mr. Rivers kindly explain why he has so much altered his opinion of the comparative merits of the French and English fruit cultivators, especially as regards hardy fruits? *D. Thomson.*

The Florist's Standard.—I feel obliged to your correspondent "M. S." for his contribution of last week, because he has fairly answered my challenge, and taken up a subject which may or may not be affected by our argument, but if it even leaves us where we began, the argument is fair, and may set our genuine florists thinking. A flower of any kind may be said to occupy the space indicated by its extreme points, and if a circle be described from these extremes, I hold that all indentations are deficiencies. We florists abhor indentations, and although some flowers are by Nature—the Pansy in its original state particularly—formed with marked indentations, nobody will dispute the fact that our early varieties, in a circle drawn from their extremes, look very mean. The florists produced new varieties by wholesale, but the very best made no approach to wide petals. Novelty was all they cared for, and size was one of the popular features; nobody disputed about form. I well considered the effect of widening the petals, and as it was impossible to define the width of these, I saw that a circle could only be attained by insisting on increased width. Thus I set down a circular flower as perfection. At that time the thing appeared to many to be quite ridiculous, but I knew that the line must be drawn somewhere, and must be drawn so that there could be no two interpretations. There were many who said it was impossible to reach that standard, but, as I maintained, the nearer a flower approached it the better. There was an improvement from that time, and now, although they may not be quite circular, they come very near to it. There were, however, other properties insisted on, and one of them upset the claims of many novelties. I contended that the field, or ground colour, whether white, yellow, straw-colour, or cream-colour, should be similar in all the three lower petals, for many were darker or lighter in the two side petals than they were in the lower ones. The similarity was a property that I successfully defended in the presence of the late Mr. Thomson, of Iver, who was then exhibiting a box of novelties, from which I selected several fine flowers with my requirements, and condemned others, which had two different shades. The comparison satisfied the most scrupulous that I was right. There were persons who fancied I was too particular, and that there would be no varieties, that there would be a great sameness, but I was very gentle upon all the points which would cramp the detail. I wanted the top petals to be similar; the two side petals alike, but I said nothing about the eye, nor the size of the field, nor the width of the border; the only restriction I made was, that the rays of the centre should not reach the border. The splendid specimens of the Pansy which now approach the standard, are the best answers to those who dispute my notions. I willingly subscribe to the right of every man to adopt his own standard. All I contend for is this:—the florists for many years were raising new varieties of all their flowers without making a single move towards improvement; and knowing that they could accomplish anything, I ventured to lay down rules, and set up ideal models of perfection, which have in most flowers been very nearly approached. Your correspondent is no doubt a botanist, and it has to be noted that botanists have always been antagonistic to florists. Dr. Lindley, in his day, ridiculed them and their productions, condemned the crossing of breeds, accused them of destroying species, and called double flowers monsters. This was in the early shows at the Horticultural rooms, but later in the day he was obliged to describe and admire, or pretend to admire, the very monsters he had condemned. The florist has done no more with flowers than farmers and graziers have done with beef and mutton. They have turned Pharaoh's lean kine into races of animals, whose forms and qualities are beyond praise. Nevertheless I fully endorse the botanist's right to prefer the weeds, called natural species, to the monsters which florists call their flowers. *G. Glenny.*

Chrysanthemum Sports.—I have forwarded you flowers of a yellow Chrysanthemum for your inspection. They are the result of a sport from "Autumna." Last year a plant of this sort produced a side shoot with yellow flowers, I made it into cuttings, and now have three plants all in full bloom, and every flower is yellow like those sent. I also inclose a bloom of the parent plant from which the sport was obtained. It is as early, as free flowering, and the habit is as good as the original. *T. J., Manchester.* [This sporting is of frequent occurrence, but we have not before heard of it as having taken place in this variety. The yellow flower resulting therefrom is not equal to some of the other yellows already known. Eds.]

Onions.—We have sent you a specimen or two of the Santa Anna Madeira Onion, for your inspection. They were grown in this neighbourhood from seed supplied by us. The largest weighed 18 ounces some time ago. Many of them weighed 16 ounces each when the crop was taken up. The specimens sent were grown by a cottager. *Stuart & Mein, Kelso.* [Two handsome Onions, the largest of which measured 14 inches in circumference. Eds.]

Cephalotaxus Fortunei.—Herewith I have sent you a few fruits of this Cephalotaxus, which were gathered in the pleasure grounds of Mrs. Tweedy, of Alverton, Truro. The tree is about 5 feet high, and has borne hundreds of fruit this season, but I do not remember having seen any of it before. Any readers who are in possession of the tree will confer a favour on us by recording the dimensions of their trees, and by stating whether any of them have produced fruit. *J. Mitchell, Gardener, to P. P. Smith, Esq., Tremorvah, Truro.* [We have lately seen a small plant in fruit in the garden of Sir F. Pollock, Hatton, Middlesex. Eds.]

Preservation of Ice.—Can you inform me of the best way of constructing an ice-house to hold 20 loads of one ton each? As economy will be a great consideration in the matter, the cheapest plan will be thankfully received by a *Poor Countryman.* [Opinions differ as to the best method of preserving ice. It appears to me sufficiently evident that that plan which most effectually secures ice from all changes of temperature after it is stored within the place allotted to it, whether above or below ground, is the best. In some localities but little difficulty is found in preserving ice; in others, after all possible pains have been taken, the attempt is often unsuccessful. Local circumstances, therefore, exercise a certain influence, and must be taken into account when it becomes necessary to devise a system for keeping ice. Cellars excavated in the dry compact sand-beds of the New Red Sandstone are excellent for keeping ice, because an undeviating low temperature is natural to them, and they are uninfluenced by external climatic influences. Whenever opportunities offer of forming cellars in dry, compact sand, soil or rock, such excavations, provided with double doors, and all ingress of air prevented, make excellent ice-houses. As such circumstances do not generally prevail, other systems have to be resorted to, and when the situation is low and damp, and the subsoil porous, or gravelly, cellars are generally ineffective, and houses built on the surface and covered with earth, or the more easily constructed stacks, have to be employed. The ice stack would probably meet your correspondent's views, and I will endeavour to explain its construction, and other particulars connected with it. As a matter of convenience, and to save the expense of carting, it is better to build the stack as near the water which affords the ice as possible; it is advisable also to form the stack on a sloping piece of ground facing the north; the floor of the space enclosed should be firm, and if draining is thought necessary, the drain pipes should be filled with sand. A circular stack is perhaps the best; its diameter may be 8, 10, or 12 feet, according to the quantity of ice required. It must be remembered that the greater the quantity of ice stored the better the chance of its long preservation. A double row of stakes or posts must be driven into the ground; the inner row should be 3 or 4 feet from the outer; the intervening spaces between each row must be wattled, or made up with wood slabs or hurdles, so that the material to be placed within the stakes may be kept up. Dry leaves, Fern, sawdust, charcoal dust, or hay should be tightly rammed between the stakes, to form a wall impervious to weather. When the ice is put in, it should be built in the form of a cone, to assist the thatching. A very thick thatch must, when the space is filled with ice, be securely fitted over it, and so arranged that when the ice sinks the thatch will accompany it. I may remark here, that it is often owing to ice being loosely and carelessly thrown together, and not rendered, as it ought to be, compact and firm by pounding, that it fails to keep through the summer. The harder the frost and the greater the thickness of the ice the better it keeps; sloppy, half frozen ice cannot be expected to keep for many months in the best ice-house. An addition may be made to the ice stack above described, which will render it much more secure and efficient; it consists in the construction over the stack of a light thatched shed with boarded sides. I am acquainted with an ice-stack and shed formed in this manner, which is most satisfactory, and never fails to keep the gentleman who built it supplied with ice. *W. I.*]

Cordon Pruning.—I will not presume to interfere in the discussion between "W. R." and Mr. Rivers, but when "W. R." shows such a want of knowledge of the price of Pears in England, a grower may set him right. The glut of Pears in Covent Garden this season has been most extraordinary, and hundreds of bushels have rotted for want of purchasers. Many a time three-fourths of mine (admitted to be the best sample in the market), have been brought back unsold, and good fruit has fetched no more than 3*s.* per bushel. It is well known in the market that the Channel Island Pears are far better than the French; but for quality neither of them can equal the best English-grown. That "W. R." should specify Duchesse d'Angoulême as a good fruit, shows that his taste is somewhat uncultured. Under no circumstances can that Pear overcome its gross fault—grit and sponginess of texture. Before "W. R." can persuade us to make worms of our trees, he must introduce one radical change in the laws of temperature; he must abolish radiation, April and May frosts, in two years out of three, destroy a great part of the Pear bloom, and the temperature in a clear night is from 4° to 6° lower at the surface of the earth than at 10 feet above it. During the last three seasons nearly all the fruit on the lower branches even of standard trees has perished, while the upper has been safe. Another great defect of the ground cordon system is that the fruit is covered with mud by every thunderstorm, unless the ground is littered, the look of which is hideous. And as to beauty, which is fairer, a healthy pyramid well furnished, rearing its fruit to the eye-level, or a stubby, cankory cordon, just beneath one's shins? *Volema.*

Orchard-house Trees.—I wish to make a few remarks upon an invention which I am bringing out for the improvement of the growth and flavour of orchard-house fruit. It has been submitted to Mr. Rivers, of Sawbridgeworth, who has devoted one of his large orchard-houses to the contrivance. That an orchard-house is the most delightful method of growing fruit, especially by amateurs, is pretty generally admitted. As a protective agent against our inclement springs it is perfect. Many of the fruits, however, such as Pears, Plums, and Apricots, after a time become impatient of the restraint of the house, and are by common consent turned out to improve the flavour of their fruit, and if the more delicate fruits, such as Peaches and Nectarines, had the same advantage, though less frequently, they would be greatly benefited by it. But this constant changing, to meet the caprices of our variable climate, would entail such an amount of labour and trouble as greatly to increase the garden expenses, to say nothing of detracting from the pleasure derived from this charming method of growing fruit. Having given my scheme a trial for a whole season, I may now fairly say that these difficulties have been entirely overcome, and the results have been most satisfactory. The principle consists of a line of rails laid in and out of the house, through large folding-doors at the end. Trucks are placed on these rails, containing pans of earth, into which the pots are set; the whole can be moved in and out of the house with the greatest ease by a strong boy. Having thus the change of climate under command, it requires only common judgment in the gardener to take advantage of it, and the saving of labour to him is very considerable. I am satisfied now that no amount of air given in the house can equal the advantage which the trees gain by being subject to the free radiation of heat in the open air at night. Every gardener knows how absolutely necessary night air is to colour his Grapes, and Vines can scarcely be said to belong to our natural climate at all. How great, then, must be the benefit to much hardier plants to be exposed to the free breezes of a soft summer's night, and to be watered by natural dews? Each of the pans into which the trees are set is made to revolve on its axis with perfect ease, so that any side of a tree can be turned to the sun without the least disturbance of the roots. The trees, most of which I have had in pots eight or nine years, were placed on the trucks indiscriminately, the different sorts being mixed together; under these circumstances they had not the full benefit they might have had by each receiving the exact amount of air most congenial to its well doing. They will now be separated. Next the door should be a truck of Pears, then one of Plums, then of Apricots, then of Peaches, then of Nectarines, and so forth. Thus the trees requiring most air would be in the position to receive it longer and oftener, and the others have as little or as much as desired. If a house were only large enough to hold two trucks, the Pears and Plums, &c., would take their "constitutional" very happily together, so likewise the Peaches and Nectarines. I have illustrated circulars relating to the invention. *John Fountaine, Southacre, Brandon.*

Weather at Bury St. Edmund's.—Thermometer 37°, and snowing. Iresine, in baskets, and Mrs. Pollock, in vases, still alive and well. *D. T. F., Nov.* 20.

Prolific Pear Trees.—Last year I informed you of a Beurré de Capiaumont pyramid Pear tree, growing in my garden, which had then borne three distinct crops. Two of these came to perfect maturity, but the third having been caught by the severe frost of 1st January, in an imperfect state, was worthless. During the present year a precisely similar case has occurred in the same tree. At the usual period it blossomed most profusely, but having been attacked by the frost of 24th May, nearly all the flowers fell off without setting, so that the crop produced amounted to only about two dozen fruits of full size, which were gathered in the beginning of last month. It blossomed, however, again in July, and towards the conclusion of last month yielded upwards of four dozen Pears, also excellent, but rather smaller in size. In August the tree came a third time into bloom, and continued flowering up to the middle of September. The produce of these blossoms is still hanging in abundance, except a few that were taken off on the 8th inst. These are exceedingly small, but notwithstanding, I think the largest of them will ripen. The rest, of course, will come to nothing; nevertheless, may they not be considered to be, in reality, a fourth crop? For the last five years in succession, the same freak of producing more than one crop has happened in this tree; and the only way I can account for it is, that I have constantly kept pinching the shoots, a few at a time, from June to the middle of September, so that the spurs formed for blooming have not all ripened together; and I am the more inclined to entertain that opinion from the circumstance of three other trees, viz., Louise Bonne, Duchesse d'Angoulême, and a summer variety, of which I do not know the name, similarly treated last year, having this season yielded two distinct crops, notwithstanding the first one having been very large—greater indeed than I ever before found the trees to bear. The roots of these trees have never been pruned since they were planted, seven or eight years ago, nor has manure of any kind been applied to them; but the soil in

which they grow was originally composed of fresh loam and turf, well chopped and mixed, laid on, fully 3 feet deep, to a surface of hard, solid rab, which has now sunk to about 2 feet, and the extremities of the roots, I find, have not extended far, while the fibres around the trunks are extremely numerous. I have also growing in the same soil, under similar treatment, Williams' Bon Chrétien, which last year produced two crops, but not this; Marie Louise, Gansel's Bergamot, Beurré Diel, Crassane, and Chaumontel, with never more than one crop; but all, with one or two exceptions, have borne well, and are very healthy. They do not receive any protection, and the fruit is generally of the largest size. Some of the Duchesse d'Angoulême this year weighed nearly a pound each, and few of them less than half a pound. The first crop on it this year numbered 125, and weighed upwards of half a cwt. *Amateur, Whitland.*

Grape Judging.—I have no doubt whatever that Hamburgh Grapes, when thoroughly black, with good bloom and well-swollen berries, will always be of a superior flavour to those of a copper colour, or what we understand as badly-coloured Grapes, provided the same time elapses from their commencing to colour before they are eaten. But it often occurs that the most perfectly-coloured Hamburgh Grapes are shown within 30 days from the time of their commencing to colour. I well know that at the Regent's Park July Show the 1st prize has been taken by Grapes colouring within that time—the judges, of course, acting upon a consciousness of the fact that time will give flavour where good colour is, while they have no proof that colour can be given where it is not. I think Mr. Thomson, and those that think with him in this matter of Grape judging, should think seriously of the injustice their tasting system would have upon those who exhibited at the autumn shows such Grapes as Black Alicante, Barbarossa, or Lady Downes'. The latter takes two months after being coloured before it has anything like its perfection of flavour; so that if flavour is to have the points assigned to it by Mr. Thomson, those who could ripen them early, if inferior in colour, would be sure to win the prize. Mr. Thomson, I think, will not deny that if flavour is to be recognised to the extent he claims for it, it will keep many beautifully coloured black Grapes from being shown; and I am sure he need not do that, for at the Regent's Park (one of the best annual fruit shows in the kingdom, and where colour is the ruling point) not one-tenth of the black Grapes have their natural colour in combination with that forced and unnatural size of berry so much desired. I am sure the tasting system, if truthfully carried out, would often give the 1st prize to badly coloured Grapes; it would tend to remove that mortification to our pride that we now feel at the mentioned fact of our Grapes not coming up in colour, and therefore check our efforts to colour them better another year; it would have no proof to offer to the exhibitor or the public of the truthfulness of the judges' decision. *E. Sage, Gopsall, Atherstone.*

Green Peas.—Having recently seen several articles in your Paper relative to green Peas of different varieties having been sent to table as late as the middle or end of October, I beg to enclose you a sample of Veitch's Perfection, from which I have for a long time been gathering, and a dish of which I sent up to my employer's table yesterday, November 19, when the Peas were pronounced to be as tender and sweet as if the season had been July. I have done nothing in the way of protecting them. The gardens here have a northern aspect; they are pretty far inland, and are situated near the bottom of the famous Mount Leinster. Veitch's Perfection answers all the purposes of a late Pea, and some of your more southern cultivators might, in a favourable season, under careful management, doubtless with it have ducks and green Peas at Christmas. *A. R., Castle Borough, Wexford.* [A very good sample of late Peas. EDS.]

Fruit Growing.—In answer to your correspondent "J. F." (see p. 1168), I forward you a list of the varieties of Pears grown here as standards in the open garden, fully exposed. Some of the trees are very large, and produce from eight to ten baskets each. The sorts are:—Beurré de Capiaumont, very hardy, and an abundant bearer; Beurré Bosc, very fine, and a free bearer; Marie Louise, also a good bearer as a standard; as likewise Glou Morceau; Forelle is very hardy and an excellent bearer, as are also Williams' Bon Chrétien, Ne Plus Meuris, Winter Nelis, and Beurré d'Aremberg: the last is an abundant bearer, but rather small as a standard. Seckel succeeds well with us; and Vicar of Winkfield is an excellent bearer and very useful for dessert. *G. Willers, Cambridge.*

Foreign Correspondence.

BLOOMINGTON NURSERY, MCLEAN CO., ILL.: *Roses.*—These succeed well here in our prairie alluvium, an indescribable clay-sand, or sand-clay, which, on some account, we think sometimes, or for some crops, a trifle clammy or gummy. The Monthly or tender Roses riot here in the open ground, and the Hybrid Perpetuals flourish finely. Among most esteemed Hybrid Perpetual Roses I would name Couronne des Parterres, Dr. Arnal, Duchesse d'Orléans, General Jacqueminot, General Washington, Géant de Batailles, Gilbert Slater, Lord Palmerston, Madame Charles Wood, Madame Knorr, Marquis Bocella, Pæonie, Pius IX., Prince Albert, Prince Chipetouzikoff, Rivers, Sydonie, Victor Verdier, Yoland d'Arragon.

Some of the best flowers, as Lord Raglan, Triomphe de l'Exposition, Charles Lefebvre, Caroline Sanset, together with many of the dark Roses, are not "remontant" enough here; Maréchal Niel, after two years' trial, is a perfect success, whether budded or on its own roots. It is a very free grower and bloomer, perfect in bud and flower, especially in the open ground, where we have given it the fullest trial. Chromatella and Isabella Gray, the only varieties competing with it, are quite distanced. Both seasons have been dry here, but its growth and behaviour have been generally unexceptionable. *F. K. Phœnix.*

BELGIUM: *Château of the Comte de Baillet.*—This is approached by an avenue in the public road, of Oak and Beech trees. You enter by a carriage gate and drive to the house by a road edged in some places by Horse Chestnuts. The house occupies a quadrangle, one side of which is pierced by a gateway: the front side has walls but half-way up, thus affording space for a balcony. Behind, and on one side, the ground is charmingly wooded; in front, and on the other side, lies the garden. At some little distance from the house, in front, is a straight walk bordered on the side remote from the house by a flower bed, extending the length of the walk. Beyond the flower border is water, and beyond the water a second garden border, beyond which is another walk.

Follow the walk on the side of the house, and you come to a small flower garden and conservatory. The conservatory contains Grapes, and Ferns, and choice-leaved plants, but at the present season no flowers, or if any, very few. The strip of ground close to the conservatory wall is planted with plants remarkable for the beauty of their red leaves. On one side of the garden—the side farthest from the house—is a wall covered with wall fruit; at the foot of the wall lies a long bed planted with flowers, among which may be remarked, conspicuous for beauty, many plants of the China Aster, or, as they are called in Belgium, La Reine Marguerite. The garden is cut into two portions, five long beds being opposite to five similar ones; among the flowers contained in them may be remarked Convolvuluses, Geraniums, Stocks, and many others. Beyond the five straight beds are semicircular beds with taller plants. The vegetable garden, which is partially walled, has Peach trees on the walls. This garden is well stocked with vegetables, and has hot-beds containing Cucumbers and Melons. A gate from this garden leads to the stables and gardener's house, near to which is an ice-house. You may regain the high road, either from the stables or from the wood. *H. D. Ryder, Jun., Château d'Eleghem, Sempet, Weerde, Belgium.*

TRADE MEMORANDUM.

WE have received the following letter in reference to frauds upon nurserymen, from Messrs Wood & Ingram, of Huntingdon:—

"The person alluded to by Mr. Harris (see p. 1146) came here the other day and described himself as Mr. H.'s gardener. He ordered for a new garden he was making between 200*l.* and 300*l.* worth of goods, for which a cheque was to be sent the following day, and nothing got up till after the said cheque was received. On the following day he succeeded in obtaining 1*l.* from our Mr. Ingram, on the ground that his having been detained from home a day longer than he anticipated had made him run short of cash. We next heard of him from Birmingham, where he had passed himself off to Mr. Cole, of the Aston Nursery, as the son of our Mr. Ingram, which he was the more easily able to do as he had procured from our clerk a dozen of our catalogues, to distribute, as he said, amongst brother gardeners in his vicinity who were about planting. He had the audacity to give Mr. Cole an order for 161*l.* worth of plants in the name of our firm, and to write to Mr. Ingram as his "Dear Father," asking him to send a draft for 163*l.* instead of 161*l.*, as he had "spent his cash." This, of course, he showed to the firm, and doubtless obtained the marginal 2*l.* His great point seems to be the not requiring anything to be got up or sent before the cheque is to hand, and then getting 1*l.* or 2*l.* in the ways we have named; and if he can call on two or three a day he may live well. We have a warrant out for him, but hope you will caution the Trade against him."

Societies.

LIVERPOOL HORTICULTURAL: *Nov.* 20 *and* 21.—The great autumn show of fruit and Chrysanthemums held annually under the auspices of this Society took place on Wednesday and Thursday last, in St. George's Hall: an excellent place for such exhibitions, and which, when lighted up in the evening, are highly attractive. Fruit, though generally smaller than usual in size, was wonderfully bright in colour, especially the dessert Apples, a circumstance probably attributable to the somewhat dry September which we have this year experienced.

Grapes were excellent, especially a collection from Mr. Meredith, which was however not shown for competition. It consisted of a bunch of Barbarossa ripe in May last and still in perfection, plump and sound; Gromier du Cantal, of a fine amber colour; Black Alicante, large and beautiful; White Tokay; Child of Hale, a magnificent bunch; Foster's Seedling, Muscat, and Lady Downes', all in such fine condition that they were the subject of general admiration. From Mr. Hill, gr. at Keele Hall, came excellent bunches of Muscat, in which that rich golden hue which this variety should have when in perfection was beautifully exhibited. To these a 1st prize was deservedly awarded. From Mr. Blisset, gr. to H. Phillips, Esq., also came good fruit of this variety, which was also furnished by Mr. Reid, gr. to S. P. Hope, Esq., and others. Excellent bunches of Trebbiano came from Mr. Rawbone, gr. to C. M. Campbell, Esq., and Mr. Davies had also fruit of the same variety. Two magnificent bunches of Barbarossa, to which a 1st prize was awarded, were furnished by Mr. Sorley, gr. to Mrs. Zwilchenbart. These must have been nearly 18 inches in length, and the berries were large, finely-coloured, and covered with a beautiful bloom. The best Black Hamburghs were shown by Mr. Woolley, gr. to W. Jackson, Esq., Claughton Manor, Birkenhead. From Mr. Rawbone came two fine bunches of Black Alicante.

Of Pine-apples few were shown, but what were produced were excellent, both in regard to size and quality. From Mr. Freeman, gr. to the Earl of Derby, came some very fine fruit of Black Prince and smooth-leaved Cayenne. Mr. Wallis also showed some good fruit.

Collections of Fruit came from Messrs. Rylance & Ashcroft, who contributed excellent groups in the Nurserymen's Class. In that set apart for Amateurs, good collections came from Mr. Woolley, Mr. Forbes, gr. to J. A. Tinne, Esq., and Mr. Smith, gr. to H. Littledale, Esq., Liscard, Cheshire. In these were good Muscat and other Grapes, fine Marie Louise and Beurré Diel Pears, Raby Castle Currants, still in a good state of preservation, and other well-grown fruits. From Mr. Woolley came large and beautiful bunches of Barbarossa Grapes, also examples of West's St. Peter's and Black Hamburgh, Muscats, three dishes of Pears and a similar number of Apples, and a dish of Dutch Medlars. In other collections we noticed good dishes of King of the Pippin Apple, which was almost universally named Cox's Pomona, and most beautiful Marie Louise Pears, large, clean skinned, and nicely russetted.

Collections of dessert Pears were numerous. The best came from Mr. Sorley and Mr. Reid; and Mr. Whitfield also showed good fruit in this class.

In the Class of 4 dishes of dessert Pears Mr. Sorley was 1st, Mr. Smith 2d, and Mr. Lowndes 3d. Among these were fine fruit of Beurré Diel, Hacon's Incomparable, Marie Louise, Beurré Bosc, Beurré de Rance, Glou Morceau, Passe Colmar, Dorée, Chaumontel, Winter Nelis, Duchesse d'Angoulême, and Easter Beurré.

The best dish of dessert Pears came from Mr. Reid, who showed fine fruit of Marie Louise. Mr. Dunbar was 2d, with Winter Nelis.

In the Class of 4 varieties of dessert Apples, the 1st prize was awarded to Mr. Smith, and the 2d to Mr. Reid. Among the sorts shown were Cox's Orange Pippin, Ribston, Blenheim Orange, and King of Pippins, in which there was invariably a large amount of fine colour. Court-pendu Plat was also remarkable for the brilliant red with which it was decorated. We also noticed good fruit of Beachamwell.

The best dish of dessert Apples was furnished by Mr. Woollam, who showed Cox's Orange Pippin; 2d came from Mr. Turner, who had Ribston. A 3d prize was awarded to a small rough-looking Apple, named Delaware.

Culinary Apples were largely shown. The best collection of 8 varieties came from Mr. Freeman, the next best from Mr. Reid, and a 3d lot from Mr. Thomson. Among these were large and fine fruit of Emperor Alexander, Blenheim, White Calville, probably from orchard-house trees, green, and somewhat rough, but still fair fruit; Reinette du Canada, Flower of Kent, Golden Noble, Kentish Filbasket, Cat's-head, and the dull, red-coloured Mère de Ménage.

In the Class of 4 dishes, Mr. Smith was 1st, Mr. Woollam was 2d, and Mr. Auchterlonie 3d. Conspicuous among these were dishes of New England Pippin (which is said to succeed well in Lancashire), Bedfordshire Foundling, Wareham Russet, also a valuable north-country Apple, and others.

The best dish of kitchen Apples came from Mr. Smith, and the second best from Mr. Thomson. They consisted of kinds already named.

Chrysanthemums served as a brilliant framework to the tables of fruit which occupied the centre of the Hall, and to the gay throng with which the Hall was crowded doubtless seemed the most important feature of the show. In regard to their cultivation, a visible improvement is perceptible on former exhibitions of them; so much indeed is this the case, that little is now left to be desired, and any of the collections shown on this occasion might have advantageously competed with those furnished to our London shows. From Mr. Hignett, gr. to C. Row, Esq., came wonderfully fine plants of both Pompon and large-flowered sorts, standards and pyramids, and in nearly all the classes set apart for amateurs he was first. In the Nurserymen's Class Mr. Matthews stood in the foremost rank, while Mr. Whitfield and Mr. Wilson carried off 1st prizes in groups of threes and in collections of Pompons. From Mr. Shaw came some good Anemone-blossomed sorts. As regards Pompon varieties they consisted for the most part of the lilac, white, and golden varieties of Cedo Nulli, Helène, Duruflet, General Canrobert, St. Thais, Mustapha, and a new bright yellow sort named Ascaine, which, when better known, will doubtless be a favourite. Large-flowered sorts consisted chiefly of the different varieties of Christine, Prince of Wales, Prince Alfred, Annie Salter, Beauté du Nord, Rifleman, and other well-known kinds. Cut blooms were not nearly equal to those shown about London.

Among miscellaneous subjects were one or two collections of Ferns, Chinese Primulas, standard and pyramidal plants of Mignonette, various hand bouquets, and several panfuls of that charming little bulbous plant the Early Roman Hyacinth, which is a most useful kind for supplying spikes of deliciously fragrant pure white blossoms for bouquets.

ENTOMOLOGICAL (*Nov.* 4).—Professor Westwood, V.P., in the chair. Certificates in favour of A. H. Haliday, Esq., and six other candidates for admission into the Society, were read. Mr. F. Bond exhibited three new species of Lepidoptera new to the British lists—1, Psyche crassiorella of Bruand's Monograph; 2, Catoptria ravulana of Herrick Schäffer; and 3, Coccyx vernana of Knaggs. Mr. McLachlan exhibited the female of the very rare Mantispa notha, the male of which has densely hairy legs; likewise several interesting cases of monstrosity, including a Limnephilus striola, irregularly gynandromorphous, and Tenthredo madidus, the entire right half of which was female and the left half male; also Tenthredo scutellatus, with three wings on the right side of the body, the middle additional wing having its front margin like that of the fore wing, and the hind part like the inner margin of the hind wing. Mr. E. Saunders read a revision of the species of Australian Buprestidæ, originally described by the Rev. F. W. Hope, now preserved in the Oxford Museum. Mr. T. Wood read a series of observations upon, and exhibited a number of chrysalides of Papilio Machaon, Pieris Brassicæ, and P. Rapæ, with the view to show that the variation of colour in the different chrysalides depended on their situation, and was effected with the ultimate object of preservation by assimilation to surrounding objects. Thus, a chrysalis on a wall was of the ordinary dusty colour, but if amongst or covered by leaves, it assumed a green tint. He also considered that the gilt chrysalides of the Vanessæ, which are freely suspended by the tail, are thus ornamented as a defence against birds. Mr. Bond denied the correctness of this observation, and cited an instance in which he had found three differently-coloured chrysalides of the Orange-tip butterfly upon the common rocket. A paper by Mr. Hewitson, containing descriptions of a number of new species of Butterflies from Nicaragua, Ecuador, and Quito, was read. Also a monograph on the genus Thais, by the Rev. D. C. Timius.

Nov. 18.—Professor Westwood, V.P., in the chair. Mr. F. Bond exhibited a series of specimens of Sterrha sacraria recently reared from eggs deposited by two females captured in the middle of August by Mr. Rogers, in the Isle of Wight. The females were of a pale yellow colour, but the entire progeny proved to be very dark-coloured, without any of the rich tints of the true type of the species, thus differing from a similar series recently reared by Mr. McLachlan, with which, however, they agreed, both in time and food. It was suggested that the late cold and sunless autumn had probably effected this result. Mr. Higgins exhibited an extensive series of diurnal Lepidoptera, from Labuan, in splendid condition, containing several grand new and rare species. Mr. Stanton exhibited Ebulea Catalaunalis, taken in September near Cheshunt, hovering like a fly over a flower-bed. Mr. Trimen exhibited a new species of Mantidæ, closely resembling one of the Phasmidæ, also a species of Grasshopper which he had repeatedly met with in South Africa, and of which he had observed many instances in which pairing took place in the pupa state. Also an apparently new species of Papilio from Uruguay. Mr. McLachlan communicated a notice of the capture of the curious little Boreus hyemalis in Moss at Wickham and Croydon. The Chairman gave an account of the manufacture of silkworm-gut (used by anglers) by the Chinese. Mr. Stainton mentioned the occurrence of larvæ of Tineæ

which had buried themselves to a considerable depth by burrowing into the horn of a Koodoo antelope from Natal: and Mr. Trimen stated that he had found larvæ which had eaten into the bone of the skull of the hart beest in South Africa.

Notices of Books.

The Huguenots, their Settlements, Churches, and Industries in England and Ireland. By Samuel Smiles. London: Murray. 8vo., pp. 521.

In an easy, pleasant style, Mr. Smiles in the volume before us conveys a great deal of information respecting those numerous refugees, who at various times established themselves in this country, in order to avoid the persecutions directed against the Protestants in the Low Countries, and in France. These deeds of horror are matters of history, and Mr. Smiles adds little or nothing to the sum of what was previously known concerning them. But if, so far as the main facts are concerned, there is little in this volume that has not been told before, the reader will nevertheless be gratified at the abundant details which our author has strung together to illustrate his theme. It is not until one sees in this way how extensive were the immigrations after the merciless persecutions of Alva, the treacherous massacre of St. Bartholomew, and the hideous cruelties that followed the revocation of the Edict of Nantes, that the full influence of the settlement of so many foreigners among us can be appreciated.

Our early kings invited skilled workmen to settle among us, but from the time of Edward VI. no such invitation was needed, and this country and Holland became the chief places of refuge for those oppressed for conscience sake. They fled by hundreds of thousands, crippling the resources of their native land, impoverishing its funds, and in many cases obliterating its manufactures. "The paper makers of Angoumois left their mills; the silk makers of Touraine left their looms and the tanners their pits; the Vine dressers and farmers of Saintonge, Poitou, and La Rochelle left their Vineyards, their farms, and their gardens, and looked out into the wide world seawards for a new home, and a refuge where they might work and worship in peace." No sooner had they arrived on our shores than they set resolutely to work—they were no idlers—they did not care to accept hospitality or subsidy for one moment longer than was absolutely necessary. England received them hospitably, but amply was she repaid for the assistance she gave. Settlements of these industrious foreigners were made in London, in Norwich, in Canterbury, in Southampton, even in Ireland. Everywhere they took with them habits of order, of industry, of piety: new manufactures were established, old ones revived. In many branches of trade and manufacture England was converted from an importing to an exporting nation. We have not space to do more than allude to these facts, but we may give an extract or two from Mr. Smiles' book to show what influence the Flemish refugees especially had on gardening.

"Though long before practised by the monks, gardening had become almost a lost art in England, and it is said that Katherine, Queen of Henry VIII., unable to obtain a salad for her dinner in all England, had her table supplied from the Low Countries * * * Vegetables were formerly so scarce that they were salted down. Even in the 16th century a Cabbage from Holland was deemed an acceptable present. Hull then carried on a thriving import trade in Cabbages and Onions. The rarity of vegetables in the country may be inferred from the fact that in 1595 a sum equal to 20*s.* was paid at that port for six Cabbages and a few Carrots, by the purveyor for the Clifford family. Hartlib, writing in 1650, says that an old man then living remembered the first gardener, who came into Surrey to plant Cabbages and Cauliflowers, and to sow Turnips, Carrots, and Parsnips, and to grow early Peas—all of which at that time were great wonders, we having few or none in England but what came from Holland or Flanders. It is also supposed, though it cannot be exactly ascertained that the Protestant Walloons introduced the culture of the Hop into Kent, bringing slips of the plant with them from Artois. The old distich—

'Hops, Reformation, Bays, and Beer,
Came into England all in one year,'

marks the period, about 1524, when the first English Hops were planted. * * * Reginald Scot, the author of the 'Perfitte Platforme of a Hoppe Garden,' speaks of the trade of the Flemminge, *i. e.* his method of culture and his ostes at Poppering as a 'profytable patterne and a necessarie instruction for as manie as shall have to doe therein.' Another kind of crop introduced by the Flemings at Sandwich was Canary Grass, which still continues to be grown on the neighbouring farms, and is indeed almost peculiar to the district. It may be added that to this day the Sandwich Celery maintains its reputation. * * * The Cabbage, Carrots, and Celery produced by the foreigners met with so ready a sale and were so much in demand in London itself, that a body of gardeners shortly removed from Sandwich and settled at Wandsworth, Battersea, and Bermondsey, where many of the rich garden grounds first planted by the Flemings continue to this day the most productive in the neighbourhood of the metropolis."

While thus far from slothful in business, they did not neglect their religious obligations, nor forget the cause that drove them from their native land. Churches and schools were established for their use. In London there were no less than 35 chapels set apart for them. At Canterbury a portion of the crypt of the cathedral was placed at the disposal of the earlier refugees for religious worship; and after the revocation of the edict of Nantes, when the number of immigrants was greatly increased, a second chapel was made use of. To this day the French church at Canterbury is in existence, the service being conducted in the French language, though but few or none remain now of the refugee families who are not far more English than French. And here is a fact for those historians and politicians who speak of the differences of race and of diversities of "nationality": a very few generations in this case have sufficed to convert Walloons, Flemings, and French into genuine Englishmen. True, the names remain to give a clue to the ancestry of their bearers. Thus at Canterbury may still be found representatives of the families of De la Saux, of Claris, of Miette, Le Maitre, Bouverie, De Laine, Gambier, Le Fevre, and many others. In other cases even the names have so changed that at first it is difficult to recognise them in their disguise, thus—De la Mer has become Delmar; Momerie, Mummery; Planchè, Plank; Drouet, Drewitt; d'Aeth, Death; Chapuis, Shoppee; De Moulins, Mullins; &c. Looking through the list of names cited by Mr. Smiles it is remarkable not only how many still remain comparatively little altered, such as Lobjoit, Fourdrinier, Poupart, &c., but also how very many of these names are borne by men eminent in some department or other. Take, for instance, such names as Bosanquet, Rigaud, Dollond, Roget, Courtauld, Romilly, Bouverie, Casaubon, Chenevix, Crespigny, De Moivre, Layard, Martineau, Du Cane, *i. e.* Du Quesne. In fine, whether it be in the peerage or in the trades' directory, large traces of these Huguenot immigrations may be seen even now, while the qualities of the original immigrants are shown not only by their endurance of suffering and distress, but by the mark which they and their descendants have left in the scientific, the literary, and the industrial history of the country.

Florists' Flowers.

A WALK through any suburb of the metropolis will demonstrate the utility and attractiveness of the CHRYSANTHEMUM as a decorative plant for the outdoor garden, during the autumn and early winter should frost not intervene too soon or too suddenly. Along the outskirts of Islington, through Hornsey, and on to Stoke Newington, there is to be observed a general cultivation of the Chrysanthemum in gardens, and very attractive indeed do some of the suburban villa gardens look at the present time. Stoke Newington may be regarded as one of the strongholds of the Chrysanthemum, for a show has been held there annually since 1846. Chrysanthemum exhibitions are rare occurrences just now, but the Stoke Newington Chrysanthemum Society holds its annual treat, year by year, with commendable perseverance. A show of Chrysanthemums, pure and simple, is better calculated to bring out the peculiar features of this popular flower than when it forms only a portion of a larger exhibition. As such a show is held at a season of the year when the days are not only short, but foggy and dark, the artificial light, necessarily brought into requisition, really makes a Chrysanthemum show a very attractive sight, as it heightens the otherwise sober hues of many of the flowers, though at the same time it gives to some of them a deceptive appearance.

One of the most beautiful among white flowers is Mrs. George Rundle, pure white in colour, beautifully incurved, and very close and compact. The flowers are small in size, but in regard to the purity of the colour they are unrivalled. Dr. Sharpe, a reflexed flower, is an excellent addition to the shades of red and crimson, as it is of a shaded magenta crimson hue, and the flowers are of good size and of fine quality. These were distributed by Mr. Forsyth, of Stoke Newington, during last spring.

The following represent some of the very finest of the incurved flowers shown at Stoke Newington:—Gloria Mundi, bright golden yellow; Golden Beverley, golden canary, a sport from the white "Beverley," a very fine incurved show flower; Eve, sulphur yellow, becoming almost white; Formosum luteum, pale yellow, a very pretty show flower; Golden Dr. Brock, a finely incurved, bright golden yellow flower; Jardin des Plantes, bright golden orange; and Aureum multiflorum, pure yellow, a capital variety for pot culture. Of white flowers; Beverley, creamy white; Cassandra, a very beautiful flower, delicately tipped with rose; Empress of India, a very large but showy flower; White Formosum, a very useful exhibition variety; Novelty, blush white, of fine shape, and great size; and White Globe. Of crimson or dark flowers: Fulgidum, a bright shade of dark reddish crimson; Prince Alfred, a dull shade of rosy crimson, but a large and full flower; Nil Desperandum, dark red; and Prince of Wales, rosy violet crimson, a large and very fine show flower. The hue of orange, mingled with amber or chestnut, or cinnamon, or red, pervades a good many of the leading flowers. For instance, John Salter, reddish cinnamon, paling off to orange in the centre, a large and beautifully incurved flower; Hereward, orange purple, having a distinct silvery tinge when fully incurved, very handsome and full; Dr. Brock, reddish orange, a useful show flower; General Bainbrigge, dark orange amber; General Slade, red, tipped with orange, a good exhibition flower; Lord Ranelagh, reddish orange, large and full; Mr. Brunlees, a large and very fine incurved flower, Indian, red, tipped with gold; Rev. J. Dix, orange red, very fine; Robert James, orange cinnamon, flowers of good size and full substance; and Sir Stafford Carey, brownish chestnut orange, yet of a very lively shade, as well as a large and full flower. Rose and pink and lilac flowers were represented by Josiah Wedgwood, bright rosy carmine, quite distinct in colour, as well as being a large and full incurved flower; Hercules, large reddish carmine, a fine flower; Lady Carey, rosy lilac, a finely incurved and beautiful show flower; Lady Harding, delicate rose, very beautiful; Pink Pearl, delicate pink, with a silver shading when incurved, very fine and striking; Queen of England, deep blush; and Venus, lilac peach, a finely incurved and beautiful show flower.

In showing cut blooms the incurved flowers are used, and when fully developed they form very handsome and compact masses of various-coloured florets. When plants are shown it is usual to select the reflexed flowers, as not only do the plants themselves appear to be best adapted for the purpose, but the reflexed flowers are allowed to develop themselves much more freely, and when well grown and bloomed, something like the show Pelargoniums, they are highly attractive. Some of the leading reflexed flowers are:—Dr. Sharpe (before noticed), a very fine exhibition kind; Vesta, ivory white; Golden Christine, golden buff; Alma, rosy crimson; Annie Salter, golden yellow; Little Harry, golden amber; Hermione, blush; and Golden Hermione, golden orange. With suitable cultivation many of these could be grown into show flowers.

The standard and pyramidal forms of the Pompon varieties were specially noticeable. Some plants of the former, shown by Mr. Forsyth, were well grown and nicely flowered, but they had a somewhat formal appearance in consequence of being trained to wire supports. The necessity for these became apparent when Mr. Forsyth's plants were put into contrast with some from another exhibitor; those of the latter being literally formless, hence training must be resorted to in order to ensure symmetrical specimens. The following are good kinds for pot-culture:—Andromeda, Helène, the lilac, golden, and white forms of Cedo Nulli (all three excellent, but the lilac one very pretty indeed); Calliope, Salamon, Bob, still are capital dark kinds, but very late in blooming; White Trevenna, Astrea, Duruflet, and Madame Montels are also worth attention. The standard system of cultivation appears to secure one desideratum, that of promoting early blooming.

Two very fine new flowers were awarded First-class Certificates, viz.:—Mrs. Sharpe, a full and finely incurved flower, colour rosy lilac, with a light centre, of fine shape and substance, from Mr. Forsyth; and Princess Beatrice, from Mr. Wyness, Buckingham Palace Gardens, of a bright pale lilac shade, suffused with an unusual glow for so sober a hue in the Chrysanthemum, and a very fine and full incurved flower. Mr. George, of Stamford Hill, had a plant of Hermione, a large-flowering kind, that had broken away into a reddish buff coloured flower, darker in colour, and the flowers much fuller and more compact than Golden Christine, which it most nearly resembles.

The Anemone-flowered forms of both the large-flowering, and the Pompon kinds, are undergoing an improvement, though they can scarcely cease to be other than a mere specialty, grown by a few fanciers of this somewhat mean-looking form of the Chrysanthemum. They are like the dull and unattractive forms of the breeder Tulips compared with the gorgeous broken flowers; only in the case of the Chrysanthemum there is really no promise of the Anemone-flowered kinds ever overtaking their colleagues of the other classes in point of attractiveness, while the breeder Tulip may be the forerunner of a premier flower. A few very fine flowers of the Japanese Chrysanthemum were shown by Messrs. E. G. Henderson & Son—very large and showy, loose flowers, but certainly improvements on the original varieties introduced by Mr. Standish. What they may become is known only to the future; and the hybridiser has no doubt already made considerable use of them in his own department.

MR. SALTER'S fine collection of CHRYSANTHEMUMS is now nearly at its prime; and, although the flowers are perhaps not so large as usual, they are well formed, and of bright colour. In about a week's time this nursery will be specially worth a visit, for Mr. Salter has succeeded in raising several seedlings from Japanese varieties, representing every shade of colour peculiar to this flower. These seedlings are distinct from any yet seen; the florets resemble a mass of coloured threads, some spotted, some plain-coloured, which again remind one of very long-legged spiders. They never can become florists' flowers, but will be most useful for decorative purposes. Every person interested in singular freaks of Nature, which are endless, should see these curious and interesting productions. Of ordinary varieties, Little Harry, St. Patrick, Mr. Brunlees, and Golden Beverley are at present in beautiful condition; as are also, indeed, most of the exhibition flowers elsewhere mentioned. Among newer kinds are Dr. Sharpe; Fingal, rosy lilac; and as an orange and amber-coloured flower, Dr. Lindley is also very fine. Lady Talfourd, both in and out of doors, is excellent. Isabella Bott, large, blush; Prospero, dark purplish violet; Venus, Mrs. G. Rundle, and Mrs. Heale, the last a pure white sport from Princess of Wales, are also fine kinds. Among new sorts yet to be sent out the best at present in bloom are Lord Derby, very dark purple; Princess Beatrice, a variety exhibited by Mr. Wyness, at Stoke Newington, and which is to be sent out by Mr. Salter; Golden Orb, large, canary-coloured; Baron Beust, finely incurved chestnut, shaded with yellow; and Captivation, carmine shading off to white. Sedums, Saxifrages, and other plants of that description, decorate the entrance to this exhibition; and in another house, as well as out-of-doors, is the splendidly-coloured Chilian Beet, which was much admired when exhibited some time ago at South Kensington. Among other plants Centaurea magnifica was conspicuous, on account of its large beautifully cut foliage; and it may be added that of other ornamental plants Mr. Salter has an excellent collection.

To some of Mr. ADAM FORSYTH'S Chrysanthemums we have already adverted, but it may be worthy of notice that his general exhibition of specimen plants is now in perfection, and is well worth inspection. The show house, which is 45 feet long and 20 feet wide, is filled all round the sides with trained plants for exhibition, among which we noticed Mrs. G. Rundle, Dr. Sharpe, a great acquisition to specimen growers, being of a colour which is much wanted; Mrs. Sharp, a finely incurved flower of large size; Vesta, Alma, Christine, and its golden variety; Attraction, Annie Salter, Aureum multiflorum, Beauté du Nord, Lady Harding, and General Bainbrigge. There is also in the centre of the house a magnificent bank of flowers kept for furnishing cut blooms, of which the most conspicuous are Countess of Warwick, Lady Talfourd, William Edwards, Orange Perfection, John Salter, White Princess, a fine kind; Beverley, and its golden variety; General Harding, Prince of Wales, Jardin des Plantes, Prince Alfred, White

Globe, Little Harry, Little Pet, Gloria Mundi, Hetty Barker, a kind like Cassandra; Empress Eugénie, &c. Contiguous to the show-house is a range of glass-houses, nearly 300 feet in length, nicely furnished with pyramidal, standard, and bush-trained Pompons, which have a very pleasing effect. Conspicuous among these are Antonius, White Trevenna, an excellent variety; Rose, ditto; Prince Kenna, Sidonie, Grace Darling, Mrs. Dix, and the white, lilac, golden, and brown varieties of Cedo Nulli; together with General Canrobert, Andromeda, Golden Aurore, a fine yellow; Miss Nightingale, Princess Dagmar, and others. There is also here a good general collection of spring flowering and other plants, all in good condition.

The Apiary.

EARLY DRONES: PARTHENOGENESIS.—As I wished to have another clear confirmation of Herr Dzierzon's wonderful doctrine of Parthenogenesis in the honey bee (see *Gardeners' Chronicle*, Nov. 20, 1865), in September last year I removed a fertile queen out of a Ligurian stock, and the bees raised three royal cells, the first of which was hatched out on the 20th of that month, and the other two royal cells were destroyed.

In January, 1867, I found several drone pupæ on the floor-board, and on the 18th of February I examined every comb and found drones hatched, and drone brood in all stages of development in worker cells. I saw the queen, and found her very active. I removed the combs containing worker cells and gave them combs containing only drone cells. I had drones flying in February and March, and they were of service to me in the fecundation of the Ligurian queens that I raised early this spring.

On the 6th of May, having removed this drone-breeding queen, I sent her to "The Lincolnshire Bee-keeper," and he successfully joined her to a strong stock of black bees, and all summer she produced only Ligurian drones, which he wanted for his young black queens. She is still at the head of the stock, and he is keeping her to produce Ligurian drones to fertilise his young queens next year, and they will then produce bees three quarters bred Ligurian. It would be very interesting if he would carry on his experiments further, and produce almost pure Ligurians from originally a common black queen.

This is the first drone-breeding queen that has ever been kept alive so long, producing only drones. He of course has kept up the strength of the stock by giving them worker brood combs out of other hives.

Some of your correspondents that have Ligurian bees, and wish to keep them pure, but are surrounded by black bees, will find these drones (hatched a long time before any black drones appear) are of great service, but with me this is not of any consequence, as there are no black bees kept within about four miles from my apiary. *William Carr.*

NEW BEE-PLANT.—Let me recommend to your bee-keeping gardeners Polygonum virginianum as a bee-plant. It dies down in winter, but springs up again, and spreads from its roots so as to cover a large space in a short time; it is very sweet, and a handsome large-leaved plant, with tall panicles of white flowers, which last till the frost kills them. *Somerset.*

ERRATUM (p. 1169).—"I kill no bees in taking the honey, nor do I use anything to stupefy them, but drive them from the hives I wish to take into the *weaker* (not WICKER) hives."

Garden Operations.

(*For the ensuing week.*)

PLANT HOUSES.

Cape Pelargoniums will now need very careful attention. A very slight amount of warmth more than is good for them, too close an atmosphere, or the like, productive of a weak, ill-matured growth, cannot be too much guarded against; for after they have become drawn at this season, owing to any little discrepancy in their general treatment, it is not easy to restore them to vigour. Afford each plant abundance of room, keep them as near the glass as possible, and give all the air possible upon all favourable occasions. Plants intended for very early flowering may now be got into their preliminary shape, with the aid of a few stakes, &c, pinching back all that need it, and giving them a slight shift when fairly started afterwards into growth, provided at all times the roots are in want of more extended space. I have already suggested that they be potted into a nice free, open, rich, friable maiden loam—that upon which the upper herbage has become thoroughly decomposed, by laying for a twelvemonth or so—giving rather less silver sand at each successive potting than is needed when first started after having been cut back. I would advise that the earlier batch—those which are fairly growing—receive now and then upon nice, fine sunny days, a slight sprinkling overhead with water some half-a-dozen degrees warmer than the temperature of the atmosphere. This invigorates them much, without inducing any unnecessary growth, when afforded them with due regard to existing circumstances. Always endeavour to get the foliage thoroughly dried before closing the house, therefore use tepid water, which evaporates more readily than cold water. It will be well now to remove the saucers containing water from beneath potted plants of *Disa grandiflora*, &c., supplying them with surface soakings more frequently, in place of the moisture they have been in the habit of imbibing from below. It will be well, moreover, at this dull season to keep these in a well-aired place, and with a moderate amount of heat only. See that thrips do not attack them, or that the tips of the young leaves do not receive injury in any other way. Give *Poinsettias* frequent syringings overhead now, as the showy floral bracts are about developing themselves; give also alternate waterings with weakly-diluted manure water. I have had "Standen's" manure in use lately, and though a powerful fertilising agent, it is very useful in any way in which it may be applied. It is essentially suited to hard-wooded and other pot plants, and being inodorous, it does not appear to "sour" the soil in the least. *Cyclamens* thrive apace if occasionally watered with it. *Cinerarias* must not by any means be allowed to suffer from want of root-moisture at this season, which they too frequently do—filled as the pots now are with a mass of gross-feeding roots, and often placed in the neighbourhood of flues or pipes. Too much moisture, therefore, cannot well be given them, when well drained. Give good strong liquid manure frequently. Be well prepared hence-forward for sudden severity. All at once a sharp frost may occur. With flues occasionally just warmed through, for the purpose of dispelling foul air, &c., and fires ready laid, hard weather surely need not take us unawares.

FORCING HOUSES.

Late Vineries, in which fruit is still hanging, should not exceed a temperature of 47° or 48° at night, if the Grapes are to be kept as long as possible, plump and good. Maintain a low temperature in all Vineries where forcing has commenced, until the buds have fairly started. From 50° to 54° will be ample; the former upon cold nights will suffice, as it will obviate too great a rush of artificial heat. Keep up a nice gentle temperature upon the surface of the outer border in cases where the roots are out in such positions by means of fermenting materials. Syringe the Vines occasionally only, if a goodly volume of humidity is constantly maintained by means of fermenting material placed inside the house. If no such advantageous circumstances exist, it will be necessary to damp the canes more frequently, and by other means to induce a good moist atmosphere. Old Vines, when thus forced early, receive some assistance by means of moistened hay-bands, which are generally bound around the lower portion of the rods neatly. Houses in which the roots of the Vines are inside, and the borders of which are likely to be very dry, should have thoroughly good soakings of water, which should be comparatively warm. It will be well, therefore, to prepare a heap of thoroughly decomposed manure of the very best quality, which by occasionally turning over, will be ready to place thickly upon the surface of this inside border previous to giving it another good soaking with water. The useful properties it possesses will thus be worked out and driven down into the soil below. Maintain an average bottom-heat of about 84° at the roots of all *Pines*. Be very particular, in watering them, not to allow the soil to become too wet. Rather allow them to be somewhat dry constantly, provided the roots are kept slightly yet healthily active. Cut fruit, it is pretty generally known, will keep some time at this season when removed to a cool dry atmosphere. Give studied attention to all *Peach* and *Nectarine* borders, the trees in which are being forced. See that they do not stand in need of water. If any buds fall off accept that circumstance as a proof that something is likely to be wrong in that direction. Of course the treatment must be according to past routine. If the lights have been removed and rain fell upon the border, it is not nearly so likely to want a good soaking as others from which the lights have not been removed. See well to all plants intended to be forced successionally for a supply of flowers. All freshly-potted plants should receive valuable assistance from being plunged in some sort of fermenting material in the outer air. This will induce fresh rootlets to form, and prepare them for a better display when wanted.

HARDY FRUIT GARDEN.

It will be advisable now to loosen the branches of *Peaches* and *Nectarines* from the walls for the purpose of hardening the wood more thoroughly, &c. Remove all nails and shreds carefully, and bundle here and there six or eight shoots severally together, which may, by means of twine, be fastened so as to hang loosely to the wall, in order that no risk may be incurred of injury in windy or snow-drifting weather. Fasten them firmly, for it will be necessary to allow them so to remain until the early spring, as the loosening of them from contact with the wall materially retards their time of flowering.

HARDY FLOWER GARDEN.

This is a good time for making cuttings of any variety of the *Rose*, which it is necessary to propagate by such means. Remove from the parent plant any of the shoots of the current season's growth having a "heel" at their base, viz., a portion of the older wood from which the bud originally issued. Make a clean cut at the base of the cuttings so formed, when they may be dibbled out in rows in any selected corner, there to stand until next autumn, by which time they will have become nice strong plants suitable for removal into any position where needed. It may be well to mention that some part of the upper portion of the shoot should also be removed,—the cutting, in fact, formed of the firmest wood, need not be more than 10 or 12 inches in length. *Neapolitan Violets*, which have now become well hardened by exposure, should have the lights placed over them.

KITCHEN GARDEN.

It will be well to make a sowing of some early sort of *Peas* upon a warm south border, or other not too exposed situation. Sow them thickly and moderately deep, that severe frosts may not injure the roots. Hence it will be best to draw deep drills, say 7 inches below the surface. Upon very slight soils tread the Peas firmly into the alleys after sowing, and so place the soil back over them that a slightly elevated ridge may exist immediately upon the side which is most exposed to the northerly or more eastern side, this for the purpose of warding off cold cutting winds, &c., when the plants are above ground in later severe weather. Cut off and remove the decayed stalks from plantations of *Jerusalem Artichokes*. These having performed their necessary offices have no further uses, and hence need removal. Sow *Onions*, where a demand for young ones constantly exists, a pan at a time, and place them in warmth. *W. E.*

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the Week ending Nov. 20, 1867, as observed at the Horticultural Gardens.

November.	Moon's Age.	Barometer.		Temperature.					Wind	Rain.
				Of the Air.			Of the Earth			
		Max.	Min.	Max.	Min.	Mean	1 foot deep.	2 feet deep.		
Thurs. 14	18	29.624	29.537	56	40	48.0	49	47	S.	.08
Friday 15	19	29.603	29.551	61	44	51.5	50	48	S.E.	.00
Satur. 16	20	29.668	29.563	48	38	43.0	48	47	E.	.00
Sunday 17	21	30.035	29.778	48	30	39.0	47	47	N E.	.00
Mon. 18	(22	30.243	30.162	43	39	41.0	48	47	N.	.00
Tues. 19	23	30.247	30.230	49	26	37.5	46	47	N.W.	.00
Wed. 20	24	30.347	30.298	41	36	38.5	45	46	N.	.00
Average		29.966	29.874	49.4	36.1	42.7	46 1	47.0		0.08

Nov. 14—Rain; overcast, showery; overcast and mild.
— 15—Foggy, very mild; overcast; fine, but overcast.
— 16—Overcast, boisterous and cold; boisterous; clear and cold.
— 17—Overcast and boisterous; overcast, cold; cloudy.
— 18—Overcast, mild; overcast; fine, but overcast.
— 19—Overcast and mild; overcast; clear and frosty.
— 20—Clear, hoar frost; overcast; overcast and cold.
Mean temperature of the week, 1.4-10 deg. above the average.

STATE OF THE WEATHER AT CHISWICK,
During the last 41 years, for the ensuing Week, ending Nov. 30, 1867.

November.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds.							
						N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday ..24	47.5	32.1	39.8	14	0.61 in.	5	8	3	2	5	9	3	6
Mon. ..25	46.5	33.5	40.0	21	0.34	3	4	6	3	9	9	4	3
Tues. ..26	47.1	33.0	40.1	22	0.70	2	6	6	2	4	15	1	5
Wed. ..27	47.0	34.0	40.0	20	0.88	1	6	5	1	7	9	7	5
Thurs. ..28	48.3	34.9	41.6	20	1.21	2	4	3	3	10	7	8	4
Friday ..29	48.0	33.9	40.9	20	0.56	4	1	8	3	6	11	6	2
Satur. ..30	48.0	34.1	41.0	21	0.30	5	4	4	4	4	10	8	2

The highest temperature during the above period occurred on the 28th, 1828—therm. 60 deg.; and the lowest on the 30th, 1856—therm. 14 deg.

Notices to Correspondents.

AZALEAS: *Amateur* does not say if her Azaleas are the hardy or greenhouse kinds. If the former, the presence of suckers may indicate that they want a better provision as to soil:—good fat peat suits them; if the latter, the suckers are probably growths from the stocks on which the plants are worked, and if so, are robbers to be got rid of immediately.

BOOKS: *J J Sullivan.* We do not know of any book exactly such as you describe, but you will find the information in Loudon's "Encyclopædia of Trees and Shrubs," or more fully in the same author's "Arboretum et Fruticetum Britannicum." Something of the kind you want in a cheap form may perhaps be found in Plant's "Gardeners' Dictionary," published by Groombridge.

COMMERCIAL GARDEN: *Old Subscriber.* Any limitations as to what you can grow must depend on the words of your agreement. If you hold the garden, as you say, for "horticultural and floricultural purposes only," though not for a nursery, nor for exhibition, you can of course grow "fruits, flowers, and vegetables" for sale, but not trees, shrubs, and plants generally. We do not see that you would be restrained from growing flowers and flowering plants for market; but if you have any doubt, it would be your best course to consult and arrange with your landlord, as the tenancy is so easily terminable.

EXAMINATION OF GARDENERS: *A Young Aspirant* writes:—"Having embraced the profession of a gardener, I have read with great interest from time to time your reports of the examinations of young gardeners, and should like to present myself for examination, but I see I must first be examined by the Society of Arts. Now, I am so ignorant as to know nothing of this body, and I thought that if you would put a line or two in your correspondence (if not explaining the subject, yet such as to direct us where to go for the information required) you would be benefiting several gardeners in a similar position to myself, and who, residing some distance from London, are ignorant of the doings in the 'great city.'" "Young Aspirant" is not quite correct in his statement. The Royal Horticultural Society's examinations are open to any young gardeners who obtain a written recommendation from a Fellow of the Society, from the director of any public garden, or from the president of any floral or horticultural association acknowledged by the Society. It is only the candidates for the diplomas conferring associateship, or for the annual medal, who *must* have passed a previous examination by the Society of Arts, though this previous examination gives to others in certain cases a claim for expenses. Apply for programmes and particulars to the Assistant Secretaries of the Royal Horticultural Society, South Kensington, W.; and of the Society of Arts, John Street, Adelphi, W.C.

FRENCH SCHOOL OF GARDENING: *A Young Cabbage.* We have no doubt a young man might enter the French establishment alluded to, and practise there for a time with much advantage. We believe the students are expected to work. He would perhaps gain as much practical knowledge by going through a course at Chiswick. We advise him to try both, and to avail himself to the full of the facilities for acquiring knowledge which are afforded.

NAMES OF PLANTS: *W Foster.* Antholyza æthiopica.—*J S.* Salvia campestris.—*Hesperus.* Lycium afrum (the orange-coloured flowers); the flower of the other specimen was too bruised to make out.—*M.* Quercus serrata.—*E J W.* Only 10 specimens! and those very poor ones, not in sufficiently advanced state to be determined; 4 and 9 are Selaginella Martensii; 5, S. Martensii variegata; and 10, S. uncinata.

SPHÆROGYNE LATIFOLIA: *Amateur.* This plant should be treated exactly like Cyanophyllum, alluded to last week. It is increased by cuttings, and requires to be grown in a hot moist stove to get finely developed leaves. The Phyllagathis must be similarly treated, only it is more difficult to manage. It must be kept well shaded, and while young brought on under a hand-glass. A sandy, peaty soil of very light open texture suits it best.

WATER PLANTS: *T C.* The water plant you mention, judging from your sketch, might be either Chara, Ceratophyllum, or Myriophyllum, all native plants, found in pools and ditches. Either these or Anacharis would soon supply you with a purifying vegetation. The latter is a very rapid grower. If the temperature is 50° or 60°, the Aponegeton distachyon, a beautiful flowering aquatic, might also be introduced, and would succeed if planted deeply. Efts and water snails would subsist as before, now that the temperature is lowered.

COMMUNICATIONS RECEIVED.—J. W.—Injured Potatoes.—R.—Jas. Fahey.—P, L, N, F,—P. L. S.

THE LANDS IMPROVEMENT COMPANY,
Incorporated by Special Act of Parliament in 1853.
To LANDOWNERS, THE CLERGY, ESTATE AGENTS, SURVEYORS, &c., IN ENGLAND AND WALES, AND IN SCOTLAND.

The Company advances money, unlimited in amount, for the following works of Agricultural Improvement, the whole outlay and expenses in all cases being liquidated by a rent-charge for 25 years.

1. Drainage, Irrigation, and Warping, Embanking, Inclosing, Clearing, Reclamation, Planting, for any beneficial purpose, Engines or Machinery for Drainage or Irrigation.
2. Farm Roads, Tramways and Railroads for agricultural or farming purposes.
3. Jetties or Landing places on the sea-coast or on the banks of navigable rivers or lakes.
4. The Erection of Farm Houses, Labourers' Cottages, and other Buildings required for Farm purposes, and the improvement of and additions to Farm Houses and other buildings for Farm purposes.

Landowners assessed under the provisions of any Act of Parliament, Royal Charter, or Commission in respect of any public or general works of Drainage or other improvements, may borrow their proportionate share of the cost, and charge the same with the expenses on the lands improved.

The Company will also negotiate the Rent-charges obtained by Landowners under the Improvement of Land Act, 1864, in respect of their Subscription of Shares in a Railway or Canal Company.

No investigation of title is required, and the Company being of a strictly financial character, do not interfere with the plans and execution of the Works, which are controlled only by the Government Enclosure Commissioners

Apply to GRANVILLE R. RYDER, Esq., Managing Director, 3, Parliament Street, London, S.W.

THE GENERAL LAND DRAINAGE and IMPROVEMENT COMPANY. Offices, 22, Whitehall Place.

Under this Company's Act Tenants for Life, Trustees, Mortgagees, Guardians, Committees of Incompotent Persons, Beneficial Lessees, Corporations (Ecclesiastical or Municipal), Incumbents, Charitable Trustees, &c., may effect the following Land Improvements, and charge the outlay and expenses on the estate improved, by way of rentcharge, to be paid by half-yearly instalments, viz. :—

1. All works of Drainage, Irrigation, Warping, and Embankment.
2. The Erection of Farmhouses, Cottages for Agricultural Labourers, and all kinds of Farm Buildings.
3. The Construction of Roads.
4. The Grubbing and Clearing of old Woodlands, Enclosing, Fencing, and Reclaiming Land.

The owners of Estates, not entailed, who may be desirous to avoid the expense or inconvenience of a Legal Mortgage, may also charge their Estates with an Outlay in Improvements under the simple and inexpensive process of the Company's Act.

The Term of Years for the Rent-charge is fixed by the Landowner, so as to adapt the amount of Annual Payment to the circumstances of the Tenants.

No Investigation of Title being required, and the Charge not being affected by Encumbrances, no Legal Expenses are incurred.

The Arrangements for Effecting Improvements are threefold —

No. 1. The Works may be Designed and Executed entirely by the Landowner's Agent, and the Company employed only to supply the Loan and conduct the matter through all the official Forms for Charging the Outlay on the Estate.

No. 2. The Company will supply Plans, Specifications, and Estimates for any Improvements to be executed by the Landowner's Agent as under No. 1. In each of these cases the Landowner will be solely under the control of the Enclosure Commissioners.

No. 3. The Company will undertake the entire responsibility of the Improvements, prepare the Plans, execute the Works, and finally charge on the Estate the actual amount expended, with their Commission thereon, approved by the Enclosure Commissioners.

Landowners may thus obtain what assistance they require from the Company, and no more, in effecting the objects in view.

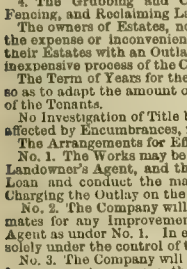
Works of Drainage and other Improvements are also executed on Commission for Landowners, who merely require the skill and experience of the Company's Officers and a Staff in constant practice.

Applications to be addressed to HORACE BROKE, the Secretary, at the Office of the Company, 22, Whitehall Place, London, S.W.

RAYNBIRD, CALDECOTT, BAWTREE, DOWLING, AND COMPANY, Limited,
CORN, SEED, MANURE, AND OILCAKE MERCHANTS,
Address, 89, Seed Market, Mark Lane, E.C. ; or Basingstoke.
Samples and Prices post free on application. Prize Medals, 1851, for Wheat ; 1862, for "Excellent Seed Corn and Seeds."

New Grass Seeds for Exportation.

SUTTON AND SONS, having received their supply of NEW GRASS SEEDS of the present Season's Growth in fine condition, will be happy to forward lowest price per ton or cwt. on application. All Seeds perfectly packed and delivered free to ship's side at any English Port. CATALOGUES gratis and post free
SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.



GRASS SEEDS for PERMANENT PASTURE, of the finest quality, at moderate prices, carefully selected on a new, natural, and scientific system.

See "WHEELER'S BOOK on GRASSES," which contains Illustrations and Descriptions of the most suitable Grasses for Permanent Pasture.

J. C. WHEELER & SON,
Gloucester,
Seedsmen to the Gloucestershire Agricultural Society.

THE LONDON MANURE COMPANY
(ESTABLISHED 1840)
Have now ready for delivery in dry fine condition,
CORN MANURE, for Spring Use
DISSOLVED BONES, for Dressing Pasture Lands
SUPERPHOSPHATES of LIME
PREPARED GUANO
MANGEL and POTATO MANURES.
Also Genuine PERUVIAN GUANO, and NITRATE of SODA, ex Dock Warehouse ; SULPHATE of AMMONIA, FISHERY SALT, &c. E. PURSER, Secretary.
Offices, 116, Fenchurch Street, E.C.

Look to your Grass Lands, &c.
ESTABLISHED 1820.

MESSRS. JARED T. HUNT AND SONS beg to inform their numerous Agricultural Friends and Customers, that they have now on hand, in the finest condition, their usual Autumn Stock of
AMMONIACAL CORN MANURE,
which has, for several years, given such general satisfaction.
They have also always on hand, ready for immediate delivery, the largest stock of CRUSHED BONES of any firm in the United Kingdom, viz. :—In ½-inch BONES ; ¼-inch BONES ; PULVERIZED BONES for Grass Lands ; prepared BONES for Grape Vines and Hops ; also BLOOD MANURE, SUPERPHOSPHATE of LIME, PERUVIAN GUANO, and NITRATE of SODA, direct from the Docks.
Prices and other particulars of the above, at their Works, Lambeth Wharf, London, S. ; Bow Bridge Works, Stratford, E. ; and Downham Market, Norfolk.
N.B.—Responsible Persons as AGENTS WANTED in districts not yet represented.

LAWES' WHEAT MANURE for AUTUMN SOWING.—A supply of the above Manure is now ready for delivery, at J. B. LAWES' Factories, Deptford and Barking Creeks. Price £8 per ton. Two to three cwt. per acre to be harrowed into the land before the seed is sown. It can be obtained of Mr. LAWES, or through any of his appointed Agents ; also
LAWES' PATENT TURNIP MANURE .. £6 6 0 per ton.
SUPERPHOSPHATE of LIME .. £5 5 0 per ton.
Genuine PERUVIAN GUANO direct from the Importers, and all Chemical Manures of value.
AMERICAN and other CAKES at market prices.
Address JOHN BENNET LAWES, Offices, 1, Adelaide Place, London Bridge, E.C. ; 22, Eden Quay, Dublin ; & Market Square, Shrewsbury.



THE ROYAL BERKSHIRE ROOT SHOW
will take place at
READING, NOVEMBER 30, 1867.
PRIZES in VALUE of more than TWENTY GUINEAS will be awarded to the best specimens of MANGEL WURZEL, SWEDES, KOHL RABI, TURNIPS, &c. For further particulars apply to
SUTTON & SONS, Reading.
N.B. No charge for entry.

ROYAL AGRICULTURAL BENEVOLENT INSTITUTION.
Patron—HER MAJESTY THE QUEEN.
President—HIS GRACE THE DUKE OF RICHMOND.
For the RELIEF of DECAYED FARMERS, their WIDOWS and ORPHAN DAUGHTERS ; and for the MAINTENANCE and EDUCATION of their ORPHAN CHILDREN.
ALLOWANCE TO PENSIONERS.
Married .. £40 per annum | Male .. £26 per annum
Widow and Unmarried Orphan Daughters .. £20 per annum
Orphan Children admitted from 7 to 10 years of age, and wholly maintained and educated until the age of 14 years in the case of Boys, and 16 years in the case of Girls.
One Hundred and Five Pensioners have already been placed on the books of the Institution ; and in addition to the number of Pensioners to be admitted at the next Election, the Council have decided to Elect Ten Orphan Children.
Forms of Application for Pensioners and Children, and every information, to be obtained of the Secretary, by whom Donations and Subscriptions will be thankfully received.
85, Charing Cross, London, S.W. CHARLES SHAW, Secretary.

CENTRAL CHAMBER of AGRICULTURE.—The ANNUAL MEETING of the MEMBERS will be held in the Queen's Concert Rooms, Hanover Square, on TUESDAY, Dec. 10, Time, 11 o'Clock in the forenoon.
BUSINESS.
To receive the Report of the Council.
To elect a Vice-Chairman for 1868, and Eight Members of Council in lieu of Eight who retire by rotation.
To appoint Auditors. | To amend Rule III.
To consider the proposed Cancelling of Rule XIV.
To consider proposals for Increasing the Influence of the Chamber.
To consider what steps shall be taken concerning Cattle Importation, and Separate Markets for Foreign Animals.
And to transact any other General Business.
JOHN ALGERNON CLARKE, Secretary.
11, Waterloo Place, Pall Mall, S.W.—Nov. 22, 1867.

DOG SHOW at BIRMINGHAM.—The EIGHTH GREAT ANNUAL EXHIBITION will be held in CURZON HALL, on MONDAY, TUESDAY, WEDNESDAY, and THURSDAY, December 2d, 3d, 4th, and 5th, the days of the Cattle and Poultry Show. For Special Railway Arrangements, see the Advertisements and Bills of the several Companies.

THE BIRMINGHAM CATTLE and POULTRY SHOW.—The NINETEENTH GREAT ANNUAL EXHIBITION of FAT CATTLE, SHEEP, PIGS, DOMESTIC POULTRY, CORN, ROOTS and IMPLEMENTS, will be held in RINGLEY HALL, on SATURDAY, MONDAY, TUESDAY, WEDNESDAY, and THURSDAY, November 30, and December 2, 3, 4, and 5, 1867.
The Exhibitors and the Public will be admitted to Bingley Hall to witness the Judging of the Cattle, Sheep, Pigs, Roots, and Corn, on SATURDAY, November 30th, at Nine o'Clock A.M., upon payment of 10s. each. There will be no Admission to the Poultry Department until after the Judging is completed.
The PRIVATE VIEW will take place on MONDAY, the 2d of December. Admission to Non-Subscribers, until Five o'clock, 5s. ; after that hour, 1s.
The Exhibition will also be open on TUESDAY, WEDNESDAY, and THURSDAY. Admission, 1s.
For Special Railway Arrangements, see the Advertisements and Bills of the several Companies. JOHN B. LITHALL, Secretary.
Offices, Stephenson Chambers, 39, New Street, Birmingham.

The Agricultural Gazette.

SATURDAY, NOVEMBER 23, 1867.

MEETING FOR THE ENSUING WEEK.

SATURDAY, Nov. 30 { First day of the Midland Counties Exhibition, Bingley Hall, Birmingham.

OUR readers have, doubtless, seen and studied the interesting account given by Mr. HOPE, at pages 1151—4, of the treatment of the cattle plague on Lodge Farm, near Barking ; and many of them probably have approved of the vigorous attack upon HER MAJESTY'S Cattle Plague Commissioners, with which his history concludes. He had, by the liberal use of carbolic acid, externally and internally, by the fumes of burning sulphur, by the frequent administration of the hyposulphite of soda, and by constant drenches of thin and clarified gruel, succeeded, as he believes, in curing rinderpest in several undoubted cases. He had, by the maintenance of a strict cordon, by the use of sulphur, lime, carbolic acid, and fires, succeeded, as all who were witnesses of the proceedings believe, in so isolating two large sheds full of healthy cows that they escaped the infection raging within a few hundred yards on both sides of them. It is, of course, the former only of these statements which can justify the conclusion to which he leads us, that the poleaxe is a brutal stupidity for which the Commission is responsible, and that the "persevering, energetic, and unsparing" use of carbolic acid is the remedy by which the disease might have been generally met.

Has he made out his case against the Commissioners or not? We do not think he has. It needs more than a single farm—a single herd of cows—or a single month's experience, even of the highly-wrought description which was suffered on Lodge Farm, to prove anything in agriculture. A couple of counties in area, and a quarter of a century of time more nearly represent the quantity of evidence which would be needed for the confident conclusions to which he urges us. Certainly a single case or two of cure by carbolic acid will no more upset the poleaxe practice—for the justification of which the experience of a county, and even, as we think, of a whole country, *can* be quoted—than a single instance of the difficulty of getting pure carbolic acid will justify a wholesale condemnation of our chemists, who in "the shameless system of adulteration" which they practise, he declares, "only follow what has now become the common rule among British manufacturers and shopkeepers!"—or than the miscarriage of a cask from Manchester will prove "that invariable railway mismanagement for which England has now become so celebrated and pre-eminent." These examples of a hasty judgment ought, we think, to influence our own when considering the value of the testimony before us.

We throw no doubt whatever upon the facts which are related. Having been cognisant throughout of what was done and suffered in this case, we willingly accept the history given by Mr. HOPE. Of course even eye-witnesses hardly ever perfectly accord in all details ; and our own account of the attack (which has indeed been already given at page 861) disagrees in some particulars with the one before us. But virtually that may be taken as accurate ; and it is only the inferences and conclusions to which the writer is driven by the facts that can be disputed. The question is—Do the half-dozen cases quoted prove that a cure had been effected, and that carbolic acid is the long-sought specific? The proper answer we believe to be that they prove nothing whatever, except the "persevering, energetic, and ungrudging" nature of their historian.

Recoveries from cattle plague have not been unusual. They have amounted to 10, 15, even 20 per cent. of the attacks. But the percentage of successes of this kind bears no relation whatever to the treatment. They have been equally rare and equally common under every variety of treatment and under no treatment at all. Mr. WORMS' Onion and asafœtida, Mr. CROOKS' carbolic acid, the Dutch reports of homœopathic treatment, Mr. AYLMER'S chloroform, inoculation with vaccine from the arm of a child, liquid food, and no food at all—have all acknowledged or received a certain measure of success. The combination of a number of these things and their vigorous administration at Lodge Farm, have also met with a certain measure of successful case. Nothing was proved in the former instances, and nothing, we believe, has been proved by this. And it will be a great calamity if the rule of rigid isolation which has met with such a wonderful example of success upon this farm, and the use of the poleaxe for the immediate destruction of all plague-infected stock, which, adopted at the very outset, did at such little cost keep the whole county of Aberdeen free from its attacks, should be abandoned for the chance of cure which some may think the experience of carbolic acid on Lodge Farm has given us.

The farm in question, it may be added, is in the tenancy of the Metropolis Sewage Company ; and it is extremely fortunate that the two isolated sheds which stand in the very midst of the irrigated meadows have been saved, because no such doubts can now be thrown upon the wholesomeness of sewage-fed Italian Rye-grass, on which the cows were feeding, as certainly would have arisen had the whole stock of the farm perished.

A LETTER on FARM LEASES, from Mr. SANDERSON, the land agent, appeared in last Saturday's *Times*, and it has since excited some further discussion of the subject. He pronounces the prevalent system of farm tenure, taken as a whole, to be a total failure, and incompatible with progressive agriculture. "The extensive breadth of undrained land, the large area wasted by unnecessary fences, open ditches, and untilled field borders, and the wide tracts of inefficiently cultivated and inadequately manured land, whose crops, from the abundance of Couch Grass, have to struggle for life—all unmistakably indicate a defective system of land-letting."

He quotes examples of the ways in which deficient security for the capital of the tenant has hindered land improvement. Farmers reply to his suggestions—"I am only a yearly tenant, and, therefore, cannot afford to expend 4*l*. an acre on lime ;" "if I had a lease I would bone this Grass, but as I am I dare not think of it." These answers, he says, however much may be said about farmers having confidence in their landlords, represent not only the views but the actions of four-fifths of annual tenants. Any attempt to give effect to tenant-right, upon the other hand, he pronounces unavoidably a failure,

"Tenant-right is unfair, because, on the one hand, it gives the outgoer control over the labour the incoming tenant has to pay; while, on the other, there are improvements executed by tenants—such as the grubbing of fences, the filling of ditches, deeper tillage, and increased fertility—the real value of which cannot be accurately ascertained, and therefore cannot be fairly compensated. Moreover, the system is objectionable, inasmuch as it gives compensation for compensated outlay, unnecessarily locks up a farmer's capital on entering to a farm, and by seeking to give a tenant a sort of joint ownership in his holding, transfers to the tenant what really belongs to the landlord."

What, then, is the only plan for ensuring the perfect, profitable, and liberal cultivation of the land:—"We naturally turn to the lease system of holding land as the only system alike beneficial to landlord and tenant, and conducive to agricultural progress." The system has proved successful in the past, and, now that costs have so increased, and the necessary farm capital thereby has doubled, the need of adopting it is more urgent than ever it has been.

"Nor is the lease system one-sided and advantageous only to tenants; as landlords, who have a permanent interest in their estates, are the greatest gainers. By granting leases they secure tenants of skill and capital, property of increasing value (from tenants executing greater improvements), and higher rentals.

"To choose between the two systems of tenure—yearly and lease, is to choose between tenants curbed in action and dispirited, farms neglected, estates whose fertility is only partially developed, low rents and agricultural stagnation on one side; and a progress in agriculture, a skilled and industrious tenantry, well-ordered farms, high rents, and estates of rapidly-increasing value on the other."

That is the case of the advocate of the lease. It is probable that as good a case may be made out by the advocates of tenant right without a lease. There are certainly large tracts of land in this country which are thoroughly well cultivated under the system of tenant right. And it may be argued, with even greater show of probability, that enterprise and wealth demand the lease, than that they are created by the lease; nevertheless, there can be little doubt that it proves a prosperous and wholesome state of things when leases are desired by tenants and willingly acceded to by landlords.

Certainly the absolute refusal with which the desire for leases is or has been met—for example, upon the Shrewsbury estates—indicates but little foresight or intelligence in the managers of such estates. It may be quite true that the advocacy of the lease is often based upon the untrue idea that all farmers are alike—that they are a class instead of being a collection of individuals to be treated with upon their individual merits, which include as much variety as exists among any other body of their fellow countrymen. But certainly to make a rule of refusing leases is treating farmers as a class quite as much as that is done by those who advocate the granting of leases as a rule.

The truth, no doubt, lies midway between these extremes. It is useless to urge leases upon a reluctant tenant, and it is folly to refuse a lease to an enterprising tenant.

Certainly the argument against the lease, by which the owner of the land is sometimes led to refuse it, will not stand examination. That it is all on one side—that the landlord is fixed and has to bear the brunt of losses, while the tenant if he fails may go—that the land is surrendered to the tenant for a number of years—these are poor reasons for refusing leases. Leases are not "all on one side"—the advantages on that side which they confer are purchased fairly by the rent which they specify as the value of the benefit. And looking to the tenancy-at-will system, we may add, the landlord does not remain; on the contrary, not only may he die, but he may change his mind, and in either case, under tenancy-at-will, often to the great loss of the tenant. And, lastly, a valuation of the several interests proves that in the occupation of the land there is an even larger quantity of tenants' property placed at the will of the owner of the land, under tenancy-at-will, than there is of owner's property within the power to injure of the tenant of the land who holds a lease for a term of years.

It is, however, a mistake to argue *pro* or *con* on such a subject, as if the interests of landlord and tenant are so diverse as to require a jealous outlook on the part of either. Wherever there is an energetic and intelligent body of tenants, possessed of sufficient capital, certainly there ought to be no difficulty placed in the way of any of those who may desire the security of a lease of their lands for a term of years.

—— A CASE of reputed rinderpest is reported from Berwickshire. A number of cattle purchased last month from different farmers near Ripley, Yorkshire, a district which has never had the "cattle plague," were sent by train to Berwick, and thence sold to different farmers in Northumberland and Berwickshire. Some of those which had been sent to Lanrigg in the latter county, after an overdrive (17 miles in 5½ hours) exhibited, some days after their arrival, symptoms which are pronounced by the veterinary inspectors to be those of cattle plague. Three of the cattle died, and two have since been slaughtered; but a letter written on Tuesday last declared that the remainder of the stock were then looking perfectly well and healthy. The district has, however, been proclaimed to be an infected place; and already memorials are being sent up from some of the Scottish counties to the Privy Council, praying that the Orders relative to the movement of cattle in Scotland may be re-enforced, and that the great market for store cattle to be held next Wednesday in Edinburgh may be stopped. The editor of the *North British Agriculturist*, who doubtless represents the general opinion of the agricultural body there, says:—"Disappointment will be felt that the cattle affected and those which were in contact with them were not immediately slaughtered when the character of the disease was clearly established." There is clearly no idea yet entertained in Scotland that the disease is curable, or that the poleaxe system of treating it is a folly.

—— We understand that the SECRETARY OF STATE has postponed receiving the deputation of the Central Chamber of Agriculture on Cattle Importaion, previously appointed for yesterday.

—— The award of prizes for the best Turnip crops in the district of the Spey and Avon Farmers' Club is published in the *Farmer*. The names of the sorts of Swedish Turnips grown, the interval between the rows of plants and between the plants in the rows—the quantity and kinds of the manure applied—the quality of the crop, and the names of the competing and successful farms, are all given. And the upshot is, that we learn just nothing at all. On one farm such a kind of Swede, so cultivated, yields so many tons; and another kind of Swede, hoed out so far apart and differently manured, yielded more or less per acre *upon another farm*. There may be good done by the offer and award of prizes or of sweepstakes, because, whatever be the method employed, no doubt every man is thereby urged to do his best: but the good of *publishing the results* is not so obvious. We cannot learn from the table issued whether 8, or 9, or 10 inches, is the best interval between the Turnip plants in the rows; or whether Peruvian guano or phospho-guano, mixed bones and dust, or superphosphate is the better fertiliser; or whether DRUMMOND, SUTTON, or SKIRVING'S sorts of Turnips be the better seed. Nor indeed can we be assured by the result whether this, that, or the other farm is best cultitivated; and that, after all, is a question of only home interest. If experiments of this kind be hereafter published, let the account be at least accompanied by some description of the soil and of the other particulars of the management out of which the results have been obtained.

—— The following extract from a Government report, dated Madrid, July 1st, 1867, shows, by comparison with our own land, to what an unsettled state a country may be brought by arbitrary regulations:—The prohibitory provisions in the tariff against the importation of foreign grain still in force, and established for the protection of the Castilian corn-growers, seemed likely a short time since to produce serious consequences in the southern provinces. On account of the high price of bread, representations were made from various quarters to the Government, with a view to obtaining the free admission of foreign corn, or at least some measure to relieve the condition of the poor; but to such an extent have the landed proprietors surrounded themselves with defences, that the Government have no power to grant the relief sought for until corn averages a certain fixed price in the three frontier provinces of the kingdom. The high price of Wheat has at different periods produced serious popular outbreaks and disturbances, but the Government, instead of adopting the only efficacious remedy for the evil, have generally temporised or attempted arbitrarily to regulate the prices. Spain undoubtedly could produce nearly double the quantity of grain at present grown, under a better system of agriculture and improved irrigation. Why, then, it may be asked, is it that, with a soil so fertile and a climate so favourable, so little progress has been made? The reason may be found in the fact that there is no inducement to extend agricultural operations. Agriculture in Spain requires no art, no forethought, Nature supplies a sufficiency without them, and enables the peasant to pay his rent without much labour. He thus lives from hand to mouth, and in a state of servile torpor. The proprietor is content to grow his corn as his ancestors grew it. He has no competition to fear, and when perhaps, in consequence of a bad harvest or some other cause, famine prices stare the people in the face, he goes to his stores, and is in nowise discontented with a system which produces from time to time a state of things so much to his advantage. *J.*

—— A writer in the *Scotsman* draws an instructive picture of the contrasts imposed by natural conditions upon the agriculture of two countries, even when the product aimed at is the same in both. He compares the wool growing of the Australian settler with the wool growing of the German farmer—the former accustomed to single flocks of 3000, the latter having a few hundred sheep in all, but needing for their protection from the weather a barrack of buildings, and many shepherds with their overseer for the supervision of the flock. "One Australian shepherd can look after nearly three times as many sheep as six Germans, and lead a far easier life with his 3000 and more than the Saxon can with his 200: for the latter's work is more than twice as hard. During four months of the year the Saxon sheep are kept in stables, and fed on hay, chopped straw, Turnips, Potatos, &c.; and the shepherds are toiling all day in preparing and supplying their provender, and fetching and pouring out water. When the sheep are turned out to graze, the shepherd's life is not much easier, since the fields in Saxony are not fenced, pastures run into corn land, and, consequently, a shepherd and a dog find 200 sheep quite as many as their utmost vigilance can keep from trespassing. With sheep-keeping in this style, the Australian contrasts one of his own sheep farms in New South Wales. It is not a leased run, but his purchased freehold; and, therefore, unlike a good many Australian flockmasters, he has not been deterred, by the precariousness of tenure which shifting Australian land legislation causes, from substantially improving his property. By a lavish use of strychnine, bought at 7*s.* 6*d.* per oz., he has exterminated the dingoes not only on his own estate but throughout its neighbourhood. A large portion of his property he has cut up into paddocks enclosed in high stout dead-wood fences; and the consequence is that his sheep require only three shepherds for 9430, need no hurdling at night, and thrive better than folded sheep. But with this result he is not satisfied. He is determined to make every acre of his land feed two sheep. If a German grazier can pay 20*s.* an acre, and an English grazier 30*s.* an acre, for rented meadow-land, and still make a good profit out of his business, the Australian thinks it odd if he cannot make his own land yield him far more than it does by adopting the European plan of Grass-seed-sowing. . . Some Grasses which English farmers do not much affect—because they do not yield much hay, scatter their seeds widely, and have creeping habits or widerspreading roots—the Australian has selected for those very reasons; and is convinced that any 'fair average land' in Australia might, if Grass-sown, carry two sheep to the acre."

SHORTHORNS.

—— WE can hardly imagine any practised judge of Shorthorns consenting to a decision of merit founded solely on a valuation of points. The instances in which inferior, not to say shabby-looking bulls have begotten extraordinary stock, are so many; the certainty that the produce of a well-bred sire must be the result of his breeding as well as of his own particular qualities, is so complete; that it must be a rare case, if ever, that an estimate of his excellence on each mere point of form or symmetry, and an addition of the figures thus obtained, can fairly represent his standing among others. We see it announced that the numbers by which such valuations are effected are for the future, at competitions in the United States, to be multiplied by 10—in order that greater nicety in the apportionment of merit may be obtained. It seems plain to us that whatever the precision with which the process may be carried out, it is essentially erroneous and false. Where would FREDERICK (1060) have been under such a rule? He was bred by Mr. Charge, one of the purchasers of Comet, and was full of Comet's blood*; and though the sire of most of Mr. Whitaker's best stock 40 years ago, would, had he been judged by our present show standard, have stood but a few shades better than one of the wild white bulls out of Chillingham Park.

Where, again, would many of the Booth bulls stand on a list "placed" thus, which nevertheless have the power of begetting females possessing such perfection of form as we know that the Booth cows exhibit? There are many things, besides that which "level," "square" and "tape" can ascertain, in which the value of a sire consists. The first of these, undoubtedly, is his descent The best bull to look at—like DECEPTION! (7957) for example, who won the 1st prize at the York Show of the English Agricultural Society, over a whole class of better bred stock than himself—cannot be certainly depended on to bring forth of his kind. It is the momentum, as it were, which character and quality possess, when handed down through a succession of similar progenitors, that is the safeguard and surety of the breeder. And thus it is that a Booth bull, which may stand comparatively low in an estimation of "points," is equally trustworthy with a Booth cow, which will generally stand easily at the top of the scale when similarly judged.

The second consideration in a valuation, if, indeed, it ought not to be reckoned first, is constitution, health, vigour, vitality, or whatever else you may please to call it. Life is of course the foundation of any breeder's valuation whatever of the animal. If Mr. Strafford had his ideal sculptured to his entire satisfaction, no doubt the bronze or stone, on a numerical valuation of "points," would beat any actual specimen of the Shorthorn breed that was ever seen; but it would of course be worthless after all. And the truth thus represented at its utmost, may be contended for as standing good in the case of less or

FREDERICK (1060) — by HULTON (1121) — by NEWTON (1271); by COMET (155); dam *Meteor* by COMET (155)

FREDERICK (1060) — dam *Orbit* .. .. — by COMET (155); dam *Splendour* by COMET (155)

greater degrees of vigour and vitality. If one might venture in between the disciples (combatants they may be almost called) of Warlaby and Kirklevington respectively, it would be with a reference to this idea. Not unfrequently, perhaps generally, on a mere valuation of "points," the Booth cow would beat her rival of pure Bates descent; but there is a sluggish stupidity and sleepiness about her which contrasts unfavourably, as it appears to us, with the life and fire and style of the other.

We remember the class of 2-year-old heifers at the Pomfret show in 1860, where Captain Gunter's *Duchess* heifer, which had taken the prize at Canterbury, was pitted against Mr. Booth's *Queen of the Vale*—Mr. Ambler's *Wood Rose*, 2d at Canterbury, being also of the class. *Wood Rose* was not placed at all. *Queen of the Vale* was placed second to the *Duchess*: and then the decision no doubt hinged on the character we are discussing. Apart from any separate valuation and enumeration or addition of special merits, the more life-like bearing and the better style of the *Duchess* heifer carried the day.

The same cows, with others of similar breeding, again competed in a still more illustrious class at Durham in the following year, and the former decision was maintained; and a subsequent correspondence with the judges at Canterbury, Pomfret, Durham, and other meetings where these heifers had been shown, made it perfectly plain that, whatever writers on the subject may think or teach, an experienced Shorthorn judge in giving his award just acts on the general impression which the animal has made on him without any attempt to analyse it, still less to divide it into separate particulars, and apportion a separate valuation to each. He cannot generally be certain of the breeding of the animal before him, and thus his award cannot mean that it is necessarily good or bad for use in a herd—but at all events he has the health and vigour, ripeness at a given age, quality and form, on which to base his judgment—and as these are the *points* to which the attention of the breeder ought to be directed—his award and the premium given or refused are the spur and stimulus, or the rebuke and blame, which in the interests of progress are required.

—— We have to announce that, at a rather unusual period of the year, on the 27th and 28th of November, the days preceding the opening of the Midland Counties show at Birmingham, Mr. Strafford will sell by auction, without reserve, in conjunction with Mr. J. A. Mumford, the herd of Shorthorns bred by the late Mr. Joseph Dodwell, of the Manor House, Long Crendon, Bucks; and on the following day at Patshull, near Wolverhampton, the small choice herd belonging to the Earl of Dartmouth. For nearly 200 years the Dodwell family have farmed the Manor at Long Crendon, the late possessor not only occupying that farm, but one at Boarstall, a few miles further north, and lying between Bicester and Thame. In early life he effected the most improvement that could be made in the county stock by the use of well-bred bulls; no pure bred females were obtained until the Messrs. Gillett introduced the breed into the district from Lord Spencer, Mr. Parkinson, and Mr. Burgess' herds. In 1850, Mr. Dodwell bought several cows from these breeders, and his pure-bred herd may be dated from that time. It now musters 104 head—93 cows and heifers, and 11 bulls; these cattle were partly reared at Crendon, and partly at Boarstall, so that the Crendon lot are comprised in one catalogue, to be sold on Wednesday, the 27th inst., and the Boarstall cattle in another, to be sold the next day.

The Long Crendon catalogue contains not only the larger, but the better bred portion of the herd. Out of the 57 animals, seven only are bulls besides one (extra) bred by Lord Penrhyn. Amongst the cows bought from Messrs. Gillett in 1850 was *Miss Fairfax*, a daughter of SIR THOMAS FAIRFAX (5196), and a winner of a premium at the Oxfordshire Society's show in 1849. From this cow there are 12 female descendants. There are also several other animals of shorter pedigrees bred from the residue of Messrs. Gillett's herd, which was finally sold two years afterwards, and with these are included seven *Margery's*, bred from Messrs. Strickland's stock. In 1854 *Roman 7th* was purchased; she was bred by Mr. Wilkinson, of Lenton, and eight are now recorded from her.

Until 1862 no fresh female blood was introduced, and then came *White Rose* (86 guineas), from the Bushey sale; she is the dam of PRINCE LEOPOLD (Lot 1 bulls), who has been extensively used, and of *Red Rose* (Lot 19), the dam of Lot 5 bulls. At Mr. Robinson's sale at Clifton Pastures one of the best purchases was made in *Lady Superior* (72 guineas), five generations distant in a direct line from *Foggathorpe*, a cow bought by Mr. Bates, of Kirklevington; she produced a fine roan heifer (Lot 24) by GRAND DUKE 5TH, also *Lady Superior 3d*, now a white yearling heifer (Lot 40), but died in calving her next calf. Lord Penrhyn's sale in 1865 furnished *Agatha*, from Mr. Lovell's stock, which is held in great esteem throughout the district; she produced, by DUKE OF GENEVA, the bull (Lot 2) called PRINCE OF GENEVA, the sire of several young calves, and of many more to come.

The sires used since the herd was established have been good bulls in appearance, and descended from fashionable blood; some of the earliest were supplied by Messrs. Gillett, and from Clifton Pastures came AARON SMITH (12,331), and PRINCE OF PARIS (16,748), a son of BRITISH PRINCE (14,197), from a DUKE of GLOUCESTER (11,382) cow; and 16 females are left alive by the latter bull. Then followed KNIGHT OF THE SHIRE (20,085), from Bushey; he is the sire of 14 in the Crendon catalogue, and 10 are accredited to Lot 1, PRINCE LEOPOLD.

The Boarstall catalogue comprises 43 cows and heifers and 4 bulls, bred similarly to those at Long Crendon. Save a little showing at the Aylesbury meeting, the herd has been kept for use and not for ornament; and, as might be expected in such a large herd, several very good animals are to be seen.

—— The Patshull herd, to be sold on Friday, the 29th inst., seems about to be dispersed just at that period when a herd begins perceptibly to increase and multiply. Twenty-five animals are all it numbers: about a third are bulls, but these 25 trace their lineage to some very choice strains. We are told in the preface to the catalogue that the herd has been in existence only seven years. Commencing in 1860, three animals were bought: two from Mr. Adkins, a *Sweetheart* and a *Frill*, and one of the Brawith *Certainty* tribe from the Hon. H. Noel Hill; from these three there are now 18 descendants, five *Sweethearts*, two *Frills* (the family having bred chiefly bulls), and 11 *Certainties*. In 1861 *Lucy Long*, a granddaughter of *Lavender*, the highest-priced cow at Sir Charles Tempest's sale, was bought at Holmepierrepoint, and at the close of the year the bull HAWSER (18,038), bred by the Viscount Hill from Wiseton blood, was purchased for 100 guineas—seven lots in the catalogue are by him. *Charlotte Corday* (Lot 7) is the only produce of *Lucy Long*, but, like the "Frill" tribe, she has brought forth bulls. In 1862 one and the last purchase was made of *Jessica* (Lot 4) at the Revesly sale. This cow, a very pretty heifer when bought, is singularly well bred; her sire is Captain Gunter's 7TH DUKE OF YORK; her dam *Jardine* is by LORD WARDEN, of Wiseton fame, and her grandam *Jacintha* is by FAWSLEY, a son of the celebrated cow *Sylph*, matron of the well-known tribe of that tribe; thence *Jessica* descends from the ancient "J" family. She seems to have bred well; four animals are recorded from her. COLONEL DAN (Lot 1), a son of Mr. Adkin's *Strawberry*, and DUKE FRED (Lot 2), from *Jessica*, have been used, and some calves are placed to their doings. The blood of many of these ought to attract notice, as several are of the Knightley element.

The short, chilly, foggy days of November give little inducement for a long journey to the farmyard, still when good stock are to be sold, especially after an abundant hay and root harvest such as the present has been, breeders and buyers will scarcely let bad weather stand between them and the purchase of good animals.

—— We learn that Mr. Sheldon, of Geneva, New York, has just sold for 2500 dollars (500 guineas) a roan bull calf two weeks old, by 3D DUKE OF GENEVA (the bull now the property of Mr. M'Intosh, of Havering), out of *3d Duchess of Geneva*, the dam of the 700-guineas heifer purchased by Mr. Levey at the Windsor sale. We regret to hear that during the fire by which the farm premises at Geneva were destroyed a white young thrifty heifer of pure *Duchess* breeding—the *5th Duchess of Geneva*—was burned to death just after she had bred. This was, however, happily, the only serious loss occasioned by the fire.

ADVICE TO VETERINARY SURGEONS AND STUDENTS.

(1). *Principal Williams at Edinburgh.*—Labour is the lot of man: you must work earnestly and assiduously. We have all much to do, many improvements to effect; "onwards," must be our watchword; both teachers and pupils must possess but one feeling in common, and that the desire to advance, remembering that sobriety, perseverance, honesty of purpose, with education, form the corner-stone to success. The aim of medicine, both human and veterinary, is the prevention and cure of disease and the relief of suffering. Added to this, one especial branch of ours is the examination of animals as to their soundness; therefore every veterinarian has not only to be conversant with medical and surgical science, but he must also be a judge of a horse, so as to enable him to give a correct opinion when called upon for one. You will therefore require not only to have a knowledge of the animal body in its normal condition of health, and its condition in disease; but you are particularly called upon to study the outward conformation, action, and temperaments of horses, so that you will be enabled to give your opinion both as to soundness and the fitness of horses to perform what work they are best adapted for. I would here most earnestly call your attention to the difficulties and temptations that will beset you while pursuing this branch of your avocations. You will be brought into contact with men who will do all in their power to influence you in your decisions. But mark down for yourselves one undeviating line of conduct, pursue a straightforward path; and in spite of all, in the way of threats, of withdrawal of patronage, of custom, always give your opinions honestly and fearlessly, resting assured that in the end the public will appreciate you. Many men in our profession have given way in matters of this sort; and although such conduct may have been perhaps to their advantage for a time, so far as money goes, in the end it has led to nothing but disaster and ruin, for a day of reckoning most assuredly arrives; they have lost caste, and been neglected by the very men whom they may have benefited.

(2). *The late Professor Dick.*—While I would expect a man to display a sufficient degree of the knowledge of his profession, to let those he may be employed by know that he is acquainted with it, I would rather advise that you should make yourselves known by your deeds than by your words. If a man is always bringing forward his profession, boasting of his wonderful cures, and making a jest of the most difficult operations, and dunning the ears of every one with technical terms which they do not understand, they are generally induced to consider such a man little better than a quack, and on inquiry, it too commonly proves his knowledge is very superficial. Some, on the other hand, have a degree of timidity which renders their employers doubtful of their knowledge—firmness and decision is required both for the sake of appearance and for the safety of the patient. There are many situations of considerable difficulty in which you may be placed, which would almost lead you to despair of success. You may be opposed in your opinions and treatment by the owners of your patients in some instances, but there is more to be expected from the ignorance and conceit of those who have the care of your patients. These may be overcome, however, by discretion on your part, and must be an object of some attention, for even the interest of their employers may, if they are interfered much with, be sacrificed for their revenge upon you, while, having constantly their master's ear, they are apt to take advantage when they have it in their power. Nothing, therefore, but the most upright conduct will enable you to elude their grasp. Lastly, a degree of enthusiasm is necessary to enable you to overcome the difficulties which will come in your way. You may have much labour and anxiety, and may expect many disappointments in your progress; but all these must be surmounted to establish a reputation, and when that is acquired, it must also be preserved by many sacrifices. You may often have to disregard your own interests, and care for the good of your patients and your employers, without receiving the requitement you have a right to expect: but the conscientiousness of having done your duty will always yield you satisfaction, and your merits will ultimately be rewarded.

(3). *Professor Armatage, Glasgow.*—A man is always known by the company he keeps, and if he has preferences for that of the groom, the horse-dealer, or the patrons of the turf, by all means let him take up his abode with them, and throw in his mite to the common lot, but, for the sake of all that is honest and the salvation of a noble calling, let us get rid of him altogether. He is no credit to the body, is usually a dolt, one of those who cry at random in all such professional matters, and during such a crisis as that through which we have but barely escaped—I allude bring to the cattle plague, or pleuro-pneumonia—down disgrace upon a whole profession as well as upon themselves. "No man can serve two masters." No man can be a veterinary surgeon, a horse-dealer, a druggist or betting man, hotel proprietor, horse-shoer, and the like, at the same time. If any one of these are embraced, and the desire for money is gratified by the practice, veterinary science is put in the background, it becomes subordinate to filthy lucre, and attempt to carry out all or one of these as you will, you deceive yourself, you deceive your employers, and proclaim your own incompetency. There are some who fain would believe that it is an honourable thing to have their hands full of all kinds of employment, and thus make a show of fuss and haste in a pressure of business. It is one of those characters which a professional man should avoid altogether. When a man has to deal with nature and all her attributes, it is well that he should be capable of calm and deliberate consideration. An Omnipotent Power has proclaimed that time of definite duration was occupied in the various works of creation, which might have been called into existence with a word or thought, and finite power might obtain useful information from the great lesson. My advice is, order your business arrangements well; take proper time; do one thing at once, let it have your undivided attention, and do that one thing well.

POULTRY REARING AND MANAGEMENT ON AN ORDINARY FARM.

[The following is the continuation of Mrs. F. Somerville's Prize Essay on this subject, published in the "Journal of the English Agricultural Society."]

TURKEYS.

Turkeys are not so troublesome and difficult to rear as is generally supposed, and taking into consideration the present prices, it is a question if any of our domestic poultry are more profitable; it is not uncommon for a pair of turkey hens to rear 30 during the season, which at an average price of 12*s.* each, are worth 18*l.*

There are several varieties, the two most useful and profitable being the Norfolk, or black, and the Cambridge, of metallic hue; in size and beauty the latter is pre-eminent. Never keep either male or female for breeding purposes beyond four years, neither depend entirely upon year-old birds; on a farm of ordinary size three hens and one cock will be found a sufficient number with other poultry. Take care to introduce fresh blood in your stock occasionally from the best birds you can procure, and it is a wise precaution to keep on a young cock and a couple of hens as late into the season as may be convenient, for fear of loss or accident to your stock birds. Turkeys should be provided with an apartment to themselves, with perches, and fitted up on the ground-floor, with separate nests, so that each bird when sitting may be secured on her nest, otherwise on hearing the young at the time of hatching, they are apt to leave their own nests and interrupt each other, perhaps leaving some of the eggs to perish. As the laying season approaches place clean straw in their nests, with an egg by way of encouraging them to lay at home, as they are often inclined to lay astray, to the great danger of losing their eggs; if the hen be seen seeking a nest, confine her in the place in which you wish her to lay; where the first egg is dropt there will she lay the remainder.

If fed alike they will generally all be broody at or near the same time, should this not be the case the first broody hen must be detained, until the others are ready (that is, supposing you wish to have a second flock, as hereafter described), then place a green sod at the bottom of each nest, with plenty of clean, short straw thereon, and allow the hens a day or two to form and take to their nests. The time of incubation is four weeks, and the hen will sit 17 of her own eggs, if it is not intended to add a few common hen eggs, at the expiration of the first week's sitting, which is often done

with a view to the chickens encouraging the young turkeys to feed at the first onset. The sitting hens will require food and water daily, for which purpose they should be allowed to come out-of-doors, as they will not remain off their nests for a long time, but it should be observed that they return to their proper nests; about a week before hatching spinkle the eggs with warm water (as directed at p. 1177 *a*), and on the actual arrival of that eventful period, ascertain by feeling under the hen whether the eggs are chipping or any birds out; if so, after taking out the shells, if any, leave her undisturbed for the day. It sometimes happens that an egg being slightly damaged, it is requisite that a portion of the shell should be very carefully removed, to allow the escape of the little prisoner, which otherwise might perish. With these exceptions, the turkey, like all other birds, is best left alone. The birds being now all hatched, allow them to remain about a day and night with the mother in the nest, and on the following morning, weather permitting, place the hen under a roomy coop, with boarded bottom, and selecting a dry and sheltered spot, turn out the young birds in front thereof, feeding them whilst small every two hours with a little hard-boiled egg, alternately with Rice, &c. (as mentioned at p. 1177 *a*), not forgetting to give the mother a substantial meal; after which she will soon gather the little ones under her wings. Should the weather be wet and cold, they must be kept under cover, and if confined beyond a week, a few Onions, Chives, Dandelion, or Dock-leaves must be chopped up and given with the egg; but this is not necessary when the mother and young can have their full liberty in about a week after hatching, in which case they will select their own vegetables and forage for themselves better than they can be fed by hand. Give water in dry weather after the young are a week old, but until they are three weeks old do not allow it to remain by them after feeding. As they become strong feed four times, and by degrees come to three times a day with corn in the grain or other food. It is a critical time for young turkeys when the fleshy tubercles begin to appear on the head, generally termed striking the red, the birds being then about the size of a pigeon. The surest safe-guard is regular and wholesome food. I have known them to perish in a thunderstorm; to avoid this, a temporary shed should be erected at the spot to which you wish them to resort, near which they should be regularly fed, and water placed for them to drink: it is astonishing how quickly they will then seek its shelter on the approach of a storm. If turkeys be fed as herein advised, they will be found in sufficient condition for the market, without confining them for the purpose of fattening, as is often done.

I do not think it desirable to aim at rearing two flocks in one year, but rather to use your best endeavours to raise one first-rate flock, the hens will then be in better condition for early work the following spring. The second hatch is generally very delicate, and subject to great mortality if the weather is at all unfavourable; however, in some establishments it is almost imperative to have a supply of late hatched turkeys during Lent, and after the game season is over, in which case, and when the first flock is hatched, confine one hen (giving the whole of the young to the others) in a coop or other convenient place for several days, feeding her well; afterwards set her at liberty, allowing the cock to accompany her, she will soon commence to lay again, and probably have her second flock hatched, and the birds will have attained strength ere the wet and cold weather sets in. They nearly always lay twice, and sometimes thrice, during the season, and the desire to sit is very great; but by confining them a short time and feeding them well, you may easily put them off, without resorting to the uncouth way of plunging in cold water as practised by some persons.

There is no doubt that the rearing of turkeys is highly remunerative, and could be profitably extended if circumstances permitted; but if the corn-fields and mowing-Grass are near the homesteads, I should not advise keeping too many, as a difficulty may be experienced in preventing their doing considerable damage to such crops, unless there be a conveniently situated pasture-field or plantation to which they could be taught to resort. Lastly (though not least) take them to the best market, and do not allow the dealers the profit to which you are so justly entitled, but sell by weight alive; good birds will command a good price, which at the present time (February, 1867) is from 10*d.* to 1*s.* per lb. live weight. At Christmas last I sold a young cock turkey for 19*s.* 2*d.*, being 23 lb. weight at 10*d.* per lb.; the rest of the flock weighed, cocks 18 lb. or 19 lb., and hens 10 lb. or 11 lb.

GEESE.

Geese, like turkeys, are one of our largest edible birds, and second to none in value, considering the very little trouble they give from first to last, their usefulness upon the table, and the luxurious down and feathers which they supply; but a good sized pond, with a plentiful supply of water and good pasturage, are indispensable to make geese-keeping a paying business, for they are very large consumers.

The Toulouse are the largest breed: and as size is an object in the goose, care should be taken to select fine birds; this breed seldom attains full maturity for breeding until three or even four years old. Let them have an outhouse to themselves, regularly supplied with clean straw, with which make nests, on the floor, as the laying season approaches, and partition the nests off, according to the number required. One gander will be sufficient for three or four geese. When arrived at maturity, they generally lay about 12 eggs each, which number they will sit. The eggs, for safety, should be collected daily and placed in bran, with the narrow end downwards, until the geese, by remaining on their nests, show their desire for sitting; the eggs must then be placed under them, and the house so arranged that they can have free liberty of egress and ingress at all times of the day, as they will require food and water daily, to which they will help themselves, if a pasture-field and pond of water be near, and afterwards return to their nests; little attention is therefore required whilst they are sitting, beyond keeping their nests undisturbed and protected from vermin. When, after four weeks, the time of hatching has arrived, in case any young birds are out, see that all shells are removed, for fear they may cap the other eggs, and thereby prevent their hatching. Allow the goslings to remain in the nest for a day and night, they will not require feeding during that time, but will gather strength; and if the following morning be fine and sunshiny they can be moved at once upon a Grass plot or other convenient place, where they will be safe, and supplied with an abundance of nice young Grass, of which they will soon partake (this, their natural food, suits them much better than to be crammed with oatmeal pellets), not forgetting to place them some water in a shallow vessel, with which a little oatmeal may be mixed. If the weather is unfavourable, they must be confined in an outhouse, and plentifully supplied with nice green Grass turfs and water. The pellets alluded to are made of oatmeal, formed into paste with cold water, and of convenient size to be swallowed by the goslings; five or six are given at one feed for each bird; but to cram 50 goslings three times a day for a fortnight will be found a long and tedious job, and in most farmhouses time cannot be afforded for the purpose, besides, it is really not requisite.

The most critical time for young geese is about Midsummer; if it is very dry weather, and the pasturage and water not plentiful, it is then desirable to give them a few Oats night and morning to assist nature over this peculiar juncture, and help them on until the stubbles are ready for them, and when those are cleared they will be in nice condition for fattening, which is best done by making them up, in lots of 10 or 15 in number, according to the size of the place, supplying them with plenty of water and an unlimited quantity of Oats for three weeks, giving them a clean bed of straw when required; they will then be ready for the market. The day previous to killing turn them on the pond for the purpose of washing their feathers, and supply a bed of clean straw in the feeding-house before their return; but take away all food and water, and let them fast until killed the next day, when they must be dressed for the market. The price of the bird in December, 1866, was, in some places, from 10*d.* to 1*s.* per lb., small feathers 2*s.* 6*d.*, and the down 7*s.* 6d. per lb. It is unwise to sell green geese, on account of the loss in the feathers as well as the carcase, unless a fancy price is obtained for all together, but do not sell by weight at an ordinary price. There is not the slightest doubt geese pay well where there are proper conveniences for keeping them, but they must be well managed and kept out of the mowing Grass and corn fields, or they will soon do damage to the amount of double their profit.

REMARKS ON THE IMPLEMENT DEPARTMENT AT BURY.

By EARL CATHCART, Senior Steward.

NIMROD used to say, "I can part with the horse, but not with his condition;" so the Society—the thing being divisible—should part with its stewards, not with their experience. Mr. Wren Hoskyn, Sir A. Macdonald, and Mr. Caldwell, have written valuable papers on previous meetings: would that their example had been regularly followed. A fresh eye is of essential importance towards a duly progressive system. It is now my object to record the experiences of three busy years of office; to preserve the mere residuum—the moral *extractum carnis*.

Many things pass as a whole that would never pass in part. I am proud of having been an officer of the Society, and yield to no man in appreciation of its importance, past, present, and to come. Those who studied the Bury meeting may well be satisfied with general results; yet in speaking of details in my own department I must be critical—if not critical, I am nothing. Whatever may be thought of my opinion, credit I know will be given to my motives, and my observations will not be less relished because they are outspoken. I am to deal chiefly with principles, because for the third time consecutively the Society is to have the advantage of Mr. Coleman's practical notes on the general show-yard. Before entering in order upon our subject, let me stay to pitch one or two preliminary key-notes. There is an activity positively contagious—a keen interest—insight—a tendency to encourage, not to snub, a suggestion—a hatred of measureless content—these qualities are required to counteract the natural drowsiness of institutions. Those who this year studied two great agricultural meetings were struck by some reflection such as this:—If management requires breadth and unity, may we not unduly sacrifice unity for breadth?

It would be pleasant to dwell on picturesque and hospitable Bury; to refer to Suffolk, the home of that farmer-penman, Arthur Young; and birthplace of the poet of the farm, of whom it was well said—

> "Bloomfield, thy happy omen'd name
> Ensures continuance to thy fame:
> Both sense and truth this verdict give—
> While fields shall bloom thy name shall live."

Space does not allow even for the great event of the meeting—the visit of the Viceroy of Egypt—more than a passing notice. Despite the fickle weather, here at least his Highness was thoroughly satisfied with his reception. With an evident knowledge of agriculture and mechanics, he was full of sympathy with our object, and left a most agreeable impression. He told us at luncheon how he had himself adapted his steam-plough tackle to work earth-levelling shovels, and he applied two bills of fare to illustrate the process. The great ruler in Egypt must have been impressed by the 42 acres covered with everything that could exemplify the perfection of modern agriculture: still more must he have been impressed if he reflected that he saw an outward and visible sign of that hidden force destined to expand, to fill, and to move the wide world, and which may be indicated by two plain words—freedom and co-operation. His Highness was evidently "not one to travel from Dan to Beersheba, and cry—'tis all barren."

The principal characteristics of the last exhibition of implements are briefly these:—On account of the exclusion of cattle, the Bury Show was essentially an implement show; considering the value of the implements, perhaps the best exhibition ever known: remarkable more because of perfectionment of parts than for novelty of design; and for evidence of the steady advance of steam power as applied to agriculture. With steam tackle, heat being power, to cherish heat is the great object; hence the goal for racer engines, and, in the best sense of the word, engine jockeys. Traction engines—called in the yard tractarians, were a noteworthy feature, and snorted about in all directions; there was no prize for these mechanical Calibans: yet probably for them there is a great future. Might not a curious paper be written on the history of implements—how they became naturalised in agriculture? Large entries and extensive trials, with corresponding pressure on stewards and judges, pointed to the absolute necessity of avoiding any tendency in the implement department to become hidebound. A characteristic and perhaps valuable feature is to be found in the fact that there is a minimum of official interference. In short, the Society opens the door—personal interest walks in and about. The general meeting in the yard being merely a form, a characteristic of our agricultural convocation is now, all work, no talk. The Sunday service in the yard is interesting and appreciated. When at Bury the clergyman said, "I beg you to accept the prayer-books you have used," the general response, "Thank you kindly, sir," was touching. The visitors of the labouring class were intelligent; none trudged unknowing and whistled for want of thought. An important teaching of the implement yard is, that improved agriculture must have improved servants; and this leads me to refer to two important considerations—the promotion of education, and the encouragement of rational cheerfulness—for

> "A merry heart goes all the day,
> Your sad tires in a mile-a."

The key to the future of the implement department is in the phrase, "the spirit of the time must teach us speed." Consider the growth and the tendencies of our population, study American analogies, and we see that our necessities will lead every day to the increased use of machinery in agriculture—necessity being the motive, competition the machinery of progress. It is to be observed that, as regards any Government, reforms are apt to come from without; at least a system should be viewed from without. I advocate no dog-and-the-shadow principles. You can't run far before your day; time itself, that changes all things, changes by degrees. To preserve things we must go back to our original principles: acting less from habit, more from reflection. Improvement in the yard, like improvement in the implements, must be made step by step—improvement of details resulting from a close application of that science of sciences—applied common sense; its disturbing influences are possibly laxity, and rhinoceros-skinned routine. As we hear less in these days of judges and more of juries, where for the purpose of exhibitions does the essential difference lie? Prejudices of the pocket are not likely to interfere with the wished-for progress in the future: all we want is concentrated, sympathetic, receptive management. As regards the agricultural mind, insight; as regards the agricultural voice, fine perception. The agricultural and engineering press is able. "By evil report and good report," when construed together, much may be learned. That press is a sort of tree of knowledge—the pulse of the agricultural body—and on that pulse we should ever have a sensitive finger. The difficulties of the future implement department are great; like the steam-hammer, which can smash a boulder or crack a nut, we must so justly arrange our testing machinery that we do even-handed justice alike to the Triton manufacturer and the minnow embryo.

Reader, do you know the good old play "Speed the Plough?" and the oft-repeated and now proverbial question "What will Mrs. Grundy say?" Even Mrs. Grundy would, I am sure, have approved the following preface to a few practical suggestions:—Little things are little things till neglected; how many things are out of mind when out of view? In our yard there might be at either end of every row of sheds a notice to show the number of the stands comprised in that row; a sort of thing that those who run may read. There are two nuisances that should be sternly repressed—a sort of "cheap John's" noisy vendor of small wares, and the wet-paint nuisance. There is too much black smoke in the implement yard; this is the result of bad fuel and bad stoking. Care should be taken to avoid an issue of incorrect prize-lists. The undecorated "tractarians" should be controlled in their gyrations, but not unduly trammelled. The police of the implement yard requires consideration; fires to be duly raked out by a certain hour. In reference to the Suffolk Societies' Prize, would it not be desirable to obtain a Report on the Plans and Models of Labourers' Cottages? Might not the very efficient Assistant-Steward of Implements be more employed? There was a want of shelter for the implement trials; there has been sad loss of all-important time in measuring and setting out portions of land for trials. The implement trial-floors were injudiciously constructed, and provoking difficulties in connecting centres on line of motion. No crane, and so no end of dragging and shunting heavy mills. The crying want

with us is more forethought and combined action as regards field and yard trials.*

The importance of "the soft answer" is nowhere better exemplified than in the office of Implement Steward. If my last year of office could return, I would say to my colleagues, "There is ample work for three of us; we will each take our department: I would not fear your discretion, only each day report, so that we are not at cross-purposes. We must, as far as may be, keep up the tone in our yard. The Society is bound to carry out its conditions; routine must give way to utility; we are not Medes and Persians. And above all, it is essential that the governors should sympathise with the governed." whilst referring to the office of Steward, it is due that I should record my sense of the good service rendered by the Assistant-Steward, Mr. Elphick.

The prize system hinges on the due selection of judges; and the secret of being able to obtain judges depends on the fact "that the labour we delight in physics pain." That we may not overstrain this tendency to labour for love, let us consider the duties, qualifications, and treatment of our implement judges. Nothing is more sensitive than credit, and the judge's decision immediately affects credit. The number of judges is limited; there is often undue hurry; sometimes a five minutes' run where an hour is required. In short, judges are often unduly worked, and unduly blamed. A judge should be a man of experience, of a fine temper; he should not only avoid haste, but the appearance of haste. As Lord Bacon says, patience and gravity of bearing is an essential part of justice. The general public know little of the laborious and intricate trials. Forethought and further division of labour is the solution of many of our difficulties. We must at once subdivide the Miscellaneous Department, which, indeed, requires of its judges far-seeing and also microscopic eyes. How far do we by our treatment encourage these essential and scarce officers? The answer to this question is not satisfactory; there is undoubtedly a feeling akin to discontent. On the part of the Society there is a want of sufficient consideration; beyond a bed the judges have little to be thankful for. Such things as these that follow are not duly considered:—An over-crowded town; visitors considered fair game; lodgings where no refreshments can be had, and yet tired men must at night make and compare notes, for thoughts, like water spilt, may not be gathered up again. The judges absolutely require a quiet and convenient rendezvous. Then instead of giving the judges table money, and allowing them to consult their own convenience, quite regardless of distance and conditions of toil and dirt, we insist on handing them over for perhaps eight days or more together to the tender mercies of a virtually uncontrolled show-yard refreshment contractor, with his "bak'd meats coldly furnished forth." Surely the better plan would be to have a refreshment-room, good plain refreshments, with a duly posted tariff, somewhat as in the members' coffee-room of the Lords and Commons. Give table-money, say, stewards 5*s.* a day, judges 1*l.* 1*s.*, and let all pay. The judge, tired and toil-stained, it may be miles away from the show-yard, naturally says, "Why shall I not take mine ease at mine inn?" In short, these are weighty matters. I should like to see a committee of three appointed to consider the whole subject; I have a high opinion of the importance of the officers referred to. I wish to see judges supplied with all appliances and means to boot; and I believe the best test of good and efficient regulations of stewards and judges is a host of cheerful and well-satisfied exhibitors.

Exhibitors are tried in the fiery furnace of competition; they are entitled to sympathetic consideration. It would be difficult to over-estimate the effects of free competition; the implement trade is now of world-wide interest; it is highly sensitive, as proved by the fact as stated, that the Society's admirable Report on Steam Cultivation has already advantageously affected the manufacturers of steam-cultivating tackle. There would appear to be phases of progress, periods of special growth, in the various departments of agricultural implements; for example, draining and tile-making, clod-crushing, reaping, steam cultivation, the gradual economy in the agricultural use of coal in the production of steam: the history of this last result, and the history of the reaper since the introduction of M'Cormack's reaper in 1851, might be suggestive. I cannot avoid touching on, but I will touch lightly, the vexed question of the prize system. Objectors to that system object chiefly for two reasons: they say trials are often unseasonable, often hurried. From their own stand-point these objectors have much reason. But looking all round the subject, there appears a consideration which, to my mind, is conclusive in favour of the prize system. Criticism depends on comparison. The prize system does not create competition, it brings it to a practical issue: there is no such thing as absolute perfection, but relatively, implements may be excellent. Contes tsare annually becoming more keen. The results of the last steam contest must make steam-farmers wish that competing firms could make, not engines only, but drivers. To return to the immediate subject—exhibitors—they are not satisfied, and with reason. As Englishmen they willingly submit to constituted authority: they feel that time and chance happeneth to all; but they hate neglect and oversight, which, after great preparation, made in accordance with published conditions, is naturally aggravating. They hate undue haste, and the appearance of undue haste. There is, moreover, a falling to the ground between two stools, or, in other words, between two classes of judges. It is a question how far judges by their awards influence purchasers? That they do influence purchases I cannot doubt, as the ordinary farmer requires a guide; if my observation is just, that criticism depends on comparison, then the judges, by the result of their comparisons, should influence purchasers. That judges sometimes suggest improvements is a fact within my own knowledge. Rotation is a law of Nature; the rotation prize system, the triple division of 1856, works admirably, but perhaps requires extension. However that may be, further division of labour, especially in the Miscellaneous Class, is immediately necessary. Experienced stewards know that when there are many exhibitors who complain there are more who are discontented; notwithstanding, much may be done by patient hearing and sympathy with the mixed multitude. Indeed, towards the last it became quite pleasant to go to and fro in the yard, and on recognising familiar and intelligent faces, to exchange friendly greetings.

My task is finished; only I would add two or three sentences, not by way of empty compliment, but to express a hearty feeling. For our great Society my wish is, may it ever be said "Age cannot wither her, nor custom stale her infinite variety." Of the honorary directory, need I say, I concur in the general feeling—one of unqualified respect. The judges, they who bear the heat and burden of the day, their disinterested labours, command our appreciation and deserve our thanks. I can see an eminent engineer judge, rain on one side, fire on the other, yet all day wearing an expression of pleasant humour, as though reflecting on "Man born unto trouble as the sparks fly upward." To my friendly colleagues, one and all, I am indebted for many agreeable and profitable hours; may I say, and trust the feeling is mutual, should old acquaintance be forgot? I do think a great charm of our meetings is, that they so tend to blend the sympathies of those whose best interests are really identical.

* I should like to read a clever paper on the great American agricultural gatherings.

Home Correspondence.

The Awards at Paris.—Messrs. Ransome and Messrs. Howard.—[In reference to the paragraphs on this subject at pp. 1150 and 1174, Messrs. Ransome write as follows:—

We have before us official documents which prove—

1st. That the Billancourt annexe was an integral part of the Exposition Universelle, and under the direction of the same Commission which had the direction of the agricultural part in the Champ de Mars.

2d. That the Grand Prizes referred to in the disputed paragraph have been awarded by the same juries (groups 8 and 9) who sat in the Champ de Mars.

3d. That all the awards made by those juries carry the same value as those which have been awarded by the other juries of the Exposition Universelle.

4th. That the nine gold medals mentioned by Messrs. Howard are styled "Grand Prix" in the official award; that they are gold medals of 1000 francs each, and are of the same importance as those awarded on the 1st of July to Messieurs Penn, Napier, Whitworth, Siemens, and others. That the 10,000 francs' prize awarded to Decrombecque is beyond these—is of an exceptional character, and does not affect the question as to which manufacturer of agricultural machinery stands first on the list of Grand Prizes.

5th. That although the Grand Prizes are of the same value throughout the Exhibition, and when awarded for dissimilar manufactures or products are of the same importance, yet where two or more Grand Prizes have been awarded for the same speciality the jury awarding them has always classed the recipients in the order of their merit.

6th. That our firm was placed before Messrs. Howard and before every other British or foreign manufacturer of agricultural machinery taking part in the Exhibition, because the jury for Group 8 found that our successes in the experiments made by the jury for Class 74 were more numerous, and our merit consequently greater.

7th. That the list in which Messrs. Howard's name stands first, Mr. Albaret's second, Messrs. Garrett's fifth, and ours seventh, is the list of awards of "Medailles d'or," which are the next inferior awards to the "Grand Prix," and were conferred very soon after the opening of the Exhibition, without any trials whatever.

We therefore claim that the first place on the list of awards and the highest honour given to any British or foreign manufacturer of agricultural machinery who took part in the "Exposition Universelle de Paris 1867" has been bestowed on us.

It is the second place which has been given to Messrs. Howard.

The special award of a silver medal to our partner Mr. Head, a distinction conferred on no other British or foreign manufacturer of agricultural machinery, adds further honour to our position.

They add that the official documents referred to will lie at their London office, 9, Gracechurch Street, until Thursday, December 5, for the examination of any one. We shall publish the official awards as soon as we receive them.]

Field Work or House Work for Women, &c.—My sister, who has the experience not only of a field labourer, but of both a housemaid and dressmaker, tells me that the majority of field labourers are more cleanly in their domestic habits, after they get married, than are a great many domestic servants at the same period in life; and that the field labourers in Northumberland and the south-east of Scotland have more leisure time for needlework and intellectual culture than the majority of domestic servants have. A hind's daughter, who gave up field work a few years ago, is one of a good many ex-bondagers now acting as cooks in and around London. That woman is at present in one of the fashionable aristocratic parts of London. Dr. Strachan, of Dollar, declares one of the most fatal sources of immorality to be the long hours of domestic service—not unfrequently 16 hours a-day, the remaining eight hours being all the time that domestics have for sleep, intellectual culture, and clandestine courtship. Important investigations, he says, "have lately shown that the evil prevails most in those employments where there are the longest hours for work and the least leisure, and everywhere it is found that it is greatest among domestic servants—three times more among the servants than among the factory girls. This is the more remarkable, because the two classes are identical in regard to education and early training,—generally coming from the same families: the only difference being that the factory girls have abundant leisure after working-hours, and unrestrained intercourse with their acquaintances. Many talk loudly (he adds) of the improvement of the working classes, and of the necessity for leisure to cultivate their minds, whilst, in their own homes, the most delicate of the working class, and on whose mental culture must greatly depend the condition of the next generation, have to drudge morning, noon, and night, without a moment either for recreation or mental improvement. It says little for the gallantry of working men that they will get up a nine hours' movement for themselves, whilst they allow their sisters and sweethearts to toil for 16 hours a day." It is too prevalent a practice for domestic servants in Scotland to commence working on Monday morning at 1 o'clock, and they have to "slave on" at the washing-tub or other work till 10 or 11 on the Monday night. It is the long hours on the working days and other busy occasions that bring so many domestic servants to drunkenness. *T. W. Rutherford, Forest Field, Kelso.*

Seed Wheat, Seed Potatos, and Mangels versus *Oil-cake.*—Permit me to ask "B." if the young plant requires nothing more for the grain at the early stage of its growth than a large quantity of starch? I suspect it does, just as the young animal requires something more in a "good breast of milk" than mere sugar. But waiving this, how does "B." get rid of the charge of madness brought against him by his neighbours for cutting his corn so green? Is he quite sure that in that green state the grain contains more starch, admitting it to be the sole ingredient necessary to support the plant in its infantile state? or is he quite certain that other ingredients in the grain at that stage of its maturity are not necessary to render the food in the grain more assimilable in combination with the starch? I am not, however, going to question "B.'s" practice of sowing or harvesting Wheat, however much I feel the necessity of being further enlightened on what still appears to me his questionable theory. Permit me now to pass on alphabetically to your correspondent "C.," who has volunteered such valuable aid by the authorities he has quoted in support of the practices so long successful in the case of market gardeners, who are the men to teach us all how and when to harvest Potatos for successional planting. I could give many other high references, to both practical and scientific men, in further support of the views of "C.," and still hold in abeyance the results of my own many experiments. Well versed though we are in Potato culture in Ireland, there are late-comers amongst us who presume to be our teachers, whereas they should be but learners. For example: in a late number of your excellent paper is a paper read before the Ballymahon Farmers' Club, on the harvesting of root crops, by Mr. M. Kingstone. In regard to Potatos the writer says—"One evidence of their being mature is when the tubers freely come off as you moderately shake a handful of freshly dug-up stalks. About the beginning of October the Potatos should be taken out of the ground and secured." But is this to be regardless of what the variety is, or of the early or late stage of its approach to what is considered maturity—a very questionable term or time? Never at any time could there be a general rule applicable in all cases to the raising and storing of Potatos, even before the fatal Potato disease showed itself in 1845 and 1846. One variety might, and often did, appear to be what was called "ripe" in August, whereas the very finest long-keeping sort would not present the same appearance till the time frost would arrive (often as late as Christmas) to arrest all further growth in the stem. This latest of all varieties was the most delicious Potato ever grown in Ireland during the succeeding months of May, June, July, and early August. Yet if that variety was subjected to analysis when the earlier variety was at its perfection, it would be pronounced by the chemist worthless; whereas, if at the latest period, when it was most valuable, such analysis would prove it to be invaluable: and that which was pronounced so eight or nine months before that, compared with it and believed to be the *ne plus ultra* of perfection, would be found valueless. Regarding the relative values of Mangel Wurzel and oilcake I fear your correspondent Mr. Smith is, like other enthusiastic philanthropists, rather sanguine in his high estimate of the former, whether considered theoretically or in a practical point of view. There are few countries better adapted for the growth of this plant than Ireland is, whether it be designed for the manufacture of sugar or the feeding of stock. I am not aware of having seen an account of heavier acreable produce anywhere else than those grown in Ireland, nor am I aware of more accurate scientific tests, in both cases, than have been made in Ireland, when it has been satisfactorily proved, to my mind at least, that those over-large bulbs are the least valuable for either of the above purposes; I will go even still further, and say that a system of growing such crops has been hit upon in Ireland, where an exceedingly heavy acreable produce can be had, with bulbs presenting the highest value for both purposes, tested both practically and theoretically. With these facts, and many others besides, bearing on this matter, placed before my eyes and engraven on my mind, and without offering any opinion on the relative merits of the two foods in question just now, I would, with all due respect to Mr. Smith, say we need further proofs than those he has adduced before we can agree with his views to the extent he so laudably appears to wish. Mr. Smith will, I suspect, have to acquire more practical knowledge on these matters. He says—"I am informed by those who have long practised it, that Mangel Wurzel may be advantageously grown for a long succession of years on the same ground." This certainly is quite contrary to my experience of close on half a century in the cultivation and use of this plant, and in theory is contrary to the views set down by

both vegetable physiologists and chemists on the necessity of observing a rotatory rule in cropping either farm or garden. But when I speak thus of Mr. Smith's perhaps over-sanguine opinions, let me not be supposed as seeking to derogate in the slightest degree from the great importance of Mangel Wurzel as a crop which I believe well calculated, when fairly grown and judiciously treated, to do more for the improvement of Ireland, and for strengthening, and to a great extent rendering the United Kingdom more independent of every other country, than the more extended growth of any other plant. *Fingal, Nov.* 4.

A Dark Christmas Moon forebodes a Productive Harvest.—There are many locally accepted agricultural axioms that are worth noting, and probably acting upon. Said one of my ploughmen to me to-day, "We shall have a heavy harvest next year, because there will be a dark moon at Christmas—a new moon on Christmas day." The other ploughmen assented, and said, "it had been noted by very old men for many years that a light Christmas moon gave light sheaves, and a dark Christmas moon gave heavy sheaves." They had themselves observed this, and called to my mind that the last two Christmas moons had been light, or full moons. The dark or new moon takes place this year on Christmas day. So let us hope that next year we may be blessed with an abundant harvest. *J. Mechi, Nov.*

Farmers' Clubs.

EAST LOTHIAN: *Nov.* 1.—*Steam Cultivation.*—Mr. SHIRRIFF, Saltcoats, drew the attention of the Club to the subject of steam cultivation, more especially with reference to the system of letting out his plough for work, introduced by Mr. Sadler, Ferrygate. Referring to the great changes which had taken place in agriculture within the last 20 years, Mr. Shirriff said there could be no doubt that its progress in future would be materially affected by the use of the steam plough. In Scotland agriculturists had been as yet slow to appreciate the benefits of the steam-plough, as was shown by the fact that while there were 400 of these implements at work in England, there were only 10 in Scotland, seven of which were at work in East Lothian. The original outlay was doubtless very heavy; but the value of the cultivation on the land was almost incalculable. He gave some practical illustrations of the work done on his own farm (Saltcoats) by Mr. Sadler's plough. The first field had 17½ acres of light Oat stubble, which the plough had stirred up to a depth of 16 inches in two days, at a cost of 10*l.*, which a pair of horses would have taken 30 days to perform. Another field of Potato land, 21½ acres in extent, had been ploughed in 1¼ days, which would have taken 16 days of a pair horses. In one particular case, where the soil was as hard as adamant, and which no horses could have worked, the steam-plough had turned over to the depth of 14 inches in two days. There could be no question of the value of these results, and he believed the Club would join with him in wishing it every success.

Mr. SADLER, Ferrygate, followed up the observations of Mr. Shirriff by detailing his experience of the implement. After many difficulties, he was now convinced of the success of the experiment which he had introduced into the county. He stated that he was engaged in an experiment at the instance of the Highland Society, and without anticipating the report which he would have to make to the directors, he might say that the result arrived at was 4 bushels of Wheat per imperial acre in favour of the steam-plough, as compared with ordinary cultivation. He knew that the use of the steam-plough, and the great facilities which it gave for rapid cultivation, would necessitate a change in the system of rotation, which was of no benefit to the proprietor, except with bad tenants. Improved cultivation meant higher rents, and in this aspect of the question it would be for the benefit of landlords to rid enterprising tenants of such old-standing bothers as the rotation system.

Mr. SMITH, Whittinghame, while he had no doubt whatever as to the benefits of steam cultivation to the land and the produce, was disposed to question whether the advantages so secured would be commensurate with the necessary outlay connected with the purchase and upholding of the implement. He desired the introduction of a lighter and cheaper implement than any yet produced, before its use could be anything like general.

Mr. DURIE agree with Mr. Smith that a cheaper implement would need to be brought out before farmers with moderately-sized farms could risk its use; and hoped that machine-makers might yet be able to construct an efficient steam-plough for 400*l.* or 500*l.*

The thanks of the Club were presented to Mr. Sadler for introducing steam cultivation into the county, and for the opportunity of participating in its benefits which he was now affording to neighbouring agriculturists, and, at the same time, expressing satisfaction at the measure of success which had hitherto attended its adoption.

ATHY.—*Our Store Cattle.*—At the last monthly meeting of this Club, Mr. JAMES ALEXANDER, Sen., gave a lecture on this subject. He said:—On looking back to our cattle-show at Athy, I think that we have reason to believe that we are making some progress in the improvement of our stock—in breeding as well as in condition; and there is little doubt but that all the cattle which were shown there will be well cared for during the coming winter and spring. I wish I could say as much for all the young cattle in the county of Kildare; for they are generally in fair condition at this season of the year, and although there is not much of this county very celebrated for its fattening qualities, still we rear as good young cattle as in any county in Ireland, from having so many fine shorthorn bulls now kept in different parts of it; but, we must bear in mind that, as we improve our stock by breeding, they require more care and attention in both housing and feeding, to keep them in a thriving condition, especially in winter and spring; for shorthorn cattle can bear neither cold nor hunger so well as our own breeds of stock, and that the better they are fed and cared for they will pay us more for our trouble.

In this district young cattle are generally housed at night, and turned out through the day, to feed on what they can pick up in the fields, which we all know is but very little in the neighbourhood of Athy, and even what they do get is often not of the best quality, perhaps only a little sour bottom Grass, with a feed of straw or bottom hay at night and morning, in the house, but very seldom any Turnips. This treatment will not keep young stock in a growing condition, and by the end of April they are only skeletons of what they were in the autumn, and, of course, the winter's keep is lost, as well as six months' growth of the cattle, and it will take some months of the summer's Grass to bring them into fair condition again; whereas if they had been kept in the house, with a good supply of fresh threshed Oat-straw and some hay, if it could be spared, with two feeds of Turnips daily, it would keep them in a thriving state over the winter and spring. They might be turned out for a couple of hours on a fine day, but little need be calculated on what they can gather in the way of food in the fields. Our main object should be to have them worth as much as possible by the time that they reach two years or two and a-half years old, and fit for the butcher; and those who cannot fatten off all that they may have got should have them in a forward condition for those to finish who may have the means to do so; for there is a great deal of land in this county that will bring a beast to that age in pretty good condition, but there are but few farmers in this district who can keep a three-year-old profitably; and to have our stock away early would enable us to keep considerably more than we can at present.

Another system is to let them run in the fields all the winter, without housing them at all. Strong two and three year olds may do very well in a dry, sheltered situation, where the Grass is naturally of good quality, with a liberal supply of good hay, but even then they would do much better if they had a comfortable house to sleep in at night; for I have often gone into a herd of outlayers in November and December, and heard one here and another there coughing, with the water running from their eyes, and the hair standing on their backs, which told plainly that they were suffering from cold and wet, and by the first of May they were not worth more than they were in the autumn, only that the prices of stock are rather higher in the spring, when graziers must have cattle for their Grass, and the only way that they can make a selection in our spring fairs is a beast with a good hide and plenty of hair, for as to condition they have but little or no choice in that respect; but if they could get stock in good condition they could afford to give a much higher price for them, as they would have them fit for Smithfield market before they can have the stock which they can get at present into good store condition. This is a great loss to both farmer and grazier, and the sooner that we improve in the management of our young cattle, the better will it be for our poor animals, and also for our own pockets. I will give you a very striking example of what has been done in a county which is not more favoured by nature than the county of Kildare, and in some respects not so much, especially for growing green crops. You have all heard of the high prices which the Aberdeenshire cross-bred cattle bring in the London markets, which is always a farthing per pound above the prices of beef from any part of England, or from abroad, and, perhaps, more than a penny higher than any beef that we send from Ireland, which, on a beast of 9 cwt. to 10 cwt., amounts to a very considerable sum. At the present time Aberdeenshire is the most prosperous county in the United Kingdom, which principally arises from their management of their stock. I recollect when all their two and three year olds were annually bought up and driven to the south of Scotland, and into England, to be fattened on their fine pastures for the London and other markets, and now I believe that many of our fine one and a-half year old bullocks find their way to Aberdeenshire to be fattened there; it being a tillage county, and farmed on the five-course rotation. The farmers have no old pastures, and when Sir Robert Peel passed his free trade in corn measure, they turned their attention to the improvement of their cattle, and purchased many of the purest shorthorn bulls which they could get. Their native breeds of cattle are not very large, but easily fattened, and from them and the shorthorn bull originated the Aberdeen crosses, which are now so celebrated for the fine quality of their beef in London; but I consider that it is more from the treatment of the cattle than anything that is in the breed that brings so high a price for their beef, as from the day that the little cross is dropped until it is taken to be slaughtered, it is daily making progress in both growing and fattening. There is no check or falling off during winter and spring, as all cattle are tied up early in October, in houses or in straw yards, with houses or sheds for them to sleep in, and are fed principally with fresh threshed Oat-straw, and two or three feeds of Turnips daily during winter and spring, and up to the beginning of May, when they are turned out upon first or second year's Clover and Ray-grass; and by not over-stocking the Grass, by the 1st of October they are good beef, when those which they want to finish off for the London market get oil-cake, bruised Oats, or meal, with Swedes and straw, which only takes a short time to have them in the primest condition, and bring the highest price in London. Gentlemen, I would not have said so much about the Aberdeen crosses, only that I thought that most farmers would like to know how the best beef in the world is obtained for London. On this part of my subject I have received the following letter from an Aberdeenshire farmer:—

"In answer to your request that I would send you an account of our management of young cattle, I suppose I will commence at the beginning. We rear all here from the pail; each calf gets from five to seven Scotch pints of new milk for four months. After the first three weeks they get amongst their milk, of oil-cake about three-quarters of a pound daily; by the time they are three months old they have learned to eat straw and Turnips sliced, perhaps three or four Turnips a day, or generally as many as will not purge them. If it is summer they are put upon good Grass, but taken in, if cold or wet weather, at night. They get no oil-cake after they are weaned; but I think this is a mistake, and that they should get a pound of oil-cake daily till they are a year old. During winter they get an unlimited supply of straw, whether in a loose open court or in stalls; they get Turnips twice a day, a good barrowful among four, or as much as keeps them loose in their bowels—not to purge them; by the first of May they are generally turned out to Grass. I should have said they are generally turned out to water every day, and in fresh weather get leave to pick about in the fields for an hour or two. By about the middle of October, or sometimes earlier, they are taken in for the winter, and put up in stalls; they then get an unlimited supply of straw, and say a barrowful of Turnips twice a day, between each two. Those who intend having them fat at two years old give them Turnips three times a day. No oil-cake is generally used unless you intend forcing them on early, but I don't think it pays to force young cattle too much; they must have time to grow as well as to fatten. As soon as they begin to shed their teeth they get their Turnips sliced to them, especially if it is Swedes they are getting; I prefer giving them a mixture of Turnips, say yellow in the morning and Swedes in the afternoon. There is an opinion getting to be common here that yellow are better for young stock than Swedes, even though both are sliced. I generally sell my young stock at two years old, but on large farms it is three that is the common age. I must also tell you that we don't milk so high as some others do; nor do my cattle at two years old reach the size that many do, as we do a good deal with the dairy here; so we connot have it at both ends at once. You recollect seeing my one-year-olds when here; they were nothing to speak of, but just fair one-year-olds, and treated as above, and on the first of April I sold four of them to a farmer. When they left me they were in capital condition, had got no oil-cake the second year, but just straw and Turnips, and might be called second quality of beef; the price I got was 18*l.* a head. He put them immediately upon Swedes and straw to the latter end of May; they were then turned upon fine, new Grass to the middle of September; they were then bound up, and for some time got yellow Turnips, and then Swedes and straw, as much as they could take, with two pounds of oil-cake and a feed of bruised Oats daily until the first of April, when they were worth 35*l.* a head, and measured on an average 7 feet 10½ inches in girth. I should have said that these four spoken of were all after a pure shorthorn bull, and out of cross cows, with the exception of the best one, which was out of a small Ayrshire cow."

I will now say a few words on their dead meat trade, which commenced about twenty years ago, when the Great North of Scotland Railway was opened through the country. A few enterprising butchers thought that they might turn it to some account, and began by sending only the hind quarters of beef—each wrapped up in a clean linen cloth, which reached London—a distance of over 500 miles—in about thirty hours, without having to change from one train to another, which was greatly in favour of the meat. At that time the fore-quarters were sent to the large manufacturing towns in Scotland and England; but now a great deal of the cattle are forwarded alive to the London market. When this country was threatened with the rinderpest, at some meetings which were held in this country, several gentlemen advocated a dead meat trade, and brought forward that of Aberdeen as an example; but that would have soon ruined the farmers here, as a great deal of our beef is not prepared for a dead meat market, and, owing to the long time it would take in the transit, from so many delays and handlings from one conveyance to another, by the time it would have reached Liverpool or Manchester markets it would be almost unsaleable. Nor need we think of a London dead meat trade until we keep our young cattle better in winter; for, although there is much good beef fattened in Ireland, yet beef which is hastily made up will not bring so high a price as beef which has been fattening during the life of the animal; consequently, our beef seldom brings more than a second or third-rate price in England. Our exporters know that well, and buy from us with that prospect before them; for by the time that much of our stock reach Liverpool or Smithfield Market, we would hardly know our own cattle, from the collapse which had taken place in their appearance after a few hours' hardship upon the road. This is not so much the case in well made-up cattle, and I cannot see why we should not be able to bring our stock to as great perfection, and finish our fat cattle as well as in any country; for as we have to compete with all the world in the grain market, so is all Europe looking to England for a market for their beef; and we will very soon have our friends from the utmost parts of the earth supplying our markets in abundance with preserved meat. This will tell against the farmers who have only their stock and grain to depend upon for their rent, labour, and other expenses, and there is nothing that deserves our best attention more than our young cattle. As Turnips are said to be the foundation of all good farming, so are they the best crop that we can grow for rearing our young stock, as well as the principal food for fattening them off for the butcher; and as this is an age of progress, I am sure that the county of Kildare will not lag behind, but rather take the lead, and improve our agriculture, and grow more Turnips, which would enable us to keep more cattle, and make more manure, which will make our land produce heavier crops of grain. Consider that only 20 years ago there were a million of bull calves slaughtered annually in Ireland when they were newly dropped, as only heifer calves were considered worth rearing at that period; and at that time we could not have got a dozen of bullocks to stall-feed in any of our Athy autumn fairs. Now bullocks are taking the lead in all our great fairs, which shows the changes which

are taking place in the way of stock, and, of course, the vast increase of cattle in this country. As this district is only adapted for tillage, and we cannot make an acre larger, we should try to make two blades of Grass grow where only one grew before, to meet the increased demand for summer keep.

But winter, and especially spring, is the hardest time for young stock; but with a good supply of Turnips and fresh threshed out Oat-straw, they can be kept in a growing and thriving condition over the winter. I consider Oat-straw preferable to either Wheat or Barley straw for young cattle. But, gentlemen, although we are all anxious to get a turn of our friends' steam threshing machines, I am afraid they will tell against our cattle in the way of fodder, for a great deal of our grain is now threshed out in the autumn, and however careful we may be in stacking our straw, cattle will not eat it so well as when newly threshed; and if it is allowed to get wet or musty they will scarcely eat it at all, neither will they do so well upon it when it gets stale. But experience is the best schoolmaster, and although oil-cake and other feeding substances are necessary for rearing calves, as well as for fattening off our cattle for the butcher, still farmers should be as independent of them as possible by more and better tillage, and especially green crops. But many farmers have some obstacles in the way of improved farming, for no crop will come to perfection in wet land, and some system, or rather the means of draining, is very much wanted, as there is so much of this country lying almost on a dead level. Our small streams run so sluggish and shallow that in place of carrying off our heavy falls of rain in winter, they only overflow much of our land and saturate the soil, where it often lies until the spring and summer sun and winds dry it up, when it is too late to get in our crops in proper season. Whereas, if many of those streams were deepened, they would carry off the water from our fields and ditches, and would in some measure prevent so much fog and mildew, which do so much injury to our growing crops; and farmers would find it an easy matter to drain many an acre themselves, which at present are of little or no value to them. We have an excellent example of this in this neighbourhood, where his Grace the Duke of Leinster has deepened the stream from the river Barrow to Ballindrum, a distance of several miles, and I am sure it will be an outlet for the drainage of some hundreds of acres. Another great advantage to farmers would be if landlords would plant more Larch trees upon their estates, for there are but few farms where there is not some out-of-the-way corner or poor field which could be planted, both for ornament and profit, and could be planted for little more than 1*l.* per acre, which would pay the proprietor at the rate of about 30*l.* in as many years, as Larch poles can hardly be got to make paling or to repair cattle houses or to erect new ones, as they are so scarce and dear, which often prevents farmers from making many improvements about their farms which they would do if they could get timber convenient at a reasonable price. Gentlemen, I make these remarks in advocating the cause of our store cattle, which are at present much neglected in winter; but the time will come when they will be better cared for, and many more of them kept upon our respective farms. For some weeks past the average number of store cattle exported from this country may be set down at 10,000 head; and if these cattle were properly wintered they would have been worth at least 2*l.* a-head more than they were sold for. At this rough calculation, Ireland has suffered the enormous weekly loss of 20,000*l.* during the period computed for. And that is all, gentlemen, that I have got to say on the subject.

CHAIRMAN—Well, gentlemen, have you got any fault to find with Mr. Alexander's paper.

Mr. ANDERSON—As the Chairman asks who is going to find fault with Mr. Alexander's address, I must say that instead of finding fault, I am inclined to agree with all he said; and he has stated everything in a way that I am accustomed to hear it. I can find nothing false whatever

Mr. DAVIDSON said he thought Kildare was a dry county. However, he did not think that landlords planted enough to afford shelter for cattle; but he could not see why tenants cannot do so if landlords will allow them. A small plantation in the corners of fields would not cost very much, and it would afford great shelter.

Mr. WYNNE—I think hedge rows are as good, if not better, and more available, than plantations.

CHAIRMAN.—They are the greatest nuisance in the country.

Mr. ROBERTSON said the gist of Mr. Alexander's paper lay in the treatment of young stock. He had wintered animals out in the fields, and they did better than some of the same breed which had been wintered in the yard. Even in the young two-year-olds he had experienced the same, and in the market they had turned out better than the house-fed animals. Last winter they fetched from 1*l.* to 1*l.* 10*s.* more than the others. The real question was, how could they manage so as to make stock pay—how to economise, and have as little labour as possible, for stock feeding on pasture does not pay. Then the way to make stock pay on tillage is to give them plenty of oil-cake, when the profits will be had out of the succeeding corn crops.

Mr. ANDERSON said, in reference to an observation as to the good feeding qualities of straw, that a great deal depends on where it is grown; for it was his experience that the straw which grew in two fields adjoining each other was often quite different in quality. And he could say the same of Turnips. He had had 20 years' experience of farming in Ireland, and he tried cattle on Mr. Robertson's plan, when he found they got very weak. He then treated them according to Mr. Alexander's system, and they throve every day.

Mr. DOUGLAS thought the gist of Mr. Alexander's paper had been lost sight of altogether. His great argument was that prime Scots—the pure Aberdeenshire—bring a great deal more money in the market than their own. This was *primâ facie* evidence that their system in Aberdeenshire was the best. Their cattle arrived early at maturity, were well finished, and fetched the top prices in the London market. It remains, then, to be accounted for why the cattle here, being so large and magnificent—notwithstanding all the favourable circumstances of climate and other natural advantages—do not bring the same prices. It was well known that cattle, whatever the reason may be, do not put on beef so well when fed on Grass. They had the best Shorthorn blood in the world, and how was it, then, that the Aberdeenshire cattle, which were like their own Kerries, were more looked after?—for they had the fact staring them in the face that they fetch higher prices, as seen in the quotations, than Irish cattle. But there they had a defect in the climate. The great mistake was to depend too much on tillage; and instead they should adopt a mixed system of husbandry, which would prevent the exportation of half our cattle, which, as Mr. Alexander had stated, brought a loss to Ireland of 20,000*l.* a week, and this owing to not having a proper system. That was a great sacrifice, but the remedy for it was to extend, as he had said, the mixed system of husbandry. There were farms in the neighbourhood of Athy—in fact, not 5 miles away, and there were no better in England or Scotland, and why could they not produce as good cattle as in Aberdeenshire?

Farm Memoranda.

WEST GLOUCESTERSHIRE: *Nov.* 15.—The fine weather of the last fortnight has been of the greatest benefit to farming operations here. The Wheat sowing is almost completed, under most favourable circumstances; and the early sown is up in drill and looks well. The storing of the Mangel has been pushed on most vigorously, the greater part of the crop being safely pitted, and the ground ploughed up ready for, and in some instances sown with, Wheat. The crops of Mangel are not so good as last year; the roots indeed are numerous, but rather small, and there is not what may be called a good crop in the whole of West Gloucestershire. The pulling of the crop is generally let to the labourer, at about 6*s.* to 7*s.* per acre. For this he has to pull, cut off tops, and fill carts, the carting and storing being done by day work. The system of storing in this neighbourhood is generally as follows:—A pit is formed by running the plough up two straight lines 6 or 7 feet apart, the width the pit is intended to be, so that the storer has no trouble to keep the pit the given width; the roots are thrown up to about 6 or 7 feet high, forming an equilateral triangle. The storer may greatly facilitate his work by keeping one side of the heap forward, so that he can always tip the carts without having to move half the roots. We cover up with straw every night each day's carting, and never by any chance do we allow more to be pulled than can be filled in the day, as it is well known that a little frost will destroy any amount of Mangel pulled and lying on the ground. If any are to be left in the field they are allowed to remain in the ground, and then their leaves will protect them from even a sharp frost. When the storing is complete we cover them up for the winter, first removing the straw which was first put on if it be very wet, and replacing it with dry straw sufficient to keep the damp earth from touching the root. The frost may go through the earth, but the straw being dry prevents it injuring the roots.

We usually begin with about 12 inches of earth at the base, and gradually decrease to 6 inches at the top, taking great care to leave ventilators about every 6 feet along the entire length of the pit. We always thatch the dirt over lightly, as the soil is sandy, and consequently would very soon be washed off by the winter rains.

The crop being disposed of, the next work which we take in hand is to prepare the land for the next crop by spreading the leaves and ploughing them in. We do not consider them worth the trouble of carting off as food for stock. Sheep require a more substantial fodder at this time of year, especially breeding ewes, which are generally the scavengers of the farm, and obliged to eat what the rest of the flock won't; but I question if it be the right principle to work upon to insure a healthy fall of lambs. The Mangel leaf is cold, watery stuff, and the sooner it is ploughed in the better. While spreading the leaves our practice is to fork out every patch of Couch that can be found, thereby preventing it from running over and seeding acres before we can get another chance at it. The expense, when it can be carried away in baskets, is not much compared with what it would be if allowed to be ploughed in and remain two years unmolested. The forking out of the Couch is a matter well worth the consideration of farmers, and the plan adopted more generally. A great many about here do practise it now, and quite agree that it is the cheapest way to keep the land clean. Forking seems an expensive system, but it is the only sure way of ridding the land of Couch and Docks. Of the latter unfortunately on this farm we have had an unusual crop this year, as the season seems to have suited them, and we have forked out more than a cart-load of Docks from a field where we least expected to find them. *J. W.*

ABERDEENSHIRE FARM.—The weather for the last fortnight has been all that could be desired for harvest operations; indeed, the last week of October was something remarkable, every day being breezy, cool, and drying: a great quantity of grain has thus been secured in excellent condition; the upper and late districts have got the best harvest, reversing the old maxim, "first come best served." Many of the farmers in the earlier districts had stacked a great part of it in only middling condition, but now when mostly secured it is considered to bulk well for straw, but much of the grain will be light, as a good part of it was cut with a tinge of green, and great quantities of it was lodged early in the season by the heavy rains; but, taking it all in all, there is great cause for thankfulness. Our climate not being suitable for Wheat, very little is sown.

Live stock have been remarkably healthy this season; feeding stock are now being pushed on for the Christmas markets. Some of our farmers are bruising their light and inferior grain, and giving them a feed of grain and a little oilcake to save the Turnips for the young and store cattle.

Stock for the forthcoming Christmas shows are now being spoken of, and we hear of many entered for Birmingham, Smithfield, and other places of less note; and from what we saw at the Royal Northern Agricultural Society's Show in August they will do the country no discredit. It is rather surprising that the greatest feeding county in Britain should not have a fat stock show of its own, with our M'Combies, our Cruickshanks, Martins, Stewarts, Stephens, Bruces, &c., at its head, followed up by the aid and countenance of our landowners, most of whom are great agriculturists and stockowners of the best description; we have no fear but it would prosper, and our city friends are never behind in any good undertaking. We know the owners of stock will say "it is not worth turning them out for all the prizes we could get," but let the landowners come forth with, say a hundred-guinea cup, our three great grain and manure companies with a fifty-guinea cup, the town of Aberdeen with something similar, and we might reckon on something from the railway company, all of which would bring grist to their own mills, and we have no fear of the turn-out after the spirit of competition we have seen shown at the summer exhibitions.

A meeting of the members of the Chamber of Agriculture resident in this county was held lately, for the purpose of electing a representative member for the county, and one for every ten members to constitute the acting committee for the ensuing year. Mr. M'Combie, Tillyfour, was elected for the county, and we hope soon to see him elected to fill one of the new seats in the House of Commons, promised by Mr. Disraeli, at Edinburgh.

Our local markets have been rather better for fat stock, but lean beasts are still falling back. Good useful farm horses are in request, and fetching high prices.

Our hiring markets are coming on, and some of them have passed. Wages are much about the same as for the summer half year, foremen getting from 12*l.* to 13*l.*; second men from 10*l.* to 11*l.*, and so in proportion. *J.*

[Will our correspondent tell us exactly what are the wages of the agricultural labourer throughout the year? ED.]

BANFFSHIRE.—In previous years, when we had a late harvest, October was looked upon as a month upon which we could depend for cold, dry weather; the past one has been an exception. In the earlier districts of this county a good deal was cut and harvested in the end of September, but harvest was not general in the later districts till the last week of September and first week of October. The high and contrary winds and hailstorms did a great amount of damage, the former breaking-down and twisting the crops, and the latter threshing out the grain, in some cases one and two seeds, and in others all, or, as we say in the north, "clean buffed." Very few farmers got a whole working day to cut dry. Some cut wet and dry, and in the former a good deal of sprouting took place, and in many instances spreading out had to be resorted to before the crops could be taken into the stack-yard. Those who cut dry have been rewarded by their dependence on Providence, and have got it all harvested in first-rate condition, in fact, the latest harvest has been the best one. Where this is written from the harvest is all but completed, and the time occupied thereat has been from five to eight weeks; the earlier districts having occupied the longest time; owing to the broken down and twisted state of the crops, the fields present a more untidy appearance than the writer recollects, it being impossible to make neat work (reaping machines are not in use in this quarter; it is all scythe-cutting).

Where the land is naturally dry, or well drained and well farmed, the crop is bulky; when damp and ill managed, the crop is scant. In damp lands the crop, whatever seed it got, was thinly planted, and the weather prevented it from tillering. The wire-worm and common white snail committed great ravages on many lea fields; those have been all cut green, and the yield will be very poor. Little is yet threshed out, but what has been confirms this opinion. Oats are being delivered 34 to 36 lb. per bushel, and it is only the earliest districts where 40 to 42 lb. Oats can be produced. Little Wheat, Barley, or Beans are grown, none in this district. Many writers advocate cutting green; we have dear-bought experience of its unprofitableness in this quarter this year.

In the earlier districts the Potatos are already lifted (a very poor crop), and a considerable breadth ploughed for green crop. We are lifting Potatos; the crop is not above a fourth; quality bad, and very small in size, and very high prices may be looked for.

The Turnip crop promises well, but the past two months being wet and cold they have not bulbed so well as expected; should the present month be mild they will improve a good deal.

The cattle have been now all tied up, those for feeding six weeks since. Owing to the scarcity of straw last season hay had to be resorted to as fodder for the beasts; this, owing to the abundant crop, could be purchased at from 6*d.* to 7*d.* per stone of 22 lb., which has been a great boon to feeders.

Cattle have thriven well since tied up, and the stocks are in a more healthy state than before the appearance of the cattle plague. Few instances of pleuro-pneumonia are heard of, and could the Government only be induced to introduce a killing, or as the Aberdeenshire farmers term it, a stamping-out clause in the Cattle Diseases Bill, we would soon get rid of it also. Best fat cattle are selling at 70*s.* per cwt., middling, 60*s.* to 65*s.*

Sheep have done well on the pastures, but owing to the great depreciation in the prices they will not prove remunerative to those who in many instances took to this description of stock in preference to running the risk of cattle plague.

Owing to the labour being so far behind, horses have

very much advanced in price, and those who continued to breed after the depression set in will now find themselves amply rewarded. *F., November* 6.

The Poultry Yard.

Poultry Management.—Let that part of the fowls' house not under the perch be fitted up with laying boxes; and let the place be swept and dusted every day. Once a week will be often enough to have the sweepings taken out. Set, where there is a choice, the worst layers, and on fewer eggs in winter than in summer. Set no hens during June and July, and, perhaps, the latter end of May. Aug. 1st, begin again setting, on not too many eggs, and go on till Sept., and the chickens then hatched will be the best to kill during December, April, or even May, and, if not hatched too late, are strong before winter. To persons who wish to have good poultry on their own table all the year round, and at the least cost, I say, don't set hens again till February at soonest; but two or three hens should be setting by March 1st, on not more than 11 of their own eggs, or eggs of the same size; keep up a succession then till May 15th. When the weather is warm a hen may hatch 17, but few hens will cover above 13 safely. Set the freshest eggs, net the hen in securely, and take her off once a day, covering up the hens with hay, or, when very cold, with flannel or wool. She may be off as long as the eggs are lukewarm. Some would put them at once into a feeding room with ashes, but I prefer letting them out free, food being set for them in the setting house; they will soon return, or must be driven in, and then may be shut in and replaced on their eggs. Netting them in gives trouble, but is very secure. But to succeed, poultry, like every other kind of stock, requires to be looked to morning and evening. The attendant in the morning is occupied, say half an hour; feeds all the stock, brushes and sands the house, takes off the setting hens, covering up the eggs, and when he puts them on again tucks them well up, and supplies the tank with fresh water. In the evening he collects the eggs, and occasionally counts the hens out, removing setters not wanted to short commons and plenty of water in prison; this soon brings them to a sense of their duties. Broods should, when indoors, *i. e.*, in coops, be on a dry bottom; during winter more indoors than in summer. The hen should be let out as soon as the chickens stray a few yards from her. If possible, there should be two houses, one for broods, &c., with an enclosed yard; here food should be always at hand; hither let everything be put that is to be fatted and killed. The house for broods and fatters should have shelves about 5 inches broad for the birds to roost on; thus bent breast-bones are avoided. As soon as a hen leaves her chickens she goes into the other yard, and they must go into the nursery house, if not previously there. As to stock, breeding-in makes the eggs barren, therefore every year procure a set of eggs of the most approved sort for cocks, and set them about April 1st, so as to have no check all the warm weather. As to stocking, say you have 30 hens: hens begin to cease laying much after June is well in; therefore, June 1st, begin killing off the worst, which are either the oldest or the worst sort, or the worst for laying, or not very good mothers, and have killed by August 1st from 10 to 15 hens, not less and not more, fill up the number with the most promising pullets, and, *cæteris paribus*, two pullets of the first spring hatch will lay more eggs their first year than three of a late one I believe, and they certainly lay many more eggs when they are dear, *i. e.*, before and at Christmas time. Some hens and sorts are better layers, some better fatters, therefore it may be worth while to pick your eggs, setting your good layers' eggs for the first broods. As to cocks, leave your brood of them till about Christmas, and then select the two best. I suppose you now to have two older ones; unless very valuable, kill the older ones when you leave off setting, that is, in May every year. Thus you would have four cocks at least to 30 hens during the winter and spring quarters, and two cocks to about 15 or 20 hens during the rest of the year. Hens well kept will lay most during March, April, and May. This, then, is the time to preserve eggs. The following is a very good plan:—Rub eggs with common varnish with a cloth or your hands, set them to dry on paper; when nearly so, give them a roll, and, taught by Achilles' fate, retouch the part that was on the paper; get some sand, dry it in an oven or in the sun; get a box, put in a layer of sand; then set the dry eggs on the small ends, quite upright, fill in and cover with sand, and then another layer, and so on. Many eggs thus kept for 11 months broke like fresh ones. As to food, let those that are to be killed have as much as they please, and what they please abroad; and if you have no yard for them apart, let all be on full diet from middle of May to October, when the laying hens bear a small proportion to the rest; after and before that the smaller ones must get food through openings too small for the old hens. But let them have their fill, and about a pint of good Barley will suffice the old stock for the week, given in the morning. One thing more: the nests breed and keep vermin; they must, therefore, be changed from time to time, and the boxes twice in the year well shaken or brushed. I have inserted every practical hint I could think of, derived from personal attendance and experience; and, as I am also fond of the statistical part, I can inform you that last year the whole stock realised, as remuneration for time, 2*l.* 12*s.*, being about 1*s.* for every head of old stock. I find that my stock of 35 hens at strongest (from many old ones, not better than 30), laid 2607 eggs last year, which is 50 eggs a week; probably I lost some that were out-layed. *A Former Correspondent.*

A Note.—During the greatest heat of a past summer (I cannot recall the date), a chicken was hatched in my hen-house, from a nest-egg which had so long served the purpose that it was on the point of being removed; it was hatched by the hens which successively chanced to lay their eggs in the nest, aided by the unusual and equable heat of the atmosphere.

Miscellaneous.

Wool Trade of the Country.—In the year 1866 the quantity of home-grown wool was 155,000,000 pounds, 8,000,000 pounds of which were exported, and 142,000,000 used in our own manufactures. In the same year the quantity of foreign wool imported was 225,000,000 pounds; out of that 82,000,000 pounds were exported in the raw state, and 142,500,000 used. The value of woollens exported was 28,000,000*l.*, and that of woollens used in Great Britain last year 42,000,000*l.* With a population of about 30,000,000, that gave 1*l.* 7*s.* 5*d.* per head. Thirty years ago it was not more than half that amount. In 1866 there were 26,390,000 sheep in the British Isles. He reckoned the average weight of the fleece at 6 pounds, which would give over 155,000,000 pounds. A few years ago that would be worth 14,000,000*l.*, while at the present price it was only worth 10,000,000*l.* There were many things to be taken into account for this. Some thought it was from the imports. In 1830 there were 98,000 bales imported; in 1861, 440,000 bales. In 1830 the colonies sent 8000 bales; in 1861, 329,000 bales, and last year 500,000 bales, worth ten millions of money. *Mr. Hayward, at the Trowbridge Root and Wool Show, October* 30.

Steam Cultivation, Co. Wexford.—Some of our readers may be anxious to know how the steam plough has got on since its removal to Killoughran Forest, near Enniscorthy (p. 1174). The engine, plough, cultivator, and tackle arrived safely on the ground late on Saturday evening, and on Sunday was visited by thousands of country people anxious to get a glimpse of what had never before been seen in the County Wexford. On Monday morning the men in charge proceeded to move the engine to the centre of a field consisting of 32 Irish acres, where it was adjusted for work, and steam got up. Meanwhile other parties had conveyed the plough to the headland where it was to commence operations, and the 1600 yards of steel-wire rope having been attached to it, the signal was given, and the first sod was turned at 11 o'clock, amidst a cheer from the numerous spectators, who pronounced the work to be perfection. As night closed in, operations ceased, when it was found that about three statute acres had been ploughed to a depth of nine inches. Large crowds were on the ground the whole day, representing the gentry and farmers for miles around; and, by way of winding up the day's amusement, a young farmer took from his pocket a flute, and soon had all the young people dancing jigs and reels, which were kept up to a late hour. Such was the spirit in which the people of the County Wexford received the steam plough. *Dublin Farmers' Gazette.*

The Marsh Harvester.—This is the name of a new reaping machine, which appears to be very favourably estimated, and to be coming into extensive use in the Western States. Its chief peculiarity consists in the facility afforded for binding the grain, which, as fast as cut by the sickle, is carried forward by an endless apron to the binder, who rides on a portion of the machine, and is thus saved all the labour of walking, and much of the stooping. In ordinary crops, it is said, one binder can bind all the grain as fast as the machine cuts it; but in very heavy crops two would be required, and there is provision for accommodating two. The problem of constructing a machine that shall bind the grain as well as cut it has repeatedly been attempted, but hitherto with very imperfect success. This new invention seems to approach very near the desired object, and to combine many important advantages. An interesting trial of this reaper, on a mixed crop of Rye and Timothy, recently took place near Bloomington, Illinois, and is thus referred to in the *Prairie Farmer*:—"One span of horses drew the machine with apparent ease and gave no sign of lagging, and we should judge would find no difficulty in doing so throughout the harvest. The Rye was green and heavy, which, with the Timothy, might be considered equal to cutting the heaviest grain. Several persons, who had never seen one of the machines, made trial of binding, and in each case without aid, and found no difficulty in keeping the machine clear of grain. They were unanimous in the opinion that one ordinary binder could work through the day, binding 8 to 10 acres of light grain like this; but in heavy grain two would be required. A German by the name of Fraber had purchased one of these machines upon the representation that two persons could bind the grain, and having two daughters who had been in the habit of assisting him on the farm, was present with them to see how it would work. They had not seen the machine before, but on trial found no difficulty in either of them binding alone as fast as the team could cut it. Mr. F. has 120 acres of Wheat and Oats, and the young ladies expressed themselves as confident that they could put up their father's harvest with comparative ease. The machine runs without noise and jar, and unless you see it, you would not know that it is at work. This is accomplished by the very superior mode of attaching the sickle and the simplicity of the gearing. The whole is a happy compensating arrangement of working parts. The machine cannot well be other than durable, for there is no strain on any part of it. In this respect it must challenge the admiration of the farmer. But its great feature is in the saving of labour, and that labour that most severely taxes the farmer during the harvest. To the farmer's wife it is a boon of great value, for she will not have a small army of extra hands to feed during the heated season. One of the Misses Fraber remarked that she preferred binding on this machine to cooking for a large lot of harvest hands. The saving of the grain is a feature that should not be overlooked in this connection. This depends very much on the manner in which the common reaper is handled; but in this the cut grain is all carried to the binder on an endless apron, and there is no liability to waste. We learn that there were made for this harvest 825 machines, and that next year a full supply will be ready for the harvest." *Canada Farmer.*

Our Prospects.—I must first congratulate you on the cessation of the cattle plague, and on the freedom with which our animals can now be removed. Since we last met we have had a very eventful season: very great changes have taken place in the prices of meat and corn, and sudden and extraordinary changes in the weather has been the character of the season. I am sorry to say that we cannot congratulate ourselves on a very successful harvest as repects the quantity of Wheat produced in this country. The prospect was, perhaps, at one time as cheering as in ordinary seasons, and, for my own part, I believe it was the frost which occurred on the 22d and 23d of May that disappointed all our hopes. As regard the four or five counties with which I am more immediately connected, I think we have not reaped a smaller quantity of corn since 1861. Notwithstanding the reports made by gentlemen who write for notoriety in the newspapers, after having travelled through England, as they state, from north to south, and from west to east, taking long sights from a railway carriage in an express train through a dim pair of spectacles—notwithstanding, I say, the reports in which such gentlemen have declared that there was an excellent crop, my experience, gentlemen, and yours, I believe, proves the contrary. I believe that in four counties with which I am especially connected, namely, Gloucestershire, Berkshire, Wilts, and Somerset, the average yield will not exceed 2½ quarters per acre. I think I shall be borne out in that view by several gentlemen now in this room. But, although we have obtained such a small quantity I am happy to say that the crop was got together under very advantageous circumstances, and except in a few cases, when the weather was unpropitious, corn of very good quality has been harvested. Judging from present prospects I do not myself think we shall have anything like famine prices, but bearing in mind the low average of the crop and the short quantity of old corn on hand, I think we may expect a high range of prices throughout the year. A great change has, as I have before remarked, taken place recently in the price of our animals, and particularly in sheep. I suppose I may truly say that sheep have, on the average, fallen since we last met from 14*s.* to 15*s.* per head; though it would appear from letters published of late in some of the newspapers that consumers have not reaped advantages commensurate with our loss. *Mr. Little, Chairman of the London Farmers' Club.*

Root Pulpers.—Amongst the rough notes made during the trials opposite Hornsby's pulper (1592) this remark is written, "Hopper does the work of other peoples' hands;" inasmuch as the roots fell continuously to the knives, and none of that hand-pressing was necessary without which no other machine kept the roots in contact with them. In this pulper at the base of each knife is a clearance hole through which the pulped roots fall, and as the knives are so arranged that no two pass over the same track, the cutting action is very steady and regular. The simple provision of a patent horizontal oscillating bar, which receives its motion from an eccentric on the spindle, having teeth, through which the cutters pass, both prevents the escape of the last piece and clears the cutters. The pulper in appearance much resembles the same maker's Turnip cutter, and possesses the same advantageous arrangement in hopper, frame, and disc. It is very strongly made, and produced an excellent sample of pulp. Two of the pulpers were driven with somewhat less power than Hornsby's, but the quality of the work and the construction of the implement were not so good. Trial with ½ cwt. Mangels:—

Name of Maker.	Article.	Time.	Revolutions.	Power (in foot lbs.)	Price.	Remarks.
					£ s. d.	
E. Hammond Bentall	1520	3 57	109	19,595	5 15 6	
R. Hornsby & Sons	1592	2 42	86	10,500	4 12 6	Prize £5.
R. Hornsby & Sons	1591	2 30	77	11,520	4 12 6	
S. Corbett & Son	1001	4 24	133	16,625	4 10 0	
R. & R. Hunt	665	4 26	139	8,550	4 4 0	
Ralph Mellard & Co.	216	5 10	165	19,475	6 0 0	
E. Hammond Bentall	1510	2 56	91	9,125	4 4 0	Commended
Woods & Cocksedge	2295	4 0	130	11,820	4 10 0	
Picksley, Sims, & Co.	2797	5 55	187	7,745	3 10 0	Commended

We were anxious to conclude the trials earlier, but found that, after giving about 12 hours' attendance daily, it was impossible to do so, and at the same time insure an investigation that should be ample and convincing. On this ground, we feel that the Society should either allow more time or provide a larger staff of implement judges; that the public on entering the show-yard on the first day may be guided as they proceed to the implements that have won the prizes, and therefore may be presumed to be entitled to their special attention. The implement department grows with a steady and a wholesome growth. At the Oxford meeting 20 exhibitors contended for 5*l.* and two medals. At Bury nearly 500 implements were catalogued, and 430*l.* besides 10 silver medals were left to the disposal of the judges. *Report by Judges in the English Agricultural Society's Journal.*

Competition.—I utterly dissent from the most conspicuous and vehement part of the teaching of the Socialists—the declamations against competition. With moral conceptions in many respects far ahead of the existing arrangements of society, they have in general very confused and erroneous notions of its actual work-

ing; and one of their greatest errors is to charge upon competition all the economical evils that at present exist. They forget that where competition is not, monopoly is, and that monopoly, in all its forms, is the taxation of the industrious for the support of indolence if not of rapacity. *S. S. Mill.* "To be protected against competition, is to be protected in idleness, in mental dulness; to be saved the necessity of being as active and intelligent as other people." *J. S. Bright.* (*Quoted by Mr. A. Stephen, at the Newbury Farmers' Club.*)

Notices to Correspondents.

Agricultural Imports, Nine Months, 1867: *R.*

Articles.	Quantities Imported. 1866.	1867.
I. *Articles Free of Duty.*		
Animals, living—Oxen, Bulls, and Cows .. .. No.	151,452	119,388
Calves .. .. ,,	23,347	18,790
Sheep and Lambs .. .. ,,	660,807	422,970
Swine and Hogs .. .. ,,	56,301	34,283
Ashes, pearl and pot .. .. cwt.	75,757	56,372
Bones burnt or not, or as animal charcoal .. .. tons	62,687	64,615
Flax and Tow or Codilla of Flax— From Russia .. .. .. cwt.	953,136	805,859
Holland .. .. ,,	47,875	65,098
Belgium .. .. ,,	99,924	126,592
Other Countries .. .. ,,	70,741	108,206
Guano .. .. tons	89,923	121,571
Hemp and Tow or Codilla of Hemp— From Russia .. .. .. cwt.	468,429	254,701
Venetia .. .. ,,	172,397	94,855
Illyria, Croatia, and Dalmatia ,,		33,462
British India .. .. .. ,,	23,250	5,456
Philippine Islands .. .. ,,	36,980	59,520
Other Countries .. .. ,,	44,837	45,589
China Grass, Jute, and other vegetable substances of the nature of Hemp .. .. .. ,,	1,344,877	1,133,784
Hides, untanned—Dry—From British India .. .. ,,	108,360	127,588
Other Countries .. .. ,,	60,422	45,810
Wet—From Argentine Confederation and Uruguay .. .. ,,	278,697	207,888
Brazil .. .. ,,	104,359	69,964
Australia .. .. ,,	71,387	58,944
Other Countries .. .. ,,	140,996	73,086
Tanned, Tawed, Curried, or Dressed (except Russia) .. .. lb.	6,248,684	5,568,593
Hops .. .. cwt.	31,944	47,879
Oil Seed Cakes .. .. .. tons	90,341	83,830
Potatos .. .. cwt.	443,653	795,686
Provisions—Bacon and Hams .. ,,	561,309	372,184
Beef, salt .. .. .. ,,	152,594	130,214
Pork, salt .. .. .. ,,	149,120	114,212
Butter .. .. ,,	787,232	776,050
Cheese .. .. ,,	520,780	599,587
Eggs .. .. No.	360,247,440	330,029,040
Lard .. .. cwt.	219,868	161,251
Saltpetre .. .. .. ,,	155,928	129,872
Cubic Nitre .. .. .. ,,	736,523	780,627
Seeds—Cotton .. .. .. tons	85,869	84,287
Clover .. .. cwt.	179,898	94,392
Flaxseed and Linseed—From Russia, Northern ports .. .. qrs.	266,620	267,815
Ports in the Black Sea .. ,,	183,810	181,297
British East Indies .. .. ,,	162,874	126,941
Other Countries .. .. ,,	91,378	86,377
Rape .. .. ,,	274,710	404,438
Tallow—From Russia .. .. cwt.	213,811	109,478
Australia .. .. ,,	17,155	17,574
South America .. .. .. ,,	272,972	198,139
Other Countries .. .. ,,	139,236	104,513
Wool, Sheep and Lambs'—From Hanse Towns and other parts of Europe, lb.	24,587,562	13,498,965
British Possessions in South Africa ,,	12,444,289	22,494,509
British India .. .. .. ,,	16,414,105	10,116,551
Australia .. .. ,,	102,047,664	118,672,805
Other Countries .. .. ,,	15,642,189	19,243,099
Alpaca and the Llama Tribe ,,	2,620,035	2,106,228
Yeast, dried .. .. .. cwt.	84,526	85,216
II. *Articles Subject to Duty.*		
Corn—Wheat—From Russia .. ,,	5,297,827	9,916,855
Denmark .. .. ,,	389,497	359,676
Prussia .. .. ,,	3,127,739	4,698,876
Schleswig, Holstein, & Lauenburg ,,	147,223	94,409
Mecklenburg .. .. .. ,,	573,828	586,672
Hanse Towns .. .. .. ,,	659,424	512,818
France .. .. ,,	3,320,351	551,794
Turkey and Wallachia & Moldavia ,,	357,343	1,792,489
Egypt .. .. ,,	14,030	635,169
United States .. .. .. ,,	388,010	1,980,007
British North America .. ,,	8,789	52,849
Other Countries .. .. ,,	2,437,302	2,917,695
Barley .. .. ,,	5,204,198	4,345,459
Oats .. .. ,,	6,812,542	7,329,086
Peas .. .. ,,	917,591	1,180,885
Beans .. .. ,,	556,237	1,482,039
Indian Corn, or Maize .. .. ,,	12,043,628	7,299,461
Wheatmeal and Flour—From Hanse Towns .. .. ,,	203,075	305,683
France .. .. ,,	3,108,406	1,077,286
United States .. .. .. ,,	206,898	241,947
British North America .. ,,	26,822	30,177
Other Countries .. .. ,,	196,412	768,479
Indian Corn Meal .. .. .. ,,	10,395	5,210

Kohl Rabi: *J H.* Strip the leaves, and house them like Mangel Wurzel. See the plan described in one of the paragraphs under "Farm Memoranda."

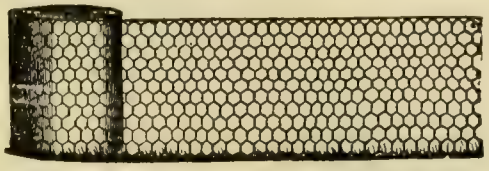
Sheep: *Farm Bailiff.* The manure left by sheep on a summer's grazing of Clover has been valued at 1*l.* per acre. When a root-crop is fed off by sheep, the valuation depends wholly on the custom of the county, the same rule being observed for an outgoing tenant as was observed by him when he entered. In some parts the valuation amounts to the whole cost of the cultivation of the crop, including even the rent of the land and half the cake bill. If, in the case of sheep in Clover during summer, they have received roots and cake on the land in addition to the bite, it seems fair that a certain proportion of the cake bill should be allowed by the incoming tenant on account of the advantage to the subsequent Wheat crop. One-third of the value of the cake bill, when the sheep have been reasonably fed, might fairly be claimed. In a case known to us, the wording of the agreement was such that an outgoing tenant sent in an outrageous demand for excessive feeding, and defended it on the plea that, if he liked, he might have fed his horses, and even his servants and his family, if they would have taken it, on nothing but oil-cake, and claimed the deduction.

NEW IMPROVED PREMIUM WIRE NETTING.

AWARDED FIRST-CLASS CERTIFICATE BY THE ROYAL HORTICULTURAL SOCIETY OF LONDON AT BURY ST. EDMUND'S, JULY 16.

J. B. BROWN and CO. having introduced Improved Machinery into their London Workshops for manufacturing Wire Netting, are now prepared to execute orders to any extent at the shortest notice. The Netting is of very superior quality, best formed mesh, well twisted, and Galvanised after made in a superior manner.

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AND GALVANIZED AFTER MADE.

PRICES PER LINEAL YARD, 24 INCHES HIGH.

Size of Mesh.	Mostly used for	Light. No. 19. Japanned.	Light. No. 19. Galvanized.	Medium. No. 18. Japanned.	Medium. No. 18. Galvanized.	Strong. No. 17. Japanned.	Strong. No. 17. Galvanized.	Extra Strong. No. 16. Japanned.	Extra Strong. No. 16. Galvanized.
2½ inch	Hares, Dogs, Poultry ..	2¾d.	3¾d.	3½d.	4½d.	4d.	5½d.	5d.	6½d.
2 inch	Game or Poultry Netting	3½d.	3¾d.	3¾d.	4½d.	4½d.	5¾d.	5¾d.	7d.
1⅝ inch	Small Rabbits, Hares, &c.	3¾d.	4½d.	4½d.	5½d.	5d.	6½d.	6½d.	8d.
1⅜ inch	Smallest Rabbits	4½d.	5½d.	5½d.	6¾d.	6½d.	8d.	8d.	10d.

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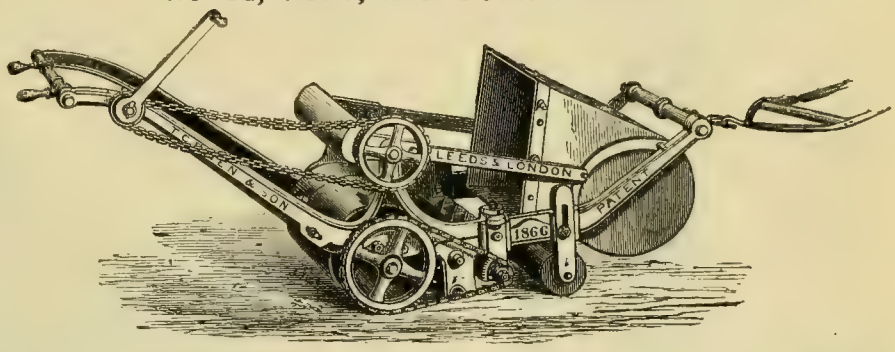
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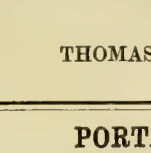
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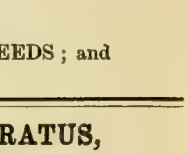
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Size of House.	Apparatus Complete.	Erection.	Size of House.	Apparatus Complete.	Erection.
20 feet by 10 feet ..	£9 0 0 ..	£2 0 0	50 feet by 15 feet ..	£17 10 0 ..	£3 0 0
30 feet by 12 feet ..	11 15 0 ..	2 10 0	75 feet by 15 feet ..	20 0 0 ..	3 0 0
40 feet by 15 feet ..	15 0 0 ..	2 15 0	100 feet by 15 feet ..	26 0 0 ..	3 5 0

Bath and Gas Work erected in town or country. The Trade Supplied.

Horticultural Buildings of every description from 1*s.* 6*d. per foot superficial, inclusive of Brickwork.*

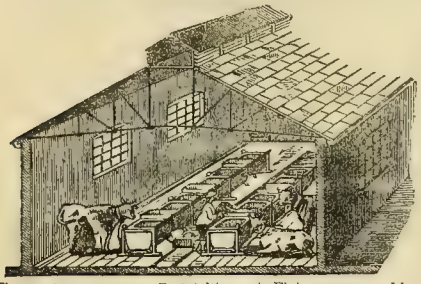
Price Lists, Plans, and Estimates forwarded on application to

T. S. TRUSS, C.E., Consulting Horticultural Engineer, &c., Sole Manufacturer, FRIAR STREET, BLACKFRIARS ROAD, LONDON, S.E.

Observe — The City Offices are now Removed to the Manufactory, Friar Street.

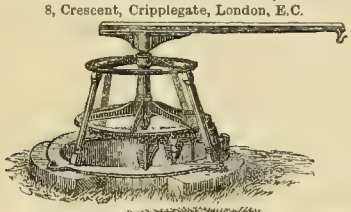
THE TANNED LEATHER COMPANY.
Armit Works, Greenfield, near Manchester.
TANNERS, CURRIERS, & MANUFACTURERS of IMPROVED TANNED LEATHER DRIVING STRAPS for MACHINERY.
PRIME STRAP and SOLE BUTTS.
Price Lists sent free by post.
Warehouse: 81, Mark Lane, London, E.C.
Mr. H. FERRABEE, Agent.

COTTAM'S PATENT PORTABLE UNITED COW FITTINGS.

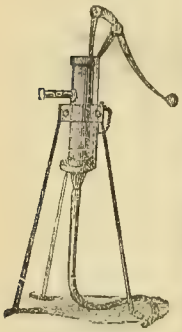


Their advantages are—Portability, not Fixtures, removable at pleasure, no Woodwork or Partitions to impede Ventilation or breed Vermin, Hay Rack dispensed with as unnecessary, increased width and depth of Feeding Troughs, Water Cistern, and Patent Drop Cover to prevent over-gorging. Cleanly, durable, and impervious to infection, being all of iron. Price of Fittings per Cow, 55s.
Prospectuses free of COTTAM & Co., Iron Works, 2, Winsley Street (opposite the Pantheon), Oxford Street, London, W., where the above are exhibited, together with several important Improvements in Stable Fittings just secured by Patent.

JOHN WARNER AND SONS,
BRASS and BELL FOUNDERS to HER MAJESTY,
HYDRAULIC ENGINEERS,
8, Crescent, Cripplegate, London, E.C.

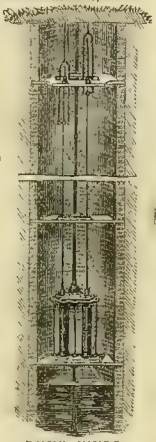


GARDEN ENGINES, WATER BARROWS,



No. 42.

PORTABLE PUMPS for LIQUID MANURES.



DEEP WELL PUMPS, for Steam, Horse, or Hand Power.

CRYSTAL PALACE FIRE ENGINES.



No 35.

CAST-IRON PUMPS.

Drawings and Prices for any description of Hydraulic Machinery sent upon application.

PICTURESQUE FERNERIES.

MR. BLAKE'S

MODE of ARRANGING and FURNISHING COOL EXOTIC FERNERIES, either as an adjunct to the Conservatory or the Drawing Room, or standing by itself in some appropriate position, has never failed to elicit the highest encomiums. Being permanent, the Tree Ferns and other Plants employed attain their highest and most perfect development with the lapse of years.
As a place of quiet pleasant resort in Spring, Summer, Autumn, or Winter, a spacious and well-arranged FERN HOUSE, having undulating Walks, Seats, Prismatic Fountains, Waterfalls, and "dells of the sweetest beauty," is worthy the attention of Noblemen, Gentlemen, and Public Companies.
A. BLAKE'S arrangement of Ferneries offers facilities for the introduction and successful cultivation of some of those splendid ORCHIDS which occur in the cool elevated regions of New Grenada, Peru, Guatemala, and Mexico.
☞ *Plans and Estimates on application. Early Orders solicited.* Address,
A. BLAKE, 4, DENMARK TERRACE, BRITANNIA ROAD, FULHAM, LONDON, S.W.

GRAY'S OVAL TUBULAR BOILER.
INTERNATIONAL EXHIBITION, CLASS IX., No. 2119.

MR. GRAY begs to call the attention of the Nobility, Gentry, Nurserymen, Gardeners, &c., to his
NEW OVAL TUBULAR BOILER,
Acknowledged by practical judges to be a great improvement on every form of Tubular Boiler yet introduced. It has proved itself superior to all other Boilers for quickness of action and economy of Fuel, doing its work with one-third less the amount required by any other.

Extract from Report in GARDENERS' CHRONICLE *of International Exhibition, May* 24, 1862, *page* 476.
"The upright form of Boiler is usually made on a circular plan, but the oval form given to Mr. GRAY's variety of it is said to be preferable in consequence of its bringing the tubes in closer contact with the fire. The usual form of a furnace being a parallelogram rather than a square, it seems feasible that the Boilers on the oval plan should bring the tubes more completely within range of the burning fuel; and this being so, the change, though a slight one, is no doubt an improvement."
☞ *They are made of all sizes, which, with prices, may be had on application.*
JAMES GRAY, HORTICULTURAL WORKS,
DANVERS STREET, PAULTON'S SQUARE, KING'S ROAD, CHELSEA, S.W.

HOTHOUSES FOR THE MILLION.
AWARDED A PRIZE MEDAL, 1862.
INVENTED AND PATENTED BY THE LATE
SIR JOSEPH PAXTON.
MANUFACTORIES:—LONDON; NEWTON IN CARTMEL, LANCASHIRE; GLOUCESTER, COVENTRY, ABERDEEN, and PAISLEY.
"Nothing can be more easy than to build them, nothing more simple than to remove them."—*Daily News*, MAY 22, 1862.





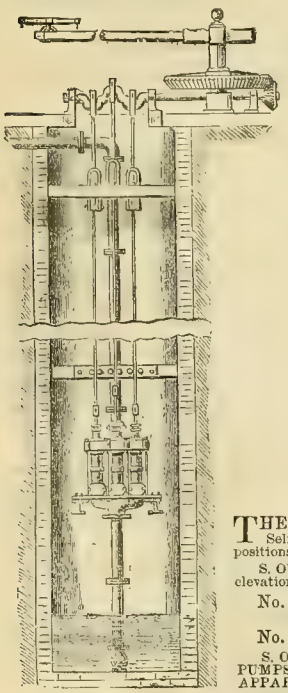
COMBINE SIMPLICITY, CHEAPNESS, AND DURABILITY.



FULFIL ALL THE REQUIREMENTS OF HORTICULTURE.

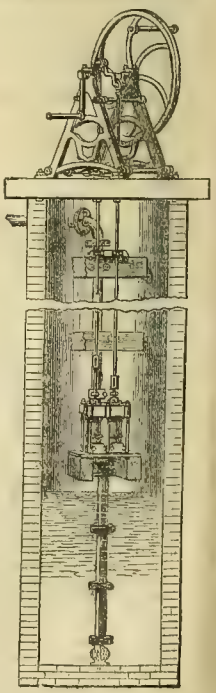
Illustrated Price Lists will be sent on prepaid application. Estimates given for Ornamental Conservatories, &c to special sizes and designs; also for Heating Apparatus, fixed complete.
HEREMAN AND MORTON, 7, PALL MALL EAST, LONDON, S.W.

S. OWENS & CO.
(LATE CLINTON AND OWENS),
MANUFACTURERS OF
PUMPS and HYDRAULIC MACHINERY,
WHITEFRIARS STREET, LONDON, E.C.



37.





28a.

THE LANDSCAPE SKETCH shows an adaptation of THE IMPROVED HYDRAULIC RAM. This is a simple Self-acting Machine, suited for raising a Supply of Water for use in Public and Private Establishments. Its adoption is not confined to positions as shown, but it is suited for any situation where a Fall can be obtained from a Stream, Brook, or Spring.
S. OWENS AND CO. have fixed a great many in various parts of the country for raising from 600 to 6000 or more Gallons per day to elevations varying from 30 to 300 feet, and forcing through Main Pipes 50 yards to several miles in length.
No. 37. IMPROVED TREBLE BARREL PUMPS, with HORSE GEARING for Raising Water from DEEP WELLS, for the supply of MANSIONS and PUBLIC BUILDINGS.
No. 28*a*. DOUBLE BARREL PUMPS for HAND-POWER for similar purposes.
S. OWENS AND CO. Manufacture and Erect every description of Engineer's Work required in Public or Private Establishments, such as PUMPS for any purpose on the largest or smallest scale, STEAM ENGINES, WATER WHEELS, TURBINES, WARMING and DRYING APPARATUS, BATHS, GAS WORKS and FITTINGS. Estimates furnished from Plans or on inspection of position.
☞ *Illustrated Catalogues Free on application.*

REIGATE SILVER SAND, best quality, 12*s.* per ton, at Swan Place; delivered four miles, or to any London Wharf or Railway, 10*s.* per ton, or 1*s.* 6*d.* per bushel. (Sacks at cost price, or on hire.) KENTISH and HAMPSHIRE PEATS, YELLOW LOAM, LEAF MOULD, SPHAGNUM MOSS, & COCOA FIBRE REFUSE.
J. KENNARD, Swan Place, Old Kent Road, London, S.E.



COCOA-NUT REFUSE is becoming SCARCE, the old reserves will soon be gone. Now sold in bags, 1 for 2*s.*, 10 for 16*s.*, 20 for 30*s.*, 50 for 66*s.*, 100 for £6.

Fourpence allowed for each bag returned carriage-paid.

A Railway Truck-load (not in bags), 40*s.*

Postage Stamps or Post-office Order, payable to J. BARSHAM & Co., Kingston-on-Thames, S.W.

TOBACCO TISSUE for Fumigating Greenhouses. Will Destroy Thrip, Red Spider, Green and Black Fly, and Mealy Bug; and burns without the assistance of blowing, and is entirely free from paper or rag. Price 3*s.* 6*d.* per lb., carriage free. A reduction in price for large quantities.

To be had of Messrs. ROBERTS & SONS, Tobacco Manufacturers, 112, St. John Street, Clerkenwell, E.C., of whom copies of Testimonials may be obtained; and of all Seedsmen and Nurserymen.

WINTER-DRESS ALL FRUIT TREES with GISHURST COMPOUND.

Copy of a Letter from Mr. RIVERS, *Nurseries, Sawbridgeworth, Herts, 22d October*, 1861.

"I must tell you what I heard to-day from a very clever gentleman farmer, Anthony Bubb, Esq., of Witcombe Court, Gloucester. He has a wall to which Peach Trees are trained. Well, last autumn they were in a wretched blighted state. As a desperate remedy he unnailed them all, early last February, and gave all but one a thorough painting with Gishurst Compound, 1lb. to the gallon of water; his trees, all but the one, commenced to grow favourably in spring, and are now pictures of health. The tree not painted is in a half-dead blighted state. He used the same dressing to his Apple Trees; it killed the woolly Aphis entirely, and has made his trees clean and vigorous in their growth. He intends to paint his Wall Trees annually, and tells all his friends to do the same. I shall certainly serve all my young Peach Trees against my walls in the same manner. The Compound is, I believe, more efficacious than the usual offensive mixtures of clay, soot, sulphur, &c.; and it does not blacken the shoots on the walls."

For Orchard-house Trees, 4 ozs. to the gallon will be found a good strength; when used stronger some buds on weakly trees may be injured.

GISHURST COMPOUND is sold Retail by Nurserymen and Seedsmen, in boxes, 1*s.*, 3*s.*, and 10*s.* 6*d.* each.

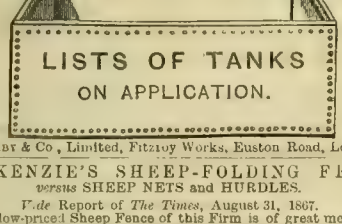
Wholesale by PRICE'S PATENT CANDLE COMPANY, LIMITED, Belmont, Vauxhall, London, S.

Gishurst Compound has more recent testimonials to its efficacy, but none more conclusive than the above, which has been published before.

Iron Cisterns.

"Every Cottage should be provided with a Water Tank." *Disraeli.*

F. BRABY AND CO. having laid down extensive and improved Machinery in their new range of buildings, IDA WHARF, DEPTFORD, are now prepared to supply WROUGHT-IRON TANKS, GALVANISED, or PAINTED, of superior quality, at reduced prices, and at very short notice.



F. BRABY & Co., Limited, Fitzroy Works, Euston Road, London.

MCKENZIE'S SHEEP-FOLDING FENCE, *versus* SHEEP NETS and HURDLES.

Vide Report of *The Times*, August 31, 1867.

"The low-priced Sheep Fence of this Firm is of great merit compared with Net; being stronger, more portable, not liable to injury from Hares and Rabbits, and not capable of entangling headstrong members of the flock."

Price per lineal yard, 6½*d.* (lasts five years), delivered at any Port in direct communication with Ireland.

THOMAS MCKENZIE & SONS, 31, Dawson Street, Dublin; and Camden Quay, Cork. (Orders executed from the Factory at Cork.)

BARNSLEY LOCAL BOARD of HEALTH.
DESIGN FOR GREENHOUSE.

The Local Board are desirous of erecting a Greenhouse in the Locke Park, to be constructed of Iron and Glass, including proper Warming Apparatus, at a cost not exceeding £230. The Board will give a PREMIUM of £5 for the BEST DESIGN, if accepted. The Design must especially embrace ample room for the preservation of Bedding-out Plants during the winter months.

Plans and Estimates are to be sent to me, under cover, endorsed "Tender for Greenhouse," on or before MONDAY, December 2.

By Order. WM. H. PEACOCK, Clerk to the Board.

Barnsley, Nov. 5, 1867.

JOHN GIBSON, JUN., begs to announce that he is prepared to Furnish PLANS and ESTIMATES for LAYING OUT GROUND attached to Mansions and Villa or other Residences, or for the FORMATION of PUBLIC PARKS or GARDENS and to carry out the same by Contract or otherwise.

Address Mr. JOHN GIBSON, jun., Surrey Lane, Battersea, S.W.

To Noblemen and Gentlemen.

LARGE SHRUBS and TREES successfully removed; Fruit Trees improved (if not doing well); all kinds of Planting and Ground work at a reasonable cost (from great practical experience), contract or otherwise.

C. S. JOBSON, Hutton Buscel, Sherburn, Yorkshire.

Farm Poultry.

GREY DORKING FOWLS, of purest breed, in any numbers.

Imported TOULOUSE GEESE, the largest and most productive breed known.

Improved NORFOLK TURKEYS, large, hardy, and good breeders.

AYLESBURY and ROUEN DUCKS.

Imported BELGIAN HARE RABBITS, for size and early maturity.

BRAHMA-POUTRA, CREVECŒUR, and LA FLECHE FOWLS, for constant layers.

Priced Lists and Estimates on application.

JOHN BAILY & SON, 113, Mount Street, London, W.

A SMALL NURSERY to LET.—For particulars apply to JAMES CRAWFORD, High Beech, Essex. A good Chance for an active young Man, who is a good judge of groundwork.

Kemprow, Aldenham, Herts.

TO BE LET, a FARM of 126 Acres, with the Shooting, and a Gentleman's SMALL HOUSE, situated within 10 minutes' walk of the New Station on the Midland Railway at Radlet, Herts, and with immediate possession.

The LIVE and DEAD STOCK will be SOLD by AUCTION by Messrs. HUMBERT AND COX on DECEMBER 4.

For terms and cards to view, apply to Messrs. HUMBERT & COX, Land Agents and Surveyors, 88, St. James's Street, S.W., and Watford, Herts.

WANTED, within a radius of Six or Seven miles of St. Paul's, HALF an ACRE of good fresh LAND, with or without a moderate-sized FORCING-HOUSE and COLD PITS; in an open situation preferred.—Reply, with terms, &c., to A. B., 5, Westermoland Road, Walworth Common, London, S.

FOR DISPOSAL, a First-class NURSERY and SEED BUSINESS; or the present Proprietor would accept of a WORKING PARTNER with a Capital of not less than £1500.

Apply by letter to E., Messrs. Hurst & Son, 6, Londenhall Street, London, E.C.

To Market Gardeners, Fruit Growers, Nurserymen, and Others.

TO BE DISPOSED OF, the UNEXPIRED LEASE of 26 years, and may be entered upon at Christmas, of a WELL ESTABLISHED BUSINESS for Cut Flowers, Plants, Fruit and Nursery Business, &c., situate I near a large Market Town, surrounded by an excellent neighbourhood, and within 5 minutes' walk of two Railway Stations. Further particulars on application by letter to Z., Post Office, Thames Ditton, Surrey.

Onchan Nursery Gardens, Isle of Man,

TO BE LET, with immediate possession, in consequence of the decease of the late Proprietor. The Nursery comprises about 15 Acres, lying in a sheltered situation; has been established for upwards of 30 years, and possesses the advantage of being the only Nursery in the Island. The Buildings consist of Conservatory (in four compartments), Vinery, Orchard House, Propagating House, with large Shed adjoining, and every convenience for carrying on the business. This Establishment would prove a valuable addition to any English Nursery, as from the mildness of the climate, many tender Plants and Shrubs stand the winter which, when young, would be destroyed by the frosts of an English Winter and Spring. A portion has been advantageously occupied as a Fruit Garden, the demand being considerable from the number of Visitors to the Nursery in the Summer season. The Grounds are well stocked with Forest Trees, Evergreens, and Ornamental Shrubs; the Houses with Plants, and liberal terms will be made to enable a Tenant to realise the Stock. For particulars apply to

JAMES SPITTALL, Solicitor, Isle of Man.

Sales by Auction.

Consignment of Plants and Bulbs from Holland.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on MONDAY, November 25, at half-past 12 o'Clock precisely, 500 Lots of BULBS and FRUIT TREES, ROSES, SHRUBS, &c., from Holland.

On view the Morning of Sale, and Catalogues had.

Consignment of Plants from Norfolk.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on TUESDAY, November 26, at half-past 12 o'Clock precisely, a great variety of HARDY FLOWERING TREES and SHRUBS, consisting of Conifers, Hollies, Laurels, Aucubas, Carnations, Picotees and Pinks, Berberis, Cedars, Laurustinus, Lilacs, Laburnums, Yuccas; RED and WHITE CURRANTS, Raspberry Canes, Strawberries, &c.; also some Pyramidal and Dwarf FRUIT TREES and ROSES; and an importation from Holland of HYACINTHS, TULIPS, CROCUSES, NARCISSUS, LILIES, GLADIOLI, &c.

On view the Morning of Sale, and Catalogues had.

Consignment of Plants from Ghent,

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, November 27, at half-past 12 o'Clock precisely, 150 CAMELLIAS, 300 INDIAN AZALEAS, 500 LILIUMS, LAURUSTINUS, &c., from Ghent. Also a fine lot of HARDY SHRUBS, CONIFERS, Standard and Dwarf ROSES, Pyramid and Dwarf FRUIT TREES, and an importation of HYACINTHS, TULIPS, CROCUSES, LILIES, GLADIOLI, &c., from Holland.

On view the Morning of Sale, and Catalogues had.

Hereford.—To Gentlemen, Nurserymen, & Planters.
IMPORTANT SALE OF NURSERY STOCK, IN CONSEQUENCE OF EXPIRATION OF LEASE, AT BARRS' COURT NURSERIES.

MR. O. SHELLARD is instructed by Mr. G. Davison to SELL by AUCTION, at the White Cross and Barrs' Court Nurseries, Hereford, on MONDAY, the 25th November, and five following days (Sale each day to commence at 11 o'Clock), a large portion of the well-known STOCK on these Premises, comprising 10,000 strong Standard Cider Apple and Crab Stocks; 3000 Specimen Conifers, 4 to 9 feet high, including fine grown plants of Wellingtonia, Deodara, Thujopsis, Cupressus, Thuja, Junipers, Abies, Araucaria, and Pinus; 500 Common Yews, 5 to 6 feet high; 200 Irish Yews, 6 to 7 feet; 2000 Avenue Trees, consisting of Chestnut, Lime, Elm, Birch, Hornbeam, Beech, Turkey Oak, Plane, &c., 9 to 14 feet high; 500 large Laurustinus, 2½ feet through; 500 Pinus insignis, 4 to 6 feet high; 500 Cupressus macrocarpa, 5 to 7 feet; 1000 large Pinus austriaca, 4 to 6 feet; 2,000 Common Laurels, 2 to 4½ feet; 2000 Spruce Firs grown for Christmas Trees, 3 to 4½ feet; 500 Acer negundo variegata, 3 to 6 feet; 1000 Large Portugal Laurels, 2 to 4½ feet; 150 splendid Thuja aurea, 2½ to 4 feet; a large quantity of Box, Privet, Bay, Lilac, Acer, Purple Beech, Ailanthus, Tulip Tree, Poplar, Judas Tree, Flowering Thorns, &c. 300,000 Strong Transplanted Hawthorn Quick, 2½ to 3½ feet high; 200,000 2-years Seedling Quick; 250,000 Twice Transplanted Larch, 3 to 6 feet; 150,000 Once Transplanted Larch, 1½ to 2 feet; 200,000 Ash, 2 to 5 feet; 70,000 Oak, 1½ to 2 feet; 50,000 Spanish Chestnuts, 1½ to 2 feet; 30,000 Spruce and Scotch Fir, 1½ to 4 feet. In Pots:—A large quantity of Primula sinensis, new Violets, Euonymus, new Aucubas, and Maréchal Niel Rose on own roots. All the above Plants and Trees are in the finest possible condition for immediate removal well grown, and constantly transplanted.

On view at the Nurseries at any time. Catalogues may be had at the Auctioneer's Office, at Messrs. MINIER, NASH, & NASH, Charing Cross, London; or of GEORGE DAVISON, White Cross House, Hereford.

Manor House, Long Crendon, Bucks.
IMPORTANT SALE OF SHORTHORNED CATTLE.

MR. STRAFFORD has received instructions from the Representatives of the late Joseph Dodwell, Esq., of the Manor House, Long Crendon, Bucks, to SELL by AUCTION, without reserve (in conjunction with Mr. J. A. MUMFORD), the Entire and Valuable HERD of PURE-BRED SHORTHORNED CATTLE, consisting of 104 Head of Bulls, Cows, and Heifers, the first portion of which, comprising 57 Head, will be sold at the Manor House, Long Crendon, on WEDNESDAY, November 27, at 1 o'Clock precisely. The remaining portion, consisting of 47 Head, will be sold at Boarstall, between Bicester and Thame, on THURSDAY, November 28, at 11 o'Clock precisely. This Herd has been Selected and Bred for about 20 years from Choice and Well-bred Stock, during which period Bulls descended from Fashionable Blood have been used, viz.: Aaron Smith (12,331), and Prince of Paris (16,748), from Clifton Pastures; Knight of the Shire (30,085), and Prince Leopold (20,658), from the Bushey Herd. Prince of Geneva (24,829), a son of Lord Fenrhyn's celebrated bull Duke of Geneva, is now in service. The Cattle are of a hardy robust character, and can be well recommended as very useful stock.

Catalogues, with Pedigrees, may be had on application to Mr STRAFFORD, 13, Euston Square, London, N.W; Mr. John DODWELL, at the Manor House, Long Crendon, Bucks; and Mr. J. A. MUMFORD, Chilton Park Farm, Thame, Oxon.

Patshull, near Wolverhampton.
IMPORTANT SALE OF SHORTHORNED CATTLE, &c.

MR. STRAFFORD has the honour to announce for SALE by AUCTION, without reserve, on FRIDAY the 29th of November, at the Dairy Farm, Patshull, near Wolverhampton, the small but very select Herd of SHORTHORNS, belonging to the Right Hon. the Earl of Dartmouth. It consists of 25 head of Bulls, Cows, and Heifers, which have been bred from the famed Milcote, Holmepierrepoint, Revesby, and Berrington herds; amongst them will be found some specimens of the "Sylph," "Frill," "J.," and other well-known tribes.

ALSO, will be Sold, a few Prime STEERS and FAT COWS.

Catalogues, with Pedigrees and other particulars, may be had on applicat on to Mr. STRAFFORD, 13, Euston Square, London; or of Mr. HUSSELEY, Patshull, near Wolverhampton.

SALE THIS DAY and WEDNESDAY NEXT, at ONE O'CLOCK.

Sale of First-class Dutch Bulbs, Handsome Standard and Dwarf Roses, Selected Fruit Trees, &c.

MESSRS. PROTHEROE and MORRIS will SELL by AUCTION, at 38 and 39, Gracechurch Street, E.C., THIS DAY (SATURDAY), and on WEDNESDAY, November 27, at 1 o'Clock precisely, a First-class Collection of DUTCH BULBS, including Hyacinths, Crocuses, Tulips, Narcissus, Jonquils, Anemones, Ranunculus, &c.; a splendid assortment of STANDARD and DWARF ROSES; selected FRUIT TREES; choice GHENT AZALEAS, HYBRID RHODODENDRONS, and other American Plants; HARDY CLIMBERS, in pots, &c.

On view Morning of Sale. Catalogues had at the rooms as above, and of the Auctioneers and Valuers, Leytonstone, N.E.

SALE THIS DAY, and MONDAY, TUESDAY, WEDNESDAY, and THURSDAY NEXT.

Clearance Sale of Nursery Stock, at Woking, Surrey,
IN CONSEQUENCE OF THE DEATH OF MR ROBERT DONALD.

MESSRS. PROTHEROE and MORRIS will continue this extensive SALE until THURSDAY NEXT, in the following order:—

This Day, SATURDAY.—About 13,000 CHESNUT, MAPLE, ASH, Plane, Sycamore, Limes, Beech, Birch, Oak, Alder, Acacia, Laburnum, Hornbeam, &c.; 10,000 Silver Spruce and Scotch Firs; 1,800 Magnolias, sorts; a large Collection of Deciduous Shrubs; a quantity of Standard and Dwarf Fruit Trees, &c.

On MONDAY, November 25.—About 35,000 SPRUCE, SCOTCH and Silver Fir; 40,000 Larch Fir; 40,000 Ornamental and Forest Trees, viz., Maple, Ash, Poplar, Oak, Sycamore, Elm, Laburnum, Thorns, &c.; 15,000 Spanish Chestnut; a large quantity of Standard and Dwarf Fruit Trees, various; Thousands of Crab, Pear, Plum, Quince, and other Fruit Stocks; Gooseberries and Currants, stools, various, &c.

On TUESDAY, November 26.—About 87,000 STANDARD, Dwarf, and Maiden Fruit Trees, viz., Apples, Pears, Plums, Cherries, Peaches, Nectarines, Apricots, Almonds, Medlars, Quince, Mulberries, &c.; a quantity of Fruit Stocks; 9,000 Ash, Birch, Beech, and Hornbeam; Evergreen and Deciduous Shrubs, and Ornamental Trees, various, lotted in collections; Standard and Dwarf Roses, &c.

On WEDNESDAY, November 27.—8,500 GREEN and VARIEGATED Hollies, 9 to 18 inches; 7,000 English Yews, 9 inches to 2 feet; 500 handsome Cupressus Lawsoniana, 2 to 8 feet; specimen Picea nobilis and lasiocarpa, Thujopsis borealis, Wellingtonia gigantea, Portugal and Common Laurels, a quantity of Evergreens and Ornamental Trees in collections, Standard and Dwarf Roses, Fruit Trees, Climbers, strong Pines in pots, &c.

On THURSDAY, November 28.—A SPLENDID COLLECTION of fine Standard Rhododendrons, including the choicest varieties by name; specimen Wellingtonia gigantea; Picea grandis, lasiocarpa and Nordmanniana; Thuja, sorts; Dwarf Hybrid Perpetual Roses, in pots; a quantity of hardy Climbers; several Lights and Pans of Evergreens and Coniferæ; Seedlings and Cuttings, &c., &c.

Catalogues may be had on the premises, or of the Auctioneers and Valuers, American Nurseries, Leytonstone, N.E.

Fulwell Nursery, Teddington, Middlesex.
CLEARANCE SALE OF VALUABLE NURSERY STOCK.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. Robert Laing to SELL by AUCTION, without reserve, on the Premises, Fulwell Nursery, Teddington, Middlesex, adjoining the Fulwell Station, and about one mile from Twickenham station on the Thames Valley line, on FRIDAY and SATURDAY, November 29 and 30, at 11 o'Clock each day, the land being required for other purposes, the WHOLE of the valuable NURSERY STOCK, including an unusually large quantity of well-grown and useful-sized EVERGREEN SHRUBS, including 1000 Thuja Warreana, fine compact specimens, 5 to 7 ft.; large specimen Cedar of Lebanon, 8 to 12 ft.; fine English Yews, 4 to 7 ft.; Scotch and Austrian Pine, Green Hollies, 16,000 Common Laurels, 2000 Spruce Firs, Rhododendrons, Sweet Briars, a quantity of well-furnished China Roses, 200 large Wistaria sinensis, &c.; also fine FRUIT TREES, viz., 1000 fine fruit-bearing Standard Pears, 2500 Standard and Dwarf Apples, 1000 ditto Plums, 500 ditto Cherries, Dwarf-trained Nectarines, Currants, Gooseberries; a quantity of well-grown Ornamental Trees (various), 6000 Common Privet, 1200 Ligustrum ovalifolium, 2 to 3 ft.; handsome Standard and Dwarf Roses, strong Asparagus, &c.

N.B. There are many handsome specimens of Thuja Warreana, English Yews, &c., adapted for effective purposes, and have all been carefully prepared for transplanting.

May be viewed prior to the Sale. Catalogues may be had of Mr. LAING, The Nurseries, Richmond Road, Twickenham; or of the Auctioneers and Valuers, American Nurseries, Leytonstone, N.E

Birkenhead, near Liverpool.
HIGHLY IMPORTANT SALE OF NURSERY STOCK.

MESSRS. PROTHEROE AND MORRIS are directed by Mr. William Henderson to SELL by AUCTION, on the Premises, Oxton Hill Nursery, Birkenhead, near Liverpool, within 1½ mile of the Railway Station, on WEDNESDAY, December 4, and following day, at 11 o'Clock each day, the ground being required for other purposes, the valuable NURSERY STOCK, consisting of several thousands of EVERGREEN, CONIFEROUS, and DECIDUOUS SHRUBS, including Common and Portugal Laurels, Yews, American Arbor-vitæ, Tree Box, Laurustinus, Green Hollies, Phillyreas, Red Cedar, Araucaria, Abies (sorts), 600 Cedrus deodara (3 to 7 ft.), Pinus (sorts), Deutzia, Syringa, Broom, about 7000 Rhododendrons (1 to 3 ft.), Azalea pontica, &c.; also a quantity of thriving FOREST, FRUIT, and ORNAMENTAL TREES, viz., Ailanthus glandulosa, Maple, Birch, Laburnum, Beech, Thorns, Limes, Oaks, Elms, Chestnuts, Mountain and Common Ash, Larch, Fir, 700 Standard and Dwarf Pears, handsome Dwarf-trained Peaches and Nectarines, a fine assortment of Standard and Dwarf Roses, &c.

N.B. P. & M. call special attention to the specimen Evergreen and Coniferous Shrubs, arranged in borders for immediate effect, which have all been recently transplanted, and will incur no risk from removal.

May be viewed prior to the Sale. Catalogues may be had on the premises, and of the Auctioneers and Valuers, Leytonstone, N.E.

Consignment from Ghent, for Absolute Sale.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at 38 and 39, Gracechurch Street, E.C., on THURSDAY, December 5, at 12 o'Clock, about 300 choice DOUBLE CAMELLIAS and AZALEA INDICA, compact plants, 1 to 3 feet, consisting of the most approved kinds, beautifully furnished with bloom buds; 300 handsome STANDARD, DWARF, and CLIMBING ROSES of the best varieties; selected FRUIT TREES; a rich assortment of AMERICAN PLANTS; some fine Bulbs of LILIUM LANCIFOLIUM sorts, GLADIOLUS, with a Collection of DUTCH BULBS.

May be viewed the Morning of Sale. Catalogues had at the rooms as above, and of the Auctioneers and Valuers, Leytonstone, N.E.

To Noblemen, Gentlemen, and Others.

MR. WHITE has received instructions to SELL by AUCTION (of which particulars will be given in future Papers), on December 16, at the Rufford Nursery Gardens, near Ollerton, a quantity of Young SPRUCE FIR PLANTS, of various heights, fit for immediate planting; also a quantity of COMMON LAURELS and other Plants. They will be Sold in convenient Lots to suit purchasers.—Swan Hotel, Mansfield.

Staffordshire—City of Lichfield.
IMPORTANT TO NURSERYMEN AND PARTIES PLANTING QUICK.

MR. C. GILLARD has been directed by the Representatives of the late Mr. Stephen Coxon to advertise for SALE by AUCTION, on the Land, on MONDAY, December 9, at Two o'clock in the afternoon, about 200 roods of strong 4-year-old BEDDED QUICK, of capital quality, and in fine healthy condition, growing upon land at Austin, Cote, near Lichfield. The Quick will be set out in convenient lots, to suit all classes of purchasers, and ample time will be given for removal.

Mr. Walter Johnson, of Greenhill, Lichfield, will show the Quick on application.

BROWN AND POLSON'S CORN FLOUR.

REMARKS ON THE DIETARY VALUE OF CORN FLOUR.

We not unfrequently meet with persons who, with much self-complacency, affect a lofty disregard of what they eat; and who boast that, in order to keep their appetites in subjection, they systematically and on principle eat whatever is set before them, quite irrespective of its character or fitness for the circumstances under which they live, endeavouring thus to carry out the recommendation of Solomon to eat only for strength, not for pleasure. The gratification of the sense of taste, however, serves a much higher purpose than is commonly supposed, for, as a general rule, if the appetite be not blunted or perverted by excessive indulgence, our tastes and our requirements are very closely related, so that, in man's natural state, taste becomes as it were a sort of instinct, and takes rank as one of God's providences for the preservation of our health. In this way we may explain what is matter of common observation, that a man's taste varies with his age, habits, and circumstances of life. At one time he wishes for, at another scarcely bears the sight of fat; sometimes he craves for animal, at other times for vegetable food. Indeed, the feelings of hunger and thirst, which have reference to quantity rather than quality, are not more evidently instinctive than is taste, which regards only the quality of food. As a guide, it may be easily trusted both as to food and drink, if only we listen to its simple teaching, and do not abuse its confidence.

In no other way than the above can we explain the very remarkable varieties in the food consumed in different climates; witness the Laplander with his mass of blubber, or the inhabitant of the Tropics with his refreshingly cool and juicy fruit. In both these instances taste assumes the part of instinct, and guides the possessor to the selection of a diet which his circumstances render necessary. Hence taste becomes the handmaid of science, and points to a law in the dietary of individuals, telling them what they ought to eat, drink, and avoid. It suggests variation under varying conditions, and notably so in regard to temperature; for, from the two great divisions or types into which all foods are classified—namely, the nitrogenous or tissue-forming, and the calorifient, or heat-creating—it elects instinctively that one which science demonstrates to be most necessary.

A few words on these two types of food will serve to illustrate the dietetic value of the Corn Flour, which is the subject of these remarks.

By the term *nitrogenous* is meant all foods, whether derived from the animal or vegetable kingdom, which contain nitrogen as one of the elements of their composition, in addition to carbon, hydrogen, and oxygen. These foods are also called nutritious—that is, tissue-formers—and the measure of their nutritive value is the quantity of nitrogen they contain. The reason of this is found in the fact that all the tissues of the body, fat excepted, contain nitrogen, and those wherein the nutritive changes are most active, such as muscle and nerve, contain the largest amount of nitrogen. Examples of this food are—meat of all kinds, eggs, milk, beans, peas, lentils, bran, and the inner coat of wheat and flour, or bread, though in the latter we approach nearer to the purely starchy or calorifient group, and so get further from the nitrogenous class.

The calorifient, or heat-producing group, are foods which contain little or no nitrogen, but only carbon, hydrogen, and oxygen. Starch and its varieties, rice, sago, arrowroot, potatos, and flour; fatty and oily substances, such as butter, cream, and all the varieties of sugar; these make up the class of heat-sustaining foods, and though they do not directly nourish tissue, except where they also contain traces of nitrogen, they nevertheless perform scarcely less important functions in the human body; for, besides assisting in the process of respiration, they develop fat for the protection of the muscles. And, above all, they principally maintain the heat of the body, which is essential for the due performance of all its functions; this they do by the union of their carbon with the oxygen of the air in the process of respiration, in the same way as in the combustion of coal—the residual oxygen and hydrogen being in the proportion to form water.

It is obvious that the effect of a diet in which one or other of those classes is in excess will be to overburthen the digestive organs with a portion of food which is not required. This is especially injurious when the nitrogenous class is in excess, because a greater effort is required for its digestion than is the case with farinaceous food.

The real practical difficulty hitherto has been to find such a mixed diet wherein the nitrogenous and farinaceous (or calorifient) elements are in such proportions as to meet the healthy requirements of the system, especially in cases where the habit of life is sedentary or the digestive organs feeble, in all such cases the farinaceous element should preponderate.

Such a desideratum, it is believed, is now supplied in the Corn Flour which we manufacture, and which, when boiled with milk, presents such a combination of animal and vegetable food as closely resembles ordinary beef and bread, while at the same time it is in so light and easily digestible a form as will keep the system fully nourished, when the stronger and more stimulating food would only weaken and depress by its indigestibility.

As a pure starch, Corn Flour is peculiarly fitted for the diet of children. Though there seems to be a general impression to the contrary, it is essentially a heat-creating food, and is also one of the most easily digested. And, inasmuch as the proper maintenance of animal heat is of vital importance to childhood, food of this class is at all times loudly demanded by nature. This is attested by the fact that in milk, the very best of infant foods, the heat-sustaining element preponderates largely over the nitrogenous or tissue-forming. The popular belief appears to be that children have a remarkable power of resisting cold. This is certainly not the case with plants, nor is it with animals, least of all is it with man. Heat, whether supplied from within by food, or without by clothing, seems almost by itself to give *life* to young organisms, whether plants, animals, or man. And according to the recent researches of scientific men there seems to be so very intimate and mysterious a connection between *heat* and *life* that some have even ventured to suggest their mutual dependence. The feeble digestive power of children, and their extreme sensibility to cold, are additional reasons in favour of such a food as Corn Flour. Moreover, its slightly alkaline reaction recommends it as especially fitting in those cases where there is any tendency to acidity, a condition which is not only very common, but sometimes very troublesome in early life, and is a frequent cause of diarrhœa and other digestive disorders. It cannot be too often insisted upon that purity, simplicity, digestibility, and the absence of any stimulating quality are, or ought to be, the essential characters in the food of children—and these are the features specially observed in Corn Flour.

It has frequently been remarked to us by physicians and others that in cases of children's ailments our Corn Flour has been retained upon the stomach when almost all other kinds of food (arrowroot included) had been tried in vain, and by this means the turning point towards recovery has been gained.

But it is not in childhood alone, or even chiefly, that this preparation is so valuable as an article of diet. To the man of business, who is obliged to sit long at the desk, and to all whose calling necessitates close confinement, or whose digestive organs are impaired by over-indulgence, or the use of a too stimulating diet, this simple, easily digested, and non-stimulating food will be found an incalculable blessing. It may be cooked in a great variety of ways; when well boiled with milk, with or without any sugar or seasoning, but better without, and allowed to cool in a shape, it forms a delicious *blanc-mange*, unsurpassed by any other preparation for delicacy and easy digestibility. By its bulk it favours digestion when the heavier kinds of food could not be borne, and in combination with either milk or egg it forms a meal scarcely inferior in nutritive value to a steak or chop, while it surpasses them in the fact that it is easily disposed of by even the most delicate stomach. Add to all this, that change or variety in diet is of great importance to healthy nutrition, and we have another reason for recommending this to public attention. We once heard of a man who was nearly famished on mutton chops, potatos, and bread, taken day by day without intermission; a change of diet completely restored him. The more variety we can introduce into our food, consistent with other requirements, the better, and hence the obvious importance of a new article of diet.

It has been said that he who makes two blades of grass grow where one grew before is a benefactor of his species. Sir Walter Raleigh, who introduced the potato into England, might certainly lay claim to that title. To us belongs the honour, whatever it may be, of being the first in this country to manufacture a pure starch from maize, which is now so well known under the name we gave to it, viz.—Corn Flour. For those who really need a light nutritious diet we can wish no greater luxury than this addition to their meal.

BROWN AND POLSON, IRONMONGER LANE, LONDON, E.C.

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THE GARDENERS' CHRONICLE

AND

AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.

No. 48.—1867.] SATURDAY, NOVEMBER 30. {Price Fivepence. {Stamped Edition, 6d.

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ROYAL HORTICULTURAL SOCIETY, SOUTH KENSINGTON, W.
NOTICE.—A MEETING of the FRUIT and FLORAL COMMITTEES will be held on TUESDAY NEXT, December 3, at 11 for half-past precisely. GENERAL MEETING at Three.

SUTTONS' HOME-GROWN SEEDS
WERE AWARDED
TWO PRIZE MEDALS, PARIS, 1867.

EVERY GARDEN REQUISITE kept in Stock at
CARTER'S New Seed Warehouse, 237 & 238, High Holborn, London.

Genuine Garden and Agricultural Seeds.
JAMES CARTER AND CO.
SEED FARMERS, MERCHANTS, and NURSERYMEN,
237 & 238, High Holborn, London, W.C.

Genuine Agricultural and Garden Seeds.
JAMES FAIRHEAD AND SON, SEED GROWERS and MERCHANTS, 7, Borough Market, and Braintree, Essex.

Agricultural and Garden Seeds.
H. AND F. SHARPE beg to announce to the Trade that their SPECIAL LIST of HOME-GROWN SEEDS, 1867 Growth, is now ready and may be had on application.
Seed Growing Establishment, Wisbech, Cambs.

Chrysanthemums.
ADAM FORSYTH begs to inform his Friends and the Public that his large COLLECTION of SPECIMEN and other CHRYSANTHEMUMS are NOW in FLOWER, and may be seen every day (Sunday excepted).
Brunswick Nursery, Stoke Newington, London, N.

Pansies.
WILLIAM DEAN'S CATALOGUE of these, now ready, includes some Novelties. Prices very low, especially per 100, to the Trade.
Mixed PANSIES for borders, strong plants, 15*s.* per 100.
Bradford Nursery, Shipley, Yorkshire.

To the Trade.
MARECHAL NIEL ROSE, from own roots, in pots, by the 100 or 1000, at £5 per 100.
G. BAKER & SON, American Nursery, Bagshot.

PAUL AND SON'S ROSES.—See *Times*, *Athenæum*, and other leading Journals' reports of the Rose Shows.
Very reasonably PRICED CATALOGUES, free by post.
The "Old" Nurseries, Cheshunt, N.

CULTURAL DIRECTIONS for the ROSE. Second Edition. By JOHN CRANSTON, King's Acre Nurseries, near Hereford. Free by post from the Author for 20 stamps.

ROSES, 1*s.* each, best Hybrid Perpetual.
OAK TREES, 3 to 4 feet, 15*s.* per 1000.
3-yr. ASPARAGUS, very good, 10*s.* per 1000, for cash, of
A. C. WILKIN, Tiptree, Kelvedon, Essex.

ASPARAGUS, 1, 2, 3, 4, and 5-yr. old plants.
Price on application.
SAMUEL COX, Nurseryman, Ludlow.

IVERY'S NONSUCH LETTUCE, the best Summer variety in cultivation, 1*s.* per packet, sealed with initials M. A. I. Price to the Trade on application.
M. A. IVERY, Hanover Nursery, Peckham, S.E.

SEED POTATOS.—All the finest varieties at very moderate prices.
H. & F. SHARPE, Wisbech.

Seed Potatos.
WANTED, TRUE ASH-LEAVED KIDNEY, HAIGH'S SEEDLING or LAPSTONE, and other EARLY KIDNEYS. Price and particulars to
SEEDSMAN, *Gardeners' Chronicle* Office, W.C.

Mona's Pride.
MR. RUTLEDGE, the original introducer and grower of this EXTRA EARLY and PROLIFIC SEED POTATO (as yet unbeaten), begs to announce that his splendid crop, lifted in June, is now on SALE, on moderate terms.
Hague House, Douglas, Isle of Man.

NOTICE.—HAMILTON'S NEW CUCUMBERS.—MR. JOSEPH HAMILTON, in reply to many inquiries, begs to say that MESSRS. SUTTON AND SONS, Reading, possess the entire Stocks of HAMILTON'S INVINCIBLE, and (with only one exception), HAMILTON'S BRITISH VOLUNTEER CUCUMBERS.—Carlisle, Nov. 27, 1867.

SUTTONS' CHAMPION SWEDE
HAS AGAIN PROVED TO BE
THE BEST IN CULTIVATION.
SPECIMENS on MESSRS. SUTTONS' STAND, No. 84, during the CATTLE SHOW.

CHEAP SPRING BLOOMING BULBS and PLANTS.
See BARR & SUGDEN'S Advertisement, page 1212.

To the Trade.
CROCUS, SNOWDROPS, named HYACINTHS, Early TULIPS (Double and Single), SCILLA SIBIRICA, &c.
BARR & SUGDEN, 12, King Street, Covent Garden, W.C.

Surplus Stock.
FINE DOUBLE SNOWDROPS, in good condition.
Price to the Trade on application to
JAS. FAIRHEAD & SON, Seed Merchants, 7, Borough Market, London.

SUPERB LILIES, in 70 finest varieties.
Selections, 5*s.*, 9*s.*, 12*s.*, 18*s.*, and 24*s.* per dozen.
STEPHEN BROWN, Seed and Nursery Establishment, Sudbury, Suffolk.

Hyacinths, Tulips, Crocuses, &c.
B. S. WILLIAMS has a fine Collection of the above.
PRICED CATALOGUE post free on application.
HYACINTHS for Glasses or Pots, 6*s.*, 8*s.*, and 10*s.* per dozen.
Victoria and Paradise Nursery, Upper Holloway, London, N.

WM. CUTBUSH AND SON beg to say that their DESCRIPTIVE CATALOGUE of CHOICE HYACINTHS, TULIPS, CROCUSES, &c., is now ready, and can be had post free on application. Highgate Nurseries, London, N.

Winter and Spring Flowering Bulbs and Plants.
BARR AND SUGDEN'S FLORAL GUIDE may be had free. It contains much valuable information.
For particulars see large Advertisement, page 1090.

Before Purchasing Flower Roots, send for
J. SCOTT'S CATALOGUE of BULBS, VASES, and GARDEN REQUISITES. Bulbs are extra fine.
J. SCOTT, The Seed Stores, Yeovil, Somerset.

Special Notice.—Plants and Bulbs.
MR. STEVENS' SALES of DUTCH BULBS, FRUIT TREES, ROSES, and HARDY SHRUBS, take place every WEDNESDAY and SATURDAY, and frequently on MONDAY, at the Rooms, 38, King Street, Covent Garden, London, W.C.
CATALOGUES on application.

Notice.—Fruits, Flowers, Bulbs.
BEFORE PURCHASING, PLEASE SEND FOR
DILLISTONE AND CO.'S LITTLE LISTS, post free to all applicants.
Address, DILLISTONE & Co., Nurserymen, &c., Sturmer, near Halstead, Essex.

Lilium auratum.
SUTTON AND SONS can supply fine BULBS of this beautiful Flowering Plant at from 5*s.* to 15*s.* each.
Royal Berks Seed Establishment, Reading.

WANTED, DOUBLE YELLOW PRIMROSE, and SINGLE WHITE HEPATICA.—State Price and Quantity to L. T. DAVIS, Ogle's Grove Nursery, Hillsborough, Co. Down.

New Pelargoniums.
CHARLES TURNER is prepared to execute orders for the beautiful new varieties raised by Foster and Hoyle.
A DESCRIPTIVE LIST may be had on application.
The Royal Nurseries, Slough.

Pelargoniums for the Million.
JAMES HOLDER, having an immense stock of the above, begs to offer (strong plants, in large 60-pots) 50 distinct sorts for 30*s.*; 25 sorts for 20*s.*; or 12 sorts for 15*s.*, hamper and package included. Crown Nursery, Reading.

WEBB'S NEW GIANT POLYANTHUS, Florist Flower, and GIANT COWSLIP SEEDS; also Plants of all the varieties, with double PRIMROSES of different colours; AURICULAS, both Single and Double, with every sort of Early Spring Flowers. LIST on application.—Mr. WEBB, Calcot, Reading.

TWELVE large CAMELLIAS, 3 to 7 ft. high, for SALE.
Price on application.
SAMUEL COX, Nurseryman, Ludlow.

Tarragon Roots, Cheap.
HOOPER AND CO. have a quantity to DISPOSE of.
Covent Garden Market, London, W.C.

ORCHIDS WANTED.—Write, stating Quantity, Sort, and Price for prompt cash.
Also specimen GERANIUMS, Variegated variety.
WILLIAM ARMITAGE & SON, Seed Merchants, Huddersfield.

LASTRÆA FILIX-MAS, var. CRISPA-GRACILIS.—This new and undeniably prettiest of all the Dwarf male FERNS, may now be had, at 5*s.* per plant, from JOHN CLARK, Gardener, Newburgh, Fifeshire. Many other rare sorts. Trade supplied.

F. J. SPAE, NURSERYMAN, Ghent, Belgium, begs to offer the following Plants:—
MAGNOLIA LENNE, 5*s.* each.
CIBOTIUM PRINCEPS, nice plants, 5*s.* each; large plants, 8*s.* each.
MULBERRY TREES, 4*s.* each; 6 feet stems, 5*s.* each.

SPECIMEN IRISH YEWS.—Very handsome specimens of the above, 7, 8, 9, and 10 feet high, from 5*s.* to 21*s.* each.
T. JACKSON & SON, Kingston, S.W.

WANTED, IRISH IVY, 6 to 8 feet; DOUBLE PINK, SINGLE PINK, and SINGLE BLUE HEPATICAS, and ROSE DEVONIENSIS, on own roots. State size and price per hundred, delivered at Surbiton Station.
Address S. W., Post Office, Kingston-on-Thames.

To the Trade.
WANTED, extra stout Seedling BIRCH, QUICK, and WELLINGTONIAS; and 2-ft. GOLDEN HOLLIES, &c. Lowest price to
JOSEPH TREMBLE & SONS, Seedsmen, &c., Devonshire House, Penrith.

FOR CASH, 150,000 well-rooted LARCH (unusually cheap), twice transplanted, 3 to 4 feet high. Prices and samples sent to Trade and other addresses within 100 miles of Cardiff carriage free. No reasonable offer will be refused for the whole in One Lot.
Apply to W. TRESEDER, Nurseryman, Cardiff.

Strong Transplanted Laurel and Sycamore.
G. FROST begs to offer the above, 2 to 3 feet, and 3 to 4 feet; also twice transplanted SCOTCH and SPRUCE, 1 to 2 feet, and 2 to 2½ feet; 2-yr. OAK, CHESTNUT, and THORNS. Prices, moderate, on application.
Nurseries, Bampton, Devon.

Fruiting Trained Trees.
THOMAS JACKSON AND SON, having a great extent of high walls, have many large TRAINED TREES; and as they are making much alteration in their Nursery, they now offer them at greatly reduced prices. An inspection is invited.
Kingston, S.W.

Important Notice.
THE SULTAN MELON.—MR. RICHARD WEBB begs to announce that he has DISPOSED OF the entire Stock of his NEW MELON, the SULTAN, to MESSRS. SUTTON AND SONS.—Calcot, Nov. 27, 1867.

Vines.
H. LANE AND SON solicit an inspection of their stock of VINES: 2000 Canes to choose from, strong and well ripened. They have been awarded the First Prize for Vines in pots at all the leading Exhibitions. CATALOGUES free on application.
The Nurseries, Great Berkhampstead, Herts.

Vines.
B. S. WILLIAMS has now on hand a very large and fine Stock of FRUITING and PLANTING CANES of all the best varieties. An inspection is invited.
Victoria and Paradise Nurseries, Upper Holloway, London, N.

Vines.
J. MEREDITH will have great pleasure in forwarding his PRICED LIST of VINES on application. He has the largest stock in England. An inspection is invited.
The Vineyard, Garston, near Liverpool.

FIVE HUNDRED GRAPE VINES, from Eyes.
Prices on application.
J. PEED, Effra Nursery, Brixton, S.

New Grape.
MADRESFIELD COURT BLACK MUSCAT GRAPE.
See large Advertisement in No. 44, November 2, 1867.
JOHN & CHARLES LEE, Royal Vineyard Nursery, Hammersmith, London, W.

THE ROYAL ASCOT GRAPE is the greatest wonder of the age. It can be made to produce fresh Grapes every month in the year, and is the largest, the blackest, and best flavoured Black ever offered. Price £2 2*s.* each. See Advertisement, Nov 9. Royal Nurseries, Ascot.

WEBB'S PRIZE COB FILBERTS, and other PRIZE COB NUTS and FILBERTS. LIST of these varieties from Mr. WEBB, Calcot, Reading.

For Orchard Planting.
PAUL AND SON have to offer some thousands of fine-headed STANDARD TREES of the leading kinds of APPLES, PEARS, &c. Prices per 100 or per 10.0 on application.
The "Old" Nurseries, Cheshunt, N.

Orchard-house Trees Fruiting in Pots.
PEACHES, NECTARINES, APRICOTS, CHERRIES, PLUMS, PEARS, APPLES, VINES, and FIGS.
RICHARD SMITH, Nurserymen and Seed Merchant, Worcester.

APPLE TREES for ORCHARDS or GARDENS.
Price on application.
SAMUEL COX, Nurseryman, Ludlow.

PEAR and APPLE STOCKS for SALE.—50,000 strong 1 to 3 feet PEAR; 50,000 strong 1 to 3 ft. APPLE, well grown. Samples, with prices, sent on application to
ROBERT S. MACKINTOSH, Nurseryman, Edinburgh.

PYRAMIDAL APPLES and PEARS, by the dozen or hundred.
Standard MEDLARS, THUJA AUREA, well-grown and handsome.
Address, WM. WOOD & SON, Woodlands Nursery, Maresfield, near Uckfield, Sussex.

STANDARD APPLES, PEARS, and PLUMS, &c., &c.
See CATALOGUES, Wholesale or Retail.
THOMAS WARNER, Leicester Abbey Nurseries.

APPLES, CHERRIES, NECTARINES, and PEACHES, &c., Dwarf and Dwarf-trained; Houghton Castle CURRANTS, &c., &c. See CATALOGUES, Wholesale or Retail.
THOMAS WARNER, Leicester Abbey Nurseries.

SCARLET CHESTNUTS, STANDARD ELMS, THORNS, and POPLARS, SEEDLING QUICK, &c., &c.
See CATALOGUES, Wholesale or Retail.
THOMAS WARNER, Leicester Abbey Nurseries.

ARBOR-VITÆS, ARBUTUS, AUCUBAS, BOX, YEWS, &c., &c.
See CATALOGUES, Wholesale or Retail.
THOMAS WARNER, Leicester Abbey Nurseries.

THIRTY THOUSAND AMERICAN ARBOR-VITÆ, from 3 to 6 feet, very suitable for Hedges.
WM. WOOD & SON, Woodlands Nursery, Maresfield, near Uckfield, Sussex.

ONE HUNDRED THOUSAND fine Transplanted COMMON LAURELS, from 1½ to 3 feet.
WM. WOOD & SON, Woodlands Nursery, Maresfield, near Uckfield, Sussex.

EXTRA FINE transplanted SPRUCE FIRS, for CHRISTMAS TREES, well feathered, by the dozen, 100, or 1000.—Address, WM. WOOD & SON, Woodlands Nursery, Maresfield, near Uckfield, Sussex.

PLANTING SEASON.—The Subscribers respectfully intimate that their PRICED LIST of FOREST TREES, &c., is now ready, and may be had on application.
WM. URQUHART & SONS, Nurserymen, Dundee.

COMMON LAURELS, PORTUGAL LAURELS, ARBOR-VITÆ, large EVERGREENS, for Immediate Effect. For Prices, see our LIST.
PAUL & SON, "Old" Cheshunt Nurseries, N.

HY. GODFREY, NURSERYMAN, Stourbridge, has a quantity of large LIMES, about 12 feet, fine grown Trees, and well rooted. Prices will be forwarded by enclosing a stamped directed envelope.

To Gentlemen, Builders, and Others.
ABOUT 2000 large Ornamental FOREST TREES, 12 to 14 feet, suitable for immediate Blind or Park Planting, consisting of ELM, MAPLE, SYCAMORE, PLANE, and BIRCH.
J. W. TODMAN, Eltham Nursery, S.E.

To Noblemen, Gentlemen, and the Trade.
WILLIAM BARRON AND SON beg to call the attention of Planters in general to their ADVERTISEMENT on page 1068, in the *Gardeners' Chronicle* of October 19, 1867.
Elvaston Nurseries, Borrowash, near Derby.

Wholesale Catalogue.
GEORGE JACKMAN AND SON'S PRICED and DESCRIPTIVE CATALOGUE of HARDY NURSERY STOCK for 1867 and SPRING, 1868, can be had free on application.
Woking Nursery, Surrey.

The Queen, A 1.—By permission,

CHARLES NOBLE has had the honour of Exhibiting his NEW WHITE RHODODENDRON before Her Majesty the Queen, at the Royal Gardens, Windsor; he has authority to state that Her Majesty was graciously pleased to approve of, and recognise the name given in honour of Herself, as being really "THE QUEEN" amongst Rhododendrons.

Price 21s., 31s. 6d., 42s., 63s., 84s., & 105s. each. Standards, 105s. each.

Rhododendrons,

AS EXHIBITED AT THE ROYAL BOTANIC GARDENS, REGENT'S PARK.

JOHN WATERER, the Exhibitor at the above Gardens, has pleasure in announcing that his CATALOGUE of the above popular Plants is now published, and will be forwarded to all applicants. It faithfully describes all the varieties considered worthy of cultivation. It contains likewise a selection of HARDY CONIFERS, with heights and prices.

The American Nursery, Bagshot, Surrey.

Hardy, Scarlet, and other choice named Rhododendrons.

W. H. ROGERS, Red Lodge Nursery, Southampton, offers the above in quantity at £10 per 100, or selected in fine and distinct colours, 30s. per dozen. The plants are strong, bushy, and well rooted. The sorts (about 200) are magnificent, and none finer in cultivation. A limited number of larger specimens, full of blooming buds, 5s. each. A detailed CATALOGUE may be had on application; and also of a very fine Collection of CONIFERÆ, ROSES, and GENERAL NURSERY STOCK, extending over 60 Acres.

Rhododendrons, &c.

JAMES SMITH, Darley Dale Nurseries, near Matlock, offers the following:—

150,000 RHODODENDRON PONTICUM, beautiful healthy plants, 9 to 15 inches, 15s. per 100; £6 10s. per 1000
150,000 RHODODENDRON PONTICUM, fine bushy plants, 1 to 1½ foot, 20s. per 100; £9 10s. per 1000
50,000 RHODODENDRON PONTICUM, fine plants, 1½ to 2 feet, 25s. per 100; £12 per 1000
10,000 RHODODENDRON WHITE MAXIMUM, 1 to 1½ foot, 5s. per dozen; 30s. per 100
20,000 RHODODENDRON HIRSUTUM, the Dwarf Alpine Rhododendron.—Nice little plants, 3s. per dozen; 15s. per 100
10,000 RHODODENDRON HYBRIDUM, 1 to 1½ foot, bushy plants, 5s. per dozen; 30s. per 100
5,000 AZALEA PONTICUM, the sweet Azalea.—Beautiful bushy plants, 12 to 18 inches, mostly in bloom bud, 3s. per dozen; 20s. per 100. Ditto, 15 to 24 ins., 6s. per dozen; 30s. per 100
50,000 HARDY HEATHS, in about 20 varieties.—Good plants, in fine health, 3s. to 4s. per dozen; 10s. to 15s. per 100. Also about 20 varieties at 5s. to 7s. per dozen
12,000 DOUBLE WHIN, GORSE, or FURZE, nice plants, well rooted, 2s. 6d. per dozen; 12s. per 100. Also, in pots, at 4s. per dozen; 20s. per 100
30,000 COTONEASTER MICROPHYLLA, 6 to 12 inches, 2s. 6d. per doz.; 12s. per 100. 1½ to 2 feet, 3s. per doz.; 15s. per 100
20,000 ARBOR-VITÆ, AMERICAN, beautiful plants, with fine roots, 1½ to 2 feet, 2s. per dozen; 12s. per 100. 2 to 3 feet, 2s. per dozen; 16s. per 100. 2½ to 3 feet, 2s. 6d. per dozen; 18s. per 100. 3 to 4 feet, 3s. per dozen; 20s. per 100. 4 to 5 feet, 6s. per dozen; 5 to 6 feet, 12s. per dozen
5,000 PORTUGAL LAURELS, 2 to 3 feet, beautiful plants, thrice transplanted, fine roots, 4s. per dozen; 30s. per 100
40,000 EVERGREEN PRIVET, 2 to 3 feet, fine plants for Hedges or Game Covert, 2s. 6d. per 100; 22s. per 1000
10,000 IRISH IVY, nice plants, 2s. per dozen; 8s. per 100
900,000 LARCH, transplanted, fine healthy plants, not the least injured by frost or any disease, 1½ to 2 feet, 14s. per 1000; 2 to 3 feet, 16s. per 1000; 3 to 4 feet, 18s. per 1000; 4 to 5 feet, 19s. per 1000

All the above will be delivered free at Matlock Bridge, or Darley Stations, on the Midland Railway.

A CATALOGUE of GENERAL NURSERY STOCK, including Forest Trees, Flowering Shrubs, named Rhododendrons, &c., sent free by post. The Trade supplied. Apply to

JAMES SMITH, Darley Dale Nurseries, near Matlock.

Rhododendrons and Laurels.

RHODODENDRON PONTICUM, all from Seed, 10 to 20 inches, bushy, £8 10s. per 1000.

Common LAURELS, 2-yr., transplanted, 2 to 3½ feet, 16s. per 100; ditto, 1-yr. cuttings, fine, 1½ to 2½ feet, 12s. 6d. per 1000.

JOHN BEHAN, Nurseryman, Delvin, Killucan, Ireland.

Viola Lutea (Yellow-flowered Violet).

B. S. WILLIAMS has much pleasure in being enabled to offer Choice and Selected Seed of the above beautiful Plant. Habit dwarf yet vigorous, foliage dark glossy green, flowers bright yellow, which are produced in great profusion all through the early Spring, Summer, and Autumn months. The plant does not grow more than 5 inches high; it is perfectly hardy, therefore well adapted for small beds, edgings, or marginal lines. It is without doubt the best yellow-flowered bedding plant in cultivation. It was spoken very highly of in the leading article of the *Gardeners' Chronicle*, November 2.

Mr. Fish, in his remarks about Violas (*Gardeners' Chronicle*, October 26), states that Viola lutea is a perfect gem, and is invaluable for a dwarf yellow bed or edgings. It is a bright yellow, of the most compact habit, and seems to flower more freely than V. cornuta.

Price 1s., 1s. 6d., and 2s. 6d. per packet.

VIOLA PURPLE QUEEN, true stock, 6d. and 1s. per packet.
VIOLA MAUVE QUEEN, true stock, 6d. and 1s. per packet.

B. S. WILLIAMS, Victoria and Paradise Nursery, Upper Holloway, N.

To the Trade.

CHEAP CIBOTIUM PRINCEPS.

CIBOTIUM PRINCEPS—the most beautiful of all the Tree Ferns. Now ready, fine stout plants of the above, at 30s. per doz., £10 per 100; extra strong, at £2 per dozen.

BLECHNUM BOREALE CRISTATUM, fine young plants, 10s. per [dozen.

LASTRÆA VARIA, fine young plants, 12s. per dozen.

Also very fine AUCUBAS, 1½ to 2 feet high and as much through, set with 150 to 250 fruit each, at £1 each.

FERNS, in great variety, out and in-door, from 30s. to 60s. per 100.

AZALEA INDICA, SOUVENIR DU PRINCE ALBERT, MDLLE. CANNAERT D'HAMALE, ROI LEOPOLD, MDLLE. A. VERSCHAFFELT, and others, in nice young grafted plants, covered with flower buds, at £4 per 100.

ADOLPH STELZNER, Nurseryman, Ghent, Belgium.

NEW and RARE TREES and SHRUBS.

ULMUS AUREA ROSSEELSI.—This elegant and gorgeous tree is one of the richest lawn gems that this age of novelties has produced. The foliage is of the richest BRONZED GOLD, which is increased in brilliancy by the fullest exposure to the sun. Price, 10s. 6d., 15s., to 21s. each.

PRUNUS MAHALEB FOLIIS ARGENTEIS MARGINATIS.—A beautiful silver variegated form of Prunus Mahaleb, rivalling in effect the elegant Cornus mascula variegata. Price, strong Standards, 15s. each.

MAGNOLIA LENNÉ.—The flowers of this fine Magnolia are very large, and of great substance; colour, rich bright purple. Habit vigorous. Forms a fine mass on lawns. The best of all the hybrids. Price, 7s. 6d. to 10s. 6d. each.

ROSE COMTESSE DE JAUCOURT.—This is decidedly the finest new Rose of 1867. It is of vigorous growth, erect habit, and blooms freely. The flowers are large, of a beautiful flesh rose, of exquisite form and very double. Price, Dwarfs, 5s.; Standards, 7s. 6d.

ROSE, TEA, MARECHAL NIEL.—The largest and most brilliant of all the yellow Roses. Price—Dwarfs, 2s. 6d.; Standards, 5s.

LILAC, VILLE DE TROYES (Baltet frères, Troyes, 1867).—A splendid new Lilac, now offered for the first time. The trusses are very large, and of the deepest purple, and produce a fine effect. Vigorous and very flowering. Price 5s, to 7s. 6d. each.

FRAXINUS EXCELSIOR CUCULLATUS (Baltet frères, Troyes, 1867).—This very curious and very ornamental Ash is now offered for the first time. It is of vigorous growth, and the peculiar hooding of the leaves presents a singular and striking aspect. Price 5s. to 7s. 6d. each.

Sole Agents in England for the two last-named novelties, JOHN and CHARLES LEE, Royal Vineyard Nursery and Seed Establishment, Hammersmith, London, W.

Paul's Nurseries, Waltham Cross, N.

WM. PAUL begs to announce that he has the following COLLECTIONS of TREES and PLANTS now ready for delivery, which he can confidently recommend for quality and price:—

ROSES.—100,000 Plants, Standards, Dwarf Standards, and Dwarfs.

PRICED DESCRIPTIVE CATALOGUE free on application.

TREES and SHRUBS.—Large quantities of the popular Nursery Plants, of all sizes, good and cheap.

A choice variety of PICTORIAL TREES, his collection of which was the only one which received a Prize at the International Exhibition of 1866.

AMERICAN PLANTS.—Rhododendrons, Azaleas, Kalmias, Heaths, &c., in variety, from the commonest to the choicest.

FRUIT TREES.—Apples, Pears, Cherries, Plums, Figs, Peaches, Nectarines, Apricots, &c., &c.; Standards, Dwarfs, and Pyramids, trained and untrained. A large stock of handsome trees, many in a fruiting state.

GRAPE VINES.—All the best sorts, both Planting and Fruiting Canes.

PELARGONIUMS.—Beaton's and other Zonal kinds, Gold, Bronze, and Silver variegated, a fine collection.

HYACINTHS, TULIPS, and other BULBS.—All the First Prizes for Hyacinths and Tulips were awarded to his Collection at the London Flower Shows last spring. Cheap Hyacinths, Tulips, &c., for spring gardening by the 100 or 1000. Choicer kinds for pot culture and glasses good and cheap.

PRICED DESCRIPTIVE CATALOGUES of any or all of the above free by post.

MAURICE YOUNG'S NEW CATALOGUE of NEW HARDY PLANTS, JAPANESE NOVELTIES, NEW AUCUBAS, ORNAMENTAL TREES and SHRUBS, EVERGREENS, CONIFERÆ, RHODODENDRONS, FOREST TREES, &c., may be had on application.

DESIGNS, PLANS, and ESTIMATES PREPARED for LAYING-OUT NEW GROUNDS, IMPROVING PARK SCENERY, PLANTATIONS, &c.

FOREST TREES PLANTED by the Acre, and Guaranteed.

Convenient railway accommodation to all parts of the country.

Milford Nurseries, near Godalming, Surrey.

LIBONIA FLORIBUNDA.—Rare Conservatory or Greenhouse Winter-blooming Plant, one Plant producing at one time One Thousand Blooms, from November to April. Can highly recommend it. 1s. each, or 9s. per dozen; extra strong in bloom, 3s. 6d. each. P.S.—A Photograph for 12 stamps.

FRED. MARTIN, Nurseryman, &c., North Bridge, Hull.

Carter's Dutch Bulbs.



Seedsmen to Her Majesty's Chief Commissioners of Public Works and other Government Departments, the Royal Gardens, Kew, &c., &c., &c.



Seedsmen to H.I.M. the Emperor of the French, the Crystal Palace Company, the Agri-Horticultural Society of India, &c., &c., &c.

CARTER'S GUINEA BOX of DUTCH FLOWER ROOTS contains 12 choice named Hyacinths, 12 mixed Bedding Hyacinths, 50 Yellow Crocus, 50 Blue Crocus, 50 White Crocus, 4 Polyanthus Narcissus, 12 Pheasant's Eye Narcissus, 12 Double White Narcissus, 12 Double Daffodils, 24 finest mixed Anemones, 24 finest mixed Double Tulips, 6 Gladiolus Brenchleyensis, 50 Snowdrops, 24 finest mixed Ranunculus.

The above forwarded without delay on receipt of Post Office Order for 21s. Box and packing included. PRICE LISTS gratis and post free on application to

CARTER'S Great London Seed Warehouse, 237 & 238, High Holborn, London, W.C.

Beck's Seedling Pelargoniums.

S. GLENDINNING AND SONS are now offering for the first time the 12 beautiful, new, and distinct PELARGONIUMS raised by Mr. Wiggins, Gr. to W. BECK, Esq., of Isleworth, which were awarded numerous Certificates at the various Metropolitan Shows.

DESCRIPTIVE PRICED LIST may be had on application.

Chiswick Nurseries, London, W.

New Zealand Nursery, St. Alban's, Herts.

J. WATSON'S beautiful BEDDING PELARGONIUM EXCELSIOR, now ready; colour of Indian Yellow; fine truss, and habit of Lord Palmerston. Price 5s. each; 36s. per doz. to the Trade.

MISS WATSON, ready August 25; MRS. DIX, May 1. The Two have received 10 First-class Certificates and Extra Prize Money.

Fine New TABLE APPLE, ST. ALBAN'S PIPPIN, Ripe in April. Plants ready in November, 5s. each; 36s. per doz. to the Trade.

DESCRIPTIVE LIST sent on application.

VARIEGATED PELARGONIUMS.

SOPHIA DUMARESQUE	ITALIA UNITA
MRS. BENYON	COUNTESS
GOLDFINCH	ELEGANS
LUNA	THE FAIRY
BEAUTY of OULTON	PICTURATA
NEATNESS	BICOLOR SPLENDENS

The above forwarded on receipt of Post Office order for 21s.

If any of the above kinds are not required, others of equal value can be substituted.

ALFRED FRYER, Nurseries, Chatteris, Cambridgeshire.

NEW FUCHSIAS, ZONAL GERANIUMS, &c.

12 Select New FUCHSIAS of 1867 for 6s.
12 Select New ZONAL GERANIUMS of 1867 for 12s.
12 Finest ZONAL GERANIUMS of 1865—1866 for 4s.
12 Select New CHRYSANTHEMUMS of 1867 for 5s.
12 Select New VERBENAS of 1867 for 4s.
12 Select New PETUNIAS of 1867 for 6s.
12 Select New PHLOXES of 1867 for 9s.
6 Varieties of AUCUBAS, 3 Male, 3 Female, for 21s.
3 Varieties of New Japan OSMANTHUS, quite hardy, 5s.
12 Fine Varieties of Japan EUONYMUS, very fine, 6s.
12 Fine Varieties Perpetual ROSES, Dwarfs, for 6s.
12 Fine Varieties of VARIEGATED ZONAL GERANIUMS, 12s
GERANIUM GLOIRE DE NANCY, the best double, 1s. each.

COLEUS VEITCHII, 1s. 6d.	PANICUM VARIEGATUM,
,, GIBSONII, 1s.	2s. 6d.
,, LAMONTII, 1s.	BRUGMANSIA KNIGHTII,
FICUS COOPERI, 2s. 6d.	1s. 6d.

CATALOGUE of NEW and CHOICE PLANTS sent on application.

B. W. KNIGHT, Nurseryman, Battle, Sussex.

Standard Marechal Niel Roses.

JOHN AND CHARLES LEE have a fine stock of STANDARDS of the above splendid YELLOW ROSE to offer at 5s. each; strong budded Dwarfs, 2s. 6d. each. Also fine Standard TEA ROSES of all the best kinds at 2s. each.

Royal Vineyard Nursery and Seed Establishment, Hammersmith, London, W.

"THE ROSES of MR. PAUL * * * are things to see once and dream of for ever."—*Athenæum, June*, 1867.

WM. PAUL begs to announce that his CATALOGUE of ROSES is now ready, and will be forwarded free on application.

EIGHTEEN PRIZES have been awarded to him for Roses this year at the principal London Flower Shows.

PAUL'S Nurseries, Waltham Cross, London, N.

New Roses.

CHARLES VERDIER, Fils, NURSERYMAN, 12, Rue Duméril, Paris, offers this season, for the first time, two NEW ROSES (his own Seedlings), viz., HYBRID PERPETUAL MADAME MARIE CIRODDE, price £1; received 2d prize at Paris Universal Exhibition, 1867. HYBRID PERPETUAL MADAME ADÈLE HUZARD, price 16s.; received 3d prize at Paris Universal Exhibition, 1867.

He also offers 63 other new varieties, the list and prices of which may be obtained gratis either direct from him or of his Agents, Messrs. R. SILBERRAD & SON, 5, Harp Lane, Great Tower Street, London, E.C.

CATALOGUE of GLADIOLI may likewise be had on application.

JOHN CRANSTON'S CATALOGUE of SELECTED ROSES is now ready and will be forwarded on application.

J. C. respectfully directs attention to the following LIST of FIRST PRIZES which have been awarded to him at the principal Rose Shows of the present year, proving beyond a doubt that the soil and climate of his Nurseries are unrivalled for the Cultivation of Roses.

Royal Botanic Society, Regent's Park, London.
June 19.—24 Varieties, Cut Roses, one truss each, FIRST PRIZE
Cirencester.
June 19.—36 Varieties, Cut Roses, three trusses each, FIRST PRIZE
Clifton.
June 25.—24 Varieties, Cut Roses, one truss each, FIRST PRIZE
Crystal Palace.
June 29.—72 Varieties, Cut Roses, one truss each, FIRST PRIZE
Royal Horticultural Society, South Kensington.
July 2.—72 Varieties, Cut Roses, one truss each, FIRST PRIZE
Birmingham.
July 4, 5.—72 Varieties, Cut Roses, one truss each, FIRST PRIZE
24 Varieties, Cut Roses, three trusses each, FIRST PRIZE
Hereford.
July 9.—72 Varieties, Cut Roses, one truss each, FIRST PRIZE
24 Varieties, Cut Roses, three trusses each, FIRST PRIZE
Rugby
July 12.—72 Varieties, Cut Roses, one truss each, FIRST PRIZE
Nurseries, King's Acre, near Hereford.

To the Trade Only.

THOMAS GRIPPS AND SON'S WHOLESALE CATALOGUE for the present Season, containing 62 pages of GENERAL NURSERY STOCK can be had Post Free. It will be found to include the new Silver-edged Cerasus (Prunus Mahaleb), Rosseels' new Golden Elm, new Aucubas, Hydrangeas, Osmanthus, Weigelas, and every novelty of merit.

CUPRESSUS LAWSONIANA SEED in any quantity.

The Nurseries, Tunbridge Wells, Kent.

SPECIMEN and GREENHOUSE PLANTS for immediate SALE, in consequence of the breaking up of a Gentleman's establishment. The following are the dimensions of a few of them—they are all young, and in the finest possble health:—Aphelexis spectabilis, 3 by 3; Aphelexis macrantha rosea, 2 by 2; Eriostemon linifolium, 3 by 3½; Epacris pulchella, 1 by 1½; Epacris miniata, 3 by 3; Epacris eclipse, 4 by 3½; Erica Cavendishii, 3 by 3; Erica Douglasii, 2 by 2; Erica eximia, 2 by 2; Erica elegans, 2 by 2; Erica propendeus, 3 by 3; Erica ventricosa magnifica, 2 by 2; Erica ventricosa minor, 2 by 2.

DOWNIE, LAIRD, & LAING, Stanstead Park Nursery, Forest Hill, S.E.

Profitable Game Covert.

PLANT your GAME PRESERVES with the BITTER WILLOW. Neither Hares nor Rabbits will destroy them; require no care nor protection; grow quickly, and will form a good Cover in one season. The produce is commercially profitable, and always finds a ready Market. Price of Cuttings, selected, 20s. per 1000, cash. Apply to

WM. SCALING, Willow Merchant, Basford, Notts.

Winter Flowers.

NO PLANT IS MORE USEFUL AND BEAUTIFUL FOR WINTER BLOOMING THAN THE DOUBLE-BLOSSOMED PRIMULA.

W. B. JEFFRIES offers extra strong Plants, DOUBLE RED, 18s. per dozen; DOUBLE WHITE, 12s. per dozen; and the beautifully fragrant DAPHNE CNEORUM, 9s. and 12s. per dozen.

Arboretum Nurseries, Ipswich.

NOTICE.

STANDARD PORTUGAL LAURELS, 3 to 5 feet, 5s.
THUJA LOBBII, extra fine, 6 to 9 feet, 10s.
CRYPTOMERIA VIRIDIS, 6 to 8 feet, 7s. 6d.
ABIES DOUGLASSII, 6 to 9 feet, 7s. 6d.
PURPLE BEECH, 6 to 8 feet, 2s. 6d.
PINUS EXCELSA, 5 to 8 feet, 7s. 6d.

W. B. JEFFRIES, Nurseryman, Ipswich.

DOBSONS' CELEBRATED SEEDS.

In sealed packets, post free. Unequalled quality.

Antirrhium, 6d., 1s.	Pelargonium, fancy, 2s. 6d., 5s.
Balsam, superb, 1s., 2s.	Primula fimbriata rubra, 2s. 6d., 5s.
Calceolaria, 1s. 6d., 2s. 6d., 5s.	Do. do. alba, 2s. 6d., 5s.
Cineraria, prize, 1s., 2s. 6d., 5s.	Do. do. mixed, 1s., 2s. 6d., 5s.
Cockscomb, 1s.	Intermediate Stock, 6d., 1s.
Hollyhock, 1s., 2s. 6d.	Sweet William, 6d., 1s.

Trade Prices on application.

DOBSON & SONS, Seed Merchants, Isleworth, W.

LOISE-CHAUVIÈRE, SEEDSMAN, NURSERYMAN, and FLORIST, 14, Quai de la Megisserie, Paris, begs to inform his numerous Friends and those interested, that he can offer the most complete collection of GLADIOLI bulbs, of the finest quality.

All kinds of VEGETABLE and AGRICULTURAL SEEDS are supplied by this firm, prices of which may be had on application.

LOISE-CHAUVIÈRE has been rewarded with the Gold Medal for the numerous plants which he exhibited at the "Universal Exhibition," amongst which were Gladioli, Dahlias, Gloxinias, Annuals, and Ornamental plants.

The New Sensation in Bedding Out.

JACKMAN'S HARDY HYBRID CLEMATISES, awarded Eleven First-class Certificates, and One Special.

Messrs. GEO. JACKMAN and SON are desirous of drawing the attention of those who intend using their Hardy Clematises for a Permanent Bedding Plant, that the present time is most favourable for planting.

OPINIONS OF THE PRESS.

Gardeners' Chronicle, Aug. 17:—"The new sensation in bedding." Also, August 31, "J. F." (Cliveden) adds, "that Messrs. G. J. & Son have in their several varieties the very colour of which our summer gardens are in a great measure deficient." "Country Life," Aug. 15:—"Clematis Jackmanni is a most useful bedding kind if pegged down; used as such, a perfect carpet of flower, so to speak, is soon formed." *The Field*, Sept. 28:—They will be of the highest value as purple bedding plants, our present colours in this way being poor indeed compared to these."

"The Florist and Pomologist," November, 1867:—"There is no finer flowering plant for lawn decoration, no more gorgeous subject for garden avenues, not even excepting pillar Roses.....while the glorious mass of rich violet purple furnishes quite a new sensation in bedding out."

An engraving, from a photograph, showing the flowering qualities, and Circular of Prices, will be forwarded gratis on application.

Woking Nursery, Surrey.

New Double Crimson Thorn.

WM. PAUL has still a few good FLOWERING PLANTS, established in Pots, of this first-class new Forcing Plant, price 5s. each. First-class Certificates at International, Royal Horticultural, and Royal Botanic Societies. It was also forced and exhibited by him on several occasions last spring.
PAUL'S Nurseries, Waltham Cross, N.

Paul and Son's Double Crimson Thorn.

PAUL AND SON beg to offer Strong STANDARDS and PYRAMIDS -the so last 6 feet high, branched from foot—at 5s. each, 50s per dozen; MAIDEN DWARFS, 2s. 6d. each. It is a new hardy plant of rare merit.
The "Old" Nurseries, Cheshunt, N.

Green Hollies, 4 to 7 feet.

GEORGE CHIVAS, Chester, offers several Thousands of the above, very handsome plants, in excellent condition for removing; also an exceedingly large stock of extra strong THORNS, and many Millions of FOREST TREES, including LARCH of all sizes, SCOTCH FIR, twice transplanted, 1½ to 3 feet; SPRUCE, 1 to 3½ feet, thin on the ground; ASH, 2½ to 5 feet; ELM, 3 to 6 feet; SYCAMORE, 3 to 6 feet; OAKS, ALDERS, BIRCH, &c.
PRICED LISTS on application.

Dumfries Railway Station Nursery.

THOMAS KENNEDY AND CO., NURSERYMEN AND SEEDSMEN, Dumfries, have this season a very large and superior stock of FOREST, FRUIT, and ORNAMENTAL TREES, DECIDUOUS and EVERGREEN SHRUBS, &c., which they are selling at extremely moderate prices. The TREES and SHRUBS being of all ages and sizes, are particularly well suited for extensive planting or for giving immediate effect in the formation and improving of Ornamental Parks, Pleasure Grounds, &c.
Prices on application. Special offers made to large purchasers.
*** Dumfries is most conveniently situated for the speedy transmission of goods to all parts of the United Kingdom.

To Suburban and other Extensive Planters.

PONSFORD AND SON have much pleasure in offering (with special advantages) well-grown and thoroughly healthy GENERAL NURSERY STOCK, prominently the following:—Fruit Trees for every purpose, in fine condition; Roses, Ornamental Trees, Evergreen and Deciduous Shrubs for general furnishing, particularly Aucubas, Arbor-vitæ, Ligustrum, Thuja (various), Variegated Hollies, &c., specially to the Trade; fine Standard Mulberries, Limes, extra strong; Standard Apples and Plums, Dwarf-trained Apricots, Pianos, Poplars, &c.; Azalea indica, choice sorts, extra size, Cheap.
Nurseries: Loughborough Park, Brixton, S.
Seed and Plant Department: Brixton Place.

SURPLUS STOCK, a Bargain to the Trade.—1-yr. THORN QUICK, £5 per 100,000; 2-yr. THORN QUICK, £7 per 100,000; 1-yr. BEECH, £6 5s. per 100,000; 2-yr. NATIVE SCOTCH, £7 10s. per 100,000, f.o.b. at Dublin. WHOLESALE LIST of TREE SEEDLINGS on application to JOHN BLAKE & SONS, Dangan Nurseries, Summerhill, County Meath, Ireland.

Planting Season.

DICKSONS AND CO., NURSERYMEN, SEEDSMEN, and FLORISTS, 1, Waterloo Place, Edinburgh, have this season a fine healthy stock of all kinds of FOREST TREES, which have been grown on exposed ground and thin in the lines, comprising LARCH (Native and Tyrolese), 1, 2, and 3-yr., transplanted; SCOTCH FIR, from true native seed, 2 and 3-yr., twice transplanted; SPRUCE, 2, 3, and 4-yr., twice transplanted; OAK, 2 to 3 ft. and 3 to 4 ft., extra fine; ASH, 2 to 3 ft. and 4 ft., extra; SPANISH CHESTNUT, 3 to 4 ft., very fine; ELM, 3 to 4 ft.; ALDER, 2 to 3 ft. and 4 ft.; strong; LIMES, of all sizes, from 3 to 12 ft.; POPLARS and WILLOWS, of all sizes; EVERGREEN PRIVET, extra strong; THORNS and BEECH for hedges, and all kinds of plants suitable for cover for game ORNAMENTAL TREES and SHRUBS, FRUIT TREES, ROSES, GREENHOUSE and STOVE PLANTS and FERNS in great variety.
PRICED CATALOGUES free on application.

Large Evergreens, Specimen Conifers, &c.

WATERER AND GODFREY beg to submit the following List to the notice of intending planters:—

YEWS, ENGLISH, 5, 6, 7, 8, 10, 12, and 15 feet high
" IRISH, 6, 7, 8, and 10 feet high
" GOLDEN, 5, 6, 8, 10 feet
" STANDARD GOLDEN, 20 years worked
" " ELEGANTISSIMA, 10 and 15 years old
" " DOVASTON or WEEPING, fine heads, 10 and 15 years old
We have altogether thousands of these different Yews of the large sizes. Every plant has been recently removed.
HOLLIES, COMMON GREEN, 6, 7, 8, 10, 12, and 15 feet high, and as much in circumference—hundreds
" LAURIFOLIA and SCOTTICA, 6, 7, 8, and 10 feet, and wide in proportion
" WATERER'S, the hardiest of all variegated Hollies, 4 and 5 feet by 10 and 12 feet in circumference
" THE QUEEN, or best gold striped, the handsomest of all variegated Hollies
We have hundreds of these beautiful plants, 4, 5, and 7 feet high and wide
" STANDARD, WATERER'S, and GOLDEN, with fine heads, 15 and 20 years worked
☞ We have some thousands of the ordinary kinds of Variegated Hollies, 4, 5, 6, and 7 feet high. Every plant has been removed within 12 months.
CEDRUS DEODARA, some thousands, 6, 7, 8, and 10 feet high
" ATLANTICA, and Cedars of Lebanon, moved in April, 4, 5, 6, and 8 feet
" RED VIRGINIANS, 5, 6, and 7 feet
CHINESE JUNIPER, one of the handsomest and hardiest of all evergreens—thousands of beautiful plants, 4, 5, 6, 7, and 8 feet high; some magnificent plants, 10, 12, and 15 feet high, 12 to 20 feet in circumference
THUJA AUREA, 3, 4, and 5 feet high, 7 to 20 feet in circumference
" GIGANTEA, 10, 12, and 15 feet high, very handsome
" LOBBII, splendid plants, 7, 8, to 10 feet high, and 12 and 15 feet round—hundreds
CUPRESSUS LAWSONIANA, the finest stock—many thousands, 6, 7, 8, 10, to 15 feet high, and as much in circumference
THUJOPSIS BOREALIS, 4, 5, 6, and 10 feet high, 7 to 12 feet in circumference—hundreds
PORTUGAL LAUREL, 4 and 5 feet high, 7 and 8 feet round
BOX, Green and Variegated, 4, 5, 6, 7, and 8 feet—thousands
PICEA NOBILIS, splendid plants, moved in spring, 4, 5, 6, and 8 feet
" NORDMANNIANA, 4, 5, 6, 8, 10, and 15 feet high [high
None of our Nobilis or Nordmannianas are grafted plants.
" MAGNIFICA or NOBILIS ROBUSTA, the finest stock in the trade, all seedlings, 2 to 4 feet high
" LASIOCARPA, hundreds of plants, 4, 5, 6, and 7 feet high, all
ABIES DOUGLASSII, 5, 6, 7, and 8 feet [seedlings
" ORIENTALIS, 4, 5, 6, 7, to 10 and 12 feet; 7 to 20 feet in circumference; most beautiful plants
PINUS CEMBRA, 6, 7, to 9 feet
" PINSAPO, 3, 4, 5, and 6 feet
" " Some very fine plants, 10 to 20 feet high, 15 and 25 feet in circumference
WELLINGTONIA GIGANTEA, a large number, all removed recently, 4, 5, 6, and 10 feet high, and 12 and 15 feet in circumference
RHODODENDRONS.—We have 40 acres of land in one piece filled almost exclusively with Rhododendrons. A more healthy and beautiful stock cannot be desired.
STANDARD RHODODENDRONS.—Some of the finest plants to be found in any nursery, many are 20 to 40 years old
☞ The large Standard and other Rhododendrons planted last spring in Rotten Row, Hyde Park, were supplied by WATERER & GODFREY.
We do not quote prices, we presume purchasers of such large plants will adopt the much wiser, and always more satisfactory course, of seeing and judging for themselves.
We solicit an inspection and invite comparison with any other similar nursery stock in the kingdom.
The Knap Hill Nursery is upwards of 150 acres in extent, and contains an enormous and very superior stock of the ordinary sized EVERGREENS, DECIDUOUS ORNAMENTAL TREES, &c.
A PRICED and DESCRIPTIVE CATALOGUE will be forwarded free on application to
WATERER & GODFREY Knap Hill Nursery, Woking, Surrey.
The Nursery is readily reached by Train, 40 minutes from Waterloo to Woking. Conveyances are always to be had at the Station.

Plane Trees.

JOHN AND CHARLES LEE beg to offer a fine healthy stock of the various kinds of PLANES, of all heights, up to 16 feet. The Trees are well grown, with straight stems and good heads. LIMES, 10 to 12 feet.
Royal Vineyard Nursery and Seed Establishment, Hammersmith, London, W.

DWARF-TRAINED WALL TREES, very strong, having each 5 to 9 shoots:—APPLES, PEARS, PLUMS, and CHERRIES, 3s. each; APRICOTS, NECTARINES, & PEACHES, 3s. 6d. each; strong CURRANTS and GOOSEBERRIES, 2s. 6d. per dozen. LISTS of sorts on application.
WM. HOOPER, New Wandsworth, S.W.

Larch, Spruce, &c.

LARCH, extra strong, 4 to 6 feet, 21s. per 1000. SPRUCE, 2 to 3 feet, 10s. per 100; 3 to 4 feet, 20s. per 100; 4 to 5 feet, 32s. per 100.
QUICKS, SCOTCH FIRS, and CONIFERS, of all sizes, &c.
HENRY MINCHIN, The Nurseries, Hook Norton, Oxon.

THREE MILLION strong 4-yr. transplanted QUICK.
1,000,000 good 2-yr. transplanted QUICK.
2,000,000 superior Seedling QUICK.
100,000 good strong LARCH, 4 to 6 feet.
100,000 good strong LARCH, 2 to 4 feet.
For samples and prices apply to
JOHN HEMSLEY, High Fields, Melbourne, near Derby.

ACORNS (ENGLISH), fine sound seed, price upon application. LAUREL (COMMON), 1-yr. Cuttings, extra fine, price upon application.
TRADE CATALOGUE of FRUITS, HERBACEOUS PLANTS, ROSES, &c., free upon application.
A few bushels of HORSE CHESTNUTS also to spare.
DILLISTONE & WOODTHORPE, Munro Nursery, Sible Hedingham, Essex.

Forest Trees.

W. CROWDER, NURSERYMAN, Horncastle, has the following to offer to the Trade at low prices:—LARCH, 3 to 4, and 3 to 5 feet; SCOTCH FIR, 1½ to 2½, and 3 to 4 feet; SPRUCE FIR, 1 to 1½ feet, 1½ to 2 feet, 2 to 3 feet, and 3 feet, twice transplanted; CRAB STOCKS, 2½ to 4 feet, stout; QUICKS, stout, 1, 2, and 3-yr. transplanted.

Wonersh Nursery, near Guildford, Surrey.

WM. VIRGO AND SON beg to announce that their Stock of TREES and SHRUBS of the undermentioned kinds is this season very extensive and well-grown, samples, prices, and Catalogues of which can be obtained on application:—

100,000 Hazel, 3 to 5 feet	500,000 Quick, transplanted, 1½ to 2 feet
50,000 Larch Fir, 2 to 3 feet	50,000 Green Hollly, transplanted, 1½ to 2 ft.
50,000 Spruce Fir, 2 to 4 feet	Common and Portugal Laurel
50,000 Birch, 3 to 4 feet [3 ft.	Berberis aquifolia
50,000 Spanish Chestnut, 2 to	Arbor-vitæ
30,000 Alder, 3 to 4 feet	And other various Shrubs.
50,000 Ash, 2 to 3 feet	
20,000 Sycamore, 3 to 4 feet	

A large stock of strong STANDARD MORELLO CHERRIES, APPLES, PEARS, PLUMS, and DWARF-TRAINED do.

VIOLA CORNUTA (Wills' true variety).—We beg to state that in June last we secured the entire stock of Seed of the true variety of "MAUVE QUEEN" VIOLA CORNUTA from the raiser. The Seed is now being delivered to us in beautiful condition. Price to the Trade on application. Orders will be executed in strict rotation as received.
DICKSONS & BROWN, Seed Merchants, 43 and 45, Corporation Street, Manchester.
The following Houses have already ordered supplies:—

Messrs Sutton & Sons, Reading	Messrs. Smith & Simons, Glasgow
" Beck, Henderson, & Child, London	" Thomas Imrie & Sons, Ayr
" Peter Lawson & Son, Edinburgh	" Hurst & Son, London
" W. Drummond & Son, Dublin and Stirling	" F. & A. Dickson & Sons, Chester
" Hooper & Co., London	" Geo. Gibbs & Co., London
" Nutting & Sons, London	" Dicksons & Turnbull, Perth
" Fraser, Gead, & Ratford, London	" Rollisson & Sons, Tooting
" A. Henderson & Co., London	" S. Finney & Co., Newcastle
" C. Platz & Son, Erfurt	" J. Dobson & Sons, Isleworth
" J. C. Wheeler & Son, Gloucester	" Jacob Wrench & Sons, London
" Butler, M'Culloch, & Co., London	" J. Wood & Son, Woodbridge
" Geo. Morrison & Son, Elgin	Mr. Ernest Benary, Erfurt
" Austin & M'Aslan, Glasgow	Mr. Robert Cooper, London
	Mr. F. A. Haage, jun., Erfurt
	Mr. William Deans, Jedburgh
	Mr. Thomas Martin, Sligo
	Mr. Thos. Pierpoint, Warrington
	Mrs. M. L. Pontey, Plymouth

To Landowners, Nurserymen, &c., in the Neighbourhood of Liverpool.

SEFTON PARK, LIVERPOOL.—Gentlemen having full-grown TREES, of the dimensions and species hereafter mentioned, for SALE, are requested to send a List of the Number, Size, Kind, Situation, and Distance from Site of Park of such Trees, addressed to the Architects, Messrs. ANDRE & HORNBLOWER, at their Offices, Toxteth Farm, Smithdown Road, Liverpool.
LIST of TREES.

Name.	Circumference 3 feet above ground.
HORSE CHESTNUT	from 1 foot 0 in. to 4 feet
LIME	" 1 " 0 " 3 "
ASH	" 1 " 0 " 3 "
DITTO WEEPING	" 1 " 0 " 3 "
ELM	" 1 " 0 " 3 "
DITTO WEEPING	" 1 " 0 " 3 "
OAK, different sorts	" 0 " 8 " 2 "
PLANES	" 1 " 0 " 3 "
MAPLE	" 1 " 0 " 3 "
NEGUNDO	" 1 " 0 " 3 "
PAMOLONIA	" 0 " 8 " 2 "
CATALPA	" 0 " 8 " 2 "
HOLLY, various sorts	" 0 " 6 " 2 "
WILLOW, WEEPING and COMMON	" 1 " 0 " 2 "
POPLAR, COMMON and LOMBARDY	" 1 " 0 " 3 "
ASPEN	" 1 " 0 " 4 "
AILANTHUS GLANDULOSA	" 1 " 0 " 4 "
SOPHORA JAPONICA	" 1 " 0 " 2 "
SOPHORA JAPONICA PENDULA	" 1 " 0 " 2 "

And any other suitable Trees they may have to dispose of.

For Lawn and Covert Planting.

BERBERIS DARWINII.—Too much cannot be said of this fine evergreen species. It is hardy, and the profusion of its orange-coloured blossoms, together with the quantity of berries which it bears (of which pheasants are very fond), render it one of the most attractive and desirable plants for lawn as well as covert planting ever introduced.

2-yr. Seedling, per 1000, 30s.	12 inch to 18 inch, per 100, 18s.
9 inch to 12 inch, per 100, 10s.	18 inch to 2 feet, per 100, 35s.
2 feet to 2½ feet, per dozen, 9s.	

COTONEASTER SIMMONDSII.—This is a beautiful hardy evergreen shrub, with glossy dark green leaves, and bearing a large quantity of scarlet berries, which ripen later than the Berberis Darwinii, and will hang all winter.

12 inch to 18 inch, per 100, 15s.	2 feet to 3 feet, per 100, 30s.

WILLIAM BARRON & SON, Elvaston Nurseries, near Derby.

The Dorset Nurseries, Blandford and Blandford St. Mary.

FREDERICK GILL AND CO., NURSERYMEN, SEEDSMEN, and FLORISTS, beg to invite the attention of Gentlemen who intend Planting, to their large and vigorous STOCK of FOREST, FRUIT, and ORNAMENTAL TREES, SHRUBS, ROSES, &c., extending over many Acres, and not to be surpassed.
Their ROSES on MANETTI STOCKS, of the choicest varieties and superior growth, merit especial mention.
Copy of a Letter received from the Rev. F. RADCLYFFE.
To the PROPRIETORS *of the* DORSET NURSERIES.
"SIRS,—I was much pleased to-day with the review of your fine Nursery Stock. Your Manetti Roses are the best propagated of any that I have ever purchased. At a little distance few can discern whether they are on alien stocks or on their own roots. They are usually budded far too high to prosper.—Yours truly,
"W. F. RADCLYFFE."

Hazel, Larch, Scotch, &c.

J. SCOTT, Merriott Nurseries, Somerset, offers to Planters Five Acres of Transplanted HAZEL, from 3 to 4, and 4 to 5 ft., very fine; and large breadths of LARCH, SCOTCH, ASH, OAK, FIRS, &c. Extensive Planters supplied at reduced prices. PORTUGAL LAURELS, YEWS, and BOX, large and finely grown, to be SOLD, a Bargain. CATALOGUES on application.

Extensive and well-grown Nursery Stock.

J. SCOTT, Merriott Nurseries, Somerset, has to offer FOREST TREES in large numbers, finely rooted and in perfect health. ORNAMENTAL TREES and SHRUBS of all sizes in quantity, beautifully grown and regularly transplanted.
Intending Planters would do well to visit these fine Nurseries, which have been established 150 years, and are by far the largest in Somerset. CATALOGUES on application.

STRONG QUICK.—From 1 to 500,000 good 2-yr. old QUICK, fit for Planting, at 6s. per 1000; good transplanted QUICK at 8s per 1000. About 150,000 on hand. Samples sent on application to
Mr. LEWIS ROLFE, West Row, Mildenhall, by Soham, Suffolk.

New Seeds for the Colonies.

SEEDS DIRECT FROM THE GROWERS ARE THE MOST SUITABLE FOR EXPORTATION, AND THE BEST MEANS OF PREVENTING DISAPPOINTMENT.

MESSRS. SUTTON solicit the favour of Orders from those about to send or take out SEEDS to the COLONIES, and submit the following from among many Testimonials recently received, as to the GREATLY SUPERIOR quality of their Seeds to those usually exported from this country, as well as to the very efficient manner in which their export packing is carried out:—
July 9, from A. N. ELLA, Esq., *Queenstown, Cape of Good Hope.*
"I may mention that the case referred to was in splendid order, looking as fresh after three months' sea and six weeks' land carriage as if only yesterday packed."
From HUGH ROMSAY, Esq., *Shanghae, China, May* 5, 1866.
"The box of seeds and roots has arrived, and nothing has given me greater pleasure for a long time than the excellence of these seeds."
From Mr. Z. W. WELLS, *New Plymouth, New Zealand, May* 7, 1866.
"The Grass and other seeds sent by the Shelburne to me, have come safe to hand. I have tried samples of the Grass seeds, and am happy to inform you that they have come up quite to my satisfaction."
From Mr. JAS DALE, *Orange, New South Wales, September* 20, 1866.
"I have the pleasure to inform you that your seeds have given great satisfaction, and I now send you a larger order."
All Seeds properly packed and delivered free to ship's side. Special quotations given for large quantities. A liberal allowance made to Shippers. SUTTON & SONS, Seed Growers, Reading

New Grass Seeds for Exportation.

SUTTON AND SONS, having received their supply of NEW GRASS SEEDS of the present Season's Growth in fine condition, will be happy to forward lowest price per ton or cwt. on application. All Seeds perfectly packed and delivered free to ship's side at any English Port. CATALOGUES gratis and post free
SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

MILKY WHITE, a NEW POTATO, introduced by MESSRS. WHEELER AND SON, of Gloucester.

MILKY WHITE is the best of all Potatos.

MILKY WHITE is acknowledged to be the best of all Potatos. In shape and colour, flavour and appearance, it excels every other variety. It is as white as milk, floury as a Fluke, ripens in August, and continues in splendid condition for Cooking all through the Autumn, Winter, and Spring.

MILKY WHITE POTATO—white as milk.

MILKY WHITE is of the finest quality.

MILKY WHITE SEED POTATOS are very scarce, and early orders are absolutely necessary in order to secure a supply. Lowest price, 5s. per peck; 20s. per bushel (56lb.)

MILKY WHITE.—Specimens of this new variety of Potato may be seen at J. C. WHEELER & SON'S STAND, at the SMITHFIELD CLUB GREAT SHOW of FAT CATTLE, at the Agricultural Hall, Islington, December 9, and following days.

MILKY WHITE.—Last year the demand for this new and most excellent variety greatly exceeded the supply, so that very early in the planting season Messrs. WHEELER & SON were obliged, much to their regret, to decline orders. They have every reason to believe that the demand this coming season will exceed that of last year; they therefore respectfully urge the importance of ordering whilst they are to be had. The lowest price is 5s. per peck (14lb.), or 20s. per bushel (56lb.)
J. C. WHEELER & SON, Seed Growers, Gloucester.

Seed Potatos.

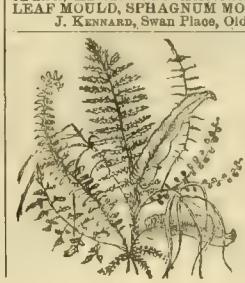
H. AND F. SHARPE are now offering MYATT'S EARLY PROLIFIC KIDNEY, RIVERS' ROYAL ASHLEAF, WEBB'S IMPERIAL KIDNEY, DAINTREE'S EARLIEST, EARLY OXFORD, EARLY FORTY-FOLD, and many other Early and Late varieties grown from their own selected stocks. The Prices are moderate, and the quality excellent. PRICED LISTS may be had on application.
Seed Growing Establishment, Wisbech.

LEE'S GIANT ORACH (SPINACH).—This new and valuable variety of Orach possesses immense productive powers, combined with a delicious piquant flavour, quite distinct from all other varieties, rendering it a great acquisition as a Summer Spinach of the highest class.
The plant is of rapid and vigorous growth, and attains a height of 6 or 7 feet, with numerous branches; yielding a constant supply of large dark green leaves throughout the summer months.
The Fruit Committee of the Royal Horticultural Society awarded a First-class Certificate to LEE'S Giant Orach, after partaking of a dish of this most useful vegetable, cooked especially for their judgment.
JOHN & CHARLES LEE have much pleasure in introducing this productive vegetable, which they intend to send out in January next. Sealed packets, 1s. each. Price to the Trade on application.
Royal Vineyard Nursery and Seed Establishment, Hammersmith, W

To Nurserymen and Others.

FOR SALE, a large quantity of excellent TURF, on Leatherhead Downs, Surrey, about 20 miles from Town. Mr. JAMES STEER, the Keeper on the Estate, will give information to intending purchasers visiting the spot. Applicants by post are requested to apply to Messrs. WHITE & SONS, Estate Agents, Dorking.

REIGATE SILVER SAND, best quality, 12s. per ton, at Swan Place; delivered four miles, or to any London Wharf or Railway, 16s. per ton, or 1s 6d. per bushel. (Sacks at cost price, or on hire.) KENTISH and HAMPSHIRE PEATS, YELLOW LOAM, LEAF MOULD, SPHAGNUM MOSS, & COCOA FIBRE REFUSE.
J. KENNARD, Swan Place, Old Kent Road, London, S.E.



COCOA-NUT REFUSE is becoming SCARCE, the old reserves will soon be gone. Now sold in bags, 1 for 2s., 10 for 16s., 20 for 30s., 50 for 66s., 100 for £6.

Fourpence allowed for each bag returned carriage-paid.

A Railway Truck-load (not in bags), 40s.

Postage Stamps or Post-office Order, payable to J. BARSHAM & Co., Kingston-on-Thames, S.W.

THE VICTORIA NECTARINE (RIVERS).—This is not only the finest of all Nectarines, but the finest of all fruits of temperate climates. Bearing Trees, half Standards and Bushes, 3 to 4-yr. old, 5*s.* to 7*s.* 6*d.* each.

The ALBERT NECTARINE (RIVERS).—Very large and excellent to force; Bearing Trees, half Standards, 5*s.*; Bushes, 5*s.* each.

The Trees will be sent from or in pots, and will bear full crops next season. Carriage paid to London.

THOS. RIVERS & SON, Nurseries, Sawbridgeworth,

MAGNIFICENT DWARF CUT-BACK PEACHES, NECTARINES, and APRICOTS, by the dozen or hundred. Extra strong 2, 3, and 4-yr. OLD ASPARAGUS PLANTS, by the 100, 1000, or 10,000.

Fine large BLACK ITALIAN POPLARS, 6 to 10 feet.

WM. WOOD & SON have to offer a splendid stock of the above. Address, Woodlands Nursery, Maresfield, near Uckfield, Sussex.

Patronised by Her Majesty the Queen,

AND HIS ROYAL HIGHNESS THE PRINCE OF WALES.



THE SEEDLING APPLE, LORD BURGHLEY, was awarded a First-class Certificate by the Royal Horticultural Society, March 21, 1865.

The opinion of the Fruit Committee of the above Society, also testimonials from Messrs. Rivers, Lee, Pearson, and other eminent Fruit Growers, may be had on application to

J. HOUSE, Eastgate Nursery, Peterborough.

Fine Trees, 3*s.* 6*d.* and 5*s.* each.

CATALOGUES on application, post free.

New Fruits.

CHARLES TURNER has great pleasure in offering the following valuable New Fruits:—

FROGMORE EARLY BIGARREAU CHERRY.

The "Florist and Pomologist" thus describes it:—"The Frogmore Early Bigarreau Cherry will be at its highest excellence, perfectly ripe, and waning towards its end, before any of the other Bigarreaus have yet made their appearance. It was raised by Mr. Ingram, at the Royal Gardens at Frogmore. Unlike the class to which it properly belongs, it has a tender melting flesh; in every respect it is a Bigarreau in habit, leaf, and appearance of the fruit, and must be classified along with these varieties; but as if to set at nought all human arrangements, it persists in having a delicious melting flesh, instead of one that is hard and crackling. The tree is a great bearer, clusters of a dozen and half to two dozen large handsome Cherries being produced on a small spray; and the fruit ripens in the middle of June."

STRONG PLANTS NOW READY.

STANDARDS, PYRAMIDS, and DWARF-TRAINED, 10*s.* 6*d.* each.
MAIDENS .. .. 7*s.* 6*d.* ,,
A Coloured Drawing by ANDREWS will be sent on receipt of 13 Stamps.

NEW APPLES.

GIPSY KING.—This Apple is a very distinct variety, very handsome in colour and shape, skin covered over with nut-brown russet, intermixed with red and carmine on the sunny side; flesh yellowish, rich and sugary. Highly recommended as a late keeping variety. Price 5*s.* each.

ROUNDWAY MAGNUM BONUM.—This is a very large late variety, an abundant bearer, and of excellent habit. Price 5*s.* each,

"The Gardeners' Year Book for 1865" thus describes it:—"This is a first-rate culinary Apple, and one that may also be used in the dessert. The fruit is large, roundish ovate, and angular on the side. The skin is lemon yellow, with a few broad broken streaks of pale crimson on one side. The flesh is yellowish white, tender, crisp, very juicy, and with a fine aroma. This was raised by Mr. Joy, Gardener at Roundway Park, Wilts, and received a First-class Certificate from the Royal Horticultural Society's Fruit Committee."

The Royal Nurseries, Slough.

RICHARD SMITH'S FRUIT LIST contains a sketch of the various forms of Trees, with directions for Cultivation, Soil, Drainage, Manure, Pruning, Lifting, Cropping, Treatment under Glass; also their synonymes, quality, size, form, skin, colour, flesh, flavour, use, growth, duration, season, price, &c. Free by post for three stamps.

RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

FIFTY ACRES well stocked with FRUIT TREES to select from.—APPLES, PEARS, PLUMS, CHERRIES, PEACHES, NECTARINES, and APRICOTS, in every form desired for fruiting.

See RICHARD SMITH'S FRUIT LIST, free by post for 3 stamps.

RICHARD SMITH, Nurseryman, Worcester.

FOR THE OPEN GROUND.—APPLES, PEARS, PLUMS, and CHERRIES, fine healthy Pyramids, very ornamental and productive. Strongly recommended for large and small gardens.

See RICHARD SMITH'S FRUIT LIST, post free for 3 stamps.

RICHARD SMITH, Nurseryman, Worcester.

ESPALIER and WALL-TRAINED TREES in any quantity.—APPLES, PEARS, PLUMS, CHERRIES, PEACHES, NECTARINES, and APRICOTS, fine strong trees of perfect form.

See RICHARD SMITH'S FRUIT LIST, free by post for 3 stamps.

RICHARD SMITH, Nurseryman, Worcester.

A CROP of FRUIT the FIRST SEASON.—Bearing Pyramids and Bushes in pots for orchard houses. PEACHES, NECTARINES, APRICOTS, APPLES, PEARS, PLUMS, and CHERRIES. Extra strong VINES and FIGS in fruiting condition for forcing.

See RICHARD SMITH'S FRUIT LIST, post free for 3 stamps.

RICHARD SMITH, Nurseryman, Worcester.

MAGNIFICENT DWARF-TRAINED FRUIT TREES,

By the Dozen, Hundred, or Thousand.

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AS AN ORCHARD STANDARD,

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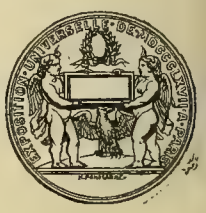


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ROBERT SIM can now send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his NEW and PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.
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The Gardeners' Chronicle.

SATURDAY, NOVEMBER 30, 1867.

MEETINGS FOR THE ENSUING WEEK.

TUESDAY,	Dec. 3	Royal Horticultural (Fruit and Floral Committees), at South Kensington ..	11 A.M.
		Ditto (General Meeting)	3 P.M.
THURSDAY,	— 5	Linnean	8 P.M.

THE discussion that has arisen in our columns with reference to the forms of flowers, induces us to advert once more to the subject of "SPORTS," in the hope that the attention of cultivators may be directed to the subject, and that in due time we may arrive at results beyond any hitherto attained in floriculture. It is not necessary in this place to treat the subject formally or in regular order; it seems better for our present purpose to adopt a popular rather than a scientific classification—to let the former precede the latter.

Beginning, therefore, with that condition which LINNÆUS called Peloria, we find that term was applied by him to a variety of Linaria vulgaris found by one of his pupils near Upsal. Instead of the ordinary one-spurred flower with a double lip, and four stamens, here was a regularly five-lobed corolla with five spurs, and five equal or nearly equal stamens—a prodigy of Nature, "Naturæ prodigium!"

LINNÆUS seems to have thought it might be a hybrid production, but before long similar cases were found in other plants, and so the term Peloria came to be applied to any flower which was exceptionally regular in form, without much regard being paid as to how the change took place. But now, when so many instances of this kind in different genera have been noticed, it becomes abundantly clear that an habitually irregular blossom may become exceptionally regular in one of two different ways. For instance, it may be taken as a general rule, subject to comparatively few exceptions, that flowers are in the first instance as regular as any "florist" could desire: their several parts are all at first about equal in size. As development goes on, if this original equality of proportion be maintained, the flower will be regular, but if the conditions under which growth and development take place are not equal on all sides—or, as some would say, if there is a strong hereditary tendency to disproportionate growth, certain parts will grow more freely and become larger than others. Whatever be the cause, in the Linaria, as in other similar instances, some portions of the floral apparatus become greatly more developed than others, and so an irregular flower is produced; but if it so happens that all the parts take on equal growth, then we shall get a five-spurred regular corolla—Peloria in fact. In such a case regularity is produced by the increase in number of the irregular portions.

On the other hand, we occasionally meet with Linarias without any spurs at all. These flowers are regular, but their regularity depends upon quite another cause: in the former case there has been, so to speak, an excess, here there is an arrest of development; growth, indeed, has taken place, but none of the elements of the flower have become enlarged to a greater degree than their neighbours—all are alike, equal and regular. So, then, there is irregular Peloria and regular Peloria, both alike deviations from the customary form.

The five-spurred Linaria is the best known instance of irregular Peloria, but a similar condition may occur in any habitually irregular flower, and we meet with numerous intermediate stages between the ordinary condition, and the peloriate variation. These intermediate flowers have little charms for the florist, though they are full of interest for the botanist; but if the cultivator can succeed, say in giving us a variety of Cattleya Mossiæ with three fringed lips in place of one, it might be thought a gain in a florist's point of view. We have seen more than one Orchid with three lips in place of one, and have even met with Cattleya Mossiæ with two lips, so that the thing is quite within the range of possibility. Erect Gloxinias are now common in gardens, and every now and then one is startled by seeing a strange sleeve-like Calceolaria: these, too, are cases of Peloria. Both the last-named flowers afford illustrations of that change in direction which so commonly accompanies this alteration in form, and both exemplify the rule, that what we call deviations from form in any particular flower, represent the customary state of things in another genus. Compare the Calceolaria just named, with Fabiana for instance.

Then there are other speculations, in which we might indulge were it worth while to do so; for instance, there is the question whether the modern one-spurred Linarias and Antirrhinums are the degenerate descendants of ancient five-spurred ones, or of primordial flowers of strict regularity of outline? We will not attempt to touch on such recondite questions; our object is a practical one—to call attention to facts; and with this view we may again allude to the circumstance that where the general form and aspect of the flower are altered in the manner indicated, the direction, the distribution of colour, the position of the stamens and styles, and in consequence the facilities for insuring or obviating fertilisation, are modified likewise. Another point of practical importance is, that in some at least of these cases, reproduction by seed of the unusual form takes place; thus the peloriate Columbines reproduce themselves by seed, and, as in other similar cases, afford an opportunity for the practice of hybridisation, selection, and the other arts by which the florist succeeds in obtaining the results for which he seeks.

It will thus be seen that these sports are matters of no little interest to physiologists, as giving them the clue to many a difficult problem. To cultivators not swayed merely by the fashion of the day, they offer an opportunity of "improving" the flower in accordance with principles which, however imperfectly understood, are not mere arbitrary inventions, subject to no other rules than those laid down by individual taste or caprice, principles followed by Nature herself, and as such having a purpose, a harmony and consistency such as no merely artificial code of form could have.

IT is curious to see in how many points of daily practice in gardening we still require definite information as to matters which, once understood, would furnish the cultivator with the right method to be followed in cultivating this or that plant under varying conditions. Take, for instance, the subject of ROOT GROWTH. If the phenomenon of this process were thoroughly understood, where would be the necessity for the discussions as to the propriety or unadvisability of root-pruning, the season when it should be practised, if at all? where would be the use of the controversies as to hard borders, top-dressings or surface dressings, and the like? There are certain facts relating to roots, such as their tendency to find out where the larder is, and especially where there is a due supply of water, so well known that it is not necessary to dilate on them. The special point to which we would now refer is as to the duration of the smallest fibrils; these, as has been proved over and over again, both in the laboratory of the physiologist and the every-day experience of the cultivator, are, so far as feeding purposes are concerned, the essential parts of the roots. The larger root branches may serve to anchor the plant in the ground, but so far as nutrition is concerned, they are merely so many "gullets" to convey the food from the mouth to the organs of digestion.

It is often stated that the delicate fibrils are renewed each year in the same way that the leaves are, and we believe the statement to be partially if not wholly true. We believe it to be wholly true in those cases where, as in bulbs and tubers, a store of nourishment is laid up in the swollen portions, after the same fashion that a store of fat is deposited beneath the skin of a dormouse or a hedgehog prior to its commencing its winter slumbers. In such cases the plant feeds on its own stores, and is comparatively independent of any external supply. In other cases, where comparatively a much smaller store of nourishment is laid up, as in the case of trees, and where, unless the very ground be frozen, the roots are never wholly idle, it can hardly be that the whole of the fibrils are renewed annually, or if they are, at least not all at the same time; the fibrils, supposing them to be deciduous, must be separated gradually, just as the leaves of the so-called evergreens fall off, and in such a way that the tree is never wholly destitute of them. Now, if the root-fibrils decay in this way, as we assume that they do, even if they are not absolutely cast off, there must be some valuable practical lessons to be learnt from this natural process.

We were much impressed with this periodic decay of the finer roots, by an inspection of Vines, Peaches, and other trees in pots as grown by Messrs. RIVERS at Sawbridgeworth. As is well known to those readers interested in the culture of orchard-house trees in pots, the practice recommended by Mr. RIVERS, so far as root feeding is concerned, is to give the trees during the period of active growth a surface dressing of rich manure, in which the feeders ramify and increase and multiply to such an extent that slates have to be stuck in round the edge of the pot to support the increasing mass of roots and soil—a pretty good proof that roots will go where their food is to be found, and that, as far as their feeders are concerned, it matters little to them whether they go downwards or upwards, so long as they get what they want. Another point of Mr. RIVERS' practice is, in October or November to remove from the top of the pots a few inches of the surface compost, which by this time is exhausted, and to replace it with new. In removing this surface layer it is usually found crammed with roots, but a large proportion of these are dead—their work has been done; the new compost added suffices for the nutriment of the new crop that will be formed, to feed the plant for the next season. If this explanation be correct, it would appear advisable to let the plant have as complete a rest as possible, and not to remove the surface soil or add new compost till the following season; and this plan, we believe, has recently been carried out by Mr. RIVERS with good results.

Then again, after the operation of transplanting, which is going on actively now, it is pretty certain that the existing rootlets, even though they be not injured during the removal, are to a great extent, if not entirely, superseded by the new growths that are formed under favourable circumstances, when the plants do not, in gardening phrase, "miss their move"—a fact which tells in favour of planting early in the autumn, so that the tree may be enabled to make new roots before the winter sets in.

As tending therefore to throw light upon very many points of practice, we invite our correspondents to favour us with the results of their experience as to the renewal of the root-fibrils, and to give us their opinions as to the periodicity of the occurrence, and the circumstances that are favourable or antagonistic to it.

— THE gardening public will be pleased to hear that a deputation from the Royal Horticultural Society has paid a VISIT TO LEICESTER, in anticipation of holding its second Great Show in the provinces, at that place, next season. The deputation was met by several of the most influential of the townsmen, presided over by the Mayor, and a resolution was put and carried unanimously, approving of the object of the deputation, and undertaking to render all possible assistance in obtaining a guarantee fund of sufficient amount to make the visit of the Society to the town a successful one. We understand that the prize list will be decided on and issued forthwith, and that the local authorities intend setting about in earnest the getting up of Special Prizes, in which we wish them as much success as was realised at Bury, last year.

— It is stated that the five "grands prix" at the PARIS EXHIBITION, in the Horticultural Department, have been awarded to Messrs. VILMORIN, VEITCH, LINDEN, CHANTIN, and to the "Société de Secours Mutuels de Maraichers de Paris." It is also asserted that among these laureates some will be selected for the further distinction of the Chevalier of the Legion of Honour, and among them Mr. JOHN GOULD VEITCH

is mentioned. We trust the rumour may be correct. The International Jury, we understand, has awarded Messrs. Carter & Co., of High Holborn, a Silver Medal for lawn Grass seeds exhibited by that firm in Group IX.

—— We are always glad to report progress in the matter of TOWN GARDENING, and the embellishment of the metropolis in particular, so that we take the opportunity of congratulating the authorities of the cathedral church of St. Paul, on the successful culture of Scarlet Runners and Cauliflowers among the tombstones, at the north-eastern end of St. Paul's Churchyard, during the past season. There is a peculiar appropriateness in the cultivation of such plants in such a locality, as the effect of the frost on them is as effectual a *memento mori*, as are the crumbling monuments themselves.

—— Mr. HULLETT's ship has come home again, and this time freighted with a "*Black Oncidium from Abyssinia!*" The correspondent who kindly sends us the information adds:—"There must be some flats not yet caught;" he himself, however, being as yet untrapped even by so tempting a bait. The information was elicited through the following recent advertisements in the *Daily Telegraph*:—

"PASSION-FLOWER.—WANTED, a strong plant of Passiflora Quadranularis or a Tasconia. A high price will be given for a flowering plant.—Address B. C. D., Post Office, Portsmouth.

"ORCHIDS.—For SALE, at an extremely low price, a good collection of Orchids, including some fine Phalænopsis in full bloom.—Address B. C. D., Post Office, Portsmouth."

The reply to inquiries respecting the above, indited from "Clarence Lodge, Cosham, Hants," and signed "J. HULLETT," but not dated, is as follows:—"I have sold a good many of my Orchids, and have only the following really good ones left. * * * I should ask 10*l.* for the lot; some of them are just coming into bloom. List enclosed." The list, which includes a dozen plants, mostly of well-known ornamental species, mentions 'Phalænopsis amabile," a large plant with five leaves and two spikes of flowers, besides "two Odontoglossa of a new variety, both in bloom," and the "Oncidium (var.) from Abyssinia, bearing *black* flowers." The lot, as per list, must be dirt cheap. We wonder at which of Mr. HULLETT'S establishments these fine specimens have been brought on! The Abyssinian "Oncid" has, no doubt, turned up quite recently, since public attention has been directed to that country.

New Plants.

APHELANDRA ROEZLII *(Hort. Veitch)*.

Foliis petiolatis, petiolis crassis, sub-carnosis, tortuosis, supernè planis, infra convexis 1–2 poll. longis; laminis ovatis vel oblongis, acuminatis, basi rotundatis, nec cordatis, integris vel sub-undulatis, glabris superne argenteis, 5—6 poll. long. 4—5 lat.; spicis terminalibus, erectis, simplicibus vel paniculatis, tetragonis, 4—5 poll. longis; bracteis oblongo-lanceolatis sub-carinatis, spinoso-denticulatis, corollæ imprimis aurantiacæ, demum coccineæ, labio superiore erecto, anguste lanceolato, concavo inferiore amplo plano 3-lobato, lobis ovatis, integris, lateralibus triplo minoribus acutissimis, sub-acuminatis.

At one of the recent meetings of the Floral Committee much attention was excited by a new Aphelandra, exhibited by Messrs. Veitch under the above name. It is evidently closely allied to A. aurantiaca, but differs in the curiously twisted and silvery leaves, in the brighter scarlet of the flowers, and in other points. Without further evidence, we are not sure whether the plant is a mere variety of the species just named, or whether it is entitled to specific rank, in which uncertainty we have deemed it preferable to retain the name under which it was exhibited, as a garden name, the more so as specimens exist in the Kew herbarium, also derived from garden sources, with the name A. aurantiaca var. maculata.

Whatever be the rank it may ultimately hold in botanical works, it is certain that the plant will occupy a high place in the esteem of the plant lover, both from the silvery leaves, and the brilliancy of its orange and scarlet flowers, which are produced on small plants in profusion, and are more brilliant than those of A. aurantiaca. The twist of the petiole is such that the blade of the leaf is removed one-fourth of a circle out of its original place. As all the leaves are so affected, this, in our eyes, adds only an additional feature of interest, though we have heard it objected to by others. To the above technical description it is desirable to add the following particulars:—A small shrub; younger branches green, glabrous; leaves ovate oblong, rounded at the base, prolonged into a long point at the apex, entire or slightly wavy at the margins, silvery gray above, pale green below, 5—6 inches long, 4—5 inches wide. Leaf-stalks 1—2 inches long, thick, fleshy, flat or slightly convex above, convex below, and twisted on themselves. Flower-spikes terminal, simple or branched at the base, tetragonal, 4—6 inches long. Bracts numerous, concave, oblongo-lanceolate, many nerved, sub-carinate, spinoso-denticulate at the margins. Calyx divided almost to the base into five linear-lanceolate, apiculate segments. Tube of the corolla contracted just above the base, orange yellow, twice the length of the sepals, about the length of the bracts, its limb orange yellow, and twisted to the left (sinistrose) in the bud, while in the expanded flower the limb is bright scarlet, two-lipped, and ringent; the upper lip is lanceolate, erect, bidentate, concave, so as almost wholly to conceal the stamens; the lower, spreading horizontally, is three-lobed; the central lobe ovate, acute, more than half an inch long; the lateral ones two-thirds smaller, very sharply pointed. Filaments slender, hairy, attached to the back of the one-celled anther below the middle; tip of the anther surmounted by a fine tuft of small whitish hairs; ovary minute, ovate, compressed, slightly hairy, 2-celled, surmounted by a slender style as long as the stamens; stigma 2-lobed, lobes diverging, acute.

If we may judge from the name, it would appear that the plant is of Mexican origin, and was introduced to Europe by Herr Roezl. *M. T. M.*

PLANT PROTECTORS.

ON returning recently from the Continent, I observed in a number of your Paper an article by Mr. D. T. Fish, entitled "Sir William Thomson on Plant Protectors." In this article, the theory that wind, clouds, and dew, are the three great protectors against frost, which I had spoken of at the recent meeting of the British Association, was controverted; and it was maintained that a true explanation of the destructive energy of ground frost, shows it to depend on the radiant power of water and vapour of water, and proves that it is not mitigated by dew, but is to be remedied by "less water." I take the earliest time available to write a reply to this article, not because I feel called upon to defend myself in every case against criticisms of remarks made *ex tempore* and reported in a newspaper, but because the subject is of great interest and of much practical importance to your readers, and false theory might give injurious weight to useless, or possibly mischievous remedies. I am, however, glad to use the opportunity to endeavour to set myself right with Mr. Fish and your readers, by pointing out that the few sentences which he quotes from the report of my statement on the subject contain a few seemingly small, but really important errors, which, curiously enough, are the only errors worth noting in the whole report, as given by the *Dundee Advertiser* (Sept. 12th, 1867). Mr. Fish quotes: "that the office of each blade of Grass * * * is to collect the air touching it;" I said to "cool the air touching it." The sentence he quotes concludes, "and so take heat from part of the heat around it;" the sentence should have concluded, "and so take heat from it." Mr. Fish quotes a little further: "the plants, in short, get dry, drying the air around them;" the sentence should have been simply, "the plants dry the air around them." This simple correction suffices to render the explanation, at least, not "unintelligible," as Mr. Fish justly called it. The sentences with which Mr. Fish concludes his quotation, when corrected, and altered from the reporter's copy, stand thus: "The plants in short dry the air around them, and if that air is not changed very much for the better, they are destroyed by frost. This, however, rarely happens." The change for the better, of which I seem to have spoken, must have been explained to mean a change in which air from the atmosphere above the plants with its natural quantum of aqueous vapour, replaces that which, in closer contact with the radiating surface, had been dried by parting with its vapour to form dew. Commenting on my last sentence, Mr. Fish says: "Sir William concludes his remarks by stating that * * * the destruction of plants in hollows by frost rarely happens. On the contrary, it constantly and invariably happens." Are we to understand from Mr. Fish that no plant in a hollow ever escapes destruction by frost? Mr. Fish continues: "The fact is, on Sir William's or rather Tyndall's theory, it ought not to happen." The misconception implied in thus confounding two opposed theories—because, no doubt, each attributes protective influence to the presence of vapour of water in the air—can scarcely be attributed to inaccuracies or imperfections in the reports from which Mr. Fish has derived his information, but seems rather to have been due to a preconceived opinion of his own, in favour of dryness as a safeguard for vegetation, which led him to condemn on common ground, all theories which attribute a beneficial influence to water or vapour of water. Dr. Tyndall had inferred from his experiments on radiant heat, that transparent aqueous vapour effectively protects plants against destructive cold, by its absorption of radiant heat from the soil and vegetation. In a communication to the Royal Society of Edinburgh,* "On the Protection of Vegetation from destructive cold every night," I gave reasons for concluding, that absorption by aqueous vapour does not constitute an effective protection; but on the contrary, that any considerable deposition of dew proves radiation to have gone on to an extent that would have been destructive, were it not for the source contained in the so-called latent heat of the vapour.

The last personal topic to which I need refer is the following sentence of the article by Mr. Fish:—"But what I complain of here is, that scientific writers should make vague appeals to the developed principles of Wells, in support of a theory of which Wells never dreamed, and which many parts of his work appear flatly to contradict." I am at a loss to see any justice in this complaint. If appeals to the developed principles of Wells support a theory of which Wells never dreamed, it is surely proper for a scientific writer to make such appeals; and the more so if it is true that many parts of his work appear to some practical men flatly to contradict a theory, which a more complete understanding of the subject finds to be supported by it. Nor were my appeals, so far as they related to Wells' theory, vague; but, on the contrary, they were particularly definite and pointed, as may be seen even from the incorrected short-hand writer's report of the *Dundee Advertiser*, which seems to be that quoted in the *Gardeners' Chronicle*, and referred to by Mr. Fish.

And now to pass to what is much more interesting than personal questions. I wish to say something for wind as a protector of plants against cold. Mr. Fish says:—"Warm wind warms, cold wind chills plants, and the idea that mere motion alone, or wind, without reference to the temperature of the air around, will protect plants from the inroads of cold, cannot be sustained by experience. It may, doubtless does, check the energy of radiation by rapidly changing the relation of the molecules of the air in relation to each other, but a plant may be blasted and frozen by a sweeping onslaught of arctic wind, as well as by the powerful radiation of a still, clear air. Hence, in biting March weather, tender fruits on walls often suffer more from the rude sweep of the blast, than from calm night frosts. Instead of these being any protection, they become the most formidable foe of the cultivator, and it needs all his wisdom to protect plants from their chilling, blighting, killing force." Everything here quoted is no doubt correct, except the statement that wind checks the energy of radiation by rapidly changing the relation of the molecules of the air, for which there is no foundation in known properties of matter. But the worst that wind can do in the way of cooling plants is to reduce them to its own temperature, by convection; or to a temperature intermediate between that and the dew-point, by promoting evaporation. Whenever either dew or hoar-frost is forming on any object, it is quite certain that that object is colder than the air in its immediate neighbourhood, and therefore, that it would be warmed by wind; but if there are clouds enough to prevent dew or hoar-frost, and if the temperature of the air near the surface of the earth is colder than that of the lower surfaces of the clouds, then, and only then, wind will exercise a cooling influence on the upper surfaces of plants. This, therefore, would make it appear that the atmospheric circumstances in which winds may be expected to be most destructive to vegetation, are those in which currents from the south, with clouds, prevail in the upper regions of the air, and north or north-east winds below. But a strong wind from any quarter may sometimes do injury, not only by mechanical violence, but by cooling lower parts of plants which, screened by the leaves and branches above them, are protected from radiation, and may retain enough of the heat they have received from the sun during the day, to keep them till morning warmer than the night air above their tops, unless the air is thoroughly mixed up among them by a fresh breeze.

As to plants in hollows, the abundant dew found upon them, almost invariably, after every calm clear night of our summers and autumns, demonstrates an amount of heat to be radiated from their surfaces which, if taken from their own substance, would have cooled them far below the freezing point. No plant of any known existing species could live in such a situation without the protection afforded by dew. But this protection is inferior to that of gentle winds, or of such currents of air as are produced on slopes or summits of hillocks by the descent of cooled air. Hence, in Nature, plants which after springing up in hollows cannot survive an ordinary season, may live for years on slopes or summits close at hand. Natural selection, however small may be the proportion of the enormous influence attributed to it by Darwin which is really valid, is undoubtedly effective here in practically excluding from hollows some of the tender plants found in Nature on slopes or summits in the same neighbourhood. But if gardeners will insist on sowing, year after year, seed, or transplanting growing plants into positions unsuitable to their nature, and leaving them in such position until after the hoar-frosts of autumn commence, they will no doubt every year before winter comes, verify Mr. Fish's dictum—"their destruction constantly and invariably happens."

The following extract from my paper already referred to, contains a short statement of the principles on which I have maintained that wind, clouds, and dew, jointly or separately, protect plants from destruction by cold every night.

"The effect of dew in protecting vegetation every clear still night of summer was long ago pointed out by Dr. Wells, the correctness and acuteness of whose views on this subject have been generally recognised. In point of fact, heat is actually radiated away into very high terrestrial atmosphere and distant interstellar air or æther, from the upper and finer parts of living plants, in so great amount every clear night of summer, that destruction by frost could not be delayed for many hours after sunset without a compensating supply of heat from some extraneous source. This source, on windy nights, is the thermal capacity of the air whirled about, up and down, and among the stems and leaves of the plants. On still nights it is the latent heat of the vapour condensed into dew. This vapour is taken chiefly from the air engaged among the stems and leaves, which, in the case at least of fine Grass, is all nearly at the same temperature as the leaves, the temperature of the surface of these being of course rigorously the same as that of the air in contact. Thus the temperature of the leaves can never go below the dew-point of the air touching them, and any cooling which they experience after dew begins to deposit upon them is only equal to the lowering of the dew-point, occasioned by the amount of drying experienced by the air in consequence of the condensation of vapour out of it.

"Clouds, as remarked first by Prévost, being practically opaque, prevent the surface of the earth from tending by radiation to a lower temperature than their own, which, unless they are very high, is generally not much colder than the dew-point of the lower air, but is at all events in general sufficiently warm to prevent the finest blades of Grass from acquiring any very sensible dew, or to allow the general temperature of Grass and the air engaged among it, even on the stillest night, to sink as low as the dew-point. Thus, either clouds, by their counter-radiation, or wind, by mixing a comparatively thick stratum of air with that next the earth, keep the Grass and delicate parts of other plants from sinking to the dew-point; or, when there is not enough of clouds and wind to afford this degree of protection, dew begins to form, and by preventing

* Royal Society of Edinburgh, Session 1863-64.

the temperature of any leaf or flower from sinking below the dew-point, saves them all from destruction, unless as, when hoar-frost appears, the dew-point itself is below the freezing point." *William Thomson, The College, Glasgow, Nov. 27.*

NEW VEGETABLES GROWN AT CHISWICK.

THE following is a brief report of a few new vegetables that have been grown at Chiswick this year. Although not specially or comparatively tested by the Committee, yet their merits or peculiarities have been such as to render some notice of them desirable :—

1. *Australian Spinach* (Chenopodium auricomum).—This a kind of Spinach sent out by Messrs. Stuart & Moin. It resembles in its general appearance Chenopodium album, the troublesome weed of our gardens—"Fat Hen," as it is vulgarly called. It is a very robust-growing plant. Some seeds were sown in the open ground in May. The plants are now 6 feet high, much branched, and as fresh and green as ever. It is as yet uninjured by the frost, and shows no signs of flowering. The quantity of leaves that can be gathered from a few yards of it, is enormous. When cooked in the summer time, it was found to be somewhat strong-flavoured and fibry, but on again trying it last week it proved much more tender, not unlike "gude Kail" in Scotland when well frosted, with a smack of the Spinach flavour in it. It lacks the mild flavour of the true Spinach so much relished by some, but will prove a very good substitute in times of scarcity, as it is so very easily cultivated.

2. *Minier's Dwarf Red Beet* (Lobjoit's Selected).—This was recommended by the Committee as the best variety grown at Chiswick in 1866. It is of dwarf, upright habit, the leaves small, deep brown, or copper coloured; roots of medium-size, very evenly and regularly tapering, of a deep blood-red colour; flavour sweet. A very excellent selection.

3. *Nuneham Park Onion.*—This was again grown, side by side, under precisely similar conditions, with the White Spanish, the seed of both varieties having been received from Messrs. Cutbush & Sons; seeds of the White Spanish having been also obtained from Messrs. Vilmorin. No appreciable difference could be detected; if anything, Messrs. Vilmorin's stock of the White Spanish was the best. It is simply, as has been already frequently stated by the Committee, a very good stock of the White Spanish, which is the best of all varieties for general use.

4. *Scrymger's Giant Brussels Sprouts.*—This variety was raised by Mr. Scrymger, gr. to E. Palmer, Esq., Home Park, Reading, and was sent out by Messrs. Sutton & Sons about two years ago. It is of robust habit, though not very tall, the general height being about 2 feet; the leaves are rather large and flat; the sprouts rather above the ordinary size, very firm and close; very thickly set on the stem, from close to the ground to the top. It is an exceedingly well-selected stock, almost every seed coming true. A few years ago it was considered impossible to save good Brussels Sprouts' seed in this country. This variety has, however, proved the contrary, being superior to any of the imported stocks grown alongside of it this season.

5. *Early Dwarf Erfurt Cauliflower.*—This is a very excellent variety. It is very dwarf, the heads, which are large, resting on the ground, like the St. John's Day Cabbage. It comes into use from 10 to 12 days earlier than any other. The leaves are spreading, and do not hood over as in the Walcheren. Heads firm and close, of a pure white colour.

6. *Little Pixie Cabbage* (Wrench).—This is an excellent little Cabbage. It has been often confounded with the Early York, but it is in reality very distinct from that variety, being dwarfer, and the leaves and hearts are somewhat pointed, instead of being distinctly rounded, as in the Early York. It comes into use very early, and is of close and compact growth, with the hearts firm and solid.

7. *Sheppard's Marrow Cabbage* (Hurst).—This is a very fine and true stock. Hearts large and solid, somewhat globular in form; leaves smooth, of a lightish green colour. It is allied to the Vanack.

8. *Hill's Incomparable Cabbage.*—This is a rather dwarf variety of the Vanack section; hearts large; very excellent.

9. *Dickson's New Early Cabbage.*—A very early, dwarf, excellent variety; hearts firm, of moderate size; form roundish.

10. *Schweinfurth Cabbage.*—This is a German variety of the Drumhead. It is somewhat dwarfer, the leaves slightly curled at the edges; hearts very large and solid, and very hardy.

11. *Victoria Savoy.*—This is an excellent selected stock of the Dwarf Curled Savoy, perhaps a little taller, and with the hearts larger than they usually are. It is very hardy, and the most useful variety we have.

12. Several varieties of *Potato* were grown, but having suffered severely from disease, no satisfactory observations could be made. *Smith's Early*, which is the same as Coldstream Early, was the earliest variety grown, and is in every respect a very excellent early round Potato. *A. F. B.*

THE IVY.

Now that winter is approaching we naturally turn to the evergreen forms of trees and shrubs, to aid us in tiding over the dull season with gardens and gardeners. The summer flowers and the summer leaves are alike gone, and desolate indeed is that garden which does not contain a goodly proportion of these winter gems. Let us hasten to fill the void, if void there be, for the garden in winter may be made as interesting and beautiful in its way as in spring or summer. Each season has its natural and distinctive features, the embodiment of which should be a pleasing task to the skilful gardener.

Having on former occasions arranged and described the principal varieties of the Yew (Taxus), and the Holly (Ilex), I now venture to deal with the Ivy—a plant alike remarkable for its antiquity, beauty, and pleasant associations. We have here no new favourite. The plant was known to and valued by both Greeks and Romans, was woven into crowns and chaplets on festive occasions, and was also used by them medicinally.

In "Seemann's Journal of Botany" (1864), is a very interesting paper on the Ivy, which every admirer of this plant should read. The writer brings all known varieties under three species:—1, Hedera Helix, the European Ivy; 2, H. canariensis, the African Ivy; 3, H. colchica (Rœgneriana), the Asiatic Ivy. In our country H. Helix abounds both naturally and by the hand of the planter, and I conceive that there are few who cannot look back with pleasurable emotions on some old church, ruin, or "Ivy-mantled tower," the picturesque forms of which remain indelibly fixed on the memory. So plentiful is the plant in England that one can scarcely take a walk or drive without meeting with the various forms covering banks or park palings, and ascending trees to a great height, the topmost shoots often assuming a shrubby or tree form. In the words of one of our most popular authors, "a rare old plant is the Ivy green."

From the cultural point of view the Ivy is valuable as an evergreen climbing plant, on account of its free, rapid, and accommodating growth. It can scarcely be dispensed with in suburban gardens; and even in large towns it generally thrives well, suffering from the smoke less than most evergreens. For covering walls, fences, trees, and rockwork, for screens when supported by lattice, for pillars, edgings of beds, and arches or arcades, in flower gardens, it is alike suitable.

My collection here, which consists of more than 40 sorts, is grown in three separate ways; 1, as pillars; 2, to cover old roots, laid on the ground to form a screen; and 3, in pots. Pillars of Ivy form beautiful objects, especially in the winter season. Those who have seen the gardens at Elvaston in winter will no doubt remember the pleasing effect of the masses of golden Ivy which abound there. When planted and trained on rockwork or old trees, it is curious and interesting to watch the shoots creeping and clinging to the surface, now losing themselves in the recesses, then emerging and spreading to the light their broad masses of beautiful leaves of green, gold, or silver. A well-kept mass of Ivy, whether on wall, or tree, or rock, is in winter a beautiful sight. When grown in tubs or pots as low pyramids, the varieties of this plant are also extremely useful for garden decoration. In the collections of climbing plants shown at the International Exhibition in the spring of 1866, no plants were admired so much as the masses of Ivy. Associated with the water and the rock, as they judiciously were, the shoots which formed the base of the pyramids drooped gracefully over the sides of the baskets, hiding the latter, and calling up a new feature of beauty by being reflected in the water below. Of the many variegated kinds it must be told that some only are completely happy as pillars, at least such is my experience; but the most delicate are beautiful in pots, and even against walls, and are quite worthy of such positions.

Further, the Ivy is not only valuable as a climbing and creeping plant, but also as an evergreen shrub. The tree or bush forms which it assumes, and of which there are several, are first-class front-row evergreens for beds and borders. A little pruning keeps them as compact as Aucubas and Laurustines, and in the green, gold, and silver leaves, and the black and yellow berries, there is infinite variety and beauty. The sweetness of the flowers, too, must not be forgotten.

The greater number of the varieties cultivated in English gardens belong to H. Helix, and these I shall first describe :—

§ 1. HEDERA HELIX (European Ivy).

Group I. *Climbing varieties.*

1. *H. Helix.*—Leaves small, dark green. Growth rapid.

2. *H. H. marginata canescens.*—Leaves green, long and narrow, broadly edged with gold.

3. *H. H. marginata major.*—Leaves green, of medium size, broadly margined with yellowish white; berries freely. Growth rapid. One of the best.

4. *H. H. marginata elegans.*—Similar to the preceding in general appearance, but the leaves are larger and narrower at the base. Growth moderate.

5. *H. H. marginata pulchella.*—Leaves green, small, broadly margined with white. Growth moderate. Very beautiful.

6. *H. H. marginata robusta.*—Leaves green, large, margined with silver. Growth free and rapid. One of the best.

7. *H. H. marginata argentea.*—Leaves green, large, well margined with silver. Of free, rapid growth. One of the best.

8. *H. H. marginata elegantissima.*—Leaves green, broadly margined with white; very showy. Growth moderate.

9. *H. H. minor marmorata.*—Leaves green, beautifully marbled with white, small. Growth rapid. Exceedingly pretty.

10. *H. H. palmata.*—Leaves dark green, of medium size, very broad, deeply cleft; veins prominent. Growth very vigorous.

11. *H. H. palmata aurea.*—Similar to the preceding in general characters; the leaves occasionally clouded with gold.

12. *H. H. pennsylvanica.*—Leaves wholly green, large, deeply cleft; veins prominent. Growth free.

13. *H. H. chrysocarpa.*—Leaves dark green, small. Growth rapid. Berries yellow.

14. *H. H. digitata.*—Leaves dark green, long and pointed, broad at the base, deeply cleft. Growth rapid, shoots less numerous than in most others.

15. *H. H. digitata nova.*—Leaves dark green, of medium size, deeply cut. Growth rapid.

16. *H. H. sagittæfolia.*—Leaves dark green, of medium size, broad at the base, long, narrow, and pointed at the apex. Very distinct.

17. *H. H. Glymii.*—Leaves pale green, of medium size, almost entire; very glossy looking, as if varnished. Growth very rapid, forming dense masses of foliage.

18. *H. H. donerailensis minor.*—Leaves dark green, small, deeply cleft. Growth rapid; shoots few and slender. Very distinct.

19. *H. H. crenata.*—Leaves green, broad, regularly cleft; the veins very conspicuous, similar to but larger than those of *H. H. palmata*. Growth free and rapid.

20. *H. H. taurica.*—Leaves dark green, of medium size. Growth rapid.

21. *H. H. walthamensis.*—Leaves dark green, very small. Growth rapid, shoots very slender. The prettiest of all the small green-leaved kinds.

22. *H. H. foliis aureis.*—Leaves green and gold; some wholly of each colour, others finely blotched. Growth rapid. Very beautiful.

23. *H. H. foliis argenteis.*—Leaves green, broadly margined with white; small. Growth moderate. Very showy.

24. *H. H. Cavendishii.*—Leaves green, well margined with white; small. Growth moderate.

Group II. *Tree or Bush varieties.*

25. *H. H. arborescens.*—Leaves dark green, long and narrow; forms a close, round, evergreen shrub; well set with dark purple berries in winter.

26. *H. H. arborescens baccata lutea.*—Leaves green, narrow pointed; of the compact growth of the preceding, and well covered with yellow berries.

27. *H. H. arborescens albo-lutea.*—Leaves green, well margined with gold and silver; large. One of the most beautiful.

28. *H. H. arborescens foliis aureis.*—Leaves long, narrow, dark green, finely blotched with gold. Grows and bears berries freely. Very beautiful.

§ 2. HEDERA CANARIENSIS (African Ivy).

Group III. *Climbing varieties.*

29. *H. canariensis.*—Leaves dark green, large. Growth very rapid. Bears berries freely.

30. *H. c. nova.*—Leaves much larger and of a paler green than the type, also of more rapid growth. This and *H. (Rœgneriana) colchica* are the best of the green-leaved kinds for covering large spaces quickly.

31. *H. c. aureo maculata.*—Leaves sometimes green, but usually green finely clouded with gold; large. Growth free and rapid. One of the most beautiful.

32. *H. c. latifolia maculata.*—Leaves green, marbled with creamy white; large. Growth rapid.

33. *H. c. foliis aureis.*—Leaves large, some entirely green, some entirely gold, others again green, blotched with gold. Growth vigorous. Very handsome.

34. *Hedera algeriensis.*—Leaves pale green, large, entire. A very handsome sort, of rapid growth.

35. *H. a. variegata.*—Leaves green, broadly margined with white; very large. Growth rapid. One of the handsomest.

Group IV. *Tree or Bush variety.*

36. *H. c. arborescens.*—Leaves dark green, very large, broad, and almost entire; berries freely.

§ 3. HEDERA COLCHICA (Asiatic Ivy).

Group V. *Climbing varieties.*

37. *H. colchica (Rœgneriana).*—Leaves dark green, large, entire, thick, and leathery. One of the handsomest.

38. *H. rhombea variegata.*—Leaves dark green, slightly but regularly margined with silver, broad and smooth. Very distinct and elegant.

39. *H. japonica.*—Leaves green, clearly and regularly margined with white, small. Very pretty, producing dense masses of foliage.

Group VI. *Tree or Bush variety.*

40. *H. colchica arborescens.*—Similar to No. 37 in general character of leaves, but instead of climbing rapidly forms a stout round bush, well set with berries.

As a guide for those who may wish to select varieties for special purposes, I would recommend as suitable for covering large spaces quickly Nos. 12, 19, 29, 30, 32, 34, 37, among green varieties; Nos. 3, 6, 7, 32, 35, 38, among silver varieties; and Nos. 11, 22, 31, 33, among gold varieties. Breadth or masses of any one of these three colours, may be obtained by the use of the above varieties. For low walls or fences, basket handles and margins of beds, the best greens are Nos. 1, 17, 20, 21; the best silver, Nos. 4, 5, 8, 9, 38, 39; the best gold, Nos. 2, 22, and 31. All the tree or bush varieties are worthy of cultivation as front-row evergreens. *William Paul, Waltham Cross, N.*

MY GARDEN IN 1867.

CHAPTER I.—INTRODUCTORY.

LOVE is the lesson, the law, the life of floriculture, and I therefore remember with shame and confusion, how strongly and how wrongly I hated *that* wheelbarrow—I mean that wheelbarrow which came into my garden to convey the first cargo of my bedding-out plants to their winter quarters, and which left a blank in my design, hideous, deplorable as the gap made by some cruel dentist among the front teeth of a lovely woman. That wheelbarrow creaked in my ears discordantly as though a large academy of schoolboys were pointing simultaneously their new slate pencils with blunt, jagged, edgeless knives. Then it moved away slowly, solemnly, as if to a place of tombs, two plants of Centaurea gymnocarpa nodding their plumy branches, hearse-like. From day to day we had postponed the catastrophe, as though it had been a

visit to the dental demon aforesaid; we had lingered like lovers with our heart's desire, but the dreaded hour had come. A nipping frost, late in October, caused a hurried meeting of our Floral Committee, at which I had the honour of partially filling the chair (a large garden one); and it was then resolved, after a few sarcastic observations from an influential member (a lady)—"that we had already cuttings to supply the Crystal Palace," and that "gardeners were the most voracious animals in existence"—to trust no longer to our mats. The meeting dissolved, and five minutes afterwards my *chef du jardin* re-appeared with a spade on his shoulder, and his *aide-de-camp* followed with *that* wheelbarrow!

I know now how foolishly, how ungratefully, I wronged that worthy conveyance; and if I had that poet's fire who swept his harp in honour of "My old arm-chair," I would chant penitential praise. This very day I remarked to the influential member who made sarcastic observations, what a happiness it was to see our summer favourites, not only safe and sound, and snugly settled in their boxes, but perfectly recovered from all the pains and perils of removal and excision, and already showing, in a new growth of tiny leaflets, the proof of convalescence, and the promise of beauty. I might have added that herein we florists found the second sure, unfailing element of all our garden happiness, namely, its perpetuity. The main source and essence is its purity—"gardening," writes the greatest of our essayists, "is the purest of human pleasures;" and it is as continuous as pure. The fountain sparkles, and the river rushes on for ever. Given only such a small surface of glass as a poor man may now appropriate, and he who loves flowers loves always. The Gentiles, the unconverted, who hardly know an Allamanda from a Buttercup, may sneer in our winter house. Drawled to me, not long ago, a small undergraduate, who comported himself like a gorgeous peacock, although he had been plucked so often for "Little Go" that he had not a feather to his tail—to me, as I surveyed with fond admiration a box of cuttings, sturdy with health, "a good, sour green," as a farmer says of his wheat—drawled to me this supercilious youth, removing from his lips a truncheon of tobacco, which I had at first mistaken for the schoolroom ruler,—"Can't see, never could see, how any rational being could waste his time over those things." I confess that for a couple of seconds I lost my mental balance: he had decidedly hit me "in the wind." But I recovered, steadied myself, countered, and (as I flatter myself) got home with considerable agility and power. "Can't see, never could see!" I exclaimed, and I looked at him with an expression of the tenderest pity, and spoke with a tone of gentle sadness,—"Heavens, what a touching, tearful case of prolonged, unnatural blindness! Why I always thought that you could see, *all of you*, as soon as you were nine days old." And I felt like the cane in the Persian fable:—"A twister of ringlets passing by, 'O my soul,' said a stick, 'if I could but get at him!'"

But we who have eyes can not only see in these "things" the present charms of culture and of growing life, but they bring to us a thousand thankful memories, "the tender grace of a day that is dead," and a thousand hopeful expectations of a glory which is yet to be. Let us, my brothers, though our gardens be bare and our trees be leafless, recall together this gladness of the past; let us encourage one another with these faithful visions of the future. We may make both the past and the future happier, we may deepen the joys of Memory and of Hope by sympathy and by mutual aid. We may commend our successes for the imitation, we may denounce our failures for the rejection, of the fraternity. We may criticise, confirm, suggest. We may, indeed, perform no less than four of the Seven Works of Mercy, for we may Instruct the ignorant, Correct offenders, Counsel the doubtful, and Comfort the afflicted.

In this spirit, I venture to speak of my garden in 1867—meekly, as a learner, and with no claim to teach. I take off my hat to all Prime Masons; but I offer my arm cordially to the Entered Apprentice and to the Fellow-Craft, for a walk and a talk among the summer flowers. We will enter first the department called "the Bedding-out," and we will pass hereafter from that brilliant vestibule (if my companions be not weary) into the palace of the Royal Rose. *S. R. H.*

HERBACEOUS PLANTS.—No. VI.

(*Continued from p. 951.*)

CENTRANTHUS RUBER and its white variety are good showy useful plants—capital on banks in semi-wild places. There is a superior variety of the normal form. Morina longifolia is distinct in habit, both stately and good as a flowering plant, and easily raised from seed. Scabiosa caucasica and graminifolia, Hieracium aurantiacum, Andryala lanata, Catananche cœrulea, and bicolor, Carduus eriophorus, are all respectable plants in their way, and with Onopordon Acanthium (always most effective if placed singly among green shrubs) are plants that may be introduced with advantage. Cynara horrida will be found a most useful thing for the subtropical or indeed any garden. I do not know of any hardy perennial Centaurea that is worth growing, except C. babylonica, which has such fine foliage. C. montana perhaps is as good as any, but if you sow the common annual one, Cyanus, in autumn, and let it flower where sown the following spring and early summer, the effect will be beautiful and continuous. It is also very useful for cutting when treated in that way. The spring-sown plants are very poor compared to those sown in autumn, and this is true of not a few other things which we are in the habit of sowing in spring; as though our climate will not permit anything at all tender to live through the winter that way, yet it should be practised more than it is with really hardy things. The singular Echinops I would give a place to in one or two instances—either exaltatus, banaticus, or Ritro. Liatris spicata, squarrosa, pycnostachya are all nice plants; so, too, is Ammobium alatum, though it may not be hardy or perennial on cold soils; and so, too, is the delicately and long-rayed Erigeron speciosum, and the early flowering Doronicum caucasicum.

What about the weedy Asters which have done so much to disgrace the mixed border and herbaceous plants generally? Well, there are some of the prettiest things among them that you can possibly grow, from the large-flowered Aster grandiflorus, which you will find to flower beautifully against a wall with good exposure about Christmas day, to the dwarf, tufted, and pleasing Aster versicolor, one of the best plants in existence for the front of a mixed border. I have taken considerable pains to ascertain the best of the Asters cultivated in this country, and can safely say that some of them are as well worth growing in a garden as any autumnal flowering plant. I would particularly recommend A. elegans: it or a coarser and less beautiful form of the same species being grown under the name of cordifolius. This is a lovely and graceful kind, the branchlets weeping with the weight of the profusion of flowers—"French white" in effect a little way off—a beautiful plant for the middle of a border, or for association in almost any position with the finer autumnal-flowering herbs. I like it, on the whole, better than any other Aster, there being a peculiar grace about the plant as well as a profusion of pleasingly-coloured flowers. It comes in before Novæ-Angliæ and Novi-Belgii, and thus has a much better chance of opening than later kinds, which often get knocked out of condition by bad weather before they have had an opportunity to open. Fine, too, is A. turbinellus—a mauve-rayed, rather large and free-flowering plant, inclined to spread wide into a neat densish bush, nearly 3 feet high, and a capital plant for the mixed border—worth a dozen such kinds as we have been accustomed to see in it. To contrast with such tallish ones as these, you may descend to a lower and neater type than was ever prevalent in the mixed border. A. versicolor is the best dwarf Aster that I know of, but A. Reevesi and pulcherrimus are smaller still, very dwarf in fact, and good in flowering qualities. A. linifolius is also a pretty and dwarf species, worth a place in a full collection. A. repertus, a free and fine kind, growing about 4 feet high, profusely bearing pale lilac flowers with yellow centres. A. Drummondi, tall and rather good. A. mutabilis, somewhat like turbinellus, but smaller. A. dumosus, a most profuse flowering fine kind. A. lævis, a good blue kind, somewhat over medium size, a nice border plant. A. Amellus, rather dwarf and simple in habit, with bold blue flowers, early, and one of the best known and most cultivated, though not so desirable as versicolor or elegans. Of course in such an enormous genus as this it is nearly impossible for one to see all the kinds one would like in flower, and therefore I do not know as much about the genus as I should wish; and one called coccineus, which has been recommended to me by a good judge as desirable, I have not seen. A. ericoides and horizontalis, though usually considered worthy of a place, are not above medium rank. One called Shortii I have much hope of; it is of spreading, elegant habit, and has medium-sized flowers of a delicate mauve. A. Novæ-Angliæ and A. Novi-Belgii have long been known as good kinds; in my opinion, though fine, they are not so good as others mentioned here, because not so refined in habit, and a little too late. A. patens and monstrosus, a neat dwarf free-flowering kind, are also good; as also are the dwarf and pretty well known A. alpinus and A. albus, A. sericeus, pretty and distinct in foliage, A. foliosus, neat and late, and A. altaicus. This is all I remember of the really ornamental kinds of Michaelmas Daisies. There are scores of other species, or reputed species, not worth a thought. Strongly recommending the genus to such of your readers as wish to make distinct and pleasing arrangements in the garden in autumn, I pass on to the Solidagos: their chapter will be shorter than the preceding. I have seen a great many Solidagos in my time. I have seen them occupying a place in gardens often, but never beautifying it. The bloom is short and very poor at its best. These, and such as these, are the subjects that have cast discredit on hardy plants. Ill weeds grow apace, and such as these overran the garden, and with their coarse, ugly forms obliterated the really beautiful. I would almost as soon plant Groundsel as Solidagos in my border. Some people, who have an idea that every plant is entitled to respect, may think me wrong here; but in vegetation, as in many other things, there are two poles, from one of which we should continually endeavour to remove. We must select our plants as carefully as we do our books—if bad and useless put them out of our sight. Since writing the above I have met with A. pyrenæus, a very large flowered kind, producing quantities of flowers too; and I should like to add that the names of the Asters in this paper are simply those by which they are best known in our gardens, and may be in many cases faulty. *W. R.*

(*To be Continued.*)

NOTES ON THE ART OF GROWING ROSES OUT-OF-DOORS.

(*Continued from p. 1166.*)

SECTION XV. *On the Pests of the Rose Garden.*—Unhappily this is a large subject and an obscure one; yet on the precautions that are taken for the defence of your favourites much of the success will depend. These precautions shall be mentioned in order of time. As soon as the stocks are planted and cut to the desired lengths, a little thick paint (or some similar substance which can resist the weather) should be smeared over the end of each stalk. A like precaution is useful, though not so absolutely necessary, when the Roses are pruned in the spring. The object of this proceeding is to prevent an insect laying its egg in the pith, where the grub will burrow hidden during the summer, and, after changing, eat its way out in the autumn, leaving a hole which admits the wet, and leads to a slow but sure decay of the head of the plant.

In the early spring, as soon as the sap begins to rise, the newly-inserted buds are liable to be attacked by the bullfinch. If they have been inserted upon the side of the branch, they will not be so much in danger. If it is particularly desirable to save some particular bud, a bit of Furze or Fir branch may be tied over it, but the risk is not great enough to make it worth while to do this generally.

In April, or even sooner, that insidious and dire enemy of the Rose grower, the bud-worm, begins its ravages. It defies all modes of warfare except the hand-to-hand combat. It must be actually crushed. Before a leaf is formed it may be discovered—a tiny brown, wriggling grub, eating his way into the bud, betraying his presence by a minute heap of excrement at its extremity. A small needle fixed into a little wooden handle is a good instrument to dislodge him. The bud will break again at the side, and no harm be done. If the bud-worm is overlooked, he lurks about the points of the young shoots, now in the axil of a leaf, now rolled up in the leaf itself, but his ultimate object is to attack the flower bud; if once he touches this the blossom is fatally destroyed, and unless these grubs are sought out, it often happens that every blossom of an entire plant is consumed by them.

As spring advances, other caterpillars innumerable make their appearance. Some ensconce themselves in the leaves, which they sew together. Some stand out like little twigs from the leaves and branches; some prey exclusively on the opening flower buds. They must be crushed. Stratagem is useless against them. There is, however, one plan which is useful. Give the stake to which your plant is tied a sudden knock; many of the caterpillars in alarm precipitate themselves to the ground; but in doing so they spin a thread, and if simply left to themselves remount at their leisure when you are gone. Therefore make a sweep round the tree with your stick to break these threads. You will find a lazy black fly settled upon your Rose plants—kill it; it is laying eggs to become caterpillars. Suspect all insect life.

With the exception of the bud-worm, there is no pest so great as the aphis. The aphis is endowed with most extraordinary powers of reproduction, and multiplies with astonishing rapidity. In the early spring, however, they appear by twos and threes, and the true policy is to destroy them as quickly as they are seen.

If, however, they begin to multiply upon the plants, the best remedy is simply to syringe well with a garden-engine on several successive evenings. They should be syringed on both sides, else the aphides on the further side of the branch escape. The aphis may also be destroyed with certainty by dipping every branch into a mixture of soft soap and tobacco-water, or a decoction of quassia. But there is much risk in this process of breaking off the shoots; and unless the operation is performed just before rain, the plants must be afterwards syringed to clean them.

The aphis will be observed to attack unhealthy plants more seriously than healthy ones. If there is an old, worn-out Rose tree against a wall, it is likely to be covered with aphides in the spring, and from it they will spread over other plants in the vicinity. Such an old tree is better removed.

The attacks of vegetable parasites in the form of Fungi are even more destructive than insects. Indeed, it is in this form that many soils manifest their unsuitableness to the growth of Roses. The plant becoming weakened in its growth, and the vitality of the tissues diminished, the Fungi fasten upon them. The leaves become mildewed, or covered with rusty spots on the under side. They then gradually wither and drop off, and the plants are leafless by the end of July as if in winter. With the Perpetuals, however, it usually happens that after a few weeks' rest in this condition they make fresh shoots, and autumnal flowers are formed.

The object to be kept in view in this case must be to maintain the vigour of the plant. On hot soils it is a good plan to place a layer of rather fresh manure on the surface of the soil, to keep off the heat of the summer's sun. It is not however well to place this on the soil too early in the season, else the plants, though they grow luxuriantly, do not flower well. Rather wait until the flower buds are formed, and then mulch the plants. Your main object, however, must be to discover that portion of your garden where the plants seem to be most healthy, and to make your Rose bed there. *An Amateur.*

(*To be Continued.*)

Home Correspondence.

Variegated Zonal Pelargoniums.—I agree with your correspondent "A Flower Gardener" (see p. 1098), as regards what he has said respecting the unsuitableness of the greater portion of the Variegated Zonal Pelargoniums exhibited at South Kensington on the 17th of September for bedding purposes; and I consider it quite necessary that at any future exhibition of these beautiful plants there should be separate classes for varieties suitable for bedding purposes, and other classes for varieties suitable for pot culture only—the kinds with their delicate leaves and perfectly accurate markings. Those approaching the florists' *beau ideal* are worthless for bedding purposes. What is most wanted in the flower garden is a grand display of varied colour; it is not necessary that every leaf should assume a definite shape, nor that its markings should appear just as if each leaf had been made by machinery. Nature

is not always so exact in her productions as man—neither is it necessary she should be so. For bedding purposes we want distinct and distant effect, especially in places where the flower-beds are surrounded with Grass; for it is very seldom in this constantly varying climate of ours that we have many fine days together, and when the Grass is wet either with dew or rain there are very few ladies or gentlemen who will run the risk of wetting their feet merely for the purpose of going to see if every leaf on any particular bed is perfectly symmetrical in form, and its colours properly arranged. I could appreciate as well as any one the florists' *beau ideal* of a Variegated Zonal Pelargonium, but fear I shall have to wait a very long time before such a pleasing sight will appear before me; and if we could get these pleasing forms of floral beauty with sufficient vigour and constitution to enable them to bear the inclemency of our constantly changing climate, I should be one of the first to welcome their advent. All who have watched the growth of the beautiful Mrs. Pollock in pots will have noticed that the leaves do not vary a very great deal one from the other; the reverse is the case when she is planted out in the open ground; yet we must acknowledge Mrs. Pollock as the type for our guide as a bedding Pelargonium: Mrs. Pollock will grow away as freely as any of the plain-leaved varieties. What we want, then, for bedding purposes are varieties, vigorous and free, yet compact in growth, like Mrs. Pollock, but with their colour more definite and perpetual. This, I think, can only be done by getting a greater substance in the leaf. Where the leaves are thin and transparent, the colour rapidly fades, either in bright sunshine, or in dull weather. All varieties, therefore, of this class should be considered only fit for cultivating in pots, in houses or frames, where they can be protected from sudden storms, and shaded in bright sunny weather from the direct rays of the sun; a hot bright day, or three or four wet days, are alike fatal to their beauty, unless the house or frame in which the plants are grown is provided with the means of drying the air in the latter case, and with the means of shading in the former. I have great hope of being able to produce a class of variegated Pelargoniums from the hybrid Seedlings referred to at p. 1097, that will bear a much greater degree of sun-heat without fading, and a greater degree of damp, moist weather without decaying. The leaves are of great substance, handsome in form, and their habits erect and branching; the stem seems much harder, and better able to resist moisture than do the ordinary scarlet Pelargoniums. I have this day cut some of the plants up for propagating, and was very much struck with this difference in the substance of the wood. The leaf-stalks also seem much firmer than those of the common zonal type. The habit of the plant is very graceful, and they appear likely to flower very freely; one of the plants, which is not more than 8 inches high, and not having more than eight fully developed leaves on it, is already showing a truss of bloom. I am very sanguine of being able to produce from these hybrids all the various shades of colour to be found in the Variegated Zonals, also the Bronze and Yellow Self Pelargoniums. But I am digressing from the subject and purpose of this letter, which is to suggest the propriety of having classes set apart for bedding Pelargoniums, and others for varieties only fit for cultivation in pots. In the latter case the judges may be as particular as they may think proper about adhering to form and distinctive marking, but for bedding purposes I contend that it is perfectly unnecessary. I hope to see a schedule soon published, embodying the suggestions of Messrs. Groom and Grieve (see pp. 1046, 1049), with any other improvements the Council of the Royal Horticultural Society may think fit to introduce. It is also necessary that the time for the show to take place should be definitely fixed, and the schedule in the hands of intending exhibitors, with as little delay as possible. There should also be the same provision made for the Bronze and Gold Zonals with regard to their fitness for bedding purposes or cultivation in pots, for there is a great number now cropping up that are useless for bedding purposes, and yet very beautiful as pot plants. *J. Wills, Huntroyde.*—I admit that many of the Tricolor Zonal Pelargoniums may be found too delicate for ordinary bedding purposes, but this will not be the case with the Gold and Bronze varieties, for I know that many of the plants lately shown in this class were grown out-of-doors, and they always show their colours best when freely exposed to the weather. It would, I think, have been an easy matter to have selected six or 12 of the most striking of this class well adapted for decorative purposes. Among bronzed varieties I will take Her Majesty, Beauty of Ribbledale, Perilla, and Model; from the bright gold I would select Countess of Kellie, Egyptian Queen, Mrs. Todd, and Kentish Hero, as likely to prove best, and your correspondents may plant any one of these out without fear as to their not succeeding. I think that the bright Gold and the Bronze varieties should be formed into two separate classes at exhibitions, there being distinction enough between them to call for such a separation, which, if done, would make the labour of judging them far easier and more satisfactory than it is at present; and I am of opinion that there should be a prize offered for the most effective variety in each class, otherwise some of great merit as bedders may be overlooked. Among Tricolors, Queen Victoria may not answer every requirement, but I believe that this is the one which will be more used for bedding, than any other of the newer kinds, its colours being brighter and deeper than Mrs. Pollock, and its habit of growth more robust and vigorous. *W. B. G.*

Mildness of the Weather—Many of your correspondents must doubtless have been struck with the unusually mild state of the weather with which we are favoured, and with the prolongation of summer flowers. It may be worthy of remark, that this day (November 26th) from the open garden here, I have gathered a basketful of beautiful flowers, consisting of Roses, Chrysanthemums of various kinds, Fuchsias, Calceolarias, Heaths, Mignonette, Jasminum nudiflorum, Wallflowers, Michaelmas Daisies, &c. Russian Violets are blooming profusely. Dahlias were untouched by frost up to the 23rd. Trees seem to retain their foliage unusually long, and, but for the shortness of the day, we might forget that we were so near to the close of the year. *P. R. Davidson, Gr. to G. J. Yarburgh, Esq., Heslington Hall, York.*

The Nomenclature of Training.—We must, I presume, appeal to the Editors, to furnish us with distinctive names for the different forms of trained trees, in which at present we are lamentably deficient. As far as my knowledge extends, we have only two kinds of trained trees on our walls and in our gardens: (1) the fan-shaped—a very applicable name—after which form we train Peaches, Nectarines, Apricots, Plums, and Cherries; and (2) the espalier, or lateral trained trees, the form in which our Pear trees have been trained against our walls for ages. The term espalier is, however, used in England for lateral-trained trees planted by the sides of our garden paths. How, then, shall we distinguish wall trees trained after the same mode? The word "cordon" is excellent for the single, double, and quadruple trees for edgings, and also for diagonal single-stemmed trees, but when a tree is trained to a wall with many divergent lateral branches it should be distinguished from the espalier by some appropriate name. The "palmette" does not seem to convey a just idea of the form of the tree, as one thinks of the Palm leaf, palmate (our English word, according to Webster), "resembling a hand with the fingers spread;" this is in accordance with our fan-shaped wall trees, but cannot apply to our lateral-trained wall Pear trees. We must, therefore, try and invent some appropriate name. The French gardeners seem to confine the name espalier to trees trained against walls only. We may perhaps apply the term to all our lateral-trained trees, distinguishing our wall trees by the name of wall-espaliers. Pray assist us. With respect to Mr. D. Thomson's kind reminder I beg to say that the passage in question was written upwards of 20 years ago; it was then applicable, it is not so now. If he again reads what I have said he will see that I find no fault with cordons for edgings, "barring" the wires, which should be extinct; neither do I find any fault with the Montreuil system, or the management of pyramidal trees as now carried on. I alluded to some beautifully trained trees at the Jardin des Plantes, which I think Mr. R. Thompson well described; it is some 10 or 12 years since, but I remember that for two consecutive years they had no fruit on them: on my noticing this the *savans* laughed, and said they were not intended to bear fruit but leaves, and to show the perfection of training. Mr. D. Thomson will see that I gave no blame to common-sense training, but, in common with experienced French gardeners, merely half ridiculed the fantasies of training, so numerous and so useless (see fig. 3, p. 1191, and M. Brèhaut's figures in the *Illustrated News*). The great object of my writing has been to counteract disparagement of English gardeners and English gardening. I feel a sort of old-fashioned patriotism which prompts me to take up the cudgel when the old country is libelled; and I repeat, that in no country in the world is gardening so well understood, or gardens so perfect, as in Great Britain. *T. R.* [The subject of nomenclature is under consideration. Eds.]

Fruits and Vegetables.—I can recommend strongly the Early Smyrna and Primavis Frontignan Grapes. The first is of delicious flavour, and the other is very good. I grew them by means of solar heat only in my Vinery, together with the old Black Hamburgh. They were in 15-inch pots. I have since added three more of each, and one Vine each of Foster's White Chasselas, Musqué de Sillery, the Early Silver Frontignan, and the Early Golden Frontignan. I obtained them of Mr. Rivers. I prefer the Early Smyrna to any other variety of Frontignan. The only fault I could find with any of the many Muscats and Frontignans he grows, was, that the flavour of the Muscats, and also of Frontignans, wanted a little variation. I gave this season to two amateurs some of the berries of the Early Smyrna to taste; they thought them delicious, but not so good as the Canon Hall Muscat, which they had tasted in the morning at Mr. Evans's, of Chettle. Still there is a vast difference between the expense of solar and artificial heat. I recommend people with cold Vineries, or a ridge Vinery, which I saw and admired a few days ago at my friend Archdeacon Huxtable's, to grow Frontignans. I recommend the early Summer Beurré d'Aremberg. I had a capital crop on a pyramid, and very healthy. My Quince stock Pears have suffered from blight the last two years. I have moved them to a sunnier and better place, and nearer the pump. As regards vegetables, I recommend the Yorkshire Hero and Gryffe Castle (seedling) Potatos. They are the only Potatos here that have been first-rate this critical year, in which "closeness" is the general order of the day. I received several others with the Gryffe Castle seedling from the same kind friend, and they were good, and I think will be A 1 another season, planted earlier, viz., Upwards and Onwards, Pebble White, Shutford Seedling, Prolific, and the true York Regent; I say true, for there are in Yorkshire 50 Regents that go by that name. I have other Potatos, usually excellent, but they are very "close" this year. As regards Cabbages, I have never yet had a better than Green's Early. I have them as good now as in the spring of the year. I sow them in rank in July and August, and thin them to proper distances. By this means I get them as good at the fall as at the spring. I do not earth up Cabbages, but keep the ground hoed between them, on the flat. I am surprised, seeing the Potato is "the noble tuber," and indispensable for rich and poor, that the prizes for sorts, or collections of Potatos, should be so unworthy. *W. F. Radclyffe, Okeford Fitzpaine.*

Grapes in Bottles (see p. 1191).—If I remember correctly this is an old idea, and was broached many years ago in one of our English or American periodicals. There is not the least doubt of its having succeeded well in France, the thin dry air of that country being so favourable, but in our moist climate the plan is likely to prove—to use a Shandyism—"hobby-horsical," and will probably end in being a "mare's-nest," or rather, each bunch will by the end of December be a nest of mould, and an interesting study for the fungologist. It seems odd to find Mr. Barnes (see p. 1168) with his matured judgment, thinking the bottle method of keeping Grapes feasible in the moist climate of Devonshire; it is true that in a well lighted, well heated, and well ventilated room, with a southern exposure, and in a dry winter, bottled Grapes may probably be kept in a sound state till Christmas; "mais le jeu ne veut pas la chandelle," for they would keep much better on the Vine in a Vinery, with but moderate care. A few years ago I read in one of the American periodicals a very interesting method of keeping Grapes till late in spring; it was simply wrapping the bunch in thin white paper, and placing a number of bunches in a single layer in drawers in the living room, in which constant stove fires were kept. This, coupled with the light dry air of the United States, preserved Grapes perfectly. Like your correspondent "W. R.," I was taken with the new idea, as he was with the bottles, and without reasoning on the difference of climate, I set to work in 1859—a season remarkable for its warmth and dryness—and wrapped some bunches of Black Hamburgh Grapes, thoroughly ripened, in tissue paper. I then placed them in paper boxes on the mantel-piece of my study, in which a constant fire was kept daily. On examining my Grapes some weeks after Christmas, I found them shrivelled, and raisin-like, but very rich and good; still they were not plump, juicy Grapes. In 1860 and 1861, the seasons were wet and cold, and my Grapes in boxes rotted; and since then I have not tried my hand at keeping Grapes through the winter, otherwise than on the Vines. Bunches of Grapes in a room would have a good coating of dust before the spring, unless put in bags, which would be apt to bring on rot. The truth is, no method of keeping Grapes is equal to that followed by our gardeners; and no winter Grapes in Europe can be compared to those from our English Vineries in December, January, and February, up to March. Where on the Continent of Europe, say in the months of January and February, could such Grapes be seen as our Alicantes, Lady Downes' Seedling, West's St. Peters, Muscats, and Barbarossas? It is owing entirely to gardening skill that such results are obtained, and to a lack of gardening skill and enterprise that such things are not seen in France. It seems incredible that with the most favourable climate in the world, Paris is not abundantly supplied with winter Grapes. The geographical position of France is so remarkable, so perfect, in giving variation of climate, that one seems to wish that two or three Mereditns were settled in the south. If I were a young man with a few hundreds of pounds, I would join one or two with a few more hundreds, and settle in the south of France, build cheap unheated Vineries, and grow Alicante, Mrs. Pince's Muscat, and Lady Downes' Seedling for the winter supply of Europe, sending them to Paris and London by the ton. Such enterprisers must, however, make themselves Frenchmen in language, a dumb Englishman would do no good; for, unless the language is understood, so many things are misunderstood. I hope to live to see the day when some clever English gardeners will show the world what a fine climate can do. *Muscadine.*

Baron de Rothschild's Garden at Ferrières.—I have just read Mr. Rivers' article on French and English gardening, in which it is stated that an English gardener is employed by the Baron to cultivate his Vines. In this Mr. Rivers is completely mistaken. For many years I have been gardener at Ferrières and at Boulogne, and have never known an English gardener on the place. I grow all the fine varieties of English Grape Vines, and I may say that preference is always given to the Chasselas de Fontainebleau, and the Frankenthal, especially the former, which is preserved from year to year by the method described by your Paris correspondent in your columns. If Grapes are obtained from Covent Garden it is more for show "*parade*" than anything else, for the Chasselas is very superior in flavour to the large bunches of Black Alicante, St. Peter's, Barbarossa, or Child of Hale, which are of third-rate quality. *F. Bergman, Ferrières.*

Preserving Ice.—If a "Poor Countryman" (p. 1193) will write to Mr. Elworthy, gardener to Lord Leigh, Stoneleigh Abbey, Kenilworth, he will give him, I am certain, most willingly, his experience of the best and most simple method of preserving ice that has come under my notice. *F.* [Perhaps Mr. Elworthy will kindly explain his plan in our columns, *pro bono publico*. Eds.]

Hardy Pears.—I hope many more will follow up G. Willers' useful notice (p. 1194) both in England and Scotland. Information of this sort is the very essence of practice, and will, I trust, change the current of our notions; the large Pears being, as Mr. Tillery justly remarks, not so rich in point of flavour as one of our common vegetables. If I go further than he does, it is simply to explain that my experience up to this time has proved that what are termed "cooking" Pears have received the name because they cannot otherwise be eaten; but no French cook will use one of them if he can get a good flavoured eating Pear. The latter does not require so much stewing, and there is not the least comparison between the two when prepared

for use in this way, any more than in the uncooked state. I have been told by a nobleman from the northern parts of Scotland, that they had been eating small Scotch Pears from old orchard standards this autumn, infinitely superior in point of a perfumed-Pear flavour, to the large fine specimens from our walls; and that there was a plentiful supply for the steward's room and hall, as well as for the parlour. *J. F.*

Large Vines—At p. 1093 you notice the Vine at Silwood Park, and it may be interesting to some to learn a little more than you have stated respecting that once flourishing Vine. I can endorse all you say in regard to its beauty. I think I may say that no other can be found to equal it in that respect, but I imagine that you have been wrongly informed as to its age. In 1837 I was informed that it had been then planted nearly 50 years; be that as it may, it had at that time nearly filled the house, which had been lengthened a few years previously to 123 feet. There were then said to be 2000 bunches on it, but I think 1600 nearer the mark. The bunches and berries were very small, but well coloured. The following year I gave it a partial rest, not more than 1000 bunches being allowed to ripen on it. My employer, Mrs. M. Forbes, wished me to do all I could to keep it in health, therefore all the top soil was, where possible, removed, without damaging the roots, and fresh loam and manure substituted; several old Apple trees were removed, and everything taken away except some Asparagus beds in front of the house, which were full of Vine roots. Beside top-dressing with manure every year it received three good soakings of manure-water from the farmyard, the last being given when the Grapes began to colour. In a few years the leaves were nearly double the size which they were when I first took charge of it, the bunches and berries too were much larger. No correct account was kept of the produce till the year 1846; in that year, when I had finished thinning, my employer wished me to count the bunches, which numbered 1860, and when ripe they weighed as nearly as possible 6 cwt. The following year 2000 bunches were taken from it, but the weight did not much surpass that of the previous year. Subsequently, till the year 1851, the number of bunches did not exceed 1800, but that year 2000 bunches ripened, and every bunch coloured in perfection. Such was the vigour of the Vine that year, that when a lateral escaped the eye, it brought with it two and three bunches of Grapes, which of course were removed along with the lateral as soon as perceived. It was no easy task that year to thin the bunches, and to keep all laterals back. In general there were more bunches taken off in a green state than were allowed to remain on. All who saw the Vine that year will not readily forget the sight. When partially coloured, and looked at from one end, with the head a little inclined, the display of fruit was grand in the extreme. I do not think that it ever came quite up, however, to its parent in size of bunch or berry. I have tried several plans to preserve the Grapes, but never could succeed in having them far in the new year. About 100 bunches were taken off in October, and put in a well-aired fruit room, and some were subjected to all sorts of trials, but as the new year set in, some moulded, others shrivelled; while some few bunches from another Black Hamburgh Vine would always keep until February. I had nearly forgotten to mention that fires were occasionally lighted in the early part of the season, and continued till the bunches were ready to thin; after that no fire heat was employed till the autumn, when it was used to keep the fruit from damping. In the year 1852 the property passed into other hands, so that I had no further opportunity of seeing the Vine in question until passing three years ago I called to see it once again, but could only inspect it through the glass, as the gardener was from home; I saw, however, quite enough to convince me that it was going back. All the Asparagus beds were destroyed, and Cabbages were growing vigorously in their place; I am therefore not surprised to hear such a sad report of it as has been given, and I trust that something may be done ere too late to renovate this once famous Vine. *G. Brown, Gr. to E. Mackenzie, Esq., Fawley Court, Henley-on-Thames.*

Cordon Planting.—I hope you will allow me a small space in your columns to express my thanks to "W. R." for the gentle correction he administered to me in the *Times*. It has been received by me without the least feeling of resentment. But, unfortunately, I feel self-convicted of an obstinate and mulish temper, for I still adhere to my opinions and to my "mischievous" statement in the *Times*, viz., that from 2000 to 4000 cordon trees may be planted per acre. Your readers may be assured that I did not advise this. I simply said that it could be done profitably. The few years of experience that I have had in fruit growing, must be my apology for rushing into print with such wild notions. *T. F. R.*

Rose Stocks.—At p. 1166, in the "Notes on the Art of Growing Roses Out-of-doors," by an Amateur, there occurs this passage:—"There is a point of some importance to be attained in forming healthy standards; it is to get the bark to heal over the top of the stem. Unless this is secured the plants become unhealthy and die." Now if Rose growers would adopt the reasonable course of raising their own stocks, instead of sending out into the highways and hedges for them, there would be few deaths from this cause, and none from the decaying clubs usually accompanying standard stems drawn from the wilds. Standard Briars may be easily raised by striking the long shoots from an established stool, or by means of strong healthy cuttings planted about this time, which will root and grow freely during next summer; the following winter they should be cut down close to the ground, and when the buds begin to push, rub all off but one, and when that has grown long enough for the purpose, and has become sufficiently ripe, it should be budded at the side, the same as is recommended for the Manetti. I recently purchased some standard Roses from an eminent grower, and having cut off the decaying heels, have forwarded them for your inspection, when you will doubtless agree with me that standard Briars should be raised at home. *Abbey Wood.* [Rough fibreless knobs, covered with Fungus. EDS.]

Slugs.—Many thanks to "W. T." for his paper on slugs (see p. 1023), but I have no doubt some of us must differ a little from him in his favourable opinion of some species, on account of rather sad experience. "The gardener's worst enemy" is not always Limax agrestis. There is, perhaps, no question at all about its being the most numerous, but I have found it much more easily to be got at than some others to which he refers. You may almost invariably find it out after a warm shower, immediately after sunset (or during a dewy evening even before), and after sunrise during a dewy morning,—hence I suppose the name Dew-snail has been applied to it. It invariably feeds above ground, which is not the case with, for example, Arion hortensis and Limax carinatus; these feed under as well as above ground, and are both very troublesome in a Celery ridge, an Asparagus bed, or a plot of Potatos, to say nothing about Carrots and many other underground vegetables. Neither can some of us speak so favourably of some others as "W. T." does. Arion ater, for example, is very destructive if it does chance to stray into the garden; a newly planted Dahlia stands but a very poor chance before one of these monster slugs: and so with many other things of which slugs are so fond; no matter how choice, they do not spare them on that account if they come in their way. And of the last two mentioned in "W.T.'s" list (namely, Limax flavus and Limax maximus), I am afraid many can record sad depredations. Do they not sometimes by some means get into the Cucumber or Melon frame or pit? And woe be to the plants if they are small. Fruits in houses or pits, but much worse against open walls—the Peach, Nectarine, Apricot: indeed, any such fruits—are attacked by them; and these, too, are such fast and long travellers, that they will come an almost incredible distance in a night. I may again refer to Arion hortensis in a quarter of Cabbage, Cauliflower, or Lettuce. If the plants have been grown quickly, and are consequently tender-stemmed, they are often eaten under ground, sometimes entirely through, at other times all round, to the destruction of the plant, and then, as I have before said, they are not so easily got at. They do not so early appear above ground. Some years since I had constructed what I called a "lime-duster," and with some two or more of these a very large space may be got over in a very little time, and so little lime is used that a slight shower quite effaces it. To meet with these (Arion hortensis and Limax carinatus) we usually commence some two hours after nightfall, and continue sometimes till midnight. Of course an extra person is required, besides those dusting, to carry a light, so that the crop may not be injured by the foot. *George Lee, Clevedon.*

Coleus.—Your correspondent "R." (see p. 1117) mentions in his remarks on foliage plants for sub-tropical gardening, that the true way to take much of the beauty of colour out of the Coleus is by means of planting it in shady situations. Now the best place that I find for foliage plants is a shady situation. Having used the Coleus extensively during these last three seasons in ribbon borders in connection with Golden Fleece Pelargonium, the contrast between the two was considered a great success, exposed as they were to the full summer's sun; but towards the autumn, when the sun's rays were not so strong, the Coleus improved in colour considerably, fully developing its yellow margin. This season, however, it was not used in any of the terraces. Having a good stock of it in hand I had it planted, with other subtropical plants, in partially shaded nooks by the sides of shrubbery walks, where it did not fail to display its true colour, and continued to do so from the time it was planted out until it was cut down by frost. It was completely shaded from the noon-day sun, and only had sunlight sparingly in the morning and evening; yet nothing could be more beautiful, and it was much admired by all who had the opportunity of seeing it. *J. Miller, Worksop Manor.*

Duration of Flower Shows.—If exhibitions cannot be made to cover expenses by a single day's show, then it is wrong to object to a moderate extension of time; but the duration of exhibitions now proposed is equally unreasonable. There is no analogy, I think, between the International of 1866, the Manchester and Bury Shows, and what may be advisable or practicable to carry out for a continuance in any one place. The International was an exceptional affair, which might be repeated in 10 or a dozen years hence; but attempt the thing every year, and I feel certain, from the way in which numbers of the principal exhibitors have expressed themselves to me, that it would be a failure if the 10 days' duration, or anything near that, were attempted: the same thing applies to Manchester. The Horticultural Society's Show, as held at Bury, differs in many respects from others, for it occurs late in the season, when exhibitors have more time on hand than earlier in the year; the weather, too, is almost certain to be warmer during the nights then, and plants are not near so tender as earlier in the season. The exhibition, moreover, being intended to be moved about from one part of the kingdom to another, is almost sure on account of its novelty to be supported by exhibitors as well as by the public. I admit that exhibitions of some sort can be got up, no matter how long the time, as there are always a certain class of people who will rush in if they think others may be absent, but will such exhibitions be a means of instruction to the rising generation of gardeners, or will they interest the public? It is said that there is a disinclination on the part of exhibitors to fall in with the plan of extending the time over three or four days, and I think reasonably so. I say most distinctly, that where exhibitions, either from bad management or from want of taste on the part of the public, cannot be upheld without resorting to such a length of time, by all means let them be given up. How is it that the great two days' shows in the north can be made to answer? Their expenses are as heavy as those of the south. And most of them meet the exhibitors liberally with the assistance of men, horses, and some of them with the whole or part of the railway carriage in the case of distant exhibitors. In fact the secret of their success rests on the perfection of their arrangements, and the thorough understanding which subsists between the committee and the exhibitors. There is another matter connected with such long shows that I would rather not have had occasion to mention, as any allusion to money matters gives the thing more of a business complexion than I like to introduce into it; but unfortunately exhibiting, especially from long distances, cannot be done without heavy expenses. There has been a good deal said about a proportionate increase of prizes for long shows, but this has hitherto been much more in the way of sound than reality. Even at the International, in the principal classes, the increase was only 20 per cent. more than on the occasion of single-day exhibitions. As one day has been found insufficient, it would, at all events, seem more reasonable to try two days than to rush into something like a week at the first onset. Your suggestion of a scale of expenses, regulated according to distance, is obviously a step in the right direction. *Thos. Baines, Summerfield, Bowdon, Cheshire.*

Strawberries in November.—We have here this day (Nov. 26th) gathered some half-dozen ripe Strawberries from a few plants growing in the open ground that have been flowering and producing ripe fruit successionally since the end of August. There is now on the plants fruit in all stages, and the flower stems are coming up as determinedly as ever, seeming as if they would go on bearing until "Strawberries come again." We have but six plants of the variety, which is named Triomphe; but all of them show the same peculiarity, each plant having produced, on an average, three or four ripe fruit per week during the above-named period. I consider this a very interesting variety, by far the nearest approach to perpetual bearing of any I have seen. The fruits produced are not rubbishy, but fair sized, equal to ordinary samples of Black Prince. It is a prodigious bearer in the proper season, the fruits of medium size, conical, colour pale scarlet or cerise, and very pleasantly flavoured. With a hundred or so of such plants as these for autumn supply, it would seem an easy matter to have ripe Strawberries all the year round. *A. F. B., Chiswick.*

Messrs. Jackman's Clematises.—Having frequently heard doubts expressed of late, in reference to the continuous blooming of the above, I enclose a bunch of blooms cut from among hundreds open and opening of C. Jackmanii, rubro-violacea, &c., from out-of-doors, and many of them in pots. They have been blooming all the autumn, which simply proves that all they want is some continued inducement to push growth, which growth is certain to bring bloom. I may add that we are now busy planting beds of them, well made up with rotten manure and fresh soil. As they are planted we add a good covering of rough manure over the surface, and cut the plants down to 1 foot from the surface. In some beds for upright plants we have added a plant or two of the old C. Flammula for scent; the white, moreover, will bring out the rich lilac and violet tints more fully. *J. F., Cliveden.* [A profusion of flowers accompanied this letter. EDS.]

Foreign Correspondence.

Cottage Fruit Growing.—I quite agree with "W. R." that English people ought not to be dependent on the Continent for their Apple dumplings and dessert Pears, and that "live and learn" ought to be their motto. If French gardeners would go to England and learn how to grow Orchids, stove and greenhouse plants, Azaleas, and Ericas, such as are produced at English metropolitan shows, and if English gardeners would come to the Continent and take a few lessons in fruit growing, both would return to their respective homes wiser men.

Seventeen years ago, whilst walking from Oxford to Woodstock, my attention was directed to a thatched cottage smothered with Apricots, the fruit being such as I had never seen before, and seldom since. The occupier was a labouring man. He told me that his crop of Apricots yearly paid his rent. Now what this cottager did then, can surely be repeated in Great Britain a million times over: that is to say, every cottage ought to be covered with fruit trees—even its north wall should be furnished with Morello Cherries or Plums. I have often asked cottagers why they did not do this, and the answers invariably were, that they were too poor to buy fruit trees, or that they only held their cottages by the six months or year at a time, consequently they did not care to plant trees for the benefit of the landlord, or the next occupier.

Fruit trees can be had at very low prices from any of our large nurserymen, and it is surprising that even the rich still plant them by the half-dozen instead of by hundreds. An Apple, Pear, or Plum tree in a hedge takes no more room (and does less harm to surrounding crops) than an old pollard Oak; then I ask why not cut down and sell the useless old stumps that now exist there, and substitute young fruit trees with the money thus produced? In many parts of Switzerland the Apple, Pear, and Walnut are planted all round the fields and often overhang the public roads; and the produce of oil, cyder and fruit for market, often helps the farmer over "rent-day." If this system were adopted in England we should soon be independent of our French friends even in bad

seasons, as it seldom happens that late frosts sweep a whole country. I may mention, as an example, that the frost which we had here on the 24th of May, killed everything in the cantons of Geneva and Vaud, whilst in the cantons of Argovia and Thurgovia there never were such crops before, and hundreds of tons of Apples, Pears, and Plums have been sent from them all over the country.

Let us, however, revert to the English cottage wall—how is it to be covered and made at once an ornament, a profit, and a luxury? Simply, by all landlords and owners of cottages, instead of sending their cotters tough old hens by way of presents, furnishing them each with half-a-dozen nice young fruit trees to stick on their cottage walls as Christmas boxes for 1867. *John Watson, Campagna Lammermoor, Geneva, Switzerland, Nov.* 22.

TRADE MEMORANDUM.

THE following additional intelligence respecting a would-be horticultural agent (see p. 1147) is extracted from the last number of "Notes and Queries."

"*Books Wanted.*—A few weeks ago I advertised in the usual place of 'Notes and Queries' for certain books, and in a day or two received a well-written note (enclosed herewith for satisfaction of the Editor) 'reporting' two that were specially wished. The prices were moderate (15*s.* in all); but suspicion was created by (1) the volumes being described as quartos, while I know they were duodecimos; (2) the postage being marked as 10*d.* and 8*d.*, when 4*d.* or 6*d.* would cover both. Accordingly I sent on the note to a friend in town, who personally called at the address given, which proved to be a grocer's shop and a post office, but no such person as the offerer of the books resident there. On further conversation it turned out that a 'shabby-genteel man, answering to the name,' had asked letters to be kept for him, and had called that morning to inquire if there were not one from Liverpool. Of course the bait in this instance did not catch; but I 'make a note of it' for the benefit of readers of 'Notes and Queries.' The name of the writer and address are as follows:—'W. B. Dean [? Dear], 18, York Road, King's Cross, London, N.' The obliging gentleman may not fancy the honour of such publicity; but he is too deserving for me to withhold it. Perhaps he will see that he knows the next book he 'reports.' Seriously, ought not the police to pounce on such petty pilferers? *A. B. Grosart, Liverpool.*"

Notices of Books.

A Handbook of Vine and Fruit-tree Cultivation under Glass, with a Description of Sir Joseph Paxton's Patent Hothouses. By Samuel Hereman. Third edition. London: 7, Pall Mall East, and 171, Fleet Street.

Mr. Hereman has just issued a new edition of his very useful Handbook, the whole of which has, he tells us, been thoroughly revised, and many important additions made. It may therefore now more than ever be recommended as a trustworthy guide in relation to the subject on which it treats. The cultural directions have the great merit of being concise and clear. On the Vine question, which has latterly attracted so much attention, the author writes:—"Since our last edition, many gardeners of good practice and great experience have advocated the 'extension system,' which would in a few years allow a single Vine to monopolise the whole of the Vinery, in lieu of the 'restrictive system' of one or two rods to each Vine. Of course, where a variety is desired and the space limited, the usual arrangement must be retained, or two or three kinds inarched on one Vine; and we believe it is only where the soil is very suitable, and forms a natural and unlimited border, or where great space can be appropriated to a made border, that the extension system will answer. If the management recommended is carried out with judgment—taking care not to exhaust the Vines by overcropping or irregular forcing, neither overcrowding the rods (one Vine to each sash being sufficient), nor pruning too closely, which may cause shanking; stopping judiciously, rather than cutting any well-grown leaves off, with an occasional help to the border of bone-dust, potash, or mulching, (but not too much manure)—they will, we are convinced, bear well for very many years."

A portion of the Handbook is devoted to explaining the adaptations of Sir Joseph Paxton's patent hothouses for the million, and this part of the subject is profusely illustrated. Altogether it is a very useful manual to put into the hands of a young or inexperienced gardener, and we can but endorse the favourable opinion we have already expressed in reference to former issues.

British Sea-weeds: an Introduction to the Study of the Marine Algæ of Great Britain, Ireland, and the Channel Islands. By S. O. Gray. London: Reeve & Co. 8vo. Pp. 312, tab. 16.

Here is a little book which we would gladly have had in our autumn rambles by the sea-shore. Harvey's "Phycologia" is too bulky to be carried about, and his smaller Synopsis is out of print. Moreover, since the publication of those works considerable additional information has been obtained, not easily accessible to the student. The author of the present work has availed himself of some of these accessions to our knowledge, and has produced the most complete descriptive list of British Sea-weeds with which we are acquainted, illustrated with 16 coloured lithographs from the pencil of Mr. Fitch. Hence there can be no doubt as to the utility of the manual, and probably more could not have been done without unduly increasing the cost of the work. Nevertheless it is a matter of regret that the author should not have facilitated the labours of the beginner by prefixing to his work some analytical Table by which to ascertain the name of any Seaweed he might meet with. It is almost too much to expect of an amateur that after wading half the day among the rocks and tide-pools, he is to employ the remainder of the day wading through the systematic descriptions of orders, genera and species, in which the tyro could not advance far without getting out of his depth. The account given of the various methods of fructification is very meagre, the writer ignoring altogether the extraordinary researches of Thuret and others. In spite of these defects the book is to be recommended for the clear and faithful descriptions of the various species, the author having, as he tells us, derived great advantage from the rich collections of his relatives, Dr. John Edward Gray and Mrs. Gray, as well as from the information he has derived from those highly accomplished naturalists.

Mr. Murray has published a new edition (the fourth) of *Galton's Art of Travel*, which in many respects is a new work, but hardly stands in need of recommendation. Colonists, however, and settlers in new countries would require more of the kind of information which is given in Mr. Lord's "At Home in the Wilderness," noticed in our columns, p. 786, than is given in the present work, which is intended more specially for "travellers" by profession.——The first part of a new series of *Hooker's Icones Plantarum* (London, Williams & Norgate), has just been issued. It contains 25 lithographs, together with descriptive notices, of New and Rare Plants, selected from the Kew herbarium. The plants figured are for the most part of botanical interest only, but some of those represented would be desirable introductions to our gardens, such as the Alsophila Rebeccæ from Queensland, or the Schizæa Sprucei from Brazil. It is interesting to see one of the St. Helena plants figured. It is to be hoped that more of the indigenous plants of that island will be given, as the greater part of these now exist only in herbaria (where indeed they are rare), the living specimens having been exterminated by goats! and other destructive agencies, to the great grief of the botanists, to whom, for many reasons, the original Flora of St. Helena was peculiarly interesting. We may reiterate our opinion that this is a publication which should be issued at the expense of the Government. It is not just that the public treasures should be illustrated at the cost of individuals, a cost which, from the nature of things, is not likely to be reimbursed very soon, if at all.

Florists' Flowers.

So infrequently have new FUCHSIAS been shown during the past summer, that one is led to infer either that the raising of new varieties is not so much engaged in, or else, and perhaps most probably, there are already so many fine varieties extant, that it requires something very good and very distinct to be regarded as an improvement on existing kinds. Mr. Banks, however, has not been idle, but has some fine things forthcoming, which will be sent out by Mr. Cannell, and of which particulars will doubtless appear in due course. That veteran raiser of the Fuchsia, Mr. George Smith, Tollington Nursery, Islington, announces for next year a set of some half-dozen kinds, none of which have been produced at any of the leading shows. Mr. Smith has, however, sent out so many "good things," that he would not peril his reputation by sending out anything of indifferent quality; and most likely he was unable to produce them at the meetings of the Floral Committee. Mr. Bull, of the King's Road, Chelsea, has in his possession two light-coloured Fuchsias, of remarkably fine quality and superb beauty; the one, appropriately named Lustre, has waxy white tube and sepals, elegantly reflexed, and a corolla remarkable for the vivid crimson vermilion hue that pervades it, while the edges of the segments of the corolla are tinted with pale orange. For exhibition purposes the variety bids fair to be one of great value. The other is named Starlight; it has a waxy alabaster white tube and sepals, the latter are broad and stout, and, as in the case of the variety just named, are elegantly reflexed, not curling up into the form of a ball, and losing thereby much of the natural elegance of the flower; but while perfectly reflexed, not absolutely so to the loss of this natural elegance. The corolla is of a clear lake hue, novel in colour, and distinct in character; literally, a large and beautiful flower. The habits of both these varieties are every way excellent, and so short-jointed as to be suggestive of profuse blooming. They will not be publicly shown till the coming season.

No one can inspect Mr. Bull's ZONAL PELARGONIUMS without being convinced that he has sent out some remarkably fine things. But just now there was a house of them, in small plants it is true, but yet productive of rich trusses of bloom. Mr. Bull gets together a set of fine flowers, and before he can get them into size and condition fit to be shown, he prefers to distribute them, and other persons find out the excellencies of individual flowers, and bring them into notice. One of the finest bedding Pelargoniums worthy of a place in the garden is Bull's Commissioner, a most profuse and continuous bloomer, producing good trusses of vivid orange scarlet flowers, thrown well above the foliage on erect foot-stalks; the habit dwarf and compact, and the leaves slightly zonate. Valiant, of a bright rosy scarlet hue, produces flowers of a most exquisite shape, beautifully rounded, and the petals short and smooth. Princess is a hybrid Nosegay variety, of considerable merit, of a rich orange crimson shade, the petals unusually broad and stout. Olivia can be best described as being of a salmon orange hue, dashed with scarlet on the upper petals, of very fine form and quality. But even the foregoing must, for the exquisite form and rich quality of the individual flowers, give place to Rival, the flowers of which are a rich orange scarlet hue, slightly suffused with rose, of exquisite build, very stout and fine, and the habit altogether in keeping with the flowers. Whoever procures the foregoing, will not fail to possess good things. *R. D.*

CHRYSANTHEMUMS AT J. BOWSTEAD'S, ESQ., WIMBLEDON COMMON.—A beautiful display of these useful winter flowers may now be seen in the conservatory here, the stages and shelves of which are covered with them, and the different sorts being skilfully arranged as to colour, the effect is admirable. Conspicuous among them are the different varieties of Queen of England, Her Majesty, White Globe, Francis the First, Mr. Brunlees, Venus, Hercules, Sir Stafford Carey, Cassandra, Grange Lodge Rival, Cloth of Gold, Themis, Prince and Princess of Wales, Anaxo, Luther, Beverley and its golden variety, Prince Albert, Sparkler, Lady Harding, Julia Lagraviere, Prince Alfred, Comet, Jardin des Plantes, and other well-known kinds; while among the Anemone-flowered sorts are fine examples of Lady Margaret, Louis Bonamy, George Sands, Mr. Astie, Mr. Martells, and Queen of Anemones. Among Pompons, which form a brilliant border for the large-blossomed varieties, are the different kinds of Cedo Nulli, Brilliant, Florence, and others; the little round well filled-up flowers of which are very useful in winter bouquets. As regards management, Mr. Vernon, the gardener, states that he strikes his cuttings early in January in a cool frame; when well rooted he pots them off in good stiff loam, mixed with well-decayed cow and horse manure. After a little re-establishment, he then, by means of full exposure, gradually hardens them off, never potting them into larger pots than 24's or 16's. When the pots have become thoroughly filled with roots, the latter are well fed with liquid-manure, which is continued until the plants have done blooming. This last season being very wet has not, however, been so favourable for liquid manure feeding as a drier one. Mr. Vernon never stops his large-flowered varieties, but allows them to break naturally; and by means of disbudding, the produce of each plant is confined to some 16 or 20 blooms, or one to each shoot. Pompons are not disbudded. Chrysanthemums generally are late this year, and Mr. Vernon expects that he will be able to have some of the fringed Japanese varieties in blossom even as late as Christmas. Mr. Shrimpton, and other cultivators in the neighbourhood of Wimbledon, have also good exhibitions of this showy flower.

STOKE NEWINGTON CHRYSANTHEMUM SOCIETY.—In the sketch of the above Society's show, given at p. 1195, it should have been stated that Mr. George's sport from Golden Hermine was named St. George. It is an incurved flower, but at the same time makes a capital variety for exhibition. Hermine is also incorrectly printed Hermione.

The Apiary.

ENEMIES OF BEES.—Dr. Cumming, in one of his letters on "Bee-keeping," which first appeared in the columns of the *Times*, considers the *Toad* to be among the very worst of bees' enemies. But the question arises—is the toad so great an enemy to bees as to merit the severe treatment to which the Doctor would subject him? I much doubt it. Indeed I believe the toad to be a most useful friend to a garden or hothouse. A few years ago an immense toad took up its quarters under the stand of one of my bee-sheds, sheltered by a house-tile resting on two bricks. Here he remained on the watch, and was rewarded for his vigilance by being able to seize some aged, worn-out, ragged-winged bee, whose race was otherwise nearly run, with perhaps an occasional victim in more youthful vigour, which, tired with its long flight, had fallen to the ground, or perhaps some robber bee, which had made a fruitless attempt to effect an entrance into a strange hive for purposes of pillage, but was overpowered and beaten to the earth by the trusty sentinels on guard. My man, a very useful bee-assistant, on showing the toad to me, said that it had been a tenant of its hiding-place for some weeks, but that he had not destroyed it, because he considered it did good in the garden. I also desired that it might not be interfered with, as the garden, being an old one and much overgrown with trees, was infested with insect life; and I believed the toad effected far greater benefit in the destruction of ants, woodlice, and other vermin, than injury by the sacrifice of a small number of bees as a *bonne bouche* for the indulgence of its appetite.

Earwigs.—In another garden, in which I kept several hives scattered over a moderate-sized lawn, I remarked that for some years two or three of the stocks were dreadfully infested with earwigs, one hive sheltered by a small Walnut tree more especially so. On removal of the outer case, the earwigs would be revealed in hundreds, and I always killed as many as possible. On taking off the wrappings of the glass supers, and shaking them over the gravel walk, out they would fall in dozens. No matter how frequently I visited the hives, these nuisances were always to be found in great force. In this particular hive, which for four years was always distinguished for a large population and as the most prolific honey-producer I ever had, the earwigs did not seem to do much injury, notwithstanding their enormous numbers; but with respect to a weaker hive in another part of the garden, the bees seemed powerless to prevent their free access to the interior, and the stock eventually perished. I am not prepared to say that the hive was actually and directly destroyed by the earwigs, but indirectly its fate may be attributed to their agency, as the bees, weakened and disgusted, failed in storing sufficient supplies of food for the winter. From the débris and refuse about their haunts, I should imagine that the earwigs destroyed the bees as well as consumed their honey. I never applied any remedy to keep these insects from so molesting the hives, not knowing of any applica-

tion that would be likely to be effectual, without also inflicting injury to the bees.

Ants.—These insects also used to overrun my hives in great numbers, but I never could discover that they were injurious to the prosperity of well-peopled colonies, whatever might be the case as respected the weaker ones. The sentinels were always ready to pounce upon any ant daring enough to endeavour to effect an entrance. I know of an instance in the apiary of another bee-keeper, where a strong colony of ants established themselves on the crown of a straw hive under its outer covering. Both bees and ants flourished together during the entire summer, neither appearing in any way to interfere with the other. *Apiator.*

Miscellaneous.

Aubrietias.—All the Aubrietias are excellent dwarf-growing spring flowering plants, and are likewise of great value for rockwork. A. deltoidea and A. deltoidea purpurea, are the old deep lilac kinds, but very attractive indeed in the early spring. It is worth a journey to Kew early in the year to see the Aubrietias in flower on the borders, as well as in a bed near the museum. These old varieties are now distanced by the two new ones, A. græca and A. Campbelli; the latter appears to be tinged with rose, and both are larger in size than the foregoing, and better coloured. They are somewhat scarce at present, especially the latter variety, but still a note should be made of them for use when they can be got. They are excellent for raised borders, or for borders edged with a kind of low rock-work, or any material that raises the level of the border above that of the ground immediately by it. Planted close to this edging, the Aubretias hang down nicely over it, as well as forming an outer edging to the flower bed. If it can be avoided, they should not be disturbed yearly, as they are most effective when forming good-sized tufts. This makes them so well adapted for rockwork, as where they obtain good undisturbed root-hold they soon grow vigorously. They are easily propagated by cuttings taken during the summer. *Country Life.*

Garden Operations.

(*For the ensuing week.*)

PLANT HOUSES.

Chrysanthemums, some of which will now be getting past their best as regards flowers, should be immediately removed, and have their flowering shoots cut down to the ground. From the old base, it may be needless to state, cuttings at a later period may be obtained for the purpose of forming plants for next year's flowering. Any sorts, therefore, which it is desirable should be grown another season, should be selected from amongst the many, and propagated. Choose at all times those which have a good supply of strong healthy young shoots springing up from the roots. Where a cold pit exists, plunge them in it, and give them a moderate amount of protection from very severe frosts. Where there is no cold pit, however, it will be advisable to turn the old balls out of the pots, and plant them out in any sheltered spot in the open ground where comparative immunity from frost will be secured. Any *Orchidaceous plants* which may be flowering at this season, such as Dendrobium chrysanthum, some kinds of Zygopetalum, Cymbidium, &c., might have their flowering period materially prolonged if an opportunity offers of placing them in an intermediate house, where less moisture exists in the air than is now present in the Orchid-house or stove; and where no draughts can possibly reach them. With *Primulas* this is perhaps the most trying period, where it is necessary to grow and flower them amongst a miscellaneous collection of plants. Water should be given with extreme caution. Give at all times a good soaking when any is required, and, as I have frequently advised, endeavour so to arrange the general work as to be able to water early upon fine sunny mornings only; and when it is anticipated the plants are likely to become well dried at the base again before night. Any which are in flower should be so elevated as to receive all the benefit accruing from such sunlight as this dull season affords. Give no more artificial heat to *Heath-houses* than is absolutely necessary for keeping out frosts. Insure, however, as dry and buoyant an atmosphere as possible without the aid of fire-warmth, by means of fresh air, afforded upon all favourable occasions. Some of the brighter-coloured *Epacrises* will now be coming very generally into bloom, such as E. ardentissima, &c.; too moist an atmosphere will cause the flowers to damp or rot away before they have become fully expanded,—a fact which should be borne in mind. Be very particular in watering all specimens of either Heaths or Epacrises. Never, in fact, give water unless, rapping decisively with the knuckles, the pots return the indicatory ring belonging to partial dryness, when a thorough soaking should be given.

FORCING HOUSES.

The two principal things to be guarded against with *Pines* of the younger successional stock at this season are the extremes of excessive bottom-heat and root moisture. Too frequently the fresh fermenting material, added for the purpose of carrying the plants through the duller winter months, becomes rather hot, assisted as it is by the closeness of the air and other internal artificial heat, &c. Examine the test sticks frequently therefore, and endeavour to approach as near as possible to a bottom-heat of 80°, which will allow of a slight margin for future sudden variation, either way, without injury. I would always advise, however, that the pots be only partially plunged in fresh material, when as the heat decreases a little fresh may be occasionally added, which will not only insure a more continuously constant maxima, but will tend materially to keep all fresh and nice around the plants. There is often too much "fuss" made about Pine growing; so much, indeed, as to deter many an "amateur" from entering upon the pleasure of growing Pines. Few things are, however, more difficult to kill outright by anything even approaching rational treatment, though all credit is due to those who, by assiduous care and attention, succeed in producing the noble examples of fruit which so frequently embellish dessert tables in this country. Should instances occur in which scale has attacked them, set to work without delay, now that the plants are not growing very actively, to thoroughly eradicate it. Generally, under such a state of things, "the readiest way to an end" is to burn every infected plant, and start afresh with others thoroughly clean. As regards *Forced Vines*, do not be over anxious and so hurry them on unduly, a fault too frequent with young practitioners, and others whom these remarks are likely to interest. A gentle, yet substantial "advance" is all that is needed or should be desired. The early *Peach-house* may now be started, after the trees have been dressed, &c. Proceed in every way as with Vineries, the treatment of which I have already described. Endeavour to imitate by every possible means, internally, genial spring weather, whatever may be the state of the exterior elements. Take advantage of every ray of sunshine, giving fresh air therewith, at all times when possible, as indeed at any other period when it is safe to do so without risking too great a fall in the temperature, too great draughts upon any part of the trees, &c. At starting fix upon temperate as the lowest minimum allowable, running the warmth up upon bright days, by the aid of the sun's warmth and concomitant circumstances, to 70°, or thereabouts. Proceed with the dressing of *Vines*, and all other subjects intended in a similar way to be forced. Mix together tobacco water—the stronger the better—flowers of sulphur, Gishurst compound, soft soap, and soap suds; adding fresh cow-dung, to give it, when necessary, the consistency of paint. Force this mixture into every chink and cranny between buds and spurs, where it should adhere, to the thorough displacement of anything like insect life. I scarcely need add that no injury must under any circumstances be done to the buds in the operation. Those who intend keeping up a supply of early *Forced Strawberries* should look to their stocks. Select the most forward plants, and those which show the best symptoms of well-developed crowns, ripened foliage, &c. Surface dress the balls with thoroughly rotted, substantial manure, after having first ascertained that the drainage is efficient. Then it will be well to scrub each pot thoroughly outside, for the twofold purpose of securing future cleanliness, and a free evaporation through the pores of the earthenware. These simple commonplace matters performed, place the plants where practicable upon an open, airy, and sunny shelf, for a time. Bear in mind the fact, that a moderate amount of bottom heat is a valuable adjunct to a successful issue, in the case of Strawberries, and indeed with forced fruit generally; especially at the period when they are actively engaged in pushing up their flower buds and new leaves.

HARDY FLOWER GARDEN.

Roses grown in pots and intended for early forcing may now be pruned. The main point to be kept in view during the operation is to secure by all legitimate means, the finest, firmest, and hence the best ripened wood upon each plant. Something will oftentimes have to be sacrificed, for the form it is intended the plants should assume when in flower, though, fine blooms in abundance being the main desideratum, too much ought not to be sacrificed in that direction. It will be generally found that Roses grown in pots, like all other things, and especially Teas, will have formed two or three strong "runaway" shoots. Now, any such, if well ripened—especially if Teas—are the most likely of all others to produce noble blooms. Hence, if compatible with the known strength of the plant, and the not over impoverishment of the smaller flowering sprays, they should by all means be sparingly pruned back and retained. Others of the same class, found later in the season, if not thoroughly ripened, had better be removed bodily by cutting them clean away at the point from whence they issue from the old wood. When the plants have been pruned, it will be advisable to remove as much of the old soil from the surface of the balls as possible without unnecessarily injuring the roots. Replace it with a good rich mixture of loam and decomposed manure, ramming it down firmly, and giving all a soaking of water, if the roots are in need of such; afterwards place the plants under shelter, and where they will enjoy perfect immunity alike from excessive rains and frosts. Where, as in the case of intended alterations, it is necessary to remove *Roses*, this may now be done without risk. Be particular not to allow the roots, however, to become dried on the exterior surface by exposure to the air, while such operations are in progress. Regarding the planting of Roses generally I hope to have something to say at a later date. Proceed with any intended alterations in the form of varying the plans of flower-beds, &c. Whilst the weather remains open it will be well to conclude, where possible, these and similar undertakings, in which the removal of turf is concerned.

KITCHEN GARDEN.

Do not risk *Lettuce* and *Endive* longer in the open ground if fit for use, and any form of protection exists which can be afforded them. Have ready to hand some sort of litter—Fern or the like, with which to protect *Celery* in severe weather. New beds may be prepared for plantations of *Asparagus*. Proceed in this matter as previously advised. Depend more for a good plant upon a thoroughly prepared bed than upon any intended subsequent superficial dressing. Examine any roots placed in frames for an early supply; see that the bed beneath does not become too hot. Protect the stools of *Globe Artichokes* from frost, &c., by placing firmly around each a good thickness of loose stable litter. Do not bury what surface growth remains, but afford it an opportunity to die down naturally. Take up such a quantity of *Jerusalem Artichokes*, *Horseradish*, &c., as will ensure a good supply, should the ground become frost-bound, storing them away in some convenient storage. *W. E.*

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the Week ending Nov. 27, 1867, as observed at the Horticultural Gardens.

November.		Moon's Age.	Barometer.		Temperature. Of the Air.			Of the Earth		Wind	Rain.
			Max.	Min.	Max.	Min.	Mean	1 foot deep.	2 feet deep.		
Thurs.	21	25	30.469	30.377	44	28	36.0	45	46	N.	.00
Friday	22	26	30.476	30.421	45	37	41.0	46	45	N.W.	.00
Satur.	23	27	30.461	30.381	48	24	36.0	45	45	N.	.00
Sunday	24	28	30.540	30.516	43	24	33.5	45	45	N.W.	.00
Mon.	25	29	30.470	30.353	41	35	38.0	45	45	W.	.00
Tues.	26	●	30.283	30.134	46	28	37.0	45	44	W.	.02
Wed.	27	1	30.280	30.098	47	17	32 0	43	44	N.	.00
Average			30 423	30.326	44.8	27.6	36.2	44.8	44.8		0.02

Nov. 21—Overcast and cold; overcast; clear at night.
— 22—Overcast and frosty; partially overcast; overcast.
— 23—Overcast; overcast and cold; clear at night.
— 24—Overcast and damp; overcast, very mild; clear.
— 25—Overcast; overcast and cold; overcast, but fine.
— 26—Overcast, mild; overcast, showery; mild at night.
— 27—Clear, hoar frost; clear, bright sun; low fog; clear.
Mean temperature of the week, 4 6-10 deg. below the average.

STATE OF THE WEATHER AT CHISWICK,
During the last 41 years, for the ensuing Week, ending Dec. 7, 1867.

December.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday .. 1	48.4	35.1	41.8	20	0.25 in.	2	3	4	4	5	8	11	4
Mon. .. 2	47.7	34.0	40.8	19	0 63	2	4	4	2	5	14	3	7
Tues. .. 3	47.1	35.3	41.2	23	0.26	1	6	5	1	4	15	7	1
Wed. .. 4	48.0	36.1	42.0	18	0.39	4	2	2	3	7	16	6	1
Thurs. .. 5	48.8	34.9	41.9	24	0.25	—	3	2	1	6	14	11	4
Friday .. 6	48.2	36.7	42.4	20	0.76	2	4	2	3	7	15	8	2
Satur. .. 7	48.5	36.8	42 7	20	1.02	1	6	2	3	5	14	8	3

The highest temperature during the above period occurred on the 1st, 1857—therm. 62 deg.; and the lowest on the 5th and 6th, 1844—therm. 14 deg.

Notices to Correspondents.

ANEROID BAROMETER: *A B, Clydesdale.* This is described among Casella's instruments thus:—"Though not an independent instrument, or capable of the same permanent precision as a standard mercurial barometer, it is yet probably the most portable and sensitive means we possess of measuring ordinary variations of atmospheric pressure, and foretelling changes in the weather, either on land or sea, whilst for measuring moderate heights it is most valuable and convenient. A well made instrument will measure approximately the heights of mountains, 5000 or 6000 feet, the height of a house, or even the difference in height between one room and another. It depends essentially for its action on the compressibility by the atmosphere, of a thin, flat, corrugated, circular, metallic box, from which the air has been removed, and the sides kept separated by springs. A hand on a dial-plate shows the pressure more or less." It is elegant enough, but it must be more complicated in its action than the simple upright barometer, which is liable to be shaken and disturbed at sea, but which on land, where gardeners and farmers only require it, is so correct that no other barometer is required. The aneroid is, however, a very nice, convenient, and somewhat useful toy. ‖

EVERGREENS: *A Planter.* We should have preferred moving the coniferous plants you mention earlier; but if done at once, and the weather continue open, they will succeed quite as well as if the planting were deferred. Hollies move well late in spring. All present planting depends for its success on the nature of the weather which may set in. From the middle of October up to near this time, there is much less risk of severe cold, though it may be during this interval unpropitious on account of rain.

GAS HEATING: *J Morgan.* We not approve of gas, in any way in which we have yet seen it applied, as a medium for warming plant houses. The safest means of using it would undoubtedly be to employ it outside the house to heat the boiler of a hot-water apparatus, the heat being distributed in the usual way by means of cast-iron pipes.

MELONS: *F L.* There is no reason why Melons may not be grown in a lean-to house equally as well as in a span-roofed one. The advantage gained by sinking Melon houses a little under the ground level is that they are lower, and low houses can be kept at a given temperature much more easily than those that are higher; there is a less outer surface exposed, a circumstance which affects the temperature of the houses materially. As regards Vines, we should consider 34° a very good angle for the roof of a Vinery for general purposes in your latitude. *B.*

NAMES OF FRUITS: *M S, Ireland.* Your three Apples, supposed to be seedlings, are all very good dessert fruits, although not superior to other sorts already in cultivation. 1, which resembles the Irish Crofton, is of medium size, flattish, streaked with bright red, russetty; eye large, wide; stalk short; flesh firm and juicy, but somewhat acid; 2 and 3, both resemble Cox's Orange Pippin, especially about the stalk, but the eye is large and wide, like that of the Blenheim Orange, which they also resemble somewhat in flavour and in the texture of their flesh; 2 we consider the best amongst them.—*W D F.* Pears: 1, Beurré Clairgeau; 2, Beurré Diel. Apples: 3, Kirke's Lord Nelson; 4, unknown.

NAMES OF PLANTS: *A B.* Asplenium præmorsum.—*F R.* 1, Cystopteris dentata; 2, Lastrea dilatata; 3, Adiantum pubescens; 4, Athyrium Filix-fœmina; 5, Salvia fulgens.—*C Pryorp.* 1, Escallonia rubra; 2, Streptocarpus Rexii.—*Young Gardener.* Crinum amabile.—*H G.* Plagianthus sidoides.—*R H C.* Brassavola cordata.—*A D B.* 1, Oncidium raniferum; 2, Anselia africana.

ORCHIDS: *A B.* Get away the wood of the old baskets as completely as you can, but be very cautious how you "break the roots from them." The latter must on no account be bruised or broken.

THERMOMETERS: *J B.* Your instrument can be verified by sending it to the Director of the Kew Observatory, Richmond, S.W., at a trifling cost.

WORMS IN POTS: *An Amateur*, who complains that the pots of his miniature orchard trees are infested with earth-worms, should water them with a clear solution of lime, which will do the trees no harm.

COMMUNICATIONS RECEIVED.—J. A.—R. B.—R. M. S.—Bowiensis (next week).—J. R. Jackson.—J. G. B.—A. F. B.—J. Newton.—W. R.—J. Barnes.—J. F.

THE LANDS IMPROVEMENT COMPANY,
Incorporated by Special Act of Parliament in 1853.
To LANDOWNERS, THE CLERGY, ESTATE AGENTS, SURVEYORS, &c., IN ENGLAND AND WALES, AND IN SCOTLAND.

The Company advances money, unlimited in amount, for the following works of Agricultural Improvement, the whole outlay and expenses in all cases being liquidated by a rent-charge for 25 years.

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Applications for further information to be made to Dr. MANN, the Special Agent of the Natal Government, at the Natal Immigration Office, 15, Buckingham Street, Strand, London, W.C.

CENTRAL CHAMBER of AGRICULTURE.—The ANNUAL MEETING of the MEMBERS will be held in the Queen's Concert Rooms, Hanover Square, on TUESDAY, Dec. 10. Time, 11 o'Clock in the forenoon.

BUSINESS.

To receive the Report of the Council.
To elect a Vice-Chairman for 1868, and Eight Members of Council in lieu of Eight who retire by rotation.
To appoint Auditors.
To consider the proposed Cancelling of Rule XIV.
To amend Rule III.
To consider proposals for Increasing the Influence of the Chamber.
To consider what steps shall be taken concerning Cattle Importation, and Separate Markets for Foreign Animals.
And to transact any other General Business.

JOHN ALGERNON CLARKE, Secretary.
11, Waterloo Place, Pall Mall, S.W.—Nov. 22, 1867.

ROYAL AGRICULTURAL BENEVOLENT INSTITUTION.

Patron—HER MAJESTY THE QUEEN.
President—HIS GRACE THE DUKE OF RICHMOND.

For the RELIEF of DECAYED FARMERS, their WIDOWS and ORPHAN DAUGHTERS; and for the MAINTENANCE and EDUCATION of their ORPHAN CHILDREN.

ALLOWANCE TO PENSIONERS.
Married .. £40 per annum | Male .. £20 per annum
Widow and Unmarried Orphan Daughters .. £20 per annum

Orphan Children admitted from 7 to 10 years of age, and wholly maintained and educated until the age of 14 years in the case of Boys, and 16 years in the case of Girls.

One Hundred and Five Pensioners have already been placed on the books of the Institution; and in addition to the number of Pensioners to be admitted at the next Election, the Council have decided to Elect Ten Orphan Children.

Forms of Application for Pensioners and Children, and every information, to be obtained of the Secretary, by whom Donations and Subscriptions will be thankfully received.

55, Charing Cross, London, S.W. CHARLES SHAW, Secretary.

DOG SHOW at BIRMINGHAM.—The EIGHTH GREAT ANNUAL EXHIBITION will be held in CURZON HALL, on MONDAY, TUESDAY, WEDNESDAY, and THURSDAY, December 2d, 3d, 4th, and 5th, the days of the Cattle and Poultry Show. For Special Railway Arrangements, see the Advertisements and Bills of the several Companies.

THE BIRMINGHAM CATTLE and POULTRY SHOW.—The NINETEENTH GREAT ANNUAL EXHIBITION of FAT CATTLE, SHEEP, PIGS, DOMESTIC POULTRY, CORN, ROOTS and IMPLEMENTS, will be held in BINGLEY HALL, on SATURDAY, MONDAY, TUESDAY, WEDNESDAY, and THURSDAY, November 30, and December 2, 3, 4, and 5, 1867.

The Exhibitors and the Public will be admitted to Bingley Hall to witness the Judging of the Cattle, Sheep, Pigs, Roots, and Corn, on SATURDAY, November 30th, at Nine o'Clock A.M., upon payment of 10s. each. There will be no Admission to the Poultry Department until after the Judging is completed.

The PRIVATE VIEW will take place on MONDAY, the 2d of December. Admission to Non-Subscribers, until Five o'clock, 5s.; after that hour, 1s.

The Exhibition will also be open on TUESDAY, WEDNESDAY, and THURSDAY. Admission, 1s.

For Special Railway Arrangements, see the Advertisements and Bills of the several Companies. JOHN B. LYTHALL, Secretary.
Offices, Stephenson Chambers, 39, New Street, Birmingham.

The Agricultural Gazette.
SATURDAY, NOVEMBER 30, 1867.

MEETINGS FOR THE ENSUING WEEK.

MONDAY,	Dec. 2	
TUESDAY,	— 3	Show of Midland Counties Agricultural Association at Bingley Hall, Birmingham.
WEDNESDAY,	— 4	
THURSDAY,	— 5	
WEDNESDAY,	— 4	Royal Agricultural Society of England (Council Meeting)—Noon.

IF the country is free from cattle plague, it has not yet shaken off that unreasoning fear which was created by the terrible devastations of the pest while it remained. People were slow to realise the advent of the disease, and they seem to be reluctant to admit its absence. Every now and then a local panic is created by the report of a new outbreak, which upon inquiry turns out to be either an ordinary affection or the result of the action of some special agencies of accidental occurrence. A few weeks ago we published a short history of the alleged cases of plague at Hartford, in Cheshire, where several cattle died with symptoms so far resembling cattle plague that after consultation the local inspectors decided that the veritable rinderpest had again appeared. An investigation was ordered by the Government, and Professor BROWN, of the Veterinary Department, was sent to inquire into the circumstances of the case. In his report it was stated that the disease was not cattle plague, that it was not contagious, and that it depended entirely upon local causes. The infected district was accordingly released. Suspicion, however, was fairly aroused, and could not be quieted by Orders of Council; another animal and then another succumbed to the disease, and in obedience to the wishes of the Cattle Plague Committee Professor GAMGEE was called in; his investigation also resulted in the conclusion that the affection was local, non-contagious, and therefore not cattle plague.

Since the occurrence of the Cheshire cases Norfolk has been compelled to pass through a similar experience. At the latter end of last month cattle plague was reported to exist among stock belonging to Colonel CUSTANCE, at Weston. The animals had been brought from Ireland about a fortnight before, and were exposed for sale in Norwich market on Oct. 12. The original number was 120, but only 12 of them were bought by Colonel CUSTANCE, the remainder were disposed of to other purchasers; and it was not alleged that any of the herd had shown symptoms of illness. Acting, however, on the inspector's report, the committee declared the district infected, and very considerable excitement prevailed. Meanwhile an inquiry was ordered. Professor SIMONDS proceeded to the locality, and after a minute investigation, decided that the two animals, which were the presumed victims of plague, had died from gastro-enteritis, induced by eating some deleterious matter, probably portions of the plant "bitter sweet," which was growing in an adjoining plantation, into which some of the cattle had broken. A special Order of Council was passed, declaring the infected place to be no longer infected, and, as no more of the stock have been attacked, we may presume the alarm has before this subsided.

Not many days elapsed, however, before a new excitement arose. Cattle plague was reported from the north. In our last number we called attention to the alleged existence of the disease in Berwickshire, and alluded to the anxiety which prevailed, and the desire which was manifested to revert to the adoption of those precautionary measures from which the country has but just been relieved. Notices have been issued by the local authority for the county of Berwick, declaring the farm and premises at Langrigg, in the parish of Eccles, and county of Berwick, together with an area of half-a-mile in extent, an infected place, and for the purpose of resolving any doubts which would naturally arise, the authorities deputed the Professors of the Edinburgh Veterinary College to make an investigation. Professor SIMONDS has also been sent from the Veterinary Department of the Privy Council for the same purpose. What the final verdict is has not yet transpired, but we understand that the Edinburgh Professors concur in opinion with the inspector, who pronounced the disease to be cattle plague. Nevertheless, without pledging ourselves too positively, we have reason to hope that the outbreak in Berwick will take its place by the side of the recent cases in Cheshire and Norfolk. We shall have something further to say in reference to these instances of *pseudo*-rinderpest in general and the Berwick case in particular, next week.

"Boys will be boys"—Wheat will be Wheat—sheep will be sheep—the maxim applies in agriculture as elsewhere. Only the other day we were asked how cattle and sheep should be fed so as to render their flesh more suitable for drying! The idea was that only or chiefly flesh formers should be used! The question would have been simply ludicrous if it did not represent an idea very prevalent outside the actual profession, that a farmer can do what he likes with the things he grows, make them yield this, that, or the other by special treatment, just as he pleases—make, for example, his pigs set up at a particular time (by the administration of "flesh formers") a streak of lean in the midst of their fat; his Wheat corn grow more gluten by giving them nitrogenous manure; or, as in the case before us, his cattle and his sheep, by dry and careful feeding, put on flesh which shall contain less water than it otherwise would do, so that the subsequent desiccation of the carcase may be done more cheaply.

All that the farmer can do is to provide conditions which shall ensure the healthy growth of the living things he has to deal with, and then feed them liberally with what they like; let him do this, and if it be a milch cow that is his charge she will then yield her maximum of good milk—if it be a fatting beast he will proceed most rapidly to ripeness for the butcher—if it be a Wheat plant or an Italian Rye-grass plant, they will severally be hastened towards a productive maturity.

A farmer is not *master* of his circumstances. If he is to prosper, he must only be their intelligent servant—knowing how to turn them to account—but never attempting the costly, wasteful process of opposing them. Instead of enforcing tilth by sheer force of will and tool, he lays his land open for the frosts to do it for him; instead of choosing the crop which will yield him most per acre as the only one for cultivation, and enforcing annual produce by special tillage and costly dressings, he takes less profitable crops in succession for the sake of their incidental contribution to the natural fertility out of which other paying ones may be got; instead of urging the meat manufacture on a living beast by excessive feeding, he learns the nature of the stock he has and feeds them simply up to their natural ability to deal with what he gives them. A living thing must be treated according to its nature; before all things it must be kept in health by treatment suitable to that nature. You cannot grow dry mutton nor nitrogenous Wheat. All you can do is to grow healthy mutton and healthy Wheat: and, obeying the natural circumstances, when you cannot, without great cost, alter them, you will find all the natural forces working together for your good. The profits of farming are obtained, in fact, mainly by directing aright these costless influences of Nature, realising, by proper preparation, their valuable and cheap result.

These remarks are perfectly borne out, not only by ordinary agricultural experience, but by the results of careful scientific observation and experiment. And they are well illustrated by a report of the Rothamstead experiments on Wheat, drawn up by Messrs. LAWES and GILBERT for the British Association, of which the following is an abstract:—

"These results had reference to the produce of a field in which Wheat had been grown, on some plots without manure, on one with farmyard manure, and on others by different artificial mixtures, for 24 years in succession (1843-4 to 1866-7 inclusive). At the Cheltenham meeting of the British Association, in 1856, the authors treated of the effects of the season and manures on the composition of the crop, as illustrated by the results of analysis, relating to the produce of some of the plots during the first 10 years of the experiments. At the Manchester meeting, in 1861, they recurred to the subject; the analytical results, which then extended to the produce of some of the plots for 16 years, were, however, chiefly applied to the illustration of certain points in connection with the exhaustion of soils. At the Nottingham meeting, in 1866, they treated of the accumulation of the nitrogen of manure in the soil of the same experimental field. The results adduced on the present occasion showed the effects of season and manuring on the composition of both the grain and the straw during 20 years of the experimental growth.

"The particulars of composition given are—the percentages of dry substance, of mineral matter, and of nitrogen, and the constituents of the ash of both grain and straw, more than 200 complete ash analyses being being brought to bear on the subject; and, side by side with these, as indicating the general characters of the produce of the different seasons and plots, are given the proportion of corn to straw, and the weight per bushel of the corn.

"In the case of the plots without manure, with farmyard manure, and with ammonia salts alone, every year the ash of the grain of the last 16 or more, and of the straw of the last 16 of the 20 years, had been analysed; and in the case of nine differently manured plots (including the above three), the ash of both corn and straw, of the first, the last, and two intermediate seasons (one bad and one good) of the last 12 of the 20 years had been analysed. It was the intention of the authors to publish the results of the investigation in detail before long, and on the present occasion they confined attention to a few of the most prominent effects of the respective manures on the composition of the crop, when thus applied for so long a continuance, year after year, on the same plot.

"It is first pointed out as remarkable—and here is the point to which the preliminary statement refers—that variation in manure, even though maintained for many years in succession, and resulting in great variation in amount of produce, affects comparatively little either the proportion of corn to straw, or the weight per bushel of the corn; excepting, indeed, in a few extreme cases of abnormal exhaustion or repletion. Nor do the percentages of dry substance, of mineral matter in dry substance, or of nitrogen in dry substance, vary much under the direct influence of variation in manure, unless again in very abnormal cases. Very different, however, is the effect of season; the variation in the character of the produce, in every one of the above particulars, being much greater in different seasons with the same manure than with different manures in the same season.

"Consistently with these broad facts, the composition of the ash of the grain is found to be pretty uniform under a great variety of manurial conditions in one

and the same season; only in a few extreme cases, of special interest, varying in any material degree. The same may be said in some, though in a much less degree, of the composition of the ash of the straw, which is obviously much more directly affected by the character of the supplies within the soil.

"The general result is that (excepting in a few abnormal cases) the variation in the composition of the ash of the grain is limited to the slight variations due to differences of development and maturation, which, in their turn, are much greater with variation of season than with variation of manure. The composition of the ash of the straw, on the other hand, much more nearly represents the total mineral matters taken up by the plant, and much less the character of development of its own more fixed and essential constituents. In other words, whilst there may be considerable range in the composition of the matters taken up by the entire plant, the tendency in the formation and ripening of the ultimate product, the seed (whether produced in small quantity or large), is to a fixed and uniform composition, the deviation from which is little directly affected by the character of the supplies within the soil, but much more by the various influences of season.

"The deviations from the point of fixed and uniform composition, thus due primarily to variations in climatic circumstances, are, however, when considered in relation to other characters of the grain, sufficient to show the general connection between the comparative predominance of individual constituents, and that of certain general characters of development. A few illustrations were given; but the fuller treatment of the subject, in its bearing on these as well as on other points, was reserved until the results could be considered in the detail necessary to their proper elucidation.

"One point of interest prominently brought out by the results relating to the composition of the straw ash was, that a high percentage of silica was almost uniformly associated with a bad, and a low percentage with a good condition of the produce: a fact to which the authors had on former occasions called attention, but which is quite inconsistent with the generally accepted views on the subject."

—— THE *Farmer* of the last two weeks contains an elaborate report of the harvest of 1867, in which each of its correspondents states not only whether the crop is good or bad, but what the estimated yield per acre is in the district referred to. And the whole are arranged in districts geologically, it being supposed that the several soils of the country will thus be *classed*. The upshot of the whole series of reports as regards England and Wales is given as follows:—The whole of the several averages, being themselves accurately averaged, give the returns of Wheat at 24.4 bushels per acre; of Barley, 33.7; of Oats, 41.2; of Beans, 27.7; of Peas, 22.9; whilst in tons per acre we have Potatos, 5.3; Turnips, 15.1; Swedes, 16.9; and of Mangels, 20 tons. The root crops are much more likely to be under estimated than the grain crops, as enough of the latter have no doubt been threshed and measured to enable a safe opinion of the whole. The root crops are probably too high. The corn crop returns of our contemporary, when compared with what are generally understood to be the average yield of the country, quite bear out the opinion now universally held, that last year's harvest has been a poor one. The plan, however, of classing the reports geologically does but little towards an accurate agricultural estimate, as any one will see when he reads in the same section localities of such different soil as fen and swamp, clay and brash, heavy and light; and such various climates as Lancashire and Norfolk, Dorsetshire and York. We fear little more can be done towards making these reports useful and influential beyond taking care that the number of reports from the several districts is pretty much in proportion to the agricultural importance of the district.

—— A correspondent writes as follows:—"In July I purchased of a seedsman some Green-top Hybrid Turnip-seed, to sow for late spring feeding. He sent it, and invoiced it as 'Green-top Hybrid.' It has turned out a very different sort—in fact, several sorts, none of them right, but mostly of a pale yellow flesh, in growth resembling very much the White Round, and showing every indication of early decay—in fact, some have already began to rot. He admits they are not the sort ordered or named in the invoice, and having seen them thinks they will not stand the winter; but with much soft wording and great politeness, tells me he is not legally liable, as he does not warrant any seeds. He refers me to his bill-heads, in which a notice to that effect is printed. He is a great advertiser, but says nothing about 'no warrantry' there, nor do I, as a purchaser, know anything about this proviso till after I have purchased the seed and sown it—nor, indeed, till now when he tells me to look at his bill-head. I shall be a great sufferer, and cannot at present say how much, as I shall have to provide other food, cake or other feeding stuff, for the loss. Pray give me your advice on the matter." To this we must reply, that we are not learned in the law; and however certain what justice would award, yet cannot with any confidence predict the issue of a suit for damages. Our correspondent should consult his solicitor, who may, perhaps, be guided by the result of a very similar case, referred to some weeks ago in these columns (see p. 1150).

—— We learn from the *Midland Counties Herald* that the Cattle Show at Birmingham, which is to open this day, is, both in numbers and character, an admirable display. The implements are more than usually interesting, the applications from persons desirous of exhibiting having been greatly in excess of the space at the disposal of the Council, who in the appropriation of it have been actuated by a desire to render this department as practically useful as possible. The Dog Show, held in Curzon Hall, Suffolk Street, and opened on Monday, is also stated to be quite equal to that of any previous occasion.

SHORTHORNS.

—— MR. GARNE, of Churchill Heath, Chipping Norton, has lately purchased ROYAL BUTTERFLY 20TH (25,007) from Colonel Towneley's, at a long price, believing that he is just the animal to follow on the stock of both CYNRIC and DUKE of TOWNELEY, not only from his breed, but also from his appearance. He is bred very similarly to DUKE OF TOWNELEY, his blood being an amalgamation of Booth, Bates, and the Towneley *Barmpton Rose* tribes, the latter predominating; for he is got by ROYAL BUTTERFLY, his dam by Captain Gunter's DUKE OF WHARFDALE, g. dam by MASTER BUTTERFLY, g. g. d. *Alice 2d*, by the Bates DUKE OF ATHOL, g. g. g. d. *Madeline*, bred by the late Mr. Booth of Killerby; she was bred in 1838, and continued to breed from 1840 to 1852, and amongst her offspring are Colonel Towneley's celebrated bull HUDIBRAS, and his cow *Alice*, that had perhaps few, if any, equals in her day. She won the *Irish Farmers' Gazette* Cup, value 120*l.*, in 1853, and the 1st prize and Gold Medal at Smithfield in 1854. The sire, grandsire, and great-grandsire of the purchased bull are all honoured with plates in the Herd Book, and as no two brother bulls ever probably won more prizes than MASTER and ROYAL BUTTERFLY, Mr. Garne doubtless expects prize-winning stock from him. Four cows in the herd have been in calf to Mr. Betts' American bull, 6TH DUKE OF AIRDRIE, three of which have produced cow calves, each nearly all red; and one bull, a white one, dam *Perfection*, by Mr. Peel's GONDOMAR.

—— The foundation of another herd of the very best breeding has been laid at Havering Park, where Mr. MacIntosh had such an extraordinary sale in the spring. There are at present the following six animals:—(1) *Lady Oxford 6th*, or the 1000 guineas reserved heifer. (2) *Grand Duchess 21st*, bought at Preston Hall sale. (3) *Lady Bates 5th*, who was sold at Havering in May last, but a few days afterwards had a premature birth of a dead heifer calf; and the purchaser had therefore the option of leaving her. (4) *Duchess*, by DUKE OF CAMBRIDGE (12,742), bought privately from Mr. Tait before the Windsor sale. (5) *Dewdrop*, daughter of the above. (6), and though last not least, the fine bull 3D DUKE OF GENEVA (23,753), bought at Windsor, who, we hear, has been doing remarkably well since he got home.

—— One of the best of the many bulky catalogues of pure-bred stock which are now issued by tenant-farmers represents the stock on the farm of Mr. Stiles Rich, at Didmarton, Gloucestershire, which has now for nearly a quarter of a century been gradually rising in public estimation, until it is at length on a level with the very best herds of the day. During the last 20 years upon this farm both pains and means have been constantly and liberally expended in the effort to produce a pure herd of Shorthorns. By private sales, inferior or defective blood has been weeded out. And now, among other good tribes derived from different sources, two descended from *Ursula* and *Florentia* cows, direct from Tortworth, may be named. Three Tortworth bulls — BERKELEY (7830), KOH-I-NOOR (11,642), and VALENTINE (13,932) —were used with good effect in the early formation of the herd. For many years, however, pure Bates' bulls, or those inheriting as much Bates blood as could be anyhow procured, have been exclusively used: among them—CUPID (14,359), GENERAL CANROBERT (12,927), 3D DUKE OF LANCASTER (19,624), 7TH DUKE OF YORK (17,754), LORD LALLY (22,161), 13TH GRAND DUKE (21,850), and 2D DUKE OF CLARENCE (21,576) which have been either hired or bought—some of them jointly with Mr. E. Bowly, of Siddington, in partnership with whom the purchase, already alluded to, of another *Duchess* bull from Wetherby—2D DUKE OF COLLINGHAM—at 500 guineas, has been effected. The result of the use of these bulls is very evident, and perfectly satisfactory; and several calves lately arrived, by 13TH GRAND DUKE, from heifers by 7TH DUKE OF YORK, have in a great degree the true impress of the *Duchess* character, confirming the opinion long entertained of Bates' blood. There are at present at Didmarton three *Duchess* and one pure *Oxford* bull (3D LORD OXFORD), this last being the sire of the 700-guinea *Duchess* sold at Windsor. 7TH DUKE OF YORK, vigorous as ever, is now at Siddington, and also a pure Bates' bull calf (6TH EARL OF WATSON), by 3D LORD OXFORD, coming on for joint use.

—— The 17th volume of the Herd-Book has at length been distributed to subscribers. It contains the pedigrees of about 2200 bulls—between Nos. 23,252 and 25,481—and of nearly 3000 cows. Perhaps it is even more significant of the extent and importance of the Shorthorn breed that it also contains the names and addresses of 600 or 700 subscribers and their herds. Plates are given of seven bulls and eight cows. Mr. Booth's COMMANDER-IN-CHIEF (21,451); Colonel Towneley's BARON OXFORD (23,375)—of which a remarkable description was given in last week's *Bell's Messenger*; 3D DUKE OF GENEVA (23,753), one of the American bulls; and Mr. Betts' GRAND DUKE 16TH (24,063), being among the former—and Mr. MacIntosh's *Lady Oxford 5th*, sold for 600 guineas to the Duke of Devonshire at the Havering sale, Mr. Booth's *Lady Fragrant*, and others, among the latter.

Every pains is taken by the best and most careful editorship to ensure perfect accuracy, and the typography and general execution of the work leave nothing to be desired.

THE CATTLE PLAGUE.

IN the very friendly criticism which you have published of my letter on the above subject, there is one little error which I ask permission to correct, as it is perhaps rather my mistake than that of my critic.

You very properly point out that the value of an experiment depends much upon the patience and soundness of judgment of the experimenter, and then call attention to two instances of apparent impatience and hastiness of judgment on my part, as detracting from the value of my evidence. You infer that I jumped at the conclusion that British manufacturers and shopkeepers practise adulteration as a rule, because I found difficulty in procuring pure carbolic acid; and that I jumped at the conclusion that the mismanagement of English railways is invariable, because a cask from Manchester on one isolated occasion was delayed on the road.

In the first of these instances my language is no doubt somewhat vague, and will perhaps bear the meaning which it evidently conveyed to you, although this is neither the meaning which I intended to convey, nor that which the grammatical construction of the sentence will strictly admit of. In the second instance, I merely alluded to a fact of which I have had so much experience, that I perhaps have come to regard it as more notorious than it is. But in support of my first statement as to adulteration, I appeal to Dr. Hassall's work on the adulteration of food, which bears out my statement completely in what is perhaps the widest branch of shopkeeping; and as regards manufacturers, let me ask you to go into the first draper's shop you may happen to pass, and buy a reel of cotton stamped "100 yards," and measure it. If it measures 100 yards, or anything like it, I will admit my judgment of British manufacturers to have been hasty. As to railways, I speak with greater confidence. I have not only travelled from one end of Europe to the other upon them, from Cadiz and Lisbon to St. Petersburg and Moscow, and from Trieste to Amsterdam, but I have a personal knowledge and experience of the systems of construction and management in force in the different countries indicated, and I am bound to say that, with the exception perhaps of Spain and Russia, I know no country in Europe—I exclude the United States from consideration, as their circumstances are so different—where there is so much unpunctuality as in England, with no exception do I know of any country in Europe where there are so many accidents as in England, and with no exception do I know of any other country in Europe where the London, Chatham, and Dover, and other similar robberies, would have been possible.

I do not wish to advocate as a cure for the rinderpest liquid food and carbolic acid on my experience alone, but I say that I consider my experience in continuation and perfect corroboration of the liquid food system and of Mr. Crookes' exhaustive experiments with carbolic acid to be conclusive. I do not say that carbolic acid is a specific as a cure for the disease, but I think that Mr. Crookes has conclusively proved that it is a specific against the infection, and I think that when assisted by other logical treatment, such as Professor Brown recommended to me, it will save any animal in which the disease has not advanced beyond the earlier stages.

If a couple of counties in area, and a quarter of a century in time, are required to obtain any conclusive result in the treatment of cattle plague, then my friends the Commissioners only wasted the public money and the valuable time of a Fellow of the Royal Society in instructing Mr. Crookes to conduct his elaborate series of experiments with carbolic acid.

I fear they are on the horns of a dilemma. Either they should not have made any experiments, short of expatriating Mr. Crookes in Southern Russia for a quarter of a century, or they should have acted on the experiments which Mr. Crookes laid before them. *W. Hope, Parsloes, Barking, Nov. 27.*

[We must explain that the two cases of "hasty" judgment which are here defended, were not named in our criticism for the purpose of throwing any doubt or slur whatever upon the skill or carefulness of Mr. Hope in his Lodge Farm fight with Cattle Plague. His perfect trustworthiness in these respects was cordially admitted. They were quoted as being the only illustrations close at hand—afforded by his own report, indeed, as it seemed to us—of the easy possibility of drawing sweeping conclusions from insufficient data. Whether it be right or not in pronouncing confidently on the dishonesty of British tradesmen, and on the mismanagement of British railways, notwithstanding the very limited proof of either given in that report, we retain the opinion that, accurate as his statement was of the means employed and of the results observed, his experience of the cattle plague on Lodge Farm (even though the disease was confined or actually disappeared under his treatment of it) is altogether insufficient to justify his condemnation of the Commissioners for recommending the use of the poleaxe.]

FIELD WORK: PRIZES: EDUCATION.

[At the late annual meeting of the Norfolk Agricultural Society, the Earl of LEICESTER spoke as follows:—]

THE questions for consideration are, whether legislation is required to regulate the employment of the agricultural labourer; should compulsory education to a certain extent be enforced; and should there be an official inspection of the cottages of our labourers, to limit the numbers of those who reside in them? I do not think it possible that the Act called the Factory Act can be applied to agriculture. But I do think it desirable that some modification of that Act should be applied to agricultural labour. I would make it illegal to employ any boy under 10, or any unmarried woman under 20 years of age in any field

work. They are to a certain extent morally and physically injured by being employed at so early an age; they are not required for the purposes of agriculture; and they are, and they must remain, totally ignorant. But it would be of little use for the Legislature to prevent boys under 10 being employed, unless it compelled them to pass a certain portion of their earlier years at school, or required them before they went to work to show evidence of having obtained some education. I am not generally in favour of compulsory education; but we cannot admit that a considerable portion of our labourers are to continue to exist totally uneducated, and that many of the rising generation are to grow up unable to read and write—particularly as ere long they may be called upon to assist in selecting the rulers of this country. I think that a boy at 10 years old ought to begin to earn his bread. In fact, I much question whether it would not prove a great hardship to a father of a family if a boy of that age was debarred from contributing to the family store. I do not think that the half-day system or the alternate-day system can be applied to agriculture. We must depend upon night schools and upon the boy's own exertions for any additional knowledge he may acquire. I am aware that education has not apparently proved so successful as we had a right to expect; but I think we have had difficulties to contend with that are likely to diminish. During the last few years there has been a great drain from our agricultural villages. Many of our best-educated boys have been required to fill the staff of our railways, and for other purposes. This demand will greatly diminish. The work of the hands, rather than the employment of the brain, has hitherto been required of our labourers; but now that steam and machinery will be daily more employed in agriculture, requiring in their working some judgment and greater intelligence, our labourers will find that the possession of some knowledge is as important to them as I believe it to be desirable to us, their employers. Let a man forget some things that he has learned at school, he does not forget those habits of discipline and control which were of considerable importance in forming his character in early life. And if he does not at present see the full advantages of education, the blame ought not to rest solely on his shoulders. Is not the cottage in which he has been brought up a cause itself for any deteriorating evils that we have to contend with?

The insufficiency of cottages, and the insufficient accommodation that exists in many of them, are the main causes of the unsatisfactory state of the labourer; and, in my opinion, till an official inspector has been appointed, the evils of over-crowding are not likely to diminish. And it is not for us, gentlemen, to say that there is no cause for interference, when I see by the last return that no less than 10 per cent. of the children born in this county are illegitimate, and that, next to Cumberland, we have the unenviable notoriety of being pre-eminent amongst other counties in this respect. But in spite of this statement, I can confidently assert that the labourer has both morally and physically improved. In many districts of this county drunkenness hardly exists, and vice has greatly diminished; and in those parishes where this is not the case the responsibility rests upon the owners of the cottages and upon the employers of labour. The gradual improvement that has taken place may be attributed to the increased attention that has of late years been given to providing accommodation in the cottage of the labourer; to education, which is beginning to tell; to the more active supervision that he and his family receive from you and from the clergyman of his parish; and surely the encouragement for good conduct and good work that he derives from societies like this ought to be productive of some good results. Let us continue to do our duty; let us not be disappointed if the effects are not so immediate as we might expect; let us ask the Legislature to place some control upon the employment of the agricultural labourer; let us ask to have our cottages inspected; let us encourage education and support our schools—neither forgetting that the object of their maintenance is the education of the agricultural labourer, nor denying to him the opportunity of educating his children to a higher social position than that he himself occupies. And I trust, gentlemen, that the owners and occupiers of land in this country will not allow any alteration of the law to be forced upon them, but will adopt the wiser and better course of framing an Act under their own guidance.

PRIZES FOR AGRICULTURAL LABOURERS.

[On the same occasion Earl SPENCER spoke on this subject as follows:—]

I do not know whether I should be wrong in mentioning one little objection that crosses my mind sometimes at meetings of this sort when prizes are given away; but I feel I should be hardly honest, as I have the honour to be chairman of the Association this year, if I did not say just one word in passing upon it. I do not myself quite like the idea of giving prizes for length of service as labourers, or for bringing up large families. I like very much, and I think it is of great importance, that we should give prizes for the skill of the labourer—for his skill in ploughing, for his skill in shearing, for a well-kept dairy (I forget whether that is given here), and for garden produce; but I confess I do not quite like giving prizes for bringing up a large family. I think it puts the labouring man in a different class altogether, and draws a very broad and distinct line between his class and any others. With regard to prizes for skill, we all at different times go in and compete for such prizes—whether it is with our beasts, our horses, or with our rifles; and we all feel great pride when we are successful; but prizes of the sort I refer to are never given to other classes. I think the reward ought to be left to the man himself. He reaps the reward of sobriety and independence in bringing up a family; and I think the employers of labour, in respect of long service, are the persons who should give the reward to their *employés*. I hope I have not done wrong in just alluding to this.

After alluding to some political topics, his Lordship said: I believe there have been no two more important measures with regard to the agricultural interest than two passed within the last four years—the last of them in 1865. The first measure to which I refer was the Irremovable Poor Act, and the second the Union Chargeability Act. I believe those Acts have already begun to have very beneficial effects, but of course the principal beneficial effects of a measure of that sort can only be seen gradually. I believe that these two measures will do more for the benefit of the labourer—and not only of the labourer, but of their employers—than almost any Act passed before. They have made labour freer than it was before. Instead of a labourer being tied down to his parish as formerly, he can now seek work where he can get the best wages; and I am sure that is not only good for the labourer, but also for the employer. It will raise the tone and character and skill of labourers in a parish if free-trade in labour is carried out even further than it is now. I believe we may expect still further measures in that direction, with regard to the Poor-law. We may have to consider how far we may still further relax the law of settlement; and I believe that there is a great deal to be done in the way of looking into the management of our workhouses in the country, and with regard to our schools in the workhouses, and with regard to the separation and division of classes in the workhouses. All those questions, I think, deserve the serious attention of all who are interested in the rural districts of this country.

With regard to another point—that of agricultural gangs—Lord Leicester has entered so fully and ably into the subject, that I will not go at length into it now. I most fully concur with all he says in the matter. In our part of the country we do not employ women in the field; and I confess it goes very much against my feelings when I see women employed in the fields. But I know very well that in this part of the country it is very difficult, almost impossible, entirely to do without it; and we must therefore try to do it gradually, if we are to do away with it. Perhaps some day we may be able to do away with female labour in the fields here, but it must be done gradually; but I think we may very well bestow our attention upon that. With regard to the children, I most entirely think that it is the interest of all concerned in agriculture to promote the education of children. And not only that, but I believe that keeping children in the fields very young is very bad for the their future strength of body. It is very bad to keep children hard at work and exposed to very inclement weather at a very early age. I therefore should heartily support any measure which might be applied to the modification of the Factory Acts with regard to the employment of children. I quite concur with all Lord Leicester said with regard to the immense importance of giving the labourers good and sufficient cottages. But I confess I see very great difficulties in respect to this. Of course no one would suppose that labourers can build themselves cottages. You require capital for cottages as well as for every other improvement on an estate. It is very easy for those who have spare capital at their disposal, or who have ample incomes, to put by certain sums of money and add to the cottages on their estates. It is one of the first duties of such proprietors to do that. But there is a good many proprietors who have not an ample supply of spare capital—whose capital is taken up by other things, and who would find it very difficult to lay out a large sum on additional cottages. I do not know what can be done to assist those persons, but I believe that perhaps greater facilities might be had for the Government lending money to proprietors for the purpose of building cottages, in the same way as was done formerly, and I believe still is done now, for the purpose of draining estates. There can be no question that cottages are not a lucrative investment, but I think they should be looked upon as a permanent improvement to the estate. There can be no question that a farm would let very much better if it were amply and well supplied with cottages than if it were not. I do not go so far as many people, who say it is impossible to get more than 2½ or 3 per cent. for cottages. I believe you can get a very fair return for your money; but even if you did get only 2½ or 3 per cent. you must look upon it as permanently improving your farms. But there is another difficulty besides that. It seems to be thought, particularly by those who are rather fond of having a drive at the landed proprietors of this country, that the agricultural labourers who cultivate the farms all reside in cottages belonging to these proprietors. They forget that the favourite mode of a man of moderate means investing his savings is to buy or build a few cottages in the village. These cottages I believe are amongst the worst class of cottages that can be found in this country. They may at first be very fair cottages, and a man may be willing to pay a high rent in order to get accommodation in the particular village he desires to live in; but after a time the cottages get into bad repair, and the proprietor has to lay out money on them or he leaves them in very bad order. If he has to lay out money on them, he is sure to raise his rent; and if he does so, what follows is that the cottagers have to let their rooms for lodgings, and then you have the great curse of cottages, which is, the indecent over-crowding of all the rooms. How are you to deal with this class? I confess I see very great difficulty in dealing with the matter. The curious anomaly is that, with regard to other things, if a shopman sells bad articles and knows that his neighbour on the other side of the road gets a better price for a good one, he is quite sure to give up selling his bad article and get in a good one in order that he may keep his custom; but in the case of cottages the fact is reversed. I believe that the cottages which are rented the highest are the cottages belonging to these small proprietors in the villages, and they are the very worst class of cottages we have. We cannot, therefore, apply the same remedy to these cottages that we can in other things. Large proprietors and other proprietors do not like to oppress the poor people with exorbitant rents for three-roomed cottages; they put what rent upon them the poor people can fairly pay, and they feel it is unjust to raise it. The small proprietor then has no inducement to make his cottage better by feeling that if he does so he will be able to get a better rent like his neighbour. I believe that really the only mode of dealing with the question is that which was alluded to by Lord Leicester. I think it must be by having cottages inspected and having them reported. I think that probably the present Act is not quite sufficient for that purpose, though I believe that in this part of the country, as in others, the clause that was inserted in the end of the Bill has been put very much into operation, and over-crowded cottages have been indicted as nuisances, and I believe in some places have been bodily pulled down. But that Act ought to be improved before it can be made very effectual; and I feel that this question is of such importance that there must be legislation on the subject.

AGRICULTURAL EDUCATION.

[We further report the speech on this subject of Mr. H. E. BLYTH, given at the same meeting:—]

He had noticed that some of the remarks which had been made that evening had hit him very closely. He had, perhaps, been by some misunderstood, when he had been told in a public room that his opinions were simply prejudices. His own idea of the educational question, as it regarded the agricultural population, was this—that as it had been lately administered it was not of a sufficiently practical nature adapted to lads or to youth, who in future years would have to maintain themselves by the labour of their hands. Nobody would question the advantages that a labourer would derive from being taught to read and to write and to cipher. His objection was (and he made it in reference to proposals that had been publicly offered in that neighbourhood, and in that union), that there appeared to be a desire to prevent a farm-labourer's boy from going on to a farm as soon as he found he could become a bread-winner. There were some curious facts which would speak for themselves with regard to this question. At one of the meetings in the neighbourhood a gentleman proposed, as a resolution, that no farm-labourer's child should go to work before he was 10 years old. At that very minute he (Mr. Blyth) held in his hand two certificates from that very gentleman, recommending two lads for premiums in this Society for having lived a certain number of years on his farm, from the age of eight. The first step in the education of children (and which was more needful in that of agricultural labourers than of any others) was discipline. If that was not taught early at school, reading, writing, and arithmetic were useless. He knew that in some schools it was not taught, and, therefore, he said that the present system of education was not suited to the agricultural population. If a labourer's boy was kept at home till he was 10 or 11, he (Mr. Blyth) suspected that he got something of the same kind of notion that a farmer's son did if he was kept at school till he was 15 or 16. The older a boy got, the more he was versed in what was called general education; and the more refined his notions became, the less inclined he was to turn his hand to what was called the drudgery of learning his trade or his business.

He (Mr. Blyth) would put it to either of the two noble lords, or to any great landed proprietor, if they had a farm to let, and if two young men presented themselves asking for a farm, if one was a practical lad, who had been at home with his father, and had worked hard from 12 years old, and the other had a little scientific knowledge which he had picked up at Cirencester or elsewhere, he knew which they would take for a tenant. Both should be equal in every other respect, but the one should be thoroughly practical, and the other—[A Voice: Theoretical]—a little more scientific. Of two farm lads, one of whom had, and the other had not, learned to read and write, it was not certain that the former should be the best at 20. He knew so many instances to the contrary, and he was sceptical on the point. He only wished to say that all the remarks he had made before the Assistant-Commissioner or otherwise simply tended to this—that he did not think the system of education that had been lately accorded to labourers' children in agricultural districts was in accordance with the wants they would feel when they went to labour themselves. As something had very frequently been said with respect to the employment of capital, and the energy and activity of occupiers, and the intelligence and good character of labourers, Mr. Blyth offered the following slight history of a farm, and how it had been cultivated the last century. It is just 97 years ago (he said) since my father first set his foot on Sussex Farm. He was then seven years old. At the age of 17 he was left by my grandfather to manage that farm for him. At the age of 21 he took it on his own hook. There are a thousand acres of land. His father gave him 700*l*., his mother gave him 200*l*., and with 900*l*. he took the occupation of 1000 acres. He met with what we could not, many of us, now-a-days—a brother-farmer, who lent him 3000*l*. He farmed for 10 years as a bachelor. At the end of that 10 years he was master of 10,000*l*., and he strengthened his hand by marriage; and in 1808 he bought the farm and another with it. He then began to plant and to raise fences (for there was hardly a fence on the place), and to build. In 1822 he was enabled to enclose a large tract of marshes; and the late Duke of Sussex, who was then a frequent guest at Holkham, paid him a high compliment (and through him the yeomanry of Norfolk) in coming to dine at my father's; and from that

day it was called "Sussex Farm." When I followed him in 1833 (continued Mr. Blyth), I took the farm in a comparatively high state of cultivation. I have farmed it for 33 years; and now many gentlemen have said to me, "I cannot think how you can leave such a place." Well, there are many subjects for regret, no doubt, in a person leaving a place where he has spent all his days. But independently of the feeling at times and of the necessity of making up one's bundle of sticks, getting a little tired of the general routine of business, I have this very great satisfaction at the end of my occupation of an estate which has been occupied by my family for nearly 100 years, of knowing that it has continued to improve in value ever since it has been in my hands. I have the satisfaction of knowing that there is a class of labourers that have grown up on the farm, who have repeatedly borne away premiums offered for honourable competition by this Society. I have the satisfaction of knowing that those men have improved very much by the competition they have met with here against other labourers of the district, and that they have been the means so far of assisting others in learning to improve themselves both in their skill in work and also in their conduct as men; and I have this further satisfaction of knowing that many of them, on my declining their services now, have stepped into places where they will earn much more money than I have ever given them. All these things are satisfactory proofs to me that those men have been able to raise themselves by their own exertions and by their own industry, where they have been treated perhaps with only common kindness, but where, once having set foot upon the farm, they knew they would never be paid off except it should be for misconduct. I have this other satisfaction (and it is to me the most gratifying one, and, therefore, amongst a few brother-farmers in the neighbourhood I take the liberty of just referring to it), that in handing the farm over to the two sons of a man who has been a good tenant on the estate for nearly 20 years, I do it with the full confidence that I am handing it to young men who have been well trained to habits of business, of respectability, and of integrity; and I have no fear of their forfeiting the confidence that is reposed in them.

RECENT STEAM-PLOUGH OPERATIONS.

County Wexford.

The two brothers, Messrs. Purdon, who have the honourable distinction of making the pioneer movement of working the steam plough, with its accessories, on a great scale in Ireland, have introduced to the county of Wexford this implement, so powerful in the reclamation and culture of land, under the following circumstances.

To begin at the beginning. These gentlemen obtained about eight years ago a lease, with a tenure of 300 years, from a gentleman who had purchased in Chancery between 500 and 600 statute acres of woodland, which constituted a portion of the large estate of the Phayre family. The above area of land was under Oak, Birch, and brushwood; all the timber had been felled previously to the sale, excepting about 150 acres of wood, which will be left uncut until of matured growth. Happily for the new proprietors, there had been no occupying tenantry on the land, therefore no displacement of peasantry was required—no disturbance of holdings, no jealousies or hardships arising from consolidation of little farms; no subject for disputes or cause of popular hostility against the purchasers; no difference of opinion except what arose from a claim of access to many pathways over the land—a point which was easily terminated. In fact, the new possessors of this large, and mostly waste land, obtained as complete control over it, as if they had purchased and colonised a portion of forest land in North America, with the great advantage of many labourers in their neighbourhood ready and willing to work for such good and welcome employers, who let out 300 acres by piece work, at the rate of 1*s.* 3*d.* per square (statute) perch for clearing out stumps and stones. The cost of this amounted to 11*l.* 10*s.* per acre, to which was added 1*l.* 10*s.* for removing the stones raised by blasting and the pickaxe to the spots from which they were carted to the lines marked for the fences which now partition the farms into fields varying in size from 15 to 50 acres. These walls are 5 feet 6 inches in height, and 2 feet 6 inches at the base, tapering to 16 inches at top, the outside course being laid in mortar, with Scotch coping. The masons contracted for the work, supplying lime and sand, and were paid 7*s.* 9*d.* per perch. The stone gate-posts, which are circular in form, and plastered, are 7 feet 6 inches high, with ornamental tops of white spar.

The general quality of the soil is good, as the products have testified. After repeated horse-ploughing, clearing of roots and weeds and burning them, and applications of lime, &c., heavy crops of Hay, Oats, and Turnips have been obtained, and a large stock of sheep and cattle are now supported on the farm, the young store cattle being kept through the winter in the standing forest portion, with sheds for their better shelter. In the glen of this woodland there is a bed of marl, which will prove beneficial to the contiguous parts of the land—an important manure in a locality 11 miles distant from lime kilns. An unfailing stream of water from the higher land affords the facility of irrigation, and to complete the natural advantages in an agricultural point of view, there is at the base of the undulating land an ample supply of peat-mould in a small area of space (which will probably become an embellished lake), of which a considerable quantity is taken to the headlands of fields intended for green crops, where it is mixed with the headland soil and farmyard manure. The bog mould is also carted to the feeding houses and their surrounding channels to absorb the liquid manure. I believe that this is the largest tract of land ever reclaimed in Ireland by the spade, the pickaxe, and the crowbar. I have now to state the special circumstances that led to the very recent employment of the steam plough on this farm, on which I had the gratification of seeing its first operation.

The zealous and judicious exertions of Mr. Edward Purdon, while acting as honorary secretary of the Cattle Plague Committee, were so highly appreciated by the agriculturists of Ireland that a subscription was readily made for the purpose of presenting to that gentleman the most complete steam plough that the factory of the Messrs. Howard, at Bedford, could supply. Accordingly, a 10-horse double cylinder high-pressure steam-engine, with three-furrow steam plough, steam cultivator, steam digger, steam ridging plough, and steam harrow, with double-drummed windlass and 1600 yards of steel wire-rope, the necessary porters and anchors, water-cart, &c., forming the only complete set sent to Ireland, and at the cost of about 750*l.*, was presented to Mr. Edward Purdon by the nobility and gentry of Ireland, at a banquet held to do him the deserved honour, in the Mansion House, Dublin.

It appears, from the printed catalogue of Messrs. Howard (1867), that, although 228 steam cultivating implements have been purchased from Messrs. Howard in Great Britain, four only have been brought into Ireland, and six into Scotland.

The immediate results of the very superior steam cultivator at Killoughran, are deepening the soil and greatly increasing its productiveness, and executing the ploughing or digging work of an area of land which would require 50 days' work by four horses in four-and-a-half short days, besides dispatch in corresponding ratio in harrowing, rifting, &c.,

What an advancement in expensive and systematic and profitable cultivation of large farms may be expected from this important beginning—what encouragement to the reclamation of bog or moor lands in particular! There opens a vast field for speculative industry. With what comparative rapidity and economy of funds might not the yet unredeemed mud lands of Wexford and other localities, from which the sea has been banked off, be brought into systematic culture, employing many labourers in preparatory and subsequent operations tending to a vast increase of the country's agricultural products, and diminishing in all cases, where steam cultivation may prevail, the cost of maintaining horses. *Martin Doyle, Nov.* 20.

GOSSIP ABOUT CLOVERS.

When bipeds or other animals are seen looking sleek, plump, and well, the common country saying in some localities is, "Yes; they have the appearance of having lived in Clover." Such observations seem to show that there is a real value placed on Clover as possessing thorough good flesh-making qualities. The old Red Clover (Trifolium pratense) has indeed been a favourable and most valuable forage plant ever since I can remember. I do not know exactly how long it has been cultivated by the farmer as a forage plant, but I recollect working with an old intelligent agriculturist—in the years of 1816 and 1817—who was then three-score and ten, and who had worked in a garden above 30 years after leaving the farm. He informed me that he could well remember when the Red Clover was first introduced into this country; that previous to that upland arable farmers had no particular Grass or herbage to lay up for a hay crop, but would select a Wheat errish, or other field that was best stocked with a strong crop of Couch Grass—our natural Grass and weed—from which to cut a crop of hay. Fifty years ago, and since, I have seen wonderful crops of the old Red Clover. For this last 25 years or more, a vast deal has been said and written about this old invaluable Clover. We have been told that the land on the four-course system is "Clover sick," or sick of producing Clover. How is this to be accounted for? is a question which I have been asked hundreds of times. That there is something radically wrong is demonstrated in too many districts every year. Thousands of acres of the most splendid plants of this real old valuable herbarge are to be seen in every direction when the corn is cut, and for some little time afterwards. But how about it at the following Lady Day? Why, it is completely gone, or perished to a most extraordinary and fearful extent. Thousands of acres are entirely gone, and nothing but a thin, scanty crop of the old Eaver or Rye-grass and weeds left. And where there is some Clover it never grows with that strength and luxuriance seen in former years—with stalks 3 feet high, leaves the size of oyster shells, and Roses or bunches of flowers as large as a boy's halfpenny ball. Of late years it seems to grow sparely, hungry, and weakly, not at all like the Red Clover of 50 years back. I have seen many fine pieces of Clover, as I have now when the corn was cut, attacked with mildew after a few hot days. The foliage drops off; the plant soon becomes puny and unhealthy, and the crop patchy. I have also seen many pieces of Clover so attacked by wood pigeons gobbling up the foliage and picking out the hearts of the Clover, thereby admitting the frost and wet, which causes canker and actively destroys the plant. Rabbits, where many are kept, also nibble and destroy the Clover to a great extent. The slug, too, commits serious ravages in some seasons. But all these misadventures can be remedied, and do not make out a case of the land being Clover sick. My idea is that it shows the land to be exhausted of some property of which the Clover plant stands in need. If this be so, what can that be? No doubt some very simple inexpensive element, if applied at the right time, would really remedy this great and growing evil. The gun, traps, and perseverance, will put to rout the rabbits and wood pigeons, and dredging the Clover, while the dew is on it, with dry wood ashes, will entirely eradicate the mildew. But still the Clover crops sicken and die, although not subject to either of the foregoing pests. The simple remedy, I believe, from a long course of observations, is the application of salt. In course of years of constant tilling the land, in my opinion, gets exhausted of this valuable element. Some 20 years since, or more, a large extent of old mossy Grass land—almost worthless, which would maintain nothing in the way of cattle or sheep—was placed under my management. I set to work and foraged up all the refuse of the place—dung or other manure—cleared out the furrows, water tables, ditches, roads, and corners; collected together some hundreds of loads in convenient heaps, applied to those heaps a quantity of salt; and then incorporated the whole by a thorough mixing. All was turned and well incorporated, and applied to the poor Grassy land at the rate, as we then considered, of 6 cwt. to the acre. It was spread, harrowed, bush-harrowed, and well rolled and worked about. The result was that the Moss and rubbish were all killed, and disappeared, and Clover made its appearance in great abundance, where it had not been sown or seen before. Clover grown on land after a Mangel crop, in the dressing of which plenty of salt has been used, grows wonderfully strong—almost like Bean stalks. There is one other illustration of Clover being benefited by salt. I pointed out the fact to several persons at the time. A gentleman purchased some land adjoining the sea. According to an ancient map a portion of this land had been washed and encroached on by the sea, and was entirely covered to a great depth with clear pebbles, which the sea had cast up in its place. In order to take possession a portion was fenced in, a slip of those pebbles was levelled, and some sand dug off the sea-beaten cliff, which was covered with a crust of shiny salt. When dried by the sun 3 or 4 inches of this salt-sand was placed on the pebbles and sown with Barley and Red Clover. The Clover grew away amazingly strong, 3 or 4 feet high, with much luxuriance of foliage and blossom. The next winter, at spring tides and during stormy weather, the sea water covered it, and it was currently believed that it would kill it. But so far from this being the case, it grew away the second season a stronger and more luxuriant crop, and it was cut several times. Salt, when used for the benefit of the free growth of Clover, should be applied in dark, cloudy, rainy weather, at the rate of 6 cwt. to the acre; applied twice, sown over in a regular manner the same way as sowing corn broadcast. If to kill weeds or vegetation apply the same quantity at one application in dry, hot weather, and it will have the desired effect.

The Scarlet Clover is a very useful and early forage plant, producing heavy crops of stock-food at a time when we stand in the greatest need of it. One great advantage, too, with this free-growing early variety is that it can be sown in autumn after harvest on a clean stubble. For many years it did not make that advance among agriculturists as one really would imagine such a useful green plant would have done. The first patch I saw of it was in a country nursery in the year 1817, and was said to have been brought from abroad by some of our soldiers. In the year 1818 I recollect going to see two or three fields of it on Whit Monday. It was then in full bloom, and could be seen a long distance before we came to it. I then thought it was the most luxuriant, gayest, and most beautiful field-cultivated plant I had ever seen. This, too, was growing on very light-blowing poor sandy soil—not many years previously reclaimed from a waste. And this was at a time when nothing was known of artificial manure, and when our natural-made manure was not at all taken care of, or economised. Those fields, moreover, were a long distance from a farm-yard; but nevertheless it was a most splendid crop—the owner of which, at that time, was considered a first-class farmer, and managed throughout with stock and crop. The first was that on the common. Close at hand was a marl pit, and early in the winter the marl was carted and spread all over those fields of Trifolium incarnatum, and his other Clover fields. The heavy coat of this marl, which was pulverised by the winter weather, was by the month of March falling to pieces like slaked lime. It was then in dry weather, and the ground was harrowed, bush-harrowed, and well rolled, and pressed as firm as possible. At that period there were some good cultivators of the soil, for I must say that during my travels for 50 years I have not since seen a more robust crop of Trifolium. Marl was at that time made use of very freely by most agriculturists that could command it at a reasonable carriage distance, more particularly for all light soils. This plant is also fond of salt, applied in wet, dark winter's weather; also wood ashes and chimney soot. In the southern, south-western, eastern, and midland counties, I have seen it for years extensively grown, but in the west but very sparely grown until we were visited with two succeeding dry summers, when either the old Red Clover then sown did not come up, or perished through the drought or some plague, and this caused many farmers to look out for something for spring fodder. This useful plant was then fully recommended and adopted for autumn sowing, since which a greater breadth is sown yearly. *James Barnes, Bicton.*

POULTRY REARING AND MANAGEMENT ON AN ORDINARY FARM.

[The following is the conclusion of Mrs. F. Somerville's Prize Essay on this subject, published in the "Journal of the English Agricultural Society."]

Ducks.

There are many varieties of ducks, but the two most profitable and best suited to the farmer generally are the Aylesbury or white duck, with flesh-coloured bill, and the Rouen, which should be exactly like the mallard in feather, though much larger in size. Both kinds are equally good, and gain great weight, if properly bred and fed, and well supplied with water; they will weigh 16 or 17 lb. per couple at eight months

old. In breeding for the market, ducks are best hatched under a common hen, and kept off the pond, they thrive better without access thereto, and are fit for the table at eight weeks old; but those intended for store should have plenty of water, and be provided with a house, furnished occasionally with straw, and nests prepared, and if regularly fed they will become attached to their abode; otherwise they are apt to ramble, especially if there is a brook near, in which case many eggs are lost. They commence to lay early in the spring if well fed, and, if not allowed to sit, continue to lay until autumn. It is very desirable to have a good supply of early and late broods, which always fetch a high price. There is very little trouble in rearing ducks, whether the eggs are set under the common hen as before mentioned, or under the duck; the time of incubation is one month. Let the ducklings when hatched have a good nesting for about 24 hours, afterwards clip off the down at the tail to prevent their being drabbled, then place them with the mother in a coop, and feed with coarse Barley meal, to which water is added, making the food quite sloppy; afterwards give Indian meal and bran mixed up with buttermilk, so as to form a proper consistency, occasionally adding a few boiled Potatos by way of a change; and, as I have before stated, they will be ready for the market in eight weeks, which is the chief end to aim at, and get them into money as soon as possible. Early ducklings are generally sent to the market in the feathers, but if kept over two months old, it is better to dress them, on account of the feathers, which are nearly, if not quite, as valuable as those of the goose; and the duck, when dressed, is more convenient to the buyer, consequently, will command a better price.

In a work of this kind it would be quite useless to enter into a description of the many existing varieties of fancy ducks, which are of no value to the generality of farmers, or where mixed poultry is kept, on account of the additional convenience, care, and attention required.

GUINEA FOWLS

Are a useful and handsome bird, and are in season during the months of February, March, and April; they lay a great quantity of eggs during the summer, but, being of a wild nature, they generally lay astray, consequently their eggs are sometimes lost. Their flesh is of very game-like flavour, and, coming in after the game season, they are useful for the table; their eggs are small but fine flavoured, and always worth the same price as common hen-eggs, the price of the birds being generally about 7*s.* 6*d.* per couple. It is the best way, in case of breeding, to set the eggs under the common hen, the time of incubation being one month. After hatching place the hen under a coop, around which fix a guard to prevent the young straying, as they are very wild; they may have the same food as young turkeys. The coop, which should have a boarded bottom, will require to be moved to fresh ground every other day at least; after the first week the young birds should be shut up within the coop, to avoid injury whilst being removed; they may have their liberty when three weeks old, but the mother should be kept in the coop a week longer. The young will by degrees become tame and good foragers, and little difficulty will be experienced in rearing them under this method; but they are troublesome amongst other poultry, being regular attendants, however well fed, at the chickens' coops, besides being very quarrelsome, often driving the most spirited cocks before them, and perhaps injuring them in some way. From these remarks it may be inferred, according to circumstance, whether it is desirable to keep them or not upon an ordinary farm. I have made 8*l.* within a little, from one pair of birds during a season. As many males as females are required, as they always pair; the spotted variety is the hardiest; the white are very delicate birds.

PIGEONS.

There being so little trouble with these birds, it is desirable to keep a few at most places; they are always readily sold, and are in great demand when game is out of season and spring chickens are scarce. For breeding purposes they should not be kept too old; a convenient way of denoting their age is to cut off a nail of the claw every year, and a good cote with separate nests should be provided, and kept scrupulously clean, and a plentiful supply of rock-salt afforded. For the table and profit the Blue Rocks are preferable to most other breeds; one pair will produce 10 hatches during the year. Feed regularly, but scantily, as they will find the greatest portion of their own food.

EGGS

Should be gathered daily—in fact, whenever they are to be found, for fear of loss or accident; those from the select poultry should be placed in bran, with the narrow end downwards, marking thereon the date, as the preference is always given to the freshest eggs for setting, though they will keep good for three weeks, and if you have more than required they may be sold at a good price. But ordinary eggs should be sold only when dear, and preserved when cheap, in the following manner:—If there are many, procure a tub that will contain, say 40 gallons, which place in a cellar or other cool room, and put therein 1 bushel of quicklime, 2 lb. of common salt, and ½ lb. of cream of tartar, then add 30 gallons of cold water, and stir round a few times to mix the ingredients; afterwards leave until the following morning, when again stir up all together. It should then be of such a consistency that an egg will float on the surface. Another vessel of convenient size must now be provided, in which the eggs are to be preserved, packing them close together with narrow end downwards (which should be done daily, after a commencement is made, as the fresher the eggs are the better), adding as much of the prepared liquor as will just cover the eggs; this must be done day by day until the vessel is filled within 3 inches of the top, then fill up the vessel with the liquor, and in a few days a crust of ice-like appearance will be formed over the vessel, so as to keep it perfectly air-tight. Eggs (if fresh) preserved thus will keep as long as required, and for all cooking purposes will answer as well as the freshest, from which they can scarcely be distinguished. Having practised the system for years, I will guarantee it to have the desired effect, if properly carried out. Where labour is a consideration, eggs may be managed so as to pay better than rearing young fowls, as far less time and attention is required with laying hens; but the non-setting varieties should generally be kept, though sitters will be required to produce early chickens, which must furnish the fresh eggs for the breakfast-table during the winter months.

No given rule can be laid down as regards the keeping and profitable extension of poultry on an ordinary farm, as so much depends entirely upon the conveniences and attendance—whether the latter can be performed by a member of the farmer's own family, whose time is not otherwise profitably employed, or whether it can be had at a reasonable rate; if not, a large number will have to be kept to produce a profit, after paying for special attendance; but if poultry of all descriptions are kept in large numbers on too small a space, the ground becomes tainted, and disease and death make their appearance amongst them. Poultry in some hands flourish and pay wonderfully well, whilst in others it is just the reverse; all depends upon the care, skill, and attention bestowed in the management thereof.

For the satisfaction of the reader I will state the produce and value for one year of my poultry, as regards the female stock managed as herein stated. In some instances fancy prices were obtained, and prizes taken on exhibition, which, of course, are included in the value. No account of the quantity of food consumed was taken, as I had no intention of offering a statement to the public. It was, however, all grown on the farm, except about 4*l.* worth.

104 hens produced 13,739 eggs, exclusive of those set; they reared 372 chickens, besides hatching the ducks and guinea-fowls.

5 turkey hens reared 74 young.

6 geese reared 58 goslings.

Ducks hatched under hens, 79.

Guinea-fowls hatched under hens, 42. Reared and sold.

Attendance, a boy and myself.

Total value of the above, 190*l.* 17*s.* 8*d.*

N.B. 7 store ducks kept; the guinea-fowls were the produce of one pair. *Manor Farm, Rufford, Ollerton.*

Home Correspondence.

Mr. Mechi and the Water Supply of his Neighbours.—Though few men are better able to defend themselves than Mr. Mechi, and though you have, I think wisely, declined to allow the controversy (if such it can be termed) with reference to his statements to be continued in your paper, I venture to draw attention to one of the points which formed the subject of attack, namely, the injury said to be inflicted by him on some of the wells in the parish of Tiptree, an injury which was far outweighed by the benefits conferred elsewhere. When I was collecting materials for an Essay on Water Supply, published in the "Royal Agricultural Journal" of 1865, having previously seen what had been done at Tiptree in the drainage of a certain part of the farm, and the utilisation of the water, I visited the farm (as it happened, in Mr. Mechi's absence), taking with me a pocket-level; and carefully examining the spot, I recorded as follows:—"Where the beds of gravel are deep and extensive, it is obvious that water may be led away from a hill-side and form a perennial stream of the greatest value. This is well illustrated on the well-known Tiptree Hall Farm. When first occupied by Mr. Alderman Mechi, land-springs issued from the slightly-rising ground to the north of the house, the weepings of which generated a peat-bed. Deep drains were driven into the hill-side, cutting through the margin of the gravel into the clay beneath, whence so large a quantity of water was gathered into one head as to supply all the ordinary wants of the homestead, and furnish a volume sufficient to carry out at all seasons the system of irrigation co-extensive with the farm, whilst its overplus carries health and comfort to a once fever-stricken district in its course below. As the utilisation of this water is instructive, so in the source whence it flows a lesson may be learned as to the geological and physical conditions under which a like supply may be turned to good account elsewhere. The village of Tiptree stands on an extensive bed of drift-gravel and sand resting on the tertiary clay, naturally drained by streamlets which flow down the shallow valleys or depressions by which it is flanked or intersected. As in all such cases, the subterranean water is upheld in the soil at an angle above its outfall, varying with, and dependent on, the closeness of the sand or gravel in which it lies. The water in the village wells stood, in the autumn of 1864, 16 or 18 feet above the artificial and ever-flowing vent given to it by Mr. Mechi's drains. It is on record that, when these drains were first dug, many, if not all, the wells in the village were more or less affected. If the supply were less, and it was necessary for the sake of Tiptree farm and establishment to economise the supply (and this may serve as a general illustration), a well (call it of depression) on a large scale might be sunk near the centre of the gravel-bed, whence the greatest body of water might be raised by artificial means, or allowed to pass by gravitation from the well to the lower levels by some simple contrivance providing for the shutting off the water at pleasure. Such sources of water, when practically perennial, are often said to yield an undeviating volume; a periodical gauging would show that the quantity is in the ratio of the natural exhaustion and replenishment by rainfall." The effect on the wells was confined to those nearest, and the so-called injury repaired by slightly deepening them. *J. C. C., Long Wittenham.*

Chambers of Agriculture and their Discussions.—These Chambers of Agriculture have come into operation at a very opportune period. There appear to be many, and some of them very important, questions for their discussion and advocacy. The importation of stock diseases from the Continent is of high import. The central society have done quite right in asking the Government to institute a strict supervision over sheep as well as cattle. Railroads are now carried into the heart of Russia, entirely through Europe. How speedily, then, may we have inflicted upon us any disease that may arise in any part of the Continent. It is the imperative duty of Government to protect stock-owners from such destructive inroads, but we well know that all Governments wait to be spurred up to such duties by the urgent representations of parties interested. This our Chambers of Agriculture are now doing. The employment of women and children in agriculture, the gang system, and the education of children employed in agriculture, are exceedingly important subjects. All our "Chambers" are very properly taking them up, so that legislation cannot now take place in ignorance of the various phases of these subjects. The labour question becomes more important daily. Modern agriculture has created a wonderful demand for it, and this demand is ever increasing. What folly, then, to adopt measures to restrict it. The education part of the question is paramount. Schools must be established everywhere, and be open to all-comers either free or upon very moderate terms. Would it be very improper—would it be an act of unmitigated injustice for Government to take the funds of charity schools and apply them, under proper regulations, toward establishing these free schools, giving the localities of such charity schools something like commensurate privileges—say to establish one good school for every three miles radius. these school funds to be supplemented by Government grants? The Malt Tax is a question second to none for discussion and movement by these "Chambers." Is modern agriculture to be burthened with an incubus of such weight as 7,000,000*l.*? It is monstrous, and must be thrown off. No malt like that made from English Barley! It yields 11 per cent. more proof spirit than any other. What an opening for foreign trade, as well as home consumption! What a wonderful demand for English Barley—the best sorts would realise more than Wheat. It is not finance, but the advancement of agriculture that the members have to do with. Then there is "the unequal pressure of local taxation." Why is the land or real property to bear it all? Why are our manufacturing poor to come upon the land for their support? Why is land to bear all the cost of the religious teaching of the country? Why is the land to bear all the cost of road repairs, county prisons, police prosecutions, &c.? Grave questions for our many Chambers. Again, there are the questions of the transfer of land, union ratings, national ratings, law of settlement, highways or road reforms, abolition of tolls, and others continually arising in Parliament. I also venture to suggest another which will, I think, ultimately require their careful consideration—the better representation of their interests in Parliament. I hail the formation of these Chambers with the greatest pleasure. I hope they will arise in every district, and give their ready and earnest support to the central body, from whom should emanate every important movement. Every truly earnest man should be a member of the Central Chamber as well as of his local one. It must keep up a competent staff, a "local habitation and a name." The small subscriptions from country Chambers will by no means find the sinews, and if the head fails, where are the members! It is now the great centre from which all efforts should be directed, and all aggressions watched. Allow me to say that your capital leader of the 16th and your report of C. S. Read's address ought to be published together as a tract for sale at the Agricultural Hall Show in December. The agricultural community cannot be too much excited by such telling papers. We must be kept up to high pressure just now. *O. F.*

Cottage Cookery.—The remarks of Mr. Read, M.P., on the lightness of Norfolk dumplings may be true enough, as I do not know of what materials they are composed. If they are balls of boiled flour paste only, and he ever eats one with impunity, he may be congratulated on his digestive powers. Now that corn is, and likely to be high priced, let me recommend a cheap, simple, and wholesome preparation of food, not much known in England, which forms the daily meal of the poor artisans and others in North Germany, who never taste meat, and, as they say, never think of it—it is called Potato dumpling. The Potatos, which must be mealy and of good quality, are cooked in the usual way, and then pounded. To three parts of Potatos put one part of Wheat flour, with a little salt, and mix them well together. Milk sufficient to make a paste is then mixed in, and it is to be boiled in a bag or basin. The proper time can only be learnt by experience, but it must be well boiled. It will then be firm and light, and may be eaten either by itself, or with Apple, treacle, or other sweet sauce. It is very palatable with salt fish or meat, and with currants and sugar a plum pudding may be made. *Cors.*

Wages.—I venture the statement that a thoroughly practical farm labourer is entitled to the remuneration of a first-class workman in the building trades. The facilities afforded to dissatisfied farm labourers are now so numerous, that farmers will soon be compelled to compete with colonial employers for skilled labour, or content themselves with second and third-rate hands.

Fifteen hundred souls left Aberdeenshire alone about seven years ago. The American war checked the emigration movement from this district; but it is likely to recommence. Emigration agents are offering to take steerage passengers from Glasgow to New York for five guineas; but farmers will rest in false repose till they find themselves only supplied with good men too poor to make a move, and with those who have not pluck to leave farmers who appear to regret that they cannot keep their ploughmen in a position more degrading than the horses they employ. *T. W. R.*

A few Words on Potatos.—In 1864 I grew some 21 sorts of Potatos, which I procured from the lists of respectable seedsmen in England and Scotland. The two I considered best were Paterson's Victoria and one which I got of E. P. Dixon, of Hull, as Birmingham Prize. They seem almost identical: they are round, sometimes inclined to be flat, and both produce purple flowers and mature their Apples, and are a full-crop Potato, and ready to take up about the middle of October. In 1865 I discarded about three-fourths of the other sorts, as either being subject to disease, or not productive, or not of first-rate quality. This year I planted only four or five of the old sorts, and got a few new ones. The Victoria still stands first in the list, being very free from disease, a very good bearer, and of very good quality. In 1864 I got several of my friends to try four stones each of this sort, and they all say it is the best Potato they have grown, though one remarks that if grown with a large quantity of manure it sometimes contains hollow cavities. However, from the four years' experience of myself and friends, I do think it is the best full-crop Potato grown. I have grown for the last four years the King, which is a smooth-skinned, flat, round Potato, and which is spoken of as the best in a paper by C. H. Newmarsh in the "Leisure Hour," but as it grows yellow-fleshed with me, I rank it much lower than Victoria, which is white-fleshed. I tried shoddy by itself as manure this year for Potatos, but they proved very much diseased; the tops looked very dark-coloured in summer. Perhaps if it had been mixed with manure, as I had intended, it might have proved more satisfactory. The paper in the volume of the "Royal Agricultural Journal," just out, proving that 8 oz. sets are more productive and profitable than smaller ones, is well worth a careful study before next season by those who plant large quantities of this root. The Potato crop is so expensive to grow that it is very important to have a good sort. I used, for two and a-half acres, 60 tons of very good manure, worth 8*s.* per load, and 7*l.* 10*s.* worth of mixed hand tillage, and a ton of shoddy, which cost 30*s.*, and as the price of sets last spring was high, I consider every row would have cost 5*s.*, a bushel being required to a row. I fancy few persons care to calculate the real cost of the crop, as they must have some for house use, and the cattle and pigs are ready for the remainder, which the latter, at the present value of pigs (6*s.* per stone), will not repay. I think very high manuring increases the tendency to Potato disease. *Henry Richardson, Faxton Grange, near York.*

Societies.

GLOUCESTER ROOT SHOW.—At the dinner following the Root Show here, Mr. HOLLAND, M.P., the chairman, made the following remarks:—

ON AGRICULTURAL EDUCATION.

I won't talk about education generally, but only as it affects the agricultural labourer. I don't want the labourer to be a learned man—to know all about geography or history; but I do want him to be able to know what is for his own advantage, what will make him intelligent, and give him skill to deal with our machinery and to be fitted generally for that state of things in which there now is a large amount of expensive capital applied to agriculture. But what we want for the labourer more than anything else—and it should be the foundation upon which we build everything else afterwards—is to instil into him a sense of self-respect. How is that to be done? By books or schools? Not so. It is to be done by putting him into a decent position. The man the members of whose family sleep altogether in one room, without separation of sex—he cannot have self-respect. The man who lives like a brute, grovelling in filth, without any feeling of kindness or sympathy for those who are about him, between man and man, or man and master—he cannot be made to have self-respect. All these things are to be remedied. And how? Not by the employer alone, but by the landlord and employer working hand in hand. Unless you have self-respect on the part of the labourer, you will not have the man you require in the present high state of farming. What makes the difference between the labourer and one of ourselves? Is it position—is it intellect, or anything connected with human nature? Isn't it merely the difference that exists in the advantages which have come from education? Take two boys of equal intellect. We will call the one, son to a rich man, John Plantagenet; the other, one of a family living in a hovel, John Smithers. Plantagenet is taken care of in every way. If he grows up, he grows up with an idea of cleanliness: he is well-washed, and it does him good, though he cries over it at the time. Suppose he is untruthful, and tells a lie. He isn't immediately thrashed to his life's end, as poor John Smithers would be; but he is allowed to be told at an early age how sorrowful a thing it is to be false, and how necessary it is for a man wishing to do well in the world to have a sense of truth. The boy in the hovel, if he is caught stealing an Apple, or anything of that kind, he is beaten without reference to aught save the punishment the mother or father may be able to give him. He goes into the fields; he has no sense of cleanliness; after a time, as he grows up, he crowds the family cottage improperly; perhaps he gets into service in a parish that doesn't belong to him. Has he a home there? No. He may have part of a hovel. Then come the wintry nights. What does he do? Has he a fire? No. Where does he find a fire? At the public-house: circumstances lead him there. We know the rest. Now, I say that if it had so happened, as they say it has happened in fairy times, that a change had taken place in the position of the two children, then Plantagenet would have been as brutal and filthy as little Smithers, and Smithers, in his new position, in the large and rich house, would have been brought up in all due sense of purity, mentally, intellectually, and morally. I put these cases before you to show you that the individual intellect has nothing to do with the position of a poor man—that the vital question is the mere chance of circumstances. I tell you that intellect is not wanting; the better feelings of humanity are not wanting; circumstances are the preventing cause to the poor lad whom, as far as self-respect and good behaviour are concerned, we ought to put in the same position as the richer one. Now, we cannot all do that. But we may all attempt to do it, and I believe that until you do attempt it you will not improve the position of the agricultural labourer by any amount of education. I thank you for listening to these few words, which, really and truly, I believe I ought to act upon if I would do my duty to the labourer. An advantage I feel in connection with this society and every such society is, that this is the growing feeling on the part of the farmers at large. They are open to the conviction, and so are the landlords, that if you wish to help the labourer out of the mire you must give him the essential moving cause, self-respect. I believe that we shall not benefit him to any great extent by teaching him in our schools. I do express a pleasure and satisfaction at having so many fellow-labourers in this work, and I feel that the Central Chamber of Agriculture, in taking up this question, ought to be supported by the different local Chambers, so that in it may be concentrated the opinions and the feelings of the agriculturists of England.

CHAMBER OF AGRICULTURE.

This brings me to speak of our local Chamber. One must say that it is rather depressing, looking to other Chambers, to think of the few members belonging to ours. Still, we must remember the Cirencester Club, and class the two together as belonging to Gloucestershire. Local Chambers, as now organised, cannot fail to be of great advantage to the farmers, by giving them from time to time opportunity for expression and interchange of opinion. That is what the farmers want. Commercial men sometimes say that the agricultural mind is lacking. But they never consider the fact that a man on his farm is isolated from his fellow-creatures, and that his calling requires him to live alone, and not to be knocking about at corners of streets and in different societies as commercial men are. It follows of course that the agriculturists should need such means of converse and mental intercourse as are given by this society, the Agricultural Society, and the Chamber of Agriculture. I do trust that Gloucestershire will support the local Chamber. Nothing but good can come of it. I suppose I may argue that since the matter has not been so vigorously taken up here as in other places, the Gloucestershire farmer has less to complain of than his brethren; that is the only reason I can render. I certainly know this—that, connected as I am with Gloucestershire, I feel that, intellectually, and in every point which tends to make a man better fitted for becoming a useful member of society, there is a very marked advance in the farmers of this county. I do trust that I may be often allowed to take this chair, and that on all occasions I may be well supported by the county and city as I am to-night.

That brings me to the city. The Mayors of the city of Gloucester are well-known in history. At the time of the Civil War Gloucestershire was an important point, and the city stood a tough siege. If we consult Clarendon, we shall find that the Mayor of Gloucester in that day was a most important and a most wise person, and showed a large amount of presence of mind in some difficult extremes. While the besiegers were assailing the walls—and, remembering those walls, wheelage in those days was wheelage—so Clarendon in his history says, the chief authority of Gloucester (which must have been the Mayor) handed out to all his fighting men a certain quantity of strong waters. In these days strong waters are called "good drinks," and the Mayor of Gloucester shows by his liberality from year to year how worthily he follows his predecessor, making it now, however, a graceful matter of hospitality to distribute his drinks. I beg leave to propose to you the health of the incoming Mayor: I rejoice in the prospect of his mayoralty. At the same time, we must not forget that we are parting with a good friend in Mr. Robinson. During the two years he has served, as far as my knowledge goes, he has always been most favourable to the agricultural interest in any communications with him as to agricultural matters. I give you "The Mayor and Corporation."

Capt. DE WINTON proposed "The health of the Judges," and congratulated them upon the nice tact and discrimination by which, if possible, they had managed to satisfy even the unsuccessful competitors. He had tried hard in competing for the county prize; but, do what he would, he couldn't get it. He wanted the lesson he had learnt in the show to be completed by a practical discussion at that table. He wanted to know why he had been beaten, after taking the greatest pains, by artificial and yard manuring, to grow a good crop of Swedes on heavy land. They say the hill men have a disadvantage in that respect. But I feel that if I were on the hills, I'd beat any farmer in the Vale having such land as I hold myself. From what I have seen of the hills, I know that you can go upon the land at any time of the year and in any weather. As for my land, if it comes a heavy storm of rain in the night, I daren't go upon it for a week, or I should do more harm than I could do good in a month. The gentleman who won the prize for the crop of Swedes farms land which I have often envied. But I want those who win, whether on light or heavy soils, to tell us how they win; and I think our prizes should not be given away until the winners, either *viva voce* or in writing, give us this information. At present they won't even give me a hint. They tell me that my heavy land is better than theirs; but that is no consolation to me when I find them carrying away all the prizes.

Mr. HALSEY replied for the judges. He said there had been a very close competition, particularly for the county cup—so close, indeed, that an alternative 5*l.*, given by Foster Brothers, to be dealt with at discretion, in case their prize of 10 guineas was not competed for, had been divided into 2*l.* each for James Bennet and Mr. R. Loveridge, and 1*l.* for Mr. S. P. Dobbs. The successful man of the four who competed for the five guineas offered for the best five acres of Turnips was Mr. D. Holborow; the land was on the Cotswolds, and the crop was by far the heaviest of all. The Cotswolds were proverbial for growing Turnips, and he did not think the Vale could possibly compete with them: the quality might be as good, but the crop would not.

KINGSCOTE: *Nov.* 12.—*Agricultural Education.*—At the first monthly meeting of the Kingscote Agricultural Association, Colonel KINGSCOTE, C.B., M.P., President of the Association, delivered a lecture on agricultural education. He said:—I must first apologise for taking so important a subject at so short a notice, and only do so now to open a discussion upon it. I would divide the subject into two parts: The education of those youths who propose to follow agriculture as a profession, and—The education of the labourer. As every one likes to begin with the easiest fence first, I will take the education of the labourer. Of late years very much has been said on agricultural education at the Royal Agricultural Society's meetings and at others; and this Society has on previous occasions had it very ably brought before its members. Mr. Want's lecture in 1865 was very interesting and instructive, and from it emanated the establishment of that most useful chemical class which has given such great satisfaction, and I doubt not will prove very beneficial to those who had the privilege of attending as pupils. Then we had Mr. Morton's lecture in November, 1865, entirely on the education of those who intended to farm.

EDUCATION OF THE LABOURER.

Now, as to the state of the labourer at present. He does not like to do so much hard work as he used to. He has now no objection to see machinery doing the most laborious work on the farm, such as mowing, reaping, and threshing; but if he is not required to do this hard work, he must have his head at work; therefore a different system of education is required, for without it it would be impossible for a man to become what may be called a good practical labourer—able to do whatever may be required of him. As labour is now more scarce, and higher wages have to be paid than formerly, it is the duty of every farmer to encourage education to fit men to manage those implements which are being brought into use in such a manner as will lessen the number of hands required, that he may be able to give the wages to those who are deserving of them. It must also be a great advantage to the labourers to have comfortable dwellings situated near their employment, and also to the employer by having the whole strength of the labourers employed at farm work, instead of having it spent in walking miles to and fro; it would also be a means of preventing anything like what are called trades' unions, and must be of great importance to have them always ready at hand. The agricultural gang system, which we knew but very little of in this neighbourhood, in other counties where it is practised is felt as a very great evil, and must be a great drawback to education, and almost impossible to carry out decency and morality under such a system; but we must live in hopes that when the new Act, passed last session, comes into operation its influence will be that of great improvement. At present it is lamentable to see the idle manner in which children are being brought up, girls in particular. Boys are not taught perseverance and carefulness, and the girls seem to know nothing but to dress finely and ape fine ladies long before they know anything that would be of use to them in their future age, or in any way fit them for plain household work. The schools of the present day teach too much of fine or light work, such as crochet, and no end of flimsy trash. The girls ought to learn washing, ironing, and plain cooking, indeed all sorts of household economy. The duty of all employers is to see that the children of those they employ be taught what is commonly called the "three R's," beyond that their own exertions must take them, and in these days literature is cheap, good, and accessible. Boys' muscles should also be brought into work, and that early, or else a boy is useless and never will do hard work. Legislation on agricultural children is all very well, but most difficult to carry out. A boy (constitution being considered) should begin to work on a farm at 11 or even 10 years of age. His education commencing from his cradle, as far as morality and character is concerned, goes on through life, and by the time he is 10 he should be able to read, write, and do arithmetic. A very important point is that night schools should and can be established in every village. He may then go to farm work and night school, and his reading himself will follow on the work. Girls also ought to be taught useful things, and brought up to household work. All this must be seen to by the employers of labour. The good work then begun must be left alone, and a man must raise

himself from the ranks, and work himself onwards, as many have done and are doing now. Legislation will never make or rear a working man.

EDUCATION OF THE FARMER.

As with the labourer, the child must and does from his cradle commence his education, and in early infancy his religious and moral character to a certain degree is formed. Then follows, until the age of 12 or 14, a plain general education on a good sound general basis. Schools where this education can be got are more numerous and less expensive than formerly; but more may be hoped for and done in this respect. At the age of 12 or 14, and onwards, comes the ticklish time to know what to do with boys. Their muscles, like labourers', must be exercised, and it is not too soon for them to learn to hold the plough, in fact to learn everything on the farm and to help in accounts and book-keeping. They cannot yet leave school. Where are they to go? To the agricultural colleges at Cirencester, Suffolk, or Devonshire, &c.? From 16 to 21 years of age is the difficult time. What has been done by the Royal Agricultural Society generally to encourage youths of this age to continue their education? What has that Society done, what feud has been going on between two sections of that Society headed by Mr. Holland on one side, Mr. Acland, Mr. Dent, &c., on the other? [Here Col. Kingscote detailed the part he had taken in it, and showed how the opinions of Mr. Holland and others that examinations in practical agriculture can be made, are gaining ground by what the Royal Agricultural Society had allowed at last. Instead of the Oxford and Cambridge examinations, he could see no difficulty whatever in an examination on practical agriculture. He then read the report of the Examination Committee to show what the Royal Agricultural Society is now doing, and he believed it to be a step in the right direction.]

But it will be said—Yes, this is all very well; but how are we to get our sons the education to fit them for this competition at a rate commensurate with our means? That is the difficulty, but the difficulty is being lessened daily; learning increases, and as it increases so must it become cheaper. Boys must be put with farmers who have been highly educated, must attend colleges or schools like Cirencester; but the usefulness of those places of education should be increased, and the pupils thereat taught to work with the hand as well as with the head. I have often thought that a farm at the head of which a well-educated practical man should be placed, might have the whole work of that farm conducted by a school (if I may use the term) of pupils, who would carry out the entire labour of that farm, and in addition, by obtaining professors and teachers for a certain number of hours each week as well as the nightly work at the accounts of the farm, &c., carry on their mental education, and that such an establishment might solve the very difficult question of what a youth of 18 years of age is to do with himself for the next four or five years. In this scheme many difficulties would crop up; among others the difficulty of obtaining a place within reach of those who could teach the sciences and higher branches of learning. Then, again, more may be done by societies like our own, as has been done by the chemical class. He referred again to rewards held out by the Royal Agricultural Society, and hoped that they would encourage the Royal Society by sending up candidates. In conclusion, he expressed a hope that the discussion would turn on the education of the labourer, chiefly as to night schools and procuring useful books for him to study with through lending libraries, and on the education of the farmer—general education and practical to go together.

Mr. ROBINSON said they must all feel very much obliged and indebted to Colonel Kingscote for the able and most practical manner in which he had brought the subject before the meeting. The Government grant towards education was liberal, but the system of having certified teachers did not work so well in his opinion as might have been expected; he knew several instances where the teachers considered themselves above being spoken to as regards the tuition and management of the children under their care, the idea being, as they were certificated teachers, no one had any right to interfere in the least with them except those who were appointed by Government. He thought if Government would grant a small amount to rural villages, and give the parishioners the option of choosing whom they pleased as teachers, it would be a better system, and one that would tend more to the improvement of education.

Mr. FORD said, if he had been in the enviable position of having a lot of sons, as soon as they were able to go to school there they should go, and when able to work he would put one with the horses, another with the cows, a third with the sheep, and so on; for he believed, for their future well being, it was well to teach them in early life what would make them independent and respected in the future.

Mr. B. DREW concurred in most that had been said, and was as anxious as anyone that labourers' children should have a knowledge of what the respected lecturer called "the three R's," but he was also sure they ought to be early taught the three lines,

To plough and sow,
To reap and mow,
And be a farmer's boy.

Mr. BURNETT said: All agreed that children are not brought up in the manner they ought to be. But where was the remedy? It was no good telling the child that he is poor, ignorant, and wretched, unless we can point out some way by which his miserable state may be improved. Now here was the difficulty. In the common routine of things, we would say, put a graft on the stock and the fruit will follow; but looking at this, as far as this generation is concerned, it is impossible to do so. The twig you may bend, but the old stock will break rather than give way. Therefore, the only thing, he said, that could be done was to teach the young, and the only practical way of doing so was by night schools. They had been told that it was the duty of every employer to encourage this system of teaching, and he should recommend all giving it a trial, and he would guarantee they would not look upon it as a duty, but feel it to be one of the greatest of pleasures. As regards the education of the farmer, of which they had heard so much, it was evident that something more was needed for the improvement of his education. This is also a difficult question to solve how it is to be done. A good sound book education is come-at-able, but the difficulty seems to be, having gained that education, how a practical and scientific knowledge of agriculture is to be obtained. Or, he would say, how that school education is to be retained and improved, at the same time acquiring a knowledge of agriculture. Well, he could not see a better system than that which had been pointed out by the worthy lecturer—say a large farm, rented by a committee of management, who would be responsible for rent and everything connected with such an occupation, where they would have suitable professors and teachers, and carry out in a similar manner as proposed by the lecturer, or else by such classes as had been adopted by that association, the education of farmers' sons.

After much further discussion, the following resolution was put and carried unanimously:—

"Resolved, that this meeting is of opinion the grant given by Government might be still more usefully applied by allowing grants to schools in small agricultural parishes with uncertificated masters and mistresses, which might be subjected to Government inspection. Also, that it is most desirable that night schools should be established wherever practicable during the winter months, under the superintendence of the employers of labourers themselves, and that farmers' schools, such as those we have advocated, or similar classes to those adopted by this association, should be set on foot for the improvement of the education of farmers' sons."

Farmers' Clubs.

HUNGERFORD: *Nov. 20.—The Benefits that would accrue from the Repeal of the Malt Tax.*—Mr. J. A. WILLIAMS, of Baydon, read an interesting paper on this subject. He said:—The subject will be best handled by dividing it into three parts—The injustice to the farmer, the injury to the public, and a practical remedy for both. First, then,

THE INJUSTICE TO THE FARMER.

I will first notice the effect the duty has on the average price of Barley, and the bar it is to the sale of our second-rate sorts. That description, which is almost too good for grinding, and not good enough for malting, is the worst to sell of any we possess. It would make very good malt if there were no duty to pay, but as it is, the maltster seeks for the best sorts, and will not malt those if he can get a supply of a better quality. This tells against the farmer, not only in the sale of his commodity, but the high rate at which the average returns are made, the best descriptions being certain to be sold and returned, whilst the inferior sorts, which are generally kept for home consumption, do not go into the average at all, and, consequently, a fictitious average is the result; which again tells against him by making him pay his tythe and corn rents (which are based on these averages) at a higher rate than the natural averages would give. Ought any legislation to have such an effect as this? I believe the Tythe Commutation Act to be one of the best that was ever passed; the calculations were based on a thoroughly sound foundation, and I believe if the Malt-tax had not existed when the Act came into operation, that for the 31 years it has been working the sum of 100*l.* calculated would have been exactly realised; as it is, the return shows that during the said term it has been exceeded by an annual average of 16*s.* 2½*d.*, or during the 31 years of 25*l.* 2*s.* 6*d.*, and this may safely be written as the result of the high average on the article of Barley, caused by the duty thereon. The next thing I shall notice is

THE PROHIBITION WHICH THE DUTY ON THE RAW MATERIAL CAUSES TO THE FEEDING OF STOCK.

The Government are quite aware of this. They have tried no end of experiments through Mr. Lawes and others, and we had a Bill passed to meet the injustice of the case, by allowing us to use a certain compound which has been facetiously termed "Gladstone's mixture." Mr. Lawes was the person appointed by the Government to try experiments on the feeding of stock, and in his report he asserted that malt was no better than other feeding stuffs for making beef and mutton, but he found it beneficial for milk. Taking Mr. Lawes' own argument, that it is only beneficial for milk, can any one imagine the loss to the farmer of an article which will increase the quantity and improve the quality of milk? Look at the price it is making, if sent to market: the increased quantity and quality of butter and cheese that might be made. And this is but a small portion of the benefit that would accrue. Have we no breeding flocks of ewes—no sows to farrow—no mares to feed when suckling their young? the whole of which would be improved by the use of malt? In February, 1864, I had the honour of reading a paper on the Malt Tax at the Central Farmers' Club, in London. I will quote from the Journal of the Club part of a letter that I received from a practical man as to the value of malt for feeding:—"Mr. Wallis, of Cambridge, for the last four years has given, one month previous to lambing, one pint of malt to each ewe, and since he has pursued that plan he has had but little loss in the ewes, and they come in full of milk, and the lambs do well. At present, he says, he has a great many lambs, and they are fat and well." This corroborates Mr. Lawes' report, but we have ample proof that it is highly beneficial for fatting purposes as well. I was one of a deputation who waited on the ex-Chancellor of the Exchequer in April, 1863, and addressed him on the subject of the Malt-tax. I also wrote a letter to him in January, 1866, in the leading agricultural papers, which as it contains two extraordinary cases of successful feeding with malt, I will quote; it also contains the remedy which I intend to propose at the end of this paper:—

"Among other arguments I used was the following case of 300 sheep having been fed by Mr. Pargiter, of Boxford, near Newbury, on damaged malt, with the hope of getting a drawback of the duty paid thereon, but was unsuccessful in his efforts. I drew a parallel case of a Frenchman, coming from Calais, or Boulogne, purchasing the same amount of malt in England, asking for, and obtaining a drawback of the duty for export, feeding 300 sheep in France with the same material, sending them to the London market the same day as easily by water as Mr. Pargiter could by rail, and both standing side by side for sale, the foreign sheep paying no import duty, and the difference being this—that whereas Mr. Pargiter had paid 21*s.* 8*d.* per quarter duty for all he had consumed, the Frenchman paid no duty in any shape. And I remember well further asking you, 'If that was an English system of treating the English producer?'

"Mr. Pargiter's 300 sheep proved a successful attempt (barring the duty), and I have now another case (despite the experiments of Mr. Lawes)—one of the most extraordinary that ever occurred. Mr. Samuel Wentworth, of Enham, near Andover, Hants, sold at Weyhill Fair, on the 10th of September last, 200 wether lambs, only 9 months old, at 60*s.* per head, making the unprecedented sum of 600*l.* About a month before the fair they fell down with the foot-and-mouth disease, and being fearful from the high condition they were in of sustaining a severe loss, he gave them 1 bushel of malt per day; not any of that made for cattle food, but whole malt, that had paid the duty; they immediately recovered their appetites, got well of the disease, and made the extraordinary price named. Mr. Wentworth, in this case, paid the Government a duty of upwards of 4*l.*—a pretty specimen of the boasted free-trade of England!"

Such was a portion of my letter to Mr. Gladstone, and the effect of taxing the raw material may be well illustrated as follows:—Suppose a duty was about to be put on cider, would the Government place it on the Apples? Certainly not; if they did, the poor man could not make an Apple-pudding but he must pay the duty on cider! Likewise, the public could congratulate each other that when eating Apples as a dessert, or for any other purpose, they were adding to the revenue by paying the cider duty. What an absurdity this would seem to be, if acted upon, and yet the Malt-tax is precisely the same; the duty is on the raw material of beer, and Mr. Wentworth could not give his lambs a bushel of malt per day for a month but he had to pay the duty on beer to the amount of between 4*l.* and 5*l.* I think I have said sufficient to prove the absurdity as well as the injustice of the Malt-tax. Let us next look to

THE INJURY THE PUBLIC SUSTAIN BY THE DUTY ON MALT.

Whatever might be said to the contrary of malt being useful for feeding purposes, it would be in general use if the duty were taken off. What, let me ask, is one of the principal ingredients given to the London dairy cows, but the brewers' grains, well known to increase the quantity and quality of the milk? We know, too, the value of malt screenings, and shall it be said that the offal is of such value and malt itself of no use? I don't hesitate to assert that with a judicious feeding with malt as a condiment, the public would be great gainers by having an increased supply of beef, mutton, pork, and bacon, and they would have a sweeter and more nutritious article. Then, again, with respect to the adulteration of the beer they purchase, the high duty on the raw material increases the price of malt to such an extent that it induces the brewers to find a substitute, and a list of ingredients that are used may well frighten the public, if they know what they have to swallow. Among the ingredients used for adulteration, are tobacco, salt, ginger, treacle, quassia, Linseed, Gentian, sugar, Coculus indicus, Capsicum, wormwood, copperas, &c., and with respect to the amount of this adulteration, the careful inquiries of our Inland Revenue Officers prove that 20 out of 26 samples as they reach the consumer are adulterated. As a further proof, the late Mr. Fisher Hobbs (well known in the agricultural world) told me, he had had 12 samples of beer analysed that he had obtained from different publicans in his neighbourhood, and that 10 out of the 12 were drugged. With such evidence as this before us, what can we expect of the moral condition of the peasantry of England who have no choice but to drink the stuff generally called beer, unless they are fortunate enough to live near those few honest brewers who make the pure article? Were the duty on beer instead of malt, the raw material would be reduced in value, on the average of years, at least one-third, it would be the cheapest and best article that could be used, adulteration would no longer take place, and the national beverage would be made from malt and hops. The result of this would be, the labouring man could drink his quart of beer without fear of a headache, a less amount of duty per barrel would suffice by an increased consumption, consequently it could be sold for less money, and the general consumer would obtain a pure article. As there is no hope of obtaining a total abolition of the Malt-tax (and nothing less would be of service in freeing the article of Barley from the fetters that exist on it), and, moreover, as the brewers have had it all their own way for 40 years, since the duty was so stupidly taken off the manufactured article and retained on malt, the raw material; and again, since the Government has ignored this principle by the abolition of the Hop Duty, by substituting a tax on brewers' licences; let us for the future through the medium of the Chambers of Agriculture, ask the Government to grant that which they will have no difficulty in doing, viz., that Barley and malt, like Hops, should be wholly and entirely free from any tax, and whatever duty was required to aid the revenue should be imposed on the barrel of beer. There is no reason or obstacle in the way why this should not be done in the next session of Parliament, and in the name of common sense and justice I would ask the Government to do away with such an anomaly that requires much greater labour and supervision to assess the duty on the raw material, than it would on the manufactured article; that restricts the farmer from using his produce to the best advantage; that creates a fictitious average price, that unjustly affects him who pays tythe and corn rents; that is a premium on the adulteration of beer; that has the effect of demoralising the labouring classes; and (may I dare to say so?) is a disgrace to the kingdom at large. I am not going to turn Chancellor of the Exchequer, or suggest what amount of duty should be paid per barrel. I simply assert there

would be no more difficulty in granting licences to brew than there would be in supplying licences to shoot, or keep dogs; the farmers, we all know, are large consumers of beer by their workmen, and as a matter of course those who occupy the most land consume the most beer, and the poor rate, as I mentioned in my letter to Mr. Gladstone, could settle the amount of licence duty each should pay; but I am satisfied that to a very great extent the brewers would have the trade, and the farmers and the public would pay the duty through them.

KELSO: *Nov.* 1.—*The Bad Turnip Crop and Cattle Feeding.*—Mr. R. ROBERTON, Whitehill, said that he would first take fat cattle for consideration. He had no doubt that they had them housed some weeks ago; he would state that for feeding he generally gave them chopped hay and straw, with Turnips, Barley-meal, and oilcake. The second lot of feeding cattle should get nothing but half Turnips, with either a little Rape or Cotton-cake, to the extent of 4 lb. As regards store cattle, he might say that he gave no Turnips whatever to store cattle. He generally, and especially this year, gave them straw, with 3 or 4 lb. of Rape cake, and he considered this excellent feeding for them. In reference to fattening sheep, he would say that those that have not been getting extra food on Grass (whether or not) should get, along with Turnips, ½ lb. of Cotton-cake, and ½ lb. of Tares, mixed with bran. The more you can get them to eat of this the better. The present price of Cotton-cake was not much over 6*l.* 10*s.*, and at that price it would pay to give it to both cattle and sheep along with other artificial food. He considered Tares mixed with bran was excellent feeding for sheep on Turnips. Cotton-cake would be added with great advantage. He thought, too, that hoggs should be learned as soon as possible to eat corn out of boxes. These were his ideas with regard to feeding, and his sole object would be to save Turnips as much as possible.

Mr. USHER said Mr. Roberton had given them a good many useful hints, most of which he cordially approved of. There were, however, a few points on which he differed with him. With regard to putting fattening cattle on Turnips, he disapproved of giving them as many as they could eat—it was both a great waste of Turnips, and did positive injury to the cattle. He would prefer giving them half Turnips for a while, with cut straw, and then, as he increased the supply of Turnips, adding as an auxiliary 2 or 3 lb. of Cotton-cake, to counteract the over laxative tendency of white Turnips. Besides, Cotton-cake was found by analysis to contain a large amount of feeding qualities. After the cattle are put on yellow Turnips, he approved of a mixture of Cotton and Linseed cakes, and when on Swedes, Linseed-cake alone, gradually increasing the supply to 5, 6, or 7 lb., according to the weight of the animals. With regard to store cattle, although in ordinary years he approved of leaving the Turnip shaws on the ground, he thought it behoved them, in a year like this, to economise food in every way, and so to give store cattle shaws as long as practicable. Mr. Roberton recommends to give Barleymeal or Tares, but both are too expensive at present market value; he also suggests 5 lb. of Rape cake, which he considered far too much. He had always found 2 or 3 lb. of Rape cake, or a mixture of cheap cake, quite enough, without straw, and a plentiful supply of water, to bring winterers through well; and when so treated, his experience is, that they graze better than when allowed a quantity of Turnips. In regard to the feeding of hoggs, which is the most general system in this neighbourhood, he thought it most essential to teach them to eat Turnips on Grass before netting them on, and giving them a little cheap cake, continuing it when put on full Turnips. This made the transition from Grass to Turnips gradual, and while it saved Turnips there could be no doubt that it saved life also. He found, in feeding sheep, an advantage in using a mixture of feeding stuff, and the more the better. At present he was using a mixture of Linseed, Cotton, and Rape cakes, and Locust Beans, which he meant to continue till he began to give cut Swedes, when, perhaps, the proportion and quality of the Linseed cake might be increased with advantage. He thought that in feeding stock of any kind there should be a progressive improvement in the quality of the food.

Mr. SCOTT, Spylaw, said that he was very much in favour of giving fattening cattle as many Turnips as they could consume, along with cake, gradually increasing the quantity up to 7 or 8 lb., and if Turnips were scarce, a little more cake and hay, and feeding fewer cattle. He did not approve of Barley meal at any price, and especially at its present value, as the cattle did not do so well upon it, and there was a great waste in the using of it in courts, and an inducement for vermin to harbour about them. In a year like this, when there is a large crop of straw, and Turnips are scarce, he would keep an extra number of straw cattle, and he had never for the last dozen years given either these or cows any Turnips. He gave them shaws as long as they lasted, and then 2 or 3 lb. of Rape-cake or Cotton-cake, preferring these to Linseed-cake, as they grazed better the following season, and they did very well and were more contented than with a good few Turnips. Of course they must have plenty of water. As to feeding sheep, we should not restrict the quantity of Turnips as long as they are eating them on the ground; but use cake, Tares, or Beans, along with the Turnips, whichever was cheapest. After tha fattening hoggs began to get cut Swedes, he thought it was imperative to give them extra feeding, as they were too strong for the age of the hoggs, and they did not thrive without it. In fact, he had seen them go to poverty getting as many cut Swedes as they could eat. Ewes and ewe hoggs would do very well on half Turnips and ½ lb. Cotton-cake. In regard to hill sheep, of which Mr. Roberton had taken no notice, and which in ordinary seasons were the largest consumers of Turnips, he would give them ½ lb. of Cotton-cake, mixed with Oats or Tares, as long as the weather was open, and when a storm came on they would require hay in addition to fill the stomach.

The Poultry Yard.

Lady Holmesdale's Stock of Dorkings, which have long been distinguished in the prize lists of all our poultry shows, were last week sold by auction at Linton Park, near Maidstone. Thirty cocks and cockerels, 40 hens and 30 pullets, with 30 lots of other sorts, fetched over 500*l.* One cock fetched 28 guineas, others 2*l.* to 16*l.* Hens fetched as high as 14 and 15 guineas each. The 114 lots of Dorkings fetched more than 3*l.* 10*s.* apiece.

Poultry Rearing Houses.—Much has been said upon breeding poultry for market in France and England, to show that things of the kind are done better in France than here; but something must be allowed to make up for advantages of climate. All who have had any experience in breeding and rearing poultry will admit that warmth and dry situation are the one thing needful to success in both countries, and as the French have an advantage over us in climate, we can only make up for our natural disadvantage by extra care, with regard to the protection we must provide, for assisting the rearing of the young poultry, in bringing them up to the period when they can take care of themselves. This being the fact, a well contrived building for assisting in rearing the young poultry is of more importance than is generally considered, and I have mentioned already that I was myself unsuccessful, on several occasions, until I improved my poultry rearing house. I find that a building, 12 feet by 24 feet, such as I will describe, costs about 35*l.* to 40*l.* to build, and is large enough to rear about 100 chickens and 60 turkeys at one time, all about the same age; and it will be an economical plan, if much poultry is wanted, to make several buildings of about the same size for the sake of breeding and preventing over-crowding. Large buildings are not good, and all rearing houses for poultry should be near the attendant's residence; as might be explained by several reasons, the chief one being constant attention. The plan I use and recommend includes the attendant's house attached to the rearing-house, the roof to be part of glass and part of slate, a furnace for warming, ventilators and doors, coops for turkeys, shrubs in the inclosed yard for shelter, Grass plot, wire gate, and fence 6 feet high for inclosing the yard; the coops as fixtures round the place in both houses, for economising the room; the soil dug out a foot below the surface, and 9-inch drainage pipes laid along the bottom to form a flue, then the space to the ground level filled up with coarse stones and brick rubbish. The floor is formed with a layer of concrete; thus the heat from the flue (the furnace being under the floor) could circulate through the rough stones and both warm and dry the floor.

The size of the house is 24 feet long by 12 feet wide, 4-inch brick walls, 5 feet 6 inches high from the ground; a plate of timber rests upon the brickwork all round, the doorposts morticed into the plate; tie beams run across the house, and carry planks which form a roost for young and larger chickens. The house is divided in the centre by a 4-inch wall 3 feet high; a wire fencing carried up to the joist from the brick wall divides this compartment, making one house for turkey rearing, the other for chickens, without obstructing light or warmth.

The roof is partly of glass (viz., 8 feet in depth), panes of a foot square, laid in grooves on the rafters; the remainder of the roof is of slate. The eaves are left open, under the roof, for admission of air. The doors open into the yard to permit the young poultry to run out or in at pleasure, and are made with sliding ventilators. The turkey house holds seven coops, each 4 feet by 3 feet, divided by thin boards fitting closely to prevent the old turkeys from seeing each other, and are placed on one side of the house only, close to the brick partition wall. The tops and fronts of the turkey coops are formed of 2-inch laths, 3 inches apart, to admit the light; from the top of the coops a wire fencing, 6 feet high, is fastened to timber studs, fixed to the beam, to divide the two houses, the wire being 2-inch mesh and costing 1s. per yard run, or 6*d.* per square yard. The coops for the chickens in the other part of the house are constructed in the same manner, but smaller, having 11 coops for hens in the same space as seven for the turkeys; so that, being on three sides of the house, there are 30 coops, the top being used in connection with glass and an artificial incubator, for rearing, or assisting in rearing, chickens with artificial heat; but of this I shall have more to say hereafter. The young poultry in these houses have their food put on boards in the centre of each house, for which purpose there are several, that the one last used may be thoroughly aired previous to being used again. In this house, in one compartment (12 feet by 12), we have in winter had 100 chickens running about which we have not allowed to go out-of-doors for a fortnight, because of the cold, damp, or rainy weather, and kept them clean, sweet, and in a healthy condition in winter and spring. We had also 60 young turkeys and six turkey hens in the part of the house (12 feet by 12 feet) allotted to them for three weeks without going out-of-doors. But the doors open to an enclosed yard with 6 feet high wire net, 2-inch mesh, except at the bottom for 18 inches in height, where it is closer to prevent the younger chickens getting through; so that the whole house is like one large coop, the greatest economy of feeding and freedom being provided for the young at all times, and the mothers kept in the most comfortable state during their nursing of the broods. The whole of a building such as I have described did not cost more than 35*l.*, and such a building as this will enable the poultry attendant to rear them with much less trouble than with a number of common coops, and be independent of bad weather and unfavourable seasons. This is one of the most important considerations to start with, if success is expected in this changeable and less sunny climate than France. I consider any make-shift dry sheds to protect the poultry will do when they become strong and old enough, as stock poultry, but to be successful in the end they require more protection in our climate than we are in the habit of giving them when young. *Land Steward.*

Farm Memoranda.

ABERDEENSHIRE FARM: *Nov.* 26.—Our Martinmas term and feeing markets being all past, the ploughmen are now busy turning over the stubble fields, and as you wished to know the wages of agricultural labourers all the year round, they may be quoted as follow:—Married ploughmen get from 18*l.* to 22*l.* (according to qualifications), with perquisites—which mean free house and garden, 6½ bolls of Oatmeal (140 lb. per boll), and a pint of warm milk daily, or some may have keep for a cow, but they are the exception. This class are generally engaged by the year. The single ploughman gets from 20*l.* to 24*l.*, with the same allowance of meal and milk, if he is to be lodged in the bothy; if not, he gets his victuals cooked in the farm kitchen. Single ploughmen are only engaged for six months. Experienced and well-recommended cattlemen get equally as much as a first-class ploughman. Women and boys get from 4*l.* to 6*l.* Wages for harvest hands are—for men capable of cutting and building, 4*l.*; binders, rakers, and uptakers, from 3*l.* to 4*l.*, according to ability and capability; day labourers from 15*s.* to 17*s.* per week of 60 hours. Farm servants in Aberdeenshire are generally paid once in six months, at the Whitsunday and Martinmas terms.

There is a want of house accommodation on many of our farms in Aberdeenshire. We do not know who is to blame—whether landlord or tenant, but there is in general a good feeling prevailing between master and servant in the county, and there is great improvement in the behaviour of our agricultural labourers within our own recollection.

We have now had a month of excellent weather, which has been well made use of. Finishing up of stack-yards and lifting Potatos (which are now found to be a poor crop and of bad quality) occupied a good part of it, and now stubble ploughing and Turnip storing are being briskly proceeded with. This, in the upper districts, is imperative to secure them from the ravages of the deer. In the lower districts, farmers have been loth to cut the tops from them, as the fine weather through November has induced them to swell a little.

The steam threshing machines have been going their rounds, and the yield and quality is invariably said to be bad; but the prices are rather better than last year. *J.* [Will some of our other correspondents compare prices of labour with those above stated.]

LEICESTERSHIRE LIGHT LAND FARM: *Nov.* 23.—Up to the present time the weather during November has been most favourable for all farm work, and in this district farmers generally have availed themselves of a fine seed time to push forward the Wheat sowing. It would seem that the high prices of this year have acted as an incentive to increased cultivation of Wheat, large breadths of this crop being already sown. The complaints of low yields in Wheat, so general over the country, have been verified by results in this neighbourhood. Farmers and threshing machine proprietors say they have not had experience of such low produce for many years. A yield of 4 quarters per acre is considered a very good crop this year. I dare say that 3 quarters per acre may be taken as the produce of a large extent of this county. Oats and Barley yield better proportionately than Wheat. The quality of grain shown on market is generally fair, and I observe many farmers have got pretty well forward with their threshing. As usual at this season markets are dull, but prices are stationary.

The Wheat sowing on this farm was finished early in October. The season being unusually dry, and having to deal with light land, the Crosskill crusher was found of immense service. After two ploughings and harrowings a heavy clod-crusher was sent on, which consolidated the land; a light harrowing succeeded, and the drill, with the coulters weighted rather heavily, put on about half a bushel of seed per acre; the Crosskill followed and finished.

In order to sow the half bushel per acre with regularity we adopted for the corn drill the barrel generally used for Mangel sowing. Having tried Mr. Hallett's plan of a Turnip cup barrel against the Mangel cup barrel, I have come to the conclusion that the latter, with half of the cups removed (that is, having every second cup on the discs taken out) will perform its work more satisfactorily than the Turnip barrel. We have now a beautiful braird of Hallett's Hunter's White and Hallett's Pedigree. It is beginning to settle down for the winter, and, although many are the incredulous shakes of the head over this thin seeding, we look forward to the harvest of 1868 with a hope that our experience of former years will not be then contradicted by results. The Mangel crop, which is gradually growing into favour in this district, does not this year yield quite as heavily as formerly. This may be attributed in a great measure to the cold, ungenial weather which we experienced during summer. On this farm we got the Mangels stored early in the month; the method adopted was as follows:—The roots pulled, leaves twisted off by hand, and the adhering earth shaken off, they were thrown into small heaps for the carts. (We never use

knives for Mangel dressing.) The roots were then carted to the steading, where they were piled against a wall. Before commencing piling two rows of hurdles were set up at a distance of 9 feet from the wall, these hurdles being 1 foot apart in the line: the space was filled up with Fern or straw. The carts of Mangels were then backed into the 9-feet space and tilted; boys threw the roots into a heap, resembling a lean-to shed, which was immediately thatched with about 9 inches of straw. This has been the plan followed for years, and we have found the Mangels keep sound and come out in good condition the following July.

Swede Turnips do not promise to be very productive. During the latter part of September and early in October they were attacked by a mysterious disease, supposed to be caused by the attack of grub, which checked their growth considerably; they have, however, rallied, and although the crop seems light, there is a probability of the bulbs being sound. We have commenced pulling ours; part will be pitted in the field to be cut in troughs and consumed by sheep, the remainder carted to the steading, piled in 5-feet-wide heaps, and thatched.

The Potatos raised in September are now being turned and sorted second time, we find that many supposed to be sound at first sorting have since shown disease. Potatos sell at a rather high rate just now, 4*s.* 4*d.* per bushel of 84 lbs.

The season continuing open we have not yet taken the store cattle to the yards and sheds, they get on the pasture as many of the Swede Turnip and Mangel tops as they can eat without becoming purged. As we have a rather large stock of stores, we intend to pulp all the roots supplied to them. The pulped roots will be mixed with a large proportion of chaffed straw and hay, they will get also as much Oat straw as they can consume.

Having adopted this "comminuted" food system previously, I can with much confidence recommend it to your readers. Great waste of food is avoided, and cattle seem to thrive better under this system of feeding than under the rough-and-ready plan of whole Turnips and straw in cribs *ad lib.*

Labourers are well employed, in fact farmers are crying out on the scarcity of labour; but as the colliery works of this neighbourhood absorb a large proportion of the labouring population, we rarely have distress amongst this class. *F. C., Nov.* 25.

Miscellaneous.

What is required of an Efficient Reaper.—Before I conclude, allow me to state in a sentence or two what I consider to be the requisites of an efficient reaping machine, and the plan which a person should adopt who has the ability and desire to figure upon the field as an inventor of such an implement. A reaping machine should be simple in its construction. It has to be dragged over many a rough field—many a stone and other obstruction—many a deep furrow and other dangerous places which cannot be foreseen—and that too in a rough manner; not by the gentle hands of man, ever careful to look for those obstructions, but oftentimes by a furious horse "jibbing" and rearing, unmindful of anything before it. Hence, if there is a great complication of machinery—which means many weak and delicate parts—some part or another is sure to give way, and be the cause of grief and disappointment to those in charge of it. It should be constructed so as to be easily managed. The hands into which it has to come are not always those of the mechanical school, who by professional training have an eye ever ready to foresee any danger that may be in the way, and by instinct as it were instantly know the best way of avoiding it. It falls generally into the hands of an untutored man — a person who knows how to do the common work about a farm, and nothing more, and who does not know the difference between a wheel and a pinion, and who is not capable of taking charge of a delicate implement. However honourable and anxious such a person may be, and however painstaking in his work, mistakes will happen which a man who has been bred a mechanic would avoid without any difficulty. A reaping machine should be durable in all its parts. The first outlay for a reaper is sometimes not easily met by the farmer, and it is very discouraging if, after he has straitened himself to pay it, he finds that year by year it is wasting and crumbling into dust. The maker, therefore, ought to be careful not to introduce any material, whether wood or iron, that has any defect about it. If he does so, it will militate both against himself and the farmer. As to the person who has the desire to become the inventor of a reaping machine, he must be thoroughly acquainted with the nature of the work to be performed. He must be well acquainted with the nature of the land upon which his implement is to work, and the state the standing crops generally are in when harvested. Without this knowledge he has but a small chance of being successful in the sphere in which he is anxious to move. A person with this knowledge is far more likely to succeed than one who is comparatively ignorant of these things — as, for instance, a man who is thoroughly acquainted with land is far more likely to construct a useful instrument than one who knows nothing about the matter. It is not altogether the amount of ingenuity that is required. A man whose stock of knowledge of the mechanical powers may be of a minimum kind, yet if he is thoroughly conversant with the other requisites, may succeed. Hence a watchmaker, or even the builder of a steam-engine, with all his knowledge of wheels and pinions, is not in such a fair way of success as the plodder among land who really knows what a standing crop is and what it should be when put into a stook or stack. And there is another thing I would humbly mention, although it is contrary to the received opinion of many men of science. We read in books every day, and we hear it stated by learned men in our conversations with them, that before a person attempts the construction of such an implement as a reaping machine, he should make himself thoroughly acquainted with what other minds have thought and done in the same line. I am not sure that this is sound doctrine. In some cases "ignorance is bliss," and I suspect that the truth quaintly expressed in this old adage applies to the inventor of any complicated piece of machinery. Let any one study carefully and become well acquainted with all the specifications of reaping machines that have found their way to the tables of the Patent Office, and he would be a bold man indeed who would make the attempt of adding another machine to the vast number that lay before him. He would likely become dispirited and conclude that the thing was impossible. A man thoroughly ignorant of all this, who never saw even the model of a reaping machine nor a drawing of a specification upon paper, is in a far better position to produce something new, and more likely to hit upon the right thing, than the person whose head is full of specifications, and whose mind has been thoroughly ransacked by the abortive study he has been pursuing. I was in this happy state of ignorance when I commenced the construction of a reaping machine. With the exception of a plate of Mr. Smith's (of Deanston) circular cutter, which I had seen in a magazine, I had not the slightest knowledge of what other people had done. I began at the beginning, and I attribute the success of my efforts in no small measure to my state of ignorance upon the matter. A man in a state of ignorance as to what other people have thought and done may very possibly stumble upon an idea that had entered into the head of another man. But no matter, let it be so: the other may have made a slip—he may not have wrought out his idea properly, and hence his failure. The other may have looked on the same idea with a different eye, and have given it a new turn, in consequence of which he may have succeeded. Let an inventor think for himself, and he has a far better chance of success than if he were to sit down and tinker the ideas of hundreds who had gone before him. *Rev. P. Bell, at Dundee.*

Master and Servant. — At the Alnwick Petty Sessions, Mr. Robert Dand, of Field House, near Alnwick, summoned his hind, Edward English, who lives at Seaton House, about a mile and a-half from Field House, for refusing to do his work, when leading corn from the fields in harvest. The facts were as follow:—The carts had brought their loads of corn from the field at 10 minutes to 12; and the farm-steward requested them to go back, before dinner, and bring another load. English said it was time to go home for his dinner, refused to do as ordered, and unyoked his horses. The other men went for another "rake," but English lived a mile and a-half from the premises, whereas the other men seem to have lived close by. English returned, and had his horse in the shafts again at 20 minutes past 1, and according to his statement he had worked that day 12½ hours, without including the time it took him to go and return from Seaton House, which he thought was a very good day's work. In answer to a question why he did not bring his dinner with him, as was the custom on such occasions, he said he had nothing to bring. He had a wife and nine children, and a considerable portion of their dinner consisted of Potatos and Cabbages, which he could not bring to the fields cold; but by going home at dinner-time he could get such a dinner as satisfied him. It was wanted to break the man's engagement, which the magistrates would not consent to do, but they ordered Mr. Dand to pay the expenses, some 10*s.* 6*d.*, and to deduct 20*s.* from the man's half-year's wages when due.

Boiler Explosion and Loss of Life.—A melancholy and fatal accident, and one which has thrown a gloom over the whole district, occurred at the farm of East Gordon (Mr. Henderson's), on Thursday last. In the course of threshing, with steam power, the boiler burst, and so severely scalded and burned five persons —three women and two men—that three of them have already died, and another is not expected to survive. Nothing certain is known as to the cause of the dreadful affair, as the steward—the person whose life is despaired of—was firing the engine at the time, and he is unable to give any account of it. This much, however, is certain, that the boiler—which was of the make known as a Cornish boiler—burst immediately at the end of the fire-bars, a part of the plate being most exposed to the action of the fire, being bent down in the direction of the chimney, and that steam, water, and fire, in one destructive volume, rushed out of the fireplace with such force as to drive the steward before it out of the engine-house, and against a straw stack which stood near. The groom, who was also in the engine-house, felt the full force of the current, and was driven on to the coal-heap; while three young women who were loading straw on to a cart near by were also enveloped in it. Of the five victims, two of the young women and the groom have since died of their injuries, and the steward is not expected to survive. *Kelso Chronicle.*

Notices to Correspondents.

ALDERNEY COW: *Subscriber.* Four quarts a day is a very small quantity for a newly-calved cow. Can you get distiller's grains? If she would eat half a bushel of them daily they would certainly increase her yield. Failing these, give her 2 or 3 lb. of Barley-meal in her water.

MUSTY HAY: *Cor.* Cut it in chaff, and either steam it or throw boiling water over it, in which 1 lb. of Linseed-meal and ½ lb. of salt to the allowance for every cow has been boiled. Its musty taste will go. Sweet or spicy condiment added to such food will make it *go*, and it will also make other food *go* faster too, and will thus keep a feeding beast or milch cow up to its mark—whatever that may be—as a feeder or milker.

Look to your Grass Lands, &c.

ESTABLISHED 1820.

MESSRS. JARED T. HUNT AND SONS beg to inform their numerous Agricultural Friends and Customers, that they have now on hand, in the finest condition, their usual Autumn Stock of

AMMONIACAL CORN MANURE,

which has, for several years, given such general satisfaction.

They have also always on hand, ready for immediate delivery, the largest stock of CRUSHED BONES of any firm in the United Kingdom, viz.:—In ½-inch BONES; ¼-inch BONES; PULVERIZED BONES for Grass Lands; prepared BONES for Grape Vines and Hops; also BLOOD MANURE, SUPERPHOSPHATE of LIME, PERUVIAN GUANO, and NITRATE of SODA, direct from the Docks.

Prices and other particulars of the above, at their Works, Lambeth Wharf, London, S.; Bow Bridge Works, Stratford, E.; and Downham Market, Norfolk.

N.B.—Responsible Persons as AGENTS WANTED in districts not yet represented.

LAWES' WHEAT MANURE for AUTUMN SOWING.—A supply of the above Manure is now ready for delivery, at J. B. LAWES' Factories, Deptford and Barking Creeks. Price £8 per ton. Two to three cwt. per acre to be harrowed into the land before the seed is sown. It can be obtained of Mr. LAWES, or through any of his appointed Agents; also

LAWES' PATENT TURNIP MANURE .. £6 0 0 per ton.
SUPERPHOSPHATE of LIME .. .. £5 5 0 per ton.

Genuine PERUVIAN GUANO direct from the Importers, and all Chemical Manures of value.

AMERICAN and other CAKES at market prices.

Address JOHN BENNET LAWES, Offices, 1, Adelaide Place, London Bridge, E.C.; 22, Eden Quay, Dublin; & Market Square, Shrewsbury.

THE LONDON MANURE COMPANY
(ESTABLISHED 1840)

Have now ready for delivery in dry fine condition,
CORN MANURE, for Spring Use
DISSOLVED BONES, for Dressing Pasture Lands
SUPERPHOSPHATES of LIME
PREPARED GUANO
MANGEL and POTATO MANURES.

Also Genuine PERUVIAN GUANO, and NITRATE of SODA, ex Dock Warehouse; SULPHATE of AMMONIA, FISHERY SALT, &c.

E. FORSER, Secretary.

Offices, 116, Fenchurch Street, E.C.

TOBACCO TISSUE for Fumigating Greenhouses.

Will Destroy Thrip, Red Spider, Green and Black Fly, and Mealy Bug; and burns without the assistance of blowing, and is entirely free from paper or rag. Price 3*s.* 6*d.* per lb., carriage free. A reduction in price for large quantities.

To be had of Messrs. ROBERTS & SONS, Tobacco Manufacturers, 112, St. John Street, Clerkenwell, E.C., of whom copies of Testimonials may be obtained; and of all Seedsmen and Nurserymen.

WINTER-DRESS ALL FRUIT TREES with GISHURST COMPOUND.

Copy of a Letter from Mr. RIVERS, *Nurseries, Sawbridgeworth, Herts, 22d October,* 1861.

"I must tell you what I heard to-day from a very clever gentleman farmer, Anthony Bubb, Esq., of Witcombe Court, Gloucester. He has a wall to which Peach Trees are trained. Well, last autumn they were in a wretched blighted state. As a desperate remedy he unnailed them all, early last February, and gave all but one a thorough painting with Gishurst Compound, 1 lb. to the gallon of water; his trees, all but the one, commenced to grow favourably in spring, and are now pictures of health. The tree not painted is in a half-dead blighted state. He used the same dressing to his Apple Trees; it killed the woolly Aphis entirely, and has made his trees clean and vigorous in their growth. He intends to paint his Wall Trees annually, and tells all his friends to do the same. I shall certainly serve all my young Peach Trees against my walls in the same manner. The Compound is, I believe, more efficacious than the usual offensive mixtures of clay, soot, sulphur, &c.; and it does not blacken the shoots on the walls."

For Orchard-house Trees, 4 ozs. to the gallon will be found a good strength; when used stronger some buds on weakly trees may be injured.

GISHURST COMPOUND is sold Retail by Nurserymen and Seedsmen, in boxes, 1*s.*, 3*s.*, and 10*s.* 6*d.* each.

Wholesale by PRICE'S PATENT CANDLE COMPANY, LIMITED, Belmont, Vauxhall, London, S.

Gishurst Compound has more recent testimonials to its efficacy, but none more conclusive than the above, which has been published before.

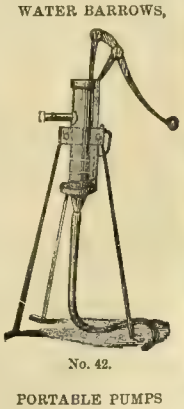
THE TANNED LEATHER COMPANY.
Armit Works, Greenfield, near Manchester.

TANNERS, CURRIERS, & MANUFACTURERS of IMPROVED TANNED LEATHER DRIVING STRAPS for MACHINERY.
PRIME STRAP and SOLE BUTTS.
Price Lists sent free by post.
Warehouse: 81, Mark Lane, London, E.C.
Mr. H. FERRABEE, Agent.

JOHN WARNER AND SONS,
BRASS and BELL FOUNDERS to HER MAJESTY,
HYDRAULIC ENGINEERS,
8, Crescent, Cripplegate, London, E.C.

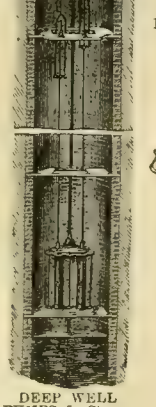


GARDEN ENGINES, WATER BARROWS,



No. 42.

PORTABLE PUMPS for LIQUID MANURES.



DEEP WELL PUMPS, for Steam, Horse, or Hand Power.

CRYSTAL PALACE FIRE ENGINES.



No 35.

CAST-IRON PUMPS.

Drawings and Prices for any description of Hydraulic Machinery sent upon application.

"Every Cottage should be provided with a Water Tank." *Disraeli.*

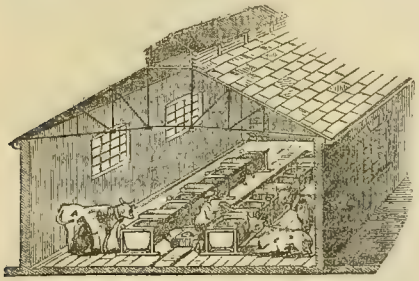
Iron Cisterns.

F. BRABY AND CO. having laid down extensive and Improved Machinery in their new range of buildings, IDA WHARF, DEPTFORD, are now prepared to supply WROUGHT-IRON TANKS, GALVANISED, or PAINTED, of superior quality, at reduced prices, and at very short notice.



F. BRABY & Co., Limited, Fitzroy Works, Euston Road, London.

COTTAM'S PATENT PORTABLE UNITED COW FITTINGS.



Their advantages are—Portability, not Fixtures, removable at pleasure, no Woodwork or Partitions to impede Ventilation or breed Vermin, Hay Rack dispensed with as unnecessary, increased width and depth of Feeding Troughs, Water Cistern, and Patent Drop Cover to prevent over-gorging. Cleanly, durable, and impervious to infection, being all of iron. Price of Fittings per Cow, 55*s*.

Prospectuses free of COTTAM & Co., Iron Works, 2, Winsley Street (opposite the Pantheon), Oxford Street, London, W., where the above are exhibited, together with several important Improvements in Stable Fittings just secured by Patent.

CARSON'S ANTI-CORROSION PAINT,

Patronised by the Nobility and Gentry, is extensively used for all kinds of OUT-DOOR WORK, and is proved, after a test of 70 years, to surpass any other Paint. It is especially applicable to Iron, Wood, Stone, Brick, Compo, and is the only Paint that will effectually resist the rays of the sun upon Conservatories, Greenhouses, Frames, &c. Is twice as durable as genuine White Lead, so simple in application that any person can use it.

	Per cwt.
WHITE, LIGHT STONE, BATH, and LIGHT PORTLAND COLOURS	30*s*.
LEAD, CHOCOLATE, RED, PURPLE, BROWN, and BLACK	20*s*.
BRIGHT GREEN, DEEP GREEN, and BLUE	42*s*.

Prepared OIL MIXTURE for the ANTI-CORROSION. OILS, TURPENTINE, VARNISHES, BRUSHES, &c.

3 cwt. Free to all Stations in England and Wales, and most Ports of Ireland and Scotland. Patterns and Testimonials sent post free.

WALTER CARSON & SONS,
La Belle Sauvage Yard, Ludgate Hill, London, E.C.
CAUTION.—All Casks should bear the Trade Mark. No Agents.

Oil Paint no longer Necessary.



HILL AND SMITH'S PATENT BLACK VARNISH for preserving Iron Work, Wood, or Stone. This Varnish is an excellent substitute for oil paint on all out-door work, and is fully two-thirds cheaper. It may be applied by an ordinary labourer, requires no mixing or thinning, and is used cold. It is used in the grounds at Windsor Castle, Kew Gardens, and at the seats of many hundreds of the nobility and gentry, from whom the most flattering testimonials have been received, which HILL & SMITH will forward on application.

From Major RT. BELL, *Sandhoe, Northumberland.*

"I have much pleasure in saying I have known your Black Varnish to be used for some time by friends of mine, and they all speak highly of it, which has induced me to get the quantity I have from you. That I have used looks remarkably well."

Sold in casks of about 30 gallons each, at 1*s*. 6*d*. per gallon, at the Manufactory, or 1*s*. 8*d*. per gallon paid to any Station in the kingdom.

Apply to HILL & SMITH, Brierly Hill Iron Works, near Dudley, and 22, Cannon Street West, E.C., from whom only it can be obtained.

PORTABLE AND FIXED HOT-WATER APPARATUS,

FOR HEATING CONSERVATORIES, HOTHOUSES, CHURCHES, PUBLIC BUILDINGS, PRIVATE RESIDENCES, ETC., WITH



TRUSS'S PATENT UNIVERSAL FLEXIBLE AND LEAKLESS PIPE-JOINTS.



T. S. TRUSS

Begs to state that the immense number of APPARATUS annually Designed and Erected by him in all parts of the kingdom, and for the ROYAL HORTICULTURAL SOCIETY at SOUTH KENSINGTON and CHISWICK, with unrivalled satisfaction, is a guarantee for skill of design, superior materials, and good workmanship; while the great advantages obtained by his IMPROVED SYSTEM cannot be over-estimated, consisting of perfectly tight joints with neatness of appearance; EFFECTS A SAVING OF 25 PER CENT. on cost of Apparatus erected compared with other systems; facility for extensions, alterations or removals without injury to Pipes or Joints; can be erected by any Gardener; an ordinary size Apparatus erected in one day, and PERFECTNESS of DESIGN SUPPLIED, INSURING NO EXTRAS. Complete Apparatus, of the best materials, with Saddle Boiler, delivered to any Railway Station in England, and Erected at the following prices. Erection beyond 25 miles off London, railway fare for one man additional. Considerable reduction on large works.

TWO FOUR-INCH PIPES ALONG ONE SIDE AND ONE END OF HOUSE.

Size of House.	Apparatus Complete.	Erection.	Size of House.	Apparatus Complete.	Erection.
20 feet by 10 feet	£9 0 0	£2 0 0	50 feet by 15 feet	£17 10 0	£3 0 0
30 feet by 12 feet	11 15 0	2 10 0	75 feet by 15 feet	20 0 0	3 0 0
40 feet by 15 feet	15 0 0	2 15 0	100 feet by 15 feet	26 0 0	3 5 0

Bath and Gas Work erected in town or country. The Trade Supplied.

Horticultural Buildings of every description from 1*s*. 6*d*. *per foot superficial, inclusive of Brickwork.*

Price Lists, Plans, and Estimates forwarded on application to

T. S. TRUSS, C.E., CONSULTING HORTICULTURAL ENGINEER, &c., SOLE MANUFACTURER,
FRIAR STREET, BLACKFRIARS ROAD, LONDON, S.E.

Observe — The City Offices are now Removed to the Manufactory, Friar Street.

GREEN'S PATENT SILENS MESSOR,

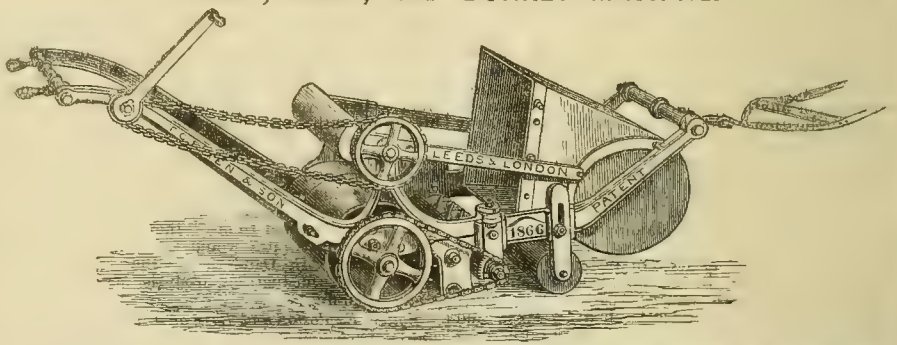
OR NOISELESS LAWN MOWING, ROLLING, AND COLLECTING MACHINES.

FITTED WITH PATENT SELF-SHARPENING CYLINDER CUTTERS.

They are the simplest in construction, least liable to get out of order, and can be worked with far greater ease than any other Lawn Mower extant.

GREEN'S PATENT LAWN MOWERS have proved to be the best, and have carried off every Prize that has been given in all cases of competition; and in proof of their superiority, 40,000 have been sold since the year 1856.

HORSE, PONY, AND DONKEY MACHINE.



Every Machine is warranted to give entire satisfaction, and if not approved of can be returned at once unconditionally.

T. GREEN AND SON *have to state that the demand for their* LAWN MOWERS *this Season has been unprecedented, which is a proof of the high estimation in which they are held. Selections can be made from their Stock both in London and Leeds.*

☞ ILLUSTRATED PRICE LISTS FREE ON APPLICATION.

THOMAS GREEN AND SONS, SMITHFIELD IRON WORKS, LEEDS; and
54 and 55, BLACKFRIARS ROAD, LONDON, S.

STEAM CULTIVATION.

JOHN FOWLER & CO.

WILL EXHIBIT AT THE SMITHFIELD CLUB SHOW, THEIR

PATENT STEAM CULTIVATING AND PLOUGHING MACHINERY,

INCLUDING

IMPLEMENTS SPECIALLY ADAPTED FOR LIGHT LAND.

JOHN FOWLER AND CO., STEAM-PLOUGH WORKS, LEEDS, and 71, CORNHILL, LONDON, E.C.

E. T. ARCHER'S "FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, and Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, &c.

PROTECTION from the COLD WINDS and MORNING FROSTS.

"FRIGI DOMO" NETTING, White or Brown, made of prepared Hair and Wool, a perfect non-conductor of heat or cold, keeping a fixed temperature where it is applied. It is adapted for all Horticultural and Floricultural purposes, for Preserving Fruits and Flowers from the Scorching Rays of the Sun, from Wind, from Attacks of Insects, and from Morning Frosts. To be had in any required lengths.

"FRIGI DOMO" NETTING, 2 yards wide, 1s. 6d. per yard run.
"FRIGI DOMO" CANVAS.

Two yards wide	1s. 9d. per yard run.
Four yards wide	3s. 6d. per yard.
An improved make, 2 yards wide ..	1s. 9d. per yard.
An improved make, 3 yards wide ..	2s. 8d. per yard run.

ELISHA THOMAS ARCHER, Whole and Sole Manufacturer, 7, Great Trinity Lane, Cannon Street, City, E.C., and of all Nurserymen and Seedsmen throughout the Kingdom.

"It is much cheaper than Mats as a covering."

JAMES PHILLIPS AND CO. beg to submit their prices as follows:—

GLASS for ORCHARD HOUSES,

As supplied by them to Mr. Rivers, to the Royal Horticultural Society, and to most of the Nobility, Clergy, and Gentlemen of the United Kingdom.

Each Box contains 100 feet. The prices only apply to the sizes stated.

Squares 20 by 12, 20 by 13, 20 by 14, 20 by 15.
16 oz. to the foot. 21 oz.

Fourth quality	15s. 0d.	19s 6d.
Third ditto	17s. 0d.	22s. 6d.
Seconds	18s. 6d	26s. 0d.
English	20s. 0d.	27s. 0d.

The above prices include the boxes, which are not returnable.

HORTICULTURAL GLASS.

Stock sizes, 16-oz., in 100 feet boxes, boxes included.

These prices only apply to the sizes stated.

				4ths.	3rds.	2nd.
				s. d.	s. d.	s. d.
11 by 9	12 by 9	13 by 9	14 by 9	13 6	15 6	17 0
12 „ 10	13 „ 10	14 „ 10	15 „ 10			
13 „ 11	14 „ 11	..	..			
14 „ 12	15 „ 12	15 „ 11	16 „ 11			
18 „ 12	19 „ 12	16 „ 12	17 „ 12			
16 „ 13	17 „ 13	20 „ 12	..	15 0	17 0	18 6
16 „ 14	20 „ 13	18 „ 13	..			
	17 „ 14	18 „ 14	..	16 to 17 oz. to the foot.		
	20 „ 14					

SMALL SHEET SQUARES.
In 100 feet Boxes.

6 by 4	6¼ by 4¼	7 by 5	7¼ by 5¼	.. 12s. 6d.
8 by 6	8¼ by 6¾	9 by 7	9¼ by 7¾	
		10 by 8	10¼ by 8¼	.. 13s. 6d.

Boxes 2s. each returnable at full price.

London Agents for HARTLEY'S IMPROVED PATENT ROUGH PLATE.

LINSEED OIL, Genuine WHITE LEAD, CARSON'S PAINTS, PAINTS of various colours, ground ready for use.

SHEET and ROUGH PLATE GLASS, SLATES of all sizes, BRITISH PLATE, PATENT PLATE, ROLLED PLATE, CROWN, SHEET, HORTICULTURAL, ORNAMENTAL, COLOURED, and every description of GLASS, of the best Manufacture, at the lowest terms. Lists of prices and estimates forwarded on application to

JAMES PHILLIPS & Co., 180, Bishopsgate Street Without, E.C.

Horticultural Glass Warehouse.

THOMAS MILLINGTON AND CO., 87, Bishopsgate Street Without, London, E.C.

NEW LIST for ORCHARD HOUSE GLASS as supplied to Her Majesty, the Nobility, Gentry, Mr. Rivers, and the leading Horticulturists of the United Kingdom.

ORCHARD HOUSE SIZES.

in.	in.		4ths.	3rds.	2nds.	Best.
20 by 12						
20 by 13		15 oz.	14s 3d	15s 6d	18s 6d	20s 0d
20 by 14	For 100 feet					
20 by 15		21 oz.	19s 6d	22s 2d	25s 6d	26s 6d
20 by 16						

SMALL SHEET SQUARES, 15 oz., per 100 feet.

in.	in.	in.	in.	in.	in.	4ths.	3ds.	2nds.	Best.
6 by 4	7 by 5	8 by 6	9 by 7						
6¼ by 4¼	7¼ by 5¼	8¼ by 6¼	9¼ by 7¼			12s 3d	13s 3d	16s 0d	18s 0d

Per 100 feet.

10 by 8	12 by 9	12¼ by 10¼	14¼ by 10¼					
10¼ by 8¼	12¼ by 9¼	13 by 10	15 by 10					
11 by 9	13 by 9	13¼ by 10¼	13 by 11	18s 3d	14s 6d	17s 3d	19s 0d	
11¼ by 9¼	12 by 10	14 by 10	14 by 11					

LARGE SHEET SQUARES, 15 oz., per 100 feet.

in.	in.	in.	in.	in.	in.	4ths.	3ds.	2nds.	Best
16¼ by 10¼	14 by 12	22 by 12	22 by 16						
16 by 10	14¼ by 12¼	17 by 13	24 by 16						
14¼ by 11¼	15 by 12	23 by 13	20 by 17						
15 by 11	15¼ by 12¼	18 by 14	22 by 17	14s 3d	15s 6d	18s 6d	20s 0d		
15¼ by 11¼	16 by 12	22 by 14	24 by 17						
16 by 11	16¼ by 12¼	24 by 14	20 by 18						
21 by 11	17 by 12	22 by 15	22 by 18						
13 by 12	18 by 12	24 by 15	24 by 18						

The above Prices are only for the Sizes stated; if a quantity of any other Size be required, a Special Price will be given.

SHEET GLASS.

In Sheets for Cutting up, averaging from 6 to 9 feet super.

	15 oz.		21 oz.	
4ths quality, per 300 feet case,	38s.	4ths quality, per 200 feet case,	38s.	
3ds „ „	48s.	3ds „ „	48s.	
2ds „ „	62s.	2ds „ „	66s.	
Best „ „	92s.	Best „ „	96s.	

SHEET GLASS is made only in the following substances, 15 oz., 21 oz., 26 oz., 32 oz., 36 oz., and 42 oz.

HARTLEY'S IMPROVED ROLLED ROUGH PLATE in 1-8th in., 3-16th in., 1-4th in., and 3-8th in. substances.

BRITISH PLATE GLASS for Windows and Silvered for Looking Glasses, Coloured Glass, Glass Shades, Striking Glasses, &c., &c.

PAINTS, COLOURS, VARNISHES, &c.

STUCCO PAINT, 24s. per cwt. This Paint adheres firmly to the walls, resists the weather, and is free from the glossy appearance of Oil Paint, resembling a stone surface, and can be made any required shade. It is mixed with rain or pure river water.

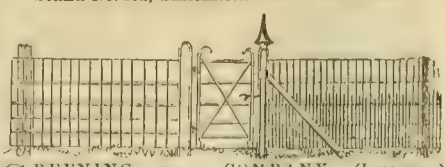
WHITE ZINC PAINT, 36s. per cwt. One hundredweight of pure Zinc Paint, with three gallons of Linseed Oil, will cover as much as one hundredweight and a half of White Lead and six gallons of Linseed Oil. Special Dryers for this Paint.

IMPROVED ANTI-CORROSION PAINT, 28s. to 34s. per cwt. Anti-corrosion Paint is extensively used for all kinds of work in exposed situations, on Brick, Stone, Compo, Iron, Iron Bridges, Conservatories, Greenhouses, &c., and is easily laid on by any ordinary workman. Prepared Oil for ditto 4s. per gallon.

Per cwt.—s. d.		Per gallon.—s. d.	
GENUINE WHITE LEAD	32 0	LINSEED OIL	3 4
SECONDS WHITE LEAD	30 0	BOILED OIL	3 9
GROUND PATENT DRYERS, 3d. to 4½d. per lb.		TURPENTINE	3 0
„ OXFORD OCHRE, 3d. to 4½d. per lb.		LINSEED OIL PUTTY, 8s. to 9s. per cwt.	
RAW UMBER, 4½d. to 6d. per lb. [per lb.		Fine OAK VARNISH, 10s. to 12	0
„ BURNT do., 6d. to 9d.		„ CARRIAGE do., 12s. to 14	0
GREEN PAINT, all shades, 28s. to 60	0	„ PAPER do. 10s. to 12	0
BLACK PAINT, 24s. to 36	0	„ COPAL	16 0
RED PAINT .. 28s. to 36	0	KNOTTING	10 0
		Patent GOLD SIZE ..	10 0
		„ BLACK JAPAN ..	12 0
GLAZIER'S DIAMONDS and TOOLS			
MILLED LEAD and PIPES			
OLD LEAD Bought or taken in exchange.			
GROUND BRUSHES. DUSTERS. | SASH TOOLS. DISTEMPER BRUSHES.			

The above are Net, for Cash, and as such cannot be booked. Lists of any of the above on application.

Stand No. 101, Smithfield Club Cattle Show.

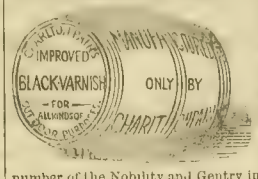


GREENING AND COMPANY (LIMITED), Manufacturers of Iron Gates, Fences, Palisades, Espaliers, Hurdles, Tree Guards, Garden Seats, Verandahs, Vases, Fountains, Tomb Railings, Stable Fittings, Garden Rollers, Poultry Houses, Emigrants' Houses, Bridges, Corn Rick Stands, &c.; also of Wire Strained Fences, Rope Fences, and Patent Movable Fences for Railways, Parks, Farms, Gardens, Game Preserves, Poultry Courts, Sheep Walks, &c.; also of Wire Netting, Plant Guards and Protectors, Garden Bordering, Garden Archways, Aviaries, Pen and Plant Trainers, Pheasantries, Hen Coops, and Garden Lounges.

Catalogues (together with Supplement of Testimonials from the leading Noblemen and Landowners of the United Kingdom to the quality of GREENING & Co.'s Manufactures), forwarded post free.

GREENING & COMPANY (Limited), Victoria Iron and Wire Works.
Offices:—1, Albert Square, Manchester.

IMPROVED BLACK VARNISH, for Coating and Preserving all kinds of Iron and Wood Fencing, Gates, Roofing, and every description of out-door Wood or Stone Work, Carts, Waggons, Farm Implements, &c.



It is an excellent substitute for Oil Paint, and is not one-fifth the cost! It requires no mixing, and can be applied in a cold state by any ordinary labourer.

This Varnish is now used in the Royal Botanic Garden, Regent's Park, and by a great number of the Nobility and Gentry in the United Kingdom.

Sold in casks of about 30 gallons each, at 1s. 3d. per gallon; or in casks from 10 to 20 gallons each, at 1s. 5d. per gallon (casks included). Carriage paid to any railway station in Great Britain. Extra strong Iron-bound Varnish Brushes, 5s. per pair.

CHARLTON PAIN, 10, Richard's Villas, Lavender Grove, Dalston, London, N.E. (from whom it can only be had).

The most flattering Testimonials forwarded on application.



GARDEN BORDER EDGING TILES, in great variety of patterns and materials, the plainer sorts being especially suited for KITCHEN GARDENS, as they harbour no Slugs and Insects, take up little room, and once put down incur no further labour and expense, as do "grown" Edgings, consequently being much cheaper.



GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, of great durability, and in great variety of design.

F. & G. ROSHER, Manufacturers, Upper Ground Street, Blackfriars, S.; Queen's Road West, Chelsea, S.W.; Kingsland Road, Kingsland, N.E

Sole London Agents for FOXLEY'S PATENT GARDEN WALL BRICKS. Illustrated Price List free by post. The Trade supplied.

ORNAMENTAL PAVING TILES for Conservatories, Halls, Corridors, Balconies, &c., as cheap and durable as Stone, in blue, red, and buff colours, and capable of forming a variety of designs.

Also TESSELATED PAVEMENTS of more enriched designs than the above.

WHITE GLAZED TILES, for Lining Walls of Dairies, Larders, Kitchen Ranges, Baths, &c. Grooved and other Stable Paving Bricks of great durability, Dutch and Adamantine Clinkers, Wall Copings, Red and Stoneware Drain Pipes, Slates, Cement, &c.

To be obtained of F. & G. ROSHER, at their premises as above.

SILVER SAND (REIGATE, best quality), at the above addresses—14s. per Ton, or 1s. 3d. per Bushel; 2s. per Ton extra for delivery within three miles, and to any London Railway or Wharf. Quantities of 4 Tons, 1s. per Ton less.

FLINTS, BRICK BURRS or CLINKERS, for Rockeries or Grotto Work. F. & G. ROSHER.—Addresses see above.

N.B. Orders promptly executed by Railway.

Garden and Park Improvements.

ALEXANDER BLAKE continues to Advise upon the Improvement or Remodelling of Gardens and Pleasure Grounds, the Formation of Picturesque Lakes, Islands, and Fountains, the Economical and Ornamental Arrangement of Horticultural Buildings, and to carry out the same by Contract.

Plans and Estimates on application. Address,
A. BLAKE, 4, Denmark Terrace, Britannia Road, Fulham, London, S.W.

JOHN GIBSON, JUN., begs to announce that he is prepared to Furnish PLANS and ESTIMATES for LAYING OUT GROUND attached to Mansions and Villa or other Residences, or for the FORMATION of PUBLIC PARKS or GARDENS and to carry out the same by Contract or otherwise.
Address Mr. JOHN GIBSON, jun., Surrey Lane, Battersea, S.W.

FOR SALE, by Private Contract, the BATES BULL, "LORD WILD EYES 2d" (22,234), roan, bred by Mr. C. Harvey, sire 4th Duke of Oxford (11,387), dam Wild Eyes 22d, by Wild Duke (19,148), &c., &c. (see "Herd Book," vol. 16). Lord Wild Eyes 2d is particularly active, and his stock have fetched high prices.

For further particulars apply to the Bailiff, Mr. RAWLING, Holly Bank, Burton-on-Trent.

Farm Poultry.

GREY DORKING FOWLS, of purest breed, in any numbers.
Imported TOULOUSE GEESE, the largest and most productive breed known.
Improved NORFOLK TURKEYS, large, hardy, and good breeders.
AYLESBURY and ROUEN DUCKS.
Imported BELGIAN HARE RABBITS, for size and early maturity.
BRAHMA-POUTRA, CREVECŒUR, and LA FLÈCHE FOWLS, for constant layers.
Priced Lists and Estimates on application.
JOHN BAILY & SON, 113, Mount Street, London, W.

Onchan Nursery Gardens, Isle of Man,

TO BE LET, with immediate possession, in consequence of the decease of the late Proprietor. The Nursery comprises about 15 Acres, lying in a sheltered situation; has been established for upwards of 30 years, and possesses the advantage of being the only Nursery in the Island. The Buildings consist of Conservatory (in four compartments), Vinery, Orchard House, Propagating House, with large Shed adjoining, and every convenience for carrying on the business. This Establishment would prove a valuable addition to any English Nursery, as from the mildness of the climate, many tender Plants and Shrubs stand the winter which, when young, would be destroyed by the frosts of an English Winter and Spring. A portion has been advantageously occupied as a Fruit Garden, the demand being considerable from the number of Visitors to the Nursery in the Summer season. The Grounds are well stocked with Forest Trees, Evergreens, and Ornamental Shrubs; the Houses with Plants, and liberal terms will be made to enable a Tenant to realise the Stock. For particulars apply to

JAMES SPITTALL, Solicitor, Isle of Man.

To Market Gardeners and Others.

TO BE LET, about seven miles from Covent Garden, 18 ACRES of good LAND, in Market Garden cultivation, held on a Lease of 21 years, 18½ years of which are unexpired. May be taken at a valuation or otherwise
Apply at Elm Lodge, Wimbledon Park Road, Wandsworth, S.W.

Kemprow, Aldenham, Herts.

TO BE LET, a FARM of 126 Acres, with the Shooting, and a Gentleman's SMALL HOUSE, situated within 10 minutes' walk of the New Station on the Midland Railway at Radlet, Herts, and with immediate possession.

The LIVE and DEAD STOCK will be SOLD by AUCTION by Messrs. HUMBERT AND COX on DECEMBER 4.

For terms and cards to view, apply to Messrs. HUMBERT & COX, Land Agents and Surveyors, 88, St. James's Street, S.W., and Watford, Herts.

FOR DISPOSAL, a First-class NURSERY and SEED BUSINESS; or the present Proprietor would accept of a WORKING PARTNER with a Capital of not less than £1500.

Apply by letter to E., Messrs. Hurst & Son, 6, Leadenhall Street, London, E.C.

To Market Gardeners, Fruit Growers, Nurserymen, and Others.

TO BE DISPOSED OF, the UNEXPIRED LEASE of 26 years, and may be entered upon at Christmas, of a WELL ESTABLISHED BUSINESS for Cut Flowers, Plants, Fruit and Nursery Business, &c., situated near a large Market Town, surrounded by an excellent neighbourhood, and within 5 minutes' walk of two Railway Stations. Further particulars on application by letter to Z., Post Office, Thames Ditton, Surrey.

Sales by Auction.

Sale of First-class Dutch Bulbs, Handsome Standard and Dwarf Roses, Selected Fruit Trees, &c.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at 38 and 39, Gracechurch Street, E.C., on TUESDAY, December 3, at 1 o'Clock precisely, a First-class Collection of DUTCH BULBS, including Hyacinths, Crocuses, Tulips, Narcissus, Jonquils, Anemones, Ranunculus, &c.; a splendid assortment of STANDARD and DWARF ROSES; selected FRUIT TREES; choice GHENT AZALEAS, HYBRID RHODODENDRONS, and other American Plants; HARDY CLIMBERS, in pots, &c.

On view Morning of Sale. Catalogues had at the rooms as above, and of the Auctioneers and Valuers, Leytonstone, N.E.

Birkenhead, near Liverpool.

HIGHLY IMPORTANT SALE OF NURSERY STOCK.

MESSRS. PROTHEROE AND MORRIS are directed by Mr. William Henderson to SELL by AUCTION, on the Premises, Oxton Hill Nursery, Birkenhead, near Liverpool, within 1½ mile of the Railway Station, on WEDNESDAY, December 4, and following day, at 11 o'Clock each day, the ground being required for other purposes, the valuable NURSERY STOCK, consisting of several thousands of EVERGREEN, CONIFEROUS, and DECIDUOUS SHRUBS, including Common and Portugal Laurels, Yews, American Arbor-vitæ, Tree Box, Laurustinus, Green Hollies, Phillyreas, Red Cedar, Araucaria, Abies (sorts), 600 Cedrus deodara (3 to 7 ft.), Pinus (sorts), Deutzia, Syringa, Broom, about 7000 Rhododendrons (1 to 3 ft.), Azalea pontica, &c.; also a quantity of thriving FOREST, FRUIT, and ORNAMENTAL TREES, viz., Ailanthus glandulosa, Maple, Birch, Laburnum, Beech, Thorns, Limes, Oaks, Elms, Chestnuts, Mountain and Common Ash, Larch, Fir, 700 Standard and Dwarf Pears, handsome Dwarf-trained Peaches and Nectarines, a fine assortment of Standard and Dwarf Roses, &c.

N.B.—P. & M. call special attention to the specimen Evergreen and Coniferous Shrubs, arranged in borders for immediate effect, which have all been recently transplanted, and will incur no risk from removal.

May be viewed prior to the Sale. Catalogues may be had on the premises, and of the Auctioneers and Valuers, Leytonstone, N.E.

Consignment from Ghent, for Absolute Sale.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at 38 and 39, Gracechurch Street, E.C., on THURSDAY, December 5, at 12 o'Clock, about 300 choice DOUBLE CAMELLIAS and AZALEA INDICA, compact plants, 1 to 3 feet, consisting of the most approved kinds, beautifully furnished with bloom buds; 300 handsome STANDARD, DWARF, and CLIMBING ROSES of the best varieties; selected FRUIT TREES; a rich assortment of AMERICAN PLANTS; some fine Bulbs of LILIUM LANCIFOLIUM (sorts), GLADIOLUS, with a Collection of DUTCH BULBS.

May be viewed the Morning of Sale. Catalogues had at the rooms as above, and of the Auctioneers and Valuers, Leytonstone, N.E.

Lewisham, Kent.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, on the Premises, Granville Park Nursery, near the Lewisham Railway Station, on TUESDAY, December 10, by order of Mr. Hally, the ground being required for building purposes, the valuable NURSERY STOCK, including a large assortment of Evergreens and Coniferous Shrubs, Ornamental, Forest, and Fruit Trees, consisting of 1000 Aucuba japonica, 4000 Portugal and Common Laurels, 450 Laurustinus, 100 Green Box (1 to 2 feet), Cupressus Lawsoniana, 400 Ligustrum ovalifolium, Thujas, Picea (of sorts), Scotch Firs, Weymouth Pines, &c.; 800 fine Poplars (12 to 20 feet), Planes, 300 Limes (10 to 15 feet), Acacias, 260 Mountain Ash, Elms, Standard Almonds, Double-blossomed Peaches, Thorns, &c.; 800 fine Standard and Pyramidal Pears, 150 Standard Cherries, 1200 strong Standard and Pyramidal Apples, 400 Standard and Dwarf Plums, Damsons, Quince, Gooseberries, 800 yards capital Box Edging, &c.

May be viewed prior to the Sale. Catalogues may be had on the premises, and of the Auctioneers and Valuers, Leytonstone, N.E.

N.B.—In the event of frosty weather, a reasonable time will be allowed for the clearance of stock.

Hardy Trees and Shrubs from Surrey;

STANDARD AND DWARF ROSES FROM FRANCE; BULBS, FRUIT TREES, AND CONIFERS FROM HOLLAND.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, December 4, at half-past 12 o'Clock precisely, Specimen CONIFERS, HOLLIES, LAURELS, AZALEAS, AUCUBAS, RHODODENDRONS, STANDARD and DWARF ROSES, FRUIT TREES, HYACINTHS, TULIPS, NARCISSUS, ANEMONES, LILIUMS, and a variety of other Bulbs and Plants from well-known Nurseries in Holland, France, Surrey, and Middlesex.

On view the Morning of Sale, and Catalogues had.

To Noblemen, Gentlemen, and Others.

MR. WHITE has received instructions to SELL by AUCTION (of which particulars will be given in future Papers), on December 16, at the Rufford Nursery Gardens, near Ollerton, a quantity of Young SPRUCE FIR PLANTS, of various heights, fit for immediate planting; also a quantity of COMMON LAURELS and other Plants. They will be Sold in convenient Lots to suit purchasers.—Swan Hotel, Mansfield.

Staffordshire—City of Lichfield.

IMPORTANT TO NURSERYMEN AND PARTIES PLANTING QUICK.

MR. C. GILLARD has been directed by the Representatives of the late Mr. Stephen Coxon to advertise for SALE by AUCTION, on the Land, on MONDAY, December 9, at Two o'clock in the afternoon, about 200 roods of strong 4-year-old BEDDED QUICK, of capital quality, and in fine healthy condition, growing upon land at Austin, Cote, near Lichfield. The Quick will be set out in convenient lots, to suit all classes of purchasers, and ample time will be given for removal.

Mr. Walter Johnson, of Greenhill, Lichfield, will show the Quick on application.

To Gentlemen and Others Engaged in Planting.

MESSRS. DREDGE AND SONS have received instructions to SELL by AUCTION, at the Nursery, Cambridge Town, on TUESDAY, December 10, a large quantity of ORNAMENTAL SHRUBS, FRUIT TREES, &c.

The above will be described in Catalogues, to be had of the Auctioneers, York Town, Surrey; or at the Nursery, Cambridge Town, Surrey.

Agricultural Co-operation.

COUNCIL.

The Right Hon. W. Cowper, M.P.
Walter Morrison, Esq., M.P.
Thomas Hughes, Esq., M.P.
James Beal, Esq.
E. Vansittart Neale, Esq.
Frederick Pennington, Esq.
Edward Owen Greening, Esq. (Managing Director).

SUPPLIES its Members and the Public with IMPLEMENTS and MACHINES by the best Makers, and with Unadulterated SEEDS, MANURES, and Manufactured CATTLE FOOD, at Cost Price, upon the Co-operative system. An investment of One Pound and upwards (bearing interest dividend) constitutes membership. No further liability. Rules and all information post free on receipt of two Stamps, or by personal application at the Offices of the Association.

EDWARD OWEN GREENING, Managing Director.

Offices, 29, Parliament Street, Westminster; and 4, Warren Street, Manchester.

Full profits credited to Members. Half profits to the Public (non-Members).

FIRST QUARTERLY REPORT and BALANCE SHEET, now ready. Division of Profits, 7½ per cent. Dividend on Capital. Three-fourths of Trade Discounts returned to Members; three-eighths of Trade Discounts returned to non-Members.

The return to Members on the Purchases averaged 11 per cent. Copies of the Report and Balance Sheet may be had on application, with enclosure of Stamp to defray Postage.

Address, EDWARD OWEN GREENING, Managing Director, 29, Parliament Street, Westminster, S.W., and 4, Warren Street, Manchester.

SMITHFIELD CLUB SHOW.
STAND No. 101 IN THE GALLERIES.

The Association will represent GREENING & Co. (Limited) and will be prepared to receive orders for any Implement or Article exhibited at the Show. The Trade Discount (averaging 20 per cent.) will revert to the Members at the quarterly Division of Profits. Mr. GREENING will be in attendance to enrol members and receive orders.

PURE LINSEED CAKES, British Manufacture, bought under guarantee of Absolute Purity. £12 10s. per ton in London, Liverpool, Duffield, Hull, or Leith.

The Council of the Association think it right to make known that nothing but a guarantee of Absolute Purity can insure to the purchaser of LINSEED CAKES fair value for his outlay. Cakes are commonly made for sale by dealers, marked "genuine," at fully £1 per ton less than the "pure" cake can be produced; and cakes avowedly "mixed" at over £2 per ton less. The whole profit made by the Association out of contracts goes into the pockets of the purchasing Members, after payment of working expenses; half profits to non-Members.

Address, EDWD. OWEN GREENING, Managing Director, 29, Parliament Street, Westminster, S.W.; 4, Warren Street, Manchester.

TRADE DISCOUNT.—The following GOODS are also supplied by the Association:—

PERUVIAN GUANO—Pure as imported. Wholesale cost price, £12 per ton; retail price, £13 2s. 6d. per ton.

NITRATE OF SODA—Pure and unadulterated. Wholesale cost price, 10s. per cwt.; retail price in Liverpool, 12s. per cwt.; retail price in London, 12s. 6d. per cwt.

PALM NUT MEAL—Best quality. Wholesale cost price, £7 10s. per ton; retail price in Liverpool, £9 per ton; retail price in London, £9 10s. per ton.

Best quality COTTON SEED CAKE; ditto ditto decorticated.

AMERICAN LINSEED CAKES, RAPE-SEED CAKES, LOCUST BEANS, GROUND BONES, BONE-ASH, LINSEED, RAPE SEED, CLOVER SEED, SEEDLING POTATOS, SEED BEANS and PEAS.

These goods are bought by the Association at the lowest wholesale prices, and sold at the same current prices charged by other respectable dealers; but the whole difference between cost price and selling price is credited to Members, and half the difference (profit) to non-Members.

Address all Orders—EDWD. OWEN GREENING, Managing Director, 4, Warren Street, Manchester; 29, Parliament Street, Westminster.

MANUFACTURED MANURES by the best Makers supplied to Members and the public at Manufacturers' published prices. The Agents' Discounts allowed to the Association revert to the Members at the Division of Profits quarterly.

Manufacturers' Lists forwarded on application.

Address all orders—EDWD. OWEN GREENING, Managing Director, 4, Warren Street, Manchester; or 29, Parliament Street, Westminster.

Special Contracts.

IRON and WIRE GOODS.—The Managing Director begs to advise the Members and Customers that he has concluded arrangements with GREENING & COMPANY (LIMITED) to supply the Association with guaranteed quality of IRON HURDLES, IRON FARM GATES, Continuous IRON FENCES, WIRE NETTING, STRAINED WIRE FENCES, WIRE SHEEP-FOLD FENCES, WIRE POULTRY FENCES, &c., on special terms for quantity. Buyers of these articles through the Association will in future, therefore, gain more than ordinary advantage. The quality of the goods is guaranteed. It is intended to make similar contracts with other friendly Manufacturers as the trade of the Association increases.

4, Warren Street, Manchester; 29, Parliament Street, Westminster, S.W.

PUBLIC MEETING.—A Meeting for Explanation and Discussion of the question of AGRICULTURAL CO-OPERATION will be held in the Theatre of the Islington Literary and Scientific Society, Wellington Street, Upper Street (about 300 yards from the Agricultural Hall), on WEDNESDAY, December 11, 1867, at 3 o'Clock, P.M., closing in time to enable Ladies and Gentlemen present to attend also the Dinner of the Smithfield Club at 6 o'Clock. The following Gentlemen, Members of the Council, and other friends of the Association will be present:—

The Right Hon. W. Cowper, M.P.
Walter Morrison, Esq., M.P.
Thomas Hughes, Esq., M.P.
Edward Vansittart Neale, Esq.
James Beal, Esq.
Frederick Pennington, Esq
Edward Owen Greening.

Tickets for Reserved Seats (Ladies and Gentlemen), 1s. each; other tickets Free on application previous to the time of meeting.—Offices, 29, Parliament Street, Westminster, S.W.; 4, Warren Street, Manchester.

SMITHFIELD CLUB CATTLE SHOW,
STAND No. 80, in the Gallery.

JAMES CARTER & CO.

INVITE ESPECIAL ATTENTION TO THEIR

UNRIVALLED COLLECTION

OF

CARTER'S WARDEN AND CHAMPION ORANGE GLOBE MANGELS,
CARTER'S IMPERIAL SWEDES, TURNIPS, &c.

PRICED LISTS may be had, and ORDERS received for SEED, at the STAND, as above.

JAMES CARTER AND CO., SEED FARMERS AND NURSERYMEN,
237 & 238, HIGH HOLBORN, LONDON, W.C.

SMITHFIELD CLUB CATTLE SHOW.

MESSRS. SUTTON & SONS

WILL EXHIBIT ON THEIR

STAND No. 84,

PRODUCE OF THEIR

GENUINE HOME-GROWN SEEDS,

Comprising Specimens of

SUTTONS' CHAMPION and other SWEDES.
SUTTONS' PURPLE-TOP MAMMOTH and other TURNIPS.
SUTTONS' SELECTED YELLOW GLOBE and other MANGELS.
SUTTONS' IMPROVED GREEN KOHL RABI, &c.

A large COLLECTION of GRASSES for Permanent Pasture and other purposes, FORAGE PLANTS, &c.

And a great variety of the best POTATOS in cultivation.

Orders will be received at moderate prices for the Cattle Show only.

SUTTON AND SONS, ROYAL BERKSHIRE SEED ESTABLISHMENT, READING.

NEW DOUBLE-FLOWERED ZONAL GERANIUM "TRIUMPH."

E. G. HENDERSON & SON

RESPECTFULLY OFFER

THEIR FIRST PLANTS OF THIS SPLENDID VARIETY

WHICH SURPASSES ALL OTHERS YET OFFERED IN THE GROUP.

It is an improvement upon Gloire de Nancy in growth, and greatly in advance of it by its immense trusses of double rosette-like flowers of a brilliant orange-scarlet.

Having purchased a great extent of the raiser's stock, E. G. H. & SON are now prepared to furnish well-established plants. It received a Special Certificate at the Exposition Universelle, in Paris, 1867, and by thus possessing all the desired excellencies of its section in growth and bloom combined, commends itself as a real acquisition to every collection of Geraniums, and for conservatory decoration generally.

NEW DOUBLE PELARGONIUM "PRINCE of NOVELTIES."

The most unique and beautiful double-flowered variety yet offered, now sending out by E. G. HENDERSON & SON. The individual blossoms are 1¾ inch wide, of a brilliant carmine-tinted crimson, admirably adapted for dress bouquets, and for pot culture.

E. G. HENDERSON AND SON, WELLINGTON NURSERY, ST. JOHN'S WOOD, N.W.

AMBROISE VERSCHAFFELT, NURSERYMAN,

(PUBLISHER OF THE "ILLUSTRATION HORTICOLE)," GHENT, BELGIUM,

BEGS TO OFFER THE FOLLOWING NOVELTIES:—

CALADIUM LEOPOLDI.—One of the finest, 7s. 6d.

TACSONIA BUCHANANI.—A splendid climber; as fine as the Tacsonia Van Volxemi: see figure in the "Illustration Horticole;" 7s. 6d.

VRIESEA GLAZIOUANA.—A splendid Bromeliaceous plant, which obtained at the Universal Exhibition in Paris the First Prize for the best new Plant, and of which a specimen was exhibited by Miss Zoë de Knyff, under the name of Chevaliera. This really splendid ornamental plant is figured in the "Illustration Horticole." Fine plants, £1.

AZALEA INDICA FRANCOIS DEVOS (A. VERSCHAFFELT).—This is one of my best seedlings. Flowers very double, deep red, with black spots. See figure in "Illustration Horticole." Fine plants, full of buds, 12s.

RHODODENDRON ORNATISSIMUM (A. VERSCHAFFELT).—See the "Illustration Horticole." This is my best seedling raised; colour whitish, rose in the centre; the edges are coloured with rose violet, and the centre is marked with fine golden spots. It is one of the most distinct varieties, and is quite hardy. Good plants, 12s.; do. with buds, £1.

THE GENERAL CATALOGUE, No. 81,

CAN BE OBTAINED FREE OF

MESSRS. R. SILBERRAD AND SON, 5, HARP LANE, GREAT TOWER STREET, LONDON, E.C.

—Editorial Communications should be addressed to "The Editor." Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.

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THE GARDENERS' CHRONICLE
AND
AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.

No. 49.—1867.] SATURDAY, DECEMBER 7. {Price Fivepence. {Stamped Edition, 6*d*.

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Bucks, Flora of	1248 *b*	Orchid culture	1241 *a*
Butter, Irish	1249 *c*	Paris, letter from	1239 *c*
Cabbage, sprouting	1238 *b*	Paris prize list	1248 *a*–1238 *b*
Cattle disease	1247 *b*	Pear, the	1239 *c*
Cephalotaxus fruit	1242 *c*	Plant portraits	1238 *c*
Chamber of Agriculture, Scotch	1252 *c*	— protectors	1239 *a*
Cheese, Cheddar loaf	1250 *a*	Planting	1237 *c*
Chrysanthemums, Japanese	1238 *c*	Poultry	1254 *b*
Cordons	1242 *b*	Prevost's theory of exchanges	1242 *a*
Education, agricultural	1249 *b*	Root growth	1242 *c*
Examinations, gardeners'	1238 *c*	Rose, climbing Devoniensis	1242 *a*
Falmouth agricultural meeting	1248 *a*	Selaginellas	1241 *a*
Farm, Lammermuir sheep	1255 *a*	Sewage	1248 *c*
— S. Lancashire	1255 *b*	Sheep feeding	1256 *a*
Florists' flowers	1244 *a*	Shorthorns	1248 *a*
— standard	1241 *c*	Smithfield Show	1247 *b*
Fruits for Durham	1246 *c*	Society, Royal Horticultural	1243 *b*
Gardeners' examinations	1238 *c*	— Royal Agricultural	1250 *c*
Gladiolus disease	1238 *a*	Stock, Paradise	1242 *c*
Good's (Mr.) agricultural papers	1248 *a*	Strawberries, prolific	1243 *b*
Grape, Mrs. Pince's	1238 *b*	Strikes	1256 *a*
Grapes in bottles	1243 *a*	Trade lists	1244 *a*
Ivy, golden	1242 *b*	Weather, the	1242 *c*
Leaf, fall of	1238 *b*	Wellingtonia	1242 *c*
		Wheat, germination of	1249 *a*
		Wheat harvest, light	1250 *b*

WITH the GARDENERS' CHRONICLE and AGRICULTURAL GAZETTE of SATURDAY NEXT, the 14th, will be published a SUPPLEMENT containing a FULL REPORT of the SHOW of STOCK and IMPLEMENTS at the AGRICULTURAL HALL, ISLINGTON. A Single Copy sent for Six Stamps.
Office for Advertisements, 41, Wellington Street, Strand, W.C.

The Superior Produce of
SUTTONS' HOME-GROWN SEEDS may be seen on STAND 84 (North Gallery), SMITHFIELD CLUB SHOW.

Orders will be received, at Moderate Prices, for
SUTTONS' HOME-GROWN SEEDS, which obtained TWO PRIZE MEDALS, PARIS, 1867.

Special Notice.—Plants and Bulbs.
MR. STEVENS' SALES of DUTCH BULBS, FRUIT TREES, ROSES, and HARDY SHRUBS, take place every WEDNESDAY and SATURDAY, and frequently on MONDAY, at the Rooms, 38, King Street, Covent Garden, London, W.C.
CATALOGUES on application.

Hyacinths, Tulips, Crocuses, &c.
B. S. WILLIAMS has a fine Collection of the above. PRICED CATALOGUE post free on application.
HYACINTHS for Glasses or Pots, 6*s*., 8*s*., and 10*s*. per dozen.
Victoria and Paradise Nursery, Upper Holloway, London, N.

WM. CUTBUSH AND SON beg to say that their DESCRIPTIVE CATALOGUE of CHOICE HYACINTHS, TULIPS, CROCUSES, &c., is now ready, and can be had post free on application. Highgate Nurseries, London, N.

CHEAP SPRING BLOOMING BULBS and PLANTS.
See BARR & SUGDEN'S Advertisement, page 1212.

Winter and Spring Flowering Bulbs and Plants.
BARR AND SUGDEN'S FLORAL GUIDE may be had free. It contains much valuable information.
For particulars see large Advertisement, page 1090.

Before Purchasing Flower Roots, send for
J. SCOTT'S CATALOGUE of BULBS, VASES, and GARDEN REQUISITES. Bulbs are extra fine.
J. SCOTT, The Seed Stores, Yeovil, Somerset.

To the Trade.
CROCUS, SNOWDROPS, named HYACINTHS, Early TULIPS (Double and Single), SCILLA SIBIRICA, &c.
BARR & SUGDEN, 12, King Street, Covent Garden, W.C.

Surplus Stock.
FINE DOUBLE SNOWDROPS, in good condition.
Price to the Trade on application to
JAS. FAIRHEAD & SON, Seed Merchants, 7, Borough Market, London.

SUPERB LILIES, in 70 finest varieties.
Selections. 5*s*., 9*s*., 12*s*., 18*s*., and 24*s*. per dozen.
STEPHEN BROWN, Seed and Nursery Establishment, Sudbury, Suffolk.

Notice.—Fruits, Flowers, Bulbs.
BEFORE PURCHASING, PLEASE SEND FOR
DILLISTONE AND CO.'S LITTLE LISTS, post free to all applicants.
Address, DILLISTONE & Co., Nurserymen, &c., Sturmer, near Halstead, Essex.

SUTTONS' GRASS SEEDS for ALL SOILS, 24*s*. to 32*s*. per acre.
DRIED SPECIMENS on MESSRS. SUTTONS' STAND, No. 84.

New Pelargoniums.
CHARLES TURNER is prepared to execute orders for the beautiful new varieties raised by Foster and Hoyle.
A DESCRIPTIVE LIST may be had on application.
The Royal Nurseries, Slough.

WEBB'S NEW GIANT POLYANTHUS, Florist Flower, and GIANT COWSLIP SEEDS; also Plants of all the varieties, with double PRIMROSES of different colours; AURICULAS, both Single and Double, with every sort of Early Spring Flowers. LIST on application.—Mr. WEBB, Calcot, Reading.

Pansies.
WILLIAM DEAN'S CATALOGUE of these, now ready, includes some Novelties. Prices very low, especially per 100, to the Trade.
Mixed PANSIES for borders, strong plants, 15*s*. per 100.
Bradford Nursery, Shipley, Yorkshire.

R. M. STARK, York Road, Trinity, Edinburgh, is now prepared to send, on application, his YEARLY LIST of NEW, RARE, or SHOWY PLANTS, containing some interesting novelties.
A CATALOGUE of select ALPINE and HERBACEOUS PLANTS, HARDY FERNS, &c., is also ready.—Nov. 15.

Larch, &c.
LARCH, 2½ to 4 feet, 17*s*. 6*d*.; 3 to 4½ feet, 20*s*.; 3½ to 6 ft., 25*s*.; SCOTCH FIR, 1 to 2 feet, 17*s*. 6*d*.; SPRUCE, 1 to 1½ foot, 12*s*. 6*d*.; OAK, 1½ to 2½ feet, 15*s*. per 1000.
LIST of other TREES on application. Special quotations for large quantities. Apply, with reference, to
JAMES RIDDELL, Steward, Park Attwood, Bewdley, Worcestershire.

Vines.
B. S. WILLIAMS has now on hand a very large and fine Stock of FRUITING and PLANTING CANES of all the best varieties. An inspection is invited.
Victoria and Paradise Nurseries, Upper Holloway, London, N.

Vines.
J. MEREDITH will have great pleasure in forwarding his PRICED LIST of VINES on application. He has the largest stock in England. An inspection is invited.
The Vineyard, Garston, near Liverpool.

Vines.
H. LANE AND SON solicit an inspection of their stock of VINES: 2000 Canes to choose from, strong and well ripened. They have been awarded the First Prize for Vines in pots at all the leading Exhibitions. CATALOGUES free on application.
The Nurseries, Great Berkhampstead, Herts.

BLACK HAMBURGH VINES.—150 strong well-ripened CANES to be Sold Cheap.
C. FAIRNINGTON, 4, Elm Tree Road, St. John's Wood, London, N.W.

New Grape.
MADRESFIELD COURT BLACK MUSCAT GRAPE.
See large Advertisement in No. 44, November 2, 1867.
JOHN & CHARLES LEE, Royal Vineyard Nursery, Hammersmith, London, W.

THE ROYAL ASCOT GRAPE is the greatest wonder of the age. It can be made to produce fresh Grapes every month in the year, and is the largest, the blackest, and best flavoured Black ever offered. Price £2 2*s*. each. See Advertisement, Nov 9. Royal Nurseries, Ascot.

WANTED, CROWN BOB, WHITE SMITH, and other sorts of GOOSEBERRY CUTTINGS. State sorts, price and quantity. Also 1-yr. CUTTINGS of MANETTI ROSE STOCKS; and strong transplanted PEAR STOCKS.
Address, J. STEWART & SONS, Dundee.

WEBB'S PRIZE COB FILBERTS, and other PRIZE COB NUTS and FILBERTS. LIST of these varieties from Mr. WEBB, Calcot, Reading.

PEAR and APPLE STOCKS for SALE.—50,000 strong 1 to 3 feet PEAR; 50,000 strong 1 to 3 ft. APPLE, well grown. Samples, with prices, sent on application to
ROBERT S. MACKINTOSH, Nurseryman, Edinburgh.

Orchard-house Trees Fruiting in Pots.
PEACHES, NECTARINES, APRICOTS, CHERRIES, PLUMS, PEARS, APPLES, VINES, and FIGS.
RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

APPLE TREES for ORCHARDS or GARDENS.
Price on application.
SAMUEL COX, Nurseryman, Ludlow.

PYRAMIDAL APPLES and PEARS, by the dozen or hundred.
Standard MEDLARS, THUJA AUREA, well-grown and handsome.
Address, WM. WOOD & SON, Woodlands Nursery, Maresfield, near Uckfield, Sussex.

DWARF-TRAINED WALL TREES, very strong, having each 5 to 9 shoots:—APPLES, PEARS, PLUMS, and CHERRIES, 3*s*. each; APRICOTS, NECTARINES, & PEACHES, 3*s*. 6*d*. each; strong CURRANTS and GOOSEBERRIES, 2*s*. 6*d*. per dozen. LISTS of sorts on application.
WM. HOOPER, New Wandsworth, S.W

THIRTY THOUSAND AMERICAN ARBOR-VITÆ, from 3 to 6 feet, very suitable for Hedges.
WM. WOOD & SON, Woodlands Nursery, Maresfield, near Uckfield, Sussex.

ONE HUNDRED THOUSAND fine Transplanted COMMON LAURELS, from 1½ to 3 feet.
WM. WOOD & SON, Woodlands Nursery, Maresfield, near Uckfield, Sussex.

Wholesale Catalogue.
GEORGE JACKMAN AND SON'S PRICED and DESCRIPTIVE CATALOGUE of HARDY NURSERY STOCK for 1867 and SPRING, 1868, can be had free on application.
Woking Nursery, Surrey.

SPECIMEN IRISH YEWS.—Very handsome specimens of the above, 7, 8, 9, and 10 feet high, from 5*s*. to 21*s*. each.
T. JACKSON & SON, Kingston, S.W.

EXTRA FINE transplanted SPRUCE FIRS, for CHRISTMAS TREES, well feathered, by the dozen, 100, or 1000.—Address, WM. WOOD & SON, Woodlands Nursery, Maresfield, near Uckfield, Sussex.

PLANTING SEASON.—The Subscribers respectfully intimate that their PRICED LIST of FOREST TREES, &c., is now ready, and may be had on application.
WM. URQUHART & SONS, Nurserymen, Dundee.

Fruiting Trained Trees.
THOMAS JACKSON AND SON, having a great extent of high walls, have many large TRAINED TREES; and as they are making much alteration in their Nursery, they now offer them at greatly reduced prices. An inspection is invited.
Kingston, S.W.

FOR CASH, 150,000 well-rooted LARCH (unusually cheap), twice transplanted, 3 to 4 feet high. Prices and samples sent to Trade and other addresses within 100 miles of Cardiff carriage free. No reasonable offer will be refused for the whole in One Lot.
Apply to W. TRESEDER, Nurseryman, Cardiff.

To Gentlemen, Builders, and Others.
ABOUT 2000 large Ornamental FOREST TREES, 12 to 14 feet, suitable for immediate Blind or Park Planting, consisting of ELM, MAPLE, SYCAMORE, PLANE, and BIRCH.
J. W. TODMAN, Eltham Nursery, S.E.

STRONG QUICK.—From 1 to 500,000 good 2-yr. old QUICK, fit for Planting, at 6*s*. per 1000; good transplanted QUICK at 8*s*. per 1000. About 150,000 on hand. Samples sent on application to
Mr. LEWIS ROLFE, West Row, Mildenhall, by Soham, Suffolk.

THALICTRUM MINUS (best substitute for Adiantum).—Plants of the above offered from 6*s*. to 9*s*. per dozen, by
ROBERT M. STARK, York Road, Trinity, Edinburgh.—Nov. 15.

LASTRÆA FILIX-MAS, var. CRISPA-GRACILIS.—This new and undeniably prettiest of all the Dwarf male FERNS, may now be had, at 5*s*. per plant, from JOHN CLARK, Gardener, Newburgh, Fifeshire. Many other rare sorts. Trade supplied.

"THE ROSES of MR. PAUL * * * are things to see once and dream of for ever."—*Athenæum, June*, 1867.
WM. PAUL begs to announce that his CATALOGUE of ROSES is now ready, and will be forwarded free on application.
EIGHTEEN PRIZES have been awarded to him for Roses this year at the principal London Flower Shows.
PAUL'S Nurseries, Waltham Cross, London, N.

Standard Marechal Niel Roses.
JOHN AND CHARLES LEE have a fine stock of STANDARDS of the above splendid YELLOW ROSE to offer at 5*s*. each; strong budded Dwarfs, 2*s*. 6*d*. each. Also fine Standard TEA ROSES of all the best kinds at 2*s*. each.
Royal Vineyard Nursery and Seed Establishment, Hammersmith, London, W.

To the Trade.
MARECHAL NIEL ROSE, from own roots, in pots, by the 100 or 1000, at £5 per 100.
G. BAKER & SON, American Nursery, Bagshot.

CULTURAL DIRECTIONS for the ROSE. Second Edition. By JOHN CRANSTON, King's Acre Nurseries, near Hereford. Free by post from the Author for 20 stamps.

ROSES, 1*s*. each, best Hybrid Perpetual. OAK TREES, 3 to 4 feet, 15*s*. per 1000.
3-yr. ASPARAGUS, very good, 10*s*. per 1000, for cash, of
A. C. WILKIN, Tiptree, Kelvedon, Essex.

ROSES WANTED.—Hybrid Perpetual varieties, of an extra size, established in pots. Particulars to JAMES DICKSON & SONS, Newton Nurseries, Chester.

R. GREEN has a quantity of fine mixed CROCUS, 1*s*. per 100, 8*s*. per 1000; also EVERGREENS, CLIMBERS, and VINES in Pots, and all kinds of ORNAMENTAL TREES and SHRUBS, on the Terrace at the Bedford Conservatories, Covent Garden, W.C.

Larch, Spruce, &c.
LARCH, extra strong, 4 to 6 feet, 21*s*. per 1000. SPRUCE, 2 to 3 feet, 10*s*. per 100; 3 to 4 feet, 20*s*. per 100; 4 to 5 feet, 32*s*. per 100.
QUICKS, SCOTCH FIRS, and CONIFERS, of all sizes, &c.
HENRY MINCHIN, The Nurseries, Hook Norton, Oxon.

RICHARD SMITH'S FRUIT LIST contains a sketch of the various forms of Trees, with directions for Cultivation, Soil, Drainage, Manure, Pruning, Lifting, Cropping, Treatment under Glass; also their synonymes, quality, size, form, skin, colour, flesh, flavour, use, growth, duration, season, price, &c. Free by post for three stamps.
RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

SUTTON AND SONS, SEED GROWERS, Royal Berkshire Seed Establishment, Reading.

EVERY GARDEN REQUISITE kept in Stock at CARTER'S New Seed Warehouse, 237 & 238, High Holborn, London.

Genuine Garden and Agricultural Seeds.
JAMES CARTER AND CO.
SEED FARMERS, MERCHANTS, and NURSERYMEN, 237 & 238, High Holborn, London, W.C.

Genuine Agricultural and Garden Seeds.
JAMES FAIRHEAD AND SON, SEED GROWERS and MERCHANTS, 7, Borough Market, and Braintree, Essex.

Agricultural and Garden Seeds.
H. AND F. SHARPE beg to announce to the Trade that their SPECIAL LIST of HOME-GROWN SEEDS, 1867 Growth, is now ready and may be had on application.
Seed Growing Establishment, Wisbech, Cambs.

Agricultural Seeds.
CHARLES SHARPE AND CO., SEED MERCHANTS, Sleaford, will be glad to send on application a Special PRICED LIST of AGRICULTURAL SEEDS of their own saving this season

Kitchen Garden Seeds.
CHARLES SHARPE AND CO., SEED MERCHANTS, Sleaford, will be glad to send, on application, a Special PRICED LIST of KITCHEN GARDEN SEEDS of their own saving this season.

RAYNBIRD, CALDECOTT, BAWTREE, DOWLING, AND COMPANY, Limited,
CORN, SEED, MANURE, AND OILCAKE MERCHANTS,
Address, 89, Seed Market, Mark Lane, E.C.; or Basingstoke.
Samples and Prices post free on application. Prize Medals, 1851, for Wheat; 1862, for "Excellent Seed Corn and Seeds."

SUTTONS' YELLOW GLOBE MANGEL.
SPECIMENS on MESSRS. SUTTONS' STAND, No. 84.

SUTTONS' MAMMOTH LONG MANGEL.
SPECIMENS on MESSRS. SUTTONS' STAND, No. 84.

NEW YELLOW INTERMEDIATE MANGEL.
SPECIMENS on MESSRS. SUTTONS' STAND, No. 84.

ASPARAGUS, 1, 2, 3, 4, and 5-yr. old plants.
Price on application.
SAMUEL COX, Nurseryman, Ludlow.

IVERY'S NONSUCH LETTUCE, the best Summer variety in cultivation, 1*s*. per packet, sealed with initials M. A. I. Price to the Trade on application.
M. A. IVERY, Hanover Nursery, Peckham, S.E.

Splendid New Potato.
SUTTONS' BERKSHIRE KIDNEY.
SAMPLES on MESSRS. SUTTONS' STAND, No. 84.

SEED POTATOS.—All the finest varieties at very moderate prices.
H. & F. SHARPE, Wisbech.

Mona's Pride.
MR. RUTLEDGE, the original introducer and grower of this EXTRA EARLY and PROLIFIC SEED POTATO (as yet unbeaten), begs to announce that his splendid crop, lifted in June, is now on SALE, on moderate terms.
Hague House, Douglas, Isle of Man.

SUTTONS' IMPROVED KOHL RABI.
SPECIMENS on MESSRS. SUTTONS' STAND, No. 84.

SUTTONS' PURPLE-TOP MAMMOTH TURNIP.
SPECIMENS on MESSRS. SUTTONS' STAND, No 84.

SUTTONS' CHAMPION SWEDE, the Hardiest and the Heaviest Cropper.
SPECIMENS on MESSRS. SUTTONS' STAND, No. 84.

Exhibition of Chrysanthemums.

JOHN SALTER'S COLLECTION of these beautiful FLOWERS is NOW in BLOOM. The Winter Garden contains upwards of 2000 plants, many of which are perfectly new, both in colour and form, and are now exhibited for the first time. The Gardens are open every day except Sunday; admittance free.

Versailles Nursery, William Street, Vale Place, Hammersmith, W., near Kensington Railway Station.

Seedling Japanese Chrysanthemums.

JOHN SALTER has much pleasure in announcing that these extraordinary FLOWERS are NOW in BLOOM; their fantastic form, novel and brilliant colours, are the wonder and admiration of all. The Gardens are Open every day except Sunday, admittance free.

Versailles Nursery, William Street, Vale Place, Hammersmith, near Kensington Railway Station.

Gladioli, Gladioli, Gladioli.

THOS HEWITT offers large and sound BULBS of English raised Seedlings of various colours, at 4s. per dozen, or 25s. per 100. Being Seedlings of Gandavensis they are of robust constitution, and while they are equal in beauty to named varieties, are not so liable to go diseased. Two Bulbs as sample, free by post, for 12 stamps. Special prices for large quantities.

The Nurseries, Solihull, Warwickshire.

CHRISTMAS TREES.—SPRUCE FIRS, all sizes, from 1 to 2 feet, up to 10 and 12 feet; COMMON and PORTUGAL LAURELS, 1 to 2 feet, up to 4 and 5 feet; RHODODENDRON PONTICUM STOCK, fit for immediate working; MANETTI STOCK, &c.

For prices, &c., see THOS. CRIPPS & SON'S TRADE LIST.

The Nurseries, Tunbridge Wells.

WANTED, COMMON GREEN HOLLIES and COMMON YEWS, 4 to 6 and 8 feet high; also PORTUGAL LAURELS and COMMON TREE BOX, 4 feet high; BIRCH, BEECH, and SPANISH CHESTNUTS, 10 to 12 feet high.

Price of all the above per dozen. Address to

W. X., care of Mr. Wilhams, 32, Walbrook, Mansion House, London.

Green Hollies, 4 to 7 feet.

GEORGE CHIVAS, Chester, offers several Thousands of the above, very handsome plants, in excellent condition for removing; also an exceedingly large stock of extra strong THORNS, and many Millions of FOREST TREES, including LARCH of all sizes, SCOTCH FIR, twice transplanted, 1½ to 3 feet; SPRUCE, 1 to 3½ feet, thin on the ground; ASH, 2½ to 5 feet; ELM, 3 to 6 feet; SYCAMORE, 3 to 6 feet; OAKS, ALDERS, BIRCH, &c.

PRICED LISTS on application.

NEW and RARE TREES and SHRUBS.

ULMUS AUREA ROSSEELSI.—This elegant and gorgeous tree is one of the richest lawn gems that this age of novelties has produced. The foliage is of the richest BRONZED GOLD, which is increased in brilliancy by the fullest exposure to the sun. Price, 10s. 6d., 15s., to 21s. each.

PRUNUS MAHALEB FOLIIS ARGENTEIS MARGINATIS.—A beautiful silver variegated form of Prunus Mahaleb, rivalling in effect the elegant Cornus mascula variegata. Price, strong Standards, 15s. each.

MAGNOLIA LENNÉ.—The flowers of this fine Magnolia are very large, and of great substance; colour, rich bright purple. Habit vigorous. Forms a fine mass on lawns. The best of all the hybrids. Price, 7s. 6d. to 10s. 6d. each.

ROSE COMTESSE DE JAUCOURT.—This is decidedly the finest new Rose of 1867. It is of vigorous growth, erect habit, and blooms freely. The flowers are large, of a beautiful flesh rose, of exquisite form and very double. Price, Dwarfs, 5s.; Standards, 7s. 6d.

ROSE, TEA, MARECHAL NIEL.—The largest and most brilliant of all the yellow Roses. Price—Dwarfs, 2s. 6d.; Standards, 5s.

LILAC, VILLE DE TROYES (Baltet frères, Troyes, 1867).—A splendid new Lilac, now offered for the first time. The trusses are very large, and of the deepest purple, and produce a fine effect. Vigorous and very flowering. Price 5s. to 7s. 6d. each.

FRAXINUS EXCELSIOR CUCULLATUS (Baltet frères, Troyes, 1867).—This very curious and very ornamental Ash is now offered for the first time. It is of vigorous growth, and the peculiar nodding of the leaves presents a singular and striking aspect. Price 5s. to 7s. 6d. each.

Sole Agents in England for the two last-named novelties, JOHN and CHARLES LEE, Royal Vineyard Nursery and Seed Establishment, Hammersmith, London, W.

SEAKALE for FORCING.—Strong 2-yr. planted roots, 12s. per 100; Second Size, 8s. per 100.

Mr. MYATT, Manor Farm, Deptford.

MILKY WHITE (WHEELER'S), the best second EARLY KIDNEY POTATO, 5s. per peck.

Mr. MYATT, Manor Farm, Deptford.

MONA'S PRIDE (ROUTLEDGE), the best of all the EARLY ASH-LEAF Section, 2s. 6d. per peck.

Mr. MYATT, Manor Farm, Deptford.

MYATT'S PROLIFIC KIDNEY POTATO, 2s. 6d. per peck.

Mr. MYATT, Manor Farm, Deptford.

N.B. All orders from unknown correspondents must be accompanied by cash or reference.—Manor Farm, Deptford.

Seed Potatos.

H. AND F. SHARPE are now offering MYATT'S EARLY PROLIFIC KIDNEY, RIVERS' ROYAL ASH-LEAF, WEBB'S IMPERIAL KIDNEY, DAINTREE'S EARLIEST, EARLY OXFORD, EARLY FORTY-FOLD, and many other Early and Late varieties grown from their own selected stocks. The Prices are moderate, and the quality excellent. PRICED LISTS may be had on application.

Seed Growing Establishment, Wisbech.

MILKY WHITE, a NEW POTATO, introduced by MESSRS. WHEELER AND SON, of Gloucester.

MILKY WHITE is the best of all Potatos.

MILKY WHITE is acknowledged to be the best of all Potatos. In shape and colour, flavour and appearance, it excels every other variety. It is as white as milk, floury as a Fluke, ripens in August, and continues in splendid condition for Cooking all through the Autumn, Winter, and Spring.

MILKY WHITE POTATO—white as milk.

MILKY WHITE is of the finest quality.

MILKY WHITE SEED POTATOS are very scarce, and early orders are absolutely necessary in order to secure a supply. Lowest price, 5s. per peck; 20s. per bushel (56lb)

MILKY WHITE.—Specimens of this new variety of Potato may be seen at J. C. WHEELER & SON'S STAND, at the SMITHFIELD CLUB GREAT SHOW of FAT CATTLE, at the Agricultural Hall, Islington, December 9, and following days.

MILKY WHITE.—Last year the demand for this new and most excellent variety greatly exceeded the supply, so that very early in the planting season Messrs. WHEELER & SON were obliged, much to their regret, to decline orders. They have every reason to believe that the demand this coming season will exceed that of last year; they therefore respectfully urge the importance of ordering whilst they are to be had. The lowest price is 5s. per peck (14lb.), or 20s. per bushel (56lb.)

J. C. WHEELER & SON, Seed Growers, Gloucester.

NEW DOUBLE-FLOWERED ZONAL GERANIUM "TRIUMPH."

E. G. HENDERSON & SON

RESPECTFULLY OFFER

THEIR FIRST PLANTS OF THIS SPLENDID VARIETY

WHICH SURPASSES ALL OTHERS YET OFFERED IN THE GROUP.

It is an improvement upon Gloire de Nancy in growth, and greatly in advance of it by its immense trusses of double rosette-like flowers of a brilliant orange-scarlet.

Having purchased a great extent of the raiser's stock, E. G. H. & SON are now prepared to furnish well-established plants. It received a Special Certificate at the Exposition Universelle, in Paris, 1867, and by thus possessing all the desired excellencies of its section in growth and bloom combined, commends itself as a real acquisition to every collection of Geraniums, and for conservatory decoration generally.

NEW DOUBLE PELARGONIUM "PRINCE of NOVELTIES."

The most unique and beautiful double-flowered variety yet offered, now sending out by E. G. HENDERSON & SON. The individual blossoms are 1¾ inch wide, of a brilliant carmine-tinted crimson, admirably adapted for dress bouquets, and for pot culture.

E. G. HENDERSON AND SON, WELLINGTON NURSERY, ST. JOHN'S WOOD, N.W.

BARR & SUGDEN'S ILLUSTRATED SHEET OF ELEGANCIES,

SUCH AS JARDINETS, ETC., FOR WINTER DECORATION AND CHRISTMAS PRESENTS.

BARR & SUGDEN,

THE METROPOLITAN SEED, BULB, AND PLANT WAREHOUSE,

12, KING STREET, COVENT GARDEN, LONDON, W.C.

Orders amounting to 21s. sent Carriage Paid.

COLLECTIONS of BULBS for Blooming Out-of-doors in Winter and Spring, 10s. 6d., 21s. 42s., 63s., and 84s.
" " " In-doors in Winter and Spring, 10s. 6d., 21s., 42s., 63s., and 84s.
" CLIVEDEN Spring Blooming Plants, 12s. 6d., 25s., 50s., and 100s.

For full particulars of the above Collections, see *Gardeners' Chronicle*, November 23; or,

"THE GUIDE to WINTER and SPRING GARDENING"—a copy of which free on application.

SPECIAL GUINEA BASKET of IMPORTED BULBS.

Sent Carriage Paid on receipt of a Remittance.

COLLECTION No. 1.—IMPORTED DUTCH BULBS for the Flower Garden, to Bloom Winter and Spring, 21s.:—40 beautiful HYACINTHS, 100 do. NARCISSUS, 100 do. TULIPS, 200 do. CROCUS, 100 SNOWDROPS, 25 do. ENGLISH IRIS, 50 do. RANUNCULUS, 50 do. ANEMONES, 25 SCILLAS. Half the quantity, 10s. 6d.

COLLECTION No. 2.—IMPORTED DUTCH BULBS for In-doors, to Bloom in Winter and Spring, 21s.:—30 splendid named HYACINTHS, 30 do. POLYANTHS NARCISSUS, 50 do. TULIPS, 100 do. CROCUS, 100 SNOWDROPS, 12 IRIS PERSICA, 12 IRIS PAVONIA, 2 CYCLAMEN PERSICUM. Half the quantity, 10s. 6d.

LILIUM AURATUM, 2s. 6d., 3s. 6d., 5s. 6d., and 7s. 6d. each.
LILIUM LANCIFOLIUM ROSEUM, RUBRUM, and ALBUM, 10s. 6d. and 15s. per dozen, 1s. and 1s. 6d. each.
GLADIOLI, all the very best and newest kinds, varying in price from 3d. to 10s. 6d. each. The most showy varieties, such as BOWIENSIS and BRENCHLEYENSIS, 21s. per 100.

HYACINTHS, TULIPS, CROCUS, NARCISSUS, SNOWDROPS, IRIS, SCILLAS, ANEMONES, RANUNCULUS, &c., for Spring Blooming, cheap in quantity; PANSIES, DAISIES, ARABIS ALBIDA, ARABIS VARIEGATA, for Edgings and Ribbons; AUBRETIA, AJUGA FORGET-ME-NOT, VIOLA CORNUTA, POLYANTHUS, PHLOX FRONDOSA, IBERIS, HEPATICAS, red and blue; WALLFLOWER, FORGET-ME-NOT, SILENE, &c., for Spring Blooming, cheap in quantity.

BARR AND SUGDEN, 12, KING STREET, COVENT GARDEN, LONDON, W.C.



PARIS, 1867.

FOR EXCELLENCE OF QUALITY.

CARTER'S

SELECT LIST of KITCHEN GARDEN AND FLOWER SEEDS,



Is now ready, containing the CHOICEST NOVELTIES of the SEASON, and will be forwarded, Gratis and Post Free, on application to

CARTER'S GREAT LONDON SEED WAREHOUSE, 237 and 238, HIGH HOLBORN, W.C.

NEW POTATO—VEITCH'S IMPROVED EARLY ASHLEAF KIDNEY.

MESSRS. JAMES VEITCH & SONS

HAVE MUCH PLEASURE IN OFFERING,

FOR THE FIRST TIME, THIS SPLENDID SEEDLING VARIETY,

which they feel every confidence in *most strongly* recommending.

It is, without exception, the *most abundant* cropping early Kidney variety ever offered; whilst its quality, form, and colour are unexceptionable, and in earliness it is second to none.

As a Forcing Potato it *must* take a foremost place from its great bearing qualities and earliness, and it is also in every respect desirable for general out-door planting. The stock being limited, early orders are requested.

Price per Peck, 5s.

SEED CATALOGUE for 1868 now ready, Post Free on application.

ROYAL EXOTIC NURSERY, KING'S ROAD, CHELSEA, S.W.

LEE'S GIANT ORACH (SPINACH).—This new and valuable variety of Orach possesses immense productive powers, combined with a delicious piquant flavour, quite distinct from all other varieties, rendering it a great acquisition as a Summer Spinach of the highest class.

The plant is of rapid and vigorous growth, and attains a height of 6 or 7 feet, with numerous branches; yielding a constant supply of large dark green leaves throughout the summer months.

The Fruit Committee of the Royal Horticultural Society awarded a First-class Certificate to Lee's Giant Orach, after partaking of a dish of this most useful vegetable, cooked especially for their judgment.

JOHN & CHARLES LEE have much pleasure in introducing this productive vegetable, which they intend to send out in January next. Sealed packets, 1s. each. Price to the Trade on application.

Royal Vineyard Nursery and Seed Establishment, Hammersmith, W.

HENRY DEWAR begs to offer the undermentioned SEEDS, which he can with confidence recommend as being First-class (in sealed packets only):—

DEWAR'S IMPROVED SHORT-TOP RED BEETS, 1s. per packet.

DEWAR'S NORTHUMBERLAND CHAMPION WHITE CELERY, 1s. per packet.

DEWAR'S EXTRA CHOICE (selected) BRUSSELS SPROUTS, 6d. per packet.

COOKE'S IMPROVED SUPERB EARLY DWARF CABBAGE, 6d. per packet.

HALL'S NEW HYBRID NETTED GREEN-FLESH MELON: a hardy free-bearing variety, fruit averaging from 3 to 5 lb.; thin skinned, very fleshy, and of most exquisite flavour; 1s. 6d. per pkt.

(Prices to the Trade on application).

87, Grey Street, Newcastle-on-Tyne.

REIGATE SILVER SAND, best quality, 12s. per ton, at Swan Place; delivered four miles, or to any London Wharf or Railway, 16s. per ton, or 1s. 6d. per bushel. (Sacks at cost price, or on hire.) KENTISH and HAMPSHIRE PEATS, YELLOW LOAM, LEAF MOULD, SPHAGNUM MOSS, & COCOA FIBRE REFUSE.

J. KENNARD, Swan Place, Old Kent Road, London, S.E.



COCOA-NUT REFUSE is becoming scarce, the old reserves will soon be gone. Now sold in bags, 1 for 2s., 10 for 16s., 20 for 30s., 50 for 66s., 100 for £6.

Fourpence allowed for each bag returned carriage-paid.

A Railway Truck-load (not in bags), 40s.

Postage Stamps or Post-office Order, payable to J. BARSHAM & Co., Kingston-on-Thames, S.W.

LAWES' WHEAT MANURE for AUTUMN SOWING.—A supply of the above Manure is now ready for delivery, at J. B. LAWES' Factories, Deptford and Barking Creeks. Price £8 per ton. Two to three cwt. per acre to be harrowed into the land before the seed is sown. It can be obtained of Mr. LAWES, or through any of his appointed Agents; also

LAWES' PATENT TURNIP MANURE .. £6 6 0 per ton.
SUPERPHOSPHATE of LIME .. .. £5 5 0 per ton.
Genuine PERUVIAN GUANO direct from the Importers, and all Chemical Manures of value.
AMERICAN and other CAKES at market prices.

Address JOHN BENNET LAWES, Offices, 1, Adelaide Place, London Bridge, E.C.; 22, Eden Quay, Dublin; & Market Square, Shrewsbury.

THE LONDON MANURE COMPANY
(ESTABLISHED 1840)

Have now ready for delivery in dry fine condition,
CORN MANURE, for Spring Use
DISSOLVED BONES, for Dressing Pasture Lands
SUPERPHOSPHATES of LIME
PREPARED GUANO
MANGEL and POTATO MANURES.

Also Genuine PERUVIAN GUANO, and NITRATE of SODA, ex Dock Warehouse; SULPHATE of AMMONIA, FISHERY SALT, &c. E. PURSER, Secretary.

Offices, 116, Fenchurch Street, E.C.

Look to your Grass Lands, &c.
ESTABLISHED 1820.

MESSRS. JARED T. HUNT AND SONS beg to inform their numerous Agricultural Friends and Customers, that they have now on hand, in the finest condition, their usual Autumn Stock of

AMMONIACAL CORN MANURE,

which has, for several years, given such general satisfaction.

They have also always on hand, ready for immediate delivery, the largest stock of CRUSHED BONES of any firm in the United Kingdom, viz.:—In ½-inch BONES; ¼-inch BONES; PULVERIZED BONES for Grass Lands; prepared BONES for Grape Vines and Hops; also BLOOD MANURE, SUPERPHOSPHATE of LIME, PERUVIAN GUANO, and NITRATE of SODA, direct from the Docks.

Prices and other particulars of the above, at their Works, Lambeth Wharf, London, S.; Bow Bridge Works, Stratford, E.; and Downham Market, Norfolk.

N.B.—Responsible Persons as AGENTS WANTED in districts not yet represented.

TOBACCO TISSUE for Fumigating Greenhouses. Will Destroy Thrip, Red Spider, Green and Black Fly, and Mealy Bug; and burns without the assistance of blowing, and is entirely free from paper or rag. Price 3s. 6d. per lb., carriage free. A reduction in price for large quantities

To be had of MESSRS. ROBERTS & SONS, Tobacco Manufacturers, 112, St. John Street, Clerkenwell, E.C., of whom copies of Testimonials may be obtained; and of all Seedsmen and Nurserymen.

WINTER-DRESS ALL FRUIT TREES with GISHURST COMPOUND.

Copy of a Letter from Mr. RIVERS, *Nurseries, Sawbridgeworth, Herts, 22d October*, 1861.

"I must tell you what I heard to-day from a very clever gentleman farmer, Anthony Bubb, Esq., of Witcombe Court, Gloucester. He has a wall to which Peach Trees are trained. Well, last autumn they were in a wretched blighted state. As a desperate remedy he unnailed them all, early last February, and gave all but one a thorough painting with Gishurst Compound, 1lb. to the gallon of water; his trees, all but the one, commenced to grow favourably in spring, and are now pictures of health. The tree not painted is in a half-dead blighted state. He used the same dressing to his Apple Trees; it killed the woolly Aphis entirely, and has made his trees clean and vigorous in their growth. He intends to paint his Wall Trees annually, and tells all his friends to do the same. I shall certainly serve all my young Peach Trees against my walls in the same manner. The Compound is, I believe, more efficacious than the usual offensive mixtures of clay, soot, sulphur, &c.; and it does not blacken the shoots on the walls."

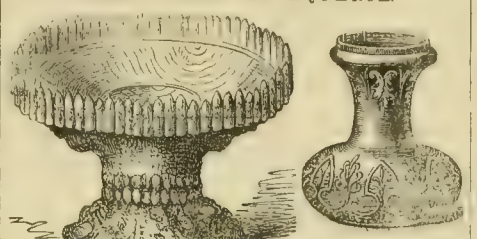
For Orchard-house Trees, 4 ozs. to the gallon will be found a good strength; when used stronger some buds on weakly trees may be injured.

GISHURST COMPOUND is sold Retail by Nurserymen and Seedsmen, in boxes, 1s., 2s., and 10s. 6d. each.

Wholesale by PRICE'S PATENT CANDLE COMPANY, LIMITED, Belmont, Vauxhall, London, S.

Gishurst Compound has more recent testimonials to its efficacy, but none more conclusive than the above, which has been published before.

RUSTIC BULB VASES.
TYE'S HYACINTH GLASSES.
FERN CASES and AQUARIA.



CLAUDET, HOUGHTON, AND SON,
89, HIGH HOLBORN, W.C.
Price List free on application.

THOMAS MILLINGTON AND CO.,
IMPORTERS, DEALERS, AND MANUFACTURERS OF GLASS,
87, Bishopsgate Street Without, London, E.C.
PRESENT PRICES of HYACINTH GLASSES.



A.—28s. per gross. 2s. 6d. per dozen.
B.—66s. per gross. 6s. per dozen.
C.—40s. per gross. 3s. 6d. per dozen.

The above are made in Green, Blue, Puce, and Amber. B can be had in Opal, 1s. per dozen extra.

George Hall, late Manager to the late Saynors' Firm.
HE WAS FOR 30 YEARS IN THEIR EMPLOY.

GEO. HALL AND SON'S Celebrated PRUNING and BUDDING KNIVES, SCISSORS, &c., may be obtained from the most respectable Nurserymen and Seed Merchants in the kingdom, also America, France, Germany, Holland, Prussia, Russia, &c.

N.B.—We only make one quality, the best that can be manufactured, the same as the late SAYNORS always made during their lifetime, with all the latest improvements.

CAUTION.—None are genuine unless marked "GEO. HALL & SON." Other marks would cause disappointment, as these blades are tempered by a process known only to the Makers.

Engravings of Patterns, with Price Lists gratis, on application.
Horticultural Cutlery Works, Sheffield.

Labels, Labels, Labels.

TREE or PLANT LABELS (Punched Parchment), 1 inches long, 4s. per 1000, or 1½ 6s. per 1000 for 35s., cash on delivery. Sample Label sent on receipt of a postage stamp. Orders delivered free in London by

JOHN FISHER & Co., West Road Works, Boston, Lincolnshire.

F. A. HAAGE'S (Jun.) WOOD GARDEN STICKS and TALLIES, commended by the Royal Horticultural Society.—The above can be had of all sizes—Wholesale of Messrs. BETHAM & BLACKITH, Cox's Quay, Lower Thames Street, London, E.C.; and Retail of the principal Seedsmen and Florists. Price Lists on application.

TO BE SOLD, Cheap, an IRON DOME CONSERVATORY, 52 feet 8 inches long, 9 feet 4 inches wide. Would make an excellent Peach House or Covered Way. And all other descriptions of Horticultural Buildings to be seen at

J. LEWIS'S Horticultural Works, Stamford Hill, Middlesex.

SHAW'S TIFFANY.
For samples and prices apply to
J. SHAW & Co., 29, Oxford Street, Manchester.

IRON HURDLES (Silver Medal of the Royal Agricultural Society).
SHEEP, 3s. 6d.; CATTLE, 4s. 2d.; OX, 5s. 11d.
List by Post. GATES and FENCING of every description.
St. Pancras Iron Work Company, Old St. Pancras Road, London, N.W.

CAST IRON HAND-GLASS FRAMES (loose tops).—Prices: 14-inch, 4s.; 18-inch, 5s. 9d.; 20-inch, 6s. 6d.; 22-inch, 7s. 6d.; 24-inch, 8s. 6d. each. Twelve or more delivered free to any Station in England on receipt of Post Office order.
Catalogues on application.
J. JONES & SONS, 6, Bankside, London, S.E.

THE TANNED LEATHER COMPANY,
Armit Works, Greenfield, near Manchester.
TANNERS, CURRIERS, & MANUFACTURERS of IMPROVED TANNED LEATHER DRIVING STRAPS for MACHINERY.
PRIME STRAP and SOLE BUTTS.
Price Lists sent free by post.
Warehouse: 81, Mark Lane, London, E.C.
Mr. H. FERRABEE, Agent.

RUSSIA MATS, SEED-BAGS, TWINES.—Price List forwarded on application to JAMES T. ANDERSON, Manufacturer of SACKS, SEED BAGS, ROPES, TWINES, HORSE CLOTHS, TARPAULINS, NOSE BAGS, &c.; and Importer of every description of RUSSIA MATS, 7, Commercial Street, Shoreditch, London, close to the Great Eastern Railway Terminus.

GARDENERS' WATERPROOF CAPES, 3 feet deep, Lined with Woollen, 4s. each. 2000 LONDON POLICE CAPES, 16s. to 22s. per dozen. GARDEN TARPAULINS, 1d. per square foot, any size. CART and WAGGON TARPAULINS; WATERPROOF COATS, 7s.; HORSES' LOIN CLOTHS, 6s.; DRIVING APRONS, 6s.; Second-hand RICK COVERS, 1s. per square yard; Strong SHEEP-FOLDING NET, 33s. per 100 yards; Long HARE and RABBIT NETS, for Shooting.
R. RICHARDSON, 99, Euston Road, N.W.

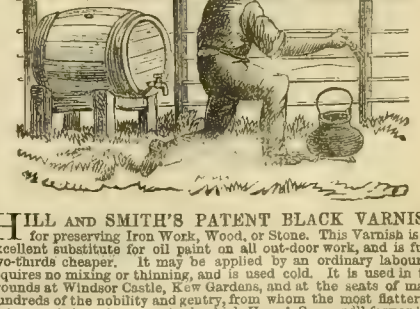
Cornes' Border, Margin, or Edging Cutter Machine.



JCORNES respectfully solicits the attention of parties having charge of Parks, Cemeteries, Pleasure Grounds, Gardeners, and the Public in general, to the above simple and useful article. To insure the same for the Spring Work an early order should be given. Price from 15s. to 25s. Licences granted to Manufacturers, and a liberal commission to the Trade.
Address, J. CORNES, Ilford Bridge Works, Ilford, Essex, E.

CARSON'S ANTI-CORROSION PAINT,
Patronised by the Nobility and Gentry, is extensively used for all kinds of OUT-DOOR WORK, and is proved, after a test of 70 years, to surpass any other Paint. It is especially applicable to Iron, Wood, Stone, Brick, Compo, and is the only Paint that will effectually resist the rays of the sun upon Conservatories, Greenhouses, Frames, &c. Is twice as durable as genuine White Lead, so sample in application that any person can use it. Per cwt.
WHITE, LIGHT STONE, BATH, and LIGHT PORTLAND COLOURS .. .. .. 30s.
LEAD, CHOCOLATE, RED, PURPLE, BROWN, and BLACK 26s.
BRIGHT GREEN, DEEP GREEN, and BLUE .. .. .. 42s.
Prepared OIL MIXTURE for the ANTI-CORROSION OILS, TURPENTINE, VARNISHES, BRUSHES, &c.
3 cwt. Free to all Stations in England and Wales, and most Ports of Ireland and Scotland. Patterns and Testimonials sent post free.
WALTER CARSON & SONS,
La Belle Sauvage Yard, Ludgate Hill, London, E.C.
CAUTION.—All Casks should bear the Trade Mark. No Agents.

Oil Paint no longer Necessary.



HILL AND SMITH'S PATENT BLACK VARNISH for preserving Iron Work, Wood, or Stone. This Varnish is an excellent substitute for oil paint on all out-door work, and is fully two-thirds cheaper. It may be applied by an ordinary labourer, requires no mixing or thinning, and is used cold. It is used in the grounds at Windsor Castle, Kew Gardens, and at the seats of many hundreds of the nobility and gentry, from whom the most flattering testimonials have been received, which HILL & SMITH will forward on application.

From the Right Hon. Lord GREENOCK, *Wood End, Thirsk*

"Lord Greenock has seen the Patent Black Varnish made by Messrs. HILL & SMITH, applied with success, and has heard it highly recommended by friends who have tested it extensively."

Sold in casks of about 30 gallons each, at 1s. 6d. per gallon, at the Manufactory, or 1s. 8d. per gallon paid to any Station in the Kingdom.

Apply to HILL & SMITH, Brierly Hill Iron Works, near Dudley, and 22, Cannon Street West, E.C., from whom only it can be obtained.

NEW PEA for 1868.—CULLINGFORD'S CHAMPION.

B. S. WILLIAMS

HAS MUCH PLEASURE IN

OFFERING THIS VALUABLE PEA.

All former VEGETABLE SEEDS sent out by him having given every satisfaction, and true to the description given, he hopes, therefore, confidence will be placed in this useful addition. It is a very early Wrinkled Marrow Pea, of robust habit, growing from 4 to 5 feet high, producing well-filled dark green pods and Pea. A great improvement upon the well-known and good kind, Champion of England, from which it has been selected.

This superb variety is offered as being EARLIER, SUPERIOR IN FLAVOUR, and much MORE PRODUCTIVE than its parent—the three essential qualifications of a good Pea. It is the opinion of many Practical Gardeners that this Pea will be found one of the best and most useful kinds ever offered.

From Mr. JOHN JEFFRIES, *Seedsman, &c., Woodbridge.*

"I have tried your Seedling Pea, and can testify, after forty years' experience in the general Seed Trade, to its being the best for cropping, colour, and flavour. Can recommend it as superior to any I have seen grown."

From Mr. JOHN WOODS, *Nurseryman and Seedsman, Woodbridge.*

"I consider your Pea a very superior variety in every respect, and deserving general cultivation. It appeared an excellent cropper, about the same growth as Champion of England, but superior to this variety, having well filled pods of a much better colour; the Peas, when boiled, were also beautifully green, and of exquisite flavour."

From Mr. WM. ALLEN, *Gardener to* The Right Hon. Lord Rendlesham, *Rendlesham Hall, Suffolk.*

"I have grown your Seedling Pea, and can testify that for bearing and flavour it is a first-class variety, and a great acquisition to our present list of Peas."

From Mr. JOHN POTTLE, *Little Bealings, Suffolk.*

"I believe the Pea called Cullingford's Champion is a very great improvement on the Champion of England in flavour, and a more abundant cropper. The colour of it when cooked is of a beautiful green. This variety is not surpassed by any Pea known to me."

Price 2s. 6d. per quart. Price to the Trade on application.

VICTORIA and PARADISE NURSERY, UPPER HOLLOWAY, LONDON, N.

Paul and Son's Double Crimson Thorn.

PAUL AND SON beg to offer Strong STANDARDS and PYRAMIDS—these last 6 feet high, branched from foot—at 5s. each, 50s. per dozen; MAIDEN DWARFS, 2s. 6d. each. It is a new hardy plant of rare merit.

The "Old" Nurseries, Cheshunt, N.

New Double Crimson Thorn.

WM. PAUL has still a few good FLOWERING PLANTS, established in Pots, of this first-class new Forcing Plant, price 5s. each. First-class Certificates at International, Royal Horticultural, and Royal Botanic Societies. It was also forced and exhibited by him on several occasions last spring.

PAUL's Nurseries, Waltham Cross, N.

Profitable Game Covert.

PLANT your GAME PRESERVES with the BITTER WILLOW. Neither Hares nor Rabbits will destroy them; require no care nor protection; grow quickly, and will form a good Cover in one season. The produce is commercially profitable, and always finds a ready Market. Price of Cuttings, selected, 20s. per 1000, cash. Apply to

WM. SCALING, Willow Merchant, Basford, Notts.

Plane Trees.

JOHN AND CHARLES LEE beg to offer a fine healthy stock of the various kinds of PLANES, of all heights, up to 16 feet. The Trees are well grown, with straight stems and good heads. LIMES, 10 to 12 feet.

Royal Vineyard Nursery and Seed Establishment, Hammersmith, London, W.

Hazel, Larch, Scotch, &c.

J. SCOTT, Merriott Nurseries, Somerset, offers to Planters Five Acres of Transplanted HAZEL, from 3 to 4, and 4 to 5 ft., very fine; and large breadths of LARCH, SCOTCH, ASH, OAK, THORN, &c. Extensive Planters supplied at reduced prices. PORTUGAL LAURELS, YEWS and BOX, large and finely grown, to be SOLD, a Bargain. CATALOGUES on application.

Fruit Trees.—The finest Collection in England.

J. SCOTT, Merriott Nurseries, Somerset, begs to solicit his Friends and the Public to inspect his immense Stock, consisting of 700 sorts of APPLES, 50 do. APRICOTS, 120 do. CHERRIES, 150 do. PEACHES and NECTARINES, 200 do. PEARS, and 150 do. PLUMS, in all manner of training, well root-pruned and carefully transplanted; CURRANTS, FILBERTS, GOOSEBERRIES, &c.; making together about 1500 sorts of FRUIT TREES, which for health and beauty cannot be surpassed.

CATALOGUES on application.

JOSEPH SMITH, JUN., Moor Edge Nurseries, Tansley, near Matlock, have to offer a large and GENERAL NURSERY STOCK, consisting of Forest Trees and Ornamental Shrubs and Trees, at very moderate prices.

LARCH, 2 to 3 feet, 3 to 4 feet, and 4 to 5 feet, 13s. per 1000.
RHODODENDRON PONTICUM, 8 to 12 inches, 90s. per 1000; 9 to 15 ins., 130s. p. 1000; 1 to 1½ ft., 150s. p. 1000; 1½ to 2 ft., 260s. p. 1000.

PRICED CATALOGUE on application.

Special offers made to large purchasers.

Tansley Nurseries, near Matlock, Derbyshire.

JOSEPH SMITH, SEN., invites Planters and the Trade to inspect his Nursery of 80 Acres of high land. The soil is of a fibrous nature, and the Plants take up with excellent roots, such as to ensure the best success in their removal.

The Nursery contains many Hundred Thousands of RHODODENDRONS, COMMON and PORTUGAL LAURELS, BOX, BROOMS, BERBERIS, HOLLIES, PRIVETS, YEWS, &c. THE FOREST TREES are very extensive, of all the leading kinds; there are 15 Acres of LARCHES, of different sizes, and all others in proportion. Prices moderate, which can be had on application as above.

ACORNS (ENGLISH), fine sound seed, price upon application. LAUREL (COMMON), 1-yr. Cuttings, extra fine, price upon application.

TRADE CATALOGUE of FRUITS, HERBACEOUS PLANTS, ROSES, &c., free upon application.

A few bushels of HORSE CHESTNUTS also to spare.

DILLISTONE & WOODTHORPE, Munro Nursery, Sible Hedingham, Essex.

Large Evergreens, Specimen Conifers, &c.

WATERER AND GODFREY beg to submit the following List to the notice of intending planters:—

YEWS, ENGLISH, 5, 6, 7, 8, 10, 12, and 15 feet high
" IRISH, 6, 7, 8, and 10 feet high
" GOLDEN, 5, 6, to 9 feet
" STANDARD GOLDEN, 20 years worked
" " ELEGANTISSIMA, 10 and 15 years old
" " DOVASTON or WEEPING, fine heads, 10 and 15 years old

We have altogether thousands of these different Yews of the large sizes. Every plant has been recently removed.

HOLLIES, COMMON GREEN, 6, 7, 8, 10, 12, and 15 feet high, and as much in circumference—hundreds
" LAURIFOLIA and SCOTTICA, 6, 7, 8, and 10 feet, and wide in proportion
" WATERER'S, the hardiest of all variegated Hollies, 4 and 5 feet by 10 and 12 feet in circumference
" THE QUEEN, or best gold striped, the handsomest of all variegated Hollies

We have hundreds of these beautiful plants, 4, 5, and 7 feet high and wide

" STANDARD, WATERER'S, and GOLDEN, with fine heads, 15 and 20 years worked

☞ We have some thousands of the ordinary kinds of Variegated Hollies, 4, 5, 6, and 7 feet high. Every plant has been removed within 12 months.

CEDRUS DEODARA, some thousands, 6, 7, 8, and 10 feet high
" ATLANTICA, and Cedars of Lebanon, moved in April, 4, 5, 6, and 8 feet
" RED VIRGINIANS, 5, 6, and 7 feet
CHINESE JUNIPER, one of the handsomest and hardiest of all evergreens—thousands of beautiful plants, 4, 5, 6, 7, and 8 feet high; some magnificent plants, 10, 12, and 15 feet high, 12 to 20 feet in circumference
THUJA AUREA, 3, 4, and 5 feet high, 7 to 20 feet in circumference
" GIGANTEA, 10, 12, and 15 feet high, very handsome
" LOBBII, splendid plants, 7, 8, to 10 feet high, and 12 and 15 feet round—hundreds
CUPRESSUS LAWSONIANA, the finest stock—many thousands, 6, 7, 8, 10, to 15 feet high, and as much in circumference
THUJOPSIS BOREALIS, 4, 5, 8, and 10 feet high, 7 to 12 feet in circumference—hundreds
PORTUGAL LAUREL, 4 and 5 feet high, 7 and 8 feet round
BOX, Green and Variegated, 4, 5, 6, 7, and 8 feet—thousands
PICEA NOBILIS, splendid plants, moved in spring, 4, 5, 6, and 8 feet
" NORDMANNIANA, 4, 5, 6, 8, 10, and 15 feet high [high
None of our Nobilis or Nordmannianas are grafted plants.
" MAGNIFICA or NOBILIS ROBUSTA, the finest stock in the trade, all seedlings, 2 to 4 feet high
" LASIOCARPA, hundreds of plants, 4, 5, 6, and 7 feet high, all
ABIES DOUGLASSII, 5, 6, 7, and 8 feet [seedlings
" ORIENTALIS, 4, 5, 6, 7, to 10 and 12 feet; 7 to 20 feet in circumference; most beautiful plants
PINUS CEMBRA, 6, 7, to 9 feet
" PINSAPO, 3, 4, 5, and 6 feet
" " Some very fine plants, 10 to 20 feet high, 15 and 25 feet in circumference
WELLINGTONIA GIGANTEA, a large number, all removed recently, 4, 5, 6, & 10 ft. high, & 12 and 15 ft. in circumference
RHODODENDRONS.—We have 40 acres of land in one piece filled almost exclusively with Rhododendrons. A more healthy and beautiful stock cannot be desired.
STANDARD RHODODENDRONS.—Some of the finest plants to be found in any nursery, many are 20 to 40 years old

☞ The large Standard and other Rhododendrons planted last spring in Rotten Row, Hyde Park, were supplied by WATERER & GODFREY.

We do not quote prices, we presume purchasers of such large plants will adopt the much wiser, and always more satisfactory course, of seeing and judging for themselves.

We solicit an inspection and invite comparison with any other similar nursery stock in the kingdom.

The Knap Hill Nursery is upwards of 150 acres in extent, and contains an enormous and very superior stock of the ordinary sized EVERGREENS, DECIDUOUS ORNAMENTAL TREES, &c.

A PRICED and DESCRIPTIVE CATALOGUE will be forwarded free on application to

WATERER & GODFREY Knap Hill Nursery, Woking, Surrey.

The Nursery is readily reached by Train, 40 minutes from Waterloo to Woking. Conveyances are always to be had at the Station.

Paul's Nurseries, Waltham Cross, N.

WM. PAUL begs to announce that he has the following COLLECTIONS of TREES and PLANTS now ready for delivery, which he can confidently recommend for quality and price:—

ROSES.—100,000 Plants, Standards, Dwarf Standards, and Dwarfs.
PRICED DESCRIPTIVE CATALOGUE free on application.

TREES and SHRUBS.—Large quantities of the popular Nursery Plants, of all sizes, good and cheap.
A choice variety of PICTORIAL TREES, his collection of which was the only one which received a Prize at the International Exhibition of 1866.

AMERICAN PLANTS.—Rhododendrons, Azaleas, Kalmias, Heaths, &c., in variety, from the commonest to the choicest.

FRUIT TREES.—Apples, Pears, Cherries, Plums, Figs, Peaches, Nectarines, Apricots, &c., &c.; Standards, Dwarfs, and Pyramids, trained and untrained. A large stock of handsome trees, many in a fruiting state.

GRAPE VINES.—All the best sorts, both Planting and Fruiting Canes.

PELARGONIUMS.—Beaton's and other Zonal kinds, Gold, Bronze, and Silver variegated, a fine collection.

HYACINTHS, TULIPS, and other BULBS.—All the First Prizes for Hyacinths and Tulips were awarded to his Collection at the London Flower Shows last spring. Cheap Hyacinths, Tulips, &c., for spring gardening by the 100 or 1000. Choicer kinds for pot culture and glasses good and cheap.

PRICED DESCRIPTIVE CATALOGUES of any or all of the above free by post.

MAURICE YOUNG'S NEW CATALOGUE of NEW HARDY PLANTS, JAPANESE NOVELTIES, NEW AUCUBAS, ORNAMENTAL TREES and SHRUBS, EVERGREENS, CONIFERÆ, RHODODENDRONS, FOREST TREES, &c., may be had on application.

DESIGNS, PLANS, and ESTIMATES PREPARED for LAYING-OUT NEW GROUNDS, IMPROVING PARK SCENERY, PLANTATIONS, &c.

FOREST TREES PLANTED by the Acre, and Guaranteed.

Convenient railway accommodation to all parts of the country.

Milford Nurseries, near Godalming, Surrey.

CHARLES NOBLE.

10,000 CHRISTMAS TREES.
20,000 DEUTZIA CRENATA FLORE-PLENO.
10,000 HYBRID PERPETUAL ROSES, Dwarf.
500,000 RHODODENDRON PONTICUM.
50,000 finest named.
100,000 MUSSEL STOCKS.
30,000 MAIDEN and PYRAMIDAL PEARS, APPLES, CHERRIES, PLUMS, PEACHES, and NECTARINES
20,000 ERICA HERBACEA.

The above and many other things on offer.
CATALOGUES now ready.
Bagshot, December 7.

THREE MILLION strong 4-yr. transplanted QUICK.
1,000,000 good 2-yr. transplanted QUICK.
2,000,000 superior Seedling QUICK.
100,000 good strong LARCH, 4 to 6 feet.
100,000 good strong LARCH, 2 to 4 feet.
For samples and prices apply to
JOHN HEMSLEY, High Fields, Melbourne, near Derby.

Wonersh Nursery, near Guildford, Surrey.

W. VIRGO AND SON beg to announce that their Stock of TREES and SHRUBS of the undermentioned kinds is this season very extensive and well-grown, samples, prices, and Catalogues of which can be obtained on application:—

100,000 Hazel, 3 to 5 feet
50,000 Larch, 2 to 3 feet
50,000 Spruce Fir, 2 to 4 feet
50,000 Birch, 3 to 4 feet [3 ft.
50,000 Spanish Chestnut, 2 to
30,000 Alder, 3 to 4 feet
50,000 Ash, 2 to 3 feet
20,000 Sycamore, 3 to 4 feet
500,000 Quick, transplanted, 1½ to 2 feet
50,000 GreenHolly, transplanted, 1½ to 2 ft.
Common and Portugal Laurel
Berberis aquifolia
Arbor-vitæ
And other various Shrubs.

A large stock of strong STANDARD MORELLO CHERRIES, APPLES, PEARS, PLUMS, and DWARF-TRAINED do.

Woodlands Nursery, Maresfield, near Uckfield, Sussex.

WM. WOOD AND SON have a very extensive stock to offer of the following, viz.:—

Scarlet HORSE CHESTNUTS, Standards, 6 to 10 feet [1000
CATALPA SYRINGÆFOLIA
LABURNUMS, yellow and purple
LARCH, SPRUCE, and SCOTCH FIRS
PINUS AUSTRIACA
ASH, BIRCH, WILLOW, HORNBEAM, OAKS, SYCAMORE, [and other Forest Trees
THUJA AUREA, by the 100 or
Strong ASPARAGUS Plants

CATALOGUES and Samples may be had on application.

To Gentlemen, Nurserymen, and Planters.

DELEPINE'S NEW GENERAL CATALOGUE of FRUIT and ORNAMENTAL TREES has just been published.

DELEPINE, SEN., begs to call the attention of Planters to his large stock of the following:—

STANDARD, PYRAMID, and DWARF FRUIT TREES and FRUITING SHRUBS.
FOREST and ORNAMENTAL FLOWERING and BEARING TREES, CONIFERÆ, EVERGREENS, and SHRUBS.
AMERICAN PLANTS and ROSES.
Young Plants or Seedlings of all sorts for Nurseries, Hedges, and extensive Plantations.

Proprietor of one of the most extensive Nurseries in this part of France (called, with reason, Le Jardin de la France), M. DELEPINE is able to furnish very handy, robust, and strong Stocks of the above.

CATALOGUE and Prices may be obtained post free on application to DELEPINE aîné, Nurseryman, Route Neuve de Saumur, à Angers, France; or of his London Agents, Messrs. R. SILBERRAD & SON, 5, Harp Lane, Great Tower Street, E.C.

Leicester Abbey Nurseries.

FRUITS, ROSES, EVERGREENS, and ORNAMENTAL TREES.

THOMAS WARNER begs to remind Planters and the Trade, that in addition to his extensive General Nursery Stock he has the following in immense quantities, of unsurpassed quality, and at very reasonable prices:—

APPLES, APRICOTS, PEARS, and PLUMS, Standards, with stems 4 to 6 feet, and good heads, extra fine
APRICOTS, CHERRIES, and PEACHES, Dwarfs
CHERRIES and PEACHES, Dwarf-trained
CURRANTS, HOUGHTON CASTLE or VICTORIA, RED, strong
GRAPE VINES, BLACK HAMBURGH
STRAWBERRIES (in 25 fine sorts) [good
ROSES, finest varieties, Dwarfs on Manetti, remarkably strong and
ABIES CANADENSIS or HEMLOCK SPRUCE, 2½ to 3½ feet
ARBOR-VITÆ, AMERICAN, 3 to 5 feet, bushy and well rooted
" SIBERIAN, 1½ to 4 feet, Pyramids, very handsome
AUCUBA JAPONICA, 9 inches to 2 feet high, bushy
BOX, TREE (various sorts), 1 to 2½ feet
CEDRUS ARGENTEA, 1 to 4 feet, transplanted September, 1866
CHESTNUT, SCARLET-FLOWERED, 3 to 8 feet, very stout
CLEMATIS VITALBA (Traveller's Joy), transplanted
ELMS, standards (various sorts), 6 to 12 feet, extra fine
IVY, IRISH, 3½ to 4½ feet, strong and bushy, in pots, remarkably fine
POPLARS, BLACK ITALIAN and ONTARIO, 4 to 8 feet
SAVIN, 1½ to 2½ feet
SYCAMORE, COMMON, 4 to 6 feet, very fine
" VARIEGATED, 4 to 10 feet
THORNS, SCARLET and PINK, Standards, 6 to 8 feet
YEWS, ENGLISH and IRISH, 1 to 4 feet.

See CATALOGUES, Wholesale or Retail.

ROYAL VINEYARD PEACH.—This remarkable Peach is of very robust habit, and is a most prolific bearer. It is so hardy, that in 1865 it bore a heavy crop of large fruit as an ORCHARD STANDARD, several branches having each borne from four to five fruit, weighing TEN OUNCES a-piece. It is a free-stone of most luscious flavour, with a superabundance of juice, and is just sufficiently piquant to render it highly refreshing. The time of ripening is about a week earlier than the Barrington Peach.

JOHN & CHARLES LEE have much pleasure in introducing this extraordinary Peach, which was exhibited at Mr. Webber's, in Covent Garden Market, in 1865, and was much admired and inquired after at the time.

Dwarf Maiden Trees are now ready, price 10s. 6d. each.

Royal Vineyard Nursery and Seed Establishment, Hammersmith, London, W.

Melon, New Hybrid Prize, Golden Queen.

STUART AND MEIN, SEEDSMEN, Kelso, N.B., have much pleasure in offering the above. It is a hybrid between the Bromham Hall and Golden Perfection, and the result of a careful selection by one of the first Gardeners in the North of England. The fruit is of medium size, 2 to 2½ lb. in weight, round shaped, irregularly netted, extremely thin skinned, juicy, tender, melting, and of delicious flavour. A beautiful green-fleshed variety.

The above description is that of Mr. B. S. Williams, of Victoria Nurseries, London; and Mr. Rose, Head Gardener to His Grace the Duke of Roxburghe, Floors Castle, to whom the fruit was submitted, and who pronounced it the finest green-fleshed Melon they had ever tasted. It was named Golden Queen by Mr. Williams, in honour of Her Majesty's visit to Kelso. S. & M. may add that this first-class variety is of hardy constitution, a free setter, and has been awarded a Prize wherever exhibited.

In sealed packets, price 2s. 6d. per packet.

Vines.

JOSEPH WESTLEY is now prepared to send out well-ripened CANES for fruiting, in pots, of BLACK HAMBURGH, 8-feet rods, 7s. 6d. each; MUSCAT of ALEXANDRIA, 10-feet rods, 10s. 6d. each; extra strong planting CANES of the above, 3s. 6d. each.

GERANIUMS.

	Per dozen.—s. d.		Per dozen.—s. d.
L'ELEGANTE	.. .. 36 0	LA GRANDE	.. .. 6 0
SUNSET	.. .. 24 0	TRANSCENDANT	.. .. 3 0
ITALIA UNITA	.. .. 24 0	SHOW PELARGONIUM.	6 0
REBECCA	.. .. 12 0	GOLDEN FLEECE	.. 3 0
MRS. POLLOCK	.. .. 5 0	FLOWER of SPRING	.. 3 0

SOPHIA DUMARESQUE, 10s. 6d. each.
ALTERNANTHERA, four sorts, 4s. per dozen.
CISCUS DISCOLOR, 6s. per doz. | HALF SPECIMEN, 10s. 6d. each.

Also collection of 200 varieties of Variegated ZONAL GERANIUMS from 15s. per 100.

Special prices given for quantities on application.

Address, JOSEPH WESTLEY, Floral Nurseries, Blisworth, near Northampton.

MAGNIFICENT DWARF CUT-BACK PEACHES, NECTARINES, and APRICOTS, by the dozen or hundred. Extra strong 2, 3, and 4-yr. OLD ASPARAGUS PLANTS, by the 100, 1000, or 10,000.

Fine large BLACK ITALIAN POPLARS, 6 to 10 feet.

WM. WOOD & SON have to offer a splendid stock of the above.

Address, Woodlands Nursery, Maresfield, near Uckfield, Sussex.

STRONG STANDARD and DWARF-TRAINED APPLES and PEARS.
Fine transplanted LARCH FIR, 1½ to 6 feet
Bushy LAURUSTINUS, LAURELS, and BOX TREES
CHINESE ARBOR-VITÆ, 5 to 6 feet, fine Pyramids
A choice collection of CONIFERÆ
A large assortment of STANDARD and DWARF PERPETUAL, and strong DWARF CHINA or MONTHLY ROSES, and a general NURSERY STOCK.

All the above are well rooted, and will remove with safety. Prices on application to

CHARLES BURGESS, The Nurseries, London Road, Cheltenham.

New Fruits.

CHARLES TURNER has great pleasure in offering the following valuable New Fruits:—

FROGMORE EARLY BIGARREAU CHERRY.

The "Florist and Pomologist" thus describes it:—"The Frogmore Early Bigarreau Cherry will be at its highest excellence, perfectly ripe, and waning towards its end, before any of the other Bigarreaus have yet made their appearance. It was raised by Mr. Ingram, at the Royal Gardens at Frogmore. Unlike the class to which it properly belongs, it has a tender melting flesh; in every respect it is a Bigarreau in habit, leaf, and appearance of the fruit, and must be classified along with these varieties; but as if to set at nought all human arrangements, it persists in having a delicious melting flesh, instead of one that is hard and crackling. The tree is a great bearer, clusters of a dozen and half to two dozen large handsome Cherries being produced on a small spray; and the fruit ripens in the middle of June."

STRONG PLANTS NOW READY.

STANDARDS, PYRAMIDS, and DWARF-TRAINED, 10s. 6d. each
MAIDENS .. .. 7s. 6d. "

A Coloured Drawing by ANDREWS will be sent on receipt of 13 Stamps.

NEW APPLES.

GIPSY KING.—This Apple is a very distinct variety, very handsome in colour and shape, skin covered over with nut-brown russet, intermixed with red and carmine on the sunny side; flesh yellowish, rich and sugary. Highly recommended as a late keeping variety. Price 5s. each.

ROUNDWAY MAGNUM BONUM.—This is a very large late variety, an abundant bearer, and of excellent habit. Price 5s. each.

"The Gardeners' Year Book for 1865" thus describes it:—"This is a first-rate culinary Apple, and one that may also be used in the dessert. The fruit is large, roundish ovate, and angular on the side. The skin is lemon yellow, with a few broad broken streaks of pale crimson on one side. The flesh is yellowish white, tender, crisp, very juicy, and with a fine aroma. This was raised by Mr. Joy, Gardener at Roundway Park, Wilts, and received a First-class Certificate from the Royal Horticultural Society's Fruit Committee."

The Royal Nurseries, Slough.

FIFTY ACRES well stocked with FRUIT TREES to select from.—APPLES, PEARS, PLUMS, CHERRIES, PEACHES, NECTARINES, and APRICOTS, in every form desired for fruiting.

See RICHARD SMITH'S FRUIT LIST, free by post for 3 stamps.

RICHARD SMITH, Nurseryman, Worcester.

FOR THE OPEN GROUND.—APPLES, PEARS, PLUMS, and CHERRIES, fine healthy Pyramids, very ornamental and productive. Strongly recommended for large and small gardens.

See RICHARD SMITH'S FRUIT LIST, post free for 3 stamps.

RICHARD SMITH, Nurseryman, Worcester.

ESPALIER and WALL-TRAINED TREES in any quantity.—APPLES, PEARS, PLUMS, CHERRIES, PEACHES, NECTARINES, and APRICOTS, fine strong trees of perfect form.

See RICHARD SMITH'S FRUIT LIST, free by post for 3 stamps.

RICHARD SMITH, Nurseryman, Worcester.

A CROP of FRUIT the FIRST SEASON.—Bearing Pyramids and Bushes in pots for orchard houses. PEACHES, NECTARINES, APRICOTS, APPLES, PEARS, PLUMS, and CHERRIES. Extra strong VINES and FIGS in fruiting condition for forcing.

See RICHARD SMITH'S FRUIT LIST, post free for 3 stamps.

RICHARD SMITH, Nurseryman, Worcester.

MAGNIFICENT DWARF-TRAINED FRUIT TREES,
By the Dozen, Hundred, or Thousand.
APPLES, PEARS, PLUMS, CHERRIES, PEACHES, NECTARINES, and APRICOTS. [NECTARINES.
Also Standard, wall-trained, fruit bearing, PEACHES and PYRAMIDAL PEARS on the Quince Stock in a fruit-bearing state; and PYRAMIDAL PEARS, on the Pear Stock, extra strong and well grown.

WM. WOOD & SON have many acres of the above named, which for health and vigour are quite unsurpassed in the trade. The Trees have been most carefully trained, and are really examples of successful cultivation.

Address, Woodlands Nursery, Maresfield, near Uckfield, Sussex.

Roses, Roses, Roses.

PLANTS of all the FINEST VARIETIES in CULTIVATION, in magnificent order, in the CASTLE STREET NURSERIES, SALISBURY.

The frost of May 24 destroyed all the blooming buds; the consequences are that the Plants have produced the most vigorous growth.

Amateur Rose Growers may insure the finest Plants that can possibly be produced, true to name. CATALOGUES on application.

VINES, from Eyes, the finest in England, 10s. 6d. each.

JOHN KEYNES, Castle Street, Salisbury.

New Roses.

CHARLES VERDIER, Fils, NURSERYMAN, 12, Rue Duméril, Paris, offers this season, for the first time, two NEW ROSES (his own Seedlings), viz., HYBRID PERPETUAL MADAME MARIE CIRODDE, price £1; received 2d prize at Paris Universal Exhibition, 1867. HYBRID PERPETUAL MADAME ADÈLE HUZARD, price 10s.; received 3d prize at Paris Universal Exhibition, 1867.

He also offers 63 other new varieties, the list and prices of which may be obtained gratis either direct from him or of his Agents,

Messrs. R. SILBERRAD & SON, 5, Harp Lane, Great Tower Street, London, E.C.

CATALOGUE of GLADIOLI may likewise be had on application.

JOHN CRANSTON'S CATALOGUE of SELECTED ROSES is now ready and will be forwarded on application.

J. C. respectfully directs attention to the following LIST of FIRST PRIZES which have been awarded to him at the principal Rose Shows of the present year, proving beyond a doubt that the soil and climate of his Nurseries are unrivalled for the Cultivation of Roses.

Royal Botanic Society, Regent's Park, London.

June 19.—24 Varieties, Cut Roses, one truss each, FIRST PRIZE
Cirencester.

June 19.—36 Varieties, Cut Roses, three trusses each, FIRST PRIZE
Clifton.

June 25.—24 Varieties, Cut Roses, one truss each, FIRST PRIZE
Crystal Palace.

June 29.—72 Varieties, Cut Roses, one truss each, FIRST PRIZE
Royal Horticultural Society, South Kensington.

July 2.—72 Varieties, Cut Roses, one truss each, FIRST PRIZE
Birmingham.

July 4, 5.—72 Varieties, Cut Roses, one truss each, FIRST PRIZE
24 Varieties, Cut Roses, three trusses each, FIRST PRIZE
Hereford.

July 9.—72 Varieties, Cut Roses, one truss each, FIRST PRIZE
24 Varieties, Cut Roses, three trusses each, FIRST PRIZE
Rugby

July 12.—72 Varieties, Cut Roses, one truss each, FIRST PRIZE
Nurseries, King's Acre, near Hereford.

To the Trade Only.

THOMAS CRIPPS AND SON'S WHOLESALE CATALOGUE for the present Season, containing 62 pages of GENERAL NURSERY STOCK, can be had Post Free. It will be found to include the NEW SILVER-EDGED PRUNUS (CERASUS) MAHALEB, ROSSEELS' NEW GOLDEN ELM, NEW AUCUBAS, HYDRANGEAS, OSMANTHUS, WEIGELAS, and every novelty of merit. CUPRESSUS LAWSONIANA SEED in any quantity.

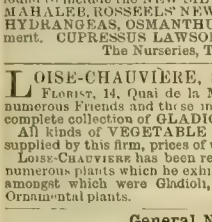
The Nurseries, Tunbridge Wells, Kent.

LOISE-CHAUVIÈRE, SEEDSMAN, NURSERYMAN, and FLORIST, 14, Quai de la Megisserie, Paris, begs to inform his numerous Friends and those interested, that he can offer the most complete collection of GLADIOLI bulbs, of the finest quality.

All kinds of VEGETABLE and AGRICULTURAL SEEDS are supplied by this firm, prices of which may be had on application.

LOISE-CHAUVIÈRE has been rewarded with the Gold Medal for the numerous plants which he exhibited at the "Universal Exhibition," amongst which were Gladioli, Dahlias, Gloxinias, Annuals, and Ornamental plants.

General Nursery Stock.



ARCHIBALD HENDERSON begs to inform his friends and patrons that his DESCRIPTIVE and PRICED CATALOGUE of GENERAL NURSERY STOCK is now published, containing practical directions on the Planting and Pruning of the various sections of Roses, with remarks on all the leading Conifers, Ornamental Trees, Fruit Trees, &c.

Also one of the most SELECT and CHOICE COLLECTIONS of VINES in pots ever offered to the public.

A. H.'s BULB CATALOGUE contains a Select List of Kitchen Garden and Flower Seeds for autumn sowing; also a Choice Assortment of Gladioli for spring planting.

CATALOGUES may be had gratis and post free on application.

Sion Nursery, Thornton Heath, Surrey, and at the East Surrey Seed Warehouse, College Grounds, North End, Croydon.

Beck's Seedling Pelargoniums.

S. GLENDINNING AND SONS are now offering for the first time the 12 beautiful, new, and distinct PELARGONIUMS raised by Mr. Wiggins, Gr. to W. BECK, Esq., of Isleworth, which were awarded numerous Certificates at the various Metropolitan Shows.

DESCRIPTIVE PRICED LIST may be had on application.

Chiswick Nurseries, London, W.

New Zealand Nursery, St. Alban's, Herts.

J. WATSON'S beautiful BEDDING PELARGONIUM EXCELSIOR, now ready; colour of Indian Yellow; fine truss, and habit of Lord Palmerston. Price 6s. each; 36s. per doz. to the Trade

MISS WATSON, ready August 25; MRS. DIX, May 1. The Two have received 10 First-class Certificates and Extra Prize Money.

Fine New TABLE APPLE, ST. ALBAN'S PIPPIN, Ripe in April. Plants ready in November, 5s. each; 36s. per doz to the Trade.

DESCRIPTIVE LIST sent on application.

VARIEGATED PELARGONIUMS.

SOPHIA DUMARESQUE	ITALIA UNITA
MRS. BENYON	COUNTESS
GOLDFINCH	ELEGANS
LUNA	THE FAIRY
BEAUTY of OULTON	PICTURATA
NEATNESS	BICOLOR SPLENDENS

The above forwarded on receipt of Post Office order for 21s.

If any of the above kinds are not required, others of equal value can be substituted.

ALFRED FRYER, Nurseries, Chatteris, Cambridgeshire.

NEW FUCHSIAS, ZONAL GERANIUMS, &c.

12 Select New FUCHSIAS of 1867 for 6s.
12 Select New ZONAL GERANIUMS of 1867 for 12s.
12 Finest ZONAL GERANIUMS of 1865—1866 for 4s.
12 Select New CHRYSANTHEMUMS of 1867 for 5s.
12 Select New VERBENAS of 1867 for 4s.
12 Select New PETUNIAS of 1867 for 6s.
12 Select New PHLOXES of 1867 for 9s.
6 Varieties of AUCUBAS, 3 Male, 3 Female, for 21s.
3 Varieties of New Japan OSMANTHUS, quite hardy, 5s.
12 Fine Varieties of Japan EUONYMUS, very fine, 6s.
12 Fine Varieties Perpetual ROSES, Dwarfs, for 6s.
12 Fine Varieties of VARIEGATED ZONAL GERANIUMS, 12s
GERANIUM GLOIRE DE NANCY, the best double, 1s. each.

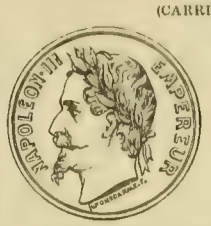
COLEUS VEITCHII, 1s. 6d.	PANICUM VARIEGATUM, 2s. 6d.
" GIBSONII, 1s.	BRUGMANSIA KNIGHTII, 1s. 6d.
" LAMONTII, 1s.	
FICUS COOPERI, 2s. 6d.	

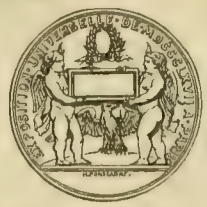
CATALOGUE of NEW and CHOICE PLANTS sent on application.

B. W. KNIGHT, Nurseryman, Battle, Sussex.

SUTTON'S HOME-GROWN SEEDS.

(CARRIAGE FREE.)





OBTAINED TWO PRIZE MEDALS, PARIS, 1867.

SUTTON AND SONS

HAVE PLEASURE IN OFFERING THE FOLLOWING

NEW SEEDS AND POTATOS,

the merits of which have been fully proved in their Trial Grounds:—

SUTTON'S MATCHLESS BRUSSELS SPROUTS.—This is very superior to the old Brussels Sprout, being earlier, of more compact habit, and does not run to seed until very late in the spring. The stems are completely covered with fine large globular sprouts, of delicious flavour. Price 1s. 6d. per packet.

IMPROVED VARIEGATED BORECOLE.—Very ornamental, and peculiarly adapted for garnishing, on account of its fine variegation, varying from white to a deep purple. Price 1s. per packet.

SUTTONS' PROTECTING BROCCOLI. — Fine pure white, with well-formed heads, recommended by the late Dr. Lindley, in the *Gardeners' Chronicle*, as one of the best and largest Broccolis grown. Price 1s. per packet.

NEW EARLY DWARF MAMMOTH CAULIFLOWER.—A most excellent compact variety, producing a firm white head, earlier than the Walcheren, and the best for early forcing. Price 1s. 6d. per packet.

HAMILTON'S NEEDLE GUN CUCUMBER. — An improved and distinct black-spine variety, handsome, and of splendid quality, 20 to 24 inches long. Price 2s. 6d. per packet.

HAMILTON'S INVINCIBLE CUCUMBER.—This is without exception the finest white-spine variety in cultivation. We recently forwarded a remarkable specimen to the Editor of the *Gardeners' Chronicle*, who referred to it as follows:—"Your specimen of Hamilton's Invincible is certainly the largest of which we have either seen or read. It measures 38 inches in length, 10½ inches in circumference, and weighs 12½ pounds. It is short-necked, straight, and altogether handsome in form." Price 2s. 6d. per packet.

HAMILTON'S BRITISH VOLUNTEER CUCUMBER.—A remarkably fine black-spine variety, very long, and one of the largest in cultivation. It is handsome, and fine flavour. Price 2s. 6d. per packet.

SULHAM PRIZE CELERY.—An excellent new pink variety, large, crisp, very solid, and fine flavour, strongly recommended. Price 1s. 6d. per packet.

NEW HARDY WHITE DUTCH CABBAGE LETTUCE.—A most excellent new variety, very large and compact, perfectly hardy, and strongly recommended. Price 1s. per packet, or 2s. 6d. per oz.

NEW STRIPED JAPANESE MAIZE. — A new ornamental foliaged variety, of great beauty. The leaves are a bright green, striped with pure white. It is most interesting and valuable introduction, and should occupy a place in every garden. It will be found to produce an elegant effect when planted in groups of three or more plants on lawns, Grass plots, or in flower borders and shrubberies. Price 1s. and 2s. 6d. per packet.

THE SULTAN GREEN-FLESHED MELON.—This was exhibited for the first time by the raiser, R. Webb, Esq., of Calcot (of whom we have purchased the entire stock), at the Royal Horticultural Society's Great Show at Bury St. Edmund's, in July last, on the occasion of the visit of the Viceroy of Egypt, where it obtained First Prize, after a very keen competition. The skin is of light grey colour, and perfectly smooth. The flesh is pale green, of extremely rich flavour, and was referred to by the leading Horticultural Papers as altogether a first-class variety. Price 2s. 6d. per packet of six seeds.

WARD'S NEW NETTED SCARLET-FLESH MELON.—This is certainly one of the best Scarlet-flesh Melons in cultivation. It gained First Prize against 45 competitors at the Crystal Palace Show of September last. It is beautifully netted, medium size, and very superior flavour. Our seed is from the Prize Fruit. Price 1s. 6d. per packet.

SUTTONS' IMPROVED READING ONION. — This variety, the result of many years' careful selection, is certainly the best in cultivation. It is very handsome shape, large, heavy, and fine flavour, and has taken numerous prizes this season. It also obtained the prize at the International Horticultural Exhibition. Price 1s. per oz.

SUTTONS' RINGLEADER PEA.—The forwardest Pea known. Its merits are now so generally acknowledged as not to need repetition here. Price 2s. 6d. per quart.

SUTTONS' IMPROVED EARLY CHAMPION PEA.—A most excellent variety, only three days later than the foregoing. It is very prolific, the haulm being profusely covered with fine, long, and well-filled pods. It is fit for gathering about a week earlier than Daniel O'Rourke. Price 1s. 6d. per quart.

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The Gardeners' Chronicle.

SATURDAY, DECEMBER 7, 1867.

THE PLANTING SEASON is again upon us, and is suggestive of quick and ready action. There are probably very few, if any, gardens and pleasure grounds, to say nothing of parks and plantations, that would not in any year of grace be improved by a judicious revision of their arboreal elements, with the view both to subtraction and addition — the former process including the thinning out of crowded, unsuitable, or unsightly trees, or overgrown shrubs, which are either objectionable in themselves or are doing injury to more valuable plants; and the latter embracing the whole field which lies before the planter of ornamental and interesting trees, now so abundant and so varied, but which, speaking in general terms, are but sparingly made use of, and far too little appreciated.

Our opening remark applies equally to the planting of all kinds of trees, whether for ornament or use, whether for fruit or timber; for the exceptions are so exceptional as not to affect the general truth that the resting period of vegetation, as represented by our autumn and the early or milder parts of our winter season, is that in which the bulk of tree-planting has to be accomplished. In the case of deciduous trees the rule applies in all its force, and the reason is obvious, for having shed their leaves, there is then, for the time, little demand upon their roots, and so opportunity is afforded for a fresh crop of rootlets and spongioles to be formed before the tree again clothes itself in its leafy garment, and pumps up the juices provided by the root-suckers. Once get all this machinery in motion, and then transplantation, (which, in the gardening sense at least, implies something more than mere removal from place to place, and involves continuity of life and growth), becomes a successfully accomplished fact. With evergreens, doubtless, the case is somewhat different. There is no complete disrobing, as it were, and there is in consequence no such complete cessation of active life. The cessation, such as it is, comes at a later period, when there is a slackening of the life strings, a partial dismantling; and then follows an impulsive start into renewed activity. Hence it is that, external conditions being either naturally propitious, or being rendered so by art, spring-planting is found to be more suitable for evergreens than for deciduous trees—perhaps, indeed, the most suitable for them. But, looking again at the question from a general point of view, it is no doubt also true, that the condition of our climate, in autumn and winter, is so little conducive to

exhaustion of the plant, that even evergreens may be safely transplanted at any convenient earlier period than that just indicated, though, on the ground of the more genial condition of the soil, early autumn or late spring seem to be indicated as the seasons most propitious for their removal, and mid-winter the least so. This conclusion does not however hold good, as regards the late spring, in the case of deciduous trees, since they, if planted just as their buds are about to burst forth, have necessarily at first to depend entirely for their support upon the juices within the stem or branches, the roots not having had sufficient time to assume their proper office of feeders, while the buds and young leaves are becoming every day more and more insatiable in their demand for food.

We thus arrive at the conclusion that there are before us some weeks—more or fewer, according as frost may attack us or leave us free—in which the transplanting of deciduous trees may be carried out with perfect success. We have already remarked that there are few gardens and pleasure grounds that may not be greatly improved by thinning and planting—we will not say so much by the rushing after and indiscriminately planting of novelties in the shape of ornamental trees, as by the judicious introduction of the very many trees and shrubs of a decorative character which exist on all sides in abundance, and of which the habit and quality are already fully known, this planting being attended by the careful thinning and opening out of over-grown masses. The variety of form and tint which is afforded by the foliage of deciduous trees is such as those who have not well considered the subject can have no conception of; and the beautiful combinations of colour in the greens of spring time, and the browns and reds and yellows of autumn, to say nothing of the summer beauty of coloured-leaved trees, afford scope in their arrangement and blending for the highest artistic talent. Much information has from time to time been given on these matters in our columns, such as is likely to prove useful both to gardeners and their employers, if they have any regard for the embellishment of their grounds. We admire evergreens—none can do so more heartily—and we fully admit the advantages secured by a liberal use of them, both near our homes and in more distant scenery, especially the sense of seclusion and shelter which they impart to the former; but there exists a certain degree of sameness among them, and we venture to assert that one half, if not more, of the beauties which pleasure-ground and park scenery is capable of unfolding, is lost, if there be not blended with the evergreens a suitable selection of the deciduous trees, with which our nurseries abound in such profuse variety. We may point merely to the groups of Limes, Maples, Oaks, Birches, Poplars, Elms, and Planes, of Horse Chestnuts, False Acacias, Sophoras, Gleditschias, Ashes, Ailants, Hickories, and Walnuts, to say nothing of Willows and Alders, or smaller flowering subjects, as Magnolias or Thorns, as affording abundant evidence in support of the foregoing statements. We allude not here to the commoner forms of these trees, noble as are many of them, but to less familiar, though not less beautiful, species and varieties, which to the majority of planters have remained too long uncared for, if not unknown, in the nursery quarters of our great commercial gardeners.

WE have lately received some corms of GLADIOLUS attacked by a most fatal disease, which has destroyed the greater part of a collection near Deal. The corms have been planted in different parts of the garden, the soil of which is a rich friable loam; but wherever planted, some have been attacked and never bloomed, while others bloomed freely, but were at length seized by the malady. Neighbouring gardens have all suffered more or less, though affording different soils and different situations. The affection evidently depends on some local conditions, as corms from the same collection sent to Ireland are, we are informed, quite free from the disease.

The appearance of the corms is very curious. The whole of the surface is speckled with orbicular more or less concentrically disposed brown spots, which at length become confluent. These spots, which are at first extremely smooth and shining, gradually become depressed, lose their brilliancy, burst, and expose a cavity of greater or less depth, filled with a brown mass of disintegrated cells. On many of the spots there is a minute shining black Fungus, in too early a stage of development to show its real nature, and which may possibly have nothing to do with the malady. The spots very generally correspond with bundles of vessels radiating from the base, with the diseased state of which they are very probably connected.

The disease seems to accord very closely with one which is very prevalent in the corms of Saffron in France, and which was described by FOUGEROUX DE BONDAROY, in the Memoirs of the Academy of Science, so long ago as 1782. We are indebted also for a memoir on the subject to Dr. MONTAGNE, a translation of which will be found in the Journal of the Horticultural Society of London (vol. v., p. 21). The structure in the present instance is just what is represented there, and closely resembles that which is observable in Potatos affected by the murrain. It is very probable that in both cases of "Tacon" the parasite is the same, but in Dr. MONTAGNE'S specimens the disease was evidently further advanced than in those before us.

In making a vertical section, the whole of the centre of the corm, including the base and germinating point, appears highly diseased, the surrounding substance, with the exception of the bundles of vessels and superficial spots, being comparatively sound. It seems very probable, therefore, that the malady originates in the roots, but of the immediate cause we are in complete ignorance, and can therefore suggest no remedy. *M. J. B.*

—— LETTERS just received from Calcutta inform us of the destruction of the CALCUTTA BOTANIC GARDEN by the fearful cyclone of November 1st. This storm has swept away the few valuable trees in this garden that escaped during the cyclone of 1864. The extensive plantations made in 1862 and 1864, comprising many thousands of fine and interesting plants, have been levelled, and most of the plants have been uprooted. It is impossible, says our correspondent, to convey by words the extent of the ruin caused by this terrific cyclone. Thus this famous garden, from which such benefits have accrued to India as well as to botanical science, is reduced to a mere heap of ruins. We shall allude to the subject again in our next issue.

—— Mrs. PINCE'S BLACK MUSCAT GRAPE keeps up its well-won reputation. The samples of this year's crop which have been sent to us recently, are not so well coloured as we have seen in this variety, probably, as some of our correspondents have intimated, from over-cropping, but their quality is nevertheless most excellent, and the Muscat flavour well marked. The demand for this variety has been such, that it has been found necessary to cut the fruit earlier than usual, in order to provide means of propagation.

—— We received a short time ago, from Messrs. PETER LAWSON & SON, a sample head or two of a seedling SPROUTING CABBAGE, the result of a cross between the Brussels Sprouts and a Cabbage. The plant produces a distinct Cabbage head of the Sugar-loaf form, and the stems are thickly feathered with rather large sprouts, which become more or less close heads. When cooked, both sprouts and heads proved to be excellent, being quite tender, and with a mild Cabbage flavour. There is no doubt that this will be a first-class and most useful vegetable, if it can be fixed, for after cutting the principal head, there is an excellent supply of sprouts, which are very tender and sweet. With the new Cabbage, came a sample of Messrs. LAWSONS' Curled Borecole, which was the most beautifully curled we remember to have seen.

—— Desirous at some future time of publishing a complete FLORA OF BUCKINGHAMSHIRE, Mr. JAMES BRITTEN, of High Wycombe, has issued a preliminary catalogue of all the plants known at present as growing in that county. The author hopes to receive assistance from those "who possess any knowledge, however slight, of the botanical productions of the county." The list in question can be had from the author as above by enclosing a stamp for postage. In the time of Sibthorp, Stoken Church woods on the borders of Oxfordshire and Buckinghamshire were famous botanising grounds, and yielded several rarities, but we are not aware as to what is the state of things now-a-days.

—— In addition to what was stated last week (see p. 1213) we may mention that the KING of PRUSSIA has conferred the Order of the Crown of Prussia on M. BARILLET, who has, for the most part, arranged the public gardens recently formed in Paris. We learn moreover that Messrs. VEITCH & SONS have received official information that they have gained one of the "grands prix," or large Gold Medals, at the Paris Exhibition—a good evidence that British horticulture can bear comparison with foreign, even when the competition is so far off from our shores. We also understand that Messrs. SHANKS & SONS, of Arbroath, have taken the only medal awarded for lawn-mowers in Class IX.; and that Messrs. DOWNIE, LAIRD, & LAING, have been awarded a Bronze Medal for Pansies.

—— A recent memorandum issued by the Imperial Commission of the PARIS EXHIBITION announces that the Gold Medals awarded in the agricultural and horticultural departments were to be had on the 25th and 26th of November, at the Avenue de Labourdonnaye. The great prize of 10,000 francs, the other great prizes, and the *objets d'art*, which, in conformity with a decision of the International Jury, are joined to a certain number of Gold Medals, will be awarded on a special occasion *(dans une solennité spéciale)*. The date for this ceremony depends on the completion of the works of art, which could not be ordered till after the close of the Exhibition, when the final decisions of the jury had been arrived at. As soon as possible the date fixed on for the distribution of medals, &c., for the agricultural and horticultural departments, will be announced in the *Moniteur*. It will be seen that this notice does not apply to the awards of Silver or Bronze Medals.

—— We remind young gardeners, as well as those who take interest in their advancement, that the WINTER EXAMINATION of the Royal Horticultural Society commences on the 17th inst. It is open to all young men to participate in the examination for Certificates, on obtaining a recommendation from a Fellow, or the Director of any public garden; but the Candidates for the Associateship must have undergone a previous examination by the Society of Arts on certain points, which, in consequence, are not included in the horticultural programme. Viewed merely as incentives to self-improvement, these examinations cannot possibly be otherwise than beneficial to the young men who submit to them, and we are therefore surprised to notice the apathy, if not opposition, with which they are met by some, who might often be doing good service to Horticulture by inducing young gardeners to avail themselves of these opportunities.

—— We mentioned at p. 1195, that Mr. SALTER had this year bloomed a collection of Seedlings of a new race of JAPANESE CHRYSANTHEMUMS, and we desire now to add a brief record of a few of the best varieties which have bloomed up to this time. The novelties now referred to are by no means to be confounded with the florists' varieties of Chrysanthemums, since they present the very antipodes of the "properties" required in flowers used for exhibition purposes; but the best and most distinct of them will be particularly interesting and attractive for conservatory decoration, besides which they are mostly late flowering sorts, and will thus carry on the Chrysanthemum in-door season probably as far as the end of January. There are four types observable in this new Japanese race, which may be distinguished as the echinate or porcupine-flowered; the radiate-flowered; the actinioid or thread-flowered; and the flat, or ribbon-flowered. To the first of these may be referred Gold Thread, a free-blooming sort, that opens early and keeps for a long period in bloom; in this the florets form stiff, slender quills, which are a little incurved and pointed at the tips, and are yellow, taking on a purplish tinge at the circumference of the bloom. To the second belongs Tarantula, a most singular spider-like flower, with a close, button-like disk, and a spreading ray of a single series of long, straight, slender, tubular florets. The actinioid, or thread-flowered varieties are, so far as can be seen at present, the most novel and ornamental. They are numerous, of varied colours, and have the florets rolled longitudinally into a long, subulate, or thread-like form, at length twisting and falling about in a confused manner, but forming loose, elegant tassels, quite unlike the blooms of ordinary Chrysanthemums. The choicer varieties now blooming are—Wizard, a deep chestnut red, with yellow eye; Meteor, orange yellow; Red Dragon, a reddish chestnut, with yellow tips and yellowish centre; Comet, orange, passing to bright chestnut-red; Leopard, Indian-red, spotted with yellow; Aime Marvel, pale flesh colour; Nagasaki Violet, a deep clear rosy violet, with yellow eye, the florets sometimes spotted with white; Roseum album, a dwarf free-blooming sort, rosy purple, tipped, mottled and streaked with white; Purpureum punctatum, a tall purple and white; and The Mikado, clear bright yellow. The ribbon-flowered group consists of varieties with long, broad, flat, but pointed florets, which fall about in various directions, sometimes assuming a kind of spiral form, and in many instances, probably in all, forming large showy blooms. Two of the finest of these are Aurantium, an orange yellow; and The Daimio, a pale rosy lilac. Others are Sulphureum, a sulphur white, which last year was spotted with rose; Red Indian, an Indian-red: Jeddo Lilac, a free pale rosy lilac, similar to The Daimio in colour, but smaller; and Prince Satsuma, a bright golden yellow, with somewhat stiffer florets. These all agree in having the long-pointed ribbon-shaped petals. On account of their quaint and unfamiliar forms, and the late blooming period which seems to be a general characteristic of the race, these novelties may be welcomed as interesting additions to our decorative conservatory plants.

—— We are glad to be able to inform our readers that the efforts which have been made for raising the GUARANTEE FUND for the Royal Horticultural Society's Show to be held at LEICESTER next summer, have been singularly successful. There is also, we hear, every reason to believe that the Special Prize List will follow in the same course. Mr. M. HENDERSON, gr. to Sir G. H. BEAUMONT, of Cole Orton Hall, Ashby-de-la-Zouch, one of the Leicester Committee, volunteers to raise a five-guinea cup from the village of Ashby alone. If practical men take the matter up in earnest, like this, the thing is done.

PLANT PORTRAITS.

ACER FREDERICI GUILLEMI.—*Rev. Hort.*, 1867, 391, with fig. Aceraceæ. One of a group of beautiful Japanese Maples, which form slender deciduous trees with numerous spreading branches. The leaves in this case are digitate with slender petioles; the primary divisions elongated, attenuated, and deeply laciniate, with irregularly-toothed segments, which at first are of a brownish-red, and afterwards of a greenish-red, often streaked with rose and white. It is regarded as an

analogue of A. platanoides laciniatum. Native of Japan. Grown by M. A. Verschaffelt.

ACER ORNATUM.—*Rev. Hort.*, 1867, 391, with fig. Another beautiful slender-growing deciduous tree, with numerous feathery branches, bearing the digitate leaves on slender petioles; their divisions are attenuated and deeply cut, with long slender toothed segments, of a dull sombre red, mixed with coppery-red, and afterwards becoming greenish-red. It is an analogue of A. platanoides palmatipartitum, and appears to be the same as the plant with the inconveniently lengthy name of A. palmatum dissectum foliis pinnatifidis roseo-pictis! Native of Japan. Grown by M. A. Verschaffelt.

AURICULA, PETER CAMPBELL.—*Floral Mag.*, t. 341. Primulaceæ. A fine green-edged variety, of good properties, having a ground colour of dark brown crimson, and forming a pleasing stage flower. Raised by Mr. Cunningham, Brookfield, near Johnstone.

CAMELLIA DUCHESSE DE NASSAU.—*Floral Mag.*, t. 346. Ternströmiaceæ. A pretty variety, rather under-sized, of imbricated form, and of a delicate soft pink. The flower is spoiled by the blotchy appearance imparted by the inner petals, if they are, as represented, edged with deep cerise red. A Belgian garden variety.

CLEMATIS DAVIDIANA.—*Rev. Hort.* 1867, 90, with fig. Ranunculaceæ. A rather desirable and showy hardy perennial, with hairy stems, growing about 2½ feet high, furnished with ternate leaves with oval crenulated leaflets, and bearing blue tubulose flowers, which are mostly produced in clustered bands of 6—15 flowers, or more rarely singly in the leaf axils. The more numerous flowers render it superior to C. tubulosa, to which it is allied. Native of China. Flowered in the Jardin du Muséum, Paris.

EPIDENDRUM BRASAVOLÆ.—*Bot. Mag.*, t. 5664. Orchidaceæ. A handsome stove epiphyte, described at p. 682 of our present volume. Its many-flowered racemes of large blossoms, with linear-lanceolate yellowish-brown sepals and petals, and large ovate acuminate lip, straw-coloured at the base, with the apex purple, give it a very distinct and showy character. Native of Guatemala. Flowered by Mr. Bateman.

IPOMŒA GERRARDI.—*Bot. Mag.*, t. 5651. Convolvulaceæ. A fine climbing perennial, known in Natal as "wild cotton." It has a thick tuberous root-stock, annual stems 10 to 15 feet long, roundish, cordate leaves, and large white flowers, which are produced copiously in the moderate heat of the stove. Native of Natal. Flowered at Kew.

MILTONIA SPECTABILIS ROSEA.—*L'Illust. Hort.*, t. 524. Orchidaceæ. A very beautiful stove epiphyte, resembling the typical M. spectabilis in everything but the colour of the flowers, which is a pale rosy blush, the lip being prominently marked with longitudinal irregular bars of deep rosy crimson. Native of Brazil. Flowered by M. A. Verschaffelt, and in this country by W. Marshall, Esq., and others.

RHAPHIA TÆDIGERA. — *L'Illust. Hort.*, t. 499. Palmeæ. A moderate-sized Palm tree, of elegant habit, with a robust cylindrical stem, and long pinnate arching fronds, having narrow lanceolate spinulose leaflets. The inflorescence forms a large pendent cluster, issuing from between the base of the leaves, and the fruit is strobiliform. Native of Brazil.

RONDELETIA PURDIEI.—*Bot. Mag.*, t. 5669. Cinchonaceæ. A very desirable evergreen stove shrub, with ovate oblong leaves, and dense terminal corymbose panicles of pale yellow flowers, which are very freely produced, and very fragrant. Native of New Grenada. Flowered at Kew.

TACSONIA BUCHANANI.—*L'Illust. Hort.*, t. 519. Passifloraceæ. A remarkably handsome climbing stove shrub, having terete stems, bearing five-lobed deeply and unequally toothed leaves, with several glands in their sinuses, and furnished with large, showy, short-tubed, bright red flowers, provided with dentate bracts. Native of Panama. Flowered by Mr. Buchanan, of New York.

NATURAL PLANT PROTECTORS.

SIR WILLIAM THOMSON'S reply to my criticism is the best possible justification of its necessity. It has afforded Sir William the opportunity of correcting the report of his address, so as to render it intelligible, and to supplement it by extracts from his papers, that will render any future mistake about his theory of the heating influence of dew impossible. I confess that I did confound Tyndall's theory with Sir William's, because each of them, as I supposed, attributed protective influence to vapour of water in the air. And hence my complaint of scientific writers making vague appeals to the developed principles of Wells, in support of a theory of which Wells never dreamed, &c. I now withdraw this complaint, and agree with Sir William that his reference to Wells was anything but vague, for it now appears that his theory of the warming of the air by the deposition of dew is identical with that of Wells, without any further development whatever. The following extracts from Sir William's and my own summary of Wells' theory will render this apparent. At p. 1214 *c*, Sir William gives an explanation of radiation, and proceeds to show that plants would speedily be destroyed by cold without a compensating supply of heat from some extraneous source: "This source on windy nights is the thermal capacity of the air." "On still nights it is the latent heat of the vapour condensed into dew." Sir William, of course, does not mean, although he seems to say it, that the latent heat of the vapour is converted into dew, but that that latent heat is set free to warm the air at the instant the dew is deposited.

At p. 1070 *c*, referring to Wells' belief that the formation of dew was a means of warming the air, the following sentences are given by me: "But he," viz., Wells, "alludes to the fact that heat is liberated by the precipitation of water; not that it can be husbanded by the protecting force of the water itself suspended in the air. According to Wells, the heavier the dew the warmer the atmosphere, in consequence of the reduction of its aqueous vapour to the state of water." It will be seen at a glance that these views, although diversely expressed, are identical, and that the reporters were to blame for making me class Sir Wm. Thomson as a convert to Tyndall, instead of a disciple of Wells.

I pass over Sir William's question, "Are we to understand from Mr. Fish that no plant in a hollow ever escapes destruction from frost?" by simply directing your readers to his second paragraph on the next page, where they will find my dictum, as it is called, explained and set forth by Sir William himself.

I must object to Sir William's second sentence. In this it is stated that I controverted the theory that winds, clouds, and dew were the three great protectors against frosts. At p. 1070 I recognised to the fullest extent the protective ministry of the clouds. Upon this point there is no controversy whatever. It is a matter of ocular demonstration, confirmed by all experience. I joined issue with Sir William only in reference to wind and dew. In reference to wind, I find that there is now very little difference between us. I contended that wind would either warm or cool plants, according as it carried air to them, warmer or colder than their substance; and Sir William, at p. 1214 *c*, admits so much. The "thermal capacity of the air" enables it to take heat from a plant quite as readily as to bring heat to it; and while a plant continues warmer than the air, the laws of convection will operate to cool, not to warm it. Besides, it is a well-known law that air in motion absorbs more moisture than air in comparative rest, and that evaporation is one of the most potent means of lowering the temperature of bodies. Hence wind, in so far as it quickens the capacity of the air for water, becomes to the same extent a cooling agent.

That cold air in motion exerts a more destructive power on vegetation than still air of the same temperature, is confirmed by general experience. I have never met with a more powerful illustration of it than yesterday evening, the 2d of December, after a rather dry November. It began to rain rather heavily on Saturday night, raining more or less the whole of Sunday, until it rose to quite a storm of rain and wind on Sunday night. The rain poured down in torrents, and the wind blew a strong gale; the temperature was over 50°, the wind south. During the night the wind, without abating any of its force, veered round to the north; the warm rain gave place to sleet and snow, and in the morning we had 5° of frost, but all vegetation looked as if we had had 20°. Not only all tender, but even hardy plants, such as Kales, Broccolis, Herbs, &c., were bent to the ground. Late Hollyhocks, Antirrhinums, &c., in full flower and seeding, were laid prostrate. Every living thing, even Laurels, Hollies, Rhododendrons, &c., seemed chilled throughwith the frozen breath of the ice king. Why? We had had more frost several times before, and yet even Pelargoniums, Iresines, Gnaphaliums, Lobelias, &c., had lived throughout, and taken but little hurt; but the wind and the wet together made all the difference. And I believe I am justified in attributing most of the mischief to the wind; for the air was so charged with moisture that but little evaporation was possible: and so effectually did the wind do its deadly work, that it sought out everything tender, even in the most cosy nooks, and killed them there with its all-encompassing blast. Plant protector indeed! It stands or rather moves off with the deep brand of plant murderer on its wings, and moans out its wild requiem over the grave of all our autumnal loveliness.

I now arrive at the last great protector—viz., dew. Sir William advances nothing new on this point, and therefore I need not recapitulate my former argument, nor advance any new ones against its acceptance. Nothing has appeared to controvert my views recorded at p. 1070, *c*. On the contrary, Sir William admits that the "leaves of plants do experience a cooling during the deposition of dew" (p. 1214). And probably this may mean exactly what I have stated—that the condition of the presence of dew from first to last, is that the plant protected by it shall be colder than the surrounding air. And surely such a protection against cold by the aid of cold, is, as I have already designated it, a misapplication of terms. That the heat liberated during the reduction of aqueous vapour into actual water or dew, may slightly warm the air at some distance from the plant, is probable. That such latent heat set free can warm the plant itself, seems absolutely impossible. If it did, the deposition of dew would instantly cease. The fact that it does not, is almost conclusive as evidence against its possession of heating power. Besides, from the very nature of the case, the heat cannot abide with the plant. It is only liberated in virtue of the plant being colder than the air. In obedience to the laws of convection, the heat instantly ascends, and only the cold constituent of the aqueous vapour—its water—remains as a chilling legacy to the plant.

"H. H.'s" recent criticism of Wells' theory (see p. 1097)—emboldens me to add, that I cannot see the force of Dr. Wells' reasoning upon this branch of the subject. Because the deposition of dew was thickest on mild nights, and thinnest on the coldest nights, he seems to have concluded that therefore the dew was the cause of the warmth; but the mere fact that the capacity of air for, or its ability to hold aqueous vapour, is dependent upon its temperature, sufficiently explains both of these facts. The more caloric in the atmosphere the more water, provided that water is accessible. Again, the greater the disparity between the temperature of the air and that of any radiating body, and the more aqueous vapour present in the air, the heavier the dew, and *vice versâ*. These facts will account for the phenomena observed by Dr. Wells, altogether apart from his theory of the heating powers of dew. So much at least seems proved by experience, that the drier the surfaces of plants the better they can resist cold. The opposite is also true: and while such is the case it seems impossible to accept of dew as a protector. Rather would I believe that the vital power of plants endows them with a source of internal heat, than that they depend for that warmth so essential to their existence upon the extraneous vicinity of chilling dew. By its conduct as a resister or inleter of cold during hoar-frost I am content that the merits of dew as a plant protector should stand or fall. Will Sir Wm. Thompson kindly say whether, in that season of trial to plants, dew lets in the cold and out the heat, or the contrary? I await the reply of science to this intensely practical question: mine has already been given. *D. T. Fish, F.R.H.S., Dec. 3.*

LETTERS FROM PARIS.—No. XXVI. AND LAST.

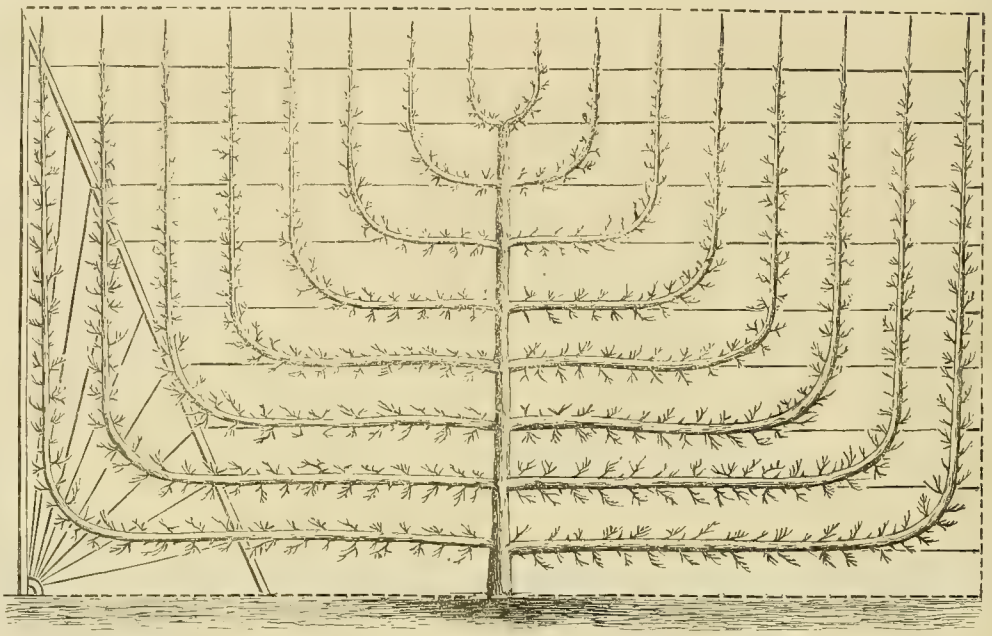
THE PEAR.

To show how we may improve the culture of the Pear is a very much more important object than the production of superb garden Apples. That we have made rapid strides in its culture for the past score years no one will deny, but the progress has been confined to almost one groove. "The pyramidal method of training Pears is probably French, but has been introduced to our gardens some 30 or 40 years," says an authority on fruit growing. Of its great excellence there can be no doubt. But in giving so much attention to this method, we have almost neglected our walls, without which, we are told, our climate is inferior. Now, one would perhaps expect that in France, with a finer climate, the gardener would be enabled to dispense with walls more than we do: no such thing. The pyramid exists to an enormous extent in France; even in the smallest and humblest gardens you may see perfect specimens of them. Mr. Knight, of Pontchartrain, writing last week, says:—"Why, go where you will, you see beautiful specimens of pyramids even in the most unlikely places, in poor little mechanics' gardens." But the Pear is also planted to an enormous extent on walls in France; and with their fine climate, in which Pears, according to Mr. Rivers, may be grown without skill, they take particular care to grow such varieties as Winter Nelis, Crassane, St. Germain, Beurré d'Aremberg, and Doyenné d'Hiver (Easter Beurré) on walls, and walls with a warm exposure. Therefore, considering that we have greater need for walls than cultivators in the northern and north-central regions of France, there is no impartial man but will admit that we have of late years comparatively neglected walls. This indeed has gone so far, that two persons wrote during the present year to say that garden walls ought to be a thing of the past. We want more walls, both for large and small gardens, and it is very desirable that more attention be paid to those we have. A well managed and well covered garden wall combines beauty and utility in a high degree, and many of our large gardens have not half enough of wall surface—the mere boundary walls are insufficient where a good supply of fruit is desirable. But then comes the serious question of expense. It used to be and is great: it need not be so any longer over the greater part of these islands. Many of your readers may have lately heard of Tall's method of building concrete walls. Mr. Tall is an Englishman, but when the Emperor Napoleon determined to build a number of cheap but pretty and comfortable houses for the workmen of Paris, he determined to try the plan, and accordingly a number of houses are now constructed according to it.

Taking some interest in the question, I lately spent a day in visiting those in a remote part of Paris, near the Bois de Vincennes. I found a young English engineer, Mr. Newton, in charge, and we spent several hours in and about those houses, and also in a large villa that was being built on the same principle in the Bois. The moment I saw the men at work, the simplicity of the materials they used, and the rapid way in which the work was performed, I made up my mind that however useful the plan may be for the construction of houses, it would also prove excellent for the construction of garden walls. By its means we may construct them quite as good and very much cheaper than before—in fact at little more cost than required for some kinds of fencing and thereby improve and multiply our crops of Peaches, Nectarines, choice winter Pears, Apples in the northern and colder parts: in a word, most of our fine fruits. Neither brick nor stone are used, but almost any kind of rough material that may be at hand. In the case of the Paris houses very rough small stones dug up on the spot were mixed with about an eighth portion of cement and sand tossed to and fro on the ground in heaps, mixed with water of course, and thrown in between strong boards adjusted exactly to the size of the wall. All this is done by the cheapest kind of labourers—no bricklayer or stonemason having anything to do with the structure, the slenderest of arches being turned with the rough concrete as neatly and strongly as they could have been with brick. About 18 inches of concrete is laid on at a time, and in 24 hours that sets into a firm wall; then up go the boards and another layer is thrown in, and thus the house is made in the most expeditious way. Of course the making of garden walls will be found very much more simple. On soils with a gravelly bottom the materials have only to be worked into the shape of garden walls. On heavy clay soils, burnt clay will do equally well, "ballast" having been proved to make an excellent

wall, while the great quantities of clinkers thrown out of the furnaces in our numerous manufacturing districts are about the very best thing that could be employed for the purpose, and not a few other materials may be used. I need not here describe the arrangement for holding the framework together; that is as simple and certain as could be desired. By building as many of these walls as we want, and by making the most of the walls we already have, it is to be hoped that, ere another generation has passed away, the getting of a first-class Pear at Christmas or in January, may not be such a difficulty for the purchaser as it is at present. These walls, and indeed all garden walls, will be much better wired, after the French method which I have before described. It is quite different, and very much better than the mode employed with us for this purpose—our way being so ineffective that most people still prefer the nails. I know of nothing more calculated to add to the neatness and efficiency of garden walls, and the comfort of those who have to manage them, than this method; and doubtless Mr. Knight, of Pontchartrain, can testify to the same.

The next way in which we may highly improve the culture of the Pear is even more important than the foregoing. It is well known that some Pears lose quality by being grown upon walls. It is equally certain that a fuller degree of sun and exposure than shoots and fruit get on a pyramid tree is very desirable in all parts of this country, especially in the case of particular kinds. Many grow beautifully as pyramids; some to be had in perfection must be grown upon walls; what I am now about to describe will form a sort of neutral ground, upon which a great number of the best varieties may be grown with success, and in a very neat way. It is simply a highly improved espalier, the mode of fixing as well as the form of the trees being distinct improvements on our mode of espalier training, which is fast disappearing from our gardens, owing to its inherent defects. I have submitted my views on this matter to Mr. Powell, of Frogmore, and some of our leading fruit growers, and they quite agree with me that what I am about to describe will, if largely adopted, as I believe it will be, highly improve our culture of the Pear. Mr. Barron, of Chiswick, tells me that the finest fruit he has ever gathered were from well-managed espalier trees. The figure represents a form capitally suited for either wall or espalier, without having the faults of the common espalier tree. In that, from its faults of form, the strength and fertility often fail in the lower branches—in this *palmette verrier* the sap courses naturally through each branch, and there is no mode of training known by which you can produce a more beautiful, healthy or fertile tree. This will be seen at a glance. I have been abused for recommending the cordon system for Pears, but so far from wishing to do that, I think such simple, large, and natural forms as this are far preferable, except in special cases, say, for instance, for the fruiting of seedlings, &c. It may be said they are useful to get a variety of fruit, but by adopting this form in a contracted state we may obtain the same result without resorting to the cordon, which, as a rule, I have observed to conform rather unwillingly to the simple-stemmed state. The French are rather fond of using what we may term U forms, to attain the same result. Supposing you want a considerable variety of Pears on your trellis, it may be obtained by using a form with a straight central stem and two side branches, describing the U, or four-side branches, or perhaps better still by a form resembling two UUs, the collar of the root to be between the two of course. These forms may seem awkward, but they are by no means so when seen against a trellis or wall. I will add that the finest collections of magnificent Pears I have ever seen in private gardens were in places in which there was a considerable portion of trellising covered thus.



Then we have quite an alteration as regards the means of supporting those trees permanently and neatly. Instead of the cumbrous and often unsightly espalier so much used amongst ourselves for the Pear and Apple, and to a very great extent in France also, French fruit growers are now largely adopting a very neat kind of trellis, which is well worthy of being extensively used in England. It is usually from 9 to 10 feet high, and supported at each end of a long line by two pieces of T-iron, one erect, the other acting as a support—another single erect rod, of somewhat smaller T-iron, standing at about every five or six yards along the line. Through these irons run from six to ten lines of galvanised wire, strained tight. Then on these wires are placed light vertical rods of Pine-wood, painted green, at about 8 or 9 inches apart, and about half an inch square. This forms a trellis very neat and strong, and very cheap, only costing (so they told me) about one franc a yard. Long lines of these were placed at about 5 yards apart, and between them ran three rows of Apples, trained on the cordon system—a special garden was devoted to the purpose — all the intermediate ground being cropped. The above is a description of the trellising for Pears at Versailles, as good as any I have seen. In some places the neat and slender rods of Pine-wood used to train up the shoots are dispensed with, as in the figure. Mr. Barnes has been at Versailles this year, and can testify what neat and in every way excellent trellises these are. It must not be confounded with our own way of making such things, being infinitely better, neater, and cheaper. The wire is no thicker than a rush, and is tightened and thereby made as strong as need be, by little tighteners, fastened in each wire, and so simple that any youth can arrange them. These little *raidisseurs* are very simple and useful, and must soon be sold by our seedsmen. I think Mr. Knight, of Pontchartrain, can testify to the truth of what I say about these trellises, and the mode of wiring a wall—both so neatly and efficiently done as few could believe, unless they had seen it. Placed alongside garden walks, they take up hardly any space, and they may also be run across squares in the portion of the garden devoted to fruit-culture with the best advantage. They have nothing whatever of that decrepid and miserable aspect which characterises the espalier system too often amongst ourselves. The shoots and wood on them are thoroughly exposed to the sun and air, the fruit ripens with perfect flavour, and by adopting them and allowing the trees upon them to attain as full a development as is consistent with fertility—in a word, not root-pruning them over much, we may help to fill the British fruit-room with good Pears in winter, and indeed at all seasons.

I wish now to speak of an improved mode of fruit-storing, especially of Pears. Instead of being confined to wide shelves or benches all round the fruit-room, as is usually the case, there were several sets of shelves arranged along the centre—rather narrow, sloping oaken shelves—supported by oak uprights. These shelves are wide enough for about half-a-dozen rows of Pears on each side, and made on such a slope that the Pears rise gradually, line after line, so that the eye can see each fruit with ease, without handling or disturbing any, and of course this is a great gain. But the careful constructor had gone further, by making the slight concavity upon which each line of Pears rested of two laths, so that the air can flow up beneath them. No single fruit is allowed to touch its fellow, and thus they are in a very much better condition than in the British fruit-room, where all are frequently packed tight together, and the good ones often liable to get tainted by the bad. This was in the Pear-room at Baron Rothschild's, and a more pleasing sight could not be presented to the lover of a garden—the successive shelves of splendid fruit being so arranged that every individual Pear could be examined without touching one. I need scarcely say that this is a great gain in the case of a fruit requiring so much nicety of judgment and attention as the Pear does from the gardener who makes the most of his collection, and has each kind, or even each perfect fruit, eaten at the right time.

The French are beginning to be alive to the importance of taking advantage of railway embankments for fruit-growing, but as yet they have only made a commencement. I am not aware that any attempt has been made to cultivate fruit trees on them in England. I went the other day to see one of the first attempts which has been made in France, a distance of eight leagues or so along the line from Gretz to Colommiers—Chemin de fer de l'Est. The French see the great advantage of utilising spots at present worthless in this way, and are beginning to work at it; but to all intents and purposes they are nearly as backward as ourselves. It is true you now and then hear of somebody becoming a *rentier* by planting a barren mountain side with Cherries, but on the whole, they have nearly as much to do as we have, with regard to fruit culture in waste and profitless places. However, they have commenced, and it is most likely the first trial will be a profitable one, though by no means so inexpensive as others that might be made. A cheap fence of galvanised wire runs on each side of the line in some parts, and on this Pear trees are trained so that their branches cross each other, and they are, though only in their third year, nearly at the top of the fence. In others they are trained in like manner on the slender but very cheap and wiry kind of wooden fence, so common in France. Some good fruit has been gathered this year, but the trees are yet too young to bear much, though, judging from appearances, they will bear abundantly next year, and for many to come. But this, although something in the right direction, does not occupy more than a mere thread of the space on each side the line, and it cannot be doubted but that much more might be done on the remaining surface by planting it. It would be a great point gained if we could have dwarf productive trees without having to go to expense for fixing or training them—if we could make them self-supporting, in fact. Now for this very purpose Mr. C. Baltet—who lectured at Billancourt the other day, as described in the *Gardeners' Chronicle*—recommends the form which Mr. Rivers has taken such pains to ridicule. Mr. B. is a very large fruit-grower, as well as seller of young trees, and he strongly recommends it for its resistance to the wind, and because the trees mutually support each other. Mr. Baltet has tried it extensively, and likes it very much—Mr. Rivers flatters himself that he "would have recognised its faults at once *if he had seen it*," &c., and unhesitatingly condemns it. But I hope to place its merits fully and fairly before the British public, assured that it will get a fair trial, and time shall tell the rest.

With respect to the Pear when growing as a cordon, I think the most likely places to try it in that form, would be on low walls, where it might be allowed to make a somewhat freer development, say a couple of rows of shoots from each plant. Trained on the low horizontal principle I have not seen it do so well; besides, the fruit hangs so much lower than the Apple, which last flowers so late that the Pear has not so good a chance as it of escaping ground frosts. I quite agree with "J. F." that to raise and encourage hardy Pears to grow as orchard standards on the Pear, and thereby cheapen and bring them within the reach of the mass of the people, is a most desirable object.

One word about the Peach. In the "fine climate" of France they take more pains to protect it from spring frosts than we do. They usually have a good permanent coping, and then project from beneath that iron rods 18 inches or 2 feet long, with a catch at the end. This enables them to slip wide temporary copings overhead when the trees are in flower, and thus preserve them from frost. I know one man who possesses nearly 4000 yards of these temporary copings, made in his case of tarpaulin on light frames of wood. Some use neat ones of straw. They generally prune their Peaches on the spur system—a method which we object to, in consequence of the difficulty of getting a sufficiency of good buds near the base of the shoots. Notwithstanding this, their method is worthy of a more extended trial than it has had with us as yet. In giving it, the leaf-pinching of Mr. Grin may be made use of incidentally in attempting a system of spurring-in with a rather close disposition of branches. It would by no means enable us to do away with nailing-in, but it would assist us to obtain a more stubby and well-furnished class of shoots. But I must reserve this most important question of culture of the Peach for a future day.

And now for a time I bid good-bye to French horticulture. I have not devoted articles to the abuse of its failings—and they are many, inasmuch as I had not space to follow the unusual course of describing the bad. But I must protest against the charge of having "libelled" the merit of English gardeners; anything I have done in the matter has originated in quite an opposite feeling—a wish for their improvement in some few points. Any little work I have done in France must be regarded as merely preparatory, and I hope to some day traverse every part of Europe interesting for its horticulture, with means and opportunities for observation, which I possessed in but a slight degree when in Paris.

And now, as to the little already done with French gardening, I am anxious to hear any further objections, answer any inquiries, or be corrected on any point in which I am in error. *William Robinson.*

[We can abundantly confirm our correspondent's statement that he has not sought to uphold French at the expense of English gardeners or gardening. He has given his own opinions as to certain matters in

which he considered we might learn from our neighbours, but he has even more sedulously and frequently called attention to the general superiority of British horticulture. Our correspondent is responsible for his own opinions, but it will, we are sure, be admitted, that he has done good service by his narrative of horticultural doings and horticultural facts, in and about Paris during this "Exhibition" season. EDS.]

THE CULTIVATED SELAGINELLAS.

(*Concluded from p.* 1191.)

GROUP 5. Rosulatæ. Habit of growth nest-like, *i. e.*, the stem forming a dense tuft, the outer rows growing gradually longer than the inner ones, all curling up very much when the plant is dry.

32. *S. convoluta*, Spring, Monog. 2, p. 69. A. Braun, Revis. No. 26. Lycopodium convolutum, Walker-Arnott, Mem. Wern. Soc. 5, p. 199. L. hygrometricum, Mart. Reise. Bras. 2, p. 792. Outer fronds not more than 6 inches long, pinnately branched, the pinnæ close but not imbricated, erecto-patent, the lower branchlets forked, the upper simple, the ultimate divisions two lines broad; the larger leaves close or imbricated, thick in texture, rigid, oblong, subfalcate, pointed, the upper side broader and more rounded than the lower, and with a broad scariose or deep brown border in the lower part: the midrib distinctly marked from the base to the apex, the edge ciliated towards the base: the smaller ones obliquely oblong-acuminate; spikes slender, tetragonous.

A native of Tropical America, from Mexico southward to Brazil. As firm in texture as the next and exceedingly hygrometric, but the divisions twice as broad and the leaves more spreading and not so much narrowed upwards, and bluntish, with an oblique cusp at the point. Midrib broad, and running from the base to the point. The upper surface is a deep green, the lower a silvery green.

33. *S. involvens.* Spring, Monog. 2, p. 63. Lycopodium involvens, Swartz. Syn. Fil. p. 182. L. circinale, Tnunb. Fl. Jap. p. 341. L. pulvinatum, Hook. and Grev. Enum. Fil. No. 98.—Outer fronds 4—6 inches long, the branching rather fan-like than pinnate, the stems being dichotomously forked with subequal divisions, not, as in the preceding, a distinct main stem with lateral offshoots from it; ultimate divisions under an eighth of an inch broad; the larger leaves densely imbricated, rigid, erecto-patent, obliquely ovate-acuminate: the upper edge broader and more rounded downwards, with a broad scariose or deep brown border, slightly denticulate, not ciliated; the smaller leaves unusually large in proportion to the others, more oblique and more pointed; spikes slender, tetragonous.

A native of Japan and China, introduced recently into cultivation by Messrs. Veitch. Well distinguished from the preceding by the difference in branching, and in the shape and size of its leaves. The divisions are much narrower, and the leaves are erecto-patent, and wrapped closely over one another, with the sharp points in a regular line and the smaller leaves very little different in size to the others. The colour of the upper surface is an average green, and of the lower a pale green, with the midrib very indistinct. We have not seen the plant published by Dr. MacNab, from Japan, under the name of S. Veitchii, but judging from the description it almost coincides with this in its branching and leaves, differing by the latter being not imbricated but with a space between them, rather more oblique and the point shorter.

34. *S. cuspidata*, Link, Fil. Hort. Berol., p. 158. Spring, Monog. 2, p. 66. A. Braun, Revis. No. 25. S. pallescens, Klotzsch, Linn. 18, p. 520. Lycopodium cuspidatum, Link, Hort. Berol. 2, p. 161. L. pallescens, Presl, Rel. Haenk., p. 97:—Habit densely rosulate: naked stems none in the typical plant; outer fronds 6—9 inches long, copiously pinnate, the branches with copious simple or forked branchlets; ultimate divisions an eighth of an inch broad; the larger leaves only close upwards, ovate, cordate on both sides at the base, but more so on the upper one, with a conspicuous white border all round, and tipped with a white hair-like point; the nerve very faint, the edge ciliated downwards: smaller leaves ovate-aristate, convergent; the spikes copious, square, rather lax.

Var. *elongata*, Spring, loc. cit. S. sulcangula, Spring, Monog. 2, p. 163. S. cordifolia and Aviæ, Hort. S. incana, Spring, Monog. 2, p. 157:—Habit sub-caulescent, the outer fronds a foot or more long, naked below, more branched and more erect than in the type.

A native of Mexico and Columbia. A puzzling plant, because the variety looks so different from the type at first sight, but the leaves are quite the same, and in habit there is a gradual passage from one to the other. The colour is pale green on both sides, and the texture is much more tender and herbaceous than in the two preceding. This species quite connects the *Rosulatæ* and *Caulescentes*. Spring appears to have described forms of it under three of his groups.

35. *S. pilifera*, A. Braun, Revis. No. 27. S. lepidophylla, Hort., non Spring:—Outer fronds about 6 inches long, copiously flabellately branched, the ultimate divisions a line to an eighth of an inch broad; the larger leaves close but not imbricated, herbaceous in texture, obliquely oblong-falcate with a distinct white hair-like point, the upper side broader and more rounded at the base, the edge denticulate and finely ciliated downwards: the smaller ones obliquely ovate-acuminate, convergent; the spikes rather lax and irregular.

A native of Texas. A well-marked species, resembling cuspidata in texture, but always forming a dense nest, the outer fronds forking into 10 or 20 branches, and the leaves not at all white-bordered. The colour is pale green, and the midrib is quite indistinct. The true lepidophylla is closely allied to convoluta, being much stronger in texture, the leaves densely imbricated, and both kinds nearly equal, bluntish, and nearly as broad as long, and the branching pinnate. *J. G. B.*

ORCHIDS AND THEIR CULTIVATION.

No. XVII.

(*Continued from p.* 656.)

Treatment of Imported Odontoglossums.—"E. H. C." puts the following question:—"My gardener experiences a difficulty in establishing some species of Orchids, particularly some of the more delicate-growing Odontoglossums, such as Bluntii. He finds that before the young bulbs are quite mature, and consequently before the plant is in a condition to be allowed to go to rest, it starts a fresh growth, in most instances smaller and weaker than the first growth. If this occurs late in the season the second bulb generally damps off. In some cases the process is repeated, and the result is, if it survives, a weak and dwindled plant. Will any of your correspondents assist me by their advice to overcome this difficulty." Probably it may be useful to not a few readers if I enlarge somewhat upon this question.

Singularly enough, Odontoglossums as a rule have never been conspicuously well grown. True, they were only introduced into this country in limited quantity at first, and the very few that survived the ordeal of a tedious and difficult transit, in a burning heat, to the port of embarkation, were prescribed for and managed with the greatest anxiety certainly, but upon a system opposed to the wants and habits of the family. It has been subsequently proved that those plants that had been growing on the mountain chains of New Grenada, and sent by collectors down the river Magdalena, to the ports either of Santa Martha or Carthagena, have come home in comparative safety, so that if judiciously packed these Alpine Orchids may be considered virtually safe after being placed on board the mail steamers. The countries to which the choicest of the Odontoglossums are indigenous are among the most mountainous in the world, and although this kind of vegetation does not reach the loftiest summits or the line of perpetual snow on the peaks of the Cordilleras and the crown of the Andes, yet it verges towards it. Look to the provinces of Ecuador, Guatemala, Peru, and New Grenada, and it is not uncommon to find many of the plants in question ranging between 4000 and 10,000 feet altitude. Bogota and its vicinity comprises a rich field of orchideous treasures, which has been largely gathered from for European stoves, and it is as nearly as possible 9000 feet above the sea level, while according to the best and most reliable information the temperature rarely exceeds 60°, and not rarely falls towards the freezing point. The climate is mild, agreeable, and salubrious, and far less variable as to extremes than that of our own country.

O. Bluntii and O. Alexandræ, the one found by and named after the Messrs. Low's collector, Blunt, and the other found at or about the same time by the Royal Horticultural Society's collector, Weir, are the subjects of "E. H. C.'s" complaint. These plants are undoubtedly identical, and closely allied to O. Pescatorei. The complaint is to the effect that before the young bulbs are quite mature, they start a fresh growth, in most instances weaker than the first, and that if this occurs late in the season the second bulb generally damps off. It is not a very satisfactory course to prescribe for afflicted plants without seeing their actual condition. There may be a variety of causes tending to debility of constitution, and to try to hit upon the real one is somewhat haphazard work. There are, however, two things that would require to be insisted upon to command success in the resuscitation and cultivation of these plants, and that is a proper degree of temperature, and a corresponding degree of moisture. If these things be properly balanced, the first year of the plant's artificial treatment as to soil is not of so much moment. In other words, the plant may be potted in a judicious mixture of peat and sphagnum, or sphagnum itself, or crocks with a layer of sphagnum on the surface, and succeed almost, if not altogether, equally well, with a proper regard for heat, and a proper and differential regard for moisture. The climate of Bogota furnishes a sufficient proof that tropical heat is not wanted; and as 60° was the maximum named, it comes to be a matter of concern during our hotter summer months to exceed that degree as little as possible. To do so without sufficient shading would shrivel the matured bulbs, and act to so detrimental a degree upon the young growths as to seriously affect the constitution of the plant, and induce it prematurely to finish its first growth; and as the period of quiescence had not arrived, the latent buds would burst, and all the ills that "E. H. C." shadows forth would soon become apparent. Any check upon the growth of these Odontoglossums, whether it is the consequence of an improper balance of heat and moisture—either too much heat and too little moisture, or too little heat and too much moisture, a condition which one seldom sees—will affect the plants in the manner described. In order that my teachings may not be misconstrued as to shading, it may be stated, that so soon as the sun is low enough in the horizon not to scorch the leaves, and raise the indoor temperature unnecessarily high, say to 65°, it is better that it should altogether be dispensed with; and now, in these dreary months, the maximum light is a seen and known advantage to every grower of cool Orchids.

Undue variations of temperature should be guarded against. If 60° can be had in any place in this country as the maximum day heat during summer, then I should say the minimum night heat should not be under 50°. Then, as to the extreme resting minimum, as a rule, it should be from 40° to 45°, although lower temperatures are preferable to higher ones if excited by artificial heat, while the minimum day heat should not be more, keeping the figures above as our comparison, than 45° and 50°. This is advice which, other things considered, every one may act upon with anticipation of a reasonable degree of success. The natural climate, to the best of the information in my possession, is in conformity with this, and I have had much satisfaction in acting upon the figures quoted as a standard.

It is just possible that an infringement of the principles I have here enunciated has been the means of unnaturally forcing these Alpine Orchids of "E. H. C.'s" into a second growth. The tendency, however, of the most of Odontoglossums, and of O. Bluntii and O. Uro-Skinneri in particular, is to keep on growing and flowering at diverse periods. Even the Guatemalan O. grande has an inclination that way; but there is a vast difference between immature or premature growths, and those which properly develop themselves. In the one case the plant decreases in bulk and in value to such an extent as almost to have a hopeless future in the hands of the best cultivators; in the other it increases both in bulk and in yield of inflorescence, and looks at all times what it is intended to be—a cultivated plant.

All imported plants that have no young growths, and elongating and sickly plants that may have been growing in collections for a time, similarly situated, may have their desiccated pseudobulbs freely plied with the syringe during summer twice a day, and in the duller months as often as they appear dry. The water should be 10° hotter than the house temperature, and air must not pass very freely over them else it will partially defeat the object in view, namely, that of inducing a flow of sap sufficient to press out the wrinkles of the bulbs. So soon, however, as young growths make their appearance the greatest care is necessary, both as to the application of water and of ventilation. Without a judicious administering of both these necessaries, damp will supervene, and you may bid adieu to the young growths. No one that knows anything about plants need be told that if with an idea to restore convalescence the treatment applicable for established plants were pursued, defeat would just be as absolutely certain at home as it would be abroad, in their native habitat, if, after they had travelled about for thousands of miles they were promiscuously disposed of, without any regard for promoting life.

Let all imported plants for a time be confined in a close, mild, moist atmosphere. When they have proceeded a stage farther, inure them to a more airy atmosphere, where water is never in excess during day. They may in that probationary period be grown entirely in sphagnum and crocks, the latter predominating. Fresh roots demand a larger field and a more nutritious supply, and it will be the aim of the gardener to provide them therewith in the shape of fibry peat and sphagnum of an elastic character, so arranged as to maintain a good physical constitution. With proper attention to these hints, and those particularly with reference to temperature, not only "E. H. C.," but others similarly placed, may in time overcome most of the obstacles that tell against successful Odontoglossum cultivation. *J. A.*

Home Correspondence.

The Florist's Standard.—How much ink-spilling would be avoided if controversialists followed the example set by Mr. Glenny in his last communication. How much of bitter wrangling and envenomed personalities would be prevented, by so candid an explanation of his method of procedure as that which has been given by that gentleman. Half the wordy wars arise from the employment of the same terms in different senses by the various antagonists. There is no room now for misconception of the other's meaning either by Mr. Glenny, or myself. He has told us distinctly what he means, and how he arrived at his conclusions. He has the advantage of being able to formularise his case, and to say "a circular flower is perfection;" if we cannot attain to such perfection we must get as near as we can to it, and he appeals to the Pansies now exhibited as "the best answers to those who dispute my (his) notions." Now there are some people who never know when they are beaten, and in this matter I must confess myself one of that fraternity. I am still a heretic, and when I see those Pansies with their circular collar of card-board to back them up, I think that if the flower were removed, and the card-board painted or covered with coloured silk, that the effect would be almost as good. When I pass a cottage garden, and see the quaint Pansies with their "windmill" petals and upturned faces, and see how much more brilliant and effective they look than their circular brethren, in whom an indentation is considered a blemish, I become more heretical than ever; as a proof of which I may excite the pity of some straight-laced florist even more by expressing my preference for the old radiant, or, as a florist would say, "ragged" Chrysanthemums (they mustn't be too ragged, though), that one still meets with in country gardens, over their more regular, compact, dressy brethren that are now in vogue. I believe, too, that in point of general effectiveness there is no room for comparison between the two. The light, and, as an artist would call it, "air" which pervade the flower, give it a brilliancy which none of the modern fashionables have. But then I may be told that my radiant Chrysanthemums, looked at as "exhibition flowers," would not be fit to be seen; and this I acknowledge. My pets would look as much out of place as a Dandelion amid a bed of Mrs. Pollock. But then, I submit, the purport of an exhibition ought to be to encourage the production of the best qualities of flowers and fruit suitable for ordinary consumption. What is the sense of growing a thing for exhibition purposes merely? But I must follow Mr. Glenny's example, and not run away from my subject. Suffice it, then, to say, that while admitting the generally great improvement in the Pansy, as in other flowers, I demur altogether to the circular outline as being the perfection of form in that particular flower; and still more loudly would I declaim (did my lungs suffice) against the principle of making all flowers conform to the circular form whatever be their natural shape. How greatly do I rejoice that many of them prove rebellious. As to the antagonism of botanists and florists, that is a statement which I cannot help thinking requires some modification. I do not pretend to answer for either one or the other body of plant lovers, but I can understand how a botanist might fall foul of the florist, when the latter by

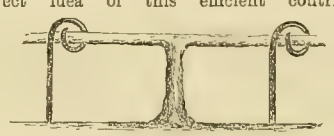
his art showed how weak and untenable are some of the former's cherished methods of classification; and it must be somewhat tiresome after one's collections are neatly labelled, docketted, and put away, to have them upset by such a bull in a China shop as a florist often is (very unconsciously perhaps). There are points of structural botany, and especially of physiology, however, as has been mentioned in your columns, which derive so much elucidation from the florist, that I hardly see that there is any ground in such matters for antagonism, but much the reverse. Mr. Glenny's last illustration meets my case as well as his. He compares the labour of the florist with those of the graziers, &c.; well I, for one, don't like fat, and I think the animals one used to see at the Smithfield Show a few years since were diseased monsters, whose production was a wasteful mistake; and yet they were considered by those who didn't know what "fatty degeneration" meant, as models of symmetry. Happily we have outlived that phase, and so I trust we may in time see the florist's standard also put upon a more satisfactory and rational basis. *M. S.*

Rose Climbing Devoniensis.—Although I hope to speak in your pages, and at no very distant date, of our Roses in 1867, I cannot permit the best season for transplanting to pass without urging upon all Rosarians who can make room for this Rose upon a wall having a southern or eastern aspect, to place it there without delay. Mr. Curtis, of the Devon Nursery, Torquay, kindly sent it to me three years ago. The first summer after its arrival it made shoots 10 feet in length, and it now covers an area of wall 6 feet in width by 15 in height. It will next year occupy double the space in breadth, if permitted. The first flowers opened in June, quite as large and as beautiful as the lovely parent flower; it continued in beauty through the summer; I wore a perfect bloom in my coat at the annual dinner of our Horticultural Society on the 21st November, and their are still numerous buds on the tree, which would be flowers, weather permitting. Since the introduction of Gloire de Dijon we have had no Rose of so much merit, in my estimation, as the Climbing Devoniensis. The flowers are as abundant as they are symmetrical and sweet, and I need hardly add, after the trial of last winter and last spring, that the plant is perfectly hardy. *S. R. H.*

Prevost's Theory of Exchanges.—With reference to heat, I take as an axiom that "the tendency of all bodies is to an equilibrium of temperature;" but it is well known that this does not imply "equal quantities of that in different bodies." Where this equilibrium exists it is impossible that any one body can communicate heat to any other. Prevost's theory assumes, however, that an interchange of heat still goes on, and consequently (in order that the equilibrium be not disturbed) each body must give out and receive precisely equal quantities of heat. It is well known, however, that different surfaces (at any given temperature) radiate very different quantities, and the further assumption is required (on this theory), viz., "that no body can receive from any other body (of its own temperature), more heat than it is itself capable of radiating at that temperature," or, as explained, that any excess radiated (as it is termed) must be reflected back to its own source, and there re-absorbed to be again radiated, &c., *ad infinitum*. Such assumptions I never could admit, and have, therefore, rejected Prevost's theory. I shall now state what, I conceive, takes place, and refer to "experiment" to prove my assertions. When a hot body is introduced into a medium whose temperature is equilibrio, it begins at once to give out heat, and the process goes on throughout the medium, diminishing in intensity as the distance from the source of heat increases, as well as in the approximation to a new "equilibrium." If the body introduced be colder than the medium, it absorbs heat from the latter and the cooling process is propagated for the attainment of an equilibrium. The following experiment (designed as an *experimentum crucis*), will, I think, demonstrate the truth of this theory. In a close room place one ball of a differential thermometer in the heat focus of a concave metallic mirror. This mirror must have a hollow back with a pipe at the top, so that its surface can be heated or cooled by filling it with hot or cold water. Then arrange the position of the other ball of the differential thermometer, so that, whether the surface of mirror be hot or cold, both balls of the instrument are equally acted on by that surface, the thermometer standing at zero. Suppose the temperature of the room to be 55° Fahr., and water (heating mirror) at 173°. Place a cubic tin canister (such as Leslie used), varnished on one side, in front of the mirror at the distance of about 5 feet, and let this canister be filled with water at 67° Fahr., and (as will be expected) this will be found to act as "a warm radiator" to the focal ball, and the varnished side of the canister will produce the greatest effect. Now advance the canister towards the mirror, and its effect on the focal ball will diminish until at a certain position, where the action on thermometer (of both varnished and metallic sides) altogether ceases! Advance the canister still nearer to the mirror and it will chill the focal ball, and the varnished side causes the greater cold. The above, with several other experiments, may be found in the reports of the British Association (vol. for 1835, p. 164). They appeared to attract a good deal of attention at the time, but (being totally inexplicable where Prevost's theory was received as true) appear to have been forgotten. I shall now explain this experiment. The hot mirror produces a "gradation of temperature" in the air in front of it. But the balls of the thermometer being equally heated, the instrument remains at zero. The canister at about 5 feet distance (being at 67°) is higher in temperature than the adjoining air (heated in accordance with its distance from the mirror). But in moving the canister towards the latter you arrive at a point where the influence of the mirror on the air is in equilibrio with the heat of the canister. Here the canister ceases to act, and on being moved still nearer to the mirror (where the temperature of the air exceeds that of the canister), the latter, in fact, appears to "radiate cold," the varnished side being most efficacious, simply because a "stream of heat" (as I may term it) is now drawn from the focal ball, reflected by the mirror, and absorbed in greater quantity by the varnished than by the metallic side of the canister. The whole "theory of heat" appears to me to require revision. That heat is merely "a mode of motion" appears to me as absurd as "the theory of exchanges," for "repulsion" between attracting molecules can never arise from any motion of those molecules. No doubt many of the phenomena of heat are connected with motion; so also in light, electricity, and magnetism; these and heat must, I think, be all looked on as effects from one common cause, but no more; they are not identical (according to prevailing notions), though there exists a certain equivalence amongst them. *H. H., Glenville.*

Acorus Calamus.—Concerning Sweet Flag (Acorus Calamus), which used to be a native of Norfolk, and which was used to strew the floors of Norwich Cathedral, as mentioned in Sowerby's Botany, I beg to state that I have a piece of water full of it, and that if anybody wishes to obtain it, they may do so by applying to the gardener at Warmsworth Hall, Doncaster. I saw it stated a short time ago that as the plant could not be procured, the Iris Pseudo-Acorus was used instead of it—I think by perfumers, and also as a tonic. If any of your correspondents can furnish any information as to the chemical properties and uses of the plant, it will be acceptable. *E. A. W.*

Method of Supporting the Branches of Cordon Trees.—Some time since, on passing some cordon Apples, I found that the wires by which the stems were fastened to the horizontal wire had cut through the stems of the trees, and had brought on canker; this induced me to look to some trees that were fastened to short wooden stakes to keep the stems of the trees in a horizontal position—a very old custom—the stakes had, however, been found objectionable, owing to their requiring to be frequently renewed. I then took some slight iron-rods, half an inch in circumference, and had their tops bent so as to form a hook: this prevented the stem springing upwards, but, unless fastened to the stem, by tying it to the hooked rod, which I wished to avoid, the stem, when loaded with fruit, sunk to the ground. This was unsatisfactory, and then the simple idea came to mind, to give the hook another turn, so as to make it fully answer the end I wished for. The annexed little sketch will, I think, at once give a correct idea of this efficient contrivance.



The branch or stem is introduced between the curve and the upright, is prevented springing up by the upper curve, and when heavy with fruit rests on the lower one; the coil is about 1½ inch in diameter, so that it will be some years before the branch will fill it so as to become pinched, and then it may be opened easily with pincers. These curved iron rods should be, I find, for single and double cordons, 16 inches long, not 20, as I have recently mentioned from guess; and for quadruple cordons or edging trees, with two tiers of branches, 24 inches long. By using these supports I shall rid myself of the straining posts and the supports between them which horizontal wires require, besides getting rid of the inconvenience that wires stretched near the ground always occasion. I have this season been struck with the facility with which double cordon Plums are trained, and their fertility, and I fully believe that in our northern counties, where choice Plums will not succeed unless trained against walls with a warm aspect, these double cordons, planted on a border with a sharp slope, in front of a south wall, would bear well and ripen their fruit. They may also, which is of great importance, be easily protected when in blossom; for, supposing a border such as I have named to be 4½ feet wide, three rows of trees may be planted in it, and easily protected either by double tiffany, or by (what would be preferable) garden lights, made light and cheap for the occasion; a light rail at back and another in front would support them, and they might remain over the trees till the end of June, so as to insure the ripening of the fruit. As Plums grow more rapidly than Pears on Quince stocks, or Apples on the Paradise, they should be planted from 15 to 20 feet apart, and, if required, their growth should be restrained by root-pruning. Glass in our climate seems annually to become more necessary to ripen fruit. My double cordon trees of Peaches, Pears, Apricots, and Newtown Pippins under glass ridges (ground Vineries), are some years old, and every season they show the immense benefit they receive from the simplest of all glass structures. I should add, that the iron rods should be painted with hot coal-tar and lime, or the kinds of paint used for ironwork. *Thos. Rivers.*

When shall we have a good Golden Ivy?—I hope that some other of your readers will supplement Mr. W. Paul's remarks on Ivies (see p. 1215), by describing how near an approach to Golden-edged Pelargoniums the best variety of Ivy now in cultivation has arrived at. With me the Gold-blotched or Gold-marked variety shows all the young foliage as bright a yellow as can be wished for in May, but as the leaf gets older the green prevails. Is this the case with other Golden Ivies? Mr. Paul's otherwise useful catalogue of varieties does not mention this; and, as I believe we are only on the eve of great improvement in this class of plants, those who have a kind that retains its golden colouring clearly defined up to the latest period of the leaf-existence, have already a substitute for the Golden Pelargonium of a superior kind from any with which I have hitherto met. It seems hardly likely that so perfect a one is yet to be had; but there is no reason why there should not be one. Golden Hollies are more perfect in their marking, and more decidedly clear and brilliant in their colouring than any Pelargonium, new or old, with which I have met, and why should not we have Ivies of the same class. In their normal condition the green of the one vies with that of the other; why should not the edging, when altered either to the golden or silver hue, be equally good? Be it observed, both are wanted; the silver, though less prominently noticed in the article than the golden, is, nevertheless, as important as the other. Perhaps Mr. Paul will favour us with his views on the matter, and say whether he thinks there is hope of a speedy accomplishment of the improvements in Ivies mentioned above, and also, after having obtained good variegated forms, what chance there is of getting Tricolors. *F. L.*

Hardiness of the French Paradise Stock.—A question having arisen as to the hardiness of this Stock, I beg to enclose a letter from M. A. Verschaffelt, of Ghent, in which he says that "the French Paradise Stock is quite hardy in Belgium and in the North of Germany." *W. R.*

Weather at Bury.—We have had a wonderful bite of the frost at last. On Monday morning 5°, with a piercing north wind, wrecking everything. Up to the 25th ult. Mrs. Pollock and Iresine were as fresh and beautiful as ever; now all has departed. Last night 8°, this morning 4°, now, 4 P.M., thermometer at 35°, and the inch of snow that has fallen at intervals during two days, thawing. *D. T. F., December 3.*

The Variableness and Uncertainty of our Fickle Climate.—At p. 1217, Mr. Davidson, gr., near York, speaking of the mildness of the weather of late, states that most of the flower garden plants were, up to the 26th ult., not much injured by frost, but were fresh and in bloom. I have many times seen this the case, indeed for years in succession, until Christmas, in this locality. This season is an exception, and very much the reverse. We had a dark wet October. November came in with a gale and storms, succeeded by a dry, cold, north-easterly wind, driving the dust and leaves in all directions, but calmed down to quiet sunny days, with starlight, frosty, dry nights, on which we had from 2° to 12° of frost. Several nights we had from 4° to 8°; on the 26th, 10° the whole night; 27th, 8°; 28th, 12°—an unusual degree with us. It froze indoors, and so hard was the ground on the three last days that the plough was stopped all the early part of the day. Ice was thick, and a good deal was collected at and about Exeter. If the ground had not been so dry and pulverised on its surface, the plough would have been locked out nearly the whole month with us. It has been a lovely, dry, bright month, but the coldest November I ever recollect. We have been obliged to have fires applied several nights to keep out the frost from common plant houses, and to cover and protect all out-door Lettuce, Endive, Cauliflower, and Broccoli (Cape and Snow's). All out-door tender and flower garden plants have long been killed; besides, what I never before saw, the Chrysanthemums out-doors, even those nailed to the walls, are killed to the ground, as dead as hay. On the 29th we were enveloped in a dense, raw, stinking fog, after a night-frost of 4°. The 30th came in with rain and gentle wind, soon heightening to a smart gale, blowing and driving the cold rain in torrents, all that day and night. On the morning of December 1st it was still blowing and raining, and the gale heightening, but all at once it became quite warm, the thermometer rising 12°—from 38° to 50°—in a very short time. After the morning it blew a sharp gale, raining in torrents, and got much colder, the gale and rain slackening at midnight; and succeeded this morning (Dec. 2d), at 3 A.M., by a smothering, driving snow-storm, thick snow-storms continuing up to the middle of the day, so that we have the whole country covered, and the evergreens breaking down with their heavy burden. We had 4° of frost at 12 noon, and icicles hanging in all directions from sheds, houses, and pits, where the snow had been thawed. *J. Barnes, Bicton.*

Fruiting of Cephalotaxus (see p. 1193).—A plant of this in the arboretum here has fruited this year. It was literally covered with fruit, hanging in clusters of three and four together. It bore no fruit last year or the year before, but it was removed last April, and that I think has thrown it into fruit-bearing. Before being removed it was about 10 yards from the male plant. *J. Sharp, Gr. to A. Barton, Esq., Longmead, Bishopstoke.*

Sequoia Wellingtonia.—I should feel obliged if you would inform me whether the enclosed sprigs of Wellingtonia have incipient cones, or incipient catkins? My tree was planted in 1853 (a seedling) about 10 inches high. It is now 15 or 16 feet high, and towards the top of it, on the south side, there are three or four bunches or clusters of flowers, like the sample sent, which was gathered nearer the ground. My tree used to become very brown towards the spring when young, but now the roots have spread the vitality is such that it preserves a most beautiful green, and does not turn brown even in the spring, when the hot burning sun coming after a cold frosty night, or in snow, does so much damage to Conifers, especially Araucarias and Wellingtonias. *W. Grant.* [What you have sent are the male catkins of the Wellingtonia EDS.]

Root Growth.—Permit me to endeavour to correct the explanation given of my practice in p. 1213. After renewing the surface soil in October (top-dressing) it is left undisturbed till the following October for the roots to feed on. No part of it is removed, but occasionally dressings of rich compost are placed on the surface

without disturbing it. In removing the mass of inert fibrils from the surface of the pot in autumn numerous rootlets are found interspersed; the fibrils crumble to dust under the finger and thumb, but the rootlets are full of sap and life, as if ready to commence their annual work of throwing out feeders. *T. R.*

Boilers.—The many advantages possessed by Jones's terminal boilers over all others that I have seen in use, induce me to confidently recommend them. There is, in my opinion, no form of boiler calculated to do so much work with perfect safety as the old saddle boiler; but the great fault in that form of boiler was the immense quantity of heat that was allowed to escape up the shaft. The way in which the old saddle is usually set causes it to split the draught at the back of the boiler. Flues are formed on each side, and the heat from the centre arch is by these means divided at the back and brought round each side to within 14 inches of the front, where it is made to pass away into the chimney over the top of the boiler. The idea occurred to the inventor of the boiler I am now about to describe, that the strongest portion of the heating material used in the old saddle was uselessly wasted, taking effect only on the mass of brickwork at the back, which is undoubtedly the case; and this is not the worst evil belonging to it. Where large fires are continued for any length of time, the mass of brickwork at the back and that forming the roof of the side-flues soon crumbles away by reason of the fierce heat to which they are constantly exposed. Then comes the disagreeable necessity, perhaps just at the height of the forcing season, of having the boiler reset: then for a time untidiness runs, and perhaps one or more crops are nearly sacrificed in consequence. The ingenuity of the inventor of Jones's terminal boiler has effectually done away with all these disagreeable matters, by adding a terminal piece to the old saddle, to take the place of the brickwork at the back; and the side wings are also a very great and useful addition; these and the terminal piece form very important additions to this best of all boilers; the water they contain is at all times exposed to the hottest portion of the fire. The terminal piece does away with the frequent annoyance of resetting, and adds immense power to the boiler; the side wings also form the top or roof of the draughts, and there is no fear of the brickwork being loosened and the top tumbling in by constant use of the hoe, or fire scraper. The flame coming in contact with the terminal portion of the boiler is divided there, and passes round the ends and under the side wings to within 8 or 9 inches of the front, where it is made to pass over the side wings again on its way to the shaft. It is thus used with great effect on the sides of the wings. In this way there is a very large surface of water exposed to the action of the fire, and where there is a good draught the heat is brought to bear on a most important part of the boiler, causing it to discharge the heated water with great velocity. The return water is equally divided by means of a T piece at the back of the terminal piece. It is then brought round each side, and entering the boiler in front of the pipe resting on the bottom of the side draughts, is thus brought under the influence of the strong heat under the side wings. It is by these means heated before it enters the boiler, and is as a natural consequence forced again out of the boiler into the flow-pipes much quicker than it otherwise would be. I, however, think this boiler might be still further improved by making a wider opening from the arch of the boiler into the side draughts under the wings; these are in their present form, a little too small. If they were made about double the depth the draught would be much improved, and the circulation would be thereby quickened considerably. I am also of opinion that the boiler would be better without the hollow fire-bars, which only add to the expense, making the boiler at the same time more likely to get out of order. For my part I can see but little advantage to be gained in having hollow fire-bars, for the cold air constantly passing between them from the ash-pit must in a great measure counteract the advantage gained from the fire on the upper surface of them, especially at the end nearest the shaft. I would therefore recommend the discontinuance of the hollow fire-bar, and suggest a deeper opening for the side draughts. The Jones's terminal has an advantage over the various forms of tubular boilers, inasmuch as it does not require a deep stoke-hole. This is a great consideration, especially in places badly situated as regards draining. In low situations, if deep stoke-holes have to be made, a very large expense is incurred in making proper drains from them. Taking all the advantages this boiler possesses into consideration, I have no hesitation in pronouncing it the safest and most economical boiler in present use, and for the future shall always adopt it. *J. Wills, Huntroyde.*

Grapes in Bottles (see p. 1191).—This plan of keeping Grapes should perhaps rather be described as putting a portion of the young wood with a bunch of Grapes attached, into a bottle of water purified with charcoal, the loss by evaporation, which is but little, being made good by the same kind of water stored in bottles ready for use. This simple and practical system, described by your Paris correspondent, and on which I also ventured to make a few remarks, is criticised by one who signs himself "Muscadine," but it is evident he has not seen the right system in practice, or he would not have quoted Brother Jonathan, or some imaginary writings, in support of a practice which, by his own account, resulted in mildew, rot, and shrivelling. His failure with an entirely different, an expensive, and an obviously ridiculous method, is no argument at all against that of bottling, above referred to. I beg to inform him that I have taken some pains to ascertain the value of the system,—I have seen it in full practice, and thoroughly satisfied myself with its working, sufficient to induce me to believe that I can keep Grapes as free from mildew or dust, in a quiet little dry room, with a command of dry air, as can be done in any Vinery. Everybody knows the method we have hitherto adopted for preserving our Grapes through the winter. Now, if the fruit can be gathered, stored, and kept in as good a condition by a simple method, and the Vines rested in a natural way, it must be a step in the right direction; for all practical Grape growers well know that to leave the Grapes on their Vines till a late period, will after a few years weaken and injure their Vines: and those on which the fruit is left the longest always soonest show this weakness. Besides, the Vine structures may be turned to other account—such as protecting various vegetables, salad, &c. With respect to his recommending young men to set about growing Grapes in the South of France, and to send them to London and Paris by the ton, I may remind him that while the French do not, as far as I can learn, write about what they would do if they were young men, they really do take particular care to supply our markets with enormous quantities of fruits, salads, and vegetables, many of which are grown in parts of France with a climate as cold as our own. Early in October, when I was at Baron Rothschild's, the weather was as cold, dark, and stormy as we have it here in England. Notwithstanding the opposition which your correspondent has met with at the hands of Mr. Rivers, I fully believe that his suggestions will be fairly and impartially tested in England by many of our best gardeners, and time will tell who is right. *James Barnes, Bicton.*

Prolific Strawberries.—"A. F. B." does not explain his spring treatment of the late-bearing Strawberries (p. 1218). If they were planted in spring there is nothing very extraordinary in it. We profess to have, and we have Strawberries all the autumn, but it is more in consequence of spring treatment than from the acquisition of any new variety. I send you a few gathered to-day (Nov. 30) in all stages [about the same as the sample referred to "A. F. B."], but would have sent you a good ripe dish had they not been frozen through during the last few nights, so that they are now mouldy. We have been gathering one dish about every three days lately, according to weather, but earlier in the season one every other day. The variety was brought here by a young French improver, but is nothing more in my opinion than the Prolific Hautbois. This, with some other varieties, stated to be autumn bearers, including the Alpine, produces fruit plentifully when treated in this way—namely, by simply lifting properly prepared plants in April, and transplanting them into good rich soil. This was the practice followed by my "improver's" father, in order to supply the Imperial table, and I believe will induce many of our other varieties to become autumn-bearing. *Fructus.*

Societies.

Royal Horticultural, *Dec. 3.—Floral Committee.*—One of the most interesting features of this meeting was, undoubtedly, a collection of Japanese Chrysanthemums from Mr. Salter, of Hammersmith. To four of these, viz., Red Dragon, Aurantium, Comet, and Wizard, First-class Certificates were deservedly awarded. Of these the first has thread-like petals of a warm red colour, tinged with gold; the second, on the contrary, is remarkable for the breadth of its massive yellow petals; while in Comet, again, occurs the thread-like form, fringed with reddish-brown. Wizard is a dark crimson, with a small yellow eye. Tarantula, a yellow sort, to which no award was made, also deserves notice on account of its hard, button-like centre, and the long, narrow, sprawling florets which surround it. These varieties, though so different in colour, are said to have been all raised from Chrysanthemum roseum punctatum; and from them others possessing more merit may doubtless soon be expected to be obtained. They cannot at present be called florists' flowers, but for ordinary conservatory decoration they will be found invaluable. From Mr. Salter also came his Chilian Beet, and one or two other fine-leaved plants. Mr. George, of Stamford Hill, contributed a collection of cut blooms of Chrysanthemums, for which a special Certificate was awarded, and a similar mark of distinction was also conferred on another collection, from Mr. Forsyth, of Stoke Newington. Mr. Parker, Tooting, furnished cut flowers of the brilliant orange-scarlet Scutellaria costaricana, recently introduced. Mr. Muir, gr. at Oulton Park, sent blooms of a seedling Amaryllis, called Viceroy. From Mr. George Smith, of Hornsey, came young plants of his white variegated Pelargonium, called Princess Alexandra, to which a First-class Certificate had been awarded at Chiswick. Mr. Kinghorn exhibited examples of a dwarf Thuja, which were requested to be shown again. Messrs. Smith, of Dulwich, had a fine group of Variegated Zonal Pelargoniums, the bright appearance of which, even during this dull weather, confirmed the impression entertained of them at the last meeting, viz., that they will prove most desirable plants for winter decoration. A variegated variety of Cupressus macrocarpa was shown by Mr. Jennings, of Shipston-on-Stour. From Mr. Green, gr. to W. Wilson Saunders, Esq., came a charmingly rose-spotted variety of Odontoglossum Alexandræ, called Bowmanii. For this a First-class Certificate was awarded. Messrs. E. G. Henderson sent finely-formed white blooms of a sport from the Princess of Wales Chrysanthemum, named Beauty of St. John's Wood, for which a First-class Certificate was awarded. From the same firm also came a collection of cut blooms of Chrysanthemums, to which a Special Certificate was given. Among them were beautiful examples of the white Anemone-flowered sort called Lady Margaret. Mr. Cannell again showed his white-edged Ivy-leaved Pelargonium, named Duke of Edinburgh, but it had not lost the ragged appearance it bore on a former occasion.

Fruit Committee.—Mr. Cox, of Redleaf, exhibited a dish of large and handsome fruit of Hoary Morning Apple. Mr. Ford, St. Leonard's Lodge, Horsham, sent specimens of the fruit of Physalis Alkekengi, which a member stated he knew had been used as a successful cure for gout, by two or three of the berries being eaten every day, or every other day. Mr. William Paul furnished a promising seedling Apple, which was however past its best. Mr. Brister, Whitton, near Hounslow, also sent a seedling Apple, for culinary purposes, which was stated to keep till May. Mr. Tillery, of Welbeck, contributed samples of Mill Hill Hamburgh, Welbeck Tripoli, and Frankenthal Grapes, for comparison, when preference was given to the Frankenthal. Mr. Tillery also sent a berry of a seedling Grape of extraordinary size and shape, raised from the Black Hamburgh, crossed by pollen of Gros Guillaume. Mr. Ford had a Special Certificate awarded him for a very fine collection of Pears, the specimens of which were large, finely grown, and excellent in flavour. They consisted of Glou Morceau, Joséphine de Malines, Triomphe de Jodoigne, Broompark, Forelle, and Easter Beurré. Another Special Certificate was awarded to Mr. Ford for a large collection of Apples, consisting of 23 dishes. Messrs. Lane & Son, of Berkhampstead, deservedly received a Special Certificate for a collection of Grapes, consisting of Muscat Hamburgh, Alicante, Chasselas, Gros Guillaume (called Black Barbarossa), Lady Downes', and Black Prince. The bunches were large and handsome, and were justly much admired. A Certificate was also awarded to a Black Alicante in a pot, on which were 11 large bunches. Mr. Ingram, of Frogmore, sent a splendid specimen of the Smooth-leaved Cayenne Pine, weighing 8¼ lb., the produce of 11 months. It was awarded a Special Certificate. Mr. Rivers sent specimens of Apple trees grafted on French Paradise and Doucin stocks, showing that the scion grafted on the former, when covered with soil, emits roots, which ultimately become the sustaining medium of the tree, and the stock itself becomes useless. Mr. W. Paul exhibited specimens of the Doucin and the Paradise stocks. Mr. Ford sent a collection of 20 varieties of Potatos.

General Meeting.—Sir Philip de Malpas Grey Egerton, Bart., M.P., in the chair. After the usual announcement of awards, the Chairman remarked that as this was the last meeting this year, he thought he might congratulate the members on the success which had attended their Tuesday meetings, which indeed he regarded as the life-blood of the Society. He therefore begged to propose a vote of thanks to the Floral and Fruit Committees. This, as well as a vote of thanks to the Chairman, having been carried unanimously, the proceedings terminated.

Notices of Books.

Revisio Hydrangearum Asiæ Orientalis, scripsit C. J. Maximowicz. St. Petersburg, 1867. Quarto, pp. 18, with three lithographed plates. From the Memoirs of the Imperial Academy of St. Petersburg, 7 series, tome 10, No. 16.

Hydrangeaceæ, a group of plants, which contains the three well-known garden genera, Hydrangea, Deutzia, and Philadelphus, is considered a distinct natural order by Lindley, but by most systematists is regarded as a tribe of Saxifrageæ, differing from the typical Saxifrageæ by its shrubby habit, opposite leaves, carpels usually more than two, and by having the outer flowers of the clusters larger than the others and barren. Bentham and Hooker go still further, and place the Currants, Cunonias, and Escallonias in the same order. The number of ascertained species of Hydrangeæ is between 60 and 70, very few of which pass beyond the bounds of Temperate Asia and Temperate America, one species only reaching Europe, and one the Polynesian Islands. Unless we make an exception in favour of the Polynesian representative of the tribe, all the genera, except the three familiar ones which we have named, contain only a single species each. Five are confined to America, six to Asia, and two are common to both continents. The great aggregation of species is in Japan, and the east of Asia. M. Maximowicz has had the opportunity of studying most of these in their native localities. He is attached to the Imperial Gardens at St. Petersburg, and has spent a considerable time in exploring, under the auspices of the Russian Government, the eastern regions of Siberia, of which he has written an excellent Flora, and he is now engaged in studying specially the Flora of Japan. In Philadelphus and Hydrangea a considerable number of garden forms have been published with specific names, without any proper diagnostic characters having been pointed out, and thus a large amount of confusion has been brought about, and he has, therefore, taken the matter in hand, and here presents us with the result of his labours.

Of the 14 genera already admitted, four monotypic American ones may be distinguished by having the ovary entirely free from the calyx. Of the others, with an ovary more or less thoroughly united to the calyx, Hydrangea, Deutzia, and four monotypic genera have from 8 to 12 stamens, whilst Philadelphus and three monotypic genera have indefinite stamens. The only novelty proposed by M. Maximowicz which affects the general view of the group is a new genus from Japan, with indefinite stamens, which is described at full length, and figured under the name of Deinanthe.

For the region in question our author admits 10 species of Hydrangea, as follows:—

Petals spreading, lasting after the anthers slit:—
- Flowers all fertile .. .. 1 hirta S. & Z.
- Outer flowers radiant and barren.
  - Sepals unequal, deciduous .. .. 2 virens, Sieb.
  - Sepals equal, persistent .. .. .. 3 chinensis, n. sp.

Petals spreading, fading whilst the anthers are young:—
- Stamens equal, short, equalling the styles 4 Lobbii.
- Stamens exceeding the styles, five longer than the others:
  - Cyme elongated, conic or cylindrical .. 5 paniculata.
  - Cyme flat.
    - Capsules free above.
      - Sepals of barren flowers very broad, retuse .. .. 6 Thunbergii.
      - Sepals of the barren flowers subacute or obtuse.
        - Bracts none .. .. .. 7 Hortensia.
        - Bracts setaceous .. .. 8 vestita.
    - Capsules all united .. .. .. 9 involucrata.

Of the species figured and described by Siebold and Zuccarini, he classifies, under No. 7, Azisai, Otaksa, japonica, Belzonii, acuminata, stellata, and Sitsitan.

Of Philadelphus he writes, "With the exception of a few species, remarkable both by habit and characters, all the others which have been proposed are not only excessively similar in habit, but so close in other respects that they do not differ from one another enough to be what in some genera would be regarded as varieties." All that belong to this region he reduces to P. coronarius, of which he defines the following varieties:—

1 genuinus = coronarius, Zeyheri, and verrucosus, Schrad.
2 tenuifolius = tenuifolius, Rupr. and Max.
3 Satsumi = Satsumi, Sieb., Schrenkii, Rupr.
4 tomentosus = tomentosus and triflorus, Wall., nepalensis, Lindl.
5 mandshuricus.
6 pekinensis = pekinensis, Rupr.
7 nanus.
8 latifolius = latifolius, Schrad., pubescens h. Cels.
9 floribundus = floribundus, Schrad.
10 grandiflorus = grandiflorus, Willd., speciosus and laxus, Schrad.

Besides the new genus, the other two plates are devoted to three species of Deutzia, in which difficult genus eight species are admitted and fully described. The paper, we have no reason to doubt, will place this interesting group upon a sound botanical footing.

Hogg's Gardeners' Year-Book for 1868 has just been issued, and contains as usual much useful information, such as a year-book may be expected to contain. The notices of new fruits, and the lists of new plants are especially valuable. The Directory portion is this year confined to the seats of the nobility and gentry, and considerable space is devoted to a Calendar of out-door gardening, and to various tables.—We are glad, for the sake of young gardeners and others, desirous of improving their education, to mention that a new series of *Cassells' Popular Educator* is being issued. The first part, now before us, contains lessons in French, Latin, German, English, Drawing, History, Writing, Geometry, Arithmetic, Mechanics, Botany, Physiology, Music, Geography, illustrated with woodcuts and plans, and enlivened by articles of a recreative character, and all for 7*d*. Although the lessons are not of uniform excellence, still we can testify from personal experience to the great value of many of them for purposes of instruction. The lessons on Latin are unusually well adapted for their purpose. This new edition, we perceive, is revised so as to render it suitable for those intending to present themselves before the examining boards at the Civil Service, Society of Arts, University Middle-Class Examinations, and such like. We strongly recommend the book to those whose "schooling" may from any cause have been defective.

CATALOGUES RECEIVED.—*H. Lane & Son's List of Azalea indica for* 1867-8; *W. Chater's Catalogue of Hollyhocks; C. Turner's Select List of Pelargoniums; R. M. Stark's Catalogue of Alpine Plants; Smith & Simons' Catalogue of Gladioli; E. Verdier fils aîné Price Catalogue of Gladioli; H. Lane & Son's Descriptive Catalogue of Trees and Shrubs; W. Drummond & Son's Catalogue of Trees, &c.; W. Barron & Son's Select Catalogue of Ornamental Plants; J. Smith's Wholesale Catalogue of Trees, Shrubs, &c.; G. Jackman's Wholesale Catalogue of Plants; J. J. Chater's General Descriptive Catalogue; B. Whitham's Catalogue of Trees; Peter Lawson & Son's Forest Trees and Shrubs; J. Jefferies & Son's Catalogue of Nursery Stock; T. S. Ware's Catalogue of Ornamental Trees, Herbaceous Plants, &c.; C. Turner's Catalogue of Roses, Fruit Trees, &c.; T. Warner's Catalogue of Fruit Trees, Roses, &c.; André Leroy's Supplément au Catalogue: Arbres Fruitiers; H. Lane & Son's Fruit Catalogue*; also *Catalogue of Roses; F. & A. Dickson & Son's Catalogue of Roses; Smith & Simons' Rose Catalogue; E. Verdier fils aîné Rosiers Nouveaux; Louis Van Houtte's General Plant Catalogue; Ambr. Verschaffelt's Prix Courant pour l'Automne*, 1867, *et Printemps*, 1868; *T. Cripps & Son's Wholesale Catalogue of Nursery Stock.*

Florists' Flowers.

DURING the past year there has been such a large addition of new, and many of them fine, varieties of the VERBENA, as to mark something like an era in the improvement of this well-known flower. An old florist once recorded a statement akin to a prophecy, by stating that the time would come when there would be Verbenas as striking in colour as Alpine Auriculas, and as circular in form as a Phlox. The present year has witnessed the realisation of this; in fact the former we have had with us for a few years past: the other quality of form has this season reached a high level of perfection, and not only has there been a larger number of new varieties than has generally appeared in any previous year, but there has also been noticed a degree of merit among these new kinds considerably above the average.

About the year 1828 one of the most beautiful species of the Verbena then just introduced to our gardens was V. Melindres, which for some time was in considerable favour among cultivators, in consequence of its striking and attractive character. The next 10 years produced such plants as V. Tweedieana, incisa, erinoides, Lamberti, rugosa, teucrioides, and others; and these, or some of these, became the progenitors of a host of varieties that had put in an appearance by 1848. Since then each succeeding year has brought its quota to the general improvement. Young, Smith, Robinson, Bell, Wyness and others, were followed at a later date by Edmunds and Weatherill, and, later still, by Perry, Eckford, and several more, who have each done something towards augmenting the general results. On the Continent, too, the same laudable work has been going forward, though it would now appear that, in regard to exhibition varieties, the Frenchman is left somewhat in the rear.

The Verbena has been claimed by the florist as a flower peculiarly his own. Nevertheless, some of the most useful of its varieties have been among those possessing but little of the qualifications contended for by the florist; and even now, as far as adaptability for bedding purposes is concerned, it by no means follows that varieties having flowers of the finest form, are therefore best adapted for bedding out. Perhaps it would be most in harmony with the general truth to say that exactly the converse is the case.

Some of the older members of the present generation of florists used at one time to wage a fierce kind of internecine war as to the relative advantages of form over colour in the Verbena. It was the fashion to write long treatises on this subject; and they were adorned with well-rounded periods, containing heavy, if not weighty, sentences about the "laws or rules of the science of floriculture being natural laws," and that these "rules must adapt themselves to the science, and not the science to the rules," &c. One worthy enthusiast, with a hearty dogmatism quite irresistible in its effect, politely put one of his antagonists completely out of court by asserting that—"he who says form is the chief property of any flower, is not a truthful expositor of the laws of floriculture." But all the while these alphabetical warriors were engaged in flinging at each other these wordy but harmless missiles, other men were pushing on their operations, and producing cheering results; and form and colour—the twin-sisters of floricultural perfection, that some of these floral pugilists would have endeavoured to put asunder, and each in his turn abused—became indissolubly allied in these grand results. Messrs. Edmonds and Perry, and later, Mr. Eckford, have in their turn, unfolded yearly new and improved forms of the Verbena, till we have reached the marked congression of all the desired qualities in the products of the present year.

Probably, to one interested in the Verbena, nothing could afford more satisfaction than a visit to Mr. C. J. Perry, at Castle Bromwich, Birmingham, at the blooming time. Mr. Perry has two low span-roof houses, in which he grows to very great perfection his seedling Verbenas. When the plants are in full bloom they require to be looked at through the glass roofs of these houses, in order to appreciate the fine display they make. Seen thus, they bear some approximate resemblance to a house of Bougainvillæa spectabilis, as the flowers are close to the glass, and are drawn upward to the light. Primarily, Mr. Perry devotes himself to the raising of first-class exhibition varieties of the Verbena; in regard to their adaptability for bedding he cannot say anything; that is a matter for after-proof, as he cultivates them only in pots. Mr. Perry holds the opinion that a bedding Verbena, merely, has no better claim to hold a place among the show varieties than a bedding Dahlia has with the finest exhibition flowers. As a rule, he finds that no Verbena with a large eye (which property is so essential to the show kinds) is suitable for bedding, as the eyes always run when exposed to the weather, and become in every sense eye-sores. It is as a cultivator of show Verbenas that Mr. Perry pre-eminently excels, and the superb finish he imparts to his flowers proves how finely he has mastered the conditions by which the result is attained.

The standard he has set up by which new Verbenas should be tested in the interest of quality, is that of a pip as nearly circular as possible, and but slightly indented or cut in. A very few years ago Mr. Perry prophesied that before long, without doubt, the pips would become perfectly rounded on the edges, and this he has himself obtained in a remarkable degree in that superb flower of the present year, named George P. Tye. Furthermore, he contends for stoutness of the pip, since it is well-known that all flowers possessing this quality of stoutness remain longer in perfection, both on the plant and in a cut state, than those of a more flimsy character. "The pips should be closely set on the stem, and so placed that they should be perfectly imbricate, thus forming a smooth unbroken surface; no green should be seen when the truss is erect; many kinds having other good properties are deficient in this particular, and therefore useless for the purpose of exhibition." Mr. Perry's theory of form is that now recognised as the *ultimum* of perfection, though one of the writers referred to—a kind of mystic in floricultural philosophy—thus expresses his idea of form: "The proper shape cannot be settled by a buyer or seller, or by a committee of either or both, from mere caprice; the proper rule for form is a truth already fixed in Nature, and in the laws of æsthetics: it is only to be elucidated and followed, but must not be dictated by arbitrary and capricious persons." But what does this really mean?

Mr. Perry considers colour quite a matter of taste, and so does not rank it so high as he does form. On the other hand, it has been asserted that "colour should stand before form as an essential to the quality of the flower." Mr. Perry must by this time have modified the opinion he once expressed, "that he did not think the plain self-coloured kinds ought to be admitted into a good stand," for any one who saw the stand of Birmingham Seedlings at the Crystal Palace in September last, must have been struck with the effectiveness of that fine self flower Mrs. Mole, and noted it as a leading exhibition kind. Unfortunately the fragile character of the Verbena militates against it in a considerable degree as an exhibition flower, as the trusses fall to pieces so quickly; nevertheless, a stand of first-class Verbenas, when fresh, and effectively staged, always forms a feature of interest on an exhibition table.

The following 18 new varieties of Verbena have been exhibited by Mr. C. J. Perry during the past summer, and of these eight have received First-class Certificates at the large metropolitan exhibitions—a pretty sure index to their excellent properties: viz., Mrs. Mole, a shaded lavender self flower, though this hardly describes correctly the prevailing hue of colour, but must be accepted for want of better terms: this will make a fine exhibition flower in point of colour, as well as in general properties of form, substance, &c.; Hercules, violet rose, richly shaded, and having a striking crimson centre round a white eye, very fine quality; G. P. Tye, one of the finest formed flowers yet produced, having the appearance of the beautifully modelled form of a herbaceous Phlox: the colour blush, suffused with pink, and violet rose centre, in the way of Mrs. Turner, but having a paler ground colour, with a more heightened contrast in the centre, from being of a deeper hue; James Birbeck, another very fine flower, of a deep but rich shade of bright cerise scarlet, with lemon eye, very fine and striking; Interesting, cerise scarlet, but yet of quite a distinct hue to James Birbeck, with a striking canary eye, a very fine and showy flower, the pips large and of fine shape; Miss Turner, white, with rosy lilac centre, a beautiful and pleasing flower, with pips of great substance, circular, and smooth, and a splendid exhibition variety; Thomas Harris, rich plum colour, with dark glossy shading, and pure white eye, the individual flowers very fine and attractive; and Splendid, a very beautiful and striking shade of rich violet rose, with lemon eye, pips and truss of fine quality: another fine exhibition kind. These all have received the highest mark of merit that can be awarded to seedling flowers, and at the three great metropolitan exhibitions a First-class Certificate was awarded to Miss Turner.

Among the varieties that compose the remainder of Mr. Perry's new batch of seedlings are some fine flowers, that would no doubt have received awards could they have been shown when at their best. This remark applies only to the London exhibitions, as Mr. Perry received a large number of Certificates in the provinces. I am informed, but I cannot vouch for its accuracy, that he has this season obtained for his Verbenas such an extraordinary quantity of Certificates that no Birmingham bookbinder will undertake to collect them into one memorial volume, so ponderous would be its weight. They are as follow:—James Day, a flower that opens rich crimson, but fades to deep violet with age; showy lemon eye: the plant appears to possess an unusual sturdy habit; Thomas Wilson, bright orange scarlet, gradually shaded towards the centre with rich violet, thus imparting to the flower a pleasing edged appearance, a fine hue of colour pervaded with a striking glow, but the individual flowers are of indifferent form; Shirley Hibberd, rich purplish crimson, with small white eye, fine form and stout substance, but the pips rather small, still a very striking kind; Little Clara, clear rose, with crimson centre and white eye, showy and fine; Butterfly, flesh-colour, with rosy crimson centre and white eye: an attractive flower, and good habit; J. C. Ward, purple, with white eye, finely-formed pip and truss; Samuel Morton, a very fine shade of bright rosy pink, with crimson centre: a good and bold flower; Madame Tonnelier, lilac, with bright crimson centre, pip bold and fine; Striking, deep rose, shaded with crimson, conspicuous white centre, the pip small in size, and the segments somewhat divided, a free-blooming and promising bedding kind; and Emma Perry, a beautiful light kind, blush ground, with lilac rose centre, very fine pip and truss. Mr. Perry has a few reserved flowers for next year, about which it would be premature to say anything at present, as they have only been scanned by privileged eyes; but Mrs. Perry and Richard Dean will no doubt some day make a very successful *début*.

Mr. Eckford has two very fine things, viz., The Cure, rose, suffused with purple, and having a well-defined centre of bright crimson, pips large and short, and highly attractive; and Achievement, dull cerise, dashed with crimson, and striking lemon eye, the pips large, stout, and of the finest quality. One truss only of the last was exhibited, or it would have been awarded a Certificate of the highest order in common with The Cure. Others of the Coleshill batch are George Stevenson, bright cerise scarlet, with showy white eye; Pluto, very bright, rich dark scarlet, with conspicuous lemon centre; Lord Derby, brilliant deep scarlet with large and bold lemon eye, the outline and substance of the pips good, but with a constitutional tendency to cup; Novelty, bright cerise with lemon eye, surrounded with a narrow crimson ring; Isa Key, violet rose with white eye, a novel and striking shade of colour; and Bravo, cerise changing to pale rose, and small lemon eye, good stout pip.

Lastly must be noticed that fine bedding kind named Constance, shown by Mr. G. Knight, of Battle, and which received two First-class Certificates. It is of a bright shade of dark scarlet, and has a small lemon eye, somewhat in the way of Perry's "Mazeppa," but darker in hue; as the flowers produced were from the open air, it is unquestionably a fine bedding kind, and one that can be depended on.

How many of these are destined to rank as effective bedding kinds is a matter for determination. New Verbenas are always in ready demand, and it is an invariable custom with the leading nurserymen to subject the new kinds to the test of bedding, as that becomes in reality the condition of their perpetuity.

R. D.

The Apiary.

FOUL BROOD.—A few months ago I gave a detailed account of my queen-rearing operations during the past summer. I had then to report a series of failures, with but few cases in which my efforts were crowned with success. The results of my manipulations have been, this season, so very different from those which have attended similar experiments in former years, that I was induced, even during the time they were in progress, to communicate the same to our apiarian readers, though it would have been infinitely more agreeable to have had nothing to relate but success in regard to the various operations. In two of my queen-raising stocks, three queens in succession were hatched out, only to disappear soon afterwards. Two at least of these had commenced laying eggs before being lost or killed by their subjects. In these hives, I had every reason to believe that these mysterious failures were owing to the presence of FERTILE WORKERS among the bees, and that the queens fell victims to their murderous attacks. Eventually, I had undoubted evidence that fertile workers really did exist in both these hives. They had both to be broken up, and the bees united to adjoining colonies. There was not the appearance, at any time, of the presence of that terrible malady, known as Foul Brood. This I noticed particularly, as my curiosity and attention were excited by the continued disappearance of the young queens.

In another case, a young fertile queen was established only after three previous attempts, by the insertion of sealed royal cells, or suitable brood comb. In this case, I had no reason to suspect the hive to be suffering from those pests, fertile workers. In several other cases I had more or less difficulty; and in two only, if I remember right, had I the satisfaction of finding the inmates of the royal cells raised from Ligurian brood to be successfully reared and established on the first attempt.

I must confess that this undesirable state of things puzzled me not a little. More than once I asked myself, "Can these continued failures be in any way attributed to the presence of *foul brood?*" I examined superficially some of the stocks, but failed to detect any unfavourable symptom. Not at all believing that it was present in my apiary, my examination did not go far enough, or I am convinced now that I should, even then, have discovered it. Since my former reports were written, abundant evidence has been afforded me, that this malady has been diffused, and has made fatal progress through a great proportion of my colonies.

When my friend, Mr. Woodbury, was such a sufferer from the same terrible scourge, my hives, in three different apiaries, were entirely free from it, and I felt great cause for congratulation when contemplating the havoc which it inflicted in his once prosperous apiary. This immunity on my part was the more surprising, both because one of my apiaries was within a few minutes' walk of his garden, and also that he had at various times supplied me with combs and royal cells from his stocks. For years subsequently not a single case of this disease appeared in any of my hives. Such unanimity led me almost to doubt if foul brood really could be, except in very rare instances, so fatal a malady as it has been described to be by both English and foreign bee-masters. This impression, if I may so term my feeling on the subject, induced a too fatal security, but I am now fully alive to the danger I have incurred. Space will not allow me now to relate the circumstances connected with its unwelcome appearance and diffusion amongst my colonies. This I hope to do at an early opportunity. *S. Bevan Fox.*

Garden Memoranda.

Norbury Park, Dorking, the Seat of Thomas Grissell, Esq.—This fine place, situated as it is amidst scenery of the most beautiful and picturesque description, cannot fail to command universal admiration. On entering the park through an ancient gateway, and crossing the Mole, a sluggish stream, which burrows into the ground and disappears in certain places, the carriage-drive winds up the hill in a serpentine manner towards the mansion, a substantial-looking quadrangular building, which stands on the summit, removed from sight as one approaches it, though from various parts of the country it is a conspicuous and striking object. After winding about a mile up the hill the house bursts suddenly into view, amid groves of lofty Beeches and other fine forest trees. The garden front, associated with which is a neat architectural conservatory and Fernery, overlooks a delightful amphitheatre of some magnitude, its furthest outlet directing the eye towards the Southdowns and the sea, on which on a clear day ships, it is said, can be discerned through a powerful telescope. Prominently in the foreground stands Box Hill, the shaggy, time-worn sides of which are clothed with Box trees, which grow here, intermixed with Furze, in a wild state. In 1795, when the supply of Boxwood from the Mediterranean had for a time become interrupted, the produce of this celebrated hill is said to have realised, when put up to auction, the immense sum of 12,000*l.*! Box is stated to attain its full growth in about 50 years, in which time, if circumstances are favourable, it will reach a height of some 20 feet, and form a stem a foot in diameter. Plenty of examples of Box, of dimensions equal to those just stated, form undergrowth in the woods which adorn the steep hill-sides of Norbury Park.

Owing to the elevated position of the ground on which the mansion is placed, magnificent views of this charming district can be obtained; and every now and then delightful peeps, through which some object of interest can be seen, add to the whole a charm nowhere to be met with except in a boldly undulated track of country such as this.

This beautiful and ancient domain has undergone considerable improvements under its present spirited proprietor. Its entrance lodge is of a peculiar castellated character, and immediately after passing it a park of upwards of 500 acres is entered. Through this the winding approach leading to the house is of as gradual and easy ascent as the elevated tableland on which that building stands will admit, and at different stages in its course many pleasing views in various directions are obtained. The leading feature of the building itself, which is commodious, is the drawing-room, which is 30 feet by 24 feet and 16 feet in height; its walls are adorned with views of the lakes of Cumberland and Westmoreland by Barrett, in his best style, the figures in the scene being painted by Cipriani, and the cattle by Gilpin. The view from the terrace on the south side of the house fills the beholder with admiration; the rich valley below, the church and village of Mickleham, Burford Bridge, and Box Hill with its bold ravines, and chalky crags, at the point of which the eye is carried over the rich woods of Betchworth into Sussex. The towering woods of the Deepdene and Bury Hill also successively meet the view. To the right is the town of Dorking, with Redlands, or Leith Hill, and Denbies Hill, crowned with wood; and nearer are the luxuriantly covered slopes of Norbury, encircling the vale below. Owing to the variety of ground and the happy effect of light and shade, fresh beauties continually present themselves on this delightful spot, and the splendid effects of sunrise and sunset are seldom seen to greater advantage than they are here.

The soil appears to be particularly favourable to the growth of timber—Beech, Oak, Walnut, Box, and Yew trees of great age and noble dimensions abound. Indeed the latter constitute one of the chief features of this fine place, affording agreeable shade to a quiet woodland walk on the south-west side of the house, from which their singularly twisted and time-riven trunks can be inspected. They appear to have but little hold of the soil on which they grow; for heavy snowfalls not unfrequently uproot some of them. These venerable trees are mentioned in Domesday Book, and are supposed to have been inhabitants of Norbury for upwards of a thousand years.

On the high ground above the house is a flower garden, which we believe it is the intention of Mr. Grissell some day to renew on an improved plan, and near it is a little nook which possibly may be converted into a Rosery. Farther down the hill, overhung with trees, and surrounded by evergreens, is a neatly-constructed Fernery, the work, we understand, of Mr. Grissell's sister, Mrs. Burkett, to whose taste it does much credit. It is planted with some of the choicer varieties of hardy Ferns, which, when viewed on a warm day from a rustic seat or arbour close by, have a cool and refreshing appearance. The lawn and other departments belonging to the "dress" ground in the neighbourhood of the house, are kept in beautiful condition by Mr. Downing, who takes great delight in having all under his charge in good order.

The kitchen garden, which lies low in the valley, contains a valuable range of glass-houses. From the early Vinery, which is 43 feet in length and 15 feet in width, Grapes are usually cut on the 1st of May. The Vines are planted outside in a well-made border, some 12 feet in width. About four years ago this border was replenished with fresh soil, as much of the old material having been previously removed as was considered prudent. That substituted for it consisted of good strong loam, mixed with bruised bones, brick rubbish, and other porous material; and after the Vines had got a little re-established they bore magnificent crops, six bunches of Black Hamburgh sometimes weighing no less than 18 lb. Chasselas Musqué have also been equally good and free from cracking, a fault to which this fine variety is liable. In a second house the Vines are also planted outside on a raised border. The sorts are chiefly Black Hamburgh and Muscats. There is also one example of Buckland Sweetwater from which has been cut one bunch weighing 3 lb. 4 oz. On the back wall are Lee's Perpetual and Brown Turkey Figs, which bear abundant crops of large fruit. In a late Vinery, 50 feet in length, we noticed Black Hamburghs, Trebbiano, Royal Vineyard, Alicante—varieties which yield fruit fit for table up to February.

There is also here a lean-to orchard-house 120 feet in length, 9 feet in width and 11 feet in height. On the back wall are Stanwick, Elruge, and White Nectarines; while in front, planted out in a 5-feet wide border, are different sorts of fruit trees, from all of which are annually secured good crops of fruit.

The early Peach house is 88 feet in length, and furnishes ripe fruit by the beginning of June. Some Noblesse Peaches from this house weighed 9 oz. each. From a second Peach house 83 feet in length, are also gathered large crops of fine fruit.

Cucumbers are cut here all the year round, from half of a house 30 feet long, 12 feet wide, and 8 feet high. The other half is devoted to the growth of Pines. There are also numerous pits well heated with hot water, in which are grown Melons, early Potatos, &c.; while Asparagus and Seakale are still forced in pits warmed by means of fermenting material.

Besides the houses just named, there are also several plant structures, in which are cultivated Camellias, Azaleas, Heaths, Pelargoniums, &c., together with a plant stove, in which are Bougainvillæa spectabilis, Stephanotis, Passiflora edulis, and other plants of a similar description, all in excellent condition. The Bougainvillæ, it may be mentioned, is among the gayest and most easily managed of the inmates of this house; it blossoms magnificently, and its long graceful wreaths of showy inflorescence are greatly admired by all who see them. We know of no stove climber better deserving of cultivation than this, and, when associated with the fragrant snowy blossoms of the Stephanotis, the contrast which it makes with that universal favourite is most charming.

Pomegranates, as fine as any imported from the South of Europe, are produced here under glass, and are great favourites with Mr. Grissell. Mr. Downing states that he finds this fruit by no means difficult to manage. He grows it in turfy loam mixed with a little river sand. Four years ago he says that he found the tree growing very luxuriantly, but it never blossomed. Consequently in January, 1864, he root-pruned it, dug a trench all round it, and confined the roots by means of a brick wall to only a small compartment. Before that they had the range of a 5-feet wide border. This operation had the desired effect, for the early next June the tree was in full bloom, as many as 200 flowers being expanded on it at one time. None of these, however, set. Next year it blossomed again, and set a good crop of fruit, which ripened late in October. Some of the produce of this crop weighed as much as 1 lb. 6 oz., and, as regards flavour, that was equal to that of imported fruit. The tree has continued to bear every season since. The great secret in fruiting the Pomegranate is keeping it under comparatively poor treatment until it has set its fruit. After that it enjoys abundance of manure water. It is trained to the back wall of an orchard house, and all the pruning it receives is cutting away the most luxuriant shoots, leaving the smaller ones to produce fruit. It gets no artificial heat; but Mr. Downing is of opinion that a little warmth might be advantageously employed during flowering time and again when the fruit is ripening.

Here, as elsewhere, the Apple crop has been a partial failure this year; but crops of other hardy fruits have been good.

Obituary.

The death of Mr. William McNeill, for many years Head-Gardener at the Chief Secretary's Lodge, Phœnix Park, near Dublin, has caused a blank which will long be felt in the profession to which he was so much devoted. He was a native of Scotland, and from his earliest years manifested a taste for horticultural pursuits. Being trained in the gardens of Taymouth Castle, his talent was sufficiently matured at an early age to enable him to fill the above responsible situation with great credit alike to himself and his employers. Those who remember the gardens at the Chief Secretary's lodge some 10 or 12 years back, can form the best estimate of his untiring assiduity to his business, and few can look upon the grand collection of stove plants which now are to be seen in the houses at the Chief Secretary's place without awarding to Mr. McNeill the entire merit of their culture. At the Royal Horticultural Society's Shows he was invariably a successful competitor, and although ever anxious to be first on the list, his kind and unobtrusive disposition gained for him the respect and regard of his rivals. Conscientious to those he served, and at the same time considerate to those under him, ever ready to impart information when solicited, he was regarded by all who were acquainted with his many good qualities as a man far above his position. He died on the 26th ult., at the age of 40 years, leaving a widow and six young children. *E. A. M., Dublin.*

Garden Operations.

(*For the ensuing week.*)

PLANT HOUSES.

Cultivators who, through the want of more extended room, are compelled to grow a curtailed selection of miscellaneous *Orchids* amongst a mixed collection of stove plants, will for the next few weeks have to contend with the many inconveniences attending such a state of things. The temperature of the Stove proper should not exceed, in severe weather, which we may expect almost daily now, a maximum of 52°, with, in mild periods, a possible advance of from 8° to 10°. This, it is needless to affirm, might be maintained at a greatly reduced effort upon the power of the heating apparatus. The difficulty, then, will be readily perceived, if, as is probable, some of the rarer Orchids are making an effort to grow. Even Cattleyas, Lælias, Oncidiums, Zygopetalums, &c., exclusive of Cymbidiums and similar things, progressively forming flower spikes, as is usual at this season, will sometimes do so even with the best of treatment. I can but advise therefore that such growths be encouraged in every possible way. Introduce the plants, where possible, into a forcing pit. Place them in the warmest end, and where an excess of moisture cannot reach them. Should the growths upon any be very young and tender, it will be well to place a piece of dry cotton wool around the base of each of them. This may save them from damping off. Understand me, I only advise this as the better alternative. A season of rest, which I have so strenuously insisted upon, is essentially necessary for the well-being of this beautiful class of plants, and should be enforced upon them at all times where possible. This will be found a good season, especially if bad weather prevails, to well cleanse the foliage upon *Oranges*, *Camellias*, &c. Sponge well over, therefore, and syringe with pure tepid water afterwards. They improve in health thereby. Besides which the removal of dust, &c., from the exterior surfaces tends materially to deter insects from occupying any part thereof. Should the weather continue mild, it will be necessary to maintain a slight amount of artificial heat in all cool structures for the purpose of counteracting the injurious influence of the general body of cool damp air contained therein. Especially desirable will this be in *Cool Pits*, &c., containing *Bedding plants*, Pelargoniums, Petunias, Calceolarias, &c. Damp will be found to fix itself upon any of the above, and quickly destroy anything upon which it settles. Start a slight fire early in the morning, gradually feed it with fuel, until a reasonably brisk heat is attained; increase the supply of fresh air correspondingly, and endeavour by every other means to dry all internal surfaces, for a time at least. Such slight attention twice a week, in dull gloomy weather, even if mild, will aid much in carrying the plants over a rather trying period.

FORCING HOUSES.

Give every attention to *Vines* started early in November. Maintain as constant and uniform a temperature as possible, at about an average maximum of 52° by night, with an advance of 8° to 10° by day, according to the excessive dulness, or otherwise, of individual days, with a possible rise up to 72° with sunshine, caused by its actual warmth, even with a slight modification of the internally maintained artificial heat. It will be well to bend the extreme ends of any rods which seem to push the eyes irregularly, down to a lower level than those parts which break remissly; the sap thereby flowing more freely in its upward course, may cause them to assume a greater activity, and so become equalised in growth with the rest. Keep up a constant and genial humidity by means of internal sprinklings, &c., and so induce a good robust shoot at every break. Maintain a moderate warmth in all external *Vine borders* while the plants are thus actively at work within. This must be effected, as I have previously

advised, by the aid of a sufficient amount of fermenting material, covered over with other dry litter, asphalted canvas, &c. Both *Fig* and *Cherry* houses—and, indeed, any such plants intended to be forced in pots, should all be got ready. Proceed precisely as before advised for Vines, Peaches, and the like. Surface-dress those in pots; wash the wood over with a similar wash to that recommended for the above, &c. *Peaches*, the buds upon which are pushing freely, will need every attention. Be careful not to allow too high a heat at any time, caused by a sudden rush of the sun's warmth and internal pent-up artificial heat combined. Give air at the apex immediately the thermometer reaches 58°, gradually increasing it with a tendency to further advance. Syringe freely two or three times a-day, but not too late in the afternoon. Any of the above forced early, and likely to be shortly in flower, should receive every assistance possible to aid them in "setting" the bloom freely. Avoid every semblance of moisture at such times, whether atmospheric or actual. Maintain the same amount of heat as previously, but with, upon all proper occasions, a slight amount of air. A fine camel-hair brush is the most effective aid, wherewith properly to distribute the pollen or fine fertilising powder. It has the power of retaining within itself any particles which do not adhere to the *stigmas* when placed in contact with them; hence it makes the most of the not over liberal supply of pollen formed at this untoward season. The past dry weather having been favourable to all out-door linings formed of fermenting materials, *Pines* in such pits will have had a nice brisk heat. See that it does not decrease through the linings becoming too dry, which they are the more likely to do on account of no superficial rains having fallen to moisten them. Having a good heap of leaves, &c., ready at hand, it will be well therefore to turn over any linings which need renovating, adding fresh material where necessary, damping the old, &c. This is best effected by doing only one half or so at a time, finishing the remaining portion about a week later.

HARDY FRUIT GARDEN.

Possibly it may not be convenient to some "amateurs" and others to leave all their pruning undone until the turn of the year; but that, as there is little else to do at this dull season, they may wish to proceed with all such work where possible, before they finish digging the ground around the trees, and otherwise making all neat and tidy. *The Culture of Pears* being evidently on the increase, I shall confine myself this week to the treatment of young trees of this class alone, especially as any such may now be pruned without risk, nailed, or tied in. Many growers, not being in want of a quick return for their outlay, and who do not object to the trouble entailed by undertaking the whole preliminary formation of their trees, purchase "maidens." These require, as a rule, cutting back to three good eyes—sure beyond a doubt, each, to "break" and grow freely in the spring. If they are intended for wall or espalier training, I take it for granted that the best form, viz., the horizontally trained one, will be followed, the upper, or more central eye, or bud, should therefore be encouraged to grow perpendicularly, as a main to the whole subsequent frame-work; the other two forming shoots which are intended to take the lower line allowed, horizontally. The main object with all young trees, from the above stage onwards, until they are from six to eight years planted, is to encourage the formation of good sound wood, for the purpose of furnishing the necessary space throughout without break or flaw. Each year the main or perpendicular shoot should furnish at least one shoot upon either side, to be laid in and trained along the next course allotted to them uniformly, and as mechanically correct as possible. A convenient distance between these horizontal lines is about 11 inches, or three bricks wide. Once these side shoots are laid in, it is not advisable to stop them until they have extended themselves to the utmost limit marked out for the tree. No further should they be permitted to run. Sometimes the main shoot, growing very strongly, will, if not closely watched, be so formed that there will be no possibility of neatly producing the necessary shoots where they are needed. It is necessary, therefore, to watch its growth constantly and keenly, and should it show any tendency to produce irregularity, pinch its point off with the finger and thumb whilst growing, forthwith, as advised before. This will not fail to bring it into a more correct form. The beauty of outline in well formed trees is ever an object to please the eye; hence such attention will receive in the future ample compensation. Any gross young shoots, which form upon any of the older horizontal branches ere the necessary space has been filled, must be dealt severely with; sever them in two as near to the parent branch as possible, without risking any injury thereto. At a future period these may be useful, either for the formation of fruiting spurs, or to be diverted into a return perpendicular figure—a very fruitful method of training withal; now the trees have need of all their energy to properly furnish vacant spaces above. As regards walls, of course, it will be necessary to furnish them to the top whatever the height of individual ones may be. With espalier or "cordon" training the case is different. According to the length of extension required by individual branches, so should the necessary height be judged. If the branches are needed to cover a wide space horizontally, three or four tiers will be ample. One fact I would enforce, especially with Pears—which, hanging pendent, reach ofttimes a foot below the parent branch—namely, do not train the lower branch too near the soil below. Independent of their being interfered with by plants of "humbler growth," it is not well to have the fruit gritty and besmeared with splashed *débris* by "every passing shower;" besides which, they tempt many birds, previously bent upon searching for insect food alone, to disfigure them. To avoid mistakes, in cutting back the main branch, so sever it in twain that the buds required to form the next two shoots upon walls be rather under the necessary line than otherwise; this will allow room for a slight extension, the necessary bending of the branches, &c. Regarding the pruning of fruiting trees I hope to have something to say next week.

KITCHEN GARDEN.

Recently sown *Peas* and *Beans*, as soon as they have grown fully out of the ground, must be well earthed up. Bear past remarks in mind in reference to allowing a higher ridge upon the side from which the coldest winds are likely to blow. See that the frost does not penetrate in any degree into the heart of *Celery*. It causes it to rot very much. Of course the usual routine of trenching, digging, and the proper lightening up of all fallowed soils, must be proceeded with as opportunity offers. Leave nothing in this way undone longer than is possible; but afford to these vacant spaces, by fully exposing the greatest surface possible to the influences of the elements, the means of amelioration of which they are capable, to the full extent. *W. E.*

HINTS TO AMATEURS.

DECEMBER is such a pinching month for the fingers, that we will not at once rush out into the cold, at the risk of chillblains, but begin with a little in-door work first, just to get our blood into circulation.

Label-making is an occupation which may well be left until this season, when there is comparatively little to do out-of-doors: it is, moreover, essentially a fire-side amusement. Get a bundle of laths, such as the plasterers use, choose the smoothest and broadest that you can find; saw them into convenient lengths; cut one end of each to a point, and shave off any little uneven parts that there may be. It takes but a short time to thus prepare some hundreds of labels, upon which, if a little white lead or thick white paint is then smeared and rubbed in, it is easy to write with a lead pencil. Such labels as these will generally last for about a year in the open ground, and for a much longer time in pots in greenhouses, but in damp soils, when exposed to all weathers, the part in the ground becomes rotten after it has passed through one winter, and the label breaks off and gets misplaced or lost. To prevent this, and to obviate the necessity of writing fresh ones every year, you must give each label two coats of oil paint, allowing the first coat to get thoroughly dry before putting on the second. Labels so prepared will last three or four years. White paint is best for those whose eye-sight is not strong, since writing is more easily read upon it than upon a dull colour; at the same time it has the objection in winter, when little else but labels appear above ground, of making your borders appear like a cemetery of miniature tombstones. I therefore prefer using paint of a light brown, or drab colour, as being less conspicuous.

Now that we are beginning to appreciate the luxury of a great-coat, it is a seasonable time to talk about protection to plants. If we had more snow, we should have the less need for artificially protecting tender plants; for snow is Nature's own great-coat, and is a better one than anything of human invention; it protects alike against frost, hail, and wind. Few seem to know how little the roots of plants are influenced by frost when more than six inches deep. Anything planted a foot deep is quite out of the reach of any frost that occurs in England, since even in wet clay soils, where frost penetrates deeper than elsewhere, it has not been known to get more than ten, rarely more than seven inches from the surface. There are many plants, however, that will not grow if planted so deeply as to be beyond the effects of frost. For these it becomes necessary, if they are liable to be killed by frost, to provide protection of some kind. It doubtless goes much against the grain with amateurs to allow any "littery mess" to lie about; nevertheless, there is such value in a covering of dead leaves, manure, or straw, all through the frost, that those who have thus protected their flower borders for one winter will find so much advantage from it next season in strength of foliage, profusion of bloom, and absence of dead ones, that even the greatest sticklers for apple-pie order (whatever that particular description of neatness may be) will be henceforth induced to pocket his prejudices, and calmly make up his mind to submit to the trouble of sweeping up a little oftener, for the sake of the benefit which he is to derive from the disorderly litter. The slight depth to which frost penetrates the earth appears to indicate that it only requires a corresponding depth of covering to keep the frost from touching the surface of the earth; and this is found to be more or less true; the difference varying of course with the nature of the covering. The greatest risk in the protection of tender plants in the open ground arises, not from the sharp frosts of January, but from the slighter frosts of May, after the few warm days in April have started vegetation into active life; it is then that we are tempted to remove the protection which has carried us safely through the severest weather, and it is by this premature removal that many plants are lost. People seem to forget that as the same walls and roof screen them alike from scorching sun and nipping cold, so the covering which protects the ground from a cold atmosphere will also prevent its being influenced by a warm atmosphere; and will, by being left on till all risk of late frosts is over, enable the plants to bloom just as soon and much more healthily than if they had begun to grow sooner and had been checked.

Protection from wind is a matter not to be neglected; indeed we are strongly of opinion that there are more mishaps in the world of so-called hardy plants from easterly wind than from any ordinary frosts. It is well known how differently the same kind of plant is affected by one night's frost in different parts of the garden, and if the situations are examined, it will be found that exposure or non-exposure to wind will generally prove to be the cause of this difference. Plants are influenced nearly if not quite as much as animals, by the action of air in motion; and doubtless they, as well as we, find the air to be much warmer in calm than in windy weather, though the thermometer may register the same on each occasion. To anyone who doubts this it is easy to prove the fact by using water instead of air. Put your feet into a bath where the water is too hot to be comfortable; keep your feet quite still, and after the first twinge you can just bear to keep them there, and no more; but only attempt to move them about, and the water at once feels so many degrees hotter that you gladly take your feet out. Now, there is evidently no increased heat here; it is merely the difference between water still and water in motion. And the sensation would be similar if iced water, instead of hot water, were poured into your foot-bath.

The explanation of it is this: where an object (say a human being, or a plant) is exposed to a still atmosphere of a temperature somewhat higher or lower than its own temperature, the object receives or parts with some portion of its own heat, that is, takes it from, or gives it to, the atmosphere in immediate contact with it, which thereby becomes nearly of the temperature of the object itself, and thus the object scarcely feels the greater heat or cold, provided it be not excessive. But when there is a hot or a cold wind, the atmosphere in contact with the object is changing every minute, and is each minute taking from, or adding to, the temperature of the object exposed to it, and this cannot continue for long without visible injury to the object.

There is much difference in the effects of wind, according to the direction from which it comes. With us the south-west is the warmest wind, because it comes from a warmer region than ours, and is charged with moisture from passing over the Atlantic Ocean. And so the north-east is the coldest wind we have, because it comes from very cold regions, and has lost nearly all its moisture while crossing Norway and Sweden.

It is from the northerly and easterly winds, therefore, that screens should be placed to protect plants that are liable to injury from their cold and drying effects. *W. T.*

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,

For the Week ending Dec. 4, 1867, as observed at the Horticultural Gardens.

November and December.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Min.	Mean	Of the Earth 1 foot deep.	2 feet deep.	Wind	Rain.
Thurs. 28	2	30.295	30.284	47	17	32.0	42	43	W.	.00
Friday 29	3	30.284	30.232	49	24	36.5	43	44	S.W.	.00
Satur. 30	4	30.257	29.530	56	38	47.0	45	43	S.	.29
Sunday 1	5	29.296	28.972	55	25	40.0	46	43	S.	.30
Mon. 2	6	29.732	29.528	36	23	29.5	43	44	N.	.00
Tues. 3	7	30.247	29.963	40	38	39.0	43	43	N.	.00
Wed. 4	)	30.267	30.131	42	21	31.5	42	42	S.	.10
Average		30.068	29.806	46.4	26.6	36.5	43.4	43.1		0.69

Nov. 28—Overcast and frosty; clear, bright sun; clear and frosty.
— 29—Low fog, frosty; clear bright sun; clear and frosty.
— 30—Overcast; overcast and cold; overcast, rain.
Dec. 1—Overcast and damp; densely overcast; showery; rain, strong wind.
— 2—Very boisterous; slight fall of snow; snowing; clear and frosty.
— 3—Cloudy and cold; partially overcast; clear.
— 4—Overcast; partially overcast; clear and frosty; rain.
Mean temperature of the week, 4 9-10 deg. below the average.

STATE OF THE WEATHER AT CHISWICK,

During the last 41 years, for the ensuing Week, ending Dec. 14, 1867.

December.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday .. 8	47.0	33 9	40.4	18	0.58 in.	2	5	1	2	2	17	6	6
Mon. .. 9	46.8	35.3	41.0	17	0.40	3	4	3	3	6	11	4	7
Tues. ..10	46.9	32.6	39.8	25	0.67	2	7	3	2	9	11	3	4
Wed. ..11	46 1	32 7	39.4	17	1.02	3	5	6	2	7	12	5	2
Thurs. ..12	46.1	37.3	39.7	18	0.56	3	5	7	3	4	8	9	2
Friday ..13	46.9	32.5	39.7	23	1.16	2	10	4	3	6	7	5	4
Satur. ..14	46.2	33.3	39 7	19	1.24	7	5	5	2	6	7	4	

The highest temperature during the above period occurred on the 12th, 1841—therm. 63 deg.; and the lowest on the 9th, 1851—therm. 16 deg.

Notices to Correspondents.

FRUITS: *A W.* The following may suit your South Durham climate, viz.:—Apples, dessert: Devonshire Quarrenden, Whorle, Kerry Pippin, Wormsly, Adams' Pearmain, Ribston, Cox's Orange Pippin; kitchen, Blenheim Orange, Lord Suffield, Hawthornden, Dutch Codlin, Dumelow's Seedling. *Pears:* Doyenné d'Été, Williams' Bon Chrétien, Louise Bonne of Jersey, Fondante d'Automne, Suffolk Thorn, Comte de Lamy, Beurré Bosc, Flemish Beauty, Marie Louise, Bergamot Cadette, Knight's Monarch, Jersey Gratioli. *Plums:* Early Prolific, Denyer's Victoria, Mitchelson, Prince Englebert, Jefferson, Transparent Gage. *Cherries:* Knight's Early Black, May Duke, Black Tartarian Elton, Bigarreau Napoléon, Morello. *Apricots:* Breda, Pêche, *Nectarines:* Elruge, Balgowan, Pitmaston Orange. *Peaches:* Early York, Bellegarde, Royal George, Noblesse, Barrington.

NAMES OF FRUITS: *B O.* Your Pear is the Styrian, a variety which has been often observed to bear a second crop, and sometimes a third, the produce of both of which is of course very much inferior to that of the first crop. In the Horticultural garden at Chiswick there is a tree of this variety, which has been flowering, &c., precisely as yours has done.

NAMES OF PLANTS: *D T F.* 1, Quercus Suber, var., or occidentalis; 2, Quercus Suber.—*B George.* 1, Brasavola cordata, Ldl., var.; 2, indeterminable without fresher specimen.—*M D.* Apparently Opuntia (Cereus) imbricata (not sure without flower).—*A D B.* Zygopetalum Mackaii. —*Ignoramus.* 1, Habrothamnus fasciculatus; 2, Lantana aculeata.—*H W E.* 1, 2, 3, Selaginella Martensii; 4, S. Kraussiana.

PRIMULA SINENSIS: *T Drabble.* A very excellent strain, the flowers large, very much frilled, richly coloured, and marked with an elegant yellow eye.

COMMUNICATIONS RECEIVED.—J. A.—W. T.—G. W.—T. A., India.—J. Wills.

ROYAL AGRICULTURAL SOCIETY of ENGLAND.—The GENERAL MEETING of MEMBERS will be held at the Society's House, 12, Hanover Square, on WEDNESDAY, December 11, at 12 o'Clock. By Order of the Council.
December 2. H. HALL DARE, Secretary.

ROYAL AGRICULTURAL SOCIETY of ENGLAND.

EDUCATIONAL PRIZES.

APRIL, 1868.

FORM OF APPLICATION FOR CANDIDATES.

To be returned filled up on or before

February 29, 1868.

Name of the Candidate at full length .. ..
Date of his Birth .. ..
Branch of Business followed by his family ..
Business intended to be followed by himself ..
Residence of Parents or Guardians .. .. ..
The Names of the Schools at which the Candidate has been educated, stating the number of years spent at each; accompanied by Certificates of general Education .. .. ..
He Candidate has to state whether he will be examined in Land Surveying, or in Mechanics as applied to Agriculture, or in both subjects..
He must likewise state in which of the following optional subjects he desires to be examined, viz.:—
Botany .. ..
Geology .. ..
Veterinary Science.. .. .. ..

Copies of the above Form may be obtained on application to H. HALL DARE, Secretary.

12, Hanover Square, London, W.

ROYAL AGRICULTURAL BENEVOLENT INSTITUTION.

Patron—HER MAJESTY THE QUEEN.
President—HIS GRACE THE DUKE OF RICHMOND.

For the RELIEF of DECAYED FARMERS, their WIDOWS and ORPHAN DAUGHTERS; and for the MAINTENANCE and EDUCATION of their ORPHAN CHILDREN.

ALLOWANCE TO PENSIONERS.
Married .. £40 per annum | Male .. £26 per annum
Widow and Unmarried Orphan Daughters .. £20 per annum

Orphan Children admitted from 7 to 10 years of age, and wholly maintained and educated until the age of 14 years in the case of Boys, and 16 years in the case of Girls.

One Hundred and Five Pensioners have already been placed on the books of the Institution; and in addition to the number of Pensioners to be admitted at the next Election, the Council have decided to Elect Ten Orphan Children.

Forms of Application for Pensioners and Children, and every information, to be obtained of the Secretary, by whom Donations and Subscriptions will be thankfully received.

55, Charing Cross, London, S.W. CHARLES SHAW, Secretary.

ROYAL AGRICULTURAL COLLEGE, CIRENCESTER.

President—His Grace The DUKE of MARLBOROUGH, D.C.L., F.R.G.S.

COUNCIL.
Right Hon. the Earl of Ducie, F.R.S., F.G.S. | Right Hon. T. H. Sotheron Estcourt
Right Hon. Earl Bathurst | Edward Holland, Esq., M.P.
Edward Bowly, Esq. | John Thornhill Harrison, Esq.

Principal—The Rev. John Constable, M.A., Trin. Coll., Camb.

RESIDENT PROFESSORS.
Agriculture—John Wrightson, F.C.S., M.R.A.C.
Chemistry—Arthur H. Church, M.A., Lincoln Coll., Oxon, F.C.S.
Assistant to Chemical Professor—Beaumont J. Grosjean.
Natural History—Wm. Thiselton Dyer, B.A., Junior Student, Christ Church, Oxon.
Anatomy, Physiology, and Hygiène—Edward Nettleship, M.R.C.V.S., M.R.A.C., L.S.A.
Mathematics and Surveying—The Principal.
Drawing—James Miller.

The College was Incorporated by Charter, granted by Her Majesty in Council, March 27, 1845, for the purpose of affording a Practical and Scientific Agricultural Education to Students from all parts of the Kingdom. For particulars apply to the PRINCIPAL.

THE MARK LANE LIFE BOAT.—In support of the great usefulness of the National Life Boat Association, and in grateful appreciation of the brave example displayed by the Men on the British Coast, the FACTORS, CLERKS, and OTHERS interested in the CORN TRADE desire to present a LIFE BOAT (to be called THE MARK LANE LIFE BOAT), to be placed wherever the Council of the Association may decide. Thousands who do honour to the race and name of Englishmen, stand always ready to risk life to "Man the Life Boat" wherever there is one; but the Nation's Fleet of Boats is yet far from being complete, and whilst the Storms of December are raging on our Shores, to Launch one more Life Boat will be the almost certain means of rescuing valuable life and property from destruction; and each who contributes to this Fund may feel satisfied that he is reaching out a helping hand to save from peril and death his fellow creatures in the sorest need to which they can be exposed.

"Who gives quickly gives twice."

Donations will be acknowledged in the *Times*.

The following Gentlemen have consented to receive Donations at their Market Stands and Offices:—

Messrs. Aste, Son, & Kercheval | Messrs. Edwards Brothers
" Burrows & Perks | " J. H. Mitchiner & Co.
" W. Muggeridge & Co. | Mr. Wm. Hopkinson
" Walkers & Strange | " Simon Kelly

B. L. JUDKINS, Hon. Treasurer.
H. K. JACKSON, Hon. Sec., 60, Mark Lane.
Wednesday, December 4, 1867.

THE LANDS IMPROVEMENT COMPANY, Incorporated by Special Act of Parliament in 1853.
To LANDOWNERS, THE CLERGY, ESTATE AGENTS, SURVEYORS, &C., IN ENGLAND AND WALES, AND IN SCOTLAND.

The Company advances money, unlimited in amount, for the following works of Agricultural Improvement, the whole outlay and expenses in all cases being liquidated by a rent-charge for 25 years.

1. Drainage, Irrigation, and Warping, Embanking, Inclosing, Clearing, Reclamation, Planting, for any beneficial purpose, Engines or Machinery for Drainage or Irrigation.
2. Farm Roads, Tramways and Railroads for agricultural or farming purposes.
3. Jetties or Landing places on the sea-coast or on the banks of navigable rivers or lakes.
4. The Erection of Farm Houses, Labourers' Cottages, and other Buildings required for Farm purposes, and the improvement of and additions to Farm Houses and other buildings for Farm purposes.

Landowners assessed under the provisions of any Act of Parliament, Royal Charter, or Commission in respect of any public or general works of Drainage or other improvements, may borrow their proportionate share of the cost, and charge the same with the expenses on the lands improved.

The Company will also negotiate the Rent-charges obtained by Landowners under the Improvement of Land Act, 1864, in respect of their Subscription of Shares in a Railway or Canal Company.

No investigation of title is required, and the Company being of a strictly financial character, do not interfere with the plans and execution of the Works, which are controlled only by the Government Enclosure Commissioners.

Apply to GRANVILLE R. RYDER, Esq., Managing Director, 3, Parliament Street, London, S.W.

WITH the GARDENERS' CHRONICLE and AGRICULTURAL GAZETTE of SATURDAY NEXT, the 14th, will be published a SUPPLEMENT, containing a FULL REPORT of the SHOW of STOCK and IMPLEMENTS at the AGRICULTURAL HALL, ISLINGTON. A Single Copy sent for Six Stamps.
Office for Advertisements, 41, Wellington Street, Strand, W.C.

The Agricultural Gazette.

SATURDAY, DECEMBER 7, 1867.

MEETINGS FOR THE ENSUING WEEK.

MONDAY, Dec. 9 — London Farmers' Club (Mr. J. A. Clarke on Steam Cultivation)—6 P.M.
MONDAY, to FRIDAY, — 9 to 13 — Smithfield Club Cattle Show at the Agricultural Hall, Islington.
TUESDAY, — 10 — Central Chamber of Agriculture, Queen's Concert Room, Hanover Square—10 A.M. Smithfield Club (General Meeting), at the Agricultural Hall—1 P.M. London Farmers' Club (Annual Meeting), at Salisbury Hotel—3.30 P.M.
WEDNESDAY, — 11 — Agricultural Society of England (General Meeting)—Noon. Public Meeting on Agricultural Co-operation, Hall of Islington Literary Society, near Agricultural Hall—3 P.M.

THE Smithfield Club Cattle Show will open at 9 A.M. on Monday, when the Judges begin their labours. The public are admitted at 2 P.M., and the Show remains open till Friday evening. 1200*l.* are given in prizes for cattle, about 600*l.* for sheep, and 140*l.* for pigs. It is announced that the several classes competing for these prizes are better filled than on any previous occasion. In addition to this, the main agricultural feature of the week, it is full of other agricultural meetings and enagagements of interest, which are specified in the list above.—On Monday evening Mr. J. A. CLARKE will speak of Steam Cultivation at a meeting of the Central Farmers' Club. On Wednesday the General Meeting of the English Agricultural Society will be held in the Society's Rooms, Hanover Square. We wish we could state beforehand, as we can of nearly all the other public meetings which are announced, what are the subjects to be laid before the members. Probably now that the Society has completed three triennial courses of implement competition on the plan devised 10 years ago for the correction of the faulty system then in operation, under which prizes were awarded, it may now assent to a further alteration of its plans, in order to the correction of the undoubted faults which still remain. If its trials were conducted so as fairly to ascertain what the average experience of the implement in the hands of its purchaser must be, no manufacturer, we imagine, could object to the test.—Among the other meetings of the week are those of the Central Chamber of Agriculture, and of the London Farmers' Club. We may add, that on Wednesday afternoon a lecture will be given in a room near the Agricultural Hall, on the nature and advantages of the Co-operative system for the supply of agricultural implements and manures at manufacturers' prices.

NOTWITHSTANDING the very positive assertions of the Scotch veterinary authorities, the disease which recently appeared among cattle in Berwickshire is not cattle plague. Such is the decision of the Government Inspector, who was sent to inquire into the circumstances of the alleged outbreak; and in our remarks last week we were led to anticipate the result of the investigation from the knowledge which we had of the facts, which were quite incompatible with the theory of the disease being cattle plague.

The herd from which the animals at Langrigg were selected, originally consisted of 112: about 100 of them were purchased in Yorkshire at the end of October, and conveyed to Berwick, where they were mixed with about 12 other cattle. Thirty of the number were driven to a neighbouring fair, the rest were sold in lots of 10 to 20 to six or seven different purchasers. The 30 animals with which we have most concern were ultimately taken to Langrigg, and appear to have been kept rather roughly, considering that they were tolerably well-bred yearling Shorthorns, which had apparently been previously well treated. At Langrigg their provender consisted of old Clover pasture during the day, and Oat straw in the yard at night. At the expiration of a fortnight some of the cattle became ill. A veterinary surgeon was called in, and from the symptoms which he observed he was led to suspect the existence of cattle plague. With a commendable desire not to act hastily in a matter of such importance, however, he sought the assistance of another member of the profession, and the two examined several animals, both living and dead. The result was the establishment of a conviction in their minds that the cattle were affected with rinderpest, and the inspector of the district was informed of the fact. This gentleman appears to have concurred with the opinions of the previous investigators, and under his direction the district was declared infected. No doubt was entertained that the plague had again commenced its ravages. Complaints were made that the remainder of the stock were not immediately slaughtered, and there was some talk of a memorial being sent to the Lords of the Council praying that markets might be closed, and restrictions upon the movement of stock again established; in fact the indications of alarm were unmistakable, as under the circumstances they well might be. Further investigation was ordered, and Professors WILLIAMS, STRANGEWAYS, and MCBRIDE, from the Edinburgh Veterinary College, were directed to inquire into the matter, and they also, after examining animals suffering from the disease, and making *post mortem* examinations, decided in favour of cattle plague. Lastly, Professor SIMONDS arrived at Langrigg, and from precisely similar evidence to that which six other veterinary surgeons had before them, deduced an inference exactly opposite to the one at which they had arrived. In the conditions under which the cattle had been placed since their removal from Yorkshire—the journeys by rail and road, the infliction of privations to which they were unused, and the consumption of coarse, non-succulent food, to which their digestive organs were unaccustomed, the Professor recognised disturbing influences sufficient to account for the fatality, without reference to special agencies. This decision, so contrary to the opinion of the *élite* of the veterinary authorities of Scotland, was not accepted without cavil, and comparisons were drawn of the value of one man's judgment in relation to the opinions of six men, all of them having equal opportunities of ascertaining the truth. We do not attempt to decide "when doctors disagree;" but events in their onward course are not so scrupulous, and the evidence which they offer is conclusive. The first appearance of the disease in the herd dates as far back as the middle of November, and up to this time four animals have died and five have been killed; the remainder, together with those which were sold to various purchasers, are reported to be in good health. This is not in accordance with what experience has taught us of the progress of cattle plague. It is not characteristic of the disease to leave two-thirds of a small herd of 30 animals unscathed during a period of three weeks, and this fact alone would render us sceptical irrespective of the collateral circumstances which all point to the same conclusion.

So far, the decision is satisfactory; but there is still an element in the question which is not a subject for gratulation. It is not precisely consolatory to reflect that an attack of gastro-enteritis, as in Berwick, or poisoning by *solanaceæ*, as in Norfolk, or malignant enteric fever, as in Cheshire, may in all honesty of purpose be construed by practical men to mean cattle plague. We make all allowances for the position of a local inspector called upon to decide in an obscure case of disease on the spur of the moment, but no man is morally or legally bound to pronounce an opinion in the absence of sufficient evidence. The law affords ample scope for legitimate inquiry, it allows the separation of diseased from healthy animals, and even permits the killing of suspected beasts for the purpose of *post mortem* investigation. No danger of the spread of infection exists when proper precautions are taken; and at a time when country is free from cattle plague it is not a light thing to pronounce an animal to be suffering from that disease while one important link in the chain of causes is wanting. It is not because of excoriation of the membrane of the mouth, accompanied with great physical prostration, and diarrhœa, that the existence of cattle plague can be logically affirmed. Many diseases present symptoms and lesions so allied to those of plague, that a very minute examination is necessary to enable the inquirer to distinguish between them; and it is within the limits of possibility that he may be compelled to conclude that the disease is not cattle plague only because it lacks the one essential quality of infection. Symptoms and *post mortem* appearances, although they generally possess a definite relation to certain diseases, nevertheless merge one into the other by almost

imperceptible gradations, and an opinion formed entirely upon such a basis is not always a reliable one. With no contempt of science, but rather in accordance with the views of the highest authorities, we hold the belief that investigation into the phenomena of disease should be conducted upon the same principles as those which regulate the conduct of an inquiry in any department of physics. There is such a thing as a law of evidence, and "*Quod est demonstrandum*" should be applicable as decidedly to a conclusion in pathological science as it is to a solved problem in Euclid.

—— We are not able to find room to-day for the list of prize-holders in Class 74 of the International Exhibition, published in the *Moniteur* of the 22nd ult., but what the value of the distinction is as a guide to the real merit of the Exhibition may be fairly gathered from the recently published address of the Chairman of the Council to the Society of Arts, which contains the following passage:—"The system of prizes to which on former occasions I have objected, has been continued in this Exhibition, and I fear has produced, in a greater degree than before, discontent and injustice. If it were difficult, nay, almost impossible, to adjudicate awards of medals—gold, silver, and bronze—fairly among 20,000 exhibitors, how greatly must the difficulty be increased when the number of exhibitors exceeds 40,000; and in considering this subject it must not be forgotten that an incorrect award not only injures all engaged in the same trade, but also misleads and deceives the public. Nothing can, I think, be more delusive than the merit claimed by medallists for superiority over their brother manufacturers who have, or who have not, exhibited; and it appears to me to be manifestly unjust that the Government, upon such slender evidence as can be afforded by the exhibitors of special specimens—often mere *tours de force*, manufactured without reference to cost or to the practical demands of trade—should award prizes through the intervention of juries, which practically give almost a patent right to the recipients of medals."

—— The Council of the Bath and West of England Agricultural Society have determined to hold their next meeting at Falmouth, during the Whitsun week, 1868. From the stock prize sheet just issued, it appears that the Society offers no less than 1150*l.* in prizes for cattle and poultry. Devon, Herefordshire, and Shorthorn cattle are placed on the same footing. In the sheep classes several additions have been made; prizes are now offered for Leicester, Cotswold, Southdown, Hampshire Down, other Down, and Somerset and Dorset horn sheep, and there are two special classes for Exmoor and other horned mountain and for Dartmoor and other moor sheep to be shown in the wool. In the horse classes there are prizes of 25*l.* and 15*l.* for agricultural stallions foaled before 1866, 20*l.* and 10*l.* for agricultural stallions foaled in 1866; 15*l.* and 5*l.* for mares and foals, or in foal; 10*l.* and 5*l.* for fillies foaled in 1866. In the hunter classes 25*l.* and 10*l.* for mares or geldings foaled before the 1st of January, 1864; ditto for those foaled in 1864; 15*l.* and 5*l.* for fillies or geldings foaled in 1865; 10*l.* and 5*l.* for colts or fillies foaled in 1867; 15*l.* and 5*l.* for hacks, mares, or geldings, and the usual prizes for ponies not exceeding 13 and 14 hands high. To encourage proficiency in the horse-shoeing Mr. MILES, of Exeter, again offers three prizes; it being stipulated that no man who has won a 1st prize in this competition will be eligible to enter. In the stock classes all entries must be made on or before the 14th April; in the poultry classes on or before the 1st May.

—— Mr. W. W. GOOD, who is well known as an agricultural writer, is to read before the Norfolk Chamber of Agriculture, on the 20th of this month, the first of a course of papers relating to agricultural matters generally; in which Parliamentary and official statistics will be quoted, to show the difficulties, "the result of one-sided legislation," under which our national agriculture has struggled, and is now struggling; to account for the financial panic of last year, and the present depression in commerce, manufactures, and trade; to expose the mischievous policy which has diverted capital from sound business employment to channels which encouraged rash and visionary speculation; and to account for "our towns being congested, or overcrowded, with unemployed people, while our food-producing classes are left without adequate means, both as regards capital and labour, for inducing the 'fruits of the earth' to increase equally with the population." It seems to us, that any "policy" is a mischievous policy—that any Government interference whatever must mislead—that the best result for the nation must arise when every man is left face to face with Nature to do the best he can for himself.

BATES SHORTHORNS.

IT is a singular fact that, concurrently with an enormous increase in the money value of Bates blood, there should be a constant decrease in the number of pure Bates animals. I question whether there is at present one-fifth of the number which existed 20 years ago. As this is the season when breeders begin to fix upon mates for their cows, I desire to call the attention of the owners of Bates animals to a few points worthy of their consideration. It is perhaps needless to remark that I am not addressing the owners of "Duchesses," or "Oxfords," for they may be presumed to be too well aware of the value of their property to be capable of depreciating it by miscellaneous alliances. There still remain a certain number of animals outside these "great families," which are descended on both sides from parents bred by the late Mr. Bates. Take such a cow as Newlight, by 3d Duke of Oxford (9047), as an example. Put to a Booth or a Mason bull, what would her offspring be worth? Fortunately she was in the hands of one who was too wise thus to depreciate his own property; and being put to the Bates bull Duke of Wetherby (17,753), produced Northern Duke (22,431), now in the herd of that eminent breeder, Mr. Barclay, of Keavil. Again, suppose Mr. Harvey's Lally had been put to a bull of alien blood, the result would probably have been a bull which might have passed into the hands of a respectable dairy farmer, but which certainly would not have been, like Lord Lally (22,161), the son of the Bates 4th Duke of Oxford, an object of competition among breeders of eminence.

Let breeders consider the results which have followed from two opposite courses of action. Take as examples of adherence to Bates blood, the Lallys, the Barringtons, or Wellingtonias, as some of them are now termed, and look at the prices they have realised when offered for public competition. Again, the Kirklevingtons in the hands of Mr. Harvey and Mr. Dugdale occupy a high position in public estimation, because these breeders have carefully maintained their blood in its original purity. The fact is, that each additional strain of Duchess or Oxford blood renders such an animal more valuable until, after the lapse of a certain number of generations, an animal is obtained which is practically a Duchess or an Oxford. As sound views on this subject become more generally diffused, mere names will lose much of their *prestige*, while realities will obtain their just weight. The mere "length" of a pedigree will be less regarded than the quality of the later and consequently more potent crosses. Breeders will think less of that over which they have no power, while they scrutinise with jealous care those steps which are to determine the beauty and the symmetry of coming generations.

Wherever Bates Shorthorns have been crossed carelessly with miscellaneous blood, however good in itself, the result has almost invariably been to depreciate the value of the offspring when brought to the lot of public sale. It is curious that the first idea which occurs to a young breeder should be to obtain what he calls a "good cross," which, however, too often proves to be a very bad one for his pocket. The study of Mr. Darwin's work on the "Origin of Species," cannot be too strongly recommended to breeders. Any one who at the outset of his career would ponder diligently on the principle laid down by that writer, that permanent excellence is not to be obtained by the putting together of opposites, would save himself much disappointment. He would then be prepared to follow in the steps of those eminent men who achieved greatness by the sagacity with which they combined resemblances.

If, however, a change of blood, for whatever reasons, either of expediency or choice, be determined upon, let it not be introduced raw, to adopt a happy term of Mr. Carr's. Rather take a bull bred like Duke of Cumberland (21,584) for example, or like Royal Cambridge (25,009), each of which combines, though in different degrees, with the purest Bates blood that of another family congenial to it. Duke of Cumberland having one-fourth of Princess blood, a calf by him from a pure Bates dam would inherit one-eighth of the Princess strain. Whether the offspring were male or female, by again resorting to the pure Bates strain the other element is reduced to manageable proportions, and at the option of the breeder may either again be strengthened, or, in the course of another generation or two, rendered merely nominal. Thus, as in the well-known instance of the Duchesses in the hands of Mr. Bolden and some of his successors, the blood of a family may be modified without, unless in the opinion of the most fastidious, permanently impairing its value. Few Bates breeders, for example, would hesitate to employ a bull bred in the manner of 11th Duke of Oxford (19,632), notwithstanding that he has one-eighth of Booth blood, and hardly the strictest would find any objection in his son, Duke of Athelstane (21562), from that noble Bates cow Playful. In practice the foreign element becomes almost eliminated in using such a bull as the latter with a Bates cow, reduced, as it would then be, to one-thirty-second part.

Space prevents me from entering on the question of what blood it is most desirable to select for the purpose of combining with that of Mr. Bates. At a future time I hope to enter into this subject in detail. At present I can only express my opinion that we ought to be guided as much as possible by the example of that eminent breeder, who ever aimed at blood derived from the great Shorthorn originals, Hubback, Favourite, and Comet.

I need scarcely disclaim the intention of depreciating other blood than that of Mr. Bates. My object in this article has been, if possible, to prevent the extinction of pure Bates animals. A property more valuable than anything which has hitherto existed in the shape of live stock, is worth an effort for its preservation.

Willoughby Wood, Holly Bank, Burton-on-Trent, November 30.

—— The sale of Lord Dartmouth's Shorthorns by Mr. Strafford, at Patshull, attracted not a large but a very select company of breeders, and some good prices were obtained; a notice of the blood of the herd was given a fortnight since, and the "J" family, to which especial attention was then drawn, realised the highest prices. Lot 4, "Jessica," was bought by Mr. J. N. Beasley for 96 guineas; her two heifers, "Dog-rose" made 48 guineas from the Rev. C. W. Holbech, and "Desdemona" 30 guineas from Mr. Finlay Dun; the two bulls from Jessica, one a calf, brought 41 and 30 guineas each, the former (Duke Fred) going to Lord Forester, and the latter to the Marquis of Anglesey. The three females of the Sylph tribe were all purchased by Mr. F. Leney, of Wateringbury, at 50 guineas each. Among the other principal prices were 49 guineas for Lot 7, "Charlotte Corday," of Lavender blood, bought by Mr. T. Burgess, who at 30 guineas also took Lot 6, "Gwendoline;" 38 guineas for Lot 10, "Draggle," of the "Certaintys," which went with another of the same family to Mr. Joseph Woodward; and Mr. William Woodward bought Lot 9, "Dawdle," of the Frills, at 33 guineas. The 17 cows and heifers averaged 40*l.* 9*s.*, the 7 bulls but 32*l.* 5*s.* each, or an average of 38*l.* 1*s.* 3*d.* for 24 head. The stock had not been got up for sale, and were brought out in their usual store condition, at only a short notice.

AGRICULTURAL USE OF SEWAGE.

[The following letter on this subject appeared in the *Times* of December 3.]

As you express regret in the course of your very interesting remarks to-day upon the sewage question that the results of the recent experiments conducted by the Metropolis Sewage Company, and quoted in the Report of the Board of Works, are not given more explicitly, you may, perhaps, be willing to find room for the following statement of their experience during the past summer.

It is not only on the sand plot at the North London outfall that this experience has been obtained. They have there, as you appear to be aware, obtained great crops of Grass and vigorous plants of Wheat, Mangel Wurzel, Celery, and Carrots by the use of sewage poured over about an acre of the Maplin Sand, which had been brought up by barge and spread 30 inches deep over a contractor's yard. But, besides this, they have since Lady-day, 1866, been tenants of 200 acres of light and gravelly land at Lodge Farm, two miles from the Barking outfall, and on this, by pumping apparatus, they can deliver sewage at the rate of 300 tons an hour. During the summer of last year about 60 acres of this land were laid out water-meadow fashion either on the ridge and furrow or, where the slopes are greater, on the catch-water plan. And from 53 acres of Italian Rye-grass sown on this land and watered with sewage in this way we have during the past summer cut 2480 tons of Grass, which is at the rate of 43 tons per acre. But of these 53 acres 10 were sown this spring (April), and 16½ acres were sown late last autumn (October, 1866), so that only one-half of the land can be said to have been in full-bearing power when the sewage reached it. And of this, again, at least one-half, which had been mown in December last, was nearly destroyed by the sharp frosts of January. These injured plots were immediately re-sown, but they, too, cannot be said to have yielded a full crop this year. Off the remaining 13½ acres, which alone can be said to have been in proper order, we have this summer cut 800 tons of Grass, having begun with a crop of 7 tons per acre in the week ending April 6, and having since then taken six other cuttings at intervals of four or five weeks, the whole amounting to 61½ tons per acre. The quantities thus grown were ascertained by every third or fourth load being passed over a weigh-bridge. The land from which these great crops have been taken is one-half of it a very poor and open shallow soil upon a flinty gravel, and the other half of it a better and a deeper open soil on the same bed of gravel.

In the production of this Grass 300,330 tons of sewage have been used. This is the quantity actually delivered from the receiving tank for the above extent of land. But it must be noted here, again, (1) that, owing to the ditches, or carriers, by which it has travelled from the tank being cut into and through a gravelly subsoil, a great deal of it has been wasted on its way to the land; and (2) that no less than 74,000 tons of it—one-fourth of the whole—was delivered during January, February, and the early weeks of March, before the season of growth had set in, and when, therefore, it could produce comparatively little effect. While, therefore, the whole truth is that we have got 2400 tons of Grass off comparatively poor soil by the use of 300,000 tons of sewage, I believe that, fairly read, the lesson taught us is that 60 tons per acre (and the quantity taken from that portion of the land which was in good producing order was more than this), or 3200 tons of Grass off 53 acres, of ordinary land, may be obtained from 250,000 tons of sewage properly applied. And if we deduct 12 tons of Grass per acre (say 700 tons from our area) for the natural and unassisted yield of this soil under an Essex climate, we shall have 2500 tons of Grass as the produce of 250,000 tons of sewage. It is plain that if a ton of good Grass can be obtained from every 100 tons of London sewage, a handsome revenue will be yet obtained from what now runs to waste at the Barking Outfall. That sewage-grown Italian Rye-grass is admirable cow food we have had ample proof on Lodge Farm during the past summer.

Besides this large extent of Italian Rye-grass, small experimental plots in Wheat, Mangel Wurzel, and other crops have been sewaged; and I may add the results to this report, notwithstanding that we cannot attach so much importance to them because of the small scale on which they have been obtained. Eighteen tons of Mangel roots were weighed off rather more than one-third of an acre, over which 1100 tons in all of sewage per acre had been poured at three separate times during the summer. This was at the rate of 52 tons per acre—more than twice the quantity obtained on fields close by manured and cultivated in the ordinary way. And a plot of Wheat (1 rood and 21 perches) which received three dressings of sewage when the land was dry in spring and early summer, yielded 15 bushels of grain, which is after the rate of 43 bushels per acre, while, surrounding this plot on two sides of it, 2 roods and 22 perches of similar land, in all respects similarly treated, excepting only that it had no sewage, yield 18½ bushels of grain, or at the rate of only 29 bushels per acre.

I will only add that having had the management of this farm during the past two years, I know the cir-

cumstances, and can vouch for the accuracy of this account of them. *J. Chalmers Morton, Lodge Farm, near Barking, Dec. 2.*

GERMINATION OF WHEAT.

SHOULD I appear tedious in what I now write, I inform my readers that I am about to reply to some questions put to me by correspondents whom I informed they would find my answers to their inquiries in the *Agricultural Gazette*. My friends will remember, that I showed from a long practical experience, and from experiments lately made through four or five years, that I never could discover any difference in the germinating powers of different kinds of Wheat; and my matured opinion is, that if any difference does exist, it is in that of the bearded kinds, which being the most perfect, as well as the most ancient, I should conclude from reasoning would germinate the freest; but I have not found it to do so, from experience or experiments, or but to a very inappreciable extent. But still, any kind of Wheat may, from causes which I will explain, be unfit for seed, and especially unfit for what is called thin seeding, where the whole, or nearly so, that is sown, is intended to grow; and thus, as I explained in former articles, it was my custom before I used my seed to ascertain whether it would germinate or not, or in other words, whether it would grow or not; and for this purpose I laid a piece of flannel or other woollen cloth on a common plate, the cloth having been well wetted; and on this I spread some of the Wheat I intended to use as seed, placing another piece of wetted cloth over it, and then, setting the whole in some warm room or hot-house, in a few days germination would commence if the vital principle were in the Wheat; but if not in the whole of it, or the chief part, of course it would not do for thin, or what I designate as rational seeding. But seed which would not be fit for thin-seeding on account of its deficiency of vital principle, may, nevertheless, be suitable for the common mode of seeding, as in this case if only a half or a third of what was sown should grow the crop would be likely to be so much the better; and in this way I account for pretty good crops when two bushels or a little less or more were sown, it being impossible if more than half a bushel of Wheat an acre were sown on well-cultivated and good Wheat-growing land to produce a crop to perfection; but on poor, hungry, light and impoverished land, full of weeds, and not half cultivated, of course more seed will be required: but here if the land will not produce a remunerating crop from a bushel of seed Wheat an acre, the wiser plan would be to put it to some other purpose than the growing Wheat, or to improve it until it will grow remunerating crops of Wheat, or at least of some other kinds of grain.

But I now proceed to point out some few of the causes why Wheat, and of course other cereals, may be wholly or partially deficient in the vital principle, and consequently unfit for seed where all that is sown is intended to grow, and must grow, or the crop would be deficient on that account. Among these causes are high winds and pelting storms, and frosts when the growing crops are in blossom, as any or either of these causes will destroy the fructifying principle of the blossoms of corn as effectually as the knife destroys the productive organs of swine or other animals where it is used? Do my readers doubt this? I will ask them to observe their fruit trees when in blossom, and if so, do they not see the blossoms destroyed by these agencies? And this being the case their trees grow on more luxuriantly than otherwise, but the produce are leaves and branches only, and little or no fruit; and so with corn as in everything else, the same operating causes produce the same effects. But the vital principle in grain may be injured or destroyed, by wet either before or after it is in the mow or stack, and by heating either before or after it is threshed, if it be not well kept; and, hence, what I call rational seeders should, as I have repeatedly caused to be published, ascertain whether their seed will grow or not before they use it, let it be of whatever kind of seed it may, whether farinaceous as grain, or oleaginous as Turnips, &c.

But another cause which destroys the vital principle in grain is the keeping of it until life becomes extinct; and this in farinaceous seeds, such as grain, takes place in a very few years. You, my friends, I have no doubt have heard of and read of Wheat having been kept for thousands of years within the foldings of the cerecloths enveloping Egyptian mummies; and you have read of the celebrated conjuror who professed to get into a quart bottle, and of the hundreds of sight-seeing people who paid money to witness the pretended exploit; and you have further read probably of the wonderful Merlin, who used to unscrew his head and place it before him on a table when he wanted to trim or shave his beard; and perhaps you yourselves might have heard the celebrated Mathews, as I myself did, relate how a hungry fellow swallowed the Monument; and how another man, a celebrated diver, to exhibit an exploit in his craft, leaped off London Bridge, and on not emerging from the water the whole of London mourned for him as if he were drowned, but he was not drowned, said Mr. Mathews, for he came up three months afterwards at the Cape of Good Hope.

Now none of my readers can believe in such marvellous inventions as these, but in my opinion it is not more absurd to have faith in them than to believe that the ancient Egyptians possessed the power of preserving vitality in Wheat for thousands, or hundreds, or even for scores of years; and I go further and write, not even for half a single score of years; and in my opinion it is not more absurd, nor does it show more ignorance of the laws of Nature, to believe that by any art of man can life be preserved in farinaceous grains for thousands or for hundreds of years, than it was in the dupes who are said to have paid money to go into a theatre in London to see a man get into a quart bottle.

I will inform all my readers that from experiments carefully made by myself, and by gentlemen in whom I have greater faith on any scientific matter than I have in myself, that vitality has never yet been kept in Wheat for 10 years; and should any of my respected readers have kept any by them, even for seven years, however scientifically it may have been preserved, on trial they will find that life within it has become extinct—it will not grow.

I have taken up more time in this part of my subject than it deserved, because a professional gentleman some few years since, in a lecture in the literary institution in Colchester, stated that he could not only rival the Egyptians in their life-preserving powers for thousands of years, but could so act upon Wheat that "for it to die," he said "would be impossible." And some *savans* afterwards, at the same institution, passed a vote of censure upon me for publishing that such a power as their fellow townsman professed to have had never been bestowed upon man. But as the matter is important I should esteem it as a favour if any gentleman would inform me, through the medium of the *Agricultural Gazette*, if he has known personally, or has at any time known any well authenticated example of Wheat having germinated after it had been kept for seven years. *Geo. Wilkins, Parsonage, Wix, Nov.* 28.

AGRICULTURAL EDUCATION.

I MAY appropriately refer to a paper published by this Society in 1765, one hundred and two years ago, upon education of this character, which appears to me especially to bear upon this very important subject. The writer says, in a letter dated August 4, 1765:—

"Let the farmer's son be taught to read well, to write a good hand, and in due time also be perfected in vulgar and decimal arithmetic; let him, moreover, be taught mensuration, surveying, and gauging; let him be instructed in the rationalia of malting and brewing, and let him besides have general ideas given him of the nature and causes of the various fermentations; let him be able to draw so well as to take the representation of a living object, or describe, in due proportion, the several parts of any machine or engine. I should also approve much of his knowing something of geometry, and should be glad to add the rudiments of botany, and as much natural philosophy as might serve to give him some idea of the nature of vegetation."

He then proceeds to remark on the deficiencies of his own education. He was greatly at a loss from not having been taught drawing, and for want of a competent knowledge of geometry and mechanics, so that when he met with a plough which might differ in some respects from any he before knew, he was puzzled which to prefer for want of understanding the principles on which it was constructed, "for certain it is that a ploughwright, to be master of his business, should be a good mechanic, for no man can be sure of giving the 'share' a true direction unless he understands something of geometry."

"As to the learned or foreign languages, I do not conceive they would be of much use to him. The old writers on husbandry he may read in English, and when anything worth attention is published on the subject abroad it is soon translated . . . . . .

"Some of your readers may, possibly, imagine that such an education cannot be acquired by every farmer's son, on a supposition that the expense would be too considerable, but this is not the case, for reading, writing, and accounts, with some branches of mathematics, should be taught in every free-school, and it would cost less to educate a son in this manner than to bring him up as an exciseman."

And he goes on:—

"Will any one be absurd enough to say, that were farmers to be so educated, agriculture would still continue unimproved?"

This programme appears to me to describe most accurately what is now called "technical education," or, in other words, an education in the knowledge of the general scientific principles which govern the operations, mechanical or chemical, of the occupation in which each person is engaged; an education which is, therefore, his best preparation for obtaining a sound practical acquaintance with his particular calling.

I will also quote two more passages on the same subject, which are as applicable now as when they were written—one by a great divine, Archbishop Cranmer, 300 years ago, and the other by Adam Smith, 100 years since.

"It was proposed three centuries ago to admit to Canterbury Grammar School none but the sons of gentlemen; 'Whereunto,' as Strype in his Memorials relates, 'the Most Reverend Father the Archbishop, being of a contrary mind, said, 'That he thought it not indifferent so to order the matter; for,' said he, 'poor men's children are many times endued with more singular gifts of nature, which are also the gifts of God, as with eloquence, memory, apt pronunciation, sobriety, and such like, and also commonly more apt to apply their study, than is the gentleman's son, delicately educated.' Hereunto it was on the other part replied, 'That it was meet for the ploughman's son to go to plough, and the artificer's son to apply the trade of his parent's vocation; and the gentleman's children are meet to have the knowledge of government and rule in the Commonwealth. For we have,' said they, 'as much need of ploughmen as any other State; and all sorts of men may not go to school.' 'I grant,' replied the Archbishop, 'much of your meaning herein is needful in a Commonwealth; but yet utterly to exclude the ploughman's son and the poor man's son from the benefits of learning, as though they were unworthy to have the gifts of the Holy Ghost bestowed upon them as well as upon others, is as much as to say that Almighty God should not be at liberty to bestow His great gifts of grace upon any person, nor nowhere else, but as we and other men shall appoint them to be employed, according to our fancy, and not according to His most godly will and pleasure, Who giveth His gifts both of learning, and other perfections in all sciences, unto all kinds and states of people indifferently.' . . . . . The poor man's son by painstaking will for the most part be learned, when the gentleman's son will not take the pains to get it. And we are taught by the Scriptures that Almighty God raiseth up from the dunghill, and setteth him in high authority, and whensoever it pleaseth Him of His divine providence, He deposeth princes unto a right humble and poor estate. Wherefore if the gentleman's son be apt to learning, let him be admitted; if not apt, let the poor man's child that is apt enter his room."

On the same subject Adam Smith says:—

"There is scarce a common trade which does not afford some opportunities of applying to it the principles of geometry and mechanics, and which would not therefore gradually exercise and improve the common people in those principles, the necessary introduction to the most sublime as well as to the most useful sciences. The public can encourage the acquisition of those most essential parts of education by giving small premiums and little badges of distinction to the children of the common people who excel in them."

—*Annual Address of the Chairman of the Council of the Society of Arts.*

IRISH BUTTER.

[The following speech was delivered at a meeting held at the Town Hall, Waterford, on Monday, November 18, 1867—the Right Hon. the Earl of Bessborough in the chair.]

Mr. FISHER said he had two years since visited Normandy, partly to obtain information on the butter question, and it might perhaps not be uninteresting that they should be informed of what was taking place there. The noble chairman had spoken of the Irish butter 20 years ago, but they must remember that at that time foreign butter could not come into the market, and the Irish was not competed with; since that time the English markets were thrown open, and the French and Dutch makers were rapidly gaining upon, if not surpassing, the Irish makers. He thought they should try to ascertain the reason, and he believed it lay in the simple fact that the foreigners' butter was fresh, while the Irish was salted. They all knew that fresh butter was sweeter and more valuable than salt butter. When he had landed at St. Malo, the port from which the Normandy butter was shipped, he found vast quantities on the quay, and learned that the steamer that sailed the day before for London took away 300 tons of butter. The butter was made principally in the neighbourhood of Rennes, but it was not made in large dairies. In travelling from St. Malo to Rennes one passes through a series of small farms, such as were in Ireland in 1848. The farmers have one or two, rarely as many as four, cows each. The butter is made in rolls or lumps, and sold fresh. The merchants assort it according to quality, and make it up in casks of suitable sizes. There is no bother about tares or supertares.

They might fancy that this was a peddling kind of business, but it was not so. He had in his hand a London circular, of November 4—that is, this day fortnight. In the previous week the arrivals of French butter in London reached 15,146 casks, and from Holland and other places 6586 casks, making a total of 21,738 casks; while the arrivals of Irish butter were only 2549 casks, of which Waterford sent 615 firkins. This showed that the French trade was not of that peddling character they might fancy; but there was another and very peculiar fact to which he would call their attention. It was this: though the arrivals of foreign butter in the week were 21,753 firkins, yet the stock on Monday was only 8247 casks, or about two days' consumption. The butter was made fresh and sold on arrival. Though the arrivals of Irish in the same week were only 2549 firkins, yet the stock on that day was 7642 firkins, or sufficient for three weeks' consumption; the natural consequence was that foreign butter realised 118*s.* to 120*s.* per cwt.; while Irish butter only realised 109*s.* to 110*s.* per cwt., being a difference of nearly a penny per pound. He had been informed, since he came into the room, by a gentleman well qualified to judge, that some farmers had still in their dairies all the butter they had made since the 1st of May. As long as this practice continued Irish butter must be salted, and the foreign fresh butter would beat it out of the market and get the higher price, therefore this was a very wide and important subject; and he thought the local farmers' societies ought to meet together and discuss this very important subject.

The Normandy system, to which he had alluded, was adapted to small farms, and to this time of year, when many large farmers could not fill a firkin of butter at a churning. Farmers, under such circumstances, might adopt some such plan, or they might follow the practice he found prevailing in Switzerland, where, when the cows went to Grass upon the green Alps, all the milk was put together and made into cheese, which were divided according to the number of cows owned by each. For example, upon the noble chairman's property, instead of each small farmer having a separate churning—probably 20 or 30 operations going on at the same time—they might put all the milk together, and have one churning, thus saving trouble and expense, and producing a better article.

As to the local matters which had been discussed at such length, he would take the liberty of making a remark. The appointment of a butter tester and weigh-master vested in the Corporation of Waterford, and that body, or the weigh-master, might be asked to make such regulations as would meet the difficulty; he thought this would be simple. They required that all the butter should be sold in public market, therefore it should go to the market house for inspection and weighing. To accomplish this, it should be delivered at the weigh-house at a stated hour. He did not think it would be difficult to carry out such an arrangement if they only went determinedly about it. Mr. Elliott had referred to Kilkenny, and he would tell them what was done in Cork, where sometimes several thousand firkins were sold in one day. All the butter must be in the market by 10 o'clock. The porters divided it into four lots of about the same size, which were distinguished by the letters *a*, *b*, *c*, and *d*. The inspectors, upon reaching the market, drew lots for which letter they should take, so that no one knew who would inspect his butter. If any farmer was dissatisfied, there was an appeal from one to the four

inspectors. The butter was sold upon the inspector's classification, and was weighed at the market. There was, therefore, no ground for dispute. He always regretted to hear of cases in dispute being brought into court, for he believed the merchants were disposed to act fairly, and he held it would be advantageous to both parties to remove all cause of dispute, which could only be done by having the butter tasted and weighed before it was sold. These were matters of local arrangement, about which there ought not to be much difficulty, but there were other and larger interests mixed up with this question. The manufacture of butter was one of their staple industries, and the merchants as well as the farmers were mainly, if not equally, interested in the quantity and the quality. He wished to call their attention to one or two facts bearing upon the quantity of butter produced in Ireland. He found from Mr. Donnelly's return for 1865 that there were in Ireland in that year 1,387,448 milch cows. This year there were 1,519,720, being an increase of 131,272 cows; if each cow produced two firkins of butter, the exports of 1867 ought to exceed those of 1865 by 260,000 firkins; but he found that the arrivals in London and Liverpool since the 1st May fell short of those of 1865 by 70,686 firkins. The value of the decrease would be about 700,000*l*. Ireland was not so rich a country that it could afford such a loss. And while he approved of their looking after the markets, and adjusting the differences between farmer and merchant, he thought the landlord and the farmer ought to look very seriously at the decrease in the supply of butter; that they should make such changes in their system of farming as will secure the largest returns, and while endeavouring to improve the make and quality of their butter, they will also seek to manage their land and their cattle in such a way as will produce the largest quantity. He urged these views upon them because he longed to see the country more prosperous, more wealthy, and more happy; and everything that tended to develop and increase their resources had its effect in securing the contentment and happiness of the people. *Waterford Mail.*

CHEDDAR LOAF CHEESE.

I HAVE been desired by one of our county gentlemen to offer some practical remarks on cheese-making in small farms, with a view to equalise, as far as may be, the advantages of the larger dairy farmer with those of the smaller. It is clear that a thick cheese, such as can be made from a dairy of 25 or 30 cows, will command a higher price than a thin cheese of equal quality. It is also clear that a given quantity of curd made up in one thick cheese will, when ripe, weigh more than if made into two or three, in consequence of there being a larger portion of surface in the latter than in the former. A thick cheese will also retain its quality, and continue to improve for a longer time than a thin one, and will command a superior class of purchasers. It is only in exceptional cases that thin cheese made from whole milk will be as remunerative as when a portion or all the cream is removed. I state this on my own experience, having proved it to my satisfaction. The particulars of those experiments I would give here, were it not that it would occupy too large a portion of your columns. Whole-milk cheese should be made in a form best suited to the public taste. In Somersetshire, within a few miles of the famous village of Cheddar, thousands of small cheeses are made, measuring about 6 inches in diameter, and 8 or 9 inches in depth, weighing from 7 to 9 lb. each. They are called "truckles," and sometimes "loaf cheese." They are made by persons who milk from 10 to 20 cows, and occasionally by larger farmers. These persons being prejudiced to the method of their farmers, believe that no other cheese can be made successfully on their land. I have seen several hundreds of these cheeses neatly arranged on the floor of a large room, and of uniform size, painted red, through which, during the process of ripening, a blue tint has penetrated, imparting to them a rather rich appearance. Many tons of them are annually exported to Australia and other parts, the prices fluctuating according to foreign demand. Some of the same description are also made in North Wilts, but without the exterior colouring. In both cases the cheese is of an inferior character, and is not desirable for the small cheese-makers of Scotland to imitate. They are generally a soft, porous kind of cheese, rarely reaching the price of our improved Cheddars by 10*s*. or 15*s*., and sometimes even 20*s*. The size and shape only are worth our notice. Another example of size and shape is presented to us in the Stilton. Its quality and flavour are good: but the excess of cream required to make them, and the risk of not making good cheese, are objections. The general class of small dairy-farmers would scarcely be justified in imitating (as in the former examples) anything beyond its form. The cheeses weigh about 12 or 13 lb. each, and are 10 inches deep and 7 inches wide. As to the kind of cheese, there is nothing more suitable than the Cheddar. The method of making is simple. There is an additional amount of labour and some waste consequent upon making these small cheeses; but if made good it will realise 5*s*. per cwt. beyond even that which is made in larger dairies, as small families will readily pay for the convenient size. As the Cheddar method of cheese-making has been so frequently detailed in your journal, and is so successfully practised, I need not give it again. It is in every particular suitable for the making of "loaf" cheese. The vats or chessets may be made of tin, strongly hooped, and without bottom, or of staves, hooped similar to the vats; but I much prefer the extension vat, a specimen of which I sent to the Ayrshire Agricultural Association three years since, and many of them I have since sent to parties in Wigtonshire. The cost of them is about 10*s*. each. With these the cheese is more easily liberated from the vat, and less liable to get broken in turning. All the vats should be furnished with inside followers (Scotticè, lids), made to fit nicely. They may be pressed in tiers of threes or fours, as required. If the cheese is turned twice a-day, two days' pressing will be sufficient. The edges should be well bandaged whilst in the press, to secure them against damage. There may not be sufficient curd to fill each vat every day, but if salted and pressed by the hand into a vessel, and covered, it will keep till the morrow, when the cheese may be made up with new curd. There should be no annatto used, or the colour of the curd of two days may not correspond. It frequently happens that these small cheeses will not be quite so solid as those of a larger size. Cavities will occasionally appear, unlike a naturally-heaving cheese, but as though a portion of air had been suddenly arrested and confined. This, I believe, arises from too sudden pressure upon so small a surface. This should be remedied by a gradual addition of power to the press. With ordinary treatment in the cheese-room, these small cheeses will be equal in quality, flavour, and appearance to Cheddar cheese of any size. The small Cheddar cheeses hitherto have been without a definite name. A year or two since, a cheese-factor of Bristol, wishing to give them a name, induced his best cheese-maker occasionally to make a few bearing the impress of the words "Stilton Cheddar," which he had carved on the follower; but it is fair to state that only in form does it resemble the Stilton cheese. The name I have given at the head of this paper is much more appropriate, as being more expressive of the character of the cheese I should like to see made by the small cheese-maker of Scotland, and which, for its general usefulness, will be best suited to the public taste. The successful effort of the Agricultural Association in the improvement of cheese-making is apparent to all; and the small dairy-farmer having an equal proportional claim with the large, I would respectfully suggest to the Council of that body the propriety of withholding any prize at their Kilmarnock Exhibition for imitation "North Wiltshire loaf cheeses," and offering adequate prizes for "Cheddar loaf cheese," made from dairies of less than 20 cows. *Addressed by Mr. Harding, Marksburgh, to an Ayrshire Paper.*

Home Correspondence.

Mangel Wurzel v. *Oilcake: Apple Pumice.*—That the extended growth and manipulation of Mangel Wurzel should to any great extent supersede the use of oilcake as food for farm stock, goes beyond the comprehension of the most zealous Mangel Wurzel grower, in Ireland at least. But that Apple Pumice should for the same purpose supersede the use of Mangel Wurzel to some of our cider-making friends will appear marvellous, so will the idea that the extended growth of Mangel Wurzel in these counties would silence all agitation for a repeal of the Malt-tax. In a late letter of mine in your pages I asked for further proofs of the suitability of Mangel Wurzel to supersede the use of oilcake, but as there has not been adequate time for a suitable reply, I will not repeat the question now, but, with your permission, I beg to put a question or two to your correspondent, "E. T. Kensington, F.R.A.S., F.C.S., Ilminster." Before doing so, permit me to insert his analysis (see p. 1178):—

	Apple Pumice in Natural State.	Mangels.	Swedes.
Water	58.30	87.78	89.460
Flesh-forming substances	4.94	1.54	1.443
Gum, sugar, &c. ..	12.44	6.10	5.932
Fibre	22.15	2.50	2.542
Ash	1.65	.96	.623
Oil	.52	None	None

(1) What is meant by "Apple Pumice in its natural state?" (2) What are the flesh-forming substances he has discovered in each of the three substances enumerated? (3) What proportion of gum, and what gum, compared with the sugar, he discovered? (4) What proportion, and what kind of sugar, compared with the gum, he discovered? (5) What were the *et cetera*, and in what proportion, compared with the gum and sugar? (6) What was the value of the fibre, if of any value, for feeding purposes? and finally, If for feeding purposes, would not the oil come within the range of the flesh or fat-producing elements or "principles," as "E. T." terms them? Correct replies to these rude questions would be of importance, in my belief, to many people. *Fingal.*

Mangel Wurzel.—In reference to the remarks of your correspondent "Fingal" on the production of Mangel, as regards weight, it would be interesting to know the heaviest acreable yield he has obtained; we would then be able to compare notes, as our observation has not led us to conclude that Ireland was particularly favourable to the highest development of that root. We should also be glad to learn by what test a bulb of say 30 lb. is of less relative feeding value than one of 10 lb. *P. M., Essex, Nov. 27.*

The lightness of the yield in grain of the late Wheat harvest is now too well-known, and among the causes of this failure not the least was the growth of the mycelium of a fungus in the lower part of the straw. Vast numbers of them I split open, and invariably found this fungoid growth above the first joint from the ground, quite filling the tube with a white down, the mycelium of a fungus. These fine threads penetrating the tissue of the straw, gave the inside a dark unhealthy appearance; and not only would these fungoid fibres injure the tubes whereby the water would pass from the rootlets to the grain, but would be of serious injury to that fluid in its passage upwards. This fungoid growth in the inside of the straw gave a withering appearance to the outside of the lower part of the straw, whereby the observing eye of the farmer concluded the head of grain had got all the nourishment from the root it would have (and he cut his corn sooner than otherwise he would have done), which in many parts of the country was the cause of the early harvest. This mycelium is not that of Puccinia Graminis, because that plant never grows so low down the straw; but whatever it may be, it will produce spores by th million capable of doing no small amount of mischief in the first favourable condition for its growth. *Bohler.*

Societies.

ROYAL AGRICULTURAL OF ENGLAND.

MONTHLY COUNCIL: *Wednesday, Dec.* 4.—Present, the Duke of Richmond, K.G., President, in the Chair; the Earl of Powis, Lord Chesham, Major-Gen. the Hon. A. N. Hood, Sir Watkin Wynn, Bart., M.P., Mr. Barnett, Mr. Barthropp, Mr. Bramston, Mr. Cantrell, Colonel Challoner, Mr. Dent, M.P., Mr. Druce, Mr. Brandreth Gibbs, Mr. Holland, M.P., Mr. Hornsby, Mr. Milward, Mr. Randell, Mr. Shuttleworth, Mr. Torr, Mr. Wells, Major Wilson, Mr. Jacob Wilson, and Dr. Voelcker.

The following new Members were elected:—

Bonham, the Rev. John, Ballintaggart, Ballitore, co. Kildare.
Brealey, John, Leek, Staffs.
Byrd, Charles, Littywood, Staffs.
Dickson, George A., Chester.
Golledge, Matthias, Forthampton, Tewkesbury, Gloucestersh.
Green, Alfred, Kinwarton, Redditch, Warwickshire.
Griffiths, Samuel, Overton, Ruabon, Denbighshire.
Harrison, John, The Willows, Leicester.
Henley, Joseph John, Sherburn Lodge, Tetsworth.
Horniblow, W. T., jun., Ripple, Tewkesbury
Marshall, James, Trinity Street, Gainsborough.
Maude, Colonel George Ashley, Stud House, Hampton Court.
Muntz, George Frederick, Umberslade, Birmingham.
Olver, Richard Sobey, Trescowe, Bodmin.
Sulley, Joseph, jun., Lower Eaton, Hereford.
Reed, Howard, Sydney, New South Wales.
Rees, William, Penywanu, Lanvabon, Pontypridd, Glamorgan.
Taylor, James, Gorse Lodge, Swansea.
Whitmore, F. H. Wolryche, Dudmarton, Bridgnorth, Salop.
Wilson, Christopher, W., High Park, Oxenholme, Kendal.
Stratton, Richard, jun., The Duffryn, Newport, Monmouth.
Stratton, William, Kingston, Deverill, Warminster.

FINANCES.—Major-General the Hon. A. N. Hood, Chairman, presented the report, from which it appeared that the Secretary's receipts during the past month had been duly examined by the Committee and by Messrs. Quilter, Ball, and Co., the Society's accountants, and found correct. The balance in the hands of the bankers on the 30th November, was 367*l*. 8*s*. 1*d*. The Committee having gone through the list of arrears due to the Society, recommend that Messrs. Garrard & James, solicitors, be instructed to write to all defaulters who are in arrear for four years and upwards. This report was adopted.

CHEMICAL.—Mr. Dent, M.P., reported that Professor Voelcker had presented the annual report, containing details of experiments on growth of Clover at Escrick, and various analyses, which will be more fully reported upon for the *Journal*. The following analyses were made by the consulting chemist for members of the Society:—

Analyses made for Members of the Royal Agricultural Society of England in 1867.

Guanos	30
Superphosphates and other similar artificial manures	63
Nitrate of soda and salts of ammonia	16
Refuse manures	29
Bone-dust	11
Limestones, marls, and other minerals	53
Soils	18
Waters	30
Oilcakes	62
Feeding meals and vegetable productions	19
Examination for poison	6
Harvest haymakers' small beer	4
Total	341

This report was adopted.

LEICESTER MEETING.—Major-General the Hon. A. N. Hood reported the recommendation of the Committee that the Show should close on Tuesday the 21st July at 6 P.M.

SHOW-YARD CONTRACT.—Mr. Randell reported that the Surveyor had presented the plan proposed for the show-yard at Leicester, which had been approved, subject to some modifications to be made by the honorary Director; and the Surveyor had been directed to transmit a tracing of the plan to the Leicester Local Committee, in order that the necessary levelling and making of roads may be proceeded with—the quantities of shedding of each sort to be determined hereafter. This report was adopted.

AGRICULTURAL EDUCATION.—The following list of names was placed before the Council, and the Secretary was directed to ascertain whether they would act as examiners:—

Mechanics—Mr. C. E. Amos
Chemistry—Professor Liveing and Professor Voelcker
Botany—Professor Bentley and Professor Oliver
Geology—Professor Morris and Professor Ramsay
Veterinary Science—Professor Simonds and Prof. Varnell.
Land Surveying—Mr. Bailey Denton and Mr. Cadle
Book-keeping—Messrs. Quilter & Ball

The examiners in the Science and Practice of Agriculture will be appointed at the period of the examination.

COMMITTEE OF SELECTION.—Major-General the Hon. A. N. Hood reported that the name of Mr. John Baldwin, of Luddington, near Stratford-on-Avon, was recommended to the Council in the room of Mr. Pope, deceased. Mr. Baldwin having been proposed by General Hood, and seconded by Mr. Milward, was then unanimously elected Member of Council.

COUNTRY MEETING DISTRICTS.—Mr. Torr having brought forward a new scheme which had been

approved by the Committee, was supported by Mr. Jacob Wilson and General Hood, and opposed by Mr. Milward, Lord Chesham, and Mr. Dent. On a division the report of the Committee was carried by 13 ayes to 5 noes, and the following arrangement of the country adopted:—

A. Durham, Northumberland, and North and East Ridings of Yorkshire.
B. Cumberland, Lancashire, Westmoreland, and West Riding of Yorkshire.
C. Derbyshire, Leicestershire, Lincolnshire, Northamptonshire, Nottinghamshire, Rutlandshire, and Warwickshire.
D. Bedfordshire, Cambridgeshire, Essex, Hertfordshire, Huntingdonshire, Norfolk, and Suffolk.
E. Berkshire, Buckinghamshire, Hampshire, Kent, Oxfordshire, Middlesex, Surrey, and Sussex.
F. Cornwall, Devonshire, Dorsetshire, Somersetshire, and Wiltshire.
G. Gloucestershire, Herefordshire, Monmouthshire, Worcestershire, and South Wales.
H. Cheshire, Shropshire, Staffordshire, and North Wales.

The Council then resolved that district B be selected for the County Meeting of 1869.

The Annual Reports of all the Standing Committees were presented by the respective Chairmen.

The Standing Committees for 1868, viz., Finance Committee, Journal Committee, Chemical Committee, House Committee, Implement Committee, Veterinary Committee, Stock Prizes Committee, General Committee, Show-yard Contracts Committee, and Education Committee, were appointed.

STANDING COMMITTEES FOR 1868.

Finance Committee.—Major-General the Hon. A. Nelson Hood, Chairman; Mr. Barnett, Mr. Bramston, Colonel Kingscote, M.P.; Mr. Randell, Mr. Torr.

House Committee.—The President, Chairman of Finance Committee, Lord Chesham, Mr. Bramston, Colonel Challoner, Mr. Brandreth Gibbs, Mr. Torr.

Journal Committee.—Mr. Thompson, Chairman; Earl Cathcart, Vice-Chairman; The Right Hon. the Speaker, Sir J. V. B. Johnstone, Bart., M.P.; Sir E. C. Kerrison, Bart.; Mr. Acland, M.P.; Mr. Dent, M.P.; Mr. Holland, M.P.; Mr. Wren Hoskyns, Mr. Richard Milward, Mr. Wallis, Mr. Jacob Wilson.

Chemical Committee.—Mr. Lawes, Chairman; Earl Cathcart, Lord Vernon, Sir J. V. B. Johnstone, Bart., M.P.; Sir E. C. Kerrison, Bart.; Sir Massey Lopes, Bart., M.P.; Sir H. Vane, Bart.; Mr. Davies, Mr. Dent, M.P.; Mr. Holland, M.P.; Mr. Wren Hoskyns, Ven. Archdeacon Huxtable, Mr. Thompson, Mr. Wells, Mr. Jacob Jacob Wilson.

Veterinary Committee.—Major-General the Hon. A. Nelson Hood, Chairman; Hon. H. Liddell, M.P.; Sir J. V. B. Johnstone, Bart., M.P.; Sir H. Vane, Bart.; Colonel Challoner, Mr. Dent, M.P.; Mr. Brandreth Gibbs, Mr. Thos. Pain, Professor Simonds, Professor Spooner, Professor Varnell, Mr. Wells, Mr. Jacob Wilson.

Stock-Prizes Committee.—Lord Chesham, Lord Walsingham, Major-General the Hon. A. Nelson Hood, Hon. H. Liddell, M.P.; Sir J. Trollope, Bart., M.P.; Mr. Baldwin, Mr. Barnett, Mr. Barthropp, Mr. Bowly, Mr. Clayden, Mr. Davies, Mr. Dent, M.P.; Mr. Druce, Mr. Brandreth Gibbs, Mr. Hassall, Mr. Holland, M.P.; Mr. Jonas, Mr. Milward, Mr. Randell, Mr. Rigden, Mr. Sanday, Mr. Robert Smith, Mr. Torr, Mr. Turner, Mr. Wallis, Mr. Webb, Mr. Jacob Wilson, and the Stewards of Live Stock.

Implement Committee.—Colonel Challoner, Chairman; Earl Cathcart, Lord Vernon, Major-General the Hon. A. Nelson Hood, Sir E. C. Kerrison, Bart.; Sir A. K. Macdonald, Bart.; Mr. Amos, Mr. Cantrell, Mr. Druce, Mr. Brandreth Gibbs, Mr. Holland, M.P.; Mr. Hornsby, Mr. Wren Hoskyns, Mr. Randell, Mr. Read, M.P.; Mr. Sanday, Mr. Shuttleworth, Mr. Thompson, Mr. Torr, Mr. Wallis, Professor Wilson, Mr. Jacob Wilson, and the Stewards of Implements.

General Leicester Committee.—Mr. Thompson, Chairman; Duke of Rutland, Earl of Powis, Lord Chesham, Lord Portman, Lord Tredegar, Lord Vernon, Major-General the Hon. A. Nelson Hood, Hon. H. Liddell, M.P.; Sir E. C. Kerrison, Bart.; Right Hon. Sir John Trollope, Bart., M.P.; Sir W. Williams Wynn, Bart., M.P.; Mr. Amos, Mr. Barnett, Mr. Barthropp, Mr. Bowly, Mr. Cantrell, Colonel Challoner, Mr. Clayden, Mr. Davies, Mr. Dent, M.P.; Mr. Brandreth Gibbs, Mr. Holland, M.P.; Mr. Hornsby, Mr. C. Wren Hoskyns, the Mayor of Leicester, Mr. Milward, Mr. Pain, Mr. Randell, Mr. Read, M.P.; Mr. Sanday, Mr. Shuttleworth, Mr. Stone, Mr. Torr, Mr. Wallis, Mr. Webb, Mr. Wells, Major Wilson, Mr. Thos. Willson, Mr. Jacob Wilson, and the Stewards.

Show-Yard Contracts Committee.—Mr. Randell, Chairman; Earl Cathcart, Lord Vernon, Major-General the Hon. A. Nelson Hood, Mr. Amos, Mr. Brandreth Gibbs, Mr. Hornsby, Mr. Milward, Mr. Sanday, Mr. Shuttleworth, Mr. Thompson, Mr. Torr.

Committee of Selection.—Earl Cathcart, Earl of Powis, Lord Walsingham, Right Hon. the Speaker, Major-General the Hon. A. Nelson Hood, Sir J. V. B. Johnstone, Bart., M.P.; Mr. Clayden, Mr. Dent, M.P.; Mr. Druce, Mr. Holland, M.P.; Mr. Milward, Mr. Randell, Mr. Thompson, Mr. Torr, Mr. Wallis, Mr. Wells.

Education Committee.—Earl of Powis, Major-General the Hon. A. Nelson Hood, Mr. Acland, M.P.; Mr. Dent, M.P.; Mr. Frere, Mr. Holland, M.P.; Mr. Wren Hoskyns, Colonel Kingscote, M.P; Mr. Wells, Professor Wilson, Dr. Voelcker.

Cattle Plague Committee.—The whole Council.

*** The President, Trustees, and Vice-Presidents are members *ex officio* of all Committees.

Mr. Shuttleworth having moved that it be an instruction to the Implement Committee to consider the subject of the prize sheets and the arrangements for the new course of implement trials, and that the exhibitors of machinery be invited to send a deputation to meet and confer with the Committee upon any changes that may be desirable, the subject was referred to the Implement Committee.

The Live Stock and Implement Prize Sheets for the Leicester meeting were settled at a Special Council, which met by order of the President at the rising of the monthly Council.

The Council have determined to abolish the restriction which has hitherto limited the aged bulls to be under six years old; also the rule which has hitherto prevented an animal that has won a 1st prize in any class at a previous meeting of the Society from again competing for a similar prize.

MIDLAND COUNTIES CATTLE SHOW: *Birmingham, December* 2.—Though shorter than usual in almost every one of its classes, yet the standard of excellence reached in it is as high as ever it has been in most of them. There are as many good Herefords shown as usual, though perhaps better Shorthorns have been seen; and though the Scotch classes have not been so well filled, yet there has never been a more perfect beast than the one which has this year carried off the Gold Medal of the Association. Lord Walsingham's Southdown sheep have never been excelled, and Messrs. Howard's pigs have been rarely equalled. The class of Berkshire breeding pigs, always to our mind the best of the pig classes at Bingley Hall, is as good as ever.

The root show is indeed below its usual merit in both quantity and quality, but Kohl Rabi and Cabbages are more extraordinary than were ever before seen; and in the seed classes white Wheats, Peas, and Beans are all first-rate, and samples of the different sorts in ear and straw, beside the bags of grain, add to the interest. The implement department is as full and as good as ever it has been, and the Poultry exhibition is extraordinary.

The CATTLE CLASSES begin at Birmingham with the *Herefords*: eleven oxen, eight steers, seven cows, and seven heifers make up the several sections of the show. The 1st prize in the older class of oxen is taken by Mr. Aaron Pike, for a large and well-bred Hereford, well coated with firm flesh over the loin, but not so good in front as the Hereford ox generally is. The points of excellence are rather reversed in Mr. Jones' 2d prize beast, which is better forward and atop than in the hind-quarters. The 3d prize goes to Mr. Turner (The Leen), a constant exhibitor, for a large and handsome beast. Among the steers, Mr. Cocks' 1st prize beast is extraordinary over the rib and loin, and very even, thick, and ripe everywhere. This class well illustrates the early maturity of the breed. Hereford cows are a very good class. The prizes go to Mr. H. Bettridge, of Wantage; Mr. Baldwin, of Luddington; and Mr. Groves, of Berrington. The 1st very even and good; the 2d with a noble bosom, and a great massive creature everywhere; the 3d, good forward, but thin and deficient behind. In the heifer class, Mr. Bettridge again takes the 1st prize, with a very thick and stocky well-bred beast, which not only takes the 1st prize in her class, but 25*l.* for the best animal in the Hereford classes, and the Gold Medal as the best cow or heifer in the yard. The 2d prize heifer, shown by Mr. Arkwright, is also a good and well-fed beast; and the Queen, who enters the cattle from the Prince Consort's farm in her own name, takes the 3d prize, for a large and well-bred beast; another from the Royal farm is commended. The female classes are very good.

The *Shorthorns* include 38 beasts in the four divisions, which are respectively a very fair class of older oxen, a middling lot of steers, a large and pretty good class of cows, and a very good set of heifers. The 1st prize Shorthorn ox is shown by Mr. Heath of Ludham Hall, Norwich; he is a handsome roan, with wonderfully fine fore-quarters, not so deep and thick behind; good over loin and rib, and of good quality. He also takes the prize of 25*l.* as the best Shorthorn in the yard. The 2d prize goes to a white ox, shown by Mr. Wood, of Thrapston, which had been 1st at the Oakham show on the Thursday before. He is of great length, and very evenly covered throughout; not so good, however, as the roan shown by the same exhibitor two years ago, and afterwards exhibited at the Crystal Palace. Mr. Taylor, of Bridlington Quay; Mr. Foljambe, of Osberton; and Sir W. de Capell Brooke, Bart., are respectively 1st, 2d, and 3d in a deficient class of steers. The 2d prize animal takes the prize of 15*l.*, offered for the best Shorthorn which is bred as well as fed by the exhibitor.

Among Shorthorn cows, the Duke of Sutherland is 1st with a very handsome roan cow, very good over rib and loin and flank, but not so good forwards. Mr. Taylor's 2d prize cow is very fat and flat, and wide over the back. She has come to the scales after 10½ years, during which she has bred 6 calves. The 3d prize goes to Mr. Stratton, for a pretty cow of remarkable quality, and well and evenly fed. Lord Feversham's red heifer, long and deep and true; Messrs. Perry's very pretty heifer, and Mr. Tidy's light roan, are the best of seven in the younger female class, of which two others were commended. One of the seven died in the yard from an injury received during travelling. The whole class, beautiful as it generally is, always appears to us the result of blundering somewhere. No fat stock prize list ought to include prize heifers of pure breed, and no management ought to result in the fatting of animals whose proper service, that of bringing forth of their kind, has not been accomplished.

The *Devons* are a very short show in the ox classes, larger in the cows. Mr. Smith, of Exeter, takes the 1st prize in the older class for an animal possessing unusual length and depth and weight for the breed. He is also 1st in the younger class with a steer just over 3 years old, and girthing 8 feet 2 inches, and very thick over loin and back, which also takes the prize of 25*l.* as the best in the Devon classes. There is a considerable show of Devon cows with Messrs. Farthing and Parfitt, 1st and 2d, and Mr. Smith again 3d. The Devon heifers are very short in number and very small.

There is rather a larger show than usual of Longhorns, and a shorter show than usual of Scotch cattle. Among them, however, is Mr. McCombie's black polled Angus ox, of which we had heard some days before as "the best beast that ever left Aberdeenshire." He is of enormous size and great symmetry, evenly covered with good and useful flesh. In fact, he stands at "perfection" upon a merely utilitarian scale. Of course you cannot look for style, and hardly for beauty; but he is everywhere a substantial piece of useful beef; and, girthing close on 10 feet, and nearly 6 feet long, wonderfully thick of flesh in fore-quarters, back, loin, flank, and everywhere, he probably carries 1 ton weight of saleable carcase. He is four years and eight months old, and carries off the 1st prize in his class, Lord Aylesford's prize of 25 guineas for the best ox bred as well as fed by the exhibitor; Mr. Ratcliff's 10-guinea cup for the best Scot fed and bred by the exhibitor; the Birmingham Innkeeper's 30-guinea cup, for the best animal in all the cattle classes; the Association's 25*l.* for the best Scot in the yard, and the Gold Medal for the best ox in the yard.

The following is the prize list in the cattle classes:—

JUDGES.—Mr. George Bright, Broom, Aston-on-Clun, Salop; Mr. H. W. Keary, Bridgnorth; Mr. William Sanday, Holme Pierrepont, Nottingham.

HEREFORDS.

Oxen or Steers.—1st, 15*l.*, Aaron Pike, Mitton, near Tewkesbury, Gloucestershire; 2d, 10*l.*, John Edwin Jones, Springfield, Breinton, near Hereford; 3d, 5*l.*, Philip Turner, The Leen, Pembridge, Herefordshire. Commended: Colonel Robert Loyd Lindsay, M.P., Lockinge, Wantage, Berkshire; Henry Bettridge, East Hanney, Wantage, Berkshire.

Steers.—1st, 15*l.*, Benjamin Cocks, Tugford, Church Stretton; 2d, 10*l.*, Joseph Beach, The Hattons, Brewood, and Dudley; 3d, 5*l.*, Richard Hill, Orleton Court, Ludlow, Herefordshire.

Cows.—1st, 15*l.*, Henry Bettridge, East Hanney, Wantage; 2d, 10*l.*, John Baldwin, Luddington, Stratford-upon-Avon; 3d, 5*l.*, Robert Vincent Corbet Groves, Berrington, Salop. Commended: John Wigmore, Bickerton Court, Much Marcle, Herefordshire; Samuel Plimley, Alberbury, Salop.

Heifers.—1st, 15*l.*, Gold Medal for best cow or heifer of any breed or age, and extra prize of 25*l.* as best Hereford, Henry Bettridge, East Hanney, Wantage, Berks; 2d, 10*l.*, John Hungerford Arkwright, Hampton Court, near Leominster, Herefordshire; 3d, 5*l.*, Her Majesty the Queen, Windsor Castle. Commended: Her Majesty the Queen; Joseph Crane, Calcot, Shrewsbury.

SHORTHORNS.

Oxen or Steers.—1st 15*l.*, extra prize of 25*l.* as the best Shorthorn, William Heath, Ludham Hall, Norwich; 2d, 10*l.*, Rowland Wood, Clapton, near Thrapston, Northamptonshire; 3d, 5*l.*, John Coleman, Runhall, near Wymondham, Norfolk. Commended: William Heath, Ludham Hall, Norwich; Thomas Pulver, Broughton, Northamptonshire.

Steers.—1st, 15*l.*, Silver Medal as breeder and Earl of Aylesford's prize of 15*l.* as the best Shorthorn bred and fed by the exhibitor, George Taylor, Sewerby Cottage, Bridlington Quay; 2d, 10*l.*, G. S. Foljambe, Osberton Hall, Worksop, Notts; 3d, 5*l.*, Sir William de Capell Brooke, Bart., Geddington Grange, Kettering. Commended: Earl of Radnor, Coleshill, Highworth, Wiltshire.

Cows.—1st, 15*l.*, and Silver Medal as breeder, the Duke of Sutherland, Lillehurst, Newport, Salop; 2d, 10*l.*, Richard Taylor, Hazeleigh Hall, Maldon, Essex; 3d, 5*l.*, Richard Stratton, Walls Court, Stapleton, Bristol. Highly Commended: The Earl of Aylesford, Packington Hall, Coventry. Commended: Aaron Pike, Mitton, near Tewkesbury; Thos. Garne & Son, Broadmoor, Northleach, Gloucestershire; Adam Dugdale, Rose Hill, Burnley, Lancashire.

Heifers.—1st, 15*l.*, and Silver Medal as breeder, Lord Feversham, Duncombe Park, Helmsley, York; 2d, 10*l.*, Graddon & John Perry, Acton Pigott, Salop; 3d, 5*l.*, William Tidy, Middleton, Tamworth. Commended: Henry Greenway, Hambrook, near Bristol; William Aldworth, Frilford, near Abingdon, Berks.

DEVONS.

Oxen or Steers.—1st, 15*l.*, William Smith, Higher Hoopern, Exeter, Devon. (No competition.)

Steers.—1st, 15*l.*, and Silver Medal as breeder, and extra prize of 25*l.* for the best Devon, William Smith, Higher Hoopern; 2d, 10*l.*, Harry Frampton, Blandford, Dorsetshire. Commended: Harry Frampton, William Smith, Higher Hoopern.

Cows.—1st, 15*l.*, Walter Farthing, Stowey Court, Bridgewater, Somerset; 2d, 10*l.*, Edward Parfit, Palace Farm, Wells, Somerset. Commended: William Smith, Higher Hoopern.

Heifers.—1st, 15*l.*, Richard Burton, Place Barton, Broadclyst, Devon; 2d, 10*l.*, William Smith, Higher Hoopern.

LONGHORNS.

Oxen or Steers.—1st, 10*l.*, and Silver Medal as breeder, Sir John Harper Crewe, Bart., Calke Abbey, Derbyshire; 2d, 5*l.*, W. T. Cox, M.P., Spondon Hall, near Derby. Commended: J. H. Burbery, The Chase, Kenilworth.

Cows or Heifers.—1st, 10*l.*, and Silver Medal as breeder, W. T. Cox, M.P., Spondon Hall; 2d, 5*l.*, John Jackson, Burbery, The Crofts, Stratford-on-Avon. Commended: Thos. Satchwell, Harnfield, Knowle.

SCOTCH BREEDS.

Polled Oxen and Steers.—1st, 15*l.*, and Silver Medal as breeder, extra 2*l.* as the best Scot, Mr. C. Ratcliff's prize, of 10 guineas for best Scot, Gold Medal as the best ox or steer of any breed or age, Hotel and Innkeepers' Prize of 30 guineas as the best animal in the cattle classes, and the President's prize of 25 guineas for the best ox or steer of any breed or age, bred and fed by exhibitor, William McCombie, Tillyfour, Aberdeen, N.B.; 2d, 10*l.*, Andrew Longmore, Linksfield, Rattie, Banffshire.

West Highland Oxen or Steers.—1st, 15*l.*, and Silver Medal as breeder, Duke of Sutherland, Dunrobin Mains, near Golspie, N.B.; 2d, 10*l.*, Richard Coston, Hayton, Stanton Lacy, Salop; 3d, 5*l.*, Thomas Leslie, Melville Cartwright, Melville House, Fife, and Newbottle, Northamptonshire.

Scotch Cows or Heifers.—1st, 10*l.*, James Reid, Graystone, Alford, Aberdeenshire; 2d, 5*l.*, William Spencer, Potters Marston, Hinckley. Commended: Duke of Buccleuch and Queensberry, Tibbers, Thornhill, Dumfriesshire.

WELSH BREEDS.

(No entries.)

NORFOLK AND SUFFOLK POLLED BREEDS.

(No entries.)

OTHER PURE BREEDS AND CROSS-BRED ANIMALS.

Fat Oxen or Steers.—1st, 10*l.*, Colonel Robert Loyd Lindsay, M.P., Lockinge Park, Wantage, Berks; 2d, 5*l.*, Richard Hawkes, Hunscote, Charlecote, Warwickshire. Highly Commended: Joseph Beach, The Hattons, Brewood, and Flour Mills, Dudley; Richard Burton, Place Barton, Broadclyst, near Exeter.

Fat Cows.—No entry.

Fat Heifers.—1st, 10*l.*, and Silver Medal as breeder, William Tidy, Middleton, Tamworth; 2d, 5*l.*, William Henry Marbrow, Newton Solney, Burton-upon-Trent.

EXTRA CLASSES.

For animals not qualified to compete in any of the preceding classes.

Oxen or Steers.—No merit.

Cows or Heifers.—5*l.*, Marquis of Anglesea, Beaudesert, Rugeley, Staffordshire.

The SHEEP CLASSES includes a short show of Leicesters, where Lord Berners is 1st; a short show of other Longwools, the 1st and 2d prize being taken by Cotswolds, and the 3d by a Lincoln; a very good show indeed of Southdowns—Lord Walsingham, Lord Sondes, and Lord Radnor taking the prizes; a very good show of Shropshires, which are to the elegant Southdown or Leicester pretty much what the polled Angus oxen, just referred to, are to the Devons. The Oxforddown and Hampshire-down make very good classes.

The prize list is given below :—

JUDGES.—Mr. H. Fookes, Whitchurch, Blandford, Dorset; Mr. Thomas Mansell, Ercall Park, Wellington, Salop; Mr. F. Spencer, Claybrook, Lutterworth.

LEICESTERS.

Three Fat Wethers not exceeding 22 months old.—1st, 15*l.*, and Silver Medal as breeder. Extra prize of 10 guineas given by W. D. Bromley, Esq., M.P., for the best pen of Long-woolled sheep, Lord Berners, Keythorpe Hall, Leicester; 2d, 10*l.*, William Perry Herrick, Beaumanor Park, Leicestershire; 3d, 5*l.*, William Perry Herrick.

LONG-WOOLLED SHEEP NOT BEING LEICESTERS.

Three Fat Wethers not exceeding 22 months old.—1st, 15*l.*, and Silver Medal as breeder, William Henry Hitchcock, Miserden Park, near Cirencester, Gloucestershire; 2d, 10*l.*, William Donne, Monkton, Bridgend, Glamorganshire; 3d, 5*l.*, John Pears, Mere, Branston, Lincoln. Commended: Thomas and George West, Greenhill Farm, Bletchington, Oxon.

SOUTH AND OTHER DOWN SHEEP.

Three Fat Wethers, not exceeding 22 months old.—1st, 15*l.*, and Silver Medal as breeder, and extra prize of 20*l.* given by the Linen and Woollen Drapers of Birmingham, for the best pen of three fat wethers, Lord Walsingham, Merton Hall, Thetford, Norfolk; 2d, 10*l.*, Lord Walsingham; 3d, 5*l.*, Lord Sondes, Elmham Hall, Thetford, Norfolk. Commended: Lord Sondes.

Three Fat Wethers, exceeding 22, but not exceeding 34 months old.—1st, 10*l.*, and Silver Medal as breeder, Lord Walsingham, Merton Hall; 2d, 5*l.*, Earl of Radnor, Coleshill, Highworth.

SHROPSHIRE SHEEP.

Five Fat Wethers, not exceeding 22 months old.—Prize of 20 guineas, given by the Mayor of Birmingham (Thos. Avery, Esq.), and Silver Medal as breeder, Henry Matthews, Mont ford, Shrewsbury. Highly commended: Joseph Beach, The Hattons, Brewood, and Flour Mills, Dudley.

Three Fat Wethers, not exceeding 22 months old.—1st, 15*l.*, and Silver Medal as breeder: extra prize of 10 guineas, given by G. C. N. Newdegate, Esq., M.P., for best pen of Shropshire Sheep; and 10*l.* given by the Linen and Woollen Drapers of Birmingham for the second-best pen of three fat wethers, Thomas Nock, Sutton House, Shiffnal; 2d, 10*l.*, Henry Matthews, Montford, Shrewsbury; 3d, 5*l.*, William Yates, Grindle House, Shiffnal. Commended: Joseph Beach, The Hattons.

Three Fat Wethers, exceeding 22 but not exceeding 34 months old.—1st, 10*l.*, and Silver Medal as breeder, Lord Wenlock, Monk Hall, Much Wenlock; 2d, 5*l.*, Henry Smith, Sutton Maddock, Shiffnal. Commended: Henry Smith.

Single Shropshire Wether: Silver Cup, value 5 guineas, given by Messrs. Mapplebeck and Lowe of Birmingham for best Shropshire wether of any age, and Silver Medal as breeder, Joseph Beach, The Hattons, Brewood. Commended: Lord Wenlock, Monk Hall, Much Wenlock; Earl of Aylesford, Packington Hall, Coventry.

OXFORDSHIRE DOWNS.

Three Fat Wethers, not exceeding 22 months old.—1st, 10*l.*, and Silver Medal as breeder, Zachariah W. Stilgoe, Adderbury Grounds, Banbury, Oxfordshire; 2d, 5*l.*, Alfred Rogers, Bromham, near Bedford. Highly commended: Duke of Marlborough, Blenheim Palace, Woodstock, Oxon. Commended: Nathaniel Stilgoe, Adderbury Manor Farm, Banbury, Oxfordshire.

SHEEP NOT QUALIFIED TO COMPETE IN ANY OTHER CLASS.

Three Fat Wethers, of any age.—1st, 10*l.*, and Silver Medal as breeder, Thomas Gunnell, Milton, Cambridgeshire; 2d, 5*l.*, Edward Frood, Bonhey, Exminster, Devon.

CROSS-BRED SHEEP.

Three Fat Wethers, not exceeding 22 months old.—1st, 10*l.*, and Silver Medal as breeder, J. K. Shrimpton, Easington Farm, Chilton, Bucks; 2d, 5*l.*, Nathaniel Stilgoe, Adderbury Manor Farm, Banbury. Highly commended: John Overman, Burnham Sutton, Burnham Market, Lynn.

LEICESTER EWES.

Fat Ewes of any age, having bred one or more lambs. (Entry not exhibited.)

LINCOLN AND COTSWOLD EWES.

Fat Ewes of any age, having bred one or more lambs.—1st, 5*l.*, and Silver Medal as breeder, John Henry Casswell, Laughton, Folkingham, Lincolnshire; 2d, 3*l.*, Joseph Craddock, Eastington, Northleach. Commended: John King Tombs, Langford, Lechlade, Gloucestershire.

SOUTH AND OTHER DOWN EWES.

Fat Ewes of any age, having bred one or more lambs.—1st, 5*l.*, and Silver Medal as breeder, Duke of Marlborough, Blenheim Palace, Woodstock; 2d, 3*l.*, Lord Walsingham, Merton Hall, Thetford. Highly commended: Duke of Marlborough; Lord Sondes, Elmham Hall, Thetford, Notfolk.

SHROPSHIRE EWES.

Fat Ewe of any age, having bred one or more lambs.—1st, 5*l.*, and Silver Medal as breeder, John Coxon, Freeford Farm, Lichfield; 2d, 3*l.*, Bowen and Jones, Ensdon House, Shrewsbury. Highly commended: John Coxon, Freeford Farm.

Among the PIG CLASSES—of three fat pigs of one litter under 10 months, there is a pretty good class; the same, under 15 months, are a very good class. The single fat pigs over 15 months are a various class. Among breeding pigs the Berkshire make much the best show. In the first-named of these classes Mr. Leslie Cartwright is 1st with a very good pen. Mr. Lynn, of Stroxton, 2d with very large pigs for the age; and Mr. Stearn 3d, with a very good pen of black pigs. In the next class Messrs. Howard are easily 1st with three remarkably fine white pigs, of wonderful size and weight; the 3d prize goes to the same gentlemen; the 2d prize goes to Windsor. Several pens in this class were disqualified owing to the dentition indicating either over-age or that they are not of the same litter. We were informed, however, that the three 1st prize pigs exhibit the same variety of dentition which was seen last year in the pen then disqualified on account of it. A number of disqualifications also beset the single pig class, where Mr. Duckering is 1st, Mr. Tombs 2d, and Mr. Humfrey 3d—the first with a white, and the two others with Berkshire hogs. In the Berkshire class of breeding pigs the 1st, 2d, and 3d prizes have gone to Mr. Joseph Smith and Mr. King Tombs. Other pens are also first-rate; the Rev. Canon Gover shows admirable pens, so does the Rev. H. G. Baily, of Swindon; so do Mr. Dixon, of Erdington, and Mr. Humfrey, of Shrivenham. Among white breeding pigs, Messrs. Howard take 1st, 2d, and 3d prizes with very admirable specimens, good enough to produce prize breeding stock for another year, or already fat enough to kill off-hand at once. We watched the man feeding them. The five sat up on their tails, with their snouts (we had almost said their beaks) aloft, like so many birds in a nest, and one after another quietly received a pill, which was made by fashioning the handful of Barley-paste into convenient sizes, and softening it by rolling it in the hand in a bucket of warm water. The interest with which the position of the feeding hand was watched by the hungry crew beneath gradually lessened, until it needed an extra kneading in the water to tempt the appetite and at length each slipped downwards where it had stood and went off to sleep. Certainly there was a marvellous economy both of food and temper in the process. No waste whatever of either, and waste of either is most mischievous.

The following is the prize list of the pigs :—

JUDGES.—Mr. W. H. Clare, Twycross, Atherstone; Mr. A. F. M. Druce, Burghfield, Reading; Mr. C. Randell, Chadbury, Evesham.

FAT PIGS.

Three Fat Pigs of one litter, not exceeding 10 months old.—1st, 10*l.*, and Silver Medal as breeder, Thomas Leslie Melville Cartwright, Melville House, Fife, and Newbottle, Northamptonshire; 2d, 5*l.*, John Lynn, Church Farm, Stroxton, Grantham; 3d, 3*l.*, Samuel G. Stearn, Brandeston, Wickham Market, Suffolk. Highly commended: Her Majesty the Queen, Windsor Castle. Disqualified: Thomas Bantock, Merridale House, Wolverhampton.

Three Fat Pigs of one litter, not exceeding 15 months old.—1st, 10*l.*, and Silver Medal as breeder, and extra prize of 5*l.* 5*s.* for the best pen of fat pigs, James and Frederick Howard, Britannia Farms, Bedford; 2d, 5*l.*, Her Majesty the Queen, Windsor Castle; 3d, 3*l.*, James and Frederick Howard. Disqualified: Samuel Geater Stean, Brandeston, Wickham Market, Suffolk; Joseph Beach, The Hattons, Brewood, and Flour Mills, Dudley; George Mangles, Givendale, near Ripon, Yorkshire; George J. Mitchell, Newton Mount, Burton-upon-Trent.

Fat Pig, exceeding 15 months old.—1st, 6*l.*, and Silver Medal as breeder, John Lynn, Church Farm, Stroxton, Grantham: 2d, 4*l.*, John King Tombs, Langford, Lechlade, Gloucestershire; 3d, 2*l.*, Heber Humfrey, Kingstone Farm, Shrivenham, Berks. Highly commended: Richard Elmhirst, Duckering, Northorpe, Kirton Lindsey, Lincoln; James and Frederick Howard, Britannia Farm, Bedford. Commended: Earl of Radnor; Thomas Crisp, Butley Abbey, Wickham Market. Disqualified: George Mangles, Givendale, near Ripon, Yorkshire.

BREEDING PIGS.

Berkshire Breed.—Five Pigs of one litter, exceeding three and not exceeding six months old.—1st, 10*l.*, and Silver Medal as breeder, and extra prize of 5*l.* 5*s.*, for the best pen of pigs of the Berkshire breed, Joseph Smith, Henley-in-Arden; 2d, 5*l.*, John King Tombs, Langford, Lechlade, Gloucestershire; 3d, 3*l.*, John King Tombs. Highly commended and Siver Medal: Joseph Smith, Henley-in-Arden; Heber Humfrey, Kingstone Farm, Shrivenham Farm, Berks. Highly commended: John Spencer, Villiers Hill, Kenilworth. Commended: Abraham Dixon, Birches Green, Erdington, near Birmingham; Heber Humfrey, Kingstone Farm.

Pigs of other Large Breeds.—Five Pigs of one litter, exceeding three and not exceeding six months old.—1st, 10*l.*, and Silver Medal as breeder, James and Frederick Howard, Britannia Farms, Bedford; 2d, 5*l.*, James and Frederick Howard; 3d, 3*l.*, James and Frederick Howard.

Pigs of a Small Breed.—Five pigs of one litter, exceeding three and not exceeding six months old.—1st, 10*l.*, and Silver Medal as breeder, and an extra prize of 5*l.* 5*s.*, for the best pen of pigs of a small breed, John Lynn, Church Farm, Stroxton, Grantham; 2d, 5*l.*, and Silver Medal, Peter Eden, Cross Lane, Salford, Manchester; 3d, 3*l.*, Countess of Aylesford, Packington Hall, Coventry. Highly commended: Robert Berkley, Spetchly Park, near Worcester; Peter Eden, Salford.

The POULTRY SHOW, undoubtedly one of the finest, as it is the largest of the 19 which have now been held by the Society, is referred to in another column.

The SHOW OF ROOTS AND GRAIN is smaller than it has been for many years. The Kohl Rabi exhibited by Col. North are very fine, and the Cabbages shown by Mr. Robinson are extraordinary. Six Cabbages weighed 387 lb. The 2d prize goes to 6 weighing 353 lb. They were sown August 20, 1866, and planted out on May 1st, 1867, on strong clay soil, manured with stable-dung, soot, and kiln dust.

The following is the prize list :—

CORN.

JUDGES.—Mr. Edward Davenport, Erdington; Mr. J. Mathews, Edgbaston House, Birmingham.

White Wheat.—Samples of one bushel each. 1st, 2*l.* 2*s.*, Robert Loyd Lindsay, M.P., Lockinge Park, Wantage, Berks (Talavera); 2d, 1*l.* 1*s.*, Joseph H. Clark, Altwood, Maidenhead (Chidham).

Red Wheat.—Samples of one bushel each. 1st, 2*l.* 2*s.*, Thomas Horley, jun., The Fosse, near Leamington (Nursery). 2d, 1*l.* 1*s.*, E. Lythall, Radford Hall, Leamington (Nursery). Highly commended: Robert Loyd Lindsay, M.P., Lockinge Park, Wantage, Berks (Nursery).

Barley.—Samples of one bushel each. 1st, 2*l.* 2*s.*, John C. Adkins, Milcote, Stratford-upon-Avon (Hallett's Pedigree); 2d, 1*l.* 1*s.*, T. Lowe, Trysull, Wolverhampton (Old Shropshire).

Oats.—Samples of one bushel each. 1st, 2*l.* 2*s.*, Frederick Lythall, Spittal Farm, Banbury; 2d, 1*l.* 1*s.*, Robert Loyd Lindsay, M.P., Lockinge Park, Wantage, Berkshire (White Dutch).

Beans.—Samples of one bushel each. 1st, 2*l.* 2*s.*, Frederick Lythall, Spittal Farm, Banbury; 2d, 1*l.* 1*s.*, Joseph H. Clarke, Altwood House, Maidenhead (White Eyes). Commended: Edmund Lythall, Radford Hall, near Leamington.

Peas (White).—Samples of one bushel each. 1st, 2*l.* 2*s.*, Joseph H. Clarke, Altwood House, Maidenhead (Ringwood Marrow); 2d, 1*l.* 1*s.*, Frederick Lythall, Spittal Farm, Banbury (Banbury Prize-takers.)

Peas (Blue).—Samples of one bushel each. 1st, 2*l.* 2*s.*, Frederick Lythall, Spittal Farm; 2d, 1*l.* 1*s.*, Edmund Lythall, Radford Hall, near Leamington. Commended: George Dunkley, Kingsthorpe, Northampton.

Peas (Grey).—Samples of one bushel each. 1st, 2*l.* 2*s.*, Frederick Lythall, Spittal Farm. Only one entry.

ROOTS.

JUDGES.—Mr. Edward Davenport, Erdington; Mr. J. Mathews, Edgbaston House, Birmingham.

A Silver Cup, or other articles of plate, of the value of 10 guineas, given by Messrs. Proctor and Ryland, of Birmingham, for the best Collection of the four following varieties, namely: Long Mangel Wurzel, Globe Mangel Wurzel, Swedes, and Carrots, six roots of each to be shown.—Sir William Heathcote, Bart., M.P., Hursley Park, Winchester, Hall's Long Red Mangels, Hall's Globe Mangels, Hall's Westbury Purple Swede, Hall's Long Belgian Carrots.

Kohl Rabi (6 specimens).—1st, 2*l.* 2*s.*, Colonel J. S. North, M.P., Wroxton Abbey, Banbury (green); 2d, 1*l.* 1*s.*, Colonel North, M.P. (green).

Long Mangel Wurzel (6 specimens).—1st, 2*l.* 2*s.*, James Webb, Spring Hill, Fladbury, Pershore; 2d, 1*l.* 1*s.*, Samuel Robinson, Shaw House, Melbourne, Derbyshire.

Globe Mangel Wurzel (6 specimens).—1st, 2*l.* 2*s.*, Samuel Robinson, Shaw House; 2d, 1*l.* 1*s.*, Colonel North, M.P.

Swedes of any Variety (6 specimens).—1st, 2*l.* 2*s.*, Zachariah W. Stilgoe, Adderbury Grounds, Banbury (Purple-top); 2d, 1*l.* 1*s.*, Col. North, M.P. Commended: Col. North, M.P.; Zachariah W. Stilgoe.

Common Turnips, White Flesh (6 specimens).—1st, 2*l.* 2*s.*, J. H. Clarke, Altwood, Maidenhead; 2d, 1*l.* 1*s.*, James Webb, Spring Hill, Fladbury, near Pershore (Grey Stone).

Common Turnips, Yellow Flesh (6 specimens).—1st, 2*l.* 2*s.*, James Webb, Spring Hill, Fladbury (Dale's Hybrid); 2d, 1*l.* 1*s.*, William McCombie, Tillyfour, Aberdeen, N.B. (Aberdeen Yellow).

Carrots of any Variety (6 specimens).—No merit.

Ox Cabbage (6 specimens).—1st, 2*l.* 2*s.*, S. Robinson, Shaw House, Melbourne, Derbyshire (Robinson's Champion); 2d, 1*l.* 1*s.*, S, Robinson (Robinson's Champion).

Kidney Potatos (12 specimens).—1st, 2*l.* 2*s.*, John K. Fowler, Prebendal Farms, Aylesbury (King of the Flukes); 2d, 1*l.* 1*s.*, G. Dunkley, Kingsthorpe, Northampton (seedling). Highly Commended: George Dunkley (seedling).

Round Potatos (12 specimens).—1st, 2*l.* 2*s.*, John Shackel, Blenheim House, Small Heath, near Birmingham (Red Regents); 2d, 1*l.* 1*s.*, George Mangles, Givendale, Ripon, Yorkshire.

REFEREE FOR THE AGES OF STOCK.—Professor John Gamgee, Albert Veterinary College, Bayswater, London.

VETERINARY SURGEONS APPOINTED BY THE LOCAL AUTHORITY.—Messrs. Hunt and Parker, Birmingham.

VETERINARY INSPECTOR.—Mr. E. Stanley, Birmingham.

The IMPLEMENT section of the Show is as good as ever it was, and the smaller and more select stands which represent the several firms are really as instructive and as good as the larger show which one sees at the county show-yards of the National Society. Messrs. Howard exhibit their new reaper, with self-raking apparatus—the revolving arms which bring the corn close to the knives, and those which sweep the cut sheaf off the platform, being worked upon separate cams, so that each follows the path by which its purpose is best effected. There are several other advantages claimed for this reaper, to which we shall refer in our Smithfield report.

Among other novelties we may refer to a very simple and apparently efficient hand drill, as much a garden as a farm tool, the invention of a working man, and brought out in a cheap form by Mr. Le Butt, agricultural machine makers, of Bury. To this also we shall refer next week. All the leading agricultural machine makers are exhibitors.

The attendance has been satisfactory—1500 independently of subscribers on Monday, in place of 1000 in 1866; and 9144 on Tuesday, against 5729 last year.

SCOTTISH CHAMBER OF AGRICULTURE: *Agricultural Leases* (*Nov.* 13).—The PRESIDENT said—The subject of discussion to-day is Covenants and Leases; being a continuation of the discussion which took place at Glasgow last July, when Mr. Goodlet and others read excellent papers upon the subject (p. 987). I think no one will deny that the granting of leases by the landlords in Scotland has been of very great benefit to its agriculture, and has also raised the rent of land to a higher level than it otherwise would have been: as a proof of which, we have only to compare the rent of land in Scotland with that of England, where a yearly tenure for the most part prevails, and the anomalous state of affairs in Ireland, where the population are full of discontent, and cry out loudly for tenant right. There is therefore no chance of that system being departed from in Scotland. As the best systems, however, may be in some respects faulty, I have no doubt great improvements may be effected in many of our Scotch covenants. One objection is the exhaustion which frequently takes place at the end of leases, in order that the tenant may recover his capital, and this exhaustion, sometimes carried so far as to be very hurtful to the tenant himself (even although he should leave his possession), causes a great loss of agricultural capital before the next tenant can bring back the lands to a profitable condition. No doubt where landlord and tenant have complete confidence in each other, and an early renewal of the lease is granted upon fair terms, all that is avoided; but how often do we see the reverse the case—the landlord and tenant suspicious of each other, and sometimes quarrelling and litigating about the way-going? In such cases, the tenant will undoubtedly exhaust the farm as much as he can. I hope you will give this your particular consideration, as, if a remedy could be found for this by valuation or otherwise, it would be of very great importance. The assignment of leases is also an important matter, upon which a variety of opinions prevail, and which might be discussed with advantage here. It is not to be wondered at that in this world of change a continual revision and alteration of leases should be necessary, in order to meet the requirements of the times; and no doubt many landlords have so altered them, and having chosen a tenant in whom they have confidence, leave the clauses as to cropping, and otherwise, very much to his own views, with the exception, perhaps, of the last four years of the lease. It is to be regretted, however, that on some estates (and especially those of game-preserving landlords) a different state of things exists, and clauses are still retained of a most arbitrary nature, and although it is often said at the taking of such leases that these clauses are not meant to be enforced, still they are held over the tenant *in terrorem*, and prevent his free and independent action. It is as much to the force of principle as to laws that we must look for a fair and liberal spirit in the dealing between the great possessors of property on the one hand, and those classes, on the other hand, upon whose industry, intelligence, and skill in the application of capital the country must always depend for turning the fruits of the soil to account for the wants of the population at large. Our duty is to further by every means in our power just and fair dealing between man and man, and

this Society is quite within its province when it raises the voice of remonstrance against all arbitrary and illiberal clauses in leases, which have a tendency to hinder the development of the agriculture of the country, or to damp the energies of its practical agriculturists.

Mr. GOODLET, Bolsham, after a few preliminary remarks, submitted, with the view of giving expression to the views of the Chamber on the subject, the following resolutions :—

"I. That, as respects cultivation, the fullest liberty should be given to the tenant, so as to give scope for the full development of the resources of the soil, due regard being had to prevent the farm from being kept and left in an exhausted condition, neither of these objects being attained by the system of fixed rotations usually prescribed.

"II. That, with the view of giving protection to the capital of the tenant, and of inducing increased application of capital to the soil, leases ought not to be of shorter duration than 19 years, and provision should be made on just and fair terms for their assignment.

"III. That clauses in leases providing for the preservation of game are incompatible with high farming, and ought to be abolished.

"IV. That the best arrangement as respects permanent improvements is, that such should be effected by the capital of the landlord, the tenant providing the floating capital; and that, as regards farm buildings, these should be handed over direct from the landlord to the entering tenant; and that the obligation on the out-going tenant for their maintenance in good order should not be transferred from him to the entering tenant, as is usually done; and that the system of dead inventories, where such practice obtains, should be discontinued."

What is meant by dead inventories is this:—When a man takes a farm the buildings are handed over to him, on inventory, at an estimated value, and on his removal from the farm, at the end of his 19 years' lease, he is bound to leave them at that value, or pay the difference, or decrease in the estimated value.

Mr. GEO. GLENDINNING, Hatton Mains, did not quite agree with all that Mr. Goodlet had said, and submitted what might form fair, just, and reasonable clauses in leases. He said—

"In framing sensible leases of land the parties have to consider—1st, the kind of subject; 2d, the objects for which it is to be let; 3d, the locality in which it is situated; 4th, the qualifications of the tenant and the value of land. 1st, Tenants of lands in the neighbourhood of large towns and railway stations, with facilities for selling crops and purchasing manures, should have full liberty to sell off these crops by bringing back a fair and full equivalent of manures in lieu of said produce sold. 2d, To land otherwise situated, not in the neighbourhood of large towns or railway stations, adapted for the raising of green crops, and where such crops require to be consumed on the lands, tenants would require to purchase and apply 30*s.* worth of the best known artificial manure per acre, over and above what such land produces, but one-fifth of all artificial food used in feeding stock should be considered as manure. Land unfit for green crop may either be plain fallow or may lie in pasture for at least 5 years, after which it may be lifted and made Oats, upon condition it got 2*l.* worth of the best artificial manures per acre, and be sown out again with said crop. For the other lands on such a farm under regular rotation the tenant should purchase and apply 30*s.* worth of the best known artificial manure per acre, over and above consuming the produce on the farm. 3d, Hill Land or Sheep Farms.—There are sometimes great mistakes committed here, by not having a proper clause in the lease, to the effect that 'heather should be burned every 10 years, and bent every 3 years,' as old heather is of no use for sheep, deer, or grouse; whereas a properly managed hill farm, under such clause, where 1-10th of the heather and 1-3d of the bent is burned every year, will keep about double the stock of what it will do if the heather is never burnt—that is to say, that portion of it which is composed of heather and bent—besides keeping the sheep in finer condition. 4th, The Qualifications of the Tenant, and the fair Value of the Farm.—There are no well-qualified tenants who thoroughly understand their business, but do all that I have stated in these conditions. According to my view, a properly qualified tenant should be preferred at the fair value of the land, and this the landlord could always ascertain by appointing a properly qualified person to value it prior to receiving offers, and the valuation should be made on the footing to get the land put and maintained in order, and leave it so at the end of the lease. Where a landlord has let his farm at a rent to enable the tenant to put it in order, then I say it is fair and just that that tenant ought not to be allowed to run out his farm at the end of the lease, and that more particularly since it takes double the amount to restore land to good condition to what any tenant can get from it by scourging it out. 6th, Tenants should get every freedom to exercise their talents to crop their lands to the best advantage, but they should be bound to have alternate green and white crops—that is to say, no two white crops should succeed one another, and Peas, Tares, Lint, and Turnip seed should not be considered as green crop. 7th, Permanent improvements, such as buildings, drainage, erecting or rebuilding fences, in my opinion, should all be executed by the landlord, the tenant paying the fair value of the land upon these being executed. No landlord should have any reference on these subjects, as he should appoint a properly qualified person to see what is necessary to be done over and above what the outgoing tenant is bound to do, and whatever this sum is to insert it in the lease, binding himself to expend it upon the various objects at the sight of any qualified person he may appoint. The only reference required is between the outgoing and incoming tenants, to settle whether the houses are in a tenantable and habitable condition, and according to his lease, and to settle the price of dung, Grass, seeds, &c. 8th, Fixed rotations have been objected to, but I am satisfied that no landlord should let his farm without having proper clauses to insure his land being properly farmed. No good tenant should object to them, as he would not farm otherwise, and in the case of a bad tenant these clauses are beneficial in protecting the landlord, and saving the tenant from ruin. I have known of cases where good tenants died, and their heirs not understanding farming, mismanaged the farms until they lost their means, and consequently had to leave them, the lands at the same time being 5*l.* every acre worse; whereas, had there been proper clauses, they could have been stopped at once, and thereby saved from losing 5*l.* per acre, and the landlord or incoming tenant from requiring to lay out other 5*l.* per acre to bring back the lands to the state they were in when the tenants died. From this it is evident proper clauses would have been of great advantage both to the landlord and to the heirs of the tenants. 9th, Game Clause.—I do not think tenants are unreasonable in asking fair damages if there is a superabundance of game, as this is quite incompatible with good farming. The great evil of game consists in their eating the crops as they grow up, the consequence being that they do about ten times more damage than the value they are to a proprietor, or he ever derives from them. For example, when hares and rabbits get among Turnips, they go and break the bulbs throughout the whole field, so that when frost comes, every one so broken is lost. If hares and rabbits would keep out of a Turnip field till October, I would willingly agree to give them as many as they could eat for a tenth of the sum if they could be fenced off in the same way as we net sheep on them. Under these circumstances, I think it but reasonable that, whatever the fair damage is, the Sheriffs of the respective counties should have power to award it. The average value of game on land worth 3*l.* per acre is only about 6*d.* per acre, or about 120th part of the value of the land. Whenever proprietors do not require their shootings, I would advise them to give the first offer of the game to their tenants. I have found great good arising from such an arrangement, as a tenant can manage this to the best advantage for all parties. 10th, Of Assignees of Sub-tenants.—To these there can be no objections, the landlord having full power to get the conditions of the lease properly fulfilled; and this clearly implies that a sensible lease should have proper and particular conditions only in accordance with the nature of the arrangements mutually to be implemented by landlord and tenant. If this was attended to, all unnecessary clauses would be dispensed with. 11th, In conclusion, Mr. Chairman, I have endeavoured to show that there are four different kinds of farms which require different kinds of clauses, so that it just requires sensible men to make out these clauses; but you will, I think, see that no general conditions or clauses would suit these individual cases.

Mr. DICKSON, Saughton Mains, said—I had not an opportunity of hearing the discussion at the former meeting of the Chamber, but was favoured by the secretary with a printed copy of the remarks made by the speakers at that meeting. And it appears to me that in discussing such a subject we should consider the interests of both parties to the contract.

I am aware that in many leases there are clauses copied from old leases in regard to payment of kain, carriages, multures, &c., which, however applicable to the state of the country 100 years ago, are not required now; and it is most desirable to have a short, clear, and distinct agreement; at the same time, it is more difficult to make a very short lease which will embrace all the conditions necessary to protect the interests of both contracting parties than some may suppose who have not tried it. There are stipulations as to cropping and manuring the farm, payment of rent, upholding of buildings and fences, terms of outgoing and incoming tenants, fire insurance, Grass seeds sown with last crop, the prevention of assignees and sub-tenants, steelbow straw, or the non-sale of fodder without bringing back manure, right of game, and other clauses which arise out of the peculiar circumstances of each case, which I hold are all necessary, and require to be explicitly stated. As to cropping, I think it desirable that the cropping clause should be put in a negative form—that is to say, that the tenant shall not have less than a certain extent of his land in green crop and Grass, and not more than a certain extent under white crop during every year of his lease, and at the expiry he shall leave the same under a certain fixed rotation, as the case may be. This, in my opinion, is better than fixing any specific rotation during the lease, as it gives the tenant an opportunity of exercising his judgment in varying the rotation without prejudice to the interests of the landlord. No doubt the practice on most estates is, not to interfere with the mode in which a tenant crops his farm, provided he is doing justice to the land on the whole, but it is better that the terms of the lease should be so constructed that the tenant can always fulfil the conditions, notwithstanding an adverse season may cause the failure of Grass seeds, or some other circumstance making it desirable for him to alter the rotation. In regard to payment of rent, on grain farms with Martinmas entry, the usual terms are Martinmas and Whit Sunday, after reaping the crop; and on grazing farms, with a Whit Sunday entry, Martinmas and Whit Sunday after entry, and I do not consider long-deferred payment of rents beneficial, on the whole, for either proprietor, tenant, or the general good of the country, because it holds out an inducement for tenants to take land with insufficient capital, which too frequently ends in loss and disappointment. In regard to the clauses excluding assignees and sub-tenants, I must say I differ from the opinions expressed by the gentlemen who have preceded me in the discussion, as I consider this a fair and reasonable clause to be inserted in every lease. On all well-managed estates, it is usual for the proprietor, or those acting for him, to select a tenant who has not only sufficient capital and skill for the undertaking, but also that he is of respectable character and would be a desirable resident on the estate. I have often known tenants selected at lower rents than were offered by others on this account, and seeing this is the case, would it be fair to a landlord that assignees, or a trustee on a bankrupt estate, should have power to sublet the farm (for it may be the greater part of 19 years) to the most disagreeable tenant in the district? I cannot see that it would be so, as in such a case the duty of a trustee would be to let the farm to the man who would give him the largest sum for the lease, provided he had sufficient capital to guarantee his fulfilling the terms of the contract, irrespective of his other qualifications. During the last 20 years I have had brought under my consideration, by remits from the Court, and in arbitrations, many cases of differences between landlords and tenants regarding non-fulfilment of conditions of contract, which have shown me the expediency of having everything stated in the lease as distinctly as possible. It is not for a good tenant that restrictive clauses are at all required, but in drawing a lease it is necessary to provide against the contingency of a bad tenant succeeding to it.

Mr. BETHUNE, Blebo, said, though they had heard some valuable remarks in the course of the discussion, yet it appeared to him that there was something which had not been brought out—he could not conceive why there should be in Scotland such a constant incoming and outgoing of tenants.

Looking to the character of the men who farm the land in Scotland, he thought there should be greater permanency among tenants than at present prevails. Arthur Young had remarked, "Give a man good security and he will turn a desert into a garden; give a man a nine years' lease of a garden, and he will turn it into a desert." He thoroughly agreed with the first part of the remark, and was confident there should be no difficulty in this matter in Scotland, which was full of intelligent landlords and tenants. The only evil in the world, he held, was ignorance, and the time would come when the world would find this out. As a remedy for the evils he saw to exist, he proposed tenant right, which had worked so well in many parts of England, and ought to be introduced into our 19 years' leases in Scotland. A gentleman in Glasgow had said it would be a better plan to have a renewal of the lease agreed upon several years before it expired. That is highly desirable, and should be acted upon by considerate landlords and tenants; but something (if necessary, by legislative enactment) should exist, that if for various reasons at the end of a nineteen years' lease the tenant was not to get a renewal, a form of tenant-right should exist that would reward the labours of a good farmer, and the bad would receive nothing. If the law of hypothec was done away with—assuming, as I do, that tenants would be willing to give fair value for the lands—I believe that if such a principle was properly carried out universally, few changes in the occupancy of land would occur

Mr. GEORGE HOPE, Fenton Barns, remarked that he could scarcely understand what Mr. Glendinning meant by all his proposals.

I had hoped also that Mr. Dickson and other gentlemen would have told us what they considered a model lease. I trust they will at least agree with what Mr. Goodlet said in his exhaustive paper, that leases should be short—though that will not be easy, if all the clauses alluded to are to be inserted. When I was a lad I happened to be present when a lawyer and factor, who knew his business, tendered the scroll of the lease of a farm to the new tenant, one of the shrewdest farmers in East Lothian. The tenant remarked, "If the rent is all right, I never trouble myself about the other clauses." But on taking the paper into his hand to see the rent was all right, "Why," said he, with some surprise, "this is the shortest lease I ever saw. I must look into this. If there had been a dozen pages I would have signed it without hesitation, as it would have contradicted itself somewhere." The tenant I allude to was fond of a law plea, and the lawyer who drew the lease knew this, and was resolved he should not have a chance in this case. In regard to the actual conditions, we admit that landlords have a perfect right to dictate their own terms (unless they are dishonest to others), however much the stipulations insisted on may retard the progress of practical agriculture. There can be no doubt, when the tenant is bound hand and foot to a fixed rotation, all improvement is prevented, and the tenant's skill and experience are rendered comparatively worthless. Anything that prevents a tenant making money must ultimately prevent him paying such an increased rent as he would otherwise do. No one, then, can have a greater interest than the landlord in calling out the energies of the tenant, and the greater his success the greater is the ultimate benefit to the landlord. Of course, some regulations are necessary to keep the farm in shape, and to prevent deterioration of the land, so far as that can be done by stipulations on paper. I think the cropping clause is best met by providing that in no one year shall more than one-half of the farm be in white grain crop, and that a fixed proportion shall always be in sown Grass for pasture or hay, varied according to the soil and situation of the farm. I know no better plan of cleaning and improving land than by repeated green crops, such as taking Potatos after Turnips, or Potatos after two or three years' pasture, and in those cases when Wheat is taken after the Potatos, Barley might follow the Wheat with great advantage. Mr. Bass says, and I believe says truly, that Barley grown after a grain crop is worth several shillings per quarter more than when grown after Turnips, Grass, or other green crop. The inexhaustible supply of artificial manures and feeding cakes which we now have, places the farmers of the present day under totally different circumstances from what they were when I commenced farming. The constant and steady rise in the value of land shows this, and I therefore maintain that the old and restrictive clauses against growing this or selling the other thing are simply prohibitions which landlords voluntarily impose upon themselves, preventing them from receiving the rents they might do. I don't know a single farm beyond a few miles from Edinburgh or Glasgow where the tenants can sell straw, and yet for the last two years straw has been selling at a halfpenny per pound and upwards, or from three to four times its value, to convert into manure. You know it is often said to tenants that restrictions and prohibitions will not be enforced so long as the rent is paid, but that is the worst thing that can be said of them. No upright or honourable man will sign any condition whatever unless he intends to fulfil it, and these conditions are therefore a boon to the unscrupulous. On large estates there is generally one fixed and stereotyped set of conditions, which tenants must either agree to or want the farm. These conditions may be good, or they may not, only it is wonderful to me if they can be applied to all farms. I would say to proposing tenants, show the lease to your own lawyer, and understand exactly what you are agreeing to. No tenant should sign any such important document as a lease without having it revised by his own law agent. In regard to bankruptcy rendering the lease null and void, I consider this a most unfair clause. Though it is frequently inserted, the landlord's natural sense of justice sometimes prevents him taking advantage of it, but not always. I consider a landlord justified in retaining the power to resume possession on paying the value to creditors of all improvements made by the tenants, but not otherwise. A case occurred a twelvemonth ago, in this county of Edinburgh, where the tenant paid for straw, dung, &c., and agreed to the stipulation that they should become the property of the landlord in the event of bankruptcy. The tenant failed before being two years in possession, and thus his creditors were legally defrauded of nearly 1000*l.* No one pretending to common honesty, or even ordinary self-respect, should for a moment listen to the proposal of such clauses. Mr. Bethune, of Blebo, in the excellent remarks he made at our last meeting, alluded to the one drawback that security of tenure by leases gave to the tenant, viz., the inducement to exhaust and impoverish the soil towards its close, and he asked if no method could be adopted whereby the farmer might receive payment for whatever improvements he may have carried on? Mr. Leslie, from Perthshire, replied that the best way to obviate this was by the landlord, if satisfied with the tenant, renewing his lease five years before its expiry. Mr. Leslie's plan is unobjectionable so far as the tenant is concerned, but many landlords naturally object to renewing a lease so long before the conclusion of the term agreed on. I think tenants often hurt themselves as much as they do the land by failing to maintain the fertility of their farms until the end of their lease—in fact, I believe it pays a tenant to have his last crop the best during the lease, though a farm in first-rate order is a great temptation to a man with limited capital to offer a higher rent than the sitting tenant might be willing to give. Still it is an undoubted fact that on most farms the expenditure is seriously curtailed towards the close of the lease. In order to mitigate this to some extent, I would suggest for consideration the propriety of the landlord or incoming tenant paying one-half of the bill for artificial manures, and the whole of the cost for feeding cakes and corn incurred during the last year of the lease, provided these did not exceed the average of the three previous years. I have no doubt myself of its being the interest of the landlord and the incoming tenant to agree to this, and it is only what is customary in Lincolnshire on yearly agreements, when notice to quit is given. I forbear to enter into the game question, and the folly of any man agreeing to be eaten up without complaint or protest.

Mr. CURROR, with the permission of the Chamber, read the following letter from Mr. Leslie, The Thorn, Blairgowrie:—

"You desire me to supplement the few remarks I uttered, when I accidentally happened to be present at the meeting of the Scottish Chamber of Agriculture on July 31st last, but really I have nothing of great moment to add. The preservation of the fertility of the farm at the close of the lease was the point adverted to; and this involves the protection of the interests at once of the landlord and tenant, and, to no inconsiderable extent, the interests of the consumers. Some of the preceding speakers seemed to think that the object in view should be effected by the enactment of a species of tenant-

right. The interests involved are delicate and complicated, and I doubt extremely, and continue to doubt, whether any legislative enactment could meet this case, and if it would, whether such a measure could be got from Parliament. And the idea I meant to indicate was, that the evil could be met by the voluntary and spontaneous arrangement of the landlord and tenant. I go on the supposition that the landlord is satisfied with the capital and character and skill of the tenant, and that the tenant is satisfied with his position as tenant, and has reason to believe that, by the renewal or prolongation of his lease, he would reap the fair reward of his industry. If one or other of the parties is dissatisfied, they must part. Perhaps in a majority of cases the position of the farmer is this,—when he enters on the lease of a farm, the land is run out, or, from other neglect, it is in a state of sterility. During the first five years there is a great outlay, and no proportionable return. In not a few cases, and in many kinds of soil, it may require two rotations, say ten to twelve years, to bring up the land to that measure of fertility which it will sustain. This point is no sooner reached than, in two or three years after the last rotation commences, the tenant proceeds to consider how he shall best and most effectually pay himself for all his great previous outlays. He is not sure of getting a renewal of his lease. Not a word of hope or encouragement in that direction is breathed to him. On a careless hope he can't adventure, and he proceeds to devise means whereby he may pay himself. The temptation is irresistible, and it is a mere delusion to fancy that the provisions of a lease, however stringent and minute, can prevent him taking measures to effect his objects within the limits that can really be useful to himself. A regiment of detectives could not prevent this. The land may be deteriorated by an infinite variety of means. Towards the close of the lease, then, the tenant, hopeless of, or quite uncertain about, a renewal of his lease, proceeds vigorously to extract the money from the soil which he has invested in it. Who can blame him? Sometimes he proceeds to this work so soon and so vehemently as to render the proceeds ultimately not so profitable to him as a more discreet management would have resulted in. His greed has overshot the mark. But, in any event, the process leads to the impoverishment and deterioration of the farm, when the close of the lease arrives. If it is let to a new tenant, the landlord suffers. An intelligent and competent tenant will not give the same rent for the impoverished land that he would have done five years before, ere the work of deterioration had commenced. If it is re-let to the old tenant, he has to do over again what he had done before—to raise up to its proper power of productiveness the worn-out and exhausted soil. And every one knows that it takes more time to fertilise soil than to sterilise it. All parties immediately interested suffer by this process, and, what is more important, under this kind of absurd regimen there is less food grown for the people, and that during a period of from five to ten years. And thus the nation suffers. I need say nothing of the anxieties of the farmer as his lease draws to a close, of the dangers of a displeniishing sale, or of the risks of a removal to a new farm in a different district, with a different climate. These anxieties cannot be favourable to the due prosecution of his business. My view of the matter, then, is, that at the commencement of the last rotation, say five years before the termination of the lease, there should be an interview between the landlord and the tenant. The whole circumstances of the case should be calmly and reasonably pondered and considered, and a renewal of the lease given to commence at the close of the existing lease. This would meet, as far as possible, the evils alluded to, and it is a remedy which would apply to a very large body, I hope, of Scotch proprietors and Scotch tenants. Of course it is evident it does not meet every case, but it meets a large class of cases, and I felt it a desideratum that at the meeting of the 31st July last, this view which I presume to indicate had not been more prominently brought forward and pressed on the consideration of all parties interested in raising and maintaining the productiveness of the soil. There may be estates where the entail is so peculiar that what I suggest could not be done. I do not know, but even in such cases there might be such an honourable understanding and arrangement as to a great extent would secure the object aimed at. I believe on the large estates of the Earl of Aberdeen the system I have presumed to suggest has been adopted with great benefit to the tenantry and their noble proprietor. Permit me only to add that I have no personal experience of the grievance referred to, and am not induced by selfish considerations to forward you these few remarks. I lately received a renewal of the lease of my farm from my landlord, although the existing lease only expires in 1871. And I gladly acknowledge that this renewal enables me, with hope and energy, to prosecute the business of my farm."

Mr. DICKSON remarked that the only point in which he differed with Mr. Goodlet's views was in regard to the assignment of leases. He did not see, unless the landlord's consent was obtained, how they could proceed with any assignment. If they could show him a way by which the interests of landlords could be protected, he had not the slightest objection to the assignment of leases.

Mr. GOODLET wished it to be understood that he meant that the proprietor of the land should not have the power of saying "I won't sanction the assignment," but that he should merely have the power of saying, "If a transfer is to take place, I must be satisfied with the tenant you produce."

Mr. BETHUNE held that if a tenant laid out money on a farm, and found it inconvenient to carry it on, he ought to have power to assign the lease, and if he got a tenant satisfactory to his landlord, and who became bound to fulfil the obligations of the lease, the landlord should be satisfied. At the same time, he did not see how a lease could be assigned to another without the consent and approval of the proprietor.

Mr. BARCLAY thought they were stretching Mr. Goodlet's resolution further than he intended, as it simply said it would be extremely desirable that leases should not be shorter than 19 years, and that there should be provision for their assignment. He knew gentlemen who had expended large sums in the permanent improvement of their farms, and who held them under restrictions of assignments. Should anything occur to require their absence from the country or their farms, their whole capital was at the disposal of the landlord. He agreed very much with Mr. Hope in thinking the landlord should have a preferential right to take up the lease at the valuation of the improvements—that is, if the landlord objected to the assignee, he should have the power of taking the farm at a fair valuation of the improvements. The resolution only affirmed that it would be extremely desirable that provision should be made for the assignment of leases, and that they should not be shorter than 19 years, in which he thought all ought to agree.

Mr. DICKSON was anxious that the Chamber should adopt resolutions that would be favourably received by the landlords as well as by the tenants.

Colonel GRAHAM said he knew a case where the tenant of a noble duke in Dumfriesshire died; the widow was unable to carry on the farm for the remainder of the lease of five or six years, and his Grace—as they were all aware—being a liberal landlord, he at once said, "I have no objections to the tenant you propose." But he was consulted, and he let the widow benefit by the lease.

Mr. GOODLET said he would merely make an alteration on his resolution, with the view of meeting the opinions of those gentleman who had objected to the resolution. He thought the words which were used were perfectly fair words, but he would add one or two more in order to obtain a unanimous decision upon the subject. He would add to the resolution, "And that provision be made on just and fair terms for their assignation," and he moved the adoption of the resolution with that addition.

Colonel GRAHAM, of Mossknowe, said he was afraid that these "just and fair terms" would lead into the Court of Session—that the landlord and tenant would not agree about these just and fair terms, and their disagreement would lead to the raising of a law plea.

Mr. PATTERSON moved that no reference to assignation should be made in the resolution.

The Chamber then divided, when 13 voted for the amendment, and 23 for the motion proposed by Mr. Goodlet. The resolution proposed was accordingly carried.

Mr. GOODLET then proposed the adoption of the second resolution, which was agreed to without discussion.

Mr. GOODLET next proposed the adoption of the third resolution.

Mr. DICKSON said that to adopt these resolutions would cause the Chamber to be laughed at. They were very one-sided views, and when the Chamber only took a one-sided view of subjects its opinions became of very little value. He would have desired very much if, in place of carrying these clauses by a majority, that they should have them reconsidered, and he accordingly proposed the postponement of the discussion till next meeting.

Mr. SADLER, Norton Mains, seconded the amendment just proposed.

After some conversation, Mr. CLAY proposed that the words "the preservation of hares and rabbits" should be substituted for "the preservation of game," as they were incompatible with high farming.

Mr. GLENDINNING seconded Mr. Clay's proposal.

The Chamber again divided, when 17 voted for Mr. Clay's amendment, and nine for Mr. Goodlet's motion. The amendment was accordingly adopted.

Mr. GOODLET then proposed the adoption of the fourth resolution, remarking that it would probably be unanimously agreed to.

Mr. GLENDINNING objected *in toto* to the landlord having anything to do with the arrangements between the outgoing and incoming tenant.

Mr. DICKSON also objected to the resolution because it involved the landlord with two separate references.

Mr. BARCLAY explained that Mr. Goodlet's resolution struck at a practice prevalent in many places of the landlord—instead of settling with the outgoing tenant as to the condition of the farm buildings—handing over the obligation he held on the outgoing to the incoming tenant, as sufficient implement of his bargain with the incoming tenant to give him the houses in good order and condition. This was the cause of much dispute and bad feeling between outgoing and incoming tenants, besides being unfair and unjust to both parties.

After some remarks from Mr. WALTER WILSON, the Chamber agreed to the resolution as proposed by Mr. Goodlet.

Mr. GLENDINNING dissented from that part of the resolution in which it was stated that landlords should take houses and fences off the outgoing tenant's hands and give them over to the incoming tenant, as he was strongly of opinion that the landlord should only allow what was right for putting the houses and fences in proper condition, and that could be better done, without any reference, by an explicit arrangement between the landlord and the incoming tenant.

This concluded the business before the Chamber, and the President having proposed a vote of thanks to the directors of the Highland Society for the use of the hall, and a similar compliment having been paid to the President for his conduct in the chair, the meeting separated.

The Poultry Yard.

THE SHOW AT BIRMINGHAM.

"LE ROI est mort. Vive le Roi!" The meeting of 1867 is over, and has been a great success: may we live to say the same of that of 1868. Two thousand six hundred and seventy-six pens of choice birds met at Bingley Hall a week since, in keen competition. The great prices fetched by many of the prize pens will be the greatest proof of their quality, and the numbers that changed owners during the week of exhibition are good evidence that the poultry stock of the country is rising in general estimation.

Bingley Hall, familiar to many—indeed to most of our readers—is a building specially adapted for the advantageous display of stock. The number of pens of fowls of different varieties was 1915. Eight classes brought more than 300 pens to try for the prizes allotted to the Dorking breeds, and those that won may well be proud of their honours. Not many years since the Dorkings had to encounter severe opposition, as birds of delicate constitution suited only to the south of England. Now we find that in six classes for coloured Dorkings every 1st prize goes north, and in the two classes for whites the 1st prizes go due east. In the class for adult cocks, not Silver Greys, Mr. J. White, of Warlaby, took 1st; Mr. Statter, of Manchester, 2d; Messrs. Gunson & Jefferson, 3d; and Mrs. Arkwright, 4th. The keenness of the competition will be understood when we say that the Duke of Newcastle, A. Potts, Esq., Admiral Hornby, Dr. Campbell, and Mr. Parlett, had to content themselves with 5th and 6th prizes and commendations. The development of frame and symmetry in these adult birds must strike every one who is conversant with poultry. The unnoticed birds this year would have taken high honours a few years since; but all is so changed, Dorkings have advanced with the age, and the pen that would formerly have secured a Cup receives a bare Commendation. The class for Dorking cockerels was worthily filled, and its best bird took the 1st prize and Silver Cup up to the north for Mr. J. Fox, of St. Bees; Dr. Campbell took 2d, with a bird likely to be heard of at future shows; and Mr. Lingwood, of Needham Market, was 3d, with a chicken that gave evidence that his owner's success in breeding is not confined to white Dorkings alone. Mr. Fox, of St. Bees, was again 1st in the class for hens, followed by Mr. Statter, Colonel Lane, Admiral Hornby, Messrs. Potts, Beldon, and Gunson, Mrs. Arkwright, and the Duke of Newcastle. The birds shown in this class were of unusual merit, and the competition was very close. In looking at them every one must have been struck with the "meatiness" of their appearance, and in spite of the many fresh introductions the Dorkings are likely to hold their own among us. Class 4 for Dorking pullets was well filled by pullets that bid fair at maturity to outshine the hens above mentioned. The Hon. H. Fitzwilliam showed a pair, which won for him 1st prize, and following up his victory by taking 2d as well; this was a great success for one yard. He was followed by Mrs. Arkwright for 3d, and then again appeared on the prize list by taking 4th. Admiral Hornby and the Duke of Newcastle took the remaining two prizes, and 16 pens after them received High Commendation and Commendation at the hands of the Judges, testifying by their merit to the sharpness of the contest and the excellence of the winners. Classes 5 and 6, allotted to the Silver Greys—the fancy Dorkings—were centres of attraction for those amateurs who prefer breeding to feather. The pullets and hens leave nothing to wish for, but it is difficult, very difficult, to rear cocks that remain Silver Greys all their lives. Like human beings, they will get grey as they grow older. A very well-known exhibitor in these classes, Mr. Faulkner, took 1st for a very fine cock chicken, followed by Mr. Smalley, Mr. Shaw, and Lady Bagot. The Rev. J. F. Newton, Miss Milward, and Mr. Statter took the prizes for hens and pullets in the order we have here placed them. Seven other exhibitors were mentioned for commendation, and this class closed those for coloured Dorkings. It is not, we think, saying too much when we add that the 300 pens in these classes formed a worthy exhibition in themselves. An exhibitor of very many years' standing, whose name hitherto might also have been allowed to remain set up in type from one year to another as a Dorking winner, lost his position at this meeting through a mistake in penning his birds; we allude to Admiral Hornby, whose adults and chickens were wrongly placed, and so disqualified.

White Dorkings improve in quality, but do not increase in favour—nor do they make large classes, the improvement in size, form, and constitution that is perceptible in them should win them more admirers. Mr. H. Lingwood took 1st in each class for them, followed by Mr. J. Robinson, Mrs. Syson, and Mr. Savile.

Twelve classes of Cochins of all varieties, ages, and shades of colour, gave the judges a hard task. Mrs. White, of Sheffield, won 1st prize for a very fine adult cock bird; but the Cup went with the 1st prize in the chicken class to Mr. Taylor, of Manchester; Colonel Wortley and Mr. Cattell took seconds, Messrs. Tomlinson and Sichel thirds, the Hon. Miss Pennant took 4th for adult and 5th for chicken, while High Commendations and Commendations were numerous. For buff hens the 1st placed was Mr. Mapplebeck, a very successful breeder, followed for 2d by Mr. Bishop, and taking the 3d himself; Messrs. Taylor and Tomlinson took 4th and 5th. The cinnamon and buff pullets form a large class of very beautiful birds. The Hon. Miss Pennant took 1st prize, followed by Messrs. Taylor, Lingwood, Mapplebeck, and White, for prizes and nine Highly Commended and Commended pens. The unnoticed birds here were very good, and one can fancy the judges wishing for more prizes, although the allowance must be considered as most liberal.

In the brown and partridge-feathered classes the winner's name, for both hens and cockerel, is familiar to all breeders. Mr. E. Tudman taking 1st in each class, and receiving besides the Amateurs Sweepstakes. Mr. White, of Sheffield, took 1st for adult cocks, and Mr. Rodbard for pullets. The 1st prize and Mr. Taylor's extra prize for white Cochin cocks went to Mr. R. Smalley; Mr. W. Dawson taking 1st for chickens, Mr. Worthington for hens, and the Rev. F. Taylor for pullets. The average quality of the birds in these classes shows much improvement. The Brahmas mustered in sufficient numbers and of a quality high enough to show that they have lived down the scandal that gave them a bar sinister on escutcheon. More than 100 pens came to compete, and eight 1st prizes were scattered over the kingdom; Colonel Lane, Mr. Boyle (Dublin), Messrs. Dowsett, Pares, and Crook dividing them.

Malays call for little notice. They are not popular, and one almost wonders that two classes are still allotted to them. The Rev. A. G. Brooke and the Rev. G. Hustler took 1st respectively for adults and chickens. Prominent among the imported breeds are the Crèvecœurs, and they will make good and even improve their position. Colonel Wortley took both 1st prizes, followed by Mr. Zurhorst (Dublin) and Mr. Blinkhorn. Mr. Head, of Whitemoor, took 1st for an excellent Houdan cock. These birds are growing in public estimation, from the strength of their constitution and their many good qualities. La Flèche do not gain ground, and there seems some difficulty in acclimatising them. The old favourites, the Spanish, mustered in good force in all their classes. Mr. Cole took 1st for adult, and Miss Biggar 1st and Cup for the young cock. The Hon. Miss Pennant took 1st in both classes for hens and pullets. We must defer till next week our notice of the remaining classes, when we hope to be able to give an account of the sale, and the weights of some of the heavier birds.

CURIOUS OBSERVATIONS.

A Remarkable Egg.—On the 1st of March, 1852, I took from the nest a hen's egg of so singular an appearance, from its extraordinary elongation, that I was induced to examine the contents by breaking the shell at both ends. I then blew out the yolk, and with it a second egg of the size of a blackbird's egg. The shells of both were quite hard and perfect, and there was a yolk in both. I have since witnessed a similar case of an egg within an egg at a friend's, who was led to make the same experiment upon relating to him the issue in my own case. I have in two cases this year

seen egg-shells perfectly sound in appearance, but having nothing inside. *L. S.*

In Artificial Hatching, about 18 hours previous to the expiry of the usual time allowed for the perfecting of the process, I have removed the top part of the shell carefully without injuring the thin skin under, or rather inside the shell, to enable me to see how they prepare to break through after they have had heat enough to bring them to the state fitted for it, and have seen them tear open this skin for 12 hours before commencing to pick themselves out. The term picking is appropriate to the action, for after they have torn the skin they push that little horn-like point against the shell until a crack appears like a small cross or star, opening upwards. They then gradually push up bit by bit till the shell appears to have a ring an eighth of an inch wide, about one inch from the top of the egg, or two-thirds at the thickest part of the egg. They then open the claws of the feet (the feet are generally lying close to the opening), grasp the side of the shell, and lift themselves up to push off the top of the egg, and save farther cutting. I have seen them, when not strong enough for this effort, to repeat the cutting a little farther. It surprised me to see them evince such an amount of strength in so cramped a position. They seem, in the manner they drop out of the shell, as if their heads overbalanced them, for they are not able for some hours to hold it up, and I have no doubt such is a peculiarly useful arrangement, for as soon as the chicken can clasp the shell it balances over. But, unless for experiment, it is a bad practice to be looking at the eggs while they are being hatched. The heat should be carefully kept up to the full temperature for the last 36 hours, and as close as possible. The last is the most important, as we see by the hen sitting closer at the last than at any other time. It is really wonderful to observe the various changes of form and ramifications of the veins from the appearance of the first speck of blood until the heart obtains to a size large enough to admit of the naked eye observing the opening and shutting of the valves of the veins, and the blood passing through. About 10 days after the heat has been applied is the best time to break an egg to observe this process, in two days more the ribs close over and obscure the light. In small birds that I have hatched by artificial means, such as thrushes, I have noticed they differ in the manner of breaking away their shells; not being so far advanced as chickens they have more room in the egg, and break their way out; having the head free they throw it up to the top of the shell, and break out a much larger piece in proportion to their relative sizes. *D.*

Remarkable Instinct of the Hen.—A hen that was sitting, and whose broods I expected would come out in 24 hours, I observed to come off her nest in a peculiar manner, and was curious in watching her; she went about 10 yards from her nest, and then dropped an egg from under her wing, which, as soon as it fell on the ground, exploded with a loud report, throwing the rotten part of the egg in all directions. She looked up as if to explain "that would not have been pleasant for my chickens." I had previously seen turkeys carry the rotten eggs from their nests in their beaks. *L. S.*

FOOD: *Cor.* Fat, as an ingredient in the general diet for poultry, is decidedly injurious to their constitutions, and, long continued, renders them very sickly. Animal food they certainly require, but it should be given judiciously. In a wild state birds know how to help themselves. Grain can never injure them, but too much soft food will. I recollect a batch of very fine white Aylesbury ducks having all died off one by one, being generally found floating on their pond. They had been overfed with sopped bread, and the discovery was made in consequence of finding on another pond gold fish destroyed by being similarly fed.

Farm Memoranda.

LAMMERMUIR SHEEP FARM: *Nov.* 28.—We are at present enjoying remarkably fine weather, considering the time of year. So dry, in fact, that the want of water for threshing is generally felt, and the lack of moisture renders the ploughing of old lea land a stiff and laborious operation. Its advantages, on the other hand, are many, principal of which are that the sheep stock always thrive best with a dry fleece on their back; and this, at the season when the tups are out, tells favourably on the produce of lambs. It also economises winter keep, as store cattle have still a good out-rake, and every man acquainted with stock knows that sheep eat fewer Turnips in good weather. It also materially facilitates the general progress of winter farm-work, especially where a large amount of cartage of lime and drain tiles has to be overtaken. Our district roads are so bad that cartage is usually summer work, but the fine weather since harvest has enabled us to overtake a considerable amount of extra lime driving. That this part of the reclamation of land is in our locality no small encounter will readily be understood when we mention that it requires a pair of horses 11 hours' work to bring 17 cwt. of lime from the East Lothian kilns. Five such cart-loads per acre are sufficient when breaking up land out of old pasture; more may be required where land has been regularly and long under crop. The lime we applied on one field in the Turnip drill when the plants were small. The spreading should be after the Turnips are thinned, and not before, as the operation has a tendency to rub the lime into the centre of the drill, thus interfering with its speedy and thorough incorporation with the soil. It may be thought rough usage to the young Turnip plants, but it is really wonderful to see how little damage is done at the time, and how perceptibly they benefit by it afterwards. It is quite common to see the plants which are half buried by the lime heap, show a dark green colour and healthy vigorous growth. The heaps of lime when first laid down should be covered with a shovelful or two of earth, as this both hastens the slaking process and renders it more complete. This system of application is, we think, specially adapted to land which has been under regular crop; but in regard to land which has been recently reclaimed from the natural pasture, we consider the lime should be applied to, and incorporated with, the soil previously to the Turnip crop, as it is of the first importance to put the Grass sod and vegetable matter of the old pasture under the action of the lime as speedily as possible. Land which has been broken up from old pasture without lime can never be so well limed again; and if this process of reduction and incorporation be in an advanced stage previous to sowing, so much more will the Turnip crop benefit; and the soil will be so thoroughly reduced and decayed after the Turnip crop has been removed, that a good take of Grass seeds may be expected. The benefit and good results of lime are apparent for 20 or 25 years after application. How it would act upon pasture land without ploughing we have little experience, but a small portion of old lea land, upon the surface of which lime was spread three months ago, is regularly grazed, and seems to be specially and particularly relished by the cows, which are at present turned out during the day. The harvest was got over in a most satisfactory manner, the bulk of the grain being cut in one week, and stacked the next. A slight loss occurred from shaking—in fact, during the week in which the most of the cutting was performed the wind continued high, being even occasionally for a short time at the shaking pitch. This urged us to make all speed with the reaping, and did immense service in bringing the stooks speedily into condition for the stack. We have a great bulk of straw, but there are general complaints of the yield. It is, however, a great matter to have plenty of straw for fodder, last year's scant having taught us the value of it. We had also most abundant crops of meadow hay, the season throughout being very favourable for Grass. The Turnip crop is not a large one, although considerably improved since harvest, and the improvement would have been greater had there been moisture along with the open weather of late. The abundance of hay, however, strengthens greatly our winter stores. Prices of all kinds of sheep stock have suffered an immense reduction these 18 months back; and it sounds very curious still to hear the public complaints of the high price of butcher's meat. In comparing wholesale and retail prices of mutton, it looks as if something like 2*d.* per lb. had gone astray. For some years back, everything in general farm management has been subservient to the maintenance of sheep, large breadths of land in the finest corn-growing counties (East Lothian no exception) having been sown out in Grass, under the stimulus of the high price of mutton and wool. Sheep had to be procured at whatever cost for these new grazings, and lambs and draught breeding stock found eager purchasers at unprecedented prices. The result has been over production and a collapse of prices, and this with a suddenness which, we venture to say, few people anticipated. The high price of grain this season will no doubt tend powerfully to restore the balance in corn-growing districts, but it is to increased consumption, arising from the re-animation of trade throughout the country, that we must look for any rise in prices. We have instanced the sowing down of arable land to Grass as one cause of the over-production of mutton. But even in pastoral districts the increase has been great, both from the reclamation of outfield and mountain land and also from the general displacement (wherever practicable) of Wedder sheep by flocks of breeding ewes. An over-abundance in the supply of lambs may induce some to revert to the former system of Wedder hirsels.

Dec. 2.—A fierce northerly gale, accompanied by bitter blasts of hail and snow, set in yesterday. To-day it continues to blow, and the frost so keen that ploughs were stopped. *J. S. B.*

KILLOUGHRAN, NEAR ENNISCORTHY. — At the dinner given by the Lord Mayor of Dublin on the occasion of the recent presentation to Mr. Edward Purdon, Dr. Charles A. Cameron, in responding to the toast of the Press, made the following reference to the agriculture of Ireland, and to the management of their estates:—One of the most eminent and recent writers on rural economy—M. de Lavergne—has stated that it would require the expenditure of many millions on the soil of Ireland in order to bring it into the same mechanical condition as that of England. Here then is a wide field for the application of Irish capital, and one which would give large and immediate returns. He (Dr. Cameron) knew of several instances where the money expended on drainage was actually wholly recovered in two years, so great was the reproductive power of the soil increased by that operation. Mr. Purdon was one of those unfortunately too small class of capitalists who looked upon a bank of earth as the most profitable bank for their money. He had lately the pleasure of paying a visit to the fine farm which Mr. Purdon and his brother cultivated at Killoughran, near Enniscorthy. The Messrs. Purdon commenced about seven years ago the reclamation of about 500 acres of waste land. An Oak forest had formerly existed on the land, and the copse which remained had been rendered nearly useless as a nursery for a future forest by cattle being allowed free access to it, crushing the young trees and devouring the tender shoots. The task which the Messrs. Purdon undertook was a most laborious and expensive one, similar, indeed, to that which so many of our countrymen have to accomplish ere they make a home for themselves in the gigantic forests of the Far West, or in the "bush" of the still more distant Australia. The roots—many of which were of enormous size—were raised, the ground well dug with spades, levelled, harrowed, drained wherever necessary, and finally well ploughed. These operations employed almost continuously from 70 to 80 hands, and were effected at a cost of about 17*l.* per Irish acre. Great employment was given in the neighbourhood; but more especially at times when the people were not busy at their ordinary agricultural employments, such as mowing and reaping. Up to the present above 300 acres had been perfectly reclaimed and brought into cultivation, and the work of improvement was being actively carried out on the unreclaimed portion. He had visited many good farms in England and Scotland, but had never seen a better arranged one than that at Killoughran. The fields were square, of great size, and enclosed with neat, well coped walls; most of them were as level as a bowling green, and unlike so many Irish farms, where a large portion of the area is occupied with fetid ditches, straggling banks, and useless corners, the whole fencing at Killoughran does not cover a quarter of an acre. One field contains 52 statute acres, an area nearly two and a-half times larger than that of Stephen's Green; others contain from 20 to 40 acres. When he visited this farm, about a fortnight ago, he saw a field of Turnips, 20 acres in extent, which at a distance resembled an immense green baize cloth covering the ground, so level and green did it appear. There was not a blank in the whole crop, and every root that he could see appeared to be very large and healthy. A farm better suited for steam cultivation than that of the Messrs. Purdon could not be found in Great Britain, and he trusted that Mr. Purdon and his steam plough might continue to exist and be useful long after the 200 acres of copse still existing at Killoughran shall have been rendered productive, and made "to blossom as the rose."

SOUTH LANCASHIRE.—This county is generally a land of small farms. It can grow far better green crops than the midland or southern counties, but cereals are, from our excessive rainfall, precarious, and would not be grown even to the limited extent which they are but for the demand for straw for fodder and for a change from green crops. The straw is usually worth as much as or more than the grain (6*d.* per stone).

Potatos are largely grown on the land lying between the Ribble and Ormskirk. This year's crops are large, and almost, if not wholly, free from disease—in fact, there is less disease there than usual this year. They grow very good crops on the arid-looking blown sand on the coast with the aid of town manure from Liverpool.

I enclose you a number of our Manchester *Punch*, which has an article on our Potato supply, which is in the main accurate. I do not know the writer.

[The following is an extract from the *Free Lance*, in which a Potato buyer travelling to Southport thus describes the country to his companion:—]

"Yes, it's a great Potato country here," said he, affably preparing for a five-mile chat, "and it's been a great help to Manchester, and has done a good deal to keep the prices down there. You see most of the Potatos for the Manchester market come from Yorkshire. Some come from Cheshire, down about Delamere Forest and thereabouts, and some from Scotland; but there's more Yorkshire [marsh-land near Goole] Potatos used than anything else. Well, this year they've had a very bad crop in Yorkshire; a dry year is always bad for them, and this season they've lost a good deal. They've come down to Manchester market and tried to get rid of their stuff at a fair profit, and they've been regularly undersold. We always could undersell them, but this year they couldn't make it out any way how we could sell them so cheap. It regularly staggered them. Somehow or other they've found it all out at last. The fact is, they never knew anything about this part, and there's an enormous number of Potatos grown here, and we could buy them and sell again in the Manchester market for 1*s.* 6*d.* or more a load less than the Yorkshire fellows, and a fine sight better Potatos, too. Now I hear that they are going to send buyers out all round here, and raise the prices on us. It's a downright bad job, for we shall never have the same pull again. As long as we sent them up by canal we were all right, but I suppose some one has been too greedy, and has been rushing them up in trucks, and that's the way they've got to know. I shall just buy up as much as ever I can, for two or three days will make all the difference. Pay cash? Of course I shall have to do so. We all do. If I could go on credit now I could make a tremendous stroke, because, you see, I know the country, and where to go without loss of time, and the Yorkshiremen don't. Yes, it's cash down in the Manchester market. Often enough they've had the money sent them before we've had the goods. That's one reason why the Yorkshire dealers would rather do business in the Manchester market than anywhere else. In London they want three months' credit. How do we buy the Potatos? Why, there's several ways. Sometimes we buy them off other dealers—that is, when it suits us to do so. Mostly, though, we buy them growing from the farmer, at so much an acre. Of course it wants a deal of experience to tell what so many acres will turn out, but we don't make many mistakes that way. There's plenty of old hands can tell to a rood how many loads 20 acres will produce. Sometimes a dealer will rent 50 or 60 acres from a farmer, the farmer to do all the horse work and such like. Of course that's a risky way of doing business, and you may burn your fingers with it if you don't mind. Bolton market I buy for principally, but I do a good business for Manchester too. We generally turn the money over as quick as we can. It's no use keeping stocks on hand, not because they won't stand, though off raw Moss land they are sometimes risky; only, with cash payments we must keep moving, even if it's at a loss. I'd rather do business down this line than any other way. It's my native place, for one thing, and the Potatos are better here than anywhere else just now. Ormskirk used to grow the best, but now Southport has the pull. Sometimes I get them out of Cheshire, but not often. There's two or three farms there I've done business with for many years now, and they keep sticking to me; but of course I have to raise the prices now and then. But I don't care to have much to do with them. If you don't fasten them to their bargain you're sure to have trouble with them some way. Certain to play you some nasty trick. Meanest beggars in all the world are Cheshire farmers. They're doing rare and well just now; farmers never were doing better. They go on grumbling as they always did. Well, here we are. Good bye. I shall have to stir myself to day. But I say, I'll tell you what; it'll be a worse thing for the people in Manchester than for us buyers that these Yorkshire fellows are getting so lively. There will be a big rise in Potatos before a week's over."

And so there was. The Yorksbiremen descended like a swarm of locusts on the land, and opened the eyes of the farmers to the advantages of unlimited competition. The consequence of this raid was an immediate and serious rise in prices in the Manchester market. At this moment the price of Potatos is dearer here than it has been for many years, and, for the reasons stated, the advance will be to a certain extent permanent.

Miscellaneous.

New Method of Feeding Sheep.—A grazier in the Pas de Calais, named Pentefort, has introduced the following novel and clever method of economising his green crops: he places on the ground a rack or fence across the whole field, and the sheep feed between the bars. When the animals have consumed all the herbage within their reach, the rack is moved forward, so as to give them a fresh supply of forage. Of course the rack is so made that the sheep cannot jump over it. It is evident that regularity in cropping and in the distribution of the manure, as well as great economy, must be the result of this novel system. *Journal of the Society of Arts.*

What is a Bargain?—(Lock *v.* Churchward, before Tiverton County Court.)—Plaintiff is a farmer at Dulverton, and defendant a wool-stapler at Buckfastleigh. Mr. Potbury, of Tiverton, is his agent in that district. Mr. Potbury saw plaintiff at Tiverton Michaelmas fair, in 1866, when plaintiff said he had some wool to sell, and asked 20 pence per pound for it. Mr. Potbury said his price was 19 pence. Plaintiff afterwards offered him the wool at a halfpenny per pound above that price, and Mr. Potbury wrote to his principal for instructions, who told him not to buy at more than the 19 pence. On the 12th of October Mr. Potbury went to the plaintiff's house, and finding that he lived in Somerset, and that there were restrictions on the removal of wool, he told him that he could not pack it, but at plaintiff's desire Mr. Potbury looked over the wool, and pronounced it to be in good condition. The parties appear, from the evidence of Mr. Potbury, to have had some conversation about it, which was not binding on either side. Mr. Potbury objected to meddle with the wool, because of the county restrictions, and because likewise the market was dull, and he told the plaintiff that he could sell it to Mr. Fox or Mr. Elworthy, at Wellington, in the same county. Plaintiff said he was in no hurry to get it removed. Mr. Potbury said the market might improve, and wrote a note in his pocket-book, "Mr. Thomas Lock's wool to remain as at present." Thus far there was no deal, and Mr. Densham, for plaintiff, argued that the Statute of Frauds required a written contract, and that contract had actually been made in the letters which passed between the parties. Mr. Fryer, for defendant, on the other hand, contended there was only a conditional agreement in the correspondence on the part of defendant's agent—that he would give a certain sum for the wool, subject to his approval when he saw it. When the agent went to the plaintiff's house, and found it was in another county, he declined to treat any further for the wool. If the market had gone up plaintiff would have been at liberty to sell the wool elsewhere—as it was, the market went down; he sold the wool at 16*d.* instead of 19*d.*, and now sued for the difference, 43*l.* odd. Judge Petersdorff, in giving judgment, said that in all cases where the amount exceeded 10*l.* there should either be a written and binding contract, or a part delivery or payment. He considered that there was no binding contract in the correspondence, and therefore nonsuited the plaintiff. *Surrey Standard.*

Arbitrations and Strikes.—A great deal has been said about the importance of substituting arbitration for strikes, and those who did not allow themselves to be imposed upon by mere words have always made substantially the same comment upon such proposals. They have said, The essence of the transaction between masters and workmen always has been, is, and always will be, a bargain and sale of labour, and the price of labour, like that of all other commodities, always must and will, in the long run, be regulated by supply and demand, and not otherwise. Now, arbitration is an ambiguous word. It may mean, and properly does mean, the decision of a lawsuit by a judge chosen by the parties, instead of being appointed by the public. It may also mean an arrangement for open and friendly bargaining. If when you recommend arbitration in the matter of wages you use the word in the first of these two senses, if you think (as so many people do) that there is such a thing as a "fair," or "just," or "reasonable" rate of wages, apart from supply and demand, and that there are rules by which an impartial and duly instructed judge can ascertain whether in a given instance 4*s.*, 5*s.*, or 6*s.* is the "fair," or "just," or "reasonable" rate, then you do greatly err, and your proposal to establish courts of arbitration is a proposal to throw trade into endless confusion, and to render the settlement of existing disputes and difficulties altogether hopeless. If, on the other hand, you mean by arbitration nothing more than a system of open and friendly bargaining, in which masters and men may meet together and talk over their common affairs openly and freely, then it is difficult to imagine anything more desirable or capable of being made more useful by good sense and good feeling. If, however, that is your meaning, you would do well to avoid as much as possible anything which could give your arrangements a character which does not belong to them, and which could lead those who take part in or are guided by them to regard as a legal tribunal that which owes its specific character to the free consent of the parties interested, and derives from that character all its chances of utility. Such is the doctrine of arbitration which has been preached in these columns and elsewhere on fitting occasions by all who have a clear view of the true principles of the subject. *Pall Mall Gazette.*

Calendar of Operations.

DECEMBER.—The horse labour of the farm consists in ploughing, and in carting lime, marl, stones, tiles, manure, and grain.

Roads should be attended to this month; stones should be hauled and placed where they are needed for the repairs or new works that may be necessary.

Cattle should continue to receive the same attention as in November. Both boxes and yards should be emptied during frosty weather, when the dung-cart can be worked without injury to the land. Heaps of manure should be made in the fields intended for green crops next year, the carts being driven over them as they bring their additions, so as, by condensation, to check any premature fermentation, and the manure should also be covered with earth, and sprinkled with salt or gypsum, to confine and fix the naturally volatile products of that fermentation. When frost and snow set in, cows and ewes should have a daily feed of white or yellow Turnips. Hoggets should have their Turnips sliced for them.

Sheep in sheds must be carefully attended to, with especial reference to the foot-rot, to which they are liable. Their feet should be closely pared once a fortnight, and when any festering or decay is apparent, diluted hydrochloric acid should be applied with a feather. As a preventive to foot-rot, it is a good plan to place a couple of sawn boards in front of the feeding troughs, as far apart as will permit the animals to stand on them with both fore and hind feet while feeding. Ewes in the Grass fields ought to be supplied, in rough weather, with Turnips and cut chaff. In the dairy, all the milk is now converted into butter and skim-milk cheese. The cows most advanced in pregnancy now go dry, and the animals are put on poor food. Unless the frosts set in unusually early, the cattle in the southern counties are allowed still to pasture in the grounds, to seek for the little Grass there is left, hay being served to them twice a-day, either there or in the yards, to which they come twice a-day to be milked as usual. The better plan, however, is to house them all now, feeding them on straw and hay, with a few Mangels, in sheds or byres, water being brought to them twice daily.

TO THE EDITOR OF "THE AGRICULTURAL GAZETTE."

SIR,—Fifteen months since I prepared some eggs for use in winter, all but two of which were used in January and February last, and proved perfectly fresh and good. The remaining two were tried on 29th November last: one proved bad, probably from careless preparation, the other as fresh as if laid not a week previously. Anyone wishing for my recipe shall have it sent on forwarding an envelope, stamped and directed, and a Post-office order on the Havant office for Five Shillings. Your obedient servant, CHARLES J. RICHARDS.

Farlington, Havant, Dec. 3, 1867.

Notices to Correspondents.

CONDIMENT FOR A HORSE OR OX: *M A.* Fenugreek powder, 4 ounces; Pimento do., 1 ounce; Carraway seed do., 1 do.; Anise seed do., 2 drachms; Linseed cake meal, 1 lb. If a mineral tonic is wanted, add sulphate of iron, 4 drachms. The above to be well mixed and divided in 10 parts for daily mixture with the ordinary food.

FARM ACCOUNTS: *Binfield.* Thanks for a sight of the book and accounts, which shall be returned next week.

RAILWAY SPOIL BANK: *J Roberts.* If it is clay, you should have done a good deal to burning the clods, and thereafter got it fallowed and ploughed up before winter. It must be ploughed up now, and left till spring for burning and liming. It should be drained now, if it is a wet clay soil, and after drainage a dressing of guano should suffice to give you a good crop of Vetches, which may be fed off during summer; and a dressing of dung, followed by another winter fallow, will prepare it for any crop you may choose to grow—Cabbages, Potatos, or green crop of any sort.

RICE: *Burges Hill.* The price quoted the other day on pig-feeding referred to some time ago. The present price is considerably higher.

ROYAL AGRICULTURAL COLLEGE: *Cor.* The annual fee is more than the sum you name. An earnest student will get first-rate knowledge of chemistry as well as of agriculture there.

RYE: *X Y.* Rye-corn contains in its natural state as to dryness about 11 per cent. of gluten, 51 per cent. of starch, 9 per cent. of sugar and gum, 10 per cent. of husk, 13 per cent. of water. Wheat will contain 16 to 20 per cent. of gluten, 46 to 50 per cent. of starch, 12 per cent. of husk, and 12 to 14 per cent. of water.

SCARLET CLOVER: *Subscriber.* A second cut is hardly ever attempted—the land is in very good season for Turnips after the first.

SHEEP SHORN AND COAT MADE THE SAME DAY: *Cor.* A picture of the affair was engraved, and the plate carries at the foot of it a statement to the effect that on the 25th day of June, 1811, two Southdown sheep, the property of Sir John Throckmorton, were shorn at Greenham Mills, Newbury, the woollen manufactory of Mr. John Coxeter, and the wool manufactured into a piece of cloth in 11 hours. The coat was made and worn by that gentleman the same evening, who presented the manufacturer with a large painting descriptive of the scenes, and containing likenesses of the different personages engaged. It is said that this painting is now, or was lately, in the possession of the widow of the late John Coxeter, from which painting the engravings were taken, which are very commonly seen throughout Berks and Oxon. A correspondent of this paper many years ago relates a somewhat similar circumstance, of which he was an eye-witness. It took place either at the news of some great victory, or at the celebration of peace, at the clothing town of Wiveliscombe, Somerset. A sort of jubilee was set on foot, and a procession, to aid which the neighbouring farmers lent waggons, paraded the town. In the first a sheep and its shearer appeared; the rest followed in succession, occupied by those engaged in the performance. "The fleece," he said, "being taken off, was carded, spun, and wove; the procession halted at a dye-house, the cloth was dipped in a blue vat, dried, and committed to the shears, needle, and bodkin of the tailor, who converted it into a coat, and it was worn the same evening at a dance given in commemoration of the said event by my worthy friend Mr. W. Hancock, the banker of Wiveliscombe, who in the identical coat opened the ball with my wife. Seeing is believing."

TOBACCO ASHES: *B R.* They are remarkable for their percentage of lime and magnesia. They contain less Potash than any other kind of ash. Two or three cwt. per acre mixed with loam, would be a good dressing for a mossy, or a coarse and luxuriant pasture.

AGRICULTURAL and HORTICULTURAL ASSOCIATION. "ONE and ALL" LIMITED.

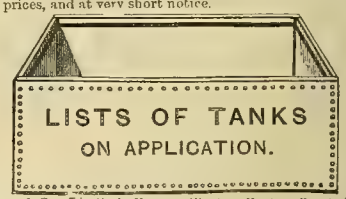
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Thomas Hughes, Esq., M.P.
Walter Morrison, Esq., M.P.
James Beal, Esq.
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E. Owen Greening, Esq. (Managing Director).
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SUPPLIES its MEMBERS with IMPLEMENTS and MACHINES by the best Makers; and with Unadulterated SEEDS, MANURES, and Manufactured CATTLE FOOD, at Wholesale Cost Price, upon the Co-operative System. Explanatory Circulars post free, or on personal application at the Offices of the Association.
STAND 101, SMITHFIELD SHOW.

"Every Cottage should be provided with a Water Tank." *Disraeli.*

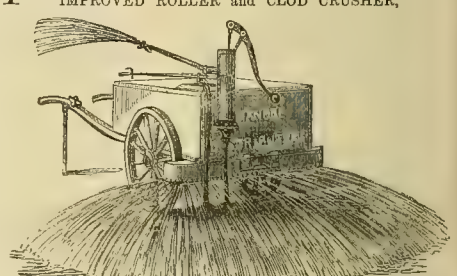
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F. BRABY AND CO. having laid down extensive and Improved Machinery in their new range of buildings, IDA WHARF, DEPTFORD, are now prepared to supply WROUGHT-IRON TANKS, GALVANISED, or PAINTED, of superior quality, at reduced prices, and at very short notice.



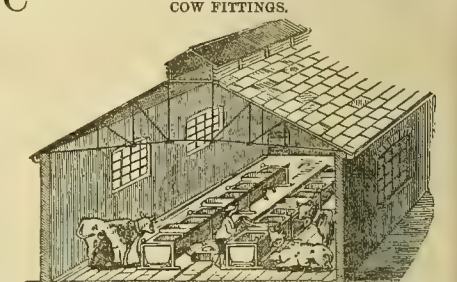
F. BRAIY & CO., Limited, Fitzroy Works, Euston Road, London, or through all respectable Ironmongers.

FOR the BEST LIQUID MANURE CART, IMPROVED ROLLER and CLOD CRUSHER,



Apply to I. JAMES, Tivoli Works, Cheltenham.

COTTAM'S PATENT PORTABLE UNITED COW FITTINGS.



Their advantages are—Portability, not Fixtures, removable at pleasure, no Woodwork or Partitions to impede Ventilation or breed Vermin, Hay Rack dispensed with as unnecessary, increased width and depth of Feeding Troughs, Water Cistern, and Patent Drop Cover to prevent over-gorging. Cleanly, durable, and impervious to infection, being all of iron. Price of Fittings per Cow, 55*s.*

Prospectuses free of COTTAM & Co., Iron Works, 2, Winsley Street (opposite the Pantheon), Oxford Street, London, W., where the above are exhibited, together with several important Improvements in Stable Fittings just secured by Patent.

Stand No. 101, Smithfield Club Cattle Show.



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Catalogues (together with Supplement of Testimonials from the leading Noblemen and Landowners of the United Kingdom to the quality of GREENING & Co.'s Manufactures), forwarded post free.

GREENING & COMPANY (Limited), Victoria Iron and Wire Works.
Offices:—1, Albert Square, Manchester.

E. T. ARCHER'S "FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, and Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, &c.

PROTECTION from the COLD WINDS and MORNING FROSTS.

"FRIGI DOMO" NETTING, White or Brown, made of prepared Hair and Wool, a perfect non-conductor of heat or cold, keeping a fixed temperature where it is applied. It is adapted for all Horticultural and Floricultural purposes, for Preserving Fruits and Flowers from the Scorching Rays of the Sun, from Wind, from Attacks of Insects, and from Morning Frosts. To be had in any required lengths.

"FRIGI DOMO" NETTING, 2 yards wide, 1*s.* 6*d.* per yard run.

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Two yards wide	1*s.* 9*d.* per yard run.
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An improved make, 2 yards wide	1*s.* 9*d.* per yard.
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ELISHA THOMAS ARCHER, Whole and Sole Manufacturer, 7, Great Trinity Lane, Cannon Street, City, E.C., and of all Nurserymen and Seedsmen throughout the Kingdom.

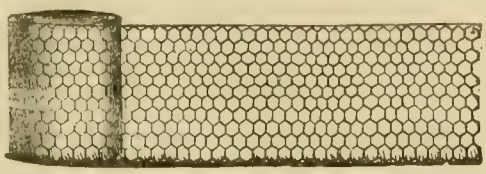
"It is much cheaper than Mats as a covering."

NEW IMPROVED PREMIUM WIRE NETTING.

AWARDED FIRST-CLASS CERTIFICATE BY THE ROYAL HORTICULTURAL SOCIETY OF LONDON AT BURY ST. EDMUND'S, JULY 16.

J. B. BROWN AND CO. having introduced Improved Machinery into their London Workshops for manufacturing Wire Netting, are now prepared to execute orders to any extent at the shortest notice. The Netting is of very superior quality, best formed mesh, well twisted, and Galvanised after made in a superior manner.

GREAT IMPROVEMENT, WITH REDUCED PRICES, February, 1866.



AND GALVANIZED AFTER MADE.

PRICES PER LINEAL YARD, 24 INCHES HIGH.

Size of Mesh.	Mostly used for	Light. No. 19. Japanned.	Light. No. 19. Galvanized.	Medium. No. 18. Japanned.	Medium. No. 18. Galvanized.	Strong. No. 17. Japanned.	Strong. No. 17. Galvanized.	Extra Strong. No. 16. Japanned.	Extra Strong. No. 16. Galvanized.
2¼ inch	Hares, Dogs, Poultry ..	2¾d.	3¾d.	3¼d.	4½d.	4d.	5½d.	5d.	6½d.
2 inch	Game or Poultry Netting	3¼d.	3¾d.	3¾d.	4½d.	4½d.	5¾d.	5¾d.	7d.
1⅝ inch	Small Rabbits, Hares, &c.	3¾d.	4¾d.	4¼d.	5¾d.	5d.	6½d.	6¾d.	8d.
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Quantities of 100 yards or upwards delivered free at all Railway Stations. All Netting warranted to give satisfaction.

J. B. BROWN AND CO. OFFICES: 90, CANNON STREET, CITY, LONDON, E.C.
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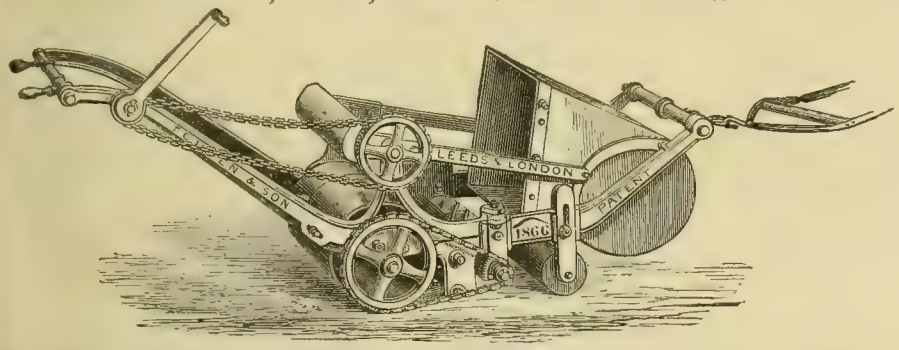
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FITTED WITH PATENT SELF-SHARPENING CYLINDER CUTTERS.

They are the simplest in construction, least liable to get out of order, and can be worked with far greater ease than any other Lawn Mower extant.

GREEN'S PATENT LAWN MOWERS have proved to be the best, and have carried off every Prize that has been given in all cases of competition; and in proof of their superiority, 40,000 have been sold since the year 1856.

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Every Machine is warranted to give entire satisfaction, and if not approved of can be returned at once unconditionally.

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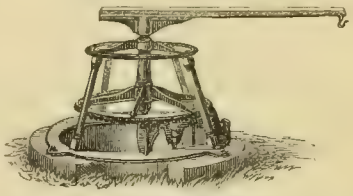
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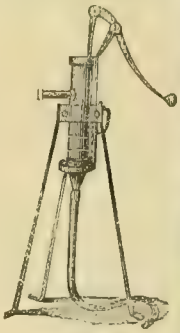
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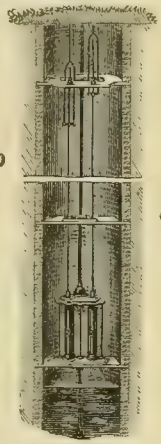
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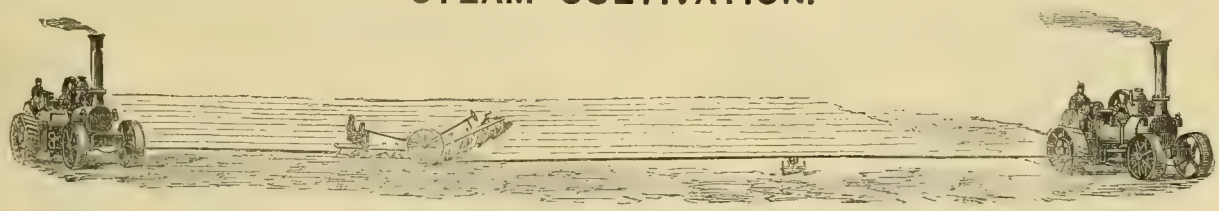
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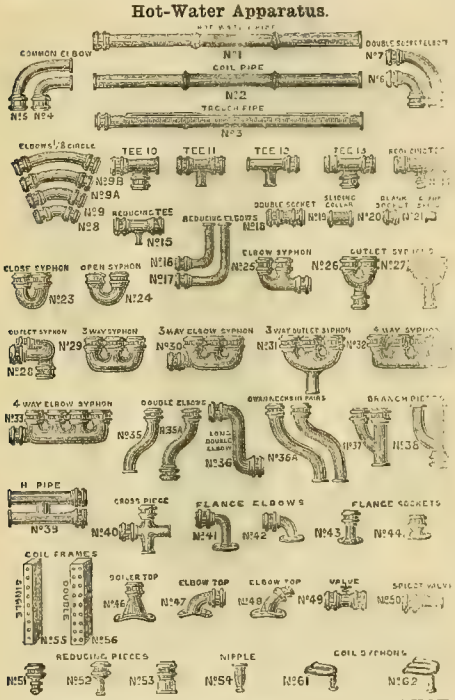
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PERFECT SUBSTITUTE FOR WATER CLOSETS.

Avoiding all Bad Smells; applicable to any existing Closets, and admirably adapted for Bed Rooms, Hospitals, Barracks, &c. On View and in Operation at the

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Where Prospectuses may be had on application.

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INTERNATIONAL EXHIBITION, CLASS IX., No. 2119.

MR. GRAY begs to call the attention of the Nobility, Gentry, Nurserymen, Gardeners, &c., to his

NEW OVAL TUBULAR BOILER,

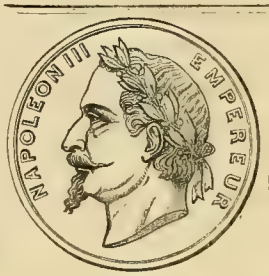
Acknowledged by practical judges to be a great improvement on every form of Tubular Boiler yet introduced. It has proved itself superior to all other Boilers for quickness of action and economy of Fuel, doing its work with one-third less the amount required by any other.

Extract from Report in GARDENERS' CHRONICLE *of International Exhibition, May* 24, 1862, *page* 476.

"The upright form of Boiler is usually made on a circular plan, but the oval form given to Mr. GRAY's variety of it is said to be preferable in consequence of its bringing the tubes in closer contact with the fire. The usual form of a furnace being a parallelogram rather than a square, it seems feasible that the Boilers on the oval plan should bring the tubes more completely within range of the burning fuel; and this being so, the change, though a slight one, is no doubt an improvement."

☞ *They are made of all sizes, which, with prices, may be had on application.*

JAMES GRAY, HORTICULTURAL WORKS,
DANVERS STREET, PAULTON'S SQUARE, KING'S ROAD, CHELSEA, S.W.



SHANKS'

PATENT LAWN MOWERS,

AWARDED THE

FIRST PRIZE SILVER MEDAL

OF THE

UNIVERSAL EXHIBITION, PARIS, 1867.



ALEX. SHANKS AND SON have received official intimation that the Jury at the Paris Exhibition have AWARDED them the FIRST PRIZE SILVER MEDAL for their PATENT LAWN MOWERS.

A. S. AND SON, judging from the fact, that out of all the Lawn Mowers in the Exhibition, their Machines have been the only Lawn Mowers deemed worthy by the Jury to receive so distinguished an honour, are gratified to find in this a further proof that the efforts they have made to improve their Machines have always been in the right direction. The demand for SHANKS' MACHINES increases year by year, and during the past season it has increased very considerably. A. S. AND SON having had so long an experience in this Trade, can confidently guarantee their Machines to be unequalled by any before the Public.

☞ *Every Machine warranted to give satisfaction, and if not approved of can be at once returned.*

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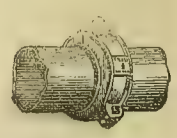
27, *Leadenhall Street is the only place in London where intending Purchasers of Lawn Mowers can choose from a Stock of from* 150 *to* 200 *Machines.* A. S. AND SON *have a staff of efficient Workmen at* 27, *Leadenhall Street, thoroughly acquainted with all the details of these Machines, so that they are enabled to repair them in London as well as can be done at their Manufactory.*

PORTABLE AND FIXED HOT-WATER APPARATUS,

FOR HEATING CONSERVATORIES, HOTHOUSES, CHURCHES, PUBLIC BUILDINGS, PRIVATE RESIDENCES, ETC., WITH

TRUSS'S PATENT UNIVERSAL FLEXIBLE AND LEAKLESS PIPE-JOINTS.





T. S. TRUSS

Begs to state that the immense number of APPARATUS annually Designed and Erected by him in all parts of the kingdom, and for the ROYAL HORTICULTURAL SOCIETY at SOUTH KENSINGTON and CHISWICK, with unrivalled satisfaction, is a guarantee for skill of design, superior materials, and good workmanship; while the great advantages obtained by his IMPROVED SYSTEM cannot be over-estimated, consisting of perfectly tight joints with neatness of appearance; EFFECTS A SAVING OF 25 PER CENT. on cost of Apparatus erected compared with other systems; facility for extensions, alterations or removals without injury to Pipes or Joints; can be erected by any Gardener; an ordinary size Apparatus erected in one day, and PERFECTNESS of DESIGN SUPPLIED, INSURING NO EXTRAS. Complete Apparatus, of the best materials, with Saddle Boiler, delivered to any Railway Station in England, and Erected at the following prices. Erection beyond 25 miles off London, railway fare for one man additional. Considerable reduction on large works.

TWO FOUR-INCH PIPES ALONG ONE SIDE AND ONE END OF HOUSE.

Size of House.	Apparatus Complete.	Erection.	Size of House.	Apparatus Complete.	Erection.
20 feet by 10 feet ..	£9 0 0 ..	£2 0 0	50 feet by 15 feet ..	£17 10 0 ..	£3 0 0
30 feet by 12 feet ..	11 15 0 ..	2 10 0	75 feet by 15 feet ..	20 0 0 ..	3 0 0
40 feet by 15 feet ..	15 0 0 ..	2 15 0	100 feet by 15 feet ..	26 0 0 ..	3 5 0

Bath and Gas Work erected in town or country. The Trade Supplied.

Horticultural Buildings of every description from 1s. 6d. *per foot superficial, inclusive of Brickwork.*

Price Lists, Plans, and Estimates forwarded on application to

T. S. TRUSS, C.E., CONSULTING HORTICULTURAL ENGINEER, &c., SOLE MANUFACTURER,
FRIAR STREET, BLACKFRIARS ROAD, LONDON, S.E.

Observe — The City Offices are now Removed to the Manufactory, Friar Street.

Heating Apparatus.

J. MEREDITH continues to supply and fix HOT-WATER APPARATUS in VINERIES, and every description of HOTHOUSES, BUILDINGS, &c.
The Vineyard, Garston, near Liverpool.

MOULE'S WARMING APPARATUS.—The best and most economical system of Warming Churches, Schools, Hothouses, and all large Buildings. Apply to
J. W. GIRDLESTONE, C.E., 31, Duke Street, Westminster, S.W.

Heating by Hot Water.

HOT-WATER PIPES, at Wholesale Prices, with Elbows, Syphons, Tee-Pipes, and every other connection; Wrought and Cast-Iron Boilers, Saddle, Conical, Cylinder, Tubular, and Elliptic, from 24s. each. Improved Boilers and Iron Stands to use without brickwork, 60s. each. Valves from 10s. 6d. each. Patent Valves, Improved Furnace Doors, Furnace Bars, Supply Cisterns, and Castings of every description in stock, at
Mr. LYNCH WHITE'S Iron Wharf, Upper Ground Street, Blackfriars Bridge, London, S. Price List on application.

Cheap Greenhouse Stoves.

DEANE AND CO.'S Patent VENTILATING and SUSPENSION STOVES are simple, cheap, and efficient; have been largely adopted and approved; will burn many hours without attention, and at a small cost for fuel. Prices of Suspension Stoves, 20s., 30s., 38s., and upwards. Ventilating Stoves, 50s., 60s., 70s., 90s.
HOT-WATER APPARATUS for Conservatories, Greenhouses, Hothouses, Forcing Pits, &c., erected and fitted up complete.
DEANE & Co., 46, King William Street, London Bridge, E.C.
Established A.D. 1700

Heating by Hot Water.

W. J. HOLLANDS, IRON MERCHANT, 31, Bankside, London, S.E.
HOT WATER PIPES, from Stock, per yard:—2-inch, 1s. 1½d.; 3-inch, 1s. 9d.; and 4-inch, 2s. 3d. BENDS, from Stock, 1s. 6d., 2s. 6d., and 3s. each. THROTTLE VALVES, 10s., 13s., and 14s. each. Other Connexions at equally low prices, and all goods of first-class manufacture. Estimates given, and orders by post punctually attended to the same day.

JAMES WATTS AND CO., HOTHOUSE BUILDERS and HOT-WATER APPARATUS MANUFACTURERS, 353, Old Kent Road, S.E.
TWO HUNDRED CUCUMBER and MELON BOXES and LIGHTS, and from 400 to 500 LIGHTS for PITS of all SIZES kept in STOCK, Glazed and Painted complete, ready for immediate use. Packed and sent to all parts of the kingdom. Public and Private Buildings, Warehouses, &c., heated on the most approved scientific and economical principles. References to the Nobility, Gentry and Trade in most of the Counties in England.

COTTAM AND COMPANY,
CONSERVATORY and HOTHOUSE BUILDERS, &c.,
Iron Works, 2, Winsley Street, Oxford Street, London, W.

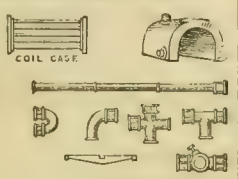
SADDLE BOILERS.

20	24	30 inches long.
45s.	65s.	92s. 6d. each.

HOT-WATER PIPES.

2	3	4 inch.
1s. 0d	2s. 1d.	2s. 9d. per yard.

Materials supplied as above, or Estimates given fixed complete to Plan, on application to
COTTAM & Co.,
Iron Works,
2, Winsley Street,
(opposite the Pantheon),
Oxford Street, London, W.

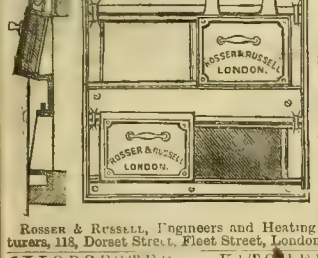


The Only Stove without a Flue.



NASH AND JOYCE'S PATENT, for AIRING, DRYING, and WARMING HALLS, SHOPS, ROOMS, &c., a new especial Stove for Conservatories, Greenhouses, Fruit-Ripening, &c.: to Burn without re-lighting all winter by filling with fuel every 12 hours. Temperature, any degree required, without varying. Price from 12s. 6d. to 6 guineas.
MINCING and SAUSAGE FILLING and MASTICATING MACHINES of the best makers, 10s. 6d.
The COTTAGE KNIFE CLEANER is the only rapid Cleaner and Polisher of Knives at a moderate price. 3s. 6d. to 10s. 6d. Prospectus post paid.
CHEAP FIRES.—The Radiating Fire Balls save half the usual consumption of fuel. One Shilling packet of Four, red hot in the fire every day, lasts all Winter.
S. NASH, Ironmonger, 253, Oxford Street, W.C.; Linster Terrace, Bayswater; and Stove Depôt, 119, Newgate Street, London, E.C.

FOR SALE, MUNROE'S CANNON BOILER, large size, nearly new; also TWO Large CONICAL BOILERS, and a SPAN-ROOF GREENHOUSE.
Apply to Mr. HARRINGTON, Nursery, Kingsland, N.E.



SYLVESTER'S PATENT FURNACE DOORS, manufactured by ROSSER & RUSSELL (late Burbidge & Healy), 118, Dorset Street, Fleet Street, London, E.C.
SYLVESTER'S Patent FLUE and SWEEPING DOORS.
SYLVESTER'S Patent CONICAL-RIBBED BOILERS. WROUGHT-IRON WELDED, SADDLE, & IMPROVED CHAMBERED BOILERS.
ROSSER & RUSSELL, Engineers and Heating Apparatus Manufacturers, 118, Dorset Street, Fleet Street, London, E.C.

WORCESTER KITCHEN RANGE.
JONES AND ROWE, PATENTEES.



The most approved Cooking Apparatus yet introduced, combining the advantages of an open Fire Range, Hot Plate, and other appliances, adapted for small or large establishments.
Sole London Agents, BARRON & WILSON, Ironmongers, &c., 436, West Strand, opposite the Charing Cross Station, where a variety may be inspected, and Catalogues obtained.

DINNEFORD'S FLUID MAGNESIA.—The best remedy for Acidity of the Stomach, Heartburn, Headache, Gout, and Indigestion: and the best mild aperient for delicate constitutions, especially adapted for Ladies, Children and Infants.
DINNEFORD & Co., 172, New Bond Street, London, and of all Chemists throughout the World.

JOHN GIBSON, JUN., begs to announce that he is prepared to Furnish PLANS and ESTIMATES for LAYING OUT GROUND attached to Mansions and Villa or other Residences, or for the FORMATION of PUBLIC PARKS or GARDENS and to carry out the same by Contract or otherwise.
Address Mr. JOHN GIBSON, jun., Surrey Lane, Battersea, S.W.

Garden and Park Improvements.—See

MR. BLAKE'S ADVERTISEMENT in the *Gardeners' Chronicle* of November 30, 1867.
Britannia Road, Fulham, London, S.W.

Picturesque Perneries.—See

MR. BLAKE'S ADVERTISEMENT in the *Gardeners' Chronicle* of November 23 and 30, 1867.
Britannia Road, Fulham, S.W.

Horticultural Glass Warehouse.

THOMAS MILLINGTON AND CO., 87, Bishopsgate Street Without, London, E.C.
NEW LIST for ORCHARD HOUSE GLASS as supplied to Her Majesty, the Nobility, Gentry, Mr. Rivers, and the leading Horticulturists of the United Kingdom.

ORCHARD HOUSE SIZES.

in.	in.	4ths.	3rds.	2nds.	Best.
20 by 12	Per 100 feet 15 oz.	14s 3d	15s 6d	18s 6d	20s 0d
20 by 13					
20 by 14					
20 by 15	21 oz.	19s 0d	22s 2d	25s 0d	26s 0d
20 by 16					

SMALL SHEET SQUARES, 15 oz., per 100 feet.

in.	in.	in.	in.	in.	in.	4ths.	3ds.	2nds.	Best.
6 by 4	7 by 5	8 by 6	9 by 7	12s 3d	13s 3d	16s 0d	18s 0d		
6½ by 4½	7½ by 5½	8½ by 6½	9½ by 7½						

Per 100 feet.

10 by 8	12 by 9	12½ by 10½	14½ by 10½	13s 3d	14s 6d	17s 3d	19s 0d		
10½ by 8½	12½ by 9½	13 by 10	15 by 10						
11 by 9	13 by 9	13½ by 10½	13 by 11						
11½ by 9½	12 by 10	14 by 10	14 by 11						

LARGE SHEET SQUARES, 15 oz., per 100 feet.

in.	in.	in.	in.	in.	in.	4ths.	3ds.	2nds.	Best
15½ by 10½	14 by 12	22 by 12	22 by 16	14s 3d	15s 6d	18s 0d	20s 0d		
16 by 10	14½ by 12½	17 by 13	24 by 16						
14½ by 11½	15 by 12	23 by 13	20 by 17						
15 by 11	15½ by 12½	18 by 14	22 by 17						
15½ by 11½	16 by 12	22 by 14	24 by 17						
16 by 11	16½ by 12½	24 by 14	20 by 18						
21 by 12	17 by 12	22 by 15	22 by 18						
13 by 12	18 by 12	24 by 15	24 by 18						

The above Prices are only for the Sizes stated; if a quantity of any other Size be required, a Special Price will be given.

SHEET GLASS.
In Sheets for Cutting up, averaging from 6 to 9 feet super.

16 oz.		21 oz.	
4ths quality, per 300 feet case,	38s.	4ths quality, per 200 feet case,	38s.
3ds " "	48s.	3ds " "	48s.
2ds " "	62s.	2ds " "	68s.
Best " "	92s.	Best " "	96s.

SHEET GLASS is made only in the following substances, 15 oz., 21 oz., 26 oz., 32 oz., 36 oz., and 42 oz.
HARTLEY'S IMPROVED ROLLED ROUGH PLATE in 1-8th in., 3-16th in., 1-4th in., and 3-8th in. substances.
BRITISH PLATE GLASS for Windows and Silvered for Looking Glasses, Coloured Glass, Glass Shades, Striking Glasses, &c., &c.

PAINTS, COLOURS, VARNISHES, &c.
STUCCO PAINT, 24s. per cwt. This Paint adheres firmly to the walls, resists the weather, and is free from the glossy appearance of Oil Paint, resembling a stone surface, and can be made any required shade. It is mixed with rain or pure river water.
WHITE ZINC PAINT, 36s. per cwt. One hundredweight of pure Zinc Paint, with three gallons of Linseed Oil, will cover as much as one hundredweight and a half of White Lead and six gallons of Linseed Oil. Special Dryers for this Paint.
IMPROVED ANTI-CORROSION PAINT, 28s. to 34s. per cwt. Anti-corrosion Paint is extensively used for all kinds of work in exposed situations, on Brick, Stone, Compo, Iron, Iron Bridges, Conservatories, Greenhouses, &c., and is easily laid on by any ordinary workman. Prepared Oil for ditto 4s. per gallon.

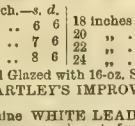
	For cwt.—s. d.		Per gallon.—s. d.
GENUINE WHITE LEAD	32 0	LINSEED OIL	3 4
SECONDS WHITE LEAD	30 0	BOILED OIL	3 9
GROUND PATENT DRYERS, 3d. to 4½d. per lb.		TURPENTINE	3 0
" OXFORD OCHRE, 3d. to 4½d. per lb.		LINSEED OIL PUTTY, 8s. to 9s. per cwt.	
RAW UMBER, 4½d. to 6d. per lb.		Fine OAK VARNISH, 10s. to 12	0
" BURNT do., 6d. to 9d.		" CARRIAGE do., 12s. to 14	0
GREEN PAINT, all shades,		" PAPER do. 10s. to 12	0
28s. to 60	0	" COPAL	16 0
BLACK PAINT, 24s. to 36	0	KNOTTING	10 0
RED PAINT 28s. to 36	0	Patent GOLD SIZE	10 0
		" BLACK JAPAN	12 0
GROUND BRUSHES, DUSTERS, SASH TOOLS, DISTEMPER BRUSHES.		GLAZIER'S DIAMONDS and TOOLS	
		MILLED LEAD and PIPES	
		OLD LEAD Bought or taken in exchange.	

The above are Net, for Cash, and as such cannot be booked.
Lists of any of the above on application.

Glass for Garden Purposes.

JAMES PHILLIPS AND CO. beg to submit their REDUCED PRICES as follows:—

PROPAGATING GLASSES.



	Each.—s. d.		Each.—s. d.
12 inches in diameter	0 3½	12 inches in diameter	1 9
13 " "	0 4½	13 " "	2 0
14 " "	0 6½	14 " "	2 6
15 " "	0 6½	15 " "	3 0
16 " "	0 8	16 " "	3 6
17 " "	0 10	17 " "	4 0
18 " "	1 0	18 " "	5 0
19 " "	1 2	19 " "	6 0
20 " "	1 4	20 " "	7 0
21 " "	1 6		

HYACINTH and FLOWER DISHES.
6 inches diameter .. .. 1s. 0d. | 9 inches diameter 1 0
12 inches diameter .. .. 2s. 6d.
Hyacinth Dishes are intended to contain a number of Roots Bedded in and covered with Moss, instead of the common Hyacinth Glass.
LACTOMETERS, for Testing the Quality of Milk.
Four Tubes .. .. 4s. 6d. | Six Tubes .. .. 6s. 6d.
With Stands complete.

HAND GLASSES, WITH OPEN TOPS.

	Each.—s. d.		Each.—s. d.
12 inches	6 6	18 inches	9 6
14 "	7 6	20 "	10 6
16 "	8 6	22 "	11 6
		24 "	12 6

Painted and Glazed with 16-oz. Sheet Glass.
London Agents for HARTLEY'S IMPROVED PATENT ROUGH PLATE.
LINSEED OIL, Genuine WHITE LEAD, CARSON'S PAINTS, PAINTS of various colours, ground ready for use.
SHEET and ROUGH PLATE GLASS, SLATES of all sizes, BRITISH PLATE, PATENT PLATE, ROLLED PLATE, CROWN, SHEET, HORTICULTURAL, ORNAMENTAL, COLOURED, and every description of GLASS, of the best Manufacture, at the lowest terms. Lists of prices and estimates forwarded on application to
JAMES PHILLIPS & Co., 180, Bishopsgate Street Without, E.C.

GENTLEMEN contemplating Laying out New, or Improving their present Gardens, Pleasure Grounds, or the Erection of Rockwork, British and Exotic Ferneries, would find it to their advantage to CONSULT Mr. W. H. SMITH, ORNAMENTAL and LANDSCAPE GARDENER, 11, Crystal Terrace, New Town, Norwood, S.—N.B. Terms exceedingly moderate.

FOR SALE, by Private Contract, the BATES BULL, "LORD WILD EYES 2d" (22,230), roan, bred by Mr. C. Harvey, sire 4th Duke of Oxford (11,587), dam Wild Eyes 22d, by Wild Duke (10,148), &c., &c. (see "Herd Book," vol. xvi.). Lord Wild Eyes 2d is particularly active, and has stock have fetched high prices.
For further particulars apply to the Bailiff, Mr. RAWLINS, Holly Bank, Burton-on-Trent.

Farm Poultry.

GREY DORKING FOWLS, of purest breed, in any numbers
Imported TOULOUSE GEESE, the largest and most productive breed known.
Improved NORFOLK TURKEYS, large, hardy, and good breeders.
AYLESBURY and ROUEN DUCKS.
Imported BELGIAN HARE RABBITS, for size and early maturity.
BRAHMA-POUTRA, CREVECŒUR, and LA FLÈCHE FOWLS, for constant layers.
Priced Lists and Estimates on application.
JOHN BAILY & SON, 113, Mount Street, London W

WANTED to RENT, on Lease, a SMALL HOUSE, with about HALF an ACRE of GROUND attached, suitable for a Florist's Business, about six or eight miles from London; or a place with Glass already erected.
Address, with full particulars, to M. R., Post Office, Maida Hill, W.

FOR DISPOSAL, a First-class NURSERY and SEED BUSINESS; or the present Proprietor would accept of a WORKING PARTNER with a Capital of not less than £1500.
Apply by letter to E., Messrs. Hurst & Son, 6, Leadenhall Street, London, E.C.

TO BE DISPOSED OF, on advantageous terms, and may be entered upon immediately, an OLD ESTABLISHED NURSERY, eligibly situated, adjoining a large and important town, surrounded by an excellent neighbourhood, and having every facility for carrying on an extensive business.—Address,
G. H., Mr. Cooper, Seed Merchant, 162, Fleet Street, London, E.C.

To Agriculturists, Market Gardeners, Contractors, and Others.

THE PROPRIETORS of some Land in Bermondsey, a portion of which was for many years occupied as Tan Yards, are desirous of obtaining TENDERS for the DISPOSAL and REMOVAL of a large amount of TAN. The Tan is thoroughly decomposed, and it is thought would form a valuable Dressing for Land. For particulars apply to
Mr. STRETCH, 7, Storey's Gate, St. James's Park, S.W.

Onchan Nursery Gardens, Isle of Man,

TO BE LET, with immediate possession, in consequence of the decease of the late Proprietor. The Nursery comprises about 15 Acres, lying in a sheltered situation; has been established for upwards of 30 years, and possesses the advantage of being the only Nursery in the Island. The Buildings consist of Conservatory (in four compartments), Vinery, Orchard House, Propagating House, with large Shed adjoining, and every convenience for carrying on the business. This Establishment would prove a valuable addition to any English Nursery, as from the mildness of the climate many tender Plants and Shrubs stand the winter which, when young, would be destroyed by the frosts of an English Winter and Spring. A portion has been advantageously occupied as a Fruit Garden, the demand being considerable from the number of Visitors to the Nursery in the Summer season. The Grounds are well stocked with Forest Trees, Evergreens, and Ornamental Shrubs; the Houses with Plants, and liberal terms will be made to enable a Tenant to realise the Stock. For particulars apply to
JAMES SPITTALL, Solicitor, Isle of Man.

Sales by Auction.

Bulbs from Holland.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on MONDAY, December 9, at half-past 12 o'Clock precisely, 700 Lots of First-class BULBS from Holland, and a collection of HARDY SHRUBS, HERBACEOUS PLANTS, FRUIT TREES, &c.
On view the Morning of Sale, and Catalogues had.

Roses, Shrubs, Fruit Trees, Bulbs, &c.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, December 11, at half-past 12 o'clock precisely, a large number of Hardy and Ornamental TREES and SHRUBS, Pyramid and Dwarf FRUIT TREES, Standard and Dwarf ROSES, and a variety of Double and Single Hyacinths, Tulips, Crocuses, Liliums, Gladioli, and other Bulbs just arrived from Holland.
On view the Morning of Sale, and Catalogues had.

Sale of First-class Dutch Bulbs, Handsome Standard and Dwarf Roses, Selected Fruit Trees, &c.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at 38 and 39, Gracechurch Street, E.C., on THURSDAY, December 12, at 1 o'Clock precisely, a First-class Collection of DUTCH BULBS, including Hyacinths, Crocuses, Tulips, Narcissus, Jonquils, Anemones, Ranunculus, &c.; a splendid assortment of STANDARD and DWARF ROSES; selected FRUIT TREES; choice GHENT AZALEAS, HYBRID RHODODENDRONS, and other American Plants, &c.; also 500 fine Bulbs, LILIUM LANCIFOLIUM (sorts), from a celebrated Grower in Belgium.
On view Morning of Sale. Catalogues had at the rooms as above, and of the Auctioneers and Valuers, Leytonstone, N.E.

Lewisham, Kent.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, on the Premises, Granville Park Nursery, near the Lewisham Railway Station, on TUESDAY, December 10, by order of Mr. Baily, the ground being required for building purposes, the valuable NURSERY STOCK, including a large assortment of Evergreens and Coniferous Shrubs, Ornamental, Forest, and Fruit Trees, consisting of 1000 Aucuba japonica, 4000 Portugal and Common Laurels, 460 Laurustinus, 100 Green Box (1 to 2 feet), Cupressus Lawsoniana, 400 Ligustrum ovalifolium, Thujas, Piceas (of sorts), Scotch Firs, Weymouth Pines, &c.; 800 fine Poplars (12 to 20 feet), Planes, 300 Limes (10 to 15 feet), Acacias, 250 Mountain Ash, Elms, Standard Almonds, Double-blossomed Peaches, Thorns, &c.; 800 fine Standard and Pyramidal Pears, 150 Standard Cherries, 1200 strong Standard and Pyramidal Apples, 400 Standard and Dwarf Plums, Damsons, Quince, Gooseberries, 800 yards capital Box Edging, &c.
May be viewed prior to the Sale. Catalogues may be had on the premises, and of the Auctioneers and Valuers, Leytonstone, N.E.
N.B.—In the event of frosty weather, a reasonable time will be allowed for the clearance of stock.

To Gentlemen and Others Engaged in Planting.

MESSRS. DREDGE AND SONS have received instructions to SELL by AUCTION, at the Nursery, Cambridge Town, on TUESDAY, December 10, a large quantity of ORNAMENTAL SHRUBS, FRUIT TREES, &c.
The above will be described in Catalogues, to be had of the Auctioneers, York Town, Surrey; or at the Nursery, Cambridge Town, Surrey.

To Noblemen, Gentlemen, Planters, and Others.

MR. WHITE has received instructions to SELL by AUCTION, on MONDAY, December 16, at 11 o'Clock, at the Rufford Nursery Gardens, near Ollerton, a quantity of Young SPRUCE FIR PLANTS, of various heights, fit for immediate Planting; also a quantity of COMMON LAURELS, and other Plants.
The above will be sold in convenient Lots, to suit purchasers. Each Lot to be paid for at the fall of the hammer or at the close of the Sale. The Lots to be at the purchaser's care and risk at the fall of the hammer, and to be removed within one month from the time of Sale at the purchaser's expense, and no Lot to be removed during the time of business.
Catalogues may be had of the AUCTIONEER; of Mr. CARTLEDGE, Wood Steward; or of Messrs. BRADLEY & SONS, Nurserymen, Halam, near Southwell.—Swan Hotel, Mansfield, December 2.

Agricultural Co-operation.

COUNCIL.

The Right Hon. W. Cowper, M.P.
Walter Morrison, Esq., M.P.
Thomas Hughes, Esq., M.P.
James Beal, Esq.
E. Vansittart Neale, Esq.
Frederick Pennington, Esq.
Edward Owen Greening, Esq. (Managing Director).

SUPPLIES its Members and the Public with IMPLEMENTS and MACHINES by the best Makers, and with Unadulterated SEEDS, MANURES, and Manufactured CATTLE FOOD, at Cost Price, upon the Co-operative system. An investment of One Pound and upwards (bearing interest dividend) constitutes membership. No further liability. Rules and all information post free on receipt of two Stamps, or by personal application at the Offices of the Association.

EDWARD OWEN GREENING, Managing Director.

Offices, 29, Parliament Street, Westminster; and 4, Warren Street, Manchester.

Full profits credited to Members. Half profits to the Public (non-Members).

FIRST QUARTERLY REPORT and BALANCE SHEET, now ready. Division of Profits, 7½ per cent. Dividend on Capital. Three-fourths of Trade Discounts returned to Members; three-eighths of Trade Discounts returned to non-Members.

The return to Members on the Purchases averaged 11 per cent. Copies of the Report and Balance Sheet may be had on application, with enclosure of Stamp to defray Postage.

Address, EDWARD OWEN GREENING, Managing Director, 29, Parliament Street, Westminster, S.W., and 4, Warren Street, Manchester.

SMITHFIELD CLUB SHOW.
STAND No. 101 IN THE GALLERIES.

The Association will represent GREENING & Co. (Limited) and will be prepared to receive orders for any Implement or Article exhibited at the Show. The Trade Discount (averaging 20 per cent.) will revert to the Members at the quarterly Division of Profits. Mr. GREENING will be in attendance to enrol members and receive orders.

PURE LINSEED CAKES, British Manufacture, bought under guarantee of Absolute Purity. £12 10s. per ton in London, Liverpool, Duffield, Hull, or Leith.

The Council of the Association think it right to make known that nothing but a guarantee of Absolute Purity can insure to the purchaser of LINSEED CAKES fair value for his outlay. Cakes are commonly made for sale by dealers, marked "genuine," at fully £1 per ton less than the "pure" cake can be produced; and cakes avowedly "mixed" at over £2 per ton less. The whole profit made by the Association out of contracts goes into the pockets of the purchasing Members, after payment of working expenses; half profits to non-Members.

Address, EDWD. OWEN GREENING, Managing Director, 29, Parliament Street, Westminster, S.W.; 4, Warren Street, Manchester.

TRADE DISCOUNT.—The following GOODS are also supplied by the Association:—

PERUVIAN GUANO—Pure as imported. Wholesale cost price, £12 per ton; retail price, £13 2s. 6d. per ton.

NITRATE OF SODA—Pure and unadulterated. Wholesale cost price, 10s. per cwt.; retail price in Liverpool, 12s. per cwt.; retail price in London, 12s. 6d. per cwt.

PALM NUT MEAL—Best quality. Wholesale cost price, £7 10s. per ton; retail price in Liverpool, £9 per ton; retail price in London, £9 10s. per ton.

Best quality COTTON SEED CAKE; ditto ditto decorticated.

AMERICAN LINSEED CAKES, RAPE-SEED CAKES, LOCUST BEANS, GROUND BONES, BONE-ASH, LINSEED, RAPE SEED, CLOVER SEED, SEEDLING POTATOS, SEED BEANS and PEAS.

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Special Contracts.

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PUBLIC MEETING.—A Meeting for Explanation and Discussion of the question of AGRICULTURAL CO-OPERATION will be held in the Theatre of the Islington Literary and Scientific Society, Wellington Street, Upper Street (about 300 yards from the Agricultural Hall), on WEDNESDAY, December 11, 1867, at 3 o'Clock, P.M., closing in time to enable Ladies and Gentlemen present to attend also the Dinner of the Smithfield Club at 6 o'Clock. The following Gentlemen, Members of the Council, and other friends of the Association will be present:—

The Right Hon. W. Cowper, M.P.
Walter Morrison, Esq., M.P.
Thomas Hughes, Esq., M.P.
Edward Vansittart Neale, Esq.
James Beal, Esq.
Frederick Pennington, Esq
Edward Owen Greening.

Tickets for Reserved Seats (Ladies and Gentlemen), 1s. each; other tickets Free on application previous to the time of Meeting.—Offices, 29, Parliament Street, Westminster, S.W.; 4, Warren Street, Manchester.

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SMITHFIELD CLUB CATTLE SHOW,
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CARTER'S WARDEN AND CHAMPION ORANGE GLOBE MANGELS,
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PRICED LISTS may be had, and ORDERS received for SEED, at the STAND, as above.

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HOGG & ROBERTSON,

SEED MERCHANTS,
22, MARY STREET, DUBLIN,

WILL EXHIBIT

SPECIMENS OF THEIR CELEBRATED SWEDE TURNIPS,

INCLUDING

HOGG'S SELECT PURPLE-TOP,

Which has for some years past gained many leading Prizes throughout the three kingdoms in competition in the Field as well as Show-yard. Also Specimens of their YELLOW and WHITE-FLESHED TURNIPS, MANGEL, and other Roots.

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PRICED CATALOGUES will be sent Free by Post on application.

Editorial Communications should be addressed to "The Editor." Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.

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THE GARDENERS' CHRONICLE
AND
AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.

No. 50.—1867.] SATURDAY, DECEMBER 14. {Price Fivepence. {Stamped Edition, 6d.

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ROYAL BOTANIC SOCIETY'S GARDENS, Regent's Park.—ARRANGEMENTS for 1868.
SPRING EXHIBITION, every day, MARCH 21 to 28.
EXHIBITIONS of PLANTS, FLOWERS, and FRUIT, MAY 27, 28; JUNE 17, 18; JULY 1, 2.
AMERICAN PLANTS, every day, JUNE 1 to 13.
Schedule of Prizes will be ready in a few days.
By order of the Council. J. De C. Sowerby, Secretary.

PAUL AND SON'S ROSES.—See *Athenæum*.—The Advertiser's DESCRIPTIVE CATALOGUE, very carefully prepared, will be found of service during present planting season. Post free on application.
The "Old" Nurseries, Cheshunt, Herts.

Standard Marechal Niel Roses.
JOHN AND CHARLES LEE have a fine stock of STANDARDS of the above splendid YELLOW ROSE to offer at 5s. each; strong budded Dwarfs, 2s. 6d. each. Also fine Standard TEA ROSES of all the best kinds at 2s. each.
Royal Vineyard Nursery and Seed Establishment, Hammersmith, London, W.

To the Trade.
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G. Baker & Son, American Nursery, Bagshot.

"THE ROSES of MR. PAUL * * * are things to see once and dream of for ever."—*Athenæum, June*, 1867.
Wm. Paul begs to announce that his CATALOGUE of ROSES is now ready, and will be forwarded free on application.
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Paul's Nurseries, Waltham Cross, London, N.

CULTURAL DIRECTIONS for the ROSE. Second Edition. By John Cranston, King's Acre Nurseries, near Hereford. Free by post from the Author for 20 stamps.

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OAK TREES, 3 to 4 feet, 15s. per 1000.
3-yr. ASPARAGUS, very good, 10s. per 1000, for cash, of A. C. Wilkin, Tiptree, Kelvedon, Essex.

Viola cornuta; Raphanus caudatus.
JOHN BRADDICK, of Land Sidmouth, Devon, will forward a packet of each of the above on the receipt of twelve postage stamps.

SUTTONS' COLLECTIONS of GENUINE HOME-GROWN SEEDS ARE NOW READY.
For prices, see page 1265.

EVERY GARDEN REQUISITE kept in Stock at Carter's New Seed Warehouse, 237 & 238, High Holborn, London.

Genuine Garden and Agricultural Seeds.
JAMES CARTER AND CO.
Seed Farmers, Merchants, and Nurserymen, 237 & 238, High Holborn, London, W.C.

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CHARLES SHARPE AND CO., Seed Merchants, Sleaford, will be glad to send, on application, a Special PRICED LIST of KITCHEN GARDEN SEEDS of their own saving this season.

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M. A. Ivery, Hanover Nursery, Peckham, S.E.

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H. & F. Sharpe, Wisbech.

MILKY WHITE POTATO.—Well-known and acknowledged to be the best Potato in cultivation, at 4s. per peck of 14 lb.; or 15s. per bushel of 56 lb. Guaranteed true and free from disease. Apply to
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THE ONLY PRIZE MEDAL for ENGLISH GARDEN and FLOWER SEEDS was awarded to Sutton & Sons, Seed Growers, Reading.

CHEAP SPRING BLOOMING BULBS and PLANTS. See Barr & Sugden's Advertisement, page 1212.

Winter and Spring Flowering Bulbs and Plants.
BARR AND SUGDEN'S FLORAL GUIDE may be had free. It contains much valuable information.
For particulars see large Advertisement, page 1090.

To the Trade.
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Ogle's Grove Nursery, Hillsborough, Co. Down.

SUPERB LILIES, in 70 finest varieties. Selections, 5s., 9s., 12s., 18s., and 24s. per dozen.
Stephen Brown, Seed and Nursery Establishment, Sudbury, Suffolk.

WM. CUTBUSH AND SON beg to say that their DESCRIPTIVE CATALOGUE of CHOICE HYACINTHS, TULIPS, CROCUSES, &c., is now ready, and can be had post free on application. Highgate Nurseries, London, N.

Hyacinths, Tulips, Crocuses, &c.
B. S. WILLIAMS has a fine Collection of the above. PRICED CATALOGUE post free on application.
HYACINTHS for Glasses or Pots, 6s., 8s., and 10s. per dozen.
Victoria and Paradise Nursery, Upper Holloway, London, N.

Notice.—Fruits, Flowers, Bulbs.
Before purchasing, please send for
DILLISTONE AND CO.'S LITTLE LISTS, post free to all applicants.
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SUTTONS' AMATEUR'S GUIDE IS NOW READY.
Price 1s.; gratis to customers.

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British Fern Catalogue.
ROBERT SIM can now send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his NEW and PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.
Foot's Cray Nursery, S.E., a mile from Sidcup Station of New North Kent Line of South Eastern Railway.

LASTRÆA FILIX-MAS, var. CRISPA-GRACILIS.—This new and undeniably prettiest of all the Dwarf male FERNS, may now be had, at 5s. per plant, from John Clark, Gardener, Newburgh, Fifeshire. Many other rare sorts. Trade supplied.

To the Trade.—Christmas Trees.
THOMAS S. WARE, Hale Farm Nursery, Tottenham, has many Thousand SPRUCE for SALE. Samples and price (which are very low) on application, or they can be seen on the ground.

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Thomas Imrie & Sons, Nurserymen and Seedsmen, Ayr.

To the Trade.—Arbor-vitæs.
HUSSEY AND SON beg to offer very fine bushy CHINESE ARBOR-VITÆ, 3 to 4 feet high, at 50s. per 100; also strong RED CURRANTS, 8s. per 100.
Mile End Nursery, Eaton, Norwich.

To the Trade.
FOR CASH, 200,000 SPANISH CHESTNUTS, 2 to 5 feet; and 200,000 LAUREL (bushy plants), 2½ to 3 feet.
For price apply to T. Thornton, Frimley, Surrey.

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JOHN AND CHARLES LEE beg to offer a fine healthy stock of the various kinds of PLANES, of all heights, up to 16 feet. The Trees are well grown, with straight stems and good heads. LIMES, 10 to 12 feet.
Royal Vineyard Nursery and Seed Establishment, Hammersmith, London, W.

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ASPARAGUS ROOTS, 5-yr. old, 3s. per 100. Terms cash.

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MADRESFIELD COURT BLACK MUSCAT GRAPE. See large Advertisement in No. 44, November 2, 1867.
John & Charles Lee, Royal Vineyard Nursery, Hammersmith, London, W.

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B. S. WILLIAMS has now on hand a very large and fine Stock of FRUITING and PLANTING CANES of all the best varieties. An inspection is invited.
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J. MEREDITH will have great pleasure in forwarding his PRICED LIST of VINES on application. He has the largest stock in England. An inspection is invited.
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H. LANE AND SON solicit an inspection of their stock of VINES; 2000 Canes to choose from, strong and well ripened. They have been awarded the First Prize for Vines in pots at all the leading Exhibitions. CATALOGUES free on application.
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TO BE DISPOSED OF, about 60 Plants, principally QUEENS; a few CAYENNES, JAMAICAS, and PROVIDENCE, very clean, stout, good plants, several showing, and will no doubt produce fine fruit. Apply to
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APPLE TREES for ORCHARDS or GARDENS. Price on application.
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PYRAMIDAL APPLES and PEARS, by the dozen or hundred.
Standard MEDLARS, THUJA AUREA, well-grown and handsome.
Address, Wm. Wood & Son, Woodlands Nursery, Maresfield, near Uckfield, Sussex.

Fruiting Trained Trees.
THOMAS JACKSON AND SON, having a great extent of high walls, have many large TRAINED TREES; and as they are making much alteration in their Nursery, they now offer them at greatly reduced prices. An inspection is invited.
Kingston, S.W.

RICHARD SMITH'S FRUIT LIST contains a sketch of the various forms of Trees, with directions for Cultivation, Soil, Drainage, Manure, Pruning, Lifting, Cropping, Treatment under Glass; also their synonymes, quality, size, form, skin, colour, flesh, flavour, use, growth, duration, season, price, &c. Free by post for three stamps.
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SPECIMEN IRISH YEWS.—Very handsome specimens of the above, 7, 8, 9, and 10 feet high, from 5s. to 21s. each.
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THIRTY THOUSAND AMERICAN ARBOR-VITÆ, from 3 to 6 feet, very suitable for Hedges.
Wm. Wood & Son, Woodlands Nursery, Maresfield, near Uckfield, Sussex.

ONE HUNDRED THOUSAND fine Transplanted COMMON LAURELS, from 1½ to 3 feet.
Wm. Wood & Son, Woodlands Nursery, Maresfield, near Uckfield, Sussex.

PLANTING SEASON.—The Subscribers respectfully intimate that their PRICED LIST of FOREST TREES, &c., is now ready, and may be had on application.
Wm. Urquhart & Sons, Nurserymen, Dundee.

EXTRA FINE transplanted SPRUCE FIRS, for CHRISTMAS TREES, well feathered, by the dozen, 100, or 1000.—Address, Wm. Wood & Son, Woodlands Nursery, Maresfield, near Uckfield, Sussex.

Wholesale Catalogue.
GEORGE JACKMAN AND SON'S PRICED and DESCRIPTIVE CATALOGUE of HARDY NURSERY STOCK for 1867 and SPRING, 1868, can be had free on application.
Woking Nursery, Surrey.

Forest Trees.
PETER LAWSON AND SON, Edinburgh and London, have to intimate that their Stock of Seedling and Transplanted LARCH, SCOTS FIR, AUSTRIAN PINE, CORSICAN PINE, SPRUCE, ASH, BEECH, BIRCH, CHESTNUT, ELM, OAK, and other TREES, is most extensive, and of very superior quality.
CATALOGUES and special offers upon application.

Ornamental Trees and Shrubs.
PETER LAWSON AND SON, Edinburgh and London, will be glad to forward their CATALOGUE for the present Season free upon application.

Vines.
PETER LAWSON AND SON, Edinburgh and London, have a large Stock of very superior FRUITING and PLANTING CANES of all the leading sorts, at 5s., 7s. 6d., and 10s. 6d. each.

FOR CASH, 150,000 well-rooted LARCH (unusually cheap), twice transplanted, 3 to 4 feet high. Prices and samples sent to Trade and other addresses within 100 miles of Cardiff carriage free. No reasonable offer will be refused for the whole in One Lot.
Apply to W. Treseder, Nurseryman, Cardiff.

Viola Lutea (Yellow-flowered Violet).

B. S. WILLIAMS has much pleasure in being enabled to offer Choice and Selected Seed of the above beautiful Plant. Habit dwarf yet vigorous, foliage dark glossy green, flowers bright yellow, which are produced in great profusion all through the early Spring, Summer, and Autumn months. The plant does not grow more than 5 inches high; it is perfectly hardy, therefore well adapted for small beds, edgings, or marginal lines. It is without doubt the best yellow-flowered bedding plant in cultivation. It was spoken very highly of in the leading article of the *Gardeners Chronicle*, November 2.

Mr. Fish, in his remarks about Violas (*Gardeners' Chronicle*, October 26), states that Viola lutea is a perfect gem, and is invaluable for a dwarf yellow bed or edgings. It is a bright yellow, of the most compact habit, and seems to flower more freely than V. cornuta.

Remarks by Mr. E. BENNETT, *The Gardens, Osberton Hall, Worksop.*

"Viola lutea, which has just risen so high in the estimation of all that have seen it in perfection, is undoubtedly a little gem, and will be much sought after this ensuing season. It is perfectly hardy, more dwarf in habit than V. cornuta; the foliage more striking, and flowers equally or even more freely; truly valuable for forcing, and blossomed profusely with me during the past spring. Indeed to see it in such perfection as I have done from early spring to October, I am justified in saying it is a most charming addition to the flower garden, more especially for small beds and front lines, for which it is so well adapted. Like all Violas it requires good rich soil and plenty of Manure, and prefers a moist situation."

Price 1*s.*, 1*s.* 6*d.*, and 2*s.* 6*d.* per packet.

VIOLA PURPLE QUEEN, true stock, 6*d.* and 1*s.* per packet.
VIOLA MAUVE QUEEN, true stock, 6*d.* and 1*s.* per packet.

B. S. WILLIAMS, Victoria and Paradise Nursery, Upper Holloway, N.

JOHN CRANSTON'S CATALOGUE of SELECTED ROSES is now ready and will be forwarded on application.

J. C. respectfully directs attention to the following LIST of FIRST PRIZES which have been awarded to him at the principal Rose Shows of the present year, proving beyond a doubt that the soil and climate of his Nurseries are unrivalled for the Cultivation of Roses.

Royal Botanic Society, Regent's Park, London.
June 19.—24 Varieties, Cut Roses, one truss each, FIRST PRIZE
Cirencester.
June 19.—36 Varieties, Cut Roses, three trusses each, FIRST PRIZE
Clifton.
June 26.—24 Varieties, Cut Roses, one truss each, FIRST PRIZE
Crystal Palace.
June 29.—72 Varieties, Cut Roses, one truss each, FIRST PRIZE
Royal Horticultural Society, South Kensington.
July 2.—72 Varieties, Cut Roses, one truss each, FIRST PRIZE
Birmingham.
July 4, 5.—72 Varieties, Cut Roses, one truss each, FIRST PRIZE
24 Varieties, Cut Roses, three trusses each, FIRST PRIZE
Hereford.
July 9.—72 Varieties, Cut Roses, one truss each, FIRST PRIZE
24 Varieties, Cut Roses, three trusses each, FIRST PRIZE
Rugby
July 12.—72 Varieties, Cut Roses, one truss each, FIRST PRIZE
Nurseries, King's Acre, near Hereford.

Extensive and well-grown Nursery Stock.

J. SCOTT, Merriott Nurseries, Somerset, has to offer FOREST TREES in large numbers, finely rooted and in perfect health. ORNAMENTAL TREES and SHRUBS of all sizes in quantity, beautifully grown and regularly transplanted.

Intending Planters would do well to visit these fine Nurseries, which have been established 150 years, and are by far the largest in Somerset. CATALOGUES on application.

Green Hollies, 4 to 7 feet.

GEORGE CHIVAS, Chester, offers several Thousands of the above, very handsome plants, in excellent condition for removing; also an exceedingly large stock of extra strong THORNS, and many Millions of FOREST TREES, including LARCH of all sizes, SCOTCH FIR, twice transplanted, 1½ to 3 feet; SPRUCE, 1 to 3½ feet, thin on the ground; ASH, 2½ to 5 feet; ELM, 3 to 6 feet; SYCAMORE, 3 to 6 feet; OAKS, ALDERS, BIRCH, &c. PRICED LISTS on application.

Loughborough Nurseries, Leicestershire.

GEORGE BOWMAN begs to offer the following at low prices, fine well-rooted trees:—MOUNTAIN ASH, 10 feet; SCOTCH, 2 to 3 feet; BIRCH, 6 to 8 feet; HORNBEAM, strong, 6 to 10 feet; POPLARS, 10 to 12 feet; ALDER, 10 feet; SNOWBERRY, strong, 4 to 6 feet, 40*s.* per 1000; PRIVET, fine, 4 to 5 feet, 30*s.* per 1000; BLACK THORN, 3 feet, 40*s.* per 1000; LAURELS, fine, 3 feet, 20*s.* per 100, LABURNUMS, strong, 8 feet, 6*s.* per dozen; BOX TREE, fine bushy, 3 feet, 20*s.* per 100; LIMES, 10 to 12 feet, fine.

Rhododendrons,

AS EXHIBITED AT THE ROYAL BOTANIC GARDENS, REGENT'S PARK.

JOHN WATERER, the Exhibitor at the above Gardens, has pleasure in announcing that his CATALOGUE of the above popular Plants is now published, and will be forwarded to all applicants. It faithfully describes all the varieties considered worthy of cultivation. It contains likewise a selection of HARDY CONIFERS, with heights and prices.

The American Nursery, Bagshot, Surrey.

Hardy, Scarlet, and other choice named Rhododendrons.

W. H. ROGERS, Red Lodge Nursery, Southampton, offers the above in quantity at £10 per 100, or selected in fine and distinct colours, 30*s.* per dozen. The plants are strong, bushy, and well rooted. The sorts (about 200) are magnificent, and none finer in cultivation. A limited number of larger specimens, full of blooming buds, 5*s.* each. A detailed CATALOGUE may be had on application; and also of a very fine Collection of CONIFERÆ, ROSES, and GENERAL NURSERY STOCK, extending over 60 Acres.

Rhododendrons, &c.

JAMES SMITH, Darley Dale Nurseries, near Matlock, offers the following:—

150,000 RHODODENDRON PONTICUM, beautiful healthy plants, 9 to 15 inches, 15*s.* per 100; £6 10*s.* per 1000
150,000 RHODODENDRON PONTICUM, fine bushy plants, 1 to 1½ foot, 20*s.* per 100; £9 10*s.* per 1000
60,000 RHODODENDRON PONTICUM, fine plants, 1½ to 2 feet, 25*s.* per 100; £12 per 1000
10,000 RHODODENDRON WHITE MAXIMUM, 1 to 1½ foot, 5*s.* per dozen; 30*s.* per 100
20,000 RHODODENDRON HIRSUTUM, the Dwarf Alpine Rhododendron.—Nice little plants, 3*s.* per dozen; 15*s.* per 100
10,000 RHODODENDRON HYBRIDUM, 1 to 1½ foot, bushy plants, 5*s.* per dozen; 30*s.* per 100
5,000 AZALEA PONTICUM, the sweet Azalea.—Beautiful bushy plants, 12 to 18 inches, mostly in bloom bud, 3*s.* per dozen; 20*s.* per 100. Ditto, 15 to 24 ins., 5*s.* per dozen; 30*s.* per 100
50,000 HARDY HEATHS, in about 20 varieties.—Good plants, in fine health, 3*s.* to 4*s.* per dozen; 10*s.* to 15*s.* per 100. Also about 20 varieties at 5*s.* to 7*s.* per dozen
12,000 DOUBLE WHIN, GORSE, or FURZE, nice plants, well rooted, 2*s.* 6*d.* per dozen; 12*s.* per 100. Also, in pots, at 4*s.* per dozen; 20*s.* per 100
30,000 COTONEASTER MICROPHYLLA, 6 to 12 inches, 2*s.* 6*d.* per doz.; 12*s.* per 100. 1½ to 2 feet, 3*s.* per doz.; 15*s.* per 100
20,000 ARBOR-VITÆ, AMERICAN, beautiful plants, with fine roots, 1½ to 2 feet, 2*s.* per dozen; 12*s.* per 100. 2 to 3 feet, 2*s.* per dozen; 15*s.* per 100. 2½ to 3 feet, 2*s.* 6*d.* per dozen; 18*s.* per 100. 3 to 4 feet, 3*s.* per dozen; 20*s.* per 100. 4 to 5 feet, 6*s.* per dozen; 5 to 6 feet, 12*s.* per dozen
5,000 PORTUGAL LAURELS, 2 to 3 feet, beautiful plants, thrice transplanted, fine roots, 4*s.* per dozen; 20*s.* per 100
40,000 EVERGREEN PRIVET, 2 to 3 feet, fine plants for Hedges or Game Covert, 2*s.* 6*d.* per 100; 22*s.* per 1000
10,000 IRISH IVY, nice plants, 2*s.* per dozen; 8*s.* per 100
900,000 LARCH, transplanted, fine healthy plants, not the least injured by frost or any disease, 1½ to 2 feet, 14*s.* per 1000; 2 to 3 feet, 16*s.* per 1000; 3 to 4 feet, 18*s.* per 1000; 4 to 5 feet, 19*s.* per 1000

All the above will be delivered free at Matlock Bridge, or Darley Stations, on the Midland Railway.

A CATALOGUE of GENERAL NURSERY STOCK, including Forest Trees, Flowering Shrubs, named Rhododendrons, &c., sent free by post. The Trade supplied. Apply to

JAMES SMITH, Darley Dale Nurseries, near Matlock.

GREENHOUSE FERNS.—Asplenium alternans, Blechnum cartilaginium, Anæmidictyon phyllitides, Cyrtomium falcatum, Doodia dives, Lastrea erythrosora, Lastrea podophylla, Lastrea glabella, Leptogramma asplenioides, Lygodium scandens, Microlepia strigosa, Nephrodium molle polydactylla, Pellœa geranifolia, Scolopendrium Krebsii, Leptogramma rupestris. Any 12 of the above for 9*s.*, or 1*s.* each.

HENRY MAY, The Hope Nurseries, Bedale, Yorkshire.

THREE MILLION strong 4-yr. transplanted QUICK.
1,000,000 good 2-yr. transplanted QUICK.
2,000,000 superior Seedling QUICK.
100,000 good strong LARCH, 4 to 6 feet.
100,000 good strong LARCH, 2 to 4 feet.
For samples and prices apply to
JOHN HEMSLEY, High Fields, Melbourne, near Derby.

New Double Crimson Thorn.

WM. PAUL has still a few good FLOWERING PLANTS, established in Pots, of this first-class new Forcing Plant, price 5*s.* each. First-class Certificates at International, Royal Horticultural, and Royal Botanic Societies. It was also forced and exhibited by him on several occasions last spring.

PAUL'S Nurseries, Waltham Cross, N.

Hazel, Larch, Scotch, &c.

J. SCOTT, Merriott Nurseries, Somerset, offers to Planters Five Acres of Transplanted HAZEL, from 3 to 4, and 4 to 5 ft., very fine; and large breadths of LARCH, SCOTCH, ASH, OAK, THORN, &c. Extensive Planters supplied at reduced prices. PORTUGAL LAURELS, YEWS and BOX, large and finely grown, to be SOLD, a Bargain. CATALOGUES on application.

CHARLES NOBLE.
10,000 CHRISTMAS TREES.
20,000 DEUTZIA CRENATA FLORE-PLENO.
10,000 HYBRID PERPETUAL ROSES, Dwarf.
500,000 RHODODENDRON PONTICUM.
50,000 " finest named.
100,000 MUSSEL STOCKS.
30,000 MAIDEN and PYRAMIDAL PEARS, APPLES, CHERRIES, PLUMS, PEACHES, and NECTARINES
20,000 ERICA HERBACEA.
The above and many other things on offer.
CATALOGUES now ready.
Bagshot, December 7.

Planting Season.

DICKSONS AND CO., NURSERYMEN, SEEDSMEN, and FLORISTS, 1, Waterloo Place, Edinburgh, have this season a fine healthy stock of all kinds of FOREST TREES, which have been grown on exposed ground and thin in the lines, comprising LARCH (Native and Tyrolese), 1, 2, and 3-yr., transplanted; SCOTCH FIR, from true native seed, 2 and 3-yr., twice transplanted; SPRUCE, 2, 3, and 4-yr., twice transplanted; OAK, 2 to 3 ft. and 3 to 4 ft., extra fine; ASH, 2 to 3 ft. and 4 ft., extra; SPANISH CHESTNUT, 3 to 4 ft., very fine; ELM, 3 to 4 ft.; ALDER, 2 to 3 ft. and 4 ft., strong; LIMES, of all sizes, from 3 to 12 ft.; POPLARS and WILLOWS, of all sizes; EVERGREEN PRIVET, extra strong; THORNS and BEECH for hedges, and all kinds of plants suitable for cover for game. ORNAMENTAL TREES and SHRUBS, FRUIT TREES, ROSES, GREENHOUSE and STOVE PLANTS and FERNS in great variety.

PRICED CATALOGUES free on application.

Now Ready, price 1*s.*, Gratis to Customers,

SUTTONS' SPRING CATALOGUE

AND

AMATEUR'S GUIDE for 1868.

Containing much useful information in FLORICULTURE, HORTICULTURE, and AGRICULTURE, with ORIGINAL ARTICLES on CULTIVATION, and HINTS on the FORMATION and IMPROVEMENT of GARDEN LAWNS, CROQUET GROUNDS, &c., &c.

Also Ready, Gratis and Post Free on application,

SUTTONS' SHORT SELECT SEED LIST.

The only PRIZE MEDAL for ENGLISH GARDEN and FLOWER SEEDS, PARIS, 1867,
WAS AWARDED TO
SUTTON AND SONS, ROYAL BERKSHIRE SEED ESTABLISHMENT, READING.

NEW POTATO—VEITCH'S IMPROVED EARLY ASHLEAF KIDNEY.

MESSRS. JAMES VEITCH & SONS

HAVE MUCH PLEASURE IN OFFERING,

FOR THE FIRST TIME, THIS SPLENDID SEEDLING VARIETY,

which they feel every confidence in *most strongly* recommending.

It is, without exception, the *most abundant* cropping early Kidney variety ever offered; whilst its quality, form, and colour are unexceptionable, and in earliness it is second to none.

As a Forcing Potato it *must* take a foremost place from its great bearing qualities and earliness, and it is also in every respect desirable for general out-door planting. The stock being limited, early orders are requested.

Price per Peck, 5s.

SEED CATALOGUE for 1868 now ready, Post Free on application.

ROYAL EXOTIC NURSERY, KING'S ROAD, CHELSEA, S.W.

BARR & SUGDEN'S ILLUSTRATED SHEET OF ELEGANCIES,

SUCH AS JARDINETS, ETC., FOR WINTER DECORATION AND CHRISTMAS PRESENTS.

BARR & SUGDEN,

THE METROPOLITAN SEED, BULB, AND PLANT WAREHOUSE,

12, KING STREET, COVENT GARDEN, LONDON, W.C.

Orders amounting to 21*s. sent Carriage Paid.*

COLLECTIONS of BULBS for Blooming Out-of-doors in Winter and Spring, 10*s.* 6*d.*, 21*s.* 42*s.*, 63*s.*, and 84*s.*
" " In-doors in Winter and Spring, 10*s.* 6*d.*, 21*s.*, 42*s.*, 63*s.*, and 84*s.*
" CLIVEDEN Spring Blooming Plants, 12*s.* 6*d.*, 25*s.*, 50*s.*, and 100*s.*

For full particulars of the above Collections, see *Gardeners' Chronicle*, November 23; or,
"THE GUIDE to WINTER and SPRING GARDENING"—a copy of which free on application.

SPECIAL GUINEA BASKET of IMPORTED BULBS.

Sent Carriage Paid on receipt of a Remittance.

COLLECTION No. 1.—IMPORTED DUTCH BULBS for the Flower Garden, to Bloom Winter and Spring, 21*s.*:—40 beautiful HYACINTHS, 100 do. NARCISSUS, 100 do. TULIPS, 200 do. CROCUS, 100 SNOWDROPS, 25 do. ENGLISH IRIS, 50 do. RANUNCULUS, 50 do. ANEMONES, 25 SCILLAS. Half the quantity, 10*s.* 6*d.*

COLLECTION No. 2.—IMPORTED DUTCH BULBS for In-doors, to Bloom in Winter and Spring, 21*s.*:—30 splendid named HYACINTHS, 30 do. POLYANTHUS NARCISSUS, 50 do. TULIPS, 100 do. CROCUS, 100 SNOWDROPS, 12 IRIS PERSICA, 12 IRIS PAVONIA, 2 CYCLAMEN PERSICUM. Half the quantity, 10*s.* 6*d.*

LILIUM AURATUM, 2*s.* 6*d.*, 3*s.* 6*d.*, 5*s.* 6*d.*, and 7*s.* 6*d.* each.
LILIUM LANCIFOLIUM ROSEUM, RUBRUM, and ALBUM, 10*s.* 6*d.* and 15*s.* per dozen, 1*s.* and 1*s.* 6*d.* each.
GLADIOLI, all the very best and newest kinds, varying in price from 3*d.* to 10*s.* 6*d.* each. The most showy varieties, such as BOWIENSIS and BRENCHLEYENSIS, 21*s.* per 100.

HYACINTHS, TULIPS, CROCUS, NARCISSUS, SNOWDROPS, IRIS, SCILLAS, ANEMONES, RANUNCULUS, &c., for Spring Blooming, cheap in quantity; PANSIES, DAISIES, ARABIS ALBIDA, ARABIS VARIEGATA, for Edgings and Ribbons; AUBRETIA, AJUGA FORGET-ME-NOT, VIOLA CORNUTA, POLYANTHUS, PHLOX FRONDOSA, IBERIS, HEPATICAS, red and blue; WALLFLOWER, FORGET-ME-NOT, SILENE, &c., for Spring Blooming, cheap in quantity.

BARR AND SUGDEN, 12, KING STREET, COVENT GARDEN, LONDON, W.C.

PAUL AND SON invite attention to, and an inspection of, their stock of the following plants, which they are able to offer in large quantities:—

ROSES.—Standards and Half-standards, selection left to Messrs. PAUL & SON, 18s. per doz.; Dwarf Standards and Dwarfs, 12s. per doz. Their stock at the commencement of the season, they believe unsurpassed in quality, is still unexhausted.

NOVELTIES.

PRINCESS MARY of CAMBRIDGE, Standards or Dwarfs, 2s. 6d.
COMTESSE JAUCOURT, Standards or Dwarfs, 5s. each. [each.
MARECHAL NIEL, fine Standards, 3s. 6d to 5s. each.
NEW ROSES of 1867, Dwarfs, 30s. per dozen.
FRUIT TREES.—They invite particular attention to their Standards for Orchard Culture; young, vigorous, and healthy trees of the leading kinds for the purpose supplied as under:—
STANDARD APPLES, 5½ to 6 feet stems, and good heads, 18s. per doz, £6 to £7 10s. per 100.
STANDARD PEARS, 24s. per doz., £7 10s. per 100.
STANDARD PLUMS and CHERRIES, 24s. per doz.
FRUITING PYRAMID APPLES, on Crab or Paradise, 18s. per doz.
FRUITING PYRAMID PEARS, on Quince, 30s to 42s. per doz.
FRUITING PYRAMID CHERRIES, 30s. per dozen.
MORELLOS, on Mahaleb, particularly fine, 30s. per dozen; price per 100 on application.
DWARF-TRAINED PEACHES and APRICOTS, 60s. per dozen.
STANDARD WALL-TRAINED PEACHES and APRICOTS, 7s. 6d. to 10s. 6d each.
Fine FRUITING HAMBURGH VINES, 7s. 6d. each.
Good Planting CANES of all leading kinds, 5s. each.

LARGE EVERGREENS, CONIFERÆ, &c.

AMERICAN ARBOR-VITÆ, 6 feet, 18s. per dozen.
CHINESE ARBOR-VITÆ, 6 to 8 feet, 30s per dozen.
WARE'S ARBOR-VITÆ, 2 to 5 feet, very fine.
ABIES MENZIESII, 6 feet, 24s. per dozen.
ARAUCARIA IMBRICATA, 2 feet, 42s. per dozen; 2½ to 3 feet, 60s. to 84s. per dozen; 3 feet and upwards, 7s. 6d. to 21s. each. Perfectly uninjured by frost.
ARBUTUS, choice sorts, 2 to 3 feet, 42s. per dozen.
CEDRUS ATLANTICA, 2½ to 3 feet, 18s. to 30s. per dozen.
CUPRESSUS LAWSONIANA, 3 to 4 feet, £5 per 100; 4 to 5 feet, £7 10s. per 100; 6 to 7 feet, £10 per 100.
Picked Plants, each, or per dozen, charged Higher.
LAURELS, Common, 5 to 6 feet, bushy, £5 to £6 per 100; 6 to 8 feet, £7 10s. per 100.
Smaller Sizes, per 100 or 1000, on application.
LAURELS, PORTUGAL, 2½ to 3 feet, £5 per 100; 3 to 4 feet, £6 to £7 per 100.
RED CEDARS, of sizes, 4 to 6 feet
PINUS MURICATA, one of our richest coloured Pines, 3 to 6 feet, 2s. 6d. to 5s. each; 24s. to 42s. per dozen.
PINUS HARTWEGII, 2½ to 3 feet, 60s. per dozen.
" DEVONIANA, 1½ foot, 60s. per dozen.
" BENTHAMIANA, 2½ to 3 feet, 42s per dozen.
" INSIGNIS, 6 to 8 feet, 42s per dozen.
" MACROPHYLLA, 1½ to 2 feet, 60s. per dozen.
" MACROCARPA, 2 to 2½ feet, 30s. to 42s. per dozen.
PICEA PINSAPO, 1½ to 2 feet, 36s per dozen.
" NORDMANIANA, 1 foot, 30s. per dozen.
The above Abies, Cupressus, Pinus, and Piceas, are worthy of purchase for ornamental spots in woods, parks, &c.
RHODODENDRON PONTICUM, 2 to 3 feet, for cover or plantations, 20s. to 75s. per 100.

STANDARD ORNAMENTAL TREES.

PLANES, LIMES, POPLARS, MAPLES, LABURNUMS, and THORNS, 10 to 12 feet, from £5 to £7 10s. per 100, as chosen.

NOVELTIES.

PAUL & SON'S NEW DOUBLE CRIMSON THORN.—First-class Certificate Royal Botanic Society and International Exhibition, a fine addition to our valued spring-flowering trees.
STRONG FLOWERING PYRAMIDS, 5s. each; 50s. per dozen.
STANDARDS, 5s. each; in Pots for Forcing, 3s. 6d. each.
CERASUS MAHALEB VARIEGATA (Standards), 5s. each.
CORNUS MAS. VARIEGATA (Standards), 2s. 6d. each; 24s. per dozen.
The two last fine companions to Acer negundo variegata, now well known.
DESCRIPTIVE CATALOGUES post free on application.
The "Old" Nurseries, Cheshunt, Herts.

Large Evergreens, Specimen Conifers, &c.

WATERER AND GODFREY beg to submit the following List to the notice of intending planters:—

YEWS, ENGLISH, 5, 6, 7, 8, 10, 12, and 15 feet high
" IRISH, 6, 7, 8, and 10 feet high
" GOLDEN, 5, 6, to 9 feet
" STANDARD GOLDEN, 20 years worked
" " ELEGANTISSIMA, 10 and 15 years old
" " DOVASTON or WEEPING, fine heads, 10 and 15 years old
We have altogether thousands of these different Yews of the large sizes Every plant has been recently removed.
HOLLIES, COMMON GREEN, 6, 7, 8, 10, 12, and 15 feet high, and as much in circumference—hundreds
" LAURIFOLIA and SCOTTICA, 6, 7, 8, and 10 feet, and wide in proportion
" WATERER'S, the hardiest of all variegated Hollies, 4 and 5 feet by 10 and 12 feet in circumference
" THE QUEEN, or best gold striped, the handsomest of all variegated Hollies
We have hundreds of these beautiful plants, 4, 5, and 7 feet high and wide
" STANDARD, WATERER'S, and GOLDEN, with fine heads, 15 and 20 years worked
☞ We have some thousands of the ordinary kinds of Variegated Hollies, 4, 5, 6, and 7 feet high. Every plant has been removed within 12 months.
CEDRUS DEODARA, some thousands, 6, 7, 8, and 10 feet high
" ATLANTICA, and Cedars of Lebanon, moved in April, 4, 5, 6, and 8 feet
" RED VIRGINIANS, 5, 6, and 7 feet
CHINESE JUNIPER, one of the handsomest and hardiest of all evergreens—thousands of beautiful plants, 4, 5, 6, 7, and 8 feet high; some magnificent plants, 10, 12, and 15 feet high, 12 to 20 feet in circumference
THUJA AUREA, 3, 4, and 5 feet high, 7 to 20 feet in circumference
" GIGANTEA, 10, 12, and 15 feet high, very handsome
" LOBBII, splendid plants, 7, 8, to 10 feet high, and 12 and 15 feet round—hundreds
CUPRESSUS LAWSONIANA, the finest stock—many thousands, 6, 7, 8, 10, to 15 feet high, and as much in circumference
THUJOPSIS BOREALIS, 4, 5, 8, and 10 feet high, 7 to 12 feet in circumference—hundreds
PORTUGAL LAUREL, 4 and 5 feet high, 7 and 8 feet round
BOX, Green and Variegated, 4, 5, 6, 7, and 8 feet—thousands
PICEA NOBILIS, splendid plants, moved in spring, 4, 5, 6, and 8 feet
" NORDMANNIANA, 4, 5, 6, 8, 10, and 15 feet high [high
None of our Nobilis or Nordmannianas are grafted plants.
" MAGNIFICA or NOBILIS ROBUSTA, the finest stock in the trade, all seedlings, 2 to 4 feet high
" LASIOCARPA, hundreds of plants, 4, 5, 6, and 7 feet high, all
ABIES DOUGLASSII, 5, 6, 7, and 8 feet [seedlings
" ORIENTALIS, 4, 5, 6, 7, to 10 and 12 feet; 7 to 20 feet in circumference; most beautiful plants
PINUS CEMBRA, 6, 7, to 9 feet
" PINSAPO, 3, 4, 5, and 6 feet
" " Some very fine plants, 10 to 20 feet high, 15 and 25 feet in circumference
WELLINGTONIA GIGANTEA, a large number, all removed recently, 4, 5, 6, & 10 ft. high, & 12 and 15 ft. in circumference
RHODODENDRONS.—We have 40 acres of land in one piece filled almost exclusively with Rhododendrons. A more healthy and beautiful stock cannot be desired.
STANDARD RHODODENDRONS.—Some of the finest plants to be found in any nursery, many are 20 to 40 years old
☞ The large Standard and other Rhododendrons planted last spring in Rotten Row, Hyde Park, were supplied by WATERER & GODFREY.

We do not quote prices, we presume purchasers of such large plants will adopt the much wiser, and always more satisfactory course, of seeing and judging for themselves.

We solicit an inspection and invite comparison with any other similar nursery stock in the kingdom.

The Knap Hill Nursery is upwards of 150 acres in extent, and contains an enormous and very superior stock of the ordinary sized EVERGREENS, DECIDUOUS ORNAMENTAL TREES, &c.

A PRICED and DESCRIPTIVE CATALOGUE will be forwarded free on application to

WATERER & GODFREY Knap Hill Nursery, Woking, Surrey.

The Nursery is readily reached by Train, 40 minutes from Waterloo to Woking. Conveyances are always to be had at the Station.

Paul's Nurseries, Waltham Cross, N.

WM. PAUL begs to announce that he has the following COLLECTIONS of TREES and PLANTS now ready for delivery, which he can confidently recommend for quality and price:—

ROSES.—100,000 Plants, Standards, Dwarf Standards, and Dwarfs.
PRICED DESCRIPTIVE CATALOGUE free on application.

TREES and SHRUBS.—Large quantities of the popular Nursery Plants, of all sizes, good and cheap.
A choice variety of PICTORIAL TREES, his collection of which was the only one which received a Prize at the International Exhibition of 1866.

AMERICAN PLANTS.—Rhododendrons, Azaleas, Kalmias, Heaths, &c., in variety, from the commonest to the choicest.

FRUIT TREES.—Apples, Pears, Cherries, Plums, Figs, Peaches, Nectarines, Apricots, &c., &c.; Standards, Dwarfs, and Pyramids, trained and untrained. A large stock of handsome trees, many in a fruiting state.

GRAPE VINES.—All the best sorts, both Planting and Fruiting Canes.

PELARGONIUMS.—Beaton's and other Zonal kinds, Gold, Bronze, and Silver variegated, a fine collection.

HYACINTHS, TULIPS, and other BULBS.—All the First Prizes for Hyacinths and Tulips were awarded to his Collection at the London Flower Shows last spring. Cheap Hyacinths, Tulips, &c., for spring gardening by the 100 or 1000. Choicer kinds for pot culture and glasses good and cheap.
PRICED DESCRIPTIVE CATALOGUES of any or all of the above free by post.

Larch, &c.

LARCH, 2½ to 4 feet, 15s.; 3 to 4½ feet, 17s. 6d.; 3½ to 6 feet, 20s; SCOTCH FIR, 1 to 2 feet, 15s.; SPRUCE, 1 to 1½ foot, 10s.; SILVER FIR, 6 to 12 ins., 5s.; OAK, 1½ to 2½ feet, 15s. per 1000. LIST of other TREES on application. Special quotations for large quantities. Apply, with reference, to
JAMES RIDDELL, Steward, Park Attwood, Bewdley, Worcestershire.

Woodlands Nursery, Maresfield, near Uckfield, Sussex.

WM. WOOD AND SON have a very extensive stock to offer of the following, viz.:—

Scarlet HORSE CHESTNUTS, Standards, 6 to 10 feet ¶1000
CATALPA SYRINGÆFOLIA | THUJA AUREA, by the 100 or
LABURNUMS, yellow and purple | Strong ASPARAGUS Plants
LARCH, SPRUCE, and SCOTCH FIRS
PINUS AUSTRIACA [and other Forest Trees
ASH, BIRCH, WILLOW, HORNBEAM, OAKS, SYCAMORE,
CATALOGUES and Samples may be had on application.

SPECIAL OFFER.

BERBERIS COMMUNIS, 2 to 2½ feet
" DULCIS, 2 to 2½ feet
DOUBLE PINK THORNS, 3 to 5 feet
" WHITE THORNS, 3 to 5 feet
PINUS AUSTRIACA, fine, 2½ to 3½ feet
OAK, ENGLISH, 2 to 3 feet
SPRUCE FIR, 1 to 3 feet.

A reduced PRICED LIST of the above and other surplus stock on application to
THOMAS S. WARE, Hale Farm Nursery, Tottenham, Middlesex, N.

Wonersh Nursery, near Guildford, Surrey.

W. VIRGO AND SON beg to announce that their Stock of TREES and SHRUBS of the undermentioned kinds is this season very extensive and well-grown, samples, prices, and Catalogues of which can be obtained on application:—

100,000 Hazel, 3 to 5 feet
60,000 Spruce Fir, 2 to 4 feet
50,000 Spanish Chestnut, 1½ to
30,000 Alder, 3 to 4 feet [2 ft.
50,000 Ash, 2 to 3 feet
20,000 Sycamore, 3 to 4 feet
500,000 Quick, transplanted, 1½ to 2 feet
50,000 GreenHolly, transplanted, 1½ to 2 ft.
Pinus Austriaca, 1 to 2 feet
Horse Chestnuts, 3 to 4 & 5 to 7 ft.
Common and Portugal Laurel
Berberis aquifolia
Arbor-vitæ
And other various Shrubs.

A large stock of strong STANDARD MORELLO CHERRIES, APPLES, PEARS, PLUMS, and DWARF-TRAINED do.

Leicester Abbey Nurseries.

FRUITS, ROSES, EVERGREENS, and ORNAMENTAL TREES.

THOMAS WARNER begs to remind Planters and the Trade, that in addition to his extensive General Nursery Stock he has the following in immense quantities, of unsurpassed quality, and at very reasonable prices:—

APPLES, APRICOTS, PEARS, and PLUMS, Standards, with stems 4 to 6 feet, and good heads, extra fine
APRICOTS, CHERRIES, and PEACHES, Dwarfs
CHERRIES and PEACHES, Dwarf-trained
CURRANTS, HOUGHTON CASTLE or VICTORIA, RED, strong
GRAPE VINES, BLACK HAMBURGH
STRAWBERRIES (in 25 fine sorts) (good
ROSES, finest varieties, Dwarfs on Manetti, remarkably strong and
ABIES CANADENSIS or HEMLOCK SPRUCE, 2½ to 3½ feet
ARBOR-VITÆ, AMERICAN, 3 to 5 feet, bushy and well rooted
" SIBERIAN, 1½ to 4 feet, Pyramids, very handsome
AUCUBA JAPONICA, 9 inches to 2 feet high, bushy
BOX, TREE (various sorts), 1 to 2½ feet
CEDRUS ARGENTEA, 1 to 4 feet, transplanted September, 1866
CHESTNUT, SCARLET-FLOWERED, 3 to 8 feet, very stout
CLEMATIS VITALBA (Traveller's Joy), transplanted
ELMS, standards (various sorts), 6 to 12 feet, extra fine
IVY, IRISH, 3½ to 4½ feet, strong and bushy, in pots, remarkably fine
POPLARS, BLACK ITALIAN and ONTARIO, 4 to 8 feet
SAVIN, 1½ to 2½ feet
SYCAMORE, COMMON, 4 to 6 feet, very fine
" VARIEGATED, 4 to 10 feet
THORNS, SCARLET and PINK, Standards, 6 to 8 feet
YEWS, ENGLISH and IRISH, 1 to 4 feet.
See CATALOGUES, Wholesale or Retail.

NEW and RARE TREES and SHRUBS.

ULMUS AUREA ROSSEELSI.—This elegant and gorgeous tree is one of the richest lawn gems that this age of novelties has produced. The foliage is of the richest BRONZED GOLD, which is increased in brilliancy by the fullest exposure to the sun. Price, 10s. 6d., 15s., to 21s. each.
PRUNUS MAHALEB FOLIIS ARGENTEIS MARGINATIS.—A beautiful silver variegated form of Prunus Mahaleb, rivalling in effect the elegant Cornus mascula variegata. Price, strong Standards, 15s. each.
MAGNOLIA LENNÉ.—The flowers of this fine Magnolia are very large, and of great substance; colour, rich bright purple. Habit vigorous. Forms a fine mass on lawns. The best of all the hybrids. Price, 7s. 6d. to 10s. 6d. each.
ROSE COMTESSE DE JAUCOURT.—This is decidedly the finest new Rose of 1867. It is of vigorous growth, erect habit, and blooms freely. The flowers are large, of a beautiful flesh rose, of exquisite form and very double. Price, Dwarfs, 5s.; Standards, 7s. 6d.
ROSE, TEA, MARECHAL NIEL.—The largest and most brilliant of all the yellow Roses. Price—Dwarfs, 2s. 6d.; Standards, 5s.
LILAC, VILLE DE TROYES (Baltet frères, Troyes, 1867).—A splendid new Lilac, now offered for the first time. The trusses are very large, and of the deepest purple, and produce a fine effect. Vigorous and very flowering. Price 5s. to 7s. 6d. each.
FRAXINUS EXCELSIOR CUCULLATUS (Baltet frères, Troyes, 1867).—This very curious and very ornamental Ash is now offered for the first time. It is of vigorous growth, and the peculiar hooding of the leaves presents a singular and striking aspect. Price 5s. to 7s. 6d. each.

Sole Agents in England for the two last-named novelties, JOHN and CHARLES LEE, Royal Vineyard Nursery and Seed Establishment, Hammersmith, London, W.

SPECIMEN and GREENHOUSE PLANTS for immediate SALE, in consequence of the breaking up of a Gentleman's establishment. The following are the dimensions of a few of them—they are all young, and in the finest possible health:—Aphelexis speciosissima, 3 by 3; Azalea indica macrantha rosea, 2 by 2; Erlostemon buxifolium, 3 by 3½; Epacris pulchella, 4 by 4½; Epacris miniata, 3 by 3; Epacris rubrase, 4 by 3½; Erica Cavendishii, 3 by 3; Erica Doughasii, 2 by 2; Erica eximia, 2 by 2; Erica elegans, 2 by 2; Erica propendens, 3 by 3; Erica ventricosa magnifica, 2 by 2; Erica ventricosa minor, 2 by 2.
DOWNIE, LAIRD, & LAING, Stanstead Park Nursery, Forest Hill, S.E.

ACORNS (ENGLISH), fine sound seed, price upon application. LAUREL (COMMON), 1-yr. Cuttings, extra fine, price upon application.
TRADE CATALOGUE of FRUITS, HERBACEOUS PLANTS, ROSES, &c., free upon application.
A few bushels of HORSE CHESTNUTS also to spare.
DILLISTONE & WOODTHORPE, Munro Nursery, Sible Hedingham, Essex.

SEEDLING FOREST TREES, &c.
ASH, 2-yr., 2s.; BEECH, 3-yr., 3s. 6d.; HOLLIES, 1-yr., 5s.; OAK, 3-yr., 7s. 6d.; QUICK, 1-yr., 1s. 6d.; SILVER FIR, 5-yr., 3s. 6d.; SPRUCE, 5-yr., 3s. 6d.; CRAB, 3-yr., 5; and SYCAMORE, 3-yr., 3s. 6d. per 1000 Cheaper by the 100,000. Apply to
J. RIDDELL, Park Attwood, Bewdley, Worcestershire.

To Gentlemen, Nurserymen, and Planters.

DELEPINE'S NEW GENERAL CATALOGUE of FRUIT and ORNAMENTAL TREES has just been published.
DELEPINE, SEN., begs to call the attention of Planters to his large stock of the following:—
STANDARD, PYRAMID, and DWARF FRUIT TREES and FRUITING SHRUBS.
FOREST and ORNAMENTAL FLOWERING and BEARING TREES, CONIFERÆ, EVERGREENS, and SHRUBS.
AMERICAN PLANTS and ROSES.
Young Plants or Seedlings of all sorts for Nurseries, Hedges, and extensive Plantations.
Proprietor of one of the most extensive Nurseries in this part of France (called, with reason, Le Jardin de la France), M. DELEPINE is able to furnish very hardy, robust, and strong Stocks of the above.
CATALOGUE and Prices may be obtained post free on application to DELEPINE aîné, Nurseryman, Route Neuve de Saumur, à Angers, France; or of his London Agents, Messrs. R. SILBERRAD & SON, 5, Harp Lane, Great Tower Street, E.C.

Edwards' Eclipse Cucumber.

GEORGE EDWARDS can offer a small Stock of Seed of the above CUCUMBER, which is pronounced by all who have seen it to be the best in cultivation. It is a most prolific bearer, possessing every quality of a first-rate Cucumber, and produces fruit 20 to 24 inches in length at every joint. Orders have been given by all who have seen it growing this season. Can be had in Packets of 8 Seeds, at 2s. 6d. each, at
GEORGE EDWARDS, King Street, Castlegate, York.
London Agents:—HURST & SON, 6, Leadenhall Street, E.C.

SEAKALE for FORCING.—Strong 2-yr. planted roots, 12s. per 100; Second Size, 8s. per 100.
Mr. MYATT, Manor Farm, Deptford.

MILKY WHITE (WHEELER'S), the best second EARLY KIDNEY POTATO, 5s. per peck.
Mr. MYATT, Manor Farm, Deptford.

MONA'S PRIDE (ROUTLEDGE), the best of all the EARLY ASH-LEAF Section, 2s. 6d. per peck.
Mr. MYATT, Manor Farm, Deptford.

MYATT'S PROLIFIC KIDNEY POTATO, 2s. 6d. per peck.
Mr. MYATT, Manor Farm, Deptford.
N.B. All orders from unknown correspondents must be accompanied by cash or reference.—Manor Farm, Deptford.

Seed Potatos.

H. AND F. SHARPE are now offering MYATT'S EARLY PROLIFIC KIDNEY, RIVERS' ROYAL ASH-LEAF, WEBB'S IMPERIAL KIDNEY, DAINTREE'S EARLIEST, EARLY OXFORD, EARLY FORTY-FOLD, and many other Early and Late varieties grown from their own selected stocks. The Prices are moderate, and the quality excellent. PRICED LISTS may be had on application.
Seed Growing Establishment, Wisbech.

MILKY WHITE, a NEW POTATO, introduced by MESSRS. WHEELER AND SON, of Gloucester.

MILKY WHITE is the best of all Potatos.

MILKY WHITE is acknowledged to be the best of all Potatos. In shape and colour, flavour and appearance, it excels every other variety. It is as white as milk, floury as a Fluke, ripens in August, and continues in splendid condition for Cooking all through the Autumn, Winter, and Spring.

MILKY WHITE POTATO—white as milk.

MILKY WHITE is of the finest quality.

MILKY WHITE SEED POTATOS are very scarce, and early orders are absolutely necessary in order to secure a supply. Lowest price, 5s. per peck; 20s. per bushel (56 lb.)

MILKY WHITE.—Last year the demand for this new and most excellent variety greatly exceeded the supply, so that very early in the planting season Messrs. WHEELER & SON were obliged, much to their regret, to decline orders. They have every reason to believe that the demand this coming season will exceed that of last year; they therefore respectfully urge the importance of ordering whilst they are to be had. The lowest price is 5s. per peck (14 lb.), or 20s. per bushel (56 lb.)
J. C. WHEELER & SON, Seed Growers, Gloucester.

Splendid New Potato for 1868.

SUTTONS' BERKSHIRE KIDNEY.—This was raised and selected from among forty seedlings of the Fluke. Having ourselves planted it with different varieties of that class, we have proved it to be by far the best of them all, and fully a fortnight earlier. The tubers are all of good size, very numerous, of fine form, and remarkably clear skin. It is most valuable for the main garden crop, and will become a favourite with market gardeners. It has been remarkably free from disease, while other varieties growing close by were almost destroyed. The stock of this Potato is exclusively in our possession, and being limited, early orders are recommended to prevent disappointment. Price 5s. per peck.
SUTTON & SONS, Royal Berks Seed Establishment, Reading.

LEE'S GIANT ORACH (SPINACH).—This new and valuable variety of Orach possesses immense productive powers, combined with a delicious piquant flavour, quite distinct from all other varieties, rendering it a great acquisition as a Summer Spinach of the highest class.
The plant is of rapid and vigorous growth, and attains a height of 6 or 7 feet, with numerous branches; yielding a constant supply of large dark green leaves throughout the summer months.
The Fruit Committee of the Royal Horticultural Society awarded a First-class Certificate to LEE'S Giant Orach, after partaking of a dish of this most useful vegetable, cooked especially for their judgment.
JOHN & CHARLES LEE have much pleasure in introducing this productive vegetable, which they intend to send out in January next. Sealed packets, 1s. each. Price to the Trade on application.
Royal Vineyard Nursery and Seed Establishment, Hammersmith, W

HENRY DEWAR begs to offer the undermentioned SEEDS, which he can with confidence recommend as being First-class (in sealed packets only):—
DEWAR'S IMPROVED SHORT-TOP RED BEETS, 1s. per packet.
NORTHUMBERLAND CHAMPION WHITE CELERY, 1s. p. pkt.
Extra choice (selected) BRUSSELS SPROUTS, 6d. per packet.
COOKE'S improved superb EARLY DWARF CABBAGE, 6d. p. pkt.
HALL'S NEW HYBRID NETTED GREEN-FLESH MELON.—A hardy free-bearing variety, fruit averaging from 3 to 5 lb.; thin skinned, very fleshy, and of most exquisite flavour; 1s. 6d. p. pkt.
Prices to the Trade on application.
97, Grey Street, Newcastle-on-Tyne.

MAGNIFICENT DWARF CUT-BACK PEACHES, NECTARINES, and APRICOTS, by the dozen or hundred. Extra strong 2, 3, and 4-yr. OLD ASPARAGUS PLANTS, by the 100, 1000, or 10,000.
Fine large BLACK ITALIAN POPLARS, 6 to 10 feet.
WM. WOOD & SON have to offer a splendid stock of the above.
Address, Woodlands Nursery, Maresfield, near Uckfield, Sussex.

Patronised by Her Majesty the Queen,
AND HIS ROYAL HIGHNESS THE PRINCE OF WALES.

THE SEEDLING APPLE, LORD BURGHLEY, was awarded a First-class Certificate by the Royal Horticultural Society, March 21, 1865.
The opinion of the Fruit Committee of the above Society, also testimonials from Messrs. Rivers, Lee, Pearson, and other eminent Fruit Growers, may be had on application to
J. HOUSE, Eastgate Nursery, Peterborough.
Fine Trees, 3s. 6d. and 5s. each.
CATALOGUES on application, post free.

CALVILLE BLANCHE APPLES are now selling in Covent Garden Market at 1s. 6d. to 2s. each fruit. See *Gardeners' Chronicle*, p. 1168.
HENRY MAY offers a splendid lot of Trees of the above, worked on the French Paradise Stock, with fruit buds, imported direct from France, 1s. 6d. each; 6 for 6s.; 12 for 9s. Trade price on application.
Also that splendid Apple COXE'S ORANGE PIPPIN, on Paradise, 1s. 6d. each; 12s. per dozen.
LORD BURGHLEY, 1-year cut back, 3s. 6d. each; Maidens, 2s. 6d. each, 24s. per dozen. Also the New Apples BARON WARD, DUKE of DEVONSHIRE, LORD DERBY, LORD SUFFIELD, NORTHERN SPY, RINGER, &c., 1s. 6d. each.
Splendid STANDARD APPLES, 6 feet stems, good heads, 12s. per dozen.
BUSH APPLES, furnished with fruit spurs, 18s. per dozen.
PEARS on Quince, 18s.; PEARS on Pear, 12s. per dozen.
HENRY MAY, The Hope Nurseries, Bedale, Yorkshire.

Melon, New Hybrid Prize, Golden Queen.
STUART AND MEIN, SEEDSMEN, Kelso, N.B., have much pleasure in offering the above. It is a hybrid between the Bromham Hall and Golden Perfection, and the result of a careful selection by one of the first Gardeners in the North of England. The fruit is of medium size, 2 to 2½ lb. in weight, round shaped, irregularly netted, extremely thin skinned, juicy, tender, melting, and of delicious flavour. A beautiful green-fleshed variety.
The above description is that of Mr. B. S. Williams, of Victoria Nurseries, London; and Mr. Rose, Head Gardener to His Grace the Duke of Roxburghe, Floors Castle, to whom the fruit was submitted, and who pronounced it the finest green-fleshed Melon they had ever tasted. It was named Golden Queen by Mr. Williams, in honour of Her Majesty's visit to Kelso. S. & M. may add that this first-class variety is of hardy constitution, a free setter, and has been awarded a Prize wherever exhibited.
In sealed packets, price 2s. 6d. per packet.

FIFTY ACRES well stocked with FRUIT TREES to select from.—APPLES, PEARS, PLUMS, CHERRIES, PEACHES, NECTARINES, and APRICOTS, in every form desired for fruiting.
See RICHARD SMITH'S FRUIT LIST, free by post for 3 stamps.
RICHARD SMITH, Nurseryman, Worcester.

FOR THE OPEN GROUND.—APPLES, PEARS, PLUMS, and CHERRIES, fine healthy Pyramids, very ornamental and productive. Strongly recommended for large and small gardens.
See RICHARD SMITH'S FRUIT LIST, post free for 3 stamps.
RICHARD SMITH, Nurseryman, Worcester.

ESPALIER and WALL-TRAINED TREES in any quantity.—APPLES, PEARS, PLUMS, CHERRIES, PEACHES, NECTARINES, and APRICOTS, fine strong trees of perfect form.
See RICHARD SMITH'S FRUIT LIST, free by post for 3 stamps.
RICHARD SMITH, Nurseryman, Worcester.

A CROP of FRUIT the FIRST SEASON.—Bearing Pyramids and Bushes in pots for orchard houses. PEACHES, NECTARINES, APRICOTS, APPLES, PEARS, PLUMS, and CHERRIES. Extra strong VINES and FIGS in fruiting condition for forcing.
See RICHARD SMITH'S FRUIT LIST, post free for 3 stamps.
RICHARD SMITH, Nurseryman, Worcester.

MAGNIFICENT DWARF-TRAINED FRUIT TREES,
By the Dozen, Hundred, or Thousand.
APPLES, PEARS, PLUMS, CHERRIES, PEACHES, NECTARINES, and APRICOTS. NECTARINES, Also Standard, wall-trained, fruit bearing, PEACHES and PYRAMIDAL PEARS on the Quince Stock in a fruit-bearing state; and PYRAMIDAL PEARS, on the Pear Stock, extra strong and well grown.
WM. WOOD & SON have many acres of the above named, which for health and vigour are quite unsurpassed in the trade. The Trees have been most carefully trained, and are really examples of successful cultivation.
Address, Woodlands Nursery, Maresfield, near Uckfield, Sussex.

MAURICE YOUNG'S NEW CATALOGUE of NEW HARDY PLANTS, JAPANESE NOVELTIES, NEW AUCUBAS, ORNAMENTAL TREES and SHRUBS, EVERGREENS, CONIFERÆ, RHODODENDRONS, FOREST TREES, &c., may be had on application.

DESIGNS, PLANS, and ESTIMATES PREPARED for LAYING-OUT NEW GROUNDS, IMPROVING PARK SCENERY, PLANTATIONS, &c.

FOREST TREES PLANTED by the Acre, and Guaranteed.

Convenient railway accommodation to all parts of the country.

Milford Nurseries, near Godalming, Surrey.

To the Trade Only.
THOMAS CRIPPS AND SON'S WHOLESALE CATALOGUE for the present Season, containing 62 pages of GENERAL NURSERY STOCK, can be had Post Free. It will be found to include the NEW SILVER-EDGED PRUNUS (CERASUS) MAHALEB, ROSSEELS' NEW GOLDEN ELM, NEW AUCUBAS, HYDRANGEAS, OSMANTHUS, WEIGELAS, and every novelty of merit. CUPRESSUS LAWSONIANA SEED in any quantity.
The Nurseries, Tunbridge Wells, Kent.

LOISE-CHAUVIÈRE, SEEDSMAN, NURSERYMAN, and FLORIST, 14, Quai de la Megisserie, Paris, begs to inform his numerous Friends and those interested, that he can offer the most complete collection of GLADIOLI bulbs, of the finest quality.
All kinds of VEGETABLE and AGRICULTURAL SEEDS are supplied by this firm, prices of which may be had on application.
LOISE-CHAUVIÈRE has been rewarded with the Gold Medal for the numerous plants which he exhibited at the "Universal Exhibition," amongst which were Gladioli, Dahlias, Gloxinias, Annuals, and Ornamental plants.

Christmas Trees.
ENGLISH SPRUCE FIR, 3 to 4 feet, bushy from the bottom, of perfect shape, 6d. each, 6s. per dozen, 40s. per 100.
ENGLISH YEWS, 1½ feet, well furnished, 15s. per 100.
ENGLISH YEWS, 2½ to 3 feet, well furnished, 9s. per dozen.
PORTUGAL LAURELS, 2 feet and 2½ feet through, 6s. per dozen.
AUSTRIAN PINES, 3 feet, furnished to the bottom, 40s. per 100.
WELLINGTONIA GIGANTEA, 5 feet, 3 to 4 feet through, 10s. 6d. each.
THUJOPSIS BOREALIS, 3 feet, 30s. per dozen.
Fine-named Hybrid Perpetual ROSES, 9s. per dozen.
LARCH, extra Transplanted, 4 to 5 feet, fine, 30s. per 1000.
LARCH, extra Transplanted, 2 to 3 feet, 17s. per 1000.
All other FOREST TREES and SHRUBS, fine and well rooted.
HENRY MAY, The Hope Nurseries, Bedale, Yorkshire.



PARIS, 1867.
FOR EXCELLENCE OF QUALITY.

CARTER'S

SELECT LIST of KITCHEN GARDEN AND FLOWER SEEDS,



Is now ready, containing the CHOICEST NOVELTIES of the SEASON, and will be forwarded, Gratis and Post Free, on application to

CARTER'S GREAT LONDON SEED WAREHOUSE, 237 and 238, HIGH HOLBORN, W.C.

THE ONLY PRIZE MEDAL FOR GRASS SEEDS.
UNIVERSAL EXHIBITION, PARIS, 1867.



JAMES CARTER & CO.,

237 and 238, HIGH HOLBORN, LONDON, W.C.,
HAVE HAD THE
SILVER MEDAL AWARDED
FOR THE SUPERIOR QUALITY OF THEIR GRASS SEEDS.



JAMES CARTER AND CO. have had the honour of Supplying their GRASS SEEDS during the past Season for the Squares and Gardens of Paris; the Park of the Paris Exhibition; and also for the Private Lawn of H.R.H. the Crown Princess of Prussia, at Sanssovie.



ONLY PRIZE MEDAL
FOR
GENERAL EXCELLENCE OF SEEDS,
INTERNATIONAL EXHIBITION, LONDON, 1862,
TO
JAMES CARTER AND CO.,
237 and 238, HIGH HOLBORN, LONDON, W.C.



SUPERB NEW LATE GRAPE,

"MRS. PINCE'S BLACK MUSCAT."

All the most eminent Grape Growers have united in pronouncing this to be the VERY BEST GRAPE EXTANT. Fruit of it remained on the Vine until May 10, 1867.
LUCOMBE, PINCE, AND CO. beg to inform the Public that they have still a few fine FRUITING VINES of this valuable GRAPE to offer.

EXETER NURSERY, EXETER.

ROYAL VINEYARD PEACH.

This remarkable PEACH is of very robust habit, and is a most prolific bearer. It is so hardy, that in 1865 it bore a heavy crop of large fruit

AS AN ORCHARD STANDARD,

several branches having each borne from four to five fruit, weighing TEN OUNCES a-piece. It is a free-stone of most luscious flavour, with a superabundance of juice, and is just sufficiently piquant to render it highly refreshing. The time of ripening is about a week earlier than the Barrington Peach.
JOHN AND CHARLES LEE have much pleasure in introducing this extraordinary Peach, which was exhibited at Mr. Webber's, in Covent Garden Market, in 1865, and was much admired and inquired after at the time.

Dwarf Maiden Trees are now ready, price 10s. 6d. each.

ROYAL VINEYARD NURSERY AND SEED ESTABLISHMENT, HAMMERSMITH, LONDON, W.

TWO SUPERB NEW MELONS.

JAMES DICKSON & SONS

HAVE THE GREATEST CONFIDENCE IN INTRODUCING AND RECOMMENDING, AS BEING REAL ACQUISITIONS,

THE TWO FOLLOWING NEW AND SUPERB MELONS,

Which they believe to be superior to any others, and of which they hold the entire stocks.

DUKE of CORNWALL.

This valuable Melon is the production of Mr. T. Shortt, the raiser of several well-known varieties. It is a hybrid between "Trentham Cocoa Nut" and a very fine Italian variety. The fruit averages from 3 to 4 lb. in weight; has a yellowish green rind, flesh of a deep green colour, and delicious flavour. Should be sown about the middle or end of May, and can be had in use till the middle of January. The fruit improves after being cut, and has the unusual and desirable property of keeping 6 or 8 weeks.

GOLDEN EVERSLEY.

This excellent EARLY and PROLIFIC variety is by the same eminent raiser as the preceding, and is a hybrid between his "Heckfield Hybrid" and "Orion Prize." Of a handsome oval shape, light yellow colour, and beautifully reticulated; the flesh is pale green, and in point of flavour pronounced by the BEST judges to be unequalled

In Sealed Packets, 2s. 6d. each. Prices to the Trade on application.

102, EASTGATE STREET, and "NEWTON" NURSERIES, CHESTER.

SUTTONS' HOME-GROWN SEEDS.

(CARRIAGE FREE.)



PARIS, 1867.

THE ONLY SILVER MEDAL

FOR ENGLISH

GARDEN AND FLOWER SEEDS

WAS AWARDED TO

SUTTON AND SONS.

SUTTONS'

COMPLETE COLLECTIONS

FOR ONE YEAR'S SUPPLY,

(CARRIAGE FREE,)

are now ready.

FOR THE KITCHEN GARDEN.

No. 1.—A COMPLETE COLLECTION of the best kinds of VEGETABLES, as proved in Messrs. SUTTONS' Trial Grounds.. .. .. £3 3 0

No. 2.—A COMPLETE COLLECTION of ditto 2 2 0

No. 3.—A COMPLETE COLLECTION of ditto 1 11 6

No. 4.—A COMPLETE COLLECTION of ditto 1 1 0

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No. 6.—A COMPLETE COLLECTION of ditto 0 12 6

No. 7.—A COMPLETE COLLECTION of ditto, extra quantities, for large Gardens.. 5 5 0

Contents of the above Collections on application.

FOR THE FLOWER GARDEN.

(Free by Post or Rail).

No. 1.—A COLLECTION of the best GERMAN and ENGLISH FLOWER SEEDS, saved by eminent Florists.. £2 2 0

No. 2.—A COLLECTION of ditto 1 11 6

No. 3.—A COLLECTION of ditto 1 1 0

No. 4.—A COLLECTION of ditto 0 15 0

No. 5.—A COLLECTION of ditto 0 10 6

Other COLLECTIONS from 2*s.* 6*d.* to 10*s.* 6*d.*

Just published, price 1*s. Post Free, Gratis to Customers,*

SUTTONS' SPRING CATALOGUE

AND

AMATEUR'S GUIDE FOR 1868

(ILLUSTRATED),

containing much useful information on

FLORICULTURE, HORTICULTURE, and AGRICULTURE.

SUTTONS' SHORT SELECT SEED LIST

is also ready, and may be had Gratis and Post Free.

For LIST of

NEW SEEDS AND POTATOS

for 1868,

See page 1237 of last week's *Gardeners' Chronicle*, or

SUTTONS' AMATEUR'S GUIDE.

☞ *All Goods Carriage Free, except very small parcels. Five per cent. allowed for prompt payment.*

SUTTON AND SONS,

ROYAL BERKS SEED ESTABLISHMENT, READING.

Report.

"GLADIOLI.—YOUELL AND CO.—Your Spikes of BRENCHLEYENSIS, though perhaps scarcely so large as those you sent last year, are MAGNIFICENT, and fully entitle this deservedly favourite variety to hold a foremost place against all competitors."—*Vide Gardeners' Chronicle*, August 31, 1867, p. 908.

Samples and prices may be had post free on application.

Also a large and superb collection of named varieties, true to name, at REDUCED PRICES. Price of AZALEAS, CAMELLIAS, ERICAS, EPACRIS, GREENHOUSE PLANTS, New VIOLETS, &c., may be had free on application.

Royal Nurseries, Great Yarmouth.

Gladioli, Gladioli, Gladioli.

THOS. HEWITT offers large and sound BULBS of English raised Seedlings of various colours, at 4*s.* per dozen, or 25*s.* per 100. Being Seedlings of Gandavensis they are of robust constitution, and while they are equal in beauty to named varieties, are not so liable to go diseased. Two Bulbs as sample, free by post, for 12 stamps. Special prices for large quantities.

The Nurseries, Solihull, Warwickshire.

Beck's Seedling Pelargoniums.

S. GLENDINNING AND SONS are now offering for the first time the 12 beautiful, new, and distinct PELARGONIUMS raised by Mr. Wiggins, Gr. to W. BECK, Esq., of Isleworth, which were awarded numerous Certificates at the various Metropolitan Shows.

DESCRIPTIVE PRICED LIST may be had on application.

Chiswick Nurseries, London, W.

New Zealand Nursery, St. Alban's, Herts.

J. WATSON'S beautiful BEDDING PELARGONIUM EXCELSIOR, now ready; colour of Indian Yellow; fine truss, and habit of Lord Palmerston. Price 5*s.* each; 30*s.* per doz. to the Trade.

MISS WATSON, ready August 25; MRS. DIX, May 1. The Two have received 10 First-class Certificates and Extra Prize Money.

Fine New TABLE APPLE, ST. ALBAN'S PIPPIN. Ripe in April. Plants ready in November, 5*s.* each; 30*s.* per doz to the Trade.

DESCRIPTIVE LIST sent on application.

DOBSONS' CELEBRATED SEEDS.

In sealed packets, post free. Unequalled quality.

Antirrhinum, 6*d.*, 1*s.*	Pelargonium, fancy, 2*s.* 6*d.*, 5*s.*
Balsam, superb, 1*s.*, 2*s.*	Primula fimbriata rubra, 2*s.* 6*d.*, 5*s.*
Calceolaria, 1*s.* 6*d.*, 2*s.* 6*d.*, 5*s.*	Do. do. alba, 2*s.* 6*d.*, 5*s.*
Cineraria, prize, 1*s.*, 2*s.* 6*d.*, 5*s.*	Do. do. mixed, 1*s.*, 2*s.* 6*d.*, 5*s.*
Cockscomb, 1*s.*	Intermediate Stock, 6*d.*, 1*s.*
Hollyhock, 1*s.*, 2*s.* 6*d.*	Sweet William, 6*d.*, 1*s.*
Pelargonium, show, 2*s.* 6*d.*, 5*s.*	

Trade Prices on application.

DOBSON & SONS, Seed Merchants, Isleworth, W.

Seedling Japanese Chrysanthemums.

JOHN SALTER has much pleasure in announcing that these extraordinary FLOWERS are NOW in BLOOM; their fantastic form, novel and brilliant colours, are the wonder and admiration of all. The Gardens are Open every day except Sunday, admittance free.

Versailles Nursery, William Street, Vale Place, Hammersmith, near Kensington Railway Station.

New Catalogue of Plants, Dutch Bulbs, &c.

ROBERT PARKER begs to announce that his NEW CATALOGUE, containing Select, Descriptive, and Priced Lists of New, Rare, and beautiful Greenhouse, Hardy and Stove Plants, Azalea indica, Fruit Trees, Grape Vines, Rhododendrons, Roses, Sweet Violets, &c.; Amaryllis, Crocuses, Cyclamens, Gladioli, Hyacinths, Liliums, Narcissus, Tulips, and other Bulbs, is now published and will be forwarded to applicants.

Exotic Nursery, Tooting, Surrey, S.

The Gardeners' Chronicle.

SATURDAY, DECEMBER 14, 1867.

MEETING FOR THE ENSUING WEEK.

THURSDAY, Dec. 19—Linnean .. .. 8 P.M.

THE once famous BOTANIC GARDENS OF CALCUTTA are now to be numbered amongst the things of the past. What of their contents resisted the force of the cyclone of 1864 have been swept away by that of the 2d of November last, together with the rich and varied collections procured in the interval by its indefatigable and talented superintendent, and which numbered some 6000 species; and whilst we in England are making ourselves miserable over the loss, once in 30 years or so, of some score of Californian Pines, Cypresses, and Thujas, and asking whether it is worth while to plant such things at all, the dwellers in the "ditch," as the "City of Palaces" is called by its detractors, may well ask themselves whether the cost of a garden so great and so rich as that of Calcutta, is not a waste of public money, and misapplication of scientific energy.

Whether the question has arisen or not, to us at home it appears a very serious one, and with the view of collecting the opinions of those of our correspondents who are familiar with the situation of that Garden, we shall now introduce the subject.

Garden Reach is on a beautiful bend of the River Hooghly, some five miles or so below Calcutta. It embraces a level expanse of muddy soil, somewhat impregnated with salt, and occupied by the Botanic Gardens. Nothing of the kind can exceed in beauty and verdure this river reach, which greets voyagers as their vessel steers up the broad breast of the river.

No sooner has the Superintendent's House burst on the view of the Calcutta-bound ship, than the word "Garden Reach" is passed fore and aft, and the crew and passengers, whether of the stately old East Indiaman of former days, or the leviathan paddle-wheel steamer of the present time, swarm on deck, and gaze with delight on the scene. On the right, or convex bank in sailing up, are the Botanic Gardens, with their groves of Palms, Bamboos, and gigantic trees, festooned with beautiful climbers, all level with the eye of the passenger on deck; on the left are a series of most noble parks and mansions, the residences of some of the wealthiest inhabitants of Calcutta. In point of beauty of position, then, and of facilities for the introduction of exotic plants, the site of the Garden cannot be improved. Unfortunately these are its only advantages, and the disadvantages are so great, that its removal seems inevitable at the present or at some future period. For, in respect of situation, it is on the opposite side of the River Hooghly from the capital—a river most dangerous to cross during several months of the year, and in all months at certain states of the tide and weather. The Garden is hence but little visited for purposes of recreation, and then chiefly by boating parties, in the cold weather, who must make a whole day of it. For instructional purposes, or the diffusion of botanical and horticultural science, whether through its flower gardens, its classified collections, its library of reference, its herbarium, or its economic museum, its utility is as restricted, for the amateur, and the medical, botanical, and other students of the College cannot reach it without great loss of time and expense, whilst the Superintendent (always a man of the highest scientific attainments), residing as he must at the Gardens, can take no active part in the scientific meetings of the capital, or exhibit there, as he should, the fruits of his labours.

Heavy as these drawbacks are, they are not counterbalanced by any advantages that could not elsewhere be found. The soil, which, as we have already stated, is impregnated with salt, is further a clayey silt, that bakes so hard in the dry season, that watering has in some cases to be effected by means of Bamboo-tubes thrust several feet into the ground for the purpose. Being nearly on one level, and raised but a few feet above that of the River Hooghly (a tidal river), the Garden is exposed to violent and sudden inundations; and its banks, presenting, as they do, a convex outline to the stream, are, where not protected by expensive artificial embankments, annually carried away by many square yards at a time. To these drawbacks must be added, unhealthiness as a residence, a climate singularly unsuited for the producing in perfection the more interesting and valuable trees, flowers, and fruits of either a tropical or a temperate climate; and last, but not least, both the periodic and sporadic occurrence of the most terrific cyclones that vex our planet.

Much of this will no doubt surprise the English reader, who is too apt to regard all tropical climates as suitable for tropical trees and fruits, and all tropical countries as groaning under a superabundant vegetation; but the fact is that Lower Bengal, and the neighbourhood of Calcutta especially, is for many miles around, singularly devoid of the noble characteristics of a tropical vegetation; it contains scarce half-a-dozen Palms, only three of which are arboreous, but one or two species of Bamboo, and these cultivated, which, with a few Terminalias, Figs, Naucleas, and some half-dozen other trees, make up the mass of the arboreous vegetation: of epiphytical Orchids it boasts but two that are at all common; of Ferns not a dozen; of Tree Ferns not one. The commonest tropical fruits that are good, as Mangos, Oranges, Bananas, Pine-apples, &c., are chiefly brought from a distance; and the finer kinds—the Mangosteen, Durion, and Cherimoyer—are quite unknown in the city markets.

Under such circumstances, the task of keeping up in the neighbourhood of Calcutta a garden glorious in its profusion of the Palms and Cycads, the Orchids and Ferns, the flowers and fruits, of Brazil and the West Indies, the Indian Archipelago and Tropical Africa, must ever rank as one of the greatest feats of horticulture, and a proud testimony to the zeal and energy of its distinguished superintendents, ROXBURGH, WALLICH, FALCONER, THOMSON, and ANDERSON. That such labours as theirs should twice in three years be utterly destroyed, and scattered far and wide by the fiercest winds of heaven, is a calamity that cannot calmly be contemplated. The circumstances which we have enumerated as so prejudicial to the maintenance of a Botanic Garden at Garden Reach, and as presenting such insuperable obstacles to its being available, render the question of its future site one of pressing importance, and to which we shall devote another article.

That the head-quarters of botany and horticulture should be at or near Calcutta is essential, and where so much has been done, much is obviously worth doing; but it is

a question whether the Calcutta Garden should not be a comparatively small one, and confined to purposes of education, illustration, and the cultivation of such plants as should be dispersed over Lower Bengal, whilst the main collection should be removed to some happier climate, where it would not only be safe from tempests, but where its contents could be multiplied and dispersed over other parts of India and of the globe.

IN resuming our remarks on the aspect of the FLOWER GARDEN and its inmates in various widely separated parts of the country, we wish particularly to point out the difference between the cold, wet, and windy districts, and those that are warm and dry, as regards their capabilities for summer flower gardening as it is at present understood. In the southern and central parts of England, and in some favoured northern and north-eastern districts, a wet and bad season may retard, or to some extent take from the beauty of, the Pelargoniums, Verbenas, &c., that are now so much employed in the flower garden, but it does not destroy their brilliancy, and make it doubtful whether they are worth growing. Not so in wide districts in the north and north-west, where gardening is much and well practised. There, during the present year, Pelargoniums have generally shown little more than leaves, and Verbenas have rarely had a chance of exposing a perfect truss. But, happily in such places, the very agents which are destructive to the beauty of "bedding plants," pure and simple, are highly conducive to the prolonged health and beauty of annual and perennial plants. The Phloxes at Drumlanrig and Bothwell Castle, the Stocks at Archerfield and Meadowbank, and indeed Asters and Stocks in every Scottish garden, were of high and lasting beauty. The lines of Stocks at Archerfield, and the beds of them at Meadowbank, looked magnificent compared to the very best kinds of bedding Pelargoniums and Verbenas growing alongside them, and we learn from Mr. D. THOMSON that his Stocks (the "East Lothian" kinds) have become more brilliant than at any time during the season, and will continue to flower freely till Christmas. In the south we may also enjoy these fine plants; but it especially behoves those who live in districts too cold and wet for some things which we may fully enjoy in the south and midland counties, to grow in great variety, and arrange tastefully, things which so thoroughly suit their climate as these fine Stocks. To many other subjects the same remarks apply. The Pentstemons at Bothwell Castle and Meadowbank quite surprised us with their profusion and long-continuance of bloom; and Rhodanthe Manglesii at Drumlanrig was surprisingly beautiful from its assuming a profuse-flowering and bush-like character, and blooming for a long time in the highest condition of health. To almost every good annual or perennial plant, from Aster to Orobus vernus, the same remarks apply. Surely these facts point to the desirability, if not the necessity, of paying tenfold attention to the classes of plants named. They are beautiful in all parts, but the short duration of bloom, caused by growing them in dry soils and warm places, is often urged as an objection to them. In situations where this tendency is more or less obviated by climatal influences, they are the most beautiful plants we can cultivate in the open air.

The Dahlia is not half sufficiently grown as an ornament of the summer flower garden. The only reason why it should not be so is, perhaps, because it is one of those things most inaptly and unwisely called "florists' flowers." Florists' flowers have, to some extent, "gone out," we are told; and so it is, we suppose, that in many otherwise good gardens we cannot find a trace of this fine flower. It is true bedding varieties are generally but rarely or never much used, though poor as regards bloom, an attempt is made to present us with a bold composition in which the finer show Dahlias and the very pretty Lilliputian-flowered kinds may be seen to advantage. By making bold beds of these, associated, of course, with the things that most approach them in size, we may remove much of the flatness which is one of the worst features of the present type of flower garden. Consider for a moment how nobly Cannas of the better kind associate and mingle with them, and then reflect upon the grand combination that could be made with these simple materials alone. Those who do so, will probably have at least one fine and graceful bed in their flower-garden in 1868. Imagine what a grand thing may be made of a "bank" of good Dahlias, arranged as the old gardeners used to do, and a variety of the fine and variously tinted Cannas now in cultivation. Nothing seen in the garden could have a better effect; and while small, isolated beds of such things, here and there, could not fail to make things pleasantly varied, the bedding Dahlias are, and will certainly continue to be, most useful, we believe that the better-habited of the fine show Dahlias may be made much more serviceable by the judicious flower-gardener.

The Cannas may be tried with safety even in certain warm places in Scotland. The few that Mr. DAVID THOMSON tried out actually looked better than those at Kew, doubtless from the dry soil of the latter place. Shelter, deep soil, and plenty of water go a long way in the culture of Cannas. There is no plant known so capable of adding effective grace to the flower garden. Their usefulness is as yet but imperfectly understood, even in the best of our southern bedding gardens. To show their capacity for standing the vicissitudes of our climate, we have merely to point out, among other facts, that one of the very finest beds at Battersea this year was one of Cannas, which had remained out the preceding winter. In consequence of the changes that it is desirable to make yearly, there is probably very little advantage in that, but it shows how tenacious of life and how hardy these plants are. They are always more graceful and usefully effective when the force of the plant, so to speak, is sent into a few stems; and, therefore, where they are left out for the winter it might be well to take them up, and quickly divide and replant them, except when it is desired to allow them to form a large unmixed mass. We cannot conclude without regretting that they are so often used to form rather unmeaning though imposing masses, instead of throwing variety, grace, and relief among the flowers. *R.*

A PROMINENT position is due to the following tale of fiction, on account of its beautiful moral. It affords an excellent LESSON FOR YOUNG GARDENERS, who may think about it with much advantage to themselves during the long evenings of winter, when, the strain of manual labour being somewhat relaxed, the mind is the more free to act. The lesson—Mr. HUGH SUTHERLAND'S story to HARRY ARNOLD, his pupil—is taken from MACDONALD'S "David Elginbrod" (vol. i., p. 282):—

"Long, long ago, two seeds lay beside each other in the earth, waiting. It was cold and rather wearisome; and to beguile the time the one found means to speak to the other.

"'What are you going to be?' said the one.

"'I don't know,' answered the other.

"'For me,' rejoined the first, 'I mean to be a Rose. There is nothing like a splendid Rose. Everybody will love me then!'

"'It 's all right,' whispered the second; and that was all he could say; for somehow when he had said that, he felt as if all the words in the world were used up. So they were silent again for a day or two.

"'Oh, dear!' cried the first. 'I've had some water. I never knew till it was inside me. I'm growing! I'm growing! Good-bye!'

"'Good-bye!' repeated the other, and lay still, and waited more than ever.

"The first grew, and grew, pushing itself straight up, till at last it felt it was in the open air, for it could breathe. And what a delicious breath that was! It was rather cold, but so refreshing. The flower could see nothing, for it was not quite a flower yet, only a plant; and they never see till their eyes come, that is, till they open their blossoms, and then they are flowers quite. So it grew, and grew, and kept its head up very steadily, meaning to see the sky the first thing, and leave the earth quite behind, as well as beneath it. But somehow or other, though why it could not tell, it felt very much inclined to cry. At length it opened its eyes. It was morning, and the sky was over its head; but alas! itself was no Rose—only a tiny white flower. It felt yet more inclined to hang down its head and to cry; but it still resisted, and tried hard to open its eye wide, and to hold its head upright, and to look full at the sky.

"'I will be a Star of Bethlehem, at least,'" said the flower to itself.

"But its head felt very heavy, and a cold wind rushed over it, and bowed it down towards the earth. And the flower saw that the time of the singing of birds was not come, that the snow covered the whole land, and that there was not a single flower in sight but itself. And it half closed its leaves in terror and the dismay of loneliness. But that instant it remembered what the other flower used to say; and it said to itself, 'It's all right, I will be what I can.' And thereon it yielded to the wind, drooped its head to the earth, and looked no more to the sky but on the snow. And straightway the wind stopped, and the cold died away, and the snow sparkled like pearls and diamonds; and the flower knew that it was the holding of its head up that had hurt it so; for that its body came of the snow, and that its name was Snowdrop. And so it said once more, 'It's all right!' and waited in perfect peace. All the rest it needed was to hang its head after its nature.

"'And what became of the other?' asked Harry.

"'Haven't done with this one yet,' answered Hugh. 'I only told you it was waiting. One day a pale, sad-looking girl, with thin face, large eyes, and long white hands, came, hanging her head like the Snowdrop, along the snow where the flower grew; she spied it, smiled joyously, and saying, "Ah, my little sister, are you come?" stooped and plucked the Snowdrop. It trembled, and died in her hand: which was a heavenly death for a Snowdrop, for had it not cast a gleam of summer, pale as it had been itself, upon the heart of a sick girl?

"'And the other?' repeated Harry.

"'The other had a long time to wait, but it did grow one of the loveliest Roses ever seen, and at last it had the highest honour ever granted to a flower: two lovers smelt it together, and were content with it.'"

The moral is so obvious that the writer does not stop to point it out. It seems to be that we are like dry seeds, wasting in the dark earth till the genial drops and sunbeams of knowledge quicken us into life, and mould our characters into comely and useful forms; that each has only to be true to himself and his advantages, to be enabled to shine in that sphere of life to which he has been called; and that just as every seed cannot become a Rose, so no man can be cut into the exact pattern of any other—either living or dead. Mental life is irrepressible and incommunicable. It can neither be arrayed in the cerements of dead minds, nor dressed in the second-hand clothes or thoughts of the living. Each man must become the architect, not only of his fortune, but of his character. By patient waiting, by earnest work, by gradual growth, we arrive at the stature of men—not all alike, but each equally manly. For individuality is the law, the essence of life.

Such lessons as these can hardly fail to be useful among young gardeners, and to prove an antidote to much of that servile copying and lazy imitation that snuffs out genius, strangles originality, and stops the breath of improvement with the thick swaddling bands of ignorance, routine, and prejudice. *D.*

—— THE ROYAL HORTICULTURAL SOCIETY'S ARRANGEMENTS for next year have just been completed as follows, viz., Show of Hyacinths and Spring flowers, March 14; Roses and Spring flowers, April 18; Early Azaleas and Spring flowers, May 9; Great Show, June 2 to 5; Special Prize and Pelargonium Show, June 16 and 17; Rose Show, June 30; Great Provincial Show to be held at Leicester, in conjunction with the Royal Agricultural Society, July 16 to 21. The Tuesday meetings and Show of New and Rare Plants, on January 21, February 18, November 17, December 15, and on the 1st and 3d Tuesdays in each month, from March to October inclusive.

—— The ROYAL BOTANIC SOCIETY announces, amongst its arrangements for 1868, an Exhibition of Spring Flowers, to continue during one week, from March 21st to March 28th; an American Exhibition, to continue from June 1st to June 13th; and three Miscellaneous Exhibitions of Plants, Flowers, and Fruit, to be held respectively on May 27th and 28th, June 17th and 18th, and July 1st and 2nd. There will also be Lectures at the Gardens on the following Fridays:—May 15th, 22nd, 29th; June 5th, 12th, 19th, 26th; July 3rd.

—— In our remarks on the FALL OF THE LEAF (see p. 1094), we omitted to refer to an analogous phenomenon that occurs in some Conifers, notably in Taxodium distichum, and to a less extent in some of the Thujas, and possibly in others that have not come under our notice. In these cases small branchlets are cast off, each beset with numerous small leaves, so that there is here a very close resemblance between branches and "compound" leaves, like those of a Rose or Gleditschia, and another instance of the close similarity between stem and leaf, generally considered so thoroughly distinct. We do not find mention of the circumstance in any book that we have had at hand: but we submit that the fact, which must be well known to growers of these plants, may offer some hint as to pruning, if such be necessary, in these plants.

—— In the Proceedings of the Royal Society of Tasmania, as quoted in the Journal of Botany, we find a list of the LEAFING, FLOWERING, AND FRUITING of a few standard plants in the Royal Society's Gardens, which shows the bearing of some of our garden plants at the Antipodes:—

December 12th, common Privet commencing to flower; 15th, first bunch of Red Currants ripe; 20th, first bunch of Black Currants ripe; 25th, Melia Azedarach commencing to flower; 31st, Doyenne d'eté Pear commencing to ripen.

January 10th, Veronica angustifolia in full flower; 11th, first ripe Apricot gathered (Royal); 18th, Grevillea robusta in full flower; 18th, first Jargonelle Pears gathered; 25th, Catalpa syringifolia in flower; 30th, Black Mulberries commencing to ripen.

February 1st, Peaches commencing to ripen (George IV.); 8th, Kerry Pippin Apple commencing to ripen; 11th, Windsor Pear commencing to ripen; 16th, Bon Chrétien Pear commencing to ripen; 16th, Greengage Plum commencing to ripen; 26th, Ash commencing to shed seed.

March 9th, tip of Hornbean commencing to turn yellow; 10th, Colchicum autumnale in full flower; 12th, Coes' Golden Drop Plum commencing to ripen; 14th, Seckel Pear commencing to ripen; 15th, tips of Elm turning yellow; 16th,

Horse Chestnut leaves turning brown; 20th, Oak leaves commencing to fall.

April 3d, Chinese Chrysanthemum commencing to flower; 4th, Elm leaves commencing to fall; 9th, Coes' fine late Red Plum commencing to ripen; 18th, Mountain Ash leaves commencing to fall; 25th, leaves of Black Mulberry commencing to fall; 30th, seeds of Carpinus Betulus commencing to fall.

May 10th, first Medlar ripe; 17th, Coronilla glauca commencing to flower; 25th, Ailantus glandulosa leaves all shed; 30th, Photinia serrulata commencing to flower; 31st, Spiræa prunifolia commencing to flower.

—— Messrs. SUTTON, we understand, have received an official announcement that the jurors at the Paris Exhibition have awarded them the only Silver Medal in Group 9, Classes 84 and 85. Their contribution included a very complete collection of Grasses, consisting of both Seeds and Dried Specimens; also samples of other seeds.

PLANT PORTRAITS.

ACER SANGUINEUM.—*L'Illust. Hort.* t. 526; *Rev Hort.*, 1867, 391, with figure. Aceraceæ. A very ornamental slender-growing deciduous tree, with somewhat erect branches, the leaves digitately 7-lobed, with short-toothed suddenly acuminated lobes, and of a purplish-red colour, resembling that of A. atropurpureum. It is the same as A. polymorphum palmatum sanguineum. Native of Japan.

ANTHURIUM GEITNERIANUM.—*Gartenflora*, t. 540. Orontiaceæ. A stove perennial, with coriaceous dark green oblong-lanceolate leaves on long petioles, and a cylindrical spadix, with green leathery spathe, supported on a long scape. Its history is unknown. Flowered in the St. Petersburg Botanic Garden.

CLERODENDRON SEROTINUM.—*Rev. Hort.*, 1867, 351, with fig. Verbenaceæ. A much branched vigorous-habited greenhouse or half-hardy shrub, suitable for the summer garden. It grows about 10 feet high, and has the leaves cordate and decussate; the flowers are sweet-scented, pure white, with an angular rose-coloured calyx, and are produced in large corymbose panicles a foot or more across. Native of China. Flowered in the Jardin du Muséum, Paris.

COLAX JUGOSUS.—*Bot. Mag.*, t. 5661. Orchidaceæ. A curious stove epiphyte, with compressed pseudobulbs, elongate lanceolate leaves, and a 2 or 3-flowered peduncle, bearing flowers of which the sepals are roundish ovate, white, the petals obovate, white transversely banded with dark purple, and the lip furrowed and villous, and longitudinally banded with purple. Native of Brazil. Flowered by S. Rucker, Esq.

DENDROBIUM BENSONÆ.—*Bot. Mag.*, t. 5679; *Floral Mag.*, t. 355. Orchidaceæ. A beautiful stove epiphyte with terete stems, one to three feet long, narrow ligulate leaves, and honey-scented white flowers, which have a rotund orange-coloured cucullate denticulate lip, evenly bordered with white, and marked near the base with two dark crimson spots. Native of Moulmein. Flowered by Messrs. Veitch & Sons.

ERODIUM MACRADENIUM.—*Bot. Mag.*, t. 5665. Geraniaceæ. A pretty stemless hardy perennial, with stout tortuous roots, oblong pinnato-pinnatifid finely cut hairy leaves, and umbels of rather large pale purple flowers, the two upper petals veined and spotted with deep purple. Native of the Pyrenees. Flowered by Messrs. Backhouse & Son.

LÆLIA MAJALIS.—*Bot. Mag.*, t. 5667. Orchidaceæ. A remarkably fine figure of one of the most magnificent of Orchids, flowered in wonderful beauty by Mr. Anderson, in Mr. Dawson's fine collection at Meadow Bank, the flowers being a span across. It was introduced 30 years ago, but since that time has been generally lost.

LILIUM AURATUM RUBRUM.—*Rev. Hort.*, 1867, 371, with figure. Liliaceæ. A very charming variety of this noblest of all Lilies, differing from the ordinary form in having the band of golden yellow on each petal exchanged for a similar band of a rosy red. Native of Japan. Flowered by MM. Vilmorin-Andrieux et Cie.

LILIUM HÆMATOCHROUM.—*L'Illust. Hort.*, t. 503. A handsome hardy bulb, growing about 1½ foot high, the stems furnished with small ovate-lanceolate sessile leaves, and terminated by a large erect dark blood-red flower. Native of Japan. Flowered by M. A. Verschaffelt.

LILIUM PSEUDO-TIGRINUM.—*Rev. Hort.*, 1867, 411, with figure. A very pretty hardy bulb, quite distinct from L. tigrinum, growing about 3 feet high, with a cylindrical stem, long linear scattered leaves, and solitary nodding flowers from three or four of the upper axils; the segments of the perianth are reflexed, of a dull red colour, dotted with small dark brown spots. Native of China. Flowered in the Jardin du Muséum, Paris.

RHUS OSBECKII.—*Rev. Hort.*, 1867, 111, with figure. Anacardiaceæ. An elegant shrub of spreading branching habit, with smooth bark, and large imparipinnate leaves, formed of 7-11 pairs of oval toothed leaflets, set along the broadly-winged rachis, the leaflets themselves being whitish woolly beneath. Native of China. Grown in the French gardens.

SMILAX LONGIFOLIA VARIEGATA.—*L'Illust. Hort.*, t. 521. Smilaceæ. A beautiful evergreen stove climber, valuable for its ornamental leaves. It has prickly stems, and the elliptic-lanceolate leaves are finely marbled with white between the ribs, and thus appear to be marked with four irregularly-margined white bands. Native of Pará. Crown by M. A. Verschaffelt.

VRIESIA GIGANTEA.—*L'Illust. Hort.*, t. 516. Bromeliaceæ. A stove perennial, described as being of gigantic growth, and as having elongate erect shortly acuminate leaves, and a tall stout scape bearing a large many-flowered paniculate inflorescence, of which the branches and bracts are rose coloured, and the flowers are produced in distichous racemes from the axils of the bracts; the sepals are greenish and tubulose, the petals white, much longer than the sepals, and spreading. Native of Brazil. Introduced by M. A. Verschaffelt.

VRIESIA GLAZIOUANA.—*L'Illust. Hort.*, 1867, t. 42. A tall robust-habited stove perennial, with arcuately-recurved canaliculate leaves, and an ample much-branched panicle, having a flexuose rachis, and bearing large white sweet-scented flowers, in distichously arranged racemes. Native of Brazil. Introduced by M. A. Verschaffelt.

CHASSELAS GRAPES.

A LARGE collection of these useful Grapes has been examined this season at Chiswick. They were fruited together in pots, a large number of Vines being annually grown in this way for the purpose of testing the merits of the various sorts which are from time to time added to the collection. Indeed, this is the only way in which a large number of sorts could be readily brought under comparison. The following are the results:—

Cabral: this resembles Diamant Traube, but is considered to be inferior to it.—Chasselas Croquant is somewhat firmer in the flesh than Royal Muscadine.—Chasselas de Florence is the same, but having a few rose-coloured berries in the bunch.—Chasselas de Jerusalem is Black Hamburgh.—Chasselas Duhamel is a small, round, black Grape, not of high flavour.—Chasselas Hâtif de Tonnein was the earliest variety grown; a small, round, somewhat pointed, greenish-white Grape, transparent, sweet, and agreeable.—Chasselas Musqué is well known. Chasselas Musqué de Nantes, Muscat blanc de Berkheim, and Muscat Regnier, are synonymes of it.—Chasselas Rose de Falloux is of the same flavour and character as Royal Muscadine, with bright rose-coloured berries.—Ciotatis a Royal Muscadine, with the leaves very much cut, like Parsley.—Cranford Muscat is the same in flavour and appearance, but has the reputation of not cracking.—Diamant Traube is a very fine Grape, bunches and berries large, of a clear transparency; flesh firm, juicy, and rich.—Duchess of Buccleuch is a very long tapering bunch, with small round berries, in flavour like the Chasselas Musqué.—Early White Malvasia, synonymous with Grove End Sweetwater, Keinzheimer blanc précoce, and Burchardt's Amber Cluster, is a most excellent early, small, yellowish white Grape, juicy, sweet, and very agreeable.—Foster's White Seedling is a fine Grape, bunches large, berries large, clear, and beautiful oval; pleasant flavour.—Gelbe Muscatellier resembles Chasselas Hâtif de Tonnein in appearance, but is somewhat later.—Golden Bordeaux resembles the Royal Muscadine, but is smaller, and not so good.—Le Mamélon resembles Muscat St. Lawrence, but has much more deeply cut leaves.—Madeleine Royale is a fine variety, larger than the Royal Muscadine, ovate, clear, rich, and excellent.—Milhaud du Pradel is synonymous with Œillade noir Musqué and Œillade noir précoce; a very excellent variety, berries large, oval, black, Muscat flavour.—Muscat noir d'Angers is synonymous with Muscat noir d'Eisenstadt, a good form of Black Frontignan.—Muscat noir d'Hongrie is a small black Grape, with a very rich Muscat flavour, the highest flavour of all the varieties grown.—Muscat rouge, Chasselas rouge, Chasselas de Negrepont, and Fondante Rose are synonymes, a little paler than Chasselas Rose de Falloux.—Muscat St. Laurent is a very early Grape; the bunches are small, the berries also small but sweet, with a Muscat flavour. Muscat Ottonell and Oliver's are synonymous with it.—Muscat Trovéren is a fine Grape, bunches large, berries medium-sized, in flavour like Chasselas Musqué; it does not crack.—Pitmaston White Cluster is very much like Gelbe Muscatellier.—Reeves' Muscadine is a very strong-growing variety, berries small, beautifully yellow, rich, and pleasant.—Royal Muscadine is a very excellent variety, free-bearing for pot-culture: the following are synonymes of it—viz., Chasselas Napoléon, Queen Victoria, Chasselas de Montauban à grains transparent, Chasselas de Fontainebleau, and Brutiano.—Stillward's Sweetwater is a very good variety of Sweetwater, with large berries, which set freely. *F.*

ON THE PERPETUITY OR OTHERWISE OF THE COLLECTING OR FEEDING ROOTS.

THIS question, so ably started by your leader at p. 1213, is of vital importance to cultivators, and deserves what you have invited—the earnest attention of all your correspondents. It will also doubtless receive it; for if there is one characteristic more than another that distinguishes the modern from the ancient cultivator, it is the extra care that the former takes of the roots of plants. In this sense at least our practice is the more radical. The ancients concentrated their skill chiefly on the top, and compelled the growth already formed to run into floral or fruitful channels. We moderns work upon the hidden springs of life, and modify the amount and character of produce by working directly upon the roots. It therefore follows that our knowledge of the functions and characters of roots should be more extended than was their's in the olden times; and with every extension of knowledge I think it will also be admitted there has been an increase of care exercised over the roots. If so, then the question started by you amounts to this: Is all this care necessary to successful cultivation; or is a large portion of it—the most troublesome portion, in fact—the guarding and preservation of the feeding extremities from injury, superfluous? If these naturally die, or if they may be artificially destroyed annually, then they need no care whatever; but if not, it is impossible in case of removal either in or out of pots to bestow too much attention upon them. Hence the immense importance of establishing or refuting this fact, and its influence upon our daily practice.

Now it may be readily proved that these roots do not (as a rule) naturally die: this fact is established by direct demonstration. Having potted and moved in the open ground thousands of plants at all seasons of the year, I have always, if the plants were in health, found their feeding extremities not only alive, but apparently actively employed. Therefore it seems quite impossible to admit that these fibrils are renewed year after year in a similar manner to leaves. Rather do they seem to resemble the small twigs forming the extremities of the branches; they are simply minute roots endowed with permanent life, gradually developing themselves into larger roots: so that when their collecting work, by reason of their age or by the origin of other and smaller roots, ceases, they may then become open channels for the distribution of food, or strong anchors, as you put it, to fix the tree more firmly in the earth. Thus trees, as they enlarge in bulk of top, increase the area of their feeding ground, and get a stronger, wider grasp of *terra firma*. But if the feeding extremities are annually destroyed, a different theory of root extension must be sought. Under such circumstances it is difficult to see how, indeed, they could ever extend at all.

Notwithstanding all this, however, plants are sometimes found in unfavourable states or conditions, with many of those feeders destroyed. This destruction generally arises from an excess of either cold or water. And I think most practical cultivators will agree that the plants invariably suffer from such deprivation. This suffering reveals itself in different modes—sometimes by a diseased or feeble constitution, at others by excessive fertility, but always by waging war with the permanent health and longevity of the plant. The latter are the objects that Nature is bent upon promoting, and as the destruction of root fibrils militates against these objects, such destruction may safely be pronounced unnatural.

This brings us to the second question: May such fibrils be removed or destroyed by man with impunity? Nature's teaching compels me to answer this question in the negative. I am aware that much may be advanced on the other side. It must, for instance, be admitted as a matter of fact, that such roots are often destroyed or removed. Man's chief destructive agent is excessive dryness; the feeders are thus withered up and perish. This seldom or never happens to plants in a natural state in our climate, but with plants under glass or in pots roots are often so destroyed. Then in every case of transplantation or repotting less or more of such root fibrils are removed. Again, Mr. Rivers seems to advise a forcible, wilful destruction, similar in principle, although varying in amount, to that of the old-fashioned pine-growers, who at the great spring potting treated all winter roots as effete appendages, to be recklessly slashed off. If this practice is to be established, it must be done, not simply because such roots may be removed with impunity, but on the ground that their removal is a positive benefit. Such a wide inference, however, can hardly be drawn from the practice of one cultivator, however eminent.

I have the greatest respect for Mr. Rivers, and have seen for myself, and reported in the highest terms upon his success, in your columns. Still I will add, that upon this question of root treatment I do not at all agree with him. My want of faith is partly justified by his own change of practice, but chiefly upon other grounds. At one time, all roots that struggled through at the bottom of the pots were cut clean off in the autumn, leaving in the pot little besides bundles of mutilated gullets, deprived wholly of their collecting and feeding mouths. This, I believe, is now abandoned, and care is, I think, exercised to prevent the roots escaping through the bottom of the pots. Now, a few inches of the top soil, with its complement of root fibrils, is removed. This is a mitigation of the old severity, and is therefore less likely to be injurious. Neither is it carried to any very great extent. If I remember rightly, the slates on the top of the pots are not removed; the entire pot is also crammed full to bursting with roots. The trees could therefore bear the removal of a few without affecting them much. It would be most interesting to learn whether the trees had been severely dried off before the roots were observed to be dead—if, in fact, they were forcibly killed by a dry regimen, or died naturally of themselves. This top-dressing of Mr. Rivers does not differ from general practice, unless it lies in the extent to which it is carried, and perhaps he will kindly oblige us by stating the depth of the soil removed, and the proportion of roots destroyed to those remaining in, over, or through the pots. His old practice of cutting all the outside mouths clean off, I pronounce simply barbarous, and I believe it has been the cause of more fruit dropping off fruit trees in pots than any and all others. And the wilful destruction of surface roots to any great extent can hardly, I think, be proved to be either useful or beneficial, while it is wholly opposed to that enlightened tender care over the roots which is one of the most distinguished characteristics of modern culture, and the chief reason of its success. The feeding portion of the roots of plants are the most valuable of the whole, and to preserve them is the chief thought of good potters and transplanters. Both of these operations are favourable, when skilfully performed, to the multiplication, not the reduction, of such feeders. If transplantation takes place just immediately before, or at the fall of the leaf, and the roots are prevented from being moved by the wind, and protected from frost during the winter, the probability is that before the tree makes much demand upon the root for fresh supplies of nutriment, the feeders will be found ready to supply it where one only was destroyed. Yet during the process of removal every feeding rootlet should be preserved, while the open gullets may be freely cut asunder. Near these cuts, and sometimes along the whole channel of a previously unpruned root, small feeding mouths will be established. Thus the tree is not only plentifully provided

with suitable food, but the quality of that food seems also improved, and is more productive of fruitfulness. But such practice tends to the multiplication, not the reduction, of feeding fibres. And such multiplication and preservation should be the constant aim of our culture.

In plant cultivation generally, and in fruit growing in particular, three things should be kept in view—healthful growth, fruitful habit, and the perpetuation of both these conditions. To this end every root feeder is needed. If any special object, such as a temporary state of excessive fruitfulness, is desired, it may sometimes be obtained through the sacrifice of useful roots; but then the health and stability of the tree are endangered. When neither of these are valued, as may be the case with orchard-house trees in pots, the removal or destruction of such roots may be tolerated; but even then such deprivation of roots will, if carried beyond the narrowest limits, endanger the certainty of a crop, or lessen its quantity. It is therefore not a practice to be safely recommended, even with short-lived trees. On the other hand, if perpetuity—that great charm of horticulture, so eloquently adverted to by "S. R. H." at p. 1216—of healthy and fruitful individual life is desired, the soundest, safest advice is, never to destroy a single feeding root if it can be avoided. And if cultural or other exigencies compel to such destruction, then the proper course is, at the fitting time, to reduce the area of the top of the plant also, so that the great laws of reciprocal action and reaction between root and branch may not be too ruthlessly assailed and violently disturbed. A thorough comprehension of these laws, and a knowledge of their vital importance to the permanent well-being of plants, will induce such a mode of root culture as will multiply and not diminish their feeding extremities. *D. T. Fish, F.R.H.S., Dec.* 6.

NEW COMBINED HEATING, VENTILATING AND EVAPORATING PIPE.

ALLOW me to introduce to the notice of your readers a system of "heating, ventilating, and vaporising," capable of employment in complete simplicity, either separately or conjointly, by means of an adaptation of the ordinary form of cast-iron hot-water pipe. Here it may be well to state that

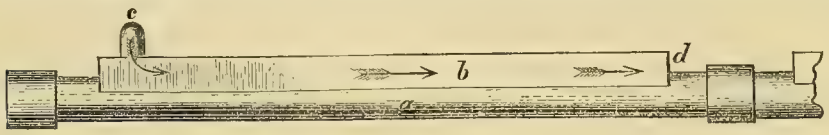


Fig. 1. Elevation of combined pipe.

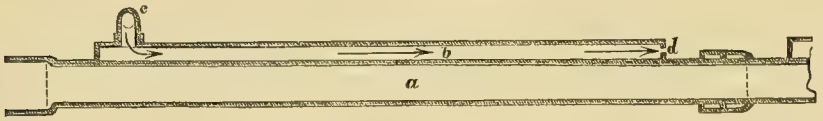


Fig. 2. Longitudinal section of pipe.

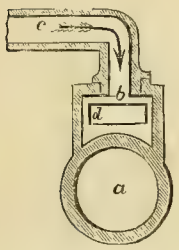


Fig. 3. Transverse section of pipe.

REFERENCE TO DIAGRAMS.

a Hotwater pipe, 4 inches diameter.

b Air and aqueous vapour chamber, cast on pipe.

c Air supply tube, 2 inches diameter, in connection with external atmosphere; or with air drain.

d Aperture for discharge of warm air (either dry or humid) into structure, night and day; and in all weather, fair or foul.

The arrows indicate the air course. The aperture at *d* subserves for feeding the evaporating section of air chamber with water, when required.

the inventor and patentee of this thoroughly practicable, and usefully combined hot-water, warm-air, and genial-vapour tube, is Mr. W. Taylor, of Nursling, Hants—a gentleman fond of horticulture, and not wholly unacquainted with its "aims and hopes," and one who, it may be remarked, has given much sedulous study and no less practical attention to the important facts involved in a consideration of the principles of Vacuum *v.* Plenum impulse, as applied to ventilation, both on his own account, and for the public advantage. It may be added that this gentleman's special horticultural amusement is, as it has been for many years past, the winter cultivation of the Cucumber upon an extensive scale, in trellised hothouses. How far he is successful in the management of that "criterion crop" of the cultivator, in the dead season of the year, chiefly by means, as Mr. Taylor himself considers, of the adoption of his patented combination system of heating, ventilating, and vaporising,—a visit to Nursling in spring would best evince. The accompanying figures, illustrative of this extremely simple though effective contrivance will assist in explaining its thorough suitableness to the special requirements of indoor gardening in respect of its affording an efficient simultaneous method of warming and aërating, every present form and size of structure devoted to fruit or plant culture, &c., in this, the most changeable and uncertain of climates.

There is indispensably required for every structure an air-shaft arrangement, to produce the vacuum impulse for securing the constant interchange of air by egress as well as by ingress.

It is a trite observation of the inventor of this patent, that however easy it may be to attract air into a building of any kind, it is usually the converse as regards conveying it out again, and thereby ensuring a constant interchange and unfailing renewal of pure fresh atmospheric air warmed to a temperature similar to that which is displaced.

The substitution of fixed roofs for sliding sashes, the dispensing *in toto* with every form of moveable light or opening shutter ordinarily used in glass structures, great and small, for the purpose of ventilation only, with manifest labour-saving results into the bargain, would, indeed, be no inconsiderable return for the adoption of the combined heating and ventilating system here produced. It would not be assuming too much, however, to assert that these would prove to be but a modicum of the cultural advantages derivable from it. The healthy natural vigour of plants generally, and specifically the more natural colouring and flavouring imparted to flowers, fruits and vegetables under glass, together with more equable and enjoyable climatic conditions, under strictly artificial circumstances, would certainly be also secured by Mr. W. Taylor's invention for unrestricted atmospheric interchange in regard to our plant and fruit structures, by night or by day, in calm or in storm, throughout the varying seasons of the year. *Geo. Taylor, Doughty Street, London, Dec.* 12.

NOTES ON THE ART OF GROWING ROSES OUT-OF-DOORS.

(*Concluded from p.* 1216.)

SECTION XVI. *On Raising Roses on their own Roots from Cuttings.*—Plants raised from cuttings have in some respects many advantages over those which are worked on stocks. Those, however, which have been worked on the Manetti and properly planted, generally throw out roots of their own, and share the merits of plants which have been raised from cuttings. An abundance of plants of the Hybrid Perpetuals may be raised in the following simple manner. Dig and manure a piece of ground as directed for the Manetti stock. The soil should be light, or a good dressing of sand and leaf-mould worked in with the top spit. There is no better position for this bed than a strip on the north side of an Asparagus bed, which will shade it by the time the sun becomes too hot, and not before.

Take your cuttings early in October. This is the condition of success: cut them into lengths of five or six inches; cut off each with a straight cut just below a bud; cut off all the leaves except three or four, but do not, as for the Manetti, cut out the buds. Stick the cuttings of each sort in a row, covering them as far as the leaves are removed, and label them. Tread the earth firmly around them, and leave them until the spring. In March it will be found that every cutting has been lifted up an inch or so by the winter's frosts. Go over the whole then, pushing each cutting to the bottom of its hole. In parching weather in the spring they may be watered. Of some sorts all, of all several, will grow, and flower in the summer.

For Teas the same plan may be tried, and if the winter is a mild one it may succeed; but they may be raised with more certainty in the latter part of the summer under a hand-glass, and should then be potted, and kept in a greenhouse or pit from the commencement of frosty weather until April.

Roses may also be raised from layers, tongued in the usual manner, and laid in July. Roses on their own roots are well adapted for presents to your friends, who do not understand the cultivation of worked plants, for none but a cultivator of Roses ever knows how to distinguish the shoots made by the stock from those of the scion.

Section XVII. *On the Varieties of Roses.*—Such a vast number of named varieties of Perpetuals are now grown, and so many new ones are introduced year by year, that there is little advantage in giving lists. It is surprising how few of the sorts recommended in books a few years ago will be found amongst fresh collections. There are, however, some which are likely always to hold their ground. Such are—Jules Margottin, Mrs. Rivers, Victor Verdier, Senateur Vaisse, Charles Lefebvre, Prince Camille de Rohan, Alfred Colomb, Marie Baumann, Mademoiselle Bonnaire, Madame Vidot, Comtesse Cécile de Chabrillant. Of the many brought out every year, only two or three are heard of after the lapse of a few seasons. With Tea Roses the case is different. Often none at all, seldom more than one, appears in the yearly lists of new Roses. Hence the old sorts still continue to be cultivated, and wonderfully beautiful many of them are.

It might be supposed that, because a Rose is a Rose, all Roses—at least of the same class—require a similar treatment; but that is not the case. Their constitutions vary in a remarkable degree. Some are strong growers, and some will scarcely make any growth at all. Neither is the character of the growth an index to that of the flower. Some of the best flowers are borne by the best growers, and some by the worst. There cannot be more beautiful flowers than those of Madame Vidot and Madame Furtado. But both, especially the latter, are wretched growers. On the other hand the growth of Senateur Vaisse, Charles Lefebvre, and Jules Margottin are as fine as their blossoms. It will also be found that a few varieties, even among the Perpetuals, flourish best in a light soil. Of these Mademoiselle Bonnaire and Colonel de Rougemont appear to be instances. The Rose grower must learn these niceties by experience. He must also learn which stocks best suit the various sorts, or whether they do better upon their own roots.

Section XVIII. *On the Points of a good Rose.*—The character of a Rose depends upon the substance, form, arrangement, and colour of its petals.

To take these in order. The petals should be thick and fleshy, not flimsy. This enables it to keep its freshness under adverse circumstances, such as rain, sunshine, or when gathered, besides imparting a richness to the flower, which nothing else can give. The form of the petal should be deep, the edge not jagged, but smooth and well rounded.

The arrangement of the petals should be regular and geometrical, not confused. The outer petals should form a cup-shaped wall around the flower, and whatever the arrangement of the central petals is, they should by their fulness conceal the eye of the flower until it attains the last stage of expansion. Perhaps the most beautiful form is that which may be called turbinated, and is exemplified in a well-shaped blossom of Senateur Vaisse. Flat blossoms, like those of Lord Raglan or Evêque de Nismes, are no longer valued. The colour should be bright and pure and lasting, or else delicate. A white perpetual is a great desideratum. Sweetness is likewise an important element of excellence. Size is not so valuable as to make up for the absence of any of the above-named requisites, though, *cæteris paribus*, it is not to be overlooked.

Lastly, the foliage should not diminish too rapidly in size as the leaves approach the blossom, but should so surround it, that, when cut and placed in a vase, they should form a furniture around the flower, to set it off to full advantage. This is described by saying that "the foliage comes up well."

Conclusion.—In the foregoing hints on Rose culture everything has been omitted requiring the use of those appliances which are only at the command of wealth. Neither greenhouse, hothouse, nor even a hotbed are needed for having Roses in perfection in the Rose season. The subject of raising seedlings, although a most fascinating branch of culture, has also been passed by.

Enough, however, has been said to make it apparent that no one can grow Roses well without pains and some amount of trouble. It is a work for the head as well as for the hands, and yet it is not a work, but a delightful recreation. *An Amateur.*

PEARS, OLD AND NEW.

Now that the planting time approaches, or is even with us, some inexperienced gardeners may like to read a few impartial remarks by one who has made experiments: remarks which may save them expense and disappointment. But before I lose myself in the magnitude of my subject, let me just premise that I have no connection with any nursery whatever, and that I do not pretend to any exhaustive knowledge.

All true gardeners are by nature venturesome and sanguine, therefore more liable to be misled than any other race of men. Hope outglows the brightest hue of the boldest flower-painter, nor can the most luscious list of fruit sate its power of swallowing. Better yet, if these descriptions be in foreign language. What fool can then resist them? It is against the gorgeous visions of poetic catalogues (especially French and Belgian) that I might now exhibit feebly the skeletons in my closet,—feebly, not alone because of want of power on my part, but also that I have no sort of enmity against the men; probably they mean aright, and are very good but foolish.

Quitting this subject once for all, the readiest way I see to make my small experience useful, is to name the few good Pears which have stood 10 years of testing, whether these be old or new. But first, as scarcely a dozen sorts are good for every soil and season, and most are true chameleons, I should state that our soil is a binding loam, 3 feet in depth, upon a sandy gravel. An ancient pasture broken up and trenched almost to the gravel, with the top spit thrown at bottom—scarcely any site could be more favourable for Pear trees, and the climate is that of south England.

Here upon 9 acres of ground are several thousand Pear trees, well-trained, standards, bushes, and pyramids, on the Pear stock, on the Quince, and many double-grafted. Perhaps I had better take the sorts according to their season, and give the best their place of honour, in the following list:—

1. *Citron des Carmes* is the first Pear ready. It is ripe (on a standard) generally by the 20th of July. It is small, but crisp and juicy, pleasant and refreshing; not a first-rate Pear of course, but the best of its season. I have not tried it on the Quince stock. It

is an enormous cropper. Against it come in vain the following modern or other rivals:—Doyenne d'Eté, smaller still, mealy, and insipid; Beurré Giffard, soft, and a very weakly grower; Rokeby, a poor thing; Green Chisel, insignificant; Beurré Précoce, I know not; Poire Pêche, later, and quite worthless.

2. *Jargonelle.*—Among second earlies there is none to dispute its supremacy; but it is (as everybody knows) a coarse untidy grower, and a most uncertain bearer, till the tree is very old. The most severe root-pruning has failed to make it fruitful. Mr. Rivers says that it crops well when double-worked on the Quince: I have not proved it yet in that condition.

3. *Williams' Bon Chrétien.*—Very popular with many, and a capital bearer; also a fine large Pear, but I do not like its aroma, and this year the texture has been coarse. However, I am bound to give it a place, though I think it much over-rated. On the Quince it cankers. With it, or slightly before it, ripens Desiré Cornelis, a strong grower and great bearer, quite equal to it in size, and superior perhaps in juiciness; but too sweet, and not high-flavoured. Alexandrina (another contemporary) is large and handsome, but mealy. Colmar d'Eté is not worth notice. Beurré d'Amanlis is too watery.

4. *Louise Bonne de Jersey.*—Much larger and handsomer on the Quince than on the Pear stock. Very juicy and finely flavoured; but not quite buttery enough for the *beau idéal*. However, there is no new Pear (so far as I know) to equal it in the last half of September.

5. *The King of Pears, Beurré Superfin.*—Contemporary with Marie Louise, and decidedly superior. It lasts throughout October; and for fertility, beauty, richness, and delicacy of aroma scarcely has an equal. If Mr. Rivers introduced this Pear, he ought to have a poem addressed to him. Whatever the season or the soil, it never fails of excellence, either as a wall-fruit or a pyramid, and should be grown on the Quince.

6. *Marie Louise.*—First-rate, but a little too sugary, and wanting the piquant sub-acid of No. 5. Moreover, an uncertain bearer, and of a long drooping habit. It takes unkindly to the Quince.

7. *Gansel's Bergamot.*—Fine-flavoured, but often coarse in texture, and not a good bearer, even when double worked on the Quince; though Mr. Rivers holds the contrary. Suffolk Thorn is a smaller and more prolific form of it.

8. *Urbaniste.*—A delicious Pear to those who like a fine "rosewater aroma," and perhaps of all Pears the smoothest in texture; it is, however, too small, and not a prolific sort. Seckel, or the New York Red Cheek, is much smaller, though very pretty, and to my taste over-sweet as well as overdone with aroma, as is Williams' Bon Chrétien.

9. *Doyenne du Comice.*—A November Pear of first-rate quality, one year even superior (if possible) to Beurré Superfin. But it has not cropped well here, though a very handsome grower.

10. *Beurré Hardy.* — A really good Pear, and a beautiful grower.

11. *Conseiller à la Cour.*—A large free-growing and free-bearing sort, not quite first-rate, except now and then.

12. *Beurré d' Aremberg.*—An excellent Pear, but not large enough.

13. *Knight's Monarch* may hold its own with any Pear in a favourable season, when it is of lovely texture, and exquisite aroma. It should last through November and December. Twice in eight years it has failed to ripen duly.

14. *Josephine de Malines.*—The last really first-rate Pear (except in certain seasons, when the Easter Beurré really melts). Josephine does not always ripen here. When it does, there is no Pear to surpass it, and it affords the pure Pear flavour as late as the Ides of March. After that time no Pear yet introduced (so far as I know) can be expected to ripen, though many are catalogued to do so. Occasionally, by some strange freak, a Morel may take to the melting mood even as late as May, or a Ne Plus Meuris may lose its grit, but as a general rule these spring Pears are only fit for stewing. I have two Pears of recent origin, Madame Millet and Bezi Mai; several, too, of the Grégoire family and (so-called) Fondante de Mars, and a lot of others, all sent me as "melting and good," and no doubt they would be good if they melted first and rotted afterwards, but they all invariably invert the process.

It will be seen that, from the list of choice Pears given above, many well-known varieties and favourite ones are omitted, such as Van Mons Léon le Clerc, Gratioli, Crasanne, Brown Beurré, Beurré Capiaumont, Beurré Bosc, Beurré de Rance, Chaumontel, Duchesse d'Angoulême, Doyenne (White and Red), St. Germain, Glou Morceau, Passe Colmar, Winter Nelis, Napoléon, &c. I do not deny that some of these are sometimes very good (especially Gratioli, Brown Beurré, and Chaumontel), but I submit that their uncertainty excludes them from the very first rank.

Another Pear, which has been much talked of lately, namely, Huyshe's Bergamot, may in some soils be very excellent, but here it has not proved so, and it seems the shyest of all shy bearers. Three Pears of very high repute—Thompson's, Tillington, and Soldat Esperen, may, for all I know to the contrary, be unjustly omitted. It so happens that I have never received them, although ordered more than once. And the value (if any) of my list is, that it is based on actual trial during several years of study, and not on hearsay or foreign report, which our nurserymen accept too freely.

I would conclude, by your good leave, with an *Index expurgatorius*, based on many sufferings and a heap of money thrown away; stating first one little fact, of no small significance. Ten years ago I received some six score of Pear trees from a leading Belgian nurseryman, to whom I had given almost *carte blanche*, on promise of receiving his very finest sorts. Of these trees there are just a dozen which have escaped my grafting knife.

Pears to be Shunned by English Growers.

Aglaé Grégoire, and all the Grégoire family
America
Avocat Nelis
Barbe Nelis
Bergamotte Hertrich and B. Dussart
Beurré Berckmans
,, Sterckmans
,, Bretonneau
,, Clairgeau (except, indeed, for its beauty)
,, Léon le Clerc
,, Six
Bezi Mai
Bonne d'Ezée
Colmar Delahaut
Commissaire Delmotte
Colmar Neill
Comte de Flandre
Dr. Trousseau
Elisa d'Heyst
Emile d'Heyst
Fondante d'Ingendael
,, de Mars
Fortunée
General Dutilleul
General Tottleben
Incomme Van Mons
Leopold I.
Madame Millet
,, Elise
Marie Louise d'Uccle
Morel
Napoléon Savinien
Nouveau Poiteau
Passe Colmar d'hiver
Poire Pêche
,, de Hert
,, Fransmann
,, Prévost
Prince Albert
Rokeby
Rousselet de Janvier
Shobden Court
De Spoelberg
Surpasse Crassane
Théodore Van Mons
Triomphe de Jodoigne
Vicar of Winkfield
Willermoz
Yat
Zepherin Grégoire
,, Louis (Grégoire)

There! that list would have been worth some hundred pounds to me 10 years ago this month. *Pari Passu.*

GLADIOLUS BOWIENSIS FOR DECORATIVE PURPOSES.

In the autumn of last year you were kind enough to allow me to point out the useful properties of the above-named Gladiolus. Another year's experience has more than convinced me that not one word too much was then said on its behalf as a decorative variety of this popular flower. We are now cutting (Nov. 25) in the open ground, flower spikes 4 or 5 feet high, with two or three fine side shoots of bloom to each. The only covering they have had was a mat or two over the top on the few frosty nights we have as yet experienced. To give them all a fair trial, several thousands of Bowiensis and Brenchleyensis, with 100 other varieties, were planted about the middle of June as the last succession. Not one of the others has a bloom upon it now, whereas not one bulb of Bowiensis has failed to produce two or three fine spikes, so that we have now hundreds to cut from, and shall have, if fine weather lasts, up to Christmas. Brenchleyensis was never in the race. Before a bloom opened the foliage became yellow, and not more than one-half ever pushed up or showed a blooming scape. In fact, it does not appear to have been in the first instance a seedling but a sport; the bulbs are generally small and flat, and the bloom and colour is besides nothing like so good in our inland old garden mould. There are several other varieties equally as good as Bowiensis, such as Couranti fulgens, Admiral Dundas, &c., but I will reserve my notes on these, until they can be bought by the hundred.

We have no decorative flower so generally useful as the Gladiolus. It can be had in bloom all the summer months, or we might say from May to Christmas; and besides being a great favourite, it can scarcely be used amiss for indoor decoration, either as rainbows for fire-places, or 3 feet spikes in Ivy screens, or as specimens in drawing-rooms when others happen to be scarce. They are clean, bright, and cheerful everywhere; and even if one bloom only is open when gathered, all the others, to the very top of the spikes, will open freely with care.

In vases of cut flowers the Gladioli are greatly improved by a few good Grasses being intermixed with them; for example, we have been cutting to put round the sides the graceful Milium multiflorum, and Piptatherum Thomasii, and for the centre Panicum fimbriatum. Perhaps the most effective are among the numerous summer varieties, as Agrostis laxiflora, which when introduced neatly among the Gladiolus blooms has all the appearance of long threads of elegant wavy silk, clustering round as a protection to the blooms, and through which they appear to interesting advantage.

Our method of planting is the same as the Devonshire farmer plants his Potatos. The ground is double dug in winter, and at planting time a trench is taken out one spade deep. The bulb is then put in, covering a little soil over the top, and upon this is placed a good coating of manure and leaf-mould mixed, the manure being used fresh and warm, as we find that old rotten cheesy-looking manure brings disease, and does not push the young growth so vigorously and quickly as the fresh manure.

Our first planting takes place early in November; and in spring, when the first ramosus varieties peep up, they are protected by a little Fern or straw. Others for early borders are planted six and eight roots together in 32-sized pots. *Bowiensis.*

MUSHROOM GOSSIP.—I.

On rummaging over my bookcase the other evening, behind books of more modern date, an old Miller's "Gardeners' Kalandar," 13th edition, 1762, turned up—a book given to me so long ago as the year 1815, and lost sight of for many a long year. This brought to mind many reminiscences respecting men and things long passed away. Scanning it over, however, I fell upon some remarks on the culture of the Mushroom, and having lately thought a good deal about what I had seen of Mushroom culture in France, I carefully examined old Philip Miller, and found his information to be rather meagre. Mushrooms, to all appearance, were not in those days cultivated very scientifically, or simply. His best article on the subject is given in his "Kalandar" for September, page 269, in which he says:—"You may now make Mushroom beds; in doing of which you must observe to make choice of such dung as hath lain about three weeks or a month on an heap, whereby its great heat is lost; nor should the dung, intended for this purpose, be thrown on a heap to ferment, as is a practice for hot-beds; because if it ever is violently hot, it will not take the spawn of the Mushrooms near so well as that dung that has not been much fermented, which is the reason why some persons prefer the dung of stone-horses to that of other animals; and let your knobs of spawn be laid to dry, in a shady place, a fortnight before you put them into the bed."

The other six months' instruction in Miller's "Kalandar" is merely to keep the beds covered with fresh straw, and that to a thickness, in cold weather, to keep out frost and snow. Thus it appears that in those days the Mushroom was not cultivated very extensively nor in a very scientific manner. There is one remark, however, in the foregoing of some value, viz., that dung, to be used for Mushroom culture, should be that from a stone-horse.

In the commencement of the present century, great improvement was made in the culture of the Mushroom. If my memory serves me correctly, it was Oldacre who first made a move in the right direction. The dung which we were then recommended to collect for making Mushroom beds, and which we then did collect, was fresh horse-droppings from the stable; these were placed in open sheds and other convenient places under cover, to dry; but they were never allowed to ferment. In summer we collected from pastures, or rather cow meadows, the cow dung as soon as it was of a certain consistence and crusted over so as to be what is termed caked; and if not dry enough it was placed in a convenient place to dry. This was recommended to be used as a third portion to two-thirds of horse-droppings, all being thoroughly mixed and incorporated together in the drying shed before commencing to make the bed. At this time, too, Mushroom-houses began to be erected with shelves one above the other, on which beds were made 10 or 12 inches in depth, well rammed down, spawned in due course, and cased with about 2 inches in thickness of good fresh maiden loam.

These houses, moreover, were mostly heated, not by means of hot water, gas, or steam — for little was known or heard of such new-fangled things then, and if heard of they were very soon condemned—but by means of flues, which were the great warming media of those times; and where peat, and wood, and turf existed, these were the only come-at-able heating materials for garden use. These occasioned a good deal of trouble and anxiety where a moderate sweet, kindly heat was required to be kept up, for, what with the fumes of sulphur from the peat, and the everlasting dust from either of the kinds of fuel just named, the choking of the flues with soot rendering them in danger often of getting on fire and becoming red hot—all these things, I can vouch, rendered much caution, care, and attention necessary to success. Nevertheless, there were often fine crops of Mushrooms, of good quality, produced then. We had to look then to mill tracks, old hot-beds, &c., for our spawn. Stable dung from an entire horse was always greatly valued, and treasured for Mushroom growing, as I shall endeavour to show your readers in my next. *James Barnes, Bicton.*

HARDINESS OF THE APPLE TRIBE.

It is very kind of Mr. Verschaffelt (see p. 1242) to tell us that the French Paradise stock is hardy. I can confirm it as regards its withstanding frost; for I have seen it in Central Germany, where the frost is often very severe—many degrees below zero—thriving very well, and I should imagine that in America, its birthplace, it has to endure more severe frost than we ever have in England. The members of the genus Malus seem to be particularly hardy. I know of only two species or varieties that succumb to our winters, so as to receive injury from severe frost. One of them is the Pyrus coronaria, or Perfumed Crab, from Virginia,—a sub-evergreen species, now almost out of cultivation, as the winter of 1860 was so destructive to trees and shrubs not quite hardy. The other species, which I think is not yet described, is the Cossyah Apple, from the Cossyah hills, "hard by" Gowhattie, Assam. It is indigenous to the Cossyah hills, and produces fruit "exceedingly handsome, of the size and form of a Golden Pippin, of a dark burnished gold colour, heightened with crimson on the sunny side, though marked here and there with patches of russet. They possess a fine rich Quince-like odour, its flesh astringent and tough."

This description of an interesting kind of tree I received from the Rev. J. Firminger, of Gowhattie, who thinks it may be the Pyrus indica of Roxburgh. My attention has been attracted to the young trees of the Cossyah Apple here, because of their resemblance to their congener on the other side of the globe—the Pyrus coronaria, for they have divided leaves like that species, but smaller, and much resemble those of Cratægus Layi, only that they do not fall off in autumn, but turn to a bright red, tinted with purple, reminding one of the beautiful autumnal foliage of Liquidambar styraciflua. In giving you a description of something new, I seem to have forgotten all about the hardiness of Apple trees. *Revenons à nos pommiers.* In mentioning the hardiness of Apple trees or stocks, we must not think of it as a quality to resist the effects of frost; it is of quite another nature; other climatic influences have a far greater effect on the growth of Apple trees than those of frost, about which we at present know but little. The French Paradise stock with Mr. Scott, of Crewkerne, lives and flourishes; with Mr. Pearson, of Chilwell, and here, it cankers and becomes diseased. It will be, I think, necessary to

determine by exchange if Mr. Scott cultivates the same variety. If 100 stocks are planted here in rich, deep, calcareous sandy loam in which Apple trees grafted on the English Paradise, Doucin, or Crab grow luxuriantly, they will at the end of the first year be tolerably sound; at the end of the second, two-thirds of them will be—particularly if the summer and autumn should be wet—affected with canker; and at the end of the third year nearly all would be in a cankered, diseased state. I have watched several experiments tried here during the last 20 years, and there has been little or no variation in the result. The fact is curious, but physiological reasons can be given; these I leave for the present. An interesting fact connected with these stocks here is, that if some are imported from France, planted out, say in spring (and grafted the following spring, before they have felt the influence of the climate and soil) with hardy vigorous-growing kinds of Apples, they form healthy little bushes, admirably adapted for pot culture, but not so well fitted for cordon or edging trees, as their growth is so slow; the stocks best adapted for that purpose are the English Paradise or the Doucin. Care should be taken in planting or potting trees grafted on the French Paradise to keep the junction of the graft with the stock above the surface of the soil, for it swells over the stock to a great extent, and is inclined to strike roots into the soil. This is a very old fact, although but recently noticed, for Miller, in his "Gardener's Dictionary," published about the middle of the last century, notices it, and says that "the trees grafted on them (the French Paradise stocks) (never) grow to any size unless they are planted so low that the cyon (scion) strike root into the ground, when it will be equal to no stock."

Reverting to the fact that a healthy graft will restore to health a feeble or unhealthy stock, of which I will give some illustrations, I may state that about the year 1780 my grandfather planted a row of Apple trees, about 50 in number, in a deep alluvial loam, most favourable to the growth of Apple trees. They were all of one kind, the Noncsuch, I suppose a favourite sort in those days. My attention was not drawn to these trees till between 1820 and 1830, and I then saw that their heads were masses of cankered branches, full of nests of the Aphis lanigera. These branches annually put forth vigorous young shoots, which after a dry, warm season died back one-third of their length, and after a wet, cool season to nearly their base. If two or three consecutive seasons were dry and warm, the trees bore a considerable quantity of fine fruit, but in my eyes they were deformities, although I may add their stems were clean and healthy. I had previously tried my hand at renovating some old standard Crassane Pears, full of cankered shoots, by grafting on them some hardy kinds. I therefore took the old Nonesuch Apple trees in hand, had them all beheaded, and grafted with a vigorous-growing kind of Apple, received under the name of Shepherd's Fame, a large fruit, but not the true kind. They grew most vigorously for some four, five, or more years, and then showed symptoms of canker. I then feared that the Nonesuch was so unhealthy a stock that I should not be able to renovate the trees, but being of a persevering nature (Anthony Trollope's expression occurs to me, "It's dogged as does it"), I re-grafted all my grafts with Dumelow's Seedling, or the Normanton Wonder, as it was then called. From that day to this not a cankered shoot has made its appearance, and the heads of the trees, which bear abundantly, are double the size of the Nonesuch trees when they were 40 years old. I afterwards tried my hand at renovating some old Nonpareil Apple trees, full of canker and disease, and fully succeeded in making them healthy and fertile, by grafting them with sorts hardy and not liable to canker. These trifling facts, which seem to require more words than they are worth, show forcibly the effect of the graft upon the stock. Any fruit-grower who happens to have planted Apple or Pear trees too tender for his climate or soil has the remedy at hand, viz., re-grafting. *T. R.*

Home Correspondence.

Golden Ivy.—It is quite true, as your correspondent "F. L." remarks (see p. 1242), that what is generally known as the Golden Ivy (Hedera canariensis fol. aur.), will, when in a vigorous state, produce green rather than golden leaves during summer and autumn. This is the natural tendency of the plant. To counteract it, and to return a good proportion of golden leaves, the most vigorous of the green leaves should be removed from time to time, as the moderate-sized and small green leaves are quite sufficient to ensure the health of the plant. I have a plant growing here in a large pot, whereby the natural vigour of growth is moderated, and as a consequence the golden and blotched leaves predominate. The colour of these leaves in spring is quite equal to that of any plain gold-leaved Pelargonium, but it becomes slightly paler in summer and autumn. I think, however, that it is quite possible to alter this tendency. Why, indeed, should not the Ivy, as well as other plants, improve in the hands of the skilful cultivator? We have the same basis of colours—red, white, and yellow—to work on as in the Pelargonium, and by crossing and watching for sports we may, I think, fairly look for similar results. One variety of Silver Ivy (H. H. arborescens albo-lutea) is clearer and brighter in colour than any Silver-edged Pelargonium I have ever met with, and several silver varieties have a faint crimson streak distinctly marked, especially in the autumn, although this is hardly prominent enough at present to be admitted in the descriptions from the pictorial point of view. I have no doubt we shall have "Tricolors" in the future, but not "speedily," as the process of raising seedling Ivies (the source whence I look for "Tricolors") is, from the nature of the plant, rather slow. *William Paul, Waltham Cross, N.*

Preserving Ice.—The principal method by which we manage to keep up a supply of this useful commodity during the whole year is by forming it into a stack or mound. An elevated circular platform is formed of ordinary earth, 24 feet in diameter; on this the ice is piled up in a conical form, taking care, however, that it is well pounded during the process of building. Bulk is admitted to be an important item in the matter, and well pounding the ice another. The quantity we bring together is about 250 cart-loads, which raise the cone to the height of about 12 feet. The sides should be well pounded, as the firmer and more solid the mass can be made the better will the ice keep. Having formed the cone, we next proceed to cover it with straw 2 feet in thickness, building it up evenly all round until the top is reached. Having made it as firm as possible by pressing and treading, we comb it down with a fork or rake, and it forms a very effective and neat thatch. The situation which we select for the stack is as much as possible free from drip, on the top of a rather high dry bank, sloping to the south, on the brow of which grow some lofty trees. In fact, the situation is nearly surrounded by large trees, and it is only exposed a little to the north. I may add that the stack which we made in the beginning of January last is not yet exhausted; there is, indeed, as much in it as will serve our wants for the next two months. *S. Elworthy, Stoneleigh Abbey Gardens.*

Grape Judging.—"Where no counsel is the people fall, but in the midst of counsellors there is safety." As a Grape grower, I do not agree with much that has been advanced on Grape judging. I differ, for instance, from Mr. Cramb, who is of opinion that badly coloured Hamburghs have no flavour. I can prove that badly-coloured Hamburghs are often better than many that are highly coloured, and that with the reverse of the treatment given gratuitously by Mr. Cramb. The Grapes to which I allude are planted on a back wall of a Vinery, and of course their roots are all inside. They do not get water enough, hence their bad colour, but they are most delicious in flavour. Why should we advocate the importance of colour so much? flavour ought to be the grand point in regard to all fruits; therefore why not taste Grapes at shows? two or three berries from a bunch cannot disfigure it for market purposes. If it were a Pine-apple which judges wanted to taste, I should not wonder at the great objection which many have to tasting. Prizes are small enough now, without offering more for all sorts of worthless Grapes. What committee would give a prize, for instance, to a White Nice?—and I consider the Black Prince a very inferior variety, although it has colour enough for any Grape. Very few rules seem to be wanted by which to judge Grapes. I would give flavour four points, size of berry three points, weight of bunch two points; and colour one point. Tasting and weighing are generally sufficient guides for judges. *G. M. B., Lincoln.*

Bedding Zonal Pelargoniums.—In reference to the inquiry as to a Pelargonium which will surpass Mrs. Pollock, I beg to say that Sunset will beat it for colour, and show at any distance or point within view of it. *G. M. B., Lincoln.*

Nomenclature of Training.—It is difficult to find authority for giving names, whereby different modes of training fruit trees may be known. Training is so much a matter of fancy that people give it any name which they like. The French call all kinds of training for which they have no special names "formes de fantaisie." In England we have what we call fan-shaped horizontal and perpendicular trees, for our walls; then there is the "espalier," which is the most undefined of all. With us an espalier means a tree away from a wall on stakes or on wires, generally trained horizontally. Now "espalier" is a French word, and means a tree fixed against a wall, which is what we call horizontal training. The plantation of a line of trees in columns forms what the French call cordons, *i.e.*, a line of trees of the same form planted at very short distances apart. These trees may be against a wall or in the open air—or, according to the French terms, "en espalier," or "en contre-espalier." They derive their names, oblique, vertical, or horizontal, from the direction in which they are trained; as, for instance, "cordon oblique, en espalier;" "cordon vertical, simple contre-espalier;" "cordon vertical double," *i.e.*, a double line of trees, trained in the same manner, which can only be employed "contre espalier." There are, moreover, "cordon oblique croises," and the double palmette. "Cordon horizontal unilateral" has the branches all leaning one way. "Cordon horizontal bilateral" has one branch in each direction. Then there are the "cordon sineuse," the "cordon en spirale" or spiral cordon, the common standard, the true pyramid, and what we call fan-shaped, and the French "éventail." The French have likewise "palmette simple," and the double form of it. Our horizontal training the French call "palmettes droites." I am scarcely prepared to say that this name is correctly applied. I think that some such terms as the following would answer the purpose better, viz., lateral horizontal, lateral oblique, lateral perpendicular, or upright or vertical. A "cordon" may mean a rope, but in fruit culture the French (to whom the word belongs) never apply it to trees that are allowed to branch further than the first stage or so, that is close on the ground—in fact not above the commencement of the leaves or spurs on the tree, so that it is a rope without any interruption to its furthest extremity. By applying it to our horizontally trained trees, we upset the French cordon altogether. If we apply it to the horizontal lateral, we can as easily do so to the fan-shaped, or to any little bit of a twig that is pinched into the form of a rope. With the assistance of French books, particularly that of M. Lajoulet, Professeur du Cours Public d'Arboriculture à Toulouse, I have arrived at the foregoing conclusions. *Oxon.*

Colouring of Muscat Grapes.—Your correspondent "A.," who discourses so interestingly on the magnificent Grapes at Garston, in speaking of the perfect way in which Mr. Meredith and Mr. Fowler, of Castle Kennedy, colour their Muscats by commencing to force early, states that I succeeded in "getting the colour up from a certain Muscat Vine, the roots of which had found their way into a dry and hot corner." This statement I have no doubt will lead the public to infer that, except in the case of one Vine, and more by accident than anything else, I have failed to colour Muscats in perfection as a rule. Although I do not for a moment think that "A." intended to convey this impression, still it is the only deduction that can be made from his statement. In the matter of Grape-growing it must be considered an honour to have one's name classed in any way with growers such as those referred to; and when two such growers consider the perfect colouring of Muscats to be a climax of skill, it cannot be very disparaging to say of ordinary growers that they have failed to arrive at this result. The principal thing which distinguished the fruit grown on the Vine referred to was the earliness of its colouring; not that it coloured more highly than that on other Vines in the same house. I attributed this feature to disease, and not to any extra dryness or heat. The two Muscat houses here are started, the one in March, the other in April; and I think those who are in the habit of seeing them yearly will agree with me that if there is anything about the Grapes that is extraordinary, it is the very high degree of amber colour and high flavour which every bunch of them always attains to, the one in August, the other in September. In the remarks which you lately inserted from me, in line 44 from the top, read "and in a shaded" instead of "not," and at the close "amber" instead of "Hamburgh." *D. Thomson, Archerfield Gardens.*

French and English Fruit Gardening.—The letters which have been written on this subject by your Paris correspondent have, I think, been calculated to do much good, and judging from communications which I have received, Mr. Rivers' criticism thereon is not well received by practical gardeners generally. If Mr. Rivers, who has been long a writer on gardening, could now find time to wade through the great mass of his writings, he would doubtless be inclined to draw his pencil across many things which he had in years gone by strongly recommended the public to follow, while, taken as a whole, few would condemn them because they contained a few errors. So it is with the contributions of "W. R." They may contain a few mistakes, but taken as a whole they are, and will be considered by the great mass of horticulturists to be, valuable additions to garden literature. On reading Mr. Rivers' letters which have appeared in your columns (see pp. 1166 and 1167), the idea frequently suggested itself to one's mind that Mr. Rivers almost imagines it to be a presumption for any one to question his authority on matters pertaining to fruit culture; he has forgotten that there are many men who may have thought as deeply as himself, and who may have practically carried out their ideas as successfully, though more silently, than he has done. The crook wires for fastening cordons, too, are frequently referred to as something new. These, or some made just in the same way, were used by the late Mr. Errington at Oulton Park nearly 40 years ago, but were some time ago replaced by wires and neat posts, because it was found that they were unsightly and did not answer the purpose for which they were intended. It was found that it took much more time to keep the trees in order with them, than it did with wires. I was so much impressed with the advantages to be gained from growing Pear and Apples on the cordon system, similar to that recommended by "W. R.," that I had a quantity of posts and wires fixed for this purpose four years ago; this was probably done before "W. R." had any idea of ever seeing the system successfully adopted in France. My predecessor, Mr. Errington, cultivated many Pears and Apples on the same principle many years ago, but his cordons were about double the distance from the surface of the ground. One of the great advantages I considered to be gained by training cordons close to the ground was, that they could be easily protected from spring frosts by Spruce branches, or by any other suitable material, while they would be sheltered from cold winds by crops growing near them. Near the bottom of your first col. (see p. 1167), after passing an opinion concerning the rural practices of France, Mr. Rivers goes on to say—"As a rule, the culture of the earth is not in favour with Frenchmen. I am a great admirer of the ingenuity and intellectuality of the French as a nation; their artistic manipulation in manufactures is marvellous, but they have no taste for mother earth, and are in agriculture and horticulture many decades in arrear of us." How does Mr. Rivers reconcile this statement with what he has written in your paper for January 7th, 1865? where he says—"The French fruit-growers, as a class, are very superior men, well acquainted with the merits of soils and their adaptation to the various kinds of fruits. I do not wish to make invidious comparisons, but I have never found much of this kind of information in Kent." My only object in writing this is that truth should prevail, and that your Paris correspondent, who is working zealously for the cause of horticulture, should be supported by practical fellow-labourers. *J. Wills, F.R.H.S.*

Early Forced Strawberries.—Ripe Strawberries at Christmas, and in the beginning of the new year, are things "we read about, but seldom see;" and, indeed, it requires great skill even to get a few berries then. Mr. Temple, gardener to the Earl of Aylesford, Packington Hall, Coventry, however, beats this, for on the 25th of November, when Lord Aylesford had a distinguished

company to dinner, he sent in for dessert a dish of upwards of 2 lb. of excellently ripened Keens' Seedlings, which were the admiration of all who saw them. The plants were grown and forced in the usual way, and the fruit ripened in a Pine stove. Mr. Temple is a well-known Strawberry cultivator; his system of annually renewing his plantations of them, like that of a crop of Cabbages, has been frequently noticed in your columns. In August he trenches the ground thoroughly, and plants out the young plants, which have been laid in pots, widely apart. Immediately the crop is gathered, the plants are destroyed and a new plantation is made, the same beds afterwards producing a crop of Winter Greens, &c. The enormous crops of fruit which Mr. Temple thus produces is the best recommendation of the system. In reply to "Fructus," who inquires (see p. 1243) what was the spring treatment of the Strawberry I noticed at page 1218, I have to state that it received treatment in no way different from some 300 or 400 other varieties which were planted at the same time in the previous autumn. It was not the fact of their being Strawberries, so much as their perpetual bearing properties, I wished to point out. Everybody knows that early forced plants will, if planted out early, produce an autumn crop of good Strawberries. *A. F. B.*

Keeping of Late Grapes.—I have had extensive experience in keeping late Grapes, and although I have not tried the French method of putting them into bottles of water to any great extent, yet I believe that they are kept in the best condition by letting them hang on the Vines. To compare the miserable wizened bunches of the Chasselas Fontainebleau grown in France, and kept in bottles of water, with the fine late Grapes cut in England in February, March, and April, is a burlesque on Grape-growing. I have known the old Muscadine, when well ripened off in September or October, to hang in a late Vinery till March or April, and although a little shrivelled, was quite as good in flavour as any Chasselas I have tasted grown in France. It may be recollected that the late Dr. Lindley, at one of the autumn fruit meetings of the Royal Horticultural Society, showed some bunches of the best examples of the Chasselas Fontainebleau which he could procure in Paris, but when compared with English Grapes they made a sorry exhibition. M. Bergman, the gardener at Ferrières, seems, indeed, to prefer the Chasselas and Frankenthal to all the late varieties of Grapes grown there. But has he ever grown or tasted the true West's St. Peter's in February or March? This variety is, in my opinion, when well grown, the best flavoured of all the late black Grapes. I have five Vineries here yet to cut of late Grapes, and the weight of fruit in them would surprise some of the authorities that have lately been figuring on the restricting and extending systems of Vine culture. I have always succeeded in keeping late Grapes as long as desirable, by having recourse to the following simple rules:—The Vines are all planted inside the houses, and when the colouring process is completed, the inside borders are kept quite dry, and the only fire-heat used is in the daytime, in damp weather, to dry the air. The Vineries all being new, there is little drip, but a supervision of the bunches takes place every week, to pick out any decaying berries. To keep up a good root action in the outside borders, they are covered in autumn, before heavy cold rains fall on them, with litter, or, what is better, dried Fern, and then wooden shutters are put on the top of all in a sloping position. The latest vinery is planted with one-half West's St. Peter's, and the other half with Lady Downes'. This year I had Lady Downes', plump and good, up to the 25th of April, when the sap commenced to flow in the Vines, and burst the berries. I always prune these late Vines when I cut the bunches, on purpose to get this process over as soon as possible. This Vinery bore a full crop the third year after planting, and every year since the Vines have improved in the size of bunches and berries—the West's St. Peter's showing bunches at this date as large as some Hamburghs. The only use I see for keeping late Grapes in bottles of water, or any other way, is in March or April, when the bunches of Grapes would be better off the Vines than on, on purpose to give a better chance of pruning and cleaning the Vines before the young shoots were too far advanced. *William Tillery, Welbeck.*

Large Vines.—This week I paid a visit to Sillwood Park again, and I am happy to inform your readers that as soon as the proprietor had become aware that his Vine had been badly treated, he gave orders to have everything done for it that was necessary. Since September it has had half a ton of crushed bones, and 20 tons of farm-yard manure given it as a top-dressing, and it appears to have felt the benefit of the application already, considering that it is the old Hamburgh, which never swells its berries like the Frankenthal or modern Hamburgh; it has finished its bunches off well, in proof of which I herewith send you some to taste. The flavour I consider to be most delicious. As a neighbour of the propritor, and residing in the same parish, I am very much pleased with what has been done; and if I live long enough I hope to see this noble Vine what it ought to be—the most beautiful in the United Kingdom. *Jno. Standish, Royal Nursery, Ascot, Berks.* [The flavour was good. We understand that the Vine was a cutting from that at Hampton Court. EDS.]

Pears.—I should be obliged to any gardener or amateur fruit grower who would furnish a list of what they find to be the best kinds of Pear for their own district, mentioning county, soil, and mode of culture; those grown on walls not included. *W. D. F.* [The following have been found to be excellently well suited for this district, viz., the Middlesex valley of the River Thames. The soil is a deep alluvial loam, with gravelly subsoil:—1, Doyenne d'Eté; 2, Williams' Bon Chrétien; 3, Louise Bonne (of Jersey); 4, Fondante d'Automne; 5, Suffolk Thorn; 6, Comte de Lamy; 7, Belle Julie; 8, Beurré Bosc; 9, Marie Louise; 10, Doyenne du Comice; 11, Bergamotte Cadette; 12, Glou Morceau. All of these succeed well worked on the Quince, which is by far the best stock where fruitful little trees are required. If large standard orchard trees are wanted, then the Pear stock is preferable. Glou Morceau and Doyenne du Comice do not answer very well as high standards. The finest fruits are produced from healthy young trees, and the forms best suited for the Pear are the pyramidal, dwarf espalier, or horizontal cordon. Pyramidal trees are the most handsome, and require the least attention; but the largest and finest fruits are produced on the "cordon" system. Whatever form is followed, much care should be bestowed on the summer pinching of the young shoots, which is done generally at the sixth leaf, beginning at the top of the tree and pinching downwards by degrees, always allowing the bottom branches to be a little in advance of, and to have a greater amount of leafly surface than, the top part of the tree; a system which regulates and equalises the flow of the sap, and makes the trees equally fruitful throughout. *A. F. B.*]

Plant Protectors.—Respecting the action of winds—1st, If the air be warmer than the surface, its motion may (if it be very dry) cause cold by evaporation, otherwise not. 2nd, If the air be colder than plants, wind must chill them, unless it be at the dew-point, when the latent heat of deposited vapour may neutralise the effect. As respects the action of dew, it is in all cases a moderator of cold. At night (as well as by day) the normal state of the atmosphere is "diminution of temperature" in ascending from the earth, and neither the surface nor plants will be found to be of a lower temperature than the ambient air, until the latter has reached the dew-point. Beneath the cloudless skies of countries where the air is very dry, it is well known that the cold at night is far more intense than in our moist climate. There is no protecting "cloud-screen," and little or no latent heat of vapour is given out by the descending cold air to communicate heat to the air above the surface. Had Wells tried his experiments in such a climate he would not have found the surface colder than the air; and then there would have been no increase of temperature in ascending. His theory utterly fails to explain the latter peculiarity (which I have accounted for, 1097 *b*). The lower temperature which he found at the surface is merely the effect of the latent heat of vapour warming the air above it. *H. H., Glenville.*—[In page 1214, Sir W. Thomson's article, 41st line from top, for "altered from the reporter's copy," read "altered from the reporter's tense."]

The Weather.—The frost began to yield at midnight on Sunday; since then the thermometer has ranged from 35° to 45°. The whole of the snow has disappeared, and, although the wind continues north-west, the air is mild and balmy. Thermometer at 10 A.M. on the 12th, 46°. *D. T. F., Bury St. Edmund's.*

Severe Weather in Yorkshire.—Mr. Taylor in his letter of to-day (Dec. 9) says, "Since last Sunday (Dec. 1) we have had a severe winter storm, high winds, a cover of snow, and frost. On Tuesday night 22° of frost. There is every appearance of frost continuing. The roads are like ice; thermometer indicating about 12° of frost; snow about 2 inches; winter has set in early." I hope Rosarians have done something to protect their Roses. It is of no use locking the stable door after the horse is gone. I send this to frighten them into their duty. All mine are sufficiently protected. *W. F. Radcliffe.*

Thermometers. — Notwithstanding the presumed improvement in mathematical and scientific instruments in late years, there is one at least in which the improvement is more fancied than real; and I am not certain if it is not often in a retrograde way. The increasing demand for such things ought to stimulate makers to furnish us with something really better than we now possess. The instruments of which I complain are thermometers of the registering kind. Having been for upwards of 30 years interested in meteorological matters, and having had several instruments through my hands, I am compelled to say that there has been no improvement whatever in the class to which I allude, during that time; at least, such is my opinion. I do not refer to the very expensive ones, as they are beyond my reach; but having frequently given 21*s.* each for single maximum and minimum instruments, and had them go wrong in a couple of months or so, although taking every reasonable care of them consistent with their requirements, I think I have reason to complain; and latterly I have contented myself with a cheaper class of instrument, as these seem just as good. I do not presume to know much of their manufacture, but I would suggest that if more care were taken in the construction of the tube and its contents, and less in that of the case and its appendages we should have a better instrument. If some makers would take the hint, and let us have a substantially good article at a reasonable price, they would confer a boon on many an observer. *F. L.* [Burrow's minimum (see p. 1142) is the best we have yet seen at the price. EDS.]

Foreign Correspondence.

THE CALCUTTA BOTANICAL GARDENS.—In the plantations all the arborescent species cultivated in the garden (amounting to about 600 species) are grouped in natural orders, each species being represented by at least two specimens. The herbaceous and shrub garden, containing 2000 species, has been levelled, and most of the plants have been uprooted. The Orchids, Ferns, Peppers, collections of seedlings from Sikkim, Java, Ceylon, and Kew have been buried under fallen trees and thatched roofs. All the work done since 1796 is gone, as well as many of the most prized introductions of the last seven years. This destruction has happened at the worst season of the year. The storm ushered in the cold season, which may be said to have commenced the morning after. Now there will be cloudless sky and no rain till the 15th or 20th of June. The experience of the former cyclone, which occurred a month earlier, and was followed by much rain, shows that few young trees that have been so violently uprooted and shaken can exist till next rains. Since 1842, four hurricanes have occurred, and by them about 2000 trees have been destroyed in the garden. The area is 256 acres, but 60 of these are used by the Agri-Horticultural Society, and 50 more must be deducted for roads, buildings, and ponds of water. This leaves about 150 acres as the extent of ground from which the 2000 trees have been swept away in 25 years. This is very suggestive of the cause of the poverty of Bengal in species of trees. No wild trees exist in quantity in rice-growing Bengal, and the trees round the villages of natives are few in number. Ficus indica, religiosa and venosa, the Jack, the Mango, the Neem, Azadirachta indica Nauclea Cadamba, and near Calcutta a few trees of Litchi and Custard Apples, compose the number; Tamarinds and Acacia Lebbek are rare. Bamboos, Cocoa-nuts, Phœnix sylvestris, and Borassus are common south of the Ganges. For six months water stands from 6 inches to 2 feet below the surface. Trees cannot strike their roots deep in such a soil, and accordingly not a tree that has fallen either now or in 1864 had a tap root. The descending roots are all gone, and the decay has very frequently spread up the centre of the tree. Strong surface roots spread on all sides, and continue as buttresses up the sides of the tree. This swampy, Rice-growing country extends to the Assam valley, the Garrons, and Khasia and Tipperah hills on the east and north-east, to the Bhotan and Sikkim Himalaya on the north, and on the west and south-west to the hilly country of Behar and Orissa. From the sea to nearly 250 miles north of Calcutta, and to Dacca, on the east, this region is liable at any time to be devastated by cyclones, and no trees except Banyans can acquire a considerable age in such a country. Now that the garden must be reformed, it is a question whether the site should not be selected in a place beyond these Rice swamps, and in a region where cyclones are unknown. There the work that must again be commenced would stand, and valuable introductions, such as Mahogany, would not be destroyed when they have reached their full growth, and are giving promise of seed, to be followed by a wide dissemination throughout India, and at least Nature would not destroy the garden. The site of the garden has always been a drawback to it. It is seven miles from Calcutta, and on the other side of the Hooghly, and it can be reached only by native boats. This has prevented the garden acquiring a local value. Last year the visitors did not amount to 500 for the 12 months, and most of them were attracted by pic-nics held in the garden. *D.*

Another correspondent, writing on the same subject, says:—"So long, however, as Calcutta remains the capital of India, the great Botanic Garden should be near it. A merely scientific establishment need not be nearly so large as 250 acres. I think a good site might be found in Bengal, and not far from Calcutta, for a garden, which would combine (like Kew) the purpose of a public pleasure park with a scientific garden. After two cyclones a period of rest may be expected, since from the establishment of the garden till 1864, no storms so destructive as these two had passed over it. Until 1854 it was full of magnificent trees, and very probably, if planted again on the same site, the same kinds of trees might flourish for 60 years more."

Societies.

LINNEAN: *November* 7.—G. Bentham, Esq., President, in the chair. The following papers were read:—1. *Catalogue of the Reptiles of British Burmah, embracing the provinces of Pegu, Martaban, and Tenasserim.* By W. Theobald, Esq.; communicated by G. Busk, Esq.——2. *Descriptions of 50 new Species of the Genus Stigmodera.* By Edward Saunders, Esq.; communicated by W. Wilson Saunders, Esq.

November 21.—G. Bentham, Esq., President, in the chair. W. H. Spencer, M.A., was elected a Fellow. N. B. Ward, Esq., exhibited dried specimens of a few British plants, illustrating the influence of climate and local conditions in altering their character and appearance. Dr. Brathwaite exhibited two Mosses new to this country, namely Amblystegium confervoides, and Hypnum Bambergeri, discovered by Dr. Fraser, of Wolverhampton. D. Hanbury, Esq., exhibited specimens of the fruit of Amomum Daniellii, Hook. fil. (A. Clusii, Bot. Mag.), ripened, as he believed, for the first time in Britain. The following papers were read:—1. *On the Fagus Castanea of Loureiro's Flora Cochinchinensis; with descriptions of two new Chinese Corylaceæ.* By H. F. Hance, Esq; communicated by Dr. Hooker. Dr. Hance identifies Loureiro's plant with a tree he names Castanopsis chinensis, found in the province of Kwangtung, remarking in reference thereto: "I have admitted the genus Castanopsis in deference to M. De Candolle's decision. Had I consulted my own judgment I should have named this Chestnut Quercus Loureiro, a renewed consideration of the subject since my article on Quercus and Castanea was published in "Seemann's Journal," having led me to the conclusion that neither Castanea nor Castanopsis are to be distinguished from Quercus as genera, in the sense in which I hold the term." Quercus Fabri and Carpinus Turczaninovii were described as new species.——2. *Note on the Isoëtes capsularis*, Roxb. By John Scott, Curator of the Botanic Garden, Calcutta; communicated by Dr. Anderson, The plant proved to be the male Vallisneria spiralis.——3. *Synopsis of the South African Restiaceæ.* By Dr. M. T. Masters. This paper comprised a description of the genera and species of South African Restiaceæ, preceded by an account of the many peculiarities of their organisation and geographical distribution. As regards the latter point there are two "head centres" of distribution, viz., the south-western corner of the Cape of Good Hope, and the corresponding corner of Australia, Swan River. None are found in other parts of Africa; but few in other parts of Australia. A few grow in New Zealand and Tasmania, and one in Chili; none in Madagascar. They appear, like the Proteas and the Ericas, which have pretty much the same distribution in South Africa, to be the remnant of a very ancient flora; hence it is interesting to study their distribution in connection with the geology of the country. Although some might well find

a place alongside of some of the more ornamental of the Grasses in cultivation, there is apparently only one species now in cultivation in the country, viz. the male plant of Restio subverticillatus, commonly, but erroneously called in gardens Willdenovia teres. Other species are mentioned in the catalogues, but have been lost.——4. *Notes on the Flora of North-east Tasmania.* By W. K. Bissill, Esq.; communicated by Dr. Mueller. This paper consisted mainly of a sketch of the more general features of the district, which was visited by the writer for the purpose of recruiting his health. Referring to the Fern-tree gullies, he remarks:—"In some of these an extraordinary size is attained by most things. Though the enormous height, viz., that of 70 feet, mentioned as reached by an Australian Tree Fern, is beyond that of Tasmanian species, yet here were forests of them, of which few individually would be under 30 or 40 feet, many having a diameter of 3 feet, their lace-like foliage forming a dense canopy above; the few rays that pierce it will vitalise few vegetable germs. The gullies are like cathedral aisles, in the solemn absence of life, except that the brown pillars are wreathed with garlands as at high festival, innumerable Fairy Ferns climbing them, from the damp, dead floor, to the illuminated groined roof above."——5. *On the Branched Palms of Southern India.* By S. Pulney Andy, M.D. This paper accompanied a series of drawings of branched Palmyra and Cocoa-nut trees. One Palmyra Palm (Borassus flabelliformis) was shown to have five entire, and four abortive branches; and dichotomously branched Cocoa-nut trees were shown. Ramification in Palm trees, the author observed, was very uncommon, the only species in which this peculiarity is known being the Doum Palm of Egypt. Although, he argued, it appears difficult to account for such variation, yet it must be admitted that without an axillary leaf-bud the ramification could not have originated; and he went on to suggest that the leaf-bud, either from a tendency to duplication, or from accidental causes, such as partial destruction by insects, had remained inactive till a succeeding one was produced, when it became revived and thus gave rise to an additional branch. This view, it appears, is prevalent amongst the more intelligent natives. As many as 12 branches have been observed in the Palmyra, and a dichotomous division in the Areca-nut Palm. Twins and triplets amongst Palmyra and Cocoa-nut trees are common, and on one occasion Dr. Andy was shown a specimen of five shoots of a Cocoa-nut Palm coming out from a single bed, and said to be from one seed, but the owner would not permit it to be dug out for examination. Some of the drawings represented monstrosities of the flowers of these Palms.——6. *Observations on Thlaspi alpestre.* By John Windsor, Esq. The author urged that there are sufficient marks of distinction to constitute at least two varieties or sub-species of this plant, and that the names now used for them are objectionable; that called virens being decidedly glaucous, and that called occitanicum being found in many places besides Occitania (Languedoc) in France. He suggested that the name glaucescens should be given to the former, or Matlock plant; and that of virens to the latter, or Craven plant.

December 5.—G. Bentham, Esq., President, in the chair. C. B. Clarke, Esq.; F. E. Kitchener, Esq.; and the Rev. T. Powell, were elected Fellows. J. B. Flower, Esq., exhibited specimens in fruit of Garrya elliptica, ripened in a garden at Bath. F. Currey, Esq., exhibited a remarkable monstrosity of Plantago major, having the flowering spikes very much branched in a pyramidally paniculate manner, the axis and its ramifications being branched. It had been found by Mr. G. B. Wollaston, at Compton, in Sussex. The following papers were read:——1. *A Contribution to our Knowledge of Lower Annelids.* By E. Ray Lankester, Esq.; communicated by G. Busk, Esq.——2. *On the Spiny Lizard, Moloch horridus.* By G. A. Wilson, Esq.

UNITED HORTICULTURAL, *Dec.* 9.—Mr. Wilson, gr. to Wm. Marshall, Esq., of Enfield, exhibited on this occasion a box of cut Orchid flowers, in the finest possible condition, consisting of the white variety of Lycaste Skinneri; Cattleya marginata, one of the best varieties of this fine Cattleya, the sepals and petals being very broad and brilliant in colour, while the lip is crimson purple, shaded with white; Barkeria Lindleyana, a very fine variety, the colour of the flowers being of a bright deep lilac purple, and very showy; Zygopetalum Mackayi, a variety with a very large lip, beautifully striped and shaded; Odontoglossum Cervantesii var. roseum, a superb variety, the flowers of which measure fully 3 inches in diameter; Cattleya Trianæi var., probably the true C. Warscewicsii, with pure white sepals and petals, and deep lake lip, margined with white; C. Harrisonii var. violacea, with rosy pink sepals and petals, white throat, and with the edges of the labellum nicely frilled; Lycaste lanipes, pure white; Oncidium calanthum, very bright yellow, with reddish-orange centre; O. serratum, cinnamon-brown, finely frilled round the edges, and margined with yellow; also two very pretty varieties of Oncidium uncum. Such a display was very gratifying, as showing that a considerable number of Orchids can be obtained to enliven the otherwise monotonous appearance of conservatories and plant houses at this season of the year, when flowers are always scarce. The same exhibitor likewise exhibited a frond of a seedling Fern, evidently a Lastrea; the frond was finely crisped, and it was considered to be very distinct from any other variety in cultivation. Also cut trusses of Zonal Pelargoniums Jules César and Léonidas; the individual pips of these were very large, and the colours brilliant. Jules César is an advance on Roi d'Italie, and Léonidas, a most brilliant glossy scarlet.

GLASGOW AND WEST OF SCOTLAND: *Dec.* 6.—A banquet of a most important character took place in connection with a meeting of this thriving Society, on the 6th inst., under the presidency of R. Dalglish, Esq., M.P. About 130 gentlemen sat down to dinner. After the usual loyal and local toasts, the Chairman proposed "The Interests of Horticulture." In the course of his remarks he said:—I am conscious, and every man who has his eyes open must be conscious of the wonderful strides which horticulture has made in this country. In the neighbourhood of Glasgow this may not be so apparent, but in the neighbourhood of London nothing strikes the visitor more than the large number of nursery gardens—than the immense number of villas surrounded by glass conservatories, their Orchid-houses and their stoves; and I am told that within 30 miles of London there is one horticulturist who has upwards of 100 acres of land entirely planted with ornamental trees and shrubs. This Society, I believe, has been established within the last 10 years. It was not very flourishing for the first year or two, but now it has 800 members. It has four flower shows every season, and it gives away in prizes 600*l.* During the last year the flower shows were visited by 35,000 persons, attracted by the beautiful specimens exhibited. Horticulture, till within a short period, has, perhaps, not been ranked as one of the great arts or sciences; but latterly, I believe, there are men expending as large sums of money in the maintenance of horticultural establishments as any of the great collectors of painting or of sculpture. The collector of curious plants, the man who sends his emissaries over the face of the earth to gather from every country those plants which may be the most beautiful or the most striking, to bring them home and to improve their production in this climate confers a positive boon upon society. There is a collection within five miles of Glasgow—the collection of Mr. Dawson—in which the plants are of fabulous value; and I have every reason to believe enormous sums are given for plants of the description to be found there. The other day, Dr. Ainsworth, of Manchester, told me he had a small plant, not above a foot high, which one of the great London dealers told him was worth at least 70 guineas. Mr. Coats, of Paisley, has also a very large and valuable collection of plants. I have named Mr. Dawson and Mr. Coats because they can and do give the money to cultivate those plants. They do not grudge their money in getting fine specimens, or in putting up the most perfect houses to cultivate them in, and I presume they do not grudge the gold to keep the houses warm; but in a Society like this we should not forget that though they may do this, something more is necessary. To the gardener—to the practical man—to his care, to his attention, to his vigilance we are very largely indebted. I have no doubt got some glass, but the glass would soon be empty if I had not a very attentive and careful gardener. Though Mr. Anderson cultivates plants to the extent I have mentioned, the talent and skill of maintaining those plants belong to Mr. Anderson, with whose name I couple the toast.

Mr. ANDERSON, in replying, observed that though gardeners laboured under some drawbacks, the most important of which was scant remuneration, much had been done by them, and he had no doubt still more would be accomplished.

The CROUPIER (Mr. Councillor Arthur) proposed "The Glasgow and West of Scotland Horticultural Society, and Kindred Societies." The Society, he said, was scarcely second to any in the kingdom. Instead of having debt upon its head, it was now the possessor of a liberal sum at its credit in the bank. He coupled with the toast the health of Mr. Hugh Campbell, Secretary of the Society, to whose services they must attribute a large amount of their success.—Mr. Campbell acknowledged the toast.

ENTOMOLOGICAL: *December* 2.—Sir John Lubbock, Bart., President, in the Chair. Mr. Pascoe exhibited three preserved species of Longicorn beetles, from India, Java, and Sumatra, but which appeared rather to represent local varieties of the Lamia (Thysia) Wallichii of Hope. Professor Westwood exhibited the unique British specimen of Serropalpus striatus taken some years ago by Mr. Plant at Leicester, also the small globose mud nest of Eumenes coarctata, found near Reigate, being the only British representative of this very numerous genus of solitary wasps. Mr. Smith stated that he had occasionally found the nests in the neighbourhood of Weybridge, the New Forest, &c. He also exhibited a piece of Willow from Mitcham, in which there were not fewer than 10 burrows of the leaf-cutter bee, Megachila Willughbiella, in close proximity, each burrow containing a number of cells. He had observed that the cells were not uniformly formed of a single kind of leaf, but that sometimes the outer layers of the case were of green Rose leaves, the inner being composed of those of the flowers of Geranium, Poppy, or Centaurea. Mr. Pascoe exhibited and described five new genera of exotic Coleoptera, belonging to different families, natives of Lake N'gami, Ceylon, Sumatra, and Penang. Mr. Truman read a paper "On some Undescribed Species of South African Butterflies, including a New Genus of Lycænidæ," to which the name of Delonura was applied, its nearest ally being the New World genus Eumenia. One of the most interesting of the new species was a Papilio, the male of which resembles the well-known P. Boisduvallianus, whilst the female closely resembles Danais Eucheria. He also suggested that the well-known P. merope, of which males only had been taken in Africa, was the male of the Papilio cenens, which also resembles a Danais, although it was admitted that in Madagascar the female of P. merope precisely resembles the male, thus exhibiting a curious case of dimorphism in the female sex.

Florists' Flowers.

ANY notice of the VERBENA would be incomplete without some allusion to that division which is now receiving some considerable augmentation, and to which is given the designation of Italian-striped, or by some of Fancy Verbena. Several of the leading classes of what are known as florists' flowers have a kind of collateral division termed "Fancy" flowers, which are invariably some degrees lower in the scale of perfection, and have in their character more or less of a deviation therefrom, which exhibits itself in some instances in fantastic forms, but always in a degree of novelty, often manifested in unusual or grotesque colouring, which lifts them out of the ordinary track of improvement, and necessitates the creation of a division especially for them. The Verbena is no longer an exception to this rule. Not, however, that striped Verbenas in themselves are novel in character, as they have occupied a place in the garden for a few years past, notably in the case of the old Striata perfecta, which will be still in the memory of many growers. Without for a moment intending to assume that this was the first of the striped kinds, it was yet one of the most prominent of them, and had a marked individuality of its own, being very constant in character and really beautiful when well-flowered. There was notwithstanding a something about it, as well as about some of its contemporaries, that caused "bedders out" to sigh for something better if it could be obtained. By 1865, Princess of Wales and Annie had been added to it, and both are still in cultivation, Annie being, however, the best of the trio. With the advent of these two last named, Striata perfecta may be said to have quietly abdicated the flower garden in their favour.

The Italian-striped kinds put in appearance about 1863, in the shape of a batch of seedlings raised by MM. Cavagnini frères, of Brescia. Some of them were subjected to a trial at Chiswick, and among the whole series there was scarcely one worth growing as a garden flower. The constitution obtained under the "sunny skies" of Italy lacked sufficient vigour to stand against the more trying circumstances of our English clime, and therefore it was reported of them that they had "inveterately bad habits," allied as it seemed to poor, paltry, mis-shapen flowers and inconstant colours. It was, however, hoped that our cross breeders might be able to make something of them, as a greater variety of good striped Verbenas was then very desirable. It appeared, too, that in almost every case the ground colour of the flowers was white, and flaked unevenly and irregularly with purple or red. Some of the French Verbena raisers got hold of these Italian kinds about the same time as they reached England, and they instantly set to work breeding from them, and managed to infuse a little more vigour into them without making much improvement in the flowers. In this somewhat imperfect state of transition they came to Mr. Bull, of Chelsea, and he began cross-breeding from them and some of the more vigorous-growing of the English kinds. This year Mr. Bull has flowered a batch of seedlings which show considerable improvement in point of habit, the seedling plants being vigorous, and producing healthy robust-growing shoots. Whether they will maintain this improved constitution when propagated by cuttings, remains to be seen.

Unlike Mr. Perry, Mr. Bull blooms his seedlings out-of-doors, as his aim is the production of bedding kinds rather than exhibition flowers. They have therefore borne the test of a somewhat unfavourable season, and if, as already observed, the invigorated constitution can be perpetuated in the plants raised from cuttings, there is not the slightest doubt that we are on the eve of realising a greater variety of good striped Verbenas. They are yet so far in the rear of the ordinary Show Verbenas that they cannot lay claim to rank as exhibition kinds, unless a class for fancy or striped-flowered Verbenas should find a place in prize schedules. But Mr. Bull is nevertheless improving, with something like rapidity, both the form and substance of his new flowers, and it should be remembered that they were growing in the open air without any protection, and without having been aided either by thinning or disbudding.

Meanwhile a higher order of the purely English striped Verbena is being surely developed. That fine striped flower, Lady of Langleybury, whether a sport or a seedling, forms a fitting companion to Cooling's Annie, and possesses a constancy of character not yet attained by those whose veins contain some mixture of Italian blood. Nor is Mr. Perry unmindful of these striped kinds, as he uses the best of them for cross-breeding, and this summer he has flowered some of considerable merit, though not yet up to his standard as exhibition flowers. Still, it is more than probable he will be able to exhibit some striped varieties among the new flowers of the coming year, seeing that sometimes he grows as many as four or five thousand seedlings in one year, which are proved again a second year before they are allowed to get into the hands of the public.

The following comprise some of the best of Mr. Bull's new striped kinds:—

Beauty, opening white, but getting suffused with deep blush as the flowers age, also distinctly striped and flaked with bright crimson and rose; same heavily flaked with rose only; good stout pip, large truss, and strong habit.

Butterfly, pure white ground colour, striped and flaked with purplish violet, distinct and good habit.

Coquette, flaked with white and lavender, and striped with purple: the young trusses of blooms have a very pretty and attractive appearance, but become less so with age; good habit, and one of the best of the batch.

Distinction, pale blush ground, flaked and striped both with deep pink and vivid rose; not so bright looking, however, as some of the other kinds, but quite distinct in character.

Fairy, white suffused with soft pink and flaked with the same; pips large and well-formed, and good truss; habit good, and free-blooming.

Lady-Bird, opening white ground, but changing to blush, and flaked with red; habit dwarf and close, and remarkably free blooming, appeared as if it would make a useful bedding kind.

Leopard, white ground, heavily flaked and striped with purplish red, the flake quite bright in the hue, a fine and striking flower.

Magpie, blush, striped and flaked and freckled with bright rosy scarlet, also with rose; there was a brightness about this flower that made it attractive, it was also very free blooming, and possessed a good habit.

Regularity, white ground, flaked, striped, and freckled with violet in a regular manner.

Striking, white, flaked with purplish crimson, also blotched and striped with rose; fine pip and truss.

Twinkle, white, tinted and punctured with pale pink, and flaked with bright rosy carmine, good habit and free.

Zebra, white, flaked, and striped with vivid red, and also flaked with rose, very lively and showy.

Stellina, white, flaked with rosy lilac, some part of the truss comes all rosy lilac, and some of the pips pure white, good habit, and very free blooming.

It is noticeable of these flowers, as in the first batch of Italian kinds, that the ground-colour of the flowers is white, as in the case of Carnations, and not bordered with white, as in the case of Annie, Lady of Langleybury, &c. It should also be stated that there is something of a fugitive character about a large number of these seedling flowers, from which some of the foregoing are not altogether free, in that several of the pips come self-coloured, either composed of the ground colour or that of the flake; sometimes a portion of the flower will thus be wholly self-coloured; in other cases a pip here or there. Fixity of character has yet to be secured, unless, like the Fancy Dahlia, it is as yet beyond the range of the florist's art. Whether it is requisite that the fixity of character should be preserved is another matter, seeing that they are essentially—at least in their present stage of development—fancy flowers. It will also be noticed that, like the flaked and striped Fancy Dahlias, there is in almost every case the presence of two distinct hues of colour, forming the flake or stripe, while many of the flowers are also freckled with one or the other of these colours, in some instances much so. At any rate the cross-breeder has here ample opportunity for calling into operation his peculiar function, and it will not be surprising if from these flowers shall be eventually derived some excellent bedding varieties that shall impart a pleasing and needed freshness to this department of ornamental gardening, for it will be pre-eminently as bedding kinds that they will prove useful in the largest degree. *E. D.*

The Apiary.

FOUL BROOD.—Last week (p. 1245) I had to make the unwelcome statement that this disease had become diffused throughout a large portion of my apiary. I have now to endeavour to show how it most probably originated, and how it became so spread abroad among my stocks.

In the summer of 1865 a very populous hive, engaged

in filling a large glass super, was removed, during the hottest part of the season, a distance of three miles into the country, the bees having been confined from the previous evening. Notwithstanding all the ventilation possible under the circumstances was afforded, the heat caused by the confinement and shaking was very great, the bees becoming proportionately excited. They did but little good in the super afterwards, though located in a very superior honey district to that which they previously occupied. The following spring we were visited, as many may remember, by very severe gales. In one of these in April this hive was blown over, and the queen killed. All the honey was carried off by the bees of adjoining stocks. I then discovered that seven out of the nine combs were more or less full of foul brood. The queen had deposited hosts of eggs in the cells all around the affected parts. I thought, "If the disease is so infectious, and can be disseminated among healthy stocks by means of the honey which the hive contained, alone, as some writers have positively affirmed, my whole apiary must be doomed to destruction, as, probably, every hive had, more or less, partaken of the stolen fruit." But to my great delight, as time passed on, not a sign of it appeared in any single stock in that garden. But during the winter of 1866-7 the bees of a stock died out. Through inadvertence it was allowed to remain undisturbed on its stand. It was not at the time subjected to any examination, the cause of death being attributed to starvation. Towards the end of May, a fly-away swarm took possession of the comb-furnished habitation. A great amount of cleaning out of the combs had been in active operation for some days, and when examined they showed evident symptoms of having been thoroughly overhauled. No appearance of foul brood was then to be seen.

About this time my queen-rearing attempts were in full operation. The common queen of the new swarm was soon after captured and destroyed; a brood-comb, with Ligurian royal cells inserted, was given to the hive in exchange for one of its own brood-combs. Subsequently more of its brood combs were also transferred to other stocks. The first stock which obtained one of these brood-combs became much affected with the disease; prior to its discovery the hive had been made much use of in the artificial propagation of queens, and an exchange of combs with other stocks frequently effected as occasion required. This stock became so charged with foul brood, that no doubt could exist as to the propriety of its being broken up, and the combs melted down. The hive which contained the stray swarm was then examined. Every comb, in which breeding had been carried on, bore undoubted evidence of being affected. With this hive I resolved to try an experiment; all the combs were removed and burnt, fresh ones being substituted: the hive was liberally supplied with food. It remains to be proved, next spring, whether foul brood can be eradicated in this way. As the combs, with which the stock was built up, were taken out from various hives, it is possible that one or more from an infected colony were given to it; but, independently of this, I fear that such a method of procedure will not usually be found to succeed in annihilating every trace of the disease from any colony in which it has manifested itself.

No. 12 was a small artificial swarm, in which was raised the best Ligurian queen I had been able to get during the summer. Before the discovery of foul brood in any of the hives had been made, I had strengthened this swarm by brood combs, which I now know to have been taken from an infected stock. The swarm was fed very liberally in the autumn, a large quantity of syrup being taken down and stored. About the middle of November I discovered the hive to be dead. On taking out the combs I found the queen on the surface of one firmly attached to another bee by the hooks of their respective hind legs. Though both were quite dead they presented the exact attitude as if they were violently pulling away from each other. No doubt the bee was a robber, which had thus assailed the queen. On examination of the combs a large patch of foul brood was visible in several of them. It is probable the bees became dispirited, thereby falling easy victims to the attacks of robbers.

In two other hives the presence of the malady has been but too apparent. In these cases also the bees were driven out, the combs removed and melted up, and the hives put by to be subjected to thorough scraping and washing with a strong solution of chloride of lime.

I have thus endeavoured at a great sacrifice of hives so far to "stamp out" the disease. If in the spring, notwithstanding what has been already done, it again makes its unwelcome appearance among any of the rest of the hives, I intend to destroy the entire lot, and to recommence bee-keeping with swarms obtained from a distance.

I hope enough has been written to prove that Foul Brood is an infliction not in any way to be trifled with, but that so soon as it shows itself the most severe means should unhesitatingly be taken to effect its eradication. *S. Bevan Fox.*

Garden Memoranda.

Mr. William Thompson's, Ipswich.—The fact that Mr. Thompson's is not a show-place, and that his habits are more like those of an amateur, with a love for a quiet garden, than of a seedsman, must not deter me from giving some account of his novelties, and of the "good things" I saw with him some time since. Those who have grown those beautiful Rhodanthes which he has introduced from Australia—the Collinsia verna, and the exquisite Aquilegia cœrulea, not to mention many other charming novelties of merit, need not be told how much he goes out of the ordinary track of flower seedsmen to obtain what is good and beautiful; also the pains he takes to give things their true character, and right names. It will probably be better if, instead of describing anything of his garden or seed ground, I speak of some of the most noteworthy plants therein, not a few of which will be found worthy of extended cultivation, and therefore I will commence with Digitalis (Isoplexis) canariensis.

Few of the species of Foxglove are worth a place after the common one, even in its poorest state, but this is really a striking kind, and worthy of culture in all good collections of herbaceous plants. Here it forms a neat-looking bushy plant, nearly 2 feet high, freely furnished with long and dense spikes of flowers, of a very distinct and peculiar colour—light shining bronze. The flowers are not fugacious, and shoots were appearing, ready to continue the bloom. It is not new, but is not sufficiently known.

Gentiana Andrewsii.—On the strength of the great beauty of some of the family we now and then see a member of this genus recommended and cultivated, even though possessed of little merit, but this, though allied to some of the weedy ones, is certainly very distinct and pretty. The plant grows from 8 inches to 15 inches high, is herbaceous, neat in habit, and apparently not difficult to cultivate. The corolla is of that type that scarcely opens, but the appearance of the long, dark, deep blue bud-like flowers is quite pleasing. It produces seed freely. It has all the air of a plant that will prove useful for cutting, and not being of an evergreen or an Alpine tribe, will doubtless prove a hardy plant, easily grown, and worthy of being widely spread.

Callirrhöe involucrata.—This is by no means new, but I mention it here in consequence of seeing further proof of its great excellence as a hardy perennial. The colour is vividly rich and distinct, the habit not coarse, and the plant thoroughly hardy. A large bed of it here has been flowering abundantly during the summer. It deserves a place in every mixed border; possibly it will be found useful as a bedding plant in some positions, while on a large rockwork it would be quite at home. It is frequently sold by other seedsmen under the name C. verticillata, and also Nuttalia grandiflora. The beauty of the plant is altogether of a type such as is rarely found among the hardy plants of Malvaceæ, and it deserves a place in all good selections of herbaceous things.

Convolvulus althæoides.—A very distinct climbing kind, perfectly hardy, with silvery leaves, and pretty pinkish flowers. It seems a desirable thing for covering dwarf trellis work, &c.

Œnothera anisoloba is both distinct and first-rate, the plant resembling at a distance a much enlarged O. speciosa, the flower being like that of O. taraxacifolia when more closely examined. It is of strong and vigorous habit, and will most likely prove a really good border plant. To save inquiries, it is better perhaps to say that this and some other plants mentioned in these remarks cannot be sent out till next spring, or perhaps not till the following one.

Modiola geraniodes is pretty, and will most probably be useful for banks and similar places, or even in baskets, as the stems trail and root at the joints. It is tuberous rooted, and will probably prove hardy in most places. The flowers are axillary and bright crimson.

Oxytropis splendens (Douglas).—This is a fine species, with silvery leaves, tufted habit, and spikes of purple flowers.

Abronia arenaria is a most distinct and pretty little plant, from Vancouver's Island and the Californian coast. It is spreading, free, and pretty in habit, and bears a profusion of flowers of a peculiarly pleasing yellow, and deliciously fragant. It may prove a hardy perennial or one requiring but little protection, and in any case will flower the first year from seed.

Abronia fragrans.—This is a beautiful plant, with a free and spreading, but neat habit, and a profusion of sweet-scented flowers. There is some doubt about being able to perpetuate it from seed in this country, but it is safe from cuttings in any case. It appeared to me in every way an infinitely better and more satisfactory plant than A. umbellata, and seemed to grow much more vigorously and flower in great profusion.

Leavenworthia aurea is a new very dwarf crucifer. The foliage is pinnatifid, forming a rosette, from which arise small white flowers, with a yellow eye. It is neat and pretty, but not showy. It is a half-hardy annual, from Arkansas.

I can but briefly mention, Aquilegia Vervæneana, a variety of A. vulgaris, with a mottled yellow foliage; Campanula celtidifolia, a neat and pretty species, new to cultivation; Aquilegia olympica, of which I cannot speak with certainty; Aquilegia canadensis, true (a variety of A. vulgaris—is often sold for it); Astragalus monspessulanus, a good plant, not so much grown as it should be; Cerinthe aspera, with flowers yellow and black—it is better than C. major, and will prove a good annual border plant; Pentstemon barbatus Torreyi, a fine strong-growing variety of the old plant, long known as Chelone barbata: it is hardier and much stronger and taller than the old species; Pentstemon glaber, a good blue dwarf kind; the fine blue Pentstemon speciosus; Salvia chionantha of the Levant, with largish white flowers and silvery grey foliage; Helenium Hoopesii, from the Rocky Mountains, rather dwarf, and very showy; Eriogonum umbellatum, a distinct dwarf thing for rockwork, with primrose-coloured flowers; Echinacea angustifolia, a fine strong plant, very near the old purpurea, but with narrower leaves and an earlier bloom; Arabis blepharophylla, a beautiful and distinct little rosy-purple kind; Linaria triornithophora; Linum flavum, the true variety, a very good, very interesting, and hardy plant; Echinops virens; what will interest some, the true Pentstemon Cobœa; and finally Aquilegia cœrulea, the most beautiful of all the Columbines. I was delighted to see a good sprinkling of flowers over a bed of this latter even at the end of September. *Viator.*

Obituary.

With great regret we announce the decease of Dr. Daubeny, Senior Fellow of Magdalen College, and for many years Professor of Chemistry, Botany, and Rural Economy in the University of Oxford, the last two of which offices he held till the time of his death. Following in the steps of Buckland and Kidd, and in later times associated with Strickland, Acland, Philips, Brodie, and Rolleston, Dr. Daubeny worked hard to rescue Oxford from the stigma of neglecting the natural sciences in her ardent cultivation of classical studies. He has been a frequent and valued contributor to these columns, and we hope in our next issue to give a slight sketch of his long and honourable career.

Miscellaneous.

Cool Orchids.—It is interesting to know that many of our cool Orchids will not only live in the open air in summer, but will actually thrive and grow. This autumn, at the latter end of September, I visited the nursery of Messrs. Backhouse & Son, of York, and there I saw, hung on an iron rail, in a very sheltered and partially shaded spot, rows of Orchids fastened on little blocks of wood, and I must confess I was rather surprised to see these interesting plants growing so far north in the open air. They had been placed out at the latter end of June, and many of them had made such growths as would have perfectly satisfied an Orchid grower if produced in a house. I was informed that no protection whatever had been used. Amongst the most promising were the well-known Lælias autumnalis, furfuracea, majalis, and superbiens. Epidendrum erubescens was also doing well, and E. vitellinum was in flower. Barkeria Skinneri and Dendrobium speciosum were looking well, and a variety of what is supposed to be Odontoglossum ramosissimum had made fine growths, and was rooting freely. Odontoglossum grande was also amongst the number, and had not apparently made much progress. This, with several others, was under the shade of some Fir trees, and placed in zinc pans containing water to prevent slugs and other vermin getting to them. The bottom of the pots was placed just above the water level. Although perhaps there is not much advantage in growing Orchids out-of-doors, still it is highly interesting to know that they will not only exist, but thrive under such treatment. I believe Mr. Standish has treated Epidendrum erubescens much in the same way, and it was six weeks ago showing flower finely. It is quite a common practice to place Dendrobium speciosum and Cypripedium insigne out during the summer months with the greenhouse plants, and with very good results; and when we are repeatedly told that many of these plants are gathered from localities where frost occurs, there can be no reason why such out-door treatment should act injuriously. In growing cool Orchids in houses, I find that some species which grow perfectly well require to be moved into a warmer atmosphere to perfect their flowers. This is particularly the case with Oncidium flexuosum; it grows luxuriantly, but the flower stems prove abortive until moved into heat, when they come out in flower perfectly. Some plants of imported Lælias, in a cold house, were going quite brown at the tops, and appeared to be dying off, but after removing them into heat they are now showing their flowers freely. I find Brassavola venusta very much the same; the flower scape quite damping off in a cool house, which, had it been removed into heat when first showing bloom, I have no doubt would not have occurred. Is this not to be accounted for in this way, that the plants make their growth during the rainy season, when the temperature must be much lower than during the fine season which succeeds it, and which is their period of flowering? *G. Eyles, in "Florist and Pomologist."*

Sympathy and Speculation.—Mr. Punch, Sir,—Ave yer enny ideer of wot Sientific Jottins is? cause here's wun of 'em out of *Gallynawny's* noospaper:—

"In 1830 there was such an abundance of horses in the Island of Marajo, belonging to the delta of the River Amazon, that a president of the province of Para made an agreement with a company to allow them to kill as many of these animals as they chose, for the sake of the skins which fetched fifteen francs each, while the five horse did not cost more than six francs."

wot d'yer think o that now for a Sientific Jottin? Orrible to relate is ow i shud ed a account of sitch a massicer of that Nobel Anemle the Oss. It goes on to say that by levin' the car Cases onberried the consekwns was dangerus Infekshun witch coodent be got Ridd off nowow cept by settin fire to the oal iland as wos All over Wood: and this Cause the deth of All the osses as wos Left sins witch it av bin impossabel to reinterdoose a oss Into the iland every one direckly fallin a wicktim to parrallysis of the ind legs. Doorin many yeer of ixperience on the Stand waitin for Ire, nothink moar arowin to Reed off never Accurr'd to mee in the Ole coarse hof my Reedin. now, ser, Ear's anuther o them Sientific Jottins witch i'll allow is sientific enuf perwided it's Trew:—

"In 1837 a land proprietor of Bazas in the Gironde, perceived some gigantic white Oaks which struck his fancy. He picked up some of their acorns, and had them sown in a very meagre, clayey, and calcareous soil. The young trees throve, and 11 years later excellent Truffles were discovered in this soil which had never borne any before, and from that period they have never ceased to multiply. The most curious circumstance is that no Truffles were ever found in the vicinity of the original Oaks from which the acorns were got."

there now Ow d'yer Account for that? Hif there warnt no truefles nether ni the Hoax hon the Wun and nor in the Calcairus sile on the Tuther wear did they Cum from? Wooden't the growing hup o them troofels be a Case of wot Them as don't consider the

meanin of wurds calls Spontanus cumbusteon, cos it ain't Spontanus but only Appens when yer Putts sitch and sitch things together like for Instans Cross o Norredge did wen they Sed e made the insex with Galwanism out o Flint? Ixcuse this Sientiffic Jottin kind of cummewnicacion from a bit of a fellosoffical. *Cabby.* p.s. Wot cunecsion in Sientific Jotins is there between killin osses and growin trufles? It semes in france among the moosoos trufels an ossflesh wery often goes together. *Punch.*

Disguises of Insects.—Every one has heard of the wonderful leaf-insect of the tropics, which is scarcely less a puzzle to the scientific naturalist than it is to the natives of the countries it inhabits. I have been told over and over again, by intelligent persons in the East, of the curious plant whose leaves changed into insects! And I could never convince them that this was not the true explanation, for they would say, 'It is no good your trying to persuade me, for I have seen the creature myself; and I assure you that it has real leaves growing out of it, exactly the same as the other leaves that grow upon the tree." And we really cannot wonder at this belief, for when the creature is alive it remains motionless among the foliage, and the colour, veining, form, and texture of its wing-covers and appendages, are so wonderfully like those of leaves, that it is extremely difficult to distinguish it at all. A few years since a specimen of the Phyllium scythe, the "Walking Leaf" of India, was kept alive at the Royal Botanic Garden at Edinburgh. Mr. Murray wrote a long account of it, and among other matters says:—"It so exactly resembled the leaf on which it fed, that when visitors were shown it they usually, after looking carefully over the plant for a minute, declared that they could see no insect. It had then to be more minutely pointed out to them; and, although seeing is notoriously said to be believing, it looked so absolutely the same as the leaves among which it rested, that this test would rarely satisfy them; and nothing would convince them that there was a real live insect there but the test of touch—it had to be stirred up to make it move, or taken off the plant to crawl on the finger of the attendant. But these remarkable insects do not stand alone. There are many others in every order which are "disguised" in a somewhat similar manner, some with equal perfection, others less accurately, but all serving the same purpose—that of protecting the insect from the enemies that would destroy it.—*Science Gossip.*

Garden Operations.

(*For the ensuing week.*)

PLANT HOUSES.

Stoves which contain specimen plants only of early spring or summer-blooming genera, requiring a season of rest in the strictest sense of the term, should now be kept as nearly and as constantly as possible at a mean temperature of 55°, without atmospheric humidity, or anything in that way likely to cause excitement or premature starting into activity. Stoves, again, containing plants in flower, or advancing towards that stage, mixed collections, &c., such, in fact, as are likely to be in the possession of amateurs, should be kept some 5° warmer, generally with an upward tendency, until a maximum of 67° is reached in actual sunshine. Sufficient moisture must be maintained in such houses to subdue the harshness of pent-up dry artificial heat, and such an amount as will insure to the plants a fresh and healthy leaf surface, and a good tone of health. The outer weather must also be studied. If dull and sunless, depend wholly upon a proper humidity in the atmosphere, and the contrary if bright sunshine intervenes. Surface sprinkle with tepid water the whole foliage of the plants, an operation which should be repeated at least twice a day, if the long continuity of solar heat can be depended upon. *Conservatories*, or structures deriving that name from the fact that they are set apart to conserve or preserve plants in bloom, are ofttimes so called, with but little claim to the term practically. It seems to be inferred that if plants are *turned out of the pots* into borders the structure is deserving of the term "Conservatory" in perpetuity afterwards. Conservatories proper, however, should never fall below, say from 45° to 47°. The latter point will be preferable as a minimum at night, with from 49° to 53° by day, in dull weather. Other conservatories, required only to shelter evergreens, such as Camellias, Oranges, &c., from the frost, may be allowed to fall as low as 40°, upon sharp nights, without injury. As regards *Greenhouses*, a plentiful supply of air upon all favourable occasions is essentially requisite. According to the value of individual specimens, or their nearer approach, or otherwise, to a more temperate zone in their native habitat, whether individually, or as a whole, so will caution be requisite in the admission of air. For instance the *Luculia*, though well adapted to the greenhouse, whilst it thrives well at the back of such a house away from draughts, will quickly succumb if more fully exposed, in positions not free from the latter evil. *Blandfordias*, on the contrary, though derived from the same source as some of our Orchids, will withstand ordinary greenhouse temperature with impunity, and will thrive in it. After such explanations, then, let me impress upon all the necessity there is for keeping the internal temperatures maintained by artificial heat at the lowest minimum possible consistent with the several forms of structure in operation at the time. Depend upon it, much injury is done by an overweening desire to keep up a goodly margin upon what is called "the safe side." A few extra degrees of heat either causes a dry husky warmth in stoves, or necessitates an injudicious expenditure of moisture. With *Forcing Pits*, or *Houses* of that description, things are different. In order to have flowers, at the expense of the plants, it becomes necessary to maintain a maximum temperature little short of 80° in bright weather, generally from 70° to 74°, and with an excess of moisture in every form. The latter, in fact, must be distributed freely, until the flowers appear, and the plants require removing to a more fitting place, both for display and preservation. In this, however, the change must not be too sudden or too great, or the plants might receive such a check as they will be unable to get over, and hence all the trouble and anxiety that have hitherto been bestowed upon them, will have been thrown away.

FORCING HOUSES.

Proceed with the preparation of *Vineries* intended to be started about Christmas; place upon the border the necessary covering of fermenting material, &c., in order to secure a little bottom-heat at the right season. Those now starting should be kept at a mean night temperature of 53°, with an advance of 7° in the day time. Sprinkle all internal surfaces freely, and so form a genial humidity in the atmosphere during the time in which the buds are "breaking," after which reduce the volume of moisture by night, resorting more to sprinkling the surface of the foliage by day in lieu thereof. It will be well, however, to encourage a period of dryness in the atmosphere upon each day—even if to do so necessitates an advance of 6° or 8° of heat, which indeed will be requisite to compensate for that lost by air-giving when the period of drying is entered upon. I have before referred to the system of placing hay-bands around the lower length of "old canes," this will prove of more assistance than ordinary when such are in the vicinity of pipes or flues; or in any other position where it is difficult to keep them properly moistened whilst "breaking." Attend to the outer covering of borders generally; keep up a slight warmth by fermentation if possible, and if severe weather is anticipated, or snow is expected to fall in quantity, place an additional covering of surface protecting material on *all* forthwith. In the event of much snow, do not allow any to remain upon out-door Vine borders; on the contrary, remove it at the earliest possible moment when any symptom of thaw sets in: snow deprives the border more than anything of the latent heat which it may possess, if allowed to thaw thereon. If severe weather visits us, making it necessary to maintain the necessary warmth by means of fire-heat in excess, it will not be advisable to allow the fruiting stock of *Pines* a higher range than 61° by night. Moderate the harshness in the atmosphere caused thereby, by admitting, if possible, a goodly volume of fresh air during the day. Examine any pots which stand nearest to pipes or flues during such weather; these invariably get so dry as to require watering twice to the others once. Attend to last week's suggestions regarding *Peach-houses*, &c. Be moderate in the use of fire-heat, and should severe weather set in, let the temperature fall 3° or 4° lower than what it has been.

HARDY FLOWER GARDEN.

Little can now be done in this department, yet it may be well to remind the amateur that this is an excellent season in which to turn over his heaps of compost, leaf mould, or soils kept in stock for any purpose. Some make a rule—an excellent one, too—of removing successive frozen crusts from off the surface of the old stock, thereby causing the whole heap in time to become well exposed to the influences of frost.

HARDY FRUIT GARDEN.

A *résumé* as regards *the culture of Pears* brings me to the subject of *Pruning* those at a fruit-bearing age. Before, in dealing with younger trees, we have had only wood or furnishing shoots to encourage. Now, spurs, bearing flower-buds, must be sought after—the ready discernment of which, in contradistinction to the simple wood-forming buds, belongs, in most instances, to the long-standing practitioner alone. However, if any doubt exists as to whether any questionable-looking buds are one or the other, it is better to allow them to remain until spring solves the mystery. Cut back to two or three eyes, within an inch or two of the main shoot upon which they grow, all real woody shoots of last season's free growth. Caution is only needed with two-year-old ones, and upward. Where any such are too thickly set together, they require a little studied pruning, in order to allow of a proper development of parts when summer returns. Shorten back old fruit spurs to the lowest buds. Be careful in doing so not to injure these latter. In some instances some old spurs will produce such an influx of gross young shoots as to positively deter any flower-buds from forming thereon. The spur in consequence becomes so enlarged as to be unsightly. All such it is better to remove as near the main branch from which they issue as possible, if certainty exists that the operation can be done without injury. So treat such trees, as a whole in fact, as to afford the greatest prominence to all future flowers, that the fruit may have a fair chance of forming favourably. Many old standard and other orchard trees of this class, through long neglect, have become prominent in decrepitude only. This ofttimes occurs from want of pruning alone. All such may be greatly benefited by a free use of the pruning shears. Even some of the larger branches may be so reduced in bulk as to afford a greater amount of light and air to others, whilst the roots' abilities will also thereby be brought upon a more equal footing in relation to the upper branches. In pruning all large trees, endeavour as much as possible to open the centre of each tree, by which means light and air will be more freely admitted.

KITCHEN GARDEN.

Potatos placed in make-shift pits, &c., in order to ascertain what amount of disease they had about them, should now be looked over, and those that are good "clamped." There will not be any risk of their heating after this. Look through the stock of *Onions*, removing any which show the least symptoms of decay; all such quickly infect all others in immediate contact with them. Give *Cauliflowers* in frames additional protection according to the severity or otherwise of the weather. Batches of *Tarragon*, *Mint*, &c., should be placed in positions where they are likely to form a supply for future use. Spare frames placed over *Parsley*, *Chervil*, *Fennel*, &c., in the open borders, may be the means of keeping a supply fit for use in February and March, when, if unprotected, and severe weather ensue, little of the general stock may remain. Take up and store away conveniently *Artichokes*, *Horseradish*, *Turnips*, &c., for use in the event of severe frost. *W. E.*

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the Week ending Dec. 11, 1867, as observed at the Horticultural Gardens.

December.	Moon's Age.	Barometer.		Temperature.					Wind	Rain.
				Of the Air.			Of the Earth			
		Max.	Min.	Max.	Min.	Mean	1 foot deep.	2 feet deep.		
Thurs. 5	9	29.894	29.680	47	28	38.0	43	42	N.W.	.10
Friday 6	10	29.955	29.640	39	28	33.5	41	42	N.	.14
Satur. 7	11	30.124	30.010	38	29	33.5	41	41	N.	.00
Sunday 8	12	30.010	29.962	35	13	24.0	41	41	N.E.	.00
Mon. 9	13	30.220	30.124	33	13	23.0	40	40	E.	.00
Tues. 10	14	30.223	29.947	42	27	34.5	40	40	W.	.00
Wed. 11	○	29.978	29.954	50	35	42.5	43	40	N.W.	.00
Average		30.058	29.902	40.6	24.8	32.7	41 3	40.8		0.24

Dec. 5—Rain; clear, bright sun; overcast at night.
— 6—Overcast, showery; overcast and boisterous.
— 7—Snowing; overcast; clear and frosty.
— 8—Overcast; densely overcast; snow at night.
— 9—Overcast, sharp frost; overcast; clear and frosty.
— 10—Overcast; mild and overcast; clear, low fog.
— 11—Overcast; overcast and damp; overcast, very mild.
Mean temperature of the week, 8 4 10 deg. below the average.

STATE OF THE WEATHER AT CHISWICK,
During the last 41 years, for the ensuing Week, ending Dec. 21, 1867.

December.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain	Prevailing Winds.							
						N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday ..15	46.0	34.3	40 2	17	0.34 in.	3	6	5	3	5	11	6	2
Mon. ..16	45.5	33.8	39 6	14	0.34	6	4	4	3	6	9	7	2
Tues. ..17	45.7	33.4	39 6	19	0.38	10	5	3	1	7	9	3	3
Wed. ..18	44 9	32.6	38.7	19	0.56	4	6	3	3	3	13	9	6
Thurs. ..19	42.7	32.7	37.7	16	0.87	1	4	4	4	4	12	3	8
Friday ..20	44 2	33.7	38.9	15	0 76	3	9	1	2	6	13	4	3
Satur. ..21	43.5	33.7	38 6	15	0 20	1	8	3	2	2	16	4	6

The highest temperature during the above period occurred on the 16th, 1840—therm. 62 deg.; and the lowest on the 17th, 1864—therm. 10 deg.

Notices to Correspondents.

CUPRESSUS MACROCARPA.—We inadvertently omitted to state (see p. 1243) that at the last meeting of the Royal Horticultural Society the Floral Committee awarded a First-class Certificate to Mr. Jennings, of Shipston-on-Stour, for his variegated variety of this Conifer.

FLOWER SHOWS: *O* puts this question:—"Looking to the attendant expenses, convenience of visitors and exhibitors, and protection and security to the plants, &c., are large halls in the centre of towns to be preferred to tents erected in the suburbs for holding flower shows in, and in your experience which is the most generally adopted, and which most successful?" No general answer can be given to such a question. As to the plants, nothing can be better than good large, roomy, but not too lofty, airy tents—in fine weather; nothing more injurious to the effect of exhibition plants than large buildings, which seem to dwarf and take all importance out of even the most magnificent specimens. As to visitors the tent is still best in fine warm weather, but the hall or other large building in cold or wet weather. No doubt, where a convenient and suitable building exists, it is, looking at all points, preferable; but few public halls meet the requirements of the case fully.

INDIAN ZINNIA SEED: *Dr Henderson.* The seeds of Zinnia which you sent us on the 11th July last for trial were treated as follows:—Three packets, each containing 12 seeds, were sown in pots in heat; of these only three seeds germinated. The remaining portion of the seeds were sown out-of-doors, in well prepared soil, and were well attended to. Of these only two seeds germinated. None of the plants flowered, having been received too late in the season, and they are now dead.

MIDLAND COUNTY FRUITS: *X Y Z.* The following may, perhaps, suit you:—For a north aspect wall, Morello Cherries are the most suitable. But a few of the early Pears and a few Plums may also be tried. For the sake of variety we would plant 4 Morello Cherries, 2 May Duke Cherries; 6 Plums, viz., 2, Denyer's Victoria, 2 Prince of Wales, 2 Ickworth Impératrice; 6 Pears, viz., 1 Jargonelle, 2 Williams' Bon Chrétien, 1 Doyenne d'Eté, 1 Seckel, 1 Beurré Bosc. For the west aspect wall, 9 trees; 4 Pears—1 Glou Morceau, 1 Marie Louise, 1 Beurré Rance, 1 Easter Beurré; 3 Plums—1 Coe's Golden Drop, 1 Green Gage, 1 Jefferson; 2 Cherries—1 May Duke, 1 Elton, or Bigarreau Napoléon. For the east aspect wall the selection should be the same as for the west, excepting in place of Plums we would substitute 1 Breda and 2 Moorpark Apricots. Having the two walls, we would, however, recommend you to devote one side entirely to Pears, the other to Plums, Cherries, and Apricots.

NAMES OF FRUITS: *G P.* Pears: 1, Beurré Rance; 2, Broom Park; 3, Colmar tardif (?); 4, unknown, but worthless; 5, Beurré Rance; 6, Winter Crassane. Apples: 1, Mickleham Pearmain; 2, Kilkenny Pearmain; 3, Winter Pearmain; 4, Coe's Golden Drop; 5, Christie's Pippin; 6, probably Longville's Kernel.

PHOTOGRAPHS: *An Old Continental Subscriber.* Photographs of the late Sir W. Hooker and of Mr. Bentham can be had of Maull & Co., Piccadilly; of Dr. Lindley, from Sawyer, of Norwich. We do not know where to procure photographs of Sir Joseph Paxton or Mr. G. U. Skinner.

PRIMULAS: *R Dean.* A very fine strain of large, finely-coloured, handsomely-frilled flowers. There are three forms, a purplish rose, a carmine, and a delicate flesh colour, the two latter being especially beautiful.

ROOT FUNGI: *J H H.* Yours is one of the cases, which are now found to be so common, of trees destroyed by root Fungus. Any small pieces of undecomposed vegetable are sufficient to produce the mischief, and doubless some were present in your soil. The only remedy in such cases, if not gone too far, is to remove the soil, and to prune off the affected roots, taking care that the new compost is free from undecayed vegetable matter. *M J B.*

SOPHORA JAPONICA: *J T.* Thanks. You are, however, mistaken in supposing that this tree only exists north of London as a shrub. The finest tree of the kind we recal is in the Botanic Garden, Oxford. Paulownia is much more tender.

COMMUNICATIONS RECEIVED.—J. S.—T. R.—J. P., Bangalore.—T. T.—J. A.—J. T. B.—W. F. R.—H. E.—G. J. S.—J. B.—H. Knight.—J. Edlington.—T. Hutt.

ERRATA.—In the article on "Natural Plant Protectors," p. 1239, col. *b*, third paragraph from the top, the second sentence should end with "December," the third begin at "After" and end with "Sunday night." Col. *c*, "vicinity" should have been "ministry." *D T F.*

ROYAL AGRICULTURAL COLLEGE, CIRENCESTER.

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Right Hon. the Earl of Ducie, F.R.S., F.G.S. | Right Hon. T. H. Sotheron Estcourt
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Resident Professors.

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Chemistry—Arthur H. Church, M.A., Lincoln Coll., Oxon, F.C.S.
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Natural History—Wm. T. Thiselton Dyer, B.A., Junior Student, Christ Church, Oxon.
Anatomy, Physiology, and Hygiène—Edward Nottleship, M.R.C.V.S., M.R.A.C., L.S.A.
Mathematics and Surveying—The Principal.
Drawing—James Miller.

The College was Incorporated by Charter, granted by Her Majesty in Council, March 27, 1845, for the purpose of affording a Practical and Scientific Agricultural Education to Students from all parts of the Kingdom. For particulars apply to the PRINCIPAL.

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55, Charing Cross, London, S.W. CHARLES SHAW, Secretary.

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Copy of a Letter from Mr. RIVERS, *Nurseries, Sawbridgeworth, Herts, 22d October*, 1861.

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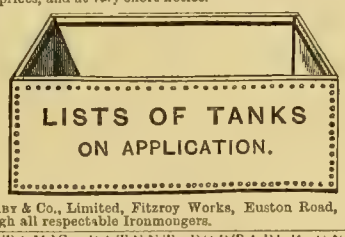
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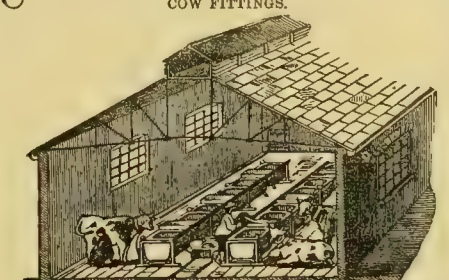
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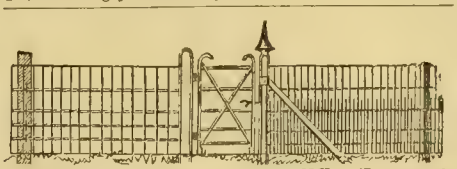
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The Agricultural Gazette.

SATURDAY, DECEMBER 14, 1867.

THE agricultural meetings of the past week have, most of them, excited quite the usual amount of interest, and gratified quite as many hearers and spectators as they generally do. The Agricultural Hall has been well filled every day: and at the annual meetings of the Smithfield Club and the Farmers' Club reports of the continued prosperity of both these very useful institutions have been adopted: the Chamber of Agriculture has met to confirm resolutions in reference to matters concerning which legislation is impending: and at the Royal Agricultural Society's annual meeting there has been quite the usual amount of healthy criticism and discussion. Such reports of these meetings as are possible within our limits, are given in the following pages. It is to a few only of the points which have arisen in the course of them that our remarks must be here confined.

1. Undoubtedly the great annual show of the Smithfield Club has been the leading agricultural feature of the week. Nobly housed and amply honoured by the inspection of all classes, it maintains the credit and renown which during a long series of years it has acquired. There have been rarely better classes of Herefords or Shorthorns—our two leading breeds of cattle; never, probably, a better old class of oxen of the former breed; never a better show of sheep; never a better show of agricultural machinery. And the year of General HOOD'S Presidency has been undoubtedly a success. It requires some courage, in the face of such a long career of honour and utility as has culminated under his direction, to offer any criticism whatever. It must, however, now, we think, be apparent to all disinterested persons that if the Club is to direct its efforts with any proportion to the relative values of the several objects it promotes, the time has come for some re-arrangement of its premiums. Undoubtedly it is right, not only in the interests of the Show, as representing all the different kinds of farm live-stock used in British agriculture, but also in the interests of local agriculture everywhere in Great Britain, to offer premiums for the best specimens of all known breeds of cattle, sheep, and pigs; but these should be in some relation to the importance of the breeds which are thus distinguished. If this were more kept in mind than it seems to be, what proportions, do you suppose, of the whole prize list representing the interests of beef producers and of beef consumers in this country would be fairly allottable to Devons and to Shorthorns respectively?—to the merely local Devons, which still stand first on the lists of the Club, and retain an equal place in the front rank of its premiums, as compared with Shorthorns which reach double their weight at a given age, and have spread into every county of the island? If the relative contributions of these two breeds to the meat supply of the country be any guide to their relative importance, let those members on the Council of the Club who are acquainted with the metropolitan market say what shares of the beef sent up to London they severally supply. If the profitable conversion of the Turnips, hay, and Grass of our farms be any guide, let the country members of the Council say which breeds represent the greater economy, and to which is English agriculture generally the more indebted.

It may be difficult to upset an arrangement which has so long a prescription in its favour, and which really does offer its rewards, not unfairly, for quality, symmetry, and artistic beauty, perhaps even for precocity—for all these the Devon breed possesses almost equally with

its rivals. But if general utility is to be our guide, as certainly it ought, the Devon breed is simply nowhere in the race; ranking first, probably, in the second rank of such local kinds as Norfolks, Sussex, Longhorns, but hardly exceeding the special serviceableness or value of Kyloes, Galloways, or Polled Angus—which last, in the hands of Mr. M'COMBIE, has this year gained the Gold Medal of the Show. Compare his massive beast, for which a butcher has given 120*l.*, with some of the Devon oxen quite as old, and say whether that "thin red line" which has hitherto taken precedence at these shows deserves its place. Devons are essentially a local breed, but little cultivated out of their own locality, where the conditions under which they are pre-eminent alone appear to exist. There are many public-spirited men in our south-western counties, and so the breed is always wonderfully represented, notwithstanding its purely local character. Whether or not the Club shall ever move them from the front rank, which they have always hitherto received in its catalogue, certainly the prizes offered to the Shorthorns should be tenfold greater than they are, if the relative importance of the breeds is for the future to be observed.

2. At least three points of great interest may be named as having occupied the attention of the general meeting of the English Agricultural Society.

(*a*) Mr. ARKELL, of Swindon, in a speech indicating all his usual humour, practical good sense, and tenacity of purpose, stirred up the meeting to a feeling of the need of somewhat greater activity and life in the management of the Society's affairs.—The sum of 2000*l.* has been sold out of the Funds, it appears, to meet the losses of the Bury show. Such a thing is not to be lamented at all if the 2000*l.* have really been spent in the promotion of the objects of the Society. The accumulation of funds is after all a subject for regret rather than congratulation, as tending to make the managers of the Society independent of the assistance or the criticism of members. And there are not wanting signs that as the Society has increased in wealth, it has exhibited less of its original activity and energy. Our plants, and especially our green crops, are the victims of many diseases, some of them new to Mr. ARKELL, notwithstanding that he looks back on an agricultural career of 30 years. Long ago, in 1843—1846, many most useful articles appeared in the Journal of the Society on the Blights and insect enemies of plants, but nothing has been written on that class of subjects for many years. Is Mr. CURTIS still living? Undoubtedly either he must be dead or the Council must be asleep!

Such was the tone of the speech, and neither Mr. C. SEWELL READ, M.P., who pointed out that the valuable papers of the late Mr. CURTIS contained much of the information which Mr. ARKELL sought, nor his Grace the Duke of RICHMOND, who also defended the Council from his attack, succeeded in removing the impression which it had produced. Mr. ARKELL desires the appointment of a permanent officer connected with the Society—a Professor of Natural History—to whom members of the Society should be able to refer questions of the kind he had indicated, just as they refer chemical questions to Dr. VOELCKER, and veterinary questions to Professor SIMONDS. We believe that he and all those other members of the Royal Agricultural Society who may also be members of the Horticultural Society, may send their diseased plants up to Kensington to the Rev. M. J. BERKELEY, who, as master of microscopic botany, undertakes for that Society to throw all the light which science offers on such subjects. But we quite agree with Mr. ARKELL in regretting that a Society whose clients cultivate plants in fields, and farms, and by the square mile, has not thought it necessary to make an appointment which it needs at least as much as one which promotes the cultivation of plants in pots, in gardens, or by little more than the square yard.

(*b*) Another point was raised by Mr. SIDNEY. He had before urged upon the Society the need of taking measures to obtain an accurate picture of existing English agriculture. The county reports are a series, some of them a quarter of a century old. What we want is information regarding the methods and results of *this year's* management of English farms. Something of this kind has been lately done in connection with steam-cultivation, and nothing has done the Society more credit than the reports which have been thus obtained. A committee should be appointed, who would obtain the help of the best authorities on every kind of agricultural subject, and a series of questions should be framed embracing the whole field of agricultural experience; and from the answers which members of the Society would give to such questions reports might be drawn up which would do more to guide and encourage agricultural progress than anything which the Society had yet accomplished.—The Council were defended from the charge of having neglected to report on the agriculture of the country by Colonel CHALLONER, who, admitting that a simultaneous picture of the whole country would be of great value, pointed out that all along a certain portion of the funds of the Society had been allotted for the payment of just such pictures, county by county, as Mr. SIDNEY desired.—To this the rejoinder was that the county reports are, as had been said before, already old, and that at best they give the mere opinions of the reporters, whereas it is of the very essence of the scheme which Mr. SIDNEY recommends that the opinions and the facts described should be the experience of the men themselves, whose successes or whose failure they would represent.

(*c*) From this the transition to the importance of agricultural statistics was easy; and the Chairman, his Grace the Duke of RICHMOND, who is also President of the Board of Trade, expressed the hope that the questions *he* was about to send out to the farmers of the country would meet with the attention which Mr. SIDNEY appeared to promise for the catechism which he recommended the Society to issue.—Hereupon Mr. WILSON from Leicestershire declared that having to do with many estates and parishes in that county he had exerted all his influence to recommend tenants to fill up the returns which the Government sought, and had himself helped many of them to answer these inquiries; but that having the President of the Board of Trade before him he could confidently assure him that in his county the farmers are resolved to have nothing to do with these statistical returns for the future, unless Government not only enact the measure, which all of them feel to be imperatively required, to slaughter imported live stock at the port of debarkation, but take all other means necessary to protect English herds from foreign diseases. This declaration elicited loud cheers from the meeting, which also greeted the reply of the Chairman to the effect that a Bill had been already read a first time in the House of Commons, which aimed at securing all that the gentleman desired. For himself he went even further, and desired that not merely all oxen, but all "animals," including sheep as well as cattle, should be slaughtered immediately on landing. But what he could not understand was that men should connect together things which had no relationship whatever, and refuse to answer questions put to them about the produce of the land until certain measures regarding our imports shall be adopted. It reminded him of an instance in which a man had declared that so long as the Malt Tax existed he for one would be no party to the collection of agricultural statistics! It only showed how great was the agricultural prejudice against Government inquiries, which was one of the many difficulties they had to encounter.

But his Grace was perhaps hardly correct in asserting that there is no connection between legislation on the importation of foreign cattle and the collection of statistics regarding English live-stock. There is a very material connection between the two. The numbers which a statistical inquiry of such a kind would reveal will depend very materially upon the legislation which is desired. They are already greater, owing to the health for which we have to thank the recent absence of all foreign infection; and if, owing to neglect of the Legislature, we should have again to deplore the existence of the cattle plague among us, they will undoubtedly be reduced. The protest, however, of the farmer, to which the Chairman referred as so illogical, was subsequently indicated as a real difficulty in the way of Government; and as a practical man, therefore, it is to be hoped that the President of the Board of Trade will do whatever may be in his power to remove the feeling which it shows to exist, by urging the enactment both of the law which is now desired, and of others serviceable to agriculture having, it may be, still less connection with the subject of agricultural statistics; so that at length the agricultural world may be convinced that the Government do specially regard their interests, and are to be trusted with the information which they desire.

3. The discussion on steam cultivation before the Farmers' Club was of much less value than had been expected. The opening paper was confined to a short review of the proceedings of the recent commission issued by the Royal Agricultural Society, and the subsequent speeches were of less interest than usual. Mr. GREENE, M.P., on whose farm at Bury extraordinary illustrations of the fitness of steam-power to light-land cultivation had been given at the last meeting of the English Agricultural Society—so that as Mr. CLARKE declared he had seen cultivation done at the rate of 50 acres a-day, and he did not despair of seeing the rate even doubled—gave in detail an account of his experience with HOWARD'S cultivator. The mere labour of such cultivation costs him 1*s.* 10*d.* an acre; coals, 1*s.* an acre; the other items of oil and water are very little—the wear and tear of rope and of machinery, and the interest of capital and the cost of auxiliary horses bring the whole much within the cost of ordinary horse-power cultivation, and a 12-horse power engine gets over 10 to 16 acres a-day of good deep tillage. All his men and boys employed about the machinery are the ordinary men and boys of the farm. He is a brewer, though also interested in agriculture, and he has long since found out that "skilled labourers" are a very unpleasant class to deal with, and so he has resolved to do without them; but notwithstanding that he had thus altered the whole machinery of his farm, he has not taken on a single man or boy to help him who was not on the land at the beginning.

If any agricultural labourers shall read a report of Mr. GREENE'S remarks on the value of "skilled labour," we hope they will take it along with this history of what he has done. The superior value of skilled labour, which in words he denies, is the very anchor of every young man's expectations who may be looking forwards to rising out of that Dead Sea in which the agricultural labourer class has hitherto too generally been lying. The men and boys whom Mr. GREENE employs so successfully have already become skilled labourers in his hands, and are earning, by piece-work payment, the higher wages to which they are entitled. And perhaps if they shall have hereafter to make a bargain with another master, he too may echo Mr. GREENE'S remark that they are a very unpleasant class to deal with. It is a good thing for labourers, and not a bad thing for masters, when earners of wages make a stand for the full value of their services. And it is one of the best features of the increasing adoption of steam-cultivation throughout the country, that it is accompanied by this lift of so many of the ordinary agricultural labourers of the place out of the lower rank. Higher wages, earned by piece-work payment, are good for both employer and employed; and they are at the same time, in themselves and in the effort which has earned them, educational agencies of the highest value for raising the whole style, and character, and payment of labouring men throughout the country. Mr. GREENE, who volunteered the disparaging remark upon the skilled-labour class, is no doubt doing his best to increase the number of the class—and thus benefiting the whole body of those whom he employs, notwithstanding what he says upon the subject.

Among the other subjects referred to during the discussion was the need of having steam tackle for small farmers to hire who cannot buy; the best way of effecting this object being for the larger farmers of a district to purchase, at first, no doubt, for their own use, but afterwards for the purpose of letting them out on hire. The superiority of FOWLER'S system for large areas and extensive operations was also admitted. The impolicy of greatly reducing the horse-power of the farm, notwithstanding the adoption of steam tackle for use upon the farm, was argued by Mr. DRING, of Lincolnshire; but he spoke only of the smaller sets of tackle, and also, we presume, of clay land, where on an emergency a surplus power of horses may be occasionally especially valuable. We presume that it is now almost the universal testimony that a very large reduction in the horse expenses of the farm may be made wherever steam-power is used for cultivation, with perfect safety, and with a very considerable

contribution towards the cost of starting a steam cultivator.

The above remarks relate to a few only of the topics which have arisen for discussion during the week. Many others might have been added to the list, and we ought not to conclude without reference to Mr. PELL'S very useful speech at the meeting of the Agricultural Society upon the condition of the agricultural labourer, the need of greater sympathy with him in his difficulties, the want of some such legislation with reference to his house as guides the work of the builder in towns, and the importance of instruction and assistance being given by which his domestic condition may be improved.

—— AT a meeting of the Cirencester Farmers' Club on Monday last, Sir MICHAEL E. HICKS BEACH, M.P., introduced the subject of "The Education of Children employed in Agriculture," discussing —1, the existing want of education, whether in large towns or in the country; 2, the present regulations under which the Government grant is made; and 3, improvements which should insure a regular and longer attendance of the children and better instruction. He said that the agricultural population was certainly not as badly educated as that of the towns, and he thought the Government grant was given at present too much to the town. He suggested that every child under 13 should be compelled to attend school so many hours in the year, so that advantage might be taken of the winter months. He concluded a very interesting address by saying he was sure that farmers would find an educated labourer worth more wages than one that had received no education. The Rev. JAMES FRASER, Assistant Commissioner under the Royal Commission on the employment of women and children in agriculture, said he should be contented if children could stay at school until they were able to read intelligently and with facility, which he thought the majority could not do when they left. After an animated discussion, the following resolutions were unanimously adopted by the meeting:—"1. That in the opinion of this meeting the State aid afforded to education is not, under the present conditions of such aid, fairly distributed between the schools of the town districts and of agricultural districts, and that the advancement of education in the rural districts is thereby retarded. 2. That this meeting, while it is of opinion that the extent of education in the agricultural districts compares favourably with that in town districts, is still of opinion that much remains to be done to render the system of education of the children of the agricultural poor efficient, particularly with respect to the attendance at school of young children, it being the opinion of this meeting that children should not generally be employed in farm labour under the age of 10 years, but that the half-time system is not applicable to farm labour."

SHORTHORNS.

ALTHOUGH unable this week to devote so large a portion of our space as usual to matters relating to the Shorthorn breed of cattle, we can in the short paragraph for which alone there is room to-day state a fact in the history of the breed which is a better testimony to its value than whole columns of discussion.—If the average of all the sales of Shorthorns during the past 20 years be taken, we believe the amount per head of all ages of pure-bred stock will prove to have been about 35*l.* apiece. There is no record which can claim anything like absolute completeness, but having seen a list including many thousand head, and all the highest prices of the period, we are able to say that the average comes out pretty nearly 35*l.* It is worth while, then, noting—especially as the breed is not supposed to have achieved quite its usual share of distinction at the Smithfield Show this year—that during the past season one auctioneer alone has sold nearly 1000 head, at an average exceeding 50*l.* About 1500 altogether have been sold by auction during the year, and among those not included in the list just named are sales of 40*l.* and 60*l.* a head. No doubt the early and later sales of Bates' blood, which has this year commanded such enormous prices, have raised the average of 1867, but from all the sales the inference may be fairly drawn that pure-bred stock is at least as valuable as it ever was. Looking back through a list of Mr. Strafford's sales, commencing 20 years ago, we have numbers varying from 500 to 1500 in a single season, and an annual average of 20*l.*, 30*l.*, 40*l.*, and 50*l.* apiece. Of the whole series of 20, 15 are over 30*l.*, and of these 15, 13 happened during the past 15 years, showing that the sum commanded has been gradually advancing. During 1853, the year of the late Lord Ducie's sale, the average was 45*l.* Then comes 1865, including Mr. Hegan's sale of *Grand Duchesses* before the cattle plague had appeared, when the average was 46*l.* In 1866, during the continuance of the plague, the few sold fetched only 29*l.* apiece, but during the season just concluded nearly 1000 cattle have been sold, as we have said, by one man, for close on 50,000*l.*, averaging more than 50*l.* apiece—no fewer than 1500 altogether having changed hands at sales by auction in 1867. We may conclude as we began, by asserting it as incontestable that the prices now commanded by pure-bred Shorthorn stock prove unmistakably the easy supremacy of the Shorthorn breed.

—— It will be noticed in the Smithfield Club Catalogue this year that among the well-bred stock which have there ended their days, is *Lady Selina Spencer*, of Mr. C. Howard's breeding, tracing down to Lord Spencer's stock, and descended from Mason's No. 55. She had the honour of appearing as one of the Herd Book plates (vol. xvi.); and, having won prizes at local shows, and bred many calves, one of which took the 1st prize in the calf class at the Royal Agricultural meeting at Leeds, she is at length sold to the butcher. It may be also pointed out that the 1st prize Shorthorn cow in the Agricultural Hall is *Kent Cherry*, sold as a calf at Mr. Hales' sale for 70 guineas, and descended from Lord Ducie's *Bessy*. Mr. Foljambe's 1st prize steer may be also named as descended from Lord Spencer's stock, with a pedigree traceable for at least 80 years.

—— We are sorry to hear of a disaster in Mr. Willoughby Wood's herd — a valuable heifer, *Florence 7th*, near her calving, having died from injuries received during a fight with another cow. They had come into the house from being watered, and, quarrelling there, were separated with difficulty; and she was found to have been injured in the spine, dying a few days afterwards.

—— Warlaby, too, has had to lament during the past week the loss of the grand cow *Lady Joyful*, which has slipped and broken both her thighs, and died last Friday.

Home Correspondence.

The Use and Advantages of a Board of Agriculture.—It is somewhat more than 50 years since our Board of Agriculture became a "thing of the past." It was designed as a common centre for all classes of agriculturists, and its chief objects were the removal of obstacles to improvement, relieving agriculture from its peculiar burthens, collecting and diffusing information, seeking a preference in the home market for its produce, extending cultivation by every prudent means, seeking public aid to improve roads, bridges, canals, &c., promoting great and extensive improvements which might be beyond individual means. To diffuse information, its aim was to form institutions for that purpose, establish experimental farms, agricultural professorships, and improve veterinary practice. It was the means of exciting a wide spirit of inquiry, and ultimately of effecting great good as the progenitor of our modern agriculture. Government, amongst other reductions of taxation at the close of the great war, withdrew its annual grant, thus causing it to come to grief. It is positively astonishing to see the advances that our agriculture has attained since that period. The Board of that day held out to the aspiring agriculturist the hope that at some future day, "on the most fertile soils and most propitious seasons," he might "reap from 32 to 40 bushels of Wheat, 42 to 50 bushels of Barley, 52 to 64 bushels of Oats, and 28 to 32 bushels of Beans per statute acre," and a green crop of 30 tons of Turnips per acre. This was about the utmost of their hopes in those days. We are now happy to find these hopes not only realised, but altogether exceeded, even on our inferior soils; and our best soils far exceed it. We therefore are in many respects in the happy position in which our forefathers hoped some day to place us, and with these wonderful attainments have sprung up other interests, other difficulties, other wants besides those named above. We have become an importing country to an immense extent—of grain in almost untold quantities; cattle, and other farm stock in very great numbers; feeding stuffs in great variety and surprising amount; manures of various kinds and in astonishing tonnage; wool to an extent beyond belief. Our manufactures, trade, and commerce have increased in like proportion. Our implement trade is enormous, both at home and abroad. Our agriculturists have most advantageously and creditably taken a persevering action upon all this. They apply a large proportion of grain as well as immense quantities of the usual feeding stuffs in rearing and fattening the extraordinary numbers of farm stock brought into the market. They use enormous quantities of artificial manures for the growth of Potatos, and other green food crops. They employ a large amount of labour in culture, attendance upon stock, and general farm management; in fact, making it a commercial as well as a practical business—the increase of farm produce being estimated to exceed 75 per cent. above the produce accruing at the death of the late Board of Agriculture; we have, therefore, a highly improving agriculture to foster and protect, and have to guard it against new and unforeseen inflictions from foreign importations of un-English diseases. We are threatened with restrictions upon field-labour; we have all the burthens, with other additions, upon land that were on when the above Board was formed, and all its obstacles and objects still to contend with. We want regular and the earliest information, from every quarter of the world, for our use, guidance, and protection. We have agricultural societies in every locality, Farmers' Clubs in every important district, Chambers of Agriculture rising up everywhere; we possess the most wealth, the greatest influence, in the country, but we have no head, no common centre. We most urgently require, and we must never rest till we possess, a Board of Agriculture. If ever it was wanted, now is the time. What with cattle plague slaughter and quarantine regulations, local restrictions for cattle, the Malt-tax, tithe averages, national rating, employment of women and children in agriculture, and a host of minor questions—we have enough and to spare for any Board that may be formed to do. We must have a truly practical Board, a working president, after the C. S. Read type; we want but a small staff, no elaborate combinations: a board simply to watch over our interests, and do all they can to improve and benefit our agriculture. *O. F.*

Retailers' Profits.—As you are discussing the possibility of saving for consumers something of what the public loses in the shape of retailers' profits, I venture to send you a report of what has been done by our Co-operative Agricultural Association. This society was commenced a little while ago by a few gentlemen, with a view of stopping adulteration in seeds, manures, and feeding stuffs, and of enabling farmers and landowners to supply themselves with the best machinery at wholesale prices. We began with 10 members, increasing in three months to 44, and our subscribed capital amounts to 400*l.*, and we have on our books over 100 customers dealing with us as non-members. Taking the average capital in our hands during the quarter at 327*l.*, we have turned it over no less than four times, transacting 1374*l.* 16*s.* 5*d.* of business, and realising gross profits nearly equal to the amount of capital with which we commenced—a remarkable proof of the advantages which can be easily obtained by a few cash buyers associating themselves together under co-operative arrangements. The working expenses have inevitably been large, but the arrangements now organised will suffice for a very much more extensive business. In consequence of so large a number of our friends being reluctant at first to join the association, but willing to assist by purchasing through our agency, we have cleared our working expenses without touching the profits of our members, and we are thus in a position to return now to the latter the maximum dividend of 7½ per cent. per annum on their capital, and three-fourths of the trade discounts realised on their purchases; to non-members three-eighths of theirs; and to reserve a small surplus as the nucleus of a reserve fund. The return to our members under this arrangement will be equal to a discount of 11 per cent. on their purchases, besides fair interest on their investments. We are now gaining strength daily, and have a confident assurance of ultimate success. *Edward Owen Greening.*

Societies.

ROYAL AGRICULTURAL OF ENGLAND.

THE General Meeting of the members of this Society was held in the society's rooms, in Hanover Square, on Wednesday, his Grace the Duke of Richmond in the chair, when the following report was read by Mr. Hall Dare, the secretary:—

ANNUAL REPORT.

Since the last General Meeting in May, one governor and 97 members have died, and 177 new members have been elected, so that the Society now consists of 76 life governors, 82 annual governors, 1383 life members, 4001 annual members, and 15 honorary members; making a total of 5557.

Mr. John Baldwin, of Luddington, Stratford-on-Avon, Warwickshire, has been elected a member of Council in the room of Mr. Pope, deceased.

The half-yearly statement of accounts to the 30th of June, 1867, has been examined and approved by the auditors and accountants of the Society, and has been furnished to all members in the last number of the Journal. In consequence of the large expenses attendant on the Show at Bury St. Edmund's, and the protracted trials of implements, the Council has been compelled to sell out 2000*l.* of the funded property, which now stands at 16,027*l.* 19*s.* 7*d.* in the New Three per Cents., and the cash balance in the hands of the bankers on the 1st inst. was 369*l.* 8*s.* 1*d.*

The collection of the arrears of subscription has been steadily progressing, nevertheless a considerable sum is still due to the Society. It is found that many members cease to pay their subscriptions under the impression that in this way they can terminate their membership; but the Council desire to remind them that by the by-laws of the Society all members are bound to pay the annual subscription until they shall withdraw by a notice in writing to the secretary.

Notwithstanding the unavoidable absence of cattle, the show-yard at Bury St. Edmund's was well filled with a fine display of horses, sheep, pigs, and poultry, and was remarkable for the most extensive collection of implements and machinery yet brought together.

The Mayor and Corporation of Bury St. Edmund's and the local committee used every exertion to forward the wishes of the Society during the preparations for the meeting and the period of holding it.

The Council have purchased an entirely new set of offices and entrances for the show-yard, at a cost of 806*l.*, which it is hoped will last for many years. They have every reason to be satisfied with the new contractor for the show-yard works, (Mr. Penny,) and have given him the contract for a further term of 4 years.

The Council have settled the live stock and implement prize sheets for the Country Meeting to be held next year at Leicester, and, with a view of enabling the stock and the men in charge to return home with an absence of only one Sunday, have arranged that the Show shall open on Thursday the 16th and close on Tuesday the 21st of July.

The list of implements for trial will comprise ploughs, cultivators, harrows, cloderushers, rollers, tile and brick machines, and draining tools; and prizes amounting to 225*l.* will be offered for the best application of steam-power to the cultivation of the soil. The sum of 259*l.* is offered in prizes for live stock, to which 227*l.* has been added by the Leicestershire and Waltham and the Loughborough Agricultural Societies; and 100*l.* has been offered by the Sparkenhoe Farmers' Club in prizes for cheese.

It has been resolved by the Council to apportion England and Wales into eight districts as follows—

A. Durham, Northumberland, and North and East Ridings of Yorkshire
B. Cumberland, Lancashire, Westmoreland, and West Riding of Yorkshire
C. Derbyshire, Leicestershire, Lincolnshire, Northamptonshire, Nottinghamshire, Rutlandshire, and Warwickshire
D. Bedfordshire, Cambridgeshire, Essex, Hertfordshire, Huntingdonshire, Norfolk, and Suffolk
E. Berkshire, Buckinghamshire, Hampshire, Kent, Middlesex, Oxfordshire, Surrey, and Sussex
F. Cornwall, Devonshire, Dorsetshire, Somersetshire, and Wiltshire
G. Gloucestershire, Herefordshire, Monmouthshire, Worcestershire, and South Wales
H. Cheshire, Shropshire, Staffordshire, and North Wales.

The Council have determined that district B, comprising the counties of Cumberland, Lancashire, Westmoreland, and the West Riding of Yorkshire, be selected for the Country Meeting of 1869.

During the course of this year alterations have been made in the scheme of education adopted by the Council; it is no longer connected with the Cambridge and Oxford Middle Class examinations.

The next examination is fixed to take place at the Society's house in Hanover Square, during the week commencing April 20th, 1868. Forms of entry are prepared, to be duly filled up and returned to the secretary (together with a certificate of having acquired the elements of general educa-

tion), on or before the 29th February next. Any member of the Society may be present at an examination. On this occasion it is not thought advisable to place any limit on the ages of candidates from the desire to remove every obstacle in the first instance to a candidate coming forward; with the same object in view an unsuccessful candidate at one examination (unless some reason should intervene beyond mere want of success), will be permitted to compete at a subsequent examination.

Every candidate will be required to satisfy the examiners as to his knowledge of the science and practice of agriculture, and likewise as to proficiency in bookkeeping; and he must pass an examination either in land surveying or in mechanics as applied to agriculture. Beyond this it is left to his option which one of the following three subjects he will take up, viz., botany, geology, or veterinary science.

Successful candidates are to be placed in two classes, and will stand in order of merit. Certificates (specifying the subject in which a candidate shall have satisfied the examiners) will be granted to successful candidates, and any one obtaining a first-class certificate shall thereby become a life member of the Society. These, with additional prizes in money or books, constitute the rewards held out to competitors.—By order of the Council. H. HALL DARE, Secretary.

DISCUSSION.

Mr. S. SIDNEY moved the adoption of the report, and in so doing referred to the loss which the Society had sustained by the death of Mr. E. Pope—to the need of all possible urgency being brought to bear by the Society upon the Government in reference to cattle plague legislation, so that the chances of any re-importation of the plague might be reduced to a *minimum*—to the importance of re-organising the whole system of implement trials at the country meetings, so that we should really learn from them something of the practical value of the implements that are being tried—to the need of enlisting the services of practical and experienced men, and not depending, as heretofore, so much on the enthusiasm of amateurs. Mr. Sidney praised the plan of subdividing the country into smaller districts, which had been adopted for the successive annual visits of the Society.

The motion was seconded by Mr. Neeld from Lancashire, who referred to the fact that although 126 members of the Society resided in that county, no one of the tenant-farmer class was on the Council of the Society. The number of the members of the Society was very small, considering the interests they promoted, and would be increased if the membership of the Council were more evenly distributed.

Mr. ARKELL, of Swindon, then called attention to the management of the Society, which must be wanting in energy and life, or the membership would not be so stationary as it is. He suggested that it was not at all desirable to accumulate money, that it was rather advisable to seek out useful ways of spending the money that was entrusted to the Council for the purposes of the Society. He recommended, among other things, the appointment of a permanent officer of the Society, who, as Dr. Voelcker in chemistry, and Professor Simonds in veterinary subjects, should be the Society's Professor in all matters relating to the health of plants. During his career as a farmer he had noticed how every new plant cultivated with great success for many years after its introduction at length became liable to the attacks of blights and insects. In former years Mr. Curtis had contributed many papers to the Journal of the Society which threw light on some of these diseases; but for many years nothing had appeared on the subject in the Journal. And he concluded, that either Mr. Curtis was dead or the Council was asleep! At present Turnips are being affected with what appears to him a new disease, affecting the leaf and ultimately the life of the plant. A gentleman out of the city, to whom he had referred the thing, supposed it might be owing to the excessive use of artificial manures. The countryman believed that the citizen must know all about it, and was thus in danger of being misled for want of some authority to whom he could refer such questions. He thought the gap left by Mr. Curtis' death ought to be filled up, and that the Society should establish a professorship through which agriculturists might obtain all the assistance which science could give them in connection with the diseases to which their crops are liable. He referred to articles on this subject which had appeared in the *Agricultural Gazette*, and in particular to one signed "M. J. B.," on certain blights which had appeared in Australia—the so-called "Take all" being one of them. What a disaster it would be if any "Take-all" should attack English crops, and how great the need of some authority, like the Rev. M. J. Berkeley, being at hand as an officer of the English Agricultural Society to advise its members in such a case.

Mr. S. SIDNEY again called attention to the need of an attempt being made by the Council of the Society to obtain a report of the existing agricultural experience of the country. A committee should be appointed, who would call to their assistance the best authorities in every department of agriculture, and who should then frame a series of questions to be distributed broadcast throughout the country. It only needed that a certain proportion of these questions should be answered, and the answers would furnish the materials of a much more life-like and trustworthy report than could be obtained in any other way. The thing had been to some extent attempted, with a most successful result, as the report on steam cultivation, in the last volume of the Journal, would testify. And his own experience as an agricultural writer proved that the plan he recommended was the best for eliciting the latest agricultural experience, and this was what was wanted for the guidance of the future.

Colonel CHALLONER referred to the fact that Mr. Sidney's idea of the importance of distinct reports had all along been recognised by the Council, and that the result had been a series of essays on the agriculture of the different counties, which form some of the best of the papers in the Society's Journal.

Mr. C. S. READ, M.P., defended the Council from Mr. Arkell's charge of sleepiness. The fault lay in the apathy, not of the Council, but of the general body of members, who would render the greatest service if they could suggest subjects for discussion in the Journal, which Journal, however, already contained the information on the diseases of plants which Mr. Arkell desired to possess.

The CHAIRMAN (his Grace the Duke of Richmond) said Mr. Arkell had blamed the Council for not taking active steps to investigate the diseases of plants, but if he would take the general index of the volumes from 1 to 25 he would find the matter treated of frequently.

Mr. ARKELL said that those communications dated back so far as 1843.

The CHAIRMAN said that the more they could secure the suggestions of practical men upon this matter the better would it be for them, but he did not think they were so deficient in knowledge upon this topic as Mr. Arkell would suppose. He thought the suggestion of Mr. Sidney as to the making of a fresh agricultural survey a valuable one. With reference to the question of agricultural statistics there was no subject on which there was greater difference of opinion among farmers. He thought these statistics might prove very valuable, and in the office which he held at the Board of Trade he had endeavoured this year, and should continue his efforts next year, to get certain statistics, which would be obtained permissively, and he thought that by such means important knowledge might be acquired. If such information were afforded, it was likely to prove beneficial to the farmers as well as the public. He was endeavouring to draw up some papers with the view of securing returns which were very desirable, and he hoped that his endeavours would meet with the support of the farmers in general.

Mr. ALBERT PELL moved a vote of thanks to the Chairman. He suggested that it was desirable to offer prizes for essays bearing upon the social condition of the labourer with reference to his food, and his general mode of life and domestic economy. The question of improved dwellings for the poor in rural districts, as well as in the towns, was of very high importance.

Colonel CHALLONER seconded the vote of thanks to the Chairman, which was passed unanimously.

The Duke of RICHMOND returned thanks. One great difficulty in the way of securing statistics arose from the unwillingness of farmers in particular districts to afford information. As regarded the importation of cattle he hoped that the Bill prepared by the Government regulating the slaughter of animals would meet the difficulties of the case; and, speaking as a large flockmaster, he hoped that sheep would be included within the provisions of the measure.

THE SMITHFIELD CLUB CATTLE SHOW.

THE Annual Show of the Smithfield Club, which opened on Monday at the Agricultural Hall, has attracted large crowds during the past week. About 60,000 persons visited it up till Wednesday night, and 37,000 on Thursday. It is upon the whole as good a show as has yet been seen: rather shorter than usual in the Pig classes, of more than average excellence in sheep, especially good in some classes of Hereford cattle, and, of average merit in most of the Shorthorn classes, of more than average merit in the Devons.

THE CATTLE CLASSES.

The Devons, which stand first in the catalogue, include 31 head of cattle, in five classes. Among the younger class of steers Her Majesty the Queen takes the 1st prize with a very good specimen of the breed, level over the back, of great thickness and depth in the hind quarters, very ripe and even everywhere. The 2d prize goes to Mr. J. H. Buller, of Crediton, for a steer rather smaller behind, but well covered with thick flesh over rib and flank. Mr. Frampton, of Blandford, is commended for a steer clearly inferior to the others, coarser on the shoulder, and not so well covered on the rib.—Among the older oxen, Mr. Smith, of Exeter, takes the 1st prize with the ox which was also 1st at Bingley Hall, with a thickly covered back, great long hind-quarters, and deep flank; Mr. Overman's 2d prize ox, especially good over the fore rib, is a deep-bodied beast of good quality. In this class Messrs. Farthing and Frampton are highly commended.—The oxen over 3½ years old are a very good class. Mr. Smith is again 1st with a large flat-topped ox of good quality; Mr. Farthing 2d, with a rather flat-sided beast, somewhat patchy behind; Mr. Farquharson 3d, with an ox of rare quality, but rather drooping at the rump; Mr. Overman's dark, almost brindled ox, and Mr. Buller's are highly commended.—A very pretty little class of Devon heifers includes Mr. Burton's straight and beautiful heifer, as truly cylindrical forwards as if the body had been turned in a lathe; Mr. Barrington's, extraordinary over loin and back, well covered with firm flesh; and the Queen, 3d prize heifer, with flat-topped back. Mr. Smith, unsuccessful in this class, is commended.—The cow class includes Mr. Farthing's large 1st prize cow, very thickly covered all along the back, and with great flank, but patchy over rump, and rather thin through the thighs; Mr. Coates' long and large fat cow, thickly covered on the loin, and taking the 2d prize; Mr. Taylor's very fat, but rather patchy cow, which is placed 3d. Mr. Farthing is commended.

DEVON PRIZE LIST.

CLASS 1. Devon Steers, not exceeding 2 years and 6 months old.—1st, 20*l.*, Her Majesty the Queen, the Prince Consort's Norfolk Farm, Windsor. Silver Medal to the Breeder, Her Majesty the Queen. 2d, 10*l.*, James Howard Buller, of Downes' Farm, Crediton, Devon.

CLASS 2. Devon Steers, not exceeding 3 years and 3 months old.—1st, 30*l.*, William Smith, of Higher Hoopern, Exeter, Devon. Silver Medal to the breeder, William Smith. 2d, 20*l.*, John Overman, of Burnham Sutton, Lynn, Burnham Market, Norfolk; 3d, 10*l.*, William Taylor, of Glenley, Westham, Eastbourne, Sussex.

CLASS 3. Devon Steers or Oxen above 3 years and 3 months old.—1st, 30*l.*, William Smith, of Higher Hoopern, Exeter, Devon. Silver Medal to the breeder, James Davy, of Flitton Barton, North Molton, Devon. 2d, 20*l.*, Walter Farthing, of Stower Court, Bridgewater, Somerset; 3d, 10*l.*, James John Farquharson, of Langton House, Blandford, Dorset.

CLASS 4. Devon Heifers, not exceeding 4 years old.—1st, 25*l.*, Richard Burton, of Place Barton, Broadclyst, Devon. Silver Medal to the breeder, George Gibbs, of Bishop's Lydeard, Taunton, Somerset. 2d, 15*l.*, W. Barrington, of Thorley, Yarmouth, Isle of Wight; 3d, 10*l.*, Her Majesty the Queen, the Prince Consort's Norfolk Farm, Windsor.

CLASS 5. Devon Cows above 4 years old.—1st, 25*l.*, Walter Farthing, of Stowey Court, Bridgewater, Somerset. Silver Medal to the breeder, John Tapp, of Burch Twitchen, South Molton, Devon. 2d, 15*l.*, John Coate, of Hammoon, Blandford, Dorset; 3d, 10*l.*, William Taylor, of Glenley, Westham, Eastbourne, Sussex.

The Hereford Classes include about three dozen entries, but several of these have not appeared. Of these some shown at Bingley Hall had their merits so conclusively decided there that it was not worth while submitting them to competition again; and one, a heifer, we believe of Mr. Baldwin's, which had been successful at Bingley Hall, went home to calve! A small class of younger steers includes Mr. R. Hill's very remarkable 2 years and 5 months old steer, extraordinarily fat everywhere, a little loose in the handling, and somewhat patchy behind. He takes the 1st prize. Mr. Tudge, of Leintwardine, takes the 2d prize with a much inferior ox; and Mr. Arkwright is highly commended.—The middle class of oxen includes very good animals by Mr. Beach, Her Majesty the Queen, and Mr. Benjamin Cocks, placed respectively 1st, 2d, and 3d; the first very thick and fat, especially on fore quarter and shoulder; the second an exceedingly well bred beast; the third stocky, thick, and rough-coated.—The older class of oxen are very good indeed, and here the awards of the judges have not been satisfactory. One of the best beasts in the class, shown by Mr. Lewis Loyd, receives no prize at all, notwithstanding that for evenness, and quality, and breeding, he is not surpassed by any in the yard. Mr. Beach's 1st prize ox is very massive and good, a little coarse perhaps in places, but good on rib, and back, and flank. The 2d prize goes to Mr. Pitt, for a rather coarse ox, thick forward, and somewhat drooping behind, which shown at Birmingham received no notice at all in its class; while Mr. Aaron Pike's ox, which stood 1st in its class at Bingley Hall, is unnoticed here. There are many good oxen in this class. Mr. Turner and Mr. Loyd are highly commended, and the Earl of Darnley is commended.—The heifer class includes Mr. Bettridge's wonderful heifer, which carried off so many prizes at Bingley Hall, and is here again pronounced the best female in the yard. Mr. Arkwright, second at Birmingham, is also second here; and the Queen sends a heifer very thickly covered on the loin, which is placed 3d. Mr. James's heifer is commended.—The cows are a greatly diminished class. Mr. Bettridge is 1st here again, as he was at Bingley Hall, with his well-topped, even, smooth, and well-bred cow. Mr. Groves is 2d, with a cow clearly inferior to the other; and Mr. James is 3d, with a rather unevenly fattened beast—full behind shoulder, hollow in the flank, and patchy behind.

HEREFORD PRIZE LIST.

CLASS 6. Hereford Steers, not exceeding 2 years and 6 months old.—1st, 20*l.*, Richard Hill, of Orleton Court, Ludlow, Salop. Silver Medal to the breeder, Richard Hill. 2d, 10*l.*, William Tudge, of Adforton, Leintwardine, Herefordshire.

CLASS 7. Hereford Steers, not exceeding 3 years and 3 months old.—1st, 30*l.*, Joseph Beach, of The Hattons and Flour Mills, Dudley, Worcester. Silver Medal to the breeder, the late E. Edwards, of Bawcott. 2d, 20*l.*, Her Majesty the Queen, the Prince Consort's Flemish Farm, Windsor; 3d, 10*l.*, Benjamin Cocks, of Twyford, Church Stretton, Salop.

CLASS 8. Hereford Steers or Oxen above 3 years and 3 months old.—1st, 30*l.*, Joseph Beach, of The Hattons and Flour Mills, Dudley, Worcester. Silver Medal to the breeder, Richard Shirley, of Bawcott, Munslow, Church Stretton, Salop. 2d, 20*l.*, George Pitt, of Chadnor Court, Dilwyn, Leominster, Hereford; 3d, 10*l.*, John Edwin Jones, of Springfield, near Hereford,

CLASS 9. Hereford Heifers, not exceeding 4 years old.—1st, 25*l.*, Henry Bettridge, of East Hanney, Wantage, Berks. Silver Medal to the breeder, E. Tanner, of Bromfield, Salop. 2d, 15*l.*, John Hungerford Arkwright, of Hampton Court, Leominster, Hereford; 3d, 10*l.*, Her Majesty the Queen, the Prince Consort's Flemish Farm, Windsor.

CLASS 10. Hereford Cows, above 4 years old.—1st, 25*l.*, Henry Bettridge, of East Hanney, Wantage, Berks. Silver Medal to the breeder, Samuel Griffiths, of Brierly, near Leominster, Hereford. 2d, 15*l.*, R. V. C. Groves, of Berrington, Salop; 3d, 10*l.*, A. James, of Monnington-on-Wye, Hereford.

Shorthorns include nearly as many entries as the two other breeds together. In the class of younger steers the Duke of Sutherland is 1st, with a very well topped light roan; the Earl of Aylesford, 2d, with a well-fed evenly covered, not over-fat, well-bred ox, square and deep and level; and the Rev. W. H. Beever is commended.—In the older class of steers, Mr. Foljambe takes the 1st prize, with a red roan ox bred from the Wiseton herd, wonderfully well topped, up standing, very thickly covered, especially above; Lord Aylesford is again 2d, and Mr. Stratton 3d, with an evenly covered well-bred beast, especially good over rib and back; Messrs. Leney are highly commended; and Sir W. de C. Brooke is commended. Mr. Ruck shows a good white ox, not so good, however, on the quarter as he is forward. The oldest class of oxen includes a large number of entries, forming a very handsome collection. Mr. Walters' ox, thick over back and rib; Mr. Pulver's large and square, but common looking; Lord Howe's, rather patchy; Mr. Coleman's, a very good white ox. The Duke of Beaufort takes the 1st prize with a red roan, ripe and good along back and forward, rather plain behind. Mr. Wood, with his lon white ox, of superb quality of flesh and admirable symmetry, is 3d here, having been 2d at Bingley Hall; and Lord Penrhyn is 2d with an ox very thickly covered over rib and flank; Mr. Walter and Mr. Coleman commended, and Mr. Pulver highly commended.—The heifer class is very beautiful. Mr. Stratton's very

pretty heifer is 1st—round, and true, and even; Lord Feversham's, square behind, deep, but somewhat flat-sided, is 2d.; the Prince of Wales sends a very ripe, short-legged, white heifer; Lord Hardwicke's light roan is 3d; Mr. Seymour, of Boston, is highly commended.—The cows are a very grand class indeed. They include Mr. Dugdale's *Kent Cherry*, sold at Mr. Hale's sale as a calf for 70 guineas, and descended from the Tortworth herd; *Kent Cherry* is now a great, massive, flat-topped cow, and thick, with firm flesh all along the back: she takes the 1st prize. The Duke of Sutherland's fine cow, first in this class at Bingley Hall, takes no prize here. Messrs. Leney show a rather patchy but thickly covered cow. The Queen exhibits in this class. Mr. Masters, of Bedford, has a good cow, Mr. Taylor, of Maldon, shows a very massive, great, but common-looking cow, which takes the 2d prize; and Mr. Mead's 3l prize cow is well covered, thick, and good. The Duke of Sutherland is highly commended, and so is Mr. Stratton, of Walls Court, Bristol.

SHORTHORN PRIZES.

CLASS 11. Shorthorned Steers, not exceeding 2 years and 6 months old.—1st, 20*l.*, His Grace the Duke of Sutherland, of Lilleburst, Newport, Salop. Silver Medal to the breeder, His Grace the Duke of Sutherland. 2d, 10*l.*, the Earl of Aylesford, of Packington Hall, Coventry, Warwick.

CLASS 12. Shorthorned Steers, not exceeding 3 years and 3 months old.—1st, 30*l.*, G. S. Foljambe, of Osberton Hall, Worksop, Nottingham. Silver Medal to the breeder, G. S. Foljambe. 2d, 20*l.*, the Earl of Aylesford, of Packington Hall, Warwick; 3d, 10*l.*, R. Stratton, of Wall's Court, Bristol.

CLASS 13. Shorthorned Steers or Oxen above 3 years and 3 months old.—1st, 30*l.*, the Duke of Beaufort, of Badminton, Chippenham, Wilts. Silver Medal to the breeder, W. Butler of Badminton, Chippenham. 2d, 20*l.*, Lord Penrhyn, of Penrhyn Castle, Bangor, Carnarvon; 3d, 10*l.*, Rowland Wood, of Clapton, Thrapstone, Northamptonshire.

CLASS 14. Shorthorned Heifers not exceeding 4 years old.—1st, 25*l.*, Richard Stretton, of Wall's Court, Bristol. Silver Medal to the breeder, Richard Stretton. 2d, 15*l.*, Lord Feversham, of Duncombe Park, Helmsley, Yorkshire; 3d, 10*l.*, the Earl of Hardwicke, of Wimpole, Arrington, Cambridge.

CLASS 15. Shorthorned Cows above 4 years old.—1st, 25*l.*, Adam Dugdale, of Rose Hill, Burnley, Lancashire. Silver Medal to the breeder, E. Hales, of North Frith, Tonbridge, Kent. 2d, 15*l.*, Richard Taylor, of Hazeleigh Hall, Maldon, Essex; 3d, 10*l.*, Thomas Mead, of Wilstone, Tring, Herts.

We now come to the breeds of secondary importance. The Sussex breed are very finely represented. Mr. Shoosmith and Mr. Coote show heifers almost equal in quality to Devons.—There is a small but very pretty class of Norfolk cows. Two long-bodied, long-horned cattle are exhibited. Sir J. H. Crew's ox has got its horns fairly tied together under its chin. The Kyloes are not in great number. The Duke of Sutherland's brindled red ox is remarkably good; and Captain Gunter takes a prize for a cow. The Scotch polled breed is represented by a few large Angus oxen, and among them Mr. M'Combie's wonderful ox, referred to last week, which has since paid a visit to Windsor, where he was honoured with the inspection of the Queen. He takes the prize here as the best ox in the yard.—The Irish and Welsh breeds are very imperfectly represented. Lord Berners shows a very pretty Kerry. Among the cross-bred cattle are a number of very good beasts, but nothing equal to specimens which have before been shown. The extra stock are a short class.

The following are the awards:—

CLASS 16. Sussex Steers or Oxen not exceeding 3 years old.—1st, 20*l.*, G. C. Coote, of Tortington, Arundel, Sussex. Silver Medal to the breeder, G. C. Coote. 2d, 10*l.*, John and Alfred Heasman, of Angmering, Arundel, Sussex.

CLASS 17. Sussex Steers or Oxen above 3 years old.—1st, 25*l.*, John and Alfred Heasman, of Angmering, Arundel, Sussex. Silver Medal to the breeders, John and Alfred Heasman. 2d, 15*l.*, William Botting, of Westmeston Place, Hurstpierpoint, Sussex; 3d, 10*l.*, George C. Coote, of Tortington, Arundel, Sussex.

CLASS 18. Sussex Heifers not exceeding 4 years old.—1st, 20*l.*, John Shoosmith, of Berwick, Lewes, Sussex. Silver Medal to the breeder, John Shoosmith. 2d, 15*l.*, Edward Cane, of Berwick Court, Lewes, Sussex.

CLASS 19. Sussex Cows above 4 years old.—1st, 20*l.*, George C. Coote, of Tortington, Arundel, Sussex. Silver Medal to the breeder, George C. Coote. 2d, 15*l.*, Tilden Smith, of Knell Beckley, Sussex.

CLASS 20. Norfolk or Suffolk Polled Steers or Oxen of any age.—1st, 15*l.* (withheld); 2d, 10*l.*, John Sewell, of North Pickenham, Swaffham, Norfolk.

CLASS 21. Norfolk or Suffolk Polled Heifers or Cows of any age.—1st, 15*l.*, William Mayes Bond, of Bacton, North Walsham, Norfolk. Silver Medal to the breeder, William Mayes Bond. 2d, 10*l.*, William Postle, of Smallburgh Hall, Norwich, Norfolk.

CLASS 22. Longhorned Steers or Oxen of any age.—10*l.*, Sir John Harpur Crewe, Bart., of Calke Abbey, Derby. Silver Medal to the breeder, Sir John Harpur Crewe, Bart.

CLASS 23. Long-horned Heifers or Cows of any age.—1st, 10*l.*, W. T. Cox, of Spondon Hall, Derby. Silver Medal to the breeder, W. T. Cox.

CLASS 24. Scotch Horned Steers or Oxen of any age.—1st, 30*l.*, the Duke of Sutherland, of Dunrobin Castle, Golspie, N.B. Silver Medal to the breeder, the Duke of Sutherland. 2d, 15*l.*, the Earl of Derby, of Knowsley, Prescot, Lancashire.

CLASS 25. Scotch Horned Heifers or Cows of any age.—1st, 15*l.*, Captain R. Gunter, of the Grange, Wetherby, York.

CLASS 26. Scotch Polled Steers or Oxen of any age.—1st, 30*l.*, William M'Combie, of Tillyfour, Aberdeen, N.B. Silver Medal to the breeder, William M'Combie. 2d, 15*l.*, Andrew Longmore, of Linksfield, Rattie, Banff.

CLASS 27. Scotch Polled Heifers or Cows of any age.—1st, 15*l.*, James Reed, of Graystone, Alford, Aberdeen. Silver Medal to the breeder, the Executors of the late Andrew Wilson, of Waterside, Forbes, Aberdeenshire. 2d, 10*l.*, the Duke of Buccleuch and Queensberry, of Tibbers, Thornhill, Dumfries.

CLASS 28. Irish Steers or Oxen of any age.—1st, 10*l.*, Robert Wortley, of Suffield, Aylsham, Norfolk; 2d, 5*l.*, Lord Berners, of Keythorpe Hall, Leicester.

CLASS 29. Irish Heifers or Cows of any age.—1st, 10*l.*, Lord Berners, of Keythorpe Hall, Leicester.

CLASS 30. Welsh Steers or Oxen (Runts), of any age.—1st, 20*l.*, Lord Penrhyn, of Penrhyn Castle, Bangor, Carnarvon. Silver Medal to the Breeder, H. B. Roberts, of Trefarthen, Llanidan, Anglesea. 2d, 10*l.*, Captain H. Platt, of Bryn y Newadd, Bangor, Carnarvon.

CLASS 31. Welsh Heifers or Cows, of any age.—1st, 10*l.*, Owen Philipps, of Trerifftth, Cardigan. Silver Medal to the breeder, Owen Philipps.

CLASS 32. Cross or Mixed-bred Steers not exceeding 3 years old.—1st, 25*l.*, James Stewart, 29, Union Street, Aberdeen. Silver Medal to the breeder, Thomas Garland, of Ellon, Aberdeen. 2d, 15*l.*, James D. Allen, of Tisbury, Salisbury, Wiltshire; 3d, 10*l.*, Richard Burton, of Place Barton, Broadclyst, Devon.

CLASS 33. Cross or Mixed-bred Steers or Oxen above 3 years old.—1st, 25*l.*, John Overman, of Burnham Sutton, Lynn, Norfolk. Silver Medal to the breeder, John Overman. 2d, 15*l.*, Joseph Beach, of The Hattons and Flour Mills, Dudley, Worcester; 3d, 10*l.*, Colonel Robert Loyd Lindsay, M.P., of Lockinge Park, Wantage, Berks.

CLASS 34. Cross or Mixed-bred Heifers not exceeding 4 years old.—1st, 20*l.*, the Duke of Beaufort, of Badminton, Chippenham, Wilts. Silver Medal to the breeder, the Duke of Beaufort. 2d, 10*l.*, J. & W. Martin, of Newmarket, Aberdeen.

SHEEP.

The sheep are a most excellent show. For real prime quality and useful proportions of fat and lean the various classes were never surpassed, if they were ever equalled. British farmers seem now to have arrived as near as possible to perfection in the art of breeding and feeding these most valuable of all domestic animals, that is, in such a variable climate as our own. It is to be hoped a due caution will henceforth be exercised, so that the temptation to try to do something which is super-excellent may not cause his art to so overleap Nature as to become the agent of its own defeat.

The Leicesters have still the pride of place conferred on them, by being placed first on the list. This pure breed presents a living caution in support of the general view which we have just given. Fineness of form and purity of colour and wool have been carried with them to so great an extremity, that the flocks which stood highest in the estimation of many judges a few years since have become comparatively valueless for the practical purposes which are tested by weights, scales, and prices current; and this, not only in regard to the food they produce, but the raw material of wearing apparel which they yield. Under this condition, to which the Leicesters have come down, it could not be expected that a large number of pens would be shown: there were only nine. Lord Berners was first in both the light and heavy classes, or rather in the class under 220 lb. live weight, and in the class as much over that weight as the sheep would run, which was not much. These 1st prize pens were the perfection of symmetry and feeding, but beyond this, as we must have an eye to profit, we cannot venture. The two pens of G. S. Foljambe, Esq., were equally pretty, but those in the class of the larger size were small; while the other pen, for which he was awarded 2d, were well grown, and their wool was remarkably fine and luxuriant.

The Cotswold pens were only four, which reflects somewhat strangely on the many breeders of these high-priced sheep. Mr. Hitchcock, said to be a fresh exhibitor, was 1st, and the Messrs. West, who were distanced at Birmingham for the first time for some years, here came in 2d.

Lincolns came next, and were scarcely more numerous. But Mr. T. R. Casswell, who made a selection from his brother Henry's Laughton tegs, brought a pen that were remarkable for compactness, firmness, weight, and a heavy fleece of lustrous wool. The Romney Marsh, which are said to be very useful on their native soil, and the other long-wool sheep not being Leicesters, were of no public interest beyond that which is recorded in our prize list.

Southdowns as usual were most interesting, both to judges and unsophisticated spectators. Lord Walsingham again stood double 1st, as he took the 1st prize for his heavy-weight shearlings, and the cup for the best pen of any kind of Downs. This was certainly a pen of perfect sheep. Sir William Throckmorton was here a remarkably good 2d. His sheep have better scraggs than the Merton sheep, and, as we think, nobler heads. In the class under 200 lb. live weight, the Merton flock was, however, fairly beaten by Lord Braybrooke, who sent a very fine pen of sheep covered with such a pile of thrifty wool, as no other Southdowns in the Hall exhibited. Mr. Rigden's 3d prize sheep were pictures for symmetry, while they were excellent in their touch from the skill with which their feeding had been directed, but their want of weight was indicated by the weaker character of their heads and the weakness of their necks. The two-year-old Southdowns were remarkable for weight in a compact form. Lord Walsingham was again an easy winner, but with the Earl of Radnor well up as 2d, the third pen being irregular in size, and Mr. Overman's unrefined in appearance, although their weight was ample for this breed. With such a pen as the 3d prize were, why it was that the Duke of Richmond's sheep were only "commended" is one of the incidents of these shows which, as Lord Dundreary would say, "no one can understand"—excepting of course the authorities.

There were some extraordinarily good sheep in the Hants and Wilts Downs. The substance of these sheep, "coarse," as they are now called, will be fallen back upon some day when refining and refining, by in-and-in breeding and selection, have reduced other flocks to the condition of the Leicesters. Among the Hants, Mr. Canning's 1st prize shearlings were enormous for weight, and their quality of flesh was excellent, albeit their ears did "lop," and the heads on which they were set were something prominent in front and heavy altogether.

The Shropshires made a fair show as to numbers, and a capital one as regards size, quality of flesh, and quantity of wool. Singularly enough, in both classes the prizes stood as they did at Birmingham, Messrs. Nock, Matthews, and Beach respectively in the shearlings, and Lord Wenlock and Mr. Henry Smith in the older class. Mr. Beach, however, sent three of the five shearlings which went for the 25-guinea cup at Birmingham, but being 3d here, and beaten there, they were in effect as they now stand. These sheep of Mr. Beach's were no doubt of the finest form and character of any in the Shropshires, but they were not firm enough. On inquiry we found that the feeder of them had been used for several years to Southdown sheep, and as we know that the same food which would make a Southdown as "firm as a board," would leave a Shropshire with a loose touch, we have no doubt the shepherd in this case has been deceived by promising appearances. Mr. Beach's success in other places, and the celebrity which his manner of feeding has acquired, make this explanation of the manifest defect in these fine sheep a tangible solution of the apparently anomalous decisions of the judges.

In the Cross-breeds, Mr. Overman returns to his usual position with his Leicester Downs, being 1st in the class, and taking a Silver Medal. Mr. George Hine, of Oakley, Bedford, was here a good 2d; and in the next class the latter breeder was superior, but his sheep were 2 or 3 lb. too heavy for the light weights. Mr. S. Druce took the Cup for the best pen of Shropshires, Oxfords, and crosses not specified, with a very fine pen of Oxfordshire sheep.

The Mountain Breeds and Ryelands, Cheviots, Dorsets, &c., which are generally white-faced or speckled-faced horned sheep, were of no interest beyond the limited districts to which they belong. There was a long list of single sheep, but this seems to be a mistake, either from the system of offering prizes, or in the negligence of breeders who could send excellent pens of three sheep each. After the fine display in other classes, these single sheep dwarf into insignificance both as regards appearance and the lesson in breeding and feeding thus afforded.

PRIZE LIST OF SHEEP.

CLASS 35. Fat Wether Sheep of the Leicester breed, 1 year old (under 23 months).—1st, 20*l.*, Lord Berners, Keythorpe Hall, Leicester. Silver Medal to the breeder, Lord Berners. 2d, 15*l.*, William Brown, of High Gate, Holme-on-Spalding Moor, York; 3d, 5*l.*, the Hon. Colonel Lowther, M.P., of Barleythorpe Hall, Oakham, Rutland.

CLASS 36. Fat Wether Sheep of the Leicester breed, 1 year old (under 23 months), each Sheep not to exceed 220 lb. live weight.—1st, 20*l.*, Lord, Berners, of Keythorpe Hall, Leicester. Silver Medal to the breeder, Lord Berners. 2d, 15*l.*, G. S. Foljambe, of Osberton Hall, Worksop, Nottingham; 3d, 5*l.*, William Brown, of High Gate, Holme-on-Spalding Moor, York.

CLASS 37. Fat Wether Sheep of the Cotswold breed, 1 year old (under 23 months).—1st, 20*l.*, William Henry Hitchcock, of Miserden Park, Cirencester, Gloucester. Silver Medal to the breeder, William Henry Hitchcock. 2d, 15*l.*, Thomas & George West, of Greenhill Farm, Bletchington, Oxford; 3d, 5*l.*, William Donne, of Monkton, near Bridgend, Glamorgan.

CLASS 38. Fat Wether Sheep of the Lincoln breed, 1 year old (under 23 months).—1st, 20*l.*, Thomas Russell Casswell, of Quadring, Spalding, Lincolnshire. Silver Medal to the breeder, Thomas Russell Casswell. 2d, 15*l.*, John Pears, of More, Branston, Lincoln; 3d, 5*l.*, Thomas Gunnell, of Milton, Cambridge.

CLASS 39. Fat Wether Sheep of the Kentish or Romney Marsh breed, 1 year old (under 23 months).—1st, 15*l.*, F. Murton, of Smeeth, Ashford, Kent. Silver Medal to breeder, F. Murton. 2d, 10*l.*, James Newport, of Elmsted Court, Ashford, Kent.

CLASS 40. Fat Wether Long-woolled Sheep, not being Leicesters, Cotswolds, Lincolns, or Kentish, 1 year old (under 23 months).—1st, 15*l.*, F. Street, of 'Harrowden, near Bedford, Bedfordshire. Silver Medal to the breeder, F. Street. 2d, 10*l.*, Thomas Russell Casswell, of Quadring, Spalding, Lincolnshire.

CLASS 41. Fat Wether Sheep of the Southdown breed, 1 year old (under 23 months).—1st, 20*l.*, Lord Walsingham, of Merton Hall, Thetford, Norfolk. Silver Medal to the breeder, Lord Walsingham. 2d, 10*l.*, Sir William Throckmorton, Bart., of Buckland, Farringdon, Berks; 3d, 5*l.*, Henry Humphrey, of Ashington, Hurst, Sussex.

CLASS 42. Fat Wether Sheep of the Southdown breed, 1 year old (under 23 months), each Sheep not to exceed 200 lb. live weight.—1st, 15*l.*, Lord Braybrooke, of Audley End, Saffron Walden, Essex. Silver Medal to the breeder, Lord Braybrooke. 2d, 10*l.*, Lord Walsingham, of Merton Hall, Thetford, Norfolk; 3d, 5*l.*, William Rigden, of Hove, Brighton, Sussex.

CLASS 43. Fat Wether Sheep of the Southdown breed, 2 years old (above 23 and under 35 months).—1st, 20*l.*, Lord Walsingham, of Merton Hall, Thetford, Norfolk. Silver Medal to the breeder, Lord Walsingham. 2d, 10*l.*, the Earl of Radnor, of Coleshill, Highworth; 3d, 5*l.*, William Taylor, of Glenley, Westham, Eastbourne, Sussex.

CLASS 44. Fat Wether Sheep of the Hampshire or Wiltshire-down breed, 1 year old (under 23 months).—1st, 20*l.*, William Brown Canning, of Elston, Devizes, Wiltshire. Silver Medal to the breeder, William Brown Canning. 2d, 15*l.*, James Russell, of Petham Court, Eynsford, Kent; 3d, 5*l.*, John Pittman King, of North Stoke, Wallingford, Berks.

CLASS 45. Fat Wether Sheep of the Shropshire breed, 1 year old (under 23 months).—1st, 20*l.*, Thomas Nock, of Sutton House, Shiffnal, Shropshire. Silver Medal to the breeder, Thomas Nock. 2d, 10*l.*, Henry Matthews, of Montford, Shrewsbury; 3d, 5*l.*, Joseph Beach, of The Hattons, Dudley, Worcester.

CLASS 46. Fat Wether Sheep of the Shropshire breed, 2 years old (above 23 and under 35 months).—1st, 15*l.*, Lord Wenlock, of Monk Hall, Much Wenlock, Salop. Silver Medal to the breeder, Lord Wenlock. 2d, 5*l.*, Henry Smith, of Sutton Maddock, Shiffnal, Shropshire.

CLASS 47. Fat Wether Sheep of the Oxfordshire breed, 1 year old (under 23 months).—1st, 20*l.*, Samuel Druce, of Eynsham, Oxford. Silver Medal to the breeder, Samuel Druce. 2d, 15*l.*, Ralph John Newton, of Campsfield Farm, Woodstock, Oxford; 3d, 5*l.*, Alfred Rogers, of Bromham, Bedford.

CLASS 48. Fat Wether Sheep, of any white-faced Mountain breed, of any age.—1st, 15*l.*, John Tapp, of Burch Twitchem, South Molton, Devon. Silver Medal to the breeder, John Tapp. 2d, 10*l.*, William Smith, of Higher Hoopern, Exeter, Devon.

CLASS 49. Fat Wether Sheep of any Blackfaced or Speckle-faced Mountain breed, of any age.—1st, 15*l.*, William M'Combie, of Tillyfour, Aberdeen; 2d, 10*l.*, James Stewart, of 29, Union Street, Aberdeen.

CLASS 50. Fat Wether Sheep of the Ryeland, Cheviot, Dorset, or any other pure breed, not specified in any of the foregoing divisions.—1st, 15*l.*, Herbert Farthing, of Nether Stowey, Bridgewater, Somerset. Silver Medal to the breeder, Herbert Farthing. 2d, 10*l.*, J. B. Downing, of Holme Lacy, Hereford.

CLASS 51. Long and Short-woolled Cross-bred fat Wether Sheep, 1 year old (under 23 months).—1st, 20*l.*, John Overman, of Burnham Sutton, Lynn, Burnham Market, Norfolk. Silver Medal to the breeder, John Overman. 2d, 15*l.*, George Hine, jun., of Oakley, Bedford; 3d, 5*l.*, Colonel Robert Lindsay, of Lockinge Park, Wantage, Berkshire.

CLASS 52. Long and Short-woolled Cross-bred fat Wether Sheep, 1 year old (under 23 months), each Sheep not to exceed 220lb. live weight.—1st, 10*l.*, John Overman, of Burnham Sutton, Lynn, Burnham Market, Norfolk. Silver Medal to the breeder, John Overman. 2d, 5*l.*, the Hon. Colonel Lowther, M.P., of Barleythorpe Hall, Oakham, Rutland.

PIGS.

There is a shorter show than usual in the pig classes; but quite the usual quality is exhibited. The youngest class contains Mr. Coate's almost hairless black Dorsets, Mr. Stearn's very good, well-coated black Suffolks, and the Queen's very pretty white Windsors—1st, 2d, and 3d. The class between 6 and 9 months contains among them Mr. Cartwright's short and thick and deep, very good, improved Middlesex pigs; Mr. Kent's long and large Suffolks, and Captain Warren's smooth and true cross-bred Yorkshire and Essex sort—again 1st, 2d, and 3d; and there are many other good pens, Lord Radnor's, for example, though hardly an even lot; Mr. Cattle's, and Mr. Dunn's, of Hungerford. The class between 9 and 12 months contains Mr. Treadwell's splendid Berkshire pigs, 1st in their class, Captain Warren's 2d, Her Majesty's 3d; there are a number of good Berkshire pigs in this class. The oldest class contains three entries: Lord Radnor's wonderfully ripe and heavy Coleshill breed, 1st in this class, and receiving the Gold Medal as the best pen in the yard; Mr. Howard's Birmingham three 2d here though 1st at Bingley Hall, and Mr. Pittman's excellent Berkshire 3d. A number of capital pigs are shown in extrastock, among them Lord Radnor's, Mr. Stainton's, of Woking; Mr. Treadwell's, Captain Warren's, Mr. Coate's, Mr. King Tombs', Mr. Humfrey's, of Steyning, and others.

The following is the list of awards:—

CLASS 53. Pigs of any breed, not exceeding 6 months old.—1st, 15*l.*, John Coate, of Hammoon, Blandford, Dorset. Silver Medal to the breeder, John Coate. 2d, 10*l.*, Samuel Geater Stearn, of Brandeston, Wickham Market, Suffolk; 3d, 5*l.*, Her Majesty the Queen, the Prince Consort's Shaw Farm, Windsor, Berks.

CLASS 54. Pigs of any breed, above 6 and not exceeding 9 months old.—1st, 15*l.*, Thomas Leslie Melville Cartwright, of Melville House, Lady Bank, Fife. Silver Medal to the breeder, Thomas Leslie Melville Cartwright. 2d, 10*l.*, John Kent, of Goodwood, Chichester, Sussex; 3d, 5*l.*, Captain R. P. Warren, of Worting House, Basingstoke, Hampshire.

CLASS 55. Pigs of any breed, above 9 and not exceeding 12 months old.—1st, 15*l.*, John Treadwell, of Upper Winchendon, Aylesbury, Bucks. Silver Medal to breeder, John Treadwell. 2d, 10*l.* Captain R. P. Warren, of Worting House, Basingstoke, Hampshire; 3d, 5*l.*, Her Majesty the Queen, the Prince Consort's Shaw Farm, Windsor.

CLASS 56. Pigs of any breed, above 12 and under 18 months old.—1st, 15*l.*, the Earl of Radnor, of Coleshill, Highworth. Silver Medal to the breeder, the Earl of Radnor. 2d, 10*l.*, James & Frederick Howard, of Britannia Farms, Bedford; 3d, 5*l.*, John Pittman King, of North Stoke, Wallingford, Berks.

EXTRA STOCK.

Silver Medal to the exhibitor, for the best Steer or Ox in Extra Stock, also 5*l.*, John Overman, of Burnham Sutton, Lynn, Norfolk.

Silver Medal to the exhibitor, for the best Heifer or Cow in Extra Stock, also 5*l.*, Lord Penrhyn, of Wicken Park, Stoney Stratford, Northampton.

Silver Medal to the exhibitor, for the best Leicester Wether Sheep in Extra Stock, G. S. Foljambe, of Osberton Hall, Worksop, Nottingham.

Silver Medal to the exhibitor, for the best Leicester Ewe in Extra Stock, G. S. Foljambe, of Osberton Hall, Worksop, Nottingham.

Silver Medal to the exhibitor, for the best Long-woolled Sheep (not Leicester) in Extra Stock, John Henry Casswell, of Laughton, Folkingham, Lincolnshire.

Silver Medal to the exhibitor, for the best Southdown Wether Sheep in Extra Stock, Lord Walsingham, of Merton Hall, Thetford, Norfolk.

Silver Medal to the exhibitor, for the best Southdown Ewe in Extra Stock, Sir William Throckmorton, Bart., of Buckland, Farringdon, Berks.

Silver Medal to the exhibitor, for the best Short-woolled Sheep (not Southdown) in Extra Stock, John Coxon, of Threeford, Lichfield, Stafford.

Silver Medal to the exhibitor, for the best Cross-bred Sheep (Long and Short-woolled Cross) in Extra Stock, John Overman, of Burham, Sutton Lynn, Burnham Market, Norfolk.

Silver Medal to the exhibitor, for the best Pig in Extra Stock, the Earl of Radnor, of Coleshill, Highworth.

SILVER CUPS.

Silver Cup, value 40*l.*, to the exhibitor, for the best Steer or Ox in any of the Classes, William M'Combie, of Tillyfour, Aberdeen, N.B. Gold Medal to the breeder, William M'Combie.

Silver Cup, value 40*l.*, to the exhibitor, for the best Heifer or Cow in any of the Classes, Henry Bettridge, of East Hanney, Wantage, Berks. Gold Medal to the breeder, E. Tanner, of Bromfield, Salop.

Silver Cup, value 20*l.*, to the exhibitor, for the best pen of Leicesters, Cotswolds, Lincolns, Kentish, or other long-woolled breed, in any of the classes, Lord Berners, of Keythorpe Hall, Leicester.

Silver Cup, value 20*l.*, to the exhibitor, for the best pen of 1-year-old Southdowns, Hampshire, or Wiltshire Downs, Lord Walsingham, of Merton Hall, Thetford, Norfolk.

Silver Cup, value 20*l.*, to the exhibitor, for the best pen of Shropshire, Oxford, Cross-bred, or any other breed of Sheep (not specified in Prize List), in any of the classes, Samuel Druce, of Eynsham, Oxford.

Silver Cup, value 20*l.*, to the exhibitor, for the best pen of Pigs in any of the classes, the Earl of Radnor, of Coleshill, Highworth.

The following are the Live-stock Judges:—

CATTLE.

DEVONS, HEREFORDS, SUSSEX, NORFOLK OR SUFFOLK, POLLED, LONGHORNED, IRISH, CROSSED OR MIXED CATTLE.—G. W. Baker, Orwell Park, Ipswich; Charles Randall, Chadbury, Evesham; and C. Vevers, Ivington Park, Leominster.

SHORTHORNS, SCOTCH AND WELSH CATTLE.—William Torr, Aylesbury Manor, Grimsby; Edward Bowly, Siddington House, Cirencester; George Drewry, Holker Grange, Lancashire.

SHEEP.

LEICESTERS, COTSWOLDS, LINCOLNS, KENTISH OR ROMNEY MARSH, AND OTHER DISTINCT LONG-WOOLS, OXFORDSHIRE, MOUNTAIN AND CROSS-BRED SHEEP.—T. Brown, Barham, near Downham; Benjamin Painter, Burley-on-the-Hill, near Oakham; Robert Creswell, Ravenstone, near Ashby de la Zouch.

SOUTHDOWNS, HAMPSHIRE OR WILTSHIRE, SHROPSHIRE, RYELAND, CHEVIOT, AND DORSET SHEEP.—H. Fookes, Whitechurch, Blandford, Dorset; William Sainsbury, West Lavington, Devizes: G. Cureton, Beam House, Shrewsbury.

PIGS.

Henry Smith, Cropwell Butler, Notts; Albert Edmonds, Longbourne, Faringdon; John Moon, Westwell Street, Plymouth.

IMPLEMENTS.

The Christmas meeting of the Smithfield Club never fails to present the public with a large assortment of implements, agricultural seeds, roots, manures, and the other particulars which belong to this department of the exhibition, and the exhibition of the current year must be acknowledged to be considerably in advance of its predecessors. This, no doubt, arises partly from the additional space afforded by the improvements which have been effected in the Agricultural Hall; but, in additon to this—for which thanks are due to the Agricultural Hall Company—there is also a perceptible advance in the race of progress which we shall have to notice as we go along.

The general arrangement is much the same as usual, the heavy machinery being under the galleries below; the lighter implements, roots, &c., being exhibited in two single side rows and one double central row around the galleries, the refreshment stalls making a salutary break here and there in the arrangement both above and below. The various exhibitors endeavour to occupy the same place in the Hall on each occasion, which is highly judicious, as it enables their respective customers, and all who desire to find them out, to thread their way through the throng to their stands with little difficulty. Altogether multitudinous and diversified in character as the articles exhibited are, it is singularly interesting to observe with what care they are each and all brought under the eye of the observer, be he purchaser or sight-seer, as he passes, elbowing his way along the crowded avenues—*bonâ fide* purchasers experiencing little or no difficulty in examining carefully whatever may suit them.

Below stairs the portable engines and threshing machines are, from their number and size, the first things that attract the eye. This class of machinery is well represented, including fixed engines, straw elevators, and other instruments of the stackyard and barn. Several of the portable engines are adapted, both for road locomotion and field work, others chiefly for steam culture; while there are some small ones, of only one and two horse-power, for actuating chaff-cutters and the like. Some 10 or 12 years ago portable engines had a somewhat monotonous appearance at the summer meeting of the Royal Agricultural Society of England, and the few which were exhibited at Christmas in the Bazaar, Baker Street, formed no exception to this rule. It is otherwise on the present occasion—the diversity being no less interesting from a purely scientific point of view than from a practical.

Of the various causes which have given rise to this peculiar difference two merit special notice, viz. (1), the cultivation of land by steam-power; and (2) the greater amount of machinery now in use in the preparation of food for cattle. Of these two causes, the former—steam culture—is doubtless the principal: that which has given the greater diversity to mechanical construction, and even to the general appearance of portable engines; but the latter, nevertheless, has its own peculiar merits, which demand attention, especially at this season of the year, and at an exhibition of which fat stock forms the prominent feature.

Steam culture is the great gun of the day. John Fowler & Co., of Leeds, and the Messrs. Howard, of Bedford, exhibit their respective and now well-known systems, while both these rival firms acknowledge a third system, for which the greater portion of the portable engines in the Hall are adapted. We allude to detached winding and hauling apparatus, such as that used by Mr. Smith, of Woolston. For the want of space this latter system and some others are only represented by drawings, &c. Although each and all of these systems may, generally speaking, be pronounced a complete success in the field, it is nevertheless amusing to hear the queer misgivings which many of the public cannot conceal as they examine their various working parts: fortunately they are exceptions to the general rule. At the same time, it must be admitted that steam is not making such rapid triumphs in the field as it ought to do. It is not perhaps very easy satisfactorily accounting for this lukewarm state of the agricultural mind in relation to steam culture on any other grounds save that of the large capital required to be invested in starting. No doubt some are yet halting between two opinions, wanting, as it were, to see one of the systems drive all the others out of the field! But is not this something more than silly? It certainly reminds us of what the old Roman poet thought of farmers in his day, when he sang—

> "Rusticus expectat dum defluit amnis,
> At ille labitur, et labetur."

The large capital required is doubtless a tangible reason to many; but it has often occurred to us that more might be done by combination than is now being done. According to the old maxim, "Union is strength," and both the above firms, and also the other houses alluded to, are adapting their respective systems very much to meet the requirements of two or more farmers who may join to purchase a steam culture system amongst them. The twin-engine system of steam culture, for example, has many things to commend it to the farmer's attention. Now, if two farmers have each an engine, what is to hinder them to purchase the rest of the system between them? In practice (we speak from a long experience) it is always easy to multiply objections by the long score: but is not this beginning at the wrong end of the subject? for if the two farmers in question have each an idle portable engine, they (the two engines) are unquestionably a standing reproach to both, so that the only practical way of getting out of this dilemma is for them to join and get each his share of the system, and thus start their engines in the field. We do not, however, propose reasoning out the matter with such farmers in all its multifarious details. With them seeing is believing, and therefore what we commend more especially at this season of the year is to pay either of the above firms, or any of the large firms, a visit—examine their systems at work in the field, such as would suit their own peculiar position, when such firms will make the whole affair as plain as the three first letters of the alphabet. And we may further add, the practical suggestion which we thus throw out applies with equal force to farmers who may not have engines at present, for under such conditions they should unite their means, so as to get a system. For another class of farmers, contractors who hire out engines for threshing may also procure steam culture implements and tackle for doing their work, by hire. In these times of progress it is hopeless to stand aloof from steam culture, and the more closely the practical details of the subject are examined, the more thoroughly will intelligent minds become convinced of the growing necessity of going right into it at once some how or other. With steam engines and steam culture apparatus, reaping and mowing machines formed a leading attraction in the Agricultural Hall, and these we shall notice before the stackyard and barn machines, formerly referred to as demanding special attention along with the small engines.

The Messrs. J. & F. Howard, Bedford, exhibit their new reaper and mower, of which an introductory notice was given last week. During the past year it has done a large amount of work, some 500 acres of crop 1867 having been cut down by it, and in lightness of draught, general adaptation, and successful working, has given great and promising satisfaction. In principle it is similar to the older machines of Samuelson, Banbury, and Hornsby, Grantham, also exhibited on this occasion in the Agricultural Hall. It has, however, several novelties, and to some of these special attention requires to be called. Its peculiar and distinguishing mechanical characteristic is a double cam guideway for the reels and rakes. Like the old American Dorsey reaper it has two rakes and two reels, but unlike its Transatlantic ancestor, which had only one cam guideway for both, the Howard reaper has two cam guideways—the outer one for the rakes, and the other (the inner one) for the reels or gathering arms; each cam guideway having its own peculiar and specific function to perform, the rising and falling of the rake-arms and rakes being very different from the rising and falling of the reel-arms and reels—the surface of the two cams lying in different planes. The cam-guideway movement and path of the rakes are similar to those of its ancestor, but the reels as they come round in the standing grain drop down into it at once, thereby bringing it forward to the knife when anyway laid and tangled in the opposite direction, as it often is; but on passing the knife they rise over the cut corn on the platform, and in doing so rectify, or put to rights, the bottom of the half sheaf. Those who have any experience in binding sheaves must be familiar with the gentle box with the open hand given to the butt-end of the sheaf, when such is required, to make all even and straight, and in rising from the platform the reels perform each a function somewhat similar to what the open hand of the binder does when tying up grain not very evenly laid into the hand. By this means the half sheaf upon the platform is well formed, being laid in such a manner that the other half when brought round by the rake falls right upon it, the two halves being thus swept by the rake from off the platform even for being bound up and stooked. The rake and reel arms are rotated by a vertical shaft, on the upper part of which they hinge, and at each complete revolution two sheaves are swept from off the platform, one for each reel and rake, and their speed can be so regulated and adjusted as to suit thick and thin corn, or to make any size of sheaf which the nature of the crop and season may require. The vertical shaft carrying the reels and rakes is driven by its own independent gearing, so that the movements of the working parts are more equable, and hence free from the extra tear and wear experienced when they are connected with the gearing for actuating the knife, and consequent vibration produced by its reciprocating motion and cutting action. Motion is taken from two supporting wheels—spur gear being used for quick motion, and bevil gear for slow.

The cutter-bar is behind the driving wheels: the speed of the knife is easily altered, the connecting rod being nearly on a line with it, so as to give a direct thrust to every stroke, and by means of a hand lever close to the driver the points of the fingers can be raised or lowered while the machine is in motion. Such are the chief characteristics of this new reaper, to which we last week promised to draw attention.

Of other hay and corn harvest implements, such as tedding machines, horse and hand rakes, &c., there is a fair representation, considering the limited space.

We now come to that class of machines used in the preparation of feeding materials for cattle, and for which the Christmas meetings of the Smithfield Club have always been plentifully patronised, in the form of chaff cutters, root cutters, slicers, and pulpers, corn grinding, kibbling and bruising mills, cake breakers, and so on. The category, taken as a whole, is a very promiscuous one. And this year, thanks to the Abyssinian expedition, a very old practice has reappeared in the form of compressed fodder. It is now a long time since one Lawson or Lawrence (we forget which) wrote a pamphlet on the subject, and made a vast to-do

at the time about the importance of his proposition. But so far as the mechanical process of compression goes, the fodder now exhibited in the Agricultural Hall is squeezed into much smaller dimensions than was effected on the old plan of Lawson, or on the more recent one of Frederic Philippe Auguste Aubertin, exhibited some eight or 10 years ago, and patented in 1857 and 1859, and said, by the patentee, to be extensively used by the French cavalry. In 1826 we recollect of some cargoes of Dutch hay being imported by Scotch farmers for their cattle, hay and straw that year being exceedingly scarce; but although the imported hay was compressed, its great bulk so increased the freight and expense as to eat up all the profit. Were such a scarcity again to occur, the present mode of compression would be a great boon to the farmer, and to the exporters of cattle it is a great boon at any time.

But the mere compression of feeding materials is not the process to which we wish to direct attention. That which occupies so prominent a position in the Hall, and which is annually becoming more and more attractive at all our great agricultural exhibitions in the provinces, is the corn-grinding and other mills above-mentioned, and the small steam engines now being constructed for actuating the same. It takes very little calculation on the part of any farmer who has a large stock of indoor-fed cattle to show that there is a great saving in the use of these small engines for grinding, chaff-cutting, and the like, as compared with the use of large engines of twice and four times the power required; and besides this the large engines have now got their own peculiar work to do in the field, in ploughing, smashing up, harrowing, rolling, and the like. A clear case is thus made out in favour of the small engine just of the power which the work it has to do requires, so as to give the cattle new ground, fresh, and sweet feeding materials every day, meaning by sweet freeness from mustiness, which cattle so much dislike, and upon which they never thrive and do well, so as to pay the farmer for his keep, time, and hard cash out of pocket in filling his feeding stalls. It is an affair of vast magnitude, to say how much of the present bad health of cattle is due to musty fodder, rotten roots, and adulterated cakes, as such feeding materials lower the force of vitality, rendering cattle subject to maladies from which they would be exempt were they otherwise properly fed; and believe it as the reader may, this is exactly the path of progress to which these small engines, horizontal and vertical, portable and fixed, have for the past four days in the great Hall at Islington been turning the farmer's attention.

In this class of machines we cannot chronicle much novelty having been introduced since last year. Last Christmas we had to notice the reciprocating knife which the Messrs. Coleman & Morton, of Chelmsford, had introduced into their cake mill, and this year the reciprocating knife has been supplanted by small rotary ones, and the alteration is said to be an improvement; a continuous cutting action is decidedly superior to a reciprocating action, but probably the present arrangement and form of the knives may be further improved before Christmas, 1868. In several of the other examples minor improvements have been effected, which merit a passing notice, did our limited space permit; as to quality of workmanship, much improvement is exemplified throughout the class.

There is another class of barn machines which demand a special notice—we allude to the corn screens and corn dressing machines exhibited by the Messrs. Ransome & Sims, Ipswich; Hornsby & Sons, Grantham; Roby, Lincoln; Coleman & Morton, Chelmsford; and by some others. Now that so much corn is being daily ground for cattle, and that so much foreign corn is annually being imported from climates producing the finest samples, it is highly desirable that all small, inferior, and coarse grain should be removed, and also that all mustiness and insectivorous life should be removed from the surface of the corn by some sort of scouring and cleaning process, and both these processes are just what this class of machines performs. Their construction is now too well known to require a formal description. The peculiar function which they perform cannot be too earnestly pressed upon the attention of farmers, for when sent to the market millers will only now give a paying price for fine clean, equal samples, such being of far greater value to them than the contrary, while the small and coarse grain is nearly as well adapted for grinding or bruising for cattle as the prepared stock for market. A very little reflection must convince the dullest capacity that there is even something more in this than really appears at first sight upon its surface.

In the gallery the Americans muster strongly, not only in reaping and mowing machines, for which they rank high in the scale of merit, but also for several other things that demand a special notice, as the "Tube-Well" and dovetail-morticing machine.

To farmers who have no water in their fields for their cattle, or at their homesteads and labourers' cottages, but who have nevertheless a plentiful supply at no great depth below the surface; the American Tube-Well is one of those novelties that commends itself to their attention; Mr. Norton, of Blackfriars Street, Manchester, is the sole licensee, and in the Cricket Ground of the Manchester Cricket Club a well was sunk, 10 feet deep, and a plentiful supply of water obtained in something less than half an hour, and at a cost of less than 5*l*. Another was sunk in the Botanical Gardens, 15 feet deep, for 5*l*., including pump and all. The success of the project depends upon the fact that the boring apparatus (in ordinary cases where no rock is met with) forms that portion of the pump below the ground, so that when sunk to the proper depth there it remains, the barrel with the handle and piston being screwed on to the top, which completes the whole affair. The part below the ground consists of a pipe about 1¼ inch in diameter inside, and pointed at the extremity in the form of a solid cone. Above this the small tube is perforated about 16 inches high.

The mode of sinking is as follows: a moveable iron clamp carrying two pulleys is made fast to this iron pipe; another clamp is fixed further down, and between these two a hollow weight of about 80 pounds acts upon the lower clamp as a pile driver, being raised by two ropes over the two pulleys of the upper clamp. When one pipe is sunk, another is screwed on to its top, and so on for any required depth. In the United States of America the depth of 120 feet has been reached in this manner. From the small diameter of the pipe, the earth removed in sinking is easily compressed sideways radially all round, and very little enters the interior of the pipe through the perforations, and that little is soon removed by the influx and efflux of the water when the pump is operated. Outside the perforations the fine earth is thus removed by the water, the gravel and coarse sand remaining acting as filtering material—the water in a very short time rising clear, cold, and pure.

Compared with large ordinary wells, the American tube-well has several advantages that claim consideration. Thus, in sinking there is no danger from foul air, as is too often fatally or injuriously experienced in sinking the common sort, and when once sunk no accumulation of foul air above the water takes place. Again, it is less subject to surface drainage, and to injury from the stagnation of water containing surface drainage, than dry wells. It can be worked just as readily with a force-pump as with a draw-pump, so that water can be sent to any distance to meet the requirements or exigencies of any peculiar locality or employment. But perhaps its chief advantage, and that which will commend it to many, is its cheapness, including the small amount of labour and botheration experienced in sinking a well, and the fact that it can be so sunk almost anywhere.

The dovetail-morticing machine is exhibited in a side chamber, with a narrow door entrance from the gallery. It is a rather complicated piece of mechanism, and would require a diagram to give an intelligent description of it. But although thus complicated and somewhat unwieldy-proportioned (if we may so speak) in some of its parts, it is, nevertheless, simple in its *modus operandi*, and does its work rapidly and well. It is exhibited in operation when required, as are the other morticing machines exhibited in the Hall: which latter are too well known to need description.

Samples of French burr and other mill-stones, for flour-mills, were exhibited by two of the London houses, Bryan, Corcoran, and Co., and W. R. Dell; also flour-dressing machines, Smut machines, Wheat machines, sack-lifters, sack barrows, with various kinds of mill furniture, utensils, and apparatus, by far too numerous to individualise. Mr. Tye, of Lincoln, exhibits a flour-mill, with two pair of 3 feet 6 inch French burr-stones on a metal frame; likewise a mill, with one pair of 3-feet stones. Flour-dressing machines are also exhibited by several other firms who make flour-mills. Many of the mills, chiefly constructed for the grinding of corn for cattle, are also adapted for the grinding and dressing flour for family use if desired. Steel family mills, as they are generally called, are in great force. The stands of the London makers, Lloyd and Sons and Whitmee and Co., have always a large assortment of these, the flour-mill and dressing machine being contained in a small rectangular box. The latter firm also exhibits a corn-mill, with a pair of 32-inch French stones, and a larger mill, with 4-feet French stones.

Another class of family mills, coffee-mills, sausage-mills, and mincing machines, are also exhibited in considerable variety.

Of dairy utensils there is an unusual and overflowing supply. In one corner of the gallery the Atmospheric Churn Company exhibit a large assortment of their churns, of all sizes, to meet the demands of purchasers. At short intervals the process of churning takes place, collecting a crushing crowd of anxious sight-seers, and creating a degree of life which we shall not attempt to describe. In the opposite corner of the gallery Hancock, as last year, exhibits his butter washer and press in operation, which proves fully as attractive and exciting as the atmospheric churns opposite. The butter machines are also of different sizes, the prices ranging from 25*l*. down to 10*s*. 6*d*. each; the domestic presses from 3*l*. 3*s*. to 10*s*. 6*d*. It is amusing to hear the off-hand manner in which the merits of these machines are criticised, but the quality of the work they perform meets with general approbation. In our dairy provinces there is to this day a large amount of not very well made and dressed butter, and if such machines would remedy the evil, their adoption would be a manifest boon to all parties, producers as well as consumers.

Several clever field-gates are exhibited (in particular by Braggins of Banbury), some of wood and some of iron; also wire fencing for all sorts of domestic animals, birds, rabbits, and poultry. Likewise sheep netting.

Horticultural machines of endless variety, so to speak, are shown by the Agricultural and Horticultural Association and various other exhibitors. Likewise all the different kinds of artificial manures, including guano, &c.

The hydraulic engineers of the metropolis, as Owens & Co., Warner & Sons, exhibit a variety of forcing lifts and centrifugal pumps. The former exhibit a hydraulic ram in operation. Centrifugal and other pumps are likewise shown by Tuxford & Sons, Boston, and by several other large implement firms of the provinces: and along with these we may include water carts, tanks, and the like, as exhibited by Isaac James, Cheltenham; Ray, Mead, & Co., 38, Upper Thames Street, London; and others.

Another class of articles may be included under saddle work, stable, and even house furniture. Two or three stands show almost nothing but leather driving straps, one or two others gutta percha, as the Gutta Percha Company. Several show rick clothes and tackle, horse clothes, corn sacks, &c. And on Stand 72, M'Neil & Co. show their well-known asphalted roofing, &c. J. White & Co., on Stand 57, show almost nothing but oil feeders and lubricating apparatus; and Stand 48 (Ben. Brown) is well filled also with oil feeders and lubricating apparatus, but of a different construction from those of the former exhibitor—the feeders of the latter having patent steel springs. Such groups of articles require to be closely studied, in order to comprehend their respective merits and values, either in a scientific or practical sense.

The various kinds of weighing machines, measures of capacity, measuring lines and rules, drain levels, and surveying apparatus in general, exhibited, may be noticed together as forming another class of articles, each member having its own peculiar merit and practical significance. The group is a large one, of a very promiscuous character, and ever has been at our Christmas meetings.

Carts, waggons, portable railways with their rolling stock, wheelbarrows, carriages, gigs, dog carts, sedan chairs, velocipedes, and so on, always have formed a prominent class at the Smithfield Club Show since it has been held at Islington; and the current year is fully up with any of its predecessors. Grant's portable railway system, of which three trucks and a short length of rail are shown in Stand 138, in the gallery, has, from its successful use in manuring land, carrying earth, &c., acquired no little promising reputation. It is but of recent date, comparatively speaking, differs in many respects from Crosskill's, and some other projects of this sort which have been tried; and as land is smashed up, and the staple deepened under steam culture, it requires no prophetic eye to see the growing necessity that is arising for the use of some such means of getting the manure into the ground, and the crops removed to the stackyard in hay, corn, and root-harvest times, so as to avoid poaching and ruining the land. Mr. Grant not only supplies railways, but also lets them out on reasonable terms.

The various kinds of seed and manure drills and broadcast distributors, exhibited in the Agricultural Hall, form another class of no second-rate importance. And to them may be added the seed-harrows used in finishing off the work of seeding.

Rollers, clod-crushers, compressors, form another class of perhaps greater merit at one time than they possess at the present day, owing to the improved drainage and cultivation of the land, the staple soil under proper management being continuously kept in a much more friable state than formerly. But even at the present day the best cultivated farms cannot do without them, as their presence in the Hall in some degree indicates.

Hand and horse hoes, scrapers, &c., may be noticed as forming a peculiar class of implements by themselves, as it were. Hence they are not manufactured by all our implement makers, but only by a select few, who acquire a thorough knowledge of their manufacture and mode of working.

Machines, implements, and tools used in the manufacture of draining tiles for the draining of land, and of bricks for the building of houses and fences; of quarry tools and machines for quarrying stones for building and other purposes, as road-making, saw benches for sawing timber for houses and fencing; likewise boring and morticing machines, may all be disposed of under one head or class. In the exhibition they form a large and an interesting group, widely different from each other in mechanism and character, and yet all bound together by ties which cannot be broken. How different, for example, is the sawbench of Clayton & Shuttleworth from the brick machine of Clayton, and yet sawn timber is just as needful in the building of a house as bricks and mortar.

We have now to notice the seeds and roots, which form a very prominent section of the exhibition. It may indeed be said to be a separate and distinct department by itself. The roots exhibited by the Messrs. Thomas Gibbs & Co., the seedsmen to the Royal Agricultural Society of England, corner of Half Moon Street, Piccadilly, London, although not over large (Parsnips wonderful), are very uniform in size and quality. The seeds are excellent, and the firm find space for a novelty in the "Mangel-cake" for cattle. Messrs. J. C. Wheeler & Son, Gloucester, show a superior selection. The Messrs. George Gibbs & Co., seedsmen, 25 and 26, Down Street, exhibit some Cabbages, weighing each 50 lb., the heads being well formed and of fine quality. Their roots and seeds are first-rate. The Messrs. Wright & Son, Great Bently, Essex, have much improved since last year. Raynbird, Caldecott, Bawtree, Dowling, & Co., of Basingstoke, and 89, Seed Market, Mark Lane, London, exhibit, along with seeds and roots, Linseed, Cotton, and Rape cake. Robert Impey, of Bath, shows some 20 roots of Yellow Globe Mangel, an equal number of Swedes, with some samples of seeds. The Messrs. James Carter & Co., London, have, as usual, a large and varied assortment, including, among others, some comparatively small roots shown by the Metropolitan Sewage Company, and grown solely with sewage, on their farm near Barking. Though not more than ordinary field roots, they are part of a very heavy and well-grown crop. Hogg & Wood, Coldstream, and Hogg & Robertson, Dublin, have a small collection of Mangels, Turnips, and Carrots, with some very fine Leeks. The Messrs.

Sutton & Sons, Reading, Berks, have a large and very superior selection of both seeds and roots, some of their improved green Kohl Rabi weighing 21 lb. Nothing in the show was finer than the admirable collection of all kinds of roots, which they have collected by their preliminary prize Show at Reading. Alfred Hall, Westbury, Wilts, exhibits some fine specimens of his Swedes, not over large but of excellent quality. His other roots are also good. Such is the list of exhibitors.

There remains the book stands and the arcade to notice; also the refreshment department. The former may best be left to speak for themselves. As for the latter, it is, as usual, from its position, a noisy, bustling concern, almost forcing one on entering the Show to make as rapid a race through it as possible. It contains a good show of carriages, a "steam perfume diffuser," washing machines and kitchen ranges, pickles, sauces, &c.; pianos and cattle medicines, sewing machines in great abundance and very attractive; horse clothing, patent harness, and artificial manures; sausage machines, ivory goods, waterproof clothing, agricultural implements, mincing machines, model clocks, and samples of wine.

We should be unpardonable did we omit favourable mention of the refreshment stalls, for throughout the whole period of the Show no department has been so liberally patronised; and as the best proof of the pudding is in the eating, we leave our readers to draw each his own conclusion.

As to official management, thanks to Mr. Sidney and his staff, nothing could have been better.

ANNUAL MEETING (*Dec.* 10).—At the Annual Meeting of the Club, Major-General the Hon. A. N. Hood in the Chair, the Earl of Hardwicke, Earl Spencer, Lord Tredegar, Professor Simonds, Mr. Owen, Mr. Bannister, Mr. Torr, Mr. Wallis, and others being present.

The Council's report, read by the hon. secretary (Mr. Brandreth Gibbs), mentioned the deaths of Mr. J. C. Tower, the father of the Club, and a vice-president, and of Lord Faversham, also a vice-president, in whose places the Duke of Marlborough and the Earl of Powis had been elected. Certain alterations in the hall had been agreed upon between the Council of the Club and the directors of the Company. By this agreement increased accommodation would be provided in the galleries, and the present pig hall being given up to the Hall Company, a new one would be erected, to be called Berners' Hall, in which a new pig hall would be provided, and a new dining hall. The report went on to state that a licence being necessary from the Privy Council for the holding of the Show, the President had been authorised to sign, on behalf of the Council of the Club, the undertaking required by the local authority, in reference to all cattle being slaughtered within the boundaries of the metropolis, and within the time prescribed. The Lords of the Council had not been asked to relax the general orders in reference to the cattle being slaughtered within the prescribed radius; but, on the representation of General Hood, an extension of 10 days after the close of the Show had been permitted, and special police passes had been granted for the animals coming to the Show. The licence to hold the Show contained the conditions that, in the event of any case of cattle plague breaking out within the exhibition, all the animals in the Show shall be slaughtered at once on the spot, and a guarantee had been obtained from each exhibitor that he exhibited at his own risk, and would comply with the general orders of the Privy Council. The Council, too, had taken into consideration the liability of cattle plague being introduced into this country by the admission of foreign cattle into our markets, and had requested the President to bring certain resolutions passed by the Council of the Club before the Lord President of the Privy Council. These resolutions were as follow:—"That all foreign fat stock be slaughtered at the place of landing," and "That sheep be included in the present quarantine regulations for store stock." The report congratulated the Club on having the honour of Her Majesty the Queen and his Royal Highness the Prince of Wales among the exhibitors at this year's Show.

Mr. TORR then moved that the Duke of Marlborough be the President of the Club for 1869.

Mr. FARTHING seconded the resolution, which was agreed to unanimously.

ANNUAL DINNER (*Dec.* 11).—On Wednesday the members of the Club held their usual annual dinner at the Salisbury Hotel. Major-General Hood, the President of the Club, occupied the chair, and was supported by the Duke of Richmond, the Earl of Hardwicke, Lord Walsingham, and others. In proposing the first toast, the Chairman said—

It must be gratifying to them all that the stock of the Royal farms was exhibited this year in Her Majesty's own name, thus closely identifying Her Majesty with agriculture, and more particularly with that Club. The Queen was one of the largest farmers in the kingdom; she exhibited in this year's show Shorthorns, Herefords, and Devons, all of her own breeding; she took a great personal interest in everything which related to agriculture; and she was highly pleased at being a successful competitor on that occasion. He then proposed the toast of the evening, "Prosperity to the Smithfield Club." He congratulated the members on the high position the Club had attained among the agriculturists of the kingdom, and on the fact that this year's Show was in no way inferior to those which had preceded it. On the contrary, it was generally admitted to be superior to them. The established breeds, the Shorthorns, the Herefords, and the Devons, were well represented. The Welsh took an excellent class, as did also the Sussex. The sheep, too, were exceedingly good, and the specimens exhibited by Lord Walsingham, Lord Berners, Lord Radnor, and others, had certainly done justice to their keep. The object of these Shows was not only to have well-fattened and level animals, but early to develop their maturity; and that that result was being successfully attained was amply evidenced by the present Show. The disappearance of the cattle plague was a matter for deep thankfulness on the part of agriculturists. Cattle were now allowed to pass from one end of the kingdom to the other without any restriction, save in the metropolitan district—a very wise and prudent exception to make until a measure was adopted by Parliament requiring all foreign stock to be slaughtered at the ports of disembarkation. The Chairman then briefly reviewed the history of the Smithfield Club, tracing the various vicissitudes of fortune it had encountered. Its financial position, he said, was now very satisfactory, and the institution had before it every prospect of a long and beneficial career. 1000*l.* had been taken from its funds for the enlargement of the galleries in the Agricultural Hall—an improvement which had given great satisfaction to the implement makers, as well as to those who visited the Show, and which had yielded this year alone an increase of 240*l.* to the coffers of the Society. The Council of the Club had resolved that henceforth there should be a written report drawn up on each show, which would prove very useful as an annual record of their proceedings; and their hon. secretary had kindly undertaken to contribute a history of the Club from the year 1857 down to the present time.

The prize cups were then distributed to the successful competitors, whose healths were also drunk with much cordiality.

Lord WALSINGHAM, in returning thanks, referred in a jocular vein to a kind of challenge which he had interchanged some time ago with the Duke of Richmond, whom he had done his best, happily not in vain, to beat at the present show. Adverting to the circumstance of the Prince of Wales exhibiting for the first time this year, he said that on the previous day he had met his Royal Highness, who particularly wished it to be known that he had not sent his animals in the expectation of obtaining one of their prizes, which he was aware it was difficult to win, but to show the interest he felt in the exhibition, and the value he attached to his connection with that Club. The Prince was a young farmer, and no doubt he would have to take a great deal of pains before he could carry off their best cups; but, at the same time, they must all rejoice to see his Royal Highness enrolled among them as both a member and an exhibitor.

The Duke of RICHMOND then proposed, in very eulogistic terms, the health of the President, General Hood, and took occasion to express his own gratification in attending the annual banquet of an institution in which he felt a strong hereditary interest. He thought there could be no impropriety in mentioning that he had the honour of being asked by her Majesty last summer whether, in his opinion, there was any reason why her Majesty should not exhibit her stock at that Society's shows in her own name. He told her Majesty that he could see no possible objection to that, and her Majesty said she was most anxious to do so, in order to testify to agriculturists and the public at large the great interest she took in agriculture. The result, as they all know, was that the Queen's name now appeared in their catalogue of exhibitors. The Duke, in conclusion, referred to the playful spirit in which Lord Walsingham had rallied him about the competition which had taken place between them, and retorted that he meant to imitate the pluck of the British soldier, who never knew when he was beaten, and therefore always persevered until complete victory crowned his efforts.

THE CENTRAL CHAMBER OF AGRICULTURE.

This association held its annual meeting for the dispatch, or rather transaction, of business, at the Hanover Square Rooms on Thursday last. The public meeting was called for 11 o'clock A.M., but the points to be decided by the Council, which met at 10 o'clock, were either so numerous or so difficult to settle, that it took considerably more than the allotted hour before the general business of the day was announced. This having transpired, and a few minor matters disposed of, the secretary read the Report, by which it appeared there was a balance of cash in the hands of the treasurer, and an increase in the number of the members of the Central Chamber. The Chairman (Mr. Albert Pell, who sat for the last time this year in this capacity) then announced that Mr. Jasper More, M.P. for South Shropshire, was the legitimate chairman for the coming year, as he had served, according to Rule 8, as Vice-Chairman during the present year. A Vice-Chairman was then required for 1868, and on the name of Mr. C. S. Read, M.P., being named, it was received with applause, and a resolution to the effect that he be elected was carried unanimously.

The election of new members of Council occupied some time, as it had not been determined beforehand what form should be used in "retiring" eight, or one-third of them. A great number of suggestions were made as to whether counties or names should be taken alphabetically, or whether the first on the list should be struck out. All this was of no importance, as each one was eligible for re-election. Then came the question of members who were eligible, as some were proposed who had only been elected members of the Society a few minutes previously, and their election had not been ratified by the payment of the annual subscription: and had this been done it would have availed nothing, for it had been previously announced that this subscription was not a subscription which covered the current year or month, but it was for the next Central Chamber year, which begins (vide Rule 4), on the 1st of January next. The question, however, was put to the meeting, and as the decision was against the new members being eligible, this point was settled. Then a question was raised by Mr. Masfen in favour of those members only being eligible who were connected purely with the landed interest. This suggestion was ultimately overruled.

This stage, however, having been passed, an amendment of one of the clauses in the constitution or laws of the Chamber, of which Mr. Duckham had given notice, was brought on for discussion. This amendment referred to Clause 3, and it was to this effect:—that instead of one "deputed member," to act and be on an equality with the members of the central Council, being admissible for the first 3*l.* subscribed, and one for every 2*l.* afterwards, local Chambers should have only a limited privilege, viz., the liberty of sending only one deputed member to every 50 members of the Chamber by whom they shall be sent. From the notes we have, it appears that this amendment was proposed on the ground that it was likely to benefit the central body, by inciting local Chambers to assert more influence, for which they would have to pay beforehand; and, at the same time, prevent any over-zealous Chamber from sending up a host of "deputed members" to swamp the Council of the Central Chamber and the chairman's casting vote included. It was, however, felt that there has not yet been a rush with either money or men from local Chambers; and after an irregular discussion, the motion was put to the vote and lost. Rule 3 was therefore left undisturbed. It was then proposed that the 3*l.* and 2*l.* referred to should be raised to 10*l.* and 5*l.* When this had been seconded and discussed one of the members present called the attention of the Chairman to the constitution and laws of the Chamber, and particularly to the last clause, No. 23, which says: "No law to be made, altered, or annulled, unless due notice has been given, and then only by a resolution passed at a general meeting." The proposed proceeding was in fact irregular, and it also involved a question of faith and honour with local Chambers. Even if the amendment, of which notice had been given, had not been at an end from a veto having been enacted in regard to it by the meeting, there was no mention in that notice of raising 3*l.* to 10*l.*, and 2*l.* to 5*l.*, as the prices at which "deputed members' could be sent from local Chambers.

These incidents, illustrating the mismanagement of the business of the meeting, we recount with the best possible feeling: indeed, it is from the desire we have to see this Central Chamber so conducted that it may be a pattern for local Chambers to follow, that we have taken this trouble. Local Chambers cannot possibly have the advantages which a Chamber that is located in the metropolis can command; and it is, therefore, of the utmost importance that the Central Chamber, which starts as a proposed leader of the branches which it claims as its own, should be properly conducted. We know there is much to be done in the interest of agriculture, and these Chambers have a good opening before them. We have made these strictures that this opportunity may not be lost, and these Chambers die a natural death after being a nine months' wonder, as so many other agricultural movements have done.

Towards the close of the meeting it was resolved, upon the motion of Mr. C. S. Read, M.P., seconded by Mr. Wilson, of Leicestershire, "That this Chamber regards with satisfaction a Bill introduced by the Government for establishing a separate market for the sale and slaughter of foreign cattle in the metropolis; but it considers it essential that the Bill should include sheep and pigs, and that the same regulations should apply to all other ports of landing." This resolution was then ordered to be printed and circulated among the local Chambers, with a request that they would give it all the support in their power. After the usual formal vote of thanks to the Chairman and Council, the proceedings came to a close.

Farmers' Clubs.

CENTRAL: *Dec.* 10: *Steam Cultivation.*—This was the subject of a lecture by Mr. J. A. CLARKE, of Long Sutton, Lincolnshire. He read the following paper:—

I propose to-night to submit a very short, and I am afraid a rather rough, paper on steam-cultivation. In preparing it I did not suppose that I was invited to come here to give a lecture on the subject, but rather that I should take the place of a servant who stands at the door to announce the visitors. I shall merely introduce the topic, and then I have no doubt it will prove perfectly capable of taking care of itself. I shall, in fact, make a few short remarks, and then listen to persons who have had practical experience in steam-cultivation, more particularly in the year 1867.

About a year ago, if you had been in the right place at the right time, you would have observed four gentlemen making their way on foot, and with some difficulty, through a field of high-topped Turnips; you would have noticed that the "understandings" of those individuals were high-topped too; that one wore leather leggings, another gleamed in shiny gaiters, another braved the wet crops without any covering to his cloth, and the fourth figured in a nether garment curiously constructed to be breeches and waterproof gaiters in one. Two of the party you would have sworn to, as looking every inch of them country gentlemen and good sportsmen; but though the talk of all four did run a little gamey, especially when a covey rose from the greens, yet they did not carry breech-loaders, and not a dog or a beater was in sight. You would have soon found that the topic of a rapid cross-firing of question and answer was strictly agricultural—about tillage operations, yields per acre, expenses, and returns; you would have at once concluded, from the queries put and observations made, that these were practical men of business, thoroughly familiar with details of farming on heavy or light land; and that they meant treasuring up the information they were gleaning in fields far from home, you would be aware from the circumstance of the slenderest man of the four standing still every now and then, to pencil in his note-book (in spite of a dripping rain), and then running forward to catch up the others. Gentlemen, that was one of the Inspection Committees of the Royal Agricultural Society, engaged in collecting evidence on steam cultivation. Speaking for that Committee, I may say that in the course of several long rounds, extending from the Fens below Peterborough to the Apple country near Worcester, and from the chalk downs of the Wiltshire White Horse up to the Potato country by the Firth of Forth, we met with plenty of hard work, and, at the same time, with amusing incidents enough to keep us in good spirits. Indeed, one of our number, to whose perseverance and continual flow of good humour the success of our enterprise was mainly due, sugested that, "What we saw and what we didn't see, put together would make a very tidy novel." "Breaking the ice" at a "very swell place;" laughing over a homely snack with a little farmer just afterwards; getting over the

awkwardness of remembering our long string of "instructions;" being sometimes entertained in wonderfully pleasant quarters, at other times glad of a thrifty cottage luncheon; meeting with a downright though good-natured refusal at one farm, after 40 miles by rail and road—"Have some luncheon? ask what you want to know; but I'm not going to be reported on: you shall not see my farm;" arriving, after a nine mile drive in a cold drizzle, at a homestead where nobody was at home, and the poor steam tackle lay in a back yard, rusted and half-hidden in a two years' jungle of Grass; comparing notes on the ropes of Couch that might be twisted upon farms of "eminent agriculturists," exhibitors of "prize animals," and so on: all these and many more circumstances helped to keep us in heart through a most wet and unfavourable season. But a few bits of merriment we shall never forget, such as the straw-stacking at one place, by a series of men seated on a tall ladder, and handing-up a fork of straw over-head from one to another; the inquiry, "Was Mr. C. so satisfied with the steam-plough that, in the absence of that, he would buy another?" answered by "the missis," "I wouldn't let him;" the quaint old bailiff with the nobby gloves; the antique driver of a hired trap, who lectured a couple of us upon "the ridiculous beard movement;" the extensive agriculturist with the rough cob, the Ash-plant, and the big trouser-patch; the reception (at an hotel in a manufacturing city) with courtly formalities, as "the Royal Commissioners;" the flavour of a certain bottle of grand old port, somewhere in the West of England; and of the tea and outlets which wound up a good many days without dinners; and in general I may say that, what with the hospitalities of many morning calls per day, and the sloppy state of the atmosphere, we found steam-cultivation to be anything but dry.

Very dry, however, I am afraid, you will find the subject to-night; there is little new that could be said, and I have thought it best to gather into a small compass some of the principal facts contained in the 330 pages of "Reports of the Inspection Committee." A gentleman, non-agricultural, said to me, "I have read most of your steam reports, and see that steam-tillage is very successful in many places; but it appears hardly so well established that one may say to a farmer, 'You have got so many acres of such a kind of land; then, of course, you should have a steam-plough.'" Now, I think, that such a conclusion from our reports is erroneous. If we had felt justified in publishing that on such and such a farm you should work a roundabout tackle, on such and such a farm a direct-action tackle, on such and such farm a double-engine tackle, and so on, and nothing else will do so well, why we should have been bold men, but not very prudent. Opinions have been given upon the various points involved in the adoption of steam-culture; but the main value of the reports consist in their multiplicity of examples, by means of which any person may see for himself what are the advantages pertaining to each system upon a farm like his own.

But I maintain that, taking the cases *seriatim* throughout, you cannot draw any other conclusion than that the steam plough and steam cultivator are quite successful enough to warrant any man in imitating for himself what he reads is being done by other people. How many of the 135 cases described in the reports are evident failures? How many of such failures are incapable of easy explanation, in no way to the discredit of the machinery employed, or, if so, not to the discredit of the system or principle adopted? Are not nearly all the cases more or less successful.

Let us look through the reports, beginning with the heavy lands. Go to farm No. 1, of 2500 acres arable, of stiff blue clay and warp, in large fields, flat, but undrained. The repairs, renewal, and wear-and-tear of a Fowler 14-horse power since 1862, average 100*l.* a-year; this engine ploughs or digs, 8 to 12 inches deep, 8 acres per day (including removal), at a cost of 4*s.* 2*d.* per acre for working expenses, to which may be added nearly 4*s.* per acre more for the machinery. That must be an economical success; and though there has been no reduction of horse-flesh, more work is done, and more crops are grown, which is the main point. No. 2: Heavy soil drained in large fields; a Fowler 14-horse power costs about 50*l.* a-year in repairs; it does 4 to 7 acres per day, some of the work 15 inches deep, and the farmer only regrets that he has not two engines in the "set" instead of one. No. 3: 500 acres arable, of alluvial and heavy clay, where two horses plough 3 roods per day, 6 or 7 inches deep; a Fowler 12-horse power costs about 25*l.* a year in repairs, besides rope; ploughs 5 or cultivates 10 acres per day, with working expenses 2*s.* 6*d.* to 5*s.* per acre; by very digging, the fertility of the field has been amazingly augmented. No. 4: 400 acres arable, of heavy and loamy soil, in large fields, and drained; a Fowler 14-horse power cultivates 8 and 9 acres per day for 3*s.* to 3*s.* 6*d.* per acre, besides repairs, and 15 horses have been reduced to 12. No. 5: 500 acres, so stiff that sometimes it takes 6 horses to plough 6 inches deep; half-drained, large fields; a Howard 10-horse power costs 20*l.* a year in repairs, besides rope; cultivates 7 to 10 acres per day (including removals); does about 400 acres in a year, at 6*s.* per acre, to which must be added 1*s.* per acre for rope, and 1*s.* for interest and depreciation; total, 8*s.* per acre. The team force has been reduced from 27 horses to 20, the seven old ones sold off, making 100*l.* towards the 500*l.* purchase-money of the tackle.

Now in that way one might go through the whole, and I undertake to say that we should find only a very small per-centage of cases in which there was an evident failure, and the farmer would have been better without the apparatus. One of the principal grounds of fear was that we should find the expense of steam cultivators at work to be too great; but that does not appear in any of the reports. There is, in fact, nothing of that kind to cause alarm to the mind of the farmer. Here (referring to the Report of the Commission) is a farm—No. 8—a Fen farm of 1000 acres, on which there is a set of apparatus, one of the Woolston sets, with a 10-horse engine. The cost of the repairs is stated at about 10*l.* a-year. The total wear and tear, exclusive of interest, upon the entire apparatus is 4*s.* 6*d.* per acre. The work is done 8 to 9 inches at the rate of 6 acres per day. About 230 acres were broken up by steam every year. The occupier, Mr. Cranfield, is perfectly satisfied with his set of apparatus, and thinks that on a farm of 400 acres tackle might be used profitably.

The conclusions which are given have, of course, a considerable value attaching to them; but I do not think it is fair to judge of the reports merely by the conclusions, which, being only supplementary remarks, do not contain anything like the full amount of lessons to be drawn from the cases themselves. I don't think I could do any good by going through the whole of the Commissioners' Report, but if you look through the document yourselves, supposing you should not have done so already, with sufficient care, you will find it bearing out my statement that only a very small per-centage indeed of the cases reported exhibit anything like failure, and that the conclusion from almost every case is that the farmer is satisfied with his apparatus, and that it is beneficial to him. There is a considerable amount of evidence as to the superior economy of steam as compared with horse-power cultivation, and there is almost universal testimony to the greater expedition of steam, and the increased power which it gives the farmer of getting on properly with his work. There is likewise a great deal of evidence as to the increase of yield. Those who read the report carefully must often come upon some very startling results of that kind. Eight bushels an acre as the increase in Wheat is spoken of in several cases. In most cases, too, there is a large addition in the root crops, roots, moreover, having been grown with steam where none could be obtained before.

The principal novelty is already sufficiently old; I allude to the very large amount of work which can be done with steam in a day. I have here a letter of my own on this subject, which was published last July; but I do not think sufficient prominence has been given to the facts which it relates. At Bury St. Edmund's there was a set of Fowler's steam-apparatus at work in a field; there was a set of Howard's apparatus at work in another field; and on a certain morning certain persons went to watch a trial of the extent of land which could be cultivated with those two sets of apparatus in a day. It was not a competitive trial, but the object was simply to see what steam-power was really capable of doing. The land was not, as you will see, particularly heavy. I thus speak of the matter in my letter:—"In a field of light, pebbly loam soil, on the farm of Mr. Green, about a mile west of the town, I found Messrs. Fowler's apparatus at work. They work on four different principles, to suit different requirements of different soils, localities, and customers; but I will not enter upon a description of the machinery just now. Two engines of 12 and 10-horse nominal power were hauling to and fro a new cultivator, which takes 12 feet width at once. The work was for the most part light, because the ground had been broken up the day before; but the wheels, sinking in the soft earth, let the tines down to 6 or 8 inches depth. The last two or three bouts that I saw done were half in unmoved ground, and in breaking up this the tines went in only about 5 inches, or barely that; the engines, however, did not slacken their speed, and hardly seemed to feel when the implement came to the hard piece. This showed that there was "power in hand" while doing the already cultivated portion of the field. An hour's race against time began at 8.35, and finished exactly at 9.35½ by my watch; and in this interval the implement made 18 journeys, accomplishing a total breadth of 74 yards. The length of the work was 340 yards, not including the headlands (which are left of only 5, or at most 6 yards' breadth, by this new plan of working), and the area, therefore, was 25,160 square yards, or 5.2 acres tilled within the hour. In a day of 10 hours this rate of work would amount to 52 acres; and in a long day of 13 or 14 hours the performance would be 67 to 72 acres. The pace of the implement was not excessive; I did not ascertain what it really was, but judged it to slightly exceed four miles per hour. The time lost in turning at the ends, however, I did observe, because I felt sure that everybody who might hear of this wonderful feat would say, 'Oh! that is all very well with trained engineering men, but farm labourers could not be so quick at the ends as these men no doubt were.' Well (to say nothing about the 'man' who drove one of the engines being a 'boy' 16 years old), the following were the number of seconds occupied in the 18 turnings—20, 60, 25, 35, 20, 75, 45, 50, 25, missed, 20, 20, 25, 30, 30, 40, 65, 20—the average being over 35 seconds. If the details of the turning-chains and hooks had been perfect (as they will be made in a short time), the minimum time of 20 seconds would have been kept up through the entire experiment, and at least another (or 19th) journey would have been accomplished within the hour; and the area done would have been 5½ acres—that is, 55 acres per day of 10 hours, or 77 acres in 14 hours, if the work were maintained without intermission by relays of hands——"

A MEMBER: Seventy-seven acres a day!

Mr. CLARKE: Seventy-seven acres in one day of 14 hours. The letter continues:—"I was not speaking wildly, then, when talking of 60 acres of light soil worked by the tines of a cultivator, by one set of tackle, and in a single day. But on that same Wednesday I saw something else very remarkable in expeditious steam-culture. In one of Mr. Guy's fields, a quarter-of-a-mile from the showyard, Messrs. Howard's two 14-horse engines were working two cultivators at one and the same time. Instead of the engines being made to play with one implement alternately passing from one to the other—one engine looking foolish while waiting till the other has done—both engines pull simultaneously at two implements; and the breadth of 5 or 7 feet at a time (according to the difficulty of the work) is thus accomplished for the whole length of the field in little more than half the time that would be occupied by the same two engines in doing it with a single implement. The length of the work (280 yards) was run in one minute and a half—that is, in this time a strip, 280 yards long and 5 feet wide, was finished by the two cultivators running half-way and meeting in the middle; the time in turning was a quarter up to half a minute; and I estimated the rate of working to be about 3¾ acres per hour. Kept up for 10 hours, this would be about 38 acres, or for 14 hours, 53 acres, in a day. The soil was by no means light, and the work too hard to show what will be done with the cultivators at their full breadth of 7 feet each. They were worked with two tines removed from each implement, thus only 5 feet apiece; but with their proper number of seven tines each and in a light soil, the performance, of course, would be correspondingly increased."

Now some persons may think it astounding to talk about from 50 to 70 acres a-day being cultivated. I admit that it is very astounding; but I also assert that I saw the thing done—and there are other persons who also saw it done. I may tell you, too, that the apparatus was not in a perfect state; it was one of the earliest trials of that particular arrangement. I have not the slightest doubt that the makers of steam ploughs are prepared, though I have not their authority to say so, to do, in answer to a challenge, an extent of land in a day which would astonish every one present. I have not the slightest doubt myself that 70 acres—I should not stare particularly if the quantity were 100 acres—could be cultivated, provided the work were tolerably light.

One of the objections urged by some persons against steam cultivation is, that it is only on heavy land that it succeeds; and doubts are expressed whether enough would be done in a day to pay upon light lands. Well, here I have shown what is the quality as well as the quantity of the work performed, and my opinion is that the light-land farmer would benefit quite as much by steam cultivation as the heavy-land farmer. I really think I should be acting improperly were I to detain you by dwelling on a number of facts which have been laid before the public. I don't think there is, in fact, anything very new to be said on the subject. For my part, I should like now to hear the experience of persons who have used the apparatus during the last season. Particularly do I wish, with our chairman, to ascertain whether the crops grown in the last season on steam-cultivated land have or have not exhibited the same deficiency in yield as crops grown on land cultivated with horse-power. In conclusion, let me say that I feel exceedingly indebted to you for the patience with which you have listened to me, and I have to apologise to you for having submitted such a rough and imperfect paper. [The subsequent discussion is referred to in a leading article.]

ANNUAL DINNER OF THE CENTRAL FARMERS' CLUB.—This took place on Tuesday evening, Mr. E. Little, of Lanhill, Chippenham, in the chair, and Mr. C. S. Read in the vice-chair.—In proposing "Success to the Farmers' Club," the Chairman observed that it was now nearly five-and-twenty years since a few gentlemen met together in the Old York Hotel, in Bridge Street, and established the Club, with the view of thereby forming a bond of union for the agriculturists of the country, and furnishing them with accommodation whenever, for business or pleasure, they visited the City of London. The result was, he believed, that most of those who joined the institution had derived the greatest benefit from it, by assembling together and mutually interchanging their ideas, not only at the monthly discussions, but in the social intercourse of the club-room. One of the principal objects of the formation of the Club, besides the personal accommodation provided for them when they came to town, was the lectures and discussions on agricultural topics. A quarter of a century, however, was enough to wear a subject even more prolific than that of the details of practical agriculture threadbare; and he feared that the subjects discussed had some time since become a little threadbare. But to obviate that inconvenience, during the past year the Committee thought it wise to introduce other matters than those connected exclusively with practical agriculture, and the experiment had been attended with a fair measure of success. Need he remind them of the paper of Mr. Nockolds, on the establishment of a Board of Agriculture; the paper of Sir George Jenkinson, on the turnpike question; and last, though not least, the capital paper, followed by a useful discussion, upon the management of benefit societies in rural districts, by Mr. Charles Howard, and which had borne good fruit, as attested by a large correspondence which had since taken place on the subject. For his own part, he was of opinion that there was nothing in the world to prevent their discussing any question whatever, even though it were of a political nature. In fact, they might discuss the next Reform Bill if they chose. There was nothing in their rules to forbid it. Indeed, there were many subjects having a slight political bearing the discussion of which would tend greatly to the advantage of the Club, instead of impairing its usefulness or running counter to the objects for which it was founded. With regard to the numerical and financial position of the institution, he was glad to say that they had been steadily progressing in the course of the five-and-twenty years they had existed alike in point of numbers and in

point of finance. At the present moment they numbered about 600 members, and on the previous day 18 new members were nominated for election at the next Committee meeting. And if further proof were wanting to show what was the status of the Club, he thought the large attendance of that evening was a convincing argument that the interest of the farming community in the institution was as great as ever. As to their finances, year by year they had gone on investing their money, until now at the end of the year it appeared that they had 1000*l.* secured in the public funds. This he looked upon as a creditable fact at a moment when they saw so many societies coming to grief. He trusted, then, that the Club would continue in its prosperous career, that younger men would constantly join it and participate in its benefits, and that it would be found useful to many future generations.

The Poultry Yard.

THE SHOW AT BIRMINGHAM.

WE have now to conclude our report of this meeting;—The various classes of Hamburghs have many and ardent admirers, especially in the north, and nearly all the first prizes for them went there. The Polands always have been weak classes, and, numerically speaking, they remain so. Excellent birds of the different kinds are exhibited; they are very handsome, and yet the classes remain very small. The class of any new and distinct variety of fowls was filled with some good birds; amongst them the cuckoo fowls of Lady Aylesford, and the buff Polish of Mr. Walmsley took 1st and 2d. The competition in the game classes was very keen. Two silver cups, allotted to these breeds, were taken by the Rev. R. L. Jacob and Mr. Chaloner respectively. The black-red pullets of Mr. Smith, the adult cock-bird of the Duke of Newcastle, were much admired, as were the brown-reds of Mr. Wood, of Moat House, Wigan; this latter exhibitor appearing four times on the prize list for them. There were but few Sebright bantams, the same may be said of the white ones; as for the game bantams, their name is legion. They seem to have become universal favourites.

In ducks it is apparent that the Aylesbury is giving way before the Rouen; whether the latter be hardier, more prolific, or be considered handsomer, it is certain they now find more admirers than their white rivals. The class of them at Birmingham contained birds of unusual quality. In taking the first prize for them Mr. Shaw well sustained his reputation as a breeder. The 1st prize Aylesburys were very good birds; every prize in the class went home to Buckinghamshire. The black East Indians, which were for many years confined to the variety class, mustered nearly as strong as the Aylesburys. This breed has much to recommend it. The plumage is very handsome, the meat abundant, and of excellent quality; and although a useful farmyard duck, it will thrive well in a semi-wild condition on large pieces of water in parks and large enclosures.

The class for any other variety of duck has become a very great favourite, and, thanks to the patronage extended to it by the Birmingham committee, we now see in its pens many beautiful birds that formerly were confined entirely to private collections, and, comparatively speaking, unknown to the public generally. The contest between the white geese and the Toulouse is, we think, likely to incline in favour of the latter. Earlier maturity, a much greater average weight, and a larger number of eggs, are all in favour of the newcomer. The four classes at Birmingham were nearly equal ones. Mrs. Seamons took first for white, Mr. Fowler for coloured. The turkeys were very good—indeed, so good, that seven high commendations followed the four prizes in the class for young birds. Mr. Smith took first prize in each class. The pigeons formed the finest collection ever seen in this country. The competition was very keen in nearly all the classes, and the prohibitory prices of the birds gave evidence as to the set on them by their owners. It would take too much space to give a list of the winners in the thirty-six classes; but we may say that the cup for the best collection was awarded to Mr. E. E. M. Royds, of Rochdale. Many new and rare varieties were exhibited. By a new regulation, which did not meet with the success expected of it, all the prize and commended pens were submitted to public competition by auction. The prices made by some of the birds was very high. A Spanish cockerel made 15*l.*; two pullets, 14*l.* 10*s.*; two hens, 10*l.* 10*s.*; a pair of young runt pigeons, 6*l.* 6*s.*; a Brahma cock, 9*l.* 10*s.*: white Dorking cock, 11*l.* 10*s.*; two grey Dorking pullets, 11*l.* These prices, with those made by Lady Holmesdale's birds a short time since, will show that by painstaking poultry may be made profitable. The arrangements of the show were, as they always are, excellent. A feature worth notice is that the Council very kindly gave free admission to more than 3000 school children. The Committee, which numbers among its members nearly all those who assisted the show in its infancy, must look at the meeting just concluded with great satisfaction, as it shows a marked improvement on the two preceding years, not only in the entries, but in money taken at the doors.

The judges of poultry were the Rev. R. Pulleine, Rev. G. F. Hodson, Messrs. Baily, Hindson, Teebay, Smith, and J. H. Smith. Pigeons, Messrs. Harrison Weir, Hedley, and Tegetmeier.

MISCHIEVOUS FOWLS.—The following is a lawyer's advice on the subject:—I would advise "H. B." not to shoot his neighbour's poultry, or he will have to pay their value in damages in an action to be brought against him, together with costs. If "H. B." has a son, brother, or nephew, who is an attorney, I advise him, as an encouragement to his young and deserving relative, to bring an action against his neighbour, having first duly warned him to keep his cocks and hens away from the place, by some witness who has sense and memory enough to prove the fact. But if without a desire to promote the interests of the profession, he merely wishes to preserve his garden, then I advise him to procure some basket traps, or traps into which the poultry may enter without being able to get out again, such as are made for rooks, or any other traps that will not injure the animals, and set them in his garden, with bread crumbs or Barley visible within them, and if any fowls enter and are caught, immediately give notice to their owner that he has distrained and impounded such and such animals "damage feasant" in his garden, and ask him how he would like them to be fed; for that he, "H. B.," would wish to feed them in such manner as the owner prefers (as it is to be at his, the owner's cost), and either according to these instructions, or of his own judgment, "H. B." must take care to feed them so long as he detains them, and give him further notice where they are impounded and kept, which should be where the owner may feed them if he will, and inform him also that upon his making such satisfaction for the damage they have done as is reasonable, and upon paying to "H. B." the cost of their food and the costs of the distress, and of keeping them in custody, he may have his fowls again. Let "H. B." ask but a moderate compensation the first time; but if they come and are caught a second time, ask a little more, and so proceed till the increase compels the owner to keep his fowls at home. The owner of the fowls may replevy them if he pleases; that is, he may get a parchment from the officer of the sheriff of his county called a replevin, whereby Queen Victoria tells the sheriff that "H. B." wrongfully, and without cause, as it is said, took the cocks and hens and impounded them, and she orders the sheriff to take them away from "H. B." and give them back to the owner, upon the owner's giving a bond with two sureties, conditioned for his proving in the Queen's Court that "H. B." had no pretence for taking them. This is a hardy assertion for the poultry-man to stake his 40*l.* and two sums of 20*l.* upon, and if he understands it he will give in and make compensation; but no matter, he probably will be angry and so not understand it, and so he and "H. B." go at it ding dong. But with a skilful pleader, a good attorney, attentive counsel, sober witnesses, an honest intelligent jury, and an active watchful judge, the odds are very great in "H. B.'s" favour. This is the proper course towards trying by a jury, before a judge of assize, the question which the poultry-man affirms, viz., whether the fowls had a right to feed in "H. B.'s" garden, and whether they did any damage when there, and whether "H. B." demanded too high a compensation. If this process be often repeated, the owner of the fowls will probably himself wring their necks.

Farm Memoranda.

WEST SUSSEX: *Dec.* 4.—We have got into winter to-day, the hills round us are covered with snow. We have had a fine autumn, and the Wheat has been got in in good order, but none of it was sown very early, and it has come up very slowly, while the slugs have in many instances injured it; but as we have now had some sharp frosts, the ravages may be stopped. But there is not yet much show of plant on the ground, we have seldom seen less at this time of the year.

We still hear great complaints of the yield of the last crop: in most cases it is less than was expected, and a good deal of it is now threshed—much more than is usual at the time of the year.

Barley yields very fair, the quality generally is good, and the price for malting is very little more than is got for grinding samples. There is a great quantity still in the market, and trade is dull.

Oats are turning out pretty well, and are dearer than usual, 26*s.* to 30*s.* Peas are not a good crop, and there are few in market.

Mangels are all stored; it is rather a light crop, but the roots are sound. Swedes are good and look as if they would stand the winter well, and the same with Turnips.

Live stock is healthier than it usually is, and no doubt the precautions taken have done good, not only in preventing the cattle plague from spreading, but also other diseases; because few would have ventured to bring a beast to market if it did not look right in every way; and so we have had a stop put to the spreading of every complaint, and we hope care will still be taken that none but healthy animals are admitted into the markets. It was said that to be particular about the mouth-and-foot disease would cause great inconvenience, but that was by dealers, and before the cattle plague compelled to carefulness. But we believe the restrictions have been beneficial to dealers, as they have brought none but healthy beasts to market; and as they looked better than usual they have found a ready sale.

Store sheep have fallen a little in price, but are not in proportion to the price of mutton, which has dropped very much, and many who fat have lost money. Pigs have been nearly unsaleable; fat ones are not worth quite 6*d.* per lb., and as food is so dear of course they do not pay for fatting; they are not likely to be dear for some time, as food is likely to remain high till next harvest.

Though Wheat has been all got in, and the Mangel got up, yet work is not forward. There is very little of the Wheat stubble ploughed, and we shall find work for every available day for some time to come.

Wages are about the same as they have been for some months past, 13*s.* to 15*s.* or 16*s.*, and there is likely to be more than sufficient hands for the winter.

WEST GLOUCESTERSHIRE: *November 29th.*—The depression in the wool trade has of course caused a wonderful reaction in the price of both fat and store sheep; the latter are at least 15*s.* to 20*s.* per head lower than last year, and very little business can be effected even at the reduced prices. Mutton is selling at 6*d.* to 6½*d.* per lb. Beef keeps up well, good quality being worth 70*s.* per cwt. Bacon from 8*s.* 9*d.* to 9*s.* per score; pork 8*s.* 6*d.* to 9*s.*, according to the quality. It is not often at the end of November that we have to say we are short of water, but such is the case; the pools and watering place in the vale of Berkeley are very low indeed, and farmers fear the consequences should frost set in before we get rain.

It has been a beautiful time for the storing of the Swede crops. Some cart off a portion of the crop as near to the homestead as possible for the cattle in the yards, and leave the remainder to be pitted in the field for sheep. We have good crops of Swedes and Turnips, which will in some measure lessen the artificial food expenses, and enable us to feed our stock so as to be better able to meet the times. It would be very interesting if some of the great root growers in the country would give us their experience on their system of storing this most valuable root; for the chief and great object, in my opinion, in the management of a root crop is the means taken to preserve it, after going to the expense and trouble of growing it.

During the last few years we have looked the crop over before pulling it, and any that appear curly in the leaf, or in any way diseased, we draw and use first, feeling convinced that the disease is contagious, and that if they are pitted with the crop they will soon be rotten and certainly rot others. The practice of storing in this neighbourhood is very various. The most careful growers are very particular in harvesting them, and are as careful about keeping them dry in the pits, as they are keeping their hay or corn ricks dry. The practice of cleaning the Swedes before storing them, so that they may be ready for use, is becoming very general in this neighbourhood, and many growers this year have done this to all their crop, and have pitted them in heaps in the field, of from 4 to 6 cartloads each, or as far as the fold may require. The cleaned roots are then covered with straw sufficient to keep the earth from running in amongst them, and I am told that they keep as well cleaned and pitted this way as they do with the roots left on. But I believe that a portion of the nutriment must escape after the roots are cut off, just as it would from Mangel. The cost per acre for pulling, cleaning, and earthing is from 8*s.* to 10*s.*, according to the weight of the crop; the work is let to the labourer, his wife and family do the cleaning and heaping, and he himself the pulling and earthing up. Another plan is to take one row and leave one, and then to plough a furrow against each side of the Swedes left, thus covering them as they grew. Others leave them in the field to stand the winter as best they can, very often to the cost of the grower. Our plan is to take nearly half the crop off; the reason we take so many off is to enable us to get in the spring crop early, which is most essential to us. We take 50 rows, and leave 50, and so on throughout a field of 25 acres. Our object in taking them in breadths is that those remaining shall be handy for the shepherds to get to the cutter at a time when the wheelbarrow won't run very freely, and it certainly saves a vast amount of labour—an item much to be considered in the Turnip field. The land is as regularly folded over as if the Swedes were left all over the field. One part of the crop this year we have pitted in the usual way; that is, in small pits of about a load each, the tops only being cut off. The other part is pitted in long narrow pits, 12 yards long, 3 feet high, and about 3 or 4 wide. The heaps are 30 yards apart, which is the width we make the fold. The top hurdles of the fold run parallel with the pit, so that the roots are always close to the cutter, and thus all wheeling or throwing is avoided. The trimmings of course must be properly spread over a good space of ground, or the corn will not be worth much where the heap stood. Our object in pitting in the way described is to test the plan of large pits against small ones, as to which will keep longest in the spring. The large pits are covered with a little straw before the earth is put on, and ventilators are left in the top for the escape of any fermentation which may take place. The cost per acre is 8*s.*, the crop being heavy. The small pits are merely covered with about 6 inches of earth. The Swedes we cart to the homestead are covered with short straw or caving, if we have any, and then thatched over with as much straw as we can afford. If the frost comes on very severe, we put some long dung about half-way up the thatch, as the frost is always most severe near the ground. On the Cotswold Hills the Swedes are chiefly thrown in heaps, tops and roots, or on small pits, the general price being about 7*s.* per acre. *J. W.*

MERSE OF BERWICKSHIRE: *Nov.* 30.—It were "piper's news" to tell of a drought unsurpassed in the driest of recent summers, but it may be mentioned that during these 32 days there has not fallen a drop of rain, save on three of them, and that amounting to three-tenths of an inch only. We never knew the streams so low, and as water-powers are next to useless, and little straw but what they eat is required for cattle, field work has been pushed in preference to threshing. As usual, vigilant corn-trade reporters talk of farmers "withholding supplies," but the truth is that we must thresh as straw is wanted, and sell the produce, little though it be this year. Corn speculation seldom is, and never ought to be, coupled with farming. Wheat-sowing has again reached—perhaps exceeded—its normal dimensions, a state of affairs loudly called for by the yearly increasing scarcity throughout the world. This scarcity is the natural result of the very low prices consequent on the abundant crop of 1863, which almost put a stop to the growth of Wheat—at least, in Scotland, where we have the alternative of Barley to follow root crops; and even the plentiful and fine crop of last year, con-

fined as it was to a limited area, left nothing in store. Early in the month late Turnips did grow a little, but hard N. and N.W. winds and occasional frosty nights have checked that for the season; and it is by moderate stocking, or free use of hand-feeding, that they can be made to suffice. Looking at the price of cakes as compared with mutton, one had better refrain from buying. Our "good" Swedes are realising 30 loads, say 15 tons, per acre; and each beast eats about 1½ cwt. of these (2 cwt. of Whites), with straw unlimited. Wise men cannot agree about the alleged outbreak of cattle plague in this neighbourhood. It is to be noted that cattle previously in company with the affected lot are known to be yet healthy; and it would seem to be a case of ill-usage in transit. It will be well, however, if it direct public opinion to the exclusion of live-stock from abroad, and thereby increase the available supply of meat in this country. We hear of considerable losses among Hoggs owing to unripe Turnips. Ours have been kept healthy by giving bran, as well as hay and straw chaff, on the Turnip break. Young horses ought to pay now for the rearing. *J. T.*

Notices to Correspondents.

EGGS.—A letter relating to eggs which appeared in last week's Paper, signed "Charles J. Richards," should have been headed "ADVERTISEMENT."

AGRICULTURAL IMPORTS, TEN MONTHS, 1867: *R.*

Articles.	Quantities Imported. 1866.	1867.
I. Articles Free of Duty.		
Animals, living—Oxen, Bulls, and Cows .. .. No.	177,480	137,222
Calves .. .. ,,	25,506	19,843
Sheep and Lambs .. .. ,,	717,888	458,093
Swine and Hogs .. .. ,,	65,678	41,331
Ashes, pearl and pot .. .. cwt.	80,395	61,643
Bones burnt or not, or as animal charcoal .. .. tons	67,001	71,566
Flax and Tow or Codilla of Flax—		
From Russia .. .. .. cwt.	1,074,850	916,260
Holland .. .. ,,	49,955	68,314
Belgium .. .. ,,	111,282	136,334
Other Countries .. .. ,,	75,224	109,790
Guano — From West Coast of Africa .. .. tons	1,533	2,875
United States .. .. .. ,,	1,411	2,182
Peru .. .. ,,	81,404	119,051
Bolivia .. .. ,,	..	4,967
British West India Islands .. ,,	2,855	2,222
Other Countries .. .. ,,	13,119	8,843
Hemp and Tow or Codilla of Hemp—		
From Russia .. .. .. cwt.	556,868	367,744
Venetia .. .. ,, }	175,152	99,579
Illyria, Croatia, and Dalmatia ,, }		38,193
British India .. .. .. ,,	23,791	5,537
Philippine Islands .. .. ,,	42,040	74,552
Other Countries .. .. ,,	45,040	50,032
China Grass .. .. .. ,,	1,312	584
Jute and substances of the nature of Hemp .. .. .. ,,	1,391,677	1,334,006
Hops .. .. cwt.	39,361	91,661
Oil Seed Cakes .. .. .. tons	99,850	92,261
Potatos .. .. cwt.	491,191	849,980
Provisions—Bacon and Hams .. ,,	581,584	419,233
Beef, salt .. .. .. ,,	155,315	144,482
Pork, salt .. .. .. ,,	153,716	120,251
Butter .. .. ,,	889,142	902,398
Cheese .. .. ,,	608,091	715,123
Eggs .. .. No.	387,164,400	353,154,240
Lard .. .. cwt.	220,995	184,761
Saltpetre .. .. ,,	215,425	190,661
Cubic Nitre .. .. .. ,,	768,564	815,233
Seeds—Cotton .. .. .. tons	86,325	87,370
Clover .. .. cwt.	181,983	101,609
Flaxseed and Linseed .. .. qrs.	869,071	816,408
Rape .. .. ,,	352,376	494,188
Tallow—From Russia .. .. cwt.	318,392	170,806
Australia .. .. ,,	19,088	18,449
South America .. .. .. ,,	301,563	226,890
Other Countries .. .. ,,	143,184	117,311
Wool, Sheep and Lambs'—From Europe .. .. lb.	30,103,723	16,765,480
British Possessions in South Africa ,,	16,105,529	28,260,893
British India .. .. .. ,,	19,445,288	11,812,008
Australia .. .. ,,	108,776,533	125,512,559
Other Countries .. .. ,,	17,539,740	20,261,969
Alpaca and the Llama Tribe ,,	2,640,148	2,570,291
Yeast, dried .. .. .. cwt.	94,687	94,971
II. Articles Subject to Duty.		
Corn—Wheat—From Russia .. ,,	6,439,820	11,420,605
Denmark .. .. ,,	413,104	361,063
Prussia .. .. ,,	3,522,490	4,906,537
Schleswig, Holstein, & Lauenburg ,,	154,233	94,409
Mecklenburg .. .. .. ,,	658,274	615,153
Hanse Towns .. .. .. ,,	686,484	555,842
France .. .. ,,	3,325,975	570,486
Turkey and Wallachia & Moldavia ,,	367,443	1,893,408
Egypt .. .. ,,	20,503	841,857
United States .. .. .. ,,	440,290	2,424,467
British North America .. ,,	8,789	157,979
Other Countries .. .. ,,	2,514,527	3,132,357
Barley .. .. ,,	6,043,810	4,808,827
Oats .. .. ,,	7,472,011	7,802,742
Peas .. .. ,,	952,539	1,221,285
Beans .. .. ,,	704,975	1,695,983
Indian Corn, or Maize .. .. ,,	13,149,623	7,805,058
Wheatmeal and Flour—From Hanse Towns .. .. ,,	237,166	340,988
France .. .. ,,	3,248,638	1,103,062
United States .. .. .. ,,	225,584	313,725
British North America .. ,,	26,882	31,298
Other Countries .. .. ,,	261,966	861,851

GAME: *R M.* We are not learned in the law. We believe that damage by rabbits to crops can be recovered, if it can be proved. If you have a *written* permission from your landlord to destroy rabbits you may safely act on it

PIG FOOD: *X.* Buckwheat can be, or could be lately, bought at about 8*l.* 10*s.* to 9*l.* per ton. With the exception of Buckwheat, home-grown Peas and Barley are about as cheap as anything we can feed upon. Peas have been lately about 10*l.*, and Barley about 11*l.* Now and then we see a sample of damaged Wheat that can be had at about 9*l.* 15*s.* per ton. If any of your correspondents can give any information as to a cheaper article of food, we should be very glad to hear of it. Pig-fatting is a losing trade with present prices.

PORTABLE AND FIXED HOT-WATER APPARATUS,

FOR HEATING CONSERVATORIES, HOTHOUSES, CHURCHES, PUBLIC BUILDINGS, PRIVATE RESIDENCES, ETC., WITH



TRUSS'S PATENT UNIVERSAL FLEXIBLE AND LEAKLESS PIPE-JOINTS.



T. S. TRUSS

Begs to state that the immense number of APPARATUS annually Designed and Erected by him in all parts of the kingdom, and for the ROYAL HORTICULTURAL SOCIETY at SOUTH KENSINGTON and CHISWICK, with unrivalled satisfaction, is a guarantee for skill of design, superior materials, and good workmanship; while the great advantages obtained by his IMPROVED SYSTEM cannot be over-estimated, consisting of perfectly tight joints with neatness of appearance; EFFECTS A SAVING OF 25 PER CENT. on cost of Apparatus erected compared with other systems; facility for extensions, alterations or removals without injury to Pipes or Joints; can be erected by any Gardener; an ordinary size Apparatus erected in one day, and PERFECTNESS of DESIGN SUPPLIED, INSURING NO EXTRAS. Complete Apparatus, of the best materials, with Saddle Boiler, delivered to any Railway Station in England, and Erected at the following prices. Erection beyond 25 miles off London, railway fare for one man additional. Considerable reduction on large works.

TWO FOUR-INCH PIPES ALONG ONE SIDE AND ONE END OF HOUSE.

Size of House.	Apparatus Complete.	Erection.	Size of House.	Apparatus Complete.	Erection.
20 feet by 10 feet ..	£9 0 0 ..	£2 0 0	50 feet by 15 feet ..	£17 10 0 ..	£3 0 0
30 feet by 12 feet ..	11 15 0 ..	2 10 0	75 feet by 15 feet ..	20 0 0 ..	3 0 0
40 feet by 15 feet ..	15 0 0 ..	2 15 0	100 feet by 15 feet ..	26 0 0 ..	3 5 0

Bath and Gas Work erected in town or country. The Trade Supplied.

Horticultural Buildings of every description from 1*s.* 6*d. per foot superficial, inclusive of Brickwork.*

Price Lists, Plans, and Estimates forwarded on application to

T. S. TRUSS, C.E., CONSULTING HORTICULTURAL ENGINEER, &c., SOLE MANUFACTUREE, FRIAR STREET, BLACKFRIARS ROAD, LONDON, S.E.

Observe — The City Offices are now Removed to the Manufactory, Friar Street.

GREEN'S PATENT SILENS MESSOR,

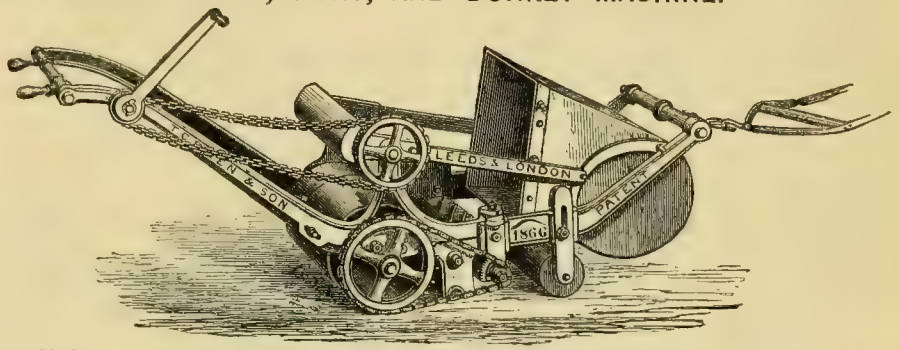
OR NOISELESS LAWN MOWING, ROLLING, AND COLLECTING MACHINES.

FITTED WITH PATENT SELF-SHARPENING CYLINDER CUTTERS.

They are the simplest in construction, least liable to get out of order, and can be worked with far greater ease than any other Lawn Mower extant.

GREEN'S PATENT LAWN MOWERS have proved to be the best, and have carried off every Prize that has been given in all cases of competition; and in proof of their superiority, 40,000 have been sold since the year 1856.

HORSE, PONY, AND DONKEY MACHINE.



Every Machine is warranted to give entire satisfaction, and if not approved of can be returned at once unconditionally

T. GREEN AND SON *have to state that the demand for their* LAWN MOWERS *this Season has been unprecedented, which is a proof of the high estimation in which they are held. Selections can be made from their Stock both in London and Leeds.*

☞ ILLUSTRATED PRICE LISTS FREE ON APPLICATION.

THOMAS GREEN AND SONS, SMITHFIELD IRON WORKS, LEEDS; and 54 and 55, BLACKFRIARS ROAD, LONDON, S.



SHANKS'

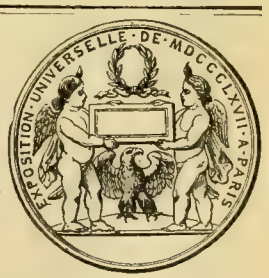
PATENT LAWN MOWERS,

AWARDED THE

FIRST PRIZE SILVER MEDAL

OF THE

UNIVERSAL EXHIBITION, PARIS, 1867.



ALEX. SHANKS AND SON have received official intimation that the Jury at the Paris Exhibition have AWARDED them the FIRST PRIZE SILVER MEDAL for their PATENT LAWN MOWERS.

A. S. AND SON, judging from the fact, that out of all the Lawn Mowers in the Exhibition, their Machines have been the only Lawn Mowers deemed worthy by the Jury to receive so distinguished an honour, are gratified to find in this a further proof that the efforts they have made to improve their Machines have always been in the right direction. The demand for SHANKS' MACHINES increases year by year, and during the past season it has increased very considerably. A. S. AND SON having had so long an experience in this Trade, can confidently guarantee their Machines to be unequalled by any before the Public.

☞ *Every Machine warranted to give satisfaction, and if not approved of can be at once returned.*

ILLUSTRATED PRICE LISTS SENT FREE ON APPLICATION.

ALEX. SHANKS AND SON, DENS IRON WORKS, ARBROATH.
LONDON OFFICE AND SHOW ROOMS, 27, LEADENHALL STREET, E.C.

27, *Leadenhall Street is the only place in London where intending Purchasers of Lawn Mowers can choose from a Stock of from* 150 *to* 200 *Machines.* A. S. AND SON *have a staff of efficient Workmen at* 27, *Leadenhall Street, thoroughly acquainted with all the details of these Machines, so that they are enabled to repair them in London as well as can be done at their Manufactory.*

COTTAM AND COMPANY,
CONSERVATORY and HOTHOUSE BUILDERS, &c.,
Iron Works, 2, Winsley Street, Oxford Street, London, W.

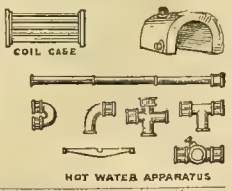
SADDLE BOILERS.

20	24	30 inches long.
45s.	66s.	92s. 6d. each.

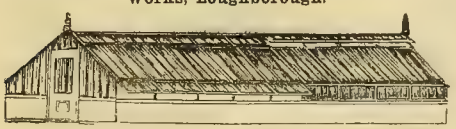
HOT-WATER PIPES.

2	3	4 inch.
1s. 6d.	2s. 1d.	2s. 9d. per yard.

Materials supplied as above, or Estimates given fixed complete to Plan, on application to
COTTAM & Co.,
Iron Works,
2, Winsley Street,
(opposite the Pantheon),
Oxford Street, London, W.



Midland Steam Power Horticultural and Hot Water Works, Loughborough.



T. G. MESSENGER, Midland Steam Power Horticultural Works, Loughborough, Hot-Water Apparatus and Valve Manufacturer.

Honourable Mention awarded at the International Exhibition, 1862, and at the Dublin Exhibition, 1865; also a First-class Certificate by the Royal Horticultural Society.

T. G. MESSENGER, Patentee of many important improvements in Buildings and Implements connected with Horticulture, and which meet with unqualified approbation, is prepared to give reference to hundreds of works entrusted to him and pre-eminently answering the purpose for which they were constructed.

Any House Glazed single or double, with or without putty.

The mode adopted by T. G. MESSENGER for Heating and Ventilating Forcing Houses is particularly successful.

Houses are constructed by his Patented Ventilating principle to open the whole of roof and sides as though the glass were entirely removed, at once placing the plants in the external atmosphere.

T. G. MESSENGER'S Boiler possesses all the advantages of the Tubular and Saddle combined, has hollow furnace bars, requires but a shallow stokehole, and exposes as much surface to the direct action of the fire as can possibly be obtained, the whole of which can be easily cleaned; and it is an important fact that out of upwards of 500 now at work made upon the improved principle not one has cracked.

T. G. MESSENGER'S Valve (single or double) is effective, simple, easy to work, and as durable as the pipe to which it is attached.

Designs and Estimates supplied for all kinds of Horticultural Works, and guaranteed to answer the purpose for which they may be intended.

Greenhouses—Heating Apparatus.

CONSERVATORIES
PINERIES
STRAWBERRY HOUSES
VINERIES
FORCING HOUSES
ORCHID HOUSES
WALL-TREE COVERS
GREENHOUSES
CUCUMBER and MELON HOUSES



DUBLIN EXHIBITION

ORCHARD HOUSES
PATENT SUN-BLINDS & FROST PROTECTORS, with various Patented Improvements in the CONSTRUCTION
VENTILATION
HEATING
SHADING
OPENING GEAR

THE ONLY PRIZE MEDAL AWARDED for Various Improvements in the Ventilation, Construction, and Application of WROUGHT-IRON to Horticultural Buildings.

Our New Patent TENANT'S GREENHOUSE, THE NOVELTY, is cheap, durable, easily fixed, does not require painting, is adapted for all purposes, and is the most perfectly ventilated house of the present day. Prices:—20 ft. long, £10 to £19 10s.; 32 ft., £15 to £29 18s.; 40 ft., £18 to £36; 64 ft., £27 12s. to £54 3s. 6d.; 80 ft., £34 to £66 6s.; 104 ft., £43 12s. to £84 10s. Span Roofs, double price.

Orders for our New Patent WALL-TREE COVER are now solicited. They save their cost in one season. Prices, with 10-oz. glass, 8s., 9s., 10s., and 12s. per foot run.

In HEATING we are pre-eminent, and have pleasure in referring to works in all parts of the kingdom which have been executed by us.

Careful personal attention is given to all orders; and from our immense practical experience, we are willing to guarantee that Buildings left to our arrangement shall perfectly answer the purposes for which they are intended, without fear of disappointment.

Our Patented arrangements may be seen "en modèle," and every information obtained at our London Office, 6, Sloane Street, S.W.

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DENNIS & SCRUBY, Hot-Water Engineers, Patentees, and general Horticultural Builders in Wood or Iron.

Catalogues, Estimates, or Plans on application.

MOULE'S WARMING APPARATUS.—The best and most economical system of Warming Churches, Schools, Hothouses, and all large Buildings. Apply to
J. W. GIRDLESTONE, C.E., 31, Duke Street, Westminster, S.W.

JAMES WATTS AND CO., HOTHOUSE BUILDERS and HOT-WATER APPARATUS MANUFACTURERS, 353, Old Kent Road, S.E.

TWO HUNDRED CUCUMBER and MELON BOXES and LIGHTS, and from 400 to 500 LIGHTS for PITS of all SIZES kept in STOCK, Glazed and Painted complete, ready for immediate use. Packed and sent to all parts of the kingdom. Public and Private Buildings, Warehouses, &c., heated on the most approved scientific and economical principles. References to the Nobility, Gentry and Trade in most of the Counties in England.

The Only Stove without a Flue.



NASH AND JOYCE'S PATENT, for AIRING, DRYING, and WARMING HALLS, SHOPS, ROOMS, &c., a new especial Stove for Conservatories, Greenhouses, Fruit-Ripening, &c.: to Burn without re-lighting all winter by filling with fuel every 12 hours. Temperature, any degree required, without varying. Price from 12s. 6d. to 6 guineas.

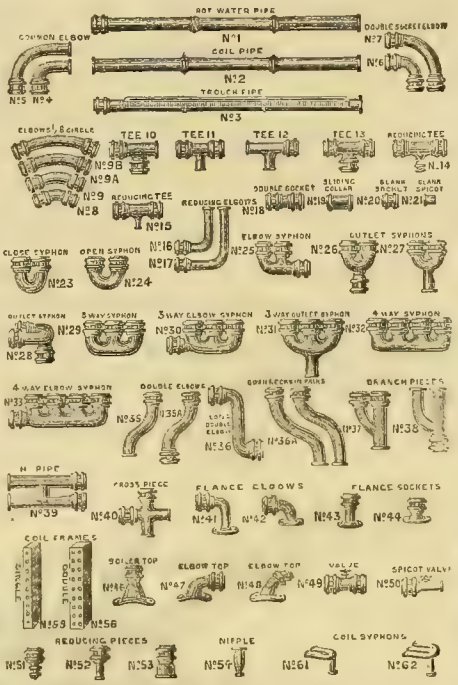
MINCING and SAUSAGE FILLING and MASTICATING MACHINES of the best makers, 10s. 6d.

The COTTAGE KNIFE CLEANER is the only rapid Cleaner and Polisher of Knives at a moderate price. 3s. 6d. to 10s. 6d. Prospectus post paid.

CHEAP FIRES.—The Radiating Fire Balls save half the usual consumption of fuel. One Shilling packet of Four, red hot in the fire every day, lasts all Winter.

S. NASH, Ironmonger, 253, Oxford Street, W.C.; Linster Terrace, Bayswater; and Stove Depôt, 119, Newgate Street, London, E.C.

Hot-Water Apparatus.



J. JONES AND SONS have the largest Stock of HOT-WATER PIPES and CONNECTIONS, with WROUGHT and CAST IRON SADDLE, CANNON, and CYLINDER BOILERS, PORTABLE BOILERS, &c., and they will be happy to forward Prices for same either at the Wharf in London, or delivered free to any Station or Shipping Port in the United Kingdom.

J. JONES & SONS, Iron Merchants, 6, Bankside, Southwark, London.

*** Hot-water Apparatus erected complete.

HOTHOUSES for the MILLION, CHEAP, PORTABLE, and EASILY FIXED.

SPAN-ROOFS (over 15 feet long), glazed and painted three coats, with complete ventilation all over roof, necessary water gutters and ironwork, exclusive of ends, put on Rail in LONDON, GLOUCESTER, COVENTRY, ULVERSTONE, PAISLEY, or ABERDEEN; 10 to 16 feet wide *inside*, at 16s. to 24s. per foot run. Illustrated Circulars, with *definite prices* and sizes, free on application to
HEREMAN & MORTON, 7, Pall Mall East, London, S.W.

HOT-WATER APPARATUS, of every description, fixed complete in any part of the country, or the materials, viz., Boilers, Pipes, &c., delivered to any Station.
Estimates on application.
J. JONES & SONS, 6, Bankside, Southwark, London, S.E.

Heating Apparatus.

J. MEREDITH continues to supply and fix HOT-WATER APPARATUS in VINERIES, and every description of HOTHOUSES, BUILDINGS, &c.
The Vineyard, Garston, near Liverpool.

Heating by Hot Water.

W. J. HOLLANDS, IRON MERCHANT, 31, Bankside, London, S.E.

HOT WATER PIPES, from Stock, per yard:—2-inch, 1s. 1½d.; 3-inch, 1s. 9d.; and 4-inch, 2s. 3d. BENDS, from Stock, 1s. 6d., 2s. 6d., and 3s. each. THROTTLE VALVES, 10s., 13s., and 14s. each. Other Connexions at equally low prices, and all goods of first-class manufacture. Estimates given, and orders by post punctually attended to the same day.

Heating by Hot Water.

HOT-WATER PIPES, at Wholesale Prices, with Elbows, Syphons, Tee-Pipes, and every other connection; Wrought and Cast-Iron Boilers, Saddle, Conical, Cylinder, TUBULAR, and Elliptic, from 24s. each. Improved Boilers and Iron Stands to use without brickwork, 60s. each. Valves from 10s. 6d. each. Patent Valves, Improved Furnace Doors, Furnace Bars, Supply Cisterns, and Castings of every description in stock, at
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Cheap Greenhouse Stoves.

DEANE AND CO.'S Patent VENTILATING and SUSPENSION STOVES are simple, cheap, and efficient; have been largely adopted and approved; will burn many hours without attention, and at a small cost for fuel. Prices of Suspension Stoves, 20s., 30s., 38s., and upwards. Ventilating Stoves, 50s., 60s., 70s., 90s.

HOT-WATER APPARATUS for Conservatories, Greenhouses, Hothouses, Forcing Pits, &c., erected and fitted up complete.
DEANE & Co., 46, King William Street, London Bridge, E.C.
Established A.D. 1700.

CRANSTON'S PATENT BUILDINGS for HORTICULTURE.
"Dry Glazing without Putty."
"Glass without Laps."
"Ventilation without Moving Lights."
Highly Commended by the Royal Horticultural Society, South Kensington.



Plans and Estimates free on application. Descriptive Book fully illustrated, post free for 20 stamps, from the Author and Patentee, JAMES CRANSTON, Architect, Birmingham.
Works: Highgate Street, Birmingham.
HENRY J. GROWTAGE, Manager, 1, Temple Row West, Birmingham.

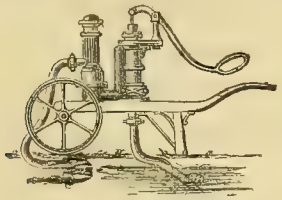
S. OWENS & CO.,

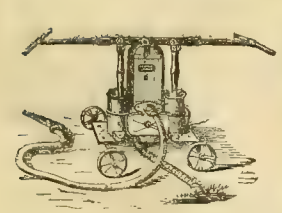
(LATE CLINTON AND OWENS,)

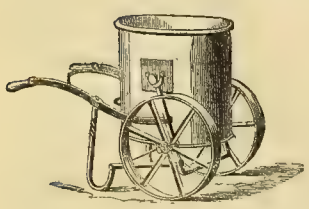
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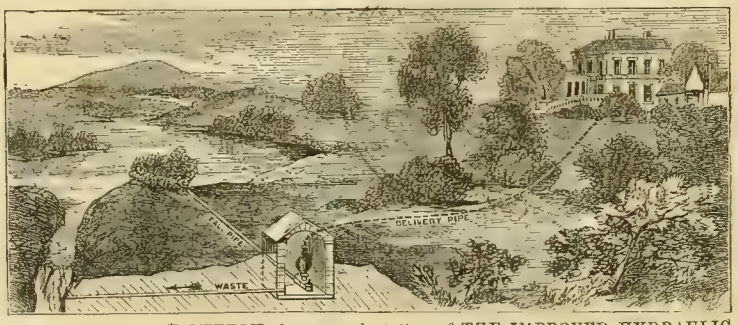
PUMPS AND HYDRAULIC MACHINERY,

WHITEFRIARS STREET, FLEET STREET, LONDON.


No. 46d


No. 50.


No. 49a.



THE LANDSCAPE SKETCH shows an adaptation of THE IMPROVED HYDRAULIC RAM for Forcing Water to considerable Heights and Distances to supply Mansions, Farms, &c., where a few feet fall can be obtained. Full particulars of this useful Self-acting Machine can be had on application.

No. 4. Useful YARD, GARDEN, and COTTAGE PUMPS, from £1 5s. each.

No. 38. PORTABLE LIQUID MANURE PUMPS, with Flexible Suction Pipe.

No. 46a. DOUBLE-ACTION PORTABLE FORCE PUMPS and FIRE ENGINES for WATER or LIQUID MANURE.

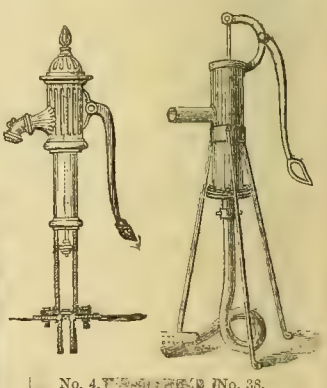
No. 50. IMPROVED (HOLMAN'S PATENT) DOUBLE-BARREL FARM FIRE ENGINES and IRRIGATING PUMPS.

No. 49. GARDEN ENGINES of all sizes.

No. 49a. IMPROVED SWING WATER CARRIERS, holding 24 and 35 Gallons, for GARDEN USE.

No. 49c. INDIA RUBBER HOSE and FITTINGS for WATERING GARDENS.

Further particulars, Estimates, and Illustrated Price Lists on application.


No. 4. No. 38.


No. 49c.


No. 49.

E. T. ARCHER'S "FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, and Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, &c.

PROTECTION from the COLD WINDS and MORNING FROSTS. "FRIGI DOMO" NETTING, White or Brown, made of prepared Hair and Wool, a perfect non-conductor of heat or cold, keeping a fixed temperature where it is applied. It is adapted for all Horticultural and Floricultural purposes, for Preserving Fruits and Flowers from the Scorching Rays of the Sun, from Wind, from Attacks of Insects, and from Morning Frosts. To be had in any required lengths.

"FRIGI DOMO" NETTING, 2 yards wide, 1s. 6d. per yard run.
"FRIGI DOMO" CANVAS.

Two yards wide	1s. 9d. per yard run.
Four yards wide	3s. 6d. per yard.
An improved make, 2 yards wide ..	1s. 9d. per yard.
An improved make, 3 yards wide ..	2s. 8d. per yard run.

ELISHA THOMAS ARCHER, Whole and Sole Manufacturer, 7, Great Trinity Lane, Cannon Street, City, E.C., and of all Nurserymen and Seedsmen throughout the Kingdom.

"It is much cheaper than Mats as a covering."

JAMES PHILLIPS AND CO. beg to submit their prices as follows:—

GLASS for ORCHARD HOUSES,

As supplied by them to Mr. Rivers, to the Royal Horticultural Society, and to most of the Nobility, Clergy, and Gentlemen of the United Kingdom.

Each Box contains 100 feet. The prices only apply to the sizes stated.

Squares 20 by 12, 20 by 13, 20 by 14, 20 by 15.

	16 oz. to the foot.	21 oz.
Fourth quality	16s. 0d.	19s 6d.
Third ditto	17s. 0d.	22s. 6d.
Seconds	18s. 6d	26s. 0d.
English	20s. 0d.	27s. 0d.

The above prices include the boxes, which are not returnable.

HORTICULTURAL GLASS.

Stock sizes, 16-oz., in 100 feet boxes, boxes included.

These prices only apply to the sizes stated.

				4ths.	3rds.	2nd.
11 by 9	12 by 9	13 by 9	14 by 9	s. d.	s. d.	s. d.
12 ,, 10	13 ,, 10	14 ,, 10	15 ,, 10	13 6	15 6	17 0
13 ,, 11	14 ,, 11	..	..			
14 ,, 12	15 ,, 12	15 ,, 11	16 ,, 11			
18 ,, 12	19 ,, 12	16 ,, 12	17 ,, 12			
16 ,, 13	17 ,, 13	20 ,, 12	..	15 0	17 0	18 6
16 ,, 14	20 ,, 13	18 ,, 13	..			
	17 ,, 14	18 ,, 14	..	16 to 17 oz. to the foot.		
	20 ,, 14					

SMALL SHEET SQUARES.

In 100 feet Boxes.

6 by 4	6½ by 4½	7 by 5	7½ by 5½	.. 12s. 0d.
8 by 6	8½ by 6½	9 by 7	9½ by 7½	
		10 by 8	10½ by 8½	.. 13s. 6d.

Boxes 2s. each returnable at full price.

London Agents for HARTLEY'S IMPROVED PATENT ROUGH PLATE.

LINSEED OIL, Genuine WHITE LEAD, CARSON'S PAINTS, PAINTS of various colours, ground ready for use.

SHEET and ROUGH PLATE GLASS, SLATES of all sizes, BRITISH PLATE, PATENT PLATE, ROLLED PLATE, CROWN, SHEET, HORTICULTURAL, ORNAMENTAL, COLOURED, and every description of GLASS, of the best Manufacture, at the lowest terms. Lists of prices and estimates forwarded on application to

JAMES PHILLIPS & Co., 180, Bishopsgate Street Without, E.C.

Horticultural Glass Warehouse.

THOMAS MILLINGTON AND CO., 87, Bishopsgate Street Without, London, E.C.

NEW LIST for ORCHARD HOUSE GLASS as supplied to Her Majesty, the Nobility, Gentry, Mr. Rivers, and the leading Horticulturists of the United Kingdom.

ORCHARD HOUSE SIZES.

in.	in.		4ths.	3rds.	2nds.	Best.
20 by 12						
20 by 13	Per 100 feet	15 oz.	14s 3d	15s 6d	18s 6d	20s 0d
20 by 14		21 oz.	19s 6d	22s 2d	25s 6d	26s 6d
20 by 15						
20 by 16						

SMALL SHEET SQUARES, 15 oz., per 100 feet.

in.	in.	in.	in.	in.	in.	in.	in.	4ths.	3ds.	2nds.	Best.
6 by 4	7 by 5	8 by 6	9 by 7								
6½ by 4½	7½ by 5½	8½ by 6½	9½ by 7½					12s 3d	13s 3d	16s 0d	18s 0d

Per 100 feet.

10 by 8	12 by 9	12½ by 10½	14½ by 10½								
10½ by 8½	12½ by 9½	13 by 10	15 by 10								
11 by 9	13 by 9	13½ by 10½	13 by 11					13s 3d	14s 6d	17s 3d	19s 0d
11½ by 9½	12 by 10	14 by 10	14 by 11								

LARGE SHEET SQUARES, 15 oz., per 100 feet.

in.	in.	in.	in.	in.	in.	in.	4ths.	3ds.	2nds.	Best
16½ by 10½	14 by 12	22 by 12	22 by 16							
16 by 10	14½ by 12½	17 by 13	24 by 16							
14½ by 11½	15 by 12	23 by 13	20 by 17							
15 by 11	16½ by 12½	18 by 14	22 by 17				14s 3d	15s 6d	18s 6d	20s 0d
16½ by 11½	16 by 12	22 by 14	24 by 17							
16 by 11	16½ by 12½	24 by 14	20 by 18							
21 by 11	17 by 12	22 by 15	22 by 18							
13 by 12	18 by 12	24 by 15	24 by 18							

The above Prices are only for the Sizes stated; if a quantity of any other Size be required, a Special Price will be given.

SHEET GLASS.

In Sheets for Cutting up, averaging from 6 to 9 feet super.

15 oz.		21 oz.	
4ths quality, per 300 feet case,	38s.	4ths quality, per 200 feet case,	38s.
3ds ,, ,,	48s.	3ds ,, ,,	48s.
2ds ,, ,,	62s.	2ds ,, ,,	66s.
Best ,, ,,	92s.	Best ,, ,,	96s.

SHEET GLASS is made only in the following substances, 15 oz., 21 oz., 26 oz., 32 oz., 36 oz., and 42 oz.

HARTLEY'S IMPROVED ROLLED ROUGH PLATE in 1-8th in., 3-16th in., 1-4th in., and 3-8th in. substances.

BRITISH PLATE GLASS for Windows and Silvered for Looking Glasses, Coloured Glass, Glass Shades, Striking Glasses, &c., &c.

PAINTS, COLOURS, VARNISHES, &c.

STUCCO PAINT, 24s. per cwt. This Paint adheres firmly to the walls, resists the weather, and is free from the glossy appearance of Oil Paint, resembling a stone surface, and can be made any required shade. It is mixed with rain or pure river water.

WHITE ZINC PAINT, 36s. per cwt. One hundredweight of pure Zinc Paint, with three gallons of Linseed Oil, will cover as much as one hundredweight and a half of White Lead and six gallons of Linseed Oil. Special Dryers for this Paint.

IMPROVED ANTI-CORROSION PAINT, 28s. to 34s. per cwt. Anti-corrosion Paint is extensively used for all kinds of work in exposed situations, on Brick, Stone, Compo, Iron, Iron Bridges, Conservatories, Greenhouses, &c., and is easily laid on by any ordinary workman. Prepared Oil for ditto 4s. per gallon.

	Per cwt.—s. d.		Per gallon.—s. d.
GENUINE WHITE LEAD	32 0	LINSEED OIL	3 4
SECONDS WHITE LEAD	30 0	BOILED OIL	3 9
GROUND PATENT DRYERS, 3d. to 4½d. per lb.		TURPENTINE	3 0
		LINSEED OIL PUTTY, 8s. to 9s. per cwt.	
„ OXFORD OCHRE, 3d. to 4½d. per lb.		FineOAK VARNISH,10s.to12	0
RAW UMBER, 4½d. to 6d. per lb.	[per lb.	„ CARRIAGE do., 12s. to 14	0
„ BURNT do., 6d. to 9d.		„ PAPER do. 10s. to 12	0
GREEN PAINT, all shades,	28s. to 60 0	„ COPAL	16 0
BLACK PAINT,	24s. to 36 0	KNOTTING	10 0
RED PAINT ..	28s. to 36 0	Patent GOLD SIZE ..	10 0
		„ BLACK JAPAN ..	12 0
GROUND BRUSHES.		GLAZIER'S DIAMONDS and TOOLS	
DUSTERS. | SASH TOOLS.		MILLED LEAD and PIPES	
DISTEMPER BRUSHES.		OLD LEAD Bought or taken in exchange.	

The above are Net, for Cash, and as such cannot be booked. Lists of any of the above on application.

THOMAS MILLINGTON AND CO., IMPORTERS, DEALERS, AND MANUFACTURERS OF GLASS, 87, Bishopsgate Street Without, London, E.C.

PRESENT PRICES OF HYACINTH GLASSES.



A.—28s. per gross. 2s. 6d. per dozen.
B.—60s. per gross. 6s. per dozen.
C.—40s. per gross. 3s. 6d. per dozen.

The above are made in Green, Blue, Puce, and Amber. B can be had in Opal, 1s. per dozen extra.

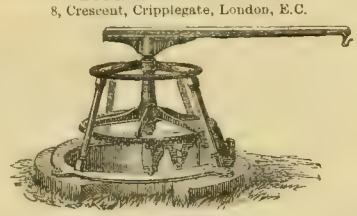
RUSTIC BULB VASES. TYE'S HYACINTH GLASSES. FERN CASES and AQUARIA.



CLAUDET, HOUGHTON, AND SON, 89, HIGH HOLBORN, W.C.

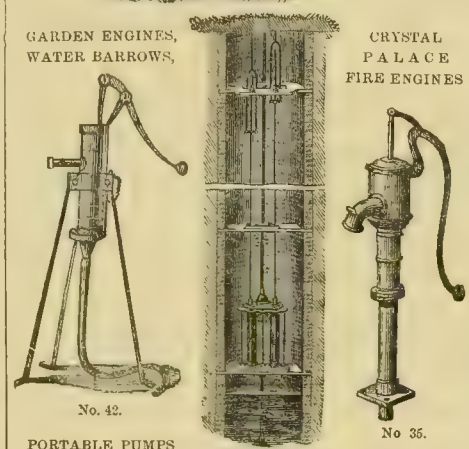
Price List free on application.

JOHN WARNER AND SONS, BRASS and BELL FOUNDERS to HER MAJESTY, HYDRAULIC ENGINEERS, 8, Crescent, Cripplegate, London, E.C.



GARDEN ENGINES, WATER BARROWS,

CRYSTAL PALACE FIRE ENGINES



No. 42.

PORTABLE PUMPS for LIQUID MANURES.

DEEP WELL PUMPS, for Steam, Horse, or Hand Power.

No 35.

CAST-IRON PUMPS.

Drawings and Prices for any description of Hydraulic Machinery sent upon application.

Oil Paint no longer Necessary.



HILL AND SMITH'S PATENT BLACK VARNISH for preserving Iron Work, Wood, or Stone. This Varnish is an excellent substitute for oil paint on all out-door work, and is fully two-thirds cheaper. It may be applied by an ordinary labourer, requires no mixing or thinning, and is used cold. It is used in the grounds at Windsor Castle, Kew Gardens, and at the seats of many hundreds of the nobility and gentry, from whom the most flattering testimonials have been received, which HILL & SMITH will forward on application.

From J. A. TAYLOR, Esq., *Streatham Court.*

"In answer to your inquiries, I beg to inform you I find your Black Varnish an excellent substitute for oil paint upon iron and wood out of doors, and have found the iron Barrow with apparatus essential in applying the Varnish to lines of fencing. I can strongly recommend the Black Varnish for all out-door work as superior to anything I have yet used for the purpose, and it can be applied with great economy by careful labourers."

Sold in casks of about 30 gallons each, at 1s. 6d. per gallon, at the Manufactory, or 1s. 8d. per gallon paid to any Station in the kingdom.

Apply to HILL & SMITH, Brierly Hill Iron Works, near Dudley, and 22, Cannon Street West, E.C., from whom only it can be obtained.



GARDEN BORDER EDGING TILES, in great variety of patterns and materials, the plainer sorts being especially suited for KITCHEN GARDENS, as they harbour no Slugs and Insects, take up little room, and once put down incur no further labour and expense, as do "grown" Edgings, consequently being much cheaper.



GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, of great durability, and in great variety of design.

F. & G. ROSHER, Manufacturers, Upper Ground Street, Blackfriars, S.; Queen's Road West, Chelsea, S.W.; Kingsland Road, Kingsland, N.E.

Sole London Agents for FOXLEY'S PATENT GARDEN WALL BRICKS. Illustrated Price List free by post. The Trade supplied.

ORNAMENTAL PAVING TILES for Conservatories, Halls, Corridors, Balconies, &c., as cheap and durable as Stone, in blue, red, and buff colours, and capable of forming a variety of designs.

Also TESSELATED PAVEMENTS of more enriched designs than the above.

WHITE GLAZED TILES, for Lining Walls of Dairies, Larders, Kitchen Ranges, Baths, &c. Grooved and other Stable Paving Bricks of great durability, Dutch and Adamantine Clinkers, Wall Copings, Red and Stoneware Drain Pipes, Slates, Cement, &c.

To be obtained of F. & G. ROSHER, at their premises as above.

SILVER SAND (REIGATE, best quality), at the above addresses—14s. per Ton, or 1s. 3d. per Bushel; 2s. per Ton extra for delivery within three miles, and to any London Railway or Wharf. Quantities of 4 Tons, 1s. per Ton less.

FLINTS, BRICK BURRS or CLINKERS, for Rockeries or Grotto Work. F. & G. ROSHER.—Addresses see above.

N.B. Orders promptly executed by Railway.

JOHN GIBSON, JUN., begs to announce that he is prepared to Furnish PLANS and ESTIMATES for LAYING OUT GROUND attached to Mansions and Villa or other Residences, or for the FORMATION of PUBLIC PARKS or GARDENS and to carry out the same by Contract or otherwise.

Address Mr. JOHN GIBSON, jun., Surrey Lane, Battersea, S.W.

WANTED to RENT, on Lease, a SMALL HOUSE, with from HALF an ACRE to an ACRE of GROUND attached, suitable for a Florist's Business, about six or eight miles from London; or a place with Glass already erected.

Address, with full particulars, to B., *Gardeners' Chronicle* Office, W.C.

FOR DISPOSAL, a First-class NURSERY and SEED BUSINESS; or the present Proprietor would accept of a WORKING PARTNER with a Capital of not less than £1500.

Apply by letter to E., Messrs. Hurst & Son, 6, Leadenhall Street, London, E.C.

Wimbledon.

TO BE SOLD, a SEMI-DETACHED FREEHOLD RESIDENCE, containing 4 Bed-rooms, 14 by 15 feet; 4 Small Rooms; Drawing, Dining, and Breakfast-rooms, each 14 by 16 feet; Kitchen, Scullery, two W.C.'s and usual offices, gas and water laid on. The Garden is 150 feet by 50, and is well laid out, and planted with choice Fruit Trees, American Plants, Roses, and other Shrubs, and contains a good Greenhouse and Forcing Pit, both Heated by Hot Water and fitted with a Tubular Boiler. Price, including Gas Fittings and Venetian Blinds, both nearly new, £1300.

S. W., Mr. Fisher, Stationer, Angel Court, Throgmorton Street, E.C.

Onchan Nursery Gardens, Isle of Man,

TO BE LET, with immediate possession, in consequence of the decease of the late Proprietor. The Nursery comprises about 15 Acres, lying in a sheltered situation; has been established for upwards of 30 years, and possesses the advantage of being the only Nursery in the Island. The Buildings consist of Conservatory (in four compartments), Vinery, Orchard House, Propagating House, with large Shed adjoining, and every convenience for carrying on the business. This Establishment would prove a valuable addition to any English Nursery, as from the mildness of the climate many tender Plants and Shrubs stand the winter which, when young, would be destroyed by the frosts of an English Winter and Spring. A portion has been advantageously occupied as a Fruit Garden, the demand being considerable from the number of Visitors to the Nursery in the Summer season. The Grounds are well stocked with Forest Trees, Evergreens, and Ornamental Shrubs; the Houses with Plants, and liberal terms will be made to enable a Tenant to realise the Stock. For particulars apply to

JAMES SPITTALL, Solicitor, Isle of Man.

Sales by Auction.

To Noblemen, Gentlemen, Planters, and Others.

MR. WHITE has received instructions to SELL by AUCTION, on MONDAY, December 16, at 11 o'Clock, at the Rufford Nursery Gardens, near Ollerton, a quantity of Young SPRUCE FIR PLANTS, of various heights, fit for immediate Planting; also a quantity of COMMON LAURELS, and other Plants.

The above will be sold in convenient Lots, to suit purchasers. Each Lot to be paid for at the fall of the hammer or at the close of the Sale. The Lots to be at the purchaser's care and risk at the fall of the hammer, and to be removed within one month from the time of Sale at the purchaser's expense, and no Lot to be removed during the time of business.

Catalogues may be had of the AUCTIONEER; of Mr. CARTLEDGE, Wood Steward; or of Messrs. BRADLEY & SONS, Nurserymen, Halam, near Southwell.—Swan Hotel, Mansfield, December 2.

Consignment of Specimen Conifers, Hardy Shrubs,

FRUIT TREES, &c., FROM A WELL-KNOWN NURSERY IN SURREY, AND A CONSIGNMENT OF BULBS FROM HOLLAND.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, December 18, at half-past 12 o'Clock precisely, SPECIMEN CONIFERS, including fine plants of Cupressus Lawsoniana, Wellingtonia gigantea, Abies Douglasii, and other Conifers. Also, LAURELS, HOLLIES, BERBERIS, MAGNOLIAS, STANDARD and DWARF ROSES, FRUIT TREES, &c. Also, an Importation of BULBS from Holland, in lots to suit private buyers and the Trade.

On view the Morning of Sale, and Catalogues had.

Consignment from Ghent for Absolute Sale.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at 38 and 39, Gracechurch Street, E.C., on TUESDAY, December 17, at 12 o'Clock, about 300 Choice DOUBLE CAMELLIAS and AZALEA INDICA, compact plants, 1 to 3 feet, beautifully set with flower-buds; 500 Handsome STANDARD and DWARF ROSES, of the best varieties; Selected FRUIT TREES; a rich assortment of AMERICAN PLANTS; 600 fine Bulbs, LILIUM LANCIFOLIUM (sorts); GLADIOLUS, with a collection of DUTCH BULBS.

May be viewed the Morning of Sale. Catalogues had at the rooms as above, and of the Auctioneers and Valuers, Leytonstone, N.E.

Winding-Up Sale for the Season.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at 38 and 39, Gracechurch Street, E.C., on SATURDAY, December 21, at 1 o'Clock precisely, a First-class Collection of DUTCH BULBS, including Hyacinths, Crocuses, Tulips, Narcissus, Jonquils, Anemones, Ranunculus, &c.; a splendid assortment of STANDARD and DWARF ROSES; selected FRUIT TREES; choice GHENT AZALEAS, HYBRID RHODODENDRONS, and other American Plants, &c.; also some fine Bulbs, LILIUM LANCIFOLIUM (sorts), from a celebrated Grower in Belgium.

On view Morning of Sale. Catalogues had at the rooms as above, and of the Auctioneers and Valuers, Leytonstone, N.E.

WILLIAM S. BURTON,

GENERAL FURNISHING IRONMONGER,

BY APPOINTMENT TO HIS ROYAL HIGHNESS THE PRINCE OF WALES,

SENDS A CATALOGUE GRATIS AND POST PAID.

It contains upwards of SIX HUNDRED ILLUSTRATIONS of his unrivalled STOCK of STERLING SILVER and ELECTRO PLATE, NICKEL SILVER and BRITANNIA METAL GOODS, DISH COVERS, HOT-WATER DISHES, STOVES, FENDERS, MARBLE CHIMNEY PIECES, KITCHEN RANGES, LAMPS, GASELIERS, TEA TRAYS, URNS and KETTLES, CLOCKS, TABLE CUTLERY, BATHS, TOILET WARE, TURNERY, IRON and BRASS BEDSTEADS, BEDDING, BED-ROOM CABINET FURNITURE, &c., with Lists of Prices, and Plans of the

TWENTY LARGE SHOW ROOMS,

At 39, OXFORD STREET; 1, 1A, 2, 3, & 4, NEWMAN STREET; 4, 5, & 6, PERRY'S PLACE; and 1, NEWMAN YARD, LONDON, W.

THE PERFECT SUBSTITUTE for SILVER.—The REAL NICKEL SILVER, introduced more than 25 years ago by WILLIAM S. BURTON, when Plated by the Patent process of Messrs. Elkington & Co., is beyond all comparison the very best article next to Sterling Silver that can be employed as such, either usefully or ornamentally, as by no possible test can it be distinguished from real Silver.

A small useful set, guaranteed of first quality for finish and durability, as follows:—

	Fiddle or Old Silver Pattern.	Bead Pattern.	Thread Pattern.	King's or Shell and Thread.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.
12 Table Forks	1 13 0	2 0 0	2 4 0	2 10 0
12 Table Spoons	1 13 0	2 0 0	2 4 0	2 10 0
12 Dessert Forks	1 4 0	1 10 0	1 12 0	1 15 0
12 Dessert Spoons	1 4 0	1 10 0	1 12 0	1 15 0
12 Tea Spoons	0 16 0	1 0 0	1 2 0	1 5 0
6 Egg Spoons, gt. bowls..	0 10 0	0 12 0	0 12 0	0 13 6
2 Sauce Ladles	0 6 0	0 8 0	0 8 0	0 9 0
1 Gravy Spoon	0 6 6	0 9 0	0 10 0	0 11 0
2 Salt Spoons, gt. bowls..	0 3 4	0 4 0	0 4 0	0 4 6
1 Mustard Spoon, gt. bwl.	0 1 8	0 2 0	0 2 0	0 2 3
1 Pair of Sugar Tongs ..	0 2 6	0 3 6	0 3 6	0 4 0
1 Pair of Fish Carvers ..	1 4 0	1 10 0	1 10 0	1 10 0
1 Butter Knife	0 2 6	0 4 0	0 5 6	0 6 0
1 Soup Ladle	0 10 0	0 12 0	0 16 0	0 17 0
1 Sugar Sifter	0 3 3	0 4 6	0 4 6	0 5 0
Total	9 19 9	12 9 0	13 9 6	14 17 3

Any article to be had singly at the same prices. An Oak Chest to contain the above, and a relative number of Knives, &c., £2 15*s.*; Tea and Coffee Sets, Dish Covers and Corner Dishes, Cruet and Liqueur Frames, &c., at proportionate prices. All kinds of Replating done by the Patent process.

FENDERS, STOVES, FIRE-IRONS, and CHIMNEY PIECES.—Buyers of the above are requested, before finally deciding, to visit WILLIAM S. BURTON'S SHOW ROOMS. They contain such an assortment of Fenders, Stoves, Ranges, Chimney Pieces, Fire-Irons, and General Ironmongery, as cannot be approached elsewhere, either for variety, novelty, beauty of design, or exquisiteness of workmanship. Bright Stoves, with Ormolu Ornaments, £3 8*s.* to £33 10*s.*; Bronzed Fenders with Standards, 7*s.* to £5 12*s.*; Steel Fenders, £3 3*s.* to £11; Ditto, with rich Ormolu Ornaments, from £3 3*s.* to £18; Chimney Pieces, from £1 8*s.* to £100; Fire-Irons, from 3*s.* 3*d.* the set to £4 4*s.* The Burton and all other Patent Stoves, with radiating Hearth Plates.

GASELIERS in GLASS or METAL.—The increased and increasing use of Gas in Private Houses has induced WILLIAM S. BURTON to collect from the various Manufacturers in Metal and Glass all that is new and choice in Brackets, Pendants, and Chandeliers, adapted to Offices, Passages, and Dwelling Rooms, as well as to have some designed expressly for him; these are ON SHOW over his TWENTY LARGE ROOMS, and present, for novelty, variety, and purity of taste, an unequalled assortment. They are marked in plain figures, at prices proportionate with those which have tended to make his Establishment the largest and most remarkable in the Kingdom, viz., from 12*s.* 6*d.* (two-light) to £23.

DISH COVERS and HOT-WATER DISHES, in every variety, and of the newest and most recherché patterns, are on show at WILLIAM S. BURTON'S. Block Tin, 19*s.* the Set of Six; Elegant Modern Patterns, 35*s.* 6*d.* to 49*s.* 6*d.* the Set; Britannia Metal, with or without Silver-plated Handles, £3 2*s.* to £6 8*s.* the Set of Five; Electro-plated, £9 to £26 the Set of Four; Block Tin Hot-Water Dishes, with Wells for Gravy, 12*s.* to 30*s.*; Britannia Metal, 22*s.* to 80*s.*; Electro-plated, on Nickel, full size, £9.

TEA URNS, of London Make only.—The largest assortment of London-made TEA URNS in the world (including all the recent novelties, many of which are registered), is on sale at WILLIAM S. BURTON'S, from 30*s.* to £6.

BEDDING MANUFACTURED on the Premises, and guaranteed by WILLIAM S. BURTON.

For Bedsteads, Wide.	3 Feet 6 Inches.	4 Feet 6 Inches.	5 Feet.
	£ s. d.	£ s. d.	£ s. d.
Best Straw Paillasses	0 13 6	0 16 0	0 18 6
Best French Alva Mattresses ..	0 13 6	0 17 6	0 19 0
Best Cotton Flock Mattresses ..	0 18 6	1 2 6	1 6 6
Coloured Wool Mattresses	1 1 6	1 6 0	1 10 6
Best Brown Wool Mattresses ..	1 7 0	1 12 6	1 15 0
Best Brown Do., extra thick ..	1 11 0	1 17 6	2 0 0
Good White Wool Mattresses ..	1 19 0	2 9 0	2 17 0
Extra Super Do. Do.	2 17 0	3 13 0	4 1 0
Good Horse Hair Do.	2 5 0	2 18 0	3 6 6
Extra Super Do.	3 1 0	3 18 0	4 10 0
German Spring Hair Stuffing ..	3 8 0	4 4 0	4 18 0
Extra Super Do.	4 5 0	5 8 0	5 19 0
French Wool and Hair Mattresses for use over spring	2 17 0	3 15 0	4 7 0
Extra Super Do. Do.	3 11 0	4 9 0	5 0 0
Feather Beds, Poultry, in Good Tick	1 16 0	2 7 0	
Do. Do. Grey Goose, in Bordered Linen Ticks	3 2 0	4 2 0	4 13 0
Do. Do. Best White Do. in Best Linen	4 14 0	6 8 0	7 7 0

Feather Pillows, 3*s.* to 10*s.* 6*d.*; Bolsters, from 6*s.* to £1 9*s.* 6*d.*

Down Pillows, from 10*s.* 6*d.* to 17*s.* 6*d.*

Blankets, Counterpanes, and Sheets in every variety.

PATENT IRON BEDSTEADS, Fitted with Dovetail Joints and Patent Sacking on Castors, from 11*s.* to £1 4*s.* Ornamental Iron and Brass Bedsteads in great variety, from £1 4*s.* to £45 5*s.*

FURNITURE, in complete suites for Bed-room of Mahogany, Birch, Fancy Woods, Polished and Japanned Deal, always on show. These are made by WILLIAM S. BURTON, at his Manufactory, 84, Newman Street, and every article is guaranteed. China Toilet Ware in great variety, from 3*s.* 6*d.* the set of five pieces.

COMFORT and WARMTH in BED.—The PATENT EIDER and ARCTIC DOWN QUILTS, manufactured by WILLIAM S. BURTON, combine lightness with warmth. They wash like ordinary Coverlets and without unpicking, and used either to supersede Blankets or as Ornamental Counterpanes. Prices: Eider Down, from 16*s.* to £6; Arctic, 7*s.* to 35*s.*

CUTLERY WARRANTED.—The most varied assortment of TABLE CUTLERY in the World, all warranted, is on sale at WILLIAM S. BURTON'S, at prices that are remunerative only because of the largeness of the sales.

Ivory Handles.	Table Knives per Dozen.	Dessert Knives per Dozen.	Carvers per Pair.
	s. d.	s. d.	s. d.
3¼-inch ivory handles	13 0	10 6	5 0
3¼-inch fine ivory balance handles	18 0	14 0	5 9
4-inch ivory balance handles	24 0	18 0	5 9
4-inch fine ivory handles	28 0	21 0	8 0
4-inch finest African ivory handles	34 0	27 0	12 0
Ditto, with silver ferules	42 0	35 0	13 6
Ditto, carved handles, silver ferules ..	65 0	45 0	18 6
Nickel electro-silver handles	25 0	19 0	7 6
Silver handles, of any pattern	84 0	54 0	21 0
Bone and Horn Handles—Knives and Forks per dozen.			
White bone handles	13 6	11 0	3 0
Ditto, balance handles	23 0	17 0	4 6
Black horn rimmed shoulders	18 0	15 6	4 6
Ditto, very strong riveted handles ..	12 6	9 6	3 0

The largest stock in existence of Plated Dessert Knives and Forks, and of the new Plated Fish-eating Knives and Forks and Carvers.

LAMPS of ALL SORTS and PATTERNS.—WILLIAM S. BURTON invites inspection of this season's SHOW of LAMPS. The collection of French MODERATEUR LAMPS, carefully selected at Paris, defies competition. The prices vary from 7*s.* to £7 7*s.* Each Lamp is guaranteed perfect, but to ensure their proper action WILLIAM S. BURTON supplies

Pure COLZA OIL at the wholesale price, 3*s.* 9*d.* per gallon.

LAMPS of all other descriptions are on show in every variety.

BATHS and TOILET WARE.—WILLIAM S. BURTON has ONE LARGE SHOW ROOM devoted exclusively to the DISPLAY of BATHS and TOILET WARE. The stock of each is at once the largest, newest, and most varied ever submitted to the Public, and marked at prices proportionate with those that have tended to make his Establishment the most distinguished in this country. PORTABLE SHOWERS, 7*s.* 6*d.*; PILLAR SHOWERS, £3 to £5 12*s.*; NURSERY, 15*s.* to 32*s.*; SPONGING, 14*s.* to 32*s.*; HIP, 14*s.* to 31*s.* 6*d.* A large assortment of GAS FURNACE, HOT and COLD PLUNGE, VAPOUR, and CAMP SHOWER BATHS. TOILET WARE in great variety, from 15*s.* 6*d.* to 45*s.* the set of three.

CLOCKS, CANDELABRA, BRONZES, and LAMPS.—WILLIAM S. BURTON invites inspection of his Stock of these, displayed in two large Show Rooms. Each article is of guaranteed quality, and some are objects of pure vertu, the productions of the first Manufacturers of Paris, from whom WILLIAM S. BURTON imports them direct.

CLOCKS, from 7*s.* 6*d.* to £45.

CANDELABRA, from 13*s.* 6*d.* to £16 10*s.* per pair.

BRONZES, from 18*s.* to £16 16*s.*

LAMPS, MODERATEUR, from 6*s.* to £9.

PURE COLZA OIL, 3*s.* 9*d.* per gallon.

Editorial Communications should be addressed to "The Editor;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
Printed by JAMES MATTHEWS, at the Office of Messrs. BRADBURY, EVANS, & Co., Lombard Street, Precinct of Whitefriars, City of London, in the Co. of Middlesex, and Published by the said JAMES MATTHEWS, at the Office, No. 41, Wellington Street, Parish of St. Paul's, Covent Garden, in the said County.—SATURDAY, December 14, 1867.

THE GARDENERS' CHRONICLE

AND

AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.

No. 51.—1867.] SATURDAY, DECEMBER 21. {Price Fivepence. STAMPED EDITION, 6d.

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Brittany, produce of	1305 a	Melons	1297 b
Cabbages, ox	1305 a	Mistleto	1295 c
Cannas with Dahlias	1298 a	Nash testimonial	1300 a
Cattle market	1302 b	Normandy, produce of	1305 a
— Devon	1302 b	Orchids, cool	1297 c
Chambers of Agriculture	1305 b	Paradise stock, French	1297 c
Coleus	1297 c	Paris exhibition	1294 a
Compass, trees that affect the	1294 a	— — awards	1294 a—1298 b
Cordons	1298 a	Peach trees, M. Gallien's	1293 c
Cow-milking	1303 a	Pelargoniums, Nosegay	1299 a
Dahlias with Cannas	1298 a	Pelargonium freaks	1297 b
Daubeny, late Dr.	1293 b—1294 a	Physalis Alkekengi v. gout	1298 b
Education, agricultural	1301 b	Picea Apollinis	1297 c
— technical	1302 a	Poultry	1308 a
Examinations, gardeners'	1298 a	Rabbits, Ostend	1309 a
Farms, letting	1304 a	Ricinus	1300 c
Farm, Aberdeenshire	1308 c	Root fibrils	1295 b
Farmers' Clubs	1306 a	Roses, select	1297 c
Fir mould	1300 c	Shorthorns	1302 b
Garden, my	1295 a	Smithfield Club	1306 b
Gardeners' Benevolent Institution	1294 a	Society, Botanical, of Edinburgh	1298 b
Gladioli, diseased	1297 b	Tenure, security of	1304 a
Gout, cure for	1298 b	Trees in Hyde Park	1296 c
		Verbena disease	1300 c
		Vines, old	1297 b

New Grape.

MADRESFIELD COURT BLACK MUSCAT GRAPE. See large Advertisement in No. 44, November 2, 1867.
JOHN & CHARLES LEE, Royal Vineyard Nursery, Hammersmith, London, W.

Vines.

B. S. WILLIAMS has now on hand a very large and fine Stock of FRUITING and PLANTING CANES of all the best varieties. An inspection is invited.
Victoria and Paradise Nurseries, Upper Holloway, London, N.

Vines.

J. MEREDITH will have great pleasure in forwarding his PRICED LIST of VINES on application. He has the largest stock in England. An inspection is invited.
The Vineyard, Garston, near Liverpool.

Vines.

H. LANE AND SON solicit an inspection of their stock of VINES: 2000 Canes to choose from, strong and well ripened. They have been awarded the First Prize for Vines in pots at all the leading Exhibitions. CATALOGUES free on application.
The Nurseries, Great Berkhampstead, Herts.

VINES from EYES.—Capital strong Canes in pots for forcing, leading varieties, at 5s. each.
ROSES in POTS for FORCING.—Strong plants, choice varieties, 18s. to 30s. per dozen.
POTTER & FERRIDE, The Nurseries, Sutton, Surrey, S.

Fruiting Pines.

TO BE DISPOSED OF, about 60 Plants, principally QUEENS; a few CAYENNES, JAMAICAS, and PROVIDENCE, very clean, stout, good plants, several showing, and will no doubt produce fine fruit. Apply to
FRANCIS R. KINGHORN, Sheen Nursery, Richmond, S.W.

PYRAMIDAL APPLES and PEARS, by the dozen or hundred.
Standard MEDLARS, THUJA AUREA, well-grown and handsome.
Address, WM. WOOD & SON, Woodlands Nursery, Maresfield, near Uckfield, Sussex.

MAGNIFICENT DWARF CUT-BACK PEACHES, NECTARINES, and APRICOTS, by the dozen or hundred. Extra strong 2, 3, and 4-yr. OLD ASPARAGUS PLANTS, by the 100, 1000, or 10,000.
Fine large BLACK ITALIAN POPLARS, 6 to 10 feet.
WM. WOOD & SON have to offer a splendid stock of the above.
Address, Woodlands Nursery, Maresfield, near Uckfield, Sussex.

RICHARD SMITH'S FRUIT LIST contains a sketch of the various forms of Trees, with directions for Cultivation, Soil, Drainage, Manure, Pruning, Lifting, Cropping, Treatment under Glass; also their synonymes, quality, size, form, skin, colour, flesh, flavour, use, growth, duration, season, price, &c. Free by post for three stamps.
RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

WEBB'S PRIZE COB FILBERTS, and other PRIZE COB NUTS and FILBERTS. LIST of these varieties from Mr. WEBB, Calcot, Reading.

Orchard-house Trees Fruiting in Pots.

PEACHES, NECTARINES, APRICOTS, CHERRIES, PLUMS, PEARS, APPLES, VINES, and FIGS.
RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

CIDER APPLES and PERRY PEARS, all the best varieties, with stout 4 to 6 feet stems and good heads. Price per 100 or dozen on application.
JAMES DICKSON & SONS, Newton Nurseries, Chester.

TWO HUNDRED THOUSAND FRUIT TREES, particularly well grown and perfectly clean. CATALOGUES and price per dozen, 100, or 1000 upon application.
JAMES DICKSON & SONS, Newton Nurseries, Chester.

Fruiting Trained Trees.

THOMAS JACKSON AND SON, having a great extent of high walls, have many large TRAINED TREES; and as they are making much alteration in their Nursery, they now offer them at greatly reduced prices. An inspection is invited.
Kingston, S.W.

Forest Trees.

PETER LAWSON AND SON, Edinburgh and London, have to intimate that their Stock of Seedling and Transplanted LARCH, SCOTS FIR, AUSTRIAN PINE, CORSICAN PINE, SPRUCE, ASH, BEECH, BIRCH, CHESTNUT, ELM, OAK, and other TREES, is most extensive, and of very superior quality.
CATALOGUES and special offers upon application.

Ornamental Trees and Shrubs.

PETER LAWSON AND SON, Edinburgh and London, will be glad to forward their CATALOGUE for the present Season free upon application.

Vines.

PETER LAWSON AND SON, Edinburgh and London, have a large Stock of very superior FRUITING and PLANTING CANES of all the leading sorts, at 5s., 7s. 6d., and 10s. 6d. each.

The Forwardest Pea known is

SUTTONS' RINGLEADER.
Price 2s. 6d. per quart.

TO THE TRADE.—A good Stock of DANIEL O'ROOKE PEAS (second batch) to be had of
WM. CLARK, Seedsman, 42, Bishopsgate Street Without, E.C.

Choice and True Potatos for Planting.

SUTTONS' DESCRIPTIVE LIST of the BEST SORTS is now ready, and may be had gratis and post free on application.
Royal Berks Seed Establishment, Reading.

SEED POTATOS.—All the finest varieties at very moderate prices.
H. & F. SHARPE, Wisbech.

MILKY WHITE POTATO.—Well-known and acknowledged to be the best Potato in cultivation, at 4s. per peck of 14 lb.; or 15s. per bushel of 56 lb. Guaranteed true and free from disease. Apply to
GEORGE WINFIELD, Gloucestershire Seed Warehouse, Gloucester.

SANDRINGHAM WHITE CELERY.—The best of all the white kinds; solid, crisp, and juicy; of excellent flavour and medium growth, 1s. per pkt. Special terms to the Trade on application. A TRADE LIST of Novelties can be had.
PETER LAWSON & SON, 28, King Street, Cheapside, London, E.C., and Edinburgh.

ASPARAGUS and SEAKALE, extra strong, for forcing.
JAMES DICKSON & SONS, Newton Nurseries, Chester.

Turnip Seeds.

CHARLES SHARPE AND CO., SEED GROWERS, Sleaford, will be glad to make special offers, on application, of TURNIP SEEDS of their own growing.

SUTTONS' COLLECTIONS of GENUINE HOME-GROWN SEEDS ARE NOW READY.
For prices, see page 1293.

EVERY GARDEN REQUISITE kept in Stock at
CARTER'S New Seed Warehouse, 237 & 238, High Holborn, London.

Genuine Garden and Agricultural Seeds.

JAMES CARTER AND CO.
SEED FARMERS, MERCHANTS, and NURSERYMEN, 237 & 238, High Holborn, London, W.C.

Kitchen Garden Seeds.

CHARLES SHARPE AND CO., SEED MERCHANTS, Sleaford, will be glad to send, on application, a Special PRICED LIST of KITCHEN GARDEN SEEDS of their own saving this season.

Agricultural Seeds.

CHARLES SHARPE AND CO., SEED MERCHANTS, Sleaford, will be glad to send on application a Special PRICED LIST of AGRICULTURAL SEEDS of their own saving this season

Genuine Agricultural and Garden Seeds.

JAMES FAIRHEAD AND SON, SEED GROWERS and MERCHANTS, 7, Borough Market, and Braintree, Essex.

Agricultural and Garden Seeds.

H. AND F. SHARPE beg to announce to the Trade that their SPECIAL LIST of HOME-GROWN SEEDS, 1867 Growth, is now ready and may be had on application.
Seed Growing Establishment, Wisbech, Cambs.

RAYNBIRD, CALDECOTT, BAWTREE, DOWLING, AND COMPANY, Limited,
CORN, SEED, MANURE, AND OILCAKE MERCHANTS,
Address, 89, Seed Market, Mark Lane, E.C.; or Basingstoke.
Samples and Prices post free on application. Prize Medals, 1851, for Wheat; 1862, for "Excellent Seed Corn and Seeds."

SUTTONS' SHORT SELECT SEED LIST IS NOW READY. Gratis on application.

SUTTONS' AMATEUR'S GUIDE IS NOW READY.
Price 1s.; gratis to customers.

Seeds Direct from the Growers
THE BEST MEANS OF PREVENTING DISAPPOINTMENT.

SUTTONS' PRICED CATALOGUE of GENUINE HOME-GROWN SEEDS is now ready, and may be had gratis and post free on application.
SUTTON & SONS, Seed Growers, Reading.

Wholesale Catalogue.

GEORGE JACKMAN AND SON'S PRICED and DESCRIPTIVE CATALOGUE of HARDY NURSERY STOCK for 1867 and SPRING, 1868, can be had free on application.
Woking Nursery, Surrey.

"THE ROSES of MR. PAUL * * * are things to see once and dream of for ever."—*Athenæum, June*, 1867.
WM. PAUL begs to announce that his CATALOGUE of ROSES is now ready, and will be forwarded free on application.
EIGHTEEN PRIZES have been awarded to him for Roses this year at the principal London Flower Shows.
PAUL'S Nurseries, Waltham Cross, London, N.

CULTURAL DIRECTIONS for the ROSE. Second Edition. By JOHN CRANSTON, King's Acre Nurseries, near Hereford. Free by post from the Author for 20 stamps.

Standard Marechal Niel Roses.

JOHN AND CHARLES LEE have a fine stock of STANDARDS of the above splendid YELLOW ROSE to offer at 5s. each; strong budded Dwarfs, 2s. 6d. each. Also fine Standard TEA ROSES of all the best kinds at 2s. each.
Royal Vineyard Nursery and Seed Establishment, Hammersmith, London, W.

J SCOTT has a beautiful lot of first-rate growing seed of GYNERIUM ARGENTEUM (Pampas Grass), saved this autumn, price 1s. per packet. A quantity of PRINCE of WALES KIDNEY POTATOS, price on application to
J. SCOTT, The Seed Stores, Yeovil, Somerset.

MR. GEORGE WOODWARD, South Street, Leominster, has a large quantity of APPLE HUSKS, from the Cider Mill, full of good sound kernels, for £2 per ton, and will send it away as manure. NEW CIDER, 6d. per gallon.
ASPARAGUS ROOTS, 5-yr. old, 3s. per 100. Terms cash.

Winter and Spring Flowering Bulbs and Plants.

BARR AND SUGDEN'S FLORAL GUIDE may be had free. It contains much valuable information.
For particulars see large Advertisement, page 1090.

To the Trade.

CROCUS, SNOWDROPS, named HYACINTHS, Early TULIPS (Double and Single), SCILLA SIBIRICA, &c.
BARR & SUGDEN, 12, King Street, Covent Garden, W.C.

CAMELLIAS.—Cut Blooms for SALE, in any quantity, for cash on delivery, throughout the season. Apply to
G. CLARK, Clarence, Roehampton, S.W.

WM. CUTBUSH AND SON beg to say that their DESCRIPTIVE CATALOGUE of CHOICE HYACINTHS, TULIPS, CROCUSES, &c., is now ready, and can be had post free on application. Highgate Nurseries, London, N.

Hyacinths, Tulips, Crocuses, &c.

B. S. WILLIAMS has a fine Collection of the above. PRICED CATALOGUE post free on application.
HYACINTHS for Glasses or Pots, 6s., 8s., and 10s. per dozen.
Victoria and Paradise Nursery, Upper Holloway, London, N.

L. T. DAVIS offers DOUBLE WHITE and DOUBLE LILAC PRIMROSES, also HEPATICAS of Sorts. Prices on application. Wanted to Purchase, or in Exchange, DOUBLE YELLOW PRIMROSE and SINGLE WHITE HEPATICA.
Ogle's Grove Nursery, Hillsborough, Co. Down.

Notice.—Fruits, Flowers, Bulbs.
BEFORE PURCHASING, PLEASE SEND FOR

DILLISTONE AND CO.'S LITTLE LISTS, post free to all applicants.
Address, DILLISTONE & Co., Nurserymen, &c., Sturmer, near Halstead, Essex.

WEBB'S NEW GIANT POLYANTHUS, Florist Flower, and GIANT COWSLIP SEEDS; also Plants of all the varieties, with double PRIMROSES of different colours; AURICULAS, both Single and Double, with every sort of Early Spring Flowers. LIST on application.—MR. WEBB, Calcot, Reading.

THE ONLY PRIZE MEDAL for ENGLISH GARDEN and FLOWER SEEDS, PARIS, 1867, was awarded to SUTTON & SONS, Seed Growers, Reading.

To the Trade.—Christmas Trees.

THOMAS S. WARE, Hale Farm Nursery, Tottenham, has many Thousand SPRUCE for SALE. Samples and price (which are very low) on application, or they can be seen on the ground.

ABIES DOUGLASII, all sizes, in quantity, Wholesale and Retail, by
DICKSON & TURNBULL, Nurserymen, Perth.

SPRUCE FIRS, 2 to 3 feet, very fine and well rooted. Special low prices upon application.
JAMES DICKSON & SONS, Newton Nurseries, Chester.

SPECIMEN IRISH YEWS.—Very handsome specimens of the above, 7, 8, 9, and 10 feet high, from 5s. to 21s. each.
T. JACKSON & SON, Kingston, S.W.

To the Trade.

FOR CASH, 200,000 SPANISH CHESTNUTS, 2 to 5 feet; and 200,000 LAUREL (bushy plants), 2½ to 3 feet.
For price apply to T. THORNTON, Frimley, Surrey.

PLANTING SEASON.—The Subscribers respectfully intimate that their PRICED LIST of FOREST TREES, &c., is now ready, and may be had on application.
WM. URQUHART & SONS, Nurserymen, Dundee.

FOR HEDGES.—AMERICAN ARBOR-VITÆ, 4 to 5 feet, at 50s. per 100; 5 to 6 feet, 84s. per 100; 6 to 7 feet, 100s. per 100.
RICHARD SMITH, Nurseryman, Worcester.

WANTED, strong, clean grown, well rooted SCARLET OAKS. State size and lowest price per 100, with quantity to offer, to
FRANCIS & ARTHUR DICKSON & SONS, "Upton" Nurseries, Chester.

THIRTY THOUSAND AMERICAN ARBOR-VITÆ, from 3 to 6 feet, very suitable for Hedges.
WM. WOOD & SON, Woodlands Nursery, Maresfield, near Uckfield, Sussex.

ONE HUNDRED THOUSAND fine Transplanted COMMON LAURELS, from 1½ to 3 feet.
WM. WOOD & SON, Woodlands Nursery, Maresfield, near Uckfield, Sussex.

To the Trade.—Special Offer.

SCOTCH, 10 to 15 inches, 12s. per 1000; 2-yr. Transplanted LARCH, 18 to 24 inches, 9s. per 1000; 3-yr. ditto, 2½ to 3½ feet, 12s. per 1000. Stout plants. Samples on application to
JAMES MARRIOTT, The Nurseries, Matlock, Derbyshire.

FOR CASH, 150,000 well-rooted LARCH (unusually cheap), twice transplanted, 3 to 4 feet high. Prices and samples sent to Trade and other addresses within 100 miles of Cardiff carriage free. No reasonable offer will be refused for the whole in One Lot.
Apply to W. TRESEDER, Nurseryman, Cardiff.

Larch, &c.

LARCH, 2½ to 4 feet, 15s.; 3 to 4½ feet, 17s. 6d.; 3½ to 6 feet, 20s.; SCOTCH FIR, 1 to 2 feet, 15s.; SPRUCE, 1 to 1½ foot, 10s.; SILVER FIR, 6 to 12 ins., 5s.; OAK, 1½ to 2½ feet, 15s. per 1000. LIST of other TREES on application. Special quotations for large quantities. Apply, with reference, to
JAMES RIDDELL, Steward, Park Attwood, Bewdley, Worcestershire.

New Double Crimson Thorn.

WM. PAUL has still a few good FLOWERING PLANTS, established in Pots, of this first-class new Forcing Plant, price 5s. each. First-class Certificates at International, Royal Horticultural, and Royal Botanic Societies. It was also forced and exhibited by him on several occasions last spring.
PAUL'S Nurseries, Waltham Cross, N.

WANTED, RHODODENDRON AUCKLANDII (Sikkim species). Large Plant. Plant set for Flower to be preferred.—Address, stating particulars and price, to
A. B., *Gardeners' Chronicle* Office, W.C.

Hazel, Larch, Scotch, &c.

J. SCOTT, Merriott Nurseries, Somerset, offers to Planters Five Acres of Transplanted HAZEL, from 3 to 4, and 4 to 5 ft., very fine; and large breadths of LARCH, SCOTCH, ASH, OAK, THORN, &c. Extensive Planters supplied at reduced prices. PORTUGAL LAURELS, YEWS and BOX, large and finely grown, to be SOLD, a Bargain. CATALOGUES on application.

SEEDLING FOREST TREES, &c. ASH, 2-yr., 2s.; BEECH, 3-yr., 3s. 6d.; HOLLIES, 1-yr., 5s; OAK, 3-yr., 7s. 6d.; QUICK, 1-yr., 1s. 6d.; SILVER FIR, 6-yr., 3s. 6d.; SPRUCE, 5-yr., 3s. 6d.; CRAB, 3-yr., 5 ; and SYCAMORE, 3-yr., 3s. 6d. per 1000. Cheaper by the 100,000. Apply to
J. RIDDELL, Park Attwood, Bewdley, Worcestershire.

To Noblemen and Gentlemen about to Plant.

JOHN HARRISON begs to inform his Patrons that, in consequence of one of his Nurseries being required for Building upon, he is SELLING OFF that portion at very reduced prices, including a large quantity of very splendid specimens of CONIFERÆ, EVERGREEN SHRUBS, and FRUIT TREES, many hundreds of Cedrus Deodara, 6 ft. to 12 ft. high, and nearly as much in diameter; Wellingtonia gigantea, 4 feet to 7 feet high; Abies Douglasii, Cryptomeria japonica, Araucaria imbricata, Thuja aurea, T. Lawsoniana, T. Lobbii, and T. gigantea; Thujopsis borealis, Pinus excelsa, Pinus nobilis, &c. Many hundreds of the above, in splendid specimens and frequently removed, must shortly be cleared off the Ground; besides several thousands of fine Portugal Laurels, Yews, Canadian Pines, Aucubas, Junipers, Cedars, and Hollies of various sorts. Also a very large Stock of Standard, Dwarf and Pyramidal Apple, Pear, Plum, and Cherry Trees. Also Standard and Dwarf Roses of the best varieties for the climate.
Address, North of England Rose Nursery, Darlington.

Large Evergreens, Specimen Conifers, &c.

WATERER AND GODFREY beg to submit the following List to the notice of intending planters:—

YEWS, ENGLISH, 5, 6, 7, 8, 10, 12, and 15 feet high
„ IRISH, 6, 7, 8, and 10 feet high
„ GOLDEN, 5, 6, to 9 feet
„ STANDARD GOLDEN, 20 years worked
„ „ ELEGANTISSIMA, 10 and 15 years old
„ „ DOVASTON or WEEPING, fine heads, 10 and 15 years old
We have altogether thousands of these different Yews of the large sizes. Every plant has been recently removed.
HOLLIES, COMMON GREEN, 6, 7, 8, 10, 12, and 15 feet high, and as much in circumference—hundreds
„ LAURIFOLIA and SCOTTICA, 6, 7, 8, and 10 feet, and wide in proportion
„ WATERER'S, the hardiest of all variegated Hollies, 4 and 5 feet by 10 and 12 feet in circumference
„ THE QUEEN, or best gold striped, the handsomest of all variegated Hollies
We have hundreds of these beautiful plants, 4, 5, and 7 feet high and wide
„ STANDARD, WATERER'S, and GOLDEN, with fine heads, 15 and 20 years worked
☞ We have some thousands of the ordinary kinds of Variegated Hollies, 4, 5, 6, and 7 feet high. Every plant has been removed within 12 months.
CEDRUS DEODARA, some thousands, 6, 7, 8, and 10 feet high
„ ATLANTICA, and Cedars of Lebanon, moved in April, 4, 5, 6, and 8 feet
„ RED VIRGINIANS, 5, 6, and 7 feet
CHINESE JUNIPER, one of the handsomest and hardiest of all evergreens—thousands of beautiful plants, 4, 5, 6, 7, and 8 feet high; some magnificent plants, 10, 12, and 15 feet high, 12 to 20 feet in circumference
THUJA AUREA, 3, 4, and 5 feet high, 7 to 20 feet in circumference
„ GIGANTEA, 10, 12, and 15 feet high, very handsome
„ LOBBII, splendid plants, 7, 8, to 10 feet high, and 12 and 15 feet round—hundreds
CUPRESSUS LAWSONIANA, the finest stock—many thousands, 6, 7, 8, 10, to 15 feet high, and as much in circumference
THUJOPSIS BOREALIS, 4, 5, 6, 8, and 10 feet high, 7 to 12 feet in circumference—hundreds
PORTUGAL LAUREL, 4 and 5 feet high, 7 and 8 feet round
BOX, Green and Variegated, 4, 5, 6, 7, and 8 feet—thousands
PICEA NOBILIS, splendid plants, moved in spring, 4, 5, 6, and 8 feet
„ NORDMANNIANA, 4, 5, 6, 8, 10, and 15 feet high [high
None of our Nobilis or Nordmannianas are grafted plants.
„ MAGNIFICA or NOBILIS ROBUSTA, the finest stock in the trade, all seedlings, 2 to 4 feet high
„ LASIOCARPA, hundreds of plants, 4, 5, 6, and 7 feet high, all
ABIES DOUGLASSII, 5, 6, 7, and 8 feet [seedlings
„ ORIENTALIS, 4, 5, 6, 7, to 10 and 12 feet; 7 to 20 feet in circumference; most beautiful plants
PINUS CEMBRA, 6, 7, to 9 feet
„ PINSAPO, 3, 4, 5, and 6 feet
„ „ Some very fine plants, 10 to 20 feet high, 15 and 25 feet in circumference
WELLINGTONIA GIGANTEA, a large number, all removed recently, 4, 5, 6, & 10 ft. high, & 12 and 15 ft. in circumference
RHODODENDRONS.—We have 40 acres of land in one piece filled almost exclusively with Rhododendrons. A more healthy and beautiful stock cannot be desired.
STANDARD RHODODENDRONS.—Some of the finest plants to be found in any nursery, many are 20 to 40 years old
☞ The large Standard and other Rhododendrons planted last spring in Rotten Row, Hyde Park, were supplied by WATERER & GODFREY.
We do not quote prices, we presume purchasers of such large plants will adopt the much wiser, and always more satisfactory course, of seeing and judging for themselves.
We solicit an inspection, and invite comparison with any other similar nursery stock in the kingdom.
The Knap Hill Nursery is upwards of 160 acres in extent, and contains an enormous and very superior stock of the ordinary sized EVERGREENS, DECIDUOUS ORNAMENTAL TREES, &c.
A PRICED and DESCRIPTIVE CATALOGUE will be forwarded free on application to
WATERER & GODFREY Knap Hill Nursery, Woking, Surrey.
The Nursery is readily reached by Train, 40 minutes from Waterloo to Woking. Conveyances are always to be had at the Station.

DUNCAN'S WIND-RESISTER WHITE WHEAT.—This variety, introduced last year, has in general given great satisfaction both as an Autumn and Spring variety. Notwithstanding the very unfavourable Wheat season of 1867, it continues to exhibit its distinguishing feature of non-liability to shed in high winds. The sample is unusually good, weighing almost 64 lb. per bushel. Price 85s. per quarter. Testimonials post free on application to JAMES DUNCAN, Panlathie Mill, Forfarshire.

LEE'S GIANT ORACH (SPINACH).—This new and valuable variety of Orach possesses immense productive powers, combined with a delicious piquant flavour, quite distinct from all other varieties, rendering it a great acquisition as a Summer Spinach of the highest class.
The plant is of rapid and vigorous growth, and attains a height of 6 or 7 feet, with numerous branches; yielding a constant supply of large dark green leaves throughout the summer months.
The Fruit Committee of the Royal Horticultural Society awarded a First-class Certificate to LEE's Giant Orach, after partaking of a dish of this most useful vegetable, cooked especially for their judgment.
JOHN & CHARLES LEE have much pleasure in introducing this productive vegetable, which they intend to send out in January next. Sealed packets, 1s. each. Price to the Trade on application.
Royal Vineyard Nursery and Seed Establishment, Hammersmith, W.

Seeds for Exportation.

SUTTON AND SONS have now received their supplies of GENUINE and SUPERIOR GRASS, FARM, VEGETABLE, and FLOWER SEEDS, which are in excellent dry condition for Export. CATALOGUES (with samples and special quotations if desired), may be had on application.

July 9, from A. N. ELLA, Esq., *Queenstown, Cape of Good Hope.*
"I may mention that the case referred to was in splendid order, looking as fresh after three months' sea and six weeks' land carriage as if only yesterday packed."

From HUGH ROMSAY, Esq., *Shanghae, China, May 5*, 1866.
"The box of seeds and roots has arrived, and nothing has given me greater pleasure for a long time than the excellence of these seeds."

From Mr. Z. W. WELLS, *New Plymouth, New Zealand, May 7*, 1866.
"The Grass and other seeds sent by the Shelburne to me, have come safe to hand. I have tried samples of the Grass seeds, and am happy to inform you that they have come up quite to my satisfaction."

From Mr. JAS DALE, *Orange, New South Wales, September 20*, 1866.
"I have the pleasure to inform you that your seeds have given great satisfaction, and I now send you a larger order."

All Seeds properly packed and delivered free to ship's side. Special quotations given for large quantities. A liberal allowance made to Shippers. SUTTON & SONS, Seed Growers, Reading.

SEAKALE for FORCING.—Strong 2-yr. planted roots, 12s. per 100; Second Size, 8s. per 100.
Mr. MYATT, Manor Farm, Deptford.

MILKY WHITE (WHEELER'S), the best second EARLY KIDNEY POTATO, 5s. per peck.
Mr. MYATT, Manor Farm, Deptford.

MONA'S PRIDE (ROUTLEDGE), the best of all the EARLY ASH-LEAF Section, 2s. 6d. per peck.
Mr. MYATT, Manor Farm, Deptford.

MYATT'S PROLIFIC KIDNEY POTATO, 2s. 6d. per peck.
Mr. MYATT, Manor Farm, Deptford.
N.B. All orders from unknown correspondents must be accompanied by cash or reference.—Manor Farm, Deptford.

Seed Potatos.

H. AND F. SHARPE are now offering MYATT'S EARLY PROLIFIC KIDNEY, RIVERS' ROYAL ASH-LEAF, WEBB'S IMPERIAL KIDNEY, DAINTREE'S EARLIEST, EARLY OXFORD, EARLY FORTY-FOLD, and many other Early and Late varieties grown from their own selected stocks. The Prices are moderate, and the quality excellent. PRICED LISTS may be had on application.
Seed Growing Establishment, Wisbech.

Splendid New Potato for 1868.

SUTTONS' BERKSHIRE KIDNEY.—This was raised and selected from among forty seedlings of the Fluke. Having ourselves planted it with different varieties of that class, we have proved it to be by far the best of them all, and fully a fortnight earlier. The tubers are all of good size, very numerous, of fine form, and remarkably clear skin. It is most valuable for the main garden crop, and will become a favourite with market gardeners. It has been remarkably free from disease, while other varieties growing close by were almost destroyed. The stock of this Potato is exclusively in our possession, and being limited, early orders are recommended to prevent disappointment. Price 5s. per peck.
SUTTON & SONS, Royal Berks Seed Establishment, Reading.

MILKY WHITE, a NEW POTATO, introduced by MESSRS. WHEELER AND SON, of Gloucester.

MILKY WHITE is the best of all Potatos.

MILKY WHITE is acknowledged to be the best of all Potatos. In shape and colour, flavour and appearance, it excels every other variety. It is as white as milk, floury as a Fluke, ripens in August, and continues in splendid condition for Cooking all through the Autumn, Winter, and Spring.

MILKY WHITE POTATO—white as milk.

MILKY WHITE is of the finest quality.

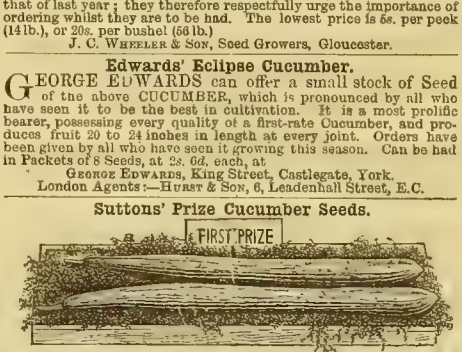
MILKY WHITE SEED POTATOS are very scarce, and early orders are absolutely necessary in order to secure a supply. Lowest price, 5s. per peck; 20s. per bushel (56 lb.)

MILKY WHITE.—Last year the demand for this new and most excellent variety greatly exceeded the supply, so that very early in the planting season Messrs. WHEELER & SON were obliged, much to their regret, to decline orders. They have every reason to believe that the demand this coming season will exceed that of last year; they therefore respectfully urge the importance of ordering whilst they are to be had. The lowest price is 5s. per peck (14 lb.), or 20s. per bushel (56 lb.)
J. C. WHEELER & SON, Seed Growers, Gloucester.

Edwards' Eclipse Cucumber.

GEORGE EDWARDS can offer a small stock of Seed of the above CUCUMBER, which is pronounced by all who have seen it to be the best in cultivation. It is a most prolific bearer, possessing every quality of a first-rate Cucumber, and produces fruit 20 to 24 inches in length at every joint. Orders have been given by all who have seen it growing this season. Can be had in Packets of 6 Seeds, at 2s. 6d. each, at
GEORGE EDWARDS, King Street, Castlegate, York.
London Agents:—HURST & SON, 6, Leadenhall Street, E.C.

Suttons' Prize Cucumber Seeds.



SUTTON AND SONS can supply SEED of the best kinds of CUCUMBERS, including Mr. Hamilton's new varieties, SUTTONS' Berkshire Challenge, SUTTONS' Berkshire Champion, and many others.
For List and Prices of which see Messrs. SUTTONS' CATALOGUE for 1868, which will be forwarded gratis and post free on application.
SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

EDWARD TAYLOR, SEEDSMAN, Malton, Yorkshire, offers the following CUCUMBERS, all carefully saved and true to name, free by post, at the prices attached:—
BURNETT'S PERFECTION, true.—This is the most popular sort grown in this part of Yorkshire, being almost exclusively sought after for exhibition purposes. It grows from 24 to 30 inches long, and very short in the neck. Owing to being a very shy seeder, the supply is very limited. 2s. 6d. per packet.
RASHAY'S PRIZETAKER. 1s. 6d. per packet.
ROBIN HOOD. 1s. 6d. per packet.
PEARSON'S LONG GUN, MASTERS' PROLIFIC, WILSON'S PROLIFIC, GOULD'S PROLIFIC, CARTER'S CHAMPION, SION HOUSE IMPROVED, CUTHILL'S BLACK SPINE, REYNOLDS' PERPETUAL BEARER, and other good sorts. 1s. per packet. The usual allowance to the Trade.

HENRY DEWAR begs to offer the undermentioned SEEDS, which he can with confidence recommend as being First-class (in sealed packets only):—
DEWAR'S IMPROVED SHORT-TOP RED BEETS, 1s. per packet.
NORTHUMBERLAND CHAMPION WHITE CELERY, 1s. p. pkt.
Extra choice (selected) BRUSSELS SPROUTS, 6d. per packet.
COOKE'S improved superb EARLY DWARF CABBAGE, 6d. p. pkt.
HALL'S NEW HYBRID NETTED GREEN-FLESH MELON.—A hardy free-bearing variety, fruit averaging from 3 to 5 lb.; thin skinned, very fleshy, and of most exquisite flavour; 1s. 6d. p. pkt.
Prices to the Trade on application.
97, Grey Street, Newcastle-on-Tyne.

REIGATE SILVER SAND, best quality, 12s. per ton, at Swan Place; delivered four miles, or to any London Wharf or Railway, 16s. per ton, or 1s. 6d. per bushel. (Sacks at cost price, or on hire.) KENTISH and HAMPSHIRE PEATS, YELLOW LOAM, LEAF MOULD, SPHAGNUM MOSS, & COCOA FIBRE REFUSE.
J. KENNARD, Swan Place, Old Kent Road, London, S.E.



COCOA-NUT REFUSE is becoming SCARCE, the old reserves will soon be gone. Now sold in bags, 1 for 2s., 10 for 16s., 20 for 30s., 50 for 66s., 100 for £6.
Fourpence allowed for each bag returned carriage-paid.
A Railway Truck-load (not in bags), 40s.
Postage Stamps or Post-office Order, payable to J. BARSHAM & Co., Kingston-on-Thames, S.W.

LAWES' WHEAT MANURE for AUTUMN SOWING.—A supply of the above Manure is now ready for delivery, at J. B. LAWES' Factories, Deptford and Barking Creeks. Price £8 per ton. Two to three cwt. per acre to be harrowed into the land before the seed is sown. It can be obtained of Mr. LAWES, or through any of his appointed Agents; also
LAWES' PATENT TURNIP MANURE .. £6 6 0 per ton.
SUPERPHOSPHATE of LIME .. .. £5 5 0 per ton.
Genuine PERUVIAN GUANO direct from the Importers, and all Chemical Manures of value.
AMERICAN and other CAKES at market prices.
Address JOHN BENNET LAWES, Offices, 1, Adelaide Place, London Bridge, E.C.; 22, Eden Quay, Dublin; & Market Square, Shrewsbury.

Look to your Grass Lands, &c.
ESTABLISHED 1820.

MESSRS. JARED T. HUNT AND SONS beg to inform their numerous Agricultural Friends and Customers, that they have now on hand, in the finest condition, their usual Autumn Stock of
AMMONIACAL CORN MANURE,
which has, for several years, given such general satisfaction.
They have also always on hand, ready for immediate delivery, the largest stock of CRUSHED BONES of any firm in the United Kingdom, viz.:—In ½-inch BONES; ¼-inch BONES; PULVERIZED BONES for Grass Lands; prepared BONES for Grape Vines and Hops; also BLOOD MANURE, SUPERPHOSPHATE of LIME, PERUVIAN GUANO, and NITRATE of SODA, direct from the Docks.
Prices and other particulars of the above, at their Works, Lambeth Wharf, London, S.; Bow Bridge Works, Stratford, E.; and Downham Market, Norfolk.
N.B.—Responsible Persons as AGENTS WANTED in districts not yet represented.

THE LONDON MANURE COMPANY
(ESTABLISHED 1840)
Have now ready for delivery in dry fine condition,
CORN MANURE, for Spring Use
DISSOLVED BONES, for Dressing Pasture Lands
SUPERPHOSPHATES of LIME
PREPARED GUANO
MANGEL and POTATO MANURES.
Also Genuine PERUVIAN GUANO, and NITRATE of SODA, ex Dock Warehouse; SULPHATE of AMMONIA, FISHERY SALT, &c.
E. PURSER, Secretary.
Offices, 116, Fenchurch Street, E.C.

To Agriculturists, Market Gardeners, Contractors, and Others.

THE PROPRIETORS of some Land in Bermondsey, a portion of which was for many years occupied as Tan Yards, are desirous of obtaining TENDERS for the DISPOSAL and REMOVAL of a large amount of TAN. The Tan is thoroughly decomposed, and it is thought would form a valuable Dressing for Land. For particulars apply to
Mr. STRETCH, 7, Storey's Gate, St. James's Park, S.W.

Beautiful Flowers, Beautiful Flowers.

COCOA NUT FIBRE REFUSE for SALE, 5s. per Waggon, and 2s. per Cartload.—This useful material—the superiority of which over Manufactured Manures for strengthening the Growth and Improving the Blossom of Flowers, is now fully established by testimonials from Floriculturists and Gardeners from all parts of the United Kingdom—is highly recommended for Potting and Striking all Soft-wooded Plants, as it prevents the cuttings from fagging or damping off; and may be had in quantities of not less than two sacks, delivered free to any of the London booking offices, at 2s. 6d. per sack, each containing 6 bushels, sack included, on receipt of post order or postage stamps, addressed
A. SMITH, Patent Cocoa Fibre Works, Marsh Gate Lane, Stratford, London, E.

TOBACCO TISSUE for Fumigating Greenhouses. Will Destroy Thrip, Red Spider, Green and Black Fly, and Mealy Bug; and burns without the assistance of blowing, and is entirely free from paper or rag. Price 3s. 6d. per lb., carriage free. A reduction in price for large quantities.
To be had of Messrs. ROBERTS & SONS, Tobacco Manufacturers, 112, St. John Street, Clerkenwell, E.C., of whom copies of Testimonials may be obtained; and of all Seedsmen and Nurserymen.

WINTER-DRESS ALL FRUIT TREES with GISHURST COMPOUND.
Copy of a Letter from Mr. RIVERS, *Nurseries, Sawbridgeworth, Herts, 22d October*, 1861.
"I must tell you what I heard to-day from a very clever gentleman farmer, Anthony Bubb, Esq., of Witcombe Court, Gloucester. He has a wall to which Peach Trees are trained. Well, last autumn they were in a wretched blighted state. As a desperate remedy he unnailed them all, early last February, and gave all but one a thorough painting with Gishurst Compound, 1 lb. to the gallon of water; his trees, all but the one, commenced to grow favourably in spring, and are now pictures of health. The tree not painted is in a half-dead blighted state. He used the same dressing to his Apple Trees; it killed the woolly Aphis entirely, and has made his trees clean and vigorous in their growth. He intends to paint his Wall Trees annually, and tells all his friends to do the same. I shall certainly serve all my young Peach Trees against my walls in the same manner. The Compound is, I believe, more efficacious than the usual offensive mixtures of clay, soot, sulphur, &c.; and it does not blacken the shoots on the walls."
For Orchard-house Trees, 4 ozs. to the gallon will be found a good strength; when used stronger some buds on weakly trees may be injured.
GISHURST COMPOUND is sold Retail by Nurserymen and Seedsmen, in boxes, 1s., 3s., and 10s. 6d. each.
Wholesale by PRICE'S PATENT CANDLE COMPANY, LIMITED, Belmont, Vauxhall, London, S.
Gishurst Compound has more recent testimonials to its efficacy, but none more conclusive than the above, which has been published before.



GARDEN BORDER EDGING TILES, in great variety of patterns and materials, the plainer sorts being especially suited for KITCHEN GARDENS, as they harbour no Slugs and Insects, take up little room, and once put down incur no further labour and expense, as do "grown" Edgings, consequently being much cheaper.



GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, of great durability, and in great variety of design.
F. & G. ROSHER, Manufacturers, Upper Ground Street, Blackfriars, S.; Queen's Road West, Chelsea, S.W.; Kingsland Road, Kingsland, N.E.
Sole London Agents for FOXLEY'S PATENT GARDEN WALL BRICKS. Illustrated Price List free by post. The Trade supplied.

ORNAMENTAL PAVING TILES for Conservatories, Halls, Corridors, Balconies, &c., as cheap and durable as Stone, in blue, red, and buff colours, and capable of forming a variety of designs.
Also TESSELATED PAVEMENTS of more enriched designs than the above.
WHITE GLAZED TILES, for Lining Walls of Dairies, Larders, Kitchen Ranges, Baths, &c. Grooved and other Stable Paving Bricks of great durability, Dutch and Adamantine Clinkers, Wall Copings, Red and Stoneware Drain Pipes, Slates, Cement, &c.
To be obtained of F. & G. ROSHER, at their premises as above.

SILVER SAND (REIGATE, best quality), at the above addresses—14s. per Ton, or 1s. 3d. per Bushel; 2s. per Ton extra for delivery within three miles, and to any London Railway or Wharf. Quantities of 4 Tons, 1s. per Ton less.
FLINTS, BRICK BURRS or CLINKERS, for Rockeries or Grotto Work. F. & G. ROSHER.—Addresses see above.
N.B. Orders promptly executed by Railway.

Important to Gardeners.

THE
PARIS UNIVERSAL EXHIBITION PRIZE MEDAL OF 1867
IS AWARDED TO

SAYNOR AND COOKE only, for excellence of quality in Material and Workmanship in PRUNING and BUDDING KNIVES, VINE and PRUNING SCISSORS, &c. — the high distinction thus awarded showing their superiority over all other competitors, having also previously carried the PRIZE MEDALS of the GREAT EXHIBITIONS of 1851, 1855, and 1862.

Can be bought of all Nurserymen and Seedsmen in the world.

Paxton Works, Sheffield.

Established 120 years. Corporate Mark, "OBTAIN."

None are genuine unless marked SAYNOR, also OBTAIN WARRANTED.

Horticultural Glass Warehouse.

THOMAS MILLINGTON AND CO.,
87, Bishopsgate Street Without, London, E.C.

NEW LIST for ORCHARD HOUSE GLASS as supplied to Her Majesty, the Nobility, Gentry, Mr. Rivers, and the leading Horticulturists of the United Kingdom.

ORCHARD HOUSE SIZES.

in.	in.	4ths.	3rds.	2nds.	Best.
20 by 12					
20 by 13					
20 by 14	Per 100 feet 15 oz.	14s 3d	15s 0d	18s 6d	20s 0d
20 by 15					
20 by 16	21 oz.	19s 6d	22s 2d	25s 0d	26s 0d

SMALL SHEET SQUARES, 15 oz., per 100 feet.

in.	in.	in.	in.	in.	4ths.	3ds.	2nds.	Best.
6 by 4	7 by 5	8 by 6	9 by 7		12s 3d	13s 3d	16s 0d	18s 0d
6½ by 4½	7½ by 5½	8½ by 6½	9½ by 7½					

Per 100 feet.

10 by 8	12 by 9	12½ by 10½	14½ by 10½				
10½ by 8½	12½ by 9½	13 by 10	15 by 10	13s 3d	14s 6d	17s 3d	19s 0d
11 by 9	13 by 9	13½ by 10½	13 by 11				
11½ by 9½	12 by 10	14 by 10	14 by 11				

LARGE SHEET SQUARES, 15 oz., per 100 feet.

in.	in.	in.	in.	in.	in.	4ths.	3ds.	2nds.	Best
15½ by 10½	14 by 12	22 by 12	22 by 16						
10 by 10	14½ by 12½	17 by 13	24 by 16						
14½ by 11½	15 by 12	23 by 13	20 by 17						
15 by 11	15½ by 12½	18 by 14	22 by 17			14s 3d	15s 0d	18s 6d	20s 0d
15½ by 11½	16 by 12	22 by 14	24 by 17						
16 by 11	16½ by 12½	24 by 14	20 by 18						
21 by 11	17 by 12	22 by 15	22 by 18						
13 by 12	18 by 12	24 by 15	24 by 18						

The above Prices are only for the Sizes stated; if a quantity of any other Size be required, a Special Price will be given.

SHEET GLASS.

In Sheets for Cutting up, averaging from 6 to 9 feet super.

15 oz.		21 oz.	
4ths quality, per 300 feet case,	38s.	4ths quality, per 200 feet case,	38s.
3ds " "	48s.	3ds " "	48s.
2ds " "	62s.	2ds " "	66s.
Best " "	92s.	Best " "	96s.

SHEET GLASS is made only in the following substances, 15 oz., 21 oz., 26 oz., 32 oz., 36 oz., and 42 oz.

HARTLEY'S IMPROVED ROLLED ROUGH PLATE in 1-8th in., 3-16th in., 1-4th in., and 3-8th in. substances.

BRITISH PLATE GLASS for Windows and Silvered for Looking Glasses, Coloured Glass, Glass Shades, Striking Glasses, &c., &c.

PAINTS, COLOURS, VARNISHES, &c.

STUCCO PAINT, 24s. per cwt. This Paint adheres firmly to the walls, resists the weather, and is free from the glossy appearance of Oil Paint, resembling a stone surface, and can be made any required shade. It is mixed with rain or pure river water.

WHITE ZINC PAINT, 36s. per cwt. One hundredweight of pure Zinc Paint, with three gallons of Linseed Oil, will cover as much as one hundredweight and a half of White Lead and six gallons of Linseed Oil. Special Dryers for this Paint.

IMPROVED ANTI-CORROSION PAINT, 28s. to 34s. per cwt. Anti-corrosion Paint is extensively used for all kinds of work in exposed situations, on Brick, Stone, Compo, Iron, Iron Bridges, Conservatories, Greenhouses, &c., and is easily laid on by any ordinary workman. Prepared Oil for ditto 4s. per gallon.

Per cwt.—s. d.		Per gallon.—s. d.	
GENUINE WHITE LEAD	32 0	LINSEED OIL	3 4
SECONDS WHITE LEAD	30 0	BOILED OIL	3 9
GROUND PATENT DRYERS, 3d. to 4½d. per lb.		TURPENTINE	3 0
" OXFORD OCHRE, 3d. to 4½d. per lb.		LINSEED OIL PUTTY, 8s. to 9s. per cwt.	
RAW UMBER, 4½d. to 6d. per lb.		Fine OAK VARNISH, 10s. to 12	0
" BURNT do., 6d. to 9d.		" CARRIAGE do., 12s. to 14	0
GREEN PAINT, all shades,		" PAPER do. 10s. to 12	0
28s. to 60	0	" COPAL 16	0
BLACK PAINT, 24s. to 36	0	KNOTTING 10	0
RED PAINT .. 28s. to 36	0	Patent GOLD SIZE .. 10	0
		" BLACK JAPAN .. 12	0
GLAZIER'S DIAMONDS and TOOLS			
GROUND BRUSHES.		MILLED LEAD and PIPES	
DUSTERS. | SASH TOOLS.		OLD LEAD Bought or taken in	
DISTEMPER BRUSHES.		exchange.	

The above are Net, for Cash, and as such cannot be booked.

Lists of any of the above on application.

Glass for Garden Purposes.

JAMES PHILLIPS AND CO. beg to submit their REDUCED PRICES as follows:—



PROPAGATING GLASSES.

Each.—s. d.		Each.—s. d.	
12 inches in diameter ..	0 3½	12 inches in diameter ..	1 9
3 " " ..	0 4½	13 " " ..	2 0
4 " " ..	0 5½	14 " " ..	2 6
5 " " ..	0 6½	15 " " ..	3 0
6 " " ..	0 8	16 " " ..	3 6
7 " " ..	0 10	17 " " ..	4 0
8 " " ..	1 0	18 " " ..	5 0
9 " " ..	1 2	19 " " ..	6 0
10 " " ..	1 4	20 " " ..	7 0
11 " " ..	1 6		

HYACINTH and FLOWER DISHES.

6 inches diameter .. .. 1s. 0d. | 9 inches diameter 1 0
12 inches diameter .. .. 2s. 6d.

Hyacinth Dishes are intended to contain a number of Roots Bedded in and covered with Moss, instead of the common Hyacinth Glass.

LACTOMETERS, for Testing the Quality of Milk.

Four Tubes .. .. 4s. 6d. | Six Tubes .. .. 6s. 6d.

With Stands complete.



HAND GLASSES, WITH OPEN TOPS.

Each.—s. d.		Each.—s. d.	
12 inches	6 6	18 inches	9 6
14 "	7 6	20 "	10 6
16 "	8 6	22 "	11 6
		24 "	12 6

Painted and Glazed with 16-oz. Sheet Glass.

London Agents for HARTLEY'S IMPROVED PATENT ROUGH PLATE.

LINSEED OIL, Genuine WHITE LEAD, CARSON'S PAINTS, PAINTS of various colours, ground ready for use.

SHEET and ROUGH PLATE GLASS, SLATES of all sizes, BRITISH PLATE, PATENT PLATE, ROLLED PLATE, CROWN, SHEET, HORTICULTURAL, ORNAMENTAL, COLOURED, and every description of GLASS, of the best Manufacture, at the lowest terms. Lists of prices and estimates forwarded on application to

JAMES PHILLIPS & CO., 180, Bishopsgate Street Without, E.C.

HOT-WATER APPARATUS, of every description, fixed complete in any part of the country, or the materials, viz., Boilers, Pipes, &c., delivered to any Station.

Estimates on application.

J. JONES & SONS, 6, Bankside, Southwark, London, S.E.

Cheap Greenhouse Stoves.

DEANE AND CO.'S Patent VENTILATING and SUSPENSION STOVES are simple, cheap, and efficient; have been largely adopted and approved; will burn many hours without attention, and at a small cost for fuel. Prices of Suspension Stoves, 20s., 30s., 38s., and upwards. Ventilating Stoves, 50s., 60s., 70s., 90s.

HOT-WATER APPARATUS for Conservatories, Greenhouses, Hothouses, Forcing Pits, &c., erected and fitted up complete.

DEANE & Co., 46, King William Street, London Bridge, E.C.
Established A.D. 1700.

CRANSTON'S PATENT BUILDINGS for HORTICULTURE.
"Dry Glazing without Putty."
"Glass without Laps."
"Ventilation without Moving Lights."
Highly Commended by the Royal Horticultural Society, South Kensington.

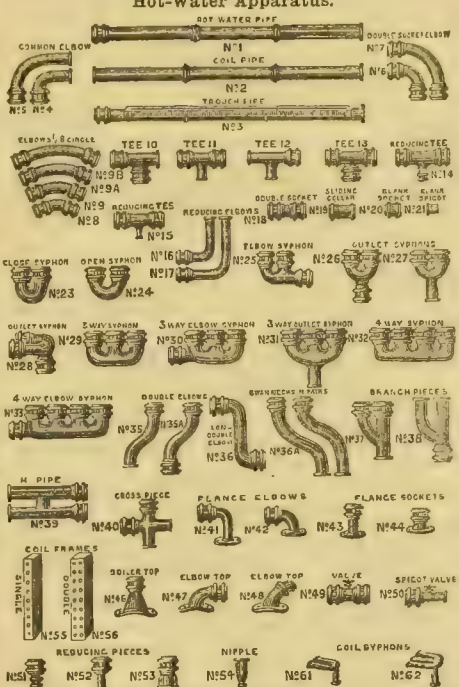


Plans and Estimates free on application. Descriptive Book fully illustrated, post free for 20 stamps, from the Author and Patentee, JAMES CRANSTON, Architect, Birmingham.

Works: Highgate Street, Birmingham.

HENRY J. GROWTAGE, Manager, 1, Temple Row West, Birmingham.

Hot-Water Apparatus.



J. JONES AND SONS have the largest Stock of HOT-WATER PIPES and CONNECTIONS, with WROUGHT and CAST IRON SADDLE, CANNON, and CYLINDER BOILERS, PORTABLE BOILERS, &c., and they will be happy to forward Prices for same either at the Wharf in London, or delivered free to any Station or Shipping Port in the United Kingdom.

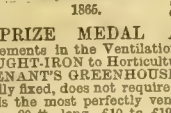
J. JONES & SONS, Iron Merchants, 6, Bankside, Southwark, London.

*** Hot-water Apparatus erected complete.

Greenhouses—Heating Apparatus.

CONSERVATORIES
PINERIES
STRAWBERRY HOUSES
VINERIES
FORCING HOUSES
ORCHID HOUSES
WALL-TREE COVERS
GREENHOUSES
CUCUMBER and MELON HOUSES

DUBLIN EXHIBITION



1865.

ORCHARD HOUSES
PATENT SUN-BLINDS & FROST PROTECTORS, with various Patented Improvements in the CONSTRUCTION
VENTILATION
HEATING
SHADING
OPENING GEAR

THE ONLY PRIZE MEDAL AWARDED for Various Improvements in the Ventilation, Construction, and Application of WROUGHT-IRON to Horticultural Buildings.

Our New Patent TENANT'S GREENHOUSE, THE NOVELTY, is cheap, durable, easily fixed, does not require painting, is adapted or all purposes, and is the most perfectly ventilated house of the present day. Prices:—20 ft. long, £10 to £19 10s.; 32 ft., £15 to £29 18s.; 40 ft., £18 to £36; 64 ft., £27 12s. to £54 3s. 6d.; 80 ft. £34 to £66 6s.; 104 ft., £43 12s. to £84 10s. Span Roofs, double price.

Orders for our New Patent WALL-TREE COVER are now solicited. They save their cost in one season. Prices, with 16-oz. glass, 8s., 10s., and 12s. per foot run.

In HEATING we are pre-eminent, and have pleasure in referring to works in all parts of the kingdom which have been executed by us.

Careful personal attention is given to all orders; and from our immense practical experience, we are willing to guarantee that Buildings left to our arrangement shall perfectly answer the purposes for which they are intended, without fear of disappointment.

Our Patented arrangements may be seen "en modèle," and every information obtained at our London Office, 6, Sloane Street, S.W.

Postal address, Anchor Iron Works, Chelmsford.

DENNIS & SCRUBY, Hot-Water Engineers, Patentees, and general Horticultural Builders in Wood or Iron.

Catalogues, Estimates, or Plans on application.

Heating Apparatus.

J. MEREDITH continues to supply and fix HOT-WATER APPARATUS in VINERIES, and every description of HOTHOUSES, BUILDINGS, &c.

The Vineyard, Garston, near Liverpool.

MOULE'S WARMING APPARATUS.—The best and most economical system of Warming Churches, Schools, Hothouses, and all large Buildings. Apply to

J. W. GRIBBLESTONE, C.E., 31, Duke Street, Westminster, S.W.

JAMES WATTS AND CO., HOTHOUSE BUILDERS and HOT-WATER APPARATUS MANUFACTURERS, 353, Old Kent Road, S.E.

TWO HUNDRED CUCUMBER and MELON BOXES and LIGHTS, and from 400 to 500 LIGHTS for PITS of all SIZES kept in STOCK, Glazed and Painted complete, ready for immediate use. Packed and sent to all parts of the kingdom. Public and Private Buildings, Warehouses, &c., heated on the most approved scientific and economical principles. References to the Nobility, Gentry and Trade in most of the Counties in England.

Heating by Hot Water.

W. J. HOLLANDS, IRON MERCHANT, 31, Bankside, London, S.E.

HOT WATER PIPES, from Stock, per yard:—2-inch, 1s. 1½d. 3-inch, 1s. 9d.; and 4-inch, 2s. 3d. BENDS, from Stock, 1s. 6d., 2s. 6d., and 3s. each. THROTTLE VALVES, 10s., 13s., and 14s. each. Other Connexions at equally low prices, and all goods of first-class manufacture. Estimates given, and orders by post punctually attended to the same day.

Heating by Hot Water.

HOT-WATER PIPES, at Wholesale Prices, with Elbows, Syphons, Tee-Pipes, and every other connection; Wrought and Cast-Iron Boilers, Saddle, Conical, Cylinder, Tubular, and Elliptic, from 24s. each. Improved Boilers and Iron Stands to use without brickwork, 60s. each. Valves from 10s. 6d. each. Patent Valves, Improved Furnace Doors, Furnace Bars, Supply Cisterns, and Castings of every description in stock, at

Mr. LYNCH WHITE'S Iron Wharf, Upper Ground Street, Blackfriars Bridge, London, S. Price List on application.

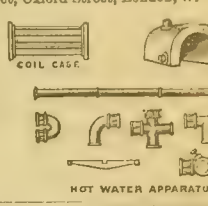
COTTAM AND COMPANY,
CONSERVATORY and HOTHOUSE BUILDERS, &c.,
Iron Works, 2, Winsley Street, Oxford Street, London, W.

SADDLE BOILERS.

20	24	30 inches long.
45s.	65s.	92s. 6d. each.

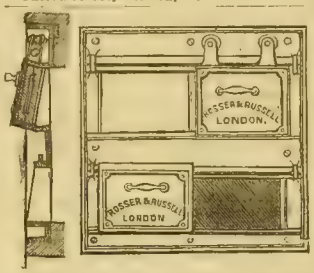
HOT-WATER PIPES.

2	3	4 inch.
1s. 6d.	2s. 1d.	2s. 9d. per yard.



Materials supplied as above, or Estimates given fixed complete to Plan, on application to

COTTAM & Co.,
Iron Works,
2, Winsley Street,
(opposite the Pantheon),
Oxford Street, London, W.



SYLVESTER'S PATENT FURNACE DOORS, manufactured by ROSSER & RUSSELL (late Burbidge & Healy), 118, Dorset Street, Fleet Street, London, E.C.

SYLVESTER'S Patent FLUE and SWEEPING DOORS.

SYLVESTER'S Patent CONICAL-RIBBED BOILERS, WROUGHT-IRON WELDED, SADDLE, & IMPROVED CHAMBERED BOILERS.

ROSSER & RUSSELL, Engineers and Heating Apparatus Manufacturers, 118, Dorset Street, Fleet Street, London, E.C.

TO BE SOLD, Cheap, an IRON DOME CONSERVATORY, 52 feet 8 inches long, 9 feet 4 inches wide. Would make an excellent Peach House or Covered Way. And all other descriptions of Horticultural Buildings to be seen at

J. LEWIS'S Horticultural Works, Stamford Hill, Middlesex.

RUSSIA MATS, SEED-BAGS, TWINES.—Price List forwarded on application to JAMES T. ANDERSON, Manufacturer of SACKS, SEED BAGS, ROPES, TWINES, HORSE CLOTHS, TARPAULINS, NOSE BAGS, &c.; and Importer of every description of RUSSIA MATS, 7, Commercial Street, Shoreditch, London, close to the Great Eastern Railway Terminus.

CARSON'S ANTI-CORROSION PAINT, Patronised by the Nobility and Gentry, is extensively used for all kinds of OUT-DOOR WORK, and is proved, after a test of 70 years, to surpass any other Paint. It is especially applicable to Iron, Wood, Stone, Brick, Compo, and is the only Paint that will effectually resist the rays of the sun upon Conservatories, Greenhouses, Frames, &c. Is twice as durable as genuine White Lead, so simple in application that any person can use it. Per cwt.

WHITE, LIGHT STONE, BATH, and LIGHT PORTLAND COLOURS .. .. .. 30s.
LEAD, CHOCOLATE, RED, PURPLE, BROWN, and BLACK 26s.
BRIGHT GREEN, DEEP GREEN, and BLUE .. .. 42s.

Prepared OIL MIXTURE for the ANTI-CORROSION.

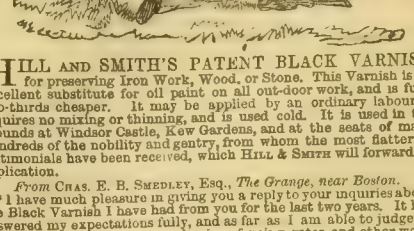
OILS, TURPENTINE, VARNISHES, BRUSHES, &c.

3 cwt. Free to all Stations in England and Wales, and most Ports of Ireland and Scotland. Patterns and Testimonials sent post free.

WALTER CARSON & SONS,
La Belle Sauvage Yard, Ludgate Hill, London, E.C.

CAUTION.—All Casks should bear the Trade Mark. No Agents.

Oil Paint no longer Necessary.



HILL AND SMITH'S PATENT BLACK VARNISH for preserving Iron Work, Wood, or Stone. This Varnish is an excellent substitute for oil paint on all out-door work, and is fully two-thirds cheaper. It may be applied by an ordinary labourer, requires no mixing or thinning, and is used cold. It is used in the grounds at Windsor Castle, Kew Gardens, and at the seats of many hundreds of the nobility and gentry, from whom the most flattering testimonials have been received, which HILL & SMITH will forward on application.

From CHAS. E. B. SMEDLEY, Esq., *The Grange, near Boston.*

"I have much pleasure in giving you a reply to your inquiries about the Black Varnish I have had from you for the last two years. It has answered my expectations fully, and as far as I am able to judge, it is the best material for preserving iron fencing, gates, and other wood work exposed to theair; and I can with safety recommend it as the best and cheapest article that is yet out. Wishing you every success."

Sold in casks of about 30 gallons each, at 1s. 6d. per gallon, at the Manufactory, or 1s. 8d. per gallon paid to any Station in the kingdom.

Apply to HILL & SMITH, Brierly Hill Iron Works, near Dudley, and 22, Cannon Street West, E.C., from whom only it can be obtained.

British Fern Catalogue.

ROBERT SIM can now send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his NEW and PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.

Foot's Cray Nursery, S.E., a mile from Sidcup Station of New North Kent Line of South Eastern Railway.

General Nursery Stock.



ARCHIBALD HENDERSON begs to inform his friends and patrons that his DESCRIPTIVE and PRICED CATALOGUE of GENERAL NURSERY STOCK is now published, containing practical directions on the Planting and Pruning of the various sections of Roses, with remarks on all the leading Coniferæ, Ornamental Trees, Fruit Trees, &c.

Also one of the most SELECT and CHOICE COLLECTIONS of VINES in pots ever offered to the public.

A. H.'s BULB CATALOGUE contains a Select List of Kitchen Garden and Flower Seeds for autumn sowing; also a Choice Assortment of Gladioli for spring planting.

CATALOGUES may be had gratis and post free on application.

Sion Nursery, Thornton Heath, Surrey, and at the East Surrey Seed Warehouse, College Grounds, North End, Croydon.

JOHN CRANSTON'S CATALOGUE of SELECTED ROSES is now ready and will be forwarded on application.

J. C. respectfully directs attention to the following LIST of FIRST PRIZES which have been awarded to him at the principal Rose Shows of the present year, proving beyond a doubt that the soil and climate of his Nurseries are unrivalled for the Cultivation of Roses.

Royal Botanic Society, Regent's Park, London.
June 19.—24 Varieties, Cut Roses, one truss each, FIRST PRIZE
Cirencester.
June 19.—36 Varieties, Cut Roses, three trusses each, FIRST PRIZE
Clifton.
June 25.—24 Varieties, Cut Roses, one truss each, FIRST PRIZE
Crystal Palace.
June 29.—72 Varieties, Cut Roses, one truss each, FIRST PRIZE
Royal Horticultural Society, South Kensington.
July 2.—72 Varieties, Cut Roses, one truss each, FIRST PRIZE
Birmingham.
July 4, 5.—72 Varieties, Cut Roses, one truss each, FIRST PRIZE
24 Varieties, Cut Roses, three trusses each, FIRST PRIZE
Hereford.
July 9.—72 Varieties, Cut Roses, one truss each, FIRST PRIZE
24 Varieties, Cut Roses, three trusses each, FIRST PRIZE
Rugby
July 12.—72 Varieties, Cut Roses, one truss each, FIRST PRIZE
Nurseries, King's Acre, near Hereford.

Viola Lutea (Yellow-flowered Violet).

B. S. WILLIAMS has much pleasure in being enabled to offer Choice and Selected Seed of the above beautiful Plant. Habit dwarf yet vigorous, foliage dark glossy green, flowers bright yellow, which are produced in great profusion all through the early Spring, Summer, and Autumn months. The plant does not grow more than 5 inches high; it is perfectly hardy, therefore well adapted for small beds, edgings, or marginal lines. It is without doubt the best yellow-flowered bedding plant in cultivation. It was spoken very highly of in the leading article of the *Gardeners' Chronicle*, November 2.

Mr. Fish, in his remarks about Violas (*Gardeners' Chronicle*, October 26), states that Viola lutea is a perfect gem, and is invaluable for a dwarf yellow bed or edgings. It is a bright yellow, of the most compact habit, and seems to flower more freely than V. cornuta.

Remarks by Mr. E. BENNETT, *The Gardens, Osberton Hall, Worksop.*

"Viola lutea, which has just risen so high in the estimation of all that have seen it in perfection, is undoubtedly a little gem, and will be much sought after this ensuing season. It is perfectly hardy, more dwarf in habit than V. cornuta; the foliage more striking, and flowers equally or even more freely; truly valuable for forcing, and blossomed profusely with me during the past spring. Indeed to see it in such perfection as I have done from early spring to October, I am justified in saying it is a most charming addition to the flower garden, more especially for small beds and front lines, for which it is so well adapted. Like all Violas it requires good rich soil and plenty of Manure, and prefers a moist situation."

Price 1s., 1s. 6d., and 2s. 6d. per packet.

VIOLA PURPLE QUEEN, true stock, 6d. and 1s. per packet.
VIOLA MAUVE QUEEN, true stock, 6d. and 1s. per packet.
B. S. WILLIAMS, Victoria and Paradise Nursery, Upper Holloway, N.

LOISE-CHAUVIÈRE, SEEDSMAN, NURSERYMAN, and FLORIST, 14, Quai de la Megisserie, Paris, begs to inform his numerous Friends and those interested, that he can offer the most complete collection of GLADIOLI bulbs, of the finest quality.

All kinds of VEGETABLE and AGRICULTURAL SEEDS are supplied by this firm, prices of which may be had on application.

LOISE-CHAUVIERE has been rewarded with the Gold Medal for the numerous plants which he exhibited at the "Universal Exhibition,' amongst which were Gladioli, Dahlias, Gloxinias, Annuals, and Ornamental plants.

To Gentlemen, Nurserymen, and Planters.

DELEPINE'S NEW GENERAL CATALOGUE of FRUIT and ORNAMENTAL TREES has just been published.

DELEPINE, Sen., begs to call the attention of Planters to his large tock of the following:—

STANDARD, PYRAMID, and DWARF FRUIT TREES and FRUITING SHRUBS.
FOREST and ORNAMENTAL FLOWERING and BEARING TREES, CONIFERÆ, EVERGREENS, and SHRUBS.
AMERICAN PLANTS and ROSES.
Young Plants or Seedlings of all sorts for Nurseries, Hedges, and extensive Plantations.

Proprietor of one of the most extensive Nurseries in this part of France (called, with reason, Le Jardin de la France), M. DELEPINE is able to furnish very hardy, robust, and strong Stocks of the above.

CATALOGUE and Prices may be obtained post free on application to DELEPINE aîné, Nurseryman, Route Neuve de Saumur, à Angers, France; or of his London Agents, Messrs. R. SILBERRAD & SON, 5, Harp Lane, Great Tower Street, E.C.

Green Hollies, 4 to 7 feet.

GEORGE CHIVAS, Chester, offers several Thousands of the above, very handsome plants, in excellent condition for removing; also an exceedingly large stock of extra strong THORNS, and many Millions of FOREST TREES, including LARCH of all sizes, SCOTCH FIR, twice transplanted, 1½ to 3 feet; SPRUCE, 1 to 3½ feet, thin on the ground; ASH, 2½ to 6 feet; ELM, 3 to 6 feet; SYCAMORE, 3 to 6 feet; OAKS, ALDERS BIRCH, &c.

PRICED LISTS on application.

Loughborough Nurseries, Leicestershire.

GEORGE BOWMAN begs to offer the following at low prices, fine well-rooted trees:—MOUNTAIN ASH, 10 feet; SCOTCH, 2 to 3 feet; BIRCH, 6 to 8 feet; HORNBEAM, strong, 6 to 10 feet; POPLARS, 10 to 12 feet; ALDER, 10 feet; SNOWBERRY, strong, 4 to 5 feet, 40s. per 1000; PRIVET, fine, 4 to 5 feet, 30s. per 1000; BLACK THORN, 3 feet, 40s. per 1000; LAURELS, fine, 3 feet, 20s. per 100; LABURNUMS, strong, 8 feet, 6s. per dozen; BOX TREE, fine bushy, 3 feet, 20s. per 100; LIMES, 10 to 12 feet, fine.

Tansley Nurseries, near Matlock, Derbyshire.

JOSEPH SMITH, SEN., invites Planters and the Trade to inspect his Nursery of 80 Acres of high land. The soil is of a fibrous nature, and the Plants take up with excellent roots, such as to ensure the best success in their removal.

The Nursery contains many Hundred Thousands of RHODODENDRONS, COMMON and PORTUGAL LAURELS, BOX, BROOMS, BERBERIS, HOLLIES, PRIVETS, YEWS, &c. THE FOREST TREES are very extensive, of all the leading kinds; there are 16 Acres of LARCHES, of different sizes, and all others in proportion. Prices moderate, which can be had on application as above.

Woodlands Nursery, Maresfield, near Uckfield, Sussex.

WM. WOOD AND SON have a very extensive stock to offer of the following, viz.:—

Scarlet HORSE CHESTNUTS, Standards, 6 to 10 feet [1000
CATALPA SYRINGÆFOLIA | THUJA AUREA, by the 100 or
LABURNUMS, yellow and purple | Strong ASPARAGUS Plants
LARCH, SPRUCE, and SCOTCH FIRS
PINUS AUSTRIACA [and other Forest Trees
ASH, BIRCH, WILLOW, HORNBEAM, OAKS, SYCAMORE,

CATALOGUES and Samples may be had on application.

EDWARD SANG & SONS, NURSERYMEN and SEED MERCHANTS, Kirkcaldy, N.B.

FOREST and FRUIT TREES, SHRUBS, ORNAMENTAL PLANTS, ROSES, FERNS, and VINES.

VEGETABLE and FLOWER SEEDS, GLADIOLI, Implements, and every Garden requisite.

PRICED CATALOGUES post free on application.

THREE MILLION strong 4-yr. transplanted QUICK.
1,000,000 good 2-yr. transplanted QUICK.
2,000,000 superior Seedling QUICK.
100,000 good strong LARCH, 4 to 6 feet.
100,000 good strong LARCH, 2 to 4 feet.
For samples and prices apply to
JOHN HEMSLEY, High Fields, Melbourne, near Derby.

Christmas Trees.

ENGLISH SPRUCE FIR, 3 to 4 feet, bushy from the bottom, of perfect shape, 6d. each, 6s. per dozen, 40s. per 100.
ENGLISH YEWS, 1½ feet, well furnished, 15s. per 100.
ENGLISH YEWS, 2½ to 3 feet, well furnished, 9s. per dozen.
PORTUGAL LAURELS, 2 feet and 2½ feet through, 6s. per dozen.
AUSTRIAN PINES, 3 feet, furnished to the bottom, 40s. per 100.
WELLINGTONIA GIGANTEA, 5 feet, 3 to 4 feet through, 10s. 6d. each.
THUJOPSIS BOREALIS, 3 feet, 30s. per dozen.
Fine-named Hybrid Perpetual ROSES, 9s. per dozen.
LARCH, extra Transplanted, 4 to 5 feet, fine, 30s. per 1000.
LARCH, extra Transplanted, 2 to 3 feet, 17s. per 1000.
All other FOREST TREES and SHRUBS, fine and well rooted.
HENRY MAY, The Hope Nurseries, Bedale, Yorkshire.

CHARLES NOBLE.
10,000 CHRISTMAS TREES.
20,000 DEUTZIA CRENATA FLORE-PLENO.
10,000 HYBRID PERPETUAL ROSES, Dwarf.
500,000 RHODODENDRON PONTICUM.
50,000 " finest named.
100,000 MUSSEL STOCKS.
30,000 MAIDEN and PYRAMIDAL PEARS, APPLES, CHERRIES, PLUMS, PEACHES, and NECTARINES
20,000 ERICA HERBACEA.
The above and many other things on offer.
CATALOGUES now ready.
Bagshot, December 7.

SPECIAL OFFER.
BERBERIS COMMUNIS, 2 to 2½ feet
DULCIS, 2 to 2½ feet
DOUBLE PINK THORNS, 3 to 5 feet
WHITE THORNS, 3 to 5 feet
PINUS AUSTRIACA, fine, 2½ to 3½ feet
OAK, ENGLISH, 2 to 3 feet
SPRUCE FIR, 1 to 3 feet.
A reduced PRICED LIST of the above and other surplus stock on application to
THOMAS S. WARE, Hale Farm Nursery, Tottenham, Middlesex, N.

JOSEPH KEARSLEY begs to announce that he has a fine collection of FRUIT TREES for SALE—Pyramidal Standards, and Dwarf trained and untrained; likewise a fine collection of FOREST TREES and EVERGREENS, &c., of the finest growth. A CATALOGUE sent on application. All orders carefully attended to. Early orders will oblige J. K.

The Nurseries, Barkston Ash, near Tadcaster, one mile from Church Fenton Station.

JOSEPH SMITH, JUN., Moor Edge Nurseries, Tansley, near Matlock, has to offer a large and GENERAL NURSERY STOCK, consisting of Forest Trees and Ornamental Shrubs and Trees, at very moderate prices.

LARCH, 2 to 3 feet, 3 to 4 feet, and 4 to 5 feet, 13s. per 1000.
RHODODENDRON PONTICUM, 8 to 12 inches, 90s. per 1000; 9 to 15 ins., 130s. p. 1000; 1 to 1½ ft., 150s. p. 1000; 1½ to 2 ft., 260s. p. 1000.
PRICED CATALOGUE on application.
Special offers made to large purchasers.

ACORNS (ENGLISH), fine sound seed, price upon application. LAUREL (COMMON), 1-yr. Cuttings, extra fine, price upon application.

TRADE CATALOGUE of FRUITS, HERBACEOUS PLANTS, ROSES, &c., free upon application.

A few bushels of HORSE CHESTNUTS also to spare.
DILLISTONE & WOODTHORPE, Munro Nursery, Sible Hedingham, Essex

Leicester Abbey Nurseries.

FRUITS, ROSES, EVERGREENS, and ORNAMENTAL TREES.

THOMAS WARNER begs to remind Planters and the Trade, that in addition to his extensive General Nursery Stock he has the following in immense quantities, of unsurpassed quality, and at very reasonable prices:—

APPLES, APRICOTS, PEARS, and PLUMS, Standards, with stems 4 to 6 feet, and good heads, extra fine
APRICOTS, CHERRIES, and PEACHES, Dwarfs
CHERRIES and PEACHES, Dwarf-trained
CURRANTS, HOUGHTON CASTLE or VICTORIA, RED, strong
GRAPE VINES, BLACK HAMBURGH
STRAWBERRIES (in 25 fine sorts) [good
ROSES, finest varieties, Dwarfs on Manetti, remarkably strong and
ABIES CANADENSIS or HEMLOCK SPRUCE, 2½ to 3½ feet
ARBOR-VITÆ, AMERICAN, 3 to 6 feet, bushy and well rooted
" SIBERIAN, 1½ to 4 feet, Pyramids, very handsome
AUCUBA JAPONICA, 9 inches to 2 feet high, bushy
BOX, TREE (various sorts), 1 to 2½ feet
CEDRUS ARGENTEA, 1 to 4 feet, transplanted September, 1866
CHESTNUT, SCARLET-FLOWERED, 3 to 8 feet, very stout
CLEMATIS VITALBA (Traveller's Joy), transplanted
ELMS, standards (various sorts), 6 to 12 feet, extra fine
IVY, IRISH, 3½ to 4½ feet, strong and bushy, in pots, remarkably fine
POPLARS, BLACK ITALIAN and ONTARIO, 4 to 8 feet
SAVIN, 1½ to 2½ feet
SYCAMORE, COMMON, 4 to 6 feet, very fine
" VARIEGATED, 4 to 10 feet
THORNS, SCARLET and PINK, Standards, 6 to 8 feet
YEWS, ENGLISH and IRISH, 1 to 4 feet.
See CATALOGUES, Wholesale or Retail.

Royal Ascot Vine.

JNO. STANDISH is prepared to send by post strong GRAFTS of the above VINE to any part of Great Britain at 10s. 6d. each, and 6d. the postage. He has no hesitation in saying that if side-grafted on any other strong Vine, just as the sap is rising, it will unite immediately, and bear a sample of bunches the same season, or within six months from the time of putting the graft. Persons not used to grafting can have a sketch, and how to do it, and the treatment afterwards. Also Plants now for Sale, in 6-inch pots, 42s. each.

Royal Nurseries, Ascot, Berks.

ROYAL VINEYARD PEACH.—This remarkable Peach is of very robust habit, and is a most prolific bearer. It is so hardy, that in 1865 it bore a heavy crop of large fruit as an ORCHARD STANDARD, several branches having each borne from our to five fruit, weighing TEN OUNCES a-piece. It is a free-stone of most luscious flavour, with a superabundance of juice, and is just sufficiently piquant to render it highly refreshing. The time of ripening is about a week earlier than the Barrington Peach.

JOHN & CHARLES LEE have much pleasure in introducing this extraordinary Peach, which was exhibited at Mr. Webber's, in Covent Garden Market, in 1865, and was much admired and inquired after at the time.

Dwarf Maiden Trees are now ready, price 10s. 6d. each.

Royal Vineyard Nursery and Seed Establishment, Hammersmith, London, W.

CALVILLE BLANCHE APPLES are now selling in Covent Garden Market at 1s. 6d. to 2s. each fruit. See *Gardeners' Chronicle*, p. 1168.

HENRY MAY offers a splendid lot of Trees of the above, worked on the French Paradise Stock, with fruit buds, imported direct from France, 1s. 6d. each; 6 for 6s.; 12 for 9s. Trade price on application.

Also that splendid Apple COXE'S ORANGE PIPPIN, on Paradise, 1s. 6d. each; 12s. per dozen.

LORD BURGHLEY, 1-year cut back, 3s. 6d. each; Maidens, 2s. 6d. each, 24s. per dozen. Also the New Apples BARON WARD, DUKE of DEVONSHIRE, LORD DERBY, LORD SUFFIELD, NORTHERN SPY, RINGER, &c., 1s. 6d. each.

Splendid STANDARD APPLES, 6 feet stems, good heads, 12s. per dozen.

BUSH APPLES, furnished with fruit spurs, 18s. per dozen.

PEARS on Quince, 18s.; PEARS on Pear, 12s. per dozen.

HENRY MAY, The Hope Nurseries, Bedale, Yorkshire.

STRONG STANDARD and DWARF-TRAINED APPLES and PEARS.
Fine transplanted LARCH FIR, 1½ to 6 feet
Bushy LAURUSTINUS, LAURELS, and BOX TREES
CHINESE ARBOR-VITÆ, 5 to 6 feet, fine Pyramids
A choice collection of CONIFERÆ
A large assortment of STANDARD and DWARF PERPETUAL, and strong DWARF CHINA or MONTHLY ROSES, and a general NURSERY STOCK.
All the above are well rooted, and will remove with safety. Prices on application to
CHARLES BURGESS, The Nurseries, London Road, Cheltenham.

Fruit Trees.—The finest Collection in England.

J. SCOTT, Merriott Nurseries, Somerset, begs to solicit his Friends and the Public to inspect his immense Stock, consisting of 700 sorts of APPLES, 50 do. APRICOTS, 120 do. CHERRIES, 150 do. PEACHES and NECTARINES, 900 do. PEARS, and 150 do. PLUMS, in all manner of training, well root-pruned and carefully transplanted; CURRANTS, FILBERTS, GOOSEBERRIES, &c.; making together about 1500 sorts of FRUIT TREES, which for health and beauty cannot be surpassed.

CATALOGUES on application.

MAGNIFICENT DWARF-TRAINED FRUIT TREES,
By the Dozen, Hundred, or Thousand.
APPLES, PEARS, PLUMS, CHERRIES, PEACHES, NECTARINES, and APRICOTS. [NECTARINES.
Also Standard, wall-trained, fruit bearing, PEACHES and PYRAMIDAL PEARS on the Quince Stock in a fruit-bearing state; and PYRAMIDAL PEARS, on the Pear Stock, extra strong and well grown.

WM. WOOD & SON have many acres of the above named, which for health and vigour are quite unsurpassed in the trade. The Trees have been most carefully trained, and are really examples of successful cultivation.

Address, Woodlands Nursery, Maresfield, near Uckfield, Sussex.

FIFTY ACRES well stocked with FRUIT TREES to select from.—APPLES, PEARS, PLUMS, CHERRIES, PEACHES, NECTARINES, and APRICOTS, in every form desired for fruiting.

See RICHARD SMITH'S FRUIT LIST, free by post for 3 stamps.
RICHARD SMITH, Nurseryman, Worcester.

FOR THE OPEN GROUND.—APPLES, PEARS, PLUMS, and CHERRIES, fine healthy Pyramids, very ornamental and productive. Strongly recommended for large and small gardens.

See RICHARD SMITH'S FRUIT LIST, post free for 3 stamps.
RICHARD SMITH, Nurseryman, Worcester.

ESPALIER and WALL-TRAINED TREES in any quantity.—APPLES, PEARS, PLUMS, CHERRIES, PEACHES, NECTARINES, and APRICOTS, fine strong trees of perfect form.

See RICHARD SMITH'S FRUIT LIST, free by post for 3 stamps.
RICHARD SMITH, Nurseryman, Worcester.

A CROP of FRUIT the FIRST SEASON.—Bearing Pyramids and Bushes in pots for orchard houses. PEACHES, NECTARINES, APRICOTS, APPLES, PEARS, PLUMS, and CHERRIES. Extra strong VINES and FIGS in fruiting condition for forcing.

See RICHARD SMITH'S FRUIT LIST, post free for 3 stamps.
RICHARD SMITH, Nurseryman, Worcester.

Wonersh Nursery, near Guildford, Surrey.

WM. VIRGO AND SON beg to announce that their Stock of TREES and SHRUBS of the undermentioned kinds is this season very extensive and well-grown, samples, prices, and Catalogues of which can be obtained on application:—

100,000 Hazel, 3 to 5 feet
60,000 Spruce Fir, 2 to 4 feet
50,000 Spanish Chestnut, 1½ to
30,000 Alder, 3 to 4 feet [2 ft.
50,000 Ash, 2 to 3 feet
20,000 Sycamore, 3 to 4 feet
500,000 Quick, transplanted, 1½ to 2 feet
50,000 GreenHolly, transplanted, 1½ to 2 ft.
Pinus Austriaca, 1 to 2 feet
Horse Chestnuts, 3 to 4 & 5 to 7 ft.
Common and Portugal Laurel
Berberis aquifolia
Arbor-vitæ
And other various Shrubs.

A large stock of strong STANDARD MORELLO CHERRIES, APPLES, PEARS, PLUMS, and DWARF-TRAINED do.

NOTICE OF A NEW WHITE GRAPE,
TO BE CALLED "THE GOLDEN CHAMPION."

OSBORN & SONS

Will be prepared to send out in the ensuing season what they believe to be the finest WHITE GRAPE (except the Muscat) ever brought before the Public, and which will, when known, become as great a favourite as the Black Hamburgh. Its constitution is equally good, it sets as freely in a similar temperature, ripens earlier, and will hang as long when ripe; the bunches are large and well shouldered, the berries larger than any Grape known; flavour excellent. Dr. Hogg, in a private communication, says:—"Golden Champion must certainly be the name, for it will beat everything else in the way of White Grapes." Mr. Rivers, in a letter to the raiser, says:—"The more I think of your Grape, the more I admire it for its very peculiar and original aroma." Again, he says:—"It is a most extraordinary production."

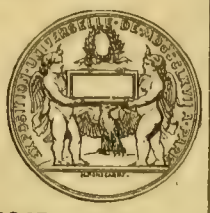
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FULHAM NURSERY, LONDON, S.W.

SUTTONS' HOME-GROWN SEEDS.

(CARRIAGE FREE.)





PARIS, 1867.

THE ONLY SILVER MEDAL

FOR ENGLISH

GARDEN AND FLOWER SEEDS

WAS AWARDED TO

SUTTON AND SONS.

SUTTONS'

COMPLETE COLLECTIONS

FOR ONE YEAR'S SUPPLY,

(CARRIAGE FREE,)

ARE NOW READY.

FOR THE KITCHEN GARDEN.

No. 1.—A COMPLETE COLLECTION of the best kinds of VEGETABLES, for ONE YEAR'S SUPPLY, as proved in Messrs. SUTTONS' Trial Grounds..	£3	3	0
No. 2.—A COMPLETE COLLECTION of ditto	2	2	0
No. 3.—A COMPLETE COLLECTION of ditto	1	11	6
No. 4.—A COMPLETE COLLECTION of ditto	1	1	0
No. 5.—A COMPLETE COLLECTION of ditto	0	15	0
No. 6.—A COMPLETE COLLECTION of ditto	0	12	6
No. 7.—A COMPLETE COLLECTION of ditto, extra quantities, for large Gardens..	5	5	0

Contents of the above Collections on application.

FOR THE FLOWER GARDEN.

(Free by Post or Rail).

No. 1.—A COLLECTION of the best GERMAN and ENGLISH FLOWER SEEDS, saved by eminent Florists..	£2	2	0
No. 2.—A COLLECTION of ditto	1	11	6
No. 3.—A COLLECTION of ditto	1	1	0
No. 4.—A COLLECTION of ditto	0	15	0
No. 5.—A COLLECTION of ditto	0	10	6

Other COLLECTIONS from 2*s.* 6*d.* to 10*s.* 6*d.*

Just published, price 1*s. Post Free, Gratis to Customers,*

SUTTONS' SPRING CATALOGUE

AND

AMATEUR'S GUIDE FOR 1868

(ILLUSTRATED),

containing much useful information on

FLORICULTURE, HORTICULTURE, and AGRICULTURE.

SUTTONS' SHORT SELECT SEED LIST

is also ready, and may be had Gratis and Post Free.

For LIST of

NEW SEEDS AND POTATOS

for 1868,

See page 1237 of *Gardeners' Chronicle*, or

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GREAT NATIONAL HORTICULTURAL EXHIBITION, 1868.—£900 will be given in PRIZES.

The above Exhibition will open at the BOTANIC GARDENS, MANCHESTER, on FRIDAY, May 29, and close the FRIDAY following, June 5. The following amongst other Prizes will be offered:—16 Stove and Greenhouse Plants, 1st Prize, £30; 2d, £20.

20 Miscellaneous Plants—1st Prize, £30; 2d, £20.

10 Azaleas—1st Prize, £20; 2d, £12.

10 Roses—1st Prize, £14; 2d, £10

Schedules will be issued in a few days, and may be had on application to Mr. FINDLAY, at the Gardens; or from the Undersigned,

HENRY WHITWORTH, Sec., Cooper Street, Manchester.

The Gardeners' Chronicle.

SATURDAY, DECEMBER 21, 1867.

THE decease of the veteran Professor of Botany in the University of Oxford, the much lamented Dr. DAUBENY, of whose career a slight notice will be found in another column, brings forcibly into remembrance the work that he did in promoting vegetable physiology, and specially those branches of it bearing on practical horticulture and agriculture. As the subject is alluded to elsewhere, we need not reiterate what is therein said, our present object is to call attention to the immense harvest that is ripe for the reaper in the same fields as those traversed by DAUBENY, and to lament the deficiency of labourers. There are such men as LAWES and GILBERT, as WAY, and VOELCKER, not to speak of continental physicists and chemists, but the tale is soon told, while the work to be done, and which urgently requires doing, is vast indeed. We have systematic botanists, some of foremost eminence; we have a small army of microscopical observers, but we sadly lack practical physiologists—men trained by study and experience of physics, of natural philosophy and chemistry, and able and willing to apply their knowledge specially to the investigation of plant life.

This DAUBENY did, and the results are apparent and so important, that the wonder is that more have not followed in his track, and compelled Nature to reveal her mysteries. Though our botanists are not numerous, yet they are some of them, as we have said, of the highest repute, and the work done is both extensive and valuable, but when we come to the subject of plant physiology, apart from structure, how wofully little is being done in comparison with what ought to be done. As a proof of this, let us ask what single function of plant life can be said to be thoroughly understood? Is it the absorption of fluid matters by the roots of plants? Considerable diversity of opinion exists as to how this takes place. Is it the circulation of the sap? It is even now not proved beyond controversy that the sap descends, while as to the cause of its ascent there are multitudes of opinions, but which is the correct one? Is it the exhalation of gases from leaves? Beyond a few facts (but those of cardinal importance, first ascertained by DAUBENY, and which are now unquestioned) the whole matter is still in a most unsettled condition. One chemist tells us one thing—a distinguished Frenchman asserts this: an equally eminent German tells us the direct opposite. The main facts as to the fertilisation of the ovule in flowering plants may be said to be fairly made out; but this again is a matter of microscopical research and patience rather than of experiment. And so we might go through the whole roll of plant actions, and show that there is scarcely one of them on which a physiologist when questioned is able to speak with certainty, or to furnish the practical agriculturist or horticulturist perfectly trustworthy guidance. Is it wonderful, where so little is really certainly known as to plant life, that so much diversity exists among plant cultivators? Take the case of the formation of stem roots on Vines. One practical man says one thing, one another, as to the cause of their production; but there still remains the fact that one Vine will form them, while its next neighbour, growing precisely under the same conditions, never does. Now the anatomy of these roots, and their mode of growth, are satisfactorily known, and to some extent the causes of their production are also made out; but we cannot call to mind the record of a single experiment made to determine their functions and office. It is *assumed* that they absorb moisture and gases from the atmosphere, but that is mere assumption. It may be true, probably is so; but for practical purposes we have a right to know for certain whether it is so or not. And so with most of the phenomena of plant life. Gardeners will tell you that they train in this direction, or prune after a certain fashion, that they effect certain operations to ensure a due balance between root and top, and so on. All this is plausible enough, and in many instances may be perfectly correct, but we repeat, that to a very large extent—a much larger extent, probably, than cultivators are themselves aware of—these are matters of assumption merely, resting on no proper scientific basis. This is a humiliating confession to make, but it is well to look the case fully in the face. Clearly the blame does not rest with the practical man; the cause, we believe, arises from the paucity of scientific men in this country, who devote themselves to these particular subjects, and from the absence of proper facilities for so doing. In our opinion every garden calling itself a Botanic Garden, and supposed to be devoted to purposes of instruction, should have a laboratory attached to it, wherein the kind of research we have indicated might be carried on, in conjunction with experimental plots of greater or less size. Private resources, as a rule, are not adequate to supply the requisite means and facilities for such undertakings. They should be carried out in public institutions, under the management of persons who, by education, training, and predilection show themselves competent for the task. It is idle to expect in these days, when the field of science is so vast, that a botanist in the ordinary acceptation of the term—one who attends mainly to the structure and classification of plants, can be at once a botanist and an experimental physiologist. Time would not permit of this, even were the cultivation of the two branches of the science, at one time, more feasible than it is.

If there is one part of experimental physiology which falls less within the scope of the above remarks than another, it is that relating to hybridisation. This has always been a pet subject, both with physiologists, practical men, and amateurs, and very considerable progress has been made. Latterly a great impulse has been given to it by the admirable researches of DARWIN, and it is a matter of great satisfaction to record the part taken in this mattter by Major TREVOR CLARKE, who is turning his attention to the subject practically in the "improvement" of Cotton; and specially by Mr. ANDERSON-HENRY, who for years has devoted himself to this subject, and the record of whose deeply interesting labours is given in his own words in another column.

—THE MANCHESTER NATIONAL HORTICULTURAL EXHIBITION is fixed to open on Friday, the 29th of May, and close on the Friday following, June 5th, thus including the Whitsun holidays. It is unfortunate that the date should again overlap that on which the Royal Horticultural Society will hold its great Show, but we understand that the dates fixed for Epsom and Ascot, and those of other metropolitan Shows, left the Society no alternative. The Manchester prize schedule will be issued immediately, and will, we hear, offer prizes to the amount of 900*l.*, of which 30*l.* is to be given as a first prize for 16 stove and greenhouse plants in flower; 30*l.* for 20 miscellaneous plants; 20*l.* for 10 Azaleas, and others in proportion.

—Now that the subject of TRAINING FRUIT TREES is engrossing so much attention, it may be well to mention the Peach trees of M. GALLIEN, Place de la Madeleine, Paris, an account of which is given in the *Revue Horticole*. The garden in which these trees are grown, Rue Rennequin, n. 13, is small, and placed in a very unfavourable spot. The trees themselves, 29 in number, are grown against a wall 45 mètres long, 3 mètres high, in pots or tubs sunk in the ground. The trees are so trained as to represent the following words — "Famille Impériale, L. L. M. M. NAPOLEON III., EUGENIE, NAPOLEON Protecteur de la France, 1867." These words are surmounted by the Imperial Eagle and by the initials N. E. The letters are arranged in three lines, those of the central line being 1 m. 15 c. high, while those above and below are 60 centimètres high. This design has occupied five years in the execution, and was effected by means of trees grafted at different heights. The fruiting branches are reported as in good condition. The effec

is described as "ravissant," but we may inquire whether "*le jeu vaut la chandelle.*"

—— We have just received the terminal number of the 16th volume of the FLORE DES SERRES, edited by M. VAN HOUTTE of Ghent. In the ordinary course the contents of this number will be alluded to under the heading Plant Portraits, but we may take this opportunity of expressing our sense of the excellence and beauty of the plates, and of the *spirituel* manner in which the Editor performs his task. A similar good word may be said for the ILLUSTRATION HORTICOLE, published by M. VERSCHAFFELT, and learnedly edited by M. LEMAIRE. To both publications horticulturists owe much. Would that the editors could be persuaded to alter the exceedingly inconvenient manner of inserting their miscellaneous matter, which at present is mixed up with the descriptions of plants, &c., in a way more curious than convenient. Our own Botanical Magazine and Floral Magazine are models of simplicity in this respect. With reference to the former of these periodicals we perceive that the present volume is gracefully dedicated to Professor OLIVER. All who have had occasion to consult the library or herbarium at Kew, will gladly endorse this tribute on the part of Dr. HOOKER to his "collaborateur."

—— Some objection having been made to our notice of AWARDS made at the PARIS EXHIBITION in Classes 84 and 85 (see p. 1267), we append the following from the official catalogue:—Class 84, Grand Prix: VEITCH, J., & SONS, London—*Plantes d'ornement, Conifères, introductions nouvelles* (ornamental plants, Conifers, and newly-introduced plants). Silver Medal: CARTER, London—*Gazons* (Lawn Grass, Turf). Bronze Medal: DOWNIE, LAIRD & LAING, London—*Pensées* (Pansies). Class 85, Silver Medal: SUTTON—*Graines potagères* (kitchen garden seeds).

—— Mr. BARBER, of Spondon, near Derby, has kindly sent for our examination a curious flower of LYCASTE SKINNERI, in which the lip was entirely absent, its place being supplied by the two usually lateral sepals, which in this case were bent downwards and fused together, and thus occupied precisely the situation of the lip. In addition to this there was a supernumerary stamen, in an imperfect state, exactly in front of the column. Hence the structural arrangements of the flower were altered in a very interesting manner, though we can hardly say that its beauty was enhanced by the changes in question.

—— The storm which passed over Paris on the 1st of this month seems to have done much damage to the large stove in the centre of the "Jardin reservé" of the late PARIS EXHIBITION. It appears that several large Palms, Bananas, Ferns, &c., were housed in this building for the winter, and that they have suffered extremely from the violence of the wind, which blew down a considerable portion of the building, thus exposing the inmates to all the fury of the tempest.

—— In a paper read at the Geographical Society on EXPLORATIONS IN CENTRAL AMERICA, Mr. JOHN COLLINSON, C.E., states that amongst the curious causes which affected the compass when cutting his way through the primeval forests of Nicaragua, were "some of the enormous Mahogany and Wild Cotton (Eriodendron) trees, which would often attract it as much as 3°, observations of the Pole Star and Southern Cross attesting the truth of the theodolite lines, and confirming the occurrence of the phenomenon."

—— We are informed that M. T. BASS, Esq., M.P., has consented to take the chair at the next anniversary dinner of the GARDENERS' ROYAL BENEVOLENT INSTITUTION; and that Sir ROBERT PEEL has intimated his intention of supporting Mr. BASS on that occasion.

THE LATE PROFESSOR DAUBENY.

CHARLES GILES BRIDLE DAUBENY, born 1795, educated at Winchester, proceeded to Oxford, became "Demy" of Magdalen in 1810, subsequently Fellow of the same College, died 1867. In such words might the brief record of many a college Fellow of hardly less intellectual calibre than the subject of the present notice, be written.

How it was that the late Senior Fellow of Magdalen acquired a wider reputation, and a more enduring fame, the subsequent lines may perhaps serve to show.

After an honourable career as a student in the University in which he graduated, he proceeded to Edinburgh, then even more than now, noted for the excellence of its medical teaching. Acquiring in the northern metropolis that insight into practical medicine which at that time even London itself could not give, so defective were the arrangements for clinical teaching, he, having become Fellow of the London College of Physicians, returned to Oxford, entered on the practice of his profession, and shortly became attached to the Radcliffe Infirmary of that city as one of its physicians. In that capacity, however, he did not long remain; circumstances rendered him independent of the medical profession as a means of livelihood, and were even more potent in drawing him towards the pursuit of science, particularly Chemistry and Geology.

Buckland, who in 1813 had been appointed reader in Mineralogy and in 1818 in Geology in the University, by the originality of his ideas, the boldness of his grasp, and the happy facility he possessed of imparting to others somewhat of his own enthusiasm, must have early influenced the future historian of volcanoes. Be this as it may, we find Daubeny occupying the Chair of Chemistry in the University in 1822, an office he held for many years in conjunction with the Professorship of Botany, but which some time since he resigned; the duties of the chemical chair being now fulfilled by Sir Benjamin Brodie, the son of the eminent surgeon. In what respect Chemistry was held at the time of Daubeny's appointment by the University authorities, nay in what repute it was esteemed till within the last 20 years, all who remember the cribbed, cabined and confined vault beneath the then Ashmolean Museum can estimate. In that vault, however, Daubeny laid the foundation of his future reputation; there were performed those experiments, there were executed those analyses, which led their author to the production of that work on which his fame as a chemist chiefly depends—his "Description of Active and Extinct Volcanoes," first published in 1826, and of which a second edition appeared in 1848. The main object of this volume was to show the all-important influence which chemical agencies have in producing those catastrophes, which in general terms are attributed to earthquakes and volcanoes without further inquiry or research on the part of the great majority.

Daubeny's views, into the nature of which we cannot fully enter in this place, have not escaped without adverse criticism; still there can be little question in the main, that the views advocated by him are not only plausible and efficient, but correct. In connection with this subject may be mentioned his investigations into the chemical qualities of a large number of the mineral springs in this country, and the continent of Europe.

In 1834, on the decease of Dr. Williams, he was elected to the Professorship of Botany in the University, a professorship originally established some years after the Botanic Garden was founded by Earl Danby in 1632.

It is probable that an important paper on the "Degree of Selection exercised by Plants with regard to the Earthy Constituents presented to their absorbing Surfaces," published in the Linnean Society's Transactions, may have led to this choice. In this paper it was shown, *inter alia*, that there is an apparent selection exercised by roots, such selection being probably attributable to physical causes; thus it was shown, that while plants will take up chemical salts (in solution) having the same crystalline form (isomorphous) in equal quantities, they will only take up to a much less degree salts that are not isomorphous. The better to enable himself to undertake the duties of his new position, the Professor repaired for a while to Geneva, in order to profit by the instruction of that great master, Auguste Pyramus De Candolle, and of whom he published in 1843 an excellent and discriminative biographical notice. Subsequently he attended the lectures of Professor Lindley at the then London University—now University College—and with which distinguished botanist he remained on intimate terms till his death in 1865. Established in his professorship, Dr. Daubeny began at once to apply his great chemical acquirements to the elucidation of many points of vegetable physiology. Thus in 1836, in the Philosophical Transactions is published an "Essay on the Action of Light upon Plants, and of Plants on the Atmosphere," which must ever be considered not only as one of the most important works of its author, but also as one of the most valuable publications on the subject of vegetable physiology. In this paper certain facts were published which are now so generally assumed to be correct, that their discoverer is overlooked except by the curious in matters of scientific history. These facts, in brief, are, that the luminous portion of the spectrum (the yellow and green rays) are the most powerful in promoting the exhalation of oxygen gas from the green parts of plants, and, indeed, in stimulating vegetable life in general. From this time Dr. Daubeny's memoirs on chemical and physical subjects connected with plant physiology became so numerous, that space cannot here be given to enumerate them. There is the less necessity for so doing, as many of them have been published in our own columns, and not long since the Professor gathered together the more important of them in two volumes of Miscellanies, reviewed by us at the time of their publication (see p. 1075). Suffice it to say, that while these papers are devoted to matters of high scientific interest, they are of the utmost importance to agriculturists and horticulturists, as witness the Bakerian lecture before the Royal Society on the Rotation of Crops, the memoirs on the Occurrence of Phosphorite in Estremadura, the Application of Manures, the Supposed Deterioration of the Soil of Great Britain, &c.

The subject-matter of many of these essays was first made public in those lectures which it was his duty to deliver as Professor of Rural Economy, a chair established after the completion of the "Flora Græca," from funds left by Dr. Sibthorp for that purpose. While thus active in promoting vegetable physiology, he was no less diligent in furthering chemical and geological science in general. We have already alluded to his standard treatise on volcanoes. His little volume on the "Atomic Theory," though now out of date, by reason of the rapid march of chemical science, experienced an equally favourable reception at the hands of chemists when first issued. With these scientific studies Dr. Daubeny yet found time for many classical and literary occupations. We cannot do more than allude to the host of magazine articles, pamphlets, and *jeux d'esprit* which emanated from his prolific pen, in allusion to current events of local or general interest; but we must not omit allusion to his lectures on "Roman Husbandry," and to those on the "Trees and Shrubs of the Ancients," wherein the author's qualities as an elegant scholar, if not as a botanist, are manifest. These are, despite their somewhat technical character, delightful books for the general reader.

Dr. Daubeny, as we happen to know, had the intention of revising those portions of Lindley's "Theory of Horticulture" relating to physics and chemistry, and which the progress of those sciences has rendered in some degree obsolete. We can only lament that our distinguished friend should not have been able to carry out the promise that he made to us to publish the results of his labours on this subject, in our own columns in the first instance. Both science and practice are the losers in this matter. But, so far as Oxford is concerned, Dr. Daubeny's influence for good rests mainly on his personal character and influence. He early associated himself, as we have seen, with Buckland and Kidd, those pioneers of reform, as far as the proper recognition of natural science is concerned, within the University. Imbibing their zeal, the subject of our notice laboured hard and laboured constantly to give due place to the philosophical study of God's works in the University. A Winchester lad, an Oxford essayist, a Magdalen Fellow, none knew better than he the value of that thorough training in classical and logical studies which Oxford gave to those who chose to avail themselves of the advantages she offered. But his knowledge of what was going on in Edinburgh, in London, in Paris, in Geneva—everywhere, in fact, except in Oxford—made him equally sensible of the great deficiencies of, and jealous for, the reputation of his Alma Mater. No one can tell the amount of active opposition, of passive indifference, of incredulous obstinacy and routine, which had to be met and overcome by those who endeavoured to put the study of the natural sciences in Oxford on a proper footing. To none more than to Dr. Daubeny, hardly even excepting Dr. Acland, is the present more satisfactory state of things due; his great acquirements, his disinterestedness, his munificence, his kindliness of manner, enabled him to triumph over the obstacles we have mentioned, and in his later years he had the satisfaction of seeing a noble museum and laboratory, with all proper appliances for teaching science, established in Oxford; he saw a staff, including such men as Acland, Phillips, Rolleston, Westwood, Brodie, H. J. Smith, Maskelyne, and others; he saw science scholarships and fellowships established in many of the Colleges, and he had the proud satisfaction of seeing that what he had laboured and struggled for during a long life, was and is in a fair way of realisation. It is probable that his scientific reputation alone would have had comparatively little influence in bringing about this change, but aided by personal qualities which endeared him to his friends, he was enabled to accomplish what no mere man of science could have done. While it is doubtful whether his merits as a scientific observer, especially as a chemist and geologist, were at any time adequately appreciated in Oxford, it is certain that they received a much larger degree of recognition outside the University. He early became a Fellow of the Royal Society, and received honours from very many of the leading British and foreign scientific bodies. In 1856 he occupied the presidential chair at the meeting of the British Association at Cheltenham. He had from the first been an indefatigable supporter of the Association, and when the session was held in his native county, the opportunity was felt to be a fitting one to induct him into the high office of President.

His position as an Oxford professor gave him at once favourable opportunities for scientific research, while the somewhat lengthy vacations—periods in which few or no official duties required to be attended to—furnished him with the occasions for travel. In this way his journeyings in Europe were both frequent and extensive, and as his circle of acquaintance was large, the benefit was great. In addition to several visits to the volcanic districts of Italy, Sicily, Auvergne, the Eiffel, &c., Dr. Daubeny scarcely left a country in Europe unvisited, while in 1838 he crossed the Atlantic, visited the United States and Cuba, and published for private circulation an account of his travels, in which, so far as science is concerned, his attention was chiefly paid to geology.

We have already spoken of his disinterestedness, his kindness, and his liberality, but we have left to the last the record of the manifestation of these qualities at the Botanic Garden. Those of our readers who may have visited that establishment will be aware of the great interest attaching to this small but well-managed institution. Great alterations were made in it soon after the appointment of Dr. Daubeny as Professor, and without the frequent aid from the Professor's own resources the somewhat scanty funds of the garden would not have sufficed to create and maintain the repute which, thanks to the loving care and assiduity of Mr. Baxter, and of late years of his son Mr. W. H. Baxter, this garden has maintained. Many of the improvements that have been effected, many of the specialities, such as the culture of the Nymphæas and other aquatics, for which the garden is renowned, owe their existence, not only to the suggestion and superintendence, but also to the munificence of the late Professor. The same may be said of the libraries, museum, and herbaria, which are to be found within the limits of the establishment; while, at some little distance from the city is an experimental garden, entirely supported by the funds of the Professor. In no establishment of its size, that we are aware of, are the arrangements for the instruction or study of all branches of botanical and vegetable physiology more complete. That comparatively little use has hitherto been made of them by others than the Professor himself, is a circumstance that involves no blame on the head that planned and the hand that carried into execution so many of these important accessories to a botanic garden. Our notice would not be complete without a grateful tribute to the memory of one of the most kindly-hearted and liberal-minded of men. All those who had the good fortune to make the acquaintance of the late Dr. Daubeny, will feel that by his decease they have lost not only a learned and accomplished acquaintance, but a warm friend, and an exemplary man. He died at his residence in the Botanic Garden, on the 13th inst., after a distressing illness of some weeks; and on Tuesday last all that was mortal of the Senior Fellow was laid, with academic and choral honours, in the grave, at the foot of the Western entrance to the chapel of that college which had been as a second home

to him for more than 50 years—one more name to be written in the long list of illustrious members belonging to a college not more distinguished for its superb architecture, than for its historical associations, and its brilliant record of eminent alumni. To write a full biographical notice of the late Professor would be to illustrate the history of Oxford and Oxford worthies for the last 50 years; we have said enough to show how much he will be missed both within and without the University.

MY GARDEN IN 1867.

Chapter II.—Bedding-Out.

This, the youngest offspring of Flora, and therefore the darling and the pet, has now passed through the perils of infancy, and is a very beautiful and vigorous child. Some of us are old enough to feel a parental interest in its welfare, nay, to recal Gampian memories concerning its very birth. It was born, like Pisistratus Caxton, rubescent. "And this is the way," exclaimed Caxton *père*, on his first introduction to Caxton *fils*, "this is the way we come into the world—red, very red! blushing for all the enormities and follies which we are destined to commit in it." And we, who can remember "B. O.'s" babyhood, can testify that its first complexion was red, very red—scarlet as Tom Thumb Geranium (we did not know then what Pelargonium meant, and some of us now are a little uncertain), Robinson's Defiance Verbena, and Salvia splendens could make it. We can bear further witness that it had a painful experience of all the ills which infancy is heir to, and suffered all its diseases, the eruptive especially, in a very aggravated form. Nay, in addition to the usual maladies of the country, it imported an Indian plague; it had yellow as well as scarlet fever. It had a very hard time of it, had little "B. O." We gardeners gathered round it, like so many old gossips, and saw it flush with (metaphorical) measles, and heard it crow with (allegorical) croup, until we didn't know, bless its little heart! whether it would live or die.

It elected to live, and, like the junior Harris, "thrive it did, though bandy." It grew to be a strong and a charming child, callow, immature, and changeful, as children are, but bright with the splendid promise of a rare and noble beauty. As a child, it still requires the supervision of a loving, careful nurse; and just as the countenances of the very young are, not seldom, disfigured by the pimple of indigestion, or the grimy traces of neglect, so, in the case before us, a pure and regular diet, cleanliness in summer and warmth in winter, an anxious attention with regard to light and air, to bedtime, and to every other requirement of the nursery—all this is indispensable to the development and preservation of perfect health. If, in the domestic circle, little Miss Polly has an apathetic mamma and a lazy lady-in-waiting, she is wont to appear in the drawing-room with her hair unkempt and haylike, her lips empurpled by the bounteous Blackberry, or embrowned by the butter Scotch; and if, in the floral world, young Master B. O. has a careless guardian, an ignorant curator, an idle valet, he too comes before us an unpleasant, ungainly lout, his clothes patched with inharmonious colours, in complexion sickly, and in growth deformed.

But where there is the untiring vigilance of a true devoted love, why then — ah, friends, then does a fair garden, such as may be realised by our modern system, exquisitely arranged and anxiously tended, refresh our senses with a sweet surprise and gladness, and fill our hearts with a reverent and a thankful love. "I call this 'Exclamation Point,'" said to me a lady, who must, I think, have been in mythological times a Mistress of the Robes to Queen Flora; and we came suddenly on a scene of such charming loveliness, which made one sigh the uncontrollable, prolonged "Oh!" of admiration, such as the enraptured schoolboy utters open-mouthed when the asteroid rocket bursts, high in Heaven and showers down its crimson fires!

One bright day, in the summer past, I was enjoying the site of such a garden with a companion, who has ever been an uncompromising opponent of the bedding-out system, and I was enjoying it the more because we had just come from a very different display—from a place where the plants were wretchedly grown and grouped, and where mine enemy had found a welcome field for satire and condemnation. I turned to him, now, and asked triumphant, "what he thought of the scene before us?" "Well," he made answer, "I must allow that it is very beautiful, but still I don't call it gardening." "You remind me," I said, "of the French general, who, watching our Light Brigade charge at Balaklava, when 'into the jaws of death rode the Six Hundred,' exclaimed, *C'est magnifique, mais ce n'est pas la guerre*, with this difference, that the marshal was right in his restriction, and you are wrong in yours. I maintain that the garden now before us is a combination of refined taste and skilful culture, of which any gardener may feel a righteous pride, and which, though it is, I believe, only the herald and harbinger of a brighter glory, is a grand achievement in the annals of horticulture, and a noble proof of its development and progress. Not gardening! I appeal to our floral chieftains, to those who have had the largest experience, and to those whose successes claim our fond affiance—to such men as Mr. Eyles, Mr. D. T. Fish, Mr. Fleming, Mr. Gibson, Mr. D. Thompson, Mr. Wilkinson, and Mr. Wills (I place them in alphabetical order, because there is as yet no order of merit in horticulture), and I ask them whether this our modern system does not well deserve, and repay richly, all the thought and the care, the headwork and the handwork, which they can bestow upon it?"

In truth, the arguments against bedding-out become every year more few, and, with one exception, more feeble. It is no longer monotonous, because we have now abundant material, rapidly increasing, for an endless and charming diversity. It is no longer a glare, wearisome to the eye, because the floral artist has learned to harmonise his colours, and, by an intermixture of Grasses and foliage plants, to copy more closely the great Original, and to realise in his garden the golden truth, *Ars est celare artem*. It is true no more, that the duration of beauty is very brief and uncertain. There are plants by the score which are effective as soon as they are placed in the beds, and which continue to please for five months of the year—plants which can not only resist our "sullen rains," but which are refreshed and brightened by them, like (recurring to my simile) a child by his tub. The objection that they occupied too large a proportion of our room under glass, and that only the rich, in consequence, could find accommodation for them, was never a very vigorous statement, and has gone off in a rapid decline into the last stage of debility. A great number of bedding-out plants will exist through the winter in waste places, which would not be used otherwise, under stages, on temporary shelves, nay, in cellars, attics, outhouses, and in the window of that cottage which has only one window in it. Just as

> "Nature, a mother kind alike to all,
> Still grants her bliss to labour's earnest call,

so does Art find helps for all earnest folk, from a hand-glass to a palace of crystal. Moreover, what an infinity of cuttings may be struck in the spring from a few old plants, preserved for the purpose, and started early in a little heat; and how many of our most attractive bedders may be raised from a spring sowing.

One argument remains resistless, namely, that the bedding-out system has expelled from our gardens many of its sweetest and most lovely flowers, and that in our desire to produce a grand effect *en masse*, we have thrown away plants, which are individually as beautiful as any of those which have dethroned them, and which, succeeding each other as the seasons came, supplied a continuous enjoyment almost throughout the year. Fascinated by more splendid charms, we have turned our backs upon former favourites. We have been like the ploughboy in the song,—

> "And little Nell, I loved so well,
> And walked so wi' o' Sundays;
> Good lor, says I, don't talk to me,
> I'se mon at Mestur Grundy's!"

I have confessed and eschewed my own foolishness in this matter. A second spring without Snowdrops, Crocuses, Hepaticas, Daffodil, and Polyanthus, was an anticipation too overpowering. I sought those and other beautiful exiles penitently, and prayed them to return. I made a special home for them, and plighted my faithful troth. As there is love in a gardener's heart for every flower that grows, so there is room in his garden for all that he counts most beautiful. There is no exclusiveness in true floriculture, and though the modern or bedding-out system has in my opinion a first claim upon our admiration and service, I would rather discard it absolutely and for ever than permit it to monopolise my garden ground.

Having said thus much of bedding-out as a whole, I would ask to speak now of its component parts. *S. R. H.*

PERPETUITY OF ROOT FIBRILS.

To a trifling misconception in your second leader (see p. 1213), we owe, I think, the excellent article of Mr. Fish, in your last number. Without arguing or reasoning on the subject, I beg permission to tell you in as small a space as possible my treatment of trees in pots, unchanged as regards the autumnal renewal of the soil, except with Apricot trees. By this treatment fine trees, from 10 to 15 or more years old, have been kept in vigorous health and fertility, as they are at this moment, and if possible in a more robust state than I ever saw them.

When the pot culture of trees was first written about to any extent—it was not new, for in Loudon's time it had been agitated—the system I recommended was to place the pots on loose well-drained borders, so that the roots of the trees might penetrate and assist in supporting a crop of fruit; after a few years it was observed that the rich dressing of manure placed on the pots in summer drew up, as it were, large masses of fibrils. These were always removed in October, when removing the surface soil and renewing it. Observing the increased vigour the trees seemed to receive from this summer surface dressing, the idea suggested itself to still further encourage the roots to come to the surface by increased surface dressing, and to discourage the entrance of the roots into the border below, the breaking off of which in the autumn—unless the pots were frequently lifted in summer—often proved too great a shock to the constitution of the tree. This was done by placing the pots on a solid border, and the plan has answered so well, that no further cultural change is thought of except the following:—It is now some two or three years since, that on observing some large Apricot trees drop their blossoms without setting their fruit, while trees of the same age standing near them were bearing full crops, I was induced to inquire into the matter, and I then found that an inexperienced man had in the autumn dug out the soil with fibrils and even rootlets too deeply; at the same time some forgotten Apricot trees that had not had the surface soil touched were crowded with fruit. This induced me to change their mode of cultivation, and not to disturb the surface soil till the fruit was set, and only then to scrap it off to about 1 inch in depth, removing the mass of dead fibrils, and leaving the rootlets untouched. Such perfect success attended this experiment, that in the recent edition of the "Orchard House" I have recommended it to be tried with Peaches and Nectarines. I calculate that the autumnal top-dressing or renewal of the soil may probably be dispensed with for two or perhaps three years; if so, it will be a saving of labour. I have not had the courage to try it on my old favourite Peach trees, feeling that it is impossible they can be in finer health. Thus, step by step has the culture of fruit trees in pots progressed; it is now as perfect as it can be; and when I look at my fine old trees of Peaches and Apricots, I feel surprise that all who cultivate orchard-house trees do not attain the same result. The Apricot trees, in particular—it may be owing to the calcareous soil—are like sturdy Oak trees, and perfect masses of blossom-buds.

I respect Mr. Fish's incredulity as to the fibrils of potted fruit trees dying: he has not had the years of observation I have had. As far as my senses of seeing and feeling went, I very recently found the masses of fibrils which were removed from the surface of Peach trees in pots, dead, so as to crumble when rubbed between the finger and thumb; but the rootlets alive, and ready to resume their function of putting forth a fresh crop of fibrils.

If an Apple tree in the open ground is removed biennially, and replanted with some fresh compost to its roots, its stem roots put forth numerous fibrils, so that its roots are a mass of rootlets and fibrils, something like those of a Rhododendron; if a tree in this state is suffered to remain four or five years without being removed, and is then examined, the fibrils will have disappeared, its rootlets have become roots widely spread, as if instinctively, on finding their food close at hand exhausted, they had gone in search of it to a distance. I have hitherto considered the preternatural mass of fibrils brought to the surface of the pots by surface dressing as excreta, and like the fallen leaves of a tree assisting by their decay the well-being of the source whence they are derived. To use a common expression, Nature is always giving and taking. The leaves of our forest trees are fed and manured by the earth and the atmosphere, they return to the former annually a portion of the food they have received; if the masses of decayed leaves in our woods are examined they will be found permeated with rootlets and fibrils, thus showing that they furnish food—a small portion it is true—to the trees that produced them. In like manner does the crowd of fibrils brought to the surface of the mould in a pot in which a tree is growing, furnish—by a large portion of them dying in autumn—food to the rootlets.

I have to-day, December 16, examined the surface roots of several trees growing in large pots. The masses lying on the surface have been removed, but I found abundance close to the surface. From pots with the earth in a dry state, not having had water since the middle of November, a portion only of the fibrils were dead; from pots standing near them, the earth in a moist state, the fibrils were nearly all decayed, but some few among them were forming themselves into rootlets, and putting forth their tiny spongioles; from pots standing in the open air, and which were large masses of fibrils still resting on the surface of the mould, the fibrils were all dead, and had formed a dark coloured mould. As far as I can judge, the preternatural masses of fibrils and rootlets on the surface of pots, in which are growing vigorous fruit trees, cannot exist more than one season. Then comes natural selection: like the seedlings in a crowded seed-bed, the stronger fibrils become rootlets and the weaker ones die. After this manner have I read the book of Nature, and formed my theory, which is perhaps without a sound basis; if so, I shall be glad to be corrected by Mr. Fish, in his usual courteous manner. *T. R.* [We can, from personal observation last spring, confirm our correspondent's statement as to the death of the fibrils. Eds.]

THE MISTLETO.

This very remarkable British plant has had a mysterious importance attached to it from very remote times. The Druids no doubt pressed it into their service, and well they might, for the plant is of singular habit, a real parasite, preying upon the best juices of the tree that supports it, maintaining its evergreen character whilst growing upon a deciduous tree, and forming a low, round bush, as if it were a giant Fungus growing out of the fork of a tree; though unlike the Fungus tribe, in that it flowers and seeds freely. The Dodder is the only plant at all approaching to it in character among our native flowering plants; and when I have seen the Dodder on a good high Gorse bush, it has always reminded me of the Mistleto, as if it were aping its betters. The Mistleto, from not being terrestrial, would seem to belong to a higher order of plants than those that rise out of the ground, although in reality it is not so; but in the days that are gone by, a plant whose juices were apparently rectified by double distillation, and which did not condescend to pasture among other plants, was certain to be regarded with superstitious veneration. A rare plant it is still, affording but one species, and having little relationship with other genera, while no other name could answer our purpose but the one it bears, for if it had a plural and were not "the" Mistleto, its charm to what an American would call the "Britisher" would be gone. Scott says of Christmas—

> "Forth to the woods did merry men go
> To gather in the Mistleto."

Now had the poet said forth to the *trees*, instead of the *woods*, all would have been well; but as Sir Walter gravely states that his dotage was drawing near when he found himself fond of plants and of gardening, which in his best days he hated, we have a clue to his inaccuracy in what he would have called our "harmless art" of horticulture or arboriculture.

Everything in this line is fixed and unalterable; and although the Mistleto is found growing freely enough on the white Poplar, as may be seen in the valley of the Thames, near to Wraysbury Railway Station, and on the Lime tree in various localities, its principal site is on the Apple tree, and it is a perfect pest to orchards in Worcestershire. Speaking generally, it has very rarely been observed to grow on what are usually called forest

trees. However, the missel thrush continues to feed on the berries of the Mistleto or Misselto, and thereby the one bears evidence as to the nativity of the other. Again, the Church puts in an appearance, and summoning as she does all the summer flowers to her service, was not likely to pass over the quaint evergreen bush with its conspicuous berries so admirably adapted for decorations in the depth of winter at Yuletide. These two witnesses, then, bear testimony in behalf of the aboriginality of the Mistleto; and although the clearest evidence exists of the rook having recently taken lessons in botany, so as to know the tops of the Potato plant in order to pull up the sets and eat them —for this art had evidently been unknown to any rook in this country until the plant was introduced, it is not so with the missel thrush, for the bird is rather the agent to plant and propagate the Mistleto, just as the rook carries the seeds of the Mountain Fir, scattering the cones, and sowing future forests for its young.

This brings me to the most important part for our purpose, namely, the propagation of the Mistleto. As the seeds ripen freely, this would appear to be an easy task, but as Loudon says that Viscum album is not "cultivable," we must allow that it is a rough customer in this respect; and as he further says that it roots beneath the bark of the trees on which it grows, and derives all its nutriment from their juices, it appears that we have to grow not only the parasite, but the plant it is to feed upon. Hence the late Mr. Fox, a nurseryman of Staffordshire, having some Apple trees getting rather stale for the market, inoculated them with the berries of the Mistleto, and could then sell the trees for the sake of the plant that grew out of them—for it is rare that any one can exhibit a growing plant of the Mistleto. Epiphytes which grow upon trees but derive their nourishment from the atmosphere, are familiar to every one in the forms of epiphytal Orchids, but they are quite honest and gentlemanly as compared with the tribe of which the Mistleto is such a famous type—a robber tribe, generally keeping beyond reach, well up above what landscape painters call the "browsing line." Now, as the word "parasite" is an idiom in our language, I can easily imagine what an interesting subject such a plant, if seen growing and flourishing at the expense of what would appear to be its patron, would be to a party of children under a tutor or governess, or, better still, under the tuition of an intelligent father or mother, if the plant were as easily examined as a standard Rose, being, so to speak, brought down a peg, to let the rising generation see what a real parasite was like. *A. Forsyth.*

ON PURE HYBRIDISATION; OR, CROSSING DISTINCT SPECIES OF PLANTS.

[Extracted from a paper read by Isaac Anderson-Henry, Esq., F.L.S., President of the Botanical Society of Edinburgh, on 14th Nov., 1867, being the opening address of the 32d session of the Society.]

AFTER an introductory eulogy on Darwin, in whose views Mr. Anderson-Henry himself to some extent, but not entirely, coincides: and after alluding in the following terms to the "Origin of Species," as a body of botanical philosophy, so well sustained by the author's own generally accurate observations and wonderful discoveries, that it constitutes the most valuable contribution ever yet made to botanical science, and marks an epoch in its annals more brilliant than any yet attained—Mr. Anderson-Henry alludes to the labours of Naudin and Wichura, and then proceeds as follows:—

In the paper I read before the Society in March last (see *Gardeners' Chronicle*, p. 379), which related mainly to that form of hybridising generally known as muling, and cognate matters—all akin, no doubt, but for the most part outside the proper province of hybridisation—I intimated my intention of afterwards submitting to you another paper limited to the latter branch in its purer and simpler form. I have now, in laying what I have here to say before you, some things to enunciate which may sound as a thrice-told tale; but as they consist of my own experiences, and as I am animated by a desire to lay them truthfully before you, I trust they will neither overtax your patience, nor be without some value to those who may be already some way a-field or a-mind to follow in that direction.

Holding, as I do, that the first object of all papers on subjects laid before a society like the present is to communicate instruction so far as it may be in the power of any of its members to do so, I hope the Fellows of the Botanical Society will not consider it trivial or unworthy of their attention, but bear with me while I state the rules and means I observe to insure success in the experiments of which I am now to give some details.

1st. I long held it to be of vital importance to have the separate plants intended for the parents in the cross, even though both were hardy, brought under glass, and I still recommend it; for by doing so you heighten the temperature —an important thing—and you can better secure against the interference of winds and insects; and though Darwin holds the former of small account, I have reason for differing with him there. But in the height of summer pollen may be taken from an outside plant to cross an inside one, and *vice versâ*.

2d. I hold it not enough merely to emasculate the intended seed-bearing flower; I take off every petal, for the petals attract the insects, which seem guided more by their optics than any sense of smell. This act of emasculation in some cases I perform long before the expansion of the bloom, for in many plants—*e. g.*, in the Papilionaceæ, some of the Rosaceæ, and Compositæ—self-fertilisation may and does often take place in the unopened flower. This is not all. I sometimes put a gauze bag over it; if I do not, the mutilated bloom may not escape that most troublesome of all insect pests, the humble bee, which in his unwieldy flight may come across it by pure accident. But for the most part now I make clean work of it, and remove all other expanded flowers on the seed-bearing plant, and allow no kindred one to be near.

3d. Do not be in a hurry to effect your cross; wait till you find that the stigma is fully developed. In many plants this is shown by a glutinous exudation on the summit, such as in the whole family of the Ericaceæ, the Onagraceæ, &c. In other families, such as the Geraniaceæ and Malvaceæ, it is indicated by the feathery expansion and recurvature of its separate divisions.

4th. The next thing is to obtain properly ripened pollen grains from the male plant. This is done by carefully watching when the anthers burst open, otherwise the insects may be before you; and so active are they, especially on such favourite food as the pollen of the Rubus tribe, that, to get it at all, I have found it necessary to encase the opening blooms in muslin bags till the pollen was ripe and ready for use. Do not use, as is generally recommended, the camel-hair pencil, which, applied often and indiscriminately, may and often does convey, with the foreign, some insidious grains of native pollen, which, however few, are prepotent, and wholly neutralise the former. Take, where that can be obtained and afforded, the entire bloom of the intended male, and give the slightest brush with all its anthers over the stigma, or all the stigmas if more than one, of the intended female. I will give my reasons for this by-and-by. You may use for experiment, in some cases, the long, and in some the short, anthers. To those of the proper dimorphic form I have made some allusion already; they occur in the Primula and in some of the Linum tribe (as to both of which see Darwin's most remarkable papers in the Proceedings of the Linnean Society). Such anthers, at least two long and two short ones, occur in the two orders of the class Didynamia, on which I may have a suggestion to offer hereafter, for I think something interesting may be worked out of this form. In cases where the anthers are few, as in the Diandria, Triandria, &c., you may use small pincers—a bit of wire so twisted as to form that implement, to carry in the pocket, is by far the handiest; I have used such an instrument all along, and find it better than any other form. In some tribes, the better to secure against invasion by insects, such especially as in some of the Rosaceæ having large discs, a muslin bag may be used so as effectually to exclude them; I use it constantly in the Rubus tribe immediately after emasculation, taking it off and replacing it after the cross, and keeping it on thereafter till the cross has set.

5th. In some cases it is a matter of some difficulty to procure, and when procured of no less importance to preserve, pollen. In dicecious plants—say the Aucuba—a friend may have the male and you have, as we all have, the female in abundance. You would like to store that pollen till your female plant—generally later—comes into flower. Many hold that pollen cannot be preserved in a vital condition for more than one or two, or perhaps three, weeks. In a recent publication which refers to the matter—namely, Max Wichura's "Observations on Hybridisation"—of which a very lucid abstract, carefully digested and translated from the original German, by the Rev. M. J. Berkeley, is given in the January number of the Journal of the Royal Horticultural Society that eminent authority holds it as "a fact of great importance that the pollen of Willows retains its potency for some time. In some cases pollen 10 days old was efficient, while vitality was still further prolonged by steeping it in a solution of honey" (of which I have doubts). "Pollen," he adds, "of Salix silesiaca eight days old seemed almost as potent as ever; in 28 days the traces of vitality were very slight, while that of Salix cinerea had become weak in 16 days." Now, I am not aware that there is less vitality in the pollen of Willows than in that of any other family; and as many experimentalists hold kindred views to those here enunciated by Wichura, I deem it a matter of some importance to give you one or two instances of my own experience. I have carried in my pocket the pollen of Rhododendrons, again and again, from six weeks to two months and upwards, and still found it potent. Of the Japanese forms of the genus Lilium I have kept pollen effective in the same manner for equal periods. In fact, generally speaking, I have found the pollen of most plants to remain good for similar periods. Having last year got the new and beautiful Clematis Jackmanni to flower, and anxious to preserve its pollen as long as possible, I collected and stored it in its anthers in a simple pill-box. On the 4th of July, 1866, I so gathered and put it into a drawer of a cabinet in my own sitting-room, where it remained wholly away from damp. On the 5th of June, 1867, having first carefully emasculated a flower of Clematis candida, I crossed it with the pollen, then 11 months old, and from this cross I have this autumn gathered and sown eight well-developed seeds. Now, both parents are hybrids, with a large infusion of *alien* blood in them, so that here the vitality was put to its soverest test. I notice this result here (somewhat out of place) to suggest the propriety of storing, and, if needful, of importing, pollen, which, if wrapt up in silk paper, might even, enclosed in a letter, reach this country still potent, by the overland route from India, or, after two or three months' voyage, from all parts of South and North America. Let collectors and friends in distant countries be instructed as to this, and we may soon have an improved progeny of the rarest things, even before such novelties from which they are derived have been obtained from their own seeds in this country.

6th. There is, I humbly hold, another matter of much consequence to be attended to in the crossing of distinct species; I mean the times and seasons for effecting the cross; yet not one of those most experienced in the art, from Darwin downward, have touched upon this point. I have had it forced upon my attention for more than 20 years, and found that I could, on some few happy days which occur throughout the season, successfully effect crosses I could not effect with all my care at other times. I have adverted to this in the paper I formerly submitted to you, and again I cannot pass it by. I have some crosses to tell you of which I effected at such times, and might have tried in vain to accomplish them at times less favourable. If you have, say, two plants of Rhododendron, one a tiny thing, to cross with a large species, or if you wish to attempt a cross between an Indian Azalea and a Rhododendron, of which I will have to speak below, watch for a propitious time. Such times occur, often few and far between, when there is less of sun than of that latent form of heat, which frequently occurs before thunder, from the air being more than ordinarily charged with electricity. Or it may occur in the spring season, when that form of it which chemists designate by the term ozone, is present, whose influence I have often found tell most favourably in promoting the germination of long-sown seeds, of which please pardon my notice of a single instance here. It was to the presence of this, or to some other form of electrical agency, I attributed the almost simultaneous germination of some New Zealand seeds, of a shrub which I got from that country under the name of Black Maupan, a species of Pittosporum, which sprang up together on the morning of the 16th March, 1863, after they had lain dormant two years and eight months. Such atmospheric conditions, to whatever cause they may be due, I have found not unfrequently to occur with the east winds of March and April, of which we have so much at that season; at which times I have seen many other long-sown seeds spring quite suddenly and unexpectedly into life. Seize upon all such seasons for difficult crosses. As to the time of the day, you may operate best perhaps from 10 A.M. till 6 P.M.

We shall suppose the cross now performed. Your next anxiety will naturally be to find out whether it has taken. Almost all experimenters have noticed that soon—I would say from six to ten days—an alteration is observed on the stigma and style. On the first you will find its viscous matter dried up, and the latter begun to shrivel. You will naturally conclude that it is all right, and that the fertilising pollen has now passed down into the ovary, and in some cases you may be right; but these appearances are deceptive, especially if you find the style maintain an erect position. And singularly, as I now write, I find, on glancing at the *Gardeners' Chronicle* of the 19th October, that this state of matters had been this bygone summer observed by the learned editor of that publication, and described in his leading article of that day. He there observes, "We have ourselves, in following some experiments on cross-breeding this season, noticed that the stigma becomes changed—withered almost immediately after contact with the pollen, even if no perfect seeds be produced." Now that gentleman is quite right; but I did not note the withering effect to be just so immediate as he had observed it, though it might have been so in the Epilobium tribe, to which his experiments refer. Another effect I particularly noted last summer was that, in attempting to cross an Indian Azalea with a Rhododendron, which in that instance failed however, not only did the stigma and style decay, but the divisions of the calyx took on a purplish tint, and a honeyed secretion continued long to exude from its nectary. Another still more misleading condition often arises, as is noticed in the same leading article of the *Chronicle*:—"The ovary will swell, the fruit will set, in some cases without any contact with the pollen at all, though of course no embryo is produced.' Wichura has noticed the like results, and the following degrees of failure noted by him have so often occurred in my own experience, that I cannot do better than cite them in his own words, from the Rev. Mr. Berkeley's translation already alluded to, which I only alter according to my own experience: —1st, The organs submitted to hybridisation (the stigma and style) soon wither, but do not in all cases soon fall off. 2d, The ovaries swell and ripen, but do not contain a trace of seed. 3d, The ovaries may seem filled (I say may seem partially filled), having in some instances the small protuberant swelling outside as if seeds were within, and yet no seed be there. 4th, Seeds are present, but small, languid, and incapable of germination. 5th, Seeds apparently perfectly developed, but do not germinate. 6th, Seeds germinate, but the young plants are weak, and wither in a short time, dying off oftentimes after developing the seed-leaves. I have had all these conditions and results amply illustrated; and of the second in the above category I have had, last summer, mortifying proofs in a muling operation I tried, by fertilising a flower of the new Arabis blepharophylla with my still newer Draba violacea. The cross, to all appearance, had taken; the seed-pod swelled better than the others where no experiment was made, and while the valves of the siliquas of these last opened and showed no trace of seed in them, the former remained closed, showing by outward development that two seeds were certainly within. But I found on opening, when to all appearance ripe, not one seed was there, though there was a something, which, however, bore no resemblance to a seed—an utter abortion. While Wichura's accuracy in the above degrees of failure are consistent with what I have myself had ample experience of, I cannot, from like experience, endorse the views he has formed on some of his successful results. At page 72 of the above article in the Journal of the Royal Horticultural Society, Mr. Berkeley, commenting on Wichura's paper, observes:—"Gaertner, indeed, supposes that in genera which are rich in species, there are some which have a prepotent influence when hybridising, so that in some hybrids the type either of the male or female prevails. Amongst the various hybrid Willows, though the genus is so rich in species and so prone to hybridizing, Wichura has never seen a prepotent type, and doubts Gærtner's statement, especially as he makes it in very qualified terms;" upon which Mr. Berkeley very judiciously remarks on the difficulty of determining, "by examination of types, whether, for example, a hybrid is more like the mother or father—the perfect distinction is subject in many cases to great difficulties, since very much depends on the subjective view of the observation; for, in consequence of the frequent intermelting of both characters, the one observer finds in a hybrid the maternal type, while another thinks the paternal type prevalent." By which I regard Mr. Berkeley as very modestly dissenting from his author. And further on, at p. 78 of the same Journal, Wichura speaks out still more absolutely. "When both parents," says he, "belong to the same species, we cannot tell what part the male and female parent take respectively in the formation of the progeny. But dissimilar factors are united in hybrids, and an intermediate form is the consequence. The products which arise from reciprocal crossing in plants, unlike those which are formed amongst animals, are perfectly alike. I regret to differ from so great an authority as Wichura, and must venture to demur to the doctrine in more decided terms than Mr. Berkeley does. I have had so many instances of hybrids taking sometimes to one side and sometimes to another—but most frequently to that of the mother—that to those who, like me, have tried their hand with many genera, it would be a matter of supererogation to give instances; I have had them by the score. The converse is the rarer case—*i. e.*, where the paternal type comes out most marked. Yet I remember one eminent instance of a seedling Veronica (from the batch of seedlings from which I obtained V. Andersoni—V. salicifolia, × speciosa), being so like the male parent V. speciosa, that I presented it to a friend in the belief it was purely and simply the latter species; but when it bloomed, it showed, by the longer spike and lighter and brighter colour of the flowers, and by their being a bright crimson instead of very deep purple, which is the colour of the flower of the V. speciosa, that the blood of the V. salicifolia was there. I can well understand that, as respects the family of Willows, from their being so attractive to bees, and from their being naturally so prone to intermix (in so much that few can tell what is a species and what is a hybrid), Wichura has not much overstated the fact, and that a distinct intermediate form may generally be reckoned on.

But I must dissent still more strongly from what he lays down in continuation of the above passage at p. 78, as to reciprocal crossing. "The products," he says, "which arise from reciprocal crossing in plants, unlike those which are formed among animals, are perfectly alike. It is of no consequence which is the male and which the female parent. It is, therefore, a mathematical necessity that the pollen cells must have just the same part in the act of generation as the ovules." And, based mainly on this doctrine, he follows up and amplifies it in a series of aphorisms which, he admits, are to be "considered conjectural, and require to be submitted to proof," an admission for which he is to be commended, and all the more if he submitted to the like test the dogma on which they mainly rest; for it humbly appears to me that it had been suggested from his experience among the Salices—of all plants the most mongrel in a state of nature. Now, in all this it appears to me to be implied by Wichura that if a distinct intermediate may be formed, and is formed, by crossing A on B, so may an exactly similar intermediate be reciprocated by crossing B on A. And M. Naudin, I observe, in his experiments among the Daturas, enunciates the same belief, and holds "that there is not a sensible difference between reciprocal hybrids of two species." That distinguished observer, like Wichura, seems to have confined his experiments to herbaceous or soft-wooded plants. But, from a long and large experience among both hard and soft-wooded plants, I demur, 1st, to the capability of the parents being in all cases made subject to such reciprocity; and, 2d, to the dogma, where such reciprocity does hold, that the progeny are perfectly alike, whether A or B supply the pollen.

(To be Continued.)

Home Correspondence.

Pruning (?) of Trees in Hyde Park.—A short time since there appeared in the columns of the *Times* a letter from "F. K. L.," expressing reasonable apprehensions that what was being done in the pruning line might not be rightly and judiciously done, or committed to very incapable hands, for certainly pruning does not mean careless, tasteless hacking. During Mr. Cowper's

tenure of office (from whom I always received much courteous attention to my suggestions, some of which he readily adopted), I addressed him a letter upon the subject of pruning the trees, both large and small, over all the Parks, showing that so long as they (particularly the larger ones) were suffered to send down their lower branches to near the ground, it afforded great inducement to the climbing boys and the mob of roughs at reviews, to tear them down by swinging on them or thereby mounting the trees, greatly to their injury; and for tearing off the boughs wilfully, for the love of mischief—leaving that ragged unsightly appearance which most of the large trees in the Parks exhibit. I then told him that, though some small amount of pruning had been done down the promenade of Rotten Row, it had been executed in a most slovenly, careless manner, and the lower boughs, instead of being taken off reasonably near the stems with a fine saw, and then cleaned off smooth with a chisel, and the amputated stump covered with a coating of bees'-wax, pitch, tallow, and resin, as used for grafting (and which hardens immediately) had been hacked off with some coarse cutting tool; some at a foot off the stem, some at two or three feet off. I also informed him, that it was a gross prejudice (though a time-honoured one) among certain unreasoning gardeners and woodsmen, the supposing that injury is inflicted on a tree by cutting off its boughs in summer time, and that it should be done when the sap is not up, as in the autumn or winter. Now, it is just that unwise prejudice which is now being acted on, and which mainly induces me to notice the apprehensions of "F. K. L." The reasoning in my letter to Mr. Cowper was this: When the limb of a tree is amputated in winter, or when the sap is down, the following are the consequences: there being then no sap in the boughs, the stump of the amputation presents a surface having the tubes of the sap all thus exposed to the atmosphere and dust, and they become dry and clogged with dirt, but they do not close up by any process of healing to which sap is necessary, and they remain so during the winter. Then comes the spring, when the sap rushes up with that mysterious power, of which we really know so little; and the pores being open at the part amputated, the sap, which at this season is very thin and watery, and which was destined to be driven rapidly up to the top of the tree, into the finest twigs, rushes up, with incredible force, and for near a month this stump (being nearer to the propelling power) will continue to pour forth in great quantities the juice intended to be injected into the upper boughs feed the swelling buds, so that the foliage comes slowly forward, and the spring shoot is sickly and weak from loss of blood (supposing, always, it is not possible to apply to every amputation the pitch plaster); and the stump exhibits for a long time no tendency to heal, and the tree is much impoverished before the really warm weather sets in. On the other hand, if the bough be amputated in June or July, the result is this: at this period of the year the sun, acting on the sap of the tree, causes it to become rich, viscid, glutinous, and saccharine, and it ebbs and flows more slowly, oozing gently out of the open pores of the amputated limb, and the bark is then more fitted to heal over the exposed stump, being softer and more full of growth than when the sap is not up, or only rushing up with extra force in early spring; and the juice thus slowly coming to the surface in a viscid glutinous condition is soon coagulated into a gummy covering, which renders the open pores impervious to the influence of the weather, checks the bleeding, and hinders the entrance of insects, which harbour in the half-rotting surface of an amputated bough exposed all the winter to the air and moisture, whence begins decay, and the bark, being in full vigour of growth, will rapidly (and often in one year) curl over the exposed end of the limb. This account is the result of a long, close, practical experience in this matter, which convinces me, by the issue, that my reasoning on this subject is logically just. Added to these views—the superiority of summer pruning of ornamental trees—is the very important one that, at the season when trees are thickly clad in foliage the critical eye for beauty of lines in landscape gardening can better decide which boughs should be taken off to let in light and air to the various parts of the tree, to render the balance of the boughs true, to give a picturesque grace to its form, in accordance with its particular position or the different views of the surrounding scenery. And here I fall in with the deprecatory view of "F. K. L." respecting the operation of pruning being entrusted to the uneducated gardeners or underling overseers of such men, who have not an idea of what is meant by "lines of beauty," or of the "artistic grace" which may be given to almost the ugliest growing tree by judicious pruning. No one who has once undertaken to thin out plantations to advantage can be ignorant how much of caution, of taste, and judicious discrimination it requires to cut down the right tree, or to remove the most objectionable boughs, and how superior is the discretion of a man of taste when entrusted with duties of this sort, to an uneducated gardener (even of one with more than ordinary taste); and I have often been surprised to see how these duties of pruning both trees, and shrubs in our Parks seem to have been so entrusted to the discretionary taste of very rough, ignorant workmen, whose only qualification seems to be their axe and their pruning-knife. Since I have inspected the *modus operandi* of the late pruning raid on the trees in the Park, I quite agree with "F. K. L." in respect to his apprehension that what has been done may have been done badly. It is quite evident that "F. K. L.'s" fears are fully realised, and I believe the injury (now past all cure) that has been done to these fine young trees is most serious, for the pruning party has not only set at defiance all the accepted rules of not amputating a bough too near to the trunk, but has actually chiselled out the stumps of the amputated boughs in many instances below the level of the stem, as a chiropodist scoops out a corn. Now, common sense and reflection should have suggested the fact, that, as these trees are rapidly enlarging their girth, by the time the bark (say two or three years) can push over the exposed incision the remainder of the stem will have so grown out that an actual indent at first, and then a hole, will be left at every amputation, into which dirt and insects will insinuate themselves, and the rot will soon go to the heart of the tree; while the preparation with which the incised part is thinly besmeared (and which appears to be some sort of paint) is a pitiful substitute for the soft impervious coating of the materials pointed out by me to the Park authorities as the only one which should be used, and put on warm. It should also be observed that by this novel mode of amputation more than double the amount of surface exposed to the influence of decay is laid bare, and that more than double the surface has to be covered over by the young bark, than if the boughs were amputated at about 4 or 5 inches from the stem, every bough being united to the trunk with a girth more than double the diameter of that at 4 or 5 inches off. Many of these amputations (as may be seen) present an exposed and painted surface, of 12 to 14 inches in diameter, which it will require years to get the bark to fold over, if it ever does, before the rot has set in, which it is my opinion it never will, particularly if due attention be not paid each year, for at least five years, to the removal of the coating over the surface of these larger amputations. *G. Beauclerc*, 23, *Grosvenor Street West, Grosvenor Place.* [Our correspondent claims the merit of having suggested most of the improvements made in the Parks of late years, long before they were actually carried out, and appeals in confirmation of the truth of his statement to numerous documents in his possession. There is little doubt that the management of the trees in past years was scandalously bad, and that there is much room for improvement now. Eds.]

Old Vines.—A Vine verging on a century old is truly a noble sight, and one not to be met with every day. We frequently hear of Vines being worn out through old age; are not these old stagers veritable examples that such statements are not founded on facts? I have under my charge at this place a Black Hamburgh, eighty years old, which annually produces remarkable crops of fruit, good in all points, more especially as regards that most important of all qualities—flavour. Does age assist in this matter? The old Vine here cannot vie in extent with the one at Cumberland Lodge or Silwood Park, as it only covers 75 feet of rafter; had it, however, been allowed to extend itself, it would long ere this, I have no doubt, have covered as large a surface of roof. The house in which it is growing is one of the finest old Vineries in Middlesex, and as for the Vine, it shows no sign of decay; on the contrary, it is quite as healthy as a Vine five years old. *John Edlington, Wrotham Park.*

The White Variety of Anemone japonica. — So much attention has lately been paid to plants for spring and summer decoration, that this and other autumnal flowering plants have been unwisely and undeservedly neglected. Plants for autumn display are, however, every year becoming more than ever a necessity. The recent introduction of so many tender plants for summer has had a tendency to shorten rather than to prolong the beauty of out-door gardens. The old Anemone japonica is both valuable and useful. I now, however, wish to call attention to its white variety, Honorine Jobert: for, among all late blooming, hardy herbaceous plants, I know of none that equals it, and its large and lovely pure white flowers are produced in great abundance. This last autumn it was a mass of bloom up to the first severe frost. After this temporary check, and during the subsequent mild weather, it was again in great beauty. Up to the middle of November it continued to make, often successful, attempts to unfold its profusion of flower-buds. In rows and groups it produces a lovely effect, and that at a time when most of the summer bedding plants are dead, or paralysed with cold. As a pot plant it is equally striking. There is generally a dearth of plants in bloom in our conservatories when Fuchsias, &c., are removed, and before Chrysanthemums and forced flowers come in. During this interval the Anemone in question is in its best condition. Its propagation is by no means difficult. If the larger portions of its numerous fibrous roots be cut up into little pieces, each will produce a plant. If examined they will be found to be covered with small wart-like excrescences, sometimes even a rudimentary leaf may be visible on them. The smaller portions of the fibrous roots need not be wasted, but should be collected, and placed thickly in a flower-pot, and covered over with sandy soil; in a short time the surface will present more the appearance of a pot of seedlings than that of cuttings. *Novellus.*

Freaks in Bedding Pelargoniums.—I have a plant of Pelargonium, called "Spitfire," which has now two trusses on it, expanded; one is a pure scarlet, the other nearly white. *J. E.*

Melons.—Of these I recommend highly: scarlet-fleshed, Turner's Gem and Malvern Hall; green-fleshed, Meredith's Hybrid Cashmere and the Beechwood. They were grown, planted late, by solar heat only, under glass. The two first I have to thank Mr. Edlington for, and Mr. Perkins for the third. The two first and fourth are admirable setters; and all are very good. *W. F. Radclyffe, Okeford Fitzpaine.*

Diseased Gladioli.—My Gladioli are affected by a disease the same as that affecting the collection near Deal, described at page 1238. I grow G. natalensis, or as named by some botanists, psittacinus, in beds slightly raised, the compost rich, rendered free and open by the addition of a good quality of sand from the surface of a poor heath—in fact, prepared expressly for them, in which they grow ordinarily to the height of 4 feet or more, presenting a most gorgeous appearance in the flowering season. When planting last season I noticed, for the first time, that several corms were slightly diseased; those grew but weakly, soon showing signs of decay, and upon examination they were found to be in exactly the same state as a Potato affected with murrain. On taking up the lot after flowering (a practice I do not always follow, sometimes leaving them in the ground for two or three seasons, and protecting with a good coat of straw thatch) I find that nearly all are affected from the root, some are speckled all over from root to the germinating point. I find it fatal and virulent. *Thomas Hutt, Keresley, Warwickshire.*

Picea Apollinis.—Can any of your correspondents give me any information as to the hardiness or otherwise of this Picea? Is it any less liable to be injured by spring frosts than its very near relation, P. cephalonica? So far none of my plants have been injured, either in the garden or planted out in the woods; but I should be glad to learn how they are found to stand in other parts of England. *C. W. Strickland, Hildenley.*

Cool Orchids.—In looking over the Orchids at Mr Backhouse's garden the other day, besides those which Mr. Eyles mentions as having been out-of-doors during the summer, I noticed four or five plants of Lælia albida, all of about the same size, and all about to flower; of these one had been out-of-doors all the summer, and the leaves of this one were thicker and of a deeper green, and the flower-stalk stronger then those of the other plants, which had not been out in the summer; and I think that the growths of Lælia majalis were generally finer on those plants which had been out-of-doors than on those which had been kept in the house. *C. W. Strickland, Hildenley.*

Roses.—H. Taylor, Esq., of Fencote, Bedale, Yorkshire, who is a competent judge of Roses, writes as follows:—"Comte Litta, thick petal, imbricated, rather small, colour of P. Camille de Rohan, flower formed like Fisher Holmes, too small for exhibition. Jules Calot, colour light crimson or deep rose, very large, very circular, and very double, formed in the way of M. Vidot, highly scented, a good Rose. Madame Anna Bagnet, colour pale lilac rose, large and very full, perfectly imbricated, highly scented, a good Rose. Rose Perfection, beautiful colour, perfectly imbricated, extra large, 4½ inches diameter, petals thick and smooth, colour almost approaching light crimson, reverse of the petals shaded glaucous white, a magnificent Rose." He adds (he lost 2000 Briar Roses in 1860-61, and 2000 in 1866-67): "all my Manetti Roses were cut down to the snow line last winter with the severe frost, but they all shot up vigorously and bloomed finely. None of the Manetti Roses sent up suckers, as was predicted by enemies to that stock. The best Roses and good, of late date, that I have seen are Miss Ingram—a gem of the first water; Alfred Colomb, Charles Rouillard, Exposition de Brie, Lady Suffield, Horace Vernet, Thorin, and Madame Fillion. Lady Suffield I have bloomed on two Briars this summer. It is an admirable new Rose, rosy crimson veined with purple, and good in all respects. C. Rouillard is a very good Rose, and fine grower. I should say A. Colomb and C. Rouillard were the two best of their year. Madame Fillion is very beautiful, but I have heard it is not a very good grower. It is salmon rose, a complete cup circle, and lovely silver under petals, which are not so substantial as I like." *W. F. Radclyffe, Okeford Fitzpaine.*

Colouring of Muscat Grapes.—Mr. David Thomson has rightly inferred that I had no intention to impugn his character as a Grape grower, when pointing to a solitary instance of perfect colouring, in support of the practice of Messrs. Meredith and Fowler. I ought to have stated that the sample or variety referred to was dead ripe, and of a beautiful amber colour, at an unusually early period of the season, which Mr. Thomson in his explanatary note attributes to disease. It is a well-known fact that the Muscat houses at Archerfield, whether as regards crop or finish, have been for years one of the finest features of an establishment remarkable for general good gardening. *A.*

Coleus.—Permit me to assure Mr. Miller, of Worksop (see p. 1218), that what I said of the Coleus (see p. 1117) is perfectly true, and to inform him how he may ascertain it for himself. Wherever the Coleus grows it is beautiful, but there will be found a wide difference in the hues of one of those fully exposed beds at Battersea, and where the plant is placed in the shade in our cold climate. If Mr. Miller had had his beds on a terrace during the past season, he might have forcibly seen the truth of my remark. However, by selecting a small clump of shrubbery sufficiently elevated in its central parts to keep the sun away from one side, and putting a band of Coleus around that, he will in the course of the summer see that not only is "much of the beauty of colour" taken out of the plants on the shady side, but that its aspect is miserable compared to that of the sunny one, and that he will be able almost to trace a line where the sun fails to warm the Coleus into deep and glorious colour, and where the sickly aspect begins. As to finding that all foliage plants, &c., do better in the shade, I think he will very much alter his opinion on that point with further experience. Plants usually known under that heading have very different tastes: some like shade, others sun, others abundance of water, others little, and so on; but above all things is it clear that to get some of the more important and useful ones into first-class condition, we must, while sheltering them as well as possible, not interrupt one ray of sunlight that peeps from our cloudy skies. *R.*

French Paradise Stock.—As some people appear to dispute the correctness of Mr. Rivers' assertion that the French Paradise stock is not hardy enough for the climate of England, I wish to state that in this neighbourhood (Pembrokeshire) Apples thrive on it only when it is planted so as to be completely covered up to

the junction with the graft. The stocks live well enough when exposed, as they usually are; but the Apples grafted on them rarely do even tolerably; and some kinds will only live, and not grow at all. That this was the case more or less in different localities, and also that in all localities Apples will not continue healthy on the stock in question, as they do on the Crab, was the sense in which I from the first understood Mr. Rivers, and not that the stock would not bear hard frost, as some of your correspondents appear to have thought. *Alexander Boyle.*——For "America" (see p. 1269, line 7 from top), read *Armenia*. The latter is the birthplace of the Dwarf Apple of Armenia, *alias* the French Paradise stock: it was never in America till it was sent there from Europe. *T. R.*

Grouping Cannas with Dahlias.—In connection with your remarks on Dahlias and other bedding plants (p. 1266), I notice the association of Cannas with Dahlias as a favourite practice in the public gardens in the Regent's Park. Cannas and Caladiums are largely used there, their distinctive character in form and colour yielding an admirable foil to many species of flowers and vegetation. Of course I don't expect to see them in the same places next season, at least I shall be very much disappointed if I do. The real benefit of mixing Cannas with Dahlias is *immediate* effect, the Cannas assisting the general *ensemble*, until the Dahlias are strong enough to take up their position. As a rule, the green varieties of Cannas should be used, excepting in the case of yellow Dahlias, when the darker varieties can be introduced in their immediate proximity. The plants should be small when first turned out, so as not to overtop the Dahlias in the latter part of the season, as if used large there is a danger not only of a poverty-stricken appearance in the early part of the season, but of the group in full development presenting an analogous outline to tipsy-cake stiffly bristling with almonds. The adoption of receipts rather than principles is not perhaps to be desired, excepting so far as the receipt is illustrative of the principle; but in this case it may give a lift to Dahlias, and the materials are so simple that its successful practice can very easily be attained by *Anybody*.

Cordons.—Your correspondent "W. R." deserves thanks for bringing under notice this system of training as a means of increasing your supply of choice Apples—a thing greatly needed in England for the tables of both rich and poor. What I take to be a cordon is simply a one-rod fruit tree trained horizontally, just in the way in which a well-grown Vine is trained and pruned at the present day, except as regards position. All must see at a glance that training a tree in this manner near the ground is equivalent to training it near a wall, and better, for the extremes of heat and cold are not so trying to it. The ground is really, as it were, a wall to it, and especially so in sloping gardens or orchards. Five years ago I planted nearly 2000 feet of these cordons, and since the first year of planting them I have gathered magnificent fruit of White Calville, Reinette du Canada, and Reinette de Caux, certainly three of the finest Apples in existence. One fruit of Reinette du Canada weighed 22 ounces, and one of Reinette du Caux 19 ounces, while the White Calville reached 16 ounces. As regards the supports for these cordons, none are better than oak posts at 14 feet distances, and a fine galvanised wire, fastened at each end to a large stone embedded in the earth, strained with the simple *raidisseurs* so common in French gardens, and recommended by "W. R." One of these tighteners is sufficiently strong for 400 feet of wire. Mr. Rivers' iron hooks (see p. 1242) are certainly no improvement. He objects to wire being employed, for fear of canker. Are not his hooks likely to cause canker? How are they to be made fast in the earth? For my part, with all my 2000 feet of cordon and 2000 feet of espaliers on walls trained to wire, I have never yet found any bad effects from the use of wire (galvanised), provided the wire is fastened closely to the wall. For ties I use the Yellow Willow, which I grow expressly for that purpose. My advice to all is to train their cordons and espaliers on wire, fastened neatly and efficiently on the wall in the one case, and in the other to oak or iron posts. *H. Knight, Pontchartrain, France.*

Gladioli.—It would much interest me, and no doubt many other Gladiolus growers, if your correspondent near Dublin would give us as interesting an account as he did last year of his plans of cultivation, together with his opinions of the new varieties. *J. G. Nelson, Aldborough Rectory, Norwich, Dec.* 16.

Gardeners' Examinations. — The result of the various examinations open to gardeners are now recorded for the past year. The most successful candidate is Robert C. Kingston, of the Royal Botanic Garden, Kew, son of Mr. Kingston, gardener to Christopher Sykes, Esq., M.P., Brantingham Thorpe, East Yorkshire. At the Royal Horticultural Society's examination, held at South Kensington in December, 1866, after two days' examination in theoretical and practical gardening, he was awarded the highest honour—a First-class Diploma, and elected an Associate of the Society. At the Society of Arts' examination, held last April, he was awarded the following prizes and certificates:—Botany: First-class Certificate with Society of Arts' 1st prize of 5*l.*; also the Royal Horticultural Society's 1st prize of 5*l.* Floriculture: First-class Certificate, with Society of Arts' 1st prize of 5*l.*; also the Royal Horticultural Society's 1st prize of 5*l.* Fruit and Vegetable Culture: Second-class Certificate. Book-keeping: Second-class Certificate, with 1st prize of 3*l.* specially given by the proprietors of the *Gardeners' Chronicle* to the gardener obtaining the greatest number of marks in practical gardening, coupled with mensuration or book-keeping. At the examination of the Science and Art Department of the Committee of Council on Education, held last May, the result of which has recently been issued, he was in Vegetable Physiology and Economic Botany awarded a First-class Certificate, with Silver Medal; and in Systematic Botany awarded a First-class Certificate with Silver Medal. He is also a Queen's Medalist, and registered a Certificated Science Teacher in those subjects, and presented with a Microscope as a prize. *K.*

Physalis Alkekengi v. *Gout.*—My attention was first directed to this plant as a remedy for gout by Dr. Baller, an eminent physician now practising in Belgravia, who said that if about three berries were eaten daily, or rather more if taken on alternate days, they would have the effect of warding off a threatened attack. A gentleman in this neighbourhood was supplied by me with berries, and used them with very good effect. They are not, I believe, to be looked upon as a cure, but as a preventive, coupled, I presume, with other regulations as regards diet and regimen. The following extract from a valuable work, called "Green's Universal Herbal or Botanical Dictionary," will convey a better idea of the qualities of these berries than any words of my own:—"This Physalis is a native of the south of Europe, Germany, China, Cochin China. The berries of this plant were known to the ancients; they have an acidulous and not unpleasant taste, followed by a slight bitterness, which they are said to derive from the investing calyx. Though esteemed detergent and aperient, their fruit is chiefly recommended as a diuretic in suppression of urine, and for removing obstructions arising from gravel or mucus. From six to twelve Cherries, or an ounce of the expressed juice, is given as a dose; there seems, however, to be no danger from a much larger quantity, for in some parts of Germany the country people eat them by handfuls, and in Spain and Switzerland they frequently supply the place of other eatable fruits. Ray says that a gouty person prevented the return of the disorder by taking eight of these berries at the change of the moon. Instances of their good effects in dropsical or calculus complaints are on record, but they are very little regarded. The plant is easily propagated by seeds, or by parting the roots; the latter, being the most expeditious method, is generally practised any time after the stalks decay until they begin to shoot in the spring: it loves a shady situation, and should be confined, otherwise the roots will ramble to a great distance. Its only beauty is in autumn, when the fruits are ripe." It would be an interesting subject of inquiry whether the author, in his statement about the use of the berries in Spain and Switzerland as an addition to the number of eatable fruits for the table, has not confounded the Physalis edulis, or Cape Gooseberry, with the P. Alkekengi. P. edulis flourishes well in this country in a cool greenhouse, and the fruit is really delicious, and makes an excellent preserve. I exhibited a large dish of them at the great show at Willis's Rooms some years ago, with which our late lamented Dr. Lindley was much interested, and begged some of the berries to send to the South of France. This Cape Gooseberry would, I should imagine, flourish well in the open air in Spain, and probably in some parts of Switzerland; but unless climate alter the character of Alkekengi very much, I cannot conceive of any one eating it, except by way of a medicinal dose. The beauty alluded to by Green consists of the brilliant scarlet of the investing calyx, which is really very attractive. *John Cox, Redleaf.*

Awards at the Paris Exhibition.—In your notice of these (see p. 1238), you state that *objets d'art* are only joined to Gold Medals. I am sure you will excuse me for saying that, as a holder of a Silver Medal, an *objet d'art* has been awarded me as well; and I am told that both of these are equivalent to a Gold Medal. Seeing that only five Gold Medals have been awarded, and that to nurserymen, as a British gardener I must consider myself fortunate, and I may add that I am the only gardener in the same position. *H. Knight, Pontchartrain, France.*

Societies.

BOTANICAL OF EDINBURGH: *Nov.* 14.—The first meeting of the 32d session was held in the Society's rooms, on Thursday, the 14th ult.—Isaac Anderson-Henry, Esq., President, in the chair. Donations to the library and herbarium, and also to the museum at the Royal Botanic Garden, were announced. The President delivered an address on the hybridization or crossing of distinct species of plants (see p. 1296), and concluded by saying:—This year we have had to record the death of Professor Goodsir, a loss which science and society have deeply deplored, and of whom you will find an excellent biographical notice by Professor Balfour, in the new volume of "Transactions," now on the table. We have had also to record the death of Alexander Bryson, a gentleman eminent in the scientific profession which he so long, and so successfully, followed in this city, and no less eminent among ourselves for the prominent part which he took in our proceedings. Both these gentlemen were resident fellows. We have also to record the deaths of the following, among our non-resident fellows:—Rev. Thomas Blizard Bell, Robert Daw, John Gray, Dr. George Anne Martin, Prideaux John Selby of Twizel, James Smith of Jordanhill, and John Stewart of Nateby Hall, and one associate, David Tennant, brother of the author of "Anster Fair." At the present moment our roll stands as follows:—The Queen, patron; 8 British honorary fellows, 24 foreign honorary fellows, 101 resident fellows, 267 non-resident fellows, 11 extraordinary members, 106 corresponding members, and 24 associates—making a total of 541. The following communications were read:—1. *Observations on New Zealand Plants.* By Dr. Lauder Lindsay. In this paper, the author refers exclusively to the flowering plants of Otago, which are, for the most part, illustrative of the variations of the individual from the characters of the species, in relation, more particularly, to the limitation or definition of species. He also gives notes regarding their geographical distribution and economical applications, and their Maori and settlers' names.——II. *Letter from Dr. Robert O. Cunningham, H.M.S. "Nassau," Rio de Janeiro, to Professor Balfour.* We reached the Strait of Magellan on the 21st of December, and, with the exception of a short trip to the Falkland Islands to take in provisions and coal, remained there till the 12th of June, when we moved northwards, as the daily increasing severity of the climate necessitated a suspension of surveying operations for the season. Some of the Strait plants were identical with old friends at home. Many of them were species new to me, and a considerable number belonged to genera which I had never a previous opportunity of examining. As examples of British plants that I met with in the Strait, I may instance Sisymbrium Sophia, Cerastium arvense, Apium graveolens, Armeria maritima, Galium Aparine, Taraxacum Dens leonis, var. lævigatum, Primula farinosa, var. magellanica, Hippuris vulgaris, Cystopteris fragilis, and Botrychium Lunaria. Most of these plants occur in tolerable abundance, Apium graveolens very copiously indeed. Hippuris vulgaris I have only obtained in one locality as yet—viz., a small stream running into Oazy Harbour on the Patagonian side of the Strait. I believe the only other recorded locality in the Strait is Port Famine, where Captain King procured it. Cystopteris fragilis is common in parts of the woods. Botrychium Lunaria, which Hooker mentions on the authority of Banks and Solander as occurring at Good Success Bay, in the South of Fuegia, I found three specimens of at the entrance of Oazy Harbour. Several of the Algæ are also, I believe, identical with British species. Thus Codium tomentosum is common. I have found this alga also in abundance in the harbour of Rio de Janeiro. As some of the plants of the Strait that interested me most, I may mention Calceolaria plantaginea and C. nana, Bolax Glebaria, the Myzodendrons, which are so abundant on the Fagi, Codonorchis Lessonii, Chloræa magellanica, Embothrium coccineum, Sisyrinchium filiforme, Myrtus Nummularia, Fuchsia coccinea, Callixene marginata, Philesia buxifolia, and Cyttaria Darwinii. The Myrtus, Callixene, Philesia, and Fuchsia were met with at Port Gallant on our cruise to the westward with the Zealous. I was charmed with the Fuchsia and the Philesia, and realized how much more I valued their exquisite beauty as they occurred in the Strait of Magellan than I would have done had I encountered them at a place like Rio, where there is such a prodigality of splendid flowers. The Callixene is also a lovely little thing, and deliciously sweet. I obtained specimens of it and Myrtus Nummularia, also at the Falkland Islands, where fauna and flora are very much the same as those of the Strait. One thing, however, struck me, and that was, that certain species which I saw at the Falklands I found in the damp woody districts of the Strait, not in the eastern district, which is so much more allied to the Falklands in its general characters. In addition to Cystopteris fragilis and Botrychium Lunaria, I obtained specimens of seven other species of Ferns—to wit, two species of Hymenophyllum, Aspidium mohrioides, Asplenium magellanicum, a Gleichenia (I believe G. acutifolia), Lomaria alpina, and Lomaria magellanica. The latter enjoys a wide range, and appears subject to considerable variation. I have obtained specimens of it at Maldonado, the Falkland Islands, and at Port Gallant, and have seen Brazilian specimens of what I believe to be the same plant. At the Falkland Islands I saw no specimens with a caudex, but some of those at Port Gallant had a straight one about 2 feet high. Among the fungi that occurred to me were species of Agaricus (the common Mushroom grows abundantly in many localities, on both sides of the Strait), Polyporus, Tremella, Clavaria, Geastrum, &c. I got a good many fine lichens, and expect to get many more in succeeding seasons. We arrived at Rio on the 1st of July, and expect to leave it in the course of a few days for the Strait, calling at Monte Video on our way. I hope while we are there to get up the river to Buenos Ayres to see Burmeister and the museum. I have enjoyed the three months we have spent here very much, but am very glad at the prospect of our return to the Strait, as the climate here is very enervating. The country is, however, splendid beyond description. As regards plants I have been specially struck with the great variety and profusion of Palms and Ferns, and my attention was greatly arrested at first by the Lygodia, and other twining Ferns, so different in habit from our British Ferns.——III. *Notice of Mussana Bark (Albizzia anthelmintica) from Abyssinia, by Henry Hunter Calvert, British Vice-Consul, Alexandria.* Communicated by Professor Balfour. The bark has the reputation in Abyssinia and Senaar of being a specific as a tænifuge, for which purpose 2 to 4 oz. powdered are made into an electuary with honey.——IV. *Extracts from Botanical Correspondence.* Communicated by Mr. Sadler. 1. From Mr. Robert Brown, of the Greenland Scientific Expedition.—I have made in little more than two months a collection of Greenland plants amounting to more than 5000 specimens, including a fine lot of Mosses (in fruit), lichens, hepaticæ, a few fungi, and algæ, marine and fresh water. In addition to these I made a good collection of skulls, skeletons, &c., of seals and whales and birds, fishes, insects, annelidæ, mollusca, echinodermata, zoophytes, &c., and a large collection of diatomaceous gatherings. We have also brought home about a boat-load of fossil plants, with observations and sections of the deposits. In addition to this I have made several hundred astronomical observations for the latitude and longitude of the places we visited. 2. From Mr. J. F. Robinson, Frodsham.—Mr. R. says:—"This summer at Oakmere, on Delamere Forest, I found the Calamagrostis stricta in tolerable abundance on the part of boggy ground nearest the Abbey Arms Hotel. Two other interesting species were also plentiful, Lycopodium inundatum, and Utricularia minor. This place (I mean the bog adjoining the Mere) is extremely rich in muscological rarities; amongst others the following occur:—Sphagnum cymbifolium, S. compactum, S. molluscum, S. cuspidatum, Dicranum Schraderi, Campylopus brevipilus, Atrichum crispum, Polytrichum gracile, and Hypnum Schreberi; near the Abbey Arms, by the roadside, Saponaria officinalis is to be found sparingly, perhaps not truly wild. Claytonia alsinoides will, I think, soon be a naturalized British plant, for this season I found it plentifully in a little wood by the river Mersey, at Ince, Cheshire. I venture no opinion as to how it reached this wood; it has certainly the appearance of having been there for some years. About two years ago the Anacharis Alsinastrum first made its appearance in our marshes at Frodsham; now it is a sad pest, and will cause much inconvenience to the landholders, if not severe losses. It is in such quantity that in some cases the ditches overflow the roads. In one ditch I have noticed efforts being made to eradicate it, but without the slightest success hitherto. I have of late paid a little attention to Utricularia vulgaris, which is not uncommon in our marsh ditches. In some of the places where it flowered profusely a few years ago, it appeared to be lost, and might be looked for in vain. This was owing, no doubt, to the ditches being partly filled with vegetation. Now that they have been "ditched"—the word used in Cheshire for cleansed—it has again appeared as abundantly as in former years. An interesting question to ask is, how has it lived or existed during these intervening years? as most, if not all, the vegetation in the ditch was in a state of decay—in fact, not unlike a bog or swamp. The beautiful little Ranunculus circinatus, Sibthorp, is also plentiful hereabouts, flowering only at the end of June or beginning of July, long after most of the other Batrachian Ranunculi have flowered. 3. From Mr. Alexander Buchan, enclosing specimens of Centunculus minimus and Radiola Millegrana, both gathered in August last a few yards from high-water mark between the blue rock and the sea, Glen Sannox, Arran. 4. From Mr. Alexander Curlé, Abbey Park, Melrose, recording the discovery, by Mr. Alexander Hay, Borthwick, and himself, of Goodyera repens in a wood near Melrose in considerable abundance.——*Miscellaneous Communications.* 1. Dr. John Lowe sent specimens of double-flowered Calluna vulgaris, collected this autumn by Miss Anna Everard, near Bournemouth, Mr. M'Nab also exhibited specimens of the same collected in Aberdeenshire in 1820. 2. Mr. M'Nab laid before the meeting a longitudinal section of the stem of a Sequoia Wellingtonia,

9 feet in height, raised from seed during the spring of 1857, and which died from being transplanted to an exposed situation during the winter of 1866. The Wellingtonia, he remarked, is easily transplanted during spring, summer, or the early autumn months. The most successful period was during summer. The present specimen, along with many others, was first transplanted on 1st July, 1861. One of the remarkable features of the section now exhibited is the number of apparent woody rings, from five to ten being visible on what is well known to be an annual growth. Several of the known annual growths average, and in some cases exceed, half an inch in breadth; while in a piece of wood, direct from California, not less than twelve distinct prominent rings or markings are visible over half an inch of surface. Their closeness in the native-grown timber, as well as the intermediate rings in the home-grown specimens, is remarkable.

Notices of Books.

Rain: How, When, Where, Why it is Measured. By G. J. Symons. London: Stanford. Pp. 88.

This is the expressive title of a valuable little treatise on the very important subject to which the author has devoted so much diligent labour. The average amount of rainfall in various stations in Great Britain, thanks to Mr. Symons and his coadjutors, is pretty well known to those interested in such matters. In the present volume, not only will this information be found in a condensed form, but also a table, showing approximately the mean annual rainfall at a large number of stations, widely dispersed over the whole globe. How valuable such a table will be to the gardener we need hardly point out. For instance, the rainfall at Cherrapongee, in India, lat. 25° 16', amounts to no less than 610.3 inches in the year, while at Kurachee, in Sinde, the mean fall is stated to be only 3 inches. In the West Indies also great variations exist as to the amount of rainfall, as may be seen from the following figures, which we extract from Mr. Symons' tables: "Antigua, 39.5; Barbadoes, 75; Barbadoes, St. Philip, 56.1; Cuba, Havannah, 50.2; Cuba, Matanzas, 55.3: Grenada, 126; Guadeloupe, Basseterre, 126.9; Malonba, 285.8; Jamaica, Carath, 97; Kingston, 83; St. Domingo, Cape Haitien, 127.9; Tivoli, 106.7; Trinidad, 62.9; Virgin Isles, St. Thomas, 60.6; Tortola, 65.1.

While thanking Mr. Symons for this table, we earnestly wish that he may be able to extend it in the future, so as to render it more accurate, and to enable us to ascertain precisely at what period the greatest or the least quantity of rain falls, and other information of no little consequence to the cultivator of exotic plants. It is clear, from the immense range of variations in the amount of rainfall in places closely adjacent, that there must be potent local conditions of which the table in question tells us nothing. We are, of course, aware, that to furnish such information as would be available for cultural purposes great labour would be entailed, beyond the power of any individual to accomplish; but as we look upon Mr. Symons' influence to be as great at least as that of the African "rain makers" over their fellows, we still hope this may be done.

We have received the following publications:—*A Popular Annual for* 1868 (Wyman & Sons), containing much useful and amusing information.—*How to Use the Barometer* (Bemrose); the annual issue of a serviceable little book.—*Hanover Square* (Ashdown & Parry); two numbers of a new venture, in the shape of a musical "monthly." It is issued under excellent editorship, has good contributors, and is both cheap and good. Its rival, *Bond Street* (Hopwood & Co.) has little besides its cover to recommend it. It seems heresy to say so, but "Bond Street" is a little "low."

Mr. Murray has just added to the list of his student manuals one on *Moral Philosophy*, by W. Fleming, D.D., late Professor of Moral Philosophy in the University of Glasgow, of which we can only thus make mention, and state that it is lucid and clear in its arrangement.—With similar brevity we must pass the very elaborate *Natural History of the Tineina* (Van Voorst), written by H. F. Stainton, assisted by Professor Zeller, J. W. Douglas, and Professor Frey, of which the tenth volume is now before us. The whole work is written in four different languages, English, French, German, and Latin, arranged in parallel columns. Mr. Stainton has also issued separately a monograph of the Tineina of Syria and Asia Minor. No entomologist needs assurance of the care with which these volumes are produced.

Florists' Flowers.

IT was once said that "if Donald Beaton had never in the course of his busy life raised any other Geraniums beyond Cybister and Stella, every flower gardener ought to be grateful to him for these alone." This testimony to the value of these useful NOSEGAY PELARGONIUMS they have richly earned, and not only have they done good service in the flower garden, but for breeding purposes Stella has been largely used, and last summer there were produced at the various metropolitan exhibitions examples of the quality of its progeny probably even beyond the most sanguine conception of the fine old horticulturist who died almost on the threshold of his developments in this direction. But the immortality which attends all good works was present here, and the matter was taken up and pushed forward by Mr. W. Paul, Mr. George Smith, and Messrs. Downie, Laird, and Laing, so that now there is being offered to the public an order of Nosegay Pelargoniums that are not only improvements in point of size of truss and freedom and durability of bloom, but also showing a notable onward progress in the individual flowers towards the standard of perfection that the florist has reared. This improvement is so decided and so great that Mr. W. Paul could now venture to withdraw the protest he entered (so opportunely) in 1866, when he wrote in the "Florist and Pomologist" as follows:—"While I am ready to support the axioms of the florist when applied to florists' flowers, I sternly refuse to apply them to every object in the floral world, and I maintain that Beaton's hybrid Pelargoniums are manifestly without their pale. To my mind there is a paucity of conception in being unable to discover beauty out of and beyond the florist's pale, however sound may be his premises, however logical his conclusions." The fact is that the florist "can now think of descending to the minute criticism of a single flower," and in its massiveness and breadth he will see "form" and "substance" present to such a degree, that for the future all thin and narrow-petaled flowers will be surely discarded; for did not the florist set up a standard embodied in rules, there would be one notwithstanding—a standard born of public consent, and fostered by those rules of criticism to which even the world of floriculture is amenable. That the "properties" can be had, with "novelty of colour, compactness of habit, freedom of flowering, flowers that will stand the sun and rain," must, with the experience of the past season, be considered as "fully proven." Who that has seen Mr. Smith's fine Nosegay La Grande, grown as an exhibition plant, would be willing to doubt the truth of this conclusion? and did the recent great show at Bury St. Edmund's furnish no other lesson, it certainly taught not only the value of the race of Nosegay Pelargoniums as exhibition plants, but also that, when well-grown, a superb finish can be imparted to the flowers, so as to bring them within cognizance of the florist's laws. In the article of Mr. Paul's, quoted above, he indicates the same progressive movement, for after referring to the tendency of a flower to evince a disposition to vary in succeeding generations when once the ground is broken, he bears witness to the "improvements on the originals in form and colour," in the seedlings he has raised from them.

The point of attack directed against these Nosegay Pelargoniums actually centres more on the unattractive appearance of the trusses of bloom when they begin to die off; and it has been asserted, and that with a degree of truth, that the larger and bolder the truss the more noticeable is the disfigurement. Unlike the Verbena, that unfolds its truss of flowers from the circumference to the centre, the Nosegay Pelargonium commences to do this in the centre, and proceeds outwards. When it is remembered that some trusses have over a hundred pips, the force of the objection will be apparent. On the other hand it has been contended that the wonderful prolificacy of bloom of the Nosegay class, combined as it is almost invariably with bright and striking hues of colour, considerably reduces in reality the actual area of the unattractive feature presented to the line of sight: while their peculiar adaptation for, and the certainty with which they "accomplish the work allotted to them, their freedom and continuity of bloom, the gorgeous masses of colour which they produced, and their comparative independence of the changes of weather," raises them above all "rivals in their own peculiar walk," and gives them the broad stamp of a general adaptation above and beyond that possessed by any other bedding plant. Another important consideration in their favour is, that while many of the other classes of bedding Pelargoniums which do remarkably well in pots, are altogether unfitted for the flower garden, because of the absolute certainty with which they will produce a redundancy of foliage to the sacrifice of flowers, and so it has been found necessary to adopt an equalising process by confining the roots, in order to keep the growth of foliage under, and so produce bloom; in the case of the Nosegay class, it is an invariable rule for the converse to hold good, the "equalising process" being neither necessary nor beneficial; in fact, it has been found that the more root development the more bloom has resulted: and this prolificacy would actually appear to keep in check a too exuberant growth.

In point of greater novelty of colour, the Nosegay Pelargonium may be said to have already assumed all, or nearly all the various hues to which the ordinary form of the bedding Pelargonium had attained. The most noticeable break in the monotony of colour that had previously prevailed, came from the "rich legacy (Donald Beaton) left to the horticultural world," and since then it has been extended almost indefinitely; for Mr. W. Paul has borne testimony to the birth of "sports and novelties quite unlooked for," and now a blue Nosegay Pelargonium seems to be nearer realisation than that dream of the florist—a blue Dahlia. Their "independence of the changes of weather" is a quality of the first importance; a heavy summer shower is a mere passing inconvenience, and with the next outburst of the sun there comes forth numbers of flowers to replace those damaged by the rain. Until quite late in the season can be seen beds of Nosegay Pelargoniums aglow with a delightful freshness amid the autumnal desolation around them; like a ship in full trim, sailing proudly amid a fleet of dismantled vessels.

Mr. Paul has not made any show of new kinds during the past season; but on the other hand Messrs. Downie, Laird, and Laing have abounded with them, and the larger part of their new kinds evince the possession of high quality. The following are the cream of their collection:—

Comet, perhaps the deepest-coloured flower of the whole series, the hue a glowing claret crimson, a rich and yet deep shade of colour, which is also distinctly suffused with purple when the flowers are fully developed; the truss bold, but not so large as some of the other kinds, but very free blooming; the habit excellent; foliage marked with a dark zone; it promises to be a fine variety for pot culture and exhibition purposes.

Countess of Rosslyn, of a rich shade of rosy pink, dashed with violet, the body of colour much brighter than that of Emmeline; the petals broad and stout, the tissues superbly fine; the upper petals are blotched with white; the habit good, and the foliage light green and slightly zonate.

Countess of Strathmore, also, has not been shown in public, though a flower of fine quality. It is of a rich shade of bright deep orange, the upper petals suffused with pale rose, forming a splendid body of colour; the foliage strong and vigorous, slightly zonate, and much indented; habit excellent, the truss of great dimensions, one measuring 15 inches in circumference. It is one of the most striking Nosegay Pelargoniums of the year.

Bonnaire has a greater depth of colour than the foregoing, inasmuch as the violet predominates over the rose; the petals are not quite so broad, but the trusses are very fine and freely produced. The habit is more gross than in the case of Countess of Rosslyn, but the habit is good, and the leaves dark green and slightly zonate.

Florrhandsan is of a pale orange crimson hue, and somewhat dull in appearance, the flowers and truss smaller than in the case of either of the foregoing; excellent habit, foliage slightly zonate and free blooming.

Grand Sultan is a variety that was not shown in public during the season, but which came out very fine late in the summer. It is in the way of La Grande, but has more orange in it and is therefore paler and brighter in hue; the individual flowers are probably the finest of the whole batch; robust close habit, foliage slightly zonate, free blooming, and altogether a fine variety.

Hon. Gathorne Hardy is of a bright and rich shade of orange crimson, slightly suffused with violet; the petals stout and well-rounded, the truss large and very symmetrical, the habit excellent, the zone not quite so well marked as in the case of Comet. This is also a very fine exhibition variety.

Magnum Bonum and *Marksman* are both very good varieties, but cast into the shade by the superior quality of their compeers. They represent shades of cherry crimson, the latter of a vivid hue: both are bright-looking free-blooming kinds, of good habit, with slightly zonate foliage.

Mrs. Laing is by far the best of the cherry crimson-coloured flowers, being bright in hue, and having stout well-formed flowers, and bold and striking trusses. The habit is every way good, and it has pale zonate foliage.

Rose Stella is a beautiful variety, opening with a soft shade of rosy pink, which changes into rose with age. The trusses of bloom are not so large as some of the foregoing kinds, but they are freely produced: the foliage is of the deepest green colour, slightly zonate, and somewhat peculiar in being deeply serrated on the edges; habit excellent.

Tom Thumb Nosegay is a very dwarf growing kind, with flowers of a rich and bright shade of orange crimson; trusses of good size, and freely produced; foliage plain; a good and effective bedder.

Mr. George Smith, of Islington, has this season followed up his successes of previous years, by producing two fine kinds of Nosegay Pelargoniums, both of which have received the highest award given to new kinds.

Grand Duke is a noble variety, with large, bold, and circular trusses of deep orange scarlet flowers; the individual flowers have broad, stout, and smooth florets; perhaps representing the farther advance that has been made in point of form in the Nosegay Pelargonium. The habit is every way desirable as well.

Eclat has some considerable amount of novelty in its peculiar hue of colour, being of a lively and rich shade of magenta, suffused with purple; the flowers are large, stout, and of fine quality, and form striking and bold trusses. Mr. Smith's two will make fine exhibition kinds, and to these should be added Comet, Countess of Strathmore, Grand Sultan, and the Hon. Gathorne Hardy.

Messrs. E. G. Henderson & Sons' Crimson Nosegay has only its colour to recommend it, being of a dark crimson hue, but as the trusses are quite small in comparison with most of the foregoing, it cannot "secure a place" in company with such "hot favourites." It is a "Commander-in-Chief" Nosegay, with the foliage somewhat darker.

Some Nosegay Pelargoniums that make splendid bedders can be found in the following:—

Violet Hill Nosegay (Frewer), rosy cerise, with some orange in the top petals, foliage faintly zonate, trusses medium size, but freely produced; good habit, and very effective. For pot culture as well this variety is eminently useful.

Oberon (Bull), rich orange scarlet, a fine and striking hue of colour; the flowers of poor substance, and the trusses medium size, but highly useful as a bedding kind.

La Grande (G. Smith). This is also a most effective bedder, though it will be much grown for pot purposes. It may be best described as a deep carmine scarlet, tinged with rose. The trusses are of great size, and the foliage marked with a dull zone.

Lady Constance Grosvenor (Fleming), glowing rich scarlet, a striking and effective bedder; the foliage bright green, with showy dark zone; the trusses large, and freely produced. This variety will be largely used for bedding purposes.

If Dr. Hogg, and Amy Hogg, both very fine kinds, can be regarded as Hybrid Nosegays, they should be employed for bedding purposes; and with them should be classed Stella (which, though superseded by Lady Constance Grosvenor to a certain extent, will yet be largely used), Orange Nosegay, Indian Yellow, and Waltham Seedling.

Lastly, there is a necessity for a correct definition of what is a Nosegay Pelargonium, if they are to be kept as a separate class. Then, what is a Hybrid Nosegay? and how is it to be defined? Probably these bedding Pelargoniums, by their disposition to vary, are of themselves so thoroughly breaking down the artificial distinctions of class, that they must inevitably become fused into one general unity—that of bedding Pelargoniums. The marked progression towards the attainment of form and substance so perceptible in the new kinds aims a blow at the durability of any distinction of that kind: while the comparatively new class of Hybrid Nosegays only tends to increase the difficulties of classification. Happily, we are surely reaching on to higher levels of perfection, even though class distinctions are crumbling to pieces about our path.
R. D.

The Apiary.

THE PARSON AND HIS BEES.—In the *Field* is an amusing account by "F. E. F." of a two days' visit to a moorland parsonage in the west country, which he paid in 186—. He says: "If ever there was a downright good parson, who shrinks from no kind of self-denial which may benefit the bodies or the souls of his people, who is indefatigable in night schools, in visiting the sick, and all other things in which an English clergyman of the right sort is a blessing to his parish, I am sure that my friend of the moors is one. Nor is he

by any means inattentive to the external fitness of things; on the contrary, when found on clerical business, whether on week-day or Sunday, he always looks, as well as is, a clergyman. In the west, however, it seems that circumstances may occur which make a clerical dress appear almost as incongruous as a shooting coat.

"It happened one Sunday afternoon, in the month of May, about ten minutes before the hour of Divine service, that our friend was walking from the school to the church—like Sidney Smith's missionary, gown and bands, and hymn-book too—with slow and sedate step as befitted the occasion, when his ears were assailed by sundry crys of 'There they be! there they be! keep your eye on 'em!' Looking sternly round to ascertain the cause of this unseemly clamour, he saw his own man, accompanied by two or three others, running frantically along with their heads in the air. Presently he found himself appealed to:—'Do 'ee run, zur, do 'ee run, or we shall lose 'em!' He looked up, and immediately saw the cause of such unwonted excitement: a swarm of bees—his bees—fast disappearing in the clear ether. To hesitate was to be lost, or rather to lose the bees. He was over the wall in a moment. A few minutes more saw him across the corner of the Grass field, over another wall, and panting down the village street, with his head in the air like his more humble followers. Sympathising neighbours soon swelled the train with the musical accompaniments, usual on such occasions, of tongs and frying-pans. A friendly hand placed something in his grasp; a friendly voice, in the shrillest tones of feminine excitement, shrieked in his ear, 'Do 'ee take this, zur, and do 'ee rottle un!' Mechanically he took the gift, and 'rottled' it with the energy of despair. A moment more, and he was conscious of his position. It wanted but five minutes to the hour of service, and there he was, a quarter of a mile from church, surrounded by his faithful parishioners, and firmly grasping in both hands a tin slop-pail with a stone in it.

"The congregation on that Sunday afternoon, I regret to say, was scanty; but, still faithful to their pastor, the tenants were found by that worthy divine, on his return from church, congregated in the stable yard. They did not say much—it is not their way—but a grin of conscious merit pervaded the whole assembly; every countenance bore the expression of one who has not only tried hard to do a good action, but has done it. There was no doubt about it. Virtue had been crowned with success, and the bees had been hived."

Miscellaneous.

Testimonial to Mr. Daniel Nash.—A silver-gilt dessert service was presented to this gentleman at the annual dinner of the Associated Seed Merchants of London, held at the London Tavern on Wednesday last, when representatives from most of the leading seed firms in London were present. The service consisted of four corner pieces and a plateau, each corner piece having emblematical figures representing the four seasons, the figures being in frosted silver, mounted on silver-gilt accessories. The centre plateau had engraved on it the following inscription:—Presented to Daniel Nash, Esq., by the members of the London seed trade, as a token of their esteem and appreciation of his services, December, 1867. The presentation took place in consequence of Mr. Nash having held the office of chairman of the Association for 21 years. Several complimentary speeches were delivered on the occasion, among which was a feeling and suitable reply from the gentleman to whom the testimonial in question was presented.

Garden Operations.

(*For the ensuing week.*)

PLANT HOUSES.

WHATEVER may be said to the contrary, it is absolutely necessary that the horticulturist should be more or less weatherwise, in order that by giving the needful amount of study to atmospheric influences, and their attendant and consequent changes, he may be enabled to foretell, to some extent at least, what changes are likely to ensue, and what probable severity may be expected, &c.; for taking things by chance won't answer. Securing an amount of heat constantly in advance, in order to avoid eventualities, &c., is neither a proper way of procedure, nor one likely to give success in matters pertaining to early forcing. Hence, by means of instruments, a proper study of the weather and its changes, so far as constantly recurring signs are concerned, should be taken due note of. This will materially lighten that oppressive and uneasy feeling, which seems of necessity to hang upon young practitioners, amateurs, &c., who have the care of glass structures, during changeable weather such as we are experiencing this month, requiring as it does sometimes an excess of fire-heat, and at others none at all; and these extremes within a day or two. This will tax the ability of the best cultivators, to keep everything thriving and in health. Do not excite the plants with one degree more of fire-heat than is absolutely needed to keep them in safety. There is another fact which it may be worth while to recur to at this season, viz., that plants in general should have their pots pretty well furnished with roots by the time of flowering. This, which is so necessary, even during the summer months, becomes doubly needful now, and should be well borne in mind. To continue potting *Cinerarias*, *Primulas*, *Cyclamens*, &c., after they have shown the first signs of flowering, though done with the intention of growing them onward into large fine plants is, to say the least of it, to destroy 50 per cent. of their flowering capabilities, and to injure irremediably for the season their prospects, as far as fine heads of bloom are concerned. Confine the roots of all subjects coming into flower in preference to giving them unlimited room. By so doing, water can be given more freely with less risk of souring the soil or of rendering it over-sodden, thereby causing the spongioles to get into an unhealthy condition. Water might now be withheld gradually from *Gesneras*, which are past their flowering period, and forming tubers for future use. Some *Tydeas* also, which rank among the freest of all winter blooming plants, might be allowed to ripen their upper growths off more freely in a similar manner. Continue to keep *Centaureas* in a cool dry atmosphere; proof of their hardihood has lately been adduced, a fact which should be brought to bear upon their culture generally. Afford *Bedding Plants* all the air possible by lifting the lights back and front upon all favourable occasions. Remove decaying matter of all kinds, as such quickly becomes the progenitor of more. Pinch the points off *Verbena cuttings*, so as to induce them to break abundantly, and form sturdy, useful propagating stock. Should any signs of mildew exist, dust freely with flowers of sulphur. It will be well also to stop early struck *Calceolaria* cuttings which may have begun to grow, dusting these over also in a similar manner to the last, should appearances of the same description show themselves. Be careful not to keep any of these latter too wet just now, rather allow them to become somewhat dry occasionally. This they will not suffer from if reasonably removed from the too near vicinity of pipes or flues.

FORCING HOUSES.

Attend to all linings needed, for the purpose of keeping up a proper supply of heat in structures warmed by fermenting material. Resort to surface covering, either with mats or other suitable material, during the continuance of severe frost. This will not only greatly economise heat, but will be the means of dispensing with very much fire warmth as well. *Strawberries*, about pushing flower stalks, need an occasional soaking with manure-water. They are very partial to soot. A surface dressing of "Standen's Manure," with a slight coat of soot placed over it once every eight days, would prove of great assistance to them. I have before objected to the method of allowing stagnant, soured water to stand in pans under pots containing Strawberries at this season. Rather afford bottom-heat in a nice bed of warm leaves or other material, and if the roots can be induced to imbibe freely the properties placed within their reach by the water as it percolates through the soil, all that can be desired will have been attained. I have little to add this week concerning *Vines*, &c. I repeat my former caution—advance *steadily*. This will ensure better success in the end, than an undue and hurried anxiety to hastily push forward. Vines which have "broke," viz., fairly started into growth, may receive forthwith an advance of 7° or 9°, which will bring them up to from 63° to 66°, according to the brightness or otherwise of the weather. These remarks apply equally to other forcing houses, &c. Once the plants have fairly made growth, and formed a leaf surface, &c., started at temperate, it will be well to advance the heat slightly as above.

HARDY FLOWER GARDENS, SHRUBBERIES, &c.

Push forward all work belonging to *Shrubberies*, &c., as much as possible, such as leaf-raking, transplanting, and even layering. Shoots of the Common or Portugal *Laurels* might now be layered in any vacancies which occur around plants having shoots fit for such a purpose. A good layer of leaves, collected whilst they are wet, which they are likely to be after the late snow, might be placed around *Rhododendrons*. These will not materially aid them during the ensuing summer, and more especially in dry hot weather. In exposed positions, and where appearances are studied, a thin layer of soil might be thrown over the leaves. It will not matter even if the main stems should seem unduly buried. The leaves, decomposing, will shortly sink to the usual level; besides which these plants, rooting so freely, feel little or no inconvenience therefrom. Prune, as opportunity offers, any deciduous shrubs, or trees needing such restraint, such as *Weigelas*, *Syringas*, *Lilacs*, *Deutzias*, *Laburnums*, *Coluteas*, and others. Cut away any strong rambling runaway shoots, encouraging only such as are likely to enhance the symmetrical proportions of the plant, or are likely to produce flowers at the proper period. Many shrubs, such as the above, do best treated upon the system of biennial root lifting and pruning. Treated as dwarf pyramidal fruit trees generally are, they form neat densely-clothed stuff, far superior to others which are left to "ramble at will;" besides which, they do not impoverish the soil nearly so much in their immediate neighbourhood, to the undue injury of any other border associates. Here let me recommend the double-blossomed Japan Cherry (Cerasus japonica flore pleno), the new double bright Red Thorn, and the double Deutzia crenata, as fitting plants to associate with the best of their kind. Pot up the necessary stock of *Dielytra spectabilis* for future forcing, also Solomon's Seal (Polygonatum), both the common and variegated-leaved ones, and indeed many others; they are amongst the best of plants for forcing, and should be kept in stock accordingly. Divisional pieces, transplanted into a good rich soil, form crowns of great strength compared with others grown in out-of-the-way places, and under adverse circumstances.

KITCHEN GARDEN.

Let *Celery* and all winter crops, *Broccoli*, *Brussels Sprouts*, *Kale*, &c., be carefully gone over whenever the ground is in a fit state to enter upon, for the purpose of removing any injured parts, whether decayed leaves or rotten crowns. Independent of their certain injury to all healthy tissues in their immediate neighbourhood, they are besides a great eye-sore in neatly kept gardens. Look through *Cauliflower* plants, *Lettuces*, and *Endive*, in frames, and in like manner remove all evidences of decay. Give all a plentiful supply of air, by tilting the lights upon their sides, in order that the fresh air may have both free ingress and egress, but ward superficial rains off at the same time. As regards *Peas*, the former sowing being freely through the ground, it will be well, where a large supply is needed, to make another sowing, and of another kind. Earth up well those which are through the ground when the soil becomes dried properly so to do. The same remarks apply to *Broad Beans*. If not already done it will now be necessary to finish earthing up *Cardoons*, and, however late it may be needful to keep them, remove every particle of the litter recently placed around them for protection, in order that no inducement to decay may surround them. Do not proceed with digging, trenching, &c., upon heavy grounds whilst laden with the excessive moisture caused by late frosts and snow. So doing will work it into a mortar, requiring the pulverising influences of a severe frost to again reduce it to a state fitting for the growth of good vegetables, or indeed any form of plant needing cultural skill in its production. *W. E.*

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the Week ending Dec. 18, 1867, as observed at the Horticultural Gardens

December.		Moon's Age.	Barometer.		Temperature.					Wind	Rain.
					Of the Air.			Of the Earth			
			Max.	Min.	Max.	Min.	Mean	1 foot deep.	2 feet deep.		
Thurs.	12	16	30.106	30.004	53	37	45.0	43	41	N.W.	.00
Friday	13	17	30.166	30.125	48	30	39.0	44	42	W.	.00
Satur.	14	18	30.006	29.702	55	43	49.0	45	42	S.W.	.09
Sunday	15	19	29.790	29.647	53	49	51.0	47	43	N.E.	.16
Mon.	16	20	29.778	29.699	54	48	51.0	48	44	W.	.00
Tues.	17	21	29.609	29.574	54	33	43.5	47	44	W.	.04
Wed.	18	☾	29.498	29.461	47	25	36.0	46	44	W.	.00
Average			29.850	29.744	52.0	37.8	44.9	45.7	42.8		0.26

Dec. 12—Overcast and fine; overcast; clear at night.
— 13—Clear; overcast; clear and fine.
— 14—Overcast, very mild; rain; overcast.
— 15—Rain; heavy rain; overcast and mild.
— 16—Densely overcast; overcast, boisterous.
— 17—Densely overcast; fine; overcast at night.
— 18—Clear; masses of white clouds; fine; clear.
Mean temperature of the week, 5½ deg. above the average.

STATE OF THE WEATHER AT CHISWICK,
During the last 41 years, for the ensuing Week, ending Dec. 28, 1867.

December.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain	Prevailing Winds.							
						N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday ..22	44.5	32.6	38.5	20	0.37 in.	6	8	3	1	2	13	6	2
Mon. ..23	44.0	31.9	38.0	20	1.13	6	9	2	2	2	12	4	4
Tues. ..24	43.6	31.4	37.5	17	0.30	4	5	4	2	1	17	4	4
Wed. ..25	43.3	29.2	36.3	9	0.45	4	9	3	—	2	14	6	3
Thurs. ..26	43.2	31.2	37.2	15	0.39	3	7	3	4	5	11	5	3
Friday ..27	43.0	29.7	36.3	14	0.40	5	5	2	5	2	9	9	4
Satur. ..28	42.5	29.5	36.0	12	0.21	4	4	4	3	3	8	13	2

The highest temperature during the above period occurred on the 25th, 1827, and 28th, 1855—therm. 58 deg.; and the lowest on the 28th, 1860—therm. 1 deg. below zero.

Notices to Correspondents.

CONIFERS: *J B.* We have examined the curious substance from your Silver Firs. It is entirely of a vegetable nature, giving no effervescence either with nitric or sulphuric acid. It is covered everywhere with a minute white mould, with abundant fruit. It is probably of insect origin. You should examine your trees with a view to find whether insects have injured them, and the origin of the substance. If insects are not the immediate cause of injury, it is possible that the mould growing on the substance may have killed the bark, and so destroyed the trees. *M J B.*

BOOKS: *Market Gardener.* Thompson's "Gardener's Assistant" will give you the information you require.—*Amateur* will find excellent general instructions for hybridising in Mr. Henry's paper: see p. 1296—*C H D.* The most complete list of the generic names of plants is that given in the last edition of Lindley's "Vegetable Kingdom;" but even this is now some years old. Various additions will be found in Walpers' "Annales," in Bentham and Hooker's "Genera Plantarum," in the Transactions of learned societies, and in the periodical literature of the past few years.

DRAINING LAWN: *A J.* Drain your clay land fully 3 feet deep, or if you can get proper outfall, and the land is liable to get heavily charged with water, you may advantageously go to a depth of 4 feet.

INSECTS: *Vitis.* We have failed to discover, with the assistance of the microscope, any insects upon the Vine roots which you have sent, from the trees of which the young leaves were infested in October with the small Aphis-like wingless insects. The roots are in a bad state, and we should rather think it was owing to this that the leaves became attacked to so great an extent. We can scarcely think the state of the roots could have been produced by the same insect which raised the small galls on the leaves. *W.*

NAMES OF FRUITS: *W M T.* Your Pear, No. 1, being quite rotten, was difficult to determine with anything like certainty; we, however, believe it to be De Romaine, a stewing, but worthless, variety, always apt to decay in the heart, as yours has done; 2, not known; 3, Winter Crassane; 4, probably Passe Colmar.—*S E, Swaffham.* No. 1 is the Downton Pippin, a seedling raised by the late Mr. Knight from the old Golden Pippin; 2 is believed to be the Gravenstein, a German Apple of great excellence.

NEPHROLEPIS: *Which is Which.* There is no Nephrolepis bulbifera, that we know of. There is N. tuberosa, and N. exaltata, the latter a somewhat larger grower than the former, with the sori situated nearer the margin.

NEW MELONS: *A.* We are not answerable for statements made in our advertising columns.

RICINUS: *Market Gardener.* One of the best is Obermaonni, and another good one is sanguineus. Sow in heat early in spring, and pot off and harden as with other tender subjects. The stronger they can be got by planting-out time the better.

THIRSK NURSERYMEN: *Mr Hutchison* and *Messrs. Snowden & Son* state, in answer to inquiries respecting a person who gives the address, "W. R. Smith, Nurseryman, Thirsk," that no such person rents either house or land in that neighbourhood.

VERBENAS: *A R H.* The disease in your Verbena leaves is very curious. It seems to commence at the bulbs of the hairs, and then to spread so as to form a red stratum. It does not seem to depend upon any Fungus, and therefore any external application will be useless. You should examine the roots to see whether they are in good order, and if not, change the soil. The other leaf was so crushed that we can say little about it. *M J B.*

COMMUNICATIONS RECEIVED:—R. Fortune.—A. F. B.—A.—W.T.

ROYAL AGRICULTURAL SOCIETY of ENGLAND.

EDUCATIONAL PRIZES.

APRIL, 1868.

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To be returned filled up on or before February 29, 1868.

Name of the Candidate at full length .. ..
Date of his Birth .. ..
Branch of Business followed by his family ..
Business intended to be followed by himself ..
Residence of Parents or Guardians .. .. ..
The Names of the Schools at which the Candidate has been educated, stating the number of years spent at each; accompanied by Certificates of general Education .. .. ..
The Candidate has to state whether he will be examined in Land Surveying, or in Mechanics as applied to Agriculture, or in both subjects.
He must likewise state in which of the following optional subjects he desires to be examined, viz.:—
Botany .. ..
Geology .. ..
Veterinary Science.. .. ..

Copies of the above Form may be obtained on application to
H. HALL DARE, Secretary.
12, Hanover Square, London, W.

ROYAL AGRICULTURAL COLLEGE, CIRENCESTER.

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The College was Incorporated by Charter, granted by Her Majesty in Council, March 27, 1845, for the purpose of affording a Practical and Scientific Agricultural Education to Students from all parts of the Kingdom. For particulars apply to the PRINCIPAL.

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Orphan Children admitted from 7 to 10 years of age, and wholly maintained and educated until the age of 14 years in the case of Boys, and 16 years in the case of Girls.

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65, Charing Cross, London, S.W. CHARLES SHAW, Secretary.

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TESTIMONIAL to MR. JAMES KNOWLES, of Wetherby.—The friends and admirers of Mr. Knowles, considering that some public recognition should be made of the great and efficient services he has rendered to the cause of Scientific Agriculture, particularly in promoting the improvement in the breed of Shorthorned Cattle, some time ago determined to present him with a suitable Testimonial. I beg therefore to give Notice that the Committee are about to close the Subscription List, and intending Subscribers will oblige by sending the amount of their subscription at once to the Wakefield and Barnsley Union Bank, or to me,
Wakefield, Dec. 18. THOS. DODDS, Hon. Sec.

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Imported TOULOUSE GEESE, the largest and most productive breed known.
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SHORTHORN BULLS.—A few Choice Young BULLS for early service, and BULL CALVES, from the Didmarton Herd, are now open for SALE, by Private Contract.
To preserve purity of blood, three pure Duchess Bulls, viz.: 7th Duke of York (17,754), 13th Grand Duke (21,850), and 2d Duke of Claro (21,576) from Captain Gunter, have been recently in successive use, and continued by 2d Duke of Collingham (23,730), lately purchased at 500 guineas, from the same eminent breeder.
For Pedigrees, &c., apply to Mr. S. Rich, Didmarton, Chippenham, Wilts.

FOR SALE, by Private Contract, the BATES BULL, "LORD WILD EYES 2d" (22,334), roan, bred by Mr. C. Harvey, sire 4th Duke of Oxford (11,387), dam Wild Eyes 22d, by Wild Duke (19,148), &c., &c. (see "Herd Book," vol. xvi.). Lord Wild Eyes 2d is particularly active, and his stock have fetched high prices.
For further particulars apply to the Bailiff, Mr. RAWLING, Holly Bank, Burton-on-Trent.

The Agricultural Gazette.

SATURDAY, DECEMBER 21, 1867.

DURING the past few weeks the *Agricultural Gazette* has been full of very useful and instructive argument and discussion on the subject of Agricultural Education. From Archbishop CRANMER (p. 1249) downwards, authorities have been quoted in favour of technical instruction. The advantages of a knowledge of the principles which guide the special business to which a man devotes himself has been insisted on; and the serviceableness of an early apprenticeship for the acquisition of the necessary skill has been also urged.

Mr. CLARE SEWELL READ'S admirable address to the labourer at North Walsham (p. 1179), which we had hoped to have long since seen announced for the widest possible publication in a separate form—Colonel KINGSCOTE'S capital lecture (p. 1227) on the boyhood instruction of both labourer and farmer, delivered before the Cotswold tenantry at a Gloucestershire Farmers' Club—and Mr. HOLLAND'S excellent speech (p. 1226), especially on the former subject, to the Vale farmers of the same county—the speeches of Earls LEICESTER and SPENCER applying to landlords as well as farmers, lately given in Norfolk (p. 1223)—all bear witness to the interest which the whole subject excites, and in some measure, also, to the differences of opinion which still prevail upon it.

It is however from Mr. BLYTH, a speaker at the last-named meeting, that we have the best illustration which has yet been given of the advantages of that early training and persistent industry which, when added to a sound knowledge of any art, will lead to its profitable prosecution. The example given is a history of personal experience. He put it to Lord SPENCER and Lord LEICESTER, who were among his hearers, if two young men presented themselves asking for a farm, if one was a practical lad, who had been at home with his father, and had worked hard from 12 years old, and the other had a little scientific knowledge, which he had picked up at Cirencester or elsewhere, which they would take for a tenant. Both should be equal in every other respect, but the one should be thoroughly practical, and the other a little more scientific. As something had been said with respect to the employment of capital, and the energy and activity of occupiers, and the intelligence and good character of labourers, Mr. BLYTH offered the following history of a farm, and how it had been cultivated the last century:—

"It is just 97 years ago (he said) since my father first set his foot on Sussex Farm. He was then seven years old. At the age of 17 he was left by my grandfather to manage that farm for him. At the age of 21 he took it on his own hook. There are a thousand acres of land. His father gave him 700*l.*, his mother gave him 200*l.*, and with 900*l.* he took the occupation of 1000 acres. He met with what we could not, many of us, now-a-days—a brother-farmer, who lent him 3000*l.* He farmed for 10 years as a bachelor. At the end of that 10 years he was master of 10,000*l.*, and he strengthened his hand by marriage; and in 1808 he bought the farm and another with it. He then began to plant and to raise fences (for there was hardly a fence on the place), and to build. In 1822 he was enabled to enclose a large tract of marshes; and the late Duke of Sussex, who was then a frequent guest at Holkham, paid him a high compliment (and through him the yeomanry of Norfolk) in coming to dine with him; and from that day it was called 'Sussex Farm.' When I followed him in 1833 (continued Mr. BLYTH), I took the farm in a comparatively high state of cultivation. I have farmed it for 33 years; and now many gentlemen have said to me, 'I cannot think how you can leave such a place.' Well, there are many subjects for regret, no doubt, in a person leaving a place where he has spent all his days. But independently of the feeling at times and of the necessity of making up one's bundle of sticks, getting a little tired of the general routine of business, I have this very great satisfaction at the end of my occupation of an estate which has been occupied by my family for nearly 100 years, of knowing that it has continued to improve in value ever since it has been in my hands. I have the satisfaction of knowing that there is a class of labourers that have grown up on the farm who have repeatedly borne away premiums offered for honourable competition by this Society. I have the satisfaction of knowing that those men have been improved very much by the competition they have met with here against other labourers of the district, and that they have been the means so far of assisting others in learning to improve themselves both in their skill in work and also in their conduct as men; and I have this further satisfaction of knowing that many of them, on my declining their services now, have stepped into places where they will earn much more money than I ever have given them. All these things are satisfactory proofs to me that those men have been able to raise themselves by their own exertions and by their own industry, where they have been treated perhaps with only common kindness, but where, once having set foot upon the farm, they knew they would never be paid off except it should be for misconduct. I have this other satisfaction (and it is to me the most gratifying one, and, therefore, amongst a few brother farmers in the neighbourhood I take the liberty of just referring to it), that in handing the farm over to the two sons of a man who has been a good tenant on the estate for nearly 20 years, I do it with the full confidence that I am handing it to young men who have been well trained to habits of business, of respectability, and of integrity; and I have no fear of their forfeiting the confidence that is reposed in them."

Is not this a thoroughly wholesome history to read and to reflect upon? Let it teach those of us who have sons, training for the life of a tenant farmer—not that any knowledge of that which really *is*, is even useless, much less mischievous—not that what Mr. BLYTH calls scientific (his hearers interrupting him with calls of "Theoretical") is in any sense fictitious or delusive—but that early training to habits of industry and practical accustomedness to all the operations of the farm, is of the very essence of any agricultural education which is to be depended on as an introduction to a successful agricultural career.

A VERY able paper on the relation between health and wages—of course through the adequacy or inadequacy of the food and lodging which the latter supply—was read the other day before the Society of Arts, by Dr. J. H. STALLARD. The agricultural labourer again came in, as he very often does, to point the story. "What is the effect of physical degeneration upon the labouring classes?" asks Dr. STALLARD. Tracing the history of the raw material, as the agricultural labourer is called, in its simplest and roughest form, he starts with what he calls a gigantic difference. "Compare the labourer of Dorsetshire with one of Lincolnshire or Yorkshire, and note particularly the intimate association between their physical powers and the wages they obtain. Compare their habits and their movements, and you will see the difference at once. The man of Dorset never tastes animal food, except a bit of bacon once a week. He and his family exist upon a scant supply of bread, eked out with a bit of lard and dripping, which scarcely keep body and soul together. And mark him at his work. He is exactly like a steam engine with a short supply of fuel. He may go by fits and starts, but there is a constant tendency to 'halt upon the centres' when the work is hardest. He goes on better when the gradient is falling, but he comes to a hopeless stand-still on the least ascent. Nothing is more curious than to watch his movements. There is an ingenious slowness about all he does. His very walk upon the turnpike gives you the impression that he is up to his knees in dirt, and one foot is put before the other as if they were made of lead. Every motion seems to require a separate effort of the will, and there is a mental doubt if the intention will be carried out. Do not suppose he is ignorant of philosophy; for with inborn wisdom he reserves his powers for grand occasions, as when the master comes, or an effort is inevitable. He never forgets that his store of energy is small, and that there is little prospect of renewal by the scanty supper when he arrives at home. And so the habit of idleness grows upon him until he is good for nothing. He has no such word as 'haste' in his vocabulary: and if it were proposed to give him double wages on the condition of doing double work, he would probably give it up after a week's trial, because he has been brought to prefer idleness and privation to industry and the gratification of those healthy desires and appetites which from long neglect he has ceased to care for. Nor is the effect less marked upon the moral nature of the man. He learns frugality without result; his only prospect is the workhouse; and too often he goes to crime for

the means of satisfying instincts which cannot be repressed, because, for want of education, he has them under no control, and is little better than a brute."

What will our Dorsetshire readers think of this picture of the labouring class around them? Is it an accurate portrait taken on the spot, or a mere "study" from an ideal point of view? Perhaps it represents the truth of an individual case or two; but it will not stand, except as exaggerated caricature, for the faithful portraiture of a class. It is nevertheless well that agriculturists should learn what outsiders think.

"In Yorkshire and Lincolnshire," says Dr. STALLARD, "what a different case. The amount of healthy energy, work, and wages are all doubled. The labourer is well fed, he has his pie and beer mostly twice a day. He is smart in all his movements, and his work is done with care and skill. I remember well the disgust of a Yorkshire labourer with the slovenly habits of a Midland farmer's household, and he began a village reformation by insisting that the farmers' boys should be better fed. He was 'the chaser' of the harvest fields; and rebellion against his rule was only averted by increased wages and extra beer.

"A few days ago I was down in the country, and the universal testimony of the farmers in the district was that there is a dearth of labourers. The employers are at the present moment giving 2*s.* 6*d.* per day, with an allowance of beer and milk. I asked why they did not import some men from Dorsetshire, where plenty were to be had at half the price. They simply informed me that they would be good for nothing, and that they would prefer to go without. Some years ago the attempt was made to introduce Dorsetshire labourers into Yorkshire, but at the end of a week most of them wanted to go home, because they could not stand the work."

It is for the sake of this picture of the contrast existing between the half-fed agricultural labourer in one district (and it is not only, nor even chiefly, Dorsetshire that furnishes the most striking instances) as compared with men of the same class elsewhere, that we have taken this extract for publication here.

In the course of the discussion which followed the reading of Dr. STALLARD's paper, it was stated by the lecturer that Mr. FARNALL, one of the inspectors of the Poor Law Board, had given him his own experience as to the difficulty of procuring labour, and the degeneration of the labouring classes in some districts. He wrote as follows:—"Finding labour very dear, comparatively speaking, in Yorkshire, I sent into Dorsetshire, to Lyme Regis, where I am known, for a Dorset family; wages being, on an average, in Yorkshire, 18*s.* per week, and in Dorset 9*s.* They 'came and saw, and conquered' *me*, for I was soon obliged to raise their wages to the Yorkshire measure; and they, when thus paid, could not or would not do a Yorkshire day's work. Eventually, they petitioned me to send them back to uncomfortable and idle Dorset. I did so, and clearly made a bad bargain. The moral of this is that the Dorset men are not men; they have been starved out of their manhood." That (continued Dr. STALLARD) is just the fact. If we bring up 150,000 children without the taste of meat, how can they be good for anything in the shape of labour? He did not say that meat is absolutely necessary to children living in healthy country air, and having an abundant supply of good milk, but for the youthful population of London and large towns he held meat to be an essential condition of health.

To this we may add, that the idea that country children are brought up on an abundant supply of good milk is a mere delusion. The fact is, that more milk is drunk by a thousand families of labouring men in London, than by a thousand families of agricultural labourers almost anywhere in England, if we except the northern counties.

—— THE Society of Arts are summoning a Conference to take Technical Education into consideration—the object being to ascertain, not merely what the Society of Arts, but what the nation at large can do to promote Technical Education among the workmen, the foremen, the overlookers, and the employers in arts, manufactures, and commerce; and it is hoped that an expression of opinion by this Conference may tend in some degree to diminish the difficulties with which the solution of this vital question of National Education is at present confessedly surrounded. Among those invited to this Conference, which is summoned for January 23d and 24th, are the mayors of the towns which are the principal seats of manufacture in the United Kingdom; the presidents of the Chambers of Commerce and Agriculture; the presidents of all societies and public companies which have co-operated with the Society in respect of education or art-workmanship; the presidents of institutions in union with the Society of Arts; her Majesty's Inspectors of Schools, Factories, Mines, and Collieries; the English Jurors at the Paris Exhibition of 1867; the Society's judges in art-workmanship; the Society's examiners in education. We hope that those interested in agricultural education will be present at the meeting; and that the Central Chamber of Agriculture will have those interests which are its own especial care properly represented on this occasion.

—— The great market of the year in Copenhagen Fields is certainly a very striking illustration of the enormous commissariat of the metropolis. Acres of closely packed cattle and sheep brought together quietly, and distributed again with really very little confusion or disturbance, make a great impression on the agricultural spectator when seen for the first time. There are long lines of black, and red, and roan, and red and white, and black and white—cream-coloured large and well-conditioned oxen from France—a thousand small, black and white cattle from Holland—several lots of small Kerry-like red cattle from Sweden. "What countrymen are these?" we ask, pointing to a whole class—some hundreds—of ragged-looking mongrels, herded together. "Fenians, sir!" is the prompt reply. The Irish lot, indeed, are very poor—the Herefords are grand—the Devons are an extremely tidy lot—the Shorthorns are everywhere seen, in long rows of apparently well bred, evenly fed, and well-matched cattle, also everywhere in crosses of all kinds from France, as well as from many English counties, where their influence is felt. The black polled cattle from Aberdeen are remarkably fine. Forty splendid Christmas cattle, 10 or 11 cwt. apiece, from M'COMBIE, a smaller number, quite as well done, from Mr. REID, of the same county, are among the chief features of the show. But notwithstanding the mark still made by Herefords, Devons, Shorthorns, and Aberdeenshire pure-breds, the great majority—a much greater number than ever before—of the English cattle here are crosses. Railroads and intercommunication of all kinds are doing their work, and local breeds will more and more yield to the dominant influence—whatever that may be—of the day. In the cattle world the dominant influence is indubitably exerted by the Shorthorn, and we see him in increasing numbers and in rapidly extending influence every successive annual market day. On Monday last 8110 beasts, 20,840 sheep, and some hundreds of calves and pigs, were offered at the Metropolitan Market. Of these, 1350 cattle and 7320 sheep, nearly all the calves, and one-sixth of the pigs, were imported. The top prices were lower than they have been for several years.

SHORTHORNS AND DEVONS.

WHAT spirit of evil from the lower region of mere gluttony and grossness can have prompted the attack which I have just been reading in your pages, on the most beautiful, the very best of all our British breeds of cattle? Admitting as you do their "symmetry and quality, precocity and artistic beauty," why should you degrade the Devons from the rank which the Smithfield Club so properly awards them? Is it desirable that all the cattle of the country should reach, or even aim at reaching, the proportions of M'Combie's "Megatherium," which has during the past two weeks been astounding the beef-eaters of the south—and pull down 20 cwt.? To put it on your own low ground—that of mere quantity of flesh—is a sirloin weighing half a cwt. so desirable a dish to set before an ordinary family? And is not the carcase which supplies the joints most suitable to ordinary wants the very kind which the Smithfield Club ought most strenuously to advocate and patronise? But go one step higher, and consider the economy of the process by which the green crops of the farmer are converted into meat. Has the size of the animal by which this process is accomplished—the mere size in which you seem to think the Devons fall so much below the Shorthorn standard—anything whatever to do with the economy of the meat manufacture?

I believe that Bakewell, in that wonderful process of improvement by which he brought the modern Leicester out of the former long-woolled Midland County sheep, altogether disregarded size. He believed that when quality and early maturity have been achieved in any breed, and indeed, in order to their successful achievement, the only object to be aimed at is diminished offal in proportion to the quantity of useful carcase—increased relative amount of the first-class joints as compared with the weight of second rate and inferior sorts—not increased bulk and weight, but increased *proportion* of the whole live weight which is saleable as carcase.

And no doubt this is the wise and proper judgment. It is not the animal which will convert an immense daily ration into growth and meat that is necessarily the best. It is that beast which, whatever the amount which it requires *per diem*, shall spend least of it in growing skin and bone, and most of it in growing fat and flesh, that we desire. And judged by this test, I believe that, the outward conditions of health being given, the small and beautiful pure-bred Leicester or Southdown sheep will beat the coarser, heavier Cotswold, and the light and pretty Devon will hold its own against the Hereford or Shorthorn.

I will, however, take the argument one step higher, and contend that a breed which presents such admirable illustrations of perfect form and quality as the Devons do, well deserves its foremost place upon the lists of the Smithfield Club, whether or not it be so generally useful to the feeder, or so generally serviceable to the consumer, as the Hereford or Southdown are. Is not this, indeed, one great object—I had almost said *the* one great object—for which the Club exists? Certainly that Show which presents to the admiring gaze so many more cwts. or tons of beef on a given number of legs than on any previous occasion has been seen, does not thereby necessarily excel its predecessors. It is that collection of animals which best illustrates "quality, symmetry, precocity, and artistic beauty"—not the one which can point to the heaviest beasts, that is the best. And notwithstanding that M'Combie's ox, carrying 18 to 20 cwt. of carcase, takes the Gold Medal of this year, I venture to say that the show of 1867, with that as its characteristic specimen, is not so good as others I have seen when a little Devon ox has had the place of honour; and has held out for emulation and for imitation a model of "quality and precocity, symmetry and artistic beauty," to copy which would benefit the breeders and the feeders and consumers of this country even more than were the heavy Aberdeenshire ox to become the rule instead of merely the wonderful exception.

And I may ask a further question still, and call attention to the qualities displayed by the *men* who have for generations been successful cultivators of the Devon breed. Ought this to be nothing, do you think, to the Council of the Smithfield Club? Do they not know that it is the resolution and endurance, the energy and pluck which the leading men among our breeders display, from generation to generation (not merely of the cattle which they cultivate but) of the noble yeomen race to which they themselves belong that is the real source of the excellence which they stimulate by their rewards. The "thin red line" in the Agricultural Hall, at which your criticism is levelled, indicates qualities as sterling and praiseworthy in their way as those to which the same words refer in the story of Crimean heroism. And these qualities are not productive of merely good cattle, they are productive of similar moral qualities in other men. Take the resolute and the patient skill of Jonas Webb for an example. What has been its fruit in English agriculture? Has it been merely an unrivalled flock of Southdown sheep? Not Babraham only, but half our English counties felt his influence. Wherever a black or brown-faced sheep exists, some share of it may be read. Not only Sussex, but Wiltshire, Hampshire, Oxfordshire, even Shropshire, is bearing some of the fruit this day with which the character, agricultural and personal, of Jonas Webb is to be credited. The late Lord Ducie, too, may be quoted as another instance of the personal influence of a resolute and persistent adherence to those rules of good breeding which are the especial aim and object of the Smithfield Club. His herd was dispersed 15 years ago, but its results are felt directly in 20 others, and they are still more recognisable indirectly. At Didmarton, Siddington, and Kingscote, in his own neighbourhood and county, we may read the influence of his character quite as much as the direct and immediate effect of the particular strain of Shorthorn blood to which he was devoted.

I contend, therefore, that the Smithfield Club should beware how they suffer criticism, such as that which I am criticising, to influence their decision of the point you raise. Let them beware how on merely economical or utilitarian grounds, they refuse their patronage to a class of breeders who, as much as any in the country, have displayed that intelligence, resolution, skill, and judgment, on which, after all, depend our hopes of future excellence in the Agricultural Hall in whatever class or breed it be exhibited.

I see that Mr. Wortley, a breeder of pure Shorthorn cattle, has picked up a prize for an Irish beast, and Captain Gunter, a sort of High Priest in the inner circle of Shorthorn worshippers, takes a prize for a fat Scotch cow; and Lord Berners exhibits a successful Kerry, in the show just closed. Let the Club do whatever in its wisdom it may best devise, in order to discourage such mere "pot hunting"—such a mere hit-or-miss kind of policy, at any rate—as this amounts to. It augurs ill for the interests of any pure breed when those who are its hope and stay condescend to play in this way with the business of the Smithfield Club. But let it beware how it discourages a whole class of breeders, who, though small in numbers, have for a century or more persistently and successfully contended in the lists with the leading men, as you justly say, of almost of every county in the kingdom, and have justified by their indomitable pluck the leading place which a merely local and a comparatively little breed of cattle have obtained. *A Lover of the Devon.*

[We were in the Metropolitan market on Monday morning between 6 and 9, and among 8000 head of cattle there tied up, we came upon the "thin red line" of Devons, neater and cleaner, better put out of hand as a whole—if some of the large French cattle be excepted—than any others to be seen in that, the true cattle show of the country. There were, however, but a few scores of them altogether. They were far outnumbered by the Herefords: and the Shorthorns and their crosses quadrupled both these breeds together. But the Shorthorns were not less a merely local bred at the end of last century than either Devons or Herefords. Their inherent merits, and shall we say the *superior* ability of their breeders, have multiplied them until, not merely in every county, but in almost every country, they are the best leading sort of cattle. The force of events is too great even for our correspondent's able argument. And without desiring that the Smithfield Club should degrade, or in any way disparage or discourage, the Devons or their breeders, we contend that it is only just that their place upon

the catalogue and prize list of the Club should be, more accurately than it is, the same which they occupy in the general agricultural experience of the country.

—— Although we are unable to agree with our correspondent in the main purpose of his argument, believing that he gives both the Devon breed and the Devon breeders too high a place upon the scale, yet he is undoubtedly right in pointing out that both the Smithfield and the Midland Counties Associations must organise their prize lists in the interests of breeders as well as of feeders—must prove that they are serviceable in the production of pure breeds and skilful breeding, as well as of mere skill in the art of clothing a well-bred beast with flesh, or they are comparatively useless. It is for this reason that our contemporary, *Bell's Messenger*, is right in pointing out how great a mistake is made by the latter Club in not giving, nor even indicating the true pedigree of the different entries in their catalogue. The name of the breeder is given, but nothing else to indicate the family or strain to which the animal belongs. Take Mr. Heath's ox, for example, which won the 1st prize in the older class of Shorthorn steers at Bingley Hall a fortnight ago. We learn from the catalogue that he was bred by Mr. Wythes, but nothing else is stated. On inquiry, it appears his dam was *Alma*, tracing back to Waldy's stock, of Barmpton (R. Collings' farm), from which the *Butterflies* are also derived, and his sire was MAY DUKE 2D, bred by Mr. C. Howard, and descended from Mason's No. 55, which was bought by Lord Spencer at the Chilton sale. The Smithfield catalogue is, to any reader of the Herd Book, generally sufficiently instructive on this head, for we have sire and dam named along with most of the entries, and thus we know at once just those points which the Midland Counties people keep altogether in the background, as if they were of insignificant importance, instead of being the real source of that merit by which the awarded prizes have been won. Let us hope, therefore, that at the next Birmingham Show consideration will be given to this point, so that, the example of the Smithfield Club being followed, both the societies may be quoted as offering encouragement to breeders as well as to mere feeders.

—— Can anybody throw any light upon the occasional run of ill luck (for that is all that in our ignorance we can call it) which sometimes attends a breeding herd? A cow will cast her calf, and a whole train of her companions will follow her example; or separate them as you may, and a number in a given season, affected it would appear by some common cause, are unfortunate together—or in some cases a farm will for a series of years illustrate the same misfortune all through the herd. We know of instances where a farm has been unfortunate in this way ever since its Grass fields have been drained!—and of others ever since their Grass fields have been boned. We hear of examples where the mischief has been stopped by a dressing of lime applied to the land. It is recommended so to graze the land that all benty Grass shall be cropped bare, and no chance given to the formation of ergotted seed stems which are known to have a special influence in producing abortion. And the old maxim of the dairy districts, that a donkey or two in the field along with cows will save them, may have some foundation of truth in their willingness to eat down these bents. Our correspondent Mr. Wooler told of an experience the other day in our columns (p. 843), in which an enterprising man having taken land which had the reputation of being especially unfortunate in this way, managed to avoid the ill luck of his predecessors by liming all the fields where the cows had grazed, believing that a deficiency of lime in the food at the time when the bones of the fœtus were growing was the cause of the calamity! We mention all these cases, hoping that our correspondents may contribute of their knowledge facts which shall throw some light on the cause of what is often a very serious loss to the breeder.

—— We are extremely sorry to hear of Mr. Bulteel's loss of *Royal Butterfly's Duchess 2d*, bought for 300 guineas at the Preston Hall sale on Monday last. She had been bulled, March 26th, by GRAND DUKE 16TH, and died in calving the other day. The purchasers of such costly animals do not, that we know, run a heavier risk of this kind than purchasers of other kinds of stock; though of course the blow falls heavier when it happens.

TIMES OF COW-MILKING.

THE question, How often should dairy cows be milked daily? has for long been a controversy—one which resolves itself into several practical propositions, each of which calls for special consideration. In the natural state, when the cow brings up her progeny at her foot, the times of milking are more frequent than under the artificial system of the pail; but in this latter case Nature soon adapts herself to the peculiar exigencies of her position, and so it is argued that both plans are right, whether the cow is milked twice a day or thrice a day by the hand—or is sucked by her calf four times a day or oftener.

There is, however, more in the matter than appears upon the surface of this superficial and take-it-easy mode of investigation. People are very prone to see and argue a question as it suits them, and there is obviously too much of this in the general conclusions arrived at relative to how often dairymen should milk their cows daily, more being laid upon Nature's back than she is well able to bear under modern systems of management—systems which are annually becoming more and more artificial, and hence further and further from the natural rule.

There cannot be a doubt that the natural law is that which calves exemplify in their frequent appeals to the udders of their dams, when left to choose their own times of milking. True, when the demand exceeds the supply the times of milking are more frequent, and *vice versâ*, when the cow has more milk than the calf can consume; but both these facts, although we have heard the contrary argued, are in favour of frequent milking, for the appeal of the calf to its bottle when prompted by appetite is obviously Nature's own plan of increasing the flow of milk, and *vice versâ*, when the stomach gets overloaded, and digestion goes on slowly on the part of the calf, and the secretion of milk on the part of the cow. Hence the two artificial maxims of withdrawing a portion of the milk before the calf is put to the cow, and of milking the cow dry, or, as it is technically termed in some provinces, "well stripping the cow." The latter practice is thus stated by an American writer:—"A cow should always be milked and fed at the same time in the day, and uniformly by the same person. Milk without interruption. Be sure to milk the cow as dry as possible. To be milked by different hands at different times in the day, in a slow, interrupted, and gossiping manner, and leaving part of the milk in the udder, will ruin the best cow in the world."

The force of both arguments will appear more effective and conclusive if the different practices, natural and artificial, are examined separately in their respective details, as to food and times of milking, &c.

Under the natural system, when cows suckle their followers, the times of feeding and milking depend much upon the richness of the pastures, and when in a wild state upon the extent to which herds are subject to the attacks of beasts of prey. This latter view may at once be dismissed, in order to abbreviate discussion. We merely allude to it purposely to divest it of being the basis of an argument under the practice in question when cows suckle their calves—a practice once common, but now confined to certain breeding grounds with a few exceptional examples, where cows while nursing their followers are, for the greater portion of the year, artificially fed in yards, boxes, and hovels, &c.

When a milch cow is fed in luxuriant pastures, so that she can fill her belly in a short space of time, and when her followers withdraw her supplies of milk thoroughly, she invariably feeds four times a day—(1), very early in the morning; (2), in the forenoon; (3), in the afternoon; and (4), late in the evening; and her followers as invariably suck on each of those occasions. If they are fully able for their milk, or more than able, they may go oftener to their dam; but if they have milked her dry when she arose from rumination to refill her stomach, they receive only a cold reception. But if the calves enjoy good health and are fit for their milk, we do not recollect of ever seeing any one of them pass over a single meal.

When the pastures are less luxuriant the times of feeding and suckling are not so regular. With a moderate bite they may feed and ruminate four times every 24 hours, or four times one day and three times the next; on other occasions five or six times a day. And when the bite is scanty the poor creatures may be upon their legs the most of the day and night, only ruminating twice, or interruptedly, as the weather and other circumstances dictate. Under such conditions as to the irregularity of the times of feeding and ruminating, the times of milking are still more uncertain. Indeed, it may not inaptly be laid down as a general rule, that the times of sucking are inversely as the times of feeding and rumination, *i. e.*, when cows are all day and night upon their legs, and have only time to ruminate twice a day, their calves suck more frequently than when they ruminate uniformly four times every 24 hours, as in the first example of luxuriant pasture. And a single argument is not required to show why cows and calves thus follow the natural laws by which they are governed.

Under artificial management five different examples may be quoted for illustration: (1) when cows and calves are herded separately in different pastures or houses, and only brought together twice a day—morning and evening; (2) when cows and calves are kept as above, but are brought together three times a day—morning, mid-day, and evening; (3) when cows are milked twice a day by hand—morning and evening; (4) when milked three times a day—morning, mid-day, and evening; and (5) four meals a day, making seven hours between the evening and morning milkings, and 5 hours 40 min. between the others.

Of the first four plans we can speak from a somewhat extensive and varied experience. Of the last, although we have occasionally milked four times a day, it was under exceptional circumstances, which gives the practice no weight in determining the merits of an established system. The plan, however, has been strongly advocated and partially tried, but only by way of experiments, all of which, so far as they have come under the notice of the writer, are unsatisfactory. Thus Arthur Young, in the 12th volume of his "Annals of Agriculture," reports the following experiments that were made to determine whether twice, thrice, or four times milking daily would produce the most milk:—

"May 21, 1789.

	Pints.
First meal	9½
Second do.	13
	22½

May 22.

First meal	13
Second do.	8
Third do.	5
	26

May 23.

First meal	12
Second do.	7
Third do.	6
Fourth do.	1
	26

October 22, 1789.

	Pints.
First meal	11
Second do.	6
	17

October 23.

First meal	11
Second do.	3
Third do.	3
	17

October 24.

First meal	10
Second do.	1½
Third do.	1½
Fourth do.	3
	16"

Our object in quoting the above from the "Dictionary of Agriculture" is to show that all such experiments are something worse than useless, for before trustworthy conclusions can be deduced from any course of experiments, they must first partake of the nature of a thoroughly established practice for a series of years. We do not say so to discourage experiment, but to caution hasty, opinionative conclusions before entering upon the brief examination of the above five plans.

The first two plans refer to stock farming, and not dairy farming, and therefore both may be disposed of together.

Cows and calves soon become reconciled to a separation, and also to twice or thrice milking daily, if the two plans are regularly carried out in their several details. So far as contentment goes, it signifies very little whether the appointed times of coming together be well selected or otherwise, provided they are strictly attended to. This fact is singularly interesting and instructive, as it shows how Nature can adapt herself to the peculiarities of her situation, however diversified that situation may be. But true as this is, it only, when properly understood, furnishes all the stronger a reason why farmers should exercise the greatest caution in basing any continuous practice upon what may ultimately prove a certain sacrifice of the natural law as the sequel will show.

On the part of the cows, the times of feeding, rumination, and secretion of milk are determined by the luxuriance of the pastures, or the nature of the diet when fed indoors, as in the natural example. Thus, if a healthy cow fills her belly in half an hour, rumination and the secretion of milk will be over before the expiry of six hours. If it takes her three, four, or five hours to fill her stomach, just so much longer will it be before the food thus collected is converted into milk. The latter process may even be extended beyond this additional period of time; for when cows are kept long upon their feet it is exhausting for the system, so that functional activity is less or more retarded, and even at times impaired. But further into details of this kind our limits will not permit us to go.

As to calf-feeding, a large bellyful of milk only twice a day is obviously not sound doctrine, more especially when the flow of milk is abundant,—rather thin, and retained in the udder several hours after secretion, as when cows are richly fed. When cows are scantily fed, it may be otherwise, but the half-starving mode of dietary is now so far out of date as to be unworthy of further notice. The only rule that can now be followed successfully is a rich nourishing diet, whether the cow is in the stall or in the pasture; and under such conditions we have always found calves do better when suckled three times a day than when suckled only twice, with an intermediate diet of solid food in both cases. However apparently willingly and anxiously Nature may strive to adapt herself to this unnatural state of things (large bellyfuls of milk at a time), her energies are every now and then overtaxed—bowel complaints following surfeit, and so on. And although calves are less liable to such when suckled by their dams than when fed by the pail, that is but a poor offset to the contrary.

To obviate surfeit we have withdrawn a portion of the milk from the cows prior to putting their calves to them, and the practice was followed for a season, the cows in this case being milked twice a day and well-fed, but although over-loading the stomach of the calf is thus prevented the opposite extreme is fallen into, viz., an insufficient supply of milk: for had the calves been put to the cows three times a day they could have managed the whole of the milk, turning it to better account than was done under the bi-meal system.

We have also frequently put the calves to the cows four times a day, but the mode of feeding, the age of the calves, and the length of time were such as to render the practice one of an experimental character, from which a general rule cannot be deduced. In the generality of cases it was shortly after eating, and done with the view of forcing on the calf, at the same time obviating the derangement of the bowels from too much milk being drunk at one meal. And so far the plan was successful; but afterwards, when the calves were grown stronger, they were turned in amongst the others, and only put to their dams three times a day; whereas, to warrant a general conclusion, the four-meal system should have been carried out during the whole season, or until weaning-time. Calves are not unlike children both as to their appetites and digestive functions, and those who have any successful experience in nursing the latter will readily perceive the rationale of putting the former more frequently to their dams than is the general rule: and why four times is preferable to three times, and three times to twice; and why, at the same time, the opposite extreme of too-short a period between meals should be carefully avoided.

The third and fourth plans of milking—the former twice a day and the latter three times, with the pail, may likewise be disposed of together. What has already been said under the first and second plan in reference to the feeding of cows, to the time required for the conversion of their food into milk, applies to the two plans now under notice, and therefore we need not repeat in substance what was formerly said. There is, however, one difference that requires a passing notice, viz., cows give their milk more freely to calves than to the pail, and when they have a tendency to run to fat, as most of our improved breeds have when highly fed, it is more difficult to keep them in full milk when milked only twice a day, than when milked three times, equal attention being paid in both cases to stripping the cows dry at every milking.

The reader will bear in mind that we are confining our observations to cows fed on highly nourishing food—the starving system of the olden time having been thrown overboard; and the question now under notice of cows being more liable to go dry and run to fat when only milked twice a-day than when milked

thrice, must appear so plain to those who have any lengthened experience in the matter as hardly to require a word of detailed argument to fortify the conclusion. Thus, according to our own experience, there were about 14 hours between the evening and morning milkings on the bi-meal plan, and 10 hours between the morning and evening. In some town dairies the length of time between the evening and morning meals is greater, and that between the morning and evening less. During the summer months we have had only 13 hours between the evening and morning, and 11 between the morning and evening, the times being thus more equally divided. Under the three-meal system there were ten hours between the evening and morning, and seven hours between each of the other two meals; the night interval in the summer time being rather shorter and the day interval rather longer. Such being the facts of the case as to the length of time, upon which the argument hinges, the reader will perceive that, assuming the ruminating, digestive, and secretory functions equally healthy and active in both cases, the milk remains four hours longer in the udder of the cow under the two-meal system than under the three-meal system over night, and twice these hours during the day. The effects of this difference upon the functional economy of the cow generally is obviously to increase her carcase weight, and reduce the quantity of milk secreted between meals. In discussing this question it must further be borne in mind that both these processes—the manufacture of meat, if we may so call it, and the manufacture of milk—are continuously going on in a healthy cow; so that it does not require much force to turn the balance either way, more especially when there is a natural tendency to the secretion of fat, especially over night, and the adverse to the secretion of milk. In principle, the argument of milk remaining in the udder for a length of time after it has been secreted, is identical with that of leaving a portion in the udder after milking. No doubt sour brewer's grains and distiller's wash may be given to cows in quantity sufficient to stimulate the secretion of milk, and counteract the tendency to run to fat, but the practice is out of date, and the argument which it involves unworthy of the present enlightened age.

As to calves when fed by the pail—large bellyfuls of milk twice a day are more objectionable than when they suck their dams, as, in the first place, they have the greater liability to derangement of the bowels, and the other sad consequences which follow. Artificial teats may be adopted to make the over-hungry calf drink more slowly, and also to promote a more natural and perfect state of salivation and digestion; but granting the successful use of such apparatus when calves are milked only twice a day, the same must be granted when calves are milked thrice: but in either case it falls short of being equal to the natural teat of the cow, so that at the best it only mitigates, but does not remove, the objection.

In those localities where cows are only milked twice a day, there would doubtless be many objections raised in the adoption of milking three times, even in examples where all the milk is consumed upon the farm. But those who raise this objection should first bear in mind that their present practice took its rise in times when cows and calves were half starved, conditions which do not apply in the present age; second, in those districts where three times milking is the common rule no difficulty is experienced in getting servants to attend regularly to the hours of feeding and milking.

As to commercial dairies, where the whole of the milk is either sold wholesale or in retail, the third meal may be used for raising cream, or a portion of it, the remainder being warmed and mixed with the morning milk, which would rather improve the latter than otherwise, the evening milk being richer than the morning milk. This we may observe is no hypothetical proposition, but the actual practice successfully followed in those districts where cows are milked three times a day—large towns in them being better supplied with new milk, butter, and cream, than towns situated in districts where the two-meal system is exclusively practised. In short, no valid objection can be raised to the three-meal system, if dairymen would consult their own interests and the welfare of their cows, free from craft prejudices.

The last plan for consideration is milking four times a day by hand. It appears better adapted for cows when fed on highly nutritious food than either of the other plans, the intervals between milking corresponding more closely with the periods of healthy rumination, digestion, secretion of milk, and rest. It would also enable stock breeders to rear calves by the pail more successfully than on either of the other two plans. And with regard to commercial dairies, whether situated in the country or in town, we do not see a single reason why it would not be equally in their favour, for by mixing the evening with the morning milk, and the forenoon with the afternoon meal, country milk could thus be sent to town twice a day—as at present; or it could be sent four times, the retailer mixing the meals as it bests suits him. *W. B.*

SECURITY OF TENURE.

[At a recent meeting of the Breconshire Chamber of Agriculture, the Hon. Secretary, Captain Penry Lloyd, introduced this subject in the following address:—]

THERE were in all contracts two parties. In this case there were the owner of the soil and the person who wished for the land for his own beneficial occupation. The owner of the soil had the first claim—he could do what he liked with his own; and the candidate for the occupation of the soil had an open market. He could say, "I will give so much for the farm," having previously taken into consideration the position, the agricultural value per acre, whether overrun with game, and, in fact, taken a deliberate view of the whole farm. They, as occupiers, were at liberty to do this; and, therefore, it was their own fault, in most cases, if they gave too much for the occupation of the soil. They could not expect the landlord to look after these things for them. He thought it had been too much the custom to ridicule the landlords, and look upon them as hard masters, without looking upon their relation, as occupiers, to them. If they went to a landlord to treat for a farm, they went with their eyes open. They could see what was the condition of the farm, what was the state of cultivation; and they were able, from their experience in agriculture, to put a fair value upon the farm; and in dealing with a landlord they ought to bring their experience to bear. If the farm was poor—if it had been worked out by a long series of large farming—the natural consequence was, the owner did not get so much for it as if it was in good cultivation; and the person who took that farm, unless he had security for remaining there some years, could not afford to put it into a good state of cultivation. It would not pay him. They could not expect a man, without some security, to go and lay out capital on a farm; and, on the other hand, if the fences on a farm were good, and everything connected with the farm was good, they could not expect the landlord to allow a farmer to take the whole control of that farm without the farmer giving him some security that he would leave the farm in as good a state as he found it. They ought to give security in such a case to the owner to show that they did not intend to work out the farm for their benefit; and, on the other hand, they ought to have security if they improved the land. He thought that that was the broad principle on which they should go.

Now consider how that security was to be given. He admitted that a lease was a very valuable and useful article, and especially in the case of a farmer, who was not likely to farm his farm in the best manner, a lease would compel him to do it properly; but in the case of a man who really knew how to farm, and thoroughly understood the principles of farming, he thought a lease in many instances would tie down his hands by binding him too much to one system of farming. If one crop failed, his lease would prevent him trying another; and he must go according to the rotation of things as set down in the lease. In his private opinion, what they wanted in that district (and in all districts, but particularly in that district) was security for cultivation—that when they left a farm in an unexhausted state of cultivation it should be paid for by valuation. He would rather have a good custom than a bad lease, as the latter might bind them down to a particular rotation, where, perhaps, something else would suit. It was impossible for a lease to be drawn out which would suit all farms. He could not get any definite information as to what the customs were. The general custom was for the outgoing tenant to have half the Wheat crops on the brush and three-quarters on the furrow. In the Defynnoc district they had half on the brush. In some parts of the county he found that on the furrow it varied; in some cases it was three-quarters, in some a half, and in some a quarter. They would see that there was really no recognised custom—that in one parish there was one custom, and in another parish there was another. He thought they wanted the custom of the country altered, because, as it at present existed, it did not suit the improved system of agriculture. Let them take any farm at a seven years' lease. Suppose he took his own case. He took his farm upon a seven years' lease. The farm was exhausted. There was no Clover upon it. He bought all and stocked it; and at the end of five years he had, by great labour and expenditure of great capital, turned it into a good productive farm. Now, if he went to his landlord and said, "What do you intend to do with my lease when the two years are up?" the landlord might say, "I cannot tell you until the time comes." What was he to do? Must he go on cultivating, and, at the end of the lease, leave the farm in a good state of cultivation, and, in fact, leave the whole of the capital he had expended on the farm? He must, at the end of the five years, begin to undo what he had done. Either he must do this, or lose the capital he had expended. It was very unpleasant to do this; but, unless the landlord allowed him for it, it was the only course open to him, or to any other farmer; and they could not blame a man for doing it. A good custom was required. Instead of by brush half, and furrow three-quarters, it should be by valuation.

Mr. D. THOMAS (solicitor) said security of tenure was a very important thing indeed — important individually—and the last speaker hit it off well when he said that if he was not paid for it he would take that out of the land which he had put in. They were labouring under the great difficulty of expensive labour, and suffering from that, and there were only two remedies. It struck him at that moment that expensive labour should be counteracted by two things: First, the introduction of machinery; and, second, cheap corn. The introduction of machinery might be viewed by some with a jealous eye; but their interests were bound up in each other. There should be a chain from the landlord to the tenant, and the tenant should take a practical interest in the welfare of his labourers. If there were a break in that chain things would go wrong. The intelligent labourer would see that though they introduced machinery every labourer was properly employed, and more to the profit of his employer than at the present time. They would agree with him that the work of a mere machine a man ought not to do; no man ought to do what a machine could do; and they had seen with all the appliances of the last 50 years no labourer had gone without his hire. He was of opinion, and he thought experience proved it to be so, that the more machinery was used the more profitable it was to the farmer. The machine could do many things, but not all, and the labourer could do things which the machine could not be applied to. Labour was scarce. At the time when the harvest was ripe where were the labourers? The labourers were scarce, and up went the price. If they had cheap application of machinery while the sun shone, they would have their crops in. He thought they should have a society formed for hiring out all machinery applicable to agriculture. Many could subscribe to such a society, and thus get the use of machines, who could not afford to purchase them entirely for their private use—in fact, could only do it at a serious loss. He thought the application of machinery to every branch of husbandry it was possible to apply it to should be considered, and that it should be introduced to the fullest extent of our power.

Then, as to cheap corn. If a farmer sold corn at 10*s.* or 12*s.* per "bushel" he would say it was only half of what he ought to get; but would say that it paid him, and would pocket it. But the labourer would ask for a rise. What was the cure for that? He would say, let the farmer sell two bushels for 12*s.* rather than one at 10*s.* How was that to be achieved? Why, by better farming, and, as Captain Lloyd had observed, they must have security for their capital. There was no doubt about that; but he only partially agreed with Captain Lloyd when he said that a good custom should do away with a lease. Custom did not do universally, because they had all sorts of lands—high lands, low lands, wet lands, and all sorts; and if so, no custom could be generally applied, for one custom could be applied beneficially in one place and another custom beneficially in another. In an adjoining county it was the custom for a farmer when leaving his farm at Michaelmas to cart away his wife, children, and chattels, and to remove his oxen, his horses, his sheep, and his pigs, to take every bit of hay, straw, every particle of manure, and to leave nothing behind him. He called that a most pernicious custom, because it entailed upon the out-going tenant the necessity of carrying out all he had, and the in-coming tenant of bringing in everything—work for which there would be no pay. But he thought they could get the required security in the shape of a lease. Do not let them take a lease unless it were a good one. A mere lease they could get any day. Landlords did not know much about such matters. They, of all men, ought to know; but generally they knew the least. The farmer should be talked to through his purse, and then he would look at the *pro's* and *con's*. It would pay the landlord to have his land left like a garden, and it would be to his interest to allow the farmer for what he had put into it; for when a new applicant for the farm came, the landlord could tell him he could have it if he would pay a year-and-a-half's rent, and if the applicant, seeing the state of cultivation in which the farm was, were a wise man, he would strike the bargain. The landlord would then be able to do with the old rent. This would be a test of capital, and if a farmer had not got capital he had better leave farming alone. If there were a farm to let there would be 20 applicants; but if they were told that there was a year-and-a-half of rent to pay, that number would dwindle down to two very soon. Thus this would be a test of capital. Now, the landlord having come to such an arrangement as this, what did he do if he were a just man? If he knew what he was about—but landlords did not know what they were about (and he put that broadly, and he wished landlords would listen and understand it)—they were mere babes in the wood in that respect—but, as he said, if a landlord knew what he was about, and if he were a just man, what would he do? He would allow the outgoing tenant the year-and-a-half's rent, or he would have a valuation made of what was due to him.

Mr. Lloyd had practically set before them the system as it worked at the present in too many instances—say, at the end of a nine years' lease, or say a 15 years' lease, there would be three years spent in working out of the farm that which had been put in. In the first part of the lease, perhaps for three or four or five years, the tenant had been labouring hard, and spending much to get the land into a good state, and then after a few years he would have to begin to take that out of the land which he had put in. If the tenant did not take it out he would be unjust to himself, unless the landlord paid him for it. They must not blame the tenant if he left the farm like a turnpike-road. His lease did not prevent him, and why should he leave that in the land which the landlord did not value or would not pay him for? But during the first three years of the lease the tenant had full labour and much expense, but only half returns, plenty of labour and only half crops. That was a fact. Let that be understood. Let it sink into the minds of people who were interested in it. He would say the landlords and occupiers had one interest—only let them understand each other. They didn't understand each other now. One looked with jealousy at the other. They didn't understand how things went; and why? Because the gear didn't fit, and the collar pinched. Let them meet practically, and, as he had said, let the question be approached through the breeches pocket. Why should a landlord approach the question in any other way? He lived by it. The question under discussion was one of great importance, not only to the landlord and tenant, but to the nation, the community at large. Owing to the fact that out of a 15 years' lease—he took that as an instance—three were spent in getting the land into working order, and three in working it out, less corn was grown than might be grown. And where was the gold going in the meanwhile? To the Continent, to buy the corn which ought to be raised in this country. Therefore he said this was a national question. If they had had that which might have been produced in the intermediate spaces he had referred to it would have given this country millions and millions of what had gone to other countries, and the supply would have exceeded the demand.

This would keep corn cheap. They would sell two bushels for the price of one, others would be benefited, and all would have the benefit of the circulation of money in this country, instead of its being sent to Poland, the shores of the Black Sea, or to any other country. All this arose from not having a good custom and a good security of tenure. He would say, that in addition to having a good custom they ought to have a good lease. His advice to farmers was, give him (Mr. Thomas) five guineas to read over their leases. He would engage to give them 50*l.* benefit, and if a farmer did not take the lease afterwards he would charge him nothing. Let every tenant apply himself sensibly and reasonably to the application of capital. If they did not apply capital they would be outwitted by their neighbours on the Continent, who were taking a leaf out of a book which he wished was more known, viz., to apply manure to get better returns. On the Continent they did not pay tithes, and they could easily come into our markets. Luckily, however, they were not so well off as they were, or else they would not have a chance. But they did want to improve their farming. Mr. Thomas then recommended deep ploughing and the use of the steam cultivator, as they would then be able to put down those expensive animals—cart horses, and have bullocks in their place. Cheap corn and machinery would keep down the price of labour. If a tenant went into a worked-out farm, he ought to have the farm at half-rent for the first three years.

Mr. WILLIAMS (Seethrog) called the attention of those present to what was known as "Tenant Right" in Lincolnshire. The landlord was responsible to the outgoing tenant for the unexhausted cultivation. If a tenant was going to leave, he farmed his land just the same as if he were going to stay. He ploughed, sowed, and harvested it. He was allowed for the seed and for the ploughing. The incoming tenant had to pay for these; but he had, when he came in, the whole of the work of the farm going on the same as if he had been there. But the outgoing tenant received a large sum of money for the unexhausted cultivation; and the way this was got at was this: The landlord appointed a valuer, and the tenant; and these two arbitrators appointed an umpire, whose decision was final. The outgoing tenant had nothing to do with the incoming tenant, but with his landlord. The landlord made the bargain, and he bargained with the incoming tenant on the same conditions. If it were only possible to introduce this system, which was called "Tenant Right," and which he believed had worked well, it would be a good thing. He thought it would be much better to have an arrangement like this than for a tenant, towards the close of his lease, to work out every shilling he had expended on the land, though, under the present system of things, he would be perfectly justified in doing so.

Home Correspondence.

Normandy and Brittany, though far removed from the centre of attraction of the past season, are most interesting parts of France, owing to their historical connection with our own country. The production of their soil is also of interest, inasmuch as their crops are similar in many respects to our own, Wheat, Barley, Oats, and Potatos being in many of the departments the principal agricultural produce. From the department of the Côtes du Nord grain, flour, and Potatos are sent in large quantities to England. Potatos, last year's crop of which are reported to have been very good and free from disease, are mostly loaded at Pont l'Abbé, a small port about 50 miles from Brest; they realised a price last season of about 2*l.* per ton, exclusive of freight, which was from 8*s.* to 10*s.* Rapeseed is also cultivated, as well as Buckwheat, on a large scale, some cargoes of which are sent to Holland. Cattle are reared in the interior, where are more pasture grounds. A large quantity of butter is made throughout the department, and many thousand tons of salt butter are exported from Morlaix and Chateaulin. The oxen are mostly small, their average weight not exceeding 5 to 9 cwt., while those killed for consumption in the towns rarely exceed 5 to 6 cwt. There is a large export trade in pigs, which are reared as well for exportation as for home consumption. Much improvement has been effected in the breed by importations from England. From Morlaix pickled pork, which is well prepared and of good preservation, is exported in large quantities. The sheep are mostly small, and not very numerous—indeed, scarcely numerous enough to supply the demand for home consumption. The breeding of horses is carried on to a great and important extent in the departments of Finisterre and Côtes du Nord, and great numbers are exported both by rail and sea. There are many large markets during the year in the two departments for the sale of horses. "Stallions are stationed at Government studs throughout the three departments, and prizes are awarded by the agricultural societies. A cavalry officer is stationed at Guingamp, in the department of the Côtes du Nord, from whence he goes periodically through the country to purchase horses for Government service." Mangel Wurzel, Beet Root, Turnips, and Parsnips are the chief root crops cultivated for feeding the cattle and horses. At Roscoff, a small town near Morlaix, early vegetables are cultivated on a large scale, to supply the markets of Paris and other large towns. Cargoes of Onions are also exported from here to England. *John R. Jackson.*

Cabbages.—May I be allowed to call your attention to the class of Ox Cabbage shown by me at Bingley Hall? If my memory serves me rightly, it makes either 12 or 13 times I have taken the 1st prize there from the same stock of Ox Cabbage. You will see by the heading of this note that in 1862 the medal was awarded me at the Royal Horticultural Show; since then I have again taken the 1st prize from the same stock. The six shown by me at Bingley Hall this year are the largest and most even I have ever produced; and I believe there is no record of that number averaging the same weight. I had them weighed in the presence of four churchwarden and three other disinterested parties; and before the root stems and outer leaves were taken off, they weighed 433 lb., or 1 lb. over 72 lb. each. *J. Robinson, Shaw House, Melbourne.* [Will Mr. Robinson describe the mode of cultivation adopted in the case of the wonderful specimens of Cabbage which for many years he has exhibited?]

Societies.

CENTRAL CHAMBER OF AGRICULTURE: At the annual meeting of the Central Chamber the following Report was laid before the meeting, and ordered to be printed:—

In presenting their annual report the Council have to congratulate the members upon the great progress of the Chamber movement. Since the last annual meeting the total constituency of members of Chambers has increased 200 per cent., numbering nearly 9000 owners and occupiers, and persons interested in the land. Thirty-two provincial Chambers are now affiliated with the Central Chamber, contributing to the funds and sending deputies to its Council meetings. The Scottish Chamber of Agriculture is in corresponding association, and eight other Chambers are reported to the secretary as formed or in course of formation. The solvent condition of the exchequer appears from the treasurer's financial statement; but the Council have not felt justified in starting a London establishment beyond having an office in a good position at the West End. However, the openings for extended operations are so important that the Council would urge the desirability of multiplying the present number of members as quickly as possible. Activity and intelligence in a large number of provincial Chambers may be fundamental to success, but the speedy organisation of agricultural public opinion can be secured only through the agency of a Central Chamber capable of both powerful and comprehensive action. At so early a period of its career, the Chamber movement can hardly be expected to claim any great victories for the cause of agriculture, and the Council might have been content with alluding to the measure of deference already paid to the voice and decisions of the Chambers by members of the Legislature, by the Press, and by the agricultural classes literally from the Land's End to John o'Groat's, and from Norfolk to Carmarthen, whose instinct is prompting them to rally round the banner raised for their union and defence. Still, though the Session of 1867 afforded small scope for the agitation of questions in which the Chamber is interested, and provided little work for either our "standing committee for Parliamentary business," or our "standing committee for general business," the Council can appeal to certain palpable results warranting the conclusion that the efforts of the youthful Chamber have not all been preparatory and expectant labour. The momentous object of safety for our herds and flocks against imported disease was prominent in last year's report. Resolutions passed at the first annual meeting, which was fully reported in the agricultural and other papers, were forwarded to the Lord President of the Privy Council, whilst similar resolutions were presented by a deputation to her Majesty's Secretary of State for the Home Department. In June of the present year the Council promptly issued the draft of a petition praying for the immediate slaughter or effectual quarantine of imported animals at the ports of landing without their previous intermingling with home-bred animals; and these petitions being very numerously signed by nearly all the provincial Chambers, were presented to the House of Commons just before the third reading of the Contagious Diseases (Animals) Bill. Following upon the agitation, a public meeting of the members and friends of the Chambers was held at Bury St. Edmund's in July, and attended by representatives from 14 districts. Resolutions were passed in favour of seaport-slaughter, or effectual separation of foreign from home-bred animals; and, on the very next day, copies of these resolutions were delivered to 250 metropolitan and county members of Parliament, with circulars requesting them to support Mr. Ayrton's amendment and new clause then before the House for establishing a universal market for the metropolis. Again, on November 5, the question of separate markets for foreign animals was discussed by a Council meeting, including deputed members rom 14 Chambers. Resolutions also being read from four others, a resolution was passed in favour of waterside markets for the sale and slaughter of imported cattle, and urging the regulation of importations of sheep. A deputation was appointed to submit the resolution to the Home Secretary, the provincial Chambers being invited by circular to send up representatives to strengthen the influence of the deputation. However, it was gratifying to find that, after persistent pressure put upon the Government—a pressure of public opinion, to which the oration of the Chambers and the zealous advocacy of members of Parliament who are earnest friends of the Central Chamber had largely contributed — an official announcement was made of a forthcoming Bill, promising to realise what the Chamber had all along demanded. In the opinion of the chairman of the Council, meeting in consultation with various members of Parliament, the deputation was no longer needed, and hence it was postponed, but not without one or two miscarriages of the notice circular, and subsequent trouble and expense to several noblemen and gentlemen, for which the Council offer their apology. The abolition of turnpike trusts, the future maintenance of public roads, and the liquidation of turnpike trust debts, formed the subject of a Council meeting on the 5th of November. Deputed members attended from 13 Chambers, and the resolutions arrived at were prescnted by a deputation to the Home Secretary, Mr. Walpole, who promised his best attention to their claims. This expression of opinion cannot fail to have exerted an influence upon the fate of Mr. Hugesson's Bill, to the claims of which the resolutions were opposed. The rating, valuing, and assessing of property, especially of woods, game, and metallic mines, and the provisions of Mr. Hunt's (valuation of property) Bill were discussed at a Council meeting on the 2nd of April, attended by deputies from 13 Chambers. Full reports of a very able debate appeared in the agricultural papers. Resolutions were passed approving the general principle of Mr. Hunt's Bill; but objecting to several clauses, and requesting the Select Committee of the House of Commons to hear evidence on the subject from witnesses appointed by the Chamber. The Chamber was deputed to seek an interview with Mr. Hunt on the question. A Council meeting on the 18th of June considered the subject of the employment of women and children in agriculture, and the proposed legislation thereon. Deputed members attended from 16 Chambers, and, after a practical discussion, fully reported in the agricultural newspapers, a resolution was passed sympathising with the efforts for an improved education of the labouring classes; but declaring Mr. Fawcett's Bill to be impracticable and inadequate to the requirements of rural districts, and recommending a postponement of legislation on the subject until the Royal Commission shall have published its report. It is not arrogating any achievement to the Central Chamber to say that such a strong expression of opinion by the representatives of large bodies of agricul turists in so many parts of the kingdom contributed to the withdrawal of Mr. Fawcett's Bill, and that the able and outspoken debates in provincial Chambers upon the subject of agricultural gangs did much towards securing a mild and wise measure for the suppression of the evils complained of. At the last Council meeting held on the 5th of November a resolution was passed to the effect "That the Central Chamber pledges itself to use its best endeavours for obtaining a repeal of the Malt Tax;" and in accordance with instructions resolved upon at that meeting, the society has obtained from provincial Chambers the names of gentlemen recommended as witnesses to give evidence before the Malt-Tax Committee of the House of Commons. The next subjects to be considered by the Chamber were fixed to be Education and the working of the Highway Act.

SOUTH DURHAM CHAMBER OF AGRICULTURE.—At the adjourned quarterly meeting of this Chamber Mr. E. Backhouse presided; and the following resolution, passed by the Central Chamber, was considered:—"That in the opinion of this Chamber, the introduction of the cattle plague and other infectious diseases into this country through the unrestricted importation of foreign live stock has been the cause of serious loss to the owners of home-bred animals, and diminished the supply of wholesome animal food; and that no sufficient security against such visitations will be found till imported fat stock are slaughtered at the waterside, or at the ports of landing" It was resolved:—"That this Chamber hereby expresses its acquiescence and belief in the resolution which has been passed on this subject by the Central Chamber." Carried unanimously.

The next business for consideration, was the advisability of requesting the Government to take advantage of the present favourable opportunity of stamping out the lung disease, and foot-and-mouth disease, by making all future Orders in Council or legislation on the Rinderpest apply equally to the lung disease, and the foot-and-mouth disease.

Mr. W. A. WOOLER, in introducing this subject, said the cattle plague restrictions had greatly diminished the number of centres of the epizootic of 1840 and 1841—generally called the foot-and-mouth complaint—and that of 1842 and 1843—known as the lung disease—and this circumstance made the present eminently the proper time to take action and stamp out these two imported diseases, which had so often devastated their herds since they were brought from Holland by the consumers in the years he had mentioned. Lord R. Montagu, in the discussion in the House of Commons on the Contagious Cattle Diseases Bill, stated that "In 1842, and previously, the mortality among cattle in England was from 1½ to 2½ per cent. From that time the percentage rose steadily till it appeared from the report of the Cattle Insurance Company of 1848 that three-fourths of all losses were due to pleuro-pneumonia. In 1860, 374,000 horned cattle died of disease in England, of which more than one-half were due to pleuro-pneumonia; and from 1854 to 1860 the average loss annually from that cause amounted to 160,000 head of cattle." Taking the value of each beast at 20*l.*, that showed a loss to England, during these six years, of 19,200,000*l.* Professor Gamgee was quoted by Lord Lytton to the effect that Great Britain and Ireland suffered during these six years a loss of 24,000,000*l.*, whilst the total imports for the same period of oxen, bulls, cows, and calves for the United Kingdom amounted to only 8,608,000*l.*, and Lord Lytton gave it for England at 4,500,000*l.* These figures showed that for 1 lb. of butchers' meat imported into England, the country sacrificed by the lung disease, from 1854 to 1860, above 3 lb. of a superior quality. Considering the isolated condition of this country, and the comparative scarcity of the centres of the two diseases of which he was speaking, he came to the conclusion that if mild yet effective measures were taken, they might have a clean bill of health by May. He moved that the following petition be adopted and forwarded to the Privy Council.

"To the Right Honourable the Lords of Her Majesty's Privy Council, the North Yorkshire and Darlington Chamber of Agriculture in public meeting assembled humbly shows:—

"That the experience acquired in stamping out the imported disease known as the cattle plague, leads us to the conviction that those two other important diseases known as the epizootic of 1840 and '41, but generally styled the foot-and-mouth complaint, and the epizootic of 1842 and '43, better known as pleuro-pneumonia, or lung disease, might with much greater ease and less expense be now stamped out of the United Kingdom.

"That for this object, we with great respect submit that the vendors of cattle should be made legally liable for at least one-third of any expense or loss incurred by any vendee of such cattle falling ill of either of these diseases within a time to be fixed by law after the purchase and delivery.

"That to promptly induce the owner of all cattle attacked to give proper information to the inspectors, that one-half, at least, of the value of the cattle be paid him.

"That proper and stringent restrictions be imposed upon any parties exposing affected cattle in any market, fair, or public way, or in fields or closes adjoining neighbouring holdings.

"That as the foot-and-mouth disease is not long in showing itself after contagion, and that the lung disease is thought not to incubate longer than about 16 weeks, your memorialists respectfully submit that during the winter months, particularly under the acknowledged circumstances that these diseases have been vastly abated in numbers of centres by the cattle plague restrictions—proper measures if adopted would present this country with a clean bill of health (cattle) by the opening of the spring. That from statements, statistics, and calculations which have been submitted to this Chamber, it appears that, after allowing fully for the value of beef and veal imported, the peoples' food suffers a balance of loss of at least 4,000,000*l.* worth, or a diminution of about 120,000,000 lb. of a superior quality. And your memorialists submit, that after attaining a clean bill, and enforcing the slaughter of all fat cattle at the port of disembarkation, that the producers of the food for the people will greatly increase the more valuable and better in quality of home growth of flesh meat, to the special benefit of both consumer, producer, and to the general benefit of the United Kingdom.

"Your memorialists also beg to state that the system now practised in transporting cattle from one part of the kingdom

to another in ships and railway trucks, needs careful inquiry, with the object of adopting a more compatible and improved mode of treatment, as by the present system much loss and deterioration is sustained."

Mr. WOOD (Stanwick Park), said he agreed with Mr. Wooler as to the necessity of taking measures to remove the two diseases referred to, and he would advocate the petitioning of Government to prevent cattle labouring under such diseases being conveyed from one place to another. It would be difficult, however, to charge the vendor with a third of the loss of any animals, because the disease might be contracted by the purchaser whilst passing through an infected district.

Mr. ROWLANDSON thought that the part referring to the remuneration to be tendered by the vendor would lead to interminable litigation, in consequence of cattle being sold two or three times over within a very short time. He believed that a great deal of the disease among cattle arose from the system, which he understood was carried on in different parts of the English coast, of plunging the animals into the water and allowing them to swim to the shore before arriving at the port, to save the landing dues. The inefficient accommodation provided by the railway Companies, and the delay occasioned by travelling on the rail, during which the cattle had nothing to eat or drink, was also undoubtedly a source of disease.

Mr. CARGEY proposed, and Mr. WOOD seconded, that a committee of six gentlemen be appointed to consider the subject of Mr. Wooler's memorial, and report to a meeting of the Council to be held that day fortnight.

Mr. WOOLER said this proposition was quite satisfactory to him, and he would withdraw his motion in favour of it.

Farmers' Clubs.

SMITHFIELD CLUB.—At the annual meeting of this Club, to which reference was made last week, Mr. GIBBS read the following Report of the Council:—

The Council beg to lay before the general meeting of the Club the Annual Report for the past year. The Council has held four meetings, which have been well attended. In addition to the ordinary routine business, the following subjects have had their careful consideration.

I. The preparation of the prize-sheet for the present Show: It was resolved to omit the second prizes in the classes for the long-horned breed of cattle, in consequence of the small number of entries hitherto made in that division.

II. The Council has determined to add in the appendix to the annual prize-sheet a statement of the winners of silver cups and gold medals at all the past Shows of the Club. This to be reprinted from the honorary secretary's "History of the Club," and to be continued from year to year. A list of the members of the Club will also be added.

III. The Council has determined that there shall be a report on the animals exhibited at the Club's Shows. A sum of 15*l.* has been voted for this purpose, and the preparation of the report of the present Show has been entrusted to Mr. H. H. Dixon.

IV. Mr. Samuel Jonas has been elected a member of Council to fill the vacancy occasioned by the appointment of Mr Torr as a trustee.

V. The Council has to regret the loss the Club has sustained by the deaths of C. T. Tower, Esq., a vice-president and father of the Club, and of the Right Hon. Lord Feversham, also a vice-president. His Grace the Duke of Marlborough and the Right Hon. the Earl of Powis have been elected vice-presidents to fill the vacancies thus occasioned.

VI. As it appeared that by making certain alterations at the Agricultural Hall increased accommodation could be given to the exhibitors of machinery, and that other improvements could be made, a committee was appointed to confer with the directors of the Agricultural Hall Company. After negociations with the directors the Council agreed to the following alterations and conditions: 1. That the Club shall cede the present pig-hall, with the exception of 25 feet wide on the north side. 2. That the Hall Company shall build, to the satisfaction of the Smithfield Club, a new pig-hall on the south side of the arcade. 3. That the Hall Company shall build a dining-hall over the new hall, and that the Club shall have the free use of it for a dinner on such a day during the Show as the Club shall determine. 4. That the spare space on the north side of the arcade shall (if required) be converted into an additional hall for cattle or pigs. (The Council added certain conditions to the ingress and egress.) 5. That accommodation for the food brought by exhibitors for their animals shall be built by the Agricultural Hall Company to the satisfaction of the Club. 6. That in consideration of the above, the Smithfield Club shall pay to the Agricultural Hall Company 1000*l.*, in order that the galleries may be increased by flooring over the open bays between the columns on the sides of the galleries next the main area of the Show. This increase of the galleries is already made, and the new halls are to be ready by the Show in next year. In giving the above condensed statement of the arrangements made with the Agricultural Hall Company, the Council call attention to the following advantages: 1. By ceding the present pig-hall, which has always been found unsuitable to the animals, on account of the difficulty in regulating the temperature, a new hall will be obtained, where this defect will be obviated. 2. The exhibitors also will be provided with a proper store for the food for their animals. 3. A commodious dining-room will be at the disposal of the Club for the anniversary dinner, which no doubt will be far better attended here than when held at a hotel at an inconvenient distance from the Show. 4. By the investment of 1000*l.* in adding to the galleries a twofold advantage has been gained—first, a general increase of accommodation for the exhibitors of machinery, and, secondly, a considerable increase in the annual income of the Club in the form of rent for this additional space. The new space has been readily taken this year by exhibitors, without the Club having to relax any of its rules in reference to the nature of the articles to be exhibited, and the total amount of rent received at the present Show, for this additional space alone, amounts to 246*l.* 0*s.* 4*d.*; so that in the course of four years the 1000*l.* will have been more than repaid, and the Club will enjoy the increased rents of stands for the remainder of the lease, or if regarded as annual income it is equal to upwards of 20 per cent. on the amount expended. It may be named in addition to this that the allotments this year have not gone to the full extent of the measurement, and therefore the rent in succeeding years will be somewhat further increased. The Council therefore considers that this is a very profitable and good way of using a portion of the reserve fund which accrued from surplus annual income some years back.

VII. It being necessary that a licence from the Privy Council should be obtained for holding the Show, the President was authorised to sign on behalf of the Club the undertaking required by the local authority in reference to all cattle being killed within the boundaries of the metropolis, and within the time prescribed. The Council did not consider it consistent with its duty to make any representation to the Lords of the Privy Council to induce them to relax the general orders in reference to cattle being slaughtered within the prescribed radius, but on the representation of the President ten days after the close of the Show has been permitted; and special "police passes" were granted for the animals coming to the Club's Show, and which were handed over to the hon. secretary to transmit to exhibitors. Thus great inconvenience and delay has been avoided; as, had the usual mode of obtaining the police pass been enforced, the exhibitors' servants in charge of the animals would on their arrival in London have been obliged to go to the nearest police station to obtain the necessary authority to proceed through London streets. This licence contains the conditions that, in the event of any case of cattle-plague occurring within the exhibition, all the animals in the show shall be killed on the spot. The Council, therefore, deemed it right to take a guarantee from each exhibitor that the orders of the Privy Council should all be carried out, and that each exhibitor shows at his own risk, and that the Club and its officers are held harmless in reference to compensation if immediate slaughter should unfortunately become necessary. The Council determined to take the same precaution as last year as regards the cleansing and disinfecting of cattle conveyances, and the constant attendance of a veterinary staff during the Show. The Council having taken into consideration the liability of cattle plague being introduced into this country by the admission of foreign animals into our markets, requested the President to hand the following resolutions to the Lord President of the Privy Council as recommendations from the Council of the Smithfield Club:—1. "That all foreign fat stock be slaughtered at the place of landing." 2. "That sheep be included in the present quarantine regulations for store stock."

VIII. The Council have voted their thanks—1, to the Royal Veterinary College, for the arrangements they made permitting the constant attendance of a veterinary staff; 2, to the Rev. Daniel Wilson, M.A., Vicar of Islington, for having again arranged for a Divine service for the herdsmen and shepherds, which was, as usual, extremely well attended; 3, to the lessee of the large refreshment-room, for the use of it for the service; 4, to the proprietors of cattle conveyances, for the facilities they have afforded.

IX. The Council were anxious that the dinner should take place on the Monday in the Show week; but as the large room at the Salisbury Hotel was engaged for that night, and as the dinner will, after the present year, take place in the new "Berners' Hall" which is now being built, adjoining the Show, it was not deemed expedient to remove it, for this one occasion, to any other hotel. It will therefore take place, as last year, at the Salisbury Hotel, at 6 o'clock, on Wednesday. The toast-list has been revised by a committee, and the number of toasts considerably curtailed.

X. The Council has, in conformity with the bye-laws, prepared a house-list of the members whom they recommend to be elected on the Council, in place of those who retire at this meeting by rotation.

XI. The Council lays before the meeting the balance-sheet for the year, up to the 1st of December, duly audited. This shows:

Balances in hand on that date amounting to ..	£2485	18	7
The total receipts during the year amount to ..	2983	19	10
The total expenditure, ditto	2911	3	9
Excess in favour of the Club	72	16	1
Of this, 68*l.* 5*s.* life-composition has to be invested	68	5	0
Thus leaving a balance of	£4	11	1

At the present time, therefore, the receipts and expenditure as nearly as possible balance. Last year, for the first time, the Club's annual expenditure exceeded the amount received during the year; but it was met without having to sell out any of that portion of the reserve fund which belongs to surplus annual income, saved some years back, and therefore applicable to current expenses when required. The balance this year in favour of the Club, as above stated, is in consequence of the additional rent obtained in the galleries.

XII. In conclusion, the Council congratulates the members on the continued prosperity of the Club, and trusts that the improvements already carried out, and those which are in preparation for next year, will prove important steps towards furthering its future progress.

And the Council has still further to congratulate the Club on having the honour of numbering among the exhibitors at the present Show both her Majesty the Queen and his Royal Highness the Prince of Wales.—By order of the Council, (signed) *B. T. Brandreth Gibbs, Honorary Secretary.*

CENTRAL: *Dec.* 10.—*Annual Dinner.*—[Having last week referred to the speech of Mr. Little, the Chairman, we now abridge the following report of some of the other leading speeches on the occasion from the fuller report (than we were able to give) in the *Mark Lane Express.*]

Mr. GOLDNEY, M.P., quite agreed with the Chairman that up to the present time the agricultural interest had not shown itself in a sufficiently prominent character to command the attention of the Legislature as other industrial interests in this country had commanded it. There were many topics which it was absolutely essential that they should attend to, more particularly in a great central society like that. The question of rating was very material, as it affected the agricultural interest. In the first place, every improvement that farmers were making, every addition to the value of the land by means of artificial manures or improved culture by machinery, or otherwise, immediately added to the annual value of the land, and it was rated accordingly. Now, if a manufacturer got improved machinery, or bought his raw material cheaper, and thus increased his profits, no additional rates were imposed upon him: he still paid the same assessment on his factory. During the last year a very long discussion had taken place in Parliament with regard to rating, under a Bill called "Mr. Hunt's Valuation Bill;" but that Bill did not apply at all to the principles of rating; it only applied to the principle or mode of collecting the money. Here they were in the year 1867 still maintaining the large and growing population of this kingdom on the principles of assessment which existed in the reign of Queen Elizabeth. Not a single instance of that sort was to be found in any other part of the national arrangements. In the year 1867 the agricultural body was subject to the principles of the valuation of property which prevailed in England 350 years ago! At a period when the population of the kingdom did not amount to five millions; when trade and manufactures were of such small importance as hardly to be considered; when there were no coal mines, no banks, no public companies; when Liverpool was not in existence; and when the whole machinery of trade was a mere bagatelle, land, being the chief property of the kingdom, had to bear nearly all the obligations of property. But when the trade and manufactures of the country had reached such vast proportions; when manufacturers, bankers, and others were realising such enormous fortunes; when so many people were receiving such large incomes from the public debt of 800,000,000*l.*, from railways, and from other sources; it was a serious question whether the principles of rating which were right formerly should be applied still. As matters now stood, every improvement which agriculturists made on the land was reacting as it were against them; and, in an association like that, it was fair matter for discussion whether such a state of things should be allowed to continue. The question of turnpikes also required to be further ventilated. There was another matter which he should like to mention—a matter connected not so much with the farmers in their relations to the public as with farmers in their position as tenants. He had been for a great many years a very strong advocate for leases, and he thought the time was come when, whether as individuals they farmed with or without leases, they ought seriously to consider the subject of those absurd restrictions with regard to cropping which existed in so many places. He believed that nine hundred and ninety-nine thousandths of those restrictions were framed within the walls of Lincoln's Inn by parties who knew no more about the cultivation of land than that table. They were put into precedent books which lawyers used, and hence they had continued to the present time; and, unless the matter were properly discussed, there was not likely to be any remedy for that evil.

Mr. ALBERT PELL proposed "The Royal Agricultural Society of England, the Highland Society of Scotland, and the Royal Agricultural Society of Ireland."

Mr. OWEN WALLIS, the only representative of the Council of the Royal Agricultural Society present, responded to the toast.

The Rev. E. SMYTHIES proposed the health of Mr. Clare Sewell Read, the valued member for Norfolk, chairman elect of that Club for the ensuing year; and vice-chairman of the Central Chamber of Agriculture. In fact, when he considered Mr. Read under his various aspects, he was reminded very much of one of those splendid animals whom they had seen that day in the showyard, having first a piece of red ribbon, then a piece of white, and lastly, a card referring to all sorts of medals and cups. He might remark that there was an animal in the showyard on that occasion which had brought 125*l.* away with him from Birmingham, and gained 75*l.* more that morning in the showyard at Islington. He thought Mr. Read would equal all that, and a good deal more. Having thus referred to Mr. Read's present merits, he might perhaps be allowed to say a word in relation to the dim and distant future. Reference had been made that evening to one of the subjects brought before the Club within the last year, viz., the necessity for the establishment of a Board of Agriculture. He, for one, considered it very desirable that such a Board should be formed, and he also thought it was a great advantage to them to find the future Minister of Agriculture ready made to their hands. He could not say in Mr. Read's presence all that he might say in his absence, but he could not help alluding to something that was said with regard to him by Mr. Gladstone. Whatever might be their opinions on political questions, they must all feel that Mr. Gladstone was one of the ablest statesmen of the present day; and never did the right hon. gentleman speak truer words than when, alluding to Mr. Read, he remarked that the modesty which was so conspicuous in him when he rose to address the House of Commons was only equalled by the ability which he displayed and the knowledge which he manifested on every subject which he took in hand. He thought he had now said enough, and more than enough, to commend the toast to the hearty acceptance of the assembled company.

Mr. C. S. READ, M.P., said:—Mr. Chairman and gentlemen, it has been well said by the great poet that "some are born to greatness, and some have greatness thrust upon them." I need not say that the last case is my own. I consider it a great honour to have been elected President for the next year; but I can say sincerely that I should have been much better pleased had you appointed some older and abler member of the Club. You all know how much my time is occupied with public duties. But I was told, and told very truly, that it was in consequence of the position which I accidentally hold that I was selected so soon for this office. Now, nowithstanding all the kind and good and flattering things said respecting me by Mr. Smythies, I neither expect nor wish to continue in my present position for very many years—I refer to the honour which I enjoy of a seat in Parliament—and can assure you further that I have no wish for the distinction of being associated with any Government department whatever. As my capacity for usefulness is, in my own opinion, now at its height, it is only right that I should accept the office of Chairman of this Club; but I do trust that every member of the Club will make allowance for my defects, and I shall especially rely on the active and cordial co-operation and assistance of the present Chairman, the Committee, and our good Secretary. It has also been mentioned that I have been elected Vice-Chairman of the Central Chamber of Agriculture for the ensuing year. At first I considered that this would be a hindrance; but I was afterwards told that it might be beneficial by showing the public generally that there was not the slightest antagonism or rivalry between these two great societies—that there

was not only room, but a necessity for both. Although it was difficult indeed to define what subjects belong to each, yet they have no doubt their separate spheres; and while Farmers' Clubs may be regarded as the Chambers of the field, Chambers of Agriculture may be viewed as the Chambers of the State. At the same time I agree with the Chairman that it is desirable that the discussions of this Club should take a wider range, and that both those societies may to a certain extent discuss the same subjects with mutual benefit. It has generally been my delight on such occasions as the present to take a sort of review of the parliamentary session, and I wish to look upon this Club as my constituents. It was said the other day in the House of Commons that because the noble lord the member for Arundel happened to be a Roman Catholic, therefore he represented two millions of people in this country. In like manner, as I happen to be the only tenant-farmer in the House of Commons, I may be supposed to represent all the tenant-farmers. I regret most deeply that my duties are not shared by my friend on my right (Mr. Albert Pell). Now, sir, at nearly all the agricultural meetings which have taken place in the latter part of this year, the principal speaker has observed that politics are strictly excluded, and immediately after he has begun to talk about Reform. It is almost impossible to refer to the last session of Parliament without mentioning Reform. Our worthy President has told us that we may discuss a future Reform. I would say one or two words upon the Reform Bill which has already been passed. Gentlemen, I can congratulate you that that Bill is passed, and for this reason—that the Reform coach will no longer stop the way of those social and practical reforms which we so much want. As regards the effect of the new Reform Bill upon the counties, I would observe that one great anomaly and injustice with regard to the county constituencies remains unredressed. I refer to the voting of borough freeholders for counties. But, although we could not entirely destroy those gentlemen, or rather destroy their great influence in the county elections, we have succeeded to a great extent in alleviating the evil, by making it imperative that all those borough freeholders whose occupation in a borough is under the annual value of 10*l.* shall vote in that borough. Again, we have the advantage of getting 26 members for counties, out of the 45 who have been taken away from the boroughs. However, as the county constituencies are increased by about 30 per cent., we may conclude that, in that way, the borough influence in county elections will be very considerably diminished. We are still very inadequately represented in point of numbers, having only 187 members for 10¾ million inhabitants, while the boroughs have 308 members for 9¾ millions. But still the state of things is better than it was. The old Reform Act gave three borough members to one county member. There will now be two borough members to one county member. I must now pass from that unpleasant subject to one which is equally disagreeable—I mean the restrictions which have been attached to the movement of cattle. Now the theory of the constitution is that the Queen governs the realm, and that she delegates certain powers to the Lords of the Privy Council. Sir, we go to church—at least, I hope we do—and there we pray for these Lords of the Council; but I can assure you, from my own knowledge, that we pray for the shadow, and not for the substance. The real Lords of the Council—those who have governed us so long—are a set of officials in Prince's Street, Westminster; and therefore it might be an improvement in our Liturgy if the clergy were ordered to pray that a kind Providence would be pleased to endue Professor Simonds, Dr. Williams, and the veterinary department of the Privy Council generally with a little more wisdom. Now, sir, what is the doctrine of the Privy Council as regards cattle? It is that we have been defended against diseases by the simple act of inspection. "Inspection" is their motto. You know very well how the work has been done of late years. These gentlemen tell you that all these diseases are the result of a certain process of incubation, and they are supposed to watch the process of incubation. But is it not a very remarkable thing that, the great object being to discover the germ of the disease, after studying cattle plague for two years, the very highest veterinary authorities don't know cattle plague when they see it? Why, what do they do? You have a bullock taken ill, and a learned Professor comes and tells you that its disease is the cattle plague. Then there is despatched a telegram rattling away to summon Professor Simonds; and when he has arrived, he tells you that it isn't the cattle plague. These are the men who, by their inspection, are to protect the herds and flocks of Great Britain. What do they do in the end? When they have found the cattle plague, they kill a bullock. What do they do when they find sheep suffering from small-pox? Why, they kill them. What do they do when they find bullocks suffering from pleuro-pneumonia? Why, they kill them. Why don't they kill the foreign cattle that bring these confounded diseases into the country? Now, gentlemen, the Government, or rather the Veterinary Department of the Privy Council, introduced into the House of Lords a Bill called, "The Contagious Diseases (Animals) Bill." After dragging its slow length along in the Upper House, this Bill came down to us about the middle of July, and the Government promised that we should have a day to discuss it—a morning sitting. One Wednesday the Bill was first on the paper. We got a capital house—a House with which we could have beaten the Government by two to one. What was our surprise and chagrin to find nearly the whole sitting occupied with a discussion on the question of extradition. At last the Bill came on, between 2 and 3 o'clock in the morning of the 12th of August. A division was taken on the proposal of my friend Mr. Corrance that the slaughter of foreign cattle at the ports of landing should be compulsory. That motion was negatived by a majority of 12. But although the Government were victorious, they could not withstand the arguments by which it was supported, and accordingly they gave way. They made all sorts of promises, part of which has been performed, and part remains to be performed. They brought in a Bill, which was very good as far as it went, but which must be made still better before it can do all that is necessary. I have no doubt that the chief opponent is the Corporation of London, which, having spent a very large sum of money on its new market, did not wish to lose the interest on its outlay or to build another market. Another powerful source of opposition are the butchers of London. Few people are aware of the influence which these people have with the Privy Council, or rather with the Government officials in Princes Street, Westminster. The butchers of the metropolis have not been playing a very bad game lately. They have been giving us just what they pleased for our cattle and sheep, and they have been charging their customers just what they liked; and of course they have had a very jolly time of it. But there are other butchers who are not so well off. The butchers of Brighton and other towns near London want to have a great market for the sale of British cattle—that is to say, a market in which British cattle alone are sold, and from which they can be removed to a distance. We may be told, "You are a nice set of fellows: you want to impose all these restrictions on foreigners." We cannot help it; we have tried the experiment with regard to foreign cattle, and we have lost by it; and not only we, but the public also have suffered. I believe that we shall have a great battle to fight about the Bill before Parliament; and the measure being at present limited to cattle, I would suggest that it should be made to include sheep and pigs. If you want to make the measure a safe and effectual one, you must take care that it embraces all foreign stock. Independently of our certain knowledge that foreign sheep bring small-pox, there is the fact that sheep, if not themselves subject to cattle plague, may be the means of introducing it; and if we want to be secure, let us demand that both foreign sheep and foreign pigs are killed at the port of debarkation. There are many other subjects which I should like to mention did time permit. One of these is the Highway Rating Bill, of which Mr. Goldney has spoken. There is another topic, which, if I do not mention, it may be inferred that I have, as far as I am myself concerned, shelved it for another year. Now I am one of those people who, if they cannot do exactly what they could wish, will do what they can. It may have been thought that I ought to have led a sort of forlorn hope on the question of the Malt Tax. Was it to be supposed that, when I saw able and eloquent leaders of my party had a minority on that question, I was going to betray the trust reposed in me by leading a few honest and ardent members to certain defeat? I certainly thought that the best thing we could do was to get the subject referred to a select committee; and, of course, pending inquiry, any further agitation would be useless. In conclusion, I have great pleasure in proposing "The Smithfield Club," a useful, a great, a noble institution, and, I believe I may add, the oldest agricultural society in the kingdom; and I have to associate with this toast the name of an excellent practical farmer, Mr. Tredwell, who, in addition to the fame which he has acquired as a breeder of Oxford Down sheep, has this year come out as the breeder of the best pen of Berkshire pigs.

Mr. Dumbrell proposed "The Secretary," Mr. H. Corbet.

After a warm response from the company,

Mr. H. Corbet, returning thanks for the honour again conferred upon him, said he hoped he should be allowed at once to drop the secretary and speak of the Club itself. They were now in the midst of the business of the Smithfield Club week, but he thought that if they search from beginning to end they would find no more spirited or useful gathering than that of the Farmers' Club dinner that evening. Whether they considered the speeches of practised debaters in the House of Commons, or those gentlemen who ought to be debaters in that House, they might well feel equal pleasure and pride in the fact that the honourable gentlemen and the should-be honourable gentlemen were members of the Farmers' Club. An office like his was one of reflected honour. If everything went on well the secretary was supposed to be entitled in some degree to thanks. In that way he occupied that evening a proud position. Everything had gone on well, and especially the dinner, the speeches delivered being of the most intelligent and useful character, and highly creditable to the agriculture of this country. Perhaps he might be allowed to allude for a moment to the speech of Mr. Goldney. That gentleman had in effect advised the Club to take up the question of rating. He begged to tell him that that question, like some others which he had mentioned, was fully discussed long ago. They had been at it for years. They originated a committee of the House of Commons on the customs with regard to land. As to leases, he did not believe there was any form of covenant which had not been brought again and again before that Club. When the hon. gentleman and others like him told them what they ought to do, all he could do in the way of reply was to put the records of the past discussions in their hands and say to them, "Go thou and do likewise."

Blandford: *Superphosphate.* — At the annual meeting of this Club Mr. J. Ford, jun., who presided, said: They had had some very good lectures during the year, which he believed would have been very profitable to the younger members of the club had they attended. Their old friend Mr. Spooner had favoured them with an excellent lecture on artificial manures, in which he pointed out the necessity of using a manure especially adapted for root crops. Now he (Mr. Ford) considered that superphosphate was about the dearest sort of manure they could buy, and he thought it was time to have done with it. There was a new kind of manure lately introduced, called "Turnip manure," which contained a considerable quantity of bone and a little superphosphate, and this, he believed, having more "proof," would be found to be the sort of manure they required for root crops. He had used superphosphate very freely, but he had found that the Turnip was forced too fast by it, and then when the rain set in the Turnip rotted. He had therefore entirely given up using superphosphate, and had purchased the new sort of manure and dissolved bones, and he reckoned that he should not use much more superphosphate. [Several of the company present appeared to dissent from the remarks of the chairman on this subject, and in all probability it is one which will provoke some discussion.]

Mr. W. C. Spooner said that after what had been expressed by Mr. Ford, he hardly knew what to say. As he understood him, that gentleman did not object to superphosphate altogether, but to it in its pure and simple state. They all knew that phosphate of lime was, with one exception, the best of artificial manures, and that was especially so in a liquid state. He did did not recommend the plan of the exclusive use of superphosphate for root crops, and though they might object to hear a lecture at that time, yet perhaps they would allow him to illustrate his point by an anecdote. A certain member of the Society of Friends who became unfortunate in business was so highly respected by his brother members and the tradesmen of the town, that they determined to raise a sufficient sum to relieve him of his embarrassments. They accordingly subscribed a large sum, and asked him to meet them. Thinking that probably more had been raised than he required, they placed the money on a table, and said, "Brother, we knew that thou wast in difficulties, and have raised this money to help thee out of them; but if thou dost not need all, thou canst return the overplus." The quaker quietly emptied the whole into his pocket, saying, "I need it all, I need it all!" His (Mr. Spooner's) application of this was that if they, the farmers of Dorset, wanted to have good roots, they must not limit their application to any particular manure, for if they could hear the land speak, it would be in the language of the Quaker,—"I want it all."

Reviews.

The Journal of Agriculture. December. 150, Fleet Street.

In the current number of this monthly periodical two new serial papers are commenced—one descriptive of our breeds of poultry, and another on "Improved Agriculture, with the view to an Increased Home Supply of Food," by Mr. J. Ewart, Land Surveyor and Agricultural Engineer, Newcastle-on-Tyne. The latter of these will, we doubt not, be an instructive and suggestive treatise, for Mr. Ewart's writings during the many years that we have known them have been always characterised by good sense and substantial worth. In addition to these which give the strictly agricultural tone to the number, there are other papers of more general interest, also characteristic of the Journal, which often leads the agricultural reader out of the strictly professional field; and from a paper here upon "The Fears of the French" — the subject seems a wild excursion for a sober-minded agricultural Editor—we shall take one characteristic extract:—

"In the April number of this Journal we treated of 'Co-operative Farming,' and gave instances of the beneficial application of the co-operative principle to agriculture. Although aware of the existence in France of family communities in Nivernois and Auvergne, in which a large proportion of the common labour is performed by the women, we do not remember to have heard of any agricultural community like that at Martillac, in which, with the exception of help in ploughing, the whole labour of a considerable farm is by women. The fact is singular, and commends itself to our attention all the more, because it recalls to us the letter of an English farmer's widow, who piteously complains of being ejected by her landlord, simply because, being a woman, she had no vote; and because an English member of Parliament declared the other day that his vote in favour of the enfranchisement of women was much influenced by the consideration that the bestowal of it would protect them from such suffering as that complained of by so many farmers' widows. We are aware that by showing that women, by co-operative farming, can protect themselves against injustice of landlords, we are furnishing an argument to those who have a John Knox-like antipathy to 'the monstrous regimente of women.' They may say: 'We do them no wrong when ejecting them from farms lately possessed by their husbands: our arrangement was with a *man* farmer: we neither wish women to occupy farms as tenants nor to go to the hustings. If farm they will, let them turn agricultural sisters, and co-operate, as at Martillac.'

"But, we would ask those landlords who eject farmers' widows, not because they are witless, but simply because they are voteless, how is the suggested co-operation possible if all landowners share in your aversion to women-farmers? How are they to get the opportunity of trying an experiment such as women in France have shown that they have the sense to devise and the steadiness to execute?

"We hope that in England the case of a widow removed from a farm for political considerations may not become so common as to form an element in dis-

cussing the general question as to the enfranchisement of women. But having a high opinion of those women who disdain to be idle, and who, caring little for politics, are anxious to be honestly useful, we have thus alluded to a wrong which they suffer, and to a mode by which it may be redressed. It is said that the new Reform Bill has unintentionally conferred the suffrage upon women in the way thus described by a contemporary: 'How the women are provided with votes by the new Reform Bill, notwithstanding all the trouble taken to keep them out, is sufficiently curious. By an Act passed in 1850, known as Lord Brougham's Act, for shortening the language used in Acts of Parliament, it is provided that in all Acts, words importing the masculine gender shall be deemed and taken to include females, &c., unless the contrary is expressly provided. The contrary has not been provided, and therefore the women can vote if they choose. If they insist on doing so, the first fight will come off in the registration courts, and there will probably be some very pretty legal sparring before the revising barristers. That the point will be tried may be set down as certain, and it will be strange enough if, after all, the question so warmly discussed and so generally disapproved of by the more sound-thinking and intelligent women, should be settled by a neglect to provide for a mere technicality.'

"In Great Britain there may, as yet, be no such deficient supply of agricultural labourers, male and female, as alarms French agriculturists; but the tendency is in that direction very evidently. In France it is a public peril. The constant and enormous demands of the military service have deranged the social equilibrium. When the sword is more thought of than the plough in a country which is essentially agricultural, it seems to us that the folly is especially great. War is wasteful of life and substance, and therefore policy demands that unusual attention shall be bestowed on the means of rearing a numerous population which only agriculture supplies. But how are fields to be tilled and harvests reaped, if peasants be marched in thousands far from their rural homes, and if tens of thousands of our most valued domestic animals be driven to the battle-field, from which so few of them shall return to their master's crib?

"French agriculture is only beginning to assume that pre-eminence to which it is entitled; and therefore, when we hear such general complaints that men, and women too, are not to be found in numbers adequate for the profitable cultivation of the soil, and when this deficiency is too likely to be terribly augmented by war either with Italy or Prussia, and possibly with both these countries, we are sorrowfully compelled to confess that there are too many reasons for the disquieting apprehensions now pervading all ranks of French society.

"God grant they may be disappointed, and that Napoleon may see that his true policy is to speed the plough and sheathe the sword!"

The Poultry Yard.

Shell-less Eggs.—When a hen lays this sort of egg, and not habitually, the occurrence is generally accompanied with hard or full crop. In that case, it is owing to indigestion, to be treated with one or two teaspoonfuls of English gin. One cause is said to be over-feeding when fowls are too fat. These eggs are generally dropped from the roost, and if it is not too high from the floor, or if they fall on straw, may be saved entire and used for puddings. As to symptoms, experience will make known the indications, and the time when a hen is about to pass one of these eggs, by appearing somewhat dull and uneasy when walking about; when proper precautions should be taken to secure it, and prevent the other hens from gobbling it up. The writer has a favourite hen, which always regularly drops these eggs from her roost, and never lays any others, and has done so for these five years past, although in perfect health.

Egg-bound is a fatality which is not of unfrequent occurrence, arising from an inactive state of the organs, when a fowl does not as usual, in due time, get rid of an egg, which will remain in the egg-bag for some days, often producing very ill consequences. The symptoms are moping, awkward gait, enlarged appearance and hanging down of the abdomen. The causes are various: but generally a cold, and often indigestion. The remedy is sometimes speedy: a few grains of salt put into the entrance, but without using any violence, will excite an immediate disposition to lay, when the fowl will run off instanter to the nest. If caused by indigestion the cure must be treated accordingly.

Constipation is a disorder not at all uncommon, generally easily cured by food alone. It is recognised by the straining of the fowl; very evident to the watchful poultry keeper; and when fatal it is mostly owing to neglect or ignorance. It is generally owing to deficiency of green diet, feeding too long on dry grain, want of a sufficiency of clean water, free access to which granivorous birds in particular require, owing to the peculiar construction of their intestines, as compared with quadrupeds. A moist laxative diet should be given, boiled, instead of dry grain. When the crop requires stimulating, one or two teaspoonfuls of English gin is preferable to cordial horsebalm, and castor oil to calomel, as often recommended. Soot and fresh butter rolled in Barley-meal; chopped suet or fat in mashed Potatos, and also lard mixed, have been advised; and Pollard and bran with lard. In very aggravated cases, a little sweet oil as a clyster, has been said to be very effectual. Rye flour (meal) and bran moistened, to which is added a little honey, is a French remedy. Breeders of game cocks, as a "scour" to reduce their quantity of fat, and render them light and nimble, give them pellets of bran soaked in fresh warm chamber-lye, quantity regulated by the effect. Falconers purge their hawks before "flying" them, with a pellet or two of aloes, or a root of Celandine cut into pellets.

Hatching.—"A hen that steals her nest" on a dry bank generally hatches every egg, and brings out an unexpectedly large brood, owing probably to the effect of purer air than when she hatches in a box in the close hen-house. Lately I had the misfortune to have two eggs broken in the nest of a sitting hen, by an intruder wishing to use the same nest. It was on the 14th day of hatching, and in one I found a chick not yet quite full-grown, but perfectly formed and chirping, enveloped in the remaining portion of the albumen, laying, as it were, on the yolk, which was yet entire or nearly so, and just beginning to become absorbed at the abdomen for the nourishment of the intestines. In the second egg I found floating a half-formed embryo, which had not been alive for several days, a circumstance I attribute to the eggs having been turned by cold fingers, and this has often occurred before. I therefore question whether the hens do not turn them of their own instincts, if at all necessary according to old notions, sufficient for every useful purpose, unless an egg should accidentally become entangled under the straw, when it should of course be extricated. *B.*

Assistance in Hatching.—The oldest hens lay the fewest eggs, but the best impregnated, though the older the hen the more difficult to hatch the egg, the membrane being much thicker, so much so, that the utmost efforts of the young chick cannot always break through it. This is known on the expiration of the 21st day, when the rest of the eggs may be examined and any remaining alive assisted; but this is an operation requiring care, tact, and great patience. I always make sure by relieving them myself with my own hands: the eggs are placed in wadding, in front of a good fire: and have often been engaged for several hours, after having carefully broken the shell on one side near the larger end. Much time is required in the drying, or rather enabling the little chicks in the shells to absorb all the moisture in which they are enveloped, which is absolutely necessary before finally releasing them, otherwise they are very liable to bleed, the least abrasure generally proving fatal to life. The smaller end of the egg being the last part containing moisture to be absorbed, will require the longest contact with the heat (about 99° and 108° Fahr.), which will enable the chick by its own movement to sever, when dried, the cord by which the lower part of the body is attached to the membrane (chorion) in the shell. This is a very important part of the process, and should be performed artificially, if requisite, by snipping it with a scissors; otherwise, the little creature, in its eager efforts to get free too soon, will rupture itself. Always observe that excessive heat will turn the white into glue, as well as destroy life: a thermometer will therefore, be useful. *A.*

DIARRHŒA: *A. Z.*—May arise from (1) laziness of the poultry-keeper, who neglects the requisite precautions of cleanliness, and providing a constant supply a clean water; (2) ignorance of the habits of birds, which require proper shelter from cold and wet; (3) deficiency of sweet, green vegetable diet, as essential as grain; (4) feeding out of unwashed dirty pans, impregnated with food which has become sour; (5) allowing the refuse cabbage-stalks and the like to remain about the yard till they putrify, infecting the soil with corrupted matters, with which the puddles in rainy weather are soon impregnated—fowls generally preferring to drink from the stagnant pools, because readiest of access; (6) cold and damp will frequently produce, or greatly aggravate these disorders; improper diet, such as sour, salted meats, too much wet or moist food, given in too hot a state, which is evidently unnatural, with a view of forcing hens to lay. In the first stage of scour, proper shelter, cleanliness, and judicious change of diet, will often prove effectual without the aid of medicine. It sometimes passes off in a few days of its own accord, but if not, may often be remedied by giving dry food only at each meal. If unheeded, it is liable become aggravated, and degenerate, diarrhœa. A portion of blacksmith's forge water mixed in the water trough has been recommended, and the rust or oxide of iron in pellets of Barley-meal, with the addition of red brick dust, are powerful tonics and astringents. Part of the yolk of an egg boiled hard, mixed with bruised Hemp seed or boiled Barley, diluted with wine (English gin is preferable), is an old French remedy. Dr. Handel states that the following never fails:—Water in which the rust of iron is infused, with an equal proportion of new milk, which is diuretic. In other cases, a small portion of clay stirred up in their daily drink is very effectual; or a small piece of dried potter's clay given as pills, or pounded and mixed with chalk and red brick-dust in equal parts, in pellets of Barley-meal. In the more aggravated stages about two-third parts of castor oil, with one-third part of syrup of white Poppies combined, will act quickly in checking these disorders; two teaspoonfuls for a full-grown fowl. A very ancient remedy is Barley-meal moistened with wine (English gin is better), incorporated with a proportion of bees'-wax, to be made into pellets, one or two to be given each morning fasting. Another old remedy is Peas bran (meal) scalded, alone or mixed with boiled mashed Potatos or boiled Rice.

DISEASED TURKEYS: *A H.* It would have been easier to give "A. H." the advice she asks, had she stated the age of her valetudinarian turkeys. From her description, I should guess them to be a later hatch that have not been sufficiently sheltered from inclement weather, and that have been scantily, or, what is nearly as bad, irregularly fed. Half-grown turkeys will devour an enormous quantity during the damp chilly autumnal months, with very little apparent benefit to themselves. Are their feet swollen and gouty, and their legs shrunken? Early hatched turkeys, when once they are three quarters grown, are, in general, remarkably free from ailments. I would recommend that they no longer run at large, but be shut in a roomy, well-ventilated outhouse; and besides their usual food be supplied with Endive, Lettuce, Cabbage, or Turnip tops as well as root, with raw meat three or four times a week, or, what will do as well, the entrails of animals cut small. "One meal each day of boiled Rice and Pepper" is a good prescription: three meals will be better, particularly if varied with hot boiled Potatos, Carrots, and Parsnips, and Barley-meal mixed tolerably stiff with water or milk.

ROUP: *W K* should wash the eyes with warm water (not hot), and then cleanse the nostrils well by washing them with warm soap and water once or twice a day. The nostrils should be kept quite free from any incrustation. After this use a warm fomentation of boiled Poppy heads, to be applied only under the eye, very carefully, once or twice a day until the inflammation is drawn away. Fowls bought in our markets are generally afflicted with this influenza. In the early stage of this disease, before the purulent matter has been allowed to collect and infect the whole system, "roup" in the incipient state may be easily prevented and cured by the simple washings, without any medicines.

Farm Memoranda.

ABERDEENSHIRE FARM: *Dec.* 18.—The chief topic of interest among agriculturists here for the last three weeks has been cattle. Cattle that were destined for exhibition and cattle for the great Christmas market were scanned and commented on at home, and the awards at the different exhibitions were looked for as eagerly as the news of some victory, and certainly Aberdeenshire and Aberdeenshire cattle have gained a splendid victory.

Well may our country be proud of such men as Mr. M'Combie, of Tillyfour, and Mr. Reid, of Greystone; they are not the men to rush to the top all at once and then fall back, but year after year they have been in the front rank, and now Mr. M'Combie comes forward with his ponderous Black Prince and tops the lists at Birmingham and London, and carries off a "bewilderment of cups and prizes" (as some of the newspapers call it); but not being satisfied with these he makes a descent on the provinces, and carries off the Mayor of Leeds' 20*l.* cup, and the 20*l.* special prize for the best beast in the show-yard; and no one who knows his skill and perseverance will doubt that he is the most likely man to "play the same tune o'er again" in a few years. Success is a great incentive to his perseverance; but to be beaten is a double-power incentive, and calls forth all the energy he is possessed of—which is the reverse with many.

Turnips have been disappearing rapidly for some time back, but now most farmers generally part with a good number of their best beasts before Christmas, which will bring relief. A good breadth of what remains has been stored within the last few days, as they have been very favourable for the purpose. The system of storing mostly practised here is to top and tail three rows of four drills each, then throw the outside rows into the middle one in small heaps, say a load in two, and cover them loosely up with earth. Great care is taken not to cut the Turnip at top, nor root, only the loose earth and small tails being cut off; they are all covered as soon as pulled, which is performed by women and boys, with a man following to cover up; but a good many drive them home to some convenient place about the homestead, and cover them with old thatch from the stacks, which we think is the best plan.

Steam threshing machines have had plenty of work for some time back; but stackyards in general stand out well, and still the complaints are of the small quantity and light weight.

The weather, with the exception of some days in the beginning of the month, has been very favourable for ploughing, and stubbles are mostly all ploughed, and some commenced to their lea; and if farmers and cattle breeders are eager for competition with their cattle, their servants are equally eager in their department. Ploughing matches are being got up in every other parish, and the greatest excitement prevails who will take prizes for grooming horses and harness, and ploughs of every description are tried and their merits discussed; but those mostly in vogue are those made by Sellar, of Huntly, which have stood the test for a good many years.

Our agricultural societies might do worse than imitate the Smithfield Club, and present 1st prize winners with something to commemorate the event, as we believe the diplomas presented by that Society are highly valued by the winners. *J.*

Miscellaneous.

The Agricultural Library.—The following, which we take from the Lists of the Agricultural Library ("Estates Gazette" Office) 200, Fleet Street, professes to give a full List of the Agricultural and Horticultural Publications of the last 4 years:—

1864.

Principles of Agriculture. By W. Bland. 4*s.* 6*d.*
How to Lay Out a Garden. (3d edition.) By E. Kemp. 18*s.*
Shall we Prevent Cattle Diseases? 6*d.*
Villas and Cottages. By C. Vaux. 15*s.*
Law of Landlord and Tenant. By John F. Archbold. 14*s.*
Window Gardens for the People. By Rev. S. H. Parkes. 1*s.*
On the Succession Duty Act, 16 & 17 Vic. chap. 51. W. Brown.
Chapters on Plants: or Marion's Herbal. 1*s.* [10*s.*
Cottager's Kitchen, Fruit, and Flower Garden. By J. H. Clark. 1*s.*
Farming in India. By Lieut.-Col. Greenaway. 5*s.*
On Cottage Construction and Design. By C. W. Strickland. 7*s.* 6*d.*
Land Registration under Lord Westbury's Act. R. J. Abrahams. 1*s.*
Outlines of Modern Farming. By R. Scott Burn. Vol. III.—Stock, Cattle, Sheep, and Horses. 2*s.* 6*d.* Vol. IV.—Dairy, Pigs, and Poultry. 2*s.*
Our Domestic Animals in Health and Disease. By J. Gamgee. 6*s.*
British and Garden Botany. By L. H. Grindon. 12*s.* [8*l.* 8*s.*
History of Windsor Great Park and Forest. By W. Menzies.
Field Sports and Library of Vet. Knowledge. 2 vols. H. D. Miles.
Remarks on Horses' Teeth. By W. Miles. 1*s.* 6*d.* [35*s.*
The Weather Guide Book. By A. J. Pearce. 4*s.* 6*d.*
Wayside Weeds: Botanical Lessons from Lanes. S. Thomson. 5*s.*
Portable Farm Railways: a substitute for field carting. 6*d.*
Agriculture: Ancient and Modern. By an old Norfolk Farmer.
Grape Culturist. By Andrew A. Fuller. 6*s.* 6*d.*
Illustrated Horse Doctor. By Edward Mayhew. 18*s.* 6*d.*
Laboratory Guide for Students of Agricultural Chemistry. Church. 4*s.* 6*d.* [10*s.*
Compensation to Land and House Owners. By T. D. Ingram.
The Practical Shepherd: the Breeding, Management, Diseases, &c., of Sheep. By H. J. Randall. 15*s.*
The Ox: his Diseases and Treatment. J. B. Dobson. 7*s.* 6*d.*

1865.

Veterinary Medicines, their Actions and Uses. By F. Dun. 12*s.*
Practical Timber Measurer and Ready Reckoner. J. Sumner.
The Grape Vine Manual. 2*s.* 6*d.* [3*s.* 6*d.*

Gentleman's House: or how to Plan English Houses. R. Kerr. 24s. [12s. 6d.
On the Management and Utilization of Sewage. W. Menzies.
Apiary: or Bees, Beehives, &c. By A. Neighbour. 4s. 6d.
The Cow and the Dairy. 1s.
History and Uses of the Law of Entail. By C. Neat. 1s.
Application of Town Sewage to Land. By L. H. Spooner. 1s.
Letters by Baron Liebig on the Metropolitan Sewage. 10d. by post. [10s. 6d.
Tables for Facilitating Earthwork Calculations. Cunningham.
The Standard of Excellence in Exhibition of Poultry. 5s.
Cirencester College—Agricultural Lectures: Practice and Science. 5s.
Eggs and Poultry as a Source of Wealth. 1s.
Manse Garden. By N. Patterson. 2s. [Allnutt. 1s.
On the Nature and Treatment of the Cattle Plague. R. H.
On the Cattle Plague. By H. Bourguignon. 5s.
Young Botanist, with plates. By T. S. Ralph. Plain, 2s. 6d.; Richardson's Rural Handbook: Wheat. 1s. [coloured, 4s.
The Horse in the Stable and the Field. By J. H. Walsh. 12s.
History of Landed Tenures of Great Britain and Ireland. Walton. 2s. [18s. 6d.
Illustrated Horse Management. 400 engravings. E. Mayhew.
High Farming without Manure. By G. Martel. 2s. 6d.
Hints on Farming and Estate Management. D. G. F. Macdonald. 21s.

1866.

Dulcken's Domesticated Animals, Birds, &c. 6s.
Handy Horse Book. By a Cavalry Officer. 3s. 6d.
Poultry-keeper's Manual. 7s. 6d.
History of Sugar and Sugar-Yielding Plants. By Wm. Reed.
Wages Calculator. By R. Whiteside. 2s. 6d. [5s.
The Horse. By W. Youatt. Edited by W. Watson. New ed.
Farm Book-keeping. By W. Inglis. 2s. [12s. 6d.
Vegetables: how to Grow them. By Watts. 1s.
Rossiter's First Book of Botany. 1s. 6d.
Smith's Law of Landlord and Tenant. By Maude. 10s.
Watt's Vegetables and Flowers: how to Grow them. 2s. 6d.
Butler's Handbook on the Law of Property. 5s.
Cattlins' Rural Economy. 2s.
Rights and Liabilities as to Trees and Woods. 7s. 6d.
Every Man his own Gardener. By Maude and Abercrombie.
Starforth's Designs for Villa Residences. 25s. [5s.
Thomson on the Culture of the Pine Apple. 5s.
Diseases of Live Stock and their Remedies. 6d.
Rearing and Fattening Turkeys, Geese, Ducks, &c. 1s.
Poultry as a Meat Supply. 1s. 6d.
Plain Rules for the Stable. By Professor Gamgee. 1s.
Garden Architecture and Landscape Gardening. J. A. Hughes.
British Ferns. By T. Moore. 2s. 6d. [14s.
Newcomb's Farmer's Account Book. 5s. 6d.
Vine Culture under Glass. By John Pearson. 1s. [42s.
History of Agriculture and Prices in England. Rogers. 2 vols.
Ferns, British and Foreign; their History. By John Smith. 6s.
Our Common Fruits, Descriptive Account. Mrs. B. Bernard. 2s.
Modern Peach Pruner. By Rev. T. Brèhaut & T. Rivers. 3s. 6d.
Law Relating to Boundaries and Fences. By A. J. Hunt. 9s.
Home and Foreign Agricultural Miscellany. Wheat. 1s. each.
On the Management of Cattle in Health and Disease. Townsend. 1s.
Law relating to Horses. By C. Egan. 1s. [Law. 1s.
Farm, Garden, Stable, and Aviary. 5s.
Profitable Pigs, how to Breed. 1s.
The Horsekeeper's Receipt Book. 1s.

1867.

The Dove Cot and Rabbit Warren: rearing Pigeons and Rabbits. [1s.
Sewage of Towns; Papers by various Authors, read at Leaming.
Poultry Book. By Elizabeth Watts. 1s. [ton Spa. 3s. 6d.
The Handy Horse Book. By a Cavalry Officer. 4s. 6d.
Physiology of the Farm in aid of Rearing and Feeding Live Stock. By W. Seller and H. Stephens. 16s.
British Ferns and Mosses. 1s.
Poultry Book. By W. B. Tegetmeier. 18s.
Practical Poultry Keeper. By J. Wright. 5s.; coloured, 6s. 6d.
The Henwife. By Mrs. Arbuthnot. 4s. 6d.; coloured, 7s. 6d.
The Sewage Question; Review of all Systems. F. C. Krepp. 12s. 6d.
The Orchard and Fruit Garden. By Elizabeth Watts. 1s.
Cottage Economy. By W. Cobbett. 2s. 6d.
Mechi's Farm Balance Sheet and Lectures on Farming. 1s.
Beasley's Farmers' Account Book. 12s.
Designs for Country Residences. By Dean. 42s.
Cattle and Cattle Breeders. By W. M'Combie. 5s.
Hearths and Homesteads; Papers on Agriculture. 2s.
Practice with Science; Agricultural Papers. Edited by Rev. J. Constable, Cirencester Agricultural College. 5s.
New Edition, Young's Farmer's Calendar. By J. C. Morton. 12s. 6d.
On Pigeons, with numerous coloured plates. By W. B. Tegetmeier. 1s. each part.

Ostend Rabbits.—The season for the Ostend rabbit commences in September, and concludes about the end of March. At first the cases came over in small quantities on Wednesdays and Saturdays, to the extent of about 300 per week, Wednesday being always a comparatively trifling day. The importations from that time increase to 650 cases per week, and in the height of the season the average is 850 cases per week, gradually dying away with the warmer weather. Mr. Price gives the weekly average as follows:—700 packages, consisting of 120 cases, each containing 144, and 580 half-cases, each containing 72, or altogether 54,440 rabbits; and this brings the figures sufficiently near for all useful purposes, we preferring to accept the larger estimate, as we are informed that it is probable there will be three boats weekly during the forthcoming season, so that an increased supply may be looked for. The following approximate Table illustrates the great importance of this branch of trade:—

	Estimated weeks.	Cases each week.	Total cases.	Cwts.
September	4	300	1,200	2,400
October	5	600	3,000	6,000
November	4	850	3,400	6,800
December	5	850	4,250	8,500
January	4	850	3,400	6,800
February	4	850	3,400	6,800
March	5	650	3,250	6,500
	31	4,950	21,900	43,800

During the season we may thus safely estimate the arrivals at 43,800 cwt., or 4,905,600 lb., and, taking 3 lb. as the average weight, 1,630,000 rabbits. *Grocer.*

Notices to Correspondents.

SPRUCE AND SCOTCH FIR: *A H H* asks if the Spruce or Scotch Fir has ever been used for fences? He wants a close fence, about 5 feet high; will either of the sorts named answer his purpose?

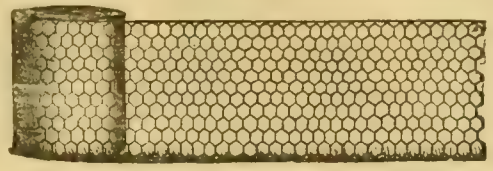
SWEDISH TURNIP: *T W.* The plants sent, grown in a field of Swedish Turnips, are Rape.

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2½ inch	Hares, Dogs, Poultry ..	2¾d.	3¾d.	3½d.	4½d.	4d.	5½d.	5d.	6½d.
2 inch	Game or Poultry Netting	3½d.	3⅝d.	3⅝d.	4½d.	4½d.	5¾d.	5¾d.	7d.
1⅝ inch	Small Rabbits, Hares, &c.	3½d.	4½d.	4½d.	5½d.	5d.	6½d.	6½d.	8d.
1½ inch	Smallest Rabbits	4½d.	5½d.	5½d.	6½d.	6½d.	8d.	8d.	10d.

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UNIVERSAL EXHIBITION, PARIS, 1867.



ALEX. SHANKS AND SON have received official intimation that the Jury at the Paris Exhibition have AWARDED them the FIRST PRIZE SILVER MEDAL for their PATENT LAWN MOWERS.

A. S. AND SON, judging from the fact, that out of all the Lawn Mowers in the Exhibition, their Machines have been the only Lawn Mowers deemed worthy by the Jury to receive so distinguished an honour, are gratified to find in this a further proof that the efforts they have made to improve their Machines have always been in the right direction. The demand for SHANKS' MACHINES increases year by year, and during the past season it has increased very considerably. A. S. AND SON having had so long an experience in this Trade, can confidently guarantee their Machines to be unequalled by any before the Public.

☞ *Every Machine warranted to give satisfaction, and if not approved of can be at once returned.*

ILLUSTRATED PRICE LISTS SENT FREE ON APPLICATION.

ALEX. SHANKS AND SON, DENS IRON WORKS, ARBROATH.
LONDON OFFICE AND SHOW ROOMS, 27, LEADENHALL STREET, E.C.

27, *Leadenhall Street is the only place in London where intending Purchasers of Lawn Mowers can choose from a Stock of from* 150 *to* 200 *Machines.* A. S. AND SON *have a staff of efficient Workmen at* 27, *Leadenhall Street, thoroughly acquainted with all the details of these Machines, so that they are enabled to repair them in London as well as can be done at their Manufactory.*

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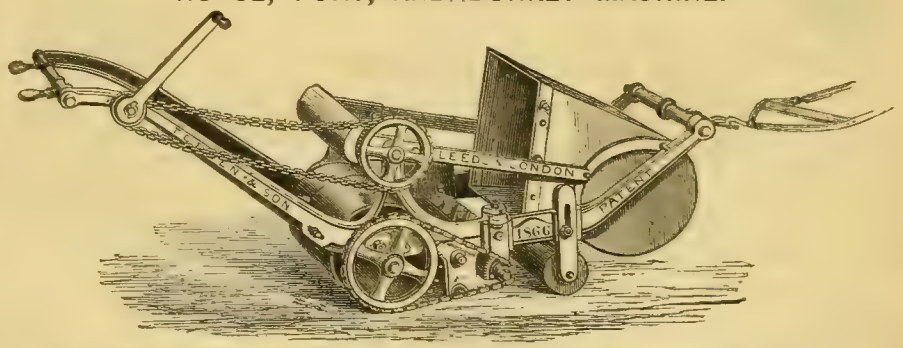
OR NOISELESS LAWN MOWING, ROLLING, AND COLLECTING MACHINES.

FITTED WITH PATENT SELF-SHARPENING CYLINDER CUTTERS.

They are the simplest in construction, least liable to get out of order, and can be worked with far greater ease than any other Lawn Mower extant.

GREEN'S PATENT LAWN MOWERS have proved to be the best, and have carried off every Prize that has been given in all cases of competition; and in proof of their superiority, 40,000 have been sold since the year 1856.

HORSE, PONY, AND DONKEY MACHINE.



Every Machine is warranted to give entire satisfaction, and if not approved of can be returned at once unconditionally.

T. GREEN AND SON *have to state that the demand for their* LAWN MOWERS *this Season has been unprecedented, which is a proof of the high estimation in which they are held. Selections can be made from their Stock both in London and Leeds.*

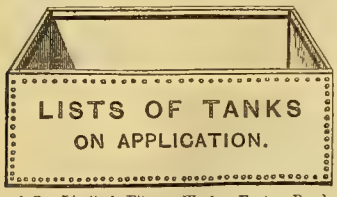
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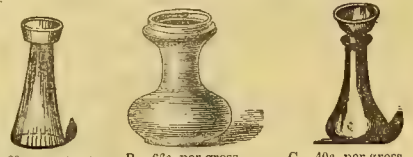
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NEW OVAL TUBULAR BOILER,

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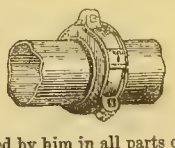
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Size of House.	Apparatus Complete.	Erection.	Size of House.	Apparatus Complete.	Erection.
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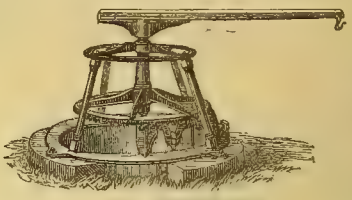
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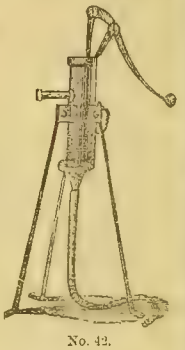
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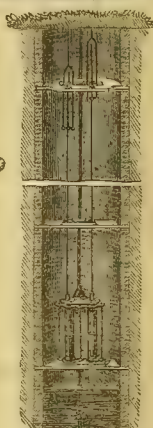
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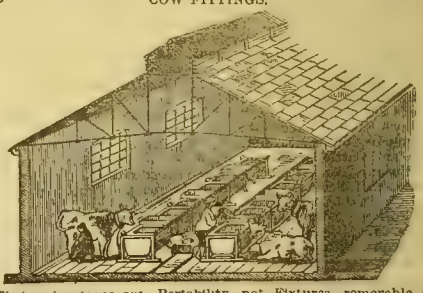
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AND

POULTRY-KEEPERS' and APIARIANS' CALENDAR for the YEAR 1868.

EDITED BY

GEORGE W. JOHNSON, Esq., F.R.H.S., Co-Editor of "The Journal of Horticulture;"
EDWARD HEWITT, Esq., Eden Cottage, Sparkbrook, Birmingham;
T. W. WOODBURY, Esq., Mount Radford, Exeter.

The "GARDENERS' ALMANAC" has been Published by the Stationers' Company for more than 20 years, and having now passed into the possession of its original Editor, he has resolved to make it additionally serviceable, by rendering it also an Annual for the Poultry-Keeper and Apiarian. It will supply what they have long needed, for besides the usual contents of a Family Almanac, and the Gardening information acceptable to the Amateur especially, it will contain Directions for the Treatment of Poultry, point out the defects especially to be avoided in those selected for Exhibition, and furnish a Diary enabling a daily record to be kept of the Eggs laid, Hens Sitting, &c. For the Bee-keeper there will be Directions for Management during each season of the year. The Editors are so well known that the Public will accept with confidence the information they impart.

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12 Dessert Forks	1	4	0	1	10	0	1	12	0	1	15	0
12 Dessert Spoons	1	4	0	1	10	0	1	12	0	1	15	0
12 Tea Spoons	0	16	0	1	0	0	1	2	0	1	5	0
6 Egg Spoons, gt. bowls..	0	10	0	0	12	0	0	12	0	0	13	6
2 Sauce Ladles	0	6	0	0	8	0	0	8	0	0	9	0
1 Gravy Spoon	0	6	6	0	9	0	0	10	0	0	11	0
2 Salt Spoons, gt. bowls..	0	3	4	0	4	0	0	4	0	0	4	6
1 Mustard Spoon, gt. bwl.	0	1	8	0	2	0	0	2	0	0	2	3
1 Pair of Sugar Tongs ..	0	2	6	0	3	6	0	3	6	0	4	0
1 Pair of Fish Carvers ..	1	4	0	1	10	0	1	10	0	1	10	0
1 Butter Knife	0	2	6	0	4	0	0	5	6	0	6	0
1 Soup Ladle	0	10	0	0	12	0	0	16	0	0	17	0
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Ivory Handles.	Table Knives per Dozen.		Dessert Knives per Dozen.		Carvers per Pair.	
	s.	d.	s.	d.	s.	d.
3½-inch ivory handles	13	0	10	6	6	0
3¾-inch fine ivory balance handles	18	0	14	0	5	9
4-inch ivory balance handles	21	0	16	0	5	9
4-inch fine ivory handles	28	0	21	0	8	0
4-inch finest African ivory handles	34	0	27	0	12	0
Ditto, with silver ferules	42	0	35	0	13	6
Ditto, carved handles, silver ferules ..	55	0	45	0	18	6
Nickel electro-silver handles	25	0	19	0	7	6
Silver handles, of any pattern	84	0	54	0	21	0
Bone and Horn Handles—Knives and Forks per dozen.						
White bone handles	13	6	11	0	3	0
Ditto, balance handles	23	0	17	0	4	6
Black horn rimmed shoulders	18	0	15	6	4	6
Ditto, very strong riveted handles ..	12	6	9	6	3	0

The largest stock in existence of Plated Dessert Knives and Forks, and of the new Plated Fish-eating Knives and Forks and Carvers.

COMFORT and WARMTH in BED. The PATENT EIDER and ARCTIC DOWN QUILTS, manufactured by WILLIAM S. BURTON, combine lightness with warmth. They wash like ordinary Coverlets and without unpicking, and may be used either to supersede Blankets or as Ornamental Counterpanes. Prices: Eider Down, from 16s. to £6; Arctic, 7s. to 35s.

WILLIAM S. BURTON, GENERAL FURNISHING IRONMONGER (BY APPOINTMENT TO H.R.H. THE PRINCE OF WALES), sends a CATALOGUE Gratis and Post paid. It contains upwards of 600 Illustrations of his unrivalled Stock of

STERLING SILVER and ELECTRO-PLATE,
NICKEL SILVER, and
BRITANNIA METAL GOODS,
DISH COVERS, HOT-WATER DISHES,
STOVES and FENDERS,
MARBLE CHIMNEY PIECES,
KITCHEN RANGES,
LAMPS, GASELIERS,
TEA TRAYS,
URNS and KETTLES,
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CLOCKS and CANDELABRA,
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TURNERY GOODS, &c.,

WITH LISTS OF PRICES AND PLANS OF THE TWENTY LARGE SHOW ROOMS, AT
39, OXFORD STREET, W.; 1, 1A, 2, 3, and 4, NEWMAN STREET; 4, 5, and 6, PERRY'S PLACE; and 1, NEWMAN YARD, LONDON.

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Hardy Ornamental and Flowering Trees & Shrubs, GREENHOUSE PLANTS, ROSES, FRUIT TREES, BULBS, &c.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on SATURDAY, December 21, at half-past 12 o'Clock precisely, 700 STANDARD and DWARF ROSES, from France; HARDY TREES and SHRUBS, FRUIT TREES, CAMELLIAS, AZALEAS, LILIUMS, GLADIOLI, HYACINTHS, TULIPS, &c.
On view the Morning of Sale, and Catalogues had.

Lilium auratum.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on FRIDAY, December 27, at half-past 12 o'Clock precisely, 10,000 splendid BULBS of the true and rare LILIUM AURATUM, just arrived, per mail steamer, from Japan.
On view the Morning of Sale, and Catalogues had

Balsam Seed.

F. AND A. SMITH are now executing Orders for their unrivalled Strain of the above, in collections of Nine Varieties at 2s. 6d. and Mixed Packets at 2s. and 1s. each. The quality this season is unusually good. Early Orders respectfully solicited. Terms to the Trade on application.
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Fruiting and Planting Vines from Eyes.

F. AND A. SMITH can supply Strong, Well-ripened CANES of above. Prices and Lists on application.
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MAURICE YOUNG'S NEW CATALOGUE of NEW HARDY PLANTS, JAPANESE NOVELTIES, NEW AUCUBAS, ORNAMENTAL TREES and SHRUBS, EVERGREENS, CONIFERÆ, RHODODENDRONS, FOREST TREES, &c., may be had on application.

DESIGNS, PLANS, and ESTIMATES PREPARED for LAYING-OUT NEW GROUNDS, IMPROVING PARK SCENERY, PLANTATIONS, &c.

FOREST TREES PLANTED by the Acre, and Guaranteed.

Convenient railway accommodation to all parts of the country.

Milford Nurseries, near Godalming, Surrey.

Paul's Nurseries, Waltham Cross, N.

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A choice variety of PICTORIAL TREES, his collection of which was the only one which received a Prize at the International Exhibition of 1866.

AMERICAN PLANTS. — Rhododendrons, Azaleas, Kalmias, Heaths, &c., in variety, from the commonest to the choicest.

FRUIT TREES. — Apples, Pears, Cherries, Plums, Figs, Peaches, Nectarines, Apricots, &c., &c.; Standards, Dwarfs, and Pyramids, trained and untrained. A large stock of handsome trees, many in a fruiting state.

GRAPE VINES.—All the best sorts, both Planting and Fruiting Canes.

PELARGONIUMS.—Beaton's and other Zonal kinds, Gold, Bronze, and Silver variegated, a fine collection.

HYACINTHS, TULIPS, and other BULBS.—All the First Prizes for Hyacinths and Tulips were awarded to his Collection at the London Flower Shows last spring. Cheap Hyacinths, Tulips, &c., for spring gardening by the 100 or 1000. Choicer kinds for pot culture and glasses good and cheap.
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HENRY MAY, The Hope Nurseries, Bedale, Yorkshire.

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S. GLENDINNING AND SONS are now offering for the first time the 12 beautiful, new, and distinct PELARGONIUMS raised by Mr. Wiggins, Gr. to W. BECK, Esq., of Isleworth, which were awarded numerous Certificates at the various Metropolitan Shows.
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Fine New TABLE APPLE, ST. ALBAN'S PIPPIN, Ripe in April. Plants ready in November, 5s. each; 36s. per doz. to the Trade.
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Gladioli.

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THE ONLY SPECIAL SILVER MEDAL FOR THE CULTURE OF THE ABOVE was awarded to

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To the Trade Only.

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AS EXHIBITED AT THE ROYAL BOTANIC GARDENS, REGENT'S PARK.

JOHN WATERER, the Exhibitor at the above Gardens, has pleasure in announcing that his CATALOGUE of the above popular Plants is now published, and will be forwarded to all applicants. It faithfully describes all the varieties considered worthy of cultivation. It contains likewise a selection of HARDY CONIFERS, with heights and prices.
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Hardy, Scarlet, and other choice named Rhododendrons.

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Containing much useful information in FLORICULTURE, HORTICULTURE, and AGRICULTURE, with ORIGINAL ARTICLES on CULTIVATION, and HINTS on the FORMATION and IMPROVEMENT of GARDEN LAWNS, CROQUET GROUNDS, &c., &c.

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WAS AWARDED TO
SUTTON AND SONS, ROYAL BERKSHIRE SEED ESTABLISHMENT, READING.

PARIS, 1867.
FOR EXCELLENCE OF QUALITY.

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SELECT LIST of KITCHEN GARDEN AND FLOWER SEEDS,

Is now ready, containing the CHOICEST NOVELTIES of the SEASON, and will be forwarded, Gratis and Post Free, on application to

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THE ONLY SILVER MEDAL FOR GRASS SEEDS.

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HAVE HAD THE
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FOR THE SUPERIOR QUALITY OF THEIR GRASS SEEDS.

JAMES CARTER AND CO. have had the honour of Supplying their GRASS SEEDS during the past Season for the Squares and Gardens of Paris; the Park of the Paris Exhibition; and also for the Private Lawn of H.R.H. the Crown Princess of Prussia, at Sans Souci.

ONLY PRIZE MEDAL
FOR
GENERAL EXCELLENCE OF SEEDS,
INTERNATIONAL EXHIBITION, LONDON, 1862,
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JAMES DICKSON & SONS

HAVE THE GREATEST CONFIDENCE IN INTRODUCING AND RECOMMENDING, AS BEING REAL ACQUISITIONS,

THE TWO FOLLOWING NEW AND SUPERB MELONS,

Which they believe to be superior to any others, and of which they hold the entire stocks.

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RECEIVED A FIRST-CLASS CERTIFICATE FROM THE ROYAL HORTICULTURAL SOCIETY IN 1864.

This valuable Melon is the production of Mr. T. Shortt, the raiser of several well-known varieties. It is a hybrid between "Trentham Cocoa Nut" and a very fine Italian variety. The fruit averages from 3 to 4 lb. in weight; has a yellowish green rind, flesh of a deep green colour, and delicious flavour. Should be sown about the middle or end of May, and can be had in use till the middle of January. The fruit improves after being cut, and has the unusual and desirable property of keeping 6 or 8 weeks.

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This excellent EARLY and PROLIFIC variety is by the same eminent raiser as the preceding, and is a hybrid between his "Heckfield Hybrid" and "Orion Prize." Of a handsome oval shape, light yellow colour, and beautifully reticulated; the flesh is pale green, and in point of flavour pronounced by the BEST judges to be unequalled.

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102, EASTGATE STREET, and "NEWTON" NURSERIES, CHESTER.

Editorial Communications should be addressed to "The Editor." Advertisements and Business Letters to "The Publisher," at the Office 41, Wellington Street, Covent Garden, London, W.C.
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THE GARDENERS' CHRONICLE

AND

AGRICULTURAL GAZETTE.

A Newspaper of Rural Economy and General News.

No. 52.—1867.] SATURDAY, DECEMBER 28. {Price Fivepence. Stamped Edition, 6d.

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SPRING SHOW, THURSDAY, May 21.
ROSE SHOW, THURSDAY, June 25.
Schedules will be ready in a few days, and may be had on application to the Secretar., at the Gardens.

WM. CUTBUSH AND SON beg to say that their DESCRIPTIVE CATALOGUE of CHOICE HYACINTHS, TULIPS, CROCUSES, &c., is now ready, and can be had post free on application. Highgate Nurseries, London, N.

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HYACINTHS for Glasses or Pots, 6*s*., 8*s*., and 10*s*. per dozen.
Victoria and Paradise Nursery, Upper Holloway, London, N.

WEBB'S NEW GIANT POLYANTHUS, Florist Flower, and GIANT COWSLIP SEEDS; also Plants of all the varieties, with double PRIMROSES of different colours; AURICULAS, both Single and Double, with every sort of Early Spring Flowers. LIST on application.—Mr. Webb, Calcot, Reading.

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"THE ROSES of MR. PAUL * * * are things to see once and dream of for ever."—*Athenæum*, *June*, 1867.
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Intending Purchasers who are not already Customers should send in their addresses at once.
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Wholesale Catalogue.

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Nurseries at Brunstane Glen, Musselburgh.

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To the Trade.

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VEGETABLE and FLOWER SEEDS, GLADIOLI, Implements, and every Garden requisite.
PRICED CATALOGUES post free on application.

SEEDLING FOREST TREES, &c. ASH, 2-yr., 2*s*.; BEECH, 3-yr., 3*s*. 6*d*.; HOLLIES, 1-yr., 5*s*; OAK, 3-yr., 7*s*. 6*d*.; QUICK, 1-yr., 1*s*. 6*d*.; SILVER FIR, 5-yr., 3*s*. 6*d*.; SPRUCE, 5-yr., 3*s*. 6*d*.; CRAB, 3-yr., 5 -; and SYCAMORE, 3-yr., 3*s*. 6*d*. per 1000. Cheaper by the 100,000. Apply to
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THE ONLY PRIZE MEDAL for ENGLISH GARDEN SEEDS, PARIS, 1867, was awarded to Sutton & Sons, Seed Growers, Reading.

Verbenas, Verbenas.

PHILIP LADDS is now sending out strong healthy plants, with plenty of Cuttings, including new varieties of 1867, at 3*s*. per dozen; small plants, 7*s*. per 100, p. ckage included. Terms cash.
Nurseries, Bexley Heath, Kent, S.E.

ABIES DOUGLASII, all sizes, in quantity, Wholesale and Retail, by
Dickson & Turnbull, Nurserymen, Perth.

FOR SALE, ACORNS (QUERCUS COCCINEA).
Address:—
Mr. Hastier, 12, Water Street, New Bridge Street, London, E.C.

White Thorn Quick.—To Railway Contractors, &c.

A MILLION of the best CAMBRIDGESHIRE WHITE THORN QUICK, from 1 to 3-yr. old, for SALE, in small or large Lots. For price apply to
Dawbarn Brothers, 10, St. Mary Axe, City, London, E.C.

Special Offer to the Trade.

SCOTCH FIRS, 10 to 15 inches, 2-yr. Transplanted, 10*s*. 6*d* per 1000.
LARCH, 2½ to 3½ feet, 12*s*. per 1000; 3 to 4 feet, 12*s*. per 1000. Grown upon high land, stout and well rooted. Apply to
J. Smith, Senior, Tinsley, Nurseries, Matlock, Derbyshire.

New Double Crimson Thorn.

WM. PAUL has still a few good FLOWERING PLANTS, established in Pots, of this first-class new Forcing Plant, price 5*s*. each. First-class Certificates at International, Royal Horticultural, and Royal Botanic Societies. It was also forced and exhibited by him on several occasions last spring.
Paul's Nurseries, Waltham Cross, N.

Larch, &c.

LARCH, 2½ to 4 feet, 15*s*; 3 to 4½ feet, 17*s*. 6*d*.; 3½ to 6 feet, 20*s*.; SCOTCH FIR, 1 to 2 feet, 15*s*.; SPRUCE, 1 to 1½ foot, 10*s*.; SILVER FIR, 6 to 12 ins., 5*s*.; OAK, 1½ to 2½ feet, 15*s*. per 1000. LIST of other TREES on application. Special quotations for large quantities. Apply, with reference, to
James Riddell, Steward, Park Attwood, Bewdley, Worcestershire.

Hazel, Larch, Scotch, &c.

J. SCOTT, Merriott Nurseries, Somerset, offers to Planters Five Acres of Transplanted HAZEL, from 3 to 4, and 4 to 6 ft., very fine; and large breadths of LARCH, SCOTCH, ASH, OAK, THORN, &c. Extensive Planters supplied at reduced prices. PORTUGAL LAURELS, YEWS and BOX, large and finely grown to be SOLD, a Bargain. CATALOGUES on application.

RICHARD SMITH'S LIST of all the EVERGREEN FIR TRIBE, suitable for Britain, giving size, price, popular and botanical names, derivations, description, form, colour, foliage, growth, timber, use in arts, native country and size there, situation, soil, and other information, with copious Index of their synonymes. Free by post for six postage stamps.
Richard Smith, Nurseryman and Seed Merchant, Worcester.

EVERY GARDEN REQUISITE kept in Stock at
Carter's New Seed Warehouse, 237 & 238, High Holborn, London.

Genuine Garden and Agricultural Seeds.

JAMES CARTER AND CO.
Seed Farmers, Merchants, and Nurserymen,
237 & 238, High Holborn, London, W.C.

Genuine Agricultural and Garden Seeds.

JAMES FAIRHEAD AND SON, Seed Growers and Merchants, 7, Borough Market, and Braintree, Essex.

Agricultural and Garden Seeds.

H. AND F. SHARPE beg to announce to the Trade that their SPECIAL LIST of HOME-GROWN SEEDS, 1867 Growth, is now ready and may be had on application.
Seed Growing Establishment, Wisbech, Cambs.

Kitchen Garden Seeds.

CHARLES SHARPE AND CO., Seed Merchants, Sleaford, will be glad to send, on application, a Special PRICED LIST of KITCHEN GARDEN SEEDS of their own saving this season.

Agricultural Seeds.

CHARLES SHARPE AND CO., Seed Merchants, Sleaford, will be glad to send on application a Special PRICED LIST of AGRICULTURAL SEEDS of their own saving this season.

J. SCOTT has a beautiful lot of first-rate growing seed of GYNERIUM ARGENTEUM (Pampas Grass), saved this autumn, price 1*s*. per packet. A quantity of PRINCE of WALES KIDNEY POTATOS, price on application to
J. Scott, The Seed Stores, Yeovil, Somerset.

Turnip Seeds.

CHARLES SHARPE AND CO., Seed Growers, Sleaford, will be glad to make special offers, on application, of TURNIP SEEDS of their own growing.

ASPARAGUS and SEAKALE, extra strong, for forcing.
James Dickson & Sons, Newton Nurseries, Chester.

THE LONG-STANDER LETTUCE.—Fine, crisp, and excellent, stands longer without running than any Lettuce extant. Packets 1*s*. each. Price to the Trade on application.
Stephen Brown, Seed Grower, Sudbury, Suffolk.

The Forwardest Pea known is

SUTTONS' RINGLEADER.
Price 2*s*. 6*d*. per quart.

Choice and True Potatos for Planting.

SUTTONS' DESCRIPTIVE LIST of the BEST SORTS is now ready, and may be had gratis and post free on application.
Royal Berks Seed Establishment, Reading.

SEED POTATOS.—All the finest varieties at very moderate prices.
H. & F. Sharpe, Wisbech.

MILKY WHITE POTATO.—Well-known and acknowledged to be the best Potato in cultivation, at 4*s*. per peck of 14 lb.; or 15*s*. per bushel of 56 lb. Guaranteed true and free from disease. Apply to
George Winfield, Gloucestershire Seed Warehouse, Gloucester.

Royal Ascot Vine.

JNO. STANDISH is prepared to send by post strong GRAFTS of the above VINE to any part of Great Britain at 10s. 6d. each, and 6d. the postage. He has no hesitation in saying that if side-grafted on any other strong Vine, just as the sap is rising, it will unite immediately, and bear a sample of bunches the same season, or within six months from the time of putting the graft. Persons not used to grafting can have a sketch, and how to do it, and the treatment afterwards. Also Plants now for Sale, in 6-inch pots, 42s. each.
Royal Nurseries, Ascot, Berks.

OBSERVE.—I have raised a NEW SEEDLING GRAPE, the Parent being that noble variety, now sending out, called the Champion Muscat. This new Seedling is identical with the above, only of a "deep golden colour," ripens a fortnight earlier in same house with the Hamburgh, and, it is considered, will be a Rival to the Muscat of Alexandria. This I have named the GOLDEN CHAMPION MUSCAT. It was described lately in the *Farmer*, *Gardeners' Chronicle*, and *Gardeners' Magazine*. I beg to inform the Public that Messrs. Osborn & Sons are sending out a White Grape named the Golden Champion; IT HAS NO CONNECTION WITH MY VARIETY.—WILLIAM MELVILLE.

FIFTY ACRES well stocked with FRUIT TREES to select from.—APPLES, PEARS, PLUMS, CHERRIES, PEACHES, NECTARINES, and APRICOTS, in every form desired for fruiting.
See RICHARD SMITH'S FRUIT LIST, free by post for 3 stamps.
RICHARD SMITH, Nurseryman, Worcester.

FOR THE OPEN GROUND.—APPLES, PEARS, PLUMS, and CHERRIES, fine healthy Pyramids, very ornamental and productive. Strongly recommended for large and small gardens.
See RICHARD SMITH'S FRUIT LIST, post free for 3 stamps.
RICHARD SMITH, Nurseryman, Worcester.

ESPALIER and WALL-TRAINED TREES in any quantity.—APPLES, PEARS, PLUMS, CHERRIES, PEACHES, NECTARINES, and APRICOTS, fine strong trees of perfect form.
See RICHARD SMITH'S FRUIT LIST, free by post for 3 stamps.
RICHARD SMITH, Nurseryman, Worcester.

A CROP of FRUIT the FIRST SEASON.—Bearing Pyramids and Bushes in pots for orchard houses. PEACHES, NECTARINES, APRICOTS, APPLES, PEARS, PLUMS, and CHERRIES. Extra strong VINES and FIGS in fruiting condition for forcing.
See RICHARD SMITH'S FRUIT LIST, post free for 3 stamps.
RICHARD SMITH, Nurseryman, Worcester.

MAGNIFICENT DWARF-TRAINED FRUIT TREES,
By the Dozen, Hundred, or Thousand.
APPLES, PEARS, PLUMS, CHERRIES, PEACHES, NECTARINES, and APRICOTS. [NECTARINES.
Also Standard, wall-trained, fruit bearing, PEACHES and PYRAMIDAL PEARS on the Quince Stock in a fruit-bearing state; and PYRAMIDAL PEARS, on the Pear Stock, extra strong and well grown.
WM. WOOD & SON have many acres of the above named, which for health and vigour are quite unsurpassed in the trade. The Trees have been most carefully trained, and are really examples of successful cultivation.
Address, Woodlands Nursery, Maresfield, near Uckfield, Sussex.

Woodlands Nursery, Maresfield, near Uckfield, Sussex.

WM. WOOD AND SON have a very extensive stock to offer of the following, viz.:—
Scarlet HORSE CHESTNUTS, Standards, 6 to 10 feet [1000
CATALPA SYRINGÆFOLIA | THUJA AUREA, by the 100 or
LABURNUMS, yellow and purple | Strong ASPARAGUS Plants
LARCH, SPRUCE, and SCOTCH FIRS
PINUS AUSTRIACA [and other Forest Trees
ASH, BIRCH, WILLOW, HORNBEAM, OAKS, SYCAMORE,
CATALOGUES and Samples may be had on application.

Paul & Son, "Old" Cheshunt Nurseries, Cheshunt, N.

PAUL AND SON invite attention to, and an inspection of, their stock of the following plants, which they are able to offer in large quantities:—
ROSES.—Standards and Half-standards, selection left to Messrs. PAUL & SON, 18s. per doz.; Dwarf Standards and Dwarfs, 12s. per doz.
Their stock at the commencement of the season, they believe unsurpassed in quality, is still unexhausted.
NOVELTIES.
PRINCESS MARY of CAMBRIDGE, Standards or Dwarfs, 2s. 6d.
COMTESSE JAUCOURT, Standards or Dwarfs, 5s. each. [each.
MARECHAL NIEL, fine Standards, 3s. 6d to 5s. each.
NEW ROSES of 1867, Dwarfs, 30s. per dozen.
FRUIT TREES.—They invite particular attention to their Standards for Orchard Culture; young, vigorous, and healthy trees of the leading kinds for the purpose supplied as under:—
STANDARD APPLES, 5½ to 6 feet stems, and good heads, 18s. per doz, £6 to £7 10s. per 100.
STANDARD PEARS, 24s. per doz., £7 10s. per 100.
STANDARD PLUMS and CHERRIES, 24s. per doz.
FRUITING PYRAMID APPLES, on Crab or Paradise, 18s. per doz.
FRUITING PYRAMID PEARS, on Quince, 30s. to 42s. per doz.
FRUITING PYRAMID CHERRIES, 30s. per dozen.
MORELLOS, on Mahalebs, particularly fine, 30s. per dozen; price per 100 on application.
DWARF-TRAINED PEACHES and APRICOTS, 60s. per dozen.
STANDARD WALL-TRAINED PEACHES and APRICOTS, 7s. 6d. to 10s. 6d. each.
Fine FRUITING HAMBURGH VINES, 7s. 6d. each.
Good Planting CANES of all leading kinds, 5s. each.
LARGE EVERGREENS, CONIFERÆ, &c.
AMERICAN ARBOR-VITÆ, 6 feet, 18s. per dozen.
CHINESE ARBOR-VITÆ, 6 to 8 feet, 30s. per dozen.
WARE'S ARBOR-VITÆ, 2 to 8 feet, very fine.
ABIES MENZIESII, 6 feet, 24s. per dozen.
ARAUCARIA IMBRICATA, 2 feet, 42s. per dozen; 2½ to 3 feet, 60s. to 84s. per dozen; 3 feet and upwards, 7s. 6d. to 21s. each.
Perfectly uninjured by frost.
ARBUTUS, choice sorts, 2 to 3 feet, 42s. per dozen.
CEDRUS ATLANTICA, 2½ to 3 feet, 18s. to 30s. per dozen.
CUPRESSUS LAWSONIANA, 3 to 4 feet, £5 per 100; 4 to 6 feet £7 10s. per 100; 6 to 7 feet, £10 per 100.
Picked Plants, each, or per dozen, charged Higher.
LAURELS, Common, 5 to 6 feet, bushy, £5 to £6 per 100; 6 to 8 feet, £7 10s. per 100.
Smaller Sizes, per 100 or 1000, on application.
LAURELS, PORTUGAL, 2½ to 3 feet, £5 per 100; 3 to 4 feet, £6 to £7 per 100.
RED CEDARS, of sizes, 4 to 6 feet
PINUS MURICATA, one of our richest coloured Pines, 3 to 6 feet, 2s. 6d. to 5s. each; 24s. to 42s. per dozen.
PINUS HARTWEGII, 2½ to 3 feet, 60s. per dozen.
" DEVONIANA, 1½ foot, 60s. per dozen.
" BENTHAMIANA, 2½ to 3 feet, 42s per dozen.
" INSIGNIS, 6 to 8 feet, 42s. per dozen.
" MACROPHYLLA, 1½ to 2 feet, 60s. per dozen.
" MACROCARPA, 2 to 2½ feet, 30s. to 42s. per dozen.
PICEA PINSAPO, 1½ to 2 feet, 36s. per dozen.
" NORDMANIANA, 1 foot, 30s. per dozen.
The above Abies, Cupressus, Pinus, and Piceas, are worthy of purchase for ornamental spots in woods, parks, &c.
RHODODENDRON PONTICUM, 2 to 3 feet, for cover or plantations, 20s. to 75s. per 100.
STANDARD ORNAMENTAL TREES.
PLANES, LIMES, POPLARS, MAPLES, LABURNUMS, and THORNS, 10 to 12 feet, from £5 to £7 10s. per 100, as chosen.
NOVELTIES.
PAUL & SON'S NEW DOUBLE CRIMSON THORN.—First-class Certificate Royal Botanic Society and International Exhibition, a fine addition to our valued spring-flowering trees.
STRONG FLOWERING PYRAMIDS, 6s. each; 50s. per dozen.
STANDARDS, 7s. each; in Pots for Forcing, 3s. 6d. each.
CERASUS MAHALEB VARIEGATA (Standards), 5s. each.
CORNUS MAS. VARIEGATA (Standards), 2s. 6d. each; 24s. per dozen.
The two last fine companions to Acer negundo variegata, now well known.
DESCRIPTIVE CATALOGUES post free on application.
The "Old" Nurseries, Cheshunt, Herts.

Green Hollies, 4 to 7 feet.

GEORGE CHIVAS, Chester, offers several Thousands of the above, very handsome plants, in excellent condition for removing; also an exceedingly large stock of extra strong THORNS, and many Millions of FOREST TREES, including LARCH of all sizes, SCOTCH FIR, twice transplanted, 1½ to 3 feet; SPRUCE, 1 to 3½ feet, thin on the ground; ASH, 2½ to 5 feet; ELM, 3 to 6 feet; SYCAMORE, 3 to 6 feet; OAKS, ALDERS BIRCH, &c.
PRICED LISTS on application.

Wonersh Nursery, near Guildford, Surrey.

W. VIRGO AND SON beg to announce that their Stock of TREES and SHRUBS of the undermentioned kinds is this season very extensive and well-grown, samples, prices, and Catalogues of which can be obtained on application:—

100,000 Hazel, 3 to 5 feet	50,000 GreenHolly, transplanted, 1½ to 2 ft.
50,000 Spruce Fir, 2 to 4 feet	Pinus Austriaca, 1 to 2 feet
50,000 Spanish Chestnut, 1½ to 2 ft.	Horse Chestnuts, 3 to 4 & 5 to 7 ft.
30,000 Alder, 3 to 4 feet	Common and Portugal Laurel
50,000 Ash, 2 to 3 feet	Berberis aquifolia
20,000 Sycamore, 3 to 4 feet	Arbor-vitæ
500,000 Quick, transplanted, 1½ to 2 feet	And other various Shrubs.

A large stock of strong STANDARD MORELLO CHERRIES, APPLES, PEARS, PLUMS, and DWARF-TRAINED do.

Extensive and well-grown Nursery Stock.

J. SCOTT, Merriott Nurseries, Somerset, has to offer FOREST TREES in large numbers, finely rooted and in perfect health. ORNAMENTAL TREES and SHRUBS of all sizes in quantity, beautifully grown and regularly transplanted.
Intending Planters would do well to visit these fine Nurseries, which have been established 150 years, and are by far the largest in Somerset. CATALOGUES on application.

THREE MILLION strong 4-yr. transplanted QUICK.
1,000,000 good 2-yr. transplanted QUICK.
2,000,000 superior Seedling QUICK.
100,000 good strong LARCH, 4 to 6 feet.
100,000 good strong LARCH, 2 to 4 feet.
For samples and prices apply to
JOHN HEMSLEY, High Fields, Melbourne, near Derby.

Planting Season.

DICKSONS AND CO., NURSERYMEN, SEEDSMEN, and FLORISTS, 1, Waterloo Place, Edinburgh, have this season a fine healthy stock of all kinds of FOREST TREES, which have been grown on exposed ground and thin in the lines, comprising LARCH (Native and Tyrolese), 1, 2, and 3-yr., transplanted; SCOTCH FIR, from true native seed, 2 and 3-yr., twice transplanted; SPRUCE, 2, 3, and 4-yr., twice transplanted; OAK, 2 to 3 ft. and 3 to 4 ft., extra fine; ASH, 2 to 3 ft. and 4 ft., extra; SPANISH CHESTNUT, 3 to 4 ft., very fine; ELM, 3 to 4 ft.; ALDER, 2 to 3 ft. and 4 ft., strong; LIMES, of all sizes, from 3 to 12 ft.; POPLARS and WILLOWS, of all sizes; EVERGREEN PRIVET, extra strong; THORNS and BEECH for hedges, and all kinds of plants suitable for cover for game. ORNAMENTAL TREES and SHRUBS, FRUIT TREES, ROSES, GREENHOUSE and STOVE PLANTS and FERNS in great variety.
PRICED CATALOGUES ree on application.

To the Trade Only.

THOMAS CRIPPS AND SON'S WHOLESALE CATALOGUE for the present Season, containing 62 pages of GENERAL NURSERY STOCK, can be had Post Free. It will be found to include the NEW SILVER-EDGED PRUNUS (CERASUS) MAHALEB, ROSSEELS' NEW GOLDEN ELM, NEW AUCUBAS, HYDRANGEAS, OSMANTHUS, WEIGELAS, and every novelty of merit. CUPRESSUS LAWSONIANA SEED in any quantity.
The Nurseries, Tunbridge Wells, Kent.

To the Seed Trade.

THE LONG-STANDER LETTUCE, greatly approved, and stands longer than any Lettuce extant.
DICKSON'S ALL THE YEAR ROUND LETTUCE.
HOLME PARK BATH COS LETTUCE.
GIANT WHITE-SEEDED BATH COS LETTUCE.
NEWNHAM PARK ONION.
DIXON'S NEW MAMMOTH CELERY.
Also several finest BROCCOLI and Frame CUCUMBERS, all true, and of first-rate quality. Prices on application.
STEPHEN BROWN, Seed Grower, Sudbury, Suffolk.

HORLEY'S VARIEGATED BROCCOLI.—This new ornamental Broccoli heads in April and May; at first it is white and compact, but as the plant advances in growth it expands from the centre, and becomes tinted in its feathery form with various shades of green, white, striped, and spotted. It is quite hardy, and during the winter months its appearance is very interesting and ornamental—rivalling in beauty the summer variegated plants.
May be had in packets, 2s. 6d. each, of HURST & SON, 6, Leadenhall Street, London, E.C.; who have purchased the entire stock from the raiser.

Splendid New Potato for 1868.

SUTTONS' BERKSHIRE KIDNEY.—This was raised and selected from among forty seedlings of the Fluke. Having ourselves planted it with different varieties of that class, we have proved it to be by far the best of them all, and fully a fortnight earlier. The tubers are all of good size, very numerous, of fine form, and remarkably clear skin. It is most valuable for the main garden crop, and will become a favourite with market gardeners. It has been remarkably free from disease, while other varieties growing close by were almost destroyed. The stock of this Potato is exclusively in our possession, and being limited, early orders are recommended to prevent disappointment. Price 5s. per peck.
SUTTON & SONS, Royal Berks Seed Establishment, Reading.

THE "COLDSTREAM EARLY POTATO," suitable for Orchard House or Early Garden Culture, is so early and productive as to surpass all other early round Potatos now in cultivation. See Testimonials. 18s. per bushel of 56 lb., 5s. per peck of 14 lb. All Orders should be accompanied by a P. O. O.
To be had of HOGG & WOOD, Nurserymen, Coldstream, N.B.; HOGG & ROBERTSON, 22, Mary Street, Dublin; and of the Trade generally.

Seed Potatos.

H. AND F. SHARPE are now offering MYATT'S EARLY PROLIFIC KIDNEY, RIVERS' ROYAL ASH-LEAF, WEBB'S IMPERIAL KIDNEY, DAINTREE'S EARLIEST, EARLY OXFORD, EARLY FORTY-FOLD, and many other Early and Late varieties grown from their own selected stocks. The Prices are moderate, and the quality excellent. PRICED LISTS may be had on application.
Seed Growing Establishment, Wisbech.

MILKY WHITE, a NEW POTATO, introduced by MESSRS. WHEELER AND SON, of Gloucester.

MILKY WHITE is the best of all Potatos.

MILKY WHITE is acknowledged to be the best of all Potatos. In shape and colour, flavour and appearance, it excels every other variety. It is as white as milk, floury as a Fluke, ripens in August, and continues in splendid condition for Cooking all through the Autumn, Winter, and Spring.

MILKY WHITE POTATO—white as milk.

MILKY WHITE is of the finest quality.

MILKY WHITE SEED POTATOS are very scarce, and early orders are absolutely necessary in order to secure a supply. Lowest price, 5s. per peck; 20s. per bushel (56 lb.)

MILKY WHITE.—Last year the demand for this new and most excellent variety greatly exceeded the supply, so that very early in the planting season MESSRS. WHEELER & SON were obliged, much to their regret, to decline orders. They have every reason to believe that the demand this coming season will exceed that of last year; they therefore respectfully urge the importance of ordering whilst they are to be had. The lowest price is 5s. per peck (14 lb.), or 20s. per bushel (56 lb.)
J. C. WHEELER & SON, Seed Growers, Gloucester.

MILKY WHITE POTATO.—The exceeding excellence and high character this famous POTATO has attained renders it highly important that buyers should exercise the greatest caution in obtaining it true. This may be done by ordering them direct from J. C. WHEELER & SON, Seed Growers, Gloucester, or from the following firms:—

Peter Lawson & Son, Edinburgh and London	Lucombe, Pince, & Co., Exeter
Jacob Wrench & Sons, London Bridge	Chivas & Weaver, Chester
James Carter & Co., High Holborn	Osborn & Sons, Fulham
Sutton & Sons, Reading	W. Toogood, Southampton
James Veitch & Sons, Chelsea	Hooper & Co., Covent Garden
F. & A. Dickson & Sons, Chester	B. Williams, Holloway
Hurst & Son, Leadenhall Street	T. Warner, Leicester
Charlwood & Cummins, Covent Garden	E. P. Dixon & Son, Hull
T. Whalley, Liverpool	J. B. Hartland, Cork
Barr & Sugden, London	Nutting & Sons, Barbican
Garaway & Co., Bristol	A. Henderson & Co., Pine Apple Place
John Palmer & Son, Annan	John Scott, Yeovil
	R. H. Poynter, Taunton
	Ballantyne & Son, Dalkeith
	John Clare, Cheltenham

The Milky White is not only perfectly distinct from, but far superior to every other variety. Great care should be taken to ensure having the true sort. It will be very provoking to find at getting-up time that one has been disappointed and deceived by having an inferior and comparatively worthless variety substituted.
J. C. WHEELER & SON, Gloucester, Seedsmen to the Gloucester Agricultural Society.

SEED CATALOGUE for 1868.

JOHN & CHARLES LEE

WILL BE HAPPY TO FORWARD THEIR DESCRIPTIVE

CATALOGUE OF AGRICULTURAL, VEGETABLE, AND FLOWER SEEDS,

Post Free on application.

ROYAL VINEYARD NURSERY and SEED ESTABLISHMENT, HAMMERSMITH, W.

TWO SUPERB NEW MELONS.

JAMES DICKSON & SONS

HAVE THE GREATEST CONFIDENCE IN INTRODUCING AND RECOMMENDING, AS BEING REAL ACQUISITIONS,

THE TWO FOLLOWING NEW AND SUPERB MELONS,

Which they believe to be superior to any others, and of which they hold the entire stocks.

DUKE of CORNWALL.

RECEIVED A FIRST-CLASS CERTIFICATE FROM THE ROYAL HORTICULTURAL SOCIETY IN 1864.

This valuable Melon is the production of Mr. T. Shortt, the raiser of several well-known varieties. It is a hybrid between "Trentham Cocoa Nut" and a very fine Italian variety. The fruit averages from 3 to 4 lb. in weight; has a yellowish green rind, flesh of a deep green colour, and delicious flavour. Should be sown about the middle or end of May, and can be had in use till the middle of January. The fruit improves after being cut, and has the unusual and desirable property of keeping 6 or 8 weeks.

GOLDEN EVERSLEY.

This excellent EARLY and PROLIFIC variety is by the same eminent raiser as the preceding, and is a hybrid between the "Heckfield Hybrid" and "Orion Prize." Of a handsome oval shape, light yellow colour, and beautifully reticulated; the flesh is pale green, and in point of flavour pronounced by the BEST judges to be unequalled.

Per packet, 2s. 6d. Prices to the Trade on application.

102, EASTGATE STREET, and "NEWTON" NURSERIES, CHESTER.

RAYNBIRD, CALDECOTT, BAWTREE, DOWLING, AND COMPANY, Limited,
CORN, SEED, MANURE, AND OILCAKE MERCHANTS,
Address, 89, Seed Market, Mark Lane, E.C.; or Basingstoke.
Samples and Prices post free on application. Prize Medals, 1851, for Wheat; 1862, for "Excellent Seed Corn and Seeds."

SEAKALE for FORCING.—Strong 2-yr. planted roots, 12s. per 100; Second Size, 8s. per 100.
Mr. MYATT, Manor Farm, Deptford.

MILKY WHITE (WHEELER'S), the best second EARLY KIDNEY POTATO, 6s. per peck.
Mr. MYATT, Manor Farm, Deptford.

MONA'S PRIDE (ROUTLEDGE), the best of all the EARLY ASH-LEAF Section, 2s. 6d. per peck.
Mr. MYATT, Manor Farm, Deptford.

MYATT'S PROLIFIC KIDNEY POTATO, 2s. 6d. per peck.
Mr. MYATT, Manor Farm, Deptford.
N.B. All orders from unknown correspondents must be accompanied by cash or reference.—Manor Farm, Deptford.

Potato Onions, Shallots, &c.

FOWLER AND CO. are booking orders for splendid POTATO ONIONS and SHALLOTS. Cash price, 20s. per cwt., bag included.
WANTED, a Lot good 3-yr. SEAKALE. State price.
COCKSFOOT, DOGSTAIL, RIB-GRASS, HOLCUS, &c., Cheap.
FOWLER & Co., Seedsmen and Nurserymen, Glasgow.

THE "LARGE COLDSTREAM LEEK" is the largest and best in cultivation, similar to and grown in the same locality as those known as Henry's Prize Leek, and Ayton Castle Leek. Free by post, 1s. per packet, or 12 postage stamps; or 8s. per 12 packets.
To be had direct of HOGG & WOOD, Nurserymen, Coldstream, N.B.; and of HOGG & ROBERTSON, 22, Mary Street, Dublin.

LEE'S GIANT ORACH (SPINACH).—This new and valuable variety of Orach possesses immense productive powers, combined with a delicious piquant flavour, quite distinct from all other varieties, rendering it a great acquisition as a Summer Spinach of the highest class.
The plant is of rapid and vigorous growth, and attains a height of 6 or 7 feet, with numerous branches; yielding a constant supply of large dark green leaves throughout the summer months.
The Fruit Committee of the Royal Horticultural Society awarded a First-class Certificate to LEE'S Giant Orach, after partaking of a dish of this most useful vegetable, cooked especially for their judgment.
JOHN & CHARLES LEE have much pleasure in introducing this productive vegetable, which they intend to send out in January next. Sealed packets, 1s. each. Price to the Trade on application.
Royal Vineyard Nursery and Seed Establishment, Hammersmith, W.

HENRY DEWAR begs to offer the undermentioned SEEDS, which he can with confidence recommend as being First-class (in sealed packets only):—
DEWAR'S IMPROVED SHORT-TOP RED BEETS, 1s. per packet.
NORTHUMBERLAND CHAMPION WHITE CELERY, 1s. p. pkt.
Extra choice (selected) BRUSSELS SPROUTS, 6d. per packet.
COOKE'S improved superb EARLY DWARF CABBAGE, 6d. p. pkt.
HALL'S NEW HYBRID NETTED GREEN-FLESH MELON.—A hardy free-bearing variety, fruit averaging from 3 to 5 lb.; thin skinned, very fleshy, and of most exquisite flavour; 1s. 6d. p. pkt.
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Look to your Grass Lands, &c.
ESTABLISHED 1820.

MESSRS. JARED T. HUNT AND SONS beg to inform their numerous Agricultural Friends and Customers, that they have now on hand, in the finest condition, their usual Autumn Stock of
AMMONIACAL CORN MANURE,
which has, for several years, given such general satisfaction.
They have also always on hand, ready for immediate delivery, the largest stock of CRUSHED BONES of any firm in the United Kingdom, viz.:—In ¼-inch BONES; ½-inch BONES; PULVERIZED BONES for Grass Lands; prepared BONES for Grape Vines and Hops; also BLOOD MANURE, SUPERPHOSPHATE of LIME, PERUVIAN GUANO, and NITRATE of SODA, direct from the Docks.
Prices and other particulars of the above, at their Works, Lambeth Wharf, London, S.; Bow Bridge Works, Stratford, E.; and Downham Market, Norfolk.
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Have now ready for delivery in dry fine condition,
CORN MANURE, for Spring Use
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SUPERPHOSPHATES of LIME
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MANGEL and POTATO MANURES.
Also Genuine PERUVIAN GUANO, and NITRATE of SODA, ex Dock Warehouse; SULPHATE of AMMONIA, FISHERY SALT, &c. E. PURSER, Secretary.
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LAWES' WHEAT MANURE for AUTUMN SOWING.—A supply of the above Manure is now ready for delivery, at J. B. LAWES' Factories, Deptford and Barking Creeks. Price £8 per ton. Two to three cwt. per acre to be harrowed into the land before the seed is sown. It can be obtained of MR. LAWES, or through any of his appointed Agents; also
LAWES' PATENT TURNIP MANURE .. £6 6 0 per ton.
SUPERPHOSPHATE of LIME .. .. £5 5 0 per ton.
Genuine PERUVIAN GUANO direct from the Importers, and all Chemical Manures of value.
AMERICAN and other CAKES at market prices.
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COCOA-NUT REFUSE is becoming scarce, the old reserves will soon be gone. Now sold in bags, 1 for 2s., 10 for 16s., 20 for 30s., 50 for 65s., 100 for £6.
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A Railway Truck-load (not in bags), 40s.
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WINTER-DRESS ALL FRUIT TREES with GISHURST COMPOUND.
Copy of a Letter from Mr. RIVERS, *Nurseries, Sawbridgeworth, Herts, 22d October*, 1861.
"I must tell you what I heard to-day from a very clever gentleman farmer, Anthony Bubb, Esq., of Witcombe Court, Gloucester. He has a wall to which Peach Trees are trained. Well, last autumn they were in a wretched blighted state. As a desperate remedy he unnailed them all, early last February, and gave all but one a thorough painting with Gishurst Compound, 1 lb. to the gallon of water; his trees, all but the one, commenced to grow favourably in spring, and are now pictures of health. The tree not painted is in a half-dead blighted state. He used the same dressing to his Apple Trees; it killed the woolly Aphis entirely, and has made his trees clean and vigorous in their growth. He intends to paint his Wall Trees annually, and tells all his friends to do the same. I shall certainly serve all my young Peach Trees against my walls in the same manner. The Compound is, I believe, more efficacious than the usual offensive mixtures of clay, soot, sulphur, &c.; and it does not blacken the shoots on the walls."
For Orchard-house Trees, 4 ozs. to the gallon will be found a good strength; when used stronger some buds on weakly trees may be injured.
GISHURST COMPOUND is sold Retail by Nurserymen and Seedsmen, in boxes, 1s., 3s., and 10s. 6d. each.
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Gishurst Compound has more recent testimonials to its efficacy, but none more conclusive than the above, which has been published before.

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SHEEP, 3s. 6d.; CATTLE, 4s. 2d.; OX, 5s. 11d.
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IMPORTERS, DEALERS, AND MANUFACTURERS OF GLASS,
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PRESENT PRICES of HYACINTH GLASSES.



A.—28s. per gross. 2s. 6d per dozen.
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The above are made in Green, Blue, Puce, and Amber. B can be had in Opal, 1s. per dozen extra.



GARDEN BORDER EDGING TILES, in great variety of patterns and materials, the plainer sorts being especially suited for KITCHEN GARDENS, as they harbour no Slugs and Insects, take up little room, and once put down incur no further labour and expense, as do "grown" Edgings, consequently being much cheaper.



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The duty performed by all C., S. & Co.'s Engines at Bury, *considerably exceeded that of any others*, and *has never been equalled at* ANY *of the trials of the Society*. C., S. & Co. refer with pleasure to the fact that the duty of their "COMMERCIAL" or SINGLE VALVE ENGINE, at Chester, so long ago as 1858, was not equalled by any "ordinary" Engine at Bury.

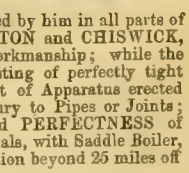
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Size of House.	Apparatus Complete.	Erection.	Size of House.	Apparatus Complete.	Erection.
20 feet by 10 feet ..	£9 0 0 ..	£2 0 0	50 feet by 15 feet ..	£17 10 0 ..	£3 0 0
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Bath and Gas Work erected in town or country. The Trade Supplied.
Horticultural Buildings of every description from 1s. 6d. *per foot superficial, inclusive of Brickwork.*

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ROBERT SIM can now send, post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his NEW and PRICED DESCRIPTIVE CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.

Foot's Cray Nursery, S.E., a mile from Sidcup Station of New North Kent Line of South Eastern Railway.

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ROBERT PARKER begs to announce that his NEW CATALOGUE, containing Select, Descriptive, and Priced Lists of New, Rare, and beautiful Greenhouse, Hardy and Stove Plants, Azalea indica, Fruit Trees, Grape Vines, Rhododendrons, Roses, Sweet Violets, &c.; Amaryllis, Crocuses, Cyclamens, Gladioli, Hyacinths, Liliums, Narcissus, Tulips, and other Bulbs, is now published and will be forwarded to applicants.

Exotic Nursery, Tooting, Surrey, S.

Viola Lutea (Yellow-flowered Violet).

B. S. WILLIAMS has much pleasure in being enabled to offer Choice and Selected Seed of the above beautiful Plant. Habit dwarf yet vigorous, foliage dark glossy green, flowers bright yellow, which are produced in great profusion all through the early Spring, Summer, and Autumn months. The plant does not grow more than 5 inches high; it is perfectly hardy, therefore well adapted for small beds, edgings, or marginal lines. It is without doubt the best yellow-flowered bedding plant in cultivation. It was spoken very highly of in the leading article of the *Gardeners' Chronicle*, November 2.

Mr. Fish, in his remarks about Violas (*Gardeners' Chronicle*, October 26), states that Viola lutea is a perfect gem, and is invaluable for a dwarf yellow bed or edgings. It is a bright yellow, of the most compact habit, and seems to flower more freely than V. cornuta.

Remarks by Mr. E. BENNETT, *The Gardens, Osberton Hall, Worksop.*

"Viola lutea, which has just risen so high in the estimation of all that have seen it in perfection, is undoubtedly a little gem, and will be much sought after this ensuing season. It is perfectly hardy, more dwarf in habit than V. cornuta; the foliage more striking, and flowers equally or even more freely; truly valuable for forcing, and blossomed profusely with me during the past spring. Indeed to see it in such perfection as I have done from early spring to October, I am justified in saying it is a most charming addition to the flower garden, more especially for small beds and front lines, for which it is so well adapted. Like all Violas it requires good rich soil and plenty of Manure, and prefers a moist situation."

Price 1s., 1s. 6d., and 2s. 6d. per packet.

VIOLA PURPLE QUEEN, true stock, 6d. and 1s. per packet.
VIOLA MAUVE QUEEN, true stock, 6d. and 1s. per packet.

B. S. WILLIAMS, Victoria and Paradise Nursery, Upper Holloway, N.

Rhododendrons.

AS EXHIBITED AT THE ROYAL BOTANIC GARDENS, REGENT'S PARK.

JOHN WATERER, the Exhibitor at the above Gardens, has pleasure in announcing that his CATALOGUE of the above popular Plants is now published, and will be forwarded to all applicants. It faithfully describes all the varieties considered worthy of cultivation. It contains likewise a selection of HARDY CONIFERS, with heights and prices.

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Hardy, Scarlet, and other choice named Rhododendrons.

W. H. ROGERS, Red Lodge Nursery, Southampton, offers the above in quantity at £10 per 100, or selected in fine and distinct colours, 30s. per dozen. The plants are strong, bushy, and well rooted. The sorts (about 200) are magnificent, and none finer in cultivation. A limited number of larger specimens, full of blooming buds, 5s. each. A detailed CATALOGUE may be had on application; and also of a very fine Collection of CONIFERÆ, ROSES, and GENERAL NURSERY STOCK, extending over 60 Acres.

Rhododendrons, &c.

JAMES SMITH, Darley Dale Nurseries, near Matlock, offers the following:—

150,000 RHODODENDRON PONTICUM, beautiful healthy plants, 9 to 15 inches, 15s. per 100; £6 10s. per 1000
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5,000 AZALEA PONTICUM, the sweet Azalea.—Beautiful bushy plants, 12 to 18 inches, mostly in bloom bud, 3s. per dozen; 20s. per 100. Ditto, 15 to 24 ins., 5s. per dozen; 30s. per 100
50,000 HARDY HEATHS, in about 20 varieties.—Good plants, in fine health, 3s. to 4s. per dozen; 10s. to 15s. per 100. Also about 20 varieties at 6s. to 7s. per dozen.
12,000 DOUBLE WHIN, GORSE, or FURZE, nice plants, well rooted, 2s. 6d. per dozen; 12s. per 100. Also, in pots, at 4s. per dozen; 20s. per 100
30,000 COTONEASTER MICROPHYLLA, 6 to 12 inches, 2s. 6d. per doz.; 12s. per 100. 1½ to 2 feet, 3s. per doz.; 15s. per 100
20,000 ARBOR-VITÆ, AMERICAN, beautiful plants, with fine roots, 1½ to 2 feet, 2s. per dozen; 12s. per 100. 2 to 3 feet, 2s. per dozen; 16s. per 100. 2½ to 3 feet, 2s. 6d. per dozen; 18s. per 100. 3 to 4 feet, 3s. per dozen; 20s. per 100. 4 to 5 feet, 6s. per dozen; 5 to 6 feet, 12s. per dozen
5,000 PORTUGAL LAURELS, 2 to 3 feet, beautiful plants, thrice transplanted, fine roots, 4s. per dozen; 25s. per 100
40,000 EVERGREEN PRIVET, 2 to 3 feet, fine plants for Hedges or Game Covert, 2s. 6d. per 100; 22s. per 1000
10,000 IRISH IVY, nice plants, 2s. per dozen; 8s. per 100
900,000 LARCH, transplanted, fine healthy plants, not the least injured by frost or any disease, 1½ to 2 feet, 14s. per 1000; 2 to 3 feet, 16s. per 1000; 3 to 4 feet, 18s. per 1000; 4 to 5 feet, 19s. per 1000

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THOMAS WARNER begs to remind Planters and the Trade, that in addition to his extensive General Nursery Stock he has the following in immense quantities, of unsurpassed quality, and at very reasonable prices:—

APPLES, APRICOTS, PEARS, and PLUMS, Standards, with stems 4 to 6 feet, and good heads, extra fine
APRICOTS, CHERRIES, and PEACHES, Dwarfs
CHERRIES and PEACHES, Dwarf-trained
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ROSES, finest varieties, Dwarfs on Manetti, remarkably strong and
ABIES CANADENSIS or HEMLOCK SPRUCE, 2½ to 3½ feet
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" SIBERIAN, 1½ to 4 feet, Pyramids, very handsome
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BOX, TREE (various sorts), 1 to 2½ feet
CEDRUS ARGENTEA, 1 to 4 feet, transplanted September, 1866
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CLEMATIS VITALBA (Traveller's Joy), transplanted
ELMS, standards (various sorts), 6 to 12 feet, extra fine
IVY, IRISH, 3½ to 4½ feet, strong and bushy, in pots, remarkably fine
POPLARS, BLACK ITALIAN and ONTARIO, 4 to 8 feet
SAVIN, 1½ to 2½ feet
SYCAMORE, COMMON, 4 to 6 feet, very fine
" VARIEGATED, 4 to 10 feet
THORNS, SCARLET and PINK, Standards, 6 to 8 feet
YEWS, ENGLISH and IRISH, 1 to 4 feet.

See CATALOGUES, Wholesale or Retail.

JAMES VEITCH & SONS

DESIRE TO DIRECT PARTICULAR ATTENTION TO THE

FOLLOWING NOVELTIES OF STERLING MERIT,

MANY OF WHICH ARE NOW OFFERED FOR THE FIRST TIME.

VEGETABLE SEEDS.

Borecole, Veitch's Dwarf Late Curled.

This excellent very hardy variety should be generally cultivated. It is of dwarf habit, beautifully curled, and stands the coldest seasons uninjured. Per packet, 1s.

Broccoli, Cattell's Eclipse.

A hardy very late white variety, heads having been cut as late as June 5th. It was awarded the First Prize at the International Horticultural Exhibition in 1866. Per packet, 1s. 6d.

Cabbage, Atkin's Matchless—Veitch's Improved.

Perfectly distinct from the variety usually sold as Atkin's Matchless. It is dwarf, of very delicate flavour, turns in quickly, and hearts well; should be generally cultivated. Per ounce, 1s.

Celery, Veitch's Silver White.

A variety of excellent flavour, beautifully solid and crisp, of medium growth, and very hardy, withstanding the wet when other varieties have perished. Per packet, 1s.

Cucumber, Dale's Conqueror (White Spine).

As an exhibition variety unequalled; length from 2 feet 8 inches to 3 feet, flesh of excellent quality, very shy seeding; has received many first prizes. Per packet, 1s. 6d.

Cucumber, Masters's Prolific.

Without doubt the finest Cucumber in cultivation, being equally suitable for summer or winter growing; very free bearing and of excellent quality. It is a seedling from the Sion House, but much more prolific, and of a hardier constitution than that variety. The fruit, which averages from 12 to 15 inches in length, is very handsome, and the handle remarkably short. The flesh is of excellent quality, and we cannot too strongly recommend it. Per packet, 1s.

Endive, Fraser's Improved Broad-leaved.

An excellent variety, of great hardiness, being invaluable for winter cultivation. Per ounce, 1s.

Lettuce, All the Year Round (Dickson's).

One of the best winter Lettuces in cultivation. Hardy, grows very compact, and is beautifully white, solid, and crisp. Per packet, 1s.

Melon, Heckfield Hybrid, green-fleshed.

This fruit, which is remarkably handsome, averages from 2½ to 3 lb. in weight, and whether for flavour, free bearing, or good constitution, is unsurpassable. It has received many prizes, including one at the International Fruit Show of the Royal Horticultural Society in October, 1862; a Medal at the Royal Botanic Summer Exhibition in 1861, &c., &c. Per packet, 2s.

Melon, Queen Emma.

A very handsome fine flavoured variety, obtained from the Heckfield Hybrid Melon, crossed with Meredith's Cashmere. The flesh is almost white, exceedingly melting and juicy, and with a very thin rind. Its constitution is excellent, and it will be found a very desirable variety, whether for exhibition or dessert. Per packet, 2s.

Orach (Spinach), Lee's Giant.

A new and valuable variety of Orach, of rapid and vigorous growth, attaining a height of 6 or 7 feet, and yielding a constant supply of large dark green leaves during the summer months. Per packet, 1s.

Pea, Maclean's Wonderful.

A white wrinkled marrow, about 3 feet high. It is a most abundant bearer, of fine flavour and excellent quality, with large and well-filled pods. A first-class second early variety, with a vigorous constitution. Per quart, 2s. 6d.

Pea, the Prince.

We have not yet had an opportunity of proving this Pea. It is said to be similar to Veitch's Perfection, rather later, very prolific, and of a hardy constitution. Per quart, 3s. 6d.

Potato, Veitch's Improved Early Ash-leaf Kidney.

An exceedingly heavy cropping and very early variety, strongly recommended. Per peck, 5s.

Savoy, Early Pancalier Joulin.

An early and very dwarf compact-growing variety, coming in before the Dwarf Ulm; of very delicate flavour. Per oz., 1s.

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A very prolific variety, of dwarf habit, and said to force well; fruit of a large size. Per packet, 1s. 6d.

Turnip, Veitch's Red Globe.

This excellent variety is of fine flavour, good shape, and should be grown in every garden. Per oz., 6d.; per lb., 6s.

FLOWER SEEDS.

Amberboa moschata atropurpurea.

(NEW PURPLE SWEET SULTAN.)

The following description is from the *Gardeners' Chronicle* of October 12, 1867:—"A very fine variety, and quite distinct in colour from any we have previously seen. Instead of the pale purple of the ordinary kind, this is of a deep rich port-wine colour, rather paler in the centre when fully blown; it is quite an acquisition among ornamental annuals." 1s. per packet.

Aster Schiller.

(DWARF PYRAMIDAL BOUQUET PERFECTION ASTER.)

This beautiful new section excels all other similar varieties by the elegance and regularity of its habit. Every plant, with its numerous double neat flowers, appears like the most perfect bouquet, of pyramidal form. Height, about 1½ foot; in two colours, viz., white, and dark crimson and white. 1s. per packet.

Aster Victoria.

The finest Aster of recent introduction. 3s. per collection.

Chrysanthemum carinatum hybridum flore-pleno.

New and beautiful colours of double-flowering Chrysanthemum, varying from orange to rich scarlet; also rose and purplish crimson. 1s. per packet.

Lobelia Miss Murphy.

The most compact and dense habited of all the Lobelias, averaging 5 to 6 inches high, by 6 to 8 in diameter, assuming a globular form, and covering itself with a profusion of pure white blossoms; for small flower beds, or places where a compact habit is required, it will prove very useful. 1s. per packet.

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The finest Dwarf Nasturtium for habit and colour; it grows only about 6 inches high, and makes a fine scarlet riband row or bed for the flower garden, continuing in bloom till destroyed by frost. 1s. per packet.

Portulaca grandiflora flore-pleno.

Beautiful novelty, in four colours. 2s. per collection.

Scabiosa nana flore-pleno.

This will be found a valuable improvement on the well-known Scabiosa nana, being of a much dwarfer and more compact habit. The flowers, which are quite double and round blooming, contain all the most beautiful shades of colour of the old variety. 6d. and 1s. per packet.

Stock—Dark Blood Red, large-flowering Emperor.

A fine novelty, very double. 1s. per packet.

Stock—Dark Blood Red, large-flowering Ten-week (Wallflower-leaved).

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THE GARDENERS' ROYAL BENEVOLENT INSTITUTION,

14, Tavistock Row, Covent Garden, London, W.C

The ANNUAL GENERAL MEETING of the Members of this Society will take place on WEDNESDAY, January 15 next, at the Bedford Hotel, Covent Garden, W.C., for the purpose of receiving the Report of the Committee and the Accounts of the Society for the past year and electing Officers for the ensuing year, also for the purpose of adding THREE PENSIONERS to the List; but in consequence of

THOMAS CLEAVE, of Harlaxton, near Grantham, formerly of Boconnoc, near Lostwithiel, aged 70; a Subscriber of £1 1*s.* per annum for 26 years;

EVAN HIBBT, of Caunton, near Newark, aged 68; a subscriber of £1 1*s.* per annum for 26 years; and

EMANUEL ROBINS, of Gloucester, aged 72; a Subscriber of £1 1*s.* per annum for 16 years,

being in distress, and having in every way complied with the regulations of the Society, the Committee recommend that they be placed on the Pension List, without the trouble and expense of an election, in conformity with Rule No. 6.

The Chair to be taken at Seven o'Clock precisely.

By Order,

December 28. EDWD. ROGER CUTLER, Secretary.

The Gardeners' Chronicle.

SATURDAY, DECEMBER 28, 1867.

SOME short time since a discussion arose in the "Journal of Botany" as to the question, WHAT IS A WEED? The discussion arose in consequence of some remarks of Dr. SEEMANN's in the same Journal, and which were transferred to our columns (p. 759). Now, although gardeners know as much about the ill effects of Weeds as any one, we are by no means sure that they are able to give a perfectly satisfactory definition of the word. In Dr. SEEMANN's opinion a weed may be considered as a naturalised herb, which has a soft and membranaceous look, grows fast, propagates its kind with great rapidity, and spreads to the prejudice of endemic or cultivated plants, in places in some way or other disturbed by the agency of man. We may refer the reader to the original article, in which these propositions are explained at greater length. But it will at once be seen that there are several points open to question here. While it is quite certain that many cornfield "weeds," for instance, have been introduced and become naturalised, it is equally certain that many more which have been introduced at various times, have not succeeded in establishing themselves: they are instances of what ALPHONSE DE CANDOLLE calls *naturalisation manquée*. Now what are these? Weeds, surely, and yet they have failed to naturalise themselves here, though they may have done so on the Continent. If we carry out Dr. SEEMANN's definition strictly, these plants would be weeds in one place, and not in another.

And this leads us to mention in brief, some remarks of Dr. TRIMEN's, who, taking exception to some of Dr. SEEMANN's statements, especially to such as would disqualify the Coltsfoot, Tussilago, or the Rest Harrow, for a place in the category of weeds, on the ground of their being native, not introduced, gives us the following definition of a weed, which he considers as "Any plant, irrespective of origin or appearance, occurring in cultivated ground, in addition to, and therefore more or less interfering with and injurious to the crop intended to be grown." It is, in fact, a something out of place, and this latter circumstance constitutes an important item in estimating the status of a weed. Elymus arenarius and other creeping Grasses by the sandy sea-shore are weedy enough in all conscience in some respects, though, as they are so serviceable in binding the loose sand, they can hardly be considered weeds. But place them, or as that cannot well be done, place their near ally the Squitch, Triticum repens, in a cornfield or a kitchen garden, and see whether there would not be a striking unanimity of opinion between the employer of the plough, and the wielder of the fork, as to the nature of the plant.

The possession of ornamental qualities does not raise a plant out of the category of weeds. Poppies, for instance, are gorgeously beautiful, and even find a place among the "annuals" in the flower garden, but they are nevertheless to all intents and purposes weeds when they grow in a Wheat-field. The Bearbine Convolvulus has pretty little flowers, but it is a sad weed in the garden: are we therefore to call its brother, C. Soldanella, which runs along the sea-shore, a weed? That is not out of place in the localities in which it grows; the sea-shore is its natural habitat; it interferes with no product of cultivation, and yet we suspect most people would call it a weed. And so with the gorgeous Horned Poppy, Glaucium luteum—a weed to most people, though it does not spread rapidly, does not get in the way, or trespass upon cultivated ground. In fact, while we most of us have our own notions as to what constitutes a weed, and are able to recognise one when we see it, yet we are much at a loss to give a correct definition of the offender. Nurserymen finding after a time that there is no sale for a particular plant, pretty or interesting though it may be, throw it away to make room for more profitable tenants. They treat plants whose only fault is want of success in pleasing the public taste, as they would a weed—they consign them to the rubbish heap, and they are lost to cultivation, unless, perchance, retained in some Botanic Garden, or in the refuge of some phytophilist, like Mr. WILSON SAUNDERS. Neither of the definitions we have alluded to are elastic enough to suit all the conditions of "weediness," as we have shown; but we must own our inability to furnish any one more free from exception.

THOUGH the fatal effects of FUNGOUS SPAWN on TREES and HERBACEOUS PLANTS were pointed out nearly 40 years ago, by the late Mr. J. HENDERSON, the scientific gardener of the Earl of FITZWILLIAM, it is only within a very few years that anything like a general apprehension of the evil has been prevalent amongst cultivators. We have before us two interesting cases which require special attention.

The first is that of a Deodar, an account of which, accompained by specimens, has been transmitted to us from Chatsworth, by Mr. TAPLIN. Nearly all the Deodars suffered materially from the winter of 1860-1861, but the tree from which the specimens were taken stood in a dry sheltered spot and escaped. Its condition, however, during the present year was deplorable, and it is now quite dead. Each branchlet was reduced to a little rough body, looking like a portion of some caterpillar, about a quarter of an inch long, the only sign of life being the appearance at the tip, of a minute tuft of bleached leaves about half a line in length, an appearance of which we have once seen the parallel in the case of some Scotch Firs. On examining the roots, which were developed in a loose, micaceous schistose soil, which might be supposed peculiarly favourable to growth, they were found to be densely covered with a powdery mycelium, while a section of the trunk exhibited undoubted signs of its deep penetration into the deep-seated tissues. Had the evil been ascertained earlier it is very possible that lifting and judicious root-pruning might have stopped the evil, as was the case some years since with a Deodar at Kew. At the very first symptom of disease, where the preservation of a particular tree is desirable, the condition of the roots should be carefully examined, and there will be then a very good prospect of arresting the evil. The tree, it should be observed, had not apparently suffered from the severe frost of last winter, but it made no growth beyond the slight effort described above. There can be no doubt that the malady dated from at least the previous year, and very probably was of long standing, though not observed till its effects became too glaring to escape notice.

The other case is that of some Peach trees, respecting which we have the following information. They are from eight to twelve years of age, and have borne good crops of fine fruit, until two years ago. They then showed signs of disease, the first symptoms of which were brown spots on the young wood and leaves, which spread rapidly. Some of the shoots died in the autumn in which they were attacked, while others lived till the spring. As the prospect of any further crop was hopeless, they were lifted, and the roots, as in the case of the Deodar, were found to be extensively covered with white mycelium, specimens of which are now before us. It is stated that there is nothing in the border, which consists of a heavy loam, 18 inches deep, and well drained, likely to favour the growth of Fungi. It is, however, difficult to show that this is the case, as contagion may proceed from very small morsels of undecomposed vegetable matter. It is not, however, clear whether

the contamination of one or two roots of the trees themselves which have perished may not be sufficient in some cases. We have seen, for example, mycelium attack roots where the soil has been sodden, though there was little apparent cause of contagion from other quarters; and a timely renewal of the border with well-chosen compost, and the removal of the affected parts, has been found sufficient in such a case to restore health. The subject is one which cannot be investigated too closely by cultivators; and we should be inclined, by way of experiment, to wash slightly any parts which had been only slightly affected with a solution of hyposulphite of soda before replanting the trees. *M. J. B.*

—— WE are informed that Messrs. LOVELL, REEVE & Co., will henceforth publish the JOURNAL OF BOTANY, edited by Dr. SEEMANN, and that the periodical in question will be issued on "magazine day."

—— A CHRYSANTHEMUM and FLORAL SOCIETY has been formed in Trowbridge, Wilts, for the purpose of holding a grand exhibition of Chrysanthemums in November next. A number of prizes will also be offered for Primulas, Cyclamens, Violets, &c., as well as for Fruits in season at that time.

THE NEW JAPANESE CHRYSANTHEMUMS.

I WISH to put on record some curious facts relating to the new varieties of Japanese Chrysanthemums raised by Mr. Salter and others, from plants introduced to England by me, during my visit to Japan in 1860 and 1861. In the autumn of 1860 I saw, for the first time, those peculiar forms of the flower which are cultivated in Japanese gardens, and was much struck with the effect they produced as ornamental plants. At Yedo, the capital of the empire, where the finest kinds are grown, I procured about 30 different varieties. Many of them had their blossoms most curiously and remarkably formed; the colours were varied, brilliant, and in some instances very unusual, and, altogether, they were quite distinct from any of those varieties I had met with in China. On referring to my journal, written at the time, I find the following entry: "If I can succeed in introducing these varieties into Europe, they may create as great a change amongst Chrysanthemums as my old *protégée*, the modest 'Chusan Daisy' did when she became the parent of the present race of Pompons."

There were many varieties in cultivation which I did not attempt to bring away, but selecting only the best and most attractive, I brought them over from Japan to Shanghae in China. Here it was necessary to leave them in charge of a Chinese gardener, while I went north to explore the country about Peking. During my absence in the north, the autumnal rains about Shanghae had been unusually heavy, and on my return I found that many of the Chrysanthemums had damped off, and many of the finest of those I had selected were thus lost to my collection. About a dozen or 15 kinds, however, were found alive, and these were introduced to England. So much for the history of these plants, which I have related somewhat fully, in order that the reader may more readily understand the further statements I have to make.

And now I come to the most curious part of my story: Mr. Salter, of Hammersmith, having procured seed from one, or at most from only two varieties of those introduced by me, has raised a large number of new kinds, not only differing in colour, and in form also, from the plant or plants from which he obtained his seeds, but identical, ornearly so, with the varieties now cultivated in Japan, and which I lost on the journey home. This result, moreover, in my opinion, has not been obtained by hybridising, for the simple reason that the pollen of the kinds now produced, could not be obtained in Europe. It would appear, therefore, that in so far as the Chrysanthemum is concerned, if we are in possession of one variety only we may make it reproduce all the other varieties in cultivation in those countries from whence it came, or at least varieties so like them in the form and colour of the flowers as not to be distinguished from them, and this without subjecting the variety in question to the influence of any other pollen than its own. In fact, flowers will be produced not only differing in colour from the parent, which is but a small matter, but entirely different in form also.

It is a well-known fact that individual plants of the Chinese Chrysanthemum "sport," as it is called, in an extraordinary manner; that a plant will sometimes throw up a stem producing flowers of quite a different colour from its own, and that the new variety may be perpetuated by propagation. But although well acquainted with this peculiarity of the plant I was not prepared for the changes which may be produced in it by reproduction from seed, and was rather surprised when visiting Mr. Salters' collection a short time ago, to find varieties reproduced which I had lost on the journey from Japan to England. I have now no doubt in my own mind that all those remarkable varieties of the Chrysanthemum seen by me in the gardens of Yedo, and probably many more, will now be reproduced from the seed of those few kinds which I managed to bring home to England.

There can be no doubt that these pretty Japanese flowers will prove most attractive objects in the greenhouse and conservatory during the dull months of winter. I am aware that for exhibition purposes, with our present ideas as to form and other peculiarities, they may be considered unsuitable, although in these reforming days it is just possible a change may take place in the views of florists themselves. There is a degree of stiff sameness in a house filled with incurved blooms, which is far from pleasing to those who are not learned in floriculture, and artists who wish to make a picture of these flowers are quite at their wits' end about the matter, and search eagerly but vainly for those fine tasselled blooms which were the pride of our gardens some 30 years ago.

In addition to their having flowers of curious and elegant forms, and of varied and brilliant colours, these Japanese Chrysanthemums possess other properties which render them valuable. Many of them remain long in bloom, and bloom later in the season than the Chinese kinds, so that we may have our greenhouses gay with them all through the dull winter months, when flowers are most rare.

Persons who have not visited Japan can have but a faint idea of the gorgeous beauty of these plants in their native country. The Japanese gardener grows his plants to a large size, and covers them with hundreds of blooms. Each individual bloom, too, is of a size far larger than we are accustomed to see in this country. Much of his success is, no doubt, due to his skill in cultivation, but he is much indebted also to the climate of his country. Let me take another leaf from my journal on this subject, to give some idea of that climate:—"The autumnal months are generally very delightful; the sun is sometimes hot in the middle of the day, yet the air is cool and agreeable, and the evenings are most enjoyable. At this time of the year the sun, for days, and sometimes for weeks together, rises in the morning, runs his course, and sets in the evening in a sky on which not a cloud has appeared." What a glorious climate, then, for the Chrysanthemum. *Robert Fortune.*

EXPOSING VINES DURING THE WINTER.

IN former days the practice of exposing Vines during the winter months was very common. Sometimes it was done from necessity, either through Pine plants being grown in the same house, or through the house being required for some other purpose, such as forcing Strawberries, &c., whilst the Vines were at rest; but it was also not unfrequently done under the erroneous impression that exposure was beneficial to the Vines. It was a practice in those days by no means uncommon to remove the whole of the lights from the Vineries and Peach-houses for several months. The consequence of this practice was, that in severe winters the buds and wood were greatly injured, and sometimes killed; and after the lights were put on, and forcing commenced, the buds on Peach trees would fall off instead of swelling, and young shoots and large branches would not unfrequently die off; while Vines, even with almost constant steaming, syringing, and forcing, could scarcely be got to break, and when any of them broke the shoots were so weak they would not stand the least sunshine, and shading—yes, shading—was had recourse to. If they showed any bunches, they not unfrequently died off, and the Vines eventually had oftentimes to be removed, and fresh ones planted in their places. Most gardeners of any lengthened experience will have seen instances of this kind.

The practice of exposing Vines in these days, even, is not altogether done away with; but it is now done more from necessity than choice, through the houses being required for other purposes. Vines that are grown under glass will only bear a certain degree of cold, and to expose them to the rigour of our winters without any kind of protection, is to run the risk of having them seriously injured, or, if very severe frost should set in, to have them completely ruined. When it becomes necessary to take Vines out of a house, they should be protected by some means from the severity of the winter. If there be no special provision made for this, such as double sashes in front, &c., then they should be well covered up with mats or straw.

I have known several instances of Vines being greatly injured by being exposed to the rigours of winter. One case that I saw some years ago—that of a house of young Vines completely ruined by a severe frost—struck me very forcibly at the time, and has convinced me of the erroneousness of exposing Vines to the severity of winter. I then resolved that I would never expose Vines to the rigours of winter; and that if compelled to take them out of the houses, I would adopt the precaution to protect them well whilst they were out. From what I have seen myself, and from the number of queries that are annually sent to the gardening periodicals about Vines not breaking, breaking badly, &c., I am convinced a great amount of mischief is done to Vines by exposing them to the weather.

"To be forewarned is to be forearmed;" and as the season is at hand when Vines are generally exposed, I take this opportunity to impress upon any one who may be about to do so, the necessity of well protecting them whilst out of doors, either by mats, straw, or other material. By so doing, they will have the satisfaction of saving their Vines from injury, and of seeing them break freely and strongly; and with proper attention they will be rewarded with crops of fine Grapes. *M. Saul, in "Florist and Pomologist."*

ON PURE HYBRIDISATION; OR, CROSSING DISTINCT SPECIES OF PLANTS.

[Extracted from a paper read by Isaac Anderson-Henry, Esq., F.L.S., President of the Botanical Society of Edinburgh, on 14th Nov., 1867, being the opening address of the 32d session of the Society.]

(*Concluded from p.* 1296.)

1st. In my various crossings I have had my hands on many hard as well as soft-wooded genera—in particular I would here instance among the former the Rhododen iron tribe. There I have again and again been baffled to reciprocate a cross which on one side was comparatively easy to be effected. When the lovely and fragrant Rhododendron Edgworthii first bloomed in this country, all were eager to see its beauty and perfume transfused into dwarfer and hardier forms. Some tried the cross by making Edgworthii the female or seed-bearer, others by making it the male. I tried it in both ways, but, for my own part, all those efforts failed where I attempted the cross on the Edgworthii. But while it would not be brought to bear hybrid seed, I had no great difficulty in effecting a cross from its pollen on R. ciliatum, another of Dr. Hooker's beautiful Sikkim species, having all the desirable requisites of hardihood, dwarf habit, and free-flowering tendency; and, singularly, just as I had obtained and sent off blooms of this brood to lay before the Committee of the Horticultural Society of London, Messrs. Veitch of Chelsea anticipated me in having a plant of this identical cross first exhibited before that Committee, which is now well known and generally cultivated under the name of "Rhododendron Princess Alice." Now, neither I nor any one who ever tried it, so far as I know, ever effected the inverse cross of R. ciliatum on R. Edgworthii; and if they did the progeny would long ere now have appeared in nursery catalogues. But more of this below, though there is yet one other instance I may notice now as an illustration of the matter I contend for here. In my former paper I noticed, as an exception to a rule I had found almost general—viz., that European had great aversion to cross with Asiatic species—that I had, notwithstanding, effected such a hybrid by crossing R. eleagnoides (another of Dr. Hooker's acquisitions, a tiny Sikkim species) on the European R. hirsutum, and of having sent the survivor of the two plants which came of it to Kew, of which, by the way, Dr. Hooker writes me, that it dwindled away and died after being a few years in their hands; but by no possible means could I invert that cross, or get that same very interesting tiny yellow-flowered species, R. eleagnoides (a form of R. lepidotum), to submit to a cross from any species whatever. But, with the intention of returning to this matter below if space admit, I shall here advert to the second point which Wichura lays down as a dogma—viz., that the progeny of reciprocal crossing, whether it is A on B or B on A, are precisely alike.

While my past experience goes with what I have observed this bygone summer, it may perhaps suffice to give the latest instance. Having, through the kindness of Dr. Hooker, obtained seeds of a beautiful new Californian Arabis (A. blepharophylla) bearing fine large rose-tinted flowers, I felt desirous to infuse that colour into some of the other kinds I possessed. After trying it on several, especially on A. albida, all in vain, I at last effected a cross—a reciprocal cross—between it and A. Soyeri, a white-flowered kind, something like the A. albida, but with glabrous foliage. Of the cross, A. Soyeri on A. blepharophylla, I have raised six plants, the product of two very largely developed seed-pods. These plants are alive and healthy, and promise an improved vigour over either parent. That the cross was sure I had the best proof, from there being no seeds in the normal pods of the seed-bearer. Of the inverse cross from one weakly seed-pod I raised one plant, which, after maintaining a sickly existence for some two months or so, has died off. But while this last cross was equally certain as the others, like it the plant had more of the mother than the father in it. In fact, I have oftenest found the maternal type most marked in hybrid progeny. I have various crosses effected between distinct species of the Rhododendron, where, while the male manifests his presence, the female type prevails. I have it in R. Jenkinsi crossed by R. Edgworthii, R. caucasicum by R. cinuamomeum, and the hybrid from this latter cross crossed again with R. Edgworthii, and especially in the Sikkim species, R. virgatum crossed with another of my hybrid R. ciliatum crossed by R. Edgworthii—all having more the foliage and the aspect of the mother than the father. Of the plant raised from this cross I shall have more to say below. I have another hybrid of the same R. virgatum, the female parent crossed, I believe, by Rhodothamnus chamæcistus, a tiny procumbent plant of 3 inches, but all set with flower-buds—not, as in the male parent, at the tips of the shoots, but, as in the female, at the axils of the leaves. I have stated my belief that the Rhodothamnus is the male parent, but I cannot do so confidently, from the tallies having got into confusion—the specimens being planted out. But as some plants were obtained from that cross, and as this is the smallest, I regard it as likeliest to be the true progeny; and the cross being an extreme one—a mule, in fact—it is open to question. But as I have this bygone season effected still more extreme—certainly more unlikely—crosses in that family, where there could be no miscarriage, you may, I think, take it as true in the mean time. But I could overwhelm you with proof. Darwin, at page 333 of the last edition of his "Origin of Species," has observed the above tendency. "When two species," he says, "are crossed, one has sometimes a prepotent power of impressing its likeness on the hybrid; and so I believe it to be with varieties of plants."

Naturalists of the highest note—Gærtner, Kolreuter, Naudin, and Wichura—are far from being at one on the subject of variability, as Darwin has shown, especially as relates to crosses: 1st, between species and species; 2d, between species and varieties; and, 3d, between mongrel offspring. But this is a complex subject; and when such high authorities are not at one, and Darwin admits that he cannot reconcile them, is is manifest that the case is still open to further probation. Please excuse me for citing him again in dealing with the views of Gærtner, to whose testimony he deservedly accords great value (page 331). Gærtner, whose strong wish "it was to draw a distinct line between species and varieties, could find very few, and, as it seems to me, quite unimportant, differences between the so-called hybrid offspring of species, and the so-called mongrel offspring of varieties. And, on the other hand, they agree most closely in many important respects." "The most important distinction is, that in the first generation mongrels are more variable than hybrids; but Gærtner admits that hybrids from species which have long been cultivated are often variable in the first generation; and I have myself seen striking instances of this fact. Gærtner further admits that hybrids between very closely allied species are more variable than those from very distinct species, and this shows that the difference in the degree of variability graduates away. When mongrels and the more fertile hybrids are propagated for several generations, an extreme amount of variability in their offspring is notorious; but some few cases, both of hybrids and mongrels long retaining uniformity of character, could be given. The variability, however, in the successive generations of mongrels is, perhaps, greater than in hybrids." So reservedly does Darwin deal with a subject on which a flood of the opinions of others could be brought to bear; but as they are not all concurrent, and not unfrequently conflicting, which they may well be from the various subjects experimented on, he has said, with commendable moderation, all that can be said on the subject.

From you, gentlemen, I respectfully claim the same kind indulgence which Darwin has shown to the testimony he has had to deal with, in judging of the views I have offered, and am now to offer, on the experiments I mean, as briefly as I can, to lay before you. But ere I enter upon them, it is necessary to premise especially as regards that form of dimorphism which occurs among many tribes—in all the Linnæan classes from Pentandria up to Decandria—in having very generally one if not two pairs of anthers shorter than other anthers in the same flower. And the same dimorphic form often occurs in even a more marked degree in many tribes of the class Tetrandria. Besides, as you know, and I have

noticed, it is the distinctive character of the two orders of Didynamia to have two long and two short stamens.

As observed in my former paper, it is now 17 years since my attention was drawn to the long and short stamens, but to the latter more particularly in some mulling operations there alluded to, where, by using them, I crossed that large species of Rhododendron, R. cinnamomeum, on the pigmy Rhododendron chamæcistus. I refer to these short stamens again, as the means by which I succeeded in effecting some extraordinary crosses which, I confidently believe, but for their use and my improving a propitious time, would have been utterly unattainable. As I have said, I at first worked only with short stamens. These I used in all cases where I wished to cross a large on a small species. I have now found that the converse holds, and use the long stamens where I wish to cross a small on a large species. In all extremes I use the longest or shortest pair of stamens, as the case demands. The short pair is generally well distanced by the others—the longest pair is often not just so much in advance. There is frequently an intermediate pair of short stamens, which in cases less extreme are exceedingly serviceable, but there are seldom such intermediates among the long ones. My reason for the use of these short, intermediate, and long stamens is intelligible enough. If I wish to cross a large on a small species, the smallest-grained pollen being in the short stamens, I take the pollen of these stamens of the large plant as best fitted to pass down between the cells of the stigma to fertilise the ovules of the smaller species, and so effect the cross on it; and so, *cæteris paribus*, with respect to the other forms. As this paper has already so far exceeded the limits I intended, I shall not go far back on past years, but restrict the instances I am now to cite to the last few years, noticing,

I. CROSSING WITH SHORT STAMENS.

The first cross I shall notice is one I have already alluded to—vis., Rhododendron virgatum with my hybrid Rhododendron B (R. ciliatum crossed on R. Edgworthii); and as this cross is memorable and instructive in several points of view, it is proper to give you its history. On April 20, 1864, I find from my note-book that "I took off all expanded blooms of R. virgatum and castrated all unopened ones on the plant, there being none left for self-fertilisation: done in fine sunshine—west wind—with three short anthers of B"—*i. e.*, the hybrid male, being the identical cross which produced Veitch's Rhododendron, Princess Alice. Of this cross I ripened four pods of seed, which I sowed on January 28, 1865, and, with some failures, got up by December that year seven nice healthy plants, all of which however, save one, I lost by an accident. That one plant is now setting for bloom—not at the axils, as the female parent (R. virgatum) generally shows, but at the extremities of the shoots, as in the male (R. Edgworthii). But, as I have had occasion to observe already, the type in all else is more that of the female than of the male parent. By the mother's side this plant is a hybrid, by the father's it is a mongrel, and yet it has a fair share of vigour in it. As in its sexual aspect so in its height, it is that of the mother. Some few ciliæ are noticeable on its leaves, but it has none of the tomentose or dense hairiness of the male parent; and so in this also it partakes most of the glabrous foliage of the mother. Again, this doubly-crossed plant, and the crosses which produced it—all extreme—show how such crossing may hasten on the reproductive or flowering state. Never in all my experience have I seen or heard of Rhododendrons offering bloom at two years of age, for it is only now rising in the third year of its being. I have Rhododendrons now 15 years from seed which have never shown the slightest tendency that way, though 10 and 12 years I should consider about the mean at which they attain their flowering condition. If by such crosses the like precocity can be generally secured, practical florists may turn them to some account in their profession. You will please observe that I am now dealing with hard-wooded shrubs, where there is in general more fixedness of structure and habit, than in those on which the physiologists I have cited have chiefly experimented, and which are less liable to be modified by the manifold influences which affect the more pliant and shorter lived herbaceous genera.

2d. The next cross in the Rhododendron tribe effected by the short stamens to which I would direct attention is very recent, and one with which I took the utmost pains to prevent miscarriage. The beautiful R. jasminiflorum of Java, with its delicious perfume, and its long tubular five-lobed flowers, of snowy whiteness, so like Erica Aitonia—so like, too, in form and fragrance, the sweet-scented jasmine, and so unlike all its own congeners, is the subject of it; and as I regard this cross of some scientific as well as of some practical value, I shall offer no apology for taxing your indulgence in giving you particulars. I made it the subject of many attempted crosses by many of its own tribe—all of which failed except two, which, by the way, afford a good illustration of what I alluded to in my former paper on the sympathies of plants, and perhaps, too, of natural selection, though whether it be in the mode which Darwin regards, as leading to diversity of species, I cannot positively assert, yet I think it is worthy of his consideration. Well, while it rejected so many of its legitimate brethren of the Rhododendron tribe pure and simple, I was somewhat surprised that it took kindly with my hybrid B already noticed—*i. e.*, R. ciliatum crossed by R. Edgworthii—a hybrid of the first degree, having large flowers of 3 inches diameter, perfumed, and also of snowy whiteness. After the bloom had been long emasculated, on April 17, 1867, I effected the cross with the short anthers of the hybrid B. The cross took admirably—the seed-pod swelled, and was pulled fully ripe about the 12th of July last. On the 13th of that month I sowed the seeds. For the purpose of comparison, I sowed a pod of its own plain native seeds which I had gathered previously, and had, in fact, sown it some 10 or 12 days before I sowed the cross. These are both now up. While the native seeds have produced a fair show of feeble plants, the crossed seeds have come up in more than double the number of plants, doubly vigorous in growth and habit, and with leaves so much larger than those of the normal forms, as to remove all doubt about the verity of the cross.

3d. The next illustration I have to give you is of a small-foliaged Indian Azalea, 18 inches high, which I crossed with the tall and robust shaggy-foliaged Rhododendron Edgworthii. Two things more unlike in every feature from which to effect a union can hardly be imagined. Yet, with the short anthers—and it was with the very shortest I could find on R. Edgworthii that I effected it—the cross, after careful emasculation, was done on 6th May last. The seed-pod swelled to its due dimensions, and appearing to be ripe, I cut a slice off it, and sowed the seeds so early as the 13th, and the residue on the 28th of September last, and I have now got up one or two plants. If I shall be so lucky as to bring it to maturity, the progeny of this cross (one never before accomplished perhaps) should be a sweet-scented Azalea, having a rose variegation like the female parent, a novelty in its tribe; for though the Azalea sinensis has been crossed by Rhododendrons, I am not aware of any authentic cross, or cross of any kind, between the Rhododendrons and this proper Indian Azalea.

4th. I have still further a cross of the same nature, between another Indian Azalea and the Rhododendron jasminiflorum, the latter being again the seed bearer; and I here refer to it mainly as showing another tendency of this Rhododendron towards natural selection, or rather perhaps of sympathy between it and remote species, if not genera, for the Azaleas have till lately been regarded as a separate tribe from the Rhododendrons. The cross was effected in August last, when it again rejected its more natural allies, and formed a union with the Indian Azalea, a late rose coloured spotted variety, a seedling of my own raising. The seed-pod of this cross is now at maturity.

5th. But I have now to call your attention to a cross in this same family bearing on Darwin's doctrine of natural selection, or of sympathy, in a still more remarkable manner, which I effected last summer between that most gorgeous of all the Rhododendron tribe—namely, the lovely white, large-flowering, sweet-scented R. Aucklandi of Dr. Hooker—and an Indian Azalea, the latter being the seed-bearer. I made the cross on two separate days on two separate blooms, carefully emasculated some time before; and on the same Azalea I tried other crosses with several of the Rhododendron tribe—viz., with a fine form of R. arboreum, R. Edgworthii pure, and the above hybrid seedling B (R. ciliatum × R. Edgworthii). But while every one of these failed, the crosses by R. Aucklandi, which were effected respectively on 30th April and 1st May, took most kindly. Both pods swelled; and the seed-pods, though green, appeared to be sufficiently ripe when I pulled them. I counted the seeds in one of these pods, and found them to be about 324, all finely formed, but, I fear, too green to vegetate freely, though some which I sowed appear to be coming up. I cannot vouch for this cross being effected with the shortest stamens, for the stamens with which I effected it were kindly sent to me from another source, as I did not myself possess the male plant; but as I invariably select the shortest for such crosses, my firm belief is, I had so selected these in this instance—and I had a plentiful supply of all lengths to choose from. In the above cases of crossing a small with a large species, I hold firmly by the opinion that but for the use of the short stamens I could not have succeeded. I have few recorded instances of having extended my experiments with them far into other families. I certainly tried the Pelargonium in a plant I had of the beautiful white-flowered Madame Vaucher. I fertilised a bloom with its two shortest anthers, which, however, were very little shorter than the remaining ones; and, from the three seeds which came of it I raised two fine plants, far more compact and somewhat dwarfer in habit than the parent, having the flowers equally fine, and elegantly thrown up above the plant. But the short stamens of this section of the Geraniaceæ are very little shorter than the others, and I therefore cannot rely much on the results as establishing the hypothesis I contended for in my former paper, namely, that where all other things are equal, a cross or simple fertilisation with the short anthers tends to dwarf the progeny—to my belief in which, however, I still adhere. The instances I have given above support this other hypothesis, that by their use you may cross a large on a small kindred species, a result which without them you might not effect.

II. CROSSING WITH LONG STAMENS.

I have made fewer experiments with the long stamens, but I have one before me now no less remarkable, perhaps, for its far-reaching result than any I have alluded to as done with the short anthers. It is a cross which I effected on the tall Rhododendron formosum, fertilised with a scarlet-flowered Indian Azalea, on the 11th June last. The seed-pod is finely developed, but I have taken care in this instance to avoid pulling it too early. And I may here notice once for all, that to obtain the seeds of a cross—especially if it be extreme—sufficiently ripe, you must allow a longer time for it than for the ripening of the normal seeds on the same plant.

In all the above crosses I had perhaps less an eye to accomplish a purely scientific experiment than to effect a beneficial result; for, after all, it is the *quid sit utile* which those for whom this paper is mainly intended, will have most in view; and, in my estimation, science is best promoted when she is made to minister to some useful end.

The following experiment among the species of Clematis illustrates my view of sympathy as well as of antipathy, and, I would add, of unnatural selection. Having many years ago (long before the Messrs. Jackman, who have accomplished such wonderful results) been myself working on the members of this genus, I bethought myself of trying my hand anew upon it, with a view to infuse a richer colour into a new and larger flowering progeny; and, as I have observed already, I managed successfully to cross with pollen kept for 11 months the beautiful 4-petaled flower Clematis Jackmanni on a 13-petaled flower of the fine C. candida; but it is of a cross on Messrs. Jackman's smaller but no less beautiful C. rubro-violacea I am now to speak. Though, like its congener C. Jackmanni, it sometimes comes with five or even six petals, it is in its general type a 4-petaled flower. With a view to improve it in this feature I crossed it also with pollen of the large flowered Clematis candida taken from a bloom having 17 petals, though this Clematis—a French hybrid, I believe, from C. lanuginosa—is in its normal state a 6 or 8-petaled flower. Though I crossed two flowers, after careful emasculation, I only gathered three seeds, but these all of unusually large dimensions. After the cross had taken, I left the normal blooms on the crossed plant to their fate; and though visited by insects innumerable, and though the native pollen was abundant, not one native seed, or any saving the three produced by the cross, were ever formed on the plant: and the singular thing was that, with its own native pollen, abortive on itself, I successfully crossed the fine double white-flowered Chinese C. Fortunei; and a cross more prolific in the seeds it yielded I have not seen in the tribe before. I know not the parentage from whence this C. rubro-violacea was derived, though I believe it to be a mongrel with none of the Fortunei blood in it; yet mark how kindly the latter took with it—another instance of remarkable sympathy; but, though I have no record of it, I think I failed to get C. rubro-violacea to reciprocate this cross.

In all these instances of sympathy and antipathy, and especially in this section of the natural order Ranunculaceæ, there is something so inexplicable to me, that I can only concur with what Darwin has observed in his paper on the existence of two forms in the genus Linum, where at the close, in summing up the good gained by the inevitable crossing of the dimorphic flowers, and numerous other analogous facts, he says that these all lead to the conclusion that some "unknown law of nature is here dimly indicated to us." And this law, when discovered, may disclose more mysteries, tending, perhaps, to the wider divergence of species, with constitutions and habits better fitted for the climates and localities in which they may be cast, as well as for subserving the purposes they are intended to fulfil in the economy of nature. In looking at Ranunculaceæ, with their innumerable male and female organs (and the same thing occurs in the Myrtaceæ, most of the Rosaceæ, some of the Hypericaceæ, and in many other families and tribes), the idea was long ago suggested to me that each separate row, from the outer to the inner circle of the anthers, might have some separate function, just as I believe that the long and short anthers have their separate functions; and with the view of testing the matter, I had last summer begun experiments with these outer and inner anthers; but other aims and objects interfering, I gave up the experiment after I had begun it on these Clematises.

But to make success certain, it is my custom, as I have already stated, in crossing either of the above polyandrous flowers, to take the entire bloom of one kind, and lightly to comb over, with all its anthers, the stigmas of the flower to be crossed, and leave Nature to make her own selection. In referring to the Rubus tribe and its species, I am reminded of an intention I expressed in my former paper of perhaps returning to them afterwards. I again tried my hand when them last summer. But though I tried various crosses among them, and reciprocated the cross, I had no success in any, except between the R. biflorus and the R. Idæus, and that only when I made the latter the seed bearer. And to make sure of either event—success or failure—I had the R. Idæus early potted and put under glass, emasculating every bloom I meant to cross; and for more security I stripped off all other flowers—nay, more, I put the emasculated flowers under fine gauze bags, to ward off the invasion of insects. When ripe for crossing I removed the bag, and, on effecting the cross, I replaced it. In this way I succeeded in ripening three berries of the cross R. Idæus + R. biflorus, of which I sowed the seeds between the 5th and 10th July, though as yet none have vegetated. But R. biflorus stubbornly rejected a reciprocal cross. Again I tried both of these on R. rupestris, and the latter on them; and though R. rupestris showed some sympathy with R. biflorus, in a slight tendency to form seeds, these came to nothing. In all these attempts I applied, as I have said, all the anthers of the male flower.

I cannot quit this part of the subject without offering some additional suggestions to those of you who may wish to act on any hints I have it in my power to give:—

1st, If your desire be to *hasten* the flowering condition of plants—cross violently—*i. e.*, where the allies are not too near akin, and above all, in the case of mongrels; for Nature, ere she gives up, always makes a violent effort to reproduce.

2d, If you wish to make your hybrid flower more *freely*, as well as *early*, adopt the same advice.

3d, By following it, you will find that you have attained a further advantage. Your plant will remain longer in bloom; because most mongrels, especially those among herbaceous or soft-wooded plants, to which these suggestions apply, are impotent to produce seed, or nearly so, and in such cases the blooms remain long upon the plant. I have another idea, not sufficiently tested, however, in reference to the first point among hard-wooded as well as soft-wooded plants, that all such as ripen their seeds more quickly than others (some among the Rhododendron tribe ripen seed in half the time that others take) will reach more quickly their flowering state.

Lastly, as to FRUITS, on which, however, I have only partially tried my hand, I entertain the belief that we are on the eve of a revolution; that by judicious and persevering crossing we may not only transfer the delicious aroma of one to another, and communicate hardier and more abundant bearing habits to the hybrid progeny, but farther, especially in stone fruits, such as Peaches, Plums, Apricots, &c., we may in addition to these advantages increase the size of the fruit and diminish the size of the stones, and among Vines get rid of or greatly diminish the number of the seeds. And all this I hold to arise from that law of Nature by which she not merely exerts her efforts to reproduce (to which, however, she assigns a limit) but extends it, where these have failed, to make provision for her creatures' wants. These views gather strength from what has already been done; and I may specially allude to what Mr. Standish, of Ascot, has achieved among Grapes, of whose extraordinary results an account is given at p. 135 of the Journal of the Royal Horticultural Society for July, 1866.

In conclusion, permit me to observe that, while my aim has been, in all the experiments I have brought before you, rather to achieve something useful and practical, than to test the theories which Mr. Darwin and others—especially the continental *savans*—have been so much engrossed with, I cannot refrain from remarking on the results and the conclusions which some of them have come to on prosecuting a series of crossing operations, tending to show that such crosses do and must eventuate in sterility. M. Naudin seems, like Wichura, as already observed, to have limited his experiments chiefly to herbaceous or soft-wooded plants; and among such, especially among Calceolarias, I too have often found myself brought to the terminus of bitter and hopeless sterility. I remember one instance where I had reached a perfect monster for size in that tribe, but except in that particular it had no other desirable property. Determined, however, to improve it by crossing I found on trial I could make nothing of it, and on examination I found its stigma was a hollow tube, and that its anthers were hard masses, and contained not one particle of pollen. Man may run into such mistakes, but he cannot thence conclude that unviolated Nature does so. Speaking from a general recollection which does not admit of my specifying instances, I have often found among hybrid seedlings some of a vigour which, in that respect, were in advance of either parent. May not such often occur in Nature, and, as naturally selected parents become the progenitors of a hardier and more vigorous race (which having in it, according to Darwin's views, a tendency to diverge), may it not culminate, in the long lapse of time, into a distinct species, and even annihilate the weaker one which gave it being?—so that, in Nature's crossing, may not fertility and vigour take the place of sterility and weakness, into which she so generally dwindles when modified by man's device?

In a sentence, ere I close, I beg to express, as indicated at the beginning, how far my own ideas harmonise with Mr. Darwin's on at least some of those doctrines propounded by him in the "Origin of Species." 1st, I am humbly but firmly of opinion that that portion of the creation which we inhabit came from the Creator's hand a completed work. 2d, That there were no separate or successive acts of creation apart from, or as a sequence of those mutations or convulsions through which this globe has passed. But I no less firmly believe, differing from Mr. Darwin, that it so came clothed with a vegetation of innumerable types and forms, different it may be from those that now appear, but from which these last, much varied, changed, and modified, are nevertheless legitimately descended. 3d, That differing again from Darwin's belief, expressed summarily at p. 570 (last edition), "that animals have descended from at most only four or five progenitors, and plants from an equal or lesser number," I nevertheless, as respects the latter (for with the former I have nothing here to do), agree with him that there may, and most likely (through the vast lapse of unknown time which, it must be admitted, is involved in this earth's history) has been a great divergence of species, whether arising from natural selection or descent with modification, or other causes. We see the laws by which such divergence may arise in operation around us now. I have no sympathy with those who, objecting to one part of his doctrines, wilfully shut their eyes to the grounds and facts on which the broad basis of his theory is laid, the truth and value of which, to my mind, is in no way shaken by all that is hypothetical being swept away. Holding the belief of innumerable vegetable forms having been simultaneously evoked into being with Creation, all the *divergence* of species and *diversity* of character for which Darwin contends, may, I think have arisen from the causes assigned by him. And, as for their *dispersion*, this, I humbly think, is reasonably accounted for from the various causes detailed by him, and briefly summed up in the following passage:—"The process of diffusion," he observes (p. 390), "may often be very slow, being dependent on climatal and geographical changes, or on strange accidents, or on the gradual acclimatisation of new species through the various climates through which they have to pass, but in the course of time the dominant forms will generally succeed in spreading."

I had intended farther, ere I closed this paper, to have offered some remarks on the very interesting paper of M. Naudin on hybridism, and had in fact written down some views with that intention; but as I have already exceeded all

due bounds, I must for the present leave that intention unfulfilled, having already detained you far too long on objects which, however interesting to me, are, I fear, tiresome and tedious to you.

VINE CULTURE AT GARSTON.—No IV.

POT VINES AND GENERAL MANAGEMENT.—Imagine a house 200 feet long, 40 feet wide, and 20 feet high, solely reserved and employed for the culture of Vines in pots! It is arranged thus; two beds, each 15 feet in width, are separated from one another by a broad central path. These beds assume the form of what are generally constructed for the cultivation of the Pine, having 9-inch brick walls built about 4 feet above the ground level, for the introduction of bottom-heating materials. Mr. Meredith, however, like most modern experimentalists, prefers the introduction of hot water, rather than to adopt the precarious method of the use of tan and leaves as a heating power, so that he may, like the skilled mechanic in charge of the locomotive engine, control its action to almost an infinitesimal degree. The beds in question are therefore simply used for retaining the plunging materials, which serve the double purpose of diffusing the artificial heat and arresting the speed of evaporation. The importance of controlling in some measure the speed at which moisture is extracted from the exposed surface of an earthenware pot in a tropical atmosphere, must be obvious to every thoughtful mind. If the roots of the Vine, or, in fact, of any other plant cramped within the limited compass of an earthenware pot, and exposed to the burning influence of the sun, had the power of signifying the position best suited to their wants, it would be found—and, indeed, is so, by the best of all crucial tests, practical experience—that shade and darkness are most agreeable to their propagation, and that without it they have not capacity for absorbing food sufficient to uphold and maintain a vigorous plant. It is, therefore, a wise plan to adopt the plunging principle, because, independent of all the advantages which have been referred to, there is so much less need for artificial waterings, which always more or less disturb the physical constitution of any compost, and consequently infringe upon what all cultivators have learned to appreciate and provide for—aëration.

Few readers will probably doubt the wisdom of the principles which I have been endeavouring to inculcate, but some may doubt the absolute necessity of carrying them out in strict integrity. If there be any such, I could very much wish that their eyes had seen the groups growing in different stages in the houses referred to. Few places in the country have indeed sufficient accommodation to spare for the culture of pot Vines, to grow them upon the plunging principle, and with that amount of breathing space to every leaf and shoot that Mr. Turner gives to his magnificent prize Pelargoniums, Mr. Wm. Paul to his equally grand pot Roses, or the Messrs. Veitch to their huge Azaleas; but when there is such demand for Grapes, and so marked a desire for extending the growing quarters of Vines, why not give them the utmost encouragement from their youth upwards? Some idea of that kind had evidently prompted Mr. Meredith when he determined to construct and set apart this house for Vine culture in pots, on a large scale, and with a proper regard and appreciation for the term cultivation in the highest sense of its meaning. In the first place, the plants are all grouped according to their kinds, and sized after the manner that one sees Heaths, Epacris, and Azaleas, in any great wholesale house; and as you pass along the walk you can observe that they are so apportioned as to appear like nursery beds in miniature. The farther advanced and the strongest of the plants are in 12-inch pots, and the stems in the first instance are trained to hazel rods, then to strings of matting, which, after being secured towards the extremity of the rods, are fastened to cross pieces of twine. By this means, and by the aid of the person deputed to do the necessary work, the growing canes never become entangled, and every leaf is amply exposed to the influences of air, light, and heat, and consequently fully acted upon thereby. We have, therefore, a proof in this instance of the best principles devised for root accommodation and propagation, where heat is administered in a greater or a less ratio, according to the judgment and experience of the responsible person, and a full recognition of the important action of air, light, and heat upon the leaves and stem of a plant from which much is expected in future years. "Theoretically you may," some one may rejoin, "but, practically, what does it amount to?" It amounted to this: instead of the plants showing long, lean internodes, and partially-developed buds that it required an effort of the eye to detect, and foliage like silk paper, clothed with warty excrescences, that you might crumble up like the fallen leaves of the forest, bereft of their chlorophyll, every cane was plump as a hazel rod, conspicuously short-jointed, the eyes "large and prominent," and the foliage of the most lusty green, well developed on stumpy foot-stalks, and, when coming in contact with the hand, rustling like friction of the same kind on a richly brocaded silk. Surely this is evidence to show the appositeness of the axiom that "what is worth doing is worth doing well."

But what will become of that great lot of pot Vines? Thousands of them are dispersing over the country we are aware, but their places can in a measure be replenished from the auxiliary stock growing in numerous little service houses dotted here and there over the place. I would not have ventured to propound such a question supposing it should be at the tip of the tongues of a thousand readers, were it not for the divulging of Mr. Meredith's plan for utilizing surplus stock, and turning the produce into money. Every house in the trade has its surplus stock, and Mr. Meredith would be a lucky fellow indeed if he could dispose of all the thousands at his command. His plan is to select the best favoured of the surplus batch, and force their produce into the market as early in the season as possible. It is no disadvantage with such late-keeping kinds as Alicante and Lady Downes', for it requires age after the period of colouring to make either of the sorts palatable, and although they won't take the market in May and June, they will be sought after in October and November, when the same varieties, ripe enough looking to the eye in the latter months, are insipid and ill flavoured. How much is it an advantage from this point of view to have strong fruit-bearing canes able to yield a respectable crop! and how disadvantageous are ill-grown plants, a surplus stock yielding *nil!*

Mr. Solomon reminded the writer of a capital plan adopted by Mr. Meredith for dinner-table decoration with pot Vines, which may serve as a "wrinkle" to those who require to attend to these sort of things, and who have not already practised it. The plan is to form a series of arches at intervals along the table with pot Vines full of fruit. This can easily be done by placing a couple of Vines at a convenient distance from one another, and tying their extremities together in the form of an elliptic arch, which can be kept in position by fastening to some ornamental stand in the centre of the table. Black Grapes look particularly luscious served in this way, the more especially if they have been under the hands of a good culturist. With the ornamental guards in use for encasing the pots, the fruit and the foliage, and the graceful way in which it hangs, there could be nothing more captivating to any number of guests, no way half so appropriate, not even the elegant March design, for presenting the offerings of Pomona.

In conclusion, let it be said that nothing in the routine of culture, so far as could be seen, was extravagant. The simplest materials compatible with safety and durability, whether with regard to the construction of the houses, the make-up of the borders, or the internal arrangements for moisture and ventilation, were in use. The older established Vines, and the younger batches were in good health, evincing no disposition, even in the moist atmospheres in which some of them were confined, to produce roots from the stems, which undoubtedly, as the Editor of the "Florist" (at p. 192, No. 69) has so well said, arises from "various causes, such as delicacy of constitution, temporary ill health, uncongenial soil, defective drainage, cold borders, drought, excess of liquid manure—from anything which would arrest the healthy progress of the roots."

The ventilation and the heating power is ample, a proper regard being evinced for extremes of heat in the one case, and for that of cold in the other. Economy is best studied, in all structures requiring much artificial heat, by having an extra proportion of heating surface, or, in other words, of hot-water pipes. Without this the best of boilers is of little use. One ought to attach far more importance to the fuel the boiler and its furnace will consume, than to anything else. Mr. Meredith prefers the saddle boiler on that account. With a proper draught, what is called "dross," or the refuse of large coal, will heat a boiler of this kind and maintain it at much less cost than the form of boilers where coke must be used to prevent the accumulation of soot, which is so powerful a non-conductor. *A.*

Home Correspondence.

Orchard Houses and Garden Walls.—With regard to substituting orchard houses for garden walls, there appeared in your columns some time ago a faint discussion. Some of your correspondents strongly recommended orchard houses, while others clung with a good deal of tenacity to the time-honoured garden walls, protesting against their wholesale denunciation, and contending that they are among the best features of a garden. It may be remembered that some years ago (see p. 742, 1852, and pp. 293, 582, 1853) I recommended a plan on a new principle for the arrangement of orchard houses, fruit and kitchen gardens, which, if carried out, would do away with walls altogether as a protection for fruit trees. Thirteen years' practice at this place has strengthened my opinion in favour of orchard houses rather than otherwise, as will presently be seen. Although this is by no means the wettest part of Argyleshire, the climate is upon the whole wet and comparatively sunless. Our proximity to the Atlantic, and the surrounding hills, greatly influence the amount of rain. Last year, for example, there fell here 63·90 inches, which is more than double the average yearly fall in Hertfordshire. The number of wet days, *i. e.*, days on which ·001 of an inch or more fell, is 238. Our summers are more humid and cold, and the winters more wet and mild than in England. It may then be fairly inferred that even with the assistance of glass there is a difficulty in ripening the wood of fruit trees in such a climate. Such being the case in houses, how does it fare with wall trees? The first failure with me was that of Peaches; then the gradual removal of Apricots, late Cherries, late Pears, &c., in fact, anything and everything that would not produce a crop. No doubt covering the walls with glass would, to a certain extent, improve the matter, but who in these days would think of building a wall and then covering it with glass? If a house can be built for 1*l.* per lineal foot, as your correspondent "G. A. H." says (see p. 631) why, then, build a wall at all? But supposing that it cost more in the first instance to build substantial houses, there would be the comfort and convenience of permanent protection in their favour. Besides, I contend that houses of a limited extent would produce fruit in greater abundance, of better quality, and with far more certainty than a wall of a much greater extent. There would thus be a great saving in the end. Walls have always appeared to me to be a rude contrivance for the protection of fruit trees, and I am sure that the day is not far distant when they will be considered things of the past, and will give place to something more useful and ornamental. Although I strongly recommend orchard houses instead of walls for the protection of fruit trees most liable to be injured by our changeable climate, I must not be understood to advise the pulling down of existing walls merely for the sake of change. Those, however, who are about to make alterations or form new gardens, would do well to consider the plan I have proposed, and the relative cost between building glass houses and walls of brick, or of any other material. *James Russell, Gr. to John Malcolm, Esq., of Poltalloch, Callton Mór, Lochgilphead.*

French and English Horticulture.—In your Number for the 16th of November last, Mr. Rivers, for whom I, in common with most French horticulturists, have a high regard, has criticised at much length the assertions of your correspondent "W. R.," and has made some comments on French gardening which call for a reply. Your Paris Correspondent confined himself principally to the points likely to interest English gardeners. He paid comparatively little attention to those branches of horticulture in which the English surpass all other nations; but, seeing that the wisest among us has always something to learn, he took care to study our French specialities, in the hope of being useful to his countrymen. I pass now to the objections of Mr. Rivers. In the opinion of this renowned horticulturist, it is not true to say that the culture of fruit trees against walls in the open air in France is more generally resorted to than in England. Mr. Rivers makes the bold assertion that there are more fruit walls in the counties of Middlesex and Hertfordshire than in all France. In the majority of the departments, and especially in the south, says he, all the walls are bare. This is a great mistake. Not to speak of Montreuil, Thoméry, or Argenteuil, I assert that the departments of Seine and Marne, of Aube, du Nord, de la Moselle, du Loiret, d'Indre et Loire, de Maine et l'Oise, and many others present a large extent of walls covered with fruit trees, and for the most part well managed. I know both England and France well, and I affirm without hesitation that the extent of walls devoted to the culture of fruit trees, and of the Vine, greatly surpasses that of England and Ireland. But even supposing Mr. Rivers' assertion were true, the answer would be ready: Why should we cultivate against walls, trees which grow everywhere in the open air in our climate? Trees planted in the open air, and trained according to the different forms adopted, are much more numerous with us than are Espaliers. [By Espaliers our correspondent means, we presume, what we call Wall trees.] In certain regions of France, in the west and in the central districts for example, all along the valley of the Loire from Auvergne to the sea, the fruit gardens, planted with the choicest fruit, send their surplus throughout the world. From the statistics of the railway companies, I find that the department of Maine et Loire alone sends into England, Russia, Sweden, and Germany, fruit to the value of five millions of francs yearly. I have said England purposely, because our fruit fetches a high price in the London markets. It must be understood that I do not speak of the common fruits which grow without special care in our orchards, and which are far more profitable than the others for that reason, but with particular reference to those trees which require the assistance of art. We are not a little surprised to find Mr. Rivers disparaging our arboriculture, which is generally acknowledged to be superior. Belgium, with all its famous cultivators, has only followed in our steps; Holland has done little or nothing hitherto; Germany, and specially Prussia, sets up its school of arboriculture, and borrows from us our professors. I cannot say so much for England, where the pruning of trees has been known for a long while, but without having been modified and perfected to the same extent as in France, by reason of the climate not being so favourable to open air culture. As to the assertion of Mr. Rivers relating to the quality of fruit in hot summers, is it not notorious that the hotter the spring and summer, the finer the flavour of the fruit? I could understand if he had said that the size was smaller, but his dictum as to the flavour is to us incomprehensible. Some years ago Mr. Rivers sent out a pear called Winter Beurré, which was watery and without much flavour, and hence met with but little success. Some time ago a friend of mine met a Bordeaux amateur, to whom he made the remark that this pear was of little value. "Not so," said the Bordelais, "it is one of our very best pears." Thus, under the influence of a southern sun, Mr. Rivers' pear is transformed into an excellent fruit. As to the cordon, its merits are fully recognised in this country, especially in small gardens, where an abundant harvest may be obtained from a small space. M. Jamin's simple bi-lateral cordon is the best, used as an edging for beds. I prefer the use of wire without *raidisseurs*, and simply fixed to light posts of wood or iron. The wire is concealed by the stem of the cordon, and instead of the appearance of a gridiron, which Mr. Rivers fears, we have that of a kitchen garden surrounded by garlands of tempting fruit. In spite of Mr. Rivers, the wire will remain, while the crooks advocated by him will scarcely be adopted. Your correspondent "W. R." was quite right in what he said with reference to M. Grin. M. Grin has only a small garden, in which he cultivates Peach trees according to his method of leaf-pinching, and where not a single lateral cordon can be seen. [It is evident that this is a mere question of words, and of the application of the word cordon in different manners by different people.] M. Grin took Mr. Rivers' friend to the garden of the Horticultural Society, of which M. Faillé is the curator. In this garden experiments are made on the different kinds of pruning by various members of the Society, M. Grin amongst others. Thus "W. R." has seen and has

truthfully recounted what he saw at Chartres. It is to be hoped that Mr. Rivers will not go to the expense of a patent for his four-branched cordons. They are to be found in many gardens in the neighbourhood of Paris. It is with these forms that the gardens would resemble gridirons. May good sense preserve us from such fancies. Without discussing the question whether the English "palmettes" are "éventails," I beg to call attention to the superiority of the form we call *palmettes simples*, that is to say, bi-lateral cordons of six or eight branches on a vertical trunk. This arrangement in the midst of the beds offers these advantages—great simplicity of pruning and training, abundant access of light and air to the fruit branches, resistance to the wind, protection against canker, and non-interference with the culture of the ground on either side. These advantages are contrasted with the inconvenience of the pyramids, which will sooner or later be abolished, with much reason. If the English horticulturists have great merits, the French have also their specialties. We know Arthur Young's writings quite well, but if England has progressed since then, France has not remained stationary. In spite of Mr. Rivers' assertion, the agricultural and horticultural publications of France hold a high rank in European technical literature. *A French Horticulturist.*

Root Fibrils.—Pending the publication of a paper I have written on Roots in a State of Nature and under the Regimen of Art, I think it better not to attempt to answer "T. R.'s" courteous and instructive statements at p. 1295. This will prevent needless repetition, and reveal to all concerned that however much we may differ on minute points, at least we agree in this, that we both sit at the feet of the same great teacher, Nature. I also most freely admit that my friend and instructor, "T. R.," has sat longer than, and probably observed more minutely, and profited more largely by his instructions, than I have; and that consequently he has strong presumptive evidence in favour of his interpretation of her modes of working being correct. Be that, however, as it may, I thank him for his further information upon a most important point of fruit tree culture, and confess that the additional intelligence so clearly conveyed at p. 1295, considerably modifies the impression I received from the leading article on the subject. As to the facts of the root fibrils being dead, in the cases cited, of course I never doubted that it was so. But, perverse as it may seem, I am still in doubt whether they can be said to have died a natural death. If only those on the surface die, that is only what we all must have expected, as there, it must be admitted, the roots were in an abnormal position. Unless in the case of aërial roots, a covering of some kind is the first necessity of root life. I wish therefore still to press the question of what depth beneath the surface the fibrils were found dead? I may also state that I shall possibly take objection to the roots of plants being classed with cannibals. My experience points in the opposite direction to this. While they greedily devour almost everything else, roots seem to avoid eating themselves, either living or dead. But I am sliding into criticism, against my intention; and conclude for the present by again inviting the attention of any root grower to the elucidation of these vitally important questions. Every practical man with an observant eye, ought to be able to furnish valuable information on this point; and the question should not be permitted to rest until the perpetuity or otherwise of the feeding roots in their normal condition under the earth is removed from the regions of speculative theory, and arranged in the category of clearly demonstrated facts. *D. T. Fish.*

Cordon Training.—The horizontal trees supported by iron rods mentioned by Mr. Wills as having been under his care some 40 years ago, and as having failed, were probably badly trained, and the rods not quite perfect; so the experiment, as usual in such cases, failed because it was not well handled. For some years I failed in experiments (too numerous to be named) that are now carried out with the greatest success. Many years ago I saw the culture of the Rose on the Manetti stock, fail with two or three of our largest and most talented Rose growers, but when the experiment was carefully attended to, it was found that no failure ought to have taken place. Mr. Wills must be now of a ripe age; let him try the double cordon trees for edgings, trained with curved iron rods, instead of to strained iron wires, and I feel certain he will, as I shall do, discard the latter. It is now years since I took to the single cordon Apple trees, trained to wires, for edgings, the simplicity of the method seemed so obvious, and, like the first declension in the Latin grammar, so easily mastered. After a time my eye became educated, and then I caught myself comparing these one-branched trees to an unfortunate one-armed Chelsea pensioner—there seemed something wanting; the want was at once supplied by training a tree with two arms instead of one, and calling it the double cordon tree, by which I mean a tree with one stem from which a branch on each side and of an equal height from the ground is trained, and this is the most eligible of all forms for edging trees, unless the garden be small, and then the quadruple cordon giving a double crop may be employed. These double cordons, supported with curved iron rods, are so "gardenesque," to use a Loudonism, and so artistic and pretty under all circumstances, whether it be under glass ridges, as I have Pears, Apricots, and Peaches, or as edgings to borders, as to insure a great share of popularity, they have not the rude-bent tree expression of the common single cordon. The curved iron rods, of which a figure is given in p. 1242, will be found most convenient for supporting Vines in ground Vineries, in preference to allowing them to rest on the slates; they are also most convenient to support Vines trained along the foot of a wall. The hint also given by "W. R.," I think, as to the training of cordon fruit trees at the foot of walls, is quite worthy of attention. In all these cases, the double cordon trees, and curved iron rods, should be adopted, and if they are trained at about 8 or 9 inches from the surface of the soil,* they will be found exceedingly neat and nice. If Mr. Wills will give them a fair trial, as I have done, he will admire them as much as I do. In his impatience to quote from an article by me Mr. Wills has forgotten the context, and he will, I am sure, thank me for reminding him that the article in question related to the most approved modes of culture of fruit for market, whether as standard trees in Grass orchards, or in cultivated fruit gardens. I was much struck with the knowledge of soils evinced by some French cultivators, and their avowed intention of planting fruit gardens. I have, however, been disappointed, for they have not carried out their ideas; and this reminds me of the quiet methods of many English cultivators who practise more than they publish. I know of one fruit gardener near London who often sends to market from 1000 to 2000 bushels of Victoria Plums, and an equal quantity of another sort of Plum, yet all is done quietly. My voice has been raised more particularly in favour of English amateur gardeners, whom it would seem, from what we have read, have no knowledge of fruit tree culture. From my own experience, which I know is far beyond that of any other cultivator, I fearlessly assert that a body of clever amateur gardeners does not exist in Europe equal to what we have in England, by which I mean the United Kingdom. As a rule, the Frenchman loves the town, the Englishman the country—hence the thousands upon thousands of detached villa residences, with their well-managed gardens, scattered over the face of the country in all places favoured with pleasant sites and fertile soils; 10,000 rectories and vicarages alone furnish a body of educated amateur gardeners perfectly unrivalled, and our men of business, either artisan or retired, are nearly all devoted to their gardens. As far as I have seen, the continental amateur gardening is as child's-play compared with ours. This has always appeared to me so palpable, that when in September last I read what seemed an attempt to lower our gardening *status* by asserting *inter alia* that we knew not how to train a wall Peach tree, I at once wrote my experience on the subject. I had not—neither could I have—any other motive than to tell the truth to the world. *T. R.*

Our Native Songsters.—Never in any autumn within my remembrance have I heard so little singing amongst our native birds. I have heard the grey or song thrush but once this autumn, and then only to the extent of a tune or two. The thrush leaves us at the end of August, as soon as moulting is over, for the South of France and Spain, to assist at the ingathering of the Grape crop, returning here again, fat and heavy, in November. And previous to this season, it has on all mild mornings and evenings throughout winter given us a hearty song. Not so, however, this season. The storm cock, or missel thrush, also, in seasons gone by, would often screech out its hurried songs, but these also have, so far, forgotten their music, though we have flocks of them clearing the berries of the Mountain Ash and Holly. The blackbird but seldom sings out heartily till February. Here, where we feed them, and they have no fear of us, I often hear them close at hand in the thick, warm shrubbery, within a few feet of me, with their beak closely shut, warbling their natural tune quietly in their throat in a very subdued but musical manner. The starlings, at their meeting place on an old naked-topped Beech, whistle and chatter away morning and evening as usual. My favourite owls have not been yet at all merry at night. The beautiful warble of the wood lark I have occasionally heard, and the hedge sparrow and robin have sung heartily. The jovial little Jenny Wren has been, and continues to be, very jolly—in fact, none of our native birds sing for so many months and days in the year as little Jenny Wren. *James Barnes, Bicton.*

Culture of Gladioli.—There are two points in the culture of Gladioli on which I would like to be satisfied. Catalogues of these bulbs often tell us that it is unfavourable to their cultivation to plant them twice in succession in the same place, or for two or three years again. In small gardens this would be a drawback to their culture. Last year I selected what I considered the most suitable plot I had for them, and if this be the case, I have to alter my arrangements again, and select another, and so on. The plot has already been well turned up, plenty of good manure has been mixed with the soil, and it will get another feed before planting. Would you consider that sufficient inducement to place them in the same bed? I have also read that lime does not agree with them. Can you inform me if this is the case? *R. G. Ross.*

Late-bearing Strawberries.—I as well as "Fructus" (see p. 1243) was much interested by the statement of "A. F. B." (see p. 1218). I at once came to the same conclusion, namely, that the late bearing was owing to spring removal, or late spring planting, as I know of no Strawberry that holds its first or prime crop of the year back so late; nor have I ever had any that commence with the usual crops, and continue bearing till November except the "four seasons," called Alpines. I have Mr. Gloëde's Perpetual Pine here, and I shall see what that will do. Mr. Rivers sent it to me, with a fair short-trial character. Very early or very late Strawberries are never so good as mid-season ones. "A. F. B." says the sort is called Triomphe. I know of only one by that name, which I had some years back—an American *espèce*. The plant is of dwarf habit, the fruit red or scarlet, the foliage semi-glazed, and season early. Would "A. F. B." state whether his kind answers to this description, and also whether he planted the sort late in the spring, or removed the plants late, so as to throw them back into late bearing? I think the Black Prince likely to succeed on this plan. I have often thought of pursuing this plan myself. Forced Strawberry plants, planted out and carefully attended to, I should think, might be made to bear late. I have increased my stock of Red and White Alpines, which bore through the season till November 4. I cultivate them as highly as I should cultivate the Queen; and amply they repay me. I have received from Mr. Rivers another Alpine sort, red, called Galande, which he says is delicious. Being highly cultivated, the old Red and White Alpines were very large this year. With or without sugar and cream, I prefer the flavour to that of any Strawberries, except, perhaps, the Hautbois flavour. They never cloy one's palate. *W. F. Radclyffe.*

Ventilation and Vaporisation.—The diagrams and description of Mr. Taylor's patent system of effecting these objects, given at p. 1268, seem to require further explanation. As the matter stands it seems that the air current could hardly flow in the direction of the arrows, but in the opposite direction. Instead of cold air coming in at *c*, I see nothing to hinder the hot air from rushing out—all principles of "Vacuum *v.* Plenum" notwithstanding. It is stated that "there is indispensably required for every structure an air-shaft arrangement, to produce the vacuum impulse for securing the constant interchange of air by egress as well as by ingress," but the position of no such shaft is indicated in the plans given. The object aimed at is good, but further information is needed to prove its practicability. Nothing could be better than the passage of the cold air through a hot vapour bath on its way to the house. By such means it would not only be warmed, but washed clean and watered as well—points that are often of the highest cultural importance. But notwithstanding what the inventor says about the easiness of attracting air into a building, and the difficulty of getting it out again, I believe the only difficulty with his plan, as given in your columns, would be in the opposite direction. The cold air would not, I expect, pass down from *c* to *b*, but a hot current would be established from *b* to *c*; and if so a waste of heat and vapour would be the nett gain of adopting this mode of ventilation. Of course if a hot-air shaft is erected in connection with the opening *d*, a current may be established sufficient to draw the cold air in; but such a shaft would have to be carried to a considerable height, and might seriously interfere with the ventilation of the whole body of the house. Perhaps the patentee would also state the cubic contents of his house, and whether the one small pipe and opening has proved sufficient to change the entire volume of its atmosphere with sufficient frequency to insure sufficient supply of fresh air. *Quercus.* [We believe Mr. Taylor has had these pipes in use for some time past in his own garden at Nursling, where they may be seen in action, and that practically the difficulties indicated above, do not arise. The air-shaft is not in connection with the pipes, but in a distant part of the house, for the express purpose of moving the whole body of the internal atmosphere. There is, moreover, more than "one small pipe" for ventilation. Each length of piping used in the house, is intended to be of the form and character described. EDS.]

New Application of Potatos.—In the "Intellectual Observer" for November there is a paragraph relating to a new application of Potatos for knife-handles and similar purposes. The Potatos are said to be first peeled and macerated for about 36 hours in water, to which 3 per cent. of soda is added, and after maceration they are boiled in a solution containing 19 per cent. soda, when a substance is produced resembling stag's-horn, and which may be used for the purposes above-mentioned. It seems also that Turnips may be used with similar results, and if an artificial coral is required Carrots may be substituted. Specimens, we are told, were exhibited at the recent Paris exhibition, which, however, I failed to see. Can any of your correspondents inform me where this new branch of manufacture is carried on, and where they can be obtained? *J. R. J.*

Boilers.—As the inventor of the Terminal Saddle Boiler, will you allow me a small space to offer a little explanation on one or two points alluded to by Mr. Wills? (see p. 1243.) I presume that the terminal end and the side wings are so advantageous and yet so simple that I need say nothing in explanation of those parts; but as regards the openings into the side flues, these were purposely kept as small as possible, consistent with a good draught, to prevent the heat escaping from the centre of the boiler. The great fault in most boilers is, in my opinion, the ease and rapidity with which the products of combustion pass into the flue. The fire glides along to the nearest opening, and meeting with no check, the flame rushes onwards, quickly passing the boiler, enters the flue, and is then lost, for I need not remind your readers that once behind the boiler it is no longer of any service to the apparatus, but is absolutely lost. Let any one place his hand upon a flue or chimney near the boiler and he will soon be convinced of the terrible waste that is going on in the manner described. My object was, as far as possible, to prevent this loss—to make the boiler absorb this heat, and not to allow it to get away until the iron should conduct it to the water, which is, after all, the essential point in heating. Anything which passes the boiler hotter than the water it contains, is waste. Indeed so deeply impressed was I with the importance of this point, that I not only reduced the size of the openings, but I placed them down in the side, considerably below the top of the arch, knowing that the heat and flame would rise to the highest point, and if they found an opening there they would immediately escape. But by keeping the openings low, the heat rises above them into a kind of vault, where it

* As these cordon trees put forth their shoots from their upper surface, this height is enough; the spurs soon attain a height of 12 to 15 inches.

is retained, and held back from the flue, and of course all the time it is in contact with the iron it is acting upon the water. All that is required of these holes is sufficient opening to secure enough draught for the combustion of the fuel. This is amply provided for, and in those boilers which I have in use a damper is employed which reduces the space to at least one-half the area before checking the fire, and must, in order to stop it, be diminished to one-fourth. As to the advantages of hollow bars, that is a more open question. Opinions may, and do, differ respecting them. I do not claim these as an invention, but have merely adapted them to my boiler, thinking, as I do, that they possess advantages over those that are solid. For instance, they never "clinker," that is, they never form those large solid masses from the fuel, which spread and cover over the furnace where solid bars are used, which effectually prevent the air from passing up between them, and thereby stop the combustion of the fuel, until they are removed. This removal cannot be effected without loss of heat and waste of fuel, to say nothing of a cloud of dust, and fumes of sulphur. Then, again, they are more durable. Solid bars soon burn away. They warp and twist into all manner of shapes with the heat; one will bend to the right, and the next will go to the left, leaving a great opening, through which fire and fuel fall into the ashpit, and the only remedy is a new set of bars, which will soon be as bad as the first if a good fire is kept. A gardener told me this autumn, that during the time he has had one of my boilers at work with hollow bars, which are still sound and good, he has, in another furnace, burnt away three sets of solid ones. And then, lastly, they communicate heat to the water. Solid bars can often be seen red hot, but with a small stream of water passing through them this is prevented. How? Not because the fire ceases to act upon the bars, but because the water extracts the heat from them, and carries it away from the metal as fast as the fire can communicate it, for it must be remembered that there is a constant stream always in motion, and that the water which is passing through the bars at any given time is the coldest in the whole apparatus. The bars then never can become very hot, simply because the water carries away the heat as fast as they receive it. The only drawback—so far as I know—with hollow bars, is, that they have a tendency to check the draught. The hotter the bars the quicker the draught, and *vice versâ*. The fire is always more sluggish on water bars than it is on those that are solid, but where sufficient draught can be secured I am persuaded that hollow bars are a great advantage. However, as there are those who may prefer solid to those that are hollow, arrangements will be made to supply them in either way, according to the wishes of those who may wish to adopt the Terminal Saddle Boiler.—*Thomas Jones, Gr. to J. E. Taylor, Didsbury, Manchester.*

Select Pears.—"W. D. F." (see p. 1271) wishes to be supplied with a list of the best pears on different soils. The following 20 varieties, named in the order of their ripening, may therefore be of service to him. They are the best, all points considered, out of about 70 varieties cultivated here. The sorts to which I allude are:—Jargonelle, Bon Chrétien (Williams'), Beurré d'Amanlis, Louise Bonne (of Jersey), Comte De Lamy, Flemish Beauty, Beurré Clairgeau, Duchesse d'Angoulême, Conseiller à la Cour, Passe Colmar, St. Martin Sec, Beurré de la Daille (two very nice Pears, received here from Guernsey under the above names), Marie Louise, Chaumontel, Beurré Diel, Winter Nelis, Knight's Monarch, Bergamotte Esperen, Beurré Rance, and Prevost. The above are all good flavoured and excellent bearers, cultivated as bush and pyramid-shaped trees, with summer pinching, and autumn root-pruning. The soil here being a heavy loam with a clay subsoil, they require frequent root pruning to keep the roots near the surface, or they throw out strong roots into the clay, which produces a corresponding luxuriant growth of branches to the destruction of fruit-bearing wood. I speak here of these varieties on the Pear stock; some of the same sorts on the Quince stock bear finer fruit; and the trees form nice, healthy, free-bearing little bushes in less time than they will on the Pear stock, but they will not make such large trees. On the whole, I should prefer trees grafted on the Quince where the garden is but small, and grown as bush-shaped trees. Such is the result of my experience, after trying several modes of cultivation on both stocks in the south of Hants.—*J. May, Westfield, Hayling Island, Havant.*

Wood Paper.—Paper from straw is not new; that from Esparto grass is likewise waxing old, as is also paper from wood—*i. e.*, from shavings of Poplar and other soft and white woods reduced to pulp in the ordinary way—but the use of the actual wood in its natural state is perhaps comparatively novel. Amongst the smaller and "unconsidered trifles" in the stationery department of the Austrian Court in the Paris Exhibition, might have been seen visiting cards, so called, cut from thin shavings of Sycamore, Plane, and similar even-grained woods. This application was not entirely new to me, as I had previously received for the Museum at Kew, a similar "card" made of Beech, printed with name and address from an ordinary copper-plate. This, however, I thought was rather to show how thin the wood could be cut, and how suitable it was for such a purpose, than to denote its actual application; but after what I saw in Paris, where these shavings were cut to the "regulation" sizes for ladies' and gentlemen's visting cards, and done up in packets, it was apparent that these wooden "cards" had become an actual article of trade. Some of your readers may have already seen and adopted them, but for those who have not I can say that they are very pretty, and that wood shavings are undoubtedly suited to the purpose. Plane and Beech, however, though prettily figured by the medullary rays, which show well in these thin slices, are, perhaps, hardly so suited as Sycamore, as this wood is much whiter, and consequently the engraving is much more easily seen on it. *J. R. Jackson, Kew.*

Foreign Correspondence.

CALCUTTA BOTANIC GARDENS.—The following additional particulars, descriptive of the injuries caused by the late disastrous cyclone at Calcutta, are contained in a letter addressed to Dr. Hooker by Mr. John Scott, the Curator of the Gardens:—

Opinions are conflicting as to the relative force of wind on this occasion, as compared with that of October, 1864; though not a few who were fully exposed to both maintain that the differences are inappreciable. Certainly as far as the Botanic Gardens are concerned, the decrease in the number of trees—estimated at 300—uprooted on this occasion, is simply due to the actual absence of trees to act upon. The gardens are now, in fact, a mere waste, ruthlessly denuded of all the noble and unique specimens for which they have long been famous; much of this is doubtless due to that "unsparing hand" referred to in your book, but more, infinitely more, is due to ungenial clime, low swampy lands, and radically unfavourable soil. Art can of course do much in the improvement of the most unfavourable (physically and chemically) conditioned soil; but it in vain attempts to counteract influences of climate, the occasionally devastating cyclones, or the annually paralysing effects of the Bengal winter, followed by the torrifying influence of its hot seasons, on all plants from humid inter-tropical regions. Wallich certainly did wonders in overcoming the ungenial character of the latter, but neither in his time nor yet in the preceding annals of the garden do we find that its development was thwarted in any proportionately considerable way by cyclone visitations. Furthermore it is to be considered that the collections for which the gardens are chiefly famous were grown on some two or three selected and properly prepared sites of limited area. First was the Mango Grove, as the gardens are entered from the principal gate, where grew the Cinnamons, Nutmegs, Mangosteens, &c. (on raised mounds of prepared soil); of the latter there is not one now left, and of the former a couple of miserable specimens barely exist—all have been swept away, partly by the cyclone of 1864, and partly by the pernicious character of the subsoil, in which such plants can only have a very limited existence. Next we have the Nepal collections, &c., grown on the mount in the eastern part of the garden, including an area of some 5½ acres; these used to form the principal collection of rarities. The cyclone of 1864 found it studded with rare and unique specimens, and razed them by scores; that of 1867 has all but eliminated the remainder; 11 trees only exist in the shape of unique specimens, and of rare plants, of most of which we had secured a young stock, 30 only survive—and these I am sorry to say, with scarcely an exception, in a mutilated and unhealthy state. Again, another collection of Roxburgh's and Wallich's rarities existed near the entrance at the north of the Garden from the road to Hourah; of these Sterculia comosa alone now stands, and this the mere skeleton of its former self. This, however, we now regret the less, as the injuries it received in 1864 seem to have induced it to produce seed, so that we have now eight healthy seedlings of this rare plant. Near this also are the Calami planted by Dr. Thomson; these had become fine plants, scrambling over some adjoining Casuarinas, but alas! both now lie low enough, and it will be long ere the Calami recover. Wallich, in thus confining the cultivation of his rare plants to those selected sites (which are in fact the only parts in our extensive grounds where cultivation can be carried on with anything like success, the remainder being low swampy lands for nearly five months of the year, fit only for Rice fields), and without any view to systematic arrangement, which should in no case be lost sight of in any Botanic Garden, certainly not in a tropical one, never felt as we now do the futility of cultivating on such low swampy lands a general collection of plants.

The inadaptability of the lands for general cultivation is very forcibly illustrated by the condition of the roots of the trees thrown down. Their natural disposition is completely thwarted by the hard subsoil, which seems almost as impermeable as a sheet of iron, therefore the production of lower and lateral roots is impeded until at last they adapt themselves to the uncongenial condition in which they are placed, and diverge horizontally at from 6 inches to 2 feet below the surface. In all the old trees the original tap-root, and all the subsequently-produced roots for many years in the trees thrown down, are quite rotten, and this in many cases extends into the heart-wood of the trunk. This is even the case with Teak and Sissoo, and also with Mahogany. Thus, irrespective of cyclones, we find that trees can only have a very limited existence on such lands. Few trees, indeed, except the adventitious rooting Fici, Rhizophoraceæ, and such-like, can exist under such conditions for any length of time. The oldest indigenous trees in the gardens do not exceed 90 years, and I feel convinced that no trees, including those above-noted, could be found for miles around Calcutta exceeding 100 years.

We had only just finished the planting in systematic sequence the whole of the natural orders, which were all looking most promising, when the late cyclone threw down every plant, with scarcely an exception, which we had planted during the last eight months. Whole Orders, which had been planted by Dr. Anderson six or seven years ago, were also completely prostrated. We are, of course, again re-erecting all that are not actually torn out of the ground, but it may be imagined what the results will be ere we get through the present cold and approaching hot season. With well-established plants of very many species, genera, and even whole orders, every care is required, by means of temporary shading, mulchings, and waterings, to keep them alive for the next seven months. I much dread the results therefore in the present instance. The sides of the road from the main entrance to Kid's monument we had planted with young Amherstias from 3 to to 5 feet in height, all of which were in a very promising condition. Of these every plant (64) has been prostrated, and I much fear few will survive. The seven old plants of Amherstia, which though much mutilated in 1864 had partially recovered, are now nearly all hopelessly injured. Our healthy stock of Amherstias is now reduced to some 20 young layers in pots, which had been fortunately secured a few days previous to the cyclone.

Magnificent plants of Unonas (Desmos, dasymaschala and discolor), together with U. microcarpa, from 20 to 30 feet high, and fully 120 feet in circumference, have been completely overturned, and have sustained injuries from which they will not recover for years, if indeed they survive at all. Many other magnificent climbers, Banisterias, Tinosporas, Buteas, Combretums, Poivreas, Quisqualis, &c., are torn from the trees over which they scrambled. The thatched plant conservatories have been all more or less dismantled, and the plants much broken. The house for the cultivation of Piper is down. The Betel houses for Orchid cultivation have all been unroofed, many of the plants torn from their blocks, and all much injured in foliage. The only structure in the garden which has escaped injury is the new span-roofed glass conservatory. Much to the surprise of all, not a square of glass has been broken in it. It is filled with Chittagong and Sikkim Ferns, all of which are in most thriving condition. They are, in fact, now our only consolation, for go where one will in the other parts of the garden, the eye is everywhere met by partially and completely uprooted trees and shrubs, while those which have escaped, are much broken and utterly leafless. Of 25 Teak trees which stood in the gardens previous to the storm, 10 only are left, and of these three are much shaken. Sissoos are also greatly reduced, and we have lost all our fine old plants of Ficus religiosa. Of Arengas and Cycas, of which there were formerly avenues, 88 plants only are left, and two of the finest of the latter much injured—in short, the gardens are now nearly despoiled of all their living associations with their past excellent directors.

Notices of Books.

Messrs. Carter & Co. have just issued a useful little "Handy-book," under the title of *Carter's Practical Gardener*. It consists of a very full calendar of operations necessary in the various departments of the garden, followed by several general articles relating to the training and pruning of fruit trees, the management of the orchard-house, Vine culture in the open air, Strawberry forcing, &c. The preface states that the various articles have been written by some of the highest authorities amongst working gardeners, and they bear throughout a practical and useful character. The article on training is profusely illustrated by woodcuts.

CATALOGUES RECEIVED.—*Sutton & Sons' Amateurs' Guide and Spring Catalogue:* the Berkshire Kidney Potato, a seedling from the Fluke, is strongly recommended. *J. Veitch & Sons' Hardy Trees, Shrubs, &c.*; and *J. Backhouse & Son's Hardy Trees, Shrubs, &c.*: both excellent lists. *A. Henderson's General Nursery Stock. W. Bull's Retail List of New Plants:* full of novelties, amongst them a new set of Ivy-leaved Pelargoniums; also *Retail List of Seeds*, and *Special Trade List of Seeds. Laird & Sinclair's Descriptive List of Gladioli:* arranged under the leading colours. *J. Stewart & Son's Catalogue of Roses;* also *Catalogue of Hybrid Gladioli. J. M. Thorburn & Co.'s American-grown Seeds.*

Florists' Flowers.

THE ordinary form of the BEDDING PELARGONIUM has increased in numbers to such a degree during the past 10 years, that the production of new kinds of a single year—as, for instance, the present—numbers as many varieties as were in cultivation at the time alluded to. It was customary then for bedders-out to say, "Tom Thumb is still the best bedding Geranium;" and with this would be classed Trentham Scarlet, Boule de Feu, Punch, Sutton's Perfection, Commander-in-Chief, General Pelissier, General Simpson, Trentham Rosy Scarlet, Lady Middleton (this variety had a slight violet tinge which has since become so finely elaborated in Dr. Hogg, Blue Bell, and others); Cerise Unique, and Ingram's Princess Alice. These represented the cream of the varieties of those days, and some of them still hold a place in the flower garden, and will maintain it yet in localities to which improved kinds find their way slowly. Up to this point—ten years ago—adaptability for bedding purposes may be said to have been the prime test of new kinds: after this, adaptability for exhibition purposes came to be more largely recognised, and a new impulse seemed to be given to the work of improvement. The taste for the more modern system of bedding-out was also rapidly extending, and so creating a taste for more abundant material by which to reach an endless and charming diversity—this re-acted on the experiments of cross-breeders, and then, as "though 'twere by a wizard's rod," there sprang forth that succession of new varieties reaching out on one side to Nosegays, and at a less sharp angle to hybrid Nosegays, which manifest an almost infinite variation of style in leaf marking—from the brightest green plain-leaved kind, to a dark green, handsomely decked with a regular, broad, and nearly black zone. What illustrations of beauty and fitness

these have been made to serve in the last few years of the history of flower gardening, are amply recorded. The bedding Pelargoniums are now the most potent force of the bedder-out, and in his hands they have been used to aid the formation of a new era of garden decoration, that is yet but as the portal leading to the temple of floricultural embellishment, wherein lies enshrined its highest achievements. Of the bedding Pelargonium the gardener can say, as Henry IV. observed of his child, the pleasures "des Fleurs et des Livres" are the property of all the world. The constitutional vigour of the bedding Pelargonium is a point in its favour of no mean order, for, as Mr. Moore once observed respecting it:—"While the Verbena succumbs to mildew, red spider, or thrips, and the Calceolaria to paralysis, the Pelargonium blooms on heedless alike of the pluvial or torrifying vicissitudes of weather, simply needing certain slight modifications of treatment in order to checkmate, as it were, the predominant influences of the season."

The season just closed has been fruitful of some fine varieties of bedding Pelargoniums in addition to those of the Nosegay class recently noticed. Like Verbenas, however, all are not necessarily bedders, nor is it absolutely requisite, seeing that there is a growing desire to place in schedules of flower shows a class for Zonal Pelargoniums. How well these can be grown to exhibition specimens, let the London exhibitions bear witness, though we want less and less of the tortuous and unnatural shapes into which they are sometimes transformed. As a rule, country exhibitions abound in well grown specimens of Zonal Pelargoniums; they are managed very much better than the ordinary show Pelargoniums, and always compose a prime feature of the show. Of the new kinds of 1867, the following represent the leading flowers:—

Lord Derby (Mann), intense scarlet, of a vivid hue; the flowers large, stout, smooth, and of fine quality, the trusses medium-sized but very freely produced; the foliage of a dark green, with a well-marked dark zone. This bids fair to become a very effective kind, both for exhibition and bedding purposes, and taken altogether is probably the best bedding Pelargonium of the year.

Mimas (Mann), has very bright average scarlet flowers, of a pure and beautiful shade of colour, the flowers finely formed and the trusses of good size; the leaves bold, marked with a dark zone, and the habit good. These two kinds were shown by Mr. John Mann, Brentwood, and gained the highest awards.

Seraph (Downie, Laird, & Laing) is a fine variety, with distinct dark zonate foliage; the flowers lively orange salmon, with a white centre; the pips large, smooth, and of fine quality. This promises to make a fine exhibition kind.

Messrs. Windebank & Kingsbury, of Southampton, have raised four varieties, which are quite in keeping with the high-class quality of some others they have previously sent out, the which have passed into the hands of Mr. C. Turner for distribution. They are:—

Queen of the South, rich salmon scarlet, shaded with pink; the flowers large, stout, and of fine quality; trusses bold and symmetrical; well marked zonate foliage, and excellent habit.

Rev. Dr. Carey, rich deep cherry salmon, dashed with violet on the upper petals; flowers stout and smooth; broad, olive, bronze, zonate foliage; excellent habit; a fine variety.

Theodore, bright rosy pink, a cheerful and effective hue, the centre white; flowers large and of fine form; habit free, and yet compact.

Thomas Moore, a novel and beautiful flower, the colour rich deep salmon, dashed with orange round a white centre, the upper petals slightly rayed with rosy purple; flowers large and smooth, and forming bold and showy trusses; dark bronze zonate foliage, and free habit. This promises to rank as one of the finest flowers of the year.

Flowers of a second-rate character, some of which may yet develop into flowers of the front rank, are:—

Christabel (Mann), rosy salmon, suffused with violet; flowers large and smooth; excellent habit.

Achievement (F. & A. Smith), pale orange scarlet, suffused with salmon, rich dark zone; free blooming and good habit.

Glow (G. Smith), brilliant scarlet, of fine form; trusses of large size, the petals stout, well-formed and smooth; dark zonate foliage; good habit.

Guardsman (Mann), glowing orange scarlet; the trusses small, but freely produced; habit good; promising to be a very useful bedding kind.

To cull a list of the best kinds out of all that have appeared within the last few years is a task of no slight difficulty; inasmuch as they are found to differ almost as much in localities far apart, as regards profuseness of blooming, growth, and general adaptability for bedding purposes, as do the kinds themselves. What one grower in a given district will laud to the skies as a "thing of beauty," another condemns in the most unsparing terms; and actually it has occurred that what is considered first-class in one place is frequently discarded in another situated probably not many miles distant. One cannot but coincide with that well-known practical gardener, Mr. Edlington, who recently wrote as follows in narrating his experience of bedding-out:—"What varieties of bedding Geraniums proved good in one county I have had to consign to a rubbish heap in another: and it is a matter of some importance to the gardener when entering a new place to know which are really the best and most suitable kinds for the locality. If he possessed such desirable information, bedding-out would not be proceeded with on the haphazard system, as often is the case, and a season lost is the first and most important one to a new gardener. I am aware the seasons produce different results; what is sometimes first-class in a good season is the reverse in a bad one, and *vice versâ*." The following may furnish matter from which to make a selection, as all have proved to be well adapted as bedders in one locality or the other:—

Queen of Beauties (F. & A. Smith), cerise, with vermilion centre and distinct white eye, and slightly margined with the same; fine trusses, free-blooming, well marked zonate foliage, and living in a remarkable degree that hardy wiry habit so useful in a bedding kind.

Commissioner (Bull), vivid orange scarlet; foliage slighty zonate; profuse blooming, and first-rate for bedding purposes.

Louise] *Roezeler*, clear salmon, and excellent and showy bedder; a French variety.

Leonidas, also a French variety; deep glowing scarlet; excellent zonate foliage; free blooming and good habit.

Louis Vuillot, also French; a hybrid Nosegay, with brilliant crimson flowers, of an extraordinary substance and quality for a hybrid Nosegay; zonate foliage; a fine kind for pot culture.

Jules Cesar, an improved Roi d'Italie, the flowers of a brighter hue of colour, and of fine substance and finish; this also is from France, and promises to make a good variety for pot culture. At Chiswick this was considered a Roi d'Italie.

Achilles, another French kind; is of a brilliant deep scarlet hue, and forms a marked improvement on Punch and all of that class. It deserves to be extensively grown.

Rebecca (Paul), a bright shade of cherry, foliage faintly zonate, close habit, very free blooming, and stands well.

Warrior (G. Smith), a fine bedding kind, with slightly zonate foliage; flowers of a brilliant deep scarlet, freely produced. The variety must not be planted in rich soil, otherwise, as it has a tendency to redundancy of foliage, the head of bloom will be deficient.

Vesuvius (F. & A. Smith), bright scarlet with white eye; flower large, and of good form, free blooming; foliage olive green, with dark zone; a first class bedder, the habit being dwarf and close.

Enchantress (W. Paul), a vivid hue of colour, purplish crimson, dashed with orange round the edges; foliage plain; an effective and useful bedding variety.

Emily Moreland (Tricbuck), very bright scarlet, a showy and useful hue of colour; broad zonate foliage, and free blooming.

Crystal Palace Gem (Carter & Co.), a most useful and effective bedder, brilliant rosy cerise flowers, suffused with violet, freely produced on good trusses; good dark zonate foliage, neat close habit.

Fancy Queen (W. Paul), deeper in colour than Dr. Hogg, with plain foliage, and habit of growth closely resembling that of Tom Thumb. The prevailing colour is crimson purple and rose suffused with purple; free blooming and large, bold trusses; a most acceptable bedder.

Sambo (Downie, Laird, & Laing), probably the deepest and brightest hue of colour out, bright dark glossy scarlet; flower small, but of fine form and substance; a good bedder.

Madame Werle represents the best of those with white flowers, and a carmine centre. It has dark zonate foliage, and is an excellent bedder.

Madame Wilhelm Pitzer is of a similar character, but the flowers are larger, and the carmine denser; good zonate foliage.

Purity, and Madame Martha Vincent, are the two best whites that have yet appeared. The former is of the purest colour, but not so fine individually, or so good in quality as the latter; good habit, and dark zonate foliage.

Madame Martha Vincent has flesh white flowers, fine and stout; is free blooming, and has dark zonate foliage.

Add to these *Madame Caissier*, pink, with large globular trusses of flowers, a fine variety for pot culture as well as a good bedder; *Excellent*, brilliant fiery scarlet, fine whether for pots or beds; *Climax*, pleasing soft salmon, fine for pot culture, but useless as a bedder; *Manfred*, bright deep scarlet; *President Reveil*, bright glowing crimson; *Amelina Grisau*, salmon; and *Beauté de Suresnes*, pink.

The rapidity with which new varieties multiply in all parts of the country must of necessity lead to a great amount of sameness in most of the divisions of colour. The public trial afforded to these at Chiswick is one admirable means of reaching something like a correct conclusion in regard to the best in each class, though of course a trial in the London district cannot be supposed to apply to all parts of the country. However, any help in this direction is acceptable, and if growers will record their experience, an appreciable, if not altogether reliable, result can be thereby reached. *R. D.*

The Apiary.

DRIVING BEES.—I have done a good deal in the driving line this last autumn, and find the process a very easy one. I have driven as many as four strong stocks, cut out the combs, tied up the bees, and brought them home a couple of miles, in a short evening's work. My plan is a simple one. I invert the hive in a bucket raised so as to be on a level with my hands when standing, to obviate the necessity of a stooping position. The empty hive being quickly placed over the full stock, the end of a long strip of cloth, about 5 inches wide, is secured to one of the hives at the place of junction by a steel fork or iron skewer. The cloth is rapidly passed round; another fork or skewer having been thrust in, a cord is passed over and under the holdfasts, and two or three times round the hives, so as to prevent them from shifting and the bees escaping. The lower hive is then drummed either with the hands or with two short sticks. In a few minutes a loud roar will be heard, and when it is ascertained that the bees are actually beginning to ascend, the cloth may be taken off, and the upper hive tilted on edge so that the operator may be able to watch the bees ascending. As all my driving operations have been for the sake of uniting the bees to those of other stocks, I usually take this opportunity of capturing the queen. I have almost always been able to catch a sight of her running up; as soon as visible the bare hand may be thrust in to effect her capture, as the bees are not much disposed to retaliate after being so subdued by the drumming process. If I wish to save the life of the queen I place her in a queen-cage, but if not I usually crush her against the side of the upper hive while in the act of ascending.

If it is desired to unite two lots of driven bees, I drive one first, and the second into the same receptacle, capturing one of the queens in the manner described.

I have had no instance of fighting when this plan has been followed, as well as having found the second lot of bees generally to ascend very freely.

I do not profess to give the foregoing directions as being anything new, but I meet so many who say that they cannot succeed in driving, or that it appears to them to be so formidable an operation that they do not like to attempt it, that I am disposed to write them down, in the hope that some hitherto unsuccessful experimentalists may find them useful. *Apiator.*

Miscellaneous.

The Mistleto.—The following story, which we extract from the *Athenæum*, supplies a want that was expressed by Mr. Forsyth in our last Number, and we feel sure that our readers will thank us for calling attention to this pleasant mode of conveying accurate information while "pointing a moral." The authorship is attributed, we believe correctly, to Dr. Seemann. It is also rumoured that other stories, with the like aim of popularising natural history, especially botany, are likely to be issued. EDS.

"The Mistleto was in great distress. The Apple tree had been living with him in blendy died, and he was now compelled to look out for another home. So entering a fine large orchard, full of all sorts of fruit, and making a polite bow to the best Apple tree, he introduced himself as Mr. Mistleto, late resident of Appleton Grove. 'I have been living for years with one of your sort,' he commenced, 'and now my friend has died, and I have to find shelter somewhere. I see you have a good many stout branches unoccupied; would you allow me to take up my quarters there for awhile?'

"'Certainly not,' replied the Apple tree. 'You are an idle vagabond, and would not be content with living with me, but you would live upon me. I know the Apple tree you speak of very well indeed; we were brought up in the same nursery together, and I warned him more than once against rascals of your description. But he would not listen. He allowed you to stay with him, and you, parasite as you are, were not ashamed to live upon the very flesh and marrow of my good-natured friend, until you had devoured all his substance. Now you are going to fasten yourself upon me. No, no; you won't catch me slaving away for those too lazy to work for themselves.'

"'Oh, Mr Apple tree, it won't do to make yourself out to be hard hearted,' rejoined the Mistleto. 'Your charitable disposition is plain to all the world. Don't I see that Hop winding around your upper branches, and blossoming to its heart's content? Would he have been able to do that if not allowed to climb higher than the hedge which affords your owns elf a partial shelter? Why should you refuse me a boon which you have freely granted to a mere straggling Hop.'

"'Now, look ye here, Master Mistleto, I'll not bandy words with you, but just let me tell you this,' said the Apple tree, waxing hot. 'You never soil your feet as I and the Hop have to do; indeed, I know that none of your tribe ever put a single root in the ground. All you do is to suck the very life-blood out of others, and that without the slightest remorse or spark of gratitude on your part. It is not merely assistance you want—that I would willingly give: because I well remember, when a young sapling, I required that of two very strong sticks myself; but you want to be kept entirely, live the life of an independent gentleman, though you have no resources of your own. It is very different with the Hop, of which you speak so disparagingly; he is too weak to stand alone, and requires support; but he does his best. All day long he is busy in the ground, picking up whatever he can; and look at these fine clusters of his; they will be gathered presently by our master, and give a fine flavour to the home-brewed ale, of which he is as fond as of the cider he makes of my fruit. Could one ever look for any such returns from you?'

"'A fine thing to be proud of,' exclaimed the Mistleto sneeringly. 'Ale and cider! My fruit, I am happy to say, does not serve the ends of drunkenness. Man makes it into excellent lime to catch such singing birds as he does not wish to kill. It therefore actually saves life, whilst yours may be said to destroy it. But it is mere labour thrown away to argue with you. I see you are in a dreadfully bad humour to-day, and it is no use to ask any favour of you. I always thought you hospitable, but I am sorry to find that you are after all one who greedily keeps everything to himself,—if, indeed, he has anything to spare.'

"'I knew that I should be abused,' replied the Apple tree; 'real beggars always grumble when refused charity.'

"The Mistleto could see the Apple tree was getting angry, and fearing that he would speak so loud that the whole neighbourhood would overhear their dispute, and make it more difficult to get snug quarters anywhere else, he went to another very fine Apple tree, at the other end of the orchard, to whom he had paid more than once flattering compliments.

"'Good morning, Mr. Apple tree,' he said, 'how well you look; but no one can wonder at that, bearing in mind your fine constitution, and the delightful locality you live in. I wish I could stay with you awhile; it really would do me good; for I have had so much trouble of late that I am quite worn out. You knew poor Mr. Apple tree, of Appleton Grove; I believe he was a connection of yours. Well, poor thing! he is no more; and I, who had been living so many years with him (you know he was so fond of my company that he would never part with me), was suddenly without a home. I fully expected something would be left to me, considering all I have done for him; but in that I have been disappointed. So I must do the best I can, live as economically as possible, and take the first shelter I can get. There seems to be plenty of room in your upper branches; I wish you would allow me to take up my quarters there for awhile.'

"'I am really sorry to have to refuse you,' replied the Apple tree; 'but the farmer is a great enemy of Mistletoe; he says they are idle fellows, and wherever they establish themselves they cause mischief, and there is no getting rid of them. Why don't you go to the forest? There are plenty of fine old Oaks, and no farmer to oppose you; besides, I have always heard that a Mistleto growing on an Oak was such a curiosity as to excite the greatest notice; indeed, if I remember rightly, at one time they were actually worshipped if found on such trees.'

"'All you say is quite true,' replied the Mistleto. The farmer objects, because at Christmas the servants will cut branches of me, to make a kissing bush; and he cannot bear young people to enjoy that fun, quite forgetting that when not so old as he is now he was not sorry that some of my relations grew sufficiently close to his father's house to be got at without much trouble.'

"'True, very true,' rejoined the Apple tree.

"'And then,' continued the Mistleto, having taken breath, 'what you say about worshipping us is also perfectly true: I could tell you all day long about the important part my ancestors used to play before the Christian religion came into the land; and if you will allow me to remain a few days, I could while away the long evenings by telling you of their great doings. It is as interesting as anything you ever heard, and I am sure you will be delighted.'

"'But the Oak is most respectable; and if you become such an object of admiration when associated with it, why don't you attach yourself to that venerable tree?' inquired the Apple tree.

"'You may well ask," rejoined the Mistleto; 'but the fact of the matter is, the wood of the Oak, however well suited for ships, is so very hard, that we have the greatest difficulty in establishing our roots in it; and I am rather partial to putting my feet in a soft bed. Besides, there is another circumstance that ought not to be concealed from you. I am rather fond of good living, and you know that every Christmas the people of the villages like to have a sprig of Mistleto in their houses. Now, if I am hidden in a forest, no one will think of looking for me there; but if I am in an orchard, where everybody sees me, I stand a fair chance of being fetched, and then partake of the Christmas cheer as a matter of course.'

"The Apple tree was himself very fond of good living; and when the Mistleto alluded to the Christmas cheer, his mouth began to water. The Mistleto saw his advantage, and continued:

"'Now, my dear Sir, I have a proposition to make. Let

me take up my quarters in your branches till Christmas, and if I am fetched to any of the houses I shall bring back with me plenty of good things, and then we will have a jolly time of it.'

"The Apple tree's weak point had been touched. He allowed the Mistleto to take up his quarters with him, thinking it would only be for a short time, and he would be well remunerated for it. At first Mistleto was pleasant enough, saying many flattering things, and telling many a good story; but when firmly established, he assumed airs as if everything belonged to him. Not satisfied with occupying more room than had originally been agreed upon, he invited his friends and relations; and after the door had been once opened to them, there was no getting rid of them. The Apple tree began to complain; he had as yet not seen anything of the Christmas cheer, nobody having come for the Mistleto, and at last he resolved to rid himself of his unpleasant visitors. One night when there was a heavy gale he improved upon the occasion by shaking himself violently; but the only result was that all his fruit blossoms fell off, and one of the best branches, hitherto free from the Mistletos, broke clean off. What was worse, the Mistletos perceived the Apple tree's anger, and laughed right out at him. He found they were getting the better of him, and consuming all he had. Ruin was staring him in the face; first one branch, then another, began to wither; and wherever there was any healthy part, it was sure to be taken possession of by his unscrupulous and voracious visitors. At last, finding all his struggles to free himself hopeless, he began to sink fast, and ere long died. He was cut down by the farmer and thrown into the cart; and as his funeral was passing along, the Apple tree, who had been proof against the solicitations of the Mistleto, uttered a deep sigh, and murmured to himself, 'There goes another victim to flattery!'

"The Mistleto had now once more to look out for a home; but as all the Apple trees of that part of the country were aware that his only aim was to live upon others, and lead an idle, useless life, all his applications met with a refusal. So he made up his mind to leave the Old World for the New; but, being without resources of his own, he probably found the long journey too much for him, and perished miserably on the road, as he has never been seen or heard of in those parts."

Obituary.

WE regret to announce the decease of DR. SCHULZ (BIPONTINUS), of Deidesheim, long known to botanists as a diligent investigator of the vast family Compositæ. Dr. Schulz was physician to the hospital at Deidesheim, and died on the 17th inst., in the 63rd year of his age.

Garden Operations.

(*For the ensuing week.*)

PLANT HOUSES.

Tritonias will now need potting. Remove the older bulbs and newly formed young shoots carefully from the old soil contained in the pot, replacing the young growths in 24-sized pots to the number of about eight or ten in each pot, in an admixture of sandy loam, peat, and leaf mould. Pot moderately firm, distributing the shoots evenly around, in order that they may uniformly occupy their allotted space. Do not overwater them afterwards, and place them in a cool, airy situation, upon a moist bottom if convenient. The bulbs from the base of which the shoots have emerged, must be carefully retained as an additional means of support. Any older bulbs which may not have formed shoots, are best removed wholly from the above, and if necessary potted by themselves; otherwise they may push forth shoots at a much later season, to the impoverishment of the others. *Cyclamens*, seedling ones of goodly size especially, should receive their final shift this season into the necessary sized pots without further delay. The Persian varieties, when about to flower, open their blooms much more readily, and bloom much finer than they otherwise would do, if placed in an airy position in an early peach-house or similar situation, or indeed in any position where abundance of light and air can be afforded with a mean temperature of about 55°. Many *Gesneras*, of the "zebrina" section, when deprived of their earlier main spikes of flowers, for the purposes of in-door display, will quickly form good secondary ones if placed immediately in a few degrees more warmth than that to which they have been subjected, and will well repay the trouble undertaken in their behalf. Regarding the general *routine* of all kinds of *structures* under this heading, past Calendars must be referred to. Do not allow decayed leaves a moment's rest. Keep up a buoyant, and hence a dryish atmosphere, with a minimum temperature only, and so continue during the few remaining days of the year.

FORCING HOUSES.

Ordinary out-door *Vine borders* attached to successional or late Vineries, which are not intended to be forced, had better be fully exposed, should a dry interval ensue, when they should be "pointed" over with a fork neatly, and with care not to injure any roots which lay near the surface, and then be permitted to lay fully exposed to the beneficial influences of a frosty period, of moderate intensity and duration. It is customary to place a dressing of good strong manure over these at or about this period. I prefer, however, to leave this operation undone for a time, considering it far better now to expose the borders freely to the resuscitating influences of frost; and to apply all excitable material at a time, as nearly as can be judged, when the roots commence growing. They are then far more likely to imbibe the nutritious properties which the manure affords, than when the soil has become sodden therewith, through the want of more free access of sweet upper air. In the event of a severe frosty period it may be well to place some sort of casual protection over the border, in order to protect any of the lesser surface roots. Attend carefully to the roots of all Vines which are actively growing. Remember at all times that in order to ensure success it is absolutely necessary that the roots should receive as much attention as the top. In forward forced borders see that the heat does not decline. Water freely, or otherwise, according to the drainage, affording stimulants in like manner in the form of manure water, according to the age, richness, or poverty and the like of individual borders. I repeat the advice offered, regarding Vines which have pushed their buds, and which have exposed to light some amount of leaf surface. These should have an advance of some 5° or 8°, a good mean temperature in such instances being 65° by day. Attend to all *Tan pits* renewed about the middle of October. Some of these, having no aid from pipes or flues, especially if shallow, or not very wide, may now need a little renovating, stirring up, &c., for the purpose of insuring a renewal of heat. Choose a nice warm day for such an operation, if possible; but upon no account allow the heat to fall below what I have so frequently urged, through waiting to secure favourable conditions. The mild weather which we are now experiencing will cause a goodly saving of fuel to the creditor account of all forcing operations. Mind therefore to keep up such a heat as will afford the giving of air pretty freely. A nice brisk warmth between 10 A.M. and 12 A.M. upon mild days should be kept up for the purpose just named, to be so reduced at the later time, and when shutting up occurs, as to insure no immoderate rise to too high a maximum afterwards. Be careful then not to have one degree more heat without air in equal proportion. The harsh dry heat emitted from pipes or flues by itself has a great tendency to force anything forward unduly. This, in fact, it will do with the forward succession *Pines* at this time, if due caution and the proper consideration of such facts as I have above alluded to be not fully acted upon as the basis of all forcing operations. Sow a succession of dwarf French Beans in large 60-sized pots in quantity so as to insure five strong plants to each. Pot the more forward batch into 16-sized pots, so soon as they show the first rough leaves freely. Half-rotten turf and leaf mould will suit them well thus early. Sow *Cucumber seeds* likewise to form plants for early framework. Those who may not have suitable pits may induce their more fortunate neighbours to undertake the task for them. Proceed with the turning over of any stable litter at hand frequently, as quantities in sufficiency are forthcoming, in order that it may be well in hand and sweetened for use when needed. Place early *Roses*, *Bulbs*, &c., into the necessary forcing pits. All such forcing should now be in "full swing." *Strawberries* now pushing up flower stalks must be encouraged with frequent sprinklings of tepid water. Do not push them on too hurriedly, but afford them proper time for the production of good strong flowers, without which there will be but a poor crop of fruit. Water them occasionally with good manure water, but do not, as I have stated before, allow any such to stand in the saucers which may have been placed under the pots in order to aid in keeping them uniformly moist. Afford frequent syringings to *Peach-houses* actively at work. Those in which fruit is set may now be advanced to about 70° by day, with from 58° to 60° by night. Do not permit any advance whatever by night, however, whilst any flowers remain which have not finally "set." Few things tend more to cause these to become abortive than a too high range of night temperature. *Cherries* undergoing the preliminary forcing process should have a mean temperature of 52°, only until the buds have become well opened.

HARDY FLOWER GARDEN.

It will be advisable, considering the late moist weather, to discontinue digging in any form until some of the moisture has drained away, for the very object for which we turn the soil over is entirely neutralised by undue compressibility caused by the pressure of the feet, if this operation is persisted in before the soil is properly dried. There are many things which might be done now, however, with the view of forwarding all work possible before a more busy and pressing season arrives. Gravel might be procured, where it is necessary to fresh coat or thoroughly renovate any of the walks. This operation requires a little studied supervision. Generally speaking, most good veins of gravel have two or three distinct strata or forms; these, though seemingly alike superficially, are not so analogous as they appear. One stratum may be soft and binding, deficient in fact in quantity of pebble; and another, the very next, may be so composed of "grit" and pebbles alone as to be absolutely incapable of binding at all. Hence it will be readily seen that it is only by a careful admixture of these two distinct sorts, that a proper material can at all times be attained to make a walk sufficiently binding and firm, and yet so porous as to afford complete drainage for all superficial water. Where new walks are being formed, of course the most complete form of under-drainage must at all times be laid down. Any material, no matter how rough, if really porous, will suffice for such a purpose. Additional drains to any walks needing such should also be laid down, as weather permits. Be assured that nothing adds so much to the really decorative part of any garden as good, sound, clean walks. Their utility otherwise needs no confirmation. Snow softens the soil much; hence it is advisable after what has fallen to re-examine all newly planted trees, shrubs, &c. See that the stakes placed for their support have not become thereby loosened, and otherwise attend to them. Be particular in the treatment of *Polyanthuses*, *Auriculas*, *Carnations*, *Violets*—the tree section of the latter especially—in frames; afford them all the air possible, and especially during the continuance of mild periods. Damp, not cold, is their greater enemy. It is only, therefore, by giving it the freest egress that perfect immunity from its too certain injury is assured.

THE FRUIT ROOM.

Decaying, or rotten fruit, I scarcely need suggest, should not be permitted to remain after the first symptoms of decay show themselves. Considering how trying it is to keep fruit in such weather as that which we have lately experienced—the atmosphere being saturated with moisture as I write—I have thought it well to refer to the great utility of fresh "unslacked" lime as an absorbent of moisture. A quantity placed in small lots, equally distributed about the room, will aid much in purifying the internal air. Nor should the good effects accruing from the wiping of each fruit with a clean soft and dry cloth be overlooked. On the contrary, this operation should be had resort to, after all sudden changes of temperature.

KITCHEN GARDEN.

My previous suggestions concerning digging and the like, whilst soils are as wet as they are now, I would here still more strenuously enforce. Those who are desirous of growing early *Tomatos* for culinary purposes, might now sow the necessary seeds and place them in any ordinary warm house to germinate. Give them air in abundance whilst growing; they need little attention, and will well repay the same amply hereafter when vegetables have become more scarce. To keep up a constant succession of such things as *Seakale*, *Rhubarb*, *Chicory*, &c., it will be necessary to secure another batch as soon as each of the former ones has commenced growing. Keep them in the dark and without more air than it is necessary to admit when occasionally examining them. *W. E.*

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the Week ending Dec. 25, 1867, as observed at the Horticultural Gardens.

December.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Of the Air. Min.	Of the Air. Mean	Of the Earth 1 foot deep.	Of the Earth 2 feet deep.	Wind	Rain.
Thurs. 19	23	29.725	29.634	47	20	33.5	44	43	N.W.	.00
Friday 20	24	29.949	29.846	38	26	32.0	43	43	W.	.00
Satur. 21	25	29.911	29.731	50	35	42.5	44	42	S.	.12
Sunday 22	26	30.048	29.738	54	23	38.5	44	43	N.W.	.00
Mon. 23	27	30.199	30.139	39	28	33.5	43	43	S.E.	.00
Tues. 24	28	30.065	29.990	53	25	39.0	43	43	S.E.	.00
Wed. 25	)	30.200	30.090	41	30	35.5	43	43	S.E.	.00
Average .		30.014	29.8883	46.0	26.7	36.3	43.4	42.8		0.12

Dec. 19—Overcast, hoar frost; overcast; sharp frost at night.
— 20—Low fog, hoar frost; partially overcast; overcast.
— 21—Rain; overcast and damp; overcast; very mild.
— 22—Densely overcast and damp; very fine; clear.
— 23—Heavy fog, hoar frost; slight haze; overcast.
— 24—Overcast and mild; clear and fine; hazy at night.
— 25—Overcast, hoar frost; fine; overcast; slight haze.
Mean temperature of the week, 1 6-10 deg. below the average.

STATE OF THE WEATHER AT CHISWICK,
During the last 41 years, for the ensuing Week, ending Jan. 4, 1868.

December and January.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday ..29	43.5	33.3	38.4	19	0.62 in.	2	5	1	4	5	12	7	5
Mon. ..30	44.7	32.0	38.3	16	0.18	1	6	2	2	3	11	13	1
Tues. ..31	44.0	32.9	38.4	14	0.44	1	9	1	3	6	13	5	4
Wed. .. 1	43.2	34.7	39.0	12	0.70	5	7	3	3	4	10	5	4
Thurs. .. 2	42.2	28.9	35.5	17	0.21	3	6	2	2	5	11	6	7
Friday .. 3	40.4	30.1	35.3	19	0.56	1	4	7	1	6	12	5	6
Satur. .. 4	40.9	29.0	34.9	17	0.86	4	7	6	5	3	12	3	2

The highest temperature during the above period occurred on the 3d, 1860—therm. 57 deg.; and the lowest on the 4th, 1867—therm. 11 deg. below zero.

Notices to Correspondents.

GLASS: *Subscriber.* What is called fourths is the quality of sheet glass generally used for greenhouses, and is quite good enough; but it should be free from blisters or inequalities, that would cause burning of the foliage by the action of the sun's rays.

GRASS SEEDS AT THE PARIS EXHIBITION.—We are requested by Messrs. Sutton to state that the collection of seeds which was exhibited by them in the Paris Exhibition, and which received the Silver Medal, was not confined to kitchen garden seeds, "graines potagères," but consisted principally of Grass seeds of various kinds, and included samples of farm and flower seeds generally.

INSECTS: *W J C.* The small beetles, one of which occupies the centre of each of the Peas sent, are the well-known grain weevils, Bruchus granarius. They will injure the crop if not kept down, by picking out and burning the infested Peas. Another easier plan is to subject the stock of Peas to an amount of heat which will kill the insects, but not injure the vital part of the Peas. *W.*

MISTLETO: *W M.* It may be propagated by means of seeds or by cuttings. The seeds should be put in in February or March; but if you can get ripe berries you might try them even later in the season. Slit the bark on the under side of the branch - say of an Apple or Hawthorn tree, making the cut quite down to the wood; raise the bark up a little, then insert the seeds, freshly squeezed from the berry, press down the bark again, and the operation is finished Mistleto may be grafted any time in May. Make an incision, and insert a thin slice of a piece of it, having a bud and one pair of leaves at the end. You will, however, we imagine, be most successful with seeds.

NAMES OF PLANTS: *W B.* Very indifferent specimens—1 and 5 insufficient; 2. Asplenium Veitchianum; 3. Asplenium præmorsum; 4. Platyloma falcatum; 6. Pteris hastata; 7. Lomaria nuda.—*J. V.* Epidendrum fragrans.—*J. S.* Celastrus scandens.

NATIVE COUNTRIES OF PLANTS: *Sub.* Rubus leucodermis, India; Berberis Darwinii, Chili; B. Aquifolium, N. America; Cotoneaster Simmondsii, India; Eugenia Ugni, Chili; Garrya elliptica, California; Grisliniа littoralis, New Zealand; Populus argentea, N. America; and Bignonia radicans, N. America.

SEMOLINA: *South Wales.* This is, we believe, a preparation of Wheat. Manna croup consists of the prepared seeds of Glyceria fluitans, a common British Grass. The seeds are largely used in Russia and Poland. We are not aware whether the plant has ever been cultivated in this country, but it might readily be grown in swampy places if it were desirable to do so.

PALM FUNGI: *H K F.* Your Date Palm is attacked by a Fungus, Graphiola phœnicis, Poiteau. We have seen specimens grown in England from Sheffield and Kew. The Fungus has a wide range, occurring not only in the South of Europe, but in India, Ceylon, Surinam, Cuba, Texas, &c. Your only chance of getting rid of it is to cut off the affected leaves and burn them, repotting the plant with entirely fresh soil. If, however, the spawn of the Fungus has penetrated deeply into the stem, we fear that the case is incurable. *M J B.*

COMMUNICATIONS RECEIVED.—G. A. R.—T. R.—T. C. W.—W. C., Almorah.—E. H., Crayford.—R. T. (we shall be glad of your promised communications, provided they relate to actual practice, which that just received does not.)—J. A. H.—J. S. (with thanks.)—D. T. F.—Delépine aîné.—Delta.—R. Farquhar.

TESTIMONIAL to MR. JAMES KNOWLES, of Wetherby.—The friends and admirers of Mr. Knowles, considering that some public recognition should be made of the great and efficient services he has rendered to the cause of Scientific Agriculture, particularly in promoting the improvement in the breed of Shorthorned Cattle, some time ago determined to present him with a suitable Testimonial. I beg therefore to give Notice that the Committee are about to close the Subscription List, and intending Subscribers will oblige by sending the amount of their subscription at once to the Wakefield and Barnsley Union Bank, or to me,
Wakefield, Dec. 18. THOS. DODDS, Hon. Sec.

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85, Charing Cross, London, S.W. CHARLES SHAW, Secretary.

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MR. DUCKHAM is desirous of obtaining information for the SEVENTH VOLUME of EYTON'S HERD BOOK of HEREFORD CATTLE, which will contain PEDIGREES of BULLS, COWS, and HEIFERS, with their Produce to the 31st of the present month. Printed Forms of Certificates for Entries will be sent per post on application. Entrance fee to subscribers, 1s.; non-subscribers, 2s. each pedigree. The Volume will be embellished, and published at 12s.
Mr. DUCKHAM will feel obliged by any additional Names of Subscribers; and happy to supply Sets of the Work complete to the present time, price £3.
Baysham Court, Ross, Herefordshire, Dec. 18.

SHORTHORN BULLS.—A few Choice Young BULLS for early service, and BULL CALVES, from the Didmarton Herd, are now open for SALE, by Private Contract.
To preserve purity of blood, three pure Duchess Bulls, viz.: 7th Duke of York (17,754), 13th Grand Duke (21,850), and 2d Duke of Claro (21,576) from Captain Gunter, have been recently in successive use, and continued by 2d Duke of Collingham (23,730), lately purchased at 500 guineas, from the same eminent breeder.
For Pedigrees, &c., apply to Mr. S. RICH, Didmarton, Chippenham, Wilts.

FOR SALE, by Private Contract, the BATES BULL, "LORD WILD EYES 2d" (22,234), roan, bred by Mr. C. Harvey, sire 4th Duke of Oxford (11,387), dam Wild Eyes 23d, by Wild Duke (19,148), &c., &c. (see "Herd Book," vol. xvi.). Lord Wild Eyes 2d is particularly active, and his stock have fetched high prices.
For further particulars apply to the Bailiff, Mr. RAWLING, Holly Bank, Burton-on-Trent.

The Agricultural Gazette.

SATURDAY, DECEMBER 28, 1867.

THE Hexham Farmers' Club has been one of the most successful in the Kingdom. Described two years ago by Mr. JOHN GREY, of Dilston, who originally established it, it was quoted as an illustration of the great advance made by the tenant-farmer class in the county of Northumberland. "The present generation," he said, "are better educated, are more alive to the benefits of education, and have better opportunities of conferring these advantages on their sons than any previous generation." — "The existence in a rural district of such a Club, comprising 221 members, with a library of 489 volumes besides several agricultural periodicals, is a strong proof of increased knowledge.

" 'We've fallen on better times—men read and think,
Our good forefathers used to fight and drink.'

At least so it was," said Mr. GREY, "with the dwellers on the Borders, the cultivation of whose fields and stock is now thought to be somewhat exemplary." Mr. JOHN GREY has retired from the agency of the large estates held by the Greenwich Hospital trustees in Northumberland; and he has been succeeded by his son: and the chairmanship of the Club resigned by the former has naturally devolved upon the latter. Mr. C. G. GREY has already given proof both of the public spirit which should animate the office which he holds and of the ability with which its duties should be discharged. His lately published paper "On Land Agency and its Duties" is one of the many valuable essays for which we have to thank the Farmers' Clubs of this country; and it might well take a leading place in the whole library of agricultural information which the Club reports of England, if ever they shall be collected, will be found to contain.

We learn from last week's *Hexham Courant* that the Hexham Farmers' Club met the other day to consider the injuries that the farmer sustains in consequence of the preservation of game and fox-hunting. Mr. J. PATTISON, who introduced the subject, believes that the Game Laws are a great agricultural injustice, and that "great injustice is also inflicted on farmers in consequence of fox-hunting." And he thus illustrated and enforced his opinions on these points:—The Game Laws, he said, are the remnant of the old feudal times, when forest, heath, and moor were the rule, and cultivated fields the exception.—When population is dense, as it has now become, Society has a right to the utmost produce that can be raised from the land. —But every pheasant that is shot costs at least a guinea; and though five hares will not consume more than a single sheep, yet they injure far more than they consume. Hares and pheasants, moreover, are not the only sorts of game which eat the food that would have been available for man. The whole tribe of natural extirpators being themselves extirpated, rabbits and wood-pigeons also abound excessively and injuriously. —Above all, not only is food thus wasted, but crime is fostered and promoted; for poaching (the inevitable consequence of stringent game preserving) is the origin of all sorts of lawlessness.

To the further remarks of Mr. PATTISON, in condemnation of fox-hunting, we need not refer; for, whether just or not, they as yet command but little sympathy. A general report of his lecture is given in another page. The discussion following it was devoted mainly to the praise of fox-hunting and the condemnation of an excessive head of game on an estate. Mr. GREY, the father of the chairman, was as strong as any one in condemning the *battue* as injurious, both to those who hold the guns and to those who have fed the poultry, as we had almost called them, which are driven up to be slaughtered. This comparison had indeed occurred to Mr. GREY himself:—

"He believed that if the money spent in paying the salaries of gamekeepers, together with their perquisites and house rents, were given to the wives of the farmers to induce them to bring up a great number of turkeys, and on a certain day to permit the landlords to come and shoot them all down, by which means they would very soon get a cartload, it would answer equally as well, if not better."

Mr. GREY, however, appreciates good sport, and in particular has nothing but praise to utter of fox-hunting:—

"It is good for a man both mentally and bodily; and the way in which his powers are exerted in fox-hunting is a very useful training for a man in any capacity of life. The man who takes the lead after fox-hounds is a man who in any other situation will take the lead, whatever it may be.

The tenant-farmers present were unanimous in defence of fox-hunting, and did not appear to object to such a head of game as would give the landlord and his friends adequate enjoyment apart from the *battue*. The resolution, ultimately adopted by a majority of 13 to 7, "many members present not voting," was put to the meeting under a sort of protest against it by the chairman, who declared that the subject was announced to be the injury sustained by farmers from the preservation of game, whereas the resolution referred to the stealing of game, which was an entirely different affair. It was however resolved:—

"That many farmers suffer a heavy loss from damage to crops by hares and rabbits; that landlords who preserve many hares and rabbits participate in the sins of the poachers by leading them into temptation; that it often happens that poaching leads to greater crimes; and that a considerable sum is expended in keeping poachers in prison, maintaining their families, and also for prosecutions."

"A vote of thanks was then passed to Mr. PATTISON for his excellent paper, and the meeting terminated."

But the same journal which records these words contains a letter from Mr. C. G. GREY, who presided on the occasion, intimating that the proceedings of the meeting had by no means terminated there. He writes to the secretary of the Club resigning his chairmanship, intimating that as a land agent, whose duty it is to care impartially for the interests of landlords and tenants, he is clearly out of place in presiding over a society which seems to be anxious to make itself obnoxious to landlords; and that, moreover, he cannot again put himself "in a position as chairman at their meetings to be stultified by such a resolution as was passed on the 10th inst., without any notice having been given on the subject." On this point it may be said at once, that Mr. GREY, as chairman, was himself responsible for the proper conducting of the business of the meeting, and if the resolution offered had no relation to the subject announced for discussion it was as competent for him then to refuse to put it to the meeting as it is clearly incompetent for him now to complain of its having been put. He proceeds to say, that it is owing to the non-attendance of landowners at the Hexham Farmers' Club that "so much license in attacking them is indulged in, and for this, no doubt, the landlords have themselves to blame." At the same time this does not justify him in being a party to abusing them; and as the Club will probably join the Northumberland Chamber of Agriculture, "which appears likely to take pretty much the same line," he thinks it will be easy to find a president of more congenial views than himself.

We may fairly presume that the report of the proceedings on the occasion which is given in the Hexham paper is an impartial and a fair one. If so, we can only say that Mr. GREY appears to have committed a mistake. Whether or not the rules of strict logic have been observed throughout the arguments, and in the erection of a reso-

lution on them, it appears to us that the speakers were all of them at any rate in *search* of the merely logical conclusion of the several allegations of fact that had been made. No personal attack of any kind was made. We read in the report no abuse whatever of landlords, either individually or as a body. Probably no speaker on the occasion more thoroughly commanded the sympathy of his audience than the venerable "JOHN GREY, of Dilston" himself, who had for many years occupied impartially and most beneficially the very position in which his son has now succeeded him, and who had throughout the duration of his office held that chairmanship which his son has now resigned. It was Mr. GREY, and no one else, who expressed the "disgust" with which he had seen "holes made in preserves for the game to get out into the farmer's fields to consume his produce."—This appears to us to have been the hardest utterance of the evening.

And is it not right that, whatever the facts may be, they should be stated in order that they may excite just what feeling, and induce just what action is their proper logical consequence? Mr. GREY's resignation appears to us to be, to the extent of his influence as a land agent, a protest against the independence of the tenantry around him. Would it be better, does he think, that *all* the members, as "many" of them did, should refuse to vote on such a question as was put to them?—that all should be afraid to state their minds on such a subject, and thus make public the result of the actual experience they had suffered?—that the landlords, whose interests he cares for equally with those of the tenantry, should be kept in the dark upon any actual *fact* whatever of agricultural importance, whether that fact be the cost upon the one side and the advantage on the other to farmer, landlord, and "society," of a fox, a pheasant, and a hare, or the feeling (equally with the other a positive entity, producing its effects)—the favourable or unfavourable feeling—of the tenantry, which the existence of these foxes, hares, and pheasants upon their occupations may have caused. Would he prefer that all such questions as may touch the feelings, or the interests, or prejudices of landowners be discussed with bated breath, even though he knows that along with the frank expression of all such feelings as naturally arise, whatever they may be, there will go not only the utterance of "disgust" and "indignation," whether these are just or not, but the manly and independent advocacy of the other side whenever the attack shall be excessive or unjust? Certainly those members of the Hexham Club who thought they were successfully defending game laws and game preserving, equally with those who were attacking both, have reason to complain and to be discouraged when a man in Mr. GREY's position resigns his chairmanship because of the license in which, he declares, the Club indulges whenever the conduct of landowners is under discussion.

Of one thing we may rest assured, that just as Pain, the outcry of Nature when attacked by disease, is the best possible aid in the correction of evil humours in the living body—just as Scandal, the outcry of Society against vice, is the wholesome lash of immorality in the body corporate—so outspoken utterance of all kinds, whether in praise, disgust, or indignation, for mutual correction or conviction, is a safe and wholesome policy for any such society as landlords, farmers, and labourers form—for the Hexham Farmers' Club, for example, in which two at any rate of these classes are represented. Mr. GREY's refusal to allow the frankest criticism and discussion, whether of landlordism or of farming, is of a piece with the policy which is scandalised rather by appearances than by realities—which thinks by regulating public criticism to remove the evils criticised—which hopes by cooking accounts to avoid bankruptcy—by punishing beggary to root out pauperism—by merely deodorising filth to escape infection—and generally, by hiding (ostrich-like) the head and eyes, to avoid being overtaken by relentless fate.

—— TAKE the following extract from the letter of a resident in a Berkshire village, as an illustration of the folly of holding the meetings of Benefit Societies at a public-house. The writer tells us:—We are very quiet here just now. I believe, however, there was a meeting on Saturday evening at The Bull, to form a branch of the Foresters' Club, which, I believe, is a *Friendly* Society, but they made a bad beginning, for I hear that some of the would-be members were fighting before they separated. The chief Benefit Society that is required at present here is a Temperance one, and not one whose meetings are held within the influence of such a furious character as The Bull. Spain is certainly not the only country where bull-fights take place.

—— The *Pall Mall Gazette* calls attention to a report by Professor M'Call on the dairies and cattle sheds of Glasgow, and on the losses by cattle disease within the boundaries of that city, and points out that the actual and direct loss, in money value, from rinderpest last year in Glasgow, when summed up, amounts to 8978*l*., 10*s*., whereas the loss from "puerperal fever" amounts to 7021*l*. 9*s*.; from pleuro-pneumonia, 54,677*l*.; and from murrain, 7314*l*. "Now, the greatest loss from pleuro-pneumonia, lung disease, and, we may add, murrain, is amongst Irish and other travelled cattle, and it is not difficult to see how this comes about. How are Irish cattle brought to this country? We may suppose a dealer has bought up a number of lots all in different places, which must reach a point for shipment at a given time. The lots which arrive the earliest may possibly get rest and refreshment; but for the remainder even water is out of the question. The poor brutes are hurried from the railway trucks to the steamer, to be thrust into the hold as fast as screwing of tails and thrashing can force them. Here, for 30 or 40 hours it may be, they are kept huddled together without food or drink, and almost without air to breathe. On landing they are driven from the steamer, or very likely hauled out by means of ropes, and hurried off to another station, again to be confined in trucks for a number of hours longer. The next ordeal to be undergone by the wretched beasts is to be exhibited for sale at some fair or market, where the same disregard of their necessities is shown, and when at last they find a purchaser, as likely as not another long journey by rail, to be made under the same conditions as before, awaits them. The sufferings of the poor famished and starving animals are shocking to think of, and it requires no skill in veterinary science to make it apparent that disease must be the inevitable result. As a matter of fact many beasts do perish on the journey, or as soon as they reach the end of it. Those dying *in transitû*, when the deaths are evidently caused by the conditions of the conveyance, are paid for by the railway companies, and the owner is thus saved from loss, but there is so much of the actual food supply of the nation destroyed. A lot of 24 bullocks forwarded by rail to Winchfield, in Hampshire, were four days and nights on the journey in trucks, without food and water. Two out of the 21 died on the way. A lot of sheep and lambs were sent also to Winchfield. They were shipped from Glasgow on a Tuesday, were carried on the Wednesday about 7 P.M., and they arrived at Winchfield station on the Friday night following, about 8 P.M. One of these had died by the way, and it is pretty certain that others would have shared the same fate had not the owners given them fully 14 hours' rest near Glasgow on good Grass, where they had also plenty of water—an exceptional piece of humanity. We say nothing of the possible consequences of eating the flesh of animals which have just been subjected to the treatment described. Although symptoms of actual disease may not have made their appearance in the beasts, their flesh can hardly be wholesome human food."

SHORTHORNS.

THE value of a fat stock show, in promoting the *breeding* of good cattle, which we referred to last week as the principal justification of such an institution as the Smithfield Club, is borne in mind with curious aptness by the clever writer of the "account of the late extraordinary Durham Ox" (1807). If ever a single animal can be said itself to have had the influence of a whole Smithfield Show upon the public mind, it must have been that Durham ox, bred by "Mr. Charles Collin," as he is called, "of Ketton, in the county of Durham." At five years old he was bought by Mr. Bullmer, of Harmsby, near Bedale, Yorkshire, who had a carriage built for him, intending to carry him through the country as a public exhibition. But, after travelling with him 197 miles in five weeks, he sold both ox and carriage to Mr. John Day for 250*l*." Thereafter, Mr. Day relates in the very well written pamphlet which bears his name, that he was offered 500*l*., 1000*l*., 2000*l*. for the ox on successive occasions within two months; but refusing these tempting offers, he carried it during the following six years through the eastern, northern, midland, and western counties, reaching at length the city of Oxford on Feb. 19, 1807, where an unfortunate accident necessitated the slaughter of the animal, and his carcase weighed 20 cwt. 5 stone 12 lb.

The last Smithfield Show was witnessed by 100,000 persons, most of them citizens of London, in a crowd and in confusion—this ox must have been seen by twice as many persons, a few only at a time, and each at ample leisure for inspection, and they were *countrymen* of almost every English county. The Smithfield Show comprised many animals of inferior merit—this ox was in itself "the most celebrated domestic animal, and in all respects the most astonishing of his kind that ever was exhibited in this country." Undoubtedly, then, it must have exerted a very considerable influence on the public feeling in favour of the Durham breed of cattle. And this it owed, in all probability, not only to its individual merits but to the ability of its showman. Of the enthusiasm and cleverness of Mr. Day, the pamphlet to which we have referred bears ample witness. In no particular is this more apparent than in his anxiety to make clear the breeding of the animal, and to prove the great advantage of introducing and extending the breed wherever it was taken. He is at great pains in his pamphlet to explain the origin of the breed to which this ox belonged, and to name the herds where the same breed then existed. "Ever since I can remember," he declares, "the breed was denominated the 'Ancient Holderness.' Tradition has it that they were originally natives of Britanny" [!] "One thing, however, is certain, that they were well known at Holderness long before any of the Dutch breeds were brought over to England. We read again: "It is said of the large Shorthorned Dutch breed (to which the Durham ox has been compared) that they eat more food and feed slower than almost any other breed" [!] "Here they differ greatly from the Ancient Holderness, for the latter are remarkably moderate eaters, and are as quick feeders as the small Highlanders themselves." [!] "Moderate eating and quick feeding have not been the only excellencies of the Ancient Holderness. It is an observation which the experienced and intelligent breeder cannot fail to make with respect to all cattle destined for human sustenance, that the truer and finer the form of the animal, the better will be the quality and the greater the quantity of meat when fattened. This was remarkably so in the instance before us." "Of what incalculable advantage must it be to the breeder to attend to the propagation of an animal in which nothing coarse is to be found, and who produces so small a proportion of meat that can even be called inferior to the best." The writer then proceeds to argue the importance of encouraging a breed of stock of this description, urging that not merely Government, but "the whole British community, whether belonging to the high, middling, or lowest class, will find their advantage in the encouragement of a breed of cattle which combines cheapness and excellence in the most essential article of animal food."

Mr. Day names the herds where alone the breed then existed, observing that in the real sort only three colours are seen; "1st, a red mixed with white, which was the colour of the Durham ox; 2d, a blood-red; and 3d, a yellow dun or Snailhorn." "The red and white mixed are found," it is said, "in the possession of Messrs. Collins, Mason, and Charge, in the county of Durham," all of them well-known names in Shorthorn history. "Many of the blood-red," says Mr. Day, "now belong to Captain Turnill, of Reavesby, near Lincoln, and the yellow dun or Snailhorn are bred by Mr. Lamb, of Auburn, near Lincoln."

We entirely acquiesce in Mr. Day's conclusion, which is quite the natural conclusion to which the Smithfield Club Show also leads, "that if that animal which fattens the quickest and produces the greatest quantity of the best meat with the least offal be a valuable description of live stock, this will be found to answer every expectation."

—— Mr. John Day's "celebrated Durham ox" was bred by Mr. C. Colling, being by his celebrated bull FAVOURITE. He was calved in 1796, and lived 11 years. His live weight was 34 cwt. at 10 years old: at five he was "not only covered thick with fat upon all the principal points, but his whole carcase was in a manner loaded with it," and "had he been kept quietly at Ketton and properly fed until seven years old, there is little doubt that he would have weighed more than he did when ultimately slaughtered.

There can hardly be any doubt that the exhibition of this ox all over the country did a great service both to his breeder and to the Shorthorn breed in general. He was the best possible advertisement of the merits of the herd and sort to which he belonged, and no doubt did much to publish the merits of this merely local breed, which was then achieving such successes on the banks of the Tees. The ox was a true "Shorthorn," certainly not of Breton origin, and as certainly exceeding even the "Ancient Holderness" in its feeding powers, if these were no better than those of "the small Highlanders!" The Lincolnshire herds named are not considered a satisfactory stock now-a-days for any Shorthorn herd to trace from; the yellow duns of Mr. Lamb, in particular, were an inferior origin for any herd; the red, and red and white, the white and the roan, are the only colours now allowed, and the only colours at the leading sales of stock from which Shorthorn breeders now desire to trace their pedigree. We believe that Auburn is, however, now the home of a herd of well-bred Shorthorns, the present Mr. Lamb having for many years used such bulls as WHITE KNIGHT (14,001), GRAND TURK (12,969), and others of equal mark.

—— It is worth noting in the interest of the discussion of the relative merits of the Devon and the Shorthorn breeds, that in 1805 Mr. G. Taylor, of St. Helen's, Auckland (Durham), went purposely into Devonshire to procure some of the best of this breed he could find. For this purpose he traversed the whole county and selected 10 cows and a bull, which he got home in December, 1805. Mr. John Bailey, who wrote the report of Durham for the Board of Agriculture in 1813, says that he saw in 1808 and 1809 a three-year-old steer of the Devon breed in Mr. Taylor's hands, then estimated to weigh 8 cwt. So that it is plain the herd had justice done to it. Mr. Shafto, of Whitworth, had also procured cows and a bull from North Devon. They have, however, disappeared. The Shorthorn breed have carried all before them; honoured to the exclusion of all others in their own county, they are rapidly encroaching on what was originally the undisputed jurisdiction of all other local breeds.

COTTAGE PLANS.

WE have received from Mr. Birch, of 16, Beaufort Buildings, Strand, the following plans and particulars of cottages designed by himself and since erected in many parts of the country, for which the Society of Arts last year awarded the prize which had been offered by Mr. Bailey Denton for the best designs. They will be found to include the necessary three bedrooms, a comfortable living room and scullery, and a variety of offices and outhouses. In the one case,

the third bedroom is on the ground floor, which is often a good arrangement, especially in the early married life of the cottager, when an invalid parent may be one of the family, and again hereafter when illness may be in the house. The scale of the plans may be gathered from the following dimensions: B on the ground floor in the former plan is 12½ feet by 12 feet, and in the latter plan it is 12½ feet by 11 feet. The cost at which the plans have been carried out in various localities varies, of course, according to the circumstances of the place—the cost of foundation, of bricks, timber, carriage, &c.—but examples are quoted below from which it appears that, under average circumstances, they are to be erected for about 250*l.* a pair.

Design A shows the cottages to which was awarded the Society of Arts' prize. The plans and specifications have been approved of by the Inclosure Commissioners, and contain many improvements on the original design. The offices and internal fittings are very complete, including stoves and ranges, ovens, washing coppers, plate racks, sinks, &c., with hard and soft water and pumps, &c., to each cottage. The walls are built of brick, the roofs being covered with plain tiles, having projecting eaves and gables. The cottages are plastered and finished in a superior manner.

Several pairs of these cottages have been recently erected at Withyham and Ringmere, in Sussex, by the Right Hon. the Earl Delawarr, at a cost of 298*l.* a pair, in each case the carriage of materials being very considerable. These cottages have also been erected in Surrey by G. Calthrop, Esq., at a cost of 226*l.* a pair: in this case the proprietor provided home timber for the roof, and the carriage of materials was upwards of eight miles.

These cottages are now being built in Herefordshire by J. H. Arkwright, Esq., the accepted tender being 285*l.* a pair; and tenders were obtained sometime ago by this gentleman for the same cottages, the lowest of which amounted to 267*l.* 10*s.* a pair.

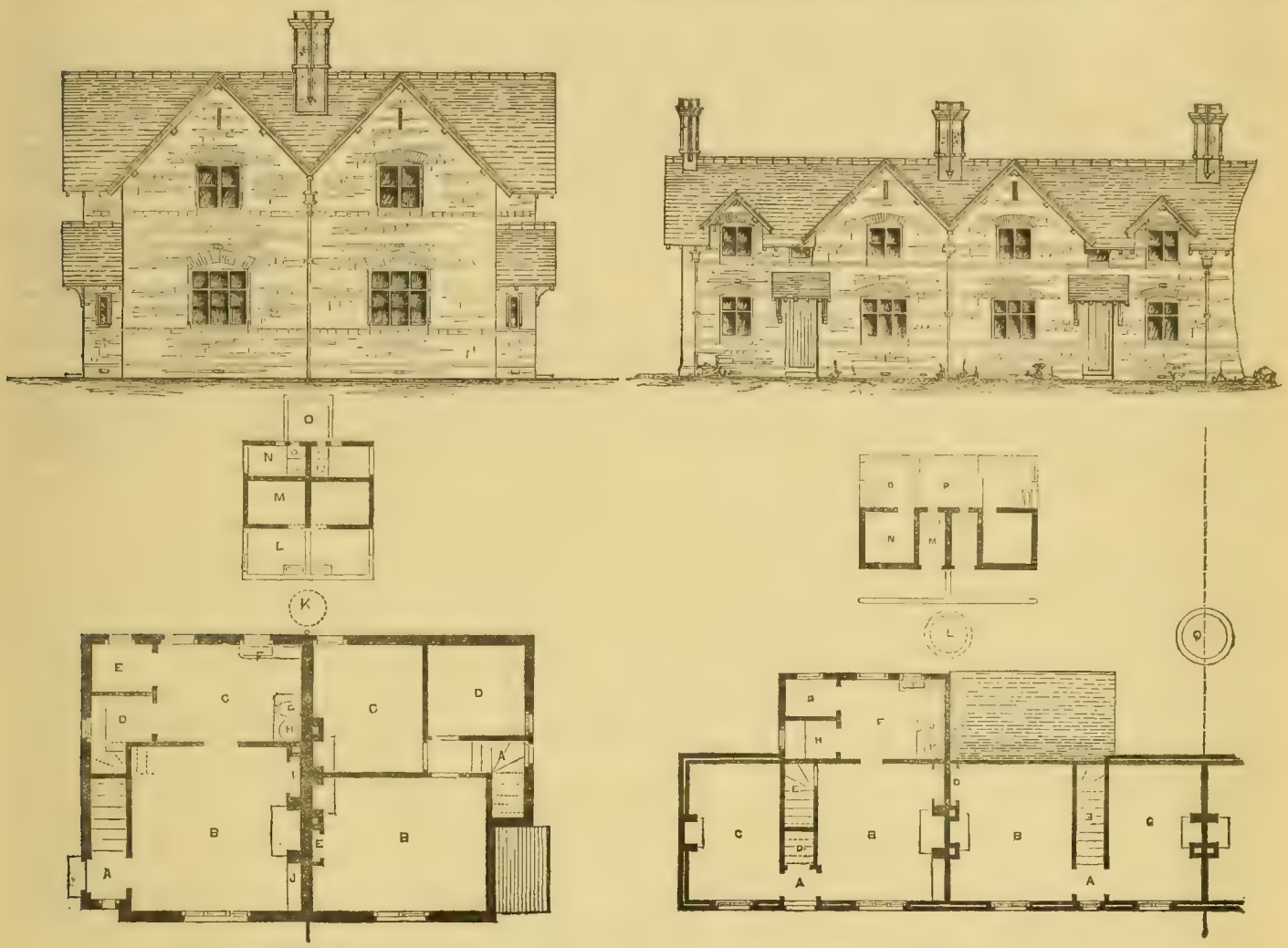
A group of these cottages has been recently erected in Northamptonshire by the Right Hon. the Earl Spencer, K.G., &c., from Mr. Birch's plans. They are constructed of brick—the external walls being built in two thicknesses, with a space between to prevent damp. The roofs are covered with plain tiles, having projecting eaves, gables, ornamental barge boards, and open timber perches.

Excepting the sculleries, all the floors are of deal; the walls are plastered, and in other respects the cottages are well finished.

Several pairs of these cottages have also been erected at Battle, in Sussex, by S. Carter, Esq., and at St. Neot's, in Huntingdonshire, by the Rev. C. Alington and others, but being carried out by daywork it is difficult to ascertain their cost.

Design B.—This group of four cottages has been recently erected by the Salisbury and Yeovil Railway Company, from Mr. Birch's plans; the arrangement differs in some respects from the prize design—one bedroom being placed on the ground floor. The area of the bedroom accommodation, however, is half as large again as Design A.

The offices and internal fittings are well arranged, and very complete, with hard and soft water to each dwelling. The outbuildings are placed a sufficient distance from the cottages.



DESIGN A. DESIGN B.

REFERENCE TO PLANS.

Note.—In each case the Ground Plans read on the left-hand, and the Chamber Plans on the right.

DESIGN A. *Ground Plan.*—A. Porch; B. Living room; C. Scullery; D. Pantry; E. Fuel; F. Sink, plate rack, and drainer; G. Oven; H. Copper; I. Cupboard; J. Bookshelves; K. Rainwater tank; L. Piggery court; M. Piggery; N. Privy; O. Ashpit. *Chamber Plan.*—A. Stairs; B. Parents' bedroom; C. Girls' bedroom; D. Boys' bedroom; E. Linen closet.

DESIGN B. *Ground Plan.*—A. Porch; B. Living room; C. Boys' bedroom; D. Pantry; E. Stairs; F. Scullery; G. Fuel store; H. Stores; I. Sink, drainer, and plate rack; J. Oven; K. Copper; L. Rainwater tank; M. Privy; N. Piggery; O. Piggery court; P. Ashpit; Q. Well. *Chamber Plan.*—A. Stair landing; B. Parents' bedroom; C. Girls' bedroom; D. Linen closet; E. Stairs.

The cottages are built of brick, all the external walls being constructed in two thicknesses, with a space between, as shown, to prevent damp. The roofs are covered with tiles, having projecting eaves and gables; all the floors (excepting sculleries) are of wood; the walls are plastered, and the whole executed in a substantial manner. The cost of the group complete has been 610*l.*

AGRICULTURAL TOPICS.

I DO not think a portion of your columns can be better occupied for a week or two than in discussing the topics that appear to cumulate during the agricultural week, and more particularly those which have been, or should have been, discussed at the annual meeting of the Royal Agricultural Society.

(1). How is it, it has been asked, there is so much lukewarmness on the part of its members—such a bad attendance at the annual meetings—more particularly when it is well known there are a large number of the members in London? The answer, I think, can be very easily given. In the first place there is a feeling, rightly or wrongly entertained, amongst members generally, that they are not wanted—that the chosen few who are in fact both the choosers and the chosen, would rather have their room than their company, that they are very useful in their proper place, that is—the paying of their subscriptions—but they must not presume to interfere in the affairs of the Society. Then again, the room in Hanover Square could not accommodate a large meeting, and it involves the sacrifice of a day to attend it. If a good meeting is really wanted, as evidence of the vitality of the Society, it should be held in the Agricultural Hall, when members could and would attend, and at the expense of an hour instead of a day.

(2). The appointment of members of Council:—A vacancy, caused by the lamented death of Mr. E. Pope, has recently been filled up by the appointment of a gentleman from the Midland Counties—no doubt a very good man, but would it not have been much fairer to have appointed some member from the same district as that to which the deceased gentleman belonged? At present the counties of Dorset, Hants, and Wilts are practically not represented, and there are no means for conveying the wishes and opinions of members to the ruling body, for Lord Portman (one of the wisest and most valuable members the Council ever possessed) is seldom able to attend, the member for Wiltshire has ceased to reside there, and Hampshire has never been thought worthy enough to have a representative in the Council. If the Society wish to increase or even to keep up their local interest they should take care that the districts are properly and fairly represented, and if the Council men could be nominated, as recommended, by the members residing in their respective districts, it would be a very desirable move.* There is probably a tendency to oligarchy in most institutions, which disposition, however, should be carefully guarded against. Formerly the *vox populi* had more influence, and members were entitled to send up the names of gentlemen they considered suitable to act as judges, and they were elected by the whole Council. Now the judges are virtually chosen by a small committee, who naturally consider their own friends the best. If this sympathy between members and councilmen had been more complete and better kept up, the rinderpest, I take it, would never have been allowed to have become so general and destructive, for the members would have roused the Council from that fatal sleep in which they were enshrouded through the autumn of 1865, when having met and been fully informed of the danger at hand, they seem to have given strict orders to Professor Simonds to stop the rinderpest, but on no account to wake them up till the

* One of the most popular and beneficial regulations ever introduced—proposed, or supported by the late Mr. Pope—was that which gave free admission to the local shows to members of the Society.

Christmas following. This jocular allusion to the rinderpest brings us to, and in fact is, my next topic.

(3). Respecting this, however, space will only permit a passing allusion. I would respectfully urge members of Council, of Chambers of Agriculture and the Central Club, to take care lest in straining at a gnat they swallow a camel. The gnat at which they strain is the order that is now rescinded which permitted the transport of live fat cattle by rail from certain convenient outports to the metropolis, there to be slaughtered. The camel they are ready to swallow is, that when they have realised their "Eureka," and by their pressure on the Government have succeeded in establishing, by Act of Parliament, a foreign cattle market in the metropolis, they may have the rinderpest reintroduced into the country just as readily as ever. For example, if the disease is brought in, and again eludes the vigilance of inspectors, what is there to prevent the London and even the country butcher taking the infection away in his clothes and conveying it to the animals in Islington market and elsewhere—the more so as, no doubt from the combined influence of free trade and the pressure of agriculturists, animals will, in return for the previous supposed concession, be allowed to leave London alive. For myself, I look upon the present rule that forbids the removal of any live beast out of London as by far the most valuable regulation in existence, and as outweighing in importance the combined results of every other rule on the subject. Let us take the case of Southampton, where thousands of beasts have been landed and never a case of disease, and where every possible convenience exists. The butchers in the neighbourhood could take one-third of a cargo, or, including Portsmouth one-half or more, but they cannot take the whole, consequently the cargo is sent round to Thames Haven—a longer voyage, with increased risk, which by a stretch of imagination is considered as London, and the foreign cattle trade in Southampton is ruined. Now if that portion of the cargo not required in the locality were, after a quarantine of 10 days, permitted with a sound bill of health to be sent by rail to London—their final destination, what possible harm can arise? After such quarantine for the animals not slaughered at once, there would, I take it, be no harm whatever in allowing them to enter the metropolitan market, where a separation could be readily made between the home and foreign trade. Therefore without any particular objection to a separate market for foreign cattle, I consider it a matter of small importance, and by no means furnishing a security against the re-importation of the rinderpest, for which reason I reiterate the warning, "Don't strain at a gnat and swallow a camel.

(4). I thought, when I read in your paper the bold but rather rash attack on the "thin red line," that the charge would be firmly met, and now it appears that the red line has quickly formed square to receive cavalry, which, like the French Cuirassiers at Waterloo, have, I think, the worst of the encounter. This simile, first used by one of the speakers at the Bath and West of England show at Barnstaple, in returning thanks for the judges, to illustrate the sterling excellence of the breed at the best show of Devons ever held, is also again justified by the firm and smart manner in which the attack on the merits of the Devons is resisted. It is certainly a most valuable breed, and well adapted for the sweet hilly pastures of the old red sandstone formation. Although the Devon may be less required than formerly for purposes of draught, and particularly since the introduction of steam, yet this circumstance rather tends to improve them in other respects, by effecting an exchange of bone and thickness of skin for quality and quantity of prime meat. They have not the early maturity of the Shorthorns, it is true; but probably quite as short a period is spent in the fatting-stalls by them, the extra time being inexpensively consumed in their natural pastures, which they appear to suit so well, and from which they are enabled to pass cheerily along the highway in large droves into other counties, such as Hants and Sussex; there to be made out, and command higher prices per stone than most other breeds. "May their shadows never be less," say I, n ot only with respect to the weight of their carcases, but as respects the red, blue, and yellow with which their horns are often adorned at our shows. If there is money to spare we do not begrudge a few extra prizes to the Shorthorns, not, however, to be obtained by the disfranchisement of the oldest, purest, and healthiest breed in the country. The breeders and graziers consult their pockets as to what kind of cattle they shall breed or fat, and to them the question may be safely left; but it is, we take it, the mission of our societies to encourage to the utmost our pure native breeds of sterling merit, whether cattle or sheep, so that the fountain streams may be preserved undefiled, and to take care, above all things, in the interest of the public, that the means are kept up of supplying our tables with something more nutritious than merely tallow. Besides which the best crosses can only be secured by means of pure breeds. And here this question presents itself to the mind of the writer, as it has scores of times before—Have we, during the last twenty years, done anything to improve the milking, butter-making, or cheese-making qualities of our cattle? Do we know anything more about the subject than we did some twenty years ago? Whilst our scientific men who meet at the weekly councils have done their parts in explaining the anatomy and physiology of the parts engaged or the chemical conditions that belong to the production of cheese and butter, have the practical men who attend the monthly councils (and who we farmers rather despise), the weekly open meetings—have they done their parts likewise? Do they know anything more about the matter than their fathers before them? Can they answer the question of a tyro with satisfaction to him or themselves? Is it better for dairy purposes to have pure-bred or cross-bred cattle? And, if the common notion is correct, that mongrels are best for dairy purposes, can they tell us the reason why? It perhaps is beside the province of the Smithfield Club; but I think it is quite time for the Royal to take the initiative in the matter, and endeavour to improve our dairy beasts, and to ascertain how far the rival qualifications of fattening and milking can be combined in the same animals. *S.*

AGRICULTURAL LABOURERS AND GANGS.

OUGHT not the various questions now before the general public relative to agricultural labourers and agricultural gangs to be left to solve themselves according to the natural force of circumstances in the onward march of improvement? That there are certain black spots here and there upon the agricultural body, which, like the complexion of the Ethiopian and negro, will not be easily washed out by the hand of Time, may be granted; but at the same time in granting this it must also be conceded that from the one end of the kingdom to the other a strong movement is now being made to go ahead, the mere plodding of the iron-shod smock-frocks at the plough not excepted. How, then, are we to justify the impatience of those high-flown political experts and moralising philanthropists who will, under any and all conditions, without reserve, have the broad daylight of noon before the sun has got half way above the horizon of farmers' politics? The case is a clear one when viewed from the golden realms of good King Capital—*i. e.*, pounds, shillings, and pence, if you prefer it, or higher wages, and so forth. But as the opposite page of the ledger to this pecuniary account reads a higher degree of skilled labour than has yet been attained, generally speaking, we must first look at things as they are and may be, before we take them up for examination as they should be.

The several questions thus raised may, for the sake of practical illustration, be divided into two classes: the first having reference to the social position, residence, and nursery ground of labourers; and the second to the field of employment and quality of labour therein. In a few cases the labourers reside upon the farm in sufficient numbers to do the whole work upon it from one year's end to the other; but as a general rule this is still the exception; and although it may appear at first sight that the exception ought to become the rule, as eventually it may, yet at the present time it is otherwise, for, when we enter the crowded village, at a long distance from the field of employment, with what may be termed the levelling hand of future progress—the object being the building of new farm-houses and cottages upon every farm as above—the hand of the leveller is arrested by the fact that there many districts, as our fens, which are not sufficiently drained and otherwise improved for the successful reduction of such a proposition to practice. In short, improvement in both cases, in the nursery as in the field of employment, is a work of time, dependent each in a great measure upon the march of progress in the subsidiary branches of art, as in agricultural machinery, manures, stock-breeding, &c. It follows, therefore, that both the above questions may be resolved into the general one: Is improvement in the nursery and field of employment keeping pace with the rapid progress now being made in drainage, machinery, &c.?

The facts of the case must of course be left to answer this question. Thus things, at the present time, are evidently in a state of transition to the better, generally speaking, so that to make future provision for things as they now are would be imprudent. To do this may even be throwing serious obstacles before the wheels of future progress. It must not, however, be inferred from this that we are opposing anything being done to obviate or mitigate the present wants of our labouring population where such wants exist and are of a character demanding public interference. On the contrary, we simply caution against hasty steps of any kind being taken to support the families of the less deserving—hasty steps which might have for their ultimate effect the retarding of the normal work of improvement of the industrious, persevering, and more deserving class of labourers, who are exerting themselves to merit regular employment at the highest current wages so as to be able to bring up their families to similar habits of industry. From an extensive experience amongst agricultural labourers in each of the three great divisions of the kingdom, England, Scotland, and Ireland, we have found them naturally, as it were, divided into two classes as above: the one class, the more industrious and deserving, making provision for themselves; the other class, the less deserving, having to be provided for by poor-rates, private charity, &c. Such, then, being the plain facts of the case, the practical lesson which they teach is certainly highly instructive in the present state of things.

Improvement, *i. e.*, real permanent advance, either social or industrial, in any rank of life, ever has been, and doubtless ever will be, up-hill work. Indeed, from this general rule there are few, if any, exceptions—certainly none in agriculture. Antiquated times may have left behind them certain grievances which the Legislature may redress; but if there is one mistake more prominent than another, it is the looking to Parliament for the improvement of agricultural labourers in either of the above two conditions relative to residence and social position on the one hand, and field of employment and quality of labour on the other. If all the lazy bad workmen with their improvident families, that throng our rural villages, could be converted by an Act of Parliament into the opposite class of labourers, then there would not be two opinions as to the proper course to be taken, for the sooner such an Act were passed by the Legislature into statute law so much the better: but so long as experience reads the results of all legislative interference in the opposite direction, the finger of progress must indicate accordingly.

But although real improvement is slow work, that is only a reason why its natural development should be cultivated with the greater care and circumspection. Thus, if it is admitted—and the truth of the proposition cannot be fairly denied—that every farm should support its own labourers within itself, then the principle of action, so to speak, in carrying into effect such a proposition is to provide suitable cottage accommodation upon every farm for the better class of labourers (and for the better class only) as fast as they multiply, so as eventually to get a full stock competent to do all the work according to the highest standard, quality of labour on the one hand, and social, moral, and intellectual position on the other. Such then being the facts of the case, according to hypothesis, from a scientific point of view, let us briefly examine them so as to determine if they are in reality those involved in the improvements now actually taking place in practice.

There are three kinds of nursery grounds for labourers, viz. (1), the few examples where the whole of the workpeople reside upon the farm in full employment all the year round; (2) the village system, or where the labourers reside in villages at a distance from the field of employment; and (3) the small farm system, which has a surplus amount of labour to supply the demand of large farms at a distance: and in order to prosecute the above inquiry with clearness it will be necessary first to examine these three sources of labour separately, in order to understand the peculiar position which each occupies in the march of improvement.

The first of these plans is very common over a large area of Scotland and the north of England, and there cannot be a doubt but the introduction and use of improved machinery is every day rendering farms more and more independent of a supply of labour from without, even in harvest time. We at one time had considerable experience under this system, before the introduction of reaping machines, steam-ploughs, &c., and on several occasions the whole of the harvest work was done by the resident labourers on the farm, all of whom had regular employment throughout the year; and at that time (1843, when we left the north) we were preparing to carry the rule into general practice, so as to be wholly independent of labour from without; and since then we believe the practice has been greatly extended in some places, although we hear that it has been rather contracted in others, but the balance upon the whole is, however, in favour of exclusive residence upon the farm of a full supply of labour.

In working under this system the various operations in seed time have to be so organised and ordered as to co-operate with those of hoeing and harvest, and we never experienced any difficulty in doing so. In point of fact the very reverse of this is the case, for by so ordering the labours of the farm they are far better and more successfully performed than under the opposite practice of seeding large breadths at one time without any regard to the consequences in hoeing and harvesting the crops, which cannot be carried all in one day, granting that they are cut down and made ready for the stackyard. The ploughing and preparation of the land for seed and the putting in of the seed are works of time, corresponding to those of hoeing and harvesting, both as regards the labour of man and beast, and those who have experience of this system in controlling the labours of the farm where men and horses are fairly masters of their work (as they always should be), working cheerfully together and carrying everything before them at all seasons of the year, would never think of returning to the old system of doing the works of seed time, hoeing, and harvest, by "fits and starts," *alias* by "gangs," and so forth, for reasons which will subsequently be shown under the next two heads. In short, the system is better for the land, the farmer, the labourers, and working cattle than the village and small holding system.

Under this system married servants are generally engaged by the year, and the unmarried, or single, by the half-year or six months. We had a few hands for odd jobs, who were regularly employed all the year round upon the farm, some work being done by day wages, others by task, this latter being generally preferred, as by it rather larger wages were made; while at some jobs, as hoeing and harvesting, wives, boys, and girls lent a willing and helping hand to eke out the account. In fine weather all hands exert themselves to the utmost so as to keep the work in advance, and in bad weather they take it more easy—their interest being thus in harmony with that of their employer. We always aimed at engaging the best class of hands, who require rather larger wages, but in the end are cheaper. The best hands are not always the healthiest constitutionally; but when constitutional debility unfits a man for the teams, he turns to the odd work, and makes the best of it he can. If a few days off work he falls short in wages, but has his house and garden free; and by steady perseverance in fine weather, if a good workman, he does not fall so far behind at the year's end, as to wages, as one may at first sight imagine. As to general health, we have always concluded from our own experience that servants under this system are more healthy than under either of the others, and less subject to epidemical complaints, &c. If a horse-man or cattle-man falls sick, and is obliged to leave work for a few days some of those engaged at odd jobs take his place, so that the general work upon the farm is kept going. And where there are a number of active willing hands on the staff or roll, it does not take much extra exertion on the part of each, when all are working together, thus to keep up the work when one is off the list. Consequently it was

very seldom that we had to reduce the yearly amount of wages on account of sickness.

With regard to social position, &c., when the labourers are all resident upon the farm the whole concern is truly a family affair, in some measure subject to the old proverb—"like master like man." Amongst steady, carefully-selected families, the ruling ambition, if we may use the phrase, is to follow the upright example of the "maister," the deepest penitence being always manifested for any untoward departure. Good hands adopt the maxim, "a rolling stone gathers no fog," *i. e.*, seldom change places. It is no uncommon thing for a cottager to sit out a 19 years' lease, and to enter upon a second term with his employer in the full hope of seeing its close. As to children, we never experienced any difficulty in keeping them in order, even when counted by the dozen; the contrary being as often the case, there being many little things which children can do better than grown-up people, and which they delight to do, especially when the order comes direct from the "governor." Bad boys are no doubt occasionally to be met with, even in good families, but we would rather ten times have them resident upon the farm than in the village. Steady young men and women save money to start them in married life in a manner becoming their rank; and we have had married servants bring up each from six to eight of a family, giving them a fair education, and keeping them also respectably in clothes, and yet save money. Dirty faces, feet, and hands, rags, and lounging about idle at home instead of being at school, we never tolerated; and this being the rule absolute, there was no fear of any attempt being made to depart from it.

Such is a general view of the better class of labourers when resident upon the farm. That there are many exceptions to it may be granted without in any way compromising the soundness of the system. And in those districts where it is generally in force, there are seldom many hands out of employment. The sons of small farmers, masons' labourers, and the like, may be found idle, but it is not fair to place such in the category of farm labourers, although this is frequently done. In short, the system, when properly carried out, has less tendency to nurse a surplus stock of labourers on reduced wages and poor-rates than either of the other two systems, all surplus hands being obliged to emigrate or push their way into other works. As horsemen get old they become jobbers or cattle-men, some of their unmarried sons taking their places as ploughmen, but into details of this kind our limits will not allow us to go further at present.

Under the village system, so far as our experience extends, there is a large surplus amount of labour in the market. The best hands are regularly employed all the year round at the maximum rate of wages, generally paid weekly, but the second and middle class are much of their time idle, their families being subjected to many privations to avoid getting upon the union, with a third class is more to be pitied than noticed publicly. Out of their weekly wages all classes have to pay their house-rent. This payment for house-rent and garden ground, when the labourer falls upon the sick list and gets out of employment, is a serious affair, and forms one of the peculiar characteristics of the village system—one that demands special attention. The want of regular employment is another, which we have often thought more killing in its consequences than sickness itself. Assistance in such cases from "clubs" we can appreciate at its full value; but after all it is but a poor set-off to the village system when all things are placed in the scales and fairly weighed in comparison with the preceding resident cottage farm system. And the objection to the village system is the command of the labour market which certain employers enjoy which gives rise to the gang system, and the doing of the principal operations of the farm by turns. Hence the losses which farmer B sustains in waiting until farmer A has finished his work and paid off his spare hands, throwing them idle upon the village. In very many cases the farm-houses and offices are in the village, along with the cottages of the labourers. In other words several farmeries, with their labourers' cottages, &c., are huddled together so as to form a village on the old Saxon plan, when self defence rendered such a measure of precaution necessary. In such cases both the farmer and his labourers are at a distance from the field of employment; they and the working cattle having to go and return daily, and often several times a day, as in carrying in harvest and carting out manure, &c. Such being the position of residence, and such the position of the field of employment, horse-men and cattle-men are regularly employed upon the respective farms of the village to which they belong generally, but the odd hands are sometimes employed on the one farm and sometimes on the other, there being a few exceptions where a special hand or two for odd jobs are also regularly employed all the year round. Under such conditions the labourers who are thus tossed about from one farm to another, overworked to-day and idle at home in the village to-morrow, have not that interest in helping forward the work upon the farm as the old hands have, who are regularly employed and resident upon the farm. Indeed, the contrary is the case, the less work they do to-day the more remains for to-morrow, consequently they require sharp looking after. But the employer being also non-resident, he cannot always be behind them, his cattle and the ninety-and-nine other things upon the farm requiring his attention. It follows that he must either neglect the regular or general work upon his farm, or else the odd jobs. To neglect the former is out of the question, so that he is left the alternative of obviating the latter, which is done sometimes by gangs of day labourers under a foreman or bailiff, sometimes by task-work, the work being given out to individual labourers, or to families, or to small gangs of two to ten labourers in a company, and sometimes the work is let to job contractors, who employ gangs of their own.

Under the small holding system similar results to the above are arrived at—horse-men and cattle-men being regularly employed upon large farms—the job work being done as under the village system. In Ireland, and some parts of the north, where small holdings are numerous and large farms few, the supply of labour is greatly in excess of the demand, so that there is a scramble for farm work, much to the neglect of the small holdings at the proper season. In other places the supply does not much exceed the demand, but into details of this kind our limits will not permit us to go further.

We now, in conclusion, come to the question of progress, and, although only one answer can be given, viz., that progress is being made in the erection of farm buildings and cottages centrally upon farms, yet, when we return to the villages of "merry old England," we are not so far past the age of poetry and the painter's brush as steam ploughs, reaping machines, guano, and the other auxiliaries of modern farming absolutely demand. Still small holdings are annually decreasing in number, ponds are being filled up, broad crooked hedges, &c., are being stubbed, while many other things dear to the heart of modern painters are disappearing from the landscape; village gossip and the favourite songs of bardic times are also fast losing their powers of attraction without the aid of legislative interference: so that, putting all things together, the signs of the times must be read favourably, but not without some degree of caution on the part of political economists, whose organs of vision require optical assistance to see things clearly in their true light. *W. B.*

THE BUTTER DAIRY.

As a pasture for the production of butter, I would greatly prefer a natural growth, such as is usually found in our Brandy-wine meadows; good Clover pasture will increase the amount of milk, but my experience has shown me that if my cows produce a given amount of butter from natural pastures, they will, when turned on to Clover, decrease the amount of butter at least one-fourth, while the amount of milk would be materially increased. I would unhesitatingly give the preference to good natural Grass as a butter producer. For hay I would still give the preference to natural Grass, but the difference is not nearly so great, for I hold that Clover hay, nicely kept, and not too much dried, will make as much butter as any other kind which I can get. If we pasture our meadows and the natural Grass of our uplands, we must, of course, mow the Clover of our arable land, or *vice versâ*.

Dairy Rooms and Temperature.—The grand object is to keep the milk as nearly as possible at an even temperature the year round. With regard to the proper temperature of the spring house or vault, I would say that one object is to make all the cream rise in the least possible time, and to do this we must keep the milk at a regular temperature. Several experiments have been made to ascertain the proper temperature; as a rule it has been found that milk at a temperature of 50° will raise all the cream in 36 hours; at a temperature of 55° it requires 24 hours; at a temperature of 68° it requires but 20 hours; while at one of 77° it needs but 12 hours. In another experiment the milk was kept at a temperature of from 34° to 37°, no cream of any account was thrown up in three weeks. These and other experiments all go to show the great importance of this point; in fact, it is the mainspring of success in the butter dairy. That this regular temperature can be best attained by a well constructed vault there can be no doubt. With regard to the state of the milk at the time of churning, I prefer that the milk should not become thick all through, but endeavour to have it in that stage in which a small portion at the bottom and sides of the pan is thick, showing that the thickening process has commenced. If allowed to stand until the milk is thick all through, there is great danger of injuring the quality of the butter. At a temperature of about 70° it will be best to skim every day, or at most every 36 hours. If our West Bradford correspondent will take the trouble to skim his milk in 24 hours after milking, and again in 12 hours more, keeping the two skimmings separate, he will find that the last skimmed will make a very inferior sample of butter.

Depth of Milk in Pans.—My own experiments have demonstrated that to put the milk more than 3 inches deep in the pans entails a loss in the amount of cream; the cream is so nearly of the same specific gravity as the milk, that it cannot rise through a very great depth; again, in a large body of milk it requires a longer time for it to lose its animal heat, which must all be destroyed before the cream commences to rise. If any one will take the trouble to set a shallow pan, with not more than 3 inches of milk, away with a bucketful from the same kind, he will find that the pan will raise nearly if not quite as thick cream as the bucket. I would not put away milk deeper than from 2½ to 3 inches, and have found that the increased outlay for pans is more than made up by the increase in butter.

Temperature of Cream.—In answering his question as to the proper temperature of the cream when put into the churn, I would say that this question forms one of the most important in his series, but is at the same time one which is often neglected. Careful experiments have demonstrated that while the cream should never be lower than 50°, it should never be higher than 55°, for the operation of churning will raise it from 5° to 10°. In a long series of experiments conducted in an English dairy, the best temperature was found to be 53° when the cream goes into the churn. By far too many keep the milk and cream at the same temperature, or at least in the same cellar or vault. Either the cream or milk will suffer, one being too warm or the other too cold.

How Long to Churn.—My experience is, that if the butter "comes" too soon, it is at the expense of quality, if not quantity, too; I would rather churn one hour than less, and consider that by so doing I make better butter; by raising the temperature of the cream, the butter may be prepared in less time, but will not make so good an article. In the best English dairies it is not considered too long if twice the above time is occupied in churning.

Salting Butter.—The quantity of salt needed to keep the butter, will vary from one pound of salt to 24 of butter, to the same amount for 28 pounds. The object is to have the water and buttermilk which remains in the butter thoroughly saturated with salt, and of course the more the butter is worked and freed from the buttermilk, the less salt will be required to salt it enough for preservation, but as enough salt to keep it will not usually make it salt enough for the taste of many customers, we must add more: one pound to 24 of butter will not generally be too much for the public taste.

Milk or Cream for One Pound of Butter.—The amount of milk or cream required to make one pound of butter varies much. From 9 to 11 quarts of milk should make 2 of cream, which in turn ought to make one pound of butter, or by weight, 18 to 20 pounds of milk should make four of cream, which should make one of butter. I give these data from a dairy of common cows, and it will, of course, vary with other breeds and herds; it will not apply to Alderneys, for the proportion of cream and butter to the milk is much greater. Two quarts of cream is a fair average for one pound of butter, though many cows will furnish an article requiring much less to make one pound. *Correspondent of West Chester (Pa.) Republican.*

Home Correspondence.

Turnips after Vetches.—In the *Agricultural Gazette* of the 16th November I observed "Fingal" quotes from a former correspondent ("G."), "Turnips will not plant after a crop of Vetches," and he added, "some of the best rough-leaved Turnips I have ever grown, under very varied circumstances, were after heavy crops of Vetches." I had noticed "G.'s" remark at the time with much surprise, for my experience agrees with that of "Fingal." If "G." will adopt the same plan we do, I cannot doubt his success. We select from the fields in course for the root crop for the succeeding year, the weakest naturally—that which requires the most aid, for Turnips; then, as soon as the Wheat is carried, we spread 8 to 10 tons of manure, according to quality, and plough it in lightly. We then measure off one-third, and sow it the first opportunity after rain with two bushels (per acre) of winter Vetches, mixed with one bushel of winter Oats, usually by the last week in August. This crop will be up by the latter end of September. In the course of October we sow another third of the field, with three bushels of Vetches alone, because, the Oats are very useful in supporting the first crop, though they often become too strong in the stem by the time the second crop of Vetches is fit to feed. The last third of the field we sow with spring Vetches in April: their rapid growth at that season will bring them forward in time to succeed the October-sown crop. As fast as the Vetches are consumed by the sheep the land is very lightly ploughed, and sown with the purple-topped Aberdeen Turnip—2 lb. of seed to the acre. If the weather has not been propitious, and the sowing with Turnips of the last third of the field could not be got in before August, we sow this with the Red Nottingham, a very rapid grower, and attaining a considerable size. If the work be closely followed up, the only chance of failure is an unusually long drought after the Vetches have been fed off. This season has been very favourable: the Turnips were set out from an abundant plant without leaving an interval, and, for "G.'s" information, I have had a perch drawn from the Aberdeens and weighed, and being very uniform throughout the field, the weight would be 24 tons 16 cwt. per acre of actual food. The Nottinghams sown last were quite as large a crop as the Aberdeens, but they have been fed off first by the lambs, as not being so hardy as the Aberdeens. This is no doubt far beyond an average crop after Vetches, in consequence of seasonable rains causing quick vegetation, maturing rapidly without a check. I was informed this subject had been matter of discussion at our College, and the agricultural Professor brought the students to inspect this crop as a practical illustration. *Chas. Lawrence, Cirencester.*

Large and Small Farms.—I had marked Mr. Mechi's "Notes" on this subject for comment, but several months have elapsed since I commenced a letter which is still lying unfinished. I send you a copy of a letter that appeared some time ago in the Dundee *People's Journal*, by a Mr. Henderson, who states his experience in Scotland and in Upper Canada. He says:—

"A. M.," Deeside, writing to the *People's Journal* on the failure of small farmers in Scotland, is well worth the attention of every yeoman, especially those whose farms will not afford more than one or two horses. I had 19 years' experience of farm life in the parish of St. Fergus, and since that I have had 15 years' experience in Upper Canada, and I must confess that I would much rather be a farm servant in Upper Canada than have the name of a farmer in Scotland, if I could not have more than 40 or 50 acres. I will just ask these small farmers how many of them can show 20*l.* of clear profit after the rent is paid? I would ask the farm labourers how many of them can show a saving of 8*l.* at the year's end? I would ask the female servants how many of them can earn over 8*l.* or 9*l.* in the year? In this country a good housemaid can get from 10*l.* to 14*l.* a year, with no out-door drudgery. In fact, you go into a farmhouse here, and it would be hard to tell the servants from the farmer's own daughters. Female servants are in great demand here. Then for the farm labourers, they get 20*l.* and 25*l.*, with

board and washing. Land can be rented here at from 4*s.* to 8*s.* per acre. It can be bought at from 2*l.* to 8*l.* per acre in settled districts, and in the Government grant settlements it can be bought for 3*s.* per acre. In some farther back portions a man will get 100 acres of just as good land as the sun can shine upon for becoming an actual settler, and will get the deed in three years provided the stipulated amount of land has been cleared. I would now ask such men and women as Scotland can produce why they are so blind that they cannot see through all this? Here there is room for all the men, women, and children in Scotland. Then look at the room there is for bettering your circumstances. I can name many who came to this country only a few years ago almost without a shilling, who are now very wealthy. From their own industry they have raised themselves far above what they could ever have done in Scotland. Only the other day, a man of the name of Donald Robertson was elected to be a member of the Legislative Assembly of Canada who only a few years ago was whistling at the plough in Scotland; and, what is worth more than all these things, on this side of the Atlantic, is that every man is alike here—no high-headed aristocratic feeling. I would just say here that if there is any man in Scotland who would think it anywise degrading to shake hands with his ploughman, or to go and fetch a beef-steak for breakfast, I would say to him not to come here, for it is just such men who can't get along, and then turn round and give the country and everything that is in it a bad name. I would say to all those who have any desire to better their condition to come out here, and there is no doubt but they can do it, and that far beyond their expectations. By writing to the emigrant agents at Quebec or Toronto, immediate employment can always be had on arrival, and those who wish to purchase or rent land I would advise to hire for a year, so as to learn the system of working the soil, and after one year any one who can work a farm at home can do it here. *Geo. Henderson, Jun., Clifton, Ontario.*

The American colonies afford scope for farm labourers raising themselves in the social scale in a manner which few of the class can do in Great Britain. Mr. Mechi has shown that a capital of 14*l.* and 15*l.* per acre can be profitably employed in British farming. Since it is pronounced a false economy to subsidise any portion of the community in towns, I fail to perceive a pretext for subsidising farm labourers through the medium of 10-acre holdings, as suggested by Ernest Jones and others. But for our extensive landowners restricting the number of non-resident tenants, the natural law that the weaker must yield to the stronger would be carried out by tenants, as it is elsewhere. A farm servant's family, well known here, have for several years paid an aggregate rental of nearly 14,000*l.* a year; and one of that family offered 400*l.* a year more for a farm than the present tenant, who entered upon a lease of 19 years last Whitsunday. Thus a landowner sacrificed 400*l.* per annum for the sake of having his farms rented by resident tenants. It being seldom that Mr. Mechi places himself within the range of any criticism, I, with all due deference to him, beg to state that I consider him in error with regard to suggesting the dividing of 500 and 600-acre farms into smaller ones. I should like to see your correspondent "O. F." doing, as a reply to this, what he offered in 1858 to do—prove to the satisfaction of a jury that "1000-acre farms are a great loss to the country." I fancy "O. F." will have discovered all the characteristic points of excellence of the foals which he found in the "mare's nest" in 1858. *T. W. Rutherford, Forest Field, Kelso.*

Apple Pumice.—Your correspondent "Fingal" does not appear to have read over my paper on Apple pumice very carefully, or I feel sure he would not have asked the questions he has. And not wishing to occupy too much of your valuable space, I shall, therefore, answer him very shortly. Apple pumice, in its natural state, is as it comes from the press. The flesh-forming substances are those containing nitrogen as well as carbon, hydrogen, and oxygen. The gum and sugar were of the kinds usually found in fruits, and were not separated. The "*et cetera*" consisted probably of pective and colouring matters, and the fibre would be of no value for feeding purposes. Finally, the oil being ready-formed fat, it could not be classed under the heads of either flesh or fat-producing elements or principles, but it may be called a heat-producer. I should recommend your correspondent "Fingal" to read Dr. Lankester's popular "Lectures on Food," where he will find many things which at present he appears to be totally unacquainted with. *E. T. Kensington, F.C.S., F.R.A.S.*

Farmers' Clubs.

HEXHAM: *Dec.* 10: *Injuries of Game Preserving.*—MR. S. PATTISON, Old Ridley, read a paper on "The injuries that the farmer sustained in consequence of the Preservation of Game, and Fox Hunting." The president of the club (Mr. C. G. Grey) presided, and the attendance was unusually large.

In commencing his paper, Mr. Pattison said it was admitted on all hands that the farmer suffered great injustice in consequence of the Game Laws, and, also, his opinion was that great injustice was inflicted on the farmer in consequence of fox hunting. It might be urged that there were no laws to protect fox hunting, but there were tradition and custom, which in England had very much the force of law. Mr. Pattison first spoke of the Game Laws, and endeavoured to show that they were not only an injustice to the farmer, but also to Society; and, at best, they were costly to those that fostered them. They were also an incentive to crime, and, consequently, a frightful source of misery to many a family, who would otherwise pass through life without the stigma of a criminal resting on any of its members. Mr. Pattison characterised the Game Laws as a remnant of the old feudal laws, and compared the present state of society with that at the time of their institution, and proceeded to remark that there were certain duties, as well as rights, pertaining to the soil. Therefore, the proprietor was not justified in imposing such conditions on his tenantry as that any part of the produce might be misappropriated. The cost of the game was next alluded to—hares, pheasants, &c. In this locality, the wood-pigeons had become so numerous that he could name many farmers who had suffered damage to the amount of from 30*l.* to 40*l.* a-year for some years past. Rabbits, too, were so destructive that were it not that it was the interest of the keeper (in some cases in despite of the landlord) to preserve them, they would never be allowed to exist. They were simply vermin, and ought to be destroyed as such.

The Game Laws were an incentive to crime, which would be easily understood from the fact, that the great majority of mankind looked upon them as not being founded on justice. Uneducated men could not divest themselves of the idea that game were wild animals, and as such fair game for those who could catch them, consequently they had not the same scruple in breaking this law as they would have of breaking another. These laws were oftener broken than any other of their laws, and that, too, by a class of men who had no intent to break other laws. They commenced to infringe this with an innate feeling that they were not committing crime; and in this, as in every other bad practice, the oftener indulged in the stronger the temptation to go astray. A young man, a little scrupulous at first perhaps, is led away by an older practitioner only to get a single hare; and, with the feeling hanging over him that he is not committing crime, was tempted to go again, until his first scruples of conscience were silenced. He got into the habit of going, and, finding it profitable, from the abundance of game he met with, continued on his course, neglected his labour, and became a regular poacher. He got apprehended and fined once or twice, then into gaol for three months, until he got well seasoned as a criminal, and next time he got out he had little notion of being taken; he had lost all self-respect, had little or no moral restraint, and became a reckless, fearless being. Frequently they read of fearful encounters with poachers, and of a gamekeeper being shot,—in all probability two families plunged into misery, poverty, and at least one of them into disgrace, while the ratepayers would have to bear the chief cost of prosecution, and might have to maintain one or both families. He had no wish to excuse such crimes, but they incurred a serious responsibility if they allowed temptations to stand in the way when they ought to be removed. The system of letting game, or the deputation of shooting, often injuriously affected the farmer.

The remedy he proposed for this state of things was, "abolish the Game Laws, and have a stringent law of trespass;" make it not worth the poacher's while to go in search of game, and then he would give it up as an unprofitable occupation. There would be nothing whatever to prevent the landlord shooting over his own property, and having as much pleasure too. He hoped that the pleasure did not consist in killing game, but in a healthy stroll over the well cultivated fields. There would still be sufficient game to satisfy any reasonable lover of sport, and for landlords too, as 99 out of every 100 farmers cared nothing about game, but they did not want the damage from it; neither did they feel quite satisfied in being saddled with a heavy police rate to maintain the force, a great portion of whose time was devoted to the enforcement of the Game Laws.

MR. PATTISON then referred to the second part of his subject, though he knew the majority of the members would differ from him on this question. Fox hunting, like the Game Laws, was a custom or sport handed down from very early times, when hunting wild animals was partly a measure of safety as well as sport; but it was quite unfitted for a country densely populated, enclosed and cultivated, and where domestic animals were kept in great numbers. He then spoke of the destruction caused by fox hunting, and said he could only conceive what the thoughts of a farmer would be after a day's hunt on his return home, after meeting his young horses on the road two or three miles from home, the sheep nets lying down and the sheep spread over the Turnip field, with a frosty night closing over them, and his ewes somewhere where they should not be, with the prospect of two or three cast lambs amongst them. He, however, did not wish to curtail sport or pleasure, believing, as he did, that amusement or recreation was essentially necessary to both physical and mental development. Amusements of an innocent nature ought to be so conducted as to give the greatest amount of intellectual and moral pleasure to those engaged in them consistent with the rights and privileges of others. No one could say he could be engaged in fox hunting without trampling on the rights of others at every step. Moreover, it was a boisterous, cruel sport; and no one was morally justified in making sport out of the sufferings of any animal, however low in the scale it might be.

It was said that if such sports were abolished there would be no inducements for the landlords to live on their estates, and they would have all the evils of absenteeism; but he thought there was always sufficient attractions in a country life—without fox hunting—to induce the proprietors to live on their own property. Besides, a healthy and well-regulated mind would not indulge in any pleasure not approved of by the moral feelings; and it was self-evident that the moral feelings would never approve of an act of cruelty or reckless waste.

DISCUSSION.

MR. JOHN GREY, who followed Mr. Pattison, spoke against the over preservation of game, but in favour of fox-hunting.

MR. E. LORAINE and others followed, there being an almost unanimous feeling in favour of fox-hunting; but the meeting was divided on the question of the Game Laws.

MR. JOS. LEE (Dilston) moved the following resolution, which, he said, was only the embodiment of the first part of Mr. Pattison's paper:—Resolved: "That many farmers suffer a heavy loss from damage to crops by hares and rabbits; that landlords who preserve many hares and rabbits participate in the sins of the poachers by leading them into temptation, and it often happened that poaching led to greater crimes; that a considerable sum was expended in keeping poachers in prison, in maintaining their families, and also for prosecutions."

The motion was seconded by MR. THOMAS TROTTER, but the Chairman and Mr. Loraine dissented from it. On its being put to the vote it was carried by 13 to 7, many of the members not voting. A vote of thanks having been accorded to Mr. Pattison for his excellent paper, the meeting separated.

[We take from the *Hexham Courant* the following letter, which has been since addressed by Mr. Grey to the Secretary of the Club:—

"Dilston, December 16th, 1867.

"Sir,—As the annual election of a President to the Hexham Farmers' Club will take place so soon as the meeting in January, I do not wish to put the Club to any inconvenience by resiguing that office, which I now hold, till that time, but I beg to let you know that I do not wish to be put in nomination for re-election. From the position I hold as a land-agent, and endeavouring as I do to care for the interests of landlords and tenants impartially, I am out of place as one of the officers of a Club which seems to be anxious to make itself obnoxious to landlords; and, also, I cannot again put my myself in a position as chairman at their meetings, to be stultified by such a resolution as was passed on the 10th inst., without any notice having been given on the subject. Mr Lee's resolution on that occasion would have been quite in order if it had followed a discussion on the 'sins of landlords and the virtues of poachers;' but the members of the Club, with two or three exceptions, lost sight altogether of the subject of Mr. Pattison's address, which was on 'the injuries which farmers suffer from the preservation of game and fox hunting.' The members being in a fox-hunting humour, went off at full cry after Mr. Lee as soon as he mounted his favourite hobby 'the poacher,' and forgot their own grievances as farmers, which they had come to discuss, and no resolution was come to on the subject introduced by Mr. Pattison. I beg it to be distinctly understood that I make no complaint against the subject of Mr. Pattison's paper, or the way in which he treated it; and that I have no personal feeling whatever about being left in a minority, to which I have no objection after fair discussion. In this instance there was no fair or full discussion of the subject on the card, but the meeting was hurried on to a division on a different subject. In other counties, Farmers' Clubs and Chambers of Agriculture are attended by many landlords, and I think it is very much owing to their non-attendance at our Club that so much license in attacking them is indulged in, and for this the landlords have themselves to blame. At the same time this does not justify me in being a party to abusing them, and as the Club is likely to join the Northumberland Chamber of Agriculture, which appears to me to take pretty much the same line, I think it will easily find a President of more congenial views than myself.—I am, your obedient servant,

"Mr. W. Cook, Secretary, "C. G. GREY."

"Hexham Farmers' Club."]

EAST LOTHIAN.—*The Butchers and the High Price of Mutton.*—At the last monthly meeting of this Club, Mr. SCOT SKIRVING, Campton, drew attention to the glut in the sheep market, and the high prices which, notwithstanding, are charged by the butchers for mutton sold to customers.

Mr. Skirving said the public were now getting awakened to a knowledge of the fact that they are paying too much for their mutton, and that the Government influence was being brought to bear on the subject by promoting the importation of preserved meat from the uttermost ends of the earth. The last phase which the matter had assumed was a very striking one; they had commenced the importation of frozen meat from Australia, and Baron Liebig had said that he wept tears of joy when he saw preserved meat from Australia, because he thought that they would thereby have the means of supplying animal food at a cheap rate to feed the starving millions of the country. It struck him (Mr. Skirving), however, that we had the means of producing, he could not say beef, but certainly mutton, to an extent which the inhabitants of Great Britain did not seem to have the power of eating; and not only had the efforts of the farmer in that direction been successful, but they had been such as to bring into play another power—that was the butchers, who, as the parties between the growers and the consumers of the mutton, were coming in for the lion's share of the profits. He thought it was a hard case that the agriculturists, who had made such successful efforts to produce an unlimited supply of mutton, should have to stand aside, and see the butchers charge 9*d.* or 10*d.* per lb. to the consumers for mutton which the butchers themselves were buying at perhaps less than 6*d.* per lb. from the growers of the mutton. It had always been understood that the skin and offal of the sheep went to increase the profits of the butcher, and that they should be able to sell the mutton at nearly the same price per pound as they bought it from the farmers. But, as was well known, that was certainly not the case at present. It was clear that farmers had a great power, in the way of producing an unlimited quantity of mutton, by increasing the quantity of their sheep; and yet they seemed to be powerless in regard to giving the consumers a fair article at a reasonable price. He believed that, practically speaking, any supplement that might be required to meet the necessities of the people of Great Britain might be drawn much more easily from our own fields than from South America. He believed that the preserved meats which were brought from abroad might be capable of sustaining human life, but all that he had tried was very poor and tasteless. He could compare South American beef to nothing else than a mason's apron. The portion which he procured in order to see what it was like had to be boiled for a long time—in fact till the cook was tired—but even then it was quite uneatable; then he asked the cook to put it on the fire again and boil it till next morning, but after all it was very like a mason's apron still. He had never tasted frozen meat; but he had tried frozen fish which had been imported, and it had no taste at all. He thought, therefore, that in place of preserved meats being brought from the ends of the earth, an endeavour should be made to get the butchers to give the consuming public good meat, which was reared at home, at a proper and moderate price. He observed that at present every market in Scotland was overstocked with sheep, and he understood that within the last 10 days the prices had declined to the extent of about 3*s.* a head, while wool had gone down some 8*s.* per stone from the time it was shorn last summer.

This appeared serious, for though there were high prices going for the grain crop, he thought it was about 20 per cent. below the average yield per acre, on account of the short yield of the stacks on being threshed out. For his own part, he would be ready to join a co-operative association of farmers—who would be sure of custom—for the purpose of selling the sheep directly to the consumer, and passing the butchers altogether.

Mr. STEIN, Broomhouse, thought it was all very well to say that the butchers were getting very high prices for mutton; but he thought it would not be desirable for the farmers to interfere. If they let the matter alone, the supply would be regulated by the demand, the grievance complained of would work its own cure, and the butchers would find their own level.

Mr. DUBIE, Barney Mains, said he entirely disapproved of the principle of co-operative stores from beginning to end, in any line of business whatever. He regarded it as a principle by which one man, or number of men, combined against their fellow-workmen. The system was altogether bad. No good could result from it. It was a pity that Mr. Scot Skirving should recommend the farmers to imitate such a bad example. It would militate against the butchers, who are the principal purchasers of meat from the farmers. It would be a combination against the butchers; and he objected to that distinctly. He wished to record his dissent from the adoption of such a principle.

The CHAIRMAN said that the greatly increased production of sheep had something to do with the fall in the price of wool; but there were other influences which had been brought to bear on the trade, and which had greatly tended to bring it to its present depressed condition. There had been large importations of Cotton, and a heavy fall in the price of that article had helped very considerably to lower the price of wool. Then, again, there had been a complication in regard to Continental politics, and it had been supposed that the Great Powers would be thrown into a war before these complications were settled; and, in fact, there had been no settlement yet made. And these had so far unhinged commerce throughout the world that business had been put into a most excitable, and unhinged, and nervous state. They had not only increased the production of wool, from the fact that there were more sheep in the country, but the consumption of mutton had been materially lessened. The consumption had been materially lessened, there had been an increased production and a decreased consumption. All the wise saws said that could not last long; and, as wool had recently gone down from 6*s.* to 8*s.* per stone, he thought that it could not be long before a corresponding change took place in the price of mutton.

Mr. DOUGLAS, Athelstaneford, said that he believed there were two reasons for the increase of sheep in the markets throughout the country, They all remembered that severe winter in this country when large numbers of breeding sheep were either lost or rendered weak and useless through the hardships of the season; and stock breeders in consequence of that mishap had to retain a great portion of their ewe lambs, and turn their attention to increasing the number of their flocks over and above what they used to be. Also, on the back of that the rinderpest assumed an alarming appearance, and cut off a great many of the cattle. The department of cattle breeding and feeding then became a very unsafe one, which was another reason why parties went into the breeding and feeding of sheep, and not a few of those who lost heavily by the plague went into sheep rearing very extensively. They went from the one branch into the other with a view to make matters better, but ended by making them worse; for the consequence of all this, together with the high price of wool, has been that sheep stock rose some 10*s.* or 12*s.* above their usual price in the market; but a reaction has now set in, and sheep stock, although back to something like the price of former times, are yet at what may be termed an average value—which is not again likely to be affected by very high prices of wool—as Cotton of the best quality is now being plentifully produced in our Australian colonies and South Africa. In regard to what Mr. Scot Skirving had said about the importation of preserved meat, he (Mr. D.) had no hesitation in stating his belief, from what he had read and heard, that the process would be found to be very effective. Mr. Skirving had said that fish was rendered tasteless by the process of freezing, but the gentleman who was conducting the experiments was very hopeful of a successful result. He had taken a very lively interest in the experiments—superintending them personally himself, and so far as he had gone, had every reason to be satisfied that they would be attended with a success beyond his expectations. He had no doubt that by that slow, effective process, the food, having been thoroughly freezed during the transit, would afterwards become as sweet as newly-killed meat; and there was no doubt that it could be sent here and sold at a very moderate price. Something had been said with regard to the butchers. He thought the farmers should not lose sight of the fact that for three years previous to the last year and a-half they, as a body, had been losing money; they had, however, been making a little during the last-mentioned period, and he did not think they should grudge them the profits they had been receiving. The price of butcher meat had lately been attacked in high quarters, and had already changed the aspect of affairs, far and wide; so that now prices had materially fallen, and might be looked upon as fair to all concerned. Only the other day he read in the *Courant* a statement to the effect that at Newburgh, in Fife, mutton was selling at 4*d.* and 4½*d.* the lb.; and that, he was sure, was a moderate enough figure. It would take a short time until the counterpoise was fully restored; but there was no doubt that in the long run, sooner or later, the evils to which reference had been made would work out their own cure.

The proceedings then terminated.

MIDLAND: *Dec.* 11: *Parochial Assessments as Affecting Agriculture.*—Mr. ARTHUR STARTIN read a paper upon the question of "The Law of Parochial Assessment as affecting the Agricultural Interest." In commencing, he gave a brief sketch of the history of the Poor Laws and poor rates, from their origin to the present time, showing that in the early state of society the poor were entirely dependent upon voluntary alms, and that it was not until the passing of the 5th Elizabeth, cap. 3, that there was any attempt made to enforce what might be strictly called a tax. Referring to the passing of the Poor Law Amendment Act of 1834, and the Union Chargeability Act of 1865, Mr. Startin said that Parliament having, in its wisdom, by the latter measure, completely swept away old landmarks, and abolished the parish as an area of charge and administration which had become totally unsuited to the changed condition of the country, it would be possible, perhaps, to arrive at some sound and accurate principle on which a system of compulsory relief to the poor might be based. The 39th and 43d of Elizabeth made the ability of the individual to contribute the measure of his assessment, and the Poor Law, therefore, might simply be considered a system of legalised charity made compulsory in order that it might be more uniform. He could not conceive, therefore, upon what sound principle the holders of one species of property alone should be called upon to perform this onerous and national function, neither could he understand why the possessors of income from real property should be compelled to be more charitable than the country at large. From the tenth report of the Board of Inland Revenue it appeared that the aggregate amount of income assessed under the several schedules of the income tax for the year ending 31st March, 1865, was set down at 326,367,979*l.*; while in the nineteenth annual report of the Poor Law Board the gross estimated rental of the property on which the poor rate is assessed is stated to be 110,079,308*l.*; showing conclusively that the poor rate is a charge upon only a little over 33 per cent. of the aggregate amount of the incomes exceeding 100*l.* per annum; or to put it plainly, about 2*l.* in every three escaped the poor rate altogether. But to arrive at an approximate estimate as to the percentage of the aggregate income of the country which escapes charge, they must also take into consideration the incomes below 100*l.* per annum, and, as such, not appearing in the income tax returns. Professor Leone Levi had estimated the total annual earnings of the working classes in the United Kingdom at about 418 millions, from which he (Mr. Startin) had calculated that the aggregate of the incomes in England and Wales exempt from the income tax amounted, in round numbers, to 318 millions. Add this to the income tax assessment, and they would find that the total of the annual incomes in England and Wales amounted to the enormous sum of 644,000,000*l.* Take it at 600,000,000*l.*, and the startling fact came out that the poor rate was a charge upon only 18 per cent. of the income of the country, and that more than 4*l.* out of every 5*l.* of this income escapes the poor rate altogether. The average rate in the pound levied for the years 1865 and 1866 was 2*s.* 0½*d.* Now, if every inhabitant contributed "according to his ability," 4*d.* in the pound would amply suffice to provide the funds raised by the present poor rate. There was, in his opinion, but one remedy for the anomalies and abuses of the present Poor Law. Parliament had abolished the parish as an area of charge, and substituted the union. He would abolish the union as an area of charge, and let the relief of the poor be a charge upon the Consolidated Fund of the country. Let them, if they wished, retain the union as an area of administration. Let the State be represented by a stipendiary chairman, having charge of a district of unions, and responsible for the expenditure in his district, and also having a paramount control over that expediture. There would then be no difficulty in providing for the proper classification of the poor in separate houses. The aged might be allowed to end their days in peace in asylums supplied with comforts suitable for their declining years; the sick poor would be at once removed to hospitals supported by the State, in which they would be placed under the care of trained nurses, and receive constant medical attendance; and then, most important of all, children would no longer be allowed to remain within the union houses subject to the pernicious influences of what might to a great extent be called hereditary pauperism. The workhouses pure and simple would then remain for the reception of the able-bodied poor, and become a reformatory for the idle and improvident.

DISCUSSION.

Mr. MAY for himself could say that in the last 15 years the rates and taxes upon his farm had increased something like 100 per cent. His holding was about 530 acres, and at the commencement of the above period the rates and taxes of all kinds amounted to between 50*l.* and 60*l.* per year. In the last five or six years they had been nearly double that amount. The former sum would be something like 2*s.* 3*d.* an acre, while the latter represented something like 4*s.* 3*d.* an acre, or a tithe of the rent. This state of affairs he held to be very serious, for not only had the price of labour and rates and taxes increased, but all other expenses were increasing, and if they could not obtain a corresponding increase in the products of the farm they must necessarily lose in the future. Agriculturists as a body, he believed, wished to bear their fair share of the burdens of the country, but they were not willing to bear any more.

Mr. W. FOWLER, jun., was unable to detect any particular grievances under which the agricultural interest laboured with regard to the Poor Law, although it was very probable that the agricultural community—along with the owners of other property—might be unjustly affected by the present state of the law. Mr. Startin had said that if a farmer improved his land the overseer would immediately demand an increased rate. That, he thought, applied to all kinds of property, and therefore did not operate unfairly in the case of agriculturists. He was, however, quite prepared to admit that there were many anomalies in the operation of the Poor Law, some of which cried aloud for legislative interference. For instance, with regard to mines, it was unjust that coal mines only should be rated; and with regard to the rating of machinery the law was in a most obscure and unsatisfactory condition, decisions in the courts of law upon the subject being not only sometimes incomprehensible, but actually inconsistent. Then there was a most glaring evil in the inequality of the rates between one parish and another. For instance, in the parish of Acton the rates averaged 1*s.* 7½*d.* in the pound, while in the adjoining parish of Birmingham (both parishes forming part of the borough) they were 4*s.*; and in some London parishes the rates were merely nominal, while in others they were overwhelming. With regard to the question whether the rating should be thrown upon the Consolidated Fund he would not give an opinion; but it appeared to him that they were fast coming to county rating, and he was not sure if that would not be preferable to making the management of the poor a State affair.

The CHAIRMAN called attention to the fact that during the present Session of Parliament Bills with regard to the education of the poor, and the abolition of turnpike trusts (the cost of carrying out which it was proposed should come out of the rates), would be brought before Parliament, as an argument in favour of a more equitable system. What the agriculturists complained of was that the general pressure had always been against the land in any administrative operations of which they had had an opportunity of judging during the last few years

Mr. STARTIN, in acknowledging a vote of thanks, said that in a commercial country, where there were so many interests, and so vast an amount of personal property which escaped from local taxation, he was not aware of any method of getting at the income except through Government taxation. The system of two centuries could not, however, be destroyed in a day, and any step to amend that system must necessarily be a cautious one. He therefore proposed to throw certain charges upon the Consolidated Fund, over which the local guardians had no control, and enumerated the following fixed charges which might be so dealt with, viz.:—Officers' salaries and rations, inclusive of the amounts now paid by the Treasury, 720,704*l.*; registration, 75,563*l.*; vaccination, 55,818*l.*; Parliamentary registration and cost of jury lists, 37,715*l.*; maintenance of lunatics in public asylums and registered hospitals, 566,482*l.*; total, 1,466,282*l.*; being a relief to the ratepayers on the average of about 4*d.* in the pound, and an increased charge on the general income of the country of about ½*d.* in the pound. The present number of children in workhouse and district schools was 34,266, which at an average cost of 13*l.* per head for the year for maintenance, school loan and interest, and teaching staff, amounted to 445,458*l.*, or 1·5*d.* in the pound on the general income of the country. The cost of these children at 3*s.* per head per week to the ratepayers is 267,228*l.* per annum for their maintenance alone; thus at the cost of one-fifth of a penny in the pound to the State, a vast social benefit would be achieved, and at the same time the ratepayer relieved to the extent of three farthings in the pound. Thus, placing the fixed charges in unions, the maintenance of lunatics in public asylums, and the registration and vaccination expenses, upon the Consolidated Fund, and also the removal of the whole of the pauper children attending workhouse schools from the contaminating influence of the union house, might be effected at the small charge on the general income of the country of under three farthings in the pound, whilst at the same time the ratepayer, taking into consideration the increased charge upon him through the general taxation to effect this change, would be relieved by more than 4*d.* in the pound.

Reviews.

The Farmers' Almanac for 1868. By Cuthbert W. Johnson. W. Ridgway, 169, Piccadilly.

Morton's New Farmers' Almanac for 1868. Cassell, Petter, & Galpin, London.

Osborne's Midland Counties Farmers' Almanac and Gardeners' Calendar for 1868. E. C. Osborne, 84, New Street, Birmingham.

The Illustrated Farmers' and Gardeners' Almanac. 150, Fleet Street, E.C.

We give them in the order of their years. The Farmers' Almanac was established 20 years or more ago, the "New" Farmer's Almanac is 13 years old, Osborne's Almanac appeared first 4 years ago, and the Illustrated Almanac began, we believe, in 1866. They severally retain the character which was at first adopted for them. Mr. Cuthbert Johnson gives a *resumé* (in the Editor's own words) of all the agricultural publications and events of the year, descriptive of incident and progress in every department of the farm, and garnished with gossip and with poetry, graceful, comic, or pathetic, as the case may be. Mr. Morton gives a collection of extracts from all the speeches, essays, criticisms, publications, bearing on agricultural subjects, which have been spoken, written, or anyhow distributed on farm matters during the past 12 months, so arranged as to convey the agricultural history, describe the agricultural present, and forecast the agricultural future of the country. And this, by close packing, and the tersest possible treatment of the several subjects, including a stern rejection of anything that is not solid agricultural food, he manages to accomplish. Mr. Osborne always issues a very readable and instructive periodical, which appears to aim at being a trustworthy compendium of all things useful for an agricultural reader to know; and it has the great advantage over all its rivals of being published at one-half their price.

The Illustrated Farmers' and Gardeners' Almanac is a volume of about 140 quarto pages—full of costly wood engravings. Beyond the monthly calendar, however, only 32 pages are new in the year's number, and of these 12 are merely a descriptive trade catalogue of new and rare plants. The others include an agricultural summary history of the previous 12 months, relating to the weather, the corn trade, the live stock trade, the wool trade, the health of stock, agricultural shows, and agricultural statistics; and there is besides this a fully illustrated account of improvements in steam-cultivating machinery and of some other implements, as shown at Paris. The principal feature of the publication is the 60 pages which reappear in the successive annual issues of the periodical, containing

the Farm and Garden Calendar, and a classified collection of agricultural memoranda, which, as we have formerly pointed out, sadly needs re-editing.

The Poultry Yard.

THE BINGLEY HALL POULTRY SHOW gives the number of entries for several years:—

	1860.	1861.	1862.	1863.	1864.	1865.	1866.	1867.
Dorking	229	294	234	269	227	193	265	325
Spanish	70	84	59	70	101	60	88	90
Cochin China	94	18	179	205	216	277	310	331
Brahma Pootra	24	27	22	34	43	75	140	192
Malay	16	10	15	11	10	13	16	13
Crevècœur	—	—	—	7	10	20	33	58
Hamburgh	140	148	188	224	270	225	231	280
Polish Fowl	43	40	50	47	43	39	52	47
Other distinct breeds	16	22	31	16	20	22	45	19
Game	263	311	328	350	354	348	351	392
Bantams	116	105	121	115	215	205	162	168
Ducks	76	78	48	88	105	82	120	107
Geese	21	21	20	27	28	39	44	43
Turkeys	24	41	24	37	35	37	40	46
Pheasants	—	10	—	—	—	—	—	—
Ornamental Waterfowl	—	—	5	5	5	—	—	—
Pigeons	168	220	332	275	290	331	400	565
	2300	1429	1726	1780	1972	2006	2297	2676

Poultry Sales at Birmingham.—The following figures relative to the poultry sales have been kindly prepared by Mr. Mapplebeck for publication:—

1865.		£.	s.	d.
Monday	194 pens	789	3	6
Tuesday	40 ,,	125	13	6
Wednesday	14 ,,	43	13	0
Thursday	11 ,,	38	7	6
Total	259	996	17	6

1866.				
Monday	230 pens	901	16	0
Tuesday	64 ,,	214	16	0
Wednesday	59 ,,	148	18	6
Thursday	53 ,,	142	19	6
Total	406	1408	10	0

1867.				
Monday	180 pens	770	0	0
Tuesday	40 ,,	120	19	0
Wednesday	40 ,,	108	10	0
Thursday	53 ,,	104	5	6
Total	313	1103	14	6

Total Sales.				
1865	259 pens	£996	17	6
1866	406 ,,	1408	10	0
1867	313 ,,	1103	14	6

The prize and commended birds were this year offered by auction, set up at the prices named in the catalogue only a small proportion were disposed of, although with comparatively few exceptions the prices of the exhibitors in the entries cannot be regarded as prohibitory. The highest sum given for any one lot was 15*l.*, for Miss Biggar's silver cup Spanish cockerel, which was entered at 5*l.* 5*s.* The Hon. Miss Pennant's 1st prize Spanish pullets, entered at 10*l.* 10*s.*, sold for 14*l.* 10*s.* The Hon. H. W. Fitzwilliam's 2d prize coloured Dorking pullets, entered at 10*l.* 10*s.*, made 12*l.*; and the same gentleman's 1st prize coloured Dorking pullets, entered at 4*l.* 4*s.*, made 11*l.* Mr. White's 1st prize coloured Dorking cock, entered at 10*l.*, made 11*l.* 10*s.*; Mr. Heath's 2d prize Spanish hens, entered at 5*l.*, made 10*l.* 10*s.*; Mr. Anderson's 2d prize dark Bramah cockerel, entered at 4*l.* 4*s.*, made 9*l.* 10*s.*; and Mr. Heath's 2d prize Spanish cockerel, entered at 3*l.* 3*s.*, made 5*l.* 10*s.* A number of pens, on which no advance was offered, were knocked down at the catalogue price, as for instance, Mr. Tomlinson's dark Bramah cock, 10*l.* 10*s.*; the Hon. Miss Pennant's 1st prize Spanish hens, 10*l.* 10*s.*; Mr. Charlesworth's 1st prize black Polish cock, 10*l.* 10*s.*; Mr. Unsworth's 2d prize black Polish hens, 10*l.* 10*s.*; Messrs. Gunson & Jefferson's 4th prize buff Cochin cock, 8*l.* 8*s.*; Mr. H. Mappiebeck's 3d prize buff Cochin hens, 7*l.* 7*s.*; and Mr. Baldwin's 1st prize golden pencilled Hamburg cock, 6*l.* 6*s.*—*Midland Counties Herald.*

Talk about Fowls.—I have been breeding and rearing chickens nearly 25 years, and have paid considerable attention to them in every respect, and what I write is altogether my own observation and experience. I have never bred any but the game fowl, and have raised from 400 to 600 every year during the time. I have raised several different breeds, and think that all of them possess more or less good qualities. Change of Colour in Fowls.—I have had many of them to change from black, from red and from speckled to pure white, and to change without any cause. I have in my yard at the present time two pure white hens, with beak, legs and toes also white, that at one-year-old were red-breasted brown, the next year speckled—red and white—the next year white, and continue white. They were by a white legged, black breasted, red Earl of Derby cock, that I obtained of Sanford Howard, Esq., then of Boston, and bred from hens of the same illustrious breed, and very much in colour like a cock robin. I also bred from the same cock and hens a black red cock, that at one-year-old became red and white, except the breast, which was black and white. The next summer he became pure white; afterwards he was again a black-breasted red; then again a pure white. We have set numbers of the eggs of the two white Derby hens, and the cocks were always dark red, and the pullets similar in colour to a robin, which is near the colour of the pure Derby hen. The white cock never bred a white chick. I have set a number of the eggs from the hens that changed colour from black to spotless white, and the chicks were almost invariably black, or coloured after the cock, and never a white one. Two years ago I obtained a black red cock, with every feather tipped with white, and a blue hen, from which I raised a blue cock and a blue hen, and from the two I have raised a pure white cock, and, what surprises me, he breeds numbers of pure white chicks from hens of the same family as himself, and not one white one or one that is even light coloured from fowls of a different breed. Fowls eating their feathers.—I have never had my fowls to pluck the feathers from other fowls but one year, and some few last fall. Six years ago I bred from a black breasted grey cock, bred from stock that were said to have been imported from England; he was as bold, fine looking a cock as ever came out of an egg. Early in the spring, and at the time that I was breeding to him, the feathers of his neck, and similar coloured feathers of the rump, began to look frayed or worn about midway from the end and where they grow out of the chicken; in a few days they were breaking off, and then the hens began to pluck them from him, and he would stand as quietly as a pet pig when rubbed, and let them pluck them from him, as if he was desiring them to pluck them. I raised about 200 chickens from him, and intended saving 50 pullets to keep, as they were very thrifty and beauties; but late in the fall, near Christmas, their feathers began to fray, and appeared as if they had been almost scorched about midway of the feathers, and then broke off, and then the other pullets and hens began to pluck them off and eat them, and I never saw any of them that had the diseased feathers plucking feathers from others, but those that did it were not diseased, and their feathers never became diseased, and we had at least 100 other pullets, that were by another cock, and not one of them were affected in having their feathers diseased, nor a single old hen. The way that I bred from this grey cock, so that I could know his chickens certain: I put him and 12 hens off at a house on the farm, half a mile from my house, marked every egg, and then, when the chickens were hatched, as I put them from the nest, cut a certain web in the foot of every chicken, and never have eggs set except saved in that way. If I wish to raise from several cocks the same year, I walk them with from 6 to 12 hens, mark the eggs daily, and mark the chicks as hatched, and then record them as I do my Shorthorns, and I believe that I have learned a lesson in nature by breeding chickens in the particular manner that I have, that would take me a century or two in breeding blooded cattle or horses. Believing the plucking of feathers from these pullets was owing to the diseased feathers on them, and believing it hereditary, I killed off all of the pullets but one, and her neck feathers have been more or less diseased every year since, and two years ago I saved a cock from her, and bred a little to him last year; and near Christmas every pullet by him began to have diseased feathers, and the others then plucked them off, and I never saw one of them plucking at the feathers of the others, but seemed to enjoy having theirs pulled off. *American Paper.*

Miscellaneous.

Statistics of the Cattle Shows.—

1. AT THE AGRICULTURAL HALL.

Classes.	1855.	1856.	1857.	1858.	1859.	1860.	1861.	1867.
Devons	17	21	32	28	37	33	33	31
Herefords	20	21	36	26	18	17	15	37
Shorthorns	40	42	43	42	47	36	50	58
Sussex	—	—	—	—	15	15	15	17
Scotch horned	—	—	—	—	10	11	7	6
Scotch polled	16	13	—	—	13	5	7	15
Welsh	—	—	—	—	9	3	9	6
Cross breeds	7	12	64	35	17	19	8	16
Norfolk and Suffolk	—	—	—	—	4	4	4	5
Longhorns	—	—	—	—	4	3	4	6
Irish	—	—	—	—	1	1	1	5
Extra stocks, &c.	12	30	—	40	—	16	16	11
	112	139	176	171	175	163	169	213

2. BINGLEY HALL, BIRMINGHAM.

	1860.	1861.	1862.	1863.	1864.	1865.	1867.
Cattle	110	104	131	163	151	135	122
Sheep	42	66	110	92	104	90	82
Pigs	75	72	70	93	91	71	81
Roots	118	196	116	124	109	110	76
Corn	—	—	15	57	69	45	45
Poultry (pens)	1135	1397	1364	1505	1677	1676	2107
Pigeons	168	220	332	275	290	331	565
Total	1648	2055	2038	2309	2391	2458	3078

Preserved Milk as prepared by the Anglo-Swiss Company.—The article consists of milk, from which a considerable portion of the water has been evaporated to the consistency of honey, with the addition of pure sugar; no other foreign substance whatever is introduced. Milk is so cheap in Switzerland that there can be no advantage in adulterating it. The process is simply abstracting the watery particles from the milk, and the addition of the sugar. Upon the recommendation of Dr. Liebig Beet-root sugar is used, on the ground that its preservative qualities are as good, and the price cheaper than cane sugar; in saccharine properties it is stated to be equal to the other sugar. It is also more bulky, though a pound of Beet sugar contains as much saccharine matter as the same amount of cane sugar. The milk thus prepared after it has been open six months, is in no way spoilt, though dried to a great extent. It is neither sour, rancid, nor mouldy. Even a year after it has been made, it is in good condition and sound. It will bear the ordinary changes of temperature without injury. It is sold in canisters, which contain the equivalent of rather more than half-a-gallon of good milk, of about the quality of the best country milk. Dr. Liebig estimates that the addition of five parts of water will produce a quality equal to the original Swiss milk, and the richness is reduced according to the quantity of water added; whilst a smaller quantity of water makes it of the consistency of cream, and, indeed, the cream will rise to the top. The price of the canister is 1*s.* 3*d.*, which is equal to half-a-gallon of a very rich quality of milk. The canister probably costs a penny, and the duty is a penny per canister, which makes the price of the milk, as diluted for use, 6*d.* per quart. For each canister the quantity of sugar is about one-third of a pound, so that less sugar is required when it is used for domestic purposes. The quantity of sugar used in the preparation may be considered by some people objectionable, but when given to young children was beneficial. No doubt a smaller quantity of sugar would be sufficient to preserve the milk for a moderate time in a climate like that of England, but up to this time no difference in that respect has been made in the preparation, and a large quantity of the article is sent to warm climates. The reduction of the quantity below what is now employed might endanger the preservation of the article. Milk is sold in Switzerland by the maas, and 2½ maas are equal to our gallon. It is claimed for this milk that it is more wholesome as food for very young children than ordinary milk, on account of its invariably uniform quality; and this is not the case with dairy milk in this country, becase the milk of two cows is not of the same quality, and it varies at times in the same cow. In the manufacture of this article the milk is brought on men's shoulders and emptied into a large reservoir, and within one hour after the whole quantity is put under the process of condensation. The preparation of the milk takes place so quickly after its delivery at the works that no change could take place. The manufactory is situated on the Lake of Zug, a very short distance from Zurich. The government authorities there are very rigid in their measures with regard to adulteration of food, especially of milk. There have been several instances in which the milk sent by the farmers has been rejected by the managers of the works. Each farmer's milk is tested. A sample is set aside to see if the cream rises, in order that they might know he was not cheating them. The sale of the condensed milk is increasing in England. Last month there were sold for home use and shipping as many as 1250 dozen. The Peninsular and Oriental Company, the Royal Mail, and the Pacific Mail Companies use this milk on board their vessels. With regard to the desiccated milk, the globules are broken up, and it is no longer milk. All that is done with this milk by the Swiss Company's process is to deprive it of the water. Microscopic observation showed that the substance of the milk, after condensation, was unchanged, and analysis of the water abstracted from the milk showed that the original properties of the milk were all retained. After the milk has been placed in the vessel it is heated by steam, and the milk is evaporated *in vacuo* at a low temperature. The whole process is completed in about two hours. As soon as the gauge indicates that the evaporation is completed, the steam is turned off, and the mass of milk so heated is put into tins, and closed up, ready for use. *Mr. Merriam, of the Anglo-Swiss Company, before the Food Committee of the Society of Arts.*

Roquefort Cheese.—On one side of the plateau of Larzac, in the district of Aveyron, is a rock, called the Mountain of Cambalon; in this are numerous caverns, damp, but well ventilated, and here the conditions are exactly essential. Colder, it would chill the rich products of the Larzac pastures; warmer, it would injuriously accelerate their fermentation; more moist, it would waste them into Fungi; drier, it would kill their flavour. A cheese factory at Roquefort is called a cave. It is niched high up in the heart of the rocky tableland, where the sheep browse in artificial meadows, and herbs abound which are peculiarly beneficial to their milk, but where only the native flocks of the country flourish to perfection. Merino sheep from Spain have been introduced, and failed. The increased demand has tempted speculators to extend their operations, to no purpose. About 400,000 sheep and lambs appear to be all that Roquefort and its neighbourhood can sustain. You cannot multiply them, and you cannot add to the abundance of their pastures. They are milked twice a-day; the milk is instantly carried to the dairy and strained; it is left for an hour under a covering of linen; it is then warmed nearly to a boiling point, or to a middle degree; it is next partly skimmed for butter, and so forth, through many a delicate process, until it comes from the mould complete—complete, but not finished. For now the cheeses have to be turned over twice a-day, dried, warmed, sprinkled with bread crumbs, which produce a moist-like growth in them, or with powdered cheese or Wheat flour, and then inoculated by means of a bit of old cheese put into the new one to leaven it. After all this ceremony your Roquefort is ready for the cave, whither it is conveyed with the utmost care, not to say tenderness, is registered and received, is treated with a little salt, and disposed in piles of three. Aveyron and Herault, in the immediate vicinity, with natural caverns in abundance, have tried to imitate Roquefort, but the scent and flavour communicated by the Roquefort caves is inimitable. The cultivators of the district are calculated as gaining, from this single branch of industry, eight millions of francs a-year, and this briefly is the art and mystery of Roquefort cheese. *Standard.*

Receipts for Soup made with Extractum carnis.—Mullagatawny (for 2 quarts): Cut into dice

six Onions, 4 ounces of lean ham, and one Carrot. Melt 4 ounces of butter in a stewpan holding about 2 quarts; fry the ham, Carrot, and Onions, stirring them till they become slightly brown; add 4 ounces of best flour, and continue to stir for 10 minutes; now add three table-spoonfuls of curry powder, 1 Apple cut into thin slices, 2 quarts of Stock No. 1, and five teaspoonfuls of the extract of meat (1⅔ ounce); boil for one hour gently by the side of the fire; skim, and while boiling add a bunch of herbs, consisting of four sprigs of Parsley, 1 of Thyme, and 1 Bay-leaf; when done, rub through a tammy or hair sieve, heat till boiling, season according to taste, add the squeeze of a lemon, have ready some nicely boiled rice, and if convenient, serve with one piece of chicken to each person. Potage Julienne (for 2 quarts): Cut into fine shreds 1 inch in length, one Carrot, two Turnips, one head of Celery, four leaves of Lettuce, and half an Onion, and boil them in water for five minutes; strain and put them into a stewpan with a pinch of pounded sugar and a piece of butter the size of a Walnut; cover them down closely till they begin to brown; add 2 quarts of soup No. 8; boil till the vegetables are done, and serve. Pea and Barley Soup: Extract of meat 1 ounce, Pearl Barley ½ lb., split peas ½ lb., Onions 1 ounce, salt (according to taste) say 1½ ounce, pepper (according to taste) say 30 grains, water sufficient to make up to 1 gallon; soak the pearl barley and peas in water for 24 hours; then boil for four hours with the Onions (chopped fine), salt and pepper, and lastly dissolve the extract of meat in the boiling liquid. This is adapted as a cheap soup for distribution to the poor, and is stated to be nutritious and agreeable; it may be made richer and better adapted for family use by increasing the quantity of the extract of meat. The following Table for making this soup in various quantities may prove useful:—

To make	1 Gallon.	4 Gallons.	12 Gallons.	20 Gallons.	40 Gallons.
Take of					
Extract of meat	1 oz.	4 oz.	12 oz.	1¼ lb.	2½ lb.
Pearl Barley	½ lb.	2 lb.	6 lb.	10 lb.	20 lb.
Split Peas	½ lb.	2 lb.	6 lb.	10 lb.	20 lb.
Onions	1 oz.	4 oz.	12 oz.	1¼ lb.	2½ lb.
Salt (according to taste) say	1½ oz.	5 oz.	15 oz.	1¾ lb.	3 lb.
Pepper (according to taste) say	30 grs.	¼ oz.	¾ oz.	1¼ oz.	2½ oz.
Water, sufficient to make up to	1 gall.	4 galls.	12 galls.	20 galls.	40 galls.

—*Journal of Society of Arts.*

What is Technical Education?—It is the science of art and manufacture; it is the record of the handiwork of man; it is the knowledge of the processes followed in the industrial arts; and it is the perception of the application of science to the further development of the arts and manufactures. Technical education is intended to illustrate how man has, by the aid of his head and his hand, succeeded in fashioning the earth on which we tread, and utilising the products derived therefrom, so as to render the world more fitting for the abode of his fellow men. What the handiwork of man has already achieved, can in great part be read by us every day of our lives. Remove the emblems of the handiwork of man, and we erase the tokens of civilisation; the sites of our cities return to hill and dale; our seaports become once again the pebbly beach or the rocky strand; our agricultural fields return to the heath and the forest; and man, the animal, unclad, unhoused, and unprovided with a store of daily food, roams as a beast of prey in search of material whereby he may from day to day sustain his bodily frame. But the head and the hand of man have achieved much to render the world more fitting the abode of intelligence, and have provided not only the bare necessaries of life, but also its comforts and its pleasures. And, more than that, man has compelled the solid earth to yield up its treasures of coal, limestone, sandstone, and metals. The sea has been forced to give up its salts, and the plant has been coaxed to give increased supply of food, and clothing, and medicine, and the lower animals have been persuaded to be more and more helpful to man. *Introductory Lecture of Dr. MacAdam on Opening the Chemical Course at the Edinburgh School of Arts.* [The School of Arts was founded in 1821 "for the purpose of enabling industrious tradesmen to become acquainted with such of the principles of mechanics, chemistry, and other branches of science as are of practical application in their several trades, that they may possess a more thorough knowledge of their business, acquire a greater skill in the practice of it, and be led to improvement with a greater security of success." How far the school has succeeded in its object can be observed in various ways. In the first year the number of artizan students who attended the classes amounted to 418; in the first 14 years of its existence no less than 5574 different names were entered, whilst during its lifetime the number of artizans taught within its walls must have exceeded 20,000. Last year 748 names were on the roll of attendance.]

Notices to Correspondents.

THE IRISH MEASURE OF BARREL: *Cor.* We learn from the *Dublin Farmers' Gazette* that it is not a legal measure, but custom in Ireland defines it to contain four bushels. By the 5th Geo. 4th, c. 74, the imperial bushel for corn is declared to have a capacity of 2218.196 cubic inches, and that for lime to contain 2,815 cubic inches: it should be made round, with an even bottom 18 13-24th inches in the interior diameter, and 8 inches deep, and the goods to be measured, heaped in the form of a cone 6 inches deep; but the Act 5 and 6 Wm. 4th, c. 63, sec. 7, abolishes heaped measure. There is a discrepancy in this Act. The former Act declares the cubical contents of a bushel to be 2,815 cubic inches, which, we are of opinion, includes the heap; but the heap is abolished by that of Wm. 4th, and no provision made as to what the contents should be.

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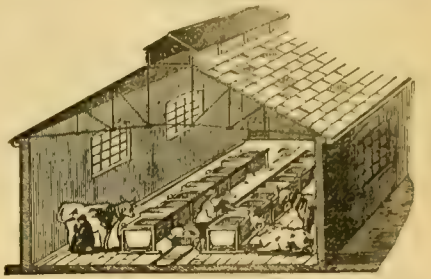
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CROGGON AND CO.,
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CAST IRON HAND-GLASS FRAMES (loose tops).—Prices: 14-inch, 4s.; 18-inch, 5s. 9d.; 20-inch, 6s. 6d.; 22-inch, 7s. 6d.; 24-inch, 8s. 6d. each. Twelve or more delivered free to any Station in England on receipt of Post Office order.
Catalogues on application.
J. JONES & SONS, 6, Bankside, London, S.E.

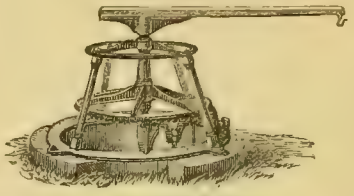
THE TANNED LEATHER COMPANY,
Armitt Works, Greenfield, near Manchester.
TANNERS, CURRIERS, & MANUFACTURERS of IMPROVED TANNED LEATHER DRIVING STRAPS for MACHINERY.
PRIME STRAP and SOLE BUTTS.
Price Lists sent free by post.
Warehouse: 81, Mark Lane, London, E.C.
Mr. H. FERRABEE, Agent.

COTTAM'S PATENT PORTABLE UNITED COW FITTINGS.

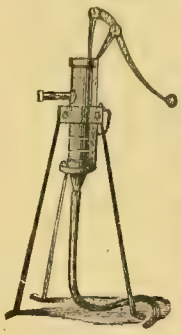


Their advantages are—Portability, not Fixtures, removable at pleasure, no Woodwork or Partitions to impede Ventilation or breed Vermin, Hay Rack dispensed with as unnecessary, increased width and depth of Feeding Troughs, Water Cistern, and Patent Drop Cover to prevent over-gorging. Cleanly, durable, and impervious to infection, being all of iron. Price of Fittings per Cow, 55s.
Prospectuses free of COTTAM & Co., Iron Works, 2, Winsley Street (opposite the Pantheon), Oxford Street, London, W., where the above are exhibited, together with several important Improvements in Stable Fittings just secured by Patent.

JOHN WARNER AND SONS,
BRASS and BELL FOUNDERS to HER MAJESTY,
HYDRAULIC ENGINEERS,
8, Crescent, Cripplegate, London, E.C.



GARDEN ENGINES, WATER BARROWS,



No. 42.

PORTABLE PUMPS for LIQUID MANURES.



DEEP WELL PUMPS, for Steam, Horse, or Hand Power.

CRYSTAL PALACE FIRE ENGINES



No 35.

CAST-IRON PUMPS.

Drawings and Prices for any description of Hydraulic Machinery sent upon application.

Oil Paint no longer Necessary.



HILL AND SMITH'S PATENT BLACK VARNISH for preserving Iron Work, Wood, or Stone. This Varnish is an excellent substitute for oil paint on all out-door work, and is fully two-thirds cheaper. It may be applied by an ordinary labourer, requires no mixing or thinning, and is used cold. It is used in the grounds at Windsor Castle, Kew Gardens, and at the seats of many hundreds of the nobility and gentry, from whom the most flattering testimonials have been received, which HILL & SMITH will forward on application.

From RICHARD HEMMING, Esq., *Bordesley Park, Worcestershire.*

"Gentlemen,—I have great pleasure in stating that I highly approve of your Black Varnish, as a substitute for paint for farm buildings, barn doors, gates, and especially when the wood has been previously painted in the usual way a few years before; in this particular case it leaves a very nice glazed surface, than which nothing could be better. The same observation also applies to ironwork of every description, such as iron hurdles, &c. The Wrought-iron Barrow with apparatus for heating gas tar has been found most useful, and so great a convenience do I consider it that I shall beg you to send me another, as well as a cask of the Black Varnish, for the use of the property which I have in Warwickshire. Please to send the whole by the same conveyance as before."

Sold in casks of about 30 gallons each, at 1s. 6d. per gallon, at the Manufactory, or 1s. 8d. per gallon paid to any Station in the Kingdom.

Apply to HILL & SMITH, Brierly Hill Iron Works, near Dudley, and 22, Cannon Street West, E.C., from whom only it can be obtained

"Every Cottage should be provided with a Water Tank." *Disraeli.*

Iron Cisterns.

F. BRABY AND CO. having laid down extensive and Improved Machinery in their new range of buildings, IDA WHARF, DEPTFORD, are now prepared to supply WROUGHT-IRON TANKS, GALVANISED, or PAINTED, of superior quality, at reduced prices, and at very short notice.



F. BRABY & Co., Limited, Fitzroy Works, Euston Road, London, or through all respectable Ironmongers.

JAMES PHILLIPS AND CO.
beg to submit their prices as follows:—
GLASS for ORCHARD HOUSES,
As supplied by them to Mr. Rivers, to the Royal Horticultural Society, and to most of the Nobility, Clergy, and Gentlemen of the United Kingdom.
Each Box contains 100 feet. The prices only apply to the sizes stated.
Squares 20 by 12, 20 by 13, 20 by 14, 20 by 15.

	16 oz. to the foot.	21 oz.
Fourth quality	15s. 0d.	19s. 6d.
Third ditto	17s. 0d.	22s. 6d.
Seconds	18s. 6d.	26s. 0d.
English	20s. 0d.	27s. 0d.

The above prices include the boxes, which are not returnable.
HORTICULTURAL GLASS.
Stock sizes, 16-oz., in 100 feet boxes, boxes included.
These prices only apply to the sizes stated.

				4ths.	3rds.	2nd.
				s. d.	s. d.	s. d.
11 by 9	12 by 9	13 by 9	14 by 9	13 6	15 6	17 0
12 „ 10	13 „ 10	14 „ 10	15 „ 10			
13 „ 11	14 „ 11	..	..			
14 „ 12	15 „ 12	15 „ 11	16 „ 11			
18 „ 12	19 „ 12	16 „ 12	17 „ 12			
16 „ 13	17 „ 13	20 „ 12	..	15 0	17 0	18 6
16 „ 14	20 „ 13	18 „ 13	..			
	17 „ 14	18 „ 14	..	16 to 17 oz. to the foot.		
	20 „ 14					

SMALL SHEET SQUARES.
In 100 feet Boxes.

6 by 4	6½ by 4½	7 by 5	7½ by 5½ .. 12s. 6d.
8 by 6	8½ by 6⅔	9 by 7	9½ by 7½ ..
		10 by 8	10½ by 8½ .. 13s. 6d.

Boxes 2s. each returnable at full price.
London Agents for HARTLEY'S IMPROVED PATENT ROUGH PLATE.
LINSEED OIL, Genuine WHITE LEAD, CARSON'S PAINTS, PAINTS of various colours, ground ready for use.
SHEET and ROUGH PLATE GLASS, SLATES of all sizes, BRITISH PLATE, PATENT PLATE, ROLLED PLATE, CROWN SHEET, HORTICULTURAL, ORNAMENTAL, COLOURED, and every description of GLASS, of the best Manufacture, at the lowest terms. Lists of prices and estimates forwarded on application to
JAMES PHILLIPS & Co. 180, Bishopsgate Street Without, E.C.

Horticultural Glass Warehouse.

THOMAS MILLINGTON AND CO.,
87, Bishopsgate Street Without, London, E.C.
NEW LIST for ORCHARD HOUSE GLASS as supplied to Her Majesty, the Nobility, Gentry, Mr. Rivers, and the leading Horticulturists of the United Kingdom.
ORCHARD HOUSE SIZES.

in. in.		4ths.	3rds.	2nds.	Best.
20 by 12					
20 by 13					
20 by 14	Per 100 feet 15 oz.	14s 3d	15s 6d	18s 6d	20s 0d
20 by 15	21 oz.	19s 6d	22s 2d.	25s 6d	29s 6d
20 by 16					

SMALL SHEET SQUARES, 15 oz., per 100 feet.

in. in.	in. in.	in. in.	in. in.	4ths.	3ds.	2nds.	Best.
6 by 4	7 by 5	8 by 6	9 by 7	12s 3d	13s 3d	16s 0d	18s 0d
6½ by 4½	7⅞ by 5½	8½ by 6½	9½ by 7½				

Per 100 feet.

10 by 8	12 by 9	12½ by 10½	14½ by 10½	13s 3d	14s 6d	17s 3d	19s 0d
10½ by 8½	12½ by 9½	13 by 10	15 by 10				
11 by 9	13 by 9	13½ by 10½	13 by 11				
11½ by 9½	12 by 10	14 by 10	14 by 11				

LARGE SHEET SQUARES, 15 oz., per 100 feet.

in.	in. in.	in. in.	in. in.	4ths.	3ds.	2nds.	Best
15½ by 10½	14 by 12	22 by 12	22 by 16				
16 by 10	14½ by 12½	17 by 13	24 by 16				
14½ by 11½	15 by 12	23 by 13	20 by 17				
15 by 11	15½ by 12½	18 by 14	22 by 17				
15½ by 11½	16 by 12	22 by 14	24 by 17	14s 3d	15s 6d	18s 6d	20s 0d
16 by 11	16½ by 12½	24 by 14	20 by 18				
21 by 11	17 by 12	22 by 15	22 by 18				
13 by 12	18 by 12	24 by 15	24 by 18				

The above Prices are only for the Sizes stated; if a quantity of any other Size be required, a Special Price will be given.
SHEET GLASS.
In Sheets for Cutting up, averaging from 6 to 9 feet super.

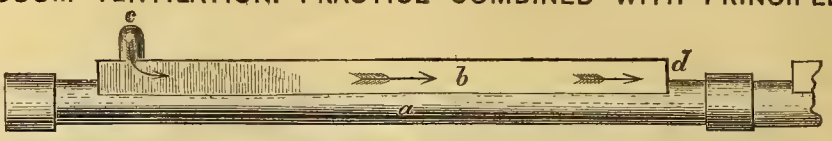
15 oz.		21 oz.	
4ths quality, per 300 feet case,	38s.	4ths quality, per 200 feet case,	38s.
3ds „ „	48s.	3ds „ „	48s.
2ds „ „	62s.	2ds „ „	66s.
Best „ „	92s.	Best „ „	96s.

SHEET GLASS is made only in the following substances, 15 oz., 21 oz., 26 oz., 32 oz., 36 oz., and 42 oz.
HARTLEY'S IMPROVED ROLLED ROUGH PLATE in 1-8th in., 3-16th in., 1-4th in., and 3-8th in. substances.
BRITISH PLATE GLASS for Windows and Silvered for Looking Glasses, Coloured Glass, Glass Shades, Striking Glasses, &c., &c.
PAINTS, COLOURS, VARNISHES, &c.
STUCCO PAINT, 24s. per cwt. This Paint adheres firmly to the walls, resists the weather, and is free from the glossy appearance of Oil Paint, resembling a stone surface, and can be made any required shade. It is mixed with rain or pure river water.
WHITE ZINC PAINT, 36s. per cwt. One hundredweight of pure Zinc Paint, with three gallons of Linseed Oil, will cover as much as one hundredweight and a half of White Lead and six gallons of Linseed Oil. Special Dryers for this Paint.
IMPROVED ANTI-CORROSION PAINT, 28s. to 34s. per cwt. Anti-corrosion Paint is extensively used for all kinds of work in exposed situations, on Brick, Stone, Compo, Iron, Iron Bridges, Conservatories, Greenhouses, &c., and is easily laid on by any ordinary workman. Prepared Oil for ditto 4s. per gallon.

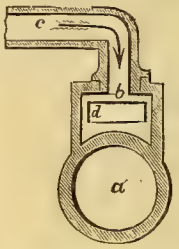
Per cwt.—s. d.		Per gallon.—s. d.	
GENUINE WHITE LEAD	32 0	LINSEED OIL	3 4
SECONDS WHITE LEAD	30 0	BOILED OIL	3 9
GROUND PATENT DRYERS, 3d. to 4½d. per lb.		TURPENTINE	3 0
„ OXFORD OCHRE, 3d. to 4½d. per lb.		LINSEED OIL PUTTY, 8s. to 9s. per cwt.	
RAW UMBER, 4½d. to 6d. per lb.		Fine OAK VARNISH, 10s. to 12	0
„ BURNT do., 6d. to 9d.		„ CARRIAGE do., 12s. to 14	0
GREEN PAINT, all shades, 28s. to 60	0	„ PAPER do. 10s. to 12	0
BLACK PAINT, 24s. to 30	0	„ COPAL	16 0
RED PAINT .. 28s. to 36	0	KNOTTING	10 0
		Patent GOLD SIZE ..	10 0
		„ BLACK JAPAN ..	13 0
GROUND BRUSHES.		GLAZIER'S DIAMONDS and TOOLS	
DUSTERS. | SASH TOOLS.		MILLED LEAD and PIPES	
DISTEMPER BRUSHES.		OLD LEAD Bought or taken in exchange.	

The above are Net, for Cash, and as such cannot be booked.
Lists of any of the above on application.

VACUUM VENTILATION.—PRACTICE COMBINED WITH PRINCIPLES.



TAYLOR'S PATENTED COMBINATION SYSTEM
OF
WARMING, MOISTENING, and INTERCHANGING the ATMOSPHERE
of PUBLIC and PRIVATE BUILDINGS, &c.



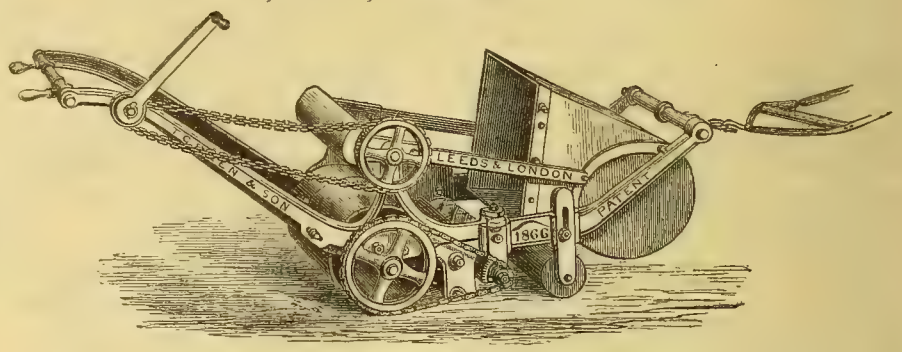
The principles of Vacuum Aëration are practically solved and simplified for all descriptions of Buildings, and especially suited to the Structural and Climatic requirements of Horticulture by an economical adaptation of the ordinary Hot-water Apparatus of main circulation, *i. e.*, by the new COMBINED HEATING, VENTILATING, and VAPOURISING PIPE, figured and described in *Gardeners' Chronicle*, No. 50, 1867.

Present reference,
MR. GEO. TAYLOR, No. 49, DOUGHTY STREET, LONDON, W.C.

GREEN'S PATENT SILENS MESSOR,
OR NOISELESS LAWN MOWING, ROLLING, AND COLLECTING MACHINES.
FITTED WITH PATENT SELF-SHARPENING CYLINDER CUTTERS.

They are the simplest in construction, least liable to get out of order, and can be worked with far greater ease than any other Lawn Mower extant.
GREEN'S PATENT LAWN MOWERS have proved to be the best, and have carried off every Prize that has been given in all cases of competition; and in proof of their superiority, 40,000 have been sold since the year 1856.

HORSE, PONY, AND DONKEY MACHINE.



Every Machine is warranted to give entire satisfaction, and if not approved of can be returned at once unconditionally.
T. GREEN AND SON *have to state that the demand for their* LAWN MOWERS *this Season has been unprecedented, which is a proof of the high estimation in which they are held. Selections can be made from their Stock both in London and Leeds.*
☞ ILLUSTRATED PRICE LISTS FREE ON APPLICATION.
THOMAS GREEN AND SONS, SMITHFIELD IRON WORKS, LEEDS; and
54 and 55, BLACKFRIARS ROAD, LONDON, S.



SHANKS'
PATENT LAWN MOWERS,
AWARDED THE
FIRST PRIZE SILVER MEDAL
OF THE
UNIVERSAL EXHIBITION, PARIS, 1867.



ALEX. SHANKS AND SON have received official intimation that the Jury at the Paris Exhibition have AWARDED them the FIRST PRIZE SILVER MEDAL for their PATENT LAWN MOWERS.
A. S. AND SON, judging from the fact, that out of all the Lawn Mowers in the Exhibition, their Machines have been the only Lawn Mowers deemed worthy by the Jury to receive so distinguished an honour, are gratified to find in this a further proof that the efforts they have made to improve their Machines have always been in the right direction. The demand for SHANKS' MACHINES increases year by year, and during the past season it has increased very considerably. A. S. AND SON having had so long an experience in this Trade, can confidently guarantee their Machines to be unequalled by any before the Public.
☞ *Every Machine warranted to give satisfaction, and if not approved of can be at once returned.*
ILLUSTRATED PRICE LISTS SENT FREE ON APPLICATION.
ALEX. SHANKS AND SON, DENS IRON WORKS, ARBROATH.
LONDON OFFICE AND SHOW ROOMS, 27, LEADENHALL STREET, E.C.

27, *Leadenhall Street is the only place in London where intending Purchasers of Lawn Mowers can choose from a Stock of from* 150 *to* 200 *Machines.* A. S. AND SON *have a staff of efficient Workmen at* 27, *Leadenhall Street, thoroughly acquainted with all the details of these Machines, so that they are enabled to repair them in London as well as can be done at their Manufactory.*

HOTHOUSES for the MILLION, CHEAP, PORTABLE, and EASILY FIXED.

SPAN-ROOFS (over 15 feet long), glazed and painted three coats, with complete ventilation all over roof, necessary water gutters and ironwork, exclusive of ends, put on Rail in London, Gloucester, Coventry, Ulverstone, Paisley, or Aberdeen; 10 to 16 feet wide *inside*, at 10*s.* to 24*s.* per foot run. Illustrated Circulars, with *definite prices* and sizes, free on application to

Hereman & Morton, 7, Pall Mall East, London, S.W.

Heating Apparatus.

J. MEREDITH continues to supply and fix HOT-WATER APPARATUS in VINERIES, and every description of HOTHOUSES, BUILDINGS, &c.

The Vineyard, Garston, near Liverpool.

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TWO HUNDRED CUCUMBER and MELON BOXES and LIGHTS, and from 400 to 600 LIGHTS for PITS of all SIZES kept in STOCK, Glazed and Painted complete, ready for immediate use. Packed and sent to all parts of the kingdom. Public and Private Buildings, Warehouses, &c., heated on the most approved scientific and economical principles. References to the Nobility, Gentry and Trade in most of the Counties in England.

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W. J. HOLLANDS, Iron Merchant, 31, Bankside, London, S.E.

HOT WATER PIPES, from Stock, per yard:—2-inch, 1*s.* 1½*d.* 3-inch, 1*s.* 9*d.*; and 4-inch, 2*s.* 3*d.* BENDS, from Stock, 1*s.* 6*d.*, 2*s.* 6*d.*, and 3*s.* each. THROTTLE VALVES, 10*s.*, 13*s.*, and 14*s.* each. Other Connexions at equally low prices, and all goods of first-class manufacture. Estimates given, and orders by post punctually attended to the same day.

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HOT-WATER PIPES, at Wholesale Prices, with Elbows, Syphons, Tee-Pipes, and every other connection; Wrought and Cast-iron Boilers, Saddle, Conical, Cylinder, Tubular, and Elliptic, from 24*s.* each. Improved Boilers and Iron Stands to use without brickwork, 60*s.* each. Valves from 10*s.* 6*d.* each. Patent Valves, Improved Furnace Doors, Furnace Bars, Supply Cisterns, and Castings of every description in stock, at

Mr. Lynch White's Iron Wharf, Upper Ground Street, Blackfriars Bridge, London, S. Price List on application.

Cheap Greenhouse Stoves.

DEANE AND CO.'S Patent VENTILATING and SUSPENSION STOVES are simple, cheap, and efficient; have been largely adopted and approved; will burn many hours without attention, and at a small cost for fuel. Prices of Suspension Stoves, 20*s.*, 30*s.*, 38*s.*, and upwards. Ventilating Stoves, 60*s.*, 60*s.*, 70*s.*, 90*s.* HOT-WATER APPARATUS for Conservatories, Greenhouses, Hothouses, Forcing Pits, &c., erected and fitted up complete.

Deane & Co., 46, King William Street, London Bridge, E.C. Established A.D. 1700.

COTTAM AND COMPANY, Conservatory and Hothouse Builders, &c., Iron Works, 2, Winsley Street, Oxford Street, London, W.

SADDLE BOILERS.

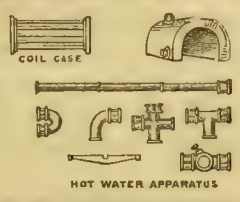
20	24	30 inches long.
45*s.*	65*s.*	92*s.* 6*d.* each.

HOT-WATER PIPES.

2	3	4 inch.
1*s.* 6*d.*	2*s.* 1*d.*	2*s.* 9*d.* per yard.

Materials supplied as above, or Estimates given fixed complete to Plan, on application to

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MOULE'S WARMING APPARATUS.—The best and most economical system of Warming Churches, Schools, Hothouses, and all large Buildings. Apply to

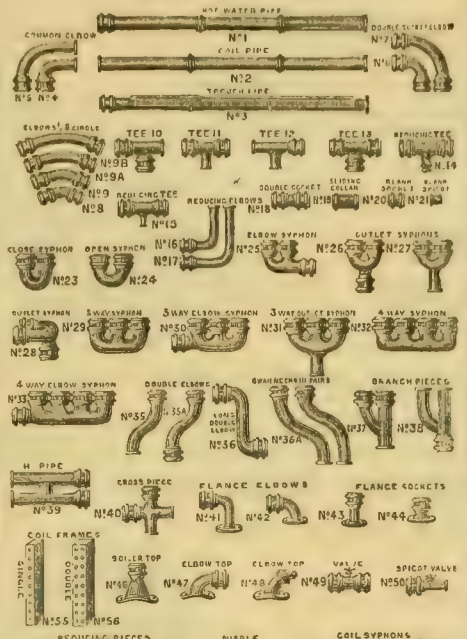
J. W. Girdlestone, C.E., 31, Duke Street, Westminster, S.W.

HOT-WATER APPARATUS, of every description, fixed complete in any part of the country, or the materials, viz., Boilers, Pipes, &c., delivered to any Station.

Estimates on application.

J. Jones & Sons, 6, Bankside, Southwark, London, S.E.

Hot-Water Apparatus.



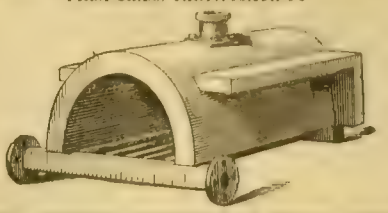
J. JONES AND SONS have the largest Stock of HOT-WATER PIPES and CONNECTIONS, with WROUGHT and CAST IRON SADDLE, CANNON, and CYLINDER BOILERS, PORTABLE BOILERS, &c., and they will be happy to forward Prices for same either at the Wharf in London, or delivered free to any Station or Shipping Port in the United Kingdom.

J. Jones & Sons, Iron Merchants, 6, Bankside, Southwark, London.

*** Hot-water Apparatus erected complete.

Great Flower Show, Manchester, June, 1867.

FIRST-CLASS CERTIFICATE TO



THE PATENT TERMINAL SADDLE BOILER, with following note:—

"The Judges consider this one of the most powerful and useful Boilers for general purposes."

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Journal of Horticulture.—"T. Jones's Terminal Boiler was considered by the judges the best of all exhibited on this occasion"—*J. Wills.*

J. Ireland, Edward Street, Broughton Lane, Manchester.

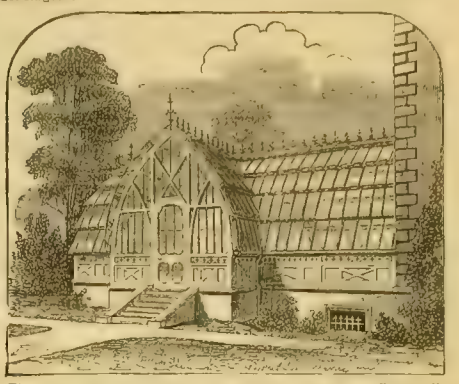
CRANSTON'S PATENT BUILDINGS for HORTICULTURE.

"Dry Glazing without Putty."

"Glass without Laps."

"Ventilation without Moving Lights."

Highly Commended by the Royal Horticultural Society, South Kensington.



Plans and Estimates free on application. Descriptive Book fully illustrated, post free for 20 stamps, from the Author and Patentee, James Cranston, Architect, Birmingham.

Works: Highgate Street, Birmingham.

Henry J. Growtage, Manager, 1, Temple Row West, Birmingham.

Greenhouses—Heating Apparatus.

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STRAWBERRY HOUSES
VINERIES
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WALL-TREE COVERS
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ORCHARD HOUSES
PATENT SUN-BLINDS & FROST PROTECTORS, with various Patented Improvements in the CONSTRUCTION
VENTILATION
HEATING
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12 Tea Spoons	0 16 0	1 0 0	1 2 0	1 5 0
6 Egg Spoons, gt. bowls	0 10 0	0 12 0	0 12 0	0 13 6
2 Sauce Ladles	0 6 0	0 8 0	0 8 0	0 9 0
1 Gravy Spoon	0 6 6	0 9 0	0 10 0	0 11 0
2 Salt Spoons, gt. bowls	0 3 4	0 4 0	0 4 0	0 4 6
1 Mustard Spoon, gt. bwl.	0 1 8	0 2 0	0 2 0	0 2 3
1 Pair of Sugar Tongs	0 2 6	0 3 6	0 3 6	0 4 0
1 Pair of Fish Carvers	1 4 0	1 10 0	1 10 0	1 10 0
1 Butter Knife	0 2 6	0 4 0	0 5 6	0 6 0
1 Soup Ladle	0 10 0	0 12 0	0 16 0	0 17 0
1 Sugar Sifter	0 3 3	0 4 6	0 4 6	0 5 0
Total	9 19 9	12 9 0	13 9 6	14 17 3

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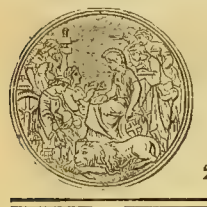


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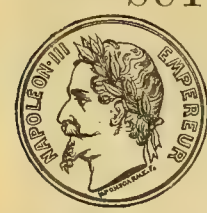
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